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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 90

NO 1 THRU 13

JAN - MAR - 1900

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XC.

JANUARY 2 TO MARCH 27, INCLUSIVE,

1900.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1900.

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INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, JANUARY TO MARCH, 1900.

ERRATA.

640,698, page 199, in heading, after residence of patentee, insert *assignor to the Air-Lighter Company, of New York.*

641,152, pages 395-396, strike out all after number—heading, drawing, and claims—and insert CANCELED.

641,778, page 643, in heading, assignment, name and residence of assignee, for the "Raymond Button Company, same place" read *Raymond Button Company of Baltimore City, of Maryland.*

641,792, page 648, eighth claim, line 10, after the word "end" insert the word *held.*

642,042, page 734, in heading, name of second-mentioned patentee, for "Eduard A. Griffiths" read *Edward A. Griffiths.*

642,216, page 819, in heading, assignment, name of assignee, for "Esmond Electric Traction and Signalling Company" read *Esmond Electric Traction and Signal Company.*

642,241, page 827, first claim, line 4, for the word "over" read *other.*

642,546, page 938, in heading, after residence of patentee, insert *assignor to the Locomotive Smoke Preventer Company, New York, N. Y.*

643,128, page 1183, in heading, name of patentee, for "Carl A. V. Hallgren" read *Carl A. V. Hällgren.*

643,842, page 1456, in heading, assignment, name of first-mentioned assignee, for "Roderick R. Andrus" read *Roderick K. Andrus.*

643,859, page 1462, strike out all after number—heading, drawing, and claims—and insert CANCELED.

644,045, page 1545, in heading, date of application filed, for "Dec. 29, 1898" read *Dec. 27, 1898.*

644,535, page 1720, first claim, line 4, for the word "jaws" read *door.*

644,647, page 1787, seventh claim, line 14, for the word "earth" read *each.*

644,756, page 1825, in heading, residence of patentee, for "Newbury, Mass." read *West Newbury, Mass.*

645,050, page 1936, in heading, assignment, name of assignee, for "Garbeil Bros." read *Garbeil Bros. Co.*

645,719, page 2210, thirteenth claim, line 3, strike out the hyphen between the words "outlet" and "opening."

646,123, page 2377, first claim, line 2, for the word "sewed" read *served.*

646,390, page 2490, ninth claim, line 6, for the word "tappet" read *tapped.*

32,298, (Design,) page 1737, in heading, after residence of last-mentioned patentee, insert *assignors to the American Type Founders' Company, New York, N. Y.*

Commissioner's Decisions, page 960, second column, first syllabus, line 1, for "Letters Patent No. 790,963" read *Letters Patent No. 407,963.*

Commissioner's Decisions, page 1157, first column, at head of decision, for "Greeley, Acting Commissioner" read *Greeley, Assistant Commissioner.*

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(None.)

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY—MARCH, 1900.

Patents No. 640,167 to 640,780.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 1. TUESDAY, JANUARY 2, 1900 PRICE—$5 per year.

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DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 19, 1899.

SIR: The Secretary of the Interior has ordered that E. Bee Guthrey, of Perry, Okla., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 19, 1899.

SIR: The Secretary of the Interior has ordered that Benjamin F. Harrison, of Nashville, Tenn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

CERTIFICATES OF REGISTRATION ISSUED JANUARY 2, 1900

Labels.

7,272.—Title: "THE TRUE AMERICAN." (For Axes.) *William H. Mann*, Mill Hall, Pa. Application filed November 14, 1899.

7,273.—Title: "MONTE CARLO SOLITAIRE." (For a Puzzle.) *The Solitaire Co.*, Alliance, Ohio. Application filed December 9, 1899.

7,274.—Title: "BURDSAL." (For a Medicine.) *Odomar K. Theobald*, Cincinnati, Ohio. Application filed December 4, 1899.

7,275.—Title: "MICHALE LOUIS QUICK HERB CURE." (For a Medicine.) *Michel Louis*, Washington, D. C. Application filed December 7, 1899.

7,276.—Title: "MICHALE LOUIS QUICK PAIN KILLER." (For Liniment.) *Michel Louis*, Washington, D. C. Application filed December 7, 1899.

7,277.—Title: "ORIENTAL ALMOND CREAM." (For a Lotion.) *The Graham Chemical Co.*, Baltimore, Md. Application filed December 6, 1899.

7,278.—Title: "CARVEL." (For Whisky.) *The Bokel Grynn McKenney Co.*, Baltimore, Md. Application filed December 11, 1899.

7,279.—Title: "DR. RUSSELL'S OLD DUTCH MEDICATED GIN." (For Bottled Gin.) *The Dr. Russell Medicine Company*, Chicago, Ill. Application filed November 23, 1899.

7,280.—Title: "FROM BEAN TO CUP." (For Cocoa and Chocolate.) *Huyler's*, New York, N. Y. Application filed December 7, 1899.

7,281.—Title: "WINOLA." (For Canned Goods.) *Whiteman & Patterson*, Wilkes-Barré, Pa. Application filed November 28, 1899.

7,282.—Title: "IDLEWILD." (For Canned Goods.) *Whiteman & Patterson*, Wilkes-Barré, Pa. Application filed November 28, 1899.

7,283.—Title: "DOTEIN BROTHERS FAMILY SOAP." (For Soap.) *Fidanque, Nieto & Co.*, New York, N. Y. Application filed December 11, 1899.

7,284.—Title: "DOTEIN BROTHERS FAMILY SOAP." (For Soap.) *Fidanque, Nieto & Co.*, New York, N. Y. Application filed December 11, 1899.

7,285.—Title: "DOTEIN BROTHERS FAMILY SOAP." (For Soap.) *Fidanque, Nieto & Co.*, New York, N. Y. Application filed December 11, 1899.

7,286.—Title: "DOTEIN BROTHERS FAMILY SOAP." (For Soap.) *Fidanque, Nieto & Co.*, New York, N. Y. Application filed December 11, 1899.

7,287.—Title: "HEALIO SOAP." (For Soap.) *Willard R. Goodsell*, Westfield, N. J. Application filed December 9, 1899.

7,288.—Title: "HEALIO SOAP." (For Soap.) *Willard R. Goodsell*, Westfield, N. J. Application filed December 9, 1899.

7,289.—Title: "J. H. KELLER'S O. G. SOAP." (For Soap.) *J. H. Keller's Soap Works*, New Orleans, La. Application filed December 11, 1899.

Print.

196.—Title: "STANDARD VARNISH WORKS." (For Varnishes.) *Standard Varnish Works*, New York, N. Y. Application filed December 6, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 26, 1899.

No. in No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
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Under one month.			
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†Trade-Marks	Dec. 18	Dec. 18	25
‡Labels and Prints	Dec. 21	Dec. 21	10

ISSUE OF JANUARY 2, 1900.

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Trade-Marks	57—No. 33,957 to No. 34,013,	inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada		
Arizona Territory			New Hampshire	2	
Arkansas	1		New Jersey	15	7
California	17		New Mexico Territ'y		
Colorado	8		New York	75	19
Connecticut	13		North Carolina	1	
Delaware			North Dakota		
District of Columbia	4	2	Ohio	41	5
Florida			Oklahoma Territ'y	2	
Georgia	7	1	Oregon	3	1
Hawaii			Pennsylvania	78	12
Idaho	2		Rhode Island	4	2
Illinois	58	1	South Carolina	1	
Indian Territory			South Dakota		
Indiana	21	1	Tennessee	2	
Iowa	14	2	Texas	5	
Kansas	8		Utah	2	
Kentucky	9		Vermont	2	
Louisiana	6	1	Virginia	10	
Maine	6	1	Washington	5	
Maryland	2	2	West Virginia	3	1
Massachusetts	27	3	Wisconsin	13	1
Michigan	17	2	Wyoming		
Minnesota	14		U. S. Army	1	
Mississippi			U. S. Navy		
Missouri	16	1	Total to citizens of the United States	519	65
Montana					
Nebraska	6				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	1	
Australia			Japan		
Austria-Hungary	1		Jamaica		
Barbadoes			Mexico	1	
Belgium			Netherlands	1	
Bermuda			Newfoundland		
Brazil			New South Wales	1	
Canada	10	1	New Zealand		
Cape Colony	1		Norway	1	
China	1		Queensland		
Colombia			Russia	1	
Cuba			Scotland	1	
Denmark			South African Republic		
Dutch West Indies			Sweden	1	
Egypt			Switzerland	3	
England	15	7	Tasmania		
Finland			Victoria	3	
France	5	1	Western Australia		
Germany	20	2	Total to citizens of foreign countries	68	11
Guatemala					
India					
Ireland	1				

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GRANTED JANUARY 2, 1900.

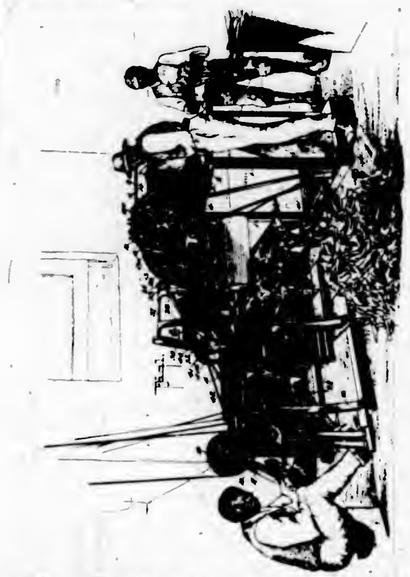
640,167. WASHING-MACHINE. LOUIS ALLARD, Ogden, Utah. Filed May 6, 1897. Serial No. 635,322. (No model.)



Claim.—1. In a washing-machine, a removable bottom composed of the following parts: a series of separate individual ribs, a wire extending over the top and down the sides of each rib forming loops in its lower portion, a strengthener having perforations through which said loops pass, and a rod extending through said loops, all arranged as set forth.

2. In washing-machines, a removable bottom composed of the following parts: a series of separate individual ribs, a wire extending over the top and down the sides of each rib forming loops in its lower portion, metal strips having perforations through which the said loops pass, and a longitudinal rod extending through said loops, all arranged as set forth.

640,168. TOBACCO-LEAF-STEMMING MACHINE. ALPHONSO R. ALLISON and CHARLES E. BUNN, Richmond, Va., assignors to the Universal Stripping Machine Company, same place. Filed Jan. 23, 1899. Serial No. 703,119. (No model.)



Claim.—1. The combination in a machine as described with the wiping mechanism, the supplemental rolls and the rotary carrier, said carrier having its stem-clamping means arranged to disengage from the stem as the supplemental rolls take it; of means for deflecting the stem as it passes from the supplemental rolls and conveying it to one side of the machine.

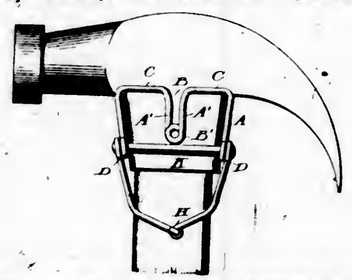
2. In combination with the wiping mechanism; the supplemental draw-rolls; a rotary carrier, said carrier being arranged to release the stems as they are gripped by the supplemental rolls; of means for deflecting the stripped-leaf particles to one side of the machine, and devices for discharging the stems as they leave the supplemental rolls to the opposite side of the machine.

3. The combination with the wiping mechanism, the carrier and the supplemental rolls, said carrier having its grippers arranged to release the stems as they are engaged by the supplemental rolls; of a take-off apron movable outward from the supplemental rolls, and devices for deflecting the stems into the apron as they leave the said rolls.

4. The combination with the wipers, the rotary carrier and the supplemental rolls arranged substantially as described; of an endless apron 30, and the transverse traveling stripper-chain 33, having fingers to engage the stems as they pass up from the supplemental rolls, as specified.

5. In a tobacco-leaf-stripping machine, the combination with the leaf-carrier, including grip members having clamping-jaws formed with inclined faces, and means for opening the jaws at predetermined intervals; of a cleaner device for engaging the jaws, said cleaner device comprising a rotary body held so its peripheral edge rotates between the jaws of the carrier, said rotary body having inclined faces adapted to brush against the inclined faces of the clamp-jaws, as specified.

640,169. NAIL-HOLDING DEVICE. WILLIS R. BARGAR, Carbondale, Pa. Filed July 20, 1899. Serial No. 724,484. (No model.)



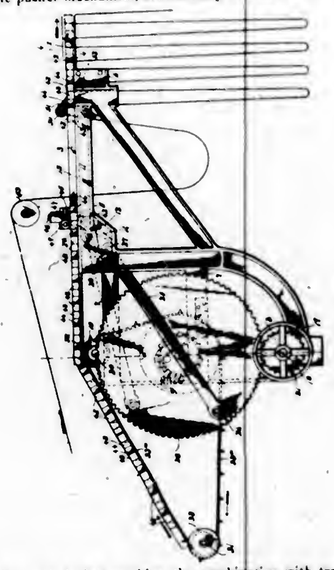
Claim.—1. A device for holding nails to hammer-heads, consisting of a wire which is bent to form a nail-receiving slot, said wire thence being bent to form two sets of eyes, rods mounted in said eyes, adapted to be held one on each side of the handle of a hammer, and the ends of said wires being hooked and adapted to be sprung over the handle and interlocked, as shown and described.

2. A nail-holding device for hammer-heads, consisting of a wire which is bent to form a V-shaped slot, thence bent to form two pairs of eyes, and the rods held in said eyes parallel to each other, and at right angles to the nail-carrying slot, the ends of said wire being thence downwardly bent and having hooks whereby when the device is placed upon the handle of a hammer, said ends may be interlocked and the tension of the spring-arms when interlocked may cause the nail-slot to bear against the face of the hammer, as set forth.

640,170. WEB-DRYING MACHINE. WILSON B. BARLOW, Canton, N. Y. Filed Aug. 13, 1898. Serial No. 688,506. (No model.)

Claim.—1. In a web-drying machine, the combination with track-rails, and carrier-bars, of a reciprocatory pusher mechanism guided to travel in horizontal and inclined paths, an intermittent carrier-bar-feed mechanism operable to deposit the carrier-bars in the horizontal plane of the track-rails and in the path of the pusher mechanism as it begins its travel in a path parallel to the plane of the track-rails, means for actuating the carrier-bar-feed mechanism intermittently and during the travel of the pusher mechanism from its delivery position to

its initial position, and a web-feed mechanism to interpose a web in the path of the carrier-bars as the latter are advanced on the track-rails by the pusher mechanism, substantially as described



2. In a web-drying machine, the combination with track-rails, and a plurality of carrier-bars, of a reciprocatory pusher mechanism guided to travel in horizontal and inclined paths, an intermittent endless carrier-bar-feed mechanism arranged to deposit carrier-bars successively on the track-rails and in the path of the pusher mechanism, means for continuously propelling the pusher mechanism, an intermittent mechanism actuated by the pusher-propelling mechanism to propel the carrier-bar-feed mechanism in the intervals between the return of the pusher mechanism to its initial feeding position, and a web-feeding mechanism to interpose a web in the path of the carrier-bars, substantially as described.

3. In a web-drying machine, the combination with suitable track-rails and a web-feeding mechanism, of a series of independent carrier-bars, a reciprocating pusher mechanism, and an intermittently-operated feed mechanism for the carrier-bars to place the latter successively in the path of the pusher mechanism, substantially as described.

4. In a web drying machine, the combination with track-rails, of a reciprocating pusher mechanism, carrier-bars loosely fitted to the track-rails to be engaged successively by the pusher mechanism, and an intermittently-operated feed mechanism for moving the carrier-bars into the path of the pusher mechanism, substantially as described.

5. In a web-drying machine, the combination with track-rails and carrier-bars adapted to move thereon, of a single driving mechanism, a reciprocating pusher mechanism operated from said driving mechanism, means for directing said pusher mechanism to travel in inclined and horizontal paths, an endless feed mechanism arranged to deposit the carrier-bars in the path of the reciprocating pusher, and means operated from the driving mechanism to intermittently move the endless carrier-bar-feed mechanism during the horizontal travel of the pusher, substantially as described.

6. In a web-drying machine, the combination with track-rails and carrier-bars fitted to travel thereon, of a pusher-guide having a tiltable trip arranged to elevate the pusher into engagement with said carrier-bars, and reciprocating pushers adapted to travel in said guides and upon the tiltable trips thereof, substantially as described.

7. In a web-drying machine, the combination with suitable track-rails, and a series of carrier-bars, of reciprocating pushers actuated simultaneously from a suitable power mechanism, pusher-guides in the path of the pushers and adapted to elevate the latter into engagement with carrier-bars on said track-rails whereby the pushers are caused to move the carrier-bars successively into engagement with preceding carrier-bars and are retracted from the path of the tiltable trips, substantially as described.

8. In a web-drying machine, the combination with reciprocating pushers, of pusher-guides adjacent to the support of the carrier-bars, and tiltable trips lying in the path of said pushers and arranged to elevate the pushers when moving in one direction and to yield to the pushers on their rearward movement, substantially as described.

9. In a web-drying machine, the combination with track-rails, a web-feeding mechanism and a series of pusher-bars carrying web-loops, of horizontal pusher-guides terminating at one end adjacent to said carrier-bars and at its opposite end in juxtaposition to the web-feed mechanism, reciprocating pushers adapted to traverse the pusher-guides, tiltable trips mounted in said guides in the path of the pushers, and a feed mechanism for presenting the carrier-bars intermittently in the path of the pushers, substantially as described.

10. In a web-drying machine, the combination with track-rails, a series of carrier-bars fitted thereon and a continuously-operating web-feeding mechanism, of pusher-guides arranged between the carrier-bars and the web-feeding mechanism and having tiltable trips therein, reciprocating pushers provided with carrying-rolls and pusher-arms and adapted to traverse the tiltable trips and the pusher-guides, and mechanism for feeding the carrier-bars intermittently into the path of the pusher-arms on said reciprocating pusher, substantially as described.

11. In a web-drying machine, the combination with suitable track-rails, of pusher-guides having the inclined and horizontal lengths and arranged contiguous to said track-rails, a driving-shaft provided with suitable gears, a power-shaft for rotating said driving-shaft, reciprocating pushers connected with said gears and fitted slidably to the pusher-guides to travel in inclined and horizontal paths, a series of carrier-bars, intermittent feed mechanism for moving said carrier-bars into the path of the pusher, said feed mechanism being operated during the travel of the pusher in the horizontal path, substantially as described.

12. In a web-drying machine, the combination with track-rails, carrier-bars and a pusher mechanism, of a conveyer for moving the carrier-bars successively into the path of the pusher mechanism, a driving-shaft, and pawl-and-ratchet feed devices between the conveyer and said driving-shaft, substantially as described.

13. In a web-drying machine, the combination with carrier-bars and a pusher mechanism therefor, of a driving-shaft by which the pusher mechanism is reciprocated, a conveyer for presenting the carrier-bars successively in the path of the pusher mechanism, sprocket-wheels mounted loosely on said shaft and engaging with the conveyer, pawl-carrying feed-levers engaging with ratchets on said sprocket-wheels, and driving-disks fixed to the shaft and engaging at intervals with said feed-levers, substantially as described.

14. In a web-drying machine, the combination with carrier-bars and a pusher mechanism therefor, of a conveyer, a driving-shaft, sprocket-wheels engaging with the conveyer mounted loosely on said shaft and having ratchets, feed-levers hung independently of the shaft, feed-pawls carried by said levers to engage with the ratchets of the driving-shafts, and driving-disks fixed to the shaft and provided with eccentric pins which engage at intervals with said levers, for the purpose described, substantially as set forth.

15. In a web-drying machine, the combination with carrier-bars and a pusher mechanism therefor, of a driving-shaft, driving sprockets mounted loosely on said shaft and provided with ratchets, a conveyer which engages with said driving-sprockets, driving-disks fixed to the shaft to rotate therewith and having eccentric pins or studs, feed-levers lying in the path of the said studs or pins of the driving-disks, and feed-pawls attached to said feed-levers and engaging with the ratchets of the driving-sprockets, substantially as described.

16. In a web-drying machine, the combination with track-rails and carrier-bars fitted thereto, of a driving-shaft, a power-shaft, master-gears attached to the driving-shaft to mesh with pinions on the power-shaft and provided with wrist-pins, pushers connected to said wrist-pins, a conveyer arranged to move the carrier-bars successively into the path of the pushers, driving-sprockets loosely mounted on the driving-shaft and engaging with the conveyer, and ratchet feed mechanism operated by the driving-shaft to intermittently actuate the conveyer mechanism, substantially as described.

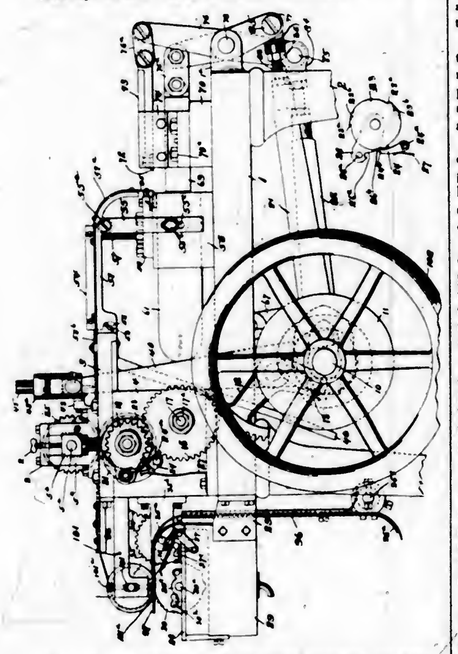
17. In a web-drying machine, the combination with track-rails, and a pusher mechanism, of carrier-bar-feed mechanism arranged to supply carrier-bars successively in the horizontal plane of the track-rails and in the path of the pusher mechanism, a presser device situated in a plane above the track-rails and at a point where the pusher devices first engage with the carrier-bar, said presser device preventing the carrier-bar from leaving the track-rails under the initial thrust of the pusher devices, and a web-feeding mechanism independent of the presser device and adapted to feed a web in advance of said presser device and in the path of a carrier-bar, substantially as described.

18. In a web-drying machine, the combination with pusher-guides, a pusher mechanism and track-rails, of a feed mechanism for presenting the carrier-bars successively in the path of the pusher mechanism, and a presser-bar slidably mounted on the track-rails at the point where the pusher mechanism engages with the carrier-bars, substantially as described.

19. In a web-drying machine, the combination with track-rails, pusher-guides adjacent thereto and a pusher mechanism, of a feed mechanism for positioning the carrier-bars in the path of said pusher mechanism, a presser device situated on the track-rails adjacent to the point where the pusher mechanism engages with the carrier-bars successively, and a presser-roll loosely hung on the track-rails at the terminals of the pusher-guides, substantially as described.

640,171. BOX-MACHINE. GEORGE A BARNER, New Haven, Conn.

Filed Sept. 10, 1898. Serial No. 690,652. (No model.)



Claim—1. In a machine of the character described, the combination of a roll having a pad or raised portion thereon with rounded or sloping ends, and adapted to intermittently take up glue and deposit it on the paper, of a scraper adapted to pass over the face of said pad and those portions of the surface adjacent thereto, and in unbroken contact therewith, and thereby remove the excess of glue both from the face of the pad and the surfaces adjacent thereto, as herein set forth.

2. In a machine of the character described, the combination of a rotary gluer-roll having upon its periphery raised portions or pads with rounded or sloping ends, and a spring-scraper bearing against the periphery of said roll and adapted to remain in uninterrupted contact with the periphery and adjacent surfaces of said roll, as set forth.

3. In a machine of the character described, the combination of an intermittently-revoluble gluer-roll having upon its periphery raised portions or pads with rounded or sloping ends, and a spring-scraper bearing against the periphery of said roll and adapted to remain in uninterrupted contact with the periphery and adjacent surfaces of said roll, as set forth.

4. In a machine of the character described, the combination of gluer-rolls having upon their peripheries raised portions or pads with rounded or sloping ends, scrapers bearing against the peripheries of said rolls and maintaining uninterrupted contact with their peripheries and the adjacent surfaces, means for intermittently rotating said rolls and means for adjusting the position of the said rolls in relation to the paper-carrying roll, as set forth.

5. In a machine of the character described, the combination with gluer-rolls having upon their peripheries raised portions or pads with rounded or sloping ends, scrapers bearing with uninterrupted contact upon the peripheries and adjacent surfaces of said rolls, and means for regulating the pressure of the scrapers upon the peripheral surfaces of the rolls, as set forth

6. In a machine of the character described, the combination of gluer-rolls having upon their peripheries raised portions or pads with rounded or sloping ends, a shaft carrying said rolls, means for intermittently rotating the shaft, scrapers bearing with uninterrupted contact upon the peripheries and adjacent surfaces of said rolls, a bar to which said scrapers are attached, and a tension-adjusting device consisting of an arm fixed to said bar, a swivel-pin pivotally secured to said arm and a thumb-screw adapted to depress said arm by contact with said swivel-pin, substantially as set forth.

7. In a machine of the character described, the combination of gluer-rolls having projections or pads on its periphery, the said pads being of the same width as the rolls with faces concentric with the axis of the rolls, and having rounded or sloping ends, of spring-scrapers adapted to bear with uninterrupted contact on the peripheral face of the rolls and the sides adjacent thereto, as set forth.

8. In a machine of the character described, in combination with the blank-folding mechanism, a guide-table pivotally secured at its rear end, the front end of which is bent downward to change the path of travel of the paper strip from a horizontal to a vertical, and means for adjusting vertically the front end of said table, substantially as set forth.

9. In a blank-folding mechanism for a machine of the character described, the combination of a bottom block, a reciprocating former-plunger, reciprocating side-folders and end-folders adapted to move longitudinallly through guides around the bottom block and along the sides of the former-plunger in sliding contact with the under surface of the sides and ends respectively of the blank, as set forth.

10. In blank-folding mechanism for a machine of the character described, the combination of a bottom block, a reciprocating former-plunger, longitudinally-movable side-folders and end-folders adapted to pass along the sides of the former-plunger in sliding contact with the under surface of the sides and ends of the blank, and means for independently and successively advancing the side and end folders while the former-plunger is at rest, as set forth.

11. In blank-folding mechanism for a machine of the character described, the combination of a bottom block, a reciprocating former-plunger, longitudinally-movable side-folders and end-folders, corner-folding blades pivoted to the side-folders and engaging with the end-folders, and means for successively advancing the side and the end folders along the sides of the former-plunger and in sliding contact with the sides and ends of the blank, as set forth.

12. In a machine of the character described, the combination with the stationary bottom block, of a guide-block having a central recess within which is secured the said bottom block, a cap covering said guide-block and inclosing the said bottom block, side and end folders operatively retained within the said guide-block and surrounding the said bottom block, with means for imparting movement to said folders for the purposes set forth, substantially as described.

13. In a machine of the character described, the combination with the former-plunger, of a bottom block, side-folders, means for advancing said folders over the end of said plunger, corner-folders, means for tripping the said corner-folders when the said side-folders have completed their forward movement, end-folders and means for advancing them over the end of said former-plunger not covered by said side-folders, substantially as set forth.

14. In a machine of the character described, the combination with the former-plunger, of a bottom block, side and end folders surrounding said bottom block, means for advancing said folders over the end portion of said plunger and means for drawing toward each other the ends of two of said folders after the said advance movement is completed, substantially as set forth.

15. In a machine of the character described, the combination with the former-plunger, of a bottom block, side-folders, means for advancing said folders over the end of said plunger, corner-folders, means for drawing the ends of the oppositely-located corner-folders toward each other when the said side-folders have completed their forward movement, end-folders, means for advancing them over the end of said former-plunger not covered by said side-folders, and means for raising the corner-folders to their original position before the said end-folders have completed their forward movement, substantially as set forth.

16. In a machine of the character described, the combination with the stationary bottom block and reciprocating former-plunger, of side folders movable longitudinally along the sides of the former-plunger, corner-folding blades carried by said side-folders and longitudinally-movable end-folders independently operated, and having parts extending into the path of movement of the corner-folders, as set forth.

17. In a machine of the character described, the combination with the bottom block, of side and corner folders, a folder-head to which said folders are secured, means for actuating said folder-head and folders, end-folders, means for actuating said end-folders, means for drawing the ends of the oppositely-located corner-folders toward each other, and means for bringing the same to their original posi-

tions before the advance movement of said end-folders is completed, substantially as set forth.

18. In a machine of the character described, the combination with the bottom block, of side corner and end folders, means for actuating the same and means, as a toggle-joint, for drawing the front portions of the said end-folders toward each other, substantially as set forth.

19. In a machine of the character described, the combination with feeding-rolls and means for imparting an intermittent movement thereto, of a bottom block, a guide-block, reciprocating folders passing through slots therein, means for advancing and withdrawing the folders along the sides of the bottom block, a movable former-plunger adapted to be moved toward and away from the said bottom block and cutting-knives for severing the blank from the strip, substantially as set forth.

20. In a machine of the character described, the combination with the bottom block, a guide-block, reciprocating folders, means for advancing and withdrawing the same through the guide-block and a former-plunger operating in conjunction therewith, of a feed-table above said bottom block, having the front end turned outward and devices for adjusting vertically the front of said table, substantially as set forth.

21. In a blank-folding mechanism of the kind described, the combination with a bottom block, a reciprocating former-plunger, a guide-block, reciprocating folders adapted to pass through slots in the guide-block and means for advancing and withdrawing the said folders along the sides of the former-plunger in sliding contact with the sides and ends of the blank, as and for the purposes set forth.

640,172. TYPE-WRITING MACHINE. EDWARD F. BAUM, Harrisburg, Pa. Filed Oct. 18, 1897. Serial No. 655,576. (No model.)



Claim.—1. In a type-writing machine, the combination with the series of type-bars pivoted below the platen, comprising the vertical portions extending above the platen, the upper ends of which are bent rearwardly and upwardly, forming extensions parallel to each other and bent at such an angle with respect to the vertical portions as to strike and print at a common point, substantially as described.

2. In a type-writing machine, the combination with the frame, and the slotted segment and the fulcrum-wire secured thereto, of the type-bars pivoted to said fulcrum-wire consisting of the vertical portion having a lug near the lower end and the upper portion bent laterally inward and then extending upwardly and rearwardly and provided with printing characters on the under side, the key-bars adapted to engage with said lugs when depressed, and the flat springs bearing against the lower ends of the type-bars, substantially as described.

3. In a type-writing machine of the character described, the combination with the frame and the type-bars, and means for actuating the same, of the horizontally-movable paper-carriage, the pivoted arm connected therewith, the elbow-levers, the slotted plate through which the lower ends of said levers project provided with an offset, substantially as described.

4. In a type-writing machine of the character specified, the combination with the frame and the type-bars, and means for actuating the same, of the horizontally-movable paper-carriage, the pivoted arm connected therewith, the elbow-levers, the slotted plate through which the lower ends of said levers project, provided with an offset, and the counterbalance-lever having notches in its lower edge, adapted to engage with the outer end of said pivoted arm, substantially as described.

5. In a type-writing machine of the character described, the combination with the frame, and the type-bars and means for actuating the same, of the horizontally-movable paper-carriage, the forwardly-extending bail secured thereto, the grooved wheels on which the horizontal portions of said bail work, the pivoted arm provided with a pin engaging with said bail and the elbow-lever for operating said arm, substantially as specified.

6. In a type-writing machine of the character described, the combination with the frame, and the type-bars and means for actuating the same, of the horizontally-movable paper-carriage, the forwardly-extending bail secured thereto, the grooved wheels upon which said bail works, the pivoted arm having a pin engaging with said bail, the slotted plate formed with an offset, the elbow-levers and the counterbalance-lever having notches in its lower edge adapted to engage with the outer end of said pivoted arm, substantially as specified.

7. In a type-writing machine, the combination with the paper-carriage, the paper-roll, its shaft and the ratchet-wheel, of the counterbalanced line-space lever journaled on said shaft, the pivoted pawl, the lug at the lower end of said lever, the bracket formed with a slot, the fixed pin, the pivoted arm provided with a pin projecting through said slot, substantially as described.

8. In a type-writing machine, the combination with the paper-roll, its shaft, the ratchet-wheel, the paper-apron and the pin at one end thereof, of the counterbalanced line-space lever, the pivoted pawl having a beveled end, the lug at the lower end of said lever, the bracket having a slot therein, the pivoted arm having a pin projecting through said slot and the pin fixed to said bracket, substantially as described.

9. In a type-writing machine, the combination with the paper-carriage provided with ratchet-teeth and the stationary rod provided with a central fixed stop, of the rotatable and adjustable lug journaled on said rod and provided with an integral lip adapted to engage with said teeth, substantially as described.

10. In a type-writing machine, the combination with the paper-carriage, the oppositely-disposed ratchet-teeth at the ends thereof, and the transverse rod, of the adjustable pivoted dog having a lip adapted to engage with the ratchet-teeth at one end, the adjustable pivoted dog having a lip adapted to engage with the other ratchet-teeth, the arm pivoted to last-mentioned dog, the spring, the hammer-rod, the hammer and the bell, and the stop on the carriage, substantially as described.

11. In a type-writing machine, the combination with the paper-carriage, the pivoted gravity spacer-rack, the pivoted angle-dog, one arm of which is formed with a beveled end adapted to engage with said spacer-rack, the spring with which the other arm of said dog is adapted to engage and the fixed stop, of the spacer-bar engaging with the teeth of said spacer-rack for elevating the same and holding the carriage against movement until the inner end of said spacer-bar is depressed, substantially as described.

12. In a type-writing machine, the combination with the paper-carriage, the pivoted gravity spacer-rack, the pivoted angle-dog, one arm of which is formed with a beveled end adapted to engage with said spacer-rack, the spring with which the other arm of said dog is adapted to engage and the fixed stop, of the pivoted spacer-bar engaging with said spacer-rack for elevating the same and holding the paper-carriage against movement until the inner end of said spacer-bar is depressed, the pivoted bail secured to said spacer-bar, and the key-bars located above the same and adapted to depress it and the spacer-bar, and throw the inner end of said bar into engagement with the spacer-rack and elevating the same, substantially as described.

13. In a type-writing machine, the combination with the frame and the paper-carriage, of the plate secured to said frame having a central opening, the slide, the springs secured to said plate and to the slide, the pivoted pawls having extensions at the free ends, the laterally-movable shifting bar provided with lugs, the ratchet-wheels with which said pawls are adapted to engage, and means for actuating the same, substantially as described.

14. In a type-writing machine, the combination with the frame, the paper-carriage and the plate secured to said frame having a central opening, of the slotted slide, the headed pin for securing it to said plate, the springs secured to said plate and slide, the pawls pivoted to said slide having extensions at the free ends, the laterally-movable shifting bar provided with lugs, the ratchet-wheels with which said pawls are adapted to engage provided with outwardly-extending pins, the ribbon-spools having holes with which said pins engage the spacer-bar and the spacer-rack with which said spacer-bar is adapted to engage, substantially as described.

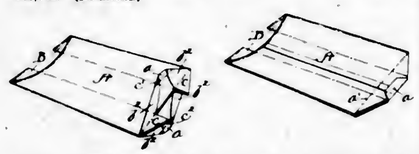
15. In a type-writing machine, the combination with the frame, the paper carriage and the plate secured to said frame having a central opening, of the vibrating ribbon-holder pivoted to said plate formed with a lug below its pivotal point, the rods and the weights, the spacer-bar and the pivoted spacer-rack with which said spacer-bar is adapted to engage, substantially as described.

16. In a type-writing machine, the combination with the frame, the paper-carriage and the plate secured to said frame having a central opening, of a vibrating holder pivoted to said plate having beveled and straight ribbon-guides at the upper end, and the beveled guides provided with hooks, the lug at the lower end of said holder, the rods, the weights, the spacer-bar and the pivoted spacer-rack with which said spacer-bar is adapted to engage, substantially as described.

17. In a type-writer, the combination with the frame, the paper-carriage, the pivoted spacer-rack and the plate secured to said frame having a central opening, of the slide, the springs secured thereto, the pawls having extensions at the free ends, the laterally-movable shifting bar provided with lugs, the ratchet-wheels, the ribbon-spools connected therewith, the vibrating ribbon-holder, the guides at the upper end thereof, the rods and weights, and the spacer-bar and means for operating the same, substantially as described.

18. In a type-writer, the combination with the frame, the plate secured thereto having a central opening, and the paper-carriage, of the vertically-movable slide and means for actuating the same, the pawls pivoted to said slide having extensions at the free ends, the laterally-movable shifting bar provided with lugs, the ribbon-spools and the ratchet-wheels connected therewith, substantially as described.

640,173. PAPER BAG. LORENZO D. BENNER, Peoria, Ill., assignor to Lucius G. Fisher, Chicago, Ill. Filed May 27, 1899. Serial No. 718,575. (No model.)



Claim.—1. The method of making a bellows-folded satchel-bottom bag, which consists in severing the length of a bag from a plain tube in such a manner as to provide extended side portions from one end and protruding bellows-side extensions from the opposite end, folding the extensions back upon themselves forming triangular side extensions in the bellows sides, redoubling the extensions over the triangular extensions and folding the ends of the side extensions in such a manner as to complete the bag by forming overlapping ends when pasted down.

2. The described method of making a paper bag, which consists in forming a blank as to provide extended side portions at one end and protruding bellows sides at the opposite end, folding the extensions back upon themselves on the line a', forming the triangular bellows-sides extensions c, causing the extensions to be redoubled upon themselves forming the triangular folds b^3, b^3, folding back the extensions a, as to overlap the extensions c, so as to bring the inner matching faces of the sides a, adjacent to each other and completing the bag by folding either of the end extensions a, and overlapping the opposite side and pasting it down.

3. The herein-described bellows-sided bag, the bottom when distended is formed by the end extensions a, a, the inturned and overlapping portions c, and b^3, which are contiguous, all substantially as described and shown.

4. The herein-described bellows-sided bag, the bottom of which is formed by cutting the extended side portions a, a, from an extended tube and folding the same back on the line a', a', the inturned bellows-sided portions c, the overlapping portions b', contiguous therewith, and the matching and overlapping end extensions of the sides a, when pasted down completing the bottom of the bag.

5. The herein-described bag provided with the side extensions a, having protruding ends which are purposed to extend beyond and overlap the inturned portions c, and the overlapping portions b', of the bellows sides, in such a manner as to complete the bag by forming overlapping ends when pasted down.

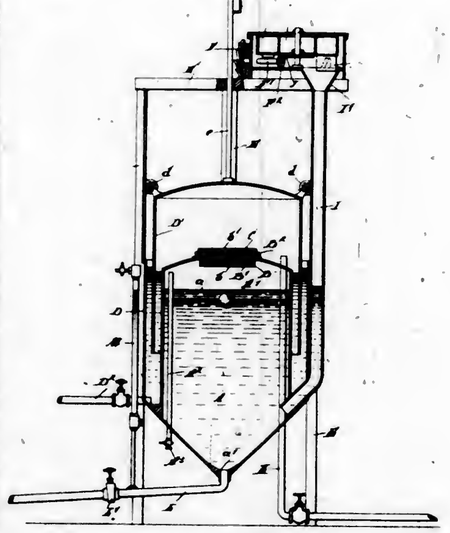
640,174. BICYCLE-WHEEL. CARL J. BERG and ELOF NILSON, Worcester, Mass. Filed Sept. 5, 1899. Serial No. 729,469. (No model.)



Claim.—1. In a bicycle-wheel, a solid rim of substantially semi-cylindrical form and having a central, annular groove in its flat face, also having each side recessed a short distance in from said flat face and toward the center of the rim, in combination with an elastic tire of substantially semitubular form, having a central, annular flange projecting inward therefrom, with the stock at each side thereof thick and tapering to thin edges, the end of said flange being fitted in the annular groove in the rim and the thin edges in the recessed sides of said rim, and means for fastening said edges to the rim, substantially as and for the purpose set forth.

2. In a bicycle-wheel, a solid rim of substantially semicylindrical form and having a central annular groove in its flat face, also having each side recessed a short distance in from said flat face and toward the center of the rim, in combination with an elastic tire of substantially semitubular form, having a central annular flange projecting inward therefrom, with the stock at each side thereof thick, and tapering to thin edges, the end of said flange being fitted in the annular groove in the rim and the thin edges in the recessed sides of said rim; a metallic cap fitted over the rim and overlapping the edges of the tire, and means for fastening the edges of said tire and cap to the rim, substantially as and for the purpose set forth.

640,175. ACETYLENE-GAS GENERATOR. EUGENE BOURNONVILLE, Jersey City, N. J. Filed Apr. 17, 1897. Serial No. 632,572. (No model.)



Claim.—1. An acetylene-gas generator, comprising a tank having a sloping bottom, a carbid-feeding pipe entering the tank above and at one side of the bottom of the slope, whereby the gas-generating material after its introduction is moved laterally from beneath the open end of said pipe, a gasometer receiving its gas from the said tank, a charging-wheel having a series of segmental pockets, and means operated by the fall of the gasometer to successively discharge the contents of the pockets into the carbid-feeding pipe, substantially as described.

2. An acetylene-gas generator, comprising a tank having a sloping bottom, a carbid-feeding pipe entering the tank above and to one side of the bottom of this slope, a gasometer receiving its gas from this tank, a charging-wheel having segmental pockets with swinging bottoms, catches for holding the bottoms closed, a trip for releasing the bottoms as they pass over the carbid-feeding pipe, and means for

rotating the wheel by the fall of the gasometer, substantially as described.

3. An acetylene-gas generator, comprising a tank having a sloping bottom, a carbid-feeding pipe entering the tank above and at one side of the bottom of this slope, a gasometer receiving its gas from this tank, a charging-wheel having segmental pockets with swinging bottoms, catches for holding the bottoms closed, a trip for releasing the bottoms as they pass over the carbid-feeding pipe, a ratchet-wheel connected to the charging-wheel to rotate it, and a pawl connected to the gasometer and engaging the ratchet-wheel to turn it by the fall of the gasometer, substantially as described.

4. An acetylene-gas generator, comprising a tank, a carbid-feeding pipe entering the tank at one side thereof, a gasometer receiving its gas from the tank, a charging-wheel having pockets with swinging bottoms, catches for holding the bottoms closed, a trip for releasing the bottoms as they pass over the top of the carbid-feeding pipe, means for raising the bottoms into position to be caught by the catches, and means for rotating the wheel by the fall of the gasometer, substantially as described.

5. An acetylene-gas generator, comprising a tank, a carbid-feeding pipe for said tank, a gasometer receiving its gas from the tank, a charging-wheel having segmental pockets with swinging bottoms, catches for holding the bottoms closed, a trip for releasing the bottoms as they pass over the top of the carbid-feeding pipe, a cam for closing the said bottoms, and means for rotating said wheel, substantially as described.

6. An acetylene-gas apparatus, comprising a generator provided with an opening in its top for the passage of the generated gas, means for feeding carbid to said generator, a gasometer, and a chamber located in the discharge-opening at the top of the generator and having its upper and lower sides composed of cloth and filled with powdered drying material, substantially as described.

7. An acetylene-gas apparatus, comprising a generator, a valve for drawing the water from the same, a gasometer, a gas-filtering device located in the top of the generator and through which the gas passes to the gasometer, and a valved vent-pipe connecting the upper part of the generator with the outside air, substantially as described.

8. An acetylene-gas geperator having a drainage-outlet adapted to act as a valve-seat, a ball-valve shaped to close the outlet-opening when it comes in contact therewith, the said valve being adapted to float on the surface of the water and to close said outlet by the fall of the water, a discharge-pipe leading from the drainage-outlet and having a valve therein, and a gage-glass connected to said discharge-pipe between the said valve and the drainage-outlet, substantially as described.

9. An acetylene-gas apparatus, comprising a generator having a conical bottom, a drainage-outlet in the center of the bottom, and a carbid-feeding tube opening freely into one side of the generator at the top of the conical bottom, whereby the material introduced is conducted laterally to the center of the bottom, as and for the purpose set forth.

10. An acetylene-gas apparatus, comprising a gasometer, a generator connected therewith, and a purifying chamber located in an opening in the top of the generator and through which the gas passes to the gasometer, the said purifying chamber comprising a removable receptacle open at the top and bottom, cloth covers for said opening, and clamping-rings for securing said covers in place, the space between said covers being filled with purifying and drying substances in a crushed state, substantially as described.

11. In acetylene-gas apparatus, a vessel adapted to contain water, a gasometer which receives the gas, a feed device consisting of a series of independent carbid-charge carriers connected together and controlled by the movement of the gasometer to discharge their contents into the generator intermittingly, substantially as and for the purposes set forth.

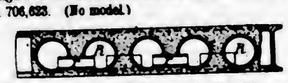
12. In acetylene-gas apparatus, the tank, the carbid-feeding pipe exterior to the gasometer but opening into said tank below the water-level in the latter, and an incline to deflect the carbid laterally from beneath the lower end of the feeding-pipe, combined with a feed device consisting of a series of independent carbid-charge carriers connected together and controlled by the movement of the gasometer to discharge their contents into the generator intermittingly; substantially as set forth.

13. In acetylene-gas apparatus, the tank having a sloping bottom, and the carbid-feeding pipe exterior to the gasometer but opening into said tank below the water-level therein in a position to discharge the carbid upon said sloping bottom, combined with a feed device consisting of a series of independent carbid-charge carriers connected together and controlled by the movement of the gasometer to discharge their contents into the generator intermittingly; substantially as set forth.

14. In acetylene-gas apparatus, the tank, the exterior carbid-feeding pipe extending downward from above the water-level in the tank and opening into said tank below the water-level therein, and the gasometer, combined with a carbid-feed device leading to the upper end of said pipe and consisting of a series of independent carbid-charge carriers connected together and controlled by the movement of the gasometer to discharge their contents into the said pipe intermittingly; substantially as set forth.

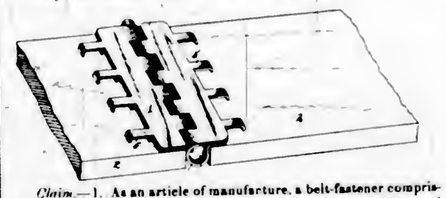
15. In acetylene-gas apparatus, the gasometer and generator, combined with the carbid-feeding pipe leading into the generator below the water-level therein, and an incline receiving the carbid upon its leaving said pipe and directing it laterally from beneath the lower end of said pipe; substantially as set forth.

640,176. PROCESS OF PRODUCING HOLLOW WALLS AND ROOFS OF CAST MORTAR. AUGUST BREMER, Halle-on-the-Saale, Germany, assignor to Heinrich Lehmann, same place. Filed Feb. 23, 1899. Serial No. 706,623. (No model.)



Claim.—In a cast-mortar wall the combination of a series of pipes running substantially parallel to each other and a series of short substantially transverse pipes, to establish communication between the interiors of two neighboring pipes, all said pipes being mounted within the mortar in the manner and for the purpose substantially as described.

640,177. BELT-FASTENER. JOHN M CAVINS, St. Louis, Mo. Filed July 13, 1899. Serial No. 723,684. (No model.)



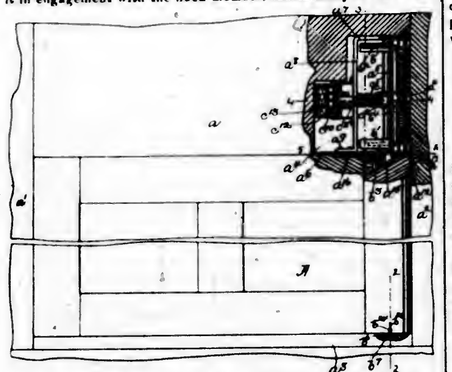
Claim.—1. As an article of manufacture, a belt-fastener comprising two leaves or sections, each composed of a single piece of metal folded or doubled against itself, the free edges of the folded members being substantially even or flush with one another, a series of securing arms or prongs deflected from the edge of the member immediately in contact with the belt, a series of securing-arms formed integrally with the upper or exposed member, the bases of said arms being extended outwardly beyond the edge of said member, a loop formed along the line of the fold and turned wholly below the plane of the exposed member of the folded section, the diameter of the loop corresponding approximately to the thickness of the belt, the loops of the respective sections being recessed whereby they may be coupled, and a hinge-pin inserted into said loops, substantially as set forth.

2. As an article of manufacture, a belt-fastener comprising two leaves or sections, each composed of a single piece of metal folded or doubled against itself, the free edges of the folded members being substantially even or flush with one another, a series of securing arms or prongs deflected from the edge of the member immediately in contact with the belt, a series of securing-arms formed integrally with the upper or exposed member, the bases of said arms being extended outwardly beyond the edge of said member, a loop formed along the line of the fold of each leaf or section, the loops of the respective sections being recessed whereby they may be coupled pivotally together, substantially as set forth.

640,178. COMBINED SPRING HINGE AND CHECK. JOHN W. CURRIER, Los Angeles, Cal. Filed Jan. 17, 1896. Serial No. 575,832. (No model.)

Claim.—1. The combination with a door-hinge consisting of a pivot-rod provided with arms and rotatable in opposite directions, a frame in which said rod is mounted to turn in opposite directions, a spring carried by said frame and engaging said arms to turn the said pivot-rod in opposite directions, means to connect the pivot-rod with the door, a spring-actuated centering or holding device extended at an angle to and engaging the said pivot-rod, substantially as described.

2. The combination with a spring-actuated pivot-rod and a frame in which said rod is mounted to turn, of a centering or holding device for the said pivot-rod consisting of a fixed member secured to the pivot-rod to move therewith, and a movable member cooperating with the fixed member and movable bodily at an angle to the said pivot-rod, and a spring encircling the said movable member to keep it in engagement with the fixed member, substantially as described.



3. A door-hinge consisting of a pivot-rod rotatable in opposite directions, a frame in which said rod is mounted to turn in said opposite directions, an upright independent of the pivot-rod and secured to said frame, a spring encircling said upright and engaging said pivot-rod to turn it in opposite directions, and an extension of the pivot-rod adapted to engage a socket carried by the door, substantially as described.

4. A door-hinge consisting of a pivot-rod provided with arms b b' and with a lug or arm c, a supporting-frame for said rod, a spring to act on the arms b b', an angular extension a^{15} on the pivot-rod adapted to engage the door, and a centering or holding device cooperating with the lug or arm c and consisting of a cross-bar, a rod c^2 and a spring to keep the said cross-bar in engagement with the lug c, substantially as described.

5. In a door-hinge, the combination with a pivot-rod, a frame in which said pivot-rod is mounted, a spring carried by said frame and means for operatively connecting said spring with the pivot-rod, of a centering or holding device consisting of a fixed member secured to the pivot-rod, and a movable member extended at an angle to the pivot-rod and engaging said fixed member to be moved away from the pivot-rod when the latter is turned, and a spring encircling said movable member and acting to keep it in engagement with the fixed member, substantially as and for the purpose specified.

640,179. PROCESS OF LINING VULCANIZABLE PLATES. JOHN A. DALY, Washington, D. C. Filed Apr. 20, 1898. Serial No. 678,266. (No specimens.)



Claim.—1. The method of lining vulcanized dental plates with metallic foil having a spongy face, which consists in filling the spongy stratum of the foil with a vulcanizable cement, then temporarily attaching this filled face of the foil to a dental plate and vulcanizing the two together.

2. The method of attaching spongy foil to a vulcanized plate, which consists in filling the porous foil with an unvulcanized solution, and vulcanizing the same on the previously-vulcanized plate.

3. As an article of manufacture, a sheet of metallic foil having a spongy stratum filled with an unvulcanized but vulcanizable cement, substantially as described.

4. As an article of manufacture, a metallic foil having a burnished face and a spongy stratum filled with an unvulcanized but vulcanizable compound, and a surface covering to this spongy stratum consisting of a vulcanizable compound.

5. The method of lining a previously-vulcanized dental plate, which consists in covering the spongy face of a metallic foil having one spongy face with a vulcanizable solution, placing this prepared face in contact with the vulcanized plate, and vulcanizing the foil to the plate, substantially as described.

640,180. NAPKIN-HOLDER. FREDERICK DASSORI, New York, N. Y. Filed Apr. 27, 1899. Serial No. 714,629. (No model.)

Claim.—1. A device of the class described, comprising two segmental parts pivotally connected at diametrically opposite points and adapted to turn one within the other, one of said parts being open at one side and provided with an extension which projects beyond the pivotal point, and the other part being provided at the opposite side with a pivoted clamp, substantially as shown and described.

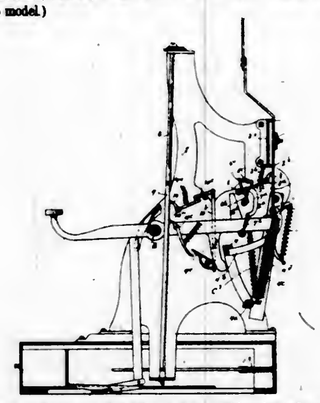


2. A device of the class described, comprising a plate segmental in cross-section, another segmental part pivoted between the edges of said plate at diametrically opposite points and adapted to turn therein and one end of which is provided with a projection, said plate being also provided at one edge with outwardly-directed jaws, and a clamp pivoted between said jaws, substantially as shown and described.

3. A device of the class described, comprising a plate segmental in cross-section, another segmental part pivoted between the edges of said plate at diametrically opposite points and adapted to turn therein, said plate being also provided at one edge with outwardly-directed jaws, and a clamp pivoted between said jaws, and said segmental part being greater than one hundred and eighty degrees in length, substantially as shown and described.

4. A device of the class described, comprising a plate segmental in cross-section and provided centrally of each edge with a projecting tongue, another segmental part pivoted between said tongues and provided at one end with an extension, said plate being also provided adjacent to one edge with outwardly-directed jaws, and a clamp pivoted between said jaws, substantially as shown and described.

640,181. CASH-REGISTER. FREDERICK W. DECKER and GEORGE S. DECKER, Detroit, Mich. Filed Oct. 21, 1897. Serial No. 655,884. (No model.)



Claim.—1. In a cash-register, the combination of a tablet-actuating lever, a drawer-actuating lever, a hanger arranged to lock the drawer-actuating lever, a lever 5^a, adapted to prevent locking engagement between said hanger, and the drawer actuating lever, and means whereby the movement of the tablet-actuating lever, causes interposition of the lever, 5^a, between said hanger and the drawer actuating lever, substantially as, and for the purpose described.

2. In a cash-register, in combination with a tablet-actuating lever, a drawer-actuating lever, a hanger adapted to pass over and lock the drawer-actuating lever, a lever, 5^a, pivoted to said hanger, and adapted to turn into a position to prevent engagement between said hanger and said drawer-actuating lever a spring tending to turn the lever, 5^a, into said position, the lever, 5^a, being adapted to be held out of said position by the drawer-actuating lever when said hanger is in engagement with the drawer-actuating lever, and means whereby said hanger is forced out of engagement with the drawer-actuating lever, whereby the lever, 5^a, is permitted to turn into position to prevent reëngagement, substantially as shown and described.

3. In a cash-register, in combination with a tablet-actuating lever, a drawer-actuating lever, a hanger adapted to pass over and lock the drawer-actuating lever, a lever, 5^a, pivoted to said hanger, and adapted to turn into a position to prevent engagement between said hanger, and said drawer-actuating lever, a spring tending to turn the lever, 5^a, into said position, the lever, 5^a, being adapted to be held out of said position by the drawer-actuating lever, when said hanger is in engagement with the drawer-actuating lever, a movable bar, 4,

adapted to be actuated by the tablet-actuating lever and a link, 4ᵇ, connecting said hanger and bar, 4, substantially as and for the purpose described.

4. In a cash-register, in combination with a tablet-rod, a tablet-actuating lever, a pawl, adapted to hold the tablet-rod in its lifted position, a rocking plate made of two parts which are hinged together so that one of said parts is adapted to turn in one direction only, with reference to the other of said parts, whereby said plate is adapted to pass the pawl when moving in one direction, and to contact and release the pawl from the tablet-rod when moving in the other direction, and means whereby the tablet-actuating lever operates said rocking plate, substantially as described.

5. In a cash-register, in combination with a tablet-rod and a pawl for holding the same in its lifted position, a rocking plate jointed to enable it to pass the pawl without actuating it when moving in one direction, and to contact and release the pawl when moving in the opposite direction, and a spring secured to said rocking plate so that the line of action of said spring shall pass by the pivot of said rocking plate, during the motion of the same, substantially as and for the purpose described.

6. In a cash-register, in combination with a plurality of tablet-rods, a plurality of pawls, a plurality of tablet-actuating levers, and a drawer-actuating lever, a single, spring-actuated, jointed, releasing-lever, means whereby the releasing-lever may be moved in one direction by the drawer-actuating lever, and moved in the other direction by any one of the several tablet-actuating levers, substantially as described.

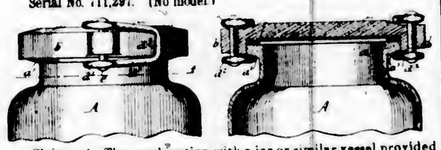
7. In a cash-register provided with a drawer, a drawer-lock-actuating lever, a rock-plate, a hook on said drawer, provided with a curved shank behind the catch of the hook adapted to coact with said rock-plate to disengage the hook from the rock-plate, substantially as described.

8. In a locking mechanism of a drawer, the combination of a hook having a curved shank behind the catch of the hook, a rock-plate adapted to engage against the curved shank and behind the catch of the hook, and means for rocking the plate against the curved shank behind the catch of the hook, and thereby disengaging the lock, substantially as described.

9. In a cash-register, in combination with tablet-rods, means for holding said tablet-rods in their lifted position, an independent lever, a tablet-dropper arranged to be set by the independent lever, and means whereby a tablet-lifting lever is adapted to actuate the dropper after it has been set by the independent lever, substantially as described.

10. In a cash-register, in combination with tablet-rods and pawls for holding them in lifted position, a folding dropper adapted to pass the pawls in one direction without actuating them but to engage the pawls and disengage them from the tablet-rods when actuated in the other direction, substantially as described.

640,182. COVER-FASTENING FOR FRUIT-JARS OR SIMILAR VESSELS. IRVIN P. DOOLITTLE, Toronto, Canada. Filed Mar. 31, 1899. Serial No. 711,297. (No model.)



Claim.—1. The combination with a jar or similar vessel provided at its upper end with a projecting rim, of a cap or cover, and horizontally-swinging clips or fastenings pivoted by vertical pins to diametrically opposite sides of the cover and each composed of a pair of horizontal clamping-arms applied to the upper and lower ends of said pivot-pin and arranged to engage over the marginal portion of the cover and under said jar-rim, respectively, when the fastening is turned inwardly to its locking position, substantially as set forth.

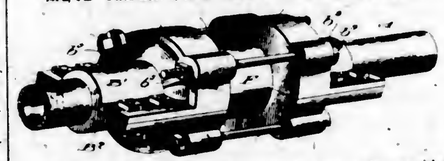
2. The combination with a jar or similar vessel provided at its upper end with a projecting rim having a beveled under side, of a cap or cover provided on its upper side with a beveled marginal face, and a fastening applied to the cover and consisting of an upright pivot carried by the marginal portion of the cover and a pair of connected horizontally-swinging arms provided at their inner ends with eyes which encircle the projecting upper and lower ends of said pivot and adjacent to said eyes with offset or eccentric bends which are forced up on the beveled faces of the cover and jar-rim, inclosing the fastening and which clear said faces in the open position of the fastening, substantially as set forth.

3. The combination with a jar or similar vessel provided at or near its upper end with a projecting rim having a beveled under side, of a cap or cover provided on its upper side with a beveled or outwardly-inclined face, and a fastening applied to the cover and consisting of an upright pivot capable of sliding vertically on the cover, and upper and lower locking-arms applied to said pivot above and below the cover and adapted to bear against the beveled surface of the cover and the jar-rim, respectively, substantially as set forth.

4. The combination with a jar or similar vessel provided at its upper end with a projecting rim, of a cap or cover and a fastening applied to the cover and consisting of an upright pivot carried by the marginal portion of the cover and projecting above and below the same and a pair of horizontally-swinging arms provided at their inner ends with offset eyes which encircle the projecting portions of said pivot and an upright bar connecting the outer portions of said arms, said eyes being adapted to bear against the upper side of the cover and the under side of the jar-rim, respectively, and the arms with their eyes and connecting-bar being bent from a single length of wire, substantially as set forth.

5. The combination with a jar or similar vessel provided at or near its upper end with a projecting rim having a beveled under side, of a cap or cover provided on its upper side with a beveled or outwardly-inclined face, and a fastening applied to the cover and consisting of a pair of horizontally-swinging arms mounted on a vertical pivot carried by the cover and adapted to engage against the beveled faces of the cover and the jar-rim, each of said arms being provided at its inner end with an eye or enlargement which encircles said pivot and the outer ends of the arms being connected by an upright bar forming a thumb-piece, substantially as set forth.

640,183. FRICTION PIPE-COUPLING. SOLOMON R. DRESSER, Bradford, Pa. Filed Apr. 7, 1899. Serial No. 712,126. (No model.)



Claim.—1. In a pipe-coupling, a coupling plate or ring provided with an aperture for the passage of a pipe therethrough, and a sleeve portion extending perpendicularly to the main body of said plate or ring, said plate or ring being divided in a plane passing through said sleeve portion, parallel to the axis thereof, means for drawing the parts of said sleeve portion together to clamp it frictionally upon a pipe-section, said ring or plate being provided with means for engaging coupling-bolts, substantially as described.

2. In a pipe-coupling, a coupling plate or ring provided with means for engaging coupling-bolts, a central pipe-receiving aperture, a sleeve portion extending perpendicularly to the main body of said plate or ring, and lateral flanges connecting said sleeve portion and the main body of the ring or plate said plate or ring being formed in two parts divided in a plane passing through flanges on opposite sides of said sleeve portion parallel to the faces of said flanges and clamping devices engaging the parts of said flanges for clamping the sleeve portion upon a pipe-section, substantially as described.

3. The combination with the meeting ends of two pipe sections, of a coupling plate surrounding each section and provided with clamping-surfaces, elongated longitudinally of the pipe for frictionally engaging the same, means connected with each of said plates for clamping said surfaces upon the pipe but permitting the longitudinal movement of the pipe-section therethrough, a packing-ring in each of said plates surrounding the pipe-section, a coupling-sleeve engaging said rings and devices for drawing said plates together, substantially as described.

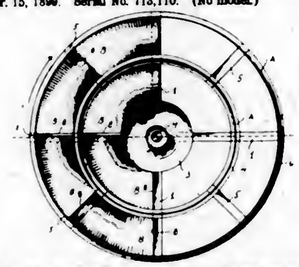
4. A pipe-coupling comprising among its members a pair of coupling-plates adapted to surround sections of pipes, each plate having the portion engaging the pipe divided, clamping means for forcing said divided portions together upon the pipe, a packing-ring carried by each of said plates, a coupling-sleeve for surrounding the meeting ends of two pipe-sections, adapted to engage said packing-rings, and coupling devices for drawing said plates together, substantially as described.

5. A pipe-coupling comprising among its members, a pair of coupling-plates each being provided with laterally-extending portions, a sleeve portion for surrounding a pipe provided with laterally-extending flanges uniting said sleeve portion and said laterally-extending portions, packing-rings carried by said plates, a coupling-sleeve adapted to engage said packing-rings and to inclose the meeting ends of two pipe-sections and coupling devices for engaging the laterally-extending portions of said plates and drawing said plates together, substantially as described.

6. A pipe-coupling comprising among its members, a pair of coupling-plates each provided with laterally-extending portions, a sleeve portion adapted to engage a pipe-section and lateral flanges connecting said sleeve portion and said laterally-extending portion, said plates being each formed in two parts, divided in a plane passing through said flange and parallel with the faces thereof, clamping devices for engaging said flanges, for clamping the sleeve portion upon a pipe-section, the coupling-sleeve, packing-rings interposed between said sleeve and said plates, and coupling devices engaging the laterally-extending portions of said plates for drawing them together, substantially as described.

7. A pipe-coupling comprising among its members, a pair of coupling-plates, each plate being composed of two parts provided each with a laterally-extending portion, a semicylindrical sleeve portion for engaging a pipe-section, and flanges connecting the sleeve portion and said laterally-extending portions, said plates having each a central packing-recess, packing-rings for said recesses provided each with an annular groove, a coupling-sleeve provided with annular end portions wedge-shaped in cross-section for engaging the grooves of the packing-ring, and coupling-bolts passing through the said laterally-extending portions of said plates for drawing said plates together, substantially as described.

640,184. AIR-PROPELLER. ANDREW DUFFNER, Jr., Toledo, Ohio. Filed Apr. 15, 1899. Serial No. 713,110. (No model.)



Claim.—1. An air-propeller, comprising a driven arbor having mounted thereon a spider, a plurality of concentric rims secured to the spider, two or more coöcentric series of buckets secured to the spider and the rims, curving outward and forward in the plane of rotation, and forming shoulders for intercepting the radial flow of gases and discharging the same in a plane at right angles to that of rotation.

2. An air-propeller, comprising an arbor having mounted thereon disks adapted to secure radial arms, two or more concentric rims secured to the arms, other radial arms secured to the rims, whereby there are formed two or more series of concentric segments, increasing in number in each series, but decreasing in area from the center toward the periphery, and buckets secured to the arms, rims, and disks, the inner concentric series of buckets extending to a plane beyond the outer series of buckets, so as to have a capacity proportioned to their velocity.

3. An air-propeller, comprising an arbor having mounted thereon a spider, and two or more concentric series of buckets secured to the spider, the buckets of the successive series increasing in capacity and diminishing in number from the periphery inward proportionally to the radial velocity of each series.

640,185. BAG OR PURSE FRAME. BERNO VON EIGEN, Newark, N. J., assignor to Aug. Goertz & Co., same place. Filed May 23, 1899. Serial No. 717,908. (No model.)



Claim.—1. In a bag or purse frame, the combination, with a pair of frame-sections, one of said frame-sections being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section, an upwardly-extending post on said spring bar or arm arranged in one of the said slots in said frame-section and projecting above the upper surface of said frame-section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a spring-plate secured against the inner side of said frame-section, an upwardly-extending teat or projection on one or both ends of said plate normally in holding engagement with said bolt or bolts for retaining the same normally in fixed positions, and means connected with said spring-plate, extending into said hole or holes in the side of said frame-section, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts and disengage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth.

2. In a bag or purse frame, the combination, with a pair of frame-sections, one of said frame-sections being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top, of a longitudinally-sliding bolt or bolts in said frame-section, a knob on said bolt or bolts, arranged above the slots in said frame-section, a vertically-moving spring bar or arm in said frame-section, with which said bolt or bolts are normally in engagement to hold said spring bar or arm in its immovable position, a spring-plate secured against the inner side of said frame-section, for retaining said bolt or bolts normally in fixed positions, and a laterally-extending knob or knobs connected with said spring-plate, extending into said hole or holes in the side of said frame-section, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts and disengage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for thepurposes set forth.

3. In a bag or purse frame, the combination, with a pair of frame-sections, one of said frame-sections being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section, an upwardly-extending post on said spring bar or arm arranged in one of the said slots in said frame-section and projecting above the upper surface of said frame-section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a spring-plate secured against the inner side of said frame-section, an upwardly-extending teat or projection on one or both ends of said plate normally in holding engagement with said bolt or bolts for retaining the same normally in fixed positions, and means connected with said spring-plate, extending into said hole or holes in the side of said frame-section, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts and disengage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth.

4. In a bag or purse frame, the combination, with a pair of frame-sections, one of said frame-sections being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section, an upwardly-extending post on said spring bar or arm arranged in one of the said slots in said frame-section and projecting above the upper surface of said frame-section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a spring-plate secured against the inner side of said frame-section, an upwardly-extending teat or projection on one or both ends of said plate normally in holding engagement with said bolt or bolts for retaining the same normally in fixed positions, and a laterally-extending knob or knobs connected with said spring-plate, extending into said hole or holes in the side of said frame-section, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth.

5. In a bag or purse frame, the combination, with a pair of frame-sections a and a', said frame-section a' having a nosing or hook, and said frame-section a being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top thereof, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section having an opening f^5 and a lip, with which said nosing or hook on the frame-section a' is in normal holding engagement, an upwardly-extending post on said spring bar or arm arranged in one of the slots in said frame-section a and projecting above the upper surface of said frame section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a releasing device in said frame-section a, for retaining said bolt or bolts normally in fixed positions, and means on said releasing device extending into said hole or holes in the side of said frame-section, for actuating said releasing device to permit of a sliding motion of said bolt or bolts, and dis-

engage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth

6. In a bag or purse frame, the combination, with a pair of frame-sections *a* and *a'*, said frame-section *a'* having a nosing or hook, and said frame-section *a* being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top thereof, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section having an opening f^5 and a lip, with which said nosing or hook on the frame-section *a'* is in normal holding engagement, an upwardly-extending post on said spring bar or arm arranged in one of the slots in said frame-section *a* and projecting above the upper surface of said frame-section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a spring-plate secured against the inner side of said frame-section *a*, an upwardly-extending teat or projection on one or both ends of said plate normally in holding engagement with said bolt or bolts for retaining the same normally in fixed positions, and means connected with said spring-plate, extending into said hole or holes in the side of said frame-section, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts and disengage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth.

7. In a bag or purse frame, the combination, with a pair of frame-sections, *a* and *a'*, said frame-section *a'* having a nosing or hook, and said frame-section *a* being provided with a hole or holes in the side thereof, and having longitudinally-arranged slots in the top thereof, of a longitudinally-sliding bolt or bolts in said frame-section, an upwardly-extending post on said bolt or bolts, slidably arranged in said slots and projecting above the upper surface of said frame-section, a knob on said post or posts, a vertically-moving spring bar or arm in said frame-section having an opening f^5 and a lip, with which said nosing or hook on the frame-section *a'* is in normal holding engagement, an upwardly-extending post on said spring bar or arm arranged in one of the slots in said frame-section *a* and projecting above the upper surface of said frame-section, a knob on said post, a projection on said bolt or bolts normally in engagement with said spring bar or arm to hold it in its immovable position, a spring-plate secured against the inner side of said frame-section *a*, an upwardly-extending teat or projection on one or both ends of said plate normally in holding engagement with said bolt or bolts for retaining the same normally in fixed positions, and a laterally-extending knob or knobs connected with said spring-plate, extending into said hole or holes in the side of said frame-section *a*, for actuating said spring-plate to permit of a sliding motion of said bolt or bolts and disengage said bolt or bolts from holding engagement with said spring bar or arm, substantially as and for the purposes set forth.

8. A bag or purse frame, comprising a pair of hinged frame-sections, having an ornamented surface, one of said frame-sections having a hole or holes in its side, a locking or holding mechanism in said frame-sections, a spring-plate *d* in said frame-section, and a knob or knobs on said plate, extending into and operatively arranged in said hole or holes in the side of the frame-section, said knob or knobs having an ornamentation corresponding to the ornamentation in the side of the frame-section and forming a part thereof, so as to conceal the opening or openings in the side of the frame-section, substantially as and for the purposes set forth.

640,186. OBTAINING USEFUL PRODUCTS FROM LIQUORS RESULTING FROM MANUFACTURING CELLULOSE BY SULFITE PROCESSES. CARL D. EKMAN, London, England. Filed July 21, 1899. Serial No. 724,607. (No specimens.)

Claim.—1. The herein-described process or method of treating sulfite liquor which consists in submitting said liquor to the action of oxid of zinc, whereby a chemical combination between said oxid and some substances in said liquor is formed, and said liquor is thereby rendered suitable after evaporation for sizing, stiffening or other purposes.

2. The herein-described process or method of treating sulfite liquor which consists in first dissolving a zinc salt in said liquor and in then converting said zinc salt in said liquor into oxid of zinc by the addition of a base for the purpose set forth.

640,187. CARPET-DISPLAY RACK. WILLIAM ELEY, Suffolk, Va. Filed Sept. 22, 1899. Serial No. 731,291. (No model.)

Claim.—1. In a display-rack, the combination with a plurality of reels and means for rotating them, of separate means for moving the reels successively and simultaneously into and out of operative relation to the rotating means, and means for moving the rotating means into and out of position for engagement by the reels.

2. In a display-rack, the combination with a plurality of reels and a common means for rotating them, of separate means for moving the reels successively and simultaneously into and out of operative relation to the rotating means, and means for moving the rotating means into and out of position for engagement by the reels



3. In a display-rack, the combination with a plurality of reels, each having a sprocket, of a sprocket-chain adapted to rotate the sprockets of the reels, means for moving the chain into and out of alinement with the sprockets and means for moving the reels with their sprockets into and out of engagement with the chain.

4. In a display-rack, the combination with a plurality of reels having rotating sprockets lying in a common plane, of a sprocket-chain encircling the sprockets and movable in the plane of the latter, and means for individually engaging the sprockets with the chain.

5. A display-rack comprising uprights and cross-pieces, bearings in the uprights, reels having shafts journaled in said bearings, one end of each shaft being adapted for lateral movement in its bearing, a sprocket carried by the movable end of each shaft, a chain encircling the sprockets of the several shafts, and means for moving the shafts individually to engage their sprockets with the chain.

6. In a display-rack, the combination with uprights having rearwardly-extending slots therein, of reels journaled in said slots, sprockets carried by the reels and lying in a common plane, a chain encircling the sprockets and adapted for engagement thereby for rotation, and means for moving the chain laterally to permit the outward displacement of the reels.

7. In a display-rack, the combination with uprights having bearings therein, of reels adapted to lie in said bearings and adapted for movement into and out of the bearings, means for rotating the reels, said means lying in the path of outward movement of the reels, and means for moving the rotating means from the paths of the reels, to permit their introduction and removal with respect to the bearings.

8. In a display-rack, the combination with uprights having bearings therein, of reels journaled in said bearings and having each a sprocket-wheel lying in a common vertical plane, shafts journaled in one of the uprights and adapted for rotatable and slidable movement therein, sprockets upon the shafts, a chain upon the last-named sprockets, means for moving the reel sprockets into and out of engagement with the chain, and means for moving the sprocket-shafts to move the chain into and out of the plane of the reel-sprockets.

9. In a display-rack, the combination with uprights having bearings therein, of reels journaled in the bearings, sprockets carried by the reels and lying in a common plane, shafts mounted in one of the uprights and adapted for rotatable and longitudinal movement therein, sprockets carried by said shaft, a chain upon the sprockets encircling the reel-sprockets, a crank carried by one of the shafts through the medium of which the sprocket may be rotated, and drawn longitudinally to remove the adjacent portions of the chain from the plane of the reel-sprockets, a lever connected with the second shaft, and

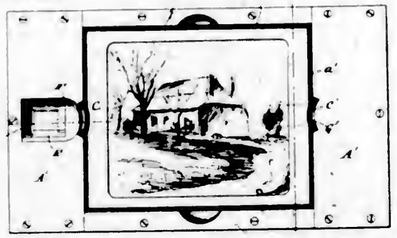
means for operating said lever to move its shaft longitudinally and draw the adjacent end of the chain from the plane of the reel-sprocket.

10. The combination with a display-rack having bearings provided with communicating slots extending through the fronts of the uprights, of an elevator slidably connected with the uprights and comprising sills adapted to receive a reel and to aline with said slots to permit the passage of the reel thereto.

11. In a display-rack, the combination with uprights, having bearings therein and communicating slots adapted to receive reels, of an elevator slidably connected with the uprights and comprising sills adapted to receive a reel and to aline with the slots to permit the passage of the reel through the slots and to the bearings, and means carried by the elevator for engagement with the uprights to hold the elevator at its different discharge-points.

12. The combination with uprights having bearings therein, and communicating slots adapted to receive reels, of plates adjacent the bearings of one upright and adapted to open and close the slots thereof and simultaneously move the adjacent ends of the reels.

640,188. ATTACHMENT FOR STEREOPTICONS, &c. HORACE W. FORCE, Newburg, N. Y. Filed Apr. 16, 1897. Serial No. 632,487. (No model.)



Claim.—1. In a device of the kind described the combination in a holder consisting of two sections each provided with an exposing-opening so constructed as to form a recess or slide-space on one of said sections, a plate located intermediate said sections having an exposing-opening, and slide-clamping mechanism on one surface of said plate and incased in one of said sections, for the purpose and substantially as described.

2. In a slide-holder, the combination of two sections each of said sections having a rectangular opening, a plate located between the sections of said holder also having a rectangular opening, of a pair of synchronously-operating clamping-jaws located on opposite sides of said rectangular opening, substantially as described.

3. The combination in a sectional slide-holder, of a plate located between the sections of said holder, a recess formed in said sections and plate, and a pair of inclined clamping-jaws located on opposite sides of the exposing-opening of said recess, adapted to engage a slide by its edge whereby the slide is securely held against said plate, thereby bringing the slide to an accurate parallel plane with the lenses of an optical lantern, substantially as described.

4. The combination in a holder for lantern-slides, of a recess formed in said holder, a pair of synchronously-acting clamping-jaws arranged opposite to each other within said recess; with a thumb-piece connected to one of said clamping-jaws for expanding the latter, and means for simultaneously controlling the movement of said jaws, substantially as described.

5. The combination in the plate for the purpose described, having the sides opposite the exposing-opening bent at right angles respectively, and adapted to strengthen the plate, the two other sides inclosing such exposing-opening having their edges bent parallel to the plate to form guides; a pair of clamping-jaws; openings E cut in the plate on opposite sides of the exposing-opening for connecting the clamping-jaws, and mechanism on said plate for operating said clamping-jaws, as and for the purpose described.

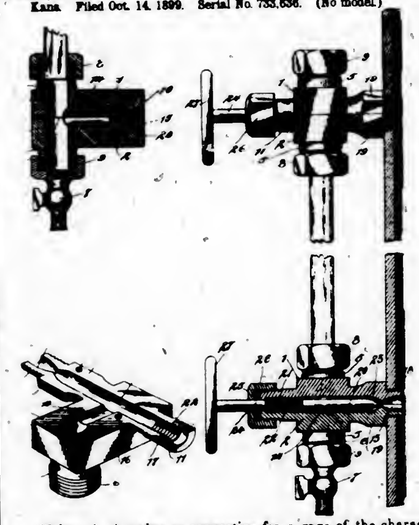
6. The combination in a holder having a recess or slide-space formed therein, of clamping-jaws arranged oppositely within said recess, a thumb-piece rigidly attached to one of said clamping-jaws, a plate located intermediate said holder, and provided with necessary openings substantially as described, sliding bars operating on said plate, and a lever centrally and pivotally connected to said plate near one end thereof and to the ends of said sliding bars whereby when the thumb-piece is operated the clamping-jaws are simultaneously caused to operate, substantially as described.

7. The combination in a slide-holder for optical lanterns, of a plate, springs rigidly attached by one of their ends to opposite parts of the plate, a lever centrally pivoted near one end of the plate, sliding bars having studs or projections to receive the opposite ends of the lever, and clamping-jaws operated in unison through the sliding bars, substantially as described.

8. The combination in a holder, of a plate located intermediate said holder, of the sliding bars arranged longitudinally of said plate, a pivoted lever, clamping-jaws forming part of said sliding bars and connected by said lever, and a thumb-piece for expanding the clamping-jaws; with springs adapted to engage the ends of said sliding bars whereby the clamping-jaws are caused to close, substantially as described.

9. In a device of the kind described, the combination of a plate, a pair of sliding bars arranged and operated upon said plate, substantially as described, of the clamping-jaws, springs located near the ends of said plate, and projections on one end of each of said sliding bars adapted to retain said springs, whereby when the jaws are expanded they will close automatically by the action of said springs, substantially as described.

640,189. GAGE FOR STEAM-BOILERS. JOHN T. FORSEY, Ottawa, Kans. Filed Oct. 14, 1899. Serial No. 733,636. (No model.)



Claim.—1. A casing or connection for a gage of the character set forth consisting of duplicate sections having their inner opposing faces provided with coinciding grooves and channels, each section also having a semineck and a seminipple at opposite portions thereof, a valve mounted between said sections, a connecting-sleeve for the sections, and means for attaching a gage glass or tube thereto.

2. A casing or connection for a gage of the character set forth comprising duplicate sections each provided with a semineck and a seminipple at opposite portions and a gage glass or tube seat, the inner opposing faces of the sections being provided with coinciding grooves and channels forming communicating ways between the boiler and gage-glass, a valve adjustably mounted between the sections, a connecting-sleeve fitted to the necks, and a nut on the gage glass or tube seat.

3. A casing or connection for a gage of the character set forth composed in the main of two duplicate sections each of which comprises a body having a vertical opening therethrough communicating with a gage glass or tube seat, a semicircular neck and a seminipple disposed at opposite points on each section and unitedly forming, respectively, a valve-support and a valve-end seat, a groove being formed transversely of the body and extending through the semicircular neck and the valve-end seat and having communication with the vertical opening of the body by means of a channel of semicircular form disposed in a plane at right angles thereto.

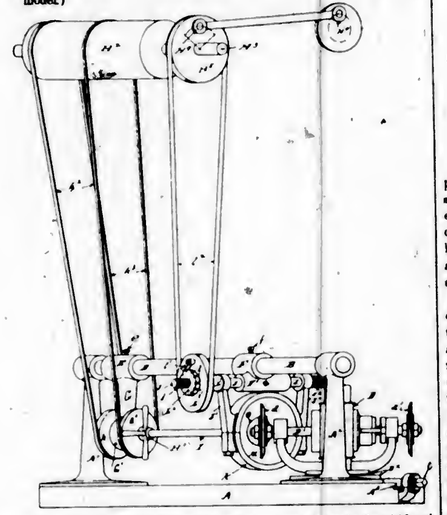
640,190. FLUE OR STOVEPIPE CLEANER. ANDREW A. FREDERICK, Brooklyn, Ohio. Filed Apr. 20, 1899. Serial No. 713,703. (No model.)

Claim.—1. A pipe or flue cleaner consisting of a handle provided with a head comprising two layers of brushing or scraping material, which layers extend about and laterally of the handle and are secured together so as to support each other, substantially as set forth.

2. A pipe or flue cleaner consisting of a handle, A, provided with a circular head, B, formed of a lower layer of laterally-projecting bristles, C, encircling the handle, and an upper layer of laterally-projecting bristles, E, encircling the handle above the lower layer and having its central portion inclining or sloping from the lower layer inwardly and upwardly to where it is wired to the handle, and means for binding the said layers together at or near the junction of the sloping portion of the upper layer with the lower layer, substantially as set forth.



640,191. BIFOCAL-LENS-GRINDING MACHINE. WALLACE H. GAITHER, Erie, Pa. Filed Apr. 21, 1899. Serial No. 713,832. (No model.)



Claim.—1. The combination in a machine for grinding bifocal lenses, of a lens-chuck having a simultaneous gyrative and transverse motion, and a grinding mechanism adapted to operate on a glass secured to said chuck, substantially as and for the purpose set forth.

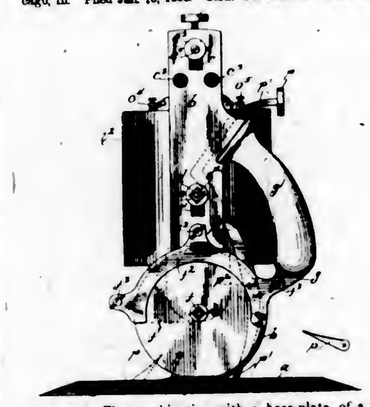
2. The combination in a machine for grinding bifocal lenses, of a lens-chuck, mechanism for imparting gyrating and transverse motion to said lens-chuck, and grinding mechanism adapted to be adjusted toward and away from said lens-chuck, substantially as and for the purpose set forth.

3. The combination in a machine for grinding bifocal lenses, of a lens-chuck, mechanism for imparting a gyrating motion to said chuck, means for adjusting the amount of the gyrative motion of the lens-chuck, mechanism for moving the lens-chuck support transversely back and forth, and grinding and polishing mechanism adapted to operate on a glass secured to the lens-chuck, substantially as and for the purpose set forth.

4. The combination in a machine for grinding bifocal lenses, of a lens-chuck-supporting mechanism, a lens-chuck adjustably mounted thereon, oscillating shaft and yoke mechanism adapted to rotate said lens-chuck mechanism simultaneously with the transverse movement of said chuck, a longitudinally-adjustable ball-and-sleeve bearing for the rear end of said oscillating shaft, clamp mechanism for securing said sleeve to said shaft, reversible mechanism for moving the lens-chuck-supporting mechanism transversely back and forth, and grinding mechanism adapted to be adjusted to operate on a glass secured to said lens-chuck, substantially as and for the purpose set forth.

5. The combination in a machine for grinding bifocal lenses, of a lens-chuck support suspended upon a transverse rod, a lens-chuck plate mounted in a globular bearing thereon, a lens-chuck mounted on said plate at one side of the center thereof, mechanism for moving said lens-chuck support to and fro on said rod, a shaft having a yoke thereon adjustably secured to said lens-chuck plate, a longitudinally-adjustable sleeve and ball bearing support for the rear end of said shaft, and mechanism for oscillating said sleeve and shaft, substantially as and for the purpose set forth.

640,192. ELECTRIC CLOTH-CUTTER. FULTON GARDNER, Chicago, Ill. Filed Jan. 13, 1898. Serial No. 666,493. (No model.)

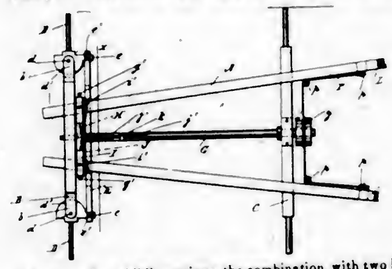


Claim.—1. The combination with a base-plate, of a standard-plate mounted thereon, a vertically-adjustable plate mounted upon said standard-plate, brackets mounted upon said adjustable plate an electric motor supported in said brackets with the axis thereof vertical, a horizontal shaft geared to the motor and carrying the rotary knife, an adjusting-screw for raising and lowering the adjustable plate, and a clamping-screw for clamping the adjustable plate in position, substantially as described.

2. The combination with a base-plate of a standard-plate thereon an adjustable plate mounted on said standard-plate and carrying the electric motor, a horizontal shaft carried by said adjustable plate, a slot in the standard-plate through which said shaft passes, means for adjusting said adjustable plate in position, and a rotary knife mounted upon said shaft at the side of the standard-plate, substantially as described.

3. The combination with a base-plate, of a standard-plate mounted thereon, a vertically-adjustable plate mounted upon said standard-plate, brackets mounted upon said adjustable plate, an electric motor supported in said brackets having the axis thereof vertical, a horizontal shaft geared to the motor and carrying the rotary knife and means for permitting the adjustment of said adjustable plate relatively to the standard-plate, substantially as described.

640,193. CHILD'S CARRIAGE. JOHN K. GERRICH, Hanover, Pa., assignor of one-half to William D. Kinsell and Jacob Emory Renoll, same place. Filed July 18, 1899. Serial No. 724,258. (No model.)



Claim.—1. In a child's carriage, the combination, with two horizontally-movable spindles for the steering-wheels pivoted at their inner ends and arranged one on each side of the frame, of spring mechanism normally holding the axes of the said spindles in alinement so that the carriage is constrained to move in a straight line, substantially as set forth.

2. In a child's carriage, the combination, with an axle secured to the carriage-frame and provided with forked jaws or end portions, of horizontally-movable spindles for the steering-wheels provided with plates which bear continually against the said jaws, and pins pivoting the said plates between the jaws, substantially as set forth.

3. In a child's carriage, the combination, with two axles secured to the carriage-frame, of horizontally-movable spindles for the steering-wheels pivoted to the end portions of one of the said axles, and spring mechanism normally holding the said spindles parallel with the other said axle, substantially as set forth.

4. In a child's carriage, the combination, with an axle secured to the carriage-frame and provided with pivoted spindles for the steering-wheels, of a coupling-rod connecting the said spindles, steering mechanism operating to move the coupling-rod longitudinally in either direction, and spring mechanism normally holding the said coupling-rod in its middle position, substantially as set forth.

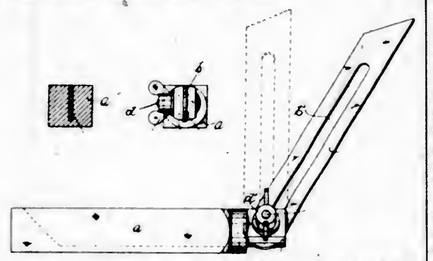
5. In a child's carriage, the combination, with an axle secured to the carriage-frame and provided with pivoted spindles for the steering-wheels, of a coupling-rod connecting the said spindles, a steering-shaft journaled in the frame, a segment secured on the said shaft, a flexible connection wound on the said segment and operatively connected with the said spindles, and a spring-operated bar bearing on the flat side of the said segment, substantially as set forth.

6. In a child's carriage, the combination, with an axle secured to the carriage-frame and provided with pivoted spindles for the steering-wheels, of a coupling-rod connecting the said spindles, a steering-shaft journaled in the said frame, an operating device secured on the said shaft, a taking-up or tension device secured to the said shaft, and a flexible connection connected to the said devices and spindles, substantially as set forth.

7. In a child's carriage, the combination, with a longitudinal steering-shaft journaled in the frame and provided with an operating device, of slidable handles supported by the handle-rods of the carriage, springs supporting the said handles, and a flexible connection operatively connecting the said handles with the said operating device and permitting the said shaft to be oscillated, substantially as set forth.

8. In a child's carriage, the combination, with a longitudinal steering-shaft journaled in the frame and provided with an operating device, of guides carried by the handle-rods of the carriage, steering-handles slidable on the said guides, springs supporting the said handles, and a flexible connection between the said handles and operating device, substantially as set forth.

640,194. BEVEL. GEORGE L. GRISWOLD, Norwich, Conn. Filed May 1, 1899. Serial No. 715,061. (No model.)



Claim.—1. In combination, in a bevel, a body portion that is angular in cross-section, an extension revolubly mounted on said body, and a blade swiveled in the said extension.

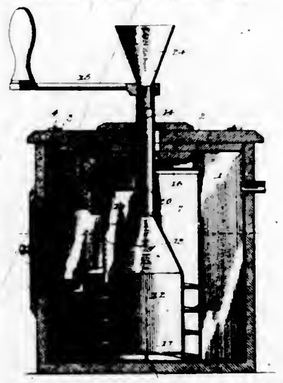
2. In combination, in a bevel, a body portion that is angular in cross-section, an extension revolubly mounted on said body, a blade swiveled in the said extension, and means for clamping the body, extension and blade together.

3. In combination, in a bevel, a body portion, an extension revolubly mounted on said body, a blade swiveled in the said extension, the said body and extension being slotted as set forth, and means for clamping the blade within the extension and for clamping the extension upon the said body portion.

640,195. ICE-CREAM FREEZER. JOHN W. HART, Iola, Kans., assignor of one-half to John Spoo and William Bradley, same place. Filed Mar. 28, 1898. Serial No. 675,439. (No model.)

Claim.—1. In a refrigeratiog apparatus, the combination of an outer receptacle for the freezing agent, a vessel fixed within the receptacle and surrounded by such agent, a second rotary vessel within the first-named vessel having a conical portion, a scraper mounted loosely upon the last-named vessel and movable longitudinally thereof, and engaging a fixed part to prevent its rotation, and a spring adapted to press the scraper longitudinally of said vessel and along its line of engagement and into contact with the conical portion, as and for the purpose set forth.

2. In a refrigerating apparatus, the combination with a receptacle adapted to receive a freezing mixture, a vessel fixed within the receptacle, a second vessel within the first-named vessel and separated therefrom at its base and sides by interspaces, a spiral flange intermediate the sides of the vessels and extending from the bottom of the first-named vessel upwardly thereof, a spring-pressed scraper mounted loosely upon the inner vessel and movable longitudinally and rotatably of the latter and adapted to engage the inner vessel, an opening in the base of the inner vessel, and means for contributing the material to be frozen directly to the inner vessel.



3. In a refrigerating apparatus, the combination with a vessel having an opening through a side, and a rotary agitator having a tapered portion adjacent said opening, of a spring-pressed combined deflector and scraper loosely journaled upon the agitator and movable longitudinally thereof and having a stop at its outer edge constantly engaging with a side of the opening of the vessel, substantially as and for the purpose set forth.

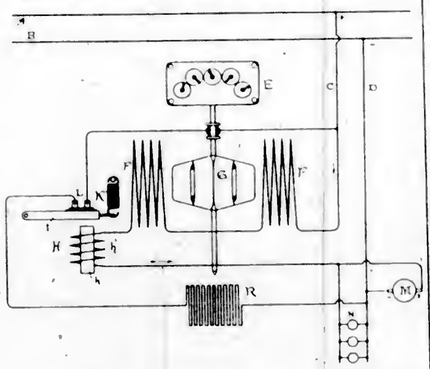
4. In a refrigerating apparatus, the combination with a vessel having an opening in its side, and an agitator, of a combined deflector and scraper loosely journaled upon the agitator and having its outer edge portion engaging with a side of the opening of the vessel, and a spring exerting a downward pressure upon the deflector to hold the same in contact with the agitator, substantially as set forth.

5. In a refrigerating apparatus, the combination with a vessel having a side opening, and an agitator comprising a cylindrical body having an upper conical end portion, of a combined deflector and scraper comprising a plate loosely mounted upon the stem of the agitator and having its inner lower edge portion cut away to engage with the conical end portion of the body and having its outer edge portion constructed to engage with a side of the opening of the vessel, substantially as described

6. A refrigerating apparatus comprising a receptacle for receiving the freezing agent, a vessel located within the receptacle and having a side opening, a compartment located in the space formed between the opposing sides of the receptacle and vessel, a door closing the outer end of the compartment, a lip or spout overhanging the bottom part of the compartment and in the plane of the lower edge of the opening formed in the side of the vessel, a cylindrical body having its upper end made conical and having a scraper at its lower end, and a spiral elevator at its outer side, a tubular stem connecting with the conical end of the body and providing means for supplying the mixture to be frozen to the vessel, a combined deflector and scraper loosely mounted upon the tubular stem and adapted to engage with a side wall of the compartment, and a spring applied to the upper end portion of the deflector and adapted to engage with the cover of the vessel and exert a downward pressure upon the deflector, substantially as and for the purpose set forth.

7. A refrigerating apparatus comprising an outer receptacle having an opening and adapted to receive the freezing agent, an inner cylindrical vessel having an opening communicating with the opening of the receptacle, said vessel being adapted to receive the mixture to be frozen, and a vertical hollow rotary agitator arranged concentric within the vessel, extending from the exterior of the apparatus to the said vessel and forming a conduit to enable the mixture to be frozen to be introduced into the device, said agitator being reduced at its upper and cylindric at its lower end, a spiral conveyer fast around the cylindric portion and adapted to scrape the frozen mixture from within the vessel and raise the same to the said openings, and a deflector opposite the reduced end of the agitator, engaging therewith, and directing the frozen material into said openings, substantially as described.

640,196. ELECTRIC-METER DEVICE. CARYL D. HASKINS, Newton, Mass., assignor to the General Electric Company, of New York. Filed Oct. 26, 1898. Serial No. 694,645. (No model.)



Claim.—1. The combination, with an electric meter, of a device for opening a circuit of the meter, responsive to reversal of current operating the electric meter.

2. The combination with the mains of a distributing system, of a consumption-circuit fed therefrom but capable of returning energy thereto, and means whereby such return of energy causes a meter-circuit to be so modified as to prevent the registry of the returned energy.

3. In an electric meter, armature and field circuits, and a device for opening the armature-circuit when the current in the field reverses.

4. In an electric meter, the combination of armature and field circuits, with a circuit-controller in series with the fields and controlling the armature-circuit.

5. In an electric meter, a coil in series with the fields, a second coil in series with the armature, and contacts for opening and closing the armature-circuit controlled by the coils.

6. In an alternating-current electric meter, a coil in series with the fields, a second coil mounted for movement relative to the first, and contacts for opening and closing the armature-circuit, actuated by the movement of the coil.

7. In an alternating-current electric meter, the combination of a coil in series with the load, a second coil mounted for movement relative to the first and in shunt to the load, contacts actuated by the movement of the second coil, and circuits leading from the contacts, one including the motor-armature, the other a resistance.

8. The combination with an electric meter, of a coil in series with the field, and a second coil in series with the armature and in inductive relation to the first coil, and contacts controlled by said coils adapted to cut out the meter-armature upon a reversal of current in the field, without interfering with the flow of current in either of the said coils.

640,197. PIPE-COUPLING. ALFRED M. HEWLETT, Kewanee, Ill. Filed Mar. 10, 1899. Serial No. 708,528. (No model.)

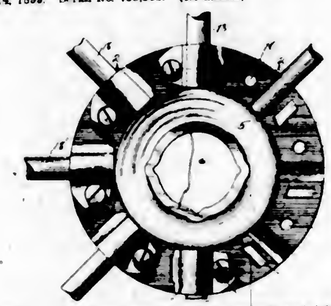


Claim.—1. In a pipe-coupling, the combination with a member made of relatively hard material and constructed for attachment to the end of a pipe, said member being provided with an integral bearing-surface, of a second coupling member composed of relatively softer and substantially non-oxidizable metal and having formed integrally therewith a bearing-surface arranged to bear against the bearing-surface of the member formed of harder metal, and a coupling-ring also formed of relatively hard metal and detachably connected to the member of softer metal, said ring operating when rotated to bring the bearing-surfaces of the two members into close contact, substantially as described.

2. In a pipe-coupling, the combination of a member constructed to be secured to the end of a pipe and composed of a relatively hard material, said member being formed with a bearing-surface and a circumferential, external shoulder, a coupling-ring also composed of relatively hard metal and provided with a shoulder arranged to bear on the shoulder of said member, and a second member composed of relatively softer and practically non-oxidizable material constructed to be screwed into said coupling-ring and having a bearing-surface formed integrally therewith, said ring when rotated operating to draw the said bearing-surfaces into close contact, substantially as described.

3. In a pipe-coupling, the combination with a coupling member of relatively hard material and constructed for attachment to the end of a pipe, said member being provided with an integral bearing-surface, of a coupling-ring rotatably arranged on said coupling member, said ring being also composed of a relatively hard material and interiorly screw-threaded, and a second coupling member of relatively softer and substantially non oxidizable material and externally screw-threaded to engage the internal screw-threads of the coupling-ring, said softer member being provided with a bearing-surface arranged to closely bear against the bearing-surface on the harder member when the coupling-ring is screwed up, substantially as described.

640,198. WHEEL. WILLIAM K. HOAGLAND, Peru, Ill. Filed Oct. 14, 1899. Serial No. 733,582. (No model.)



Claim.—1. A hub provided with a circumferential flange having grooves forming each one half of a spoke-socket and with clamping-levers adapted at one end to pivotally engage said flange at one side of said groove, and having each a recess forming the other half of a spoke-socket, and with means for forcing the other end of said clamping-levers down toward and securing the same to said hub, substantially as described.

2. In a wheel, the combination with spokes, and a hub having grooves adapted each to form one half of a spoke socket, of clamping-levers adapted at one end to pivotally engage said hub and provided each with a groove forming the other half of a spoke-socket, and means for securing the other end of said clamping-levers to said hub, substantially as described.

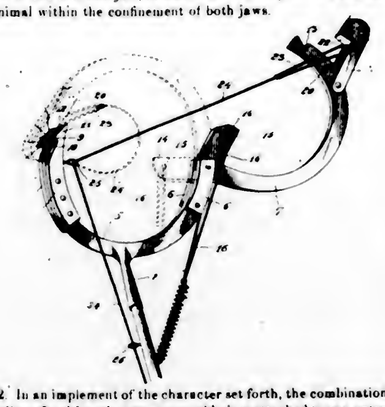
3. In a wheel, the combination with spokes, and a hub having grooves forming each one half of a spoke-socket, of clamping-levers adapted at one end to pivotally engage said hub and having each a recess adapted to coact with one of said grooves and form the other half of a spoke-socket, and means for forcing the other end of said clamping-levers toward and securing the same to said hub, substantially as described.

4. In a wheel, the combination with spokes, and a hub provided with a circumferential flange having grooves forming each one half of a spoke-socket, of clamping-levers adapted at one end to pivotally engage said hub and having each a recess adapted to coact with one of said grooves and form the other half of a spoke-socket, and means for forcing the other end of said clamping-levers toward and securing the same to said hub, substantially as described.

5. In a wheel, the combination with spokes, of a hub having a circular plate provided with grooves and openings beside said grooves, clamps provided each with a recess adapted to register with said grooves and form a spoke-socket, and with a lug at one end adapted to enter said openings and engage said plate, and devices for securing the other end of said clamp to said plate, substantially as described.

640,199. ANIMAL CATCHING AND HOLDING IMPLEMENT. JOHN S. HOLLAND, Coloma, Mo. Filed Sept. 30, 1899. Serial No. 732,217. (No model.)

Claim.—1. In an implement of the character set forth, the combination of a handle having a fixed jaw, a movable jaw pivoted to one extremity of the fixed jaw, and a cord connected to the movable jaw and operatively guided in relation to the fixed jaw, said cord being in loose engagement with the fixed jaw and extending along the handle, the said cord being disposed across both jaws and by the operation of the movable jaw, caused to form a loop around the leg of the animal within the confinement of both jaws.



2. In an implement of the character set forth, the combination of a handle, a fixed jaw thereon, a movable jaw attached to one extremity of the fixed jaw, a cord connected to the movable jaw and extending across both jaws in an operative position said cord being in loose engagement with the fixed jaw and extending along the handle, means for automatically closing the movable jaw after it has passed a certain point, and means for locking both jaws closed.

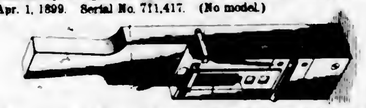
3. An implement of the character set forth, comprising a movable jaw and a fixed jaw and a cord connected to the movable jaw and extending across both jaws when the movable jaw is open, said cord being in loose engagement with the fixed jaw and continued along the handle and forming a loop within the confinement of the jaws which incloses the leg of the trapped animal.

4. In an implement of the character set forth, the combination of a handle, an arm having a rear angularly-bent end attached to said handle, a fixed jaw secured to said arm, a spring-actuated movable jaw pivoted to one extremity of the fixed jaw, a cord connected to the movable jaw, loosely engaging the fixed jaw and continued along the handle and by opening the movable jaw extended across both jaws, and means for locking the movable jaw closed.

5. In an implement of the character set forth, the combination of a handle, a fixed jaw connected to the handle, a movable jaw having an inwardly-extending angular foot at its point of attachment to the fixed jaw, a spring connected to the handle and said foot, a cord for operating the movable jaw and extended across both jaws when the movable jaw is open, and means for locking the movable jaw closed.

6. In an implement of the character set forth, the combination of a handle, a fixed jaw connected thereto and having catch-bars on one extremity, a movable jaw pivotally attached to the other extremity of the fixed jaw and having its free end shouldered, a latch pivotally mounted on the free extremity of the movable jaw, means for automatically closing the movable jaw after it has passed a certain point, and a cord attached to the latch on the movable jaw and loosely guided adjacent the said catch-bars, said cord being continued along the handle and forming a loop around a leg of the trapped animal.

640,200. LIFTING-JACK FOR VEHICLES. DANIEL W. HUDSON, Clinton, Ky., assignor of one-half to Samuel R. Seay, same place. Filed Apr. 1, 1899. Serial No. 711,417. (No model.)

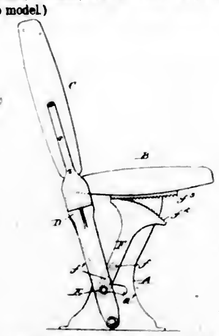


Claim.—1. A device of the class described, comprising a lever, a wheel-engaging device mounted on the lever and adapted to move independently thereof, and an L-shaped catch pivoted to one edge of the lever, combined with a standard hinged to the lever at its lower end, and a line extending through the opening or guide and provided at its outer end with a grip or handle, substantially as shown.

2. A device of the class described comprising a lever, a standard hinged to the lever, and a wheel-engaging device mounted on the lever and adapted to move independently thereof, whereby a wheel is drawn outward and is prevented from slipping off the device, substantially as described.

3. A device of the class described comprising a lever provided with an opening or guide, a standard hinged to the lever, a line extending through the opening or guide and provided at its outer end with a grip or handle, and a spoke-engaging device mounted on the inner end of the line, substantially as described.

640,201. SEAT. FREDERIC W. HUNTER, Cranford, N. J., assignor to Henry S. Hale, Philadelphia, Pa. Filed May 19, 1899. Serial No. 717,585. (No model.)

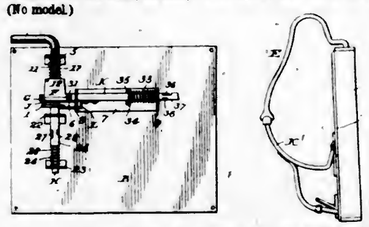


Claim.—1. In a seat, the combination with a frame and movable cushion, of a seat-back, pivoted supporting-arms therefor, and pivoted levers, the lower ends of which are connected to and operate with said arms, their upper ends being provided with gearing coacting with corresponding gearing secured to said cushion or cushion-frame, substantially as described.

2. In a seat, the combination with a frame and movable cushion, of a seat-back, pivoted supporting-arms therefor, a foot-rest extending between and connecting said pivoted arms, pivoted cushion-shifting levers having slotted lower ends engaging with said foot-rest, and toothed upper ends engaging with correspondingly-toothed tracks on the under side of said seat, substantially as described.

3. In a seat, the combination with a frame and movable cushion, of a seat-back, pivoted supporting-arms therefor, a foot-rest extending between and connecting said arms and operating through slots in said frame, and pivoted cushion-shifting levers provided at their lower ends with slots through which said foot-rest extends, and at their upper ends with segmental gears adapted to coact with tracks upon the under side of said cushion, substantially as described.

640,202. COIN-FREED APPARATUS. GERSON IGERSHEIMER, Frankfort-on-the-Main, Germany. Filed Apr. 6, 1898. Serial No. 676,702. (No model.)



Claim.—1. In a coin-controlled apparatus, the combination with coin-controlled operating means, of independently-constructed key-controlled means adapted to coact with said operating means to enable the apparatus to be positively operated without the interposition of a coin, substantially as described.

2. In a coin-controlled retaining device, the combination with means for retaining articles in place, of means for locking said retaining means adapted to be made operable upon the insertion of a coin or other article, and means for causing said locking means to become operable without the insertion of a coin, substantially as set forth.

3. In a coin-controlled retaining device, the combination with means for retaining articles in place, of coin-controlled means for locking said securing means, and key-operable means for rendering said locking means operable without the insertion of a coin, substantially as described.

4. In a coin-controlled locking device, the combination with coin-controlled locking means normally inoperable, of key-operable means

for rendering said locking means operable without the insertion of a coin, and key-operable means for unlocking said device, substantially as described.

5. In a coin-controlled locking device, the combination with coin-controlled locking means normally inoperable, of key-controlled means for making said locking means operable, means for retaining the key in the device when it is locked and for releasing the key when the device is unlocked, means for unlocking the device by another key and for releasing the latter key when the device is locked and retaining it when the device is unlocked, substantially as described.

6. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, and means for retaining the key for said means in the device when it is locked, substantially as described.

7. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, and key-controlled means for unlocking the device, substantially as described.

8. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, key-operable means for unlocking said device and retaining the unlocking key when the device is unlocked, substantially as described.

9. In a coin-controlled locking device, the combination with manually-operable locking means, normally inoperable, and adapted to be made operable by the engagement with it of a coin or bolt, of a key-operable bolt for engaging with said locking means, and means for retaining the key in the device when the device is locked, substantially as described.

10. In a coin-controlled locking device, the combination with coin-controlled manually-operable locking means, normally inoperable, but adapted to be made operable by the engagement therein of a coin or of a bolt, a key-operable bolt for engaging with said locking means; key-operable means for unlocking the device and retaining the key of the last-named means in the device when the device is unlocked, substantially as described.

11. In a coin-controlled apparatus, the combination with operating means comprising two normally non-coactive parts adapted to be connected for cooperation by a coin or bolt, of a key-operable device for forcing a bolt into engagement with said parts, substantially as described.

12. In a coin-controlled apparatus, the combination with operating means comprising two normally non-coactive parts having mutually registering perforations for the reception of a coin or of a bolt, of a key-operable bolt for engagement with said parts, substantially as described.

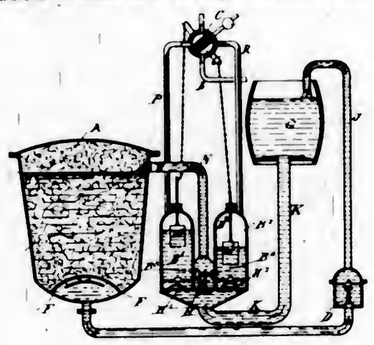
13. In a coin-controlled apparatus, the combination with coin-controlled operating means comprising a rock-shaft, a cam rigidly secured to said rock-shaft and formed with a slot, a second cam loosely mounted on said rock-shaft independently of said cam and formed with a coin-slot, both cams having registering perforations, of a key-operable bolt adapted to engage in said perforations, substantially as described.

14. In a coin-controlled apparatus, the combination with coin-controlled operating means comprising two independent cams having registering perforations adapting them to be made cooperative by the insertion of a coin or a bolt, of a key-operable bolt for engagement with said cams, substantially as described.

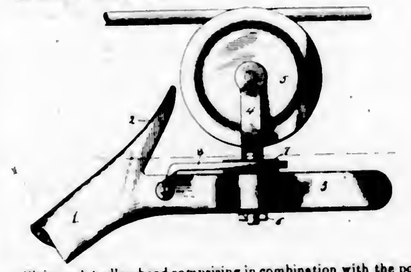
15. In a coin-controlled securing device, the combination with a manually-operable locking mechanism consisting of a locking-arm and a rock-shaft, of two independent cams mounted on said rock-shaft, only one of said cams being secured to said shaft, said cams being adapted to be connected together by a coin or a bolt, of a locking-bar adapted to engage said cams with one end, a retaining-plate secured to said locking-bar and having beveled faces, a bolt to connect said cams together, a cam carrying said bolt and having its edges beveled for engagement with the beveled edges of said retaining-plate, a key-operable reciprocating rod upon which said bolt-bearing cam is rotatably mounted, inclined surfaces on said reciprocating rod to permit its operation by a key, and a shoulder on said rod for engaging with the key to retain the key in place after the rod has been operated, substantially as described.

640,203. DYE-VAT. HERMANN ILLGEN, Crimmitzschau, Germany. Filed Dec. 23, 1897. Serial No. 663,222. (No model.)

Claim.—In an apparatus for dyeing or producing dyeing liquor, having a vat with sieves, a pair of pressure-chambers and means for feeding liquor from the said chambers under pressure, alternately, to the said vat, and a pipe system leading from the liquor-reservoir to the said pressure-chambers and from the vat back to the said reservoir, as specified, the combination of a spring-pressed valve D arranged in the pipe leading from the vat back to the reservoir and adapted to close suddenly when the vat is momentarily relieved of pressure in the manner and for the purpose substantially as described.



640,204. TROLLEY. CHARLES A. JACKSON, Lewiston, Me., assignor of one-half to Fred A. Cram, Auburn, Me. Filed Feb 16, 1899. Serial No. 705,709. (No model.)



Claim.—A trolley-head comprising in combination with the pole, the trolley-wheel carrying yoke swiveled in said pole, the shank portion of the yoke having a shoulder resting on the pole, an elongated strip 7 secured at right angles to the shank of the yoke in a recessed portion thereof, the lower edge of said strip and the shoulder being in the same plane, and the spring-bar 8 secured to the trolley-pole and bearing longitudinally against the outer face of said strip, as shown and described.

640,205. AUTOMATIC CORN-PLANTER. JAMES R. JARMIN, Osceola, Nebr., assignor, by mesne assignments, to the Implement Manufacturing Company, Davenport, Iowa. Filed Oct. 27, 1899. Serial No. 734,944. (No model.)

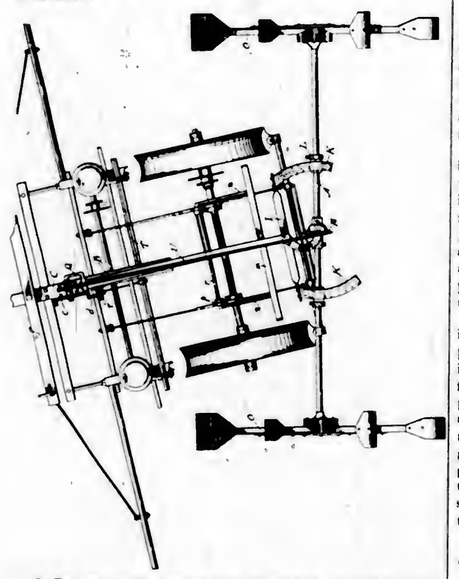
Claim.—1. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment operatively connected with the seed-dropping mechanism and comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its opposite end with the marker-shaft, substantially as described.

2. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its other end to the marker-shaft and an operative connection between said marker and the seed-dropping mechanism of the planter at the longitudinal center of the planter and marker, substantially as described.

3. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a draft-bar flexibly connected at its ends, respectively, with the marker and planter, substantially as described.

4. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar flexibly connected

at its ends, respectively, to the marker-shaft and the planter and yielding connections between said draft-bar and the marker-shaft at opposite sides of the flexible connection therebetween, substantially as described.



5. The combination with a corn-planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar and a flexible connection between the ends of said bar and the planter and marker-shaft, respectively, spring-boxes secured to said draft-bar and encompassing the marker-shaft at either side of the flexible connection thereof with said bar, guide-bearings on the marker-shaft and springs confined between said bearings and the ends, respectively, of the spring-boxes, substantially as described.

6. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar flexibly and yieldingly connected at one end with the marker-shaft and connected at its opposite end with the planter by a U-shaped coupling affording pivots at right angles to each other, substantially as described.

7. The combination with a planter and the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a tappet adapted to operate said crank-arm and a sprocket-wheel and chain connection between said tappet and the marker-shaft, substantially as described.

8. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a lever pivoted to the planter and connected with said crank-arm, a tappet for vibrating said lever and a sprocket-wheel and chain connection between said tappet and the marker, substantially as described.

9. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft and a connection between said tappet and the rock-shaft of the dropping mechanism for operating the same, substantially as described.

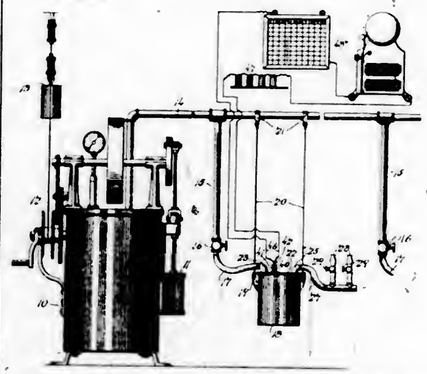
10. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a locking-lever pivoted to the machine and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism, substantially as described.

11. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and at its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet for rocking said shaft and a sprocket-wheel and chain connection between said tappet and marker, substantially as described.

12. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed dropping mechanism of the planter, a tappet, a lever pivoted to the planter and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism, substantially as described.

13. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a lever pivoted to the machine and adapted to be rocked by the tappet, a rod and crank-arm connection between said lever and the shaft of the seed-dropping mechanism, substantially as described.

640,206. MILKING APPARATUS. DANIEL KLEIN and WILLIAM P. SWARTZ, Poughkeepsie, N. Y. Filed Dec. 19, 1898. Serial No. 699,730. (No model.)



Claim.—1. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch having a movable member operatively connected with said impact element, an exhaust-controlling valve, and a magnet for actuating the valve, the switch being in electrical circuit with the magnet and an alarm mechanism, substantially as specified.

2. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch operatively connected with said impact element, the switch being in electrical circuit with an alarm mechanism, a circuit-closing spring for opposing the pressure of liquid upon said impact element and an electrically-controlled valve in operative connection with the exhausting-conveyer and included in the said circuit, substantially as specified.

3. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch having a movable member forming one element of a lever by which said impact ele-

for rendering said locking means operable without the insertion of a coin, and key-operable means for unlocking said device, substantially as described.

5. In a coin-controlled locking device, the combination with coin-controlled locking means normally inoperable, of key-controlled means for making said locking means operable, means for retaining the key in the device when it is locked and for releasing the key when the device is unlocked, means for unlocking the device by another key and for releasing the latter key when the device is locked and retaining it when the device is unlocked, substantially as described.

6. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, and means for retaining the key for said means in the device when it is locked, substantially as described.

7. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, and key-controlled means for unlocking the device, substantially as described.

8. In a coin-controlled locking device, the combination with normally-inoperable coin-controlled locking means, of key-operable means adapted to coact with said locking means to render the same operable without the insertion of a coin, key-operable means for unlocking said device and retaining the unlocking key when the device is unlocked, substantially as described.

9. In a coin-controlled locking device, the combination with manually-operable locking means, normally inoperable, and adapted to be made operable by the engagement with it of a coin or bolt, of a key-operable bolt for engaging with said locking means, and means for retaining the key in the device when the device is locked, substantially as described.

10. In a coin-controlled locking device, the combination with coin-controlled manually-operable locking means, normally inoperable, but adapted to be made operable by the engagement therein of a coin or of a bolt, a key-operable bolt for engaging with said locking means; key-operable means for unlocking the device and retaining the key of the last-named means in the device when the device is unlocked, substantially as described.

11. In a coin-controlled apparatus, the combination with operating means comprising two normally non-coactive parts adapted to be connected for cooperation by a coin or bolt, of a key-operable device for forcing a bolt into engagement with said parts, substantially as described.

12. In a coin-controlled apparatus, the combination with operating means comprising two normally non-coactive parts having mutually registering perforations for the reception of a coin or of a bolt, of a key-operable bolt for engagement with said parts, substantially as described.

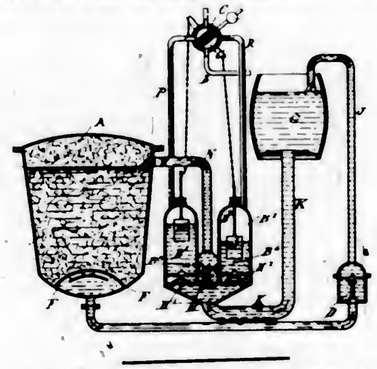
13. In a coin-controlled apparatus, the combination with coin-controlled operating means comprising a rock-shaft, a cam rigidly secured to said rock-shaft and formed with a slot, a second cam loosely mounted on said rock-shaft independently of said cam and formed with a coin-slot, both cams having registering perforations, of a key-operable bolt adapted to engage in said perforations, substantially as described.

14. In a coin-controlled apparatus, the combination with coin-controlled operating means comprising two independent cams having registering perforations adapting them to be made cooperative by the insertion of a coin or a bolt, of a key-operable bolt for engagement with said cams, substantially as described.

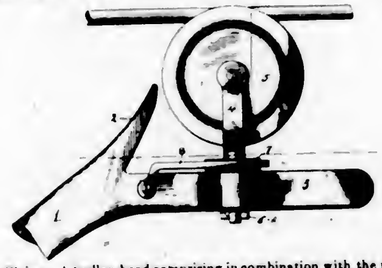
15. In a coin-controlled securing device, the combination with a manually-operable locking mechanism consisting of a locking-arm and a rock-shaft, of two independent cams mounted on said rock-shaft, only one of said cams being secured to said shaft, said cams being adapted to be connected together by a coin or a bolt, of a locking-bar adapted to engage said cams with one end, a retaining-plate secured to said locking-bar and having beveled faces, a bolt to connect said cams together, a cam carrying said bolt and having its edges beveled for engagement with the beveled edges of said retaining-plate, a key-operable reciprocating rod upon which said bolt-bearing cam is rotatably mounted, inclined surfaces on said reciprocating rod to permit its operation by a key, and a shoulder on said rod for engaging with the key to retain the key in place after the rod has been operated, substantially as described.

640,203. DYE-VAT. HERMANN ILLGEN, Crimmitzschau, Germany. Filed Dec. 23, 1897. Serial No. 663,222. (No model.)

Claim.—In an apparatus for dyeing or producing dyeing liquor, having a vat with sieves, a pair of pressure-chambers and means for feeding liquor from the said chambers under pressure, alternately, to the said vat, and a pipe system leading from the liquor-reservoir to the said pressure-chambers and from the vat back to the said reservoir, as specified, the combination of a spring-pressed valve D arranged in the pipe leading from the vat back to the reservoir and adapted to close suddenly when the vat is momentarily relieved of pressure in the manner and for the purpose substantially as described.



640,204. TROLLEY. CHARLES A. JACKSON, Lewiston, Me., assignor of one-half to Fred A. Cram, Auburn, Me. Filed Feb. 16, 1899. Serial No. 705,709. (No model.)



Claim.—A trolley-head comprising in combination with the pole, the trolley-wheel-carrying yoke swiveled in said pole, the shank portion of the yoke having a shoulder resting on the pole, an elongated strip 7 secured at right angles to the shank of the yoke in a recessed portion thereof, the lower edge of said strip and the shoulder being in the same plane, and the spring-bar 8 secured to the trolley-pole and bearing longitudinally against the outer face of said strip, as shown and described.

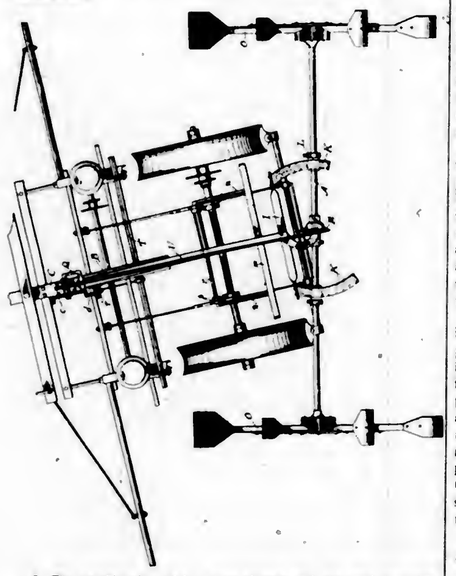
640,205. AUTOMATIC CORN-PLANTER. JAMES R. JARNIN, Osceola, Nebr., assignor, by mesne assignments, to the Implement Manufacturing Company, Davenport, Iowa. Filed Oct. 27, 1899. Serial No. 734,944. (No model.)

Claim.—1. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment operatively connected with the seed-dropping mechanism and comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its opposite end with the marker-shaft, substantially as described.

2. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels, a shaft therefor, a draft-bar flexibly connected at one end with the planter and pivotally and yieldingly connected at its other end to the marker-shaft and an operative connection between said marker and the seed-dropping mechanism of the planter at the longitudinal center of the planter and marker, substantially as described.

3. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a draft-bar flexibly connected at its ends, respectively, with the marker and planter, substantially as described.

4. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism a shaft therefor, a draft-bar flexibly connected at its ends, respectively, to the marker-shaft and the planter and yielding connections between said draft-bar and the marker-shaft at opposite sides of the flexible connection therebetween, substantially as described.



5. The combination with a corn-planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar and a flexible connection between the ends of said bar and the planter and marker-shaft, respectively, spring-boxes secured to said draft-bar and encompassing the marker-shaft at either side of the flexible connection thereof with said bar, guide-bearings on the marker-shaft and springs confined between said bearings and the ends, respectively, of the spring-boxes, substantially as described.

6. The combination with a planter and the seed-dropping mechanism thereof, of an automatic check-row attachment comprising a pair of spade marker-wheels operatively connected with the seed-dropping mechanism, a shaft therefor, a draft-bar flexibly and yieldingly connected at one end with the marker-shaft and connected at its opposite end with the planter by a U-shaped coupling affording pivots at right angles to each other, substantially as described.

7. The combination with a planter and the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a tappet adapted to operate said crank-arm and a sprocket-wheel and chain connection between said tappet and the marker-shaft, substantially as described.

8. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker, of a rock-shaft connected with, so as to operate, the seed-dropping mechanism, a crank-arm on said shaft, a lever pivoted to the planter and connected with said crank-arm, a tappet for vibrating said lever and a sprocket-wheel and chain connection between said tappet and the marker, substantially as described.

9. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft and a connection between said tappet and the rock-shaft of the dropping mechanism for operating the same, substantially as described.

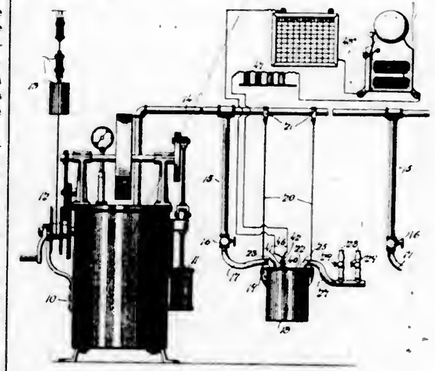
10. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said marker and planter, comprising a U-shaped coupling affording pivots at right angles to each other, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a locking-lever pivoted to the machine and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism, substantially as described.

11. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and at its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet for rocking said shaft and a sprocket-wheel and chain connection between said tappet and marker, substantially as described.

12. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed dropping mechanism of the planter, a tappet, a lever pivoted to the planter and adapted to be rocked by the tappet and a rod and crank-arm connection between said lever and the rock-shaft of the seed-dropping mechanism, substantially as described.

13. The combination with a planter, the seed-dropping mechanism thereof, a trailing marker and a flexible connection between said planter and marker comprising a coupling-bar pivotally, but yieldingly, connected at one end to the marker-shaft and its opposite end flexibly connected with the planter by a U-shaped coupling affording pivots at right angles to each other, a rock-shaft connected with, so as to operate, the seed-dropping mechanism of the planter, a tappet mounted on an axis common to the horizontal pivot of said coupling, a sprocket-wheel and chain connection between the hub of said tappet and the marker-shaft, a lever pivoted to the machine and adapted to be rocked by the tappet, a rod and crank-arm connection between said lever and the shaft of the seed-dropping mechanism, substantially as described.

640,206. MILKING APPARATUS. DANIEL KLEIN and WILLIAM P. SWARTZ, Poughkeepsie, N. Y. Filed Dec. 19, 1898. Serial No. 699,730. (No model.)



Claim.—1. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch having a movable member operatively connected with said impact element, an exhaust-controlling valve, and a magnet for actuating the valve, the switch being in electrical circuit with the magnet and an alarm mechanism, substantially as specified.

2. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch operatively connected with said impact element, the switch being in electrical circuit with an alarm mechanism, a circuit-closing spring for opposing the pressure of liquid upon said impact element and an electrically-controlled valve in operative connection with the exhausting-conveyer and included in the said circuit, substantially as specified.

3. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, and a switch having a movable member forming one element of a lever by which said impact ele-

ment is supported, the switch being in electrical circuit with an alarm mechaniam, means for automatically closing the switch when the impact element is relieved of the pressure of the incoming liquid and an electrically-controlled valve in operative connection with the exhausting-conveyer and included in the said circuit, substantially as specified.

4. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, an impact element arranged in the path of incoming fluid, a switch having a yieldingly-actuated movable member operatively connected with said impact element, a plug-socket having members connected respectively with the members of said switch and a plug removably seated in said socket, and having contact-plates in electrical circuit with an alarm mechanism, substantially as specified.

5. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, a movable impact element arranged in the path of liquid entering the receptacle through said supply-nozzle, an electrically-actuated indicator, a switch controlling the indicator-circuit and having a movable member operatively connected with said impact element, an exhaust-controlling valve, and means, controlled by said movable switch member, for actuating said controlling-valve, substantially as specified.

6. In a milking apparatus, the combination with a receptacle, and means, including a conveyer, for exhausting the air from the interior of the receptacle, of a liquid-supply nozzle, a movable impact element arranged in the path of liquid entering the receptacle through said supply-nozzle, a switch having a movable member operatively connected with said impact element, and exhaust-controlling valve, and a valve-actuating magnet controlled by said switch, substantially as specified.

7. In a milking apparatus, the combination with a receptacle, of a lid or cover carrying supply and exhaust nozzles, exhausting means in communication with the exhaust-nozzle, an impact element arranged in the path of liquid entering the receptacle through the supply-nozzle, a movable supporting-arm for the impact element, a switch having fixed and movable members in electrical circuit with an indicating mechanism, the movable member of said switch being connected with said supporting-arm, an exhaust-controlling valve, and means, controlled by said movable member of the switch, for closing the exhaust-nozzle, substantially as specified.

8. In a milking apparatus, the combination with exhausting devices including a conveyer, of a receptacle, flexible means for supporting the receptacle, exhaust and supply nozzles in communication with the interior of the receptacle, the exhaust-nozzle being in communication with said exhaust-conveyer, an alarm mechanism removably connected to said receptacle, and liquid-actuated means carried by the receptacle for controlling the alarm mechanism and including as a part thereof a switch member coacting with said latter mechanism, substantially as specified.

9. In a milking apparatus, the combination with exhausting devices including a conveyer, of a receptacle, flexible means for supporting the receptacle, the same including suspending-cords adjustably mounted upon said conveyer, exhaust and supply nozzles in communication with the interior of the receptacle, the exhaust-nozzle being in communication with said exhaust-conveyer, an alarm mechanism removably connected to said receptacle, and liquid-actuated means carried by the receptacle for controlling the alarm mechanism and including as a part thereof a switch member coacting with the latter mechanism, substantially as specified.

10. In a milking apparatus, the combination with exhausting devices including a conveyer, of a receptacle, flexible means for supporting the receptacle, the same including suspending-cords and rings connected with said cords and mounted for axial adjustment upon said conveyer, exhaust and supply nozzles in communication with the interior of the receptacle, the exhaust-nozzle being in communication with said exhaust-conveyer, an alarm mechanism removably connected to the said receptacle, and liquid-actuated means carried by the receptacle for controlling the alarm mechanism and including as a part thereof a switch member coacting with said latter mechanism, substantially as specified.

640,207. CAPSULE FOR COMPRESSED OR LIQUEFIED GASES.

HEINRICH KORRODI, Berne, Switzerland. Filed Oct. 9, 1899. Serial No. 733,095. (No model.)



Claim.—1. A capsule for compressed or liquefied gases comprising an inner cover and an outer vented cover in combination with a perforator movably mounted between the inner and outer cover.

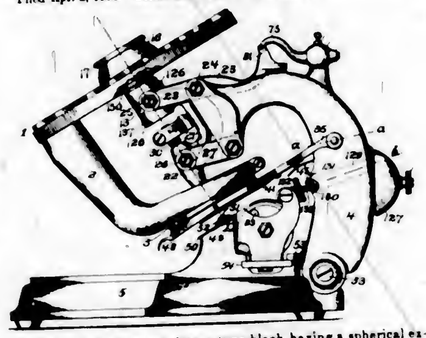
2. A capsule for compressed or liquefied gases comprising an inner cover and an outer vented cover provided with a collar in combination with a perforator whose stem loosely engages the collar in the outer cover and projects beyond the same.

3. A capsule for compressed or liquefied gases provided with an inner shoulder and a turned-in edge or flange in combination with an inner and an outer cover clamped between the shoulder and turned-in edge, and a perforator movably mounted in the outer cover.

4. Improvements in capsules for compressed or liquefied gases consisting of an inner soft-metal cover and an outer cover, and a perforator arranged between the inner and outer cover for the purpose of perforating the first-named cover, the stem of said perforator being guided in the outer cover and projecting therefrom, for the purpose of effecting a perforation of the soft cover to permit the exit of the gases by means of pressure or of a blow applied to such stem.

640,208. TYPE-WRITER.

FRANK LAMBERT, New York, N. Y. Filed Apr. 2, 1898. Serial No. 676,179. (No model.)



Claim.—1. In a type-writer, a type-block having a spherical exterior with one or more series of type thereon, each series being formed of two or more rows or circles of type, and a stepped interior provided with as many steps as there are series of type.

2. In a type-writer, a type-block having on its exterior a series of two or more rows of type, and on its interior a series of radial recesses of varying depths, the total number of recesses being equal to the aggregate number of type in the said series.

3. In a type-writer, a type-block having on its outer surface two circles of type, the type of one circle being disposed opposite the intervals between the type of the other circle, and on its inner surface a circle of corresponding recesses, the recesses corresponding to the type in one circle being deeper, measured in a radial direction of the ring, than the recesses corresponding to the type of the other circle, the said shallow and deep recesses alternating, substantially as described.

4. In a type-writer, a multiple key having two rows of designated pressure-points, a type-block having two rows of type on its exterior surface, the inner row of pressure-points being marked to correspond to the outer row of type and vice versa, substantially as described.

5. In a type-writer, a nutating key, a support therefor, said key being adapted to be rotated on said support to various predetermined positions.

6. In a type-writer, a key, a type actuated thereby, a spacing-feed, and means to rotate said type so that on two consecutive printings the outline of said type in the second printing will stand at a different angle than the outline of the same said type in the first printing.

7. In a type-writer, a key, a type actuated thereby, a carriage-feed and means by which said type can be brought to print with its outline in various predetermined angular positions relatively to the line of motion of said carriage-feed.

8. In a type-writer, a nutating multiple key, type controlled thereby, a support for said key and means to rotate said key and said type on said support in various predetermined positions, substantially as described.

9. In a type-writer, a nutating key adapted to be rotated, a support for said key, and an indexing-clutch connecting said support and said key, whereby the angle of rotation may be determined.

10. A nutating key and a brake or damper operating to control the vibration of said key, substantially as described.

11. In a type-writer, a nutating key, a type actuated thereby, and a brake or damper operating to control the vibration of said key and said type, substantially as described.

12. In a type-writer, a multiple key, a type-block actuated thereby, a brake or damper acting upon said type-block after pressure on said key has been relieved, substantially as described.

13. In a type-writer, a multiple key, a resetting-spring for said key, and a brake or damper controlling the vibration of said key due to said spring after pressure upon said key has been removed, substantially as described.

14. In a type-writer, a multiple key, a friction brake or damper for said key and means for adjusting the friction of said brake.

15. In a type-writer, a multiple key, a printing mechaniem, a resetting-spring for said key and means for controlling the vibrations of said key due to its own inertia and to the resiliency of said spring, substantially as described.

16. In a type-writer, a type-block having a spherical exterior with type thereon and an inking-pad having a corresponding concave spherical inking-surface, the pad being supported so that said concave surface is self-adjusting upon said spherical exterior of the type-block, substantially as described.

17. In a type-writer, the combination of a type-ring, an inking-pad support, inking-pad holder free to tilt in said support, a pad in said holder, said pad extending and coming in contact with the said type-ring across both sides of the tilting-line of said pad-holder, substantially as described.

18. An inking-pad frame, inking-pad holder having an aperture, inking-pad in said holder, said inking-pad holder being pivoted in said frame in a line across said aperture, substantially as described.

19. In a type-writer, the combination of a type-block, pivoted inking-pad support, self-adjustable inking-pad holder pivoted in said support and having a central aperture, inking-pad in said holder, and a type-shield having an opening, the pivoting-line of said pad-holder bisecting said pad-holder central aperture and shield-opening, substantially as described.

20. In a type-writer, the combination of a type-block and standard, with the double-forked support 34, pad-holder 37 diametrically pivoted thereon, pad-plate 38 and pad 40, substantially as described.

21. In a type-writer, a base, a swinging standard pivoted to said base, a multiple key and an equalizing-pressure device for said key directly pivoted to said standard, substantially as described.

22. In a type-writer, the combination with the type-block and standard, of the double-forked support 34, pivoted to the standard, pad-holder 37 pivoted to said support, index 43 and pad 40, substantially as described.

23. In a type-writer, a base having thereon a relatively-fixed printing-platen, a swinging standard pivoted to said base and carrying a printing mechanism, and means for regulating the axial position of said printing mechanism in relation to said printing-platen.

24. In a type-writer, a type-block having two or more series each series being formed of two or more rows of type, an adjustable stop in the path of said type-block, said stop being adjustable in as many positions as there are series of rows of type on said type-block, substantially as described.

25. In a type-writer, a pivotally-supported multiple key, pressure-points raised above the face of said key, the face of said key being below its pivot-center, substantially as described.

26. In a type-writer, a multiple key and resetting-spring therefor, a spring-actuated brake and means for adjusting the relative tension of the said key-resetting spring and the said brake-spring.

27. In a type-writer, a multiple key, a spring-actuated resetting-cap for said key and means to prevent said cap from rotating in its own plane, substantially as described.

28. In a type-writer, a centrally-pivoted multiple key, and pivoted pressure-blocks for actuating said key, substantially as described.

29. In a type-writer, a centrally-pivoted multiple key and pressure-blocks pivoted in said key, the axis of said blocks being radial to the center of said key, substantially as described.

30. In a type-writer, a nutating multiple key, a type-block controlled thereby having on its exterior two circles of type, a circle of recesses within said type-block, every alternate recess being deeper, measured radially of said type-block than the recess intervening, and a fixed stop adapted to enter any one of said recesses when said block is tilted to bring the type corresponding to said recess into printing position, substantially as described.

31. In a type-writer, a multiple key, a type-block actuated thereby, having on its exterior two or more series, each of two or more rows or circles of type and in its interior as many steps as there are series of type, substantially as described.

32. In a type-writer, a nutating key and means for preventing rocking of the key about a line drawn through the key-center and the point of pressure when said key is tilted, substantially as described.

33. A nutating key, a resetting-spring therefor and means to control the tilting action of said key in a meridional line passing through the center of depression when said key is tilted.

34. A nutating key, pressure-points therefor, a support for said key and means to control the tilting action of said key in meridional lines passing through the center of said pressure-points when said key is tilted.

35. In a type-writer, a nutating key, a central support therefor, a spring-actuated resetting-cap concentric with the said key and bearing upon the surface thereof, the plane of contact between the cap and the key being below the center of nutation of said key, substantially as described.

36. In a type-writer, a nutating key, a central support therefor, a spring-actuated resetting-cap concentric with said key and bearing upon the same, the meeting surface of said key and said cap being relatively so formed that when said key is tilted by pressure on one side of the center of nutation there will be two points of contact between said key and said cap on the other side of said center, said points being located on opposite sides of a line drawn through the center of nutation and the center of the pressure-point, substantially as described.

37. In a type-writer, a multiple key, a resetting-spring therefor, a cap actuated by said spring and resting on said key, and an undulating or corrugated surface between said cap and said key, substantially as described.

38. In a type-writer, a multiple nutating key having on its surface a concentric circle of elevations and depressions, and exterior to said circle a series of designated pressure-points, the said pressure-points and said elevations and depressions being so disposed that a central line drawn through the center of any pressure-point on one side of the center of nutation will pass between two of said elevations on the other side of said center, and a spring-actuated resetting-cap concentric with said key and bearing downward upon said circle of elevations and depressions, substantially as described.

39. In a type-writer, a base, a spring-actuated escapement-wheel, a pallet for said escapement-wheel, a movable standard carrying said pallet, said standard being pivoted to said base in the plane of said escapement-wheel, the parts being constructed and arranged to control said escapement-wheel in various positions of the standard, substantially as described.

40. In a type-writer, a base, an escapement-wheel supported on said base, a swinging controlling device for said escapement-wheel, a printing mechanism actuating said controlling device and means of timing said controlling device and said printing mechanism, substantially as described.

41. In a type-writer, a spring-actuated carriage, an escapement-wheel regulating the movement of said carriage, a movable standard and a controlling device for said escapement-wheel carried by said standard, said controlling device, hence said escapement-wheel and said carriage being operative in various relative angular positions of said escapement-wheel and said standard, substantially as described.

42. In a type-writer, a base, a standard pivoted to said base and supporting a printing mechaniem, a spring-actuated carriage, an escapement regulating the movement of said carriage, and a controlling device for said escapement carried by said standard and actuated by said printing mechaniem, said controlling device being operative in various angular positions of said stahdard, substantially as described.

43. In a type-writer, in combination with a base, a spring-actuated paper-carriage, and the escapement-wheel 71 regulating the movement of said carriage, the hinged standard 4 and rod 73 thereon, having fingers 79 and 80 engaging with said escapement-wheel 71, substantially as described.

44. In a type-writer, in combination with a base, a spring-actuated paper-carriage, and the escapement-wheel 71 regulating the movement of said carriage, the hinged standard 4, rod 73 thereon, having fingers 79 and 80 engaging with said escapement-wheel and the spring 76 acting upon said rod, substantially as described.

45. In a type-writer, a base having a standard pivoted thereon carrying a printing mechanism and a spring-actuated paper-carriage, in combination with a spring-barrel 61 having attached thereon pinion-centar 68, escape-wheel center pin 70 and adjusting-screw 140, substantially as described.

46. In combination with a base, a spring-actuated paper-carriage, escape-wheel 71, pivoted standard 4, rod 73, having fingers 79 and 80, and releasing-arm 75, substantially as described.

47. In a type-writer, a carriage, a spring-actuated escape-wheel for said carriage, a pallet to control said escape-wheel and means to disengage said pallet from said escape-wheel, the said controlling and disengaging action remaining the same in various relative angular positions of said escape-wheel and said pallet, substantially as described.

48. In a type-writing machine, a paper-carriage, feeding mechanism for feeding the carriage a regular series of steps, and mechanism for varying the relation of said steps as a whole, to the printing-point whereby the printed characters can be ghosted, as described.

49. In a type-writer, a spring-actuated paper-carriage, an escape-wheel controlling the movement of said carriage, the said escape-

wheel being mounted on an eccentric axis adapted to change the position of the escape-wheel, as and for the purpose set forth.

50. In a type-writer, the combination of a coiled spring, gear actuated by said spring, a rack engaging said gear, the disengagement of the rack from said gear causing the gear to be locked, thereby preventing the unwinding of said spring, substantially as described

51. In a type-writer, the combination of a coiled spring, gear actuated by said spring and a rack engaging said gear, and a device adapted to automatically lock said gear when the rack is disengaged therefrom, and to automatically unlock said gear by the engagement of said rack and said gear.

52. In a type-writer, the combination of a spring-actuated removable carriage, rack-and-gear connection between said spring and said carriage, with means automatically operated by the removal of said carriage to lock said gear and prevent unwinding of said spring, substantially as described.

53. In a type-writer, the combination with a base and the paper-carriage having the rack-bar 54, the coiled spring 62, gear-wheel 65, pinion 67, escape-wheel 71, pinion engaging with said rack-bar 54, standard 4, and rod 73 having pallet 78 with fingers 79 and 80, substantially as described.

54. In a type-writer, a nutating key, series of type actuated thereby, series of recesses for said type, a stop adapted to engage said recesses and means to adjust in proper alinement said stop and said recesses so as to prevent said stop from entering into the wrong recess or from striking between two recesses when said key is tilted and said type carried into printing position.

55. A nutating key, printing mechanism actuated thereby, a brake or damper to control the vibrations of said key and said printing mechanism

56. In a type-writer, a nutating key, printing mechanism actuated by said key, a brake or damper to control the vibration of said printing mechanism.

57. In a type-writer, a nutating key, a printing mechanism actuated thereby, a spring opposing the motion of said printing mechanism, and a brake or damper preventing the vibration of said key and said printing mechanism

58. In a type-writer, a nutating key, two or more rows of type actuated thereby, a relatively-fixed stop for said key and means to carry a type of either row into printing position without shifting the position of said stop.

59. In a type-writer, a tilting key, a stop to limit the extent of tilting of said key over several predetermined angles, and means whereby this extent of tilting is varied at different predetermined angles without moving the said stop.

60. In a type-writer, a nutating key having pressure-points thereon, two or more rows of type actuated by said key, and means to equalize the extent of tilting on said pressure-points to bring a type of either of said rows into printing position.

61. The combination of a standard having a tubular aperture a ball in said aperture, a bell supported at one end of said aperture and means for projecting said ball against gravity through said aperture against said bell, substantially as described.

62. The combination of a standard having an inclined tubular aperture constricted at its lower end, and a ball in said aperture seated by gravity in said constricted end, a bell supported at the other end of said aperture, and means for projecting said ball through said aperture against said bell.

63. In a type-writer having a transversely-moving paper-carriage, a standard having a tubular aperture, a plunger in said aperture, a bell supported at one end of said aperture, and a spring on said carriage constructed to meet said plunger when carried past said aperture by said carriage and to project said plunger through said aperture against said bell, substantially as described.

64. In a type-writer, a type, multiple depressible key, carriage actuated thereby and means to vary and reduce the pressure necessary to depress said key before said type is brought to print, substantially as described.

65. A multiple depressible key, a force opposing the depression of said key, and means to prevent said opposing force from increasing while said key is depressed.

66. In a type-writer, a multiple depressible key, a spring opposing the depression of said key and means to relieve the resistance caused by said opposing spring while said key is depressed, substantially as described.

67. A multiple depressible key, a force opposing the depression of said key and means of reducing said opposing resistance while said key is depressed.

68. In a type-writer, the combination of a removable spring-actuated carriage, rack-and-gear connection between said spring and said carriage, and positive means operated by the removal of said carriage to lock said gear and prevent the unwinding of said spring, substantially as described.

69. In a type-writer, a multiple tilting key having two or more rows of characters thereon, two or more rows of type actuated by said key, a relatively-fixed stop in the path of motion of said type, and means whereby depression of equal extent on all of said characters on the key will cause the corresponding type to move variable distances before being located by said stop.

70. A multiple tilting key, a support therefor, two type actuated by said key, a relatively-fixed stop in the path of motion of said type, one of the said type being at a greater distance than the other from said stop when said key is in normal position and means to carry either and both of said type into printing position without shifting said stop.

71. A nutating key, type and printing mechanism actuated thereby and means to accelerate the speed and increase the momentum of said printing mechanism to force said type to print.

72. In a type-writer, a nutating key, type and printing mechanism actuated thereby, a resistance opposing the action of said printing mechanism and means to suddenly reduce said resistance thereby increasing the force of the blow to force said type to print.

73. A nutating key, series of type and a printing mechanism actuated thereby, means to accelerate the speed and adjust said acceleration, hence the momentum of said printing mechanism, to carry and force said type to print.

74. A multiple key, a printing mechanism, a force opposing the motion of said printing mechanism and means of reducing said opposing resistance while said printing mechanism is in motion.

75. A multiple key, type actuated thereby, a force opposing the action of said type and means to prevent said force from increasing while said type is carried into printing position.

640,209. **RAZOR.** JULES E. LEBESCHE, St. Julien-du-Sault, France. Filed June 27, 1899. Serial No. 722,100. (No model.)



Claim.—A razor comprising a blade-carrier grooved to receive the blade, a locking-lever pivotally connected with said carrier and provided with a cam-head, an abutment on the carrier, and a removable blade provided with a projection on its back having a cam-face engaged by the cam-head of the aforesaid locking-lever, and a seat-face engaging the abutment on the carrier, the cam-head of said lever acting to draw the blade into the carrier-groove and force the seat-face of said blade against and hold it to said abutment, substantially as set forth.

640,210. **REFRIGERATOR.** ROWLAND R. LEWIS, Weatherford, Tex. Filed Oct. 18, 1899. Serial No. 733,996. (No model.)



Claim.—1. A refrigerator comprising a casing, supporting-rods arranged within the casing and offset from the walls thereof to provide intervening spaces, pans arranged at intervals and supported by the rods, shelves also supported by the rods, and drip-cloths arranged in the said spaces and looped into the pans, substantially as described.

2. A refrigerator comprising a casing, supporting-rods arranged within the casing at the ends thereof and provided with approximately L-shaped arms offsetting the rods from the supports, pans having engaging portions at their ends arranged on the rods and adapted to slide thereon, and drip-cloths connected with the pans and arranged in the spaces between the walls of the casing and the pans, substantially as described.

3. A refrigerator comprising a casing having supporting-rods, and shelves provided with marginal gutters and having depending hook-shaped portions extending from the gutters adjacent to the rods and engaging the latter, substantially as described

4. A refrigerator comprising a casing, supporting-rods arranged therein, pans having flanges engaging the rods, shelves provided with engaging portions supported by the rods, a bottom pan extending beyond the said pans to the walls of the casing, and drip-cloths depending into the bottom pan and looped into the other pans, substantially as described.

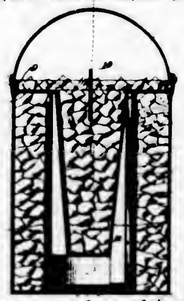
640,211. **FOLDING LADDER.** ARTHUR W. LYDA and WILLIAM L. TURNER, Blairsville, Pa. Filed Oct. 14, 1899. Serial No. 733,660. (No model.)



Claim.—1. A device of the class described comprising a hinge composed of two leaves or sections hinged together and each consisting of a face-plate, sides, and a connecting end piece, a lug or projection extending from the side of one of the leaves, a latch L-shaped in cross section mounted on the other section and composed of two longitudinal flanges conforming to the configuration of the leaves or sections, the side flange being provided at its inner face with a recess for engaging the lug or projection, and a longitudinal spring secured to and extending from the inner end of the top flange and arranged flat against and engaging the top of the adjacent leaf or section, substantially as described.

2. A device of the class described comprising a hinge composed of two leaves or sections hinged together at the bottom, a latch L-shaped in cross-section located at the top and composed of two longitudinal flanges, the side flange being slotted between its ends, pivoted at its inner end and provided at its outer end with an interior recess, a lug extending from one side of the hinge and arranged to be engaged by the recess of the latch, a fastening device mounted on the hinge and extending through the slot of the latch, and a spring arranged at the top of the hinge and coöperating with the top flange of the latch, substantially as and for the purpose described.

640,212. **ICE-CREAM FREEZER.** HENRY A. MARTIN, Atlanta, Ga. Filed Sept. 7, 1899. Serial No. 729,759. (No model.)



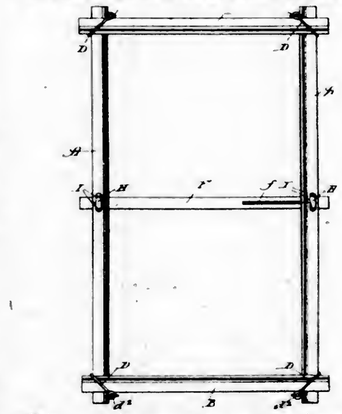
Claim.—1. In an ice-cream freezer of the class described, the combination with an outer receptacle for containing a freezing agent, a cream-can located within the receptacle, an inner receptacle for containing a freezing agent and of shorter length than the cream-can, an outwardly-projecting annular flange provided at the upper end of the inner receptacle, resting upon the upper edge of the cream-can, and supporting the inner receptacle above the bottom of the cream-can, a scraper-blade carried by the inner wall of the cream-can and equal in length to the inner receptacle, another scraper-blade carried by the exterior of the inner receptacle and equal in length to the cream-can, and a handle for turning the inner receptacle, substantially as and for the purpose set forth.

2. In an ice-cream freezer of the class described, the combination with an outer receptacle for containing a freezing agent, and provided upon the inner side of the bottom thereof, with a pair of spaced parallel ribs, a cream-can having a transverse rib provided upon the outer side of the bottom thereof, and fitting between the ribs of the outer receptacle, and an inner receptacle for containing a freezing agent, adapted to be inserted within the cream-can, and provided with a handle for turning the inner receptacle, substantially as and for the purpose set forth.

640,218. **PROCESS OF MAKING SMOKELESS POWDER.** HUDSON MAXIM and ROBERT C. SCHÜPPHAUS, New York, N. Y. Filed Nov. 29, 1898. Serial No. 492,403. (No specimens.)

Claim.—The herein-described process of making smokeless powder which consists in pulping or reducing a pyroxylin to a fine state of division, then treating it with a solvent, and before it is completely freed from the solvent treating it with a size, and then granulating and drying the same.

640,214. **CURTAIN-STRETCHER.** WALTER A. MAYR, Chicago, Ill. Filed Dec. 2, 1898. Serial No. 698,104. (No model.)



Claim.—1. In an adjustable curtain-stretcher frame, the combination of end bars, sectional side bars adjustably held thereon and having their sections connected together by hinges which have their pintles transverse to the side bars and parallel with and raised above their faces and which permit the sections of the side bars to fold together upon themselves, and a transverse bar provided with longitudinal grooves to receive the ridges or axes of the hinges and which act as a guide therefor, substantially as described.

2. In an adjustable curtain-stretcher frame, the combination of end bars, sectional side bars adjustably held thereon and having their sections connected together by hinges which have their pintles transverse to the side bars and parallel with and raised above their faces and which permit the sections of the side bars to fold together upon themselves, a transverse bar provided with longitudinal grooves to receive the ridges or axes of the hinges and which act as a guide therefor, and means for securing the transverse bar to the side bar whereby sagging of the side bars is prevented when the frame is on its edge, substantially as described.

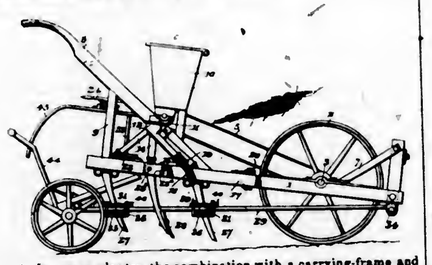
640,215. **GRAIN-DRILL.** WILSON W. MILLER, Saxman, Kans. Filed May 14, 1898. Renewed Mar. 1, 1899. Serial No. 707,393. (No model.)

Claim.—1. The combination with the main frame comprising laterally-adjustable drills, of a frame having the main frame movable vertically with reference thereto, and guide-slides having loose connection with the clearer-frame and movable laterally with the shovels, substantially as set forth.

2. The combination with the main frame provided with laterally-adjustable drills, of a clearer-frame having the main frame movable vertically relatively thereto, and guides having adjustable connection with the clearer-frame and movable laterally with said drills, substantially as set forth.

3. The combination with the main frame and bars pivoted thereto and movable laterally and bearing drills, of a clearer-frame having

the main frame movable vertically with reference thereto, and guides connected with the clearer-frame and receiving the drills to be adjustable therewith, substantially as described.



4. In a corn-planter, the combination with a carrying-frame and the pivoted adjustable side bars carrying the hoe-tubes, of a common supply-hopper, a series of individual seed-cups supported by the hopper, a divided seed-cup also carried on the hopper, flexible tubes or hose leading from said individual and divided seed-cups to the individual hoe-tubes, and means for adjusting the pivoted bars laterally with respect to the main frame, substantially as described.

5. In a seed-drill, the combination of a clearer-frame having the adjustable guides, a main frame pivoted on the clearer-frame, the adjustable side bars pivoted to the main frame and carrying the hoe-tubes which are fitted loosely in the guides of the clearer-frame, a hopper, seeding mechanism between said hopper and the hoe-tubes, the toothed bars attached to the adjustable side bars, a vertical shaft having a pinion which meshes with the toothed bars, and means for adjusting and locking the vertical shaft, substantially as described.

6. In combination, a main frame supported at its front end, a clearer-frame having pivotal connection with the front end of the main frame and forming a support therefor, ground-wheels applied to the rear end of the clearer-frame for supporting it, a lever-frame mounted upon the axle of the rear ground-wheels and adapted to have its horisontal portion engage with the rear portion of the main frame, a bar extending rearwardly from the main frame, and means for adjustably connecting the vertical portion of the lever-frame with the said rearwardly-extending bar for holding the main frame at any required elevation, substantially as set forth.

7. In a grain-drill, the combination with a main carrying-frame having the seed-dropping mechanism and a supplemental wheeled frame upon which the main carrying-frame is mounted for a limited vertical adjustment, of laterally-adjustable bars attached to the main carrying-frame and provided with drills and shovels intermediate of said drills, slidable guides attached to the supplemental frame and receiving the drills to be adjustable laterally therewith, means mounted on the main carrying-frame and operatively connected with the bars for adjusting the same, and grain-tubes leading from the hopper of the said dropping devices and discharging to the drill-tubes, certain of said grain-tubes discharging the seed broadcast in relation to the shovels on said laterally-adjustable bars, substantially as described.

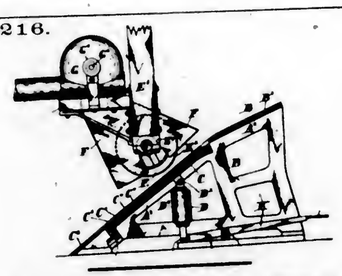
8. In a grain-drill, a supplemental horizontal frame provided with laterally-extending arms and slidable guides operatively fitted to said arms, in combination with a main frame, adjustable bars supported thereon, drills attached to said adjustable bars and fitted in the slidable guides of the supplemental frame, and means for adjusting the pivoted bars and the drills, substantially as described.

9. In a grain-drill, a horizontal supplemental frame provided with laterally-extending arms, perforated guides adjustably fitted to said arms, and clamps by which the guides are loosely confined in position on the arms of said frame, in combination with a main frame, the laterally-adjustable bars pivoted thereto and drills or hoes carried by said bars and fitted in the perforations of the guides, for the purpose described, substantially as set forth.

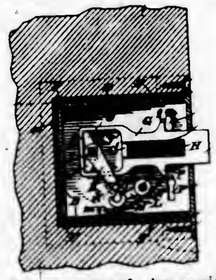
640,216. MACHINE FOR WORKING LEATHER. FRANK MOSE, Cincinnati, Ohio, assignor to the American Oak Leather Company, same place. Filed Nov. 26, 1897. Serial No. 659,892. (No model.)

Claim.—In a machine for working leather the combination of a supporting-frame having an inclined table, a second table pivoted at its lower end on said frame and adapted to be reciprocated in a slot in said inclined table, a spring-support pivoted to said reciprocating table, a treadle-lever adapted to operate said spring-support, an abrading-roll located above said reciprocating table, a hood surrounding said roll and having its lower end arranged substantially parallel to said reciprocating table and a suction device, substantially as described.

640,216.



640,217. COMBINED LOCK AND LATCH. THOMAS A. L. MOORE, Richmond, Va., assignor of one-half to Addison J. Silverwood, same place. Filed Feb. 20, 1899. Serial No. 706,174. (No model.)



Claim.—1. The combination of a door provided with an opening extending therethrough, of a lock located in said opening, an edge plate secured to said lock and to the edge of said door, an inside and an outside face-plate of a size to extend beyond the edges of said opening one of which is detached from said edge plate, and screws or bolts connecting said inside and outside plates adapted to clamp the plates to the door and to secure said lock in place, substantially as described.

2. The combination with a door provided with an opening extending therethrough, of a lock located in said opening, an edge plate secured to said lock and to the edge of said door, an outside face-plate secured to said edge plate, an inside face-plate separate from said edge plate and slidably abutting against the inner face or edge of said edge plate, said face-plates being of a size to extend beyond the edges of said opening and binding-screws connecting said face-plates and adapted to clamp the same to said door and secure the lock in place, substantially as described.

3. The combination with a door provided with an opening extending therethrough, of a lock located within said opening, an edge plate secured to said lock and to said door edge, face-plates covering said opening in the door and extending beyond the edges thereof separated from said edge plate and slidably abutting against the inner or rear edge of portions of said edge plate, binding-screws connecting said face-plates located so as to be slipped with said lock into said opening and adapted to clamp the said plates to the door and secure the lock in position, substantially as described.

4. The combination in a combination lock and latch, of a sliding bolt, a knob-shaft and means for throwing said bolt, a lock device for holding said knob-shaft, operating means independent of the knob-shaft for throwing said bolt from the inside of the door, and means for throwing said bolt from the outside while said handle or knob-shaft is held from operation, substantially as described.

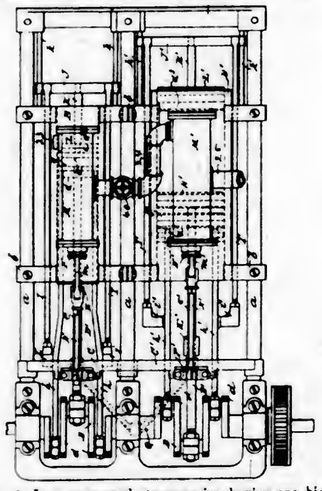
5. In a combined lock and latch, the combination of a bolt, a handle or knob-shaft for throwing the bolt, an arm secured to said knob-shaft, a lock-lever adapted to engage said arm and hold the knob-shaft from rotation, means for operating said lock-lever, a device adapted to engage a portion carried by said bolt to throw the same, an operating-handle for said device on the inside of the door and independent of said knob-shaft, and a portion carried by said bolt and adapted to be engaged by a key from the outside for throwing the bolt, substantially as described.

6. In a combined lock and latch, the combination of a casing, a sliding bolt in said casing, a knob-shaft passing through said casing, a barrel on said shaft having lugs for drawing said bolt, an arm secured to said barrel, a locking-lever provided with an operating-handle and having shoulders adapted to engage said arm and hold said barrel and shaft from turning, a lever provided with an operating-handle and adapted to engage a shoulder on said bolt to throw the same, and a second shoulder on said bolt adapted to be engaged by the key from the outside of the door for throwing the bolt, substantially as described.

7. In a combined lock and latch, the combination of a casing, a sliding bolt in said casing, a knob or handle-shaft passing through said casing, a barrel on the shaft having lugs for throwing the bolt, an arm secured to said barrel at one side of said bolt and provided with a finger, a pivoted locking-lever provided with an operating-handle and shoulders adapted to engage said finger and hold said arm, a lever provided with an operating-handle adapted to engage a projection on said bolt to throw the same, and a projection on said bolt adapted to be engaged by a key from without for drawing said bolt, substantially as described.

8. In a combined lock and latch, the combination of a casing, a sliding bolt in said casing, a knob-shaft passing through said casing, a barrel on said shaft having lugs for throwing said bolt, an arm secured to said barrel, a pivoted locking-lever provided with an operating-handle and having shoulders adapted to engage said arm and hold said barrel and shaft from turning, a lever provided with an operating-handle and adapted to engage a shoulder on one side of said bolt to throw the same, and a shoulder on the opposite side of said bolt adapted to be engaged by a key from the outside of the door for throwing said bolt, substantially as described.

640,218. COMPOUND STEAM-ENGINE. ERNEST MCCONVILLE, Pittsburg, Pa. Filed Apr. 20, 1899. Serial No. 713,701. (No model.)



Claim.—1. In a compound steam-engine having one high and one low pressure cylinder, three movable piston-heads in each cylinder, the two extreme heads in each cylinder being skeleton or open heads, but integral with a solid piston, said pistons having differential valves coöperating with an opening in a solid piston, a distribution-valve for each cylinder, a steam-pipe connecting the steam-chests of said cylinders for transmitting steam from the high to the low pressure cylinder, an exhaust-pipe leading from the low-pressure cylinder, and suitable operative mechanism connected to said cylinders and valves for communicating motion therefrom for the purpose as shown and described.

2. In a compound steam-engine having one high and one low pressure cylinder, three movable piston-heads with pistons integral therewith in each cylinder, each of the extreme pistons having differential valves, a distribution-valve for each cylinder, a steam-pipe connecting the steam-chests of said cylinders for transmitting steam from the high to the low pressure cylinder, an exhaust-pipe leading from the low-pressure cylinder, and the means for operating said engine through the medium of its cylinders and valves in combination with a skeleton bed or frame as shown and described for supporting said engine.

3. In a compound steam-engine having one high and one low pressure cylinder, three movable piston-heads in each cylinder, the two extreme heads in each cylinder being skeleton or open heads, but integral with a solid piston, said pistons having differential valves coöperating with an opening in a solid piston, a distribution-valve for each cylinder, a steam-pipe provided with an adjustable check-valve connecting the steam-chests of said cylinders, for transmitting steam from the high to the low pressure cylinder through their steam-chests, an exhaust-pipe leading from the valve-chest of the low-pressure cylinder, the means connected to said cylinder and valves for operating said engine as specified.

4. In a compound steam-engine having open-ended cylinders, one high and one low pressure, three movable piston-heads in each cylinder, the two extreme heads being open or skeleton in construction, but integral with a solid piston, said pistons having differential valves coöperating with an opening in a solid piston, a distribution valve for each cylinder, a steam-pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the steam-chest of the low-pressure cylinder, in combination with a skeleton bed or frame consisting of steel tubes, secured at their free ends to castings for supporting said engine as shown and described.

5. In a compound steam-engine having one high and one low pressure cylinder, three movable piston-heads in each cylinder, the two extreme heads in each cylinder being open or skeleton in construction, but integral with a solid piston, said pistons having differential valves cooperating with an opening in a solid piston, a distribution-valve for each cylinder, a live-steam pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the steam-chest of the low-pressure cylinder, a double yoke supported upon a skeleton frame or bed, for holding the valve-operating mechanism of said engine as specified.

6. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons with their accompanying head in each cylinder, a piston-valve for each cylinder, a live-steam pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the steam-chest of the low-pressure cylinder, a double yoke secured to the skeleton frame or bed, for supporting bifurcated levers pivotally secured to said yokes, for carrying the valve mechanism which is attached to the movable connecting-rods, as specified.

7. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-steam pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the steam-chest of the low-pressure cylinder to the atmosphere, a double yoke secured to the skeleton frame or bed, for supporting bifurcated levers, pivotally secured to said yokes, for carrying rocking levers which operate said distribution-valves and links, the latter being attached to the movable connecting-rods at one end, the opposite ends pivotally secured to movable rods, as shown and described.

8. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the steam-chest of the low-pressure cylinder to the atmosphere, a double yoke secured to the skeleton frame or bed for supporting bisected bifurcated levers pivotally secured to yokes, for carrying rocking levers which operate said distribution-valves and links, said links being attached to movable connecting-rods at one end, the opposite ends, connected to pivoted stay-rods, which are hinged to the under side of the steam-cylinders as shown and described.

9. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the low-pressure cylinder to the atmosphere, a double yoke secured to the skeleton frame or bed for supporting bisected bifurcated levers, which are pivotally secured to said yokes, the latter carrying rocking levers which operate said distribution-valves which are pivoted to blocks operating in ways or guides formed in the legs of said bifurcated levers, of links pivoted to said rocking levers for operating piston-valves through the medium of movable connecting-rods as shown and described.

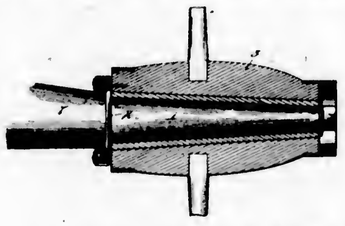
10. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-pipe connecting the steam-chests of said cylinders, an exhaust-pipe leading from the low-pressure cylinder to the atmosphere, a double yoke secured to the engine-bed or skeleton frame for supporting bisected bifurcated levers, which are pivotally secured to said yokes, the latter carrying rocking levers which operate said distribution-valves which are pivoted to blocks operating in ways, formed in the legs of said bifurcated levers, links pivoted to said rocking levers, one end of said links being attached to movable connecting-rods, the opposite ends connected to stay-rods, said stay-rods being hinged or pivoted to the front end of the steam-cylinders as specified.

11. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-pipe connecting said cylinders, and an exhaust-pipe from the low-pressure cylinder to

the atmosphere, a yoke secured to the skeleton bed for supporting bisected bifurcated levers, which carry rocking arms, the upper ends of said rocking levers pivotally secured to the connecting-rods of the piston distribution-valve stems, the lower ends secured to links pivoted to the connecting-rods of the steam-cylinders, and also to stay-rods, which are attached to the steam-cylinders as shown and described.

12. In a compound steam-engine having one high and one low pressure cylinder, three movable pistons in each cylinder, steam-chests and distribution-valves for each cylinder, an exhaust-pipe and check-valve connecting said steam-cylinders, an exhaust-pipe leading from the low-pressure cylinder to the atmosphere, a yoke secured to the skeleton bed for supporting bifurcated levers, which carry rocking arms, the latter operating the piston distribution-valve stems through the medium of the cylinder connecting-rods, and the means for adjusting said piston valves through the medium of said bifurcated levers as shown and described.

640,219. SAND-BAND FOR VEHICLES. JOHN OBLENIS, Mentone, Ind. Filed Sept. 11, 1899. Serial No. 730,136. (No model.)



Claim.—1. A sand-band, comprising a plurality of sections, each of the latter being formed by yieldingly-connected segments, and means for adjustably connecting the several sections

2. A sand-band composed of a plurality of sections, each of the latter comprising hinged segments and means for yieldingly opposing relative movement of the segments forming the respective sections.

3. A sand-band composed of a plurality of adjustable sections, each comprising hinged segments, means for limiting the relative movement of the segments in one direction, and means for yieldingly resisting relative movement thereof in the opposite direction.

4. A sand-band composed of a plurality of sections, each comprising hinged segments, independent adjusting devices connecting the opposite ends of the sections, and means for protecting the joints between the segments and sections.

5. A sand-band composed of a plurality of adjustable sections, each comprising hinged segments, inner and outer annular flanges substantially concentric and of different widths, teeth extending inwardly beyond the inner flange, overlapping lips intermediate of the sections, eyelets projecting from the outer flanges at the contiguous ends of the sections, adjusting-bolts passed through the eyelets, nuts carried thereby, stop-lugs carried by the segments, and a spring formed by extending the end of the outer flange of one segment into contact with the outer face of the opposed flange of the adjacent segment.

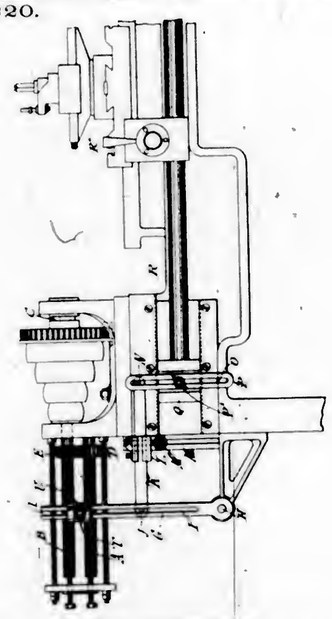
640,220. LATHE. SALOMON PERLE, EUGEN PERLE, and WILHELM BUTTERMILCH, Breslau, Germany. Filed Mar. 10, 1898. Serial No. 673,361. (No model.)

Claim.—1. In a lathe, the combination of two similar screw-spindles, one of which is an extension of the live-spindle, gearing connecting the two screw-spindles so as to turn them in opposite directions, a nut arranged between said screw-spindles, and adapted to mesh with one or the other, a lever on which said nut is movably mounted, and suitable connections extending from said lever to the slide-rest, substantially as set forth.

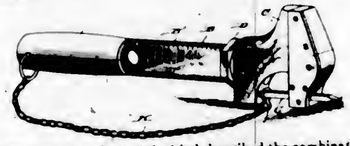
2. In a lathe, the combination of two similar screw-spindles, one of which is an extension of the live-spindle, gearing connecting the screw spindles, a nut arranged between said screw-spindles, a lever on which said nut is movably mounted so as to mesh with either of said screw-spindles, a rod extending from the slide-rest, a link connected with said rod, and a connecting-rod between said lever and link, substantially as set forth.

3. In a lathe, the combination of two similar screw-spindles, the upper one of which is an extension of the live-spindle, gearing connecting the screw-spindles, a nut between the latter, a lever on which the nut is loosely mounted, means for retaining the nut in mesh with the upper screw-spindle, and suitable connections extending from said lever to the slide-rest, substantially as set forth.

640,220.



640,221. COMBINED BICYCLE-LOCK AND WRENCH. LEMUEL L. POWELL, Elkton, Va. Filed Jan. 28, 1899. Serial No. 703,712. (No model.)



Claim.—1. In a tool of the kind described the combination with a shank, a fixed jaw on the end of said shank, and a movable jaw on the shank, of a rod or pin carried by the movable jaw and extending transversely through the fixed jaw, and means for engaging said rod or pin and holding the jaws in a locked position, substantially as described.

2. The combination with the fixed and movable jaws, the shank and handle, of a rod or pin secured to the movable jaw and projecting through the fixed jaw, a spring-actuated locking-bolt carried by the fixed jaw and adapted to engage the locking rod or pin projecting therethrough, and a chain fastened at one end to the handle and carrying an eye or loop at the opposite end through which the rod or pin is adapted to pass, substantially as shown and described.

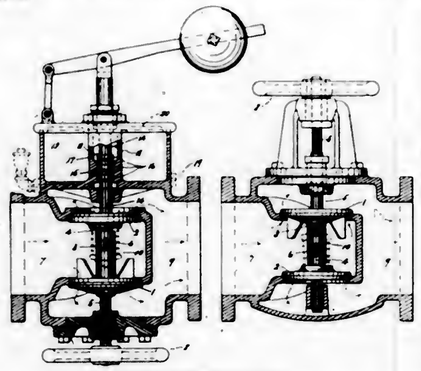
3. In a tool of the kind described, the combination with the fixed and movable jaws, of the rod or pin carried by the movable jaw and projecting through the fixed jaw, a spring-actuated bolt having a lug adapted for engaging with a key and the face-plate carrying a key-bearing, substantially as described.

640,222. PRESSURE-VALVE. GEORGE B. PRICE, Philadelphia, Pa. Filed Sept. 29, 1898. Serial No. 692,249. (No model.)

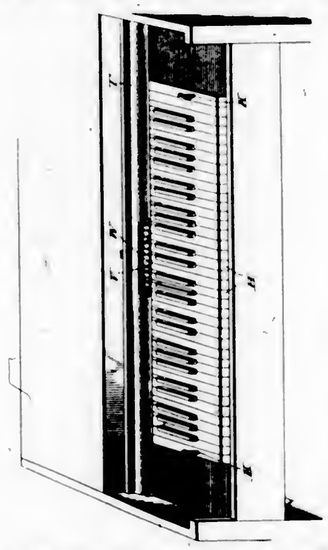
Claim.—1. A pressure-valve having two opposite movable disks or heads closing against two seats; said heads being permanently but not rigidly connected by stems or shanks fitted and held together by a pin, key or coupling connection permitting the two heads to recede or approach each other on their common longitudinal axis; together with suitable means for guiding, raising and lowering said heads within an inclosing chamber; substantially as shown.

2. A pressure-valve consisting of two movable heads on a common axis, separated and held together by a coupling admitting of longitudinal play; a spring interposed between the heads; and means for guiding, raising and lowering said heads; substantially as shown.

3. In a pressure-valve a leakage-chamber surrounding the neck inclosing the valve-stem, a smaller leakage-chamber within the said neck connecting by small holes with the outer surrounding chamber and a discharge-orifice from said outer chamber; substantially as shown.



640,223. ADJUSTABLE KEYBOARD. DAVID F. RANKIN, North Vernon, Ind. Filed Oct. 30, 1899. Serial No. 735,304. (No model.)



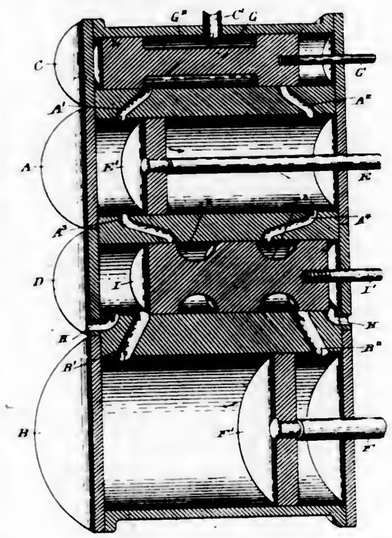
Claim.—1. In combination with the longitudinally-movable and hinged keyboard, the frame supporting same, the slotted castings secured to the latter, the thumb-screws passing through apertures in said swinging frame, and having a T-shaped end designed to be turned at right angles across said slot to lock the frame in an adjusted position, as set forth.

2. In combination with the longitudinally-movable and hinged keyboard, the under edges of the frame of the latter being slightly inclined, the supporting-frame having angled ends with its upper edges outwardly and downwardly inclined, the pins L in its angled ends, said pins being adapted to be seated in holes in the under surface of the keyboard, a central strip of the movable frame, the tacker-rods passing through apertures in said strip, as shown and for the purpose set forth.

3. In combination with the longitudinally-movable keyboard, the cloths secured at each end thereof and the spring-actuated winding-rollers on which said cloths wind as set forth.

4. In combination with the longitudinally-movable and hinged keyboard, the frame with angled ends supporting same, the slotted castings secured to the under faces of said angled ends of the supporting-frame, the under edges of said castings being inwardly and upwardly inclined, the tightening-screws having T-shaped lower ends the laterally-projecting portions of which have their upper edges downwardly inclined, said screws designed to be turned at right angles across the slots to lock the frame in an adjusted position, as set forth.

640,224. COMPOUND STEAM-ENGINE. CLIFTON REEVES, Trenton, N. J., assignor of one-half to Andrew Croser Reeves. Filed Dec. 16, 1898. Serial No. 699,441. (No model.)

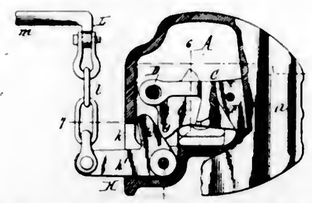


Claim.—1. A compound steam-engine comprising a high-pressure cylinder having a piston, a low-pressure cylinder having a piston, a steam-chest having admission-ports connecting it with the high-pressure cylinder, and an admission-valve in said steam-chest adapted to alternately open and close said ports; a controlling-chest having exhaust-ports in the ends and ports connecting it with the high-pressure cylinder and the low-pressure cylinder and a valve in said controlling-chest adapted to alternately open and close the ports between the high-pressure cylinder and the low-pressure cylinder at one end, and to simultaneously open the port at the opposite end of the low-pressure cylinder and the exhaust-port at the opposite end of the controlling-chest substantially as described.

2. A compound steam-engine comprising a high-pressure cylinder, having a piston, a low-pressure cylinder having a piston, a steam-chest having ports connecting it with the high-pressure cylinder and a slide-valve in said steam-chest having a circumferential groove, said slide-valve adapted to alternately open and close said ports, a controlling-chest having exhaust-ports and ports connecting it with the nigh-pressure cylinder and the low-pressure cylinder and a valve in said controlling-chest having circumferential grooves adapted to alternately open and close the ports between the high-pressure cylinder and the low-pressure cylinder at one end, and to simultaneously open the port at the opposite end of the low pressure cylinder and the exhaust-port at the opposite end of the controlling-chest substantially as described.

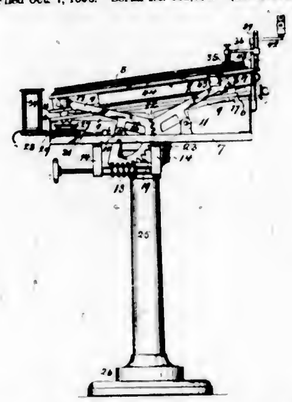
3. In a compound steam-engine a high-pressure cylinder A, having a piston-rod E, and piston-head E', a low-pressure cylinder B, having piston-rod F, and piston-head F', a steam-chest C, having ports A' and A^3, connecting it with the high-pressure cylinder and a slide-valve in said steam-chest having a valve-rod G' and a groove G^3, said groove so arranged that when port A', is covered port A^3, will be uncovered, and vice versa, and a controlling-chest having exhaust-ports H, and H, and ports A^3, and A^4, connecting it with the high-pressure cylinder and ports B', and B^3, connecting it with the low-pressure cylinder and a valve I, in said controlling-chest having a valve-rod I', and grooves I^3, and I^4 said grooves so arranged that when port A^3, is covered ports A^4, B^3, and the forward exhaust-port will be uncovered and when port A^4, is covered ports A^3, and B', and the rear exhaust-port will be uncovered substantially as described.

640,225. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Mar. 31, 1899. Serial No. 711,272. (No model.)



Claim.—The combination with the draw-head and the coupling-knuckle pivoted to one side thereof, of a vertically-swinging transverse lock pivoted on the knuckle side of the draw-head and having below its pivotal portion a downwardly-projecting actuating arm or heel, and an actuating elbow-lever which is also pivoted at the knuckle side of the draw-head and which is composed of an upwardly-projecting arm, which bears against the outer side of the heel of the lock, and a lateral arm which projects outwardly through an opening in the knuckle side of the draw-head, substantially as set forth.

640,226. WRITING-DESK. GEORGE H. ROGERS, Birmingham, Ala. Filed Oct. 7, 1898. Serial No. 692,960. (No model.)



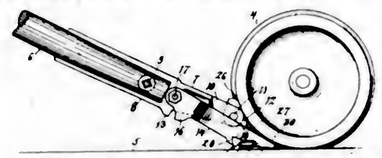
Claim.—1. In a desk, the combination of a rigid central top section and two lateral top sections, one to each side of the former, levers on which each of these lateral top sections is supported and means to move the levers under each of these lateral top sections in a manner to adjust each or either one of them independently to an independent position or to bring them in line with each other or with the center section.

2. An adjustable top section for a writing-desk, four levers 9, on the free ends of which it is carried, one of such ends engaging below each corner, said levers arranged in pairs and provided with racks 12, those racks of a pair below a side engaging each other and means engaging with one of the engaging racks for the purpose of actuating the levers.

3. In a writing-desk, the combination of adjustable top sections 8, levers 9 on the free ends of which they are supported, racks 12 on the other ends of said levers, which are arranged in pairs with racks engaging and a worm engaging with one of the racks for the purpose of actuating the levers.

640,227. CAR STARTER OR MOVER. GUILFORD D. ROWELL, Appleton, Wis. Filed Mar. 27, 1899. Serial No. 710,633. (No model.)

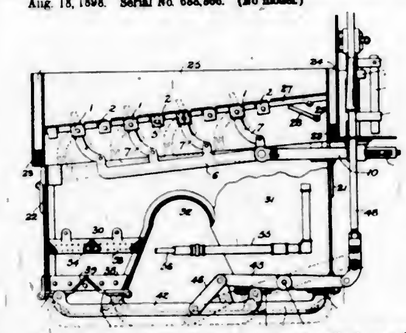
Claim.—1. In a car starter or mover, the combination, of a handle, a member or part rigidly connected to one end of the handle and projecting therefrom, and a cam pivoted in the forward extremity of said forwardly-projecting member or part, and provided with a projecting toe, said cam adapted to be thrown forwardly and rearwardly on its pivot, the forward turning increasing the length of the forwardly-extending member or part, and the rearward turning decreasing the length of said member or part, and said cam when thrown forwardly adapted to be held at such position as to bring its toe into position to engage a car-wheel, and when thrown rearwardly being brought to such position as to have its side edge engage a car-wheel.



2. In a car starter or mover, the combination, of a handle, a member or part rigidly connected to one end of said handle and projecting therefrom, a cam pivoted in the forward extremity of said forwardly-projecting member or part, and provided with a projecting toe, said cam adapted to be thrown forwardly and rearwardly on its pivot, the forward turning increasing the length of the forwardly-extending member or part and the rearward turning decreasing the length of said member or part, and said cam when thrown forwardly adapted to be held at such position as to bring its toe into position to engage a car-wheel, and when thrown rearwardly being brought to such position as to have its side edge engage a car-wheel, and a shoe pivoted to the forwardly-projecting member or part, and adapted to have its forward extremity or nose pass into the space between a car-wheel and the rail of a track.

3. In a car starter or mover, the combination, with a handle having a forwardly-extending member or part, said forwardly-extending member or part formed or provided with a stop, of a cam pivoted in the forwardly-extending member or part, and provided with a projecting toe, and also provided with a projecting shoulder, said shoulder adapted to contact with the stop on one adjustment of the cam.

640,228. FURNACE. JOHN W. RUMPF, Chillicothe, Ohio. Filed Aug. 18, 1898. Serial No. 688,866. (No model.)



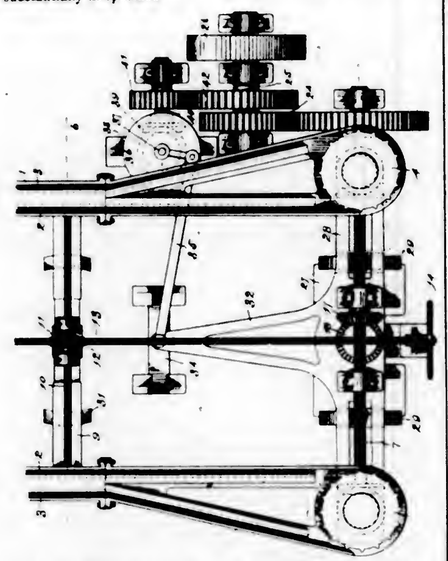
Claim.—1. In a device of the character described, an ash-receiver having hinged doors at its front and rear, bars located beneath the ash-pans, said bars having upturned ends pivotally connected with the doors, a horizontal shaft journaled in one of the ash-pan frames, a rock-shaft secured on one end of said shaft and a crank on the other, links connecting said rock-shaft and crank with the door-operating bars, and a lever journaled in the front of the furnace for rotating the horizontal shaft.

2. In a device of the character described, a duplex ash-receiver having an intervening arch, ash-receiving frames at the front and rear of said arch, an inverted-V-shaped arch formed in the front frame, a shaft journaled in the same, a rock-shaft secured to one end of said shaft and a crank to the other, doors hinged to the front and rear frames, horizontal bars extending below said doors, said bars having angular upturned ends pivotally connected with the same, links connecting the crank and rock-shaft with the horizontal bars, and a lever for rotating the shaft in the front frame to operate the doors.

640,229. TENTERING-MACHINE. EPHRAIM A. RUDDEN, Hartford, Conn. Filed Feb. 20, 1897. Serial No. 624,266. (No model.)

Claim.—1. In a tentering-machine, in combination, a frame, rolls supported by the frame, a cross-head supported by the rolls, a guiding-pivot loosely connecting the frame and the cross-head, mechanisms for oscillating the cross-head, cross-bar frames, cross-bars supported by the cross-bar frames, rails connecting the cross-head and cross-bars, endless clip-chains movable along the rails, and mechanisms for advancing the chains, substantially as specified.

2. In a tentering-machine, in combination, a frame, hubs projecting transversely of the machine from the frame, rolls mounted upon the hubs, a hub projecting upwardly from the frame, a cross-head supported by the rolls and having an opening for receiving the upwardly-projecting hub, and mechanisms for oscillating the cross-head, substantially as specified



3. In a tentering-machine, in combination, a frame, hubs projecting transversely of the machine from the frame, rolls mounted upon the hubs, a hub projecting upwardly from the frame, a cross-head supported by the rolls and having an opening for receiving the upwardly-projecting hub, mechanisms for oscillating the cross-head, cross-bar frames, cross-bars pivotally retained above the cross-bar frames, rails adapted to carry endless clip-chains loosely supported by the cross-head and cross-bars, means for adjusting the rails transversely of the machine, and mechanisms adjustable with the rails for advancing the chains, substantially as specified.

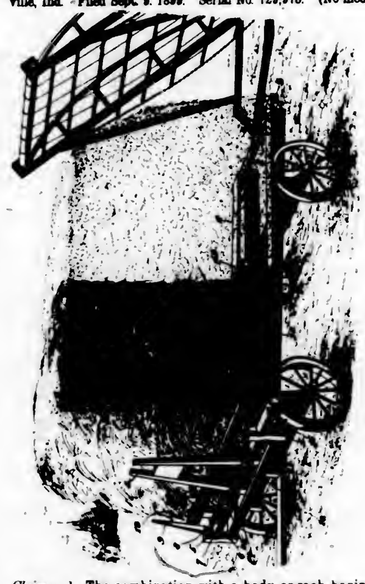
4. In a tentering-machine, in combination, a frame, hubs projecting transversely of the machine from the frame, rolls mounted upon the hubs, a hub projecting upwardly from the frame, a cross-head supported by the rolls and having an opening for receiving the upwardly-projecting hub, mechanisms for oscillating the cross-head, cross-bar frames and cross-bars, rolls interposed between the cross-bar frames and the cross-bars, rails adapted to carry endless clip-chains loosely supported by the cross-head and cross-bars, means for adjusting the rails transversely of the machine, and mechanisms adjustable with the rails for advancing the chains, substantially as specified.

5. In a tentering-machine, in combination, a frame, a cross-head, rolls located between the frame and cross-head and supporting the weight of the cross-head, mechanisms for oscillating the cross-head, a shaft supported by bearings fixed to the cross-head, cross-bar frames, cross-bars, rolls located between the cross-bar frames and cross-bars and supporting the weight of the cross-bar frames, rails adapted to carry endless clip-chains movably connected with the cross-bars and the shaft supported by the head, and mechanisms for rotating the shaft, substantially as specified.

6. In a tentering-machine, in combination, rolls supported by the frame, a cross-head supported by the rolls, a guiding-pivot loosely connecting the frames and the cross-head, mechanism for oscillating the cross-head, bearings fixed to the cross-head, a shaft supported by the bearings, chain-rails with their ends adjustably supported by the shaft, wheels mounted upon the rails for advancing the chains, intermeshing gears between the shaft and the chain-wheels, and intermeshing gears between the shaft and the driving mechanism, substantially as specified.

7. In a tentering-machine, in combination, a frame, rolls mounted upon hollow bearings projecting outwardly from the frame, a hollow pivot projecting upwardly from the frame, a cross-head supported by the rolls and loosely retained by the hollow pivot, bearings fixed by the cross-head, a shaft supported by these bearings, rails with their ends supported by the shaft, chain-wheels mounted upon the rails, intermeshing gears between the shaft and chain-wheels, a shaft extending through the hollow pivot of the frame, intermeshing gears between the vertical shaft and the shaft on the cross-head, a horizontal shaft supported at one end by the frame, intermeshing gears between the horizontal shaft and the vertical shaft, and intermeshing gears between the horizontal shaft and the driving mechanism, substantially as specified.

640,230. LOAD-CONTROLLING DEVICE. JAMES RYAN, Rockville, Ind. Filed Sept. 9, 1899. Serial No. 729,973. (No model.)



Claim.—1. The combination with a body or rack having an ordinary construction at the rear extremity, of a windlass mounted on the front portion of the said body or rack, said rack being horizontally disposed and extending in a transverse direction, and a carrier approximately one-half the length of the body or rack and slidably mounted thereon and operable by said windlass, the said carrier being adapted to be loaded and shifted to the front of the body or rack and the rear portion of the latter afterward similarly loaded or as in the ordinary manner, and a rope or cable in fixed relation to opposite portions of the windlass and secured to the carrier adjacent opposite ends.

2. The combination with a wagon-bed or rack, of a windlass mounted in the front portion thereof, a carrier of approximately one-half the length of the bed or rack and slidingly disposed thereon, the said carrier being provided with opposite depending side guides, and a rope or cable connected to the windlass and to the front end of the said carrier.

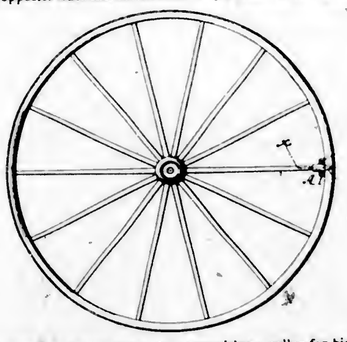
3. The combination with a wagon-bed or rack, of a windlass mounted in the front portion thereof, a carrier of less length than the bed or rack and slidingly mounted thereon, the said carrier being provided with front and rear end transversely-extending rails and opposite depending side guides, and a rope or cable connected to the windlass and the front end of the carrier.

4. The combination with a wagon-bed or rack, of a windlass mounted in the front portion thereof and having openings therethrough on opposite sides of the center, a carrier of less length than the bed or rack and slidingly mounted thereon, and a rope or cable having its terminals attached to the front end of the carrier adjacent opposite sides and front looped end passed through the openings in the windlass and then brought around forwardly and over the said windlass.

640,231. SPOKE-FASTENER. BOLING M. SADLER, Burkville, Ala. Filed Mar. 11, 1899. Serial No. 708,668. (No model.)

Claim.—1. A fastening device for spokes comprising a collar for binding the outer end of the spoke, said collar having the inwardly-extending flange at its base for engagement between the spoke end and the wheel-felly, and the collar having also the oppositely-located

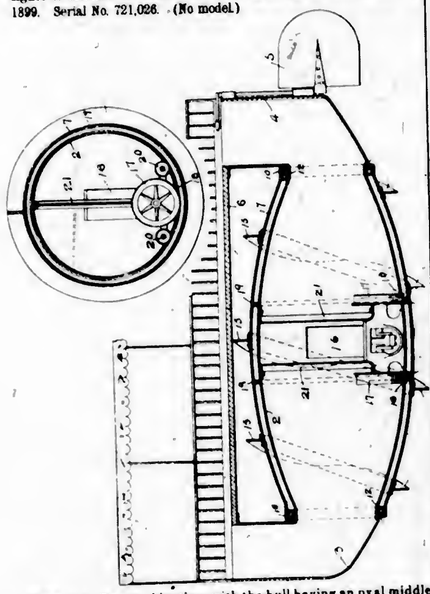
jaws extending beyond the base-flanges and in a longitudinal plane with respect to the body of the collar and adapted to clamp the wheel-felly upon opposite sides thereof, substantially as shown and described.



2. A fastening device for spokes comprising a collar for binding the outer end of the spoke, said collar being composed of two sections or segments each of which is supplied with an inwardly-extending flange at its base for engagement between the spoke end and the wheel felly, and each segment also carrying a jaw extending beyond the base-flange in a longitudinal plane with respect to the body of the segment and adapted to bear against the side of the wheel-felly, and means for directly connecting and locking the two said sections to each other, substantially as shown and described.

3. As a spoke-fastening device, the combination of two segmental sections respectively hinged or connected together at one edge and respectively provided at their opposite edges with projecting lugs and means for fastening the same together, said sections having flanges extended inwardly from their base and jaws projected beyond the base-flange and in a longitudinal plane with respect to the body of the section, substantially as shown and described.

640,232. BOAT. CHARLES H. SAWYER, Minneapolis, Minn., assignor of one-half to Andrew Anderson, same place. Filed June 19, 1899. Serial No. 721,026. (No model.)



Claim.—1. The combination, with the hull having an oval middle portion, of a revolving shell inclosing said oval middle portion, spirals provided upon said shell water-tight joints between said shell and said hull, a circular track provided between said shell and said hull, trucks provided within said hull and resting upon said track, and means for revolving said truck, substantially as described.

2. A boat or vessel, comprising a hull substantially cylindrical in cross-section having at each end upright extensions through which access may be had to the interior of said hull, a deck supported upon said extensions and extending over said hull, a shell inclosing said hull between said upright extensions, water tight joints being provided between the ends of said shell and said hull, a series of spirals provided on the surface of said shell, and means for revolving said shell, substantially as described.

3. In a boat, the combination, with a hull, substantially cylindrical in cross-section, of a revolving shell inclosing said hull, water-tight joints being formed between the ends of said shell and said hull, a series of spirals provided on the surface of said shell, a track provided on the inner surface of said shell, and a friction device arranged within said shell and engaging said track and whereby said shell is revolved, substantially as described.

640,233. WINDOW. EVERT SCHMIDT, Waupun, Wis. Filed Mar. 11, 1899. Serial No. 708,749. (No model.)



Claim.—1. The combination with a window-frame, of two sliding strips supported inside the window-frame, a window-sash hinged to one of said strips, means for connecting said sash with the other strip, and two independent devices carried by the window-frame and each being adjustable and adapted to engage both strips at one side of the frame and lock said strips when the window is swung open, substantially as described.

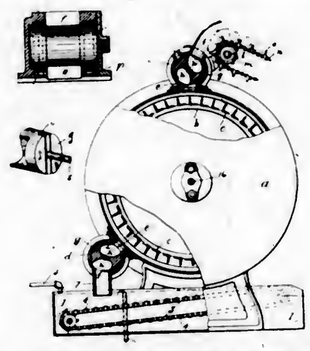
2. The combination with a window-frame, of two strips supported for sliding movement upon the inside of the frame, window-sashes hinged to said strips, bolts carried by the frame and adapted to engage said strips and move them laterally into engagement with adjacent portions of the frame, an operating-nut in threaded engagement with said bolt, a second pair of strips supported for sliding movement in said frame at the side thereof opposite said first-mentioned strips, and adapted to be detachably connected with the sashes, and an additional bolt carried by the frame and adapted to engage the last-named strips and move them into engagement with adjacent portions of the frame and hold them in position corresponding to those of the other strips, when said sashes are swung open, substantially as described.

3. The combination with a window-frame, of two sliding strips supported inside the window-frame, window-sashes hinged to said strips, a bolt slidably mounted in said frame and provided with lugs adapted to engage both of the strips and move them laterally into engagement with adjacent portions of the frame, a nut in threaded engagement with and serving to operate said bolt, a second pair of strips supported for sliding movement inside the window-frame, bolts carried by the sashes and adapted to engage openings in said last-mentioned strips, and means carried by the window-frame and adapted to engage the last-mentioned strip and thereby hold them when the window is disengaged therefrom in positions corresponding with said first-mentioned strips.

4. The combination with a window-frame, of two sliding strips

supported inside the window-frame, window-sashes hinged to said strips, a sliding bolt fitted in a channel in the frame and provided with lugs for engaging said strips, a nut in threaded engagement with said bolt and fitted in an aperture in the frame, a second pair of sliding strips fitted inside the frame and having openings, a series of bolts carried by the sashes and provided with fins or keys, and said bolts being adapted to engage in the openings in the last-mentioned strips, a bolt carried by the frame and adapted to engage said last-mentioned strips, a nut on said last-mentioned bolt, sash-weights located inside the frame, and cords connecting the sash-weights and sashes respectively, substantially as described.

640,234. RETORT FOR STERILIZING OR COOKING GOODS. FRANK W. SMITH, Portland, Me., assignor of one-half to Frederick O. Conant, same place. Filed July 23, 1898. Serial No. 686,651. (No model.)



Claim.—1. In an apparatus for sterilizing or cooking goods, the combination with a retort provided with an inlet-opening; a steam-tight valve-casing mounted over said inlet-opening, and said casing having an opening communicating therewith, and a feed-opening; a steam-tight rotary valve provided with pockets, mounted in said casing; and a relief-passage in said casing communicating with the surface of the valve; substantially as described.

2. In an apparatus for sterilizing or cooking goods, the combination with a retort provided with outlet and inlet openings; a steam-tight valve-casing mounted over said inlet-opening, and said valve-casing having an opening communicating therewith, and a feed-opening; a steam-tight rotary valve provided with pockets, mounted in said casing; a relief-passage in said casing communicating with the surface of the valve; and a steam-tight valve at the discharge-opening of the retort; substantially as described.

3. In combination with a cooker having an inlet and an outlet, a valve with pockets in a casing located at each, said casing having channels therein at each end connected at one side with said inlet or outlet and at the opposite side opening upon the surface of said valve, substantially as described.

4. The combination of a discharging-valve and a tank external thereto, said tank being provided with a conveyer and a water-supply, said conveyer being adapted to receive the can or packages discharged by said valve whereby such cans or packages may be cooled as they are conveyed away, substantially as described.

5. The combination of a casing having a rotary valve with pockets thereunder, a feeding-table adapted to discharge cans and other packages into said pockets, a finger adapted to reciprocate through the bottom of said table and a cam and lever operating said finger, substantially as described.

6. The combination of a casing; a rotary valve with pockets, mounted therein; a feeding-table; a feed-regulating device arranged to reciprocate across the path of travel of the articles, permitting the delivery of the articles singly; and a cam operating said feed-regulating device; substantially as described.

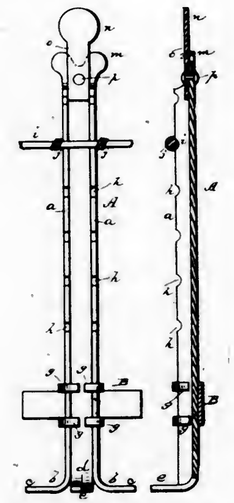
7. In an apparatus for sterilizing or cooking goods, the combination with a steam-tight casing having a feed and a delivery opening; of a rotary steam-tight valve mounted in said casing; said valve having pockets provided with concave outer lips and openings arranged to allow said pockets to come successively into communication with the delivery-opening in the casing in advance of communication with the feed-opening; substantially as described.

8. The combination of the valve-casing provided with feed and delivery openings, of the rotary steam-tight valve mounted therein and provided with pockets having overhanging concave lips, and a relief-opening in said casing communicating with the surface of the valve; substantially as described.

9. The combination of the valve-casing provided with feed and delivery openings, of the rotary steam-tight valve mounted therein and provided with pockets having overhanging concave lips, a relief-opening in said casing communicating with the surface of the valve, and packing-strips on said valve between the openings to said pockets: substantially as described.

10. In an apparatus of the character described, a reversible feed-valve in the form of a cylinder provided with pockets, each having an opening upon the periphery of the valve and curved lips at opposite sides of said opening; substantially as described.

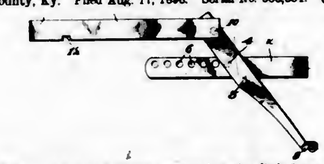
640,235. FENCE-POST. RANSOM R. SPOORE, Newark, and JOSEPH M. RAUB, New York, N. Y. Filed Apr. 28, 1899. Serial No. 714,793. (No model.)



Claim.—1. The combination in a metal fence-post having the right-angular side flanges, provided with notches for the fence-wires and bent arms providing anchorage for said post, of the base-plate having the longitudinal slits *f*, extending from the outer ends of said plate leaving the fingers *g*, at each end of the plate, the same adapted to be bent around the side flanges of the post, whereby said plate is firmly held thereto, as herein shown and described.

2. In a base-plate, adapted to be applied to a metal fence-post, the plate B, constructed in rectangular form, the ends thereof provided with the kerfs *f*, extending from the two ends thereof toward the center leaving two outer arms at each end of the plate, providing grasping-fingers by which said plate may be secured to the fence-post, all substantially as herein shown and described.

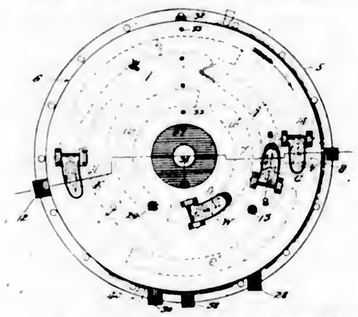
640,236. HAME-FASTENER. JAMES S. SPURGEON, Henry County, Ky. Filed Aug. 17, 1898. Serial No. 688,831. (No model.)



Claim.—A hame-fastener comprising the link 1 provided at its outer end with a hook and having the notch 12 located at its lower edge and arranged adjacent to the hook, the link 2 provided at its outer end with a hook, and a locking-lever fulcrumed on the inner end of the link 1 and adjustably connected at its intermediate portion on the inner portion of the link 2, and provided at its free end with a lug or projection 9 extending outward at an angle to form a handle or thumb-piece, and arranged to engage the notch 12, said locking-lever operating in a plane between the links, whereby the

lug or projection is adapted, when in engagement with the notch 12, to extend across the link 1 so that the handle or thumb-piece will lie beyond the device and be in a position to be readily grasped by the operator, substantially as and for the purpose described.

640,237. ROTARY GAS-ENGINE. JOHN STRASSER, Manchester, Mo. Filed Feb. 9, 1899. Serial No. 705,064. (No model.)



Claim.—1. In a rotary engine, a rotatable piston-disk, pockets formed along one face thereof and disposed along arcs of a series of concentric circles, a series of said pockets gradually tapering at one end, and having an abrupt or plane wall at the opposite end, a face-plate having a series of ports located in position to come opposite said pockets, and valves controlling said ports, and adapted to bear against the walls of the pockets during the rotation of the piston-disk, substantially as set forth.

2. In a rotary engine, a rotatable piston-disk having a plane inner face, pockets formed on said face and disposed along arcs of a series of concentric circles, a series of said pockets having each an abrupt or plane terminal wall at one end, a face-plate adjacent to said piston-disk, a series of ports disposed along the face-plate in position to come opposite said pockets, and valves controlling said ports and adapted to bear against the walls of the pockets during the rotation of the disk, substantially as set forth.

3. In a rotary engine, a stationary face-plate having a gas-inlet opening, a valve-controlled port located at the same radial distance from the center thereof, a gas-chamber located to the rear of the plate and communicating with the said port, an outlet-valve from said chamber located along the front face of the plate at a greater radial distance than the port aforesaid, an exhaust-valve located at a point diametrically opposite the outlet-valve and at the same radial distance therewith from the center of the plate, a rotatable piston-disk having pockets formed along the inner face thereof and distributed in the path of the respective ports and valves of the face-plate, means for exploding the gas-mixture in the gas-chamber at the proper moment, during the rotation of the piston-disk, means for opening and forcing the valves open and against the walls of the pockets in the course of rotation of the piston-disk, the valves being forced to a closed position by the inner face of the disk after the pocket has passed any valve, the parts operating substantially as and for the purpose set forth.

4. In a rotary engine, a piston-disk having a series of pockets disposed along arcs of concentric circles, and oil-grooves located between the ends of the various pockets, and disposed from the center, outwardly, a face-plate, suitable valves on said plate cooperating with said pockets of the piston-disk, and oil-supply openings cooperating with the oil-grooves, substantially as set forth.

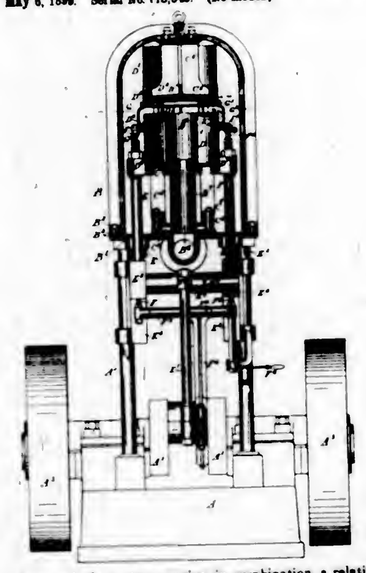
5. In a rotary engine, a stationary face-plate having a series of valves disposed in the path of arcs of concentric circles, a gas-inlet opening formed in the plate in the path of the circle of the gas-valve, a conduit leading from said opening at the back of the face-plate, a water-inlet opening formed in the plate in the path of the circles of the water-valve, a conduit leading from said opening at the back of the face-plate, a gas-explosive chamber communicating with the port controlled by the gas-valve, and located at the back of the face-plate, a valve for permitting the discharge of the exploded mixture located along the front face of the face-plate, exterior to the gas valve, an exhaust-valve located diametrically opposite the gas-chamber discharge-valve, but disposed radially the same distance therewith, an exhaust-nozzle communicating with the port of the exhaust-valve on the back of the face-plate, an oil-conduit located in the back of the face-plate and communicating with the front face thereof through a series of openings formed in the face-plate, a tubular shaft-bearing projecting from the center of the face-plate rearwardly, a piston disk rotating against the front of the face-plate and having pockets contiguous thereto and in the path of the several openings and valves, a shaft passing through the tubular bearing of the face-plate and secured to the piston-disk, and means carried by the latter for exploding the gas within the gas-explosive chamber the latter being provided with electrodes to produce electric discharges, substantially as set forth.

6. In a rotary engine, having a piston-disk, a series of pockets formed along one face thereof, a series of said pockets gradually tapering at one end, and having an abrupt or plane wall at the opposite end and a face-plate having a series of valve-controlled ports cooperating with said pockets, substantially as set forth.

7. In a rotary engine, a face-plate, a valve hinged along the front face thereof, a tubular casing adjacent to the hinge-line, a plunger mounted in the casing and adapted to bear against the valve, an outer terminal screw-plug, a spring interposed between said plug and plunger, and a port formed in the face-plate in position to be controlled by said valve, substantially as set forth.

8. In a rotary engine, a face-plate, a ledge or wall surrounding the same, a cover-plate secured to said wall whereby a water-chamber is formed between said cover-plate and face-plate, tubular outwardly-screw-threaded valve-casings and a tubular shaft-bearing or hub projecting from the rear of the face-plate, the cover-plate having openings adapted to pass over said tubular casings and hub, a nut and washer passed over the screw-threaded portion of each casing and adapted to form a water-tight joint with the cover-plate, the latter being provided with an overflow nozzle or pipe, substantially as set forth.

640,238. STEAM-ENGINE. JOHN A. SVENSON, Chicago, Ill. Filed May 6, 1899. Serial No. 715,849. (No model.)



Claim.—1. In a steam-engine, in combination, a relatively-stationary piston, a reciprocatory cylinder for the piston, having steam-ports in said cylinder, and means for opening and closing said steam-ports for the admission of live steam to said cylinder.

2. In a steam-engine, in combination, a steam-receiver, a piston mounted in said steam-receiver, a reciprocatory cylinder for said piston, having steam-ports in said cylinder, and means for opening and closing said steam-ports.

3. In a steam-engine, in combination, a steam-receiver, a piston mounted in said steam-receiver, a reciprocatory cylinder for said piston, having steam-ports in said cylinder, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinder and the crank-shaft.

4. In a steam-engine, in combination, a steam-receiver, a piston capable of a yielding motion mounted in said steam-receiver, a reciprocatory cylinder for said piston, having steam-ports in said cylinder, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinder and the crank-shaft.

5. In a steam-engine, in combination, a steam-receiver, two pistons in said receiver, a reciprocatory cylinder for each of said pistons, having steam-ports in said cylinders, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinders and the crank-shaft.

6. In a steam-engine, in combination, a steam-receiver, two pistons in said receiver, a reciprocatory cylinder for each of said pistons, which said cylinders are secured together and have an exhaust-port between their adjacent walls, also having steam-ports in each of said cylinders, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinders and the crank-shaft.

7. In a steam-engine, in combination, a steam-receiver, a piston rigidly secured within said receiver, a piston having a yielding support within said receiver, two cylinders for said pistons, rigidly secured together, having an exhaust-port between their adjacent ends and being provided with steam-ports in each of said cylinders, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinders and the crank-shaft.

8. In a steam-engine, in combination, a steam-receiver, a piston rigidly mounted within said receiver, a piston having a yielding support within said receiver, two cylinders closed at their adjacent ends and rigidly secured together, having an exhaust-port between them, also having steam-ports for each of said cylinders, means for opening and closing said steam-ports, a crank-shaft, a connecting-rod, a wrist-pin, a cross-head, and a cylinder-rod.

9. In a steam-engine, in combination, a steam-receiver, a piston rigidly mounted in one end of said receiver, an annular piston having a yielding connection with the opposite end of said receiver, two cylinders closed at their adjacent ends and rigidly secured together, having an exhaust-port between them and being provided with peripheral steam-ports, means for opening and closing said steam-ports, an exhaust-tube extending through the cylinder surrounding the annular piston, a crank-shaft, a connecting-rod, a cross-head, and cylinder-rods.

10. In a steam-engine, in combination, a steam-receiver, a piston rigidly mounted within said receiver at one end thereof, an annular piston having a yielding connection with the opposite end of said receiver, a cylinder for the first-mentioned piston, a cylinder for the last-mentioned piston, which latter cylinder has a central opening therein, an exhaust-tube telescoping within the said opening, means for securing said cylinders together at their closed ends, said cylinders being provided with an exhaust-port between them and having a series of peripheral steam-ports for each cylinder, means for opening and closing said steam-ports, a crank-shaft, a connecting-rod, a cross-head, and a cylinder-rod.

11. In a steam-engine, in combination, a steam-receiver, a piston rigidly secured within said receiver to one end thereof, a cylinder closed at one of its ends for said piston and having a series of peripheral steam-ports in its walls, an annular piston opposite the first-mentioned piston, having a yielding connection with said receiver, a cylinder for said annular piston having a central opening and a series of peripheral steam-ports near its closed end, an exhaust-tube telescoping in the central opening in the last-mentioned cylinder, means for securing the two said cylinders together at their closed ends to allow an exhaust-port between them, means for opening and closing the steam-ports in said cylinders, a crank-shaft, a connecting-rod, a cross-head, and two cylinder-rods extending between the cross head and the last-mentioned cylinder.

12. In a steam-engine, in combination, two pistons, reciprocatory cylinders therefor, which cylinders are provided with peripheral steam-ports, a valve-ring surrounding said cylinders, and means for reciprocating said ring relative to said cylinders for opening and closing said steam-ports.

13. In a steam-engine, in combination, two pistons, reciprocatory cylinders therefor, which cylinders are provided with peripheral steam-ports, a valve-ring surrounding said cylinders, which ring is serrated at its outer edges, means for reciprocating said ring relative to said cylinders for opening and closing said steam-ports, and means for turning said ring to place said serrations more or less in coincidence with the steam-ports.

14. In a steam-engine, in combination, two pistons, reciprocatory cylinders therefor, which cylinders are provided with peripheral steam-ports, valve-rods, a supporting-ring mounted on said rods, a valve-ring having a bearing in said supporting-ring, which valve-ring is serrated at its upper and lower edges, an arm fixed on one of said valve-rods, a lug on the valve-ring, a link between said arm and said lug, and means for turning said valve-rod.

15. In a steam-engine, in combination, a steam-receiver, two pistons in said receiver, a reciprocatory cylinder for each of said pistons, having steam-ports in said cylinders, a crank-shaft, a connection between the cylinders and the crank-shaft, two valve-rods having a connection with the crank-shaft, a supporting-ring on the valve-rods, and a valve-ring surrounding the cylinders and mounted on said supporting-ring.

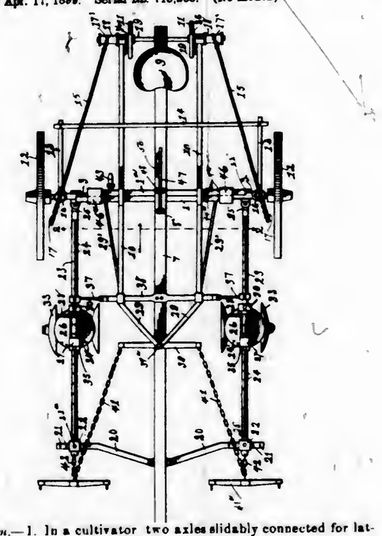
16. In a steam-engine, in combination, a steam-receiver, a steam-inlet pipe provided at its side with an opening for admitting steam to said receiver, whereby the incoming steam is given a gyratory motion within said receiver, a piston mounted in said steam-receiver, a reciprocatory cylinder for said piston, having steam-ports in said cylinder, and means for opening and closing said steam-ports.

17. In a steam-engine, in combination, a steam-receiver, a piston rigidly mounted in one end of said receiver, an annular piston for the opposite end of said receiver, which latter piston has an annular supporting-ring, coil-springs under said ring, bolts extending through openings in said ring and securing said annular piston in position in said steam-receiver, two cylinders closed at their adjacent ends, and rigidly secured together, having an exhaust-port between them and being provided with peripheral steam-ports, means for opening and closing said steam-ports, a crank-shaft, a connecting-rod, a cross-head, and cylinder-rods.

18. In a steam-engine, in combination, a steam-receiver, two pistons in said receiver, a reciprocatory cylinder for each of said pistons, which cylinders are secured together and have an exhaust-port between their adjacent walls, also having steam-ports in each of said cylinders, means for opening and closing said steam-ports, a crank-shaft, a cross-head, cylinder-rods, and a bifurcated connecting-rod extending between the cross-head and the crank-shaft.

19. In a steam-engine, in combination, a steam-receiver, two pistons in said receiver, a reciprocatory cylinder for each of said pistons, which said cylinders are secured together and have an exhaust-port between their adjacent walls, also having non-conducting spaces between said exhaust-port and the cylinder ends, and being provided with steam-ports in each of said cylinders, means for opening and closing said steam-ports, a crank-shaft, and a connection between the cylinders and the crank-shaft.

640,239. CULTIVATOR. CHARLES TANNER, Cheneyville, La. Filed Apr. 17, 1899. Serial No. 713,283. (No model.)



Claim.—1. In a cultivator two axles slidably connected for lateral adjustment, wheels upon said axles, a frame attached to said axles, shafts extending forwardly from said frame parallel with each other, bearing-blocks rotatably and slidably mounted upon said shafts, means of locking said bearing-blocks in position upon said shafts, an arm connecting said bearing-blocks and extending downwardly, a disk attached to said arm, a second disk placed against the lower face of the first disk, cultivator-tools attached to the second disk, and means of rotatably adjusting said second disk relative to the first disk, substantially as specified.

2. In a cultivator, a suitable frame, swivels carried by said frame, traction-wheels connected to said swivels and supporting the frame, means of operating said swivels to guide the traction-wheels, means of adjusting the distance between the traction-wheels, shafts extending forwardly from said frame in parallel positions, bearing-blocks rotatably and slidably mounted upon said shafts, an arm connecting said bearing-blocks and extending downwardly, a disk attached to said arm, a second disk placed against the lower face of the first

disk, cultivator-tools attached to the second disk and means of rotatably adjusting said second disk relative to the first disk, substantially as specified.

3. In a cultivator, an arch-bar having vertically-alined bearings in each of its ends, posts rotatably mounted in said bearings, arms projecting backwardly from said posts, a connecting-rod connecting the rear ends of said arms, axles projecting from the lower ends of said posts, shafts extending forwardly from said arch-bar, bearing-blocks adjustably mounted upon said shafts, arms connecting said bearing-blocks and extending downwardly, disks attached to said arms, a second disk placed against the lower face of each of the first disks, cultivator-tools attached to the second disks, means for rotatably adjusting the said second disks relative to the first disks, substantially as specified

4. In a cultivator, a suitable frame, traction-wheels supporting said frame, shafts extending forwardly from said frame, bearing-blocks mounted upon said shafts, arms extending downwardly from said bearing-blocks, disks attached to said arms, second disks placed against the lower face of the first disks, cultivator-tools attached to the second disks, arms extending rigidly upwardly from said shafts, segmental racks extending upwardly from said bearing-blocks beside said arms, and pins inserted through said arms and connecting said racks as required to adjust the cultivator-tools relative to a vertical line, substantially as specified.

5. In a cultivator, a shaft mounted parallel with the tongue, bearing-blocks rotatably and slidably mounted upon said shaft, an arm connecting said bearing-block and extending downwardly, a disk attached to said arm, a second disk placed against the lower face of the first disk, cultivator-tools attached to the second disk and means of rotatably adjusting said second disk relative to the first disk, substantially as specified.

6. In a cultivator, a shaft mounted parallel with the tongue, bearing-blocks mounted upon said shaft, means of adjusting said bearing-blocks upon said shaft, a segmental rack extending from one of said bearing-blocks, an arm extending from said shaft beside said segmental rack, a pin operating through said arm and engaging said rack as required to adjust the position of the rack relative to the arm, and cultivator-tools attached to said bearing-blocks, substantially as specified.

7. In a cultivator, an arch-bar having vertically-alined bearings in each end, posts slidably mounted in said bearings, levers pivotally connected to the upper ends of the said posts, chains connecting corresponding ends of said levers to said arch-bar, spools rotatably mounted, chains connecting the opposite ends of said levers to said spools, hand-wheels for operating said spools and pawl-and-ratchet mechanisms for holding said spools in the desired position, as required to raise and lower the arch-bar by manipulating the hand-wheels, substantially as specified.

8. In a cultivator, the combination of the laterally-adjustable arch, integral with the wheel-standards 6, with the means for supporting and adjusting the earthworking devices 33, consisting of the shafts having openings 24, and flattened extremities 25, the yoke-clevises 22 and 22′, the extending arms 20, having openings 21, the horizontal arms 4 having openings 21′, the plate 26 having openings 24′, arms 27, and upwardly-extending sections 28 with openings therein, the castings 30 having upright arms 32, and the collar 35, all suitably secured by the pins 31, 31′, 31″ and 31‴, substantially as specified.

9. In a cultivator, having an adjustable frame, the combination of the guiding apparatus consisting of the wheel-standards 6, the arms 13, and the guide-bar 14, with the apparatus for raising and lowering said frame, consisting of chains 17 and 17′, the hand-wheels 11, the spools 18, mounted on the shafts 19 carried by the supporting-arms 10, substantially as specified.

10. In a cultivator having an adjustable framework supporting a tongue 7, the combination of the shaft 23 having openings 24 and flattened ends 25 to enter the yoke-clevises 22 and 22′, the yoke-clevises 22 and 22′, carried by the extending arms 20, and the horizontal arms 4 of the frame, with the draft appliances, consisting of the doubletree 39 mounted upon the tongue 7, the chains 41 connecting it with the singletrees 40, and the singletrees 40 connected with the yoke-clevises 22 on a line with the shafts 23, by the chains 42, substantially as specified.

11. In a cultivator, the combination with a laterally-adjustable arch-bar having vertically-alined bearings in each of its ends, of the wheel-standards 6 rotatably and slidably mounted in said bearings, arms projecting backwardly from said standards, a connecting-rod connecting the rear ends of said arms, means of raising and lowering the arch-bar upon said standards, shafts extending forwardly from the arch-bar, bearing-blocks rotatably and slidably mounted upon said shafts, means of locking said bearing-blocks upon said shafts and cultivator-tools carried by said bearing-blocks, substantially as specified.

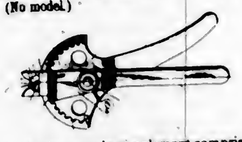
12. In a cultivator having a laterally and vertically adjustable frame, a means for guiding the same, and suitable draft appliances, the combination of the shafts 23, coupled to the yoke-clevises 22 and 22′ and carrying collars 35 having the pins 31‴, and the castings 30, having the upright arms 32 and the pins 31, with the means for supporting and adjusting the working tools 33, consisting of the plate 26 having upwardly-extending arms 27 encircling said shafts 23, the rear one of said arms on each shaft having an upwardly-extending section 28, provided with openings therein to receive pins 31′, said plates also provided with openings 24′ to receive pins 31″ and a bolt 34 to secure said working tools, substantially as specified.

13. In a cultivator, the combination with the laterally-adjustable arch-bar having vertically-alined bearings in each of its ends of the standards 6 rotatably and slidably mounted in said bearings, arms projecting in parallel positions from said standards, a rigid connection between the free ends of said arms and means of raising and lowering said arch-bar upon said standards, substantially as specified.

14. In a cultivator, wherein the distance between the working tools may be regulated by the lateral movement of the traction-wheels, the combination with the tongue 7 of the clamp 8, controlled by the lever 47 and spring-dog 49 in connection with the rack-bar 50, for the purpose of clamping said tongue securely upon the arch-bar 1, substantially as specified.

15. In a cultivator, the combination with the laterally-adjustable frame, of the supporting-arms 10, carried upon the arch-bar 1, with the bars 10, having the braces 29 and 29′ whereby the connected parts are held in their positions, substantially as specified.

640,240. FENCE-WEAVING IMPLEMENT. CHARLES A. TAYLOR, Winchester, Ill., assignor of one-half to George G. Peak, Joseph R. Eddings, and Charles Crisp, same place. Filed Apr. 1, 1899. Serial No. 711,334. (No model.)



Claim.—1. A wire-weaving implement comprising a member provided with a toothed segmental head having an offset guide-flange contiguous to the toothed edge thereof, another member pivoted to the first-named member and having a forked free end, and a revoluble slotted twister journaled in the fork member and having a pinion adapted to mesh with the toothed segment and to be confined between the flange on said toothed segment and the member in which it is journaled, substantially as described.

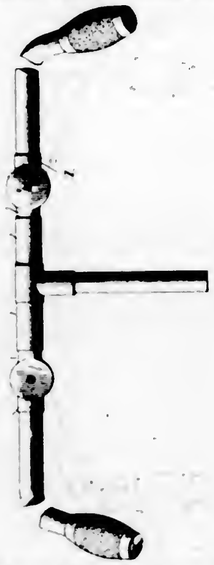
2. A wire-weaving tool comprising a fork member having the offstanding angular guide, a revolable slotted twister journaled in said member and provided with a coiling-finger which is disposed contiguous to said guide, and a lever member pivoted to the first-named member and having a toothed segment which meshes with a gear-pinion of said twister, substantially as described.

3. In a wire-weaving tool, the combination of a forked handle member provided with an offset guide adjacent to its forked end, a lever member having a toothed segment provided with an offstanding arc-shaped guide-flange adjacent to its toothed edge, a pivotal bolt connecting the members together at a point concentric with the edge of the segment, and a revolable twister having at one end a pinion which is confined between the handle member and the arc guide-flange of the lever member, said twister having its other end formed with a coiling-finger and the inclined throw-off face contiguous to the flange of the offset guide, substantially as described.

640,241. BICYCLE HANDLE-BAR. JAMES TRACY, Allegheny, Pa. Filed Feb. 4, 1899. Serial No. 704,490. (No model.)

Claim.—1. In an adjusting device for handle-bars, the combination of an outer and an inner shell, said outer shell being connected to the cross-bar of a bicycle and said inner shell being connected to a handle-bar, a supporting-block arranged in said outer shell, a pawl or dog pivotally secured in said supporting-block, a substantially Z-shaped gravity locking-bar arranged on said block and having its one end pivotally connected to said pawl or dog, a rack arranged within the inner shell, means carried by said inner shell for elevating the gravity locking-bar to withdraw the pawl or dog from engagement with said rack, and separate means adapted to engage said pawl to carry the same into locking engagement with the said rack, substantially as described.

2. In an adjusting device for handle-bars, the combination of an inner and an outer cup or shell pivotally secured together, said outer shell being connected to the cross-bar of a bicycle, and said inner shell being connected to a handle-bar, a rack arranged in said inner shell, a pivotally-supported pawl in said inner shell adapted to engage said rack, and a substantially Z-shaped gravity locking-bar arranged within the said shell, an inner shell adapted to be connected to a handle-bar, a rack arranged within the inner shell, means for pivotally securing the said shells together, and means supported by the said supporting-block operating against the rack formed in the said outer shell for securing the inner shell in the desired position when adjusted, substantially as set forth.



3. In an adjusting device for handle-bars, an outer shell, means for connecting said shell to the cross-bar of a bicycle, a supporting-block arranged within the said shell, an inner shell adapted to be connected to a handle-bar, a rack arranged within the inner shell, means for pivotally securing the said shells together, and means supported by the said supporting-block operating against the rack formed in the said outer shell for securing the inner shell in the desired position when adjusted, substantially as set forth.

4. In an adjusting device for handle-bars, an outer shell suitably connected to the cross-bar of a bicycle, a supporting-block arranged therein, a pawl pivotally connected to the said supporting-block, an angle-bar pivotally connected to the said pawl and slidably connected to said supporting-block, an inner shell adapted to be connected to a handle-bar, a rack arranged in the said inner shell, and means for bringing the said pawl in contact with the said rack securing the inner shell in the desired position when adjusted, substantially as set forth.

5. In an adjusting device for handle-bars, an outer shell suitably connected to the frame of a bicycle, a supporting-block arranged therein, a stop arranged on the said supporting-block, a pawl pivotally connected to the said block, an angle-bar for operating the said pawl pivotally connected thereto and slidably connected to the said supporting-block, an inner cup or shell suitably connected to a handle-bar, a rack arranged within the said inner shell, a pair of pins arranged within the said shell adapted to bring the said pawl into and out of engagement with the said rack, and means for pivotally securing the two shells together, substantially as set forth.

640,242. STEAM STEERING-GEAR. ROBERT A. TURNER and BENJAMIN L. MILLER, Seattle, Wash. Filed Mar. 25, 1899. Serial No. 711,190. (No model.)

Claim.—1. In a steam steering apparatus, the combination with a cylinder and a piston having a piston-rod extending through both heads of the cylinder, stops X X on the projecting ends of said piston-rod, of the pipes J J entering near the ends of the cylinder, a valve-chamber D communicating therewith, a rotatable valve E in said chamber, a valve-spindle F and sheave G integral with said valve, sheaves G′ G′, operative connection between the said sheaves G and G′ G′, spindles W W and regulator-arms H H integral with sheaves G′ G′, said regulator-arms adapted to be engaged by the said stops X X, substantially as described.

2. In a steam steering apparatus, the combination with a cylinder and a piston having a piston-rod extending through both heads of the cylinder, stops X X on the projecting ends of said piston-rod, of the pipes J J entering near the ends of the cylinder, a valve-chamber D communicating therewith, a rotatable valve E in said chamber, a valve-spindle F and sheave G integral with said valve, sheaves G′ G′, operative connection between the said sheaves G and G′ G′, spindles W W and regulator-arms H H integral with sheaves G′ G′, said regulator-arms adapted to be engaged by the said stops X X; and, a cushion-cylinder N with a piston having a piston-rod extending through both heads of cylinder and ends of said piston-rod being connected to tiller-rope K, a pass-over pipe I making communication between the ends of the cushion-cylinder, a valve R arranged in pass-over pipe for controlling the communication between ends of said cushion-cylinder, two check-valves T T and the opening S for connection with reservoir, substantially as described.

640,243. STAY ROD AND CHAIN FOR VEHICLES. HENRY K. WARREN, Morgan, Mo. Filed May 10, 1899. Serial No. 716,321. (No model.)

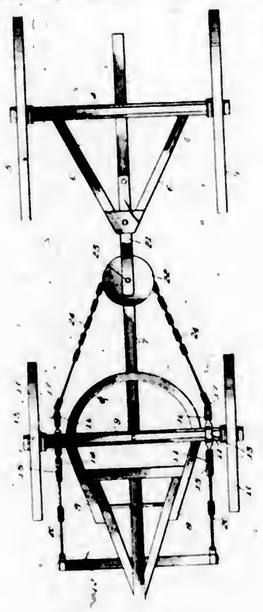
Claim.—1. In a vehicle running-gear, the combination with the front axle, coupling-pole and doubletree, of a lever-bar in front of each end of the axle linked to the axle at their outer ends, and connected to the doubletree at their centers, with a pulley journaled on the coupling-pole behind the axle and connections between the inner ends of the lever-bars passing around the pulley, substantially as described.

2. In a vehicle running-gear, the combination with the rear axle, coupling-pole and doubletree, of a lever-bar in rear of each end of the axle and linked to the axle at their outer ends, and connected to the doubletree at their centers, with a pulley journaled on the coupling-pole behind the axle and connections between the inner ends of the lever-bars passing around the pulley, substantially as described.

3. In a vehicle running-gear, the combination with the front axle, coupling-pole, and doubletree, of lever-bars in front and rear of the axle near each end, linked to the axle at their outer ends and linked together at their inner ends, connections between the center of each front lever-bar and the ends of the doubletree, a pulley journaled on the coupling-pole behind the axle and a flexible connection between the centers of the rear lever-bars passing around the pulley, substantially as described.

4. In a vehicle running-gear, the combination with the front axle, doubletree and coupling-pole, of two bars having hooked front and rear ends, one bar being secured to the axle near each end, a lever-bar in front and rear of the axle near each hook-bar, links connecting the outer ends of the front and rear lever-bars with the hooks, connections between the inner ends of each pair of lever-bars, connections between the centers of the front lever-bars and the ends of the doubletree, a pulley journaled on the coupling-pole in rear of the

axle, and a flexible connection between the center of the rear lever-bars passing around the pulley, substantially as described.



640,244. ANIMAL-TRAP. CHARLES A. WEVER, Sioux City, Iowa. Filed Apr. 27, 1898. Serial No. 678,989. (No model.)



Claim.—1. As an article of manufacture, an animal-trap consisting of sheet metal bent to form a base and upright portion, said parts having flanges, which overlap at the adjacent edges, a pin passing through said adjacent ends of the flanges, whereby the base and upright portion are retained rigidly apart, a pivoted treadle, and a spring-jaw, substantially as described.

2. A trap comprising a frame constructed of a single piece of sheet metal bent at an angle to form a base and back, and provided at the side edges of the same with flanges overlapped at their adjacent ends, a pin passing through the overlapped portions of the flanges, a striking-spring having a loop and provided with coils arranged on the pin, a trigger hinged to the back at the top thereof and adapted to hold the spring when the trap is set, and a treadle provided at its back with a pintle fitting in perforations of the flanges of the frame, said treadle being adapted to engage the trigger and provided with a substantially L-shaped rear portion extending over the spring-coils, substantially as described.

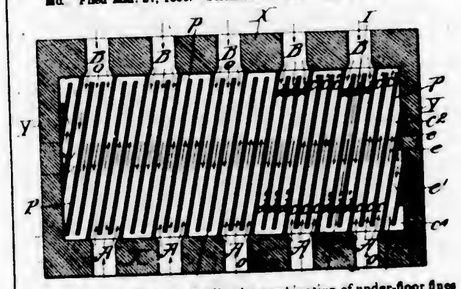
3. A trap comprising a frame composed of a substantially vertical back, and a horizontal base having a finger-opening, a spring having coils arranged in the angle of the frame of the trap, a treadle provided with an L-shaped rear portion extending over the spring-coils and hinged to the frame, said treadle being provided with an integral flange located at the angle of the L-shaped portion and cut from the same and bent upward, and a trigger mounted on the back of the frame and arranged to engage the said flange, substantially as described.

640,245. PROCESS OF PRODUCING LITHOGRAPHIC COATINGS ON METALLIC PLATES. JULIUS WEBER, Leipsic, Germany. Filed Jan. 6, 1899. Serial No. 701,393. (No specimens.)

Claim.—1. A process for producing a coating of imitation stone on zinc plates, which consists in first forming on the same a coating of carbonate of zinc and then spraying evenly over the same a pulverized stone mixture held in suspension in an aqueous solution of carbonate of soda substantially as described.

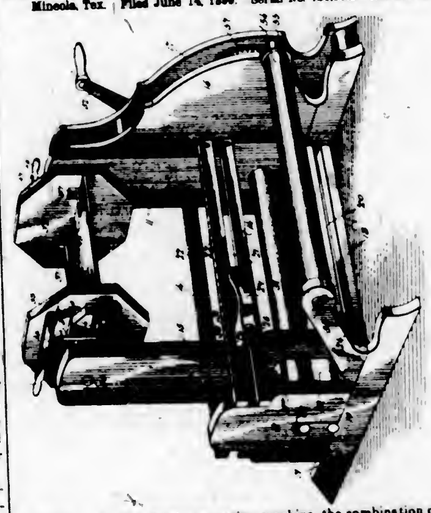
2. A process for producing a coating of imitation stone on zinc plates, which consists in first producing on the said plates a coating of carbonate of zinc, by allowing the plate to lie in an aqueous solution of bicarbonate of potassium for a period as specified and then spraying onto the same a pulverized mixture of stone particles and aluminium, dissolved in a mixture of hydrochloric and sulfuric acid as specified, and dried and pulverized, said powder being held in even suspension in an aqueous solution of carbonate of soda when sprayed onto the plate in the manner and for the purpose substantially as described.

640,246. DOWNDRAFT-KILN. HERBERT A. WHEELER, St. Louis, Mo. Filed Mar. 27, 1899. Serial No. 710,683. (No model.)



Claim.—In a downdraft-kiln, the combination of under-floor flues with a solid bottom, the transverse flues C^1 C^2, the return corner-flues C^3 and C^4, openings c from C C^2 to C^3, openings c' from C^3 to C^4, with escape-flues located above the floor, substantially as shown.

640,247. CLOTH-MEASURING MACHINE. ELIJA P. WILLIAMS, Mineola, Tex. Filed June 14, 1899. Serial No. 720,538. (No model.)



Claim.—1. In a fabric-measuring machine, the combination of a frame having the slotted cross-rails, a movable post slidably fitted between said rails and provided with flanged feet which are confined by the lower rails, a clamping-bolt passing through the movable post and provided with a head adapted to bind against one rail, an eccentric lever fulcrumed to the bolt to bind against another rail, and a two-part reel with its members mounted respectively in the frame and the movable post, substantially as described.

2. In a fabric-measuring machine, a reel comprising the heads having openings therein, clamping-fingers fixed to said heads and projecting through the openings, movable clamping-fingers projecting through said openings and arranged to coact with the fixed fingers, and means located upon the outer faces of the heads for adjusting said movable fingers.

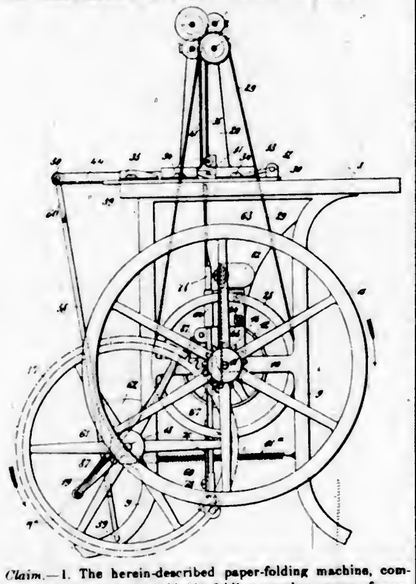
3. In a fabric-measuring machine, a reel comprising the spaced heads provided with transverse slots, stationary fingers fixed to said heads and projecting through the slots thereof, movable fingers arranged to play in said slots, means for adjusting the movable fingers laterally with respect to the fixed fingers, and spring-cushions adapted to receive the movable fingers when in their operative positions, substantially as described.

4. In a fabric-measuring machine, a reel comprising the opposing heads having the transverse slots, blocks fixed to said heads and carrying the stationary fingers, other blocks confined slidably on the heads and provided with the movable fingers which are disposed in cooperative relation to the fixed fingers, and means for adjusting the slidable blocks, substantially as described.

5. In a fabric-measuring machine, a reel comprising the slotted heads, blocks fixed to said heads and provided with fingers, compressible cushions mounted on said blocks, slidable blocks carrying the movable fingers, and levers connected with the slidable blocks and having means for locking the same in place, substantially as described.

6. In a fabric-measuring machine, the combination with a frame, of a reel journaled therein and comprising a slotted head, blocks fixed to said heads and provided with fingers, compressible cushions mounted on said blocks, slidable blocks carrying the movable fingers, and levers connected with the slidable blocks and having means for locking the same in place, a measuring-roll journaled in the frame, a pressure-roll in cooperative relation to the measuring-roll, a guide-roll between said reel and the measuring-roll, and a registering mechanism actuated by the measuring-roll.

640,248. PAPER-FOLDING MACHINE. FRANK WULFF, Colusa, Cal. Filed June 15, 1899. Serial No. 720,609. (No model.)



Claim.—1. The herein-described paper-folding machine, comprising a reciprocating and foldable folding member, means for operating the same, a feeding member for feeding a blank into the path of said folding member, and means for operating the feeding member, the relative construction and arrangement of parts being such that said folding member directly engages and raises said blank, said folding member being during this period of its operation in unfolded position, and is then folded to fold said blank about said folding member, substantially as shown and described.

2. The herein-described machine, comprising a bed-plate provided with a slot, a reciprocating feeding-frame, a reciprocating folding device adapted to operate within said slot and provided with a pair of foldable blades and means for reciprocating said feeding-frame, substantially as shown and described.

3. The herein-described paper-folding machine, comprising a bed-plate provided with a slot, a reciprocating feeding-frame mounted upon said bed-plate, a reciprocating folding member adapted to operate within said slot and provided with a pair of rotatable blades, means for operating said feeding-frame and folding member, and presser-rollers adapted to receive a folded blank from said folding member, substantially as shown and described.

4. The herein-described paper-folding machine, comprising a frame provided with a bed-plate, said bed-plate having a transverse slot, a reciprocating feeding-frame provided with spring-actuated gripping-heads, and mounted upon said bed-plate, a vertical folding member adapted to reciprocate within said transverse slot and provided at either side with a rotatable blade, a shaft provided with a crank connected operatively with said folding member, an arm pivoted at one end to said frame and engaging said folding-frame at the other end, a cam mounted upon said shaft and adapted to operate in connection with said arm, and devices connected with said bed-plate, and adapted to operate said rotatable blade upon the reciprocation of said folding member, substantially as shown and described.

5. In a machine of the class described, a folding member comprising a vertical strip of suitable material provided at either side, and at the upper and lower portion thereof with a vertical sleeve, a vertical rod revolubly mounted at either side of said vertical strip in a pair of said sleeves, and provided at its lower end with a gear-head, and at its upper end with a folding-blade, a transverse head secured to the lower end of said vertical strip and provided at either end with a gear-head adapted to operate in connection with the gear-heads upon said vertical rods and each provided with a dog, and a pair of hooked fingers connected with said bed-plate, and adapted to operate in connection with said dogs upon the reciprocation of said folding member, substantially as shown and described.

6. In a machine of the class described, a bed-plate, a reciprocating feeding-frame, comprising side plates and a cross-plate, said bed-plate being provided with grooved strips between which and said bed-plate, said side plates operate, spring-actuated fingers pivoted to said side plates and provided with heads adapted to operate in connection with heads formed upon said side plates and devices connected with said bed-plate for operating said fingers upon the reciprocation of said feeding-frame, substantially as shown and described.

7. In a device of the class described, a bed-plate, a reciprocating feeding-frame, comprising side plates and a cross-plate, said bed-plate being provided with grooved strips between which and said bed-plate, said side plates operate, spring-actuated fingers pivoted to said side plates and provided with heads adapted to operate in connection with heads formed upon said side plates, pivoted trip-pieces connected with said bed-plate at one end of the path of reciprocation of said feeding-frame, and trip-flanges connected with the said bed plate at the other end of said path of reciprocation, said trip-pieces and trip-flanges being adapted to operate in connection with dogs formed upon said fingers, substantially as shown and described.

8. In a machine of the class described, a frame, a folding member and a feeding member, a shaft mounted in said frame and provided with a cam, an arm pivoted to said frame and operatively connected with said feeding member and adapted to operate in connection with said cam, a crank-elbow formed upon said shaft, and a slotted connecting-rod slidably connected with the cross-head of said crank-elbow and with said folding member, substantially as shown and described.

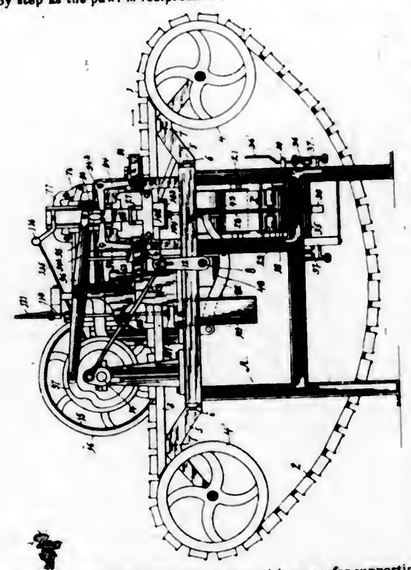
9. In a machine of the class described, a bed-plate provided with a slot, vertical blades connected with said bed-plate and arranged at either side of said slot, and a folding member provided with a vertical strip adapted to reciprocate through said slot and between said vertical blades, and a rotatable blade connected with either edge of said vertical strip and means for rotating said blades to fold a blank in connection with one of said vertical blades, substantially as shown and described.

640,249. BOX-MACHINE. WILLIAM H. WUNSOW, Oshkosh, Wis., assignor of one-half to Herman F. Wunsow and Charles Albert Wunsow, same place. Filed Dec. 23, 1898. Serial No. 700,131. (No model.)

Claim.—1. In a box-machine, the combination with a frame, of an endless chain of box-molds but hinged together at their adjacent edges and resting and movable on the frame, a rock-shaft provided with a crank-arm, a pawl pivoted medially on the crank-arm and provided with a gravity actuating-weight and adapted to engage severally the molds of the chain and move it forward step by step the length of the mold-link.

2. In a box-machine, the combination with a frame, of an endless flexible chain composed of a series of box-molds provided with recesses in their top edges in the direction of the length of the chain, a bed-plate on which the chain is supported and travels, retaining-plates 17 one at each side secured to the bed-plate and turning over the molds fitting loosely into said recesses and being flush with the remaining top surfaces of the molds, the retaining-plates being adapted to hold the chain at both sides movably to the bed-plate, and an in-

termittingly-acting pawl adapted to engage the mold-links of the chain severally below said retaining-plates and advance the chain step by step as the pawl is reciprocated.



3. In a box-machine, the combination with means for supporting a rolled strip of paper so that it can be unwound by rotation thereof, of a tension device comprising a hinged and swinging depending arm, rollers mounted on the free end thereof adapted to bear against the roll of paper at one side of the vertical plane of the pivot of the arm, and a weight on the roller end of the arm adapted by gravity to hold the rollers firmly against the paper-roll.

4. In a box-machine, a permanently-located plate 43 beneath which the box material is fed, a glue-tank-supporting device, comprising an auxiliary frame, ways on the main frame on which the auxiliary frame is movable vertically toward and from the constant path of the material, a rock-shaft mounted on the main frame and provided with radial arms, links wristed on the radial arms and connected to the auxiliary frame, and means for rocking the shaft whereby the auxiliary frame is raised or depressed on its ways.

5. In a box-machine, a movable glue-dabber comprising an open frame provided with elevated upwardly-exposed faces in the same plane adapted to be supplied with liquid glue on those faces by submerging the dabber in a supply of liquid glue, and means for depressing the dabber into the glue and raising it out of the glue and forcing it upwardly against the material.

6. In a box-machine, the combination with a frame and a plate fixed thereon above the path of the paper, of an open dabber-frame having faces in the same plane elevated above the body of the frame, slides secured to the dabber-frame and movable vertically on the main frame, a rock-shaft provided with radial arms connected to the slides, an actuating radial arm on the rock-shaft, a bell-crank pivoted on the frame, a rod connecting the bell-crank to the actuating-arm on the rock-shaft, and means for actuating the bell-crank.

7. The combination with a vertically-reciprocable knife or knives and a table for the support and travel of material thereon provided with a laterally-disposed knife aperture or apertures therein, of a laterally-slidable cover or covers adapted temporarily to close said aperture or apertures, and means for automatically sliding said covers over and from said aperture or apertures synchronously with the upward and the downward movements of the knife or knives.

8. In a box-machine, the combination with a frame having a table provided with laterally-disposed apertures therein, of movable covers slidable in ways over and from said apertures, arms pivoted medially on the frame and taking into said slidable covers, a reciprocable yoke provided with oblique slots in which pins on said arms are received, and means for reciprocating said yoke whereby said arms are moved and said covers reciprocated.

9. In a box-machine, the combination with a frame provided with a table, of a set of knives reciprocable toward and from the table, covers slidable laterally in the table adapted to close and open the apertures in the table in the path of the knives, arms pivoted medially on the frame taking into the covers, a yoke fixed on the knife-stem provided with oblique elongated slots into which pins on said swinging arms are received, a walking-beam pivoted medially on the frame taking into the knife-stem, and a cam on a driving-shaft by which the walking-beam is actuated.

10. In a box-machine, the combination with a frame, of a shearing-bar located above and transversely of the path of the box material on the frame, a knife below the path of the material having a reversely-inclined cutting edge reciprocable in ways to and across the path of the material, a lever-arm 82 pivoted on the frame and connected at one extremity to the knife-stem, a power-actuated walking-beam and a rod connecting the walking-beam to said lever-arm.

11. In a box-machine, the combination with a frame provided with a bed-plate and an endless chain of molds movable on the bed-plate, of mold-retainers extending yieldingly over the edges of the molds, ways in which the retainers are supported movably, and a spring attached to and drawing the retainers toward each other yieldingly.

12. In a box-machine, the combination with a frame provided with a bed-plate and an endless chain of molds traveling on the bed-plate, of mold-retainers in substantially U form disposed horizontally, their upper legs above the path of the molds and their lower legs below the bed-plate, sets of rollers in which the lower legs of the retainers are supported movably and a spring attached to both retainers adapted to draw the retainers toward each other.

13. In a box-machine, the combination with a frame provided with a bed-plate and an endless chain of molds movable on the bed-plate, of mold-retainers consisting of plate-like U-shaped members disposed horizontally with their open sides toward each other, the upper legs of the retainers extending inwardly slightly over the molds of the chain, and means supporting the retainers yieldingly and movably toward and from each other.

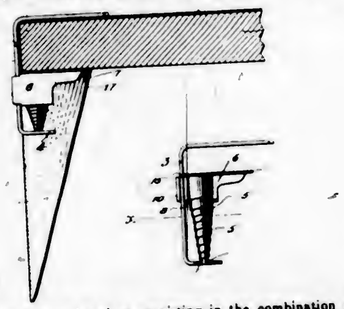
14. In a box-machine, a former-plunger 27 two sides of which are recessed, and elastic plates 106 secured to the plunger over the recesses and serving as yielding sides of the plunger.

15. In a box-machine, the combination with the frame having a bed-plate, and a chain of molds movable thereon, of laterally-movable retainers projecting over the edges of the molds, and a reciprocable plunger provided with elastic sides adapted to act complementary to the retainers, and press together interposed parts of the box material.

16. In a box-machine, the combination with the frame, of material-supporting plates 87, and material-retaining guards 90 at a little distance above and partially over said plates and opposite a box-forming plunger.

17. In a box-machine, a means for actuating a glue-dabber, comprising a tilting lever 44, a driven shaft 52, a disk 54 fixed on the shaft, an eccentric 45 adjustable revolubly on the shaft on which eccentric the tilting lever rides, and means clamping the eccentric adjustably to the disk.

640,250. TABLE-CLOTH FASTENER. CHARLES ZIMMERMANN, Paterson, N. J. Filed Sept. 25, 1899. Serial No. 731,565. (No model.)

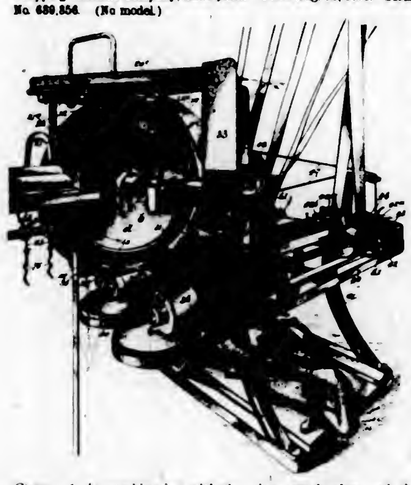


Claim.—1. A spring-clasp consisting in the combination of a bracket provided with a fixed jaw, a coiled spring, a sliding jaw mounted on said bracket and having its under side recessed to receive and retain one end of said coiled spring, an abutment on said bracket formed with a socket for receiving and retaining the other end of said coiled spring, substantially as and for the purpose set forth.

2. A spring-clasp consisting in the combination of a coiled spring 5, a bracket consisting in a metal strip having its ends bent up at right angles to the central portion thereof, one such bent end constituting a fixed jaw 2 and the other end constituting a fixed abutment 4, said abutment being provided with a socket 14 for receiving and retaining the end of said coiled spring 5, a hollow sliding jaw mounted on the central portion of said bracket and provided with an opening 9 9 for receiving and retaining the end of said coiled spring, substantially as and for the purpose set forth.

3. A spring-clasp consisting in the combination of a bracket provided with a fixed jaw, a coiled spring and a fixed abutment on the bracket engaged by one end of said spring, a movable jaw mounted to slide on said bracket toward the fixed jaw, the said sliding jaw being hollow and formed from a flat stock-blank comprising a body with two opposite and laterally-projecting guide-pieces formed with a semicircular edge and two ears projecting from the same edge of the blank at right angles to the said guide-pieces for retaining the jaw in sliding position upon the back of the bracket, the said spring passing between the said guide-pieces on the movable jaw and engaging said jaw, substantially as and for the purpose set forth.

640,251. TOBACCO-STEMMING MACHINE. ALPHONSO R. ALLISON and CHARLES R. BURK, Richmond, Va., assignors to the Universal Stripping Machine Company, same place. Filed Aug. 30, 1898. Serial No. 689,856. (No model.)



Claim.—1. In combination with the wiper mechanism and the rotary stem-conveyer and drawing-disk, of supplemental rolls adapted to engage the stem and simultaneously move the said stem laterally and at the same time draw it through the wipers.

2. In a tobacco-stemming machine of the character described, in combination with the wiping mechanism and the rotary carrier arranged to feed the leaves lengthwise between the stripping-faces of the wipers; of supplemental rolls adapted to engage the stem and move it laterally and at the same time draw it between the wiping-faces of the strippers at a speed greater than the draw action of the rotary disk, substantially as shown and described.

3. In a tobacco-stemming machine of the character described, the combination with the wiping mechanism and initial means for drawing the stem therethrough and simultaneously moving it in the direction of the length of the stripping-surfaces of the said wiping mechanism; of supplemental rolls adapted to engage the stem after it has been partially stripped and draw it through the stripping-surfaces at a speed greater than the draw action of the initial stem-drawing means, substantially as shown and described.

4. In a tobacco-stemming machine of the character described; in combination with the wiping mechanism and the rotary leaf-carrier; of means for engaging the stems and holding them separated as they are drawn up through the wipers by the said carrier.

5. In a machine of the character described; in combination with the wipers, a rotary leaf-carrier, said leaf-carrier having clamps to engage the butt-end of the leaf and adapted to carry the stripped stem and discharge it at the upper portion of the machine; the supplemental rolls adapted to engage the stem as it is partially drawn up between the wipers and continue the drawing action of the same to relieve the stem of further pull strain by the carrier-clamp as and for the purposes described.

6. The combination of the wiper mechanism and the rotary leaf-carrier, substantially as shown; of a pair of supplemental rolls having coacting faces, said rolls being arranged at an angle to the wiping-line of the strippers and adapted to engage the stem as it is partially drawn up from the stripper and complete the drawing action as specified.

7. The combination of the stripper, the wiping means, and the rotary carrier; of supplemental rolls arranged to receive the stem as it is partially drawn through the wipers by the rotary carrier, said supplemental rolls being disposed at an angle to the wiping-line of the strippers and means for adjusting the angle of such rolls, substantially as shown and described.

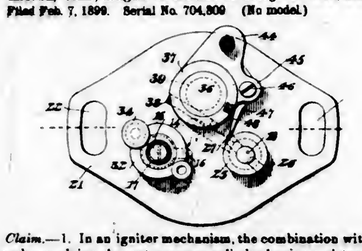
8. In a tobacco-stemming machine; in combination with the wiping mechanism and means for drawing the stem through and laterally along a portion of the length of the wiper-surfaces; of the supplemental leaf drawing and feeding means, operating with the stripping-surfaces and adapted to receive the partially-stripped stem from the initial drawing means and draw it through the wiping-surfaces at an accelerated speed for the purposes specified.

9. In a tobacco-stemming machine, in combination; the stripper mechanism and means for feeding the leaf therebetween and drawing the butt-end of the stem therethrough; of supplemental drawing devices, said devices comprising a pair of positively-rotating rolls arranged at an acute angle to the stripping mechanism and adapted to engage the stripped portion of the stem and simultaneously draw the remaining part of the stem through the stripping mechanism and laterally of the line of wiping-surfaces of the said stripping mechanism, substantially as shown and for the purposes described.

10. A tobacco-stripping machine; comprising wiping mechanism, the rotary carrier projecting at right angles from the coacting surfaces of the wiping mechanism; the leaf-feed for delivering the leaves intermittently to the carrier, and stem-discharging means adapted to receive the stripped stem from the carrier; the supplemental stem-drawing rolls adapted to draw the outer portion of the stem laterally and at the same time through the stripping mechanism, and an operating gear mechanism driven from the rotary carrier, connecting with the leaf-feed, the stem-discharging devices, and the supplemental drawing-rolls for operating the said several mechanisms.

11. In a tobacco-stemming machine of the character described; the combination with the stripping mechanism and the rotary carrier, said carrier having stem-grips automatically operating to open at predetermined intervals; of stem-discharge means disposed over the rotary carrier, said means comprising a pair of coacting endless belts, and guides for moving the stripped stems into the entrant ends of the said endless belts, said belts having their exits arranged to discharge the stems at right angles to the direction of rotation of the carrier, and means connected with the carrier-shaft for operating the stem-discharging means as specified

640,252. IGNITER FOR GAS-ENGINES. CHARLES R. ALSOP, Middletown, Conn., assignor of one-half to George A. Coles, same place. Filed Feb. 7, 1899. Serial No. 704,809. (No model.)

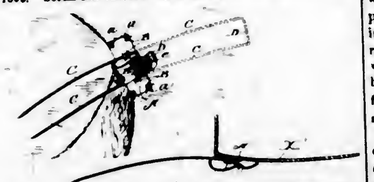


Claim.—1. In an igniter mechanism, the combination with a continuously-revolving element, a power-cylinder having a piston therein connected to said element and an explosion-chamber, of a plug removably fitted in an opening in the wall of the explosion-chamber and having exterior lateral ears provided with segmental slots for engagement by securing-bolts, the said slots permitting an angular adjustment of the plug to secure a relation between the igniter and driving element of the engine of such nature as to cause the production of a spark at the desired point in the throw of the piston, motion-imparting and motion-receiving terminals adapted for mutual engagement and providing the igniter proper, each of said terminals having a shaft journaled in the plug and a contacting portion of the motion-imparting terminal lying at a greater distance from its axis than the contacting portion of the motion-receiving terminal, yieldable connection between said shafts and the device in which each has bearing, a collar carried on the exterior portion of the shaft of the motion-imparting terminal and provided with a radially-projecting tooth, a rocker mounted upon the plug above the plane of the shafts, a pawl pivotally connected to the rocker and having a tangential plane of disposition in relation thereto and adapted to engage the tooth on the collar, and means for operating the rocker.

2 In an igniter mechanism, the combination with a continuously-revolving element, a power-cylinder having a piston therein connected to said element and an explosion-chamber, of a plug removably fitted

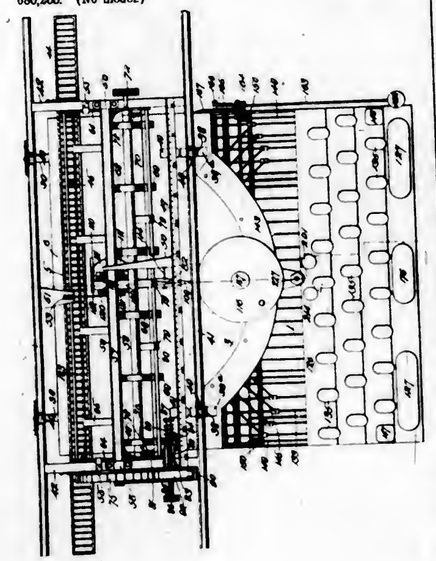
in an opening in the wall of the explosion-chamber and having exterior lateral ears provided with segmental slots for engagement by securing-bolts, the said slots permitting an angular adjustment of the plug to secure a relation between the igniter and driving element of the engine of such nature as to cause the production of a spark at the desired point in the throw of the piston, motion-imparting and motion-receiving terminals adapted for mutual engagement and providing the igniter proper, a shaft for each of the said terminals, the contacting portion of the motion-imparting terminal lying at a greater distance from its axis than the contacting portion of the motion-receiving terminal does from its axis, an insulating-bushing fitted in the plug and having therein the shaft of the motion-receiving terminal, said bushing being provided at one end with an enlargement and at the other end with a removable engaging nut provided with a binding-screw, both shafts being in the same plane and that of the motion-imparting terminal bearing directly in the plug, a return-spring having one end seated in the said bushing and the other end connected to the shaft of the motion receiving terminal, a collar adjustably connected to the exterior end of the shaft of the motion-imparting terminal and provided with a radially-extending tooth, a return-spring for the shaft of the motion-imparting terminal, a rocker located in a plane above the said shafts and carrying an operating-pawl to engage the tooth on the collar, and means for operating the said rocker.

640,253. HAT-FASTENER. LOUIS ANDERSON, Chicago, Ill. Filed Aug. 14, 1899. Serial No. 727,097. (No model.)



Claim.—In a hat-pin, in combination, a plate for attachment to a hat and having a pair of guide-loops, a spring-tongue secured to the inner edge of the plate and curved backwardly across its face between the loops, and having a backwardly-inclined shoulder near its free end, such end being inclined toward the plane of the plate, and a U-shaped pin adapted to slide under the guide-loops and to engage by its cross member the shoulder of the spring-tongue.

640,254. TYPE-WRITING MACHINE. FREDERICK F. ANDERSON, Kansas City, Mo., assignor of seven-sixteenths to Valentine Seesat and Edward J. Mellen, same place. Filed May 9, 1898. Serial No. 680,205. (No model.)



Claim.—1. In a type-writing machine, a platen, a ribbon-carrying slide-plate underlying said platen, an obliterating-key mechanism, comprising an ink-pad, a type-bar, a reversible stamp carried by said type-bar, means to reverse said stamp as the type-bar swings in one direction or the other to cause it to alternately engage the ink-pad and the paper, and a key for actuating or moving the type-bar and said plate, substantially as described.

2. In a type-writing machine, a frame, provided with an opening, a platen above said opening, a ribbon between said platen and said opening, and an obliterating-key mechanism, comprising an ink-pad, a type-bar provided with a stamp for engagement alternately with the pad and the paper, a lever, a pull-rod connecting the lever with the type-bar, a key connected to the lever, and a sliding plate linked to the type-bar and adapted to shift the ribbon out of the way of the latter as the key is depressed, substantially as described.

3. In a type-writing machine, a frame having an opening, a platen above said opening, and an obliterating-key mechanism comprising an ink-pad, a curved rack-bar, a pivoted type-bar, a semi cog-wheel pivoted thereto and adapted to be rotated a half-circle in opposite directions alternately, and provided centrally with a stem or stamp, which is set for alternate engagement with the ink-pad and the paper below the platen by the operation of the semi cog-wheel, and a key for operating the type-bar and thereby causing the operation of the semi cog-wheel, substantially as described.

4. In a type-writing machine, a frame having an opening, a platen above said opening, and an obliterating-key mechanism comprising an ink-pad, a curved rack-bar, a pivoted type-bar, a semi cog-wheel pivoted thereto and adapted to be rotated a half-circle in opposite directions alternately, a pin projecting from the type-bar and into the path of said wheel so as to limit its movement in either direction; said semi cog-wheel being provided with a stem or stamp which is set for alternate engagement with the ink-pad and the paper below the platen by the operation of said semi cog-wheel, and a key for operating the type-bar and thereby causing the operation of the semi cog-wheel, substantially as described.

5. In a type-writing machine, a frame, provided with a type-opening, a segmental plate secured thereto, and provided with series of depending radial hook-arms, a second plate secured upon the top plate above the first and provided with depending bearing-arms, forming caps for said hook-arms, and type-bars provided with fixed pivots or trunnions journaled in and between said hook-arms and caps, substantially as described.

6. In a type-writing machine, a frame, provided with a type-opening, a segmental plate secured thereto, and provided with series of depending radial hook-arms, and inward thereof with a depending flange to limit the upward movement of the type-bars, a second plate secured to the top plate above the first and provided with dependent bearing-arms, forming caps for said hook-arms, and type-bars provided with fixed pivots or trunnions journaled in and between said hook-arms and caps, substantially as described.

7. In a type-writing machine, a suitable frame, a carriage thereon provided with hooks 55, a skeleton frame provided with outwardly-projecting trunnions journaled to said carriage, and provided with a platen and paper-feed mechanism and arms projecting rearward from said frame adapted to engage said hooks when the platen occupies a vertical depending position, substantially as described.

8. In a type-writing machine, a suitable frame, a carriage thereon, a platen and paper-feed mechanism mounted pivotally on said carriage, a rock-arm, a disk mounted loosely upon the frame of the platen and paper-feed mechanism rearward of its pivot, a cable suitably guided down through the frame and connected at its opposite ends to said disk and rock-arm, and a key connected to said rock-arm and adapted to cause the platen and paper-feed mechanism to swing upwardly and forwardly, substantially as described.

9. In a type-writing machine, a suitable frame, a carriage thereon, a platen and paper-feed mechanism mounted pivotally on said carriage, a rock-arm, a disk mounted loosely upon the frame of the platen and paper-feed mechanism rearward of its pivot, a cable suitably guided down through the frame and connected at its opposite ends to said disk and rock-arm, and a key connected to said rock-arm and adapted to cause the platen and paper-feed mechanism to swing upwardly and forwardly, and a bifurcated guide-arm to receive said disk when it resumes its original position to prevent the travel of the platen and paper-feed-mechanism-carrying frame in either direction from causing a corresponding movement on the part of said disk, substantially as and for the purpose described.

10. In a type-writing machine, a suitable frame, a carriage-adjusting frame, a key-operated mechanism for moving said carriage-adjusting frame forward or backward, a bifurcated arm carried by said frame, a carriage mounted upon said frame and embodying a hinged member carrying a platen and paper-feed mechanism, a disk mounted loosely upon a rod of said hinged member and fitting in the bifurcated end of the arm projecting from the carriage-adjusting frame, a guide-pulley supported below the top plate of the machine-frame adjacent to the type-opening, a cable engaging said pulley and extending up through said top plate to said disk, a rock-arm to which the lower end of said cable is attached, and a key connected to said rock-arm, substantially as described.

11. In a type-writing machine, a carriage provided with an approximately inverted-U-shaped casting having its lower edges flanged inward, a T-shaped platen-strip secured between said casting and resting upon said flanges, and a resilient strip fitting in said casting and forming a backing for said platen-strip, substantially as described

12. In a type-writing machine, a frame provided with an opening, and with type-levers for operating therethrough, and a carriage mounted thereon, provided with a platen, embodying a casing, provided with grooves at its lower end, a rubber strip mounted in said casing and projecting below the top walls of said grooves, and a platen proper provided with flanges fitting slidingly in said grooves and pressed firmly down upon the lower walls of the same by said rubber strip, substantially as described.

13. A type-writing machine, comprising a suitable frame, a traveling carriage mounted thereon and provided with a paper-feed-mechanism-carrying frame, a ratchet-wheel suitably journaled and geared to the paper-feed mechanism, a pivoted frame carrying pivotally a dog for engagement with said wheel, a spring-retracted rod provided with a wedge for raising said frame and causing the dog to rotate said wheel, and an arm mounted upon the carriage-adjusting frame and adapted each time the carriage returns to its initial position to advance said spring-retracted rod and cause said wedge to adjust the paper for a space between lines, substantially as described.

14. A type-writing machine, comprising a suitable frame, a traveling carriage mounted thereon and provided with a paper-feed-mechanism-carrying frame, a ratchet-wheel suitably journaled and geared to the paper-feed mechanism, a pivoted frame carrying pivotally a dog for engagement with said wheel, a spring-retracted rod provided with a wedge for raising said frame and causing the dog to rotate said wheel, a fork to intercept the path of said rod and limit its advance movement, and an arm mounted upon the carriage-adjusting frame and adapted each time the carriage returns to its initial position to advance said spring-retracted rod and cause said wedge to adjust the paper for a space between lines, substantially as described.

15. A type-writing machine, comprising a suitable frame, a traveling carriage mounted thereon and provided with a paper-feed-mechanism-carrying frame, a ratchet-wheel suitably journaled and geared to the paper-feed mechanism, a pivoted frame carrying pivotally a dog for engagement with said wheel, and provided with an antifriction-roller, a spring-retracted rod provided with a wedge for engagement with said roller to raise said frame and cause the dog to rotate said wheel, and an arm mounted upon the carriage-adjusting frame and adapted each time the carriage returns to its initial position to advance said spring-retracted rod and cause said wedge to adjust the paper for a space between lines, substantially as described.

16. In a type-writing machine, a suitable frame, a traveling carriage thereon, a frame provided with a paper-feed mechanism pivoted to the carriage, a ratchet-wheel journaled thereon and geared to the paper-feed mechanism, a pivoted frame provided with a dog for engagement with said ratchet-wheel and having a depending arm, a sleeve-boxing carried by the paper-feed frame, a spring-pressed brake-roller-carrying lever mounted pivotally on said boxing, and engaging said ratchet-wheel to prevent the accidental operation of the paper-feed mechanism, a spring-retracted slide-rod mounted in said sleeve-boxing and provided with a wedge for operating the dog-carrying frame, and a spring-hook projecting from the sleeve-boxing and adapted by contact with the arm of the dog to throw the latter away from the wheel, and by engagement with the brake-roller lever to hold the latter out of engagement with the ratchet-wheel to permit of free adjustment of the paper, substantially as described.

17. In a type-writing machine, a suitable frame, a traveling carriage thereon, a frame provided with a paper-feed mechanism pivoted to the carriage, a ratchet-wheel journaled thereon and geared to the paper-feed mechanism, a pivoted lever or fork provided with a dog for engagement with said ratchet-wheel and having a depending arm, a sleeve-boxing carried by the paper-feed frame, a spring-pressed brake-roller-carrying lever mounted pivotally on said boxing, and engaging said ratchet-wheel to prevent the accidental operation of the paper-feed mechanism, and provided with a friction-arm, a spring-retracted slide-rod mounted in said sleeve-boxing and provided with a wedge for operating the dog-carrying frame, and a spring-hook projecting from the sleeve-boxing and adapted by contact with the arm of the dog to throw the latter away from the wheel and by engagement with the brake-roller lever to hold the latter out of engagement with the ratchet-wheel to permit of the free adjustment of the paper, and the engagement of the friction-arm with the side of said wheel, so as to prevent it from moving when printing lines intermediate of those determined by the spacing-teeth of the ratchet-wheel, substantially as described.

18. In a type-writing machine, a suitable frame, a carriage mounted thereon, a paper-feed-mechanism frame pivoted on the carriage; said frame being provided with downwardly and forwardly extending forked or slotted arms, and said paper-feed mechanism comprising a driven shaft journaled in said arms, and provided with rollers, sliding boxes in said slots, a shaft journaled therein and provided with rollers companion to those first mentioned, retractile springs connecting said shafts, a rock-shaft carried by said frame, and curved paper-feed guides secured thereon and arranged inward of the last-named shaft, substantially as described.

19. In a type-writing machine, a suitable frame provided with a type-opening, guide-rollers supported below the top plate, pins depending from the latter at points between said rollers, a frame, comprising a longitudinal bar having parallel arms projecting forwardly through the back plate and below the top plate of the machine and resting on said rollers, arms projecting upwardly from said bar and from said arms through the top plate and provided with superposed rollers, a traveling carriage mounted on and between said superposed rollers, equalizing-springs interposed between the supports of said first-named rollers and said depending pins, and holding the platen of the carriage centrally over said type-opening, a rock-shaft connected to said carriage-adjusting frame, and a pair of keys connected to the same, so that the depression of one key will slide the carriage-adjusting frame forward, and the depression of the other will slide said frame rearward of its center, substantially as described.

20. In a type-writing machine, a suitable frame, a carriage mounted thereon, a gage-bar secured to said carriage, a wheel or drum journaled upon the frame, a cable thereon and connected at its opposite end to impart the movement of the drum to the carriage, means to impart a step-by-step movement to the drum, and means to engage said gage-bar and prevent vibration of the carriage at the end of each of said step-by-step movements, substantially as described.

21. In a type-writing machine, a suitable frame, a carriage mounted thereon, a wheel or drum journaled upon the frame, and provided with teeth, a cable wound on said wheel or drum and connected at its opposite ends to the carriage, a spring adapted to return the carriage to its initial position, a gage-bar carried by the carriage, a walking-beam suitably mounted and provided with a dog engaging a tooth of said wheel, a weight at the same end of the beam, a reciprocatory dog linked to the weighted end of the beam, and character and word spacing keys to operate said walking-beam against the resistance of its weighted end, and adjust said carriage against the resistance of the spring and cause said reciprocatory dog to engage said gage-bar, substantially as described.

22. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage and is provided with notches at least equal to the number of steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel and with a finger to indicate the number of said notch, and a pin projecting from the back plate of the frame and adapted to limit the movement of the indicator-arm and thus prevent the carriage from taking more than a certain number of steps in excess of the number indicated on said wheel by the finger of said indicating-hand, substantially as described.

23. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage and is provided with notches at least equal to the number of steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel and with a finger to indicate the number of said notch, a pin projecting from the back plate of the frame and adapted to limit the movement of the indicator-arm and thus prevent the carriage from taking more than a certain number of steps in excess of the number indicated on said wheel by the finger of said indicator-hand, and a lever for disengaging said indicator-hand and said wheel to permit the latter to rotate backward independently of the former to facilitate the adjustment of said hand with relation to the wheel, substantially as described.

24. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale-bar is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches at least equal in number to the steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel, and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine, and a lever pivoted adjacent to said pin and adapted to be pushed against the same by the

indicator-hand and consequently limit the travel of the carriage, substantially as described.

25. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale-bar is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches at least equal in number to the steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel, and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine, a lever pivoted adjacent to said pin and adapted to be pushed against the same by the indicator-hand and consequently limit the travel of the carriage, and means for throwing said lever ont of the path of the indicator-hand to permit additional steps by the carriage if desirable, substantially as described.

26. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale-bar is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches at least equal in number to the steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel, and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine, a lever pivoted adjacent to said pin and adapted to be pushed against the same by the indicator-hand and consequently limit the travel of the carriage, a key instrumental in throwing said lever out of the path of the indicator-hand to permit additional steps by the carriage if desirable, and a spring to cause said lever and key to resume their original positions when the latter is released, substantially as described.

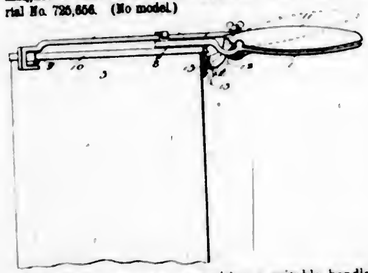
27. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale-bar is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches at least equal in number to the steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine, a lever pivoted adjacent to said pin and adapted to be pushed against the same by the indicator-hand and consequently limit the travel of the carriage, a bell-crank lever pivoted to the first-named lever, a key for operating said bell-crank lever and throwing the first-named lever out of the path of the indicator-hand to permit additional steps by the carriage if desirable, a stop-pin, provided with intersecting passages, a slide-bar pivoted to the first-named lever and adapted to be pushed through one of said passages when said lever is pushed against said pin by the indicator-hand, a swinging frame operated with each depression of a character or word spacing key, a hook connected thereto, and a spring to return said swinging frame to its original position after each key depression, and consequently force said hook through the intersecting passage of said stop-pin until engaged by said slide-bar, projected through the intersected slot by the action of said indicator-hand, substantially as described.

28. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches at least equal in number to the steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine, a lever pivoted adjacent to said pin and adapted to be pushed against the same by the indicator-hand and consequently limit the travel of the carriage, a bell-crank lever pivoted to the first-named lever, a key for operating said bell-crank lever and throwing the first-named lever out of the path of the indicator-hand to permit additional steps by the carriage if desirable, a stop-pin, provided with intersecting passages, a slide-bar pivoted to the first-named lever and adapted to be pushed through one of said passages when said lever is pushed against said pin by the indicator-hand, a swinging frame operated with each depression of a character or word spacing key, a hook connected thereto, and a spring to return said swinging frame to its original position after each key depression, and consequently force said hook through the intersecting passage of said stop-pin until engaged by said slide-bar, projected through the intersected slot by the action of said indicator-hand, a key-operated mechanism to force said first-named lever out of the path of said indicator-hand, and means to return said lever to its original position to withdraw said slide-bar out of the path of said hook, substantially as described.

29. In a type-writing machine, a suitable frame, a scale-bar, a carriage provided with an index-finger, with relation to which the scale is adapted to be read, a wheel which partakes of the step-by-step movement of the carriage, and is provided with notches in excess of the number of steps indicated by the scale-bar, an adjustable indicator-hand having its axis coincidental with that of the wheel, and provided with a tooth to engage a notch of said wheel, and with a finger to indicate the number of said notch, a pin projecting from the back plate of the machine-frame, a lever suitably pivoted and adapted to be pushed by the indicator-hand against said pin and thus determine the length of line to be printed upon the paper, a key-operated mechanism for tripping said lever out of the path of said indicator-hand to permit the carriage to be moved one or more extra steps, and a pin projecting from the back plate to finally limit the movement of said carriage, by obstructing the path of said indicator-hand, substantially as described.

30. In a type-writing machine, a suitable frame, a traveling carriage thereon, a wheel partaking of the step-by-step movement of the carriage, an indicator-hand moving with said wheel, a bell, an arm provided with a clapper pivotally mounted on the machine-frame, an extension-arm pivoted to said bell-clapper arm and projecting into the path of the indicator-hand, and provided with an upper and lower branch arm; the former adapted to limit the operative movement of said extension-arm, as it is struck by the back movement of the indicator-hand, and the latter to engage the under side of the clapper-arm and pivotally operate the same as the indicator-hand strikes and depresses the extension-arm, substantially as described.

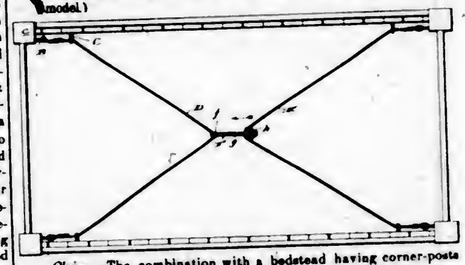
640,255. CAN-OPENER. HERRMANN O. ARTON, St. Louis, Mo., assignor to Malcolm P. Black, same place. Filed July 31, 1899. Serial No. 725,656. (No model.)



Claim.—1. A can-opener, comprising a suitable handle, means for holding the same in its proper position upon the can, and a device carried by said handle and adapted to be interposed between the rim of the top of the can, and sides of the same, for separating the parts that are united by solder, substantially as described.

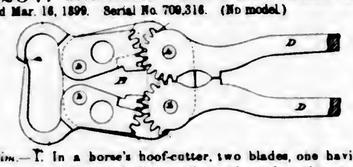
2. A can-opener, comprising a suitable handle, having a suitable slot, a binding-bolt carried by the latter, hinged arms carried by said bolt, rollers carried by the free ends of said arms, suitable guides for said arms, a lever pivotally secured to said handle, a suitable disk, carried by the short arm of said lever, and a roller carried by the said handle, and adapted to roll upon the top of the cover of the can in the operation of removing said cover, as and for the purpose described.

640,256. BEDSTEAD BRACE AND TIGHTENER. ELISHA ATTAWAY, Bunkie, La. Filed Oct. 12, 1899. Serial No. 733,424. (No model.)



Claim.—The combination with a bedstead having corner-posts and side rails; of a brace and tightener comprising a cable-loop connected at its ends to one pair of corner-posts and at an intermediate point of its length to the side rails, a threaded bolt connected to the bight of the cable-loop, a nut mounted on said bolt, a washer loosely arranged on the bolt at the inner side of the nut and having notches in its edge at opposite points, a second cable-loop connected at its ends to the other pair of corner-posts and at intermediate points of its length to the side rails and having its bight arranged at the inner side of the washer and adjacent to the bolt and also having its divergent portions seated in the notches of said washers, and a wire fastener loosely securing the bight of the said loop on the bolt at the inner side of the washer, substantially as and for the purpose set forth.

640,257. HOOF-CUTTER. ALBERT J. BAER, Shoemersville, Pa. Filed Mar. 16, 1899. Serial No. 709,316. (No model.)

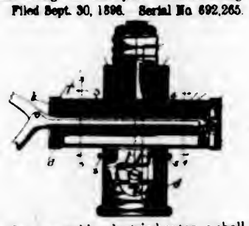


Claim.—1. In a horse's hoof-cutter, two blades, one having a sharp edge and the other having a blunt edge adapted to overlap the sharp edge, said blades provided at their shank ends with toothed racks, said ends being complementarily cut away to permit overlapping, and handles having toothed segments on their ends, said toothed segments meshing with said toothed racks substantially as shown and described.

2. A horse's hoof-cutter consisting of two blades curved toward each other and having their edges at right angles to their shanks, one edge being sharp and the other blunt and adapted to overlap the sharp edge, said shanks pivotally secured between two plates and provided at their ends with toothed racks, said ends being complementarily cut away to permit overlapping, and handles pivotally secured between said plates and provided at their ends with toothed segments adapted to mesh with said toothed racks, substantially as shown and described.

3. The combination of two blades curved toward each other and having their edges at right angles to their shanks, one of the edges being sharp and the other blunt and adapted to overlap the sharp one, said shanks provided at their ends with toothed racks, said ends being complementarily cut away to permit overlapping, and handles provided at their ends with toothed segments adapted to mesh with said racks, substantially as shown and described.

640,258. ELECTRIC HEATER. FORÉE BAIN, Chicago, Ill., assignor to the George L. Thompson Manufacturing Company, Cook county, Ill. Filed Sept. 30, 1898. Serial No. 692,265. (No model.)



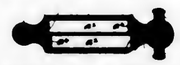
Claim.—1. In a portable electric heater, a shell having at one end an incandescent-lamp socket and at the other a plug-terminal adapted to be received by an ordinary incandescent-lamp socket, a second shell mounted at right angles thereto, an electric heater in said second shell and suitable connections between the plug-terminal, the electric heater and the lamp-socket, substantially as set forth.

2. The combination in a curling-iron heater, or the like, of a tube surrounded by a heating-coil, one terminal of the said heating-coil being connected to the said tube, the other end thereof terminating in a contact composed of a material susceptible of magnetic induction, located within the magnetic field of the said heating-coil, and a metallic magnetic body to be heated, adapted to connect the two electric terminals together after passing through the said coil, substantially as shown and described.

3. The combination of a tube surrounded by a heating-coil, one terminal of the said heating-coil being connected to the said tube, the other end thereof terminating in a contact-piece composed of a material susceptible of magnetic induction, located within the magnetic field of the said heating-coil, and a metallic, magnetically-influenced body to be heated, passing through the said tube, and adapted to complete the circuit between the said terminals, substantially as shown and described.

640,259. INHALER. GEORGE D. BALLOU, Syracuse, N. Y. Filed Jan. 14, 1898. Serial No. 666,639. (No model.)

Claim.—1. The herein-described inhaler consisting of telescoping inner and outer tubular sections, the outer section being provided with an air-passage extending inwardly from its outer surface, and the inner section being formed with a plurality of internal disconnected chambers arranged side by side, and air-passages leading from said chambers and normally arranged out of alinement with the former passage, one of said sections being movable from its normal position for alining the air-passage of the outer section with either of the air-passages of the inner section, substantially as and for the purpose specified.

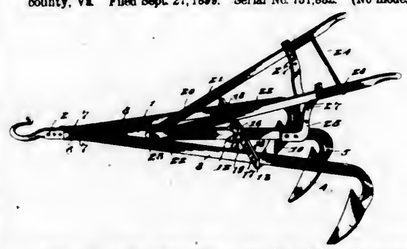


2. The herein-described inhaler consisting of telescoping inner and outer tubular sections, the outer sections being provided with a stop guide and an air-passage extending inwardly from the outer surface of said section, and the inner section being formed with a stop movable in the stop-guide, a plurality of internal disconnected chambers arranged side by side, and air-passages leading from said chambers and normally arranged out of alinement with the former passage, one of said sections being movable from its normal position for alining the air-passage of the outer section with either of the air-passages of the inner section, substantially as and for the purpose described.

3. The herein-described inhaler consisting of an inner tubular section and outer tubular sections surrounding the ends of the inner section, the inner section being formed with substantially parallel disconnected chambers, air-passages of substantially the same area as the cross-sectional area of the chambers opening from one end of one chamber and the opposite end of the other chamber, and additional air-passages of reduced size opening from the opposite ends of said chambers, and the outer sections being provided with air-passages for communicating with the former passages, substantially as and for the purpose described.

4. The herein-described inhaler consisting of an inner tubular section and outer tubular sections surrounding the ends of the inner section, the inner section being formed with a peripheral engaging face, stop-shoulders, substantially parallel internal chambers, air-passages of substantially the same area as the cross-sectional area of the chambers opening from one end of one chamber and the opposite end of the other chamber, and additional air-passages of reduced size opening from the opposite ends of said chambers, and the outer sections being provided with stop-guides for receiving the stops, and air-passages for communicating with the former passages, substantially as and for the purpose specified.

640,260. HILLSIDE DOUBLE-SHOVEL PLOW. MATTHEW O. BECKNER, Troutsville, Va., assignor to William J. Johnson, Roanoke county, Va. Filed Sept. 27, 1899. Serial No. 731,882. (No model.)



Claim.—1. A plow, comprising a plurality of pivotally-connected beams, a transverse rocking beam-yoke, mounted intermediate of its ends upon an intermediate beam, and also connected to the other beams, and handle-bars connected to the said intermediate beam.

2. In a plow, the combination with a center beam, of side beams pivoted at their front ends to the center beam and capable of horizontal and vertical movement with respect thereto, a rocking yoke carried by the center beam and an adjustable pivotal connection between said yoke and each of the side beams.

3. In a plow the combination with a center beam, of a pair of rearwardly-divergent side beams pivotally connected at their front ends with the center beam, a transverse beam-yoke journaled upon the center beam and provided with longitudinal series of apertures, and angular beam-supporting hooks extending from the upper edges of the side beams and engaging openings in the yoke.

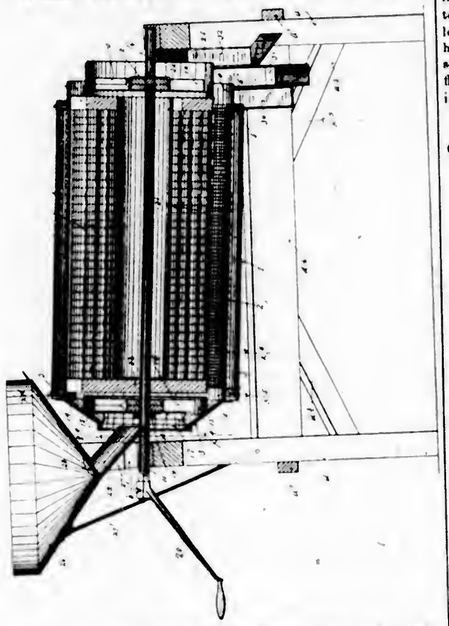
4. In a plow, the combination with a center beam, of side beams having substantially parallel front ends provided with curved faces opposed to the center beam, a bolt passing through one of a series of apertures in the center beam and through the ends of the side beams,

a rocking yoke carried by the center beam, and means for effecting an adjustable pivotal connection between each of the side beams and the yoke.

5. In a plow, the combination with a center beam provided with a cylindrical hub, of a rocking yoke provided with a bearing-strap passing around said hub, a pair of side beams pivoted at their front ends to the center beam, and angular beam-supporting hooks extending from the side beams and engaging apertures in the yoke.

6. A plow comprising vertically-movable and horizontally-adjustable beams operatively connected and a vertically-adjustable handle supported by one of the beams and comprising laterally-adjustable handle-bars.

640,261. GRAIN-SEPARATOR. GEORGE C. BRENAN, Minneapolis, Minn. Filed June 20, 1899. Serial No. 721,138. (No model.)



Claim.—1. In a rotary separator, the combination with a receiving-screen, of a gathering-screen within said receiving-screen, which gathering-screen is spiral in cross-section and which receiving-screen is provided with an opening for the admission of stock into one end thereof, while under rotation, and with an opening in its other end for the discharge of the stock, whereby a continuous feed of the stock therethrough and separation thereof is afforded, substantially as described.

2. In a rotary separator, the combination with a receiving-screen mounted to rotate on an inclined axis, of a gathering-screen inside said receiving-screen, which gathering-screen is spiral in cross-section and delivers to a central collecting-spout, and which receiving-screen is provided with admission and discharge openings respectively in its upper and lower ends, and a feed device for supplying a continuous feed of the stock to said receiving screen while it is under rotation, substantially as described.

3. In a rotary separator, the combination with a receiving-screen, of a gathering-screen inside said receiving-screen, which gathering-screen is spiral in cross-section, and is made up of two approximately concentric spiral leaves or sections starting from diametrically opposite points near the axis of said receiving-screen for affording a central gathering-spout and terminating at diametrically opposite points on the inner surface of said receiving-screen for cooperation therewith, substantially as described.

4. In a rotary separator, the combination with a receiving-screen mounted to rotate on an inclined axis, of a gathering-screen within said receiving-screen, which, gathering-screen is made up of two or more spiral sections terminating at their inner edges in imperforate trough-sections that make up a complete central gathering spout or trough, and which receiving-screen is provided with supporting heads or caps, the upper of which has an opening for the admission of the stock into said receiving-screen and the lower of which has openings both for the discharge from said trough or spout and from said receiving-screen, substantially as described.

5. In a rotary separator, the combination with an outside imperforate shell and central shaft, of end caps or heads of spider-like form connecting said shell and said shaft, and means for detachably locking the shaft to one or both of said caps or heads, for causing the shell to turn with said shaft, substantially as described.

6. In a rotary separator, the combination with a receiving-screen, of end caps or heads to said receiving-screen, which caps or heads are both provided with passages for the stock, and one of which is removable from the screen, and a removable inside screen within said receiving-screen, removable therefrom when the said removable head or cap is removed, substantially as described.

7. In a rotary grain-separator, the combination with the outside imperforate shell and the central shaft, of the receiving-screen fixed to said shell and spaced apart therefrom, the end caps or spiders, the lower or foot member of which is fixed to said shell, and the upper or head member of which is removable from said shell, and an inside screen having end flanges adapted to engage with corresponding flanges on one or both of said spiders or caps, for securing the same in working position, substantially as described.

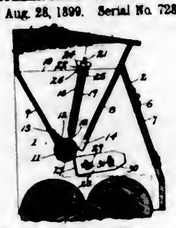
640,262. MATCH-BOX. THOMAS A. BELL, Birmingham, Ala. Filed Apr. 22, 1899. Serial No. 714,094. (No model.)



Claim.—1. A match-box provided with a catch-spring having a roughened or scratch surface in combination with a lid provided with a similar, interior surface in position to meet the scratch-surface of the spring, when the lid is closed on the box, substantially as described.

2. A match-box provided with thumb-notches in its edges and a catch-spring provided with a scratch-surface, in combination with a spring-opening lid having projections to close the thumb-notches and a scratch-surface to meet that of the catch-spring, when the lid is closed on the box, substantially as described.

640,263. ROLLER-MILL FEEDER. HENRY BERNHARD, Strasburg, Ill. Filed Aug. 28, 1899. Serial No. 728,777. (No model.)



Claim.—1. A feeder for roller-mills, comprising a casing having downwardly-converging walls and a feed-roller adjacent to the bottom edges thereof, one of said walls being provided in its bottom edge with a longitudinal groove facing downward, a feed-gate mounted to move up and down in said groove and provided with a stem extending upward through an opening included within said wall, and an adjusting device contained within the casing and coöperating with said stem for setting the gate, whereby the gate may be adjusted toward and away from the feed-roller and held when adjusted, substantially as specified.

2. In a feeder for roller-mills, the combination with a casing, and a feed-roller mounted therein, of a scraper having its body portion arranged parallel to the feed-roller, rigid angular extensions at the ends of the scraper each provided with longitudinal and transverse slots, and clamping-fasteners passing through said slots into the casing, substantially as and for the purpose specified.

640,264. SKATE. STEPHEN S. BLACK, Pasadena, Cal. Filed Aug. 2, 1898. Serial No. 687,571. (No model.)

Claim.—1. In a skate having sole-plate and toe-clamps slidingly attached thereto and connected with the operating and adjusting mechanism, a fixed heel-plate provided with back heel-stops and anterior parallel slots in combination with a reciprocating front heel-dog arranged to slide thereon, and to be suitably connected with the adjusting and operating elements.

2. In a skate having sole-plate and toe-clamps which grip by a backward movement and means for adjusting and operating the clamps, the front heel-dog arranged to slide on anterior portion of a fixed heel-plate, and provided with suitable connection with a sliding dog-carrier arranged to slide beneath the heel-plate, and provided with suitable connection with the adjusting and operating mechanism.



3. In a skate provided with sole-plate and toe-clamps which close by a backward movement and back-stops on a fixed heel-plate, the anterior heel-dog arranged to slide on front portion of heel-plate and to be connected with a longitudinally-reciprocative plate arranged to slide on the under side of heel-plate and above the operating-lever pivoted thereto, and to have an operative connection with the adjusting and locking mechanism.

4. In a skate provided with heel and sole plates and clamping-dogs and a lever for operating the clamping and adjusting mechanism, the adjusting-screws herein described and illustrated, having their head ends arranged at right angles to their threaded portion.

5. In a skate having heel and sole plates and means for clamping a shoe thereon, the pivotal adjusting-bolt herein described and illustrated, having the neck curved to bring the top of the head in a plane substantially parallel to the longitudinal axis of the threaded portion.

6. In a skate provided with heel and sole plates and dogs for securing it to the shoe, the toggle having its lever member pivotally fulcrumed on a fixed heel-plate, and its adjustable member arranged to couple or connect the lever with the clamping mechanism.

7. In a skate having heel and sole plates and movable jaws for securing it to the shoe, the adjusting and locking mechanism herein illustrated, consisting of a lever and a turnbuckle provided with bolts having bent necks arranged to form pivotal connections for said turnbuckle with lever and with clamping mechanism.

8. In a skate provided with heel and sole plates and operative dogs for securing it to the shoe, the adjusting mechanism herein described and illustrated, consisting of a sleeve or thumb nut having a right and a left hand thread, and screws adapted to engage therewith, said screws having their necks curved to bring the tops of their heads in a plane parallel to the long axis of said screws, and having their necks arranged to serve as pivots to connect the adjusting mechanism and clamping devices in an operative whole.

9. In a skate provided with heel and sole plates and having operative dogs for securing it to the shoe, the equalizing-lever pivoted by one extremity to the toe-clamps, and by the other extremity to the heel-dog carrier, and provided with an intermediate pivotal connection with the adjusting and locking mechanism.

10. In a skate having sole-plate and fixed heel-plate with back heel-stops and a movable front heel-dog, the equalizing-lever arranged to pivotally connect the heel-dog carrier and the pivotally-united toe-clamps, and to pivotally unite therewith the adjustable member of the operating-toggle.

11. In a skate having sole-plate and clamps and fixed heel-plate with back heel-stops and a movable front heel-dog, the equalizing-lever arranged to connect the heel-dog carrier and toe-clamps pivotally, and to unite therewith pivotally the adjusting and operating toggle.

12. In a skate having sole-plate and fixed heel-plate with back heel-stops, and toe and heel clamps arranged to move backward in the clamping operation, the equalizing-lever connecting pivotally the toe and heel clamping dogs and provided with a central pivotal connection with the operating and adjusting combination.

13. In a skate having heel and sole plates and clamping-dogs arranged thereon, the longitudinally-reciprocating heel-dog carrier in combination with the sliding equalizing-lever arranged to connect it pivotally with the toe-clamping mechanism, and with means for adjusting and operating the whole.

14. In a skate having sole-plate and fixed heel-plate with back heel-stops, the heel-dog carrier arranged with a guide-slot to embrace the lever-fulcrum rivet beneath the heel-plate, in combination with an equalizing-lever arranged to connect it pivotally with the toe-clamping mechanism, and with means for adjusting and operating the whole.

15. In a skate provided with sole-plate, fixed back heel stops and plate, the front heel-dog carrier having a slot in its rear end for the passage of the lever-fulcrum rivet, an upward-projecting dog attached thereto and surmounting the heel-plate to embrace the front of heel, and means for guiding its front end, in combination with an equalizing-lever pivoted thereto by one extremity, and pivotally jointed at its other extremity to the rear of toe-clamps, and an operating-lever adjustably connected with the equalizing-lever near its center.

16. In a skate provided with sole-plate and fixed back heel stops and plate, the toe-clamps and heel-dog carrier united by pivotal connections to opposite ends of an equalizing-lever provided with a central pivotal connection with an adjustable toggle arranged to operate heel and toe clamping mechanism simultaneously.

17. In a skate provided with sole-plate and fixed back heel stops and plate, the toe-clamps pivoted at their rear ends to an equalizing-lever, an equalizing-lever pivotally connected at one end with the toe-clamps, and by the other end to the heel-dog carrier, the heel-dog carrier arranged to reciprocate freely, adjustable pivotal connection between the equalizing-lever and operating-lever, and an operating-lever pivotally connecting the adjusting mechanism and a fixed part of the skate.

18. In a skate provided with sole-plate and fixed back heel-stops, the toe-clamps pivotally jointed at their rear ends and provided at one side of said joint with an aperture for the pivotal connection of an equalizing-lever, an equalizing-lever pivotally connected by one extremity to the toe-clamps, and by the other to the heel-dog carrier, arranged to have free longitudinal movement between the equalizing-lever and the toe-clamps in front, and between the heel-plate and operating-lever behind, the operating toggle-lever pivoted to the fixed heel-plate, and the adjustable coupling uniting the operating-lever and the equalizing-lever.

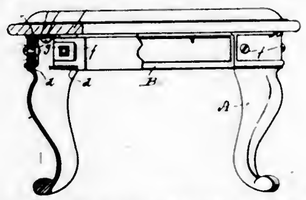
19. A skate with fixed back heel-stops, rearwardly-closing heel-dog, rearwardly-closing toe-clamps, an automatic divider of clamp strain coupling heel-dog with toe-clamping mechanism, and actuating mechanism connecting the movable parts with fixed heel-plate.

20. In a skate, the fixed back heel-stops; the rearwardly-closing heel-dog; the rearwardly-closing toe-clamps; equalizing means connecting the heel-dog with the toe-clamps; and means for simultaneously actuating the heel-dog and toe-clamps in the same direction.

21. In a skate, the fixed back heel-stops; the rearwardly-closing heel-dog; the rearwardly-closing toe-clamps; equalizing means connecting the heel-dog and toe-clamps; and actuating means connecting the equalizing device with a fixed portion of the skate.

22. In a skate, the anterior heel-dog constructed and arranged to move backward synchronously with the backward-closing toe-clamps in the operation of clamping a shoe thereon; an equalizing connection uniting toe and heel clamps; fixed back heel-stops; and adjustable means for operating and locking the movable parts.

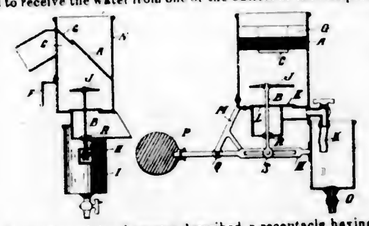
640,265. FOOTSTOOL. HARRY W. BOLLES, Port Washington, Wis. Filed Oct. 4, 1899. Serial No. 732,478. (No model.)



Claim.—A footstool-base consisting of legs provided at their upper ends with inwardly-extending flanges as well as horizontal lugs, the latter being apertured for the engagement of top-securing devices, ribs on the legs parallel to the extremities of said flanges, rails having offset ends fitting between the leg-flanges and ribs, and means for maintaining the union of said legs and rails.

640,266. RAIN-WATER CUT-OFF. JOSEPH BOUTIN, St. Landry Parish, La. Filed Apr. 5, 1899. Serial No. 712,314. (No model.)

Claim.—1. In a water cut-off, a receptacle having an inclined shield and strainer, a pipe leading from the receptacle under the shield, said receptacle having outlets in the bottom, a valve controlling same, a weighted lever, and a cup carried by the lever and adapted to receive the water from one of the outlets of the receptacle.



2. In a device of the character described, a receptacle having an outlet near its top, a shield set at an incline over the outlet, a strainer extending from the shield to the inner walls of the receptacle, said receptacle having outlets in its bottom, a valve for controlling the outlets, a valve-stem therefor, a lever suitably fulcrumed to which the valve-stem is connected, a cup having a valved outlet arranged on the end of the lever to receive water from one of the outlets of the receptacle and means for regulating the flow to said cup.

3. In a device of the character described, a receptacle having outlets at the bottom and side, a shield for the outlet at the side, a valve for those in the bottom, a lever for controlling the valve, a cup on the end of the lever under one of the openings and means for regulating the supply to the cup.

640,267. SIDE BEARING FOR CARS. SAMUEL P. BOSH, Columbus, Ohio. Filed Mar. 11, 1899. Serial No. 708,622. (No model.)



Claim.—1. In a side bearing for cars, the combination with a top side-bearing plate adapted to be supported from a car and a lower side-bearing plate adapted to be supported from a truck-bolster, of a bearing-body interposed between said plates and capable of a rolling motion in the direction of the length of the car, said bearing-body consisting of upper and lower sections and springs interposed between said sections whereby the upper section is retained in contact with the top bearing-plate and the lower section is retained in contact with the lower bearing-plate, substantially as specified.

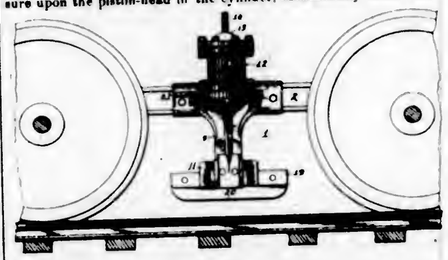
2. In a side bearing for cars, the combination with a top side-bearing plate adapted to be supported from a car-body and a bottom side-bearing plate adapted to be supported from a truck and having projecting bearing portions 4 and 5, the latter extending at right angles with the former, of a rolling bearing-body interposed between said top and bottom side-bearing plates, said interposed bearing-body being provided with underside grooves or recesses adapted to receive as described the projections of said bottom bearing-plate, substantially as specified.

3. In a side bearing for cars, the combination with a top side-bearing plate and a bottom side-bearing plate, the latter being provided with raised bearing portions 4 and 5 extending at right angles with each other, of a bearing-body interposed between said upper and lower bearing-plates, said bearing-body being formed of an upper and lower section, and springs interposed between said sections, and said lower section having a curved under side bearing-surface adapted to roll on the projection 4 and having a transverse recess adapted to receive said projections 5, substantially as specified.

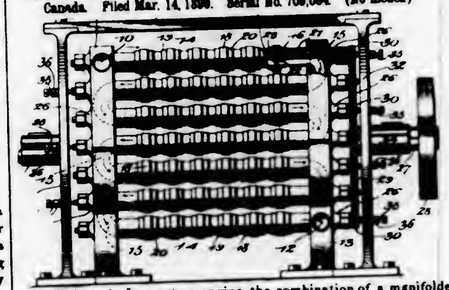
4. In a side bearing for cars, the combination with a top side-bearing plate adapted to be supported from a car and having its under side formed with transverse corrugations and a bottom side-bearing plate adapted to be supported from a truck, of a bearing-body interposed between said bearing-plates, said body consisting of a depressible non-rotating upper section and a lower section and springs interposed between said sections, said upper section being provided with corrugations adapted to mesh with those of the top side-bearing plate, substantially as specified.

640,268. CAR-BRAKE. ELIHU F. CAMPBELL, St. Louis, Mo. Filed July 17, 1899. Serial No. 724,074. (No model.)

Claim.—A car-brake of the class described, composed of a cast-ing adapted to be secured to the frame of the car-truck, an air or steam cylinder mounted on said casting, said cylinder having an inlet for admitting the power-pressure, a piston operating in said cylinder, a spring located in said cylinder under the piston-head for the purpose of raising the brake and releasing the same immediately upon the release of the pressure upon said piston in said cylinder, said piston-rod connected to said pocket-rod which is provided with a joint, said rod secured to the pocket-casting, said pocket-casting operating on guide-plates secured to said casting and for the purpose of retaining all the wear of the continual action of the pocket-casting, a channel-bar carrying a contact-shoe carried in said pocket-casting, and lowered in communication with the rail of the track by the power-pressure upon the piston-head in the cylinder, substantially as set forth.



640,269. ROTARY ENGINE. ALEXANDER H. CANNING, Toronto, Canada. Filed Mar. 14, 1899. Serial No. 709,064. (No model.)



Claim.—1. In a rotary engine, the combination of a manifolded cylinder having a series of partitions arranged in each of the folds or members and provided with ports, a series of independent pistons mounted adjacent the said partitions, a common driven rotary device, and means for communicating motion from the pistons to the said rotary device.

2. In a rotary engine, the combination of a manifolded cylinder having a series of partitions therein, provided with ports, a plurality of independent pistons located in each fold or member adjacent the partitions and having a common shaft or spindle, a common driven rotary device, and means for communicating motion from the shafts or spindles to the said rotary device.

3. In a rotary engine, the combination of a manifolded cylinder having a series of partitions arranged therein at predetermined intervals and provided with ports, a shaft or spindle extending longitudinally through each fold or member of the cylinder, a plurality of pistons mounted on the said shaft or spindle and located adjacent the partitions, a single drive-shaft, a gear carried by said shaft, and pinions carried respectively by the piston shafts or spindles and peripherally surrounding and meshing with the said gear on the drive-shaft.

4. In a rotary engine, the combination of opposite heads, one of which has an inlet-port and the other an outlet-port, a manifolded cylinder having its folds or members connected up with passages in the said heads and arranged in series to form a continuous conveyer, a plurality of partitions mounted in fixed position in each member or fold of the cylinder and provided with ports, a shaft or spindle extending longitudinally through each fold or member of the cylinder, a series of pistons made fast to the said shafts or spindles adjacent the partitions and projecting through the heads, a single drive-shaft having a gear fixed thereto, and pinions on the projected ends of the shafts or spindles extending outwardly from the folds or members of the cylinder and peripherally surrounding and meshing with said gear of the drive-shaft.

5. In a rotary engine, the combination of a manifolded cylinder having a plurality of tubular members and heads connecting said members at their extremities, provided with passages in communication therewith, to connect them circumferentially in series, said heads having shaft-bearings and stuffing-boxes in alinement respectively with the folds or members, a plurality of partitions arranged in each member or fold and having ports therein, shafts extending longitudinally through and out from each of the folds or members, independent pistons fixed on said shafts adjacent the partitions, a drive-shaft, and means for communicating combined motion from the shafts or spindles of the folds or members to the said drive-shaft.

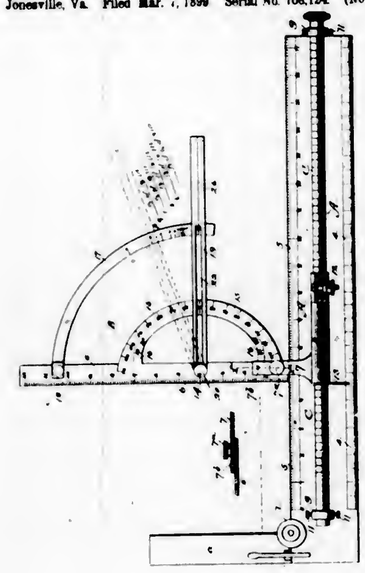
6. In a rotary engine, the combination of a manifolded cylinder consisting of a series of folds or members arranged to provide a continuous conveyer, a series of partitions in each of the folds or members provided with ports, a shaft or spindle extending through each fold or member and the centers of the several partitions therein, a series of independent pistons fixed on each shaft in the folds or members adjacent to the partitions, said pistons being positioned axially parallel with and in advance of the motive agent and having radial oblique-faced blades, thrust-pins for receiving the thrust of the shafts or spindles, a drive-shaft having a gear thereon, and pinions on the projected ends of the several shafts or spindles from the folds or members which peripherally surround and mesh with the gear on the drive-shaft.

7. In a rotary engine, the combination with a cylinder, of a piston arranged axially parallel with the direction of movement of the motive agent through the cylinder and having radial flat-faced wings and oblique-faced blades, the free edges of the blades overlapping the adjacent edges of the wings, a partition arranged adjacent to the plane of the flat faces of the wings and provided with ports for allowing application of pressure to the oblique-faced blades, a shaft rotatably mounted in the partition and having a piston affixed thereto, a driven device, and means for communicating motion from the end of the shaft of the cylinder to the driven device.

8. In a rotary engine, a cylinder and a piston arranged axially parallel with the direction of movement of the motive agent through the cylinder, and provided with flat faced wings and oblique-faced blades, in combination with a port wall or partition arranged adjacent to the plane of the flat faces of the wings and provided with ports for allowing application of pressure to the oblique-faced blades, the area of each flat-faced portion of a wing exceeding that of a port in the wall or partition, substantially as specified.

9. In a rotary engine, the combination of a cylinder comprising axially-alined sections, couplings for connecting the sections in series, port walls or partitions arranged between the abutting extremities of cylinder-sections, pistons arranged respectively adjacent to said walls or partitions and having oblique-faced blades for exposure to fluid-pressure in the cylinder applied through the ports in said walls or partitions, and a shaft or spindle common to a plurality of pistons in the alined cylinder-sections, substantially as specified.

640,270. PLOTTING INSTRUMENT. LUTHER M. CARMICAL, Jonesville, Va. Filed Mar. 7, 1899. Serial No. 708,124. (No model.)

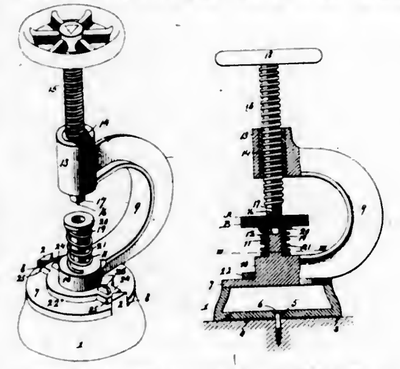


Claim.—1. The improved plotting instrument comprising the arm and base-plate A, which is provided with different graduations on each edge, a guide-bar arranged thereon longitudinally, a protractor having a base-bar arranged at a right angle to such guide-bar, a sleeve adapted to slide on the latter and rigidly attached to said protractor, and having a flange adapted to serve as an index for the adjacent graduated edge, the said sleeve having a clamping-section whereby the protractor may be held in any adjustment, substantially as shown and described.

2. The combination with a protractor and base-plate, and a guide-bar fixed on the latter, of a sleeve adapted to slide on the bar, and having a lateral arm 7, and a screw 7ª, and stud 7ᵇ which detachably, but rigidly connects said arm with the protractor as shown and described.

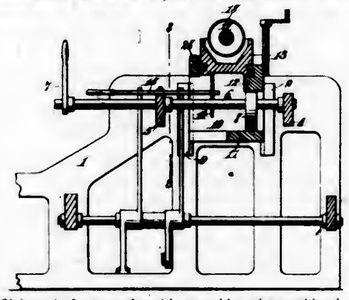
3. The improved plotting instrument, comprising the base-plate or straight edge having its opposite sides provided with lineal scales as specified, a graduated bar arranged on said plate parallel to its lengthwise middle, and the protractor having its straight base-plate provided with three arcs, two of which have different centers and all graduated as specified, and a swinging arm 19, which is pivoted on the straight portion of the protractor, and adapted to extend over the several arcs, as shown and described.

640,271. RIVETING-MACHINE. JACOB H. CASSIDY, Leavenworth, Kans. Filed June 29, 1899. Serial No. 722,289. (No model.)



Claim.—In a machine for setting tubular rivets, a hollow base, a cover thereon, an eccentric rotatable locking-plate mounted above said cover and engaging lugs on said base, a yoke integral with said cover and provided at its upper end with a threaded sleeve carrying a vertically-acting plunger, in combination with a cylindrical rivet-stand integral with said yoke and cover and in axial alinement with said plunger, a tubular flanged rivet-guide telescopically mounted on said stand, and a spiral supporting-spring between the flange of said guide and the base of said yoke, and inclosing said stand and guide, substantially as set forth

640,272. WOODWORKING-MACHINE. ALFRED C. CLOAD, Lutcher, La. Filed Mar. 22, 1899. Serial No. 710,053. (No model.)



Claim.—1. In a woodworking-machine, the combination with a bed-plate for the work, of a locking-frame movable vertically on the main frame, a tool-carriage movable horizontally on the locking-frame, a rotary cutter-head mounted on the carriage and having

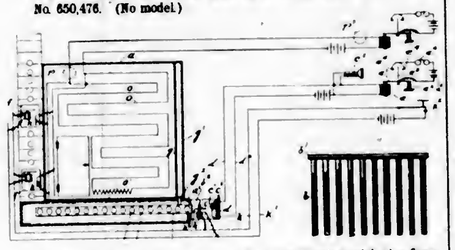
knives of different pattern adapted to be successively brought into operation upon different portions of the work, means for imparting horizontal movement to said tool-carriage after the operation of one of the knives on the cutter-head is completed, and stops to limit said movement whereby the tool-carriage is arrested when the next knife is directly over the bed-plate and in position to act upon the work remaining thereon, substantially as described.

2. In a woodworking-machine, the combination with a locking-frame vertically movable on the main frame, of a cam lying between the bottom of said frame and a cleat above the cam, a horizontally-movable tool-carriage on said locking-frame, a cutter-head on a shaft mounted on said carriage, a plurality of knives of different pattern mounted on different parts of the cutter-head to operate in succession on the work, means for moving the tool-carriage horizontally, and stops to arrest said movement when one of the knives is over the bed-plate and in position to act, in its turn, upon the work remaining on the bed-plate, substantially as described.

3. In a woodworking-machine, the combination with a locking-frame vertically movable on the machine-frame, of a cam to raise and lower said locking-frame, a tool-carriage horizontally movable on the locking-frame, a cutter-head and shaft mounted on the latter, two knives of different pattern mounted on different parts of the cutter-head, to operate on the work in succession, a lever to move the tool-carriage, and stops to arrest the movement in both directions thereof, when either of the two knives is over the bed-plate and in position to act, in its turn, upon the work, substantially as described.

4. In a woodworking-machine, the combination with a bed-plate of a vertically-movable locking-frame, a cam on a horizontal cam-shaft, said cam lying between the bottom of the locking-frame and a cleat thereon to raise and lower the locking-frame and hold it in lowered position, a transversely-movable tool-carriage on said locking-frame, a lever fulcrumed on the main frame and having one end between lugs on the tool-carriage, a cutter-head and shaft on the carriage, knives of different pattern on different parts of the cutter-head to operate successively on the work on the bed-plate, and a stop to arrest the movement of the tool-carriage in either direction when the knives are brought into position to operate in succession on the work on the bed-plate, the ends of the tool-carriage extending over or beyond the sides of the main frame on which the locking-frame has vertical movement, to arrest the downward adjustment when the knives are at a proper point, substantially as described.

640,273. ACOUSTIC ALARM SYSTEM. CLYDE COLEMAN, Chicago, Ill., assignor, by mesne assignments, of two-thirds to the Bankers Electric Protective Company, same place. Filed Sept. 3, 1897. Serial No. 650,476. (No model.)



Claim.—1. In an alarm system, the combination with the foundation-wall of a vault or other inclosure to be protected, of a series of interconnecting acoustic tubes embedded therein, and a signaling device at the alarm-station responding to sounds or vibrations in said acoustic tubes, substantially as described.

2. In an alarm system, the combination with the foundation-wall of a vault or other inclosure to be protected, of a series of interconnecting acoustic tubes embedded therein, a microphone associated with said tubes, an electric circuit extending therefrom to an alarm-station and a responsive device thereat actuated by said microphone, substantially as described.

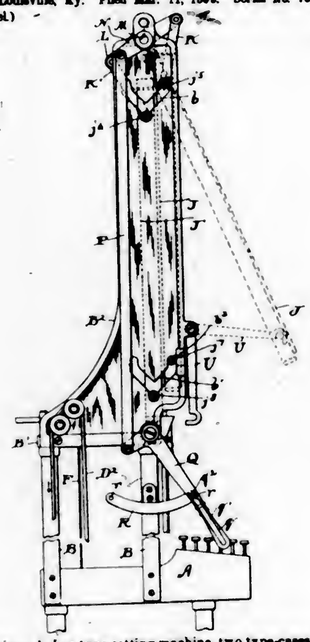
3. In an alarm system, an electric protective circuit extending between the vault or other inclosure to be protected and the alarm-station, a microphone, a resistance in parallel therewith, and a signal device at the alarm station operated by the shunting of the controlling-current by the microphone to alter the current and actuate the signal device, substantially as described.

4. In an alarm system, the combination with a vault or other inclosure to be protected, of a series of acoustic chambers in the wall thereof, a responsive device, as a microphone, responsive to sounds or vibrations produced in the acoustic chamber, a signal device at the central station, electrical connections between the same and the responsive device, and a sound-producing device situated within the acoustic chamber and means at the central station for actuating said sound-producing device to produce a signal, substantially as described.

5. In an alarm system, the combination with a vault or other inclosure to be protected, of a series of acoustic chambers in the wall thereof, a responsive device, as a microphone, within the acoustic chamber, a signal device at the central station, an independent inclosure therefor having an acoustic chamber in the wall thereof, a responsive device, as a microphone, within the acoustic chamber, and electrical connections between said signal device and the responsive devices in said acoustic chambers, substantially as described.

6. In an alarm system, the combination with a vault or other inclosure to be protected, of a series of interconnecting tubes embedded in the wall thereof said tubes being provided with outer and inner relatively-insulated sheaths, an electrical alarm adapted to be sounded by the closing of said sheaths together, and a responsive device, as a microphone, placed within the chamber formed by said interconnecting tubes, and a signal device connected with and responding to the actuation of said responsive device, substantially as described.

640,274. TYPE-SETTING MACHINE. FRANCIS B. CONVERSE, Jr., Louisville, Ky. Filed Mar. 11, 1899. Serial No. 708,645. (No model.)



Claim.—1. In a type-setting machine, two type-cases, mechanism for moving one of said cases relatively to the other to permit a common ejector to eject type from either case, in combination with such ejector, substantially as described.

2. The combination of two type-cases, mechanism for raising one and lowering the other to bring either into active position, and a common ejector adapted to eject type from the case in active position, substantially as described.

3. The combination of two type-cases, mechanism for raising one and lowering the other to bring either into active position and the other out of the way, a common ejector adapted to eject type from the case in active position, and a common raceway into which such ejected type pass immediately upon ejection, substantially as described.

4. In a type-setting machine, a pair of frames adapted to carry type-cases, each of said frames adapted to occupy two positions one of which is common to the two frames, means for guiding said frames, and mechanism for simultaneously moving the frames relative to each other to cause one to move out of the common position and the other to move into it, substantially as described.

5. In a type-setting machine, in combination, a pair of type-cases, one in front of the other, having a common active position into which either may be brought, means for moving either case into active position, and means for ejecting a type from the case which is in active position in the direction of a line from front to back of that case, substantially as described.

6. In a type-setting machine, a pair of type-cases, one in front of the other, an opening in the front and an opening in the back of said cases, an ejector adapted to enter one of said openings of that case which is in active position and shove a type therein out of the other opening, mechanism for moving one case from the active position and for bringing the other case into the active position, substantially as described.

7. The combination of two type-cases, mechanism for raising one and lowering the other to bring either into active position, there being means whereby said cases are counterbalanced during such movement, substantially as described.

8. The combination of two banks of type-cases, mechanism for simultaneously elevating either and lowering the other so as to change the case which is in active position, with means whereby such cases counterbalance each other during such transition, substantially as described.

9. The combination of two banks of type-cases suitably supported by the arms of pivoted levers whereby one balances the other, and mechanism for elevating either and lowering the other so as to change the case which is in active position, substantially as described.

10. In a type-setting machine, in combination, a pair of frames one in front of the other, and one higher than the other, whereby one does not obstruct ejection from near the end of the other, there being a common position in which either of said frames may stand, mechanism for moving the lower frame upward and laterally away from the common position, and mechanism for moving the upper frame downward and laterally toward the common position, substantially as described.

11. The combination with mechanism for ejecting type from cases, of a pair of frames adapted to contain type-cases, a pair of walking-beams, a shaft to which said beams are secured, and links connecting the forward ends of said beams with one frame and links connecting the rear ends with the other frame, and means for guiding said frames whereby the turning of said shaft causes one frame to replace the other, substantially as described.

12. The combination of a pair of type-cases, one in front of the other, studs carried at the sides of said cases, diagonal guideways in which said studs take, said guideways extending to the front and to the rear of the active position of the case, and means for shifting said cases, said guideways and studs guiding either case into the position which was occupied by the other, and means for ejecting type from either case when it is brought into the common position, substantially as described.

13. In a type-setting machine, in combination, the vertical standard B^3, the Y-shaped slots b and b' therein, the frames J and J' having studs projecting into said slots, said frames being adapted to carry type-cases, and means for moving said frames whereby either comes into the position occupied by the other, substantially as described.

14. In a type-setting machine, in combination, the standards B^3, the shaft M journaled therein, an operating-lever, suitable connections between said lever and the shaft whereby the movement of the lever turns the shaft on its axis, a pair of type-cases, connecting mechanism between the shaft and the cases whereby the turning of the shaft withdraws one case from the position it occupied and brings the other case into that position, substantially as described.

15. A type-setting machine, in combination, the standard B^3, the walking-beams L supported thereby, the frames J and J', the links K and K' connecting said walking-beams with said frames, slots in the standards into which take studs on the frames whereby each frame is guided into two terminal positions, one of the positions being common to the two frames whereby the movement of said walking-beams brings either frame into the position which the other occupied, substantially as described.

16. In a type-setting machine, in combination, a pivoted frame adapted to carry type-cases separable therefrom, a pivoted hook U depending by the side of the frame, a stud projecting from said side and when the frame is swung on the pivot adapted to engage with said hook and elevate it until the hook hooks over the stud, substantially as described.

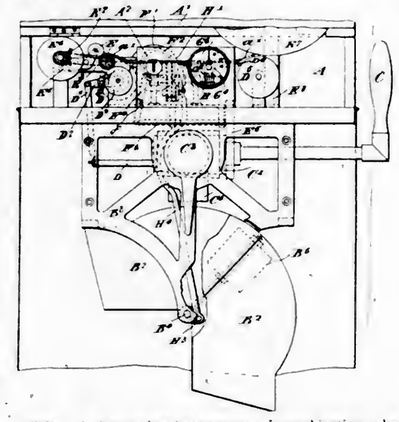
640,275. NON-REFILLABLE BOTTLE. VAN DYKE CRISER, New York, N. Y., assignor of one-half to John B. Hicks, same place. Filed Mar. 29, 1899. Serial No. 710,930. (No model.)

Claim.—1. The combination with an apertured stopper provided with a valve-seat and a peripheral wall above the same having apertures at its upper portion, of a valve located upon said seat, a disk within said wall provided with a central aperture above said valve and radiating channels upon its flat under face communicating with said aperture, and a recessed guard-cap resting upon the upper portion of said wall above said aperture and having prongs extending longitudinally of the stopper to be embedded therein; substantially as specified.



2. The combination with an apertured stopper provided with an enlarged chamber at its upper portion have a valve-seat and outlet-apertures formed in the edge of a wall above said seat, of a valve upon said seat, a disk within said wall provided with a central aperture above said valve communicating with radiating channels upon the lower horizontal face thereof, a guard-cap resting upon the upper portion of said stopper over said outlet-apertures and having at its edges inwardly-extending recesses, and depending prongs from said cap adapted to be embedded in the walls of said stopper; substantially as specified.

640,276. REGISTERING AND RECORDING APPARATUS. JOSEPH DALLIMORE, Lake Gilleat, Victoria. Filed Oct. 27, 1898. Serial No. 694,737. (No model.)



Claim.—1. In a registering apparatus, in combination, a key A^3, having a projecting character a^3 on its edge, a slotted carrier A^4 for said key having rotary movement, a barrel F to receive said carrier, having an opening f' on its upper surface to receive the tape or material which is to be printed upon and means for directing the tape through the said opening, said key having wards at its back end to engage a lock and incapable of being withdrawn while the character is exposed through said opening f', substantially as described.

2. In combination, in a registering apparatus, a supply-cock, a rotatable key-lock comprising a disk, a bolt engaging a part of the cock and the connection between the disk and the bolt to operate the same when the lock is turned through the operation of the key, substantially as described.

3. In combination in a registering-machine, a lock adapted to be turned by a key and comprising a disk F^5 having a spiral groove, a bolt F^6, a lever F^4 operated by the spiral groove and connected with the bolt, a cock and the notched disk F^9 thereon to be controlled by the bolt, substantially as described.

4. In combination in a registering apparatus, a measuring device, a cock controlling the supply thereto, a lock controlled by a key, connections between the cock and lock, registering means, means for directing an inking-ribbon past the same, means for directing a paper tape past the registering means, a pressure-piece I and a key for operating the lock having a character thereon to make an impression on the paper tape, said key being held against withdrawal while the character is in position to be printed, substantially as described.

5. In combination, a cock, a measuring device to receive its supply through said cock, a lock with connections to the cock to control the same and a key having a projecting character, means for making an impression from said character and means for holding the key from withdrawal while the key is in position to print its character, substantially as described.

6. In combination, a supply-cock, a bolt controlling the same, a key for operating the bolt, a registering device, means for directing an inking-ribbon and a paper tape past the same to receive the impression, a spring-presser to make the impression, an indicator and means for operating said indicator when the supply-cock is open, substantially as described.

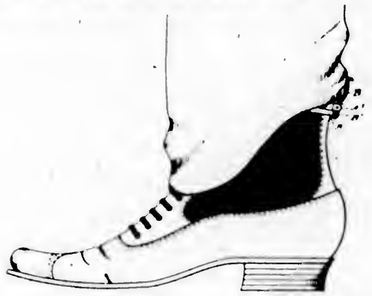
7. In combination in a registering apparatus, a key A^3 having a character thereon, a slotted rotary carrier A^2 for the key, a barrel F in which the carrier turns, a supply-cock, a lock-quadrant F^5 on the supply-cock, a bolt controlled by the key engaging said quadrant, a measuring device, registering means connected therewith and an indicator, substantially as described.

8. In combination, the supply-cock, a lock controlling the same, a measuring device operating while the cock is open, a registering mechanism operated by the measuring device, and printing mechanism controlled by the movement of the cock, substantially as described.

9. In combination, a supply-cock, a lock controlling the same having means for retaining the key in place while the cock is open, a registering and printing mechanism controlled by the turning of the cock and indicator mechanism, substantially as described.

10. In combination, a supply-cock, a lock controlling the same having means for retaining the key in place while the cock is open, a registering and printing mechanism controlled by the turning of the cock and indicator mechanism controlled by the position of the lock and operated from the movement of the measuring device, substantially as described.

640,277. **PROTECTOR FOR TROUSERS.** PHILO E. DANIELS, Oakland, Cal., assignor of one-half to Gilbert P. Coates and Arthur L. Botham, Paxton, Nebr. Filed Mar. 4, 1899. Serial No. 707,789. (No model.)



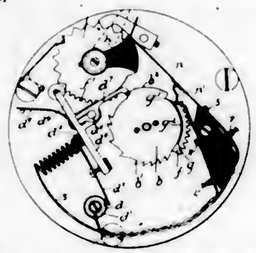
Claim.—1. In a protector for trousers the combination of a plate having clamping means thereon, to secure said plate to the backs of shoes; a retainer hinged to said plate and adapted to be swung into and out of operative position; and means for locking said retainer in the desired position, substantially as described.

2. In a device of the nature indicated, a plate adapted to be secured to a shoe, a pivot upon said plate, and a retainer provided with an elongated slot receiving said pivot, the length of the slotted portion of the retainer from its outer end to the inner end of the slot being greater than the distance between the plate and the pivot, but the thickness of the retainer at its outer end being less than said distance, whereby the retainer can be swung upon the pivot and when so swung into the desired position upon the pivot the retainer is locked in such position; substantially as described.

3. In a device of the nature indicated, a plate adapted to be secured to a shoe, a pivot upon said plate, and a retainer composed of a strip of material having one end bent back upon itself to form an elongated slot inclosing the pivot, the length of the slotted portion of the retainer from its outer end to the inner end of the slot being greater than the distance between the plate and the pivot, but the thickness of the retainer at its outer end being less than said distance, whereby the retainer can be swung upon the pivot and when so swung into desired position it is locked in such position; substantially as described.

4. A device of the nature indicated comprising a plate having bent-over extensions with a space between them whereby said plate is adapted to engage a shoe upon opposite sides of the strap, a point struck up from said plate, ears also struck up from said plate, a pivot-pin extending between said ears, and a retainer having an elongated slot receiving said pin, the length of the slotted portion of the retainer from its outer end to the inner end of the slot being greater than the distance between the plate and the pivot, but the thickness of the retainer at its outer end being less than said distance, whereby the retainer can be swung upon the pivot and when so swung into desired position the retainer is locked in said position; substantially as described.

640,278. **MULTIPLE-SIGNAL TRANSMITTER.** LEONARD DAWSON, Needham, Mass., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed May 5, 1899. Serial No. 715,723. (No model.)



Claim.—1. In a multiple-signal-transmitting device, a circuit-operating device, a box-number wheel and a special-signal wheel and arms projecting from said circuit-operating device adapted to cooperate with both of said wheels, substantially as described.

2. In a multiple-signal-transmitting device, a circuit-operating device consisting of a contact-point and a pivoted lever bearing a contact-pen, a box-number wheel, a special-signal wheel and arms projecting from said circuit-operating device adapted to cooperate with both of said wheels, substantially as described.

3. In a multiple-signal-transmitting device, a circuit-operating device, a box-number wheel and a special-signal wheel and arms projecting from said circuit-operating device adapted to cooperate with both of said wheels, one of said arms being adjustable relatively to the other whereby the length of the intervals of time the circuit is opened by the circuit-operating device may be varied, substantially as described.

4. In a multiple-signal-transmitting device, a circuit-operating device, a box-number wheel and a special-signal wheel, a short circuit shunting said circuit-operating device, a circuit-breaker for said short circuit, a cam for normally holding said "shunt-circuit breaker" closed when the box is at rest and for opening it immediately upon starting the box or after a predetermined interval of time, and a controlling device operated by the pointer when "setting" said special-signal wheel for determining which time said shunt-circuit breaker shall operate, substantially as described.

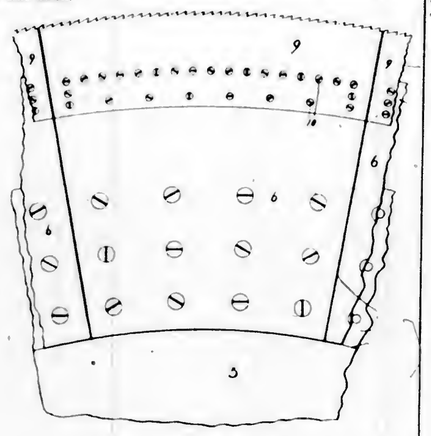
5. In a multiple-signal-transmitting device a circuit-operating device, a box-number wheel and a special-signal wheel, a short circuit shunting said circuit-operating device, a circuit-breaker for said short circuit, a cam operated by the train for normally holding said "shunt-circuit breaker" closed when the box is at rest and for opening it immediately upon starting the box or after a predetermined interval of time, and a controlling device operated in unison with the special-signal wheel for determining which time said "shunt-circuit breaker" shall operate, substantially as described.

6. In a multiple-signal-transmitting device, a circuit-operating device, a box-number wheel and a special-signal wheel, a short circuit shunting said circuit-operating device, a shunt-circuit breaker for said short circuit consisting of a pair of spring-acting pens, a cam operated by the train for engaging one of said pens and normally holding it pressed into engagement with the other pen when the box is at rest and for permitting said pens to separate immediately on starting the box or after a predetermined length of time, and a prop operated by the means employed for setting the special-signal wheel which controls the position of the other pen and thereby determine which time said pens shall separate, substantially as described.

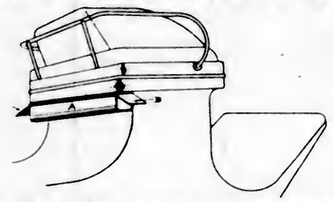
640,279. **VENEER-SAW.** WILLIAM M. DICKERSON, Indianapolis, Ind. Filed Dec. 27, 1898. Serial No. 700,421. (No model.)

Claim.—1. A veneer-saw including a body portion, comparatively thin segmental stubs secured thereto, and a segmental saw-section of uniform veneer-sawing thickness secured to each of said stubs.

2. A veneer-saw including a body portion, comparatively thin segmental stubs detachably secured thereto, and a segmental saw-section of uniform veneer-sawing thickness detachably secured to each of said stubs.



640,280. **UMBRELLA-HOLDER FOR VEHICLES.** JOHN H. DORER, Louisville, Ky. Filed Sept. 18, 1899. Serial No. 730,937. (No model.)



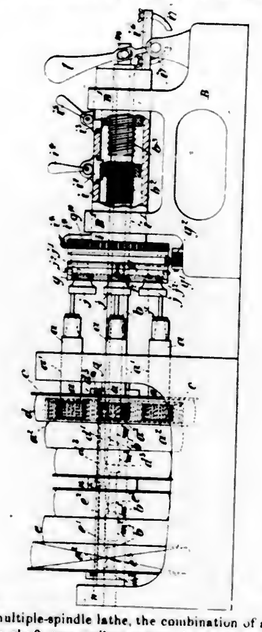
Claim.—An umbrella-holder to attach to vehicles, comprising the following features, a box or receptacle of suitable material, shape, and dimensions for holding one or more umbrellas, with an opening at each end supplied with a lid or other suitable covering, and containing small openings in the bottom for draining water therefrom to be so attached to the vehicle that one of the end openings is on, and accessible from, either side of the vehicle.

640,281. **LATHE.** JAMES F. DOWDING, London, England, assignor of one-half to Harry Orme Mascall, same place. Filed Nov. 6, 1899. Serial No. 736,039. (No model.)

Claim.—1. In a lathe, the combination of a head-stock, a hollow main shaft, a keyway therein, an open-belt pulley, and a cross-belt pulley mounted on the main shaft, keyways formed in the interior of the pulleys, two keys working in said keyways and having projections, springs to press said keys toward the main shaft, a key-operating shaft arranged in the interior of the main shaft, and projections and recesses on the key-operating shaft to act on the projections of the keys, substantially as set forth.

2. In a lathe, the combination of a head-stock, a hollow main shaft, a keyway therein, an open-belt pulley and a cross-belt pulley mounted on the main shaft, keyways formed in the interior of the pulleys, two keys working in said keyways, projections on said keys, springs to press the keys toward the main shaft, a key-operating shaft arranged in the interior of the main shaft, projections and recesses on the key-operating shaft to act on the projections of the keys, a weighted lever acting to move the key-operating shaft endwise, and adjustable stops mounted on the tool-head mandrel and acting on said lever, substantially as set forth.

3. In a multiple-spindle lathe, the combination of a head-stock, a hollow main shaft, a keyway therein, an open-belt pulley and a cross-belt pulley mounted on the main shaft, an internally-toothed wheel fixed within one of said belt-pulleys, a plurality of chuck-spindles carried by bearings in the head-stock, toothed pinions fixed to the chuck-spindles, a keyway formed in each of said pulleys, two keys, projections on said keys, springs to press the keys toward the main shaft, a key-operating shaft arranged in the interior of the main shaft, projections and recesses on the key-operating shaft, a weighted lever acting to move the key-operating shaft endwise, and adjustable stops on the tool-head mandrel acting on said lever, substantially as set forth.



4. In a multiple-spindle lathe, the combination of a head-stock, a hollow main shaft, two pulleys mounted on said shaft, means for keying either pulley to said shaft, with a tool-head carried by a hollow mandrel and having a number of tool-boxes mounted on spindles in a disk or face-plate, toothed pinions fixed to said spindles, an internally-toothed wheel carried by the disk or face-plate gearing with said pinions, and a projection or guide adjustably attached to the tool-head working in a fixed former, substantially as set forth.

5. In a multiple-spindle lathe, the combination of a head-stock, a hollow main shaft passing through the machine, open and cross belt pulleys mounted on the main shaft, means for keying either pulley to main shaft, an internally-toothed wheel fixed to the open-belt pulley, a number of pinions fixed to the chuck-spindles, a plate pivoted on the face of the head-stock, a number of tool-holders carried by said plate, and means for rotating the plate by a worm and worm-wheel or by hand, substantially as set forth.

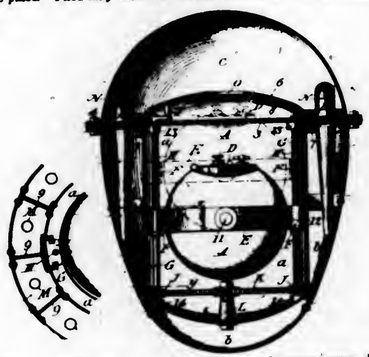
6. In a lathe having a number of chuck-spindles parallel to the main driving-shaft and receiving motion by means of pinions fixed to said spindles and an internally-toothed gear-wheel mounted on the open-belt pulley, the combination therewith of a plate pivoted to the face of the head-stock having a number of cams or wipers acting against studs on the conical nuts to simultaneously grip and release the work, substantially as set forth.

7. In a multiple-spindle lathe, the combination of a hollow main shaft, keyways in said shaft, belt-pulleys on said shaft having keyways therein, keys having projections, a shaft or plunger located in the interior of said main shaft, a tool-head carrying a number of tool-boxes, a hollow mandrel carried by bearings in the saddle or tail-stock of the lathe, screw-hubs on main shaft, and drags or nuts capable of being thrown into and out of action for moving the hollow mandrel, a projection on the hollow mandrel having adjustable stops, a weighted lever operated by said stops and acting upon the key-operating shaft or plunger, substantially as set forth.

8. In a multiple-spindle lathe, the combination of a hollow main shaft, keyways in said shaft, belt-pulleys on said shaft having keyways therein, keys having projections, a key-operating shaft or plunger located in the interior of said main shaft, a plurality of chuck-spindles carried by bearings in the head-stock, toothed pinions fixed to the chuck-spindles, an internally-toothed wheel fitted to one of the pulleys and gearing with said toothed pinions, a plate pivoted to the face of the head-stock, a number of tool-holders carried by said plate, a tool-head carrying a number of tool-boxes, a projection or guide adjustably attached to the tool-head working in a fixed former, a hollow mandrel carried by bearings in the saddle or tail-stock of the lathe by which the tool-head is carried, screw-hubs on the main shaft, and drags or nuts capable of being thrown into and out of ac-

tion for moving the hollow mandrel, a projection on the hollow mandrel having adjustable stops, and a weighted lever operated by stops and acting upon the key-operating shaft or plunger, substantially as set forth.

640,282. MARINE BUOY-SAFE. THOMAS G. HALL, New York, N. Y., assignor to Hattie Evangeline Hall and David Lewis Harris, same place. Filed May 18, 1899. Serial No. 717,354. (No model.)



Claim.—1. A marine buoy-safe comprising a buoyant outer shell composed of a body portion and a cap with their parting-joint near the top of the structure and provided with a central chamber, an inner receptacle normally located within the lower part of said chamber, and means for elevating said receptacle to facilitate access to its interior.

2. A marine buoy-safe comprising a buoyant outer shell, a vertically-movable inner receptacle, and means for raising and lowering said receptacle comprising parallel vertical screws, screw-nuts connected with said inner receptacle, and means for turning said screws.

3. A marine buoy-safe comprising a buoyant outer shell, a vertically-movable inner receptacle, and means for raising and lowering said receptacle comprising parallel vertical screws, nuts coacting with said screws, connections between said nuts and receptacle, means for turning said screws, and connecting mechanism causing said screws to turn in unison.

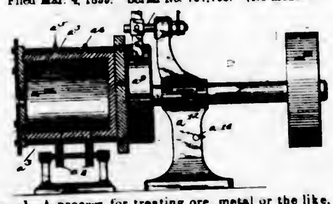
4. A marine buoy-safe comprising a buoyant outer shell, an inner receptacle and supports for said receptacle including a gimbal-ring with horizontal pivots at right angles to each other.

5. A marine buoy-safe comprising a buoyant outer shell, a spheroidal inner receptacle, and supports for said receptacle including a gimbal-ring with horizontal pivots at right angles to each other.

6. In a marine buoy-safe, the combination with a plate-ring forming an air-space boundary and provided with screw-threaded holes of lockers or capsules each comprising a body portion having an internal screw-ring and a cap which screws into said screw-ring and also into one of said holes in said plate-ring.

7. In a marine buoy-safe a buoyant outer shell composed of a body portion and a cap with a substantially cylindrical inner chamber surrounded on all sides by air-chambers, the top wall of said inner chamber forming part of said cap, and provided with a normally-closed hand-hole, substantially as hereinbefore specified.

640,283. ELECTRIC FURNACE. FRANCIS E. HATCH, Norway, Mich. Filed Mar. 4, 1899. Serial No. 707,706. (No model.)



Claim.—1. A process for treating ore, metal or the like, which consists in heating a refractory electric conductor to a high state of temperature by the direct application of an electric current, withdrawing the current and subjecting the material to be treated to the thermic effect of the said electric conductor, substantially as set forth.

2. A process for smelting ore, metal or the like, which consists in heating a refractory electric conductor to a state of incandescence with an electric current, withdrawing the current, and then placing the incandescing conductor in intimate contact with a material such as ore, or the like, associated with a suitable reducing agent, whereby the said material is smelted, substantially as set forth.

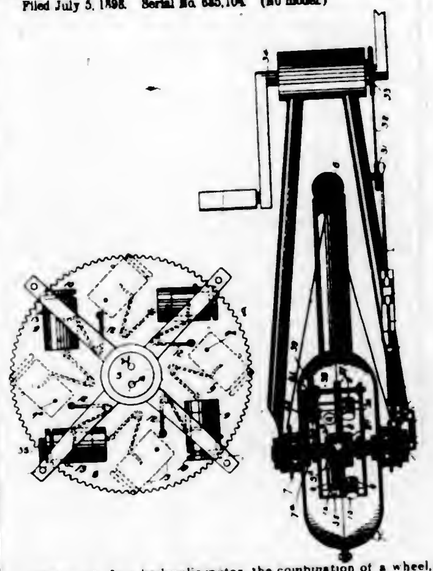
3. A process for smelting ore, metal or the like, which consists in heating a refractory, independent, continuous conductor by including it within an electric circuit, disconnecting it from the said electric circuit, and subjecting the material, associated with a suitable reducing agent, to the thermic effect of the said electric conductor, whereby the said material is smelted, substantially as set forth.

4. A process for smelting ore, metal or the like, which consists in heating a series of refractory electric conductors by the application of an electric current, by subjecting said conductors to the effect of said current in sequence, and placing said conductors, after being so heated, successively in contact with the material to be smelted, associated with a suitable reducing agent whereby said material is smelted, at the same time other conductors of the said series are being heated by the current, substantially as set forth.

5. An electric furnace consisting of a horizontal cylinder, composed of electric insulating, refractory material, electric conductors adapted to be heated to a high degree of temperature, placed on the inner surface of the said cylinder, a means for rotating the cylinder, and an electric circuit including a commutator and the said electric conductors, substantially as set forth.

6. An electric furnace consisting of a horizontal cylinder composed of electric insulating, refractory material, electric conductors, adapted to be heated to a high degree of temperature, divided into groups on the inner surface of the said cylinder, a means for rotating the cylinder, an electric circuit and a commutating device for directing the current through the said groups of conductors in succession, substantially as set forth.

640,284. HYDRAULIC MOTOR. CONSTANTINE HILL, Denver, Colo. Filed July 5, 1898. Serial No. 685,104. (No model.)



Claim.—1. In a hydraulic motor, the combination of a wheel, a number of motor-cylinders yieldingly mounted thereon, pistons located in said cylinders, a pump, means for conducting liquid driven by the pump-piston to the motor-cylinders in succession, whereby the motor-pistons are driven outwardly, and a stop or its equivalent lying in the path of the cylinders when in their normal position, whereby the cylinders must yield to pass the stop, after which the stop is in the path of the piston moving out of the cylinder, whereby the wheel is propelled in the direction opposite the movement of the pistons.

2. In a hydraulic motor, the combination with a stationary shaft mounted on a suitable frame, of a motor-wheel journaled on the shaft, cylinders yieldingly mounted on the wheel, pistons located in said cylinders, a passage being formed in the wheel leading to each cylinder, an inlet-conduit and an exhaust-conduit being formed in the shaft, the arrangement being such that each passage in the wheel is alternately brought into communication with the inlet and exhaust conduits of the shaft, a pump whose cylinder is connected with the inlet and exhaust conduits of the shaft and a stop or its equivalent located in the path of the cylinders when in their normal position, the cylinders being required to yield in order to pass the stop, after which the latter lies in the path of the outwardly-moving piston of the cylinder.

3. The combination with a stationary shaft and a wheel mounted thereon, of a motor-wheel also mounted thereon, motor-cylinders yieldingly mounted on said motor-wheel, pistons located in said cylinders, a stop or its equivalent lying in the path of the cylinders when in their normal position and in the path of the outwardly-moving piston of any cylinder after the latter has passed the stop by virtue of its yielding feature, passages formed in the motor-wheel and communicating with the motor-cylinders below the pistons, feed and exhaust passages formed in the shaft and adapted to communicate alternately with the passages in the wheel, a pump with which the feed and exhaust passages in the shaft communicate, check-valves allowing the liquid to leave the pump-cylinder in one direction and permitting the liquid to return in the opposite direction, means for operating the pump-piston, and means for communicating motion from the motor-wheel to the wheel to be operated thereby.

4. The combination with a stationary shaft and a wheel mounted thereon, of a motor-wheel also mounted thereon, motor-cylinders yieldingly mounted on said motor-wheel, pistons located in said cylinders, a stop or its equivalent located in the path of the cylinders when in their normal position, but lying in the path of the outwardly-moving piston of a cylinder after the latter has passed the stop, passages formed in the motor-wheel and communicating with the motor-cylinders below the pistons, feed and exhaust passages formed in the shaft and adapted to communicate alternately with the passages in the wheel, a pump with which the feed and exhaust passages in the shaft communicate, check-valves allowing the liquid to leave the pump-cylinder in one direction and permitting the liquid to return in the opposite direction, means for operating the pump-piston, and means for communicating motion from the motor-wheel to the wheel to be operated thereby, comprising a train of gears connecting the last-named wheel with the cogged periphery of the motor-wheel.

5. The combination with a stationary shaft and a wheel mounted thereon, of a motor-wheel also mounted thereon, motor-cylinders yieldingly mounted on said motor-wheel, pistons located in said cylinders, a stop or its equivalent lying in the path of the outwardly-moving piston of a cylinder after the latter has passed the stop by virtue of its yielding capacity, passages formed in the motor-wheel and communicating with the motor-cylinders below the pistons, feed and exhaust passages formed in the shaft and adapted to communicate alternately with the passages in the wheel, a pump with which the feed and exhaust passages in the shaft communicate, check-valves allowing the liquid to leave the pump-cylinder in one direction and permitting the liquid to return in the opposite direction, means for operating the pump-piston, means for communicating motion from the motor-wheel to the wheel to be operated thereby, comprising a train of gears connecting the last-named wheel with the cogged periphery of the motor-wheel, and a casing mounted on the hub of the main wheel and inclosing the motor-wheel and the train of gears.

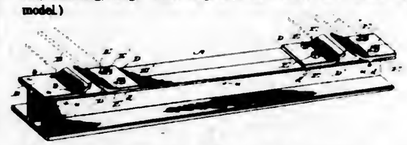
6. The combination of a stationary shaft having feed and exhaust passages formed therein, a pump communicating with the said passages in the shaft, check-valves for controlling the exit from and the return of the liquid to the pump-cylinder, a motor-wheel provided with passages adapted to communicate at one extremity with the passages in the shaft, cylinders yieldingly mounted on the motor-wheel and having ports communicating with the passages in the wheel, pistons located in said cylinders, and a stop or its equivalent adapted to resist the movement of a cylinder-piston in whose path it lies, after the cylinder has passed the stop by virtue of its yielding capacity whereby the wheel on which the cylinder is mounted is propelled in a direction opposite the movement of the piston.

7. The combination of a stationary shaft having feed and exhaust passages formed therein, a pump communicating with the said passages, check-valves for controlling the exit from and the return of the liquid to the pump, a motor-wheel provided with passages adapted to communicate at one extremity with the passages in the shaft, spring-supported cylinders pivotally mounted on the motor-wheel and having ports communicating with the passages in the wheel, pistons located in said cylinders, and a stationary stop adapted to resist the movement of the piston, whereby the wheel on which the cylinder is mounted is propelled in a direction opposite the movement of the piston.

8. The combination of a stationary shaft having feed and exhaust passages formed therein, a pump communicating with said passages in the shaft, check-valves for controlling the exit from and the return of the liquid to the pump-cylinder, a motor-wheel provided with passages adapted to communicate at one extremity with the passages in the shaft, cylinders pivotally mounted on the motor-wheel and having ports communicating with passages in the wheel, springs mounted on the wheel and engaging said cylinders, pistons located in said cylinders, and a stationary stop, normally lying in the path of the cylinders and adapted to resist the movement of the pistons in succession, whereby the wheel on which the cylinders are mounted is rotated in a direction opposite the movement of the pistons.

9. In a hydraulic motor, the combination of a wheel, a number of motor-cylinders mounted thereon, pistons located in said cylinders, a pump, means for conducting liquid, driven by the pump-piston, to the motor-cylinders in succession, whereby the motor-pistons are driven outwardly, a stop or its equivalent lying in the path of the outwardly-moving pistons, which are successively brought in front of the stop as the wheel rotates, and means for conducting the liquid from the cylinders in succession back to the pump-cylinder, whereby the motor-cylinders are exhausted and the pistons returned to their normal position in the cylinders.

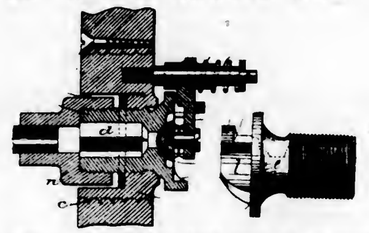
640,285. RAILROAD-TIE. WILLIAM M. HODSON and ENOS G. HODSON, Roseburg, Oreg. Filed Aug. 24, 1899. Serial No. 728,343. (No model.)



Claim.—1. A railway-tie consisting of a single sheet of metal folded upon itself in opposite directions at its base and having its edges extending outwardly in opposite directions from the web of the tie, serrations upon the upper surface of the tie, and means for preventing the tie from spreading and also for connecting the rail thereto, substantially as described.

2. A railway-tie consisting of a single sheet of metal folded upon itself in opposite directions at its base and having its edges extending outwardly in opposite directions from the web of the tie, and an adjustable plate secured to the tie near each of said edges whereby spreading of the tie is prevented, said plate adapted to engage with the base of a rail, substantially as described.

640,286. BUNG-HOLE FITTING. WILLY HOMANN, Dusseldorf, Germany. Filed Dec. 7, 1898. Serial No. 698,535. (No model.)



Claim.—1. In a bung-hole fitting having the exit-opening uncovered by the coöperation of an internally-screw-threaded tap, a hollow plug inserted in the bung-hole, and an internal valve mounted on a spring-influenced swinging arm, substantially as set forth.

2. In a bung-hole fitting having the exit-opening uncovered by the coöperation of the tap, bung-hole plug and internal valve; a bushing provided with an eccentric bore for the reception of the hollow plug at the inner end and for the internally-screw-threaded part of the tap at the outer end, said tap fitting onto the outer end of the hollow plug and a pin secured to the inner face of the bushing, said pin carrying a spring-influenced arm with valve for covering the bore in the plug, substantially as set forth.

3. In a bung-hole fitting having the exit-opening uncovered by the coöperation of the tap, bung-hole plug and internal valve, a hollow plug screwed into the inner narrower end of the eccentric bore in the bushing, said plug receiving the internally-screw-threaded tap and adapted to be turned thereby, a flange at the inner end of the plug projecting beyond the eccentric bore in the bushing, a valve-seat formed at the inner end of the bore in the plug, said valve-seat adapted to receive a valve mounted on a spring-influenced swinging arm, and a circular projection on the inner face of the plug around the valve-seat, said projection assuming the shape of a hook, adapted to grip over the swinging arm of the valve, at one end, and the shape of an incline, adapted to lift the valve off its seating by pressing un-

der the swinging arm of the valve when the plug is turned, at the other end, substantially as set forth.

4. In a bung-hole fitting having the exit-opening uncovered by the coöperation of the tap, bung-hole plug and internal valve, a pin firmly secured to the inner face of the bushing, said pin movably carrying a swinging arm to which the valve for closing the exit-opening is secured, and a tensioned and torsioned spiral spring coiled around said pin and situate between the swinging arm and a flange at the end of the pin, said spiral spring having one extremity secured to the pin, the other pressing against the swinging arm so as to rest against a stud on the bushing and to insure a tight fitting of the valve on its seating, substantially as set forth.

5. A bung-hole fitting having the exit-opening uncovered by the coöperation of the tap, bung-hole plug and internal valve, comprising in combination a bushing provided with an eccentric bore, a valve-seating in connection with the internal end of the bore in the plug, a hook-shaped and inclined circular projection around the valve-seating on the inner face of the plug, a valve for closing the exit-opening, a swinging arm under the influence of the tension and torsion of a spiral spring carrying the valve, a pin with spiral spring carrying the swinging arm firmly secured to the inner face of the bushing, and an internally-screw-threaded tap adapted to fit and turn the outer end of the plug thereby causing the coöperation of the various parts, substantially as and for the purpose set forth.

640,287. **COMBINED BUTTER PLATE AND WRAPPER.** MARTIN L. HORNING, Albion, Mich., assignor of one-half to Martin O'Meara, Jackson, Mich. Filed May 10, 1899. Serial No. 716,320. (No model.)

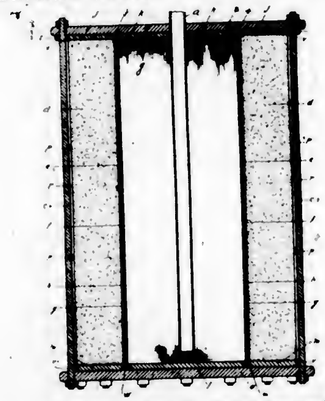


Claim.—1. A combined butter plate and wrapper comprising a plate of wood veneer or analogous material, provided with a wrapper folded therein and adapted to be spread out to inclose and wrap the butter, substantially as described.

2. A combined butter plate and wrapper comprising a plate, and a wrapper therein folded after the manner of accordion-plaiting, one of the folds being secured to the inside of the plate, substantially as described.

3. A combined butter plate and wrapper comprising a plate and a wrapper therein folded after the manner of accordion-plaiting, one of the folds being secured to the inside of the plate, and the folded ends turned over upon the portion within the plate, substantially as described.

640,288. **FILTER.** CHARLES F. HOYT, Sioux City, Iowa, assignor of nine-twentieths to William P. Keefe, same place; Martha Hoyt administratrix of said Charles F. Hoyt, deceased. Filed Aug. 22, 1898. Serial No. 689,265. (No model.)



Claim.—1. The combination with suitable framework having a head and base connected with suitable rods and bands, of an inner chamber for filtered water and an outer compartment filled with sand, said chamber and compartment being separated by means of cloth and filtering-paper, substantially as described.

2. A water-filter composed of the following parts, viz: a pipe *a*, entering the filter, heads *b* and *o*, rods *c'*, *c²*, *c³* and *c⁴* connecting said heads, bands *l'* and *l²*, supporting the frame, cloths *r* and *e*, forming a compartment for the sand *d*, filtering-paper *f*, between said cloth *e*, and another cloth *h*, an inner support *g*, inside of said layers of cloth and paper, a space *s* for the reception of filtered water, false bottoms *l* and *m*, and covers *j* and *k*, at the ends of said spaces for sand and water, as and for the purposes specified.

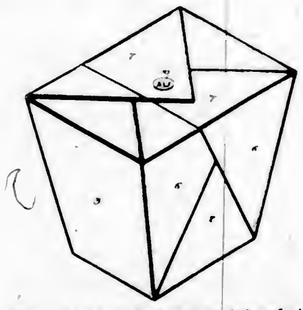
3. A cylindrically-shaped framework having heads secured by rods forming a part of said frame, a rim of cloth within said frame, a circular space filled with sand within said rim of cloth, another rim of cloth within said sand-space, a rim of filtering-paper within and adjacent to the second rim of cloth, a third rim of cloth within and adjacent to said filtering-paper, a screen supporting said inner rims, all of said rims secured at the ends by suitable means, a space within said rims for filtered water and a tube in said space through which the water may be withdrawn, substantially as described.

640,289. **PROCESS OF MAKING CONCENTRATED APPLE-JUICE.** CHARLES GRANT, Clifford, Canada. Filed Sept. 26, 1898. Serial No. 731,742. (No specimens.)

Claim.—1. The process herein described, for producing syrup from apples consisting in first neutralizing the cider by the addition of bicarbonate of soda mixed therewith, then skimming the liquid, then evaporating or boiling, then cooling and next boiling again, and finally skimming the last-boiled liquid as and for the purpose specified.

2. The process herein described for producing syrup from apples arising in first neutralizing the cider by the addition of bicarbonate of soda mixed therewith, then skimming the liquid, then evaporating or boiling, then cooling, and next boiling again, then skimming the last-boiled liquid and finally mixing therewith one or more expressings from the apples previously expressed and treated in the same manner as the cider first expressed as and for the purpose specified.

640,290. **PACKAGE FOR LIQUIDS.** AMOS L. FOREMAN, Wilmerding, Pa. Filed June 3, 1899. Serial No. 719,216. (No model.)



Claim.—A package for liquids consisting of a blank folded so as to form a box having a bottom, opposite sides and opposite ends, said sides and ends being connected by transversely-folded side flaps, two inner top flaps of substantially the area of the top of the box, one overlapping the other, and the inner one having an internal flap which extends downwardly and bears against one end of the box, and two outer top flaps forming a transversely-folded continuation of the transversely-folded side flaps of the package.

640,291. **SHADE ADJUSTING AND HOLDING MECHANISM.** HENRY H. FORSYTH, Chicago, Ill., assignor, by mesne assignments, to the Curtain Supply Company, same place and Jersey City, N. J. Filed Nov. 5, 1896. Serial No. 611,113. (No model.)

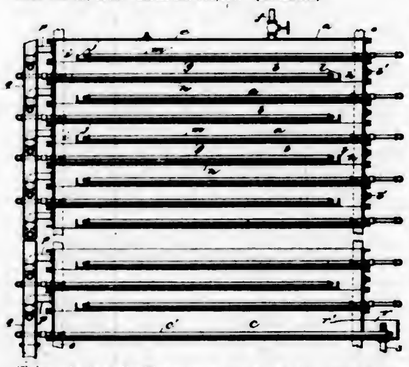
Claim.—1. A shade-holding mechanism comprising in combination a spring-actuated roller, to which one end of the shade is attached and an endless cord doubled upon itself and having two of its strands adapted to be attached to the other end of the shade, and suitable guides over which the strands are turned, substantially as described.

2. A shade-holding mechanism comprising in combination a spring-actuated shade-roller, to which one end of the shade is attached and an endless cord doubled upon itself and having two of its strands adapted to be made fast to the other end of the shade at opposite sides thereof, the attached strands moving during operation in

one direction, while the unattached strands move simultaneously in the opposite direction, substantially as described.



640,292. **APPARATUS FOR CONTINUOUS FRACTIONAL DISTILLATION OF HYDROCARBONS.** HANS A. FRASCH, New York, N. Y. Filed Oct. 23, 1896. Serial No. 609,837. (No model.)



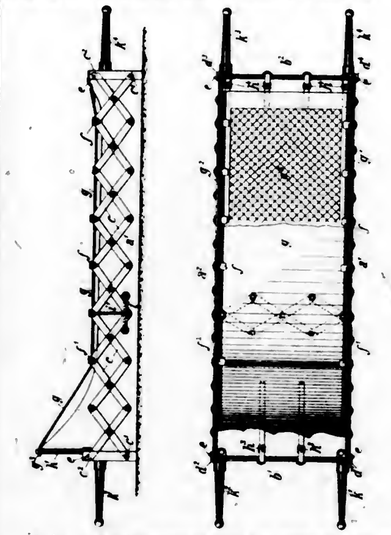
Claim.—1. In a distilling-column, consisting of a series of communicating shells, a manifold connected with alternate shells to receive the vapor from every two shells, and means for conducting away the separate vapors at several desired points to separate condensers, and a bottom shell having an open outlet and a vapor-seal at the base of the column of shells, substantially as described.

2. A series of communicating shells, each having an overflow into the shell next below, a heating medium in the bottom of each shell, a manifold communicating with alternate shells to receive the vapor from that shell and the one immediately beneath it, and a bottom shell having a bridge projecting down into the fluid in the shell, the said shell having an outward open extension into which the heating medium also extends, and an overflow, substantially as described.

3. In a distilling apparatus composed of a number of superposed sections or shells, a bottom section having the open outwardly-projecting outlet and a vapor-seal adjacent said outlet, substantially as described.

640,293. **COLLAPSIBLE STRETCHER.** CASPAR FRISULER, Zurich, Switzerland. Filed Aug. 4, 1899. Serial No. 726,209. (No model.)

Claim.—1. A collapsible stretcher consisting of a frame formed of lazy-tongs a', a^3, b', b^3, the lower ends c' of which are articulated to posts d' to d^4 and the upper ends c^3 secured to the posts d' to d^4 by means of removable pins e, all substantially as set forth.

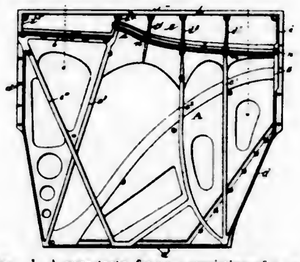


2. In a collapsible stretcher, the lazy-tongs cross-stay i, placed on pins i' and retained in an extended position by a hook i^3, all substantially as set forth.

3. In a collapsible stretcher, the pillars k', k^3 rendered vertically movable on the posts d', d^3 of the head b' which support the supporting fabric at an incline to serve as a pillow, all substantially as set forth.

4. In a collapsible stretcher, the handles k' to k^4 placed into the posts d' to d^4 and secured therein in bayonet-joint fashion, all substantially as set forth.

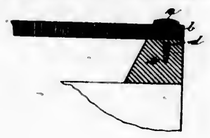
640,294. **PIANOFORTE.** JOHN W. MACY, Cincinnati, Ohio. Filed Sept. 14, 1898. Serial No. 690,976. (No model.)



Claim.—1. A capo-tasto frame e consisting of a capo-tasto bar f, base-bridge rib g, and top rib h, connected by a series of cross-ribs i, i', i^3, i^2, i^4, i^5, substantially as described.

2. The combination of a capo-tasto frame e consisting of a capo-tasto bar f, base-bridge rib g and top rib h connected by a series of cross-ribs i, i', i^3, i^2, i^4, i^5, with the string-frame A; said capo-tasto frame overlapping the top edge of the string-frame to which it is attached by screw-bolts, substantially as described and set forth.

640,295. **PIANOFORTE.** JOHN W. MACY, Cincinnati, Ohio. Filed Sept. 14, 1898. Serial No. 690,977. (No model.)

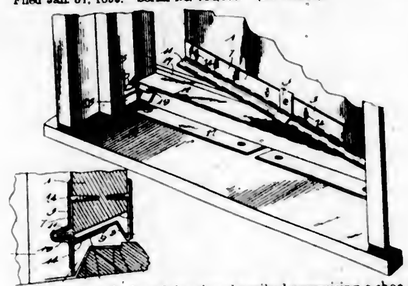


Claim.—1. In grand pianos an edge-binding *a* set in a groove *b* at the treble edge of the sound-board *c*, said binding consisting of a strip of hard wood substantially as described.

2. In grand pianos a sound-board *c* having a groove *b* along the free treble edge of the same substantially as described and set forth.

3. In grand pianos the combination of the binding-strip *a* and the sound-board *c*, said sound-board having at its free edge a groove *b*, the binding-strip *a* being glued in place and further secured by the screws, extending through the same into the supporting-strip *c* substantially as described and set forth.

640,296. WEATHER-STRIP. WILLIAM B. MAHAN, Palmyra, Ill. Filed Jan. 31, 1899. Serial No. 704,008. (No model.)



Claim.—1. A device of the class described comprising a shoe arranged to receive the lower edge of a door and composed of sections capable of adjustment on the door to correspond to the width of the same, plates or shields arranged over the adjacent ends of the sections and covering the intervening space between them, and a movable strip designed to be mounted on a sill and adapted to be operated by the shoe, substantially as described.

2. A device of the class described comprising a shoe consisting of vertical walls and an inclined bottom, and provided with front and rear longitudinal ribs forming shoulders, and a hinged weather-strip arranged to swing upward against the inclined bottom of the shoe, substantially as described.

3. A device of the class described comprising a shoe consisting of sides, and a bottom, and provided with longitudinal ribs arranged at the inner and outer sides of the shoe, the inner rib forming a depending shoulder and the outer rib being arranged above the bottom of the shoe, and a movable strip arranged to be engaged by the shoe and adapted to swing upward against the bottom of the same, substantially as described.

4. A device of the class described comprising a shoe consisting of vertical sides and an inclined bottom, and provided with an outwardly-extending front rib and having a depending rear rib, and a movable weather-strip constructed of angle metal and provided with an offset arm arranged to be engaged by the front rib of the shoe, substantially as described.

5. A device of the class described comprising a shoe adapted to receive the lower edge of a door and having an inclined bottom and provided with a front rib, and a movable weather-strip having an offset arm arranged to be engaged by the front rib of the shoe, substantially as described.

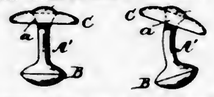
640,297. BICYCLE-LOCK. CHARLES H. MASTEN, Fremont, Nebr. Filed Oct. 5, 1899. Serial No. 732,664. (No model.)



Claim.—1. The combination with a case having a rectangular recess therein, of a pin projecting from said case centrally of the recess, a shackle-carrying frame slidable in said recess and surrounding said pin, a plurality of cam-tumblers loosely journaled on said pin and adapted to slide the shackle-carrying frame and means for actuating the tumblers, substantially as described.

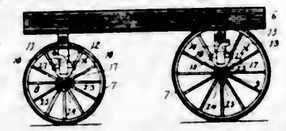
2. The combination with a casing having a rectangular recess, a shackle slidably secured in said recess and projecting through the casing, the cam-tumblers 15 and 19 journaled concentric of the recess and adapted to slide the shackle and lock the same and an indicator-wheel carrying a disk on which is a pin to rotate the tumblers, substantially as described.

640,298. CUFF-BUTTON. WILLIAM L. MAGRAN, Providence, R. I. Filed Oct. 19, 1899. Serial No. 734,092. (No model.)



Claim.—The improved cuff-button herein described, consisting of the combination of a compound post and knob, having straight-edged longitudinal halves, soldered together and forming a bell-shaped mouth at one end of said post, an ornamental head, and a mass of solder in said end of the post, united therewith and with the center of said head on the under surface thereof, substantially as specified.

640,299. MEANS FOR SUPPORTING FRAMES OR BODIES OF VEHICLES. CHARLES L. MERKEL, Milwaukee, Wis. Filed May 8, 1899. Serial No. 715,922. (No model.)



Claim.—1. The combination, of a vehicle body or frame, the wheels, and axles therefor, saddles supporting the body or frame, transverse tubes at the front and rear of the vehicle, stirrups mounted on the axle, inflatable cushions interposed between the stirrups and the saddles, respectively, and with which cushions the transverse tubes are connected, and means for supplying an inflating agent to the transverse tubes, and into the inflatable cushions.

2. The combination, of a vehicle body or frame, the wheels, and axles therefor, saddles supporting the body or frame, transverse tubes at the front and rear of the vehicle, stirrups mounted on the axle, inflatable cushions interposed between the stirrups and the saddles, respectively, and tubes connected at their upper ends with the ends of the transverse tubes, and having their lower ends passing through the inflatable cushions, said lower ends of the tubes provided with enlargements bearing against the inner sides of the tubes of the cushions.

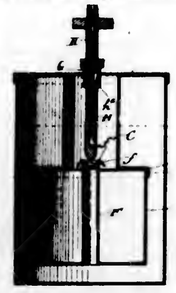
3. The combination, of a vehicle body or frame, the wheels, and axles therefor, saddles supporting the body or frame, transverse tubes at the front and rear of the vehicle, stirrups mounted on the axle, inflatable cushions interposed between the stirrups and the saddles, plates at the ends of the transverse tubes, tubes connected at their upper ends to said plates, and having their lower ends passing through the inflatable cushions, said lower ends of the tubes provided with enlargements bearing against the inner sides of the tops of the cushions, and nuts turning on the last-referred-to tubes, and interposed between the plates and the outer sides of the tops of the cushions.

4. The combination, of a vehicle body or frame, the wheels, and axles therefor, saddles supporting the body or frame, each saddle provided with a downwardly-extending slotted extension, arms extending vertically through the downward extensions of the saddles, and to which arms the ends of the axles are connected, said ends of the axles passing through the slots of the downward extensions, stirrups mounted on the arms, and flexible cushions interposed between the saddles and the stirrups, respectively.

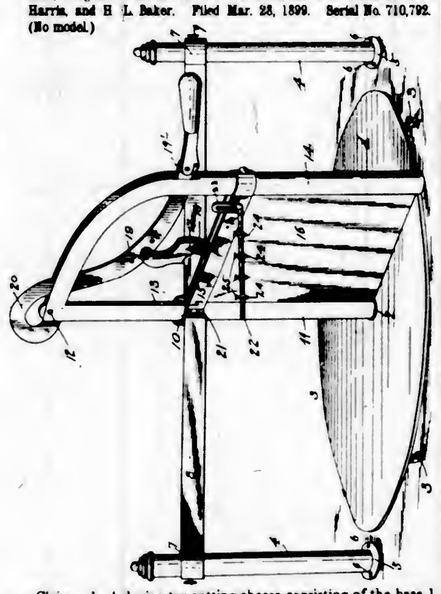
640,300. ACETYLENE-GAS GENERATOR. FREDERICK J. MILLINGTON, Brighton, N. Y. Filed Sept. 16, 1899. Serial No. 730,732. (No model.)

Claim.—An acetylene-gas generator consisting of a chamber for the slaking fluid, a chamber for the generating compound suspended in said fluid-chamber, a pipe communicating with said fluid-chamber and extending through the bottom of said compound-chamber and up into said compound-chamber, said pipe provided at its top with a valve, a valve-stem provided with means for operating it and extending through the upper part of said compound-chamber and through the top of said fluid-chamber, said stem being hollow in its upper part and provided with a vent from said hollow into said compound-cham-

ber, adapted to admit the resultant gas, substantially as shown and described.



640,301. CHEESE-KNIFE. MERIDITH W. MIRACLE, Huntsville, Ark., assignor of one-third to W. N. Williams, S. B. Gilliland, J. B. Harris, and H. L. Baker. Filed Mar. 28, 1899. Serial No. 710,792. (No model.)

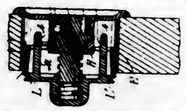


Claim.—1. A device for cutting cheese consisting of the base 1, having a central opening 2, and casters 3; upright posts 4 secured to the floor of the case by feet and screws 5, 6; bar 8, having bow 10 and loops 7, adjustably secured to posts 4; hollow and slotted post 11; hollow, bifurcated and slotted post 14 joined at its upper end to post 11; slot-bar 15, adjustably secured to posts 11 and 14; lever 19, pivoted in the upper ends of posts 11 and 14; knife 16 adjustably pivoted to lever 19, by arms 17 and 18 and working up and down in the slots of posts 11 and 14, rod 22, having right-angle slotted part 23 adjustably secured to slot-bar 15, and markers 24, adjustably secured on rod 22 by set-screws 25, substantially as shown and described and for the purposes set forth.

2. A device for cutting cheese, consisting of a base 1, having a central opening 2; upright post 4, secured in place by any suitable means; bar 8, adjustably secured to post 4; slotted posts 11, adapted to turn in the base 1; bifurcated and slotted bar 14, joined at its upper end to post 11; slot-bar 15, adjustably secured to said posts 11 and 14; lever 19, having joint 19', and pivoted and working up and down in the bifurcated end of post 14; knife 16, adjustably pivoted to levers 19, by arms 18 and 17, and working up and down in the slots of posts 11 and 14, with means for measuring the cheese cuts, substantially as shown and described.

640,302. BUNG-STOPPER. AUGUST Q. MUELLER and CONRAD FARNER, Milwaukee, Wis. Filed Mar. 17, 1899. Serial No. 709,433. (No model.)

Claim.—1. In a bung-stopper for barrels, the combination of an exterior end disk of greater diameter than the bung-hole of the barrel, an interior end disk or expander of less diameter than the bung-hole, an intermediate flange or sleeve supported from said exterior end disk, an elastic packing interposed between said intermediate flange or sleeve and said exterior end disk or expander, a central binding-screw connecting said exterior disk and said interior disk or expander, said screw being provided with an exterior bearing-flange adapted as said screw is turned forward into the thread of said interior disk to act against said exterior disk, and thereby draw said disks toward each other, and against the interior elastic packing and the exterior surfaces of the stave, substantially for the purpose set forth.



2. In a bung-stopper for barrels, the combination of an exterior end disk of greater diameter than the bung-hole, an interior end disk of less diameter than the bung-hole, having an inward angular bearing-surface, an intermediate flange or sleeve supported from said exterior end disk provided with an inward-projecting flange or bearing formed at an angle to the sides of said sleeve, a central sleeve or bracket provided with radial lugs adapted to bear upon the respective sides of said inward-projecting bearing, a central binding-screw connecting said interior and exterior disks, provided with an exterior bearing-flange, adapted as said screw is turned forward into said interior disk or expander, to bear against said central collar, whereby said disks are drawn toward each other and against the interior elastic packing and the exterior surfaces of the stave, substantially as and for the purpose specified.

3. In a bung-stopper for barrels, the combination of an exterior end disk of greater diameter than the bung-hole, an interior end disk of less diameter than the bung-hole having an inward angular bearing-surface, an intermediate flange or sleeve supported from said exterior end disk provided with an inward-projecting flange or bearing formed at an angle to the sides of said sleeve, a central sleeve or bracket provided with radial lugs adapted to bear upon the respective sides of said inward-projecting bearing, a central binding-screw connecting said interior and exterior disks, provided with an exterior bearing-flange, adapted as said screw is turned forward into said interior disk or expander, to bear against said central collar, whereby said disks are drawn toward each other and against the interior elastic packing and the exterior surfaces of the stave, said interior disk being provided with two or more inward-projecting arms adapted to engage against said inward-projecting flange and prevent said interior disk from turning with said binding-screw, substantially as and for the purpose specified.

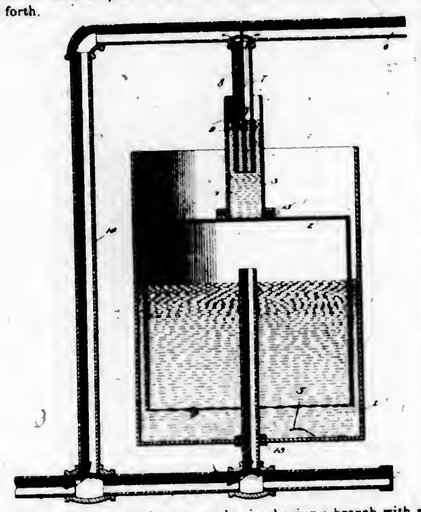
4. In a bung-stopper for barrels, the combination of an exterior end disk of greater diameter than the bung-hole, an interior end disk of less diameter than the bung-hole, having an inward angular bearing-surface, an intermediate flange or sleeve supported from said exterior end disk, provided with an inward-projecting flange or bearing formed at an angle to the sides of said sleeve, a central sleeve or bracket provided with radial lugs adapted to bear upon the respective sides of said inward-projecting bearing, a central binding-screw connecting said interior and exterior disks, provided with an exterior bearing-flange, adapted as said screw is turned forward into said interior disk or expander, to bear against said central collar, whereby said disks are drawn toward each other and against the interior elastic packing and the exterior surfaces of the stave, said interior disk being provided with two or more inward-projecting arms adapted to engage against said inward-projecting flange and prevent said interior disk from turning with said binding-screw, the outward-projecting end of said binding-screw being provided with a radial lug adapted for engagement with an operating key or wrench as the screw is being turned in its bearings preparatory to being withdrawn from the barrel, all substantially as and for the purpose set forth.

640,303. AUTOMATIC PRESSURE-REGULATOR AND CUT-OFF FOR GAS. THEODOR H. J. LECKRAND, Adair, Iowa. Filed Oct. 24, 1898. Serial No. 694,754. (No model.)

Claim.—1. In a pressure-regulator and cut-off for gas, a telescoping reservoir and seal therefor; an auxiliary seal carried by the movable part of said reservoir; a supply-pipe having a branch extending into said auxiliary seal, and a perforated partition-wall in said branch so adjusted that the flow of gas will be permitted or cut off according to the position occupied by the movable part of the reservoir, as specified and for the purpose set forth.

2. In a pressure-regulator, and cut-off for gas, a telescoping reservoir having a sealing liquid; an auxiliary seal carried by the bell

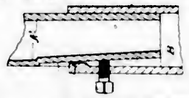
of said telescoping reservoir; a supply-pipe extending to the burner and communicating with said reservoir and having a branch cooperating with said auxiliary seal, said branch being provided with a perforated partition by means of which the flow of gas from the supply-pipe to the burner and telescoping reservoir will be entirely cut off when the movable part of the reservoir is raised, and the flow restored when said part is lowered, as specified and for the purpose set forth.



3. A sealing-cup, and a gas-supply pipe having a branch with a partition-wall extending into said cup, all arranged as set forth.

4. A sealing-cup, and a supply-pipe having a branch with a perforated partition-wall extending into said cup, all arranged as set forth.

640,304. CLAMPING DEVICE FOR SEAT-POSTS AND HANDLE-BAR POSTS FOR BICYCLES. ENOCH L. LOWE, San Francisco, Cal. Filed Sept. 19, 1898. Serial No. 691,374. (No model.)



Claim.—In combination with a handle-bar post, or seat-post for bicycles, a longitudinal tapering groove in said post, beginning at the bottom thereof and tapering upward, a set-screw in the frame-bar and entering said groove for holding the same in an adjustable position for the purpose as shown and described.

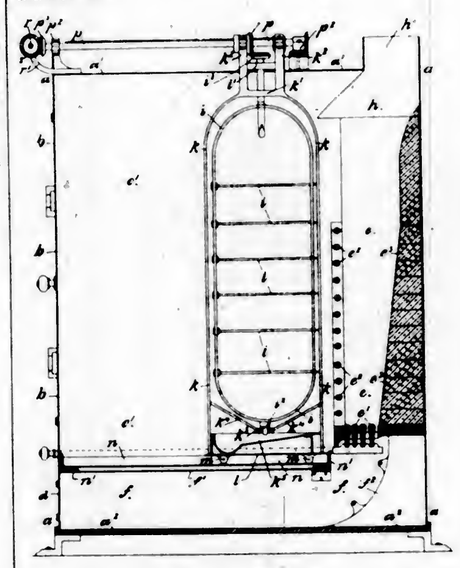
640,305. CULINARY ROASTER. THOMAS M. LYNCH, Liverpool, England. Filed Aug. 23, 1898. Serial No. 689,292. (No model.)

Claim.—1. In a ship's or analogous roaster, a vertically-disposed spit-frame comprising rigid vertical bars, as *k*, and a base having rollers as *m*; railways *n* on which said frame runs up to and away from the fire; and a spit carried by bearers above and below within said frame, and adapted to revolve in said bearings; substantially as set forth.

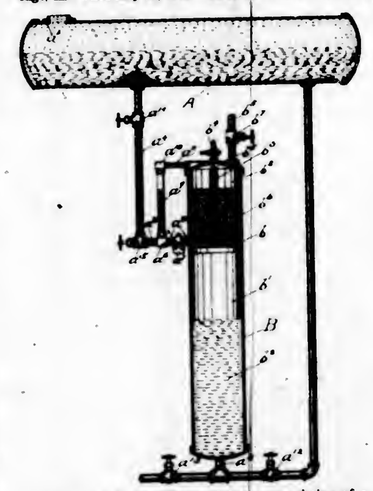
2. In a ship's or analogous roaster, a rigid vertically-disposed spit-frame supported and adapted to move to and fro on its lower end, and supporting within it, by lower and upper bearings, the upper and lower ends of a spit; and a horizontally-disposed rotatable shaft arranged in connection with the upper part of the spit-frame; and gearing between said shaft and the upper part of the spit, by which said spit is rotated from said horizontal shaft; substantially as set forth.

3. In a ship's or analogous roaster, the combination of the rigid spit-frame *k l*; the spit *i*, the lower and upper ends of which are mounted and revolve in bearings in said frame; the bevel-wheel i^3 on the upper end of the spit-journal; the bevel-wheel p' meshing with i^3 and mounted on the upper part of the frame; and the rotatable shaft *p* passing through the wheel p' and frame, and meshing with the wheel p' internally; the said wheel p' and frame being adapted to slide longitudinally over said shaft; substantially as set forth.

640,305.



640,306. BOILER-COMPOUND FEEDER. LABAN E. JONES, Chicago, Ill. Filed May 25, 1899. Serial No. 718,152. (No model.)

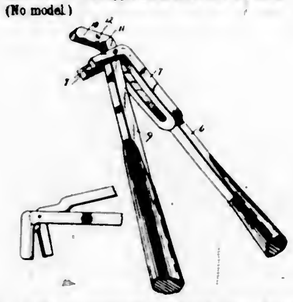


Claims.—1. A boiler-compound feeder, consisting of a chamber for containing water, a chamber for containing material to be fed into the boiler, and an intervening column of compressed air, the two chambers being connected to the boiler, substantially as set forth.

2. A boiler-compound feeder, consisting of a pipe leading from said boiler, a chamber connected to the said pipe, another pipe leading from said boiler and connected to another chamber, a pipe connecting the two said chambers together, and suitable valves whereby one of the said chambers may be filled with air and compressed by the admission of water therein, for feeding the compound contained within the other chamber into the boiler, substantially as set forth.

3. A boiler-compound feeder, consisting of a tank, a rigid diaphragm dividing said tank into two chambers, a pipe extending from near the top of one of the chambers through said diaphragm, and a pipe connecting each chamber to the boiler, substantially as set forth.

640,307. TOOL FOR ATTACHING STAYS TO WIRE FENCES. WILLIAM H. JOHNSON, Veedersburg, and STEPHEN D. FRY, Attica, Ind., assignors, by mesne assignments, of one-third to Alfred F. Johnson, Veedersburg, Ind. Original application filed Mar. 1, 1897, Serial No. 626,595. Divided and this application filed Feb. 27, 1899. Serial No. 706,964. (No model.)



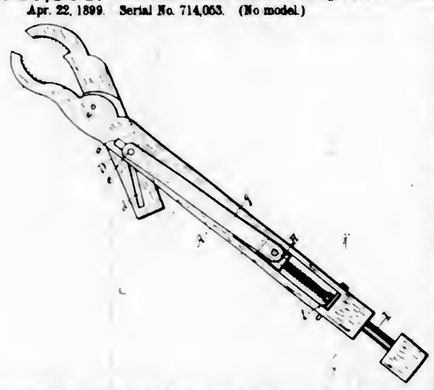
Claim.—1. A tool for attaching corrugated stays having a flattened end to wire fences, consisting of a member arranged to engage the stay on its concave side, and a second member arranged to support the stay upon the convex side, upon both sides of the first member, and means carried by said first member for engaging the end of the stay and forcing it beneath the fence-wire, the arrangement being such that the flattened end of the stay is corrugated and the inclosed portion of the fence-wire kinked.

2. A tool for attaching stays to wire fences, consisting of a pair of fingers adapted to engage the stay upon one side, a finger mounted between said pair of fingers and adapted to engage the stay upon the opposite side, and a cutter carried by said finger and adapted to force a lip beneath the runner.

3. A tool for attaching stays to wire fences, consisting of a pair of fingers adapted to engage the stay upon one side, a finger mounted between said pair of fingers and adapted to engage the stay upon the opposite side, and means carried by said finger for forming a lip or lug upon the stay in position to engage the fence-wire.

4. A tool for attaching stays to wire fences, consisting of a pair of fingers adapted to engage the stay upon one side, a finger mounted between said pair of fingers and adapted to engage the stay upon the opposite side, a groove formed in the face of said finger, and a cutter also carried by said finger in position to form a lip or lug on the stay in position to engage the fence-wire.

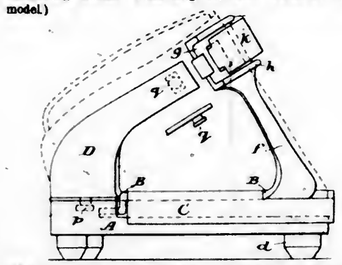
640,308. WRENCH. HENRY E. KOCH, Hartington, Nebr. Filed Apr. 22, 1899. Serial No. 714,053. (No model.)



Claim.—1. A wrench having one fixed jaw, and one jaw pivoted to its body, a longitudinal slot in the wrench-body and a similar slot in the lever of the movable jaw, a cross-pin movable in said slots, links connecting said pin to a block and a vertically-movable rod to operate said block for purposes specified.

2. A wrench having a jaw fixed on its body, a jaw pivoted to said body, a longitudinal slot in said body and a similar slot in the lever of said pivoted jaw a cross-pin engaging said slots and linked to a vertically-movable and threaded block, a threaded rod to engage said block and a detachable cross-pin to engage a groove in said rod substantially as herein set forth.

640,309. NAILLESS HORSESHOE. WLADIMIR KONDAKOV, St. Petersburg, Russia. Filed Aug. 10, 1899. Serial No. 726,778. (No model.)



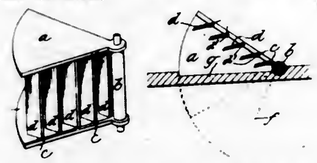
Claim.—1. A nailless horseshoe comprising a shoe-plate, heel-plates detachably connected therewith, independent toe-plates carried at the front of said shoe-plate and having transverse channels at their upper ends, and a fastening-band connecting the extremities of the heel-plates and resting in said channels, substantially as described.

2. A nailless horseshoe comprising a shoe-plate, heel-plates detachably connected therewith, independent toe-plates carried at the front of said shoe-plate and having transverse channels at their upper ends, and a fastening-band connecting the extremities of the heel-plates and resting in said channels, and a spring interposed between said band and channels, substantially as described.

3. In a nailless horseshoe, a shoe-plate comprising a base-plate A, a top plate having horizontally-extended tongues at its rear ends engaging corresponding grooves or recesses in the rear ends of the bottom plate, elastic material interposed between said plates, means for connecting the forward portions of said plates together, and means for securing the shoe-plate to the hoof, substantially as described.

4. In a nailless horseshoe, a shoe-plate comprising a base-plate A, a top plate having tongues at its rear ends engaging corresponding grooves or recesses in the rear ends of the bottom plate, elastic material interposed between said plates, said elastic material having upwardly and downwardly extending flanges, overlapping said upper and lower plates on each side, means for connecting the forward portions of said plates together, and means for securing the shoe-plate to the hoof, substantially as described.

640,310. PROPELLER FOR SHIPS. STEFAN VON KVASSAY, Papa-Kettornyalak, Austria-Hungary. Filed Oct. 13, 1899. Serial No. 733,533. (No model.)

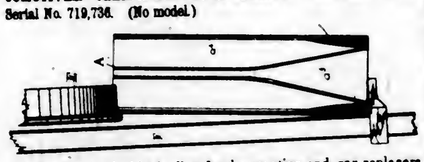


Claim.—1. The combination with a vessel, of fin-like propellers comprising sector-shaped plates and flaps pivoted along the outer edges thereof to overlap when parallel with said edges, means limiting the inward swing of the flaps, said propellers pivoted to the ship's side, and suitable recesses therein for the reception of the plates and flaps when the propeller is in a normal or non-operative position, for the purpose set forth.

2. The combination with a vessel, of fin-like propellers comprising sector-shaped plates secured to vertical axial journals revoluble in bearings on the vessel's side, vertical flaps pivoted between the plates along their outer edges to overlap when parallel with said edges, means limiting the inward swing of the flaps, and means in the ship's side for the reception of the plates and flaps when the propeller is in a normal or non-operative position, said propellers arranged symmetrically in pairs on opposite sides of the vessel, for the purpose set forth.

3. The combination with a vessel, of fin-like propellers comprising sector-shaped plates secured to vertical axial journals revoluble in bearings on the vessel's side, vertical flaps pivoted between the plates along their outer edges to overlap when parallel with said edges, means limiting the inward swing of the flaps, and recesses in the vessel's side for the reception of the plates and flaps when the propeller is in a normal or non-operative position, said propellers arranged symmetrically in pairs on opposite sides of the vessel; in combination with similar propellers operating to propel the vessel backwardly, for the purpose set forth.

640,311. DEVICE FOR REPLACING DERAILED CARS OR LOCOMOTIVES. JAMES B. NEWTON, Springfield, Ill. Filed June 7, 1899. Serial No. 719,736. (No model.)

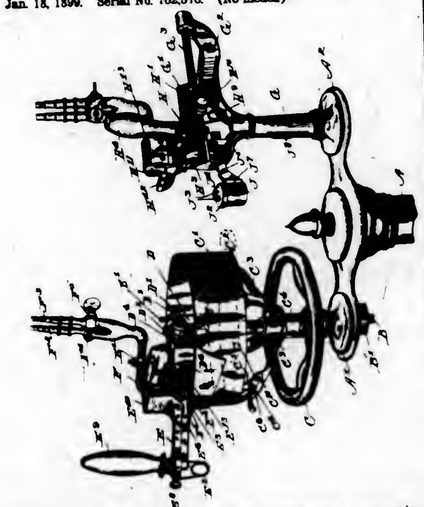


Claim.—1. An inside incline for locomotive and car replacers, consisting of a block broadened at its base and having upwardly-inclined flangeways, separated by a rib broadening for about one-third of the length of the block and curving convexly downward at its upper extremity and merging into the side walls of the block, and traction-surfaces contiguous to said flangeways and at their upper ends curving convexly downward and merging into said flangeways.

2. An outside inclined block for locomotive and car replacers consisting of a block having continuous side walls also having traction-surfaces inclining laterally and upwardly and curving convexly downward near their upper extremities and merging into the side walls of said block, also having a rib separating said traction-surfaces and broadening upwardly from about the middle of the block and curving convexly downward near its upper extremity and merging into the convex part of said traction-surfaces as set forth.

3. In a locomotive and car replacer the combination an inside incline block substantially of the form described and having at its upper end holes, an outside incline block having traction-surfaces, flangeways and an expanding-rib separating said flangeways, also having holes in one end thereof and connecting devices having hooks adapted to hook under and around the head of a rail and having pins fitting in the holes in said inside incline block and outside incline block respectively, as set forth.

640,312. IRONING-MACHINE. ERIK NORRE, Beloit, Wis. Filed Jan. 18, 1899. Serial No. 702,570. (No model.)



Claim.—1. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, and a two part grooved iron, one of the parts of which iron has a yielding movement to and from the ironing-bed.

2. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, an ironing-arm, and a two-part grooved iron, one part of which iron is fixed to the arm and the other has a yielding movement to and from the ironing-bed.

3. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, a two-part grooved iron, one of the parts of which iron has a yielding movement to and from the ironing-bed, and a combustion-chamber adjacent to said two-part grooved iron.

4. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, an ironing-arm, a two-part grooved iron, one part of which iron is fixed to the arm and the other has a yielding movement to and from the ironing-bed, and a spring for the last-mentioned part of the iron.

5. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, an ironing-arm, a two-part grooved iron, one part of which iron is fixed to the arm and the other has a longitudinally-elongated opening, means for attaching the last-mentioned part of the iron to the arm, whereby it has a yielding movement to and from the ironing-bed, and a spring for the movable member of the iron.

6. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, an iron for the bed, and a clamp for holding the fabric on the bed, which clamp comprises a pivoted clamping-arm having an elongated opening therein, a pivoted cam-lever, and a stud on said cam-lever for engaging the elongated opening in the clamping-arm.

7. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, a two-part grooved iron one of the parts of which iron has a yielding movement to and from the ironing-bed, and means for holding the fabric on the ironing-bed.

8. In an ironing-machine, in combination, a supporting-frame, an ironing-bed, a two-part grooved iron one of the parts of which iron has a yielding movement to and from the ironing-bed, and a clamp for holding the fabric on the bed, which clamp comprises a pivoted clamping-arm having an elongated opening therein, a pivoted cam-lever, and a stud on said cam-lever for engaging the elongated opening in the clamping-arm.

9. In an ironing-machine, in combination, a supporting-frame, a circular ironing-bed, a pivoted ironing-arm, a two-part iron on said arm, one of which parts has a yielding movement to and from the bed.

10. In an ironing-machine, in combination, a supporting-frame, a circular rotatable ironing-bed, a pivoted ironing-arm, a two-part grooved iron on said arm, one of which parts is fixed in its connection with the said arm, and the other has a yielding movement to and from the ironing-bed, and a spring for said last-mentioned part of the iron.

11. In an ironing-machine, in combination, a supporting-frame, a spindle thereon, a circular ironing-bed rotatably mounted on said spindle, an ironing-arm pivotally mounted on the spindle, a two-part iron on said ironing-arm, one of which parts is fixed in its connection with the arm and the other has a yielding movement to and from the ironing-bed.

12. In an ironing-machine, in combination, a supporting-frame, a spindle thereon, a circular ironing-bed rotatably mounted on said spindle, supporting-arms for said ironing-bed, a clamping-arm for engaging fabric on the ironing-bed, pivotally mounted on one of said supporting-arms, which clamping-arm has an elongated opening near one of its ends, a cam-lever pivoted to said supporting-arm and having a stud eccentric with respect to the pivot of said cam-lever, which stud is adapted to engage the elongated opening of the clamping-arm, and an ironing-arm also pivotally mounted on the said spindle.

13. In an ironing-machine, in combination, a supporting-frame, a spindle thereon, a circular ironing-bed rotatably mounted on said spindle, a hand-wheel for rotating the bed, an ironing-arm pivotally mounted on the spindle, a two-part iron on said ironing-arm, one of which parts is formed integrally with said arm and the other has a yielding movement to and from the ironing-bed, a spring for the last-mentioned part of said iron, and a combustion-chamber adjacent to the iron.

14. In an ironing-machine, in combination, a supporting-frame, a spindle thereon, a circular ironing-bed rotatably mounted on said spindle, a hand-wheel for turning the ironing-bed, a yoke pivotally mounted on the spindle, a tilting block pivotally mounted between the arms of the yoke, an ironing-arm having a sliding engagement with said tilting block, a two part grooved iron, a combustion-chamber on the ironing-arm, adjacent to the iron, and a burner in the chamber.

15. In an ironing-machine, in combination, a supporting-frame, a spindle thereon, a circular ironing-bed rotatably mounted on said spindle, a yoke pivotally mounted on the spindle, a tilting block pivotally mounted between the arms of the yoke, an ironing-arm having a sliding engagement with said tilting block, a spring in said yoke, a connection between the spring and the ironing-arm, a combustion-chamber on said ironing-arm, and a burner in the combustion-chamber.

640,318. BOLSTER. RICHARD W. OSWALD, Bloomsburg, Pa., assignor of one-half to Edward B. Tustin, same place. Filed Apr. 15, 1899. Serial No. 713,160. (No model.)



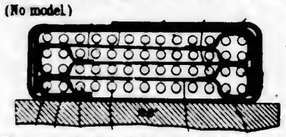
Claim.—1. A bolster comprising a body portion formed of a channel-shaped plate having its bottom cut at the ends and bent so as to be beveled upwardly underneath, substantially as described.

2. A bolster formed of plate metal bent to produce a channel-beam, the bottom of the said beam or plate being cut at the ends, the cut edges thus formed being brought together to produce the proper taper of the bolster, the construction being such that the metal in the sides of the bolster is undisturbed and therefore not weakened, substantially as described.

3. A bolster comprising a body portion formed of a channel-shaped plate, the bottom of the said bolster being cut at the ends and bent so as to be beveled upwardly, the cut bent ends being arranged with their edges together, substantially as described.

4. A bolster comprising a body portion formed of a channel-shaped plate, the ends of the bottom portion of the said plate having their central parts displaced so that the side portions of the bottom may be bent upwardly and brought together at the ends of the bolster to produce the proper taper of the same, substantially as described.

640,314. ELECTRIC TRANSFORMER. JAMES W. PACKARD and HENRY W. WISWELL, Warren, Ohio. Filed June 23, 1898. Serial No. 684,228. (No model.)



Claim.—The method of winding and insulating consisting in laying a layer of insulating material over a layer of wire prior to putting on the last turns thereof, said insulating material projecting beyond the core, then finishing the winding of the ayer and beginning the succeeding layer, then folding in the projecting end of the sheet upon the body thereof to surround the end turns of wire, then confining said projecting end by succeeding turns of wire of the second layer and in like manner insulating and securing the succeeding layers, whereby the layers of winding are separated and the tarns of wire at the ends of the winding are securely inclosed and held, substantially as described.

640,315. COMBINED BOOK PACKING AND SHIPPING CASE. HOYT P. PARMELEE, Chicago, Ill. Filed Jan. 16, 1899. Serial No. 702,378. (No model.)



Claim.—1. A packing and shipping case for books, comprising sections hinged together and adapted to be closed upon each other and locked, a casing separate from and independent of said sections, and adapted to be removably received within each section, each casing being subdivided into a series of compartments adapted to receive the books to be packed and shipped, as and for the purpose set forth.

2. A packing and shipping case for books, comprising sections hinged or pivoted together to be closed upon each other and locked, a casing for each section, each casing being separate from and independent of the section in which it is removably received, one or more shelves arranged within each casing to divide the same longitudinally into spaces, and transverse partitions arranged to subdivide said spaces into separate compartments or pockets to receive the books, as and for the purpose set forth.

3. A packing and shipping case for books, comprising sections hinged or pivoted together to be closed upon each other and locked, a casing for each section, each casing being separate from and independent of the section in which it is removably received, one or more shelves arranged longitudinally within each casing, said shelves provided with a series of transverse grooves, and transverse partitions removably received in said grooves, whereby said casings are divided into separate compartments or pockets adjustable in area and adapted to receive the books to be packed and shipped, as and for the purpose set forth.

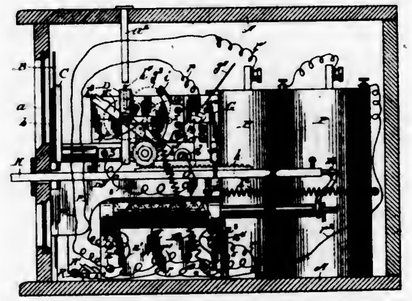
4. A packing and shipping case for books, comprising sections hinged or pivoted together and adapted to be closed upon each other and locked, a casing for each section, each casing being separate from and independent of the section in which it is removably received, and containing a series of separate compartments adapted to receive the books to be packed and shipped, and a cushion-lining interposed between each section and the removable casing arranged therein, as and for the purpose set forth.

5. A packing and shipping case for books, comprising hinged sections, a separate and independent casing mounted in each section, and each having compartments adapted to receive the books, and a removable middle board arranged to be received between the meeting surfaces of said sections to protect the edges of the books contained in one section from contact with the edges of those contained in the other section when said sections are closed, said middle board provided with a pocket or chamber between the walls thereof, as and for the purpose set forth.

6. A packing and shipping case for books, comprising hinged sections, each having compartments adapted to receive the books to be packed and shipped, in combination with a middle board adapted to be received between the meeting surfaces of said sections to protect the edges of the books contained in one section from contact with the edges of those contained in the other section when said sections are closed, said middle board comprising a frame having sheets or plates secured thereto, said frame and side sheets or plates being cut away in one corner, thereby forming a recess or pocket between said plates or sheets, and chains connecting one edge of said board to one of said sections, as and for the purpose set forth.

7. A packing and shipping case for books, comprising hinged sections adapted to be closed together and locked, each section having compartments adapted to receive the books, in combination with a removable middle board or diaphragm arranged to be received between the meeting surfaces of said sections, said middle board serving to protect the meeting edges of the books contained in one section from contact with the edges of those contained in another section, when said sections are closed, said middle board having one of the corners thereof cut away, as and for the purpose set forth

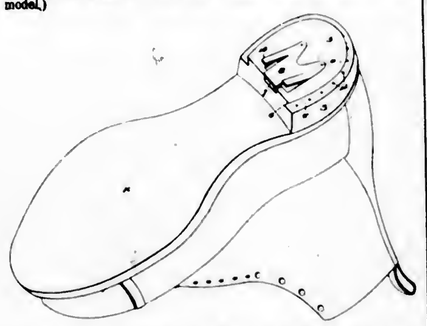
640,316. COIN-CONTROLLED ELECTRICAL APPARATUS. JOHN PATTERSON, Chicago, Ill. Filed June 2, 1899. Serial No. 719,068. (No model.)



Claim.—The combination with the case, of an induction-coil and circuit-breaker therein, grips or handpieces on the casing and adapted to be brought into circuit with such coil, a clock mechanism located within the casing, a contact-plate secured near the clock mechanism, and having its upper end deflected, a piece fixed on the driving-shaft of the clock mechanism, and carrying a spring to contact with said

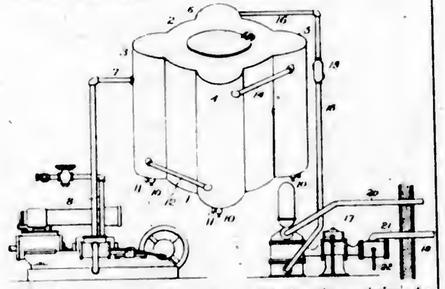
plate, a coin-holder journaled on the casing, a crank on the shaft of the holder, a guide leading from the exterior of the casing to the coin-holder, a spring-actuated roll movably connected with the core of the coil and an indicating-dial whose hand is operatively connected with said core, substantially as described.

640,317. ATTACHMENT FOR BOOTS OR SHOES. DAVID W. PERRY, Pittsburg, Pa. Filed Feb. 7, 1899. Serial No. 704,778. (No model.)



Claim.—In combination with the heel of a shoe having a dovetail groove around its outer edge, said heel being provided on its under face with a recess, a lift provided with a ridge adapted to engage in said dovetail groove, said lift having an inclined recess on its upper face, a metal strip secured to the lift adjacent to said inclined recess, and a spring-metal fastening-plate secured to the under face of said heel and having a projection adapted to abut against the metal strip to lock the lift in position, substantially as described.

640,318. APPARATUS FOR DRYING AIR. ALFRED T. PERKINS, Chicago, Ill. Filed Oct. 13, 1896. Renewed Nov. 21, 1899. Serial No. 737,820. (No model.)



Claim.—1. A battery for cooling and drying air, consisting of a main chamber for containing ice, a series of independent closed air-spaces adjacent the periphery of the chamber and pipes connecting the air-spaces alternately at their tops and bottoms, substantially as and for the purpose described.

2. A battery for cooling air and for precipitating the moisture contained therein, consisting of a chamber for containing ice or other cooling agent, a series of closed air-receptacles communicating one with the other on the outside of said chamber, and means for admitting air to one of said receptacles, substantially as described.

3. A battery for cooling air and for precipitating the moisture contained therein, consisting of a chamber for containing ice or other cooling agent, a series of closed air-receptacles connected to said chamber, means for admitting air to one of said receptacles, and connections between the adjacent pairs of receptacles, substantially as described.

4. A battery for cooling air and for precipitating the moisture contained therein, consisting of a cylindrical chamber for containing ice or other cooling agent, a plurality of air-receptacles connected to the outside of said chamber, means for admitting air to one of said receptacles, and pipes connecting the adjacent pairs of receptacles arranged alternately at the upper and lower ends thereof, substantially as and for the purpose described.

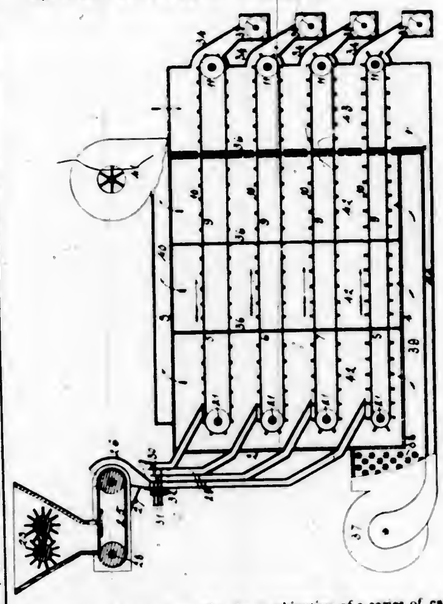
5. A battery for cooling air and for precipitating the moisture contained therein, consisting of a cylindrical chamber for containing ice or other cooling agent, a plurality of air-receptacles connected to the outside of said chamber, means for admitting air in a finely-divided condition to one of said receptacles, and pipes connecting the adjacent pairs of receptacles arranged alternately at the upper and lower ends thereof, substantially as and for the purpose described.

6. A battery for cooling air and for precipitating the moisture contained therein, consisting of a cylindrical chamber for containing ice or other cooling agent, a plurality of closed air-receptacles secured to the outside of said chamber, means for admitting air to one of said receptacles, connections between the adjacent pairs of said receptacles, and valved drip-pipes in the lower ends of each of said receptacles for drawing off the water of condensation.

7. A battery for cooling air and for precipitating the moisture contained therein, consisting of a cylindrical chamber for containing ice or other cooling agent, a plurality of closed air-receptacles on the outside of said chamber, a supply-pipe for air entering one of said receptacles, a screen in said pipe for breaking up the air into fine particles and admitting it in the form of a spray into said receptacle, pipes connecting the adjacent pairs of said receptacles, and screens in said pipes, substantially as and for the purpose described.

8. A battery for cooling air and for precipitating the moisture contained therein, consisting of a cylindrical chamber for containing ice or other cooling agent, a plurality of closed air-receptacles on the outside of said chamber, a supply-pipe for air entering one of said receptacles, a screen in said pipe for breaking up the air into fine particles and admitting it in the form of a spray into said receptacle, pipes connecting the adjacent pairs of said receptacles arranged alternately at the upper and lower ends thereof, screens in said pipes, and valved drip-pipes in the lower ends of said receptacles for drawing off the water of condensation, substantially as and for the purpose described.

640,319. DRYING-KILN. FRANK G. PERKINS, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,770. (No model.)



Claim.—1. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers and a single feeding device to the inlets.

2. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, a series of discharge-outlets from the carriers and a single feeding device to the inlets.

3. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, a feeding device to the inlets and a distributer located between the feeding device and inlets.

4. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, a feeding device to the inlets and an oscillatory distributer between the feeding device and inlets.

5. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, and a distributer adapted to distribute the material between the supply-inlets.

6. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, and a distributer for the inlets, so constructed and arranged that the amount of material fed to each inlet can be varied and adjusted.

7. In a drying-kiln, the combination of a series of carriers, a series of supply-inlets to the carriers, provided with adjustable openings and a distributer adapted to distribute the material between the supply-inlets.

8. In a drying-kiln, the combination of a series of carriers adapted to be moved at different rates of speed, and a series of supply-inlets to the carriers, substantially as set forth.

9. In a drying-kiln, the combination of a series of carriers adapted to be moved at different rates of speed, and a series of supply-inlets to the carriers, and a distributer adapted to distribute the material between the supply-inlets, substantially as set forth.

10. In a drying-kiln, the combination of a series of carriers adapted to be moved at different rates of speed, and a series of supply-inlets to the carriers, and a distributer adapted to distribute the material between the supply-inlets, so constructed and arranged that the amount of material fed to each inlet can be varied and adjusted, substantially as set forth.

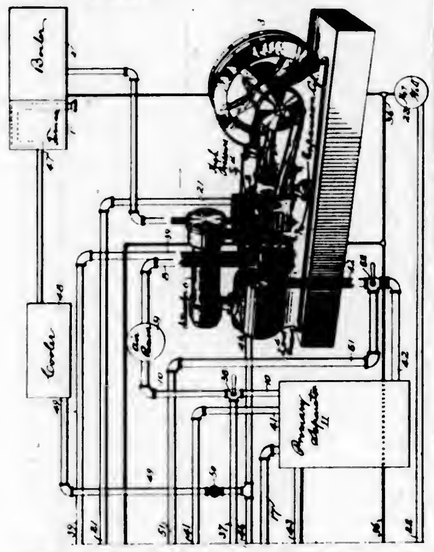
11. In a drying-kiln, the combination of a series of superimposed carriers, cleats on the carriers, the cleats on the lowest carrier being the highest, and those of the upper carriers diminishing in height, and a series of supply-inlets to the carriers, substantially as set forth.

12. In a drying-kiln, the combination of a series of superimposed carriers, cleats on the carriers, the cleats on the lowest carrier being the highest, and those of the upper carriers diminishing in height, and a series of adjustable supply-inlets to the carriers, and a distributer adapted to distribute the material between the supply-inlets, substantially as set forth.

13. In a drying-kiln, the combination of a series of carriers provided with cleats 10, the inlet-spouts 29, provided with adjustable sections 30, the feed-apron 25, the oscillating distributer 26, the outlet-passages 34, and means for forcing heated air against the carriers, substantially as set forth.

14. In a drying-kiln, the combination of a series of carriers, rollers 11, supporting the carriers, the worm-wheel 12, attached to one of the rollers, the worm 13, the shaft 15, the pulleys 16, and 17, the driving-shaft 18, the inlet-spouts 29, provided with adjustable sections 30, the feed-apron 25, the distributer 26, the outlet-passages 34, and means for forcing heated air against the carriers, substantially as set forth.

640,320. SYSTEM FOR STERILIZING, DRYING, AND COOLING AIR. ALFRED T. PERKINS, Chicago, Ill., and FREDERICK C. WEBER, New York, N. Y. Filed Dec. 5, 1898. Renewed Nov. 21, 1899. Serial No. 737,822. (No model.)



Claim.—1. The combination with an apparatus for sterilizing air, a compression-cylinder and an expansion-cylinder for the air, and a storage or preserving chamber; of a separator and a cooler, each consisting of coils or pipes in one circuit located within a casing which is in another circuit, and a circuit for the hot sterilized air from the compression-cylinder through the pipes of the separator and the coils of the cooler, thence to the expansion-cylinder, thence again through the separator and cooler but outside their pipes and coils, and thence into said chamber, as and for the purpose set forth.

2. In a refrigerating apparatus, the combination with means for sterilizing air, a compression-cylinder and an expansion-cylinder for the air, and a storage or preserving chamber; of two separators and a reheater between them, each consisting of coils or pipes in one circuit located within a casing which is in another circuit, and a circuit for the sterilized air from the compression-cylinder through the pipes of the separators and the coil-pipe of the reheater, thence to the expansion-cylinder, thence again through the separators and reheater but outside their said pipes and coils, and thence into said chamber, as and for the purpose set forth.

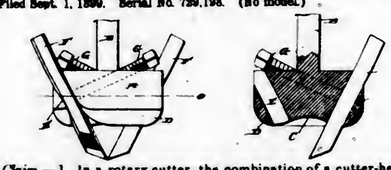
3. In a refrigerating apparatus, the combination with means for sterilizing and heating air, a compression-cylinder for the air, and a storage or preserving chamber; of two separators and a reheater between them, each consisting of coils or pipes in one circuit located within a casing which is in another circuit, a cooler, and a circuit for the hot sterilized air from the compression-cylinder through the pipes of the separators and the coils of the reheater and cooler, thence again through the separators, reheater, and cooler but outside their said pipes and coils, and finally into said chamber, as and for the purpose set forth.

4. In a refrigerating apparatus, the combination with compression and expansion cylinders for the air, a closed storage or preserving chamber, and an exhaust from said chamber to the compression-cylinder; of a cooler, a plurality of separators and a reheater between each two separators, each consisting of coils or pipes in one circuit located within a casing which is in another circuit, and a circuit for the air from the compression-cylinder first through the coil of the cooler, thence through the pipes of the separators and intermediately through the coil-pipe of the reheater, thence to the expansion-cylinder, thence again through the separators only but outside their pipes, and finally into said chamber, as and for the purpose set forth.

5. The combination with apparatus for sterilizing air, a compression-cylinder and an expansion-cylinder for the air, a conduit leading from said sterilizing apparatus to said compression-cylinder, and a storage or preserving compartment, of a moisture-separator, a pipe leading from said compression-cylinder to said separator, means for cooling said separator by cold expanded air from said expansion-cylinder, suitable connections between said separator and said chamber and between said chamber and said compression-cylinder whereby dry sterilized air may be supplied to said storage-chamber at a normal temperature, and means whereby air at a refrigerating temperature may be supplied thereto.

6. The combination with apparatus for sterilizing air, a compression-cylinder and an expansion-cylinder for the air, and a storage or preserving compartment, of a primary separator, a pipe leading from said compression-cylinder to said primary separator for conveying the air under pressure at a high temperature thereto, a pipe leading from said expansion-cylinder to said primary separator, a reheater communicating with said primary separator, a supplementary separator communicating with said reheater, a cooler communicating with said supplementary separator, a pipe connecting said cooler with the pipe leading from said compression-cylinder to said primary separator, a three-way cock at the meeting-point of said pipes, a pipe also leading from said cooler to said expansion-cylinder, a pipe leading from said primary separator to said supplementary separator for the air from said expansion-cylinder, a pipe leading from said supplementary separator to said storage-chamber, a pipe leading from said storage-chamber to said compression-cylinder communicating with the pipe leading from said sterilizing apparatus, a pipe leading from said chamber to the pipe leading from said expansion-cylinder, and a three-way cock therein, substantially as and for the purpose described.

640,321. ROTARY CUTTER. GEORGE L. PROBST, Pomeroy, Ohio. Filed Sept. 1, 1899. Serial No. 729,198. (No model.)



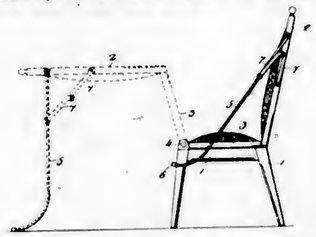
Claim.—1. In a rotary cutter, the combination of a cutter-head having a central depression in its face, and also having downwardly

and inwardly extending grooves in its side, and bits adjustably secured in the grooves of the head and having their points arranged below the depression in said head, substantially as specified.

2. In a rotary cutter, the combination of a cutter-head having grooves of dovetail form in cross-section in its periphery at opposite points; said grooves extending downwardly and inwardly from its upper to its lower side, bits of dovetail form in cross-section arranged in the grooves, and binding-screws arranged in the head and bearing against the bits, substantially as specified.

3. In a rotary cutter, the combination of a cutter-head having a central depression in its face, and also having grooves of dovetail form in cross-section in its periphery at opposite points; said grooves extending downwardly and inwardly from its upper to its lower side, bits of dovetail form in cross-section arranged in the grooves and having their meeting-points arranged below the center of the depression in the head, and binding-screws arranged in the head and bearing against the bits, substantially as specified.

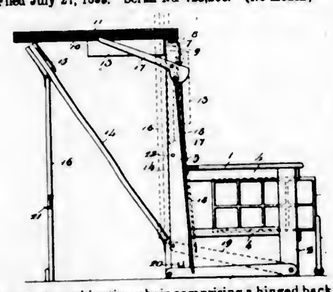
640,322. COMBINATION-CHAIR. YUBIE W. ROGERS, St. Louis, Mo. Filed Sept. 2, 1899. Serial No. 729,371. (No model.)



Claim.—1. A combination-chair, comprising a suitable seat, a movable back, arms forming a rigid part of the latter, the free ends of which are movably secured to the upper front corners of the seat, the lower edges of said arms being adapted to rest upon said seat, and a suitable support, the upper ends of which are movably attached to said back, and forming arm-rests for the chair, the forward ends of said support adapted to be brought in contact with the floor or other surface when the back is turned in a position for elevating the same when used as a desk or table, as and for the purpose described.

2. A combination-chair comprising a suitable seat, a cushion for the same, a back movably secured to the seat, arms forming a rigid part of said back, the lower edges of which are adapted to rest upon the upper surface of said seat on either side of the cushion, lugs secured to the upper forward corners of the seat, to which the free ends of the arms are movably secured, a U-shaped support, the free ends of which are movably secured to the opposite sides of the back, adjacent to the upper end thereof, the horizontal portion of which is adapted to coöperate with the front portion of the chair below the seat thereof, whereby arm-rests are formed, the said support adapted to coöperate with the floor or other surface when the back is brought forward and elevated to form a desk or table, and suitable means for holding said support in its proper position when the lower ends thereof, are brought in contact with the floor or other surface, as and for the purpose described.

640,323. COMBINATION-CHAIR. YUBIE W. ROGERS, St. Louis, Mo. Filed July 27, 1899. Serial No. 725,268. (No model.)

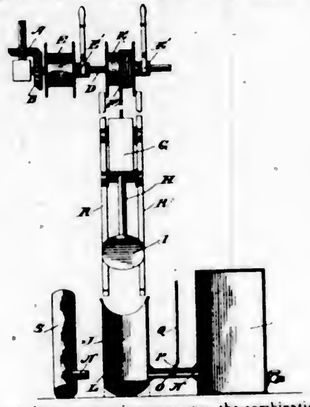


Claim.—1. A combination-chair comprising a hinged back, leaves hinged to the opposite edges of the said back, and adapted to fold against the latter, means for supporting the said back in a horizontal position, and a separate device adapted to coöperate with each one of the said leaves for inclining the same, as and for the purpose described.

2. A combination-chair comprising a hinged back, leaves hinged to the opposite edges of said back, and adapted to fold against the latter, means for supporting the back in a substantially horizontal position, an arm pivoted to the rear legs, the free end of which is adapted to coöperate with one of said leaves, a rod, one end of which is movably secured to the short end of the said arm, a lever, one end of which is movably secured to the chair proper, and to which the opposite end of said rod is movably attached, and means for holding the said lever in a locked position, whereby the said arm is held in an elevated position for holding its appropriate leaf in an inclined position, as and for the purpose described.

3. A combination-chair comprising a hinged back, leaves hinged to the opposite edges of said back, a support or frame, the lower end of which is hinged to the rear legs adjacent to the lower ends thereof, a transverse piece secured to said frame upon which the back is adapted to rest when in an elevated position, a second frame hinged to the first-named frame, adjacent to the upper end of the same, both of said frames being adapted to fold against the rear portion of said chair, and means for holding either one of said leaves of the back in an inclined position, as and for the purpose described.

640,324. FLUID-COMPRESSOR. JAMES B. SAMPLE, Columbus, Ga. Filed Feb. 16, 1899. Serial No. 706,682. (No model.)



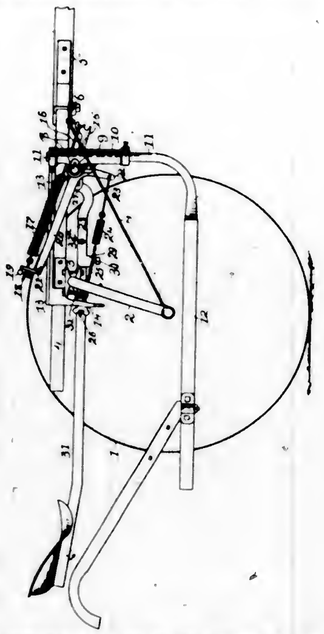
Claim.—1. In a compressing apparatus, the combination with a compressing chamber or cylinder having suitable inlet and outlet valves and an open upper end, of a freely-moving piston, a track or way for guiding the piston to the cylinder, means for elevating the piston out from and beyond the cylinder, means for releasing the piston so that it will fall of its own weight into the compressing-cylinder, a storage-tank communicating with the cylinder and a regulating-valve in the communicating passage, substantially as described.

2. In a compressing apparatus, the combination with a compressing cylinder or receptacle having an open upper end, of a storage-chamber, an inlet-valve to the cylinder, a regulating-valve in the connection and a connection between the storage-chamber and cylinder, a track or way leading to the cylinder, a weighted piston arranged in line with the cylinder and guided by the track or way, adapted to be moved into and out from the cylinder, means for elevating the piston out from and beyond the cylinder and means for releasing the piston so that it will descend by gravity, substantially as described.

3. In a compressing apparatus, the combination with a cylinder having an open upper end and a valve-inlet, a storage-tank having a connection with the cylinder, a regulating-valve in connection, the track or way in line with the upper end of the cylinder and extending upward from the cylinder, a weighted car on the track having a piston-rod at its lower end and a piston-head at the lower end of the piston-rod arranged in line with the cylinder and adapted to enter the same, means for elevating the car and moving the piston-head out from and a distance above the open end of the cylinder and means for releasing the car so as to allow the same to descend by gravity, substantially as described.

640,325. CULTIVATOR. MARSHALL SATTLEY and ARCHIBALD SATTLEY, Springfield, Ill., assignors to the Sattley Manufacturing Company, same place. Filed Oct. 23, 1899. Serial No. 734,489. (No model.)

Claim.—1. The combination in a convertible cultivator of a wheel-supported frame, a cross-shaft mounted slidably on the frame, cultivator-beams swung from the extended ends of the cross-shaft, links connected with the cross-shaft and bars pivoted on the axle of the frame and joined to the links, substantially as described.



2. The combination in a convertible cultivator of a wheel-supported frame, a cross-shaft mounted slidably on the frame, cultivator-beams swung from the extended ends of the cross-shaft, links connected with the cross-shaft and seat-bars pivoted on the frame and connected with the links rule-joint fashion, substantially as described.

3. The combination in a convertible cultivator of a wheel-supported frame, a cross-shaft mounted slidably on the frame with its ends extended beyond the sides thereof, sleeves mounted loosely on the extended ends of the shaft, vertical sleeves fastened on the sleeves on the ends of the cross-shaft and cultivator-beams having upturned ends journaled in the vertical sleeves, substantially as described.

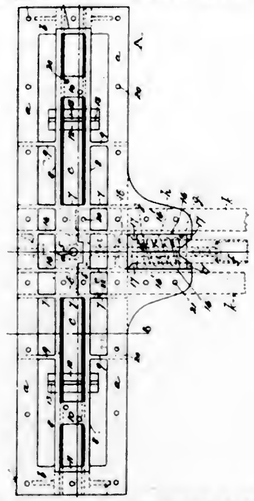
4. The combination in a convertible cultivator of a wheel-supported frame having parallel side bars, slides on the side bars, a cross-shaft connected with the forward ends of the slides and extending beyond the side bars, sleeves mounted loosely on the ends of the cross-shaft, vertical sleeves fastened to the sleeves on the ends of the cross-shaft, cultivator-beams having upturned ends journaled in the vertical sleeves; arms fastened to the sleeves on the ends of the cross-shaft, such arms having bell-crank extensions, lift-springs connected with the swinging ends of the arms and with relatively stationary extensions near the pivots of the arms and cushion-springs connected with the bell-crank extensions of the arms and with extensions of the slides in the rear of the axle of the supporting-frame, substantially as described.

5. The combination in a cultivator of a supporting-frame, a cross-shaft having its ends extended beyond the sides of the frame, cultivator-beams pivotally mounted on the extensions of the cross-shaft, bell-crank rock-arms pivoted on the extensions of the shaft and partaking of the rocking motion of the beams, lift-springs connected with each of the principal members of the bell-crank rock-arms and with relatively stationary extensions near the pivots of the arms and cushion-springs connected with the secondary members of the bell-crank rock-arms, substantially as described.

640,326. PRODUCTION OF INCANDESCENT MANTLES. WILLY SAULMANN, Berlin, Germany. Filed Feb. 23, 1897. Serial No. 624,712. (No specimens.)

Claim.—The process substantially as herein described, of producing incandescent bodies for illuminating purposes, consisting in impregnating a combustible substance with a solution of thorium salt, and also with a solution of a compound of cerium or equivalent incandescing rare earth with a triatomic element such as arsenic, boron, antimony, chromium, and then burning out the combustible substance.

640,327. CAR BODY-BOLSTER. MORRIS B. SCHAFFER, St. Louis, Mo., assignor to the American Steel Body Double Bolster Company, same place. Filed Oct. 30, 1899. Serial No. 735,277. (No model.)



Claim.—1. A car body-bolster composed of side and end top plates united to each other and arranged together in the same horizontal plane, a beam or girder intermediate and parallel to the side top plates and united at its ends to the end top plates, the said girder consisting of two parallel vertical webs united to each other and alined at the top to the top of the said plates and having their under sides below the plane of the said plates, and the said girder having a central hole, and having the side bearings on its under side, and ribs uniting the said vertical webs respectively to the corresponding side top plate, all the said parts being integral throughout, substantially as described.

2. A car body-bolster composed of side and end top plates united to each other and arranged together in the same horizontal plane, a beam or girder intermediate and parallel to the side top plates and united at its ends to the end top plates, and having its under side below the plane of the said plates, the said girder having a central hole and having the center plate and the side bearings on its under side and ribs uniting the girder to the side top plates, two opposite and parallel vertical webs or walls projecting from one side of the girder and extending beyond the corresponding side top plate, the extended portions of the said webs or walls having opposite vertical lugs and forming therewith a draw-bar spring-pocket, all the said parts being integral throughout, substantially as described.

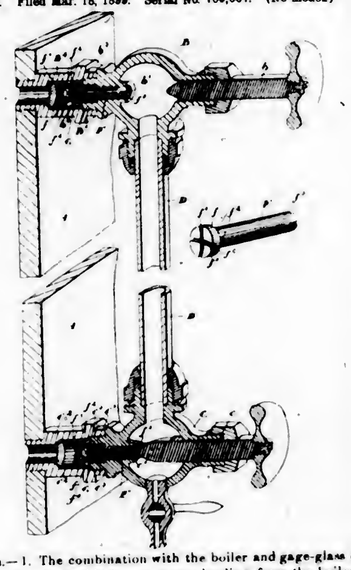
3. A car body-bolster composed of side and end top plates united to each other and arranged together in the same horizontal plane, a beam or girder intermediate and parallel to the side top plates and united at its ends to the end top plates and having its under side below the plane of the said plates, the said girder having a central hole and having the center plate and the side bearings on its under side and ribs uniting the girder to the side top plates, two opposite and parallel vertical webs or walls projecting from one side of the girder and extending beyond the corresponding side top plate, these extended portions of the said webs or walls having opposite vertical lugs and forming therewith a draw-bar spring-pocket, and the said webs or walls having external top flanges united to the said side top plate the top and under sides of the said flanges being alined to the corresponding sides of the said plate, all the said parts being integral throughout, substantially as described.

4. A car body-bolster composed of side and end top plates united to each other and arranged together in the same horizontal plane, a beam or girder intermediate and parallel to the side top plates and united at its ends to the end top plates and having its under side below the plane of the said plates, the said girder having a central hole and having the center plate and the side bearings on its under side, and ribs uniting the girder to the side top plates, two opposite and parallel vertical webs or walls projecting from one side of the girder and extending beyond the corresponding side top plate, the extended

portions of the said webs or walls having opposite vertical lugs, and the said webs or walls projecting from the other side of the girder having a vertical connecting-web, all the said parts being integral throughout, substantially as described.

5. A car body-bolster having a central hole and having the center plate and the side bearings on its under side, and having two opposite and parallel vertical webs or walls projecting from one side thereof, the said webs or walls having opposite vertical lugs, and forming therewith a draw-bar spring-pocket, all the said parts being integral throughout substantially as described.

640,328. **WATER-GAGE.** ALEXANDER L. SCHRAM, Woodstock Canada. Filed Mar. 18, 1899. Serial No. 709,667. (No model.)



Claim.—1. The combination with the boiler and gage-glass of a cock at each end of said glass, passages leading from the boiler to said glass through said cocks, valves located in said passages, each of said valves having an enlarged head with cross-slots in the face thereof, and a tubular stem having slotted ends, an inlet to said valve leading through said stem and valve-stems adapted to partly close said slotted stems, substantially as described.

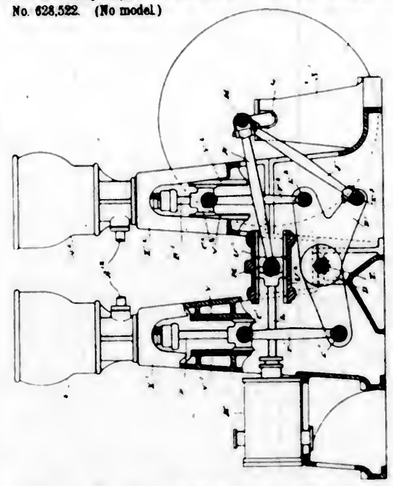
2. The combination with a boiler and gage-glass with a passage connecting the same, of a valve controlling said passage having an enlarged head with slots in the face thereof, and a tubular stem, passages leading through said stem, the end of said stem being slotted, substantially as described.

640,329. **WIRE-FENCING MACHINE.** GUSTAVE SCHULTZ, Litchfield, Minn. Filed Mar. 30, 1898. Serial No. 675,710. (No model.)



Claim.—In a wire-fencing machine, the combination with uprights having downwardly-inclined notches, latches Q slidably mounted above said notches having downwardly-projecting fingers Q' lying adjacent to the notches, a winding-drum mounted in the said notches and carrying ratchet-wheels having oppositely-disposed teeth, and weighted pawls mounted on the uprights above the notches and adapted to engage the above-mentioned ratchet-wheels, substantially as described.

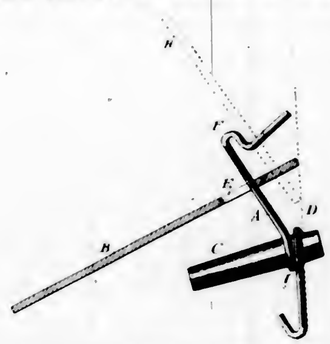
640,330. **GAS-PUMP FOR REFRIGERATING-MACHINES.** NORMAN SELFE, Sydney, New South Wales. Filed Mar. 20, 1897. Serial No. 628,522. (No model.)



Claim.—1. In a machine of the character indicated, the combination with a bed-plate, of a steam-engine mounted thereon, two parallel compression-cylinders supported thereon with their axes at right axles to the center line of the engine and in the same plane, and at points between the steam-cylinder and the engine-shaft, a rocking beam journaled at its middle on bearings placed below the center line of the engine, and having an arm extending downward at an angle to the beam, pistons in the compression-cylinders, pitmen connecting the compression-pistons respectively with the two ends of the beam, and a pitman connecting a crank on the engine-shaft with the arm on the beam; substantially as described.

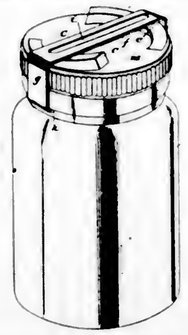
2. In a machine of the character indicated, the combination with a bed-plate, of a steam-engine mounted thereon, two parallel compression-cylinders supported thereon with their axes at right angles to the center line of the engine and in the same plane, and at points between the steam-cylinder and the engine-shaft, a rocking beam journaled at its middle on bearings placed below the center line of the engine, and having an arm extending downward at an angle to the beam, pistons in the compression-cylinders, double pitmen straddling the piston-rod and connecting-rod of the engine and connecting the compression-pistons respectively with the two ends of the beam, and pitmen connecting cranks on the engine-shaft at each side of the main crank with the arm on the beam, substantially as described.

640,331. **BUCKET AND LID HOLDER.** HENRY B. SHAW, Landgrove, Vt. Filed May 25, 1898. Serial No. 681,709. (No model.)



Claim.—A bucket and lid holder, consisting of a rod having a coil to embrace a sap-spout, a vertical lower part terminating in a hook, an upper part bent forward and then back to form two sides of a triangle, and a loop or kink projecting from the angle to produce a supporting-shoulder for the bucket-lid, all substantially as set forth.

640,332. **JAR-CLOSURE.** JOSEPH L. DE STEIGER and EDWARD A. DE STEIGER, La Salle, Ill. Filed Apr. 29, 1899. Serial No. 714,948. (No model.)



Claim.—1. In a closure, the combination of a jar-body having an exterior annular shoulder, a cover having the two curvilinear and oppositely-disposed ribs on its upper side, and a fastener formed in one piece of sheet metal and comprising a horizontal body having a corrugation at its under side forming a rib arranged to bear on the ribs of the cover, and arms depending from the ends of the body and terminating in inwardly-directed branches arranged to engage the shoulder of the jar-body, substantially as specified.

2. In a closure, the combination of a jar-body having an exterior annular shoulder, a cover having the two curvilinear and oppositely-inclined ribs on its upper side, and a fastener formed in one piece of sheet metal and comprising a horizontal body having a longitudinal central corrugation at its under side forming a rib adapted to bear on the ribs of the cover, inwardly-inclined arms depending from the ends of the body, and angular branches extending inwardly from the lower ends of the arms and having their ends dished to conform to the curvature of the jar-body below the shoulder thereof, substantially as specified.

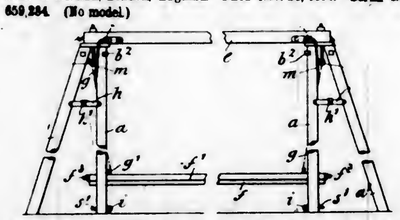
640,333. **SIGN.** GEORGE W. TALLMAN, New York, N. Y. Filed Jan. 3, 1898. Serial No. 666,064. (No model.)



Claim.—1. A sign consisting of a card having spaces forming letters or figures, and a strip of tracing-cloth attached to said card and extending over said spaces therein, the tracing-cloth projecting beyond the card, said projecting portion of the tracing-cloth constituting means for attaching the sign to a support.

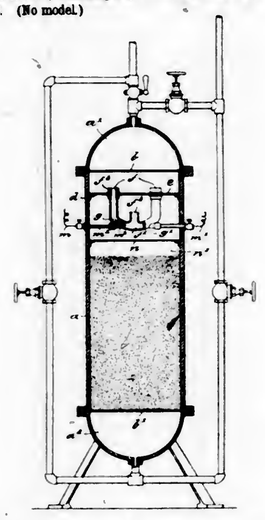
2. A sign consisting of a strip of card having spaces forming letters or figures, a strip of pyralin and a strip of tracing-cloth secured to said cardboard strip and extending over the spaces therein, the ends of the tracing-cloth projecting beyond the ends of the sign and constituting means for securing the sign to a support, substantially as set forth.

640,334. **COMBINED PORTABLE HAMMOCK AND TENT.** WILLIAM C. TANNER, London, England. Filed Nov. 20, 1897. Serial No. 659,284. (No model.)



Claim.—In a combined portable hammock and tent a pair of tripods the legs of which are hinged to legs on a horizontal plate carrying a screwed stud which engages with and fixes a rigid longitudinal bar supported by the tripods, a canvas cover fixed to the said bar and supported in an extended position by rods or arms hinged to each side of the bar and engaging with sockets on longitudinal side bars forming part of the cover, stays pivoted to the side legs of the tripods for supporting the said rods or arms, chains or ropes suspended from a hook carried by each of the horizontal plates and connected to the ends of a hammock for supporting the same in swinging position, small chains for connecting the hammock with the tripods for preventing too great a lateral swing, centrally-pivoted bars connected to the legs of the tripods and acting as rigid stays thereto and spikes or pins passing through eyes on the side legs of the tripods for fixing them firmly to the ground substantially as described.

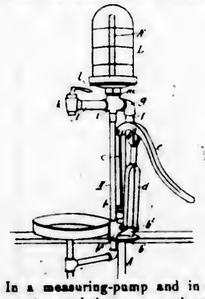
640,335. **ELECTRIC WATER-FILTER.** WILLIAM L. TETER and JOHN A. HEANY, Philadelphia, Pa. Filed May 25, 1899. Serial No. 718,218. (No model.)



Claim.—1. In an electric filter, an inlet-chamber, a eudiometer, the open-ended legs of which form the outlets from the inlet-chamber, two electrodes arranged within the eudiometer and respectively connected with the poles of a source of electric energy and an outlet from said eudiometer communicating with the interior of the filter below the inlet-chamber, substantially as and for the purposes described.

2. In an electric filter, an inlet-chamber, a filtering-chamber, a disk separating the inlet from the filtering-chamber, a eudiometer-tube supported by the disk and having two open-ended legs projecting through the disk into the inlet-chamber, two electrodes arranged within the eudiometer-tube and respectively connected with the poles of a source of electric energy and an outlet-tube from the eudiometer-tube below said disk, substantially as and for the purposes described.

640,336. **MEASURING-PUMP.** JOHN J. TOKHEIM, Thor, Iowa. Filed Oct. 28, 1898. Serial No. 694,788. (No model.)

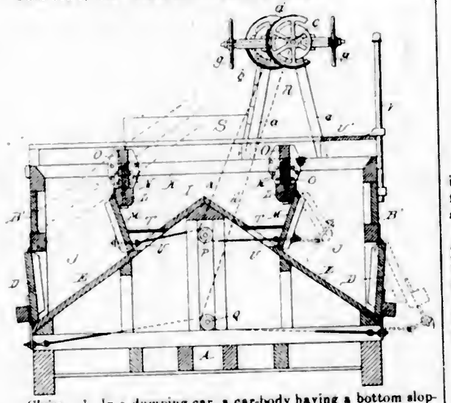


Claim.—1. In a measuring-pump and in combination with a chambered base-casting, and the pump-stock entering said chamber,

the piston-rod passing through said chamber, the supply-pipe standing from the upper side of said chamber, and terminating in a horizontal discharge branch controlled by a faucet, a reservoir mounted upon and opening into the discharge branch between the standing supply-pipe and the faucet, and an overflow-pipe mounted in a guide-arm of said base-casting, passing transversely through said discharge branch, having a surface screw engaging a threaded tubular part on the under side of said branch and passing into the reservoir, the opening wherein is larger than the overflow-pipe.

2. In a measuring-pump, a chambered base-casting having a screw-opening on its under side, a screw-opening and a stuffing-box both on its upper side, and a vertical side tubular arm, in combination with the pump-stock engaging said chamber-bottom opening, the standing supply-pipe engaging the upper opening of said chamber and terminating in a horizontal discharge branch controlled by a faucet and having a depending tubular screw part, a reservoir mounted upon and opening into the branch pipe vertically in line with the tubular screw part, the piston-rod passing through said casting-chamber and stuffing-box, and an overflow-pipe mounted in the tubular arm of the base-casting and provided with a surface screw engaging the tubular screw part of the branch pipe, passing through the latter and through an opening in the reservoir having a greater diameter than the overflow-pipe.

640,337. DUMPING-CAR. AUGUSTUS TORREY, Detroit, Mich. Filed Oct. 5, 1899. Serial No. 732,805. (No model.)



Claim.—1. In a dumping-car, a car-body having a bottom sloping outwardly from the longitudinal center to the sides of the car, exterior discharge-doors in the sides for automatically dumping the load on opposite sides of the car and corresponding interior discharge-doors adapted to retain a portion of the load centrally of the car body and floor and dump the same separately of the other portion.

2. In a dumping-car, a car-body having a bottom sloping outwardly from the longitudinal center to the sides of the car, exterior discharge-doors in the sides of the car for automatically dumping the load equally on opposite sides of the car, and longitudinal partitions extending from the bottom of the car to the load-line and forming a separate pocket centrally of the car adapted to receive and hold one-half of the load, and discharge-doors in said partitions corresponding to the discharge-doors in the side of the car-body and connected with each other for joint operation independent of the exterior discharge-doors.

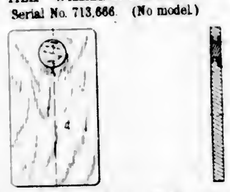
3. In a dumping-car, a self-dumping side-discharging car-body longitudinally divided above its sloping bottom into a central pocket adapted to receive and hold one-half the load and two side pockets adapted to receive and hold each one-fourth of the load at a certain load-line of the car, said pockets having corresponding side discharge-doors for automatically discharging the load to opposite sides of the car respectively, the doors of the inner pocket being independently operative.

4. In a dumping-car, a car-body having a bottom sloping outwardly from the longitudinal center to the sides of the car, exterior discharge-doors in the sides of the car at the foot of the sloping bottom, corresponding interior discharge-doors forming in whole or in part partitions longitudinally dividing the car-body into a central pocket adapted to receive one-half of the load and side pockets adapted to receive each one-fourth of the load at a certain load-line of the car, separate winding-drums under the bottom of the car-body to which said outside and inside discharge-doors are respectively connected for separate operation, and a double windlass mounted on top of the car-body and adapted to operate the winding-drums independently of each other.

5. In a dumping-car, the car-body having the bottom G slopin, outwardly from the center to the sides, the outside discharge-door D thereof, the winding-drum Q to which said doors are connected the transverse partitions C C dividing the car-body into compartments, the beams L longitudinally supported above the car-bottom on opposite sides of the center, the discharge-doors M hinged to said beams, the drums P to which said doors are connected for joint operation, the partition-boards O detachably secured above the beams L, and the double windlass R mounted above the partitions C C centrally of the car.

6. In a dumping-car, the combination with a car-body having side discharge doors, and a bottom sloping outwardly from the center toward said doors, and adapted to automatically discharge the load on opposite sides of the car in like halves on opening the doors, and longitudinal partitions adapted to divide the load in loading the car along its longitudinal center to the height of said partitions for the purpose of retaining one-half of the load in the center of the car in dumping, said partitions having independent discharge-doors corresponding to the discharge-doors in the sides of the car-body and means for adjusting the partitions to different load-lines.

640,338. TILE. WILLIAM D. TURNLEY, Clarksville, Tenn. Filed Apr. 19, 1899. Serial No. 713,666. (No model.)

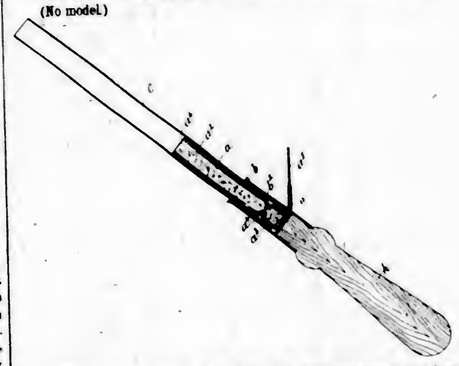


Claim.—1. The combination with a tile having an opening therein, of a plug for the opening, said plug being composed of a readily-flowing and easily-penetrated metal, the ends of the plug being upset upon the face of the tile to form cushions.

2. The combination with a tile having an opening therein, of a plug of metal in the opening having its ends upset upon the faces of the tile, said metal having the property of readily flowing and of easy penetrability.

3. The combination with a tile having an opening therein, of a lead plug in the opening, the ends of the plug being upset upon the faces of the tile to form a cushion.

640,339. PYROTECHNIC DEVICE. HERMANN WEIFFENBACH, Munich-Schwabing, Germany. Filed Dec. 2, 1897. Serial No. 660,532. (No model.)

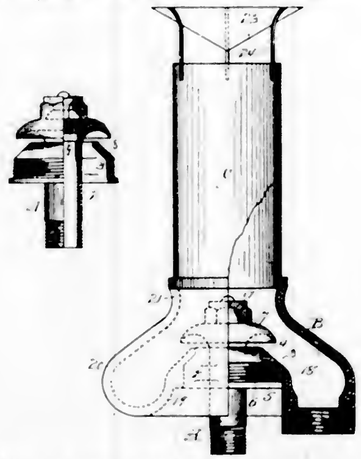


Claim.—1. In a pyrotechnic device, the combination with a handle, of a sleeve secured thereto, the same being provided with a slot for the insertion and passage of a fuse from a pyrotechnic article, and also provided with an opening for the protrusion of the fuse, a tube insertible within the sleeve, and means for detachably connecting the tube with the sleeve, substantially as described.

2. In a pyrotechnic device, the combination with a handle, of a sleeve secured thereto, the same being provided with a longitudinal slot having a lateral branch, forming part of a bayonet-joint, and also formed with an opening for the protrusion of a fuse from a pyrotechnic article, and a tube insertible within the sleeve and provided with a pin arranged to enter the slots, substantially as and for the purpose described.

3. In a pyrotechnic device, the combination with a handle, of a sleeve secured thereto, the same having a longitudinal slot, and a lateral slot leading therefrom at a point above the inner end, whereby an opening is formed for the protrusion of a fuse from a pyrotechnic article, and a tube insertible within the sleeve and having a pin for entering the slots, in the manner and for the purpose described.

640,340. AIR-MOISTENER. WILLIAM B. S. WHALEY, Columbia, S. C. Filed May 3, 1899. Serial No. 715,441. (No model.)



Claim.—1. In an air-moistener, the combination with a supply-pipe, of a ring secured around said tube or pipe and spaced therefrom, a cap secured on the tube or pipe, a flange on the cap disposed over the open end of the ring, a ring in the cap having perforations therein, a valve movably mounted in the ring and having an enlarged sharpened upper outer edge adapted to regulate the spray issuing from the cap.

2. In an air-moistener, the combination with a casing, a flue communicating therewith and a deflector disposed above the upper end of said flue, the lower end of said casing having a threaded opening in its lower portion, of a ring in said opening, a pipe passing through said ring, spaced therefrom and adapted to discharge into the flue, a cap mounted on said pipe and having a flange or head overhanging the upper end of said ring, a conical valve-seat in the upper part of the cap and an adjustable valve having a knife-edge peripheral edge to cooperate with said conical valve-seat, substantially as set forth.

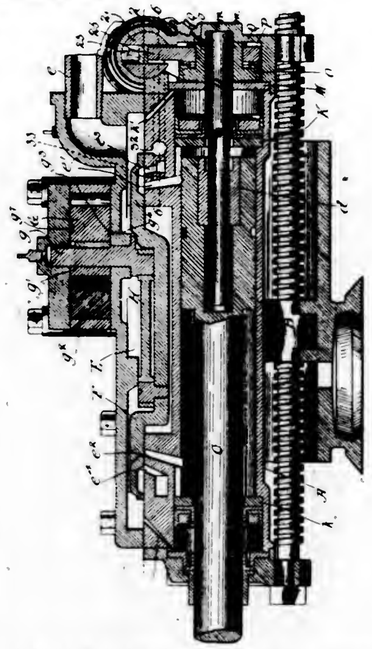
640,341. ROCK-DRILL. GEORGE D. WHITCOMB, Glendora, Cal., and WILLIAM K. MILLHOLLAND, Chicago, Ill. Filed May 20, 1899. Serial No. 717,550. (No model.)

Claim.—1. In a rock-drill, in combination a cylinder, a reciprocating piston therein, a rotating bar in sliding and non-rotating engagement with the piston, a ratchet-wheel fixed upon the rotating bar and having ratchet-teeth on its disk face, an annular pawl in parallel plane and concentric with the ratchet and having teeth on its disk face for engaging the teeth of the ratchet-wheel, such pawl being axially movable, means for yieldingly forcing the pawl toward the ratchet, and means for causing the oscillation of the pawl.

2. A drill-rotating device for rock-drills comprising an angular rotating bar, a wheel fixed thereupon and having ratchet-teeth on its disk face, an annular pawl having teeth on its disk face for engaging the ratchet-teeth, means for yieldingly holding the pawl against the ratchet, and means for oscillating the pawl.

3. In a drill-rotating device for rock-drills, in combination, an angular rotating bar, a ratchet-wheel fixed thereon, an annular pawl cooperating with the ratchet and having a radially-projecting arm, a cylinder transverse to the rotating bar, a piston reciprocating in the cylinder and having a transverse recess, and a shoe reciprocating within the recess, the arm of the pawl being in pivotal engagement with the shoe.

4. In a drill-rotating device for rock-drills, in combination, an angular rotating bar, a ratchet-wheel fixed thereon, a reciprocating pawl cooperating with the ratchet and having a radially-projecting arm, a cylinder transverse to the rotating bar, a piston reciprocating in the cylinder and having a transverse recess, and a shoe reciprocating within the recess, the arm of the pawl being in pivotal engagement with the shoe.



5. In a drill-rotating device for rock-drills, in combination, an angular rotating bar, a ratchet-wheel fixed thereon, a pawl for turning the ratchet-wheel, a piston for actuating such pawl, a cylinder within which the piston reciprocates, movable cushioning-heads within the cylinder, and means for delivering fluid-pressure back of such heads.

6. In a fluid-actuated rock-drill, in combination, a cylinder, a piston reciprocating therein and carrying a drill-bar, a valve-chest, ports leading from such chest to the opposite ends of the cylinder; an angular rotating bar on the axis of the cylinder and in sliding engagement with the piston, a ratchet-wheel fixed upon the rotating bar and having teeth on its disk face, an annular pawl concentric with such bar and having annularly-arranged teeth for cooperating with the said teeth on the ratchet, a spring for forcing the pawl into engagement with the ratchet, an arm projecting radially from the pawl, a piston for oscillating the pawl, such piston having a transverse recess and a shoe reciprocating therein, with which shoe the arm of the pawl is pivotally engaged; a cylinder within which the last-named piston reciprocates, ports leading from the valve-chest to the opposite ends of the last-named cylinder, a valve for simultaneously controlling the ports of both cylinders, and a motor for shifting the valve.

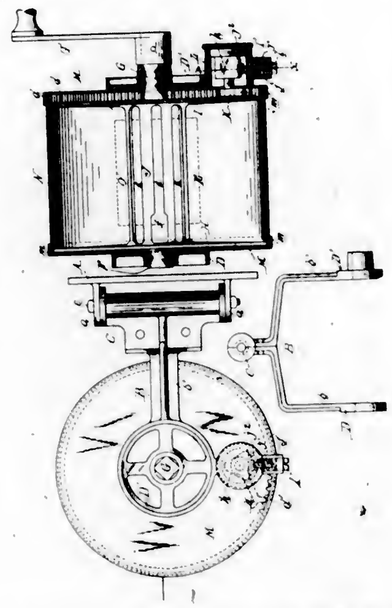
7. In a drill-rotating device for rock-drills, in combination, a rotating bar, a ratchet-wheel fixed thereon, and having teeth on its periphery and disk face, spring-retaining pawls cooperating with the peripheral teeth, a spring-pawl, annular in form, for engaging the disk-face teeth of the ratchet-wheel, and means for oscillating the pawl.

640,342. CLOTHES-LINE REEL. CHARLES P. WILKINSON, Detroit, Mich. Filed Feb. 27, 1899. Serial No. 706,925. (No model.)

Claim.—1. In a clothes-line reel, the combination of the reel journaled in the forked ends of the bracket, of a housing having two inwardly-flanged end caps stationarily secured to the outer ends of the bracket and a cylindrical portion revolubly secured between said end caps and provided with a hooded opening.

2. In a clothes-line reel, the combination of the reel formed with trunnions, of the bracket formed with bearings in which the trunnions are journaled, a housing inclosing the reel having two heads fixed to the bracket and the cylindrical casing revolubly supported between said heads.

3. In a clothes-line reel, the combination of the plate A, the forked bracket B adjustably secured on said plate, the two end caps stationarily secured to the ends of the bracket, and the cylindrical casing revolubly supported between said end caps having a hooded opening, the reel inclosed within said housing and having trunnions journaled in the brackets.



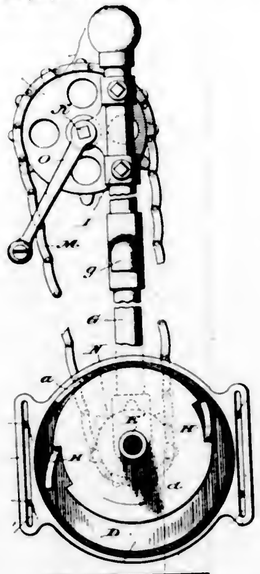
4. In a clothes-line reel, the forked bracket B, the two end caps secured to the ends of the bracket, and the cylindrical casing free to turn between said end caps, the reel inclosed within said housing, the flange *d* formed on one head of the reel within the housing having internal ratchet-teeth, and the dog K journaled in the bracket and inclosed between the reel and housing in operative relation with the ratchet-teeth.

5. In a clothes-line reel, the forked bracket B, the reel E, having trunnions journaled in the ends of said bracket and a flanged portion having ratchet-teeth formed on one of the heads of the reel, the shaft of the dog K journaled in an offset portion formed on one arm of the bracket, said shaft having three flattened faces, and a spring l′ adapted to press on one of said flattened faces, and thereby hold the dog in any of its adjusted positions.

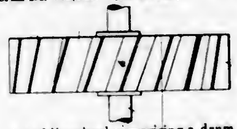
640,848. ROTARY PUMP. HUBBARD D. B. WILLIAMS, Mansfield Ohio. Filed Dec. 17, 1898. Serial No. 699,540. (No model.)

Claim.—1. A submerged rotary pump, comprising a cylinder consisting of heads and interposed ring, rods clamping the heads upon the ring and passed through slots in said heads, the ring being adjustable with respect to the heads; a casing or water-chamber formed on one of the heads and providing a bearing, an opposite bearing in the other head, and a discharge-pipe connected to said casing or water-chamber; together with a hollow piston mounted eccentrically in the cylinder, said piston having a solid axle and a hollow axle, the latter entering the aforesaid chamber, and swinging valves on the periphery of the piston; the piston having openings under the valve and the cylinder an inlet-opening in its ring; and means for turning the piston, the parts being constructed and arranged as herein shown and described.

2. A submerged rotary pump, comprising a cylinder, a hollow cylindrical piston mounted therein with its axis to one side of the center of the cylinder and provided with an opening in its periphery, stub-axles on the piston extending through the heads of the cylinder, one of the stub-axles being hollow, a discharge-pipe communicating with the hollow stub-axle, and a valve hinged to the piston at one side of the opening therein, the cylinder having an opening at one end of the water-space beyond the piston; together with a sprocket-wheel on the solid stub-axle, a larger sprocket-wheel mounted on a shaft supported at the upper part of the pump, a chain connecting the sprocket-wheels, and means for turning the shaft, substantially as shown and for the purpose set forth.



640,844. PADDLE-WHEEL. HENRY M. WILLIAMS, Fort Wayne, Ind., assignor of one-fourth to Franz Burger, same place. Filed Apr. 21, 1899. Serial No. 713,946. (No model.)

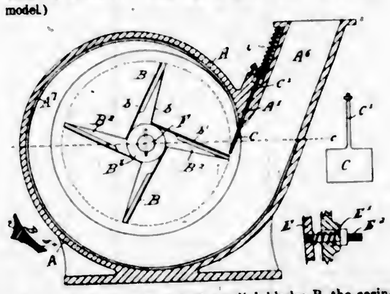


Claim.—1. A paddle-wheel comprising a drum provided with diagonal tangent paddles attached to the circumference of the drum and extending across the face thereof, substantially as described.

2. A paddle-wheel comprising a drum provided with diagonal tangent paddles attached to the circumference of the drum and extending across the face thereof, the outer edges of the paddles being straight while the ends are curved tangentially to the circumference of the drum, substantially as described.

3. A paddle-wheel comprising a cone-shaped drum, paddles attached to the surface of the drum extending across the face thereof and arranged to project tangentially therefrom in a rearward direction, substantially as described.

640,845. CENTRIFUGAL PUMP. GEORGE A. WILBERFORCE, Beechworth, Victoria. Filed Sept. 29, 1899. Serial No. 732,110. (No model.)

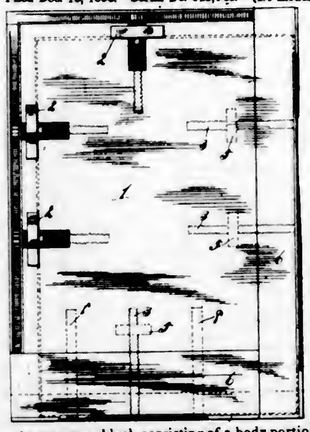


Claim.—1. In combination, the radial blades B, the casing and the nose extending and movable in a plane substantially tangential to the path of the outer ends of the blades, substantially as described.

2. In a centrifugal pump a movable nose-piece as C arranged in

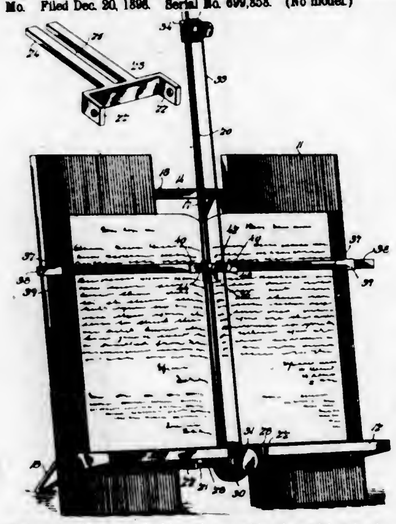
a groove A′ in the pump-casing combined with a spring or other suitable device for retaining the nose-piece at its working position substantially as described and shown.

640,846. ELECTROTYPE OR STEREOTYPE BLOCK. EDWIN L. WILSON, Chicago, Ill., assignor of one-half to Robert M. Eastman, same place. Filed Dec. 16, 1898. Serial No. 615,940. (No model.)



Claim.—A stereotype-block consisting of a body portion or block proper, comprising a single piece of material, in combination with adjusting devices projecting from one end and side of the block, a metallic edge strip directly secured to one side and end of the block, and adjustable metallic edge strips secured to the side and end adjusting devices said edge adjustable strips thereby permitting the introduction of rectangular filling-strips overlapping each other at right angles between said adjustable edge strips and the block proper without leaving an unfilled space at one corner of the block.

640,847. COPY-HOLDER. ORLANDO R. WINSLOW, Marshfield, Mo. Filed Dec. 20, 1898. Serial No. 699,858. (No model.)



Claim.—1. In a copy-holder, the combination with a back and rest, of a centrally-located holding-arm, a yoke mounted for adjustment toward and from the plane of the back, and having said holding-arm pivotally mounted thereon for swinging movement toward and from the plane of the back, and means for securing said yoke at the desired adjustment, substantially as specified.

2. In a copy-holder, the combination with a back and rest, of a centrally-located holding-arm, a yoke mounted for adjustment toward and from the plane of the back, and having said holding-arm pivotally mounted thereon for swinging movement toward and from the plane of the back, a fixed guide for said yoke, and a set-screw for securing the yoke at the desired adjustment with relation to the guide, substantially as specified.

3. In a copy-holder, the combination with a back and rest, of a centrally-located holding-arm, a yoke mounted for adjustment toward and from the plane of the back, and having said holding-arm pivotally mounted thereon for swinging movement toward and from the plane of the back, said yoke having a slotted slide-plate, a fixed guide-block engaged by the slot of said slide-plate, and a shouldered set-screw for locking the slide-plate at the desired adjustment, substantially as specified.

4. In a copy-holder, the combination of connected back sections or members spaced apart at their inner edges to receive the binding of a book and provided with a rest, a central holding-arm for arrangement in the crease between the leaves of a book, and an indicator slidably and rotatably mounted upon said holding-arm and provided with oppositely-extending arms adapted to simultaneously engage the pages of a book upon said back-sections and automatically conform to the different correlative heights of pages at both sides of the holding-arm, substantially as specified.

5. In a copy-holder, the combination of connected back sections or members spaced apart at their inner edges to receive the binding of a book and provided with a rest, indicating devices for traversing a book supported by the back and rest, a ratchet-arm extending rearwardly from the back, and a back brace or leg provided at its upper end with outwardly-yielding arms terminating in inturned trunnions fitted in sockets, one of said arms being arranged in operative relation with said ratchet-arm, and being held in engagement with a tooth thereof by the resilience of the arms, substantially as specified.

6. In a copy-holder, the combination with a back and rest, of a pivotal holding-arm provided at one end with a transverse spindle, an operating-pulley having a thumb wheel or grip, and provided with a spindle mounted in a bearing in said spindle of the holding-arm, an idle palley mounted upon the holding-arm at a point remote from said operating-pulley, for adjustment parallel with the holding-arm, a guide-arm-carrying traveler mounted upon the holding-arm for sliding movement, and an endless carrier traversing said pulleys and connected with the traveler, substantially as specified.

7. In a copy-holder, the combination with a back and rest, of a holding-arm arranged parallel with the plane of the back, a traveler rotatably and slidably mounted upon the holding-arm, extensible guide-arms carried by and movable with the traveler and extending on opposite sides of the traveler and having adjustable members and adapted to simultaneously engage the pages of a book at both sides of the holding-arms at various degrees of their rotary movement, and a spring-clasp carried by the traveler, and terminally arranged for engagement with the extremities of said adjustable members of the guide-arms, when the latter are arranged at the limits of their inward movement, substantially as specified.

8. In a copy-holder, the combination with a back and rest, of a centrally-located pivotal holding-arm, spaced operating and idle pulleys carried by the holding-arm, a carrier traversing said pulleys, a traveler mounted upon the holding-arm for linear adjustment, extensible guide-arms extending in opposite directions from the traveler, and having adjustable members, and a clasp centrally secured to the traveler and extending in opposite directions to engage the inner extremities of said adjustable members of the guide-arms, one of the extremities of said clasp being bifurcated for engagement with one side of said carrier, substantially as specified.

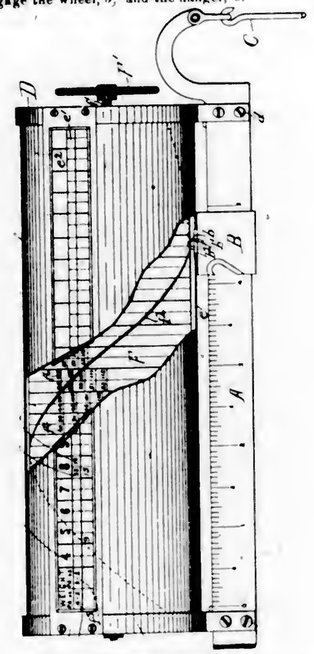
640,848. COMPUTING ATTACHMENT FOR SCALE-BEAMS. MARGARET A. WISE, Erie, Pa. Filed Nov. 25, 1898. Serial No. 697,407. (No model.)

Claim.—1. In combination with a scale-beam; a sliding poise on said beam; and a rotative computing-cylinder carried by said beam, said cylinder and poise being provided with a tongue-and-grooved mechanism through which the cylinder is rotated by the direct engagement of the surface of the computing-cylinder with the poise.

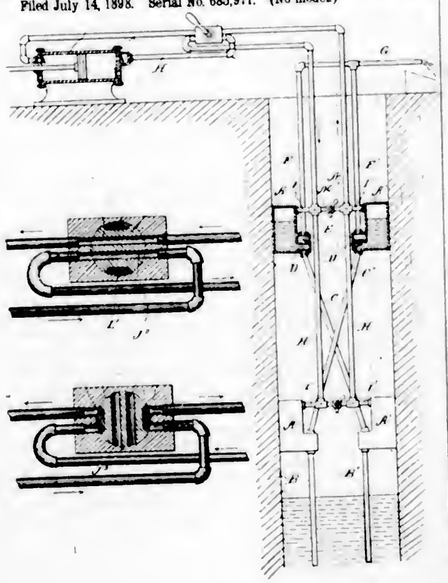
2. In combination with a scale-beam; a sliding poise on said beam; a rotative computing-cylinder carried by said beam having a spiral on the surface thereof; and means carried by the sliding poise for directly engaging said spiral.

3. In combination with a scale-beam; a sliding poise on said beam; a rotating computing-cylinder carried by said beam, said cylinder having a spiral on the surface thereof; and a wheel journaled on the poise and adapted to directly engage the spiral on the cylinder, the axis of said wheel being perpendicular to the surface generated by the radial lines perpendicular to the axis of the cylinder and extending through said spiral, at the place of engagement of said wheel, with said spiral.

4. In a computing attachment for scale-beams, the combination of the beam, A; sliding poise, B, having the V-shaped wheel, *b*, journaled thereon; end supports, D D, secured to said scale-beam; a cover, E, carried by said supports, having the groove, *e*, and opening, *e'*, therein; a rate-scale on said cover; a cylinder, F, pivoted on the end supports, said cylinder having the columns of weight-indicating figures, f^2 and f^3, said figures being of different colors, and the columns of product-indicating figures, f^4 and f^5, being of the same color as the figure, f^5; said cylinder also having the spiral groove, f^7, arranged to engage the wheel, *b*; and the hanger, C.



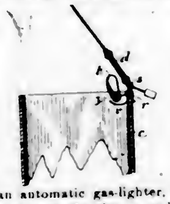
640,349. PUMPING SYSTEM. CHARLES WRIGHT, Ironton, Ohio. Filed July 14, 1898. Serial No. 685,971. (No model.)



Claim.—1. In combination, a pump adapted to create an air-pressure and a partial vacuum, pipes leading from said pump, one for conveying the compressed air and the other for conveying air to the suction portion of the pump, a reversing-valve for changing the connection of the pipes with the pump, a series of cylinders arranged in pairs to which the air-pipes are connected, short pipes connecting the air-pipes, a valve located in each of the short pipes, water-pipes leading to the lower reservoirs, valves located within said reservoirs and adapted to open inward, pipes leading from the lower reservoirs to the reservoirs next above, said pipes being crossed, valves arranged within the reservoirs and adapted to open outward, and a discharge-pipe connected with the upper reservoirs as and for the purpose set forth.

2. In combination, a series of reservoirs, a pump adapted to create an air-pressure and a vacuum, pipes connected to each end of the pump and suitable valved connections from the pump to the reservoirs, short pipes connecting the air-pipes and a valve in each short pipe and connections whereby the water, through suction, is drawn into the reservoir, and through a combined suction and pressure expelled therefrom, substantially as described.

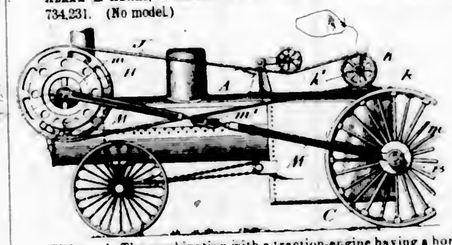
640,350. AUTOMATIC GAS-LIGHTER. KARL VON VIETINGHOFF-SCHEEL, Berlin, Germany. Filed Aug. 18, 1899. Serial No. 727,684. (No model.)



Claim.—1. In an automatic gas-lighter, the combination, with the chimney of a gas-burner, of a plate movably hinged on and covering the top of the chimney and provided with an aperture, a lighting device arranged in said aperture, a clip carrying said plate and a screen formed at the inner leg of said clip and extending beneath the said lighting device.

2. In an automatic gas-lighter, the combination, with the chimney of a gas-burner, of a clip mounted on said chimney, a plate hinged to said clip and arranged to cover the top of the chimney, said plate having an aperture, a lighting device located in said aperture, and a screen carried by the clip and extending beneath the said lighting device.

640,351. DRUM ATTACHMENT FOR TRACTION-ENGINES. ABRAM L. ADAMS, Breakman, Ohio. Filed Oct. 20, 1899. Serial No. 734,231. (No model.)



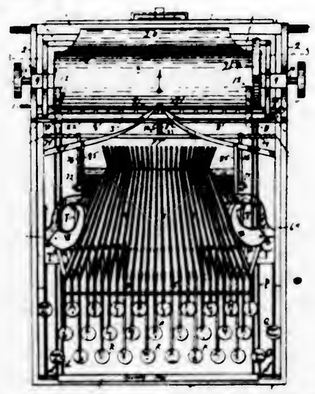
Claim.—1. The combination with a traction-engine having a horizontal boiler-casing or smoke-box, of a saddle-plate secured thereto and provided with a bearing-bracket, a windlass-shaft mounted in said bracket and extending to the sides thereof, and brace-rods connecting the ends of said windlass-shaft with a part of the traction-engine.

2. The combination with a traction-engine having a horizontal boiler-casing or smoke-box, of a saddle-plate secured thereto, a bearing-bracket on said saddle-plate, a windlass-shaft journaled in said bearing-bracket and extending to each side thereof, a drum on said shaft, a driving means for said shaft, and brace-rods one on each side of the traction-engine and coupling the ends of said windlass-shaft to the ends of the axle of the traction-engine, substantially as described.

3. The combination with a traction-engine having a horizontal boiler casing or smoke-box, of a saddle-plate secured thereto, a bearing-bracket on said saddle-plate, a windlass-shaft journaled in said bearing-bracket and extending to each side thereof, a drum on said shaft, a driving means for said shaft, and brace-rods adjustable in length, one on each side of the traction-engine and coupling the ends of said windlass-shaft to the ends of the axle of the traction-engine, substantially as described.

4. The combination with a traction-engine having a crank-shaft, a bearing-bracket for the windlass-shaft, a windlass-shaft mounted in said bearing-bracket, a drum thereon, a drive pulley or wheel on said windlass-shaft, a drive connection from said pulley or wheel to a pulley or wheel on said crank-shaft, and means for locking said pulley or wheel to or releasing it from said crank-shaft, substantially as described.

640,352. AUTOMATIC TYPE-WRITING MACHINE. JOSÉ D. AGUILAR, New York, N. Y. Filed May 20, 1897. Serial No. 637,476. (No model.)



Claim.—1. In a type-writing machine, in combination with a rotating platen and a ratchet-wheel to rotate the platen, a rotating device consisting of a vertical lever vibrating in a plane parallel to the axis of the platen, on a support on the carriage, a pawl pivoted on the lever to engage the ratchet-wheel when the lever rotates, a sliding blade bearing projecting teeth, to act on the lever, and means to act on the teeth of the sliding blade and cause its forward-and-return motion, substantially as described.

2. In a type-writing machine, the combination in an automatic platen-rotating device, consisting of a vertical lever, a pawl, and a sliding blade, a vibrating blade or lever fulcrumed on the bed-frame, bifurcated in one end to receive and be acted on by the release-blade, and bearing a catch-wheel on the other end, provided with a horn and two notches to engage and slide the sliding blade, substantially as and for the purpose described.

3. In a type-writing machine, in combination with a rotating platen, a ratchet-wheel, a pawl, a vertical lever, a sliding blade and means acting on same, a line-space regulator consisting of a thumb-screw sliding into an inverted-T groove, and a sliding nut inside of the groove, serving to secure the thumb-screw at any distance on said groove and arrest the motion of the sliding-blade, substantially as described.

4. In a type-writing machine, in combination with a tension-gear meshing with a rack on the carriage, a propelling and retaining catch acting on the gear and a rocking shaft acting on the catches to release the gear, a release or adjusting key attached to the lever of the third class, a cross-lever of the second class connected to the key-lever, and a wire or link connecting the cross-lever with a projection on the rocking shaft to rotate same and cause the release of the tension-gear, substantially as described.

5. In a type-writing machine, in combination with an automatic carriage and an automatic platen-rotating device a paragraph-adjuster, consisting of a key attached to a lever of the third class, connected to a cross-lever of the second class, this lever acting on a paragraph-stop, the stop sliding between two guides on a horizontal bar, an adjusting-lever, toothed on one side to be fixed on a catch, and bearing a graduated scale on its front side, this lever being pivoted at one end to the stop-guides, and provided with a knob on the other, and a spring pressing on the lever, substantially as and for the purpose described.

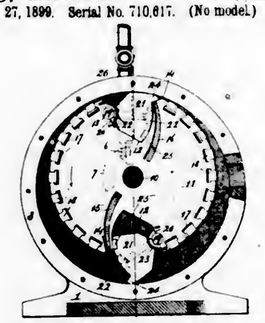
6. In a type-writing machine, the combination of a rectangular frame, fulcrumed by one side to the lateral sides of the type-frame and provided with a small projection on the rear of this side of the inking-frame, to be acted on by the inking-pawl, two connecting-bars fulcrumed on the opposite side of this frame, an inking-roller journaled on these connecting-bars, an inking-pad to surround and impart ink to the inking-roller, and a pawl, fulcrumed on a cross-support of the type-frame, being acted on by the spacer-bar and acting on the inking-frame, substantially as described.

7. In a type-writing machine, a series of type-levers, consisting in levers of the first class, their front arms resting on a cross-bar attached to the spacer-bar and on which they act, these front arms being provided with a straight bend to receive the keys, and the rear one with a semicircular one to engage the moving levers of the type-bars by means of a pin on its end, substantially as described.

8. In a type-writing machine, in combination with a series of types, type-carrying arms, type-guiding arms, and key-levers, type-carrying arm-moving levers consisting in a lever of the first class, fulcrumed near its lower end on a type-guide W and having its shorter and downward-projecting arm bifurcated to receive the pin in the key-lever end and its longer arm pivoted to the type-carrying arm to which it transmits the motion received from the key-lever, substantially as described.

9. In a type-writing machine, in combination with type-carrying arms, type-guiding arms and type-carrying arm-moving levers, a series of type-bar guides W, one for each set of type-bars, on which are fulcrumed both the type-carrying arm guiding-arm T' and type-carrying arm-moving lever T and serve them as a guide in their motion to carry the type from rest to the platen, being provided with two projections to fix them in the type-frame, substantially as described.

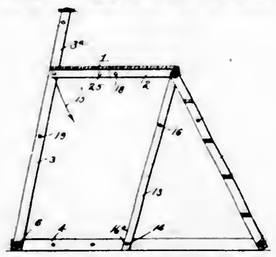
640,353. ROTARY ENGINE. LIVY H. ALLEN, Valley Falls, Kans. Filed Mar. 27, 1899. Serial No. 710,617. (No model.)



Claim.—1. A rotary engine, comprising a stationary cylinder having inlet and outlet ports, a shaft journaled in and eccentrically of the cylinder, a piston mounted on the shaft and provided with peripheral packing-strips, cavities 12, and with ports in its side faces, T-bolts pivoted to the piston, valves occupying said cavities 12 and secured to the stems of said T-bolts, said valves having lips to overlap the discharge ends of the piston-ports when the valves are repressed or forced completely in said cavities, substantially as described.

2. A rotary engine, comprising a stationary cylinder having inlet and outlet ports, a shaft journaled in and eccentrically of the cylinder, a piston mounted on the shaft and provided with peripheral packing-strips, cavities 12 having offsetting cavities 13, and with ports in its side faces, T-bolts having their heads of cylindrical formation and journaled in cavities 13, and bearing-caps 20 secured to the piston and holding said bolts pivotally in position, and valves clamped upon the stem of said bolts and concaved as at 23, and having lips to overlap the discharge ends of the piston-ports when the valves are repressed, substantially as described.

640,354. LADDER AND TABLE. LEONARD C. BAILEY, Chicago, Ill. Filed Dec. 3, 1898. Serial No. 698,135. (No model.)



Claim.—1. The combination of a horizontal member, an upright support hinged to each end thereof, a base-frame for holding the lower ends of said supports in place and a brace for holding said supports from turning on their hinges, the distance between the hinge at the

upper end of the support at one end of the horizontal member and the hinge at the lower end of the support at the other end of the horizontal member being greater along the base-frame and support at one end than it is along said horizontal member and the support at the other end, whereby the horizontal member and supports may be folded together and the horizontal member inverted in the act of folding, substantially as set forth.

2. The combination of a platform, a standard hinged to each corner thereof, a base-frame hinged to said standards and means for bracing the platform and standard, the combined length of the platform and standard at one end being less than the combined length of the base and the standard at the other end, whereby the platform may be swung downwardly and inverted in the act of folding up the device, substantially as set forth.

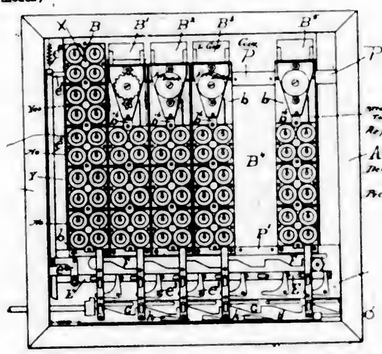
3. The combination of a platform, a rectangular base-frame of greater dimensions than said platform and within which said platform is adapted to rest, supports or standards hinged at their lower ends to said base-frame and at their upper ends to said platform and being located within and of less length than said base-frame, substantially as set forth.

4. The combination of a platform, a base-frame, standards hinged at their upper and lower ends to said platform and base-frame respectively, a downwardly-extending brace hinged at its upper end concentrically with the hinge at the upper end of one of said standards, and said base-frame, brace and standards, having registering perforations when folded together, and a rod adapted to pass through said perforations, substantially as set forth.

5. The combination of a platform, a base-frame, standards hinged at their upper and lower ends respectively to each end of said platform and base-frame, the standards at one end of said platform being provided with an extension above said platform, a removable step on said extension, and means for bracing said standards, substantially as set forth.

6. The combination of a platform, a base-frame, standards hinged to said base-frame and inclining toward and being hinged to opposite ends of said platform at their upper ends and a brace hinged at its upper end concentrically with the hinge of one of said standards, and being connected at its lower end to said base-frame, the distance between the hinge at the upper ends of the standards at one end and the hinge at the lower ends of the standards at the other end being greater along the standards and base-frame than along the platform and standards at the other end, whereby the standards, platform and base-frame may be folded together and the platform inverted in the act of folding, substantially as set forth.

640,855. AUTOMATIC REGISTERING-MACHINE. ARTHUR F. BARDWELL, Springfield, Mass., assignor to the Bardwell Votometer Company, Boston, Mass. Filed Nov. 16, 1898. Serial No. 696,578. (No model.)



Claim.—1. In a registering-machine, the combination of a back plate which supports a plurality of rotary registers; said rotary registers mounted upon said back plate; an actuating-pinion for each register; a shaft for each actuating-pinion, said shaft being provided with ears; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said actuating-pinion shafts; a locking-slide common to all said register-actuators and moved by the rotation of said actuating-pinion shafts; a plurality of slidable plates, one for each register-actuator, and moved by the rotation of said actuating-pinion shafts; and a resetting-slide which engages and moves the locking-slide to its original position.

2. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism, and an actuating-pinion in mesh with one of said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a notched locking-slide engaging the ears upon said pinion-shafts and provided with a projecting stud engaging a resetting-slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of the said register; a rib formed with keyholes and extending longitudinally along and at a fixed distance from the said supporting back plate; a key which turns said pinion-shaft; and a resetting-slide which engages the projecting stud on said notched locking-slide and thereby resets the said notched locking-slide and that one of said notched slidable plates which has been moved by the actuation of one of said registers.

3. In a registering-machine, the combination of a back plate which supports a plurality of rotary registers; said rotary registers mounted upon said back plate; an actuating-pinion for each register; a shaft for each actuating-pinion, said shaft being provided with ears; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said actuating-pinion shafts; a locking-slide common to all said register-actuators, and moved by the rotation of said actuating-pinion shafts; a plurality of slidable plates, one for each register-actuator, and moved by the rotation of said actuating-pinion shafts; a resetting-slide which engages and moves the locking-slide to its original position; a totalizer which registers the total number of times the registering-machine has been used; an actuating-slide for said totalizer; and means which operatively connect said actuating-slide with said locking-slide.

4. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels, one of which is fast upon each of said pinion-shafts and provided with projecting studs which engage and flex to tautness a tape; said tape adjusted in close proximity to said pinion-shafts and flexed to tautness by the rotation of said pinion-shafts; a notched locking-slide engaging the ears upon said pinion-shafts and provided at its lower end with projecting studs; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators, and engaging the ears upon the pinion-shaft of said register; a rib formed with keyholes and extending longitudinally along and at a fixed distance from the said supporting back plate; a key which turns said pinion-shaft; a recording-slide formed with projecting studs; a totalizer which records the total number of times the registering-machine has been used; connecting mechanism between said recording-slide and said totalizer; a bell-crank lever, one arm of which contacts with a projecting stud on said notched locking-slide and the other arm of which contacts with a projecting stud on said recording-slide; and a resetting-slide which engages a projecting stud on said notched locking-slide and a projection on said recording-slide and thereby resets the said notched locking-slide, the said recording-slide and that of one of said supplementary notched slidable plates which has been moved by the actuation of one of said registers.

5. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers; an actuating-pinion for each rotary register; the shaft of said actuating-pinion, provided with ears; a tape adjusted in close proximity to said pinion-shafts and made tant by the rotation of said pinion-shafts; a plurality of locking-slides; a resetting-strip common to all said locking-slides; and a resetting-slide which actuates said resetting-strip.

6. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels, provided with projecting studs, one of which is fast on each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a plurality of notched locking-slides provided with slots which receive studs projecting from said supporting back plate, the notches in said locking-slides engaging ears upon said pinion-shafts; a resetting-strip formed with slots which receive studs projecting from the said supporting back plate and studs projecting from the said notched locking-slides and provided with studs which engage a resetting-slide; a rib formed with keyholes and extending longitudinally along and at a fixed distance from the said supporting back plate; a key which turns said pinion-shaft; and a resetting-slide which engages a projecting stud on said resetting-strip and thereby resets the said resetting-strip and the said notched locking-slides to their original position after they have been moved therefrom by the actuation of the register.

7. In a registering-machine, the combination of a back plate which supports a plurality of rotary registers; said rotary registers mounted upon said back plate; an actuating-pinion for each register; a shaft for each actuating-pinion, said shaft being provided with ears; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said actuating-pinion shafts; a locking-slide common to all said register-actuators, and moved by the rotation of said actuating-pinion shafts; a plurality of slidable plates, one for each register-actuator, and moved by the rotation of said actuating-pinion shafts; means which prevent the actuation of more than a predetermined number of said registers; a resetting-strip which resets said preventing means to their original position; and a resetting-slide which actuates said resetting-strip.

8. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a plurality of notched slidable plates, one of said notched plates being provided for each register-actuator, said plates engaging the ears upon said pinion-shafts, being formed with slots which receive studs projecting from said supporting back plate, and formed with a toothed rack; a plurality of toothed wheels in mesh with said toothed racks; a plurality of arms, one arm being fastened to each of said pinions; a plurality of disks; a cord adjusted in close proximity to said disks, and which prevents the actuation of more than a predetermined number of said registers; a resetting-strip formed with slots which receive studs projecting from said supporting back plate and studs projecting from said slidable notched plates and provided with studs which engage a resetting-slide; a rib formed with keyholes and extending longitudinally along and at a fixed distance from said supporting back plate; a key which turns said pinion-shaft; and a resetting-slide which engages a projecting stud on said resetting-strip and thereby resets the said resetting-strip and the said notched slidable plates to their original position after they have been moved therefrom by the actuation of the registers.

9. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted on said back plate; an actuating-pinion for each register; a card-delivering mechanism; an actuating-pinion for said card-delivering mechanism; the shafts of said actuating-pinions, provided with ears; a tape secured in close proximity to said pinion shafts; a locking-slide common to said register-actuators and said card-delivering mechanism; a plurality of slidable plates; and a resetting-slide.

10. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; a card-delivering mechanism mounted upon said back plate, said card-delivering mechanism being made up of a slotted card-box, a spring-controlled follower slidable in slots in said card-box, springs which control said follower, a shaft journaled in said card-box, star-wheels mounted fast upon said card-box shaft, a gear mounted fast upon said card-box shaft, an actuating-pinion, the shaft of said actuating-pinion provided with ears, and a train of gearing connecting said pinion with the gear fast upon said card-box shaft; a ratchet-wheel fast upon said actuating-pinion shaft; a pawl engaging said ratchet-wheel and preventing backward rotation of said ratchet-wheel; a plurality of wheels provided with projecting studs, one of which is fast upon the pinion-shaft of each of said registers; the actuating-pinion shafts of said registers, provided with ears; a tape secured in close proximity to said pinion-shafts and which prevents the rotation of more than one pinion-shaft at the same time; a notched locking-slide engaging the ears upon said pinion-shaft and provided with a projecting stud which engages a resetting-slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of the said register; a rib formed with keyholes and extending longitudinally along and at a fixed distance from the said supporting back plate; a key which turns said pinion-shaft; and a resetting-slide which engages the projecting stud on said notched locking-slide and thereby resets the said notched locking-slide to its original position.

11. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate; an actuating-pinion for each register; the shaft of said actuating-pinion, provided with ears; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said pinion-shafts; a locking-slide common to said register-actuators; a plurality of slidable plates; means to indicate which register has been actuated; and a resetting-slide.

12. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a notched locking-slide engaging the ears upon said pinion-shaft and provided with a projecting stud engaging a resetting-slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of said register; an indicating mechanism comprising a plurality of spring-controlled levers each bearing an indicator-card; a plurality of springs controlling said levers; and a plurality of cords, one cord being provided for each register, one end of said cord being fast to one of said slidable notched plates and the other end of said cord being fast to one of said levers; a rib formed with keyholes and extending longitudinally along and at a fixed distance from said supporting back plate; a key which turns said pinion-shaft; and a resetting-slide which engages the projecting studs on said notched locking-slide and resets said notched locking-slide and that one of said slidable notched plates which has been moved by the actuation of the said register.

13. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted on said back plate; an actuating-pinion for each register; a card-delivering mechanism; an actuating-pinion for said card-delivering mechanism; the shafts of said actuating-pinions provided with ears; a tape secured in close proximity to said pinion-shafts; a locking-slide common to said register-actuators and said card-delivering mechanism; a plurality of slidable notched plates; a table-support inclosing a card-receptacle; said card-receptacle; means which give a step-by-step movement to said card-receptacle; and a resetting-slide.

14. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a card-delivering mechanism mounted upon said supporting back plate, said card-delivering mechanism being made up of a slotted card-box, a spring-controlled follower slidable in slots in said card-box, springs to control said follower; a shaft journaled in said card-box, star-wheels mounted fast upon said card-box shaft, a gear mounted fast upon said card-box shaft, an actuating-pinion, the shaft of said actuating-pinion provided with ears, and a train of gearing connecting said pinion with the gear fast upon said card-box shaft; a ratchet-wheel fast upon the actuating-pinion shaft of said card-delivering mechanism; a pawl adapted to engage said ratchet-wheel and prevent backward rotation thereof; a notched locking-slide notched to engage the ears upon said pinion-shafts and provided with a projecting stud to engage a resetting-slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of said register; a rib formed with keyholes and extending longitudinally along and at a fixed distance from said supporting back plate; a key fitted to engage and turn said pinion-shafts; a resetting-slide which engages the projecting stud on said notched locking-slide and thereby resets said notched locking-slide and that one of said slidable notched plates which has been moved by the actuation of the register; a table-support inclosing a rotary card-receptacle divided into compartments, mounted in said table-support, and formed with notched projections; an arm which engages said notched projections; a guard to prevent the backward rotation of said rotary card-receptacle; and mechanism connecting said resetting-slide with said arm.

15. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said plate; an actuating-pinion for each register; the shaft of said actuating-pinion, provided with ears; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said pinion-shafts; a locking-slide common to said register-actuators; a plurality of slidable plates; a resetting-slide; a gate-support; a gate; and means which connect said gate with said resetting-slide and which actuate the slide through the movement of the gate.

16. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers mounted upon said back plate, said registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a tape secured in close proximity to said pinion-shafts and which prevents the actuation of more than one of said registers at the same time; a notched locking-slide engaging the ears upon said pinion-shafts and provided with a projecting stud to engage a resetting-slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of said register; a rib formed with keyholes and extending longitudinally along and at a fixed distance from the said supporting back plate; a key which turns said pinion-shaft; a resetting-slide which engages the projecting stud on said notched locking-slide and thereby resets said notched locking-slide and that one of said slidable notched plates which has been moved by the actuation of the register; a gate-lever; a gate-support; a shaft journaled in said gate-support and provided with a boss; studs projecting from said gate-support and limiting the rotation of said shaft; a spring, one end of which is attached to said shaft and the other end of which is attached to the said gate-lever; a boss projecting from said shaft; and a link connecting said boss with said resetting-slide.

17. In a registering-machine, the combination of a supporting back plate; a plurality of groups of rotary registers; an actuating-pinion for each register; the shafts of said actuating-pinions provided with ears; a tape for each group of registers, said tape being adjusted in close proximity to the pinion-shafts of its group and made taut by the rotation of said pinion-shafts; a plurality of slidable plates, one for each register, and engaged by the ears on said pinioo-shaft; a locking-slide for each group of registers and moved by the rotation of said pinion-shafts; a resetting-slide common to all said locking-slides; and means which lock the registers in all said groups when any register in the straight-ticket group is actuated.

18. In a registering-machine, the combination of a plurality of supporting back plates; a plurality of groups of rotary registers, one of said groups being secured upon each of said supporting back plates and each of said rotary registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a plurality of tapes, one of said tapes being secured to each of said supporting back plates and adjusted in close proximity to the pinion-shafts of the group of registers secured on said supporting back plate, thereby preventing the actuation of more than one register in said group at the same time; a plurality of notched locking-slides, one notched locking-slide being provided for each of said groups of registers, said notched locking-slides engaging the ears upon the pinion-shafts of its group and provided with projecting studs which engage a resetting-slide, the notched locking-slide of one of said groups being provided with a toothed rack, the locking-slides of the remaining groups being provided with projecting studs which engage an interlocking slide; a plurality of supplementary slidable notched plates, one of said plates being provided for each of said register-actuators and engaging the ears upon the pinion-shaft of the said register; a pinion in mesh with the toothed rack on one of said notched locking-slides; an interlocking slide formed with a toothed rack in mesh with said pinion and formed with notches which receive projecting studs upon said locking-slides; and a resetting-slide which engages projecting studs on the said notched locking-slides and thereby resets the said notched locking-slides, said interlocking slide and those of said notched slidable plates which have been moved by the actuation of said registers.

19. In a registering machine, the combination of a plurality of supporting back plates; a plurality of groups of rotary registers; an actuating-pinion for each register; the shafts of said actuating-pinions provided with ears; a tape for each group of registers, said tape being adjusted in close proximity to the pinion-shafts of its group and made taut by the rotation of said pinion-shafts; a plurality of slidable plates, one for each register and engaged by the ears on said pinion-shaft; a locking-slide for each group of registers and moved by the rotation of said pinion-shafts; a resetting-slide common to all said locking-slides; and an elevating-slide which raises any desired locking-slide to its locking position.

20. In a registering-machine, the combination of a plurality of supporting back plates, a plurality of groups of rotary registers, one of said groups being secured upon each of said supporting back plates and each of said rotary registers being made up of a plurality of intermeshing counting-disks, indicating mechanism and an actuating-pinion in mesh with said counting-disks; the shafts of said actuating-pinions, provided with ears; a plurality of wheels provided with projecting studs, one of which is fast upon each of said pinion-shafts; a plurality of tapes, one of said tapes being secured to each of said supporting back plates and adjusted in close proximity to the pinion-shafts of the group of registers secured on said supporting back plate, thereby preventing the actuation of more than one register in said group at the same time; a plurality of notched locking-slides, one locking-slide being provided for each of said groups of registers, said notched locking-slide engaging the ears upon the pinion-shafts of its group and provided with projecting studs; a plurality of supplementary slidable notched plates, one of said plates being provided for each register-actuator and engaging the ears upon the pinion-shaft of the said register; an elevating-slide having inclined projections which engage projecting studs on said notched locking-slides and thereby move said notched locking-slides into a locking position; and a resetting-slide which engages projecting studs on said notched locking-slides and thereby restores to their original positions the notched locking-slides and the supplementary slidable notched plates moved therefrom by the actuation of the said registers.

21. In a registering-machine, the combination of a card-delivering mechanism; means to actuate said mechanism; means whereby the actuation of said mechanism locks said mechanism; a card-receptacle; and means to unlock the said mechanism and rotate the said receptacle.

22. In a registering-machine, a mechanism for a multicandidate group comprising a frame; a casing; having main shafts provided with ears; a plurality of notched plates, one for each register and formed each with a toothed rack, each plate being engaged by the ears on the shaft of its register; a plurality of pinions adapted to engage said toothed racks; an arm for and secured to each of said pinions; a cord adjusted in close proximity to said arms and made taut by the rotation of said arms; a plurality of disks which support said cord; and means which reset said notched plates after the actuation of the registers.

23. A registering-machine comprising a frame; a front casing made up in sections; means to secure said sectional casing within said frame; a plurality of rotary registers; a card-delivering mechanism; means to actuate said registers; means to actuate said card-delivering mechanism; means to lock said registers when said card-delivering mechanism is actuated; a table-support; a rotating card-receptacle within said table-support; and means to unlock said registers and to rotate said receptacle.

24. A registering-machine comprising a frame; a casing; means to secure said casing within said frame; a plurality of rotary registers; a card-delivering mechanism; means to actuate said card-delivering mechanism; means to lock said registers when said card-delivering mechanism is actuated; a table-support; a rotary card-receptacle within said table-support; and means to unlock said registers and to rotate said receptacle.

25. A registering-machine comprising a frame; a casing; means to secure said casing within said frame; a plurality of rotary registers; a card-delivering mechanism; means to actuate said registers; means to actuate said card-delivering mechanism; means to lock said card-delivering mechanism when a register is actuated; a table-support; a rotary card-receptacle within said table-support; and means to unlock said card-delivering mechanism and to rotate said receptacle.

26. A registering-machine comprising a frame; a casing removably secured within said frame; means to secure said casing in said frame; a plurality of rotary registers arranged in groups, each group being mounted upon a supporting back plate; a plurality of said supporting back plates detachably secuerd within said frame; means which actuate said registers; means which lock said registers; and a resetting-slide common to all said groups for unlocking said registers.

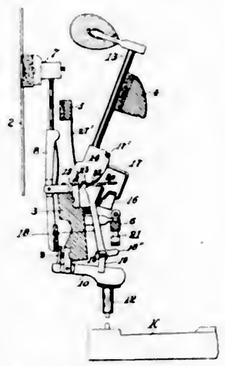
27. A registering-machine comprising a frame; a casing secured within said frame; means which secure said casing within said frame; a plurality of rotary registers arranged in groups, each group being mounted upon a supporting back plate; a plurality of said supporting back plates detachably secured within said frame; means which actuate said registers; means which lock said registers; means which indicate which register has been actuated; and a resetting slide common to all said groups for unlocking said registers.

28. A registering-machine comprising a frame; a casing secured within said frame; means which secure said casing within said frame; a plurality of rotary registers arranged in groups, each group being mounted upon a supporting back plate; said back plate detachably secured within said frame; means which actuate said registers; means which lock said registers; a resetting-slide common to all said groups for unlocking said register actuators; a plurality of placards; and means which secure said placards in said casing.

29. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers; an actuating-pinion for each register; the shaft of said actuating-pinion provided with ears; a toothed wheel mounted on said pinion-shaft; a pawl which engages said wheel and prevents a backward rotation of said shaft; a tape adjusted in close proximity to said pinion-shafts and made taut by the rotation of said pinion-shafts; and a locking-slide common to each group of registers; and a resetting-slide common to all said locking-slides.

30. In a registering-machine, the combination of a supporting back plate; a plurality of rotary registers arranged in groups and mounted upon said back plate; an actuating-pinion for each register; the shaft of said actuating-pinion provided with ears; a toothed wheel mounted on said pinion-shaft; a pawl which engages said wheel and prevents backward rotation of said shaft; a plurality of locking-slides, one locking-slide for each group of registers; mechanism which locks the registers in all the groups when a register in the straight-ticket group is actuated; a tape for each group of registers, said tape being adjusted in close proximity to the pinion-shafts of its group and made taut by the rotation of said pinion-shafts; and a resetting-slide common to all said locking-slides.

640,856. PIANOFORTE-ACTION. Leo H. Battalia, Hartford, Conn., assignor to Martha A. Battalia, same place. Filed Mar. 29, 1899. Serial No. 711,011. (No model.)



Claim.—1. An upright-pianoforte action embodying a hammer having a hammer-butt furnished with a shoulder at the lower end thereof; a pivotally-supported jack, having at the upper end thereof two hammer-actuating faces disposed at different distances, respectively, from the pivotal point of said jack, and having the one which is located at the greatest distance from said point substantially in alinement with the longitudinal axis of said jack; a back-check connected with the hammer-butt for movement therewith, and having an inclined rear face cooperative with a correspondingly-inclined front face of the jack; a back-check carrier having two parallel arms one of which is seated for longitudinal adjustment in an opening in the hammer-butt, and the other of which is fixed to the back-check; a fastening device carried by the hammer-butt in position to engage the arm of the back-check carrier, for holding the same in adjusted position; and a returning device fixed to the upper end of the jack, and cooperating with the back-check for returning the parts to their normal positions.

2. In an upright-pianoforte action, the combination with the hammer-butt of a pivotally-supported jack having an inclined front face; a back-check carrier adjustably secured to the hammer-butt; a back-check mounted on said carrier and having an inclined rear face in cooperative relation with, and corresponding to, the inclined face of the jack; and a returning device fixed to the upper end of the jack and extending over and in cooperative relation with the upper face of the back-check.

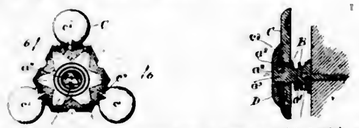
3. In an upright-pianoforte action, the combination with the hammer-butt, and with the pivotally-supported jack, of a back-check carrier consisting of a single piece of wire bent to form two parallel horizontally-disposed arms, connected together at their ends by a vertically-disposed bar, and the upper arm of which is of greater length than the lower arm and has its outer end movably seated in an opening in the hammer-butt; a back-check adjustably secured to the lower short arm of said carrier; a fastening device cooperating with the longer arm of said carrier for holding the same in an adjusted position; and a returning device fixed to the upper end of the jack and having an arm extending over the upper face of the back-check and operative for accelerating the return movements of the parts to their initial positions.

4. In an upright-pianoforte action, the combination with a pivotally-supported hammer-butt, of a pivotally-supported jack having two successively-effective hammer-actuating faces disposed at different distances, respectively, from the pivotal point of said jack and also having an inclined front face near the working end thereof; a back-check carrier composed of a single piece of wire bent to form two parallel arms of different lengths, the longer of which is adjustably mounted in the hammer-butt; a back-check mounted on the shorter arm of the carrier and having an inclined face in cooperative relation with the inclined face of the jack, and also having its upper face recessed to form a seat for a returning device; a returning device carried at the upper end of the jack and having an arm adapted to enter the seat in the back-check; and a fastening device carried by the hammer-butt and in position and adapted to engage the longer arm of the back-check carrier for locking the same in an adjusted position.

5. An upright-pianoforte action including a pivotally-supported hammer-butt having an outwardly-curved shoulder disposed in an arc eccentric to the pivot-point of said butt; a pivotally-supported hammer-actuating jack having a plane transverse primary actuating-face disposed at the extreme upper end of said jack in position to cooperate with the hammer-butt, and also having a concaved secondary actuating-face located in the rear of, and at a lesser distance from the pivot-point of the jack than, the primary actuating-face, and disposed in an arc of a circle eccentric to the pivot-point of the hammer-butt and in position to engage the shoulder of said hammer-butt; means for actuating said jack to bring the two actuating-faces successively into operative engagement with the hammer-butt; and a back-check carried by the hammer-butt and constructed and disposed to engage the front face of the jack concurrently with the engagement of the hammer-butt shoulder and secondary actuating-face of the jack, whereby to cooperate with said jack for blocking the movement of the hammer.

6. In an upright-pianoforte action, the combination of a pivoted hammer-butt having an outwardly-curved shoulder at the lower front end thereof disposed in an arc eccentric to the pivot-point; a pivoted hammer-actuating jack having a primary and a secondary actuating-face, the former of which is located at the extreme upper end of said jack and disposed in a plane substantially at right angles to the longitudinal axis of said jack; and the latter of which is inwardly curved to coincide with the curvature of the hammer-shoulder and is located below the former and in position to engage the hammer-butt shoulder upon the full depression of a key; key-operated mechanism for actuating said jack to bring the primary and secondary actuating-faces successively into engagement with the hammer-butt; and a back-check carried by the hammer-butt and constructed and organized to engage the front face of the jack concurrently with the engagement of the secondary actuating-face with the hammer-butt, whereby to cooperate with said secondary face in blocking the movement of the hammer.

640,357. TOWEL-HOLDER. Albert Baumgarten, Freeport, Ill. Filed Jan. 3, 1899. Serial No. 700,887. (No model.)



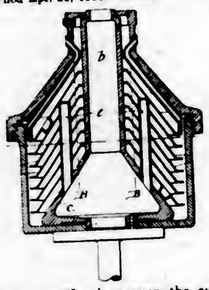
Claim.—1. The combination with a post provided with means for securing it to a relatively stationary object, of two plates supported upon the post, one substantially rigid with respect thereto and one adapted to be tilted or tipped with respect to the same and a spring bearing upon the post and the tilting plate to bring said tilting plate toward the fixed plate; substantially as described.

2. The combination with a supporting-post, of a spring encircling the post, a tilting plate encircling the post, resting upon the spring and having radially-projecting buttons and outwardly-projecting ribs and a cap secured to the post and provided with inwardly-facing grooves, adapted to engage the ribs; substantially as described.

3. The combination with a suitably-shaped post, of an encircling spring, a tilting plate resting upon the spring and held against rotation by the post, and a cap provided with a suitable opening to slip over the end of the post and be engaged therewith against longitudinal movement by a partial rotation, said cap being adapted to cooperate with the tilting plate to clasp the desired articles between the two; substantially as described.

4. The combination with a suitable post, of an outwardly-spring-pressed tilting plate encircling the post and provided with three substantially equidistant radial ribs, and a cap secured upon the end of the post and provided with three inwardly-facing grooves adapted to receive the ribs; substantially as described.

640,358. CENTRIFUGAL CREAM-SEPARATOR. JOHN J. BERRIGAN, Stockholm, Sweden, assignor to the Aktiebolaget Separator, same place. Filed Apr. 29, 1898. Serial No. 679,164. (No model.)

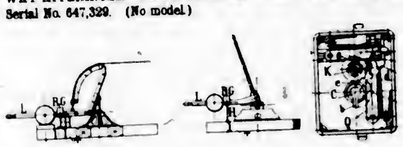


Claim.—1. In a centrifugal creamer, the combination with a livision contrivance consisting of plates extending from near the periphery of the bowl toward the axis thereof and intersecting both radial horizontal and radial vertical planes of the bowl, of an orificed inlet and distributing device for the whole milk extending vertically through the bowl and opening into the neutral zone of the creamer, between adjacent plates of the division contrivance and between the outer and inner extremities of the division contrivance.

2. In a centrifugal creamer, the combination with a division contrivance consisting of a series of superposed conical division-plates, the said plates extending from near the periphery of the bowl toward the axis thereof to within the cream zone of the creamer, of an orificed inlet and distributing device extending vertically through and intersecting said plates and opening into the neutral zone of the creamer between adjacent plates of the division contrivance.

3. In a centrifugal creamer, the combination with a division contrivance consisting of plates extending from near the periphery of the bowl toward the axis thereof and intersecting both radial horizontal and radial vertical planes of the bowl, of an orificed inlet and distributing device for the whole milk extending vertically through the bowl and opening into the neutral zone of the creamer, between adjacent plates of the division contrivance and between the outer and inner extremities of the division contrivance, the upper end of said orificed inlet being closed.

640,859. MEANS FOR CONTROLLING AND LOCKING RAILWAY APPLIANCES. PAUL BOURÉ, Paris, France. Filed Aug. 6, 1897. Serial No. 647,329. (No model.)



Claim.—1. An apparatus serving to fix a point-lever, or a signal-lever, in one of its positions, and consisting of two metallic pieces, fastened one to the lever, and the other to a fixed object, which fit one another in such a manner that when they are joined the lever is fixed; one of the pieces containing a key which is inseparable from it, and the other being fitted with a lock with two keys, one of these keys being that contained in the first piece, and the other key an independent one.

2. An apparatus serving to fix a point-lever, or a signal-lever, in one of its positions, and consisting of two metallic pieces, fastened one to the lever, and the other to a fixed object, which fit one another in such a manner that when they are joined the lever is fixed; one of the pieces containing a key which is inseparable from it, and the other being fitted with a lock with two keys, one of these keys being that contained in the first piece, and the other key an independent one; the said keys working bolts placed at right angles to one another in the lock, which bolts stop one another mutually in such a manner that when one of them is at one end of its run, because the corresponding key is withdrawn from the lock, the other bolt cannot be moved, and, consequently, prevents the key that works it from turning in one direction.

3. An apparatus serving to fix a point-lever, or a signal-lever, in one of its positions, and consisting of two metallic pieces, fastened one to the lever, and the other to a fixed object, which fit one another in such a manner that when they are joined the lever is fixed; one of the pieces containing a key which is inseparable from it, and the other being fitted with a lock with two keys, one of these keys being that contained in the first piece, and the other key an independent one; the said keys working bolts placed at right angles to one another in the lock, which bolts stop one another mutually in such a manner that when one of them is at one end of its run because the corresponding key is withdrawn from the lock, the other bolt cannot be moved, and consequently, prevents the key that works it from turning in one direction, this key being moreover unable to turn in the other direction in consequence of the existence, in the lock, of a catch against which the key-bit strikes; so that when one of the keys is withdrawn from the lock, the other is necessarily a prisoner in it.

4. An apparatus serving to fix a point-lever, or a signal-lever, in one of its positions, and consisting of two metallic pieces, fastened one to the lever, and the other to a fixed object, which fit one another in such a manner that when they are joined the lever is fixed; one of the pieces containing a key which is inseparable from it, and the other being fitted with a lock with two keys, one of these keys being that contained in the first piece, and the other key an independent one; the said keys working bolts placed at right angles to one another in the lock, which bolts stop one another mutually in such a manner that when one of them is at one end of its run because the corresponding key is withdrawn from the lock, the other bolt cannot be moved, and consequently, prevents the key that works it from turning in one direction, this key being moreover unable to turn in the other direction, in consequence of the existence, in the lock of a catch against which the key-bit strikes; so that when one of the keys is withdrawn from the lock, the other is necessarily a prisoner in it; whence it results, first that when the independent key is withdrawn from the lock, the key contained in one of the pieces is a prisoner in that lock, which prevents the separation of the two pieces, and second, that when the key contained in one of the pieces is withdrawn from the lock, which allows of the separation of the two pieces, the independent key is a prisoner in the said lock.

5. A lock called the "central lock" admitting a certain number of keys, each of these keys, on being withdrawn from the lock, pushing a bolt fitted with catches, and placing this bolt in a position in which each of the said catches fixes another bolt likewise worked by a key, and, consequently, prevents this last-named key from being withdrawn from the lock, so that when one key is withdrawn from the lock, one or several others are necessarily made fast in it.

6. A lock called the "central lock" admitting a certain number of keys, each of these keys having its turning movement limited in one direction by a stop by which its key-bit is stopped and working a bolt which, when free to move, allows of the key being turned till it comes face to face with the opening that corresponds to it, and, consequently, enables it to be withdrawn from the lock; but which, when it is stopped in its movement, prevents the key from coming face to face with the opening that corresponds to it, and, consequently, prevents it from being withdrawn from the lock; the bolt worked by each key being fitted with one or several catches which, on the key being withdrawn from the lock, take and occupy their respective positions against the catches with which the bolts worked by other keys are fitted, and, consequently, fix these bolts, thus preventing these last-named keys from being withdrawn from the lock; so that, when one key is withdrawn from the lock one or several others are necessarily made fast in it.

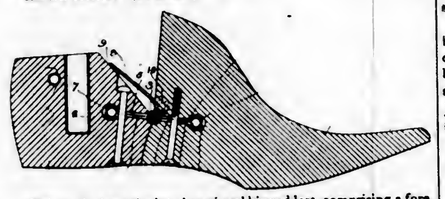
640,860. FOLDING ANCHOR. WILLIAM MCBRIDE, Portland, Me. Filed July 1, 1899. Serial No. 722,515. (No model.)



Claim.—1. The herein-described folding anchor having pivoted arms which are adapted to be folded against the shank, a locking-pin projecting from said shank above the ends of the arms, a cup-shaped fastening-ring adapted to slide on said shank and having a depression in its under side to receive and retain the ends of the arms and having a longitudinal slot to allow the passage of said pin, a projection or stop *f* on the upper surface of the ring and on one side of said slot adapted to impinge against the pin to keep the ring from turning when in its normal position, a projection *e* adjacent to said projection *f* and adapted to pass closely under the pin, a recess being formed between the projections *e* and *f* in which said pin normally rests, a projection *g* on the other side of said slot below the level of said pin, the surface from the projection *g* to the projection *e* ascending spirally.

2. The herein-described folding anchor having pivoted arms which are adapted to be folded against the shank, a locking-pin projecting from said shank above the ends of the arms, a cup-shaped fastening-ring adapted to slide on said stock and having a depression in its under side to receive and retain the ends of the arms and having a longitudinal slot to allow the passage of said pin, a projection or stop *f* on the upper surface of the ring and on one side of said slot adapted to impinge against the pin to keep the ring from turning when in its normal position, a projection *e* adjacent to said projection *f* and adapted to pass closely under the pin, a recess being formed between the projections *e* and *f* in which said pin normally rests, the upper surface of the ring from the longitudinal slot around to the projection *e* being below the level of the pin.

640,861. LAST. WILLIAM H. BUTTERICK, Lynn, Mass., assignor to Thomas W. Gardiner, trustee, same place. Filed Oct. 31, 1896. Serial No. 690,089. (No model.)

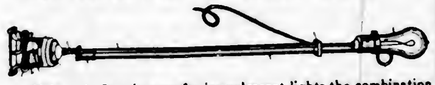


Claim.—1. An articulated sectional hinged last, comprising a fore part and a heel part united by a hinge having its pintle between the parts, one of the parts being provided with a recess above the hinge, a wire spring having an elastic coil located in said recess, one end of the coil being secured in the part provided with the recess, and the other end of the coil extending upwardly and bearing against the oppositely-disposed face of the other part of the last above the pintle, thus cooperating with the hinge to press together the abutting faces of the two parts of the last below the hinge to maintain the parts of the last in operative position with relation to each other, substantially as described.

2. An articulated sectional hinged last, comprising a fore part and a heel part united by a hinge having its pintle between the two parts and above the bottom of the last, one of the parts of the last being provided with recesses above the hinge, and a wire spring having two elastic coils located in the said recesses, one of the ends of each coil being secured to the part provided with the recesses and holding the elastic coils in said recesses, the other ends of the two coils being integral and forming a bail extending upward from the coils and pressing against the oppositely-disposed face of the other part of the last above the pintle, thus cooperating with the hinge to press together the abutting faces of the two parts of the last below the hinge, substantially as described.

3. An articulated sectional hinged last, comprising a fore part and a heel part united by a hinge having its pintle above the normal line of pressure tending to collapse the last when it is in a shoe, the two parts of the last being separated above the hinge by a V-shaped space, a spring anchored in one part of the last above the hinge and pressing against the other part of the last above the hinge, thus cooperating with the hinge to press together the abutting faces of the last below the hinge and maintain the last in operative position, substantially as described.

640,862. INCANDESCENT-LAMP HOLDER. LEO CANDA and HENRY R. BOTHWELL, Cincinnati, Ohio; said Bothwell assignor to said Canda. Filed May 5, 1899. Serial No. 715,641. (No model.)



Claim.—1. In a hanger for incandescent lights the combination of a bracket having a socket at its lower end, a cup in said socket having an interior upward-projecting arm and a rod projecting downward from its bottom for supporting a burner and a spring bearing down upon said arm to hold the rod at any desired angle, substantially as shown and described.

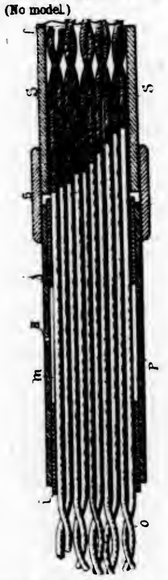
2. In a hanger for incandescent lights the combination of a bracket having at its lower end a socket with three interiorly-projecting studs, a cup resting upon the studs, a rod projecting downward from its bottom for supporting a burner and a spring holding the cup in contact with said studs for retaining the rod at any desired angle, substantially as shown and described.

3. In a holder for incandescent lights the combination of a bracket having a socket, a cup in the socket having an interior upward-projecting arm, a guide-rod projecting downward from the bottom of the cup having a perforated block secured to its lower end, a spring bearing down upon the arm to hold the guide-rod at any desired angle, an adjustable rod passing through the perforation in said block secured at its upper end to a block perforated to slide upon the guide-rod and swiveled at its lower end to a strap-ring for holding a burner, substantially as shown and described.

4. In a holder for incandescent lights the combination of a bracket having a socket, a cup in the socket having an interior upward-projecting arm, a guide-rod projecting down from the cup having secured to its lower end a perforated block, a rod passing through the perforation in said block swiveled at its upper end to a block which is perforated to slide upon the guide-rod, bent back upon itself at the lower end to form a handle and secured to a strap-ring for receiving a burner, a spring coiled around the adjustable rod and having its ends bearing against the sides of the guide-rod and a spring pressing downward on the upward-projecting arm of the cup, substantially as shown and described.

5. In a holder for incandescent lights the combination of a bracket and a socket, a cup in the socket, a spring compressing the cup and socket together, a guide-rod projecting downward from the bottom of the cup, an adjustable rod to slide upon the guide-rod, a strap-ring for receiving a burner swiveled at the lower end of the adjustable rod and a spring-strip within the strap-ring, substantially as shown and described.

640,863. TERMINAL FOR ELECTRIC CABLES. WILLARD L. CANDEE, New York, N. Y. Filed Feb. 16, 1899. Renewed Nov. 10, 1899. Serial No. 736,537. (No model.)

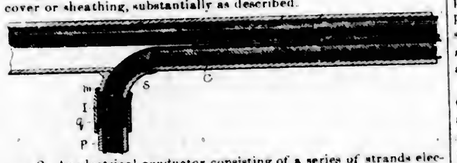


Claim.—1. A section of cable composed of a series of conductors covered with a form of insulating material susceptible to attack by air or moisture combined with a terminal section of cable composed of a series of conductors coated with an insulating material less susceptible to attack by air or moisture, an electrical connection between respective conductors of the two sections, two separated sections of insulating material located upon the last-named section of conductors and projecting from the insulated surface thereof, an impermeable shell or casing united to said insulating-sections, respectively, and a section of metal having a low melting-point filling the space between said insulating-sections, substantially as described.

2. A section of cable composed of a series of conductors covered with a fibrous, paper or similar form of insulation, a terminal section of cable therefor composed of a series of conductors coated with okonite, rubber or similar form of impervious insulation, electrical junctions between the conductors of the two sections, respectively, two sections of insulating material fixed at adjacent separated points on the surface of the impervious insulating material, an impervious pipe-section joined to said insulating-sections to form an inclosure and a section of metal having a low melting-point filling said inclosed space, substantially as described.

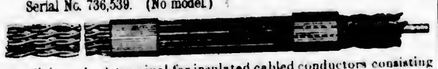
640,864. TERMINAL FOR ELECTRIC CABLES. WILLARD L. CANDEE, New York, N. Y. Filed Feb. 17, 1899. Renewed Nov. 10, 1899. Serial No. 736,538. (No model.)

Claim.—1. An electrical conductor consisting of a series of strands electrically united, an insulating coating therefor composed of a material susceptible to attack by air or moisture, a cover or sheathing for said conductor composed of an impervious material, a section of soft metal uniting the strands of said conductor together and projecting from the surface thereof and an impervious insulating material filling the space between the surface of said metal section and said cover or sheathing, substantially as described.



2. An electrical conductor consisting of a series of strands electrically united, an insulating coating therefor composed of a material susceptible to attack by air or moisture, a cover or sheathing for said conductor composed of an impervious material, a section of tin uniting the strands of said conductor and projecting from the surface thereof and an impervious insulating material filling the space between the surface of the tin section and said cover or sheathing, substantially as described.

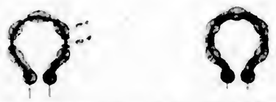
640,365. TERMINAL FOR ELECTRIC CABLES. WILLARD L. CANDEE, New York, N. Y. Filed Feb. 17, 1899. Renewed Nov. 10, 1899. Serial No. 736,539. (No model.)



Claim.—1. A terminal for insulated cabled conductors consisting of a short section of cabled conductors respectively connected to the conductors of an insulated cable, combined with two separated adjacent and fixed sections of impermeable insulating material closely surrounding the conductors and projecting from the surface thereof, an impermeable shell or casing inclosing the conductors having its ends united to said sections respectively, to form an air-tight junction therewith and an insulating material having a low melting-point filling the space formed by the casing and fixed sections, substantially as described.

2. In a cable-terminal the cable consisting of a series of conductors coated with a form of insulating material susceptible to attack by moist air, combined with a section of cable composed of a series of conductors coated with an insulating material not susceptible to attack by moist air, an electrical junction between the respective conductors of the two sections, a fixed section of impervious insulating material projecting from the surface of each section near said junction, an impermeable shell or casing having its ends united to said sections respectively to form an air-tight inclosure and an insulating material having a low melting-point filling the space or inclosure formed by said casing and sections, substantially as described.

640,366. ELECTRIC INCANDESCENT LAMP. FRANCIS M. F. CAZIN, Hoboken, N. J. Filed Mar. 21, 1899. Serial No. 709,902. (No model.)



Claim.—1. In an electric incandescent lamp a luminant, which consists of two main or functional elements, each of which elements is longitudinally divided into parts, the function of the one element, where it has a gap, being assumed by the other element, which bridges over such gap, the one element being an electrical conductor at normal temperature but resisting to the electric current to the effect of producing heat and light or either within itself—and the other element being an electrical conductor only, when heated to a higher than normal temperature, and being so heated by the heat produced in and by the main conducting element, and without any heat other than such being thereto applied, the main conducting element being longitudinally intercepted into three or more longitudinal parts, as and for the purpose set forth.

2. In an incandescent electric lamp a luminous body which consists of three structural parts, namely an inner or core part, which with longitudinal interception performs the function mainly of conducting and resisting to the applied electric current to the effect of producing light and heat within the said luminous body and a second or intermediate part, which performs the function of insulating the core part from the third or outer part, and a third or outer part which performs the function of being made incandescent by the effect of the current, bridges over interception in the core part and mainly consists of rare-metal oxids, as and for the purpose set forth.

3. In an incandescent electric lamp a luminous body, which consists of two or more structural parts, namely, an inuer core part which is longitudinally intercepted, but performs the function of conducting the applied electric current and of resisting thereto to the effect of producing light and heat within the said luminous body, and an outer part or parts, which bridge over interceptions in the core part, consist mainly of rare-metal oxids in the form of pseudo fiber, or fabric, and become incandescent under the influence of the electric current applied as and for the purpose set forth.

4. In an electric incandescent vacuum-lamp a linear current-conducting element, consisting of two or more linear parts longitudinally, all parts having one end positively and the other negatively connected to and within the same current, in combination with a stratum of oxids, covering the said element partly or completely, as and for the purpose set forth.

5. In an electric lamp a current-conducting element, suitably covered on its entire or main length with matter, that does not conduct at normal temperature, and which mainly current-conducting or inner element consists of three or more longitudinal parts or pencils, all of which parts or pencils, except the two end or pole connecting pencils or parts are inserted between the two end pencils and within the longitudinal extension of the main current-conducting element and have each a positive and a negative end, when under electric current.

6. In an electric incandescent vacuum lamp, the combination with a pole-connecting base, and with an air-exhausted glass bulb, of a luminant, inclosed within the said glass bulb, which consists of two main or functional elements, each of which elements is longitudinally divided into parts, the function of the one element, where it has a gap, being assumed by the other element, which bridges over such gap, the one element being an electric conductor at normal temperature but resisting to the electric current to the effect of producing heat, and the other element being an electrical conductor only, when heated to a higher temperature, the latter element covering the mainly conducting element, as a core, in part only, itself consisting longitudinally of more than two parts and the core part or mainly conducting element consisting of not less than three longitudinal parts, as and for the purpose set forth.

7. In an electric incandescent lamp a luminous body or structure which consists of two main or functional parts, namely an inner current-passing and current-resisting core or filament, which under current produces light and heat or either and a non-continuous cover, or a series of two or more outer concentrical parts, which leave annular spaces uncovered on the surface of the core part, and which cover or series of cover parts consist of rare-metal oxid mainly, as and for the purpose set forth.

8. In an electric incandescent lamp a luminous body or structure, which consists of three main or functional constituents, namely an inner current-passing and current-resisting core or filament, which under current produces light and heat or either, a non-continuous cover or a series of two or more outer concentrical parts, which leave annular spaces uncovered on the surface of the core part, and which outer parts consist mainly of rare-metal oxid, and a chemically-insulating stratum or strata between core and oxid, such stratum or strata of insulation being electrically non-connected or non-continuous, as and for the purpose set forth.

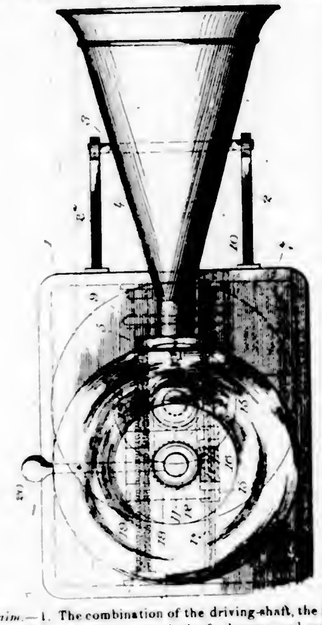
9. In an electric incandescent lamp a luminous body or structure, which consists of two functional main constituents, namely an inner core or filament, chemically insulated from the other or outer part or parts, such insulation being itself of electrically-conductive material, but longitudinally intercepted by annular non-insulated surface parts of the core, and an outer partial coating of rare-metal oxid, adapted in shape and dimension to be similar to the intermediate rings of insulating material, as and for the purpose set forth.

10. In an electric lamp a luminant, consisting of a conductor, divided into five or more parts, of which an odd number of parts, including the extreme end parts, are made of material of higher electric conductivity than the two or more serial even parts, the two or more serial even parts being heated by their resistance to the main current, which passes through them by means exclusively of the odd parts and which two or more even parts become luminous by means of such current.

11. In an electric incandescent lamp a light-producing part which is a compound conductor, consisting of two or more different cohesive conducting elements, namely a primary, in itself continuous-conducting element, which conducts at normal temperature, producing heat by resistance, which resistance is higher than that of the other or secondary conducting element, which secondary element is not continuous but longitudinally intercepted and conducts only, when heated to higher than normal temperature by the heat produced, as aforesaid, in the primary conducting element, and which secondary conducting element, when so heated and conducting offers less resistance to the applied current than the primary conducting element.

12. In an electric lamp a luminant, which consists of a main but intercepted conductor, which conducts at normal temperature, and of an accessory conductor, which conducts only, when heated by heat, that is produced in or by the main conductor, by means of adequate resistance offered to the applied current by the said main conductor, and which accessory conductor bridges over the interception in the main conductor and incandesces when under current, the contact between the two conductors being protected against corrosion by an intermediate film of chemically-insulating material.

640,367. TALKING-MACHINE. GEORGE K. CHENEY, New York, N. Y. Filed Mar. 3, 1899. Serial No. 707,572. (No model.)



Claim.—1. The combination of the driving-shaft, the record-carriage hinged upon the driving-shaft, the feed-screw, and means whereby the feed-screw may engage said carriage.

2. The combination of the driving-shaft, the record-carriage hinged upon the driving-shaft, the feed-screw, and means whereby the feed-screw may engage said carriage, together with connecting-gearing between said driving shaft and feed-screw.

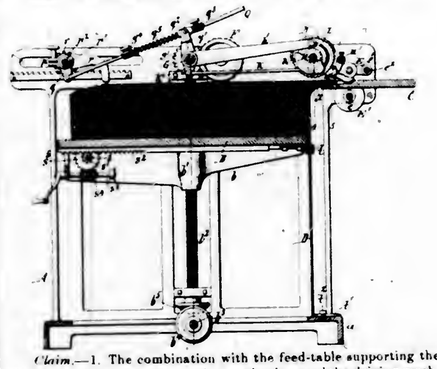
3. The combination of the driving-shaft, the record-carriage hinged to and sliding on the driving-shaft, the record table mounted on the carriage and rotating on an axis at right angles to the driving-shaft, connecting-gearing from driving-shaft to rotating table, the feed-screw parallel to the driving-shaft, and the half-nut carried by said record-carriage and adapted to engage said feed-screw.

4. The combination of the driving-shaft, the record-carriage hinged to and sliding on the driving-shaft, the record-table mounted on the carriage and rotating on an axis at right angles to the driving-shaft, connecting-gearing from driving-shaft to rotating table, the feed-screw parallel to the driving-shaft, and the half-nut carried by said record-carriage and adapted to engage said feed-screw, together with the casing for the carriage and driving-gear, having a slotted opening through which the table-carryiug shaft projects.

5. The combination of the driving-shaft, the record-carriage hinged to and sliding on the driving-shaft, the record-table mounted on the carriage and rotating on an axis at right angles to the driving-shaft, connecting-gearing from driving-shaft to rotating table, the feed-screw parallel to the driving-shaft, and the half-nut carried by said record-carriage and adapted to engage said feed-screw, together with the casing for the carriage and driving-gear, having a slotted opening through which the table-carrying shaft projects, and the projection from said carriage extending through said slot and under and beyond the table.

6. The combination of the driving-shaft, the record-carriage hinged upon the driving-shaft, the feed-screw, and means whereby the feed-screw may engage said carriage, together with the inclosing casing and the sound-box hinged to said casing.

640,368. PAPER-FEEDING MACHINE. FRANK L. CROSS, Mystic, Conn. Filed Mar. 31, 1899. Serial No. 711,296. (No model.)



Claim.—1. The combination with the feed-table supporting the pile of sheets, the sheet-separating mechanism, and the driving mechanism, of a movable ratchet member which is operated from the driving mechanism, a trip-pawl which is shifted by the movement of the sheet into engagement with the ratchet member for arresting the latter, and shifting mechanism which connects the sheet-separatiug mechanism with the driving mechanism and the ratchet member and whereby the sheet-separating mechanism is rendered inoperative when the movement of the ratchet member is arrested by the trip-pawl, substantially as set forth.

2. The combination with the feed-table supporting the pile of sheets, the sheet-separating mechanism, and the driving mechanism, of a movable ratchet member, a pinion geared with the ratchet member and the driving mechanism, a trip-pawl which is shifted by the movement of the sheet into engagement with the ratchet member for arresting the latter, and a shifting mechanism which connects said pinion with the sheet-separating mechanism and whereby the latter is rendered inoperative when the movement of the ratchet member is arrested by the trip-pawl, substantially as set forth.

3. The combination with the feed-table supporting the pile of sheets, the sheet-separating mechanism, and the driving mechanism, of a movable ratchet-wheel, a trip-pawl which is shifted by the movement of the sheet into engagement with the ratchet-wheel for stopping the latter, a planet-pinion meshing with a gear-wheel connected with the ratchet-wheel and with a gear-wheel connected with the driving mechanism, and a shifting mechanism which connects the planet-pinion with the sheet-separating mechanism and whereby the latter is rendered inoperative when the movement of the ratchet-wheel is arrested by the trip-pawl, substantially as set forth.

4. The combination with the feed-table supporting the pile of sheets, the comb-wheel whereby the sheets are separated, the rocking support which carries the comb-wheel and whereby the latter is lowered into an operative position on the pile or raised therefrom into an inoperative position, of a driven shaft arranged above the feed-table, a movable ratchet-wheel mounted loosely on said shaft, a trip-pawl which is shifted by the movement of the sheet into engagement with the ratchet-wheel for arresting the latter, a planet gear-pinion meshing on opposite sides with a gear-wheel secured to the ratchet-wheel and with a gear-wheel secured to said shaft, a rock-arm supporting the planet gear-pinion and mounted loosely on said shaft, and a rod connecting said arm with the rocking support of the comb-wheel, substantially as set forth.

5. The combination with the feed-table supporting the pile of sheets, the sheet-separating mechanism, and the driving mechanism, of a movable ratchet-wheel, a trip-pawl which is shifted by the movement of the sheet into engagement with the ratchet-wheel for stopping the latter, a planet-pinion meshing with a gear-wheel connected with the ratchet-wheel and with a gear-wheel connected with the driving mechanism, a shifting mechanism which connects the planet-pinion with the sheet-separating mechanism and whereby the latter is rendered inoperative when the ratchet-wheel is eugaged by the trip-pawl, and a cam which is connected with the driving mechanism and whereby the trip-pawl is disengaged from the ratchet-wheel, subetantially as set forth.

6. The combination with the feed-table which supports the pile of sheets, the sheet-separating mechanism, the feed-board which receives the sheets from the feed-table, and the driving mechanism, of

a movable ratchet-wheel, a pinion meshing with a gear-wheel which is connected with the ratchet-wheel and with a gear-wheel which is connected with the driving mechanism, a shifting mechanism connecting the pinion with the sheet-separating mechanism, a pivoted trip-pawl consisting of two loosely-connected arms, the lower one of which is arranged over the feed-board and the upper one of which is adapted to be engaged with the ratchet-wheel by the movement of the sheet against the lower arm, cooperating shoulders arranged on the arms of the trip-pawl on the lower side of its pivot, a spring whereby the arms are turned so that their shoulders engage, and a cam connected with the driving mechanism and adapted to disengage the upper arm of the trip-pawl from the ratchet-wheel, substantially as set forth.

7. The combination with a feed-table, a comb-wheel capable of being raised and lowered and the driven shaft, of a ratchet-wheel which is operated by said shaft, a sheet-controlled pawl which is engaged with said ratchet-wheel and stops the same when a sheet is fed forward, a lifting mechanism whereby the comb-wheel is raised by the stopping of said ratchet-wheel, and a lifting-cam whereby the comb-wheel is raised and lowered, substantially as set forth.

8. The combination with a feed-table, a comb-wheel capable of being raised and lowered, and the driven shaft, of a ratchet-wheel which is operated by said shaft, a sheet-controlled pawl which is engaged with said ratchet-wheel and stops the same when a sheet is fed forward, a lifting mechanism whereby the comb-wheel is raised by the stopping of said ratchet-wheel, a lifting-cam whereby the comb-wheel is raised and lowered, and a cam whereby said pawl is disengaged from said ratchet-wheel when the lifting-cam has taken control of the comb-wheel, substantially as set forth.

9. The combination with the feed-table supporting the pile of sheets, the comb-wheel whereby the sheets are separated, the rocking support which carries the comb-wheel and whereby the latter is lowered into an operative position and raised into an inoperative position, of a driven shaft, a cam secured to said shaft and engaging with an arm which is connected with said rocking support, a ratchet-wheel mounted loosely on said shaft a trip-pawl which is moved by the sheet into engagement with the ratchet-wheel for arresting the latter, a pinion meshing with a gear-wheel secured to the ratchet-wheel and with a gear-wheel secured to said shaft, an arm supporting said pinion and connected with said rocking support, and a cam secured to said shaft and adapted to disengage the trip-pawl from the ratchet-wheel, substantially as set forth.

10. The combination with the feed-table supporting the pile of sheets, of a sheet-separating comb-wheel, a rocking support carrying said comb-wheel, a rocking pile-retaining finger movable toward and from the rear portion of the pile, and intermediate mechanism which connects the support of the comb-wheel with the pile-retaining finger and whereby said wheel and finger are moved toward and from the pile alternately, substantially as set forth.

11. The combination with the feed-table supporting the pile of sheets, of a sheet-separating comb-wheel movable toward and from the pile, a rocking support carrying said wheel and provided with an upright arm, a pile-retaining finger movable toward and from the pile, a rocking support carrying said finger and provided with a depending arm, a rod connected at one end with said depending arm and passing with its opposite end through a sleeve on said upright arm, a collar or shoulder arranged on the connecting-rod and bearing against the front side of said sleeve, and a spring mounted on the rod and bearing against the rear side of said sleeve, substantially as set forth.

12. The combination with the main frame and the feed-table supporting the pile of sheets, of a sheet-separating comb-wheel movable toward and from the pile, a rocking sleeve carrying the comb-wheel, a pile-retaining finger movable toward and from the pile and secured to a rocking sleeve, intermediate mechanism which connects said rocking sleeves and which causes the comb-wheel and pile-retaining finger to move alternately toward and from the pile, a supporting-rod carrying the rock-sleeve of the pile-retaining finger, and gear-pinions which are mounted on said rod and mesh with gear-racks on the frame, whereby upon turning the rod, the pile-retaining finger may be adjusted backward or forward, substantially as set forth.

13. The combination with the feed-table supporting the pile of sheets, of a separating mechanism whereby the sheets on the upper portion of the pile are combed out or separated, a sheet-delivery mechanism which is arranged in front of the pile and whereby the sheets are carried from the pile, an adjusting device whereby the feed-table may be moved lengthwise toward or from the sheet-delivery mechanism, and front pile-guides arranged vertically in front of the table and adjustable lengthwise of the machine together with the table, substantially as set forth.

14. The combination with a vertically-movable frame and the feed-table capable of longitudinal movement on said frame and supporting a pile of sheets, of a comb-wheel whereby the uppermost sheets of the pile are successively separated, delivery-rollers which are arranged in front of the pile and which carry the sheets from the pile, a transverse shaft journaled in said frame and provided with gear-pinions which mesh with gear-racks on said table, and an adjusting-shaft journaled on said frame and provided with a worm which meshes with a worm-wheel on the transverse shaft, substantially as set forth.

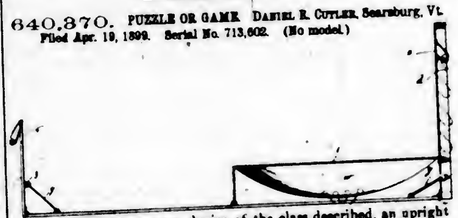
640,869. **BATTER-MIXER.** RAMLAH R. CROSS, Oneonta, N. Y. Filed Apr. 25, 1899. Serial No. 714,421. (No model.)



Claim.—1. In a batter-mixer, a pan having an aperture in its side near its mouth, a flange projecting from the edge of the mouth of said pan and having an opening in the same diametrically opposite the aperture in the side of the pan, a supporting-bar, a pin projecting from one end of said bar and adapted to engage with said aperture in the side of the pan, a pin projecting from the other end of said bar and adapted to engage with the said opening in the flange, a spring-clip on the bar for engaging the flange and a stirrer carried by said bar.

2. In a batter-mixer, a pan, a supporting-bar placed across the mouth of said pan, means for holding said bar thereon to prevent accidental displacement, a sleeve carried by said bar and having a bearing formed in its lower end, a shaft journaled in said bearing and having its upper end screw-threaded, a nut turned on the said screw-threaded end of the shaft, an angular flange projecting from the under side of said nut and bearing on the upper end of said sleeve, and a stirrer carried by said shaft.

640,870. **PUZZLE OR GAME.** DANIEL R. CUTLER, Searsburg, Vt. Filed Apr. 19, 1899. Serial No. 713,602. (No model.)



Claim.—1. In a game device of the class described, an upright wall provided with a plurality of openings, each of which is provided with a suspended bag, said wall being provided adjacent said openings with distinguishing-symbols, a basket supported in front of said wall, and a standard located adjacent said wall and provided with an elastic band to which is secured a cup, substantially as shown and described.

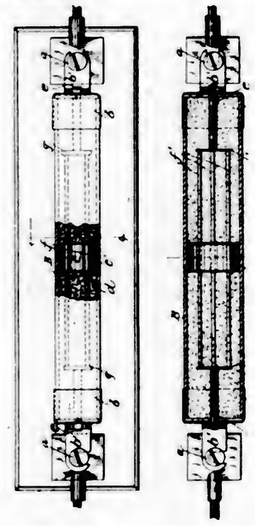
2. The herein-described puzzle or game device, comprising a ball or other missile, a base, a frame hinged to one end thereof, and adapted to occupy an upright position, a standard hinged to the other end of said base, said frame being provided with a wall having a plurality of openings, each of which is provided with a suspended bag, said wall adjacent each of said openings being circularly colored, said standard being provided at its upper end with a yoke having an elastic band provided with a cup adapted to project said ball, catches pivoted to said base and adapted to sustain said frame and standard in an upright position, and a frame pivoted at one end to said bar, and detachably connected at the other end with said frame and provided with a basket, substantially as shown and described.

3. In a game of the class described, a base, an upright wall hinged thereto and provided with a plurality of openings, a standard also hinged to said base and provided with means for projecting an object through said openings, and a basket-frame pivotally connected with said base and detachably connected with said upright wall, substantially as shown and described.

640,871. **ELECTRIC FUSE OR CUT-OUT.** LOUIS W. DOWNES, Providence, R. I. Filed Apr. 12, 1899. Serial No. 712,728. (No model.)

Claim.—1. In an electric fuse or cut-out, the combination with an inclosing sheath, and terminals on said sheath, of a fuse-link within the sheath consisting of a plurality of fusible wires or conductors connected in parallel between said terminals, and a filling of suitable porous or similar material within the sheath about said fusible wires providing a multitude of interstices or passages for disintegrating or breaking up and conducting away the metallic vapor or gas evolved by the fusing of the wires.

2. In an electric fuse or cut-out, the combination with an inclosing sheath, and terminals on said sheath, of a fuse-link within the sheath consisting of a plurality of fusible wires or conductors connected in parallel between said terminals, an air space within the inclosing sheath traversed by said wires, and a filling of suitable porous or similar material within the sheath about said fusible wires providing a multitude of interstices or passages for disintegrating or breaking up and conducting away the metallic vapor or gas evolved by the fusing of the wires.



3. In an electric fuse or cut-out, the combination with an inclosing sheath, of two caps, one for closing each end of said sheath, terminal connections on said caps, a fuse-link consisting of two end sections, each in the form of a single metallic rod or wire projecting through the caps respectively and in electrical contact with the terminals thereon, and an intermediate section consisting of a plurality of fusible wires or conductors connected in parallel between the inner ends of the two end sections respectively, an air-space within the sheath and through which said fusible wires pass, and a filling of a suitable material within the sheath.

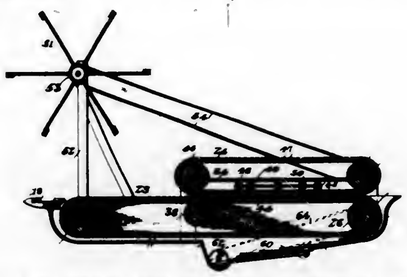
4. In an electric fuse or cut-out, the combination with an inclosing sheath, and terminals on said sheath, of a fuse-link within the sheath consisting of three or more fusible wires or conductors connected in parallel between said terminals and disposed about an imaginary axis at equal distances from each other, an air-space within the sheath traversed by said fusible wires, and a filling of suitable porous material within the sheath.

5. In an electric fuse or cut-out, the combination with an inclosing sheath, and terminals on said sheath of a fuse-link within the sheath consisting of three or more fusible wires or conductors connected in parallel between said terminals and disposed about an imaginary axis at equal distances from each other, an air-space within the sheath traversed by said fusible wires, and a filling of suitable porous material within the sheath.

640,872. **COMBINED HEADER AND THRESHER.** JOSEPH G. EVANS, Walla Walla, Wash. Filed Sept. 29, 1899. Serial No. 732,068. (No model.)

Claim.—1. In a combined header and thresher, the combination with a cutter mechanism, of a pair of endless coacting aprons having threshing studs or teeth, one of said aprons extending beyond the other and terminating adjacent to the cutter mechanism for conveying the grain therefrom, means for moving one apron in a path at right angles to the traveling motion of the aprons, and means for imparting traveling motion to both aprons, substantially as described.

2. In a combined header and thresher, the combination with a cutter mechanism, of a pair of endless coacting aprons having threshing studs or teeth on their opposing faces, one of said aprons extending beyond the other and terminating adjacent to the cutter mechanism, means for propelling the longer apron, a friction driving mechanism between the two aprons for driving the shorter apron from the longer apron, means for moving one apron across the face of the other apron, and means for sweeping the grain from the cutter apparatus upon the exposed surface of the longer apron, substantially as described.



3. In a combined header and thresher, the combination with a cutter mechanism, of a pair of endless coacting aprons having threshing studs or teeth on their working faces, one of said aprons extending beyond the other and terminating adjacent to the cutter mechanism, a shaking table or floor supported for movement in a path across the endless travel of the aprons and said floor or table carrying one of the aprons, means for reciprocating said floor or table, a driving mechanism for propelling a roller of the non-shaking apron, and a friction driving-gear operable by the roller of the non-shaking apron and adapted to impart the endless travel to the apron which is carried by the shaking floor or table, substantially as described.

4. In a combined header and thresher, the combination with a cutter apparatus, of a threshing mechanism comprising endless traveling aprons having threshing teeth or studs on their opposing faces, one of said aprons being longer than the other to be partly exposed beyond said other apron and having an end portion thereof arranged contiguous to the cutter apparatus to receive the heads of grain directly therefrom, and means for moving the short apron across the surface of the long apron, substantially as described.

5. In a combined header and thresher, the combination with a harvesting mechanism, of an endless apron supported by rollers and arranged to receive the heads of grain directly from the harvesting mechanism, another apron of less length than the first-named apron and supported in parallel relation thereto, said aprons having threshing studs or teeth on their working faces, means for giving the traveling motion to the lower apron, means for moving the upper short apron across the face of the long lower apron, and a friction driving-gear between a roller of the lower apron and a roller of the upper apron to give the traveling motion to the latter, substantially as described.

6. In a combined header and thresher, the combination with a cutter mechanism, of a pair of endless aprons having threshing teeth or studs on their working faces, one of said aprons being longer than the other and receiving the grain from the cutter apparatus, a reciprocatory floor or table guided to move in a path at right angles to the travel of the endless aprons and said floor or table carrying the shorter apron, and pressure devices supported by the floor or table to maintain the active lead of the apron carried thereby in parallel relation to the lead of the other apron, substantially as described.

7. In a combined header and thresher, the combination with a cutter mechanism, of a reciprocatory floor or table, a pair of endless traveling aprons having threshing-teeth on their opposing surfaces, one of said aprons being longer than the other to convey the grain from the cutter apparatus and the shorter apron carried by the floor or table to reciprocate therewith across the face of the long apron, means for giving the endless traveling motion to said aprons, and pressure devices supported by the floor or table in operative relation to the short apron, substantially as described.

8. In a combined header and thresher, the combination with a frame having elevated guideways, and a cutter apparatus on the front part of said frame, of the shaking floor or table slidably supported in the guideways, apron-rollers mounted in the frame, other apron-rollers supported by the floor or table, a pair of endless traveling aprons one longer than the other to convey the grain from the cutter apparatus and said aprons supported respectively by the rollers on the frame and on the shaking-table, a friction drive-gear between driving-rollers of the two aprons, and means for reciprocating the table and the apron carried thereby across the path of the apron supported on the frame; substantially as described.

9. In a combined header and thresher, the combination with a cutter mechanism, of a pair of endless coacting aprons, one of which is longer than the other to convey the grain from the cutter apparatus, and yieldable pressure devices cooperating with one apron, whereby the pressure of grain between the aprons is prevented from

moving the working surfaces thereof away from operative relation, substantially as described

10. In a combined header and thresher, the combination with a cutter apparatus, of endless threshing-aprons having studs or teeth on their opposing faces, one of said aprons being movable across the face of the other apron, a grain-pan below the delivery end of the lower apron and arranged to partially embrace the latter, and means for reciprocating said grain-pan, substantially as described.

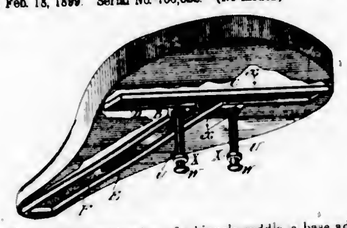
11. In a combined header and thresher, the combination with a cutter mechanism, of a threshing mechanism comprising endless aprons provided with threshing-teeth on their working surfaces, one of said aprons being movable across the path of the other apron, a screw conveyer below the lower apron, a grain-pan supported partly below the lower apron to deliver the grain to the casing of said screw conveyer and having a hood which conforms to the curvature of the lower apron, and driving devices between the screw conveyer-shaft and the grain-pan to reciprocate the latter, substantially as described.

12. In a combined header and thresher, the combination with a main driving-shaft having a master-gear, of a cutter apparatus driven from said shaft, a pair of endless parallel aprons provided with threshing-teeth on their working faces, one of said aprons being longer than the other to convey the grain from the cutter apparatus, means for supporting the upper apron for movement across the face of the lower apron, a compound intermediate gear provided with a wrist-pin and driven by the master-gear, sprocket-gears between the compound intermediate gear and a driving-roller of the lower apron, a bell-crank lever having pitman connection with the compound intermediate gear and with the supporting means for the upper apron, and a friction driving-gear between the driving-roller of the lower apron and the corresponding roller of the upper apron, substantially as described.

13. In a combined header and thresher, the combination of a two-part frame, a cutter mechanism supported by one member of the frame, a pair of threshing-aprons supported by said frame member and having one apron longer than the other to convey the grain from the cutter mechanism below the other threshing-apron, a cleaning mechanism supported by the other member of the frame, a main driving-shaft, driving devices propelled by said shaft for operating the cutter mechanism, the threshing-aprons and the cleaning mechanism, and an elevator also actuated by the shaft and arranged to receive grain from the threshing-aprons and deliver the same to the cleaning mechanism, substantially as described.

14. In a combined header and thresher, the combination with a frame and a cutter mechanism thereof, of posts fixed to the frame and having the guideways, a reciprocating floor or table fitted slidably in the guideways, an upper apron carried by said floor or table and having the threshing-teeth, a lower longer apron supported by the frame in parallel relation to the upper apron and extending beyond the latter to a point adjacent to the cutter apparatus, a series of yieldable pressure-rolls suspended from the floor or table and riding upon the lower lead of the upper apron, means for giving the traveling motion to the aprons, and means for reciprocating the table and upper apron across the lower apron, substantially as described.

640,378. BICYCLE-SADDLE JOHN C. FLEMING, Philadelphia, Pa. Filed Feb. 18, 1899. Serial No. 706,022. (No model.)



Claim.—1. The combination of a bicycle-saddle, a base adapted to be secured to a bicycle-frame, a spring having lateral arms secured thereto, arms projecting from said base, said spring being supported on the latter, a channeled T-shaped frame mounted upon the ends of said spring and rods depending from said T-shaped frame, and passing freely through openings in the arms of said base and heads on said rods.

2. The combination of a bicycle-saddle, a base adapted to be secured to a bicycle-frame, a spring having lateral arms secured thereto, arms projecting from said base, said spring being supported on the latter, a channeled T-shaped frame mounted upon the ends of said spring and rods depending from said T-shaped frame, and passing freely through openings in the arms of said base, heads on said rods and cushioning devices supported on said heads.

3. In a bicycle-saddle, a base adapted to be attached to a bicycle-frame, arms projecting from said base, openings in said arms, a spring having lateral and longitudinal arms, said spring being secured to said base at the junction of said arms, a saddle having a recessed frame secured to the under portion thereof, said frame resting upon the upwardly-deflected ends of said spring, and rods freely guided in said base, and having their upper ends secured in said frame.

4. In a bicycle-saddle, a base adapted to be attached to a bicycle-frame, arms projecting from said base, openings in said arms, a spring secured to said base, a saddle having a frame secured to its under portion, said spring supporting said frame and saddle, rods freely movable in the arms projecting from said base, said rods having a head at their lower portion, washers supported upon said heads, and a shoulder on the upper portion of said rods, and in contact with said frame, the upper extremity of said rods being threaded, passing through said frame and engaged by nuts or other fastening devices.

640,374. REFLECTOR FOR ELECTRIC OR OTHER LIGHTS. JOHN C. FLEMING, Philadelphia, Pa. Filed Mar. 2, 1899. Serial No. 707,453. (No model.)



Claim.—1. A reflector consisting of a plurality of concentric cones a light-reflecting material contained in the space between said cones, upper and lower supporting devices for the latter and an intermediate connecting means for said devices.

2. A reflector consisting of a plurality of concentric cones, the outer of said cones being of transparent material and the inner of said cones being provided with a coating of reflecting material plates common to the upper and lower ends of said cones and a fastening device common to said plates and extending through the inner cone.

3. A reflector, consisting of an upper and lower plate, concentric cones supported therebetween, reflecting material contained in the space between said cones, a connecting device common to said plates and extending through the inner cone, and lights supported adjacent to said reflector.

4. In a reflector, an upper supporting device, lamps mounted thereupon, a reflecting device mounted on said supporting device underneath said lamps, a plurality of plates located underneath said reflector, a plurality of concentric cones supported between said plates, a liquid contained in the space between said cones, and lamps supported in proximity to the outer of said cones.

5. In a reflector, a tube, a plurality of lights supported thereupon, a reflecting-plate located underneath said lights, a plurality of plates thereunder, concentric cones located between said plates, the space between said cones being filled with a suitable liquid, a supporting-plate secured to the lower portion of said tube, a locking-cone attached to the latter for holding the parts in assembled position, and lights supported upon the lower portion of said tube, said lights being located adjacent to the outer of said cones.

6. In a reflector, an upper plate, having its upper surface coated with reflecting material, a plate thereunder, having grooves in its under surface, a plurality of concentric cones supported beneath said latter plate, a liquid contained in the space between said cones, and lights located adjacent to the exterior of said reflector.

7. In a reflector, an upper laterally-extending reflecting device, lights located above but in proximity thereto, a lower conical reflector, a lower locking-cone for holding the parts in assembled position, and lights located adjacent said conical reflector, in combination with a rod common to said plates and lower cone.

8. In a reflector, a supporting-tube, a coupling for securing said tube to a suitable fixture, lights supported from said tube, a reflector supported on the latter below said lights, a plate located beneath

said reflector and provided with annular grooves, a plurality of cones seated in said grooves, the outer of said cones being composed of transparent material and the inner of said cones having a coating of white enamel or similar material, a lower grooved plate for the reception of the lower ends of said cones, a locking device adapted to lock the parts in assembled position, tubes supported upon the lower portion of said locking device and lamps supported upon said tubes, said lamps being located in proximity to said outer cone.

9. In a reflector for electric and other lights, a plurality of concentric cones, plates forming closures for the upper and lower portions of said cones, and means for locking said cones and plates in assembled position.

10. In a device of the character named, a tube, an upper reflector secured thereto, a plate also secured on said tube and located beneath said upper reflector, bolts near the top of said upper plate, and adapted to engage an inwardly-extending flange, a plurality of concentric cones, a plate for closing the lower ends of said cones and a locking-cone adapted to abut against said lower plate and to engage said rod.

11. In a reflector, a plurality of concentric cones, plates closing the upper and lower ends thereof, a rod common to said plates, a locking-cone secured to said rod, a plurality of lamps or lighting devices secured to said locking-cone and wires contained in said inner tube and leading to said lamps.

12. In a reflector of the character described, a plurality of concentric cones, an upper and a lower plate therefor, a tube passing through and engaging said plates, a lower locking-cone having a threaded socket projecting upwardly therefrom and engaging said tube, the outer portion of said cone being adapted to contact with the outer portion of said lower plate, lamps secured to the sides and apex of said lower locking-cone and wires contained in said tube and leading to said lamps, the outer portion of said cone being coated with white enamel or other similar reflecting material.

13. In a reflector, a plurality of cones, plates common thereto, a tube common to said plates, the upper plate having keepers thereon, bolts passing through said keepers, and adapted to contact with an adjacent plate, a reflector supported above the latter and lamps supported upon said tube above said upper reflector.

14. A reflector consisting of a cone, upper and lower plates therefor, a tube common to said plates, a reflector located above said upper plate and a concave annular reflecting-surface adjacent the upper portion of said cone.

15. In a reflector, a tube, an upper reflector supported thereon, a cone supported below said reflector and having an upper concave annular reflecting-surface adjacent thereto, a lower locking-cone having its outer portion provided with a coating of white enamel or other similar material and lamps supported upon the sides and apex of said lower cone.

16. In a reflector, a tube, a cone, supporting devices common to said tube and cone, a lower locking-cone having a threaded socket attached to said tube, lamps projecting from the side and apex of said lower cone, an upper reflector, lamps supported on said tube above said upper reflector and conductors contained in said tube and leading to said lamps.

17. In a reflector for electric and other lights, a plurality of concentric cones, plates located at the upper and lower portions of said cones, the surface of one of said cones being coated with a suitable light-reflecting material, a laterally-extending reflector located above said upper plate, a rod supporting said plate, lights supported on said rod above said upper reflector, a locking device engaging said rod and lower plate for holding the parts in assembled position and lights suitably supported adjacent the outer of said cones.

18. In a reflector, inner and outer cones having a light-reflecting material in the space between them, upper and lower plates for holding said cones in assembled position, a tube common to said plates, a lower locking-cone, engaging said lower plate and tube, the outer portion of said locking-cone being coated with a light-reflecting material, and lights supported in proximity to said lower and outer cones.

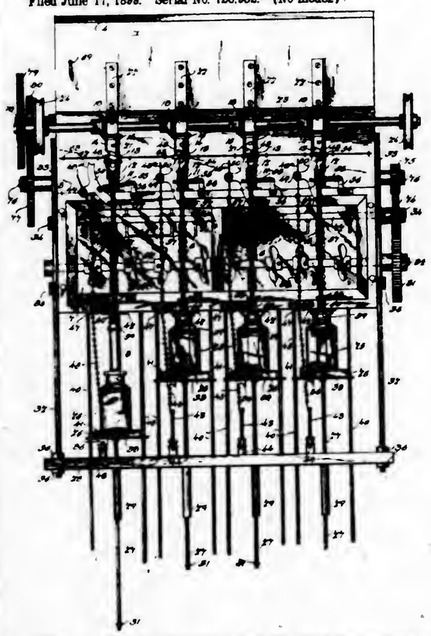
19. In a reflector, upper and lower plates, cones supported between said plates, the surface of one of said cones being coated with a light-reflecting material, means for holding said plates in assembled position, a lower locking-cone forming a continuation of the outer of said cones, and lights supported from said lower cone.

20. In a reflector, inner and outer cones, having a light-reflecting material in the space between them, upper and lower plates, a connecting device therefor located in the inner of said cones, a lower locking-cone, and lights supported in proximity thereto.

21. In a reflector, inner and outer cones, having a light-reflecting material in the space between them, upper and lower devices for holding said cones in assembled position, a tube common a said devices and located in the inner of said cones, and lights suitably supported in proximity to the outer of said cones.

22. A reflector consisting of an upper and lower plate, concentric cones supported therebetween, a liquid contained in the space between said cones, a connecting device common to said plates extending through the inner cone and lights supported adjacent to the exterior of said reflector.

640,375. CAN-FILLING MACHINE. WILLIAM GEBHARDT, San Antonio, Tex., assignor of one-half to Albert Kronkosky, same place. Filed June 17, 1899. Serial No. 720,962. (No model.)



Claim.—1. In a machine of the class described, the combination of a hopper or casing, feed mechanism, gearing for operating the feed mechanism, a clutch connecting the gearing and the feed mechanism, a clutch-lever 48, a lever 50 arranged to engage the clutch-lever to support one of the sections of the clutch and adapted to be swung out of such engagement, a spring for holding the lever 50 in position for supporting the clutch-lever 48, a movable support arranged to hold a receptacle to the feed mechanism, a shifting lever adjustably connected with the said lever 50 and arranged in the path of the movable support, and a spring-actuated operating-rod connected with the clutch-lever 48, and adapted to actuate the same, to throw the feed mechanism out of operation, said rod being also adapted to return the movable section of the clutch to its engaging position, substantially as described.

2. In a machine of the class described, the combination of a hopper or casing, feed mechanism, gearing for operating the feed mechanism, a clutch connecting the gearing with the feed mechanism, a clutch-lever connected with one of the sections of the clutch, a bell-crank lever having one of its arms supporting the clutch-lever, a movable support, a shifting lever arranged in the path of the support and connected with the bell-crank lever, and a spring-actuated operating-rod connected with the clutch-lever and adapted to move the same downward and capable of enabling the said clutch-lever to be raised, substantially as and for the purpose described.

3. In a machine of the class described, the combination of a hopper, a conveyer for forcing material from the hopper, and a pair of reversely-inclined spiral blades located at opposite sides of the conveyer and adapted to force the material toward the same, substantially as described.

4. In a machine of the class described, the combination of a hopper or casing having discharge or filling tubes, screw conveyers extending from the hopper or casing into the said tubes, a shaft arranged at right angles to the screw conveyers and located adjacent to the same, and spiral blades disposed in pairs on the said shaft and located at opposite sides of the screw conveyers, the blades of each pair being reversely arranged, substantially as described.

5. In a machine of the class described, the combination of a hopper or casing provided at its bottom with depending discharge or filling tubes, vertically-disposed screw conveyers extending from the

hopper or casing into the said tubes, an inclined wall located in rear of the said conveyers, upper and lower agitators or mixers, and the spiral blades located at opposite sides of the screw conveyers, substantially as described.

6. In a machine of the class described, the combination of a hopper or casing, feed mechanism, gearing for operating the feed mechanism, a clutch connecting the gearing and the feed mechanism, a clutch-lever, a lever 50 arranged to engage the clutch-lever to support the clutch in its engaging position and adapted to be swung out of such engagement, a spring for holding the lever 50 in position for supporting the clutch, a movable support arranged to hold a receptacle to the feed mechanism, a shifting lever adjustably connected with the said lever 50 and arranged in the path of the movable support, and an operating-rod connected with the clutch-lever and adapted to actuate the same to throw the feed mechanism out of operation, said rod being also adapted to return the movable section of the clutch to its engaging position, substantially as described.

7. In a machine of the class described, the combination of a hopper, feed mechanism, gearing for operating the feed mechanism, a clutch-lever, a clutch, a lever 50 arranged to engage the clutch-lever to support the clutch in operative position and adapted to be swung out of such engagement, a movable support arranged to hold a receptacle to the feed mechanism, a shifting lever adjustably connected with the said lever 50 and arranged in the path of the movable support, and an operating-rod connected with the clutch-lever and adapted to actuate the same, to throw the feed mechanism out of operation, said rod being also adapted to return the clutch to its engaging position, substantially as described.

8. In a machine of the class described, the combination of a hopper, feed mechanism, gearing for operating the feed mechanism, a clutch-lever, a clutch connecting the gearing and the feed mechanism and composed of two sections, one of the sections being movable, a lever arranged to engage the clutch-lever and adapted to be swung out of such engagement, a movable support arranged to hold a receptacle to the feed mechanism, a shifting lever connected with the said lever 50 and arranged in the path of the movable support, and an operating-rod connected with the clutch-lever and adapted to actuate the same to throw the feed mechanism out of operation, said rod being also adapted to return the movable section of the clutch to its engaging position, substantially as described.

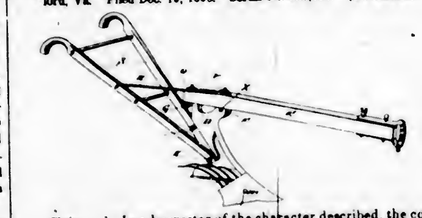
9. In a machine of the class described, the combination of a hopper, feed mechanism, gearing for operating the feed mechanism, a clutch connecting the gearing with the feed mechanism, and composed of two sections, one of the sections being movable, a clutch-lever 48 connected with the movable section of the clutch, a lever 50 arranged to support the clutch-lever and adapted to be swung out of such engagement, a movable support, a shifting lever arranged in the path of the movable support and connected with the lever 50, and an operating-rod depending from the clutch-lever and adapted to actuate the same to throw the feed mechanism out of operation, said rod being also adapted to return the movable section of the clutch to its engaging position, substantially as described.

10. In a machine of the class described, the combination of a hopper, feed mechanism, gearing for operating the feed mechanism, a clutch connecting the gearing and the feed mechanism, a clutch-lever, a bell-crank lever having one of its arms supporting the clutch-lever and adapted to be swung out of such engagement, a spring for holding the lever 50 in position for supporting the clutch-section, a movable support arranged to hold a receptacle to the feed mechanism, a stud mounted on the said lever 50, a rod passing through an opening of the stud and adjustably secured to the same, a shifting lever connected with the rod and arranged in the path of the movable support, and a spring-actuated operating-rod connected with the clutch-lever and adapted to actuate the same to close the feed mechanism out of operation, said rod being also adapted to return the movable section of the clutch to its engaging position, substantially as described.

11. In a machine of the class described, the combination of a casing, a vertical series of filling-tubes arranged to extend into the receptacles to be filled, a vertical series of screw conveyers extending into the filling-tubes and provided with short shafts or extension 11 arranged on the exterior of the casing, the exterior clutches connected with the screw conveyers and provided with vertically-movable sections, a horizontal shaft 23 extending across the front of the casing at the upper ends of the short shafts 11, beveled gear connecting the shaft 23 with the clutches, independent clutch-levers connected with the movable sections of the clutches, the levers 50 arranged to support the clutch-levers and adapted to be swung out of such engagement, springs for holding the levers 50 in position for supporting the clutch-sections, movable supports arranged to hold receptacles to the feed mechanism, shifting levers connected with the levers 50 and arranged in the path of the movable supports, and spring-actuated operating-rods connected with the clutch-levers and adapted to actuate the same to throw the feed mechanism out of operation, said rods being also adapted to return the movable sections of the clutches to their engaging position, substantially as described.

12. In a machine of the class described, the combination of a casing, a vertical series of filling-tubes arranged to extend into the receptacles to be filled, a vertical series of screw conveyers extending into the filling-tubes and provided with short shafts 11, arranged on the exterior of the casing, the exterior clutches connected with the screw conveyers and provided with vertically-movable sections, a horizontal shaft 23 extending across the front of the casing at the upper ends of the short shafts 11, bevel-gear connecting the shaft 23 with the clutches, an agitator arranged within the casing and connected by gearing with the shaft 23, independent clutch-levers connected with the movable sections of the clutches, the levers 50 fulcrumed beneath the clutch-levers and arranged to support the same and adapted to be swung out of such engagement, springs for holding the levers 50 in position for supporting the clutch-levers, movable supports arranged to hold receptacles to the feed mechanism, shifting levers connected with the levers 50 and arranged in the path of the movable supports, and spring-actuated operating-rods connected with the clutch-levers and adapted to actuate the same to throw the feed mechanism out of operation, said rods being also adapted to return the movable sections of the clutches, to their engaging positions, substantially as described.

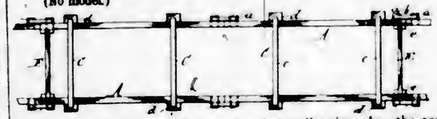
640,876. **PEA OR BEAN HARVESTER.** JOHN D. GRAY, Woodford, Va. Filed Dec. 19, 1898. Serial No. 699,757. (No model.)



Claim.—1. In a harvester of the character described, the combination of a standard, a digger or opener composed of a wing formed integrally with and extending laterally from the standard and a share detachably secured thereto, said parts being provided in their meeting faces with registering grooves forming seats and the wing with openings communicating with the lower ends of the grooves therein, and rearwardly-projecting fingers or tines having their front ends fitted in said seats and clamped between the wing and share and provided with lugs or projections entering said openings, substantially as described.

2. A bean and pea harvester comprising, in combination, a standard bifurcated at its upper end to form front and rear arms, a slotted plate upon the rear surface of the rear end and projecting transversely beyond the sides of the beam, a bracket-plate reversible for application upon either side of the front arm, a beam supported by said arms and connected by bolts or analogous fastening devices to the slotted plate and bracket, a digger or opener upon the lower end of the standard and projecting laterally at one side thereof, and fingers or tines extending rearwardly from the digger.

640,877. **CRIB FOR BUILDING PIERS, WALLS, &c.** JOHN G. HAENTGES, Buffalo, N. Y., assignor of one-half to Mathias Haentges and Joseph Haentges, same place. Filed June 9, 1899. Serial No. 719,891. (No model.)



Claim.—1. In a crib for constructing walls, piers, &c., the combination of the walls of the crib composed of separable sections, the adjoining sections being provided on their outer sides adjacent to their ends with vertical rows of horizontal eyes or loops, and vertical connecting-bars passing through the two sets of staples of adjoining sections, substantially as set forth.

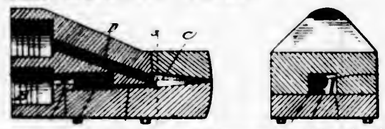
2. In a crib for constructing walls, piers, &c., the combination of the walls of the crib composed of separable sections, each section being provided near its end with a vertical row of horizontal eyes or loops, and an upright staple-shaped connecting-bar having its legs passed through the eyes of adjoining sections, substantially as set forth

3. In a crib for building walls, piers, &c., the combination with a pair of opposing upright walls, of a U-shaped tie or binding-bar embracing said walls, the legs of the binding-bar being arranged outside of the inner surface of the crib-walls and the connecting-bar of the legs extending across the top of the walls, substantially as set forth.

4. In a crib for building walls, piers, &c., the combination with a pair of opposing upright walls, each provided on its outer side with upright pockets, of a U-shaped binding-bar embracing said walls and having its upright legs arranged in the external pockets of the crib-walls, substantially as set forth.

5. In a crib for constructing walls, piers, &c., the combination with the opposing walls of the crib, each composed of separable sections, which are provided adjacent to their adjoining ends with vertical rows of external eyes or loops, and between their ends with external upright pockets, upright connecting-bars passing through the eyes or loops of adjoining sections, and U-shaped binding-bars embracing the opposing walls of the crib and having their legs arranged in the upright pockets thereof, substantially as set forth.

640,378. **OIL-BURNER.** CHARLES A. HANNEL, Los Angeles, Cal., assignor of one-half to James A. Kenworthy, same place. Filed Apr. 19, 1899. Serial No. 713,611. (No model.)

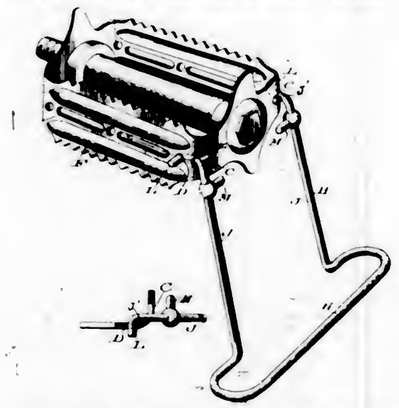


Claim.—1. A hydrocarbon-burner comprising a mixing-chamber, and an oil-inlet duct communicating therewith, an expansion-chamber, and converging ducts leading from the expansion-chamber to the mixing-chamber, and a duct leading from said expansion-chamber to the steam or air inlet pipe, substantially as and for the purpose set forth.

2. A hydrocarbon-burner comprising the mixing-chamber C opening into the atmosphere, the oil-duct D, the expansion-chamber E, the converging ducts G and H, and the longitudinal duct I leading from the expansion-chamber to said mixing-chamber, substantially as and for the purpose set forth.

3. A hydrocarbon-burner provided with the oil-inlet orifice A, an air-inlet orifice B, a mixing-chamber C opening into the atmosphere, an oil-duct D connecting the oil-inlet orifice A and the mixing-chamber C, the expansion-chamber E, the ducts G H and I connecting said mixing and expansion chambers C E, and the duct F extending from said air-inlet orifice B to the expansion-chamber E, substantially as and for the purpose set forth.

640,379. **BICYCLE-SUPPORT.** WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,910. (No model.)



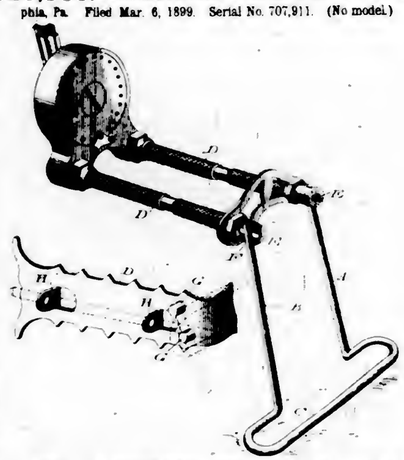
Claim.—1. In a bicycle-support, a frame having slots in the front wall and openings in the side wall thereof, said slots being adapted for the passage therethrough of tongues on the upper portions of the legs of the support, and said openings being adapted to seat said tongues therein.

2. A bicycle support consisting of a pair of resilient legs, inturned limbs at the upper end of said legs, outturned tongues on the terminals of said limbs and inturned studs near said upper ends of the legs.

3. A bicycle-support consisting of a pair of resilient legs with outturned tongues on the upper ends thereof, and a pedal-frame provided with slots and openings in a wall thereof, said slots permitting the passage of said tongues therethrough to reach said openings.

4. A pair of resilient legs with inturned studs, in combination with a pedal-frame having in its sides recesses in which when the support is folded said legs may be seated, and openings which may be occupied by said studs.

640,380. **BICYCLE-SUPPORT.** WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,911. (No model.)

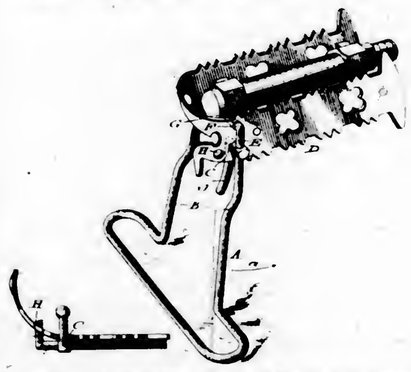


Claim.—1. A bicycle-support consisting of a leg which is unobstructed in the direction of its length, and a pedal-frame having a bore therein in the direction of the width of said frame adapted to the size and shape of said leg whereby the latter may be slid into said bore to fold it in inoperative position.

2. In a bicycle-support, a bicycle-pedal having in the foot-tread or frame thereof, a bore to receive the leg of the support when in inoperative position and a recess bisecting said bore to receive the upper end of said leg in operative position.

3. A bicycle-frame consisting of a leg and a base, said leg being unobstructed in the direction of its length, and a pedal-frame having in the foot-tread thereof a bore extending in the transverse direction of said frame to receive said leg.

640,881. **BICYCLE-SUPPORT.** WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,914. (No model.)



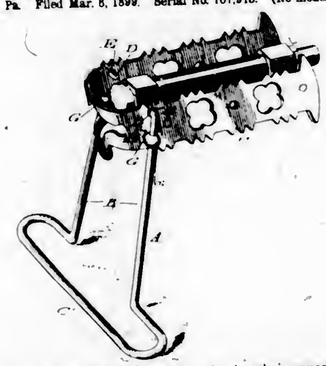
Claim.—1. A bicycle-support having a leg with a journal thereon deflected to form an arm for operating said leg, and a limb of said leg deflected to form a locking member.

2. A bicycle-support having legs provided with journals, and a pedal-frame having side pieces in which said journals are rotatably mounted, one of said journals being continued and deflected so as to form an arm for operating the support, and one of said legs being continued beyond its journal and deflected so as to form a locking member, the latter being adapted to engage suitable recesses in said pedal-frame in either extreme position of the support.

3. A pedal-frame, and a bicycle-support having legs and journals on the latter, one of said journals being prolonged to form an operating-arm, and one of said legs being continued beyond its journal and deflected so as to form a locking member and openings or recesses in the side pieces of said pedal-frame for the reception of said locking member, one of the said openings being located in a curved portion of said pedal-frame.

4. As a new article of manufacture, a bicycle-support, having legs B, and journals C, one of said legs being continued beyond its journal as at E, and then bent so as to form a locking member F, and one of said journals being prolonged and then bent so as to form an arm for manipulating said support.

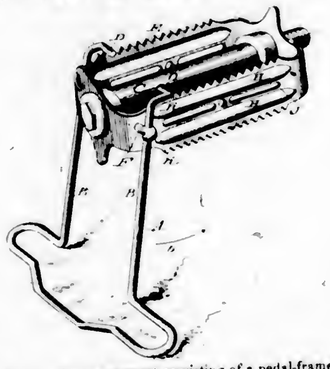
640,382. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,915. (No model.)



Claim.—1. In a bicycle-support, legs having their upper ends deflected inwardly and adapted to engage with a pedal-frame and an inturned member adjacent to said ends also engaging said frame for locking said legs on the latter, said pedal-frame having openings at different places for the reception of said members in the operative position of said legs.

2. The combination of a bicycle-support having legs, the upper extremity of each of which is deflected inwardly and has a locking member on the inner portion of said leg, and a pedal-frame having openings therein at different places in which the deflected ends and said member are adapted to enter and thus interlock the legs with said frame.

640,383. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,917. (No model.)



Claim.—1. A bicycle-support consisting of a pedal-frame, and a leg having a journal which is mounted on said frame, an upward extension above said journal and an inwardly-deflected limb on said extension adapted to abut against the top portion of said pedal-frame.

2. The combination of a pedal-frame having longitudinally-extending ridges in the side pieces thereof, and a bicycle-support suitably journaled in said side pieces, the upper extremities of said support being inwardly deflected so as to contact with the adjacent edges of said frame, when the support is in operative position.

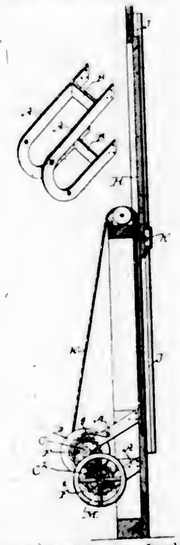
640,384. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,918. (No model.)



Claim.—1. In a bicycle-support, a pedal-frame provided with a segmental slot, and a leg adapted to be rotatably mounted on said frame, the upper terminal of said leg being deflected forming a limb which enters said slot.

2. A pedal-frame having curved slots, near the extremity thereof, and a bicycle-support journaled on said frame, the upper extremities of said support being deflected inwardly and adapted to engage the walls of said slots, the termini of the latter serving to limit the movements of said support in its extreme positions and locking devices for retaining the support normally in closed or inoperative position.

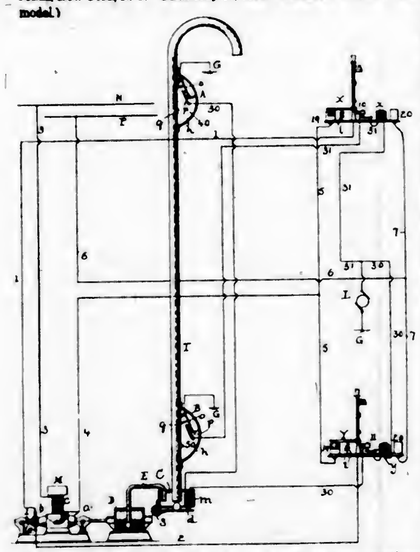
640,385. VERTICALLY-ADJUSTABLE BARN-DOOR. FRED HERING, Churdan, Iowa. Filed June 29, 1899. Serial No. 722,350. (No model.)



Claim.—1. A vertically-sliding door fitted in parallel ways at the sides of an elevated doorway, a pulley mounted at the bottom and center of the doorway, a frame fixed to the inside of the lower portion of the wall of a building directly below said pulley, a cylinder mounted in said fixed frame, means for rotating and locking said cylinder, a rope fixed to the bottom of the door and extended over said pulley and its lower end fixed to said cylinder, all arranged and combined to operate in the manner set forth for the purposes stated.

2. Means for operating a vertically-adjustable barn-door comprising a frame fixed to the wall of the building below the center of the doorway composed of mating sides A and A^1 and cross-bars B and B^1, a shaft C having a fixed cylinder D, a shaft C^1, gear-wheels F and F^1, a detent *g*, a rope K fixed to the door and to the cylinder, a pulley L at the bottom of the doorway and a crank-wheel on the end of the shaft C^1, all arranged and combined as shown and described for the purposes stated.

640,886. PNEUMATIC-TRANSFER-TUBE SYSTEM. STERNE F. JONES, New York, N. Y. Filed May 17, 1899. Serial No. 717,145. (No model.)



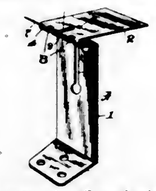
Claim.—1. The combination with a tube connecting two stations, of a door in said tube at one station, a device for imparting a bias or closing tendency to said door, an electromagnet having its armature fixed to said door, a reversible air-pump, a motor therefor, means for reversing said motor including an electric circuit, a switch controlled by an electromagnet, a second circuit including both electromagnets with a circuit-closer at one station and an automatic circuit-breaker at a second station.

2. The combination with a tube connecting two stations of a door in said tube at one station, means for imparting a closing tendency to said door, an electromagnet having its armature fixed to said door, a reversible air-pump, a suitable motor for said pump, means for reversing said motor including an electric circuit, an operating-switch for said circuit, a magnet to hold said switch in one of two positions, a separate electric circuit containing the door-controlling and the switch-controlling magnets with means for automatically breaking said circuit at both stations substantially as described.

3. The combination of a transfer-tube connecting two stations, a door in said tube at one station, an air-pump and a motor for alternately drawing and driving air through said tube, a main electric circuit to control said motor, switches at each station to control said circuit, a magnet to control said door, a local circuit for said magnet, a circuit-closer in said circuit operated by the switch at one station and a circuit-breaker in said local circuit operated by the passing carrier at the other station.

640,387. BRACKET FOR MINERS' LAMPS. THOMAS R. JONES, Wilkes-Barré, Pa. Filed Sept. 25, 1899. Serial No. 731,685. (No model.)

Claim.—1. A lamp-bracket for miners' caps consisting of a plate adapted to be vertically arranged in front of the cap and having its upper and lower ends adapted to be attached to the crown and peak thereof respectively, said plate having a bent or beaded portion projecting forwardly from the body portion and uniting said body portion with the upper attaching end, a narrow longitudinal slot in its upper portion extending through said bent portion, and a perforation in the rear of the bent portion and in line with the slot.



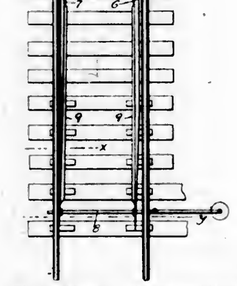
2. A lamp-bracket for miners' caps having a slot near its upper end adapted to receive the shank of the lamp-hook and an opening in the rear of the slot for the point of the hook, in combination with a lamp-retaining device adapted to be extended across the slot when the lamp is upon the bracket.

3. A lamp-bracket for miners' caps having a slot in its upper part adapted to receive the shank of a lamp hook and an opening in the rear of the slot for the point of the hook, in combination with a lamp-retaining device consisting of a wire or pin removably secured to the bracket and adapted to extend across the slot.

4. A lamp-bracket for miners' caps having a bend in its upper portion, a slot extending through said bend and adapted to receive the shank of a lamp-hook and an opening in the rear of said slot for the point of the hook, in combination with a lamp-retaining device adapted to extend across said slot at the bend in the bracket.

5. A lamp-bracket for miners' caps having a bend in its upper portion and eyes formed thereon, a slot extending through said bend and adapted to receive the shank of a lamp-hook and an opening in the rear of said slot for the point of the hook, in combination with a lamp-retaining device consisting of a wire or pin removably arranged within said eyes and extending across the slot.

640,388. REINFORCED SWITCH-POINT. HOWARD G. KELLEY, Minneapolis, Minn. Filed Nov. 9, 1899. Serial No. 736,332. (No model.)



Claim.—1. The combination, with a movable switch-rail, of a laterally-extending inflexible reinforcement thereon, upon the gage side thereof.

2. The combination, with the movable switch-rail, of a laterally-extending inflexible reinforcement extending beyond the gage side of the rail-head.

3. The combination, with the movable switch-rail, of a bar secured to the gage side of the rail, and having a part extending laterally therefrom, for the purpose specified.

4. The combination, with the movable switch-rail, of the reinforcement or alining bar having a laterally-extending portion projecting beyond the gage side of the rail and below the path of a wheel-flange thereon, substantially as described.

5. The combination, with the movable switch-rail, of an alining-bar secured to the gage side thereof by rivets or equivalent devices passing through the rail-web, said bar having a horizontal portion of substantially the length thereof, substantially as described.

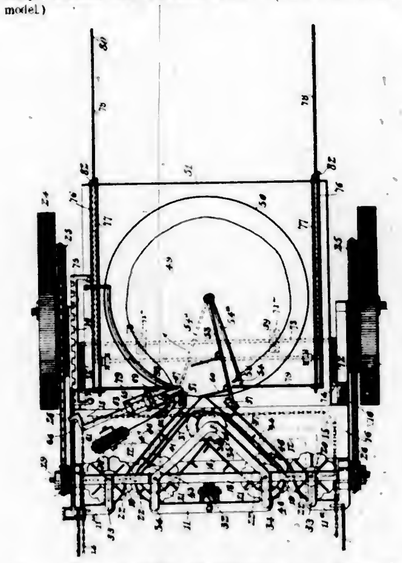
6. The combination, with the movable switch-rail, of the T-bar, the head-flanges of which are riveted to the gage side or inside of the rail-web.

7. A railroad-switch comprising the main and side track rails,

and the swinging switch-points having their free ends only connected, and the laterally-extending alining-bars upon the gage sides of said switch-points.

8. A railroad-switch comprising the main and side track rails and the swinging switch-points, having their free ends connected, and the alining-bars secured to the gage sides of said switch-points and having horizontal webs or projections below the parts of the wheel-flange, substantially as described.

640,389. **CORN-HARVESTER.** HERSCHEL V. JOSEPH, Avalon, Mo., assignor of one-half to Peter T. Hedges, Purdin, Mo., and Joel E. Joseph, Skeleton, Okla. Filed Mar. 29, 1899. Serial No. 710,9 8. (No model.)



Claim.—1. In a harvester, the combination with a supporting-framework, of cutting and conveying devices including knives, rearwardly-convergent ways for guiding severed stalks, and rearwardly-convergent pairs of conveyer-chains having spurs adapted respectively to span said ways, means for carrying said conveyer-chains, consisting of a rear central cranked shaft having offset or eccentric spindle portions, and pairs of sprocket-wheels mounted respectively upon said spindle portions, and means for operating said knives and conveyers, substantially as specified.

2. In a harvester, the combination with cutting and conveying devices, of shocking mechanism consisting of a rotary table, and fixed and movable spreader-frames arranged in intersecting planes, with the space therebetween in communication with the point of delivery of the stalk-conveying devices when the movable frame is in its initial position, and said movable frame being connected with the rotary table for movement simultaneously therewith, substantially as specified.

3. In a harvester, the combination with cutting and conveying devices, of a shocking mechanism having a rotary table, fixed and movable spreader-frames arranged in intersecting vertical planes with the space therebetween in communication with the point of delivery of the stalk-conveying devices when the movable frame is in its initial position, said movable spreader-frame being connected with the rotary table for communicating motion thereto, and having a tie-carrying arm, adapted to carry a flexible tie extending through a guide arranged adjacent to the initial position of the movable frame, substantially as specified.

4. In a harvester, the combination with cutting and conveying devices, of a shocking mechanism having a rotary table, fixed and movable spreader-frames arranged in intersecting vertical planes with the space therebetween in communication with the point of delivery of the stalk-conveying devices when the movable frame is in its initial position, said movable spreader-frame being connected with the rotary table for communicating motion thereto, and having a tie-carrying arm, a fixed tie-guide arranged adjacent to the initial position of the movable frame, and having a clamping device, said parts adapted to carry a flexible tie extending through said guide and engaged by the carrier-arm of the movable frame, and tying mechanism, substantially as specified.

5. In a harvester, the combination with cutting and conveying devices, of a shocking mechanism having a rotary table, fixed and movable spreader-frames arranged in intersecting vertical planes with the space therebetween in communication with the point of delivery of the stalk-conveying devices when the movable frame is in its initial position, said movable spreader-frame being connected with the rotary table for communicating motion thereto, and having a tie-carrying arm, a tie terminally engaged by said carrier-arm and extending through a guide adjacent to the initial position of the movable frame, and yielding presser-arms carried by the stationary frame and extending transversely into the space between said frames, substantially as specified.

6. In a harvester, the combination with a supporting-frame and cutting, conveying and shocking devices, of a tilting platform carrying the shocking devices and adapted to be depressed at its rear edge to discharge a completed shock, a lever having a stirrup extending under said platform and provided with offset bearing portions engaging loosely upon adjacent portions of the supporting-frame adapted for downward pressure upon said adjacent portions, and a toothed segment carried by the platform for engagement by the lever, substantially as specified.

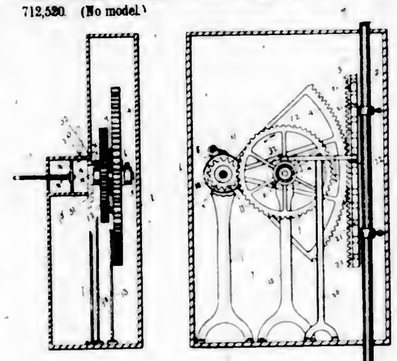
7. In a harvester, the combination with a supporting-frame having parallel side bars, and cutting, conveying and shocking devices, of a tilting platform hinged at its front edge for depression at its rear edge to discharge a completed shock, a platform-operating lever having a stirrup extending beneath and connected with the platform, and provided with offset bearing portions engaging loosely upon and having downward pressure upon said side bars of the frame and unconnected therewith, and a toothed segment carried by the platform for engagement by said lever, substantially as specified.

8. In a harvester, the combination with cutting, conveying and shocking devices, of a tilting platform, adapted for depression at its rear edge to discharge a completed shock, and shock-discharging devices consisting of slides mounted upon the platform, provided at their rear ends with spurs for engagement with the soil, to hold the slides in a fixed position, and follower-arms at their front ends for engaging the shock, substantially as specified.

9. In a harvester, the combination with cutting, conveying, and shocking devices, of a tilting platform, adapted for depression at its rear edge to discharge a completed shock, shock-discharging slides mounted upon the platform and provided at their rear ends with spurs for engagement with the soil when the platform is depressed, and cams carried by the platform for engagement with said slides, to withdraw the spurs thereof from the soil, substantially as specified.

10. In a harvester, the combination with cutting, conveying and shocking devices, of a tilting platform, adapted for depression at its rear edge to discharge a completed shock, shock-discharging slides mounted upon the platform and provided at their rear ends with soil-engaging spurs and at their front ends with follower-arms, and guide-arms extending rearwardly from the platform to support the rear ends of the slides, and provided with cam portions for deflecting the rear ends of the slides to withdraw the spurs thereof from the soil, substantially as specified.

640,390. **CHECK-CONTROLLED APPARATUS.** JOHN KOLB and JOHN C. VOGEL, West Bay City, Mich. Filed Apr. 10, 1899. Serial No. 712,520. (No model.)



Claim.—1. In a check-controlled delivery apparatus, a check for operating the same, and consisting of a disk of circular contour with a portion of one edge of its periphery removed for forming a straight side, and for reducing the transverse dimension of the check to limit its introduction in a predetermined position to the check-holder of the delivery apparatus, and provided with a central opening, and having on one side face the portion around said opening raised out and provided on its outer face with teeth for engagement with teeth in the check-holder of the delivery apparatus, and provided on one portion of its periphery with a notch cut out for the purpose described, substantially as set forth.

2. In a check-controlled apparatus, the combination of a pump-rod having a toothed rack connected thereto and provided with a spring-actuated bolt for engaging and locking the rod against reciprocation, a quadrant-section provided on its periphery with teeth for engaging the rack, and having an axial hub mounted on a shaft carrying a ratchet and spur gear-pinion, a pawl carried by the quadrant-section for engaging the ratchet-wheel, a spur gear-wheel engaging the pinion and provided with a hub having around the center of its side face a series of projecting teeth for engaging and revolving the controlling-check, a lever pivotally supported by its middle portion and having one end extending over the face of the hub for contact with the controlling-check, and with its opposite end pivotally connected to the said spring-actuated bolt, a receiver for the check with its open end presented to the face of the spur gear-wheel hub, a spring-actuated plunger for forcing the check against the face of the hub and the lever, for actuating the lever to unlock the pump-rod substantially as set forth.

3. In a check-controlled apparatus, the combination of a pump-rod provided on one side with a rack, a quadrant-section having teeth on its periphery intermeshing with the teeth on the rack and provided with a hub-section mounted upon a shaft carrying a ratchet-wheel and a pinion, a pawl carried by the quadrant-section for engaging the ratchet-wheel to revolve the pinion, a gear-wheel mounted with its teeth engaging the teeth of the pinion and having on one side a projecting hub provided on its side face with projecting teeth around its axis for engaging a controlling-check, a spring-actuated bolt having its end engaging with an indentation in the rack for holding the pump-rod against movement, a lever pivotally supported by its middle and pivotally connected by one end to the spring-bolt and with the opposite end extending over the face of the said hub for engagement with the controlling-check, a check-receiver having its open end presented to the face of said hub, a plunger within the receiver, a spring for actuating the plunger toward the hub-face, and an opening in the receiver for the admission of the check, substantially as set forth.

640,391. **MACHINE FOR SHARPENING SICKLES.** CHARLES LAUK, Alma, Wis. Filed Sept. 7, 1899. Serial No. 729,770. (No model.)

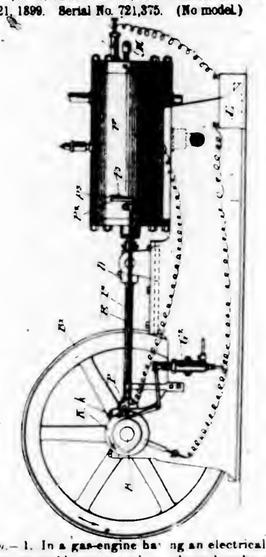


Claim.—1. In a machine of the character set forth, the combination of a drive-shaft, a second shaft adapted to have motion imparted thereto from the drive-shaft and provided with a band-wheel, a flexible shaft journaled adjacent one extremity only, the free extremity of the shaft being movable in a horizontal plane and limited in a downward direction to always retain it in operative position, a pin-wheel on the journaled extremity of the flexible shaft, an emery-wheel on the free extremity of the said flexible shaft, and a perforated belt surrounding the band-wheel and engaging the pin-wheel.

2. In a machine of the character set forth, the combination of a frame, a flexible shaft journaled adjacent one extremity only, the free extremity of the said shaft being held in a horizontal plane by the side of the frame over which it extends against a downward movement beyond a predetermined extent and readily shiftable in the arc of a circle within said plane, an emery-wheel on the free extremity of the said shaft, and driving mechanism connected to the opposite extremity.

3. In a machine of the character set forth, the combination of a frame having a horizontal bed, a flexible shaft journaled adjacent one extremity only, the extremity of said shaft opposite that which is journaled being freely movable in a horizontal plane and prevented from lowering below said plane by the side of the bed of the frame over which it extends, a driving device on the journaled extremity, an emery-wheel on the free extremity of said shaft and an elastic tube surrounding the said flexible shaft.

640,392. **GAS-ENGINE IGNITION DEVICE.** GEORGE W. LEWIS, Philadelphia, Pa. Original application filed Nov. 8, 1894. Renewed Sept. 22, 1898. Serial No. 691,629. Divided and this application filed June 21, 1899. Serial No. 721,375. (No model.)



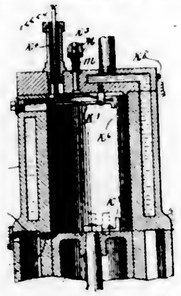
Claim.—1. In a gas-engine having an electrical sparking device or devices, a movable contact-piece adapted to be moved into position for completing the circuit through a moving contact when the crank of the engine-shaft is past the dead-center, and to be retracted from said position after the engine has been started, in combination with means for breaking the circuit within the cylinder by hand.

2. In a gas-engine having an electrical sparking device or devices, a bifurcated contact-piece one arm of which is adapted to be temporarily moved into position for completing the circuit through a revolving contact when the crank is past the dead-center, in combination with means for breaking the circuit within the cylinder by hand.

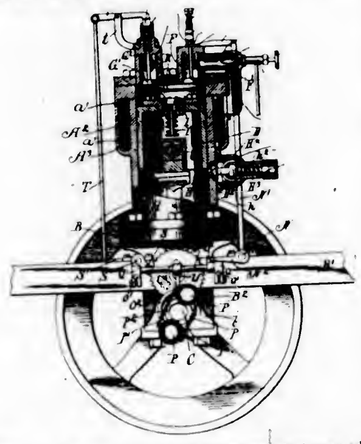
3. In a gas-engine having an electrical sparking device or devices, a bifurcated contact-piece one arm of which is adapted to be temporarily moved into position for completing the circuit through a revolving contact when the crank-arm is past the dead-center, the other arm of the bifurcated electrode being permanently in position to give electrical contact when the crank-arm is approaching the dead-center in the direction of its operative revolutions, in combination with means for breaking the circuit within the cylinder by hand.

640,393. **GAS-ENGINE.** GEORGE W. LEWIS, Philadelphia, Pa., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Original application filed Nov. 8, 1894. Renewed Sept. 22, 1898. Serial No. 691,629. Divided and this application filed June 21, 1899. Serial No. 721,376. (No model.)

Claim.—In a single-acting engine, a cylinder and piston, said cylinder having a medial lateral inlet-port which is uncovered by the piston when near the end of its power-stroke, and also having a medial exhaust-port situated at or about ninety degrees of the circumference of the cylinder from the inlet-port, said exhaust-port being also uncovered by the piston on its approach to the end of its power-stroke, but before the uncovering of the inlet-port.



640,394. GAS-ENGINE. GEORGE W. LEWIS, Philadelphia, Pa., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Original application filed Nov. 8, 1894. Renewed Sept. 22, 1898. Serial No. 691,630. Divided and this application filed June 21, 1899. Serial No. 721,377. (No model.)

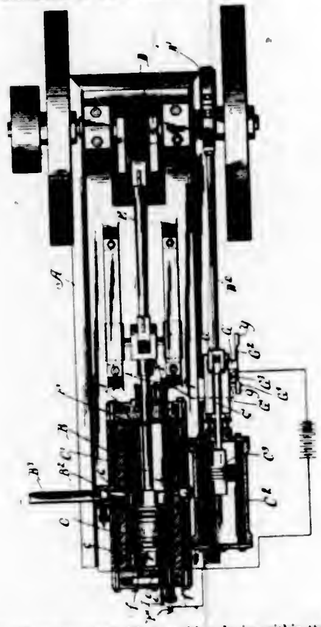


Claim.—1. The combination with an engine-cylinder, an admission-valve provided with a spring acting to hold the same closed, and a governor which variably controls the opening of said valve, of a supplemental air-passage opening into the cylinder and provided with an inwardly-opening check-valve which is held closed by a spring having a greater tension than the spring of the inlet-valve.

2. The combination with an engine-cylinder and piston, of an inwardly-opening admission-valve, a spring to hold the same in its closed position, a governing deviee which variably limits the opening of said valve, and a spring-actuated check-valve located in the piston and opening inwardly into the cylinder.

640,395. GAS-ENGINE IGNITION DEVICE. GEORGE W. LEWIS, Philadelphia, Pa. Original application filed Aug. 17, 1894. Renewed Sept. 22, 1898, Serial No. 691,628. Divided and this application filed June 21, 1899. Serial No. 721,378. (No model.)

Claim.—1. In a gas engine, the combination with a double-acting power-cylinder provided with electrodes exposed within the opposite ends of said sylinder, means operated by the piston for breaking the electric circuit through said electrodes, and means introduced into the circuit for holding the circuit open except when the piston approaches the end of its stroke, comprising a longitudinally-reciprocating metallic bar having projecting lugs at its opposite ends, a metallic spring connected with one of the circuit-wires and constantly engaging the bar, and a metallic part connected with the other circuit-wire and adapted to engage said projecting lugs at the opposite extremities of the movement of the bar.



2. In combination with a sparking device within the power-cylinder, lengthwise-movable rod, as I, for operating the sparking device by hand, said rod passing through the cylinder-wall and carrying a valve fitted to a seat surrounding the aperture through which the rod passes, whereby the aperture is closed against escape of gases.

3. In a gas-engine, the combination with a power-cylinder, an electrode exposed in the end of said cylinder, means operated by the piston for breaking the electric circuit through said electrode, and means introduced into the circuit for holding the circuit open except when the piston approaches the end of its stroke, comprising a longitudinally-reciprocating metallic bar having a projecting lug, a metallic spring connected with one of the circuit-wires and constantly engaging the bar and a metallic part connected with the other circuit-wire and adapted to engage said projecting lug at the extremity of the movement of the bar.

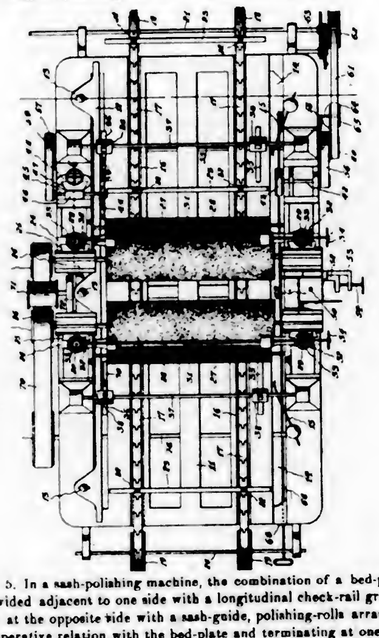
640,396. SASH-POLISHING MACHINE. NICKELS J. MATTHIESEN, Clinton, Iowa. Filed Apr. 28, 1899. Serial No. 714,812. (No model.)

Claim.—1. In a sash-polishing machine, the combination of a bed-plate provided with a longitudinal check-rail groove or depression, and feeding and polishing devices arranged in operative relation with the bed-plate, substantially as specified.

2. In a sash-polishing machine, the combination of a bed-plate provided with a longitudinal check-rail groove and a parallel sash-guide, a polishing roll or rolls arranged in operative relation with the bed-plate, and terminating at one end at an interval from the plane of said guide, feeding devices for advancing a sash parallel with said guide, and operating mechanism for actuating the feeding devices and polishing roll or rolls, substantially as specified.

3. In a sash-polishing machine, the combination of a bed-plate provided with a longitudinal check-rail groove and a parallel sash-guide, a polishing roll or rolls mounted in operative relation with the bed-plate and terminating at one end short of the vertical plane of said sash-guide, sash-feeding mechanism, a side-polishing head or disk arranged in the longitudinal plane of the interval between said polishing roll or rolls and the sash-guide, and means for operating the polishing devices, substantially as specified.

4. In a sash-polishing machine, the combination of a bed-plate provided with a longitudinal check-rail groove and a parallel sash-guide, a polishing roll or rolls mounted in operative relation with the bed-plate and terminating at one end short of the vertical plane of said sash-guide, sash-feeding mechanism, a bevel-faced side-polishing head or disk arranged in the longitudinal plane of the interval between said polishing roll or rolls and the sash-guide, and means for operating the polishing devices, substantially as specified.



5. In a sash-polishing machine, the combination of a bed-plate provided adjacent to one side with a longitudinal check-rail groove and at the opposite side with a sash-guide, polishing-rolls arranged in operative relation with the bed-plate and terminating at one end short of the longitudinal vertical plane of the sash-guide, side heads or polishing-disks mounted in longitudinal planes adjacent to the extremities of the polishing-rolls, that polishing disk or head which is adjacent to the sash-guide being arranged in the longitudinal plane between said guide and the adjacent extremities of the polishing-rolls, and having a beveled abrading-surface, and means for operating said polishing devices, substantially as specified.

6. In a sash-polishing machine, the combination of a bed-plate provided adjacent to one side with a longitudinal check-rail groove and at the opposite side with a sash-guide, polishing-rolls arranged in operative relation with the bed-plate and terminating at one end short of the longitudinal vertical plane of the sash-guide, side heads or polishing-disks mounted in longitudinal planes adjacent to the extremities of the polishing-rolls, that polishing disk or head which is adjacent to the sash-guide being arranged in the longitudinal plane between said guide and the adjacent extremities of the polishing-rolls, and having a beveled peripheral abrading-surface, and that polishing head or disk which is arranged adjacent to said check-rail groove having a side-polishing face for contact with the edge surface of a sash, and means for operating said polishing devices, substantially as specified.

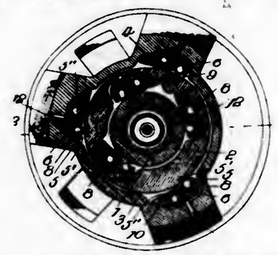
7. In a sash-polishing machine, the combination of a bed-plate provided with a sash-guide and a parallel check-rail groove, side heads or polishing-disks arranged in vertical longitudinal planes respectively adjacent to said guide and groove, transverse polishing-rolls arranged in operative relation with the bed-plate and terminating short of the longitudinal vertical planes of said side heads or polishing-disks, sash-feeding mechanism, and operating connections, substantially as specified.

8. In a sash-polishing machine, the combination of a bed-plate provided with a sash-guide and a parallel check-rail groove, side heads or polishing-disks arranged in vertical longitudinal planes respectively adjacent to said guide and groove, transverse polishing-rolls arranged in operative relation with the bed-plate and terminating short of the longitudinal vertical planes of said side heads or polishing-disks, sash-feeding mechanism, yieldingly-actuated bearing-rolls arranged adjacent to the polishing-rolls, and guide-springs arranged adjacent to said check-rail groove for contact with the adjacent edge of a sash to force the same toward the sash-guide, and operating connections, substantially as specified.

9. In a sash-polishing machine, the combination of a bed-plate provided with a sash-guide and a parallel check-rail groove, side heads or polishing-disks arranged in vertical longitudinal planes respectively adjacent to said guide and groove, transverse polishing-rolls arranged in operative relation with the bed-plate and terminating short of the longitudinal vertical planes of said side heads or polishing-disks, sash-feeding mechanism, downwardly-operating pressure-springs for contact with the upper surface of a sash, those pressure-springs which are adjacent to the plane of the sash-guide having obliquely-disposed bearing-faces, and operating connections, substantially as specified.

10. In a sash-polishing machine, the combination of a bed-plate, pressure devices for maintaining a sash in contact with the bed-plate, polishing devices, feed mechanism comprising carrier-chains operating in longitudinal grooves in the bed-plate, and provided with transversely-opposite lugs connected by transverse carrier-bars, and means for operating said feed mechanism and polishing devices, substantially as specified.

640,397. ANTIFRICTION-BEARING. MORT C. MERKER, New York, N. Y. Filed Apr. 5, 1899. Serial No. 711,857. (No model.)



Claim.—1. An antifriction-housing, comprising a section formed with a continuous groove, a second section formed with a groove and with a slot forming a continuation of the groove, means for securing the sections together to register the groove and slot in one with the groove in the other to form a ball-channel, and balls having free movement in the channel, said balls projecting through the slot in the second section to bear on an adjacent structure.

2. An antifriction-housing, comprising a section formed with a continuous groove, a second section formed with a groove and with a slot forming a continuation of the groove, means for securing the sections together to register the groove and slot in one section with the groove in the other to form a ball-channel, and balls having free movement in the channel, said balls projecting through the slot in the second section to bear on an adjacent structure and means for adjusting the position of the housing with relation to said adjacent structure.

3. An antifriction-housing, comprising a section formed with a continuous groove having a deep part and a shallow part, a second section formed with a groove and a slot forming a continuation of the groove, means for fastening the sections together to register the groove and slot of the second section with the deep and shallow parts of the groove of the first section respectively to form a ball-channel, and balls having free movement in said channel and projecting through the slot in the second section.

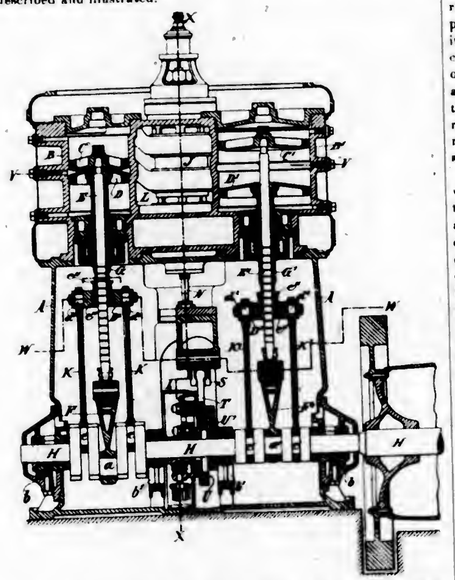
4. A sectional housing for antifriction-balls, each section having a groove with relatively deep and shallow portions, the shallow portion of each being, when the sections are assembled, adjacent the deeper portions of the other whereby one part of the ball-channel is entirely inclosed and the other cut through a section to its exterior.

5. In a housing, two sections having counterpart grooves to constitute a continuous ball-channel, the sections fitting each other and one section having a seat for the other whereby the counterpart grooves of the sections are made to register when said sections are assembled, said seat having an undercut wall to aid in holding the sections together.

640,398. STEAM-ENGINE. EMILE MERTZ, Basle, Switzerland. Filed Sept. 20, 1898. Serial No. 691,408. (No model.)

Claim.—1. An equilibrated steam-engine having one or more double-acting cylinders, each having two pistons fitted to two different rods of which one passes through the other and is connected by means of a connecting-rod to a crank placed at an angle of one hundred and eighty degrees to the cranks to which the second piston-rod is connected through the medium of two connecting-rods placed on each side of the first-named connecting-rod, each of the said cylinders being combined with an equilibrated distributing device enabling steam to be admitted alternately between the two pistons of the said cylinder and upon their outer faces in order to produce a reciproca-

tion of the pistons of each cylinder, the said equilibrated distributing device comprising a reciprocating hollow valve R or R' open at both ends and provided with three annular peripheral grooves *h*, *k*, *o*, or *h'*, *k'*, *o'*, of which one *k* or *k'* communicates with the inside of the valve by holes *j*, *j* or *j'*, *j'*, and a valve chest communicating with the middle of the corresponding cylinder by a passage *e* or *e'*, with the two ends of the same cylinder by two passages *g*, *f* or *g'*, *f'* and with the exhaust by two passages *i*, *n* or *i'*, *n'* substantially as hereinbefore described and illustrated.



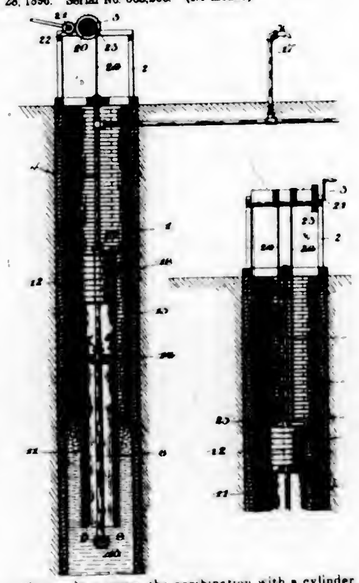
2. An equilibrated steam-engine having a double-acting cylinder with the pistons fitted to two different rods of which one passes through the other and is connected by means of a connecting-rod to a crank placed at an angle of one hundred and eighty degrees to the cranks to which the second piston-rod is connected, through the medium of two connecting-rods placed on each side of the first-named connecting-rod, and an equilibrated distributing device comprising a hollow valve R open at both ends and with three annular peripheral grooves, three steam-passages from the valve-chest to the cylinder and two passages for the exhaust of steam, so as to enable steam to be admitted alternately between the two pistons of the cylinder and upon their outer faces in order to produce a reciprocation of the pistons, in combination with three concentric secondary valves R^0 arranged in the said hollow valve R and placed upon a common rod N^0 passing through the rod N of the valve R, the valve R being actuated by an ordinary eccentric upon the driving-shaft, while the valves R^0 are operated by a device alone actuated by the governor of the engine for the purpose of obtaining variations in the expansion on the cylinder of the engine, substantially as hereinbefore described and illustrated.

3. An equilibrated steam-engine having one or more double-acting cylinders each having two pistons fitted to two different rods of which one passes through the other and is connected by means of a connecting-rod to a crank placed at an angle of one hundred and eighty degrees to the cranks to which the second piston-rod is connected through the medium of two connecting-rods placed on each side of the first-named connecting-rod, and an equilibrated distributing-valve for each cylinder, in combination with a device for insuring the tightness of the joint between the pistons of each cylinder which is the nearest to the driving-shaft and the rod of the piston which is the farthest from the said shaft, between the rod of the piston which is the nearest to the driving-shaft and the bottom of the cylinder or between the rod of the distributing-valve and the bottom of the valve-chest, the said device consisting of two superposed rows of packing-pieces of antifriction metal, each of which is formed of four pieces d^3, d^3, d^4, d^4 of which the two opposite pieces d^4, d^4 are in the form of segments of a circle while the two others d^4, d^4 have the form of portions of rings fitting the said segments in order that each row of pieces d^3, d^3, d^4, d^4 shall form an annular packing, each of the said pieces d^3, d^3, d^4, d^4 being separately pressed against the rod passing between them by a separate spring d^{14}, the ends of which abut against internal projections in a box d^{13} inclosing the two rows of packing-pieces of which two rows the lower rests upon a ring d^{12} applied against an annular projection d^{10} of the box d^{13}, a washer d^{11} being applied to the upper row of packing-pieces, which said washer is acted upon by springs d^{15} pressing the two rows of packing-pieces against one another between the washer d^{11} and the ring d^{12}, substantially as hereinbefore described and illustrated.

4. In a steam-engine of the kind hereinbefore described, the arrangement of the pivot d^8, d^8 by which the hollow rod of the lower piston of each cylinder actuates the two connecting-rods connecting it to the driving shaft, the said pivots being rigidly connected to a cross-piece D^8 adapted to oscillate over a cylindrical journal formed on a piece c^{10} fixed to the said hollow piston-rod and provided with a pivot connected to a guide-piece running in suitable guides in order that the said cross-piece D^8 can take a slightly-inclined position with respect to the longitudinal axis of the piston-rod, if the two said connecting-rods be not exactly of the same length, substantially as described.

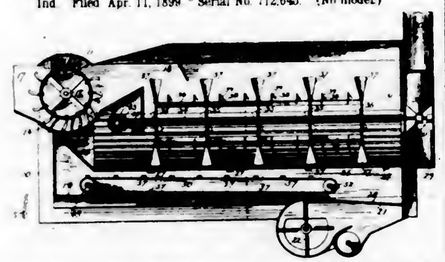
5. An equilibrated steam-engine having a double-acting cylinder with two pistons fitted to two different rods of which one passes through the other and is connected by means of a connecting-rod to a crank placed at an angle of one hundred and eighty degrees to the cranks to which the second piston-rod is connected through the medium of two connecting-rods placed on each side of the first-named connecting-rod and an equilibrated distributing device comprising a hollow valve open at both ends and with three annular peripheral grooves, three steam-passages from the valve-chest to the cylinder and two passages for the exhaust of steam, in combination with four tubes fixed on the valve-chest and communicating respectively with the latter and the said steam-passages, a common vertical passage connected to these four tubes, three-way cocks designed to put these tubes into communication with the said vertical passage in order to enable the cylinder to be heated before the engine is started, substantially as hereinbefore described and illustrated.

640,399. PUMP. William Miller, Thomasville, Ga. Filed Mar 28, 1896. Serial No. 585,268. (No model.)



Claim.—In a pump, the combination with a cylinder having an open lower end and a closed upper end, and having a central perforation in its upper end, of a sleeve fixed to the upper end of the cylinder concentric therewith and communicating with the perforation, a stuffing-box upon the sleeve, a discharge-pipe passed through the stuffing-box and into the cylinder and upon which the cylinder is adapted for reciprocation, an inlet-pipe of greater diameter than the discharge-pipe and attached to the lower end of the latter, the upper end of the inlet-pipe being adapted to limit the downward movement of the cylinder, valves in the pipes at their point of connection, a solid piston fixed to the inlet-pipe below the valves and snugly fitting the cylinder, a windlass, rods fixed to the windlass and attached to the sleeve, and a plurality of weights disposed upon the upper end of the cylinder and inclosing the sleeve, whereby the cylinder may be raised to admit water thereto and will drop of its own weight to force the water through the discharge-pipe.

640,400. THRESHING-MACHINE. John A. Miller, Wadesville, Ind. Filed Apr. 11, 1899. Serial No. 712,645. (No model.)



Claim.—1. In a threshing-machine, the combination with a threshing mechanism, and a stacker mechanism, of a stationary concave or grate arranged between said mechanisms, and a revoluble feeder and separator arranged longitudinally within a chamber of the machine-casing and mounted to sweep in close relation to said grate, said feeder and separator being equipped with a plurality of blast devices and with a plurality of straw-separating teeth, said blast devices and the separating-teeth being disposed in alternate relation, substantially as described.

2. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast-heads attached at intervals to said shaft, bars revoluble with said shaft, and teeth secured to said bars and arranged outside of the blast-heads and in planes between the latter, substantially as described.

3. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast-heads secured at intervals to said shaft, oblique wings or blades secured to said blast-heads and arranged in a plurality of series longitudinally of the shaft, and straw-separating teeth also carried by the shaft and arranged in the plurality of series longitudinally thereof, said series of straw-separating teeth alternating with the series of wings or blades, substantially as described.

4. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a plurality of series of blast wings or blades secured at intervals to said shaft and with each wing disposed in a plane oblique to the axis of said shaft, and the toothed bars connected to said shaft to be revoluble therewith and disposed in the intervals between the blades or wings, substantially as described.

5. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast-heads having the diagonal wings or blades, and longitudinal bars fixed to said heads in the intervals between said blades and having the projecting straw-teeth, substantially as described.

6. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast wings or blades revoluble with said shaft, and longitudinal bars secured to the shaft in the intervals between said blades or wings and having the projecting straw-teeth alternating with the blast wings or blades, substantially as described.

7. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of bars secured to said shaft to rotate therewith, and angular teeth fixed to the bars and having their active ends arranged to project beyond said bars and to lie obliquely to the axis of the shaft, substantially as described.

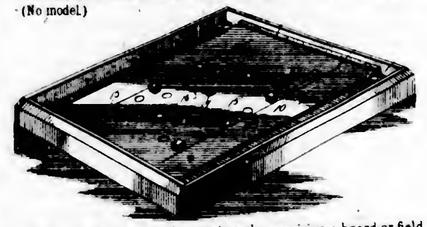
8. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast-heads secured at intervals to said shaft, and each provided with the oblique wings or blades, a series of longitudinal bars arranged in the intervals between the blades, and a series of teeth fixed to each of said bars and inclined to the axis of the shaft, substantially as described.

9. In a threshing-machine, a revoluble feeder and separator comprising a shaft, a series of blast-heads secured at intervals to said shaft, the wings or blades secured in series to each of said blast-heads, longitudinal bars fastened to the heads in the intervals between the blades or wings, and a series of angular teeth secured to each of said longitudinal bars and having their outer ends inclined to the axis of the shaft, substantially as described.

10. In a threshing-machine, the combination with a threshing mechanism, and a pneumatic stacker mechanism, of a horizontal stationary concaved grate supported longitudinally within a chamber of the machine-casing and below said thresher mechanism and the inlet to the stacker mechanism, and a revoluble feeder and separator mounted parallel to said grate, said feeder and separator provided with a plurality of series of blast devices and with a similar series of straw-separating teeth which alternate with said blast devices, said teeth or blast devices arranged to sweep in close relation to the concave surface of the grate, substantially as described.

11. In a threshing-machine, the combination with a threshing mechanism, a cleaner-shoe, and a stacker mechanism, of a grain-pan arranged to deliver to said shoe, a perforated concaved grate arranged between the threshing and stacker mechanisms and above the grain-pan, a rotary separator and feeder arranged longitudinally above the grate and having a plurality of blast devices and of separating-fingers arranged to sweep close to the concave surface of the grate, and an endless conveyer arranged between the grate and the grain-pan to sweep close to the surface of the latter, substantially as described.

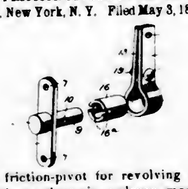
640,401. GAME-BOARD. Harry A. Minassian and Loren M. Darling, Des Moines, Iowa. Filed July 6, 1897. Serial No. 643,682. (No model.)



Claim.—1. An improved game-board comprising a board or field having a flat smooth top surface, grooves or ditches along two of its parallel edges, a rim around its four edges, pits or pockets at the corners, base-lines extending parallel with the ditches at some space therefrom, four-sided flat-faced cushioned blocks or stops fixed on top of the board on said base-lines and at regular distances apart and corresponding cushioned stops fixed on top of the board in a line midway said base-lines, all arranged and combined as shown and described for the purposes stated.

2. An improved game-board comprising a board or field having a flat smooth top surface, grooves or ditches along two of its parallel edges, a rim around its four edges, pits or pockets at the corners, base-lines extending parallel with the ditches at some space therefrom, four-sided flat-faced cushioned blocks or stops having extended straight faces fixed on top of the board on said base-lines and at regular distances apart and corresponding cushioned stops fixed on top of the board in a line midway said base-lines, and marks or circles formed on top of the board to indicate where movable disks are to be placed relative to said stops, all arranged and combined as shown and described for the purposes stated.

640,402. FRICTION-PIVOT FOR REVOLVING SASHES. George R. McCherrey, New York, N. Y. Filed May 3, 1899. Serial No. 715,460. (No model.)



Claim.—1. A friction-pivot for revolving sashes, comprising a pivot member having a pivot-pin, a sleeve mounted on said pin to turn therewith, and a hanger having a housing frictionally engaging said sleeve, substantially as described.

2. A friction-pivot for revolving sashes, comprising a pivot member having a pivot-pin, a sleeve mounted on said pin to turn therewith, a hanger having a housing frictionally engaging said sleeve, and means for varying the pressure of said housing upon said sleeve, substantially as described.

3. A friction-pivot for revolving sashes, comprising a pivot member having a pivot-pin, a sleeve mounted on said pin to turn therewith, a hanger comprising a metal plate bent upon itself to provide a housing for embracing said sleeve and to provide two integral arms and a bolt passed through said arms and having a nut whereby said housing may be caused to embrace the sleeve more or less firmly, substantially as described.

4. A friction-pivot for revolving sashes, comprising a pivot mem-

ber having a pivot-pin, lugs on said pivot-pin, a sleeve loosely mounted on said pivot-pin and having slots to receive said lugs, and a hanger having a housing receiving and frictionally engaging said sleeve, substantially as described.

5. In combination with a sash, a plate secured in each side edge thereof having a pivot-pin, a sash-strip applied to each edge of the sash and having an opening, a hanger secured to the sash-cord and having a housing, and a sleeve embraced and frictionally engaged by said housing, said sleeve projecting through said opening and being non-rotatively mounted on said pivot-pin, substantially as described.

6. In combination with a sash, a plate secured in each side edge thereof having a pivot-pin, a sash-strip applied to each edge of the sash and having an opening, a hanger secured to the sash-cord and having a housing, a sleeve embraced and frictionally engaged by said housing, said sleeve projecting through said opening and being non-rotatively mounted on said pivot-pin, and means for varying the pressure of said housing upon said sleeve, substantially as described.

640,403. SASH-FASTENER. GEORGE R. MCCHESNEY, New York, N. Y. Filed May 3, 1899. Serial No. 715,461. (No model.)



Claim.—1. In a sash-fastener, the combination with an upper and lower sash having on opposing side rails apertured locking-strips, of a lock seated in the window-sash frame at the meeting-rails of said sashes, said lock comprising two pivoted lever-arms each of which has a locking-arm, locking-hooks extending from said locking-arms and adapted to engage in the apertures of the respective locking-strips, and means for operating said lever-arms, substantially as described.

2. In a sash-fastener, the combination with an upper and lower sash having on opposing side rails apertured locking-strips, of a lock seated in the window-sash frame at the meeting-rails of said sashes, said lock comprising two pivoted lever-arms having independent movement and each of which has a locking-arm, locking-hooks extending from said locking-arms and adapted to engage in the apertures of the respective locking-strips, and means for simultaneously operating said lever-arms, substantially as described.

3. In a sash-fastener, the combination with an upper and lower sash having on opposing side rails apertured locking-strips, of a lock seated in the window-sash frame at the meeting-rails of said sashes, said lock comprising a casing having a stud, two spring-controlled lever-arms slidably and revolubly mounted on said stud and having independent movement and each of which has a locking-arm, locking-hooks extending from said locking-arms and adapted to engage in the apertures of the respective locking-strips, and means for operating said lever-arms, substantially as described.

4. In a sash-fastener, the combination with an upper and lower sash having on opposing side rails apertured locking-strips, of a lock seated in the window-sash frame at the meeting-rails of said sashes, said lock comprising two pivoted lever-arms having independent movement, and each of which has at one end a locking-arm, and near its opposite end is provided on its upper side with one or more recesses, the recesses in said lever-arms alining, locking-hooks extending from said locking-arms and adapted to engage in the apertures of the respective locking-strips, and an operating-rod having a stud engaging in coincident recesses of said lever-arms, substantially as described.

5. A sash-fastener comprising a casing having apertures and a stud, two spring-controlled lever-arms independently mounted on said stud and each having a locking-arm provided with a locking-hook projecting through an aperture in the casing, and an operating-rod detachably engaging both of said lever-arms, substantially as described.

6. A sash-fastener comprising a casing having apertures and a stud, two spring-controlled lever-arms slidably and revolubly mounted on said stud and having independent movement and each having a locking-arm provided with a locking-hook projecting through an aperture in the casing, and an operating-rod detachably engaging both of said lever-arms, substantially as described.

640,404. TELEPHONE CENTRAL-STATION APPARATUS AND CIRCUITS. SAMUEL G. MCMEEN, Chicago, Ill., assignor to the American Bell Telephone Company, Boston, Mass. Filed July 31, 1899. Serial No. 725,645. (No model.)

Claim.—1. In a telephone-exchange apparatus, the combination with a trunk-circuit extending between two switchboards and provided at each with switch devices; of an independent signaling-circuit normally open at both switchboards and arranged as a Wheatstone balance or bridge system, comprising a source of signaling-current, two circuit-closers controlled by the switch devices at the two switchboards respectively of the said trunk-circuit and each placed in a different balancing arm or branch of the said Wheatstone balance, and a supervisory signal device at one of the said switchboards in the bridge or cross-wire of said balance; substantially as set forth.

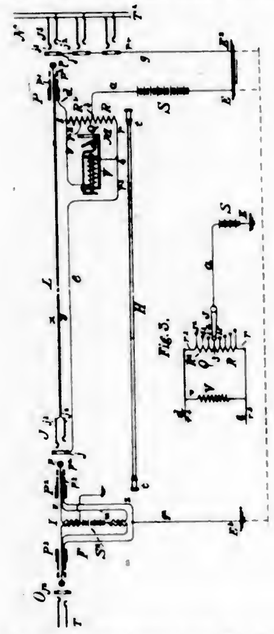


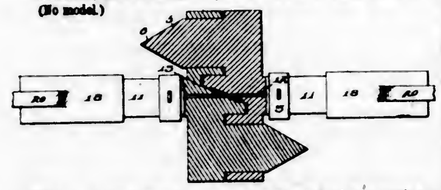
Fig. 3.

2. In a telephone-exchange system, the combination of a trunk-circuit extending between two switchboards and provided with terminal switch devices at both; of an associate signaling-circuit normally open at both switchboards, arranged in the form of a Wheatstone balance, and comprising a source of signaling-current in the main conductor thereof, two closed branches diverging from said main conductor, and containing each a resistance device, two normally-open branches each in series with one of the said closed branches extending to ground through circuit-closers associated with the switch devices of the trunk-circuit at the two switchboards respectively, and a bridge between the junctions of the said serially-connected open and closed branches, containing a supervisory signal at one of the said switchboards; whereby the said signal is enabled to remain quiescent when the circuit-closer branches are both open or both closed, and is made responsive to the closing of either when the other is open, or the opening of either when the other is closed.

3. The combination in a telephone-exchange apparatus, of a trunk-circuit, and an associate signaling-circuit, both extending between two switchboards; switch-terminal devices controlling both circuits at each switchboard; complementary switch devices at both switchboards adapted to register with those of the trunk and signaling circuits to form a through-circuit of said trunk-circuit and any two telephone-lines terminating at the said switchboards respectively, and to ground both ends of the signaling-circuit; with a resistance device interposed in the said signaling-circuit at one switchboard; a source of current grounded at one pole and connected by the other to the center of said resistance; and a supervisory signal in a bridge or branch conductor connected in parallel to the said resistance; substantially as hereinbefore described.

4. The combination in a telephone-exchange apparatus, of a trunk-circuit, and an associate signaling-circuit extending between two switchboards; a switch-socket at one, and a switch-plug at the other of said switchboards, containing or comprising switch-terminals of both circuits; a plug-and-cord connection at the switchboard where is placed the switch-socket end of said circuits, the plug thereof being adapted for insertion into said socket, and thereupon to switch the trunk-circuit to the main conductors of its own cord, and to ground one end of the signaling-circuit; and telephone-line switch-sockets at the other switchboard adapted to receive the terminal plug of said trunk and signaling circuits, and thereupon to connect the trunk-circuit to the line represented by such sockets, and to ground the other end of the said signaling-circuit; with a resistance device interposed in the said signaling-circuit at its plug-terminal switchboard; a source of signaling-current having one of its poles grounded and the other united to the middle point of said resistance; a bridge or branch conductor uniting the two ends of the said resistance device, and constituting a shunt therefor; and a supervisory signal contained in said bridge, substantially as and for the purposes specified.

640,405. AUTOMATIC COUPLING FOR AIR-BRAKES. GEORGE J. HETTER, East Pittsburg, Pa. Filed Nov. 6, 1899. Serial No. 735,991. (No model.)



Claim.—1. In a train-pipe connection for air-brakes, a casting or coupling formed at one side with an outwardly-extending guide-arm, a guide or coupling ring arranged to the opposite side of said casting or coupling, a tubular extension formed integral with said connection or coupling and provided with air-passages extending therethrough, a buffing-cylinder mounted on the said extension, a buffing-spring arranged in said cylinder and adapted to abut against the said extension, means for supporting said cylinder from the car, means for supporting said connection or coupling from the car, and means for connecting said extension to the train-pipe, substantially as set forth.

2. In a train-pipe connection for air-brakes, a connection or coupling formed with an outwardly-extending guide-arm having a tapered or conical portion formed at one side, a guide or coupling ring formed at the opposite side of said connection or coupling, the outer face of the said coupling provided with oblong and triangular shaped recesses, a projection formed between said recesses, a tubular extension formed integral with said connection or coupling and provided with an elongated air-passage opening at one end into the triangular-shaped recess, means for cushioning the lateral movement of the said connection or coupling, and means for supporting said cushion means, substantially as set forth.

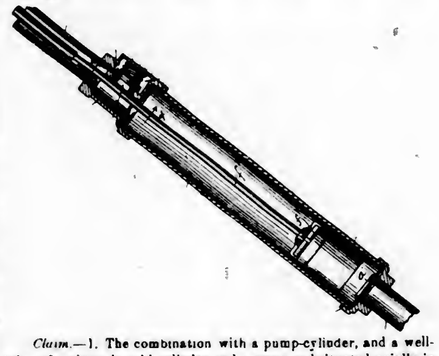
3. In a train-pipe connection, the combination of a pair of couplings or connections provided at opposite sides with guide-arms, guide or coupling rings arranged at opposite sides of the coupling adapted to receive the said guide-arms, a tubular extension formed integral with said connections and couplings, said couplings provided with oblong and triangular shaped recesses, a projection formed integral with each coupling adapted to engage said triangular recess, an air-chamber formed on the said triangular recess when the couplings are brought together, said tubular extension formed with an elongated air-passage adapted to communicate with the said air-chamber, means for supporting said couplings from the car, and means for cushioning said connection or coupling, substantially as set forth.

4. In a train-pipe connection, the combination of a pair of couplings or connections provided at opposite sides with guide-arms, guide or coupling rings arranged at opposite sides of the coupling adapted to receive said guide-arms, a tubular extension formed integral with said connections or couplings, said couplings provided with oblong and triangular shaped recesses, a projection formed integral with each coupling adapted to engage the said triangular recess, an air-chamber formed in the said triangular recess when the couplings are brought together, said tubular extension formed with an elongated air-passage adapted to communicate with said air-chamber, a buffing-cylinder mounted on the end of said tubular extension, means arranged in said cylinder for cushioning the movement of the said couplings or connections, and means for supporting said tubular extension, substantially as set forth.

5. In a train-pipe connection, the combination of a pair of couplings or connections provided at opposite sides with guide-arms, guide or coupling rings arranged at opposite sides of the coupling adapted to receive said guide-arms, a tubular extension formed integral with said connections and couplings, said couplings provided with oblong and triangular shaped recesses, a projection formed integral with each coupling adapted to engage the said triangular recess, an air-chamber formed in the said triangular recess when the couplings are brought together, said tubular extension formed with an elongated air-passage adapted to communicate with said air-chamber, a buffing-cylinder mounted on the end of said tubular extension, means for supporting said buffing-cylinder, and means for limiting the movement of said cylinder, substantially as set forth.

6. In a train-pipe connection, the combination of a pair of couplings or connections provided at opposite sides with guide-arms, guide or coupling rings arranged at opposite sides of the coupling adapted to receive said guide-arms, a tubular extension formed integral with said connections or couplings, said couplings provided with oblong and triangular shaped recesses, a projection formed integral with each coupling adapted to engage the said triangular recess, an air-chamber formed in the said triangular recess when the couplings are brought together, said tubular extension formed with an elongated air-passage adapted to communicate with said air-chamber, a buffing-cylinder mounted on the end of said tubular extension, means for supporting said buffing-cylinder, and means for connecting the said extension and train-pipe, substantially as set forth.

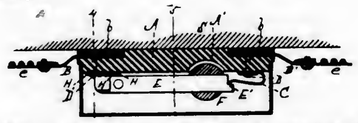
640,406. PUMP-CYLINDER WITH RELIEF-VALVE. LA VERNE W. NOYES, Chicago, Ill. Filed Feb. 21, 1898. Serial No. 671,069. (No model.)



Claim.—1. The combination with a pump-cylinder, and a well-tube, of a piston in said cylinder and a pump-rod situated axially in said cylinder and tube, and a cap or coupling interposed between said cylinder and said tube having a bore the cross-section of which has substantially the area of the cross-section of the well-tube and having one wall of the bore of arc shape and the other wall plane or flat and forming a chord of the arc and situated in close proximity to the pump-rod, a port provided in said flat wall, and a spring-pressed laterally-moving valve normally sealing said port, substantially as described.

2. A coupling or cap having a bore the wall of which on one side is of arc shape and upon the other side formed plane or flat and forming a chord of the arc and having the inner face thereof situated in close proximity to the center about which the arc is circumscribed, a port passing through said flat wall, a valve sealing said port, an abutment formed integral with the body of the coupling and laterally removed therefrom but within the exterior diameter of the same and a spring interposed between said abutment and said valve, substantially as described.

640,407. THERMOSTAT. RICHARD P. OSGOOD and JOHN D. OSGOOD, Methuen, Mass. Filed June 5, 1899. Serial No. 719,370. (No model.)

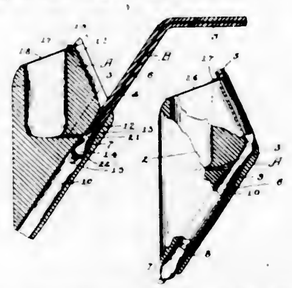


Claim.—1. In a thermostat of the character described, the bed or supporting-surface A; the vertical flat plate H' extending downward from and sustained by said bed; the weighted bar E normally united to said plate H' by fusible solder and with its thus-united portion set vertically and on a plane parallel with the plate H'; a metallic spring supported from the bed and in contact with the opposite end of the bar E; and electrical connections connecting the said spring and said plate H' with the wires of an electrical circuit, substantially as described.

2. In a thermostat of the character described, the bed or sup-

porting-surface A; the plate H secured to said bed and provided with the downwardly-extending vertical flat portion H'; the weighted bar E having the vertical flat portion of one end united to said plate H' by fusible solder, the other end of said bar being provided with a step or ledge E'; the spring C supported at one end by the bed and with its other end resting on said step; and electrical connections connecting the said spring C and plate H with the wires of an electrical circuit, substantially as set forth.

640,408. TOBACCO-PIPE. GUSTAVE A. OSTERUD, Sebeka, Minn. Filed May 17, 1898. Serial No. 680,923. (No model.)



Claim.—1. The pipe, comprising the body, the bowl, the moyable stem and the means for fastening said body and stem which have suitable port passage-ways adapted to connect and disconnect with said bowl when the stem is respectively extended and folded; said stem being adapted to extend and fold upon said body for the purposes specified.

2. In a device of the class described, the combination of the body of the pipe, having the bowl therein for containing the tobacco, the stem having a port passage-way adapted to register with port passage-way in the body of the pipe when the stem is in extended position and thereby connect with the bowl of the pipe and cease to register when the pipe is collapsed, and the passage-way in the body portion of the pipe for containing said stem, when collapsed therein, and adapted to sustain said stem when in open position by means of engaging shoulders formed on said stem and passage-way, for the purposes specified.

3. The pipe, consisting of the body A; the bowl 2; the stem which is collapsibly fastened to and adapted to fold upon and extend from said body; and the port passage-ways in said body and stem which are adapted to respectively connect and disconnect with the bowl of the pipe when the stem is extended and collapsed as shown, and for the purposes specified.

4. In a device of the class described, the combination with the body of the pipe, having a bowl for containing the tobacco and a passage-way in its lower portion, having a tapering shoulder; of a stem which is collapsibly fastened to said body and provided with a tapering shoulder coinciding with the tapering shoulder of said passage-way, which shoulders are adapted to engage; the port passage-ways which are formed in said body and stem, adapted to register when the stem is drawn out; and a cap fastened to the lower end of said stem having a cavity for collecting liquid refuse from the tobacco contained in the bowl, and provided with suitable draining means for the purposes specified.

5. In a device of the class described, the combination of the body of the pipe, having a bowl for containing the tobacco and the port passage-way connecting to the same; a stem having a port passage-way communicating with said body-port passage-way; the retaining means for holding the stem in collapsed and extended positions, consisting of a cover, having spring-clips for engaging the stem when collapsed; and the tapering shoulder of the port passage-way in the body of the pipe which is adapted to engage the stem when extended for the purposes specified.

6. In a device of the class described, the combination of the body of the pipe, having a stem movably fastened thereto; the cover pivotally fastened to the top of the pipe, having suitable vent-perforations, and the interlocking means for holding the stem and cover closed, consisting of spring-clips formed on said cover which are adapted to engage with said stem when the cover and stem are in closed position, for the purposes specified.

7. In a device of the class described, the combination of the body of the pipe, having the bowl for containing the tobacco, a passage-way coinciding with the shape of the stem, for containing the same, and the stem formed with the bend near the mouthpiece which is adapted to be reversed and then collapsed into said passage-way so as to engage with the interlocking means, consisting of spring-clips, formed on the cover-plate, which is mounted on the top of the pipe; said clips by means of their spring members, retaining said stem closed and said stem thereby holding the cover-plate closed, for the purposes specified.

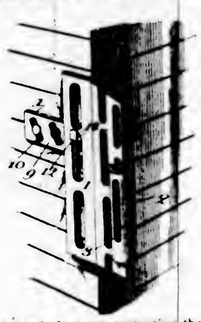
8. The pipe, comprising the movable stem having the port passage-way; the body having the stem passage-way and the port passage-way which connects with the bowl; said stem and body port passage ways being adapted to connect and disconnect when the stem is respectively moved to extend from and collapse upon said body, and suitable means for fastening said body and stem when moved to either position, for the purposes specified.

9. A pipe consisting of a body A, having a bowl 2, and a passage-way 10, formed therein and a stem B conforming substantially in shape to said passage-way which is movably fastened to said body so as to collapse and extend from said body, and the port passage-ways 3 and 4 respectively formed in the body and stem; said passage-ways being adapted to register or connect when the stem is extended and cease to register when the pipe is collapsed, for the purposes specified.

10. A smoking-pipe consisting of a body A, having a bowl 2, for containing the tobacco; a stem B movably fastened to said body; the passage-ways 10 and 11 formed in said body, said passage-way 10 and stem B having tapering shoulders which are adapted to engage and the port passage-ways formed in said body and stem, adapted to register or connect, when the stem is drawn out and cease to register when the pipe is collapsed.

11. A pipe consisting in combination with the bowl; of the body and movable stem, having port passage-ways which are adapted to connect and disconnect when the stem is respectively extended and collapsed for the purposes specified.

640,409. CORNER-BEAD FOR PLASTERED WALLS. WILLIAM P. PARKER, New York, N. Y. Filed May 2, 1899. Serial No. 715,390. (No model.)



Claim.—1. A bead-piece for protecting the angles of plastered walls consisting of a split tube having plaster-receiving openings or slots therein.

2. A bead-piece for protecting and ornamenting the angles of plastered walls, consisting of a split tube, and means for supporting said bead-piece removed from the angle of the wall, said means having a continuous bearing upon the inner wall of the tube throughout its entire length.

3. In combination with a corner strip or plate, a bead-piece formed of a split tube sprung over the edge of said strip or plate, substantially as described.

4. In combination with a corner strip or plate, a bead-piece formed of a split tube having plaster openings or slots therein, said tube being sprung over the edge of the said strip or plate.

5. In combination with a corner strip or plate having plaster-openings therein, a bead-piece comprising a split tube sprung over the outer edge of said strip or plate, and provided with plaster-openings therein which lie in a line substantially parallel with the openings in that part of the strip or plate within the tube when the parts are in position, substantially as and for the purpose described.

6. The combination with a corner-strip, of a bead-piece formed of a split tube having lateral flanges along its edges which embrace the opposite faces of the corner-strip to hold the parts in position.

7. The combination with a corner-strip having openings therein, of a bead-piece comprising a split tube having lips or tongues formed integral therewith adapted to take into the said openings in the corner-strip when the tube is fitted over the outer edge of the strip.

8. A bead-piece for protecting the angles of plastered walls, comprising a split tube having lateral flanges and integral engaging lips or tongues, substantially as described.

9. A bead-piece for protecting the angles of plastered walls, comprising a split tube having plaster-openings therein and lateral flanges extending outward from the opposite edges of said tube, substantially as described.

10. A bead-piece for protecting the angles of plastered walls, comprising a split tube having plaster-openings upon opposite sides thereof and lateral flanges extending outward therefrom, said flanges being provided with inwardly-extending engaging lips or tongues.

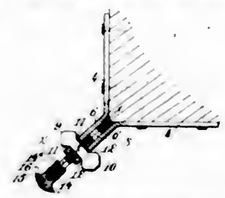
11. A clip for supporting perforated corner strips or plates, comprising an angle-iron having elongated nail-openings therethrough and a stud or button thereon provided with an upwardly-extending inclined wall, substantially as described.

12. A clip for supporting perforated corner-strips, comprising a plate having nail-openings near one end and a stud or button near the opposite end, said stud or button having an inclined wall facing the side wall of the plate.

13. A clip for supporting a perforated corner-strip, comprising an angle-plate having diagonal nailing-slots therein, and a stud or button projecting outward from one face of the angle-plate and having an upwardly-extending inclined wall to provide a substantially wedge-shaped space between said inclined wall and face of the plate.

14. The combination with a corner-strip having plaster-openings therein, of a bead-piece fitted over the edge of said strip and provided with lateral flanges which embrace the opposite faces of the corner-strip, said bead-piece having portions of its flanges bent inward to enter the openings in the corner-strip whereby the strip and bead-piece are held intact.

640,410. METAL CORNER-PLATE FOR PROTECTING CORNERS OF PLASTERED WALLS. WILLIAM P. PARKER, New York, N. Y. Filed July 17, 1899. Serial No. 724,156. (No model.)



Claim.—1. A corner-plate for protecting the angles of plastered walls, consisting of a flat metal strip the opposite faces of which lie parallel throughout, and a bead-piece upon one edge of the plate, said bead-piece being provided with sharp-edged projections upon opposite sides thereof, and plaster-openings extending through the plate, substantially as described.

2. A corner-plate for protecting the angles of plastered walls, consisting of a strip of metal folded upon itself to provide a flat plate the opposite faces of which lie parallel throughout substantially the entire width of the plate, and a bead-piece arranged along one edge of the plate, said bead-piece being provided upon opposite sides with sharp-edged projections, and concaved walls leading inward from the said sharpened projections, substantially as described.

3. In combination with a corner-plate, a bead-piece having sharp-edged projections arranged upon opposite sides thereof throughout its length, substantially as described.

4. In combination with a corner-plate, a solid bead-piece having oppositely-disposed and longitudinally-arranged sharp-edged projections, substantially, as described.

5. In combination with a corner-plate, a bead-piece having oppositely-disposed, longitudinally-arranged sharpened-edge projections, and concaved walls leading inward from the said sharpened-edge projections upon opposite sides of the bead-piece, substantially as described.

6. The combination with a corner-plate having plaster-openings near the outer edge thereof, of a bead-piece fitted over the edge of said plate and provided with flanges which embrace the opposite faces of the plate, said flanges overhanging the plaster-openings and having portions thereof at the edges crimped or bent into the said plaster-openings to retain the bead-piece in position upon the corner-plate, substantially as described.

7. The combination with a corner-plate having plaster-openings therein, of a bead-piece fitted over the edge of said plate and provided with longitudinal edged projections and lateral flanges, which latter embrace the opposite faces of the plate, and overhang the plaster-openings with portions thereof crimped or bent into the said plaster-openings to retain the bead-piece in position upon the corner-plate, substantially as described.

8. The combination with a corner-plate having plaster-openings therein, of a bead-piece fitted over the edge of said plate and provided with longitudinal edged projections and concaved walls leading inward from the edged projections upon opposite sides of the bead-piece, and the latter being further provided with flanges which embrace the opposite faces of the plate and overhang the plaster-openings, and portions of said flanges being crimped or bent toward each other into the plaster-openings to retain the bead-piece in position upon the plate, substantially as described.

9. A bead-piece for corner-plates, comprising a body portion having separated lateral flanges and longitudinal sharp-edged projections, substantially as described.

10. A bead-piece for corner-plates comprising a hollow body portion having lateral flanges and longitudinal edged projections, substantially as described.

11. A bead-piece for corner-plates, comprising a body portion having separated lateral flanges and longitudinal projections the edges of which are sharpened, with concaved walls leading inward from the said sharpened edges of the projections upon opposite sides of the bead-piece, substantially as described.

12. The combination with a corner-plate having openings therein, of a clip for attaching said plate to the angle of a wall, consisting of a body portion having nail-openings and an angular extension arranged to lie parallel with the plate, said extension being provided with an opening, and a locking-key passed through the openings in the clip and plate to lock the parts together, substantially as described.

13. The combination with a corner-plate having openings therein, of a pair of clips attached to the opposite sides of the wall at the angle and having extensions which embrace the opposite sides of the plate, and a locking-key passed through openings in the clip extensions and through the plate to lock the parts together.

14. The combination with a corner-plate having openings therein, of a pair of clips attached to the angle of a wall and having apertured extensions which embrace the opposite sides of the plate, and a headed locking-key passed through the openings in the clips and plate to lock the parts together, substantially as described.

15. The combination with a corner-plate having openings therein, of a pair of clips attached to the opposite sides of the wall at the angle and having apertured extensions which embrace the opposite sides of the plate, and a locking-key passed through the openings in the clips and plate, said key being provided with heads at its opposite ends which overhang portions of the clips to hold the parts together, substantially as described.

16. The combination with a corner-plate having openings therein, of a pair of clips attached to opposite sides of the wall at the angle and each having an apertured extension which embraces the opposite sides of the plate, and a flat, headed locking-key passed through openings in the clips and plate to hold the parts intact, said key being provided upon its opposite edges adjacent to the heads with inclined walls, substantially as and for the purpose described.

640,411. PLOW. WILLIAM H. PARLIN, Seattle, Wash., and EDWARD M. HEYLMAN, Pekin, Ill., assignors to the Parlin & Orendorff Company, Canton, Ill. Filed Oct. 16, 1899. Serial No. 733,775. (No model.)

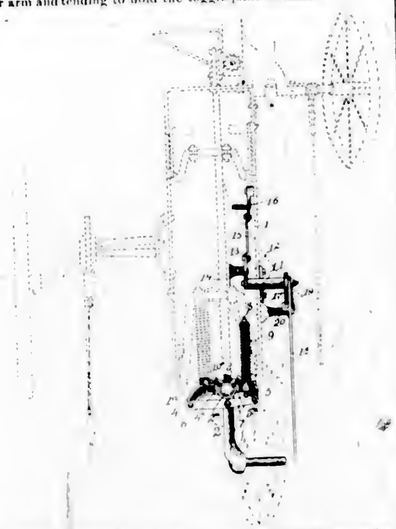
Claim.—1. A caster-wheel controller for plows, comprising a pair of arms pivoted independently on the vertical extension of the caster-wheel shaft and extended in opposite directions, a toggle-joint connecting the ends of the arms, projections on the axle-shaft to bear against the arms, stops to hold the arms against swing in one direction and a spring to hold the toggle-joint extended.

2. A caster-wheel controller for plows comprising a pair of arms pivoted independently on the vertical extension of the caster-wheel shaft, and extended in opposite directions, a toggle-joint connecting the arms, a collar fixed on the shaft and having projections to engage the arms, stops to hold the arms from swinging away from the toggle-joint, a rod connecting with one of the members and extended through one of the arms and a compression-spring on the rod tending to hold the toggle-joint extended.

3. A caster-wheel controller for plows, comprising a pair of arms pivoted independently on the vertical extension of the caster-wheel shaft, one of the arms being longer than the other, a toggle-joint connecting the ends of the arms, projections on the shaft to bear against the arms, stops to hold the arms from swinging away from the toggle-joint, and a spring acting through the short arm on the toggle-joint to hold the toggle-joint extended.

4. A caster-wheel controller for plows comprising a pair of arms, pivoted independently on the vertical extension of the caster-wheel shaft, one of the arms being longer than the other, a toggle-joint composed of members of unequal length connecting the ends of the arms together, the longer member of the toggle being connected with the longer arm, projections on the shaft to bear against the arms, stops to hold the arms from swinging away from the toggle-joint, and a

spring acting on the shorter member of the toggle-joint through the shorter arm and tending to hold the toggle-joint extended



5. The combination with plow raising and sustaining mechanism, of a hand-lever adapted to engage the plow-raising mechanism and automatically releasable therefrom when the plow is raised.

6. The combination with plow raising and sustaining mechanism, of a hand-lever adapted to engage the plow-raising mechanism and a spring to disengage the lever when the plow is raised.

7. The combination with plow raising and sustaining mechanism including a notched rack, of a hand-lever fulcrumed on the shaft of the rack by means of a longitudinal slot, a tooth on the lever to engage the notch of the rack and a spring to shift the lever on its fulcrum and draw the tooth out of the notch when the plow is raised.

8. The combination with plow raising and sustaining mechanism, of a foot-lever to release the plow, a hand-lever to raise the plow and a spring to disengage the hand-lever when the plow is raised.

640,412. HEAD-SCREEN. HEINRICH PETERSEN, Oberjersdal, Germany. Filed June 2, 1899. Serial No. 719,133. (No model.)

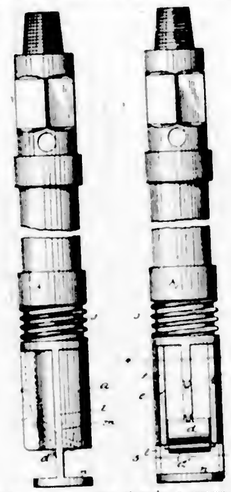


Claim.—As a new article of manufacture a mask for the face and head comprising a piece of gauze to overlie the face, bows extending along the gauze, bands *d* secured to said bows, fabric secured to the bands and also to the gauze, and elastics secured to the fabric between the bands *d*, substantially as described.

640,413. BAILER. WILLIAM PLOTTS, McDonald, Pa. Filed Jan. 29, 1896. Serial No. 577,244. (No model.)

Claim.—1. A bailer having a curved bottom extending entirely across the body of the bailer with an opening formed therein, a cover over said opening, and mechanism for sliding said cover, substantially as set forth.

2. A bailer having a downwardly and inwardly inclined surface with an opening formed therein, a sliding cover over said opening, a weight, rods connecting said weight with a vertically-movable ring, a spring interposed between said ring and a suitable abutment on said bailer, and a hinged strap connecting said ring and cover, substantially as set forth.



3. A bailer having an opening therein, a cover over said opening, a vertically-movable weight below said bailer, said weight having a recess formed therein in line with said opening, and connections between said weight and said cover, substantially as set forth.

4. A bailer having an opening therein, a cover over said opening, a vertically-movable crescent-shaped weight below said bailer, the space inclosed by said crescent-shaped weight being in line with said openings and connections between said weight and said cover, substantially as set forth.

5. A bailer having a downwardly and inwardly curved surface with an opening formed therein, a cover over said opening, a vertically-movable weight below said bailer, said weight having a recess therein in line with said opening, and connections between said weight and said cover, substantially as set forth.

640,414. BAILER. WILLIAM PLOTTS, McDonald, Pa. Filed Jan. 29, 1896. Serial No. 577,245. (No model.)



Claim.—1. A bailer having an opening formed therein, a cover for said opening, said cover being adapted both to slide vertically beyond the opening and swing inwardly, substantially as set forth.

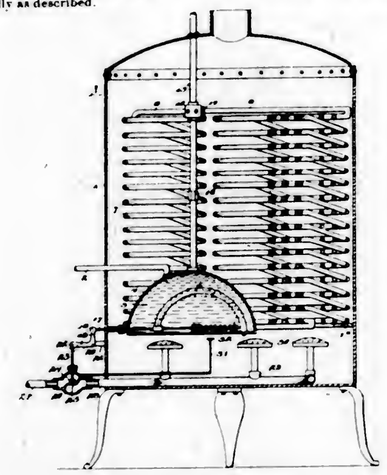
2. A bailer having an opening formed therein, a cover for said opening, a weight, arms extending up from said weight, a band connecting said arms, said cover having a hinge connection with said band, substantially as set forth.

3. A bailer having an opening formed therein, a cover for said opening, a weight, arms extending up from said weight, a band connecting said arms, a bolt passing through said band and having a hinge connection with said cover, and a spring for holding said cover normally in a vertical position, substantially as set forth.

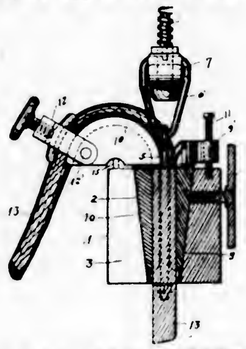
4. A bailer having an opening formed therein, a cover for said opening, a weight, arms extending up from said weight, a band connecting said arms, said band having a seat therein, a bolt passing through said seat, said cover being hinged to the inner end of said bolt, and a spring interposed between a shoulder in said seat and the head of said bolt, substantially as set forth.

640,415. WATER-HEATER. CHARLES W. REINEKE and WILLIAM A. FRITSCH, Pittsburg, Pa. Filed Apr. 24, 1899. Serial No. 714,285. (No model.)

Claim.—In a water-heater, a series of independent water-coils, a water-chamber to which the lower ends of said coils are connected and a water-outlet to which the upper ends of said coils are connected, combined with a gas-supply for heating the water within said coils, a controlling valve arranged within said gas-supply, and a thermostatic controlling device for regulating the supply of gas passing through said valve, and comprising a curved arm arranged within the water-chamber with its one end connected to a wall thereof, a valve-rod extending into said chamber and having the other end of said curved arm connected thereto, a pivoted bell-crank connected to the outer end of said rod and to the valve-stem of the controlling-valve, and means for guiding said rod in a straight line when actuated by the expansion and contraction of the curved arm, substantially as described.



640,416. ROPE-CLAMP. CLARE F. RIGBY, Mannington, W. Va. Filed Mar. 2, 1899. Serial No. 707,537. (No model.)



Claim.—1. An improved clamp for well-drilling cables comprising a block having a vertical bore, slips operative therein to secure the cable, and a guide carried by one of the slips over which the cable passes to position between the slips, substantially as shown and described.

2. In a clamp for well-drilling cables, the combination of a temper-screw swivel, a block suspended therefrom, said block having a tapering bore, curved and tapering slips operative in the block-bore for securing the cable, one of the slips being removable and provided at its upper end with a cable-guide, and means for limiting the movement of the other slip, substantially as shown and described.

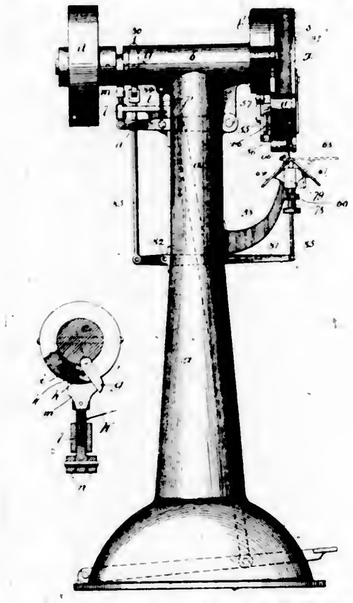
3. An improved clamp for well-drilling cables comprising a block having a vertical bore, slips operative therein to secure the cable, a guide for the cable carried by one of the slips, and a clamp on the guide for temporarily securing the cable, for the purpose described.

4. An improved clamp for well-drilling cables comprising a block having a vertical bore, slips operative therein, one of the slips being projected outward at its upper end and apertured vertically, a bolt on the block on which the apertured slip projection is confined for limiting the longitudinal movement of said slip, and a laterally-projecting cable-guide at the upper end of the other slip, substantially as shown and described.

5. An improved rope-clamp comprising a block having a vertical bore, slips operative therein to secure the cable, one of the slips being provided with an overhanging curved head which forms a guide over which the cable passes, substantially as shown and described.

6. An improved rope-clamp comprising a block having a vertical bore, slips operative therein to secure the cable, one of the slips being provided with an overhanging curved head which forms a guide over which the cable passes, and means for confining the cable on the slip-head, substantially as shown and described.

640,417. BOOK-STITCHING MACHINE. FREDERICK P. ROSBACK, Chicago, Ill. Filed June 5, 1899. Serial No. 719,413. (No model.)



Claim.—1. The combination with the drive-shaft, staple-forming anvil and the wire-feeder, cutter and staple forming and discharging mechanisms, of a reciprocal staple-wire guide movable to one position to position the wire at the anvil and movable from said position to be out of the way in the staple-bending operation, and operating mechanism for the said guide in the path of the staple-forming mechanism to be actuated in the movement of the latter, substantially as and for the purpose set forth.

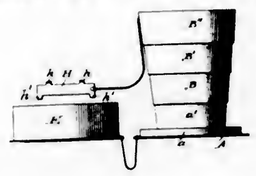
2. The combination with the drive-shaft and the staple-wire feeder and staple forming and driving bars actuated from the drive-shaft, of an anvil movable into and out of the path of the staple-wire and driving-bar, a staple-wire-engaging catch on the anvil and a sliding wire-guide between the said feeder and anvil movable to one position to hold the wire in position to be engaged by the catch and movable from said position to be out of the way in the staple-bending operation, substantially as and for the purpose set forth.

3. The combination with the drive-shaft, staple-forming anvil and the wire-feeder, cutter and staple forming and discharging mechanisms, of a reciprocal staple-wire guide movable to one position to position the wire at the anvil and movable from said position to be out of the way in the staple-bending operation, a lever actuated from the drive-shaft to move the said guide in one direction, a spring operating to move said guide in the other direction, and means for varying the distance of movement of said guide, substantially as and for the purpose set forth.

4. In a book-stitching machine, the combination with the hollow stationary head *b'* and drive-shaft *c*, of the removable guide-plate *s* fastened to the head *b'*, eccentric *q* and cam *r* on the end portion of the shaft, sliding forming-bar carrier *n* on the guide-plate operatively connected with the cam *r*, sliding driving-bar carrier *y* on the guide-plate operatively connected with the eccentric *q*, and the removable

face-plate 92, all constructed and arranged to operate substantially as and for the purpose set forth.

640,418. COLLAPSIBLE DRINKING-CUP. SAMUEL M. ROYER, Martinsburg, Pa. Filed Sept. 20, 1898. Serial No. 691,445. (No model.)



Claim.—1. A medicinal drinking-cup comprising a base having the vertical concentric flanges *a*, *a'*, and an inner perforated flange *c*, provided with a removable cover and forming a receptacle, the collapsible cup-forming sections, and the inclosing case, substantially as specified.

2. A medicinal drinking-cup comprising a base having the vertical concentric flanges *a*, *a'*, and an inner perforated flange *c*, provided with a removable cover and forming a receptacle, the collapsible cup-forming sections, and the inclosing case, together with an imperforate removable cap arranged to fit over and inclose the said receptacle to prevent access of liquid thereto when desired, substantially as specified.

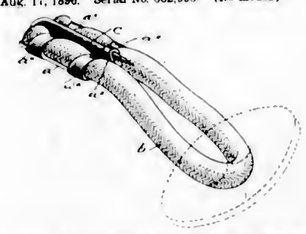
640,419. PROCESS OF COATING OXIDIZABLE-METAL WIRE WITH GAS-TIGHT COATING. FRIEDRICH O. SCHOTT, Jena, Germany. Filed June 28, 1899. Serial No. 722,122. (No specimens.)



Claim.—1. The herein-described process of coating wires with a gas-tight coat of glass consisting in surrounding said wires with glass introducing an inert or non-oxidizing gas into the space between the wire and the glass, and thereupon melting the glass on the wire to effect fusion thereto.

2. The herein-described process of coating iron or nickel wires with glass, consisting in melting an enveloping glass coating on the wire in the presence of an envelop of inert or non-oxidizing gas preventing the access of air between the glass and the wire during the fusing operation.

640,420. BUTTON-LOOP. SAMUEL I. SCHWARTZ, New York, N. Y. Filed Aug. 17, 1896. Serial No. 602,993. (No model.)

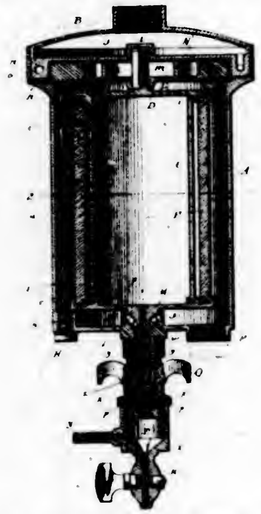


Claim.—The combination of a loop *b* for the purpose described, a metallic clip provided along two opposite sides with brads *a'* by which the ends of the loop are secured to the clip, a pin attached to one end of the clip and a catch for the pin attached to the other end, the pin and catch occupying a plane between and parallel to the ends of the loop.

640,421. WATER-FILTER. ANDREW G. SHEAK, Binghamton, N. Y., assignor to Abbie J. Sheak, same place. Filed Sept. 6, 1898. Serial No. 690,278. (No model.)

Claim.—1. A filter comprising an exterior casing provided with upwardly-extending flanges forming a way, said casing having an opening located at the bottom of the said way, a brush mounted in the vertical way of the exterior casing and adapted to be passed through the said opening, whereby it is introduced into and removed from the casing, an interior revolving filtering-casing having the brush bearing against it, and a water-wheel connected with the inner filtering-casing and adapted to rotate the same, substantially as described.

2. A filter comprising an exterior casing, an interior rotary filtering-casing, a water-wheel connected with the inner filtering-casing and adapted to rotate the same, and a stationary cleaning device mounted on the exterior casing and located between the inner and outer casings and bearing against the inner one, substantially as described.



3. A filter comprising an exterior casing, a removable hollow cover provided with an opening for the attachment of a supply-pipe and having a recess at its bottom, said cover being provided around the recess with tangentially-arranged discharge-openings communicating with the interior of the cover, a rotary inner filtering-casing, and a wheel connected with the same and arranged within the said recess, substantially as described.

4. A filter comprising an exterior casing provided with a hollow top portion having an interior recess, said top portion being provided at the walls of the recess with tapering portions having curved inner faces and end shoulders and provided with discharge-openings, an inner filtering-casing, and a wheel connected with the same and operating in the said recess, substantially as described.

5. A filter comprising an exterior casing, a top or cover provided with an interior chamber and having a recess at its lower face forming a depending annular flange having a series of tapering portions presenting inner curved faces and straight substantially radial end faces, said cover or top being provided with openings or passages extending from its interior to the ends of the tapering portions, an interior rotary filtering-casing, and a wheel operating in the said recess, substantially as described.

6. A filter comprising an exterior casing provided at its bottom with a socket, a hollow cap or cover provided with a socket and having a recess communicating with the interior of the cap or cover, an inner rotary filtering-casing journaled in the said sockets, and a water-wheel connected with the filtering-casing and operating in the said recess, substantially as described.

7. A filter comprising an exterior casing, an inner rotary supporting-frame composed of top and bottom portions, and connecting-bars spacing the same, a filtering-cylinder secured to the top and bottom portions of the frame, the said connecting-bars being of sufficient length to prevent the frame from exerting pressure on the filtering-cylinder, and means for rotating the cylinder, substantially as described.

8. A filter comprising an exterior casing, an interior rotary filtering-casing, a hollow cap or cover provided with an interior chamber and having discharge-openings, a rotary wheel connected with the filtering-casing and adapted to rotate the same, a distributing device communicating with the interior of the filtering-casing, and means for drawing off the water from the space between the inner and outer casings, substantially as and for the purpose described.

9. A filter comprising an exterior casing, an interior filtering-casing mounted in suitable bearings of the exterior casing, the latter being provided with an outlet communicating with the space between the inner and outer casings, a cleaning device fixed to the outer casing and bearing against the inner casing, a distributing device communicating with the interior of the filtering-casing, and a water-wheel connected with and adapted to rotate the same, substantially as described.

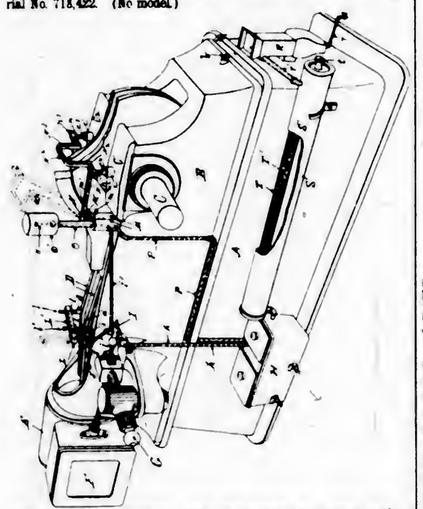
10. A filter comprising an exterior casing with a ball-bearing socket in the center of its bottom on the interior and a projecting tube on the exterior, an inner revolving filtering-casing having a tube extending through the said tube and projecting beyond the same and threaded, and a nut arranged on the projecting end of the inner tube and forming a seat for a packing, substantially as described.

11. A filter comprising an outer casing having a depending tube, an inner filtering-casing provided with a tube extending through and projecting beyond the said tube and having an exterior seat, an elastic packing mounted on the outer tube, a nut arranged on the latter and interposed between the elastic packing and the said seat, and adapted to compress the former to release the latter, and means for rotating the inner filtering-casing, substantially as described.

12. A filter comprising an outer casing having a depending tube, an inner rotary filtering-casing provided with a tube extending through and projecting beyond the said tube, a lower nut arranged on the inner tube, an elastic packing disposed on the outer tube, and an adjustable nut interposed between the said nut and the elastic packing and engaging the same and adapted to compress the latter to release the former, substantially as described.

13. A filter comprising an exterior casing provided with a vertical groove or way and having a ball-bearing socket at its bottom, an outer tube depending from the bottom of the casing, a brush arranged in the groove or way and provided with springs, an inner revolving filtering-chamber, balls arranged in the bearing-socket and supporting the filtering chamber, a hollow removable cover, a water-wheel connected with the filtering-chamber at the top thereof, an inner tube depending from the filtering-chamber and extending through the outer tube, an elastic packing arranged on the outer tube, an adjustable thumb-nut mounted on the outer tube and engaging the packing, a nut arranged on the inner tube, and a water-distributer swiveled to the thumb-nut and provided with a stop-cock and a tube, substantially as described.

640,422. AUTOMATIC OILER FOR STEAM-ENGINES. LE GRAND SKINNER, Erie, Pa. Filed Nov. 29, 1897. Renewed May 26, 1899. Serial No. 718,422. (No model.)



Claim.—1. In an automatic oiling mechanism for a steam-engine, the combination of a hollow standard, on the engine-frame adjacent to the guides, through which a supply of oil is adapted to pass, a hollow plug-valve mounted in said standard, a hollow arm secured to said plug-valve and adapted to extend over the guides when in a horizontal position, which valve operates as a hinge upon which said arm can be swung up and down over the guides, and nipples and controlling-valves therefor, in said arm for conveying oil therefrom to the guides when the arm is in a horizontal position, substantially as and for the purpose set forth.

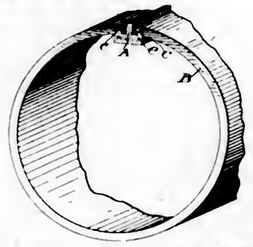
2. In an automatic oiling mechanism for a steam-engine, the combination of a hollow standard on the engine-frame adjacent to one of the main shaft-bearings, through which a supply of oil is adapted to pass, a hollow plug-valve mounted in said standard, a hollow arm secured to said plug-valve and adapted to extend toward the adjacent shaft-bearing, which valve operates as a hinge upon which said arm can be swung up and down, a hollow yoke secured to said arm and adapted to extend over the crank to the shaft-bearings on both sides of the engine-frame, and nipples and controlling-valves therefor in said yoke for conveying oil therefrom to the shaft-bearings when the arm and yoke are down, substantially as and for the purpose set forth.

640,423. GAME APPARATUS. FRANK G. SLEMMER, Centreville, Md., assignor to Milton B. Slemmer and Ida T. Slemmer, same place. Filed May 13, 1899. Serial No. 716,715. (No model.)



Claim.—A game apparatus of the class described, comprising an inclosing frame formed of separate sections spaced apart to provide exit-passages, pins or fastenings to be driven through the respective ends of the sections and into the ground, the upper ends of the pins projecting above the sections, and arches having sockets at their respective ends, said sockets detachably receiving the respective projecting ends of the fastening-pins, whereby the arches are held in position spanning the respective exit-passages, substantially as and for the purpose set forth.

640,424. MANUFACTURE OF METAL TUBES OR CYLINDERS. EUGENE C. SMITH and VICTOR R. SMITH, Providence, R. I., assignors to the American Lithographic Company, New York, N. Y. Filed July 18, 1899. Serial No. 724,319. (No model.)



Claim.—1. A sheet-metal tube or cylinder formed with parallel grooves adjacent to its abutting edges and with a flanged T shaped bar interposed between said abutting edges and filling the parallel grooves so as to mutually interlock with the edges of the sheet as explained.

2. A metal tube or cylinder formed of a bent sheet having parallel grooves near its abutting edges in combination with an interposed key of T shape in transverse section having flanges engaging with the adjacent parallel grooves and swaged into close contact therewith so as to form a tight and secure joint adapted to be finished uniformly with the smooth surface of the cylinder, as explained.

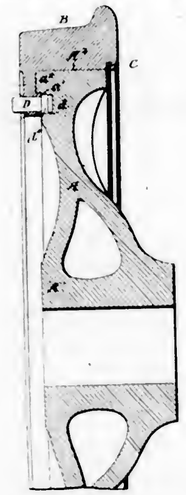
3. A tube or cylinder formed of a sheet of metal curved in tubular shape, in combination with a T-shaped bar having a stem or web interposed between the adjacent edges of the tubular sheet and an internally-projecting head forming a longitudinal rib or key on the interior of the cylinder as explained.

4. A tube or cylinder formed of a curved metal sheet having grooves or recesses near its abutting edges and a T-shaped interlocking key-bar swaged into engagement with such grooves or recesses so as to securely unite the edges of the sheet and projecting inward so as to form a longitudinal rib or key on the interior of the tube or cylinder as explained.

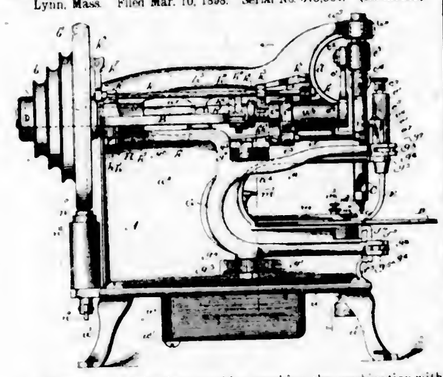
640,425. BOLTLESS STEEL-TIRED CAR-WHEEL. WILLIAM W. SNOW, Hillburn, N. Y. Filed Dec. 26, 1896. Serial No. 617,071. (No model.)

Claim.—The combination in a car-wheel, of a body portion having an extended outer surface, a tire having an inwardly-extended

flange on its outer side, the said flange being approximately flush with the outer face of the tire and extending beyond the outer face of the center of the body portion, an inwardly-projecting flange on the inner face of the tire for securing the tire to the body portion against lateral displacement, and a pin extending through the outer flange and into the body portion for preventing the circumferential slipping of the tire upon the body portion, substantially as described.



640,426. LEATHER-PUNCHING MACHINE. CHARLES P. STANDON, Lynn, Mass. Filed Mar. 10, 1898. Serial No. 673,387. (No model.)



Claim.—1. In a leather punching machine, the combination with a feed-dog and a feed presser-foot, of slides carrying said dog and presser-foot, a forked lever pivotally connected to both slides, and means to actuate said lever to simultaneously reciprocate the slides, substantially as described.

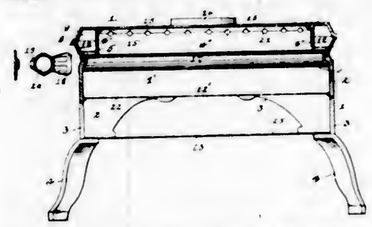
2. In a leather-punching machine, the combination with a feed-dog and a feed presser-foot, of slides carrying said dog and presser-foot, a forked lever pivotally connected to both slides, means to actuate said lever to reciprocate the slides, and an adjustable connection between said lever and its actuating means, substantially as described.

3. In a leather-punching machine, the combination with a punch-stock, of a collar surrounding said punch-stock, a screw-actuated wedge carried by the punch-stock and forming a rest or support for the lower end of the collar, spring-controlled devices acting upon the upper end of the collar and means connected with said collar to reciprocate the punch-stock, substantially as described.

4. In a leather-punching machine, the combination with a punch-stock and a power-driven shaft and connections to reciprocate said punch-stock, of a yielding vertically-movable presser-foot, a hand-wheel on the power-shaft for turning said shaft to raise the punch-stock and a lever located adjacent to the hand-wheel and connected to the presser-foot, whereby the presser-foot can be raised as the hand-wheel is turned to raise the punch-stock, substantially as described.

5. In a leather-punching machine, the combination with a punch-stock and means to vertically reciprocate it, of a feeding presser-foot arranged in front of the punch-stock, a horizontally-reciprocating slide carrying said presser-foot, a feed-dog located beneath said presser-foot, a horizontally-reciprocating slide carrying said feed-dog, a forked lever pivotally connected with the slides of the presser-foot and feed-dog and means to actuate said forked lever, substantially as described.

640,427. STOVE. ROBERT S. STEPHENSON, Allegheny, Pa., assignor of one-half to John S. Graham, same place, and Samuel S. Baldwin, New Castle, Pa. Filed June 5, 1899. Serial No. 719,384. (No model.)



Claim.—1. In a stove, the combination of gas-burners located therein, a box fitting above said gas-burners and provided with flues thereto communicating with the draft or escape pipe and a series of openings in the inner walls of said box adjacent to the top thereof adapted to connect the flues with the interior of the stove for the passage of the products of combustion from the interior of the stove to the flues and escape-pipe.

2. In a stove, the combination of gas-burners located therein, a box fitting above said gas-burners and provided with flues therein communicating with the draft or escape pipe, a top or cover fitting over said box, and a series of openings in the inner walls of said box adjacent to the top or cover adapted to connect the flues with the interior of the stove for the passage of the products of combustion from the interior of the stove to the flues and escape-pipe.

3. In a stove, the combination of gas-burners located therein, a base portion, a hollow portion on said base portion and provided with troughs or channels therein, a top or cover fitting over said hollow portion and adapted to form flues by said troughs or channels therein for the passage of the products of combustion to the draft or escape pipe, and openings in the sides of said flues connecting the same with the interior of said stove for the entrance of the products of combustion into said flues.

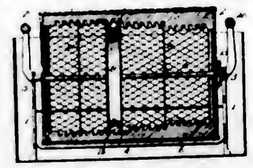
4. In a stove, the combination of gas-burners located therein, a base portion, a hollow member fitting over said base portion and provided with a trough or channel therein, a top or cover fitting over said hollow member and provided with a trough or channel therein corresponding to and opposite the trough or channel in the hollow member, said troughs or channels forming flues for the passage of the products of combustion to the draft or escape pipe, and openings connecting said flues with the interior of said stove for the entrance of the products of combustion into said flues.

5. In a stove, the combination of gas-burners located therein, a base portion, a hollow member fitting over said base portion and provided with a trough or channel extending around the same, a top or cover fitting over said hollow member and provided with a trough or channel extending around the same corresponding to and opposite the trough or channel in the hollow member, said troughs or channels forming flues for the passage of the products of combustion to the draft or escape pipe, and openings in the inner walls of the hollow member and top or cover for the passage of the products of combustion from the interior of the stove into the flues.

640,428. DISH-WASHER. CHARLOTTE H. STERLING, Gambier, Ohio. Filed Aug. 23, 1899. Serial No. 728,161. (No model.)

Claim.—1. In a dish-cleaner, and in combination with the rotatable washing-cylinder, and means for holding articles of tableware therein, an annular closure or compartment fixed transversely within the cylinder-chamber and formed of extensible partitions each having a side telescoping rim, and means for retaining said extensible parts to form the closure.

2. In a cleaner for tableware and in combination with the rotatable washing-cylinder, and means for holding the ware therein, an annular closure or compartment transversely fixed within the cylinder-chamber, and formed of separable partitions having telescoping rims and circumferential rims projecting beyond the telescoping rims, and means for retaining the parts to form the closure.



3. In a cleaner for tableware, and in combination with the rotatable washing-cylinder, and means for holding ware therein, an annular closure or compartment transversely fixed within the washing-chamber, formed of separable partitions each with a rim adapted to telescope within the diameter of the partitions, and toothed bars adapted to engage the annular projecting edges of the partitions outside of telescoping rims.

4. In a dish-washer and in combination with the rotatable washing-cylinder, and changeable transverse partitions for the chamber thereof, of an elastic band or strap fixed to one side of the cylinder, adapted to span the chamber and be attached to the other side of the cylinder whereby to hold the articles firmly together within the washing-chamber.

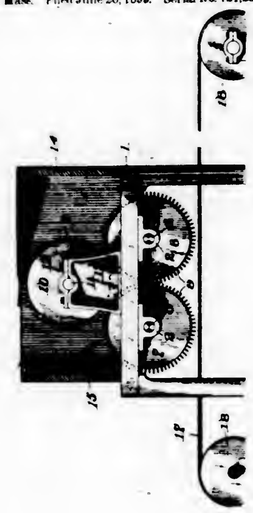
5. In a dish-washer, and in combination with the rotatable washing-cylinder, and longitudinal bars having hooks along their length, of elastic grasps adapted to span the chamber, and hooks set along the length of the cylinder for engagement with the said spanning grasps.

6. In a washer for tableware, and in combination with the rotatable washing-cylinder, having hooks set longitudinally diametrically along its opposite sides, of grasps composed of an open-wire section, coil springs, and a rod connecting the springs for engaging the hooks, to form grasps adapted to span the cylinder-chamber.

7. In a dish-cleaner, and in combination with a rotatable washing-cylinder, and means for holding articles of tableware therein, a removable closure composed of circular head-pieces each having a face-rim of less diameter than the heads adapted to telescope and toothed bars with the teeth of which the edges of the separate heads engage for holding them together.

8. In a dish-washer, and in combination with a rotatable washing-cylinder, a closure formed of separate telescoping heads, each head having a rim projecting beyond the body of the closure and means in the cylinder for engaging the rim of each separate head to hold them together whereby the area of the closure may be varied to suit a greater or less number of articles.

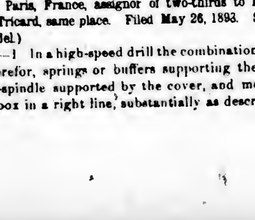
640,429. FISH-FIBERING MACHINE. JOHN A. STODDART, Gloucester, Mass. Filed June 20, 1899. Serial No. 721,256. (No model.)



Claim.—1. In a fish-fibering machine, the combination with a supporting-frame, of a pair of rollers arranged in horizontal alinement, one of which rollers is adapted to travel at a higher rate of speed than the other, a third roller supported above the pair of alined rollers, each roller being provided on its periphery, with studs or projections, which, in the operation of the rollers, intermesh, an open-bottom casing adapted to partially inclose the upper roller, a guide secured to the said casing to direct the fish between the rollers, and a feed-hopper arranged over the guide, substantially as described.

2. In a fish-fibering machine, the combination with a supporting-frame, of a pair of rollers arranged in horizontal alinement, a third roller supported above the pair of alined rollers, each roller being provided on its periphery with studs or projections, which, in the operation of the rollers, intermesh, an open-bottom casing, adapted to partially inclose the upper roller, a guide secured to the said casing to direct the fish between the rollers, a feed-hopper arranged over the guide, and means for imparting a higher rate of speed to one of the horizontally-alined rollers than to the other, substantially as described.

640,430. LAVATORY-TRAP. BERT O. TILDEN, Hartford, Conn. Filed Nov. 5, 1896. Serial No. 611,166. (No model.)



Claim.—1. The herein-described trap, it comprising two rotatively-united trap-sections having straight inner walls and rounded inner ends, each of said sections having a pipe-entrance opening transverse to the axis of rotation of one section on the other, said entrance-opening being located in one member at one side of the coupling uniting the sections, and in the other member at the other side of said coupling; and inlet and outlet pipes located in said respective openings and rotatably adjustable therein.

2. A trap having two sections united to form the trap-body by a coupling which will permit of the rotative adjustment of the one section upon the other section; an inlet-pipe entering one of said sections transversely to the longitudinal axis of the trap-body and at one side of the coupling uniting said sections; and an outlet-pipe entering the other of said sections transversely to the longitudinal axis of the trap-body, both of said pipes being adjustably connected with said sections substantially as described, and the outlet-pipe consisting of a T having at one end an adjustable connection for the ventilating-pipe of the system and at the other end a connection adapted to receive the usual drainage-pipe.

3. A trap having two sections united to form the trap-body by a coupling which will permit of the rotative adjustment of one section upon the other and each of said sections having straight inner walls and a rounded inner end; an inlet-pipe entering one of said sections transversely to the longitudinal axis of the trap-body and at one side of the coupling uniting said sections; and an outlet-pipe entering the other of said sections transversely to the longitudinal axis of the trap-body, both the inlet and outlet pipes being adjustably connected with their respective trap-sections, substantially as described.

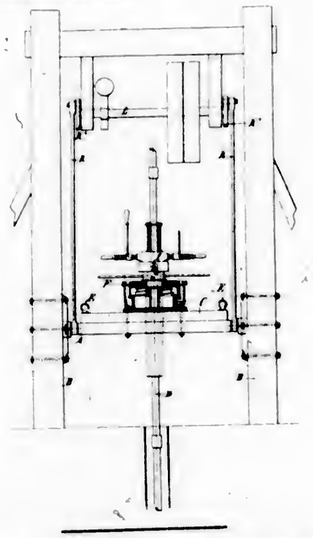
4. The combination, with a pot-trap embodying a pair of sections each having a closed end and a smooth and straight inner wall, of a coupling for uniting said sections in such a manner that they may be rotatably adjusted one with reference to the other; an inlet-pipe adjustably connected to one trap-section adjacent to the lower end thereof; and an outlet-pipe adjustably connected to the other trap-section adjacent to the upper end thereof.

5. In a combination with transversely-arranged inlet and outlet pipes, a trap having one horizontal and two vertical swivel-joints, the horizontal joint being in the main body of the trap and the vertical joints in said transversely-arranged inlet and outlet pipes, substantially as set forth.

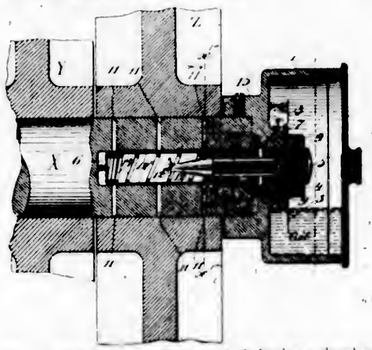
640,431. HIGH-SPEED DRILLING APPARATUS. STIENNE WATEL, Paris, France, assignor of two-thirds to Prosper Clero and Alexis Tricard, same place. Filed May 26, 1893. Serial No. 681,838. (No model.)

Claim.—1. In a high-speed drill the combination of a spring-box, a cover therefor, springs or buffers supporting the cover from the box, a drill-spindle supported by the cover, and means for reciprocating the box in a right line, substantially as described.

2 In a high-speed drill the combination of a spring-box, a cover therefor, springs or bullers supporting the cover from the box, a drill-spindle adjustably supported by the cover, means for reciprocating the box in a right line, and means for adjusting the drill-spindle in the cover, substantially as described



640,432. LUBRICATOR SYLVESTER J. WETMORE, New York, N. Y., assignor of one-half to W. Oscar Shadbolt, same place. Filed May 4, 1897 Serial No. 634,989. (No model.)



Claim.—1 The combination with a shaft having a chamber to receive the lubricant, and a passage extending from said chamber to the bearing-surface to be lubricated, of a reservoir for the lubricant mounted on the end of said shaft and communicating with the said chamber therein, said reservoir having in it pockets each provided with a passage for leading the lubricant to the chamber in the shaft.

2. The combination with a shaft having a chamber in it to receive a lubricant, and passages extending from said chamber to the bearing to be lubricated, of a reservoir for the lubricant mounted on the end of said shaft, said reservoir having pockets, and a stem having in it a plurality of oil-passages connecting the respective pockets with the chamber in the shaft, substantially as and for the purposes set forth.

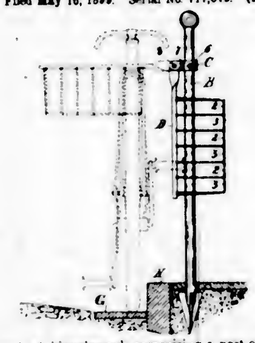
3. An oiler or lubricator adapted for attachment to a shaft having a chamber to receive the lubricant, comprising an oil cup or reservoir 1, having a series of pockets 8, a stem with passages 10, communicating with the respective pockets in the cup, and a stoppered filling-inlet, substantially as set forth.

4. The combination with a shaft having a longitudinal chamber and passages extending therefrom to the bearing to be lubricated, of a reservoir or cup for the lubricant connected with the shaft and communicating with said chamber to supply lubricant thereto, of the distributer in said chamber, said distributer consisting of a tube of fibrous material, and means substantially as described for distending the same.

5 The combination with a shaft having in it a longitudinal chamber with passages leading therefrom to the bearing to be lubricated, of the oiler comprising the cup 1, provided with a plurality of pockets 8, a filling-inlet, a stem 5, having longitudinal passages 10, communicating with the respective pockets in the cup and adapted to lead oil into the chamber in the said shaft, and an oil-guide at the end of said stem 5 within the hollow of the shaft, substantially as and for the purposes set forth.

6 The combination with the oiler or lubricator, having a stem with a series of oil-passages 10 extending through it longitudinally, of the oil-guide 12, having an oil-channel corresponding to each of said passages 10, and a button or disk at its outer end, said guide being fixed in the end of the stem, substantially as set forth

640,433. BICYCLE-RACK. FRANKLIN R. WHITE, Waterbury Conn. Filed May 16, 1899. Serial No. 717,079. (No model.)



Claim.—1 A bicycle-rack comprising a post or upright; an attaching device adjustably secured to said post; a rack-bar connected to said attaching device for swinging movement in a vertical plane; two sets of alternately-disposed resilient clips or keepers fixed to said rack-bar and extending outward from opposite sides respectively thereof in planes intersecting the longitudinal axis of said bar, the clips of one set being so disposed with respect to the clips of the adjacent set, that a space is formed longitudinally of said bar between the inner adjacent ends of the two sets of clips to receive the post when the rack-bar is in a depending position, substantially as described.

2. A bicycle-rack comprehending a vertical post; an automatically-gravitative rack-bar pivotally connected to said post for swinging movement in a vertical plane from a normally depending, or vertical, position parallel to said post, to a horizontal position at right angles to said post; and a series of integral resilient clips fixedly secured to said bar and extending outward from opposite side faces thereof in alternating arrangement, and in planes intersecting the longitudinal axes of said bar, whereby on a swinging movement of the bar, the clips will have a bodily movement about a common center.

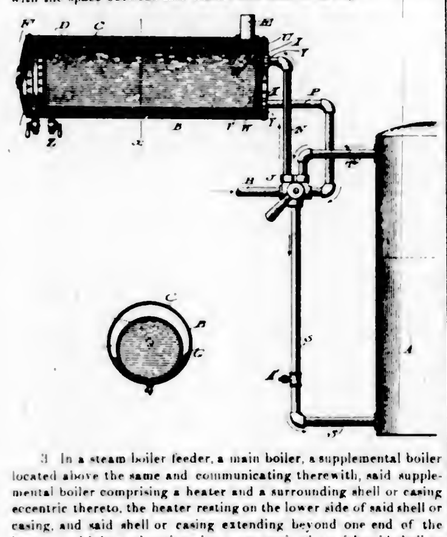
3 A bicycle-rack including an attaching device, a rack-bar pivotally connected at its inner end to said attaching device and having in one face thereof a series of transverse grooves, and a series of transversely-disposed spring-wire clips or keepers having connecting-bars secured in said grooves.

4 A bicycle-rack including a rack-bar supported for swinging movement in a vertical plane; and two sets of alternately-disposed resilient clips or keepers fixed to said rack-bar and extending outward from opposite sides respectively thereof in planes intersecting the longitudinal axis of said bar, the clips of one set being so disposed with respect to the clips of the adjacent set, that a space is formed longitudinally of said bar between the inner adjacent ends of the two sets of clips.

640,434. STEAM-BOILER FEEDER. THOMAS J. WHITNEY, Philadelphia, Pa. Filed Feb. 2, 1899. Serial No. 704,264. (No model.)

Claim.—1. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same and communicating therewith, said supplemental boiler consisting of a shell or casing, an inner heater eccentric thereto, said casing being provided with chambers at its sides and upper end, and inlet and outlet pipes communicating with said chambers, in combination with means substantially as described for conducting alternately steam or feed-water into said supplemental boiler.

2. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same and communicating therewith, said supplemental boiler comprising an inner heater and a surrounding shell or casing eccentric thereto whereby water-holding chambers are formed adjacent to said heater, and inlet and outlet pipes communicating with the space between said heater and shell or casing.



3 In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same and communicating therewith, said supplemental boiler comprising a heater and a surrounding shell or casing eccentric thereto, the heater resting on the lower side of said shell or casing, and said shell or casing extending beyond one end of the heater, and inlet and outlet pipes communicating with said shell or casing.

4. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler comprising a heater and an outer shell or casing, and pipes communicating with said main and supplemental boilers, said pipes being connected with the walls of said shell or casing and heater for holding said parts in assembled position.

5. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler comprising a heater and an outer shell or casing having heads at one end thereof situated adjacent to each other, and pipes communicating with the boiler and supplemental boiler, said pipes passing through and being secured to said adjacent heads to hold said heater and shell or casing together.

6. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler comprising a heater and a surrounding shell or casing with the heads at one end thereof situated adjacent to each other, and pipes communicating with said boiler and supplemental boiler, the ends of said pipes communicating with the supplemental boiler passing through the adjacent heads and being headed on their inner ends, packing around said pipes exterior to said shell or casing-head, and a gland for compressing said packing and securing said heads together.

7. The combination of a main boiler, a supplemental boiler located above the same, pipes common to said boilers, a valve common to said pipes, said valve consisting of a casing J, a plug L^2, a stuffing-box, cap or gland, D^2, packing intermediate said plug and stuffing-box, a screw adapted to engage said plug, a washer intermediate said plug and screw, and a jam-nut for locking said screw.

8 In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler comprising a heater and a surrounding shell or casing located eccentrically thereto whereby water-holding chambers are formed adjacent to said heater, an outlet-pipe from said supplemental boiler located a short distance above the base of said heater, an inlet-pipe for the latter, a valve common to said pipes, pipes leading from the top of said main boiler to said valve and a pipe leading from the latter to the lower portion of said main boiler, in combination with a blow-off cock located in said last-mentioned pipe and in the bottom of said heater for withdrawing sediments and precipitates therefrom.

9. In a steam-boiler feeder, the combination of a main boiler, a supplemental boiler located above the same, the latter consisting of a heater and a surrounding shell or casing located eccentrically with respect thereto, means for introducing and withdrawing steam from said casing, an inlet-pipe leading to the upper portion of said heater, a discharge-pipe leading from the lower portion thereof, a short distance above the base of said heater, a valve common to said pipes, a main boiler having a pipe leading from the upper portion thereof to said valve, a pipe leading from the lower portion of the latter to said main boiler, an inlet-pipe leading to said valve for the introduction of feed-water, the pipe leading from said valve to the upper portion of said heater serving both to conduct feed-water to said heater and also as a conduit for steam from the main boiler to said heater, and blow-offs for the inlet-pipe to said main boiler and for said heater.

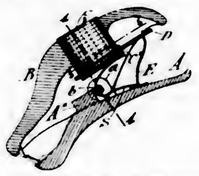
10. The combination with a main boiler and a supplemental boiler located above the latter of pipes common thereto and a valve controlling the passage of water through said pipes, said valve comprising a casing, a recessed plug located therein, said plug having a shoulder, a gland engaging the casing, packing intermediate said gland and plug, a washer located adjacent the opposite end of said plug and a set-screw engaging said washer, said set-screw being provided with a jam-nut for locking the same.

11. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler consisting of a casing having chambers at its sides and upper end and an inner heater located eccentrically in said casing, and inlet and outlet pipes communicating with said chambers, in combination with means for conducting live steam from said main boiler to the interior of said supplemental boiler and means for conducting feed-water also to said supplemental boiler.

12 In a boiler-feeder, a main boiler, a supplemental boiler located above the same, said supplemental boiler comprising an inner heater and a surrounding shell or casing eccentric thereto, inlet and outlet pipes in communication with the space between said heater and shell or casing and pipes N and P and T and S communicating with the upper and lower portion of said supplemental boiler and main boiler respectively, in combination with a controlling device for controlling the flow of steam from said main boiler to the supplemental boiler and the flow of water from said supplemental boiler to said main boiler respectively.

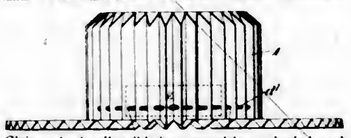
13. In a steam-boiler feeder, a main boiler, a supplemental boiler located above the same and communicating therewith, said supplemental boiler consisting of a shell or casing, an inner heater eccentric thereto, said casing being provided with chambers at its sides and upper end and inlet and outlet pipes communicating with said chambers.

640,485. COIN-RECEPTACLE. ISAAC B ABRAHAMS, New York, N. Y. Filed Apr. 21, 1899. Serial No. 713,843. (No model.)



Claim.—In a coin-receptacle, the combination, with an upper portion provided with a coin-receiver, and a bottom plate below said coin-receiver, of a lower portion pivoted to said upper portion, a push-plate guided on said bottom plate of the receiver, an arm carried by the lower portion and movable longitudinally through an aperture in said push-plate and adapted to move the push-plate in forward direction when the arm-carrying end of the lower portion is moved toward the corresponding end of the upper portion, and to return the plate when moved away from said end, and a spring interposed between said portions and holding the arm-carrying end of the lower portion normally away from the corresponding end of the upper portion, substantially as set forth.

640,486. HAT. MARGARET R. M. ANDERSON, Springfield, Scotland. Filed Jan. 12, 1899. Serial No. 701,990. (No model.)



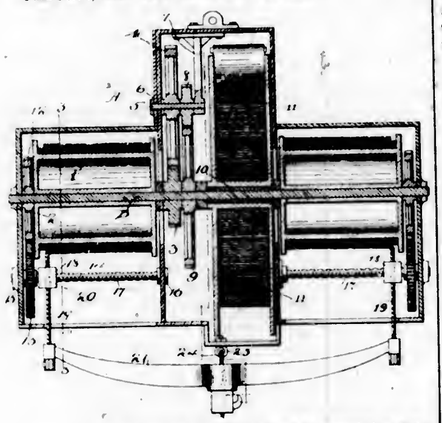
Claim.—1. A collapsible hat comprising a single length of transversely-plaited material, fastenings on the respective ends of said lengths of material, and a cord passed through a series of holes in the said length of material so as to draw the said plaits together at their one extremity to form the crown of the hat, substantially as described.

2. A collapsible hat composed of a length of plaited material the opposite ends of which are adapted to be connected or disconnected and the plaits of which have their ends at one extremity perforated and drawn together by a cord passing through the said perforations so as to form the center of the crown of the hat, and the plaits near their opposite extremity likewise perforated to receive a cord by means of which the size of the hat may be regulated, substantially as and for the purpose specified.

3. A collapsible hat comprising a single length of material plaited transversely to form substantially accordion-plaits, the folds of said plaits being reversed and bent at substantially right angles at a point near the top of the material to from the crown of the hat, a cord passed through openings formed at the upper extremity of the plaits adapted to draw the plaits together and form the center of the crown, and fastening devices formed on the meeting edges of the plaited length of material, substantially as described.

4. A collapsible hat comprising a single length of material plaited transversely to form substantially accordion-plaits, the folds of said plaits being reversed and bent at substantially right angles at a point near the top of the material to form the crown of the hat, a cord passed through openings formed at the upper extremity of the plaits adapted to draw the plaits together and form the center of the crown, the folds of said plaits being reversed and bent at right angles in the opposite direction of the upper bend at a point near the lower end of the material to form the brim of the hat, and fastening devices formed on the meeting edges of the material, substantially as described.

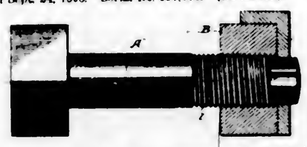
640,437. FIRE-ESCAPE. FREDRIK H. ARNESEN, Chicago, Ill. Filed Feb. 2, 1899. Serial No. 704,306. (No model.)



Claim.—1. A fire-escape comprising a shaft journaled in bearings in a casing, drums mounted on said shaft adjacent its ends, cables adapted to be wound upon the same, a spring gearing between said shaft and spring whereby when said shaft is turned in one direction said spring is wound up, a beam carried by said cables and adapted to carry a person, said cables being adapted to unwind from and turn said drums and said shaft when the weight of a person is applied and wind up said spring, and said spring being adapted to reverse said action upon relieving said beam of its weight, devices carried by said casing for guiding said cables, gearing between said devices and said shaft, a cable secured at one end to the middle portion of said casing and depending therefrom, and devices carried by said beam and adapted to engage said last-named cable to govern the motion of said beam, substantially as described.

2. A fire-escape comprising a casing, a shaft journaled in bearings in said casing, drums rigidly mounted on said shaft adjacent its ends, cables adapted to be wound upon same, a spring gearing between said shaft and spring a beam carried by said cables and adapted to carry a person, said cables being adapted to unwind from and turn said drums and shaft to wind up said spring when the weight of a person is applied to said beam, and said spring being adapted to reverse said motion when said beam is released, devices carried by said casing for guiding said cables, gearing between said devices and said shaft, a cable secured at one end to the middle portion of said casing and depending therefrom, and a spiral passage in said beam through which said cable passes, said cable being adapted to be grasped at its free end and drawn taut to guide said beam and likewise to govern the speed of said beam, substantially as described.

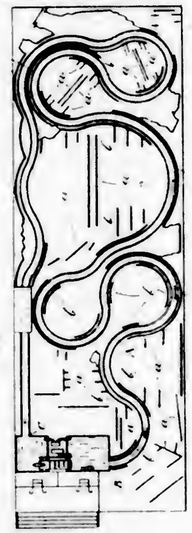
640,438. NUT-LOCK. EDWARD A. BLANTON, Jr., Ridley Park, Pa. Filed Sept. 24, 1898. Serial No. 691,790. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt having a threaded shank and formed with a series of eccentric bosses having curved surfaces of gradually-increasing radii, a nut provided with a bearing-surface adapted to screw upon the bolt, and a locking device formed with a series of depressions having curved surfaces adapted to engage and conform to the surfaces of the bosses of the bolt and to permit a limited amount of movement between the engaging surfaces of the bolt and locking device in one direction, and also having an engaging portion adapted to the bearing-surface of the nut, substantially as described.

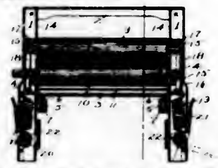
2. In a nut-lock, the combination with a bolt having a threaded shank formed at its periphery with a series of longitudinally-extending eccentric bosses having curved surfaces of gradually-increasing radii, a nut provided with a flat bearing-surface, adapted to be received upon the threaded portion of the bolt, and a locking device having an opening for the reception of the shank of the bolt, the wall of said opening being formed with a series of inclined curved surfaces adapted to conform to and ride upon the eccentric surfaces of the bosses and to permit a limited movement between said surfaces when the parts are moved in one direction, the said locking device being also provided with an engaging portion extending at an angle thereto and adapted to overlie and contact with the bearing-surface of the nut, substantially as described.

640,439. PLEASURE-CANAL. PAUL BOYTON, New York, N. Y. Filed Apr. 15, 1899. Serial No. 713,100. (No model.)



Claim.—A pleasure-canal containing a body of water and having a series of different scenes arranged along its sides, the ends of said canal being contiguous, and its course inclosing a given area; an inclined bottom for said canal and its banks having their upper surface in approximately a horizontal plane; together with a conductor between the canal ends, power means to convey water from the lower canal end to the upper end, to cause a continuous circulation of water through the canal; a boat to be supported and moved by the body of water: and an endless belt to carry the boat across the space intervening between the canal ends, said belt having roller-supports at each canal end and an intermediate roller-support located at a higher point, to permit the belt to move the boat first upwardly and then downwardly, in its traverse.

640,440. CLOTHES-WRINGER. WILLIAM T. BRADLEY, Rochester, N. Y., assignor of one-half to Louis P. Willsea, same place. Filed Oct. 3, 1898. Serial No. 692,497. (No model.)



Claim.—1. The combination with the main frame having the standards, the rollers, and spring-operating devices for the latter, of the reversible clamps on the standard, and the reversible inverted-V-shaped plate, and engaging lugs on the standards with which it cooperates.

2. In a wringer, the combination with the hollow slotted standards and the rollers, of the stationary bearings, the movable bearings having the depending yokes within the standards and extending beyond the stationary bearings and sliding in the standards, the springs located within the standards and engaging the lower ends of the yokes, and adjusting devices connected to the springs for adjusting them.

3. In a wringer, the combination with the hollow slotted standards having the ribs 14, the stationary bearing-boxes 16, and the movable bearing-boxes 17 having the depending yokes guided on the ribs 14, of the tension-springs connected to the yokes, means for adjusting the springs, the cover-plates 4 and the rollers.

4. The combination with the main frame having the hollow slotted standards provided with the ribs 13 and 14 and the cover-plates 4, of the rollers, the boxes 16 and 17, the latter having the yokes 18, the springs located within the standards, and means for adjusting them.

5. In a wringer, the combination with the main frame having the slotted hollow standards, and the rollers, of the removable open-sided bearing-boxes for the lower roller arranged in the slots, the wooden bearing-blocks therein, the movable bearing-boxes also sliding in the slots in the standards, having the yokes extending beyond the bearings of the other roller, the springs engaging the yokes, and means for adjusting the tension of the spring.

6. In a wringer, the combination with the main frame, and a stationary and a movable roller, of the movable bearings for the movable roller having the yokes, the tension-springs connected to the yokes, and the levers pivoted in the frame having the eccentric cams engaging the free ends of the springs and adapted to be moved across the center to lock the springs under tension.

640,441. WRINGER. WILLIAM T. BRADLEY, Rochester, N. Y., assignor of one-half to Louis P. Willsea, same place. Filed Oct. 3, 1898. Serial No. 692,498. (No model.)



Claim.—1. In a wringer, the combination with the main frame composed of the side frames having the bearings thereon, the flanges and lugs, the connecting web or plate extending between the frames and engaging the flanges, and the bolts passing through the lugs and plate, of the clamp-arms pivoted on the bolts, and the rollers journaled in the bearings in the frames.

2. In a wringer, the combination with the main frame embodying the side members, each open at the front and having the stationary bearings and the recesses above them, of the movable journal-boxes, the separate springs located in the recesses and engaging the movable journal-boxes, the rods engaging the movable journal-boxes and extending through the upper portion of the frame, adjustable means operable from the upper portion of the frame for limiting the movement of the boxes caused by the springs, and the rollers.

3. In a wringer, the combination with the main frame embodying the side members open at the front, having the downward extensions, and the stationary bearings, the connecting-web, and the bolts connecting the members and web, of the clamp-arms pivoted on the bolts, the movable journal-boxes, the springs for operating them, adjusting devices for limiting the movement of the boxes, and the rollers.

4. In a wringer, the combination with the main frame embodying the side members open at the front, having the sockets, the stationary bearing-blocks therein, and the recesses over them, of the movable journal-boxes guided to move in the recesses, the springs arranged in said recesses, the screws engaging the boxes, and the rollers.

5. In a wringer, the combination with the main frame embodying the side members open at the front, and having the recesses 14, and the stationary bearings beneath, of the journal-boxes 12 having the extensions operating in the recesses 14, the springs in said recesses, means for adjusting the journal-boxes independently against the tension of the springs, and the rollers.

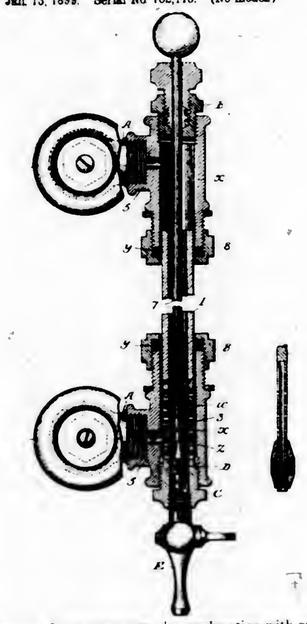
6. In a wringer, the combination with the main frame embodying the side members open at the front, and having the recesses 14, and the sockets beneath, and the removable bearing-blocks therein, of the journal-boxes 12 having the extensions operating in the recesses 14, and the bearing-blocks 11 therein, the springs, means for adjusting the journal-boxes independently against the tension of the springs, and the rollers.

7. In a wringer, the combination with the main frame, the stationary roller, the adjustable roller, and the journal-boxes for the latter, of the rods connected to said boxes having the pins, and the levers having the cam-slots in which said pins operate.

8. In a wringer, the combination with the main frame, the stationary roller, the adjustable roller, and the journal-boxes for the latter, of the threaded rods screwing into the boxes, and the cam-levers connected to the upper ends of the rods and engaging the frame.

9. In a wringer, the combination with the main frame, the stationary roller, the adjustable roller, and the journal-boxes for the latter, of the threaded rods screwing into the boxes, having the heads and the pins thereon, and the levers having the cam-slots engaging the pins, and also engaging the main frame.

640,442. WATER-GAGE. ROBERT CLARKE, New York, N. Y. Filed Jan. 13, 1899. Serial No. 702,115. (No model.)



Claim.—1. In a water-gage, the combination with casings, of a gage-tube in sockets in said casings, and a cleaning device fitting in said tube and adapted to be reciprocated therein from end to end while the tube contains fluids, substantially as described.

2. In a water-gage, the combination with two casings, of a gage-tube in sockets in said casings, a suitably-packed plug for one of said casings, a cleaning device fitting in said tube and provided with a rod extending through said plug, and means for permitting the flow of water through the cleaning device between opposite sides of said cleaning device, substantially as described.

3. In a water-gage, a cleaning device consisting of a piston-rod hollow near one end, provided with an opening in the same end and

lateral openings in the hollow portion, and a cleaning-piston mounted on the same end of the piston-rod below the lateral openings, substantially as described.

4. In a water-gage, the combination with two casings, of a gage-tube, a cleaning device fitting in said tube and adapted to be reciprocated therein, and a nozzle serving as a guide for said cleaning device beyond said tube, adapted to permit the flow of fluid into said tube and to serve also as a support for said tube, substantially as described.

5. The combination in a water-gage, of a glass gage-tube, casings supporting the latter, a tube-cleaning device movable from end to end within the tube, and an operating-rod therefor extending through a packed opening in the casing, substantially as set forth.

6. A water-gage provided with a casing having a lateral projection with a tube-receiving socket open at both ends, a plug fitting one end, a rod extending through a hole in the plug into the tube, and a cleaning device carried by said rod within the tube and movable in the latter from end to end, substantially as set forth.

7. The combination in a water-gage, of a valve-casing, a lateral extension on said casing provided with a tube-receiving socket open at both ends, a plug fitted in one end of the socket and a tube in the other end, a rod extending through a hole in the plug into the tube, and a cleaning device carried by the rod within the tube and movable in the latter from end to end, substantially as set forth.

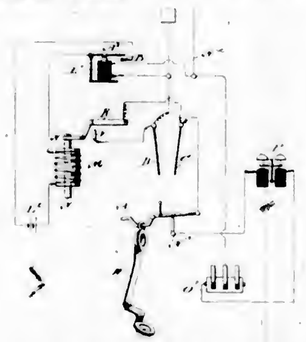
8. The combination with the casings and water-tube of a water-gage, of a perforated nozzle supporting the lower end of the tube and in line therewith, and a cleaning-piston sliding in the tube and nozzle and connected with an operating-rod, substantially as set forth.

9. The combination with the casings and water-tube of a water-gage, of a perforated nozzle supporting the lower end of the tube and in line therewith, and a cleaning-piston sliding in the tube and nozzle and connected with a hollow perforated operating-rod, substantially as set forth.

10. A water-gage consisting of a water-tube and two casings, each with a socket open at both ends and adapted at the inner end to receive the end of the tube and threaded at the outer end to receive a plug, and plugs fitting the outer ends of the sockets, one of said plugs supporting a perforated nozzle 3, and a cleaning-piston arranged within the tube and connected to a piston-rod extending through a packed opening in one of the plugs, substantially as set forth.

11. The combination with the tube of a water-gage, of a casing having a socket receiving the tube at one end, a nozzle provided with lateral openings and a screw-plug supporting the latter fitting the other end of the socket, substantially as set forth.

640,443. **COIN-OPERATED PUBLIC TELEPHONE-CALL INSTRUMENT.** FREDERICK J. CLENDINNEN, Hawksburn, and GEORGE A. P. WEYMOUTH, South Melbourne, Victoria. Filed Jan. 20, 1898. Serial No. 667,240. (No model.)



Claim.—1. In combination with the coin-chute of a coin-controlled telephone, a tilting platform arranged under the said chute, a solenoid having two cores, one of which is connected to the said platform for tilting the latter, means for energizing the said solenoid, bell-ringing devices actuated by the line-circuit, which is closed by the other core of the said magnet substantially as set forth.

2. In an improved coin-operated telephone instrument, an alarm and electric circuit-conductors provided with contacts arranged for closing the circuit by the interposition of a coin, in combination with the conductors of an additional electric circuit and electromagnetic means for closing the same, both of these circuits being arranged to operate the alarm, in order that the occupants of the house or shop containing it may be rung up whenever the exchange desires to communicate with them and that the instrument may be used whenever the proper coin is dropped into the slot, substantially as set forth.

3. An improved coin-operated telephone instrument for public call having beneath the coin-chute a tilting platform which, by the replacement of the receiver and transmitter on its line-lever discharges the coin into the cash-receipt box or on a battery-current from the exchange by means of a relay, a local circuit closed by said relay and a solenoid energized by the said local circuit, repays the said coin, all as and for the purposes hereinbefore described.

4. An improved coin-operated telephone instrument for public call consisting of a coin-chute below which is a tilting platform retained vertically by a balance-weight and pivoted in bearings, said table being moved forwardly by a lever, and a link attached to a lever moved by an arm on the line-lever, and moved backwardly by a battery-current which from the exchange and through a relay draws into a solenoid a lever-core attached to a lever having a link thereon connected to a lever on the platform pivot-pin or spindle, all as and for the purposes hereinbefore described and as illustrated in the drawings.

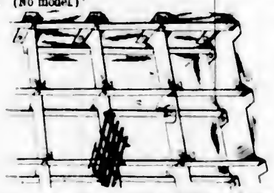
5. An improved coin-operated telephone instrument for public call in which the ringing-circuit is closed by a battery-current from the exchange passing through a relay, a local circuit closed by the said relay and a solenoid energized by said local circuit, the upper core of which draws downwardly a bell crank lever thereby releasing a lever which falls upon a stop and completes the circuit, all as and for the purposes hereinbefore described.

640,444. **PLOW-FENDER.** ELISHA M. COLBERT, Lafayette, Ga. Filed Sept. 20, 1899. Serial No. 731,076. (No model.)



Claim.—The combination with a plow, of an arm having a horizontal member and a vertical member, a cuff for the plow-beam connected to the horizontal member, and a fender attached to the vertical member of said arm and capable of having a vertical adjustment without varying its angle and a further independent adjustment in the arc of a circle, the said fender being intermediately bent to provide an outward deflection of the rear part thereof, the rear extremity of the lower part of said deflected portion being inturned and provided with a cutting edge.

640,445. **METAL PARTITION AND FURRING FOR BUILDINGS.** CORNELIUS COLLINS, San Francisco, Cal. Filed Oct. 5, 1899. Serial No. 732,650. (No model.)

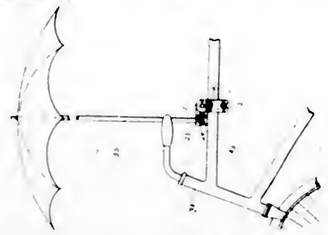


Claim.—1. A structure consisting of sheets of metal having strips cut therefrom, one end of said strips being free of, and the other end remaining attached to, said sheet, said strips being bent to form connections between the adjacent main sheets and having the free ends attached to the next adjacent sheet.

2. A partition or other dividing or supporting structure consisting of sheets of metal having a transverse width to form the thickness of the partition and structure, strips cut therefrom and having one end detached and the other end remaining connected with the main sheet, said separated strips being bent to extend across the space between the adjacent main sheet and having their free ends fixed to the next adjacent sheet of the structure.

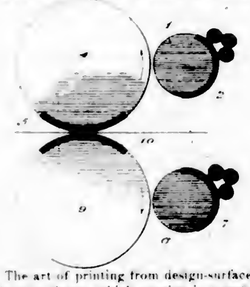
3. A building or like structure consisting of parallel metallic sheets each having strips cut therefrom and remaining attached thereto at one end, and having the opposite or free ends attached to an adjacent sheet.

640,446. **UMBRELLA ATTACHMENT FOR BICYCLES.** FRANK J. CONVERSE, Pittsburg, Pa. Filed Jan. 27, 1897. Serial No. 620,902. (No model.)



Claim.—In an umbrella-holder for bicycles, consisting of a disk provided with a series of concentrically-disposed openings, a clamping-arm formed integral with said disk, a second clamping-arm jointed to said disk and a bolt passing through the rear ends of said clamping arms, in combination with a pair of lugs between which the disk is pivotally supported, one of said lugs having a perforation which is in circular alinement with the openings in said disk, a pin passing through said perforation and adapted to engage any one of said openings, and means for clamping said lugs to the bicycle-frame, substantially as described.

640,447. **ART OF PRINTING.** JOHNSON R. CORBIN, Philadelphia, Pa. Filed Feb. 8, 1899. Serial No. 704,887. (No model.)



Claim.—1. The art of printing from design-surfaces upon opposite sides of a sheet or sheets, which consists in transferring ink designs from said design-surfaces onto two separate planographic transfer-surfaces, and from them transferring the ink designs simultaneously to opposite sides of the sheet or sheets to be printed.

2. The art of printing from relief-surfaces upon opposite sides of a sheet or sheets, which consists in transferring ink designs from said relief-surfaces onto two separate planographic surfaces, and from them transferring the ink designs simultaneously to opposite sides of the sheet or sheets to be printed.

3. The art of printing from a single design-surface upon opposite sides of a sheet or sheets, which consists in first inking said design-surface, then transferring said ink design onto a planographic surface, then transferring said ink design from said planographic surface onto a second planographic surface, again inking said design-surface, again transferring said ink design onto the first planographic surface, and finally printing simultaneously from both said planographic surfaces onto the sheet or sheets to be printed.

4. The art of printing from a single relief-surface upon opposite sides of a sheet or sheets, which consists in first inking said relief-surface, then transferring said ink design onto a planographic surface, then transferring said ink design from said planographic surface onto a second planographic surface, again inking said relief-surface, again transferring said ink design onto the first planographic surface, and finally printing simultaneously from both said planographic surfaces onto the sheet or sheets to be printed.

5. The art of printing from a single design-surface upon opposite sides of a sheet and in accurate register, which consists in first inking said design-surface, then transferring said ink design onto a planographic surface, then transferring said ink design from said planographic surface onto a second planographic surface in accurate register therewith, again inking said design-surface, again transferring said ink design onto the first planographic surface, and finally printing simultaneously from both said planographic surfaces onto both sides of the sheet to be printed.

6. In a printing-press, two yielding planographic surfaces adapted to contact with each other, in combination with means for imparting to said surfaces ink designs, whereby a sheet or sheets to be printed will receive an impression or impressions when passed between said yielding surfaces, each of said surfaces acting as a printing-surface and as an impression-surface.

7. In a printing-press, two rotary cylinders, a yielding planographic surface carried by each of said cylinders and adapted to contact with each other during the rotation of said cylinders, in combination with means for imparting to said surfaces ink designs, whereby a sheet or sheets to be printed will receive an impression or impressions when passed between said yielding surfaces, each of said surfaces acting as a printing-surface and as an impression-surface.

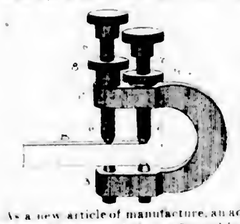
8. In a printing-press, two yielding planographic surfaces adapted to contact with each other, and a single design-surface adapted to impart ink designs to both of said planographic surfaces, whereby said surfaces may be printed from simultaneously.

9. In a printing-press, two yielding planographic surfaces adapted to contact with each other, a single design-surface adapted to contact with one of said planographic surfaces, and means for transferring ink designs from said design-surface to both of said planographic surfaces, whereby said surfaces may be printed from simultaneously.

10. In a rotary printing-press, two rotary cylinders, a yielding planographic surface carried by each of said cylinders and adapted to contact with each other during the rotation of said cylinders, in combination with a single plate-cylinder carrying a design-surface, and means for transferring ink designs from said design-surface to both of said planographic surfaces, whereby said surfaces may be printed from simultaneously.

11. In a printing-press, two rotary cylinders geared to rotate in unison, a yielding planographic surface carried by each of said cylinders and adapted to contact with each other during the rotation of said cylinders, a plate-cylinder for each rotary cylinder adapted to carry a design-surface in contact with each of said cylinders during its rotation, and means for inking said design-surfaces, whereby the ink designs from said design-surfaces will be transferred to said yielding surfaces and in turn imparted to a sheet or sheets passed between said rotary cylinders.

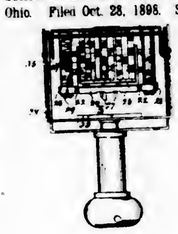
640,448. **ADJUSTABLE LIMIT-GAGE.** JACOB D. COX, Jr., Cleveland, Ohio. Filed Apr. 5, 1899. Serial No. 711,833. (No model.)



Claim.—1. As a new article of manufacture, an adjustable limit-gage having a body and two opposite arms formed in a single piece, a plurality of independently-adjustable gaging-points projecting through one arm and matching points in the opposite arm, said points in both arms being set successively one behind the other from the ends of the arms, whereby in using the gage one set of opposed points is passed before the other adjustable set is reached, substantially as described.

2. A tool substantially as described consisting of a rigid double-armed body and a plurality of separately-adjustable gaging-points in successive pairs from the ends of the arms, and means to adjustably fix the distance between each set of points independently of the other set, whereby one pair of points can be made to serve one purpose and the next succeeding pair another purpose, substantially as described.

640,449. **STAMP WITH CHANGEABLE FACE.** WILL T. CRESSLER, Norwood, Ohio. Filed Oct. 28, 1898. Serial No. 694,767. (No model.)



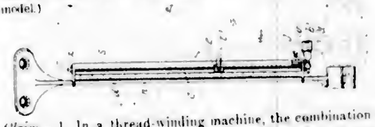
Claim.—1. In a stamp with a changeable type-face, the combination of a plate constituting the printing-face of the stamp and provided with a slot, a series of type-wheels mounted to be capable of rotation and provided with arms having type at their ends, the set of type-wheels being supported as a whole and in a manner to have a sliding movement to or from the plate mentioned, the location of the parts being such as to enable the end of any arm to enter and occupy the slot in the plate and stops to limit the movement of the set of type-wheels, in one direction to cause the type to project at proper printing height beyond the printing-face of the stamp and in the other direction to prevent the ends of the type-supporting arms from entirely leaving the slot which they occupy, but permitting their manipulation for the purpose of changing the matter of the printing-face.

2. In a stamp with a changeable type-face, the combination of a plate constituting the printing-face of the stamp and provided with a slot a series of type-wheels having arms with type at their ends mounted to be capable of rotation and supported as a whole in a manner to have a sliding movement to or from the plate mentioned, the location of the parts being such as to enable the end of any arm to enter and occupy the slot in said plate, locking dogs carried by the means which support the type-wheels, adjustable stops so located that when engaged by these dogs they hold the type to project at proper printing height beyond the printing-face of the stamp, springs which when compressed act in a manner to hold the locking-dogs against the stops holding thereby also the type-wheels in their proper position and preventing the type thereon from moving beyond printing height and additional stops limiting the action of the springs mentioned, which springs when the locking-dogs are disengaged from the stops first mentioned have a tendency to move the set of type-wheels away from the printing-face of the stamp and the ends of their arms out of the slot in the latter.

3. A type-wheel consisting of a number of radially-disposed arms, the ends of which form type-faces and have type thereon and the width of which arms is decreased toward the center, forming spaces to each side of this narrower part as shown and for the purpose described.

4. In a date-stamp with a changeable printing-face, the combination of a plate constituting the printing-face of the stamp and provided with a slot, type-wheels having arms with type at their ends there being a sufficient number of them to provide the characters needed to make up a date, said wheels mounted to be capable of rotation and supported as a whole in a manner to have a sliding movement to or from the plate mentioned, the location of the parts being such as to enable the end of any arm to enter and occupy the slot in said plate whereby they are held in alinement, a cut-out on the under side of the face-plate and to both sides of the slot therein, such cut-out being opposite the type-wheel carrying the type for making up the units of days in the date and permits said wheel to be freely rotated without disturbing the alinement of the adjoining wheels, the arms of which are held within said slot.

640,450. ATTACHMENT FOR WINDING-MACHINES. JOHN P. CRONIN, Paterson, N. J. Filed Sept. 8, 1899. Serial No. 729,825. (No model.)



Claim.—1. In a thread-winding machine, the combination of a suitably-sustained swift-hanger, a swift carried thereby, a measuring instrument or indicator adapted to be operated by the swift, and a knob or finger actuated by the measuring instrument and to be thereby projected into the path of the swift to stop rotation thereof.

2. In a winding-machine, the combination of a swift or reel, arms for supporting said swift or reel and on which it may rotate, of a measuring device or indicator comprising a casing or frame provided with a scale and secured to one of said arms, a feed-screw supported in said casing, an indicator-block engaging said screw, and movable thereon, a star-wheel mounted on said screw, and means connected to the swift or reel for engaging said star-wheel as the former revolves.

3. In a winding-machine a measuring device or indicator consisting of a suitably-elongated casing or frame having a longitudinal slot therein provided with a recess and a scale adjacent said slot, a feed-screw journaled in said casing parallel with the slot, an indicator-block adjustably engaging the feed-screw and movable relatively to the scale, said block comprising a sleeve member, a shoe inclosed thereby and a spindle projecting through the slot, and a star-wheel mounted on said feed-screw, substantially as described.

4. In a winding-machine, the combination, with a suitably-sustained swift-hanger, a swift journaled in said hanger, an elongated casing or frame secured to said hanger and provided with a longitudinal slot and a scale adjacent said slot, a feed-screw journaled in said casing parallel to the slot, an indicator-block adjustably engaging the feed-screw and movable relatively to said scale, said block comprising a spindle projecting through the slot, a star-wheel mounted on said feed-screw, and a tappet carried by the swift and adapted to engage said star-wheel, said casing being provided with a recess adjacent the swift and communicating with the slot, substantially as described.

5. In a winding-machine, the combination with a suitably-supported swift, a measuring device or indicator comprising a slotted casing having a recess at or near one end thereof, a block movable lengthwise of the casing and carrying a spindle, and means actuated by the swift for moving said block and turning the spindle into the said slot.

6. In a measuring device, the combination of a casing or frame provided with a slot and scale, a screw contained within said casing, a block on said screw and carrying a spindle, a notch or recess formed in said casing and communicating with said slot, the said spindle being adapted to be forced into said recess by the turning of said screw.

640,451. CARTON OR PACKING-BOX. FRANCIS DANNENBAKER, Washington, D. C. Filed Nov. 11, 1898. Serial No. 696,154. (No model.)

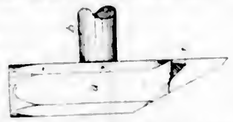


Claim.—1. A box or carton for a section of honey formed of sheet material that is folded on parallel lines, producing front and back sides, and top and bottom but no end walls, portions of the sheet being overlapped and united, and the front side having a suitable covered display-opening, as set forth.

2. A box or carton for a section of honey formed of sheet material that is folded on parallel lines, producing front and back sides, and top and bottom, but no end walls, portions of the sheet being overlapped only on one of the sides, with one end united to such side where there is the overlap, and the other end free, and forming a cover for a display-opening in the front side, as set forth.

3. A box or carton for a section of honey having top and bottom and two side walls, but open at its ends, and a drip-cup at the bottom thereof that extends upward alongside each side wall, and at the ends, substantially as specified.

640,452. STAPLE-PULLER. DAVID B. DATE, Franklin, Conn. Filed Feb. 21, 1899. Serial No. 706,384. (No model.)



Claim.—A staple-puller, consisting of a body *a*, having a V-shaped bifurcation to form extracting jaws, and the inner extracting-faces of said jaws being beveled toward both the outer and inner faces of the head, forming a ridge presenting a sharp edge to engage the staple between said outer and inner faces, such edge following the V shape of the bifurcation and pinching the staple as set forth.

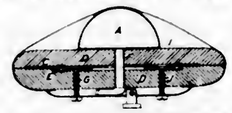
640,453. PLATE OR PAN HOLDER OR LIFTER. JOHN C. DEVERS, Wilkes-Barré, Pa. Filed May 13, 1899. Serial No. 716,664. (No model.)



Claim.—1. A plate or pan holder, comprising a frame having a handle with a coil at the end thereof, and outer jaws which are disposed below the greater part of the frame and over which are entrant bends, and a spring-clasp adjustably mounted on the said handle.

2. A plate or pan holder formed of a single piece of wire, and having a handle with an end coil, bowed or laterally-bent portions in advance of the handle, entrant bends in front of the bowed or laterally-bent portions, and lower jaws under the entrant bends, and a spring-clasp consisting of a coil-spring having opposite end loops adjustably embracing the opposite parts of the handle.

640,454. TRUSS-PAD. CORNELIUS DONOVAN, New York, N. Y. Filed Feb. 24, 1898. Serial No. 671,519. (No model.)



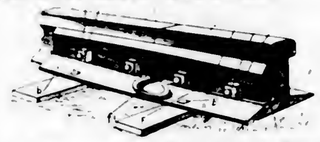
Claim.—1. In a hernial pad, the combination with a base composed of two sections of soft material placed face to face, of stiffening-plates secured to the respective sections and connected to each other, and a pouch attached to the exterior of one of said sections.

2. The herein-described hernial pad, comprising two sections of soft material placed in superposed relation, stiffening-plates between said sections, said plates being connected to the respective sections and fastened together, an inflatable pouch secured to one of the sections of the base, an inflating-tube extending from the pouch through the base-sections, a plate covering the mouth of said tube, and screws connecting said plate to the stiffening-plates.

3. In a hernial pad, the combination with a base composed of two superposed sections of soft or yielding material, of a stiffener located between said sections, an inflatable pouch secured to one of said base-sections, an inflating-tube extending from the pouch through the base-sections, and a closure for the outer end of said tube.

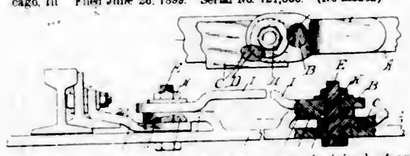
4. In a hernial pad, the combination with a base composed of two superposed sections of soft or yielding material, of a stiffener located between said sections, an inflatable pouch secured to one of said base-sections, an inflating-tube extending from the pouch through the base-sections, a piece of fabric stretched over said pouch and around the edges of the base to the opposite side thereof, and a plate detachably secured to the base and clamping the edges of the fabric thereagainst and also closing the outer end of the inflating-tube.

640,455. NUT-LOCK. JAMES DRINKWATER, Winchester, Canada. Filed Feb. 18, 1899. Serial No. 706,020. (No model.)



Claim.—The combination with the abutting ends of two rails and a fish-plate secured thereto by bolts and nuts, of a spring lock-bar having a central loop forming a spring and a handle, a body portion adapted to rest beneath said nuts and engage the lower faces thereof, and a hook formed upon each end of said body portion and adapted to engage the ends of said fish-plate, the loop, body portion and hook extending in the same plane and the extremities of said hooks being inclined with respect to the said body portion, substantially as described.

640,456. ADJUSTABLE SWITCH-ROD. HENRY G. ELFBORG, Chicago, Ill. Filed June 26, 1899. Serial No. 721,866. (No model.)



Claim.—1. The combination with two parts to be joined, of an eccentric pivoted to one of them and fitting rotatively in an eye or socket in the other, a locking-block seated upon the part to which the eccentric is pivoted, means for non-rotatively connecting the eccentric and locking-block, and means for preventing the locking-block from moving about the pivotal axis of the eccentric, substantially as set forth.

2. The combination with two parts to be joined, of an eccentric pivoted to one of them and fitting rotatively in an eye or socket in the other, a circular locking-block, means connecting the eccentric to the locking-block eccentrically, and a seat for the locking-block carried by the part to which the eccentric is pivoted, substantially as set forth.

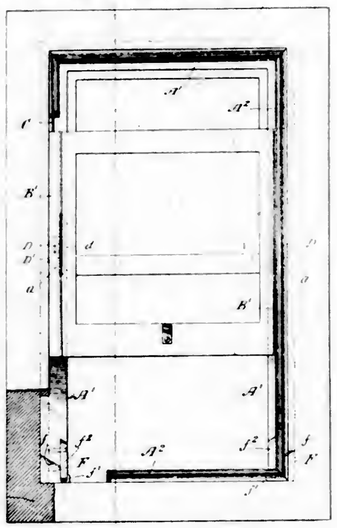
3. The combination with two parts to be joined, of an eccentric fitting rotatively in an eye or socket in one of the parts, a shaft carrying the eccentric and having pivotal bearing in the other of the parts, a locking-block having non-rotative engagement with the shaft, and means carried by the part in which the shaft has its pivotal bearing for preventing the locking-block from moving about the axis of the shaft, substantially as set forth.

4. The combination with two parts to be joined, of an eccentric fitting rotatively in an eye or socket in one of them, a shaft carrying the eccentric and having pivotal bearing in the other of the parts, said shaft having a non-circular portion, a locking-block having non-rotative engagement with the non-circular portion of the shaft, and means carried by the part in which the shaft has its pivotal bearing for preventing the locking-block from moving about the axis of the shaft, substantially as set forth.

5. The combination with two parts to be joined, one of which has a pair of jaws and the other of which has a portion fitting between the jaws and provided with an eye or socket, of an eccentric occupying the eye or socket, a shaft by which the eccentric is carried, and a circular locking-block having non-rotative engagement with the shaft, one of the jaws being provided with an opening in which the shaft has pivotal bearing and the other of the jaws being provided with a circular opening disposed eccentrically with respect to the shaft and of sufficient size to admit the eccentric, in which opening the locking-block fits, substantially as set forth.

6. The combination with two parts to be joined, of an eccentric fitting rotatively in an eye or socket formed in one of them, a shaft carrying the eccentric and having pivotal bearing in the other of said parts, a locking-block having non-rotative engagement with the shaft, means carried by the part in which the shaft has its pivotal bearing for preventing the locking-block from moving about the axis of the shaft, and a handle carried by the locking-block for manipulating it, substantially as set forth.

640,457. WINDOW-SASH. GEORGE W. EVERETT, New York, N. Y. Filed Oct. 11, 1898. Serial No. 693,207. (No model.)



Claim.—1. The combination of a window frame or casing, a sash having a central swinging portion and side pieces upon which it is pivoted, and pivotal connections between the side pieces and sash, having downwardly-inclined bearing-faces when the sash is in the normal position.

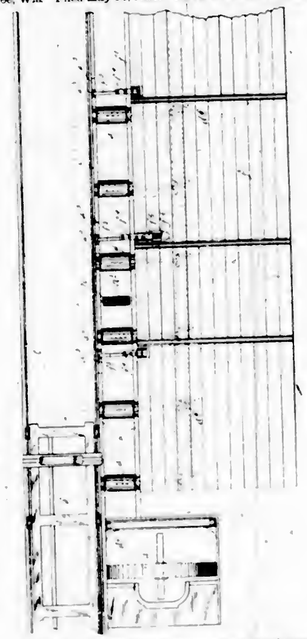
2. The combinatio.. of a window frame or casing, a sash having a central swinging portion and side pieces upon which it is pivoted, pivotal connections between the side pieces and sash, having downwardly-inclined bearing-faces when the sash is in the normal position

and removable strips overlapping the joint between the sash and side pieces.

3. The combination of a window-frame, the front stop, sash side pieces running in the channel back of the stop and projecting beyond the face of the stop, a sash, pivotal connections between the sash and side pieces having downwardly-inclined bearing-surfaces, and removable strips back of the sash overlapping the joint between the sash and its side pieces.

4. The combination of a window-frame, its front and back stops, intermediate parting-strips divided at, or about at, the meeting-rails of the two sashes and having their lower portions removable and replaceable at will, the upper and lower sashes having side pieces running in the channels in the frame and projecting beyond the faces of the stops but terminating inside the faces of the parting-strips, pivotal connections between the sashes and their side pieces having downwardly-inclined bearing-surfaces when the sashes are in the normal vertical position.

640,458. **DOUBLE-ACTING BAND-SAW MILL.** FREEMAN S. PARR, Minneapolis, Minn., assignor to The Edward P. Allis Company, Milwaukee, Wis. Filed May 31, 1898. Serial No. 682,136. (No model.)



Claim.—1. In a two-way or double-acting band-saw mill, the combination with a carriage and a track, of decks for the logs and the cants on opposite sides of the saw, a lumber conveyer for disposing of the lumber as cut, a log-loader arranged to deliver the logs from the log-deck to the carriage, without interfering with the action of said lumber conveyer, and a cant-delivering device arranged to deliver the cant from the carriage to the cant-deck, without interfering with the action of said lumber-conveyer, substantially as described.

2. In a two-way or double-acting band-saw mill, the combination with a carriage and a track, of decks for the logs and the cants on opposite sides of the saw, a live-roll way extending between said track and said decks, a log-loader arranged to deliver the logs from said deck over said rollway to said carriage and a cant-delivering device arranged to deliver the cants from the carriage over said rollway to the cant-deck all without interfering with the action of the live-rolls, substantially as described.

3. In a sawmill, the combination with a carriage, track and log-deck, of a lumber-conveyer between said track and said deck, and a log-loader arranged to deliver the logs from said deck to said carriage, without interfering with the action of said lumber-conveyer, substantially as described.

4. In a sawmill, the combination with a carriage and a track and a log-deck, of a live-roll way located between said track and said deck, a log-loader arranged to deliver the logs from said deck over said live-rolls to the carriage, without interfering with the action of said rolls, and a power device applied to operate said log-loader, substantially as described.

5. In a sawmill, the combination with the carriage, the track and a log-deck, of a live-roll way between the track and the deck, and a log-loader comprising a rock-shaft with loading-arms adapted to overreach the live-roll way for delivering the logs to the carriage, without interfering with the action of the rolls, substantially as described.

6. In a sawmill, the combination with the carriage, the track and a log-deck, of a live-roll way between the track and the deck, a log-loader comprising a rock-shaft with loading-arms adapted to overreach the live-roll way, and abutments or stop-blocks on the track side of said rollway, against which said arms rest when in their lowermost or loading position, substantially as described.

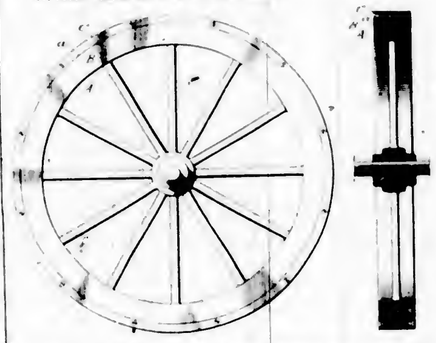
7. In a sawmill, the combination with a carriage, the track and log-deck, of a live-roll way between said track and deck and a log-loader comprising a rock-shaft having the ordinary cut-off sectors f^2 and retaining-arm section f^4, and provided also with loading-arms f^3 adapted to overreach the live-roll way, abutments d^3 fixed to the track side of the rollway, and a hand-controlled engine applied to operate said log-loader, substantially as described.

8. In a sawmill, the combination with a carriage, track and a cant-deck, of a lumber-conveyer located between said track and said deck, and a cant-delivering device arranged to deliver the cant from said carriage to said deck, without interfering with the action of said lumber-conveyer, substantially as described.

9. In a sawmill, the combination with a carriage, track and cant-deck, of a live roll way between said track and deck, and a cant-delivering device comprising a rock-shaft having a series of arms adapted to overreach the live-roll way, without interfering with the action of the same, and a power device applied to operate said rock-shaft, substantially as described.

10. In a sawmill, the combination with a carriage, track and cant-deck, of a live-roll way between said track and said deck, and a cant-delivering device comprising a rock-shaft g^3, a series of delivering-arms g^3 g^4 fixed to said shaft adapted to overreach the live-roll way, abutment-blocks d^4 fixed to the track side of said rollway, against which said arms rest when in receiving position, a sector g^5 fixed to said shaft, and an engine having a rack g^6 on its piston-rod, engaging with said sector, all substantially as and for the purpose set forth.

640,459. **SAW-CARRYING WHEEL FOR BAND-SAW MILLS.** FREEMAN S. PARR, Minneapolis, Minn. Original application filed May 31, 1898. Serial No. 682,136. Divided and this application filed Apr 27, 1899. Serial No. 714,741. (No model.)



Claim.—1. A band-saw wheel having its peripheral face provided with a removable portion, whereby the width of such face may be reduced.

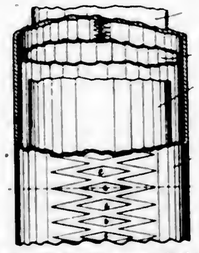
2. A wheel for band-saws having its rim or felly provided with a circumferential rabbet adjacent to one side or face, and a filling hoop or member detachably secured in said rabbet, substantially as and for the purpose explained.

3. A wheel for band-saw mills having its rim or felly provided with a circumferential rabbet adjacent to each side face, and filling hoops or members detachably secured in said rabbets, whereby the peripheral face of the rim or felly may be reduced in width, while maintaining a fixed relation to the medial plane of the wheel.

4. In combination with wheel A having its rim B provided with a circumferential rabbet a, a filling member C seated in said rabbet, and fastenings for securing said filling member in place, substantially as described.

5. A wheel for supporting and operating a band-saw, which wheel is provided with removable marginal sections for adapting the wheel to the saw when the latter becomes worn away, substantially as described.

640,460. **NON-PUNCTURABLE WHEEL-TIRE.** ALBERT M. FERGUSON, Syracuse, N. Y., assignor to the Rochester Non-Puncturable Tire Company, Rochester, N. Y. Filed Mar. 2, 1898. Serial No. 672,305. (No model.)



Claim.—In combination with a pneumatic tire, an annular metal concavo-convex rim adapted to fit thereon, the said rim provided around the center of its circumference with a series of projections, the metal between the projections and at each side thereof having a smooth uniform surface, as described, a flexible casing having an embossed tread adapted to fit over the projections of the concavo-convex rim, and a lacing whereby the pneumatic tire, concavo-convex rim and the outer casing are secured together and thus adapted for application to the concave rim of a wheel, substantially as set forth.

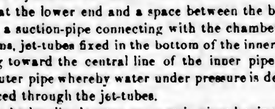
640,461. **NON-REFILLABLE BOTTLE.** EDWARD FREESE, New York, N. Y., assignor of one-half to Herman Mündheim, same place. Filed Aug. 9, 1899. Serial No. 726,644. (No model.)



Claim.—In a non-refillable bottle, the combination of a valve-chamber b, having internal ribbed valve-seat b^3, with inclosed ball-valve c, a ring e, that projects into the valve-chamber and has lower inlet-orifices, a wedge-shaped flexible plug f, engaging the upper flaring bore of the ring, and an upper cap d, having lateral discharge-orifices d^3, substantially as specified.

640,462. **GAS-BURNER FOR STOVES.** EDWARD G. GERNER, Erie, Pa. Filed July 12, 1897. Serial No. 644,244. (No model.)

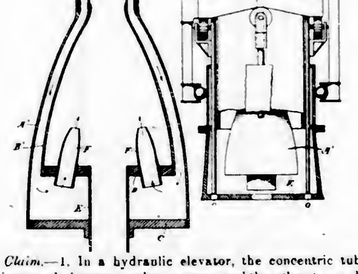
Claim.—1. The combination in a gas-fuel burner, of a vertical plate forming the front wall of a vertical gas-fuel chamber and the rear walls of a series of horizontal auxiliary gas-fuel chambers on the front of said plate and having series of openings therethrough for the passage of gas fuel from the vertical chamber into said auxiliary chambers; said auxiliary chambers discharging said gas fuel through narrow horizontal slits in the fronts thereof, substantially as set forth.



2. The combination in a gas-fuel burner, of a vertical plate forming the front of a vertical gas-fuel chamber, narrow horizontal ribs on the front of said plate, and horizontal strips secured to the front of said vertical plate below said ribs, so as to form the fronts of auxiliary gas-fuel chambers on the front of said plate communicating with the main gas-fuel chamber by means of small holes through said vertical plate, and discharging the gas fuel received therethrough from the main chamber, through narrow slits between said ribs and the upper edges of the strips forming the fronts of said auxiliary chambers, substantially as and for the purpose set forth.

3. A gas-fuel burner provided with a face having outwardly-projecting ribs thereon and openings below said ribs to allow the escape of gas fuel, in combination with horizontally-arranged strips over said openings having their lower edges in contact with the plate, and their upper edges next to the outer edges of said ribs but apart therefrom to allow emission of gas, substantially as set forth.

640,463. **HYDRAULIC ELEVATOR.** PETER J. GILLEA, San Francisco, Cal. Filed May 22, 1899. Serial No. 717,718. (No model.)



Claim.—1. In a hydraulic elevator, the concentric tubes, one serving to admit water under pressure, and the other to conduct the material to be lifted, enlarged chambers at the lower ends of said tubes, a suction-pipe opening into the outer chamber, jet pipes passing through the bottom of the inner chamber and discharging into the inner central elevating-tube.

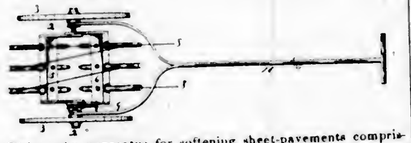
2. In a hydraulic elevator, concentric tubes having enlarged chambers at the lower end and a space between the bottoms of the two tubes, a suction-pipe connecting with the chamber between the two bottoms, jet-tubes fixed in the bottom of the inner chamber and converging toward the central line of the inner pipe, a connection with the outer pipe whereby water under pressure is delivered therein and forced through the jet-tubes.

3. In a hydraulic elevator, concentric pipes having enlargements at the lower end, and a chamber between the two bottoms connecting with the annular space between the pipes, a suction-pipe connecting with the bottom of the lower chamber, jet-tubes fixed in the inner bottom converging toward the center of the inner pipe and spirally disposed around its axis, a connection whereby water under pressure is admitted between the two pipes and conveyed to the chamber between the bottoms thereof, and a discharge-pipe extending in line with the inner pipe.

4. In a hydraulic elevator, concentric tubes, one of which serves to admit water under pressure and the other to conduct the material to be lifted, a suction and discharge pipe of uniform size and a plurality of jet-tubes disposed concentrically with relation to the discharge-pipe.

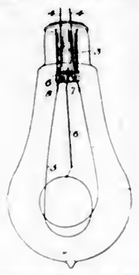
5. In a hydraulic elevator, concentric tubes, one of which serves to admit water under pressure and the other to conduct the material to be lifted, a suction and discharge pipe and a plurality of jet-tubes connecting with the water-supply tube and converging toward the center of the other tube, and having their discharge ends advanced diagonally with relation to the lower ends to impart substantially a rotary whirling action to the water discharged into the conducting-pipe.

640,464. SHEET-PAVEMENT SOFTENER. WILLIAM J. GILLETT and EDWARD B. DOEN, Syracuse, N. Y. Filed Mar. 28, 1899. Serial No. 710,783. (No model.)



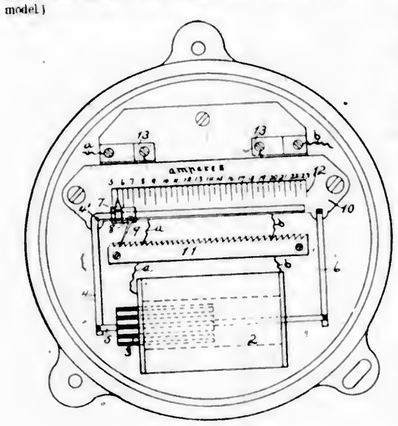
Claim.—An apparatus for softening sheet-pavements comprising a suitable wheel-base and an axle in combination with separate frames comprising end bars mounted upon and radiating from said axle, and cross-bars connecting their free ends, carbons mounted in said cross-bars upon converging lines, and having their points in close proximity to the surface of the pavement, a hand-screw connecting said frames whereby they can be adjusted to regulate the distance between the points of said carbons, and means to create arcs between said points.

640,465. INCANDESCENT LAMP. ELMER W. GILLMER, Warren, Ohio. Filed Mar. 4, 1898. Serial No. 672,475. (No model.)



Claim.—In an incandescent lamp, the combination with the glass stem, of a filament-anchor composed of a wire having its lower end looped around the glass stem and the two parts twisted together at one side of the stem, the free end being bent down upon the other side of the stem to form a brace.

640,466. RATE-INDICATOR FOR ELECTRIC CURRENTS. JESSE HARRIS, Albany, N. Y. Filed Aug. 1, 1899. Serial No. 725,731. (No model.)



Claim.—1. An electric rate indicator or meter consisting of a scale and an indicator and having means whereby the indicator is caused to indicate on the scale successively each predetermined maximum of current reached substantially as described.

2. An electric rate indicator or meter consisting of a scale and an indicator and a source of power and an armature arranged to be moved thereby and arranged to communicate motion to and to cause said indicator to indicate on the scale a successive increasing measurement of current of predetermined value substantially as described.

3. An electric rate-indicator consisting of a source of power and a movable body arranged to be moved thereby and having means for recording such movements so that said movements when recorded shall indicate the use of one or more predetermined maximums of current at different times substantially as described.

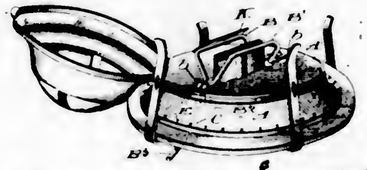
4. An electric rate-indicator consisting of a source of power and an armature arranged to be moved thereby and having an arm or beam arranged to be moved by the armature and a weight on said arm or beam arranged to move along the same when the arm is moved and means for indicating the movements of the weight along the arm or beam substantially as described

5. An electrically-operated measuring device consisting of a source of power and an armature arranged to be moved in a predetermined direction thereby, and an indicator, and having means arranged to move and cause reflex motion in the armature whereby the indicator is caused to make register when the current is reduced substantially as described.

6. An electric rate-indicator consisting of a source of power and an armature arranged to be moved thereby and means for indicating its movements and an arm having a weight arranged to slide thereon and to cause reflex motion in the armature when the current is reduced substantially as described.

7. An electric rate-indicator consisting of a source of power and an armature arranged to be moved thereby and means for indicating its movements arranged to make one indication for each predetermined maximum of current reached in succession and so that said indications may be read at any time substantially as described.

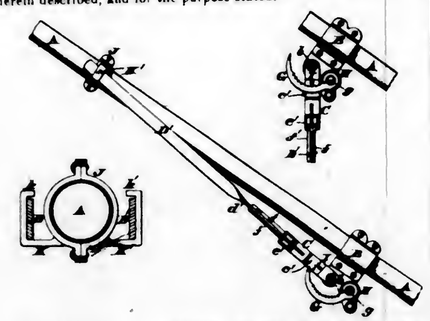
640,467. LIGHT-EXTINGUISHING ATTACHMENT FOR LAMP-BURNERS. GEORGE E. HARSON, Toledo, Ohio, assignor of one-half to Joseph J. Fournier and Thomas Larner, same place. Filed Feb. 3, 1899. Serial No. 704,407. (No model.)



Claim.—An attachment for lamp-burners for extinguishing lights, comprising in combination with the burner, the bails B and B' pivoted to the perforated top of the burner opposite the ends of the wick-tube, one of said bails having a plate K secured thereto, the shank portion of which bail carrying said plate being bent at right angles and extended through an aperture in the perforated top of the burner, thence slightly outwardly bent, and a stop mounted on the upper burner against which said end is designed to be normally held in a vertical position when the plate-carrying bail is at its lowest limit, the shank portion of the bail B' also bent at right angles near one end, and extended through the apertured portion of the perforated plate, with its extreme end bent upon itself and outwardly disposed, whereby the swinging part of the bail is normally held at its lowest limit, the opposite end of the bail B having a tongue F struck up from its circumference, and the bail B' also having a tongue E' struck up from its circumference adjacent to said tongue F, which latter is adapted to bear against the upper face of the tongue E', to throw the bails to vertical positions as the free angled end of the bail B, which extends through the apertured portion of the burner is swung outward, substantially as shown and described.

640,468. BICYCLE-SUPPORT. JOHN P. HOBART, Cincinnati, Ohio. Filed Aug. 11, 1899. Serial No. 726,863. (No model.)

Claim.—1. In a bicycle-support, an attachment capable of being fastened around the frame of the vehicle; a fore-and-aft-swinging stock coupled to the under side of said attachment, and having a single ratchet-plate fastened to its side; a pair of laterally-spreading legs jointed to the free end of said stock; a spring that automatically opens said legs; a single curved ratchet-bar pivoted to said attachment, and a spring also secured to said attachment, and serving to hold said bar in engagement with said ratchet-plate, substantially as herein described, and for the purpose stated.



2. A bicycle-support comprising the clip B, capable of being attached to the frame of the vehicle; the fore-and-aft-swinging stock C, pivoted to said clip, and having a ratchet-plate I secured to it; the laterally-spreading legs D D', jointed to said stock; a spring that opens said legs; a pivoted shackle G, capable of engaging with said plate; and a spring for effecting this engagement, in the manner described, and for the purpose stated.

640,469. PROCESS OF MAKING HALF-TONES. JOHN JACOBSON, Boston, Mass., assignor to the Jacobson Company, of West Virginia. Filed Feb. 4, 1899. Serial No. 704,453. (Specimens.)



Claim.—1. A negative for half-tone processes, composed of two negatives of the same object superimposed and matched or registered.

2. A negative for half-tone processes, composed of two negatives of the same object exposed through screens of different textures and then superimposed and matched or registered.

3. A negative for half-tone processes composed of two negatives of the same object superimposed matched or registered, one of which is underexposed.

4. A negative for half-tone processes, composed of two superimposed and matched or registered negatives of the same object exposed through screens of different textures, one of which is underexposed.

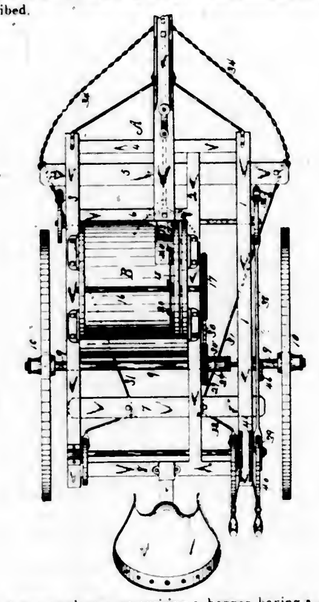
5. The process of making a half-tone plate which consists, first, in exposing a plate to the picture or object to be copied through a line-screen, then exposing a second plate to the same picture or object through a line-screen, then developing the exposed plates to make negatives, superimposing the two negatives and matching or registering them, and finally exposing a prepared plate on which the positive is to be made to light through the superimposed negatives.

6. The process of making a half-tone plate which consists, first, in exposing a plate to the picture or object to be copied through a line-screen of one texture, then exposing a second plate to the same picture or object through a line-screen of a different texture, then developing the exposed plates to make negatives, superimposing the two negatives and matching or registering them, and finally exposing a prepared plate on which the positive is to be made, to light through the superimposed negatives.

640,470. POTATO-PLANTER. HERBERT E. JEWETT, Ithaca, N. Y., assignor to Michael McNamara, Rockwell R. Gager, and Anson L. Jenks, same place. Filed Sept. 26, 1898. Serial No. 691,949. (No model.)

Claim.—1. In a potato-planter, a hopper having a downward opening for the seed, combined with a vertical disk placed in the hopper and provided with openings near its outer edge, and arms secured to the disk opposite the openings, the arms being made to extend at an angle from the disk and form pockets to receive the potatoes, substantially as shown.

2. In a potato-planter, a hopper having a downward opening for the seed, and a rotating disk placed therein having openings near its periphery, combined with bent or angular arms secured to the disk opposite the openings, and which arms serve to pick up the potatoes as the disk revolves, spring-actuated means for automatically grasping the potatoes, and means connected to the hopper for operating the fingers so as to cause them to release the potatoes, substantially as described.



3. A potato-planter, comprising a hopper having a downward opening for the seed, a rotating disk mounted therein, openings in the face of said disk, arms secured to said disk, and laterally in alinement with said openngs, spring-fingers mounted adjacent to said openings and adapted to engage with the seed for the purpose of holding it within the arms during rotation up to a predetermined point, and means for rotating said disk.

4. A potato-planter, comprising a hopper, with a downward opening for the seed, and provided with a semicircular trackway upon the inner face of one of the ends, a rotating disk mounted in said hopper, openings in said disk, arms mounted adjacent thereto, having their free ends extending in line with said openings laterally, spring-fingers centrally mounted, one end adapted to engage the seed through the said opening, and the other end adapted to travel upon said trackway, for the purpose of releasing the seed within said arm during rotation and up to a predetermined point, and means for rotating said disk.

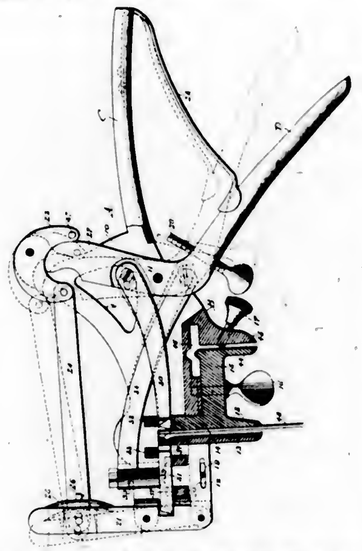
5. A potato-planter, comprising a hopper, having a downward opening for the seed, a rotating disk mounted therein, arms mounted on the face of said disk for the purpose of receiving a piece of seed, means for rotating the said disk, and a strap-spring, mounted to travel in the pathway of said arms, for the purposes specified.

6. In a potato-planter, a hopper, a vertically-rotating disk mounted therein and provided with a series of openings near its outer edge, bent arms secured to the disk opposite the openings and serving to pick up the potatoes, combined with spring-actuated fingers secured to the opposite side of the disk from the said arms, and arranged to operate through the openings in the disk so as to press the potatoes against the arms, and means connected with the hopper for causing the fingers to release the potatoes at predetermined times, substantially as specified.

7. In a potato-planter, a hopper, a vertically-rotating disk placed therein, and provided with openings near its outer edge, bent arms secured to the disk opposite these openings, spring-actuated fingers secured to the disk opposite the openings on the opposite side from the arms for picking up the potatoes, and means connected with the hopper for operating said arms, combined with the spring 27 secured to the disk, and a second shorter spring secured to the hopper, and which have their ends approach each other, substantially as set forth.

640,471. SAW-SET. HARRY U. KISTNER, Selin's Grove, Pa. Filed Feb. 25, 1899. Serial No. 706,790. (No model.)

Claim.—1. In a saw-set, a body, the gripping-jaws and reciprocatory punches mounted thereon, a common lever for varying the distance between said jaws and for operating said punches, said punches and lever reciprocating in parallel paths, and connections between said punches and lever, said connections being secured to the lever on opposite sides of its fulcrum.



2. In a saw-set, a body, the gripping-jaws and reciprocatory punches mounted thereon, and means for varying the distance between said jaws, for locking and unlocking the same when in operative position, and for operating said punches.

3. In a saw-set, a body, the gripping-jaws and reciprocatory punches mounted thereon, and a common lever for varying the distance between said jaws, for locking and unlocking the same when in operative position, and for operating said punches.

4. In a saw-set, a body, the gripping-jaws and reciprocatory punches, and means for simultaneously decreasing the distance between said jaws, locking the same and advancing the punches, and for retracting the punches and unlocking said jaws.

5. In a saw-set, a body, the gripping-jaws and reciprocatory punches mounted thereon, and a common lever for simultaneously decreasing the distance between said jaws, locking the same and advancing the punches, and for retracting the punches and unlocking said jaws.

6. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw connected with a lever or knuckle, and a lever connected with said punches and engaging said knuckle.

7. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw yieldingly connected with a lever or knuckle, and a lever connected with said punches and engaging said knuckle.

8. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw connected with a lever or knuckle, the connection between said jaw and lever or knuckle embracing spring-pressed yielding parts, and a lever connected with said punches and engaging said lever or knuckle.

9. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw carried by an upright lever 21, a knuckle or lever 23 mounted upon the body and connected with said upright lever 21, and a lever connected with said punches and engaging said lever or knuckle 23.

10. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw carried by an upright lever 21, a knuckle or lever 23 mounted upon a body and connected with said lever 21 by a link having a yielding spring-pressed connection with said lever 21, and a lever connected with said punches and engaging said lever or knuckle 23.

11. In a saw-set, a body, gripping-jaws, reciprocatory punches, a laterally-adjustable frame having fingers upon which said punches are carried, guides for holding said punches in place, and means for varying the distance between said jaws and operating said punches.

12. In a saw-set, a body, gripping-jaws, reciprocatory punches, a laterally-adjustable frame having notched fingers, one of said punches being situated within said notches, guides situated above said punches and holding the same in position, and means for varying the distance between said jaws and for operating said punches.

13. In a saw-set, a body having gripping-jaws and reciprocatory punches, a laterally-adjustable gage situated at the side of the body and overlapping the space between the gripping-jaws to engage the teeth of a saw-blade, said gage being also adjustable to one side of said space between the gripping-jaws.

14. In a saw-set, an adjustable, normally-stationary gripping-jaw, an automatically-adjustable movable gripping-jaw, means for moving the latter, and reciprocatory punches.

15. In a saw-set, an adjustable, normally-stationary gripping-jaw, an automatically-adjustable movable gripping-jaw, means for moving the latter embracing a yielding connection, and reciprocatory punches.

16. In a saw-set, a body, reciprocatory punches, a movable gripping-jaw, a knuckle, a connection between said knuckle and movable gripping-jaw, a toggle-joint in said connection, said knuckle forming one member of said toggle-joint, and a lever engaging said knuckle, said lever serving as means for operating said punches.

640,472. **WEATHER-STRIP.** JONATHAN L. KNIGHT, Topeka, Kans. Filed Sept. 5, 1899. Serial No. 729,411. (No model.)



Claim.—1. An automatic weather-strip, comprising a housing, a closure-strip therein suitably supported to play vertically, an oscillatory lever operatively connected to impart vertical movement to said strip, a pivoted latch connected to said lever and projecting beyond the free end of the housing, and means for adjusting the fulcrum-point of said lever, substantially as described.

2. An automatic weather-strip, comprising a housing, a closure-strip therein suitably supported to play vertically, an adjustable slide-plate having a lever fulcrumed thereon, operatively connected to impart movement to the closure-strip, and a pivoted latch projecting beyond the free end of the housing and linked to said lever, substantially as described.

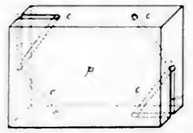
3. In an automatic weather-strip, a housing, a closure-strip therein, composed of a plurality of sections pivoted together, a series of bell-cranks mounted within the housing and linked to said strip-sections, a pitman-chain linking said bell-cranks together, and adapted when moved in one direction to impart movement to all the bell-cranks and thereby elevate the closure-strip, a series of neutralizing-springs along the line of said chain and adapted under a longitudinal application of power on the chain in the opposite direction, to operate the bell-cranks and depress the closure-strip until the latter comes in contact with a resisting-surface, one or more of said springs being adapted to yield under such resistance, in order that the downward movement of the closure-strip may be continued at other points where no obstruction has been encountered, and thus accommodate itself to any inequalities in the vertical dimensions of the opening to be closed, substantially as described.

4. In an automatic weather-strip, a housing, a closure-strip therein, composed of a plurality of sections pivoted together, a series of bell-cranks mounted within the housing and linked to said closure-strip sections, a pitman-chain linking said bell-cranks together and adapted when moved in one direction to impart movement to all the bell-cranks and thereby elevate the closure-strip, a series of neutralizing-springs along the line of said chain and adapted under a longitudinal application of power on the chain in the opposite direction to operate the bell-crank and depress the closure-strip until the latter comes in contact with a resisting-surface, one or more of said springs being adapted to yield under such resistance in order that the downward movement of the closure-strip may be continued at other points and thus accommodate itself to the opening to be closed, a slide-plate, a screw for adjusting the same, a lever fulcrumed on said plate and linked to said chain, a latch pivoted to the housing and linked to said lever, and a recovery-spring to be compressed by the depression of the closure-strip, and by expansion to reelevate the closure-strip, substantially as described.

5. In an automatic weather-strip, a housing composed of metal or other suitable material, provided with an adjustable reinforcing-pilaster, 3, the body portion of said housing covered by said pilaster having elongated holes or slots horizontally registering with the holes in the pilaster through which the screws pass to attach both to the door, thus permitting the pilaster to be moved laterally, and the total length of the housing made to conform to the exact distance between the inside faces or stops of the door-frame, substantially as described.

6. In an automatic weather-strip, a housing having a hem, or enlarged inward-projecting and wedge-shaped portion along its lower edge, a closure-strip suspended within the housing and adapted to play freely between the door and said hem, or enlarged portion of the housing, and by the form of said hem or enlargement, assume a slightly-inclined or angular position as related to the vertical face of the door, whereby the movement of the door in final closing brings its lower corner edge firmly against the inner flat side of the closure-strip, the lower edge of the strip being carried downward against the threshold or floor, and the upper edge, at same time being borne over hard against the inclined inner wall of the housing, all simultaneously, and by the same power, acting coincidently at all points, forming tight joints, both on the threshold and within the housing, substantially in the manner, and for the purposes shown and described.

640,473. **WALL, WALL-PLATE, OR SLAB.** THEODOR KÜPPER and LAMBERT KÜPPER, Aix-la-Chapelle, Germany. Filed Mar. 4, 1899. Serial No. 707,822. (No model.)



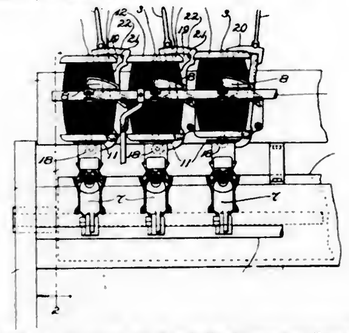
Claim.—1. A wall plate or slab provided at its four corners with oblique channels extending each from the horizontal bed sides to the middle of the vertical sides of the slab, the ends of the channels in the bed sides being distant from the corners about the fourth part of the length of the slab, essentially as set forth and for the purpose specified.

2. A wall plate or slab provided at its four corners with oblique channels extending each from the horizontal bed sides to the middle of the vertical sides of the slab, the ends of the channels in the bed sides being distant from the corners about the fourth part of the length of the slab, the said slab being provided at two diagonally opposite corners with notches extending from the corner to the said oblique channel, essentially as set forth and for the purpose specified.

3. A wall made of wall plates or slabs through which passes an oblique, crossed and continuous channel-net filled up with connecting medium, the said plates being provided at two opposite corners with notches extending from the corner to the said oblique channel, obliquely-directed iron rafters arranged in the said notches and in the said channels, all essentially as described and for the purpose specified.

640,474. **SPOOL-LIFTER FOR YARN-SPOOLING MACHINES.** FRED LACEY, Valleyfield, Canada. Filed Apr. 27, 1898. Serial No. 679,013. (No model.)

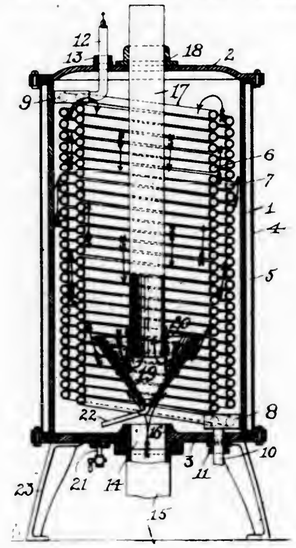
Claim.—1. The combination with the spindle of a yarn-spooling machine of the hand-lever standing adjacent to the spindle at the rear of the latter with its arm extending upward into proximity to the top of the spindle and in position to be acted upon by the operative's hand which also takes hold of the spool on such spindle, the said hand-lever having on its lower portion a projection laterally offset with respect to the pivot of the lever to move upwardly and directly lift the spool on the spindle when the hand-lever is moved by pressure exerted on its upper portion by such hand, substantially as described.



2. The combination with the spindle of a yarn-spooling machine, of the hand-lever standing adjacent to the spindle at the rear of the latter with its arm extending upward into proximity to the top of the spindle and in position to be acted upon by the operative's hand which also takes hold of the spool on such spindle, the said hand-lever having on its lower portion a projection laterally offset with respect to the pivot of the lever to move upwardly and directly lift the spool on the spindle when the hand-lever is turned by pressure exerted on its upper portion by such hand, and also having a detent device to retain it in the position thereof which holds the spool raised, substantially as described.

3. The combination with the spindle of a yarn-spooling machine, of a hand-lever occupying normally an inoperative position, movable vertically at its pivot, having its upper portion extended into position adjacent to the top of the spindle to enable it to be acted upon by the hand of the spooler-tender which takes hold of the spool on such spindle, and having on its lower portion a projection which engages and lifts the spool on the spindle, the said upper portion of the lever having also a projection, and a fixed bar on the upper surface of which the latter projection rests and moves, the said bar having a notch or depression which the said projection enters to hold or detain the lever in the position thereof which keeps the spool raised, substantially as described.

640,475. **FEED-WATER HEATER.** LEWIS C. LANPHEAR, Boston, Mass. Filed June 30, 1899. Serial No. 722,378. (No model.)

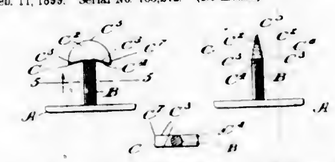


Claim.—1. A feed-water heater comprising a casing, pipes for the feed-water, extending through said casing, a steam-inlet, and a steam-outlet consisting of a pipe extending into the casing and having a baffle-plate on its inner end in the path of the steam from the inlet, the escape-passage into the outlet-pipe being adjacent to the said baffle-plate, substantially as described.

2. A feed-water heater comprising a casing, pipes for the feed-water, extending through said casing, a steam-inlet, and a steam-outlet consisting of a pipe projected into the casing and having on its end a conical deflecting-plate arranged to intercept the steam which passes in through the inlet, the escape-passage into the outlet-pipe being adjacent to the said baffle-plate.

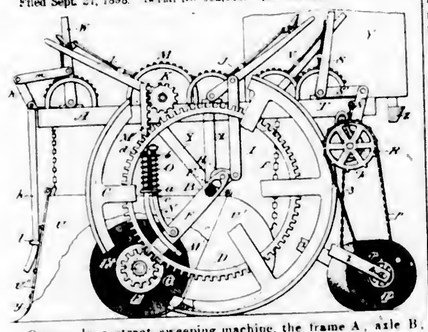
3. A feed-water heater comprising a cylindrical casing, feed-water pipes extending from end to end of said casing, a steam-inlet at one end of said casing, a steam-outlet consisting of a pipe projected inwardly from the other end of said casing, and ending a relatively short distance from the inlet, an inverted conical baffle-plate, connected to the end of the said pipe but separated therefrom to form a steam-passage, and a drip-pipe leading laterally from the apex of said baffle-plate.

640,476. BUTTON. WILLIAM H. LEASK, Cincinnati, Ohio. Filed Feb. 11, 1899. Serial No. 705,272. (No model.)



Claim.—A collar or cuff button, or stud, in which the following combination exists, a base, a shank extended therefrom, terminating in a head, the edge C^2 of which head is curved, the sides C^7 of which head are wedge-shaped and incline toward each other from the shank toward the curved edge C^2, and the inner portions C^4 of said head, at the bottom of the head, inclining from the shank outward and toward the base, substantially as and for the purposes specified.

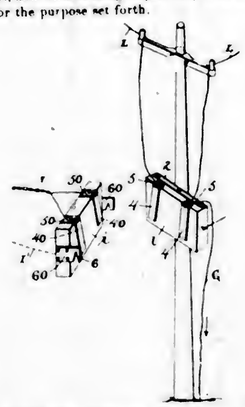
640,477. STREET-SWEEPER. JAMES MAXON, Burbank, Cal., assignor to the Azusa Manufacturing Company, Los Angeles county, Cal. Filed Sept. 27, 1898. Serial No. 692,006. (No model.)



Claim.—In a street-sweeping machine, the frame A, axle B, driving-wheel C; gear D attached to wheels C, brush E rotatively mounted in the lower end of arm F; arm F having slot F' in its upper end, through which the axle B passes; pinion G attached to the axle of the brush E; cam H pivotally attached to the arm F and to bar I; lever J pivotally attached to bar I and to bearings in frame A; plates *a* and *b* having openings therein through which bars M and N pass; bar M having hook M' on the lower end and rack M'' on the upper end thereof; bar N pivotally attached to arm F; pin *c* mounted in bar N below plate *a*; pin *d* mounted in bar M above plate *b*; and spiral spring O surrounding bars M and N between plates *a* and *b*, pinion K and lever L, all constructed and operated substantially as described herein.

640,478. LIGHTNING-ARRESTER. JAMES M. METCALF, Glen Haven, Wis. Filed Aug. 30, 1899. Serial No. 728,981. (No model.)

Claim.—1. A circuit-closer consisting of two blocks or members one of which has alined pins in its ends and the other of which has on its ends fastening-plates projecting at right angles to its face and provided with notches adapted to engage said pins, contact-plates having their upper ends bent over and secured to the upper edges of said blocks and their spring-bodies extending down over the meeting faces thereof, and wires leading respectively from said contact-plates, all as and for the purpose set forth.



2. A circuit-closer consisting of two blocks or members one of which has alined pins in its ends and the other of which has on its ends fastening-plates projecting at right angles to its face and provided with notches adapted to engage said pins, contact-plates having their upper ends bent over and secured to the upper edges of said blocks and their spring-bodies extending down over the meeting faces thereof, another contact-plate on one block whose upper end is secured to the upper edge of the block and whose body passes over its extremity and stands adjacent one of said pins, and wires leading from each of said contact-plates and from the fastening-plates, as and for the purpose set forth.

3. In a lightning-arrester, the combination with a line-block having contact-plates connected with the line-wire and whose upper ends are turned over and secured to the upper edge of said block, a ground-plate also secured to said upper edge in proximity to the extremities of the contact-plates, and a ground-wire leading from this plate; of an instrument-block having contact-plates connected with the instrument and adapted to make electrical contact with those on the line-block, and means for detachably connecting said blocks when the plates thereof are respectively in contact, substantially as described.

4. In a lightning-arrester, the combination with a line-block having contact-plates connected with the line-wire and whose upper ends are turned over and secured to the upper edge of said block, a ground-plate also secured to said upper edge in proximity to the extremities of the contact-plates, and a ground-wire leading from this plate, of an instrument-block having contact-plates connected with the instrument and adapted to make electrical contact with those on the line-block, pins in the ends of one block, and fastening-plates projecting from the ends of the other block at right angles to its face and having notches adapted to removably engage said pins, as and for the purpose set forth.

640,479. CONNECTOR FOR BATTERY-ELECTRODES, FUSES, &c. WILLIAM MILLS, Elizabeth, N. J., assignor to the Eastern Carbon Works, Rahway, N. J. Filed Mar. 16, 1899. Serial No. 709,243. (No model.)



Claim.—1. The combination, with a carbon electrode having a flat portion or lug with slot extended wholly through the same, of a connector comprising a piece of spring-wire bent to form a series of adjacent coils and provided with normally-extended spring-arms fitted elastically within such slot.

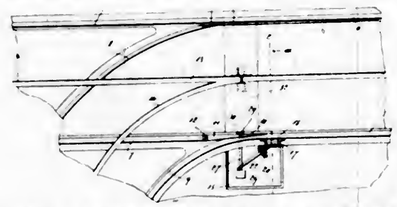
2. As a new article of manufacture, a connector having a spring-clip formed of a series of coils to elastically grip a conductor, and provided with spring-arms to fit elastically in a battery-electrode.

3. As a new article of manufacture, a connector having a series of spring-coils to elastically grip a conductor, and provided with normally-extended spring-arms to engage within a slot in a battery-electrode.

4. As a new article of manufacture, a connector comprising a piece of spring-wire bent to form a series of coils, elastic arms to engage a slot in the conductor and a shoulder at one end of such arms to regulate their penetration into the slot, substantially as herein set forth.

5. As a new article of manufacture, the battery-electrode connector consisting of a single piece of wire bent to form the elastic coils *d*, the shoulder *g*, and the double loops *e*, *e'*, with hook *f* at the terminal of the loop *e*, as and for the purpose set forth.

640,480. RAILWAY-SWITCH MECHANISM. JOHN S. MILLS, New York, N. Y. Filed Oct. 26, 1899. Serial No. 734,818. (No model.)



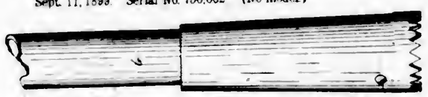
Claim.—1. A switch mechanism of the class described for use in connection with a railway, the bed of which is provided with a slot in which a power-transmitting member operates, comprising a depressible element arranged in the road-bed of said railway, a movable switch-point, a bell-crank lever, one arm of which is weighted and the other arm of which is in operative connection with said switch-point, said bell-crank lever being in operative connection with said depressible element, and an arm pivoted adjacent said slot and operatively connected with said bell-crank lever, substantially as shown and described.

2. A switch mechanism of the class described, for use in connection with a railway, the bed of which is provided with a slot in which a power-transmitting member operates, comprising a depressible element arranged in the road-bed of said railway, a movable switch-point, a bell-crank lever one arm of which is weighted and the other arm of which is in operative connection with said switch-point, said bell-crank lever being in operative connection with said depressible element, a bracket arranged at either side of said slot, an arm pivoted in each of said brackets, said arms being pivotally connected, and one of said arms being operatively connected with said bell-crank lever, substantially as shown and described.

3. In an apparatus of the class described and adapted for use in connection with a railway provided with a slot in which a power-transmitting member operates, a bracket arranged upon either side of said slot, an arm pivotally connected with each of said brackets, each of said arms being provided with a head at its upper end, said arms being connected at their lower ends by a pivoted link, and means for oscillating said arms, substantially as shown and described.

4. In an apparatus of the class described, a pivoted switch-point, a bell crank lever provided with an upright arm which is pivotally connected with said switch-point, and with a laterally-directed weighted arm, a pivoted rod one end of which projects beneath said weighted arm, and a plunger arranged adjacent the track in connection with which said switch operates, said plunger being operatively connected with said rod, substantially as shown and described.

640,481. COAL-BIT. JOB J. MORGAN, Youngstown, Ohio. Filed Sept. 11, 1899. Serial No. 730,062. (No model.)

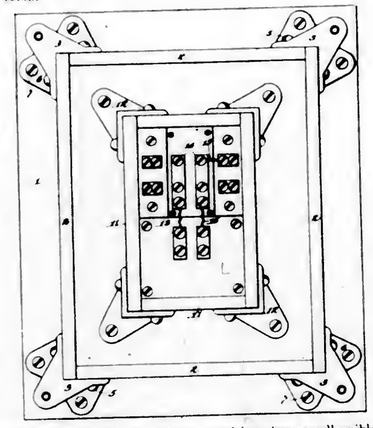


Claim.—The combination of the bit 1 formed hollow and the inner periphery thereof formed tapering toward its top or upper end, and teeth located upon the larger or lower end thereof, the valve-seat 4 located within the bit and provided with a hinged valve, and rivets passed through the bit below the valve-seat to form a support therefor, substantially as and for the purpose specified.

640,482. JUNCTION-BOX. THOMAS J. MURPHY, New York, N. Y. Filed May 17, 1899. Serial No. 717,199. (No model.)

Claim.—1. A junction-box comprising a base, a collapsible outer box, and a collapsible inner box, substantially as set forth.

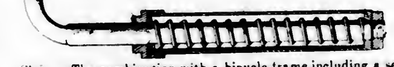
2. An improved junction-box comprising a base, a collapsible outer box carried in brackets secured to said base, a collapsible inner box carried by brackets also secured to said base, and a cover common to both boxes secured to the brackets of the outer box, substantially as set forth.



3. An improved junction-box comprising a base, a collapsible outer box carried in brackets secured to said base, a collapsible inner box carried by brackets also secured to said base, a cover common to both boxes secured to the brackets of the outer box, and a door in said cover coincident with the inner box, substantially as set forth.

4. In an improved junction-box the combination with a base, a plurality of angular brackets carried by said base, box-sections secured to said brackets, an arm carried by each bracket and extending parallel to the base, and a cover for the box removably secured to the last-mentioned arms, substantially as set forth.

640,483. SADDLE-POST FOR BICYCLES. JOEL B. L. MCKENZIE, Rahway, N. J. Filed Nov. 29, 1895. Serial No. 570,505. (No model.)

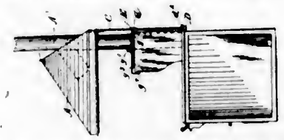


Claim.—The combination with a bicycle-frame including a seat-tube, of a socket formed integral and adapted to slidably fit the seat-tube, a perforation in the bottom of the socket, external threads upon the upper end of the socket, an annular flange adjacent the upper end of the socket and extending outwardly and radially thereof at the base of the threaded portion, a threaded cap engaging the threads of the socket and having a central angular opening, said cap being adapted to engage the flange of the socket to jam the cap in place, an integral seat-support passed into the socket and having a squared upper portion fitting the opening in the cap and adapted for slidable movement therein, the support being bent laterally above the squared portion to limit the movement of the support in one direction with respect to the cap, said support having its lower end passed through the perforation in the bottom of the socket and threaded, a nut engaged with the threaded portion of the support below the socket, a collar disposed upon the support and bearing against the squared portion thereof, and a helical spring surrounding the support and bearing at its upper end against the collar and at the lower end against the bottom of socket and adapted to hold the support yieldably with the nut against the bottom of the socket.

640,484. DRAFT ATTACHMENT FOR STOVES. ANDERS G. NELSON, Chicago, Ill. Filed Sept. 15, 1899. Serial No. 730,531. (No model.)

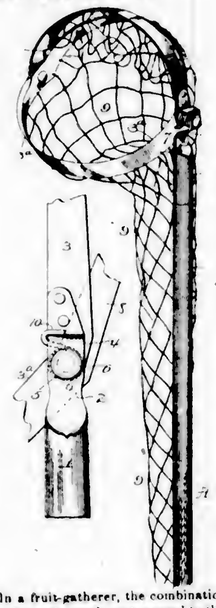
Claim.—1. The combination with a hood having a pipe communicating at one of its ends with the stovepipe, and having its other end open, of a damper located in said pipe, a supporting-piece having means at its upper end to engage the hood and provided with two vertical parallel bars, the adjustable holder E, movably mounted on the supporting-piece and comprising the slotted pieces *e*, and *e'*, the head or block e^3, and set-screw e^4, located in said slots and between the parallel bars, and means adjustably mounted on the pieces *e*, and *e'*, to engage the upper portion of the stove, substantially as described.

2. The combination with a hood having a pipe communicating at one of its ends with the stovepipe, and having its other end open, of a damper located in said pipe, a supporting-piece having projections at its upper end to fit in sockets on the hood, the feet D, secured to the lower part of the supporting-piece and having the hooks d', provided with the set-screws d^3, and the slide-pieces d^4, provided with the arms d^5, substantially as described.



3. The combination with a hood having a pipe communicating at one of its ends with the stovepipe and having its other end open, of a damper located in said pipe, a supporting-piece having means at its upper end to engage the hood and at its lower end to engage the stove-top, and provided with two vertical parallel bars, the adjustable holder E, movably mounted on the supporting-piece, and comprising the slotted pieces e, and e', the head or block e^4, and set-screw e^5, located in said slots and between the parallel bars, the pieces e^3 and e^4, connected at their outer ends to the pieces e, and e', and having means to engage the upward extension of the stove, substantially as described.

640,485. FRUIT-GATHERER, OLOF A. NORLUND, Cedar Run, Pa., assignor of one-half to George A. Gamble, same place. Filed Oct. 5, 1899. Serial No. 732,709. (No model.)

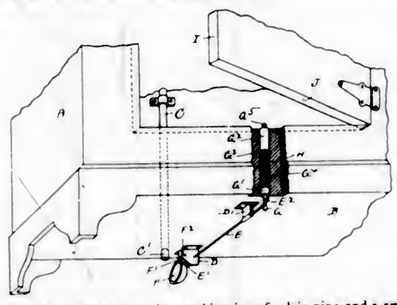


Claim.—1. In a fruit-gatherer, the combination with two jaws pivotally connected together and a net secured to the respective jaws, of an arm having its upper end bent to form a housing, said housing having an extension secured to one of said jaws, and a spring disposed within said housing and having one end attached to the other jaw, the other end of said spring connected with said housing.

2. In a fruit-gatherer, the combination with a pole, a semicircular bail and a ring pivotally attached at diametrically opposite points to the ends of said bail, of a tubular arm provided at its upper end with an extension bent to form a housing, said housing fixed to said bail and a spring disposed within said housing and having its ends secured respectively to the housing and said ring.

640,486. REFRIGERATOR-TRAP. HOMER N. PARKER, Winchendon, Mass., assignor of one-half to John McKee, New York, N. Y. Filed June 1, 1898. Serial No. 682,233. (No model.)

Claim.—1. In a refrigerator, the combination with a swinging door, and a drip-pipe having its end projecting beneath the refrigerator, of a hinged water-cup arranged to fall by gravity and empty itself, and when raised in a horizontal position to inclose the end of said drip-pipe, and actuating mechanism connected with said cup and extending into the path of said swinging door, whereby the closing of said door will raise said cup into a horizontal position to seal the end of the drip-pipe, substantially as described.



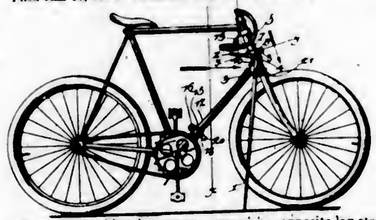
2. In a refrigerator, the combination of a drip-pipe and a swinging door, of a hinged water-cup arranged to fall by gravity and empty itself and actuating mechanism extending into the path of the door, whereby the closing of the door will raise the water-cup into a horizontal position to seal the end of the drip-pipe and means for reversing said actuating mechanism when the door is opened and allow said water-cup to fall, substantially as described.

3. The combination with the drip-pipe of a refrigerator, of a hinged water-cup arranged, when in a horizontal position, to inclose the end of said drip-pipe and to fall by gravity when released and empty itself, and means actuated by the refrigerator-door by which said water-cup is held in a horizontal position when said door is closed, substantially as described.

4. The combination with the drip-pipe of a refrigerator, of a hinged water-cup arranged when in a horizontal position to inclose the end of said drip-pipe and to fall by gravity and empty itself, a sliding spindle held in the refrigerator and provided with a beveled end projecting into the door-opening, a swinging door arranged, when closed, to strike said spindle and move it longitudinally, connected mechanism by which said spindle is connected with said water-cup, and a spring by which said spindle is reversed when the door is opened, substantially as described.

5. In a refrigerator, the combination with a drip-pipe of a hinged water-cup arranged when in a horizontal position to inclose the end of said drip-pipe and to fall by gravity and empty itself, a rocking rod supported beneath the refrigerator and having a radial arm supporting said water-cup in a horizontal position, a sliding spindle operatively connected with said rocking rod and provided with a beveled end projecting into the path of the door in closing, and a spring applied to said spindle to reverse its motion when the door is opened, substantially as described.

640,487. BICYCLE-SUPPORT. VICTOR A. PERNOT, Colegrove, Cal. Filed Jan. 19, 1899. Serial No. 702,686. (No model.)



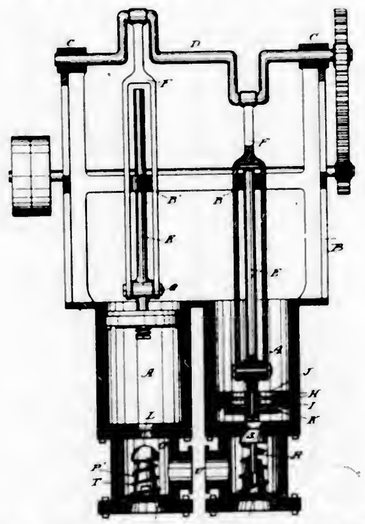
Claim.—1. A bicycle-support, comprising opposite leg-standards pivoted or hinged to the head of a bicycle, and located in the path of the axial movement of the front forks, and also in engagement with the crown thereof, when the leg-standards are in position to support the bicycle, whereby the front wheel is held against being accidentally turned transversely of the bicycle, substantially as shown and described.

2. In a bicycle-support, the combination with a clamp adapted to be fitted to the head of the bicycle, and having pendent divergent spreader-wings and opposite pivot-pins, of a support formed from a single length of metal bent intermediate its ends forming opposite legs, the bend of the support being disposed at an angle thereto and forming a handle, and having openings formed through each leg at the vertex of the angle between the same and the handle, whereby the support is pivoted to the clamp, and means carried by the frame of the bicycle for holding the support out of use, substantially as shown and described.

3. A bicycle-support, comprising opposite leg-standards formed from a single length of metal bent intermediate its ends to provide the standards, the bend thereof being deflected at an angle to the plane of the legs and adapted to provide an operating-handle; and a catch extending rearwardly from the head-tube of the bicycle, the standards being pivoted to the head-tube below the catch and at the vertexes of the angles between the respective standards and the adjacent sides of the handle, whereby the bend between the sides of the handle is adapted to engage the catch and hold the standards in the elevated position thereof, substantially as shown and described.

4. In a bicycle-support, the combination with opposite leg-standards, of a spreader adapted to be carried by the head-tube of the bicycle, and comprising opposite clamp members having pendent divergent transversely-convexed wings, the leg-standards being pivoted to opposite sides of the spreader near the upper end thereof, and adapted to be moved in engagement with and transversely across the wings of the spreader, whereby the convex shape thereof permits of the standards coming close together in the elevated position thereof, substantially as shown and described.

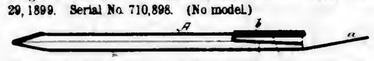
640,488. MUST-PUMP. JAMES S. PHILPOTT, Windsor, Cal., assignor of one-half to George A. Nalley, same place. Filed July 24, 1899. Serial No. 724,948. (No model.)



Claim.—1. In a "must-pump," open-topped cylinders, pistons movable in the cylinders and connected with a crank-shaft, from which they are reciprocated, ports through said pistons surrounding the center, a spring-pressed valve closable from below over said ports, a valve-chamber bolted to the bottom of the cylinder, a passage through the bottom of the cylinder into said chamber, a spring-pressed upwardly-closing semiglobular valve closable against the passage, said valve having a guide-stem from below and a conical vertically-perforated projection from the lower head of the valve-chamber within which said stem is slidable, and by which the valve-closing spring is maintained in position.

2. In a "must-pump," open-topped cylinders, pistons reciprocating therein, and mechanism intermediate between the pistons, and crank-shafts by which they are actuated, ports made through the pistons and a spring-pressed guided valve closable from below over said ports, a removable valve-chamber situated in line below the bottom of each cylinder, with a passage from the cylinder into the top of the valve-chamber, a removable lower head to the valve-chamber having an upwardly-projecting cone with a central opening therein, a semiglobular valve by which the passage between the cylinder and the valve-chamber is closed, said valve having a downwardly-projecting stem slidable and guided in the hole in the cone-openings connecting with the bottom of said guide-hole, a spring surrounding the cone and acting to normally close the valve against its seat, and side discharge-openings from the valve-chambers.

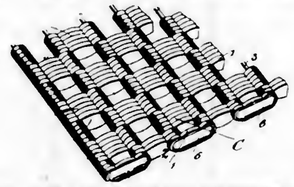
640,489. ENVELOP. GEORGE H. RANDALL, Wellington, Mass., assignor to William B. H Dawse, trustee, Newton, Mass. Filed Mar. 29, 1899. Serial No. 710,898. (No model.)



Claim.—1. An envelop and detachable closure, comprising an envelop provided with an extension-flap, and a closure consisting of a gummed flap to turn over and secure the closure to the envelop, an intermediate section and an end section adapted to fold under the intermediate section and form a pocket in the mouth of the envelop, whereby the extension-flap of the envelop may be placed in the said pocket and hold the envelop detachably closed, substantially as described.

2. An envelop and detachable closure, comprising a detached closure B, consisting of a gummed flap b to turn down on the back of the envelop and be cemented thereto, the intermediate sections b' and b^2 folded to form a pocket within the mouth of the envelop, and an envelop having a flap a adapted to be arranged within the said pocket and lock the mouth of the envelop detachably closed, substantially as specified.

640,490. MAT OR MATTING. JOHN A. RENNIE, Philadelphia, Pa., assignor, by mesne assignments, to the National Mat Company, of New Jersey. Filed Jan. 12, 1899. Serial No. 701,967. (No model.)



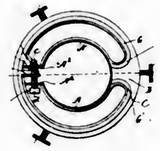
Claim.—1. In a mat of the character described, the combination with a plurality of juxtaposed pieces, said pieces being provided with perforations, and the rods passing through said perforations and having their ends bent inwardly at right angles for holding said pieces in their assembled position, of the hollow end caps formed with a central prong passing through the outer series of said juxtaposed pieces and clenched so as to hold said caps in place and cover and conceal the ends of the rods, substantially as specified.

2. In a mat of the character described, the combination with a plurality of juxtaposed pieces, said pieces being provided with perforations, and the rods passing through said perforations and having their ends bent over inwardly at right angles for holding said pieces in their assembled positions, of the hollow end caps formed with a central prong passing through the outer series of said juxtaposed pieces and clenched so as to hold said caps in place and said caps at the edge formed with a series of teats or projections which also aid in holding them in place, substantially as specified.

640,491. COMPOSITION FOR PICKLING METAL BARS, PLATES, SHEETS, &c. CHAUNCEY E. ROBINSON and WILLIAM L. SUTHERLAND, South Connellsville, Pa. Filed May 19, 1899. Serial No. 717,476. (No specimens.)

Claim.—A composition for pickling metal bars, plates, sheets and the like, consisting of a strained starchy substance obtained from a mixture of wheat bran and water, and an equal part of sulfuric acid thoroughly commingled with the starchy substance, substantially as described.

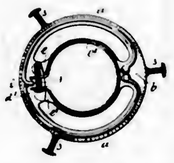
640,492. SHADE-HOLDER FOR INCANDESCENT ELECTRIC LAMPS. EDGAR A. RUSSELL, Wallingford, Conn. Filed July 25, 1898. Serial No. 686,777. (No model.)



Claim.—1. A holder for the shade of an electric light, comprising a shade-holding ring, a single integral radial plate extending inwardly therefrom, a clamping-band integral with the said plate comprising two arms, each having a free end, and a connection between the shade-holding ring and the free ends of the clamping-band, all the parts being formed in one piece from sheet metal, and a clamping device at the said connection and ends of the band, substantially as and for the purposes set forth.

2. A holder for the shade of an electric light, comprising a shade-holding ring, a single integral radial plate extending inwardly therefrom, a clamping-band integral with the said plate comprising two arms, each having a free end, and a connection between the shade-holding ring and the free ends of the clamping-band, all the parts being formed in one piece from sheet metal and the shade-holding ring having a circular stiffening-rib extending upon the integral plate, and a clamping device at the said connection and ends of the band, substantially as and for the purposes set forth.

640,493. **SHADE-HOLDER FOR ELECTRIC LAMPS.** EDGAR A. RUSSELL, Wallingford, Conn., and HAROLD SERRELL, Plainfield, N. J., assignors to said Russell. Filed Oct. 28, 1898. Serial No. 694,825. (No model.)



Claim.—1. A holder for the shade of an electric lamp comprising a shade holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping device and provided with transverse grooves or ways and a tang-plate extending inward from the shade-holding ring and entering the transverse grooves or ways, substantially as set forth.

2. A holder for the shade of an electric lamp comprising a shade-holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping device and provided with transverse grooves or ways, and a tang-plate extending inward from the shade-holding ring and entering the transverse grooves or ways, the said parts being integral and stamped up in one piece from sheet metal, substantially as set forth.

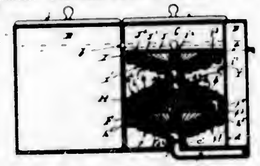
3. A holder for the shade of an electric lamp, comprising a shade-holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping-screw, and ears turned outward from the under edge of the clamping-band at the free ends and a tang-plate extending inward from the shade-holding ring and extending over the said ears and beneath the free ends of the clamping-band as a guide and support, substantially as set forth.

4. A holder for the shade of an electric lamp, comprising a shade-holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping-screw, and ears turned outward from the under edge of the clamping-band at the free ends, and a tang-plate extending inward from the shade-holding ring over the said ears and beneath the free ends of the clamping-band as a guide and support, the said parts being integral and stamped up in one piece from sheet metal, substantially as set forth.

5. A holder for the shade of an electric lamp, comprising a shade-holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping-screw, and ears turned outward from the under edge of the clamping-band at the free ends, and a tang-plate extending inward from the shade-holding ring and extending over the said ears and beneath the free ends of the clamping-band as a guide and support, and a projection or rib *i* raised in the surface of the tang-plate, substantially as set forth.

6. A holder for the shade of an electric lamp, comprising a shade-holding ring, a radial arm extending inward therefrom, a clamping-band connected with said arm and having two free ends adapted to receive a clamping device, said free ends having portions between which are transverse grooves or ways, and an imperforate tang-plate extending inward from the shade-holding ring at a point opposite to the radial arm and entering the said grooves or ways, substantially as set forth.

640,494. **OIL AND WATER SEPARATOR AND PURIFIER.** LE GRAND SKINNER and JOHN C. GLENN, Erie, Pa.; said Glenn assignor to said Skinner. Filed Mar. 28, 1899. Serial No. 710,760. (No model.)



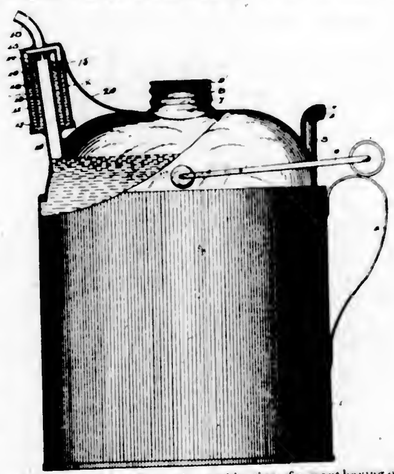
Claim.—1. The combination in an oil and water separator and purifier, of a receptacle having two chambers communicating near the bottom thereof and having outlets on a different horizontal plane, and an inlet in the bottom of one of said chambers, with a series of cones, one above the other, having spiral passages on the lower faces thereof communicating with the inlet in said chamber and with each other, substantially as and for the purpose set forth.

2. The combination in an oil and water separator and purifier, of a series of cones, one above the other, having spiral passages in the lower faces thereof communicating with an inlet at the bottom of the oil and water separator and purifier, and with each other, so as to form a continuous passage, substantially as and for the purpose set forth.

3. In an oil and water separator and purifier, the combination of an inverted cone having a spiral passage on its lower face communicating with an inlet at its center and extending to an outlet near its periphery with a cone mounted thereon having a spiral passage on its lower face communicating with the outlet of the passage in said inverted cone and extending to an outlet at the apex of said cone, substantially as and for the purpose set forth.

4. The combination in an oil and water separator and purifier of a receptacle A having a chamber B, a chamber D having an outlet *d'* and a chamber C having an inlet E and outlet *b* into the chamber B and an outlet *d* in the chamber D, an inverted cone F in said chamber C having a spiral passage *f''* on its lower face communicating with said inlet, a cone H mounted on the cone F and having a spiral passage *h'* on its lower face communicating at its outer end with the spiral passage *f''*, an inverted cone I mounted on the cone H and having a spiral passage *i'* on its lower face, the inner end of which communicates with the inner end of the spiral passage *h'*, and its outer end with an opening up through the shell of the cone, and screens J J' J² mounted on the top of said inverted cone I, substantially as and for the purpose set forth.

640,495. **NON-EXPLOSIVE OIL-CAN.** JOHN H SPANGLER, Pittsburg, Pa. Filed Apr. 12, 1899. Serial No. 712,798. (No model.)



Claim.—1. In an oil-can, the combination of a spout having openings at the upper end thereof, a cap arranged over said openings, a casing carrying inwardly-extending V-shaped ribs adapted to engage the sides of said cap, and an opening arranged on the upper face of said casing, substantially as set forth.

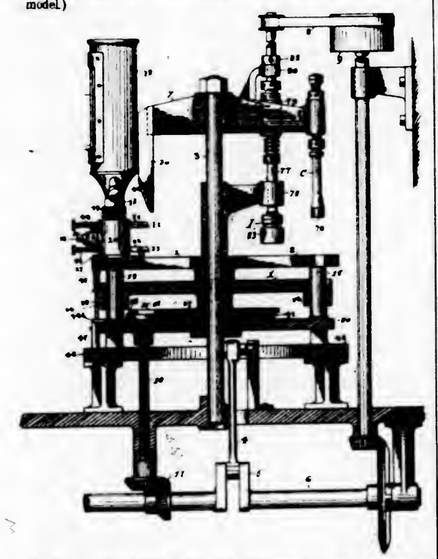
2. In an oil-can, a spout having openings arranged in the upper end thereof, a cap arranged over the said openings forming a chamber between the outer walls of said spout and inner walls of said cap, a casing surrounding said cap forming a chamber between the outer walls of said cap and inner walls of said casing, a passage between the inner and outer chambers, a discharge-spout arranged in the upper end of said casing, and a vent-spout having an elliptical-shaped end, all parts being arranged and operating as herein shown and described.

3. In an oil-can, the combination of a spout having openings arranged in the upper end thereof, a cap arranged over said openings forming a chamber between the outer walls of said spout and inner walls of said cap, a casing surrounding said cap forming a chamber between the outer walls of said cap and inner walls of said casing, a brace connecting said casing and the can proper, a passage between the inner and outer chambers, a discharge-spout arranged on the upper end of said casing, all parts being arranged and operating substantially as herein shown and described, and for the purpose set forth.

4. In an oil-can, the combination of a spout 10, provided with a series of openings at the upper end thereof, a cap secured to the upper end of the said spout and of greater diameter, a downwardly-extending flange formed integral with the said cap, a casing surrounding the said cap and flange suitably secured to the said spout and provided with ribs adapted to engage the said flange, and a discharge-spout suitably connected to the said casing, substantially as set forth.

5. In an oil-can, a spout 10 provided with suitable discharge-openings, a cap of greater diameter secured thereto, a downwardly-extending annular flange formed integral therewith, a casing suitably surrounding the cap and flange, and a discharge-spout 13 connected to the said casing, substantially as set forth.

640,496. **CARTRIDGE-LOADING APPARATUS.** GEORGE E. STANDISH, Selby, Cal. Filed June 15, 1899. Serial No. 720,726. (No model.)



Claim.—1. In cartridge-loading apparatus, a moving member carrying the cartridges to be loaded, means to intermittently move and hold the said member, devices for receiving and delivering to the cartridges definite quantities of ammunition, rectilinearly-reciprocating valves provided with projections normally out of line with the operating means therefor, means for bringing said projections into line with the operating means, operated by contact with the moving cartridge-shells, and means for operating the valves by contact with the said projections in succession, for admitting, cutting off, and discharging the measured charges of ammunition, substantially as specified.

2. In cartridge-loading apparatus, a moving member carrying the cartridges to be loaded, a submember on which the bases of the shells slide, devices for receiving and delivering to the cartridges definite quantities of powder and shot, and for placing the wads, rectilinearly-reciprocating valves provided with projections normally out of line with the operating means therefor, a series of turning oscillating stems for determining the operative position of said projections, a series of tripping-pawls connected with said stems, engaged and operated by contact with the bases of the moving cartridge-shells, and vertically-reciprocating cams for engaging and operating said projections when in line therewith, in succession, whereby the measured charges of ammunition are admitted, cut off, and discharged through the movement of the said valves, substantially as specified.

3. In cartridge-loading apparatus, a moving member provided with suitable seats for containing a series of cartridge-shells to be loaded, a reciprocating cross-head carrying ramming implements for wads, measuring-chambers for ammunition, rectilinearly-reciprocating valves provided with projections normally out of line with the means for operating them, arranged above and below the said measuring-chambers, springs to return said valves, means for bringing said projections into line with the operating means, operated by contact with the moving cartridge-shells, and oblique-faced bars carried on said reciprocating cross-head, in the path of said projections when in line, acting as cams to close and open said reciprocating valves in succession, and on the reverse movement to close and open the same in the reverse order, whereby the measuring-chambers are cut off, emptied and filled in succession by the movement of the cross-head coöperating with the chamber-turning mechanism, substantially as specified.

4. In cartridge-loading apparatus, charging devices containing chargers for powder and shot, each of said devices revolubly mounted in fixed bearings by means of hollow nipples at the top and bottom thereof, rectilinearly-reciprocating valves in said devices arranged one above the other, provided with projections normally out of line with the operating means therefor, means for bringing said projections into line with the operating means, operated by contact with the moving cartridge-shells, a moving support for the cartridge-shells and a vertically-reciprocating cam, operating on said projections when in line, in succession, thereby alternately closing and opening the chambers at top and bottom to discharge and fill the same in succession, substantially as specified.

5. In cartridge-loading apparatus, charging devices containing chargers for powder and shot, each of said devices revolubly mounted in fixed bearings by means of hollow nipples at top and bottom thereof, rectilinearly-reciprocating valves in said devices arranged one above the other, provided with projections normally out of line with the means for operating them, a turning oscillating stem for determining the operative position of said projections, means connected with said stems engaged and operated by contact with the bases of the moving cartridge-shells, a moving support for the cartridge-shells and a vertically-reciprocating cam for engaging and operating said projections when in line therewith, thereby alternately closing and opening the passages to and from said chargers, substantially as specified.

6. In cartridge-loading apparatus, a revolubly-mounted charging device containing a transversely-inserted charger, rectilinearly-reciprocating spriog-valves above and below said charger, provided with projections normally out of line with the operating means therefor, a reciprocating cam for engaging said projections in succession when in line, an oscillating stem in geared connection with the said charging device, a moving support for the cartridge-shells, a trip-lever on said stem for engagement with the bases of the moving cartridge-shells, thereby bringing the engaging projections on the valves into line with the said reciprocating cam, operating the valves in succession when a cartridge is passing, and leaving the valves undisturbed when no cartridge is in place to be filled, substantially as specified.

7. In cartridge-loading apparatus, a revolubly-mounted charger-holding member, removable chargers inserted transversely in said charger-holding member, chambers diametrically through said chargers holding measured charges of ammunition, and a displacing-plug, set longitudinally in said chargers, entering said chambers, and adjustable from the outside, whereby minute changes in the capacity of the charger-chambers can be made, substantially as specified.

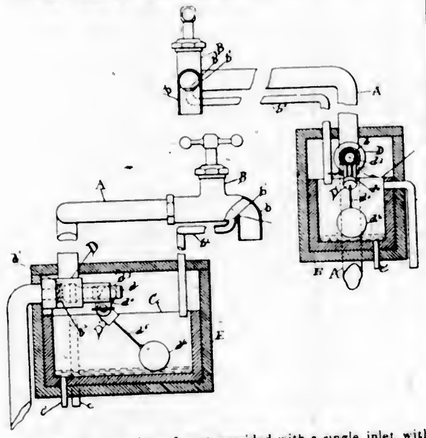
8. In cartridge-loading apparatus, insertible chargers having transverse chambers for measured charges of ammunition, adjustable displacing-plugs set longitudinally in said chargers, entering said chambers, of angular or prismatic section at top, whereby the introduced ammunition will not find lodgment thereon, substantially as specified.

9. In cartridge-loading apparatus, a sheath to contain a tier of wads, a reciprocating rammer, with means for operating the same, a partially-revolving vertical stem, with means for turning the same on the passage of a cartridge-shell, an angularly-moving plate at the top of the stem having a thin curved extension 67 for engagement with the bottom wad of the tier of wads, and a curved guideway to guide the wad on its passage to its seat over the cartridge-shell, substantially as specified.

10. In cartridge-loading apparatus, a sheath to contain a tier of wads, a reciprocating rammer to drive the wads, a partially-revolv-

ing vertical stem, a tappet-lever on said stem for turning the same by contact with an advancing cartridge-shell, a sector-shaped pivoted driver 65 having a thin curved extension, a member 67 at the top of said stem moving in a curved path and engaging the bottom wad of said tier, a curved way to guide the wad on its passage to its seat over the cartridge-shell, and a cover-plate 68 over said guideway, having an aperture 69 for the passage of the ramming, substantially as specified.

640,497. COCK AND FAUCET AND MEANS FOR DIMINISHING WASTE THEREFROM. ROBERT H. STAPLES, Lowell, Mass. Filed May 11, 1899. Serial No. 716,457. (No model.)



Claim.—1. A cock or faucet provided with a single inlet, with a nozzle or outlet and with an auxiliary discharge-passage leading out of said nozzle and supplied by said nozzle.

2. A cock or faucet, provided with a single inlet, with a nozzle or outlet, having a pocket, and with an auxiliary discharge-passage leading out of said pocket and supplied by said nozzle.

3. The combination of a supply-pipe, a cock or faucet attached thereto, and provided with a nozzle or outlet and with an auxiliary discharge-passage leading out of said nozzle, a suitable receptacle into which said auxiliary passage discharges, and means for preventing the overflow of said receptacle.

4. The combination of a supply-pipe, a cock or faucet attached thereto, and provided with a nozzle and with an auxiliary discharge-passage leading out of said nozzle, a suitable receptacle into which said auxiliary passage discharges, a shut-off, arranged in said supply-pipe and means operated by the rising of the liquid in said tank to close said shut-off.

5. The combination of a supply-pipe, a cock or faucet attached thereto, and provided with a discharge-nozzle and with an auxiliary discharge-passage leading out of said nozzle, a suitable receptacle into which said auxiliary passage discharges, a valve in said supply-pipe, a lever, to operate said valve, and a float, carried by said lever and sustained by the liquid in said receptacle.

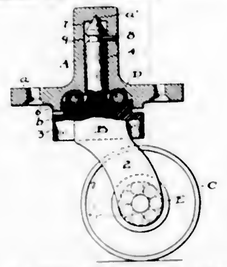
640,498. NEGOTIABLE-INSTRUMENT BLANK. MYER J. STEIN, New York, N. Y. Filed Apr. 13, 1899. Serial No. 712,845. (No specimens.)

Claim.—1. A negotiable-instrument blank, consisting of a sheet composed of a main portion printed at its face side with a negotiable-instrument form, a stub portion attached to said main portion, a clause of reference located on the face side of said main portion referring to the reverse side of the same and to printed matter on the stub portion, a release printed on the reverse side of the main portion, seals also printed on said reverse side, and printed matter on the face of said stub portion, qualifying the effect of said release and seals, substantially as set forth.

2. A negotiable-instrument blank, consisting of a sheet composed of a main portion printed at its face side with a negotiable-instrument form, a stub portion attached to said main portion, a clause of reference located on the face side of said main portion referring to the reverse side of the same and to printed matter on the stub portion, a release printed on the reverse side of the main portion, seals also printed on said reverse side, printed matter on the stub referring to said release and seals, and a line of printed matter on the reverse side of the stub portion indicating the position of the signature for signing on the stub, substantially as set forth.



640,499. CASTER. WILLIAM I. STILWELL, Mansfield, Ohio, assignor of one-half to George B. Soldera, Cleveland, Ohio. Filed Mar. 23, 1899. Serial No. 710,150. (No model.)

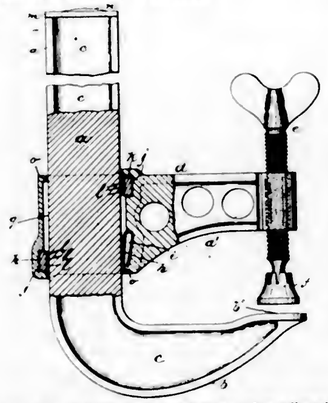


Claim.—In a caster, the wheel-frame composed of a roller-supporting yoke, a hub 3 having a raised circular pedestal, *b*, in the top of which is formed an annular ball-channel, and a vertical spindle 4, made integral with the pedestal, rising therefrom, and terminating in a pointed head 7 and a neck 9, in combination with a tubular closed cap socket, A, covering and inclosing said pedestal and spindle, and provided with a cavity, *a'*, as a seat for the point 7 of said spindle, said socket also provided with a laterally-extending flange *a*, for securing the socket to the article, and with an inner depending flange, 6, extending below the said flange, *a*, and overlapping the pedestal, *b*, said socket also formed with an annular ball-channel, complemental to the said pedestal-channel, balls in said channels, and a pin in the socket adapted to enter the neck of the spindle to steady it, whereby all vertical and lateral strain from the supported article is borne by said balls, and their support, substantially as described.

640,500. CLAMP. JAMES L. TAYLOR, Newark, N. J. Filed Aug. 23, 1899. Serial No. 728,178. (No model.)

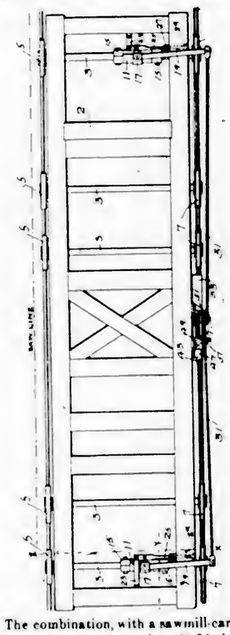
Claim.—1. In a clamp, the combination with a bar, of an adjustable jaw transversely apertured to receive said bar and sliding thereon, the inner wall of said aperture having a recess or pocket closed on all sides and opening into the aperture, and a removable plate

lying in said pocket and at its outer face presenting to the bar a series of teeth while the entire inner face engages the seat formed by the bottom of the pocket, whereby the least dimension of the plate is enabled to be perpendicular to the toothed surface and maximum stability secured, substantially as set forth.



2. In a clamp, the combination with a bar, of an adjustable jaw transversely apertured near one end to receive said bar and sliding thereon, the inner wall of said aperture being provided with a recess or pocket closed on all sides and opening against the bar, and a friction-plate lying in said pocket with such a degree of looseness as will permit it to drop out by its own weight when the jaw is detached from the bar, said friction-plate presenting to the bar a series of teeth and having its entire base in contact with the solid seat forward formed by the pocket, the projection of every point of the face of the plate upon the plane of the base falling within said base, substantially as set forth.

640,501. AUTOMATIC OFFSETTING FOR SAWMILL-CARRIAGES. EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed July 31, 1899. Serial No. 725,572. (No model.)

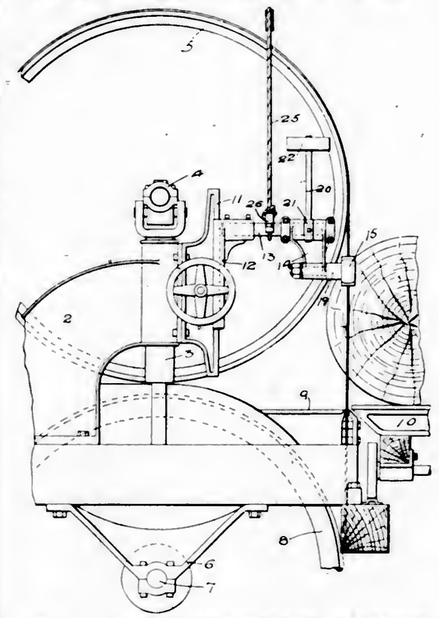


Claim.—1. The combination, with a sawmill-carriage capable of lateral movement upon its supporting-axles, of a friction-shoe arranged to slide upon and to engage one of the rails upon which the carriage travels, a pivoted lever and a sliding weight upon said lever for regulating the friction between said shoe and said rail, and means connecting said shoe with said carriage and causing said carriage to move laterally at the commencement of its travel in each direction.

2. The combination, with a sawmill-carriage capable of lateral movement upon its supporting-axles, of a friction-shoe arranged to slide upon and to engage one of the rails upon which the carriage travels, a pivoted lever and a movable weight upon said lever for regulating the pressure of said shoe upon said rail and thereby increasing or decreasing the friction between the shoe and the rail, and means connecting said shoe with said carriage whereby said carriage is caused to move laterally at the commencement of its travel in each direction, for the purpose set forth.

3. The combination, with the sawmill-carriage and the offsetting mechanism thereof, of the bracket 49 arranged upon said carriage and provided with projections 51, the friction-shoe connected with said offsetting mechanism, the lever 43 pivoted upon said shoe and provided with the adjustable weight 47 and with the roll 45 that is adapted to engage the under surface of the bracket 49, for the purpose set forth.

640,502. YIELDING GUIDE FOR BAND-SAW MILLS. EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed July 22, 1899. Serial No. 724,730. (No model.)



Claim.—1. A vertically and horizontally freely swinging or yielding upper guide for and in combination with band-saw mills.

2. In combination with a band-saw mill, a freely-swinging upper saw-guide adapted for retirement from the saw and to rise as it retires, said guide adapted and free for quick movement by hand or when struck, substantially as described.

3. In combination with a band-saw mill, an upper saw-guide comprising a bar having the guide proper and parallel swinging links or arms whereby said bar is supported upon the frame of the mill, and permitting said bar to retire and rise from the saw, substantially as described.

4. In combination with a band-saw mill, an upper saw-guide comprising a bar having the guide proper, and freely-swinging parallel links whereby said bar is supported upon the frame of the mill, and permitting said bar to retire and rise from the saw and a suitable counterbalance for said bar causing same to remain where placed, substantially as described.

5. In combination, with a band-saw mill having a vertically-adjustable upper guide-arm, the parallel links mounted upon said arm, the horizontally-arranged guide-bar attached to the lower ends of said links and provided with the saw-guide proper, and a counter-

balance-bar connected with said links, whereby said guide-bar is adapted to retire and rise from the saw or to be returned thereto and to remain as adjusted, substantially as described.

6. In combination with a band-saw mill and carriage, a vertically adjustable freely-swinging upper saw-guide adapted to retire and rise when struck by a log upon the carriage, and also adapted to be moved freely in either direction by hand, substantially as described.

7. In combination with a band-saw mill, a gravity-balanced freely-swinging upper guide for the saw, and mechanism for adjusting the same vertically, substantially as described.

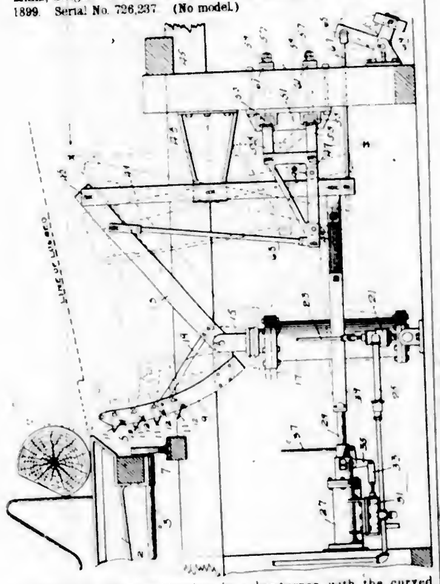
8. The combination, with a band-saw-mill frame and the wheels thereof to carry the saw, of the vertically-adjustable guide-arms, the shafts extending therefrom, the links depending from said shafts, the guide-bar supported by said links and joining the lower ends thereof, said bar provided with a saw-guide, and the counterbalance rod and weight attached to one of said links, substantially as described.

9. The combination, in a band-saw mill, of the mill proper, with the upper saw-guide, a parallel movement hanger for said guide permitting the same to retire from the saw and rise, and the wearing-blocks in said guide and adjustable transversely of the saw, as and for the purpose specified.

10. In combination, the band-saw mill, provided with a vertically-adjustable guide-arm, and a saw-guide having parallel swinging supports upon said arm, and adapted to swing away from the saw in the plane thereof, substantially as described.

11. In combination, the band-saw mill, with an adjustable upper guide having a parallel link-movement support and balanced to remain in any of its positions automatically, substantially as described.

640,503. **STEAM LOG-TURNER.** EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed Aug. 5, 1899. Serial No. 726,237. (No model.)



Claim.—1. The combination, in a log-turner, with the curved tooth-bar and the operating-cylinder having its piston-rod connected with said tooth-bar, of the pivoted sway-bar, to which the tooth-bar is connected, and a movable stop for said sway-bar operated by the tooth-bar to control the motion of the sway-bar and thereby its effect on the tooth-bar.

2. The combination, in a log-turner, with the tooth-bar and means for operating said tooth-bar, of a pivoted sway-bar connected to said tooth-bar, and a movable stop for said sway-bar, said stop being arranged and operated to control the motion of the sway-bar and thereby its effect on the tooth-bar.

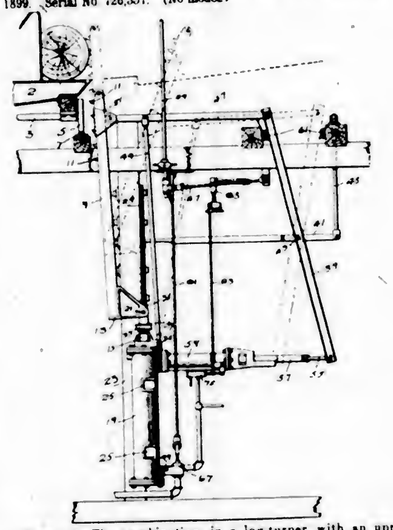
3. The combination, in a log-turner, with the tooth-bar and means for operating it, of a pivoted sway-bar connected to said tooth-bar, a steam-cylinder provided with a piston and rod connected to said sway-bar and a movable stop for said sway-bar, said stop being connected to said tooth-bar and controlling the motion of said sway-bar.

4. The combination, in a log-turner, with the curved tooth-bar and its operating-cylinder, of the sway-bar connected to said tooth-bar, the operating-cylinder for said sway-bar, and a movable stop for said sway-bar connected to and operated by said tooth-bar.

5. The combination, with the curved tooth-bar 9, the angular bar 13 pivotally connected to the piston-rod of an operating-cylinder, the sway-bar 41 pivoted upon a fixed support and connected to said bar 13, the frames 47 forming stops for said sway-bar and mounted upon links 53 and the rod 39 connecting said sway-bar to the piston-rod of a cylinder arranged at right angles to said first-mentioned cylinder, for the purpose set forth.

6. The combination, with the curved tooth-bar and its operating-cylinder, of the pivoted sway-bar connected to said tooth-bar, the bell-crank lever connected to said sway-bar and provided with an adjustable weight and the movable stop for said sway-bar also connected to said tooth-bar, for the purpose set forth.

640,504. **STEAM LOG-TURNER.** EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed Aug. 7, 1899. Serial No. 726,357. (No model.)



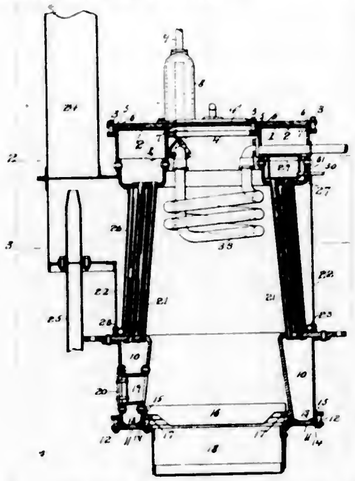
Claim.—1. The combination, in a log-turner, with an upright operating-cylinder, piston and piston-rod, of a pivoted and vertically-movable tooth-bar carried by said piston-rod, a horizontal cylinder mounted upon said upright cylinder; a piston and piston-rod in said horizontal cylinder; a guide controlling the movement of the upper part of said tooth-bar, and an upright sway-bar, having its lower end extended to the plane of and connected to the piston-rod of the horizontal cylinder and its upper end connected to said guide, substantially as described.

2. The combination, in a log-turner, with an upright steam-cylinder and a small horizontal steam-cylinder, supported on said upright cylinder, each of said cylinders being provided with a piston and piston-rod, of a tooth bar pivoted upon the piston-rod of the upright cylinder and a pivoted sway-bar having its upper end connected with said tooth-bar and controlling its movement and its lower end extended to the plane of and connected with the piston-rod of the horizontal cylinder, for the purpose set forth.

640,505. **STEAM-BOILER.** JOHN E. THORNYCROFT, London, England. Filed Oct. 16, 1899. Serial No. 733,734. (No model.)

Claim.—1. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, straight tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber and being inclined inwardly so that the combustion-chamber is smaller at the top than at the bottom, substantially as described.

2. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, straight tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber and being inclined inwardly so that the chamber is smaller at the top than at the bottom, a removable top for the upper chamber, and a removable bottom for the lower chamber, substantially as described.



3. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, straight tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber and being inclined inwardly so that the chamber is smaller at the top than at the bottom, a removable top for the upper chamber, a removable bottom for the lower chamber, tongue-and-grooved joints between the chambers and their tops, and suitable packing material contained in the joints, substantially as described.

4. In a steam-boiler, the combination with an annular upper steam and water chamber, of a lower annular water-chamber, straight inwardly-inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable cover for the upper chamber, a removable bottom for the lower chamber, and a steam-dome carried by the upper cover, substantially as described.

5. In a steam-boiler, the combination with an annular upper steam and water chamber, of a lower annular water-chamber, straight inwardly-inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable cover for the upper chamber, a removable bottom for the lower chamber, and suitable leading-off means for the steam entering the upper chamber at a point other than through the removable cover, substantially as described.

6. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, straight inwardly-inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable bottom for the lower chamber, and a removable cover for the upper chamber, said cover having a fuel-opening therethrough, substantially as described.

7. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, straight inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable bottom for the lower chamber, a removable cover for the upper chamber, and a superheating-coil tapping the side of the upper chamber and being disposed in the upper part of the combustion-chamber, substantially as described.

8. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, straight inwardly-inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable bottom for the lower chamber, a removable cover for the upper chamber, a fuel-opening in said upper cover, and a superheating-coil tapping one of the side walls of the upper chamber, said coil being arranged in the upper part of the combustion-chamber and beneath the fuel-opening and being so disposed as not to interfere with the introduction of fuel through the fuel-opening, substantially as described.

9. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, straight inwardly inclined tubes connecting the two chambers, said tubes being arranged close together to form a combustion-chamber, a removable bottom for the lower chamber, a removable top for the upper chamber, a fuel-opening in the top of the upper chamber, and a clinkering-opening arranged in the walls of the lower chamber, substantially as described.

10. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, tubes connecting the two chambers, a scale-arresting device located in the upper chamber, and a feed-water pipe connected to said device, substantially as described.

11. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, tubes connecting the two chambers, a removable cover for the upper chamber, a scale-arresting device located in the upper chamber, and a feed-water pipe connected to said device, substantially as described.

12. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, tubes connecting the two chambers, a scale-arresting device located in the upper chamber, and a feed-water pipe having a spray-nozzle connected to said device, substantially as described.

13. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, tubes connecting the two chambers, a removable cover for the upper chamber, a scale-arresting device located in the upper chamber, and a feed-water pipe having a spray-nozzle thereon connected to said device, substantially as described.

14. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, tubes connecting the two chambers, a removable cover for the upper chamber, a steam-dome carried by the upper cover, a scale-arresting device in the upper chamber, said arresting device having its exit-opening arranged in proximity to the steam-dome, and a feed-water pipe entering the scale-arresting device, substantially as described.

15. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, tubes connecting the two chambers, a removable cover for the upper chamber, a steam-dome carried by said cover, a scale-arresting device in the upper chamber, said arresting device having its exit-opening arranged in proximity to the steam-dome, and a feed-water pipe having a spray-delivery nozzle entering the scale-arresting device, substantially as described.

16. In a steam-boiler, the combination with an upper steam and water chamber, a lower water-chamber, tubes connecting the two chambers, a scale-arresting box in the upper chamber, said box having partitions arranged therein so as to cause the water to take a tortuous passage therethrough, and a feed-water pipe communicating with the box, substantially as described.

17. In a steam-boiler, the combination with an upper annular steam and water chamber, of an annular lower water-chamber, tubes connecting the two chambers, a casing surrounding the tubes, and a steam-jet pipe arranged within the casing and arranged to deliver jets of steam against the outer sides of the tubes, substantially as described.

18. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, straight inclined tubes connecting the two chambers and arranged close together so as to form a combustion-chamber, a casing surrounding the tubes, and a steam-jet pipe arranged within the casing and arranged to deliver jets of steam against the outer sides of the tubes, substantially as described.

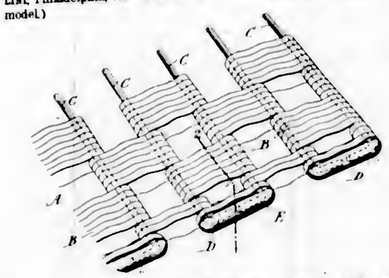
19. In a steam-boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, a removable bottom for the lower chamber, a removable cover for the upper chamber, a series of straight inclined tubes connecting the two chambers and arranged close together so as to form a combustion-chamber, a casing surrounding the tubes, and a steam-jet pipe arranged within the casing and arranged to deliver jets of steam against the exterior of the tubes, substantially as described.

20. In a steam boiler, the combination with an annular upper steam and water chamber, of an annular lower water-chamber, straight inclined tubes connecting the two chambers and arranged close together to form a combustion-chamber, a removable bottom for the lower chamber, a removable top for the upper chamber, a steam-dome carried by the top of the upper chamber, a scale-arresting box arranged in the upper chamber with its exit-opening in proximity to the steam-dome, said box having partitions therein so as to cause the feed-water to take a tortuous course therethrough, a feed-water pipe having a spray-nozzle entering the scale-arresting box, a casing surrounding the tubes, and a steam-jet pipe within the casing and arranged to deliver steam-jets against the exterior of the tubes, substantially as described.

21. In a steam-boiler, the combination with an upper annular steam and water chamber, of a lower annular water-chamber, a series of straight inclined tubes placed close together to form a com-

bustion-chamber which is smaller at the top than at the bottom, a casing surrounding said chamber, an uptake leading from said casing and a baffle-plate located in the casing and in front of the mouth of the uptake, whereby the tubes are divided into two sets of risers and two sets of downcomers, substantially as described.

640,506. MAT OR MATTING FOR FLOORS, &c. ANTONIO TRAVAGLINI, Philadelphia, Pa. Filed May 12, 1899. Serial No. 716,613. (No model.)



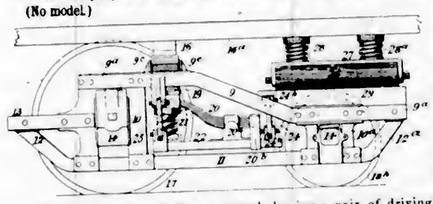
Claim.—1. In a matting of the character described, the same being composed of a plurality of juxtaposed pieces, said pieces being provided with perforations, rods adapted to said perforations whereby the said pieces are held in assembled position, cap or end pieces having wings or extensions adapted to fold under and engage the terminals of the wires, whereby the same are concealed from view and the cap or end piece is held against displacement.

2. In a matting of the character described, the same being composed of a plurality of juxtaposed pieces, said pieces being provided with perforations, rods adapted to said perforations whereby the said pieces are held in assembled position, cap or end pieces having oppositely-disposed depressions adapted to fold under and surround the terminals of the wires whereby the latter are concealed from view and the cap or end pieces held against displacement.

3. In a matting of the character described, the same being composed of a plurality of juxtaposed pieces, said pieces being provided with perforations, rods adapted to said perforations whereby the said pieces are held in assembled position, cap or end pieces adapted to fold under the wires and conceal the same from view and whereby also said cap or end piece is held against displacement.

4. A cap or end piece for a matting of the character described, having oppositely-disposed wings or extensions, depressions in said extensions which, when folded form openings adapted to receive portions of the binding-wires of the mat.

640,507. MAXIMUM-TRACTION TRUCK. CHARLES F. URBELACKER, Kingston, N. Y., assignor to the Peckham Motor Truck and Wheel Company, same place. Filed Sept. 10, 1897. Serial No. 651,228. (No model.)



Claim.—1. In a swiveling car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the pedestals and the upper duplex side beams having horizontal end portions on different planes and over the pedestals and an intermediate inclined portion, of a lower side beam connecting the pedestals together at their bottoms, end beams riveted to the driving-axle pedestals at the center of their vertical height and under truss-beams supporting the side frames at each end of the truck.

2. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, of a bolster arranged nearer the driving-axle than the pilot-axle and adapted to have a car-body swiveled to it and to receive the load wholly on its ends immediately over the upper beams of the side frames, and elastic supporting appliances connected to the ends of the bolster and arranged beneath said beams.

3. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, of a bolster arranged nearer the driving-axle than the pilot-axle and adapted, when the car-body is swiveled to it, to receive the load on its ends immediately over the upper side beams, shoes upon which said bolster rests, and elastic supporting means placed underneath said upper side beams.

4. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, of a bolster to which the car-body is adapted to be swiveled to provide a fixed point upon which the truck turns in curving, said bolster arranged between the driving-axle and the center of the truck, and bearing-plates connected to the ends of the bolster and extending below the upper side beams and elastically supported at their lower ends and adapted to receive the load on their upper ends.

5. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, of a bolster to which a car-body is adapted to be swiveled to provide a fixed point upon which the truck turns in curving, said bolster arranged between the driving-axle and the center of the truck and having its ends in a plane below its central part, bearing-plates connected to the ends of the bolster and extending below the upper side beams and elastically supported at their lower ends and adapted to receive the load on their upper ends.

6. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, a bolster provided with means whereby the car-body may be swiveled thereto and arranged near the driving-axle, bearing-plates connected to the ends of said bolster and extending below the upper side beams, and appliances for elastically supporting said bearing-plates on the side frames, of a car-body resting on said side bearing-plates which carry the weight of the load.

7. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side frames, a bolster provided with means whereby the car-body may be swiveled thereto and arranged near the driving-axle, appliances for elastically supporting said bolster, and bearing-plates interposed between the ends of said bolster and said elastic appliances and extending below the upper side beams, of a car-body resting on said bearing-plates which carry the weight of the load and rub-plates attached to the car-body between the latter and the bearing-plates.

8. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with pedestals, lower side beams connecting the pedestals together at the bottom, on each side of the truck, duplex end beams riveted to the driving-axle pedestals and under truss-beams at the ends of the truck, of duplex upper side beams having horizontal end portions riveted to the pedestals and an intermediate inclined portion, the duplex members of the respective beams at the ends of the truck being continued around transverse of the truck with the duplex members in close contact with each other.

9. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the upper side beams, a pair of spring-planks suspended from said side beams to have a swinging motion transverse of the truck and a system of springs carried by said spring-planks, of bearing-plates at each side of the truck bearing directly upon the springs of the spring-planks, and a bolster arranged between the driving-axle and the center of the truck and having its ends connected with the tops of said side bearing-plates.

10. In a car-truck, the combination with the upper side beams and a bolster arranged between one end of the truck and its center, of spring-planks at each side of the truck suspended at one end from the truck-frame by a single link and at the opposite end by a pair of links to afford a limited swinging motion transverse of the truck, a system of springs mounted on said spring-planks, and bearing-plates resting on said springs, extending above the side beams of the truck-frame and adapted to receive the ends of the bolster and support the same.

11. In a car-truck, the combination with the upper side beams and a bolster arranged between the end of the truck and its center, of spring-planks at each side of the truck suspended at one end from the truck-frame by a single link and at the opposite end by a pair of links to afford a limited swinging motion transverse of the truck, a spiral spring supported on one end of each of said spring-planks, a partial elliptic spring secured to each of said spring-planks with its free end projecting over the spiral spring, and a bearing-plate at each side of the truck-frame immediately over said spiral spring and the free end of the partial elliptic spring and bearing on said springs, the upper ends of said bearing-plates extending above the upper side beams of the truck-frame and affording side bearings for a car-body.

12. In a car-truck, the combination with upper duplex side beams provided with guide-pieces, as 9^b, and a bolster arranged in proper relation to said guide-pieces, of spring-planks at the sides of the truck supported at one end by a single link hinged between the duplex members of said side beams, pairs of links hinged to brackets on said side beams and also to brackets on the opposite ends of said spring-planks, spiral springs seated in pockets on the ends of the spring-planks supported by the pairs of links, partial elliptic springs fixed in sockets on the spring-planks with their free ends projecting over the spiral springs, and side bearing-plates having pockets at their bottoms to receive said spiral springs and sockets above the pockets to receive the ends of the partial elliptic springs, said bearing-plates extending between and above the duplex side beams of the truck-frame and provided at their tops with pockets to receive the ends of the bolster and with bearing-surfaces adapted to support a car-body.

13. In a car-truck, the combination with the upper side beams and a bolster arranged between the end of the truck and its center, of spring-planks at each side of the truck suspended from the truck-frame by links, a spiral spring seated in a pocket at one end of each of said spring-planks, a partial elliptic spring fixed in a socket on each of said spring-planks with its free end projecting over the spiral spring, bearing-plates at each side of the truck-frame provided with pockets at their bottoms to receive said spiral springs and sockets above the pockets to receive the ends of the partial elliptic springs, said bearing-plates extending above the side beams of the truck-frame and provided with bearing-surfaces for a car-body, and pins projecting from the pockets in the bottoms of the bearing-plates and working in guides in the pockets on the spring-planks in which the spiral springs are seated.

14. In a car-truck having a pair of driving-wheels and a pair of pilot-wheels of less diameter than the driving-wheels, the combination with the side beams, of spring-planks at each side of the truck-frame, that end of each of said planks nearer the axle of the pilot-wheels being suspended from the side beams by a single link and that end nearer the axle of the driving-wheels being suspended by two links, the hinging of the links being such as to afford a limited swinging motion to the spring-planks transverse of the truck, a system of springs carried by said spring-planks and side bearing-plates supported on the springs of said spring-planks at the ends of the latter nearer the axle of the driving-wheels, said side bearing-plates extending above the side beams of the truck-frame and cooperating with the bolster and affording bearing-surfaces for a car-body.

15. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a car-body to which the truck is swiveled, of a track suitably secured on top of the truck-frame, a drum or roller, a mounting for the same suitably connected to the flooring of the car-body, said drum or roller adapted to cooperate with said track, and suitable springs arranged between said mounting and the car-body at different distances from the swivel, for the purpose set forth.

16. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a bolster connected at its ends to side bearings elastically supported on the truck-frame, a car-body resting on said side bearings, and a central swivel connection between truck and car-body, of a track suitably secured on the top of the truck-frame, a drum or roller, a mounting for the same suitably connected to the flooring of the car-body, said drum or roller adapted to cooperate with said track, and suitable springs arranged between said mounting and the car-body at different distances from the swivel, for the purpose set forth.

17. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a car-body to which the truck is swiveled and a track secured on the top of the truck-frame over the axle of the pilot-wheels, of a drum or roller, a mounting for the same suitably connected to the framing of the car-body, said drum or roller adapted to cooperate with said track, and suitable springs arranged between said mounting and the car-body.

18. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a car-body to which the truck is swiveled, of a V-shaped track secured to the truck-frame over the axle of the pilot-wheels with that portion of the track where its ends converge located between the axle of the pilot-wheels and the center of the truck, a drum or roller connected to the framing of the car-body and adapted to cooperate with said track, and suitable springs arranged between said drum or roller and the car-body.

19. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a car-body to which the truck is swiveled, of a track secured to the truck-frame over the axle of the pilot-wheels, a roller adapted to cooperate with said track, a framing supporting said roller and connected to the framing of the car-body and suitable springs arranged between said roller-support and the floor of the car-body, at different distances from the swivel.

20. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a bolster located near the axle of the driving-wheels, side bearing-plates elastically supported at the sides of the truck-frame and connected at their upper ends with the ends of the bolster and a car-body having a central swivel connection with the truck and resting on the tops of said side bearing-plates, of a track secured to the truck-frame over the pilot-axle, a roller connected to the car-body over said track and adapted to cooperate therewith and springs arranged between said roller and the car.

21. In a car-truck provided with a pair of driving-wheels and a pair of pilot-wheels, the combination with a car-body to which the truck is swiveled, of a suitable track secured to the truck-frame over the axle of the pilot-wheels, a roller 26, a frame 27 in which said roller is supported, the said frame being connected to the car-body and suitable springs, as 28^a, 28^a, arranged between the frame 27 and the car-body at different distances from the swivel, substantially as set forth.

22. The combination with a car-body and two trucks provided with driving-wheels and pilot-wheels and supporting the car-body with the pilot-wheels outside or at the ends of the car, of suitable tracks arranged on the ends of the truck-frames over the axles of the pilot-wheels, rollers connected to the flooring of the car-body in suitable supports and adapted to coact with the tracks on the truck-frames and springs arranged between the supports for said rollers and the car-flooring at different distances from the swivel, substantially as set forth.

23. The combination with the frame of a car-truck, a car-body, a swivel connection between the truck and car-body, and the truck-wheels, of an additional contact device on the car-body and a coacting contact device on said truck-frame, and springs supporting one of said contact devices and placed at different distances from the swivel.

24. The combination with the truck frame and wheels, the car-body, a bolster elastically supported on the truck-frame, and a swivel connection between the car-body and the bolster, of an additional contact device on the car-body and a coacting contact device on the truck-frame and springs supporting one of said contact devices and placed at different distances from the swivel.

25. The combination with a truck frame and wheels, a car-body, and a swivel connection between the truck and the car-body, of an additional contact device on the truck-frame and an additional contact device on the car-body, said two devices being adapted to contact at varying distances from the swivel-joint during relative displacements of the truck-frame and the car-body.

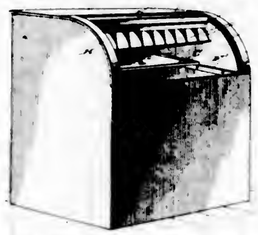
640,508. TYPE-PROTECTOR FOR TYPE-WRITING MACHINES. MORRIS F. UNSTEAD, Philadelphia, Pa. Filed Oct. 27, 1899. Serial No. 735,006. (No model.)



Claim.—1. As an article of manufacture, a protector for the type of a type-writing machine, comprising a flexible covering for a portion of said type.

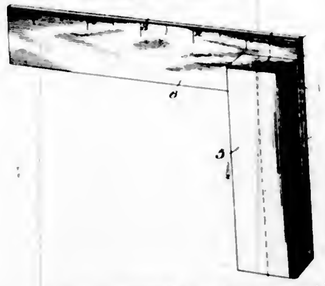
2. As an article of manufacture, a type-protector for type-writing machines, comprising a flexible casing for the type and flexible sleeve for the outer end of the type-bar.

640,509. KITCHEN-CABINET. STERLING I. UNDERWOOD, Yale, Okla. Filed Aug. 30, 1898. Serial No. 689,135. (No model.)



Claim.—In a kitchen-cabinet the combination with the casing having semicircular pieces I secured to the inner faces of the ends of the casing forming a curved slot J underneath the cover of the cabinet, of the curved lid K designed to turn back in said slot, an offset at the rear end of the slot against which the inner end of said lid is designed to strike to limit its backward throw, the horizontally-sliding lid G, the upper surface of which is flush with the upper free edge of the front wall of the cabinet, and the strip M' secured to the outer edge of said curved lid designed to rest on said edge and the upper face of the sliding board, as shown and described.

640,510. TRY-SQUARE. JOSEPH M. VANDEVORT, Beaver Falls, Pa. Filed Sept. 22, 1899. Serial No. 731,342. (No model.)



Claim.—A try-square consisting of a rigidly-connected handle and blade, the one extremity of the handle portion extending transversely across a portion of one end of the blade and having its under surface and outer side coincident with the similar surface of the blade and the adjacent end of the latter, whereby a projecting clear corner is formed to adapt the square for lining out confined angles.

640,511. JOINT FOR OGEE TILES. JAMES WHITE, New York, N. Y. Filed Mar. 22, 1899. Serial No. 710,117. (No model.)



Claim.—1. The combination, with a series of sheet-metal tiles of ogee cross-section having each a flat flange *a* upon its convex edge, of the joint-strips having each the hollow rib *c* with nailing-flange upon the outer edge and open flat fold upon the inner edge to receive the flat flange of the tile, the said rib lying within and being spanned by the convex part of said tile, substantially as herein set forth.

2. The combination, with a series of sheet-metal tiles of ogee cross section having each a flat flange *a* upon its convex edge, of the joint-strips having each the hollow rib *c* with nailing-flange upon the outer edge and open flat fold upon the inner edge, the flat flanges *a* being fitted to such open flat folds, and the rib upon the joint-strip lying within and being spanned by the convex part of the tile, and the fold making a weather-joint with the concave part of the adjacent tile, substantially as herein set forth.

3. A series of sheet-metal tiles of ogee cross-section having each the flange *a* at the convex edge of the tile and the erect flange *b* at the concave edge of the tile, in combination with the movable joint-strips having each the hollow rib *c* with nailing-flange *d* upon its outer edge and the open fold *e* upon its inner edge, and the hollow rib covering the erect flange *b* of each tile, and the open fold receiving the flat flange *a* of each tile, whereby opposite edges of the two tiles are secured to the roof by a single joint-strip, substantially as herein set forth.

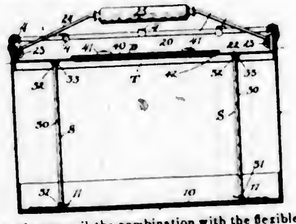
4. A series of tapering sheet-metal tiles of ogee cross-section having each the flat flange *a* at the convex edge of the tile and the erect flange *b* at the concave edge of the tile, and joint-strips fitted movably over the erect flanges and provided each with a nailing-flange for securing it to the roof and with an open fold to engage the flange upon the convex edge of the tile, substantially as herein set forth.

5. As a new article of manufacture, the joint-strip for ogee sheet-metal tiles having each a flat flange at its convex edge and an erect flange at its concave edge, such joint-strip comprising the hollow rib *c* having upon one edge the nailing-flange *d*, and upon the opposite edge the open fold *e* projected toward the rib, the hollow rib being adapted to fit over the erect flange of the tile and to be inclosed within the convex part of the adjacent tile, substantially as herein set forth.

640,512. MINNOW-PAIL. WILLIAM R. YEAGLA, Lima, Ind. Filed June 12, 1899. Serial No. 720,275. (No model.)

Claim.—1. In a minnow-pail, the combination with a flexible waterproof cover comprising a bottom and upright sides, and inwardly-projecting hooks at the upper edge of the latter; of a rigid bottom, a rigid top consisting of a chime fitting within the cover and having at its upper edge a bead to engage said hooks, a top plate fast within the chime between its upper and lower edges, a door in this plate, and a handle pivoted to the chime and adapted to be housed therein; and movable supports attached to the lower side of the top plate and adapted to be housed within the chime or to distend this plate from the bottom, all as and for the purpose set forth.

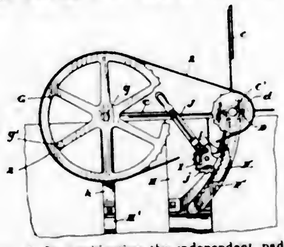
2. In a minnow-pail, the combination with a flexible waterproof cover comprising a bottom and upright sides, and inwardly-projecting hooks at the upper edge of the latter; of a rigid bottom, a rigid top consisting of a chime fitting within the cover and having its upper edge adapted to engage said hooks and a top plate within this chime, both said parts being of perforated material, means for distending the parts, ears within the chime, a bail pivoted thereto and having a handle adapted to be housed within the chime, said top plate having an opening, a door hinged thereover, and a latch for holding the door closed, substantially as described.



3. In a minnow-pail, the combination with the flexible cover consisting of a flat bottom and upright sides having hooks at their edges; of a rigid perforated bottom plate, inwardly-opening spring-hooks thereon, a rigid perforated top plate having a chime adapted to engage the hooks of the cover, a door in this top plate, sleeves beneath this plate, and two supports each consisting of a stout wire whose body when the support is vertical engages one of said hooks on the bottom and whose upper ends are turned inward and journaled in one of said sleeves, as and for the purpose set forth.

4. In a minnow-pail, the combination with a flexible cover comprising a bottom and upright sides with hooks at their top edges, and a rigid bottom; of a rigid top removably engaging said hooks, supports pivoted to the top and adapted when distended to separate the top and bottom, an opening in the top, a hinged door closing the same, a latch at the free edge of the door consisting of a bolt sliding in keepers thereon and engaging a single keeper on the top plate, and a spring-actuated latch on said bolt engaging one of the keepers on the door when the bolt is shot, as and for the purpose set forth.

640,513. PROPULSION OF BOATS. PAUL E. DOBSE, Toronto, Canada. Filed May 1, 1899. Serial No. 715,250. (No model.)

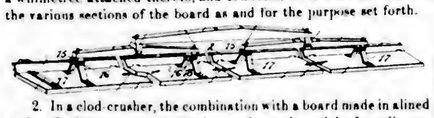


Claim.—1. In combination the independent paddle-wheels located one on each side of the boat, the axles for same extending inwardly as shown, the racks provided with suitable journal-bearings at the top thereof for the axles of the paddle-wheels, the socket-standards, the sprocket-wheels on the ends of the axles, and means for driving the sprocket-wheels and means for vertically adjusting the racks in their respective standards as and for the purpose specified.

2. In combination the independent paddle-wheels located one on each side of the boat, the axles for same extending inwardly as shown, the racks provided with suitable journal-bearings at the top thereof for the axles of the paddle-wheels, the socket-standards, the sprocket-wheels on the ends of the axles, means for driving the sprocket-wheels independently as specified, the quadrant forming part of the standard, the lever pivoted on the said quadrant and having a spring-plunger adapted to engage with the notches thereof, and a quadrant formed on the inner end of the lever and meshing with the racks in the concentric socket-standards as and for the purpose specified.

640,514. HARROW AND CLOD-CRUSHER. SAMUEL ERNST, Glen Elder, Kans. Filed May 31, 1899. Serial No. 718,819. (No model.)

Claim.—1. In a clod-crusher, the combination with a board having an upturned front made in sections in transverse alinement and with their meeting ends struck on irregular lines; of an evener-bar, a whiffletree attached thereto, and connections between the bar and the various sections of the board as and for the purpose set forth.



2. In a clod-crusher, the combination with a board made in alined sections flexibly connected at their meeting ends, and draft appliances for moving the board; of a pair of brackets on each section, a block having legs pivoted between the members of each pair, a pin rising from the block, an evener-bar having eyes engaging the pins of two blocks, and a seat supported by the bar in such manner as to distribute the rider's weight equally on the various sections, substantially as described.

3. In a device of the character described, the combination with a horizontal board having an upturned front, strap-irons each secured upon the board, passing through its front, turned up forward thereof, secured thereto, and having forwardly-turned flanges pierced with a series of registering holes, of a series of bars adjustably pivoted at their rear ends in said holes, an evener-bar connecting the front ends of all the bars, and draft appliances therefor, substantially as described.

4. In a device of the character set forth, the combination with a clod-crusher, of a series of parallel bars pivoted at their rear ends thereto and having upturned front ends pierced with a number of holes, an evener-bar forward of all said bars, draft appliances therefor, and clevises connected with said evener-bar and adjustably engaging certain of said holes, as and for the purpose set forth.

5. In a device of the character set forth, the combination with a clod-crusher, connecting-bars extending forward therefrom and having holes in their front ends, an evener-bar connecting the latter, and draft appliances; of a harrow comprising bars pivoted at their front ends to the holes in the connecting-bars and extending substantially parallel therewith, transverse shafts connecting said harrow-bars, and teeth depending from the shafts, as and for the purpose set forth.

6. In a device of the character described, the combination with a clod-crusher, connecting-bars extending forwardly therefrom and connecting at their front ends, and the draft appliances; of a harrow made in banks, each comprising bars pivoted at one extremity to said connecting-bars and extending substantially parallel therewith, transverse shafts connecting said harrow-bars, and teeth depending from the shafts, as and for the purpose set forth.

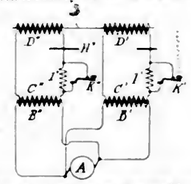
7. In a device of the character set forth the combination with a clod-crusher, a series of connecting-bars attached to said clod-crusher and extending longitudinally of the machine and having upturned front ends, and means for causing them to move in parallelism; of a harrow comprising bars each having a laterally-bent ear at its front pivoted to the front end of one connecting-bar so as to throw the bodies of the bars out of alinement, transverse shafts in said harrow-bars, teeth depending from the shafts and passing between the connecting-bars, and means for turning all the shafts simultaneously, as and for the purpose set forth.

8. In a device of the character set forth, the combination with a clod-crusher, an evener-bar forward of and parallel with said clod-crusher, draft appliances for said bar, and connecting-bars having straight bodies pivoted at their rear ends to said clod-crusher and standing above the ground and upturned front ends pivotally connected with said evener-bar; of a harrow pivoted to said upturned front ends so that its teeth shall be embedded in the earth, and means for adjusting the angle of said teeth, as and for the purpose set forth.

9. In a combined harrow and clod-crusher, the combination with the clod-crusher made in sections, a seat supported on an evener-bar, and pivotal supports on the sections for the extremity of this bar to equally dispose the rider's weight on the various sections; of a harrow made in banks, each comprising longitudinal bars, transverse shafts journaled in these bars, teeth depending from the shafts, and independent mechanism for each bank located within reach of the driver's seat for turning all the shafts therein in unison; and a series of connecting-bars pivoted at their rear ends to the clod-crusher sections and at their front ends to the harrow-bars, and means for moving said connecting-bars longitudinally in parallelism, all substantially as set forth.

640,515. ART OF DISTRIBUTING ELECTRICAL ENERGY BY ALTERNATING CURRENTS. MICHAEL I. PUPIN, New York, N. Y. Filed May 21, 1895. Renewed Dec. 4, 1899. Serial No. 739,207. (No model.)

Claim.—1. In an electric signaling system the combination of a common conductor, exciting-circuits, means for generating electromotive forces of different periodicities acting on the exciting-circuits, there being a generator of one of the electromotive forces in each exciting-circuit, and means for tuning each exciting-circuit independently of the other exciting circuits, to the periodicity of that electromotive force which it conveys to the common conductor, substantially as described.



2. In an electric signaling system the combination of a common conductor, exciting-circuits connected up to the common conductor and acting upon it through elements which are placed in the common conductor in series, means for generating electromotive forces of different periodicities acting on the exciting-circuits, there being a generator of one of the electromotive forces in each exciting-circuit, so that each exciting-circuit conveys one of the electromotive forces of different periodicities to the common conductor, and means for tuning each exciting-circuit independently of the other exciting-circuits, to the periodicity of that electromotive force which it conveys to the common conductor, substantially as described.

3. In an electric signaling system the combination of an electrically complete and independent main line, exciting-circuits, means for generating electromotive forces of different periodicities acting on the exciting-circuits, there being a generator of one of the electromotive forces in each exciting-circuit, so that each exciting-circuit conveys one of the several electromotive forces of different periodicities to the main line, and means for tuning each exciting-circuit independently of the other exciting-circuits, to the periodicity of that electromotive force which it conveys to the main line, substantially as described.

4. In an electric signaling system the combination of an electrically complete and independent main line, exciting-circuits connected up to the main line and acting upon it through elements which are placed in the main line in series, means for generating electromotive forces of different periodicities acting on the exciting-circuits, there being a generator of one of the electromotive forces in each exciting-circuit, so that each exciting-circuit conveys one of the several electromotive forces of different periodicities to the main line, and means for tuning each exciting-circuit, independently of the other exciting-circuits, to the periodicity of that electromotive force which it conveys to the main line, substantially as described.

5. In an electrical system the combination of an electrically complete and independent main line containing in series secondary coils of transformers, exciting-circuits each of which contains the primary coil of one of the transformers, means for generating electromotive forces of different periodicities acting on the exciting-circuits, there being a generator of one of the electromotive forces in each exciting-circuit, so that each exciting-circuit conveys one of the several electromotive forces of different periodicities to the main line, and means for tuning each exciting-circuit, independently of the other exciting-circuits, to the periodicity of that electromotive force which it conveys to the main line, substantially as described.

6. In an electrical system the combination of a common conductor, an exciting-circuit, means for generating electromotive force of definite periodicity acting on the exciting-circuit, so that the exciting-circuit conveys the electromotive force to the common conductor, means for tuning the exciting-circuit to the periodicity of the electromotive force which it conveys to the common conductor, and a key connected to the exciting-circuit in such a way that upon its being operated it changes the conditions of resonance in the exciting-circuit, substantially as described.

7. In an electric signaling system the combination of an electrically complete and independent main line, exciting-circuits, means for generating electromotive forces of different periodicities acting on the exciting-circuits, so that each of the exciting-circuits conveys one of the electromotive forces of different periodicities to the main line, means for tuning each exciting-circuit to the periodicity of the electromotive force which it conveys to the main line, and a key connected to each exciting-circuit in such a way that upon its being operated it changes the conditions of resonance in the exciting-circuit in which it is connected, substantially as described.

8. In an electric system a line, a tuned induction-circuit for impressing an electromotive force thereon, means for supplying the induction-circuit with a current of a frequency with which it is in tune, and a key so connected that when it is operated it changes the conditions of resonance in the induction-circuit, substantially as described.

9. In an electric signaling system the combination of an electrically complete and independent main line, tuned induction-circuits for impressing electromotive forces of different periodicities thereon, means for supplying each induction-circuit with a current of a fre-

quency with which it is in tune, and a key in each induction circuit so connected that when it is operated it changes the conditions of resonance in the induction-circuit in which it is connected, substantially as described.

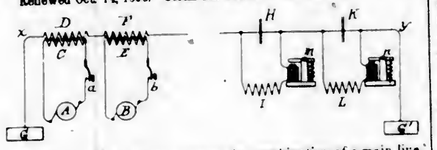
10. In a system for impressing upon a conductor a simple harmonic current, the combination of the conductor, an induction-circuit, means for generating an alternating electromotive force therein, means constituting an adjustment for varying the constants of the induction-circuit so as to bring it into tune with the frequency of the current to be impressed upon the conductor, and means independent of said adjustment for throwing the induction-circuit out of and into tune with said frequency, substantially as described.

11. In a system for impressing upon a conductor a simple harmonic current and varying the intensity thereof abruptly through wide range, the combination of the conductor, an induction-circuit containing self-induction coils and condensers, means for generating an alternating electromotive force in the induction-circuit, a shunt around self-induction coils and means for opening and closing the shunt, substantially as described.

12. In a system for impressing upon a conductor a simple harmonic current and varying the intensity thereof abruptly through wide range, the combination of a conductor, a generator-circuit, means for generating an alternating electromotive force therein, and an induction-circuit containing self-induction coils and condensers, a shunt around self-induction coils and means for opening and closing the shunt, substantially as described.

13. In a system for impressing upon a conductor a simple harmonic current and varying the intensity thereof abruptly through wide range, the combination of a conductor, a generator-circuit, means for generating an alternating electromotive force therein, an induction-circuit containing self-induction coils and condensers, a shunt around self-induction coils, means for bringing the induction-circuit in tune with the frequency of the current to be impressed, and means for opening and closing the shunt, substantially as described.

640,516. ELECTRICAL TRANSMISSION BY RESONANCE-CIRCUITS. MICHAEL I. PUPIN, New York, N. Y. Filed May 28, 1895. Renewed Oct. 14, 1896. Serial No. 608,890. (No model.)



Claim.—1. In an electric system the combination of a main line, mutually-independent exciting-circuits, which act upon the main line through elements placed therein in series, independent means for impressing an electromotive force of desired frequency upon the main line at each exciting-circuit, mutually-independent receiving-circuits, means for tuning each receiving-circuit to resonance with one of the impressed electromotive forces, and translating devices operated by the currents in the receiving-circuits, substantially as described.

2. In an electric system the combination of a main line, mutually-independent exciting-circuits which act upon the main line through elements placed therein in series, independent means for impressing an electromotive force of desired frequency upon the main line at each exciting-circuit, mutually-independent receiving-circuits which are acted upon from the main line through elements connected therein in series, means for tuning each receiving-circuit to resonance with one of the impressed electromotive forces, and translating devices operated by the currents in the receiving-circuits, substantially as described.

3. In an electric system the combination of a main line, mutually-independent exciting-circuits which act upon the main line through transformers the secondary coils of which are placed in the main line in series, independent means for impressing an electromotive force of desired frequency upon the main line at each exciting-circuit, condensers in series in the main line, a shunt around each condenser containing a self-induction coil, thus forming mutually-independent receiving-circuits, means for tuning each receiving-circuit to one of the impressed electromotive forces, and translating devices operated by the currents in the receiving-circuits, substantially as described.

4. In an electrical system, the combination of a line-wire, a condenser therein, a shunt around the condenser containing a self-induction coil without an iron core thus forming a resonance-circuit and means for adjusting the electromagnetic constants of the resonance-circuit so as to give it a desired periodicity, substantially as described.

5. In a multiplex signaling system the combination of line-wire, means for impressing thereon, independently of each other, electromotive forces of two or more distinct periodicities, two or more condensers in series in the line; a shunt around each condenser containing a self-induction coil, each condenser with its shunt coil forming an independent resonance-circuit, receiving instruments therein, and means for adjusting the electromagnetic constants of these resonance-circuits, so as to give to each such circuit a periodicty corresponding to one of the impressed electromotive forces, substantially as described.

6. In an electrical system, the combination of a line-wire, means for impressing thereon a current of a given frequency, a condenser in the line, a shunt around the condenser containing a self-induction coil without an iron core thus forming a resonance-circuit, and means for adjusting the electromagnetic constants of the resonance-circuit so as to give it a periodicity corresponding with the frequency of the current to be impressed upon the line, substantially as described.

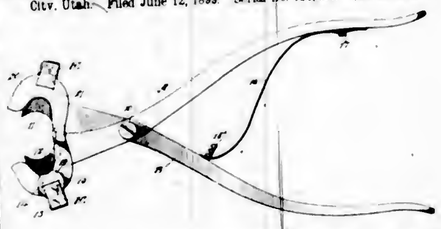
7. In an electrical system, the combination of the line, means for impressing thereon a current produced by two or more electromotive forces of different frequencies which are independent of each other, two or more condensers in the line in series, a shunt around each condenser containing a self-induction coil, thus forming resonance-circuits, circuits in inductive relation thereto and containing condensers and self-induction coils supplemental to those of the resonance-circuits, receiving instruments, and means for adjusting the electromagnetic constants of these resonance-circuits so as to give each such circuit a periodicity corresponding to the frequency of one of the electromotive forces impressed upon the line, substantially as described.

8. In an electrical system, the combination of a line-wire, two or more condensers connected in series therein, a shunt around each condenser containing a self-induction coil, thus forming resonance-circuits, receiving instruments therein, a supplemental condenser in each of the resonance circuits, and means for adjusting the constants of each resonance-circuit, so as to give it a desired periodicity, substantially as described.

9. In an electrical system, the combination of a line wire, means for impressing thereon a current produced by two or more electromotive forces of different desired frequencies, two or more condensers in the line in series, a shunt around each condenser containing a self-induction coil, thus forming resonance-circuits, means for adjusting the constants of each resonance-circuit so as to give each a periodicity corresponding to the frequency of one of the electromotive forces, and translating devices each operated by the energy of the current traversing one of the resonance-circuits, substantially as described.

10. A resonance-circuit in which the self-induction coil employed to give the circuit a definite periodicity contains no iron, substantially as described.

640,517. UMBILICAL FORCEPS. ERNEST V. ACHESON, Salt Lake City, Utah. Filed June 12, 1899. Serial No. 720,267. (No model.)



Claim.—1. An umbilical forceps consisting of pivotally-connected handles, cutters carried by said handles, and clamping or compressing jaws, the respective jaws being provided with interlocking prongs, said jaws being located at each side of the cutters and connected with the handles, said cutters and jaws being also arranged for simultaneous action.

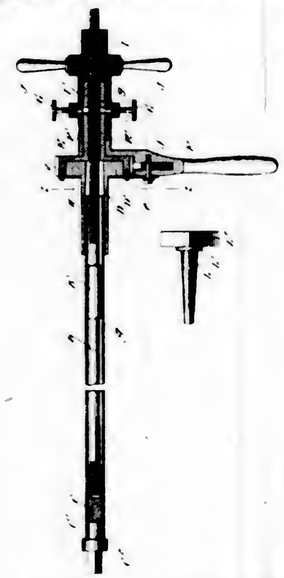
2. An umbilical forceps, consisting of pivotally-connected handles, each handle being provided with a head, the two heads facing one another, cutters carried by the heads, and clamping or compressing jaws also carried by said heads, each jaw consisting of a body and a series of curved prongs, the prongs of one jaw being arranged to enter the spaces between the prongs of an opposing jaw, for the purpose set forth.

3. An umbilical forceps, consisting of pivotally-connected handles, heads secured to the said handles, cutters rigidly secured to said heads, clamping or compressing jaws adjustably connected with the heads, and locking devices for said jaws.

4. An umbilical forceps, consisting of spring-controlled handles, heads secured to said handles, each head being provided with a fixed cutter and the two cutters being arranged to slide one past the other, jaws having curved inner faces, and comprising a body and series of

prongs, the forward prongs being shorter than the rear prongs, and means for locking the said jaws on the said heads, for the purpose specified.

640,518. CHOKE-BORE-FORMING DEVICE. ALFRED G. ADELMAN, Boise, Idaho. Filed May 2, 1899. Serial No. 715,365. (No model.)



Claim.—1. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle end of the gun-barrel, a rod passing through the gun-barrel and having a rotative connection with the swaging-die, means for supporting the rod from the breech end of the gun-barrel, and means for turning the die.

2. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle end of a gun-barrel, a plug or cap entering the breech end of the gun-barrel, a rod adapted to lie within the gun-barrel and engaging the plug and die, a thrust-block screwed upon the rod and supporting the die, and means for turning the die.

3. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle end of the gun-barrel, a plug or cap entering the breech end of the gun-barrel, a rod adapted to lie within the gun-barrel and connecting the plug and die, a thrust-block screwed upon the rod, a holder for the die having ratchet-teeth thereon, and a pawl and lever with which to rotate said holder and die.

4. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle end of a gun-barrel, a rod passing through the gun-barrel and having a rotative connection with the swaging-die, means for supporting the rod from the breech end of the gun-barrel, and a lever with pawl-and-ratchet mechanism for turning said rod.

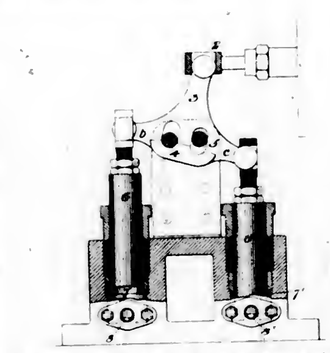
5. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle end of a gun-barrel, a plug or cap fitting within and engaging the breech end of the gun-barrel, a rod adapted to lie within the gun-barrel and screwing within said plug, a thrust-block screwing upon the muzzle end of the rod outside the die, and independent means for turning both die and thrust-block.

6. A choke-bore-forming device, comprising a swaging-die adapted to embrace the muzzle of the gun-barrel, means for supporting the end thrust thereof from the gun-barrel, and means for turning the die, substantially as described.

640,519. VALVE-MOTOR. WILLIAM AHLEN, Duquesne, Pa. Filed July 31, 1899. Serial No. 725,589. (No model.)

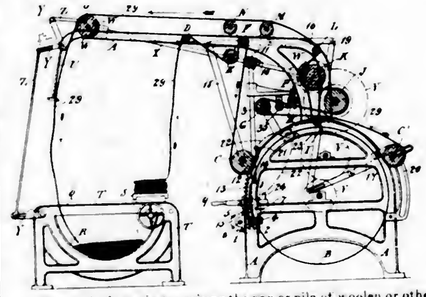
Claim.—1. The combination of two motors, each comprising a cylinder and plunger and adapted to be connected alternately or simultaneously with pressure a lever acted upon by the moving parts of both motors, and two fulcrums on either of which the lever may turn or rest on both, said lever being adapted to transmit motion to parts to be actuated, whereby three positions are given to the parts actuated, substantially as described.

2. The combination of two motors adapted to be actuated alternately or simultaneously, a lever acted upon by the moving parts of both motors, and two fulcrums on either of which the lever may turn or rest on both said lever being adapted to transmit motion to parts to be actuated, whereby three positions are given to the parts actuated, substantially as described.



3. The combination of two hydraulic motors adapted to be connected alternately or simultaneously with pressure, a lever connected with the moving parts of both motors, two fulcrums on which the lever may turn, whereby, on applying both motors the lever is forced against both fulcrums, and by operating one motor the lever is rocked upon the corresponding fulcrum, and a valve connected with and operated by the lever, substantially as described.

640,520. RAISING-GIG FOR WOOLEN FABRICS. JOHN BAILEY, Dewsbury, England. Filed Nov. 5, 1896. Serial No. 611,130. (No model.)



Claim.—1. In a gig for raising the nap or pile of woolen or other woven or felted fabrics, the combination with a revolving raising-cylinder, means for revolving the same, the drawing-rolls, and a breast-roller, connections between said raising-cylinder and breast-roller substantially as herein described for first gradually and automatically working down the said breast-roller onto the said raising-cylinder, then arresting such downward motion of the breast-roller, and finally submitting the material operated upon to the action of said raising-cylinder at a portion of its periphery, substantially as described.

2. In a gig for raising the nap or pile of woolen or other woven or felted fabrics, the combination with a revolving raising-cylinder, means for revolving the same, the breast-roller mounted in bearings arranged to move concentrically with relation to the periphery of said cylinder, means operated by the moving part of the gig for moving said breast-roller down the face of the cylinder, a second roller mounted on the opposite side of said cylinder, and connections between said rollers whereby they will move simultaneously downward, substantially as described.

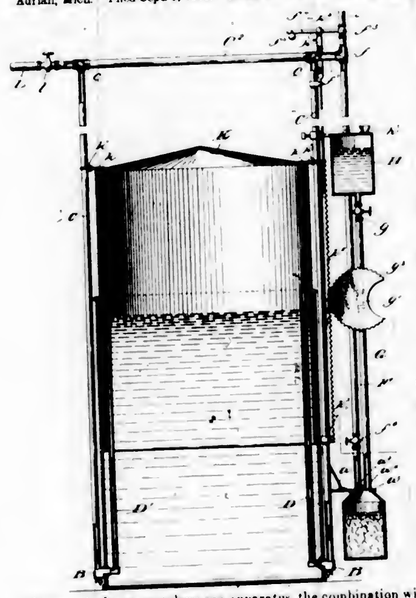
3. In a gig for raising the nap or pile of woolen or other woven or felted fabrics, the combination with a raising-cylinder, tracks in front of the raising-cylinder, a breast-roller mounted in said tracks, means for automatically moving said breast-roller concentric with relation to the periphery of said cylinder, said means consisting of the eccentric 25 mounted on the moving shaft X, the connecting-rod 37, the slotted lever 27 on the shaft 3, a clutch on said shaft, a worm on said shaft, a gear 5 engaging therewith, means driven by said gear

5 for moving the roller downwardly in relation to the face of the raising-cylinder, and a chain connecting said breast-roller and pawl so that when the said roller reaches its lowermost position the said pawl will be thrown out of gear with the ratchet-wheel, substantially as described.

4. In a gig for raising the nap or pile of woolen or other woven or felted fabrics, the combination with a raising-cylinder, a breast-roller mounted in tracks in front of the raising-cylinder, means for automatically moving said breast-roller concentrically in relation to the face of said raising-cylinder, said means consisting of the eccentric 25 mounted on the moving shaft X, the connecting-rod 37, the slotted lever 27 on the shaft 3, a clutch on said shaft, a worm on said shaft, a gear 5 engaging therewith, means driven by said gear 5 for moving the roller downwardly in relation to the face of the raising-cylinder, a chain, pulley and hooks for throwing said pawl out of gear with the ratchet-wheel, and a breast-roller working on the opposite face of the said cylinder and connected by means of levers and a connecting-rod to the breast-roller, whereby they will both be moved simultaneously downward, substantially as described.

5. In a gig for raising the nap or pile of woolen or other woven or felted fabrics, the combination with the raising-cylinder, racks in front of the said raising-cylinder, a breast-roller mounted in said racks, slotted guides at the back of said raising-cylinder, a second breast-roller mounted within said guides, and pivoted levers attached to said slotted guides and connected by rods to said racks, substantially as set forth.

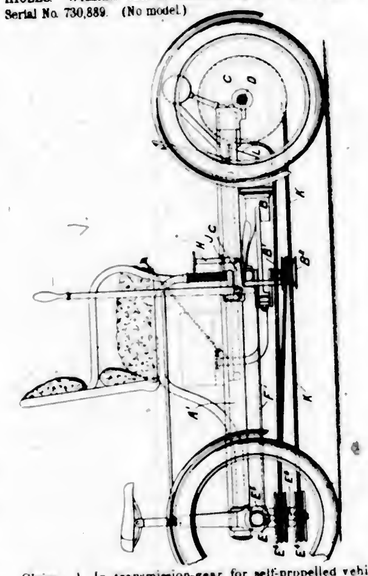
640,521. ACETYLENE-GAS APPARATUS. LUTHER B. BAILEY, Adrian, Mich. Filed Sept. 9, 1899. Serial No. 729,982. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with the water-tank provided with an aperture adjacent to the bottom of the same, and the gas-holder within said tank, of a condensing-chamber provided with a drip-cock, and having a threaded extension projecting through the aperture in said tank, said chamber and extension being each provided on the upper side with a threaded aperture, a packing-ring and clamping-nut on said extension within said tank, a vertical pipe screwed into the aperture in said chamber, a generating-chamber connected with said pipe, a vertical pipe screwed into said aperture in said extension, within the tank and communicating with the gas-holder, and a discharge-pipe communicating with the gas-holder, substantially as described.

2. In an acetylene-gas apparatus, the combination with the tank, and the gas-holder within the same, of the condensing-chambers each provided with a drip-cock and having a threaded extension projecting into the said tank, clamping-nuts within said tank engaging said extensions of the condensing-chambers, two vertical pipes connected at their lower ends with said condensing-chambers, a brace-bar connecting the upper ends of said pipes, guides on said gas-holder engaging said pipes, a generating-chamber secured to said tank, a pipe connected therewith and communicating with one of said vertical pipes, a blow-off pipe provided with a blow-off valve, a water-reservoir connected with said chamber, a water-controlling valve, a gear-segment connected therewith, a rack carried by the gas-holder, engaging said segment, and a trip-rod carried by said gas-holder and forming an extension of said rack, for engaging a part connected with the blow-off valve and opening the same, substantially as described.

640,522. TRANSMISSION-GEAR FOR SELF-PROPELLED VEHICLES. WILLIAM BAINES, London, England. Filed Sept. 18, 1899. Serial No. 730,889. (No model.)



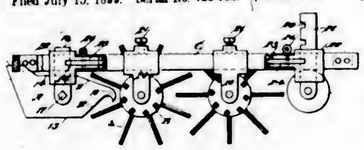
Claim.—1. In transmission-gear for self-propelled vehicles, the combination with a driven pulley at one end of the vehicle, two idler-pulleys at the opposite end adapted to be simultaneously moved toward or from the driven pulley and a rope passing around the several pulleys.

2. In transmission-gear for self-propelled vehicles, the combination with an engine placed approximately in the longitudinal center of the vehicle, a driven shaft or part at one end of the vehicle, and two idler-pulleys running in opposite directions and one or both of them adjustable at the other end of the vehicle, of a rope or equivalent power transmitter connecting these parts and having its separate "runs" passing around the respective idler-pulleys substantially as and for the purpose described.

3. In transmission-gear for self-propelled vehicles, the combination with a driven pulley, two idler-pulleys adapted to be simultaneously moved toward or from the driven pulley, a driving-pulley arranged intermediate the driven pulley and the idler-pulleys, and a rope passing around the various pulleys in the manner set forth.

4. In transmission-gear for self-propelled vehicles, the combination with a driven pulley, two idler-pulleys, an arm pivoted at one end, two idler-pulleys carried by the opposite end of the arm, a rod connected at one end to the said arm, and an operating-lever connected with the opposite end of the rod, a driving-pulley, and a rope passing around the several pulleys as set forth.

640,523. HARROW. WILLIAM M. BAKER, Fortville, Ind., assignor of one-half to Corydon M. Rich and James G. Thomas, Muncie, Ind. Filed July 15, 1899. Serial No. 723,902. (No model.)



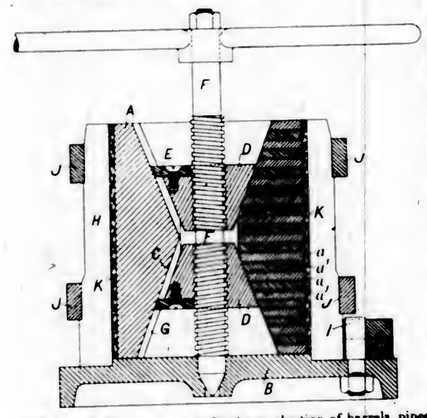
Claim.—1. In a harrow, a cleaner consisting of a blade provided with a downwardly-curved hook or bill at one end, for the purpose described.

2. A cleaning device for harrow-teeth, consisting of a blade provided with a downwardly-curved bill or hook at its forward end, the top and bottom front portions of the blade being oppositely inclined from said hook or bill, and means for supporting said blade, for the purpose set forth.

3. A toothed roller or cylinder, and a series of blades having hooked forward ends arranged intercurrent with the teeth of the said roller or cylinder, for the purpose set forth.

4. The combination, with a frame and a cylinder or roller provided with circularly-arranged rows of teeth, of a series of horizontal blades provided with downwardly-curved hooks or bills at their forward ends, arranged intercurrent with the rows of teeth on the drum or cylinder, and means for supporting said blades from the said frame, as and for the purpose set forth.

640,524. APPARATUS FOR MAKING BARRELS, PIPES, OR CYLINDERS. JOHANN H. J. BARTELS Liverpool, England. Filed May 13, 1899. Serial No. 716,650. (No model.)



Claim.—1. In an apparatus for the production of barrels, pipes, or cylinders from layers of veneer, or the like, the combination with a fixed outer cylinder, of an inner expansible segmental die cylindrical on the exterior and oppositely inclined on the interior from an apex at or about the middle of the die toward the ends thereof, and oppositely-disposed cones coinciding with the inclined portions of said die and slidingly coupled to the respective segments thereof, whereby the longitudinal movement of said cones will expand or contract the die to compress or release the substance between the same and the outer fixed cylinder, substantially as described.

2. In an apparatus for the production of barrels, pipes, or cylinders from layers of veneer, or the like, the combination with a fixed outer cylinder, of an inner expansible segmental die cylindrical on the exterior and oppositely inclined on the interior from an apex at or about the middle of the die toward the ends thereof, and oppositely-disposed cones coinciding with the inclined portions of said die and slidingly coupled to the respective segments thereof, whereby the longitudinal movement of said cones will expand or contract the die to compress or release the substance between the same and the outer fixed cylinder, together with means for simultaneously actuating said cones, substantially as described.

3. In an apparatus for the production of barrels, pipes, or cylinders from layers of veneer, or the like, the combination with a fixed outer cylinder, of an inner expansible segmental die cylindrical on the exterior and oppositely inclined on the interior from an apex at or about the middle of the die toward the ends thereof, and oppositely-disposed cones coinciding with the inclined walls of said die and having sliding dovetail connections with the respective segments thereof, and means whereby the said cones are simultaneously moved in opposite directions to each other, substantially as described.

4. In an apparatus for the production of barrels, pipes, or cylinders from layers of veneer, or the like, the combination with a fixed outer cylinder, of an inner expansible segmental die cylindrical on the exterior and oppositely inclined on the interior from an apex at or about the middle of the die toward the ends thereof, the inclined portions of the respective segments of the die being provided with longitudinal dovetail grooves, oppositely-disposed cones coinciding with the inclined walls of said die and provided with plates or extensions fitted to the proximate grooves, and means for simultaneously moving said cones in opposite directions to each other, substantially as described.

5. In an apparatus for the production of barrels, pipes, or cylinders from layers of veneer, or the like, the combination with a fixed outer cylinder, of an inner expansible segmental die cylindrical on the exterior and oppositely inclined on the interior from an apex at or about the middle of the die toward the ends thereof, the adjacent edges of the segments of the die being provided from the interior to the exterior thereof with interlocking projections and recesses, oppositely-disposed cones coacting with the inclined surfaces of the respective segments and slidingly coupled thereto, and means for moving said cones in opposite directions to each other, substantially as described.

640,525. SPINNING OR TWISTING MACHINE. VICTOR BELANGER, Marshfield, Mass., assignor to the Rotary Ring Spinning Company, Boston, Mass. Filed Sept. 29, 1899. Serial No. 732,003. (No model.)



Claim.—1. In a spinning or twisting frame, a rotatable ring freely yielding in any direction under unbalanced strains.

2. The combination of a rotatable ring capable of radial movement relatively to the spindle under the stress of the yarn, and means for limiting the movement of the ring.

3. The combination of a rotatable ring capable of axial movement relatively to the spindle under the stress of the yarn, and means for limiting the movement of the ring.

4. The combination of a ring-casing, and a rotatable ring capable of radial movement relatively to said casing.

5. The combination with a ring-casing, of a rotatable ring loosely confined by said casing to yield preceptibly laterally.

6. In combination, a rotatable ring and a casing with a space between them to admit of radial movement of said ring relatively to the casing.

7. The combination with a ring-casing, or a ring rotatable by the yarn and capable of axial and radial movement relatively to the casing.

8. The combination of a rotatable ring, and a ring-casing, there being a space between the ring and the casing whereby the ring is capable of radial and axial movement when in operation.

9. The combination of a rotatable ring and yielding means for limiting the radial movement of said ring.

10. The combination of a rotatable axially-movable ring, and yielding means for limiting the axial movement of said ring.

11. The combination of a rotatable ring capable of radial movement, and a yielding casing for limiting the radial movement of said ring.

12. The combination of a rotatable ring capable of radial and axial movement, and a yielding casing for said ring.

13. The combination of a yieldingly-supported ring-casing, and a ring capable of movement relatively to said casing.

14. The combination of a rotatable ring, and a yieldingly-supported casing for said ring.

15. The combination of a ring-casing and a ring movable radially and axially relatively to said casing, said ring and casing having adjacent surfaces curved in the direction of their axes.

16. A drag for a spinning or twisting frame consisting of a bell-shaped ring.

17. A drag for a spinning or twisting frame consisting of a bell-shaped ring having a race to receive a traveler.

18. The combination of a radially-movable rotatable ring, means for limiting the radial movement of said ring, and a traveler revoluble on said ring.

19. The combination of a rotatable ring axially and radially movable relatively to the spindle, said ring having a race, a traveler revoluble about the said race, and means for limiting the described movement of said ring.

20. The combination of a rotatable ring having a race, a traveler revoluble about said race, and yielding means for limiting the radial or axial movement of said ring.

21. The combination with a rail and a yarn-drag supported thereon, of a ballooning-regulator carried by the rail and adapted to inclose the bobbin, said regulator having rocking weighted arms releasing the bobbin when moved laterally.

22. The combination with a rotatable ring capable of axial movement relatively to the spindle under the stress of the yarn, and means for limiting the movement of the ring, of a device for regulating the ballooning of the yarn.

640,526. CONSTRUCTION OF WALLS. HARRY W. BELL, New York, N. Y. Filed Oct. 10, 1899. Serial No. 733,128. (No model.)



Claim—1. A wall comprising tiles or blocks B *b* dowels E and strips G lying in the plane horizontal joints between said tiles combined and arranged to serve substantially as herein specified.

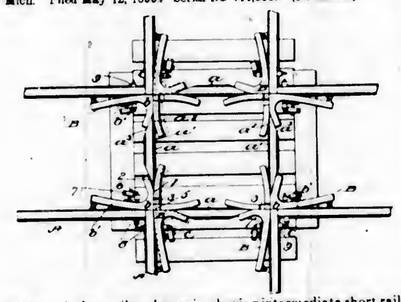
2. A wall comprising tiles or blocks B *b* having tongue-and-grooved vertical joints, dowels E and strips G lying in the plane horizontal joints between said tiles, combined and arranged to serve substantially as herein specified.

3. A wall comprising blocks B *b* dowels E strips G and two coats of plaster C D the several strips serving the double functions of strengthening the wall and gaging the thickness of the inner or scratch coating as herein specified.

4. The blocks B arranged in tiers, the upright dowels E set in holes *b* arranged in the mid-thickness and the strips G having slots *g* of about the same width as the dowels also centrally located and extending longitudinally to allow for variations in the intervals between the dowels all substantially as herein specified.

5. The blocks B arranged in tiers, the upright dowels E set in holes *b* arranged in the mid-thickness and the strips G having slots *g* of about the same width as the dowels also centrally located and extending longitudinally to allow for variations in the intervals between the dowels, the strips being folded upon themselves to match to the angles in the wall with a dowel inserted through the fold to secure the blocks at those points, all substantially as herein specified.

640,527. RAILROAD-CROSSING. JOHN W. BENNETT, Sturgis, Mich. Filed May 12, 1899. Serial No. 716,553. (No model.)



Claim.—1. In a railroad-crossing having intermediate short rails, movable sections normally filling the spaces at the ends of such short rails and fitting up against the rails of an intersecting track so that the wheels of a train moving over the latter will contact with and move such section, a pivot connection for each section, and means for holding such sections in their normal positions, as set forth.

2. In a railroad-crossing having intermediate short rails, movable sections normally filling the spaces at the ends of such short rails, a pivoted connection for each of such sections, and a spring for holding each movable section in its normal position, as set forth.

3. In a railroad-crossing having intermediate short rails formed with beveled ends, hinged sections bearing against the ends of said short rails and filling the spaces between the latter and the adjacent rails, and springs for holding said sections in their normal positions, as set forth.

4. In a railroad-crossing having intermediate short rails formed with beveled ends, bars hinged at one end and having lateral arms bearing against the beveled ends of the short rails, and springs for holding said bars in their normal positions, as set forth.

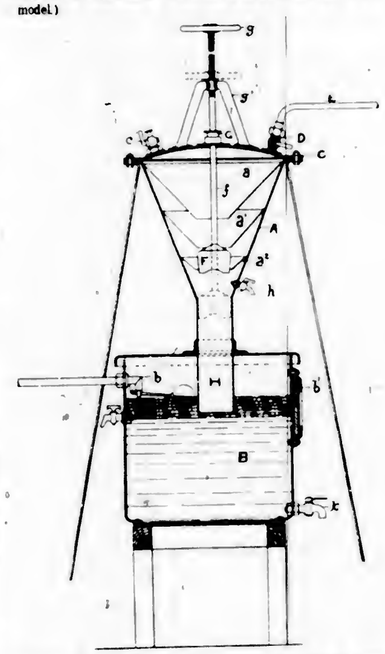
5. In a railroad-crossing having intermediate short rails formed with beveled ends, curved bars having lateral arms bearing against the beveled ends of the short rail, a stop and guide for each bar, and springs for holding such bars in their normal positions, as set forth.

6. In a railroad-crossing having intermediate short rails formed with beveled ends, curved bars having lateral arms bearing against such beveled ends, a rod for each of such bars having a spring thereon, and a stop and guide for each bar, as set forth.

7. In a railroad-crossing having intermediate short rails, curved bars having lateral arms bearing against the ends of such short rails, and rods extended through coincident openings in said bar and the adjacent rails, springs on such rods, and adjustable inclosing cylinders for such springs, as set forth.

8. In a railroad-crossing having intermediate short rails formed with beveled ends, curved bars hinged each at one end of the adjacent rail, a rod extended through such bar and rail, springs on such rod, adjustable cylindrical sleeves inclosing such springs, lateral arms bearing against the ends of said short rails and tongues carried by such bars, and guide-blocks for such tongues, as set forth.

640,528. APPARATUS FOR REMOVING SACCHARIN OR OTHER IMPURITIES FROM ALL KINDS OF LIQUIDS. JOHN T. BENNETT, Cape Town, Cape Colony. Filed June 9, 1899. Serial No. 719,989. (No model.)



Claim.—1. An apparatus for purifying liquids by gravity comprising a tank adapted to contain water, a receiving-hopper connected with the tank and provided with inverted centrally-deflecting cones formed with central openings and a vertically-moving plunger adapted to move through the openings in the deflectors to accelerate the descent of impurities deflected toward the center and in its lower position to close the connection between the hopper and tank.

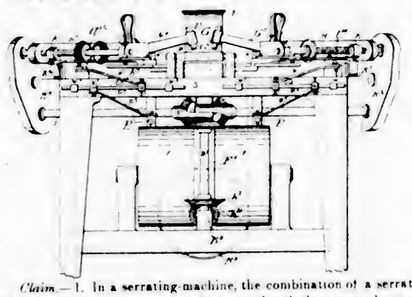
2. An apparatus for purifying liquids by gravity, comprising a tank adapted to contain water, a hopper having a closed upper portion above said tank and a lower portion of reduced diameter entering the liquid in the tank, a series of inverted cone-shaped deflectors arranged within the hopper, each formed with a central opening, a vertically-moving piston adapted to close the reduced lower portion of the hopper and to be moved vertically through the openings in the deflectors, means for supplying liquid to be purified to the upper portion of the hopper and for withdrawing liquids from the tank.

3. An apparatus for purifying liquids by gravity, comprising a combination of a tank, an automatic supply-cock for maintaining a constant level of water in the tank and a draw-off cock therefor, of a funnel-shaped hopper having its reduced lower portion entering and extending below the normal water-level of the tank, an air-cock and a cock adapted to supply liquid to be purified in the upper portion of the tank, and a vertically-moving piston adapted when in its lower position to close the lower portion of the hopper.

4. The combination with a tank and an automatic supply-cock for maintaining the constant water-level therein, a funnel-shaped hopper having a closed upper portion and secured above the tank with its reduced lower portion entering and extending below the normal water-level thereof, a series of superposed inverted deflecting-cones arranged within the hopper and each formed with a central opening of substantially the same diameter as the lower portion or leg of the hopper and a vertically-moving piston of inverted conical form adapted to be raised and lowered through the openings in the deflectors and to close the lower portion of the hopper, said piston being provided with vertical passages and a valve adapted to close said passages when the piston is forced downward and to uncover and open said passages when the piston is raised.

5. In an apparatus for purifying liquids by gravity, the combination with a receiving-hopper of superposed inverted centrally-deflecting cones each formed with a central opening and a vertically-moving plunger having vertical passages therein, a vertical rod extending through the hopper and plunger and provided with means for raising and lowering the rod and plunger said rod having a limited movement through the plunger and provided with a fixed valve limiting said movement and adapted to rest upon and close the openings in the plunger when forced downward and to move away from and free said openings when the plunger is raised.

640,529. SERRATING-MACHINE. CHRIS BORG, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Dec. 3, 1898. Serial No. 698,236. (No model.)



Claim.—1. In a serrating-machine, the combination of a serrating-hammer, an anvil, mechanism for operating the hammer, a hopper for holding the sections, automatic mechanism for moving the sections from the hopper to the anvil, a clamp for holding the sections on the anvil while they are being serrated, and means for operating the clamp.

2. In a serrating-machine, the combination of a serrating-hammer, an anvil, mechanism for operating the hammer, a section-hopper, feeding mechanism for moving the sections from the hopper to the anvil, and a stop-motion under control of the sections to stop the feeding devices and cause the hammer to discontinue its action when the supply of sections in the hopper is exhausted.

3. In a serrating-machine, the combination of a serrating-hammer, an anvil, mechanism for operating the hammer, a section-hopper, feeding mechanism for moving the sections from the hopper to the anvil, and devices connected to the feeding mechanism to control the operation of the hammer.

4. In a serrating-machine, the combination of serrating-hammers, sliding carriages on which they are mounted, mechanism for operating the hammers, feeding devices for the sections to place them in position to be acted on by the hammers, and mechanism connected to the feeding devices to control the movement of the carriages and the action of the hammers.

5. In a serrating-machine, the combination of a pair of serrating-hammers, mechanism for operating said hammers and moving them progressively toward a common point, and mechanism for throwing one of the hammers out of operation before the others.

6. In a serrating-machine, an anvil, a jaw for holding the sections upon the said anvil while being serrated, a section-hopper, mechanism for moving the sections from the said hopper to the said anvil, and means common to said jaw and to said mechanism for moving the sections from the said hopper and operating the said jaw, all combined substantially as described.

7. In a serrating machine, an anvil, a section-hopper adjacent thereto, mechanism for moving the sections from the hopper to the said anvil, a jaw for holding the sections in position while being serrated, serrating-hammers and devices to cause said hammers to traverse the edges of the sections being held and means common to said mechanism and devices to cause each part to move at its proper interval, all combined, substantially as described.

8. In a serrating-machine, an anvil for sustaining the sections while being serrated, serrating-hammers adapted to operate upon the sections held upon the said anvil, a hopper adjacent to said anvil, a stop and means for moving the same to cause the hammers to discontinue their action when the supply of sections in the hopper is exhausted, all combined, substantially as described.

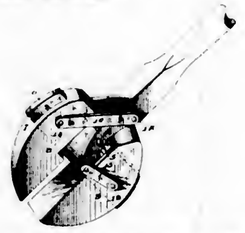
9. In a serrating-machine, an anvil, serrating-hammers, means for operating them, a hopper, feeding mechanism adapted to move the sections from the said hopper, a stop-motion adapted to be rendered inoperative by the presence of the supply of sections, in combination with cams as to operate said feeding mechanism, control the action of the said hammers and the said stop-motion at the proper intervals, substantially as described.

10. In a serrating-machine, a primary shaft, a cam-wheel connected thereto, serrating-hammers, connections between said shaft and hammers for operating them, and mechanism under the control of said cam-wheel for moving the hammers to traverse the edges of the section being acted upon.

11. In a serrating-machine, the cam-wheels, the serrating-hammers adapted to traverse the edges of sections being operated upon, an anvil upon which said sections rest while being operated upon, a supply-hopper for said sections, means for moving said sections from the said hopper to the said anvil, cams upon said cam-wheels, mechanism to cause said hammers to strike their blows and traverse the edges of said sections and means operated by said cam to actuate the feeding mechanism at the proper interval, relative to the action of the hammers, all combined, substantially as described.

12. In a serrating-machine the combination of serrating-hammers, mechanism for operating said hammers and moving them progressively toward a common point and mechanism for starting one of the hammers before the other.

640,530. WRENCH. JOHANN L. BRAUN, Pittsburg, Pa., assignor to Max Diederich Kloppenburg, same place. Filed May 31, 1899. Serial No. 718,827. (No model.)



Claim.—1. In a wrench, the combination with an operating-handle, a guide-plate to which said handle is pivotally secured, a pair of jaws provided with apertures to receive said guide-plate, a pair of links connecting the upper of said jaws to the handle, and a pair of links connecting the lower of said jaws to the pivoted end of the handle, substantially as described.

2. In a wrench, the combination of a handle having jaws formed integral with its one end, a guide-plate to which said jaws are pivotally secured, an upper and a lower gripping-jaw provided with registering apertures to receive said guide-plate, and means connected to said jaws and to the handle whereby the jaws are moved together when downward pressure is applied to the handle, substantially as described.

3. In a wrench, the combination of a handle having curved jaws formed integral with its one end, a guide-plate to which said jaws are pivotally secured, said guide-plate being provided with apertures, a pair of gripping-jaws provided with apertures to receive said guide-plate, a pair of links connecting the upper of said jaws with the handle at the rear of the jaws, and a separate pair of links pivotally connecting the free end of said jaws with the lower of the gripping-jaws, substantially as described.

4. In a wrench, the combination of a handle, a guide-plate to which said handle is pivotally secured, an upper gripping-jaw, a lower gripping-jaw adapted to act as a fulcrum, each of said jaws being

provided with registering apertures to receive the guide-plate, and means connected to said gripping-jaws and to the handle for operating the said jaws by the movement of the handle, substantially as described.

640,531. **APPARATUS FOR MAKING OXYGEN.** FREDERICK BROWN, London, England, assignor of one-half to Frederick Joseph Stedman, same place. Filed Aug. 3, 1899. Serial No. 726,037. (No model.)



Claim.—1. In an apparatus for the production of gas, the combination of a closed chamber, means for heating a portion of such chamber, a feeding device within the chamber, an expansible gas-container, a conduit between the latter and the closed chamber, and means outside the closed chamber and controlled by the gas-container for automatically operating the feed device to cause the latter to feed charges of material successively to the heated portion of the chamber.

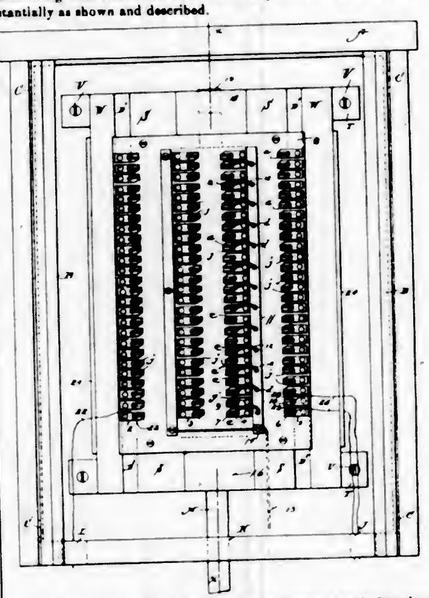
2. In apparatus for the production of gas the combination of a closed chamber, means for heating a portion of such chamber, a shaft located in the chamber, a cam upon the shaft, an expansible gas-container, a conduit extending from the gas-container to the chamber and an operative connection between the container and the cam-shaft substantially as set forth.

3. In apparatus for the production of gas the combination of a closed chamber having an insulated portion, means for heating said portion from without the chamber and a tubular extension, an automatic feeding device for bringing the charges successively to the heated insulated portion, and an expansible gas-container, a conduit leading from the gas-container to the chamber and an operative connection between the container and the automatic feeding device substantially as set forth.

640,532. **TERMINAL FOR CABLES.** JOSEPH H. BYERS, Urbana, Ohio. Filed Oct. 4, 1899. Serial No. 732,503. (No model.)

Claim.—1. In a cable-terminal, the combination with a box having a terminal head mounted therein, of a plate formed of insulating material, forming a portion of said head, terminals carried by said plate and projecting from one side thereof, and fuse-holding points also carried by said head and projecting from the opposite side thereof, said fuse-holding points and said terminal points being connected with each other, said fuse-holding points being formed of one piece of metal with a spring secured thereto, all substantially as shown and described.

2. In a cable-terminal, the combination with a box carrying a terminal head therein, said head being composed of bars and end blocks, a pair of cross-strips for connecting said bars and blocks together, one for each end of said terminal head, and a plate formed of insulating material, adapted to be mounted upon side bars, and carrying terminal points adapted to project within said chamber and be directly connected with cable-wires, a pair of fuse-holding points mounted upon said plate, one of which is directly connected with said terminal point, a fuse-wire for connecting said fuse-holding points together for connecting the circuit in one line, another pair of fuse-holding points one of which is connected to another terminal point, and a second fuse-wire connecting said second set of fuse-holding points for completing the circuit in another line-wire, said line-wires connecting with each other to make a complete electric circuit, substantially as shown and described.



3. In a cable-terminal, the combination with an insulating-plate, of a terminal point having a hole therein at one end and a shoulder near its other end, said latter end adapted to project through said plate and be secured thereto, said shoulder acting as a stop for said terminal point, substantially as shown and described.

4. In a cable-terminal, the combination with a terminal head, of an insulating-plate forming a portion of said head, a pair of terminal points projecting from one side of said plate and fuse-holding points projecting from the other side of said plate, a ground-strip also on said plate, near said fuse-holding points, whereby a spider-line and a ground-line circuit may be maintained.

5. In a cable-terminal, the combination with a terminal head, of an insulated plate mounted thereon and forming a portion of said head, a double row of terminal points projecting from said plate within a chamber in said head, two double rows of fuse-holding points projecting from the other face of said terminal, fuse-wires for connecting the proper terminals together, a pair of ground-strips upon the same face of said insulating-plate as the fuse-holding points and separated from said fuse-holding points, and means for connecting said strip with some of said fuse-holding points to form a ground-line circuit and a metallic circuit as desired.

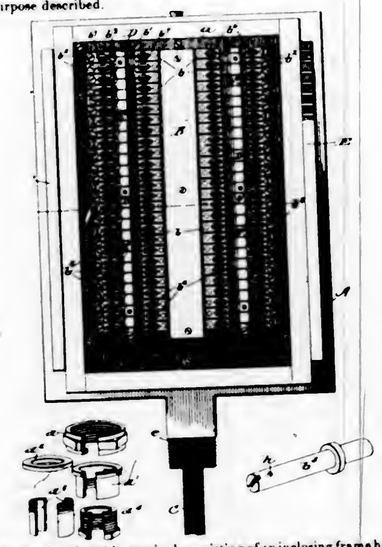
6. In a cable-terminal, a fuse-holding point having a base and a projecting portion formed of one piece, a spring secured to said projecting portion, said spring and said projecting portion forming a clamp for a fuse-wire and its support, substantially as shown and described.

640,533. **CABLE-TERMINAL.** WILLIAM CALLAHAN, Toledo, Ohio. Filed Dec. 6, 1898. Serial No. 698,471. (No model.)

Claim.—1. An electric-cable terminal consisting of an inclosing frame having a chamber on its rear side with a detachable back, a series of insulated metal contacts on its face having conducting extensions through into the rear chamber, a union screw-coupling for the entrance of the cable at one end, and an opening into the chamber for filling the chamber with an insulating material substantially as shown and described.

2. An electric-cable terminal, consisting of an inclosing frame having a chamber in its rear with a detachable back, an insulated ground-plate B in the middle of the front face, a series of insulated metal plates *b*

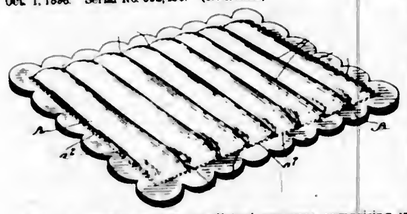
on each side thereof with clasp-springs and extensions back into the hollow chamber, a parallel series of insulated plates b^2 with clasp-springs and bridge-piece *b'* of non-conducting material having fusible conductors connecting the said clasp-springs substantially as and for the purpose described.



3. An electric-cable terminal, consisting of an inclosing frame having a chamber in its rear with a detachable back, an insulated ground-plate B in the middle of its front face, a series of insulated metal plates *b* on each side thereof with clasp-springs and extensions back into the hollow chamber, a parallel series of insulated plates b^2 with clasp-springs, a series of bridge-pieces *b'* of non-conducting material having fusible conductors connecting the said clasp-springs, and the continuous metal conductors D arranged adjacent to the plates b^2 and having an adjustable electrical connection with each of the plates b^2 substantially as and for the purpose described.

4. An electrical connection for a wire-terminal consisting of a metal stem with a hole transversely through it near its end, and a nick in the end, and a wire passed through the hole and wrapped in the nick and then soldered to the stem substantially as and for the purpose described.

640,534. **WARMING-PAD.** LYMAN CHENEY, Nashua, N. H. Filed Oct. 1, 1898. Serial No. 692,430. (No model.)

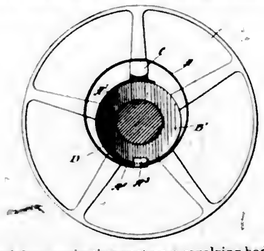


Claim.—A warming-pad for medicinal purposes, comprising in its construction a suitable soft covering which is formed with a plurality of independent pockets, which are filled with soapstone in a dry powdered state, the whole pad being flat and flexible throughout so that it can be conveniently applied to or around the afflicted part, substantially as described.

640,535. **GUARD FOR PROJECTING PARTS.** JOSEPH A. CLERCY, New York, N. Y. Filed July 14, 1899. Serial No. 723,806. (No model.)

Claim.—1. A guard for a projecting part of a revolving body, consisting of a band adapted to engage over the projecting part and to have a spring-holding contact with the revolving body, the said band having an opening at one end to receive the projecting part, substantially as shown and described.

2. A guard for a projecting part on a revolving body, consisting of a band adapted to inclose the projecting part in the direction of its movement and to engage the surface of the body, and means on the band and adapted to engage the side faces of the body, to hold the band in place, substantially as shown and described.



3. A guard for a projecting part on a revolving body, consisting of a spring-band adapted to inclose the projecting part in the direction of its movement and to engage the surface of the body, and side lugs on the band and adapted to engage the side faces of the body, to hold the band in place, substantially as shown and described.

4. A guard for a projecting part on a revolving body, consisting of a spring-band adapted to encircle the body and pass over the projecting part, one end of the band being overlapped by the other, and lugs on the overlapping end of the band and adapted to straddle the body, and the other end of the band, substantially as shown and described.

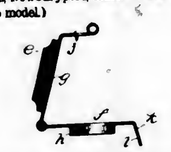
640,536. **TOY BANK.** DAVID C. COOK, Elgin, Ill., assignor to the David C. Cook Publishing Company, same place. Filed Oct. 2, 1899. Serial No. 732,305. (No model.)



Claim.—1. An improved collection-bank, comprising a globe-body of transparent material, having a discharge-opening at the bottom and a coin-slot at the top; and a closure for the discharge end of the globe-body; of a spring-metal protecting-disk for the coin-slot, said disk being curved on a radius less than that of the globe, and having tangs adapted to project down through the coin-slot and engage the lower edges thereof, as specified.

2. As a new article; a collection-bank, consisting of a glass globe-like body having a coin-slot in its top; and an integral inwardly-projecting coin-guard, the lower end of which terminates in a contracted throat 1^b; a spun-metal base 2, having a vertical rim to receive the base 1^a, and the holding-cement 5^a, said base having a contracted portion 2^b; the hinged bottom piece adapted to seat against the portion 2^b; the lock 8; the slotted plate 3, said plate being curved on a radius less than that of the globe, whereby a space *x*, is provided between it and the globe to receive the cement 5^a, said plate having pendent tangs 3^a, terminating in inturned flanges 3^b, all being arranged substantially as shown and for the purposes described.

640,537. **LAMP-FILLING DEVICE FOR LAMP-BURNERS.** CHESTER W. COTTRELL, Newburyport, Mass. Filed Mar. 29, 1899. Serial No. 710,926. (No model.)



Claim.—A base for a lamp-burner, comprising a lower member adapted to be secured to the lamp and provided with a downwardly

projecting perforated ear, an upper member constructed to hold the burner hinged directly to said lower member and having a latch constructed to lie close against said ear when the base is closed, said latch being formed with an inwardly-projecting portion, forming a catch, located to enter the perforation of the ear, whereby the two members are automatically and positively locked together when closed and are unlocked and opened by outward pressure on the latch, substantially as described

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640,538. LAMP-BURNER. HARTWELL A. CROSBY, Calais, Me. Filed Sept. 23, 1899. Serial No. 731,393. (No model.)



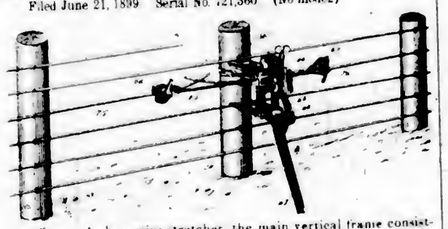
Claim.—1. In a lamp-burner, the combination of a wick-tube, and a wick-elevating device, comprising a revoluble toothed wheel outside of the wick-tube and adapted to engage the wick, with a frame pivoted upon the wick-tube and having a member adapted to swing over and cover the end of said tube, and a triangular bar journaled in the lower end of the frame and adapted to be engaged by the toothed wheel, whereby the frame is swung and the end of the wick-tube is uncovered when the wheel is turned in one direction, and the wheel is locked against turning in the opposite direction as soon as the frame is permitted to swing back by the dropping of the wick, substantially as described

2. In a lamp-burner, the combination with a wick-tube, and a toothed wick raising and lowering wheel, of a pivoted extinguisher having at its lower end a rotatable member adapted to be engaged by the toothed wheel, as and for the purpose set forth.

3. In a lamp-burner, the combination with a wick-tube, and a toothed wheel for engaging the wick to raise and lower it, of a pivoted extinguisher-frame having a cross-bar journaled in its lower end, said cross-bar being adapted to be engaged by the toothed wheel, substantially as described.

4. As a new article of manufacture, an extinguisher adapted to be pivoted to a wick-tube, and consisting of a frame, formed of two side bars, a perforated cross-bar, secured to the upper ends of the side bars, a triangular bar journaled in the lower ends of the side bars, and an intermediate cross-bar, as set forth.

640,539. WIRE-STRETCHER. ZENAS A. CURTIS, Hansford, Tex. Filed June 21, 1899. Serial No. 721,360. (No model.)



Claim.—1. In a wire-stretcher, the main vertical frame consisting of a single casting, in combination with two pairs of horizontal legs secured thereto and adapted to rest against the post the two legs of each pair being parallel and in the same horizontal plane, a chain secured at opposite sides of the main frame and passing around the post, wire-clamps, ropes passing from the clamps horizontally through the main frame, and a stretching handle-lever pivoted to the main frame in the vertical plane of the post, substantially as described.

2. In a wire-stretcher, the main frame consisting of a single casting comprising a pair of uprights connected by a cross-bar at each end, a pair of forwardly-projecting lugs at each end, a third cross-bar fixed above the upper connecting cross-bar, and three bearing-lugs forwardly projecting therefrom, in combination with a pair of horizontal grooved pulleys in the space between the cross-bars, a pair of parallel vertical pulleys journaled between the upper lugs of the uprights, a handle lever journaled between the lower lugs, and a pair of eccentric-headed toothed levers journaled in the three bearing-lugs in position to bite on ropes passing over the vertical pulleys substantially as described

3. In a wire-stretcher, a main frame consisting of a single casting comprising a pair of forwardly-projecting lugs, three bearing-lugs above them, and an upwardly-extending plate at right angles to the bearing-lugs and provided with two studs on its face, in combination with two parallel vertical grooved pulleys journaled in the pair of lugs to receive stretching-ropes, a pair of levers journaled between the three bearing-lugs having eccentric toothed heads to bite the ropes, and backwardly-projecting studs on their opposite ends, and springs engaged on these studs at one end and the studs on the frame at the other end and serving to hold the toothed heads normally in contact with the ropes

4. In a wire-stretcher a main frame consisting of a single casting comprising two uprights, a cross-bar connecting their lower ends, lugs projecting forwardly at their lower ends, similar lugs at their upper ends, a cross-bar connecting their upper ends, upwardly-turned ends thereon, a second cross-bar on said ends, extensions above the last-named cross-bar, and an angular structure formed on said cross-bar consisting of three forwardly-projecting parallel bearing-lugs, and a plate at right angles thereto formed with forwardly projecting studs substantially as described

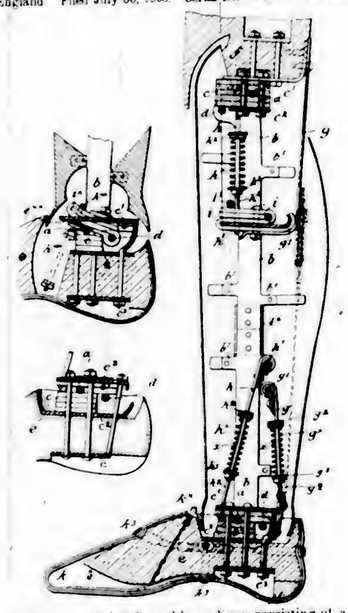
5. In a wire-stretcher a main frame consisting of a single casting comprising two uprights, a cross-bar connecting their lower ends, lugs projecting forwardly at their lower ends, similar lugs at their upper ends, a cross-bar connecting their upper ends, upwardly-turned ends thereon, a second cross-bar on said ends, extensions above the last-named cross-bar, and an angular structure formed on said cross-bar consisting of three forwardly-projecting parallel bearing-lugs, and a plate at right angles thereto formed with forwardly projecting studs in combination with the two horizontal grooved pulleys, the two vertical grooved pulleys, the spring-impelled eccentric-headed levers, and the stretching handle-lever, substantially as described

6. In a wire-stretcher, the combination of the main frame and the pulleys over which the stretching-ropes pass, with a stretching-lever pivoted to the frame and provided with a central vertical flange having straight-faced inclined ledges on each face thereof, and clamp-levers centrally pivoted to the stretching-lever provided with corresponding straight-faced ledges facing those of the stretching-lever and having extended grooved ends over which the ropes pass in their path to the space between the ledges, substantially as described

7. The herein-described clamping-lever adapted to be pivoted to the stretching-lever, comprising a main plate with a hole to receive the pivotal bolt, a ledge projecting from one side, and an extension at one end of the ledge provided with a curved end having a groove to receive and guide the rope on its way to the stretching-lever substantially as described

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640,540. ARTIFICIAL LIMB. RICHARD E. DANIELS, Rochdale, England. Filed July 30, 1898. Serial No. 687,273. (No model.)



Claim.—1. A joint for ankle or knee consisting of a pivot-pin and a stop-pin secured to one part and a bearing-block of soft material secured by suitable plates and bolts to the other part, substantially as described

2. A joint for ankle or knee consisting of a pivot-pin stop-pin, bearing-block of soft material, and securing-plate a spring connection being made between the front of the bearing-block and a point on the shank and a check-strap between the two parts jointed together substantially as hereinbefore described

3. A joint for ankle or knee consisting of a pivot-pin, stop-pin and bearing-block of soft material, and securing-plate, a spring connection being made between the front of the bearing-block and a point on the shank and a spring check-strap between the two parts jointed together substantially as hereinbefore described

4. In an ankle-joint of the above description an ankle-joint pin made larger at the central part to allow lateral and diagonal flexions of the ankle-joint, substantially as hereinbefore described

5. A knee-joint with cam-piece on the shank side iron and reversible stop-plate on the thigh-side iron, substantially as hereinbefore described.

6. A knee-joint with front spring connection and back check-strap connection, as and for the purposes set forth

7. The side irons of an artificial leg made with side enlargements and bands secured to said enlargements to which a casing is attached, as and for the purposes described

8. Side irons for an artificial leg made with side enlargements having vertical pegs, and a casing adapted to be hung thereon, substantially as described

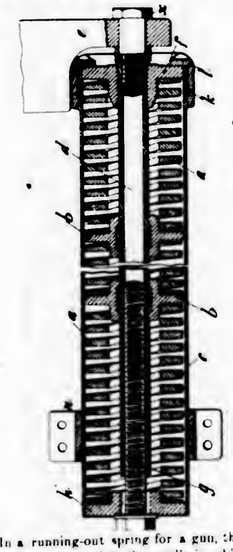
9. A pneumatic foot having a wooden core part extending from the heel forwardly toward the toe, covered with a flexible material vulcanized thereto around the ankle or instep, said covering extending beyond the front of the core and forming an air-chamber at the toe, as and for the purposes set forth

10. An artificial limb provided with means for suspending it, consisting of straps adapted to pass over one shoulder and secured to the limb, and a yoke secured to said straps and adapted to pass over the other shoulder, substantially as described

11. An artificial limb provided with means for suspending it, consisting of straps adapted to pass over the shoulder, a pulley and a spring secured to the limb and to the straps, substantially as described

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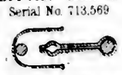
640,541. RUNNING-OUT SPRING FOR GUNS. ARTHUR T. DAWSON and GEORGE T. BUCKHAM, London, England, assignors to the Vickers, Sons & Maxim, Limited, Sheffield, England. Filed Aug. 28, 1899. Serial No. 728,791. (No model.)



Claim.—In a running-out spring for a gun, the combination of the tubular casing *e* attached to the cradle in which the gun slides, the spring *a* inclosed in said casing, the central tubular bolt *d* having its forward end internally screw-threaded, the bracket *e* depending from the gun, a nut *x* for securing the rear end of said bolt in said bracket, the rear piston-shaped collar *f* and the front piston-shaped collar *h* placed on said central tubular bolt in opposite ends of the tubular casing and between which collars the spring is held, the adjusting compressor-screw *g* inserted in the internally-threaded forward end of the central tubular bolt with the head of said screw bearing against the forward collar *h*, and a cap *l* screwed onto the rear end of the tubular casing and provided with an internal flange bearing against the rear collar *f*, substantially as and for the purposes described

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640,542. SAFETY-PIN. OSCAR A. DE LONG, Glen Ridge, N. J. Filed Apr. 19, 1899. Serial No. 713,569. (No model.)

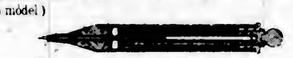


Claim.—1. In a safety-pin having a shank and tongue, a shield comprising a socket and a guide-strip integral therewith, whose contiguous leaves each have a registering corrugation united to form a bulb and extended part way into said socket, leaving a space on each side of said bulb insufficient to permit the passage of the pin, without tensional enlargement thereof, substantially as set forth

2. In a safety-pin, in combination, a shank and tongue and a shield secured to the former and forming a socket for the latter, said shield, where connected to the shank, consisting of a doubled guide-strip, corrugated in bulb form, and the socket portion of said shield having walls extending over said guide-strip with intervals therebetween, said walls being coincidently corrugated with said guide-strip, to provide curved passages therebetween

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640,543. COMBINED PAPER-HOLDER AND PENCIL. FRED W. DONNING, Schenectady, N. Y. Filed Aug. 14, 1899. Serial No. 727,105. (No model.)



Claim.—1. In a combined paper-holder and pencil, the combination with a rotary tubular mandrel adapted to support a strip of paper, rolled thereon, and contain pencil-points of a pencil-point tube registering with and forming a continuation of the mandrel-tube, means for controlling the position of the points in the tubes, a common support for the tube and mandrel and means for rotating the mandrel, substantially as described.

2. The combination with a slotted tubular mandrel, a mandrel-containing case, and means for rotating the mandrel in the case; of a pencil-point tube supported by the case, and registering with the mandrel-tube, substantially as described.

3. The combination with a tubular case, having an opening on one side, of a movable cover and means for moving the cover across said opening; a hollow slotted mandrel rotatively supported interiorly of the case; means, exteriorly of the case for rotating the mandrel, and a tubular pencil-point support on one end of the case registering with said mandrel substantially as described.

4. The combination with a tubular case, comprising two tubes one rotating within the other, and each having a portion of the shell cut away, whereby the case is open, on one side, when the apertured portions register with each other, and closed when out of register, of a hollow slotted mandrel supported by the inner part of the tubular case, free to rotate but held against longitudinal movement therein; means for rotating the mandrel; means for communicating a rotary movement to one of the case-tubes, and a tubular pencil-point support on one end of the case registering with said mandrel, substantially as described

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640,544. HYDRAULIC-ELEVATOR SPEED-REGULATOR. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor, by mesne assignments, to the Otis Elevator Company, of New Jersey. Filed May 29, 1897. Serial No. 638,824. (No model.)

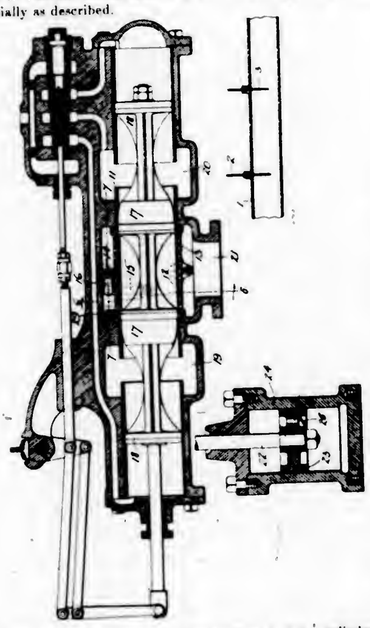
Claim.—1. In a hydraulic elevator the combination with a car, a cylinder, a supply and exhaust port for said cylinder, and an operating-valve and a speed-governor valve both controlling said port, of manual and automatic devices connected with said car and operating said valves, substantially as described.

2. In a hydraulic elevator the combination with a car, a cylinder, a supply and exhaust port for said cylinder, and an operating-valve and a speed-governor valve both controlling said port, said operating-valve acting in one direction and said speed-governor valve acting in a different direction, of manual and automatic devices connected with said car and operating said valves, substantially as described

3. In a hydraulic elevator the combination with a car, a cylinder, a supply and exhaust port for said cylinder, and an operating-valve and a speed-governor valve both controlling said port, of manual devices connected with said car and operating said operating-valve, and automatic devices constructed to operate said speed-governor valve, substantially as shown and described.

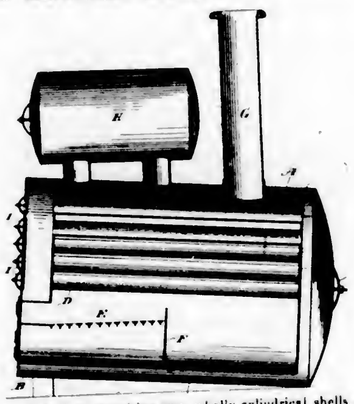
4. In a hydraulic elevator the combination with a car, a cylin-

der, a supply and exhaust port for said cylinder, and an operating-valve and a speed-governor valve, both arranged to control said supply and exhaust port, of manual devices connected with said car and operating said operating-valve, automatic devices constructed to operate said speed-governor valve, and a motion-retarding device constructed to restrain sudden action of said speed-regulating valve, substantially as described.



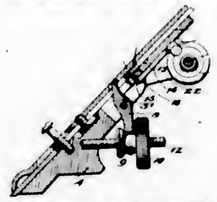
5. In a hydraulic elevator, in combination, a car, a cylinder, a port in connection with said cylinder, an operating-valve to open and close said port, a speed-regulating valve to vary the size of said port, manual devices connected with said car to operate said operating-valve, and automatic devices constructed to operate said speed-regulating valve.

640,545. BOILER. GEORGE H. DRAKE, Omaha, Nebr. Filed June 29, 1899. Serial No. 722,283. (No model.)



Claim.—A boiler comprising two, wholly cylindrical shells, the inner shell being supported so that at all points circumferentially it is away from the outer shell, forming a water-space all around the inner shell, and water-spaces being at each end of the inner shell, water-tubes passing from end to end of the inner shell, a fire-box in the inner shell beneath said tubes, hand-holes in one end of the outer shell opposite the adjacent ends of the water-tubes, said shell end being flat, and a manhole in the outer end of the outer shell, said other end being dished outwardly, substantially as and for the purpose described.

640,546. HAND-PLANE. PHILO F. DRESSER, Glenwood, Iowa. Filed Nov. 1, 1898. Renewed Oct. 28, 1899. Serial No. 735,127. (No model.)



Claim.—In a hand or bench plane having a laterally-adjustable plane-iron, the bed-piece 4 fixed to the stock and the transverse screw 21 rigidly fixed thereto, the milled nut irremovably traversing said screw, the lever 13 fulcrumed on said bed-piece, with its upper end encompassing the contiguous edge of the milled nut, and the friction-roller 17 journaled on the lower end of said lever to engage the slotted plane-iron, substantially as and for the purpose set forth.

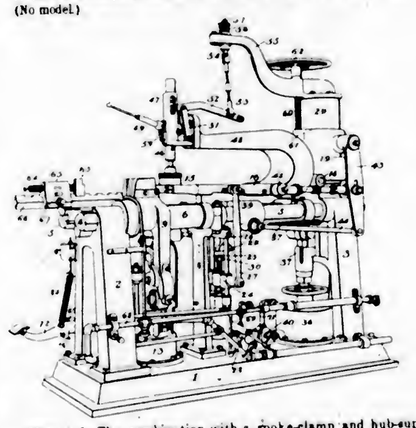
640,547. DEVICE FOR CONVERTING HOT AND DRY STEAM INTO COOL AND WET VAPOR. ROBERT DUFFIN, New Bedford, Mass., assignor of one-half to Dennis Haworth, same place. Filed July 12, 1899. Serial No. 723,640. (No model.)



Claim.—1. In a device for converting hot and dry steam into cool and damp vapor, the steam-pipe *a*, the pipe *b* connected thereto, and provided with a collar *d* upon its upper end, and the plug *h* for closing the end of the pipe, combined with a sleeve *c* provided with a stud *g* at its upper end and a set-screw *e* for adjusting the sleeve upon the pipe *b*; the pipes *b* and *c* being provided with narrow slits through their sides, and the slits through the pipe *b* having serrated edges, substantially as shown and described.

2. In a device for diffusing steam in the form of dew, a pipe closed at one end, and open at the other for the admission of steam, and which is provided with slits in its side, combined with an endwise-movable concentric pipe provided with corresponding slits through its sides, and means whereby the outer pipe can be moved endwise for the purpose of adjusting the size of the slits substantially as shown.

640,548. MACHINE FOR FASTENING SPOKES IN WHEEL-HUBS. EMIL EINFELDT, Davenport, Iowa, assignor to the Bettendorf Metal Wheel Company, of Iowa. Filed May 16, 1899. Serial No. 717,094. (No model.)



Claim.—1. The combination with a spoke-clamp and hub-support, one movable to and from the other to form a shoulder on the

spoke outside the hub, of means independent of the spoke or hub, for positively moving one toward the other a predetermined distance.

2. In combination with a spoke-clamp, a hub-support movable to and from the clamp, a heading device adapted to act on the spoke within the hub, and means independent of the spoke or hub for positively moving the hub-support toward the spoke-clamp a predetermined distance.

3. In combination with a spoke-clamp, a hub-support, a heading device movable toward the spoke-clamp, and means for positively moving the hub-support toward the clamp a distance less than the movement of the heading device.

4. In combination with a spoke-clamp, a hub-support, a heading device movable toward the spoke clamp, and means for simultaneously moving the hub-support toward the clamp at a speed less than the movement of the heading device.

5. In combination with a spoke-clamp, a hub support movable to and from the same, a heading device movable also toward the clamp, and connecting devices between the header and support constructed and arranged to cause the support to be moved positively with the header.

6. In combination with a spoke-clamp, a hub-support movable to and from the same, a heading device also movable to and from the clamp, and adjustable connecting devices between the hub-support and heading device, whereby the amount of movement of the hub-support with reference to the heading-tool may be varied.

7. In combination with a spoke-clamp a hub-support movable with relation to the spoke-clamp transversely of the axis of the spoke, a hub-clamping device, and suitable connections between the hub-support and clamping device, arranged to cause the clamping device to be actuated by the transverse movement of the support.

8. In combination with the frame, a spoke-clamp, a hub-support movable with relation to the spoke-clamp transversely of the axis of the spoke, a hub-clamping device operatively connected with the hub-support, and suitable connections between the hub-clamping device and the frame formed and arranged to cause the clamping mechanism to be operated by the movement of the hub-support.

9. In combination with a spoke-clamp, a hub-support movable with relation to the spoke-clamp transversely of the axis of the spoke, a hub-clamping device operatively connected with the hub-support, means for manually adjusting said hub-clamping device, and means for automatically operating the hub-clamping device by the transverse movement of the support.

10. In a machine for securing spokes in hubs, the combination with a spoke-clamp, of a hub-support, means for adjusting one at an inclination with respect to the other and means for securing the spoke to the hub.

11. In a machine for securing spokes in hubs the combination with a spoke-clamp, of a hub-support, means for adjusting said support to sustain the hub at an inclination to the spoke, and means for securing the spoke in the hub.

12. In a machine for securing spokes in hubs, the combination with a spoke-clamp, of the hub-support, means for tipping the support with reference to the clamp, and means for securing the spoke in the hub.

13. In combination with a spoke-clamp and the cylinder and piston operating the same, a heading device, a cylinder and piston adapted to operate the same, a hub-support movable with relation to the clamp, transversely of the axis of the spoke, a cylinder and a piston controlling the movement of the support, valves controlling the admission of pressure to the cylinder and its discharge therefrom, and means for operating said valves relatively to successively cut off pressure to the cylinder controlling the hub-support, and admit the pressure to the cylinder controlling the spoke-clamp, and the cylinder controlling the heading device.

14. In combination with a spoke-clamp, a hub-support movable to and from the same, a heading-tool, means for moving the heading-tool toward the clamp, a lever, connections between the heading-tool and lever, and connections between the lever and the hub-support.

15. In combination with a spoke-clamp, a sustaining-frame movable transversely of the same, a hub-support movable longitudinally on the sustaining-frame, a piston and cylinder, and jointed connections between the hub-support and the piston.

16. In a machine for securing spokes in hubs, the combination with a spoke-clamp, of a hub-support movable with relation to the spoke-clamp transversely of the axis of the spoke, a cylinder and piston, and a link connecting the piston with the hub-support.

17. In combination with the frame, a spoke-clamp, a hub-support pivotally connected at one end to the frame and movable transversely at its opposite end with reference to the clamp, and means for adjusting the pivotal connection of the support with the frame.

18. In combination with the frame, a spoke-clamp, a hub-support movable with relation to the spoke-clamp transversely of the axis of the spoke, means for controlling the movement of the support, a hub-clamping head sustained by the support and movable with relation to the same, a lever pivoted at one end to the head and fulcrumed on the support, and connections between the other end of the lever and the frame.

19. In combination with the hub-support, a spoke-clamp and heading-tool, operating cylinders and pistons for the same, valves controlling the admission of fluid under pressure to said cylinders and its discharge therefrom, a rocking plate, means for rocking said plate, and connections between the plate and said valves.

20. In combination with a spoke-clamp and hub-support, a heading-tool movable toward the clamp, a header-bar to which the tool is connected, a sliding head movable transversely of the bar, a link connecting the head with the bar, and means for moving the head.

21. In combination with the spoke-clamp, a hub-support, a vertically-adjustable member 19, and a pivotal connection between this member and the hub-support; whereby the hub-support may be adjusted at an inclination and at the same time is movable vertically on its pivotal axis.

22. In combination with the spoke-clamp, a hub-support movable transversely and longitudinally, a heading-tool movable toward the clamp, a lever as 43, a connection between the lever and the header, and a connection between the lever and the hub-support.

23. In combination with a spoke-clamp, a frame 17, a vertically-adjustable member 19 to which the frame is pivoted, a hub-support having a longitudinal sliding connection with the frame but movable vertically with it, a lever carried by the adjustable member, a jointed connection between the lever and hub-support, a longitudinally-moving heading device, a jointed connection between the same and the lever, and means for moving the hub-support vertically.

24. In combination with a spoke-clamp, a hub-support movable vertically transversely of the axis of the spoke, an arm overhanging the hub-support and movable vertically with it, a vertically-moving hub-clamping head mounted in the arm, an adjusting-lever pivoted to the arm, a lever 52 pivoted at one end to the head, a link 51 connecting the lever 52 with the adjusting-lever, and a link connecting the other end of lever 52 with the main frame.

25. In combination with a spoke-clamp, a vertically-movable hub-support, a vertical cylinder and piston, two vertical links having their upper ends jointed to the hub-support and their lower ends jointed to the piston, a horizontal header-bar movable between the two vertical links, and means for moving said bar horizontally.

640,549. FEED MECHANISM FOR COAL-CHUTES. FREDERICK H. EMERY, Scranton, Pa. Filed June 8, 1898. Serial No. 682,868. (No model.)



Claim.—1. In feed mechanism for separators, the combination with an inclined chute provided with a transverse recess, of an oscillatory troughed cylinder located in the recess and means for limiting the oscillation of the cylinder to cause the walls of the trough to aline substantially with the bottom of the chute, substantially as specified.

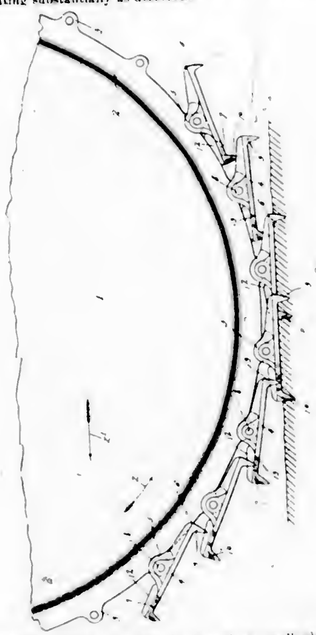
2. In feed mechanism for separators, the combination with an inclined chute provided with a transverse recess, of an oscillatory troughed cylinder within the recess and stop mechanism carried by the cylinder to effect the substantial alinement of the walls of the trough with the floor of the chute, substantially as specified.

3. In feed mechanism for separators, the combination with a longitudinally-inclined chute provided with a transverse recess, of an oscillatory cylinder located within the recess and having its axis in the plane of the chute-floor, said cylinder being provided with a trough having angularly-related walls, and means for limiting the oscillation of the cylinder to cause the substantial alinement of the trough-walls with the chute-floor at the limits of oscillation of the cylinder, substantially as specified.

4. In feed mechanism for separators, the combination with a longitudinally-inclined chute provided with a transverse recess, of an oscillatory cylinder within the recess, provided with angularly-related walls forming a juncture on the axial line of the cylinder, stop mechanism carried by the cylinder beneath the chute and designed to compel the walls of the trough to lie substantially flush with the chute-floor when the cylinder reaches the opposite limits of its oscillation, and means for transmitting power to the cylinder, substantially as specified.

640,550. TRACTION-WHEEL. FREEMAN S. FARR and CHARLES F. NYBERG, Minneapolis, Minn. Filed Mar. 13, 1899. Serial No. 708,795. (No model.)

Claim.—1. The combination with a wheel, of a plurality of calk-plates pivoted thereto at their intermediate portions, which calk-plates have the laterally-spaced arms 6 constituting their heavy ends, and the centrally-located arms 7 constituting their light ends, said parts operating substantially as described



2. The combination with a wheel, of traction or calk plates pivoted to the periphery of the same, one of which parts has a surface that is approximately "V-shaped" in cross-section, and is arranged to move against or close to the adjacent surface of the other part, and in virtue of which construction and relation, accumulations of snow, ice, &c., between the said parts are prevented, substantially as described

3. The combination with the wheel provided with the plurality of hinge-lugs 3, of the plurality of calk-plates 4 pivoted to said hinge-lugs 3 and provided with arms 6 and 7, the centrally-located arms 7 having the upper surface 12 which is approximately "V-shaped" in cross-section, said parts operating substantially as described

4. The combination with a wheel, of the traction or calk plates pivoted thereto, the said plates having abutting edges, one of which is relatively very thick and the other relatively thin

5. The combination with a wheel, of the plurality of calk-plates pivoted thereto, and provided with the depending calks 9 and 10 and the reduced and thin edges 13 and 14 arranged to abut respectively against the said calks, substantially as and for the purposes set forth.

640,551. ARTIFICIAL TOOTH-CROWN. CHARLES A. FOWLE, New York, N. Y. Filed Oct. 6, 1899. Serial No. 732,794. (No model.)



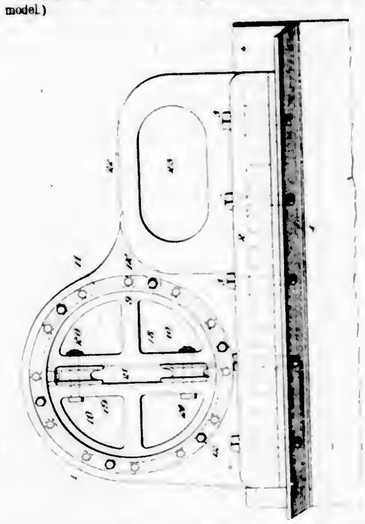
Claim.—1. The combination with the tooth-crown having a central depression or pocket, a transverse slot below the same, and an undercut segmental groove communicating with said slot, of a connecting device having an end portion adapted to enter said pocket and a laterally-projected lug adapted to enter said slot and groove.

2. The combination with the tooth-crown having a transverse slot at its base and an undercut segmental groove communicating with said slot, of a connecting device, comprising a sleeve adapted to enter the crown and provided with a laterally-projected lug adapted to enter said slot and groove, the sleeve being screw-threaded internally, and a locking member constructed to fit into said sleeve with one end, and adapted, at its other end, for attachment to a natural root.

3. The combination with the tooth-crown having a central depression or pocket, a transverse slot below the same, and an undercut segmental groove communicating with said slot, of a connecting device comprising a sleeve, the end of which is adapted to enter said pocket, the sleeve having an internal screw-thread and an outwardly-projected lug adapted to enter the slot and groove of the crown, and a lock-screw one end of which is tapered to connect it with a natural root, while the other end is constructed to fit into said sleeve.

4. As a means for attaching artificial tooth-crowns to natural roots, a sleeve screw-threaded internally and provided exteriorly with a lug, and a locking member constructed to fit into said sleeve with one end, and adapted, at its other end, for attachment to a natural root.

640,552. MOORING AND TOWING CHOCK. DANIEL E. FORD, West Superior, Wis. Filed Nov. 25, 1898. Serial No. 697,363. (No model.)



Claim.—1. In a mooring or towing chock, the combination with a stationary body, of a rotatable frame carried in said body, a slot or opening in said frame extending substantially the entire width thereof, a roller mounted on each extremity of said slot, entirely to one side of the center of the frame, whereby the bight of the rope will engage either of said rollers without the use of fair leads, substantially as set forth.

2. In a mooring or towing chock the combination with a stationary body, a rotatable frame mounted in said body, a roller in said frame with which the cable may engage, antifriction devices for supporting said frame, a ring 11, secured to said body for retaining the said antifriction devices, substantially as set forth.

3. In a mooring or towing chock, the combination with a stationary body, of a rotatable frame mounted in said body, a roller carried by said frame and with which the cable may engage, and a supplemental roller mounted on a swinging axis carried in said frame, substantially as set forth

4. In a mooring or towing chock, the combination with a stationary body, of a rotatable frame mounted in said body, a roller carried by said frame and with which the cable may engage, a supplemental roller mounted on a swinging axis carried in said frame, and means for locking the swinging axis of the supplemental roller in its active position, substantially as set forth

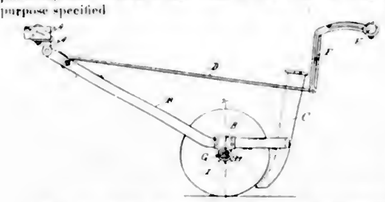
5. In a mooring or towing chock, the combination with a supplemental body, of a rotatable frame mounted in said body, a roller in said frame with which the cable may engage, and a supplemental chock also carried by the said body, substantially as set forth

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640,553. GRAIN-DRILL. CHARLES L. FOWLE, Dowagiac, Mich., assignor to the Dowagiac Manufacturing Company, same place. Filed Nov. 11, 1899. Serial No. 736,713. (No model.)

Claim.—1. In a grain-drill the combination of draw-bars I connected at their forward ends to the drill and extending rearwardly; a disk made up of two parts I, with suitable hubs or axles secured thereto; a bolt extending through the hubs or axles to secure the parts in position; and journal-bearings secured to the draw-bars and a boot supported to the rear of said disk for the purpose specified.

2. In a grain-drill a furrow-opener consisting of oppositely-faced concavo-convex plates I, with hubs or journals at their center and a bolt extending through said hubs to draw the concave sides of the plates together to form a disk which is convex on both sides for the purpose specified



3. In a grain-drill a furrow-opener consisting of oppositely-faced concavo-convexed plates with hubs or journals at their center and means of securing the plates together to form a disk which is convex on both sides, for the purpose specified.

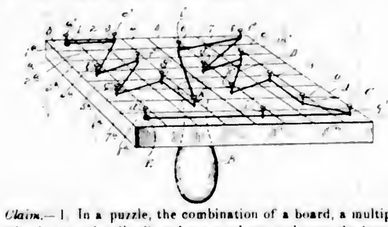
640,554. PROCESS OF MANUFACTURING IGNITERS FOR GAS. LEOPOLD FRIEDBERGER, Berlin, Germany, assignor to the Vulkan, Gesellschaft für Selbstzündende Glühkörper mit Beschränkter Haftung, same place. Filed Sept. 2, 1899. Serial No. 729,378. (No specimens.)

Claim.—1. The process of manufacturing igniters for gas which consists in preparing a mixture of a salt of an earth metal, a chlorid of a metal of the platinum group, a cyanid of a metal of the platinum group, and a chlorin-expelling agent, and calcining, substantially as and for the purpose stated.

2. The process of manufacturing igniters for gas which consists in preparing a mixture of thorium nitrate, platinic chlorid, double cyanid of barium and platinum, and silicic acid, and calcining substantially as and for the purpose stated.

3. The process of manufacturing igniters for gas which consists in impregnating a fabric with water-glass, treating the impregnated fabric with a mineral acid, impregnating anew with a solution containing thorium nitrate, platinic chlorid and double cyanid of barium and platinum, drying and calcining, substantially as and for the purpose stated.

640,555. PUZZLE. DONALD FULLER, Detroit, Mich. Filed Nov. 27, 1899. Serial No. 738,436. (No model.)



Claim.—1. In a puzzle, the combination of a board, a multiple of projections or pins distributed over and secured upon the board-top, a cord, and means for detachably securing the cord at its ends to two of the pins, the portion of the cord intermediate the ends being adapted to be partly wound without slack about each of the remaining pins, and the arrangement being such that the winding may be effected without touching any pin twice or crossing the strands.

2. In a puzzle, the combination of a board having marked upon its upper surface or top a plurality of squares arranged in equal columns, a multiple of pins or projections secured to the board, one pin being located in each corner-square and the balance of the pins being arranged within the columns of squares specified and in the order described, a cord, and means for detachably securing the ends thereof to two of the corner-pins, the portion of the cord intermediate the ends being adapted to be partly wound without slack about each of the remaining pins, and the arrangement being such that the winding may be effected without touching any pin twice or crossing the strands.

3. In a puzzle, the combination of a board, square in configuration and having marked upon its upper surface or top a multiple of squares arranged in equal columns, a multiple of pins fixedly secured upon the board, one pin being arranged in each corner thereof within one of the corner-squares, and the balance of the pins being arranged within the columns of squares specified, and in the order described, a cord, and rings upon the cord ends for detachably securing the latter to a pair of adjacent corner-pins, the portion of the cord intermediate the ends being adapted to be partly wound without slack about each of the remaining pins, and the arrangement being such that the winding may be effected without touching any pin twice or crossing the strands.

640,556. CHAIN-SWIVEL. THOMAS GIGUERE, Attleborough, Mass., assignor of one-half to Filiase Dyon, North Attleborough, Mass. Filed July 8, 1899. Serial No. 723,136. (No model.)

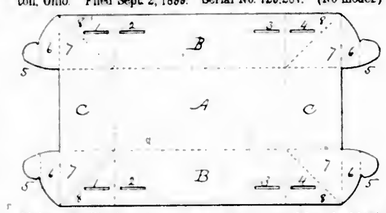


Claim.—1. In a chain-swivel, the combination with the shank provided with a ring at one end and a V-shaped groove surrounding the other end, of a cap rotatably secured in the V-shaped groove of the shank, and the loop and latch secured to the cap by extending the ends through perforations in the cap, as described.

2. In a chain-swivel, the combination with the shank c, the ring c^1, the V-shaped groove c^2 and the hole c^3 in the shank, of the sheet-metal cap b, holes in the cap, the loop a, and the latch a' secured to the cap b by extending the ends through the holes in the cap and extending the metal of the ends over the inner surface of the cap, as described.

3. In a chain-swivel, the combination with the shank c, the hole c^3, the ring c^1, the annular groove c^2 and the hole c^3 in the shank, of the cap b rotatably secured in the V-shaped groove of the shank, the holes b^2, b^4 and b^5 in the cap b, the loop a secured in the hole b^2 of the cap, the latch a', the projection a^4 and the arm a^5 on the latch, and the spiral spring d acting on the bent end of the arm a^5 of the latch, as described.

640,557. KNOCKDOWN PAPER BOX. WALTER G. HAAS, Dayton, Ohio. Filed Sept. 2, 1899. Serial No. 729,287. (No model.)



Claim.—1. The knockdown paper box comprising the blank having a quadrangular bottom, side and end sections for the body, the corner folds, the covering-flaps to which is formed the entering flap adapted to enter the slots in the corner fold and side, substantially as shown and described.

2. The knockdown paper box comprising the blank having a quadrangular bottom side and end sections each with stiffening-flaps adapted to be turned down against their respective sides, the covering-flap on which is formed the entering flap adapted to enter the slots in the sides and corner folds, substantially as shown and described.

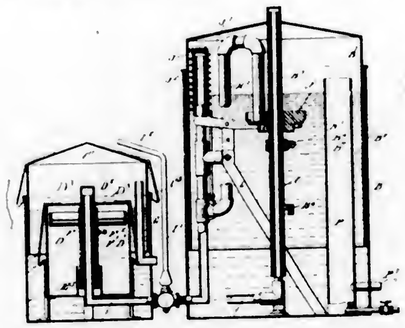
640,558. ACETYLENE-GAS GENERATOR. OLIVER H. HAMPTON, Williamsburg, Ind. Filed Mar. 16, 1899. Serial No. 709,304. (No model.)

Claim.—1. An acetylene-generator comprising a carbid-casing, a gasometer having a tank and a bell, a gas-conducting pipe leading from said carbid-casing to said gasometer, a valve on the said pipe within the gasometer and normally held to its seat by a spring, and a weight carried loosely by the gasometer-bell and adapted to move the valve into an open position against the tension of its sprig upon the descent of the bell, substantially as shown and described.

2. An acetylene-gas generator, comprising a carbid-casing in which gas is generated by water coming in contact with carbid held in said casing, a gasometer having a tank and a bell, a gas-conducting pipe leading from said carbid-casing to said gasometer, a self-closing valve on said conducting-pipe in the gasometer, and adapted to be opened by said bell, upon the bell descending, and a branch pipe leading from said conducting-pipe and extending above the water in the gasometer-tank, and then extending downward therein, to open into the water a distance below the level thereof, substantially as shown and described.

3. An acetylene-gas generator, comprising a carbid-casing in which gas is generated by water coming in contact with carbid held in said casing, a gasometer having a tank and a bell, a gas-conduct-

ing pipe leading from said carbid-casing to said gasometer, a self-closing valve on said conducting-pipe in the gasometer and adapted to be opened by said bell upon the descent of the valve, a lever connected with said valve for opening the same, and a weight carried loosely by the gasometer-bell and adapted to press on said lever and impart a swinging motion thereto, to open the valve against the tension of its spring, substantially as shown and described.



4. An acetylene-gas generator, comprising a carbid-casing in which gas is generated by water coming in contact with carbid held in said casing, a gasometer having a tank and a bell, a gas-conducting pipe leading from said carbid-casing to said gasometer, a self-closing valve on said conducting-pipe in the gasometer, and adapted to be opened by said bell upon the descent of the valve, a lever connected with said valve for opening the same, a weight carried loosely by the gasometer bell and adapted to press on said lever and impart a swinging motion thereto, to open the valve against the tension of its spring, and a collar adjustable on a pipe depending from said bell, for engaging and carrying said weight upon the rising of the said gasometer-bell, substantially as shown and described.

5. An acetylene-gas generator provided with a water-tank, a carbid-casing removably held in said tank and closed at the top and open at the bottom, an ash-bucket arranged to be held at the lower end of the carbid-casing, the said bucket having an inlet for the water at the lower end thereof, a carbid-holder in said casing above the bucket, so that the carbid-ashes drop into the bucket, and means for locking the carbid-casing and ash-bucket together, whereby the bucket may be removed with the casing, from the tank, substantially as described.

6. An acetylene-gas-generator provided with a water-tank having an upper flanged end, a removable cover for said tank having an annular shoulder adapted to rest on the upper edge of the tank, means for locking said cover in place on the tank, a carbid-casing in said tank closed at the top and open at the bottom, an ash-bucket, means for locking the casing and the ash-bucket together, a carbid-holder removably held in said casing above the ash-bucket, and a gas-conducting pipe extending into the carbid-casing to carry off the generated gas, substantially as shown and described.

7. An acetylene-gas generator provided with a water-tank, a carbid-casing removably held in said tank and closed at the top and open at the bottom, an ash-bucket having a water-inlet pipe and arranged to receive the lower end of the carbid-casing, and spring-catches carried by said casing and adapted to engage an annular shoulder or flange at the upper end of the bucket, substantially as shown and described.

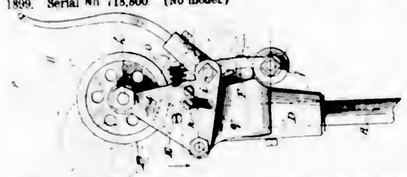
8. An acetylene-gas generator provided with a water-tank, a carbid-casing removably held in said tank and closed at the top and open at the bottom, an ash-bucket having a water-inlet pipe and arranged to receive the lower end of the said carbid-casing, means for locking said casing and bucket together, a pipe closed at its upper end and depending from the top of the casing, a carbid-holder provided with a pipe held on the said pipe depending from the casing, and a gas-conducting pipe extending into the pipe depending from the top of the carbid-casing, substantially as shown and described.

9. An acetylene-gas generator provided with a water-tank, a casing containing carbid and held in said tank, a gasometer having a tank and a bell, a gas-conducting pipe leading from said carbid-casing to said gasometer, a valve in said pipe between the generator and the gasometer, and a valve on the upper end of said pipe within the gasometer and normally held to its seat by a spring, the said valve being adapted to be opened by said bell when the bell descends, substantially as described.

640,559. BROWN SULFUR DYE. OTTO HAENSARN, Berlin, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Oct. 5, 1899. Serial No. 732,699. (No specimens.)

Claim.—The brown dye which results from heating with sulfur and sulfids of alkalis the condensation product formed by the action of paranitrochlorobenzene-ortho-monosulfonic acid upon meta-toluylendianin, said dye forming a brown-black powder, soluble in water, yielding a brown solution which remains almost unchanged on addition of caustic soda lye and in which mineral acids produce a brown precipitate, the dyestuff dissolving in concentrated sulfuric acid with a dirty and brownish violet-red color, ice-water producing in this solution a brown precipitate; the dyestuff being slightly soluble in alcohol with brown color, dyeing unmordanted cotton dark-brown shades, which by subsequent treatment with a mixture of copper sulfate and potassium bichromate are turned bronze.

640,560. TROLLEY. ALFRED N. HAUVER, Fitchburg, Mass., assignor of one half to Herbert E. Jennison, same place. Filed May 31, 1899. Serial No. 718,800. (No model.)



Claim.—1. The combination of the trolley-pole, wheel and feed-wire, with a holding-block secured to the top of said pole, and provided with a cam projection; a swinging frame pivoted to said holding-block at the opposite side from said cam projection, having means for controlling its movements, and upon the upper end of which the trolley-wheel is mounted; means for forcing said swinging frame upward; a tilting frame pivoted to said swinging frame above the cam projection, extending downward and adapted to engage with said cam projection, also having an upward-extending arm carrying a fork adapted to engage with the feed-wire, and means for forcing said upper forked end outward and its lower end inward, substantially as and for the purpose set forth.

2. The combination of the holding-block secured to the top of the trolley-pole and provided with a cam projection, with a swinging frame pivoted to said holding-block at the opposite side from said cam projection, and having means for controlling its movements; means for forcing said swinging frame upward; a tilting frame pivoted to said swinging frame above said cam projection, extending downward and having mounted thereon an antifriction-roll adapted to engage with the cam projection, also having an upward-extending arm carrying a fork adapted to engage with the feed-wire; means for forcing said upper, forked end outward and its lower end inward; the trolley-wheel mounted and fitted to turn on the upper end of the aforesaid swinging frame, and the feed wire, substantially as and for the purpose set forth.

3. The combination of the pivoted swinging frame having means for forcing it upward and for controlling its movements; the trolley-wheel mounted in the top end thereof, and the feed-wire, with a tilting frame, pivoted to said swinging frame, and having an upward-extending fork adapted to engage with said feed-wire and means for tilting said upper forked end inward when the swinging frame ascends and for tilting it outward when said swinging frame descends, substantially as and for the purpose set forth.

640,561. DROP-SIDING FOR HOUSES. MARK R. HENDERSON, Pennsborough, W. Va. Filed June 1, 1899. Serial No. 718,967. (No model.)



Claim.—As a new article of manufacture, a weather-board siding having the upper edge of its outer face formed with a longitudinal projecting bead, and the lower edge of its inner face with a correspondingly-rabbeted groove, and a longitudinal rib formed on the bottom edge of said siding below said groove, the said rib being formed on its inner face with the diagonal shoulder G, substantially as and for the purpose set forth.

640,562. HAND-STAMP. BENJAMIN B. HILL, Philadelphia, Pa. Filed Oct. 24, 1899. Serial No. 734,651. (No model.)

Claim.—In a hand-stamp, the combination with a yoke, the type-

bands, and drums of a band-dater, of a bridge having its edges bent to form a recess, and a cushion supported in said recess, substantially as described.



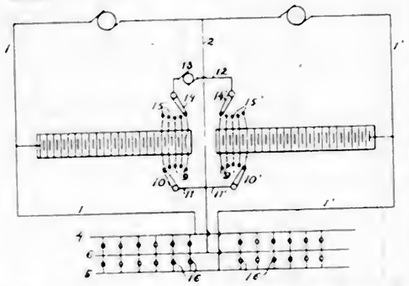
640,563. PROCESS OF MAKING AMIDOBENZYLIDEN ANILIN COMPOUNDS. BENNO HOMOLKA, Frankfort-on-the-Main, and AUGUST STOCK, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 31, 1898. Serial No. 682,159. (Specimens.)

Claim.—The herein-described process for the manufacture of amidobenzyliden-anilin compounds, which consists in subjecting nitrobenzylanilins to the action of alkali sulfids while heated, substantially as set forth.

640,564. PROCESS OF MAKING AMIDOBENZALDEHYD. BENNO HOMOLKA, Frankfort-on-the-Main, and AUGUST STOCK, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 31, 1898. Serial No. 682,160. (No specimens.)

Claim.—The process of manufacturing amidobenzaldehyds, which consists in linking, as herein described, the elements of water to the amidobenzylidene-anilin compounds, and separating the mixture of anilin base and aldehyd thus obtained in the usual manner, substantially as set forth.

640,565. SYSTEM OF ELECTRICAL DISTRIBUTION. ALBERT S. HUBBARD, Belleville, N. J., assignor to the Gould Storage Battery Company, New York, N. Y. Filed July 27, 1899. Serial No. 725,225. (No model.)

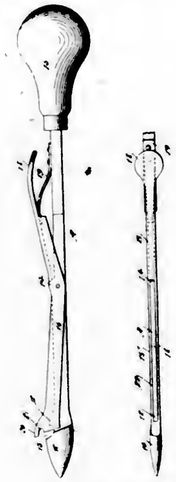


Claim.—1. In a three-wire system of electrical distribution, the combination with the three-wire-supply circuit, of storage batteries connected to the outer wires of the circuit, regulating-cells on each side of the circuit connected to the respective storage batteries, a booster, a connection from said booster through the regulating-cells on each side of the circuit to the respective storage batteries, and a connection independent of the booster, from the respective storage batteries through the regulating-cells on each side of the circuit, to the intermediate wire of the system.

2. In a three-wire system of electrical distribution, the combination with the three-wire-supply circuit, of storage batteries connected to the outer wires of the circuit, regulating-cells on each side of the circuit connected to the respective storage batteries, a booster, a connection from said booster through the regulating-cells on each side of the circuit to the respective storage batteries, and a connection independent of the booster, from the respective storage batteries through the regulating-cells on each side of the circuit, to the intermediate wire of the system, and regulating-switches in the booster connection and in the connection to the intermediate wire, to adjust the number of regulating-cells included in circuit.

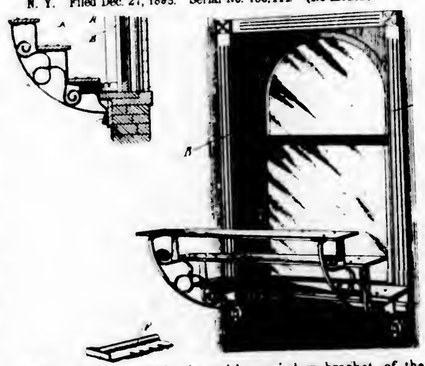
640,566. TAPE-NEEDLE. WALTER S. HUTSON, Pocatello, Idaho. Filed Apr. 19, 1899. Serial No. 713,616. (No model.)

Claim.—1. In a device for stringing hams, or for like purposes, the combination, with a body-bar provided with a piercing-head having inclined shoulders, a portion of the head extending beyond an edge of the said bar, which edge of the bar is provided with a lug adjacent to the piercing-head, and a second lug between the ends of the bar, of a locking-arm comprising two side pieces spaced apart pivotally mounted on the body-bar, the said locking-arm having its outer end adapted for engagement with the shoulders of the said piercing-head, the said outer end of the locking-arm being provided with a recess adapted to receive a cord the arm having also a longitudinal recess therein, the end walls whereof are adapted to engage with the lugs on the locking-arm, and a spring arranged to normally hold the recessed end of the locking-arm in engagement with the piercing-head, as described.



2. The combination of a shank having its end formed with a pointed head terminating in shoulders at its inner ends, a locking-arm pivotally mounted on the shank and comprising two side members connected with each other, said side members respectively lying on the sides of the shank and the locking-arm having its front end arranged to engage the shoulders of the head of the shank to limit the movement of the locking-arm, the front end of the locking-arm being formed with a recess to receive a thread, the recess being closed at the head of the shank when the locking-arm is engaged therewith, and a spring serving to throw the locking-arm into closed position.

640,567. WINDOW-BRACKET. HENRY M. JOHNSON, Gloversville, N. Y. Filed Dec. 27, 1895. Serial No. 700,444. (No model.)



Claim.—1. The combination with a window-bracket, of the hanger-plate herein described, consisting of a plate of metal provided with a bottom flange and an end flange, both at right angles to the main body of the plate, and a series of notches in the top edge of the plate, substantially as set forth.

2. The window-bracket herein described, provided with a carriage for shelves, the lower riser of said carriage having an inverted-T-shaped notch therein, and an ear or lug at right angles thereto, having a threaded perforation for the reception of a set-screw, substantially as set forth.

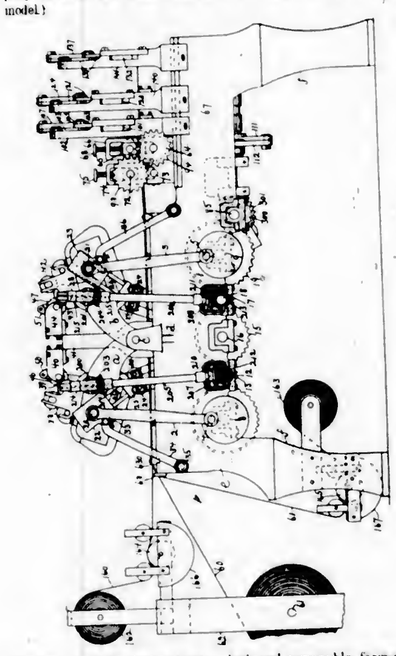
3. The combination with a window-frame and bead thereof of a

bracket hanger, consisting of a plate of metal having a vertical flange at one end, to engage in the rear of the bead, and a horizontal flange at the bottom to engage below the bead upon the sill of the window-frame, substantially as set forth.

4. The combination of the bracket provided in its front face with an inverted-T-shaped slot, with the hanger-plate, provided with notches in its upper edge and the flange at its bottom edge, substantially as set forth.

5. The combination of the bracket, provided in its front face with an inverted-T-shaped notch and on one side with an ear or lug having a threaded opening, with the hanger-plate having a bottom flange and engaging in the T-shaped slot, and a set-screw, threaded in the ear or lug and engaging the face of the hanger-plate, substantially as set forth.

640,568. TICKET-PRINTING MACHINE. EDWIN C. JONES and FRANK L. JONES, Boston, Mass., assignors to the Graham-Jones Company, Kittery, Me. Filed Feb. 25, 1899. Serial No. 706,763. (No model.)



Claim.—1. In a printing-press, a bed, and a movable form-carrier cooperating therewith and having secured to it a chase adapted to contain type of ordinary size which make contact with said form-carrier, said form-carrier having a recess for the reception of a consecutive-numbering mechanism carried by said chase and provided with numbers of increased size or length, the said numbering mechanism making contact with the rear wall of said recess, substantially as described.

2. In a printing-press, a bed, movable form-carriers cooperating therewith, one of said form-carriers having secured to it a chase containing type of ordinary height, and the second form-carrier having secured thereto a chase provided with a consecutive-numbering mechanism having numbers of extra size or length, said second form-carrier having a recess into which said numbering mechanism extends and makes contact with the rear wall of the same, and inking-rolls cooperating with said form-carriers to apply different-colored inks to the type carried by said form-carriers, substantially as described.

3. In a printing-press, a bed, and a movable form-carrier cooperating therewith, and a chase attached to said form-carrier, the latter having its type-engaging surface in different planes, whereby a consecutive-numbering mechanism having type of extra size and type of ordinary size may be carried by said form-carrier and printed simultaneously, substantially as described.

4. In a printing-press, a bed, and movable form-carriers cooperating with the same face of the bed and pivotally mounted to move in the same vertical plane, the pivots of said carriers being transverse with relation to the length of the bed, whereby perfect alinement of the type printed on the same surface by said form-carriers may be obtained, substantially as described.

5. In a printing-press, a bed, and independently-movable form-carriers pivotally mounted on a common center extended transversely of the said bed, and means to operate said form-carriers toward and away from the same surface of said bed, substantially as described.

6. In a printing-press, a stationary bed over which a web of paper is passed, feed-rolls to move said web, a movable form-carrier located above and cooperating with said bed and provided with type-engaging surfaces in different planes, a chase attached to said carrier and provided with type of ordinary size and with a continuous-numbering mechanism having type of extra size, an inking device cooperating with said form-carrier, a main shaft, gearing connecting the movable parts with said main shaft, and a plurality of independent vertically-sliding tools to act on said web after it has been printed upon operatively connected with the main shaft, substantially as described.

7. In a printing-press, a stationary bed over which a web of paper is passed, means to move said web over said bed, a movable form-carrier cooperating with said bed and provided with type-engaging surfaces in different planes, a chase attached to said carrier and provided with type of ordinary size and with a continuous-numbering mechanism having type of extra size, an inking device cooperating with said form-carrier, a main shaft, gearing to connect said movable parts with said main shaft, a reciprocating tool-carrying bar cooperating with the web after it has been printed upon, an upright frame supported above the said bed and in which said bar slides, a rock-shaft, connections between said rock-shaft and said tool-carrying bar to bodily move the same vertically, and means to operatively connect said rock-shaft with said main shaft, substantially as described.

8. In a printing-press, a bed, a movable form-carrier cooperating therewith, mechanism to feed a web of paper over the bed and beneath said form-carrier, a reciprocating tool-holder, toggle-levers connected therewith near its opposite ends, a link or bar connecting said toggle-levers, an arm attached to one of said toggle-levers, a rock-shaft, and a link or bar connecting said arm with said rock-shaft, substantially as described.

9. In a printing-press, a bed, a movable form-carrier cooperating therewith, feed-rolls to move a web of paper over said bed beneath said form-carrier, an intermittent feed mechanism for said feed-rolls provided with a reciprocating rack-bar, and a crank-shaft provided with a crank to which said bar is attached, gearing to rotate said crank-shaft at different speeds, comprising gears 19, 304 separated from each other, a small gear 300 and a larger gear 301 keyed on the crank-shaft and adapted to slide thereon to engage respectively the gears 19, 304, and means to lock one of the movable gears in engagement with its cooperating gear and to hold the other movable gear out of engagement with its cooperating gear, substantially as described.

10. In a printing-press, a bed, movable form-carriers pivoted to the bed-frame, to move in the same vertical plane, ink-distributing rolls carried by said form-carriers, inking rolls movable about the said form-carriers, a main shaft and counter-shafts extended across the machine, mechanism connecting said counter-shafts with the said form-carrier and inking-rolls, feed-rolls, mechanism to intermittently rotate said feed-rolls, a plurality of reciprocating tool-holding devices, a rock-shaft extended in the direction of the length of the machine, and driven from the main shaft, and detachable means to connect said rock-shaft with the reciprocating tool-holders, substantially as described.

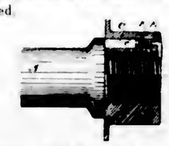
11. In a printing-press, a bed, a movable form-carrier cooperating therewith and provided with a plurality of ink-distributing rolls, a color-pan supported above the bed, a rotatable ink-supplying roll cooperating with said pan and with said distributing-rolls, a ratchet-wheel on said supply-roll, a lever pivoted on said roll and provided with a pawl, a shaft provided with a crank, and a connecting-rod positively connecting the said crank with the pawl-carrying lever, substantially as described.

12. In a printing-press, a bed, and a movable form-carrier cooperating therewith and provided with a recess, a chase attached to said form-carrier and provided with a consecutive-numbering mechanism having disks or wheels provided on their periphery with numbers or type of increased size, and a removable back piece fitted into said recess above the said numbering mechanism, substantially as described.

640,569. NUT-LOCK. JOHN JORGENSON, San Francisco, Cal. Filed Aug. 9, 1899. Serial No. 726,687. (No model.)

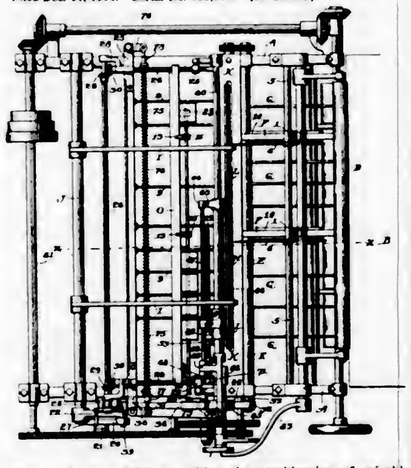
Claim.—1. In a nut-locking device, a nut having a radial groove made straight across its face from one outer edge to its central opening, a hole made at one side and parallel with the threaded opening thereof, a spring-pressed stem mounted in said opening and an arm

directly on the end of the stem and extending at right angles thereto directly and straight across the face of the nut radial to the center of the opening thereof and lying within said groove, and having a beveled point lying interior to the wall of the opening in the nut and adapted to engage a notch in the screw to lock the parts after the nut has been seated.



2. In a nut-lock, a spindle or bolt having one or more notches formed in the outer end, a nut threaded to screw upon the end of the bolt having a groove made in one side from one outer edge to the central opening and extending straight across the face of the nut radial to the axis of the bolt, a hole extending through the nut parallel with the bolt and connecting with the outer end of the groove, a spring-pressed pin slidable in said hole having an arm bent at right angles and pointing directly toward the axis of the bolt, and resting in the groove on the end of the nut, and projecting into the path of the bolt so as to engage a notch therein when the nut has been seated, said arm having a projection at the outer end occupying the portion of the groove above the pin, said nut having a notch whereby the arm may be raised to disengage it from the bolt when the nut is to be removed.

640,570. PAPER-FOLDING MACHINE. HOWARD K. KING, Philadelphia, Pa., assignor to the Chambers Brothers Company, same place. Filed Dec. 11, 1896. Serial No. 615,309. (No model.)



Claim.—1. In a folding-machine, the combination of suitable folding devices, the stop-bar, the positively-driven roller, adjacent thereto, the coacting friction-rollers, means for simultaneously adjusting the said bar and rollers with relation to the folding devices, without changing the positions of said bar and rollers with relation to each other, together with means for carrying the sheet of paper into the bite of said rollers, substantially as and for the purpose set forth.

2. In a folding-machine the combination of suitable folding devices, the stop-bar, the roller journaled to said bar, the coacting friction-roller connected to said bar, means for simultaneously adjusting said bar and rollers as a unit, with relation to the folding devices, the belt connection whereby the first-mentioned roller is positively driven, and means for maintaining a yielding tension upon said belt; the construction and arrangement being such as hereinbefore described, whereby when the said bar and rollers are adjusted the said driving-belt will be automatically adjusted to correspond with the adjustment of the bar and rollers, substantially as set forth.

3. In sheet-stopping devices for folding-machines the combination of the stop-bar, the screw-threaded shafts upon which said bar is mounted, the bevel-gear and shaft connections whereby the said threaded shafts may be simultaneously rotated and the bar be thereby adjusted, the roller journaled to said bar, the coacting friction-rollers connected to said bar, and means for imparting a continuous rotary movement to the first-mentioned roller, substantially as and for the purpose described.

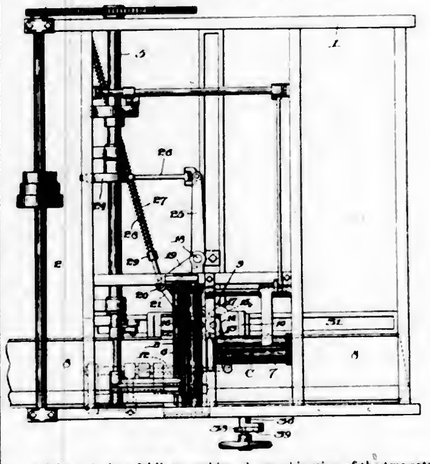
4. In a folding-machine, the combination with suitable folding devices, of sheet-carrying tapes or the like, the friction-rollers superposed thereon, the stop-bar, the positively-driven roller adjacent to said bar, the superposed friction-rollers, coacting with said roller, and means for supporting and directing the sheet of paper into the bite of said positively-driven roller and its coacting friction-rollers, substantially as and for the purpose set forth.

5. In a folding-machine, mechanism for side placement or adjustment of the sheets of paper to be folded, consisting of the combination with suitable folding devices, of means for carrying the sheet into position to be folded thereby, the rotatable shaft, the cam thereon, the nipper rock-shaft, the slotted guide-plate, the nipper secured to said rock-shaft, a longitudinally-movable bar or the like to which the said guide-plate and nipper are connected, and which bar bears against the aforesaid cam; together with the cam upon the said rotatable shaft, adapted to actuate the said rock-shaft and its nipper; substantially as and for the purpose set forth.

6. In a folding-machine, the combination of suitable folding devices, the rotatable shaft, 40, the cam-wheel, 44, thereon, the slotted guide-plate adapted to slide upon said shaft, the bar connected to the guide-plate, and adapted to bear against said cam-wheel, the nipper rock-shaft connected with the said bar, the nipper mounted on said shaft, the cam, 64, upon the said rotatable shaft, the arm on the nipper rock-shaft, the roller carried thereby, means for maintaining said roller in contact with said cam, 64, all constructed and adapted to operate substantially as and for the purpose set forth.

7. In a folding-machine, the combination with suitable folding devices, of the rotatable shaft, 40, the cam, 44, thereon, the sleeve, 46, adapted to slide on said shaft, the sleeve, 47, adapted to slide upon sleeve, 46, the slotted guide-plate and its coacting nipper attached to said sleeve, 47, the bar connected to the sleeve, 46, and adapted to be operated longitudinally by the cam, 44, the screw-threaded journaled shaft connected with said sleeve, 47, the rock-shaft upon which said nipper is mounted and upon which shaft the guide-plate and nipper are adapted to slide, and means, substantially as described, for vibrating said shaft at predetermined intervals, whereby the position of the guide-plate and adjuncts may be varied without affecting their operation substantially as set forth.

640,571. PAPER-FOLDING MACHINE. HOWARD K. KING, Philadelphia, Pa., assignor to the Chambers Brothers Company, same place. Filed Aug. 27, 1897. Serial No. 649,702. (No model.)



Claim.—1. In a folding-machine, the combination of the two sets of folding-rollers and the horizontally-rotatable packing-trough, all relatively arranged as shown and described, the plunger, the arm connected therewith and pivoted to a suitable support, the two arms at right angles with each other and connected with the first-mentioned arm, the rock-shaft, means for oscillating the same at predetermined intervals, together with the pitman connected with said rock-shaft, and adapted to be pivotally connected with either one of said two arms, substantially as and for the purpose set forth.

2. In a folding-machine, the combination of the two sets of folding-rollers and the horizontally-rotatable, vertically-adjustable pack-

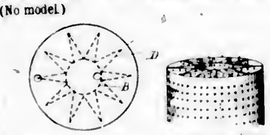
ing-trough, all relatively arranged as shown and described, the plunger, the arm connected therewith and pivoted to a suitable support, the two arms at right angles with each other, and connected with the first-mentioned arm, the rock-shaft, means for oscillating the same at predetermined intervals, together with the pitman having a vertically-sliding connection with said rock-shaft, and adapted to be interchangeably connected to either of said two arms, substantially as and for the purpose set forth.

3. In folding-machine, the combination of the two sets of folding-rollers, 6 and 7, and the horizontally-rotatable and vertically-adjustable packing-trough, all arranged relatively as shown and described, the plunger and means for actuating the same in any of the vertical or horizontal positions to which the trough may be adjusted, together with the supplemental set of rollers between which the sheets folded by said rollers, 6, are adapted to pass and thence drop into the packing-trough, substantially as and for the purpose set forth

4. In a machine of the character described, the combination of the rotatable, vertically-movable post, the packing-trough secured thereto, and means for adjusting vertically said post, the same consisting of the non-rotatable rack connected to said post, the rotatable pinion engaging said rack, and means for maintaining said post in any adjustment thereof, all constructed, combined and adapted to operate substantially as and for the purpose described.

5. In a folding-machine, the combination of the two sets of folding-rollers, the rotatable and vertically-adjustable post, the packing-trough secured thereto, the plunger adapted to reciprocate in said trough, the arm pivoted to said post, substantially concentric therewith, and having its free end suitably connected with said plunger, the two arms substantially at right angles with each other and connected to the first-mentioned arm, the rock-shaft, means for oscillating the same at predetermined intervals, and the pitman having a vertically-sliding connection with said rock-shaft and adapted to be interchangeably connected to either of said two arms, substantially as and for the purpose set forth.

640,572. **CENTRIFUGAL CREAM-SEPARATOR.** CHARLES L. KNEELAND, Lansing, Mich., assignor of one-half to Guy W. Renyx, same place. Filed May 13, 1897. Renewed June 9, 1899. Serial No. 719,958. (No model.)



Claim.—1. In a centrifugal separator, the combination with the bowl, of two cylindrical quieting-screens perforated throughout their surfaces and arranged concentrically within said bowl separated from and arranged one within the other, an inlet-conduit to admit the material between said screens, and outlet-conduits leading from the central and outer portions of the bowl.

2. In a centrifugal separator, the combination with the bowl, of a cylindrical quieting-screen perforated throughout and arranged concentrically within said bowl, a vertically-disposed zigzag screen perforated throughout and arranged in said bowl around said cylindrical screen, an inlet-conduit to admit the material to said bowl, and outlet-conduits leading from the central and outer portions of said bowl.

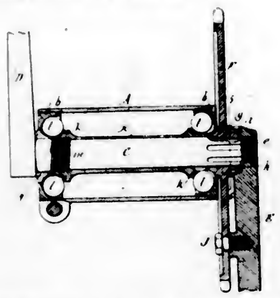
3. In a centrifugal separator, the combination with the bowl, of cylindrical quieting screens perforated uniformly throughout and arranged concentrically within the bowl, and a zigzag screen similarly perforated arranged between said cylindrical screens, substantially as described.

4. In a centrifugal separator, the combination with the outer casing or bowl, of an internal structure comprising the concentric screens B and C uniformly perforated throughout, the zigzag screen D between, and one or more imperforate radial wings E arranged substantially as described.

640,573. **VELOCIPEDE CRANK-SHAFT.** EMMIT G. LATTA, Friendship, N. Y. Filed Sept. 23, 1896. Serial No. 606,737. (No model.)

Claim.—1. The combination with a crank-shaft and a sprocket-wheel hub interlocking therewith, of a detachable crank engaging with the end of the crank-shaft by a screw-thread and operating to force the sprocket-wheel hub upon its seat, an adjustable stop interposed between the crank and the sprocket-wheel hub, and means for connecting the detachable crank with the sprocket-wheel, substantially as set forth.

2. The combination with a crank-shaft and a sprocket-wheel hub interlocking therewith, of a screw-threaded stop-collar engaging with the hub of the sprocket-wheel, a detachable crank engaging with the end of the crank-shaft, by a screw-thread and bearing against said stop-collar and means for connecting the detachable crank with the sprocket-wheel, substantially as set forth.



3. The combination with a crank-shaft and a sprocket-wheel hub interlocking therewith and provided with an external screw-thread, of a tapering screw-threaded stop-collar engaging with said hub, a detachable crank engaging with the end of the crank-shaft by a screw-thread and having a tapering seat which bears against said stop-collar and means for connecting the detachable crank with the sprocket-wheel, substantially as set forth.

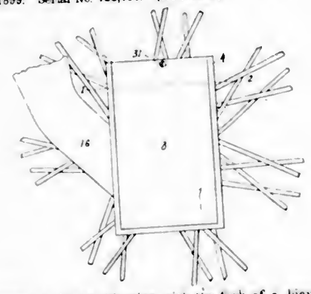
4. The combination with a crank-shaft provided at one end with a permanent crank and at its opposite end with a detachable crank and a detachable sprocket-wheel hub, of a cone-sleeve mounted on the shaft and held against endwise movement in its bearings and adapted to abut against the hub, and a shifting-collar arranged on the inner side of the permanent crank and engaging with the sleeve to shift the shaft in the sleeve, substantially as set forth.

5. The combination with a crank-shaft having a permanent crank at one end and a detachable crank and sprocket-wheel hub at its opposite end, of a cone-sleeve arranged on the crank-shaft, held against endwise movement in its bearings and engaging with the shaft by a screw-thread, and a shifting-collar arranged on the shaft between the permanent crank and the adjacent end of the cone-sleeve and interlocking with the sleeve, substantially as set forth.

6. The combination with a crank-shaft and a hanger or bracket, of bearing-cups arranged in the ends of the hanger and separated from the shaft by an intervening annular opening or space, a bearing-sleeve mounted on the shaft between said cups, and a detachable collar arranged on the shaft at one end of the hanger and fitting into the opening between the shaft and the adjacent bearing-cup, said collar being separate from said bearing-sleeve, whereby the collar can be removed with the shaft without disturbing the bearings, substantially as set forth.

7. The combination with a crank-shaft and a hanger or bracket, of bearing-cups arranged in the ends of the hanger and separated from the crank-shaft by an intervening annular space, a bearing-sleeve mounted on the shaft and terminating at a distance from the ends of the hanger, a sprocket-wheel hub mounted on one end of the shaft and fitting into the space between the adjacent bearing-cup and the shaft, and a removable collar arranged on the opposite end of the shaft and fitting into the space between the shaft and the adjacent bearing-cup, substantially as set forth.

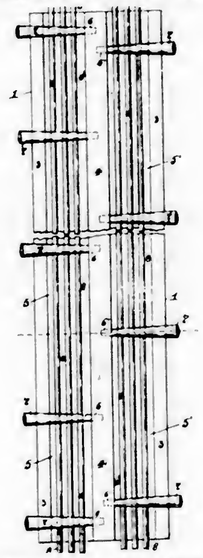
640,574. **BICYCLE.** EDWARD E. LEE, Louisville, Ky. Filed Aug. 28, 1899. Serial No. 728,736. (No model.)



Claim.—1. In combination with the fork of a bicycle and the like, a spring appliance comprising two similar blocks with grooved wings, two half-cylindrical concavities cut in the body of said blocks, a platform between the cavities, a bore through the center of each block for insertion of axle-rod, a casing integral with the front fork of a bicycle grooved flanges in said casing parallel with and facing grooved wings in blocks to serve as ball-races, a pendent spiral spring fastened to top of casing, and inserted between and controlled by half-cylindrical concavities in upper portion of said blocks and resting on platforms, a second spiral spring fastened to bottom of casing, inserted between and controlled by half-cylindrical concavities in lower part of said blocks and pressing against platforms, the blocks being detachably secured to axle-rod, nuts adapted to the axle-rod to retain blocks in position, adjustable sliding plates to afford protection from dust through axle-slots 26, substantially as set forth.

2. In combination with the fork of a bicycle and the like, a spring appliance, comprising two similar blocks with grooved wings, two half-cylindrical concavities cut in body of each of said blocks, platform between said cavities, a bore through the center of each block for insertion of axle-rod, a frame slidingly mounted and laterally adjustable in the grooves of the casing, a casing integral with the rear forks of the bicycle or the like, and provided with a removable bottom to permit insertion of said frame, grooved flanges in said frame parallel with and facing grooved wings in blocks to serve as ball-races, and means for securing and holding said inner frame in position: a pendent spiral spring fastened to top of frame, inserted between and controlled by half-cylindrical concavities in upper portion of said blocks and resting on the platform, a second spiral spring fastened to bottom of frame, inserted between and controlled by half-cylindrical concavities in lower part of said blocks and pressing against platforms, blocks detachably secured to axle-rod, nuts adapted to the axle-rod to retain blocks in position; adjustable sliding plates to afford protection from dust through axle-slot 26, Fig. 6, substantially as set forth.

640,575. **MOLDING OR TROUGH FOR ELECTRIC WIRES.** HARRY LEE, Chicago, Ill., assignor of thirteen-sixteenths to Richard P. O'Connor and Wallace O'Connor, same place, and Ernest W. Beach, Pittsburg, Pa. Filed Oct. 7, 1899. Serial No. 732,894. (No model.)



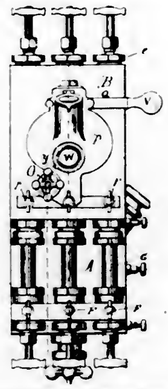
Claim.—1. A molding for electric wires having grooves therein, and removable plugs fitting over said grooves for holding the wires in place while being strung.

2. A molding for electric wires having grooves therein, seats within said grooves, and removable plugs fitting in said seats over the grooves for holding the wires in place while being strung.

3. A molding for electric wires having grooves therein, tapered seats within said grooves, and tapered removable plugs fitting in said tapered seats over the grooves for holding the wires in place while being strung.

4. A molding for electric wires having grooves therein, tapered seats extending within the sides of said grooves at a downward incline, and tapered removable plugs fitting within said tapered seats over the grooves for holding the wires in place while being strung.

640,576. **LUBRICATOR.** EDMUND H. LUNKEN, Denver, Colo., assignor to the Lunkenheimer Company, Cincinnati, Ohio. Filed Dec. 17, 1897. Serial No. 662,344. (No model.)



Claim.—1. In a lubricator, the combination of the oil-reservoir having a projecting multiple fitting cast integral with it and communicating with the top of the reservoir, a plurality of sight-feed glasses arranged side by side and secured at their lower ends to said multiple fitting and at their upper ends to suitable connections leading to the oil-exits, and a condenser above and communicating with the reservoir, substantially as described.

2. In a lubricator, the combination of the oil-reservoir having a projecting multiple fitting cast integral with it at its lower end and communicating with the top of the reservoir, a plurality of sight-feed glasses arranged side by side and secured at their lower ends to said multiple fitting and at their upper ends to suitable connections leading to the oil-exits, and a condenser above and communicating with the reservoir, substantially as described.

3. In a lubricator, the combination of the superimposed condensing-chamber, the oil-reservoir beneath the same having a projecting multiple fitting cast integral with it at its lower end, a plurality of sight-feed glasses arranged side by side on the front face of the oil-reservoir and connected at their lower ends with said multiple fitting and at their upper ends with exit-fittings, and suitable connections and valves for admitting steam to the condensing-chamber and discharging oil through the sight-feed glasses to the different parts to be lubricated, substantially as described.

4. In a lubricator, the combination of the oil-reservoir having a projecting multiple fitting cast integral with it, the condensing-chamber above and projecting forward of the reservoir, a plurality of sight-feed glasses arranged side by side on the front face of the reservoir between the projecting part of the condensing-chamber and the multiple fitting with which they are connected, and suitable connections and valves for admitting steam to the condensing-chamber and discharging oil through the sight-feed glasses to the different parts to be lubricated, substantially as described.

5. In a lubricator, the combination of the superimposed condensing-chamber, the oil-reservoir beneath the same having a projectiog multiple fitting cast integral with it, a plurality of sight-feed glasses arranged side by side and secured at their lower ends to said multiple fitting and at their upper ends to suitable connections leading to the oil-exits, an equalizing-tube for each sight-feed glass opening from the top of the condensing-chamber and discharging into the oil-exit from each sight-feed glass at a point beyond the valve controlling the exit of oil from the sight-feed glass, and suitable connections and valves for admitting steam to the coodensing-chamber and dischargiog oil through the sight-feed glasses to the different parts to be lubricated, substantially as described.

6. In a lubricator, the combination of the oil-reservoir, the condensing-chamber and the oil-exit pipes, the auxiliary oil-chamber with valve mechanism controlling the several oil-exit pipes, and means for drawing the oil from said auxiliary chamber and delivering it to any of said exit-pipes, substantially as described.

7. In a lubricator, the combination with the oil-reservoir, sight-feed glasses arranged side by side on the front face thereof the condensing-chamber and oil-exit pipes, of an auxiliary oil-chamber with valve mechanism controlliog the several oil-exit pipes, and means for drawing oil from said auxiliary chamber and delivering it to any part of said exit-pipes, substantially as described.

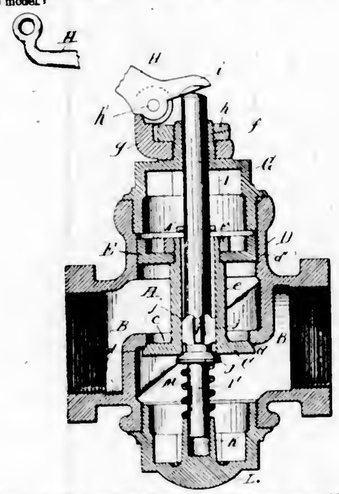
8. In a lubricator, the combination with the oil-reservoir and an exit-pipe therefor, of an auxiliary oil-chamber, and a pump for said

auxiliary chamber for forcing the oil therefrom, substantially as described.

9. In a lubricator, the combination with the oil-reservoir, the condensing-chamber and the oil-exit pipes, of an auxiliary oil-chamber with valve mechanism controlling the several exit-pipes and a pump for said auxiliary chamber for forcing the oil therefrom, substantially as described.

10. In a lubricator, the oil-chamber having at its lower end a projecting multiple fitting and at its upper end a projecting flange provided with one or more perforations combined with a condensing-chamber having at its lower end one or more exteriorly-threaded nipples passed through the perforation or perforations in said flange, clamping-nuts for the lower end of said nipple or nipples, and sight-feed glasses arranged between the lower connections of the nipples, and the connections at the bottom of the reservoir, substantially as described.

640,577. **BALANCED VALVE.** EDMUND H. LUNKEN, Denver, Colo., and HENRY RITTER, Delhi, Ohio, assignors to the Lunkenheimer Company, Cincinnati, Ohio. Filed Apr. 6, 1899. Serial No. 711,957. (No model.)

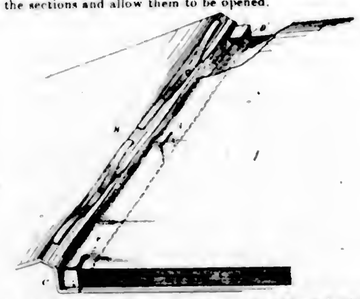


Claim.—1. The combination with a valve-casing provided with an inclosed chamber, of a main valve having a hollow stem carrying a piston arranged in said chamber, a secondary valve having a stem extending through the hollow stem of said main valve and also through said chamber and provided with means for positively operating said main valve after a certain limited movement of said secondary valve, and a lever for engaging the stem of said secondary valve, said lever having its fulcrum supported by the said valve-casing so that the balanced main valve may be positively opened thereby after the said secondary valve has been opened, should steam-pressure in said chamber fail to open said main valve.

2. The combination with a valve-casing provided with an inclosed chamber, of a main valve having a hollow stem carrying a piston arranged in said chamber, one face of said piston being open to the valve-outlet, a secondary valve having a stem extending through the hollow stem of said main valve and also through said chamber and provided with means for positively operating said main valve after a certain limited movement of said secondary valve, and a lever for engaging the stem of said secondary valve, said lever having its fulcrum supported by the said valve-casing so that the balanced main valve may be positively opened thereby after the said secondary valve has been opened, should steam-pressure in said chamber fail to open said main valve.

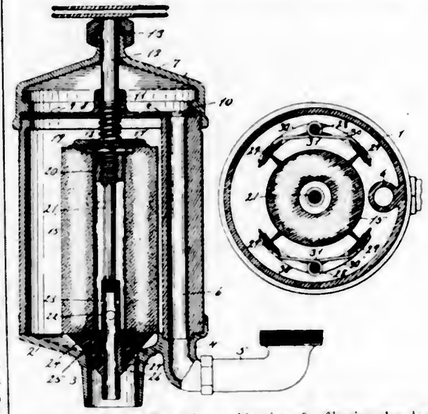
640,578. **TEMPORARY COVER AND BINDER FOR PAPERS.** EMIL MARSEY, San José, Cal. Filed May 9, 1899. Serial No. 716,077. (No model.)

Claim.—1. A cover and binder for papers consisting of a stiff back with flexibly-connected edge sections, rigid plates fixed to the back projecting parallel with the ends of the papers having inwardly-turned tongues adapted to engage corresponding slots made in the ends of the papers, cap-plates extending between the tongues and the back forming pockets within which the ends of the papers are confined, clamping plates or yokes pivoted to the exterior of one of the edge sections and turnable about the pivot so as to clamp the two sections upon the contained papers when they are closed, or to release the sections and allow them to be opened.



2. In a holder and cover for papers, a rigid back having rigid flexibly-connected edge sections and cover-sections upon each edge, rigid plates fixed at each end of the back with inwardly-turned tongues adapted to engage slots in the papers to be held, a spring or springs fixed to one of the edge sections adapted to press upon the papers when said section is turned to inclose them, clamps at opposite ends of the back, one arm of said clamps being pivoted to one of the edge sections and having an extension beyond its pivot-point and the other arm inclosing the other edge section and being sufficiently shorter so that when turned to allow the parts to be opened, it releases the adjacent edge section while the other arm extends across the corresponding edge section and the cover portion which is flexibly connected therewith.

640,579. **FILTER.** JACOB J. MAYER, Cleveland, Ohio, assignor, by mesne assignments, to the Plumbers Brass and Iron Manufacturing Company, same place. Filed June 15, 1899. Serial No. 720,615. (No model.)



Claim.—1. In a filter, the combination of a filtering-chamber, a hollow filtering body within the same and having a filtered-water outlet from its interior, and a series of oblique inlet water-jet openings at the end of the chamber and presenting oblique jets of water against all sides of the filtering body and toward the opposite end of the filtering-chamber, whereby constant forward-and-back agitation of the water within said chamber is attained, substantially as set forth.

2. In a filter, the combination of a filtering-chamber formed with an inlet and an outlet, a valve controlling said outlet, a filtering body in said chamber and connected to move said valve to open and close the same and provided with a filtered-liquid outlet, a brush bearing against the filtering-surface of said body, and means for moving said filtering body in its relation to the brush, substantially as set forth.

3. In a filter, the combination of a filtering-chamber, a filtering body and a brush in said chamber, said brush bearing against the surface of the body and one of said elements being movable in its relation to the other to produce brushing action, and a valve for the chamber and connected to the movable one of said latter elements to be moved together with the same to open or close, substantially as set forth.

4. In a filter, the combination of a cylindrical filtering body, a brush bearing against the surface of the same, means for simultaneously imparting rotary and longitudinal movement to one of said elements in its relation to the other, and a controlling-valve in said filter connected to one of said elements to be moved into open and closed position by the same, substantially as set forth.

5. In a filter, the combination of a filtering-chamber, a tubular filtering body in the same having a filtered-water outlet, a distributing-chamber having a water-inlet, and a partition separating said latter chamber from the filtering-chamber and formed with oblique jet-openings directing the water in oblique jets against the surface of the filtering body, substantially as set forth.

6. In a filter, the combination of a filtering-chamber having an unfiltered-water outlet, a tubular filtering body in the same having a filtered-water outlet, a distributing-chamber having a water-inlet, a partition separating said latter chamber from the filtering-chamber and formed with oblique jet-openings directing the water in oblique jets against the surface of the filtering body, and a valve controlling the unfiltered-water outlet, substantially as set forth.

7. In a filter, the combination of a filtering-chamber having an unfiltered-water outlet, a distributing-chamber having a water-inlet, a partition separating said chambers and formed with oblique jet-openings converging toward the axis of the filtering-chamber, a tubular filtering body axial within the filtering-chamber and provided with a filtered-water outlet from its interior through the unfiltered-water outlet, and a valve around the filtered-water outlet adapted to close the unfiltered-water outlet, substantially as set forth.

8. In a filter, the combination of a cylindrical filtering body, two brushes longitudinally arranged to bear against the circumference of the body and having a spring bearing against them to draw them toward each other and toward the filtering body, and means for rotating one of said elements in its relation to the other, substantially as set forth.

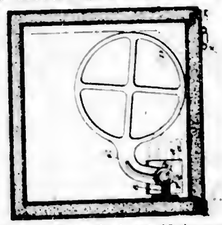
9. In a filter, the combination of a cylindrical filtering body, two brushes longitudinally arranged to said body and having a spring drawing them toward each other and against the body, and means for rotating one of said elements in its relation to the other, substantially as set forth.

10. In a filter, the combination of a cylindrical filtering body, two brush-frames hinged together with their edges longitudinal to said body and having brushes at their free edges facing the body and a spring forcing said brushes toward each other and against the body, and means for rotating one of said elements in its relation to the other, substantially as set forth.

11. In a filter, the combination of a cylindrical filtering body, a pintle parallel with the axis of said body, two brush-frames hinged to said pintle and provided with brushes at their free edges facing the filtering body, a spring coiled around the pintle and having its ends bearing against the backs of the brushes, and means for rotating the filtering body or the brush device, one in its relation to the other, substantially as set forth.

12. In a filter, the combination of a filtering-chamber formed with an unfiltered-water outlet in its bottom, a distributing-chamber above the filtering-chamber and having a water-inlet, a partition between said chambers and formed with a central threaded bearing and with jet-openings inclined toward the axis of the filtering-chamber, a tubular filtering body having a threaded stem in the bearing of the partition and an outlet-tube from its interior extending through the unfiltered-water outlet and a valve surrounding said tube and having a seat over said outlet, and brushes arranged to have longitudinal bearing against the filtering body and having springs forcing them against the same, substantially as set forth.

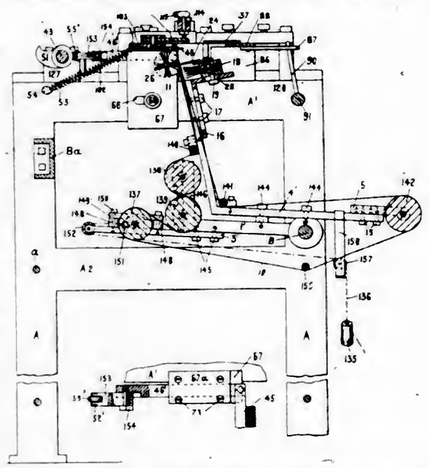
640,580. **SWINGING SHELF.** ARCHIBALD E. MILLER, Baraboo, Wis. Filed Oct. 16, 1899. Serial No. 733,776. (No model.)



Claim.—1. In a swinging shelf, the combination of an inclined or canted pivot-post having a base, and also having circumferential grooves adjacent to its lower and upper ends, a shelf proper having a curvilinear arm, provided at its upper side with a strengthening-web, and terminating in a sleeve loosely mounted on the pivot-post, and antifriction-balls arranged in the circumferential grooves of the pivot-post and interposed between said post and the sleeve of the shelf proper, substantially as specified.

2. The combination with a casing having a swinging door; of a swinging shelf comprising an outwardly inclined or canted pivot-post connected at its lower end to the floor of the casing adjacent to the hinge-point of the door thereof, and a shelf proper having an arm terminating in a sleeve loosely mounted on the pivot-post; said shelf proper being adapted to be moved before and held in its closed position by the door, substantially as specified.

640,581. **PELT-REFINING MACHINE.** KARL MISCHKE, New York, N. Y. Filed May 15, 1899. Serial No. 716,822. (No model.)



Claim.—1. A pelt-refining machine comprising a stationary frame, a stationary and a reciprocating knife, a comb, a rotary brush and means for rotating the brush and for operating the reciprocating knife, mounted on the stationary frame, an oscillating frame, pivotally mounted on the stationary frame, a keen-edged bar, a fur-retaining device and means for stretching and intermittently feeding the fur over the edge of the keen-edged bar, mounted in the oscillating frame.

2. A pelt-unhairing machine, comprising a stationary frame, an oscillating frame movably mounted in the stationary frame, stretcher-bar and means for intermittently feeding a pelt over the edge of the stretcher-bar and a fur-retaining device in front of the stretcher-bar, all mounted in the oscillating frame, a rotary brush, a comb and means for removing of water-hairs and mechanism for rotating the brush and for operating the means for removing the water-hairs mounted on the stationary frame.

3. The combination in an unhairing-machine, comprising a stationary frame, a driving-shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever to the stationary frame and engaging with the cam, and a link connecting the oscillating lever with the oscillating frame.

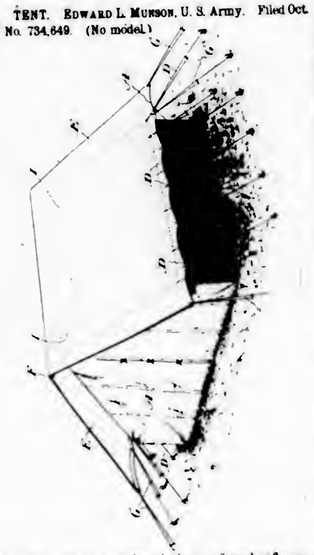
4. The combination in an unhairing-machine, comprising a stationary frame, a driving-shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever pivoted to the stationary frame and engaging an arm pivoted to the oscillating lever and bearing against the cam, a set-screw

set in the oscillating lever and bearing against the arm, and a link connecting the oscillating lever to the oscillating frame.

5. The combination with an unhairing-machine, comprising a stationary frame, a driven shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever pivoted to the stationary frame and engaging with the cam, a clamp adjustably secured to the oscillating lever, a link pivotally connected to the clamp and having its other end connected to the oscillating frame.

6. The combination with a shearing-blade, of an adjusting device therefor consisting of a bar mounted independently of and above the shearing-blade, a series of set-screws set in the bar and bearing with their points on the edge of the shearing-blade and means for securing the set-screws in position.

640,582. **TENT.** EDWARD L. MUNSON, U. S. Army. Filed Oct. 24, 1899. Serial No. 734,649. (No model.)



Claim.—1. A tent having an opening in its roof, and a fly supported away from the roof, a space being thus inclosed between the fly and roof, and in such relation to the roof-opening that currents of air passing through such space, will pass above and across the roof-opening, substantially as and for the purpose described.

2. A tent having supporting-posts at each end and a ridge-pole thereon and provided with an opening in the roof in the ridge thereof, a second ridge-pole elevated from the other, and a fly supported by said second ridge-pole, extending over the tent-roof and the opening therein, and beyond the ends of the tent, substantially as and for the purpose described.

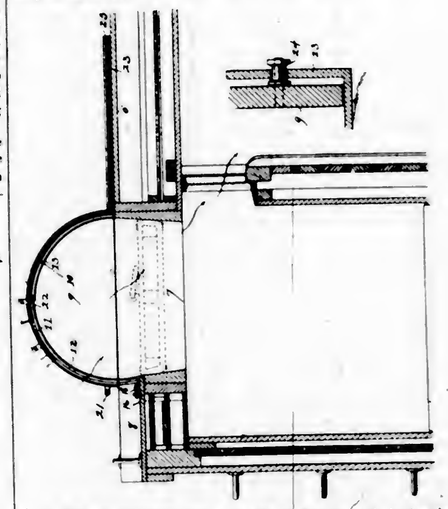
3. A tent having a fly supported away from the roof of the tent, with ends extended beyond the ends of the tent, and inclined, making the fly wider at the bottom than at the top, substantially as and for the purpose described.

640,583. **VENTILATOR FOR REFRIGERATOR-CARS.** FRANCIS J. MCASSEY and ALEXANDER RICHMOND, Chicago, Ill., assignors to Armour & Co., same place. Filed July 6, 1897. Serial No. 643,537. (No model.)

Claim.—1. A combined hatch-cover and ventilator for refrigerator-cars comprising a bodily-slidable structure having a screen-section, and a solid cover therefor and adapted to be moved bodily into position to cover or uncover the ice-hole or hatchway in a car-roof, substantially as described.

2. The combination with a car-roof and the ice-hole or hatchway therein, of a slidable cover therefor having a movable screen-section therein, substantially as described.

3. The combination with a car-roof having an ice-hole therein, of a combined cover and ventilator slidably mounted upon the car-roof and adapted to be moved into position to cover and uncover the ice-hole as desired, said cover and ventilator comprising a hood and two members relatively adjustable thereto and to each other, one of said members being perforated and the other imperforate, substantially as described.



4. The combination with a car-roof having an ice-hole therein, of tracks arranged upon the roof in line with the sides of the ice-hole, and a combined cover and ventilator movably mounted upon said tracks and having a screen-section and an imperforate cover therefor, substantially as described.

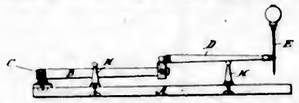
5. The combination with a car-roof having an ice-hole therein, tracks arranged in line with the sides of the opening, a bodily-movable cover and ventilator having closed end walls and a partially-closed rear wall, a screen-section forming a reticulated front, and a solid cover movable into position whereby to cover or uncover said screen portion, substantially as described.

6. The combination with a car-roof and the ice-hole thereof, of a combined ice-hole cover and ventilator comprising a hood having solid end walls and a closed back, a movable screen-section adapted to slide in suitable ways in said hood and a movable imperforate cover for said screen section independently slidable in similar ways in said hood, substantially as described.

7. The combination with a car-roof having an ice-hole therein, track-rails extending upon the car-roof, a slidable cover and ventilator having guides or carriers adapted to the track-rails and a guard-rail overlying said guides or travelers and adapted to prevent the removal or displacement of the cover, substantially as described.

8. A combined ice-hole cover and ventilator of semicylindric form slidably mounted upon the car-roof having closed end walls, a closed back, a screen-section, and a sliding cover for the screen-section, substantially as described.

640,584. **CALCULATING DEVICE.** REDMOND MAHR, Dublin, Ireland. Filed Nov. 12, 1897. Serial No. 658,268. (No model.)



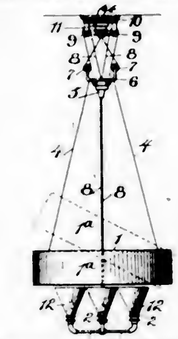
Claim.—1. The table described comprising two or more logarithmic scales, each divided into equal parts arranged parallel to form a table, the right-hand ends of the lines in one of the simple tables matched against the last previous left hand ends of the lines in another so as to serve in continuity therewith, as herein specified.

2. The table described comprising two or more logarithmic scales, each divided into equal parts arranged parallel to form a table, the right-hand ends of the lines in one of the simple tables matched against the last previous left-hand ends of the lines in another so as to serve in continuity therewith, in combination with similar tables applied below and so as to form a duplication of the simple tables both laterally and downward, all substantially as herein specified.

3. A position-finder comprising a plate A, having an edge *a* carrying a plainly-marked point A', a swiveling device C, a stylus or index-pointer E and a variable connection between said post and said pointer, adapted to serve substantially as herein specified.

4. The instrument described comprising a substantial plate or base A, having an accurately-finished edge *a*, having a point A' finely marked thereon, in combination with a turning device C, the arms B and D connected together and to the turning device C by stiffly-flexible joints, and a pointer E carried on the second arm, adapted to serve substantially as herein specified.

640,585. **REFLECTOR.** FRANCIS B. PALMER, London, England. Filed July 11, 1899. Serial No. 723,491. (No model.)



Claim.—1. The combination of a reflector, a lamp arranged opposite the same, and a shade arranged to inclose said lamp except at a part opposite said reflector so as to prevent light being radiated therefrom except toward said reflector, said reflector and shade being movable toward and from each other.

2. The combination of a reflector, lamps arranged opposite the same, and a shade arranged to inclose each of said lamps except at a part or parts thereof opposite said reflector, said lamps with shades being movable relatively to said reflector, substantially as described for the purpose specified.

3. The combination of a horizontally-supported reflector, a lamp carried below the same, and an opaque shade surrounding said lamp so as to prevent radiation of light therefrom except in an upward direction, said reflector and shade being movable toward and from each other, substantially as described for the purpose specified.

4. The combination of a reflector, an electric incandescent lamp, means adapted to support said lamp opposite said reflector and to carry the conductors leading to and from said lamp, and a shade arranged to surround said lamp except at a part thereof opposite the reflector, said reflector and shade being movable toward and from each other, substantially as described for the purpose specified.

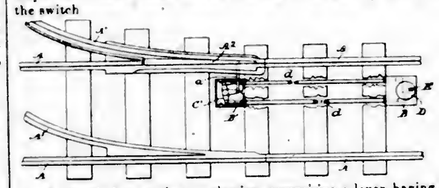
5. The combination of a reflector, two or more lamps supported opposite the same, and two or more opaque shades each separately inclosing a lamp except at a part thereof opposite said reflector, the several lamps with shades being relatively movable toward and from said reflector, substantially as described for the purpose specified.

6. The combination of a reflector, a movable support arranged above and carrying said reflector, pulleys carried by said movable support, electric lamps arranged below said reflector and each inclosed in an opaque shade that is of upwardly-flaring shape and open at the top, a frame or holder carrying said lamps and shades, a fixed support arranged above said movable support, pulleys carried by said fixed support, and flexible cords connected to said frame or holder and to said fixed support, passing around the pulleys carried by said fixed and movable supports, and inclosing the conductors leading to and from said electric lamps, substantially as described for the purpose specified.

640,586. **RAILWAY-SWITCH-OPERATING MECHANISM.** WALTER S. PHELPS, Muncie, Ind. Filed June 17, 1899. Serial No. 720,912. (No model.)

Claim.—1. A railway-switch provided with a case and a vertical shaft journaled in the case and provided with a horizontal disk working upon the top of the case, a vertical contact-pin secured to the disk, and a lever detachably secured to the vertical shaft within the case and operatively connected to the switch.

2. A switch-operating mechanism comprising a pair of connected cases, connected levers mounted in the cases, a rod connecting the switch-point with a lever in one of the cases, a crank-pin connected with a lever in the other case, a trip-bar and a guide-bar therefor acting upon the rail or like stable element and mounted movably upon a motor or equivalent vehicle, and means whereby the trip-bar may be actuated to form contact with the crank-pin, for operating the switch



3. A switch-operating mechanism comprising a lever having a vertical crank-pin and having connection with a switch-point, a trip-bar and a guide-bar therefor acting upon the rail or like stable element and mounted movably upon the motor-vehicle, and a lever whereby the trip-bar may be shifted to form contact with the crank-pin for operating the switch.

4. A switch-operating mechanism comprising a lever having a vertical crank-pin and suitably mounted in the roadway and connected to control the switch, a trip-bar mounted upon a motor, a compression-beam controlled by the trip-bar, a guide-bar actuated by the compression-beam and provided with a roller, springs whereby the trip-bar and the guide-bar are normally retained in inactive position, levers whereby the trip-bar is actuated to contact with the crank-pin to operate the switch and whereby the guide-bar is forced into contact with the rail to limit the movement of the trip-bar whereby the same is prevented from interfering with obstructions.

5. A switch-operating mechanism comprising a laterally-moving lever having a vertical contact-pin and to which the switch is connected, and a vertically-movable trip-bar adapted to engage with the contact-pin and controlled in its vertical movement downward by means acting against the railway-rail as a gage whereby accurate adjustment for contact with the pin is obtained.

6. A railway-switch provided with a case having an annular bearing upon the top thereof and a lever mounted within the case and operatively connected to the switch, a horizontally-rotating disk mounted on the annular bearing upon the case and provided with a vertical contact-pin and operatively connected to the levers within the case below.

7. A switch-operating mechanism comprising a pair of counterpart cases, levers mounted in the cases and connected together operatively, a rod connecting the switch with the lever in one case, a vertical contact-pin mounted above the opposite case and operatively connected to the lever therein, a pair of vertically-movable trip-bars each having a beveled foot facing each other and carried by a motor-vehicle, and a guide-bar carried by the same motor-vehicle and controlled by either of the trip-bars to contact with the railway-rail or like stable element already existing as a gage whereby accurate adjustment may be had for either of the pair of trip-bars in contact with the vertical contact-pin.

8. A switch-operating mechanism comprising a pair of connected cases, a disk mounted upon one of the cases, a vertical contact-pin secured to the disk, a lever in each of the cases and connected and one of which is operatively connected to the disk and the other of which is operatively connected to the switch, a pair of trip-bars each provided with an adjacently-disposed beveled contact-face whereby the contact-pin is engaged, a guide-bar adapted to gage the downward movement of the pair of trip-bars and operated by either of the trip-bars independently of the other, and means whereby the trip-bars are operated.

9. In a switch-operating mechanism, the combination of the motor, the brackets attached to the motor-frame, the housings attached to the brackets, the trip-bar, the guide-bar, the supporting-springs for the trip-bar and the guide-bar, the compression-beam, and the levers and connections whereby the trip-bar and guide-bar are forced downward, substantially as shown and described.

10. In a switch-operating mechanism, the combination of the switch, the motor, the separately-situated cases, the connecting-tubes, the levers mounted in the cases, the switch-connecting rod, the rods extending through the tubes and connecting the levers in the cases, the disk connected to the case-cover and provided with the shaft removably connected to the lever in the case below, the vertical pin attached to the disk, the stops, the trip-bars, the guide-bars, the compression-beam, the supporting-springs, the levers for operating the trip-bars, the pressure-bars, and the connecting-cables, substantially as shown and described.

11. In a switch-operating mechanism, the combination with a switch, of the cases B and B', the connecting-tubes *b*, *b*, the lever C' and attached lever C^2 mounted in the case B', the switch-connecting rod, the jaws *d'*, the lever C in the case b and having the aperture C^4, the cover 2 upon the case B', the cover 3 upon the case B and provided with the annular bearing 5 and stops 9, the journal-bearing 10 and annular flange *h* surrounding the top of the bearing 10, the disk D provided with the annular bearing 6 and flange 7 and stops 8, the annular air-chamber *i* above the flange *h*, the shaft D' attached to said disk and extending through the bearing 10 and aperture C^4, and the pin E, substantially as shown and described.

12. In a switch-operating mechanism, the combination of the switch, the operating-levers connected with the switch, the vertical crank-pin whereby the levers are actuated, the motor, the brackets attached to the motor-frame, the housings attached to the brackets, the trip-bars in pairs spring-pressed upward in a housing, the guide-bars spring-pressed upward in a housing, the compression-beam extending through the trip-bars and connecting a guide-bar whereby the same is pressed down as a gage, the levers whereby the trip-bars are forced down, and the pressure-bars and connections whereby the trip-bar levers are operated, substantially as set forth.

13. The combination of the cases B B', the connecting-tubes adjustably attached to said cases, the lever C' and its supporting-shaft, the lever C^3 rigidly connected to said lever and its shaft, the connecting-rod *a*, the lever C having the square central aperture, the rods *d*, *d*, extending through said tubes and adjustably connected to said levers C and C', the cover 2, the cover 3 having the journal-bearing 10, the shaft D' engaging said lever C and provided with the nut to retain the same in position, the lever at the top of said shaft D' and having the pin E, whereby said levers may be actuated, substantially as set forth.

14. The combination of the case B having the bottom 1 provided with the bearing 12, the cover 3 provided with the bearings 10 and 5, the raised flange *h* around the end of said bearing 10, the disk-lever having the pin E and provided with the bearing 6 and flange 7, and annular air-chamber *i*, substantially as shown and described.

15. The combination with the motor-vehicle, of the bracket G, the housings H and K secured to said bracket, the trip-bar I and a spring therefor, the guide-bar J and a spring therefor, the compression-beam L connecting said trip-bar and said guide-bar, and the compression-levers suitably actuated, substantially as set forth.

16. In a railway-switch, the combination with the switch, of a case and a horizontal lever mounted therein having a connected rod attached to the switch-point and having a pair of oppositely-disposed horizontal arms situate at a right angle to the horizontal lever, a second case and a horizontal lever mounted thereon and provided with a vertical contact-pin and having a pair of oppositely-disposed horizontal arms situate at right angles thereto, and rods connecting the four described horizontal arms, substantially as set forth.

17. In a railway-switch-operating mechanism, the combination of a pair of separated cases one of which is provided with an annular bearing upon the top thereof and a journal-bearing at the center of the annular bearing, a vertical shaft in the journal-bearing and provided with a disk bearing upon the annular bearing, a vertical contact-pin secured to the disk, a pair of tubes adjustably connecting the cases, a lever in each of the cases and having each three arms situate horizontally, one of which is detachably secured to the vertical shaft and one of the arms of which in the opposite case is connected with the switch-point, adjustable rods extending through the tubes and connecting the levers in the two cases, and an annular air-chamber at the top of the journal-bearing whereby water is prevented from entering the journal-bearing, substantially as set forth.

18. In a switch-operating mechanism, the combination of the switch, the motor, the separately-situated cases, the connecting-tubes, the levers mounted in the cases, the switch-connecting rod, the rods extending through the tubes and connecting the levers in the cases, the disk mounted upon the case-cover and having frictional bearing-surfaces and provided with the shaft connected to the lever in the case below, the vertical pin attached to the disk, the trip-bars, the guide-bars, the compression-beam, the supporting-springs, and means whereby the trip-bars may be operated, substantially as shown and described.

19. In a switch-operating mechanism, the combination of the contact-pin, the motor, the brackets mounted on the motor, the trip-bars in pairs supported by the brackets and spring-pressed upward, the guide-bars supported by the brackets and spring-pressed upward, the compression-beam extending through the trip-bars and connecting a guide-bar whereby the same is pressed down as a gage by the trip-bar, and means whereby the trip-bars are forced down, substantially as shown and described.

20. In a switch-operating mechanism, the combination with a switch, of the cases B and B', the connecting-tubes *b b*, the lever C' and attached lever C^2 mounted in the case B', the switch-connecting rod, the lever C in the case B and having the aperture C^4, the cover 2 upon the case B', the cover 3 upon the case B and provided with the annular bearing 5, the journal-bearing 10 and annular flange *h* surrounding the top of the bearing 10, the disk D provided with the annular bearing 6 and flange 7, the annular air-chamber *i* above the flange *h*, the shaft D' attached to said disk and extending through the bearing 10 and aperture C^4 and removably secured in said aperture, and the contact-pin E, substantially as shown and described.

21. The combination of the case B having the bottom 1 provided with the bearing 12, the cover 3 provided with the bearing 10, the shaft D' in said bearings, the lever detachably secured to such shaft, and the vertical contact-pin operatively connected to such shaft D' whereby the same may be rotated, substantially as set forth.

22. The combination of the case B provided with the cover 3 having the bearing 10, the shaft D' in said bearing, the disk-lever secured at the top of said shaft, the contact-pin secured to said disk-lever, the lever C secured to said shaft, the case B', the three-arm lever in said case B', and the rods connecting said three-arm lever with said lever C, substantially as set forth.

23. The combination of the case B, the shaft D', the lever C, the disk-lever provided with the pin E, the case B', the lever C', the lever C^3, the rod A, the tubes *b b*, and the connecting-rods *d d*, substantially as set forth.

24. The combination of the case B, the cover 3 provided with the bearing 10 and the annular flange at the top thereof, the shaft D' in said bearing and provided with the disk at the top thereof and the annular air-chamber between said flange and the disk, substantially as set forth.

25. The combination of the case B, the cover provided with the annular frictional bearing, the shaft mounted vertically in the case, the lever attached to the shaft, the disk provided with the annular frictional bearing working upon the frictional bearing upon the cover whereby the shaft is prevented from shifting accidentally, and the contact-pin attached to the disk, substantially as set forth.

26. The combination with a vertical contact-pin for actuating the switch, of a pair of vertically-moving trip-bars mounted on a vehicle face to face and each provided with a foot beveled at the working face so that the point of either foot when depressed may engage with such contact-pin and draw the same laterally so as to pass under the adjacent one of such pair of trip-bars, substantially as set forth.

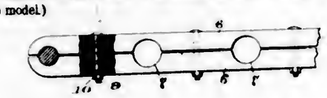
27. The combination with a vertical contact-pin for actuating the switch, of a pair of vertically-moving trip-bars mounted on a vehicle and provided each with a beveled or laterally-curved foot and a vertical slot in the body of the bar, a guide-bar also mounted on the vehicle and provided with a compression-beam extending through the slots in the trip-bars whereby either of the trip-bars may actuate the guide-bar, and means whereby the trip-bars may be operated independently, substantially as set forth.

28. In a switch-operating mechanism, the combination of the trip-bars I I' provided with the foot I^4 and slot *t*, the supporting-springs, the guide-bar, and the compression-beam connected to the guide-bar and extending through the slots *t t*, substantially as set forth.

29. In a switch-operating mechanism, the combination of the trip-bars I I' provided each with the opening *u*, the bearing-plate *v* extending through said opening *u* in both bars, and the spring in each of said openings, substantially as set forth.

30. In a switch-operating mechanism, the combination of the guide-bar J provided with the opening *n*, the bearing-plate *p*, the spring in said opening, the compression-beam connected to said bar, and the roller at the bottom of said guide-bar, substantially as set forth.

640,587. CUTTER FOR MOWERS OR HARVESTERS. THOMAS H. POLLOCK, Omaha, Nebr. Filed May 22, 1899. Serial No. 717,761. (No model.)



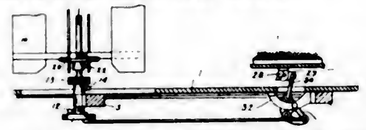
Claim.—1. A cutting mechanism for a mower or harvester, comprising in its construction a supporting-frame, comprising an upper and a lower bar, said upper bar being divisible longitudinally and the sections thereof being adjustable toward each other, a plurality of independent cutters or knives journaled to operate horizontally between the bars and means for revolving the adjacent cutters in opposite directions, substantially as described.

2. A cutting mechanism for mowers and harvesters, comprising in its construction a supporting-frame consisting of an upper and lower bar, the upper bar being divisible longitudinally and the sections thereof being adjustable toward each other, a plurality of cutters or knives arranged to operate horizontally between the bars and to overlap each other in the cutting operation, which cutters are formed with a hub

or extension upon the upper end of which are provided a pin-wheel and a perforated belt which engages the pin-wheels on opposite sides so as to cause the adjacent cutters to revolve in opposite directions

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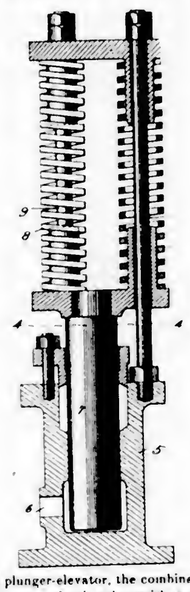
640,588. FANNING-MILL. PERRY POYNKER, Columbus, Ind. Filed Feb. 25, 1899. Serial No. 706,850. (No model.)



Claim.—1. A fanning-mill including a fan-shaft smooth throughout its length, suitable bearings in which it is mounted, means secured thereto by set-screws for preventing lateral movement, fan-supporting disks and a driving-disk all secured thereon by set-screws, substantially as set forth.

2. A fanning-mill including a shoe, a bell-crank for oscillating the shoe, means for actuating the bell crank, a metal frame or bracket secured to the body of the mill and formed of a pair of parallel bars integral with a pair of end bars at right angles thereto, said parallel bars having oppositely-placed holes therethrough, and a bolt passing through the bell-crank bub and the holes in said parallel bars with a nut for securing it therein, substantially as set forth.

640,589. PLUNGER-ELEVATOR ACCUMULATOR. GEORGE H. REYNOLDS, Chicago, Ill., assignor to the Crane Elevator Company, same place. Original application filed Apr. 30, 1897, Serial No. 634,547. Divided and this application filed Oct. 8, 1897. Serial No. 654,523. (No model.)

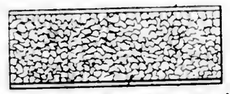


Claim.—1. In a plunger-elevator, the combination with a main cylinder, of a casing communicating therewith, a plunger operating in said casing, a rod connected to said casing, and a spring interposed between said rod and plunger, and operating in opposition to the pressure in said main cylinder, as and for the purpose set forth.

2. In a plunger-elevator, the combination with the main cylinder, of a casing communicating at one end with said cylinder, a plunger operating in said casing and projecting from the other end thereof, rods connected to said casing, and springs interposed between said rods and the projecting end of said plunger, as and for the purpose set forth.

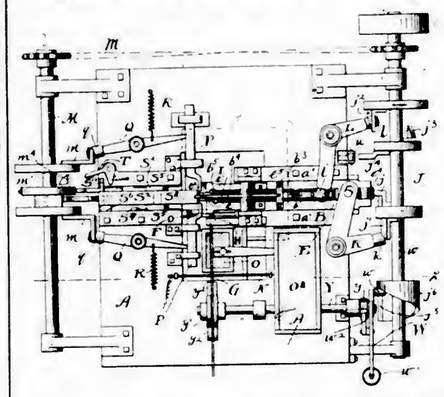
3. In a plunger-elevator, a main cylinder, a casing communicating therewith, a plunger operating in said casing, rods connected to said casing, and springs arranged to bear at one end against said rods and at the other end against said plunger, the tension of said springs being exerted in opposition to the movement of said plunger due to increase in pressure in the main cylinder, as and for the purpose set forth.

640,590. POLISHING-BOB. JOSEPH RIGG, Yardley, and HENRY HART, Harborne, England. Filed May 12, 1899. Serial No. 716,600. (No model.)



Claim.—As a new article of manufacture, a polishing-bob consisting of leather cuttings or granulations amalgamated with water, glue, resin, gum-dragon, vinegar, gutta-percha and carbon bisulfid, substantially as described.

640,591. CHAIN-MAKING MACHINE. DAVID ROCHE, Cleveland, Ohio, assignor of two-thirds to Albert Schoeur and John A. Sanders, same place. Filed Mar. 27, 1899. Serial No. 710,587. (No model.)



Claim.—1. In a chain-making machine, the combination with mechanism for bending stock into a loop, and mechanism for welding the ends of said loop, of mechanism for varying the distance between the loop and the welding-tools, and means for heating the ends of the loop while it is comparatively distant from the welding-tools between the bending and welding operations, substantially as described.

2. In a chain-making machine, mechanism for passing a bar of metal through a link, mechanism for bending it into a loop in this position, mechanism for bending the ends of the loop together, mechanism for moving the loop away from the welding mechanism, means for then heating the ends of the loop to a welding heat, and mechanism for then bringing the heated loop to the welding mechanism, in combination with such welding mechanism, substantially as described.

3. In a chain-making machine, the combination of mechanism for holding a link, means for heating a bar, mechanism for moving the heated bar into the link, mechanism for bending said bar into a loop, mechanism for completing the loop into a new link, and mechanism which comes into action just preceding the completing mechanism and is adapted to separate the loop and such completing mechanism and again return them, and means for heating such newly-formed loop while it is thus separated from the completing mechanism, substantially as described.

4. The combination with mechanism for forming a loop of metal in the end of a chain, mechanism for welding together the ends of said loop, a liquid electric forge, and mechanism for dipping the ends of the loop into the liquid between the forming and welding operations, substantially as described.

5. The combination with a liquid electric forge of a trough adapted to carry a chain with a partly-formed link, means for giving said trough a movement to and from said forge whereby said partly-formed link is heated, and means for welding the partly-formed link, substantially as described.

6. In a chain-making machine, in combination, a trough adapted to hold a portion of the chain, means for establishing a loop for a new link in the end link of the trough, mechanism for moving the trough out of its normal position, an electric forge into which the loop

passes in such movement whereby the loop becomes heated, and mechanism for welding the loop, substantially as described.

7. In a chain-making machine, in combination, a pivoted trough, a liquid electric forge beneath the same, said trough being adapted to carry a chain and a new link being formed and swing it downward to said forge whereby the new link becomes heated, substantially as described.

8. The combination, in a machine for making chain, of a pivoted trough, adapted to carry a portion of the chain, a liquid electric forge, means for causing said trough to move to and from said forge, means for moving material for a new link into a link in said trough, an inside former, a pair of outside formers adapted to bend the new material against the inside former into a loop, and means for welding together the ends of the loop, substantially as described.

9. In a chain-making machine, the combination of a pivoted trough adapted to carry a portion of the chain, mechanism for feeding the material for a new link into a link in said trough, a pair of formers, means for causing said formers to bend the new material into a loop, and heating means so located that the pivoted trough may swing the link being formed thereto, substantially as described.

10. In a chain-making machine, the combination of a trough adapted to carry a portion of the chain, mechanism for feeding the material for a new chain into a link in said trough, a bifurcated slide lying on opposite sides of the trough, rigid formers carried on said slide, and means for forcing said slide forward whereby the formers bend the new material into a loop, substantially as described.

11. In a chain-making machine, in combination, means for supporting a chain, means for moving material for a new link into the last-completed link, mechanism for bending such material into a loop, mechanism for bending the ends of the loop upon each other, mechanism for squeezing them together, and means for heating the ends of the loop during the operation and just preceding to their being squeezed together, substantially as described.

12. In a chain-making machine, in combination, a trough B adapted to carry a portion of a chain, a beveled block b^3 near one end thereof, and a spring-arm b^4 adapted to bear on one side of a link being made whereby as the link is withdrawn it is turned about its axis approximately ninety degrees, substantially as described.

13. The combination, with means for holding a link being formed in the end of a chain, of a liquid electric forge, mechanism for moving said link into said forge, and a pair of pivoted jaws, and mechanism for advancing the same until they stand on opposite sides of the new link, and for then bringing them together, to weld said link, substantially as described.

14. The combination, in a chain-making machine, of two liquid electric forges, one adapted to give more intense heat than the other, mechanism for feeding the material heated by the less intense forge into a link of a chain, mechanism for bending said material into a link form, mechanism for bringing it into the other forge to heat its ends to a welding heat, and a mechanism for squeezing said ends together to weld them, substantially as described.

15. In a chain-making machine, the combination of means for holding the chain already made, a pair of formers adapted to bend a rod extending through the last link in the chain into a loop shape, an inside former adapted to stand within such loop, a pair of lateral formers adapted to bend the ends of the loop together to make a link shape, and a pair of jaws adapted to pinch together said ends, there being means for heating said ends to a welding heat, substantially as described.

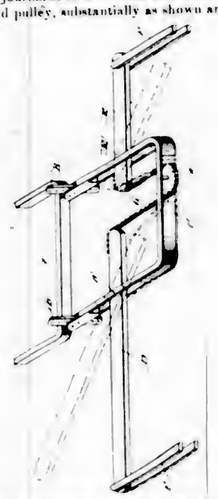
16. In a chain-making machine, in combination, mechanism for feeding forward stock, a rod with which said stock engages, a tank containing a liquid, said rod and liquid forming the terminals of a liquid electrical forge whereby said stock is heated, means for cutting off said stock, and means for forming a link out of said cut-off portion, substantially as described.

17. In a chain-making machine, in combination, a trough adapted to carry a portion of the chain, a beveled block b^3 near one end thereof, and mechanism for drawing the chain along the trough whereby the beveled block turns the link at that end about its axis, substantially as described.

18. In a chain-making machine, in combination, a pivoted trough adapted to carry a chain, a lever L adapted to bear on said trough and hold it in normal position, mechanism for actuating said lever to move it away from the trough whereby the trough moves into another position, substantially as described.

640,592. DRAFT-EQUALIZER. JOHN RUSK, Cheneyville, Ill. Filed Apr. 22, 1899. Serial No. 714,035. (No model.)

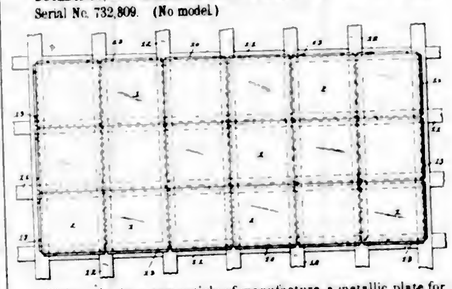
Claim.—1. A draft-equalizer, comprising a frame pivoted on the plow and made U-shaped in form, the sides and front being formed with slots, levers of different lengths and extending through the said slots and pivoted to the sides of the frame, the pivots being so arranged relatively to each other as to insure an equal draft on the outer ends of the levers, a flexible connection for the inner ends of the said levers, and a pulley extending in the slot at the front end of the frame and journaled in said front end, said flexible connection passing over said pulley, substantially as shown and described.



2. In a draft-equalizer, the combination of a U-shaped frame adapted to be attached at its ends to the object to be drawn, an equalizing lever fulcrumed on each longitudinal member of the frame, a sheave mounted on the transverse member of the frame, and a flexible connection between the ends of the levers and passing over the sheave.

3. In a draft-equalizer, the combination of a frame adapted to be attached to the object to be drawn, the frame having longitudinal and transverse members, levers fulcrumed on the longitudinal members, a sheave mounted on the transverse member, and a flexible connection attached to the levers and passed around the sheave.

640,593. METALLIC PLATE FOR WALLS AND CEILINGS OF BUILDINGS, &c. GEORGE RUSSELL, McKeesport, Pa. Filed Oct. 6, 1899. Serial No. 732,809. (No model.)

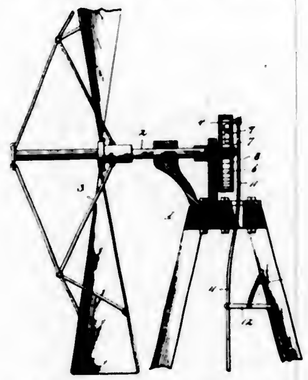


Claim.—1. As a new article of manufacture, a metallic plate for covering the walls and ceilings of buildings, &c., formed of a plain equilateral outline and having all of its sides provided with S-shaped folds to form a tongue-and-grooved joint, so that each plate connected thereto may be interlocked at any one of said sides with another plate of similar outline by the tongue on the side of one plate engaging with the groove in the opposite plate, and each of said plates being secured to the structure to be covered.

2. As a new article of manufacture, metallic plates for covering the walls and ceilings of buildings, &c., having a plain equilateral outline of four sides and all of said sides being provided with S-shaped folds to form a tongue-and-grooved joint, so that each plate may be interlocked at any one of said sides with another of similar outline by the tongue on the side of one plate engaging with the groove on the side of the opposite plate and each of said plates being secured to the structure to be covered.

3. A sheathing or covering for the walls and ceilings of buildings, &c., consisting of metallic plates, each having a similar plain equilateral outline of four sides, and each having such four sides provided with S-shaped folds to form tongue-and-grooved joints, said plates being secured to each other and to the surface to be covered.

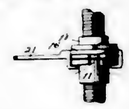
640,594. CRANK-WHEEL. DELANO SANFORD, Scotch Grove, Iowa. Filed Jan. 4, 1898. Serial No. 665,507. (No model.)



Claim.—1. In pumping apparatus, the combination of a continuously-rotating driving member, a pump-rod, and a clutching and releasing device attached to the driver to intermittently grasp and lift the pump-rod and intermittently release and drop it, substantially as described.

2. In pumping apparatus, the combination with a wind-wheel and wind-wheel shaft constituting a driving member, of a cylindrical casing fast thereon, a wheel mounted adjacent to the casing, a pump-rod connected eccentrically thereto, and a pawl mounted on said wheel adjacent to the pump-rod connection and designed to connect said wheel to the casing during a portion of its rotation, and to disconnect the wheel and casing during the remainder of the rotation of the wheel, whereby the pump-rod is free to descend independently of the casing.

640,595. UNION. MAX F. STADTMULLER, Pomeroy, Iowa. Filed Apr. 27, 1899. Serial No. 714,681. (No model.)



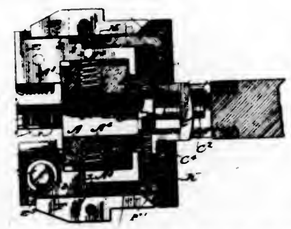
Claim.—1. In a union composed of separable members, each having an outer flange formed with notches, a clamp-collar loosely mounted upon one of the members and having hooks passed through the notches of the flange thereof and adapted to pass through the notches in the flange of the other member, and a retaining-collar applied to the member bearing the clamp-collar and holding the latter in place, substantially as described.

2. A union composed of separable members having flanges formed with corresponding notches, the portions of one of the flanges formed by the notches having their outer faces inclined, a clamp-collar mounted upon the member matching with the one having the flange-sections formed with inclined faces, and having hooks to pass through the notches of both flanges and ride upon the inclined faces, and a retaining-collar for holding the clamp-collar in place, substantially as described.

3. The union formed in separable sections, the notched flange on each section, the clamp-collar on one section, the hooks on the collar arranged and so shaped as to engage one of the flanges, the retaining-collar and the arm on the clamp-collar, in combination with pipes or rods screw-seated in the outer ends of the sections.

4. The union comprising telescoping sections, mating flanges on said sections, one of which flanges has inclined outer faces, a clamp-collar mounted for revolution on the receiving member, an arm on the collar, an actuating-rod attached to said arm, a retaining-collar on the receiving-section, hooks on the clamp-collar arranged and so shaped as to engage the inclined outer faces of the flange and means for mounting said sections on pipes.

640,596. AUTOMATIC ADJUSTABLE DIE. FRANK H. STAHL, Charlestown, W. Va. Filed May 12, 1899. Serial No. 716,604. (No model.)



Claim.—1. In a die substantially as described the combination of the carrier-block having radial channels, the die-jaws operating therein and provided with front and rear flanges overlapping and fitting against the front and rear ends of the carrier-block whereby the jaws are held and guided in their radial movements, the springs for opening the jaws, and means for closing the jaws substantially as set forth.

2. The combination of the die-jaws, the support for same, the cover-sleeve arranged to operate the die-jaws and provided with the projecting lever-arms arranged to overlie the outer ends of the die-jaws, and means for moving the cover-sleeve to release the die-jaws, substantially as set forth.

3. The combination with the die-jaws having the movable blades, the cover-sleeve arranged to operate said die-jaws, the levers pivoted to said cover-sleeve and arranged to engage the blades of the die-jaws whereby to operate the same, and means for operating said levers substantially as set forth.

4. The combination of the die-jaws stepped and having the separate blades provided with the projecting shanks also forming steps, the cover-sleeves having cams for closing the jaws, and the enlarged channel at its outer end, the levers pivoted to the cover-sleeve and engaging the shank of the die-jaw blades, and means for operating said levers substantially as set forth.

5. The combination of the die-jaws having the movable blades, the blocks supporting the same, the cover-sleeve, the levers thereon and arranged at one end to engage the die-jaw blades, and the ring threaded on the cover-sleeve and engaging the opposite ends of the said levers whereby to operate the same substantially as set forth.

6. The combination with the threaded ring and threaded portion receiving the same, of the bolt having its axis parallel with that of the ring and threaded to mesh with the threads of the ring and pivoted eccentrically to the threaded portion receiving the ring, whereby the bolt may be turned to set it into and out of engagement with the threaded ring substantially as set forth.

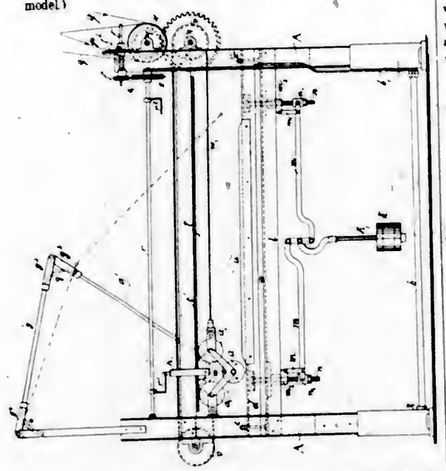
7. The combination with the die-jaws, the support for same, the cover-sleeve, and the levers thereon, of the ring for adjusting said levers, such ring being threaded on the cover-sleeve, and the bolt pivoted eccentrically to the cover-sleeve and having the exterior threaded portion movable into and out of mesh with the threads of the threaded ring substantially as set forth.

8. The combination of the carrier-block having the central bore and the longitudinal passages for the throw-off pins, the die-jaws, the cover-sleeve having a back plate arranged for engagement by the throw-off pins, the throw-off pins operating in such passages and projecting beyond the outer end of the head and the yoke arranged to engage the back plate of the cover-sleeve and having the bolt in the bore of the carrier-block, all substantially as described whereby the cover-sleeve may be released by engagement of the outer ends of the throw-off pins with a shoulder on the work or by the engagement of the end of the pipe or rod being threaded with the bolt on the yoke substantially as set forth.

9. The combination of the carrier-block having channels for the die-jaws, the die-jaws fitted in said channel and having the die-blades, the springs for opening the die-jaws, the cover-sleeve movable longitudinally and rotarily on the die-jaws whereby to close the die-jaws, hold the same closed and release them, the levers pivoted to the cover-sleeve and arranged at their outer ends to engage the die-jaws, the ring engaging the inner ends of the levers whereby to operate the same, means for locking said ring, and throw-off devices for releasing the cover-sleeve substantially as set forth.

10. The combination of the die-jaws having the movable blades fitted in said jaws and projecting at their outer ends beyond the jaws and the cover-sleeve arranged to operate the jaws and provided with projecting portions arranged to overlie the projecting portions of the movable blades of the die-jaws when the latter are in operative position substantially as set forth.

640,597. LEATHER-WORKING MACHINE. OTTO STEGMEYER, Charlottenburg, Germany. Filed Dec. 29, 1898. Serial No. 700,635. (No model.)



Claim.—1. In a leather-working machine, the combination of a work-table, a brace-beam, a carriage bearing against said brace-beam and provided with hooks suspending it from the brace-beam, above the work-table, and a working cylinder journaled in said carriage whereby the working cylinder may be suspended by the hooks above the work-table and facilitate the placing of the leather thereon, with driving mechanism for the carriage, and means for automatically reversing the movement of the carriage at each end of its travel, substantially as described.

2. In a leather-working machine, the combination of a carriage, a working cylinder journaled therein, a driving-band secured to the carriage, a shaft provided with two loose pulleys and a fast pulley, driving-belts carried on said pulleys and running in opposite directions, and gearing between said shaft and said driving-band, with a projection on said carriage, a rock-shaft parallel with the line of movement of the carriage provided with arms at each end adapted to be struck by said projection at the end of the travel of the carriage in either direction a belt-shifter mounted on a shaft parallel to the rock-shaft and mechanism operated by the said rock-shaft to move the said belt-shifter, substantially as described.

3. In a leather-working machine, a work-table, a carriage provided with a working cylinder suspended and adapted to reciprocate above said work-table, with screws *n* fastened to the work-table, nuts *n'*, levers *m* connected to the said screws by means of the nuts *n'*, a weight acting on said levers, blocks m^3 bearing against a stationary part of the machine, and links connecting said blocks and said levers, substantially as described.

4. In a leather-working machine, the combination of a pressing-plate, a carriage provided with a working cylinder, driving mechanism for the carriage, and means operated by the carriage to automatically reverse the driving mechanism at each end of the travel, with means under the control of the operator for reversing the driving mechanism at any point of travel of the carriage.

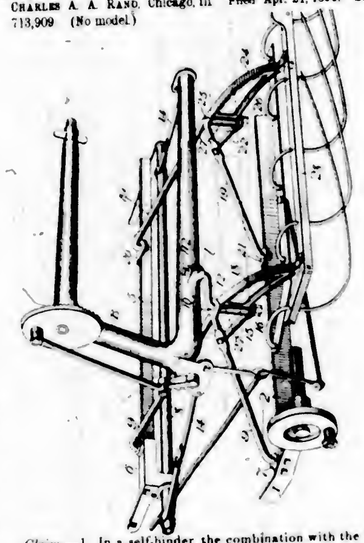
640,598. COMBINATION-TOOL. DANIEL D. STETLER, Medford, Okla. Filed July 10, 1899. Serial No. 723,407. (No model.)



Claim.—1. A tool comprising a member having a head, the head provided with a longitudinally centrally arranged web and constituting clamping-shoulders extending transversely of the web, a member having its inner end provided with parallel jaws receiving between them the said web, and having a pivotal connection between the jaws and the web at a point intermediate its ends, the web having a cutter-opening, one of said jaws having a cutter-opening adapted to cooperate therewith and the jaw at the opposite side of the web cut away to prevent engagement with the wire being cut, substantially as described.

2. A tool of the character described comprising a handle provided with a web, a head at the outer end of the web constituting transversely-extending clamping-shoulders, a handle pivoted to said web, and provided with clamping-surfaces coacting with the transversely-extending clamping-shoulders, one of the handles provided with a longitudinally-extending ridge having serrations and situated at a point inside of the pivotal point of the handle and coöperating with the adjacent face of the other handle, substantially as described.

640,599. SELF-BINDER HARVESTER. JOHN F. STEWARD and CHARLES A. A. RAND, Chicago, Ill. Filed Apr. 21, 1899. Serial No. 713,909. (No model.)



Claim.—1. In a self-binder, the combination with the harvester-frame, of a horizontally-swinging crane pivoted at its inner end to the frame, and a binder frame or casting connected near its heavier end to and supported by the outer end of the crane.

2. In a self-binder the combination with the harvester-frame, of a swinging crane pivoted at its inner end to the frame, a binder frame or casting, and a connection between the crane and the binder-casting whereby the latter is supported and allowed to move in a straight line as the crane swings.

3. In a self-binder, the combination with the harvester-frame, of a swinging crane pivoted at its inner end to the frame, a binder frame or casting, and a cranked hinge-pin interposed between the casting and the crane and pivotally connected with each.

4. In a self-binder, the combination with a base-sill of the frame, and a horizontal cross-bar of the elevator-frame, of a bifurcated crane, the inner ends of whose arms are pivoted to said sill and bar respectively, a binder frame or casting, and a cranked hinge-pin journaled in the outer end of the crane, and pivotally connected to the binder-casting near its heavier end, whereby the weight of the binder is supported by the crane and it is allowed to move in a straight line as the crane swings.

5. In a self-binder, the combination with the harvester-frame, of a swinging crane pivoted at its inner end to the frame near its front corner, a binder frame or casting pivotally connected with and supported by the outer end of the crane, a similar crane pivoted at its inner end to the harvester-frame near the rear end, and a bundle-carrier connected to and supported by the outer ends of said cranes.

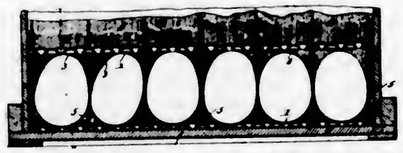
6. In a self-binder, the combination with the harvester-frame, of a swinging crane pivoted at its inner end near the front corner of the frame, a similar crane likewise pivoted to the frame near the rear, a binder frame or casting, a cranked hinge-pin journaled in the outer end of the front crane and pivotally connected with the casting near its heavier end, bracket-arms projecting outwardly from the ends of the cranes, and a bundle-carrier secured to and supported by said arms.

7. In a self-binder, the combination of the sill 1 and the cross-bar 5, of the crane 9 whose bifurcated arms are pivoted to said sill and bar, the binder frame or casting, and the cranked hinge-pin 12 pivotally connected to the casting and journaled in the outer end of the crane so as to allow the casting to move in a right line.

8. In a self-binder, the combination of the swinging crane 9, the binder frame or casting, the cranked hinge-pin 12 journaled in the outer end of the crane and pivotally connected to the casting, the bracket-arm 18 secured to the outer end of the crane, and a bundle-carrier the front end of which is secured to and supported by the arm.

9. In a self-binder, the combination of the swinging cranes 9 and 19, the binder frame or casting, the cranked hinge-pin 12 journaled in the outer end of the frame 9 and pivotally connected to the casting, a bundle-carrier and bracket-arms 18 and 24 projecting respectively from the cranes 9 and 19 and supporting the carrier.

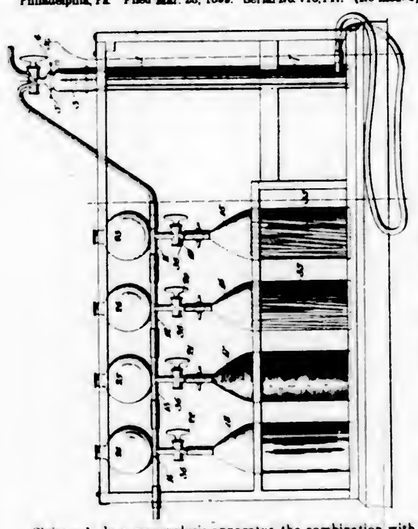
640,600. SHIPPING-CRATE. ROBERT I. STEWART, Xenia, Ohio. Filed Nov. 4, 1898. Serial No. 696,491. (No model.)



Claim.—1. An improved shipping-crate for eggs, comprising an external box; a series of horizontally-disposed division members, each consisting of a cushioning body of stiff elastic material composed of independent fluted ungummed layers held together without the use of glue or the like, said body having flutes or corrugations alternately arranged on opposite faces, said flutes or corrugations having the opposite edges bent inward toward each other, whereby to provide a contracted space on one face of the division member and a widening cushioning bearing-surface on the opposite face of the said member, said division members being so arranged above the boxes that the bearing-surfaces of one division member will oppose the contracted space of the next division member; and filler-frames having division members relatively so disposed that one side of the divisional members will have their lower edges seat in the contracted portions of the cushioning members and their upper edges seated against the flat bearing-surfaces of the other cushioning member, whereby the cushioning body or member will not injuriously affect the eggs, all being arranged substantially as shown and described.

2. A compartment-crate for eggs comprising a case and a cushioning division or partition therein composed of a plurality of thicknesses or layers of paper plaited to form cushioning corrugations, the several layers being held together without the use of glue or the like whereby the crate will not injuriously affect the eggs shipped therein substantially as set forth.

640,601. APPARATUS FOR GAS ANALYSIS. GEO. E. THOMAS, Philadelphia, Pa. Filed Mar. 23, 1899. Serial No. 710,147. (No model.)



Claim.—1. In a gas-analysis apparatus the combination with a burette of a plurality of absorption-reservoirs and a storing-reservoir, all connected with the burette by capillary tubing, each reservoir provided with a funnel having a funnel-tube extending downward through the top of the reservoir to near the bottom of same and means for raising and lowering liquid in the burette to cause the introduction therefrom of gas into the reservoirs to the displacement of liquid therefrom and the withdrawal of the gas from the reservoirs back into the burette substantially as described.

2. In a gas-analysis apparatus the combination with a burette of a plurality of absorption-reservoirs and a storing-reservoir, all connected with the burette by capillary tubing, each reservoir provided with a funnel having a funnel-tube extending downward through the top of the reservoir to near the bottom of same, means for raising and lowering liquid in the burette to cause the introduction therefrom of gas into the reservoirs to the displacement of liquid therefrom and the withdrawal of the gas from the reservoirs back into the burette and means connected with the funnel-tube for opening and closing communication between the funnel and reservoir, separate means respectively for opening and closing communication between the reservoirs and the capillary tubing, substantially as described.

3. In a gas-analysis apparatus the combination with a burette of a plurality of absorption-reservoirs and a storing reservoir, all connected with the burette by capillary tubing, each reservoir provided with a funnel having a funnel-tube extending downward through the top of the reservoir to near the bottom of same, means for raising and lowering liquid in the burette to cause the introduction therefrom of gas into the reservoirs to the displacement of liquid therefrom and the withdrawal of the gas from the reservoirs back into the burette, and means connected with the funnel-tube for opening and closing communication between the funnel and reservoir, separate means respectively for opening and closing communication between the burette and the capillary tubing and between each of the reservoirs and the capillary tubing, substantially as described.

4. In a gas-analysis apparatus the combination of a burette and leveling-tube as means for separating from the gas supply a definite amount of gas for analysis and for introducing and withdrawing the same from the reservoirs, a plurality of reservoirs connected by capillary tubes with the burette, funnels connected with the reservoirs by funnel-tubes extending through the tops thereof to near the bottoms of same, and means for exploding the residuum of gas in the burette after the absorption process, substantially as described.

5. In a gas-analysis apparatus the combination with a burette of a leveling vessel as means for raising and lowering liquid in the same, a tube connected with the burette as means for detachably connecting the burette with the gas-supply, a plurality of reservoirs connected with the burette, and a funnel connected with each reservoir through the top thereof for containing the liquid forced from the reservoir by the introduction therein of gas, substantially as and for the purposes described.

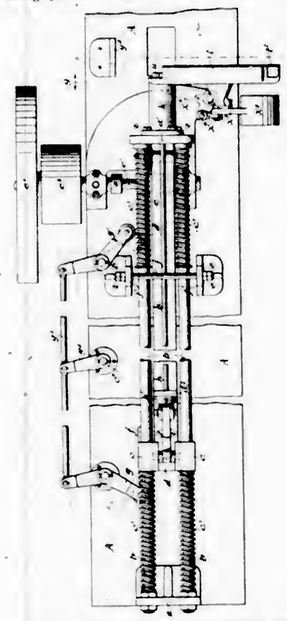
6. In a gas-analysis apparatus the combination of a measuring-burette and a leveling-tube connected together at their lower ends by a flexible tubing, means for connecting the burette with the gas-supply, a plurality of absorption-reservoirs and a storing-reservoir, detachably connected with each other and the burette by separable capillary T-tubes, each reservoir provided with a funnel having a funnel-tube extending through the top of the reservoir to near the bottom of the same, means connected with the funnel-tubes between each absorption-reservoir and its respective funnel for opening and closing communication between the same, and means for opening and closing communication between each reservoir and the capillary tubing and means for opening and closing communication between the burette and the tubing and for opening and closing communication between the burette and gas-supply, substantially as and for the purpose described.

7. In a gas-analysis apparatus the combination with a burette provided with electric terminals, of a plurality of reservoirs connected with the burette by capillary tubing, each reservoir provided with a superimposed funnel having a tube therefrom extending downward through the top of the reservoir to near the bottom of the same and means for raising and lowering liquid in the burette, substantially as described.

640,602. APPARATUS FOR COMPACTING FEATHERS INTO TUBES. CHARLES T. THOMPSON, Philadelphia, Pa. Filed May 9, 1899. Serial No. 716,094. (No model.)

Claim.—1. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a long metal tube, open at both ends, and held in position to receive the entire stroke of the plunger; a series of cartridges of similar internal diameter and open at both ends; means substantially as described, whereby the cartridges are automatically and successively fed and held in position in front of the open end of the tube into which the plunger enters; and means substantially as described whereby upon completion of the stroke of the plunger, the empty cartridge is removed from its position before a new cartridge is fed in place, substantially as described.

2. In an apparatus for compacting tubes with feathers, the combination of a sliding plunger; an automatically-reciprocating sliding bar; a connection between the two which is positive during a period of the motion of reciprocation; and means, substantially as described, whereby the sliding bar, shortly before reaching the forward extremity of its stroke, is temporarily released from its connection with the plunger, whereby the reversal of the motions of the plunger and of the sliding bar at the forward extremities of their strokes are prevented from being synchronous, substantially as described.



3. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a metal tube; a series of cartridges, open at both ends; and a slotted cartridge-guide whereby the cartridges are successively delivered in position in front of the metal tube and in alinement with the plunger, substantially as described.

4. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger; a metal tube and cartridge-seat at one extremity of the metallic tube; means for successively inserting a series of cartridges into a cartridge-seat; and a cartridge-extractor consisting of the plate, y', the pivoted lever, y^3, beveled upon one side, the inclined plane, y^5, and the flange, y, operatively connected with the reciprocating plunger beveled upon one edge and reciprocating in operative connection with the pivoted lever, y^5, substantially as described.

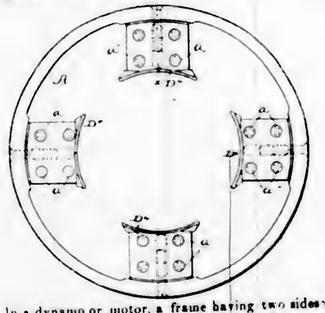
5. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger; a series of cartridges, open at both ends; a long metal tube, open at both ends; and a tube-gage surrounding the extreme end of the metal tube and of sufficient internal diameter to allow a canvas tube or similar article to slide within it and outside the metal tube, substantially as described.

640,603. FIELD-MAGNET. MORRIS S. TOWSON, Cleveland, Ohio. Filed Sept. 5, 1899. Serial No. 729,535. (No model.)

Claim.—1. In a dynamo or motor, a frame having two separate sets of laminations secured therein, and means for securing said frame in place, the said securing means passing into said frame between the sets of laminations, substantially as described.

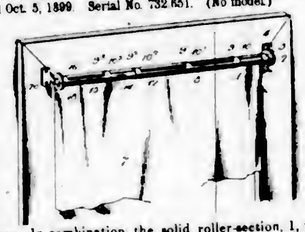
2. In a dynamo or motor, a frame having two independent sets of laminations secured therein, a web forming part of said frame, and means for securing said frame in position, the said securing means passing into said web between the sets of laminations, substantially as described.

3. In a dynamo or motor, a frame having two independent sets of laminations secured therein with an air-space between them, a web forming part of said frame and located between said sets of laminations, and retaining-bolts passing between said sets and into the said web, substantially as described.



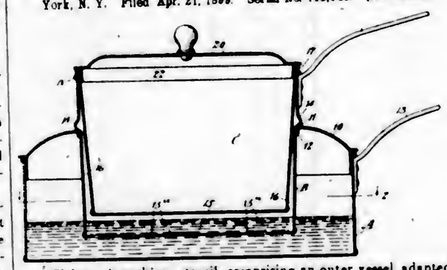
4. In a dynamo or motor, a frame having two sides connected by a web, two sets of laminations secured in said frame, one on each side of said web, and retaining-bolts passing between said sets of laminations and into said web, substantially as described.

640,604. SHADE-ROLLER. ARNE S. TRAGETHON, Kensett, Iowa. Filed Oct. 5, 1899. Serial No. 732,651. (No model.)



Claim.—In combination, the solid roller-section, 1, the tube, 8, adjustably secured thereon, the sleeve, 14, having its end adjustably secured in said tube, 8, the tube, 15, fixed on the opposite end of said sleeve, the stationary collar, 17, the pawls carried by the sleeve, the winding-shaft and spring, and the ratchet fixed on said shaft in the path of said pawls, substantially as shown and described.

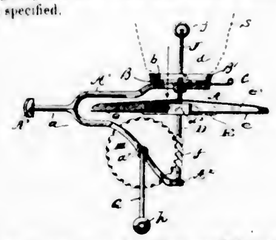
640,605. COOKING UTENSIL. WILLIAM A. VAN DEUSEN, New York, N. Y. Filed Apr. 21, 1899. Serial No. 713,941. (No model.)



Claim.—A cooking utensil, comprising an outer vessel adapted to receive water, a cover removably supported on said vessel and provided with a central circular opening and an inwardly-turned edge surrounding said opening, an intermediate cylindrical vessel inserted through said opening and having a perforated bottom and an annular flange adapted to engage with the said inturned edge whereby to support the vessel with its bottom spaced from the bottom of the outer vessel, an inner vessel of downwardly-tapering form fitted in the intermediate vessel and formed with a rib at its upper edge adapted to engage with the top of the intermediate vessel whereby to hold the inner vessel with its bottom spaced from the perforated bottom, and a cover having a horizontal flange of such width that the cover may be used on any of the vessels, as set forth.

640,606. HAND BROADCAST SEED-SOWER. MARION C. WALLS, Indianapolis, Ind., assignor to James A. Everitt, same place. Filed Oct. 9, 1899. Serial No. 733,080. (No model.)

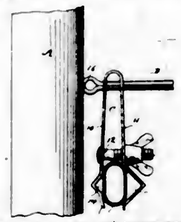
Claim.—1. In a hand seeding-machine, the combination with a frame, a receptacle to hold the supply of grain, having means for discharge in regulated quantities, and a shaft having seed-throwing arms with three-sided inclosures and spiral flanges as shown and described, of a wheel and a crank-shaft on which the wheel is mounted, said wheel having diagonal teeth which mesh with the spiral flanges, substantially as specified.



2. In a seeding-machine of the kind specified, the combination with a frame, a receptacle to hold the supply of grain having means for discharging in regulated quantities, and a revoluble shaft, of a grain receiving and throwing device comprising a center plate under the grain-supply divided by flanges on the side next to the said grain-supply into three-sided inclosures and having a radially-projected flanged arm extending out through the open side of said inclosures, substantially as shown and described.

3. In a hand broadcast seed-sower, a frame, a receptacle to hold the grain-supply having means for discharging the grain in regulated quantities, a shaft having seed-throwing arms comprising a center plate under the grain-supply opening and arms secured to said center plate, the latter being pentagon in shape with flanges to form three-sided inclosures and having plates with flanged back edges secured to the plate and extending radially through the uninclosed side of said inclosures, said shaft having spiral flanges as shown, a crank, a crank-shaft and a toothed wheel mounted on said crank-shaft having diagonal teeth to engage the spirals on the shaft carrying the seed-throwing arms, substantially as described and shown.

640,607. COMBINED COASTER AND TRUING-GAGE. THEODORE K. WARDWELL, Stamford, Conn. Filed Mar. 30, 1899. Serial No. 711,175. (No model.)



Claim.—1. A combined coaster and truing-gage consisting of a body having arms adapted to engage a bicycle-fork and to be turned thereon for the purpose set forth, means for clamping said arms upon the fork in different positions and an adjustable gage adapted to be carried by the body near the outer end thereof and to intersect the line of motion of a bicycle-wheel.

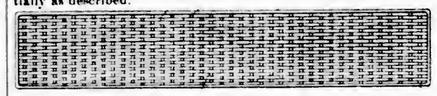
2. A coaster comprising a body consisting of two yieldingly-connected arms provided with sockets adapted to engage a bicycle-fork and holes 13, a bolt and thumb-nut by which the arms are caused to clamp the fork and an adjustable gage adapted to engage holes 13 and to intersect the line of motion of a bicycle-wheel.

3. A device of the character described comprising a body having arms one of which is provided with a relatively small socket, the other with a relatively large socket, said arms having holes 13, means for securing said body in place and a split pin adapted to engage holes 13 and to intersect the line of motion of a bicycle-wheel.

4. A device of the character described comprising a body having arms one of which is provided with a relatively small socket 14 and a curved extension 17, the other with a relatively large socket 15 and extension 18 to adapt the arms to clamp the varying curves of bicycle-forks, means for attaching the body in place and a gage adapted to be carried by the body.

640,608. OIL-PRESS MAT. ROBERT F. WERK, New Orleans, La. Filed Mar. 7, 1899. Serial No. 708,149. (No specimens.)

Claim.—An oil-press cloth consisting of a fabric composed of animal long hair, the hairs forming the warp-threads of the fabric being hard, stiff or coarse, and having a hard twist, and the hairs for the weft-threads being soft pliable hair, and having a soft twist, substantially as described.



640,609. LACING-HOOK. HORATIO O. WHYMAN, Aurora, Ill., assignor to the Whyman Lacing Hook Company, same place. Filed May 1, 1899. Serial No. 715,170. (No model.)



Claim.—1. A lacing device comprising a substantially U-shaped attaching member having a series of prongs projecting therefrom at an angle thereto and a hook having a shank or tang adapted to fit between the arms of said member and provided with a pintle which is seated on said arms with one or more of said prongs in front and in rear thereof; one of said prongs adapted to be bent over so as to embrace said tang or pintle and pivotally connect said hook and attaching member, substantially as described.

2. A lacing device comprising a substantially U-shaped attaching member having a series of prongs projecting at right angles thereto from its inner edge and a hook having a shank or tang adapted to fit between the arms of said member and provided with a pintle which is seated on said arms with one or more of said prongs in front and in rear thereof; one of said prongs being bent over so as to embrace said tang or pintle and pivotally connect said hook and attaching member, substantially as described.

3. An attaching member for lacing-hooks consisting of a substantially U-shaped strip or body portion having a series of prongs projecting at right angles thereto from its inner curved edge, one of said prongs being adapted to be bent over so as to embrace the tang of the hook proper and pivotally connect the same with the attaching member, while the other prongs serve as a means for securing the device to the article to be laced, substantially as described.

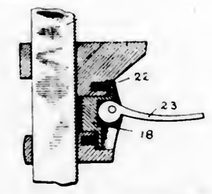
4. A lacing device comprising a substantially U-shaped attaching member having one or more prongs for securing it to the material of the shoe or other article; and a flat lacing-hook pivotally held to said attaching member by means of the said prong or prongs.

5. A lacing device comprising a substantially U-shaped pronged attaching member; and a flat lacing-hook pivotally connected to said attaching member with a taug or shank between the arms of the latter and also a pintle engaging the prongs and confined thereby.

6. A lacing device comprising a flat lacing-hook adapted to lie flatwise on the material of the shoe or other article and having a pintle; together with an attaching member having a slot or bifurcation to receive the shank of the said hook, said attaching member being pronged for engagement with the pintle of the hook and also for anchorage in the material of the shoe or other article, substantially as described.

7. A lacing device comprising a flat lacing-hook having a shank for pivotal connection with an attaching device, together with an attaching member having arms which embrace said shank and which are provided with prongs which serve as the attaching means and also hold said shank in pivotal engagement with said attaching member, substantially as described.

640,610. WRENCH. CLARENCE E. WILLIAMS, Worcester, Mass., assignor to Walter H. Bruce, same place. Filed Oct. 9, 1899. Serial No. 733,009. (No model.)



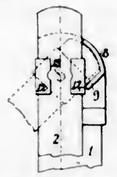
Claim.—1. In a wrench, the combination of the shank having the fixed jaw, a movable jaw having a front recess therein, a clamp-

ing-piece mounted in the recess, said clamping-piece having upper and lower wings which are engaged by springs for normally holding the clamping-piece back out of engagement with the wrench-shank, and a downwardly-clamping cam-handle, the lower wing of the clamping-piece being set back to permit the cam-handle to fold into the recess in the front of the movable jaw when the parts are clamped in fixed position, substantially as described.

2. In a wrench, the combination of a shank 11 having an integral fixed jaw 10 at its upper end, and a handle at its lower end, a movable jaw 13 having a recess in the front face thereof, a clamping-piece 18 fitting therein, wings 19 and 20 extending from the clamping-piece to engage springs 22, and a downwardly-clamping cam-handle 23 arranged to fold back into the recess of the movable jaw when the parts are secured in fixed position, substantially as described

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640,611. COMBINED STEP AND EXTENSION LADDER. WILLIAM WILLIAMSON, Saginaw, Mich., assignor to Frank T. Newton and John S. Haggerty, Springwells, Mich. Filed June 12, 1899. Serial No. 720,206. (No model.)



Claim.—1. In combination with a step and extension ladder a hinge for the same comprising the plate 7 adapted to be secured to the outer section of the ladder, and having on its inner surface lugs adapted to limit the movement of the inner section, and the guides 12 having a laterally-extending lug entering a hole in the plate 7 whereby the guide is pivoted thereto, the guides bolding the section 2, as and for the purpose set forth.

2. In a step and extension ladder, the combination of the outer and inner ladder-sections, means for hinging said sections together at their upper ends, and for permitting the inner section to be raised, comprising a plate secured to the outer section, a guide for the inner section pivoted upon the plate, a lug upon the plate limiting the rotary movement of the guide, a stop upon said plate limiting the upward movement of the inner section, and means for preventing the downward movement of said latter section.

3. In a step and extension ladder, the combination of the outer and inner ladder-sections, means for hinging said sections together at the upper ends and for permitting the inner section to be raised, comprising a plate firedly secured upon the inner face of the outer section, a rigid strap pivoted upon the plate said strap partly encircling the side of the inner section and constituting a guide for the latter, lugs upon the plate limiting the rotary movement of the strap and the upward movement of the inner section, and means upon the inner section for preventing its withdrawal from the strap.

640,612. PENHOLDER. MATTHEW W. BARBER, Cedar Town, Ga. Filed Mar. 16, 1899. Serial No. 709,318. (No model.)



Claim.—1. In a penholder, composed of relatively upper and lower parts, an operating-rod having connection with the upper part and moved longitudinally by rotation thereof, a wedge or inclined portion at the outer or lower end of the said rod and movable therewith to effect a clamping of the pen or a release thereof as required, substantially as specified.

2. A penholder, comprising upper and lower parts, the upper part being relatively rotatable, an operating-rod located within the lower portion of the holder and moved longitudinally therein upon rotating the upper part, means for holding the operating-rod against rotation, a wedge or inclined portion applied to the lower or outer end of the operating-rod and adapted to effect a clamping of the pen, substantially as and for the purpose specified.

3. A penholder provided with a rotatable portion, an operating-rod passing through the lower portion of the holder and having engagement with the rotatable part so as to be moved longitudinally thereby, a wedge or inclined portion applied to the lower end of the operating-rod, and a spring-bar secured within the holder and adapted to be moved laterally by means of the said wedge to cause a clamping of the pen between it and the holder, substantially in the manner set forth.

4. A penholder provided with a rotatable part, an operating-rod located within the holder and having screw-thread connection with the rotatable part so as to be moved longitudinally thereby, and having a wedge or inclined portion at its lower end, and an inner extension at the lower end of the holder to engage with the said wedge or inclined portion and prevent turning thereof, substantially as described.

5. A penholder provided with a rotatable part, an operating-rod located within the holder and having screw-thread connection with the said rotatable part and provided at its lower end with a wedge or inclined portion, and a plate at the lower end of the holder having intercommunicating slots, one of the slots being straight and receiving the said wedge, substantially as and for the purpose set forth.

6. A penholder having an inner extension at its lower end to cause a deflection of the pen whereby the writing-point is thrown toward the axial center of the holder, and means for securing the pen within the holder, substantially as described.

7. In a penholder, an operating-rod movable longitudinally within the holder and provided with a wedge or inclined portion to effect a clamping of the pen, and a fountain applied to the said rod, substantially as specified.

8. In a penholder, the combination with the pen, of a fountain applied to the pen and comprising a reservoir portion, a shank and an intermediate offset portion, the reservoir portion being subdivided longitudinally into a series of passages which communicate at their inner ends with one another and with a vent, substantially as described.

9. In a penholder, the combination with the pen, of a fountain applied to the peo and comprising a reservoir portion, a shank and an intermediate offset portion having an opening, the reservoir portion being subdivided longitudinally into a series of passages which communicate at their inner ends with one another and with the said opening, the end portions being in different planes and transversely curved in opposite directions, substantially as and for the purpose specified.

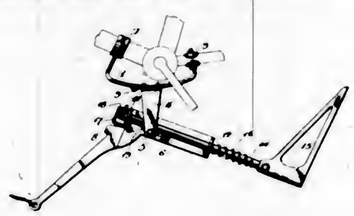
10. In a peoholder, the combination with the pen, of a fountain formed of a blank and having its end portions in different relative planes and curving transversely in opposite directions forming a reservoir and shank, and an intermediate inclined portion provided with an opening, the reservoir being subdivided into longitudinal passages having communication at their inner ends, substantially as and for the purpose set forth.

640,613. WATCHMAKER'S TOOL. CHARLES BARRETT, Anderson, Ind. Filed July 6, 1898. Serial No. 685,258. (No model.)



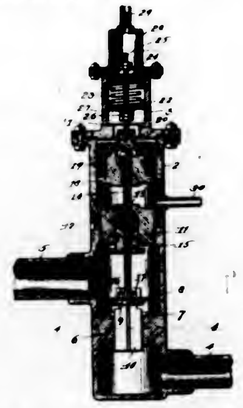
Claim.—A hair-spring adjuster and collet-remover, comprising the handle, shank and blade, the said blade having an open slot therein which opens in the direction of the longitudinal axis of the shank and is adapted to embrace a collet, the walls of said slot terminating at opposite sides in wedge-shaped points, one or both of which are turned inwardly at an acute angle in a radial direction with respect to said collet, and adapted to engage a wedge-shaped radial recess therein, to turn the collet and adjust a hair-spring and remove the collet, substantially as specified.

640,614. BICYCLE-SUPPORT. JOHN BOOTH, Terre Haute, Ind. Filed June 1, 1899. Serial No. 718,980. (No model.)



Claim.—The supporting-bracket adapted to be removably secured to a bicycle-frame, and formed with the retaining-spring 9, and parallel arms 4 4; in combination with the lever 6 formed with the lug 8 and parallel plates 10 12 and fulcrumed in said bracket, the tubular rods 13 and 14 mounted in said plates, the feet 15 and pins 17 fixed in said rods, the actuating-springs and the guide-brackets 18 fixed in the plate 10 and projecting into the path of the pins 17, substantially as and for the purpose set forth.

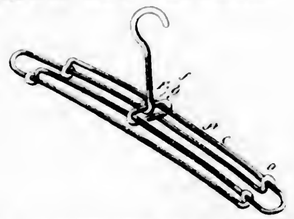
640,615. VALVE. ALBERT BORDEN, St. Louis, Mo. Filed Aug. 17, 1898. Serial No. 688,835. (No model.)



Claim.—1. In a valve, the cylindrical valve-casing 1, the disk valve 9 closing the passage through said casing, the piston-cylinder 2 surmounting said casing, the piston 18 operating within said cylinder, the rod 14 connecting the piston with the disk valve, means whereby fluid under pressure is introduced above and below the piston, and means connected to the piston whereby the impact of the disk valve resulting from the sudden movement of the piston is broken in both directions, substantially as specified.

2. In a valve of the class described, a valve-casing 1, the disk valve 8 closing the passage through said casing, the piston-cylinder surmounting the valve-casing, the piston 18 operating within said cylinder, a rigid connecting-rod 14 between the piston and the disk valve, a spring-casing 3 surmounting the piston-cylinder, the spring-cups 22 arranged for vertical movement within the spring-casing, lugs 27 integral with the exterior faces of said spring-cups, an expansive coil-spring located between said spring-cups, the connecting-rod 25 from the piston, the same passing through said spring-cups, the adjusting-nuts 27 located upon said rod outside of said cups, the cap 28 surmounting the spring-casing, and means whereby fluid under pressure is introduced above and below the piston substantially as specified.

640,616. GARMENT-HANGER. JOHN F. BROCK, Sparta, Wis. Filed Jan. 9, 1899. Serial No. 701,683. (No model.)



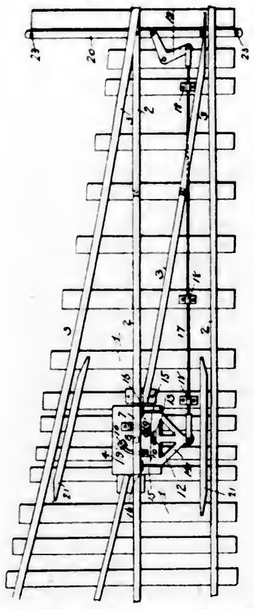
Claim.—1. A garment-hanger comprising two sections or members slidably connected so as to be adjustable as to length, a link slidably mounted on one of said sections, and a suspending device slidably connected to the link.

2. A garment-hanger of the character described, consisting of two horizontally-disposed, approximately U-shaped frame sections or members slidably connected so that the hanger may be collapsed and adjusted as to length, a ring or link slidably mounted upon the arms of one of said sections, and a suspending device connected to the link.

3. A garment-hanger of the character described, consisting of two horizontally-disposed, substantially U-shaped frame sections or members, one of said sections being provided at its inner free ends with upturned eyes engaging the arms of the other section and the latter with corresponding downturned eyes engaging the arms of the first-named section, a ring or link slidably mounted upon the arms of said section having the downturned eyes, and a suspending device formed with an eye loosely engaging the ring or link, substantially as described

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640,617. RAILWAY-SWITCH. ALONZO H. BURCHARD, Colorado Springs, Colo., assignor to Charles T. Hunn, Denver, Colo., and John W. Patton, Macon, Mo. Filed June 4, 1898. Renewed Oct. 25, 1899. Serial No. 734,779. (No model.)



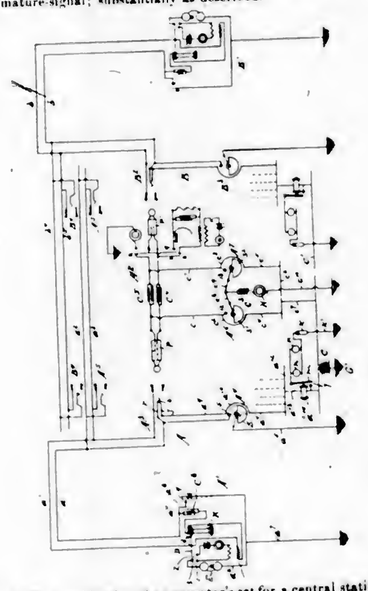
Claim.—In a railway-switch, the combination with the main and siding rails, the metal plate having a central hole and a reinforcing-boss and provided with a stationary pin, and the switch-rail having a pivot on its under side passing through said boss, and formed with open slots in its under side, of the triangular shifting brace or bracket formed with an elongated slot near its inner edge and formed with two inwardly-extending arms bent upwardly at right angles thereto and the ends bent in opposite directions forming lugs which are bolted to the switch-rail, and the curved guide-braces formed with integral lugs bolted to said plate, substantially as described.

640,618. TELEPHONE-EXCHANGE SYSTEM. THOMAS F. AHERN, Detroit, Mich., assignor to the Detroit Switchboard and Telephone Construction Company, same place. Filed June 26, 1899. Serial No. 721,912. (No model.)

Claim.—1. In a telephone-exchange, the combination of an answering-jack; two wires leading therefrom to a substation, one of the wires thereof connecting with the front thimble of said jack and the other to a spring therein; a contact-piece in said jack from which said spring is adapted to be lifted; a source of electricity one pole of which is grounded, the opposite pole leading through a relay to a contact-piece in the jack; the relay and contact-piece, means for continuing the circuit, a switch at the substation adapted to close the grounded circuit of said battery through the metallic line leading to the substation which is connected with the aforesaid spring of the said jack, the armature of said annunciator being so constructed and so operating as to close the secondary contact in the path of said circuit, whereby, when the circuit is closed at the substation, a closed path exists through the spring-jack and the relay, and the actuation of the armature closes contact and changes the circuit of the battery through the separate line leading from said spring-jack in such manner as to preserve the integrity of the signal on the opening of the contact at the substation, substantially as described.

2. In a telephone-exchange, the combination of an answering-jack; two wires leading therefrom to a substation, one of the wires thereof connecting with the front thimble of said jack and the other to a spring therein; a contact-piece in said jack from which said spring is adapted to be lifted; a source of electricity in a grounded circuit, the opposite pole leading through a relay to a contact-piece in the jack, a relay and contact-piece; a switch at the substation adapted to close the grounded circuit of said battery through the metallic line leading to the substation which is connected with the afore-

said spring of the said jack, the armature of said annunciator being so constructed and operating to close the secondary contact in the path of said circuit, whereby when the circuit is closed at the substation a closed path exists through the spring-jack and the relay, and the actuation of the armature closes contact and changes the circuit of the battery through a separate line leading from said spring-jack in such manner as to preserve the integrity of the signal on the opening of the contact at the substation; a plug connecting with the operator's set having an enlarged tip adapted to lift the spring in the jack from the contact-piece hereinbefore described, thus breaking the short circuit, whereupon the rotating armature immediately resumes its normal position, said plug through said tip restoring the circuit with the contact-piece in the jack, whereby a signal may be sent through such restored contact from the substation, thus actuating the armature-signal; substantially as described.



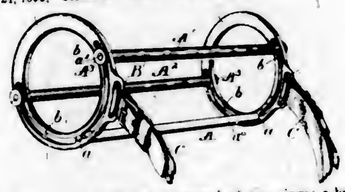
3. The combination of an operator's set for a central station of a telephone system, consisting of a multiplicity of double-pointed plugs connected pairwise by double-stranded cords, one strand connecting the tips of said plugs and the other strand connecting the insulated sleeve of said plugs; condensers located as described in each of said strands; a double signal apparatus located on lines connecting the sleeves, one portion of said signal apparatus being connected between the condenser thereon and the sleeve, the other said signal apparatus being connected on the line between the condenser and the opposite sleeve; a grounded battery in which one pole is connected through the pair of annunciators to the strand connecting the sleeves as above stated; a source of electricity connected in a grounded circuit with that one of the wires which leads from a substation and connects with the thimble of the answering-jack, and adapted to be connected thereby with the sleeve of the answering-plug, thus through the annunciator in advance of the condenser to ground; a corresponding source of electricity in a grounded circuit, and the corresponding branch of a metallic circuit connecting with the thimble of its connecting-jack and thence to the sleeve of the connecting-plug and adapted to close the circuit through the annunciator with the strand connecting said sleeve in advance of the condenser located therein; and a receiver-controlled switching apparatus at the said substation, whereby the hanging up of the receiver at each substation is indicated by the respective annunciator-shutters connected with the sleeved strand of the pair of plugs in the operator's set; substantially as described.

4. In a switchboard for telephones, the combination of a continuously mechanically operated generator, a signal connected therewith and adapted to close the circuit when operated, a circuit-closer in an operator's set, a condenser located on the strand connecting the tips of the plugs between the generator connection and the answering-plug, a receiver-controlled switch at the substation adapted to operate the signal to close or open the generator circuit, substantially as described

5. The combination of a magnetic core, a coil surrounding the same, means for exciting the coil, an unbalanced magnetic shell inclosing the coil, a weighted rotating armature rotatably attached to the magnetic core, and an indicating-disk carried by said armature and adapted to operate as a signal, substantially as described.

6. The combination of a rotating armature adapted by gravity to remain in a certain position, a magnetic core, an unbalanced magnetic shell, a coil interposed between said core and said shell, and a stop-piece electrically connected to a leading-in line, said leading-in line, another leading-in line electrically connected to the axis of said rotating armature, whereby the rotation of said armature against the stop closes a circuit, and a visual signal operated by said armature and corresponding in its visibility with the closure of said circuit, substantially as described.

640,619. BRIDLE-BIT. BONA ALLEN, Jr., Buford, Ga. Filed Sept. 21, 1899. Serial No. 731,210. (No model.)



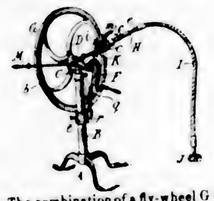
Claim.—1. A bridle-bit composed of two rings; a bar secured at its ends to the said rings; and two bars mounted upon opposite sides of said bar and adjustable about the center of said rings, substantially as described.

2. In a bridle-bit, the combination with rings, a bar fixed at its ends to said rings; and slots in said rings upon opposite sides of said fixed bar; of bars arranged to slide in the said slots, and means for clamping the said bars at any position within the limits of the said slots; substantially as described.

3. In a bridle-bit, the combination with rings; a bar fixed at its ends to said rings; and slots in said rings upon opposite sides of said fixed bar; of bars having their ends reduced to pass through the said slots, and nuts upon the reduced ends of the said bars to secure the latter to the rings; substantially as described.

4. In a bridle-bit, the combination with rings; a bar fixed at its ends to said rings; and slots in said rings upoo opposite sides, of said fixed bar; of bars having their ends reduced to fit the said slots, and having threaded stems extending through the said slots, and nuts on the threaded stems to clamp the said bars to the said rings; substantially as described.

640,620. MOTOR FOR CLIPPING-MACHINES. PHILANDER ANDERSON, New York, N. Y. Filed May 20, 1898. Serial No. 681,251. (No model.)



Claim.—1. The combination of a fly-wheel G with a friction driving-rim *b*, of a driven shaft H, a friction-pinion *c* thereon engaging tractively with one face of said rim, an idler-pinion engaging the other face thereof and movable toward or from the first-named pinion, a frame carrying both said pinions and movable axially of said wheel, and a spring tending to press said pinions together to embrace said rim between them.

2. The combination of a fly-wheel G having a friction driving-rim *b*, of a driven shaft H, a friction-pinion *c* thereon engaging tractively with one face of said rim, an idler-pinion engaging the other face thereof and movable toward or from the first-named pinion, a spring tending to press said pinions together to embrace said rim between them, and a frame carrying said pinions pivoted on an axis parallel with the plane of said fly-wheel, and movable to adapt said pinions to irregularities in the rim thereof.

3. The combination with a fly-wheel G having friction-rim *b*, of swing-frame K, driven shaft H having a bearing in said frame, friction-pinion *c* fixed on said shaft and bearing tractively against one face of said rim, idler-pinion *d* bearing against the opposite face

thereof and mounted in bearings carried by said frame, but movable relatively thereto, and a spring acting against said bearings for pressing said pinion toward the opposite pinion.

4. The combination with fly-wheel G and its shaft E, bearing-head D for the latter, frame L pivoted on the same axis as said shaft E, swing-frame K pivoted to said frame L on an axis parallel with the plane of said fly-wheel, shaft H carried by said frame, and pinion *c* on said shaft and bearing against the rim of said fly-wheel.

5. The combination of fly-wheel G and its shaft E, bearing-head D for the latter, post C on which said head is mounted, upright standard B in which said post may turn, and handle M connected to said post to control the turning thereof and steady the apparatus.

6. The combination with fly-wheel G and shaft E, of bearing-head D therefor, driven shaft H, frames K L carrying said shaft, the latter pivoted on the same axis as the shaft E so as to swing to varying angles around said axis, and said head provided with a ledge *p* serving as a stop for supporting said frame in its lowermost position.

7. The combination with fly-wheel G and shaft E, of bearing-head D therefor, driven shaft H, frames K L carrying said shaft, the latter pivoted on the same axis as the shaft E so as to swing to varying angles around said axis, and means for supporting said frames when swung upward to varying angles.

8. The combination with fly-wheel G and shaft E, of bearing head D therefor, driven shaft H, frames K L carrying said shaft, the latter pivoted on the same axis as the shaft E so as to swing to varying angles around said axis, and means for supporting said frames when swung upward to varying angles, comprising a strut *q* pivoted at one end to said frame K, and an adjustable swiveled collar *r* to which the other end of said strut is pivoted.

9. The combination with a wheel and pinions engaging opposite sides thereof, of a frame supporting the pinions in engagement with the wheel, movable axially of the latter to compensate for irregularities of the wheel.

10. The combination with a wheel, of pinions engaging its opposite sides movable the one toward the other and rotating on axes angular to the axis of the wheel, means carrying the pinions and movable axially of said wheel, and means pressing the pinions against the opposite sides of the wheel.

11. The combination with a wheel having a driving-rim, of a frame exteoding across the edge of said wheel, and two pinions carried by said frame, movable the one relatively to the other thereon, and engaging said fly-wheel on opposite sides thereof.

12. The combination with a wheel having a driving-rim, of a movable frame extending around said rim, two pinions carried by said frame and movable therewith, engaging said rim on opposite sides thereof, and means holding said pinions toward each other.

13. The combination with a wheel having a driving-rim, of a pinion engaging with the side of said rim, and a frame carrying such pinion, said pinion movable axially of the wheel to compensate for irregularities in the rim, and said frame being movable to carry such pinion circumferentially of said wheel to different relative positions.

14. The combination with a fly-wheel having a driving-rim, of a swinging frame carrying a pinion for tractive engagement with said rim, said frame being movable horizontally axially of the wheel to conform to the inequalities of the rim, and vertically to shift the pinion to various heights.

640,621. MINING MACHINE. ARCHIBLE BAILEY, Philipsburg, Pa. Filed Sept. 29, 1891. Serial No. 407,155. (No model.)

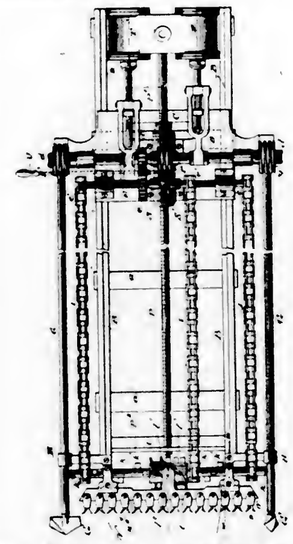
Claim.—1. In a mining-machine, the combination with the bed, the carriage, the two reciprocating cutters each forming a separate kerf and means for simultaneously reciprocating said cutters in opposite directions whereby they balance the machine laterally, of a drill mounted on each side of the carriage and forming an aperture at the end of the kerf, substantially as set forth.

2. In a mining-machine, the combination of the bed, the advancing and receding carriage, the two cutters moving rectilineally in different horizontal planes to form two separated kerfs, with a horizontal web between them, and a breaking or cutting mechanism independent of the said cutters, to remove the said web, substantially as set forth.

3. In a mining-machine, the combination of the bed, the carriage, two oppositely-acting cutters moving transversely to the path of advance of the carriage and forming separate kerfs, cutting devices independent of the aforesaid cutters for connecting the two said kerfs at the ends, and means substantially as described for breaking or cutting the web which lies between the separated kerfs, substantially as set forth.

4. In a mining-machine, the combination with two oppositely-working cutter-bars arranged one above the other, of a shaft journaled in the rear thereof and provided with breaking or cleaning teeth, substantially as and for the purpose set forth.

5. In a mining-machine, the combination with the bed and the advancing and receding carriage, of a revolving shaft having a cam-groove, and two cutter-bars provided with pins simultaneously engaging said cam-grooves at the top and bottom respectively, whereby said cutter-bars are simultaneously reciprocated in opposite directions, substantially as set forth.



6. In a mining-machine, the combination of the bed, the advancing and receding carriage, the oppositely-reciprocating cutters mounted on the end of the carriage, a rotary transverse cutter-bar upon the front end of the carriage immediately behind the cutting apparatus, power-transmitting devices connecting said shaft with the reciprocating cutters for imparting motion to the latter, the chains engaging with said cutter-bar and extending backward on the longitudinal lines of the carriage, the rear chain-driving shaft, and power mechanism for actuating the latter, substantially as set forth.

7. In a mining-machine, the combination with the bed and the carriage, of the vertically-separated transversely-arranged cutters mounted at the front end of the carriage, the cross-shaft mounted in said carriage immediately behind the cutters, a cam mounted on said shaft for operating the cutters, and cutters secured to the cam for cutting a path therefor, substantially as set forth

8. In a mining-machine, the combination with a shaft carrying a drum provided with a cam-groove, and cutter-bars arranged one above the other and provided with pins working in said groove, of breaking or cleaning teeth projecting from said shaft, substantially as set forth.

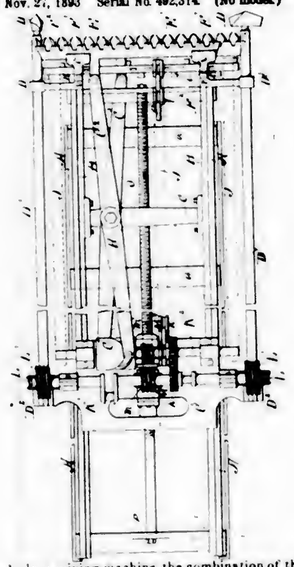
9. In a mining-machine, the combination of the bed, the carriage, the cutting apparatus on the carriage, the longitudinally-arranged stationary threaded feed-shaft, the reversible nut surrounding said shaft and rotating independently thereof, the sleeve around the shaft and secured to the nut, and the loose wheels mounted upon the said sleeve and rotating in opposite directions at different speeds, and adapted to be alternately engaged with said nut, substantially as set forth.

10. The combination of the bed, the carriage, the cutting apparatus on the carriage, the longitudinally-arranged, stationary threaded feed-shaft secured to the bed, the rotating, reversible nut surrounding said shaft, the two continuous revolving worms transverse to the feed-shaft, the two oppositely-rotating, differently-speeded worm-wheels surrounding said feed-shaft, and the clutch adapted to slide relatively to the rotating nut and to alternately connect the worms therewith, substantially as set forth.

11. The combination of the bed, the carriage, the cutting apparatus on the carriage, the stationary, threaded feed-shaft fastened rigidly to the bed, the rotary, reversible nut surrounding and engaging with said shaft, the rotary sleeve carrying the said nut and mounted in bearings on the carriage, the two loosely-mounted, oppositely-rotating wheels on said sleeve, the two differently-speeded trains of gearing respectively driving the said loose wheels, and the clutch for alternately engaging the loose wheels with the sleeve, substantially as set forth.

12. In a mining-machine, the combination with a stationary bed, a carriage mounted upon and sliding in guides in said bed, a motor mounted on said carriage, and cutting apparatus actuated by the motor, of the carriage advancing and withdrawing mechanism, consisting of the two parallel cross-shafts, D, E, mounted on the carriage, pinions *d e* connecting said shafts, worms on said shafts, a longitudinally-arranged, threaded shaft, an internally-threaded sleeve surrounding and engaging said threaded shaft and secured to the carriage, two worm-wheels engaging said worms and loosely mounted on said sleeve, a clutch device arranged to alternately engage the said worm-wheels, and means for securing said threaded shaft against rotation when the cutters are advancing, substantially as set forth.

640,622. **MINING-MACHINE.** ARCHIBLE BAILEY, Philipsburg, Pa. Filed Nov. 27, 1893. Serial No. 492,314. (No model.)



Claim.—1. In a mining-machine, the combination of the stationary bed, the carriage, two oppositely-reciprocating cutters pivotally connected to the carriage and operating to cut distinct kerfs, a power-shaft, mounted on the rear of the carriage, power-transmitting devices connecting the power-shaft with the cutters for actuating them, and means for removing the material between the kerfs formed by said cutters, substantially as set forth.

2. In a mining-machine, the combination of the stationary bed, the carriage, the two oppositely-reciprocating cutters mounted at the front end of the carriage, the power-shaft K', the parallel shaft K^3, geared to shaft K', a cam on shaft K^3 and levers C^7, C^8 connected to the cutters and actuated by the said cam, substantially as set forth.

3. In a mining-machine, the combination of the stationary bed, the carriage, the horizontal oppositely-reciprocating cutters, the drills at the ends of the cutters, the cross-shaft K' for actuating the drills, and the shaft K^4 and levers C^7, C^8 for operating the reciprocating cutters, substantially as set forth.

4. In a mining-machine, the combination with the stationary bed, the carriage, the power devices on the carriage, the parallel, oppositely-reciprocating cutter-bars, extending transversely across the carriage from side to side and provided throughout their length with cutters, the pivoted levers for supporting said cutter-bars, and power-transmitting devices extending from the power devices on the carriage to the cutter-bars for operating them, substantially as set forth.

5. In a mining machine, the combination of a bed, a carriage mounted on the bed, two oppositely-reciprocating, simultaneously-acting, cutter-bars supported on the carriage one above the other and extending substantially parallel to the front of said carriage and from one side thereof to the opposite side, power devices mounted on the carriage and connected with said cutter-bars for actuating them, means actuated by the power device for moving the carriage and cutter-bars longitudinally of the bed, and means mounted on the carriage and connected with the cutter-bars for moving the latter longitudinally of the carriage simultaneously with each reciprocation thereof, laterally of the carriage, substantially as set forth.

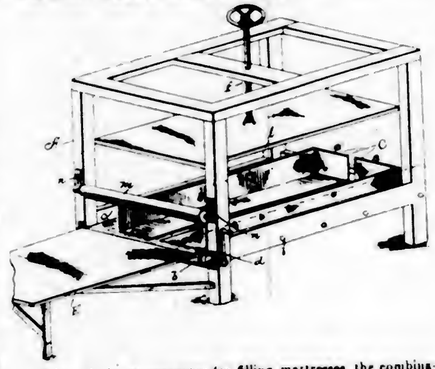
6. In a mining-machine, the combination with the bed and the carriage, of the power-shaft on the carriage, the oppositely-reciprocating parallel cutters E, E', extending substantially parallel to and entirely across the front of the carriage, power-transmitting devices connecting said cutters with the power-shaft, levers M supporting the cutters and arranged out of parallelism, whereby as the cutters are reciprocated transversely of the carriage they are also adjusted longitudinally of the carriage, substantially as set forth.

7. In a mining-machine, the combination with the bed, and the carriage, of the power-shafting on the carriage, the transversely-arranged reciprocating cutter-bar, pivotally supported from and extending across the front end of the carriage substantially parallel to said end of the carriage, cutters carried by said bar, means actuated by said power-shafting, for feeding the carriage and cutters forward, and means supplemental thereto connected to the cutter-bar for advancing one end of the said bar relatively to the other end, at each reciprocation, whereby only part of the cutters are operating at any instant as the cutter-bar advances into the breast of the coal, substantially as set forth.

8. In a mining-machine, the combination with a bed and a carriage mounted thereon, to move longitudinally thereof, of a cutter-bar extending across the front end of the carriage on a line substantially at right angles to the line of movement of the carriage, said bar having cutters throughout its length, laterally-swinging levers pivoted to the carriage and arranged within the side lines of the carriage and supporting said cutter-bar, power devices, and connections between the power devices and the cutter-bar for reciprocating the latter transversely of the carriage, substantially as set forth.

9. In a mining-machine, the combination with a bed, and a carriage mounted thereon, power devices, means connected with said power devices for moving the carriage longitudinally of the bed, of two levers, M, pivotally connected to the carriage, a cutter-bar connected to the outer ends of said levers and extending transversely across the front end of the carriage, a third lever, H, fulcrumed on the carriage and connected at one end with the cutter-bar, and a cam actuated by the power devices and engaging with the other end of said lever H, for vibrating it laterally, substantially as set forth.

640,623. **APPARATUS FOR FILLING MATTRESSES.** BARNEY I. BLOCK, Pittsburg, Pa., assignor to Meyer R. Block, same place. Filed Jan. 4, 1899. Serial No. 701,083. (No model.)



Claim.—1. In an apparatus for filling mattresses, the combination of a frame, a carrier apparatus mounted in said frame, a receptacle for mattress-filling material adapted to be supported and conveyed by said carrier apparatus, the said receptacle being formed of two parts whereby the same may be widened and contracted, and means to compress the material within said receptacle, substantially as set forth.

2. In an apparatus for filling mattresses, the combination of a frame, a carrier apparatus mounted in said frame comprising an endless belt having upwardly-projecting abutments thereon to enable said receptacle to be carried forward upon the rotation of said belt, a receptacle for mattress-filling material adapted to be narrowed or widened, the said receptacle having an end piece adapted to be adjusted in different positions, in combination with means to compress the material in said receptacle, substantially as herein set forth.

640,624. **BURIAL-CASKET.** ZACHARY T. BOISCOURT, Indianapolis, Ind., assignor to the Casket Lid Adjustment Company, same place. Filed Apr. 10, 1899. Serial No. 712,455. (No model.)

Claim.—1. A burial-casket including a body portion, a detachable lid, hooks hinged in the edge of one side of the body of the casket so that they can be closed or opened, and brackets secured to the inside of the lid within the edge of the body portion when the lid is in place thereon for engaging said hinged hooks and suspending the lid beside the body of the casket.

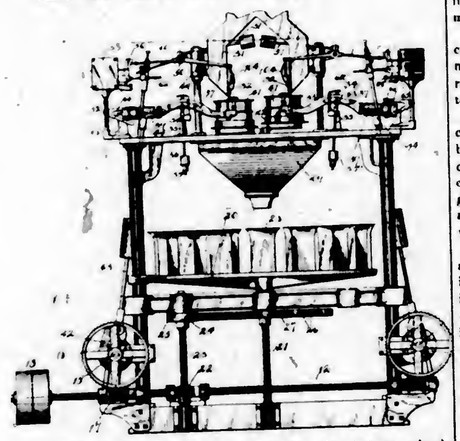


2. A burial-casket including a body portion, a detachable lid, hinge-plates secured on the edge of one side of the body of the casket provided with longitudinal recesses and hinged hooks adapted to be closed or opened outward, spuds on the lid adapted to enter the recesses in the hinged plate, and longitudinally-extending brackets secured to the cover within the edge of the body of the casket when the cover is in place thereon and adapted to engage the hinged hooks when the lid is placed beside the body of the casket.

3. A burial-casket including a body portion, a removable lid, hinge-plates secured to the edge on one side of the body portion and provided with longitudinal recesses and hinged hooks that may be closed or opened outward and so arranged that when closed they will lie flush with the top of the hinge-plate, longitudinally-extending brackets on the lid within the edge of the body of the casket when the lid is in place thereon, spuds secured to the inside of the lid to enter the recesses in the hinge-plate, a spring-lock to lock the spuds, and a brace for supporting the lid in a horizontal position on one edge of the body of the casket.

4. A burial-casket including a body portion, a removable lid, the edges of one side of the body portion being provided with longitudinal recesses, tongues extending laterally from one side of the lid adapted to enter said recesses when the lid is turned on its edge, and a cord or link for connecting one end of the body of the casket with the corresponding end of the lid for holding the lid in its tilted position.

640,625. **AUTOMATIC WEIGHING-MACHINE.** WILLIAM F. BRAUN, Chicago, Ill., assignor to John R. Searles, New York, N. Y. Filed Jan. 12, 1899. Serial No. 701,972. (No model.)



Claim.—1. In a weighing-machine, a pivoted scale-beam, a load-receiver carried thereby, positively-acting discharging mechanism which forces the scale-beam and load-receiver into a discharging position, a stream-controlling valve and positively-acting mechanism for controlling the closure of said valve and for opening the same, whereby the scale-beam is disengaged and free while weighing.

2. In a weighing-machine, a plurality of scale-beams, load-receivers carried by each of said scale-beams, stream-supplying means to each load-receiver, positively-acting mechanism for alternately forcing each scale-beam and load-receiver into a discharging position and positively-acting mechanism for controlling the closure of a cut-off valve and for opening the same, whereby each scale-beam is disengaged and free while weighing and in turn receives and discharges its load, together with a delivery-chute for the discharged load, an intermittently-rotated carrier-table and means for rotating said table.

3. In a weighing-machine, a scale-beam and load-receiver carried thereby, a cut-off valve or gate, positively-acting mechanism for controlling and determining the opening and closing movements of said valve, an engaging device electrically operated to cooperate with the positively-acting mechanism aforesaid and hold the valve slightly open to permit a small feed of the material, positively-acting mechanism for moving the scale-beam into a discharging position and a circuit-closer operated by the scale-beam after the load is completed.

4. In a weighing-machine, a scale-beam and load-receiver carried thereby, a cut-off valve or gate, positively-acting mechanism which engages the scale-beam and forces it into a discharging position, positively-acting mechanism which gradually closes, or permits a closure, of the cut-off valve until it assumes a nearly-closed position, an engaging device which holds the valve in this position momentarily until the load is completed, electromagnets operating to disengage the engaging device, and close the valve, an electric circuit for said magnets including a source of current-supply, and a circuit-closer operated by the scale-beam when the load is weighed.

5. In a weighing-machine, a scale-beam and load-receiver carried thereby, a cut-off valve or gate, positively-acting mechanism which engages the scale-beam and forces it into a discharging position, positively-acting mechanism which gradually closes, or permits a closure, of the cut-off valve until it assumes a nearly-closed position, an engaging device which holds the valve in this position momentarily, electromagnets operating to disengage the engaging device, and close the valve, an electric circuit for said magnets including a source of current-supply, and a pivoted swinging circuit-closer located in the plane of the ascending end of the scale-beam, operated to close the electromagnet-circuit by the scale-beam, after the load is weighed, and then thrown aside by the positive upward movement of the said end of the scale-beam.

6. In a weighing-machine, the combination with a pivoted scale-beam and load-receiver carried thereby of engaging devices for holding the cut-off valve slightly open to permit a small feed of the material, electromagnets for disengaging said engaging devices, a source of current-supply, and a swinging circuit-closer pivotally located in the plane of advance of the scale-beam, together with means for forcing the load-receiver into a discharging position and at the same time operate to swing the circuit-closer aside.

7. In a weighing-machine, a pivoted scale-beam, a load-receiver carried thereby, a cut-off valve or gate and cam mechanism and connections for forcing the scale-beam and load-receiver into a discharging position and controlling and determining the opening and closing movements of the said cut-off valve or gate.

8. In a weighing-machine, a pivoted scale-beam, a load-receiver carried thereby, a cut-off valve or gate and cam mechanism and connections arranged in sets, one set to force the scale-beam and load-receiver into a discharging position and the other controlling and determining the opening and closing movements of the valve.

9. In a weighing-machine, a pivoted scale-beam, a load-receiver carried thereby, cam mechanism and connections engaging said scale-beam, after the load is completed, to force the load-receiver into a discharging position, cam mechanism and connections for opening the cut-off valve or gate and gradually permit a closure thereof, an engaging device for holding the cut-off valve in a nearly-closed position and means for withdrawing said engaging device the operation of which is by the scale-beam.

10. In a weighing-machine, the combination with the scale-beam and load-receiver carried thereby, of a swinging circuit-closer located in the plane of advance of the scale-beam, an engaging device holding the cut-off valve or gate slightly open, an electric circuit including electromagnets and a source of current-supply, the scale-beam engaging the circuit-closer to close the electromagnet-circuit and move the said swinging circuit-closer to one side and means whereby the scale-beam returns the swinging circuit-closer into its former position.

11. In a weighing-machine, a scale-beam and load-receiver carried thereby, a pivoted and swinging circuit-closer in the plane of advance of the scale-beam, comprising a contact-carrying member engaged by the scale-beam to move the circuit-closer aside and an extension engaged by the scale-beam to return the circuit-closer into its former position.

12. In a weighing-machine, a scale-beam and load-receiver carried thereby, a swinging circuit-closer located in the plane of advance of the scale-beam, a circuit including electromagnets and a source of current-supply, a pivoted tripping-lever, an armature operated by said electromagnets to in turn operate the tripping-lever and cut-off-valve connections engaged by the tripping-lever.

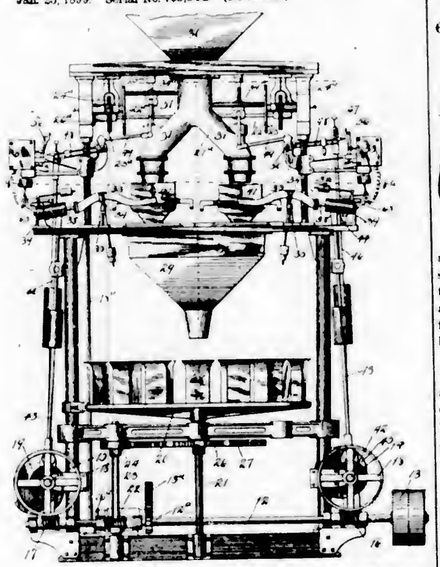
13. In a weighing-machine, a scale-beam and load-receiver carried thereby, a swinging circuit-closer located in the plane of advance of the scale-beam, a circuit including electromagnets and a source of current supply, a pivoted tripping-lever, an armature operated by said electromagnets to in turn operate the tripping-lever and cut-off-

valve connections engaged by the tripping-lever, together with a circuit-breaker operated by the tripping-lever.

14. In a weighing-machine, a scale-beam and load-receiver carried thereby, a swinging circuit-closer located in the plane of advance of the scale-beam, positively-acting mechanism for engaging the scale-beam and forcing it into a discharging position, an electric circuit including electromagnets and a source of current-supply, a tripping device holding the cut-off valve in a slightly-open position and positively-acting mechanism which controls and determines the movements of the cut-off valve when not engaged by the engaging device aforesaid.

15. In a weighing-machine, the combination with a cut-off valve or gate and connections therefor, of a tripping device engaging said connections to hold the valve in a slightly-open position, positively-acting mechanism engaging said connections to control and determine the movements of said valve when not held by the tripping device, electromagnets, a source of current-supply for operating the tripping device and an extension from the tripping device engaged by the positively-acting mechanism to restore said tripping device when operated by the electromagnets aforesaid.

640,626. AUTOMATIC WEIGHING-MACHINE. WILLIAM F. BRAUN, Chicago, Ill., assignor to John E. Searles, New York, N. Y. Filed Jan. 25, 1899. Serial No. 703,344. (No model.)



Claim.—1. In a weighing-machine, positively-acting stream-controlling mechanism, adapted to cut off the supply or stream of the material, comprising a force-feed, speed-varying mechanism, adapted to act upon said force-feed and automatically vary said feed between the limits of two extremes of movement, connecting mechanism acting to operate the speed-varying mechanism and driving mechanism invariably and positively acting upon the connecting mechanism which driving mechanism is actuated by the main shaft of the machine.

2. In a weighing-machine, a rotatable force-feed device, speed-varying mechanism acting upon said force-feed device, driving mechanism for said variable-speed mechanism and connecting mechanism acting upon the variable-speed mechanism to cause a variation of the speed together with positively-acting mechanism for operating the connecting mechanism which is driven by the main shaft of the machine.

3. In a weighing-machine, a rotatable force-feed, speed-varying mechanism acting upon the force-feed comprising friction-connected disks, means for driving said disks, connecting mechanism acting upon one of the friction-disks to cause a variation of speed and positively-driven cams operating the connecting mechanism.

4. In a weighing-machine, a force-feed, friction-connected disks one of which is movable along the face of the other, a lever-arm connected with said disk, a thrust-rod operating said lever-arm and a cam, driven from the main shaft of the machine, for operating the thrust-rod.

5. In a weighing-machine, the combination with the scale-beam and load-receiver carried thereby of a rotatable stream-controller, driving mechanism therefor, intermediate speed-controlling mechanism for the stream-controller and cam-operated mechanism connected with the intermediate mechanism aforesaid.

6. In a weighing-machine the combination with the scale-beam and load-receiver carried thereby of a rotatable stream-controller and feeding device, mechanism for driving the same, intermediate mechanism between said driving mechanism and the stream-controller adapted to be operated in order to vary the speed of the stream-controller and cam-operated mechanism connected with the intermediate mechanism together with tripping mechanism, electromagnets for operating said trip mechanism and a circuit-closer operated by the scale-beam.

7. In a weighing-machine, a scale beam and load-receiver carried thereby, a rotatable stream-controller and force-feed, mechanism for driving the same, intermediate speed-varying mechanism between the rotatable stream-controller and the driving mechanism, means for operating said variable-speed mechanism comprising a cam, a cam-operated rod, and a pivoted connection between said rod and the variable-speed mechanism, together with a tripping device adapted to engage and hold said pivoted connection momentarily, an electromagnet for operating said tripping device, a source of current-supply and a circuit-closer operated by the scale-beam when the load is weighed.

640,627. MAGAZINE-FIREARM. BETHEL BURTON, New York, N. Y. Filed Aug. 16, 1899. Serial No. 727,380. (No model.)



Claim.—1. A firearm comprising a barrel; a bolt or breech-block automatically operated in one direction by the recoil of the cartridge-shell, due to the reactive force of the explosion of the charge; means for automatically advancing said bolt to cause it to close the breech after a cartridge has been inserted therein; a firing device; a sear for setting said device; and an independent rotative cam actuated by the trigger for withdrawing the sear.

2. A firearm comprising a barrel; a magazine; a carrier for conveying cartridges *seriatim* into position to be forced into said barrel; a bolt or breech-block operated in one direction by the reactive force of the explosion; a spring for automatically causing said bolt to close the breech after a cartridge has been inserted therein, a firing-pin; a sear for setting said pin; and an independent rotative device actuated by the trigger for withdrawing the sear.

3. In a firearm, the combination, with a magazine, of a carrier for conveying cartridges from said magazine to the barrel; a breech-block normally operating to close the breech; a firing-pin carried by said breech-block; means coöperating with the breech-block for automatically operating the cartridge-carrier on the recoil of said breech-block; a sear for setting the firing-pin; a lever connected to the sear; and an independent rotative cam device actuated by the trigger for withdrawing the sear.

4. In a firearm, the combination, with the barrel, of a bolt or breech-block; yielding means for automatically closing said bolt against the breech; a firing-pin having a shoulder; a multichambered magazine; means operated by the bolt for delivering cartridges from said magazine to the barrel; a sear movable in an opening of the frame and adapted to engage the shoulder on the firing-pin; a toothed wheel controlling the movement of the sear; and a trigger for actuating said wheel.

5. In a firearm, the combination with a movable multichambered magazine, of a bolt normally held against the barrel by a spring to close the breech; a spring actuated firing-pin carried by the bolt; a sear for setting said pin; a toothed device controlling the movement of said sear and serving to release the same; a trigger; and a pawl carried thereby for actuating said toothed device.

6. A firearm embodying a magazine having a plurality of separately-chargeable chambers for containing cartridges; a cover for locking said magazine and closing the opening in the frame; and a carrier movable in said opening in the frame and adapted to receive a cartridge from one of said chambers and to convey said cartridge into position to be fired.

7. In a firearm, the combination, with the barrel, of a reciprocatory breech-block or bolt having a lip on the lower part of its front end; an extractor carried by the bolt; a firing-pin; a magazine for containing cartridges; means for transferring a cartridge from the magazine to the barrel; means for actuating the bolt; a sear; and a rotative toothed device for actuating said sear.

8. In a firearm, the combination, with the barrel, of a movable magazine having separately-chargeable chambers each having a cartridge-receiving opening; a carrier adapted to receive a cartridge from one of said chambers; means for actuating said carrier to bring a cartridge into line with the barrel; means for forcing the cartridge into the barrel and for exploding the same; and means for locking the magazine and simultaneously closing the cartridge-receiving opening in one of the chambers.

9. In a firearm, the combination, with the barrel and a magazine having a plurality of separately-chargeable chambers for containing cartridges, of a carrier; a device for actuating said carrier; a bolt for forcing a cartridge from the carrier into the barrel; a firing-pin carried by the bolt; a spring for actuating said pin; a sear adapted to engage a shoulder on the firing-pin; and an independent rotative cam actuated by the trigger for withdrawing the sear and thereby releasing the pin.

10. In a firearm, the combination, with the barrel, of a magazine having a plurality of separately-chargeable chambers for receiving cartridges; trunnions on which the magazine is revolubly supported; a carrier adapted to receive cartridges from either of said chambers; a bolt for forcing a cartridge from the carrier into the barrel; a pivoted lever positively actuated by the bolt in both directions said lever being connected to the carrier; and means for locking the magazine in position and also closing the openings to the chambers thereof.

11. In a firearm, the combination, with a barrel, of a movable magazine comprising a plurality of separately chargeable and dischargeable chambers; means for locking said magazine in position and closing openings therein; a carrier adapted to receive a cartridge from one of said chambers; and means for forcing said cartridge into the barrel and simultaneously depressing the carrier.

12. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers; a carrier for receiving a cartridge from one of said chambers and for positioning the same adjacent to one end of the barrel; a bolt for forcing said cartridge from the carrier into the barrel, said bolt having shoulders on one of its sides; and a pivoted lever connected at one end to the carrier and having an arm adapted to be engaged by the shoulders of the bolt.

13. In a firearm, the combination, with the barrel, of a magazine movably mounted thereon, and means for simultaneously locking said magazine and closing the cartridge-receiving opening therein.

14. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers having openings adjacent to the rear ends thereof for receiving cartridges, and a cover adapted to lock the magazine in position and to close said openings.

15. In a firearm, the combination, with the barrel, of a magazine revolubly mounted thereon and comprising a plurality of separately chargeable and dischargeable chambers having openings adjacent to the rear ends thereof for receiving cartridges; a cover adapted to lock the magazine in position and to close said openings; and means for retaining said cover in its open or closed position.

16. In a firearm, the combination, with the barrel and a chamber containing cartridges, of a carrier adapted to receive a cartridge from said chamber and to position it adjacent to one end of the barrel; a bolt for forcing said cartridge from the carrier into the barrel; an extractor for extracting a shell from the barrel during one movement of the bolt; a firing-pin coöperating with the extractor in the expulsion of an empty shell; a sear for setting said pin; and a rotative cam for withdrawing said sear.

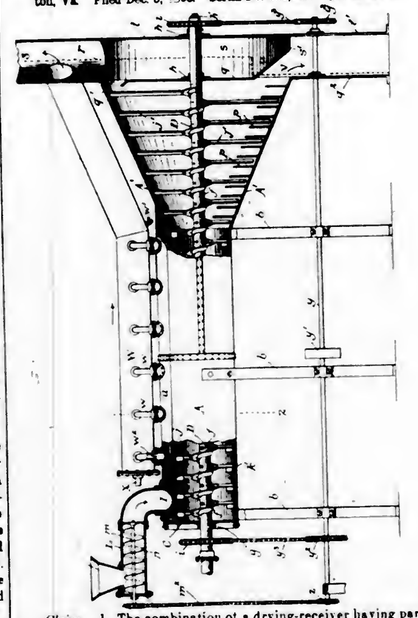
17. In a magazine-firearm, the combination, with the barrel, of a carrier for receiving a cartridge from the magazine and positioning the same adjacent to one end of the barrel; a spring-actuated bolt for forcing the cartridge into the barrel; a firing-pin carried by the bolt; a spring-actuated lever for actuating said carrier during one movement of the bolt; and an extractor carried by the bolt and coöperating with the firing-pin in the expulsion of the cartridge-shell.

18. In a firearm, the combination with firing mechanism, of a sear movable in an opening of the frame and serving to retain the firing mechanism in set position; a pivoted lever connected to said sear; a trigger; and an independent rotative cam operated by said trigger for releasing said sear.

19. In a firearm, the combination, with firing mechanism embodying a firing-pin, a sear for retaining said pin in set position, of a trigger, and a pivoted lever connected to said sear and a device having a series of cam-faces for successively acting upon said lever and releasing the sear from the firing-pin.

20. In a firearm, the combination, with a bolt, of a firing-pin carried by said bolt; a sear for retaining said pin in set position; a pivoted lever connected to the sear and spring-actuated in one direction; a trigger, a disk having a series of teeth for successively acting upon said lever and releasing the sear; and a pawl carried by the trigger for engaging said teeth.

640,628. DRIER FOR FERTILIZER MATERIAL. JOSEPHUS F. BUSSELLA, Irvington, Va., assignor of one-half to Albro J. Morse, Harborton, Va. Filed Dec. 5, 1898. Serial No. 698,240. (No model.)



Claim.—1. The combination of a drying-receiver having parallel walls for a distance from the feeding-in end and flared or cone-shaped walls toward the discharge end; and a revoluble agitator-shaft extending longitudinally through the receiver.

2. The combination of a drying-receiver having parallel walls for a distance from the feeding-in end and flared or cone-shaped walls toward the discharge end; a revoluble agitator-shaft extending longitudinally through the receiver; stirrer-blades on the revoluble shaft, those blades on that part extending through the cone-shaped portion of the receiver having a gradually-increased length.

3. The combination of a drying-receiver having parallel walls for a distance from the feeding-in end and flared or cone-shaped walls toward the discharge end; a vertical cross-wall partly closing the large end and having an upper opening for the escape of vapors and steam and a lower discharge-opening for the dried material; a revoluble agitator-shaft extending longitudinally through the receiver; stirrer-blades on the revoluble shaft, those blades on that part extending through the cone-shaped portion of the receiver having a gradually-increased length.

4. The combination of a drying-receiver having parallel walls for a distance from the feeding-in end and flared or cone-shaped walls toward the discharge end; a revoluble agitator-shaft extending longitudinally through the receiver; a separate chamber at the large end of the receiver for collection of light particles of dried material; and an opening below said chamber for the discharge of the dried material from the receiver.

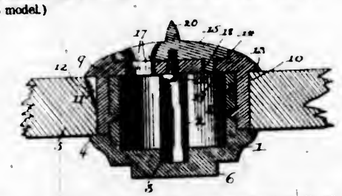
640,629. NASAL PROTECTOR. THOMAS CARENCE, Kansas City, Mo. Filed May 22, 1899. Serial No. 717,682. (No model.)



Claim.—1. A nasal protector comprising two spring-held, nostril-closing wings, suitable means attached to a wing or wings for controlling the admission of air to the nostrils, and means attached to the device for maintaining it in position for use.

2. A nasal protector comprising two spring-held, nostril-closing wings, each wing being provided with an aperture, and an adjustable valve mounted on the wing and arranged to control the admission of air through said wing-aperture.

640,630. INK-WELL. BARTHOLOMEW W. CONROY and WILLIAM E. CONROY, Port Huron, Mich.; said Bartholomew W. Conroy assignor to said William E. Conroy. Filed Jan. 30, 1899. Serial No. 703,856. (No model.)

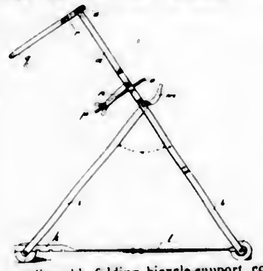


Claim.—1. The combination in a two-part ink-well, of an ink-chamber having a flange near its bottom, a cover having a cylinder depending therefrom and inclosing the ink-chamber and provided with a flange, one of said parts having inclined grooves and the other part, pins engaging in said grooves, the top of the ink-chamber and the under side of the cover substantially meeting each other, and a cap pivotally secured in the center of said cover and having an aperture registering when in one position with an aperture in the cover, substantially as described.

2. The combination in a two-part ink-well, of the ink-chamber 1, having flange 4 and inclined angular grooves 7, with the cover 9, having a cylinder depending therefrom and pins 8 engaging in said grooves 7, the top of the ink-chamber and the under side of the cover substantially meeting each other, and a cap 15 pivotally secured in a recess 14 in the cover, and having a pin 18 working in a slot 19 in said cover, both the cover and cap having apertures 17 adapted to register to allow access to the ink-chamber, all substantially as described and shown.

3. The combination in an ink-well, of a flexible tube arranged within the same at one side of the entrance to the well, to allow the pen to pass between it and the wall of said well, and closed to prevent the entrance of ink, whereby the danger of breaking from freezing is prevented, substantially as described.

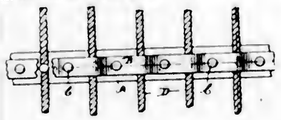
640,631. BICYCLE-SUPPORT. AMBROGIO E. CONTI, Genoa, Italy. Filed June 2, 1899. Serial No. 719,095. (No model.)



Claim.—1. An adjustable folding bicycle-support, consisting of a trestle having three points of support provided with rollers thereon, the adjustable sliding brackets *m* for the principal support of the bicycle, the fork *n* carrying a lock-hook *o* thereon, and the fork *q* securing the front wheel, substantially as set forth.

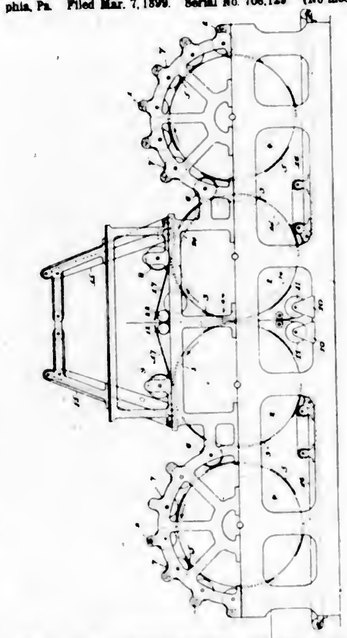
2. An adjustable folding bicycle-support, consisting of a trestle having three points of support provided with the forks *b*, carrying rollers *f*, *f*, and the adjustable brace i hinged to the forks, a spiral spring *e* to act upon the rollers *f*, *f*, substantially as set forth.

640,632. FLY-NET. HENRY COOPER, Morris, Ill. Filed Sept. 23, 1899. Serial No. 731,394. (No model.)



Claim.—In a fly-net, the combination of the horizontally-arranged straps A and B, staples C for attaching said straps together at regular intervals, the lashes D arranged across and between said straps between the staples C, connecting said straps, and the staples C, having the integral prods or points E, for attaching the lashes to the inner strap A substantially as set forth.

640,633. PRINTING-MACHINE. JOHNSON R. CORBIN, Philadelphia, Pa. Filed Mar. 7, 1899. Serial No. 708,129. (No model.)



Claim.—1. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces, each adapted to successively receive a complete supply of ink for a single impression from said trains, a design-surface receiving successive complete inkings from each of said transferring-surfaces, and means for transferring the inked designs from said design-surface onto the paper to be printed.

2. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks of different colors in register from said trains, a design-surface receiving successive complete inkings from each of said transferring-surfaces, and means for transferring the inked designs from said design-surface onto the paper to be printed.

3. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks from said trains, a design-surface receiving successive complete inkings in register from each of said transferring-surfaces, and means for transferring the inked designs from said design-surface onto the paper to be printed after any predetermined number of inkings.

4. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks of different colors in register from said trains, a design-surface receiving successive complete inkings in register from each of said transferring-surfaces, and means for transferring the inked designs from said design-surface onto the paper to be printed after any predetermined number of inkings.

5. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks from said trains, a design-surface receiving successive complete inkings from each of said transferring surfaces, and printing-surfaces adapted to successively receive inked designs from said design-surface and impart them to the paper to be printed.

6. In a printing-machine, a design-surface, means for imparting successive inkings in register to the entire surface of said design, and printing-surfaces adapted to successively receive inked designs from said design-surface after any predetermined number of inkings.

7. In a printing-machine, a design-surface, means for imparting successive inkings in multicolor design in register to the entire surface of said design, and printing-surfaces adapted to successively receive inked designs from said design-surface after any predetermined number of inkings.

8. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks from said trains, a design-surface receiving successive inkings in register over its entire surface from said transferring-surfaces, and printing-surfaces adapted to successively receive inked designs from said design-surface after any predetermined number of inkings.

9. In a printing-machine, a plurality of inking-trains, a plurality of ink-transferring surfaces adapted to receive inks of different colors in register from said trains, a design surface receiving successive inkings in multicolor design in register over its entire surface from said transferring-surfaces, and printing-surfaces adapted to successively receive inked designs from said design-surface after any predetermined number of inkings.

10. In a rotary printing-machine, a cylinder carrying a plurality of yielding ink-transferring surfaces, a plurality of inking-trains, a plurality of pattern-design forms contacting with said surfaces to successively deliver ink thereto in predetermined forms from said inking-trains, a cylinder carrying a relief design also contacting with said surfaces to receive successive inkings therefrom over its entire design-surface, and means for transferring the inked designs from said design-surface onto the paper to be printed.

11. In a rotary printing-machine, a cylinder carrying a plurality of yielding ink-transferring surfaces, a plurality of inking-trains, a plurality of pattern-design forms contacting with said surfaces to successively deliver inks of different colors in register thereto in predetermined forms from said inking-trains, a cylinder carrying a relief design also contacting with said surfaces to receive successive inkings in multicolor designs therefrom, and means for transferring the inked designs from said design-surface onto the paper to be printed.

12. In a rotary printing-machine, a cylinder carrying a single relief design, means for imparting successive complete inkings to said design, a cylinder carrying a plurality of yielding planographic printing-surfaces adapted to successively contact with the design on said design-cylinder and receive ink-impressions therefrom, and means for printing from said printing-surfaces.

13. In a rotary printing-machine, a cylinder carrying a relief design, means for imparting successive complete multicolor inkings in register to said design, a cylinder carrying one or more yielding planographic printing-surfaces adapted to successively contact with the design on said design-cylinder and receive the ink impressions therefrom, and means for printing from said printing-surface.

14. In a rotary printing-machine, a cylinder carrying a relief design, means for imparting successive complete inkings in register to said design, a cylinder carrying a series of removable yielding planographic printing-surfaces adapted to successively contact with the design on said design-cylinder and receive ink impressions therefrom, and means for printing from said printing-surface.

15. In a rotary printing-machine, a cylinder carrying a plurality of yielding planographic printing-surfaces, means for imparting ink designs to said surfaces, and a cylinder carrying a yielding planographic surface adapted to contact with said printing-surfaces between which paper may be fed to receive impressions.

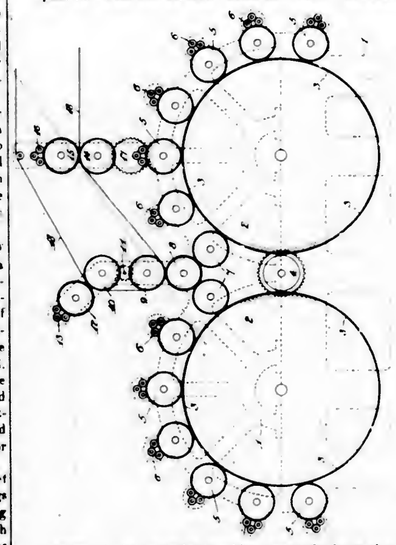
16. In a rotary printing-machine, two cylinders rotating in unison and each provided with a plurality of yielding planographic surfaces adapted to contact, and means for imparting to said surfaces ink impressions, whereby a plurality of double impressions may be simultaneously imparted to paper fed therebetween for each rotation of said cylinders.

17. In a rotary printing-machine, two cylinders rotating in unison and each provided with a plurality of yielding planographic surfaces adapted to contact, a relief-design cylinder for each said cylinder and contacting with the surfaces thereon, means for inking said design-cylinder before the contact of each yielding surface therewith, and means for passing webs of paper between said yielding surfaces to receive impressions therefrom.

18. In a rotary printing-machine, two cylinders rotating in unison and each provided with a plurality of yielding planographic surfaces adapted to contact, means for imparting to said surfaces ink impressions, means for passing webs of paper between said yielding surfaces, and means for intermittently feeding along said webs between impressions.

19. In a rotary printing-machine, two cylinders rotating in unison and each provided with a plurality of removable yielding planographic surfaces adapted to contact and between which the paper to be printed may be fed, a design-cylinder for each said cylinder and contacting with said surfaces, a cylinder for each design-cylinder carrying a plurality of yielding ink-transferring surfaces adapted to contact with said design-cylinder, a plurality of pattern-design forms contacting with said ink-transferring surfaces, and a plurality of inking-trains, one for each pattern-design form, whereby inks of different colors may be imparted to said pattern-design forms and from them to the ink-transferring surfaces in predetermined forms to constitute a single complete inking on each ink-transferring surface, said inkings being transferred in turn to the design-cylinder, from which an inked design is transferred to each planographic surface, from which it is imparted to the paper to be printed.

640,634. PRINTING-MACHINE. JOHNSON R. CORBIN, Philadelphia, Pa. Filed Nov. 28, 1899. Serial No. 738,517. (No model.)



Claim.—1. In a printing-machine, means for imparting a multicolor print at a single impression, a plurality of carriers each carrying a plurality of surfaces each inked in multicolor, and means for transferring said inkings successively to the printing means, each single combined transfer from said surfaces constituting a complete inking for a single impression.

2. In a printing-machine, means for imparting a complete multicolor print at a single impression, a plurality of carriers each carrying a plurality of surfaces each inked in multicolor, and means for transferring said inkings successively to the printing means, each single combined transfer from said surfaces constituting a complete inking for a single impression.

3. In a printing-machine, a single printing-cylinder carrying a suitable form or plate for imparting a multicolor print at a single impression, a plurality of cylinders each carrying a plurality of surfaces each inked in multicolor, and means for transferring said inkings successively to the printing-cylinder, each single combined transfer from said surfaces constituting a complete inking for a single impression.

4. In a printing-machine, a single printing-cylinder carrying a suitable form or plate for imparting a complete multicolor print at a single impression, a plurality of cylinders each carrying a plurality of surfaces each inked in multicolor, and means for transferring said inkings successively to the printing-cylinder, each single combined transfer from said surfaces constituting a complete inking for a single impression.

5. In a printing-machine, means for imparting a multicolor print at a single impression, a plurality of carriers each carrying a plurality of surfaces each inked in multicolor, and intermediate transfer-surfaces receiving the supplies of inks and transmitting them successively to the printing means, each single combined transfer from said intermediate surfaces constituting a complete inking for a single impression.

6. In a printing-machine, means for imparting a multicolor print at a single impression, a plurality of cylinders for assembling a plurality of supplies of ink in multicolor, and intermediate transfer-surfaces receiving the supplies of ink and transmitting them successively to the printing means, each single combined transfer of said intermediate surfaces constituting a complete inking for a single impression.

7. In a printing-machine, a single printing-surface for imparting a multicolor print at a single impression, a plurality of cylinders for assembling a plurality of supplies of ink in multicolor, and interme-

diate transfer-cylinders receiving the supplies of inks and transmitting them successively to the printing-surface, each single combined transfer of said intermediate cylinders constituting a complete inking for a single impression.

8. In a printing-machine, a single printing-cylinder carrying a suitable form or plate for imparting a multicolor print at a single impression, two transfer-cylinders for assembling a plurality of supplies of ink in multicolor, and intermediate transfer-cylinders receiving the supplies of inks and transmitting them successively to the printing-cylinder, each single combined transfer of said intermediate cylinders constituting a complete inking for a single impression.

9. In a printing-machine, a single printing-surface for imparting a multicolor print at a single impression, a plurality of cylinders each carrying a plurality of transfer-surfaces, a plurality of pattern-design forms for each transfer-cylinder successively contacting with the transfer-surfaces thereon, a separate inking-train for each pattern-design form, and intermediate transfer-cylinders receiving the supplies of inks from the transfer-surfaces and transmitting them successively to the printing-surface, each single combined transfer of the intermediate cylinders constituting a complete inking for a single impression.

10. In a printing-machine, a single printing-surface for imparting a multicolor print at a single impression, a plurality of cylinders each carrying a plurality of yielding planographic transfer-surfaces, cylinders carrying a plurality of pattern-design forms successively contacting with said transfer-surfaces, and intermediate transfer-cylinders receiving the supplies of inks from said transfer-surfaces and transmitting them successively to the printing-surface, each single combined transfer of the intermediate cylinders constituting a complete inking for a single impression.

11. In a printing-machine, the combination of a single printing-surface for imparting to a web or sheet a multicolor print at a single impression, a plurality of transfer-surfaces for assembling each a plurality of supplies of ink in multicolor, intermediate transfer-surfaces receiving the supplies of inks and transmitting them successively to the printing-surface, each single combined transfer of said intermediate surfaces constituting a complete inking for a single impression, a printing-couple for imparting to said web or sheet an impression on the opposite side, and a printing-couple for imprinting the design to complete the multicolor print in register after the imprint of said multicolor print.

12. In a printing-machine, the combination of a single printing-surface for imparting to a web or sheet a complete multicolor print at a single impression, a plurality of transfer-surfaces for assembling a plurality of supplies of ink in multicolor, intermediate transfer-surfaces receiving the supplies of inks and transmitting them successively to the printing-surface, each single combined transfer of said intermediate surfaces constituting a complete inking for a single impression, and a printing-couple for imparting to said web or sheet an impression on the opposite side.

13. In a printing-machine, the combination of a single printing-cylinder carrying a suitable form or plate for imparting to a web or sheet a multicolor print at a single impression, two transfer-cylinders for assembling a plurality of supplies of ink in multicolor, intermediate transfer-cylinders receiving the supplies of inks and transmitting them successively to the form or plate on the printing-cylinder, each single combined transfer of said intermediate cylinders constituting a complete inking for a single impression, a printing-couple for imparting to said web or sheet an impression on the opposite side, and a printing-couple for imprinting the design to complete the multicolor print in register after the imprint of said multicolor print.

14. In a printing-machine, the combination of a single printing-cylinder carrying a suitable form or plate for imparting to a web or sheet a complete multicolor print at a single impression, two transfer-cylinders for assembling a plurality of supplies of inks in multicolor, intermediate transfer-cylinders receiving the supplies of inks and transmitting them successively to the form or plate on the printing-cylinder, each single combined transfer of said intermediate cylinders constituting a complete inking for a single impression, and a printing-couple for imparting to said web or sheet an impression on the opposite side.

640,635. EXTENSION-TABLE. CHARLES A. CURL and JAMES D. MCANLIS, Beaver Falls, Pa. Filed Sept. 8, 1898. Serial No. 690,524. (No model.)

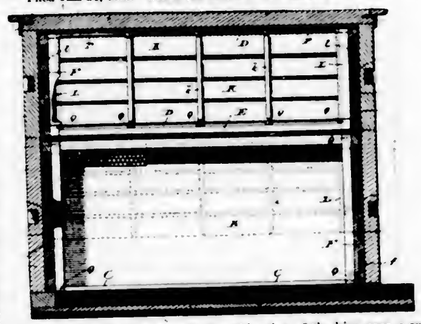


Claim.—1. In an extension-table, the combination with a frame carrying a central table-top and extension-slides having the end sections of the table-top, of two series of bars fixed to the table-frame to lie in different horizontal planes and provided in their upper faces with longitudinal grooves, and two series of rollers loosely journaled within the table-frame and resting in the grooved faces of the bars, substantially as described.

2. In an extension-table, the combination with a frame, of the grooved rails fixed thereto, and the sectional rollers each having its members journaled individually on the rail to lie within the grooves thereof, substantially as described.

3. In an extension-table, the combination with the frame carrying a central top-section, and extension-slides supporting the top end sections, of two series of bars mounted within the frame below the top-section, and arranged respectively in different horizontal planes, said bars being provided at their upper sides with longitudinal grooves and a plurality of supports, and a sectional shelf-forming roller arranged above each bar, the said roller fitting the groove of the bar and having its sections individually journaled in the supports thereof, substantially as set forth.

640,636. BEEHIVE. FRANCIS DANIELBAKER, Washington, D. C. Filed Jan. 21, 1898. Serial No. 667,457. (No model.)



Claim.—1. In a beehive, the combination of the hive-case, a supporting-bar on each side of the case, and frames supported by said bars each of which has at each end a lug resting on the upper side of the adjacent supporting-bar, that consists each of a headed pin inserted through the end bar of the frame the head of the pin being embedded in the inner side of the bar and the body of the pin being extended beyond the outer side of the end bar and being the part in contact with the upper side of the supporting-bar.

2. In a beehive the combination of the hive-case, a supporting-bar on each side of the case, frames having at each end lugs resting on the supporting-bars, and separators or the like, composed of end bars having pins resting on said supporting-bars and a slat or slats between said end bars whose ends are secured in slots in such end bars.

3. In a beehive the combination of the super, honey-section-supporting frames therein, side by side in a row, a bar on the side of the super that engages the section at the top, and a series of projections on the upper side that engage the sections on the bottom, said sections thus engaged being the ones in the end frame of the row, a space being thus provided between said sections and the hive-case side.

4. A top cover for beehives comprising several pieces of wood of substantially equal length and placed side by side and a covering-piece which lies over the joints formed by the abutting sides of said pieces and has on each edge a downwardly-projecting flange that enters a recess in one of said pieces.

5. A top cover for beehives comprising two sides and a central piece of substantially equal length placed side by side, and a covering-piece reaching to each side of the central piece, over the joints between it and the two side pieces, and having a downwardly-projecting flange that enters a recess in each side piece.

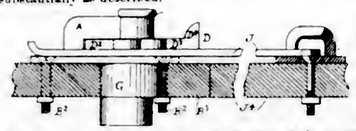
6. A top cover for beehives formed of several pieces of wood of substantially like length, with opposite ends grooved and undercut, and a cross-bar at each end in the undercut and having a member in the groove of such end.

7. A top cover for beehives having at each side a metal strip a portion of which is placed in an upwardly-inclined slit in the top cover and the remainder projects therefrom.

640,637. HASP-FASTENER. JOSEPH DAVY, Oakland, Cal. Filed Jan. 18, 1899. Serial No. 702,572. (No model.)

Claim.—1. A hasp-fastener comprising a hasp, a staple adapted to project through said hasp, a bolt adapted to be placed across the hasp under said staple, and a locking mechanism carried by the staple and forming part of the fastener, substantially as set forth.

2. In a hasp-fastener, the combination of a hasp, a staple adapted to project through the same, a bolt adapted to be turned across the hasp about said staple, and a locking-pin for said bolt carried by the staple, substantially as described.



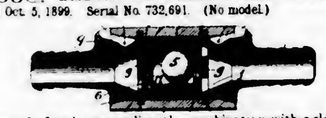
3. A hasp and staple adapted to project through it, comoined with a bolt adapted to be swung about said staple across said hasp, a spring-pressed pin carried by the staple and arranged to cross said bolt and a slider to withdraw said pin, substantially as described.

4. The combination, in a hasp-fastener, of a hasp, a substantially U-shaped staple adapted to project through said hasp, a tube joining the ends of said staple, a bolt pivoted to said tube and arranged to swing across the hasp in the staple, a spring-pressed pin crossing the path of said bolt, and a key-operated slider projecting through the tube and adapted to retract said pin, so as to leave the bolt free to turn, substantially as described.

5. A hasp-fastener consisting of a hasp, a substantially U-shaped staple adapted to project through the same, a hollow pivot joining the ends of said staple, a bolt adapted to be turned under the staple on said pivot, a case, a spring-pressed pin placed in said case and arranged so as to engage said bolt, and a rotatable spring-pressed slider also located in the case and having a cross-piece adapted for engagement with a projection on said pin, said slider being constructed so as to be worked by a key within the hollow pivot, substantially as described.

6. The combination of a hasp, a staple adapted to project through the hasp, a bolt pivoted on said staple and adapted to swing over said hasp, a locking-pin for said bolt carried by said staple, and releasing means for said pin also carried by said staple, substantially as described.

640,638. HOSE-COUPLING. ALBERT C. DIEHL, Philadelphia, Pa. Filed Oct. 5, 1899. Serial No. 732,691. (No model.)



Claim.—1. In a hose-coupling, the combination with a sleeve, of two hose ends inserted in said sleeve; a valve-box having openings at each end carried within said sleeve and between said hose ends; a valve carried within said valve-box adapted to close one of said openings when one of said hose ends is removed from said casing; substantially as described.

2. In a hose-coupling, the combination with a sleeve, a hose end inserted in each end of said sleeve; means for securing said hose ends in said sleeve; a valve-box carried in said sleeve between said hose ends, and provided with openings at each end; a ball-valve carried within said valve-box adapted to close one of said openings when either of said hose ends is removed; substantially as described.

3. In a hose-coupling, the combination with a sleeve, a hose end inserted in each end of said sleeve, projecting lugs on said hose ends, latches mounted in said lugs and adapted to secure said ends in said sleeve; a valve-box carried within said sleeve, a valve mounted in said valve-box adapted to stop the passage of fluid through the said valve when either of said hose ends is removed; substantially as described.

4. In a hose-coupling, the combination with a sleeve, a hose end inserted in each end of said sleeve; means for securing the hose ends in said sleeve; a valve-box carried in said sleeve between the said hose ends; a ball-valve mounted in said valve-box; a plug extending from the inner end of said hose ends and into said valve-box; substantially as described.

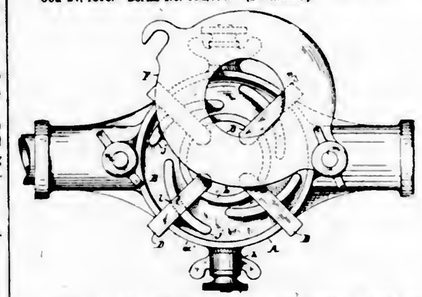
5. In a hose-coupling, the combination with a sleeve, a hose end inserted in each end of said sleeve; lugs carried by said hose ends; latches mounted in said lugs and securing said hose ends in said casing; a valve-box carried within said casing and between the ends of said hose ends; said valve-box having an opening at each end and a valve-seat surrounding said opening; a ball-valve carried within said valve-box; plugs extending from the inner ends of said hose ends adapted to enter the openings at each end of said valve-box; substantially as described.

6. In a hose-coupling, the combination with a casing provided with internal annular grooves, one near each end thereof, and a slot near each end of said casing leading into the groove at that end; a hose end inserted in each end of said casing; said hose end being provided with a lug which is adapted to fit into said annular groove and pass through said slot; a valve-box carried within said casing; and a valve carried within said valve-box; substantially as described.

7. In a hose-coupling, the combination with a casing provided near each end with an internal annular groove and a slot leading from the end of said casing into said groove; a hose end inserted in each end of said casing, said hose end being provided with a lug adapted to fit into said annular groove and to pass through said slot; a valve-box having an opening at each end and carried within said casing; a ball-valve carried within said valve-box; and means for unseating said valve when the hose ends are inserted in said casing; substantially as described.

8. In a hose-coupling, the combination with a casing provided near each end with an internal annular groove and a slot leading from the end of said casing into said groove; a hose end inserted in each end of said casing and provided with a lug, which is adapted to fit in said annular groove and to pass through said slot; a latch carried by said hose end and adapted to lock the same in said casing; a valve-box carried within said casing; a valve carried within said valve-box; and means for unseating said valve when the hose ends are inserted in said casing; substantially as described.

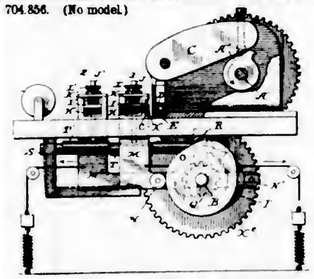
640,639. DIE-STOCK. CHARLES DILLY, Cleveland, Ohio. Filed Oct. 27, 1898. Serial No. 694,650. (No model.)



Claim.—1. An adjustable die-stock comprising a slotted casing with a partition and slotted hub, bevel-geared cam-disks fitting between the outer rim and hub of said casing, pinions in gear with said disks and adapted for being turned and locked from the outside of said casing, a series of notched dies and blocks extending through the slotted casing and hub and engaging cams of said disks and perforated plates provided with suitable means for clamping said dies, blocks and disks against the partition of said casing all constructed and arranged substantially as and for the purpose set forth.

2. In an adjustable die-stock for screw-cutting the combination with a recessed slotted casing of a disk fitting the recess of said casing and having cams upon its outer face a pinion journaled in the casing for engagement with said teeth and provided with suitable means for being turned and locked from the outside, a series of notched dies traversing the slots in the casing and its hub and engaging the cams of said disks and a perforated plate equipped for clamping said dies and disk against said casing all constructed and arranged substantially as shown and for the purpose described.

640,640. DEVICE FOR TUBING WIRE OR OTHER METAL STRIPS. LAURENS P. DIXON, Toledo, Ohio. Filed Feb. 7, 1899. Serial No. 704,856. (No model.)



Claim.—1. The combination of a reel of wire or metal strip, a flattening-press, a curling-die, feeding device, and means for operating

it to push or pull the wire or strip through the die and under the press where it is flattened and then draw the same through the die, substantially as set forth.

2. The combination of a reel of wire or metal strip, a press, a die, feeding devices and propelling-cams, and devices arranged to draw the wire or strip off the reel feed the same through the die into the press where it is flattened, and then draw it through the die turning the flattened portion into a tube or hollow form.

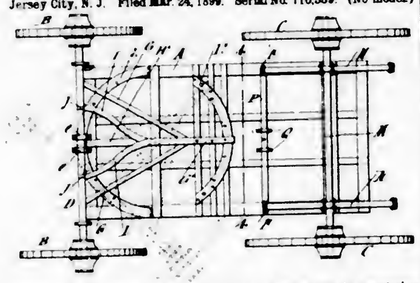
3. In a machine for flattening a portion of a piece of wire or metal strip and subsequently curling the flattened portion, the combination of a flattening-press, a curling-die adjacent thereto and in line therewith, and a traveling clamp to grip the wire or strip and feed that portion of it to be flattened to the flattening-prees, and then carry the flattened portion through the die, for the purpose specified.

4. In a machine for flattening a portion of a piece of wire or metal strip and subsequently curling the flattened portion, the combination of a reel of wire or metal strip, a flattening-press, a curling-die in line therewith, a traveling clamp to grip and convey the wire or strip from the reel and feed the portion to be flattened to the press and then through the die, and a cutter to sever the wire or strip, into suitable lengths, substantially as described.

5. The combination with a reel of wire or metal strip, a curling-die, and a flattening-press, of a feed mechaniam comprising two movable carriages arranged tandem between the reel and the press, a wire or strip clamp on each carriage, independent devices to release the respective clamps at predetermined intervals, means to move the rear carriage with the wire or strip gripped therein to feed the wire or strip through the front carriage to the press, and means to move both carriages simultaneously to force the flattened portion of the wire or strip through the curling-die, for the purpose set forth.

6. The combination with a reel of wire or metal strip, a curling-die, and a flattening-press, of a feed mechaniam comprising a carriage supported to move between the press and reel, a clamp on the carriage to grip the wire or strip, devices to release the clamp at predetermined intervals, and means to reciprocate the carriage, the reciprocating means and the clamp and clamp-releasing devices cooperating to first move the carriage forward, carryiog a portion of the wire or strip through the die to the press, then moving the carriage back part of the way without moving the wire or strip, and completing the backward movement of the carriage and drawing the flattened portion of the wire through the die, for the purpose set forth.

640,641. **RUNNING-GEAR FOR VEHICLES.** EMIL ENGELMANN, Jersey City, N. J. Filed Mar. 24, 1899. Serial No. 710,339. (No model.)



Claim.—In a running-gear for vehicles, a front truck, consisting of a downwardly-bent fore axle, an elliptic spring to the lower section of which said fore axle is clipped, a bolster clipped to the upper section of said spring, a center piece and hounds extending rearwardly from the bolster and meeting at their rear ends, a center brace extending under and secured to the center piece and at its forward end being clipped to the lower section of said spring, and side braces extending from the fore axle and converging at the rear end of the center piece, substantially as set forth.

640,642. **HAT-FASTENER.** ABRAHAM B. EBEN, Dallas, Oreg. Filed Oct. 10, 1899. Serial No. 733,183. (No model.)



Claim.—1. The combination with a hat-pin, having a lateral lug, of a fastening therefor, comprising a locking-plate, having means for attachment to a hat, and provided with a perforation, and a hollow cap or head located upon the outer side of the plate, inclosing the perforation, and having the slot alined with the said perforation, the hat-pin being received through the slot and the perforation, and the lug inclosed within the cap or head, and out of alinement with the slot, the opposite inner sides of the cap or head engaging the lug and preventing longitudinal movement of the pin in opposite directions.

2. In a fastening device of the class described, the combination with a locking-plate, having a central perforation, a hollow cap or head surrounding said perforation, located upon the outer side of the plate, and provided with a radial slot having its inner end alined with the central perforation of the plate, pointed prongs projecting from the rear side of the plate, and a ring adapted to embrace the prongs, and the extremities of the latter adapted to be bent upon said ring, of a pin having a lateral lug or shoulder, substantially as and for the purpose set forth.

3. The combination with a hat-pin, comprising a substantially long pointed shank, having an intermediate lateral lug, and a pendant located at the outer end of the shank, of a locking-plate for application to a hat, and having a perforation, and a hollow cap or head located upon the outer side of the plate, inclosing the perforation therein, and provided with a slot, the inner end of the latter being alined with the perforation in the plate, the shank of the pin being received through the slot and the perforation, the lug being inclosed within the hollow cap or head, and the pendant normally holding the lug out of alinement with the slot.

4. The combination with a locking-plate having a perforation and adapted for attachment to a hat, of a hollow cap surrounding the perforation and having a slot alined with the perforation, a pin adapted to pass through the slot and perforation, a lug upon the pin adapted to pass through the slot and lie within the inclosure of the cap, an eye upon the pin lying at one side thereof, and a pendant connected with the eye and adapted to hold the lug out of alinement with the slot.

5. The combination with a hat, having a comparatively large opening formed in one side of the crown thereof, of a locking-plate fitted to the exterior of the crown, covering the opening therein, and having a perforation alined with the opening in the crown and of smaller diameter than said opening, a hollow cap or head located upon the outer side of the plate, inclosing the perforation therein, and provided with a slot alined with said perforation, and a plurality of fastening-prongs projecting from the inner side of the plate, extending through the crown of the hat, and surrounding the opening therein, a ring fitting snugly the inner side of the crown, encircling the opening therein, and embracing the prongs, the extremities of the latter being bent outwardly and embracing the ring, and a hat-pin received through the slot, the perforation and the opening in the hat, and having a lateral lug received within the hollow cap or head, in engagement with opposite inner sides of the latter, and out of alinement with the slot.

640,643. **WRENCH.** JOHN J. FARRELL, Timberville, Va., assignor of one-half to Arthur B. Lohr, New Market, Va. Filed Oct. 2, 1899. Serial No. 732,372. (No model.)



Claim.—1. A wrench comprising a shank having a fixed jaw, a handle, overlapping ears on the shank and handle, one having a transversely-elongated slot and the other a pin passing through and working in the slot, a movable jaw on the shank, a fulcrum-step on the handle, and an adjusting-screw interposed between said step and the movable jaw, substantially as set forth.

2. In a combined nut and pipe wrench, the combination with a shank having a fixed jaw at one end and provided at its opposite end with an open slot, of a sliding jaw mounted on said shank, a handle having a jointed connection with said shank, an ear on said handle fitting in the end slot of the shank and provided itself with a transverse slot, a pin connected with the slotted end of the shank and passing through said slotted ear, a stop-shoulder on the ear cooperating with the shank, a fulcrum-step on the handle provided with a spherical socket, and an adjusting-screw connected with the sliding jaw and having a terminal ball fitted in the spherical socket of the fulcrum-step, substantially as described.

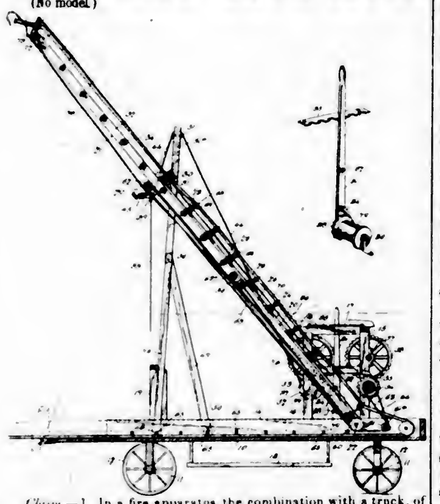
3. A combined nut and pipe wrench comprising a shank having a fixed jaw at one end and a terminal slot at its other end, a sliding jaw on said shank, a handle, a handle-stem, provided with a slotted ear slidingly fitted in the terminal slot of the shank, and held by a pin connected with the shank and passing through the slot in the ear, rocker-surfaces on the handle-stem engaging the shank, a fulcrum-step on the handle, and an adjusting screw connected with the sliding jaw, and having a ball-and-socket connection with the fulcrum-step, substantially as described.

640,644. **PROCESS OF MANUFACTURING INDIA-RUBBER TIRES.** HENRI FALCONNET and MAURICE PEKODEAUD, Choisy-sur-Seine, France. Filed Nov. 9, 1899. Serial No. 736,399. (No specimens.)



Claim.—The process of manufacturing india-rubber tires for the wheels of vehicles and other like articles which consists in creating, in the mass of the tire, zones of different resiliency or flexibility increasing from the periphery to the center, by subjecting the tire formed by the ordinary industrial methods and subjected to a first general vulcanization, to a series of refrigerations, at temperatures below zero, alternating with vulcanizations at high temperature of increasingly shorter duration, whereby the vulcanization interrupted by the congealing of the core of the tire, is effected to decreasing depths, substantially as hereinbefore set forth.

640,645. **FIRE-ESCAPE LADDER AND WATER-TOWER.** JOHN W. FALL, Crawfordsville, Ind. Filed Aug. 30, 1899. Serial No. 729,006. (No model.)



Claim.—1. In a fire apparatus, the combination with a truck, of an extensible hose-supporting frame pivoted thereon, supporting-posts foldably mounted on the truck and carrying guide-sheaves, a hoisting-drum, and an elevating-cable reeved through the supporting-posts and one section of the supporting-frame and connected with the hoisting drum, substantially as described.

2. In a fire apparatus, the combination with a truck, of an extensible pivotal hose-supporting frame having its main section provided with a head-frame, supporting-posts foldably mounted on the truck, on opposite sides of the frame, and provided with guide-sheaves, hoisting-drums mounted on the truck adjacent to the supporting-frame and each having a suitable operating appliance, and a hoisting-cable connected to said drums and reeved through the head-frame and the supporting-posts, substantially as described.

3. In a fire apparatus, the combination with a truck, and an extensible hose-supporting frame, of supporting-posts stepped detachably on the truck and carrying guide-sheaves, stay-posts having pivotal connection with the truck and the supporting posts, the hoisting mechanism, and a hoisting-cable reeved through the supporting-posts and connected operatively with said supporting-frame and the hoisting mechanism, substantially as described.

4. In a fire apparatus, the combination with a truck comprising side rails, a hose-compartment between the side rails, cross bars connecting the rails and lying above the hose-compartment, an extensible hose-supporting frame mounted pivotally on the truck and adapted to lie upon the supporting-bars, means for raising and extending said frame, a nozzle-carrier mounted upon the frame, and a hose passed through the hose-compartment and longitudinally of the frame and engaging the nozzle-carrier.

5. In a fire apparatus, the combination with an extensible hose-supporting frame, of an adjustable nozzle-carrier fitted normally to a slidable section of said frame, a line of hose having its nozzle clamped in said carrier, means for gripping said hose to relieve the weight of the column of fluid from the nozzle-carrier, and means for adjusting said nozzle-carrier independently of the adjustment of the supporting-frame, substantially as described.

6. In a fire apparatus, the combination with a hose-supporting frame comprising side rails and cross-braces, of a yieldable nozzle-carrier engaged with one of the braces, and comprising a spring-wire bent upon itself and having its end portions wrapped around the brace and engaged at its terminals with the side rails, the central portion of the wire being twisted to form a nozzle-receiving loop.

7. In a fire apparatus, the combination with an extensible hose-supporting frame, of a spring nozzle carrier mounted on said frame, a line of hose having a nozzle clamped in the carrier, and means for adjusting the carrier against the tension of its spring, substantially as described.

8. In a fire apparatus, the combination of an extensible hose-supporting frame having one section thereof provided with a roller, a coiled-spring nozzle-carrier fitted on said roller and provided with arms which are seated against the frame-section, a line of hose having a nozzle clamped in said carrier, and means for adjusting the carrier against the tension of its spring, substantially as described.

9. In a fire apparatus, the combination with an extensible hose-supporting frame, of a yieldable nozzle-carrier, a line of hose clamped in said carrier, a lever carrying a take-up drum, and an adjusting-line coiled on said drum and connected to the nozzle-carrier, substantially as described.

10. In a fire apparatus, the combination with an extensible hose-supporting frame, of a yieldable nozzle-carrier, a line of hose, a nozzle, a shiftable lever having means for locking the same in its adjusted position, a take-up drum mounted on the lever and shiftable therewith, means for making said drum fast with the lever, and an adjusting-line attached to the nozzle-carrier and coiled on the drum, substantially as described.

11. In a fire apparatus, the combination of an extensible hose-supporting frame one section of which is provided with a head-frame having a gripping-rail and a sheave which coacts therewith, a line of hose passing between said rail and shoe and adapted to be gripped thereby, a nozzle-carrier, a nozzle clamped in said carrier and connected to the hose, and means for adjusting said nozzle-carrier, substantially as described.

12. The combination with a hose-supporting frame having metallic rungs, of heat-resisting jackets fitted to and inclosing said rungs and separated therefrom by interspaces to receive air, substantially as described.

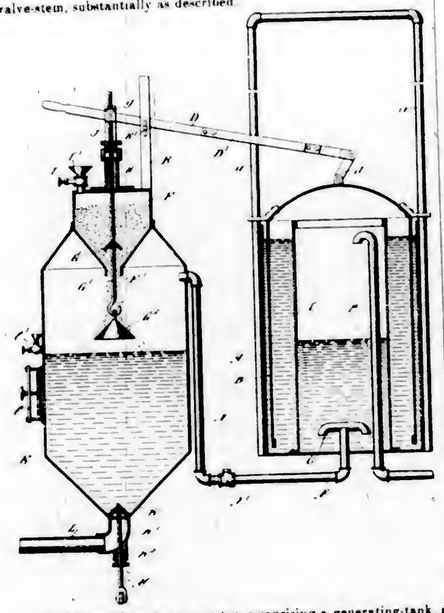
13. A fire apparatus comprising side rails having metallic braces and fireproof jackets secured to the rails and inclosing the braces to leave intermediate air-spaces, substantially as described.

14. A supporting-frame consisting of separable sections, a coupling-frame having grooved side rails and cross-bars and fitted to said sections for the latter to occupy the grooves in its side rails, locking-pins passing through the rails of the coupling-frame and the frame-sections, and other pins fitted in the cross-bars of the coupling-frame, substantially as described.

640,646. **ACETYLENE-GAS APPARATUS.** ALPHONSE F. GAIENNIE, Thibodeaux, La., assignor to himself and John Leche, same place. Filed Jan. 13, 1899. Serial No. 702,057. (No model.)

Claim.—1. An acetylene-gas apparatus, comprising a generating-tank, a carbid hopper or holder having a gravity discharge into the generator-tank, a valve movable to open and close the discharge-opening, the stem of said valve extending vertically through the car-

bid-holder and extending above the same, a gasometer, a lever connected at one end with the gasometer-bell, a guide-yoke receiving the lever and having a removable fulcrum-pin, and a yoke carried by the carbid-holder and through which the other end of said lever extends, the said lever being connected with the upper end of the valve-stem, substantially as described.



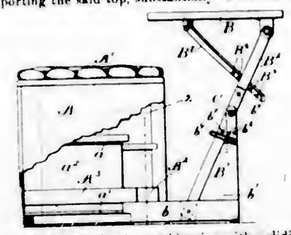
2. An acetylene-gas apparatus, comprising a generating-tank, a carbid hopper or holder having a gravity discharge into the generator-tank, a sleeve or cylinder projecting from the upper part of the carbid-holder, a valve movable to open and close the discharge-opening, the stem of the valve extending vertically through the carbid-holder and sleeve and projecting above the same, a gasometer, a lever connected at one end by a link with the top of the gasometer-bell, a fulcrum for the lever, a yoke secured to the carbid-holder and through which the other end of the lever passes, and a block connected with the upper end of the valve-stem and to which the said lever is secured, substantially as described.

3. An acetylene-gas apparatus comprising a generating-tank having a valve-controlled discharge-opening in its bottom, a carbid-holder discharging into the upper end of said tank, a valve movable to open and close the discharge-opening of the carbid-holder, the stem of said valve extending through the carbid-holder and projecting above and below the same, a gasometer connected with the said generating tank, a lever connected at one end with the gasometer-bell, a guide-yoke receiving the lever and provided with a fulcrum-pin for the lever, a yoke through which the other end of the said lever extends, the said lever being connected with the upper end of the valve-stem and a weight at the lower end of said valve-stem within the generator, substantially as described.

4. An acetylene-gas generator, comprising a tank having a carbid holder or hopper discharging into its upper end, the said tank being provided with a valve-controlled discharge-opening in its bottom, a valve-stem extending vertically through the carbid-holder and projecting above and below the same, a valve carried by said stem within the carbid-holder and adapted to close the discharge-opening in the bottom of the carbid-holder, a removable conical weight suspended by a hook from the lower end of said valve-stem, the said weight being located within the generator and below the discharge end of the carbid-holder, and a lever connecting the upper end of the stem and the gasometer-bell for operating said valve, the said conical weight serving to secure the closing of the valve and also acting as a distributer to scatter the carbid passing from the discharge-opening of the carbid-holder, substantially as described.

640,647. COMBINED SEAT AND TABLE. HERBERT I. GANNETT, Washington, D. C. Filed May 11, 1899. Serial No. 716,388. (No model.)

Claim.—1. In a folding table, the combination with a sliding base having upright end supports; of a folding upper portion comprising the table-top, a pair of legs pivoted near one edge of said top and pivoted to said base-supports; means for securing the legs against pivotal movement upon said supports and a pair of arms pivoted to the under side of the table-top and provided with means for adjustably supporting the said top, substantially as described



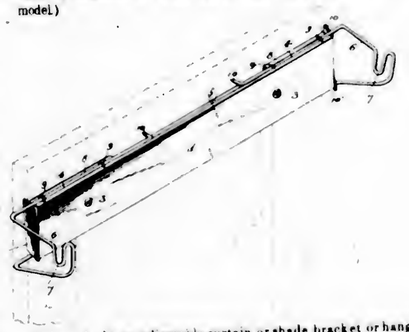
2. In a folding table, the combination with a sliding base having upright end supports; of the upper portion of the table comprising the top, a pair of legs pivoted near one edge of said top and pivoted to said base-supports, a cross-brace between the said table-legs; sliding bolts mounted upon said cross-brace and arranged to adjustably lock the said legs against pivotal movement, arms pivoted to the under side of the table-top and provided with means for adjustably engaging the said cross-brace for supporting the table-top, substantially as described.

3. The combination with a rectangular box having an open vertical side, and slideways within the bottom of said box; of a folding table having a base provided with feet arranged to slide in said slideways; and said table having a folding upper portion pivoted upon the said base, the top of the table being arranged to fold vertically and to fit the open side of the said box when folded, substantially as described.

4. The combination with a rectangular box having one vertical open side; and having slideways in the bottom thereof; of a table having a base portion provided with feet arranged to slide in said slideways, and having rigid vertical supports; a flat top, a pair of legs pivoted to the said vertical supports and pivoted to the under side of the table-top; means for locking said legs against pivotal movement; means coöperated with said legs for supporting the table-top; the whole table when folded being arranged to enter the open side of said box and the top of said table to fit the said opening, substantially as described

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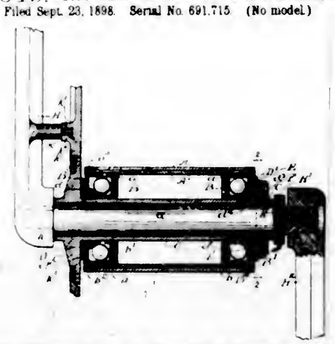
640,648. ADJUSTABLE SHADE-BRACKET. CLAUDE H. GASKINS, Shamokin, Pa. Filed May 31, 1899. Serial No. 718,900. (No model.)



Claim.—1. In an adjustable curtain or shade bracket or hanger, the combination with the rectangular bar formed with longitudinal grooves in the upper and lower edges and with an intersecting recess at the rear, of the extensible or adjustable brackets made from a single piece of wire bent to form bearings for the journals of the curtain or shade roller and two parallel arms seated in said grooves having the ends pointed and bent rearwardly at right angles and the staples for holding said arms in place, substantially as described.

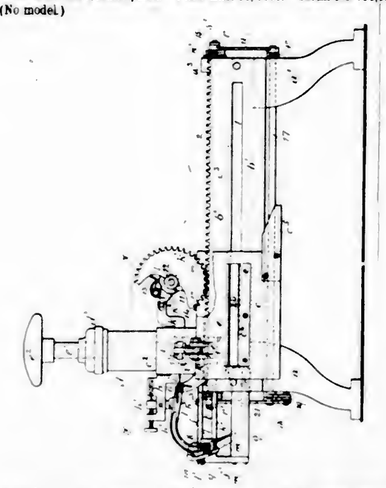
2. In an adjustable curtain or shade bracket or hanger the combination with the rectangular bar formed with longitudinal grooves in the upper and lower edges, and the pivoted beveled plates at the ends thereof, of the extensible brackets formed with bearings to receive the journals of the roller and with parallel arms seated in said grooves and the staples for holding said brackets in place, substantially as described.

640,649. BICYCLE CRANK-SHAFT. CHARLES GORMAN, Chicago, Ill. Filed Sept. 23, 1898. Serial No. 691,715. (No model.)



Claim.—The combination with an axle having a shoulder at one end, of a flanged sleeve fitting over the axle and abutting against the shoulder thereon, a sprocket-wheel secured to the flange of the sleeve and having a boss or socket on its outer side, a crank-arm provided with a pin fitting said socket, and a nut arranged on the axle between the end of the sleeve, and the adjacent crank-arm to hold the pin within the socket.

640,650. MACHINE FOR MOISTENING AND AFFIXING STAMPS. JAMES GRADY, New York, N. Y., assignor to himself and John G. Buehler, same place. Filed Mar. 11, 1899. Serial No. 708,629. (No model.)



Claim.—1. In a machine for moistening and affixing stamps, a table for supporting a sheet of stamps and means for holding and for automatically shifting the position of the sheet progressively, a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger connected to and movable with the carriage for severing and affixing the stamps, mechanism operated automatically by the downward and upward movement of the plunger for moistening the stamps progressively, for automatically shifting the carriage progressively from one stamp to the next, and for determining the extent of such movement, substantially as set forth.

2. In a machine for moistening and affixing stamps, a table for supporting a sheet of stamps and means for holding and for automatically shifting the position of the sheet progressively, a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger connected to and movable with the carriage for severing and affixing the stamps, mechanism operated automatically by the plunger for moistening the stamps progressively, for automatically shifting the carriage progressively from one stamp to the next, and for determining the extent of such movement, and means for locking the carriage momentarily to prevent accidental movement, substantially as set forth.

3. In a machine for moistening and affixing stamps, a table for supporting a sheet of stamps and means for holding and for automatically shifting the position of the sheet progressively, a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger connected to and movable with the carriage for severing and affixing the stamps, mechanism operated automatically by the downward and upward movement of the plunger for moistening the stamps progressively, for automatically shifting the carriage progressively from one stamp to the next, and for determining the extent of such movement, substantially as set forth.

4. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps and means for holding and shifting the position of the sheet progressively, of a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger for affixing the stamps, guides projecting from the carriage and having an arm and a water-holder secured thereto, a bracket projecting from the plunger and having a pivoted presser-foot, a spring-actuated mortise-arm pivoted to the carriage, slide-blocks in said guides, a pivot-pin passing through the slide-blocks and through the mortise of said arm, a curved arm and a moistener at one end thereof, said curved arm being pivoted to the pin passing through the slide-block, a spring for actuating said arm and an auxiliary arm connected therewith and a pin connected to the mortised arm for actuating the moistener in one direction, substantially as set forth.

5. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps and means for holding and shifting the position of the sheet progressively, of a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger for affixing the stamps, the guides f, the arm f', the water-holder g, the bracket 5, the pin 6 passing through the same and the spring upon the pin, the curved mortised arm l and the projection at the pivot end of the same, the auxiliary arm l' and the pin 9, the slide-block 7 and its pin 8, the curved arm m pivoted on the pin 8 and having a spring and an auxiliary arm m' and a moistening device m^2 and the pivoted presser-foot h' for actuating said parts with the downward movement of the plunger, substantially as set forth.

6. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps, and means for holding and shifting the position of the sheet progressively, of a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger for affixing the stamps, the bracket i on the plunger, the bracket i' on the carriage, the arm i^3 pivoted to the bracket i' and at its forward end engaging the jaw end of the bracket i, and the spring-actuated pin 10 depressed by the action of the arm i^3, substantially as and for the purposes set forth

7. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps and means for holding and shifting the position of the sheet progressively, of a carriage having an aperture for receiving the articles to which the stamps are to be affixed, a hand-operated and spring-returned plunger for affixing the stamps, a bracket k connected to the plunger, a support upon the carriage and a shaft therein, a toothed wheel on one end of the shaft and a crank-arm on the other end engaging the jaw end of the bracket k and a pawl-and-ratchet device, substantially as and for the purposes set forth.

8. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps, a carriage having an aperture for successively receiving the articles to which the stamps are to be affixed and means for shifting the carriage progressively, means for moistening the stamps and for affixing the same progressively, of a cross-shaft and bearings therefor movable in the frame of the machine, fingers connected along and to the cross-shaft and adapted to bear upon the sheet of stamps, means for swinging the cross-shaft and raising the fingers and for moving the cross-shaft and fingers rearward and a device connected to the carriage for actuating said means at the end of the movement of the carriage in one direction whereby the sheet of stamps is released and engaged at a new point and moved bodily forward in the machine, substantially as set forth.

9. In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps, a carriage having an aperture for receiving the articles to which the stamps are to be affixed, means for affixing the stamps, for moistening the stamps progressively, and for shifting the carriage progressively, of a cross-shaft and bearings therefor movable in the frame of the machine, fingers connected to the cross-shaft and adapted to bear upon the sheet of stamps, slide-blocks through which the ends of the cross-shaft pass, cranks upon the ends of the cross-shaft, bars connected to said cranks, a lever, and a shoe upon the carriage for operating the lever, a cross-shaft actuated by the lever, means actuated by the cross-shaft

for moving the bars and the cranks, and means for returning the parts to their normal position, substantially as set forth.

10 In a machine for moistening and affixing stamps, the combination with a table for supporting a sheet of stamps, a carriage having an aperture for receiving the articles to which the stamps are to be affixed, means for affixing the stamps, for moistening the stamps progressively and for shifting the carriage, of a cross-shaft and bearings therefor movable in the frame of the machine, fingers connected to the cross-shaft and adapted to bear upon the sheet of stamps, slide-blocks through which the ends of the cross-shaft pass, cranks upon the ends of the cross-shaft, bars connected to said cranks, a lever and a shoe upon the carriage for operating the lever, a cross-shaft actuated by the lever, a crank 18, link 19 and rocker-arm 21 on one side of the machine and a link *a* upon the other side of the machine for actuating said cranks, pins upon the slide-blocks, bars in the mortised frames in which the slide-blocks move, springs around said bars and adjusting-heads for applying tension to the springs, the ends of the bars connected to the cranks of the slide-blocks being returned and notched and straddling the bars in the mortised frames for compressing the springs simultaneously with the movement of the slide-blocks, whereby the parts are returned to a normal position and the sheet of stamps fed bodily forward upon the bed of the machine, substantially as set forth.

640,651. COLLAR-BUTTON. SIDNEY A GRANT, Springfield, Mass. Filed Mar. 10, 1899. Serial No. 708,514 (No model.)



Claim.—1. A button, consisting of a base provided with a suitable shank, a sphere at the end of the shank, and a ball-bearing, encircling this sphere, which sphere projects a suitable distance beyond the outer edge of the ball-bearing so that when the sphere is presented to the buttonhole it rolls through the hole, substantially as shown

2 A button consisting of a base, shanks at each end of the base, and encircling bands d^3 secured to the shanks, and which bands are made concave upon their inner sides so as to form encircling ball-bearings and thus catch over each side of the center of the spheres to prevent them from being displaced, while allowing the spheres to freely turn, substantially as shown and described.

640,652. VEHICLE-WHEEL. ISRAEL W. GREGG, Elwood, Ind., assignor of one-half to John F. Rodiller, same place. Filed June 7, 1899. Serial No. 719,711. (No model.)



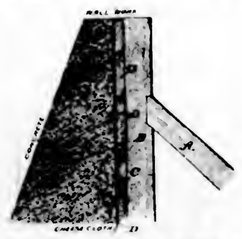
Claim.—1. The combination, in a wheel, of a felly having pockets therein, springs in said pockets, overlapping metal sections arranged outside of said fellies, angle-plates attached to said sections and extending in and resting upon said springs, saddles arranged at intervals around the felly, springs uniting the several saddles, and other springs carried by said saddles and supporting the overlapping metal sections.

2 The combination, in a wheel, of the felly, the sheath or tread, overlapping metal sections within said sheath or tread, saddles carried by the felly, springs uniting the several saddles, and other springs interposed between the saddles and the overlapping metal sections whereby the latter are supported from the former, substantially as shown and described.

3. The combination, in a vehicle-wheel, of the felly, the sheath or tread, saddles arranged at intervals around the felly, springs uniting the several saddles arranged in a groove in said felly, and springs supported by and extending from said saddles to said overlapping metal sections.

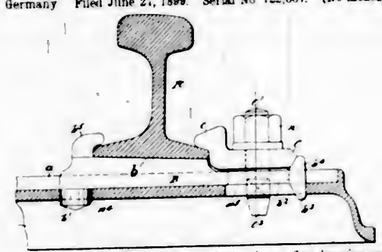
4. The combination, in a vehicle-wheel, of a felly having grooves around its peripheral edges, annular rings set in said grooves and extending up and forming bearing-surfaces for metal sections, said metal sections being constructed and arranged to overlap each other and substantially U-shaped in form with their edges resting against said rings, suitable springs carried from the felly and supporting said metal sections, and a suitable sheath or tread surrounding the whole, substantially as shown and described.

640,653. PROCESS OF FORMING CONCRETE WALLS. CHARLES GUY, Topeka, Kans. Filed Oct. 30, 1897. Serial No. 656,981. (No specimens.)



Claim.—The process described of forming a concrete wall for architectural purposes, the same consisting in erecting crib or other structure having a face corresponding to the desired form of the concrete surface to be produced; next applying a thin layer of plaster upon such face, then laying a coarse or open-grained fabric upon the stratum of plaster, then applying concrete in contact with the fabric, and allowing the same to "set," and, finally, removing the aforesaid crib and stripping the fabric, with adhering plaster, off the concrete surface, as specified.

640,654. PERMANENT WAY. AUGUST HAARMANN, Osnabrück, Germany. Filed June 27, 1899. Serial No. 722,087. (No model.)



Claim.—1. A metallic railway-tie having a flat bearing-surface bounded on each side by an unbroken longitudinal rib, and having its side walls arched or curving outwardly and terminating in basal flanges of increasing thickness the internal faces of which curve inwardly, for the purpose set forth.

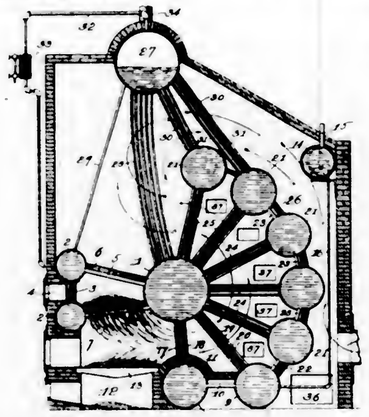
2. A metallic tie provided on its upper face with unbroken longitudinal ribs, and a rail-chair provided with a flange constructed to engage the foot of a rail and with a lug fitting a hole in the upper part or roof of the tie, and with a slotted and T-shaped extension, the downward flange of which abuts against the outer end wall of a longitudinal slot in the aforesaid roof of the tie, in combination with a slotted clamping-plate constructed to engage the foot of the rail and abut against the upwardly-projecting flange on the chair extension, and means for securing said plate to the chair extension and tie, for the purpose set forth.

3. A metallic tie provided on its upper face with unbroken longitudinal ribs, and a rail-chair provided with a flange constructed to engage the foot of a rail, and with a lug fitting a hole in the upper part or roof of the tie, and with a slotted and T-shaped extension, the downward flange of which abuts against the outer end wall of a longitudinal slot in the aforesaid roof of the tie, in combination with a slotted clamping-plate constructed to engage the foot of the rail and abut against the upwardly-projecting flange on the chair extension, and a T-bolt extending through the slots in the tie and chair extension and through a hole in the clamping-plate, and a suitable nut for securing said bolt, substantially as and for the purpose set forth.

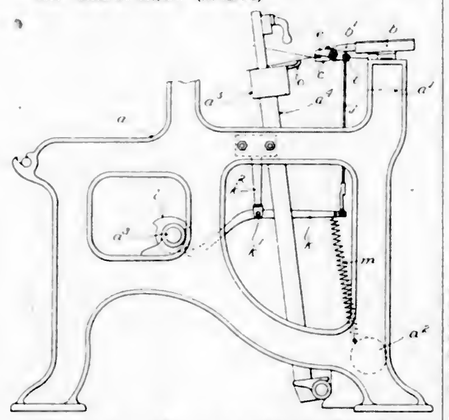
640,655. WATER-TUBE BOILER. CHARLES M. HARGIS, St. Louis, Mo. Filed May 11, 1899. Serial No. 716,369. (No model.)

Claim.—1. In a water-tube boiler, a centrally-arranged drum, a plurality of drums radially arranged relative to the central drum, tubular connections between said radially-arranged drums and the central drum, a pair of drums arranged in front of the first-mentioned drum, tubular connections between said last-mentioned drums and the first-mentioned drums, a drum positioned above the first-mentioned drum and the radially-arranged drums, and tubular connections between said last-mentioned drum and the first-mentioned drum and between the last-mentioned drum and certain of the radially-arranged drums, substantially as specified.

2. In a tubular boiler, a centrally-arranged drum, tubular grate-bars extending forwardly from said drum, a plurality of drums arranged radially around the rear portion of said first-mentioned drum, tubular connections between said radially-arranged drums and the central drum, and means whereby the fire on the tubular grate-bars is deflected between the central drum and the radially-arranged drums, substantially as specified



640,656. WEFT-PARTER FOR AUTOMATIC WEFT-REPLENISHING LOOMS. HENRY I. HARRIMAN, New York, N. Y. Filed June 26, 1899. Serial No. 721,851. (No model.)



Claim.—1. In a weft-parter, in combination, the loom-temple having the notch across the outer endof the temple-head to receive an end of weft or filling extending beyond the selvage of the cloth being woven, coöperating parting or severing members having a rocking blade or blades, and power-transmitting means to occasion a definite rocking movement of the said blade or blades to part the said end of weft or filling.

2. In a weft-parter for looms, in combination, the loom-temple having the notch across the outer end of the temple-head to receive an end of weft or filling extending beyond the selvage of the cloth being woven, the fixed blade located at the said outer end of the temple-head and having the slot or recess and the supporting edge for the weft or filling, and a rocking blade coöperating with said fixed blade to part an end of weft or filling lying across the said supporting edge, substantially as described.

3. In a weft-parter for looms, in combination, the loom-temple having the notch across the outer end of the temple-head to receive an end of weft or filling extending beyond the selvage of the cloth being woven, the fixed blade located at the said outer end of the temple-head and having the slot or recess and the supporting edge for the weft or filling, and the rocking blades working on opposite sides of the said fixed blade and coöperating therewith to sever or part an end of weft or filling lying across the said supporting edge, substantially as described.

4. In a weft-parter for looms, in combination, a loom-temple, a fixed blade at the outer end of the temple-head, a rocking blade working at one side of said fixed blade and operating to compress and clamp the weft or filling thereagainst, and a rocking blade working at the other side of said fixed blade and operating to part the weft or filling thus held, substantially as described.

5. In a loom, in combination, the loom-temple, fixed and movable parting or severing members applied to the loom-temple, and actuating mechanism for the movable portion of such members comprising a cam and operating connections therefrom to the said movable portion, substantially as described.

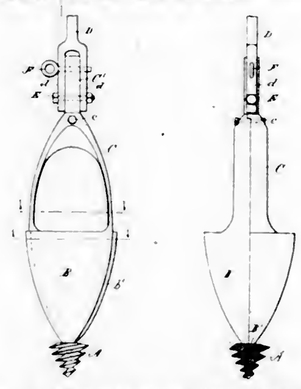
6. In a loom, in combination, a weft-parter, the lay, and a weft-support applied to the lay-beam beyond the selvage of the cloth and operating to hold weft or filling in position to be acted upon by the weft-parter.

7. In a loom, in combination, a weft-parter, the lay, and the weft-supporting pin *o* applied to the lay-beam beyond the selvage of the cloth and operating to hold weft or filling in position to be acted upon by the weft-parter.

8. In a loom, in combination, a weft-parter comprising coöperating blades and mounted on a support carried by the breast-beam, the lay, and the weft-supporting pin *o* applied to the lay-beam and operating to hold weft or filling in position to enter between the said blades

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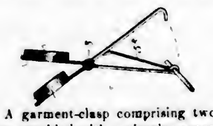
640,657. EARTH-AUGER. PETER HESSELIUS, Chicago, Ill. Filed Jan. 24, 1899. Serial No. 703,258. (No model.)



Claim.—1. An earth-auger having a hollow conoidal body formed in two longitudinal sections disposed with the front edge of one section at a greater radial distance from the longitudinal center of the auger than is the adjacent rear edge of the other section, thereby leaving in the side of the body a longitudinal opening, and a bail formed in two longitudinal parts each joining one of the sections at its edges adjacent to the edges of the other section, substantially as set forth.

2. An earth-auger having a hollow conoidal body formed in two longitudinal sections disposed with the front edge of one section at a greater radial distance from the longitudinal center of the auger than is the adjacent rear edge of the other section, thereby leaving in the side of the body a longitudinal opening, said sections being provided at bottom with a stem, one-half of which is carried by each section, a screw-point having a socket receiving said stem whereby the bottoms of the two sections are held together, means for holding the screw-point in place on the stem, and a bail connected to the body, substantially as set forth.

640,658. GARMENT-CLASP. ELISHA D. HIBBLEY, Denver, Colo. Filed June 17, 1899. Serial No. 720,916. (No model.)



Claim.—1. A garment-clasp comprising two hinged members, one having a jaw provided with a circular groove, and the other a coöperating jaw provided with an annular flange adapted to engage

said groove, which is inclosed by two concentric walls, between which the flange of the other jaw passes.

2. A garment-clasp comprising two hinged members, one having a jaw provided with a central opening and an annular groove, and the other having a jaw provided with a central opening and a flange adapted to enter the said groove of the coöperating jaw.

3. A garment-clasp comprising two hinged members, one having a jaw provided with an opening and an annular groove surrounding said opening, and a flange extending at right angles to the walls of the said groove, the other member having a coöperating jaw provided with a flange adapted to enter the groove of the first-named jaw, and provided with an exterior flange extending at right angles to the first-named flange.

4. A garment-clasp comprising two crossed members, hinged at their intersection, and provided at one extremity with coöperating jaws, the opposite extremity of one member being bent to form a locking-hook, adapted to engage the corresponding extremity of the opposite member, one member being provided with a spring adapted to hold the jaws open when unlocked, and means attached to one member adapted to disengage the locking-hook of the other member.

5. A garment-clasp comprising two members, hinged at their intersection, and having coöperating jaws located on one side of the hinge, one of the said members being bent to form a spring, adapted to engage the other member, and normally hold the jaws open, and a ring engaging the eye formed by the bend in the said member, and having a tongue adapted to disengage the other member, which is provided with a spring locking-hook.

6. A garment-clasp composed of two members having coöperating jaws, one jaw having two concentric walls and the other a circular flange adapted to pass between said walls, one member having a central opening, through which the body portion of the other member is adapted to pass, the two parts being cut and pressed in opposite directions to form hinge-pin openings and bearings, and a suitable hinge-pin for connecting the two members.

7. A garment-clasp composed of two members having coöperating jaws, one jaw having two concentric walls and the other a circular flange adapted to pass between said walls, the said members being cut, and the metal thereof being pressed in opposite directions to form hinge pin openings and bearings, one of the said members having ears adapted to limit the opening movement of the said members and a hinge-pin connecting the two members.

8. A garment-clasp composed of male and female members having coöperating jaws, one member having a central opening, and cuts formed on opposite sides of said opening, the metal being pressed in opposite directions to form hinge-pin openings and bearings, the body portion of the other member passing through the opening in the first-named member, and also provided with cuts, the metal being pressed in opposite directions to form hinge-pin openings and bearings, arranged to coöperate with those of the first-named member, and a hinge-pin connecting the two members.

9. A garment-clasp composed of male and famale members, one member having a central opening, and cuts formed on opposite sides of said opening, the metal being pressed in opposite directions to form hinge-pin openings and bearings, the body portion of the other member passing through the opening in the first-named member, and provided with cuts, the metal being pressed in opposite directions to form hinge-pin openings and bearings arranged to coöperate with those of the first-named member, the male member having ears overlapping the female member on opposite sides of the opening, said ears forming stops which limit the opening movement of the members, and a hinge-pin connecting the two members.

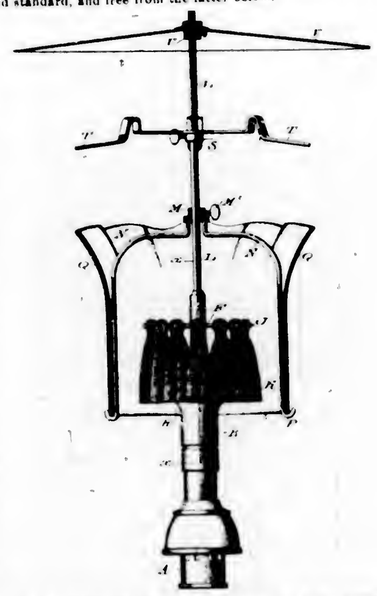
640,659. SUPPORT FOR GLOBES, &c., OF GAS-BURNERS. JOHN H. HOOD, Philadelphia, Pa., assignor of one-half to John J. Hood, same place. Filed Feb. 23, 1899. Serial No. 706,441. (No model.)

Claim.—1. A burner, a standard rising therefrom, a support on said standard above said burner, an incandescent device on said support and a skeleton globe-support which is free from said standard below, connected at top with said standard and surrounds said device.

2. A burner, a standard rising therefrom, a collar on said standard above said burner, globe-sustaining arms depending from said collar, and a support for an incandescent device mounted on said standard between said burner and collar, said arms being free from said standard below.

3. A burner, a standard rising therefrom, a support mounted on said standard, and an incandescent device pendent from said support, in combination with a globe-holder which is free from said standard below and adjustably connected at top with said standard.

4. A burner, in combination with a standard which rises therefrom, a support for an incandescent device mounted on said standard, a sleeve on said support mounted on said standard and provided with a vertically-extending slot, a pin on said standard, said slot receiving said pin, and globe-sustaining arms which are connected at top with said standard, and free from the latter below.



5. A burner, and a standard rising therefrom in combination with collars on said standard, successively one above the other, a support for an incandescent device, a globe-sustainer, a shade-holder and a smoke-canopy connected respectively with said collars, said globe-sustainer being free from said standard below.

640,660. ILLUMINATING-TILE. JACOB JACOBS, New York, N. Y. Filed Jan. 11, 1899. Serial No. 701,862. (No model.)



Claim.—1. An illuminating-tile, comprising a one-part frame with glass-openings that have each two ledges, and glasses in the openings having two shoulders that, respectively, rest upon the ledges, the glass-openings being each contracted in size toward its under or inner side, and the glasses being correspondingly contracted in size, substantially as and for the purpose described.

2. An illuminating-tile, comprising a frame with glass-openings, and glasses in the openings formed each of two abutting parts, and a ledge for each part supporting it independent of the other, substantially as and for the purpose described.

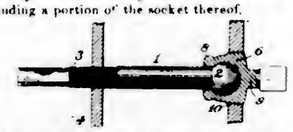
3. An illuminating-tile comprising a frame with glass-openings, and glasses in the openings formed each of two abutting parts, from one of which projects a prism, and a ledge for each part supporting it independent of the other, substantially as and for the purpose described.

4. An illuminating-tile comprising a frame with glass-openings, and glasses in the openings formed each of two abutting parts, one part having a cavity into which extends a projection on the other part, and a ledge for each part supporting it independent of the other part, substantially as and for the purpose described.

640,661. STAY-BOLT FOR STEAM-BOILERS. FRANCIS W. JOHNSTONE, Mexico, Mexico. Filed June 12, 1899. Serial No. 720,313. (No model.)

Claim.—1. The combination of a stay-bolt having a stem or body and a spherical head, a plug having a correspondingly-formed socket embracing the head of the stay-bolt, and screw-threads for connecting the stay-bolt and the socketed plug to an inner and an outer sheet of a steam-boiler.

2. The combination of a stay-bolt having a stem or body with a spherical head at one end and an external screw-thread adjoining its opposite end, and a plug having a spherical socket embracing the head of the stay-bolt, and having an external screw-thread on its body surrounding a portion of the socket thereof.

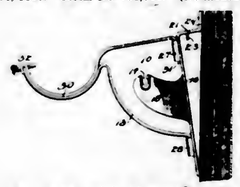


3. The combination of a stay-bolt having a stem or body with a spherical head at one end, a squared projection at the opposite end, and an external screw-thread adjoining said squared projection, and a plug having a spherical socket embracing the head of the stay-bolt, and having an external screw-thread on its body surrounding a portion of the socket thereof and a central squared projection on its end farther from the socket.

4. The combination of a stay-bolt having a stem or body, a spherical head at one end and an external screw-thread adjoining its opposite end, a plug having a spherical socket embracing the head of the stay-bolt and having an external screw-thread on its body surrounding a portion of the socket thereof, and an inner and an outer steam-boiler sheet having internal screw-threads engaging the threads of the stay-bolt and of the plug, respectively.

5. A plug for receiving and connecting a flexible stay-bolt to a boiler-sheet, having a cylindrical socket with a hemispherical bottom, the open end of said plug being adapted to be closed down upon a spherical head on a stay-bolt, and a central projection on its end farther from the opening of the socket.

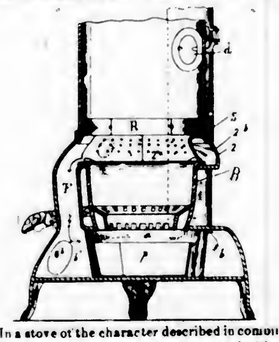
640,662. CURTAIN-FIXTURE. JOHN P. KASE, Dawson, Pa. Filed Jan. 11, 1899. Serial No. 701,868. (No model.)



Claim.—1. As a new article of manufacture, a curtain-fixture stamped or struck up from a single piece of sheet metal and comprising a plate provided with transverse keepers near its ends, an angular flange at the upper end of said plate and having the prongs or spurs, an upper flange rising from the rear edge of said angular flange, and the shade-plate extending outwardly from the fixture-plate and situated between the keepers, substantially as described.

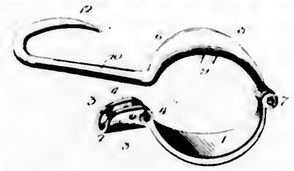
2. A shade-bracket provided at its upper end with a rearwardly-extending lip, and with a flange which projects upwardly from the rear edge of said lip, the lip having a depending prong or spur, whereby the bracket may be fastened in either an inclined position or a vertical position on the window-casing, as and for the purposes set forth.

640,663. HEATING-STOVE. WILLIAM J. KERP and WILLIAM V. ROBINSON, Detroit, Mich., assignors to the Michigan Stove Company, same place. Filed Aug. 13, 1897. Serial No. 648,093. (No model.)



Claim.—In a stove of the character described in combination with the fire-pot, the chamber above the fire-pot provided with a feed-door opening, and its door, the diving-flues F, F' and a guard 5* located below the door, and partially covering the openings into the down-draft-flues, substantially as described.

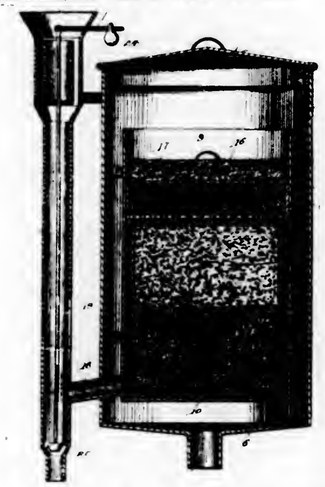
640,664. WHIFFLETREE-HOOK. FRANCIS W. KEY, Staunton, Ga. Filed June 21, 1899. Serial No. 721,331. (No model.)



Claim.—1. A whiffletree-hook comprising two oppositely-curved members having a hinged connection, one of said members being formed with a shoe and the other with a bill-hook, and means for securing said hook and shoe together, substantially as and for the purpose set forth.

2. A whiffletree-hook comprising the shank 1 formed with the shoe 2 provided with longitudinal parallel and transversely-orificed walls 3 3, in combination with the bill-hook 6 hinged to said shank and provided with the inwardly-projecting teeth 9 9, and the bolt 5 adapted to secure said bill-hook in said shoe, substantially as and for the purpose set forth.

640,665. FILTER. JOHN D. KING, Mount Sterling, Ky., assignor, by mesne assignments, of one-half to James A. Shirley, same place. Filed Oct. 19, 1899. Serial No. 734,080. (No model.)

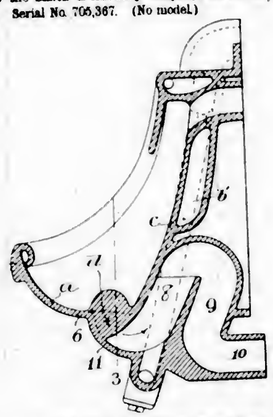


Claim.—1. In a filter, the combination with a casing having an outlet at the lower end thereof, of a vessel disposed within and concentric with the casing and separated from the walls thereof by an interspace, a foraminous receptacle within the vessel and separated therefrom by an interspace extending part way of its height, said receptacle having a sill at its upper edge between it and the vessel, additional receptacles above the first-named receptacle, filtering materials in the several receptacles, an inlet-pipe passed through the walls of the casing and communicating with the interspace between the vessel and the first-named receptacle adjacent the lower end of the latter, a stand-pipe connected with the inlet-pipe, an outlet-valve in the stand-pipe below the inlet-pipe, a rod connected with the valve and extending upwardly through the stand-pipe, and a perforated bucket fixed to the rod and adapted to receive water in its passage to the stand-pipe, to close the valve.

2. In a filter, the combination with a casing, of a vessel disposed therein and separated from the walls thereof by an interspace, a foraminous receptacle disposed within the vessel and separated from the walls thereof by an interspace extending part way of the height of the receptacle, a sill between the upper portion of the receptacle and the wall of the vessel, filtering materials within the receptacle

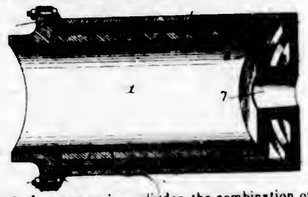
an inlet-pipe passed through the wall of the casing and into the vessel adjacent the bottom thereof, a stand-pipe connected with the inlet-pipe, an outlet-valve in the stand-pipe below the inlet-pipe, a rod connected with the valve and extending upwardly through the stand-pipe, a lever pivoted to the stand-pipe and to the rod, a weight upon the lever and adjustable thereon to vary its counterbalancing effect, and a perforated bucket upon the rod and adapted to receive water in its passage to the stand-pipe, to close the valve.

640,666. **URINAL.** GEORGE W. KNAPP, Stoneham, Mass., assignor to the Smith & Anthony Company, Boston, Mass. Filed Feb. 13, 1899. Serial No. 705,367. (No model.)



Claim.—A urinal having a bowl, an outlet from the bottom of said bowl, and a narrow substantially vertical integral rib having parallel sides and extending diametrically across the mouth of said outlet and raised above the bottom of the bowl.

640,667. **GAS-ENGINE CYLINDER.** JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed May 13, 1899. Serial No. 716,736. (No model.)



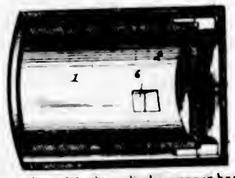
Claim.—1. In a gas-engine cylinder, the combination of a cylinder proper having an exterior flange at its forward end and a rabbet at its rear closed end, and a removable water-jacket entirely encircling the cylinder and having its forward end bolted against said exterior flange and its rear flanged end engaging said rabbet, as and for the purposes set forth.

2. In a gas-engine cylinder, the combination of a cylinder, having an exterior annular flange at its rear end and an exterior flange at its forward end, and a removable jacket encircling the cylinder between said flanges, said jacket having an outward-turned flange at its forward end engaging the forward flange of the cylinder and an inward-turned flange at its rear end engaging the rear flange of the cylinder, and a series of bolts clamping the two forward flanges together, as and for the purposes set forth.

3. In combination with a gas-engine cylinder having an exterior annular flange at its open end and a double-walled head at its rear end, the two walls being connected by a sparker-tube and the outer wall being flanged at its outer edge, the whole being formed integral, and a water-jacket entirely inclosing the cylinder and clamped at its forward end to the forward flange thereon, said water-jacket having an inward-turned flange on its rear end engaging the flange on the outer wall of the cylinder-head.

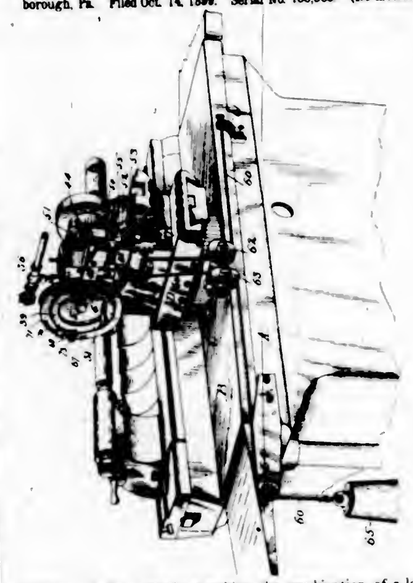
640,668. **GAS-ENGINE CYLINDER.** JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed May 13, 1899. Serial No. 716,737. (No model.)

Claim.—1. A gas-engine cylinder consisting of the cylinder proper having a solid head and a sparker passage entering one side, a water-jacket surrounding the cylinder and terminating at or near its solid head, and a cap removably bolted to the rear end of the water-jacket and entirely inclosing the solid end of the cylinder, substantially as set forth.



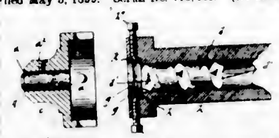
2. In combination with the cylinder proper having one end open and its other end closed by a solid, integral head, a removable part or plate inserted centrally in said head, a water-jacket on the cylinder and terminating at or near its closed end, and a cap entirely inclosing the end of the cylinder and its removable part and removably bolted to the end of the water-jacket.

640,669. **GRINDING-MACHINE.** ABRAHAM B. LANDIS, Waynesborough, Pa. Filed Oct. 14, 1899. Serial No. 733,583. (No model.)



top edge open back from its point with upwardly-extending side flanges *f* at this point, and a curved water-discharge nozzle clamped between said flanges, to close said open space and extend down over the face of the wheel to serve also as a guard, whereby, the hood is made as complete as possible and at the same time may be removed and replaced by simply loosening and removing said nozzle, without disturbing the adjustment of the wheel or other parts substantially as set forth.

640,670. **DIE FOR COILING WIRE.** CORNELIUS J. LANE, Holly, Mich. Filed May 3, 1899. Serial No. 715,448. (No model.)



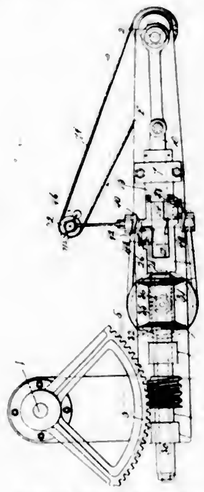
Claim.—1. In combination with a die comprising a hollow cylinder having therein a spirally-grooved core, an adjustable guide-plate located at the entrance end, and having a guide-hole through said plate, eccentric to the center thereof, the said guide-plate being rotatable on its center, whereby the location of the guide-hole through it may be varied with respect to the core-die, substantially as described.

2. In a die having a spiral opening therethrough, a guide-plate located at the entrance of the said opening, and arranged to be turned concentrically, and shifted sidewise, and means for holding the guide-plate, substantially as described.

3. In a die for bending wire to a spiral form, the combination of a die having a spiral hole cut through it, an adjustable guide-plate located at the entrance end of the die, and means for holding the guide-plate, substantially as described.

4. In combination with a die, provided with a spiral hole cut through it, a wire-leader arranged to be held to the die, and an adjustable guide-plate between the leader and the entrance end of the die, substantially as described.

640,671. **SPEED-GOVERNOR FOR MOTORS.** TORKEL J. LENDE, Stavanger, Norway. Filed May 18, 1899. Serial No. 717,029. (No model.)



Claim.—1. In a governing mechanism, a reciprocating element driven from a moving part, and power-supply-controlling devices, in combination with centrifugally-operated clutch mechanism adapted to engage the same and thereby operate the devices controlling the power supply and mechanism thereby placed in operation to gradually and partially return the mechanism controlling the power-supply to normal position, substantially as set forth.

2. In a governing mechanism, a reciprocating element driven by a moving part, in combination with centrifugally-operated clutch mechanism adapted to engage the same, a worm-gear adapted to move longitudinally and operate a power-supply-controlling device, and mechanism adapted to revolve said worm and partially return the power-supply-controlling device to normal position.

3. In a governing mechanism, a reciprocating element and centrifugal governor operated from a moving part, a sleeve surrounding the reciprocating element, clutches operated by the governor and carried by said sleeve and adapted to engage the reciprocating element, a shaft having endwise motion connected to the sleeve, a worm thereon adapted to operate by endwise motion, and mechanism for controlling the power-supply, substantially as set forth.

4. In a governing mechanism, a reciprocating notched element and centrifugal governor driven by a moving part, in combination with a fork or sleeve surrounding the reciprocating element, a pawl controlled by said governor and adapted to lock said sleeve and notched element together during motion in one direction, a shaft carried by said fork or sleeve, a hollow shaft on the aforesaid shaft, a worm thereon having endwise motion therewith, said worm controlling and operating power-supply mechanism, substantially as set forth.

5. In a governing mechanism, a reciprocating element, a governor and pinion, driven from a moving part, in combination with a fork, a shaft, a worm and two bevel-gears thereon adapted to have endwise motion and rotate with said shaft, said worm engaging cut-off mechanism, mechanism controlled by the governor adapted to enable the reciprocating element to move the fork and shaft longitudinally and cause one of said gears to engage the pinion, and thereby revolve the worm and shaft and move the cut-off mechanism toward normal position.

6. In a governing mechanism, a pinion and a governor operated from a moving part, in combination with a shaft, a worm-wheel, stop, and bevel-gears on either side of said stop spring-connected and mounted on the shaft, said worm controlling cut-off devices, mechanism controlled by the governor to cause longitudinal motion to be imparted to the shaft and operate the cut-off, cause one of said gears to engage and revolve the pinion-shaft and worm thereon and partially return the cut-off to normal position, and devices for allowing axial motion of the gears on the shaft while spring-held in gear with the pinion, substantially as set forth.

7. In a governing mechanism, the combination with a reciprocating notched element and a centrifugal governor both operated from a moving part; of a sleeve or fork adapted to receive endwise motion from said element and operate cut-off mechanism, a slide operated by the governor, tappets on the slide adapted to operate pawls carried by the fork and cause them to engage the reciprocating element, and stops adapted to hold said pawls in position after having been moved out of range of the tappets, substantially as set forth.

8. In a governing mechanism a reciprocating element driven from the motor-shaft, a sleeve thereon and clutch mechanism adapted to lock said sleeve and element together, a shaft, and devices for controlling cut-off, in combination with a stop on said shaft, bevel-gears on either side thereof yieldingly connected and having axial motion along the shaft, and a bevel-pinion driven from the motor-shaft and adapted to engage and operate the gears to turn said shaft, substantially as set forth.

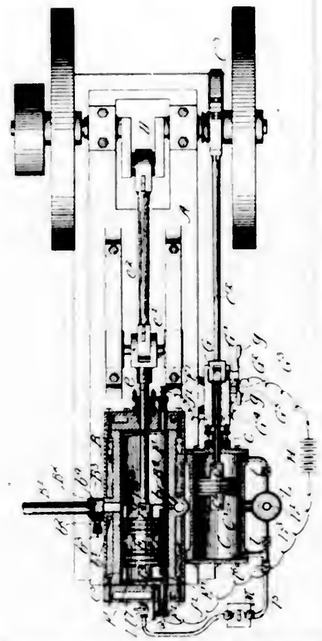
640,672. **GAS-ENGINE.** GEORGE W. LEWIS, Chicago, Ill., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Filed Aug. 17, 1894. Renewed Sept. 22, 1898. Serial No. 691,638. (No model.)

Claim.—1. In a gas-engine the combination, with a cylinder closed at both ends and provided with supply and exhaust ports each situated between said closed ends, of a power-piston arranged to reciprocate past said ports in both directions, said piston being made longer on its side adjacent to the supply-port than on its side adjacent to the exhaust-port, whereby the latter is first uncovered in each stroke.

2. In a gas-engine, the combination, with a cylinder closed at both ends and provided with supply and exhaust ports each located between said closed ends, of a power-piston arranged to reciprocate past said ports in both directions, said piston being made longer on its side adjacent to the supply-port than on its side adjacent to the exhaust-port, whereby the latter is first uncovered in each stroke, and a secondary charging-cylinder provided with a piston and communicating with the supply-port of the power-cylinder.

3. In a gas-engine the combination, with a power-cylinder closed at both ends and provided with supply and exhaust ports each situated between said closed ends, of a power-piston arranged to reciprocate past said ports in both directions, said piston being made longer on its side adjacent to the supply-port than on its side adjacent to the exhaust-port, whereby the latter is first uncovered in each stroke, a secondary charging-cylinder closed at both ends and discharging directly into the power-cylinder, and a double-acting piston in said charging-cylinder.

4. A gas-engine having a power-cylinder provided with a piston and a lateral supply-port situated at such distance from the cylinder-head as to be uncovered by the piston when nearing the end of its outstroke from said head, and also provided with a lateral exhaust-port which is uncovered by the piston before the uncovering of the supply-port, in combination with a secondary charging-cylinder provided with a piston and discharging directly into the power-cylinder, and a restraining-valve applied to the exhaust-port



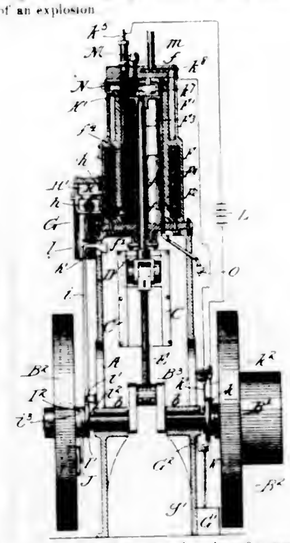
5. In a gas-engine the combination with a double-acting power-cylinder closed at both ends and provided with central supply and exhaust ports, of a piston within the cylinder operating to uncover the supply-port to admit a charge to either end of the cylinder, when nearing the opposite end thereof, and to uncover the exhaust before uncovering the supply port in the same stroke of the piston, and a secondary charging-cylinder provided with a piston and discharging directly into the power-cylinder, substantially as described.

6. A gas-engine provided with a double-headed power-cylinder, containing a piston and provided with a central port arranged to be uncovered by the piston to admit a charge to either end of the cylinder when the piston is nearing the opposite end thereof, and also provided with an exhaust-port which is opened before the uncovering of the supply-port and during the same stroke of the piston, in combination with suitable means for forcibly charging the cylinder through the supply-port, and suitable means at each end of the cylinder for igniting the contents of that end of the cylinder, whereby the engine becomes double-acting and an explosion may be effected behind the piston for each of its strokes in each direction of its movement.

640,673. **GAS-ENGINE.** GEORGE W. LEWIS, Chicago, Ill., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Filed Nov. 8, 1894. Renewed Sept. 22, 1898. Serial No. 691,629. (No model.)

Claim.—1. In combination, with the supply-valve of a gas-engine, a movable device or gage adapted to engage the stem of the supply-valve for the purpose of limiting the opening movements of the valve, and a centrifugal governor for operating the gage device, a spring applied to the gage device and operating in opposition to the centrifugal action of the governor, said spring being adapted to act only or principally when the engine is running light and preventing the skipping of an explosion.

2. In combination, with the supply-valve of a gas-engine, a movable device or gage adapted to engage the stem of the supply-valve for the purpose of limiting the opening of the valve, and a centrifugal governor for operating the gage device, a spring applied to the gage device and operating in opposition to the centrifugal action of the governor, and means for adjusting the tension of said supplementary spring, whereby it may be made to act only or principally when the engine is running light and, in so acting, may prevent the skipping of an explosion



3. In combination with the supply-valve of a gas-engine and a gage device, operated by a centrifugal governor, for limiting the opening movements of said supply-valve, of a weight which rides on the cord or belt by which the governor is operated, and means through which, upon the rupture of the driving-cord and the fall of said weight, the latter may exert its gravity to move the gage device into position for preventing the effective opening of the supply-valve.

4. In combination with the supply-valve of a gas-engine having an exposed valve-stem which has a nut or shoulder on its exposed portion, and a movable gage device adapted to limit the opening movements of the valve by engagement with the said shoulder, a lever, as R^{10}, carrying the gage device, a centrifugal governor having suitable connections for operating said lever, a spring, as R^{11}, arranged to exert its force upon said lever in opposition to the centrifugal action of the governor, and means for adjusting the resistance of said spring, substantially as described.

5. In combination with the supply-valve of a gas-engine having an exposed valve-stem which is provided with a nut or shoulder on its exposed portion, and with a movable gage device adapted to limit the opening movements of the valve by engagement with said shoulder, a lever, as R^{10}, carrying the gage device, a centrifugal governor having suitable connections for operating said lever, a spring, as R^{11}, arranged to exert its force upon said lever in opposition to the centrifugal action of the governor, means for adjusting the resistance of said spring, a loosely-mounted hub or sleeve R^4 provided with an arm R^{13}, and also with an arm r' carrying a weight-pulley which rides on a suspended portion of the driving-belt by which the governor is operated, said arm R^{13} being arranged to swing against the lever R^{10} when said weight-pulley is allowed to fall.

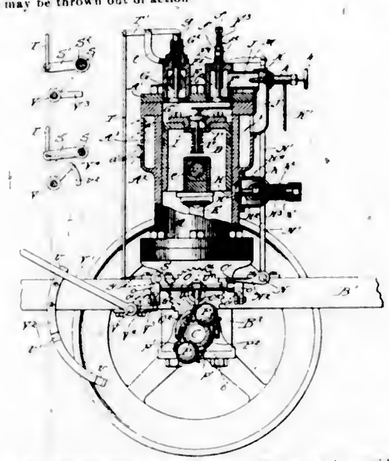
6. In combination with the lever R^{10} of a governing mechanism of a gas-engine, the spring R^{11} provided with an adjusting device r^{14}, and the adjustable stop r^{15}, substantially as and for the purpose set forth.

7. In combination with the supply-valve of a gas-engine having a protruding stem provided with a nut or shoulder, a movable gage-wedge operated by a centrifugal governor and having a central, abruptly-inclined surface between less abruptly inclined surfaces at its end portions.

640,674. **EXPLOSIVE-ENGINE.** GEORGE W. LEWIS, Chicago, Ill., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Filed Feb. 13, 1896. Renewed Sept. 22, 1898. Serial No. 691,630. (No model.)

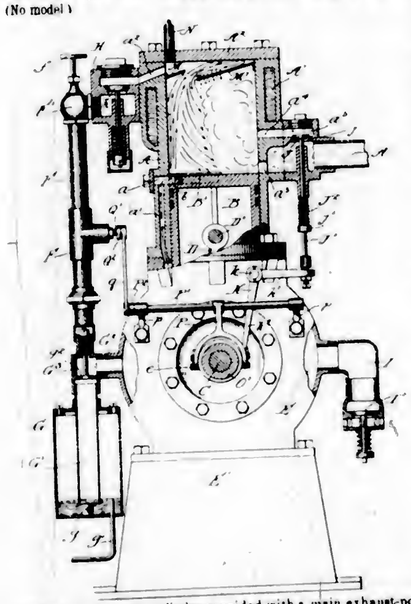
Claim.—1. The combination with two engine-cylinders, and a single crank-shaft provided with two cranks standing at the same side of the shaft, of exhaust-valves on both cylinders and means for operating both of said exhaust-valves, comprising a hand-actuated rock-shaft, having two actuating-arms disposed at different angular positions, whereby one or both of said valves may be thrown out of action.

2. The combination with two engine-cylinders, and a crank-shaft having two cranks arranged at the same side of the shaft, of exhaust-valves on the cylinders, two rock-shafts provided with rigid arms which are connected with and actuate the exhaust-valves, and a hand-actuated rock-shaft provided with two rigid arms arranged to act on the arms of the first rock-shafts, said arms on the hand-actuated rock-shaft being arranged at different angles, whereby one or both of the valves may be thrown out of action



3 The combination with two engine-cylinders, each provided with an exhaust-valve, of means for opening and holding open the exhaust-valves, comprising a hand-actuated rock-shaft provided with two actuating-arms disposed at angular positions and one which is provided with a lateral extension forming a curved bearing-surface.

640,675. EXPLOSIVE-ENGINE. GEORGE W. LEWIS, Chicago, Ill., assignor to the J. Thompson & Sons Manufacturing Company, Beloit, Wis. Filed Apr. 9, 1896. Renewed Sept. 22, 1898. Serial No. 691,631. (No model.)



Claim.—1. A power-cylinder provided with a main exhaust-port and with a valved, auxiliary exhaust-port located in the side of the cylinder and nearer the closed end of the cylinder than the main exhaust-port; said main and auxiliary exhaust-ports being closed by the piston when the latter is at the inward limit of its stroke and being uncovered by the piston in its outward movement.

2. A power-cylinder provided with a main exhaust-port and with an auxiliary exhaust-port located in the side of the cylinder nearer the closed end of the cylinder than the main exhaust-port; said main and auxiliary exhaust-ports being closed by the piston when the latter is at the inward limit of its stroke and being uncovered by the piston in its outward movement, a valve for controlling said auxiliary exhaust-port, and operative connections with the crank-shaft of the engine for actuating said valve.

3. A power-cylinder provided with a main exhaust-port and with an auxiliary exhaust-port located in the side of the cylinder nearer the closed end of the cylinder than the main exhaust-port; said main and auxiliary exhaust-ports being closed by the piston when the latter is at the inward limit of its stroke and being uncovered by the piston in its outward movement, an inwardly-opening valve controlling said auxiliary exhaust-port, a spring applied to close said valve, a valve-actuating cam and operative connections between the cam and valve acting to open the same against the action of the spring.

4. An explosive-engine comprising a power-cylinder, an air-compression chamber and a piston in the cylinder; said cylinder being provided with an air-inlet and main exhaust port which are uncovered by the piston when at the outer limit of its stroke, and with a valved, auxiliary exhaust-port located in the side of the cylinder nearer the closed end of the cylinder than the said main exhaust-port, and which is closed by the piston when at the inward limit of its stroke and is uncovered in the outward movement of said piston.

5. A power-cylinder having an exhaust-port and two inlet-ports, one for air and the other for an explosive mixture, a piston in the cylinder having a deflecting-surface located opposite the air-inlet port and acting to direct the air toward the closed end of the cylinder and a deflecting-plate at the closed end of the cylinder, acting to deflect the incoming mixture toward and into contact with the side wall of the cylinder at the side of the latter at which the air enters, substantially as described.

6 A power-cylinder provided with an exhaust-port and two inlet-ports at opposite ends of the cylinder one for air and the other for an explosive mixture, in combination with an air-compression chamber in communication with both inlet-ports, and a piston in the cylinder which uncovers the air-inlet port at the outer limit of its stroke said piston being provided with a deflecting-surface acting to throw the entering air toward the closed end of the piston, and a deflecting-plate adjacent to the closed end of the cylinder, acting to deflect the incoming mixture against the wall of the cylinder at the side thereof at which the air enters the said cylinder, substantially as described.

7. A power-cylinder having an inlet-port for an explosive mixture entering the side of the cylinder at its closed end and having a transversely-arranged deflecting-plate located adjacent to the head and extending into contact with the side of the cylinder opposite the said inlet-port.

8. A power-cylinder having an inlet-port for an explosive mixture entering the side of the cylinder at its closed and, said cylinder being provided with a transversely-arranged, perforated deflecting-plate located adjacent to the head and extending into contact with the side of the cylinder opposite to the said inlet-port

9. A power-cylinder having an inlet-port for an explosive mixture which enters the side of the cylinder at its closed end; said cylinder being provided with a deflecting-plate at the side of the cylinder at which the inlet-port is located, and with a second deflecting-plate at its side opposite the said port, the edge of which is located in advance of the plate first mentioned, substantially as described.

10. A power-cylinder provided with inlet-ports for air, and an explosive mixture and a piston within the cylinder which uncovers the air-inlet port at the outer limit of its stroke, said piston being provided with a deflecting-surface directing the incoming air toward the closed end of the cylinder and the cylinder having at its closed end two deflecting-plates, one located adjacent to the inlet-port for explosive mixture and the other at the side of the cylinder opposite thereto, the margin of the second plate being located in advance of the first one, substantially as described.

11. A power-cylinder provided with a main exhaust-port, a valved auxiliary exhaust-port in the side of the cylinder nearer the closed end of the cylinder than the main exhaust port; said main and auxiliary ports being closed by the piston when the latter is at the inward limit of its stroke and being uncovered by the piston in its outward movement, and two inlet-ports one of which is in communication with a source supplying air under pressure and the other in communication with a source supplying an explosive mixture.

12. A power-cylinder provided with a main exhaust-port, a valved auxiliary exhaust-port in its side wall; said main and auxiliary exhaust-ports being closed by the piston when the latter is at the inward limit of its stroke and being uncovered by the piston in its outward movement, two inlet-ports one of which is in communication with a source supplying air under pressure and the other with a source supplying an explosive mixture under pressure, with a deflecting-surface for directing the entering air along the side of the cylinder opposite that at which the exhaust-ports are located, and with a deflecting-surface acting to direct the incoming mixture against the side wall of the cylinder at the same side thereof.

13. A power-cylinder provided with a main exhaust-port, a valved, auxiliary exhaust-port and with two inlet-ports, one of which is in communication with a source supplying air under pressure and is located in position to be uncovered by the piston at the outer limit of its stroke, and the other of which is in communication with a source supplying explosive mixture under pressure and enters the closed end of the cylinder said cylinder having also at its closed end a deflecting-plate acting to direct the incoming mixture into contact with the side wall of the cylinder at the side of the same opposite the exhaust-ports, substantially as described

14. The combination with a cylinder, of a piston therein and an air-compression chamber, said cylinder having a main exhaust-port and an air-inlet port, both of which are located in position to be uncovered by the piston at the outer limit of its stroke, and having also an auxiliary valved exhaust-port located nearer the closed end of the cylinder than the main exhaust port and an inlet-port for an explosive mixture located at the closed end of the cylinder, a deflecting-surface on the piston throwing the air toward the closed end of the cylinder and a deflecting-plate at the closed end of the cylinder directing the mixture toward and against the wall of the cylinder at the side thereof opposite the exhaust-ports.

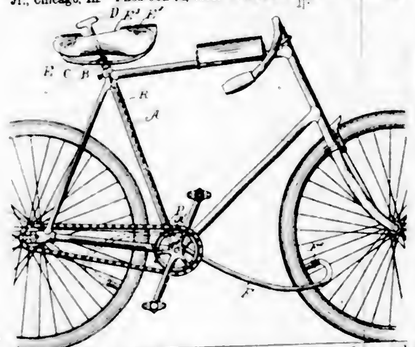
15 The combination with a cylinder, of a piston therein and a compression-chamber; said cylinder having an air-inlet port in communication with the compression-chamber located in position to be uncovered by the piston at the outer limit of its stroke, and having also an inlet-port for an explosive mixture in communication with said compression-chamber through the medium of a passage provided with a governing-valve operated by the engine, substantially as described

16 An explosive-engine comprising a cylinder having two inlet-ports, a piston therein, an air-compression chamber, a passage leading from the compression chamber to one of the inlet-ports, a passage which connects the said chamber with the other of said inlet-ports and is provided with a carbureting-chamber, and a check-valve in said last-mentioned passage, between the compression-chamber and the carbureting-chamber, substantially as described.

17. An explosive-engine comprising a cylinder having two inlet-ports, a piston therein, an air-compression chamber, a passage leading from the compression-chamber to one of the inlet-ports, a passage which connects the air-chamber with the other of said inlet ports and is provided with a carbureting-chamber, a check-valve in said passage between the carbureting-chamber and the compression-chamber, and a governor-valve in the said passage between the carbureting-chamber and the cylinder, substantially as described

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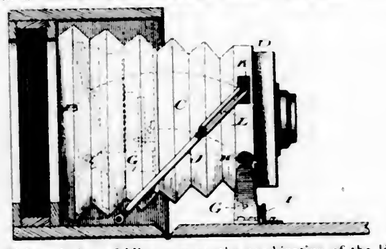
640,676. PNEUMATIC PUMP FOR BICYCLES. JOSEPH LISTER, Jr., Chicago, Ill. Filed Oct. 14, 1896. Serial No. 565,573. (No model.)



Claim.—1. In a bicycle, the combination with the frame-tube, A, the inlet and outlet valves at the lower end of said tube, the cap for closing the upper end of said tube having the angular-shaped tubular projection, B', the saddle-support, E, mounted on said cap and held in position by said angular-shaped projection, a rod within the tube, A, and extending to points above the upper end of the projection B', a piston on the lower end of said rod above the bottom of the tube, a handle adapted to be detachably engaged with the upper end of the piston-rod, and means for preventing said upper end of the piston-rod from passing into the tube when the handle is detached, substantially as set forth

2. In a bicycle, the combination with the framing-tube, A, the piston therein, and the piston-rod, of the tubular extension secured to the upper end of the tube having the neck portion, B', angular in section, and the closing device, C, substantially as set forth.

640,677. PHOTOGRAPHIC CAMERA. FREDERICK W. LIVERMORE, New York, N. Y., assignor of one-half to Albert D. Davis, Yonkers, N. Y. Filed Nov. 5, 1898. Serial No. 695,606. (No model.)

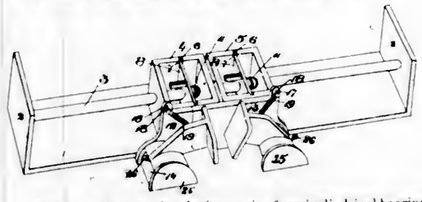


Claim.—1 In a folding camera, the combination of the lens-frame, the lid or cover, and a connection between it and the lens-frame, to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover substantially as specified.

2. In a folding camera, the combination of the lens-frame, the lid or cover, a connection between it and the lens-frame to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover, and a stop to limit the movement of the lens-frame to an upright position substantially as and for the purposes described.

3. In a camera, the combination of the lens-frame, the lid or cover, a connection between it and the lens-frame to convert the lid or cover into a lever for throwing forward the lens to a fixed position in the operation of opening the lid or cover, a stop to limit the movement of the lens-frame to an upright position, and a brace for the lens-frame substantially as and for the purposes described.

640,678. SPACING INSTRUMENT. JESSE D. LYON, Pittsburg, Pa. Filed Jan. 6, 1899. Serial No. 701,379. (No model.)



Claim.—1. In a spacing device a pair of semicylindrical bearings, a spring-actuated spacing-jaw mounted on each of the said bearings adapted to elevate the die or other object after an impression has been made, substantially as set forth.

2. In a spacing device a pair of semicylindrical bearings, a pair of spring-actuated spacing-jaws, and means for limiting the movement thereof, substantially as set forth.

3. In a spacing device a pair of carriages operating on a fixed guide, a pair of semicylindrical bearings connected to the said carriages, a spacing-jaw mounted on each of the said bearings, and means for elevating said jaws after the spacing operation, substantially as set forth.

4. In a spacing device a pair of carriages operating on a fixed guide, a pair of semicylindrical bearings connected to the said carriages, a spacing-jaw mounted on each of the said bearings, and means for limiting the movement of the said jaws, substantially as set forth

5. In a spacing device a pair of carriages operating on a fixed guide, a pair of semicylindrical bearings connected to the said carriages, a supporting-plate therefor, a spacing-jaw mounted on each of the said bearings, friction-clutches arranged in the said carriages adapted to engage the said guide, and means for normally keeping the said carriages in an abutting position, substantially as set forth.

6. In a spacing device a pair of carriages mounted on a fixed guide, adjusting means for the said carriages, a spring for normally

keeping the said carriages in an abutting position and a pair of spacing-jaws suitably connected to the said carriage, substantially as set forth.

7. In a spacing device, a fixed guide, a pair of carriages mounted thereon, means for keeping the said carriages in an abutting position, a friction-clutch mounted in each of the said carriages adapted to engage the said guide, means for locking one and releasing the other during a spacing operation, a pair of semicylindrical bearings suitably connected to the said carriages, a spacing-jaw mounted on each of the said bearings, and means for normally keeping the said jaws in an elevated position, substantially as described.

8. In a spacing device a supporting-plate having stops arranged at each end thereof, a fixed guide suitably secured to the said stops, carriages operating upon the said guide, friction-clutches arranged therein and adapted to engage the said guide, spacing-jaws mounted on suitable bearings connected to said carriages, and means for normally keeping said carriages in an abutting position, substantially as set forth.

9. In a spacing device, a pair of carriages, friction-clutches mounted therein, a semicylindrical bearing connected to each of the said carriages, and a spacing-jaw mounted on each of the said bearings, substantially as set forth.

10. In a spacing device a pair of carriages operating on a fixed guide, a pair of semicylindrical bearings connected to the said carriages, and a spring-actuated spacing-jaw mounted on each of the said bearings, substantially as set forth.

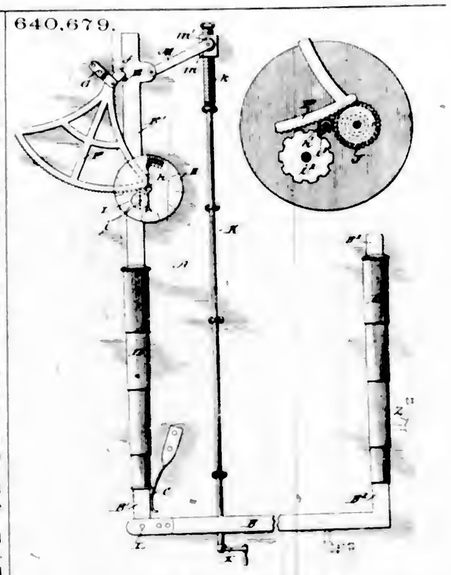
11. In a spacing device a pair of carriages operating on a fixed guide, friction-clutches arranged in said carriages adapted to engage the said guide, means for normally keeping said carriages in an abutting position, semicylindrical bearings suitably connected to the said carriages, and a pair of spring-actuated spacing-jaws mounted on the said bearings, substantially as set forth.

12. In a spacing device a fixed guide, a pair of carriages mounted thereon, a friction-clutch arranged in each of the said carriages adapted to engage the said guide, means for normally keeping the said carriages in an abutting position, semicylindrical bearings suitably connected to the said carriages, a pair of spacing-jaws and means formed integral with the said jaws for suitably connecting the same to the bearings, substantially as set forth.

13. In a spacing device, a pair of carriages operating on a fixed guide, a pair of spacing-jaws, a pair of semicylindrical bearings, means for connecting the spacing-jaws to the bearings, and means arranged on the said bearings for limiting the movement of the said spacing-jaws, substantially as set forth.

14. In a spacing device, a fixed guide, a pair of spring-actuated carriages mounted thereon, a friction-clutch mounted in each of the said carriages, semicylindrical bearings suitably connected to the said carriages, spacing-jaws connected to the said bearings, and a stop arranged on the said bearings for limiting the upward movement of the spacing-jaws, substantially as set forth.

640,679.



640,680. BICYCLE. ROSCOE A. MERROW, Wilton, Me. Filed Mar. 31, 1898. Serial No. 676,029. (No model.)



Claim.—1. In a bicycle, a sectional frame extensible vertically and lengthwise and having the diagonal stay, the rear stays, and the reach-bars, each consisting of extensible members which are united firmly together by interlocking joints, a non-extensible rear fork carrying the propelling mechanism to maintain the latter normally in operative relation to the driving mechanism under all adjustments of the extensible parts of the frame, said rear fork having its front end joined to the diagonal stay and the lower reach-bar and connected at its rear end to the rear stays, and a union between the upper ends of the diagonal and back stays and the rear end of the upper reach-bar, substantially as described.

2. In a bicycle, an extensible frame adjustable vertically and lengthwise and comprising the extensible diagonal stay, the extensible backstays and the extensible reach-bars, each of said parts consisting of members arranged in line with each other and a coupling-tube united by threaded and lock joints with said members, a non-extensible rear fork carrying the propelling mechanism and united pivotally at one end to the diagonal stay and lower reach-bar, and united pivotally at its other end to the backstays, a head-tube, and clips fast with said head-tube and pivotally attached to the reach-bars, substantially as described.

3. In a bicycle, the adjustable frame comprising the extensible diagonal stay, the extensible backstays, the extensible reach-bars, a seat-post carrier arranged to meet the diagonal and rear stays and the upper reach-bar, a single fastener to unite the meeting ends of said parts to the seat-post carrier, a non-extensible rear fork coupled to the backstays and the lower reach-bar, a propelling mechanism mounted on said rear fork and sustained thereby in operative relation to the rear driving-wheel under all adjustments of the frame, and a head-tube coupled to the upper and lower reach-bars, substantially as described.

640,679. DISTANCE-FINDER. ROBERT L. MARSHALL, Elizabethtown, Ky., assignor of one-fourth to A. C. Larkin Percefull, same place. Filed May 27, 1899. Serial No. 718,548. (No model.)

Claim.—1. In a range-finder having a base-line, a stationary telescope at right angles thereto, and a movable hypotenuse-bar jointed thereto and having a second telescope; of means for adjusting the hypotenuse-bar, comprising a laterally-adjusting device for the same which has a variable throw or range of deflection, an index-hand and dial, and mechanism between the index-hand and the hypotenuse-bar which also has a variable throw or range of movement the variable throw of one of these parts being reverse to that of the other in respect to the relation of speed and power substantially as and for the purpose described.

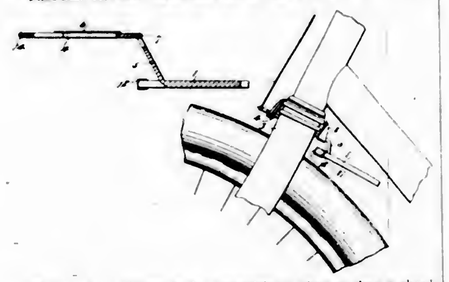
2. In a range-finder, the combination of base-line bar, a stationary telescope at right angles thereto, and a movable hypotenuse-bar jointed thereto and bearing a second telescope, means for adjusting the hypotenuse-bar consisting of a screw-shaft, a nut, and a toggle-arm, a graduated dial with index-hand bearing a pinion, a toothed segment having a stationary fulcrum and meshing with said pinion and having also an extension *f*, and a bearing-surface on the hypotenuse-bar adapted to act against the extension *f* substantially as and for the purpose described.

3. In a range-finder, the combination of a base-line bar, a stationary telescope at right angles thereto, and a movable hypotenuse-bar jointed thereto and bearing a second telescope, means for adjusting the hypotenuse-bar consisting of a screw-shaft, a nut, and a toggle-arm, a toothed segment having a stationary fulcrum and an extension *f*, a bearing-surface on the hypotenuse-bar adapted to act upon the extension *f*, an index-hand A with pinion meshing with the segment, a spring for restoring the hand and segment to its position of rest, a graduated dial, and a smaller supplementary dial with index-hand connected by a diminishing-gear with the index-hand of the large dial substantially as and for the purpose described.

4. In a bicycle, or like machine, a frame composed of bars pivotally connected and capable of being lengthened and shortened by being composed of sections having screw-thread connection, a single bolt or fastening connecting the converging frame-bars at their upper rear ends and a common pivotal connection at the meeting ends of the lower reach-bar, diagonal and rear fork, substantially in the manner and for the purpose set forth.

5. In a bicycle or like machine, a frame having upper and lower extensible reach-bars pivotally connected with the upper and lower ends of the head-tube, respectively, and extensible diagonals and back-stays pivotally connected at their upper ends to the rear end of the upper reach-bar and at their lower ends to the opposite ends of the rear fork, the diagonal being also pivotally connected at its lower end to the lower reach-bar and rear fork, substantially as described.

640,681. BICYCLE-BRAKE. JOHN F. MORR, New York, N. Y. Filed Mar. 15, 1899. Serial No. 709,170. (No model.)



Claim.—1. A bicycle-brake, comprising a plate or shoe, a shank extended forward from the plate or shoe and adapted to engage with the crown portion of the front fork of a bicycle, and a band, elastic in the direction of its length for detachably securing the brake to the fork, substantially as specified.

2. A bicycle-brake, comprising a plate or shoe adapted to be moved into engagement with the front wheel of the bicycle, a shank extended forward from said plate or shoe, a tongue at the rear end of said shank, and a head at the forward end of the shank, and a rubber band for engaging with said tongue and also engaging over the head, the said band being passed over the crown portion of the fork, substantially as specified.

3. A bicycle-brake, comprising a plate or shoe adapted to be pressed into engagement with the front wheel of a bicycle, a shank extended forward from said plate or shoe, an elastic band for securing the said shank to the front fork of a bicycle, and arms extended laterally from the plate or shoe to prevent its being forced between the members of the front fork, substantially as specified.

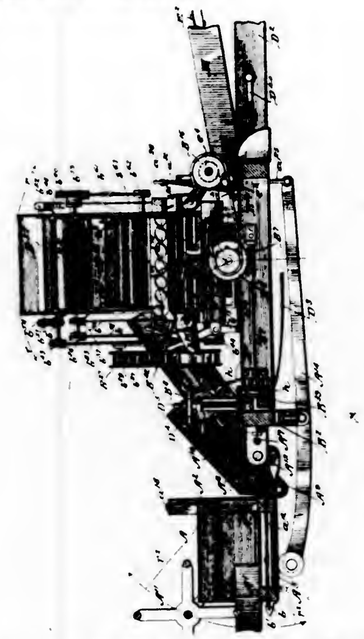
4. A bicycle-brake, comprising a plate or shoe, laterally-extending arms on said plate or shoe, yielding covers on said arms, a shank extended forward of the plate or shoe, a yielding cushion on the top surface of said shank, a tongue at the rear end of the shank, a head at the forward end of the shank, and a rubber band for engaging the said tongue and with the shank rearward of its head, for securing the device to the bicycle-frame fork, substantially as specified.

640,682. COMBINED HARVESTER, THRESHER, AND BAGGER. THOMAS P. MORAN, Nelson, Canada. Filed Mar. 27, 1899. Serial No. 710,652. (No model.)

Claim.—1. A combined harvester and thresher, having a cutter-bar in front, and the threshing devices behind it and parallel thereto, the whole of the threshing and fanning devices being arranged to rock in a main frame about an axis longitudinal to the thresher, and its fanning devices arranged to rock within the thresher about a transverse axis, substantially as and for the purpose described.

2. A combined harvester and thresher having a cutter-bar in front, and the threshing device behind it parallel thereto, the whole of the threshing and fanning devices being mounted upon and arranged to rock in bearings on top of a main frame about an axis longitudinal to the thresher and its fanning devices suspended within the thresher to rock about an axis transverse to the thresher and means for driving the parts of both, said means being arranged concentrically with their axes substantially as and for the purpose described.

3. A combined harvester and thresher having a cutter-bar in front and a main frame mounted upon running and driving wheels, and its entire threshing devices mounted laterally to the line of draft upon said main frame on a rocking axis, separate from that of the running-wheels, and arranged longitudinally to the thresher parallel to the cutter-bar, and a driving-shaft for connecting the driving-wheels with the driven parts of the rocking thresher said driving-shaft being arranged concentrically with the rocking axis, substantially as and for the purpose described.



4. A combined harvester and thresher having a cutter-bar in front, and a main frame mounted on running and driving wheels, threshing devices arranged laterally to the line of draft upon the main frame to rock in bearings about an axis longitudinal to the thresher, a longitudinally-arranged hollow shaft fixed to the thresher concentrically with its rocking axis, means for rocking said hollow shaft and a concentric drive-shaft passing through said hollow shaft and connected respectively to the driving-wheels and the driven parts of the thresher substantially as described.

5. A combined harvester and thresher, having a cutter-bar in front, and a main frame mounted on running and driving wheels, threshing devices arranged upon the main frame to rock in bearings about an axis longitudinal to the thresher, a longitudinally-arranged hollow shaft fixed to the thresher concentrically with the rocking axis means for rocking said hollow shaft, and a concentric drive-shaft passing through said hollow shaft and connected respectively to the driving-wheels and the driven parts of the thresher a fanning device arranged in the thresher to rock about an axis transverse to the thresher and driving mechanism for the same arranged concentrically to its rocking axis substantially as described.

6. In a harvester and thresher, the combination of a main frame, a harvester hinged thereto in front and having in rear of its cutter-bar a single parallel carrying-apron extending to near one end of the cutter-bar, a thresher arranged with its longitudinal axis parallel to the cutter-bar and mounted to rock about an axis parallel to the cutter-bar, and an elevator whose transverse dimension extends from the extreme end of the single cutter-bar apron to the extreme end of the cutter-bar, said elevator being made in two sections the lower section attached to the harvester, and the upper one attached to the thresher and moving with the thresher under said lower elevator-section as the thresher rocks, substantially as and for the purpose described.

7. In a harvester and thresher, the combination of a main frame a harvester hinged thereto in front and having in rear of its cutter-bar a single parallel carrying-apron stopping short of, or of less length than the cutter-bar, an elevator apron at right angles to the carrying-apron and extending transversely from the end of the carrying-apron to the end of the cutter-bar and thence horizontally back to the rear edge of the carrying-apron, and then obliquely upward, a thresher arranged parallel to the cutter-bar upon a rocking axis also parallel to the cutter-bar and a second elevator-section attached at

its upper end to the thresher and underlapping the lower elevator-section, and moving with the thresher as it rocks substantially as and for the purpose described.

8. In a combined harvester and thresher, the combination with the main frame of the thresher, of two horizontal subjacent arms arranged in the line of draft, fulcrumed at their middle parts to the front edge of the thresher-frame and projecting forwardly from this point and bearing rollers at their extreme front ends, means for working the arms located at their rear ends and a harvester-frame hinged to the front side of the thresher-frame and supported and moving freely upon the rollers on the ends of the arms substantially as and for the purpose described.

9. A combined harvester and thresher having a cutter-bar in front, a threshing and fanning device parallel with and behind the cutter bar, a pushing-tongue behind the thresher, and a grain-carrier mounted on said tongue and extending to the rear end of the same, and there provided with bagging devices, substantially as and for the purpose described.

10. A combined harvester and thresher having a cutter-bar in front, a threshing and fanning device parallel with and behind the cutter-bar, a pushing-tongue behind the thresher mounted at the rear end on a supporting and guiding wheel, an inclined elevator-trough and belt mounted on said tongue and extending above it to the rear end of the same and provided with bagging devices, a driver's seat mounted above it, and a bagger's platform arranged below it, substantially as and for the purpose described.

11. In a combined harvester and thresher, the combination with a pair of supporting and driving wheels, and a main frame mounted thereon; of a harvester mechanism hinged to the front of said frame, a thresher mounted on an axis on said frame at right angles to the line of advance, and parallel with the harvester, one end of said axis being formed as a hollow shaft rigidly connected to the thresher-body and provided with means for rocking it, a concentric drive-shaft for the thresher devices passing through said hollow shaft and connected at one end to the supporting and driving wheels and at the other end connecting with the driven parts of the thresher as described.

12. In a combined harvester and thresher, the combination with a pair of supporting and driving wheels, and a main frame mounted thereon; of a harvester mechanism hinged to the front of said frame, a thresher mounted on an axis on said frame at right angles to the line of advance, one end of said axis being formed as a hollow shaft rigidly connected to the thresher-body and provided with a worm-wheel, worm-gear, and adjusting-shaft, a concentric drive-shaft for the thresher devices passing through said hollow shaft and connected at one end to the driven parts of the thresher, and at the other end having a sprocket-wheel and chain belt, a counter-shaft arranged parallel to the thresher and sprocket wheels and chains connecting this counter-shaft to the driving and supporting wheels, substantially as and for the purpose described.

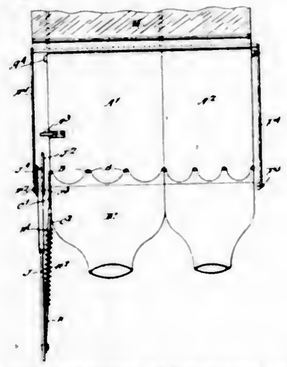
13. In a combined harvester and thresher the combination with the harvester mechanism and the threshing mechanism; arranged parallel to the cutter-bar of the harvester on a longitudinal rocking axis of the fanning devices all contained within a single suspended and swinging framework within the thresher upon an axis at right angles to the thresher, and a drive-shaft for the fan devices arranged concentric with its swinging axis and connected with the driven parts of the fan, and the driving devices of the thresher, substantially as and for the purpose described.

14. In a combined harvester and thresher, the combination with the harvester mechanism; of a thresher arranged on a rocking axis at right angles to the line of advance and parallel to its length and a freely-swinging and suspended framework arranged within the thresher upon a transverse axis and carrying the fan, its sieves, and conveyers, and a driving-shaft for the fan devices arranged concentric with its swinging axis and connected both to the driven parts of the fan and the driving parts of the thresher, substantially as and for the purpose described.

15. In a combined harvester and thresher, the combination with the harvester mechanism; of the thresher arranged on a rocking axis at right angles to the line of advance and parallel to its length; a freely-swinging and suspended framework arranged within the thresher upon a transverse axis and carrying the fan, its sieves, and conveyers, and a drive-shaft for the fan devices arranged concentric with its swinging axis, and connected both to the driven parts of the fan and the driving parts of the thresher, and means for arresting the swinging motion of the fan devices when traveling on rutty ground, as and for the purpose described.

640,683. MACHINE FOR RECEIVING, SORTING, AND INDICATING COINS. EDWARD MORIARTY, London, England. Filed Dec. 27, 1897. Serial No. 663,795. (No model.)

Claim.—1. In combination, a receiving-chamber, a removable floor thereto, a rocking chamber, fixed and movable grids on different horizontal planes, and means for rocking said chamber and moving one of the grids.



2. In a coin-sorting machine, the combination of a coin-arresting grid of the character set forth, a device arranged above and movable over the grid for sweeping the arrested coins therefrom while the grid remains in position in the machine, and mechanism for operating said device when required, substantially as described.

3. In a coin-sorting machine, the combination of a coin-arresting grid of the character set forth, a coin-chute arranged in operative relation to the grid to receive the coins therefrom, a device suspended above and movable over the grid to sweep the arrested coins therefrom into said chute, and mechanism for operating said device when required, substantially as described.

4. In a coin-sorting machine, the combination of a coin-arresting grid of the character set forth, a coin-chute arranged in operative relation to the grid to receive the coins therefrom, a coin-receiving chamber arranged above the grid and movable thereover to sweep the arrested coins therefrom into said chute, and mechanism for operating said chamber when required, substantially as described.

5. In a coin-sorting machine, the combination of a stationary coin-arresting grid, a movable coin-arresting grid arranged below the same, coin-chutes arranged in operative relation to said grids, a device arranged above and movable over the stationary grid to sweep the arrested coin therefrom into one of said coin-chutes, and mechanism for moving said device and shifting the movable coin-arresting grid from under the stationary coin-arresting grid, substantially as described.

6. In a coin-sorting machine, the combination of a coin-receiving chamber, a movable coin-arresting grid below said chamber, a coin-receiving chute located beneath the movable coin-arresting grid to receive the coins therefrom, and mechanism in operative connection with said movable grid to shift or move the same and cause the coins to fall into said chute, substantially as described.

7. A selecting or sorting till having a rocking coin-chamber located above a series of grids of successively-decreasing distance between the bars thereof, some of which grids are movable, and means for rocking the said coin-chamber and the said movable grids for the purpose of removing the sorted coins and directing them into their respective chutes substantially as described.

8. A selecting-till having a coin-receiving chamber, a removable floor thereto, a rocking chamber below said floor, a fixed grid below said rocking chamber and a removable grid below said fixed grid and means for rocking said chamber and for moving said removable grid for the purpose set forth.

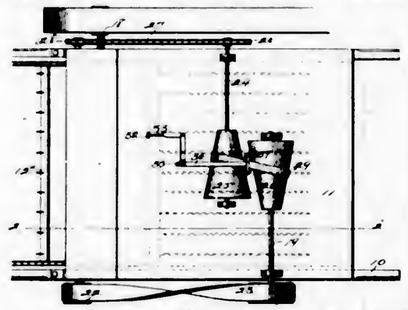
9. The combination with a fixed grid B of a movable bottomless chamber A above said grid or chute D below said grid B a hinged plate C having at its upper end a grid C and means for rocking said chamber A and plate C for the purpose set forth.

10. The combination of two chutes E and D of a hinged plate C forming in one position a continuation of the wall of chute D and in another position a gate closing said chute D, a grid C at the upper end of plate C, a fixed grid B extending across the upper end of chute D, a pivoted bottomless chamber A adapted to stand above the grid B means for rocking said chamber A from above grid B to a position above chute E and means for rocking the plate C so as to bring its grid C under and from the grid B for the purpose set forth.

11. The combination with the rocking chamber A a fixed grid B, a hinged plate C and grid C on plate C of an arm A^3 on chamber A an arm C^3 on plate C rods J, a trip-dog J^3 pivoted to said rod J adapted to move and trip the arm A^3, and a rod H engaging arm C^3 and connected to move with rod J.

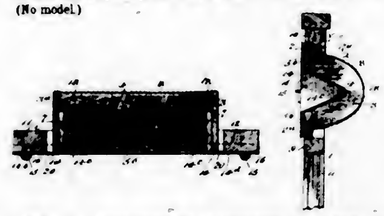
12. The combination of a rocking chamber A, a chamber G, a removable floor F to chamber G pivoted posts F^2, F^4, carrying said floor F and arm F^3 connected to one of said posts, an arm A^3 on chamber A, a grid B, a hinged plate C, a grid C on said plate an arm C^3 connected to said plate, a rod H engaging said arm C^3, a rod J connected to move with said rod H and having a slot J' engaging said arm F^3 and a trip-dog J^3 on said rod J the said plate being adapted to coöperate substantially as and for the purpose set forth.

640,684. BAND-CUTTER AND FEEDER. WILLIAM MORLEY, Fontanelle, Iowa. Filed May 29, 1897. Serial No. 638,677. (No model.)



Claim.—The combination with a band-cutter and feeder having an endless conveyer, of a speed-regulating device for the conveyer comprising a shaft 30 above the conveyer, arms 31 fixed thereto a rod 32 fixed to the said shaft, a bar 33 connected with the arm 32, a bell-crank lever 36 fulcrumed to the top of the machine-frame, rollers on the said lever to engage opposite sides of a belt, a shaft 19 at the top of the machine-frame, means for connecting it with the shaft of the band-cutter knives, a second shaft 24 adjacent to the first, a cone 25 thereon, means for connecting this shaft with the shaft of said conveyer, a belt connecting the cones to be engaged by said rollers, substantially as and for the purposes stated.

640,685. TRAP ATTACHMENT FOR FLY-SCREENS. MILTON E. MOYER, Berrysburg, Pa. Filed Apr. 17, 1899. Serial No. 713,363. (No model.)



Claim.—1. A trap attachment for fly-screens; comprising a screen-chamber having its inlet formed of converging ways terminating in a throat; a frame supporting the screen-chamber, said frame having bearing members adapted to engage the screen-frame; lateral closure members adapted to lie flat upon the side members of the screen-frame and means for detachably locking the said closing members against the said side members as specified.

2. In a fly-screen; the combination with the main frame, the side members of which have alining transverse seats 12, and staples on the side members; of a removable trap portion having lateral extensions 20 adapted to engage the aforesaid transverse seats in the side members of the screen-frame, slotted extensions 14 14^a forming a part of the trap-frame, and adapted to fit over the staples on the main frame, and the wedge-keys, all being arranged substantially as shown and for the purposes described.

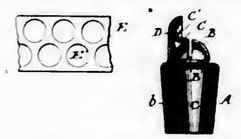
3. An attachment for fly-screens; comprising a rectangular frame, formed of parallel top and bottom strips, the bottom strip having lateral extensions; the end members, said end members being extended rearward to form the ends of the collecting-chamber; the outer screen-bodies secured to the ends and the parallel members, said end members having angle-pieces on their inner sides; the converging screenways secured to the angle-pieces; the sheet-metal pieces fitted on the end members and extended laterally therefrom, and means for securing the attachment to the screen-frame, all being arranged substantially as shown and described.

4. As an improvement in fly-screens; the combination with the main-screen body, having an opening extending from one side member to the other, and having the cross member forming the upper wall of said opening provided with a seat extending lengthwise thereof and adjacent the opening; the side members of the said main screen having transverse seats and having staples in line with the aforesaid screen-opening; the trap attachment, consisting of upper and lower parallel members, the upper one of which is adapted to fit the seat in the top of the cross member on the main-screen body, the lower parallel member having at each end a lateral extension adapted to seat in the transverse seats of the side members of the main-screen body, the screen portion of the trap having converging ways terminating in a throat, and metallic end plates secured to the ends of the trap-frame, said plates having portions extending laterally the full height of the trap-body and having supplemental slot portions adapted to fit over the staples of the main frame, and the wedge-keys, all being arranged substantially as shown and for the purposes described.

5. In a trap attachment for fly-screens, having converging entrance-ways terminating in a throat; of metallic end members for the converging entrance-ways, said members extending to the throat and having inwardly-bent pointed tapering ends, for the purposes specified.

6. A trap attachment for fly-screens, comprising a rectangular frame consisting of the top and bottom strips, the end strips, the converging screenways connected to the top and bottom strips and projected into the holding-chamber, a screen covering for the holding-chamber fixedly secured at the lower end of the lower front member of the screen-frame, the upper end of the said screen covering being extended to engage the rear face of the front cross member of the frame; the cleat-piece for clamping the said end against the aforesaid front cross member, and means for detachably holding the said cleat-piece clamped in position.

640,686. GAS-TIP. OSCAR MUSSINAN, Arverne-by-the-Sea, N. Y., assignor to William H. Porter and Channing F. Meek, trustees, New York, N. Y. Filed Jan. 20, 1896. Serial No. 576,184. (No model.)

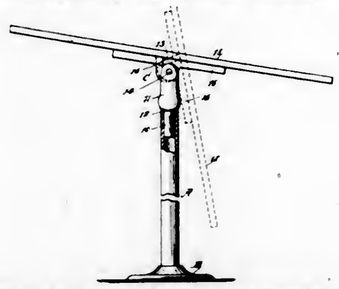


Claim.—1. A gas-tip consisting of two shells, the body portions thereof being closely united at the neck of the tip, substantially as described.

2. A gas-tip consisting of two shells fitted closely together, one within the other, one of said shells being formed with a perforated dome and the other with a hood adjacent the dome, substantially as described.

3. A gas-tip consisting of two tapered shells fitted closely together one within the other, one of said shells being formed with a perforated dome and the other with a hood adjacent the dome, substantially as described.

640,687. BLACKBOARD-SUPPORT. JAMES S. MCCLUNG, Pueblo, Colo. Filed May 17, 1899. Serial No. 717,202. (No model.)

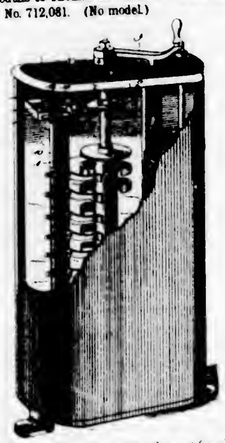


Claim.—1. In a blackboard-support, the combination, with a standard and a post mounted to turn in said standard, said post being

provided with a bifurcated upper portion and a shoulder between its upper and pivotal portion, of a plate, a lug projected from said plate, adapted to enter between the members of the bifurcated portion of the pivot-stud, a pivot for the said lug, and flanges located at the sides of the lug and arranged for engagement with the side edges of the upper members of said pivot-stud, as specified.

2. The combination with a vertically-arranged pivot-stud, mounted to turn, of a plate adapted to be secured to the back of a blackboard, and pivoted by a pivot-pin to the upper portion of said stud, and a stop carried by said plate and adapted to engage the said stud at one side of the pivot-pin, substantially as set forth.

640,688. SPEED-GOVERNOR ATTACHMENT FOR ELECTRICAL APPARATUS. JAMES H. MCGURTY, Jersey City, N. J., assignor of forty-nine one-hundredths to Thomas McEwan, Jr., same place. Filed Apr. 7, 1899. Serial No. 712,081. (No model.)



Claim.—1. In a speed-governor attachment for electrical or other power apparatus, the combination with the operating-gears, of a revoluble governor-shaft, a pair of blade-strips arranged longitudinally of, and in parallel relation to, the shaft respectively at opposite sides thereof, said blade-strips having a rigid connection with the shaft, and means for setting the blade-strips in variable fixed positions to govern the speed of movement of the parts, substantially as set forth.

2. In a speed-governor attachment for electrical or other power apparatus, the combination with the operating-gears, of a revoluble governor-shaft, a pair of blade-strips arranged longitudinally of, and in parallel relation to, said shaft respectively at opposite sides thereof, said blade-strips having a rigid axial support at one end, and means for holding said strips rigid in variable axially-adjusted positions, substantially as set forth.

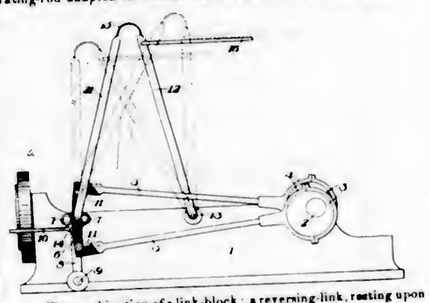
3. In a speed-governor attachment for electrical or other power apparatus, the combination with the operating-gears, of a governor-shaft carrying a cross-head rigid therewith, a pair of flat blade-strips arranged longitudinally of the shaft respectively at opposite sides thereof, and having a pivotal connection at one end with the cross-head, and means for holding the blade-strips rigid in their adjusted positions, substantially as set forth.

4. In a speed-governor attachment for electrical or other power apparatus, the combination with the operating-gears, of a governor-shaft carrying a cross-head, a pair of flat blade-strips arranged parallel with the shaft, respectively at opposite sides thereof, and provided at one end with attaching-flanges abutting flat against one side of the cross-head, and screws connecting the flanges of the blade-strips with the terminals of the cross-heads, said screws forming axes for the strips to turn upon, and also providing fastening means for holding said strips rigid, substantially as set forth.

640,689. LINK REVERSING-GEAR. JAMES W. MCKEE, Butler, Pa., assignor to the Lever Engine Company. Filed Sept. 14, 1896. Serial No. 562,493. (No model.)

Claim.—1. The combination of a reversing-link, and a lifting-lever composed of two upwardly-extending arms, 12 and 21, flexibly connected at their upper ends, one of said arms being pivoted at its lower end to the engine bed or frame, and the other arm connected at its lower end to the link, and an operating-rod adapted to extend from the lever to a remote point.

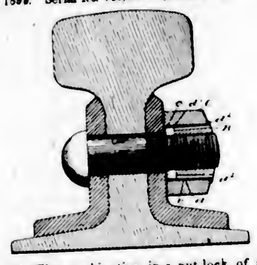
2 The combination of a reversing-link, and a lifting-lever composed of two arms elastically connected at their upper ends, one of said arms being pivoted at its lower end to the engine bed or frame and the other arm connected at its lower end to the link, and an operating-rod adapted to extend from the lever to a remote point.



3. The combination of a link-block; a reversing-link, resting upon the link-block when the link is lowered; a lifting-lever, pivoted to the engine-bed and supported by its connection to the link; and a rod extending from the lifting-lever to a point remote from the engine-bed; and a flexible or yielding connection, to prevent the transmission of vibration from the link to the rod, substantially as described.

4. In combination with link reversing-gear for steam-engines, a flexible lever for raising and lowering the link, said lever being attached at one extremity to the reversing-link, and at the other extremity to a fixed pivotal point, and adapted to be operated by a rod extending to a point remote from the engine.

640,690. NUT-LOCK. OTHO O'SULLIVAN, Stonington, Conn. Filed Mar. 27, 1899. Serial No. 710,623. (No model.)



Claim.—1. The combination in a nut-lock, of a nut having its faces grooved longitudinally intermediate its edges, said grooves extending only partly through the nut, and a collar about said nut and compressing the same, the said collar not extending into the grooves and holding the nut against transverse compression but said nut being free to yield transversely along the inner faces of the compressing member, substantially as described.

2. The combination in a nut-lock, of a tapering nut, a collar having substantially straight interior faces, and a tapering bushing intermediate the nut and the collar substantially as described.

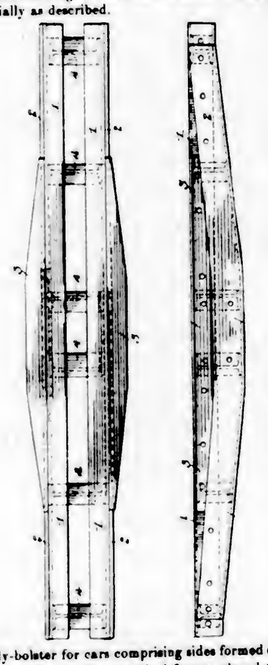
3. The combination in a nut-lock, of a tapering nut, a collar having substantially straight interior faces, a tapering bushing intermediate the nut and the collar, and means for holding the bushing and collar against separation; substantially as described.

4. The combination in a nut-lock, of a tapering nut, a collar having substantially straight interior faces, a tapering bushing intermediate the nut and the collar, the bushing projecting beyond the collar, and an outwardly-projecting flange upon the outer end of the bushing and lying beyond the outer end of the collar, substantially as described.

5. A bushing of the nature indicated having tapering side members flared outwardly at their thinner ends to produce flanges, substantially as described.

640,691. BODY-BOLSTER FOR CARS. RICHARD W. OSWALD, Bloomsburg, Pa., assignor of one-half to Edward B. Tustin, same place. Filed Mar. 6, 1899. Renewed Dec. 12, 1899. Serial No. 740,110. (No model.)

Claim.—1. A body-bolster comprising sides formed of upper and lower angle-beams, having their horizontal flanges extending inwardly toward each other, the lower angle-beams being depressed centrally and angle brace-plates arranged on the opposite side of the bolster outside the upper angle-beams and adapted to fit and rest upon the upper edges of the lower angle-beams, the horizontal flanges of the said brace-plates extending outwardly from the bolster and being flush with the horizontal flanges of the upper beams to form therewith a broad bearing-surface, and struts for strengthening the parts, substantially as described.



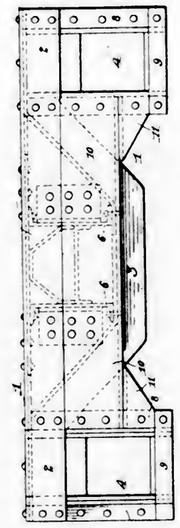
2. A body-bolster for cars comprising sides formed of upper and lower angle-beams having their vertical flanges placed together and their horizontal flanges extending toward each other, the lower angle-beams being depressed centrally, side angle brace-plates having their vertical flanges applied to the vertical flanges of the upper beams and cut so as to fit the upper edges of the lower beams, the horizontal flanges of the said upper plates being flush with the top of the bolster to present a broad bearing-surface, and struts or cross-braces for joining the sides of the bolster, substantially as described.

3. A bolster for cars, comprising sides formed of upper and lower angle-beams having their vertical flanges applied together and their inner flanges extending toward each other, said lower beams being depressed centrally, side angle brace-plates having their vertical flanges applied against the vertical flanges of the upper beams, the lower edges of the said vertical flanges being cut to fit the upper edges of the vertical flanges of the lower beams, and the horizontal flanges of the said brace-plates extending outwardly and lying flush with the top of the bolster, the said flanges being tapered toward the ends of the bolster and struts or braces interposed between the sides of the bolster and fitting the inner contours thereof, all the parts being securely riveted together, substantially as described.

640,692. CAR-TRUCK. RICHARD W. OSWALD, Bloomsburg, Pa., assignor of one-half to Edward B. Tustin, same place. Filed Mar. 29, 1899. Renewed Dec. 12, 1899. Serial No. 740,111. (No model.)

Claim.—1. A car-truck comprising sides formed of upper and lower angle-bars, said angle-bars being arranged with their horizontal flanges overlapping at their ends, their vertical flanges being arranged upon each side of the structure, a bolster connecting the said sides and being interposed between the central depressed portion of the lower angle-bar and the horizontal flange of the upper angle-bar, pedestals formed at the ends of the said sides comprising vertically-arranged channel-bars, and means for bracing the parts with respect to each other, substantially as described.

2. An angle-bar truck comprising sides formed of upper and lower members, the lower member being depressed centrally and the ends of said upper and lower members being secured together with their horizontal flanges overlapping and their vertical flanges forming downwardly-opening recesses, vertical channel-bars mounted in the said



recesses for forming the pedestals, plates for bracing the upper and lower members, the said plates being preferably formed of angle-irons and having their flanges engaging the lower edge of the upper member of the side, while the lower horizontal flange engages the horizontal flange of the lower member of the said side, and means for further bracing the parts with respect to each other, substantially as described.

3. An angle-bar truck comprising sides formed of upper and lower angle members, the lower member being depressed centrally, while the upper member is straight, the ends of the upper and lower members being brought together with their horizontal flanges overlapping, channel-bars secured between the vertical flanges of the said members to form pedestals, a bolster connecting the sides of the truck, comprising channel-bars interposed between the horizontal flanges of the upper and lower members, a brace-plate interposed between the said bolster and the upper member, side brace-plates having their vertical flanges engaging the lower edges of the upper member and their horizontal flanges supporting the horizontal flanges of the upper members and the side brace-plates, and braces interposed between the side brace-plates and the pedestal channel-bars, substantially as described.

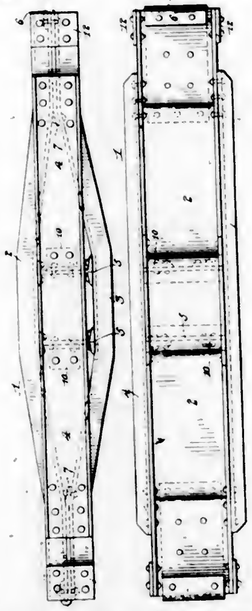
4. An angle-bar truck comprising sides formed of upper and lower members having their flanges overlapping at their ends to form downwardly-opening recesses, vertical channel-bars secured in the said recesses to form pedestals, the upper and lower members being bent outwardly near their ends to form a large recess to receive the upper ends of a single spring, and means for bracing the parts together, substantially as described.

5. An angle-bar truck comprising sides formed of upper and lower members, the said members being bolted together at their ends with their horizontal flanges overlapping and their vertical flanges extending downwardly, pedestals secured between the said vertical flanges, the said pedestals having a removable post, bent plates for bracing the lower end of the said removable post, and a bolt for securing the parts together, the construction being such that by removing the bolt, the post may be readily taken out and the journal-boxes removed, substantially as described.

6. An angle-iron car-truck comprising sides formed of angle-iron suspension and tension members, the tension member being depressed centrally, side angle brace-plates having their horizontal flanges extending inwardly and supporting the central portion of the suspension member, for bracing the parts with respect to each other, and bolsters for connecting the sides of the truck, said bolsters being bolted or riveted to the members of the sides and the said brace, substantially as described.

640,693. TRUCK-BOLSTER. RICHARD W. OSWALD, Bloomsburg Pa., assignor of one-half to Edward B. Tustin, same place. Filed Mar. 29, 1899. Renewed Dec. 12, 1899. Serial No. 740,112. (No model.)

Claim.—1. A truck-bolster comprising upper and lower members formed of channel-irons having their webs arranged horizontally, and the flanges extending in opposite directions from each other said channel-irons being separated centrally of their length and being brought together at their ends, means applied to the sides of the channel-irons for bracing the centrally-separated parts with respect to each other, and means for securing the ends to form a suitable structure, substantially as described.



2. A truck-bolster comprising upper and lower channel-beam members having their webs arranged horizontally, the flanges of the upper member extending upwardly, while the flanges of the lower member extend downwardly, struts interposed between the central arched portions of the said members, the ends of said members being brought together and bolted or riveted, side brace-plates formed of angle-iron and riveted to the flanges of the channel-irons, and means for securing the side brace-plates to the struts, substantially as described.

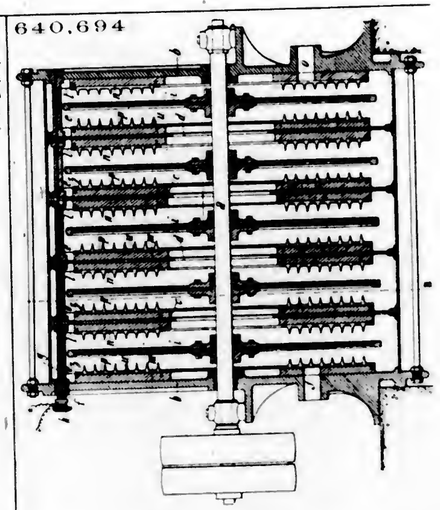
3. A truck-bolster comprising upper and lower arched members having their webs arranged horizontally and their flanges vertically, plates interposed between the ends of the said members, said plates having hooked end portions for inclosing the web of one of the members, struts interposed between the central arched portions of the channel-irons, side channel-irons for bracing the structure having its web riveted or otherwise secured to the flanges of the upper and lower members and brace-plates secured to the webs of the struts and the web of the side channel-iron to further brace the parts together, substantially as described.

4. A truck-bolster comprising upper and lower members formed of channel beams or irons arched centrally, their end portions being brought together, struts formed of short I-beams arranged transversely of the bolster, side brace-plates riveted to the flanges of the channel-beams and braced with respect to the I-beams, plates for forming guides between themselves and the ends of the said brace-plates, said plates being riveted or otherwise secured to the ends of the bolster, substantially as described.

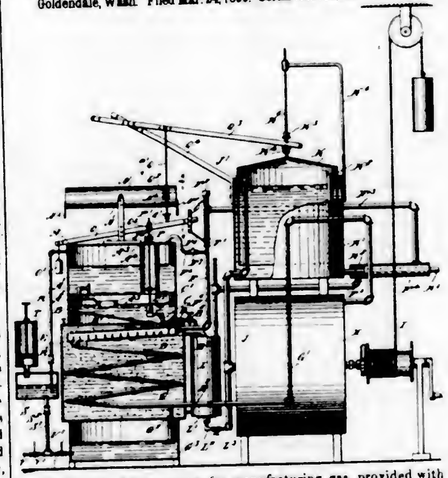
640,694. APPARATUS FOR PRODUCING ELECTRIC DISCHARGES. MARIUS OTTO, Neuilly-sur-Seine, France. Filed Mar. 30, 1899. Serial No. 711,126. (No model.)

Claim.—The herein-described apparatus for the continuous production of electrical discharges, comprising the fixed electrodes and the movable separating disks located between said electrodes and having alternate portions arranged respectively to permit the discharge to pass between the electrodes and to interrupt the same, substantially as described.

640,694



640,695. CARBURETER. ELIJAH D. PARROTT, Portland, Oreg., assignor to the Northwestern Light and Manufacturing Company, Goldendale, Wash. Filed Mar. 24, 1899. Serial No. 710,325. (No model.)



Claim.—1. An apparatus for manufacturing gas, provided with a water-tank, an evaporating-pan connected with a gasolene-supply and an air-supply, an evaporating-coil leading from the pan, the pan and the coil being submerged in the water in the tank, and a pump connected with the said coil, substantially as shown and described.

2. An apparatus for manufacturing gas provided with a water-tank, an evaporating-pan connected with a gasolene-supply and an air-supply, an evaporating-coil leading from the said pan, the pan and the coil being submerged in the water in the tank, a heater connected with the said water-tank to heat the water therein, and a pump connected with the said coil, substantially as shown and described.

3. An apparatus for manufacturing gas, provided with a water-tank, an evaporating-pan connected with a gasolene-supply, an air-supply and an evaporating-coil leading from the said pan, the pan and the coil being submerged in the water, to permit of reducing the high strength of the gasolene in the evaporating-pan and allow a continued evaporation in the coil, a pump connected with the said coil for drawing the gas from the coil and pan, a gasometer into which discharges the pump, and valves for controlling the supply of gasolene and air to the said evaporating-pan, the said valves being controlled by the gasometer-bell, substantially as shown and described.

4. An apparatus for manufacturing gas, provided with a water-tank, an evaporating-pan connected with a gasolene-supply, an air-supply and an evaporating-coil leading from the said pan, the pan and the coil being submerged in the water, to permit of reducing the high strength of the gasolene in the evaporating-pan and allow a continued evaporation in the coil, a pump connected with the said coil, for drawing the gas from the coil and pan, a gasometer into which discharges the pump, valves for controlling the supply of gasolene and air to the said evaporating-pan, the said valves being controlled by the gasometer-bell, and, an operating connection between the said bell and the said valves, and comprising a lever connected with the bell, a balance controlled by the said lever, a second lever controlled by the said balance, and connections between the said second lever and the said valves, substantially as shown and described.

5. An apparatus for manufacturing gas provided with an inclined evaporating-pan having transverse partitions forming a zigzag passage for the gasolene to flow in, the partitions being arranged at an inclination to each other and rising but a short distance from the bottom of the pan to leave the top thereof free for the passage of the air, a gasolene-supply pipe opening into the top of the pan at its upper end and an air-supply pipe opening into the upper end of the pan, substantially as shown and described.

6. An apparatus for manufacturing gas, provided with an inclined evaporating-pan having transverse partitions forming a zigzag passage for the gasolene to flow in, the partitions rising but a short distance from the bottom of the pan, to leave the top thereof free for the passage of the air, a gasolene-supply pipe opening into the upper end of the pan, an air-supply pipe likewise opening into the pan at the upper end thereof, a distributer in the pan, for distributing the air entering through the air-pipe, an evaporating-coil leading from the lower end of the said pan, and an air-pump connected by a pipe with the said coil, substantially as shown and described.

7. An apparatus for the manufacture of gas provided with a gasolene-supply chamber having a hopper-bottom, a faucet leading from the hopper-bottom to the outside for drawing off the sediment collecting in the lower end of the hopper-bottom, and a valved outlet-pipe for the gasolene leading from the said bottom and having an entrance-opening located above the opening of the faucet, substantially as shown and described.

8. An apparatus for the manufacture of gas provided with a gasolene-storage tank, a drip-pan, a tank provided with a suction-pipe connected with said drip-pan, a pump connected with said tank and a pipe provided with a check-valve and leading from said tank to the storage-tank, substantially as shown and described.

9. An apparatus for the manufacture of gas, provided with a gasolene-storage tank, a drip-pan, a pump having a suction-pipe connected with said drip-pan, a discharge-pipe connecting the pump with the said storage-tank, and a valved pipe connected with the said suction-pipe, and arranged for connection with a shipping-tank, substantially as shown and described

10. An apparatus for the manufacture of gas provided with an evaporating-pan connected with a gasolene-supply a pipe connected with said pan for the admission of air, an evaporating-coil leading from the said pan, a pump connected with the said coil for drawing the air into and through the pan and coil and a gasometer into which discharges the said pump, substantially as described.

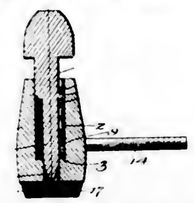
11. An apparatus for the manufacture of gas comprising a gasolene-storage tank, a gasolene-supply chamber connected with said tank, a water-tank, an evaporating-pan connected with the gasolene-supply chamber, an evaporating-coil leading from said pan, the evaporating pan and coil being submerged in the water in the tank, a pump connected with the evaporating-coil a gasometer into which discharges the pump, a heater connected with the water-tank to heat the water therein and a pipe connected with the heater and leading to the evaporating-pan to convey heated air thereto, substantially as shown and described.

12. An apparatus for the manufacture of gas comprising an evaporating-pan connected with a gasolene supply, an evaporating-coil leading from the said pan, an air-pump connected by a pipe with the said coil, a gasometer into which discharges the pump, a gas-main leading from the gasometer, a warmer for the gas-main comprising a closed tube through which the gas-main passes, a heating-drum connected by an air-pipe with the said warmer, and an air-conveying pipe leading from the warmer to the evaporating-pan, substantially as described.

13. An apparatus for the manufacture of gas comprising a gasolene-storage tank, a gasolene-supply chamber connected with said tank, an evaporating-pan connected with the gasolene-supply chamber, a pump connected by a pipe with the evaporating-pan, a storage vessel into which the said pump discharges, a pipe connected with the evaporating-pan for admission of air thereto and a pipe connecting the gasolene-storage tank with the pipe leading to the evaporating-pan, substantially as described

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640,696. PUNCH. ELLSWORTH PEARL, Rochester, N. H. Filed Jan. 27, 1899. Serial No. 703,615. (No model.)



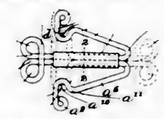
Claim.—1. An implement of the class described, comprising a body, a punch carried by the body, and means, embracing the sides of the bar to be punched to prevent the edges of the same from being bulged outward by the operation of the punch, substantially as shown and described.

2. An implement of the class described, comprising a body or casing provided with a longitudinal bore, and a groove in one of its ends intersecting the bore, and a punch mounted within the bore and adapted to operate transversely through the groove, substantially as shown and described.

3. An implement of the class described, comprising a punch, a support therefor, and a seat adapted to receive and hold the work, the walls of the seat being adapted to prevent the material from being bulged outward by the operation of the punch, substantially as shown and described.

4. An implement of the class described, comprising a body or casing having a longitudinal bore formed therethrough, a transverse groove formed in the under side thereof intersecting the bore, a shank extending transversely from the body, a handle fitted to the shank, and a punch mounted within the bore of the body and adapted to operate transversely through the groove, substantially as and for the purpose described.

640,697. HOOK FOR HOOKS AND EYES. JACOB E. PEARSON, Boston, Mass. Filed May 9, 1899. Serial No. 716,182. (No model.)



Claim.—1. As a new article of manufacture, the herein-described hook of "hooks and eyes," said hook comprising a shank composed of two integral members which are formed one against the other in the plane of the spring-arms, and having a fastening-eye at its butt-end and spring-arms extending rearwardly from the front end of the shank, on two opposite sides thereof; each spring-arm having an eye-receiving socket and an outward extension near its outer end, the fastening-eye projecting laterally in the plane of the shank and spring-arms, from each side of the shank.

2. As a new article of manufacture, the herein-described hook of "hooks and eyes," said hook comprising a shank having a plurality of members locked together, and the shank being formed at its butt-end with a fastening-eye and having a pair of spring-arms which extend rearwardly from its front end, on its opposite sides; said spring-arms each having an eye-receiving socket and an outward extension, the fastening-eye projecting laterally in the plane of the shank and spring-arms, from each side of the shank.

3. As a new article of manufacture, the herein-described "hooks and eyes," said hook being formed from a single wire doubled to form the hook-shank and looped across the shank near the butt-end thereof to form a fastening-eye on each side of the butt-end of the shank; the forward portions of the wire being bent rearwardly from the front end of the shank and forming spring-arms which are provided near their outer ends with eye-receiving sockets and outward extensions.

640,698. GAS-TIP. WILLIAM H. PORTER, New York, N. Y. Filed Feb. 15, 1898. Serial No. 670,400. (No model.)



Claim.—1. A gas tip or burner, the opening of which is in the form of a concave slot enlarged at the ends, substantially as described.

2. A gas tip or burner, the opening of which is in the form of a slot enlarged at the ends, the enlarged portions being above the central portion, substantially as described.

3. A gas tip or burner, the opening of which is in the form of a concave slot with enlarged ends the enlarged ends being at an angle to the central portion of the slot, substantially as described.

4. A gas tip or burner, having a notched portion at its end, the opposite faces of the notched portion having enlarged openings connected by a contracted slot, substantially as described

5. A gas tip or burner, having a chamber communicating with two channels throughout their length, the channels terminating in opposed openings, substantially as described.

6. A gas tip or burner, having two opposed openings forming a continuation of an intermediate narrow slot and communicating with an inner chamber having two channels connecting with said openings, substantially as described.

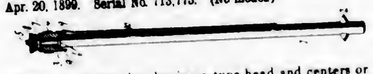
7. A gas tip or burner, consisting of a thimble with side indentures and a gas-opening between said indentures, substantially as described.

8. A gas tip or burner, consisting of a thimble with side indentures, and a notched portion, the gas-opening being formed in the notched portion, substantially as described.

9. A gas tip or burner, consisting of a thimble with side indentures, and a notched portion, the gas-opening being in the form of a slot enlarged at the ends and being located in the notched portion, substantially as described.

10. A gas tip or burner, consisting of a metallic thimble having indented walls *a*, and a notched end forming a slot with enlarged ends, substantially as described.

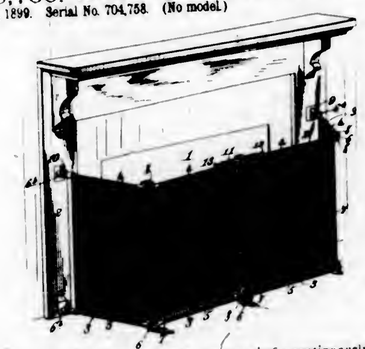
640,699. **TYPE-BAR.** WILLIAM P. QUENTELL, Harrisburg, Pa., assignor to the Keystone Typewriter Company, New York, N. Y. Filed Apr. 20, 1899. Serial No. 713,773. (No model.)



Claim.—1. A type-bar having a type-head and centers or cone-bearings for the head substantially as described.

2. A type-bar having a conical or center bearing 6 and a conical or center shaped nut, and a type-head rotatively mounted on the bar between the bearing and nut and having center or cone-shaped recesses fitted to the bearing and nut substantially as described.

640,700. **FENDER.** JAMES R. REECE, Zionville, N. C. Filed Feb. 6, 1899. Serial No. 704,758. (No model.)

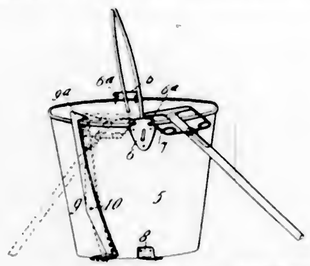


Claim.—A fire screen or fender composed of a continuously-connected series of reversely-folding hinged panels each comprising an upper horizontally-arranged rod 4, a lower horizontally-arranged rod 5, the ends of said rods being provided with eyes 6, vertical pintle-rods 7 engaged in said eyes and nuts 8 on said pintle-rods to secure the several rods in position, one end of said fender being adapted and arranged for hinging to one jamb of a fireplace and the other end of the fender being provided with means for detachable connection with the other jamb, and a spring 11 to connect adjacent front panels of the fender, to prevent the fender from sagging inward toward the fireplace, substantially as described

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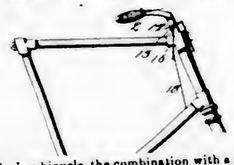
640,701. **MOP-HOLDING ATTACHMENT FOR SCRUBBING-PAILS.** ARCHIE S. RIDDELL, Denver, Colo. Filed Apr. 15, 1899. Serial No. 713,213. (No model.)

Claim.—1. A suitable receptacle provided with a hook or lateral projection extending above the top of the pail and adapted to engage the mop on one side, and a cooperating lever fulcrumed on the pail and having a hook adapted to engage the opposite side of the mop-head.



2. A receptacle provided with a hook or lateral projection extending above the top of the pail and adapted to engage the mop on one side, and a cooperating lever fulcrumed on the pail and having a hook at one extremity adapted to engage the opposite side of the mop-head, its lower extremity being provided with a foot-flange.

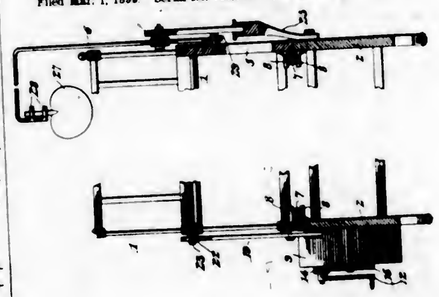
640,702. **DRIVING MECHANISM FOR BICYCLES.** JAMES W. ROGERS, Toronto, Canada, assignor of one-half to Michael Koppelman, Hampton, Canada. Filed Feb. 20, 1899. Serial No. 706,294. (No model.)



Claim.—1. In a bicycle, the combination with a changeable gear; of a rotatable handle-grip; a collar operatively connected to said grip, the rotary movement of said grip imparting a vertical sliding movement of said collar on the handle-bar shank; a ring mounted independently on said collar and held in fixed position relatively to the head of the bicycle, said ring being subject to the vertical movement of said collar and connections between said ring and the speed-changing gear, whereby a rotary movement of said grip will move said speed-changing gear, substantially as described.

2. In a bicycle, the combination with a changeable gear; of a rotatable handle-grip having an adjustable movement; means for retaining said grip in its adjusted position; a collar operatively connected to said grip, the rotary movement of said grip imparting a vertical sliding movement to said collar on the handle-bar shank; a ring mounted independently on said collar and held in fixed position relatively to the head of the bicycle, said ring being subject to the vertical movement of said collar; and the connections between said ring and the speed-changing gear, whereby a rotary movement of of said grip will move said speed-changing gear, substantially as described.

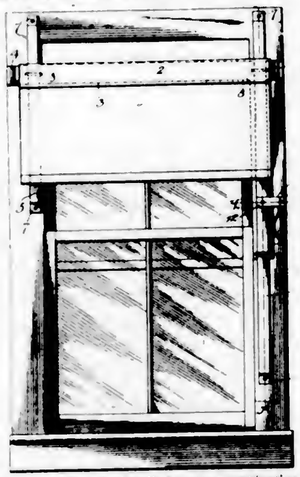
640,703. **CRADLE-MOTOR FAN.** LUTHER G. ROGERS, AVERY C. BRUCE, JAMES C. ROBERTS, and FRANK A. RUSSELL, Knoxville, Tenn. Filed Mar. 1, 1899. Serial No. 707,317. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the platform, a crib arranged to rock upon the platform, and a motor applied to the platform, of a single operating-lever, fulcrumed intermediate its ends on a fixed support and having an operative connection at its lower end with the motor mechanism and at its upper end with the body of the crib, a fixed bracket attached to the platform at a point opposite the operating-lever, a stationary standard fitted to and arising from the bracket, and a swinging fan-staff pivotally connected at its lower end directly to the crib-body and fulcrumed intermediate its ends to the upper end of the stationary standard, said fan-staff being provided at its upper end with a laterally-offset portion overhanging the crib and provided with a pendent fan-holder, substantially as set forth.

2. In an apparatus of the class described, the combination with the platform, a crib arranged to rock upon the platform, and a motor applied to the platform, of a single operating-lever 19 fulcrumed intermediate its ends on a fixed support and having an operative connection at its lower end with the motor mechanism and at its upper end with the body of the crib, said operating-lever being provided intermediate the fulcrum thereof and its pivotal connection with the crib-body with a reduced spring portion adapted to yield and permit of the rebound of the crib at the end of each rocking movement, substantially as set forth.

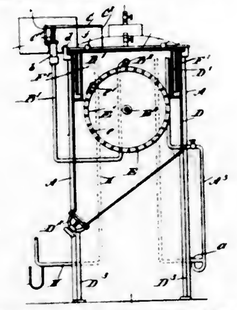
640,704. **WINDOW-SHADE ADJUSTER.** WILLIAM M. ROOK, Clinton, Ky., assignor of one-half to George M. Porter, same place. Filed Feb. 27, 1899. Serial No. 707,032. (No model.)



Claim.—In a window-shade adjuster, the combination of opposite vertical guide-rods, each rod being formed from a single length of flat metal having its opposite ends formed into attaching and spacing feet, one rod being longer than the other, an inverted-L-shaped shade-roller frame, having its depending arm arranged adjacent to the long guide-rod, the entire frame being disposed upon the inner side of the guide-rods, and provided with straps or eyes embracing the rods and slidably mounting the frame upon the rods, the horizontal arm of the shade-roller frame projecting at opposite sides of the guide-rods, and a holder for the shade-roller frame, said holder comprising a bracket and a bowed or bent pendent spring-tongue, the bracket being fitted to the window-frame adjacent to the outer side of the long guide-rod and opposite the lower end of the short guide-rod, the latter end and the bracket forming stops for the projecting ends of the horizontal arm of the shade-roller bracket, and the bow or bend of the spring-tongue being adapted to frictionally engage the outer edge of the depending arm of the shade-roller frame, substantially as shown and described.

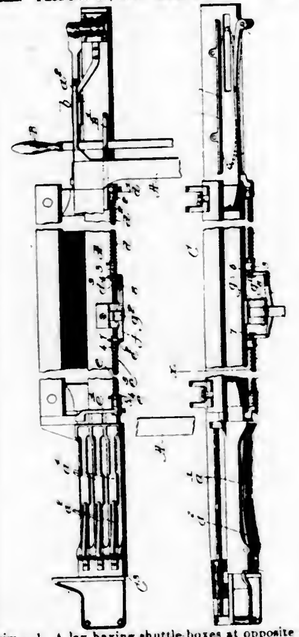
640,705. **ACETYLENE-GAS APPARATUS.** LEWIS J. RUTH, Leamington, Canada. Filed Aug. 10, 1898. Serial No. 688,294. (No model.)

Claim.—1. In an acetylene-gas apparatus, the combination with a gasometer, and a generator containing a carbid-holder, of a water-tank above the generator, a valve-chamber connected with the tank and having oppositely-arranged valve-seats, a valve in the said chamber between the seats and having its stem projecting through the top of the chamber, a lever to which the valve-stem is pivoted, a spring surrounding the valve-stem between the lever and the valve-chamber, a flexible connection between the lever and the gasometer-bell, and a pipe leading from the valve-chamber into the generator above the carbid-holder, substantially as described.



2. An acetylene-gas apparatus, comprising a gasometer, a generator-casing, an open-work carbid-cylinder mounted in the generator-casing, means for revolving the carbid-cylinder from the gasometer-bell, a water-tank, a valve-chamber connected with the tank and having oppositely-arranged valve-seats, a valve in the chamber between the seats and having its stem projecting through the top of the chamber, a pivoted lever to which the valve-stem is secured, a spring surrounding the valve-stem between the lever and valve-chamber, a flexible connection between the lever and the gasometer-bell, and a pipe leading from the valve-chamber into the generator-casing above the carbid-cylinder, substantially as described.

640,706. **LOOM.** GUSTAV SCHARFER and FRIEDRICH HINKEL, Clinton, Mass. Filed Feb. 27, 1899. Serial No. 706,956. (No model.)



Claim.—1. A lay having shuttle-boxes at opposite ends thereof and provided with a bunter, two binder-shafts carried by the lay, each having at its outer end a binder-finger to act on a binder of a shuttle-box, and at its inner end a projection, and a bunter-rest having one end pivoted to one of said projections and the other end joined to the other projection by a pin-and-slot connection, combined with a shipper-handle and means adapted to be acted upon by said bunter

in either of its extreme positions to dislodge the shipper-handle and stop the loom whenever a shuttle is absent from either box in which it should be present, and whenever two boxes at the level of the race each have a shuttle, said hunter occupying a third position intermediate its extreme positions whenever the shuttles are in their correct boxes.

2. A lay having a shuttle-box at opposite ends thereof and provided with a hunter having two acting positions; two binder-shafts carried by the lay, each having at its outer end a binder-finger to act on a binder of a shuttle-box, and at its inner end a projection, and a hunter-rest having at one end a hole and at its opposite end a slot, and provided centrally with a rest on which the hunter is supported, one of said projections entering the hole and the other the slot in the ends of the hunter-rest; combined with a shipper-handle and means adapted to be acted upon by said hunter in either of its extreme positions to dislodge the shipper-handle and stop the loom whenever a shuttle is absent from both boxes at opposite sides of the lay, and whenever both boxes at opposite sides of the lay on a level with the race each contain a shuttle, said hunter occupying a third position intermediate its extreme positions whenever a shuttle is in one of the boxes at the level of the race, substantially as described.

640,707. HOLDER FOR DUST-CLOTHS. WILLIAM F. SCHERY, Burlington, Iowa. Filed Mar. 10, 1899. Serial No. 708,580. (No model.)



Claim.—1. As a new article of manufacture, a dusting device, consisting of a frame constructed to yield laterally in every part, a dusting-cloth enveloping said frame, a clamp constructed to secure the dusting-cloth to said frame and a handle projecting from said frame.

2. As a new article of manufacture, a holder consisting of a series of radiating spring-wire loops adapted to yield transversely of the holder and having their free ends secured together at a point from which said loops radiate, a clamp for holding a cloth about said loops and a handle for the holder.

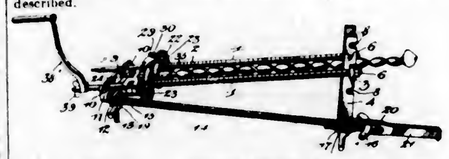
3. As a new article of manufacture, a holder for dust-cloths, consisting of a series of radiating spring-wire loops of varying sizes secured together at their free ends said loops adapted to yield transversely of the holder and a clamp for removably holding a dusting cloth or bag enveloping said loops.

4. As a new article of manufacture, a holder for dust-cloths, consisting of a series of wire loops arranged in pairs, loops overlapping the adjacent edges of said loops, a clamp adapted to support a cloth or other dusting article upon said loops, and a handle.

5. As a new article of manufacture, a holder for dust-cloths, consisting of a series of yielding loops arranged in pairs, a pair of loops overlapping the adjacent vertical members of the yielding loops, and a clamp for removably supporting a dusting cloth or bag on said loops, one member of said clamp being located between centrally-disposed loops, the other member being adapted to engage a catch for locking the dusting cloth or bag against displacement, and a handle.

640,708. DRILLING-MACHINE. CHARLES SCHMIDT, Ayrshire, Ind. Filed Mar. 20, 1899. Serial No. 709,842. (No model.)

Claim.—1. A drilling-machine comprising a pair of threaded shafts, an auger, gearing connecting the auger with the shafts and adapted to slide on the latter, and a feeding device supporting the gearing and having threaded openings to engage the threads of the shafts, said feeding device consisting of a casing composed of two sections hinged together at one side of the machine and having their other ends detachably connected, substantially as and for the purpose described.

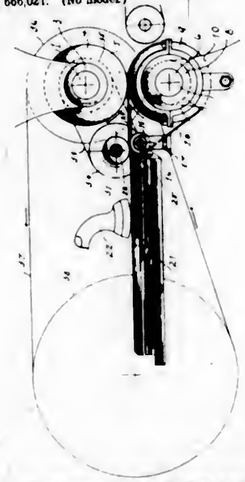


2. A drilling-machine comprising front and rear supports, a cross-bar provided with bearing-openings and trunnioned in the bearings of the rear support, parallel threaded shafts having their rear ends loosely journaled in the bearing-openings of said cross-bar, a yoke connecting and having journal-bearings for the front ends of said shafts, and adjustable up and down on the front support, an auger parallel to and arranged between the shafts and supported by said yoke, and gearing operatively connecting the auger with the shafts, substantially as described.

3. A drilling-machine comprising a drill, front and rear supports therefor, means for adjusting the working end of the drill up and down on the front support, a depending pivot on the front support, an anchor having its rear end slotted and terminally perforated to receive said pivot, and a rod connecting said supports and provided with a segmental guide arranged to work in the slot of the anchor beyond the point of its pivotal connection with the anchor, substantially as described.

4. A drilling-machine comprising the substantially U shaped front and rear supports, a rear cross-bar journaled on the rear support, a front bar detachably interlocked with the front support and capable of vertical adjustment thereon, a pair of parallel shafts secured at their front ends to the front cross-bar and having their rear portions loosely journaled in the rear cross-bar, an auger, and means connected with the auger and the shafts for rotating and feeding the former, substantially as described.

640,709. AUTOMATIC SHEET-FEEDING MECHANISM. RICHARD H. SCOTT and HENRY C. TEEL, Toledo, Ohio. Filed Jan. 8, 1898. Serial No. 666,021. (No model.)



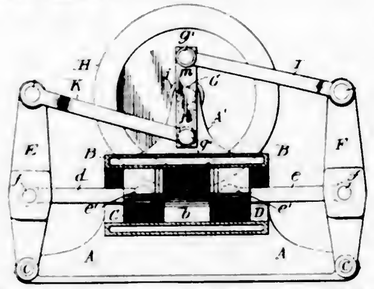
Claim.—1. In an automatic sheet-feeding mechanism, the combination of a roller secured upon a driving-arbor, means for intermittently feeding a sheet of paper to said roller, a driven arbor in parallel relation thereto, having secured thereto a roller adapted to be driven by the roller secured to the driving-arbor, a friction device adapted to retard the revolution of the driven roller, whereby a single sheet causes the revolution of both the driving and driven rollers, and the sheet pressed upon by the driving-roller is delivered to the impression-cylinder while the surplus of sheets is held by the periphery of the retarded roller, and means for revolving the driving-roller, substantially as described.

2. In an automatic sheet-feeding mechanism, a plurality of separating-rollers mounted on a driving and a driven arbor, means for intermittently feeding a sheet of paper thereto, the arbors being journaled in an attachable frame, means for retarding the driven rollers, a pulley mounted upon the driven arbor adapted to be retarded by friction, a belt upon said pulley, and a pulley which is journaled in advance of the driven arbor, the belt being in alinement with the line of feed of the sheets of paper, and the belt being adapted to carry a sheet to the separating and feeding rolls.

3. In an automatic sheet-feeding mechanism, a plurality of separating-rollers mounted upon a driving and driven arbor, means for intermittently feeding a sheet thereto, a pulley mounted upon the driven arbor, means for retarding the revolution of the pulley by friction, separate means for retarding the revolution of the driven arbor, a journal-box movably held in pockets formed in a frame, and means adapted to press the driven rollers against the driving-rollers whereby the thickness of paper is compensated for.

4. In an automatic sheet-feeding mechanism, a plurality of separating-rollers mounted upon a driving and driven arbor, means for intermittently feeding a sheet thereto, a carrier-belt mounted upon a separate and independently-revoluble pulley, means for retarding the driven arbor by friction, platens secured coincident with the top of the belt, rollers mounted upon an arbor journaled in the frame, mechanism in juxtaposition with the edge of the platens whereby a sheet is allowed to pass freely between the roller and the platen, springs secured to the under side of the platens adapted to be depressed when a plurality of sheets are fed to the roller and platen, whereby the adjacent sheets come in contact with the edge of the platen and are retarded thereby.

640,710. MOTIVE POWER. JOHN A. SECOR, New York, N. Y., assignor to the General Power Company, of New Jersey. Filed May 16, 1899. Serial No. 717,003. (No model.)



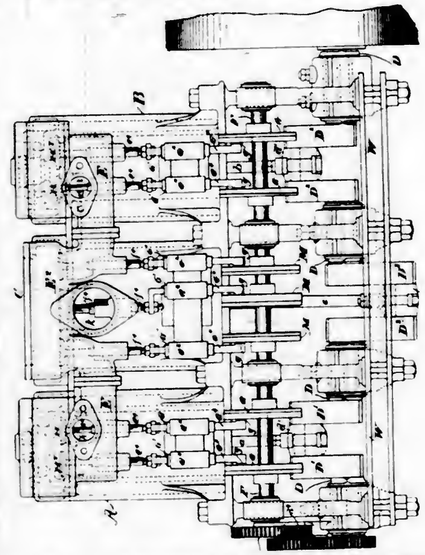
Claim.—1. The combination with a bed-plate, a cylinder bedded thereon with the ends of the bed-plate extended beyond the ends of the cylinder, duplicate pistons arranged for movement in opposite directions within the cylinder, and a crank-shaft the cranks of which extend in opposite directions, of levers fulcrumed at their lower extremities to the extended ends of the bed-plate, crank-rods which connect the free ends of the levers with the cranks of the crank-shaft, and connecting-rods which connect the pistons with the levers at points between their fulcra and their pivotal connections with the crank rods, substantially as herein set forth.

2. The combination with a bed-plate, a cylinder bedded thereon with the ends of the bed-plate extended beyond the ends of the cylinder, a valve-chest and inlet and outlet valves therein, standards fixed upon the cylinder a crank-shaft having cranks extended in opposite directions and with one of its ends projected over the valve-chest and duplicate pistons arranged for movement in opposite directions within the cylinder, of levers fulcrumed at their lower ends to the extended ends of the bed-plate, crank-rods which connect the free ends of the levers with the cranks of the crank-shaft, connecting-rods which connect the pistons with the levers at points between their fulcra and their connections with the crank-rods, and mechanism for actuating the valves in the valve chest from the projected end of the crank-shaft, substantially as herein set forth.

3. The combination with a bed-plate, a cylinder bedded thereon with the ends of the bed-plate extended beyond the ends of the cylinder, a valve-cheat and inlet and outlet valves therein, a crank-shaft arranged above the cylinder with cranks extended in opposite directions and having one of its ends projected over the valve-chest, duplicate pistons arranged for movement in opposite directions within the cylinder, levers fulcrumed at their lower ends to the extended ends of the bed-plate, crank-rods which connect the free ends of the levers with the cranks of the chank-shaft and connecting-rods which connect the pistons with the levers at points between the fulcra of the latter and their connections with the crank-rods, of a pinion fast on the projected end of the crank-shaft, a spur-wheel which gears with said pinion, cam devices provided to said spur-wheel, and means for transmitting motion from the cam devices to the valves in the valve-chest, substantially as herein set forth.

4. The combination with a bed-plate, a cylinder bedded thereon with the ends of the bed-plate extended beyond the ends of the cylinder, a valve-chest with inlet and outlet valves therein, standards fixed upon the cylinder and having a gudgeon extended therefrom, a crank-shaft carried by the standards with cranks extended in opposite directions and having one end projected over the valve-chest, duplicate pistons arranged for movement in opposite directions within the cylinder, levers fulcrumed at their lower ends to the extended ends of the bed-plate, crank-rods which connect the free ends of the levers with the cranks of the crank-shaft, a spur-wheel revoluble on the lateral gudgeon of the standards and having cam-tracks on its opposite sides, and valve-stems provided with lateral studs which work in the cam-tracks of the spur-wheel, substantially as herein set forth.

640,711. EXPLOSIVE-ENGINE. JOHN A. SECOR, New York, N. Y. Filed May 25, 1899. Serial No. 718,169. (No model.)



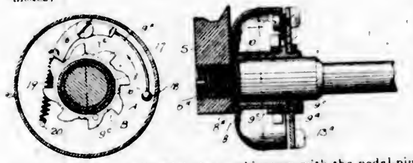
Claim.—1. The combination with two high pressure cylinders and their respective pistons placed in, or substantially in, the same plane, of a low-pressure cylinder placed between the two high-pressure cylinders and having a cubic contents substantially equal to twice the aggregate of the cubic contents of said two cylinders, a low-pressure piston placed in the low-pressure cylinder and arranged to have a stroke longer than the stroke of the high-pressure pistons, and a driving crank-shaft the cranks whereof are proportioned to the difference between the longer stroke of the low-pressure piston and the shorter strokes of the high-pressure pistons, substantially as herein set forth.

2. The combination with two high-pressure cylinders, their respective pistons, a low-pressure cylinder placed between and in the same, or substantially the same, plane with the high-pressure cylinders and having a cubic contents the same or substantially the same as twice the aggregate of the cubic contents of the two high-pressure cylinders, a low-pressure piston in the low-pressure cylinder constructed and arranged to have a stroke longer than the stroke of the pistons in the high-pressure cylinders, valve-chests provided to the several cylinders and substantially in line with each other, and valves arranged for operation in said valve-chests, of a driving crank-shaft the crank-wrists of which have throws proportioned to the difference between the stroke of the low-pressure piston and the strokes of the high-pressure pistons, a counter-shaft parallel with the driving-shaft,

a system of gearing for transmitting motion from the driving-shaft to the counter-shaft, a system of cam mechanism fast on the counter-shaft, and devices for transmitting motion from said cam mechanism to the valves in the valve-chests, substantially as herein set forth.

3. The combination with two high-pressure cylinders, their respective pistons, a low-pressure cylinder placed between and in the same, or substantially the same plane with the two high-pressure cylinders and having a cubic contents the same or substantially the same as twice the aggregate of the cubic contents of the two high-pressure cylinders, a low-pressure piston in the low-pressure cylinder constructed and arranged to have a stroke longer than the stroke of the pistons of the low-pressure cylinders, valve-chests provided to the several cylinders and substantially in line with each other, and valves arranged for operation in the said valve-chests, of a driving crank-shaft the crank-wrists of which have throws proportioned to the difference between the stroke of the low-pressure piston and the strokes of the high-pressure pistons, a counter-shaft parallel with the driving-shaft, a system of gearing for transmitting motion from the driving-shaft to the counter-shaft, a series of cam-disks fast on the counter-shaft, each cam-disk constructed with a cam-track in one of its lateral faces, slides each constructed at one end with a lateral stud which works in the cam-track of an adjacent cam-disk, and at the other is connected with the stem of an adjacent puppet-valve, and guides arranged to receive the slides, substantially as herein set forth.

640,712. **BICYCLE-PEDAL BELL.** ABRAHAM M. SOUTHARD, Denver, Colo., assignor, by mesne assignments, to James Wesley Kuykendall, same place. Filed Apr. 25, 1899. Serial No. 714,345. (No model.)



Claim.—1. In a bell-pedal the combination with the pedal-pin, of alarm mechanism mounted thereon and normally turning with the pin, one part of said mechanism being fast on the pin, and the other part being loosely mounted and provided with means fast thereon for stopping the rotation with the pin, the arrangement being such that the stopping of the one part results in the operation of the alarm mechanism.

2. In a bell-pedal the combination with the pedal-pin, of suitable alarm mechanism mounted thereon, and comprising two parts normally moving in unison with each other, the arrangement being such that as soon as the unison of movement is destroyed the bell is rung or the alarm sounded, and means fast on one part, and accessible to the foot of the rider, to facilitate destroying the unison of movement between the two parts.

3. The combination with the pedal of a gong suitably mounted thereon, a clapper device and means for operating the clapper device, the clapper device, and its operating means, normally moving in unison, but capable of independent movement, the arrangement being such that as soon as their unison of movement is destroyed the clapper device is operated and the alarm sounded, and means fast on the clapper device, and accessible to the foot of the rider, for destroying the unison of movement between the clapper device and its operating means.

4. The combination with the pedal-pin, of a clapper device and operating means mounted on the pedal-pin, and normally moving therewith, the clapper device and its operating means being capable, however, of movement independently of each other, and a gong suitably supported in proximity to the clapper device, the arrangement being such that as soon as the harmony of the movement between the clapper device and its operating means is destroyed the clapper device is operated and the alarm sounded, and means fast on the clapper device, and accessible to the foot of the rider, for destroying the unison of movement between the clapper device and its operating means.

5. The combination with the pedal-pin, of a clapper device, comprising a clapper-holder and a lever fulcrumed thereon, a gong and means for operating the clapper-lever, the clapper-operating means being fast on the pin, the clapper-holder being loosely mounted, but normally turning with the pin and operating means, and means fast on the clapper-holder for stopping the rotation of the clapper device while the operating means continues its movement with the pin.

6. The combination with the pedal-pin, of a clapper device comprising a plate loosely mounted on the pin, and provided with external means to facilitate the stopping of the said plate, a spring-held lever fulcrumed on the plate and provided with a spring clapper-arm, a gong mounted in proximity to the clapper device, and a cam fast on the pedal-pin and adapted to engage the lever and operate the clapper device when the latter is held against rotation with the pedal-pin.

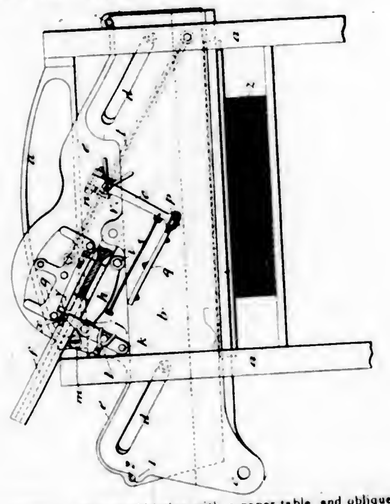
7. The combination with the pedal-pin and the gong suitably mounted, of a clapper device comprising a plate loosely mounted on the pin, a lever fulcrumed on the plate, a spring connected with one arm of the lever, a clapper connected with the other arm of the lever and a cam fast on the pedal-pin and adapted to engage a projection formed on the spring extremity of the lever when the clapper device is held against movement with the pedal-pin, the plate being provided with exterior means to facilitate stopping it with the foot.

8. The combination with the pedal-pin, of a plate or disk loosely mounted thereon, and provided with exterior means adapted to be engaged by the foot to stop the movement of the plate with the pedal-pin, a spring-held lever fulcrumed on the plate and provided with a clapper, a gong mounted in proximity to the clapper, a cam-ring fast on the pedal-pin and adapted to engage a projection formed on the lever whereby as the clapper-plate is held from rotation, the cam-ring operates the clapper.

9. The combination with the pedal and crank, of a hub mounted on the pedal-pin between the crank and the pedal-frame, and provided with one or more cams, the hub being locked on the pedal-pin, a plate loose on said hub but normally turning with the pedal-pin, a spring-held clapper-lever fulcrumed on the plate, and having a lug projecting into the path of the cams on the hub, and a gong mounted in proximity to the clapper, the said plate having one or more exterior projections to facilitate stopping its rotation with the pedal-pin.

10. The combination with the pedal and crank, of a hub mounted on the pedal-pin and having an interior collar engaging a shoulder on the pin, and an exterior collar, a ring surrounding the hub and engaging the exterior collar, said ring being provided with a number of cams, and having a stud engaging the exterior collar of the hub, a sleeve surrounding the hub and engaging the cam-ring, a gong mounted on the pin and engaging the hub and sleeve, the hub and sleeve being locked on the pin by the crank, a plate surrounding the hub and loose thereon, a clapper-lever fulcrumed on the plate and having a lug projecting into the path of the cams on the ring, the said plate having projections to facilitate holding it from rotation with the pedal-pin.

640,713. **PAPER-CUTTER.** ROBERT F. SPROULE, London, England. Filed Aug. 7, 1899. Serial No. 726,415. (No model.)



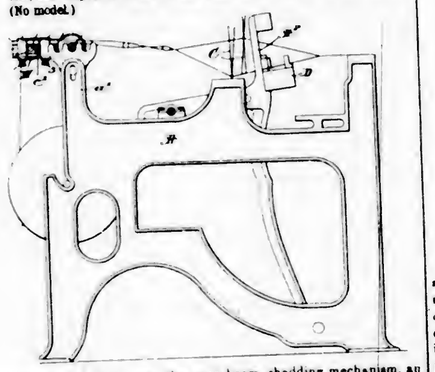
Claim.—1. The combination with a paper-table, and obliquely-movable paper-clamping slide, and an obliquely-movable knife-slide carrying a paper-cutting knife, of a toggle pivoted at one end to the paper-clamping slide, a cheek pivoted to the clamping-slide and to said toggle, a cheek fixed to said clamping-slide, a clamping-bar pivoted to the knife-slide and sliding between said pivoted and movable cheeks, and devices cooperating therewith for automatically clamping the paper by the movement of the knife, substantially as described.

2. The combination of the obliquely-movable knife-carrying and paper-clamping slides *b* and *c*, the clamping-bar *f* pivoted to the knife-carrying slide and having a stud *x*, the fixed and pivoted cheeks *g* and *h* on said clamping-slide, the toggle *j*, *k* pivoted to the clamping-slide and to the pivoted cheek, the fork *l*, the roller *m* the pivoted lever-arm *o*, the incline *r*, the stud *u* in the clamping-slide, the rod *t* passing through said stud, and the piece *w*, under said rod, substantially as described.

3. The combination with the paper-table, and the obliquely-movable paper-clamping and knife-carrying slides, of the toggle *j k* carried by the paper-clamping slide, and automatically-operated devices coacting with said toggle and serving to actuate the clamping-slide by the movement of the knife-slide, substantially as described.

4. The combination of the knife-slide with its clamping-bar, the clamping-slide with its cheeks and toggle, the stud for releasing the toggle and the fork for straightening it, substantially as described.

640,714. **LOOM.** WALLACE I. STIMPSON, Milford, Mass., and JAMES H. NORTHROP, Tustin, Cal., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Mar. 25, 1899. Serial No. 710,471. (No model.)



Claim.—1. In a loom, the warp-beam, shedding mechanism, an intermediate spring-controlled support over which the warp-threads pass from the warp-beam, bearings for said support, in which the latter is movable toward and from the shedding mechanism, and means to positively regulate the extent of such movement of the support in both directions.

2. In a loom, shedding mechanism, the warp-beam, a whip-roll between said mechanism and the beam, a controlling spring or springs for the whip-roll, means to positively regulate the extent of movement of said whip-roll toward the shedding mechanism independently of the controlling-spring, and means to regulate the tension of the controlling-spring.

3. In a loom, the whip-roll, journal-boxes therefor, guides for said boxes, in which they are movable toward and from the fell of the cloth, springs to act upon said roll against the pull of the warp-threads, and adjustable stops to limit the extent of movement of the journal-boxes independently of the springs.

640,715. **VERTICAL AUTOMATIC DRYING AND ROASTING FURNACE.** JOHN STOVEKEN, Milwaukee, Wis. Filed June 3, 1899. Serial No. 719,200. (No model.)

Claim.—1. The combination with a vertical ore-roasting chamber having an ore-inlet at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, whereby the heat is allowed to pass upward around the ore, said means comprising inclined shelves supported by the furnace-walls, and located in the lower part of the furnace, and muffles supported in the upper part of the furnace, the wall of the chamber being provided with openings opposite the ore-supporting means to permit access to the column of ore, and detachable plugs normally closing said openings.

2. The combination with a vertical ore-roasting chamber having an ore-inlet at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, said means comprising inclined shelves supported by the furnace-walls and located in the lower part of the furnace, muffles supported in the upper part of the furnace, and inclined, deflecting ledges attached to the inner walls of the furnace and adapted to direct the heat toward the central column of ore.

3. The combination with a vertical ore-roasting chamber having an ore-inlet at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, whereby the heat is allowed to pass upward around the ore, said means comprising inclined shelves supported by the furnace-walls and located in the lower part of the furnace, and a muffle-pipe located in the upper part of the furnace-chamber and provided with orifices and upwardly-projecting tubes leading therefrom.



4. The combination with a vertical ore-roasting chamber having an ore-inlet at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, said means comprising inclined shelves supported by the furnace-walls and located in the lower part of the furnace, and a muffle-pipe located in the upper part of the furnace-chamber and having inclined, staggered, inwardly-projecting ledges said muffle being also provided with orifices and upwardly-projecting tubes leading therefrom.

5. The combination, with a vertical ore-roasting chamber, having an ore-inlet at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, whereby the heat is allowed to pass upward around the ore, said means comprising inclined shelves supported by the furnace-walls and located in the lower part of the furnace, and muffles supported in the upper part of the furnace.

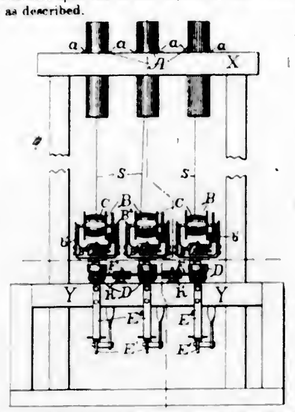
6. In a vertical roasting-furnace, the combination with a vertical oxidizing-chamber having an inlet-opening at its top and a discharge-opening at its bottom, of means for supporting a central, vertical column of ore in said chamber between said openings, said means comprising a vertical discharge-pipe located in the bottom of the chamber, inclined shelves located above said pipe and a vertical muffle-tube located above the shelves, the ore-column-supporting means being so located as to leave room for the hot air to pass upward from the bottom to the top of the furnace.

7. The combination with a vertical ore-roasting chamber having an inlet-opening at the top and a discharge-opening at the bottom, of means for maintaining a vertical column of ore between these two openings and in a central position in the roasting-chamber, whereby the heat is allowed to pass upward around the ore, said means comprising inclined shelves supported by the furnace-walls and located in the lower part of the furnace, and muffles supported in the upper part of the furnace, a chamber located below the discharge-opening of the furnace, a platform or table located in said chamber and forming a support for the ore column, and an endless drag-chain passing over said table or platform for removing the ore at the base, and causing a continuous downward movement of the ore column.

640,716. **SPINNING-MACHINE.** DING CIK SUI, Foochow, China, assignor to George S. Miner and William N. Brewster, same place. Filed Dec. 17, 1897. Renewed June 8, 1899. Serial No. 719,823. (No model.)

Claim.—1. In a machine for spinning fibrous material, the combination of means for directly forming a thread or yarn from a mass of such material by continuously twisting, means for intermittently drawing said thread or yarn, and means for regulating said drawing

action by the tension upon the thread or yarn by the twisting action, substantially as described.



2. In a machine for spinning fibrous material, the combination with a receptacle for the said material, of a rotatable frame; a spool carried in said frame; means for rotating said frame; means for causing the intermittent rotation of said spool and a separable connection between said means, whereby the drawing action of the spool is regulated by the tension on the thread caused by the twisting action of the frame, substantially as described.

3. In a machine for spinning fibrous material, the combination with a receptacle for the said material, of a spindle rotatably mounted in a vertical bearing; a frame rotatably mounted upon said spindle; a spool rotatably mounted in said frame; means for rotating said frame; means for causing the intermittent rotation of the spool therein and a separable connection between said means, whereby the drawing action of the spool is regulated by the tension on the thread caused by the twisting action of the frame substantially as described.

4. In a machine for spinning fibrous material, the combination with a receptacle for the said material, of a spindle rotatably mounted in a vertical bearing; a frame rotatably mounted upon said spindle; a spool carried in said frame; means for rotating said frame; a separable friction device between said frame and said spindle for causing the rotation of the latter; and gearing between said spindle and said spool for causing the rotation of said spool.

5. In a machine for spinning fibrous material, the combination with a receptacle for the said material, of a spindle rotatably mounted in a vertical bearing; a frame rotatably mounted upon said spindle; a spool carried in said frame; means for rotating said frame; a separable friction device between said frame and said spindle for causing the rotation of the latter; gearing between said spindle and said spool for causing the rotation of said spool; and means for retarding the rotation of said spindle.

6. In a machine for spinning fibrous material, the combination with a receptacle for said material; of a vertical spindle and bearings therefor; a frame rotatably mounted on said spindle, a spool rotatably mounted in said frame; a pinion fast on said spindle, means for rotating said frame; means for causing the rotation of said spindle; a separable connection between said means and gearing between said pinion and said spool for causing the rotation of the latter in said frame, substantially as described.

7. In a machine for spinning fibrous material, the combination with a receptacle for said material; of a vertical spindle and bearings therefor; a frame rotatably mounted on said spindle, a spool rotatably mounted in said frame; a pinion fast on said spindle; means for rotating said frame; a separable friction device between said pinion and said frame for causing the rotation of said spindle; and gearing between said pinion and said spool carried in said frame for causing the rotation of said spool in said frame, substantially as described.

8. In a machine for spinning fibrous material, the combination with a receptacle for said material; of a vertical spindle and bearings therefor; a frame rotatably mounted on said spindle, a spool rotatably mounted in said frame; a pinion fast on said spindle, means for rotating said frame; a separable friction device between said pinion and said frame for causing the rotation of said spindle, gearing between said pinion and said spool carried in said frame for causing the rotation of said spool in said frame; and means for retarding the rotation of said spindle, substantially as described.

9. In a machine for spinning fibrous material, the combination with a vertical hollow sleeve mounted in a rigid support; a spindle extending loosely through said sleeve; a support for the lower end of said spindle; a frame rotatably mounted upon the upper end of said spindle; and a spool rotatably mounted in said frame, of means for rotating said frame, a separable connection between said frame and said spindle, and connections between said spindle and said spool substantially as described.

10. In a machine for spinning fibrous material, the combination with a vertical hollow sleeve mounted in a rigid support, a spindle extending loosely through said sleeve, a support for the lower end of said spindle; and a spool rotatably mounted in said frame, of means for rotating said frame; a separable friction device between said frame and said spindle for causing the rotation of the latter; means for retarding the rotation of said spindle; and means for causing the rotation of said spool by the rotation of said spindle, substantially as described.

11. In a machine for spinning fibrous material, the combination with a vertical hollow sleeve mounted in a rigid support; a spindle extending loosely through said sleeve; a support for the lower end of said spindle; a frame rotatably mounted upon the upper end of said spindle; and a spool rotatably mounted in said frame; of means for rotating said frame, a separable friction device for causing the rotation of said spindle by the rotation of said frame, a pinion fast on said spindle, and gearing between said pinion and said spool carried in said frame for causing the rotation of said spool, substantially as described.

12. In a machine for spinning fibrous material, the combination with an elongated vertical hollow sleeve mounted in a rigid support a spindle extending through said sleeve, a support for the lower end of said spindle; a frame rotatably mounted upon the upper end of said spindle, and a spool rotatably mounted in said frame; of means for rotating said frame, a pinion fast on said spindle; a separable friction device between said pinion and said frame for causing the rotation of said spindle, means for retarding the rotation of said spindle; and gearing carried in said frame between said pinion and said spool for causing the rotation of the latter, substantially as described.

13. In a machine for spinning fibrous material, the combination with a vertical spindle, and a support therefor, a frame rotatably mounted upon said spindle, a spool carried in said frame of means for rotating said frame upon said spindle, a pinion on said spindle, gearing between said pinion and said spool for rotating the latter; and means for stopping the rotation of said frame by the tension upon the thread or yarn when it becomes too tightly twisted, substantially as described.

14. In a machine for spinning fibrous material, the combination with a vertical spindle, and a support therefor; a frame rotatably mounted upon said spindle, a spool carried in said frame; of means for rotating said frame upon said spindle, a pinion on said spindle, gearing between said pinion and said spool for rotating the latter; friction devices between said frame and said spindle for rotating the latter; means for stopping the rotation of said spindle during the rotation of said frame, and means for stopping the rotation of said frame by the tension upon the thread or yarn when it becomes too tightly twisted, substantially as described.

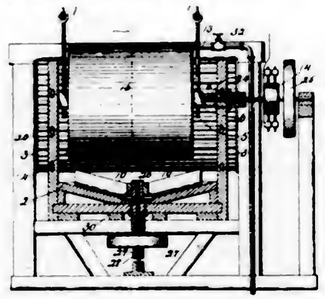
15. In a machine for spinning fibrous material, the combination with a vertical spindle, and a rigid hollow sleeve partially inclosing said spindle and allowing of a rotary and longitudinal movement of said spindle; a frame rotatably mounted upon said spindle; and a spool carried in said frame; of means for rotating said frame; friction devices between said frame and said spindle for causing the rotation of the latter; a radial arm on said spindle; a fixed stop adapted to be struck by said radial arm when said spindle is moved longitudinally; means for limiting this longitudinal movement of said spindle, and gearing between said spindle and said spool for rotating the latter, substantially as described.

16. In a machine for spinning fibrous material, the combination with a rigid vertical hollow sleeve, a spindle extending loosely through said sleeve and having a slight longitudinal movement therein; a frame rotatably mounted upon the upper end of said spindle, a spool carried in said frame, of a pulley loosely mounted upon said sleeve beneath said frame and having a lug or projection thereon adapted to strike against a projection on said frame, for rotating said frame, a pinion mounted fast upon said spindle in said frame, gearing between said pinion and said spool for rotating the latter; friction devices between said frame and said spindle for rotating said spindle; means for stopping the rotation of said spindle during the rotation of said frame; and means for regulating the tension upon the thread or yarn being spun, substantially as described

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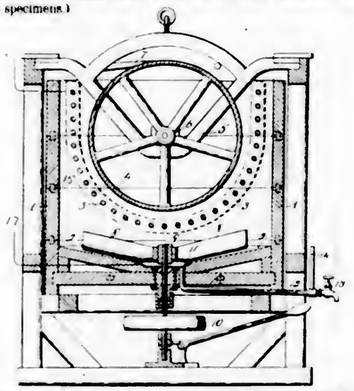
640,717. ELECTROLYTIC APPARATUS FOR EXTRACTING PRECIOUS METALS. CHARLES P. TATRO and GEORGE DELIUS, Seattle, Wash., assignors to Harry S. Sharpe, same place. Filed Mar. 27, 1899. Serial No. 710,598. (No model.)

Claim.—1. In electrolytic apparatus for extracting precious metals, a bath-tub having in it a series of rods as an anode, a drum journaled to revolve partially immersed in the tub and connected as a cathode, the said rods being parallel with the drum; a scraper located tangent to the surface of the drum, and an agitator upon a veritcal shaft and having upward-slanting arms located to revolve below the said anode-rods, substantially as described



2. In electrolytic apparatus for extracting precious metals, a bath-tub having a bottom slanting downwardly toward its center; an agitator mounted on a vertical shaft in the center of the tub and having vertical, upward-slanting radial blades; a lever located beneath the tub and having tree connection with the said vertical shaft for raising and lowering the agitator; a drum journaled in bails which are suspended in the tub; a scraper for the drum; a perforated water-pipe located above the drum; rods of carbon or electrically similar material located in the tub, around the drum; a pan containing mercury or amalgam located in the bottom of the tub around the agitator-shaft and an outlet-pipe for the pan, having a stand-pipe portion and a stop-cock; and electrical connections for a generator with the carbon anodes and the drum and mercury or amalgam cathodes.

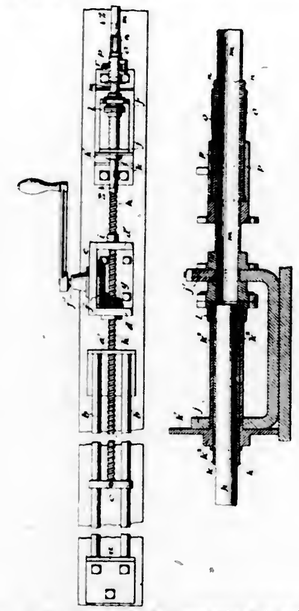
640,718. PROCESS OF EXTRACTING PRECIOUS METALS. CHARLES P. TATRO and GEORGE DELIUS, Seattle, Wash., assignors to Harry S. Sharpe, same place. Filed Mar. 27, 1899. Serial No. 710,599. (No specimens.)



Claim.—1. In separating precious metals from ores, the process comprising the following steps: first, reducing the ore to a fine pulp; second, dissolving the metals from the foreign matter by immersing and agitating the pulp in a bath comprising an aqueous solution of common salt, a small percentage of bromin, caustic lime and other reagents for precipitating undesirable metals from the electrolyte, third, gathering a portion of the precious metals from the bath by revolving a cathode-drum partially immersed in the bath while the latter is in contact with an anode, and at the same time scraping the metallic deposit from the drum, also simultaneously depositing other portions of the precious metals in the same bath upon a cathode of sodium amalgam, an electric current passing through the said anode, cathodes and bath during this third step of the operation.

2. In the process of separating precious metals from ores, the steps comprising electrolytically depositing a portion of the precious metals in the bath upon a drum cathode revolving partially immersed in the bath, at the same time scraping the said deposit from the drum, also simultaneously depositing other portions of similar precious metals in the same bath upon a cathode of sodium amalgam.

640,719. APPARATUS FOR COMPACTING FEATHERS INTO TUBES. CHARLES T. THOMPSON, Philadelphia, Pa. Filed Nov. 3, 1898. Serial No. 695,361. (No model.)



Claim.—1 In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a series of cartridges open at both ends and corresponding in internal diameter with the head of the plunger; a metal tube many times the length of one of the cartridges and similarly corresponding in diameter with the head of the plunger; means whereby said metal tube is held within the path of the reciprocation of the plunger; means whereby the cartridges may be successively placed and temporarily held in front of and in registration with the end of the metal tube which receives the plunger; and means whereby the open end of a flexible tube, the other end of which is closed, is permitted to slide resistingly off the metal tube as it receives the contents of the successive cartridges under the impact of the strokes of the plunger, substantially as set forth.

2. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a series of cartridges open at both ends and corresponding in internal diameter with the head of the plunger; a metal tube many times the length of one of the cartridges, and similarly corresponding in diameter with the head of the plunger; means whereby said metal tube is held within the path of the reciprocation of the plunger; means whereby the cartridges may be successively placed and temporarily held in front of and in registration with the end of the metal tube which receives the plunger; a clamp whereby the open end of a flexible tube is clamped around the outside of the metal tube; and means for regulating at will the pressure of said clamp, substantially as set forth.

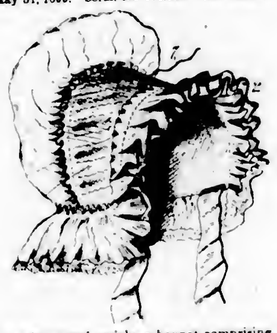
3. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a series of cartridges open at both ends and correspondiug in internal diameter with the head of the plunger; a metal tube many times the length of one of the cartridges, and similarly corresponding in diameter with the head of the plunger; means whereby said metal tube is held within the path of the reciprocation of the plunger; means whereby the cartridges may be successively placed and temporarily held in front of and in registration with the end of the metal tube which receives the plunger; a sleeve running on said metal tube; means for affixing the open end of a flexible tube to said sleeve; and means, such as a weight and cord, whereby the advance of the sleeve over the metal tube is resisted, substantially as set forth.

4. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a series of cartridges open at both ends and corresponding in internal diameter with the head of the plunger; a metal tube many times the length of one of the cartridges, and similarly corresponding in diameter with

the head of the plunger; means whereby said metal tube is held within the path of the reciprocation of the plunger; means whereby the cartridges may be successively placed and temporarily held in front of and in registration with the end of the metal tube which receives the plunger; a sleeve running on said metal tube; means for affixing the open end of a flexible tube to said sleeve; a cord or cords affixed to said sleeve and winding at the other end around a drum; and a reversed cord on the same drum, the free end of which carries a weight, substantially as set forth.

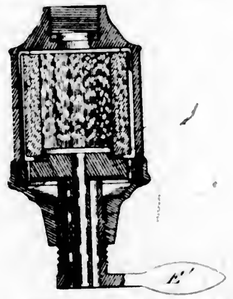
5. In an apparatus for compacting tubes with feathers, the combination of a reciprocating plunger of uniform stroke; a series of cartridges open at both ends and corresponding in internal diameter with the head of the plunger; a metal tube many times the length of one of the cartridges, and similarly corresponding in diameter with the head of the plunger; means whereby said metal tube is held within the path of the reciprocation of the plunger; means whereby the cartridges may be successively placed and temporarily held in front of and in registration with the end of the metal tube which receives the plunger; a sleeve running on said metal tube; means for affixing the open end of a flexible tube to said sleeve; a cord or cords affixed to said sleeve and winding at the other end around a drum; a reversed cord on the same drum, the free end of which carries a weight; and a series of loading-plates through which the reversed cord passes which rest at spaced intervals and are successively taken up by the upward motion of the weight as the sleeve recedes, substantially as set forth.

640,720. BONNET. FRANCES E. THORNTON, Sulphur Springs, Tex. Filed May 31, 1899. Serial No. 718,898. (No model.)



Claim.—As an improved article, a bonnet comprising the front portion consisting of the rectangular strip provided with an ornamental frill and with tying-strings, and the rear portion consisting of an approximately circular piece of textile material cut away on a straight line at the lower edge and the front edge formed with a number of tucks, and secured to the front portion at one side, the hook and eye at the opposite side for detachably connecting the said rear portion to the front, and the drawing-string passing through said tucks for binding the rear portion to the front portion, substantially as described.

640,721. FILTER. CHARLES F. VOGLER, Cleveland, Ohio, assignor, by mesne assignments, to The Plumbers' Brass and Iron Manufacturing Company, same place. Filed Mar. 7, 1899. Serial No. 708,158. (No model.)



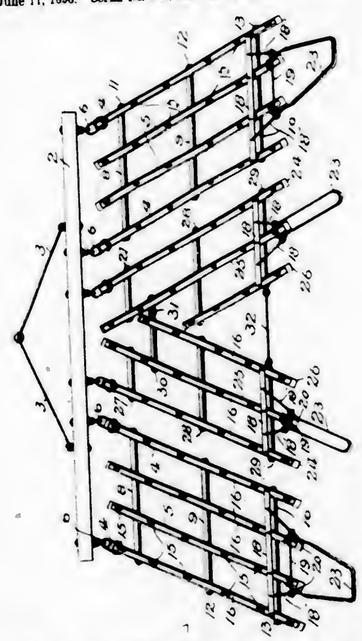
Claim.—1. The combination with a filter-casing having an outlet, a filtering-body in said casing, a partition in said casing and having an outlet for the filtered water extending through the casing-outlet, and a by-pass for the unfiltered water and passing around the filtering-body and through the partition and ending in the casing-outlet, of a valve controlling the end of said by-pass, substantially as set forth.

2. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a valve in the space between the outlet and the partition and controlling such space, substantially as set forth.

3. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a tubular valve in the casing-outlet having a space between its interior and the tube of the partition and a seat for its inner end against the partition and having means for longitudinally moving it in the casing-outlet, substantially as set forth.

4. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, formed with an interior screw-thread and a packing above the same, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a tubular valve formed with a smooth portion fitting in the packing of the casing-outlet and a screw-threaded portion fitting in the threaded portion of the same and a handle for turning it and having a space between its interior and the tube of the partition and a seat for its inner end against the partition, substantially as set forth.

640,722. HARROW. JOSEPH L. WARR, St. Paul, Minn. Filed June 11, 1898. Serial No. 682,184. (No model.)



Claim.—1. In a lever-harrow the combination, with a head or draft-beam, of end sections pivotally connected to said beam at an angle thereto, an A-shaped section also pivotally connected to said beam between said end sections, said A-shaped section being divided into legs pivotally connected to permit the section to conform to an uneven surface, a series of teeth pivotally mounted in said sections and having lower ends in a plane at an angle to the bars composing said sections and substantially parallel with the draft-line whereby side drift or travel of the sections is prevented, and lever mechanisms provided on said sections and connected with said teeth for tilting the same, substantially as described.

2. In a lever-harrow, the combination, with a head or draft-beam, of sections pivotally connected to said head at an angle thereto, a series of teeth pivotally arranged in said sections, said teeth having lower ends adapted to make a furrow in the soil at an angle to the bars composing said sections in a direction substantially parallel with the draft-line of the harrow, and lever mechanisms provided on said sections for tilting said teeth, substantially as described.

3. In a lever-harrow, the combination, with a head or draft-beam, of end sections pivotally connected thereto at an angle to said beam, a middle A-shaped section, a series of saw-slits provided in the bars composing said sections, a series of teeth pivotally mounted in said saw-slits and projecting above the tops of said sections, sliding bars provided upon said sections and having openings to receive the upper ends of said teeth, levers 20 pivotally supported upon said sections, stops for limiting the movement of said levers, rods 18 adapted to drop below the pivotal center of said levers when they are in engagement with said stops, whereby said levers will be locked in position, substantially as described.

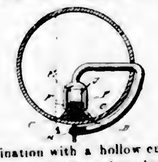
4. In a lever-harrow the combination, with a head 2, of end sections pivotally connected to said head at an angle thereto, a middle A-shaped section, said middle section being composed of two legs, an eyebolt 31 and tie-rod 32 connecting said legs, whereby said middle section is permitted to conform to an uneven surface, a series of teeth mounted in saw-slits in said sections and extending above the tops of the same, a series of bars provided on said sections and having openings to receive the tops of said teeth and locking-levers provided on said sections and connected with said bars for operating said pivoted teeth, substantially as described.

5. In a lever-harrow, the combination, with a head or draft-beam, of end sections pivotally connected to said head at an angle thereto, a middle A-shaped section also pivotally connected to said head, a series of teeth mounted in said end and A-shaped sections, each tooth independently of the others, said teeth having twisted lower ends to prevent side drift or travel of the harrow-sections and self-locking lever mechanisms provided on said sections and connected with said teeth for operating the same, substantially as described.

6. In a lever-harrow, the combination, with a head or draft-beam, of sections pivotally connected to said head at an angle thereto, a series of tilting teeth mounted in said sections, said teeth having twisted lower ends to prevent side drift or travel of said sections, and lever mechanisms provided on said sections and connected with said teeth for operating the same, substantially as described.

7. In a lever-harrow, the combination, with a head or draft-beam, of end sections pivotally connected to said head at an angle thereto, a middle A-shaped section also pivotally connected to said head, a series of tilting teeth mounted in said end and A-shaped sections said teeth having twisted lower ends to make a furrow substantially parallel with the draft-line of the harrow whereby side drift of the harrow-sections is prevented, and lever mechanisms provided on said sections and connected with said teeth for operating the same, substantially as described.

640,723. CURTAIN-POLE. WILLIAM H. WHITE and CHARLES W. WHITE, Weymouth, Mass. Filed Apr. 10, 1899. Serial No. 712,472. (No model.)



Claim.—The combination with a hollow curtain-pole provided with a longitudinal slot in its rear side, and a pair of longitudinal strips secured to the lower inner surface forming a groove or guideway between them, of an open curtain-runner of substantially sector shape, the inner end carrying a roller operating in the guideway and the runner extending thence upward, then radially out through the slot, thence curved concentrically with the pole, outside thereof and ending approximately in the vertical plane of the axis of the pole, substantially as described.

640,724. LACING-HOOK. HORATIO O. WHYMAN, Aurora, Ill., assignor to the Whyman Lacing Hook Company, same place. Filed Aug. 10, 1899. Serial No. 726,801. (No model.)

Claim.—1. A flat lacing-book consisting of an approximately horseshoe-shaped strip having its two arms arranged in substantially the same plane, one arm being adapted to engage with the lace, and the other provided with attaching-prongs, substantially as described



2. A flat lacing-hook consisting of an approximately horseshoe-shaped flat strip formed with integral attaching-prongs on one arm thereof, and having its other arm free and arranged in substantially the same plane with the former, so as to adapt the device to lie flatwise on the surface of the material to which it is attached, substantially as described.

3. A flat lacing-hook, consisting of an approximately horseshoe-shaped flat strip having its two arms arranged in substantially the same plane, one arm being free and having a boss or protuberance on its upper surface, and the other formed with attaching-prongs, substantially as described.

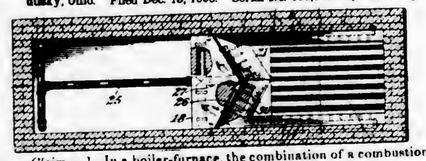
640,725. PROCESS OF TREATING VEGETABLE WASTE. PIETER W. WIERDSMA, Schrans, and JOHANNES KUIPERS, Leeuwarden, Netherlands, assignors to the Kuma Company, Limited, London, England. Filed Dec. 28, 1897. Serial No. 664,076. (No specimens.)

Claim.—1. The herein-described process of treating vegetable waste or refuse of the character specified, which consists in separating and rejecting the water, dirt and matters soluble in cold water, drying and disintegrating the mass, mixing therewith an adhesive waterproofing substance to render the mass waterproof, drying the now waterproofed mass, reducing it to a powder and molding said powder under pressure, substantially as described.

2. The herein-described process of treating vegetable waste or refuse produced in the manufacture of various products from potatoes or similar tubers, which consists in separating and rejecting the water, dirt, and matters soluble in cold water, drying and disintegrating the mass, mixing therewith rosin or other gum or mucilage to render the mass waterproof, drying the now waterproofed mass, reducing it to a powder and molding said powder under pressure, substantially as described.

3. The herein-described process of treating vegetable waste or refuse of the character specified, which consists in separating and rejecting the water, dirt and matters soluble in cold water, drying and reducing the mass to a powder, incorporating therewith a gummy substance and then subjecting the mass to the action of a precipitating agent, disintegrating the mass thus treated, reducing it to a powder, and then pressing said powder into a solid form, substantially as and for the purposes described.

640,726. STEAM-BOILER FURNACE. GUERT E. WILDER, Sandusky, Ohio. Filed Dec. 15, 1898. Serial No. 699,365. (No model.)



Claim.—1. In a boiler-furnace, the combination of a combustion-chamber, a bridge-wall having its front face inclined backward in opposite directions toward the side walls of the combustion-chamber from an intermediate ridge or crest, and also inclined backwardly and upwardly from the plane of the grate, and blast-pipes extending through the bridge-wall and having jet-nozzles opening out from the inclined faces of the latter, substantially as described.

2. In a boiler-furnace, a bridge-wall having a ridge or crest in the plane of the median line of the combustion-chamber, and the sloping faces which incline rearwardly in opposite directions from the ridge or crest, substantially as described.

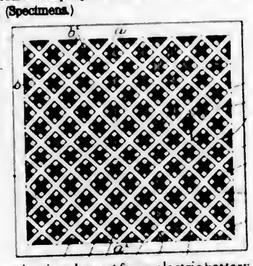
3. In a boiler-furnace, a bridge-wall having a central ridge or crest located in the plane of the median line of the combustion-chamber and sloping upwardly and rearwardly from the plane of the grate in said chamber, and the sloping faces which are inclined from the ridge or crest toward the sides of the chamber and are also inclined upwardly and rearwardly from the grate, substantially as described.

4. In a boiler-furnace, the combustion-chamber having its side walls inclined laterally in opposite directions to each other and on a plane above the grate to enlarge the cross-sectional area of the chamber in the upper part thereof, combined with a bridge-wall having its front face inclined uniformly in opposite directions from a central ridge or crest, and blast-pipes in the side walls of the chamber between the grate and the inclined upper portions of said walls, and each blast-pipe having a plurality of nozzles which discharge air

through one side wall of the combustion-chamber, substantially as described.

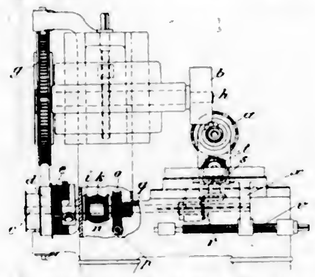
5. In a boiler-furnace, the combination of a combustion-chamber, a bridge-wall having its front face inclined in opposite directions from a central ridge and also inclined backwardly and upwardly from the plane of the grate, the blast-pipe embedded in the bridge-wall and having the jet-nozzles projecting through the inclined faces of said bridge-wall, and other blast-pipes arranged at the sides of the combustion-chamber and having nipples arranged to discharge the air-blast transversely across the combustion-chamber, substantially as described.

640,727. **ELEMENT FOR ELECTRIC BATTERIES.** FRANK R. WILEY, Malden, Mass., assignor, by direct and mesne assignments, to the Wiley Electric Company, of Maine. Filed May 13, 1898. Serial No. 680,554. (Specimens.)



Claim.—A conducting element for an electric battery, having separated integral front and rear grids, the intersections of the bars of one grid being opposite the apertures of the other grid, said element also having cross-bars connecting said grids, each cross-bar connecting one of the bars of one grid at points between its intersections, with transversely-arranged bars of the other grid, intermediate of their intersections, substantially as described.

640,728. **APPARATUS FOR CUTTING WORM-WHEELS.** ROBERT H. PFAUTER, Chemnitz, Germany, assignor to the Chemnitzer Strickmaschinen Fabrik, same place. Filed Aug. 10, 1899. Serial No. 726,770. (No model.)



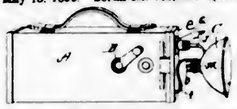
Claim.—1. In means for cutting the teeth of spiral worm-wheels, the combination with means for imparting rotary motion to the wheel-blank and cutter, of means for imparting a differential resultant motion between said blank and cutter in the direction of a helical line passing around the axis of the wheel-blank.

2. In means for cutting the teeth of spiral worm-wheels, the combination with means for imparting rotary motion to the wheel-blank and cutter, of means for accelerating the motion of one part relatively to that of the other and for producing a differential resultant motion between the two parts in the direction of a helical line passing around the axis of the wheel-blank.

3. In apparatus for cutting the teeth of spiral worm-wheels by means of worm-cutters, the combination with means for imparting rotary motion to the wheel-blank and cutter, of means for imparting a relative motion between the two parts in the direction of a helical line passing around the axis of the wheel-blank, said means comprising a screw-spindle acting upon the spiral cutter for obtaining an advance thereof toward the wheel-blank, and differential gearing operating the spindle to effect an accelerated rotation of the cutter, substantially as described.

4. In apparatus for cutting the teeth of spiral worm-wheels by means of spiral cutters, the combination of a shaft *e* imparting rotary motion to a shaft *h* carrying the wheel-blank *b*, a shaft *q* imparting rotary motion to the spiral cutter *a* and receiving a differential motion from shaft *e* through differential gear *i k n o p* and screw-spindle *v*, a slide carrying a revoluble table on which is mounted the spiral cutter, and receiving rectilinear motion from the screw-spindle *v*, and bevel gear *r s* transmitting the rotary motion of shaft *q* to the spiral cutter, the shaft of said bevel-gear *r s* constituting the axis around which the said revoluble table can turn, so as to drive the cutter in whatever angular position it may be adjusted by the turning of the table, substantially as described.

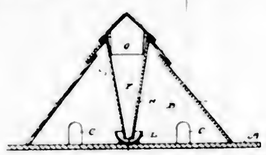
640,729. **ELECTRIC LAMP.** WILLIS A. FENNER, Providence R. I. Filed May 15, 1899. Serial No. 716,947. (No model.)



Claim.—1. The combination of an electric lamp, and the reflector, provided with the axial opening adapted to hold the lamp, with the insulating-collar secured to the reflector, the cap provided with the spring-arms for holding engagement with the insulator, and for making electric connection with the lamp, and the opposite electric connection made with the reflector, substantially as described.

2. The combination of an electric lamp, and the reflector, provided with the axial opening adapted to hold the lamp, with the insulating-collar secured to the reflector, the cap provided with the spring-arms for holding engagement with the insulator, and for making electric connection with the lamp, the ball-and-socket connection with the support for the lamp, and electric connection with the reflector, substantially as described.

640,730. **POULTRY-FEEDING DEVICE.** WALTER B. SMITH, Mount Vernon, Ky. Filed Nov. 10, 1898. Serial No. 696,018. (No model.)



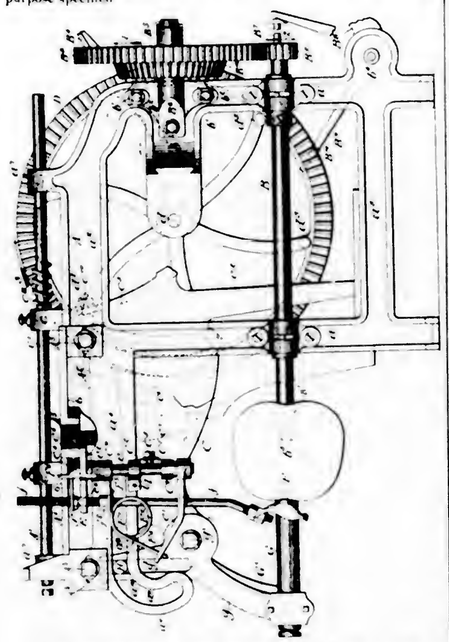
Claim.—A poultry-feeder, consisting of the base, triangular ends and slanting sides or tops rising therefrom and secured to the base to form a coop, said sides having a space between their upper edges, a trough mounted upon said base the full length thereof and directly beneath said space, a tapering bottomless feed-hopper removably placed in said space so that its lower edges enter the feed-trough, and a removable cover for said feed-hopper or for said coop when the feed-hopper is removed.

REISSUES.

11,798. **PARING AND CORING MACHINE.** WILLIAM H. BOUTELL, Rochester, N. Y. Filed Oct. 26, 1899. Serial No. 734,995. Original No. 590,205, dated Sept. 21, 1897.

Claim.—1. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, and a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with the cams for feeding the carriage in one direction, and means for moving the carriage in the opposite direction during the partial revolution of the projections or pins when disengaged from the cams, substantially as and for the purpose described.

2. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other and having engaging faces of different curvature, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with said cams arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, substantially as and for the purpose specified.



3. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other and having engaging faces of different curvature, means for adjusting the position of one of said cams, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with said cams, arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, substantially as and for the purpose set forth.

4. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, an additional cam secured to the carriage and extending beneath the former cams, a rotary wheel, an eccentrically-arranged projection or pin secured to the wheel for engaging the additional cam and one of said series of cams, and additional eccentrically-arranged projections or pins secured to said wheel for engaging the remaining cams fixed to the carriage, substantially as set forth.

5. In a paring-machine, the combination of a frame, a cutter, a carriage reciprocally movable upon the frame for actuating the cutter, a series of cams fixed to the carriage and arranged one in advance of the other, an additional cam secured to the carriage, a series of revoluble eccentrically-arranged projections or pins movable successively into and out of engagement with the cams arranged one in advance of the other for feeding the carriage in one direction, and an additional revoluble eccentrically-arranged projection or pin movable into and out of engagement with the additional cam secured to the carriage for moving the carriage in the opposite direction during the partial revolution of the former revoluble projections or pins when disengaged from the cams engaged thereby, and a spring for limiting the movement of the carriage in one direction, substantially as and for the purpose specified.

6. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the frame, and a paring-cutter supported by the rocking head, substantially as and for the purpose described.

7. In a paring-machine, the combination of a frame provided with a series of recesses and having an engaging face extending lengthwise in a plane substantially coincident with the extremities of said recesses, said engaging face being provided with an inwardly-extending cut-out alined with one of said recesses, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, an intermediate tooth or projection of the rocking head being elongated and engaged with said bearing-face and the walls of its cut-out, and a paring-cutter supported by the rocking head, substantially as and for the purpose set forth.

8. In a paring-machine, the combination of a frame, a bar adjustable lengthwise on the frame and provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, means for holding the bar in its adjusted position, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the bar, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the bar, and a paring-cutter supported by the rocking head, substantially as and for the purpose specified.

9. In a paring-machine, the combination of a frame, a carriage movable along the frame, a rocking head journaled in the carriage, and a paring-cutter supported by the head and rocking laterally independently of the head, and means substantially as described, for intermittently preventing the cutter from rocking laterally independently of the head, substantially as and for the purpose described.

10. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face, a carriage movable along the frame, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being movable into and out of engagement with said face, a paring-cutter supported by the head and rocking laterally independently of the head, the cutter being provided with a shank having a shoulder as F^6 for engaging said bearing-face, substantially as and for the purpose set forth.

11. In a paring-machine, the combination of a frame provided with a series of recesses and a bearing-face arranged out of alinement with the recesses, a carriage movable along the frame and provided with a laterally-extending adjustable arm, means for securing the arm in its adjusted position, a rocking head journaled in the carriage and provided with teeth or projections for entering the recesses of the frame, one of the teeth or projections of the rocking head being elongated and movable into engagement with the bearing-face of the frame, and a paring-cutter supported by the rocking head, substantially as specified.

12. The combination with a frame having an engaging face, a carriage movable along the frame and provided with a pivoted support having a corer at one extremity and an engaging face extending toward the first-mentioned engaging face, and a latch secured to the carriage for engaging said faces and holding the corer in operative position, substantially as described.

13. The combination with a frame having an engaging face, a carriage movable along the frame and provided with a pivoted support having a corer at one extremity and opposite engaging faces extending toward the first-mentioned engaging face, a clamp for adjusting the opposite engaging faces, and a latch secured to the carriage for engaging said faces and holding the corer in operative position, substantially as specified.

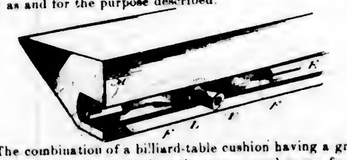
14. The combination with a frame provided with an engaging face having a laterally-deflected portion, a carriage movable along the frame and provided with a pivoted support having a corer at one extremity and an engaging face extending toward the first-mentioned engaging face, and a movable latch having a shoulder engaged with the faces of the frame and carriage and movable along the deflected portion of the first-mentioned engaging face, substantially as described.

11,799. **BILLIARD-CUSHION.** GOTTLIEB KERN, Omaha, Nebr., assignor, by direct and mesne assignments, to Robert Washington Moffett, Chicago, Ill. Filed Mar. 18, 1899. Serial No. 709,682. Original No. 618,574, dated Jan. 31, 1899.

Claim.—1. A billiard-table cushion having a ball-engaging covering that is continuous around it, is shiftable to present different portions for wear at different times, and has means for holding said covering at the place to which it may be shifted, the edge-engaging portion of the cover from end to end being shiftable, whereby different portions of the cover may be placed over the edge of the cushion at different times, substantially as and for the purpose described.

2. The combination of a billiard-table cushion, a covering that surrounds it and is shiftable around it, and means for stretching and

holding said covering, the edge-engaging portion of the cover from end to end being shittable, whereby different portions of the cover may be placed over the edge of the cushion at different times, substantially as and for the purpose described.



3. The combination of a billiard-table cushion having a groove, a covering extending partially into the groove, and means for placing the portion in the groove under tension, substantially as and for the purpose specified.

4. The combination of a billiard-table cushion, having a groove, a covering extending entirely around said cushion, and means for applying pressure to the portion of the covering crossing the groove, substantially as and for the purpose described.

5. The combination of a billiard-table cushion, having a longitudinal groove, but with a portion not reaching the inner wall of the groove, a covering extending in said groove, a bar engaging the portion of the covering in the groove, and means for applying pressure to and maintaining it upon said bar, substantially as and for the purpose described.

6. The combination of a billiard-table cushion, having a longitudinal groove, a covering extending in said groove, a bar engaging the portion of the covering in the groove, a spring engaging said bar, a turn-button to receive the thrust of the spring, and parts on the cushion on opposite sides of the groove, to cooperate with the turn-button, substantially as and for the purpose described.

7. The combination of a billiard-table cushion having a longitudinal groove, a covering extending in said groove, rods projecting over said groove, a bar bearing against the cover in the groove, a spring to hold the bar against said cover, and a locking device to receive the thrust of the spring, that engages said rods, substantially as and for the purpose described.

8. In a billiard-table, the combination of the rail, the cushion having a longitudinal groove at the side next the rail, rods projecting over said groove, a cover around the cushion, a bar bearing against the cover in the groove, a block means for securing it to the rail, a spring secured to the block and engaging the bar, and a turn-button connected to the block, and cooperating with said rods, substantially as and for the purpose described.

DESIGNS.

32,055. BANNER. ALBERT J. BORK, Buffalo, N. Y., assignor of one-half to Charles Hull, same place. Filed Nov. 13, 1899. Serial No. 736,879. Term of patent 3½ years.



Claim.—The design for a banner as herein shown and described

32,056. EYEGLASS-GUARD. FERDINAND KREUTER, New York, N. Y. Filed Sept. 15, 1899. Serial No. 730,639. Term of patent 14 years.



Claim.—The design for an eyeglass-guard, as herein showo and described.

32,057. RAZOR-BLADE. ALBRECHT GRAEF, New York, N.Y. Filed Dec. 6, 1899. Serial No. 739,445. Term of patent 7 years.



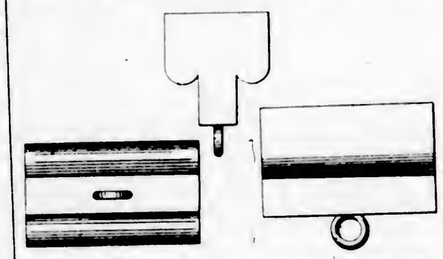
Claim.—The design for a razor-blade, as herein set forth.

32,058. TEAPOT. AUSTIN F. JACKSON, Taunton, Mass. Filed Dec. 5, 1898. Serial No. 698,377. Term of patent 14 years.



Claim.—The design for a teapot, as herein shown and described.

32,059. CURTAIN-CARRIER BLOCK. WILLIAM L. ISBILLA, Bayonne, N. J. Filed Nov. 22, 1899. Serial No. 737,959. Term of patent 14 years.



Claim.—The design for a curtain-carrier block, as herein shown and described.

32,060. GAS-COCK. ANDREW J. WIEGAND, Baltimore, Md. Filed Nov. 18, 1899. Serial No. 737,526. Term of patent 14 years.



Claim.—The design for a gas-cock, as herein shown and described.

32,061. CHECK-HOOK. CHARLES M. JOHNSON, Paris, Me. Filed Dec. 1, 1899. Serial No. 738,930. Term of patent 7 years.



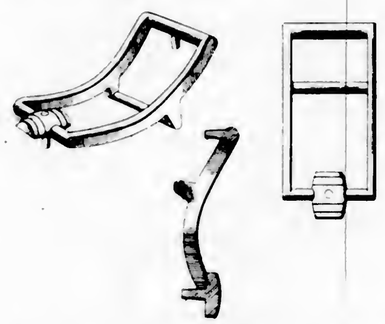
Claim.—The design for a check-hook, substantially as herein shown and described.

32,062. TUG-FASTENER. DONALD MCKINNON, Crookston, Minn. Filed Dec. 7, 1899. Serial No. 739,580. Term of patent 14 years.



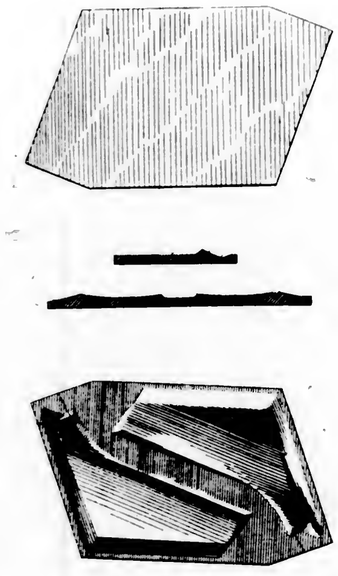
Claim.—The design for a tug-fastener, substantially as herein shown and described.

32,063. CLASP FOR THILL-TUGS. SHERMAN SHIMER, Salem, Ohio. Filed Dec. 6, 1899. Serial No. 739,444. Term of patent 14 years.



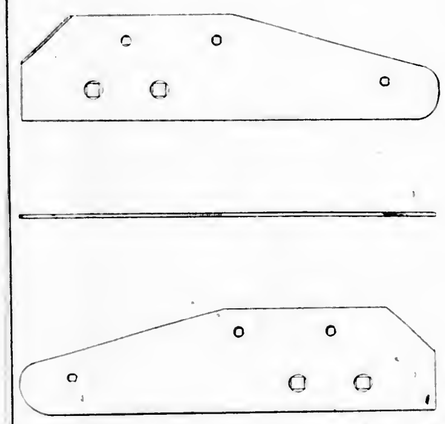
Claim.—The design for a clasp for thill-tugs, as herein shown and described

32,064. MOLDING-BED. CHARLES LA DOW, Albany, N. Y. Filed Nov. 15, 1899. Serial No. 737,143. Term of patent 14 years.



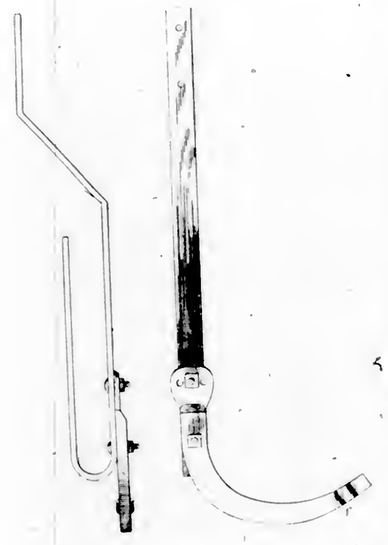
Claim.—The design for a molding-bed substantially as shown and described.

32,065. LANDSIDE. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,053. Term of patent 14 years.



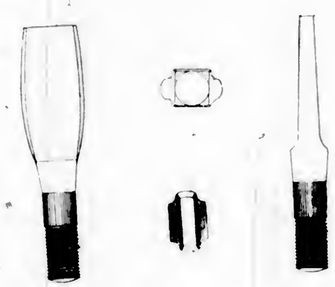
Claim.—The design for a landside herein shown and described.

32,066. TOOTH ATTACHMENT FOR CULTIVATORS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,055. Term of patent 14 years.



Claim.—The design for a tooth attachment for cultivators as herein shown and described.

32,067. THRESHING-CYLINDER TOOTH. EDWARD HUBER, Marion, Ohio. Filed Dec. 4, 1899. Serial No. 739,205. Term of patent 14 years.



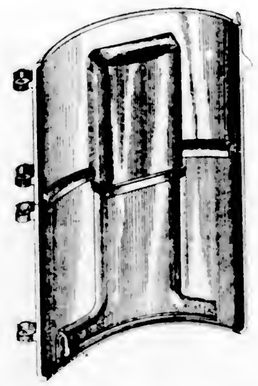
Claim.—The design for a threshing-cylinder tooth, as herein shown and described.

32,068. FENCE-STAY. P FRANK CLARKIS, Pontiac, Mich. Filed Nov. 27, 1899. Serial No. 738,434. Term of patent 7 years.



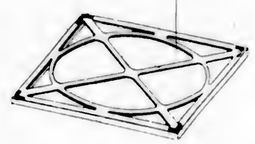
Claim.—The design for a fence-stay substantially as herein shown and described.

32,069. DOOR. ANTON OHNEMUS, Quincy, Ill., assignor to the Excelsior Stove and Manufacturing Company, same place. Filed Oct. 26, 1899. Serial No. 734,890. Term of patent 7 years.



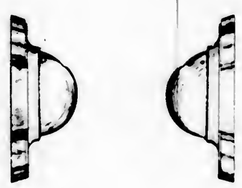
Claim.—The design for a door; substantially as herein shown and described.

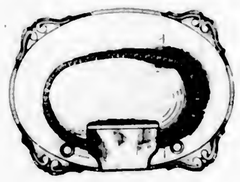
32,070. BASE-PLATE FOR SCALES. ORANGE O. OHIAS, Dryton, Ohio. Filed Dec. 4, 1899. Serial No. 739,200. Term of patent 14 years.



Claim.—The design for a base-plate for a scale, substantially as shown and described.

32,071. HANDLE-LUG. DENNIS LEONARD, Cleveland, Ohio. Filed Dec. 8, 1899. Serial No. 739,715. Term of patent 7 years.





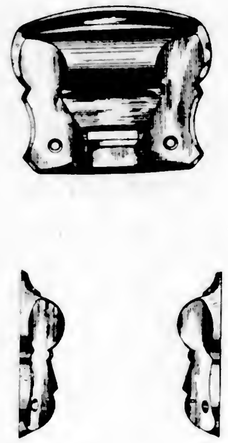
Claim.—The design for a handle-lug, substantially as shown and described.

32,071.



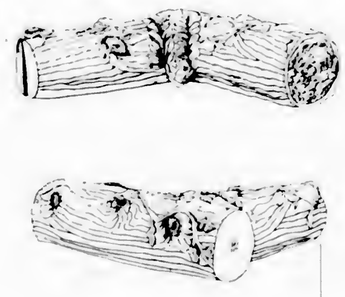
Claim.—The design for a handle-lug, substantially as shown and described.

32,072. HANDLE-LUG. DENNIS LEONARD, Cleveland, Ohio. Filed Dec. 8, 1899. Serial No. 739,716. Term of patent 7 years.



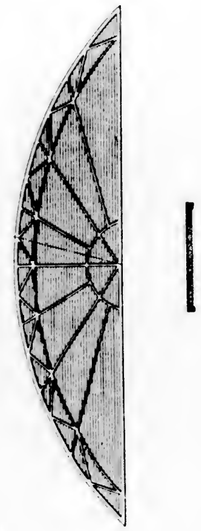
Claim.—The design for a handle-lug, substantially as shown and described.

32,073. CORNER-STONE FOR BURYING-LOTS. EMERY C. HOPKINS, Farmer City, Ill. Filed Nov. 14, 1899. Serial No. 736,994. Term of patent 14 years.



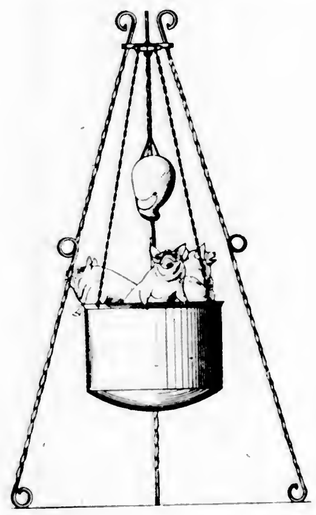
Claim.—The design for a corner-stone for a burying-lot, as herein shown and described.

32,074. PRISM-WINDOW. GEORGE K. CUMMINGS, New York, N. Y. Filed Aug. 15, 1898. Serial No. 688,631. Term of patent 7 years.



Claim.—The design for a prism-window as herein shown and described.

32,075. DISPLAY-STAND. MORRIS STRAUSS, Omaha, Nebr., assignor to the Cudahy Packing Company, South Omaha, Nebr. Filed Dec. 1, 1899. Serial No. 738,928. Term of patent 7 years.



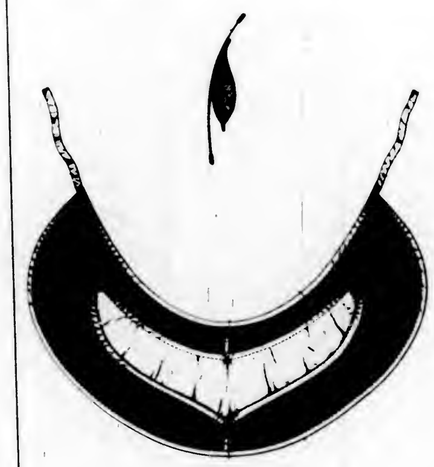
Claim.—The design for a display-stand essentially as herein shown and described.

32,076. WALL-PAPER. HARRY WEARNE, Rixheim, Germany. Filed Dec. 7, 1899. Serial No. 739,582. Term of patent 7 years.



Claim.—The design for wall-paper as herein shown and described.

32,077. BUSTLE AND HIP-FORM. FRANCIS B. GRANGER, New York, N. Y., assignor to R. Ross Appleton, same place. Filed Nov. 10, 1899. Serial No. 736,546. Term of patent 7 years.



Claim.—The design for a bustle and hip-form, as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 2, 1900.

33,957. CERTAIN NAMED ARTICLES OF JEWELRY. W. & S. BLACKSTON, Providence, R. I. and New York, N. Y. Filed Dec. 30, 1898.



Essential feature.—An obtuse crenated circle or figure having its outline composed of connected arcs. Used since June 1, 1897.

33,958. CERTAIN NAMED MUSICAL INSTRUMENTS. D. GOTTDIENER & WICHT, Cleveland, Ohio. Filed Nov. 4, 1899.



Essential feature.—The representation of a scroll with a musical staff thereon and notes and symbols on said staff. Used since July 1, 1899.

33,959. UNDERWEAR AND HOSIERY. CARTWRIGHT & WARNERS, LIMITED, Loughborough and London, England, and New York, N. Y. Filed Dec. 8, 1899.

Monodye

Essential feature.—The word "MONODYE." Used since January 14, 1899.

33,960. UNDERWEAR AND HOSIERY. CARTWRIGHT & WARNERS, LIMITED, Loughborough and London, England, and New York, N. Y. Filed Dec. 8, 1899.

Essential feature.—The representation of a squirrel. Used since August 5, 1881.

33,961. CIGARS AND STOGIES. THE GEO. E. SPRAGUE CIGAR COMPANY, Columbus, Ohio. Filed Dec. 6, 1899.

Fan Tails

Essential feature.—The words "FAN TAILS." Used since August, 1898.

33,962. BOTTLED BEER, PORTER, AND MALT EXTRACT. INDIANAPOLIS BREWING COMPANY, Indianapolis, Ind. Filed Dec. 7, 1899.



Essential feature.—A fantastically-shaped figure, the outline of the lower portion describing approximately two-thirds of a circle and that of the upper portion being wing-like, in connection with the representation of a sunburst, the partially-draped female figure resting upon a wheel upon a sphere containing a shadow-map of North America. Used since December 1, 1898.

33,963. BASS'S PALE ALE. LOUIS H. SMITH, Philadelphia, Pa. Filed Nov. 18, 1899.

LOBSTER



Essential feature.—The word "LOBSTER" and the representation of a red lobster. Used since January 1, 1893.

33,964. COFFEE, EXCEPTING CONDENSED COFFEE. THE AMERICAN COFFEE COMPANY, New York, N. Y. Filed Nov. 25, 1899.

EAGLE

Essential feature.—The word "EAGLE." Used since September 1, 1898.

33,965. COFFEE, EXCEPTING CONDENSED COFFEE. THE AMERICAN COFFEE COMPANY, New York, N. Y. Filed Nov. 25, 1899.



Essential feature.—The representation of an eagle. Used since September 1, 1898.

33,966. COFFEE. HAWORTH & DEWHURST, LIMITED, Pittsburg, Pa. Filed Dec. 1, 1899.

SATISFACTION.

Essential feature.—The word "SATISFACTION." Used since January 13, 1899.

33,967. CERTAIN NAMED COOKED FOODS. HAWORTH & DEWHURST, LIMITED, Pittsburg, Pa. Filed Dec. 1, 1899.

SATISFACTION

Essential feature.—The word "SATISFACTION." Used since July 24, 1899.

33,968. SYRUPS AND MOLASSES. HAWORTH & DEWHURST, LIMITED, Pittsburg, Pa. Filed Dec. 1, 1899.

SATISFACTION

Essential feature.—The word "SATISFACTION." Used since July 5, 1899.

33,969. OAT-FLAKES, ROLLED WHEAT, AND RICE. HAWORTH & DEWHURST, LIMITED, Pittsburg, Pa. Filed Dec. 1, 1899.

SATISFACTION.

Essential feature.—The word "SATISFACTION." Used since May 24, 1899.

33,970. CERTAIN NAMED FOOD COMPOUND. CARL F. BEACH, Battle Creek, Mich. Filed Nov. 29, 1899.

CORNO

Essential feature.—The word "CORNO." Used since July 1, 1894.

33,971. INGREDIENT IN FOOD. JOHN SIMON BERGHEIM, London, England. Filed Nov. 6, 1899.

PLASMON

Essential feature.—The word "PLASMON." Used since July, 1899.

33,972. CERTAIN NAMED FOOD PREPARATIONS. JOHN HARVEY KELLOGG, Battle Creek, Mich. Filed May 9, 1899.

Essential feature.—The word "SANITAS." Used since August, 1897.

33,973. CERTAIN NAMED BAKERY PRODUCTS AND CONFECTIONERY. NATIONAL BISCUIT COMPANY, Jersey City, N. J., and Chicago, Ill. Filed Nov. 29, 1899.

RAMONA

Essential feature.—The word "RAMONA." Used since March 1, 1898.

33,974. CERTAIN NAMED BAKERY PRODUCTS AND CONFECTIONERY. NATIONAL BISCUIT COMPANY, Jersey City, N. J., and Chicago, Ill. Filed Nov. 29, 1899.

AUTOCRAT

Essential feature.—The word "AUTOCRAT." Used since June 15, 1897.

33,975. CANNED GOODS. WIGHT & WESLOSKY COMPANY, Albany, Ga. Filed Nov. 28, 1899.

DOVE

Essential feature.—The word "DOVE." Used since November 15, 1899.

33,976. LAUNDRY STARCH. MOSELEY, HORNE COMPANY. Keokuk, Iowa. Filed Nov. 24, 1899.

IXL



Essential feature.—The letters "IXL" and the representation of a washing-machine. Used since November 1, 1899.

33,977. CERTAIN NAMED LAUNDRY SUPPLIES. HELLER, BLAU & JAY, Newark, N. J. Filed Oct. 26, 1899.



Essential feature.—The representation of the witch of Endor. Used since October 2, 1899.

33,978. CERTAIN NAMED ANTISEPTIC TOILET PREPARATIONS. FREDERICK W. SCHOONMAKER, New York, N. Y. Filed Nov. 16, 1899.

MYRTOLENE

Essential feature.—The word "MYRTOLENE." Used since September 15, 1899.

33,979. CERTAIN NAMED TOILET ARTICLES AND PREPARATIONS. BENNO JAFFÉ & DARMSTAEDTER, Martinikenfelde, near Berlin, Germany. Filed Aug. 29, 1899.

Dartring

Essential feature.—The word "DARTRING." Used since August 14, 1899.

33,980. CERTAIN NAMED TOILET PREPARATIONS. E. WERTHEIMER & CIE, Paris, France. Filed Oct. 10, 1899.

THE BELLE OF NEW-YORK

Essential feature.—The words "THE BELLE OF NEW YORK." Used since July 1, 1899.

33,981. CERTAIN NAMED MEDICINES FOR THE HAIR. EDWARD J. LIEBSTUT, Buffalo, N. Y. Filed Feb. 23, 1899.

ALPINE

Essential feature.—The word "ALPINE." Used since January 1, 1879.

33,982. HAIR-TONICS. GUSTAVE GOLDMANN, Allegheny, Pa. Filed Dec. 7, 1899.

VIGORINE

Essential feature.—The word "VIGORINE." Used since March 1, 1894.

33,983. HAIR-TONICS. ALONZO FRANK RICHARDSON, New York, N. Y. Filed Nov. 27, 1899.



Essential feature.—The word "BAYTONE" and the representation of a swan. Used since March 1, 1898.

33,984. HAIR-DYE. J. F. SCHWARZLOSE SÖHNE, Berlin, Germany. Filed Aug. 10, 1899.

AURÉOL

Essential feature.—The word "AURÉOL." Used since the middle of 1896.

33,985. NURSING-NIPPLES. MEINECKE & COMPANY, New York, N. Y. Filed Nov. 16, 1899.



Essential feature.—A spherical figure inclosing three dots, which indicate the figure of a triangle. Used since August 28, 1896.

33,986. CONFECTIONS. WOODMAN, DAVIS & CO., Boston, Mass. Filed Dec. 1, 1899.

Lilascent

Essential feature.—The word "LILASCENT." Used since May 13, 1898.

33,987. ANTISEPTIC, PROPHYLACTIC, DISINFECTANT, AND PARASITICIDE. SYLVESTER LOUIS NIDELET, St. Louis, Mo. Filed Oct. 5, 1899.

STERILINE.

Essential feature.—The word "STERILINE." Used since August 15, 1899.

33,988. MEDICINES FOR CERTAIN NAMED DISEASES. GRAPE CAPSULE COMPANY, Allentown, Pa. Filed Dec. 8, 1899.

EUCOL

Essential feature.—The word "EUCOL." Used since November 8, 1899.

33,989. MEDICINAL PREPARATION FOR CERTAIN NAMED DISEASES. LUDWIG WOLF, New York, N. Y. Filed Nov. 18, 1899.



MANNALYS

Essential feature.—The word "MANNALYS" and the representation of a flying bird with an olive branch in its beak within a circle. Used since February, 1897.

33,990. MEDICINES FOR CERTAIN NAMED DISEASES. SHERIN & BAKER, New York, N. Y. Filed Nov. 2, 1899.



Essential feature.—The representation of a sunflower. Used since August 1, 1899.

33,991. CERTAIN REMEDIAL PREPARATIONS. ARMOUR PACKING COMPANY, Jersey City, N. J., and Kansas City, Kans. Filed Dec. 11, 1899.

DISSENFOOD

Essential feature.—The word "DISSENFOOD." Used since August 30, 1899.

33,992. REMEDY FOR CERTAIN NAMED DISEASES. O. J. & J. A. BRYAN, Rochester, N. Y. Filed Nov. 18, 1899.



Essential feature.—The representation of a glass from which arises a female figure. Used since June 1, 1895.

33,993. REMEDIES FOR CERTAIN NAMED DISEASES. GEORGE W. HILTON, Lowell, Mass. Filed July 17, 1899.

Vita-Sava.

Essential feature.—The compound word "VITA-SAVA." Used since July 3, 1899.

33,994. REMEDIES FOR A CERTAIN NAMED DISEASE. THE LANOID CO., Delaware, Ohio. Filed Sept. 18, 1899.

LANOID



Essential feature.—The word "LANOID" and the representation of a little girl and a lamb. Used since July 1, 1899.

33,995. REMEDIES FOR CERTAIN NAMED PURPOSES. FRANK EMERSON, Lawrence, Mass. Filed Dec. 11, 1899.

RESPIRO

Essential feature.—The word "RESPIRO." Used since the spring of 1896.

33,996. DIGESTIVE TABLETS. BELL & COMPANY, New York, N. Y. Filed Dec. 1, 1899.

PAPAYANS.

Essential feature.—The word "PAPAYANS." Used since May, 1898.

33,997. LIQUID NERVE TONIC. BORRICKE & RUNYON Co., New York, N. Y.; San Francisco, Oakland, and Los Angeles, Cal.; Portland, Oreg., and Philadelphia, Pa. Filed Nov. 1, 1899.

C. C. C.

Essential feature.—The letters "C. C. C." Used since prior to January 1, 1893.

33,998. BLOOD-PURIFIER OR TONIC. CHURCHILL DRUG COMPANY, Burlington, Iowa. Filed Oct. 5, 1899.

With Parilla

Essential feature.—The compound word "WAH-PARILLA." Used since May, 1893.

33,999. SALVE FOR CERTAIN NAMED DISEASES. JOHN J. BUSWELL, Philadelphia, Pa. Filed Nov. 21, 1899.

UNEEDSUM

Essential feature.—The word "UNEEDSUM." Used since October 10, 1899.

34,000. ADHESIVE COMPOSITIONS. AMERICAN CURLED HAIR COMPANY, Central Falls, R. I. Filed Nov. 29, 1899.

GLULOID

Essential feature.—The word "GLULOID." Used since March 1, 1899.

34,001. CERTAIN PYROXYLIN COMPOUNDS AND SUBSTANCES COATED WITH SAME. THE CELLULOID COMPANY, Newark, N. J., and New York, N. Y. Filed Nov. 27, 1899.

TEXODERM

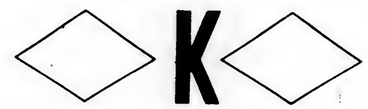
Essential feature.—The word "TEXODERM." Used since March 1, 1898.

34,002. CEMENT. BALFOUR, GUTHRIE & Co., Portland, Oreg. Filed Apr. 11, 1899.

CATHEDRAL

Essential feature.—The word "CATHEDRAL." Used since September 1, 1899.

34,003. GAS BURNERS, GLOBES, AND MANTLES. KERN INCANDESCENT GAS LIGHT COMPANY, New York, N. Y. Filed Nov. 16, 1899.



Essential feature.—The letter "K" and the representation of two diamonds. Used since September 28, 1899.

34,004. CERTAIN NAMED ARTICLES USED FOR ILLUMINATING PURPOSES. THE WELSBACH INCANDESCENT GAS LIGHT COMPANY, LIMITED, London, England. Filed Oct. 24, 1899.

AUR

Essential feature.—The word "AUR." Used since January 17, 1899.

34,005. CHINA-CLAY AND CHINA-STONE. ANTOINE CHARLES ANNA LECHENICH, Fowey and Lostwithiel, England. Filed Dec. 8, 1899.



Essential feature.—The representation of an eagle with spread wings having twigs in its talons. Used since June 9, 1899.

34,006. CERTAIN NAMED FIRE-BRICKS. STEPHEN D. HORTON, Peekskill, N. Y. Filed Nov. 6, 1899.



Essential feature.—A crescent in outline having its curves united by two radii, which with the curves inclose a solid triangle. Used since August 1, 1899.

34,007. COMPOUNDS OF ASBESTOS AND SILICA FOR USE IN BUILDING AND DECORATION. BRITISH URALITE COMPANY, LIMITED, London, England. Filed Dec. 4, 1899.

URALITE

Essential feature.—The word "URALITE." Used since June 28, 1899.

34,008. COMPOUNDS OF ASBESTOS AND SILICA FOR USE IN BUILDING AND DECORATION. BRITISH URALITE COMPANY, LIMITED, London, England. Filed Dec. 4, 1899.

IMSCHEN

Essential feature.—The word "IMSCHEN." Used since July 1, 1899.

34,009. METAL CASTINGS. ARTHUR O. FOX, Madison, Wis. Filed Dec. 4, 1899.



Essential feature.—The pictorial representation of Hercules supporting the world. Used since September 11, 1899.

34,010. BOTTLES. W. H. HAMILTON COMPANY, Pittsburg, Pa. Filed Dec. 8, 1899.

OUR DARLING

Essential feature.—The words "OUR DARLING." Used since November 1, 1899.

34,011. SKATES AND HOCKEY-STICKS. THE STARR MANUFACTURING COMPANY, LIMITED, Dartmouth, Canada. Filed Dec. 8, 1899.

Mic-Mac

Essential feature.—The compound word "MIC-MAC." Used since February, 1899.

34,012. CERTAIN NAMED BICYCLE SUNDRIES. POPE MANUFACTURING COMPANY, Portland, Me., and Hartford, Conn. Filed Feb. 11, 1898.

CAPITOL

Essential feature.—The word "CAPITOL." Used since the month of January, 1898.

34,013. AUTOMATICALLY-PROPELLED WHEELED VEHICLES. THE "LOCOMOBILE" COMPANY OF AMERICA, Wheeling, W. Va., and New York, N. Y. Filed Dec. 7, 1899.

Loco

Essential feature.—The word "LOCO." Used since September 1, 1899.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

CHRISTENSEN *v.* NOYES.

Decided June 6, 1899.

1. INTERFERENCE—PRIORITY—FORFEITED APPLICATION—CONSTRUCTIVE REDUCTION TO PRACTICE.

As between an applicant resting on a mere constructive reduction to practice, especially where his application is a renewal of a forfeited application, and a party who is really the first inventor and to whom a patent has been issued for the invention, *Held* that priority must be found for the patentee.

2. SAME—SAME.

Held, further, that the mere constructive reduction to practice cannot be set up to defeat an existing patent granted to the first inventor. A patent stands for something more than a mere written description of an invention, and against a pending application for the same invention resting upon no better foundation than a constructive reduction to practice the patent must prevail.

3. SAME—REDUCTION TO PRACTICE—DESCRIPTION AND DRAWINGS.

The description and drawings filed in the Patent Office as part of an application, as against an existing patent issued to the first inventor, cannot be accepted as an actual reduction to practice.

4. SAME—SAME—DEFEATING PRIOR PATENT.

If such written description, illustrated by drawings, will not be allowed to defeat or affect a subsequent patent issued to an independent inventor, *a fortiori* will not such description and illustrative drawings be allowed to defeat or affect a patent granted to the first or prior inventor after the forfeiture of an application first filed, but on a subsequent conception of the invention.

5. SAME—SAME—FORFEITED APPLICATION.

Generally in the case of a forfeited application and the filing of a second or renewed application within two years, the inventor may, under proper circumstances, become entitled to the original or forfeited application as a constructive reduction to practice.

6. SAME—FOREIGN APPLICATION.

An application that has been allowed to lapse or become forfeited and before it is renewed, ceases to have vital or operative effect, except for a very limited and special purpose.

7. SAME—PRIORITY—DILIGENCE IN REDUCING TO PRACTICE.

The proofs show that after Christensen's conception of the device, May, 1894, he disclosed it to others in the latter part of that year; that he tried to obtain money to enable him to apply for patent in December, 1894; that he sought to interest a party in the invention in the spring of 1895; that in June, 1895, he made another attempt to file an application; that in September, 1895, an oral agreement was made in regard to the matter; that in December, 1895, working drawings were made and that from that time on to the time he filed his application he was working on the invention; that patterns were finished in 1896 and the device tested in March, 1896, and that he applied for a patent in April, 1896. *Held* that it is difficult to conceive that greater perseverance and diligence could be in reason required, especially of one who for the greater part of the time was in a state of almost abject poverty and who was under the necessity of pursuing constant employment to procure the means of subsistence for himself and family.

8. SAME—SAME—DILIGENCE IN APPLYING FOR PATENT.

It is a settled principle in practice as well as in reason that forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value by practical experiment affords no ground for presumption of abandonment, nor should such delay operate in any way to the prejudice of the inventor or to his right to obtain a patent for his invention, certainly not as against a subsequent or junior inventor.

9. SAME—SAME.

Noyes filed his application on May 13, 1895, which was allowed November 26, 1895, and became forfeited on May 26, 1896, by failure to pay the final fee. On April 30, 1896, Christensen filed his application, upon which a patent issued April 20, 1897. Noyes filed a renewal of his application on June 28, 1897, after the patent had issued to Christensen. Christensen proved that he was the first to conceive the invention. Noyes did not reduce to practice in any form prior to the filing of his application. *Held* that priority of invention should be awarded to Christensen. (C. D., 65 MS. Dec., 472, reversed.)

Messrs. Dodge & Sons for the appellant.

Mr. J. Snowden Bell for the appellee.

ALVEY, *J.*:

This appeal is from the Patent Office, and the subject of it is an interference declared between an application for a patent by Henry F. Noyes, the appellee, and a patent issued to the appellant, Christensen, for an improvement in triple valves of an automatic air-brake. The improvement relates to what is known as an "emergency" device, to be used where instead of the gradual stop of the railroad-train, as in the ordinary operation of the road, it is desirable to make a sudden and immediate application of the brakes to all the cars of the train simultaneously, or as nearly so as possible, to avert an impending accident.

The improved state of the art of construction of automatic air-brakes, in connection with which the present invention is intended to operate as a further and additional improvement, is described in two patents, Nos. 360,070 and 376,837, respectively, issued to George Westinghouse, Jr. The mechanical construction of the devices described in and covered by those two patents is familiar to all inventors of railroad appliances and to all railroad operatives, and therefore it is unnecessary to describe them here. They are in general use everywhere on lines of railroad of any considerable extent in this country, to say nothing of railroads of other countries.

The subject of the present interference is a device employing two pistons or movable valves, both contained in the same casing and acting in conjunction when an emergency stop is to be made. The emergency-piston is a cylindrical valve which when moved by reservoir-pressure opens passages

through which air, both from the reservoir and the train-pipe, passes into the brake-cylinder. The service or main valve is inclosed in the emergency-valve and by a slight reduction of pressure moves so as to open passages, through which the air from the reservoir alone passes into the brake-cylinder.

There is really no conflict of evidence in regard to any material fact of the case, and the only question is who is entitled to priority on the facts as they are virtually conceded by the parties to the issue.

The parties to the interference, Noyes, represented by his assignee, The Westinghouse Air Brake Company, and Christensen, appear to be independent inventors; but there is no real question of the fact that Christensen was the first inventor, and the question is, therefore, not who was the first to conceive or invent the device of the issue, but what is the effect of a patent granted to the first inventor as against a prior applicant whose application after allowance in the Patent Office became forfeited for non-payment of the final fee, but subsequently renewed after the patent issued to the first original inventor. It is a settled principle in the patent law that the date of an invention is the date of the discovery or clear and definite conception of the idea involved and the attempt to embody it in some external form or shape, and not the date of the perfecting of the instrument by experimental tests. (*Colt* v. *Mass. Arms Co.*, 1 Fisher Pat. Cas., 108; *National Oil Co.* v. *Arctic Oil Co.*, 8 Blatchf., 416.)

The appellee, Noyes, filed his application in the Patent Office on May 13, 1895, and the same was allowed November 26, 1895. On April 30, 1896, Christensen filed his application, upon which a patent was issued on April 20, 1897. Though the application of Noyes was allowed before the application of Christensen was filed, the former allowed his application to lapse or become forfeited because of the non-payment of the final fee, as required by the statute, and did not file a renewed application until June 28, 1897, after the patent had issued to Christensen on the latter's application.

With the renewed application of Noyes was filed the following petition of his assignee, The Westinghouse Air Brake Company:

To the Commissioner of Patents:

Your petitioner, The Westinghouse Air Brake Company, a corporation organized under the laws of the State of Pennsylvania, and having its principal office at Pittsburg, in that State, represents that on May 13, 1895, Henry F. Noyes filed an application for Letters Patent for an improvement in triple valves for air-brakes, Serial No. 549,167, which application was allowed November 26, 1895, but he failed to make payment of the final fee within the time allowed by law. The undersigned, The Westinghouse Air Brake Company, assignee of the entire interest in the above-mentioned application for Letters Patent, now makes renewed application for Letters Patent for said invention, and prays that the original specification, oath, and drawings may be used as a part of this application.

This application was duly signed by the Company.

Upon the filing of the application for renewal the interference with the previously-issued patent to Christensen was declared by the Office July 21, 1897, in three counts, as follows:

1. In a triple-valve device, the combination of a casing, an emergency-valve operating therein and adapted to admit pressure from a train-pipe directly to a brake-cylinder, an emergency-piston, dependent upon the presence of, and directly connected with, a main piston, and adapted to operate such emergency-valve unassisted in any way by travel of the main piston, substantially as described.

2. In a triple-valve device, the combination of a casing, divided by movable partitions into three chambers, one of such chambers exposed to auxiliary-reservoir pressure and the other two chambers exposed to train-pipe pressure, one of said partitions composed of a cylindrical piston having a main piston working within it, said cylindrical piston being firmly connected with the other partition, and being operated by the difference of pressure due to the difference of the area between it and said partition connected with it, said main piston operating for service applications, and said cylindrical piston for emergency applications, substantially as described.

3. In a triple-valve device, the combination of a casing, a main piston and an emergency-piston, working within such casing, one of said pistons adapted to form a cylindrical shell within which the other works; the emergency-piston adapted to operate an emergency-valve to effect the direct admission of pressure from a train-pipe to a brake-cylinder, the main piston adapted to operate a main valve to admit pressure from an auxiliary reservoir to a brake-cylinder, the travel of said main piston in the direction necessary to apply the brakes adapted to have no effect upon the operation of said emergency-piston, substantially as described.

Of these issues count 1 is stated by the Office to be claim 1 and to cover claims 2, 3, 4, and 5 of the application of Noyes, filed May 13, 1895, and claim 2 of the patent of Christensen, issued April 20, 1897; that count 2 is stated to be claim 6 and to cover claim 7 of the Noyes application and claim 2 of the patent issued to Christensen, and that count 3 is stated to be claim 10 and to cover claim 11 of the Noyes application and claim 2 of the Christensen patent.

In the preliminary statement of Christensen he alleges—

that he conceived the invention contained in the claims of his patent declared to be involved in this interference, including claim No. 2, on or about May 17, 1894; that at or about that time, and repeatedly afterward, he made sketches and drawings illustrating the subject-matter of his invention; that he described his invention to others between July 13, and August 3, 1895, and at various times thereafter. That he made, or caused to be made, a working drawing of his said invention embodied in claim 2 of his patent, which drawing was completed December 8, 1895; that afterward he made or caused to be made, other working drawings which were completed on or about February 15, 1896; that from the latter drawings patterns were made and completed February 26, 1896; that from said patterns castings were made and completed on or about March 2, 1896; that a full-sized operative valve, embodying said invention as described in his claim No. 2, was set up and successfully tested under full air-pressure in the shop of the Seamless Structural Co. at Milwaukee, Wis., on or about March 15, 1896; and that a number of other triple valves embodying the subject-matter of said claim 2 have been made and tested by him or under his direction.

Noyes in his preliminary statement says that he originally conceived the invention set forth in the declaration of interference on or about April 15, 1895; that a drawing of the invention was made on or about April 20, 1895, and another and full-size-scale drawing on or about May 2, 1895, but that no model had been made; that the invention was first disclosed to others on or about April 22, 1895, and that no reduction to practice was made other than the constructive reduction to practice by the filing of his application for Letters Patent on May 13, 1895.

That the full and complete embodiment of the invention is described in the patent to Christensen and in the application of Noyes, respectively, and formulated in the issues of interference is conceded by both parties, and while testimony was taken on the part of both of the parties to the interference there is really no considerable conflict or controversy in regard to the facts of the case. The Examiner of Interferences concluded, however, that Noyes had priority of right, though the last to conceive the invention in issue, because he was the first to come to the Office with a completed application.

He also concluded that Christensen, though the first to conceive the invention, was without sufficient excuse for his delay in prosecuting and perfecting the invention in issue and that such delay was fatal to his claim to priority notwithstanding his earlier conception and of the fact that he held the patent for the invention. The Examiner of Interferences, so concluding, decided against Christensen and in favor of Noyes or his assignee, The Westinghouse Air Brake Company.

On appeal the Board of Examiners-in-Chief concluded that Christensen's poverty and lack of means was no excuse for his lack of diligence in adapting and perfecting his invention, and they therefore affirmed the decision of the Examiner of Interferences and awarded priority to Noyes, and on appeal to the Commissioner of Patents that decision was affirmed, the Commissioner holding that although Christensen was the first to conceive he was not diligent in reducing his invention to practice and that therefore Noyes, later to conceive, but earlier to reduce to constructive practice, was entitled to an award of priority. No effect whatever was allowed by any of the tribunals in the Patent Office to the fact that Christensen in addition to being the first to conceive the invention had obtained a patent therefor and that, too, after Noyes had allowed his application to become forfeited and before that application was renewed. All concede that Christensen was the first to conceive; but they all hold that he lost his right by delay and that Noyes had acquired a superior and paramount claim to priority by mere constructive reduction to practice in getting into the Office before Christensen, though he afterward suffered his application to lapse and become forfeited for non-compliance with the requirement of the law. Whether this claim on the part of Noyes and his assignee is maintainable is, in our view, the controlling question in this case.

As it appears, diligence or want of diligence on the part of Christensen was the sole question upon which the case was made to turn in the Patent Office; but in view of all the facts and circumstances of the case it is far from being clear, as it seems to have been supposed, that there was want of reasonable diligence on the part of Christensen in perfecting his invention and applying for a patent therefor or of his not having actually reduced his invention to practice. The proof makes it clear that not long after his conception of the device he disclosed it to others in the latter part of the year 1894; that he had tried to obtain money to enable him to make application for a patent in December, 1894, and that he had disclosed the invention to and sought to interest Watkins in the invention in the spring of 1895; that in June, 1895, he had attempted to induce Watkins to file an application for the triple-valve invention, and that in September, 1895, an oral agreement was made in regard to the matter; that in December, 1895, working drawings were made, and that from that time on and from time to time during the residue of the period that intervened between that time and the time of filing his application he applied himself to work on this automatic triple-valve device. Patterns were finished in February, 1896, and the valves were tested March 15, 1896, and, as we have already stated, the application was filed April 30, 1896. It is really difficult to conceive that greater perseverence and diligence could be in reason required and especially of one who for a greater part of the time was in a state of almost abject poverty and who was under a necessity of pursuing a constant employment to procure the means of subsistence for himself and family. It must, moreover, be borne in mind that the mechanism of the invention itself was of a most complex, difficult, and delicate character and such as required not only the application of a high order of inventive genius, but in order to obtain assurance of success to make numerous and varied experiments which would require considerable time, and in such case it is a settled principle in practice as well as in reason that forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value by practical experiment affords no ground for presumption of abandonment, (*Agawam Co.* v. *Jordan*, 7 Wall., 583, 607,) nor should such delay operate in any way to the prejudice of the inventor or to his right to obtain a patent for his invention—certainly not as against a subsequent or junior inventor.

On the part of Christensen it is contended that the experimental test of the valves on the 15th of March, 1896, only a month and a half before the filing of his application, was substantially and for all practical purposes successful, and therefore an actual reduction of the invention to practice. It is true the Examiner of Interferences thought it was not a successful actual reduction to practice, and the other two tribunals in the Patent Office passed no definite judgment upon the question; but the Examiners-in-Chief in their opinion say that Christensen was not required to delay his application until he succeeded in making an actual reduction to practice, but that he could have availed himself of a constructive reduction to practice by filing his application at some prior date to the time that he did file it. They then go on to say:

In order to take this latter course he must have had in his mind a clearly-conceived idea of all the mechanical contrivances to be used in the actual construction of the valve. That he was thus mentally equipped there can be no question. It is admitted and agreed by both parties to the controversy that Christensen's drawings and sketches were sufficient to afford to any mechanic familiar with the air-brake art all the information necessary to enable him to construct a valve. It is entirely clear that had Christensen had the means he could have at least as early as the latter part of 1894 filed an application for a patent.

It is urged on the part of Noyes and his assignee that the test of the alleged completed valve on March 15, 1896, was not successful and that consequently Christensen can properly be allowed only the dates of conception, May 17, 1894, and constructive reduction to practice by the filing of his application April 30, 1896.

But in the view we have of this case we do not deem it at all necessary to examine and determine the question as to whether the test made of the

triple valve March 15, 1896, was in all respects a perfect success or not, such as to make it a complete actual reduction to practice of the invention. It may or it may not have been of such character. It is conceded that a constructive reduction to practice was quite sufficient to entitle Christensen to a patent for his invention provided his right was not subordinated to and overcome by the prior constructive reduction to practice of the independent invention of Noyes by the prior filing of the latter's application on May 13, 1895. It is contended for Noyes and his assignee that such was the effect of the application of Noyes, though he was the last to conceive the invention.

In this aspect of the case, however, the question arises what was or is the effect of the forfeiture of the allowed application of Noyes as affecting the patent issued to Christensen, the first conceiver of the invention, after the forfeiture and before the application for renewal filed June 28, 1897? By section 4885 of the Revised Statutes if the final fee is not paid within six months after the allowance of the application the patent is required to be withheld, and by section 4897 of Revised Statutes any person to whom a patent is ordered to issue upon the payment of the final fee—

but who fails to make payment thereof within six months from the time at which it was passed and allowed, and notice thereof was sent to the applicant or his agent, shall have a right to make an application for a patent for such invention or discovery the same as in the case of an original application; but such second application must be made within two years after the allowance of the original application. But no person shall be held responsible in damages for the manufacture or use of any article or thing for which a patent was ordered to issue under such renewed application prior to the issue of the patent.

As we have seen, the application of Noyes was allowed November 26, 1895, and the six months within which the final fee was required to be paid expired May 26, 1896. The Westinghouse Air Brake Company purchased the invention and application of Noyes September 8, 1896, a little more than nine months after the application had been allowed. It was in the interval between the allowance of Noyes's application and the time of the expiration of the six months from the payment of the final fee that the application of Christensen was filed, and the patent issued to him before the renewed application of Noyes and his assignee was filed.

It is argued on behalf of Noyes and his assignee that the renewed application of June 28, 1897, had the effect in all respects of restoring the forfeited application to the same position and with like effect as if the final fee had been duly paid on the allowance of the original application and that the renewed application relates back to and takes the place of the original application, with its allowance, as if no lapse or forfeiture had occurred, while, on the other hand, it is strongly urged on behalf of Christensen that the renewed application, after the forfeiture of the original application filed by Noyes, should have been treated by the Patent Office as an original application and that neither Noyes nor his assignee can gain any advantage by reason of the first or forfeited application, which never resulted in a patent. This latter proposition, however, would seem to be concluded by decisions that we are not disposed to disturb. Whatever may have been the former doubt in regard to the true construction of section 4897 of the Revised Statutes that question was resolved by the Commissioner of Patents adverse to the present contention of the appellant, Christensen, in the case of *Thompson* v. *Waterhouse*, (30 O. G., 177,) and that construction has been adopted and followed by this court in the case of *Cain* v. *Park*, (86 O. G., 797; App. D. C.) The rule of construction thus declared has obtained in the Patent Office for a good many years and it would be very unwise now to disturb it, even if we thought that a different construction would better comport with the terms of the statute. By these cases it has been held that in the case of a forfeited application and the filing of a second or renewed application within two years the inventor may, under proper circumstances, become entitled to the original or forfeited application as a constructive reduction to practice. This general principle, based on the construction of section 4897, Revised Statutes, we do not propose to reverse; but the principle is not of universal application. It is an uncontroverted fact that Noyes never in any manner reduced his invention to actual practice nor tested it in any way before applying for a patent. His application, therefore, rested upon mere description in his specification and claims, and this of necessity left the success of the invention to subsequent experiment, and that of a doubtful character, if the objection urged to the test made by Christensen be well founded.

In an action for infringement by Christensen could it be successfully shown in defense by Noyes or his assignee or by any other person that Noyes was the first inventor because by simply filing his application he had made a constructive reduction to practice before Christensen had made an actual reduction to practice by constructing an operative machine, or could such a defense prevail to defeat a patent actually granted to the first inventor? If not, it would seem to be clear that a patent ought not to be issued to Noyes or his assignee upon any mere theory of priority of invention when he in fact is not such. It is certainly not the policy of the patent system of the United States that more than one patent should issue for the same invention, nor ought litigation to be encouraged or made necessary by issuing patents to any one except to those really entitled to them. The patent granted to Christensen was lawfully issued. He was the first inventor, and at the time of the issue of his patent there was no pending application in the Office nor any unexpired patent with which it would interfere. The bare possibility that there might be an application to renew the forfeited application of Noyes furnished no ground for a declaration of interference, nor did it furnish any ground for withholding a patent from the first inventor of the device for which patent was sought. An application that has been allowed to lapse or become forfeited, and before it is renewed, ceases to have vital and operative effect, except for a very limited and special purpose. According to the rule of the Patent Office, 174—

a forfeited application is one upon which a patent has been withheld for failure to pay the final fee within the prescribed time.

By Rule 176 it is declared that—

the second application will not be regarded for all purposes as a continuation of the original one, but must bear date from the time of renewal and be subject to examination like an original application.

And so by Rule 177 it is declared that—

forfeited and abandoned applications will not be cited as references.

And by Rule 178 it is provided that—

notice of the filing of subsequent applications will not be given to applicants while their cases remain forfeited.

On the plainest principles of justice and right in cases of interference priority of invention should only be awarded to the party who is really the first inventor, unless his right be forfeited by inexcusable delay and neglect or by abandonment, and as between an application resting on a mere constructive reduction to practice, especially where that application is a renewal of a forfeited application, and a party who is really the first inventor and to whom a patent has been issued for the invention, as in this case, the issue of priority must be found for the patentee. In such case the mere constructive reduction to practice cannot be set up to defeat an existing patent granted to the first inventor. A patent stands for something more than a mere written description of an invention, and as against a pending application for the same invention resting upon no better foundation than a constructive reduction to practice the patent must prevail. It has been held in many cases that mere description and drawings filed in the Patent Office as part of an application as against an existing patent issued to the first inventor cannot be accepted as an actual reduction to practice. Some of these cases are referred to and quoted from in the brief of counsel for appellee, and many others might be added.

In the case of *Ellithorpe* v. *Robertson* (4 Blatchf., C. C., 307) the court said:

To constitute such a prior invention as will avoid a patent that has been granted, it must be made to appear that some one, before the patentee, not only conceived the idea of doing what the patentee has done, but also reduced his idea to practice, and embodied it in some practical and useful form. The idea must have been carried into practical operation. The making of drawings of conceived ideas, is not such an embodiment of such conceived ideas in a practical and useful form, as will defeat a patent which has been granted.

In the case of *Draper* v. *Potomska Mills Co.* (reported in 13 O. G., 276) Judge Shepley said:

Illustrated drawings of conceived ideas do not constitute inventions, and, unless they are followed up by a seasonable observation of the requirements of the patent laws, they have no effect upon a subsequently-granted patent to another. But a patentee whose patent is assailed upon the ground of the want of novelty may show, by sketches and drawings, the date of his inceptive invention, and if he has exercised reasonable diligence in perfecting and adapting it, and applying for his patent, its protection will be carried back to such date.

And in the case of *Leman Ventilating Co.* v. *Lalor* (12 Blatchf., C. C., 303) the court, Judge Blatchford, said—

that written description of a machine, although illustrated by drawings which have not been given to the public, does not constitute an invention within the meaning of the patent laws, so as to defeat a subsequent patent to an independent inventor, even though it be deposited in the Patent Office as a part of an application for a patent. To attain the character of a complete invention, it must be embodied in a form capable of useful operation.

And if such written description, illustrated by drawings, will not be allowed to defeat or affect a subsequent patent issued to an independent inventor *a fortiori* will not such description and illustrative drawings be allowed to defeat or affect a patent granted to the first or prior inventor after the forfeiture of an application first filed, but on a subsequent conception of the invention.

There is no doubt or question of the general proposition that the inventor who first perfects a machine and makes it capable of useful operation is entitled to the patent. (*Agawam Co.* v. *Jordan*, *supra*;) but in this case Noyes has never done anything more than conceive the invention and make illustrative drawings that he filed with his application, and that no reduction to practice of any kind was made by him other than the constructive reduction to practice by filing his application for patent May 13, 1895, is fully conceded by him in his preliminary statement.

In a race of diligence between two independent inventors, as in this case, it may be assumed—

he who first reduces his invention to a fixed, positive, and practical form, is clearly entitled to priority of right to a patent therefor. (*Reed* v. *Cutter and others*, 1 Sto. Rep., 510.)

Here Christensen has obtained his patent, and being the first to conceive the invention we must presume that his patent was rightfully granted as against a party who subsequently conceived, but who has never reduced the invention to actual, positive, and practical form. (*Reed* v. *Cutter*, 1 Sto. Rep., 590.)

If in this case the question of diligence were considered as involved we should be strongly inclined to impute the want of due diligence to Noyes and his assignee rather than to Christensen. As we have seen, Noyes's application was filed May 13, 1895, and was allowed November 26, 1895. He allowed the time to expire within which he was required to pay the final fee, and as a consequence his application became forfeited. He had notice of the pendency of the application of Christensen, and the assignee of Noyes, The Westinghouse Air Brake Company, became fully informed of the pendency of the application of Christensen in December, 1896, if not before, and did not file the renewed application until June 28, 1897, more than two months after the patent had issued to Christensen. Under such circumstances it would not seem that the want of diligence could be fairly urged by Noyes or his assignee as a ground of objection to the patent that issued to Christensen. We do not, however, decide this case upon any question of the want of diligence in either party, but upon the broad and more definite ground of priority of invention secured by a valid patent issued therefor.

The proceedings of this court on this appeal will be certified to the Commissioner of Patents, with this decision, to be entered of record, as directed by law, and it is so ordered. Decision appealed from reversed.

Court of Appeals of the District of Columbia.

CHRISTENSEN *v.* NOYES.

Decided October 4, 1899.

1. INTERFERENCE — PRIORITY — CONSTRUCTIVE REDUCTION TO PRACTICE BY FILING AN APPLICATION—RIGHT OF PARTIES TO INTERFERENCE.

On an issue of priority of invention, constructive reduction to practice of the invention by simply filing an application for

patent and having it allowed, or by filing an allowable application for patent, does not in any manner change or enlarge the right of such applicant as against a prior inventor of the same or a similar invention, and which is made the subject of an issue of interference, though such prior inventor may be subsequent in filing an application.

2. SAME—SAME—SAME—BURDEN OF PROOF.

The first applicant in such case becomes the senior party in the declaration of interference, and his prior application imposes the burden of proof upon the junior party or subsequent applicant in trying the issue of priority; but in no other respect does the mere constructive reduction to practice by a subsequent inventor subordinate or affect a prior invention, and this rule in regard to the burden of proof does not apply as against a patentee whose patent has been regularly and lawfully issued in due course of proceeding.

3. SAME—SAME—INVALIDATING A PATENT.

A subsisting patent, lawfully issued, cannot be invalidated or in any manner affected by any subsequent proceeding in the Patent Office, even to the extent of imposing the burden of proof upon its holder that it was lawfully issued, and it is the express provision of the statute that no person has a right to "obtain a patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same," or unless the latter has abandoned his invention.

4. SAME—SAME—CONSIDERING DILIGENCE AND ABANDONMENT ON QUESTION OF PRIORITY.

The question of the exercise of reasonable diligence in adapting and perfecting the invention and also the question of abandonment, from long-settled practice are proper to be considered and determined in deciding upon the principal question of priority of invention.

5. SAME—PRESUMPTIVE ABANDONMENT—FAILURE TO APPLY FOR PATENT DURING EXPERIMENTS.

Mere forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value affords no ground for presuming abandonment.

6. SAME—PRIORITY—DATE OF INVENTION.

Between rival inventors, the date of the invention in issue is fixed at the time at which a complete and intelligible embodiment by which those skilled in the art can understand it is presented; but it would also appear to be settled that the date of an invention may be prior to the time the invention is embodied in a form capable of being patented.

7. SAME—SAME—DRAWINGS.

In an application for a patent relating to machinery, the invention may be exhibited as well in a drawing as in a model, so as to lay the foundation of a claim to priority, if such drawing be sufficiently plain to enable those skilled in the art to understand it.

8. SAME—SAME.

Because Noyes, the second party to conceive, was the first to file an allowable application, which application was passed and allowed, though it became forfeited, he does not obtain a superior right to priority over Christensen upon the renewal or second application filed within the time authorized by the statutes, notwithstanding that Christensen was the first inventor and that within the time that the application of Noyes stood as forfeited a patent had been issued to Christensen.

9. SAME—FORFEITED APPLICATION, WRIGHT TO BE GIVEN TO.

The forfeited application of Noyes conferred no right except that of renewal in the manner and within the time prescribed, and the renewed application conferred no right in addition to that of the first application. It certainly conferred no right as against a prior inventor who happened to file his application subsequent to that of the second inventor.

10. SAME—SAME.

The first applicant could only acquire an inchoate right as against a prior inventor, dependent upon it being made to appear that the first inventor had either abandoned his invention or lost the right to it by the want of reasonable diligence in perfecting it and making application for a patent.

11. SAME—SAME—DEPRIVING FIRST INVENTOR OF HIS RIGHTS BY TECHNICAL RULES OF PROCEDURE.

Whether the first application was forfeited or not, or supposing it had been renewed before the patent was issued to the first inventor, or even if the patent had been issued on the first application, the first inventor upon showing a compliance with the requirement of the statute would be entitled to a patent for his invention, and he could not be deprived of his right of priority by any mere technical rule of procedure adopted in the Patent Office.

12. SAME—SAME—PROPERTY RIGHT IN INVENTION.

While Congress has prescribed the mode by which the exclusive right of an inventor in his invention may be secured, yet there is no property right in such invention until a patent be issued therefor.

13. SAME—PRIORITY—REHEARING DENIED.

After reviewing the facts in the case, *Held* that Christensen was entitled to priority of invention, and the motion for rehearing denied.

ON motion for rehearing.

Messrs. Dodge & Sons for the appellant.

Mr. J. Snowden Bell for the appellee.

ALVEY, *J.:*

The application in this case for rehearing must be denied. The appellee has shown no substantial ground for the application and none that was not fully presented and argued on the original hearing and fully considered by the court. There is nothing shown, either in law or equity, that calls for a rehearing of the case.

It is incontestably true that Christensen was the original and first inventor of the matter of claim involved in the issue of interference. This is fully conceded by all the tribunals of the Patent Office and not seriously controverted by the appellee, Noyes, or his assignee, the Westinghouse Company. He was not only the first to conceive the invention, which he did in May, 1894, and made sketches thereof, but he made full disclosure to others and from time to time made drawings, and he had, before the application of Noyes was filed, during the latter part of the year 1894 and the spring and summer of the year 1895, made repeated efforts to obtain money to enable him to apply for a patent and had tried to induce others to aid him in the matter, and he had, before the filing of his application, made full and complete drawings of the invention and subjected the invention to practical tests. The proof shows clearly and beyond doubt that working drawings for the automatic triple valve were made in December, 1895, that patterns were finished in February, 1896, and that the valves were tested March 15, 1896, and the application was filed April 30, 1896.

The alleged conception of the invention by Noyes was not until about the 15th of April, 1895, which was disclosed to his friends shortly thereafter, and he made a drawing thereof about April 20, 1895, and he filed his application for a patent May 13, 1895, and he did nothing more by way of reducing the invention to practical operation before the application by Christensen was filed.

This application of Noyes was allowed in the Patent Office November 26, 1895, but failing to pay the final fee the application became suspended or forfeited by force of section 4897 of the Revised Statutes of the United States and the rules of the Patent Office, and it was during the period of forfeiture of this application—that is to say, on the 20th of April, 1897—that the patent was issued to

Christensen. The interference was not declared until after the filing of the renewed application by the Westinghouse Company as the assignee of Noyes, something more than two months after the issuing of the patent to Christensen.

It is true, though subsequent in point of time in the conception of the invention, Noyes was the first to come to the Patent Office for a patent, and it is supposed and contended that this constituted a constructive reduction to practice of the invention, and therefore gave Noyes some superior right over his rival inventor, Christensen; but this is not our understanding of the law. On an issue of priority of invention constructive reduction to practice of the invention by simply filing an application for a patent and having it allowed or by filing an allowable application for a patent does not in any manner change or enlarge the right of such applicant as against a prior inventor of the same or similar invention and which is made the subject of an issue of interference, though such prior inventor may be subsequent in filing his application. It is true the first applicant in such case becomes the senior party in the declaration of interference and his prior application imposes the burden of proof upon the junior party or subsequent applicant in trying the issue of priority, but in no other respect does the mere constructive reduction to practice by a subsequent inventor subordinate or affect a prior invention, and this rule in regard to the burden of proof does not apply as against a patentee whose patent has been regularly and lawfully issued in due course of proceeding. A subsisting patent, lawfully issued, cannot be invalidated or in any manner affected by any subsequent proceeding in the Patent Office, even to the extent of imposing the burden of proof upon its holder that it was lawfully issued, and it is the express provision of the statute that no person has a right to—

obtain a patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same—

or unless the latter has abandoned his invention. (Sec. 4920, Rev. Stats. U. S.) The question of the exercise of reasonable diligence in adapting and perfecting the invention and also the question of abandonment from long-settled practice are proper to be considered and determined in deciding upon the principal question of priority of invention. The result of this case in the Patent Office appears to have turned exclusively upon the decision of the question as to the exercise of due diligence by Christensen in reducing his invention to practice and presenting his claim to the Patent Office, and hence it was declared by the Commissioner, as it had been declared by the subordinate tribunals, that—

there was really but one question to be considered in the case; and that was whether Christensen, the first to conceive the invention and disclose it to others, was using due diligence in reducing his invention to practice at the time when Noyes appeared in the field.

The tribunals of the Office held the evidence to be insufficient to establish reasonable diligence on the part of Christensen, and therefore the question of priority was decided against him. In this conclusion we do not agree with the tribunals of the Patent Office. We think the evidence of reasonable diligence on the part of Christensen under the special circumstances of the case was quite satisfactory. With most of the reasoning of the tribunals of the Patent Office we fully concur, though not with the conclusion reached by them with respect to the question of the supposed insufficiency of the evidence to show the exercise of reasonable diligence by Christensen.

There is no serious contention made that there was any abandonment of the invention by Christensen. On the contrary, it is expressly found and asserted as a fact in the decision of the Examiners-in-Chief—

that in December, 1895, working drawings were made by Christensen, and that from that time on there was continuous work on the automatic triple-valve device of the issue.

It is also stated in the opinion of the Examiners-in-Chief and fully supported by the proof in the case—

that it is admitted and agreed by both parties to the controversy, that Christensen's drawings and sketches were sufficient to afford any mechanic familiar with this air-brake art all the information necessary to enable him to construct a valve—

and therefore, according to the argument made, he ought to have filed his application sooner than he did. He, however, continued the work of adapting and perfecting the invention and did not come to the Office with a crude and untested invention. He did not file his application until after he had made the valve and tested its operation, and upon discovering defects in the practical operation of the invention he at once remedied such defects and made the invention a complete operative machine. Mere forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value afffords no ground for presuming abandonment. (7 Wall., 607.)

It is settled by abundant authority that as between rival inventors the date of the invention in issue is fixed at the time at which a complete and intelligible embodiment by which those skilled in the art can understand it is presented; but it would also appear to be settled that the date of an invention may be prior to the time the invention is embodied in a form capable of being patented. This principle is maintained by the cases of *Colt* v. *Massachusetts Arms Co.*, (1 Fish. Pat. Cas., 108,) *National Oil Co.* v. *Arctic Oil Co.*, (4 Fish. Pat. Cas., 514,) and same case, (8 Blatchf., 416,) and we do not understand that those cases have ever been questioned or overruled, and in an application for a patent relating to machinery the invention may be exhibited as well in a drawing as in a model, so as to lay the foundation of a claim to priority, if such drawing be sufficiently plain to enable those skilled in the art to understand it. (*Loom Co.* v. *Higgins*, 105 U. S., 580, 594.) In this case it is not controverted, indeed conceded, that the drawings made and exhibited by Christensen were sufficiently plain and explicit to enable those skilled in the art of the triple-valve construction to understand them, and this being the case and Christen-

sen being the first inventor and not having abandoned his invention or forfeited it by the want of reasonable dilligence in adapting and perfecting it, upon what principle can it be claimed that the subsequent invention by Noyes should take priority of that by Christensen? We know of no principle of right or justice upon which it can be done.

It is urged, however, that because Noyes, the subsequent inventor, was the first to file an allowable application (allowable because there was then no interfering or conflicting claim to the invention before the Office) and which application was passed and allowed, though suffered to become forfeited for non-payment of the final fee within the time prescribed by section 4897 of the Revised Statutes of the United States, a superior right to priority to that of Christensen was acquired upon the renewed or second application filed within the time authorized by the statute, notwithstanding that Christensen was the first inventor and that within the time that the application of Noyes stood as forfeited a patent had been issued to Christensen for the invention. To this contention of the appellee we cannot accede. The forfeited application conferred no right except that of renewal in the manner and within the time prescribed, and the renewed application conferred no right in addition to that of the first application. It certainly conferred no right as against a prior inventor who happened to file his application subsequent to that of the second inventor. At most the first applicant could only acquire an inchoate right as against a prior inventor, dependent upon it being made to appear that the first inventor had either abandoned his invention or lost the right to it by the want of reasonable diligence in perfecting it and making application for a patent. Whether the first application was forfeited or not, or supposing it had been renewed before the patent was issued to the first inventor, or even if the patent had been issued on the first application, the first inventor upon showing a compliance with the requirement of the statute would be entitled to a patent for his invention, and he could not be deprived of his right of priority by any mere technical rule of procedure adopted in the Patent Office.

It seems to be supposed, and the contention of the appellee would appear to be founded upon the theory, that by the constructive reduction to practice by the mere filing of the original application by Noyes and the subsequent renewal of that application by his assignee, as authorized by section 4897 of the Revised Statutes of the United States, that some fixed and determinate right had been acquired as against the right to priority of the invention by Christensen; but this position cannot be maintained. The principal and controlling question as between the parties is that of priority of invention, and the right to priority in Christensen has not been overcome or defeated by any mere constructive reduction to practice by Noyes or the renewal of his original forfeited application by his assignee. No rights have been acquired by either of those parties as against Christensen, the first inventor. While Congress has prescribed the mode by which the exclusive right of an inventor in his invention may be secured, yet there is no property right in such invention until a patent be issued therefor. In the case of *Gayler* v. *Wilder* (10 How., 477, 493) the court said:

> The inventor of a new and useful improvement certainly has no exclusive right to it until he obtains a patent. This right is created by the patent, and no suit can be maintained by the inventor against any one for using it before the patent is issued.

And in the recent case of *Marsh* v. *Nichols, Shepard & Co.* (46 O. G., 239; 128 U. S., 605, 611, and 612) the court said, (the Italics being ours:)

> But the patent for an invention conveys nothing which the Government owns or its predecessors ever owned. The invention is the product of the inventor's brain, and if made known would be subject to the use of any one, if that use was not secured to him. Such security is afforded by the act of Congress *when his priority of invention is established before the Patent Office.* The patent is the evidence of his exclusive right to the use of the invention; it therefore may be said to create a property interest in that invention. Until the patent is issued there is no property right in it, that is, no such right as the inventor can enforce. Until then there is no power over its use, which is one of the elements of a right of property in anything capable of ownership.

In this case, as we have before declared, the right of priority in Christensen is clearly established, and upon his application, duly presented, a patent securing his right in the invention has been regularly and lawfully issued, and there has been nothing shown by Noyes or his assignee to overcome and defeat the operation of that patent or to entitle them, or either of them, to an opposing or conflicting patent founded upon an alleged priority of the invention of the issue of this interference.

We have deemed it proper to say this much, in addition to what was said by us in the opinion heretofore delivered by this court, in view of what is positively asserted in the petition for rehearing, and in order to show that in no aspect of the case is there any ground for the contention of the appellee, and therefore no ground whatever for the application for reargument.

If it be thought by the appellee that his contention is well founded, his remedy is by application to a court of equity, as provided by section 4915 of the Revised Statutes of the United States.

Application for rehearing denied.

Patents No. 640,731 to 641,252

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 2 TUESDAY, JANUARY 9, 1900. PRICE—$5 per year.

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Changes in Classification.

(ORDER No. 1,322.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 3, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

Division VI, class 95, Photography, abolish subclass 16, Heaters and driers.

Establish a new subclass with the following title:

Photography—
Cameras—
55. Roll-holding.

Division XXI, class 139, Weaving, abolish subclass 8, Cross-weaving; subclass 76, Looms, weft-supplying mechanism, and subclass 24, Reeds and reed-making.

Establish the following subclasses:

Looms—
84. Cross-weaving.
85. Weft-replenishing.
86. Reed-making machines.
87. Reeds.

C. H. DUELL,
Commissioner.

Cancellation of Revenue-Stamps.

Amending regulations as to cancellation of documentary and proprietary stamps.

CIRCULAR No. 142.—INT. REV. No. 549.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
Washington, D. C., December 1, 1899.

To Collectors of Internal Revenue and others:

Existing regulations providing for the cancellation of adhesive revenue-stamps by writing or stamping thereon, with ink, the initials of the name and the date when attached, or by cutting and canceling said stamp with a machine or punch which will affix the initials and date as aforesaid, and the cancellation of imprinted stamps on checks, drafts, or other instruments by filling out the dates and blank lines on said instruments in the usual manner of drawing checks and drafts, or by perforating through the stamp and paper to which it is attached the amount in figures for which said instrument was drawn, having proved inadequate to prevent frauds on the revenue which have been, and now are, extensively practiced, said regulations are hereby amended by adding thereto the following provision and requirement:

In all cases where a documentary stamp of the denomination of 10 cents or any larger denomination shall be used for denoting any tax imposed by the act of June 13, 1898, the person using or affixing the same shall, in addition to writing or stamping theron, with ink, the initials of his name and the date when affixed, mutilate said stamp by cutting three parallel incisions lengthwise through the stamp, beginning not more than one-fourth of an inch from one end thereof, and extending to within one-fourth of an inch of the other end.

Where such stamp is canceled by cutting or perforating in any manner authorized by existing regulations, as aforesaid, the mutilation herein provided will not be required.

This provision shall take effect and be in force on and after December 15, 1899.

G. W. WILSON,
Commissioner.

Approved:
L. J. GAGE,
Secretary.

CERTIFICATES OF REGISTRATION ISSUED JANUARY 9, 1900

Labels.

7,290.—Title: "GOODSELL'S '96' STITCHED PUMP PACKING." (For Pump-Packing.) *Byron W. Goodsell*, Chicago, Ill. Application filed December 11, 1899.

7,291.—Title: "DR. HOOD'S BAKING POWDER." (For Baking-Powder.) *John U. O'Meara*, Washington, D. C. Application filed December 13, 1899.

7,292.—Title: "CUBAN TONIC." (For a Tonic.) *J. C. Wilson*, Houston, Tex. Application filed December 5, 1899.

7,293.—Title: "FENNEL HAIR TONIC." (For Hair-Tonic.) *William F. A. Kirsch*, Buffalo, N. Y. Application filed December 18, 1899.

7,294.—Title: "OYL-INE." (For a Liniment.) *J. W. Van Winkle*, Chicago, Ill. Application filed December 13, 1899.

7,295.—Title: "LAXATIVE FRUIT SYRUP." (For a Laxative.) *Joseph von Werthern*, San Francisco, Cal. Application filed December 13, 1899.

7,296.—Title: "DR. J. C. HOOD'S MAY BLOSSOM." (For a Medicine.) *J. C. Hood*, Louisville, Ky. Application filed December 18, 1899.

7,297.—Title: "DIAMOND CLEANER AND POLISH." (For Cleansing and Polishing Compound.) *Diamond Cleaner and Polishing Co.*, Chicago, Ill. Application filed May 27, 1899.

Prints.

194.—Title: "K. W. ROSETTE." (For Electrical Goods.) *The Bryant Electric Company*, Bridgeport, Conn. Application filed December 9, 1899.

195.—Title: "WASHINGTON STATE SOUVENIR CARDS." (For Playing-Cards.) *Clayton B. Strong*, Spokane, Wash. Application filed December 19, 1899.

196.—Title: "KENNEY SPEEDY RELIEF CO." (For Medicine.) *William F. Kenney*, Providence, R. I., and South Yarmouth, Mass. Application filed December 4, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 2, 1900

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Dec. 18	Dec. 19	38
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Dec. 13	Dec. 21	117
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 11	Dec. 19	189
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Dec. 6	Dec. 19	72
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 6	Dec. 19	107
106	II. Farm Stock, Products, etc.	Dec. 6	Dec. 18	267
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Dec. 5	Dec. 20	124
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 4	Dec. 21	87
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 4	Dec. 20	148
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Dec. 4	Dec. 19	193
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 4	Dec. 19	112
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 4	Dec. 19	127
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Dec. 4	Dec. 19	129
246	I. Tillage and Fences	Dec. 4	Dec. 19	125
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 4	Dec. 19	154
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 4	Dec. 19	117
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Dec. 4	Dec. 19	142
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 4	Dec. 18	183
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 4	Dec. 18	272
102	XIX. Stoves and Furnaces	Dec. 4	Dec. 18	213
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Dec. 4	Dec. 18	160
240	VII. Velocipedes, Games, and Toys.	Dec. 4	Dec. 7	228
	Between one and two months.			
98	XXI. Textiles, etc	Dec. 3	Dec. 20	190
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 2	Dec. 18	177
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Dec. 2	Dec. 16	129
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Dec. 1	Dec. 19	150
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 1	Dec. 16	148
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Dec. 1	Dec. 16	181
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 1	Dec. 13	174
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Nov. 29	Dec. 11	136
253	X. Carriages and Wagons	Nov. 28	Dec. 12	169
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 27	Dec. 13	167
248	XVIII. Steam-Engineering, etc	Nov. 27	Dec. 8	204
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 23	Dec. 12	218
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Nov. 18	Dec. 4	328
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 10	Dec. 6	432

Total number of applications awaiting action..... 5,817

Applications Under Examination—Continued.

Under one month.			
*Designs	Dec. 18	Dec. 26	86
†Trade-Marks	Dec. 26	Dec. 29	31
‡Labels and Prints	Dec. 29	Dec. 29	2

ISSUE OF JANUARY 9, 1900.

Patents	522—No. 640,731 to No. 641,252,	inclusive.
Designs	25—No. 32,078 to No. 32,102,	inclusive.
Trade-Marks	24—No. 34,014 to No. 34,037,	inclusive.
Labels	8—No. 7,290 to No. 7,297,	inclusive.
Prints	3—No. 194 to No. 196,	inclusive.
Reissues	2—No. 11,890 to No. 11,891,	inclusive.
Total issue	584	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1		Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	4		New Jersey	22	1
California	20	1	New Mexico Territory		
Colorado	12		New York	79	7
Connecticut	25	2	North Carolina	3	
Delaware			North Dakota	1	
District of Columbia	5	1	Ohio	40	2
Florida	1		Oklahoma Territory	2	
Georgia	5		Oregon		
Hawaii			Pennsylvania	50	2
Idaho			Rhode Island	5	1
Illinois	54	4	South Carolina	1	
Indian Territory	1		South Dakota		
Indiana	9	1	Tennessee	8	
Iowa	8		Texas	7	1
Kansas	1		Utah		
Kentucky	6	1	Vermont	3	
Louisiana	2		Virginia	2	1
Maine	4		Washington	3	1
Maryland	4		West Virginia	4	1
Massachusetts	37	1	Wisconsin	11	1
Michigan	10	1	Wyoming		1
Minnesota	13	2	U. S. Army		
Mississippi	3		U. S. Navy	1	
Missouri	12	1	Total to citizens of the United States	483	34
Montana	3				
Nebraska	5				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia	2		Japan		
Austria-Hungary			Jamaica		
Barbadoes	1		Mexico		
Belgium	1		Netherlands		
Brazil	1		Newfoundland		
British West Indies	9		New South Wales		
Canada			New Zealand	1	
Cape Colony			Norway		
China			Queensland		
Colombia			Roumania	1	
Cuba			Russia		
Denmark	1		Scotland	1	
Dutch West Indies			South African Republic	1	
Egypt			Sweden	2	
England	20	1	Switzerland	1	
Finland			Victoria	1	
France	3		Western Australia		
Germany	17		Total to citizens of foreign countries	64	1
Guatemala	1				
India					
Ireland					

PATENTS

GRANTED JANUARY 9, 1900.

640,731. SHIRT. ALBERT A. ABRAMS, St. Louis, Mo. Filed Sept. 11, 1899. Serial No. 730,101. (No model.)



Claim.—1. In a shirt, a bosom, lateral extensions therefor, each extension comprising two arms of unequal length, the longer arm being disposed above the shorter, a coupling-neck at the meeting bases of the two arms, an expanded head for the neck, a slit formed in the neck, an elastic band adapted to have its free ends coupled to the slotted ends of the necks, and a guide-loop at the back of the shirt for guiding the band, substantially as set forth.

2. In a shirt, a bosom, lateral extensions therefor, each extension comprising two arms of unequal length, a coupling-neck at the meeting bases of the two arms, a head at the free end of the neck, offsets or shoulders formed between the head and neck, a reinforcing-strip secured at its base to the extension, and having its free end slit to receive the head and neck of the extension, and means for coupling the necks of the extensions to the free ends of a suitable band adapted to pass around the body of the wearer, substantially as set forth.

640,732. CAN-OPENER. ALFRED L. BAKER, Mansfield, W. Va. Filed Jan. 23, 1899. Serial No. 703,126. (No model.)



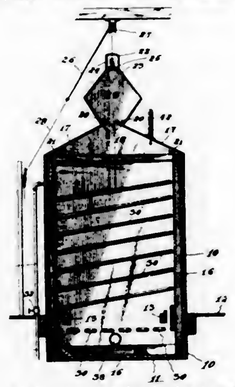
Claim.—1. In a can-opener, the combination with the cross-piece, of the cylindrically-shaped knife carried thereby, the spiral flange on said cross-piece, and the spreading arms and spindle carried by said cross-piece and supporting said knife substantially as described.

2. In a can-opener the combination with the cross-piece, of the cylindrically-shaped knife carried thereby, the spiral flange on said cross-piece, and the spreading arms and spindle carried by said cross-piece and supporting said knife, the frame adapted to receive and hold a can, said frame having uprights upon which the cross-piece slides, and a lever adapted to bear upon the cross-piece to force it down and the spring to force it up substantially as set forth.

3. In a can-opener, the combination with a frame having uprights provided with inwardly-projecting ledges, of an adjustable base or rest adapted to engage said ledges, an adjustable cross-piece slidably secured upon said frame, of the cylindrically-shaped knife carried by said cross-piece, the spiral flange on said cross-piece and the spreading arms and spindle carried by said cross-piece and supporting said knife substantially as described.

4. In a can-opener, the combination with a frame having uprights, provided with a series of inwardly-projecting ledges upon which an adjustable base or rest is adapted to be seated, of a movable cross-piece mounted on said frame and carrying a cylindrically-shaped expansible and contractible knife, the spiral flange on said cross-piece, and the spreading arms and spindle carried by said cross-piece, a lever adapted to bear upon the cross-piece to bear it down, a spring arranged on each side of the frame and cross-piece and designed to force the latter into its normal position substantially as set forth.

640,738. EVAPORATOR. WILLARD D. BAKER, Rogers, Ark. Filed Jan. 31, 1899. Serial No. 704,001. (No model.)



Claim.—1. An evaporator-casing having a roof provided with inclined side portions and an intermediate throat, a drum communicating with said throat, and provided at its top with ventilator-shells, valves for controlling vents in said shells, and drip-troughs arranged at the lower edges of the inclined portions of the roof and communicating with an exterior trapped discharge-tube, substantially as specified.

2. An evaporator-casing having its roof provided with condensing-surfaces and provided at its center with a series of vertical ventilator-shells having lateral vents and horizontal valve-seats below the planes of the vents, valves for vertical movement within said shells and adapted for arrangement either above or below the horizontal plane of the vents, and means for operating said valves, substantially as specified.

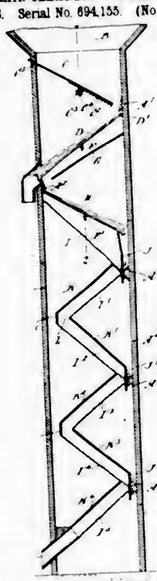
3. An evaporator-casing having its roof provided with condensing-surfaces and having at its center a series of vertical ventilator-shells provided with lateral vents and horizontal valve-seats below

the planes of the vents, valves adapted for vertical movement within the shells and for arrangement above and below the horizontal plane of the vents, means for operating said valves, a heating device arranged within the casing near the bottom, an air-inlet pipe communicating with the casing below the plane of the heating device, and a damper adapted to control the admission of air to said inlet-pipe.

4. An evaporator-casing having its roof provided with condensing-surfaces and having at its center a series of vertical ventilator-shells provided with lateral vents and horizontal valve-seats below the planes of the vents, valves adapted for vertical movement within the shells and for arrangement above and below the horizontal plane of the vents, means for operating said valves, a heating device arranged within the casing, a perforated air-inlet pipe extending longitudinally of the casing below the heating-pipe, a hinged cap for closing the inlet end of said inlet-pipe, and adjustable means for holding the cap in its adjusted position.

5. An evaporator having a casing of which the walls are provided with an exterior metallic sheathing, and of which the top consists of inclined condensing surfaces 17 provided with drip-troughs 21, a drum communicating with the interior of the casing and having inclined walls also provided with drip-troughs 20, ventilating devices in the top of the drum, a common trapped discharge-tube into which said drip-tubes discharge, a heating device consisting of a circulating-tube 30 arranged adjacent to the bottom or floor of the casing, and also having coils adjacent to the side and end walls thereof, truck-supporting tracks arranged above the bottom heating-coil, and an air-inlet pipe 38 arranged below said bottom heating-coil and provided with a damper whereby the influx of air may be controlled, substantially as specified.

640,734. GRAIN-CLEANER. GEORGE L. BEADELL, Chicago, Ill. Filed Oct. 21, 1898. Serial No. 694,155. (No model.)



Claim.—A grain-cleaner comprising a box or casing having a hopper at its upper end, a hinged rougher in said casing and extending in an inclined position, the said rougher discharging the coarse material passing over the same through an opening in the casing to the outside thereof, a hinged separator below said rougher and inclined in an opposite direction, the said separator receiving the material passing through the rougher, means for imparting a swinging motion to the rougher and separator, screens arranged in zigzag manner below said separator and receiving the material passing through the same, and deflectors spaced from the wall of the casing for deflecting the material from one screen to the other, the material passing from the lower end of the separator being discharged between the deflectors and the wall of the casing, substantially as described.

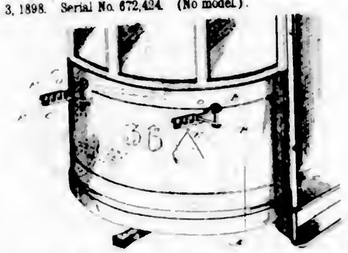
640,735. WHITE ELASTIC COMPOUND. PERCY C. BELL, Metuchen, N. J. Filed May 20, 1899. Serial No. 717,640. (No specimens.)

Claim.—1. An elastic white compound consisting of vegetable oil, chlorid of sulfur, mineral matter, and bisulfid of carbon, in suitable proportions united with the aid of heat.

2. An elastic white compound comprising the following elements, in approximately the proportions named, to-wit: vegetable oil, sixty-five parts; chlorid of sulfur, twenty parts; mineral matter, such as lime, five parts, and zinc oxid, five parts; and bisulfid of carbon, five parts.

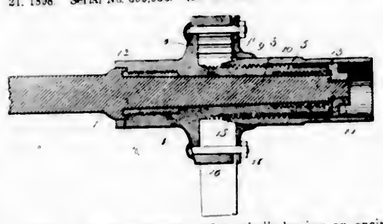
3. A process of uniting the following elements of an elastic white compound, namely, a suitable quota of vegetable oil heated to 80° Fahrenheit, the admixture therewith of chlorid of sulfur and bisulfid of carbon at a temperature of 60° Fahrenheit, stirring the mass until it foams, and keeping it in agitation until the maximum bulk is reached, breaking the mass, adding a quota of mineral matter, whereupon the mass hardens, and then pulverizing and bleaching the resulting product.

640,736. BICYCLE-CARRIER. GEORGE W. BIESTER, Harrisburg, Pa., assignor of one-half to Abraham Peters, same place. Filed Mar. 3, 1898. Serial No. 672,424. (No model.)



Claim.—The bicycle-carrier described, comprising the brackets E and F, each provided with vertical pintles, bearing-plates B, B and C, C secured to the end of the car at a distance apart to accommodate a bicycle on the brackets, the brackets being provided with horizontal extensions having rubber-lined recesses to receive the rims of the wheels of the bicycle, and the fixed bearing-plates B and C having semicircular horizontal plates notched in their edges, and a horizontally-disposed spring-pawl pivotally secured in lugs projecting from the top of the bracket and normally engaging one of said notches, said plates being further provided with notches in proximity to the front of the car for holding the brackets against said front of the car substantially as described.

640,737. HUB. ROBERT R. BOGGS, Spring Run, Pa. Filed Dec. 21, 1898. Serial No. 699,950. (No model.)



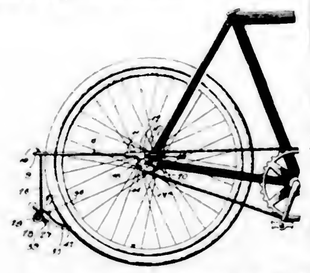
Claim.—1. The combination of a spindle having an encircling bushing threaded on its exterior, a hub having an outwardly-extending sleeve threaded on its exterior and on its interior, the latter engaging said bushing, an outer sleeve 10 threaded on its interior and meshing with sleeve 5, and an outer removable flange 8 encircling the sleeve 10, all arranged as set forth.

2. A hub having a central portion provided with spokes and having right and left exteriorly-threaded bushings, also an inward sleeve threaded on its interior meshing with the left bushing and further an outward sleeve threaded on its exterior and on its interior, the latter engaging the right hand bushing, an outer sleeve 10 and a flange 8 cooperating in the manner set forth.

640,738. BICYCLE-SUPPORT. JOHN BOOTH, Terre Haute, Ind. Filed July 11, 1899. Serial No. 723,468. (No model.)

Claim.—1. A bicycle-support comprising plates adapted for attachment to a wheel-axle, a frame having pivotal connection at its ends with said plates and extending radially and laterally of said axle to inclose a wheel supported thereby, a perforated ear for each

plate, pins pivotally connected with the frame and operable in the perforations, and a spring upon each pin engaging its respective ear and the respective portion of the frame and adapted to hold the frame at the limits of its pivotal movement.



2. In a bicycle-support, the combination with a frame, of plates adjustably connected with the ends thereof, additional plates pivotally connected with the first-named plates and adapted for attachment to the axle of a wheel, stops for limiting the movement of the first and second plate with respect to each other, perforated ears upon the second plates, pins carried by the first plates and operable in said perforations, and springs upon the pins adapted to throw and hold the plates in their opposite positions when initially moved.

3. In a bicycle-support, the combination with a frame, of plates adjustably connected with the ends thereof, additional plates pivotally connected with the first-named plates, and having perforated ears and adapted for attachment to the axle of a wheel, stops for limiting the movement of the first and second plates with respect to each other, pins carried by the first plates and operable in the perforations of the ears, springs upon the pins adapted to throw and hold the plates in their opposite positions when initially moved, and a supplemental frame connected with the first-named frame and extending at an angle thereto.

4. In a bicycle-support, comprising plates adapted for connection with an axle, additional plates pivotally connected with the first-named plates and adapted for attachment to the axle of the wheel perforated ears upon the first-named plates, means for limiting the movement of the plates with respect to each other, pins carried by the second plates and operable in the perforations of the ears, springs upon the pins adapted to throw and hold the plates yieldably in their opposite positions when initially moved, and a scraper removably connected with the supplemental frame.

5. In a bicycle-support, the combination with a frame, of plates adjustably connected thereto, additional plates pivotally connected with the first-named plates and adapted for attachment to the axle of a wheel perforated ears upon the second plates, stops for limiting the movement of the first and second plates with respect to each other, pins carried by the first plates and operable in the perforations of the ears and springs upon the pins disposed between portions of the first and second plates and adapted to yieldably hold them in their opposite correlative positions.

6. In a bicycle-support, the combination with a main frame adapted for connection with portions of a bicycle and to inclose a wheel thereof, of a supplemental frame connected with and extending at an angle to the main frame and adapted to directly receive a portion of a bicycle-wheel, said supplemental frame comprising a web bent to form eyes, a tube held in the eyes, a removable scraper having slots engaged with the web of the supplemental frame and resting against the tube and adapted for movement therewith into and out of operative relation to the wheel, and means for moving the supplemental frame into and out of engagement with the wheel.

7. In a bicycle-support, the combination with a frame, of plates adjustably connected therewith and having laterally-projecting portions, a second plate pivotally connected with each of the first-named plates, and having a perforation therein, a pin pivoted to the projection of the first-named plate and passed through said perforation, a spring upon the pin adapted to yieldably hold plates at the limits of their mutual movement, and a supplemental frame adapted for engagement by a bicycle-wheel to hold the supplemental frame against forward movement and raise the main frame upon its pivot.

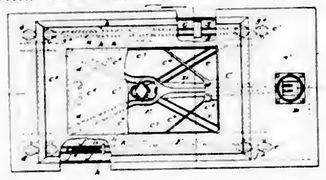
640,739. DEVICE FOR HOLDING NEGATIVES. CHARLIE J. BOUSFIELD, Bay City, Mich. Filed May 15, 1899. Serial No. 716,823. (No model.)

Claim.—1. A holder for photographic plates comprising a handle, a short arm projecting below said handle and having a hook for engaging an edge of the plate, two divergent flexible arms attached to said handle, each arm having a hook for engaging the edge of the plate and holding it by reason of the tendency of the flexible arms to further diverge.



2. A photographic-plate holder made of flexible wire comprising two flexible and normally-divergent arms, each having a hook at its extremity for engaging an edge of the plate when the arms spread apart; an arm having a hook adapted to engage the edge of the plate that is opposite the first-mentioned hooks; and a handle formed by intertwisting the wire forming the arms, substantially as described.

640,740. WEIGHING-SCALE. SAMUEL T. BRALEY, Rutland, Vt., assignor to The Howe Scale Company of 1886, of Vermont. Filed July 28, 1899. Serial No. 725,439. (No model.)



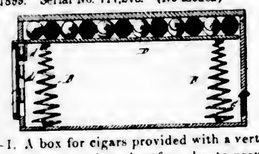
Claim.—1. In weighing-scales of the class described, the combination with a stationary frame, scale-levers suspended therefrom and a scale-beam connected with said levers, of frames suspended from said levers, automatic locking devices on each of said suspended frames, and a weighing or scale platform having depending legs removably engaging with said locking devices.

2. In weighing scales of the class described, the combination with a stationary frame, scale-levers suitably suspended therefrom, and a scale-beam connected with said levers, of frames suspended from said levers, automatic locking devices on said suspended frames, a scale-platform provided with depending legs removably engaging with said locking devices, and means for limiting the upward movement of said platform.

3. In weighing-scales of the class described, the combination with a stationary frame having an opening in the top thereof, of weighing mechanism including a weighing-platform, a suspended frame, said platform having a depending flange which overhangs an upwardly-projecting flange surrounding the opening in the top of the stationary frame to form a dust-guard, and an automatic locking device consisting of notched front legs of said platform to engage pins on the front end of the suspended frame, and cams attached to the rear end of the suspended frame to engage shoulders on the rear legs of the platform.

4. In weighing-scales of the class described, the combination of a stationary frame, scale-levers and a scale-beam suitably connected therewith, a scale-platform provided with depending legs engaging with frames composed of two parallel bars suitably spaced apart, and suspended at their ends from separate scale-levers, a transverse pin or bolt in the front of each suspended frame, to engage with a notch in the front legs of the platform, and cams in the rear of each of said frames, provided with shoulders to engage automatically with notches in the rear platform-legs, whereby all of said legs may be locked securely in place and the platform connected to the suspended frames.

640,741. CIGAR-BOX. MORRIS BROWN, New York, N. Y. Filed May 18, 1899. Serial No. 717,278. (No model.)



Claim.—1. A box for cigars provided with a vertically-movable false bottom, supporting-springs therefor, a lug to prevent downward but not upward movement thereof carried by said false bottom and a

spring-catch adapted to be engaged by said lug for locking the false bottom, substantially as described.

2. A box for cigars, provided with a vertically-movable false bottom, supporting-springs therefor, a spring-catch adapted to engage said false bottom, and retain the same in its lowered position, a lug carried by said false bottom and a spring-catch adapted to be engaged by said lug for locking the false bottom in its raised position, substantially as described.

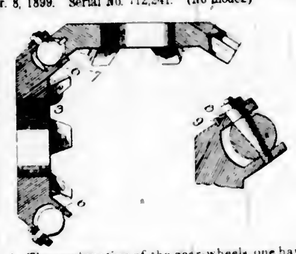
3. A box for cigars provided with a vertically-movable false bottom, supporting-springs for said false bottom, and an indicator arranged upon said box for determining the position of said bottom and operated by said bottom, substantially as described

4. A box for cigars having a slot in one end and provided with a vertically-movable false bottom, graduated supporting-springs for said false bottom, a depending arm attached to said false bottom and having an outwardly-projecting lug engaging said slot, and index-pointers arranged adjacent to said slot and adapted to be struck by said lug, substantially as described.

5. A box for cigars having a slot in one end and provided with a vertically-movable false-bottom, graduated supporting springs for said false bottom, a depending arm attached to said false bottom and having an outwardly-projecting lug engaging said slot, index-pointers arranged adjacent to said slot and adapted to be struck by said lug, and a spring-catch arranged adjacent to each pointer and adapted to be engaged by the lug on said arm, to prevent the false bottom from being lowered when once raised, substantially as described.

6. A box for cigars provided with a slot in one end and having a vertically-movable false bottom, graduated supporting-springs, the resiliency of which diminishes as the spring is expanded, a depending arm secured to said false bottom and having an outwardly-projecting lug engaging said slot, index-pointers arranged adjacent to said slot and adapted to be struck by said lug, thereby indicating the position of the false bottom, and an incasing frame for protecting the indicator, substantially as described.

640,742. GEARING. FREDERICK O. BULLIS, Rochester, N. Y. Filed Apr. 8, 1899. Serial No. 712,241. (No model.)



Claim.—1. The combination of the gear-wheels, one having fixed teeth with grooved faces and the other having roller-teeth to mesh with the fixed teeth and rotating in and lengthwise the grooves, said grooves having an approximate V form in cross-section.

2. The combination of the gear-wheels, one having fixed teeth with grooved faces and the other having roller-teeth to mesh with the fixed teeth and rotating in and lengthwise the grooves, said grooves having an approximate V form in cross-section, and terminating near their bottoms in undercut recesses.

3. A pair of gear-wheels, one having rigid teeth with grooved faces, and the other having roller-teeth to engage the rigid teeth, said roller-teeth projecting into the grooves of the rigid teeth, as specified.

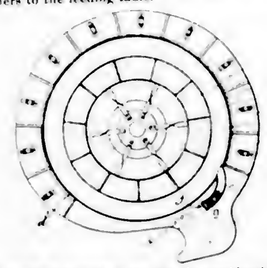
4. Gear-wheels, one having rigid grooved teeth, and the other having roller-teeth to engage the rigid teeth, and conical pivots for the roller-teeth, in combination with toothed disks on the pivots, and pins held by the gear to engage the disks, and retaining-nuts for the disks.

640,743. DELIVERY-TABLE FOR HOOK-AND-EYE CARDING MACHINES. TIMOTHY J. CARMODY, Waterbury, Conn., assignor to the American Pin Company, same place. Filed June 13, 1898. Serial No. 683,267. (No model.)

Claim.—1. In a delivery-table or the like, in combination, a filling-table, a revolving feeding-table, means for revolving the feeding-table, and means, including an operating-machine located on the filling-table, for delivering carriers to the feeding-table.

2. In a delivery-table or the like, in combination, a filling-table, a revolving feeding-table with bins located thereon, means for revolving said feeding-table, and means, including a machine located on the filling-table for delivering carriers to the feeding-table

3. In a delivery-table or the like, in combination, a filling-table of circular form, a feeding-table located in a central opening in the filling-table, means for revolving the feeding-table, and means, including an operating-machine located on the filling-table, for delivering carriers to the feeding-table.

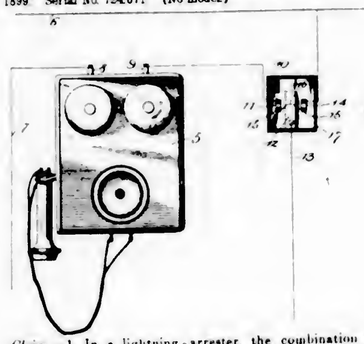


4. In a delivery-table or the like, in combination, a filling-table of circular form, a feeding-table located in a central opening in the filling-table, means for revolving the feeding-table, bins located on the feeding-table in position to provide a clear space between the ends of the partitions between the bins and the edge of the table, and means, including an operating-machine located on the filling-table, for delivering carriers onto the feeding-table

5. In a delivery-table or the like, in combination, a filling-table of circular form with compartments arranged thereabout, a feeding-table located in a central opening in the filling-table, means for rotating the feeding-table, means, including an operating-machine located on the filling-table for delivering a carrier to the feeding-table, and a delivery-trough for guiding empty carriers to the feeding-table.

6. In a delivery-table or the like, in combination, a revolving feeding-table, means for revolving the feeding-table, a filling-table having an opening relatively located with respect to an operating-machine, and adapted to receive cards from a carrier, and means, including the feed of said operating-machine located on the filling-table for delivering carriers to the feeding-table.

640,744. LIGHTNING-ARRESTER. CHARLES C. CHINN, Canton, Mo., assignor of one-half to Henry C. Chinn, same place. Filed July 21, 1899. Serial No. 724,671. (No model.)



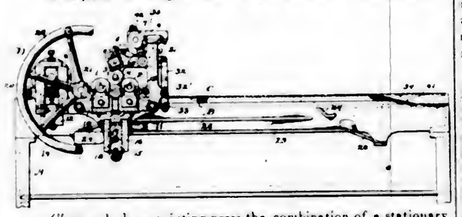
Claim.—1. In a lightning-arrester, the combination with a ground-plate, of discharge-plates adjacent thereto and adapted to discharge to the ground-plate, and a fuse connected with the discharge-plates and lying adjacent the ground-plate and adapted to discharge thereto.

2. In a lightning-arrester, the combination with a ground-plate, of discharge-plates adjacent the ground-plate and adapted to discharge thereto, a fusible connection between the discharge-plates and adapted to discharge to the ground-plate, and a resistance in the circuit of the discharge-plates.

3. In a lightning-arrester, the combination with a ground-plate, of a discharge-plate at each side of the ground-plate and separated therefrom by an interspace and adapted to discharge thereto, a fuse-wire connected with the discharge-plates and separated from the ground-plate by an interspace less than the separation of the ground-plate from the discharge-plate, said fuse-wire being adapted to discharge to the ground-plate, whereby the fusing of the wires will act to assist arcing between a discharge-plate and the ground-plate, a line connection with one of the discharge-plates, and an instrument having intimate connection with the other discharge-plate, and a choking-coil between the instrument and its plate

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640,745. PROOF-PRESS. THOMAS G. CLARIDGE, New York, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, same place. Filed Apr. 25, 1898. Serial No. 678,726. (No model.)



Claim.—1. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, an impression-roller on the said carriage, slides in the carriage controlling the position of the impression-roller with reference to the bed, and flanges on the frame of the press controlling the position of the slides whereby during one half of a reciprocation of the carriage the impression-cylinder is held above the bed and during the succeeding half thereof it is held upon the bed, substantially as set forth

2. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, an impression-roller on the said carriage, slides in the carriage controlling the position of the impression-roller with reference to the bed, guide-rollers upon the slides, horizontal flanges on the frame of the press for engaging with the guide-rollers and pivoted inclines for diverting the guide-rollers from a position below to a position above the flanges, substantially as set forth.

3. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, a roller on the said carriage, slides in the carriage controlling the position of the roller with reference to the bed, and flanges on the frame of the press controlling the position of the slides whereby during one half of a reciprocation of the carriage the roller is held above the bed and during the succeeding half thereof it is held upon the bed, substantially as set forth.

4. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, a roller on the said carriage, slides in the carriage controlling the position of the roller with reference to the bed, guide-rollers upon the slides, horizontal flanges on the frame of the press for engaging with the guide-rollers and pivoted inclines for diverting the guide-rollers from a position below to a position above the flanges, substantially as set forth.

5. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, a form-roller on the said carriage, slides in the carriage controlling the position of the form-roller with reference to the bed, and flanges on the frame of the press controlling the position of the slides whereby during one half of a reciprocation of the carriage the form-roller is held upon the bed and during the succeeding half thereof it is held above the bed, substantially as set forth.

6. In a printing-press the combination of a stationary bed, a carriage reciprocating to and fro across the bed, a form-roller and an impression-roller mounted upon the carriage, a set of slides for each controlling the positions respectively of the form-roller and impression-roller, and horizontal flanges upon the frame of the press whereby the positions of the form-roller and impression-roller with reference to the bed are caused to be opposite to each other and to change on each half reciprocation of the bed, substantially as set forth.

7. A printing-press frame provided with a horizontal flange as 26, a pivoted incline as 24, a reciprocating carriage, an impression-roller mounted therein and a guide-roller carried by the carriage and adapted to ride upon the upper side of said flange when the carriage is moved in one direction and upon the lower side thereof when the carriage is moving in the other direction and to automatically shift from one position to the other, substantially as set forth.

8. A printing-press frame provided with a flange as 26, pivoted incline as 24, fixed safety cam-incline as 27, a carriage reciprocating along the frame, and a roller moving in guides in the carriage, the movement of the roller being controlled by the inclines, substantially as set forth.

9. In a printing-press, the combination with a form-bed, of a reciprocating carriage, impression and inking rollers mounted therein, devices for moving the impression-roller out of contact with the form on one stroke of the carriage and permitting it to run in contact with the form on the other stroke, devices for lifting the inking-roller away from the form when the impression-roller is running in contact with it and for permitting it to run in contact with it when the impression-roller is out of contact, and independent means for operating each set of devices, substantially as described.

10. The combination with a bed, of a reciprocating carriage, an impression-roller, bearings for the roller, frames in which the bearings are mounted, vertically-movable slides operating to produce a movement of the roller with relation to the bed, and means stationary with respect to the bed and acting on the slides for operating the slides to produce said movement during alternate strokes of the carriage, substantially as described.

11. In a printing-press, the combination with a stationary bed, of a reciprocating carriage, a pair of form-rollers, pivoted bearings in which the form-rollers are mounted, and means including a cam-surface stationary with respect to the bed for turning the bearings on their pivots to lift and hold the form-rollers away from the form during alternate strokes of the carriage, substantially as described.

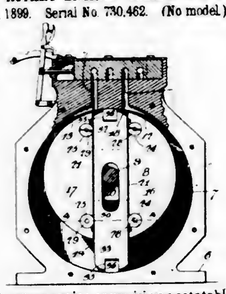
12 In a printing-press, the combination with a stationary bed, of a reciprocating carriage, a roller on said carriage, slides on the carriage controlling the position of the roller with reference to the bed, and means including a cam-surface stationary with respect to the bed and acting on the slides for operating the slides to hold the roller out of contact with the bed during alternate strokes of the carriage, substantially as described.

13. In a printing-press, the combination with a reciprocating carriage, of a set of form-rollers, pivoted bearings in which the form-rollers are mounted, a slide for operating against both bearings to turn them on their pivots, and means including a cam-surface stationary with respect to the bed for operating the slide, substantially as described.

14. In a printing-press, the combination with a reciprocating carriage, impression and form rollers mounted therein, slides for producing a movement of the impression and form rollers with relation to the form and for holding either the impression or the form rollers away from the form during each stroke of the carriage, and independent means for alternately operating the slides, substantially as described

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640,746. ROTARY ENGINE. CHARLES M. CONNER, Otsego, Ind. Filed Sept. 14, 1899. Serial No. 730,462. (No model.)



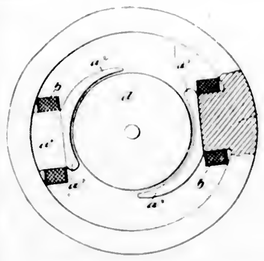
Claim.—1. A rotary engine comprising a rotatable piston including segmental portions having a connecting-block and separated at their ends by interspaces, a slidable abutment comprising blocks slidably disposed in the interspaces and having mutual connections, perforations formed longitudinally of the piston, recesses in the ends of the piston concentric with the perforations and opening into the said interspaces and spindles mounted in the perforations and having rollers at their ends lying in the recesses and projecting into the interspaces to engage the blocks of the abutment.

2. In a rotary engine, the combination with a cylinder and a shaft, of a piston mounted upon the shaft and adapted for rotation, said piston including segmental portions separated at their ends by interspaces and having a connecting-block through which said shaft is passed, perforations in the said segmental portions, depressions concentric with the perforations, spindles in the perforations, rollers at the ends of the spindles and lying in the depressions, and projecting into the interspaces, and an abutment, comprising slotted side pieces disposed with the shaft in their slots, blocks connecting the side pieces and lying in the interspaces in contact with the rollers, and bearing-blocks seated in the ends of the abutments and having means for holding them yieldably against the inner periphery of the cylinder.

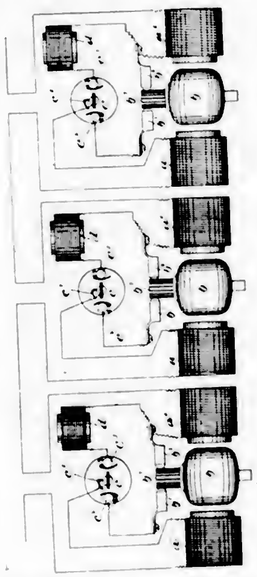
640,747. ELECTRIC MOTOR. OLIVER F. CONELLY, Springfield, Ohio. Filed Apr. 24, 1899. Serial No. 714,158. (No model.)

Claim.—In an electric motor, a metallic supporting-ring integrally formed with T-shaped heads, said heads being formed with one

long and one short pole and separately-formed coils adapted to be hooked over the long pole and pressed into position over the short pole, whereby the said coils are held in place on the said pole-pieces wholly by the projecting poles extending in opposite directions, substantially as specified.



640,748. ELECTRIC MOTOR AND CIRCUIT THEREFOR. OLIVER F. CONKLIN, Springfield, Ohio. Filed Apr. 24, 1899. Serial No. 714,159. (No model.)

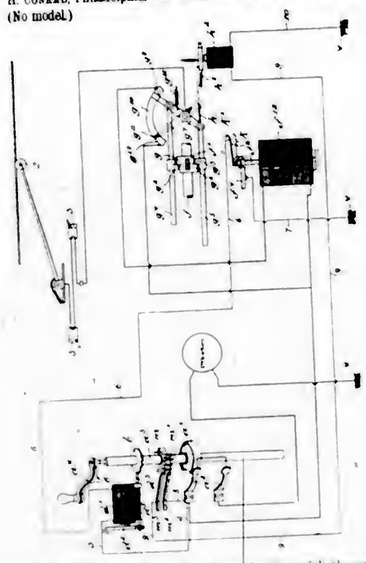


Claim.—1. The combination with a plurality of motors connected in series, the field-coils of which are always in circuit, and a switch for each motor for throwing into and out of the circuit the armature of said motor and a resistance equal to the impedance of said armature adapted to be thrown in circuit when said armature is thrown out, substantially as and for the purpose specified.

2. The combination with a plurality of electromotors, a switch connected with each of said motors, said switch being located between the field-magnets and the armature of said motor, and a resistance equal to the impedance of said armature also connected to said switch between the field-magnets whereby the armature may be cut out and the resistance cut into said circuit without affecting the field-coils in said circuit, substantially as specified.

3. The combination with a plurality of electric motors connected in series, and a switch connected with each of said motors for cutting out and in the armatures of said motors with the field-coils always in circuit, and a resistance forming a part of and connected to said motors equal to the electric impedance of said armatures and connected to said switch and to the field-coils in such a manner that the said resistance may be included in the circuit with the field-coils when the armature is cut out, substantially as and for the purpose specified.

640,749. CONTROLLER-OPERATING MECHANISM. WILLIAM H. CONRAD, Philadelphia, Pa. Filed Nov. 1, 1899. Serial No. 735,467. (No model.)



Claim.—1. In a controller, the combination with the controller-cylinder and its shaft, of means for locking said shaft and cylinder against movement in one direction and mechanism controlled by the travel of the vehicle for releasing said locking means, substantially as and for the purposes described.

2. In a controller, the combination with the controller-cylinder, its shaft and a notched locking-disk secured to said shaft, of a pawl, an electromagnet adapted when energized to advance said pawl into engagement with said disk and means controlled by the travel of the vehicle for deenergizing said magnet to release said pawl from said disk, substantially as and for the purposes described.

3. In a controller, the combination with the controller, its shaft and a notched locking-disk secured to said shaft, of a pawl, a spring adapted to retract said pawl, an electromagnet adapted when energized to advance said pawl against the tension of its spring into engagement with said disk and mechanism controlled by the travel of the vehicle for deenergizing said magnet, substantially as and for the purposes described.

4. In a controller, the combination with the controller-cylinder, its shaft and means for locking said shaft and cylinder against movement in one direction, of a solenoid normally included in the main circuit of the controller and adapted to be energized thereby, said solenoid adapted when energized to control said locking means, and means, controlled by the travel of the car, for bringing said solenoid into and out of said main circuit, substantially as and for the purposes described.

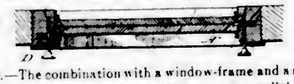
5. In a controller, a controller-cylinder located in the main circuit, a shaft carrying said cylinder, a notched disk located on said shaft, a pawl adapted to engage said disk and to thereby lock the shaft from turning in one direction, an electromagnet included in a branch circuit and adapted when energized to advance the pawl into locking engagement with said disk and a solenoid included in the main circuit and adapted when energized to complete the branch circuit and energize said electromagnet substantially as and for the purposes described.

6. In a controller, a controller-cylinder located in the main circuit, a shaft carrying said cylinder, a notched disk located on said shaft, a pawl adapted to engage said disk to lock the same and the shaft against movement in one direction, an electromagnet included in a branch circuit and adapted when energized to advance the pawl into locking engagement with the disk, a solenoid normally included in the main circuit and adapted when energized to complete the branch circuit and energize said electromagnet and means controlled by the travel of the vehicle for automatically cutting said solenoid out of the main circuit, substantially as and for the purposes described.

7. In a locking means for controller-shafts, an electromagnet controlling said locking means, a solenoid included in the main circuit and controlling the magnet, and a lever controlled by the travel of the car and adapted to automatically cut said solenoid out of the main circuit, substantially as and for the purposes described.

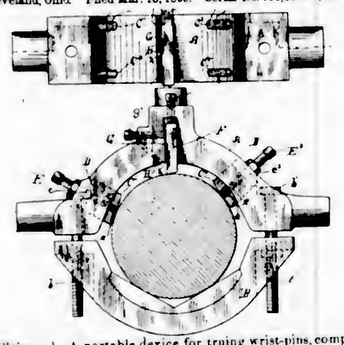
8. In a locking means for controller-shafts, an electromagnet controlling said locking means, a solenoid included in the main circuit and controlling the magnet, a lever, means controlled by the travel of the car to advance said lever and to thereby cut said solenoid out of the main circuit, means for locking said lever in its advanced position, and means controlled by the controller-shaft for releasing the lever-locking means when said controller-shaft is turned, substantially as and for the purposes described.

640,750. SASH-HOLDER. AUSTIN Z. CONVERSE, Chattanooga, Tenn. Filed Oct. 23, 1899. Serial No. 734,556. (No model.)



Claim.—The combination with a window-frame and a sliding sash therein, of a rotatable wedge located in a recess parallel with a face of said sash, and an operating-shaft journaled in said frame and adapted to rotate said wedge into frictional engagement with a face of said sash, substantially as specified.

640,751. DEVICE FOR TRUING WRIST-PINS. THOMAS CORWIN, Cleveland, Ohio. Filed Mar. 13, 1899. Serial No. 708,882. (No model.)



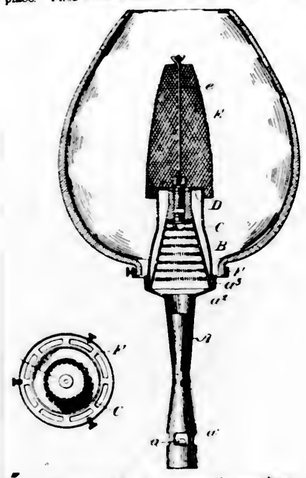
Claim.—1. A portable device for truing wrist-pins, comprising a tool-carrying head, having a crutch or V-shaped groove upon its interior surface for centering and affording a universal bearing for cylindrical bodies of varying diameters; centering-dogs radially adjustable in said head; a scraping-tool adjustable in a guideway in said head; and lugs located upon the exterior of said head, substantially as described and for the purpose set forth.

2. A portable device for truing wrist-pins consisting of a tool-carrying head, comprising two coöperating and mutually-adjustable members, one of said members having a V-shaped groove upon its interior for centering and affording a universal bearing-surface for cylindrical bodies of varying diameters; and the other member being provided with radially-adjustable centering-dogs, and an adjustable scraping-tool, substantially as described and for the purpose set forth.

3. A portable device for truing wrist-pins, consisting of a tool-carrying head, comprising two coöperating and mutually-adjustable members, one of said members having a V-shaped groove upon a portion of its interior surface for centering and affording a universal bearing surface for cylindrical bodies of varying diameters, the other member being provided with an adjustable scraping-tool operating in a guideway in said member, and with two pairs of centering-dogs radially adjustable in said member one pair of said centering-dogs being located at each side of said scraping-tool substantially as described and for the purpose set forth.

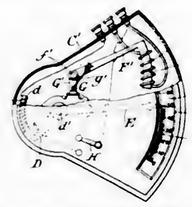
4. A portable device for truing wrist-pins, consisting of a tool-carrying head, comprising two coöperating and mutually-adjustable members, one of said members having a V-shaped bearing-surface, and the other member being provided with a scraping-tool located in a guideway in said member, set-screws for adjusting said scraping-tool, set-screws for steadying said scraping-tool, a pair of centering-dogs located at each side of said scraping-tool, said centering-dogs being radially adjustable in guideways in said member, set-screws located in back of said member for radially adjusting said dogs, and set-screws located in the side of said member for limiting radial movement of said dogs, substantially as described, and for the purpose set forth.

640,752. INCANDESCENT GAS-BURNER. ALFRED A. COWLES, New York, N. Y., assignor to the Ansonia Brass and Copper Company, same place. Filed June 22, 1899. Serial No. 721,439. (No model.)



Claim.—The combination in an incandescent lamp, of a supply-tube having a flange rigidly secured to and extending from the same, said flange having a rim to which the burner is secured, and a globe-support integral with said rim, substantially as described.

640,753. DEVICE FOR INDICATING CONDITION OF STORAGE BATTERIES. HERMANN F. CUNTZ, Hartford, Conn., assignor to the Columbia and Electric Vehicle Company, same place and Jersey City, N. J. Filed Oct. 27, 1899. Serial No. 734,925. (No model.)



Claim.—1. In a device for indicating the condition of storage batteries, the combination of a voltmeter and an electromagnetic device wound to respond to differences in the amperage and operatively connected with the voltmeter to control its operation, substantially as shown and described.

2. In a device for indicating the condition of storage batteries, the combination of a voltmeter, a cut-out in circuit with said voltmeter, and an electromagnetic device wound to respond to differences in amperage and operatively connected with said cut-out to control the operation of the voltmeter, substantially as shown and described.

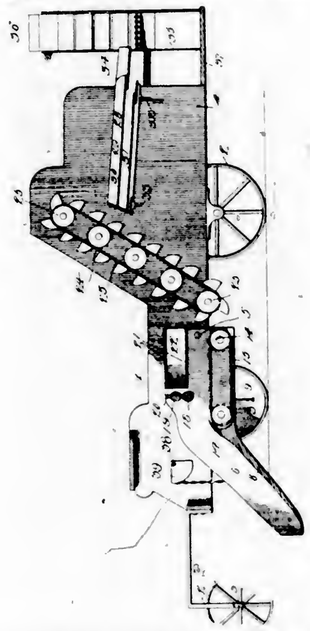
3. In a device for indicating the condition of storage batteries, the combination of a volt solenoid, a voltage-indicator carried with the core of said solenoid, an ampere solenoid, and a cut-out in the circuit of the volt solenoid operatively connected with the core of the ampere solenoid, substantially as shown and described.

4. In a device for indicating the condition of storage batteries, the combination of a voltmeter, a cut-out in the circuit of said voltmeter, an electromagnetic device wound to respond to differences in amperage and operatively connected with the cut-out, and a switch included in a shunt-circuit of the voltmeter around said cut-out, substantially as shown and described.

640,754. POTATO-DIGGER. DELPHIS DENIS, St. Benoit, Canada. Filed May 16, 1899. Serial No. 717,106. (No model.)

Claim.—1. A potato-digger, comprising a frame; a digger-nose pivotally and removably secured within said frame; an independent rolling support adjustably secured to said nose, whereby the point of the nose will be held at a substantially predetermined point in the

ground relative to said support without varying the position of said frame; means, mounted within said nose, for automatically removing the stalks from the potatoes; a vibrating cleanser and assorter mounted within said frame; means located at the rear end of said frame for delivering the assorted potatoes to proper receptacles therefor; conveyers located within said frame for automatically carrying the potatoes therethrough; and means operated by the forward movement of the digger-frame for imparting movement to the stalk-removing means and to said conveyers, substantially as described.



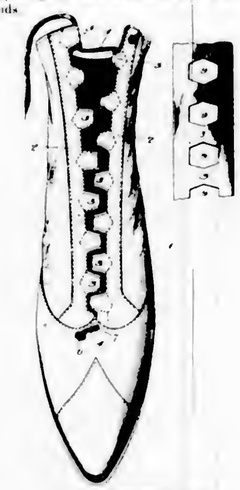
2. A potato-digger, comprising a frame, a digger-nose removably mounted therein, an independent rolling support adjustably secured to said nose, whereby the point of the nose will be held at a substantially predetermined point in the ground relative to said support without varying the position of said frame; a vibrating cleanser and assorter mounted within said frame; means for removing the stalks from the potatoes, carried by said nose and operated automatically, said means being located between the digger-nose and said vibrating cleanser and assorter; means for independently discharging said assorted potatoes; perforated conveyers located within said frame, said conveyers being adapted to carry the potatoes from said nose to said independent receptacles; and means for imparting movement to said stalk-removing means and the conveyers, said means being operated by the forward movement of the digger-frame, substantially as described.

3. A stalk-remover for potato-diggers, comprising a series of rolls held in yielding contact and having a rotary movement, said rolls moving at a point above the path of movement of the dug potatoes, and a series of curved delivery-tubes mounted in rear of said rolls, to receive the stalks as they pass from said rolls, said tube being adapted to deliver the stalks at a point independent from the delivery portion of the potato-conveying means, substantially as described.

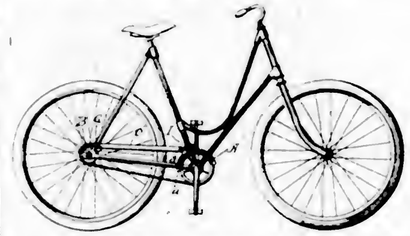
4. A bucket for conveyers, comprising end pieces, a concave perforated front and bottom piece, and a series of bars extending between said end pieces, said bars being located at the rear of the bucket, substantially as described.

640,755. SHOE-FASTENER. JEREMIAH DONAVAN, Carlisle, Pa., assignor of one-half to M. B. Miller, same place. Filed Feb. 11, 1898. Serial No. 669,923. (No model.)

Claim.— The herein-described reinforcing strip or stay for one of the separated edges of an article of wearing-apparel, consisting of a blank having parallel side edges and an intermediate longitudinal series of openings, the opposite end walls of each opening being intermediately deflected outwardly, whereby, when the blank is folded or doubled upon a line connecting the centers of said openings and parallel with the side edges of the blank, the portions of the blank between said openings form looped tongues tapered in width toward their closed ends.



640,756. BICYCLE-CHAIN GUARD. FRANK DOUGLAS, Chicago, Ill. Filed Mar. 27, 1899. Serial No. 710,554. (No model.)

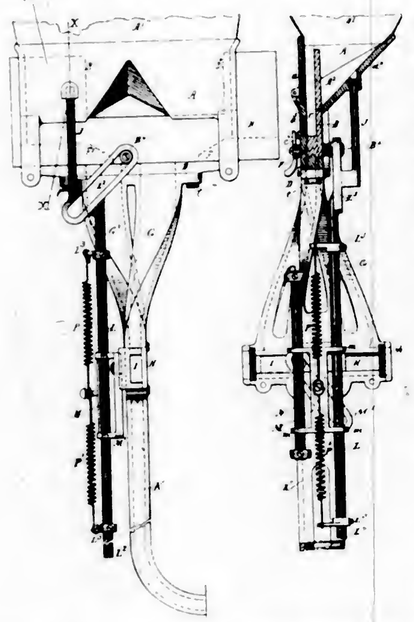


Claim.—1. A chain and sprocket-wheel guard for only the upper line of chain and the upper half of the sprocket-wheels of a bicycle, comprising a curved guard over the teeth of the upper part of a sprocket-wheel with its inwardly-projecting flange over the face of the sprocket-teeth on the backward and downward curved part A, and a reach C extending from the top of the curved part back over the upper line of chain to the clamp B, the clamp B to support and hold the rear end of the guard, and the clamp I to support and hold the front end of the guard, all of which may be adjusted up or down by means of clamp I and clamp B, which clamps around the upright tubing of a bicycle-frame and admits of a change to a larger or smaller sprocket-wheel, substantially as herein specified.

2. A combined clamp and rear-sprocket guard, comprising the inner half of the clamp with its half-circle depression on the angle of a rear frame-stay and having a backward-extending curved guard over the rear sprocket and a forward projection to receive the back end of reach C, and with a cap G, curved to fit outside of the angle rear stay which bolted together forms a clamp to hold the rear end of reach C, and clamp the guard to the rear stay of a bicycle-frame when used in combination with reach C of the chain-guard, substantially as herein specified.

640,757. AUTOMATIC FEED MECHANISM FOR BOTTLE-STOPPERS. HORATIO GATES and FRANK O. WOODLAND, Worcester, Mass., assignors, by mesne assignments, to the Automatic Bottle Stopper Feed Company, same place and Portland, Me. Filed Nov. 5, 1898. Serial No. 695,536. (No model.)

Claim.—1. In a crown-feeding mechanism for bottle-stoppering machines, the wedge-shaped containing-hopper, provided at the bottom thereof with a straight oblong subchamber or pocket extending longitudinally across the width of the hopper, with its space approximately corresponding to the thickness of a crown, and its vertical depth greater than the diameter of a crown, said pocket having a horizontal bottom and adapted for the assemblance thereon of a row of crowns in single edgewise upright order, an opening, or openings, through said bottom for the edgewise exit of the crowns, one upright side of said pocket being movable endwise thereof and provided with means for pushing the crowns edgewise along the bottom, from right and left, toward the exit, substantially as set forth.



2. In a feed mechanism for the purpose set forth, a laterally-tapering hopper terminating in an oblong subchamber or pocket having a straight upright wall, a bottom race with an exit opening or openings therethrough, a slide-plate forming one wall of said pocket, the interspace adapted for the assembling therein of crowns in edgewise upright order, portions of said slide-plate projecting upward within the hopper for stirring the crowns therein, the foot of said slide-plate working adjacent to said race, and means for operating said slide-plate.

3. In a feed mechanism for the purpose set forth, the tapering hopper terminating in an oblong pocket adapted for the edgewise reception of the crowns, and having a straight side wall, an endwise-movable slide-plate forming one side of said pocket, and having upward-extended end portions that project within the hopper, the pocket-interspace being extended upward between said end portions and the straight wall of the hopper, for the purpose set forth.

4. In a feed mechanism for the purpose set forth, a tapering hopper terminating in an oblong subchamber adapted for the assembling therein of the crowns in singular edgewise order, a bottom race, an endwise-reciprocative slide-plate forming one wall of said subchamber, and pusher devices within the interval, movable along the bottom race toward and from the exit-opening.

5. In a feed mechanism for bottle-stoppering machines, in combination, a hopper having a straight wall and an inclined wall; a movable slide-plate disposed parallel to said straight wall and forming therewith an interval or pocket at the foot of the incline adapted for receiving stopper-crowns in edgewise position, a bottom race for said slide having two adjacent oppositely-disposed exit-openings therethrough, a central longitudinal rib along said race, and side grooves leading to the respective openings, and a push device movable over said race at either side of the openings for stirring the edgewise-disposed crowns within the pocket.

6. In a feed mechanism for bottle-stoppering machines, the combination of a hopper terminating in an oblong subchamber or pocket adapted for assembling crowns in singular order preceding the exit, said hopper having a straight wall, and an inclined wall provided with an intermediate hump or transversely-disposed inclines thereon adjacent to the edge or entrance to said pocket, a slide-plate at the foot of said inclined wall having means for stirring or working the crowns at either side of the hopper toward said hump along the mouth of the pocket, and means for reciprocating said slide-plate.

7. In a feed mechanism for bottle-stoppering machines, the combination of a hopper having a straight wall and an opposite inclined wall, with an upwardly-projecting transverse hump, a longitudinally-reciprocative slide-plate disposed at the foot of said inclined wall parallel to said straight wall with an interval or pocket between adapted for the singular edgewise reception of crowns, the bottom race having an exit-opening therein, pusher devices attached to the slide-plate and movable over said bottom race, and upwardly-projecting portions on said slide-plate, the edges of which move into conjunction with said hump, for the purposes set forth.

8. In a feed mechanism for the purpose set forth, the combination with the hopper-body of the guide-chutes; of a pocket or subchamber adapted for arranging the crowns in singular edgewise relation, said chamber having its lower portion slightly broadened and outwardly inclined at the sides, the bottom or raceway provided with a longitudinal deflecting-rib and side grooves, two adjacent exit-openings oppositely disposed with their openings laterally offset to aline at one edge with said grooves, and having a raised guard-lip at the back edge of said openings in continuation of the longitudinal rib, and dividing the edge of the exit-opening from the opposite groove.

9. In a feed mechanism for bottle-stoppering machines, the combination with the hopper having the straight oblong pocket or interval for edgewise-arranged crowns, and the oppositely-facing adjacent exit-openings in the bottom thereof; of two twisted guide-chutes respectively connected to said openings, and turning to a common position of facement, a transverse passway-groove joining said chutes with a single delivery-way, and a sliding-bar pass-gate supported parallel with the plane of the crowns and having end lugs that close or control the passway, said gate-bar being horizontally movable endwise within said passway-groove, and means for reciprocally moving said pass-gate, substantially as set forth.

10. In a feed mechanism for the purpose set forth, the combination with two guide-chutes formed with a separating-barrier approximately the width of the chute, and the outer guide-walls of the chutes at 8 disposed at lower position than the bottom edge 10 of said barrier, the transverse passway connecting said chutes, and the single delivery-chute centrally disposed beneath said barrier; of the endwise-movable pass-gate slide I having the end lugs i that control the guide-chutes, the height of said pass-gate slide being less than the diameter of the crowns or article to be fed, substantially as and for the purpose set forth.

11. In a feed mechanism for the purpose set forth, a feed-hopper having an interspace or subchamber adapted for the assembling of the crowns in singular edgewise relation, a longitudinal bottom race with the exit-opening therefrom, a reciprocating slide-plate and pushers movable along said race, and a removable section or door in the wall of the hopper arranged to open said interspace adjacently above and along the line of said bottom race, substantially as shown and for the purpose set forth.

12. In a feed mechanism for the purpose set forth, the combination with the hopper, its reciprocating slide-plate, the guide-chutes, the pass-gate therefor, the actuating-rod and connections therewith for moving said slide-plate; of the gate-operating head, the guides therefor, and the oppositely-directed springs connecting said gate-operating head with said actuating-rod, substantially as described.

13. In a feed mechanism for the purpose set forth, the combination with the hopper having the inclined wall, the reciprocating slide-plate, and the actuating-rod whereby said slide-plate is operated; of the lifter-pin J connected with said actuating-rod and projecting upward through the wall of the hopper, substantially as set forth.

640,758. FLEXIBLE METALLIC CONDUIT. EDWIN T. GREENFIELD, New York, N. Y. Filed July 17, 1899. Serial No. 724,060. (No model.)

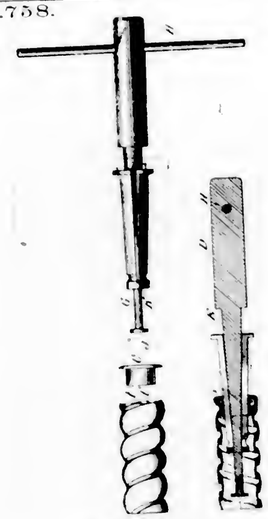
Claim.—1. A metallic conduit having jagged ends, in combination with a bushing-ring secured to the inner surface and end thereof, substantially as described.

2. A metallic conduit having jagged ends, in combination with a bushing-ring secured to the inner surface thereof, said ring being provided with a flange which covers the end of the conduit, substantially as described.

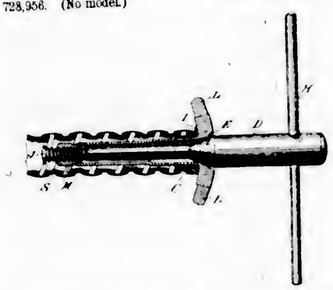
3. A metallic conduit provided with a bushing-ring, said ring being secured against the inner surface of the conduit and provided with a flange which rests against the end thereof, substantially as described.

4. A flexible conduit composed of interlocking metallic strips provided with bushing-rings at its opposite ends, said rings being secured against the inner surface of the conduit and having flanges which rest against the ends thereof, substantially as described.

640,758.



640,759. TOOL FOR BUSHING ENDS OF METALLIC TUBES. EDWIN T. GREENFIELD, New York, N. Y. Filed Aug. 30, 1899. Serial No. 728,956. (No model.)



Claim.—1. As an article of manufacture an expansible bushing-tool for inserting bushings in the ends of tubes consisting of a slitted tube and a cone-shaped expander, the free ends of the slitted tube being bent outward so as to constitute a sealing-flange for securing the bushing against the end of the tube, said parts being held together at their inner ends and adapted to slide the one through the other.

2. As an article of manufacture a bushing-tool consisting of a slitted tube interiorly screw-threaded, a cone-shaped expander having a corresponding male screw-thread and an operating-handle, the slitted tube being provided with lugs or arms for holding the tool from turning.

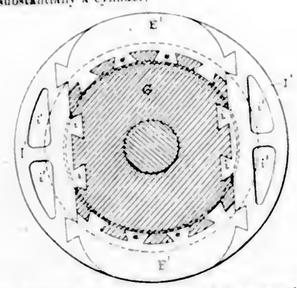
3. As an article of manufacture a bushing-tool consisting of a slitted tube having a screw-threaded collar M and outwardly-turned ends F^2 F^3 with holding-lugs L L, in combination with a cone-shaped body part screw-threaded at one end and having an operating-handle H at the other, substantially as described and shown.

640,760. INDUCTOR DYNAMO-ELECTRIC MACHINE. HENRY GEISENBONER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 14, 1898. Serial No. 696,333. (No model.)

Claim.—1. The combination with an inductor having radial pole-pieces, of a light, hollow, non-magnetic cooling structure secured to the inductor, and filling the spaces between the pole-pieces to present with the latter a substantially cylindrical surface.

2. A rotatable inductor with radially-extending pole-pieces and provided with alternate layers of non-magnetic metal and non-resonant insulation, which fill the spaces between the pole-pieces.

3. In an inductor, the combination of a supporting-core, laminated poles secured to the core, and intervening plates of alternate insulating material and non-magnetic metal secured to the core and filling out the space between the poles so that the envelop of the inductor is substantially a cylinder.



4. The combination in an inductor, of the supporting-core, the laminated iron forming the pole-pieces dovetailed to the core, and the plates of non-magnetic metal, such as brass, and of insulation, dovetailed to the core and the pole-pieces, the whole forming substantially a cylinder.

5. The combination with an inductor having radial pole-pieces, of non-magnetic material interlocked with the inductor structure and filling the spaces between the pole-pieces.

6. A rotatable inductor comprising a separate core, radial pole-pieces, and non-magnetic material interlocked with said core and pole-pieces and filling the spaces between the poles.

7. A rotatable inductor comprising a separate core, pole-pieces secured thereto, and non-magnetic material secured to the core and filling the spaces between the pole-pieces.

8. A rotatable inductor comprising a separate core, pole-pieces secured thereto, and non-magnetic material secured to the pole-pieces and filling the spaces between said pole-pieces.

9. A rotatable inductor comprising a separate core, pole-pieces secured thereto, and non-magnetic material secured to the core and pole-pieces, and filling the spaces between the pole-pieces.

10. A rotatable inductor with radially-extending pole-pieces and provided with non-magnetic laminæ filling the spaces between the poles, each of which laminæ is interlocked with the inductor structure.

640,761. BALL-CASTER. JOHN H. GODDEN, Emmetsburg, Iowa. Filed Feb. 18, 1899. Renewed Nov. 16, 1899. Serial No. 737,249. (No model.)

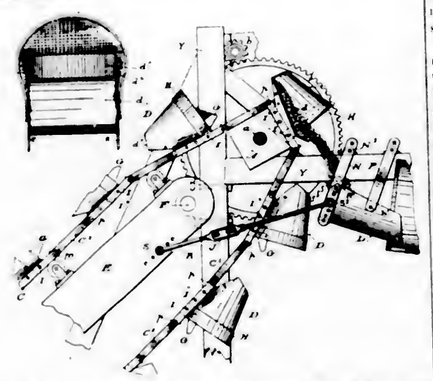


Claim.—1. A caster of the type specified comprising a base having a boss provided in its sides with indentations beginning at the lower end of the boss and ranging upwardly and increasing in width and depth as they approach the upper end, a roller-ball seated against antifriction devices applied to the lower face of the boss, and a casing for holding the roller-ball in place slipped upon the boss and having portions below its top edge, in contradistinction to extensions or tongues projecting vertically from said top edge, deflected inward into the indentations of the boss and interlocking therewith and giving a fluted appearance to the caster, substantially as specified.

2. In a furniture-caster, the combination of a base having openings at intervals in its outer edge for the reception of fastenings and having a pendent boss formed in its edges with indentations in line with the said openings, a roller-ball seated against antifriction devices applied to the boss, and a casing slipped upon the boss and having portions pressed into the indentations thereof to interlock therewith and provide clearance-spaces for the fastenings by means of which the caster is secured to the part to which it is applied, substantially as specified.

640,762. BUCKET DREDGING-MACHINE. JAMES H. GRAY, San Francisco, Cal. Filed Aug. 22, 1899. Serial No. 728,088. (No model.)

Claim.—1. A dredging-bucket having a flaring body of curved outline in cross-section at the front end and tapering to a flattened back end, a flat bottom inclined from back to front, and a projecting front end standing at a reflexed angle beyond the mouth of the bucket, as described.



2. A dredging-bucket having a flat bottom inclined from back to front and a projecting lip or front portion standing outward beyond the mouth of the bucket at a reflexed angle and provided with upwardly-turned sides which are united to the sides of the bucket, as described.

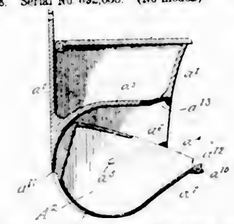
3. A dredging-bucket composed of the arched and flaring body portion having straight side pieces, the flat bottom portion having downwardly-bent side flanges, a closed back formed from the top of the body portion, the side bars securing the parts together and adapted to form double links for uniting a number of buckets in a chain, said bars projecting beyond the front end of the bucket and having eyes near the ends, and the removable cutting-rim detachably secured to the bucket-body and secured by bolts between the side bars of each link, as described.

4. In a dredging-machine a dredger-bucket having double links secured to the bucket-body, eyes in the ends of the bars of said links, and removable bushings secured in said holes, in combination with single links having removable cross-pins fitted to work in the bushings and set-screws securing said bushings and cross-pins in their respective links.

5. In a dredging-machine, the combination with a pivoted bucket-carrying frame, adjustable in a vertical arc, a tumbler above said pivot, and an endless chain of buckets; of a suspended chute set with relation to the path of the buckets to receive the material therefrom, and means connecting the chute below its points of suspension with the bucket-carrying frame below its pivot, for operation as set forth.

6. The combination, with a bucket-carrying frame adjustable in a vertical arc upon a pivot at the upper end, a tumbler above said pivot and an endless chain of buckets, of a chute suspended from points of oscillation beneath the mouths of the buckets and with relation to the path in which they travel to receive the material from the buckets, and means connecting the chute with the pivoted frame, consisting of the rods pivotally attached to the chute and to the frame below their pivots, and having means for adjusting the length of the rods.

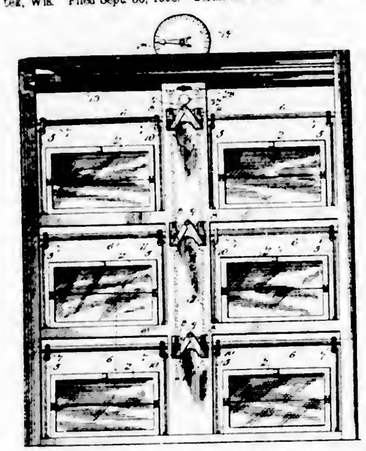
640,763. MATCH SAFE. PRESCOTT G. HALE, Chicago, Ill. Filed Sept. 28, 1898. Serial No. 692,055. (No model.)



Claim.—1. The combination with the casing having side walls provided in their inner faces with the grooves a^4 extending downwardly and rearwardly from the front edges of said walls, of the self-closing receptacle having pintles a^5 removably seated in the lower rear ends of said grooves and pivotally supporting said receptacle, the latter being made heavier in its rear portion and provided with the exposed roughened bottom a^8 and with rigidly-attached upwardly-projecting points a^{12} engaging recesses a^{13} in the casing to prevent the receptacle from being lifted bodily to unseat its pintles when struck upon its roughened bottom, said points and recesses at the same time not interfering with the pivotal movement of the receptacle, substantially as described.

2. The combination with the casing having an upper compartment formed by side walls a, front and rear walls a' and a^2 and a bottom wall a^3, said side walls depending below the bottom wall, and being provided in their inner faces of the depending portions with grooves a^4 extending downwardly and rearwardly from the edges of said walls, of the self-closing receptacle A^3 having pintles a^5 removably seated in the ends of said groove and pivotally supporting said receptacle, the latter being made heavier in its rear portion and provided with the exposed roughened bottom a with upwardly-projecting points a^{12} engaging recesses a^{13} in the casing, and having stops a^{11} adapted to strike the casing to limit the opening of the receptacle, substantially as described.

640,764. WEIGHING-SCALE. GEORGE DE BRETON HAYES, Chetek, Wis. Filed Sept. 30, 1898. Serial No. 692,311. (No model.)



Claim.—1. In a weighing apparatus, the combination of a balance-spring, a weight-holding device connected with one end of the spring, an indicating device, means connected with the other end of the balance-spring for applying tension thereto, said means having a free movement from one limit of its motion to the other and having a constant length of movement, and separate means for varying the tension thus contributed.

2. In a weighing apparatus, the combination of a balance-spring, a weight-holding device connected with one end of the spring, an indicating device, a manually-movable grip, connections between the grip and the other end of the balance-spring, said connections having spaced stops for limiting the movement of the grip in opposite directions, where, when the grip is in its normal position, the balance-spring is free from tension, or is inactive, and when the grip is in its adjusted position, at the other end of its throw, the spring is under weighing tension, to adapt the spring to be subjected to weighing tension only during the operation of weighing and separate means for varying the tension of the balance-spring, substantially as specified.

3. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, including a rocker, and an indicating device operatively connected with the rocker, of a rocking lever having an attached flexible connection traversing a guide-pulley carried by said balance-spring, and means in connection with said lever for holding the same in the desired position, substantially as specified.

4. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, including a rocker, and an indicating device operatively connected with the rocker, of a lever having attached thereto a flexible connection traversing a guide-pulley carried by the balance-spring, and means, for varying the position of said rocking lever, including a movable member having a limited movement, substantially as specified.

5. In a weighing apparatus, the combination with a platform, a

balance-spring, connections between the platform and the balance-spring, including a rocker, and an indicating device operatively connected with the rocker, of a lever having attached thereto a flexible connection traversing a guide-pulley carried by the balance-spring, and means, for varying the position of said rocking lever, including a grip connected with said lever, and means for limiting the movement of said grip, substantially as specified.

6. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, including a rocker, and an indicating device operatively connected with the rocker, of a lever having attached thereto a flexible connection traversing a guide-pulley carried by the balance-spring, and means, for varying the position of said rocking lever, including a flexible connection attached at one end to said lever and provided at the opposite end with a grip or handle, and a stop carried by said flexible connection for contact with a fixed object to limit the movement of the lever, substantially as specified.

7. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a flexible connection traversing a guide at one end of the balance-spring, movable means connected with one end of said connection for holding the same in a fixed position during the operation of the weighing apparatus, and having a limited throw, and adjustable means connected with the other end of said connection, for maintaining the latter in a fixed position, whereby when said movable means are at one limit of their throw, the balance-spring is maintained under tension to support an object upon the platform, substantially as specified.

8. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a flexible connection traversing a guide at one end of the spring, one end of said connection being adjustable toward and from said guide, and the other end being movable through a predetermined interval, also toward and from said guide, and adapted, when moved from the same, to apply, to the spring, a tension controlled by the adjustment of the other end of the connection, substantially as specified.

9. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a flexible connection traversing a guide at one end of the balance-spring, a movable element to which one end of said connection is attached, an adjusting device operatively connected with said element, whereby the attached end of the connection may be held in a fixed position with relation to the guide, and means for moving the other end of the connection toward and from the guide through a predetermined interval to apply tension to the spring, substantially as specified.

10. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a movable element having a limited throw toward and from one end of the balance spring, and in alinement therewith, a connection between said movable element and said end of the spring, whereby when the element is in one position the spring is relieved of tension, and when the element is in its other position the spring is under weighing tension, and means, independent of the movement of said element, for varying the length of the portion of the connection between the element and the connected end of the spring, whereby more or less tension may be applied to the spring by the limited movement of said element, to compensate for variations of elasticity in the spring, substantially as specified.

11. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a lever, means for adjusting said lever, a second lever, means for moving the second lever through a limited interval, and a flexible connection between said levers traversing a guide at one end of the balance-spring, substantially as specified.

12. In a weighing apparatus, the combination with a platform, a balance-spring, connections between the platform and the balance-spring, and an indicating device for registering the movements of the platform in opposition to the tension of the balance-spring, of a lever, a feed-screw connected with the lever for holding the latter at the desired adjustment, a second lever mounted for rocking movement through a limited interval, an exposed grip operatively connected with the second lever and adapted to be manually operated to tilt said lever, and a flexible connection between the levers and traversing a guide upon one end of the balance-spring, whereby, when the second lever is tilted, weighing tension is applied to the balance-spring, the degree of tension being controlled by the first-named lever, substantially as specified.

13. In a weighing apparatus, the combination of a plurality of platforms, a main rocker having a balance-spring and indicating devices connected therewith, auxiliary rockers in connection, respectively, with the platforms, a connection attached to the main rocker and having stops for engagement, respectively, with arms on the auxiliary rockers, and locking devices for securing the auxiliary rockers out of operative relation with said stops, substantially as specified.

14. In a weighing apparatus, the combination of a plurality of platforms, a main rocker having a balance-spring and indicating devices in connection therewith, auxiliary rockers respectively supporting the platforms and having a detachable connection with the main rocker, said auxiliary rockers being provided with holding-arms, and spring-actuated latches adapted for engagement with said holding-arms to maintain the auxiliary rockers out of operative relation with the main rocker, substantially as specified.

15. An automatic weighing rack for cracker-boxes, and the like, consisting of a casing having compartments, shafts journaled in said compartments and having arms, latches for supporting the arms independently, platforms suspended from said arms for the support of the boxes, a weighing-lever, means for connecting each of said arms with the weighing-lever independently, and indicating devices in connection with the weighing-lever, substantially as specified.

16. In combination, a casing having compartments, shafts journaled in said compartments and having arms, platforms suspended from said arms, a spring-actuated weighing-lever, cords for connecting the arms of said shafts with said lever, and indicating devices in connection with the weighing-lever, substantially as specified.

17. In combination, a casing having compartments, shafts journaled in said compartments and having arms from which are suspended platforms, a weighing lever, cords connecting the arms of said shafts with the weighing-lever, a balance-spring connected with the weighing-lever for opposing the weight of the platforms, an indicating device having a rotary member, a cord extending from the weighing-lever over a drum on the spindle of said rotary member, means for turning said drum in the opposite direction to that in which it is actuated by the cord, and a series of latches, in engagement with other arms of said shafts, for holding the shafts out of action, substantially as specified.

18. An automatic weighing rack for cracker-boxes, and the like, consisting of a casing having compartments, shafts journaled in said compartments, arms carried by the shafts, platforms suspended from said arms for the support of the boxes, a weighing-lever, a series of cords extending from said lever through a vertical series of the arms on said shafts, means for cutting out certain of the platforms, and means for indicating the weight upon a platform, substantially as specified.

19. An automatic weighing-rack for cracker-boxes, and the like, having a casing provided with compartments, shafts arranged in said compartments and having arms, platforms suspended from said arms for the support of boxes, a weighing-lever, cords depending from the weighing-lever and provided with stops located respectively in relation with arms of said shaft, means for securing said shafts with their arms out of operative relation with the stops on said cord, and indicating devices in connection with the weighing-lever, substantially as specified.

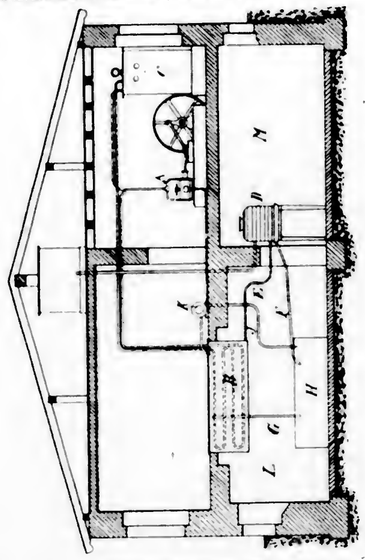
640,765. COOLING OR REFRIGERATING APPARATUS. WILHELM HELM, Berlin, Germany. Filed Dec. 13, 1898. Serial No. 699,110. (No model.)

Claim.—1. In a freezing and cooling plant for dairies and the like the combination with a freezing-room and an adjacent cold-storage room, of an ice-machine located in and accessible from the freezing-room, and having its uninsulated walls extended through the partition between said rooms.

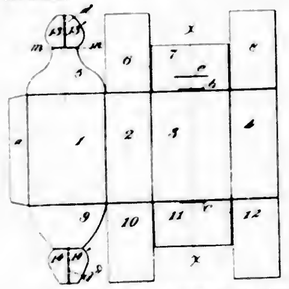
2. In a freezing and cooling plant for dairies and the like the combination with a freezing-room, an adjacent cold-storage room, and a cooling-room, of an ice-machine located in and accessible from the freezing-room, and having uninsulated walls extending into said cold-storage room, coolers in said cooling-room connected to said ice-machine, and a pump for forcing the cooling liquid back to said machine.

3. In a freezing and cooling plant for dairies and the like, the combination with a cold-storage room, of a refrigerating-machine located at the top of said room, and having its under walls uninsulated.

4. The combination in a cooling plant for dairies and the like, of a cold-storage room, having a refrigerating-machine located at the top, said machine having its lower walls uninsulated, coolers connected with the said machine, a tank located below said machine and connected thereto and a pump, whereby the liquid descends from such machine to the coolers and thence to the tank, from which it is again forced to said machine by said pump.



640,766. KNOCKDOWN FOLDING PAPER BOX. ALBERT R. HIBSON, New York, N. Y., assignor to the National Folding Box and Paper Company, New Haven, Conn. Filed Apr. 22, 1899. Serial No. 714,060. (No model.)



Claim.—1. In a folding paper box a paper locking-head divided or slitted into two members by a slit originating at, and extending therethrough from, a solid unslitted neck connecting it with the remaining parts of the box, said members normally being, and abutting in the same plane against each other along the line of said cut, a longitudinal aperture in said box of less extent longitudinally than the normal width of said head, and other parts of said box connecting the said head and aperture so that the former, when temporarily distorted by overlapping of one of its said members upon the other may be inserted into and wholly passed through said aperture and afterward retained on the inside of said box on the resumption, and during the continuance, of the normal position of the said members relatively to each other, substantially as and for the purposes described.

2. In a box a slitted head connected by an unslitted neck with a flap likewise unslitted, the said flap being hinged or rotatively connected with the remainder of the box, and a longitudinal aperture in another part of said box of less longitudinal extent than the width of said head when normally expanded, and said aperture so situated as to admit the insertion therethrough into the interior of the box of the whole of said slitted head, substantially as and for the purposes described.

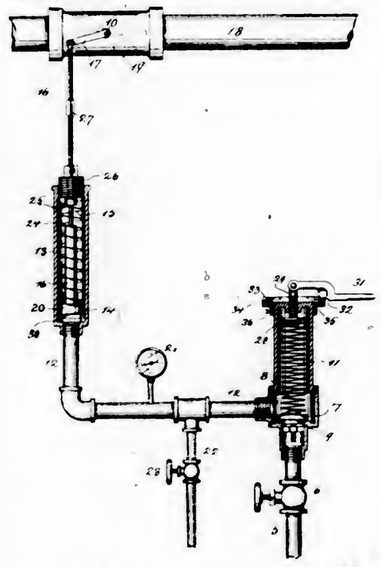
3. In a box a slitted head connected by an unslitted neck with a flap likewise unslitted, the said flap being hinged or rotatively connected with the remainder of the box, and a longitudinal aperture in another part of said box of less longitudinal extent than the width of said head when normally expanded, said aperture being so situated as to admit therethrough into the interior of the box, insertion of the whole of said head and its retention therein in a plane at an angle to that of the plane of said flap, substantially as and for the purposes described.

4. In a folding paper box a slitted head extending from an unslitted flap hinged or rotatively connected with the remainder of the box, and a longitudinal aperture in another part of said box of less longitudinal extent than the width of said head when normally expanded, and said aperture so situated as to admit the insertion therethrough into the interior of the box of the whole of said slitted head, substantially as and for the purposes described.

5. In a completely-inclosed and locked folding paper box an unslitted interiorly-locking flap 5 provided with a slitted head comprising two members 13 13', a closing-flap 7 and a slot *b* substantially as and for the purposes described.

6. In a folding paper box an unslitted closing-flap 5 having a slitted locking-head comprising two members 13 13' a closing-flap 7 a slot *b* of less longitudinal extent than the width of said head when normally expanded and a supplemental slot *c*, substantially as and for the purposes described.

640,767. PUMP-GOVERNOR. FRANK HOFFMAN, Cincinnati, Ohio. Filed June 15, 1899. Serial No. 720,625. (No model.)



Claim.—1. In a device controlling operation of a pump by controlling the operation of the motor which actuates the same, the combination of a cylinder, a piston adapted to reciprocate therein, and operatively connected to the means which control operation of the motor, a pipe connecting this cylinder with the delivery of the pump a valve in this pipe adapted to be adjusted to open at certain pressures, a spring 11, to hold it against its seat, a shoulder 28, against which this spring is seated, a stem 29 carrying this shoulder 28, and mounted with a screw connection, an operating handle 31 pivotally connected thereto and a notched ring 34, operating in conjunction therewith.

2. In a device controlling operation of a pump by controlling the motor which actuates the same, the conbination of a lever 17 which controls the motor, a cylinder 13 open at one end, a piston 14 contained therein, a stem connecting it with lever 17, a spring 15 to hold it in a position against the open end of the cylinder, a valve-housing 8, a pipe 5 connecting it with a pump-delivery, a pipe 12 leading from housing 8 to the open end of cylinder 13, a waste-pipe 22 connected with pipe 12 a valve to control the quantity of waste-water passing through it, a valve 7 contained in housing 8, and a spring to hold it closed against a certain pressure in the pump-delivery which when exceeded causes said valve to open admitting water to cylinder 13 and moving the piston therein for the purpose described.

3. In a device to control a motor which operates a pump, the

combination of a piston 14, a cylinder 13 in which it is contained, a stem extending outside and beyond the latter and connecting it with the means controlling operation of the motor, a shoulder 24 on this stem, a stop 25 within the cylinder to limit motion of the piston, when engaging shoulder 24, a spring to keep the piston seated in one end of its cylinder which end is open and a pipe connecting this open end with the delivery of the pump.

4. In a device to control a motor which operates a pump, the combination of a piston 14, a cylinder 13 in which it is contained, a stem 16 connecting it with the means controlling operation of the motor, a shoulder 24 on this stem, a screw-plug 26 mounted in one end of cylinder 13, and forming with its inner end a stop 25, which in conjunction with shoulder 24 operates to limit the motion of the piston, a perforation in this plug to permit stem 16 to pass, a spring to keep the piston seated in one end of cylinder 13 which end is open and a pipe to connect this end with the delivery of the pump.

640,768. CAP FOR CUTTING APPARATUS FOR MOWERS AND REAPERS. HARVEY L. HOPKINS, Moline, Ill., assignor of two-thirds to Charles H. Pope, same place, and Merwin D. Hopkins, West Eaton, N. Y. Filed Oct. 6, 1898. Serial No. 692,774. (No model.)



Claim.—1. In a cutting apparatus for mowers and reapers, the combination of the finger-bar, the cutter-bar, and a cap adapted to hold the cutters down in operative relation to the guards, said cap being arranged to move with the reciprocations of the cutter-bar.

2. In a cutting apparatus for mowers and reapers, the combination of the finger-bar, the cutter-bar, and a cap secured to the finger-bar and operating to move with and hold the cutters down in operative relation to the guards.

3. In a cutting apparatus for mowers and reapers, the combination of the finger-bar, the cutter-bar, and a cap pivotally secured to the finger-bar and having its free end overlapping and bearing on the cutters to hold them down in operative relation to the guards, said cap being adapted to be vibrated by the reciprocating cutters.

4. In a cutting apparatus for mowers and reapers, the combination of the finger-bar, the cutter-bar, and a cap pivotally secured to the finger-bar and having its free end overlapping and bearing on the cutters to hold them down in operative relation to the guards, said cap being adapted to be vibrated by the reciprocating cutters, and the cutter-bar being provided with means for engaging the cap and preventing it from moving off the cutters.

5. The combination in a cap for the cutting apparatus of mowers and reapers, of the plate *f*, having the upstanding socket *j*, the vibrating cap *k*, fitting said socket and the rivet *o*.

6. The combination, in a cap for the cutting apparatus of mowers and reapers, of the plate *f*, having the upstanding socket *j*, the vibrating cap *k*, fitting said socket, and the rivet *o*, the latter being smaller than the interior of the socket so as to leave an oil-space between them.

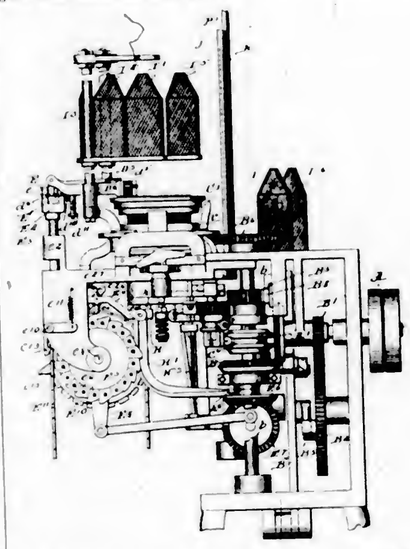
7. The combination, to form a cap for the cutting apparatus of mowers and reapers, of the plate *f*, having the recess *h* on its under side, and the upstanding tubular socket *j* on its upper side, the vibrating cap *k* fitting on said socket, and the rivet *o* having the head *p* fitting the recess in the under side of the plate, said rivet extending up through the socket and being adapted to hold the cap thereon.

8. The combination in a cap for the cutting apparatus of mowers and reapers, of a base-plate adapted to be secured to the finger-bar, an upstanding socket on the plate, and a vibrating cap pivoted on the socket and overhanging the cutters, the socket being constructed to provide an oil-space for lubricating the cap.

9. In a cutting apparatus for mowers and reapers, the combination of the finger-bar, the cutter-bar, a cap pivoted on the finger-bar and overhanging the cutters, and projections above the cutters on either side of the cap to prevent its disconnection from the cutters.

640,769. CIRCULAR-KNITTING MACHINE. HARRY A. HOUSMAN, Philadelphia, Pa., assignor to the Standard Machine Company, of Pennsylvania. Original application filed July 7, 1898, Serial No. 685,303. Divided and this application filed May 20, 1899. Serial No. 717,666. (No model.)

Claim.—1. In a circular-knitting machine, in combination, a thread-carrier, a thread-supply, a vertically-movable guide through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, means for moving the thread-guide, a cutting device, the movable portion of which is acted upon by said guide, means for actuating said movable guide whereby said thread is brought in alinement with said cutting device in the movement of the guide, and a clamping device through which said thread passes, said clamp having a movable member and means for operating it in the movement of said guide, and a lever connected to said guide under which the thread passes.



2. In a circular-knitting machine, in combination, a thread-carrier, a thread-supply, a vertically-movable guide, through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, a cutting device, the movable portion of which is acted upon by said guide, means for moving the thread-guide and bringing said thread in alinement with said cutting device in the movement of the guide, and a clamping device through which said thread passes, said clamp having a movable member and means for operating it in the movement of said guide and a lever connected to said guide under which the thread passes intermediate of the clamp and guide.

3. In a circular-knitting machine, in combination, a thread-carrier, a thread-supply, a vertically-movable guide through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, a cutting device, the movable portion of which is acted upon by said guide, said thread being brought in alinement with said cutting device in the movement of the guide, an actuating-lever connected to said guide, reciprocating and rotating mechanisms for the cam-cylinder, and shifting mechanism for controlling and reversing the connection between the cam-cylinder and said mechanisms, and connections between said lever and said shifting mechanism.

4. In a circular-knitting machine, in combination, a thread-carrier, a thread-supply, a vertically-movable guide through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, a cutting device, the movable portion of which is acted upon by said guide, said thread being brought in alinement with said cutting device in the movement of the guide, and a clamping device through which said thread passes, said clamp having a movable member operated in movement of said guide, an actuating-lever connected to said guide, reciprocating and rotating mechanisms for the cam-cylinder and shifting mechanism for controlling and reversing the connection between the cam-cylinder and said mechanisms, and connection between said lever and said shifting mechanism and connection between the movable member of said clamp and said shifting mechanism.

5. In a circular-knitting machine, in combination, a thread-carrier, a thread-supply, a vertically-movable guide through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, a cutting device, the movable portion of which is acted upon by said guide, said thread being brought in alinement with said cutting device in the movement of the guide, and a clamping device through which said thread passes, said clamp having a movable member operated in the movement of said guide, and a take-up lever connected to said guide under which the thread passes, an actuating-lever connected to said guide, reciprocating and rotating mechanisms for the cam-cylinder, and shifting mechanism for controlling and reversing the connection between the cam-cylinder and said mechanisms and connection between said actuating-lever and said shifting mechanism and connection between the movable member of said clamp and said shifting mechanism.

6. In a circular-knitting machine, in combination a thread-carrier, a thread-supply, a vertically-movable guide through which thread passes to the carrier, and to which the thread is connected so as to move with said guide, a cutting device, the movable portion of which is acted upon by said guide, said thread being brought in alinement with said cutting device in the movement of the guide, and a clamping device through which said thread passes, said clamp having a movable member operated in the movement of said guide, and a take-up lever connected to said guide under which the thread passes, and intermediate of the clamp and guide, an actuating-lever connected to said guide, reciprocating and rotating mechanisms for the cam-cylinder and shifting mechanism for controlling and reversing the connection between the cam-cylinder and said mechanisms, and connection between said actuating-lever and said shifting mechanism, and connection between the movable member of said clamp and said shifting mechanism.

7. In a circular-knitting machine, in combination, a thread-carrier, a plurality of thread-supplies for said carrier, a vertically-movable guide through which said threads pass to the carrier, one of said threads being connected so as to move with said guide, a lever over which the other thread passes, and means to simultaneously move said guide and lever to and from each other.

8. In a circular-knitting machine, in combination, a thread-carrier, a plurality of thread supplies for said carrier, a vertically-movable guide through which said threads pass to the carrier, one of said threads being connected so as to move with said guide, a lever over which the other thread passes, a lever as P, to which the lever and guide are connected, and means to operate said lever P.

9. In a circular-knitting machine, in combination, a thread-carrier, a plurality of thread-supplies for said carrier, a vertically-movable guide through which said threads pass to the carrier, one of said threads being connected so as to move with said guide, a lever over which the other thread passes, a lever, as P, to which the lever and guide are connected, rotating and reciprocating mechanisms, for the cam-cylinder, and mechanism to shift the driving mechanism of the cam-cylinder from the reciprocating to the rotating mechanism, and connection between said lever P and said shifting mechanism.

10. In a circular-knitting machine, having a rotary cam-cylinder, in combination, a thread-carrier adapted to be moved in and out of action and rotate with the cam-cylinder, a cam on one side of the machine to throw the carrier out of action, and a movable cam on the opposite side to throw said carrier in action, a movable support for the movable cam, a locking device adapted to hold said support so that the movable cam will be out of action, mechanisms for rotating and reciprocating the cam-cylinder and means for shifting the driving mechanism from the rotating to the reciprocating mechanism and vice versa, a projecting rod connected to said shifting means in alinement with said locking device, and adapted in its movement in one direction to release said locking mechanism, a projection from said rod in alinement with the movable cam-support.

11. In a circular-knitting machine, having a rotary cam-cylinder, in combination, a thread-carrier adapted to be moved in and out of action and rotate with the cam-cylinder, a cam on one side of the machine to throw the carrier out of action, and a movable cam on the opposite side to throw said carrier in action, a movable support for the movable cam, a locking device adapted to hold said support so that the movable cam will be out of action, mechanisms for rotating and reciprocating the cam-cylinder and means for shifting the driving mechanism from the rotating to the reciprocating mechanism and vice versa, a projecting rod connected to said shifting means in alinement with said locking device, and adapted in its movement in one direction to release said locking mechanism, a projection from said rod in alinement with the movable cam-support, a projection from the movable cam-support, a pattern-chain provided with a lug or lugs at the desired points adapted to strike said projections from the movable cam-support and elevate said support beyond the locking device.

12. In a circular-knitting machine, in combination, a plurality of independent thread-carriers radially placed, and a cam adapted when acting on a carrier to throw it into action, and means to bring said cam into operative position with reference to the desired carrier.

13. In a circular-knitting machine, in combination, a plurality of independent thread-carriers radially placed, and a cam adapted when acting on the carrier or carriers to throw said carrier out of action, and means to bring said cam into operative position with reference to the desired carrier or carriers.

14. In a circular-knitting machine, having a rotating cam-cylinder, in combination a plurality of thread-carriers adapted to be thrown in and out of action, and carried by the cam-cylinder, each carrier having an independent thread, and provided with projections, said projections being at different planes, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action, and at other points to throw the carrier striking it out of action, and means to bring the portion of said cam adapted to throw the carriers into action in line with the desired carrier.

15. In a circular-knitting machine, having a rotary cam-cylinder, in combination, a plurality of thread-carriers adapted to be thrown in and out of action, carried by the cam-cylinder each carrier having an independent thread, and provided with projections, said projections being at different planes, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action and at other points to throw the carrier striking it out of action, a pattern device and connection between said cams and said pattern devices whereby said cam is operated in a predetermined manner and the carriers thrown in and out of action in a predetermined manner.

16. In a circular-knitting machine, having a rotating cam-cylinder in combination a plurality of thread-carriers adapted to be thrown in and out of action, carried by the cam-cylinder, each carrier having an independent thread, and provided with projections, said projections being at different planes, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action, and at other points to throw the carrier striking it out of action, a support upon which said cams rest, said support being adapted to move vertically, a pattern-wheel having projections of different heights, and a connection between said support and said wheel whereby in the rotation of the wheel the support and the cam are elevated to different heights corresponding to the projections on the wheel and on the carriers.

17. In a circular-knitting machine, having a rotating cam-cylinder, in combination, a plurality of thread-carriers adapted to be thrown in and out of action, carried by the cam-cylinder, each carrier having an independent thread and provided with projections, said projections being at different planes, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action, and at other points to throw the carrier striking it out of action, a support upon which said cams rest, said support being adapted to move vertically, a pattern-wheel having projections of different heights, and connection between said support and said wheel whereby in the rotation of the wheel the support and the cam are elevated to different heights corresponding to the projections on the wheel and on the carriers, and a pattern-chain for controlling the rotation of said wheel.

18. In a circular-knitting machine, having a rotating cam-cylinder, in combination, a plurality of thread-carriers adapted to be thrown in and out of action, carried by the cam cylinder, each carrier having an independent thread, and provided with projections, said projections being at different heights, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action, and at other points to throw the carrier striking it out of action, a support upon which said cams rest, said support being adapted to move vertically, a pattern-wheel having projections of different heights, a pivoted lever connected to said cam-support, an intermediate projection from said lever resting upon said projection on the pattern-wheel.

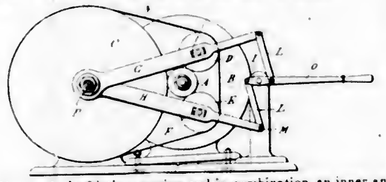
19. In a circular-knitting machine, having a rotating cam-cylinder, in combination, a plurality of thread-carriers adapted to be thrown in and out of action, carried by the cam-cylinder, each carrier having an independent thread, and provided with projections, said projections being at different heights, cams between the faces of which the projections pass in the movement of the machine, said cam-faces at one point being adapted to throw the carrier striking it into action, and at other points to throw the carrier striking it out of action, a support upon which said cams rest, said support being adapted to move vertically, a pattern-wheel having projections of different heights, a pivoted lever connected to said cam-support, an intermediate projection from said lever resting upon said projections on the pattern-wheel, and a pattern-chain for controlling the rotation of said wheel.

20. In a circular-knitting machine, in combination, a thread-carrier consisting of a pivoted lever, an extensible portion, a projection from said extensible portion, a stationary projection having a cam-slot in which said projection rests, a projection from the main portion of the carrier, cam-faces between which the last-mentioned projection is adapted to pass in the operation of the machine, said cam-faces having a portion adapted to tilt the lever toward the needles, the projection from the extensible portion of the carrier being acted upon by the cam-slot during said tilting.

21. In a circular-knitting machine, in combination, a pattern-wheel, a ratchet for driving the same, a rotary shaft, a pawl for operating said ratchet, connection between said pawl and the rotary shaft, a disengaging device for holding said pawl out of contact with the ratchet, a pattern-chain, a lug upon said chain, said disengaging device being in alinement with said lug and adapted when struck by said chain to release said pawl, a pivoted lever provided with an inset held by said disengaging device, and adapted to swing when said disengaging device is acted upon, a pin upon said disengaging device which said inset engages when the disengaging device is released by the pattern-chain, said lever being in line of movement of said pawl when said pawl advances.

22. In a circular-knitting machine, in combination, a pattern-wheel, a ratchet for driving the same, a rotary shaft, a pawl for operating said ratchet, connection between said pawl and the rotary shaft, a spring-acted disengaging device for holding said pawl out of contact with the ratchet, a pattern-chain, a lug upon said chain, said disengaging device being in alinement with said lug and adapted when struck by said chain to release said pawl, a spring-acted pivoted lever provided with an inset held by said disengaging device, the spring being of less strength than the disengaging-device spring and adapted to swing when said disengaging device is acted upon, a pin upon said disengaging device, which said inset engages when the disengaging device is released by the pattern-chain said lever being in line of movement of said pawl when said pawl advances.

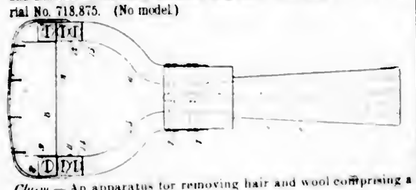
640,770. **FRICTION-GEARING.** JOHN C. HOWELL, London, England. Filed Aug. 18, 1899. Serial No. 727,678. (No model.)



Claim.—1. In friction-gearing and in combination, an inner and an outer wheel, means for mounting one of same so that it is normally separated from the other, friction-wheels outside the inner wheel adapted to bear on the latter wheel and to bring it and the first outer wheel together, means for carrying said friction-wheels and altering their position with respect to each other, and a flexible band surrounding the adjustable friction-wheels and the outer wheel so as to counteract the pressure in the opposite direction on said wheels substantially as described.

2. In friction-gearing the combination with an inner and an outer wheel so mounted as to be normally separated, of friction-wheels outside the inner wheel adapted to bear on said wheel and to bring it and the first outer wheel together, levers carrying said friction-wheels, means for allowing such wheels play in the levers, said levers having their pivot-points on the axis of the first outer wheel and means for moving the levers and friction-wheels together and apart, and a band surrounding the friction-wheels and the first outer wheel so as to counteract the pressure in the opposite direction on said wheels substantially as described.

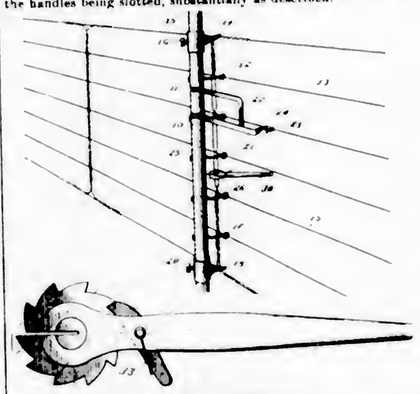
640,771. **MEANS AND APPARATUS FOR REMOVING WOOL OR OTHER HAIR FROM SKINS.** SETH L. JOHNSON, ELLEN JOHNSON, and ALFRED H. GIBBINGS, Bradford, England. Filed May 31, 1899. Serial No. 718,875. (No model.)



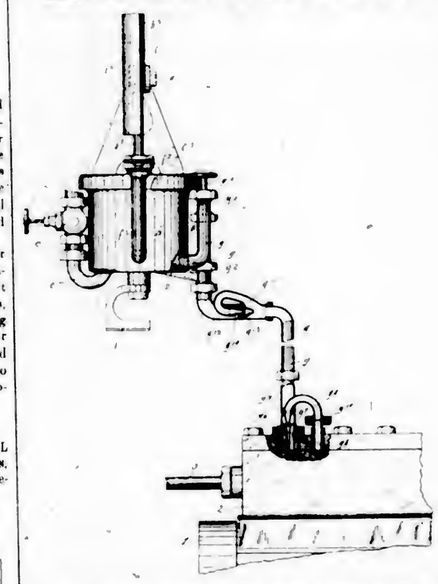
Claim.—An apparatus for removing hair and wool comprising a handle, conductors held therein branch conductors extending from said handle, a non-conducting block interposed between said branches having a narrow edge and a conducting-wire stretched along the face of and parallel with said narrow edge and having its ends secured to said branches, substantially as described.

640,772. **FENCE-MACHINE.** AMOS J. KAUFFMAN, Gap, Pa. Filed Mar. 30, 1899. Serial No. 711,076. (No model.)

Claim.—In a fence-machine, stay-twisting mechanism, comprising a ratchet-wheel with a square central hole, a block fitted in the hole and provided with projecting bosses, a handle having flat forked ends embracing the wheel and receiving the bosses in round holes, a ratchet pivoted to the handle, and a spring pressing its point into engagement with the wheel, the wheel, block, bosses, and flat ends of the handles being slotted, substantially as described.



640,773. **CYLINDER-LUBRICATOR.** BENJAMIN F. KELSEY, Minneapolis, Minn. Filed Oct. 3, 1898. Serial No. 692,488. (No model.)

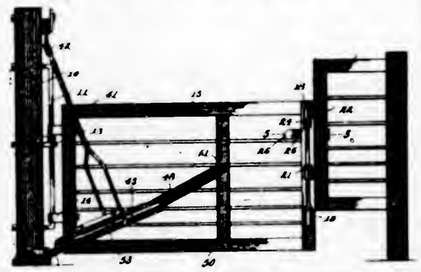


Claim.—1. In a lubricator-feeding device, the combination with a pair of differential-feed motors parallel with and spaced apart from each other, of steam or similar connections leading to the low-pressure motor, an oil-passage or similar connection leading from the high-pressure motor to the device to be lubricated, and an intermediate device pivoted to a suitable support and connected to the movable parts of said two motors, the arrangement being such that the pressure per square inch within the oil-containing motor will exceed that within the companion motor, substantially as and for the purposes set forth.

2. A choke-feed device for lubricators, comprising an oil-supply tube or passage, and a reaction-passage having a relatively large receiving extremity open to the pressure against which the oil is to be fed and having a contracted discharge end positioned to discharge into said oil-supply tube or passage, in the direction of the feed of the oil, substantially as described.

3. A choke-feed device for lubricators, comprising an oil-supply tube or passage having a contracted section, and a reaction-passage open at its larger end to the pressure against which the oil is fed and having a contracted discharge extremity positioned to discharge directly into the contracted passage of said feed-tube, in the direction of the feed of the oil, substantially as described.

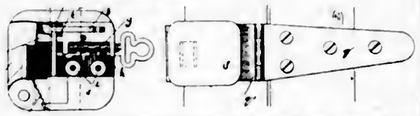
640,774. **FARM-GATE.** WILLIAM H. KEMPER, Marksbury, Ky. Filed Apr. 5, 1899. Serial No. 711,858. (No model.)



Claim.—1. The combination with the large gate hung to the gate-post, of the pintle-rod secured to its outer batten, the small gate hinged and slidable on said rod, the sleeve and set-screw for adjusting its height thereon, and the spring-latch 26 for holding the small gate in line with the large gate, substantially as described.

2. The combination with a gate, connected to a gate-post by hinges, of a vertical standard anchored in the ground at a suitable distance from and on a line with the gate-post, the pivoted levers, one on the gate-post and one on the vertical standard, and connected together by means of links 37 and 38, a bifurcated weighted bar, hinged to a plate pivotally secured to a post in the ground, midway between the gate-post and the vertical standard, a pivoted rod connecting said weighted bar to the gate and the bifurcated rod 41 secured at its upper end to one of the levers, through the medium of the link 42 connected to the end of the rod 41 and to the link 38, said rod 41 straddling and pivotally connected at its lower end to the weigted bar intermediate its ends, substantially as described.

640,775. **HASP-LOCK.** DENIEL KERKER, Pittsburg, Pa., assignor of one-half to Mary Sanislo and Elisabeth Terney. Filed Apr. 19, 1899. Serial No. 713,536. (No model.)



Claim.—1. The combination with a fastening-bar provided with a head, of a hasp, a lock-case mounted thereon and having a portion of one of its sides cut away, a spring-actuated fastening-catch adapted to close the said cut-away portion of the side and provided with a recess on its inner face adapted to engage the said head, means for guiding the upper end of the said catch, means for pivotally securing the said catch to the said case, means arranged in the said case and adapted to engage the said catch for securing the same in position, and a key adapted to engage the said means for releasing the said catch, substantially as described.

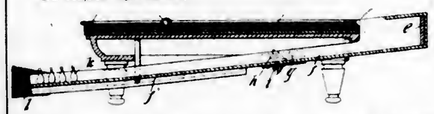
2. The combination with a fastening-bar provided with a head, of a hasp, a lock-case mounted thereon and having a portion of one of its sides cut away, a spring-actuated fastening-catch adapted to close the said cut-away portion of the side and provided with a recess on its inner face adapted to engage the said head, means for pivotally securing the said catch to the said case, a projection formed integral with the said catch, spring-actuated means arranged in the said case and adapted to engage the said projection for securing the said catch in position, and a key adapted to engage the said means for releasing the said projection, substantially as described.

3. In combination with a fastening-bar provided with a head, a hasp, a lock-case mounted thereon and having a portion of one of its sides cut away, a spring-actuated fastening-catch adapted to close the said cut-away portion of the side and provided with a recess on its inner face adapted to engage the said head, means for pivotally securing the said catch to the said case, a projection formed integral with the said catch, a guide for the said projection, a spring-actuated locking-bar adapted to engage the said projection for securing the spring-catch in position, and a key adapted to engage the locking-bar for releasing the said projection, substantially as described.

640,776. **PROCESS OF BATING HIDES.** CHARLES W. KOCH, Milwaukee, Wis. Filed Sept. 30, 1899. Serial No. 732,256. (No specimens.)

Claim.—The process of bating hides by submitting them to a solution, consisting of water, sulfuric acid, common salt, and hyposulfite of soda, $Na_2S_2O_3.5H_2O$, substantially as described.

640,777. **GAME-TABLE.** ROBERT J. KOCH, Chicago, Ill., assignor of one-half to John Ayling, same place. Filed Jan. 18, 1899. Serial No. 702,542. (No model.)



Claim.—1. In a game-table, the combination with a table-top or bed whereon the balls are adapted to be shot, of a tenpin alley-way carried beneath the said table-top, said alley-way having a central raised portion and side grooves or runways, a plurality of tenpins disposed upon the said central portion, and a cushioned casing associated with the table-top and alley-way, adapted to direct the balls shot upon the former into and along the latter, whereby the tenpins are overturned by the skilfully-shot balls, substantially as described.

2. The combination with a billiard-table, of a removable attachment consisting of a tenpin alley-way, and an interiorly-cushioned casing associated with said table and alley-way and adapted to direct the balls shot upon the table into the alley-way, substantially as described.

3. The combination with a billiard-table, of a removable attachment consisting of rail-sections, an alley-way or incline carried beneath the bed of the table and an interiorly-cushioned casing associated with the table-top and alley-way adapted to direct the balls shot upon the table into and along the alley way, substantially as described.

4. In a game-table the combination with a table-top or bed, whereon balls are adapted to be shot, of side and end cushions provided about said table-top, a tenpin alley-way carried beneath the said table-top, said alley-way having a central raised portion and side grooves or runways, a plurality of tenpins disposed upon the said central portion and a cushioned casing associated with the table-top and alley-way adapted to direct the balls shot upon the former into and along the latter, whereby the tenpins are overturned by the skilfully-shot balls, substantially as described.

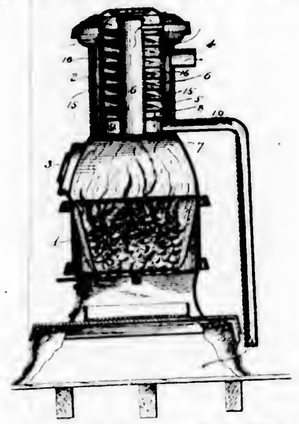
5. The combination with a billiard-table, of a removable billiard-bowling attachment comprising an interiorly-cushioned casing and rail-sections adapted to be substituted for one of the end rails of the billiard-table, a tenpin alley-way carried beneath the top or bed of the billiard-table, said alley-way having a central raised portion and side grooves or runways, and a plurality of tenpins disposed upon said central portion, along which portion the casing is adapted to direct the balls shot upon the billiard-table, whereby the tenpins may be overturned by the skilfully-shot balls, substantially as described.

640,778. **ATTACHMENT FOR STOVES OR FURNACES.** HERMAN H. KORTHAUER, Bensenville, Ill. Filed Apr. 29, 1899. Serial No. 715,024. (No model.)

Claim.—1. As an attachment for stoves, furnaces, or the like, air-heating flues spirally disposed around an inner casing open at its lower end and closed at its top; an exterior casing inclosing said flues; a collar connecting the lower open end of the inner tube and the lower end of the exterior tube; a perforated flange or disk fitting around said inner tube and located above said collar whereby a cold-air-receiving chamber will be formed below said flues and means to deliver the cold air in said chamber, as specified and for the purpose set forth.

2. As an improvement in air-heating appliances for furnaces, stoves, the herein-described device consisting of an inner and outer shell or casing, the former being closed at the top and open at the bottom; a flange extending from the open end of said inner casing to the lower end of the outer casing; a perforated partition secured to the exterior wall of the inner casing and the interior wall of the outer casing and located above said flange; spirally-disposed plates extending around the inner casing and occupying the annular cham-

her between said casings; means to secure the outer casing in place and a pipe extending from the chamber below said perforated partition outside of the stove to a point near the floor whereby the cold air will be gathered and delivered through the spiral flues provided by said plates in the manner specified and for the purpose set forth.



3. As an improvement in air-heating appliances for furnaces, stoves, the combination with a stove-body, of a spirally-arranged flue disposed within the body of the stove or furnace immediately above the fire-pot; suitable casings designed to inclose said flues whereby the flame and heat may pass upon both sides thereof, and an air-pipe extending from a point near the floor upward into the stove in communication with said flues, and a perforated disk adapted to temporarily check the cold air before entering the flues, whereby said air will be evenly distributed in the manner specified and for the purpose set forth.

4. As a new article of manufacture, the herein-described air-heating device consisting of an outer and inner casing, the latter open only at the bottom and the former open only at the top; a perforated flange or disk separating the annular chamber formed between said casings into two compartments; a spirally-arranged plate or plates secured to the exterior wall of the inner casing and the interior wall of the exterior casing, whereby an inclined flue or flues may be formed within said annular chamber; a duct or tube extending from the closed upper end of the inner tube outward through the spirally-disposed flues and exterior casing, and a pipe communicating with the compartment below said perforated collar and extending to a point near the floor, all combined as specified and for the purpose set forth.

5. An air-heating appliance, consisting of a pair of shells or casings, one fitting within the other and thereby forming an annular chamber closed at the bottom and open at the top; a tightly-fitting cap for the upper end of the inner chamber; spirally-disposed flanges or plates disposed in said annular chamber; a perforated flange or plate located below said flues, whereby the cold air as received will be evenly distributed to the flues and means to hold said device in an adjusted position, as specified and for the purpose set forth.

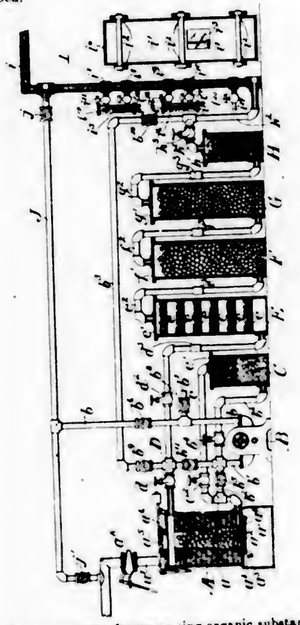
640,779. METHOD OF AND APPARATUS FOR PRESERVING BY GASES. ALBERT L. LAWTON and ARTHUR W. LAWTON, New York, N. Y. Filed Dec. 22, 1898. Serial No. 700,004. (No model.)

Claim.—1. In the process of preserving organic substances, the step of subjecting said substances to the action of a gaseous mixture composed of chlorine, carbonic oxid, carbonic acid, hydrogen and nitrogen, substantially as described.

2. In the process of preserving organic substances, the steps of subjecting said substances to the action of a gaseous mixture composed of chlorine, carbonic oxid, carbonic acid, hydrogen and nitrogen, and removing the deposited moisture, substantially as described.

3. In the process of preserving organic substances, the steps of subjecting said substances to the action of a gaseous mixture composed of chlorine, carbonic oxid, carbonic acid, hydrogen and nitrogen, removing the deposited moisture and subjecting said substances to the action of a gaseous mixture composed of nitrogen, carbonic oxid and carbonic acid, substantially as described.

4. The process of preserving organic substances, which consists in subjecting them to the action of a gaseous mixture composed of chlorine, carbonic oxid, carbonic acid, hydrogen and nitrogen, removing the deposited moisture from the gaseous mixture from time to time, subjecting said substances to the action of a gaseous mixture composed of nitrogen carbonic oxid and carbonic acid, and subjecting them to the action of ordinary atmospheric air, substantially as described.



5. In an apparatus for preserving organic substances the combination of a blower B, a furnace A provided with a smoke-pipe a^2, a receptacle C adapted to contain salt water, receptacles adapted to contain purifying agents, a closed room I, valved pipes connecting together the blower and receptacle for salt water, said receptacle and the furnace, said furnace and the receptacles adapted to contain purifying agents said receptacles and the closed room, and said room and the smoke-pipe, whereby a current may be caused, from the blower through the receptacle for salt water, the furnace, the receptacles for purifying agents, the closed room and into the smoke-pipe, thus making it possible to completely drive out the air from the closed room into the smoke-pipe and to replace it with a gaseous mixture composed of chlorine, carbonic oxid, carbonic acid, hydrogen and nitrogen, substantially as described.

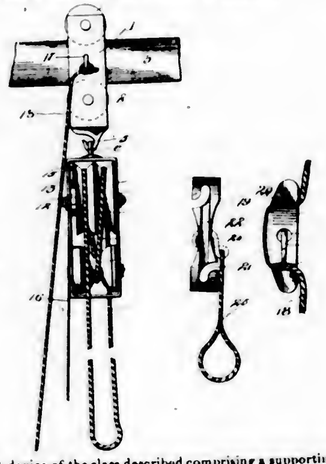
6. In an apparatus for preserving organic substances the combination of a closed room I, pipes J and b, a blower B, pipes b', D and b^3, all of said pipes being provided with valves, receptacles adapted to contain purifying agents and pipes connecting said receptacles together, substantially as described.

7. In an apparatus for preserving fruit, the combination of a closed room, a pipe J leading therefrom provided with valves j and j', a pipe b provided with a valve b^4, a pipe b^3 provided with a valve b^5, a blower B, a pipe b' connected to said blower, a pipe b^3 connected to the pipe b', and a pipe b^2 connected to the pipe b^3 and passing into the room I, substantially as described.

8. An apparatus for preserving organic substances, comprising a furnace provided with a smoke-pipe, a blower, a receptacle adapted to contain salt water, receptacles adapted to contain purifying agents, a closed room, pipes connecting the blower with the atmosphere, with the closed room, with the furnace, with the receptacle for salt water and with the receptacles for purifying agents, pipes connecting the receptacle for salt water with the furnace, pipes connecting the furnace with the closed room and with the receptacles for purifying agents, a pipe connecting one of the receptacles for purifying agents to the closed room, a pipe connecting said room to the smoke-pipe, all of said pipes being provided with valves and pipes connecting the receptacles for purifying agents together, substantially as described.

640,780. FIRE-ESCAPE. OLIVER W. LEACH, Fall River, Mass. Filed May 16, 1899. Serial No. 717,109. (No model.)

Claim.—1. In a device of the class described, the combination with a rope or line, of a friction block or clutch having a smooth longitudinal groove to receive the rope or line, and provided at opposite sides with approximately L-shaped slots detachably receiving the rope or line and located at the ends of the longitudinal groove, and a supporting device pivotally depending from the block and adapted to receive a person, said block or clutch being adapted to slide down the rope or line and being capable of being controlled by the free lower portion of the same, substantially as described.

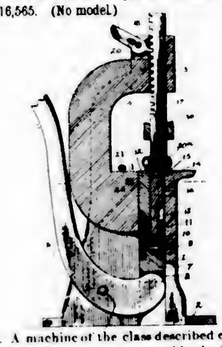


2. A device of the class described comprising a supporting-frame, an upper double pulley, a lower single pulley, an endless rope or cable provided at its top with a depending loop and arranged on he said pulleys, said loop connecting the pulleys, and a pawl and ratchet connected with one of the pulleys, substantially as described.

3. A device of the class described comprising a track, a hanger movably mounted on the track, a supporting-frame suspended from the hanger, an upper double pulley, a lower single pulley, an endless rope or cable provided at its top with a depending loop and arranged on the said pulleys, said loop connecting the pulleys, a pawl and ratchet connected with one of the pulleys, and lines or ropes connected respectively with the hanger and with the pawl, substantially as described.

4. A device of the class described comprising a track, a hanger movably mounted on the track, a supporting-frame suspended from the hanger, an upper double pulley, a lower single pulley, an endless rope or cable provided at its top with a depending loop and arranged on the said pulleys, said loop connecting the pulleys, a pawl and ratchet connected with one of the pulleys, lines or ropes connected respectively with the hanger and with the pawl, and a friction block or clutch having a supporting device and provided with reversely-arranged slots or openings extending inward from its opposite sides and adapted to receive either the endless rope or the rope or line of the hanger, substantially as described.

640,781. STAPLING-MACHINE. CHARLES LEE, Astoria, Ill., assignor of one-half to William Scripps, same place. Filed May 12, 1899. Serial No. 716,565. (No model.)



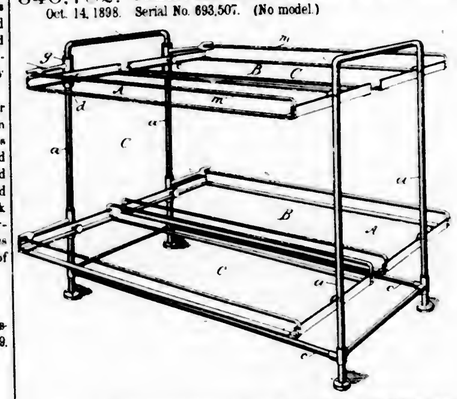
Claim.—1. A machine of the class described comprising a frame, a vertically-movable block or bar mounted in the frame and arranged to support a fastening device, a plunger guided on the block or bar and adapted to drive the fastening device into the work, actuating means located at a point below the block or bar and the plunger and normally separated from the same by an intervening space and adapted to directly engage the said plunger when operated, and a coiled spring located in the space between the said actuating means and the block or bar and interposed between the same, substantially as described.

2. A machine of the class described comprising a frame, a vertically-movable block or bar mounted in the frame and arranged to support a fastening device, a plunger guided on the block or bar and arranged to engage the fastening device, a cross-head normally located a considerable distance below the plunger and the block or bar and separated from the same by an intervening space, said cross-head being provided with a stud, a coiled spring interposed between the block or bar and the cross-head, the stud of the latter being arranged to project through the spring and engage the plunger, and means for operating the cross-head, substantially as described.

3. A machine of the class described comprising a frame, a vertically-movable block or bar mounted in the frame and provided with a longitudinal groove arranged to receive a fastening device, a plunger guided in the groove and extending a short distance below the block or bar when a fastening device is placed in position, a cross-head located below the block or bar and the plunger and normally separated from the same by a considerable space, and provided with a stud, a coiled spring interposed between the block or bar and the cross-head, and arranged to receive the stud, whereby the latter is adapted to engage the plunger when the machine is operated, and a lever for actuating the cross-head, substantially as described.

4. A machine of the class described comprising a frame, a substantially U-shaped holder consisting of a rigid frame provided at its upper portion with an eye and having its lower portion extended beneath the eye and adapted to be introduced into a loop, a vertically-adjustable bar passing loosely through the eye and arranged to engage the top of the loop to be mended, and adapted to hold the lower portion of the said holder rigidly against the main frame, means for locking the said bar against upward movement, and a plunger mounted on the lower portion of the main frame and operating beneath the loop-holder, substantially as described.

640,782. FOLDING BED. JOHN P. LEIN, New York, N. Y. Filed Oct. 14, 1898. Serial No. 693,507. (No model.)



Claim.—1. The combination of two supports each of which comprises two stationary uprights rigidly joined together at the top by a yoke, a plurality of bed-frames, each of said frames being hinged, and balanced intermediate its sides, at one end, to one of the uprights of one of said supports, and at the other end to one of the uprights of the other support, and a longitudinal brace connecting the uprights of the opposite supports, said brace being adapted to serve as a stop to limit the movement of one of the bed-frames, substantially as described.

2. The combination of two supports, one of which comprises two stationary uprights rigidly joined together at the top by a yoke, a plurality of bed-frames, each of said frames being hinged and balanced intermediate its sides, at one end to one of said supports and at the other end to one of the uprights of the other support, and a laterally-swinging arm carried by one of said supports said arm being provided with means for engaging one of said bed-frames when in horizontal position, and supporting the same in said position, substantially as described.

3. The combination of two supports, a bed-frame hinged thereto at its respective ends, said bed-frame being balanced intermediate its sides, and adapted to be swung to horizontal and vertical positions, and a laterally-swinging arm, carried by one of said supports, said arm being provided with means for engaging said bed-frame when in horizontal position, and supporting the same in said position, substantially as described.

4. The combination of two supports, a bed-frame hinged thereto at its respective ends, said bed-frame being balanced intermediate its sides, and adapted to be swung to horizontal and vertical positions, a laterally-swinging arm carried by one of said supports, said arm being provided with means for engaging said bed-frame when in horizontal position, and supporting the same in said position, and means for locking said arm, substantially as described.

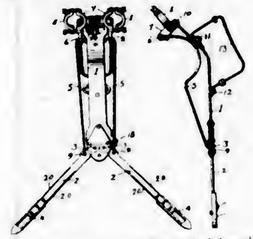
640,783. CUTTER-BAR. HENRY C. LOUDERMILCH, Enders, Pa., assignor of one-half to Isaac A. Enders and James C. Enders, same place. Filed June 7, 1898. Serial No. 682,840. (No model.)



Claim.—1. The combination with the slotted cutter-bar, of the headed bolts, the notched blades, the end blade having a longitudinal crimp or depression, the locking-bar, the cap-block having a recess, the nut and screw-bolt, substantially as shown and described.

2. The combination with the slotted cutter-bar having a longitudinal depression or recess, the headed bolts and notched blades, the end blade having a central longitudinal crimp or depression, the locking-bar, the nut and screw-bolt, the cap-block and securing-bolts, and the spring locking-plate secured to the cap-block and adapted to straddle the screw-bolt, substantially as shown and described.

640,784. BICYCLE-SUPPORT. HENRY F. LOWK, Wilkes-Barre, Pa. Filed May 26, 1899. Serial No. 718,365. (No model.)



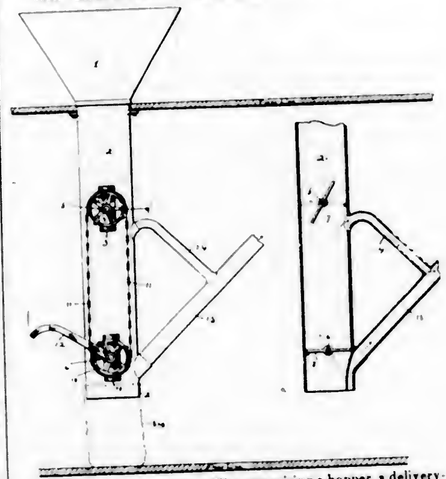
Claim.—1. In a bicycle-support of the kind described, a main or body portion having a pair of legs hinged thereto, the said body portion pivoted to clips, whereby it is secured to the forks of a bicycle-frame, spring members pivoted to another portion of said clips, and said spring members extending to and pivoted to portions of the legs aforesaid, for the purpose specified and substantially as set forth.

2. The herein-described bicycle-support coosisting of a main or body portion pivoted to clips, the said clips adapted to secure the said device to the frame of a bicycle, a pair of legs pivoted to said body portion and a pair of curved levers pivoted to another portion of the clips aforesaid and also pivoted to eyes in the legs aforesaid, whereby the said device is adapted to be swung upward or downward, and adapted to cause the curved levers aforesaid to be constrained so as to separate and close the legs of the device in the different changes of position, substantially as specified.

3. In a bicycle-support of the kind described, clips adapted to secure the said support to the bicycle-frame, a main portion hinged to said clips and curved to conform to the journal-bearings of the crank-shaft, a pair of legs pivoted to said main portion and a pair of springs extending to pivotal points in said legs, from pivotal points in the clips aforesaid other than those to which the main body is pivoted, the said springs adapted to serve as levers in separating and closing the legs aforesaid, and the said legs adapted to be closed when the device is folded up and adapted to be spread apart automatically when the device is swung into use, substantially as specified.

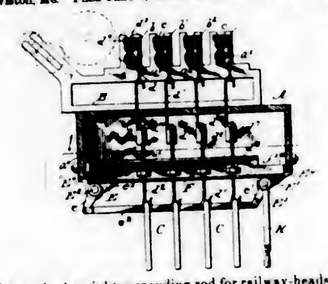
4. In a bicycle-support of the kind described, a main or body portion having a pair of legs hinged thereto, the said body portion pivoted to clips whereby it is secured to the forks of a bicycle-frame, spring-lever members pivoted to other portions of said clips and extending to pivotal points in the legs aforesaid, the said legs being provided with extensible ends to adjust them to different lengths, and being adapted to be spread by the action of the spring-levers aforesaid and to engage with the ground in said condition so as to support the bicycle in a vertical position substantially as specified.

640,785. BAG-FILLER. SAMUEL MARSHALL, Allegheny, Pa., assignor of one-half to Firman K. Duff, Bellevue, Pa. Filed Aug. 24, 1898. Serial No. 689,350. (No model.)



Claim.—An automatic bag-filler comprising a hopper, a delivery-tube leading from the hopper, valves arranged within said delivery-tube and connected one to the other in such manner that when one is opened the other is closed, a means for operating the valves and a pipe leading from the delivery-tube at a point below each valve for the purpose of conveying the dust from the material, substantially as set forth.

640,786. WEIGHT-LIFTING DEVICE FOR RAILWAY-HEADS OR OTHER FIBER-DRAWING MACHINES. ARTHUR W. MATHEWSON, Lewiston, Me. Filed June 6, 1899. Serial No. 719,526. (No model.)



Claim.—1. A weight-suspending rod for railway-heads and other fiber-drawing machines composed of a plurality of longitudinal sections of which one of these sections is connected with the adjoining section by a rotatable joint, the elements of which are constructed with free and unobstructed cooperating bearing-surfaces that permit of the one being rotated around the axis of the other when the rod is in place upon its appropriate head or machine, without altering or changing the length of such rod, substantially as described.

2. A weight-suspending rod for railway-heads and other fiber-drawing machines composed of three several sections, of which the top and bottom sections thereof are adapted for connection with the journal of the top roll, and with the weight, respectively, and the bottom section is swiveled in the intermediate section by a rotatable joint, the elements of which are constructed with free and unobstructed cooperating surfaces that permit of the one being rotated around the axis of the other when the rod is in place upon its appropriate head or machine, without altering or changing the length of such rod; substantially as described.

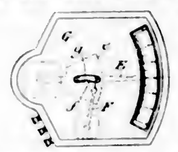
3. The combination, with the roll-weights of the fiber-drawing machine, and the suspending-rods therefor provided with nut-threaded thereon, of a frame having bars that are provided with longitudinal slots through which the suspending-rods are passed, and with recesses for reception of the nuts, whereby the extent of independent movement of the frame with respect to such nuts may be adjusted, substantially as described.

4. The combination, with the weight-lifting frame, the cams upon which it rests and by which it may be raised and lowered, shafts upon which the cams are mounted, devices through which the shafts are connected whereby to move in unison, and devices by which the appropriate movements may be communicated to such shafts, of the top or table having depending flanges whereby the weight-lifting frame is guided and held from longitudinal travel during the raising and lowering of the latter, and devices for guiding and preventing it from lateral displacement during such vertical movements, substantially as described.

5. The combination, with the roll-weights of a fiber-drawing machine, the suspending-rods therefor provided with enlargements, a frame having bars that are provided with slots through which the suspending-rods are passed and which are adapted to engage with such enlargements, and mechanism through which a raising-and-lowering movement may be imparted to such frame, of the top or table provided with depending flanges, and the hangers for supporting the frame raising and lowering devices, with which flanges and hangers the ends and sides of the bars of the frame respectively cooperate, whereby the raising and lowering of the weights may be effected by the raising and lowering of said frame and the latter guided and held from longitudinal and lateral travel during its vertical movements, substantially as described.

6. The combination, with the top rolls of a railway-head or other fiber-drawing machine, the weights for acting thereon, and the rods through which the latter are suspended from the former composed of sections, one of which in each rod is rotatively connected with its cooperative section whereby to be free to turn therein without changing the length of the rod, of a nut threaded on one of the sections of each of said rods, a frame or spider having bars that are provided with slots through which such rods are passed and with recesses for reception of the nuts, cams upon which the frame or spider rests, shafts upon which the cams are mounted, mechanism through which the shafts are rotatively connected, and a lever for rotating said shafts in one and in the other direction whereby the raising and lowering of the weights may be effected and the top rolls removed and replaced without lengthening or shortening the weight-suspending rods, substantially as described.

640,787. DEVICE FOR INDICATING CONDITION OF STORAGE BATTERIES. HIRAM P. MAXIM, Hartford, Conn., assignor to the Columbia and Electric Vehicle Company, same place and Jersey City, N. J. Filed Oct. 27, 1899. Serial No. 734,912. (No model.)



Claim.—1. As a means for indicating the condition of storage batteries, a device operated by permanent reduction in the voltage of the battery when the amperage is normal to indicate the exhaustion of the battery to a dangerous point and a device operated by abnormal amperage of the battery to offset or negative the action of the first-named device, substantially as shown and described.

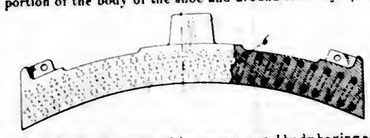
2. As a means for indicating the condition of storage batteries, a voltmeter included in circuit with the battery, a signal controlled by said voltmeter to indicate reduction of the voltage, and an ammeter also included in circuit with the battery and controlling the action of the voltmeter-signal, whereby said signal is ineffective when the amperage is abnormal, substantially as shown and described.

3. As a means for indicating the condition of storage batteries, an ammeter and a voltmeter in circuit with the battery and having their indicator-scales in proximity, the ammeter-scale having a conspicuous mark to indicate the normal rate of discharge and the voltmeter-scale having a conspicuous mark to indicate a dangerous reduction in voltage, substantially as shown and described.

640,788. BRAKE-SHOE. JOHN MEDWAY, Chicago, Ill. Filed Apr. 24, 1899. Serial No. 714,157. (No model.)

Claim.—1. A brake-shoe comprising a cast-metal body having embedded therein one or more inserts of approximately a coiled or twisted shape, substantially as described.

2. A brake-shoe having a fastening-lug cast integral therewith, a key-opening in said lug, and a strengthening staple or insert embedded in the metal of the shoe and the lug and extending through a portion of the body of the shoe and around said key-opening.



3. A brake-shoe comprising a cast-metal body having embedded therein a plurality of inserts of approximately coiled or twisted shape, one of the turns of one of said coils being extended out to surround the key-opening in the lug of the shoe, substantially as described.

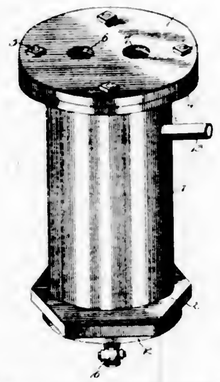
4. A brake-shoe comprising a cast-metal body having embedded therein a plurality of longitudinally-disposed coils.

5. A brake-shoe comprising a cast-metal body having embedded therein a plurality of longitudinally-disposed coils, the turns of said coils extending past each other, substantially as described.

6. A brake-shoe comprising a cast-metal body having embedded therein a plurality of coils, the turns of said coils being intervolved or intertwisted, substantially as shown.

7. A brake shoe having a fastening-lug cast integral therewith and a strengthening staple or insert embedded in the cast metal, and extending through a portion of the shoe and the lug, substantially as described.

640,789. MILK-STERILIZER. JOHN MITCHELL and HENRY C. LARSON, Dodgeville, Wis. Filed May 31, 1899. Serial No. 718,840. (No model.)



Claim.—A device of the class described comprising a vertical receptacle provided at its top with threaded openings 6 and 7, a drain-pipe depending from the bottom of the receptacle, the vertical tube 9 threaded into the opening 6 and terminating short of the bottom of the receptacle and forming a conduit for skimmed milk, the steam-pipe 10 threaded into the opening 7 and terminating short of the lower end of the tube 9, and the milk-discharge pipe extending horizontally from the upper portion of the receptacle and located at a point above the lower ends of the said tube and pipe, substantially as described.

640,790. FLY-KILLER. ROBERT R. MONTGOMERY, Decatur, Ill. Filed Oct. 13, 1899. Serial No. 733,489. (No model.)

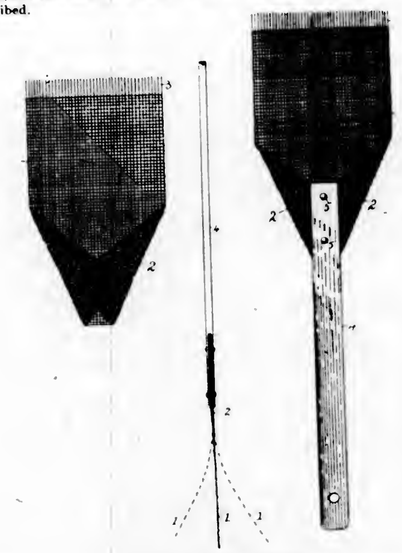
Claim.—1. A wire-netting flap for insect-killers having its corners at one end folded over each other and over the body of the flap, substantially as described.

2. A wire-netting flap for insect-killers having its corners at one end folded over each other to form an internal angle at the intersection of the inner edges of the folds, and a handle connected with the body of the flap and with the folds and terminating at the apex of the internal angle formed by the folds, substantially as described.

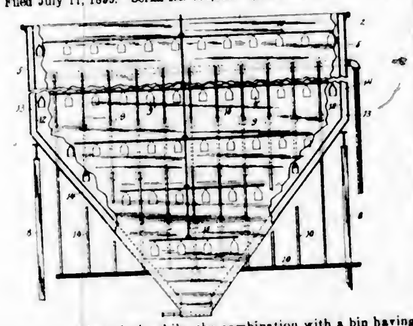
3. An insect-killer comprising a wire-netting flap having a handle connected to the center of one of its ends and oblique reinforcements for the netting extending from the handle sidewise and beyond the end of the same.

4. An insect-killer comprising a wire-netting flap having a handle connected to the center of one of its ends, and oblique reinforcements of wire-netting from the handle sidewise and beyond the end of the same.

5. An insect-killer comprising a wire-netting flap fringed at its operative end and folded over obliquely at the corners of its handle end, and a handle connected with the folded end, substantially as described.



640,791. DRYING-KILN. FULTON R. MORRIS, Milwaukee, Wis. Filed July 17, 1899. Serial No. 724,085. (No model.)



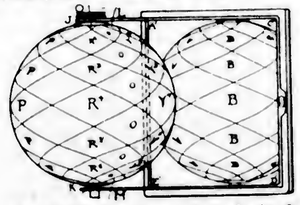
Claim.—1. In a drying-kiln, the combination with a bin having imperforate vertical and inwardly-inclined downward walls of a perforated lining, parallel with and at a little distance from and secured to said walls providing an air-space between such imperforate walls of the bin and said perforated lining into which air can escape through said perforated lining from within the bin.

2. In a drying-kiln, the combination with the imperforate vertical and obliquely-disposed walls of a bin, of a perforated lining on the inside of said imperforate bin-walls secured thereto at a little distance therefrom, and upwardly-extending bars at short distances apart serving as partitions and supports in the space between said walls and said lining and forming upwardly-extending exhaust-air ducts in said space.

3. A bin in a drying-kiln, comprising imperforate side walls, perforate linings at a little distance on the inside from but adjacent to said imperforate walls forming air-spaces between said imperforate walls and said linings, and intake air-ducts across said bin extending at one end or the other through the end walls of the bin, said ducts being perforated to permit air to escape therefrom into the bin.

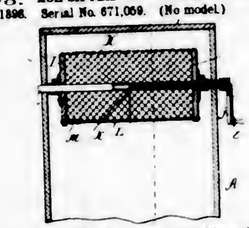
640,792. COLOR-SPHERE AND MOUNT. ALBERT H. MUNSELL, Brookline, Mass. Filed Apr. 14, 1899. Serial No. 713,023. (No model.)

Claim.—1. A color-sphere having displayed equatorially thereon the dominant colors of the spectrum, with intermediate series of said colors graduated therefrom toward the poles, to white and black respectively, and a complete color sequence between lightest and darkest value of any given color passing from one to the other pole of the sphere in a spiral path through all the dominant colors displayed.



2. A sphere displaying all gradations of color from white to black, and a mount arranged to suspend a color-sphere so that it may be revolved on any chosen axis before the surface of a mirror, in combination with a mirror, all constructed and operating substantially as specified.

640,793. ASH-SIFTER. JOHN C. MURPHY, Evanston, Ill. Filed Feb. 21, 1898. Serial No. 671,059. (No model.)



Claim.—1. In an ash-sifter, the combination with a box or casing, of a hollow shaft supported in bearings formed in the box, and provided with a crank-handle, a rotary shaker mounted on said shaft and consisting of end pieces or heads, and a covering of foraminous material, having a hinged section, and a cord or chain secured to the hinged section, and passing through the hollow shaft, to the exterior of the box, where it is provided with a fastening device.

2. In an ash-sifter, the combination with a box or casing, of a hollow shaft supported in bearings formed in the box, and provided with a crank-handle, a rotary shaker mounted on said shaft, and consisting of end heads and a cover of foraminous material having a hinged section provided with a spring tending to normally open said hinged section, and a cord or chain extending through the hollow shaft, and secured at one end to the hinged section, and provided at its opposite end with a fastening device to secure the chain outside of the box.

640,794. METHOD OF MAKING DIES FOR EMBOSSING LEATHER. JAMES L. MCCAUL, Kansas City, Mo. Filed Dec. 8, 1898. Serial No. 698,567. (No specimens.)



Claim.—1. The process of making embossing-dies which consists, first, in producing a metallic patrix having a rilievo surface by electrodepositing a film on an intaglio surface of a suitable pattern; secondly, producing a matrix having an intaglio surface by electrodepositing a film on the rilievo surface of the patrix, and then separating the patrix and matrix one from the other, substantially as described.

2. The process of making a die for embossing leather and analogous substances which consists in the following steps, to wit: first, taking an impression in a wax sheet or layer from a pattern-surface of a figure it is desired to produce in the face of a die; second, producing a patrix by electrodepositing a metallic film on the intaglio surface of the wax impression; third, separating the patrix from the wax impression; fourth, producing a matrix by electrodepositing a metallic film on the rilievo surface of the patrix; fifth, separating the matrix from the patrix, and finally mounting the matrix on a rigid backing, substantially as described.

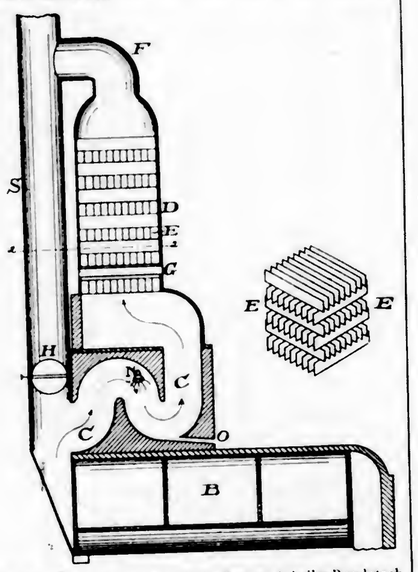
640,795. BILLET-BUCKLE. DUNCAN MCMILLAN, Newark, N. J. Filed Aug. 17, 1899. Serial No. 727,496. (No model.)



Claim.—1. In a billet-buckle, a floor, disconnected cheek-pieces at opposite sides thereof, a hook at one end of the buckle to engage a looped device, the space underneath the bill of the hook being substantially less than the combined thickness of the looped device and the strap to be employed, so that the latter may hold the looped device at the forward end of the hook by engaging the rear of said loop, and means for holding said strap.

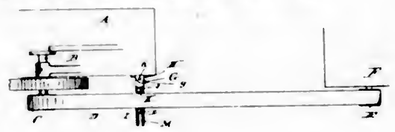
2. In combination, a billet-buckle comprising a floor, disconnected cheek-pieces at opposite sides thereof, a hook at one end of the buckle, a looped device carried by said hook, a strap, the end of which is projected into the hook, the space underneath the bill of the hook being substantially less than the combined thickness of loop and strap, the end of the strap bearing against the rear side of the loop, and means for holding said strap.

640,796. SMOKE-PREVENTING DEVICE FOR FURNACES. WERNER NEUBS, Cleveland, Ohio. Filed June 10, 1899. Serial No. 720,039. (No model.)



Claim.—The combination with the furnace A, boiler B and stack S provided with damper H, of the curved or S-shaped flue C, standing on or near the boiler, and in open communication with the stack, and having the outlet O, the stack D having the open cross-tubes G, and the cross-strips E forming the checkered open-work within, the top of the stack D also in communication with the stack S; a water-sprayer N in the flue C, all constructed to operate substantially as and for the purpose set forth.

640,797. BELT-GUIDE. JOHN C. NOFSINGER, Washington, Ill. Filed Sept. 25, 1899. Serial No. 731,683. (No model.)

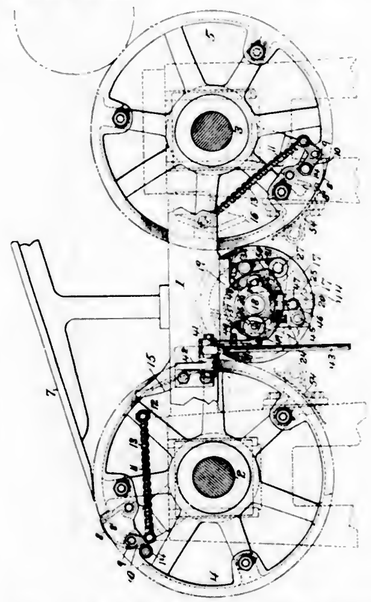


Claim.—1. In a belt-guide, the combination of a bracket, for attachment to an engine, or other apparatus, for the purposes set forth, an arm pivoted, at one end, to said bracket, there being slots in the arm, adjustable guide-pins in the slots, and means for securing such pins in place substantially as set forth.

2. In a belt-guide, the combination of a bracket G for attachment to an engine or other apparatus, for the purposes set forth, an arm I pivoted at one end to such bracket, a stop *g* on the bracket for limiting the movement of the said arm I in one direction, there being slots K and M in the latter, adjustable pins J and L in such slots, means on the pins for securing them in the desired position, there being serrations on the under side of the pins and serrations on the arm at each side of the slots for engaging the serrations on the said pins all substantially as specified.

3. In a belt-guide, an arm pivoted at one end to the engine, for the purposes set forth, and adapted to swing on its pivot to open and close as set forth, a stop for limiting the opening movement whereby the said arm is located at right angles to direction of movement to the belt, and a pin in such pivotal arm at each side of the belt, substantially as set forth.

640,798. SHEET-TRANSFERRING MECHANISM. THOMAS M. NORTH, New York, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, same place. Filed Feb. 24, 1899. Serial No. 706,655. (No model.)



Claim.—1. In a sheet-transferring mechanism, the combination with a rotating cylinder having sheet receiving and retaining devices, of a second rotating cylinder also having sheet receiving and retaining devices which take the sheet from the first cylinder, and means whereby the retaining devices on the second cylinder are caused to take the sheet before the retaining devices of the first carrier release it, substantially as described.

2. In a sheet-transferring mechanism, the combination with a rotating cylinder having grippers, of a second rotating cylinder also having grippers, and means for causing the grippers of the second cylinder to close upon the sheet before the grippers of the first carrier release it, substantially as described.

3. In a sheet-transferring mechanism, the combination with a rotating cylinder having sheet receiving and retaining devices, of a second cylinder rotating in the opposite direction and also having sheet receiving and retaining devices which take the sheet from the first cylinder, and means whereby the retaining devices on the second cylinder are caused to take the sheet before the retaining devices of the first cylinder release it, substantially as described.

4. In a sheet-transferring mechanism, the combination with a rotating cylinder having grippers, of a second cylinder rotating in

the opposite direction and also having grippers, and means for causing the grippers of the second cylinder to close upon the sheet before the grippers of the first cylinder release it, substantially as described.

5. In a sheet-transferring mechanism, the combination with a rotating carrier having sheet receiving and retaining devices, of means for operating the same to take and release a sheet, a second rotating carrier having sheet receiving and retaining devices, means for causing said devices to take and release the sheet, and means for giving said devices a movement in a line which if produced would be a secant to the circumference of the first carrier, substantially as described.

6. The combination with a carrier, having a single set of grippers, of means for operating the grippers to take and release a sheet, and means for moving the set of grippers in a right line toward and away from the line of movement of the carrier, substantially as described.

7. The combination with a rotating carrier having a single set of grippers, of means for operating the set of grippers to take and release a sheet, and means for moving the grippers in a right line toward and away from the circumference of the carrier, substantially as described.

8. The combination with a rotating carrier, of a bar mounted thereon, grippers connected to the bar and operating in connection with the bar to take a sheet directly from the feed-board or original source of supply and hold the sheet, means for opening and closing the grippers, and means for moving the bar and the grippers in a right line toward and away from the circumference of the carrier, substantially as described.

9. The combination with a rotating carrier, of a bar mounted in the carrier, said bar having extensions by which it is guided in its movements, a gripper-shaft journaled in the extensions, grippers on the shaft, means for rocking the shaft to take a sheet directly from the feed-board or original source of supply and release the same, and means for moving the bar in a right line toward and away from the circumference of the carrier, substantially as described.

10. The combination with a rotating carrier, of a set of grippers thereon, a second rotating carrier having a set of bodily-movable grippers thereon, means for moving the grippers on the second carrier toward the first carrier, and means for operating both sets of grippers so that they will be closed upon the sheet when the radii of the two carriers which pass through the points of the carriers on which the grippers hold the sheet are substantially in the same straight line, substantially as described.

11. The combination with a rotating carrier having grippers, of a second rotating carrier having a bar thereon, means for moving the bar, a set of grippers moving with the bar and operating in connection therewith to take and release a sheet, and means for moving the bar and grippers toward the first carrier so that the bar is substantially tangent to the circumferential line of said carrier, and means for operating the grippers so that both sets of grippers will be closed upon the sheet when the bar is in this position, substantially as described.

12. The combination with a rotating cylinder, of a set of grippers which hold a sheet substantially on the circumference of said cylinder, a second rotating cylinder having a set of grippers, means for moving the grippers on the first cylinder in a right line and into a position where it is substantially tangent to the circumferential line of the other cylinder, and means whereby both sets of grippers are caused to be closed upon the sheet at the same time, substantially as described.

13. The combination with a rotating cylinder, of a set of grippers which hold a sheet substantially on the circumference of said cylinder, a second rotating cylinder having a movable bar mounted thereon, a set of grippers moving with the bar and operating in connection therewith to take and hold the sheet, and means for giving the bar and grippers a right-line movement toward and away from the circumference of the cylinder, substantially as described.

14. The combination with a rotating carrier having a gripper mechanism, of a second carrier rotating in the opposite direction, a gripper mechanism mounted therein, means for opening and closing the grippers, means for moving the gripper mechanism toward and away from the circumference of the carrier, operating devices for said means, and means whereby the operating devices may be caused to effect the movement of the gripper mechanism and the opening and closing of the grippers once in a predetermined number of revolutions of said carrier, substantially as described.

15. The combination with a rotating carrier having a gripper mechanism mounted therein, of a second rotating carrier also having a gripper mechanism mounted therein, means for moving the gripper mechanism toward and away from the circumference of the carrier, said means including a cam, a cam for opening and closing the grippers, and means for moving said cams into and out of operative position whereby the movement of the gripper mechanism and the opening of the grippers may take place once in a predetermined number of revolutions of said carrier, substantially as described.

16. The combination with a rotating carrier, of a second rotating carrier having a bar mounted therein, grippers cooperating with the bar, a cam and connected devices for moving the bar and grippers in one direction with respect to the line of movement of the carrier, means for moving them in the opposite direction, and means for moving the cam into and out of operative position so that the movement of the bar and grippers may take place once in a predetermined number of revolutions of said carrier, substantially as described.

17. In a printing-machine, the combination with a rotating carrier having grippers, a second rotating carrier, a gripper mechanism mounted thereon, means for moving said gripper mechanism outward until the surfaces against which the grippers clamp the sheets substantially touch each other, means whereby one set of grippers is opened and the other closed when the surfaces are in position, and means for withdrawing the movable gripper mechanism, substantially as described.

18. The combination with a rotating carrier, of a gripper mechanism having a cut-away abutment, a second rotating carrier, a bar having cut-away portions therein, grippers connected to the bar, means for moving the bar outward until it is substantially in contact with the cut-away abutment, and means for closing one set of grippers and opening the other when the bar and abutment are in this position, each gripper mechanism working through the cut-away spaces in the other, substantially as described.

19. The combination with a rotating carrier, of a bar mounted therein, a gripper-shaft mounted in the bar, gripper-fingers mounted on the shaft, means including a cam by which the shaft is rocked to open and close the grippers to take a sheet directly from the feed-board or original source of supply and release the same, means for moving the bar toward and away from the circumference of the carrier, said means including a shaft mounted in the carrier, an arm on the shaft connected to the bar, and means for rocking the shaft, substantially as described.

20. In a multicolor-printing machine, the combination with the impression-cylinders, of sheet receiving and retaining devices mounted thereon, a cylinder by which the sheet is transferred from one impression-cylinder to the other, said cylinder having sheet receiving and retaining devices, means for causing the sheet receiving and retaining devices on the transfer-cylinder to take the sheet before it is released by the sheet-retaining devices of the first impression-cylinder and to retain the sheet until after it has been taken by the sheet-receiving devices of the second cylinder, substantially as described.

21. In a multicolor-printing machine, the combination with the first and second impression-cylinders, of a cylinder for transferring a sheet from one to the other, gripper mechanism on each of the impression-cylinders, gripper mechanism on the transfer-cylinder, means for opening and closing the gripper mechanisms of the impression-cylinders, means for causing the gripper mechanism of the transfer-cylinder to take the sheet while it is still held by the gripper mechanism of the first impression-cylinder and to retain it until after it has been taken by the gripper mechanism of the second impression-cylinder, substantially as described.

22. In a multicolor-printing machine, the combination with the first and second impression-cylinders, of a cylinder for transferring a sheet from one cylinder to the other, sheet receiving and retaining devices on each of the impression-cylinders, means for causing said devices to take and release a sheet, sheet receiving and retaining devices on the transfer-cylinder, means for moving said devices toward and away from said impression-cylinders in turn on lines which if produced would be secants to the circumferences of said cylinders, means for causing said sheet receiving and retaining devices to take and release the sheet after it has been moved toward and before it has been moved away from the circumference of the cylinder, substantially as described.

23. In a multicolor-printing machine, the combination with the first and second impression-cylinders, of a cylinder for transferring a sheet from one to the other, gripper mechanisms on the impression-cylinders, means for opening and closing the gripper mechanisms, a gripper mechanism on the transfer-cylinder, means for moving said gripper mechanism toward and away from the circumferences of the impression-cylinders on lines which if produced would be secants to said circumferences, and means for causing said gripper mechanism to take and release the sheet after it has been moved toward and before it has been moved away from said cylinders, substantially as described.

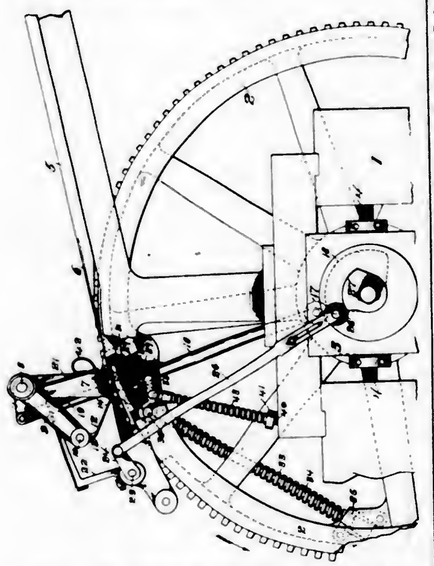
24. In a multicolor-printing machine, the combination with the first and second impression-cylinders, of a cylinder for transferring the sheet from one to the other, gripper mechanisms on the impression-cylinders, means for opening and closing them, a gripper mechanism on the transfer-cylinder, means for opening and closing it, means for moving the gripper mechanism on the transfer-cylinder toward and away from each of the impression-cylinders, means for causing said gripper mechanism to seize and release the sheet after it has been moved toward and before it has been moved away from said cylinders, and devices whereby the means for moving the gripper mechanism are caused to operate once in a predetermined number of revolutions of the transfer-cylinder, substantially as described.

25. The combination with a carrier, of a gripper mechanism mounted therein, devices including a cam for opening and closing the gripper mechanism, devices also including a cam for moving the gripper mechanism with reference to the carrier, a common support for the cams, and means operating upon the cam-support for moving the cams into and out of operative position, substantially as described.

26. The combination with a rotating carrier, of a gripper mechanism mounted therein, devices including a cam for opening and closing the gripper mechanism, devices also including a cam for moving the gripper mechanism with reference to the carrier, a common support for the cams, and means operating upon the cam-support for moving the cams into and out of operative position, substantially as described.

640,799. SHEET SUPPORTING AND POSITIONING DEVICE.

THOMAS M. NORTH, New York, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, same place. Filed Mar. 8, 1899. Serial No. 708,190. (No model.)



Claim.—1. The combination with sheet-taking devices, of a carrier therefor, a support by which the body of the sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

2. The combination with sheet-taking devices, of a rotating carrier therefor, a support by which the body of the sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

3. The combination with sheet-taking devices, of a continuously-rotating carrier therefor, a support by which the body of the sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

4. The combination with a gripper-carrier and its grippers, of a support by which the body of a sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the grippers to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

5. The combination with a rotating gripper-carrier and its grippers, of a support by which the body of a sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the grippers to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

6. The combination with a continuously-rotating gripper-carrier and its grippers, of a support by which the body of a sheet is maintained in position, edge-supporting devices, means whereby the position of the edge-supporting devices is shifted to enable the grippers to take the sheet, and means for supporting the edge of the sheet after the edge-supporting devices are shifted, substantially as described.

7. The combination with sheet-taking devices, of a carrier therefor, a support by which the body of the sheet is maintained in position, a series of fingers for supporting the edge of the sheet, means whereby the fingers are shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the fingers are shifted, substantially as described.

8. The combination with sheet-taking devices, of a rotating carrier therefor, a support by which the body of the sheet is maintained in position, a series of fingers for supporting the edge of the sheet, means whereby the fingers are shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the fingers are shifted, substantially as described.

9. The combination with sheet-taking devices, of a continuously-rotating carrier therefor, a support by which the body of the sheet is maintained in position, a series of fingers for supporting the edge of the sheet, means whereby the fingers are shifted to enable the sheet-taking devices to take the sheet, and means for supporting the edge of the sheet after the fingers are shifted, substantially as described.

10. The combination with sheet-taking devices, of a carrier therefor, a support by which the body of the sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the sheet-taking devices to take the sheet, and additional edge-supporting devices, substantially as described.

11. The combination with sheet-taking devices, of a rotating carrier therefor, a support by which the body of the sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the sheet-taking devices to take the sheet, and additional edge-supporting devices, substantially as described.

12. The combination with sheet-taking devices, of a continuously-rotating carrier therefor, a support by which the body of the sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the sheet-taking devices to take the sheet, and additional edge-supporting devices, substantially as described.

13. The combination with a gripper-carrier having grippers, of a support by which the body of a sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the grippers to take the sheet, and additional edge-supporting devices, substantially as described.

14. The combination with a rotating gripper-carrier having grippers, of a support by which the body of a sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the grippers to take the sheet, and additional edge-supporting devices, substantially as described.

15. The combination with a continuously-rotating gripper-carrier having grippers, of a support by which the body of a sheet is maintained in position, a rock-shaft supported above the path of the carrier, sheet-supporting fingers carried by the shaft, means for rocking the shaft to shift the position of the fingers to enable the grippers to take the sheet, and additional edge-supporting devices, substantially as described.

16. The combination with a support by which the body of a sheet is maintained in position, of an edge-support, means for moving the edge support into and out of operative position, means for supporting the edge of the sheet after the edge-support is moved out of operative position, a front stop, and means for operating said stop, substantially as described.

17. The combination with a support by which the body of a sheet is maintained in position, of edge-supporting fingers, means for moving the fingers into and out of operative position and means for sup-

porting the edge of the sheet after the fingers have been moved out of operative position, substantially as described.

18. The combination with a support by which the body of a sheet is maintained in position, of an edge-support formed so that when in operative position its top lies in substantially the same plane with the sheet-support and forms substantially a prolongation thereof, means for moving it into and out of operative position, and means for supporting the edge of the sheet after the edge-support is moved out of operative position, substantially as described.

19. The combination with a rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, the support being arranged at an angle to the path of travel of the carrier, a series of sheet-supporting fingers having straight portions, the tops of which in one position of the fingers lie in the same plane with and form a continuation of the sheet-support, means whereby the fingers are shifted into position to support the edge of the sheet and out of position to permit the grippers to take the sheet, and means for supporting the edge of the sheet after the fingers have been moved out of position, substantially as described.

20. The combination with a contiuously-rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, the support being arranged at an angle to the path of travel of the carrier, a series of sheet-supporting fingers provided with straight portions the tops of which in one position of the fingers lie in the same plane with and form a continuation of the sheet-support, means whereby the fingers are shifted into position to support the edge of the sheet and out of position to permit the grippers to take the sheet, and means for supporting the edge of the sheet after the fingers have been moved out of position, substantially as described.

21. The combination with a rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, the support being arranged at an angle to the path of travel of the grippers, edge-supporting fingers having straight portions the tops of which in one position of the fingers lie in the same plane with and form a continuation of the sheet-support, means for shifting the fingers into position to receive the edge of the sheet and out of position to enable the grippers to take the sheet, means for supporting the edge of the sheet after the fingers have been moved out of position, suitable front stops, and means for operating said stops, substantially as described.

22. The combination with a continuously-rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, the support being arranged at an angle to the path of travel of the grippers, edge-supporting fingers having straight portions the tops of which in one position of the fingers lie in the same plane with and form a continuation of the sheet-support, means for shifting the fingers into position to receive the edge of the sheet and out of position to enable the grippers to take the sheet, means for supporting the edge of the sheet after the fingers have been moved out of position, suitable front stops, and means for operating said stops, substantially as described.

23. The combination with a continuously-rotating carrier, of a series of sheet-taking devices mounted thereon, a support by which the body of the sheet is maintained in position, a rock-shaft, edge-supporting fingers carried by the rock-shaft, a cam on the shaft of the carrier, means whereby the cam is caused to rock the shaft to shift the fingers into position to receive the edge of the sheet and out of position to enable the sheet-taking devices to take the sheet and means for supporting the edge of the sheet after the fingers have been moved out of position, substantially as described

24. The combination with a continuously-rotating carrier, of a series of sheet-taking devices mounted thereon, a support by which the body of the sheet is maintained in position, a rock-shaft, edge-supporting fingers carried by the rock-shaft, a cam on the shaft of the carrier, means whereby the cam is caused to rock the shaft to shift the fingers into position to receive the edge of the sheet and out of position to enable the sheet-taking devices to take the sheet, means for supporting the edge of the sheet after the fingers have been moved out of position, front stops, and means for operating said stops, substantially as described.

25. The combination with a continuously-rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, a rock-shaft, edge-supporting fingers carried by the rock-shaft, a cam on the shaft of the carrier, means whereby the cam is caused to rock the shaft to shift the fingers into position to receive the edge of the sheet and out of position to enable the grippers to take the sheet and means for supporting the edge of the sheet after the fingers have been moved out of position, substantially as described.

26. The combination with a continuously-rotating carrier provided with grippers, of a support by which the body of a sheet is maintained in position, a rock-shaft, edge-supporting fingers carried by the rock-shaft, a cam on the shaft of the carrier, means whereby the cam is caused to rock the shaft to shift the fingers into position to receive the edge of the sheet and out of position to enable the grippers to take the sheet, means for supporting the edge of the sheet after the fingers have been moved out of position, suitable front stops, and means for operating said stops, substantially as described.

27. The combination with a sheet-support by which the body of a sheet is maintained in position, of a carrier, sheet-edge-supporting devices mounted on the carrier, grippers also mounted on the carrier, and means whereby the position of said supporting devices is shifted to enable the grippers to take the sheet, substantially as described.

28. The combination with a sheet-support by which the body of a sheet is maintained in position, a rotating carrier, sheet-edge-supporting devices mounted on the carrier, grippers also mounted on the carrier, and means whereby the position of said supporting devices is shifted to enable the grippers to take the sheet, substantially as described.

29. The combination with a sheet-support by which the body of a sheet is maintained in position, of a continuously-rotating carrier, sheet-edge-supporting devices mounted on the carrier, grippers also mounted on the carrier, and means whereby the position of said supporting devices is shifted to enable the grippers to take the sheet, substantially as described.

30. The combination with a sheet-support by which the body of a sheet is maintained in position, of a rotating carrier, sheet-edge-supporting devices pivoted in the carrier, grippers mounted on the carrier, and means whereby the edge-supporting devices are rocked about their pivot to enable the grippers to close down upon the sheet, substantially as described.

31. The combination with a sheet-support by which the body of a sheet is maintained in position, of a rotating carrier, a gripper mechanism carried thereby, sheet-edge-supporting devices mounted on the carrier, and means operated from the gripper mechanism for shifting the position of said supporting devices to enable the grippers to close down upon the sheet, substantially as described.

32. The combination with a sheet-support by which the body of a sheet is maintained in position, of a rotating carrier, gripper mechanism mounted therein, supporting devices for the edge of the sheet pivoted in the carrier, and means operated from the gripper mechanism for rocking said supporting devices about their pivot in order to enable the grippers to close down upon the sheet, substantially as described.

33. The combination with a sheet-support by which the body of a sheet is maintained in position, of a rotating carrier, a gripper mechanism mounted therein, a rock-shaft mounted in the carrier, curved sheet-supporting shoes mounted on the shaft, and means operated from the gripper mechanism for rocking the shoe-supporting shaft in order to shift the position of the shoes to enable the grippers to close down upon the sheet, substantially as described.

34. The combination with a sheet-support for maintaining the body of the sheet in position, of a rotating carrier, a gripper-shaft mounted therein, grippers mounted on the shaft, a rock-shaft, curved sheet supporting shoes mounted on the rock-shaft, an arm extending from the rock-shaft, a cam mounted on the gripper-shaft and operating upon the arm, means for holding the arm against the cam and means for rocking the gripper-shaft, substantially as described.

35. The combination with a support for maintaining the body of a sheet in position, of two sets of sheet-edge-supporting devices, and means whereby they are brought into operation successively, substantially as described.

36. The combination with a support for maintaining the body of a sheet in position, of two sets of sheet-edge-supporting devices, means whereby they are brought into operation successively, a rotating gripper-carrier having grippers, and means for shifting the position of the edge-supporting devices which come into operation last to enable the grippers to close down upon the sheet, substantially as described.

37. The combination with a support for maintaining the body of a sheet in position, of two sets of sheet-edge-supporting devices, means whereby they are brought into operation successively, a continuously-rotating gripper-carrier having grippers, and means for shifting the position of the edge-supporting devices which come into operation last to enable the grippers to close down upon the sheet, substantially as described.

38. The combination with a sheet-support for maintaining the body of the sheet in position, of a carrier, a gripper mechanism mounted therein, edge-supporting devices mounted above the path of the carrier, edge-supporting devices mounted in the carrier, means for shifting the first set of edge-supporting devices out of operative position as the second set of edge-supporting devices come into position, and means for shifting the position of the second edge-supporting devices in order to enable the grippers to close down upon the sheet, substantially as described.

39. The combination with a sheet-support for maintaining the body of the sheet in position, of a carrier, a gripper mechanism mounted therein, edge-supporting devices mounted above the path of the carrier, edge supporting devices mounted in the carrier, means for shifting the first set of edge-supporting devices out of operative position as the second set of edge-supporting devices come into position, means for shifting the position of the second set of edge-supporting devices in order to enable the grippers to close down upon the sheet, suitable front stops, and means for operating the same, substantially as described.

40. The combination with a sheet-support for maintaining the body of the sheet in position, of a continuously-rotating carrier, a gripper mechanism mounted therein, edge-supporting devices mounted above the path of the carrier, edge-supporting devices mounted in the carrier, means for shifting the first set of edge-supporting devices out of operative position as the second set of edge-supporting devices come into position, and means for shifting the position of the supplementary edge-supporting devices in order to enable the grippers to close down upon the sheet, substantially as described.

41. The combination with a sheet-support for maintaining the body of the sheet in position, of a continuously-rotating carrier, a gripper mechanism mounted therein, edge-supporting devices mounted above the path of the carrier, edge-supporting devices mounted in the carrier, means for shifting the first set of edge-supporting devices out of operative position as the second set of edge-supporting devices come into position, means for shifting the position of the second set of edge-supporting devices in order to enable the grippers to close down upon the sheet, suitable front stops, and means for operating said stops, substantially as described.

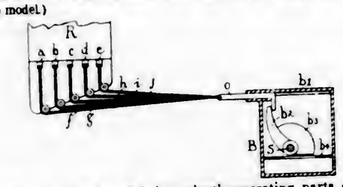
42. The combination with a sheet-support for maintaining the body of the sheet in position, of a rock-shaft, sheet-edge supporting fingers carried by the rock-shaft, a continuously-rotating carrier, a gripper mechanism mounted in the carrier, edge-supporting devices also mounted in the carrier, a cam on the shaft of the carrier, means whereby the cam rocks the first set of edge-supporting fingers out of position as the second set of edge-supporting devices come into position, and means operated from the gripper mechanism for shifting the position of the second set of edge-supporting devices in order to enable the gripper mechanism to close down upon the sheet, substantially as described.

43. The combination with a sheet-support for maintaining the body of the sheet in position, of a continuously-rotating carrier, a rock-shaft contiguous to the path of the carrier, edge-supporting devices carried by the rock-shaft, a gripper-shaft mounted in the carrier, means for operating it, grippers on the shaft, a rock-shaft also mounted in the carrier, curved sheet-supporting shoes carried by the rock-shaft, means for rocking the shaft to move the edge-supporting devices out of position as the curved shoes come into position, and means operated from the shaft of the gripper mechanism for rocking the shoe-carrying shaft to shift the position of the shoes so that the grippers may close down upon the sheet, substantially as described.

44. The combination with a sheet-support for maintaining the body of the sheet in position, of a continuously-rotating carrier, a rock-shaft contiguous to the path of the carrier, edge-supporting devices carried by the rock-shaft, a gripper-shaft mounted in the carrier, means for operating it, grippers on the shaft, a rock-shaft also mounted in the carrier, curved sheet-supporting shoes carried by the rock-shaft, means for rocking the shaft to move the edge-supporting devices out of position as the curved shoes come into position, means operated from the shaft of the gripper mechanism for rocking the shoe carrying shaft to shift the position of the shoes so that the grippers may close down upon the sheet, suitable front stops, and means for operating said stops, substantially as described.

640,800. MECHANISM FOR OPERATING FARE-REGISTERS.

JOHN F. OBMER, Dayton, Ohio. Filed Aug. 1, 1899. Serial No. 725,800. (No model.)



Claim.—1 A series of independently-operating parts each arranged to actuate a specific fare-registering mechanism, a rod, means for supporting such rod and for imparting thereto both a rotary and a longitudinal movement, means on such rod for engaging and operating each one individually of such independently-operating parts when brought into operative relation thereto by the longitudinal movement of such rod, means for preventing a rotative movement of such rod except when in position to actuate one of such independently-operating parts, and means for indicating when the proper longitudinal movement has been imparted to such rod for actuating any desired one of such independently-operating parts.

2. A series of independently-operating parts each arranged to actuate a specific fare-registering mechanism, a rod, means for supporting such rod and for imparting thereto both a rotary and a longitudinal movement, means on such rod for engaging and operating each one individually of such independently-operating parts when brought into operative relation thereto by the longitudinal movement of such rod, and means for indicating when the proper longitudinal movement has been imparted to such rod for actuating any desired one of such independently-operating parts.

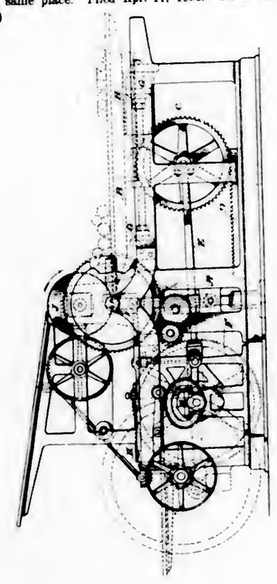
3. A series of independently-operating parts each arranged to actuate a specific fare-registering mechanism, a rod, means for supporting such rod and for imparting thereto both a rotary and a longitudinal movement, means on such rod for engaging and operating each one individually of such independently-operating parts when brought into operative relation thereto by the longitudinal movement of such rod, means for preventing a rotative movement of such rod except when in position to actuate one of such independently-operating parts, and means for indicating when the proper longitudinal movement has been imparted to such rod for actuating any desired one of such independently-operating parts.

4. A series of independently-operating parts each arranged to actuate a specific fare-registering mechanism, a rod, means for supporting such rod and for imparting thereto both a rotary and a longitudinal movement, means on such rod for engaging and operating each one individually of such independently-operating parts when brought into operative relation thereto by the longitudinal movement of such rod, and means contained within the same case with such independently-operating parts, for preventing a rotative movement of such rod except when in position to actuate one of such independently-operating parts.

5. A series of independently-operating parts each arranged to actuate a specific fare-registering mechanism, a rod, means for supporting such rod and for imparting thereto both a rotary and a longitudinal movement, means on such rod for engaging and operating each one individually of such independently-operating parts when brought into operative relation thereto by the longitudinal movement of such rod, means contained within the same case with such independently-operating parts, for preventing a rotative movement of such rod except when in position to actuate one of such independently-operating parts, and means for indicating when the proper longitudinal movement has been imparted to such rod for actuating any desired one of such independently-operating parts.

640,801. PRINTING-PRESS.

GULBRAND J. OLSEN, New York. N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, same place. Filed Apr. 11, 1898. Serial No. 677,126. (No model.)



Claim.—1. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder, of a cushioning device, means for causing said device to assist in stopping and starting the cylinder, the construction being such that the energy developed in the cushioning device by stopping the cylinder is utilized in starting it, substantially as described.

2. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder, of a cushioning device consisting of two movable parts, means for causing said parts to exert a resistance to the rotation of the cylinder when it is stopped, the construction being such that the energy developed in said cushioning device by the stopping of the cylinder is utilized in starting it, substantially as described.

3. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder, of an air-cushioning device, means for bringing said device into operation when the cylinder is stopped and started, the air in the cushioning device being compressed when the cylinder is stopped and allowed to expand when it is started, the construction being such that the energy developed in stopping the cylinder is utilized in starting it, substantially as described.

4. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, of a cushioning device, a part of which is connected to the cylinder and shaft, and means for bringing said device into operation when the cylinder is stopped and started, the construction being such that the energy developed in the cushioning device by the stopping of the cylinder is utilized in starting it, substantially as described.

5. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, of an air-cushioning device consisting of a piston and an air-chamber, one of these parts being connected to the cylinder and its shaft and the other suitably supported with relation thereto, and means for causing the cylinder to compress the air in the air-chamber when the cylinder is stopped, the construction being such that the air in the air-chamber is retained under compression and the force thus developed is utilized when the cylinder is started, substantially as described.

6. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of an air-cushioning device consisting of a piston and an air-chamber, one of these parts being connected to the cylinder and its shaft and the other being suitably supported in proximity thereto, the arrangement being such that the air in the air-chamber is compressed when the cylinder is stopped, and means whereby the position of the chamber and piston are changed with relation to the cylinder so that the force developed by compressing the air in the chamber when the cylinder is stopped may be utilized in starting the cylinder, substantially as described.

7. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second rotating shaft, and a cushioning device, the parts of which are connected to the two shafts, the arrangement being such that the cushioning device is brought into operation when the cylinder is stopped and started, the energy developed in the cushioning device by stopping the cylinder being utilized in starting it, substantially as described.

8. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second rotating shaft, and an air-cushioning device consisting of a piston and an air-chamber, one of the said parts being connected to the cylinder and its shaft and the other to the rotating shaft, and the arrangement being such that the air is compressed in the chamber when the cylinder is stopped and the force thereby developed is utilized when the cylinder is started, substantially as described.

9. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second shaft, means for rotating said shaft at half the speed of the cylinder-shaft, a cushioning device, and suitable connections between the parts of the cushioning device and the shafts whereby the parts of the cushioning device are caused to rotate with the shafts, substantially as described.

10. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second shaft, means for rotating it at half the speed of the cylinder-shaft, a cushioning device consisting of an air-chamber and piston, and suitable connections between the piston and one of the shafts and between the air-chamber and the other shaft whereby the parts of the cushioning device are caused to rotate with the shafts, substantially as described.

11. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second shaft, means for rotating it at half the speed of the cylinder-shaft, supports connected to each of the shafts and rotating with them, and a cushioning device, the parts of which are pivoted to the supports, substantially as described.

12. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a second shaft, means for rotating it at half the speed of the cylinder-shaft, supports connected to each of the shafts and rotating with them, and a cushioning device consisting of a piston and an air-chamber, the piston being pivoted to one of said supports and the air-chamber to the other, substantially as described.

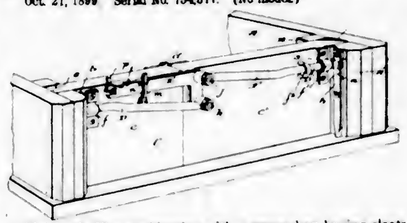
13. In a bed-and-cylinder machine wherein the cylinder is periodically stopped and started, the combination with the cylinder and its shaft, said cylinder always rotating in the same direction, of a support connected to the cylinder-shaft and rotating therewith, a cushioning device one part of which is pivoted to said support, a second shaft mounted so that its center of rotation will be opposite the circumference described by the pivot between the support and said part of the cushioning device, means for rotating the shaft at half the speed of the cylinder-shaft, a support connected to and rotating with said shaft, and a pivoted connection between said support and another part of the cushioning device, substantially as described.

14. In a stop-cylinder machine, the combination with the cylinder and its shaft, of a support connected to and rotating with the shaft, a second shaft, a support connected to and rotating with said shaft, a cushioning device, the parts of which are connected to said two supports, the shafts being so located and arranged that the cushioning device will be brought into operation to assist in stopping the rotation of the cylinder and the force developed in the cushioning device will be utilized in starting the cylinder, substantially as described.

15. In a stop-cylinder machine, the combination with the cylinder and its shaft, of a support connected to and rotating with the shaft, a cushioning device consisting of a piston and an air-chamber, one of the parts of which is pivoted to said support, a second shaft mounted so that its center of rotation is opposite the circumference described by the point of connection between the support and the part of the cushioning device, a support on said shaft to which the other part of the cushioning device is pivoted, and means for rotating said shaft at half the speed of the cylinder-shaft, substantially as described.

16. In a stop-cylinder machine, the combination with the cylinder and its shaft, of a support mounted on the shaft, a piston pivoted to said support, a second shaft mounted so that its center of rotation will be opposite the circumference described by the point of connection between the pivot and the support, a support on said shaft, an air-chamber pivoted to said support, and means for rotating said shaft at half the speed of the cylinder-shaft, substantially as described.

640,802. **END-GATE.** JOHN F. OVERCASH, Crete, Nebr. Filed Oct. 21, 1899. Serial No. 734,377. (No model.)



Claim.—1. The combination with a wagon-box having cleats on its side walls, the rear ones of which are provided in their forward sides with notches, the upper walls of which constitute abutments and also having keepers connected to the inner sides of the rear cleats and partially covering the notches therein; of a removable end-gate arranged between the cleats, endwise-movable rock-bolts arranged in bearings on the end-gate and having angular portions adapted to engage the keepers and the upper walls of the notches in the rear cleats, and suitable means for moving the said bolts endwise and rocking the same, substantially as specified.

2. The combination with a wagon-box having keepers and abutments on its side walls; of an end-gate, endwise-movable, rock-bolts arranged in bearings on the end-gate, and having angular portions adapted to engage the keepers and also adapted to bear against the abutments on the side walls of the box, and a lever for moving the bolts endwise and rocking the same on their axes; the said lever being loosely connected with the bolts, substantially as specified.

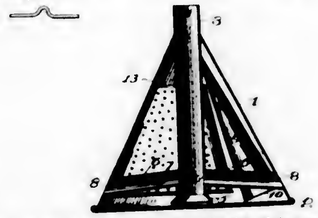
3. The combination with a wagon-box having cleats provided with abutments and also having keepers on its side walls; of an end-gate comprising flexibly-connected sections, endwise-movable, rock-bolts arranged in bearings on the sections of the end-gate, and having angular portions adapted to engage the keepers and also adapted to bear against abutments on the side walls of the box, and a lever for moving the bolts endwise and rocking the same on their axes; the said lever being loosely connected with the bolts substantially as specified.

4. The combination with a wagon-box having cleats and keepers on its side walls; of an end-gate comprising flexibly-connected sections, endwise-movable, rock-bolts arranged in bearings on the sections of the end-gate, and having angular portions adapted to engage the keepers and also adapted to bear against abutments on the side walls of the box, and an angular hand-lever having lateral projections at one end and at its apex pivotally connected to the bolts, substantially as specified.

5. The combination with an end-gate comprising flexibly-connected sections; of endwise-movable rock-bolts arranged in bearings on the sections of the end-gate, and a lever for moving the bolts endwise and rocking the same on their axes, the said lever being loosely connected with the bolts, substantially as specified.

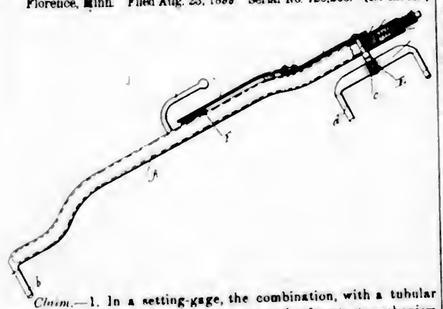
6. The combination with an end-gate; of endwise-movable rock-bolts arranged in bearings on the end-gate, a keeper connected to the gate, and a lever connected to and adapted to move the bolts endwise and rock the same on their axes; the said lever being provided with a catch to engage the keeper and a spring arranged to bear against the gate and thereby hold the catch in engagement with the keeper, substantially as specified.

640,803. **CLOTHES-POUNDER.** WILLIAM T. PARNELL and CHARLEY BISHOP, El Dorado, Ark. Filed Sept. 19, 1899. Serial No. 730,994. (No model.)



Claim.—In a clothes-pounder, the combination of the cone-shaped body 1; central tube 3; perforated curved metal sheet 12, having secured to its upper end a top 13; the side edges of the sheet 12, and the inner edge of the top 13 being secured to the inner wall of the body 1; lid 16, hinged to the lower edge of said sheet and adapted to close the opening between said sheet and the wall; and knee-catch 17, secured to the inner face of the body 1, and adapted to hold said lid closed when sprung into place, substantially as shown and described and for the purposes set forth.

640,804. **SETTING-GAGE FOR AXLES.** GUSTAV A. PETERSON, Florence, Minn. Filed Aug. 23, 1899. Serial No. 728,203. (No model.)

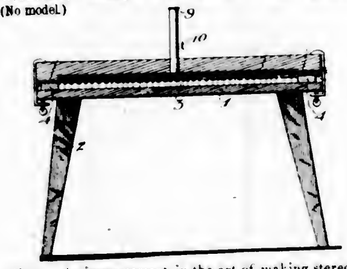


Claim.—1. In a setting-gage, the combination, with a tubular bar provided with a contact-piece at one end, of contact mechanism provided with a stem which is journaled in the other end portion of the said bar, a frictional brake inclosed within the said bar, and an indicating device connected to the said stem, substantially as set forth.

2. In a setting-gage, the combination, with a bar provided with a contact-piece at one end, of a stem journaled in the other end portion of the said bar and provided with means for indicating its movements, a cross-bar pivoted to the said stem, and a tension device for resisting the movements of the said cross-bar, substantially as set forth.

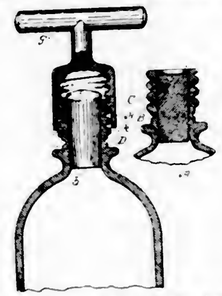
3. In a setting-gage, the combination with a tubular bar provided with a contact-piece at one end, of contact mechanism provided with a stem which is journaled in the other end portion of the said bar, a spring-pressed friction-block arranged inside the bar and bearing against the said stem, and a screw-threaded plug for adjusting the pressure of the said block, substantially as set forth.

640,805. **ART OF MAKING STEREOTYPE-MATRICES.** JESSE W. PHORBUS, Wheeling, W. Va. Filed July 12, 1898. Serial No. 685,786. (No model.)



Claim.—An improvement in the art of making stereotype-matrices, which consists in preparing a moistureless non-laminated sheet of soft pulpy material solely upon the type-contacting face thereof, with a thin homogeneous elastic glaze of uniform texture throughout, eliminating all moisture from the superficial elastic glaze, and finally impressing the said glazed surface, while in an absolutely dry condition, directly upon a type-form, with the entire absence of both heat and moisture, substantially as described.

640,806. **BOTTLE-STOPPER AND EXTRACTOR.** RUFUS S. PICKETT, New Haven, Conn. Filed Aug. 3, 1899. Serial No. 726,016. (No model.)



Claim.—1. The combination with a bottle having integrally-formed screw-threading at the outer end of its neck; of an annular indentation or groove below said screw-threading and a flange or shoulder below said indentation, a cork adapted to be inserted in said neck, and means for preventing the withdrawal of said cork from the upper end of said neck, together with mechanism for severing the neck of the bottle on the plane of the annular indentation or groove, substantially as described.

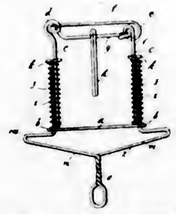
2. The combination with a bottle having a neck provided with external screw-threading at its outer end, an annular indentation or groove below said threading and a flange or shoulder below said indentation; of a cork having a transversely-extending piece of metal, substantially as described.

3. A bottle having a neck provided with external screw-threading at its outer end; an annular indentation or groove below said threading; an external flange or shoulder below said indentation, and an inwardly-extending and downwardly-beveled flange at its outer end, substantially as described.

4. The combination with a bottle having a neck provided with external screw-threading at its outer end; an annular groove or indentation below said threading, and a flange or shoulder below said groove or indentation, with an extractor having a hollow cylindrical body internally threaded to correspond with said threading on said

neck, and its end adapted to bear on said flange or shoulder, substantially as described.

640,807. DEVICE FOR HOLDING KEYS, HANDKERCHIEFS, &c. JANE H. POLHEMUS, Dobbs Ferry, N. Y. Filed Sept. 1, 1899. Serial No. 729,171. (No model.)

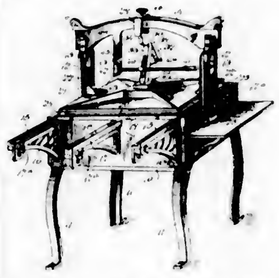


Claim.—1. A suspension device of the class described, comprising an upper and a lower member, said upper member being provided with means for attachment to the dress of a user and provided with parallel side bars, the lower member being provided with side bars slidably connected with the side bars of the upper member, a spring element interposed between the lower ends of the side bars of the upper member, and the upper ends of the side bars of the lower member, said side bars of said upper member being connected at their lower ends by a cross-bar, in connection with which said lower member operates to clamp a handkerchief, substantially as shown and described.

2. A suspension device of the class described, comprising an upper and a lower member, each of which consists of a single length of wire, said members being provided with tensional means for normally retaining them in a position to clamp a handkerchief between them, said tensional means normally forcing said lower member upward, the wire of which said upper member is composed being formed into a pin-bar and into a depending hook from which an article may be suspended, and the wire of which the lower member is composed being formed into a downwardly-directed looped portion, which serves as an operating member, substantially as shown and described.

3. A device of the class described, comprising two members each of which is composed of a single length of wire, the wire forming the upper member being bent to form a bottom cross-bar *a* having eyes or loops *b* at its ends which terminate in upwardly-directed side bars *c c*, one of which is provided at its upper end with a retaining-loop *d* the upper end of the other side bar *c* being provided with a loop *e* from which is projected a pin-bar *f* arranged to engage the loop *d*, said wire of said upper member being projected from the loop *d* transversely to engage with the loop *e* forming a cross-bar *g* and a hook member *h*, said lower frame member consisting of a wire, bent to produce side bars *i i* having eyes or loops *k* at their upper ends which embrace and slide upon the side bars *c*, said side bars *i* also passing through the bottom loops *b* and bent outwardly and convergently inwardly at their lower ends as at *m*, *n*, and looped at the bottom portion of the lower frame as at *o*.

640,808. PRINTING-PRESS. GEORGE W. PORTER, Muscatine, Iowa. Filed May 17, 1899. Serial No. 717,201. (No model.)



Claim.—1. In a printing-press, the combination with a press-frame the bridge-beam of which is provided with a screw-threaded perforation, and a vertically-reciprocating platen, of a guide-clip fixed to said frame, a thrust-block slidably confined on the guide-clip, a regulating-screw mounted in the screw-threaded perforation of said frame and connected with the thrust-block to raise or lower the latter, another thrust-block fast with the platen, and a knuckle-lever mechanism having the two members connected together and seated respectively against the adjustable thrust-block and the thrust-block on the platen, substantially as described.

2. In a printing-press, the combination with a press-frame the bridge-beam of which is provided with a depending arm, and a vertically-reciprocating platen, of thrust-blocks connected respectively to said frame and the platen and provided with seats in their opposing faces, a knuckle-lever mechanism comprising a member having an angular arm and a seat, one end of said lever member being fitted to the thrust-block on the press-frame, and another member provided with a slot and having its respective ends fitted to the seat of the first-named member and the thrust-block on the platen, a hand-lever turning on a vertical axis on the depending arm of the press-frame, and an arm passing loosely through the slotted member of the knuckle-lever and having one end pivoted to the other member of said knuckle-lever and connected at its other end loosely to the hand-lever, substantially as described.

3. In a printing-press, the combination with a press-frame and a reciprocating platen, of thrust-blocks connected respectively to said frame and platen, lever members which are seated respectively in said thrust-blocks and fitted operatively one to the other, one of said lever members having a lateral offset and a seat therein, and the other lever member provided with a longitudinal slot and with a head to fit in said seat, a hand-lever fulcrumed on the frame to turn on a vertical axis, and an arm connected loosely with the hand-lever, pivoted to one member of the knuckle-lever and passing loosely through the slot of the other member of the knuckle-lever, for the purpose described, substantially as set forth.

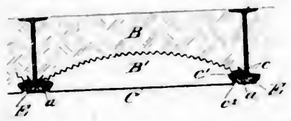
4. In a printing-press, the combination with a frame the standards of which are slotted longitudinally, of a vertically-reciprocating platen provided with guide-lugs to slide in the slotted sides of said frame, springs in the bottoms of said slots acting against said platen to normally lift the latter, lever mechanism for depressing the platen, and a horizontally-slidable bed fitted to said frame, said lifting-springs tending to normally maintain the platen in a horizontal plane above the path of the bed, substantially as described.

5. In a printing-press, the combination with a frame provided with brackets, and a vertically-reciprocating platen, of rails adjustably secured to said brackets, a horizontally-slidable bed on said rails, and a frisket adjustably connected to said bed and adapted to travel therewith below the platen, substantially as described.

6. In a printing-press, the combination with a frame the front and rear walls of which are each provided with brackets, and a vertically-reciprocating platen therein, of rails on said brackets, each of which is provided with perforated lugs, bolts through the lugs and the brackets, a horizontally-slidable bed guided on said rails for movement below the platen, and a frisket hinged to the bed to lie upon the same and adapted to travel with said bed below the platen, substantially as described.

7. In a printing-press, the combination of a frame provided with guideways and with fixed brackets, a grooved rail fixed to the frame between said guideways and parallel to said brackets, a horizontally-slidable bed seated upon the brackets and having a flange adapted to travel in the grooved rail to direct the bed into the guideways of the frame, a reciprocating platen guided in said frame, springs acting against said platen to normally sustain the same in a horizontal plane above the path of the bed, and mechanism for depressing the platen, substantially as described.

640,809. CEILING CONSTRUCTION. JOHN W. RAPP, New York, N. Y. Filed Mar. 10, 1899. Serial No. 708,525. (No model.)

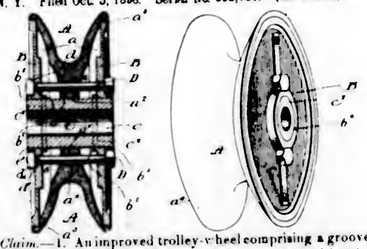


Claim.—1. The combination with I-beams of a metal arch between said beams, and metal lath supported on the flanges of said I-beams, said metal lath being provided with bends at its end portions into which the ends of the metal arch project, substantially as described.

2. The combination with I-beams, of a metal arch between said beams, metal lath supported from said I-beams and bends c, c', c^2 provided in the ends of said lath, substantially as described.

3. The combination with I-beams of a metal arch between said beams, metal-lath sheets supported from said I-beams by the metal arch, each of said sheets being provided with a bend at its side edges which bends engage with corresponding bends on adjacent sheets of metal lath.

640,810. TROLLEY-WHEEL. GREEN B. RAUM, Jr., New York, N. Y. Filed Oct. 5, 1898. Serial No. 692,760. (No model.)



Claim.—1. An improved trolley-wheel comprising a grooved rim member, with its outside faces concaved, and provided with a shoulder extending annularly immediately beneath the edge of the peripheral flanges, affording a smooth unbroken surface for contact with the wire, a separable hub member and separable side members joined to the hub and extending up to and fitted into the shoulder of the grooved rim member, and mounting the same in relative operative position, affording mutual support of parts, substantially as and for the purposes set forth.

2. An improved trolley-wheel, the combination of the grooved rim A, having its outside faces concaved as at a, and a shoulder, a^3, extending annularly immediately beneath the edges of the peripheral flanges a^4, with the circular plates or disks, B B, having their periphery b corresponding to and seated against the shoulder a^3, the hub C; the bolts D, with nuts d, and screw-heads d', all substantially as and for the purposes herein set forth.

640,811. FIREPROOF DOOR. JAMES S. REYNOLDS, Minneapolis, Minn. Filed June 2, 1899. Serial No. 719,104. (No model.)



Claim.—1. A fireproof door constructed entirely of metal and comprising a surrounding channel-iron, cross channel-irons connected to said surrounding channel-iron, metallic sheathings applied to opposite sides of the frame and connected to the cross channel-irons and the surrounding iron, and a finishing metallic band fitted in the surrounding iron.

2. A fireproof door constructed entirely of metal, comprising a frame having a surrounding channel-iron with the flanges outermost, cross channel-irons connected to said surrounding iron, metallic sheathings secured to opposite sides of the door and provided with panels, the panels being located in the spaces between the cross channel-irons and connected to the latter and also bent around the flanges of the surrounding iron, and a metallic finishing-band having inner flanges fitted in the surrounding iron and secured thereto.

3. A fireproof door constructed entirely of metal and comprising a surrounding channel-iron, metallic sheathings connected to opposite sides of the said iron and bent over the flanges of the latter, and a finishing-band secured in the surrounding iron over the bent portions of the sheathings.

4. A fireproof door consisting of a frame made of metal and sheet-metal sheathings secured to opposite sides thereof with their edges bent over the flanges of the surrounding iron.

5. A fireproof door comprising a metallic frame including cross-irons, and sheet-metal sheathings secured to opposite sides of the frame with their edges bent around the surrounding channel-iron, the said sheathings being also attached to the cross-irons.

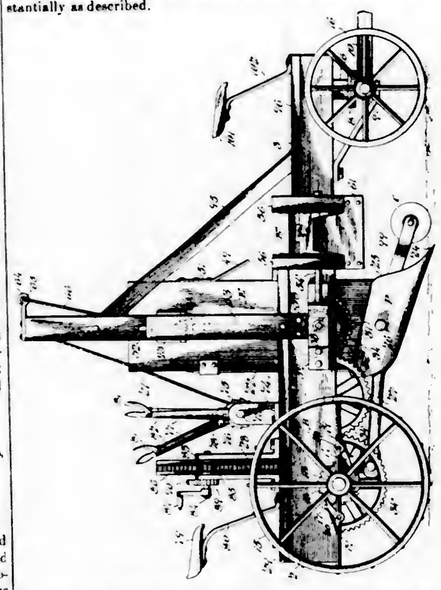
6. A fireproof door constructed of metal and comprising a framework having surrounding channel-irons and connected by cross channel-irons, and sheet-metal sheathings secured to the opposite sides of the said irons and having the edges bent over and held by the flanges of the surrounding iron and also attached to portions of the cross-irons.

7. A fireproof door having a frame comprising a surrounding channel iron, cross channel-irons connected to interior portions of the surrounding iron and provided with depending flanges at opposite ends, and metallic sheathings applied to opposite sides of the said frame.

640,812. DITCHING-MACHINE. MARSHAL A. RICHARDSON, Windsor, Ill. Filed Feb. 27, 1899. Serial No. 707,049. (No model.)

Claim.—1. In a ditching-machine, the combination with an elevator of a plow having side wings or flanges pivotally connected with the elevator, and means independent of the elevator movably connected to and adapted to turn the plow upon its pivotal support, substantially as and for the purpose described.

2. In a ditching-machine, the combination with an adjustable elevator and a plow having side flanges or wings pivotally connected with the elevator at an intermediate point and simultaneously elevated and turned upon its pivotal support when adjusting the elevator, of means independent of the elevator movably attached to and adapted for adjusting the plow to compensate for the variation of pitch of the plow due to the vertical adjustment of the elevator, substantially as described.



3. In a ditching-machine, the combination with an elevator and means for adjusting the elevator vertically, of a plow having side flanges or wings pivoted at an intermediate point to the said elevator, a bar or analogous support pivotally connected with the plow remote from its pivotal connection with the elevator, and means for adjusting the said bar vertically, as and for the purpose set forth.

4. In a ditching-machine, the combination with a casing open at its lower end and provided with an elevator, of a plow closing the lower end of the casing and attached thereto and having upturned side walls embracing the sides of the said casing and having its rear end curved upwardly to conform to the path of travel of the lower end portion of the elevator, substantially as and for the purpose described.

5. In a ditching-machine, the combination with an elevator and a plow, of independent means for adjusting the elevator and plow, and a colter to act jointly with the plow and attached to and movable with the elevator independently of said plow, substantially as described.

6. In a ditching-machine, the combination with an elevator, means for adjusting the elevator vertically, and a colter located in advance of the elevator and attached thereto and movable vertically therewith, of a plow pivotally connected with the elevator and located in the rear of the said colter, and means independent of the elevator for turning the plow upon its pivotal connection with the elevator, substantially as set forth.

7. In a ditching-machine, the combination of a vertically-adjustable elevator and a plow having side flanges or wings pivotally attached to the lower end of the elevator, the said side flanges or wings being at an elevation above the lower extremity of said elevator, a vertically-arranged rack-bar pivotally connected with an arm of the plow, a guide for directing the rack-bar in its vertical movements, a shaft provided with a pinion intermeshing with the teeth of the rack-bar for moving it vertically, and means for holding the shaft in an adjusted position, substantially as described.

8. In a ditching-machine, the combination with an elevator and its casing the latter being supported for adjustable movement, of a plow, means for adjusting the plow, a standard having a hook, a winding cable connected with said hook, a winding-drum adapted to receive said cable, a guide for the cable connected with the casing, and means for turning said drum, substantially as described.

9. In a ditching-machine, the combination with an elevator and

its casing, the latter being supported for adjustable movement, of a plow, means for adjusting the plow, a standard having a hook, a winding cable connected with said hook, a winding-drum adapted to receive said cable, a guide for the cable connected with the casing, a shaft carrying said drum, a ratchet on said shaft, a main or hand lever loosely carried by the shaft, an auxiliary lever carried by said main or hand lever, and a pawl connected with said auxiliary lever and adapted to engage said ratchet, substantially as described.

10. In a ditching-machine, the combination with an adjustable elevator and its casing, of a plow, a standard having a hook, a winding cable connected with said hook and also with said casing, a winding-drum adapted to receive said cable, a shaft supporting said drum, ratchets carried at opposite ends of the shaft and rotative with the drum, hand-levers loosely carried by the shaft and provided with pawls adapted to engage the ratchets, and means on said hand-levers for operating the pawls, substantially as described.

11. In a ditching-machine, the combination with an adjustable elevator and its casing the latter being longitudinally adjustable, a plow connected with the casing, independent mechanisms for adjusting the casing and plow, a second elevator in position to receive dirt from the first-mentioned elevator, and a hood located at the discharge end of the second elevator and adapted to control the discharge of dirt, substantially as described

12. In a ditching-machine, the combination with a primary elevator and its casing including two side boards, of a plow, a second elevator in position to receive dirt from the first-mentioned elevator, and a combined scraper and chute operating in connection with the primary elevator, and serving to scrape the dirt from the blades of said primary elevator and to direct the same onto the secondary elevator, substantially as described.

13. In a ditching-machine, the combination with a primary elevator and its casing including two side boards, of a plow, a second elevator in position to receive dirt from the first-mentioned elevator, and a combined scraper and chute operating in connection with the primary elevator, and serving to scrape the dirt from the blades of said primary elevatnr and to direct the same onto the secondary elevator, a series of blades on the primary elevator having inwardly-extending arms and adapted to lift the dirt from the plow, and a cam secured between the walls of the casing and adapted to engage said inwardly-extending arms, substantially as described.

14. In a ditching-machine, the combination with a primary elevator and its casing including two side boards, of a plow, a second elevator in position to receive dirt from the first-mentioned elevator, and a combined scraper and chute operating in connection with the primary elevator, and serving to scrape the dirt from the blades of said primary elevator and to direct the same onto the secondary elevator, a series of blades on the primary elevator having inwardly-extending arms and adapted to lift the dirt from the plow, a cam secured between the walls of the casing and adapted to engage said inwardly-extending arms, a combined scraper and chute operable in connection with the primary elevator, and a shifting device for the blades of the latter located to the rear of said combined scraper and chute, substantially as described.

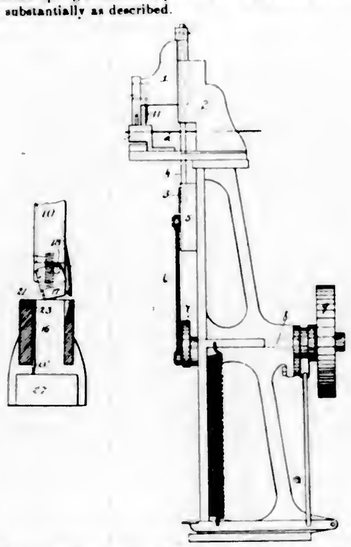
15. In a ditching-machine, the combination with means for loosening and lifting the dirt, of an elevator supported at its upper and lower ends upon sprocket-shafts, and a cam comprising front and rear vertical portions, and a lower curved portion, the latter extending beneath the lower sprocket-shaft, and the rear vertical portion extending over the upper sprocket-shaft and the front vertical portion terminating a distance below the upper sprocket-shaft, substantially as described.

16. In a ditching-machine in combination with means for loosening and lifting the earth, an elevator comprising a connected series of blades having inwardly-extending arms, upper and lower sprocket-shafts supporting the elevator, and a cam comprising a lower curved portion extending beneath the lower sprocket-shaft, a front vertical portion terminating a distance below the upper sprocket-shaft and curving rearwardly and a rear vertical portion having its upper end curving over said upper sprocket-shaft, substantially as set forth.

640,813. STAPLING-MACHINE. OTTO G. RIESKE, Dayton, Ohio, assignor, by direct and mesne assignments, to Ernst B. Schneider, Zanesville, Ohio. Filed Mar. 13, 1899. Serial No. 708,895. (No model.)

Claim.—1. In a stapling-machine, the combination with a stationary guide-plate, of a reciprocable plunger, a pivotal end on said plunger which engages with the wire upon its upward movement and forms a staple therefrom, a spring to hold said pivotal end in line with the plunger when said plunger is moving in the guide-plate, and a stronger spring controlling said pivotal end when the plunger moves out of said guide-plate.

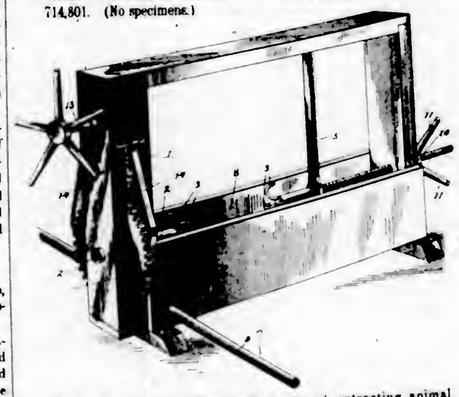
2. In a stapling-machine, the combination with a guide-plate, of a reciprocable plunger movable therein, a pivotal end on said plunger having a wire-engaging slot, a spring controlling said pivotal end to release a staple when the plunger moves out of the guide-plate, and another spring to hold said pivotal end in position to drive said staple, substantially as described.



3. In a stapling-machine, the combination with a stationary plate having a wire-opening therein, of a reciprocable plunger movable in said plate, a pivotal end on said plunger, a transverse wire-slot in said pivotal end to receive a wire when said wire-slot is brought in line with the wire opening in said stationary plate, a wire-cutter for cutting said wire into suitable lengths for staples, and means for dislodging the staples from said pivotal end, substantially as specified.

4. In a stapling-machine, the combination with a stationary plate having a horizontal wire-opening, and vertical openings therein, of a reciprocable staple-plunger, and a wire-cutter simultaneously movable in said vertical openings, the said plunger having its lower end pivoted, a transverse wire-slot in said pivoted end, said wire-slot being adapted to receive wire when brought in line with the wire-opening in the stationary plate when the plunger moves downward, and springs adapted to hold the said pivoted end of the plunger in operative positions, substantially as specified.

640,814. PROCESS OF EXTRACTING GREASE FROM SKINS. JOSEPH W. ROGERS, Gloversville, N. Y. Filed Apr. 28, 1899. Serial No. 714,801. (No specimens.)



Claim.—1. The herein-described process of extracting animal grease from skins, consisting in twisting the latter while submerged.

2. The herein-described process of extracting animal grease from skins, consisting in twisting the latter while submerged, and maintaining the skins at a predetermined temperature.

3. The herein-described process of extracting animal grease from skins, consisting in twisting the latter while submerged in a heated liquor.

640,815. VALVE FOR INFLATION. EDWARD S. RONEY, Toronto, Canada. Filed Mar. 27, 1899. Serial No. 710,662. (No model.)



Claim.—1. In a tire a valve comprising a hollow valve-stem; and a flange formed on or connected to the head of the said stem, in combination with a rod extending through the said hollow stem; a disk connected to the said rod above the aforesaid flange, projections extending out from the flange and disk, one or more elastic bands engaging the said projections and tending to draw the disk and flange together and also to prevent them turning upon one another, and means engaging the outer ends of the stem and rod whereby the disk and flange may be tightened together, substantially as and for the purpose specified.

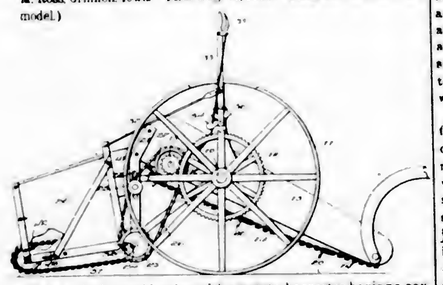
2. In a tire a valve comprising a hollow valve-stem, a flange formed on or connected to the head of the said stem, and a ring of packing secured to the upper surface of the said flange, in combination with a rod extending through the said hollow stem; a disk connected to the said rod above the aforesaid flange; a disk of packing of less diameter than the aforesaid ring secured to the under side of the said disk on the rod, projections extending out from the flange and disk; one or more elastic bands engaging the said projections and tending to draw the disk and flange together, and also to prevent them turning upon one another, and means engaging the outer ends of the stem and rod whereby the disk and flange may be tightened together, substantially as and for the purpose specified.

3. In a tire a valve comprising a hollow valve-stem and a flange formed on or connected to the head of the said stem, in combination with a rod extending through the said hollow stem; a disk connected to the said rod above the aforesaid flange; a projection from each side of the disk and flange, one of the projections on the disk or flange being provided with a spike adapted to enter a suitable hole in the corresponding projection on the flange or disk; one or more elastic bands adapted to draw the flange and disk together; and means engaging the outer ends of the stem and rod whereby the disk and flange may be tightened together, substantially as and for the purpose specified.

4. In a tire a valve comprising a hollow valve-stem; a flange formed on or connected to the head of the said stem; and a ring of packing secured to the upper surface of the said flange, in combination with a rod extending through the said hollow stem; a disk connected to the said rod above the aforesaid flange; a disk or packing of less diameter than the aforesaid ring secured to the under side of the said disk on the rod, one or more elastic bands engaging the disk and flange, and tending to draw them together, and means engaging the outer ends of the stem and rod whereby the disk and flange may be tightened together, substantially as and for the purpose specified

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640,816. ATTACHMENT FOR POTATO-HARVESTERS. GEORGE M. ROSS, Grinnell, Iowa. Filed Aug. 14, 1899. Serial No. 727,116. (No model.)



Claim.—1. In combination with a potato-harvester having a conveyer to move upwardly and rearwardly and carry earth and potatoes and discharge them from the rear of the conveyer, an auxiliary vertically-adjustable conveyer having a hinged connection with the frame of the machine and composed of a series of transversely-extended bars adapted to permit the lumps of earth to be broken up as they fall thereon and to pass through said auxiliary conveyer and to carry the potatoes to a point of discharge in the rear so that they will fall on top of the earth, and means for raising and lowering the rear end of the auxiliary conveyer in the manner set forth for the purposes stated.

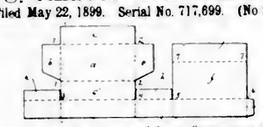
2. In combination with a potato-harvester, a frame pivoted at its forward lower corner to the rear end of the harvester-frame, and capable of swinging in a vertical plane, a conveyer mounted in said frame to extend rearwardly, and composed of transversely-extending rods having hooks projecting at right angles from their ends and interlocked, means for operating said conveyer from the traction-wheels of the harvester, an arched shaft having its bearings in the harvester-frame adjacent to the operator's seat, a lever fixed to one end thereof, and an arm formed on the opposite end thereof, rods connecting said lever and arm with the forward top ends of the auxiliary-conveyer frame, and a ratchet device for securing said lever in position all arranged and combined substantially in the manner set forth, and for the purposes stated.

640,817. BAND-CUTTER. WILLIAM P. RUNDLE and JAMES R. MASON, Portage La Prairie, Canada. Filed Mar. 29, 1899. Serial No. 710,897. (No model.)



Claim.—A band-cutter having a supporting-plate, removably secured to the hand of the operator; and a blade secured to said plate, said blade having its front face curved and sharpened, and having its rear face curved and sharpened, said curved faces or edges terminating in a rearwardly-extending point, substantially as described.

640,818. FOLDING BOX. HENRY SCHNACKENBERG, New York, N. Y. Filed May 22, 1899. Serial No. 717,699. (No model.)



Claim.—1. A paper box comprising a form open at top and bottom and provided with a box-body adapted to fold into said form downwardly from above and connected with said box-form along one of the top edges of said box-form, substantially as described.

2. A paper box comprising a box-form open at top and bottom and made in substantially rectangular form and provided with a box-body having a bottom and side and end flaps; said box-body being connected with said box-form along one of the top edges of said box-form and adapted to fold downwardly and inwardly into said box-form about said top edge, substantially as described.

3. A paper box comprising a box-form open at top and bottom and made in substantially rectangular form and provided with end laps and a cover, and a box-body having a bottom and side and end flaps and connected with said box-form along one of its top edges and adapted to fold downwardly and inwardly into said box-form about said top edge; said end laps on the box-form being adapted to be turned inwardly and downwardly and said cover to be turned downwardly to close the box, substantially as described.

4. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material, one of the longitudinal edges of which forms the lower edges of the front, rear and end walls of the bottomless box-form, said sheet being provided with a longitudinal crease or score forming the upper edges of said front, rear and end walls of the bottomless box-form, transverse scores forming the adjacent end edges of said walls and a flap projecting beyond the portion of the longitudinal crease or score forming the upper edges of the front wall for forming an additional flap and the bottom wall of the box, said first flap being provided with crosswise and longitudinal creases or scores for forming the front, rear and end edges of the bottom wall, substantially as and for the purpose described.

5. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material provided with a longitudinal crease or score forming the upper edges of the front, rear and end walls of the bottomless box-form, transverse scores forming the adjacent end edges of said walls, and a flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the front wall for forming an additional flap and the bottom wall of the box; said first flap being provided with

creases or scores for forming the front and rear edges of the bottom wall and being also provided with supplemental flaps projecting from the side edges of its central portion, and longitudinal creases or scores at the adjacent ends of the supplemental flaps, substantially as and for the purpose specified.

6. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material, one of the longitudinal edges of which forms the lower edges of the front, rear and end walls of the box, said sheet being provided with a longitudinal crease or score forming the upper edges of the said front, rear and end walls of the box, transverse scores forming the adjacent end edges of said walls, a flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the front wall for forming the bottom wall of the box; said flap being provided with crosswise creases or scores for forming the front and rear edges of the bottom wall, and an additional flap projecting beyond the portion of the longitudinal crease or score formiog the upper edge of the rear wall, said additional flap being provided with a crosswise crease or score for contacting with the top edge of the front wall, substantially as and for the purpose specified.

7. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material provided with a longitudinal crease or score forming the upper edges of the front, rear, and end walls of the box, transverse scores forming the adjacent end edges of said walls, a flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the front wall for forming the bottom wall of the box; said flap being provided with crosswise creases or scores for forming the front and rear edges of the bottom wall and being also provided with supplemental flaps projecting from the side edges of its central portion, and longitudinal creases or scores at the adjacent ends of the supplemental flaps, and an additional flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the rear wall; said additional flap being provided with a crosswise crease or score for contacting with the top edge of the front wall, substantially as and for the purpose set forth.

8. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material, one of the longitudinal edges of which forms the lower edges of the front, rear and end walls of the bottomless box-form; said sheet being provided with a longitudinal crease or score forming the upper edges of said front, rear and end walls of the box-form, transverse scores forming the adjacent end edges of said walls, a flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the front wall for forming an additional flap and the bottom wall of the box, said first-mentioned flap being provided with crosswise and longitudinal creases or scores for forming the bottom and the front, rear and end edges of the bottom wall, and flaps projecting beyond the portion of the longitudinal crease or score forming the upper edges of the end walls of the box, substantially as and for the purpose set forth.

9. As a new article of manufacture, the herein-described blank for boxes; the same consisting of a sheet of suitable material provided with a longitudinal crease or score forming the upper edges of the front, rear, and end walls of the box, transverse scores forming the adjacent end edges of said walls, a flap projecting beyond the portion of the longitudinal crease or score forming the upper edge of the front wall for forming the bottom wall of the box; said flap being provided with crosswise creases or scores for forming the front and rear edges of the bottom wall and being also provided with supplemental flaps projecting from the side edges of its central portion and longitudinal creases or scores at the adjacent ends of the supplemental flaps, an additional flap projecting beyond the portioo of the longitudinal crease or score for forming the upper edge of the rear wall; said additional flap being provided with a crosswise crease or score for contacting with the top edge of the front wall, and flaps projecting beyond the portion of the longitudinal crease or score forming the upper edges of the end walls of the box, substantially as and for the purpose described.

640,819. **POWDER FOR PASTE.** SAMUEL SCHWEITZER, Chicago, Ill. Filed June 14, 1899. Serial No. 720,559. (No specimens.)

Claim.—1. As a new article of manufacture, a powder for making adhesive flour paste which is free from a digestant or converting agent, said powder consisting of glutinous flour having mixed therewith, in dry condition, a preservative agent in sufficient quantities to prevent fermentation in paste made from said powder.

2. As a new article of manufacture, a non-fermentative, homogeneous powder for making adhesive flour paste which is free from a digestant or converting agent, said powder consisting of glutinous flour having mixed therewith, in dry condition, a neutral preservative agent in sufficient quantities to prevent fermentation in paste made from said powder, said preservative agent having no converting action upon said flour.

3. As a new article of manufacture, a powder for making adhesive flour paste which is free from a digestant or converting agent, said powder consisting of glutinous flour having mixed therewith, in dry condition, a neutral germicidal agent in sufficient quantities to prevent fermentation when said powder is mixed with water and boiled to produce paste.

4. As a new article of manufacture, a powder for making adhesive flour paste which is free from a digestant or converting agent, said powder consisting of glutinous cereal flour impregnated with a neutral preservative agent in sufficient quantities to render said powder non-cohesive in its dry condition and to prevent fermentation when said powder is mixed with water and boiled to produce paste.

640,820. **UNDERGROUND CONDUIT.** CHARLES H. SEWALL, Chicago, Ill. Filed July 5, 1895. Serial No. 555,064. (No model.)



Claim.—1. In an underground conduit, the combination with a body of concrete, or similar material, of a layer or floor of fine concrete thereon, a shell of concrete formed thereon and forming therewith the duct or conduit-opening, and a filling of concrete, or similar material, inclosing said shell, the whole being formed into a continuous and integral mass, substantially as described.

2. In an underground conduit, the combination with a body of concrete, or similar material, of a shell of fine concrete formed thereon and forming the duct or conduit opening, and a filling of concrete, or similar material, inclosing said shell, the whole being formed into a continuous and integral mass, substantially as described.

3. In an underground conduit, the combination with a body of concrete, or similar material, of a shell of fine concrete formed thereon and forming the duct or conduit-opening, an open binder for reinforcing the upper and side walls of the conduit-opening, and a filling of concrete or similar material inclosing said shell and binder, the whole being formed into a continuous and integral mass, substantially as described.

4. In an underground conduit, the combination with a body of concrete, or similar material, of a layer or floor of fine concrete thereon, a shell of concrete formed thereon and forming therewith the duct or conduit opening, an open binder for reinforcing the upper and side walls of the conduit-opening, and a filling of concrete, or similar material inclosing said shell and binder, the whole being formed into a continuous and integral mass, substantially as described.

5. In an underground conduit, the combination with a foundation or body of concrete, or similar material, of a plurality of shells of fine concrete formed thereon side by side and forming the ducts or conduit-openings, and a filler of concrete, or similar material, inclosing said shells and filling the space between and around the same, substantially as described.

6. In an underground conduit, the combination with a foundation or body of concrete, or similar material of a plurality of shells of concrete formed thereon side by side and forming the ducts or conduit-openings, an open binder in the form of a continuous sheet fitting around the upper and side walls of the several shells, and a filler of concrete, or similar material, inclosing and surrounding the binder and the shells, substantially as described.

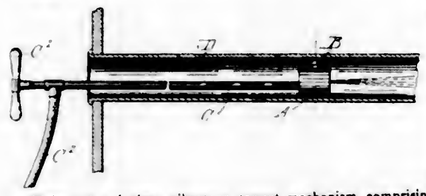
640,821. **PNEUMATIC TIRE.** JACOB A. S. SIMONSON, New York, N. Y. Filed May 11, 1899. Serial No. 716,342. (No model.)



Claim.—1. A rim for wheels provided in its outer side with two peripheral grooves, and a central outwardly-directed annular portion, the outer surface of which is concave in cross section, and a tire composed of a tube, the inner perimetar of which is turned or folded inwardly so as to form side portions which are mounted in said grooves, and a central tubular portion mounted in the outer inner fold of the outer portion and resting on the outwardly-directed central portion of the rim, substantially as shown and described.

2. A rim for wheels provided in its outer side with two peripheral grooves, and a central outwardly-directed annular portion, and a tire composed of a tube, the inner perimeter of which is turned or folded inwardly so as to form side portions which are mounted in said grooves, and a central tubular portion mounted in the outer inner fold of the outer portion and resting on the outwardly directed central portion of the rim, substantially as shown and described.

640,822. **DEVICE FOR CLEANING BOILER-TUBES.** CARLTON L. SMITH, Chicago, Ill. Filed Mar. 11, 1898. Serial No. 673,526. (No model.)



Claim.—A valveless, vibratory-tappet mechanism, comprising the cylinder A having a transverse expansion-chamber and a reduced bore or passage extending therefrom to one side of the cylinder, and inlet-ports a^3 and a^4 communicating respectively with the expansion-chamber and reduced bore, and an exhaust-passage leading from the end of the expansion-chamber near where it connects to the smaller bore, a tubular operating-handle connected to the cylinder and communicating with the inlet-ports, and a tappet having a large head b fitting and working in the expansion-chamber and having ports b^4 and b^5 leading from the side of the head to its outer end, said ports b^4 being located near the inner end of the head, a smaller end or head b' connected to said head b by a reduced neck and working in the smaller bore leading from the expansion-chamber, whereby when an actuating fluid is admitted through ports a^3 and a^4 the tappet will be rapidly reciprocated without the employment of a valve, the ports a^4 communicating with inlet-port a^3 when the tappet is at one extremity of its movement and the inner end of the head b cutting off or closing inlet a^3 as the tappet advances, and said reduced end b' closing inlet-port a^4 during the opposite movement of the tappet, and the recess formed by said reduced neck communicating with port a^4 upon the extremity of the outward stroke of the tappet.

640,823. **TELEPHONE.** RANDALL F. SMITH, Chicago, Ill. Filed Feb. 16, 1899. Serial No. 705,627. (No model.)

Claim.—1. In a telephone, in combination, a handle, an arm extending from said handle substantially at right angles thereto, an arm having a pivotal connection with the opposite end of said handle, a receiver and a transmitter each mounted on one of said arms and adapted to fold together face to face, and battery and line connections for said receiver and said transmitter.

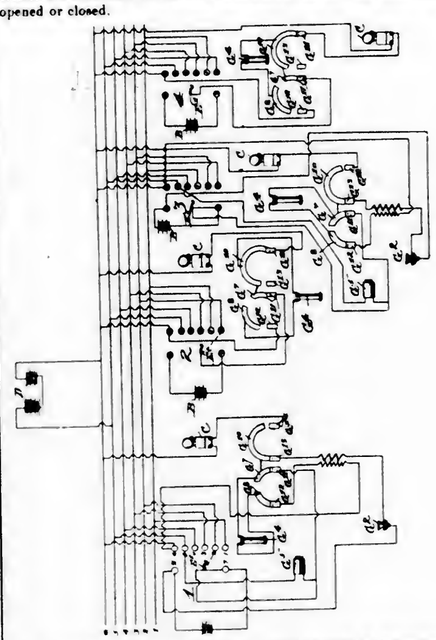
2. In a telephone, in combination, a tubular handle, a tubular arm extending from said handle substantially at right angles thereto, a tubular arm having a pivotal connection with the opposite end of said handle, a receiver and a transmitter each mounted on one of said tubular arms and being adapted to fold together face to face when not in use, and battery and line connections for said receiver and said transmitter.

3. In a telephone, in combination, a tubular handle, a tubular arm extending substantially at right angles to said handle, a transmitter mounted on the outer end of said arm, the axial line of which transmitter is parallel with the axial line of said handle, a tubular arm having a pivotal connection with the opposite end of said handle, a receiver mounted on the outer end of said last-mentioned tubular arm, and being adapted to fold against said transmitter, and battery and line connections for said transmitter and said receiver.

4. In a telephone, in combination, a handle, a transmitter and a receiver, one of which has a pivotal connection with said handle, battery and line connections for said transmitter and said receiver, and a switch adapted to be actuated by the movement at said pivotal connection for changing the electrical connections within said instrument when it is opened or closed.

5. In a telephone, in combination, a handle, an induction-coil in said handle, a transmitter and a receiver, the latter having a pivotal connection with said handle, battery and line connections for said transmitter and said receiver, and a switch for said pivotal connection for changing the electrical connections within said instrument when the instrument is opened or closed.

6. In a telephone, in combination, a handle, an induction-coil in said handle, an arm extending substantially at right angles from said handle, a transmitter mounted on said arm, an arm pivoted to the opposite end of said handle, a receiver mounted on said last-mentioned arm, battery and line connections for said transmitter and said receiver, and a switch for said pivotal connection for changing the electrical connections within said instrument when the instrument is opened or closed.



7. In a telephone, in combination, a tubular handle, an induction-coil within said handle, a tubular arm extending substantially at right angles to said handle, a transmitter mounted on the outer end of said arm, a tubular arm pivoted to the opposite end of said handle, a receiver mounted on said last-mentioned arm at its outer end, which transmitter and receiver are adapted to fold together face to face, battery and line connections for said transmitter and said receiver, and a switch for said pivotal connection for changing the electrical connections within said instrument when the instrument is opened or closed.

8. In a telephone, in combination, a tubular handle, a push-button therefor, a tubular arm extending substantially at right angles to said handle, a transmitter mounted on the outer end of said arm, the axial line of which transmitter is parallel with the axial line of said handle, a tubular arm having a pivotal connection with the opposite end of said handle, a receiver mounted on the outer end of said last-mentioned tubular arm and being adapted to fold against said transmitter, battery and line connections for said push-button, said transmitter and said receiver, and a switch for said pivotal connection for changing the electrical connections within said instrument when the instrument is opened or closed.

9. In a telephone, in combination, a tubular handle, an induction-coil therein, which handle has at one end a tubular arm extending substantially at right angles therefrom, and at its opposite end bifurcations for receiving a second tubular arm having a pivotal connection with said handle, a push-button mounted on said handle, a transmitter mounted on the outer end of the first-mentioned arm, a receiver secured to the outer end of the pivotal arm, which transmitter and receiver are adapted to fold together, battery and line connections for said push-button, said transmitter and said receiver, and a switch operated by the movement of the receiver-arm upon its pivot, for changing the electrical connections within said instrument when the instrument is opened or closed.

10. In a telephone, in combination, a tubular handle, studs at the opposite ends of said handle, one of which studs is bifurcated, a tubular arm pivoted between the bifurcations of said last-mentioned stud, a receiver mounted on the opposite end of said arm, a tubular arm extending from the last-named stud and rigidly secured to said stud, a transmitter mounted on the outer end of said last-mentioned

arm, which said receiver and transmitter are adapted to be folded together, a push-button mounted on said handle, an induction-coil within the handle, battery and line connections for said push-button, said receiver and said transmitter, electrical contact-points within said bifurcated stud, contact-plates on the pivoted receiver-arm, which contact-points and contact-plates are in electrical connection with the lines within said telephone, whereby the electrical connections in said telephone are changed when the receiver-arm is moved upon its pivot.

11. In a switch for an intercommunicating telephone system, in combination, contact-plates, a pivotal switch-hook, a contact-spring on said switch-hook adapted to engage said contact-plates, a plate having connection with a call-bell, a plate having connection with a line-wire, which last-mentioned plate is adapted to contact said switch-hook, a stud electrically connected with a talking-battery adapted to be engaged by said switch-hook, and a spring for raising the said hook from the call-bell plate to the talking-battery plate, and for electrically connecting said hook with the talking-battery when so raised.

12. In a telephone-switch, in combination, a semicylindrical base, a series of contact-plates arranged about the periphery of said base, a switch-hook having a pivotal support at or near a point concentric with the curve of the periphery of said base, which switch-hook is adapted to electrically engage said contact-plates as it is moved upon its pivot, an annunciator, a line-wire, means for forming an electrical connection between said switch-hook and said annunciator, means for forming an electrical connection between said switch-hook and said line-wire, and a spring for moving said switch-hook.

13. In a telephone-switch, in combination, a semicylindrical base, a series of contact-plates arranged about the periphery of said base, a switch-hook having a pivotal support at or near a point concentric with the curve of the periphery of said base, a contact-spring on said switch-hook adapted to engage said contact-plates when said switch-hook is moved upon its pivotal support, a plate on the periphery of said base having connection with a line-wire, a call-bell plate also upon the periphery of said base, and a spring for raising said switch-book from electrical connection with said call-bell plate to the plate having connection with a line-wire.

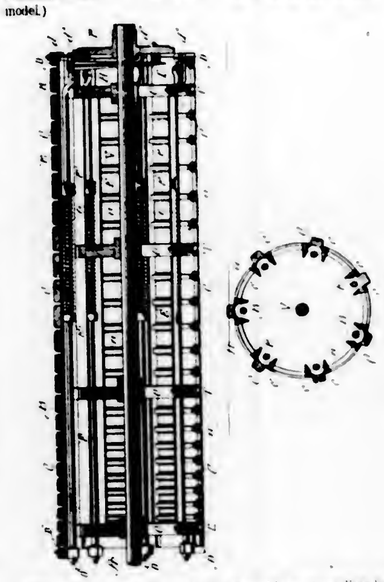
14. In a telephone-switch, in combination, a semicylindrical base, a series of contact-plates arranged about the periphery of said base, a switch-hook having a pivotal support at or near a point concentric with the curve of the periphery of said base, a contact-spring on said switch-hook adapted to engage said contact-plates, means for adjusting the tension of said spring, a plate about the periphery of said base having connection with a call-bell, a peripheral plate having connection with a line-wire, a stud electrically connected with a talking-battery, which stud is adapted to be engaged by said switch-hook, and a spring for moving said hook from the call-bell plate into electrical connection with the line-wire plate.

15. In a telephone-switch, in combination, a semicylindrical base, a series of contact-plates arranged about the periphery of said base, a switch-hook having a pivotal support at or near a poiet concentric with the curve of the periphery of said base, which switch-hook is adapted to electrically engage said contact-plates, an annunciator, an electrical circuit, means for forming an electrical connection between said switch-hook and said annunciator, means for forming an electrical connection between said switch-hook and said electrical circuit, a talking-battery, and a spring for raising said switch-hook from electrical connection with the annunciator into electrical engagement with the talking-battery and the electrical circuit.

16. In a telephone-switch, in combination, a semicylindrical base, a series of contact-plates on the periphery thereof, a switch-hook having a pivotal support at or near a point concentric with the curve of the periphery of said base adapted to electrically engage said contact-plates, a plate on the periphery of said base having connection with a call-bell, a plate on said periphery having connection with a line-wire, which two last-mentioned plates are adapted to contact said switch-hook, a stud on said base electrically connected with a talking-battery, which stud is adapted to be engaged by said switch-hook, and a spring for raising said hook from the call-bell plate to the line-wire plate and for electrically connecting said hook with the talking-battery when so raised.

17. In a telephone-switch, in combination, a semicylindrical base having an elongated central opening therein, a series of contact-plates arranged about the periphery of said base on one side of said elongated opening, a switch-hook adapted to sustain a telephone-receiver, having a pivotal support at or near a point concentric with the curve of the periphery of said base, which hook extends through the elongated opening in said base, a contact-spring on said switch-hook adapted to engage said contact-plates, a plate on the opposite side of said elongated opening having connection with a line-wire, a plate having connection with a call-bell, a stud extending into the path of said pivoted hook, which stud is electrically connected with a talking-battery, and a spring for moving said switch-hook from the call-bell plate into electrical connection with the line-wire plate when the weight of the telephone-receiver is removed from said hook.

640,824. CLAMP FOR FABRIC-MAKING MACHINES. JOHN SOMMER, Peoria, Ill. Filed Feb 17, 1899. Serial No. 705,822. (No model.)



Claim.—1. A clamp, formed of a movable or traveling body, a row or rows of conjointly-movable loosely mounted plates, suitable mechanism for moving said clamping-body, suitable mechanism for actuating said movable plates for the purpose of alternately engaging and releasing strands of a fabric, substantially as and for the purpose described.

2. In a clamp formed of a movable or traveling body, a row or rows of independently-movable plates suitably supported in a line and adapted to move in the same plane, suitable mechanism for moving said clamping-body, suitable mechanism for actuating said movable plates for the purpose of alternately engaging and releasing strands of a fabric, substantially as and for the purpose described.

3. A clamp, formed of a movable or traveling body, a row or rows of loosely-mounted laterally-movable conjointly-acting plates, suitable mechanism for moving said clamp-body, suitable mechanism for actuating said movable plates for the purpose of alternately engaging and releasing strands of a fabric, substantially as and for the purpose described.

4. A clamp, formed of a movable or traveling body, a row of disconnected movable coacting plates, suitable mechanism for moving said clamp-body, suitable mechanism for actuating said movable plates for the purpose of alternately engaging and releasing strands of a fabric, substantially as and for the purpose described.

5. A clamp formed of a traveling body, a series of plates loosely mounted in a line upon the traveling body adapted to be moved by pressure of the one upon the other, wedging-plates at each end of the series of loosely-mounted and freely-movable plates fixed upon a movable support suitably connected with power or pressure mechanism, suitable mechanism for moving the clamp-body, and suitable mechanism for actuating the wedging-plates to cause the adjacent end of the intermediate plates to approach and engage the strands of a fabric and then release them at the proper time, all substantially as and for the purpose described.

6. In a clamp, a revoluble cylinder, a number of rows of movable plates supported in grooves and in parallel lines, longitudinal and circumferential upon the surface of the said cylinder, suitable mechanism for intermittingly turning the cylinder and suitable mechanism for actuating each independent horizontally adjustable row of movable plates, for alternately opening and closing.

7. In a clamp, the combination with the supporting-body thereof, designed to travel or revolve, a row or rows of independently-movable plates and suitable mechanism for actuating said movable plates.

8. In a clamp, a series of plates loosely mounted in a line upon the traveling body adapted to be moved by pressure of the one upon the other, and movable lengthwise of the said strands, substantially as described and shown.

9. In a clamp, the combination of a series of plates suitably mounted in grooves and in a line upon a traveling body, wedging-plates suitably connected with power or pressure mechanism for simultaneously operating a series of the said rows as the clamp is revolved substantially as described and shown.

10. In a clamp, a revoluble cylinder or roller, provided with a row or rows of plates laterally movable upon its face or circumference, suitable mechanism for moving said clamp-plates with relation to each other for alternately opening and closing, suitable mechanism for actuating said movable plates, and suitable mechanism for revolving the clamp, all substantially as described and shown.

11. In a clamp, the combination, with a revoluble clamp cylinder or roller, provided with a row or rows of disconnected movable coacting plates having laterally-projecting lugs from the sides of each respective plate, and wedging-plates at each end of the row or rows of movable plates, fixed upon a movable support suitably carried for sliding, in the face of the said cylinder, of a stationary cam plate or disk, and suitable rollers having a stationary connection with each of the respective wedging-plates and a bearing relation with the face of the said cam, substantially as described and shown.

12. In a clamp, for fabric-making machines, the combination, with the cylinder A, suitably mounted for rotation, and provided with a row or rows of disconnected movable coacting plates C, having laterally-projecting lugs c', c', adapted to slide in suitable grooves provided in the face of the cylinder, wedging-plates D and D', at each end of the row or rows of movable plates C, the wedging-plates D, provided with the studs d, and the rollers d', and the wedging-plates D', provided with the rods F, and the roller H, of the stationary cam I, substantially as described and shown.

13. In a clamp, for fabric-making machines, the combination with the cylinder A, thereof of the movable plates C, supported in a line and adapted to travel in grooves c', c', wedging-plates D and D', at each end of the row of plates C, the mechanism for moving said plates consisting of the rollers d', and H, suitably secured to the plates D and D', by means of the studs d, and the rods F, the convex plates E, carried in the guideways B, of the cylinder and adapted to be seated in the concave surfaces provided in the plates C and D, springs G, carried on the rods F, and carried between the lugs E', fixed to the plates E, and the lugs F', fixed to the rods F, substantially as described and shown.

14. In a clamp, for fabric-making machines, the combination with a traveling support, of a row or rows of independently-movable plates C, C, adapted for sliding in grooves c', c', wedging-plates D and D', movable with relation to the traveling support, of the rollers d', and H stationary with relation to the wedging-plates D and D', suitable mechanism for moving said clamping-body, and suitable mechanism for actuating said movable plates.

15. In a clamp, for fabric-making machines, the combination, with the cylinder A, thereof, suitably journaled for rotation, of a row or rows of movable plates, C, C, and D, D', sliding in grooves c', c' in the cylinder, the plates D, and D', suitably connected with power or pressure mechanism adapting them to be moved simultaneously in opposite directions causing the adjacent ends of the intermediate plates C, C, to approach and engage the strands of a fabric and then release them at the proper time, all substantially as described and shown.

16. In a clamp, for fabric-making machines, the combination, with a cylinder or roller, of a series of plates loosely mounted in grooves in a line transversely upon the face of the said roller from the direction of movement thereof, of a pair of wedging-plates one at each end of the row of loosely-mounted plates, connected with suitable power or pressure mechanism, and suitable mechanism for actuating the said wedging-plates for causing the adjacent ends of the intermediate plates to approach and engage the strands of a fabric and then release them at the proper time, all substantially as described and shown.

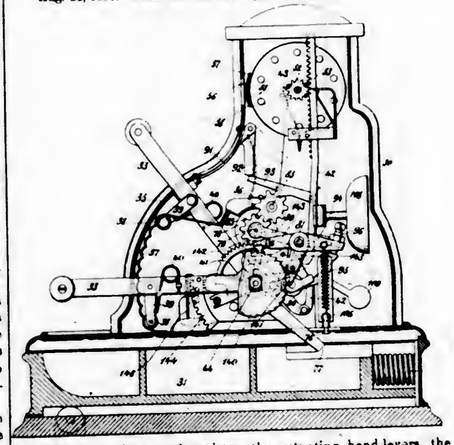
17. In a clamp, the combination with a movable or traveling body, of a row or rows of conjointly-movable loosely-mounted plates, suitable mechanism for intermittingly rotating said clamp, and suitable mechanism for actuating said movable plates to cause them alternately to engage and release the strands of the fabric.

18. In a clamp, in combination with a movable or traveling body, of a row or rows of loosely-mounted laterally-moving conjointly-acting plates, suitable mechanism for moving said clamp-body, and suitable mechanism for actuating said movable plates to alternately engage and release strands of the fabric, substantially as and for the purpose described.

19. In a clamp, a movable or traveling body, a row or rows of loosely-mounted disconnected movable coacting plates, wedging-plates at each end of the row or rows of movable plates fixed upon a movable support in line with the row or rows of plates, suitable mechanism for moving the clamp-body, and suitable mechanism for moving the wedging-plates alternately to and from the intermediate plates to cause said plates to be first pushed together to engage strands of the fabric and then relieved from pressure to allow the strands to be released, substantially as described and shown.

20. In a clamp, the combination with a row of conjointly-movable loosely-mounted plates supported on a movable or traveling body and transversely with relation to the movement thereof of wedging-plates at each end of the row of plates fixed upon a movable support in line with the row or rows of plates, suitable mechanism for moving the wedging-plates alternately to and from the intermediate plates to cause said plates to be first pushed together to engage strands of the fabric and then relieved from pressure to allow the strands to be released, substantially as described and shown.

640,825. CASH-REGISTER. ELIJAH F. SPAULDING, Bound Brook, N. J., assignor to the Ideal Cash Register Company, same place. Filed Aug. 28, 1899. Serial No. 728,789. (No model.)



Claim.—1. In a cash-register, the actuating hand-levers, the front plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank or handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, and means for thereafter returning said registering-wheels and their gear to their normal position free of said segments; substantially as set forth.

2. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with the exposed operating crank or handle, means intermediate said crank or handle and the shaft of said registering-wheels for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, means intermediate said crank or handle and said segments for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, and means for thereafter elevating said registering-wheels and their gears from engagement with said segments; substantially as set forth.

3. In a cash-register, the hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, the gear connected therewith, and the springs acting against said segments to compel them to follow said actuating-levers, combined with the exposed crank or handle, means intermediate said crank or handle and the shaft of said registering-wheels for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, and means intermediate said crank

or handle and said segments for thereafter moving said segments against said gearing to turn said registering-wheels and return said segments to their normal position; substantially as set forth.

4. In a cash-register, the actuating hand levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, the gear connected therewith, movable stops for controlling the extent of motion toward their normal position of said segments, and means connected with the registering-wheels for effecting the movement of said stops so that after each revolution of a registering-wheel the stop for the next adjacent segment may be moved to permit of a more extended movement of said segment for carrying from one registering-wheel to another, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, and means for thereafter moving said segments against said gearing for turning said registering-wheels and restoring said segments to their downward position against said stops; substantially as set forth.

5. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, the gear connected therewith, movable stops for controlling the extent of motion toward their normal position of said segments, and means connected with the registering-wheels for effecting the movement of said stops so that after each revolution of a registering-wheel the stop of the next adjacent segment may be moved to permit of a more extended movement of said segment for carrying from one registering-wheel to another, combined with the exposed crank or handle, means intermediate said crank or handle and the shaft of said registering-wheels for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, and means intermediate said crank or handle and said segments for moving said segments against said gearing to rotate said registering-wheels and return said segments to their downward position against said stops; substantially as set forth.

6. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the movable segment substantially independent of but adapted to automatically follow said lever and to have its position controlled by said lever, the registering-wheel, and the gear connected therewith, combined with the exposed crank or handle for bringing said gear into engagement with said segment after the latter has reached its predetermined operative position and moving said segment against said gear for rotating said registering-wheel and returning said segment to its normal position; substantially as set forth.

7. In a cash register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever on the upward movement of the latter, the spring connected with said segment for causing said segment to follow said lever, the registering-wheel, and the gear connected therewith, combined with means for moving said segment against said gear during the return movement of said segment to its normal position without affecting the said hand-lever, whereby said segment is given its predetermined operative position by the upward movement of said hand-lever and is then returned to its normal position independently of said hand-lever and is at such time caused to operate said registering-wheel; substantially as set forth.

8. In a cash-register, the hand lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the movable segment substantially independent of but adapted to automatically follow said lever and to have its position controlled by said lever, the registering-wheel, and the gear connected therewith, combined with the exposed crank or handle for bringing said gear into engagement with said segment after the latter has reached its predetermined operative position and moving said segment against said gear to rotate said registering-wheel and return said segment to its normal position, and means for preventing any return motion of said exposed crank or handle toward its normal position until it has made a complete motion from said position; substantially as set forth.

9. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the movable segment substantially independent of but adapted to automatically follow said lever and to have its position controlled by said lever, the registering-wheel, and the gear connected therewith, combined with the exposed crank or handle for bringing said gear into engagement with said segment after the latter has reached its predetermined operative position and moving said segment against said gear to rotate said registering-wheel and return said segment to its normal position, means for thereafter returning said registering-wheels and their gear to their normal position free of said segments, and means for locking said hand-levers in rigid position until said segments have been returned to their normal position and said registering-wheels and their gear have moved to their normal position free of said segments; substantially as set forth.

10. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with the exposed crank or handle for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position and moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, and means for locking said actuating hand-levers in rigid position until said segments are returned to their normal position; substantially as set forth.

11. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with the operating crank or handle for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position and moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, means for thereafter returning said registering-wheels and their gear to their normal position free of said segments, and means for locking said hand-levers in rigid position until said segments have been returned to their normal position and said registering-wheels and their gear have moved to their normal position free of said segments; substantially as set forth.

12. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with the crank or handle for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position and moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, means for thereafter returning said registering-wheels and their gear to their upper position free of said segments, and means actuated by said crank or handle for locking said hand-levers in their respective positions during the movement of said crank or handle from its normal position to operate said segments and then back to its normal position; substantially as set forth.

13. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with the exposed crank or handle, the shaft upon which said crank or handle is mounted, means connected with said shaft for engaging said segments, means intermediate said shaft and the shaft of said registering-wheels for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position preparatory to being operated by said segments during the return of the latter to their normal position under the operation of said exposed crank or handle, a series of movable stops controlling the extent of return motion of said segments, means intermediate said registering-wheels and said stops whereby upon the rotation of a registering-wheel the next adjacent segment is permitted to have a more extended return motion so as to effect the carrying from one registering-wheel to another, and means for locking said actuating hand-levers in their several positions until the said crank or handle has completed its operation and said registering-wheels and their gear have been freed from said segments; substantially as set forth.

14. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with the exposed crank or handle for bringing said gear into engagement with said segment after the latter has reached its predetermined operative position and moving said segment against said gear to rotate said registering-wheel and return said segment to its normal position, means for thereafter returning said registering-wheels and their gear to their normal position free of said segments, and means for preventing any return motion of said exposed crank or handle toward its normal position until it has made a complete movement in the operation of said segment and also for preventing said exposed crank or handle from making any return motion after once having been started toward its normal position; substantially as set forth.

gearing to rotate said registering-wheels and return said segments to their normal position, means for thereafter returning said registering-wheels and their gear to their normal position free of said segments, the shaft upon which said exposed crank or handle is mounted, the plate 151 on said shaft, the toothed racks 144 carried by said actuating hand-levers, the plate 145 having the lips 147 to engage said racks 144 during the return motion of said segments but normally free of said racks, the cam 150 on said plate 145, and the spring 148 normally retaining said lips 147 free of said racks 144, said cam 150 being in operative relation to said plate 151 so as to be engaged by the same during the operation of said exposed crank or handle and during such period to maintain the lips 147 in locking engagement with said racks 144; substantially as set forth.

15. In a cash-register, the actuating hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, the gear connected therewith, the shaft upon which said segments are mounted, the springs carried by said segments, and the pins on said shaft for engaging said springs during the rotation of said shaft and thereby returning said segments to their normal position, said springs being yielding so as to allow said pins to have a slight further movement after said segments have reached their usual normal position, combined with the variable stops to limit the return motion of said segments so as to permit, when carrying from one registering-wheel to another is to be performed, a slight further motion beyond the ordinary normal position to said segments under the said continued motion of said pins, and the exposed crank or handle for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position and moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position; substantially as set forth

16. In a cash-register, the actuating hand-levers, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the variable stops operable from the registering-wheels for limiting the return motion of said segments, the shaft upon which said segments are mounted, and the crank on the said shaft for moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the said segments corresponding with one another and being of sufficient length for all of them to be engaged by the gear-wheels connected with said registering-wheels, whether said segments are in their normal position or in an elevated position, whereby proper registering may be effected by some of the segments and the carrying from one registering-wheel to another may be effected by other of the segments during the operation of the said crank; substantially as set forth.

17. In a cash-register, the actuating hand-levers, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, the gear connected therewith and the movable stops for controlling the extent of return motion to be imparted to said segments and operable from said registering-wheels, combined with means for bringing said gearing into engagement with said segments after the latter or some of them have reached their predetermined operative position, the yielding springs carried by said segments, the shaft upon which said segments are mounted and which is provided with pins for engaging said springs carried by said segments, and means for rotating said shaft to move said pins against said stops, said segments being of sufficient length for all of them to be engaged by the gear-wheels connected with the registering-wheels whether all or only a portion of said segments are in an elevated position; substantially as set forth.

18. In a cash-register, the actuating hand-levers, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the registering-wheels, the gear connected therewith, and the movable stops operable from the registering-wheels for controlling the extent of return motion that shall be imparted to said segments, combined with means for bringing said gearing into engagement with said segments after said segments have reached their predetermined operative position, the shaft upon which said segments are mounted, a yielding contact between said shaft and said segments whereby, during the rotation of said shaft, said segments while returning to their normal position, may have a variable extent of motion, and means for rotating said shaft for moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position; substantially as set forth.

19. In a cash-register, the actuating hand-levers, the movable segments adapted to automatically follow said levers and to have their position controlled by said levers, the shaft on which said segments are mounted, the registering-wheels, and the gear connected therewith, combined with the operating crank or handle connected with said shaft, mechanism intermediate said shaft and said registering-wheels for bringing said registering-wheels into engagement with said segments after the latter have reached their predetermined operative position and operable during the first portion of the movement of said operating crank or handle from its normal position, and means for compelling the operator to move said operating crank or handle its full throw from its normal position and then back to its normal position; substantially as set forth.

20. In a cash-register, the actuating hand-levers, the movable segments adapted to automatically follow said levers and to have their position controlled by said levers, the driving-shaft upon which said segments are mounted, the operating crank or handle connected with said driving-shaft for operating the same, the movable shaft carrying the registering-wheels and their gearing, and the rock-shaft supporting said movable shaft and adapted to impart motion to the same, combined with mechanism intermediate said driving-shaft and said rock-shaft for turning said rock-shaft and thereby bringing said gearing into engagement with said segments during the first part of the motion of said operating crank or handle, and means intermediate said driving-sbaft and said segments for moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position during the continued operation of said operating crank or handle; substantially as set forth.

21. In a cash-register, the actuating hand-levers, the movable segments adapted to automatically follow said levers and to have their position controlled by said levers, the driving-shaft upon which said segments are mounted, the operating crank or handle on said driving-shaft for operating the same, the movable shaft carrying the registering-wheels and their gearing, and the rock-shaft from which said movable shaft is supported and which is adapted to impart motion to said movable shaft, combined with mechanism intermediate said rock-shaft and said driving-shaft for actuating said rock-shaft to lower said gearing into engagement with said segments during the first part of the motion of said operating crank or handle, means intermediate said driving-shaft and said segments for moving said segments against said gearing to rotate said registering wheels and return said segments to their normal position during the continued motion of said operating crank or handle, and means for compelling the operator to impart to said operating crank or handle the full throw from its normal position and then back to its normal position; substantially as set forth.

22. In a cash-register, the actuating hand-levers, the movable segments adapted to automatically follow said levers and to have their position controlled by said levers, the driving-shaft upon which said segments are mounted, the operating crank or handle connected with said driving-shaft for operating the same, the movable shaft carrying the registering-wheels and their gearing, and the rock-shaft supporting said movable shaft and adapted to communicate motion to the same, combined with means intermediate said driving-shaft and said rock-shaft for turning the latter, during the first part of the movement of said operating crank or handle, to lower said gearing into engagement with said segments, means intermediate said driving-shaft and said segments for moving said segments during the continued motion of said crank or handle against said gearing to rotate said registering-wheels and return said segments to their normal position, the ratchet-plate upon said driving-shaft and having at its opposite sides the oppositely-inclined teeth, the pawls for alternately engaging said ratchet-plate, and means for moving said pawls into alternate engagement with said ratchet-plate in order to compel the full movement of the said operating crank or handle from its normal position and then back to its normal position; substantially as set forth.

23. In a cash-register, the actuating hand-levers, the movable segments adapted to automatically follow said levers and to have their position controlled by said levers, the driving-shaft upon which said segments are mounted, the movable shaft carrying the registering-wheels and their gearing, and the rock-shaft supporting said movable shaft and adapted to impart motion to the same, combined with means intermediate said driving-shaft and said rock-shaft for turning the latter and thereby lowering said gearing into engagement with said segments, means intermediate said driving-shaft and said segments for moving said segments against said gearing to rotate the registering-wheels and return said segments to their normal position, the ratchet-plate upon said driving-shaft and having at its opposite sides the oppositely-inclined teeth, the pawl-arms mounted upon said rock-shaft and subject to the motion thereof, and the pawls carried by said arms and adapted to alternately engage said ratchet-plate

under the action of said rock-shaft in order to prevent reverse motion in said operating crank or handle after the same has been started from its normal position or back to its normal position: substantially as set forth

24. In a cash-register, the actuating hand-levers, the segments whose position is controlled by said levers, the movable shaft carrying the registering-wheels and their gears, and means for moving said gears into engagement with said segments, combined with the operating crank or handle for manually moving said segments against said gears for rotating said registering-wheels, means for holding said hand-levers stationary during the operation of said crank or handle, and spring-actuated means for moving said gears from said segments after said crank or handle, has completed its operation; substantially as set forth.

25. In a cash-register, the actuating hand-levers, the indicating-cylinders, mechanism connecting said cylinders with said levers for effecting the rotation of said cylinders when said levers are moved, the shutter normally concealing said cylinders, the segments whose position is controlled by the movement of said levers, the registering-wheels, the gears connected therewith, and means for moving said gears into engagement with said segments, combined with the crank or handle for moving said segments against said gears for rotating said registering-wheels and returning said segments to their normal position, and means intermediate said crank or handle, and said shutter for moving the latter during and by the operation of said crank or handle to expose said cylinders; substantially as set forth.

26. In a cash-register, the actuating hand-levers, the indicating-cylinders, mechanism connecting said cylinders with said levers for effecting the rotation of said cylinders when said levers are moved, the shutter normally concealing said cylinders, the segments whose position is controlled by the movement of said levers, the registering-wheels, the gears connected therewith, and means for moving said gears into engagement with said segments, combined with the crank or handle for moving said segments against said gears for rotating said registering-wheels and returning said segments to their normal position, means intermediate said crank or handle and said shutter for moving the latter during and by the operation of said crank or handle to expose said cylinders, and means for locking said hand-levers in stationary position until after registration and indication have been effected and said segments and said gears have become disengaged from one another; substantially as set forth

27. In a cash-register, the hand-levers, the indicating-cylinders 43 having the gear-wheels 52, and the rack-bars 42 engaging said gear-wheels and connected with said hand-levers for operating said indicating-cylinders from and simultaneously with the operation of said hand-levers, combined with the springs 55 flexed against said rack-bars 42 to maintain the engagement of said bars with said gear-wheels, and the rigid guiding-bars 54 engaging said rack-bars 42 to prevent any unduly sudden action of said hand-levers from causing said rack-bars to overcome the force of said springs and thereby lose their proper engagement with said gear-wheels 52, substantially as set forth.

28. In a cash-register, the hand-levers, the indicating-cylinders 43 having the gear-wheels 52, the rack-bars 42 engaging said gear-wheels and connected with said hand-levers for imparting motion to said cylinders from and simultaneously with the operation of said hand-levers, and the shutter 57 for said indicating-cylinders, combined with the rod for opening said shutter at the time of registration, the plate for supporting said shutter in its open position after said rod has elevated said shutter, and means intermediate said indicating-cylinders and said plate for removing the latter and permitting said shutter to descend when the operative parts of the register are placed in position for registering and indicating the amount of a subsequent sale; substantially as set forth.

29. In a cash-register, the hand-levers, the indicating cylinders or drums 43 having the gear-wheels 52, the rack-bars 42 engaging said gear-wheels and connected with said hand-levers for imparting motion to said cylinders from and simultaneously with the operation of said hand-levers, and the shutter for said indicating-cylinders, combined with the rod for elevating said shutter during the registration, the plate for supporting said shutter in its exposure position, the fingers upon said supporting-plate, and the pins 73 upon said cylinders and adapted upon any subsequent movement of said cylinders to contact with the said fingers upon said supporting-plate and withdraw the support of the latter from said shutter; substantially as set forth.

30. In a cash-register, the hand-levers, the indicating-cylinders having the gear-wheels 52, the rack-bars 42 engaging said gear-wheels and connected with said hand-levers for rotating said cylinders from and simultaneously with the operation of said hand-levers, and the shutter normally concealing said indicating-cylinders until registration has been effected, combined with the segments whose position is controlled by the said hand-levers, the movable shaft carrying the registering-wheels and their gears, means for moving said gears into engagement with said segments, the driving-shaft upon which said segments are mounted, the operating crank or handle on said shaft for manually moving said segments to rotate said registering-wheels, and means intermediate said shaft and said shutter for elevating the latter to its exposure position during the operation of said shaft to effect registration; substantially as set forth.

31. In a cash-register, the hand-levers, the indicating-cylinders 43 having the gear-wheels 52 and freely mounted upon their shaft 53, the rack-bars 42 engaging said gear-wheels and connected with said hand-levers for rotating said cylinders from and simultaneously with the operation of said hand-levers, and the shutter for said indicating-cylinders and comprising the arms 58 freely swung from said shaft and connected by the rod 59, combined with the rod 60 connected with said rod 59 for opening said shutter to its exposure position at the time of registration, the plate 70 having the lip 72 for automatically passing below said rod 59 to maintain said shutter in its open position after said rod 60 has elevated said shutter, the fingers 74 on said plated 70, and the pins 73 on said cylinders for contacting with said fingers 74 and removing said plate to permit said shutter to close upon any subsequent movement of said indicating-cylinder; substantially as set forth.

32. In a cash-register, the hand-levers, the driving-shaft upon which said hand-levers are mounted, the indicating cylinders or drums operable from said hand-levers, the shutter normally concealing said indicating-cylinders, the rod 60 connected with said shutter for moving the same to its exposure position, the arm 61 connected with said rod 60 and mounted upon said driving-shaft, and the loop or contact-plate 67 secured upon said shaft for moving said arm 61 with the rod 60 and said shutter to their elevated position during the rotation of said shaft to effect registration, combined with the segments whose position is controlled by said hand-levers and which are mounted upon said shaft to be driven from the same, the registering-wheels and their gears, and the operating crank or handle for manually moving said segments to rotate said registering-wheels and effect through said driving-shaft the elevation of said shutter to its exposure position; substantially as set forth.

33. In a cash-register, the hand-levers, the indicating-cylinders operable therefrom and simultaneously therewith, the driving-shaft upon which said hand-levers are mounted, the shutter normally concealing said indicating-cylinders until registration, means intermediate said shutter and said driving-shaft for moving said shutter to its exposure position upon the rotation of said shaft to effect registration, the cash-drawer, and means intermediate said drawer and said driving-shaft for locking said drawer in its closed position and releasing said drawer to open upon the rotation of said driving-shaft to effect registration, combined with the segments loosely mounted upon said driving-shaft and whose position is controlled by said hand-levers, the registering-wheels and their gears, and the operating crank or handle connected with said driving-shaft for rotating the latter and thereby elevating said shutter to its exposure position, releasing said cash-drawer to open, and moving said segments to rotate said registering-wheels and return to their normal position; substantially as set forth.

34. In a cash-register, the hand-levers, the segments whose position is controlled by said hand-levers, the driving-shaft upon which said segments are loosely mounted and which is adapted upon rotation to return said segments to their normal position free of said hand-levers, the registering-wheels and their gears, and means for moving said gears into engagement with said segments, combined with the lever-arm 76 also mounted upon said driving-shaft, the contact-plate or loop 67 for elevating said lever-arm 76 during rotation of said driving-shaft to effect registration, the cash-drawer having the shoulder 77 to be engaged by the lower end of said arm 76 and the operating crank or handle connected with said driving-shaft for rotating the latter to manually move said segments against said gears for rotating said registering-wheels and also to elevate said arm 76 from said shoulder 77 and permit the cash-drawer to open; substantially as set forth.

35. In a cash-register, the hand-levers, the movable segments whose position is controlled thereby, the registering-wheels and their gears, means for moving said gears into engagement with said segments and moving said segments against said gears to rotate said registering-wheels, the dog-arms 116 carried by said wheels, and the spring-catches 117 to be engaged by said arms 116 and tripped at each revolution of the registering-wheels, the movable frames carrying the stops for said segments to limit the operative throw of the latter and normally engaged and held by said catches 117, springs for moving said frames when released by said catches to carry said stops from their normal position to permit a more extended movement of said segments whereby the carrying from one registering-wheel to another is effected, and means for thereafter restoring said frames to their normal position where they are again engaged by said spring-catches; substantially as set forth.

36. In a cash-register, the hand-levers, the movable segments whose position is controlled thereby, the registering-wheels and their gears, means for moving said gears into engagement with said segments and moving said segments against said gears to rotate said registering-wheels, the dog-arm 116 carried by the units-registering wheel, and the spring-catch 117 to be tripped by said arm 116 at each revolution of said units-registering wheel, the lever 118 normally held by said spring-catch 117, the lever 121 connected with said lever 118 and carrying the stop 123 for the tens-of-units segment for limiting the operative throw of the latter, the spring 122 acting against said levers 118 and 121 to (when said catch is tripped) move said stop 123 from its normal position to permit a more extended throw of said tens-of-units segments thereby to carry from the units-registering wheel to the tens-of-units-registering wheel, and means for thereafter restoring said levers 118 and 121 to their normal position to be again engaged by said catch; substantially as set forth

37. In a cash-register, the hand-levers, the movable segment whose position is controlled by said levers, the driving-shaft upon which said segments are freely mounted and which carries the pins 113 and 114, the registering-wheels and their gears to be rotated by said segments, and the operating crank or handle connected with said shaft for rotating the same and causing said pins 113 to engage and move said segments to effect registration, combined with the dog-arm 116 carried by the units-registering wheel, the spring-catch 117 to be tripped by said arm 116 at each revolution of said wheel, the lever 118 normally held by said spring-catch 117, the lever 121 connected with said lever 118 and having the lower arm 124 and also the stop 123 for the tens-of-units segment for limiting the operative throw of the latter, and the spring 122 acting against said levers 118 and 121 to, when said catch is tripped, move said stop 123 from its normal position to permit a more extended throw of said tens-of-units segment thereby to carry from the units-registering wheel to the tens-of-units-registering wheel, the said lower arm 124 being in such relation to said pin 114 that the latter may contact with it on the reverse motion of said driving-shaft and restore said levers 118 and 121 to their normal position to be again engaged by said catch; substantially as set forth.

38. In a cash-register, the hand-levers, the movable segments whose position is controlled thereby, the registering-wheels and their gears freely mounted upon a movable shaft, means for moving said gears into engagement with said segments after the latter have been set, and means for moving said segments against said gears to rotate said wheels, combined with the inclosing casing 30 having the door 91, and the interior transverse frame 89 above said registering-wheels and provided with the elongated slot 90 in line with one row of numerals on said registering-wheels; substantially as set forth

39. In a cash-register, the hand-levers, the segments whose position is controlled by said levers, the driving-shaft on which said segments are freely mounted, and the crank or handle on said shaft for manually operating said shaft and moving said segments back to their normal position free of said hand-levers, combined with the movable shaft carrying the registering-wheels and their gears, the rock-shaft supporting said movable shaft and adapted to lower and elevate the same, the spring acting to normally hold said movable shaft in its elevated position, means intermediate said driving shaft and said rock-shaft and operable from said driving-shaft for turning said rock-shaft to lower said movable shaft and place said gears into engagement with said segments, means connected with said driving-shaft for maintaining the engagement of said gears with said segments during the return motion of the latter to rotate said registering-wheels, and means also connected with said driving-shaft for thereafter releasing said rock-shaft and placing the same under the influence of said spring for elevating said movable shaft; substantially as set forth.

40. In a cash-register, the hand levers, the segments whose position is controlled by said levers, the driving-shaft on which said segments are freely mounted, and the crank or handle on said shaft for manually operating said shaft and moving said segments back to their normal position free of said hand-levers, combined with the movable shaft carrying the registering-wheels and their gears, the rock-shaft supporting said movable shaft and adapted to lower and elevate the same, the spring acting to normally hold said movable shaft in its elevated position, the plate hung from said rock-shaft and carrying the roller 101 and dog 98, the plate also on said rock shaft and engaged by said dog and subject to the pressure of said spring, and the segment-plate 102 on said driving-shaft and having the pin 103, said plate 102 being adapted to move against said roller during the rotation of the driving-shaft to lower and maintain in their lower position said registering-wheels and their gears, and said pin 103 being adapted at the desired time to trip said dog and permit said spring to again elevate said registering-wheel shaft; substantially as set forth

41. In a cash-register, the hand-levers, the segments whose position is controlled by said levers, the driving-shaft on which said segments are freely mounted, and the crank or handle on said shaft for manually operating said shaft and moving said segments back to their normal position free of said hand-levers, combined with the movable shaft carrying the registering-wheels and their gears, the rock-shaft supporting said movable shaft and adapted to lower and elevate the same, the spring acting to normally hold said movable shaft in its elevated position, the plate 100 hung from said rock-shaft and carrying the roller 101 and dog 98, the plate 97 also hung from said rock-shaft and adapted to be engaged by said dog, the arm 94 on said rock-shaft and engaging said plate 97 and subject to the action of said spring, and the segment-plate 102 on said driving-shaft and having the pin 103, said plate 102 being adapted to move against said roller during the rotation of the driving-shaft to lower and maintain in their lower position said registering-wheels and their gears, and said pin 103 being adapted at the desired time to trip said dog and permit said spring to again elevate said registering-wheel shaft; substantially as set forth.

640,826. **PENHOLDER.** FRANK T. STEVENS, Long Lake, Minn. Filed Jan. 23, 1899. Serial No. 703,041. (No model.)

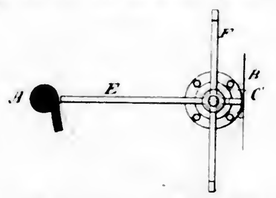


Claim. 1. A penholder, compriaing a ferrule, having a spring-bar arranged therein, bent back upon itself to form a slot or recess adapted to receive a pen, and an adjustable pin arranged within the ferrule adapted to bear upon the spring and regulate the resiliency thereof, substantially as shown and described.

2. A penholder, comprising a ferrule slotted longitudinally and having a spring-bar arranged within the ferrule, said spring-bar being shaped at its outer end to receive the pen-point, and a pin arranged within the ferrule and adapted to bear upon the spring-bar, said pin having a knob extending through the slot of the ferrule, whereby said pin can be adjusted, substantially as shown and for the purposes described

3. A penholder comprising a ferrule slotted longitudinally and having a spring-bar within the ferrule, the forward end of said spring-bar being enlarged and bent back upon itself to form a slot or recess, adapted to receive the end of a pen and by means of which said pen is secured to the holders, and means for regulating the resiliency of the spring-bar substantially as described.

640,827. **PASSAGE-WAY-CLOSING DEVICE.** SAMUEL E STIMSON, New York, N. Y. Filed Feb. 25, 1899. Serial No. 706,811. (No model.)



Claim.—1. The combination, with the supporting-axis of a passage-way-closing device, and the radiating arms, of appliances for positively swinging these arms inward toward such supporting-axis during a portion of their revolution, and outward therefrom to their original position during the remaining portion thereof, while yet preventing them from being swung in either of these directions at any other time; substantially as described.

2. The combination, with the supporting-axis of a passage-way-closing device, and the radiating arms jointed therein, of cam mechanism for positively swinging these arms from an extended to a closed position with respect to the supporting-axis during a portion of their revolution, and for positively swinging them from such closed to an extended position during the remaining portion thereof, while yet preventing them from being swung in either of these directions at any other time; substantially as described.

3. The combination, with the rotatable axis of a passage-way-closing device, and the bars pivoted thereto near their middle point with one end formed at an angle to the other, of a stationary sleeve or stand surrounding such axis and provided with a cam-surface through which these arms are caused to swing upon their pivots from an extended to a closed position with respect to the rotatable axis during a portion of their revolution and from a closed to an open position during the remaining portion thereof, substantially as described

4. The combination, with the rotatable axis of a passage-way-closing device, and the bent arms pivoted therein near their middle points, of a stationary sleeve or stand surrounding such axis and provided with a cam whereby as one end of these arms is swung on its pivot from an extended to a closed position during a portion of its

revolution the other end is thereby swung from a closed to an extended position, and vice versa, substantially as described.

5. The combination, with a passage-way, and the supporting-axis of a closing device arranged near one side thereof, of arms joined with relation to such axis, and a cam mechanism for positively swinging these arms inward toward such supporting-axis during a portion of their revolution to allow of their passing between it and one side of the passage-way, and outward therefrom to their original position during the remaining portion thereof to extend across from it to the other side thereof, while yet preventing such arms from being swung in either of these directions at any other time, substantially as described.

6. The combination, with the supporting-axis of a passage-way-closing device, and the radiating arms thereof, of appliances for positively swinging these arms inward toward such supporting-axis during a portion of their revolution, and outward therefrom to their original position during the remaining portion thereof, while yet preventing them from being swung in either of these directions at any other time, and barriers carried by said arms and capable of an extending and closing movement, substantially as described.

7. The combination in a passage-way-closing device, with the rotatory axis carrying the cam-operated arms, said arms being arranged in pairs of which one pair crosses the other, and means for permitting one pair to move independently of the other, of means for raising and lowering these arms and preventing them from being otherwise raised or lowered, substantially as described.

640,828. **LAMP-BURNER AND WICK-HOLDER.** JESSE L. STONE, Woodland, Pa. Filed Sept. 23, 1899. Serial No. 731,429. (No model.)



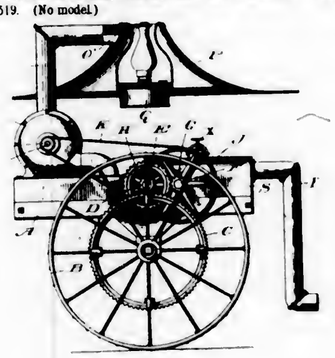
Claim.—1. A device of the character set forth, comprising a slidable looped clamp to embrace a wick, and a retainer movably attached thereto.

2. A device of the character set forth, comprising a slidable looped guide to embrace a wick and having a pendent loop and a retainer movably attached to said loop and having a pair of divergent legs.

3. A device of the character set forth, consisting of a clamping-guide comprising a pendent loop, a horizontal guide-loop in a plane at right angles to the pendent loop and a tongue extending through the said guide-loop, and a retainer having an upper eye or loop movably swung on the pendent loop and from which extend divergent legs.

4. The combination with a lamp-body, a burner and a wick, of a holder comprising a clamping-guide including a guide-loop having a yielding tongue extending therethrough, and a retainer having divergent legs, the guide-loop surrounding the wick and the tongue resting against the latter.

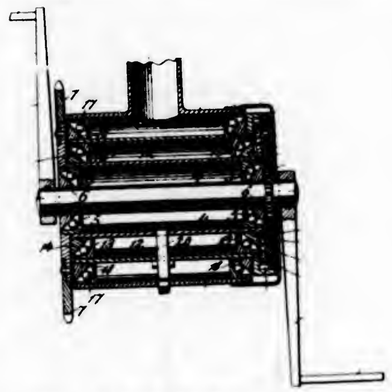
640,829. **MACHINE FOR DESTROYING COTTON-BOLL WEEVIL, &c.** FRANCIS STROBACH, Victoria, Tex. Filed June 5, 1899. Serial No. 719,519. (No model.)



Claim.—1. An insect-destroyer, comprising a truck mounted on wheels, a rotary fan-wheel and geared connection between same and one of the truck-wheels, a fire-receptacle, a tent and lamp held beneath the latter and adjacent to its apex, a suction-pipe leading from the highest portion of the tent and communicating with the casing about the fan-wheel, and a communicating elbow between the fan-casing and the fire-receptacle, as set forth.

2. In combination with the truck, gearing and the fan-wheel and casing, the geared connection between the latter and the truck-gearing, the suction-pipe leading to the fan-wheel, the gas-generating receptacle communicating with the suction-pipe, the retort and furnace surrounding the latter, the ends of the retort having perforated entrances thereto, the discharge-pipe leading away from the retort and jacket about the discharge-pipe, as set forth.

640,830. **CHANGEABLE GEAR FOR BICYCLES.** FRANK M. SWAYZE, St. David's, Canada. Filed Mar. 21, 1899. Serial No. 709,959. (No model.)



Claim.—1. In a bicycle, the combination with the crank-hanger and the crank-shaft, of the central wheel secured to the crank-shaft, the sleeve encircling the crank-shaft and provided at one end with the sprocket-wheel and carrying at the other end the planetary wheels meshing with the central wheel, the sleeve encircling said sprocket-sleeve and provided with an internally-toothed wheel with whose teeth the planetary wheels mesh, and means for locking the sleeve which carries the internally-toothed wheel to either the sprocket-sleeve or to the crank-hanger in changing from one speed to the other, substantially as described.

2. In a bicycle, the combination with the crank-hanger and the crank-shaft, of the central wheel secured to the crank-shaft, the sleeve encircling the crank-shaft and provided at one end with the sprocket-wheel and carrying planetary wheels at its opposite end, said planetary wheels meshing with the central wheel, the sleeve encircling the sprocket-sleeve and provided with the internally-toothed wheel with whose teeth the planetary wheels mesh, ball-bearings between the crank-shaft and crank-hanger and the intermediate sleeves, the bolt movable through the sleeve carrying the internally-toothed wheel toward and from the sprocket-sleeve and the crank-hanger and adapted to engage with one or the other of said parts in changing from one speed to the other, and means for actuating said bolt, substantially as described.

640,831. **MONKEY-WRENCH.** CLINTON H. TERRETTE, Lexington, Ky. Filed Apr. 19, 1899. Serial No. 713,642. (No model.)



Claim.—1. The combination with a wrench-body having a threaded surface below the rectangular body portion thereof, of a ratchet-plate sliding on said body portion, a movable jaw having a pawl engaging said ratchet-plate, and a nut engaging the threaded face on the body portion and adapted to move the ratchet-plate, substantially as set forth.

2. The combination with a wrench-body having a threaded surface below the rectangular body portion thereof, of a ratchet-plate

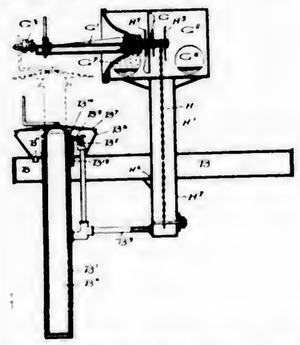
sliding on said body portion, a movable jaw having a pawl engaging said ratchet-plate and a nut engaging the threaded face of the body portion and adapted to move the ratchet-plate, the ratchet-plate having a projecting lug engaging with an annular recess of the nut so as to impart motion in either direction to the ratchet-plate, substantially as set forth.

3. The combination with a wrench-body having a rectangular body portion provided with a guideway along one face, of a ratchet-plate fitting and sliding in said guideway, a projection at one end of said ratchet-plate entering a longitudinal recess in the wrench-body and a nut engaging the threaded face of the body and engaging with the ratchet-plate, substantially as set forth.

4. The combination with a wrench-body having a ratchet-plate sliding thereon, of a movable jaw fitting around the body and ratchet-plate and having a recess therein, and a sliding pawl fitting within said recess and around the wrench-body and ratchet plate, substantially as set forth.

5. The combination with a wrench-body having a ratchet-plate sliding thereon, of a movable jaw fitting around the body and ratchet-plate and having a recess therein, and a sliding pawl fitting within said recess and around the wrench-body and ratchet-plate, and a spring confined between the sliding pawl and the base of the recess of the movable pawl, substantially as set forth.

640,832. **CARBURETER.** WILLIAM H. THAYER, Harvey, Ill., assignor to the George M. Clark & Company, Chicago, Ill. Filed Mar. 15, 1899. Serial No. 709,141. (No model.)



Claim.—1. The combination with the fan and a receptacle for the oil, of an endless chain or band without buckets operated in conjunction with the fan and extending into the receptacle and serving to bring the oil into the current created by the fan, substantially as specified.

2 The combination with the fan and a receptacle for the oil, of an endless chain or band without buckets operated in conjunction with the fan and extending into the receptacle and serving to bring the oil into the current created by the fan, and a disk for atomizing or dividing the oil thus brought into the air-current, substantially as specified.

3. The combination with the fan and receptacle for the oil, of an endless chain or band without buckets operated in conjunction with the fan and extending into the receptacle and serving to bring small portions of the oil into the current created by the fan, a disk for atomizing or dividing the oil thus brought into the air-current, and a cone or cones for feeding the oil to the disk or disks, substantially as specified.

4. The combination in a vapor-stove with a receptacle for the oil, the bucketless band or chain for lifting the oil and an air-current-creating device, of a rotating perforated or gauze disk located in the path of the current and receiving small portions of the oil from said band or chain and acting to divide or atomize it, substantially as specified.

5. The combination in a vapor-stove, of an oil-supplying receptacle, a rotating disk receiving oil from said receptacle, and located in a chamber separate from and above the oil-receptacle, a fan in said chamber creating a blast passing the disk, and means for lifting the oil in limited quantities to said disk, substantially as specified.

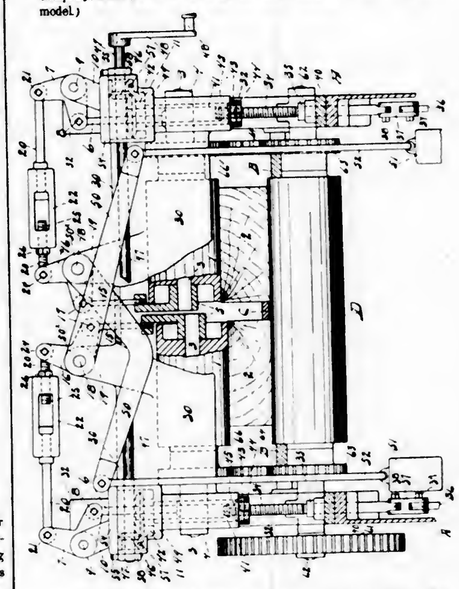
6. The combination of an oil-reservoir, a fan and fan-chamber, located above the reservoir, a pipe extending from the fan-chamber to a point below the reservoir, and supplied with oil therefrom, and a moving chain or belt of the kind set forth depending in said pipe and acting to lift the oil to the fan-chamber, substantially as specified.

7. An oil-receptacle having a well H^3 below it, a fan and chamber therefor located above the receptacle, and an oil-feeding chain or belt extending into said well and carrying the heavy as well as the lighter parts of the oil to the fan, substantially as specified.

8. The combination in a vapor-stove, of an oil-supplying receptacle, a rotating disk receiving oil from said receptacle, a cone feeding the oil to the disk, a chain feeding the oil to the cone, and means for moving the air past or through the disk, substantially as specified.

9. The combination in a vapor-stove, of an oil-receptacle, a fan for moving the air, a chamber for said fan having an air-inlet at one end and an outlet at the other end, a moving device in the fan-chamber, the surface of which device is supplied with oil from the receptacle and exposes the oil to the current of moving air, and means for feeding the oil to said device, substantially as specified.

640,833. **FEEDING DEVICE FOR WOODWORKING-MACHINES.** JOHN R. THOMAS, Cincinnati, Ohio, assignor to the J. A. Fay & Egan Company, same place. Filed Aug. 28, 1899. Serial No. 728,716. (No model.)



Claim.—1. In a feeding device for woodworking-machines, the combination, with a feed-roll, of a bearing at each end of the same, a separate bell-crank lever for each bearing connecting with the bearings at the ends of the same roll from one arm of the bell-crank levers, and an extensible tie-rod located between and connecting the other arm of the bell-crank levers, and constructed and arranged for varying the distance between the other arms of the levers and for simultaneously acting against the roll-bearing at each end of a single roll and between the roll-bearings for setting the roll to angling position toward either side of its normal plane, substantially as described.

2. In a feeding device for woodworking-machines, the combination with a feed-roll, of a bearing at each end thereof, a separate bell-crank lever for each bearing connecting with the bearings at the ends of the same roll, a rock-shaft for each bell-crank lever, a link connecting one arm of each bell-crank lever with its roll-bearing, with a pivotal connection between the arm and link, an adjustable tie-rod connecting the other arm of the bell-crank levers substantially beyond the roll and practically parallel with its normal axis, with a pivotal connection between the tie-rod and each of the other arms, the pivotal connections of the bell-crank levers constructed and arranged in substantially a common plane with the axis of the roll and rocking in that plane, and constructed and arranged for varying the distance between the said other arms of the levers and for simultaneously acting against the roll-bearing at each end of a single roll and between the roll-bearings for setting the roll to angling position toward either side of its normal plane, and a pressure-lever secured to the rock-shaft of a bell-crank lever and extending transversely to the rock-shaft at substantially right angles thereto and substantially out of the plane of the rocking of the levers, substantially as described.

3. In a feeding device for woodworking-machines, the combination with a feed-roll, of a bearing at each end of the same, a separate bell-crank lever for each bearing connecting with the bearings at the ends of the same roll from one arm of the bell-crank levers, and an extensible tie-rod located between and connecting the other arm of the bell-crank levers, and constructed and arranged for varying the distance between the said other arms of the bell-crank levers and for simultaneously acting against the roll-bearing at each end of a single roll and between the roll-bearings for setting the roll to angling position toward either side of its normal plane, and a pressure device for the roll, with a housing on which the roll-bearings are mounted, an abutment on the housing against which a roll-bearing takes when yielding to abnormal pressure, and a pressure device for yieldingly holding the housing in normal position, substantially as described.

4. In a feeding device for woodworking-machines, the combination with a feed-roll, of a bearing at each end of the same, a separate bell-crank lever for each bearing connecting with the bearings at the ends of the same roll from one arm of the bell-crank levers, and an extensible tie-rod located between and connecting the other arm of the bell-crank levers, and constructed and arranged for varying the distance between the said other arms of the bell-crank levers and for simultaneously acting against the roll-bearing at each end of a single roll and between the roll-bearings for setting the roll to angling position toward either side of its normal plane, and a pressure device for the roll, with a housing on which the roll-bearings are mounted, an abutment on the housing against which a roll-bearing takes when yielding to abnormal pressure, an adjusting device for the housing, and a pressure device for yieldingly holding the housing in adjusted position, substantially as described.

5. In a feeding device for woodworking-machines, a lower roll, D, a second roll 1 opposed thereto for feeding the stock, ears 10 and 19, bell-cranks 7 and 16 pivoted in the ears, a bearing at each end of the second roll, links 6 and 15 connecting the bearings with one of the arms of the bell-cranks, with a separate tie-rod 20, the parts of same connecting with the other arms of the bell-cranks and located between the last-named arms of the bell-cranks, and a turnbuckle 22 connecting the two divided parts of the extensible tie-rod and arranged to vary the distance between the last-named arms of the bell-crank, and a fixed rest for one of the bearings of the second roll, constructed and arranged for angling the second roll by the adjustment of the turnbuckle acting from one bearing of the roll through the tie-rod to the other bearing of the same roll for setting the roll to angling position toward either side of its normal plane, substantially as described.

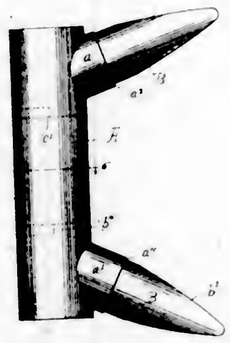
6. In a feeding device for woodworking-machines, the combination, with a divided feed-roll, of a bearing at each end of each section thereof, a separate bell-crank lever for each bearing connecting with the bearings at the ends of each section from one arm of the bell-crank levers, and an extensible tie-rod located between and connecting the other arm of the bell-crank levers on each several section, and constructed and arranged for varying the distance between the said other arms of the bell-crank levers of each several section and for simultaneously acting against and between the roll-bearings at the ends of each several section of the divided feed-roll for setting each section of the roll separately to angling position, and a separate weighted lever for each section connecting with a lever of its section and extending longitudinally of the other section of the roll, the levers constructed and arranged to pass each other beyond their connection with the roll-levers, substantially as described.

7. In a feeding device for woodworking-machines, the combination of an adjustable unyielding feed-roll, D, a divided feed-roll, 1, 1, yieldingly rotating in opposition thereto for feeding the stock, a bearing at each end of each section of the divided feed-roll, a separate bell-crank lever connecting with each bearing, a pivot for each bell-crank lever, a separate link connecting each bell-crank lever with its bearing from one of its arms with a pivotal connection between the arm and link, and an extensible tie-rod located between and connecting the other arms of the bell-crank levers on each section of the divided roll respectively, with a pivotal connection between each arm and the tie-rod of its section, and constructed and arranged to vary the distance between those other arms of the levers on each several section, and acting simultaneously against both roll-bearings of each several section for independently setting each section independently to angling position, with the pivotal connections of the bell-crank levers in substantially a common plane with the axis of the divided feed-roll and rocking in that plane, and a separate pressure-lever secured to the inner bell-crank lever of each section of the divided roll, and extending longitudinally of the other section of the divided roll, and constructed and arranged to pass one another between the pivots of the inner bell-crank levers of each section of the divided roll, substantially as described.

8. In a feeding device for woodworking-machines, the combination of an adjustable unyielding feed-roll, D, a sectional divided feed-roll, 1, 1, yieldingly rotating in opposition thereto for feeding the stock, a bearing at each end of each section of the divided feed-roll, a separate bell-crank lever connecting with each bearing, a pivot for each bell-crank lever, a separate link connecting each bell-crank lever with its bearing from one of its arms with a pivotal connection between the arm and the link, and an extensible tie-rod located between and connecting the other arms of the bell-crank levers on each section of the divided roll respectively, with a pivotal connection between each arm and the tie-rod of its section, and constructed and arranged to vary the distance between those other arms of the levers on each several section, and acting simultaneously against both roll-bearings of each several section for independently setting each section independently to angling position, with the pivotal connections of the bell-crank levers in substantially a common plane with the axis of the divided feed-roll and rocking in that plane, and a separate pressure-lever secured to the inner bell-crank lever of each section of the divided roll, and extending longitudinally of the other section of the divided roll, and constructed and arranged to pass one another between the pivots of the inner bell-crank levers of each section of the divided roll, with a housing on which the divided feed-roll is mounted, an abutment on the housing for each section against which a roll-bearing of each section of the divided roll takes when yielding to abnormal pressure, an adjusting device for the housing, and a pressure device for yieldingly holding the housing to adjusted position, substantially as described.

9. In a feeding device for woodworking-machines, the combination of a frame, a housing slidably secured thereto, an adjusting-screw 34 at each end thereof, a collar 35 on each screw for seating the same on the frame, an elongated nut 41 for each screw, a bell-mouthed shell 49 at each end of the housing for receiving one of the elongated nuts, a gear at the upper end of each elongated nut seated in one of the bell-mouthed shells for supporting the gear and the nut, a reduced portion 41^c at the lower end of each elongated nut extending beyond the lower end of the bell-mouthed shell, with a collar for holding the nut in position within the shell, with a second gear for each of the gears on the elongated nut and meshing therewith, a transverse shaft on which the same are mounted releasably journaled in the shells, and a removable cap for each shell, constructed and arranged, substantially as described, for releasing the elongated nuts by the removal of the cap and transverse shaft with its gears and the disengagement of the collars and screws from the lower ends of the elongated nuts, substantially as described.

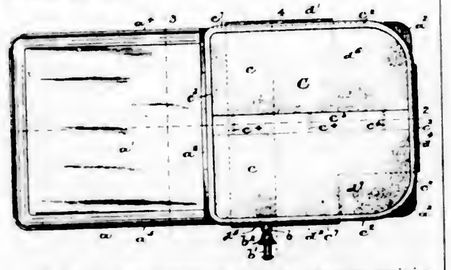
640,834. STEERING-HEAD FOR VELOCIPEDES. GEORGE L. THOMPSON, Chicago, Ill. Filed Apr. 15, 1899. Serial No. 713,133. (No model.)



Claim.—A velocipede steering-head comprising a sheet-metal cylindric main body A having a seam a^3 extending longitudinally throughout the length of its front side and provided at its opposite side with integral nipple-sockets a, a', located in parts of the body untraversed by the seam, said nipple-sockets having their end portions formed at right angles to their several longitudinal axes forming annular shoulders a^5 a^4, and reinforcements B^2 B^2 consisting of split thimbles arranged to fit within the body at points opposite the nipple-sockets, each provided with integral semituhular nipples formed adjacent to the seam of the thimble and having their side margins abutting against each other said nipples being arranged to protrude through the several nipple-sockets, substantially as described.

640,835. PROTECTOR FOR DOUCHES OR BED-PANS. CARRIE TRABAUD, East Orange, N. J. Filed May 23, 1899. Serial No. 717,899. (No model.)

Claim.—1. A rest or back-protector for douches or bed-pans, consisting, of a pair of closely-located air-cushions, a longitudinally-arranged and narrow central depression between said cushions, integrally uniting said cushions, and forming a groove conforming with the position of the spine of a patient, and means connected therewith for the inflation of said cushions, substantially as and for the purposes set forth.



2. A rest or back-protector for douches or bed-pans, consisting, of a pair of closely-located air-cushions, a longitudinally-arranged and narrow central depression between said cushions, integrally uniting said cushions, and forming a groove conforming with the position of the spine of a patient, means connected therewith for the inflation of said cushions, and a fastening means connected with the said rest or back-protector for securing it in position upon a douche or bed-pan, substantially as and for the purposes set forth.

3. A rest or back-protector for douches or bed-pans, consisting, of a pair of closely-located air-cushions, a longitudinally-arranged and narrow central depression between said cushions, integrally uniting said cushions, and forming a groove conforming with the position of the spine of a patient, means connected therewith for the inflation of said cushions, and a fastening means connected with the said rest or back-protector for securing it in position upon a douche or bed-pan, consisting of a pair of straps or bands, made in the manner of a T-bandage, substantially as and for the purposes set forth.

4. In a rest or back-protector for douches or bed-pans a pair of closely-located air-cushions, consisting, of a pair of flexible layers c and c', integrally-united marginal edges c^2 and central portions c^3 connected with said layers, an inflating means connected with said layers, and a central depression between said cushions forming a groove, conforming with the position of the spine of a patient, substantially as and for the purposes set forth.

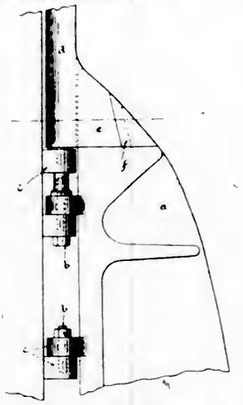
5. In a rest or back-protector for douches or bed-pans a pair of closely-located air-cushions, consisting, of a pair of flexible layers c and c', integrally-united marginal edges c^2 and central portions c^3 connected with said layers, an inflating means connected with said layers, and a central depression between said cushions forming a groove, conforming with the position of the spine of a patient, and a pair of straps or bands, made in the manner of a T-bandage, for securing said rest or back-protector in position upon a douche or bed-pan, substantially as and for the purposes set forth.

6. In a rest or back-protector for douches or bed-pans a pair of closely-located air-cushions, consisting, of a pair of flexible layers c and c', integrally-united marginal edges c^2 and central portions c^3 connected with said layers, an inflating means connected with said layers, and a central depression between said cushions forming a groove, conforming with the position of the spine of a patient, and a duct or ducts in said integrally-united portions c^3 for an air communication between said air-cushions, substantially as and for the purposes set forth.

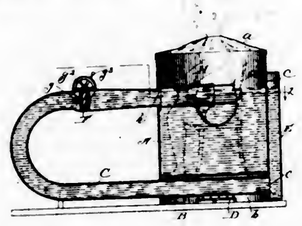
7. In a rest or back-protector for douches or bed-pans a pair of closely-located air-cushions, consisting, of a pair of flexible layers c and c', integrally-united marginal edges c^2 and central portions c^3 connected with said layers, an inflating means connected with said layers, and a central depression between said cushions forming a groove, conforming with the position of the spine of a patient, a duct or ducts in said integrally-united portions c^3 for an air communication between said air-cushions, and a pair of straps or bands, made in the manner of a T-bandage, for securing said rest or back-protector in position upon a douche or bed-pan, substantially as and for the purposes set forth.

640,836. SHIP'S RUDDER. THOMAS V. TREW, London, England. Filed July 6, 1899. Serial No. 722,973. (No model.)

Claim.—In means for enabling rudder-blades to be removed from the head or stock, in combination, a fork upon the head or stock adapted to receive the rudder-blade, projections or shoulders upon said rudder-blade adapted to engage upon the exterior of the fork which is slotted, for the purpose of preventing the spreading of the fork when the rudder-blade is in use, substantially as described and illustrated herein and for the purpose set forth.



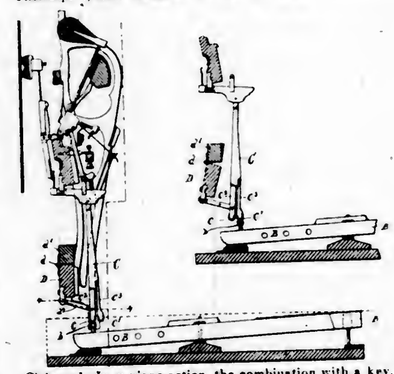
640,837. WATER-MASSAGE APPARATUS. HENRY ULLRICH, Chicago, Ill. Filed Apr. 24, 1899. Serial No. 714,301. (No model.)



Claim.—1. The combination with a tub or vessel, of a conduit communicating therewith, a guiding-tube secured to the outlet portion of said conduit and having means to fasten it to the body of the person, a wheel located in the conduit, and means to drive said wheel, substantially as described.

2. The combination with a tub or vessel, of a conduit communicating therewith, means for circulating the water through the conduit and vessel, a guiding-tube secured to the outlet portion of said conduit, said tube having the band h^3, provided with straps h^5, and the strap h^5, substantially as described.

640,838. PIANO-ACTION. WILLIAM C. VOUGH, Waterloo, N. Y. Filed Sept. 7, 1899. Serial No. 729,708. (No model.)



Claim.—1. In a piano-action, the combination with a key, and a plurality of hammers; of extensions or stickers having engaging

faces for contacting with said key, the portions of the extensions or stickers provided with the engaging faces being movable substantially lengthwise of the key for forcing said engaging faces into and out of operative position, substantially as and for the purpose described.

2. In a piano-action, the combination with a key and a plurality of hammers; of extensions or stickers supported side by side and each having an engaging face for contacting with the key, said faces being arranged one in advance of the other above the key and in alinement therewith, substantially as and for the purpose set forth.

3. In a piano-action, the combination with a key, and a plurality of hammers; of extensions or stickers supported side by side and each having an engaging face for contacting with said key, the portions of the extensions or stickers provided with the engaging faces being movable substantially lengthwise of the key for forcing the engaging faces into and out of operative position, and said engaging faces being arranged one in advance of the other above the key and in alinement therewith, substantially and as for the purpose specified.

4. In a piano-action, the combination with a plurality of keys, and a hammer; of an extension or sticker having a plurality of engaging faces for contacting with said keys, substantially as and for the purpose described.

5. In a piano-action, the combination with a plurality of keys, and a hammer; of an extension or sticker having a plurality of engaging faces for contacting with said keys, one engaging face being arranged in position to coöperate with one key and a second engaging face being arranged out of position to coöperate with a second key, said extension or sticker being movable for forcing the first engaging face from its operative position and for forcing the second engaging face into position to coöperate with the second key, substantially as and for the purpose set forth.

6. In a piano-action, the combination with a plurality of keys, and a hammer; of an extension or sticker having a plurality of engaging faces for contacting with said keys, one engaging face being arranged above one key in alinement therewith, and a second engaging face being arranged in front of the first engaging face and above a second key in alinement therewith, and means for moving the portion of the extension or sticker provided with said faces substantially lengthwise of the keys, substantially as and for the purpose specified.

7. In a piano-action, the combination with keys and hammers; of extensions or stickers supported side by side and each provided with engaging faces having corresponding sides arranged in planes disposed side by side, the engaging faces upon contiguous sides of adjacent extensions or stickers being arranged one in advance of the other, substantially as and for the purpose set forth.

8. In a piano-action, the combination with a key, and a plurality of hammers; of extensions or stickers having engaging faces for contacting with said key, a movable rail extending at substantially right angles with the lengthwise planes of the keys, and means connecting the extensions or stickers and the rail for moving said engaging faces lengthwise of the keys, substantially as and for the purpose specified.

9. In a piano-action, the combination with a plurality of keys and hammers; of extensions or stickers each having a plurality of engaging faces for contacting with the keys, one engaging face of one of the extensions or stickers being arranged above one key in alinement therewith and at the rear of an engaging face of a contiguous extension or sticker, and a second engaging face of said one of the extensions or stickers being arranged above a second key in alinement therewith and in front of the first engaging face of said one of the extensions or stickers and an engaging face of a contiguous extension or sticker, a movable rail extending at substantially right angles with the lengthwise planes of the keys, and means connecting the extensions or stickers and the rail for moving said engaging faces lengthwise of the keys, substantially as and for the purpose set forth.

10. In a piano-action, the combination with keys and hammers; of extensions or stickers supported side by side and each provided with engaging faces having corresponding sides arranged in planes disposed side by side, the engaging faces upon contiguous sides of adjacent extensions or stickers being arranged one in advance of the other, a movable rail extending at substantially right angles with the lengthwise planes of the keys, and means connecting the extensions or stickers and the rail for moving said engaging faces lengthwise of the keys, substantially as and for the purpose specified.

11. In a piano-action, the combination with keys and hammers; of extensions or stickers supported side by side and each provided with branches, the lower ends of the branches upon contiguous sides of adjacent extensions or stickers being arranged one in advance of the other, substantially as and for the purpose set forth.

12. As a new article of manufacture, the herein described extension or sticker for a piano-action, the same having its lower end provided with branches having their extremities arranged one in advance of the other, with their corresponding sides disposed in planes arranged side by side, substantially as and for the purpose described.

640,839. REVERSIBLE CORSET-BUSK. ALMIRA H. WADE, Minneapolis, Minn. Filed Apr. 12, 1899. Serial No. 712,755. (No model.)

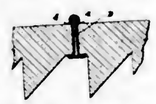


Claim.—1. As an improved article of manufacture, the hereindescribed reversible busk, for reversible corsets and the like, comprising a steel, stay or busk provided with stud members adjustable in the direction of their length in the said steel, stay or busk, and thereby adapted to be projected from either side of said steel, stay or busk so as to permit a reversible use thereof without removal from the garment to which they are applied, substantially as described.

2. A busk, having stud members constructed with heads at each end and screw-threaded externally, applied to said busk and capable of longitudinal adjustment therein to project either of the heads outwardly, thereby to adapt the busk for use in a reversible corset or similar garment, substantially as described.

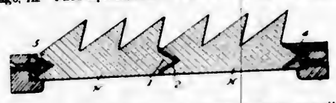
3. A busk, having an externally-screw-threaded and headed stud, and a screw-threaded receiver for said stud in which the said stud may be adjusted in the direction of its length and projected more or less from either side of the busk, thereby to permit the wearing of the garment to which the said busk is attached with either side of such garment outward, substantially as described.

640,840. TILE STRUCTURE. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor to William A. Bond, trustee, Chicago, Ill. Filed Apr. 13, 1898. Serial No. 677,485. (No model.)



Claim.—The combination of the tiles, intervening strips having thickened portions and clamping-strips having channels closely fitting the thickened portions and outer flanges bearing on the tiles, substantially as set forth.

640,841. PANEL AND TILE THEREFOR. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor to William A. Bond, trustee, Chicago, Ill. Filed Apr. 13, 1898. Serial No. 677,486. (No model.)

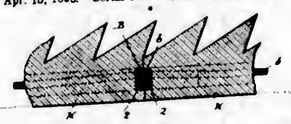


Claim.—1. A panel consisting of a series of vitreous tiles having corresponding ribs and grooves at their adjacent edges and a continuous metallic frame (cast or electrodeposited) filling the spaces between the tiles, substantially as set forth.

2. A panel provided with a series of ribbed and grooved tiles arranged with the ribs of one within the recesses of others, but separated to form spaces, a surrounding frame and a filling material in said spaces and between the tiles and the frame, substantially as set forth.

3. A panel provided with a series of ribbed and grooved tiles arranged with the ribs of one within the recesses of others but separated to form spaces, a surrounding frame and a metallic filling material in said spaces and between the tiles and the frame, substantially as set forth.

640,842. TILE STRUCTURE. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor to William A. Bond, trustee, Chicago, Ill. Filed Apr. 15, 1898. Serial No. 677,743. (No model.)



Claim.—1. A tile structure consisting of a series of tiles with grooved edges, tying-bars extending through the grooves, and a surrounding metal filling the grooves, substantially as set forth.

2. A tile structure consisting of a series of tiles with grooved edges, tying-bars extending through the grooves and crossing each other, and a surrounding material filling the grooves, substantially as set forth.

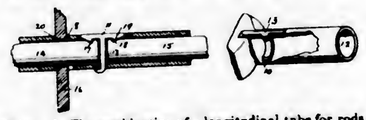
3. A tile structure consisting of a series of tiles with grooved edges, an inclosing frame, tying-bars extending through the grooves and secured to the frame, and a surrounding material filling the grooves, substantially as set forth.

4. A tile structure consisting of a series of tiles with grooved edges, an inclosing frame, tying-bars extending through the grooves and secured to the frame, and a continuous metallic frame inclosing the bars and filling the grooves, substantially as set forth.

5. A tile structure consisting of a series of tiles having undercut grooves, tying-bars extending through the grooves, and a surrounding material filling the grooves, substantially as set forth.

6. A tile structure consisting of a series of tiles having undercut grooves, tying-bars extending through the grooves, and enlarged at the edges, and a surrounding material filling the grooves, substantially as set forth.

640,843. FENCE-JOINT. JOSEPH T. WARD, Philadelphia, Pa. Filed July 17, 1899. Serial No. 724,026. (No model.)

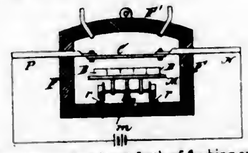


Claim.—1. The combination of a longitudinal tube for rods with a projection upon its inner wall between the abutting ends of the rods, and apertures in the opposite sides of the tube for the head and stem respectively of a rivet, a rivet having projections on the under side of its head and rods recessed near their abutting ends to receive said projections, substantially as described.

2. In a fence-joint the combination with post and rods, of a longitudinal tube for the rods with a transverse slot for the post, a projection upon the inner wall of the tube between the abutting ends of the rods, and apertures in the opposite sides of the tube for the head and stem respectively of a rivet, a rivet having projections on the under side of its head and rods recessed near their abutting ends to receive said projections, substantially as described.

3. In a fence-joint the combination with posts and rods, of a longitudinal tube for the rods with a transverse slot for the post, a projection upon the inner wall of the tube between the abutting ends of the rods at a point an inch more or less to one side of the post, and apertures in the opposite sides of the tube for the head and stem respectively of a rivet, a rivet having projections on the under side of its head and rods recessed near their abutting ends to receive said projections, substantially as described

640,844. PROCESS OF ENAMELING. CHARLES H. WATERMAN, Pompton Plains, N. J. Filed June 16, 1899. Serial No. 720,815. (No specimens.)

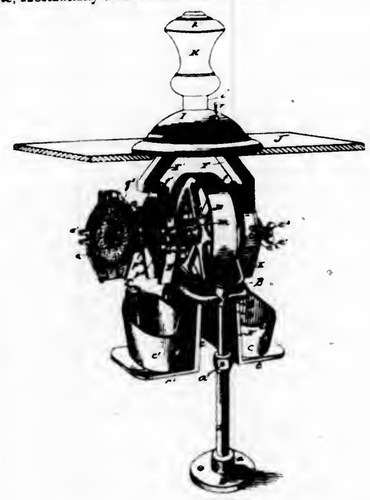


Claim.—The process herein set forth of flashing enamel onto surfaces of a refractory material, which consists in applying the enameling material to the desired surface and subjecting such surface to the action of uniform electric heat delivered at once on and over the entire coated surface in a plane parallel thereto, whereby all the enameling material is instantaneously and simultaneously fused over the whole surface to which it is applied while the body of the article is left relatively cool.

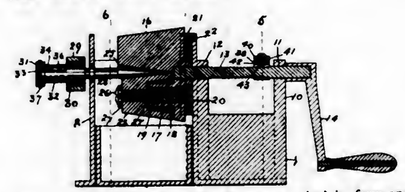
640,845. DUPLEX GRINDING-MILL. EDWARD H. WEBSTER, Rutland, Vt., assignor to The Howe Scale Company of 1886, same place. Filed Mar. 12, 1898. Serial No. 673,602. (No model.)

Claim.—1. In a grinding-mill, the combination with a hopper, and a forked or two-way chute leading therefrom, of a one-way, rotary valve, seated in the angle of the chute, to direct the contents of the hopper to either branch of the chute, a pin engaging with a groove in the surface of the valve, to limit its rotary movement, and a spring-pressed pin adapted to engage with a series of holes in the end of the valve, to lock the same in a fixed position.

2. In a grinding-mill, the combination with a hopper, and a forked two-way chute leading therefrom, of a one-way rotary valve, seated in the angle of the chute, to direct the contents of the hopper to either branch of the chute, a pin engaging with a groove in the surface of the valve to limit the rotary movement, a spring-pressed pin adapted to engage with a series of holes in the end of the valve to lock the same in a desired position, of a rotatable shaft, a grinding-disk secured to each end of the shaft to rotate therewith, stationary grinding-disks located in juxtaposition to the said rotary grinding-disks and means for shifting said shaft longitudinally in either direction to simultaneously vary the space between the faces of the two sets of grinding-disks, consisting of a sleeve loosely mounted on said shaft, between the sets of disks, with one end threaded upon an extension of the support for the stationary disks, a ratchet-and-pawl arrangement to secure the sleeve in a fixed position and means for preventing longitudinal movement of the shaft independently of the sleeve pockets or chutes on the rear of the stationary grinding-disks leading to the central openings in said disks, and opening into said two-way chute, substantially as described and set forth.



640,846. PENCIL-SHARPENER. JOHN A. WEBSTER, New York, N. Y., assignor to Florence A. Morrison, same place. Filed Apr. 29, 1899. Serial No. 715,055. (No model.)



Claim.—1. In a pencil-sharpener, a cutter conical in form and provided with blades, a block provided with a conical groove adapted to hold a pencil whereby one side thereof will be presented to said cutter, means to rotate said cutter, and means to give the cutter and block a planetary motion, and means to adjust one of said last-named parts whereby a different point may be given to the pencil.

2. In a pencil-sharpener, a cutter conical in form and provided with spiral blades, means to rotate said cutter so that the said spiral blades shall cut from the point of the pencil toward the body portion, and means to give a planetary motion to said cutter, and means to hold a pencil against said cutter.

3. In a pencil-sharpener, a cutter conical in form and provided with spiral blades, said cutter being mounted upon an axle upon the opposite end of which is a pinion, an internal gear secured to the stationary casing, and with which said pinion is adapted to mesh, said axle being mounted in a bearing which is secured to a second shaft, or axle, and means to rotate said second axle, and means to hold the pencil against said cutter.

4. In a pencil-sharpener, a cutter provided with spiral blades said cutter being mounted upon an axle upon the opposite end of which is a pinion, an internal gear secured to the stationary casing, and with which said pinion meshes, said axle being mounted in a bearing which is mounted upon a second axle, a crank secured to said second axle, and a block secured upon said second axle adjacent to said cutter, and provided with a conical groove adapted to receive a pencil and direct and hold the same against the said cutter, substantially as, and for the purpose set forth.

5. In a pencil-sharpener, a shaft, or axle 13, internal gear 21, block 16 and hub 17 mounted on said axle, an axle 19 mounted in said hub and carrying pinion 20, cutter 23 mounted on axle 19, said block 16 being provided with the conical groove 25, substantially as and for the purpose set forth.

6. In a pencil-sharpener, the block 16 mounted on shaft 13, the hub 17 mounted on said shaft, an axle 19 mounted in said hub and provided with a pinion which meshes with a gear wheel secured to the casing, the cutter 23 mounted on said axle 19, and means to adjust said cutter, said block 16 being provided with the conical groove 25, substantially as and for the purpose set forth.

7. In a pencil-sharpener, a conical-shaped cutter mounted in bearings which are secured to a second rotary axle, a block mounted upon said axle adjacent to said cutter and provided with a conical groove whereby a pencil is held against said cutter, means to impart rotary motion to said cutter, and means to adjust the same longitudinally, substantially as and for the purpose set forth.

8. In a pencil-sharpener, a conical-shaped cutter mounted in bearings which are secured to a second rotary axle, a block mounted upon said second axle adjacent to said cutter and provided with a conical groove whereby a pencil is held against said cutter, means to impart rotary motion to said cutter, and means to adjust the same longitudinally, consisting of washers mounted on the axle of the cutter, substantially as and for the purpose described.

9. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, and means to connect said frame with a part of the operating mechanism of the pencil-sharpener whereby the said frame is moved so as to carry the pencil against the cutter, for the purpose set forth.

10. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, a movable part secured to said frame and provided with a screw-threaded groove adapted to be brought into contact with a screw-thread formed on one of the shafts, or axles of the pencil-sharpener, whereby the said sliding frame is moved so as to carry the pencil against the cutter, for the purpose set forth.

11. In a pencil-sharpener, means to feed the pencil against the cutter, consisting of a sliding frame, a pencil-holder carried by said frame, a spring secured to said frame, a block secured to said spring and provided with a screw-threaded groove, and the axle of the pencil-sharpener being provided with a screw-threaded portion with which said screw-threaded groove is adapted to engage when the spring is depressed, substantially as and for the purpose set forth.

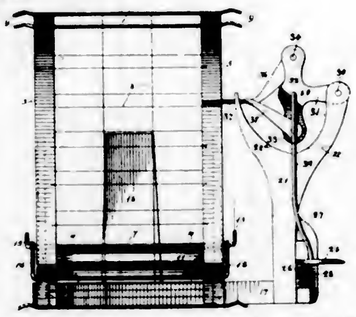
12. In a pencil-sharpener, a sliding frame, a pencil-holder secured thereto, and consisting of radial spring-arms having an interior shoulder at the outer end, and means to move the frame and holder so as to feed the pencil against the cutter, substantially as and for the purpose set forth.

13. In a pencil-sharpener, a cutter having a rotary and planetary motion, a block having planetary motion, and provided with a conical groove whereby the pencil is held against the said cutter, and a sliding frame provided with a pencil-holder in line with the said groove, and means to move said pencil-holder toward said cutter, substantially as and for the purpose set forth.

14. The herein-described pencil-sharpener, consisting of the conical-shaped cutter having spiral blades mounted upon a rotary axle, a block mounted upon said axle and provided with a conical groove whereby the pencil is held against said cutter, a pinion and gear-wheel whereby the cutter is given rotary motion while the said first axle imparts to it and the block planetary motion, and a sliding frame mounted in the casing, and provided with a pencil-holder in line with the conical groove in said block, a block secured to said sliding frame, and said first axle being provided with a screw-threaded portion with which a screw-threaded groove in said last-named block is adapted to contact whereby the pencil is fed against the cutter, substantially as and for the purpose set forth.

640,847. LAUNDRY APPARATUS. WILLIAM H. WELSH, Stillwater, Minn. Filed May 26, 1899. Serial No. 718,381. (No model.)

Claim.—1. In an apparatus of the class described, a main frame or support, a plurality of flexibly-connected portable drying-frames which are adapted to be detachably mounted on said main frame or support, and devices for holding said frames in an upright position, and for releasing the same one at a time, substantially as shown and described.



2. In an apparatus of the class described, a plurality of drying-frames, flexibly connected at one end, and devices for locking said connected ends in a bunched position, substantially as shown and described.

3. In an apparatus of the class described, a main frame or support, a plurality of drying-frames flexibly connected and adapted to be held in a bunched position on said frame or support, said frame or support being also provided with a pair of reciprocating fingers, and adapted to engage said frames to hold them in a raised position, and to successively release said frame, substantially as shown and described.

4. In an apparatus of the class described, a main frame or support, and a plurality of drying-frames flexibly connected at one end, said main frame or support being also provided with an upwardly-directed member, and uprights at each side thereof which engage said drying-frames, and said main frame or support being also provided with reciprocating fingers adapted to operate in connection with said drying-frames to hold the same in an upright position, and also to successively release them, substantially as shown and described.

5. In an apparatus of the class described, a main frame or support, and a plurality of drying-frames flexibly connected at one end, said main frame or support being also provided with an upwardly-directed member, and uprights at each side thereof which engage said drying-frames, and said main frame or support being also provided with reciprocating fingers adapted to operate in connection with said drying-frames to hold the same in an upright position, and also to successively release them, and a pivoted spring-operated lever in operative connection with said fingers, substantially as shown and described.

6. In an apparatus of the class described, a main frame or support, a plurality of drying-frames flexibly connected at one end, means for connecting said drying-frames with said main frame or support, and a pair of reciprocating fingers mounted in said main frame or support and adapted to hold said drying-frames in an upright position, and also to successively release the same, substantially as shown and described.

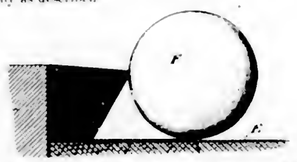
7. In an apparatus of the class described, a main frame or support provided with a bifurcated arm, a double-crank lever pivoted in said arm, two angular fingers pivotally connected with said crank-lever, and a plurality of drying-frames flexibly connected at one end, and also adapted to be connected with said main frame or support, said drying-frames being adapted to be held in an upright position, and to be successively released by said fingers, substantially as shown and described.

8. In an apparatus of the class described, a yoke-shaped support, one of the arms of which is bifurcated, a double-crank lever pivoted in said support by one of its arms, an angular finger pivotally connected with each of the other arms of said crank-lever, and a pivoted spring-operated actuating-lever operatively connected with said double-crank lever, substantially as shown and described.

9. In an apparatus of the class described, a plurality of drying-frames, a pair of coiled springs with the convolutions of which said frames are pivotally connected, heads secured to the ends of said drying-frames, and brace-rods connected with said heads and provided with end projections adapted to coengage, substantially as shown and described.

640,848. BILLIARD OR POOL TABLE. JOHN W. WILKINSON, Cambridge, Mass., assignor of one-half to Clarence H. Billings, Winthrop, Mass. Filed Mar. 17, 1899. Serial No. 709,425. (No model.)

Claim.—1. A billiard-table comprising in its construction a suitable bed, cushions and cover, and a strip of extremely thin material secured to said bed, beneath said cover, and contiguous to the cushions of a width from the extreme inner edge of the cushions approximately equal to one-half the diameter of a standard billiard-ball, whereby the balls are prevented from freezing to the cushions substantially as described.



2. In combination with the bed and cushions of a billiard-table, a strip of extremely thin flat material as Manila paper secured to said bed contiguous to said cushion with its inner edge at a distance from the vertical plane in which lies the extreme inner edge of said cushion approximately equal to one-half the diameter of a standard billiard ball, whereby the balls are prevented from freezing to the cushions, substantially as described.

640,849. NUT-LOCK. LILBURN WADE, Escalon, Cal. Filed May 18, 1899. Serial No. 717,352. (No model.)



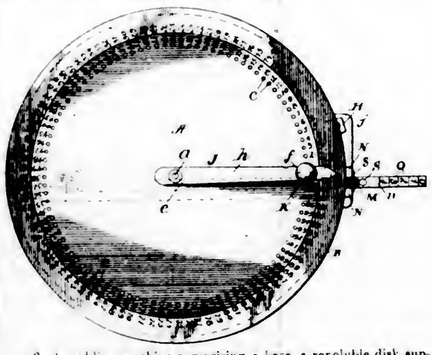
Claim.—1. In a nut-lock, the combination with adjacent bolts and the nuts thereof, of a base plate having opposite bolt-openings adapted to receive the bolts, a locking cap-plate adapted to embrace the nuts and having an interlocking engagement with the base-plate, and a spring projecting from the inner face of the base-plate, whereby the latter is yieldingly mounted upon the bolts, substantially as and for the purpose set forth.

2. In a nut-lock, the combination with adjacent bolts and the nuts thereof, of a base-plate having opposite bolt-openings adapted to loosely receive the bolts, an opening intermediate of the bolt-openings, and a housing or bridge-piece spanning the latter opening, a spring bearing against the inner side of the housing and projecting through the intermediate opening, and a locking cap-plate adapted to embrace the nuts and having an interlocking engagement with the base-plate, substantially as and for the purpose set forth.

3. In a nut-lock, the combination with adjacent bolts and the nuts thereof, of a base-plate provided with opposite bolt-openings adapted to loosely receive the bolts, an intermediate opening located between the bolt openings, and a housing or bridge-piece spanning the intermediate opening and having a lug extending inwardly toward the base-plate in line with the intermediate opening, and an outwardly-extending ear provided with a vertical opening, a locking cap-plate in the form of a link having an offset plate intermediate of its ends provided with a longitudinal slot and a transverse groove intersecting the slot, the cap-plate being adapted to embrace the nuts and the bridge-piece and receive the ear through the slot in the offset plate, and a key adapted to be passed through the opening in the ear and received in the groove of the offset plate, substantially as and for the purpose set forth.

640,850. ADDING-MACHINE. BYRON WORK, Angola, Ind., and GARDNER WORK, Waco, Tex. Filed Nov. 2, 1899. Serial No. 735,622. (No model.)

Claim.—1. An adding-machine comprising a base, a revoluble disk supported by the base, a horizontal flange supported by the base and in a horizontal plane with the outer face of the disk, the said disk and flange being divided into one hundred parts numbered consecutively, a vertically-movable lever having one end connected with the journal of the disk and its opposite end provided with means for engagement with the disk, an endwise-movable hundreds member provided with divisions numbered consecutively, said member extending under the said disk, a spring-actuated plunger engaging and adapted to actuate said hundreds member and a cam carried by the disk for actuating the said plunger and thereby the endwise-movable hundreds member, substantially as described.



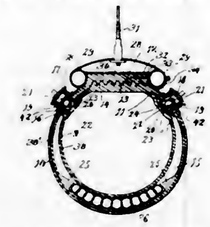
2. An adding-machine comprising a base, a revoluble disk supported thereby, the base having a horizontal flange surrounding the disk, the flange and the disk divided into one hundred divisions numbered consecutively, the disk provided with a shoulder for each division thereon, a vertically-movable lever having its inner end connected at the center of the disk and its outer end projecting beyond the periphery of the disk, and the said flange having a stop at zero or the numeral "0," a hundreds member, and means actuated by the revolution of the disk for registering each revolution of the disk upon the hundreds member, substantially as described.

3. An adding-machine comprising a rotatable disk, a base, the base having a flange supported at a point thereabove and surrounding the said disk, the base and disk having each one hundred divisions numbered consecutively, an endwise-movable rod supported and guided by the base and movable under the said disk, a spring having one end connected to the base outside of the periphery of the disk, the disk having a cam adapted to engage the free end of the spring, a plunger connected with the free end of the spring, a guide for the plunger, the upper end of the rod provided with a series of notches numbered consecutively, substantially as and for the purpose described.

4. An adding-machine comprising two units members one of which is a revoluble disk and the other a stationary member surrounding the disk, the disk and the stationary member divided into one hundred divisions numbered consecutively, the disk having at its edge a cam, means for rotating the disk, an endwise-movable rod, the base having guides beneath the disk for said rod, the guides being at one side of the center of the disk for permitting it to move entirely across the base, and means actuated by the cam for moving the said rod at each revolution of the disk, substantially as described.

5. An adding machine comprising a base, a rotatable disk, the disk and the base provided with one hundred divisions numbered consecutively, a hundreds member, the disk having a cam, a spring-plunger actuated by the cam, a member holding the spring-plunger in contact with the hundreds member, the spring-plunger provided with means at its outer end for lifting it out of engagement with the hundreds member, substantially as and for the purpose described.

640,851. TIRE FOR WHEELS. OLAF J. M. ANCORA, Milwaukee, Wis. Filed Oct. 14, 1897. Serial No. 655,101. (No model.)



Claim.—1. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel.

2. The combination with a tire for wheels consisting of an inner closed tube and an outer cover connected therewith at one place, but

elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, of means for preventing the separation of the end of the outer cover from the portion of the tire below the same.

3. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, and said end of the outer cover provided on its under side with ribs adapted to engage registering recesses in the portion of the tire beneath the same.

4. A tire for wheels, consisting of an inner elastic portion and an outer substantially non-elastic portion, said portions comprising an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel.

5. The combination, of a tire composed of inner and outer portions, a plate secured to the outer portion, said plate formed with a concavity or pocket, and a rim having a part thereof fitting in said concavity or pocket.

6. A tire comprising inner and outer portions, the end of the outer portion provided on its under side with depending teeth, and the upper surface of the inner portion beneath the end of the outer portion provided with recesses to receive the teeth, a plate secured to said terminal portion, said plate formed with a concavity or pocket, and a rim having a part thereof fitting said concavity or pocket.

7. The combination of a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover formed with a squared and shouldered portion, and a rim provided with a recess similar in shape to and adapted to receive the squared and shouldered portion of the end of the cover.

8. The combination with a tire comprising inner and outer portions, the end of the outer portion formed with a squared and shouldered projection, a plate secured to the outer portion, said plate formed with a concavity or recess, and a hollow rim provided with a recess similar in shape to and adapted to receive the squared and shouldered portion, and said rim also provided with rounded ends fitting the concavity or pocket of the plate.

9. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, the two portions of the tire forming an inner and an outer tube, the outer tube being of such circumference as to provide a compartment between it and the inner tube.

10. The combination, with a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, the two portions of the tire forming an inner and an outer tube, the outer tube being of such circumference as to provide a compartment between it and the inner tube, of mechanism leading, respectively, to said inner and outer tubes, whereby said tubes may be inflated so as to form a double pneumatic tire.

11. The combination, with a tire consisting of an inner closed tube, and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, the two portions of the tire forming an inner and an outer tube, the outer tube being of such circumference as to provide a compartment between it and the inner tube, and said outer tube being provided on its inner surface at the tread with lugs or projections located a desired distance apart, and the end of the outer portion being detachably secured to the inner portion, of a filling inserted between the two portions of the tire and confined between the two lugs.

12. The combination, with inner and outer tubes, the outer tube being of such circumference as to leave a compartment between it and the inner tube, lugs or projections located within the compartment and at the tread and arranged a desired distance apart, of a ring of woven-wire filling arranged in said compartment and confined between the lugs.

13. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and wound in a continuous cover around the inner closed tube, the end of said outer cover overlapping the inner tube under the rim of a wheel.

14. A tire for wheels consisting of an inner substantially non-elastic portion and an outer substantially non-elastic portion, said portions comprising an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel.

15. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled all around the inner closed tube, which is thereby inclosed by the outer cover.

16. A tire consisting of an inner closed tube, and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner closed tube, which is thereby inclosed by the outer cover, and means for securing the outer cover to the rim.

17. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, one end of said outer cover overlapping the inner tube and the connection between the inner closed tube and the outer cover.

18. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube under the rim of a wheel, means for preventing the separation of the end of the cover from the portion of the tire below the same, and means for connecting the outer cover to the rim.

19. A tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the point of connection to the outer cover being at such a place as to be within or in line with the edge of the rim, and the end of said outer cover overlapping the inner tube under the rim of a wheel.

20. The combination, with a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, said outer cover thereby forming a tube, but adapted to be opened on one side under the rim of a wheel, of means for preventing the separation of the end of the outer cover from the portion of the tire below the same.

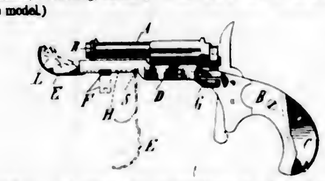
21. A double pneumatic tire comprising an inner closed tube and an outer portion or tube, both being inflatable, the outer portion being provided on its under side with ribs or projections and the inner closed tube provided with recesses to receive the ribs or projections.

22. The combination, of a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, and a valve, said valve located at the side of the tire.

23. The combination, of a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, means for preventing the separation of the end of the outer cover from the portion of the tire below the same, and a valve located at the side of the tire.

24. The combination with a tire consisting of an inner closed tube and an outer cover connected therewith at one place, but elsewhere divided or separated therefrom and rolled around the inner tube, the end of said outer cover overlapping the inner tube under the rim of a wheel, means for preventing the separation of the end of the outer cover from the portion of the tire below the same, means for having the outer cover in fixed connection to the rim, and a valve located at the side of the tire, the inner closed tube being thereby adapted to be opened or unrolled for the purpose of repairing the same, without the necessity of removing the tire from the rim of a wheel, or of removing the cap from the valve, or of removing the valve from the rim.

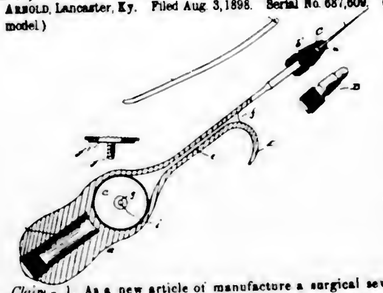
640,852. IGNITING DEVICE FOR CYCLE-LAMPS. WILHELM ANGERER, Rosenberg, Germany. Filed Feb. 4, 1898. Serial No. 669,082. (No model.)



Claim.—1. An igniting device consisting of a firearm or revolver having attached thereto a casing or container for a wick or primer, said casing having an opening through which the wick may be drawn to be presented in front of the barrel of the firearm.

2. An igniting device consisting of a firearm or revolver having attached thereto a casing or retainer for a wick, an opening in said casing through which the wick may be drawn, and a nose or apron upon which the withdrawn end of the wick may rest, substantially as described.

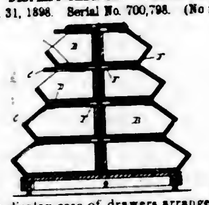
640,853. SURGICAL SEWING INSTRUMENT. GEORGE E. T. ARNOLD, Lancaster, Ky. Filed Aug. 3, 1898. Serial No. 687,609. (No model.)



Claim.—1. As a new article of manufacture a surgical sewing instrument comprising a shank and handle formed integral with each other, said handle being provided with a recess and said shank having a threadway therethrough communicating with said recess, a hollow stem in the latter, means for securing a needle within the end of said shank, a bobbin arranged to be carried within said recess and journaled upon the stem therein, and a screw passing into said stem and having a cap adapted to close said recess, as and for the purpose set forth.

2. In a surgical instrument, the combination of the main body A comprising a hollow stem and enlarged handle provided with a recess, said stem having the engaging finger-piece E extending therefrom, the bobbin *d* adapted to be engaged within the recess, the spring-jaws *m*, *n* secured at the forward end of said shank, said end being provided with a recess to receive the shank of a needle and externally threaded, the clamping-screw B arranged to engage over said threaded end and to force said clamping-jaws into engagement with said needle, and the cap *j'* adapted to close said recess, substantially as described.

640,854. DISPLAY-CABINET. WILLIAM A. BAER, Oriskany, N. Y. Filed Dec. 31, 1898. Serial No. 700,798. (No model.)



Claim.—1. In a display-case of drawers arranged pyramidally, drawers each projecting beyond the case, its front piece made narrower than the depth of the drawer and constructed obliquely with the bottom of the drawer, the side of the drawer cut away obliquely from the upper edge to the top of the front piece, a cover hinged in the case and resting upon the oblique sides of the drawer and arranged to slide horizontally, in combination, substantially as shown.

2. In a display-case of drawers arranged pyramidally, drawers projecting from the case, and each presenting an oblique upward opening, a cover hinged in the case above each drawer resting over the oblique opening in each, and made to slide horizontally in combination, substantially as set forth.

3. In a display-case a series of cleats, each grooved longitudinally, a slat extending between each pair of cleats having a trunnion at each end to move in its corresponding groove, a cover hinged on each of the slats to fall over the openings of the drawers when closed, the drawers sliding on the cleats, in combination, substantially as set forth.

4. In a display-case a series of drawers presenting oblique upward openings, cleats supporting the drawers, grooves in the cleats supporting-strips movable in the grooves and a cover hingedly attached to each strip and closing the opening of each corresponding drawer, substantially as set forth.

640,855. CARTRIDGE. CHARLES A. BAILEY, Cromwell, Conn. Filed July 3, 1899. Serial No. 723,693. (No model.)

Claim.—1. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk over which the tube is crimped, a threaded nipple formed on the breech-block and provided with a shoulder, and a washer placed on the shoulder, the latter being upset upon the washer to clamp the parts together, substantially as shown and for the purpose set forth.



2. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk upon which the tube is crimped, a threaded nipple projecting rearward from the center of the breech-block and adapted to engage the threaded opening in the cap, and a washer secured upon the threaded nipple against the crimped end of the tube, substantially as shown and for the purpose set forth.

3. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk over which the tube is crimped, said breech-block having its outer surface roughened or serrated, a threaded nipple projecting rearward from the center of the breech-block and provided with a shoulder at its inner end, and a washer placed over the shoulder to engage the crimped end of the tube, said washer having inwardly-projecting teeth, substantially as shown and for the purpose set forth.

4. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk over which the tube is crimped, a nipple projecting rearward from the breech-block and provided with external and internal threads and a thin outer end, and a washer placed over the nipple to clamp the crimped end of the tube between said washer and the breech-block; together with a flat piece or anvil screwed into the nipple, substantially as shown and for the purpose set forth.

5. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk over which the tube is crimped, a nipple projecting rearward from the breech-block and provided with external and internal threads and a thin outer end wall, and a washer placed over the nipple to clamp the crimped end of the tube between said washer and breech-block; together with a flat metal piece or anvil having teeth at opposite sides and lateral projections at its rear end, substantially as shown and for the purpose set forth.

6. In combination with a metal cap having a threaded opening in its head, of a tube, a breech-block or disk over which the tube is crimped, said breech-block having its rear surface roughened or serrated, a nipple projecting rearward from the breech-block and provided with external and internal threads and with a shoulder at its inner end, and a washer placed over the shoulder and provided with inwardly-projecting teeth, to clamp the crimped end of the tube between said washer and breech-block; together with an anvil screwed into the threaded nipple, substantially as shown and for the purpose set forth.

7. As an improved article of manufacture for use in connection with a metal cap, comprising a tube, a breech-block in the tube provided with a rearwardly-projecting nipple having internal and external threads, a washer placed over the nipple to clamp the parts together, and an anvil screwed into the nipple, substantially as shown and described.

8. An improved article of manufacture for use in connection with a metal cap, comprising a tube, a breech-block in the tube provided with a rearwardly-projecting nipple having a thin wall at its end, fulminate on the inner side of said wall, and an anvil held in the nipple against the fulminate, the nipple being threaded externally to engage a threaded opening in the metal cap, substantially as shown and described.

640,856. CARTRIDGE. CHARLES A. BAILEY, Cromwell, Conn. Filed July 3, 1899. Serial No. 722,694. (No model.)



Claim.—1. A cartridge, comprising a metal cap or head having an opening therein, a breech-piece provided with a projecting nipple adapted to fit into the aforesaid opening, and an anvil secured to the breech-piece and provided with a point or stem extending into the nipple; together with the tube held in place by the cap and breech-piece, substantially as shown and described.

2. A cartridge, comprising a metal cap or head having an opening therein, a breech-piece provided with a nipple projecting into the aforesaid opening and upset upon the metal cap or head, and an an-

vil secured to the breech-piece and having a point extending into the nipple, together with the tube held in place by the cap and breech-piece, substantially as shown and described

3. In combination with the metal cap and breech piece connected together substantially as shown, the breech-piece having a nipple extending through the cap, of an anvil secured to the breech-piece and presenting a point extending into the nipple, substantially as shown and for the purpose set forth.

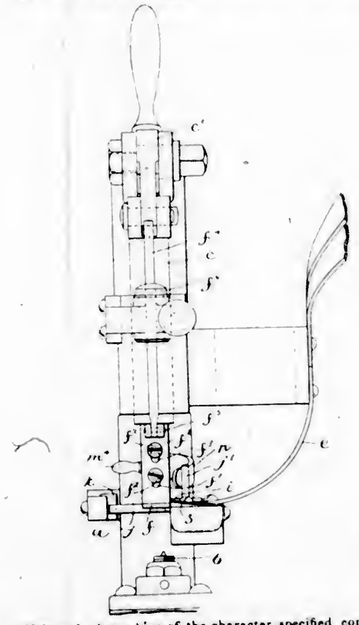
4. In a cartridge, the combination with the metal cap and breech-piece connected together substantially as shown, the breech-piece having a nipple extending through the cap and a flange, of an anvil secured to the breech-piece by upsetting the flange over the ends of said anvil, the anvil having a point projecting into the nipple, substantially as shown and for the purpose set forth

5. In a cartridge, the combination, of the metal cap or head having an opening therethrough, a breech-piece provided with a nipple adapted to enter the aforesaid opening and be upset upon the cap or head, an anvil secured to the breech-piece and having a stem projecting into the nipple, and the paper tube crimped over the breech-piece and clamped between said breech-piece and cap or head, substantially as shown and described.

6. In a cartridge, the combination, of the metal cap or head having an opening through the same, a breech-piece provided with a nipple adapted to enter the aforesaid opening and be upset upon the cap or head, a flange on the breech-piece, and an anvil secured to the breech-piece by upsetting the flange over the ends of said anvil, together with the paper tube having its inner end crimped over said breech-piece and clamped between said breech-piece and cap or head, substantially as shown and for the purpose set forth.

7. In a cartridge, the coobination, of the metal cap or head having an opening through the same, a breech-piece provided with a nipple adapted to enter the aforesaid opening and connected to the cap or head, a flange on the breech-piece, and an anvil secured to the breech-piece by upsetting the flange over the ends of the anvil; together with the paper tube and reinforcing-sections crimped over the breech-piece and clamped between said breech-piece and cap or head, substantially as shown and for the purpose set forth.

640,857. MACHINE FOR SETTING LACING-STUDS. WILLIAM P. BARTEL, Waltham, Mass., assignor of three-fourths to the Judson L. Thomson Manufacturing Company, same place. Filed Apr. 24, 1899. Serial No. 714,263. (No model.)



Claim.—1. A machine of the character specified, comprising a fixed raceway, a head movable vertically beside the lower end of the raceway, a jaw movable with the head and having a limited independent movement, means for yieldingly retaining the jaw in either a hook-grasping or hook-releasing position, the jaw being arranged to coincide with the lower end of the raceway when the head is raised, a finger arranged to transfer a hook from the raceway to the jaw when the head is raised, said finger forming a stop to prevent movement of the hook from the jaw in one direction, a yielding stop arranged to prevent movement of the hook from the jaw in the opposite direction, said stops being arranged to cooperate with the jaw only when the latter is in its raised position, and means for displacing said stops when the head and jaw descend, whereby the jaw is left unobstructed at both ends when depressed

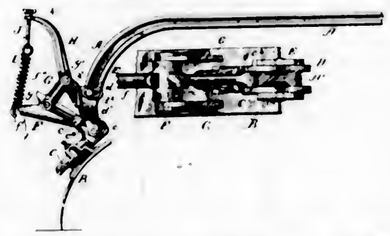
2. A machine of the character specified, comprising a fixed raceway, a head movable vertically beside the lower end of the raceway, a jaw having a limited independent movement on the head and adapted to move with the head, the jaw coinciding with the raceway when the head is raised, means for holding the jaw yieldingly in either of two positions as described, a transferring-finger and mechanism for operating the same, with provisions for holding the finger at one side of the head after the insertion of a hook between the jaw and head and while the hook is being grasped by the jaw and head, and a yielding stop-plate movable in a slot or guide in the head and arranged to project over the jaw and cooperate with the finger in holding a hook in place in the jaw, said plate and head having provisions for the displacement of the plate by the descent of the head and jaw, whereby the jaw is left unobstructed at both ends when the head is depressed.

3. The combination of the raceway, the vertically-reciprocating head, the jaw movable with the head and having a limited independent movement, the transferring-finger, and the means for operating it, said means comprising the reciprocating slide to which the finger is pivoted, the finger-pressing spring on said slide, the spring-held arm pivoted to the finger, the rectilinear guide which cooperates with said arm in guiding and releasing the finger during its forward movement, and the curved guide which laterally displaces the finger during its backward movement

4. The combination of the raceway, the vertically-reciprocating head having a slot with an inclined wall, the jaw movable with the head and having a limited independent movement, the transferring-finger, means for operating said finger, the movable stop *m* formed to enter said slot and having an inclined edge, and the spring-pressed slide carrying said stop.

5. The combination of the raceway, the vertically-reciprocating head, the jaw movable with the head and having an independent movement, the transferring-finger, and means for operating said finger, said means having provisions for permitting the finger to yield to an obstruction.

640,858. SPRING-TRIP FOR CULTIVATORS. JOHN B. BARTHOLOMEW, Peoria, Ill. Filed June 6, 1896. Serial No. 594,583. (No model.)



Claim.—1. A spring-trip for cultivators, comprising a shank, a shovel support or sleeve pivotally connected with the shank, a toggle-joint connected with the support and with the shank, an arm pivoted on the shank and adapted to bear against the toggle-joint, and a spring connecting the arm with a member of the toggle-joint, substantially as set forth.

2. A spring-trip for cultivators, comprising a shank, a shovel support or sleeve pivotally connected with the shank, a toggle-joint connected with the support and with an extension rigid with the shank, a spur on the toggle-joint, an arm pivoted on the shank adjacent to the upper pivot of the toggle-joint and having a bearing in its under surface adapted to engage the spur of the toggle-joint, and a spring connecting the arm with the lower member of the toggle-joint, substantially as set forth.

3. A spring-trip for cultivators, comprising a shank, a shovel-support pivotally connected with the shank, a substantially vertically arranged toggle-lever bearing against the shovel-support when in the closed position, an arm supplemental to the toggle-levers and pivoted to the shank, said arm extending upward from the toggle, and a spring connected to the said arm and to the lower lever of the toggle, substantially as described.

4. A spring-trip for cultivators, comprising a shank, a shovel sleeve or support pivotally connected with the shank, a vertically-arranged toggle-joint connected with the sleeve, an arm pivoted to the shank, said arm and the upper toggle-bar having separable surfaces bearing against each other during a part only of their movement, and a spring connecting the said bar to the lower toggle-lever, substantially as set forth.

5. A spring-trip for cultivators, comprising a shank, a shovel-sleeve pivotally connected with the shank, a toggle-joint connected with the support, the lower toggle member having an outwardly-projecting arm, a bar supplemental to the toggle-joint and movable relatively thereto and pivotally connected to the shank, and having an upwardly-projecting end, and a spring connecting the said upwardly-projecting end with the extension on the lower toggle member, substantially as described.

6. A spring-trip for cultivators, comprising a shank, a shovel sleeve or support, pivotally connected with the shank, a toggle-joint connected with the sleeve, or support, a spring extending upward from and engaging with the lower toggle member, a bar or arm supplemental to the toggle-joint and united by its separate pivot to the shank or beam, the toggle members being adapted to move both with said bar or arm and also to move independently thereof, and said arm being connected to the upper end of said spring, and adapted to transmit spring-pressure to the toggle-joint for holding it in the closed position, substantially as set forth.

7. A spring-trip for cultivators, comprising a shank, a shovel sleeve or support, pivotally connected with the shank, a toggle-joint connected with the sleeve or support, a spring extending upward from and engaging with the lower toggle member, and a bar or arm supplemental to the toggle-joint and united by its separate pivot to the shank or beam, said arm having an upward and backward extension to which is connected the upper end of said spring, the toggle-joint and the spring being approximately parallel when the joint is closed, and said bar and spring acting to hold the joint closed, substantially as set forth.

8. A spring-trip for cultivators, comprising a shank, a shovel sleeve or support, pivotally connected with the shank, a toggle-joint connected with the sleeve or support, and a spring arranged to press the toggle-joint toward the closed position and having its upper end secured to a support-supplemental to the toggle-joint and movable independently thereof, substantially as set forth.

9. A spring-trip for cultivators, comprising a shank, a shovel sleeve or support pivotally connected with the shank, a toggle-joint connected with the sleeve or support, the lower member of said joint having an outer extension, a spring secured to said extension, and a movable bar or arm adapted to bear against the toggle-joint and having its upper movable end secured to said spring, substantially as set forth

10. In a trip for cultivator-shovels, the combination of the shank, the shovel, pivotally connected to the shank, the toggle-joint-pivoting devices connecting the toggle and the shovel, the spring connected to the toggle, and a bar, H, movable with the toggle during part of the movement of the latter and stationary during the remainder of the said movement, substantially as set forth

11. In a trip for cultivator-shovels, the combination of the shank, the shovel movable relatively to the shank, the toggle having the members F, G, the member F having the extension *f*, the bar, H, having the turned part, *h*, and the spring connecting the parts, *h* and F, substantially as set forth.

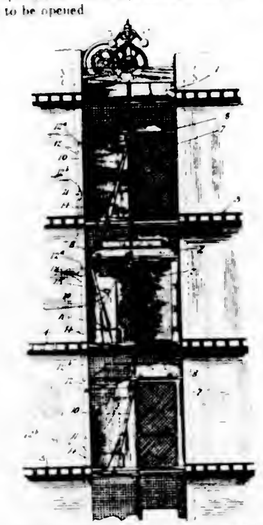
12. In a trip for cultivator-shovels, the combination of the shank, the shovel movable relatively to the shank, the two part lock having the members F, G, arranged vertically, and means supplemental to the shovel, the shank and the lock for opening the said lock, substantially as set forth.

13. The combination of the shank, the shovel, the toggle, the spring, and the vibratable carrier for the toggle adjustable relatively to the shank, said carrier being automatically movable when the toggle-arms move, substantially as set forth.

14. The combination of the shank, the shovel, the toggle, the spring, and the vibratable carrier, D, having slots, *d*, and the bolt, E, said carrier being automatically movable when the toggle-arms move, substantially as set forth.

640,859. ELEVATOR. CASSIUS M. BARTHOLOMEW and WILLIAM F. LEONARD, Columbus, Ohio; said Bartholomew assignor to said Leonard. Filed Apr. 8, 1899. Serial No. 712,337. (No model.)

Claim.—1. In combination with an elevator-shaft and a passage-way thereto having a sliding door, a lever 10 to act on the door, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain attached to said door tending to open the door and a car or carriage having a cam adapted to engage the spring and take the pressure thereof from the lever when the door is to be opened



2. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on the door, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain attached to said door tending to open the door, and a car or carriage having a cam movable into or out of position to engage the spring and take the pressure thereof from the lever when the door is to be opened.

3. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on the door, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain attached to said door tending to open the same, means whereby said door is latched by said lever, and a car carriage having a cam adapted to engage the spring and take the pressure thereof from the lever when the door is to be opened.

4. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on the door, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain attached to said door tending to open the door, means whereby said door is latched by said lever, and a car or carriage having a cam movable into and out of position to engage the spring and take the pressure thereof from the lever when the door is to be opened.

5. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on the door, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted chain or cord attached to the door and tending to open the same, a car or carriage having a cam to engage the spring and take the pressure thereof from the lever and mechanism operated when the car is in motion to lock said door and permit the same to be opened when the car has stopped at the door, substantially as described.

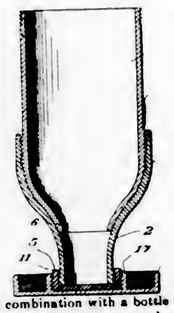
6. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on the door, a sprig 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain attached to said door tending to open the same, means whereby said door is latched by said lever, and a car or carriage having a cam to engage the spring and take the pressure thereof from the lever and mechaniam operated when the car is in motion to lock said door and permit the same to be opened when the car has stopped and the lever 10 has been relieved of the pressure of the spring.

7. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 to act on and latch the door but flexibly connected therewith, a spring 11 removably engaging said lever to press upon the same to close the door, a weighted cord or chain 12 to open the door when the lever is relieved of the pressure of the spring, substantially as described.

8. In combination with an elevator-shaft and a passage-way thereinto having a sliding door, a lever 10 and spring 11 to close said door, a weighted cord or chain 12 to open said door when the lever is relieved of the pressure of the spring and a latch 16 for holding said

door closed until after the spring is moved from the lever and means for returning said latch to its locking position when the door is closed, substantially as described.

640,860. COMBINATION BEER BOTTLE AND GLASS. WILLIAM RAUM, Jr., Sullivan, Mo. Filed July 15, 1897. Serial No. 644,622. (No model.)



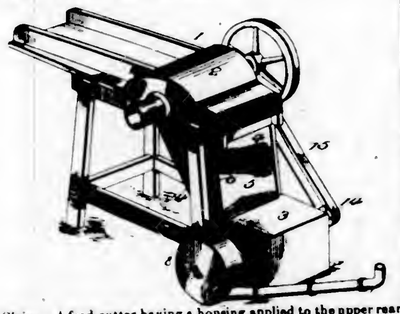
Claim.—1. The combination with a bottle portion proper, of a detachable portion secured to the upper end of the body portion, a detachable bottom for said body portion, and a detachable base secured over said bottom, substantially as described.

2. The combination with a bottle portion proper, of a detachable cup portion secured to the upper end of the same, and a detachable base secured to the lower end of said bottle and provided with a central annular supporting-flange inside of which the upper end of a detachable cup portion may be inserted, substantially as described.

3. The combination with a bottle portion proper screw-threaded at its upper and lower ends, of a screw-threaded detachable cup portion applied to the upper end of said bottle portion and having a screw-threaded neck and a screw-threaded base applied to the lower end of said bottle portion and having an annular screw-threaded flange adapted to receive the screw-threaded neck of said bottle portion, substantially as described.

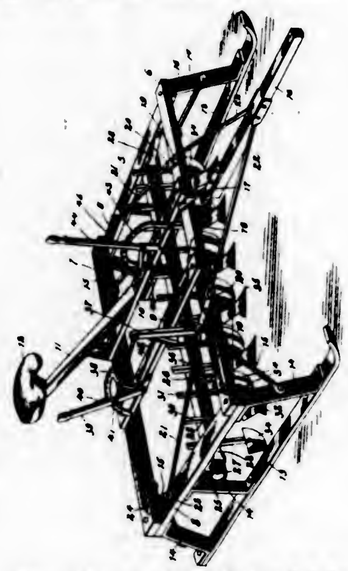
4. The combination with a body portion having a detachable bottom formed with a dome-shaped portion, of a detachable base portion applied over said bottom and having an annular flange which projects up into said dome-shaped portion, and a detachable cup portion applied to the upper end of the body portion and having a contracted neck adapted to be inserted into the annular flange of the base portion, substantially as described.

640,861. PNEUMATIC CONVEYER FOR FODDER OR ENSILAGE CUTTERS. LEMUEL S. BEDFORD, Millview, Pa. Filed Apr. 8, 1899. Serial No. 712,265. (No model.)



Claim.—A feed-cutter having a housing applied to the upper rear portion of the frame and acting jointly therewith to inclose the feeding and cutting mechanisms with the exception of opposite ingress and egress openings, an oblong box attached to the lower portion of the frame and having an opening in one end and in the upper rear portion of its top side, a throat connecting the egress-opening of the machine with the opening in the top side of the box and comprising end walls, a rear wall or chute joined to the bottom of the feed-cutter in advance of the cutting mechanism and a front wall, the latter connecting at its upper end with the housing and at its lower end with the box, a fan-blower having a conveyer attached thereto and having an opening in its inner head to register with the opening in the end of the box to which it is attached, a shaft extending through the box and fan-casing and journaled at one end in the outer head of said fan-casing and at its opposite end in the remote end wall of the box, the fan being secured to an end portion of the shaft and the latter having its opposite end extended beyond the box and provided with a pulley, and a drive-belt connecting the said pulley with a moving part of the machine, substantially as described.

640,862. COTTON-THINNER. WILLIAM BILLINGSLEY, McLendon, Tex. Filed Sept. 12, 1899. Serial No. 730,248. (No model.)



Claim.—1. In a device of the character set forth, the combination of a frame, a beam having independent vertical and rotary adjustments, a series of hoes carried by said beam, and fenders arranged intermediate of said hoes and also supported by the beam.

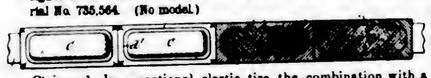
2. In a device of the character set forth, the combination of a frame, having end bars, depending bearing-loops secured to said end bars, a vertically-adjustable beam having its opposite ends fitted in said loops, suspending-links having their rear ends loosely fitted over the opposite terminals of the beam, a gang of hoes or cultivating devices on the beam, and separate adjusting mechanism for the beam adapted to independently control the vertical movement and the rotation of said beam.

3. In a device of the character set forth, the combination of a frame having elongated runners at opposite ends, a beam supported by the said frame and having independent vertical and rotary adjustments, cultivating devices on the beam, a tongue movably attached to the front portion of the frame and adapted to have vertical movement, and draft devices in part rigidly connected to the tongue and all movably attached to the frame.

4. In a device of the character set forth, the combination of a frame having runners at opposite ends, a beam adjustably mounted in the said frame and having a gang of cultivating devices thereon, a tongue movably attached to the front central portion of the frame, draft-links movably attached to the front portion of the frame on opposite sides of the point of attachment of the tongue, draft-rods movably attached to the rear of the opposite end portions of the frame and to the rear terminals of the said draft-links, and other draft-rods fixed to the tongue at their front terminals and having their rear terminals in engagement with the front ends of the said draft-links.

5. In a device of the character set forth, the combination of a frame having runners at opposite ends, cultivating devices supported by the frame, a tongue movably attached to the front central portion of the frame, and draft devices in part rigidly secured to opposite portions of the tongue in advance of the attachment of the latter to the frame, another portion of said draft devices being connected to the frame in rear of the position of the cultivating devices and all the draft devices movably attached to the frame.

640,863. ELASTIC TIRE. EDGAR M. BIRDSALL, Buffalo, N. Y., assignor to De Witt H. Bothwell, Toledo, Ohio. Filed Nov. 2, 1899. Serial No. 735,564. (No model.)



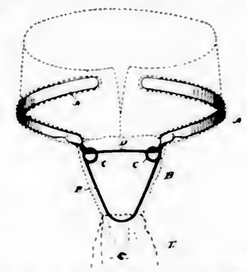
Claim.—1. In a sectional elastic tire, the combination with a socket or holder adapted to be secured to a wheel rim or felly, of an elastic block arranged in said socket, one of said parts being provided in its sides with a number of independent lugs or projections which interlock with corresponding recesses formed in the other part, substantially as set forth.

2. In a sectional elastic tire, the combination with a socket or holder adapted to be secured to a wheel rim or felly and provided in the inner side of its side walls with a row of independent recesses or depressions, of a block arranged in said socket and having its base portion provided in opposite sides with lugs or projections which interlock with the recesses of said socket, substantially as set forth.

3. In a sectional elastic tire, the combination with a socket or holder adapted to be secured to a wheel rim or felly of an elastic block having its base portion confined in said block and provided with a convex bottom adapted to be flattened against the periphery of the wheel-rim for expanding the base portion of the block against the surrounding walls of said socket, substantially as set forth.

4. In a sectional elastic tire, the combination with a socket or holder adapted to be secured to a wheel rim or felly, of an elastic block having its base portion confined in said block and provided with a prismatic bottom adapted to be flattened against the wheel-rim, substantially as set forth.

640,864. NECKTIE-FASTENER. JOSEPH W. BLUNDON, San Francisco, Cal. Filed Mar. 27, 1899. Serial No. 710,698. (No model.)



Claim.—1. A device of the nature indicated, composed of a single piece of spring-wire, the central portion of which is bent to form a frame while the ends are flattened to produce neck bands; substantially as described.

2. A device of the nature indicated, comprising a single piece of resilient material having its central portion bent to form a frame and its end portions extending from said frame to produce neck bands, and a brace connecting the frame sides whereby they are held in proper relative position; substantially as described.

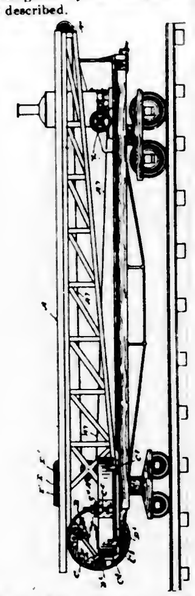
3. A device of the nature indicated, comprising a single piece of resilient material bent to form a frame and each side of the frame being bent upon itself to produce eyelets, the ends of the said single piece of material extending from the frame to produce neck bands, and a brace passing through the said eyelets and engaging the sides of the frame; substantially as described.

640,865. PILE-DRIVER. JOSEPH W. BLUNDON, San Francisco, Cal., assignor of one-half to John R. Shook, John S. Coply, and Charles R. Kimball, same place. Filed Apr. 5, 1899. Serial No. 711,779. (No model.)

Claim.—1. In a device of the nature indicated, a supporting structure, a standard having a curved guideway, a hammer-frame, and a bearing-ring secured upon said hammer-frame and engaging the curved guideway of the standard, said ring being rotatable upon the standard; substantially as described.

2. In a device of the nature indicated, a supporting structure, a standard having a curved guideway, a hammer-frame, a bearing-ring secured upon said hammer-frame and engaging the curved guideway of the standard, said ring being provided with teeth on its periphery, and a suitably-mounted actuating-gear engaging said teeth; substantially as described.

3. In a device of the nature indicated, a supporting structure, a standard having a curved guideway, a hammer-frame, and a bearing-ring secured upon said hammer-frame, said ring having a flange engaging the curved guideway and being rotatable upon the standard; substantially as described.



4. In a device of the nature indicated, a supporting structure, a standard having a curved guideway, a hammer-frame, a bearing-ring secured upon said hammer-frame and engaging the curved guideway of the standard, said ring being provided with teeth on its periphery, a shaft journaled in said standard, a gear upon said shaft engaging the said teeth on the ring, a worm with means for rotating it journaled upon the standard, a shaft journaled upon the standard and having a worm-gear meshing with the said worm, and beveled gears between said shafts; substantially as described.

5. In a pile-driver, in combination with a hammer-frame provided at the lower end with bearing-rings having gear-teeth formed in the periphery thereof; a turn-table mounted upon a suitable track or ways, and adapted to be rotated upon the same about its center; standards mounted upon the said table and rigidly secured thereto and adapted to receive and become bearings for the said rings; a cog-wheel suitably mounted in the said standards or table to engage the gear-teeth formed in the said rings and provided with suitable rotating mechanism, substantially as described.

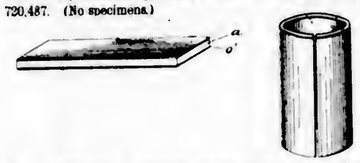
6. In a pile-driver, in combination with a hammer-frame provided at the lower end with bearing-rings, having in the periphery thereof gear-teeth; a turn-table mounted upon a suitable track or ways to be rotated about its center; standards mounted upon and rigidly attached to the said table to receive and form a guide for the said rings; a gear-toothed track, or segment stationarily mounted upon and secured to the said track structure; a train of gear-wheels and suitable connections adapted to engage the gear-teeth in the said bearing-rings and adapted to rotate the same about the said standards; and a second train of gear-wheels and suitable connections mounted in the said turn-table and engaging the said toothed track or segment mounted upon the track structure and adapted to turn the said turn-table about its center when the said train of gears is rotated, substantially as described.

7. In a device of the nature indicated, a hammer-frame having guides thereon, said frame being adapted to lie in an inclined position, and a pile-head carrier consisting of a suitable frame to receive the head of the pile and provided with members adapted to rest upon said guides and thus control the movement of the pile during the operation of driving; substantially as described.

8. In a device of the nature indicated, a hammer-frame having guides thereon, a hammer adapted to travel on said guides, said frame being adapted to lie in an inclined position, and a pile-head carrier consisting of a suitable frame to receive the head of the pile and provided with members adapted to rest upon said guides and thus control the movement of the pile during the operation of driving; substantially as described.

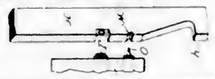
9. In a pile-driver, in combination with a hammer-frame having guides to control the path of operation of the hammer, and having at the lower end pivotal bearings; a rotating mechanism adapted to swing the said frame about its pivotal bearings and maintain the same in an inclined position; a suitable lifting hammer mechanism adapted to raise and release a hammer; and a pile-head carrier consisting of a suitable frame to receive the head of a pile, and provided with wheels adapted to rest upon the guides in the said hammer-frame, substantially as described, whereby the pile is guided throughout the operation of driving.

640,866. MANUFACTURE OF SEAMLESS WIRE. FREDERICK E. BODMAN, Attleborough, Mass. Filed June 14, 1899. Serial No. 720,487. (No specimens.)



Claim.—The herein-described process of making seamless plated gold wire which consists in fusing solder to both sides of a base-metal plate, reducing said solder-covered plate to a thinness sufficient to allow the same to be conveniently wrapped around a hard-metal core, inserting said core and plate into a seamless gold shell heating the assembled parts to fuse and reducing the parts into wire by the customary methods.

640,867. MATRIX-BAR FOR MACHINES FOR MAKING TYPE-BARS FOR PRINTING. FRED E. BRIGHT, Cleveland, Ohio. Filed Oct. 13, 1896. Serial No. 608,722. (No model.)



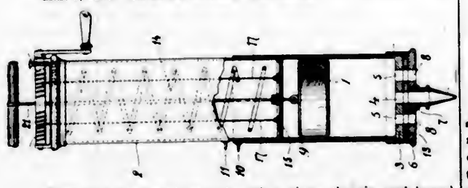
Claim.—1. In a typograph or other linotype-machine, a matrix-bar having a datum-notch formed therein at a predetermined distance from the matrix, said notch being independent of the alining notch, and serving to facilitate the accurate formation of the bar.

2. In a typograph or other linotype-machine a matrix-bar hooked at its lower end and having a datum-notch formed therein at a known distance from the matrix to facilitate the accurate formation of the bar, substantially as described.

3. In a typograph or other linotype-machine the combination of a matrix-bar looped at its upper end and having an opening in the loop, and a suspension-wire for said bar, said suspension-wire being thicker than the width of the opening in the loop and having a flattened or grooved portion to allow the matrix-bar when tilted to bring its opening opposite the flattened portion of the wire to be removed and replaced, substantially as and for the purposes described.

4. In a typograph or other linotype-machine, the combination of a matrix-bar looped at its upper end and having an opening in the loop, and a suspension-wire for said bar, said wire being thicker than the width of the opening in the loop and having a flattened portion which will allow the matrix-bar to be removed and replaced when said bar is tilted to bring its opening opposite said flattened portion, but will not permit such removal or replacement while the bar is in its normal suspended position.

640,868. SYRINGE. LARS BRING, Stockholm, Sweden. Filed Mar. 9, 1899. Serial No. 708,431. (No model.)



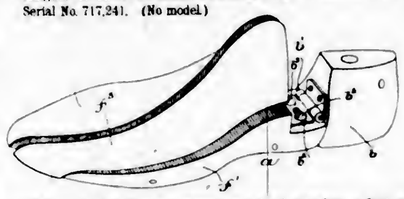
Claim.—1. In a syringe, a barrel, a piston therein, said barrel having a discharge-opening, an inlet-opening independent of the discharge-opening and a cover for said inlet-opening rotatable across the same in closing or opening the same and adjusted by hand, substantially as described.

2. In combination in a syringe, a barrel, a piston therein, said barrel having an opening 5 at its forward end, a rotary cap carried by the front end of the barrel and having an opening to register when the cover is turned with the opening 5 and having also an opening in line with the discharge-opening leading from the barrel, substantially as described.

3. In combination in a syringe, a barrel, a piston therein, said barrel having a discharge-opening and an opening 5 at its end, a rotary cover having a discharge-opening in line with the discharge-opening of the barrel and having also an opening 8 adapted when the cover is turned to register with the opening 5 and the spring within the barrel acting on the piston, substantially as described.

4. In combination in a syringe, the barrel having the openings 4, 5, at its end, a rotary cover fitted to the end of the barrel and having the openings 7 and 8, a piston in the barrel, a disk in rear of the piston, a drum at the end of the barrel, a pawl for holding the drum, a spring in rear of the disk and flexible connections between the drum and the disk, substantially as described.

640,869. FOLLOWER. HENRY F. BROWNE, Newburyport, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed May 18, 1899. Serial No. 717,241. (No model.)



Claim.—1. A follower comprising a heel member, a foot member, the foot member being composed of two laterally-expansible sections, each having a vertically-expansible top.

2. A follower comprising a heel member, a foot member, the foot member being composed of two laterally-expansible sections, each having a top portion arranged to automatically move upward and forward when the follower is placed in the shoe.

3. A follower comprising a heel member, a foot member, the foot member being composed of two laterally-expansible lower sections and a vertically-expansible top section connected to each lower section.

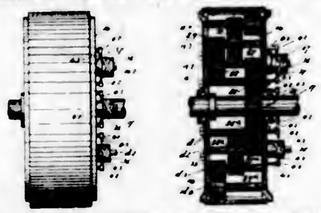
4. A follower comprising a heel member, a foot member, the foot member being composed of two laterally-expansible lower sections and a vertically-expansible, longitudinally-movable top section connected to each lower section.

5. A follower comprising a foot member having two laterally-expansible members, to each of which is connected a vertically-expansible, longitudinally-movable top.

6. A self-adjusting follower comprising a heel member, a two-part expansible foot member formed with expansible top sections.

7. A follower comprising a fore part, a heel part, the fore part having two laterally-expansible sections to each of which is connected a vertically-expansible top and means for adjusting the amount of the expansion of said parts.

640,870. POWER-TRANSMISSION PULLEY. JOHN H. BUCKLEY, Wassaic, N. Y. Filed Dec. 1, 1898. Serial No. 697,957. (No model.)



Claim.—1. A power-transmission pulley, comprising stationary side plates or disks, a main power-shaft passing centrally therethrough, a rim or band mounted between the perimeters of said side plates or disks, and a plurality of radial rows of shafts mounted between the central power-shaft and the rim or band, said radial rows of shafts being provided with gearing for transmitting variable degrees of speed from the power-shaft to the rim or band, and means for throwing either of said radial rows of shafts into gear with said main power-shaft, substantially as shown and described.

2. A power-transmission pulley, comprising stationary side plates or disks, a main power-shaft passing centrally therethrough, a rim or band mounted between the perimeters of said side plates or disks, and a plurality of radial rows of shafts mounted between the central power-shaft, and the rim or band, said radial rows of shafts being each provided with gearing, whereby the movement of the power-shaft is transmitted to the rim or band of each of said radial rows of shafts, the gearing on each of said radial rows of shafts being such as to give the rim or band a different speed, and means for throwing each of said radial rows of shafts out of gear with the main central shaft, substantially as shown and described.

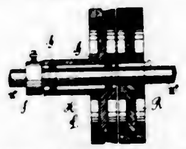
3. A power-transmission pulley, comprising stationary side plates or disks, a main power-shaft passing centrally therethrough, a rim or band mounted between the perimeters of said side plates or disks, and a plurality of radial rows of shafts mounted between the central power-shaft, and the rim or band, said radial rows of shafts being each provided with gearing, whereby the movement of the power-shaft is transmitted to the rim or band by each of said radial rows of shafts, the gearing on each of said radial rows of shafts being such as to give the rim or band a different speed, and means for throwing each of said radial rows of shafts out of gear with the main central shaft, consisting of a clutch device operating in connection with one shaft of each of said radial rows, substantially as shown and described.

4. A power-transmission pulley, comprising two side plates or disks, a rim or band mounted between the perimeters thereof, a central power-shaft passing through said side plates or disks, a plurality of radial rows of shafts mounted in said side plates or disks between the central shaft, and the rim or band, each of said radial rows of shafts being provided with a different form of gearing, whereby the movement of said central shaft is transmitted to the rim or band, and means for throwing either or all of said radial rows of shafts into or out of gear with the central power-shaft, substantially as shown and described.

5. A power-transmission pulley, comprising stationary sides, a central shaft passing therethrough, a revoluble rim or band mounted between the perimeters of said sides, and a plurality of radial rows of shafts mounted between said central shaft and said rim or band, the shafts of each of said radial rows being geared in connection, and also in connection with said central shaft and said rim or band, and means for throwing either of said radial rows of shafts into or out of gear with said central shaft and said rim or band, substantially as shown and described.

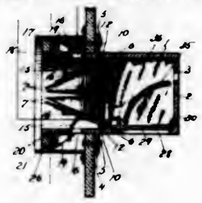
6. A power-transmission pulley, comprising stationary sides, a power-shaft passing centrally therethrough, a revoluble rim or band mounted between the perimeters of said sides, and a radial row of shafts mounted between the power-shaft and said rim or band, said last-named shafts being provided with friction-gearing for transmitting the movement of the power-shaft to the rim or band, substantially as shown and described.

640,871. DIVIDED LOOSE PULLEY FOR BELT-DRIVING GEAR. JACQUES BUSHKOWITSCH, Frankfort-on-the-Main, and ALBERT SCHADT and JULIUS E. R. SCHADT, Kreuznach, Germany. Filed Oct. 4, 1899. Serial No. 732,526. (No model.)



Claim.—A divided or split loose pulley for driving-shafts provided upon its periphery with a suitable number of wide screw-threads *l l*, which are narrowest and deepest on the side turned away from the driving-pulley while they are on the contrary wider and less deep on the other side of the said loose pulley to such an extent as to run out into the edge of the latter; substantially as described.

640,872. FIRE-ALARM SIGNALING APPARATUS. LOUDOUN CAMPBELL, Washington, D. C., assignor of one-half to Robert J. Thomas, Alexandria, Va. Filed Mar. 17, 1899. Serial No. 709,432. (No model.)



Claim.—1. The combination with an alarm signaling-box, having an opening in an exterior wall through which the signal devices can be actuated, of means for engaging a hand, when inserted through said opening, substantially as described.

2. The combination, with an alarm signaling-box having an opening in one of its walls through which access is had to the signal devices, of yielding, inwardly-pointed, members arranged about said opening and adapted to permit a hand to be inserted through the opening but to retain the hand when so inserted, substantially as described.

3. The combination with an alarm signaling-box having an opening in one wall through which access is had to the signal devices, of inwardly-pointed plates mounted about said opening, and means for yieldingly holding the inner ends of said plates in juxtaposition, whereby said plates will yield to permit the insertion of a hand but will bear upon the inserted hand and prevent its withdrawal.

4. The combination with an alarm signaling-box having formed therein an opening through which access is had to the signal devices, of a series of pointed plates of resilient material secured about said opening and normally extending into the line of the same, substantially as described.

5. The combination, with an alarm signaling-box having in one of its walls an opening, of a casing extending through said opening, and members carried by said casing for engaging and preventing the withdrawal of a hand inserted through the same, substantially as described.

6. The combination, with an alarm signaling-box having an opening formed in one of its walls, of a casing extending through said opening, a flange upon the inner wall of said casing, and spring-pressed detaining-plates mounted upon said flange, substantially as described.

7. The combination with an alarm signaling-box having an opening in one of its walls, of a casing secured upon said wall and having an opening out of line with the opening therein, and mechanism for engaging and detaining a hand in position to actuate the signal devices within the box, substantially as described.

8. The combination in an alarm signaling-box, of a signal-operating member, a wall having an opening therein, detaining devices extending into the line of said opening and movable toward and from each other, and means adjustably connected with said detaining devices for moving them into inoperative positions, substantially as described.

9. The combination in an alarm signaling-box, of a signal-operating member, a wall provided with an opening therein, detaining devices extending into the line of said opening and movable toward and from each other, a series of cams, each engaging with one of said detaining devices, and means for simultaneously moving said cams to adjust the detaining devices toward and from each other, substantially as described.

10. The combination, in an alarm signaling-box, of a wall having an opening therein through which the signal apparatus can be actuated, detaining devices extending into the line of said opening, and movable toward and from each other, a yoke extending outwardly from each of the detaining devices, a series of wedges extending into the slots of said yokes, and means for positively moving said wedges into and from said slots, substantially as described.

11. The combination, in an alarm signaling-box, of means for engaging and retaining a hand operating the signal device, and mechanism under the control of the operator for moving said engaging means into an inactive position, substantially as described.

12. The combination, in an alarm signaling-box of a wall provided with an opening through which the signal device can be actuated, means for engaging and detaining a hand inserted through said opening, and mechanism under the control of the operator for slowly releasing the hand, substantially as described.

13. The combination in an alarm signaling-box having an opening in one of its walls through which access is had to the signal devices, of devices arranged about said opening for engaging and detaining a hand therethrough inserted, a releasing device comprising a stationary support and a sleeve or collar mounted on and movable longitudinally of said support, and connections between said sleeve and the detaining devices for moving the latter out of operative position by movement of the former along its support, substantially as described.

14. The combination in an alarm signaling-box having an opening in one of its walls, means arranged about said opening for engaging and retaining a hand therethrough inserted, a releasing device comprising an externally-threaded support, and a sleeve or nut mounted on and engaging with the threads of said support, connections between said nut and the detaining devices for moving the latter out of operative position by movement of the former along the threads, gear teeth upon said nut and a relatively small pinion meshing with said teeth, said pinion being provided with means whereby the same can be rotated by the operator.

15. The combination, of an alarm signaling-box having an opening in one wall through which access is had to the signal mechanism, detaining devices movable toward and from each other and extending into the line of said opening, a support secured to said box-wall about the opening therein, a sleeve slidable upon said support and connected with said detaining devices, and means under the control of the operator for moving the sleeve on its support and imparting movement to the detaining devices, substantially as described.

16. The combination, in an alarm signaling-box having a door, of a signal-operating member, a wall having an opening therein, detaining devices arranged about said opening for engaging a hand inserted therethrough, a lock for said door, connections between the signal-operating member and the lock whereby when the signal-operating member is moved the lock is released, and mechanism for moving the detaining devices into inoperative positions, substantially as described.

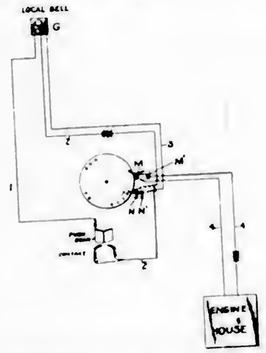
17. The combination with an alarm signaling apparatus, including a metal door through which access is had to the signaling mechanism, and a contact member adapted to be engaged by the door when the same is opened, of a local electrically-operated signaling apparatus, one of the wires from said local signaling apparatus being connected to the door and the other wire being connected to the said contact member, substantially as described.

18. The combination in an alarm signaling-box of a signal-operating member, a wall having an opening therein, a casing about said opening, said casing having an opening provided with a door, an opening in the wall against which the door opens, means for yieldingly holding the door in closed position, and a member projecting from said door and adapted when the door is opened to project through the said opening in the casing-wall, substantially as described.

19. The combination with a box inclosing a signal apparatus of an alarm system, of a supplemental casing secured to the door of the box, a door for normally closing an opening in said supplemental casing through which an operator's hand must be passed before the signal apparatus can be actuated, and a local electric circuit, including a bell, adapted to be closed by opening said door in the supplemental casing, substantially as described.

20. The combination with a box inclosing a signal apparatus of an alarm system, of a supplemental casing secured to the door of the box, a door for normally closing an opening in the lower side of said supplemental casing and which must be opened before the signal apparatus can be actuated, and a local signal adapted to be sounded by the opening of said door in the supplemental casing, substantially as described.

640,873. FIRE-ALARM SYSTEM AND APPARATUS. LOUDOUN CAMPBELL, Washington, D. C., assignor of one-half to Robert J. Thomas, same place. Filed Sept. 26, 1899. Serial No. 731,770. (No model.)



Claim.—1. The combination with a fire-alarm box having a door through which access is had to the signal mechanism, of a supplemental door through which access is had to the fastening device of the box-door, and an electric alarm or signal device adapted to be sounded when said supplemental door is opened.

2. The combination with a fire-alarm box, having a door through which access is had to the signal mechanism, of a supplemental door through which access is had to the fastening device of the box-door, an electric alarm or signal device supported above the box, and an electric circuit including said signal device and the supplemental door, whereby when the said door is opened the alarm will be sounded.

3. The combination with a fire-alarm box, of a casing secured to the door of said box and surrounding the devices for actuating the fastening of said door, a door through which access is had to said casing, and an electric alarm or signal device adapted to be sounded when the door of said casing is opened.

4. The combination with a fire-alarm box having a hinged door, of a casing secured to said door and surrounding the key therein, a door for said casing, an electric alarm or signal device adapted to be actuated by the opening of said casing-door, and supplemental means for continuing the sounding of said alarm when the door of the casing is closed, and the door of the box is being opened.

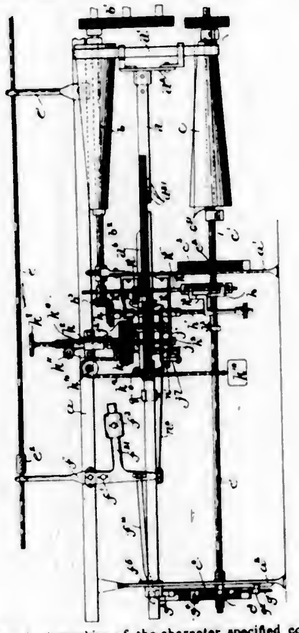
5. The combination with a fire-alarm box, of a casing secured to the door of said box and surrounding the device for actuating the fastening devices thereon, a normally-closed swinging door for said casing, and an electric alarm or signal device having one terminal of its controlling-circuit connected with said door of the casing and its other terminal connected with an insulated contact within said casing in the path of said door, whereby when the door of the casing is opened to unfasten the door of the box said alarm or signal device will be actuated.

6. The combination with a fire-alarm box, of a casing secured to the door of said box about the lock-controlling devices thereon, a door for closing said casing, an electric alarm or signal device having one terminal of its controlling-circuit connected with the door of the box and with said casing and its other terminal connected with a contact arranged within said casing in the path of the door thereof and with a movable bar or member movable by the lock, and a stud or stop electrically connected with the door of the box and extending into the path of said movable bar.

7. The combination with a fire-alarm box, of an electric signal or alarm arranged adjacent to said box, a circuit, including said local alarm, adapted to be controlled by movement of the door of the box, and a second circuit including said local alarm adapted to be controlled by the alarm apparatus within the box.

8. In a fire-alarm system, the combination with a main electric, normally-closed, alarm-circuit, a local alarm arranged adjacent to each box, and a signal apparatus arranged within the box and including a revoluble circuit-breaker adapted at each revolution to engage with contact-terminals of both the main and local alarm-circuits, one of the terminals of the main alarm-circuit within each box being adjustable whereby it can be moved out of the path of the circuit-breaker without interrupting the circuit in which it is included.

640,874. ROVING-MACHINE. MALCOLM CAMPBELL, Boston, Mass. Filed Feb. 20, 1899. Serial No. 706,118. (No model.)



Claim.—1. A machine of the character specified comprising a cone-belt-shifting device, an automatic stop-motion, and mechanism

for preventing a manual operation of said device during the operation of the machine, said mechanism being independent of and operable without interfering with the stop-motion.

2. A machine of the character specified comprising a reciprocatory frame for carrying the bobbins; a stop-motion operable automatically by said frame; a cone-belt-shifting device including a longitudinally-movable bar, and a lock for preventing tampering with said device, said stop-motion being operable independently of said belt-shifting device except at predetermined points in the travel of said bar.

3. A machine of the character specified comprising a reciprocatory frame for carrying the bobbins, a stop-motion controlled by said frame, a cone-belt-shifting device comprising a traveling rack, and a contact-gear, and means for automatically locking said gear in mesh with said rack.

4. A machine of the character specified comprising a reciprocating frame for carrying the bobbins, a stop-motion controlled by said frame, a cone-belt-shifting device comprising a traveling rack, and a contact-gear; means for automatically locking said gear in mesh with said rack, and connections between said gear and said stop-motion.

5. A machine of the character specified, comprising a reciprocatory frame for carrying the bobbins, a stop-motion controlled by said frame, a cone-belt-shifting device comprising a traveling rack, and a contact-gear, and means controlled by said rack for automatically locking said gear in mesh with said rack.

6. A machine of the character specified comprising a reciprocatory frame for carrying the bobbins, a stop-motion controlled by said frame, a cone-belt-shifting device comprising a traveling rack, a contact-gear, and a swinging support for said gear; and means for automatically connecting said support with said stop-motion.

7. A machine of the character specified comprising a reciprocatory frame for carrying the bobbins, a stop-motion controlled by said frame, a cone-belt-shifting device comprising a traveling rack, a contact-gear, and a swinging support for said gear; and means including a latch normally disconnected from said support, for automatically connecting said support with said stop-motion

8. A machine of the character specified comprising a reciprocating frame for carrying the bobbins; a stop-motion; means operable by said frame to control the operation of said stop-motion when said frame passes beyond its normal extreme of movement; a cone-belt-shifting device including a swinging contact-gear, a cone-belt rack, and a cam on said rack for automatically locking said gear in and releasing it from mesh with said rack; and means for automatically connecting said gear with said stop-motion while the latter is out of mesh with said rack.

9. A machine of the character specified comprising a cone-belt rack, a contact-gear, means independent of the stop-motion for holding said gear in mesh with said rack, said means having provisions for automatically releasing said gear from said rack.

10. A machine of the character specified comprising a cone-belt rack, a contact-gear, and means coacting with said rack for holding the gear in contact therewith.

11. A machine of the character specified comprising a cone-belt rack, a contact-gear, a swinging support having a roller, and a cam on said rack, said parts being combined whereby said gear is automatically moved into and out of engagement with said rack.

12. A machine of the character specified comprising a stop-motion; a belt-shifting device, and means for automatically connecting said device to and disconnecting it from said stop-motion.

13. A machine of the character specified comprising a stop-motion; a belt-shifting device; and means controlled by the last-mentioned device for automatically connecting it to and disconnecting it from said stop-motion.

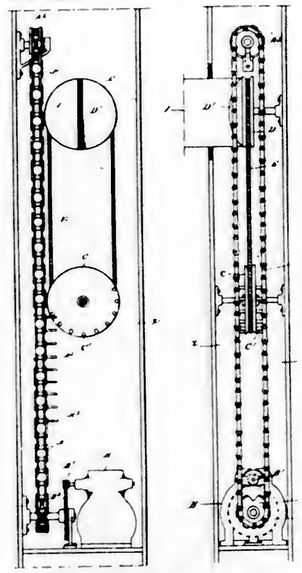
14. A machine of the character specified comprising a stop-motion; a belt-shifting device, including a rack and a swinging contact-gear; and means for automatically connecting said contact-gear with said stop-motion.

15. A machine of the character specified comprising a stop-motion; a belt-shifting device including a rack and a swinging contact-gear; and a latch controlled by said rack for automatically connecting said gear to and disconnecting it from said stop-motion.

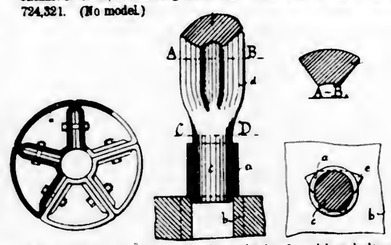
16. A machine of the character specified comprising a stop-motion including a weighted swing-lever; a cone-belt-shifting device including a movable contact-gear and a rack; a lever for throwing said gear out of contact with said rack; a latch connected to said swing-lever and adapted to operatively engage said gear-throwing lever, and means for automatically operating said latch.

640,875. ADVERTISING DEVICE. EDGAR CHERRY, San Francisco, Cal. Filed June 5, 1899. Serial No. 719,506. (No model.)

Claim.—In a mechanism such as described, the combination with a wheel having pins extending in a peripheral arc, one-half the circumference of, and alined on both sides of the said wheel; an endless sprocket-chain having a series of pins extending therefrom, and adapted to engage the pins on the wheel, said sprocket-chain so mounted that its direction of motion carries the series of pins thereon upward on the one side, and downward on the opposite side of the said wheel; and an actuating mechanism for said sprocket-chain, substantially as described.

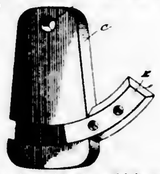


640,876. METHOD OF MAKING BELT-PULLEYS. RUDOLF CHILLINGWORTH, Nuremberg, Germany. Filed July 18, 1899. Serial No. 724,321. (No model.)



Claim.—The herein-described method of making belt-pulleys consisting in expanding a series of tubular sections into segmental shape and securing said sections together to form the complete pulley, substantially as described.

640,877. VEHICLE-SEAT FASTENER. JOHN A. COSS and FRANK G. PARSHALL, Phœnix Mills, N. Y. Filed Apr. 21, 1899. Serial No. 713,988. (No model.)



Claim.—The combination with the vehicle seat and body of the locking or clamping plate pivotally secured to the side of the seat and having a segmental dovetailed groove or recess in its inner face, and a segmental bar or cleat secured to the side of the body and dovetailed to correspond with the segmental groove in the plate, said cleat being adapted to fit in said groove, substantially as described.

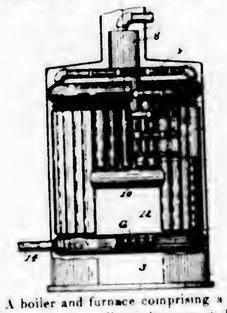
640,878. MEANS FOR HARVESTING COTTON. MICHAEL S. CURLEY, Paducah, Ky. Filed Apr. 29, 1899. Serial No. 715,020. (No model.)



Claim.—1. A pneumatic harvester for cotton, comprising a handpiece adapted to be attached at its rear end to a flexible air-blast conductor and being of length sufficient to be held in the hand of the operator and provided at its front end with a downcurved tapering nozzle, a longitudinal air-passage intercepted by a partition having a valve-seat located at or near the junction of the handpiece and nozzle, a threaded opening of uniform diameter in line with the valve-seat, a stemmed valve coöperating with the valve-seat and having its stem projecting through the opposite wall of the handpiece in line with said threaded opening, a spring for holding the valve seated, and a plug threaded into the said opening and having a recess in its inner end to receive the spring, said plug being of uniform diameter throughout and adapted to regulate the tension of the spring and to be turned up against the valve to hold it from unseating when pressing upon the valve-stem, substantially as described.

2. A pneumatic harvester for cotton, comprising an elongated handpiece of proper length to be firmly grasped and held in the hand of the operator and adapted to be attached at its rear end to a flexible air-blast conductor and provided at its front end with a downcurved tapering nozzle, and a valve having an exterior operating device and located at or near the junction of the handpiece and nozzle for regulating the passage of air therethrough.

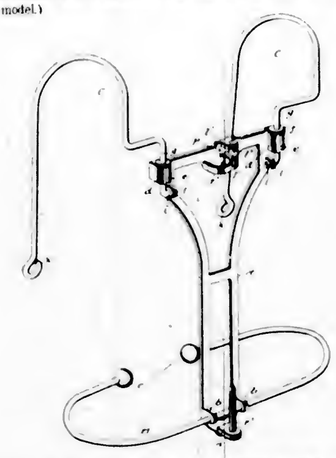
640,879. WATER-TUBE BOILER. GEORGE M. DAVIS, Hartford, Conn. Filed Mar. 22, 1899. Serial No. 710,072. (No model.)



Claim.—1. A boiler and furnace comprising a base; a horizontally-disposed wrought-metal endless tube supported on said base and having a water-supply pipe in communication therewith; a multiplicity of vertically-disposed wrought-metal tubes disposed in the arc of a circle about a common center; a horizontally-disposed endless tube supported above and in concentric relation with the lower endless tube; a series of hollow couplings adjustably connecting the upper and lower ends of the vertical tubes to the upper and lower endless tubes respectively; a steam-dome vertically disposed within the circle described by the vertical tubes; a multiplicity of radially and horizontally disposed tubes communicating with the steam-dome and vertical tubes; a steam-pipe communicating with the steam-dome; and a grate supported within the circle described by the vertical tubes.

2. A boiler and furnace comprising a base; a horizontally-disposed wrought-metal endless tube supported on said base and having a series of tapered screw-threaded openings in the upper wall thereof; a superposed endless tube having a series of tapered screw-threaded openings in the lower wall thereof, a multiplicity of concentrically-disposed cross-sectionally circular vertical wrought-metal tubes interposed between the upper and lower horizontal tubes and having screw-threaded openings in the upper and lower ends thereof to receive couplings; hollow couplings screwed into the upper and lower ends of said vertical tubes and having tapered externally-screw-threaded outer ends fitting the tapered screw-threaded openings in the upper and lower horizontal tubes respectively; a grate supported within the circle described by the vertical tubes; a casing surrounding the vertical and horizontal tubes; a steam-dome vertically disposed in the center of the arc described by the vertical tubes; a multiplicity of radially-disposed tubes communicating with the steam-dome and vertical tubes; a water-supply pipe communicating with the lower endless tube; a steam pipe communicating with the steam-dome; and a grate supported within the circle described by the vertical tubes.

640,880. UMBRELLA-HOLDER. JAMES A. DAWSON and PHILIP P. BEYERBACK, New Orleans, La. Filed July 8, 1899. Serial No. 723,174. (No model.)



Claim.—1. An umbrella-holder comprising a body having an opening and lugs disposed above and below the opening, a pin arranged in the lugs of the body, a vertically-movable hook loosely mounted on said pin and having a square surface adapted to engage that of the body, said hook being adapted to engage an umbrella-handle, means for connecting the lower end of an umbrella-handle to the body, a spring clip connected to said body and arranged to embrace the waist of the user, and spring-clips connected to the body and arranged to grasp the shoulders of the user, substantially as specified.

2. An umbrella-holder comprising a body having apertured lugs *j* and also having apertured lugs *d* provided with slots *e*, bushings loosely arranged in the apertures of lugs *d* and having portions bearing on said lugs, shoulder-engaging clips having vertical portions extending through the bushings and the apertures of lugs *d* and also having angular arms arranged in the apertures of lugs *j*, and suitable means for connecting an umbrella to the body, substantially as specified.

3. An umbrella-holder comprising a body having an opening and lugs disposed above and below the opening, means for holding said body on the body of a person, a pin arranged in the lugs of the body, and a hook loosely mounted on said pin and having a square surface adapted to engage that of the body, substantially as specified.

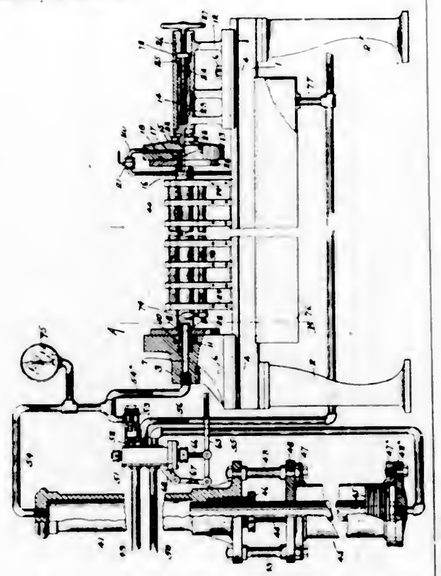
640,881. HYDRAULIC TUBE-TESTING MACHINE. FERDINAND DEMING, Waterbury, Conn., assignor, by mesne assignments, to Mamie B. Clowes, same place. Filed Nov. 27, 1897. Serial No. 659,962. (No model.)

Claim.—1. In a tube-testing machine, a series of tube-rests having lower members, upper members hinged thereto, a half-box fitted into each of the said members, a latch device attached to each of said rests and adapted to secure the said lower and upper members in a locked position and mechanism adapted to free all of said latch devices at one and the same time and thereby unlock the said members from their locked engagement, substantially as set forth.

2. In a tube-testing machine, the combination with a head-stock provided with a flexible face attachment and having a central bore therethrough, a nipple in one end and an inlet-pipe secured in the other end of said bore, of a tail-stock, an adjustable plate having a flexible face attachment and centering devices, mounted on the spindle in said tail-stock so that it may adjust itself to any angle from the axis of said spindle, a series of tube-rests joined together and adapted to be opened and closed synchronously, the head and tail stock and the said tube-rests being mounted upon a common bed and having an unlimited adjustment thereon, substantially as set forth.

3. In a tube-testing machine, in combination with the rails 1 1 supported by the legs 2 2 at either end thereof, of a head-stock 3 having a centering device in the face thereof, a tail-stock 12, an adjustable plate 13, a series of tube-rests 29 joined and operated together and a trough 76 suspended from said rails, substantially as set forth.

4. In a tube-testing machine, the combination of a series of tube-rests, the lower portions of which are united by the tie-bar 33 and the upper portions united by the tie-bar 34, the said rests comprising a lower portion 30, an upper portion 31 hinged to said lower portion half-boxes 36 36ª fitted into each of the said upper and lower portions, latch 38 rigidly secured to said lower portion, a rock-shaft 39 having bearings within said lower portion and extending throughout the series of tube-rests, cams 40 upon the said rock-shaft and handles 40ª by means of which the said rock-shaft is caused to operate, substantially as set forth.



5. In a tube-testing machine, the combination of an intensifier-accumulator, mechanism for supporting the tube at both ends thereof, means for conveying water into the said tube and the upper cylinder of the said accumulator, means for conveying water into the lower cylinder of said intensifier-accumulator, mechanism for shutting off the supply of water from said tube and said upper cylinder simultaneously with the opening of the supply to the lower cylinder, substantially as set forth.

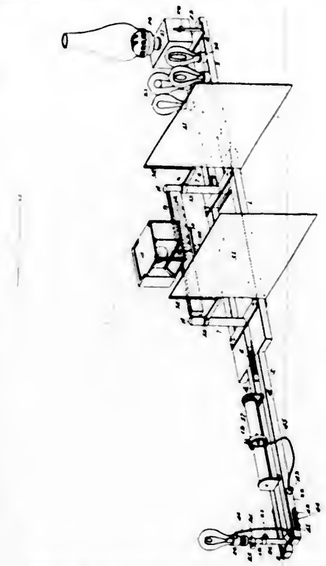
6. In a tube-testing machine, the combination of an intensifier-accumulator, tube-supporting mechanism comprising a head-stock and a tail-stock, an adjustable plate upon the spindle of said tail-stock, pipe connections between the upper cylinder of the said accumulator and the said head-stock, a valve located between the sources of water-supply and the tube-supporting mechanism constructed and operating substantially as described, pipe connections from said valve to the upper and lower cylinders of said accumulator and a check-valve between the said valve and the upper cylinder, all constructed and operating substantially as set forth.

640,882. PHOTOMETER. CHARLES DESSLER, New Brunswick, and EDWIN J. MCALLISTER, Newark, N. J. Filed June 16, 1898. Serial No. 683,632. (No model.)

Claim.—1. As a new article of manufacture, a photometer for testing incandescent electric lamps and comprising a main section carrying a spot-box and scale, and two supplemental sections movable with respect to the main section, one of said supplemental sections carrying a standard light and the other carrying the electric light to be tested, a rheostat, and connections for a voltmeter and ammeter, substantially as set forth.

2. As a new article of manufacture, a photometer for testing incandescent electric lamps and comprising a main section carrying a spot-box and scale, and two supplemental sections movable with respect to the main section, one of said supplemental sections carrying a standard light and the other carrying the electric light to be tested, a rheostat, and connections for a voltmeter, an ammeter and a wattmeter, substantially as set forth.

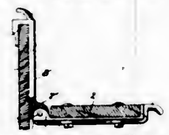
3. As a new article of manufacture, a photometer for testing incandescent electric lamps and comprising a main section carrying a spot-box and scale, and two supplemental sections movable with respect to the main section, one of said supplemental sections carrying a standard light and the other carrying the electric light to be tested, a rheostat, connections for an ammeter, and a switch for short-circuiting said ammeter, substantially as set forth.



4. As a new article of manufacture, a photometer for testing incandescent electric lamps and comprising a main section, two vertical standards carried by said main section, a spot-box and scale carried by said standards, two supplemental sections each comprising two parallel strips, one of said sections carrying a standard light and the other carrying the light to be tested, and means for removably securing said supplemental sections to the main section, whereby the supplemental sections may be removed and nested upon the main section with the parallel strips thereof extending on either side of the scale-supporting standards, substantially as set forth.

5. As a new article of manufacture, a photometer for testing incandescent electric lamps and comprising a main section, two vertical standards carried by said main section, a spot-box and scale carried by said standards and capable of being inverted with respect to the same, two supplemental sections each comprising two parallel strips, one of said sections carrying a standard light and the other carrying the light to be tested, and means for removably securing said supplemental sections to the main section, whereby the supplemental sections may be removed and nested upon the main section with the parallel strips thereof extending on either side of the scale-supporting standards, substantially as set forth.

640,883. FOOTBOARD FOR VEHICLES. HERMAN DEUSE, Kendall, Ill. Filed May 13, 1899. Serial No. 716,700. (No model.)



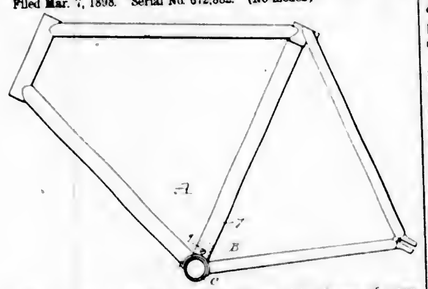
Claim.—1. A device of the class described, comprising hinges, and a footboard connected to the movable members thereof, the stationary members being adapted to be connected to the dashboard of a wagon-body and provided with spaced bearing-ears, and the movable members being provided with segmental lugs having flattened faces and adapted to be pivoted between the ears of the respective stationary members, whereby the flattened faces of said ears are adapted to engage the stationary members and thereby form stops to hold the footboard in a horizontal position, substantially as shown and described.

2. A device of the class described, comprising hinges, and a footboard connected to the movable members thereof, the stationary members being adapted to be connected to the dashboard of a wagon-body, hooked lugs provided at the opposite ends of the hinged mem-

bers, and rings or links adapted to embrace the respective pairs of hooked lugs so as to hold the footboard in its folded position, substantially as shown and described.

3. A device of the class described, comprising a pair of duplicate hinges, and a flat footboard connected to the movable members of the hinges, each stationary member being provided at its upper end with an angular hook adapted to engage the upper edge of the dashboard of a wagon-body and a hooked lug projecting beyond the end of the member, the opposite end thereof being provided with spaced bearing-ears, each movable member having at one end a segmental lug provided at its outer end with a flattened face and adapted to be pivoted between the respective ears of the stationary members, whereby the flat portion of the lug is adapted to engage the stationary member and form a stop, the opposite end of the movable member being provided with a transverse shoulder adapted to embrace the outer edge of the footboard and having an outwardly-projecting hooked lug, and rings or links adapted to embrace the respective pairs of hooked lugs, whereby the footboard may be held in its folded position, substantially as shown and described.

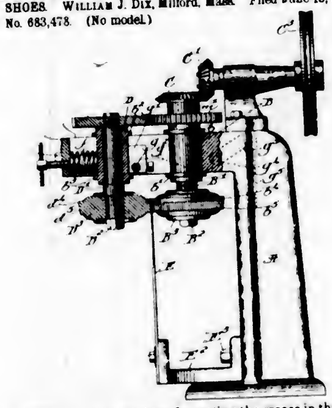
640,884. BICYCLE. CHARLES S. DIKEMAN, Torrington, Conn. Filed Mar. 7, 1898. Serial No. 672,882. (No model.)



Claim.—1. In a bicycle, the combination with a frame, of a connection for securing certain of the tubes of the frame together, said connection having an open half-round socket, and a hanger comprising a barrel and shank, the barrel fitting the socket and the shank entering one of the tubes of the frame and removably secured therein.

2. In a bicycle, the combination with a frame, and a connection comprising the rounded socket portion and thimbles secured in the contiguous ends of certain tubes forming the frame, a hanger comprising a barrel and shank adapted to enter the socket portion and one of the tubes respectively and means for holding the hanger removably in place.

640,885. APPARATUS FOR FOLDING TOPS OF BOOTS OR SHOES. WILLIAM J. DIX, Milford, Mass. Filed June 15, 1898. Serial No. 683,478. (No model.)



Claim.—1. In a machine for setting the crease in the tops of boots or shoes, a thin-edged work-support or horn adapted to receive upon it and support the material to be folded and creased combined with mechanism near the end of said horn to engage the folded material only at or near the line of said crease to pinch and flatten the same; substantially as described.

2. A thin-edged horn adapted to receive upon it and support the material to be folded, and creased, combined with rolls located on opposite sides of said horn and near the end thereof to engage the folded material only at or near the crease thereof to pinch and flatten the same, a spring-controlled bearing supporting the shaft of one of said rolls and normally acting to keep the rolls pressed one toward the other; substantially as described.

3. A thin-edged horn adapted to receive upon it the material to be folded and creased, combined with a pair of rolls having their peripheries somewhat cut away or reduced to leave a tapering opening between them in which the folded part of the material may enter readily and be pinched, said rolls also acting to feed the material off from said horn, substantially as described.

4. In an apparatus for creasing leather, a work-support or horn having its upper edge beveled to receive upon it and support a fold of the material, combined with feeding-rolls to nip the material only at the crease or fold thereof and at a point close to the line of said edge to flatten and pinch the material in the line of the upper beveled edge of said horn, substantially as described.

5. In a machine of the class described, two shafts, each having a roll, a portion of the surface of each roll, being truncated, gearing applied to said shafts and meshing together to insure their rotation in unison, means to move one of said shafts positively, and a thin-edged horn to support the material to be folded and start the fold preparatory to the material being acted upon by the said rolls, substantially as described.

6. In a machine of the class described, a pair of rolls each having a truncated periphery, means to cause said rolls to be borne one toward the other by a yielding pressure, combined with an adjustable thin-edged horn, the adjustment of said horn vertically enabling the apparatus to be adapted to fold material of any thickness, substantially as described.

7. In a machine of the class described, two vertical shafts each provided with a roll having at its upper side a chamber to receive oil which may drip down from the shafts, said chambers obviating the escape of oil onto the exterior of the rolls, substantially as described.

8. A thin edged work-support or horn adapted to receive upon it the material to be folded or creased, combined with rolls located on opposite sides of said horn to engage said material and pinch, flatten, and crease it together, the axes of said rolls being parallel to the plane of the horn; substantially as described.

640,886. ACETYLENE-GAS TIP. EDWARD J. DOLAN, Philadelphia, Pa. Filed Jan. 3, 1899. Renewed Aug. 16, 1899. Serial No. 727,444. (No model.)



Claim.—1. A burner-tip for acetylene gas, the same consisting of a body portion provided with a gas-chamber, a gas-passage communicating with said chamber, a slot leading outward from said chamber, said slot having a width of less than fourteen one-thousandths ($\frac{14}{1000}$) of an inch, a radius of less than three-sixteenths ($\frac{3}{16}$) of an inch, and having a depth of less than thirty one-thousandths ($\frac{30}{1000}$) of an inch, substantially as described, and for the purpose specified.

2. A burner-tip for acetylene gas, the same consisting of a body portion provided with a gas-chamber, a gas-passage communicating with said chamber, a slot leading outward therefrom, said slot having a width of less than fourteen one-thousandths ($\frac{14}{1000}$) of an inch, a radius of less than three-sixteenths ($\frac{3}{16}$) of an inch, and a depth of less than thirty one-thousandths ($\frac{30}{1000}$) of an inch, the side walls at the upper extremity of the slot being beveled outwardly to form a seat for the flame, of greater width than the slot, substantially as described, and for the purpose specified.

3. A gas-tip of the dimensions described in combination with a gas-chamber intersecting at right angles the gas-outlet, said gas-chamber being of greater length than width.

640,887. ACETYLENE-GAS BURNER. EDWARD J. DOLAN, Philadelphia, Pa. Filed Jan. 10, 1899. Renewed Sept. 16, 1899. Serial No. 730,770. (No model.)

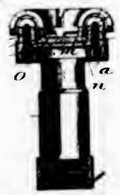


Claim.—1. A gas-burner comprising a base portion or pillar and two curved or angular arms extending therefrom with their free ends approaching each other and having gas-passages communicating with a contracted slot and an enlarged flame-seat extending therefrom, as set forth.

2. A gas-burner of the character described consisting of a base portion or pillar and two curved or angular arms connected therewith and having gas-passages opening at their upper ends into opposite sides of a contracted slot, the ends of the said arms being inclined outwardly from the outer edge of the slot to produce a flame-seat separated from the entrance to the slot, substantially as specified.

3. In a gas-burner of the character described, a base portion or pillar and two arms extending therefrom and having their free ends approaching each other and having gas-passages which open into and communicate with a contracted slot and a surrounding inclined flame-seat beyond the said slot substantially as and for the purpose specified.

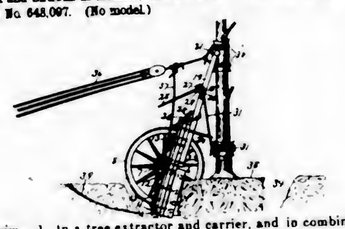
640,888. ACETYLENE-GAS BURNER. EDWARD J. DOLAN, Philadelphia, Pa. Filed Feb. 23, 1899. Renewed Nov. 22, 1899. Serial No. 737,964. (No model.)



Claim.—1. The combination with a burner-tip having a gas-chamber and a plurality of contracted slots leading therefrom, of a cap conforming in shape to the lower tip and having an annular arched portion with slots corresponding to those of the burner-tip and disposed with its base fitting a depression of the burner-tip, as shown and described.

2. The combination with a burner-tip having a gas-chamber and a plurality of contracted slots, of a cap with an arched portion with slots in vertical line with the slots in the burner-tip, a base portion fitted in a depression of the burner-tip and arms joining the base and arched portion to leave an air-space for the introduction of air between the slots of the tip and cap, substantially as specified.

640,889. TREE EXTRACTOR AND CARRIER. ARTHUR U. DUNBAR and SAMUEL R. MILLER, Galesburg, Ill. Filed Aug. 13, 1897. Serial No. 648,097. (No model.)



Claim.—1. In a tree extractor and carrier, and in combination, substantially as described, a truck, a platform supported on the axle thereof and projecting forwardly and rearwardly therefrom and constituting a support which carries the weight of the roots of the tree, and a frame mounted on said platform and projecting in rear thereof.

2. In a tree extractor and carrier, and in combination, substantially as described, a truck, a platform supported on the axle thereof and projecting forwardly therefrom substantially horizontal in its normal position and constituting a support which carries the weight of the roots of the tree a frame hinged on said platform, and means for retaining said frame in inclined adjusted positions.

3. In a tree extractor and carrier, and in combination substantially as described, a truck, a platform mounted on said truck and projecting forwardly and rearwardly therefrom substantially horizontal in its normal loaded position as a support on which the roots of the tree rest, a frame hinged on said platform and adjustably connected therewith whereby one of its ends may be raised and lowered, and means for fixing said frame to said platform in its adjusted position.

4. In a tree extractor and carrier, and in combination, substantially as described, a truck, a platform mounted on said truck and projecting forwardly and rearwardly therefrom substantially horizontal in its normal loaded position as a support on which the roots of the tree rest, a frame adjustably connected with said platform whereby one of its ends may be raised and lowered, means for fixing said frame relatively to said platform, and a windlass and rope for connecting said frame with the lower part of the tree.

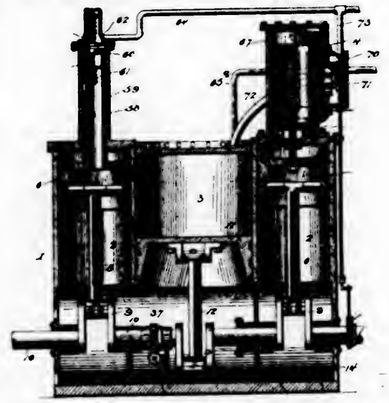
5. In a tree extractor and carrier, and in combination, substantially as described, a truck, a platform mounted on said truck to be substantially horizontal in its normal loaded position, a frame mounted on said platform and hinged thereto at one of its ends, guide-loops in which the side bars of said frame move up and down, and a block removably seated between said frame and said platform, whereby said frame can be adjusted in different angular relations to said platform by the use of blocks of different thicknesses.

6. In a tree extractor and carrier, and in combination, substantially as described, forward and rear trucks, a coupling pole connecting said trucks, a platform mounted on the rear truck and projecting forwardly and rearwardly therefrom substantially horizontal in its normal loaded position as a support on which the roots of the tree rest, a frame mounted on said platform and projecting in rear thereof, whereby said frame and platform serve as a derrick in extracting the tree from the ground.

7. In a tree extractor and carrier, and in combination substantially as described, forward and rear trucks, a coupling-pole connecting said trucks, a platform mounted on the rear truck and projecting forwardly and rearwardly therefrom substantially horizontal in its normal loaded position as a support on which the roots of the tree rest, a frame adjustably mounted on said platform, means for fixing said frame relatively to said platform, a windlass mounted on said frame, a rope connecting said windlass with the lower part of the tree, and tackle, whereby said rear truck, platform and frame are drawn over as a derrick to extract a tree which is connected therewith.

8. In a tree extractor and carrier, and in combination, substantially as described, a truck, a platform supported on said truck and projecting forwardly and rearwardly of the axle thereof substantially horizontal in its normal loaded position and constituting a support on which the roots of the tree rest, a frame carried by said platform and projecting rearwardly therefrom, and a windlass and rope for connecting said frame with the lower part of the tree.

640,890. AIR AND GAS ENGINE. JOHN W. EISENHUTH, New York, N. Y., assignor to Mamie G. Read, same place. Filed June 14, 1899. Serial No. 720,593. (No model.)



Claim.—1. In an air and gas engine, the combination with high and low pressure cylinders, of an air-cylinder arranged upon one end of one of the high-pressure cylinders, the piston of which is connected up with the piston of the high-pressure cylinder, an air-compressor mounted upon the end of the other high-pressure cylinder, means for storing the air compressed, and piping for leading the compressed air to the air-cylinder or to the low-pressure cylinder as may be desired, substantially as described.

2. In a gas-engine, the combination with two high-pressure cylinders and one low-pressure cylinder, a main shaft connected with the pistons in the said cylinders, a casing inclosing the said shafts and cranks carried thereby, a compartment formed beneath one of the said high-pressure cylinders and provided with inlet and outlet valves, a heating-compartment connected with the said compartment in the casing, means for conducting the exhaust from the low-pressure cylinder to the said heating-compartment, the construction being such that the operation of the pistons in the high-pressure cylinders will tend to produce a vacuum in the casing so as to pump the exhaust

from the said chamber into the casing and force the same out in the open air, substantially as described.

3. In a gas-engine, the combination with high and low pressure cylinders, of an air-compressor connected with one of the said high-pressure cylinders and comprising a cylinder extension formed upon one end of the said compression-cylinder, a piston extension formed upon the piston of the said cylinder, a valve in the end of the said piston extension, a valve controlling the end of the said cylinder extension, means for connecting the said outlet from the said cylinder extension with a suitable reservoir or tank, and means for admitting explosive mixtures to the high-pressure cylinders for operating them, the construction being such that as the high-pressure cylinders reciprocate, the piston extension will be so reciprocated in the cylinder extension as to compress air and force the same into suitable reservoirs for further use, substantially as described.

4. In a gas-engine, the combination with suitable cylinders adapted to be operated by an explosive mixture, of an air-cylinder arranged upon the end of one of the said explosive-mixture cylinders, a piston moving in the said air-cylinder and connected with the piston in the explosive-mixture chamber, a valve-chest connected with each end of the said air-cylinder and means for admitting compressed air or other pressure to the said valve-chest, the construction being such that the piston in the air-cylinder will assist the piston in the explosive-mixture cylinder in running the engine, substantially as described.

5. In an air and gas engine, the combination with suitable cylinders, of a compressor attached to the piston of one of the cylinders, a compressed-air piston connected with another cylinder, reservoirs for collecting air which is compressed and piping for leading the said air to the air-operated cylinder for assisting in the operation of the engine, and means for conducting the exhaust from the air-cylinder, to one of the cylinders of the engine for further assisting in the operation thereof, substantially as described.

6. In an air and gas engine, the combination with high and low pressure cylinders, of pistons operating therein, an air-compressor mounted upon one of the said cylinders, an air-operated cylinder mounted upon another of the said cylinders, reservoirs for receiving the air which is compressed, piping for conducting the compressed air to the air-cylinder, a heating-compartment surrounding a portion of the said piping and adapted to receive the exhaust from the low-pressure cylinder, means for piping the said exhaust to the air-cylinder, a heating-compartment inclosing a portion of the said piping, means for pumping the exhaust from the low-pressure cylinder through the said compartment, whereby the heat of the said exhaust will be imparted to the compressed air for giving it further expansive power, substantially as described.

7. In an air and gas engine, the combination of high and low pressure cylinders, of means for compressing air in suitable reservoirs, means for admitting compressed air to the low-pressure cylinder for starting the engine, a valve controlling the admission of the said compressed air, the stem of the said valve extending opposite the casing, a pivoted end portion mounted upon the said valve-stem and a valve-operating rod for lifting the said valve, the construction being such that when the pivoted end of the valve-stem is in its straightened position, the valve will be operated to admit air to the low-pressure cylinder and when the said pivoted end is turned upwardly, the said valve will cease to be operated, substantially as described.

8. In a compound air and gas engine, the combination with high-pressure gas-cylinders, of a low-pressure cylinder adapted to receive the exhaust therefrom, an air-pressure cylinder also adapted to exhaust into the said low-pressure cylinder, the same low-pressure cylinder receiving the exhaust from both the air-cylinder and the gas-cylinders, substantially as described.

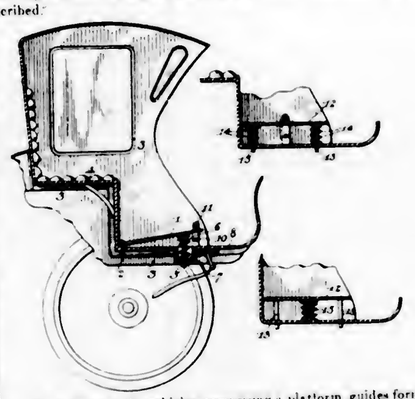
9. In a compound gas and air engine, the combination with high-pressure gas-cylinders and high-pressure air-cylinders, of a low-pressure cylinder adapted to receive and be operated by the exhaust from both the high-pressure gas-cylinders and the high-pressure air-cylinders, and a vacuum-chamber for drawing the exhaust from the said low-pressure cylinder, substantially as described.

640,891. FOOTBOARD FOR VEHICLES. JOHN W. EISENBUTH, New York, N. Y., assignor to Mamie G. Read, same place. Filed Oct. 19, 1899. Serial No. 734,055. (No model.)

Claim.—1. A foot-rest or platform for vehicles, comprising a footboard, springs arranged beneath the same to hold it normally in its upper position, and a detent for holding it in its lowered position, substantially as described.

2. A foot-rest or platform for vehicles, comprising a platform proper, guides secured to the under sides of the said platform and passing through apertures in the floor of the vehicle, springs interposed between the floor and the platform for elevating the latter, and one or more detents for holding the platform in its lowered position, substantially as described.

3. A foot-rest for vehicles, comprising a platform pivoted at its rear edge, springs located beneath its forward edge, and a detent for holding the forward edge in its lowered position, substantially as described.

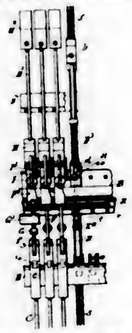


4. A foot-rest for vehicles, comprising a platform, guides formed upon the under side of the said platform, said guides passing through apertures in the floor of the vehicle, depressed portions surrounding the said guides forming recesses in the floor, coil-springs surrounding the said guides and resting in the said recesses, and means for holding the platform in its lowered position, substantially as described.

5. A foot-rest for vehicles comprising a platform, springs located beneath the same for elevating it, a spring-pressed detent adapted to engage the edge of the platform for holding it in its lowered position, and a press-button for disengaging the said detent when it is desired to release the platform, substantially as described.

6. A foot-rest for vehicles, comprising a series of platforms, springs for elevating the said platforms, depending side portions arranged at the meeting edges of the said platforms, and means for holding the said platforms in their lowered positions, the construction being such that when one platform is lowered, the depending sides will close the space between the two, substantially as described.

640,892. UPRIGHT-PIANO ACTION. WILLIAM C. ELLIS, Worcester, Mass., assignor of one-half to Samuel Mawhinney, same place. Filed Jan. 21, 1899. Serial No. 702,878. (No model.)



Claim.—1. In a piano-action, the lifter-rod provided with the threaded end, and the threaded adjusting-hub or foot-piece rotatable thereon, in combination with the key, and a fabric tab connecting said foot-piece and key, for the purpose set forth.

2. In a piano-action, the lifter composed of a wire screw-threaded at one end, and having a bifurcated wooden head with the pivot-bearings therein, arranged upon its upper end, and an adjusting-hub or foot-piece arranged on its lower end and adapted for varying the length of the lifter by rotation of the same; in combination with the manual-key and hammer-actuating appliances, substantially as set forth.

3. In a piano-action, a damper-actuator consisting of an angularly-bent wire lever fulcrumed at or near its angle-bend, the end of its fore arm pivoted in the upright lifter-head by a transverse pivot-pin, and its rear arm extending upward in front of the damper-lever, an adjusting-screw threaded through the upper end of said wire, and a non-metallic button carried by said screw and adapted for contact with said damper-lever, in combination with the lifter and damper mechanism, substantially as and for the purposes set forth.

4. The combination with the piano-action mechanism comprising the hammers, hammer-controlling devices, and lifters, and the damper-actuator levers: of the frame-bar carrying the damper-actuator fulcrums, said frame-bar being provided with a top rib or cushion adjacent beneath said actuator-levers, for the purpose set forth.

5. A hammer-actuating jack composed of wire, provided with a head formed of wood or similar material, said wire having its lower part pivoted in the bifurcated end of the lifter-rod head and its extremity bent upward and forward forming a tail for engagement with the knock-off stop; in combination with the lifter, the hammer, and the knock-off device, as set forth.

6. In a piano-action, the upright lifter-rod extending up from the key and having the pivot-supporting head thereon, the jack-rod pivoted directly in the bifurcated top end of said lifter-head, and having the forwardly and upwardly bent tail projecting therefrom, and the damper-actuator lever, fulcrumed upon a frame-bar in rear of said lifter, and having the end of its fore arm pivoted within said lifter-head adjacent below the jack-pivot, said fore arm of the damper-actuator serving as a stay to keep the lifter relatively upright; in combination with the action mechanism, substantially as set forth.

7. In an upright-piano action the combination with the pivoted hammer-butt carrying the hammer, and having the engaging shoulder and back cushion formed thereon as shown, of the hammer-actuating jack, its lower end bent, as at *f*, and its upper end provided with the head F having the inclined end surface 5, the heel 6, and the forwardly-inclined front surface 9, disposed in relation as specified, the hammer-stop consisting of a projecting rod or arm fixed in and carried by said hammer-butt, the lower part of said arm rearwardly returned and provided with a screw-thread, the adjusting-knob l arranged on the end of said arm, the face of said knob disposed opposite to the inclined jack-head surface 9, and adapted for stop contact therewith at an upper position on said surface when the hammer is advanced, and at a lower position on said surface when the hammer recedes, a knock-off for arresting the tail of the jack, and the lifter operating from the key and having said jack pivoted in its top end, all substantially as described.

8. The combination of the hammer having the hinging-butt, the hammer-stop carried by an arm fixed to said hammer-butt, the jack having an end surface that acts against the hammer-butt shoulder, and a forwardly-projecting face for engaging with said hammer-stop, a lug or pin on the jack-head, a hook or coupling secured to the hammer-butt and engaging beneath said lug for loosely connecting the jack and hammer-butt, the lifter-rod working said jack, and the knock-off for tripping said jack, substantially as set forth.

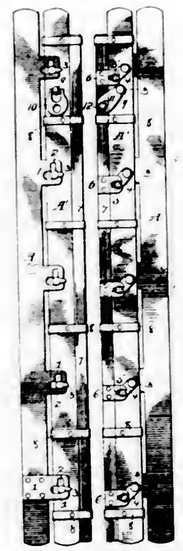
9. The combination with the manual-keys and a piano-action mechanism, of a transversely-disposed vertically-movable key-stop bar underlying the rear ends of the keys, a bed-cushion limiting the downward movement of said bar, an adjustable stop limiting its upward movement, adjusting-buttons arranged in the respective keys and stopping the same against said bar, and means under control of the player for raising and depressing said bar within the limit of its motion, for the purpose set forth.

10. The combination of the hammer and pivoted hammer-butt, the jack pivoted in the lifter-rod head, and having its top end acting against the shoulder on said hammer-butt, the hammer-stop opposite to said jack, coupling devices loosely connecting the jack and hammer-butt, the jack-tripping knock-off, the lifter-rod having the upright head and foot piece, the manual-key, means connecting said lifter-foot with the key, a movable key-stop bar, adjusting devices fitted in the keys and stopping against said bar, and means for operating said key-stop bar to vary the dip of the key and carry the lifter and jack devices higher or lower in relation to the hammer-axis, for the purpose set forth.

11. The combination with the damper retractor-rod R and damper-levers, of an auxiliary bar *r* attached to said retractor-rod, and provided with a series of horizontally-disposed screws, threaded into and adjustable through said auxiliary bar, their heads accessible at the front, and carrying at their rear ends contact-buttons for impingement against the respective damper-levers, and means for operating said retractor mechanism; substantially as set forth.

640,898. CORSET-FASTENER. EDGAR J. FINK, Hanover, Pa. Filed July 10, 1899. Serial No. 723,394. (No model.)

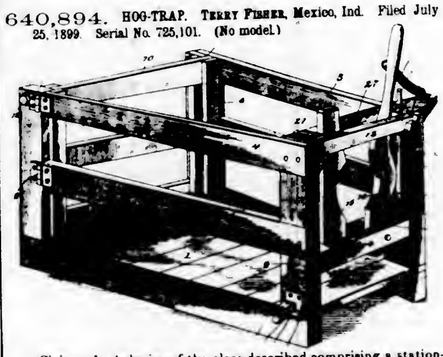
Claim.—1. In a corset-fastening, the combination with two steels, one having eyes, hooks revolubly mounted in the other steel and a crank projecting from each hook, of a sliding steel mounted to slide on the steel carrying the hooks, a series of slotted plates projecting from the sliding steel and engaging the cranks on said hooks, a thumb-piece mounted in the steel carrying hooks and connections between said thumb-piece and the sliding plate for manually moving said sliding plate positively in both directions to lock or release the fastening.



2. In a corset-fastening, the combination with two steels, one having eyes, hooks revolubly mounted in the other steel, of cranks on said hooks, a pin on the free end of each crank, a sliding steel mounted to slide longitudinally on the steel carrying the hooks, slotted plates or lugs projecting from the sliding plate and engaging said pins, a plate or arm pivotally mounted in the steel carrying the hooks and provided with a slotted end, a pin on the sliding steel to receive said slotted end of the pivoted plate or arm, and a thumb-piece connected with said plate or arm for turning it.

3. The combination with one of the steels, the same having thereon plates provided with slots or openings, of a second steel having therein a series of bearings, locking-studs mounted in said bearings, cranks attached to the rear ends of said studs, said cranks provided at their free ends with pins, a sliding steel slotted plates projecting from said sliding steel and engaging said pins, straps for supporting the last-mentioned steel along one edge of the steel carrying the locking-studs and an operating-plate carried by said last-mentioned steel and adapted to engage a pin carried by said sliding steel for the purpose of imparting a sliding motion thereto.

640,894. HOG-TRAP. TERRY FISHER, Mexico, Ind. Filed July 25, 1899. Serial No. 725,101. (No model.)



Claim.—1. A device of the class described comprising a stationary side, a movable side hinged at its rear end on a vertical axis, a front carried by the movable side, the latter being adapted to swing horizontally to open and close the front of the device, and a holding device mounted on the front and adapted to engage a hog, substantially as described

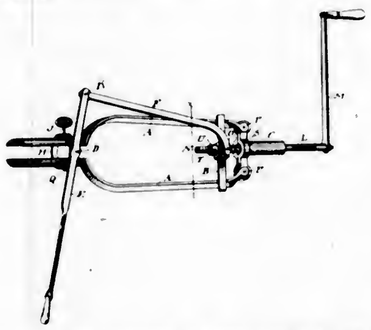
2. A device of the class described comprising a stationary side, a movable side hinged at its rear end on a vertical axis, a front portion provided with a holding device and engaging the upper portion of the stationary side, said front portion being carried by the movable side and the latter being adapted to swing horizontally to open and close the front of the hug-trap and a catch mounted on a fixed portion of the device and engaging the movable side at the bottom thereof and arranged to be operated by the foot of a person, substantially as described.

3. A device of the class described comprising a stationary side, a movable side arranged to swing horizontally, upper and lower bars arranged at the front of the trap and carried by the movable side, the upper bar being hinged and engaging the upper edge of the stationary side, and a holding device carried by the upper and lower bars, substantially as described.

4. A device of the class described comprising a stationary side, a movable side arranged to swing horizontally, the upper and lower slotted bars 13 and 14, the lower bar being interlocked with the stationary side and the upper bar being hinged and detachably engaging the said stationary side, the vertical bar 15 arranged in the slots of the upper and lower bars and secured to the lower one, a clamping-lever arranged in the said slots and fulcrumed on the lower bar, a ratchet mounted on the upper bar and arranged to be engaged by the lever, and a coiled spring connected with the lever and with the outer portion of the upper bar, substantially as described.

5. A device of the class described comprising a stationary side, a movable side arranged to swing horizontally, an upper bar hinged to the movable side at one end and provided at its other end with means for engaging the stationary side, a pivoted fastening device mounted on the latter and engaging the upper bar, and means for holding an animal, substantially as described.

640,895. SPOKE-TENONING MACHINE. FRIEDRICH W. FORSTER, Burlington, Iowa. Filed July 18, 1899. Serial No. 724,286. (No model.)



Claim.—1. The combination of a clamp comprising a yoke and arms pivoted thereto, said arms provided with clamping-jaws, a sleeve projecting from the yoke and communicating with a hole therein, a shaft mounted to rotate and slide in said sleeve and adapted to carry a cutter, a lever pivoted between its ends to the clamp, a block loosely mounted on the shaft, and a pitman connecting the forward end of said lever with said loose block on the shaft.

2. The combination with a yoke, arms attached thereto and jaws at the free ends of said arms, a shaft passing freely through the yoke, means for turning said shaft, a collar encircling the jaws, a lever pivoted to said collar and a pitman connected at one end with said lever and at the other end with the shaft

3. In a tool-feeder, the combination with a clamp and a sleeve carried by the closed end of said clamp, of a shaft mounted to rotate and slide in said sleeve, a lever for imparting longitudinal movement to said shaft and a guiding-bar carried by said shaft for supporting the latter against lateral displacement, the outwardly-extending arms of said bar being adapted to move in contact with one face of the clamp, substantially as set forth.

4. In a tool-feeder, the combination with a clamp, a locking device for the jaws thereof and a sleeve carried by the closed end of said clamp, of a shaft mounted to rotate and slide in said sleeve, said shaft being provided with a collar near its forward end for limiting its rearward movement, a block mounted on said shaft and in rear of said collar, a guiding-bar secured to said block, the free ends of said bar adapted to travel in contact with adjacent faces of the clamp, and a lever for imparting longitudinal movement to said shaft, substantially as set forth.

640,896. MEANS FOR ATTACHING BUTTONS. FRANCIS R. FORWARD, The Holberton Institution, Island of Antigua, British West Indies. Filed Oct. 22, 1898. Serial No. 694,274. (No model.)



Claim.—The combination of a button-head having a concave inner face, a loop-shaped stem fixed to said face and a shoe pivoted on said stem and movable thereon into a position approximately parallel to said stem, and also into a position at right angles thereto, said shoe being relatively broad at the middle and narrowing to a point toward the ends, all substantially as and for the purposes set forth.

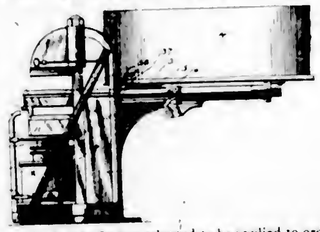
640,897. JAR-CLOSURE. JOHN H. FOWLER, Huntingdon, Pa. Filed May 4, 1899. Serial No. 715,542. (No model.)



Claim.—1. In a jar-closure, the combination of a jar-body, a cover therefor, a receptacle receiving the lower end of the body, a keeper-strip of resilient material bearing on the cover and having depending arms provided with seats *m* and outwardly-curved lips *n* below the seats, and fastening-loops connected to the receptacle and adapted to be guided by the lips *n* into the seats *m* of the keeper-strip, substantially as specified.

2. In a jar-closure, the combination of a jar-body, a cover arranged on said body and having the central convex portion and the annular rib of convex form in cross-section at its upper side, a receptacle receiving the lower end of the body, a keeper-strip of resilient material having the concave portion bearing on the central portion of the cover, and the convex portions bearing on the rib of said cover, and also having the depending arms provided with seats and outwardly-curved lips below the seats, and fastening-loops connected to the receptacle and adapted to be sprung into the seats of the keeper-strip, substantially as specified.

640,898. CAKE-FORMER. AUGUST FREDRICKSON, Meridian, Miss., assignor to the Meridian Machinery Company, same place. Filed May 1, 1899. Serial No. 715,256. (No model.)



Claim.—1. A cake-former adapted to be applied to ordinary receiving meal-heaters, comprising a base, standards on said base, having forwardly-extending head portions, vertical columns or bolts, for binding the said standards to the said base, a stationary male die secured to and held in place by the forwardly-extending head portions, a female die operating in conjunction with the said male die and having a vertical movement on the said columns, the structure being such that ample space is left between the standards and above the male die to permit the said cake-former to be adapted to an ordinary meal-heater, substantially as described.

2. A cake-former, comprising a base, standards on said base made up of vertical web-strengthened portions at the rear having forwardly-extending head portions at the top, vertical columns or bolts at the front, passing through the forwardly-extending head portions, inclined bars secured to the base at the bottom and to the standards at the top to strengthen the structure, a male die supported between the forwardly-extending projections, a female die adapted to move up and down beneath the male die and guided in said movement by the columns or bolts, projections on said standards for supporting a meal-receiving heater, a heater supported on said projections and extending between the standards in close proximity to the dies, the open construction of the frame at the back and top permitting of this arrangement, the said heater having a discharge-opening at its bottom the exact size of the cake to be formed, a charging-box of the same size as said opening operating beneath the discharge-opening of the heater for receiving the proper amount of material and carrying it between the dies, and means for operating the charging-box, substantially as described.

3. A cake-former, comprising an upper and lower die, a charging-box for supplying materialto the same, a piston for operating the lower die, a valve controlling the admission of pressure to the said piston, a hand-operating lever connected to said valve, a rod connected to said lever, a trip-lever adapted to engage the said rod, the construction being such that when the charging-box is in its forward position, the trip-lever will prevent the admission of pressure to operate the piston carrying the die, and when the charging-box is in its rearmost position, the trip-lever will be moved so as to permit the operation of said valve, substantially as described.

4. In a cake-former, the combination with a suitable press, of a charging-box for supplying material thereto, a cylinder for operating the said charging-box, a valve for controlling the admission of pressure to said cylinder, a lever connected with the said valve for reciprocating it, a bracket upon the framing of the former for pivotally supporting the said lever, said bracket being provided with a slot, a pin secured to said lever and adapted to engage and move in the said slot, whereby the movement of the lever is limited, a rod connected with the said lever and adapted to be engaged at one end by the charging-box, a nut at the other end of the said rod, a spring interposed between the said nut and the said lever so as to take up the jar produced by the charging box coming in contact with the said rod, and means for holding the said lever under pressure at either extreme of its movement, substantially as described.

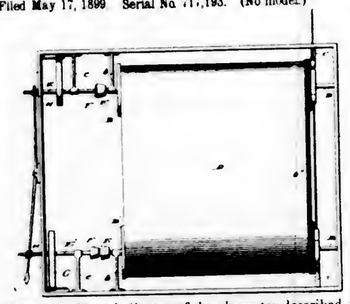
5. A cake-former having suitable dies, a charging-box for supplying material thereto, a piston for moving the charging-box, a cylinder carrying the said piston, a valve for controlling the ports leading into the said cylinder, said valve being mounted in a suitable valve-chest and being adapted to reciprocate therein, a passage leading to each end of the valve-chest, said passage being connected with the pressure-inlet so that steam or other pressure may be admitted at either end of the said valve-chest, means for reciprocating the valve, the structure being such that the valve need only move a short distance to open the inlet-ports at either end of the said valve-chest, substantially as described.

6. In a cake-former, the combination with upper and lower dies and a charging-box for supplying material thereto, of a piston for moving the lower die, a valve for admitting pressure to the said piston, said valve being mounted in a valve-chest, a port for admitting pressure to the said valve-chest, an exhaust-port formed in the said chest, the valve in the said chest being formed with a passage extending from one end to the other, whereby an equal pressure will be secured at each end of the valve so that it may be readily moved and means for moving the said valve, substantially as described.

7. In a cake-former, the combination with upper and lower dies, of a piston-rod for moving the lower die, said piston being mounted in a suitable cylinder, a valve-chest secured to the base of the said cylinder and connected therewith by a suitable port, a valve in the said valve-chest having an annular peripheral passage for controlling the exhaust from the cylinder, one end of the said valve being partially cut away so that when the valve is moved a part of its stroke, a small degree of pressure will be admitted to the cylinder, and means for moving the said valve, substantially as described.

8. In a cake-former, the combination with upper and lower dies, of a piston for moving the lower die mounted in a suitable cylinder, a valve for controlling the admission of power to the said cylinder, a valve-chest secured to the lower end of the cylinder and inclosing the said valve, the said valve being provided with a passage from one end to the other whereby the pressure may be made at each end of the valve, said valve being also provided with a partially-cut-away portion at one end and a hand-lever connected with said valve and extending in close proximity with the lower die, the construction being such that when pressure is to be applied to the piston, the hand-lever can only be moved far enough to bring the cut-away portion of the valve outside the port leading into the cylinder and thereby introduce only a small pressure and when the said lower die has almost reached its upper position, the lever may be moved so as to admit the full pressure beneath the said piston, substantially as described.

640,899. INDICATOR. GEORGE B. FRENCH, Fremont, Nebr. Filed May 17, 1899. Serial No. 717,193. (No model.)



Claim.—1. In an indicator of the character described, the combination, with the case, of the cylinder-shafts mounted therein; cylinders secured directly to the shafts; a scroll secured to the cylinders, teeth at one end of the cylinders; detents normally engaging said teeth and means for alternately operating said cylinders, substantially as described.

2. In an indicator of the character described, the combination with the case; of the shafts therein; cylinders secured directly to the shafts; a scroll secured to the cylinders; teeth upon one end of each cylinder; a spring-detent normally engaging with the teeth; means for releasing said teeth; and means for automatically and alternately imparting motion to said cylinders, substantially as described.

3. In an indicator of the character described, the combination, with the case, of the shafts, cylinders secured directly to said shafts; a scroll secured to the cylinders; driving-shafts mounted in the case outside, and on a line with the center of said cylinders, and capable of longitudinal movement; means for automatically revolving said shafts; and a lever for throwing the inner ends of said shafts alternately into frictional contact with the cylinders, substantially as described.

4. In an indicator of the character described, the combination with the case, of the shafts, cylinders secured directly to said shafts; friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted in said casings and outside, and on a line with the center of said cups; friction-cones upon the inner ends of said shafts; means mounted on said driving-shafts for imparting motion to the cones, and means for throwing said cones into frictional contact with their cups, alternately, substantially as described.

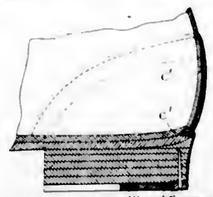
5. In an indicator of the character described, the combination with the case, of the shafts, cylinders secured directly to said shafts, friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted in said case and on a line with the center of the cups; a friction cone on the inner end of each driving-shaft, and movable in but one direction thereon, a spring mounted on each of said shafts for imparting motion thereto; and a lever for throwing the cones of each of the shafts into frictional contact with said cups, alternately, substantially as described.

6. In an indicator of the character described, the combination with the case, of the cylinders mounted therein; teeth upon one end of each of said cylinders; spring-detents normally engaging with said teeth; means for withdrawing them from engagement therewith; friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted within the case and having longitudinal movement therein; a cone mounted on the inner end of each driving shaft; a pawl on each cone engaging with teeth upon the shaft thereof; a spring mounted on each shaft for imparting motion thereto; and means for throwing said cones, alternately, into frictional contact with their respective cups, substantially as described.

640,900. BOOT OR SHOE. WILLIAM GORDON, Boston, Mass. Filed July 10, 1899. Serial No. 723,261. (No model.)

Claim.—1. A boot or shoe having a metallic stiffener or protector formed as a shell to cover the heel and a portion of the counter and a covering-piece of flexible material such as leather secured to the shoe above the counter-covering portion of the shell and extending downwardly over and covering the last named portion, said shell having a recess or pocket extending along and projecting into the rand-

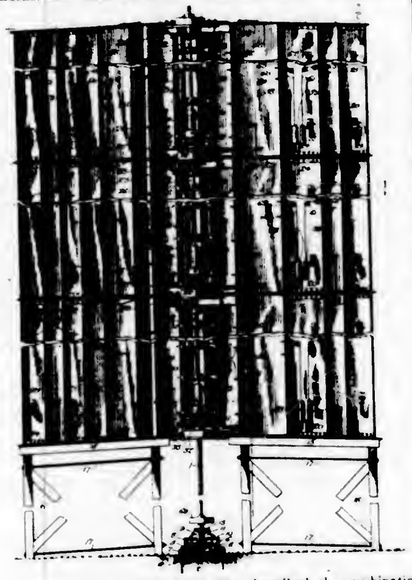
crease of the shoe, and formed to receive the lower edge of said covering-piece.



2. A boot or shoe having a metallic stiffener or protector formed as a shell to cover the heel and a portion of the counter, a covering-piece of flexible material such as leather secured to the shoe above the counter-covering portion of the shell and extending downwardly over and covering the last-named portion, said shell having a recess or pocket extending along and projecting into the rand-crease of the shoe, and formed to receive the lower edge of said covering-piece, and means for attaching the lower edge of the covering-piece to the shell and the part of the shoe within it.

3. A metallic stiffener or protector formed as a shell to cover the heel and a portion of the counter of a boot or shoe, said shell having a pocket between the heel and counter-covering portions of the shell adapted to receive the lower edge of a covering-piece.

640,901. WIND AND WATER MOTOR. ROBERT E. HARDAWAY, Austin, Tex. Filed Mar. 5, 1898. Serial No. 672,677. (No model.)



Claim.—1. In a device of the class described, the combination of a vertical series of wheels, a casing surrounding the wheels and comprising vertical partitions extending outward from the wheel, and horizontal partitions dividing the casing into stories or compartments corresponding to the wheels, a series of doors arranged in each of the stories or compartments, independently-operated clutches coupling the wheels, and means for operating each series of doors independently of the other series, whereby one or more of the wheels may be exposed to a current of wind or water, substantially as described.

2. In a device of the class described, the combination of a wheel, a casing composed of vertical partitions and horizontal partitions dividing the casing into compartments or stories, a series of doors arranged in each of the stories or compartments and adapted to swing across the spaces between the vertical partitions to shut off the wind from the wheel, and operating wires or cables passing around the wheel and connected with the free edges of the doors and adapted to swing the same across the spaces between the partitions, said wires or cables being independently operated, substantially as described.

3. In a device of the class described, the combination of a vertical series of wheels, a series of clutches connecting the wheels, each clutch being composed of a fixed member and sliding members, shifting-levers connected with the sliding members of the clutches and provided with operating wires or cables, a casing surrounding the wheels and provided with vertical partitions extending outward from the same, hinged doors mounted on the partitions and arranged to swing across the spaces between the same, means for holding the doors normally closed, and operating wires or cables connected with the doors and arranged to swing the same across the spaces between the vertical partitions, substantially as described.

4. In a motor of the class described, the combination of a vertical shaft, a horizontal wheel comprising vertical blades having their inner edges spaced from the shaft, intermediate plates extending from the shaft to the inner edges of the blades, a top plate secured to the shaft and connected with the adjacent ends of the blades, and a bottom plate connecting the lower ends of the blades and disconnected from the shaft, and a casing surrounding the wheel and having an annular series of partitions extending therefrom, substantially as described.

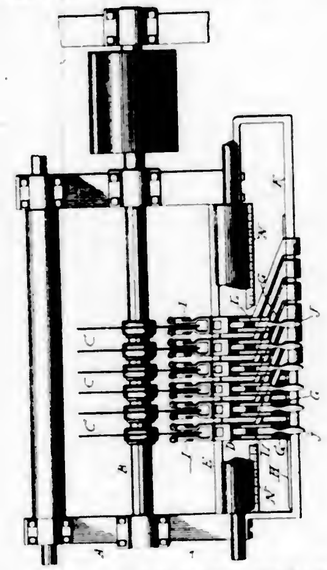
5. In a device of the class described, the combination of a casing having an annular series of partitions extending outward from the central portion of the casing, a vertical shaft, a vertical series of wind-wheels mounted upon the shaft and having their blades separated therefrom by an intervening space open at the bottom, and couplings located at the bottoms of the wind-wheels in the said space, and means for operating the couplings, whereby one or more wind-wheels may be used, substantially as described.

6. In a device of the class described, the combination of a vertical shaft, a vertical series of wind-wheels having annular series of blades arranged around the shaft and separated therefrom by an intervening space, couplings arranged within the said space, and means for operating the couplings whereby one or more of the wind-wheels may be used, substantially as described.

7. In a motor of the class described, the combination with the casing, of a vertical wheel-shaft consisting of a series of alined sections, a separate wheel mounted on each shaft-section, a bearing suspending each shaft-section from its upper end, clutches separably coupling together the shaft-sections, and means for operating each clutch independently of the others, substantially as set forth.

8. In a motor of the class described, the combination with the casing, of a vertical wheel-shaft consisting of a plurality of alined sections, a separate wheel mounted on each shaft-section, and a bearing suspending each shaft-section from its upper end, substantially as set forth.

640,902. GANG-EDGER. DEMPSY B. HARBOR, Seattle, Wash. Filed Sept. 6, 1899. Serial No. 729,627. (No model.)



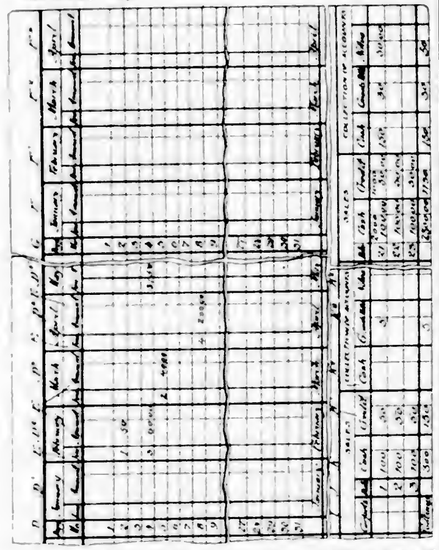
Claim.—1. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon, a series of slides of like form and dimensions, having their outer ends at an angle to the body of the slide; and connections between said slides and the saws.

2. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; a series of slides of like form and dimensions, having their outer ends at an angle to the body of the slide; an arm connected to each of said slides; a guide for said slides and arms; and connections between said slides and the saws.

3. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; guides or ways adjacent to said arbor; a series of slides of like form and dimensions, mounted on said ways; said slides having a straight body portion with their outer ends bent at an angle thereto, an arm extending from each of the slides at an angle to the straight portion and in a direction opposite to that of the bent portion of the slides; a guide for said slides and arms; and connections between said slides and the saws.

4. In a gang-edger, the combination of a saw-arbor; a series of saws mounted thereon; guides or ways E, F; a series of slides D of like form mounted thereon, said slides having their outer ends bent at an angle substantially as described; arms extending from the under face of the slides to the guide F; means for holding the slides in their adjusted position; and connections between said slides and the saws.

640,903. BOOK AND SYSTEM FOR BOOKKEEPING. JUDGE W. HARLAND, Lincoln, Nebr. Filed Mar. 30, 1899. Serial No. 711,043. (No model.)



Claim.—1. A book for keeping accounts, comprising a series of sheets, each provided with a series of numbered lines upon which the names of the parties with whom accounts are kept may be placed in a suitable column, a column containing figures representing the days of the month, a series of parallel columns with headings which indicate the months of the year, said columns subdivided so as to receive the amount due and the number of the line upon which the name of the party with whom the account is kept is found, the sheets folded near their middle and bound into a book in such relation to each other that the opposed faces of two adjoining sheets form a continuous page when the book is open to receive the matter relating to the accounts.

2. A form for accounts, comprising a series of numbered lines upon which the names of the creditors may be placed in a suitable column, a column containing figures representing the days of the month, a series of parallel columns with headings which indicate the months of the year, said columns subdivided so as to receive the amount due and the number of the line upon which the creditor's name is found.

3. A form for accounts, comprising a series of lines running across the sheet, a series of columns running at right angles to said lines and provided with suitable headings, said columns arranged to receive the numbers of the lines, the names of the creditors, the dates when the payments are due and the amounts of the payments, a column containing figures representing the days of the month, a series of columns with headings which indicate the months of the year, each of said latter columns subdivided so as to form a column in which the amount due may be placed and a column in which the number of the line upon which the account is entered may be placed.

4. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns provided with suitable headings and adapted to receive the names of the creditors, the dates when the debts were made, the dates when the debts are due and the amounts of the debts, a second series of columns with headings which indicate the months of the year, each subdivided into a column adapted to receive the amount due and a column adapted to receive the number of the line upon which the account is entered, and a series of figures running parallel to said latter columns and representing the days of the month, all of said columns arranged upon a single sheet.

5. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns provided with suitable headings and adapted to receive the names of the creditors, the dates when the debts were made, the dates when the debts are due and the amounts of the debts, a second series of columns with headings which indicate the months of the year, each subdivided into a column adapted to receive the amount due and a column adapted to receive the number of the line upon which the account is entered, a series of figures running parallel to said latter columns and representing the days of the month, all of said columns arranged upon a single sheet, and a third series of columns contained on the same sheet and representing the months of a portion of the next year, so that the entries relating to a given transaction may be placed upon the same sheet therewith.

6. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns at right angles to said lines and provided with suitable headings, said columns adapted to receive respectively the name of the creditor, the date at which the debt begins to run, the date at which the debt must be paid, the discount given upon payment before maturity, the amount of the debt, the date the debt is paid and the manner of paying the same, a second series of columns with headings which indicate the months of the year, each of said latter columns subdivided into columns adapted to receive the amount to be paid and the number of the line upon which the account is entered, a series of figures associated with these latter columns representing the days of the month, all of said columns located upon a single sheet, substantially as described.

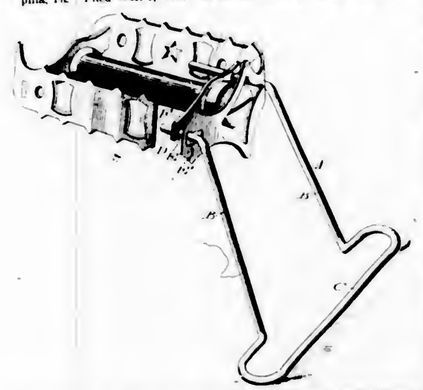
7. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns substantially at right angles to said lines and running only part of the length of the sheet, said columns provided with suitable headings and adapted to receive respectively the name of the creditor, the date at which the debt begins to run, the date at which the debt is due and the amount of the debt, a series of columns with headings which indicate the months of the year, each of which is subdivided into a column for receiving the amount due and a column for receiving the number of the line upon which the entry is originally made, a series of numbers representing the days of the month, said numbers associated with the columns representing the months of the year, and a separate set of columns at the bottom of the sheet adapted to receive data relating to the entries above.

8. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns substantially at right angles to said lines and running only part of the length of the sheet, said columns provided with suitable headings and adapted to receive respectively the name of the creditor, the date at which the debt begins to run, the date at which the debt is due and the amount of the debt, a series of columns with headings which indicate the months of the year, each of which is subdivided into a column for receiving the amount due and a column for receiving the number of the line upon which the entry is originally made, a series of numbers representing the days of the month, said numbers associated with the columns representing the months of the year, and a second series of columns at the bottom of the sheet provided with suitable headings representing the classification of the purchases entered on said numbered lines.

9. A form for accounts, comprising a sheet having a series of numbered lines running thereacross, a series of columns substantially at right angles to said lines and running only part of the length of the sheet, said columns provided with suitable headings and adapted to receive respectively the name of the creditor, the date at which the debt begins to run, the date at which the debt is due and the amount of the debt, a series of columns with headings which indicate the months of the year, each of which is subdivided into a column for receiving the amount due and a column for receiving the number of the line upon which the entry is originally made, a series of numbers representing the days of the month, said numbers associated with the columns representing the months of the year, a second series of

columns at the bottom of the sheet provided with suitable headings representing the classification of the purchases entered on said numbered lines, and a series of columns in which are placed the cash and credit sales made during each day.

640,904. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,909. (No model.)



Claim.—1. In a bicycle-support applicable to a pedal-frame, a support proper formed of side legs, a base connecting the lower ends thereof, and limbs on the upper ends thereof, said limbs being deflected in the direction of the axis of said frame and a pedal-frame having openings therein and eyes in a cross-bar rearward of said openings.

2. In a bicycle-support, legs with limbs on the upper ends thereof, said limbs being deflected in the direction of the axis of the pedal-frame and made of different lengths and a pedal-frame having openings in its wall and a cross-bar with eyes rearward of said openings.

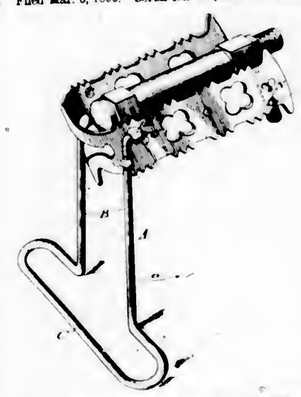
3. A pedal-frame having an opening in its front wall, and a cross-bar with an opening rearward of said wall and a support formed of a leg with a deflected limb on its upper end, the openings being adapted to receive said limb.

4. In a bicycle-support, legs with deflected limbs on the upper ends thereof, the straight parts of said limbs being rotatably connected with said legs whereby they may be folded.

5. A bicycle-support formed of legs, transversely extending the straight parts of said limbs and sleeves movably coupling said legs and limbs, said sleeves and the engaging portions of said legs being screw-threaded.

6. In a bicycle-support, a pedal-frame having eyes turned out from said frame, and a leg with a limb entering said eye.

640,905. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,912. (No model.)



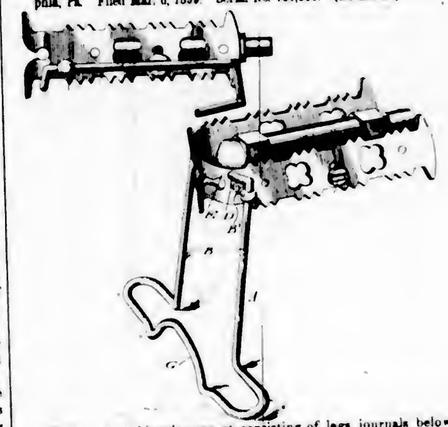
Claim.—1. In a bicycle-support, a leg, and a pedal-frame, in combination with a spring-catch, said leg being mounted on said frame, said frame having an opening in its side opposite to the bearings of said leg and said catch consisting of a spring which is attached to said side piece and a nose which is connected with said plate and protrudes through said opening, said nose being supported in the wall of said opening and said leg being adapted to be sustained on said nose as supported.

2. A pedal-frame, having a bearing rotatably mounted in the side thereof, a support on said bearing, an eye in said frame and a deflected extremity on said leg adapted to enter said eye whereby the support is held in operative position.

3. A bicycle-support having a leg provided with a deflected end, a bearing rotatably mounted in the side piece of a pedal-frame, said bearing being adapted for the reception of said leg, an eye on said side piece above said bearing adapted to receive said deflected end and a device for supporting the leg on the frame in the inoperative position of the support.

4. A pedal-frame, a bearing journaled in the side piece thereof, and adapted to receive the leg of a bicycle-support, said leg having a deflected end, an eye seated in said side piece above said bearing and adapted to receive said end, when the support is in operative position, and a catch located at the opposite end of the pedal-frame adapted to retain said support in inoperative position on said frame.

640,906. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,916. (No model.)



Claim.—1. A bicycle-support consisting of legs, journals below the upper ends thereof, and limbs on said ends, said journals and limbs extending inwardly from said legs, and a pedal-frame having openings in its side walls to receive said journals and an end wall against which said limbs abut, said journals and the openings therefor in the frame being adjacent to said end wall.

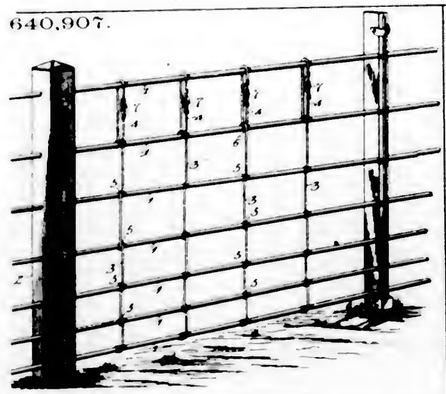
2. The combination with a pedal-frame, of resilient legs mounted thereon, at or near one end thereof and provided at top with limbs adapted to abut against said frame, and grooved seats on the sides of said frame into which said legs may be sprung in inoperative position.

3. In a bicycle-support, a pedal-frame in combination with legs mounted thereon, a base connecting said legs, and an upturned shoulder on the outer member of said base toward said pedal-frame forming a vertical passage between said shoulder and said legs.

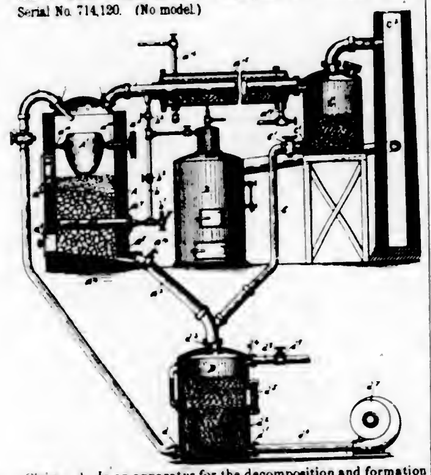
640,907. WIRE FENCE. JAMES E. HEAD, Paris, Tenn. Filed Apr. 4, 1899. Serial No. 711,705. (No model.)

Claim.—In a wire fence, the combination with upper, lower, and intermediate runner-wires, of a stay, comprising a main fixed stay member connecting the lower and intermediate runner-wires in fixed relation, and having its upper end provided with a lateral offset hooked portion embracing the intermediate runner-wire next below the uppermost runner-wire, and a movable stay member comprising a loop having its upper portion arranged in a plane substantially at right angles to the fence and loosely embracing the uppermost runner-wire, and the lower portion of the loop being twisted or deflected into a plane substantially at right angles to that of the upper portion and loosely embracing the upper hooked portion of the fixed stay member, located between the latter and the adjacent runner-wire, and slidable downwardly upon the fixed stay member, substantially as shown and described.

640,907.



640,908. PROCESS OF AND APPARATUS FOR MAKING CHLORID OF ZINC. HENRY K. HESS, Philadelphia, Pa. Filed Apr. 22, 1899. Serial No. 714,120. (No model.)



Claim.—1. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, an inlet-conduit for supplying steam to the interior of the furnace, a receptacle for receiving the metal liberated in the furnace and said hydrochloric acid, which unite to form a metallic chloride and generate hydrogen gas, and means for conducting said metal and the hydrochloric acid from the furnace to the receptacle and for conducting the metallic chloride from the receptacle to the furnace, substantially as and for the purpose described.

2. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, a chamber within the furnace for holding the metallic chloride during the evaporation of the moisture therefrom, an inlet-conduit for supplying steam to the interior of the furnace, a receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and means for conducting said metal and the hydrochloric acid from the furnace to the receptacle and for conducting the metallic chloride from the receptacle to the chamber in the furnace, substantially as and for the purpose specified.

3. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, said furnace being provided with an inlet-opening for the metallic chloride, and an outlet-opening for the liberated metal, a receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and a conduit communicating with the outlet-opening of the furnace and with the receptacle, substantially as and for the purpose specified.

4. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, said furnace being provided with an inlet-opening for the metallic chloride, and an outlet-opening for the liberated metal, an inlet-conduit for discharging steam into the furnace between the planes of said inlet and outlet openings, a receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and a conduit communicating with the outlet-opening of the furnace and with the receptacle, substantially as and for the purpose described.

5. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, an inlet-conduit for supplying steam to the interior of the furnace, an outlet-conduit communicating with the furnace for conducting the hydrochloric acid therefrom, a receptacle for receiving said acid from the outlet-conduit, a second receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unites to form a metallic chloride and generate hydrogen gas, and a conduit for conducting the acid from the first receptacle to the second receptacle, substantially as and for the purpose described.

6. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, an inlet-conduit for supplying steam to the interior of the furnace, an outlet-conduit communicating with the furnace for conducting the hydrochloric acid therefrom, a steam-conduit for discharging steam into the outlet-conduit, means for cooling the outlet-conduit, a receptacle for receiving said acid from the outlet-conduit, a second receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and a conduit for conducting the acid from the first receptacle to the second receptacle, substantially as and for the purpose specified.

7. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, said furnace being provided with an outlet-opening for the liberated metal, an outlet-conduit communicating with the furnace for conducting the hydrochloric acid therefrom, a receptacle for receiving said acid from the outlet-conduit, a second receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and conduits for respectively conducting the liberated metal and the hydrochloric acid from the outlet-opening of the furnace and the first receptacle to the second receptacle, substantially as and for the purpose described.

8. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, said furnace being provided with an outlet-opening for the liberated metal, an inlet-conduit discharging into the furnace, an outlet-conduit communicating with the furnace for conducting the hydrochloric acid therefrom, a steam-conduit discharging into the inlet and outlet conduits, means for cooling the outlet-conduit, a receptacle for receiving said acid from the outlet-conduit, a second receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and conduits for respectively conducting the liberated metal and the hydrochloric acid from the outlet-opening of the furnace and the first receptacle to the second receptacle, substantially as and for the purpose specified.

9. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, an inlet-conduit for supplying steam to the interior of the furnace, a receptacle for receiving the metal liberated in the furnace and said hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, and a conduit communicating with the furnace and the receptacle for conducting the metallic chloride from the receptacle to the furnace, substantially as and for the purpose set forth.

10. In an apparatus for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the combination of a furnace for decomposing a metallic chloride and forming hydrochloric acid, said furnace being provided with an outlet-opening for the liberated metal, an inlet-conduit discharged into the furnace, an outlet-conduit communicating with the furnace for conducting the hydrochloric acid therefrom, a steam-conduit discharging into the inlet and outlet conduits, means for cooling the outlet-conduit, a receptacle for receiving said acid from the outlet-conduit, a

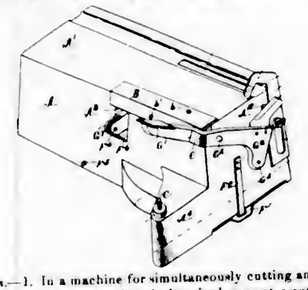
second receptacle for receiving the metal liberated in the furnace and the hydrochloric acid which unite to form a metallic chloride and generate hydrogen gas, conduits for respectively conducting the liberated metal and the hydrochloric acid from the outlet-opening of the furnace and the first receptacle to the second receptacle, and a conduit communicating with the furnace and the receptacle for conducting the metallic chloride from the receptacle to the furnace, substantially as and for the purpose described.

11. The herein-described process for the decomposition and formation of a metallic chloride in the manufacture of hydrogen gas, the same consisting in heating the metallic chloride by a body of carbon in contact therewith and in a state of combustion, introducing steam into the carbon, subjecting the heated metallic chloride to the action of the hydrogen liberated from the steam for forming hydrochloric acid and releasing the metal of the chloride, and finally uniting said acid and released metal and forming a metallic chloride and hydrogen, substantially as and for the purpose described.

12. The herein-described process for the decomposition and formation of chloride of zinc in the manufacture of hydrogen gas, the same consisting in heating the chloride of zinc to a temperature above the melting-point of the zinc by a body of carbon in contact with the zinc and in a state of combustion, introducing steam into the carbon, subjecting the heated chloride of zinc to the action of the hydrogen generated from the steam for forming hydrochloric acid and liberating the zinc of the chloride, vaporizing the hydrochloric acid, condensing the acid fumes, and finally uniting said acid and liberated zinc and forming chloride of zinc and hydrogen, substantially as and for the purpose specified.

13. The herein-described process for the decomposition and formation of chloride of zinc in the manufacture of hydrogen gas, the same consisting in heating the chloride of zinc to a temperature above the melting-point of the zinc by a body of carbon in contact with the zinc and in a state of combustion, introducing steam into the carbon, subjecting the heated chloride of zinc to the action of the hydrogen generated from the steam for forming hydrochloric acid and liberating the zinc of the chloride, vaporizing the hydrochloric acid, introducing steam into the vaporized hydrochloric acid, condensing the acid fumes, and finally uniting said acid and liberated zinc and forming chloride of zinc and hydrogen, substantially as and for the purpose set forth.

640,909. MACHINE FOR SIMULTANEOUSLY CUTTING AND PRINTING CIGARS. ISAAC W. HEYSINGER, Philadelphia, Pa. Filed Apr. 14, 1898. Serial No. 677,532. (No model.)



Claim.—1. In a machine for simultaneously cutting and printing cigars, the combination of an interiorly-raised support, a cutting-lever at end of said support centrally pivoted thereto, and having a downwardly-operated handle at one side of said pivot, and an upwardly-operated knife at the opposite end of said lever, and a downwardly-presenting cigar-support adapted to engage with said knife in its ascent, together with a printing mechanism beneath said interiorly-raised support, and adapted to reciprocate upward and downward beneath the same in coördination with the knife end of said lever, and a slot in said interiorly-raised support through which the type-block of said printing device is enabled to make contact with the lateral surface of a cigar while held in position for being cut by said knife, substantially as described.

2. In combination with an interiorly-raised cigar-support, a centrally pivoted lever secured to the end of the same, having an operating-handle at one end and an upwardly-acting knife at the opposite end, and a downwardly-presenting support for the end of the cigar, above said interiorly-raised support and adjacent to said knife, an upwardly and downwardly reciprocative type-block beneath said interiorly-raised support, said support provided with a slot therein, and said type-block adapted to operate upwardly through said slot, and to be reciprocated downwardly to make contact with an inking-pad beneath, and said type-block reciprocated by the movements of said lever and coincident with the knife end thereof, together with an inking-pad beneath said type-block, substantially as described.

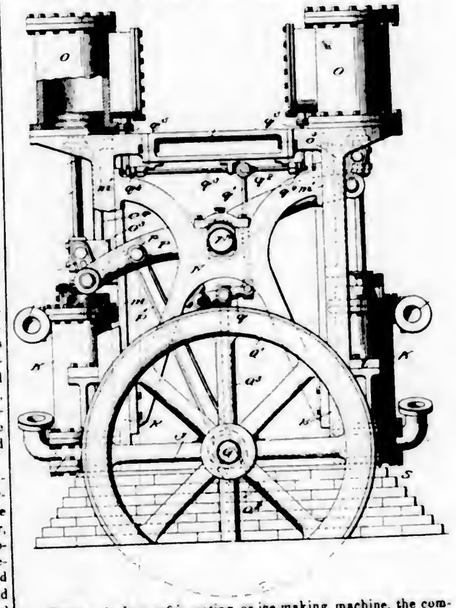
3. In combination with a covered box or other upwardly-raised support, the vertically-reciprocative knife, pivoted at one end of said box, a support for the end of a cigar adapted to be cut off by said knife, a slot in the top of said box adapted to present beneath a cigar while the same is being cut at its end, a type-block beneath the top of said box adapted to be reciprocated upward and downward by the corresponding reciprocation of said knife-lever, the said type-block raised while the handle of said lever is depressed, said type-block rotatable upon a horizontal axis, and means for causing said type-block to be rotated while vertically reciprocated, first to make contact by its printing-face with an inked pad, and afterward to present through said slot against the side of a cigar held in place upon the top of said box, together with a horizontally-rotatable pad beneath the same, said pad operatively connected with and rotated by said reciprocative mechanism, and said pad hinged to and removable from said box for reinking or otherwise, when necessary, substantially as described.

4. In combination with the covered box or upwardly-raised support, a centrally-pivoted knife-lever at one end thereof, having thumb-piece or handle at one end thereof, and knife at the opposite end thereof, said knife adapted to cut in its upward ascent, and a notched cigar-end support, presented downwardly and in contact with said knife, said cigar-end support being adjustable vertically for cigars of different diameters, and presented thereto in different positions, substantially as described.

5. In combination with the segmental spur-wheel, the rotatable type-block secured thereto, and means for reciprocating the same, a perforated sheet-metal rack, the teeth of said spur-wheel adapted to enter and be rotated thereby, said rack supported at one end and adjustable at the other, substantially as described.

6. In combination with the rotatable and reciprocative type-block, a segmental spur-wheel secured thereto, the terminal teeth of said spur-wheel longer than the others, and a perforated rack adapted to the teeth of said spur-wheel, and having the terminal perforations vertically elongated, so that when a partial rotation has been completed, the further reciprocation of said type-block will cause the said type-face to ascend or descend in a substantially vertical plane, and, when the reciprocation is reversed, will cause the said terminal tooth to begin the rotation of said type-block, and without previous disconnection therefrom, substantially as and for the purposes described.

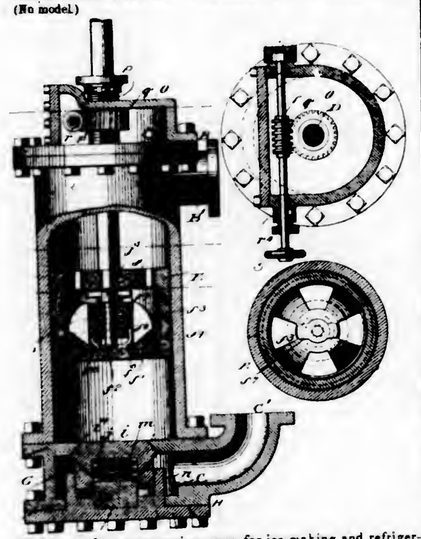
640,910. REFRIGERATING OR ICE-MAKING MACHINE. GEORGE B. HIETT, Atlanta, Ga., assignor of one-half to Samuel L. Brewer, Tuskegee, Ala. Filed Feb. 15, 1899. Serial No. 706,545. (No model.)



Claim.—1. In a refrigerating or ice-making machine, the combination of expansion-coils connected at their induction and eduction ends by headers, a condenser, means for conducting the liquid refrigerating medium from the condenser to the induction-header of the coils, a vertical pump-cylinder having a suction-port at its upper end, a discharge-port at its lower end and an indirectly-connected piston working therein to compress the refrigerating medium on its downstroke, a delivery-pipe leading from the lower discharge-port of the pump-cylinder to the condenser, a suction-pipe leading directly from the eduction-header of the expansion-coils to the upper suction-port of the pump-cylinder to quickly relieve the coils of obstructions and conduct the refrigerating medium by gravity away from the header as fast as it flows therein in a liquid or densely-saturated state to said pump-cylinder, whereby said medium on entering the cylinder falls by gravity to the bottom thereof and drenches the piston, body and bottom head of the cylinder, expands and cools said parts and also washes the residuum to the bottom of the cylinder, and a superimposed vertical fluid-pressure power-cylinder having a piston operatively connected to the pump-piston for driving the latter, whereby said pistons are adapted to cushion back on the elastic impelling medium in the power-cylinder when said pump-cylinder becomes gorged or flooded with liquid, substantially as described.

2. In a refrigerating or ice-making apparatus, the combination of expansion-coils connected at their induction and eduction ends by headers, a condenser, means for conducting the liquid refrigerating medium from the condenser to the induction-header of the coils, a vertical pump-cylinder arranged in or below the plane of the coils and having a suction-port at its upper end, a discharge-port at its lower end and an indirectly-connected piston working therein to compress the refrigerating medium on its downstroke, a delivery-pipe leading from the lower discharge-port of the pump-cylinder to the condenser, a suction-pipe leading directly on a fall or downward inclination from the eduction-heater of the expansion-coils to the suction-port of the pump-cylinder to conduct the refrigerating medium in a liquid or densely-saturated state from said heater to the cylinder and facilitate the flow of the liquid thereto by gravity, and a superimposed fluid-pressure power-cylinder having a piston operatively connected to the pump-piston for driving the latter, substantially as described.

640,911. COMPRESSION-PUMP FOR REFRIGERATING APPARATUS. GEORGE B. HIETT, Atlanta, Ga., assignor of one-half to Samuel Louis Brewer, Tuskegee, Ala. Filed June 12, 1897. Serial No. 640,496. (No model.)



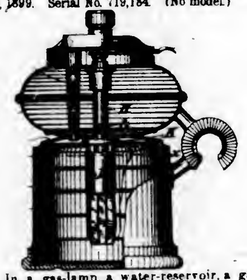
Claim.—1. In a compression-pump for ice-making and refrigerating apparatus, the combination of a pump-cylinder having suction and discharge ports and a valved outlet to said discharge-port, a piston comprising a hollow piston-head shell open at one end and provided with ports at its other end, a valve arranged to close against a seat on the open end of the shell, a spider above the valve-seat, a removable cup independent of the valve-seat and normally supported above the same and inclosed by said spider, a stem projecting through the cup, a spiral spring inclosed within the cup and encompassing the stem, and a nut fitted on the free end of the stem and arranged so as to bear against and hold the same confined within said cup.

2. In a compression-pump for refrigerating and ice-making apparatus, the combination of a pump-cylinder having suction and discharge ports and a valve-outlet to said discharge-port, a piston having a hollow piston-head shell open at one end and provided with ports at its other end, a valve-seat fitted in said open end and provided at its inner end with a spider, a cup on said spider, a valve arranged in said valve-seat and provided with a stem projecting through said cup, guide fingers on the valve arranged about the cup, a coiled spring arranged in the cup about the stem, and a nut fitted on the stem and confining the spring.

3. In a compression-pump for refrigerating and ice-making machines, the combination of a pump-cylinder having a suction-pipe opening into its upper end and flanged at its lower end, a piston working therein, a detachable lower head bolted to said flange and having a discharge-port, a valve-casing comprising an annular wall formed integrally with and hanging pendent from said head and forming a chamber of approximately the same diameter as the cylinder, said wall being provided at its lower end with an annular flange and at one side with a discharge-pipe of reduced diameter with respect thereto, a valve arranged to close the port in the lower head and having a depending hollow stem with ports therein, a bottom plate bolted to the flange on the annular wall and closing said valve-casing and provided with a guide for the valve and a stud, and a spring inclosed in the stem of the valve and seated on said stud.

4. A compression-pump for refrigerating and ice-making apparatus employing a gas, such as anhydrous ammonia, liquefiable under mechanical compression, comprising a vertical cylinder having a suction-port at its upper end and a discharge-valve casing at its lower end, said casing being of the same diameter as the cylinder and consisting of top and bottom heads or plates and an annular connecting-wall, said top plate of the casing being connected to and serving as the bottom head of the cylinder and provided with a port of less diameter than the cylinder and the annular wall being free from connection with the cylinder and having a discharge-port of less size than said suction-port and the port in the bottom head, a sensitive balanced discharge-valve arranged in said casing and also of less diameter than the cylinder and controlling the port in the bottom head and adapted to open solely under the pressure of the ammonia under compression, and a piston operating to compress the ammonia on its downstroke and having a hollow piston-head shell provided with a valve-seat having a port of less diameter than the bore of the shell and a balanced valve closing upwardly against said seat, substantially as described.

640,912. ACETYLENE-GAS LAMP. WILLIAM C. HOWAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed June 3, 1899. Serial No. 719,184. (No model.)

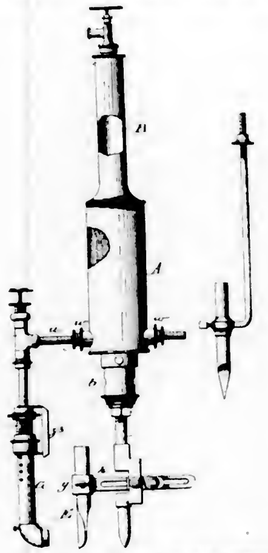


Claim.—1. In a gas-lamp, a water-reservoir, a gas-chamber, a carbid-holder within said chamber, a water-supply pipe, a water-distributing pipe around said supply-pipe and independent thereof, said distributing-pipe being carried by the carbid-holder, and a yielding washer around said water-pipe closing the outer end of said distributing-pipe when the parts are assembled.

2. In a gas-lamp, a water-reservoir, a gas-chamber, a removable carbid-holder within said chamber, a water-supply pipe, a water-distributing pipe around said supply-pipe but independent thereof, a yielding washer around said water-pipe, the external diameter of said washer being greater than the internal diameter of the distributing-pipe and closing the latter at its outer end when the parts are assembled.

3. In a gas-lamp, a water-reservoir, a gas-chamber, a removable carbid-holder within said chamber, a water-distributing pipe depending from the upper wall of said holder, a water-pipe leading from said reservoir into said distributing-pipe, a yielding washer around said water-pipe and located between the inner wall of the gas-chamber and the outer wall of the carbid-holder, said washer being under compression when the parts are assembled to close the adjacent end of the distributing-pipe.

640,913. DEVICE FOR CAPPING CANS. JOHN S. HULL, Baltimore, Md. Filed Apr. 11, 1899. Serial No. 712,628. (No model.)



Claim.—1. In a device for capping cans, an air-reservoir, a liquid-reservoir adjacent thereto and communicating therewith and a cooling-chamber below the liquid-reservoir; in combination with a support connected to the cooling-chamber out of direct contact with the liquid-reservoir, a soldering-iron connected to the support, and a burner connected to the liquid-reservoir.

2. In a device for capping cans, an air-reservoir, a liquid-reservoir adjacent thereto and communicating therewith and a cooling-chamber open to the atmosphere and connected to the lower end of the liquid-reservoir; in combination with a support connected to the cooling-chamber out of direct contact with the liquid-reservoir, a soldering-iron connected to and adjustable on the support and a burner connected to the liquid-reservoir.

3. In a device for capping cans, an air-reservoir, a liquid-reservoir and a support having an offset or yoke therein; in combination with a slotted bar having a head thereon constructed to enter said offset and pivotally connected to the yoke, a link connected to the slotted bar and to the yoke, a soldering-iron supported by said bar, and a burner connected to the liquid-reservoir.

4. In a device for capping cans, an air-reservoir, a liquid-reservoir, and a support having an offset or yoke therein and provided with a pivot-point revoluble therein; in combination with a slotted bar having a head thereon and pivotally connected to the yoke, a link connected to said bar and said yoke, a soldering-iron supported by the bar, and a burner connected to the liquid-reservoir

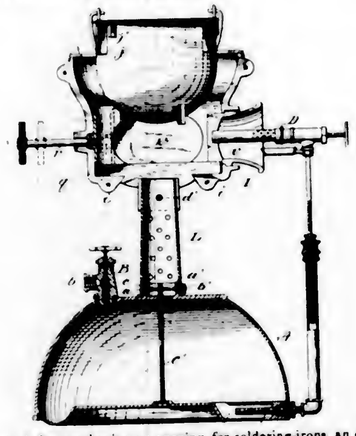
5. In a device for capping cans, an air-reservoir, a liquid-reservoir and a soldering-iron; in combination with a burner connected to the liquid-reservoir and laterally adjustable therein, a valve-chamber, a gas-generator, a tube connecting said valve-chamber and generator, a valve extending through the valve-chamber, and tube and a packing in said tube surrounding the valve.

640,914. TINNER'S FIRE-POT. JOHN S. HULL, Baltimore, Md. Filed Apr. 19, 1899. Serial No. 713,622. (No model.)

Claim.—1. A fire-pot having an opening to receive soldering-irons, a door controlling said opening and provided with hinges constructed to engage the fire-pot and support the door in an approximately horizontal position, and a nozzle having a separate section hinged to the pot to swing laterally; in combination with a laterally-adjustable hydrocarbon-burner.

2. A fire-pot having an opening to receive soldering-irons, and a nozzle having a separate section hinged to the pot to swing laterally thereon; in combination with a laterally-adjustable hydrocarbon-burner.

3. A fire-pot provided with an opening for soldering-irons, a door controlling said opening, a transverse guide at its bottom, an opening to receive a hydrocarbon-burner, and a deflector opposite said opening and laterally movable on said guide, in combination with a melting-pot, and a hydrocarbon-burner.

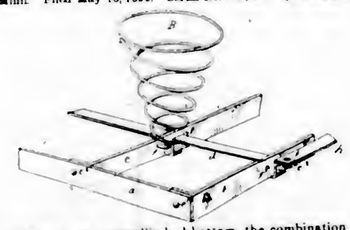


4. A fire pot having an opening for soldering-irons, an opening to receive a hydrocarbon-burner, and a top ring provided with inwardly-extending lugs; in combination with a hydrocarbon-burner, and a melting-pot having means on its outer surface to engage the lug on said top ring and suspend the melting-pot in the fire-pot.

5. A fire-pot having an opening for soldering-irons, a door controlling said opening, a nozzle to receive a hydrocarbon-burner provided with a separate section hinged to the pot to swing laterally in combination with a hydrocarbon-burner projecting into said nozzle, and a reservoir on which the fire-pot is supported and to which the burner is connected to swing laterally in and out of said nozzle.

6. A fire-pot having an opening for soldering-irons, a nozzle having a hinged section, a hydrocarbon-reservoir having a perforated air-chamber connected thereto and the fire-pot detachably secured to the air-chamber; in combination with a hydrocarbon-burner connected to the reservoir and vertically and laterally adjustable thereon.

640,915. SPRING BED-BOTTOM. OZELLO R. HUFF, Minneapolis, Minn. Filed May 16, 1899. Serial No. 716,988. (No model.)



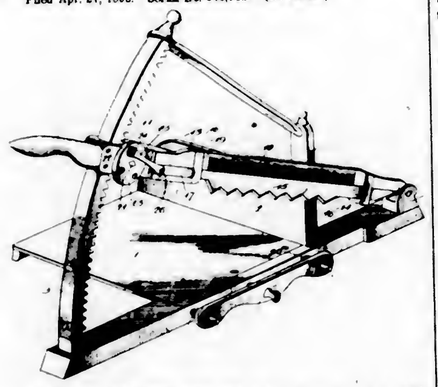
Claim.—1. In a metallic bed-bottom, the combination with the side rails *a*, the end rails *b*, and the tie-beams *c*, of the looped tie *d*, underlying and clasping the said end rails and tie-beams, and the springs B secured thereto, by means of passing their first or lower coils through the said end rails or tie-beams, and underneath the said tie-rods, substantially as shown and for the purpose specified.

2. In a metallic bed-bottom, the combination with the side rails *a*, the end rails *b*, and the tie-beams *c*, of the looped tie-rods *d* and the springs B, said tie-rods underlying and clasping the said end rails and tie-beams, and said springs having their lower coils passed through the said end rails and tie-beams, and underneath the said tie-rods, substantially as shown and described.

3. In a metallic bed-bottom, the combination with the side rails *a*, the end rails *b* and the tie-beams *c* of the tie-rods *d* underlying and connecting the said end rails and tie-beams, and the springs B mounted upon and secured to the said rails and beams by having their lower coils passed through the same and underneath the said tie-rods, substantially as shown and described.

4. In a metallic bed-bottom, the combination of the side rails *a*, the laterally-pierced end rails *b* affixed thereto to form a rectangular frame, the laterally-pierced tie-beams *c* affixed to and connecting the said side rails, the tie-rods *d* underlying and connecting the said end rails and tie-beams, and the springs B mounted upon the said rails and beams at their intersecting points; said springs being held in place by having their lower coils passed through the said laterally-pierced rails and beams, and underneath the said tie-rods, substantially as shown and described.

640,916. BREAD OR CAKE CUTTER. JENS JENSON, Page, N. D. Filed Apr. 27, 1898. Serial No. 678,982. (No model.)



Claim.—1. In a cutting apparatus, the combination of an oscillatory carrier, a reciprocatory cutting-blade mounted upon the carrier, and means for producing a plurality of strokes of the blade during each complete stroke of the carrier, substantially as specified.

2. In a cutting apparatus, the combination of an oscillatory carrier, a blade mounted for reciprocation upon the carrier, and means for producing a plurality of strokes of the blade during each swinging movement of the carrier in one direction, substantially as specified.

3. In a cutting apparatus, the combination of an oscillatory carrier, a blade mounted for reciprocation upon the carrier, a fixed rack-bar, a pinion mounted upon the carrier and meshing with said rack-bar, and operating connections between the pinion and said blade for communicating reciprocatory motion to the blade independently of the carrier, substantially as specified.

4. In a cutting apparatus, the combination of an oscillatory carrier, a reciprocatory blade mounted thereon, a fixed rack-bar extending through a guide in the carrier and arranged concentric with the pivot thereof, a pinion mounted upon the carrier to traverse the rack-bar, a spindle having a clutch connection with the pinion, and connections between said spindle and the reciprocatory blade, substantially as specified.

5. In a cutting apparatus, the combination of an oscillatory carrier having a terminal grip, a fixed rack-bar, a pinion mounted upon the carrier to traverse the rack-bar, a spindle having a clutch connection with the pinion to receive rotary motion therefrom, a crank-wheel carried by the spindle, and a pitman connection between the crank-wheel and the reciprocatory blade, substantially as specified.

640,917. HORSE-TAIL PROTECTOR. HARVEY H. JONES, Hollansburg, Ohio. Filed Sept. 15, 1899. Serial No. 730,611. (No model.)



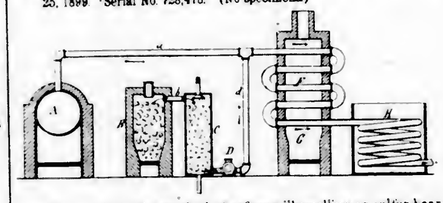
Claim.—1. A tail-protector, comprising a comb, a cover, a back yieldingly mounted upon the cover and provided with spurs, and means for fastening the device upon the tail of an animal.

2. A tail-protector, comprising a comb, a cover, spaced apart from the comb, a back carried by the cover, springs interposed between the cover and the back and yieldingly mounting the latter, and a strap connecting the comb and cover, and also forming a fastening for applying the device to the tail of an animal.

3. A tail-protector, comprising a bowed comb, a similarly-bowed cover located upon the convex side of the comb and spaced therefrom, a bowed back yieldingly supported upon the outer side of the cover, and provided upon its concave side with spurs, and a strap extending across the concavity of the comb, having its opposite ends passed through openings in the comb and cover, forming the sole connection therefor, and also providing fastening means for the device.

4. A tail-protector, comprising a comb, a cover spaced therefrom, a back yieldingly supported upon the cover, of larger size than the latter, and provided with spurs exteriorly of the cover, and fastening means for the device.

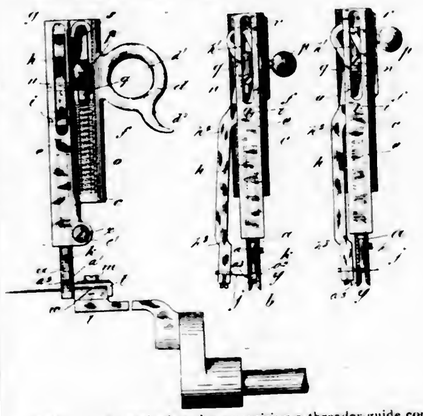
640,918. METHOD OF REFINING PETROLEUM AND PETROLEUM DERIVATIVES. ADOLPH KAYSER, Buffalo, N. Y. Filed Aug. 25, 1899. Serial No. 728,478. (No specimens.)



Claim.—1. In the method of refining ill-smelling or sulfur-bearing petroleum, or petroleum derivatives, the herein described step which consists in distilling the same by the application of heat to the still mixing carbon monoxid with the oil-vapor, and heating the mixture of oil-vapor and carbon monoxid to the temperature necessary for causing the carbon monoxid to react upon the objectionable compounds in the oil-vapor, substantially as set forth.

2. In the method of refining ill-smelling or sulfur-bearing petroleum, or petroleum derivatives, the herein-described step which consists in distilling the same by the application of heat to the still, mixing carbon monoxid with the oil-vapor, and passing the mixture of oil vapor and carbon monoxid through a heating-coil, substantially as set forth.

640,919. NEEDLE-THREADER. VICTOR KOBLER, Rorschach, Switzerland, assignor to The Firm of Adolph Saurer, Arbon, Switzerland. Filed Mar. 1, 1899. Serial No. 707,388. (No model.)



Claim.—1. A needle-threader comprising a threader-guide constructed to be placed astride upon a needle, and having a passage therethrough for the threading device, a lever, a threading device in the form of a blade secured to said lever in line with the passage through the aforesaid guide, means for vibrating said lever, means for preventing the threader-blade from passing through its guide and means for opening the passage through the latter, for said threader when its said guide is placed astride upon a needle, for the purpose set forth.

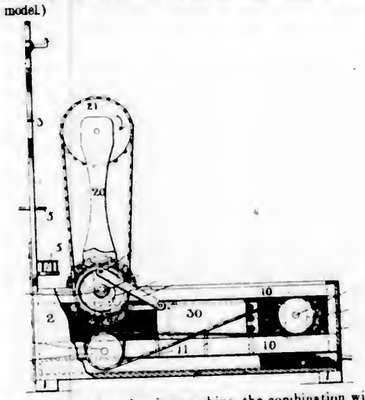
2. A needle-threader comprising a threader-guide constructed to be placed astride upon a needle and provided with a passage therethrough for the threading device, and a movable abutment in said guide normally obstructing the aforesaid passage; in combination with a lever carrying the threading device in the form of a blade adapted to pass through the eye of a needle in line with the passage through its guide, and means for vibrating the lever, whereby when

said threader-guide is placed astride upon a needle the abutment in said guide is moved to clear the passage therethrough, for the purpose set forth

3. A needle-threader comprising a threader-guide constructed to be placed astride upon a needle and having a passage therethrough for the threading device, and a movable abutment in said guide normally obstructing said passage but moving clear of the same when said guide is placed astride upon a needle, in combination with a spring-vibrated lever, a threading device in the form of a blade adapted to pass through the eye of a needle, secured to said lever in line with the passage in the threader-guide, for the purpose set forth.

4. The combination with a holder, the threader-guide *a* secured thereto, and the threader-lever *h* fulcrumed to the holder intermediate of its end and provided with the slot *h'*, of the spring-controlled rod *q* carrying a pin projecting into the aforesaid slot *h'*, and means for moving said rod *q* against the stress of its spring, substantially as and for the purposes set forth.

640,920. SHOE-CLEANING MACHINE. JOHANN KRATOFIL and SAMUEL P. LEVY, Chicago, Ill. Filed Apr. 24, 1899. Serial No. 714,341. (No model.)



Claim.—1. In a shoe-cleaning machine, the combination with a casing, of oppositely-sliding side brushes therein, a driven shaft having cranks connected with said side brushes, and a toe-brush mounted on said shaft; of a heel-brush, a counter-shaft, belts connecting the counter-shaft with the heel-brush and with the driven shaft, and a power-shaft for rotating the driven shaft, as and for the purpose set forth.

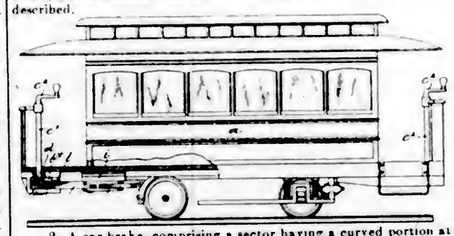
2. In a shoe-cleaning machine, the combination with a casing having transverse separated foot-rests, and a removable drawer beneath the latter; of rotary toe and heel brushes turning inward toward each other, and two oppositely-sliding brushes for the sides of the shoe moving along guides in said casing, as and for the purpose set forth.

3. In a shoe-cleaning machine, the combination with a casing having side boards provided with guides, side brushes moving therein, and a driven shaft having a rotary toe-brush and crank-wheels connected by pitman-rods with said side brushes; of an idle shaft below the driven shaft and belted thereto, a rotary heel-brush belted to the idle shaft, and a driving-shaft belted to a second wheel on the driven shaft, both rotary brushes turning inward toward each other, as and for the purpose set forth.

4. In a shoe-cleaning machine, the combination with a casing having slotted side boards and transverse and separated foot-rests, a drawer beneath the latter, a head-board rising from the casing, and a support; of a driving-shaft journaled in said support, side brushes moving in the slots of said boards, a driven shaft having crank-wheels connected by pitman-rods with said brushes, connections between this shaft and the driving-shaft, a rotary heel-brush, and connections between this brush and the driven shaft, all as and for the purpose set forth.

640,921. CAR-BRAKE. CHARLES A. KRUSE, Philadelphia, Pa. Filed Nov. 6, 1899. Serial No. 735,964. (No model.)

Claim.—1. A car-brake provided with a sector having a curved face at one end and pivoted at its other end, a pinion adapted to mesh with the curved face of said sector to oscillate the same so as to impart respectively back-and-forth movements thereto and a yoke adapted to transmit one of the movements of said sector to the brake-shoes to engage the wheels of the car, substantially as and for the purposes described.



2. A car-brake, comprising a sector having a curved portion at one end eccentrically arranged with respect to the fulcrumal point at the other end, rollers adapted to guide said inclined portion, a pinion positively driven and adapted to engage teeth arranged on the face of the curved portion of said sector and to oscillate such portion against one of said rollers so as to impart a back-and-forth movement to the fulcrumal end of said sector, and means connected with said sector and brake-shoes adapted to transmit the forward thrust of said sector to the brake-shoes of the wheels of the car, substantially as and for the purposes described.

3. A car-brake, comprising a sector having a cam-surface at one end provided with smooth and toothed portions, a roller and a pinion adapted to engage said portions to impart to the fulcrumal end longitudinal movement at right angles to said curved portion, and a yoke connected with said cam-sector adapted to transmit the movement in one direction to the brake-shoes of the car-wheels, substantially as and for the purposes described.

4. A car-brake, comprising a cam-sector, a pinion and rollers adapted to engage said cam-sector at one end to impart respectively back-and-forth movements to the other end of the same, a yoke slidably connected with said cam-sector, rods and a lever connecting said yoke to a second yoke adapted to transmit the forward thrust imparted by the cam-sector of one of the yokes of the car to the other yoke thereof, substantially as and for the purposes described.

5. A car-brake, comprising a cam-sector, a pinion and rollers adapted to engage the cam-sector to impart respectively back-and-forth movements to the fulcrumal end thereof, a yoke in slidable connection with said cam-sector, rods and a lever-arm connecting the yoke with a similar yoke adapted to transmit the forward movement of the positively-actuated yoke to the other yoke, a spring engaging said lever-arm adapted to shift said yokes into inoperative position, when the operating-sector returns to its normal position, substantially as and for the purposes described.

640,922. MECHANICAL MUSICAL INSTRUMENT. CHARLES A. KUSTER, New York, N. Y., assignor to the Wellington Manufacturing Company, same place. Filed Nov. 11, 1895. Serial No. 568,620. (No model.)

Claim.—1. In a mechanical musical instrument, the combination with the balancing-bellows 64, of the alternating pumps, B, C, having upper plates fixed to the side of said bellows and having movable lower plates and arms applied upon the front margins thereof, said arms carrying the hinged treadles, substantially as shown and for the purposes set forth.

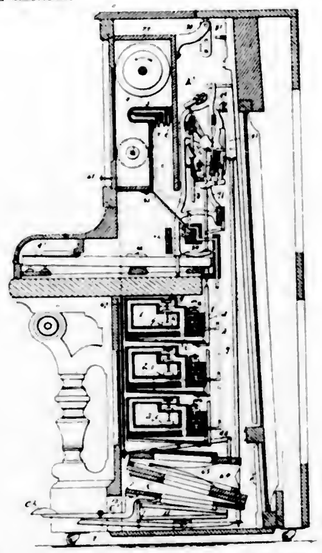
2. In combination with the pumps having fixed upper plates and movable lower plates, of the arms B' and C' applied upon the edges of the movable plates of the pumps, and the foot-pieces B³ C³ hinged upon the arms and arranged to be turned up against the front of the casing through which they project, substantially as shown and for the purposes set forth.

3. In combination with the upper and lower plates of the pumps provided each with a series of perforations as set forth, the noiseless valves located in said perforations, the same being composed of flexible strips which close against each other and automatically open, substantially as shown and described.

4. In combination with the bar operated by the expression-pneumatics, the pneumatic for returning the said bar to its original position, substantially as shown and for the purposes set forth.

5. The combination with the sliding bar H, of the bell-crank levers, the slide-valves K and the jointed connecting-rod I I', substantially as shown and described.

6. In combination with the two rolls carrying the perforated music-sheet, the crank shaft, the pneumatics applied to said shaft, a gear for transmitting the motion, and a shifting-gear hinged as explained and arranged to transfer the movement from one roll to the other, the air-exhausting apparatus, the valves for regulating the degree of exhaustion, the knob and rack for moving said valves, tube 52, pneumatic 53 and valve 54, arranged and operating to control the time of movement of the music-sheet, substantially in the manner shown and described.



7. The pneumatic 26, tube 55 with branch 56, disk 57, valves 58, 59, crank-shaft, eccentric cam, pivoted arm, spring and valve 63, the parts being arranged and combined substantially as shown and for the purposes set forth.

8. In a mechanical musical instrument, the metallic cylinder 30 for carrying the perforated music-sheet, said cylinder having metallic end flanges, one of which is intended to receive the projections upon the clutch, the same being combined with the recessed clutch 69, centering-pin 68, and spring 70, substantially as shown and described.

9. The box or frame 79 hinged as explained and combined with the instrument-casing as set forth, so it may with its contents be turned up and back to expose the parts, substantially as shown and described.

10. In combination with box 79 carrying the section, 82, of the connecting-bar and the instrument-casing, the hinge-arms 80 and open blocks 81, substantially as shown and for the purposes set forth.

11. In combination with box 79 hinged as explained, the section 82 of the connecting-bar, said section being mounted on and made movable with the box, substantially as and for the purposes set forth.

12. The sections 82 and 84 of the connecting-bar combined with each other and with the hinged parts on which they are mounted, the two sections being arranged to be united, substantially in the manner and for the purposes set forth.

13. The trunk 92 containing chambers 1, 2 and 3, said trunk being mounted on hinge-arms journaled in stationary blocks and arranged to be turned down with its contents and attachments, the parts being combined and arranged substantially as shown and described.

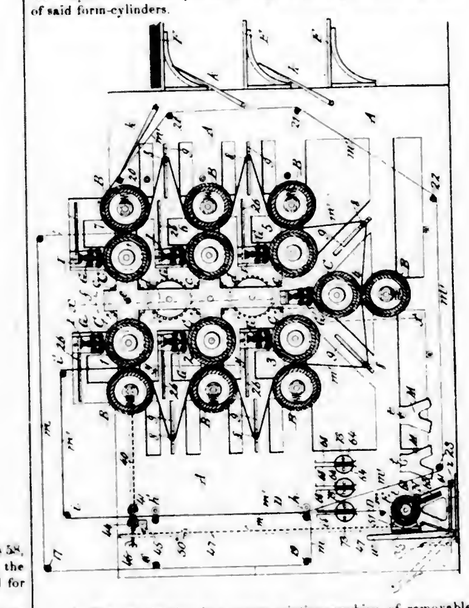
14. In combination with trunk 92, the section 84 of the connecting-bar, said section being mounted on and made movable with the trunk, substantially as and for the purposes set forth.

15. In a mechanical musical instrument, the hinged removable box and trunk, the bank of keys arranged to slide on the ways provided for it, the detachable end pieces, piano back and base, all being arranged and combined to be assembled and disconnected substantially as and for the purposes set forth.

640,923. PRINTING-MACHINE. ISIDOR LAM, Vienna, Austria-Hungary. Filed Aug. 21, 1897. Serial No. 649,067. (No model.)

Claim.—1. The combination, in a rotary printing-machine, of a number of sets of impression and form cylinders, arranged in substantially parallel rows to effect impressions upon a web, an additional set beyond and intermediate the rows, and at right angles to the other sets, means for rotating the cylinders of each set simultaneously in opposite directions, and means for forcing the impression-cylinder of each set away from its form-cylinder pending the passing of blank portions of said form-cylinders.

2. The combination, in a rotary printing-machine, of a number of sets of impression and form cylinders arranged in parallel rows, endless bands traversing the impression-cylinders of opposite sets for holding a web, and means for forcing the impression-cylinder of each set away from its form-cylinder during the passing of blank portions of said form-cylinders.



3. The combination in a rotary printing-machine, of removable and interchangeable impression and form cylinders, and shiftable inking and distributing devices for the form-cylinders, the same comprising brackets adjustable in grooves in the main frame, and secured in place by screws, a series of rollers supported between the brackets, and an ink trough or fountain also supported between the brackets and partially receiving one of said rollers.

4. The combination, in a rotary printing-machine, of removable and interchangeable impression and form cylinders, and shiftable inking and distributing devices for the form-cylinders, the same comprising adjustable brackets supported by the framework, a series of rollers supported by the brackets with their shafts projecting through the latter, gear-pinions on the projecting ends of said shafts meshing with a gear on the shaft of the form-cylinder, and an ink trough or fountain for the rollers also supported by the brackets.

5. The combination in a rotary printing-machine, of removable and interchangeable impression and form devices, each comprising movable supporting-journals each of which is provided with a sleeve shorter than the journal, a disk fitted to turn with each sleeve, and a cylinder removably inserted between the disks and having heads provided with hub portions, said journals extending into said hub portions, as described.

6. The combination, in a rotary printing-machine, of removable and interchangeable impression and form devices, each comprising movable supporting-journals each of which is provided with a sleeve shorter than the journal, a disk fitted to turn with each sleeve and provided with a transverse groove, and a cylinder provided at the ends with hub portions, and with ribs or tongues to fit said grooves, said journals extending into the hub portions, as set forth.

7. The combination in a rotary printing-machine, of removable and interchangeable impression and form devices each comprising movable supporting-journals each of which is provided with a sleeve shorter than the journal and having a flange at its inner end, a grooved disk fitting upon said sleeve and recessed to receive said flange, and a cylinder having at each end a head having a hub portion and provided with a rib to fit the groove of one of the disks, said journals extending into the hub portions, substantially as described.

8. The combination, in a rotary printing-machine, of a set or pair of impression and form cylinders, for effecting impressions upon a web, a brake engaging the web-roll, and means for moving the impression-cylinder to apply the brake during the passing of blank portions of the form-cylinder.

9. The combination, in a rotary printing-machine, of a number of sets of impression and form cylinders, for effecting impressions upon a web, a brake operating against the web-roll, means for mov-

ing the impression-cylinders outward during the passing of blank portions of the form-cylinders, and means operated by one of the impression-cylinders for applying the brake.

10. The combination, in a rotary printing-machine, of a movable impression-cylinder, and a form-cylinder, arranged to effect impressions upon a web, a brake operating against the web-roll, projections on the form-cylinder for moving the impression-cylinder outward during the passing of the blank portions of said form-cylinder, and means operated by said impression-cylinder for applying the brake.

11. The combination, in a rotary printing-machine, of a number of movable impression-cylinders, and a corresponding number of form-cylinders, arranged in pairs to effect impressions upon a web, a brake operating against the web-roll, projections on the form-cylinders for moving the impression-cylinders outward during the passing of blank portions of the form-cylinders, and means operated by one of the impression-cylinders for applying the brake.

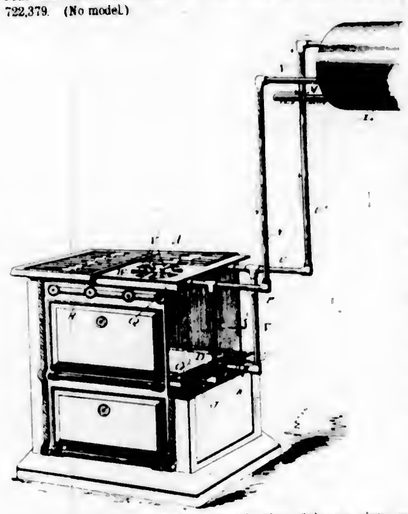
12. The combination, in a rotary printing-machine, of a movable impression-cylinder and a form-cylinder, arranged to effect impressions upon a web, a pivoted brake-rod having a shoe engaging the web-roll and provided at its upper end with a regulating-screw, projecting segments on the form-cylinder for moving the impression-cylinder outward during the passing of blank portions of the form-cylinder, and a rod carried by the shaft of said impression-cylinder and engaging said regulating-screw.

13. The combination, in a rotary printing-machine, of a movable impression-cylinder and a form-cylinder arranged to effect impressions upon a web, a pair of braking-rolls for the web, a brake operating against the web-roll, and means on the form-cylinder for moving the impression-cylinder to apply both the braking-rolls and the brake during the passing of blank portions of the said form-cylinder

14. The combination, in a rotary printing-machine, of a movable impression-cylinder and a form-cylinder, arranged to effect impressions upon a web, a pivoted brake-rod having a regulating-screw, and provided with a shoe engaging the web-roll, a stationary roller across which the web passes, means on the form-cylinder for moving the impression-cylinder outward during the passing of blank portions of the form-cylinder, a rod operated by said impression-cylinder to apply the brake to the roll, and a braking-roller carried by the rod and cooperating with said stationary roller to regulate the travel of the web.

15. The combination, in a rotary printing-machine, of an impression-cylinder and a form-cylinder arranged to print impressions upon a web, and a hinged bracket or support for the web-roll having an operating-handle, and provided with a spring-pressed roller bearing against the roll, said bracket being also provided with means for adjusting the same on its pivotal support.

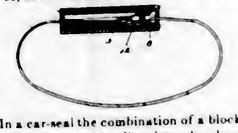
640,924. WATER-HEATER FOR GAS OR OTHER RANGES. JOHN MANDER, Philadelphia, Pa. Filed June 30, 1899. Serial No. 722,379. (No model.)



Claim.—1. In a gas-range, the combination of the top plate, water-heating chambers separated from each other and forming in conjunction with the sides of the range, a heating-chamber, the lower water-chamber being spaced from the sides of the range to form flues, a water-circuit having communication with said water-heating chambers and a burner situated below the lower water-heating chambers.

2. In a gas-range, the combination of a top plate, water-heating chambers separated from each other and forming in connection with the sides of the range a heating-chamber, pipes for connecting said water-heating chambers providing for the circulation of water therebetween, a burner beneath the lower water-heating chamber, a spaced rim around the latter forming flues for directing the products of combustion from said burner to the upper water-heating chamber and thence through the opening of the top plate, a burner for the upper water-chamber, connecting-pipes for said burners and lugs on the frame of the range on which said rim is supported.

640,925. CAR-SEAL. LEONIDUS D. MEADOR, Wewoka, Ind. Ter. Filed Aug. 31, 1897. Serial No. 650,135. (No model.)



Claim.—In a car-seal the combination of a block having a chamber therein, and perforations leading into the chamber of lesser diameter than the chamber and resulting in the formation of encircling walls, and a wire passed through said chamber and perforations, said wire having a loop at one end and a hook at the other adapted for mutual engagement, said hook being adapted to be drawn into the chamber with the loop, and to expand therein so that its end will engage the adjacent perforation-encircling wall.

640,926. HORSE-COLLAR. GEORGE A. MILLER, Burket, Ind. Filed June 14, 1898. Serial No. 683,428. (No model.)



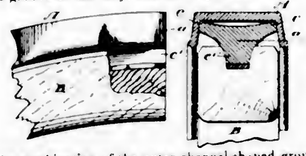
Claim.—1. A horse-collar having separate collar members, each having an outer facing plate and an inner approximately coextensive reinforcing-plate, rigid tongues, of reduced width, extending upward from the extremities of the collar members, a flexible terminally-tubular connection, in the extremities of which are respectively fitted said tongues, the width of the connection being approximately equal with the adjacent portions of the facing-plates, means for securing said collar members and connections at the desired relative adjustment, and lining-pads carried by the collar members and having loose upper ends underlapping the adjacent portions of said connection, substantially as specified.

2. A horse-collar having separate collar members provided at their upper ends with reduced stiffened tongues, and having lining-pads which are extended at their upper ends to form pad-tongues, projecting beyond the side edges and upper ends of the collar-tongues, a connection between the collar members, consisting of a tubular shield in the extremities of which said collar tongues are fitted for adjustment, and means for securing the collar members and connection at the desired relative adjustment, substantially as specified.

3. A horse-collar having separate collar members provided at their upper extremities with stiffened tongues, a connection between the collar members consisting of a tubular shield into the extremities of which are fitted said tongues, lining-pads secured to the inner surfaces of the collar members, and having their upper ends separate from the said tongues, to lie in contact with the inner sides of those portions of the connection which are occupied by the tongues, and means for securing the collar members at the desired adjustment with relation to the said connection, substantially as specified.

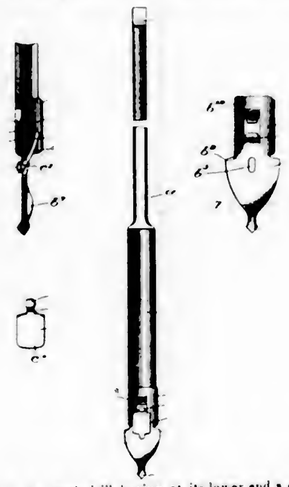
640,927. SHIELDED RUBBER TIRE FOR VEHICLES. ROBERT MITCHELL, Jr., Glasgow, Scotland. Filed June 26, 1899. Serial No. 721,811. (No model.)

Claim.—1. The combination of the externally-grooved felly B, the channeled metal tire A having flanges *a*, *a*, embracing the sides of said felly and the rubber tire C having an outer butt portion *c* fitting laterally in the internal channel of the tire A without filling the entire cavity of the channel, and an inwardly-projecting flange *c'* fitting the groove of the felly, substantially as set forth.



2. The combination of the outer channel-shaped ground-tire A, the externally-grooved felly B adapted to play within the flanges *a*, of the tire A, the inner rubber tire C having an outer butt portion *c* fitting laterally within the flanges *a* of the outer tire, and a binder *d* encircling the felly B, substantially as and for the purposes set forth.

640,928. PROSPECTING-DRILL. DAVID MCCABE, Boston, Mass. Filed Mar. 29, 1898. Renewed June 14, 1899. Serial No. 720,553. (No model.)



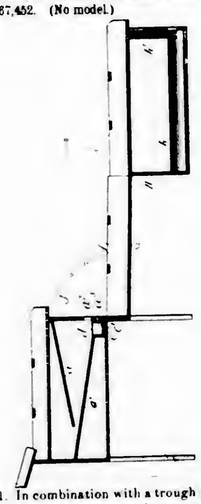
Claim.—1. An earth-drill having at its lower end a semicylindrical portion for retaining a sample of earth, a separable boring-blade, said blade comprising a shank curved to fit within said semicylindrical portion, and a boring portion below said shank tapering to a drill-point at its lower end, and having at its upper end a vertically-elongated slot, and a lifter movably mounted in said slot having a broad shovel-like lifting end, and a reduced neck having substantially parallel sides fitting within said elongated slot and serving to maintain said lifter in proper upright position while permitting it to swing up and down in the slot, and a retaining-head at the outer end of said neck and behind said slot, and means for detachably securing said boring-blade to said semicylindrical portion, substantially as described.

2. An earth-drill comprising a semicylindrical shank having an elongated slot centrally located at its lower end, and a removable blade provided with two wedge-shaped tongues narrowing toward their free ends and being widest next the blade and adapted to both seat snugly into the said central slot for preventing lateral displacement of the blade relatively to said shank, and means independent of said tongues to clamp the blade and shank together, substantially as described.

3. An earth-drill having at its lower end a semicylindrical portion for retaining a sample of earth, a single separable boring-blade, said boring-blade comprising a shank curved to fit within said semicylindrical portion, the blade below said shank having a width greater than said shank and tapering thence to a drill-point, the latter being substantially in the axial line of the earth-drill, and means to secure said separable blade in central longitudinal alinement with said semicylindrical portion, said shank when so secured projecting slightly at its rear edge beyond the edge of the semicylindrical portion, substantially as described.

4. The herein-described drill for boring into and raising a sample from stony earth, said drill comprising a concave or hollow portion at its lower end for retaining a sample of earth to be raised with the drill, and a boring-blade at the lower extremity of said concave portion, said boring-blade having its extreme lower point formed with two straight edges only slightly beveled, and diverging from each other at approximately ninety degrees, to constitute a drill-point for drilling through stone when met with in the earth-boring, said drill-point having, in addition to said stone-drilling edges, forwardly-projecting lips, said lips being at the edges of the blade and extending upwardly in opposite directions from adjacent the upper ends of the edges of said drill-point, for feeding the drill into the earth, substantially as described.

640,929. APPARATUS FOR TREATING PLACER ORES AND SANDS. JAMES P. MCEVILLY, Helena, Mont. Filed Jan. 21, 1898. Serial No. 667,452. (No model.)



Claim.—1. In combination with a trough receiving screened material, of a casing having a screen at its top on which the trough discharges, a bottom below the screen containing quicksilver said bottom being concaved in transverse section to obtain agitation of the particles, an outlet in the casing end above the lowermost portion of the bottom, and means for controlling said outlet.

2. An apparatus for collecting float-gold consisting of a runway of relatively fixed initial and terminal casings or closures arranged at different levels, each having a top screen of different-sized perforations, the fixed perforated top of the terminal casing connected with the inclined imperforate bottom of the initial casing by an intervening sluice, a mercury-containing tank transversely in the initial casing at the junction of the latter with said sluice, a mercury-containing tank arranged in the terminal casing at right angles to the initial tank and having a transversely-concaved bottom, the initial-inclined bottom terminating in a screen for the initial tank, an opening in the casing-wall at said screen, an overflow-opening in the tank and an opening in the casing registering with said tank-overflow opening, the said openings discharging into the sluice, an overflow-opening at the outer end of the concave tank and riffles having their lower edges on a level with the bottom of the overflow-opening, their upper edges having a graduated relation to the top of said overflow-opening.

640,930. ATTACHMENT FOR DENTAL DAMS. MARTIN O. NELSON, Natick, Mass. Filed June 17, 1899. Serial No. 720,924. (No model.)

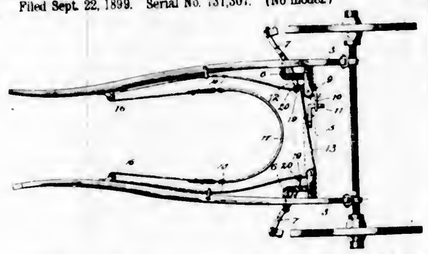


Claim.—1 The herein-described improved attachment for dental dams, comprising the receptacle consisting of the back piece B, flap or lip C and downwardly-curved pocket D; the downwardly-curved bar or stiffener E within said pocket and provided with the outwardly-extending lips E''; the curved rod or bail K having its opposite ends sustained by said lips and swinging forward and upward therefrom; and mechanism for locking the said bail to said bar E

when the bail is swung down, said bail, bar E and pocket being substantially correspondingly curved, substantially as and for the purpose set forth.

2. The herein-described improved attachment for dental dams, comprising the receptacle consisting of the back piece B, flap or lip C and downwardly-curved pocket D; the downwardly-curved bar or stiffener E, E' made angle-shaped in cross-section and provided with the outwardly-extending lips E'', the correspondingly-curved rod or bail K swinging at its opposite ends from said lips; and a locking device wherehy the bail when down is forced against the angle-shaped bar, substantially as and for the purpose set forth.

640,931. WAGON-BRAKE. GEORGE NEWTON, Odessa, N. Y. Filed Sept. 22, 1899. Serial No. 731,307. (No model.)



Claim.—1. The combination with a pair of thills, of brake-levers extending from opposite sides of the thills and having means for engaging the adjacent wheels, a drum connected with the levers and adapted to hold them out of engagement, means for locking the drum in such position, and straps connected with the levers and designed to be connected with the harness, whereby the brake will be applied when the drum is tripped, substantially as described.

2. In an automatic brake, the combination with a suitable support and a plurality of brake-levers, of brake-straps connected to the levers, a strap intermediate of and operatively connected to said levers, and means for adjusting the longitudinal extent of the strap.

3. The combination with a suitable support and a pair of brake-levers, of brake-straps connected to the said levers, connecting-straps likewise connected to the said levers, a trip-drum designed to exert a pull upon the connecting-straps, and means for controlling the movement of the drum.

4. The combination with a support, of a pair of brake-levers, brake-straps connected to the said levers, a trip-drum provided with a trip-arm, a latch in operative relation to said arm, and connecting-straps connected to the contiguous ends of the brake-levers and passed longitudinally around the trip-drum in the same direction.

5. In an automatic brake, the combination of a brake-lever provided with a rigid projection and having a rigid lug spaced from the projection, a strap having an opening or eye for the reception of the lever and retained thereon by the lug and the projection, and a trip-drum connected with the lever, substantially as described.

640,932. GATE-HINGE. JOHN J. OBER, Kibbey, Mont. Filed May 4, 1899. Serial No. 715,592. (No model.)



Claim.—1. The combination with the hinge-bar, and the bracket forming a direct support for the gate, of an adjustable connection between the hinge-bar and bracket-support consisting of an interlocking projection and slot, the coupling being effected by a relatively-sliding movement of the parts, and a fixed cam cooperating with the interlocking projection to automatically draw the parts together simultaneously with their relative sliding movement when coupling them, substantially as set forth.

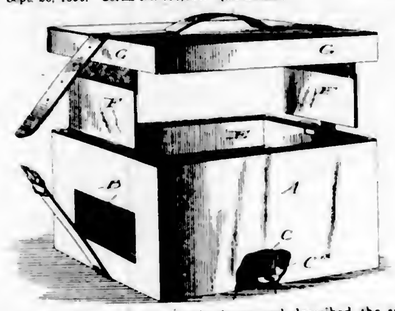
2. The combination with a hinge-bar having a series of longitudinal slots at intervals in its length, of a bracket bearing a roller and provided with an interlocking projection of T form and a second projection at a distance from the interlocking projection to engage with the hinge-bar and prevent lateral movement of the bracket when adjusted, substantially as set forth.

3. The combination with a hinge-bar provided with a series of longitudinal slots, of a bracket bearing a roller and having an interlocking projection of T form, and cam or inclined portions juxtaposed to said slots and adapted to cooperate with said interlocking projection, as and for the purpose set forth.

4. A hinge-bar having a series of longitudinal slots in its length and provided upon its rear side with inclined or cam portions at the sides of said slots, and a bracket forming a support for the gate and provided with an interlocking projection of approximately T form to pass through any one of the series of slots and ride upon the inclined or cam portions adjacent thereto, substantially as specified.

5. The combination with a hinge-bar having a series of longitudinal slots at intervals in its length and provided upon its rear side with inclined or cam portions at the sides of the slots and provided with depressions in its face, of a bracket forming a support for the gate and provided with an interlocking projection of approximately T form to cooperate with the slots and cam portions, and having a straight projection or lug to enter the required depression, as and for the purpose set forth.

640,933. LUNCH-BOX. ADELIA J. OSBORNE, Pomona, Cal. Filed Sept. 20, 1899. Serial No. 731,097. (No model.)



Claim.—The lunch-box herein shown and described, the same comprising an outer box having screen-covered openings in its walls, inner compartments, an air-space separating the outer from the inner compartments, a cover adapted to be fitted over the upper part of the box, and shutters secured to and hanging pendent from the inner faces of the ends of the box-cover, and adapted to normally cover the screen-openings in the outer box, and to be moved upward and held away from the screen-openings by the flanges of the box-cover, substantially as shown and described.

640,934. APPARATUS FOR LOADING MOVABLE CARRIERS. ARTHUR PAINTER, Nelson, Canada, assignor to Archie Mainwaring-Johnson, same place. Filed Mar. 20, 1899. Serial No. 709,797. (No model.)

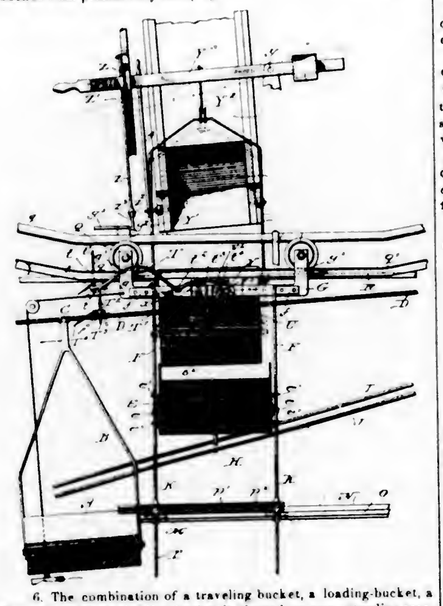
Claim.—1. The combination of a traveling bucket, a loading-bucket, a frame in which it is suspended, a carriage to which the frame is secured, an inclined rail on which the carriage rests and down which it moves by gravity in its loading movement, a catch for normally holding the carriage stationary until the traveling bucket arrives, and devices operated by the traveling bucket to release the catch.

2. The combination of a traveling bucket, a loading-bucket, a frame in which it is suspended, a carriage to which the frame is attached, an inclined rail on which the carriage is supported and down which it moves by gravity in its loading movement, a catch for holding the carriage stationary, and devices operated by the traveling bucket for releasing the catch.

3. The combination of a traveling bucket, a loading-bucket, a frame in which it is suspended, a carriage to which the frame is attached, an inclined rail on which the carriage is supported and down which it moves by gravity in its loading movement, a catch-frame pivoted to the carriage, a stationary stop with which the catch engages, a cam engaging the catch-frame, and an arm attached to the cam, arranged in the path of the suspending devices of the carrying-bucket.

4. The combination of a traveling bucket, a loading-bucket, the frame in which it is suspended, a carriage to which the frame is attached, an inclined rail supporting the carriage, and down which the latter descends by gravity while said loading-bucket is delivering its load to said traveling bucket, a catch for holding the carriage stationary, devices operated by the traveling bucket for releasing the catch at the proper time, and a detent adapted to engage the suspending devices of the traveling bucket to prevent the carriage from running ahead of the traveling bucket.

5. The combination of a traveling bucket, a pivoted loading-bucket, a frame in which the loading-bucket is pivoted, an arm projecting rearwardly from the bucket, and a rod, l, for preventing the bucket from prematurely dumping.



6. The combination of a traveling bucket, a loading-bucket, a frame in which the loading-bucket is pivoted, an arm extending rearwardly from the bucket and an upwardly-inclined bar, J, for positively tilting and dumping the loading-bucket.

7. The combination of a traveling bucket, a loading-bucket, a frame in which it is pivoted, an arm projecting rearwardly from the bucket, and upwardly-inclined rails, l and J, between which the arm projects and which cause the loading-bucket to dump at the proper time when moving forward, and to assume its upright position while moving backward.

8. The combination of a loading-bucket, a chute for supplying it, a door closing the chute, and having a front end and two side wings, pivoted levers arranged parallel with the wings, rollers on the wings resting on the levers, a frame to which the ends of the levers are attached, and an operating-lever for raising the frame.

9. The combination of a chute connected with a bin or source of supply, a curved door, 3, arranged inside the chute and curved guides into which the curved edges of the door extend and in which they move, and a lever for operating this door.

10. The combination of a traveling bucket, a loading-bucket, a frame in which the loading-bucket is suspended, a carriage to which the frame is secured, an arm projecting from the frame adapted to be engaged by the suspending devices of the traveling bucket, and devices acting on the arm adapted to yield and allow the traveling bucket to pass without moving the loading-bucket when subjected to extraordinary strain.

11. The combination of a traveling bucket, a loading-bucket, a frame in which the loading-bucket is suspended, a carriage to which the frame is secured, a horizontally-projecting arm secured to the carriage, a pivoted arm projecting downwardly therefrom, and spring-controlled devices which normally hold the downwardly-projecting arm in position to engage with the suspending devices of the traveling bucket so that the traveling bucket and loading-bucket may move forward together, but which yield to allow the traveling bucket to pass when subjected to extraordinary strain.

12. The combination of a traveling bucket, a loading-bucket, means for releasing the loading-bucket and allowing it to move before it is engaged by the traveling bucket, and means for then engaging the traveling bucket with the loading-bucket so that they shall move together.

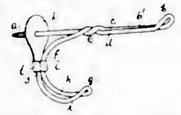
13. The combination of a traveling bucket, a loading-bucket, a carriage from which the loading-bucket is suspended, a chute above the loading-bucket provided with a door, a lever to which the door is connected, a catch for supporting the lever to hold the door closed, a pivoted arm carried on the lower end of the catch, and an arm carried by the carriage adapted to engage the arm carried by the catch, the organization being such that as the carriage moves in one direction it acts on the catch to open the door, and when traveling in the opposite direction passes by without operating the catch.

14. The combination of a traveling bucket, a loading-bucket, a carriage from which it is suspended, a catch-frame, carried by the carriage, and a movable stop with which the catch-frame engages.

15. The combination of a traveling bucket, a loading-bucket, a carriage from which it is suspended, an arm carried by the carriage with which the traveling bucket engages, a catch-frame for holding this arm, a stop engaging the catch-frame, and means for moving the stop so as to cause the catch-frame to be disengaged from the arm with which the traveling bucket engages.

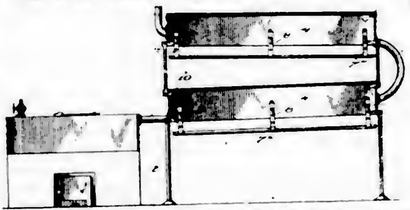
16. The combination of a traveling bucket, a loading-bucket, a carriage from which it is suspended, a catch-frame carried by the carriage, and a pivoted spring-controlled stop engaging with the catch-frame.

640,935. COAT AND HAT HOOK. ARTHUR W. PARMELEE, Worcester, Mass., assignor to the Wire Goods Company, same place. Filed July 1, 1898. Serial No. 684,930. (No model.)



Claim.—The within-described coat and hat hook, comprising an upper and a lower hook and consisting of a single piece of wire provided at one end with a screw-thread *a*, adapted to be screwed into the wall, said wire extending horizontally from said screw-threaded end, when the hook is in position of use, and being bent upon itself to form an elongated loop *b'*, with its end turned slightly upward to form an upper hook *b*, with the two sides *c*, *d*, of the loop twisted together at *e*, about midway between the hooked end *b* and the screw-threaded end *a*; the side *d* being bent downward in a semicircular curve *f* and bent back upon itself at *g*, forming an elongated loop *h* bent in semicircular form and constituting the lower hook *i*, with the other end *j*, of the wire, terminating about midway the semicircular curved portion *f*, and a wall-plate *k* having a hole *k'* by which it is strung upon the straight screw-threaded end of the wire, said wall-plate having at its lower end two lugs, or wing-pieces, *l*, *l*, bent over the end *j* of the wire and also over the curved portion *f*, thereby uniting the end *j* of the wire to the curved portion *f* and also uniting the central portion of the curved portion *f* to the straight horizontal screw-threaded section, substantially as described.

640,936. FRUIT-DRIER. THOMAS F. PARSONS, Nulin, N. C. Filed Mar. 1, 1899. Serial No. 707,264. (No model.)



Claim.—1. In a device of the class described, the combination with a fire-box, and a boiler arranged over the same, of a vertical series of reversely-inclined steam-receptacles provided with upper fruit-supporting surfaces, the bottom receptacle being connected at one end with the boiler, a pipe connecting the other end of the bottom receptacle with the one above it, and the drying-pans adjustably suspended from the receptacles, substantially as described.

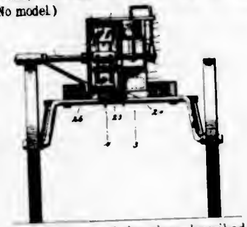
2. In a device of the class described, a drying device having a fruit-supporting surface and provided at opposite sides with guides, combined with a knife mounted in the guides and adapted to be moved over the fruit-supporting surface to prevent the fruit from sticking, said knife being provided at each end with a handle, to enable it to be operated at either side of the drier, substantially as described.

3. In a device of the class described, the combination of a drying device having a fruit-supporting surface, bars secured at their ends to and spaced from the fruit-supporting surface, and a knife operating in the spaces between the bars and the fruit-supporting surface and composed of a blade having a flat surface at its bottom and provided with a convex upper face, and handles arranged at the ends of the blade whereby the knife may be operated at either side of the drier, substantially as described.

4. In a device of the class described, the combination of a series

of connected steam-receptacles provided with upper fruit-receiving surfaces and having longitudinal guides arranged at opposite sides thereof, and knives extending transversely of the fruit-receiving surfaces and arranged in the said guides and projecting laterally from the receptacles, substantially as described.

640,937. INSECT-DESTROYER. BENJAMIN H. PASSMORE and ROBERT B. MAY, Stockdale, Tex. Filed Apr. 10, 1899. Serial No. 712,464. (No model.)



Claim.—1. An apparatus of the class described comprising a casing having a fume compartment or chamber and adapted to receive a heating apparatus below the same, a hopper located above the fume chamber or compartment, and communicating therewith, a drum arranged adjacent to the casing and provided with an extension, and communicating with the fume chamber or compartment, a fan arranged within the drum, means for operating the fan, and an agitator arranged within the hopper and connected with the fan, substantially as described.

2. An apparatus of the class described comprising a casing, a hopper, a shaft, a fan mounted on the shaft, and a reciprocating rod connected with and operated by the shaft and extending into the hopper and adapted to agitate the contents of the same, substantially as described.

3. An apparatus of the class described comprising a casing, a hopper, a guide mounted above the hopper and having an opening, a reciprocating rod provided with a substantially U-shaped portion extending through the guide and projecting into the hopper, and a fan connected with and operating the rod, substantially as described.

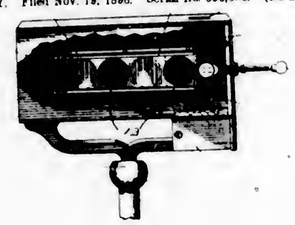
4. An apparatus of the class described comprising a casing, a hopper, a shaft, a fan mounted on the shaft and connected with the casing, an eccentric also mounted on the said shaft, and a reciprocating agitator extending into the hopper and having a yoke receiving the eccentric, substantially as described.

5. An apparatus of the class described comprising a casing, a drum arranged adjacent to the casing and having an extension, a horizontal partition dividing the casing into upper and lower compartments, the upper compartment communicating with the drum, a shaft extending through the casing and the drum, a fan mounted on the shaft and arranged within the drum, a hopper mounted on the casing and communicating with the upper compartment, means for regulating the feed, and an agitator operating in the hopper and connected with and actuated by the shaft, substantially as described.

6. In an apparatus of the class described, the combination of a casing designed to be hinged to the frame of a machine, mechanism for forcing the fumes out of the casing, and a pulley or wheel connected with such mechanism and engaging one of the wheels of the machine, said pulley being adapted to be carried into and out of such engagement by the swinging of the casing, substantially as described.

7. In an apparatus of the class described, the combination of a longitudinal bar, a casing hinged to the bar at one side thereof, a transverse shaft journaled in the casing, a fan mounted on the shaft, an agitator connected with the same, and a pulley carried by the shaft and adapted to engage a wheel of a machine, substantially as described.

640,938. OPERA-GLASS SHUTTER. JAMES W. PATTERSON, New York, N. Y. Filed Nov. 19, 1898. Serial No. 696,896. (No model.)

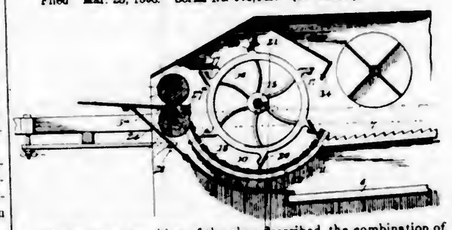


Claim.—1. The combination with the casing, openings therein, a pair of opera or field glasses secured in said openings, a spring-actuated self-closing shutter secured immediately in front of said openings, a coin-chute directed toward said shutter, and a manually-operated appliance normally extending slightly in the path of a coin from said chute.

2. The combination with a casing, openings therein, a pair of glasses secured in said openings, a spring-actuated sliding shutter secured immediately in front of said openings, a coin-chute, a sliding plunger situate immediately below the chute and extending slightly across the path of a coin through the chute, of a movable platform, a standard connected with the same and extending upward to engage and coact with the sliding plunger.

3. The combination with a casing, openings therein, a pair of glasses secured in said openings, a spring-actuated sliding shutter secured immediately in front of the openings a sliding plunger having a coin-seat in one end and a cam-face on the other end, and secured immediately below the chute and extending slightly across the path of a coin from said chute, of a movable platform, a standard connected with the same and extending upward, a cam-body secured to the upper end of the standard to engage and coact with the cam-face of the sliding plunger and a recoil-spring to automatically return the parts to a normal position.

640,939. BEATING MECHANISM FOR THRESHING-MACHINES. CHARLES A. PAUL, Orlando, and WILLIAM WIBBEN, Clear Creek, Okla. Filed Mar. 25, 1898. Serial No. 675,143. (No model.)



Claim.—In a machine of the class described, the combination of a revoluble cylinder provided with a peripheral series of flat beater-bars extending longitudinally thereof, from end to end, and disposed at an inclination to the radii of the cylinder, a pair of superposed feed and crushing rolls arranged at one side of and adjacent to the cylinder, a cross-sectionally triangular stationary plate 27ª arranged in the interval between the rolls and the cylinder, with its horizontal face disposed substantially in the plane of the travel of the material between the rolls, and its vertical face arranged slightly in advance of the path of the inclined beater-bars, the inclination of the latter being such that when they pass the said stationary plate, the same are disposed obliquely to the horizontal plane of the upper face of the plate to thresh the material over against the vertical face of the plate without cutting the material, and a toothless slotted concave arranged below the cylinder, substantially as described.

640,940. CATTLE-GUARD. WILLARD T. PAYNE, Tacoma, Wash. Filed Oct. 30, 1899. Serial No. 735,179. (No model.)

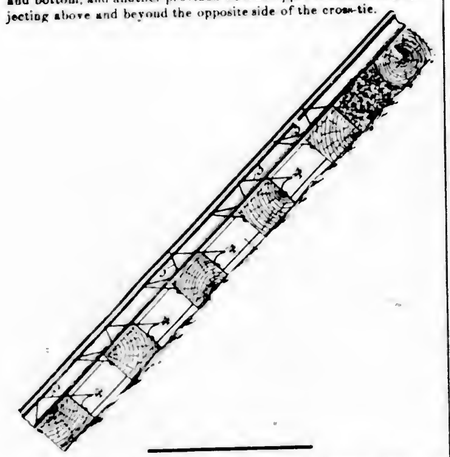
Claim.—1. A metallic cattle-guard section having an inclined face with a fulcrum edge on its lower side adapted to project from one side of a cross-tie, between the top and bottom thereof, and an inclined face with a resistance edge on its upper side adapted to project above and beyond the opposite side of the tie.

2. A metallic cattle-guard section having an inclined face with a fulcrum edge on its lower side adapted to project from one side of a cross-tie, between the top and bottom thereof, an inclined face with a resistance edge on its upper side adapted to project above and beyond the opposite side of the tie, an intermediate horizontal face adapted to abut against the top of the tie, and inclines connecting the front and rear faces with the intermediate face.

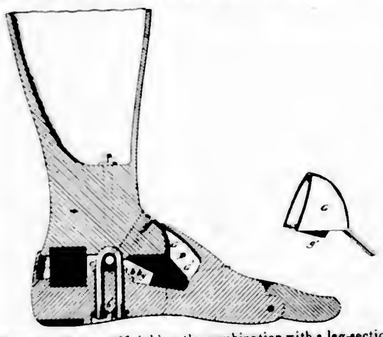
3. In a railroad cattle-guard, the combination of a metallic guard-section secured to a cross-tie and having a fulcrum edge on its lower side projecting from the tie between the top and bottom thereof, and a metallic guard-section secured to an adjacent tie and having a resistance edge projecting beyond and above the top of said tie.

4. In a railroad cattle-guard, the combination of a metallic guard-section secured to a cross-tie and having an inclined face with a fulcrum edge on its lower side projecting from the tie between the top and bottom thereof, and a metallic guard-section secured to an adjacent tie and having an inclined face with a resistance edge on its upper side projecting beyond and above the top of said tie.

5. In a railroad cattle-guard, the combination of a plurality of cross-ties, and a plurality of metallic guard-sections, each secured to a cross-tie and having inclined faces one provided with a lower fulcrum edge projecting from one side of the cross-tie between its top and bottom, and another provided with an upper resistance edge projecting above and beyond the opposite side of the cross-tie.



640,941. ARTIFICIAL LEG. ARTHUR L. PETERS, Lynchburg, Va. Filed Oct. 26, 1899. Serial No. 734,633. (No model.)



Claim.—1. In an artificial leg, the combination with a leg-section and foot-section, of a hollow bolt secured to the leg-section and seated in a curved bearing of the foot-section, and a connecting strap or staple passing centrally over said bolt and through apertures in the foot-section of such diameter as to leave a clear space between the walls thereof and the legs of the strap or staple.

2. In an artificial leg, the combination with a lower leg-section and a recessed foot-section pivoted together, of front and rear buffers, and a cap secured to the leg-section and having a lug and tongue to engage two surfaces of the forward buffer.

3. In an artificial leg, the combination with a lower leg-section and recessed foot-section pivoted together, of buffers at either side of said pivot, and a cap secured to the forward part of the leg-section and provided with a resilient tongue bearing on the forward buffer.

4. As a new article of manufacture, a cap for the forward lower end of an artificial leg-section, the same consisting of a part embracing said leg-section and a forwardly-projecting resilient tongue.

5. As a new article of manufacture, a cap for the forward lower end of an artificial leg-section, the same consisting of a part embracing said leg-section, a forwardly-projecting resilient tongue, and a downwardly-exteuding lug or projection the working face of which is arranged at an angle to said tongue.

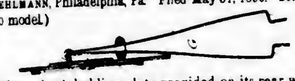
640,942. ELEVATOR-TRUCK. GEORGE J. PEACOCK, Pittsburg, Pa., assignor of three-eighths to H. V. Potter, same place. Filed Aug. 16, 1899. Serial No. 727,399. (No model.)

Claim.—1. An elevator-truck, comprising the frame L, mounted upon wheels 2, the right and left thread shafts 5 6 mounted in bearings upon the said frame, the worms 8ª and wheels 8 for revolving the said shafts, the threaded bearings 7, and the supporting-bars 16 hinged to the platform 14, and said bearings, all arranged and combined for service substantially as described.



2. An elevator-truck consisting of the frame mounted upon wheels, the threaded shafts 5 6, the bearings 7, operating upon the said shafts, the supporting-bars 16 attached to the said bearings and to the under side of the platform, and a means whereby the shafts 5 6 may be given a rotatable movement in either direction, as described.

640,943. HOLDER FOR PLACARDS, SIGNS, &c. WILLIAM L. POEHLMANN, Philadelphia, Pa. Filed May 31, 1899. Serial No. 718,823. (No model.)



Claim.—1. A holding-plate provided on its rear with a bearing-piece, in combination with resilient legs which are united at top by an eye integral therewith and mounted on said piece and provided with an embracing closing-ring, the lower ends of said legs having inturned shoulders and tongues which depend from the inner ends of said shoulders.

2. Resilient legs joined at top by an eye, and provided with an embracing closing-ring, in combination with a plate having on its rear, a bearing-piece on which said eye is mounted and on its face with means for holding a placard, &c., the lower portions of said legs being flaring and provided with inturned shoulders.

3. Resilient legs joined at top by an eye and provided with an embracing closing-ring, a plate having on its rear, a bearing-piece on which said legs are mounted by said eye, and on its face, parallel grooved bars, the lower ends of said legs having inturned shoulders and tongues depending from the inner ends of said shoulders, said parts being combined forming an improvement in holders of the character stated.

640,944. MACHINE FOR MOLDING DOUGH. CHARLES E. POINTON and JOHN E. POINTON, Wellington, England, assignors to the Lewis & Pointon's Panification, Limited, London, England. Filed Sept. 26, 1899. Serial No. 731,745. (No model.)



Claim.—1. A machine for molding dough and like plastic materials comprising a carrier with means for operating the same and a molding-trough disposed at an angle to the line of motion of said carrier, substantially as described.

2. In machines for molding dough and like plastic material, the combination consisting of the endless-band conveyer A, running over drums B and C, a molding-trough D fixed above the upper side of the said conveyer A and at angle with its line of motion, and a supporting-bed E, substantially as set forth.

640,945. HEEL-BOLT. BENJMAN W. POWELL, Hartwell, Ga., assignor of one-half to L. M. Cunningham and T. B. Thornton, Coldwater, Ga.. Filed Oct. 31, 1899. Serial No. 735,416. (No model.)



Claim.—1. A heel-bolt comprising a shank and a colter extending at substantially right angles thereto, said colter being provided with a locking-lug, and with a knife-edge extending continuously between points in alinement with its rear edge, substantially as and for the purpose set forth.

2. A heel-bolt, comprising a shank, a colter extending at opposite sides and at substantially right angles to the shank, the rear edge of the colter being flat, and the opposite front edge being formed into a knife-edge, and a locking-lug projecting rearwardly from the rear edge of the colter, substantially as and for the purpose set forth.

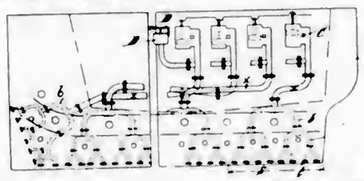
3. A heel-bolt, comprising a shank, a colter-blade extending at substantially right angles to the shank, and having its outer edge formed into a knife-edge, a rearwardly-extending locking-lug projecting from the rear edge of the colter, and stop-shoulders located at opposite ends of the colter-blade and projecting in opposite directions from the shank and the locking-lug respectively, substantially as and for the purpose set forth.

4. A heel-bolt comprising a squared shank, a colter extending at right angles thereto and having a straight rear edge, and a curved front edge having both terminals in alinement with the rear edge of the colter, a squared locking-lug extending from the rear edge of the colter, and a flattened edge formed at the rear edge of the colter and extending from its point to the locking-lug, substantially as and for the purpose set forth.

5. A heel-bolt, comprising a shank and locking-lug of similar transverse dimensions, and a colter having a regularly-curved sharpened front edge terminating beyond the locking-lug, substantially as and for the purpose set forth.

6. The combination with a plow-standard, of a share provided with an angular opening, a reversible heel-bolt comprising a shank and locking-lug designed to interchangeably engage the aperture in the share, and a colter having a continuously-curved and sharpened front edge extending in either position of the heel-bolt from the face of the share to the front edge of the standard and said colter being provided beyond the locking-lug with a flat edge along its rear face, substantially as and for the purpose set forth.

640,946. AIR-EJECTING APPARATUS FOR VESSELS. GUSTAVE QUARONNE, Houdeng-Goegnies, Belgium. Filed Feb. 17, 1899. Serial No. 705,842. (No model.)



Claim.—1. In combination with a vessel, a series of distributers disposed along the sides and ceiling of the vessel at different points forming or grouped into separated zones of distribution, a series of pipes leading to the distributers, a series of compressors connected with the pipes and means for automatically regulating the flow of air toward the distributers whereby a constant quantity of air will be delivered at different points of a same zone of distribution along the sides and ceiling of the vessel in a unit of time, the pressure of which varies with the variable counter pressure to be overcome at the various submerged points, substantially as described.

2. The combination with a vessel and with its body of compressors operating by reduction of volume, of branched pipes into which the said compressors force air, means for automatically regulating small variations of pressure in these pipes, and distributers connected to the said pipes and distributing the compressed air over different sections of the body independently of one another, substantially as described and for the purpose set forth.

3. The combination with a vessel and with its body of compressors operating by reduction of volume, a single transmitting means having a uniform regimen of movement actuating the said compressors, branched pipes into which the said compressors force air, means for automatically regulating small variations of pressure in the said pipes, and distributers connected to the said pipes and distributing compressed air over different sections of the body independent of one another, substantially as described and for the purpose set forth.

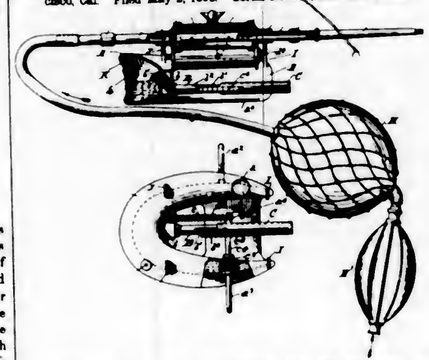
4. The combination with a vessel and with its body of compressors operating by reduction of volume, a single transmission-shaft actuating the said compressors, cranks keyed at different angles connecting the said compressors to the said single transmission-shaft, branched pipes into which the said compressors force air, means for automatically regulating small variations of pressure in the said pipes, and distributers connected to the said pipes and distributing the compressed air over different sections of the body independent of one another, substantially as described and for the purpose set forth.

5. The combination with a vessel and with its body of compressors operating by reduction of volume, a single transmission-shaft actuating the said compressors, cranks keyed at different angles connecting the said compressors to the said single transmission-shaft, a regulating-reservoir for the continuity of the air-current, branch pipes into which the said compressors and the said reservoir force air, means for automatically regulating small variations of pressure in these pipes and distributers connected to the said pipes and distributing the compressed air over different sections of the body independent of one another, substantially as hereinbefore described and for the purpose set forth.

6. The combination with a vessel and with its body of compressors operating by reduction of volume, a single transmission-shaft actuating the said compressors, cranks keyed at different angles and connecting the said compressors to the said single transmission-shaft, a regulating-reservoir for the continuity of the air-current, branched pipes into which the said compressors and the said reservoir force air, ball-valves interposed in the said pipes and acting through the effect of the *vis viva* of the air-current to moderate the latter, and distributers connected to the said pipes and distributing the compressed air over different sections of the body independent of one another, substantially as described.

7. The combination with the vessel and with its body of compressors operating by reduction of volume, a single transmission-shaft actuating the said compressors, cranks keyed at different angles and connecting the said compressors to the said single transmitting-shaft, a regulating-reservoir for the continuity of the air-current, branched pipes into which the said compressors and the said reservoir force air, ball-valves interposed in the said pipes and acting through the effect of the *vis viva* of the air-current to moderate the latter, distributers connected with the said pipes and distributing the compressed air over different sections of the body independent of one another and means for concealing the said distributers in the sides of the vessel.

640,947. HOT-AIR SYRINGE. JOSEPH I. RICHARDS, San Francisco, Cal. Filed May 2, 1898. Serial No. 679,427. (No model.)



Claim.—1. In a hand apparatus of the kind described and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube communicating with said reservoir and extending between the arms thereof, a heating vessel above said wick-tube, and means for inducing a current of air through said heating vessel flexibly connected thereto and adapted to be operated by the same hand, substantially as described.

2. In a hand apparatus of the kind described and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube communicating with said reservoir and extending between the arms thereof, a flame-regulator, a heating vessel above said wick-tube, controlling means for said regulator adapted to be operated by the same hand, and means for inducing a current of air through said heating vessel flexibly connected thereto and adapted to be operated by the same hand, substantially as described.

3. In a hand apparatus of the kind described, and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube communicating with said reservoir and extending between the arms thereof, a heating vessel above said wick-tube, a nozzle projecting from one end of said heating vessel, and means for inducing a current of air through said heating vessel and suitably connected to the other end thereof and adapted to be operated by the same hand, substantially as described.

4. In a hand apparatus of the kind described, and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube communicating with said reservoir and extending between the arms thereof, a heating vessel above said wick-tube, a vessel to contain a medicament to be vaporized and communicating with said heating vessel, a nozzle projecting from one end of said heating vessel, and means for inducing a current of air through said heating vessel and connected to the other end thereof by a flexible tube and adapted to be operated by the same hand, substantially as described.

5. In a hand apparatus of the kind described and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube communicating with said reservoir and extending between

the arms thereof, a heating vessel above said wick-tube, a vessel to contain a medicament to be vaporized and communicating with said heating vessel, a nozzle projecting from one end of said heating vessel, and an air-bulb for inducing a current of air through said heating vessel and connected to the other end thereof by a flexible tube and adapted to be operated by the same hand, substantially as described.

6. A hot-air syringe and vaporizer, comprising a U-shaped hollow stock shaped to be held between the finger and thumb of one hand and to contain the alcohol or other material from which the heat is to be generated, said stock having a wick-tube projecting forwardly between its arms, with a suitable burner, a vessel or cylinder carried by the stock above the burner and in position to be subjected to the flame thereof, said vessel being adapted to contain a medicament to be vaporized, a perforated tube passing through said vessel, a suitable nozzle in communication with one end of said tube, and a means adapted to be operated by the same hand and communicating with its other end for forcing air through said tube and nozzle.

7. A hot-air syringe and vaporizer, comprising the U-shaped hollow stock forming the lamp-reservoir and having the wick-tube with its burner said stock being shaped to be held between the finger and thumb of one hand, an air-tube carried by the stock in position to receive the heat from the burner, a suitable nozzle at the front of the air-tube, and an air-bulb and connections to the other end of the tube whereby a current of air is forced through said tube and nozzle.

8. In a hand apparatus of the kind described and in combination, a hollow substantially U-shaped lamp-reservoir adapted to be grasped and held between the forefinger and thumb of the operator's hand, a wick-tube and burner communicating with said reservoir and extending between the arms thereof, a plurality of intercommunicating cylinders or vessels in position to be heated by the flame, and means for inducing a current of air through one of said heating vessels connected thereto and adapted to be operated by the same hand, substantially as described.

9. A hot-air syringe and vaporizer comprising a U-shaped hollow stock forming the lamp-reservoir and provided with a wick-tube and burner, the plurality of intercommunicating cylinders carried by the stock in position to be heated by the flame, a perforated air-pipe passing through one of said cylinders, a nozzle connected with one end of said air pipe and an air-bulb and connections with its other end.

10. In a hot-air syringe and vaporizer, and in combination with means for inducing, conveying and discharging a current of air, a hollow U-shaped stock carrying said means and adapted to be held between the finger and thumb of one hand, and to contain the material from which the heat is to be generated, a wick-tube communicating with said stock, and extending forwardly between its arms, said tube having a burner-opening adapted to direct the flame upon the means for conveying the air, whereby said air is heated in its passage, and means adapted to be controlled by the finger or thumb of the holding-hand, for regulating the size of the frame from the burner-opening, said means consisting of the sliding cap on the wick-tube, having the rack-teeth, the spring tending to force said cap over the burner-opening, and the finger-ring and spring-controlled pawl engaging the rack-teeth of the cap, to hold and release it.

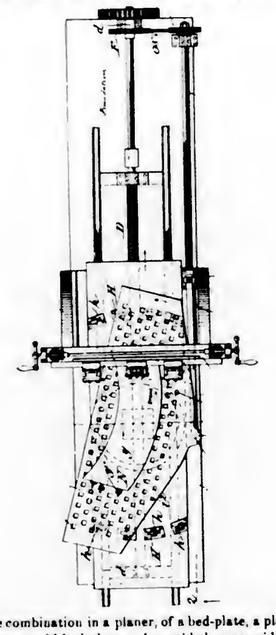
11. A hot-air syringe and vaporizer, comprising the U-shaped hollow stock forming the lamp-reservoir and provided with a wick-tube having a burner-opening, a sliding cap to control said opening, the spring, the pawl, the rack-teeth and the finger-ring to operate said cap, suitable means carried by the stock for subjecting air or material to be vaporized to the flame, a nozzle connected with said means and an air-bulb and connections for supplying the current of air.

12. In a hot-air syringe and vaporizer, the combination of the U-shaped hollow stock forming the lamp-reservoir and provided with a suitable burner, the vessel or cylinder to be heated, the brackets on top of the stock, the axially-rotary coupling-sections seated in said brackets and the coupling-flanges of said sections adapted to engage with the vessel or cylinder whereby it is removably secured to the stock.

13. In a hand apparatus of the kind described, the combination of a lamp having a portion shaped to be grasped between and rest upon the forefinger and thumb of the operator's hand, devices for securing the same upon the hand, one of which is movable, a heating vessel, a nozzle, means for forcing air through said vessel and nozzle, and a regulator for the flame of said lamp adapted to be operated by said movable device, substantially as described.

640,948. SHAPING ATTACHMENT FOR PLANERS. HOMER W. RICHTMYER, Rowlesburg, W. Va. Filed Mar. 16, 1898. Serial No. 674,106. (No model.)

Claim.—1. The combination in a planer, of a bed-plate, a platen pivotally supported upon said bed-plate, two parallel screw-shafts revolving in the same direction, mechanism geared to one of said shafts for moving the bed-plate longitudinally, an internally-threaded block on the other shaft, moving in unison with the bed-plate, and a link connecting said block with the platen, substantially as described.

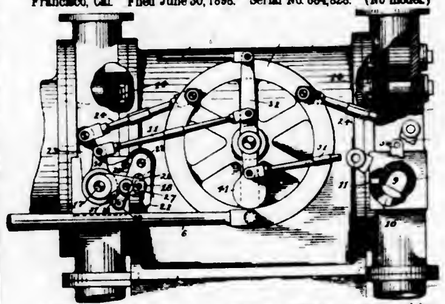


2. The combination in a planer, of a bed-plate, a platen pivotally supported upon said bed-plate and provided at one side with a gear-segment, two parallel screw-shafts geared to revolve in the same direction, mechanism geared to one of said shafts for moving the bed-plate longitudinally, a movable block operated by the other shaft in unison with the bed-plate, and a link movably connected at one end to said block, and at its other end provided with a gear-rack engaging the gear-segment or the platen, as described.

3. The combination with the bed-plate of a planer, and with mechanism for moving the bed-plate longitudinally, of a platen pivotally supported upon the bed-plate, a screw-threaded shaft geared to the bed-plate-operating mechanism, an internally-threaded block arranged on said shaft and a link connecting said block with one side of the platen, substantially as described.

4. The combination in a planer, of a bed-plate, a platen, pivotally supported upon said bed-plate, two parallel screw-shafts revolving in the same direction, mechanism geared to one of said shafts for moving the bed-plate longitudinally, an internally-threaded block on the other shaft moving in unison with the bed-plate and a connection between said block and platen, substantially as described.

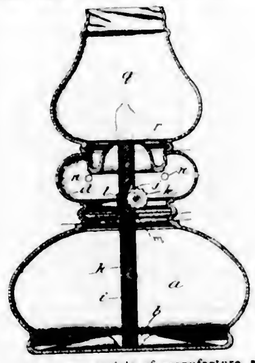
640,949. AIR-COMPRESSING ENGINE. EDWARD A. RIX, San Francisco, Cal. Filed June 30, 1898. Serial No. 684,828. (No model.)



Claim.—In an air-compressor, having a cylinder, piston, and inlet and outlet valves, the combination with the inlet-valves of mechanism to actuate said valves, and means exposed to the pressure in

the outlet-pipe controlling the operation of said mechanism, whereby the inlet-valves are closed at some point of the compression-stroke varying with and dependent on the pressure in said outlet-pipe or its connection, substantially as specified.

640,950. LAMP. RONALD J. ROBERTSON, Chelsea, Mass. Filed Mar. 27, 1899. Serial No. 710,586. (No model.)



Claim.—1. As a new article of manufacture, a lamp-chimney having its lower end walls curved inwardly and upwardly and provided with grooves formed in its exterior near the ends thereof for adjusting the position of the end walls with reference to the flame, and thereby controlling the point of concentration of the air-current.

2. As a new article of manufacture, a lamp-chimney having its lower end walls curved upwardly and inwardly to form the annular lip r, and provided with means for adjusting the position of said annular lip with reference to the flame, thereby controlling the point of concentration of the air-current.

3. A lamp-base consisting of an oil-reservoir, and an air-chamber surmounting said reservoir, having perforations in its wall, said air-chamber being inturned horizontally at its top for direct engagement with a lamp-chimney held thereby, substantially as shown and described.

4. A lamp-base consisting of an oil-reservoir, an air-chamber surmounting said reservoir, horizontally inturned at its top for holding a lamp-chimney by its inturned edge, projections on said edge, and an intermediate neck portion interiorly grooved, substantially as shown and described.

5. As a new article of manufacture, a lamp-base made up of an oil-reservoir; an annular neck portion formed with an interior circumferential groove for engaging and holding a screen; an air-chamber surmounting said reservoir and connected therewith by said neck portion; said chamber being formed with projections on its upper edge for engaging grooves in the end walls of the chimney.

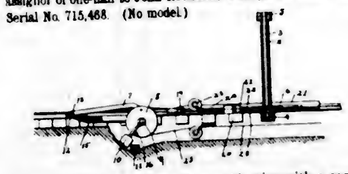
6. A lamp-base consisting of an oil-reservoir, an air-chamber surmounting said reservoir, having a perforated wall, and an intermediate neck portion having an interior annular groove, said air-chamber being inturned horizontally at its top for direct engagement with a lamp-chimney held thereby, substantially as shown and described.

7. In a lamp, the combination of a vertically-adjustable lamp-chimney having its lower end walls curved inwardly and upwardly; a lamp base made up of an oil-reservoir and an air-chamber, said reservoir and air-chamber being connected, by an annular neck portion; a wick; a wick-tube; a screen located in said annular neck portion, surrounding and supporting said wick-tube and means to raise and lower said wick.

8. In a lamp, the combination of a vertically-adjustable and reversible lamp-chimney having its lower end walls curved inwardly and upwardly; a lamp-base made up of an oil-reservoir and an air-chamber; said reservoir and air-chamber being connected by an annular neck portion formed with an internal circumferential groove; a screen adjusted in place in said groove; a wick, a wick-tube; and means to raise and lower said wick.

9. As a new article of manufacture, a lamp made up of a vertically-adjustable and reversible lamp-chimney having its lower end walls curved inwardly and upwardly; a lamp-base made up of an oil-reservoir and an apertured air-chamber connected to said reservoir by an annular neck portion formed with a circumferential groove; said reservoir being formed with a depression in its base with grooves leading thereto; a screen adjusted in place in said circumferential groove; a wick-tube formed with a flange upon which said screen rests; a wick; and means to raise and lower said wick.

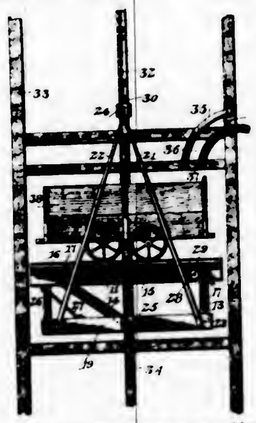
640,951. MINE-DOOR. AMOS S. ROBINSON, Nelsonville, Ohio, assignor of one-half to John Robinson, same place. Filed May 3, 1899. Serial No. 715,468. (No model.)



Claim.—1. In a mine-door, the combination with a car-track extending through a doorway, of door-sections 2 pivoted on opposite sides of said track, a pulley-wheel carried on each of said door-sections, pulley-wheels 8 journaled adjacent to the track-rails, trip-rails 7 one of which is eccentrically connected with each of said pulley-wheels 8 at one end and at its remaining end is provided with a sliding support and an operating-rope connecting said door-wheels and pulley-wheels 8, substantially as specified.

2. In a mine-door, the combination with a car-track running through a doorway, door-sections 2 pivoted on opposite sides of said track and adapted to swing over the rails of said track, a pulley-wheel carried on each of said door-sections, pulley-wheels 8 journaled adjacent to the track-rails on the inner and outer side of said doorway, a weight-arm loose on the shaft of each of said pulley-wheels and adapted to engage a projection of the latter, trip-rails each of which has one of its ends eccentrically connected with one of said wheels 8 and its remaining end provided with a sliding bearing and operating-ropes connecting the wheels 8 and said door-wheels, of frames 17 fulcrumed on the outer sides of the track-rails and extending through the doorway, each of said frames having an inner trip-bar adjacent to the track-rail and outwardly-projecting weight-arms, substantially as specified.

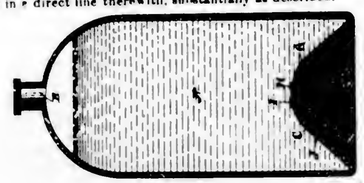
640,952. AUTOMATIC DUMPING APPARATUS. JAMES R. ROBINSON, Monongahela, Pa. Filed July 6, 1899. Serial No. 722,956. (No model.)



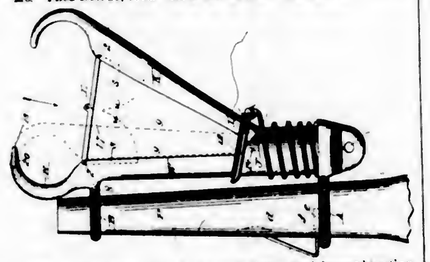
Claim.—In an automatic dumping-hoist, the combination of a vertically-traveling cage having the bottom rails and the central head-rail united together by intermediate rods and also provided on said head-rail and the bottom rails with the guides which, on each side of the cage, are vertically alined, a rest-frame secured to the bottom cage-rails and connected together by a cross-rail, a tiltable platform, shafts supported on the platform and the bottom rails of said cage, the short links sleeved on the shafts near one end of the cage and the platform, the long links sleeved on the shaft near the other end of the platform and the middle of the cage, the rollers mounted on the platform near the points where the short links are pivoted thereto, the uprights or posts fitting in the cage-guides, and the curved guides fixed in the path of the rollers on said cage, substantially as described.

640,953. NON-REFILLABLE BOTTLE. IDA L. ROBINSON, Boston, Mass. Filed Oct. 17, 1899. Serial No. 733,906. (No model.)

Claim.—A non-refillable bottle having a closed projection B extending from its top, and which is to be broken away in order to extract the contents of the bottle; a concave bottom which is to be filled with cement; the neck G projecting down into the concaved portion of the bottle, and having the flattened ring J formed upon its lower end, the outer edge of the ring projecting outwardly beyond the neck of the bottle as a binder for the cement, and made concaved upon its inner side and holding the cement; the opening through the ring J being of the same size as that through the neck when in a direct line therewith, substantially as described.



640,954. HOG-CATCHING IMPLEMENT. SAMUEL RUFI, Chamois, Mo. Filed Nov. 25, 1898. Serial No. 697,424. (No model.)



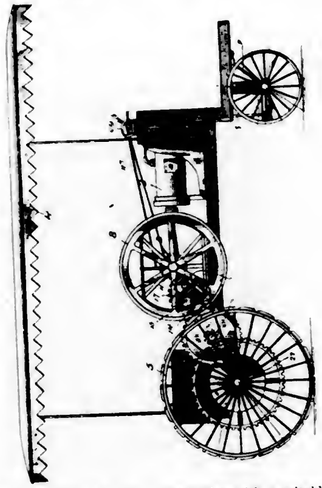
Claim.—In an animal catching and holding tool, in combination, a pair of clamping-arms pivoted together and formed to seize the leg of an animal, registering longitudinal grooves on the inner sides of said arms, a ring encircling said arms, a spring for forcing said ring toward the clamping end of the arms, and a two-part brace pivoted at its ends to the respective arms and connected together in the middle by a rule-joint constructed to open toward the pivot of the arms and means for attaching one of the arms to a pole, substantially as described.

640,955. TRACTION-ENGINE. READ RUSSELL, Warren, Ill. Filed Apr. 21, 1899. Serial No. 713,950. (No model.)

Claim.—1. In a traction-engine, the combination with a suitable frame, of a motor mounted thereon and adapted to operate a power-shaft, fly-wheels carried by the said shaft, independent trains of gearing connected with the driving-shaft of the vehicle, one train of gearing being adapted to impart a forward movement to the vehicle, and the other train of gearing being adapted to move the vehicle in the opposite direction, and means for connecting the said trains of gearing with their fly-wheels alternately without stopping the same for driving the vehicle forward or reversing the same, substantially as described.

2. In a traction-engine, the combination with a suitable frame, of a motor mounted thereon, a power-shaft adapted to receive a continuous revolution in one direction therefrom, fly-wheels secured to said power-shaft, pinions loosely mounted upon the said shaft, a train of intermeshing gear-wheels connecting each of the said pinions with the driving-shaft of the vehicle, there being more gear-wheels in one of said trains of gearing than in the other, whereby they will impart motion in different directions to the vehicle, friction-clutches interposed between each of the pinions and the rims of the fly-wheels, and means for bringing the friction-clutches into engagement with the said rim alternately, whereby the vehicle may be propelled forward or may be reversed without stopping or reversing the engine, substantially as described.

3. A traction-engine comprising a suitable frame having an engine thereon, a power-shaft mounted upon the said frame adapted to receive its motion from the said engine, fly-wheels upon the said power-shaft, pinions loosely mounted upon the said power-shaft, a gear-wheel secured to the drive-shaft of the vehicle, a train of gearing connecting one of said pinions with the said gear-wheel on the driving-shaft, comprising two intermeshing gears, an actuating-pinion having clutches secured to it, one of which is adapted to engage a clutch upon one of the said gears, said pinion actuating the gear on the driving-shaft, a train of gearing interposed between the other pinion upon the power-shaft and the said gear-wheel on the driving-shaft, comprising three intermeshing gears and a clutch adapted to engage the other clutch of the actuating-pinion, and clutches for connecting the pinions upon the power-shaft with the fly-wheels thereon, and means for operating the clutches upon each side of the machine, whereby the vehicle may be propelled in one direction or the other according to the train of gear which is thrown into operation, substantially as described.



4. In a traction-engine, the combination with a suitable frame, of a motor mounted thereon, a power-shaft operated by the said motor carrying fly-wheels at each end, loose pinions mounted upon the said power-shaft, separate trains of intermeshing gear-wheels, connecting the said pinions with the driving-shaft of the vehicles, clutches controlling said trains of gearing and clutches interposed between the loose pulleys and the fly-wheels, said clutches comprising friction-shoes pivotally mounted upon a frame or yoke on the power-shaft, and connected by pivoted links with an arm connected with each of the pinions, said pivoted links being connected with each of the shoes, the construction being such that by forcing the said arms in one direction with respect to the shaft, the shoes may be spread apart by means of the pivoted links so as to engage the rims of the fly-wheels and when the arms are moved in the opposite direction, the shoes will be released, substantially as described.

5. A traction-engine, comprising a frame having a motor adapted to operate a power-shaft, fly-wheels secured to the said power-shaft, trains of gearing connecting the power-shaft with the driving-shaft of the vehicle, two clutches for controlling each train of gearing, a rod connecting the clutches upon the driving-shaft and a similar rod connecting the other two clutches, and means for operating the said rod, the construction being such that the trains of gearing may be so disposed as to move the vehicle in one direction or the other at will, substantially as described.

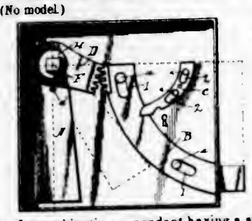
6. In a traction-engine, the combination with a suitable motor, of trains of gearing connecting the said motor with the drive-wheel of the machine, fly-wheels upon the main shaft of the motor, pinions upon the said shaft for engaging the trains of gearing, one of said pinions having a hub or sleeve carrying a larger gear-wheel, said larger gear-wheel being adapted to engage a smaller pinion in one of the trains of gearing, and means for moving the said pinion and the gear-wheel which it carries so that the speed of the vehicle may be regulated at will, substantially as described.

7. In a traction-engine, the combination with a suitable motor, of trains of gearing for connecting the same with the driving-wheels, pinions upon each side of the machine for operating the trains of gearing, the pinion upon one side being splined upon the sleeve which runs loosely upon the main power-shaft, a collar also splined upon the said sleeve, a clutch interposed between the said collar and the fly-wheel of the engine, the construction being such that the gear-wheels may be moved upon the said sleeve to change the speed of the vehicle and the collar may also be moved upon the said sleeve to bring the gearing into and out of engagement with the fly-wheel, substantially as described.

8 In a traction-engine, the combination with a suitable motor, of a power-shaft driven thereby, two trains of gearing for connecting the power-shaft with the drive-shaft of the vehicle, intermediate shaft-

ing interposed between the power-shaft and the driving-shaft, an actuating-pinion upon one of said shafts, clutches secured to each side of the said actuating-pinions and adapted to engage corresponding clutches secured to the trains of gearing, a rod for moving the said pinion and clutches, and means for connecting the two trains of gearing with the fly-wheels of the engine for imparting movement thereto, the construction being such that when the clutches connected with the actuating-pinions are moved in one direction the vehicle will be propelled forward and when the clutches are moved so as to engage the other train of gearing, the vehicle will be propelled backward, substantially as described.

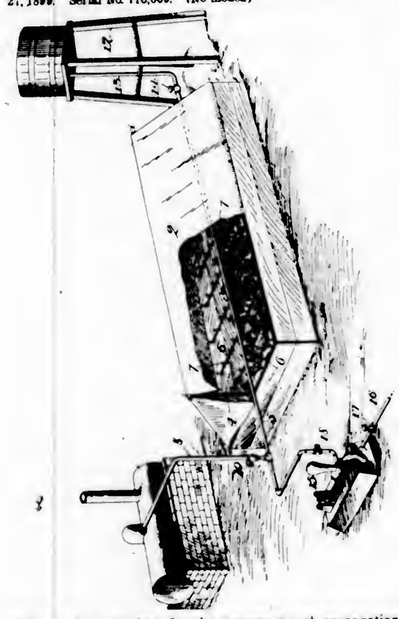
640,956. LOCK. EDWARD SARGENT, New Lisbon, Wis., assignor to Charles A. Leicht, same place. Filed Jan. 19, 1897. Serial No. 619,824. (No model.)



Claim.—1. In combination, a pendant having a spindle-barrel, a pinion mounted on the barrel, a stud on the pendant for actuating the pinion, a gravity-bolt having a rack engaged by the pinion, said bolt having slots to receive friction-rolls operating in slots, a detent having slots, friction-rolls operating in the slots, said detent being notched to receive a key as and for the purpose described.

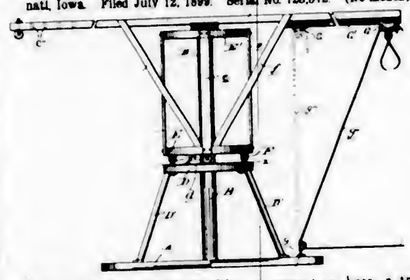
2. In combination, a pendant having a spindle-barrel, a spindle for operating the pendant, a pinion mounted on the barrel, a stud on the pendant to engage the edge of the pinion, a curved locking-bolt having a rack on its upper edge, a gravitating detent engaging a notch of the locking-bar, said detent having a notch to receive a key, as and for the purpose specified.

640,957. APPARATUS FOR TREATING AND PRESERVING GROWING PLANTS. AUGUSTUS SATTLER, Micanopy, Fla. Filed Mar. 27, 1899. Serial No. 710,669. (No model.)



Claim.—An apparatus for the treatment and propagation of plants consisting of a knockdown inclosure covering a bed of plants, a main pipe extending lengthwise of the inclosure above said bed of plants, and branch pipes connected with and extending transversely through said main pipe from side to side of the inclosure, and having a series of depending water-cocks, a boiler connected with said main pipe, a valve for controlling connection of said boiler with the main pipe, a pump connected with said pipe and a valve for controlling the connection of said pump with the main pipe, and a source of water-supply connected with said pump and with said main pipe, a valve for controlling the connection of said water-supply and pump with the main pipe, whereby the system and arrangement of pipes, pump, boiler, and water-supply, may be utilized to either regulate the temperature or to irrigate the bed of plants, as set forth.

640,958. ROTARY DERRICK. WILLIAM E. SAUERMAN, Cincinnati, Iowa. Filed July 12, 1899. Serial No. 723,572. (No model.)

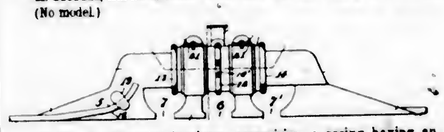


Claim.—1. A derrick comprising a support or base, a track mounted thereon, a standard extending upwardly from the track, a rotary member resting on the upper end of the standard adapted to revolve thereon extending downwardly to a plane slightly above the track, and comprising the sections E, E', arms extending in opposite directions from the upper section, and vertical and diagonal braces therefor, antifriction-rollers interposed between the track and rotary member to constitute a bearing for the lower end of the rotary member, and elevating mechanism carried by the said rotary member, substantially as described.

2. A derrick comprising a base or support, a stationary mast thereon, a rotary member mounted on the mast, a track G' on said rotary member, a carrier adapted to travel on the track, a rope or chain extending downwardly from said carrier to a suitable source of power, a guide for said rope or chain on the base or support, located below the track and away from the mast, and means operating to cause the carrier to travel inwardly to the plane of the rope-guide on the base, substantially as described.

3. A derrick comprising a base or support, an upwardly-extending stationary standard thereon, a member adapted to rotate around the standard, means for elevating the load comprising a suitable track, carrier and operating-rope leading to a source of power carried by the rotary member, an antifriction-guide for the operating-rope mounted at approximately the lower end of the base or support slightly outward or away from the standard thereon, means operating to cause the carrier and load to travel inwardly to substantially the vertical plane of the antifriction guide on the base, and means for restoring the carrier to its initial position to unload, substantially as described.

640,959. SECTION-INSULATOR. JOHN S. SCHUMAKER and LEROY M. GLODELL, Hartford, Conn. Filed June 14, 1899. Serial No. 720,562. (No model.)



Claim.—1. A section-insulator comprising a casing having an opening extending therethrough from end to end thereof; and two oppositely disposed end members embodying coacting wedges supported in said casing and also embodying means whereby the ends of the section-conductors may be secured thereto.

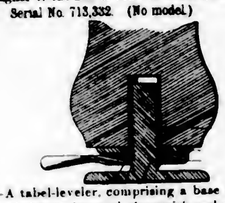
2. The combination, in a section-insulator, of a box-like casing; two oppositely-disposed wedges supported for limited movement in said casing and having end portions embodying means for attaching the ends of the section-conductors thereto; a plurality of under-runs disposed between the inner lower ends of the end members and separated from each other and from said end members by air-spaces; and insulation interposed between the under-runs and their supports, and between the wedges and the casing, substantially as described.

3. The combination in a section-insulator of two strain-bearing members having wedges at their inner ends the straight faces of which are in cooperative relation and are separated by insulating material; a casing surrounding and supporting said wedges and having inclined side walls cooperative with the side faces of said wedges, whereby to limit the movement of one wedge relatively to the other; a plurality of under-runs, disposed one at each side the center of the casing and insulated therefrom, the lower portions of said under-runs being in horizontal alinement with the lower portion of the strain-bearing members and being separated from each other, and from said members by air-spaces.

4. A section-insulator embodying a casing having a longitudinal opening therethrough, and two oppositely-disposed wedges, supported in said casing and insulated therefrom, and having end members formed integral with the outer ends thereof; means in connection with the end members for holding the ends of the conductors; a plurality of under-runs removably secured to the casing between the inner ends of the end members and separated from each other and from said end members by air-spaces, said under-runs being insulated with respect to said casing.

5. In a section-insulator, the combination of a casing having a cross-sectionally rectangular opening therethrough, which opening is lined with insulating material; two oppositely-disposed cooperative wedges supported in said casing and having at the outer ends thereof, conductor-supporting end members; a prong integral with each end member and adapted to be bent over to engage the end of the conductor; and one or more under-runs supported between the inner ends of the end members and separated therefrom by air-spaces, and being insulated with respect to the casing and end members.

640,960. TABLE-LEVELER. GEORGE A. SEELY, Emmetsburg, Iowa, assignor of one-half to John H. Godden, same place. Filed Apr. 17, 1899. Serial No. 713,332. (No model.)



Claim.—A tabel-leveler, comprising a base having a centrally-disposed threaded stem integral therewith and adapted to enter an opening in the table-leg or the like, a follow-plate having a central opening sufficiently large to receive the threaded stem and freely slidable thereon and bearing against the lower end of the table-leg, and an adjusting-plate having screw-threaded connection with the aforesaid stem and supporting the follow-plate and having an integral offstanding operating-handle, substantially as described.

640,961. CORN-HUSKING MACHINE. WILLIAM H. SELLS, Buffalo, N. Y., assignor to John A. Sells, Montesano, Wash. Filed Aug. 13, 1898. Serial No. 688,527. (No model.)

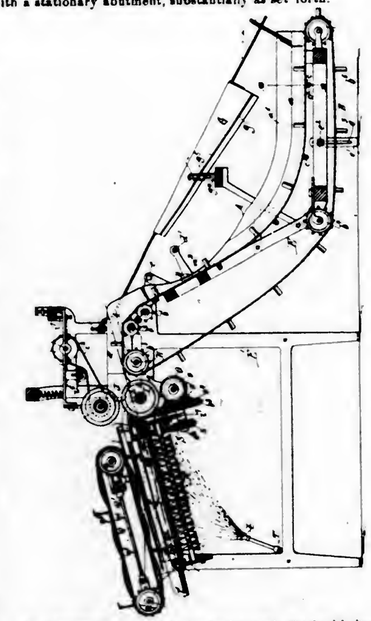
Claim.—1. The combination with the two longitudinal sides of a feed-trough which are separated by an intervening longitudinal slot and the feed-belt passing lengthwise through said slot, of coupling-lugs arranged on the sides of the trough adjacent to the slot between the same, a sleeve arranged between each lug on one side and a lug on the other side, and a bolt connecting said sleeve with the adjacent lugs, substantially as set forth.

2. The combination with a number of feed-troughs arranged side by side, of two laterally-inclined distributing-boards arranged side by side above the feed-troughs and pivoted at their adjacent inner longitudinal edges, and adjusting devices connected with said boards and whereby the lateral inclination of the board may be adjusted, substantially as set forth.

3. The combination with a number of feed-troughs arranged side by side, of two longitudinally and laterally inclined distributing-boards arranged side by side above the feed-troughs, adjusting mechanism for varying the longitudinal inclination of the boards, and adjusting mechanism for varying the lateral inclination of the boards, substantially as set forth.

4. The combination with a number of feed-troughs arranged side by side, of two longitudinally and laterally inclined distributing-boards arranged side by side over the feed-troughs, a longitudinal supporting-rod to which the inner edges of the boards are pivoted and which is capable of vertical adjustment for varying the longitudinal inclination of the boards, and supports which are adjustably connected with the boards and whereby the boards may be raised or lowered for varying the lateral inclination thereof, substantially as set forth.

5. The combination with the feed-trough and the feed-belt moving lengthwise through the same, of a driving-shaft, a driving-wheel mounted loosely in said shaft and propelling said belt, a driving-disk keyed to said shaft so that it is compelled to turn therewith but is capable of sliding lengthwise thereon, toward and from the driving-wheel, a rock-lever connected loosely with one arm to said driving-disk, a swivel-block pivoted to the other arm of the rock-lever, and an adjusting-screw arranged in said block and adapted to engage with a stationary abutment, substantially as set forth.



6. The combination with the feed-trough, the feed-belt arranged in said trough and passing around a wheel at the delivery end of the trough, the feed-wings arranged on the belt, and the rotary cutters arranged in rear of the feed-trough, of two laterally-movable guide-plates which are arranged on opposite sides of the space between the rear end of the feed-trough and the cutters and which project normally into the path of the wings, and springs whereby the guide-plates are yieldingly held in their normal position, substantially as set forth.

7. The combination with the lower rotary cutter, the upper rotary cutter capable of moving vertically toward and from the lower cutter and the rock-arm carrying the upper cutter, of a vertical guide whereby the rock-arm is held against lateral displacement and the upper cutter is held in alinement with the lower cutter, substantially as set forth.

8. The combination with the lower rotary cutter, the upper rotary cutter capable of moving vertically toward and from the lower cutter and the rock-arm supporting the upper cutter, of an upright guide-arm engaging with a slotted lug on the rock-arm, and an elastic buffer which is arranged adjacent to the guide-arm and adapted to be engaged by the slotted lug, substantially as set forth.

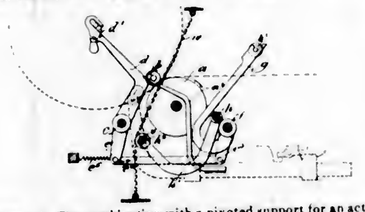
9. The combination with the husking-rollers arranged lengthwise side by side, of stationary bearings in which one of the rollers is journaled, transversely-movable bearings in which the other roller is journaled and which is guided in transverse ways in the frame, wedges arranged in said ways and engaging with the movable bearings, a rod connecting said wedges, an adjusting-block having a screw connection with said rod, a thrust-plate mounted on said block and bearing against the frame, and a cam pivoted on the adjusting-block and bearing against the thrust-plate, substantially as set forth.

10. The combination with a pair of husking-rollers arranged lengthwise side by side, and a trough or guideway arranged above said rollers, of a clearing-belt having its operative portion moving lengthwise over said rollers and provided with wings whereby the ears are moved along the rollers, cutters arranged on the wings and adapted to cut off any ears which become caught between the husking-rollers, and supporting-lugs arranged on the clearing-belt adjacent to its wings and moving along said trough or guideway, where-

by the cutters are prevented from being drawn between the rollers and injuring the latter, substantially as set forth.

11. The combination with the husking-rollers arranged lengthwise side by side, of side walls arranged lengthwise of the rollers, a clearing-belt provided with wings moving lengthwise over the rollers, and a covering secured to said belt and adapted to close the space between the side walls as the belt passes over the husking-rollers, substantially as set forth.

640,962. CARDING-ENGINE. JOSEF SHAEFER, Forst, Germany. Filed Dec. 31, 1897. Serial No. 664,960. (No model.)



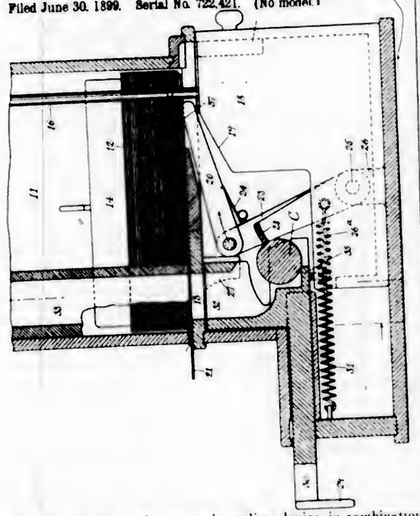
Claim.—1. The combination with a pivoted support for an active roving-roller, adapted to be swung upon its pivot by weight of the roller and its contained thread, of means for rotating said active roller, a holder for an empty roller, and means actuated from the support of the active roving-roller for automatically replacing the active roving-roller by the empty roller at a predetermined time, substantially as described.

2. The combination with a pivoted support for an active roving-roller adapted to be swung upon its pivot by the weight of the said roller and its contained thread, of means for rotating the active roller, a pivoted holder for an empty roller and connections between the roller-support and holder whereby the holder is caused to swing upon its pivot simultaneously with the support to deposit an empty roller into position to be moved upon the support, substantially as described.

3. The combination of the pivoted levers *d*, pivoted arms *g*, intermediate drum *a* and its rotating means and connections intermediate the levers *d* and arms *g* whereby they are caused to swing simultaneously upon their pivots, substantially as described.

4. The combination of the pivoted levers *d*, pivoted arms *g*, intermediate stationary bearing *a'* and driving-drum *a* and connections intermediate the levers *d* and arms *g* whereby they are caused to swing simultaneously upon their pivots, substantially as described.

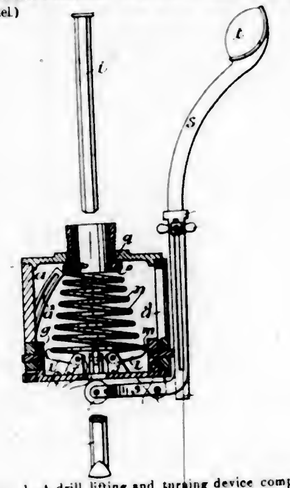
640,963. COIN-OPERATED VENDING-MACHINE. JAMES T. SIBLEY, Newark, N. J., assignor to W. Scott O'Connor, New York, N. Y. Filed June 30, 1899. Serial No. 722,421. (No model.)



Claim.—1. In a coin-operated vending device, in combination with means for supporting the articles to be sold, an ejecting-pawl for the said articles, a reciprocating coin-support, and a pawl-operating arm movable in divergent paths, and engaging between them the substantially opposite peripheral edges of an interposed coin, which when of standard diameter operates, upon the full stroke of the coin support, to move the ejecting-pawl to its article-engaging position, and whereby a coin of smaller diameter allows the pawl to stop short of that position.

2. In a coin-operated vending device, in combination with means for supporting the articles to be sold, an ejecting-pawl for engaging with and pushing forward the said articles, a reciprocating coin-carrier for supporting and moving a coin with its peripheral edge in contact with the operating-arm, and movable in a path divergent from that of the arm, so that the latter is released when its coin-engaging portion can pass by the peripheral edge of the coin, whereby a coin of the standard diameter will carry the pawl into engaging relation with the article to be ejected, and whereby a coin of smaller diameter will release the arm before the pawl reaches that position.

640,964. APPLIANCE FOR LIFTING AND TURNING DRILLS FOR ROCK-BORING OR OTHER PURPOSES. CHARLES SIMMONS, Kunanalling, Western Australia. Filed July 21, 1899. Serial No. 724,729. (No model.)



Claim.—1. A drill lifting and turning device comprising a stationary cylinder, a pistoo vertically movable therein, spring-pressed gripping devices carried by said piston within the cylinder, and a lever pivotally connected to the cylinder and having its end bearing against the bottom of the piston and moving said piston upwardly in opposition to the spring, substantially as described.

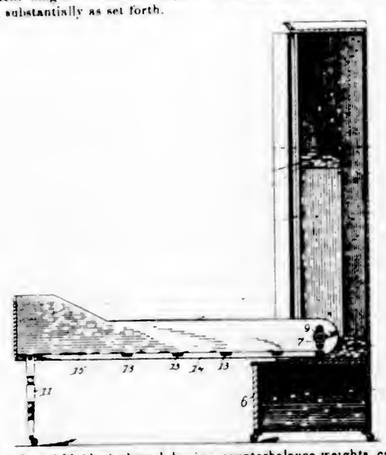
2. In combination, the cylinder having straight and inclined grooves or slots, the piston vertically movable therein and having annularly-arranged teeth, blocks traveling in said grooves having a spline connection with the piston and having pawls engaging said teeth, gripper-arms carried by said piston, a spring within the piston bearing on said arms, and a lever pivoted to the cylinder for raising said piston, substantially as described.

3. In combination, the cylinder, a piston vertically movable therein, spring-pressed gripping devices carried by said piston within the cylinder, a lever pivotally connected to the cylinder and having its end bearing against the bottom of the piston and moving said piston upwardly in opposition to the spring, means for causing said piston to rotate in said cylinder as it reciprocates therein and an extensible handle for the lever, substantially as described.

4. In combination, the cylinder, the piston therein, means for effecting the automatic rotation of said piston as it rises and falls, said piston having a central drill-opening, lugs around said drill-opening, gripping levers or arms pivoted to said lugs, a spring bearing against the outer ends of said arms for causing them to grip and also press the piston in one direction and means for moving said piston upward in said cylinder against the tension of the spring, substantially as described.

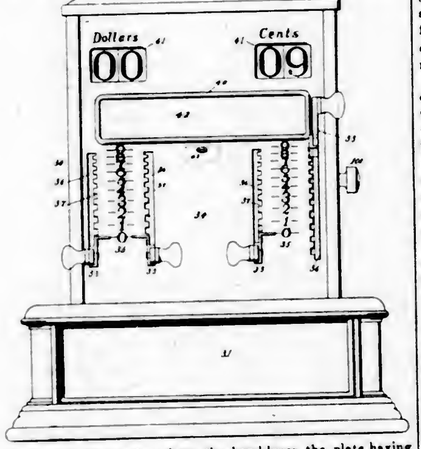
640,965. FOLDABLE BEDSTEAD. JOSEPH M. SONGER, Decatur, Ill. Filed Mar. 20, 1899. Serial No. 709,754. (No model.)

Claim.—1. In a foldable bedstead, the combination of a casing divided into side compartments and a central compartment, removable doors for the side compartments, a pivot-shaft journaled in the casing with its ends extended into the side compartments, pulleys above the ends of the shaft, weights, rods fastened in the weights to receive supplementary weights, cords connected with the shaft, run over the pulleys and fastened to the rods of the weights, hinged strips coextensive with the side compartments, doors for the central compartment hinged to the side strips, and a bedstead fastened to the shaft, substantially as set forth.



2. In a foldable bedstead having counterbalance-weights, casings for the weights each composed of a vertical permanent wall, a vertical rib fixed on the wall and extended at right angles therefrom, a vertical removable door connected with the permanent wall and the rib thereon, and a vertical rib fixed to the door in position to oppose the rib on the permanent wall and to bear against the wall when the door is closed, substantially as set forth.

640,966. CASH-REGISTER. ELIJAH F. SPAULDING, Bound Brook, N. J., assignor to the Ideal Cash Register Company, same place. Filed Nov. 22, 1897. Renewed Aug. 8, 1899. Serial No. 726,595. (No model.)



Claim.—1. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the movable segment substantially independent of but adapted to automatically follow said lever and to have its position controlled by said lever, the registering drum or disk, and the gear connected therewith, combined with means for bringing said gear into engagement with said segment after the latter has reached its predetermined operative position, spring-actuated mechanism for thereafter moving said segment against said gear for rotating said drum or disk, and means for releasing said spring-actuated mechanism to act by means of said lever, whereby after said lever, segment and gear have reached their position said spring-actuated mechanism may by means of said lever be caused to act and operate said segment and gear, said segment being during such operation returned to its initial position; substantially as set forth.

2. In a cash-register, the series of hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the series of movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled by said levers, the series of registering cylinders or drums, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, spring-actuated mechanism for thereafter moving said segments against said gearing for rotating said cylinders or drums, and means for releasing said spring-actuated mechanism to act by means of any of said levers, whereby after said levers, segments and gearing have reached their operative position said spring-actuated mechanism may, by means of any of said levers, be caused to act and operate said segments and gear, said segments being during such operation returned to their initial position; substantially as set forth.

3. In a cash-register, the series of setting or operating levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the series of rocking segments substantially independent of but adapted to automatically follow said levers and to have their positions thereby controlled by said levers, the registering cylinders or drums, and the gearing connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have completed their movement in one direction and reached their predetermined operative positions, the spring for indirectly moving said segments against said gearing for the purpose of rotating said cylinders or drums, means intermediate said levers and said spring, whereby from any one of said levers said spring may be released to actuate said segments and return said segments back to their normal position; substantially as set forth.

4. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, the registering cylinder or drum, and the gearing connected therewith, combined with means normally supporting said cylinder or drum and said gearing free of said segment, means intermediate said gearing, and the said hand-lever and operable from said hand-lever, at any point along said series of numerals, to bring said gear into engagement with said segment then in its predetermined operative position, and the spring for indirectly moving said segment against said gear for the purpose of rotating said cylinder or drum and returning said segment to its normal position; substantially as set forth.

5. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, the registering cylinder or drum, and the gear connected therewith, combined with means normally supporting said gear away from said segment, means operable from said hand-lever, while the latter is at any point along said series of numerals, for moving said gear into engagement with said segment, and means intermediate the cash-drawer and said segment for moving the latter against said gear during the opening of said cash-drawer, and thereby during the opening of said cash-drawer causing said segment to return to its normal position and in doing so rotate said cylinder or drum; substantially as set forth.

6. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, the registering cylinder or drum, and the gear connected therewith, combined with means normally supporting said gear away from said segment, means directly operable from said hand-lever, at any point of the latter along said series of numerals, for bringing said gear into engagement with said segment then in its predetermined operative position, means for moving said segment against said gear to rotate said drum on the return of said segment to its normal position, and means independent of said hand-lever for maintaining the relationship of said gear with said segment during the movement of the latter to its normal position and then permitting said gear to assume its normal position; substantially as set forth.

7. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially inde-

pendent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, the registering cylinder or drum, and the gear connected therewith, combined with means normally holding said gear free from said segment, means directly operable from said hand-lever, at any point along said series of numerals, for bringing said gear into engagement with said segment, means also operable from said hand-lever for indicating to the purchaser the amount to be registered, the spring for indirectly moving said segment against said gear for the purpose of rotating said cylinder or drum during the return of said segment to its normal position, and means intermediate said hand-lever and said spring for releasing the latter from the former to actuate said segment; substantially as set forth

8. In a cash-register, the series of hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the value to be indicated, the series of rocking segments substantially independent of but adapted to automatically follow said levers and to have their position thereby controlled by said levers, the shaft above said segments and the series of independent gears and registering cylinders or drums on said shaft, combined with the levers supporting said shaft, means intermediate said hand-levers and said shaft for moving the latter toward said segments and causing the said gears to engage the then elevated segments, the spring for driving said segments against said gears and back to their normal position whereby said segments are caused to rotate said cylinders or drums, and means intermediate said hand-levers and said spring whereby any one of said levers, at any point along the said series of numerals, may be used to release said spring substantially simultaneously with the lowering of said gears into engagement with said segments; substantially as set forth.

9. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but having a weighted lower end to cause it to automatically follow said lever on the upward movement of the latter, the registering cylinder or drum, and the gear connected therewith, combined with means for moving said segment against said gear during the returning movement of said segment to its normal position without affecting the said hand-lever, whereby said segment is given its predetermined operative position by the upward movement of said hand-lever and is then returned to its normal position independently of said hand-lever and is at such time caused to operate said cylinder or drum; substantially as set forth.

10. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, means connected with said segment to cause it to automatically follow the said lever during the upward movement of the latter, the registering cylinder or drum, and the gear connected therewith, combined with means operable from said hand-lever, at any point along said series of numerals, for bringing said gear into engagement with said segment, and means intermediate the cash-drawer and said segment for causing the latter upon the opening of said drawer to return to its normal position independently of said lever, and while doing so move against said gear and rotate said cylinder or drum; substantially as set forth.

11. In a cash-register, the hand-lever, the plate having the series of numerals along which said lever may be moved in accordance with the value to be indicated, the rocking segment substantially independent of but adapted to automatically follow said lever and to have its position thereby controlled by said lever, means connected with said segment for causing it to automatically follow said lever during the upward movement of the latter, the registering cylinder or drum, and the gear connected therewith, combined with means normally supporting said gear free from said segment, means intermediate said hand-lever and said gear for causing the latter to move into engagement with said segment after the latter has reached its predetermined operative position and said lever has reached its position along said series of numerals, spring-actuated mechanism for returning said segment to its normal position and causing it, during said movement, to rotate said gear and said cylinder or drum, and means intermediate said hand-lever and said spring-actuated mechanism for releasing the latter to operate said segment while said hand-lever is at any point along said series of numerals; substantially as set forth.

12. In a cash-register, the series of hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the series of independent rocking segments substantially independent of but adapted to automatically follow said levers and to have their varied positions thereby controlled by said levers, the series of registering cylinders or drums, and the gear connected therewith, combined with means normally holding said gears free from said segments, means for bringing said gears into engagement with said segments after the latter have completed their movement in one direction from their normal position to their predetermined operative positions, means for moving said segments against said gears and back to their normal position for the purpose of rotating said cylinders or drums, the stops to limit the throw of said segments, and means intermediate said registering cylinders or drums and said stops for varying the relation of the latter with said segments in order that upon a complete revolution of the said drums the said stops will permit a more extended movement of said segments in order to carry from one registering cylinder or drum to another in series; substantially as set forth.

13. In a cash-register, the series of hand-levers, the series of segments, whose position is independently controlled by the position of said levers, means for causing said segments to follow said levers and thereby become set into their proper positions, the series of independent registering cylinders or drums, and the gearing connected therewith and adapted for independent engagement with said segments, combined with means supporting said cylinders or drums normally away from said segments, means intermediate the said cylinders or drums and said hand-levers and operable from the latter for simultaneously engaging all of said segments then elevated with said gearing, the spring for moving said segments against said gearing to rotate said cylinders or drums, means intermediate said hand-levers and said spring for releasing the latter to actuate said segments, and means directing the force of said spring against said segments, one after another in series; substantially as set forth.

14. In a cash-register, the hand-lever, the movable segment whose position is controlled by the position of said lever, the registering cylinder or drum and the gear connected therewith, combined with means operable from said hand-lever for bringing said gear into engagement with said segment, the hooked plate on said segment, the revoluble arm adapted to engage said hooked plate, the spring for actuating the said revoluble arm to engage said hooked plate and move said segment against said gear and means intermediate said hand-lever and said spring for releasing the latter from the former to effect the movement of said revoluble arm against said hooked plate; substantially as set forth.

15. In a cash-register, the hand-lever, the movable segment whose position is controlled by the position of said lever, the registering cylinder or drum and the gear connected therewith and adapted for engagement with said segment, combined with the hooked plate pivoted to said segment, the revoluble arm adapted to engage said hooked plate and thereby actuate said segment, means for releasing said hooked plate from said arm after the latter has performed a part of a revolution only, means operable from said hand-lever for bringing said gear into engagement with said segment and means for actuating said revoluble arm to move said segment against said gear; substantially as set forth.

16. In a cash-register, the series of hand-levers, the series of segments which are independent of one another and whose position is controlled by the position of said hand-levers, the registering cylinders or drums and the gears connected therewith and adapted for engagement with said segments, combined with means operable from said hand-levers for moving said gears into engagement with said segments after the latter have been put into their predetermined position, the pivotal hooked plates applied to said segments, the revoluble shaft having the series of arms adapted for independent engagement with said hooked plates, means for imparting to said shaft a complete revolution, and means for releasing said revolable arms from said hooked plates after said arms and said shaft have made a part of a revolution and moved said segments against said gears; substantially as set forth.

17. In a cash-register, the series of hand-levers, the series of independently-movable segments whose position is controlled by the position of said levers, the registering cylinders or drums and the gears connected therewith, combined with means operable from said hand-levers for moving said gears into engagement with said segments, the hooked plates pivotally secured to said segments, the revoluble shaft carrying the revoluble arms for engagement with said hooked plates, the spring for imparting to said shaft and the arms carried thereby a complete revolution, and means for releasing said arms from said hooked plates after said parts have been engaged during only a portion of the revolution of said shaft, the said arms on said revoluble shaft being arranged at angles to one another in series around the shaft in order that they may engage said hooked plates one after another for the purpose of moving said segments one after another instead of simultaneously; substantially as set forth.

18. In a cash-register, the series of hand-levers, the plate having the series of numerals along which said levers may be moved in accordance with the values to be indicated, the series of independent rocking segments substantially independent of but adapted to automatically follow said levers and to have their varied positions thereby controlled by said levers, the registering cylinders or drums, and the gears connected therewith, combined with means normally holding said gears from engagment with said segments, means actuated by

any of said hand-levers while the latter are at any point along said series of numerals for bringing said gears into engagement with said segments, means under the control of all and each of said hand-levers for driving said segments back to their normal position away from said hand-levers for the purpose of causing said segments, during such movement, to rotate said cylinders or drums, and means for carrying from one cylinder or drum to another in series; substantially as set forth.

19. In a cash-register, the hand-levers, the independent movable segments whose position is controlled by the position of said levers, the registering cylinders or drums and the gears connected therewith, combined with means normally holding said gears from said segments, means for moving said gears into engagement with said segments, means for moving said segments against said gears for the purpose of rotating said cylinders or drums, the variable stops to limit the throw of said segments against said gears, the lever-arms connected with said cylinders or drums, the levers adapted to be moved by said lever-arms with every revolution of said cylinders or drums, the segments forming a part of said levers actuated by said lever-arms, the pinions in engagement with the last-mentioned segments and the stops having the flattened side connected with said last-mentioned pinions, whereby, upon each revolution of the said cylinders or drums said lever-arms actuate said levers to operate through their segments and actuating-pinions to turn the flattened side of said stops upward; substantially as set forth.

20. In a cash-register, the hand-levers, the independent movable segments whose position is controlled by the position of said levers, the registering cylinders or drums and the gears connected therewith, combined with means normally holding said gears from engagement with said segments, means for bringing said gears into engagement with said segments, the driving-shaft, the arms carried thereby and revolving therewith, means for imparting to said shaft a complete revolution, the hooked plates pivotally secured to said segments, the stops in the path of said hooked plates, said stops being variable in their relation to said hooked plates, and means intermediate said registering cylinders or drums and said stops for varying the position of the latter in order to regulate the throw of said segments and permit the carrying from one registering cylinder or drum to another; substantially as set forth.

21. In a cash-register, the hand-levers, the movable segments whose position is controlled by the position of said levers, the registering cylinders or drums and the gears connected therewith, combined with means for moving said gears into engagement with said segments after the latter have been given their predetermined position, the driving-shaft, the arms on and revoluble with said shaft, the hooked plates on said segments and adapted to be caught by said arms during the revolving motion of said shaft, means for operating said shaft, the lever-arms on said cylinders or drums, the variable stops for said hooked plates and segments, the pinion-wheels connected with said stops and the levers having the segments in mesh with said pinions and the upper arms in the path of said lever-arms whereby, upon each revolution of said cylinders or drums, said lever-arms may act upon said stops to vary their relation to said hooked plates and segments; substantially as set forth.

22. In a cash-register, the hand-levers, the independent movable segments whose position is controlled by the position of said levers, the registering cylinders or drums, the gears connected therewith, the bell-crank levers in line with said hand-levers and supporting in their upper arms the shaft for said cylinders or drums and gears, the shaft for said bell-crank levers, the spring for driving said segments against said gears when the latter are in engagement with said segments, and mechanism connected with the shaft of said bell-crank levers for releasing the said spring to operate when said bell-crank levers are acted upon by said hand-levers to carry said gears into engagement with said segments; substantially as set forth.

23. In a cash-register, the hand-levers, the movable segments whose position is controlled by the position of said levers, the registering cylinders or drums, the gears connected therewith, the bell-crank levers carrying in their upper arms the shaft for said cylinders or drums and said gears and the shaft supporting and movable with said bell-crank levers, combined with means for normally holding said gears free from said segments, means for moving said bel-crank levers to carry said gears into engagement with said segments, the hook 76 upon the shaft of said bell-crank levers, the driving-shaft from which said segments are operated against said gears, the notched plate 65 upon said driving-shaft, the spring for imparting to said driving-shaft a complete revolution, and thereby, through intermediate mechanism operating said segments, and means for releasing said spring after said hand-levers have been moved to position, said hook 76 and said plate 65 being adapted to cooperate during the revolving motion of said driving-shaft to hold said gears into positive engagement with said segments; substantially as set forth.

24. In a cash-register, the hand-levers, the movable segments whose position is controlled by the position of said levers, the registering cylinders or drums, the gears connected therewith, the bell-crank levers carrying in their upper arms the shaft for said cylinders or drums and said gears, and means for normally holding said gears out of engagement with said segments, said hand-levers being adapted to be pressed inward against the lower arms of said bell-crank levers for the purpose of turning them and their shaft and bringing the said gears into operative engagement with said segments, combined with the driving-shaft, the spring for imparting to said shaft a complete revolution, means connected with said shaft for moving said segments against said gear-wheels to rotate said registering cylinders or drums, means connected with the shaft of said bell-crank levers for maintaining said gears into engagement with said segments during the movement of the latter, the plate 64 on said driving-shaft and carrying a stop pin, the lever-arm 91 upon the shaft of said bell-crank levers, the stop-arm 67 adapted to cooperate with said stop-pin to stop the mechanism at each revolution of the said driving-shaft, the plate 69 carried by said arm 67 and engaged by said lever-arm 71 and the bell-hammer connected with said plate 69; substantially as set forth.

25. In a cash-register the hand-levers, the movable segments whose position is controlled by the position of said levers, the registering cylinders or drums, the gears therefor, and the bell-crank levers carrying in their upper arms the shaft for said cylinders or drums and said gears, said hand-levers being adapted to be thrust inward against the lower arms of said bell-crank levers for the purpose of rocking the shaft of said bell-crank levers and causing said gears to come into engagement with said segments, combined with the driving-shaft, means intermediate said shaft and said segments for driving the latter against said gears, the spring for imparting to said shaft its revolving motion, means intermediate the shaft of said bell-crank levers and said spring for releasing the latter when said bell-crank levers are moved by said hand-levers, and means intermediate the shaft of said bell-crank levers and the shutter for the indicating-drums for opening said shutter when said gears are moved into their engagement with said segments; substantially as set forth.

26. In a cash-register, the hand-levers, the segments whose position is controlled by the position of said levers, the registering cylinders or drums, the gears therefor, the shaft upon which said cylinders or drums and gears are mounted, and the bell-crank levers carrying said shaft and being themselves rigid upon a shaft, combined with the driving-shaft, means intermediate said driving-shaft and said segments for operating the latter from the former, means for depressing said gears into engagement with said segments, the spring for actuating said segments, means connected with the shaft of said bell-crank levers for releasing said spring when said gears are brought into engagement with said segments, means intermediate the shaft of said bell-crank levers and the bell, for sounding the latter when said spring is released to operate, and means intermediate the shaft of said bell-crank levers and the shutter for opening the latter when said spring is released to operate; substantially as set forth.

27. In a cash-register, the hand-levers, the indicating cylinders or drums, the springs acting to turn said cylinders or drums in one direction, the tapes intermediate said cylinders or drums and said hand-levers, and the shutter for said indicating cylinders or drums, combined with the rod for opening said shutter at the time of registration, the plate for maintaining said shutter in its open position after said rod has elevated said shutter and returned to its lower position, and means intermediate said indicating cylinders or drums and said plate for removing the latter and permitting said shutter to descend as soon as any of said hand-levers are again actuated; substantially as set forth.

28. In a cash-register, the hand-levers, the indicating cylinders or drums, the tapes connecting said hand-levers with said cylinders or drums, and the springs adapted to drive said cylinders or drums in one direction upon the slackening of said tapes, combined with the shutter for said indicating cylinders or drums, the rod for elevating said shutter during registration, the plate for supporting said shutter in its elevated position when said rod returns to its lower position, the fingers upon said supporting-plate and the fingers upon the said cylinders or drums and adapted upon any further movement of said hand-levers to contact with the fingers upon said supporting-plate and withdraw the support of the latter from said shutter; substantially as set forth.

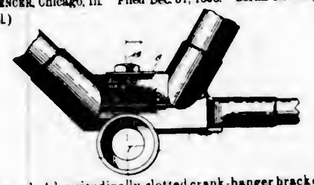
29. In a cash-register, the oscillating hand-levers, the front plate having the slots through which the said levers are moved, and the teeth along said slots, combined with the wheels 38 pivotally secured to said levers and engaging the teeth on said front plate and the springs flexed against said wheels 38 and carried by said levers; substantially as set forth.

30. In a cash-register, the oscillating hand-levers, the wheels 38 carried by said levers, and the individual teeth 39, also carried by said levers, combined with the front plate having the slots 36 through which said levers are moved, and also having the teeth and notches, said front plate being intermediate said wheels 38 and said teeth 39,

whereby, during the oscillating movement of said levers said wheels will engage said front plate and whereby, during the inward motion of said hand-levers when said wheels leave said front plate said individual teeth 39 will engage said front plate and hold said levers; substantially as set forth.

31. In a cash-register, the hand-levers, the registering cylinders or drums, and means set in motion by said hand-levers for revolving said cylinders or drums, combined with the totalizing cylinders or drums 120, 121, the arm 124 connected with the registering cylinder or drum adjacent to the totalizing cylinder or drum 120, the pinion 122 connected with the totalizing cylinder or drum 120, the lever 123 engaging said pinion-wheel and itself being in the path of said arm 124, the pinion-wheel 129 connected with said cylinder or drum 121, the arm 126 connected with the cylinder or drum 120, and the lever-arm 128 engaging said pinion 129 and being itself in the path of said arm 126, whereby the proper carrying from the registering cylinders or drums to the totalizing cylinders or drums and from one of the latter to the other in series is performed; substantially as set forth.

640,967. BICYCLE CRANK-HANGER AND BRACKET. WILLIAM B. SPENCER, Chicago, Ill. Filed Dec. 31, 1898. Serial No. 700,827. (No model.)



Claim.—1. A longitudinally-slotted crank-hanger bracket, in combination with a crank-hanger having a medial lug to enter and operate in the longitudinal slot or mortise of the bracket and formed with terminal bearing-heads embracing the sides of the bracket and fitting close thereagainst, and means for securing the crank-hanger in an adjusted position, substantially as set forth.

2. A crank-hanger bracket having a longitudinal mortise with its side walls upwardly convergent, in combination with an adjustable crank-hanger provided with a tapering lug entering and operating in the said mortise, and means for causing the forcible entry of said tapering lug into the mortise, whereby it is secured by a clamping and a wedging action in any adjusted position of the crank-hanger, substantially as set forth.

3. A crank-hanger bracket having a longitudinal mortise with upwardly-converging walls, in combination with a crank-hanger having a centrally-disposed tapering lug entering and operating within said mortise and provided with bearing-heads to embrace and come close against the sides of the bracket, and means applied to the tapering lug for securing the crank-hanger in an adjusted position, substantially as described.

4. A crank-hanger bracket having a longitudinal mortise extending through its top and bottom sides, in combination with a crank-hanger provided with a lug to enter and operate in the said mortise, securing means for making the crank-hanger fast in an adjusted position, and a cap-plate for closing the upper open end of the mortise and mounted upon said securing means so as to move therewith and turn thereon between the coupling-lugs, substantially as and for the purpose set forth.

5. A crank-hanger bracket having a longitudinal mortise in combination with an adjustable crank-hanger, a clamp-screw passing into the mortise and adapted to secure the crank-hanger in an adjusted position, and a cap-plate pierced at one end for the reception of the clamp-screw and having its end portions curved transversely and adapted to move with and turn upon the clamp-screw, substantially as and for the purpose set forth.

6. A crank-hanger bracket having a longitudinal mortise opening through its top and bottom sides and having inner end extensions at the upper portion of said mortise, in combination with an adjustable crank-hanger, a clamp-screw or the like for securing the crank-hanger in an adjusted position, and a cap-plate mounted near one end upon the clamp-screw and adapted to move therewith and turn thereon and acting jointly with the aforesaid inner end extensions to completely close the mortise at all stages of adjustment of the crank-hanger, substantially as described.

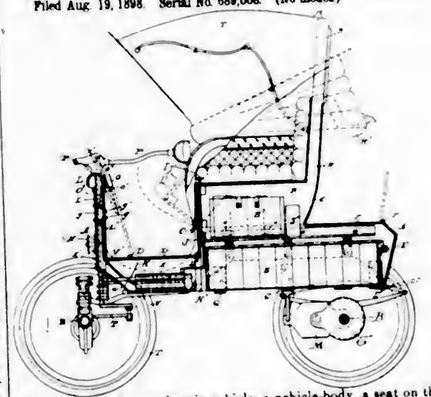
7. The combination of a crank-hanger bracket and a crank-hanger, one of said parts having a tapered guideway and the other part having a lug tapered to fit in said guideway and also an extension, and two parallel screws independently fastening the lug and extension in place, substantially as described.

8. The combination of a crank-hanger bracket and a hanger, one of said parts having a tapered guideway and the other part having a lug tapered to fit in said guideway, a screw passing into the smaller end of the lug, an extension on the hanger, and guides on the bracket for said extension, substantially as described.

9. A crank-hanger bracket, in combination with a crank-hanger, one of said parts having a tapered guideway and the other part having a lug tapered to fit snugly in said guideway but capable of longitudinal movement, and said crank-hanger having an extension, two guide-lugs on the bracket between which said extension is disposed, and independent fastening devices for said lug and extension, substantially as described.

10. A crank-hanger bracket, having a longitudinal mortise with its side walls upwardly converging, and having inner end extensions at the upper end of the mortise, and provided upon its under side with guide-lugs, in combination with an adjustable crank-hanger having a tapering lug, end bearing-heads embracing the sides of the bracket, and a slotted guide extension underlapping the bracket and operating between the guide-lugs thereof, clamp-screws for securing the guide extension and tapering lug independently of each other, and a cap-plate mounted near one end upon the clamp-screw cooperating with the tapering lug so as to move therewith and turn thereon, as and for the purpose set forth.

640,968. ELECTRIC VEHICLE. ELMER A. SPERRY, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed Aug. 19, 1898. Serial No. 689,008. (No model.)



Claim.—1. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, in combination with a plurality of battery-supports superimposed within the body and a plurality of groups of batteries upon such supports.

2. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, a plurality of battery-supports superimposed within the body, a plurality of groups of batteries upon such supports, in combination with panel-like risers for the seat.

3. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, in combination with a plurality of battery-supports, superimposed within the body, a group of batteries on the lower support and a group half the size of the former group upon the upper support, substantially for the purpose specified.

4. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, a plurality of battery-supports superimposed within the body, a group of batteries on the lower support, a group half the size of the former group upon the upper support, in combination with means for sliding the batteries which are upon the upper support longitudinally to the body.

5. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, in combination with a plurality of battery-supports, within the body, a plurality of groups of batteries upon such supports, a protrusion of the body back of the seat and a removable top for the protrusion.

6. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, in combination with a plurality of battery-supports within the body, a plurality of groups of batteries upon such supports, a protrusion of the body back of the seat, a removable top for the protrusion and hinges for the seat, located upon the forward part of the seat.

7. In an electric vehicle, a vehicle-body, a seat on the upper part of the body, in combination with a plurality of battery-supports within the body, a plurality of groups of batteries upon such supports, a protrusion of the body back of these at, a removable top for the protrusion and a swinging end-gate for the protrusion.

8. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries characterized by the ability to develop hydrogen gas and current-controlling switches within such inclosure, in combination with a separating-partition between the switches and the batteries.

9. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries within the upper part of the inclosure, characterized by the ability to develop hydrogen gas, and current-controlling switches within the lower part of such inclosure, in combination with a separating-partition between the switches and the battery.

10. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries in the back part of the inclosure, characterized by the ability to develop hydrogen gas, and current-controlling switches within the forward part of the inclosure, in combination with a separating-partition between the switches and the batteries.

11. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries, characterized by the ability to develop hydrogen gas, current-controlling switches within such inclosure, in combination with a separating-partition between the switches and the batteries and means for ventilating the battery-compartment upwardly from the top thereof.

12. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries, characterized by the ability to develop hydrogen gas, current-controlling switches within such inclosure, in combination with a separating-partition between the switches and the batteries and means for ventilating the battery-compartment upwardly and backwardly from the top of the batteries.

13. In an electric vehicle, a vehicle-body, an inclosure within the body, electrical storage batteries, characterized by the ability to develop hydrogen gas, current-controlling switches within such inclosure, in combination with a separating-partition between the switches and the batteries and means for ventilating the compartment containing the batteries in a direction away from said partition.

14. In an electric vehicle, a vehicle-body, having a plurality of independent compartments within the body, in combination with electrical storage batteries in one of the compartments, current-controlling switches in another and means for ventilation of the battery-compartment upwardly from the top of the batteries, consisting of a passage formed by a false-seat wall.

15. In an electric vehicle, a vehicle-body, having a plurality of independent compartments within the body, in combination with electrical storage batteries in one of the compartments, current-controlling switches in another and means for ventilation of the battery-compartments upwardly from the top of the batteries consisting of a passage formed by a false-seat wall, and an extension to the passage within the vehicle-top, substantially as described.

16. In an electric vehicle, a vehicle-body, having a plurality of compartments within the body, a vertical seat-riser at the front of the seat and a vertical partition between the compartments, practically in line with the said seat-riser.

17. In an electric vehicle, a vehicle-body, having a plurality of compartments within the body, a vertical seat-riser at the front of the seat, a vertical partition between the compartments, practically in line with the said seat-riser, in combination with a hinged floor for the vehicle-body, constituting the upper wall of the said forward compartment.

18. In a vehicle, a vehicle-body, a hollow dasher for the body, having a wall or panel facing the seat, an electrical indicator supported on the said wall of the dasher, an electric generator within the body and electrical connections coupling the generator and the indicator, extending within the dasher, a switch for the connections and means for supporting the said conductors and switch upon the said wall.

19. In a vehicle, a vehicle-body, a dasher for the body, having considerable thickness longitudinally, steering-gear for the vehicle, a steering-handle above the dasher, operating connections extending through and hidden within the dasher, means for connecting the steering-gear to the handle, an indicator also supported upon the dasher and electrical connections within the dasher, occupying the space with the said operating connections substantially as specified.

20. In a vehicle, a vehicle-body, a dasher for the body, having considerable thickness longitudinally, steering-gear for the vehicle, a steering-handle above the dasher, operating connections extending through and hidden within the dasher, means for connecting the steering-gear to the handle, an electrical indicator and electrical switch, also supported upon the dasher, and electrical connections within the dasher, occupying the space with the said operating connections, substantially as specified.

21. In a vehicle, a vehicle-body, a floor for the body, a compartment for the electrical switches under the floor, a joint or other incision in such floor and means under the joiot or incision for shielding the contents of the compartment from moisture coming through such joint or incision.

22. In a vehicle, a vehicle-body, a dasher for the body, having considerable thickness longitudinally, steering-gear for the vehicle under the dasher, a steering-handle above the dasher, operating connections extending through and hidden within the dasher, and means for connecting the steering-gear to the handle.

23. In a vehicle, a vehicle-body, a dasher for the body, having considerable thickness longitudinally, a controller for the vehicle under the dasher, a controller-handle above the dasher, operating connections extending through and hidden within the dasher, and means for connecting the steering-gear to the handle.

24. In a vehicle, a vehicle-body, a hollow dasher for the body, a compartment below the dasher, communicating with the cavity within the dasher, a controller within the compartment, operating connections for the controller, extending through the dasher and a handled controlling-lever supported by the dasher.

25. In a vehicle, a vehicle-body, a hollow dasher for the body, having a wall or panel facing the seat, an electric-circuit-controlling device within the dasher and an operating connection consisting of the usual handle extending to the outer surface of the panel.

26. In a vehicle, a vehicle-body, a hollow dasher for the body, having a wall or panel facing the seat, an electric-circuit-controlling device within the dasher, an operating-handle extending to the outer surface of the panel and electrical conductors extending upward within the dasher to the device.

27. In a vehicle, a vehicle-body, a hollow dasher for the body, having a wall or panel facing the seat, an electric-circuit-controlling device within the dasher, an operating-handle as *g* extending to the outer surface of the panel, an electric generator within the body and connections from the generator to the device, extending within the dasher.

28. In a vehicle, a vehicle-body, a hollow dasher for the body, having a wall or panel facing the seat, an electrical indicator supported on the said wall of the dasher, an electric generator within the body, electrical connections coupling the generator and the indicator, extending within the dasher, means for supporting said conductors upon the said wall and an additional removable wall for the dasher.

29. In a vehicle, a vehicle-body, a hollow dasher for the body, an electric generator within the body, electric lamps for the vehicle, a circuit-controlling device within the dasher, an operating-handle, extending to the outer surface of the dasher and an electric connection from the device to both generator and lamp.

30. In an electric vehicle, a vehicle-body, an electric generator, an electric translating device, forming a part of the vehicle, an electric lamp for the vehicle and an independent generator for the lamp.

31. In an electric vehicle, a vehicle-body, a hollow dasher for the body, an electric generator, an electric translating device, forming a part of the vehicle, an electric controlling device within the hollow dasher and manipulating connections extending through one of the walls of the dasher.

32. In an electric vehicle, a vehicle-body, a hollow dasher for the body, an electric generator, an electric translating device, forming a part of the vehicle, an electric controlling device within the hollow dasher and manipulating connections extending through the back wall of the dasher and a removable front wall for the dasher.

33. In an electric vehicle, a vehicle-body, a hollow dasher for the body, an electric generator, an electric translating device, forming a part of the vehicle, an electric indicator upon the outside of the dasher, terminals for the indicator upon the dasher, electric conductors within the dasher for the terminals and a detachable support for the indicator.

34. In an electric vehicle, a vehicle-body, a hollow dasher for the body, an electric generator, an electric translating device, forming a part of the vehicle, an electric indicator upon the outside of the dasher, terminals for the indicator upon the dasher, electric conductors within the dasher for the terminals, a detachable support for the indicator, consisting of cooperating electric terminals upon the indicator.

640,969. PEANUT-DIGGER. LUCIUS E. STARR, Camden, Ala. Filed July 14, 1899. Serial No. 723,825. (No model.)



Claim.—1. In an implement of the character described the combination with a beam, of a pair of standards secured at their forward ends to opposite sides of the beam and having their rear portions divergent and curving downwardly and forwardly, a horizontal ground-

bar connecting the lower terminals of the standards and forming an integral part thereof and extending at right angles to the length of the beam and to an equal distance from opposite sides thereof, and a digger applied to the said horizontal bar, substantially as specified.

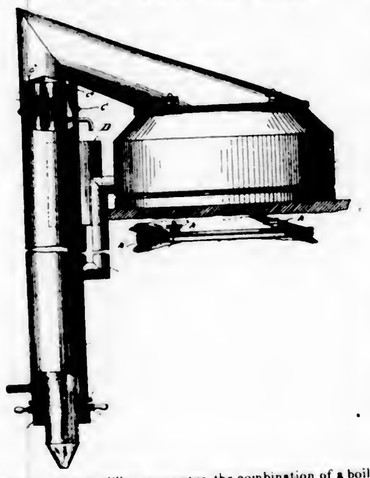
2. In combination with a beam, a bar having its end portions bent and curving upwardly, forwardly and inwardly and having their front ends brought against opposite sides of the beam and secured thereto, the middle portion of the bar inclining cross-sectionally upwardly and rearwardly and disposed at a right angle to the length of the said beam, and a digger applied to the middle or horizontal portion of the bar, substantially as described.

3. In an implement of the character described, the combination of the beam, standards secured at their front ends to opposite sides of the beam and curving outwardly, rearwardly and forwardly, a horizontal bar connecting the lower terminals of the standards, and a lifting-plate secured to the top side of the horizontal bar and having the rear corners of its terminals cut away to receive the lower ends of the standards and permit the forward portion of the plate to overlap said standards, substantially as described.

4. In an implement of the character described, the combination with the beam, side standards and a horizontal ground-bar connecting the lower ends of the standards, of a digger secured to said horizontal bar, and fingers having their front ends flattened and bent and secured between the said digger and horizontal bar with their bent terminals overlapping the forward edges of the said horizontal bar, substantially as described.

5. The herein-described implement for the purposes specified, comprising a beam, a bar having its end portions bent and curved upwardly, forwardly and inwardly and secured to opposite sides of the said beam, the horizontal portion of the bar inclining upwardly and rearwardly, a digger or lifting-plate secured to the horizontal portion of said bar, and spaced fingers having their front ends flattened and bent and secured between the digger and horizontal bar by the same means employed for attaching the digger to the bar and having their bent terminals overlapping the front edge of the said horizontal bar, substantially as described.

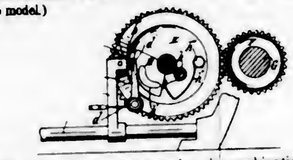
640,970. DISTILLING APPARATUS. HENRY A. STEBER, Utica, N. Y. Filed Apr. 22, 1899. Serial No. 714,068. (No model.)



Claim.—1. In a distilling apparatus, the combination of a boiler a condensing-tube for bringing a cooling agent in contact with the condensing-tube, a water-jacket, a hollow projection connected to the boiler at one end and to the water-jacket at its other end by a sealed joint, said joint comprising a packing seated in the upper end of the water-jacket, an inwardly-extending flange on the hollow projection, which is adapted to be brought in contact with the packing and press the same against the condensing-tube and thereby hold the same centrally and firmly in place and form a water-tight joint and also prevent the condensing-tube coming in contact with the water-jacket, and means for locking the water-jacket to the hollow projection, and means for supplying the boiler with water, substantially as described.

2. In a distilling apparatus, the combination of a boiler a condensing-tube, a water-jacket for bringing a cooling agent in contact with the condensing-tube, a hollow projection connected to the boiler at one end and to the water-jacket at its other end by a sealed joint, said joint comprising a packing seated in the upper end of the water-jacket, lugs or projections on the upper end of the water-jacket, bayonet-slots and an inwardly-extending flange provided on the hollow projection which flange is adapted to be brought in contact with the packing and press the same against the condensing-tube when the bayonet-slots are engaged by the projections on the water-jacket, and thereby holding the same firmly and centrally in place and forming a water-tight joint and preventing the condensing-tube coming in contact with the water-jacket, and means for supplying the boiler with water, substantially as described.

640,971. GOVERNOR FOR EXPLOSIVE-ENGINES. ALFRED C. STEWART, Santa Paula, Cal. Filed Mar. 16, 1898. Serial No. 674,061. (No model.)



Claim.—1. In an explosive-engine, the combination, with the exhaust-valve mechanism; of means for operating the same; a catch for holding said means inoperative; a cam-wheel adjacent to the catch; a centrifugal block pivotally secured to the wheel to engage the catch; a spring secured to the same side of the center of the wheel as the block; the free end of the spring being formed into an L and engaging with the block; and means for adjusting the tension of the spring.

2. In an explosive-engine, the combination, with the exhaust-valve mechanism; of means for operating the same; a catch for holding said means inoperative; a cam-wheel adjacent to the catch and provided with a screw-threaded opening; a centrifugal block pivotally secured to the wheel to engage with the catch; a spring, one end of which is provided with an eye and the other end engages with the block; a bolt through the eye and the screw-threaded opening of the wheel for adjusting the tension of the spring; and a jam-nut for holding the bolt against movement after the spring has been adjusted.

640,972. DUST-PAN. ARTHUR T. STILSON, New York, N. Y., assignor to the Central Stamping Company, of New York. Filed Oct. 12, 1899. Serial No. 733,372. (No model.)



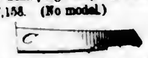
Claim.—1. A dust-pan having its front edge folded down and back, a slidably-connected stiffening-piece having its forward edge only incased by said fold, means to attach at intervals said stiffening-piece to the body of said dust-pan to the rear of the forward edge thereof.

2. A dust-pan having its front edge folded downwardly and backwardly, a stiffening-blade of varying thickness partially incased by said fold, and means for attaching at intervals said blade to the body of the dust-pan.

3. A dust-pan having its front edge folded downwardly and backwardly, a stiffening-blade partially incased in said fold and reinforcing the inner wall of said bend, means for slidably attaching said blade to said body, said means being placed at intervals and to the rear of the extreme edge of the bent portion.

4. A dust-pan having its front edge folded downwardly and backwardly, a stiffening-blade of varying thickness partially incased by said fold, and means for attaching said blade to the body of the dust-pan adjacent its forward lower edge.

640,973. DUST-PAN. ARTHUR T. STILSON, New York, N. Y., assignor to the Central Stamping Company, same place. Filed Nov. 16, 1899. Serial No. 737,158. (No model.)

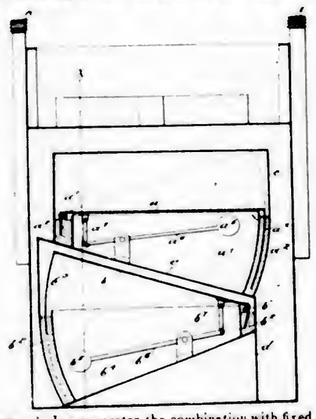


Claim.—1. A dust-pan having its front edge folded down and back, a shoulder on said pan, a stiffening-piece, one edge of which is incased in said fold and the other edge abutting against said shoulder, and means to attach at intervals said stiffening-piece to said pan.

2. A dust-pan having its front edge folded down and back, a shoulder on said pan, a stiffening-piece, one edge of which is incased in said fold and the other edge abutting against said shoulder, and a lug projecting from said stiffening-piece and engaging a portion of said pan.

3. A dust-pan having its front edge folded down and back, a shoulder on said pan, stiffening-blade, one edge of which is incased in said fold and the other edge abutting against said shoulder, and means projecting from said blade and integral therewith and engaging a portion of said pan.

640,974. GAS-METER. JAMES C. SUTHERLAND, Erdington, England. Filed May 2, 1899. Serial No. 715,355. (No model.)



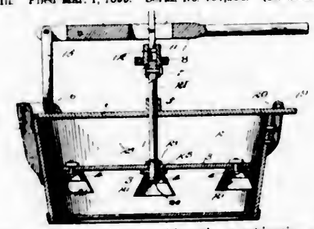
Claim.—1. In a gas-meter, the combination with fixed gas-chambers such as *c* of pivoted double-acting measuring-diaphragms such as *a* adapted to move radially in said fixed chambers, each of the said diaphragms having a liquid seal and an internal balancing system having a weighted lever such as *a*⁴ and connecting-links such as *a*⁵, substantially as described.

2. In a gas-meter, the combination of gas-measuring chambers formed by outer fixed chambers and inner, liquid-sealed, radially-moving, internally-balanced diaphragms, with distributing-valves operated from the said diaphragms, said valves being designed to supply gas alternately to opposite sides of the said diaphragms, substantially as described.

3. In a gas-meter, the combination of gas-measuring chambers formed by outer fixed chambers, and pivoted, radially-moving double-acting diaphragms, provided with liquid seals and internal balancing means, with distributing-valves and indicating means, substantially as described.

4. In a gas-meter, the combination of gas-measuring chambers formed by outer fixed chambers and pivoted, radially-moving, diaphragms provided with liquid seals, and internal balancing means, arms on the diaphragms pivots connected by links to a crank giving rotary motion from which the distributing-valves and indicating mechanism are driven, substantially as described.

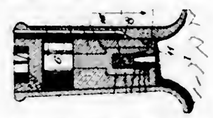
640,975. WASHING-MACHINE. JACOB W. THOMAS, Mount Morris, Ill. Filed Mar. 1, 1899. Serial No. 707,268. (No model.)



Claim.—1. In a washing-machine, the combination of a vertically-movable rotary plunger, a horizontal ratchet-wheel having a vertical hub or sleeve extending above and below the ratchet-wheel and provided at its upper end with an interior shoulder, said hub or sleeve receiving the plunger within its lower portion, an operating-lever having a pivot, a shank connected to the lever by the pivot, said shank having its lower portion arranged within the hub or sleeve and provided with a shoulder or head fitting against the interior shoulder of the said hub or sleeve, and a pawl mounted on the lever and engaging the ratchet-wheel, substantially as described.

2. A washing-machine comprising a receptacle provided at one side with an arm and having perforated ears at the opposite side, a horizontal bar having one end bifurcated and pivoted to the said arm, its other end being arranged between the said ears, a fastening device detachably securing the bar between the ears, a vertical bar or support pivoted at its lower end in the bifurcation of the horizontal bar, a vertically-movable plunger guided on the horizontal bar, a lever fulcrumed on the support and connected with the plunger, and means for rotating the plunger, substantially as described.

640,976. BOTTLE. THOMAS THOMPSON, Lima, Ohio. Filed June 17, 1899. Serial No. 720,948. (No model.)



Claim.—1. A bottle provided with an internal rib extending the entire length of the neck and containing a liquid-passage the discharge end of which is flush with the extreme edge of the neck and the inner end of which terminates intermediate the length of the rib in a curved bend which opens into the neck and forms an outlet-port, in combination with a solid imperforate gravity-cap free to slide longitudinally within the neck to open and close the outlet-port, and grooved to fit around said rib, substantially as specified.

2. A bottle provided with an internal rib extending longitudinally of the neck and containing a liquid-passage, the discharge end of which is flush with the extreme edge of the neck, and the inner end of which terminates intermediate the length of the rib in a curved bend which opens into the neck and forms an outlet-port, a stationary plug in the base of the neck having a central opening surrounded by a conical nipple, and a solid imperforate gravity cap, free to slide longitudinally within the neck to open and close the outlet-port and having a conical seat to fit said nipple, substantially as specified.

3. A bottle provided with an internal rib extending longitudinally the entire length of the neck, and containing a liquid-passage, the discharge end of which is flush with the extreme edge of the neck, and the inner end of which terminates intermediate the length of the rib in a curved bend which opens into the neck and forms an outlet-port, a stationary plug in the base of the neck having a central opening surrounded by a conical nipple, a solid imperforate gravity-cap free to slide longitudinally within the neck to open and close the outlet-port, a metal plug fitted tightly in the cap and having a shouldered engagement therewith and provided with a recess having a flared end portion forming a conical seat for the nipple, and a cork seated in the base of said recess to rest on and seal the nipple, substantially as set forth.

640,977. PROCESS OF MAKING QUININ CARBONIC ETHER. HEINRICH THRON, Frankfort-on-the-Main, Germany, assignor to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, same place. Filed Nov. 28, 1899. Serial No. 738,571. (No specimens.)

Claim.—1. The herein-described method of preparing pharmaceutical products by acting upon the salts of the alkaloids of the cinchona-bark with derivatives of the chlorocarbonic acid, substantially as and for the purpose set forth.

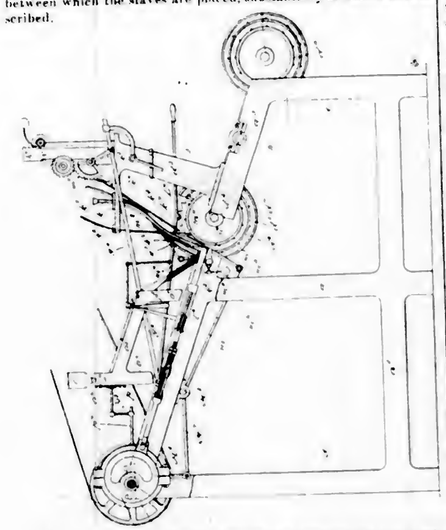
2. The herein-described method of preparing pharmaceutical products by acting upon the salts of the alkaloids of the cinchona-bark with an ether of chlorocarbonic acid, substantially as and for the purpose set forth.

640,978. FRUIT-BASKET MACHINE. WARREN R. VAN VLIET, East Stroudsburg, Pa. Filed Feb. 3, 1897. Serial No. 621,825. (No model.)

Claim.—1. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, and suitable forms connected therewith, a stave-hopper, which is vertically movable, and provided with devices for removing the staves therefrom, and placing them upon the forms, hoop-tubes through which the hoops are fed, nail-hoppers which are adapted to receive nails, and which are provided with means for feeding the same therefrom and into position, to be driven into said hoops and staves, and devices for driving said nails, substantially as shown and described.

2. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, and suitable forms connected therewith, a stave-hopper, which is vertically movable, and provided with devices for removing the staves therefrom, and placing them upon the forms, hoop-tubes through which the hoops are fed, nail hoppers which are adapted to receive nails, and which are provided

with means for feeding the same therefrom, and into position, to be driven into said hoops and staves, and devices for driving said nails, said forms being composed of circular heads, which are mounted on a revoluble shaft, and which are provided with spacing ribs or flanges, between which the staves are placed, substantially as shown and described.



3. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, and suitable forms connected therewith, a stave-hopper which is vertically movable, and provided with devices for removing the staves therefrom, and placing them upon the forms, hoop-tubes through which the hoops are fed, nail-hoppers which are adapted to receive nails, and which are provided with means for feeding the same therefrom, and into position to be driven into said hoops and staves, and devices for driving said nails, said forms being composed of circular heads, which are mounted on a revoluble shaft, and which are provided with spacing ribs or flanges, between which the staves are placed, and said heads being also provided with annular grooves into which the nails are driven, and by which they are clenched, substantially as shown and described.

4. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, and suitable forms connected therewith, a stave hopper which is vertically movable, and provided with devices for removing the staves therefrom, and placing them upon the forms, hoop-tubes through which the hoops are fed, nail-hoppers which are adapted to receive nails, and which are provided with means for feeding the same therefrom, and into position, to be driven into said hoops and staves, and devices for driving said nails, said forms being composed of circular heads, which are mounted on a revoluble shaft, and which are provided with spacing ribs or flanges, between which the staves are placed, and said heads being also provided with annular grooves into which the nails are driven, and by which they are clenched, and the shaft on which the heads are mounted, being adapted to receive at one end, a disk or plate which constitutes the bottom of the basket, and into which nails are also driven, substantially as shown and described.

5. A machine for making baskets, comprising a suitable frame, a revoluble shaft mounted therein, forms connected with said shaft, devices for giving said shaft intermittent motion, a stave-hopper mounted on said frame, devices connected with said hopper, and said frame for placing the staves in position in said forms, devices for supplying hoops to the forms, nail-hoppers suitably supported on said frame, and provided with perforated diaphragms, and devices connected with said hoppers and with said frame for feeding said nails into position, to be driven into said hoops and staves, consisting of driving-rods which are in operative connection with the power-shaft of the machine, and with a sliding cross-head mounted thereon, and driving-rods provided with driving-pins which operate in connection with driving-tubes into which the nails are fed, substantially as shown and described.

6. A machine for making baskets comprising a suitable frame, a revoluble shaft mounted therein, forms connected with said shaft, devices for giving said shaft intermittent motioo, a stave-hopper mounted on said frame, devices connected with said hopper and said frame for placing the staves in position on said forms, nail-hoppers suitably supported on said frame, and provided with centrally perforated and slotted diaphragms in which are formed radial slots communicating with said central perforations or partitions, and devices connected therewith and with said frame, for feeding said nails into position to be driven into said hoops and staves, substantially as shown and described.

7. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, revoluble shafts connected therewith, and provided with suitable forms, a ratchet-wheel mounted on said shafts, and means for giving the same an intermittent motion, a suitable stave-hopper, and means for giving the same a vertical intermittent motion, devices connected with said stave-hopper for removing the staves therefrom, and placing them on the lurms, hoop-tubes through which the hoops are passed, nail-hoppers suitably mounted on said frame, and provided with chutes through which the nails are fed, and means for giving said hoppers an oscillating or lateral motion, and devices for removing the nails, one at a time, from said chutes, and depositing them in a driving-tube, and driving-rods connected with a sliding cross-head which is operated by eccentrics mounted on the power-shaft, said driving-rods being provided with driving-pins which pass through said driving-tubes, and by which the nails are driven through the hoops and staves, substantially as shown and described

8. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, revoluble shafts connected therewith, and provided with suitable forms, a ratchet-wheel mounted on said shafts, and means for giving the same an intermittent motion, a suitable stave-hopper, and means for giving the same a vertical intermittent motion, devices connected with said stave-hopper for removing the staves therefrom, and placing them on the frames, hoop-tubes through which the hoops are passed, nail-hoppers suitably mounted on said frame, and provided with chutes through which the nails are fed, and means for giving said hoppers an oscillating or lateral motion, and devices for removing the nails, one at a time, from said chutes, and depositing them in a driving-tube, and driving-rods connected with a sliding cross-head which is operated by eccentrics mounted on the power-shaft, said driving-rods being provided with driving-pins which pass through said driving-tubes, and by which the nails are driven through the hoops and staves, said forms being composed of circular heads having spacing ribs or flanges between which the staves are placed, and being also provided with annular grooves into which the nails are driven, and the shaft on which said heads are placed, being adapted to receive a disk or plate which constitutes the bottom of the basket, and into which nails are also driven, substantially as shown and described

9. In a machine for making baskets, the combination with a suitable frame, of a revoluble form-carrier, revoluble shafts connected therewith, and provided with suitable forms, a ratchet-wheel mounted on said shafts, and means for giving the same an intermittent motion, a suitable stave-hopper, and means for giving the same a vertical intermittent motion, devices connected with said stave-hopper for removing the staves therefrom, and placing them on the frames, hoop-tubes through which the hoops are passed, nail-hoppers suitably mounted on said frame, and provided with chutes through which the nails are fed, and means for giving said hoppers an oscillating or lateral motion, and devices for removing the nails, one at a time, from said chutes, and depositing them in a driving-tube, and driving-rods connected with a sliding cross-head which is operated by eccentrics mounted on the power-shaft, said driving-rods being provided with driving-pins which pass through said driving-tubes, and by which the nails are driven through the hoops and staves, said forms being composed of circular heads having spacing ribs or flanges between which the staves are placed, and being also provided with annular grooves into which the nails are driven, and the shaft on which said heads are placed, being adapted to receive a disk or plate which constitutes the bottom of the basket, and into which nails are also driven, and means connected with the power-shaft for holding said staves into position on said forms, while the nails are beiug driven through the hoops and staves, substantially as shown and described.

10. In a machine for making fruit-baskets, the combination with a suitable frame, of a form-carrier mounted therein, and provided with a plurality of forms which consist of circular heads of different diameters, which are mounted on a revoluble shaft, a ratchet-wheel mounted on each of said shafts, and means connected therewith, for giving said shafts an intermittent revoluble motion, consisting of a ratchet bar or lever which is pivotally connected with a sliding cross-head which is connected with the power-shaft of the machine, by means of an eccentric, and devices connected with said frame for feeding or placing the staves in position on said forms, and also for placing the hoops in position, said machine being also provided with nail-hoppers, and means for feeding the nails from said hoppers into position to be driven through said hoops, and said staves, said nails being fed into driving-tubes, and devices connected with the power-shaft for driving said nails into position, substantially as shown and described.

11. In a machine for making fruit-baskets, the combination with a suitable frame, of a form-carrier mounted therein, and provided with a plurality of forms which consist of circular heads of different diameters, which are mounted on revoluble shafts, a ratchet-wheel mounted on each of said shafts, and means connected therewith, for giving said shafts an intermittent revoluble motion, consisting of a ratchet bar or lever which is pivotally connected with a sliding cross-head which is connected with the power-shaft of the machine, by means of an eccentric, and devices connected with said frame for feeding or placing the staves in position on said forms, and also for placing the hoops in position, said machine being also provided with nail hoppers, and means for feeding the nails from said hoppers into position to be driven through said hoops, and said staves, said nails being fed into driving-tubes and devices connected with the power-shaft for driving said nails into position, consisting of eccentrics mounted on said power-shaft, which are connected with a sliding cross-head, and driving-rods also connected with said cross-head, and with the feeding-tubes into which the nails are fed, said driving-rods being provided with driving-pins which are adapted to be driven into or through said driving-tubes, substantially as shown and described.

12. In a machine for making fruit-baskets, the combination with a suitable frame, of a form-carrier mounted therein, and provided with a plurality of forms each consisting of circular heads of different diameters, mounted on a revoluble shaft, a ratchet-wheel on said shaft, and means connected therewith, for giving said shaft an intermittent revoluble motion, consisting of a ratchet bar or lever which is pivotally connected with a sliding cross-head which is connected with the power-shaft of the machine, by means of an eccentric, and devices connected with said frame for feeding or placing the staves in position on said forms, and also for placing the hoops in position, said machine being also provided with nail-hoppers, and means for feeding the nails from said hoppers into position, to be driven through said hoops, and said staves, said nails being fed into driving-tubes and devices connected with the power-shaft for driving said nails into position consisting of eccentrics mounted on said power-shaft, which are connected with a sliding cross-head, and driving-rods also connected with said cross-head, and with the feeding-tubes into which the nails are fed, said driving-rods being provided with driving-pins which are adapted to be driven into or through said driving-tubes, said driving-rods being spring-operated, and means connected with the power shaft for holding the staves in position on said forms, substantially as shown and described

13. In a machine for making baskets, the combination with a suitable frame of vertically-revoluble forms which are mounted on a revoluble carrier, devices for giving said forms an intermittent revoluble motion, a suitable stave-hopper also mounted on said frame, and capable of vertical intermittent movement, pickers and other devices for removing the staves from the hopper, and depositing them on the forms, feeding-tubes through which the hoops are passed, which terminate adjacent to said forms, nail-hoppers snitably supported on said frame, and in operative connection with the power-shaft of the machine, and provided with devices whereby they are given a lateral or oscillating motion, chutes connected with said hoppers, through which the nails are fed, and provided with extensions, each of which is provided with a slot in the bottom thereof, means for feeding the nails successively from said slots into other chutes, which are provided with tubes which communicate with driving-tubes, and suitable driving devices connected with the power-shaft of the machine, and with a sliding cross-head whereby the nails are driven through said driving-tubes into and through said hoops and staves, substantially as shown and described

14. In a machine for making baskets, the combination with a suitable frame, of vertically-revoluble forms which are mounted on a revoluble carrier, devices for giving said forms an intermittent revoluble motion, a suitable stave-hopper also mounted on said frame, and capable of vertical intermittent movement, pickers and other devices for removing the staves from the hopper, and depositing them on the forms, feeding-tubes through which the hoops are passed, which terminate adjacent to said forms, nail-hoppers suitably supported on said frame, and in operative connection with the power-shaft of the machine, and provided with devices whereby they are given a lateral or oscillating motion, chutes connected with said hoppers, through which the nails are fed, and provided with extensions, each of which is provided with a slot in the bottom thereof, means for feeding the nails successively from said slots into other chutes, which are provided with tubes which communicate with driving-tubes, and suitable driving devices connected with the power-shaft of the machine, and with a sliding cross-head whereby the nails aro driven through said driving-tubes into and through said hoops and staves, said driving devices consisting of driving-rods which are connected with a sliding cross-head, and of eccentrics connected with the power-shaft, and with said cross-head, said driving-rods being provided with driving-plus, which extend into and through said driving-tubes, substantially as shown and described

15. In a machine for making baskets, the combination with a suitable frame, of revoluble forms which are mounted on a revoluble carrier, devices for giving said forms an intermittent revoluble motion, a suitable stave-hopper also mounted on said frame, and capable of vertical intermittent movement, pickers and other devices for removing the staves from the hopper and depositing them on the forms, feeding-tubes through which the hoops are passed, which terminate adjacent to said forms, nail-hoppers suitably supported on said frame, and in operative connection with the power-shaft of the machine, and provided with devices whereby they are given a lateral or oscillating motion, chutes connected with said hoppers, through which the nails are ied, and provided with extensions, each of which is provided with a slot in the bottom thereof, means for feeding the nails successively from said slots into other chutes, which are provided with tubes which communicate with driving-tubes, and suitable driving devices connected with the power-shaft of the machine, and with a sliding cross-head whereby the nails are driven through said driving-tubes into and through said hoops and staves, said driving devices consisting of driving-rods which are connected with a sliding cross-head, and of eccentrics connected with the power-shaft, and with said cross-head, said driving-rods being provided with driving-pins, which extend into and through said driving-tubes, and devices connected with the power-shaft for holding the staves in position on the forms, while the nails are being driven, and said forms being also adapted to receive a disk or plate which constitutes the bottom of the basket, and into which nails are also driven through the hoops and staves, substantially as shown and described

16. In a machine for making baskets, the combination with a suitable frame, of a revoluble form carrier, said form-carrier being provided with revoluble spindles or rods, on which are mounted circular heads which constitute the form proper, said circular heads being provided with flanges or ribs by which the staves of the basket are spaced, and with annular grooves formed therein, and each of said spindles being also provided with a ratchet wheel, and means connected therewith for giving the same an intermittent revoluble motion, suitable means for feeding staves into position on said forms, and for holding them thereon, while being nailed, hoop-tubes through which hoops are passed into position to be nailed onto said staves, nail-hoppers suitably mounted upon said frame, and provided with means for feeding the nails into position to be driven into said hoops and staves, spring-operated driving-rods which pass through suitable keepers, and into driving-tubes into which the nails are fed, said driving-rods being connected with a sliding cross-head, which is in operative connection with eccentrics mounted on the power-shaft, substantially as shown and described

17. A machine for making baskets comprising a frame, a form-carrier connected therewith, forms connected with said carrier, devices for giving said carrier intermittent motion, a stave-hopper mounted on said frame, and devices connected therewith for placing the staves upon the respective forms, tubes adjacent to said stave-hopper through which the hoops are passed, nail hoppers which are suitably mounted and provided with means for giving the same a lateral and oscillating motion, devices for feeding the nails into position to be driven into said hoops and staves, and drivers by which the nails are driven into said hoops and staves, said drivers consisting of a sliding cross-head, which is connected by means of eccentrics with the power-shaft of the machine, and driving-rods connected with said cross head, said nails being fed from said hoppers into a tube which is connected with said driving-rods, and through which passes a driving-pin, substantially as shown and described.

18. A machine for making baskets comprising a suitable frame, a form-carrier connected therewith, forms connected therewith, a stave-hopper also mounted on said frame, and devices connected therewith for placing the staves on the respective forms, hoop-tubes adjacent to said stave-hopper through which the hoops are passed, nail-hoppers which are suitably mounted on said frame, and provided with means for giving the same an oscillating or lateral motion, devices for feeding the nails into position to be driven into said hoops and staves, and drivers by which the nails are driven into said hoops and staves, consisting of a sliding cross head which is connected by means of eccentrics with the power-shaft of the machine, and driving-rods connected with said cross-head, said nails being fed into a tube which is connected with said driving-rods, and through which passes a driving-pin, and devices for operating the form-carrier and revolving the same as each stave is placed in position, substantially as shown and described.

19. A machine for making baskets, comprising a frame, a form-support carried by said frame, a plurality of forms connected with said support, means for placing staves and hoops in position upon the respective forms, mechanism for applying securing devices to the staves and hoops, and mechanism operating to throw one form into operative position with relation to said securing devices as the other

form is withdrawn from said operative position, substantially as and for the purpose set forth.

20. A machine for making baskets, comprising a frame, a form-support carried by said frame, a revoluble form connected with said support, and means for moving said support to and from the stave and hoop applying and nailing mechanism, in combination with means for placing said staves and hoops upon the form, mechanism for feeding nails into position with relation to the staves and hoops when the same are upon the revoluble form, and driving devices operating with respect to the action of the nail-feeding mechanism to drive said nails through the staves and hoops when the same are carried into a relative position by the movement of the revoluble form, substantially as and for the purpose set forth.

640,979. **RUNNING-GEAR.** EDWIN T. WADE, Clarksdale, Miss., assignor of one-third to L. B. Wilkinson, Duncan, Miss. Filed Oct. 30, 1899. Serial No. 735,306. (No model.)



Claim.—1. In a device of the class described, the combination of a central coupling consisting of a central substantially U-shaped portion, and upper and lower arms, the upper arm being provided with a vertical pivot, the upper and lower tubes or rods extending through openings of the said arms, and a reach pivoted in the central U-shaped portion of the coupling, substantially as described.

2. In a device of the class described, a coupling consisting of a central substantially U-shaped portion, adapted to receive the front end of the reach and open at its sides, and the upper and lower arms having transverse openings the upper arm being provided with a vertical pivot, substantially as described.

3. In a device of the class described, the combination of the upper and lower tubes or rods, and the converging hollow blocks or sleeves provided with upper and lower transverse openings receiving the tubes or rods, said blocks or sleeves being provided with longitudinal openings for the reception of hounds, substantially as and for the purpose described.

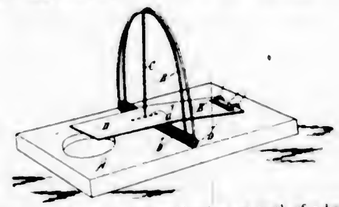
4. In a device of the class described, the combination of upper and lower rods or tubes, the converging blocks or sleeves having central longitudinal openings and provided with upper and lower transverse openings receiving the rods or tubes, the central coupling having upper and lower openings to receive the rods or tubes and provided with a central horizontal substantially U-shaped portion arranged opposite the space between the upper and lower tubes, and a reach pivoted within the U-shaped portion of the coupling, substantially as described.

5. In a device of the class described, the combination of the upper and lower tubes, the end blocks or connections secured to the tubes, the removable spindles fitted in the lower tube, the central coupling connecting the upper and lower tubes and provided with an intermediate U-shaped portion arranged to receive the reach, and the hollow blocks or sleeves connecting the tubes at opposite sides of the coupling, substantially as described.

6. In a device of the class described, the combination of upper and lower tubes or rods, and the end blocks or connections secured to the tubes or rods and provided with vertical extensions forming standards, substantially as described.

7. A device of the class described comprising upper and lower tubes or rods, end blocks or connections secured to the rods provided with vertical extensions forming standards, the intermediate blocks connecting the rods or tubes and provided with ears for the reception of the rear hounds, and a central block having upper and lower transverse openings to receive the rods or tubes and provided with a central opening for the reception of the reach, substantially as described.

640,980. **ANIMAL-TRAP.** CHARLES M. WILLIAMS, Los Angeles, Cal., assignor to the Star Novelty Company, same place and Phœnix, Ariz. Filed Jan. 4, 1899. Serial No. 701,154. (No model.)



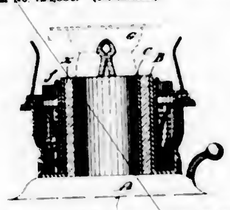
Claim.—1. In a trap the combination set forth of a base; two looped jaws with their bases set together; springs to hold the jaws normally against the base; a trigger hinged to one of the jaw-loops and adapted to extend down over the other jaw-loop when the two loops are brought together in a raised position; and a trigger-trip hinged to the base and provided with a catch to hold the end of the trigger when the trap is set.

2. A trap comprising a base; two spring-pressed jaws fastened to the base with their bases near together; a trigger hinged to one of the jaws and arranged to extend down over the other jaw when the jaws are brought together; and a trigger-trip hinged to the base and extending across the axis of the jaws and provided with a catch for the end of the trigger.

3. A trap comprising a base; two jaws each provided with coil-springs at its base fastened to the trap-base to press the jaws respectively against the trap-base at the opposite ends thereof respectively; a trigger hinged to one of the jaws and arranged to extend down over the other jaw to hold the jaws in set position; a trigger-trip hinged to the base and provided at its mid-length with a bend to extend over the springs and also provided with a catch to hold the trigger when the trap is in its set position.

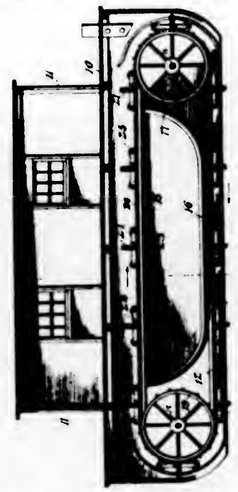
4. A trap comprising a base; two jaws each provided at the opposite sides of its base with a coiled spring; a pin extending through both the coils of both of said springs, said springs being fastened to the base to press the jaws against the base on opposite sides of the axis of the jaws; and a trigger-trip hinged to the base and extending over the pin and provided with one or more catches to hold the trigger when in its set position.

640,981. **LAMP-BURNER.** FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, of Connecticut. Filed July 19, 1899. Serial No. 724,358. (No model.)



Claim.—In a lamp-burner in combination, an outer wick-tube, another tube loosely surrounding the same, the upper edge of the last-named tube being located on approximately the level of the outer wick-tube when the parts are in their normal operative position, the upper edge of said surrounding tube being flared outwardly adjacent the base of the flame, an opening in the side of the outermost tube, and means to permit said outermost tube to be raised and held in an elevated position.

640,982. **WATER-MOTOR.** HERBERT A. WISE, Luxora, Ark. Filed Jan. 31, 1899. Serial No. 704,012. (No model.)



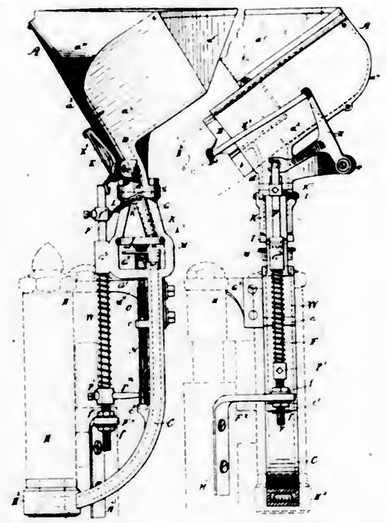
Claim.—1. In a water-motor of the character set forth, the combination of a bottomless frame having side walls or gunwales and a front guard or break, a water-tight float housed between said side walls or gunwales, carrier-wheels having their shafts mounted in bearings in the side walls or gunwales beyond the extremities of the float, guides secured to the gunwales adjacent the upper portion of the float and near the bottom of the side walls or gunwales in the form of channels terminating in opposite curved ends beyond the carrier-wheels, and endless chains adapted to traverse said wheels, and spaced blades transversely connecting said chains and provided with terminal cross-heads at opposite ends supporting front and rear rollers with their axes disposed horizontally in a transverse direction and intermediate rollers with their axes arranged vertically, the said intermediate rollers extending outwardly a greater distance than the adjacent similar projections of the cross-heads, said rollers engaging respectively the guides and guide-channels and portions of the side walls or gunwales of the bottomless frame.

2. In a water-motor of the character set forth, the combination with a bottomless frame having side walls or gunwales provided with upper and lower guides, the lower guides forming channels terminating in curved ends extending above the upper guides, of carrier-wheels having their shafts mounted in bearings in the side walls or gunwales within the curved terminals of the lower guides, a water-tight float housed between the side walls or gunwales of the said frame and provided with an upper flat top and opposite curved ends, the said float being less in length than the distance between the shafts of the carrier-wheels, and endless carrier-chains traversing said wheels and movable above and below the float, said carrier-chains having spaced blades transversely connecting the same and provided with terminal cross-heads forming travelers for movement on the guides and inside the curved ends or terminals of the lower channels, the said cross-heads also having opposite end rollers with their axes disposed horizontally in a transverse direction, and intermediate rollers with their axes arranged vertically, said intermediate rollers extending outwardly beyond the plane of the adjacent sides of the cross-heads.

640,983. **AUTOMATIC FEEDER MECHANISM FOR BOTTLE-STOPPERING MACHINES.** FRANK O. WOODLAND, Worcester, Mass. Filed Apr. 3, 1899. Serial No. 711,500. (No model.)

Claim.—1. In a feeder for bottle-stoppering machines, the hopper-receptacle constructed as shown and described, with an angular bottom comprising the oblique planes a', a^3, and a^4 severally disposed in cornerwise position in relation to horizontality, and presenting the downwardly-convergent meeting angles, one of which forms an inclined central V-shaped valley terminating with an exit-throatway leading therefrom at the bottom corner, its side coincident with the plane a', and a movable plate adjacently overlying said plane and having a limiting under space for controlling the passage of stopper-crowns in single order through said exit-throatway, in the manner substantially as set forth.

2. In a feeder for bottle-stoppering machines, a hopper having an angular bottom disposed cornerwise in relation to horizontality, an exit-throatway leading therefrom in continuation of one of the inclined bottom surfaces, and a plate-plunger having a broad overhanging flange movable into and from the hopper-chamber along said inclined bottom surfaces, the space beneath said flange communicating with said throatway, substantially as and for the purpose set forth



3. The combination of the hopper-receptacle having its bottom surfaces disposed to present three diagonally oblique or inclined surfaces and three convergent meeting angles, a throatway leading from the lower post of the receptacle, one side of said throatway continuous with one of the bottom surfaces, a movable shelf-plate disposed parallel with said bottom surface and having an overhanging margin or shelf and under space approximately corresponding to the width dimension of a crown bottle-stopper, extending along its inner and lower edges and contignous to said throatway with which said under space unites to a common plane, substantially as and for the purpose set forth.

4. In a feeder mechanism for the purpose specified, the combination with the hopper and the sliding shelf-plate movable into and from the hopper-chamber, of the actuating-rod, the angle-lever fulcrumed on the hopper-supporting frame and engaging said rod, and a connecting-link joining said lever and the projecting end of the shelf plate, for the purpose set forth.

5. In a feeder for bottle-stoppering machines, the combination, with a hopper having a throatway adapted for delivering crowns in oppositely-faced order; of a pendulous vibrator-guide in continuation of said throatway, and a separator having right and left passways therethrough and side ledges adapted for arresting the wrongly-facing crowns at the end of said vibrator and directing their transfer to the appropriate passway, substantially as set forth.

6. In a feeder for bottle-stoppering machines, the combination, of a hopper having an exit-throatway for the crown-stoppers, means for separating the stoppers or crowns accordingly as they come from the hopper facing in one direction or the other, a chute adapted for conducting regularly-arranged crowns to the place of delivery, an intermediately-disposed pivotal reversing device adapted for arresting the crowns that face in one direction and carrying them around to the opposite position of facing, while permitting direct passage of the properly-faced crowns into said chute; and means for effecting rotative or partially-rotative motion in said reversing device, for the purpose set forth.

7. In a crown-feeder for bottle-stoppering machines, the combination of a hopper having an exit-throatway adapted for passing the crown bottle-stoppers facing in opposite directions, a chute or conduit adapted for delivering the crowns in predetermined uniform order of facing, an intermediately-disposed separating appliance adapted for diverting the oppositely-faced stopper-crowns to two positions, and a horizontally-reversible carrier, said carrier having a compartment that swings into line with said two positions for receiving or passing the presented crowns, and a table or plate portion that ob-

structs or guards the delivery-passages when the compartment is moved out of line therewith.

8. In a feeder for bottle-stoppering machines, the combination of a hopper, a delivery-throatway therefrom, a vibrating guide beneath said throatway, a separator device adapted for controlling the discharge of the crowns through right or left passways according to their facing position, a delivery-chute and a semirotary reverser adapted for receiving the wrongly-faced crowns and turning them to proper position for entering said chute, and means for operating said vibrating guide and said reverser, substantially as set forth.

9. In a crown-feeder for bottle-stoppering machines, the reversing-head formed with a table-surface, and a through-compartment for containing a crown in edgewise standing position, said reversing-head mounted on an upright axis or spindle within the frame; in combination with the frame provided with a chamber, a delivery-chute leading from said chamber, a guide or passways above said reverser for conducting stoppers thereto, and means for effecting rotative movement of said reversing-head, as set forth.

10. In a feeder for bottle-stoppering machines, the combination of a reversing device, its spindle mounted in the conductor-frame; an operating-shaft connected with said reverser-spindle, an actuator-rod having an arm or finger engaging a helical groove or thread on said shaft, and means for imparting relative reciprocative movement between said conductor-frame and actuator-rod, substantially as set forth.

11. In combination with the chute, the rotative reversing crown-carrier having the axial spindle journaled in the frame, and the actuating-rod, of the spirally-grooved operating-shaft mounted in bearings on the chute-frame, the yieldable spring-coupling uniting said shaft and reverser-spindle, and the finger rigid on said rod and engaging the groove in said shaft, for the purpose set forth.

12. In a feeder for bottle-stoppering machines, a separator device consisting of supporting side bars united by a central transverse bridge having passways at right and left thereof, opposite inwardly-projecting ledges on said side bars terminating in said passways, in combination with a crown-guide adapted to move back and forth above said bridge, for the purpose set forth.

13. In a feeder for bottle-stoppering machines, the combination of the hopper-throat, the pendent vibrating guide provided with a laterally projecting ear fixed thereon adjacent to its pivot plane, suitable hinging-pivots connecting said guide and hopper-throat, the upright actuating-rod, and a connecting-link spring having one of its ends attached to the ear of said vibrating guide and its other end attached by a collar or suitable means to said rod, and adapted for working alternately above and below the level of the guide-pivot axis, said spring exerting a continued pull tension and imparting pendulous action to said guide, substantially as set forth.

14. The combination with the conductor-frame and delivery-chute, of a crown-reverser, its spindle axially journaled in said frame for partial rotative action, stops for limiting the movement of said reverser, an operating-shaft, a spring or torsional coupling joining said shaft and reverser-spindle, an actuating-rod, means for imparting rotative movement to said shaft from said rod.

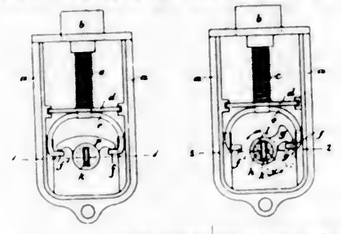
15. In a feeder for bottle-stoppering machines, the combination with the conductor-frame, the hopper-throatway and the delivery-chute; of a vibrating or swinging guide, a reversing device axially journaled in said frame for controlling the passage into said chute, stops for limiting the rotative movement of said reverser, an actuating-rod and means for imparting motion to said reverser from said rod, and a yielding connection from said rod to said vibrating guide, whereby the swinging action of the guide and semirotation of the reverser are synchronously effected, for the purpose set forth.

16. In a mechanism for feeding crown bottle-stoppers automatically to bottle-stoppering machines, the combination with an operating-head for capping the stoppers on the bottles, of a conductor-frame adapted for support upon the movable bottle-capping head and having a delivery-chute leading into the nut or collar of said head, a hopper mounted upon said frame and provided with a sliding shelf-plate having a marginal space communicating with the throatway at the bottom of said hopper, a vibrating guide adjacent to the hopper-throat, a separating device with passways for oppositely-faced crowns, a horizontally-oscillative crown-reversing device controlling the chute, an actuator-rod attached to a stationary part of the bottle-stoppering machines, and means for imparting reciprocal motion from said rod to the sliding shelf-plate, the vibrating guide and the crown-reversing device, for the purpose set forth.

17. In a feeder for bottle-stoppering machines, the combination, of the conductor-frame, the hopper mounted thereon, the sliding shelf-plate at the inclined bottom of said hopper, a swinging lever fulcrumed on the frame and having one of its arms connected by a link-bar with an ear on the outer end of said shelf-plate, the actuating-rod connected with said lever and having a screw-threaded end, and a stationary eye-bracket wherein said rod is adjustably secured by nuts threaded thereon above and below said bracket, as set forth, whereby the relation of said shelf-plate to the hopper-exit can be regulated.

18. In combination with the frame having the hopper, the delivery-chute and operating mechanism supported thereon, said frame provided with the guide-bearing 6, of the actuating-rod arranged through said bearing, and the lifting spring-coil disposed about said rod between said bearing and a foot-support fixed on said rod against which said spring acts by expansive force, substantially as shown and for the purpose set forth.

640,984. SPRING-LOCK. CARL M. F. ANDERSEN, Copenhagen, Denmark. Filed Sept. 30, 1898. Serial No. 692,270. (No model.)



Claim.—1. In a lock, the combination of a lock-casing, a bolt, a spring normally projecting the bolt, a narrow hook, carried by said bolt, a retractable spindle, a spring pressing the same forward, an arm *g* fixed on the spindle normally in position to engage the narrow hook when moved by turning said spindle, said arm not being in position to engage the hook when the spindle is retracted, and means for turning the spindle.

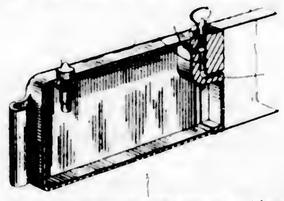
2. In a lock, the combination of a lock-casing, a bolt, a spring normally projecting the bolt, a narrow hook, carried by said bolt, a retractable spindle, a spring pressing the same forward, an arm *g* fixed on the spindle normally in position to engage the narrow hook when moved by turning said spindle, said arm not being in position to engage the hook when the spindle is retracted, and means at each end of the spindle for turning it.

3. In a lock, the combination of a lock-casing, a bolt, a spring projecting the bolt, narrow hooks *f*, *f'* arranged diagonally from each other and carried by the bolt, a spindle, a spring projecting it, an arm on the spindle to cooperate with one or other of said hooks when turned, means for turning the spindle, and means for moving the spindle longitudinally against its spring.

4. In a lock, a bolt, a locking device for preventing unauthorized retraction of the bolt consisting of a narrow hook *f*, spindle *h* movable on its axis and longitudinally, arm *g* normally in the plane of the hook but moved out of said plane by longitudinal movement of the spindle, and spring *m* on said spindle.

5. The combination with plate *k*, of spindle *h* having an incision *l* into which plate *k* extends, incision *l* at its center being of the same width as plate *k*, and from the center to the surface of the spindle being enlarged on opposite sides of the plate *k* so as to form angles *r* on the right and left sides of plate *k*, whereby spindle *h* can be partly turned before being impeded by plate *k*, an arm *g* on the spindle, a bolt, a hook *f* carried thereby, arm *g* being normally in position to allow retraction of the bolt and movable into position to lock the bolt projected without movement of plate *k*.

640,985. LIFE-PRESERVER. HENRY AYLNER, Richmond, Canada. Filed July 25, 1899. Serial No. 725,072. (No model.)



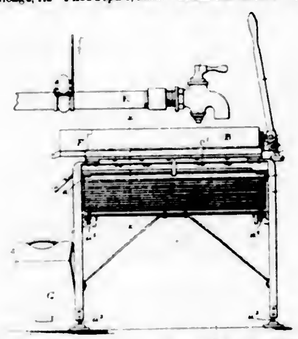
Claim.—A marine life-saving appliance comprising a hollow belt forming a continuous air-chamber, an engaging part secured to one end of said belt and a compressed-air receptacle secured to the opposite end thereof, having inlet-passages leading into the chamber, a valve for controlling the same and an engaging part secured to the end of the receptacle.

640,986. GREEN DYE. OSCAR BALLY, Mannheim, Germany, assignor to the Badische-Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Oct. 17, 1899. Serial No. 733,917. (No specimens.)

Claim.—1. As a new article of manufacture the green coloring-matter which can be obtained from chlor-substituted diamido-anthraquinone, as hereinbefore defined, and an aromatic amin, which in the unsulfonated state is insoluble in cold water, and with cold concentrated sulfuric acid gives an olive-green color, which on heating to 100° becomes violet and which violet becomes green if boric acid be added to it; in the sulfonated state it is soluble in water giving a green-blue solution whose color is hardly affected by caustic soda and gives with sulfuric acid of 66° Baumé a violet color, all substantially as hereinbefore described.

2. As a new article of manufacture the green coloring-matter which can be obtained from chlor-1.5-diamido-anthraquinone, as hereinbefore described, and para-toluidin, and which in the unsulfonated state is insoluble in cold water and with cold concentrated sulfuric acid gives an olive-green color, which on heating to 100° becomes violet and which violet becomes green if boric acid be added to it; in the sulfonated state it is soluble in water giving a green-blue solution whose color is hardly affected by caustic soda, and gives with sulfuric acid of 66° Baumé a violet color, all substantially as hereinbefore described.

640,987. FILLING-MACHINE. JAMES BAXTER and DAVID BAXTER, Chicago, Ill. Filed Sept. 1, 1899. Serial No. 729,212. (No model.)



Claim.—1. In a filling machine, the combination with a suitable supporting-frame, of a receiving-tank carried thereby, said tank being divided into a series of equal-sized measuring-cells by longitudinal and transverse partitions, said cells each having a valve-controlled port centrally located in its base and at the lowest point thereof, and the base or floor of each cell sloping downwardly and uniformly from the line forming the base of each partition to the port in the center, and each and every partition between adjacent cells having an unvalved passage-way formed along its lower edge, whereby each cell of the series is at all times in free communication with all the cells by which it is bounded through said unvalved passage-ways, as and for the purpose described.

2. In a filling-machine, the combination with a suitable supporting-frame of a receiving-tank carried thereby, said tank being divided into a series of equal-sized measuring-cells by longitudinal and transverse partitions, said cells each having a port in its base, and said tank being provided also with parallel grooves formed in the under face of its base-plate centrally beneath parallel rows of cells, into which grooves the ports of the cells open, a series of ported valve-strips adapted to reciprocate in said grooves to control the opening and closing of the ports of the cells, a series of flat springs bolted at their centers to the under face of the base-plate centrally between adjacent valve-strips and bearing at their ends against said valve-strips to hold them firmly to their seats in the grooves, said flat springs forming the only support of said valve-strips, and means for effecting the simultaneous reciprocation of the valve-strips, substantially as described.

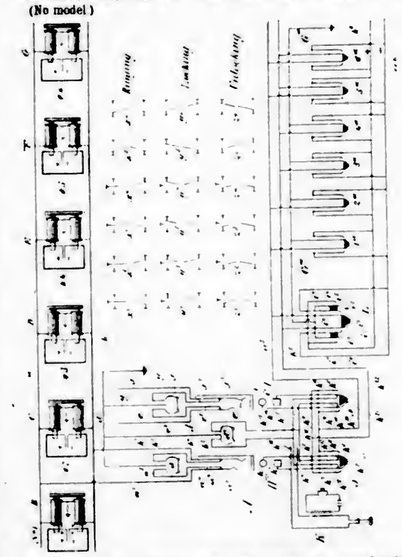
3. In a filling-machine, the combination with a suitable supporting-frame, of a receiving-tank carried thereby, said tank being divided into a series of equal-sized measuring-cells by longitudinal and transverse partitions, said cells each having a port in its base, and said tank being provided also with parallel grooves formed in the under face of its base-plate centrally beneath parallel rows of cells, into which grooves the ports of the cells open, a series of ported valve-strips adapted to reciprocate in said grooves to control the opening and closing of the ports of the cells, a series of flat springs bolted at their centers to the under face of the base-plate centrally between adjacent valve-strips and bearing at their ends against said valve-strips to hold them firmly to their seats in the grooves, said flat springs forming the only support of said valve-strips, means for retaining said flat springs in a position at right angles to said valve-strips against any tendency of the latter through friction to displace them from such position, and means for effecting the simultaneous reciprocation of the valve-strips, substantially as described.

4. In a filling machine, the combination with the receiving-tank divided into a series of measuring-cells, and having parallel grooves formed in the under face of its base-plate centrally beneath parallel rows of cells, of a series of valve-strips adapted to reciprocate in said grooves, said cells and valve-strips being provided with ports adapted to be thrown into and out of register by the reciprocation of the valve-strips, said ports both in the cells and valve-strips being formed with inwardly-tapering sides from top to bottom, as and for the purpose described.

5. In a filling-machine, the combination with the receiving-tank divided into a series of measuring-cells, and having parallel grooves formed in the under face of its base-plate centrally beneath parallel rows of cells, of a series of valve-strips adapted to reciprocate in said grooves, said cells and valve-strips being provided with ports adapted to be thrown into and out of register by the reciprocation of the valve-strips, and mechanism for effecting the reciprocation of the valve-strips comprising a transverse tie-bar securing the valve-strips together at one end, a rock-shaft mounted on the head of the tank, a long arm keyed on said rock-shaft whereby the same may be rocked, and short arms or tappets also keyed on the rock-shaft and at their outer ends engaging the tie-bar through suitable apertures in the same, substantially as described.

6. In a filling-machine, the combination with a suitable supporting-frame of a receiving-tank carried thereby, said tank being divided into a series of measuring-cells arranged in parallel rows, valve mechanism arranged in the bottoms of said cells for controlling the discharge therefrom, and a skeleton drip-pan carried by the supporting-frame immediately beneath the tank, said drip-pan comprising a series of gutters rigidly held in parallel relation and spaced apart a distance corresponding to the distance between the parallel rows of valves and discharging at one end through a common nozzle, and adapted to be slid back and forth laterally in a horizontal plane alternately into and out of position to catch the drip from the valves, substantially as described.

640,988. TELEPHONE SYSTEM. JOHN R. BLINCK and CHARLES H. WEST, Jersey City, N. J. Filed May 8, 1899. Serial No. 715,909. (No model.)



Claim.—1. In a selective signaling system, the combination of substations located along a double-conductor main line, a magnetic circuit located at each substation and having a plurality of independently-movable elements, a local signaling device at each substation in a circuit responsive to a change in the position of a movable part or

parts of the magnetic circuit and electromagnets each responsive to a current sent over one side of the line and governing the action of one of the said movable elements, and a central or switching station provided with signaling means sending particular currents or current combinations for selectively signaling the substations.

2. In a selective signaling system, the combination of a series of substations and a central station, a metallic or double-conductor main circuit, a ground connection at each substation normally in circuit with both sides of the line and means under the control of the subscriber at each substation for transmitting current over both sides of the circuit, locking or short-circuiting means at each substation responsive thereto and means for preventing the locking or short-circuiting means at the stations in use for talking, from being operated by such current.

3. In a signaling system of the character described, the combination of a series of substations in electrical connection, with a double-conductor main line or circuit, a ground-circuit at each substation normally connected to both sides of the line, means at each substation for signaling the same from the switching station by a particular current or current combination for each substation, means located at each substation for locking or short-circuiting the other subscribers' stations and means at each substation under the control of the subscriber for rendering the locking or short-circuiting device of his station inoperative when a call is desired to be sent to the central whereby his own instrument will not be locked out when he signals central.

4. In a signaling system of the character described, the combination of a series of substations in electrical connection with both sides of a double-conductor main line or circuit with selective signaling apparatus substantially as described located at the central and substations; a ground-circuit permanently connected to both sides of the line, a locking-relay located at each substation, and circuit connections with the said locking-relay combined with means for manipulating the circuit of the said locking-relay by the transmission of a call from a substation to central to render the said locking-relay inoperative to lock the calling-subscriber's substation.

5. The combination, in a signaling system, of a series of substations in electrical connection with a double-conductor main circuit with selective signaling apparatus substantially as described located at the central and sub stations, a locking-relay located at each substation, a calling-generator at each substation and movable means for automatically connecting the calling-generator with both sides of the line and for also opening the circuit of the locking-relay at the substation where the calling-generator is operated.

6. An electrical signaling system comprising a metallic or double-conductor main line or circuit extending between a central or switching station and a number of substations, a signal-receiving device in a local circuit at each substation, a normally-magnetized loop or yoke of magnetic material constituting a magnetic circuit and a plurality of electromagnetic means connected one to each side of the line at the substation separate and distinct from the said magnetic circuit and adapted to control the same, means for thereby actuating the signal-receiving device, an earth conductor normally in circuit with both sides of the line and a series of signal-transmitting devices at a central or switching station for sending currents to effect the proper change in the devices for manipulating the magnetic circuit at the respective substations so that the receiving device of the substation represented by such signal device and no other is responsive, substantially as described.

7. In a selective signaling system, the combination of a series of substations having individual locking apparatuses and a central station, means at each substation for operating the locking apparatus of the other stations on the line, means at the central station for unlocking the line and means at each substation for "blocking" its locking apparatus when a call has been sent from that substation so that the unlocking apparatus at the central station is inoperative to operate the locking apparatus at the said substation

8. In a signaling system of the character described, the combination of a series of substations in electrical connection with a double-conductor main circuit, and having individual locking apparatus, means at each substation for receiving signals from the switching-station by particular current or current combinations for the substations, means at each substation for operating the locking apparatus of the other stations on the line, means at the central station for unlocking the line and means at each substation for "blocking" its locking apparatus when a call has been sent from that substation so that the unlocking apparatus at the central station is inoperative to operate the locking apparatus at the said substation.

9. In a selective signaling system, the combination of a series of substations having individual locking apparatuses comprised in part by an electromagnet and a central station, means at each substation for operating the locking apparatus of the other stations on the line, means at the central station for unlocking the line, and means at each substation for manipulating the circuit of its electromagnet forming part of the locking apparatus so that the unlocking apparatus at the central station is inoperative to operate the locking apparatus at the said substation.

640,989. BLUEISH-RED AZO DYE. MELCHIOR BONIGER, Basle, Switzerland, assignor to Chemical Works, formerly Sandoz, same place. Filed Nov. 21, 1899. Serial No. 737,777. (No specimens.)

Claim.—The new azo dyes deriving from one molecule of a diazotized aromatic amido compound and one molecule of an 1.8 alphylsulfamidonaphtodisulfonic acid as hereinbefore described, forming red to dark powders easily soluble in water dissolving in alcohol and strong sulfuric acid with blue-red to violet color the said dyestuffs being destroyed by reduction with zinc-dust forming thereby a slightly greenish-yellow solution, which when acidulated on addition of an oxidizing agent turns into intense yellow

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640,990. LAST. HENRY BROWN, Northampton, England, assignor of one-half to Henry Edward Randall, same place. Filed July 17, 1899. Serial No. 724,158. (No model.)

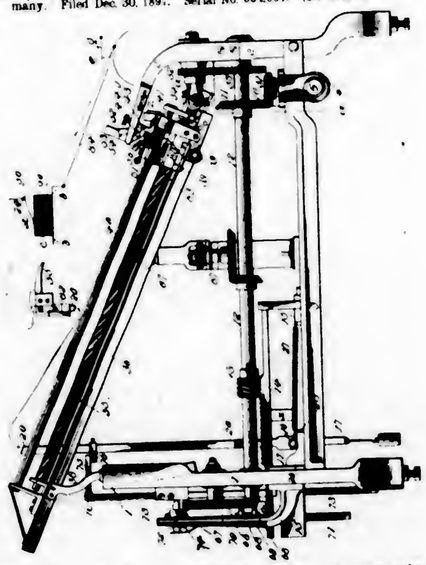


Claim.—1. In a last the combination with the metal heel portion provided with means for attaching it to a supporting-standard, and provided with a forwardly-extending portion, of a bottom of wood secured to said forwardly-extending portion and a layer of elastic material interposed between said bottom and said forwardly-extending portion to prevent injury to said bottom, substantially as described.

2. In a last the combination with the metal heel portion provided with means for engaging a supporting-standard, and with a forwardly-projecting extension the full width of the last, a detachable instep portion for engaging the upper side of said extension, a wooden bottom piece on the lower side of said extension, secured thereto, and a layer of rubber interposed between the lower face of said extension and said wooden bottom, to prevent injury to the latter, substantially as described

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640,991. SHEET-FEEDING MACHINE. ADEL BUG, Berlin, Germany. Filed Dec. 30, 1897. Serial No. 664,681. (No model.)



Claim.—1. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide, upon which the grippers are moved to and fro, means for moving the

grippers upon their guide, means for lowering the gripper-guide at its rear end during the forward travel of the grippers, and an adjusting-table, which does not partake of the movement of the gripper-guide, substantially as described

2. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers 50, a gripper-guide 40 being at its fore end pivoted, a spindle 35 moving the grippers, a bar 73 raising the gripper-guide at the rear and a bar 20, the position of which depends upon the height of the pile of paper and which limits the downward motion of the bar 73, substantially as described.

3. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers 50, a gripper-guide 40 being at its fore end pivoted, a spindle 35 moving the grippers, a bar 73 raising the gripper-guide at the rear, means for raising the bar 73 always the same amount, and a bar 20 the position of which depends upon the height of the pile of paper and which limits the downward motion of the bar 73, substantially as described.

4. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide, upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for disengaging the grippers near the end of their upward travel from the said moving means, a bar 20, the position of which depends upon the height of the pile of paper, means for pushing the grippers after the said disengagement against a stop 82 of the said bar 20, and means for lowering the gripper-guide at its rear during the forward travel of the grippers, substantially as described.

5. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at its rear during the forward travel of the grippers, and a bar 20 which is upheld by a stop 26 during the lowering of the gripper-guide, substantially as described

6. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines the combination of grippers 50, a guide upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at its rear during the forward travel of the grippers, means striking against a stop at the end of the forward travel of the grippers and opening the lower gripper-jaws, and means for opening the upper gripper-jaws, substantially as described

7. In an apparatus for supplying sheets of paper to printing, paper-folding and similar machines, the combination of a bar 21, the position of which depends upon the height of the pile of paper, means for raising said bar, grippers, a gripper-guide, means for moving the uppermost sheet into reach of the grippers, said grippers being adapted to seize said sheet, and means for lowering the gripper-guide during forward travel of the grippers, substantially as described.

8. In an apparatus for supplying and adjusting sheets of paper in printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at the rear during the forward travel of the grippers, means for releasing the seized sheet from the grippers, an adjusting-table receiving the released sheet, a plate 120 being movable upon the said table, and means for moving the said plate carrying the sheet brought upon it to the front stops, substantially as described.

9. In an apparatus for supplying and adjusting sheets of paper in printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide, upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at the rear during the forward travel of the grippers, means for releasing the seized sheet from the grippers, an adjusting-table receiving the released sheet, a plate 120 being movable upon the said table, means for moving the said plate carrying the sheet brought upon it to the front stops, and means for adjusting the sheet sidewise, substantially as described.

10. In an apparatus for supplying and adjusting sheets in printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide, upon which the grippers move to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at the rear during the forward motion of the grippers, means for releasing the seized sheet from the grippers, an adjusting-table receiving the released sheet, a plate 120 being movable upon the said table, means for moving the said plate together with the sheet brought upon it toward front stops, means for adjusting the sheet sidewise and means for clamping the sheets, the pressure of which is variable, substantially as described.

11. In an apparatus for supplying and adjusting sheets of paper in printing, paper-folding and similar machines the combination of grippers drawing away from a pile of paper the sheets one by one, a guide, upon which the grippers are moved to and fro, means for moving the grippers upon their guide, means for lowering the gripper-guide at the rear during the forward travel of the grippers, means for releasing the seized sheet from the grippers, an adjusting-table receiving the released sheet, means for stopping the said sheet upon the adjusting-table, a plate 120 being movable upon the said table, means for moving the said plate together with the sheet brought upon it toward front stops, and means for adjusting the sheet sidewise, substantially as described.

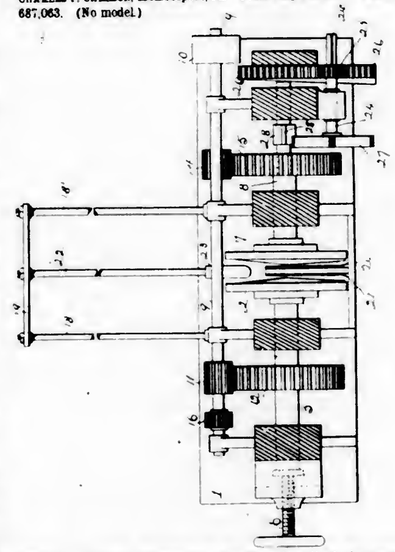
12. In an apparatus for supplying and adjusting sheets of paper in printing, paper-folding and similar machines the combination of a bar 21, the position of which depends upon the height of the pile of paper, means for raising the said bar, means for lifting up the uppermost sheet at the rear, means for pushing forward the lifted sheet, grippers seizing the displaced sheet, means for lowering the gripper-guide during the forward movement of the grippers, means for releasing the seized sheet from the grippers, an adjusting-table receiving the released sheet, a plate 120 being movable upon the said table, means for moving the said plate together with the sheet brought upon it toward front stops and means for adjusting the said sheet sidewise; substantially as described

13. In an apparatus for adjusting sheets of paper in printing, paper-folding and similar machines the combination of an adjusting-table, a plate 120 being movable upon the said table, means for moving the said plate together with the sheet brought upon it toward front stops, means for moving the said sheet sidewise so as to bulge it, devices for clamping the side edges of the sheet against the moving means working sidewise, means for stretching the clamped sheet and means for releasing the said clamping devices, substantially as described.

14. In an apparatus for adjusting sheets of paper in printing, paper-folding and similar machines the combination of an adjusting-table, a plate 120 being movable upon the said table, means for moving the said plate together with the sheet brought upon it, means for moving the said sheet sidewise so as to bulge it, means for clamping the side edges of the sheet against the moving means working sidewise, means for regulating the pressure of the clamping devices, means for stretching the clamped sheet and means for releasing the clamping-devices, substantially as described

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640,992. DEVICE FOR ROLLING GUN-BARRELS OR TUBES. CHARLES P. CARLSON, McKeesport, Pa. Filed July 28, 1898. Serial No. 687,063. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a housing, of a pair of disks suitably mounted therein, an eccentric spiral flange formed on the working face of each disk, means

for rotating said disks, and means for moving one of said disks step by step in a lateral direction toward the other disk when the lowermost part of its eccentric flange is in contact with the tube being rolled, substantially as described.

2. In an apparatus for rolling tubes, the combination, of a suitable housing, a pair of disks mounted therein, an eccentric spiral flange formed on the working face of each of said disks, a guide arranged between the disks, a mandrel operating through the said guide, means for adjusting the distance between the said disks, and means connected to one of said disks for moving the same step by step in a lateral direction toward the other disk when at each revolution thereof the lowermost part of its eccentric flange is in contact with the tube.

3. In an apparatus of the class described, a housing, a pair of disks mounted on different centers within said housing, an eccentric flange formed on the working face of each of said disks, and means connected to one of said disks for moving the same step by step in a lateral direction toward the other disk when the lowermost part of its eccentric flange is in contact with the tube.

4. In an apparatus for rolling tubes, the combination of a suitable housing, a pair of disks mounted upon different centers arranged in the said housing and having their working face provided with an eccentric flange, and means connected to one of the said disks for moving the same laterally toward the other after a revolution thereof, substantially as set forth.

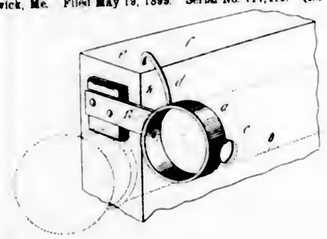
5. In an apparatus for rolling tubes, the combination of a suitable housing, a pair of shafts mounted therein, a disk mounted on the inner end of each of the said shafts and provided on their working face with an eccentric flange, means for rotating the said shafts in opposite directions, a collar mounted on one of the said shafts and provided with a tooth, and means adapted to be operated by the said tooth for laterally moving one of the said disks toward the other after each revolution thereof, substantially as shown and described.

6. In an apparatus for rolling tubes, a housing, a pair of shafts journaled therein, a disk mounted on each of the said shafts and having an eccentric flange on their working face, a gear-wheel mounted on each of the said shafts, shafts 9 and 13 journaled in the said housing, a pinion carried by each of the said shafts 9 and 13, and adapted to mesh with the said gear-wheel for operating the same, means for coupling the shafts 9 and 13 together, a collar mounted on one of the said disk-shafts and provided with a tooth, and means adapted to be operated by the said tooth for laterally moving one of the said disks toward the other after each revolution therent, substantially as herein set forth.

7. In an apparatus for rolling tubes, the combination of a suitable housing, a pair of shafts journaled therein, a disk mounted on each of the said shafts and provided on their working face with an eccentric flange, a guide-stand, inwardly-projecting guides formed integral therewith, a mandrel, a sleeve for centering the said mandrel, means for rotating the said disks in opposite directions, a collar mounted on one of the said disk-shafts and provided with a tooth, and means adapted to be operated by the said tooth for laterally moving one of the said disks toward the other after each revolution thereof, substantially as herein shown and described.

8. In an apparatus for rolling tubes, the combination of a suitable housing, a pair of shafts journaled therein, a disk mounted on each of the said shafts and provided on their working face with an eccentric flange, means for rotating the said disks in opposite directions, means for increasing or diminishing the distance between the said disks consisting of a collar mounted on one of the disk-shafts and provided with a tooth, a shaft 24 having a disk mounted thereon provided with openings adapted to be engaged by the said tooth of the collar, a pinion mounted on the said shaft 24, and a wedge-shaped rack engaging the end of one of the disk shafts and moving longitudinally adapted to be engaged by the said pinion, substantially as herein shown and described.

640,993. **CURTAIN-ROD FIXTURE.** JOSEPH O. CLARK, Boston, Mass., assignor to the Phoenix Manufacturing Company, South Berwick, Me. Filed May 19, 1899. Serial No. 717,419. (No model.)



Claim.—1. As a new article of manufacture, the improved curtain or like rod fixture, the same comprising a pole-ring; an attached spring which extends away from a side of the ring, non-slipping material on the inner side of the free end of the spring; and a hook which extends from the ring upwardly and has its free end above the inner side of the free end of the spring.

2. The combination of a curtain or like pole with a ring; and means for securing the ring on the pole; the ring having a spring extending away from a side of the ring; non-slipping material secured on the inner side of the free end of the spring; and a hook which extends from the ring upwardly and has its free end above the inner side of the free end of the spring.

640,994. **WITHDRAWN.**

640,995. **LAWN-MOWER.** THOMAS COLDWELL, Newburg, N. Y. Filed Sept. 19, 1898. Serial No. 730,972. (No model.)



Claim.—1. The combination with a lawn-mower, of arms pivotally connected therewith, and extending over and being normally supported upon portions of the mower at a distance from its pivotal connection with the said arms, said arms being adapted to swing on their pivotal connections from one side of a perpendicular position to the other; and a grass-box pivotally suspended from said arms above the center of gravity of said box, substantially as described.

2. The combination with a lawn-mower, of arms pivotally connected therewith, and extending over and being normally supported upon portions of the mower at a distance from its pivotal connection with the said arms, said arms being adapted to swing on their pivotal connections from one side of a perpendicular position to the other; a grass-box pivotally suspended from said arms above the center of gravity of said box, and means for limiting the movement of said box with respect to the bail, whereby said box may be swung entirely over the mower before being dumped, substantially as described.

3. The combination with a lawn-mower provided with side frames, of a bail pivotally connected to said mower, a bail-supporting device secured to said side frames and engaging the bail at a distance from the pivotal connection of the bail with the mower, said bail being adapted to swing on its pivotal connections from one side of a perpendicular position to the other; a grass-box pivotally suspended from said bail above the center of gravity of said box and a stop for limiting the movement of the grass-box with respect to the bail, whereby the said box may be swung entirely over the mower before being dumped, substantially as described.

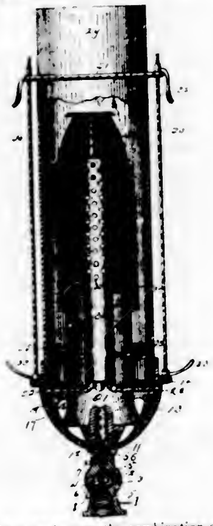
4. The combination with a lawn-mower provided with side frames, of a bail pivotally connected to said mower, a bail-supporting device secured to said side frames and engaging the bail at a distance from the pivotal connection of the bail with the mower, a grass-box pivoted to said bail above the center of gravity of said box, lugs on said box at a distance from its pivots for engaging the bail, when the latter is in its normal position, and a stop for limiting the movement of the box with respect to the bail, substantially as described.

5. The combination with a lawn-mower, of an extension-frame secured to the side frames of the mower, a bail pivotally connected to the mower and adapted to rest upon said extension-frame when in its forward position, a grass-box pivoted to the said bail above its center of gravity and provided with supporting-lugs forward of its pivots for engaging said extension-frame, supporting-lugs in rear of its pivots in position to engage the bail and a stop on said grass-box below its pivots for engaging the bail to limit the movement of said grass-box upon its pivot, substantially as described.

6. An attachment for a lawn-mower comprising a bail, provided with means for pivotally connecting it to a lawn-mower, so that it may be swung from one side of a perpendicular position to the other, a grass-box pivotally suspended from said bail above the center of gravity of said box, and a stop on said box for engaging the bail to limit the movement of the box with respect to the bail, substantially as described.

7. An attachment for a lawn-mower comprising a bail provided with means for pivotally connecting it to a lawn-mower, a grass-box pivoted to said bail above the center of gravity of said box, projections on said box at a distance from said pivots for engaging the bail on one side to support the box in a horizontal position, and a stop on the box below the said pivots for engaging the bail on the other side to limit the movement of the box with respect to the bail, substantially as described.

640,996. **BURNER.** CHARLES R. DALLAR, THADDEUS S. LEESE, and GIDEON W. GRANGER, Pittsburg, Pa. Filed Feb. 15, 1897. Serial No. 623,460. (No model.)



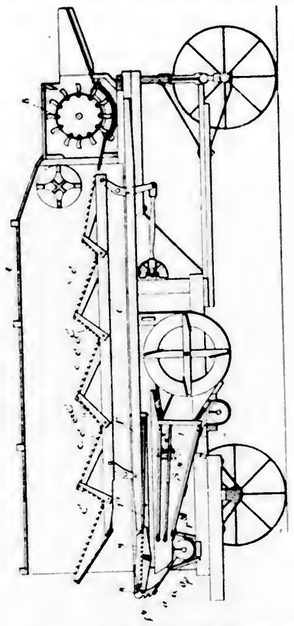
Claim.—1. In a gas-burner, the combination of an incandescing mantle or envelop having a gas and air chamber underneath, a gas and air mixing device within said chamber, and a hood located below the mixing-chamber for directing a current of air within said chamber, substantially as herein shown and described.

2. In a burner of the type described, the combination of a gas and air supplying device, a foraminous tube, a mantle or envelop supported by said tube, a hood arranged within said burner to direct a column of air between said mantle or envelop and a surrounding globe or chimney, substantially as herein shown and set forth.

3. In a burner of the type described, a chamber having walls provided with openings, a shutter arranged within said chamber, a hood arranged in said burner to direct a current of air into the mixing-chamber and a separate current of air between the mantle and globe or chimney, a cut-off arranged in the gas-supply pipe, and means carried by said cut-off to automatically adjust the shutter, substantially as herein shown and set forth.

4. In a gas-burner, a valve-casing having in its lower portion two independent passages 5 and 6, and in its upper portion a single passage 56, leading to the burner-tip, a valve in said casing having two independent passages 3 and 4, for registry with the passages 5 and 6 respectively, and having a chamber into which said passages 3 and 4 merge, said casing having perforated regulating-screws in the channels 6 and 56.

640,997. **THRESHING-MACHINE.** WILLIAM W. DINGER, Racine, Wis., assignor to the J. I. Case Threshing Machine Company, same place. Filed Aug. 8, 1898. Serial No. 688,104. (No model.)



Claim.—1. In a threshing-machine the combination with the conveyer provided with open-ended bearings at its rear end, of a conveyer extension removably mounted at the rear end of said conveyer, pivot-bolts passing through said conveyer extension and through said open bearings and adjusting-nuts upon the outer ends of said pivot-bolts, said bolts and nuts serving to removably hold said conveyer extension in position and serving also to hold said conveyer extension at different angles with respect to said conveyer.

2. In a threshing-machine, the combination with the conveyer provided with extension-arms having open ended bearings, of a conveyer extension removably mounted at the rear end of said conveyer and having pivots that enter said open-ended bearings of the extension-arms and means for removably holding said conveyer extension within said bearings and at different angles with respect to the conveyer, substantially as described.

3. In a threshing-machine, the combination with the side walls having slots a^2 therein, of the sieves S mounted between said side walls, slotted plates T arranged opposite the slots of the side walls and outside thereof and provided with transverse ribs or lugs t^2, rods extending beneath the sieves, shoes V notched to engage said ribs t^2 on the ends of said rods and nuts for adjustably holding said shoes in position upon the plates T.

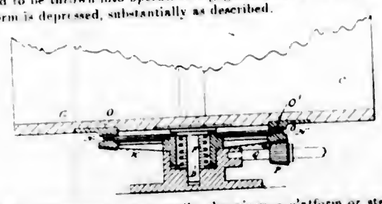
4. In a threshing-machine, the combination with the side walls having slots a^2 therein and having a vertical row of holes y adjacent said slots a^2, of the sieves S mounted between said side walls, slotted plates T arranged opposite the slots of the side walls, rods for supporting said sieves having their ends extending through the slots of the side walls and through said slotted plates, shoes and adjusting-nuts upon the ends of said rods for holding them in position and pins Y adapted to enter the holes in the side walls at the side of said slotted plates and temporarily support the sieves.

640,998. **TURNSTILE.** ARTHUR P. DODGE, New York, N. Y. Filed Apr. 14, 1899. Serial No. 713,040. (No model.)

Claim.—1. In combination, a turnstile comprising a platform, driving means for rotating the platform and transmitting means between the platform and driving means arranged to be put into and out of operative engagement by the weight of the person stepping on the platform, substantially as described.

2. In combination in a turnstile, a depressible platform, means for holding it normally up, and driving means below the platform ar-

ranged to be thrown into operative engagement therewith when the platform is depressed, substantially as described.

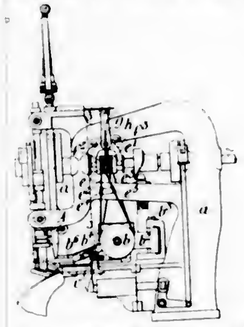


3. In combination in a turnstile, the wings, a platform or step-board at the lower end of the same connected thereto, a spring under the platform to hold the turnstile normally up, and a rotating drive-wheel below the platform arranged to be thrown into operative engagement with the platform when the same is depressed, substantially as described.

4. In combination, a turnstile having vertical displacement under the weight of a person and means for turning the turnstile, said means being caused to act on the turnstile upon the depression of the same, substantially as described.

5. In combination, a turnstile having vertical displacement under the weight of a person, means for lifting the turnstile, and means for rotating the same when under the weight of the person.

640,999. LASTING-MACHINE. WILLIAM H. DORMAN, Stafford, England. Filed June 19, 1899. Serial No. 721,094. (No model.)



Claim.—1. In a lasting and nailing machine, the combination with the main frame, of a laterally-swinging frame connected to the main frame by a vertical pivot, two horizontally-disposed revoluble tack-cylinders having horizontal axes mounted on said swinging frame, mechanism for driving said cylinders, a tack-raceway for each cylinder, carried by said frame, a handle for operating said swinging frame pivoted to a stationary part of the main frame, and provided with an eccentric projection, and an arm secured to said swinging frame engaging said eccentric projection of the handle, substantially as described.

2. In a lasting and nailing machine, the combination with the main frame, of a laterally-swinging frame connected thereto by a vertical pivot, two revoluble tack-cylinders carried by said swinging frame and having horizontal axes of rotation, a tack-raceway for each cylinder, a clearing-wheel for each raceway, a ratchet-wheel connected to each clearing-wheel, a swinging operating-lever adjacent to each raceway provided with a pawl to engage one of said ratchet-wheels, and with an operating-arm, and a series of projections on each cylinder for engaging said operating-arms to impart motion to said clearing-wheels, substantially as described.

3. In a lasting and nailing machine the combination with a revolving cylinder provided with a raceway, a clearing-wheel for said raceway, loosely mounted upon its shaft, a shaft for said clearing-wheel provided with an eccentric bearing portion, means for rotating said shaft in its bearing to adjust the clearing wheel toward and from the raceway, and operating devices for rotating said clearing-wheel, substantially as described.

4. In a lasting and nailing machine the combination with a revolving cylinder provided with a raceway, a clearing-wheel for said raceway, loosely mounted upon its shaft, a shaft for said clearing-wheel provided with an eccentric bearing portion, means for rotating said shaft in its bearing to adjust the clearing-wheel toward and from the raceway, a clamping device for locking said shaft in its adjusted position, a ratchet-wheel operatively connected with said clearing-wheel, a pivoted operating-lever adjacent to said raceway, a pawl carried by said lever and engaging said ratchet-wheel, an adjustable arm carried by said lever, and studs on said cylinder for engaging said arm to operate said clearing-wheel, substantially as described.

5. In a lasting and nailing machine the combination with two revoluble tack-cylinders, of a driving-shaft, a separate driving-pulley for each cylinder, mounted on the driving-shaft, and clutches for throwing one or the other of said driving-pulleys into operation, substantially as described.

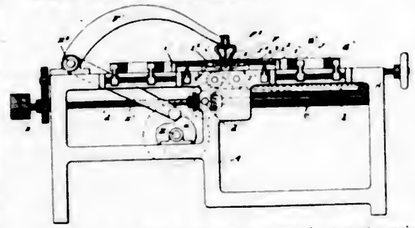
6. In a lasting and nailing machine the combination with two revoluble tack-cylinders, of a driving-shaft, independent driving-pulleys on said driving-shaft operatively connected with the said cylinders, clutch mechanisms for throwing one or the other of said cylinders into operation, a pivoted shifting-lever operatively connected with said clutch mechanisms an oscillating pivoted lever operatively connected with said shifting-lever, and a spring connected at one end to said shifting-lever and at the other end to said oscillating lever, substantially as described.

7. In a nailing and lasting machine the combination with the two independently-revoluble tack-cylinders, of a driving-shaft, independent pulleys loosely mounted on said driving-shaft and operatively connected each with one of said cylinders, each of said pulleys being provided with a clutch member, clutch members on the driving-shaft adjacent to the clutch members on said pulleys, a pivoted shifting-lever operatively connected to said pulleys for throwing one into and the other out of engagement with the clutch members on the driving-shaft, an oscillating lever operatively connected with said shifting-lever, a spring connecting said shifting-lever and said oscillating lever, the points of connection between said spring and said levers being on the same side of a line connecting the points of pivoting of said levers, substantially as described.

8. In a lasting and nailing machine, the combination with two independently-revoluble tack-cylinders, independent driving mechanisms therefor, a shifting device for throwing one or the other of said cylinders into operation, a hammer, a slide-bar adapted to be moved into the path of a part connected with said hammer to arrest the hammer, and operative connections between said slide-bar and said shifting device, whereby when one of said cylinders is thrown into operation said slide-bar will be moved into position to arrest the hammer, and when the other cylinder is thrown into operation said slide-bar will be withdrawn, substantially as described.

9. In a lasting and nailing machine, the combination with the hammer, of the nose-piece provided with two horns or projections and having a recess formed between the same, and a movable wiper located in said recess provided with a recess for engaging the hammer, the walls of said recess being beveled, substantially as described.

641,000. FOLDING-MACHINE. WELLINGTON DOWNING and FREDRICK H. WENDT, Erie, Pa. Filed Mar. 24, 1898. Renewed June 16, 1899. Serial No. 720,843. (No model.)



Claim.—1. In a folding-machine, the combination of a pair of folding-rolls; supports for the paper at each side of the folding-line of said rolls; a means for varying the distance between said supports with the movement of the paper toward the bite of said rolls.

2. In a folding-machine, the combination of a pair of folding-rolls; supports for the paper arranged above said rolls, and at each side of the folding-line thereof; a means for spreading said supports with each movement of a folding-line of the paper from said supports toward the bite of said rolls.

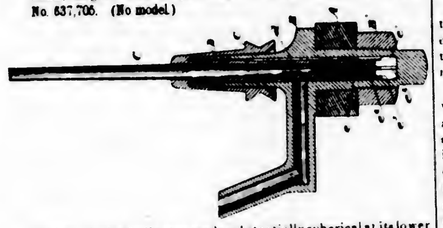
3. In a folding-machine, the combination of a pair of folding-rolls; a pair of auxiliary rolls arranged above said folding-rolls, and in position to support the paper to be folded; and means for spreading said rolls with each movement of a folding-line of the paper from said supports toward the bite of said rolls.

4. In a folding-machine, the combination of a pair of folding-rolls; supporting-rolls for the paper arranged above said rolls in position to support the paper to be folded; means for spreading said supporting-rolls with each movement of a folding-line of the paper from said supporting-rolls toward the bite of said folding-rolls; and means for rotating the supporting-rolls during their spreading movement.

5. In a folding-machine, the combination of a pair of folding-rolls; supports arranged at each side of the folding-line thereof for supporting the paper to be folded; springs arranged to press said supports in one direction; and a cam mechanism for operating said supports in the opposite direction.

6. In a folding-machine, the combination of the folding-rolls, B B; the supports, I I; the supporting-blade, F; the cams, F^2 F^2; the slotted bearings, $I' I'$; and the spring-actuating slides, I^2.

641,001. STEP FOR SPINDLES. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company. Filed May 22, 1897. Serial No. 637,705. (No model.)



Claim.—1. A spindle-step made substantially spherical at its lower end and split as at c^2 to form a series of stiff yet yielding arms c', combined with a bolster-case into the lower end of which the said step is fitted, the said arms being compressed as the step is forced into the bolster-case, the said arms being retained in the bolster-case frictionally against rotation, substantially as described.

2. A bolster-case, and a bolster therein, threaded at its lower end, combined with a step provided at its upper end with a thread to engage the threads of the bolster, and slotted at its lower end to thereby constitute yielding feet or arms which are adapted to be held frictionally in the opening of the bolster-case, substantially as described.

3. A bolster case, and a bolster therein threaded at its lower end, combined with a step provided at its upper end with a thread to engage the threads of the bolster and slotted at its lower end to thereby constitute yielding feet or arms which are adapted to be held frictionally in the opening of the bolster-case, and a spring interposed between a shoulder on the said step and the lower end of the said bolster, to operate, substantially as described.

4. A bolster-case, a bearing mounted therein loosely and having an attached step, said step being slotted at its lower end to present yielding arms or feet, said arms or feet being compressed when forced into the bolster-case, they thereafter acting frictionally against the interior of said case to prevent rotation of the step with the spindle, substantially as described.

641,002. APPARATUS FOR MEASURING INTENSITY OF LIGHT. RICHARD C. DRIBERG, South Bethlehem, Pa. Filed Dec. 3, 1898. Serial No. 698,179. (No model.)



Claim.—1. A measuring apparatus having an expansible and contractible layer-receptacle adapted to receive a fluid through which a ray of light is adapted to pass, means connected with a movable member of said layer-receptacle for varying the layer thickness within the receptacle proportionately to the expansion and contraction of the receptacle and means for placing the fluid under pressure to cause it to flow as the receptacle is expanded, substantially as specified.

2. A measuring apparatus having an expansible layer-receptacle through which a ray of light is adapted to pass, and a supply-receptacle in communication with the layer-receptacle and provided with a movable plunger for advancement simultaneously with and proportionately to the expansion of the layer-receptacle to increase the layer thickness, substantially as specified.

3. A measuring apparatus having a light-penetrable layer-receptacle of which one wall is movable, a supply-reservoir communicating with said receptacle, a plunger operating in the reservoir, and means for simultaneously advancing said plunger and movable wall in opposite directions, substantially as specified.

4. A measuring apparatus having a light-penetrable layer-receptacle of which one wall consists of an adjustable light-penetrable medium, and means for increasing the layer thickness in said receptacle, the same consisting of a reservoir having a plunger operatively connected with said light-penetrable medium, substantially as specified.

5. A measuring apparatus having a cylinder provided at one end with a seat, a light-penetrable medium fitted peripherally in said seat, an object-tube removably threaded upon the end of the cylinder to secure said medium in place, an observation-tube fitted to slide axially in the cylinder, and carrying a second light-penetrable medium, means consisting of a reservoir operatively connected with the observation-tube for supplying the space between said mediums with light-obscuring fluid and a plunger in the reservoir adapted to exert a pressure upon the fluid to cause it to flow from the reservoir to a space between said mediums, substantially as specified.

6. A measuring apparatus having a cylinder fitted with a transverse light-penetrable medium, an observation-tube mounted to slide in the cylinder and provided with an interior shoulder, a second light-penetrable medium seated upon said shoulder, a collar threaded in the observation-tube to secure said second-named medium in place, and provided with a flared flange between which and the end of the tube is arranged transversely-expansible packing, and means for supplying the interval between said mediums with light-obstructing fluid, substantially as specified.

7. A measuring apparatus having a layer-receptacle provided with walls consisting of light-penetrable mediums, one of said mediums being adjustable to vary the length of a light-ray traversing the receptacle, a reservoir communicating with the layer-receptacle, a plunger operating in said reservoir to force a light-obstructing fluid thereinto, and feeding devices for the plunger consisting of a feed-screw and feed-nut, substantially as specified.

8. A measuring apparatus having a layer-receptacle provided with walls consisting of light-penetrable mediums, one of said walls being adjustable to vary the length of a light-ray penetrating the receptacle, an adjustable observation-tube carrying said adjustable medium, means for supplying a light-obstructing-fluid receptacle, the same including a reservoir and plunger, and feeding devices operatively connected with said observation-tube and the plunger, for simultaneously moving said plunger and the adjustable receptacle-wall in opposite directions, substantially as specified.

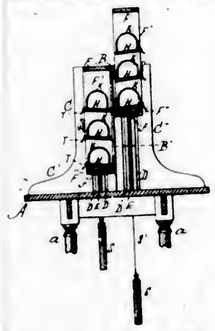
9. A measuring apparatus having a layer-receptacle provided with light-penetrable walls, of which one is adjustable to vary the length of a light-ray traversing the receptacle, an adjustable observation-tube carrying said adjustable wall, means for supplying a light-obstructing fluid to the layer-receptacle, the same including a reservoir and a plunger, and feeding devices for said plunger and observation-tube, the same including concentric feed-screws, one of which is attached to said plunger, and the other of which engages a pedestal feed-nut on the observation-tube, and means for advancing the first-named feed-screw, and turning the other to move said pedestal feed-nut in an opposite direction, substantially as specified.

10. A measuring apparatus having a layer-receptacle provided with light-penetrable walls, of which one is adjustable to vary the length of a light-ray traversing the receptacle, an adjustable observation-tube carrying said adjustable wall, means for supplying a light-obstructing fluid to the layer-receptacle, the same including a reservoir and plunger, and feeding devices including concentric feed-screws, one of which is attached to said plunger, and the other of which engages a pedestal feed-nut on the observation-tube, and a movable feed-nut threaded upon the first-named feed-screw and carrying the second-named screw, substantially as specified.

11. A measuring apparatus having a cylinder closed at one end, the graduated observation-tube fitted in the cylinder and extending outward through the open end thereof, an interval between the inner end of the observation-tube and the adjacent end of the cylinder forming a layer-receptacle of which spaced walls consist of light-penetrable mediums, and one of said walls being carried by the observation-tube, and means for feeding light-obstructing fluid to said layer-receptacle, the same consisting of a reservoir, a plunger operating in the reservoir, and feeding devices for imparting simultane-

ons linear movement in opposite directions to said plunger and observation-tube, substantially as specified.

641,003. ROUTING TABLE AND CASE FOR POST-OFFICES. MARCELLUS S. FIELD, Boston, Mass., assignor, by direct and mesne assignments, of two-thirds to John Thomas Ward and James T. A. Lewis, same place. Filed Oct. 20, 1899. Serial No. 734,210. (No model.)

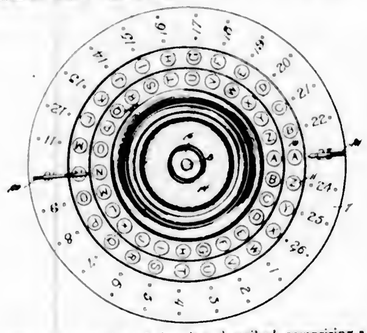


Claim.—1. In an arranging, filing or routing table and case for post-offices, a table or base, a frame supported by said table or base; and an arranging, filing or routing case adapted to slide substantially vertically in said frame and over the table, whereby that portion of the surface of the table which is below the case is rendered available for mail-matter, substantially as set forth.

2. In an arranging, filing or routing table and case for post-offices, a table or base, a frame supported by said table or base; an arranging, filing or routing case adapted to slide substantially vertically in said frame and over the table, and means for locking said case at different heights above the surface of the table, substantially as described.

3. The herein-described improved arranging, filing or routing table and case for post-offices, comprising a table or base; a frame comprising the end walls C and a suitable rear connecting-wall B, B', said end walls being formed with vertical slideways; and the routing-case comprising top, bottom, ends, shelves and compartments, said ends F' being formed to engage with and slide in the said slideways, whereby the routing-case may be moved vertically with relation to the frame and render the entire surface of the table available for mail-matter, substantially as set forth.

641,004. INSTRUMENT FOR SECRET WRITING AND TRANSLATING. JOHN W. FOLLANSBEE, Terre Haute, Ind. Filed Aug. 3, 1899. Serial No. 726,067. (No model.)



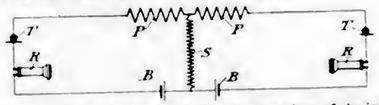
Claim.—1. A device of the class described, comprising a base provided with characters, a rotatable body mounted upon the base and having also characters, a second rotatable body provided with characters, a pointer fixed to the base and adapted to indicate the characters of the first-named rotatable body, and a second pointer fixed to the base and extending over the first-named rotatable body to indicate the characters of the second rotatable body.

2. A device of the class described comprising a base having a recess and a resultant flange, numerals upon the flange, a disk within the recess and having a flange upon its upper face marked with the alphabet, a second disk mounted within the inclosure of the flange and of the first disk and having the letters of the alphabet upon its upper face, and pointers fixed to the base and adapted to indicate the letters of the disks respectively.

3. A device of the class described, comprising a base having a circular recess and a resultant flange, numerals upon the flange, a disk within the recess and having a flange upon its upper face marked with the alphabet, a second disk mounted within the inclosure of the flange of the first disk and having the letters of the alphabet upon its upper face, and a pointer for each of the disks, said pointers being adapted to indicate the letters successively.

4. A device of the class described comprising a base having a recess and a resultant flange, numerals upon the flange, a disk within the recess and having a flange upon its upper face marked with the alphabet, a second disk mounted within the inclosure of the flange of the first disk and having the letters of the alphabet upon its upper face, a pointer fixed upon the flange of the base and adapted to indicate the letters of the first disk, and a second pointer fixed upon the flange of the base and extending over the flange of the first disk and adapted to indicate the letters of the second disk.

641,005. TELEPHONY. SAMUEL B. FOWLER, Tarrytown, N. Y. Filed Jan. 7, 1899. Serial No. 701,437. (No model.)



Claim.—A telephone system having the secondary of the induction-coil bridged across the line and the primary in series on the line, whereby the induced current is divided at the connection of the secondary with the line, one portion flowing in one direction over the line and the other portion in the other direction.

641,006. CHUCK-HANDPIECE. JOSEPH GEDDES, Rochester, N. Y. Filed Apr. 27, 1899. Serial No. 714,701. (No model.)



Claim.—1. A chuck-handpiece for dental work, consisting of a barrel or case, in combination with a hollow spindle in the barrel or case, and a chuck-spindle within the hollow spindle, means for moving the chuck-spindle longitudinally in the hollow spindle and locking means within the chuck-spindle engaged by the spindle-moving means, substantially as specified.

2. The combination, in a chuck-handpiece, of a holding-barrel, and a hollow spindle in the barrel, and a chuck-spindle within the spindle, adapted to move longitudinally therein, the chuck-spindle being formed with a divided tapered or conical head, and the spindle having a conical chamber to receive the head and means pivotally mounted on the chuck-spindle to be engaged by the chuck-spindle-moving device and constructed to lock and unlock the hollow and chuck spindles, substantially as specified.

3. A device of the kind described, having a hollow barrel or inclosing case composed of two parts joined, said parts having different internal diameters forming an internal shoulder, and a hollow spindle within the barrel or case bearing against its inner walls, the spindle having parts of different diameters and a shoulder to meet the shoulder of the barrel or case and chuck-spindle within the hollow spindle and means carried thereby for locking the two spindles together, substantially as and for the purpose specified.

4. A device of the kind described, having a hollow case or barrel, and a hollow spindle in said case or barrel, the latter being internally chambered, in combination with a sleeve or cover for the end of the barrel, mounted to slide thereon, and formed with a part to close over the barrel and a part to enter within the barrel, said sleeve adapted, when moved, to operate mechanism within the hollow spindle, substantially as shown and described.

5. A device of the kind described, having a holding barrel or case and a hollow spindle adapted to turn in the barrel or case, and a chuck-spindle in the hollow spindle, and a headed sleeve adapted to cover the end of the barrel and slide longitudinally thereon, in combination with a cap for the sleeve, and a part held by the sleeve and the cap and embracing a reduced portion of the chuck-spindle to engage the chuck-spindle whereby the latter will partake of the longitudinal motions of the sleeve upon the barrel, substantially as and for the purpose specified.

6. A device such as described, having a holding barrel or case, a hollow spindle in the barrel, and a chuck-spindle in the hollow spindle, and a sleeve adapted to cover the end of the barrel and slide longitudinally thereon, in combination with a cap for the sleeve, and a part held by the sleeve and in the recess in the cap to engage the chuck-spindle to move the latter, the sleeve having a slight longitudinal motion independent of the chuck-spindle said sleeve by its independent movement adapted to operate locking mechanism for the chuck and hollow spindles, substantially as and for the purpose set forth.

7. A device of the kind described, having a barrel, and a hollow spindle in the barrel adapted to turn therein, in combination with a chuck-spindle therein adapted to move longitudinally in the spindle, and means pivotally mounted on the chuck-spindle to engage the wall of the hollow spindle to lock the two together for causing the spindle and the chuck to turn together, substantially as shown and described.

8. A device of the kind described, having, in combination with a barrel, a hollow spindle in the barrel, a chuck-spindle therein, the chuck-spindle being provided with a dog and the hollow spindle formed with an opening opposite the dog, the latter being adapted to engage the hollow spindle, and a sliding sleeve disposed to operate said dog substantially as and for the purpose specified.

9. A device of the kind described, having, in combination with a barrel, a hollow spindle in the barrel, a chuck-spindle therein, the chuck-spindle being provided with a dog, and the hollow spindle formed with an opening opposite the dog, the latter occupying said opening and adapted to bear against both walls of said opening and a sleeve mounted to slide upon the barrel and hollow spindle and to engage means on the dog to operate same, substantially as shown and described.

10. A device of the kind described, having, in combination with a barrel, a hollow spindle-barrel, a chuck in the spindle therein, the chuck-spindle being provided with a dog, and the hollow spiodle formed with an opening opposite the dog, the latter occupying said opening and held to turn upon a pivot in the chuck-spindle, and having a circular part in contact with a wall of said opening, and a point or edge adapted to either engage or clear the opposite wall of the opening, and a spring to normally hold the dog to engage simultaneously both walls of the opening and means movable over both the hollow spindle and the barrel for engaging means on the said dog to actuate same, substantially as and for the purpose specified.

11. A device of the kind described, having, in combination with a barrel, a hollow spindle in the barrel, a chuck-spindle in the hollow spindle, the chuck-spindle being provided with a dog, and the hollow spindle formed with an opening opposite the dog, the latter occupying said opening and adapted to bear against both walls thereof, and a pin projecting radially without said opening, and a sliding sleeve for the barrel, adapted to engage said pin, substantially as specified.

12. A device of the kind described, having, in combination with a barrel, a hollow spindle in the barrel, a chuck-spindle therein, the chuck-spindle being provided with a dog, and the hollow spindle formed with an opening opposite the dog, the barrel having an opening opposite the opening in the spindle, means on the dog projecting through said opening and means movable over the barrel and hollow spindle for engaging said means to actuate the dog, substantially as shown and described.

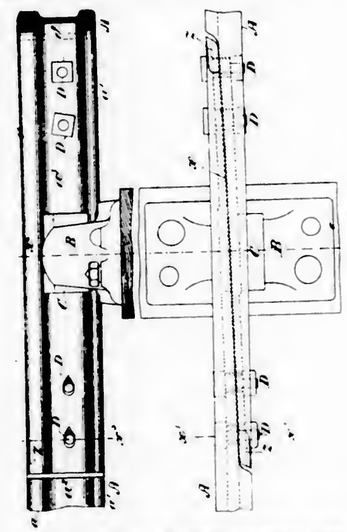
641,007. WOVEN FABRIC. CHARLES W. GILBERT and CHARLES C. SHEPARD, Worcester, Mass., assignors to the L. C. Chase & Company, Boston, Mass. Filed Oct. 16, 1899. Serial No. 733,729. (No model.)

Claim.—1. As a new article of manufacture, a fabric composed of a plurality of woven bands, one or more warps of each group included in a band serving as a binder, or binders, and a series of band-connecting wefts bound by the said binding-warps to the several bands and lying upon the faces of the bands between two adjacent wefts of the latter under which a binder-warp passes.

2. As a new article of manufacture, a fabric composed of a plurality of closely-woven bands, one or more warps in each serving as a binder or binders, and a series of coarse band-connecting wefts bound by the said binder-warps to the several bands and extended from one to the other side of the fabric, said wefts lying upon the faces of the bands between two adjacent wefts of the latter under which a binder-warp passes.

3. As a new article of manufacture, a fabric composed of a plurality of closely-woven separated bands, a plurality of regularly-recurrent warps in each serving as binders, and a series of transverse band-connecting wefts extended across the bands from one to the other side of the fabric, said wefts being bound by the binder-warps to the several bands and lying upon the faces of the latter between two adjacent wefts in the band under which the binder-warps pass.

641,008. RAIL OR TRAM WAY RAIL JOINT. HECTOR F. GULLAN, Hoylake, England. Filed July 6, 1898. Serial No. 685,238. (No model.)



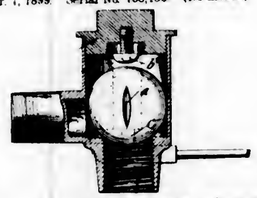
Claim.—1. In a railway-rail adapted to form a lapped or scarf rail-joint between adjacent rails, the combination of a head and base having their flanges at the end portion cut away obliquely at one side, a vertical web having its end portion deflected laterally to the other side and an offset a^4 on the outer face of the web to insure strength and for engagement with the chair or key, the web from said offset to the extremity being reduced a little in thickness substantially as and for the purpose set forth.

2. A railway-rail adapted to form a scarf rail-joint between adjacent rails, said rail having a head, base and vertical web, the head and base having their flanges at the end portion cut away obliquely at one side, and the web having its end portion also cut away obliquely flush with said head and base, said web being also deflected laterally away from the joint and having formed in its inner or jointing face a trough-like channel or hollow y, which forms a reduction in the thickness of the web, substantially as and for the purposes set forth.

3. In a railway-rail adapted to form a lapped or scarf rail-joint between adjacent rails, the combination of a head having its crown at the extremity z slightly rounded or cut away below the normal level and its flange at the end portion cut away obliquely at one side, a base having its flange similarly cut away obliquely to one side, a vertical web having its end portion deflected laterally to the other side, an offset a^4 on the outer face of the web to insure strength and for engagement with the chair or key, the web from said offset to the extremity being reduced a little in thickness, and a trough-like hollow or channel y in the inner or jointing face of the web, substantially as hereinbefore described.

4. A railway-rail having an I cross-section and having at its end portion which is destined to form the scarf-joint between the rails, constructed as follows, namely: the flanges of the head and base extend straight to the end of the rail at the outside and at the front are cut away obliquely at the inside, and the web is deflected outwardly at the joint and also cut away obliquely on the inside, substantially as set forth.

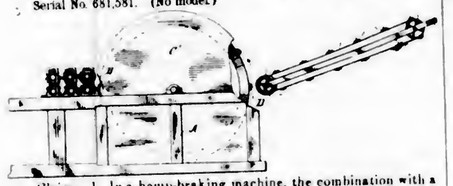
641,009. VALVE. CHARLES GULLAND, Pittsburg, Pa. Filed Mar. 7, 1899. Serial No. 708,130. (No model.)



Claim.—1. In combination with a valve-casing, an inlet and discharge opening, a space above the valve adapted to be filled with water and a groove in the wall of the valve to permit the water to flow to the upper side thereof, substantially as described.

2. In combination with the valve casing, a main valve therein, inlet and outlet openings, a solid and imperforate cap for the valve-casing and an adjustable screw carried by said cap for regulating the movement of the main valve.

641,010. HEMP-BRAKE. JOHN HEANEY, Gridley, Cal., assignor of one-half to A. L. Chauvet, New York, N. Y. Filed May 24, 1898. Serial No. 681,581. (No model.)



Claim.—1. In a hemp-braking machine, the combination with a toothed brake-cylinder of usual construction, driven to lift the fibers upwardly at the side opposite the feed, of an endless apron provided with slats and teeth, and moving around one support near the surface of the brake-cylinder and another remote therefrom, in direction to remove the fiber downwardly from the brake cylinder and along the lower surface of the belt without mechanical support immediately below said doffer, and at a speed greater than the speed of the cylinder, and driving means for said cylinder and doffer, substantially as described.

2. In a machine of the character described, the brake-cylinder, the doffer-apron of greater width than the length of the brake-cylinder, and the slats and teeth carried by said apron to comb the fiber from the cylinder and convey it against the under surface of the apron without other mechanical support and means for driving the doffer-apron at a speed exceeding the surface speed of the cylinder, substantially as described.

3. In a machine of the character described, the brake-cylinder, the endless apron running in proximity thereto and of greater width than said cylinder, and the slats on said apron extending the full width of the apron but having teeth only to the extent of the width of the cylinder and means for driving the belt to move the fiber downwardly, whereby said fiber is conveyed along the under surface of the belt without other mechanical support, substantially as described.

4. In a hemp-brake, the brake-rolls in pairs in proximity to the shell roller or cylinder, the cylinder provided with the usual toothed bars, and driven to carry the fiber forward on the lower side of said cylinder, and the doffer, consisting of an endless apron provided with toothed slats and supported on small cylinders parallel with the shell-roller, one of said cylinders being close to the shell-roller and the other remote therefrom, said belt being driven at a speed greater than the surface speed of the shell-roller and acting to comb the fiber downwardly and convey it by engagement with the teeth on its lower surface, all combined substantially as described.

641,011. BATTERY. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Feb. 4, 1899. Serial No. 704,486. (No model.)

Claim.—1. A battery comprising a cell, electrodes, sealing layers, a vent-tube extending through the sealing layers, and a stem extending through the vent-tube having a cap at its upper end seating on the vent-tube, and a button at its lower end adapted to close the lower end of the vent-tube; substantially as described.



2. A battery-cell, a sealing therefor to confine its contents, and a vent comprising a tube, a movable stem in said tube having a button at its lower end, and a cap at its upper end, said cap being provided with a convoluted under surface, substantially as described.

3. A battery comprising a cell, electrodes, sealing layers, a vent-tube having a filling-lip, and extending through the sealing layers, and a stem extending through the vent-tube, having a cap at its upper end seating on the vent-tube over the lip, and a button at its lower end adapted to close the lower end of the vent-tube, substantially as described.

4. A battery comprising a cell, electrodes, sealing layers, a vent-tube extending through the sealing layers, a stem extending through the vent-tube having a cap at its upper end and a button at its lower end, and the perforated cap inclosing the lower end of the vent-tube and button, and secured to the sealing layers, substantially as described.

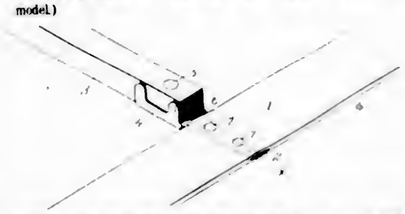
641,012. BRUSH FOR DYNAMO-ELECTRIC MACHINES. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Mar. 27, 1899. Serial No. 710,646. (No model.)



Claim.—1. As a new article of manufacture, a negative brush for dynamos or electric motors composed of aluminium.

2. As a new article of manufacture a negative brush for dynamos or electric motors, composed of layers of aluminium combined with layers of other material such as copper or carbon.

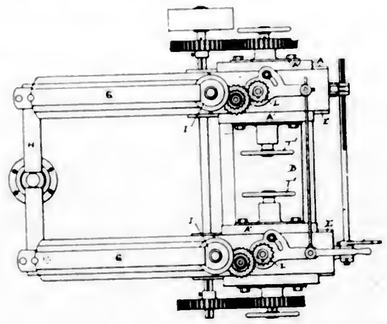
641,013. DRAG-BELT FOR STRAW-STACKERS. MARTIN HEINEKE, Springfield, Ill. Filed Aug. 5, 1899. Serial No. 726,274. (No model.)



Claim.—In a drag belt, a side belt having a transverse incision, a cross-slat, and a clip on an end of the cross slat having an extension fastened in the incision in the belt, substantially as set forth.

641,014. MECHANICAL MOVEMENT. HENRY W. HOWEMAN, Pawtucket, R. I. Filed July 27, 1898. Serial No. 686,980. (No model.)

Claim.—1. A mechanism for giving both a rotary and a reciprocating longitudinal motion to a shaft, consisting of a crank and means for driving it, a shaft connected to the crank to be moved longitudinally back and forth as the crank revolves, gearing substantially as described between the crank and shaft, the portion of said gearing connected to the crank being centered at the point of connection between the shaft and crank.



2. A mechanism for giving both a rotary and a reciprocating longitudinal motion to a shaft, consisting of a crank and means for driving it, a shaft connected to the crank to be moved longitudinally back and forth as the crank revolves, a beveled gear upon the crank having its center at the point of connection between the crank and shaft, and a second bereled gear upon the shaft meshing with the first gear.

3. A mechanism for giving both a rotary and a reciprocating longitudinal motion to a shaft, consisting of a framework constructed to reciprocate to and fro, a crank connected to said framework so that the latter will be reciprocated by the revolutions of the crank, a shaft moving with the framework and connected to the crank to be moved longitudinally back and forth as the crank revolves, a beveled gear upon the crank having its center at the point of connection between the crank and shaft and a second beveled gear upon the shaft meshing with the first gear.

4. A mechanism for operating a tentering-machine consisting of a crank connected with the rail of the machine to give it reciprocating motion, means for driving the crank, a sprocket-wheel to operate the cloth-chain, and means substantially as described intermediate of the crank and the sprocket-wheel to operate the latter from the former.

5. A mechanism for operating a tentering-machine consisting of a crank connected with the rail of the machine to give it reciprocating motion, means for driving the crank, a sprocket-wheel to operate the cloth-chain, a shaft connected to the crank to be moved longitudinally by it, gearings substantially as described by means of which the shaft is rotated by the revolutions of the crank and connections between the shaft and the sprocket-wheel by which the latter is operated by the former.

6. A mechanism for operating a tentering-machine consisting of a crank connected with the rail of the machine to give it reciprocating motion, means for driving the crank, a shaft connected to the crank to be moved longitudinally by it, beveled gears attached to the crank and to the shaft to impart rotary motion to the shaft by the revolutions of the crank, and mechanism for driving the cloth-chain which receives rotary motion from the shaft while it permits the shaft to reciprocate back and forth through it.

7. A mechanism for operating a tentering-machine consisting of a crank, means for driving the crank, connections between the crank and the rail of the tenter whereby the latter is given a reciprocating motion by the former, a shaft connected to the crank and mounted to partake of the reciprocating motion of the rail, gearing by which the shaft is given rotary motion from the revolutions of the crank, and mechanism for driving the cloth-chain which receives rotary motion from the shaft while it permits the shaft to reciprocate back and forth through it.

8. A mechanism for operating a tentering-machine consisting of a crank, means for driving the crank, connections between the crank and the rail of the tenter whereby the latter is given a reciprocating motion by the former, a shaft connected to the crank and mounted to partake of the reciprocating motion of the rail, gearing by which the shaft is given rotary motion from the revolutions of the crank, mechanism for driving the cloth-chain which receives rotary motion from the shaft while it permits the shaft to reciprocate back and forth through it, and means by which the throw of the crank may be varied.

9. A tentering-machine consisting of rails and cloth-chains carried by them, the rails being mounted to permit of reciprocating motion, two cranks and connections between each crank and its respective rail, means for driving the cranks, a shaft connected with each crank and mounted to partake of the reciprocating motion of its rail, gearings by means of which each shaft is given rotary motion by the revolutions of the crank with which it is connected, and mechanism for driving the cloth-chain which receives rotary motion from the shaft while it permits the shaft to reciprocate back and forth through it.

10. A tentering machine consisting of rails and cloth-chains carried by them, the rails being mounted to permit of reciprocating motion, two cranks and connections between each crank and its respective rail, means for driving the cranks, a shaft connected with each crank and mounted to partake of the reciprocating motion of its rail, gearings by means of which each shaft is given a rotary motion by the revolutions of the crank with which it is connected, mechanism for driving the cloth-chain which receives rotary motion from the shaft while it permits the shaft to reciprocate back and forth through it, and means by which the throw of the crank may be varied.

641,015. CASE FOR DISPLAYING SHIRTS. JONATHAN R. HORTON, Wilkesborough, N. C. Filed Mar. 31, 1898. Serial No. 675,953. (No model.)



Claim.—A suspended display-cabinet comprising a case closed at its top, bottom and ends and having a transparent vertical front, a back hinged at its lower edge to the case and adapted to be folded downward below the latter, a suspension-cord attached at its ends to the top of the case, spaced sheaves over which the cord is reeved, a fastener on the under side of the case and in front of the hinged connection of the back thereto, and an adjusting-cord attached to the suspension-cord midway between the sheaves and connected detachably to the fastener, the intermediate portion of the suspension-cord passing in rear of the case and engaging with the hinged back thereof, to confine the latter securely in place when the cabinet is elevated to its suspended position.

641,016. SAIL-FASTENING DEVICE. ADOLPH G. HUPFEL, New York, N. Y. Filed Aug. 31, 1899. Serial No. 729,113. (No model.)



Claim.—1. The combination of a sail, a sail-support, and means for securing the sail to said support, said means consisting of two members secured respectively to said sail and sail-support, and comprising a hook and eye having pivotal movement in the plane of the sail and separable in a direction transverse to said plane, substantially as set forth.

2. The combination of a sail, a sail-support, and means for securing the sail to said support, said means consisting of two members secured respectively to said sail and sail-support, and comprising a hook and eye having pivotal movement in the plane of the sail but fixed in a direction transverse with respect to the direction of said movement, said two members being separable in said transverse direction at a given point in said pivotal movement, substantially as set forth.

3. The combination of a sail, a mast-ring, and means for securing the sail to said support, said means consisting of two members secured respectively to said sail and said ring and comprising a hook extending below the lower surface of said ring and an eye engaging said hook, said hook and eye having pivotal movement in the plane of the sail and separable from each other in a direction transverse with respect to the direction of said movement, substantially as set forth.

4. The combination with a hook secured to one of the plane surfaces of a mast-ring, of an eye secured to the luff of a sail and having pivotal engagement with said hook in the plane of the sail and separable from said hook in a direction transverse with respect to said plane, substantially as set forth.

641,017. PROCESS OF MAKING FERRUGINOUS NUCLEIN. ADOLF JOLLES, Vienna, Austria-Hungary. Filed Nov. 15, 1899. Serial No. 737,519. (No specimens.)

Claim.—1. The process of making ferruginous nuclein, which consists in separating the blood-corpuscles from blood, treating the same with water, treating the resulting solution with dilute acid and washing and drying the resulting precipitate, whereby the resulting slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron and dissolving in hot liquids without curdling is obtained, substantially as set forth.

2. The process of making ferruginous nuclein, which consists in digesting blood with an aqueous solution of sodium chloride, treating the solid residue with a solution of ether and water to remove the coloring-matter of the blood, separating the aqueous solution, and treating the same with a dilute acid, and washing and drying the resulting precipitate, whereby a slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron, and dissolving in hot liquids without curdling is obtained, substantially as set forth.

3. The process of making ferruginous nuclein, which consists in digesting blood with an aqueous solution of sodium chloride, treating the solid residue with a solution of ether and water to remove the coloring-matter of the blood, separating the aqueous solution, and treating the same with a dilute mineral acid, and washing and drying the resulting precipitate, whereby a slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron, and dissolving in hot liquids without curdling is obtained, substantially as set forth.

4. The process of making ferruginous nuclein, which consists in digesting blood with an aqueous solution of sodium chloride, treating the solid residue with a solution of ether and water to remove the coloring-matter of the blood, separating the aqueous solution, and treating the same with dilute hydrochloric acid, and washing and drying the resulting precipitate, whereby a slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron, and dissolving in hot liquids without curdling is obtained, substantially as set forth.

5. The process of making ferruginous nuclein, which consists in digesting blood with a solution of sodium chloride of approximately ten-per-cent. strength, treating the residues with a mixture of equal parts water and ether, separating the resulting aqueous solution and treating the same with a solution of hydrochloric acid, approximately ten-per-cent. concentration, and washing and drying the resulting precipitate, whereby a slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron and dissolving in hot liquids without curdling is obtained, substantially as set forth.

6. The process of making ferruginous nuclein, which consists in digesting blood with a solution of sodium chloride of approximately ten-per-cent. strength, treating the residue with a mixture of equal parts water and ether, separating the resulting aqueous solution and treating the same with an equal volume of a solution of hydrochloric acid, approximately ten-per-cent. concentration, and washing with absolute alcohol, and drying the resulting precipitate, whereby a slightly-acid product of slightly-bitter taste, soluble in water and alcohol, containing phosphorus and iron and dissolving in hot liquids is obtained, substantially as set forth.

641,018. MAIL MARKING AND CANCELING DEVICE. EDWARD M. JUDD, Wallingford, Conn. Filed Feb. 21, 1899. Serial No. 706,358. (No model.)

Claim.—1. In a mail-marking machine, the combination with a feeding device, of a roller, movable cutters carried by said roller and means for positively actuating said cutters while the roller is rotating.

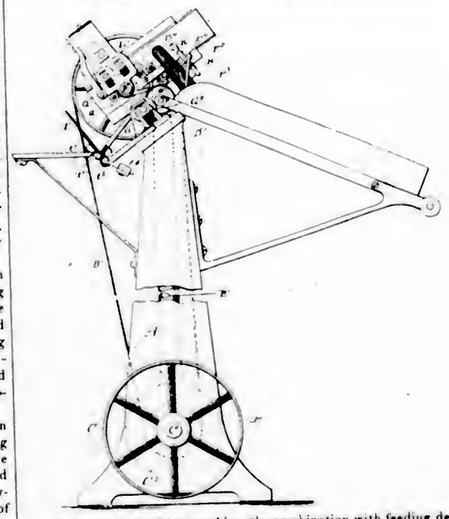
2. In a mail-marking machine, the combination with feeding devices, of a roller, stationary and movable cutters carried by said roller, and means for positively actuating said movable cutters while the roller is rotating.

3. In a mail-marking machine, the combination with feeding devices, of a roller, printing devices and a movable cutter carried by said roller and means for positively actuating said cutter while the roller is rotating.

4. In a mail-marking machine, the combination with feeding devices, of a roller, stationary and movable cutters, printing devices carried by said roller and means for positively actuating said movable cutters while the roller is rotating.

5. In a mail-marking machine, the combination with feeding devices, of a roller, removable characters or type carried by said roller for postmarking the mail and stamp-canceling device also carried by said roller, the stamp-canceling device comprising a movable cutter, and means for actuating said cutter.

6. In a mail-marking machine, the combination with feeding devices, of a roller, removable characters or type carried by said roller for postmarking the mail, and stamp-canceling devices also carried by said roller, the said stamp-canceling devices comprising stationary and movable cutters, and means for actuating the movable cutters.



7. In a mail-marking machine, the combination with feeding devices, of a roller, and stamp-canceling devices carried by said roller, the said stamp-canceling devices comprising a movable cutter for mutilating the face of the stamp and printing-surfaces for printing characters on the stamp.

8. In a mail-marking machine, the combination with feeding devices, of a roller and stamp canceling devices and postmarking device carried by said roller, the said stamp-canceling devices comprising a movable cutter for mutilating the face of the stamp and printing device for making ink impressions over the face of the stamp.

9. In a mail-marking machine the combination with a roller and movable cutter carried by said roller, of means for positively actuating said cutter while the roller is rotating.

10. In a mail-marking machine, the combination with a roller, of a longitudinally-movable cutter carried by said roller, a spring-actuated rod secured to the cutter and projecting beyond the end of the roller, and a stationary cam for moving the rod endwise in one direction.

11. The combination with a feeding device, of a roller, movable cutters and printing devices carried by said roller, means for positively actuating said cutters while the roller is rotating and means for supplying ink to the printing-surfaces.

12. The combination with a roller, a movable cutter carried by said roller, and means for positively actuating said cutter while the roller is rotating, of a suction device for feeding the letters to the canceling device.

13. The combination with a roller, a movable cutter carried by said roller and means for positively actuating said cutter while the roller is rotating, of a feeding-belt, and a suction device for carrying the letters from the belt to the canceling devices.

14. The combination with a roller, a feeding device, a movable cutter carried by said roller and means for positively actuating the cutter when the roller is rotating, of a yielding drum located under the roller and adapted to support the mail-matter being canceled.

15. In a mail-marking device the combination with a roller and a canceling device carried by said roller, said canceling device comprising a movable cutter and means for positively actuating same while the roller is rotating, of a drum composed of a series of independently-yielding cylindrical sections for supporting the mail while the latter is passing the canceling device.

16. The combination with a roller and a canceling device carried by said roller, the said canceling device comprising a movable cutter and means for positively actuating same while the roller is rotating, of a drum composed of a series of independent cylindrical sections for supporting the mail while the latter is passing the canceling device, and a yielding support for each cylindrical section.

17. The combination with a roller and a canceling device carried by said roller, the said canceling device comprising a movable cutter and means for positively actuating same when the roller is rotating of a drum composed of a series of independently-yielding cylindrical sections, the sections thereof adjacent to the stamped end of the envelop being narrower than the main section of the drum.

18. The combination with a roller, a movable cutter carried by said roller and means for positively actuating said cutter, of a slide, means for reciprocating same and a suction-tube carried by the slide.

19. The combination with a canceling device comprising a roller, a movable cutter carried thereby and means for actuating the cutter, of a frame, a slide mounted in said frame, a suction-pump, and a suction-pipe carried by the slide and adapted to carry the mail to the canceling device.

20. In mail-marking devices, the combination with a roller, a movable cutter carried thereby and means for actuating the cutter of a slide, means for reciprocating the latter, a suction-pump and a suction-pipe a portion of which is carried by the slide.

21. The combination with a canceling device, of a slideway, a slide therein, a suction-pump, a pipe leading from the latter to the slideway and a pipe carried by the slide and adapted to communicate with the pipe leading to the slideway.

22. In mail-marking devices, the combination with a canceling device, of a slideway, a slide therein a suction-pump, a pipe leading from the latter to the slideway, and a telescopic suction-pipe carried by the slide.

23. The combination with a canceling device, of a slideway, a slide therein, a suction-pump, a pipe leading from the latter to the slideway, a telescopic suction-pipe carried by the slide, and means for elongating and shortening the telescopic pipe.

24. The combination with a canceling device, of a feeding-belt, a trip for temporarily locking the belt against movement, a bracket or shelf removably secured to the belt and means for conveying the mail-matter from the shelf to the canceling devices.

25. The combination with a canceling device, of a feeding-belt, a trip for locking the belt against movement, friction devices for intermittingly feeding the belt and devices for conveying the mail from the belt to the canceling devices.

26. The combination with canceling devices, of a feeding-belt, means for moving the belt and a trip for locking the belt against further movement.

27. The combination with a canceling device, of an inclined feeding-belt, means for moving the belt, a trip for locking the belt against movement and means for preventing retrograde movement of the belt.

28. The combination with a canceling device, of an inclined feeding-belt, friction devices for intermittingly feeding the belt, a trip for locking the belt against movement and means for preventing retrograde movement of the belt.

29. The combination with a canceling device, of a feeding-belt, friction devices for moving the belt and a tripping device for locking the belt, the said tripping device comprising a pawl engaging a toothed wheel on the belt-actuating device and a lever adapted to engage the pawl and disengage it from the toothed wheel.

641,019. SHOEMAKER'S TOOL. JACOB KIEFER and STEPHEN S. LAWRENCE, Delaware, Ohio. Filed Apr 8, 1899. Serial No. 712,282. (No model.)

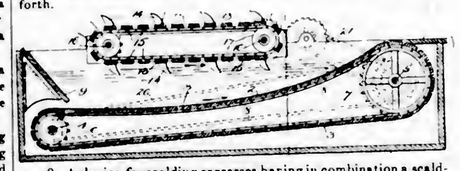


Claim.—1. A tool for removing old threads or thread-stubs from leather, comprising jaws connected together, one of said jaws having a thread-punching device and the other having a recessed portion, the sides of said recess constituting feet one of which is longer than the other, for the purpose explained.

2. A tool for removing old threads or thread-stubs from leather, comprising jaws connected together, one of said jaws having a solid blunt thread-punching device, and the other being wedge-shaped at its end to fit and enter the space between the welt and the upper of a shoe and provided with a recess the said wedge-shaped end to afford a support for the leather from which thread is to be punched, and the recess affording an exit for the punched thread, substantially as set forth.

641,020. SCALDING-VAT. JOHN W. KOELHEPP, Chicago, Ill. Filed Feb. 2, 1898. Serial No. 668,818. (No model.)

Claim.—1. A device for scalding carcasses having in combination a scalding-vat, an endless traveling false bottom in said vat extending from the point of introduction for the carcasses to the point of exit, and a series of traveling pushers and depressors arranged at the upper part of said vat over said false bottom and moving in the same direction as the upper fold of said false bottom, for depressing the carcasses toward the bottom and accelerating their advancing movement, whereby the carcasses will be held immersed in the scalding fluid and at all times aloof from the bottom of the scalding-vat and at the same time advanced through the vat, substantially as set forth.



2. A device for scalding carcasses having in combination a scalding-vat provided with a traveling false bottom extending from end to end thereof and having the greater part of its length at one end substantially horizontal and its other end inclined upwardly, the space above the surface of the said false bottom being unobstructed to permit the carcasses to move along with the bottom, and means located in the upper part of the vat and moving with the false bottom for depressing the carcasses below the surface of the scalding liquid, substantially as set forth.

3. A device for scalding carcasses having in combination a scalding-vat, an endless traveling carrier located near and covering the bottom of said vat in a substantially horizontal position and having its upper fold slack and its lower fold taut, the upper fold for the greater part of its length at one end being substantially level or horizontal and the other end being upwardly inclined, and a horizontal series of traveling pusher-fingers arranged over the horizontal portion of said carrier, substantially as set forth.

4. A device for scalding carcasses having in combination a scalding-vat, an endless traveling carrier arranged at the bottom of said vat and extending from end to end thereof, one end of said carrier being upwardly inclined, and a series of traveling fingers or pushers arranged in the upper part of the vat over the intermediate part of said carrier and being of less length than the carrier so as to leave a space between the carrier and both ends of said series of fingers, for the entrance and exit respectively of the carcasses, substantially as set forth.

641,021. ELECTRICAL SOLDERING-IRON. ROBERT KUHN, Detroit, Mich. Filed Jan. 30, 1899. Serial No. 703,818. (No model.)



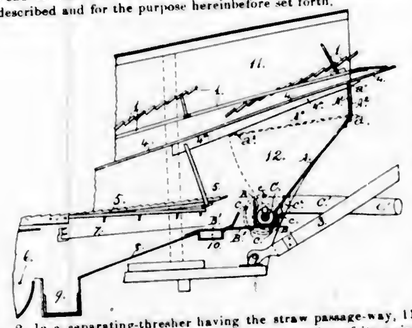
Claim.—1. In an electrical soldering-iron, the combination with the handle, of the hollow point, a resistance-coil located within said hollow point, the conductors passing through the handle terminating in hollow contacts, contact-pins leading from the coil adapted to enter the hollow contacts of the conductors, and means for detachably securing the hollow point with its resistance-coil to the complementary portion of the tool.

2. In an electrical soldering-iron, the combination with the handle carrying the conductors, the removable hollow point carrying the resistance-coil, detachable contacts connecting said coil with said conductors, a central pin extending from the hollow in said point through said coil, and a screw passing through the side of the iron and engaging said pin.

641,022. CHAFF ASSEMBLER AND CONVEYER. SAMUEL K. LANDIS, Mount Joy, Pa. Filed May 13, 1897. Serial No. 636,298. (No model.)

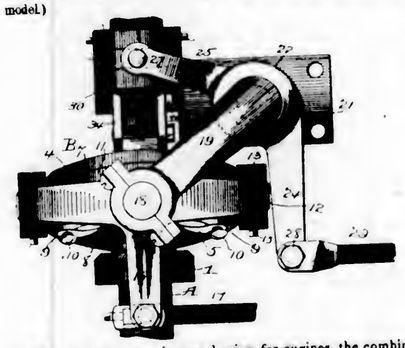
Claim.—1. In a separating-thresher having a straw-passage, a chaff-passage, and a chaffer in the rearward portion of its casing, and a sidewise-shaking riddle-rack with a grain-chute and a tailings-receptacle at its rear end in the lower portion thereof, as shown, a chaff assembler and conveyer comprising: rearwardly-projecting bracket-arms extending over the top of said tailings-receptacle with their forward ends secured to the top of said grain-chute, an open-ended chaff-trough secured onto the rearward ends of said bracket-arms, an upwardly-foldable door having its lower end edge resting on the rearward side wall of said trough and its upper end edge hinged to the lower ends of hangers depending from the top of the chaff-passage,

a board partially closing the space above the upper end of said door and secured to the rearward faces of said hangers, here being an orifice cut through a side of the casing and opening into one end of said trough, an exhaust-fan with its inlet-eye fitted into said orifice and its outlet-nozzle rearwardly projecting with its base rigidly secured to the outer face of said casing, and a tubular conductor having one end secured onto the outlet-nozzle of said fan, all substantially as described and for the purpose hereinbefore set forth.



2. In a separating-thresher having the straw passage-way, 11, and the chaff passage-way, 12, in the rearward portion of its casing as shown, and a blast from the fan-chamber, 6, to separate the chaff from the grain and carry it through said chaff passage-way, in combination, a chamber as described in the rearward end of said chaff passage-way to receive the separated chaff, a trough as described arranged within said chamber to collect the chaff and convey it to the outlet part thereof, an exhaust-fan arranged to take the chaff from said outlet part, and a flexible tube with one end secured to the outlet-nozzle of said fan, all substantially as described and for the purpose hereinbefore set forth.

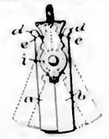
641,023. MECHANISM FOR REVERSING ENGINES. WILLIAM W. LEACH, Jewell, Ohio. Filed Aug. 8, 1899. Serial No. 726,538. (No model.)



Claim.—1. In a reversing mechanism for engines, the combination with a sleeve adapted to be secured to the crank-shaft of the engine, said sleeve having trunnions, of an eccentric on said sleeve having internal half-bearings for said trunnions, a peripheral flange at one edge of said ring, a ring parallel with said flange, a ring loosely mounted between said flange and parallel ring, blocks secured in the eccentrics and constituting half-bearings for said trunnions, arms on said blocks projecting over the outer face of said parallel ring, a pivoted yoke connected to said loose ring at diametrically opposite points, a valve-rod attached to said yoke and means for turning the eccentric on its pivotal support.

2. In a reversing mechanism for engines, the combination with a sleeve to be secured to the crank-shaft of the engine, an eccentric pivoted to said sleeve and a ring on the eccentric, of a fixed bracket, a yoke pivotally mounted in said bracket and attached at its ends to the ring on the eccentric, an arm projecting from the yoke for the attachment of a valve rod, a lever mounted between its ends on the fixed bracket, said lever comprising two parallel members, each provided at one end with a curved arm, a sleeve to slide on the crank-shaft, a connection between the sliding sleeve and the eccentric, and connections between the curved arms on the parallel members of the lever and the sliding sleeve.

641,024. CIGAR-TIP CUTTER. SIGMUND L. LEDERER, Providence, R. I. Filed June 3, 1898. Serial No. 682,443. (No model.)



Claim.—1. In a cigar-tip cutter, the combination with the two parts *a* and *b* forming a receptacle in which the tip end of the cigar is inclosed when cut off, the overlapping curved plates *f f*, the cutters *f' f'*, the beads *d d*, and the oblique edges *e e* on their upper ends, of the bar *g* forming the pivotal connection of the two parts, the coiled spring *h* extending around the bar *g*, the ends bearing on the two parts, and the stirrup *i* provided with the ring *i'*, whereby the device may be suspended from a chain and operated to cut the end of a cigar, as described.

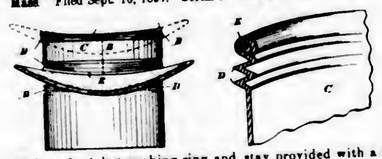
641,025. SELF-PLAYING WHISTLE. ALBERT LEECH and GARRETT J. COUCHOIR, New York, N. Y. Filed Jan. 26, 1899. Serial No. 703,416. (No model.)



Claim.—1. A whistle, comprising an air-chamber adapted to form a continuation of the mouth-cavity and a sound-producing device communicating with the chamber and relatively arranged to act upon the inclosed air and provided with a tube through which an independent supply of air is maintained by the operator, as specified.

2. A whistle provided with an air-chamber and a mouthpiece through which communication is established with the mouth-cavity of the operator, a sound-producing device relatively arranged to cooperate with the inclosed column of air in the chamber and mouth-cavity and means for conducting an independent supply of air maintained by the operator, to the sound-producing device, as specified.

641,026. HAT-PACKING RING. JAMES MARSHALL, Fall River, Mass. Filed Sept. 16, 1897. Serial No. 651,878. (No model.)



Claim.—1. A hat-packing ring and stay provided with a series of annular corrugations, whereby it is permitted to yield vertically and conform to the scope of a hat-brim when placed thereon.

2. A self-conforming hat-packing ring or stay provided with a series of annular corrugations, whereby it will adapt itself to the shape of a hat-brim when placed thereon, and a curl or bead upon its upper and lower edges.

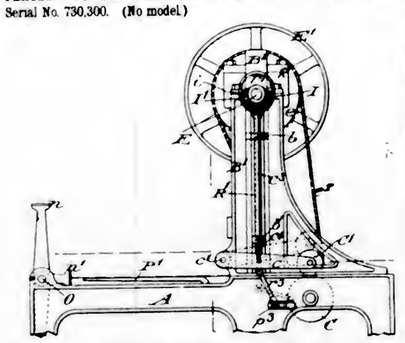
3. A self-conforming hat-packing ring and stay consisting of a smooth portion, a series of corrugations upon one or both edges thereof adapted to conform to the shape of a hat-brim when placed thereon and an engaging surface upon the outer edges of said corrugation.

4. A hat-packing ring and stay consisting of a smooth unbroken portion, one or more series of corrugations adjoining said portion and whereby any part of said ring is permitted to yield and conform to the shape of a hat-brim when placed thereon.

5. A self-conforming hat-packing ring and stay formed of pasteboard or other material, and provided with a series of corrugations whereby the upper and lower edges being normally parallel, are independently yieldable in a vertical plane.

6. A hat-packing ring and stay formed of pasteboard or other material, provided with a series of circular corrugations whereby its top and bottom edges being normally horizontal and straight and parallel with each other, are adapted to scope and conform to the shape of a hat-brim when placed on a hat.

641,027. MACHINE FOR CUTTING AND NOTCHING ROOFING-PLATES. WILLIAM MARTIN, New York, N. Y. Filed Sept. 13, 1899. Serial No. 730,300. (No model.)



Claim.—1. A machine for cutting and notching sheet-metal roofing-plates comprising a cutter for severing the sheet, notching-cutters each provided with cutting edges which diverge from the opposite ends of the single edge of the severing-cutter and arranged to act in conjunction with the severing-cutter and means for operating the cutters whereby a sheet of tin roofing with its several corners notched may be cut from a strip of material at each stroke of the combined severing and notching cutters, substantially as set forth.

2. The combination with the feed-roller, means for operating it and the pressure-roller mounted to swing toward and away from the feed-roller, of an extensible and contractible cam for operating the pressure-roller a longer or shorter time to suit different lengths of sheets, substantially as set forth.

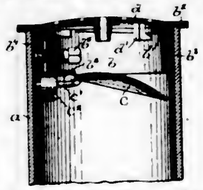
3. The combination with the feed mechanism, of a rotary shaft and a cam on said shaft for throwing the feed mechanism into and out of action, the said cam comprising a plurality of sectors and means for adjusting the sectors to increase or diminish the length of active peripheral surface, substantially as set forth.

4. The combination with the cutters and means for operating them, of vibrating arms forming a support for the sheet while being cut and means for throwing the arms away from one another to permit a sheet to drop between them after being cut, substantially as set forth.

5. The combination with the shearing and notching cutters and means for supporting a blank in position to be cut, of a stop for engaging the free end of the blank at different distances from the cutters, means for adjusting the stop and means for feeding the blank different distances into engagement with the stop, substantially as set forth.

6. The combination with the cutters and means for supporting the sheet in position to be cut, of a stop provided with arms of different lengths, means for supporting the stop in swinging adjustment and means for holding the stop in its position with a longer or shorter arm toward the edge of the plate, substantially as set forth.

641,028. AIR-PIPE FOR DRAIN-TRAPS. PATRICK W. MEEHAN, Providence, R. I., assignor of one-half to Edward F. Meehan, New Haven, Conn. Filed June 22, 1899. Serial No. 721,435. (No model.)

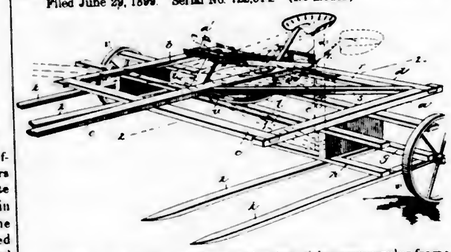


Claim.—1. In an air-pipe for drain-traps, the combination with the end of the air-pipe, of the sleeve *b*, the flange *b'*, the strainer *d* provided with the posts *d'*, the flange *b*[4] extending across a portion of the inner end of the sleeve *b*, the clack *c* pivotally secured to the flange *b*[4], the stem *c'* extending from the clack, the counterweight *c*[3], and means for securing the sleeve in the pipe, substantially as described.

2. In a device of the nature described, the combination with the end of the air-pipe, of the sleeve *b*, the flange *b*[3] extending over the end of the air-pipe, the flange *b*[4] extending across a portion of the inner end of the sleeve *b*, the clack *c* pivotally secured to the flange *b*[4], the stem *c'* extending from the clack, the counterweight *c*[3], and means for securing the sleeve in the pipe, as described.

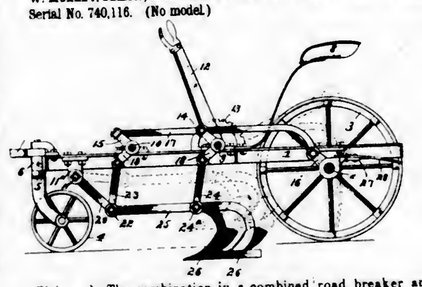
3. In an air-pipe for drain-traps, the combination with the end of the air-pipe, of the sleeve *b*, the flange *b*[3] extending over the end of the air-pipe, the inwardly-projecting flange *b'*, the strainer *d* provided with the posts *d'*, the flange *b*[4] extending across a portion of the inner end of the sleeve *b*, the clack *c* pivotally secured to the flange *b*[4], the stem *c'* extending from the clack, the counterweight *c*[3], the clamping-surface *b*[5], the clamping-disk *b*[6] secured to the screw *b*[5], and the screw *b*[5] for securing the sleeve in the pipe, as described.

641,029. HAY-RAKE. GUSTAVE H. MILLEVILLE, Altamont, Ill. Filed June 29, 1899. Serial No. 722,314. (No model.)



Claim.—In a hay-rake, the combination with a rectangular frame consisting of parallel side bars connected by front and rear cross-bars; of a tongue and means for supporting, and reversing said tongue comprising a fifth-wheel consisting of a stationary member supported below the tongue, and a movable member upon which the tongue is secured: a triangular frame consisting of a transverse bar and converging sides, the ends of the latter pivoted to the toogue; a U-shaped strap secured to the cross-bar of the triangular frame, within which the end of the tongue extends; and levers pivotally secured to said strap below the upper surface of the tongue and connected by the fulcrum-rod which bears upon the upper surface of the tongue, and and a pressure-plate.

641,030. COMBINED ROAD BREAKER AND SCRAPER. GEORGE W. MURRAY, Sumter, S. C. Filed Feb. 14, 1898. Renewed Dec. 12, 1899. Serial No. 740,116. (No model.)



Claim.—1. The combination in a combined road breaker and scraper of the frame 1, mounted on wheels 3, the plows 26 mounted on beams 25, the scraper 28 hinged to the shaft 2, means for raising the plows 26 and means for oscillating the scraper 28, substantially as described.

2. The combination in a road breaker and scraper of the frame 1, mounted on wheels 3, the plows 26 suspended beneath the frame 1, and hinged thereto; the scraper 28, hinged to swing to the rear, and a hand-lever so arranged that the plows 26 may be depressed and the scraper is raised by one movement of the hand-lever, and vice versa, substantially as described.

641,031. DRIVE-CHAIN. JOHN NEIL, Chicago, Ill. Filed May 18, 1899. Serial No. 717,356. (No model.)

Claim.—1. In a chain of the class described, the combination with alternate open links having cross-bars at the respective ends thereof, of intermediate connecting-blocks having hooks at the ends provided with convex working or bearing faces adapted to engage with and roll upon the inner working faces of said cross-bars, substantially as described.

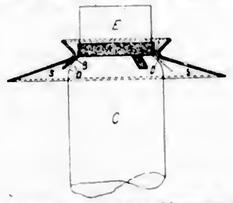
2. The combination in a drive-chain having open links, of cross-

bars at the ends of said open links, connecting block-links having hooks at the ends adapted to engage with said cross-bars, said hooks having inwardly-projecting extensions adapted to overlap the cross-bars and convex working faces upon said hooks adapted to engage with the working faces of said open links, substantially as described.



3. The combination in a chain having open links, of cross-bars at the ends of said open links, connecting block-links having hooks at the ends adapted to engage with said cross-bars, said hooks having inwardly-projecting extensions adapted to overlap the cross-bars, the working faces between said links being convex, whereby a rolling contact may be obtained, and means for preventing the blocks and open links from becoming disconnected under ordinary working conditions, substantially as described.

641,032. SHADE SUPPORT AND PROTECTOR. CLARENCE L. NEWBY, Kansas City, Mo. Filed Mar. 14, 1899. Serial No. 709,120. (No model.)



Claim.—The combination of a glass chimney or globe, designed to support its shade by having a portion of its body, forming a shoulder, larger than the internal diameter of the shade, and a contracted portion, or neck, above this point, a shade, concentric therewith, supported by the said enlarged portion, or shoulder, of the chimney, with a collar of asbestos or other non-conducting, refractory material, unattached to the chimney or the shade, consisting of a vertical band, encircling the said contracted portion, or neck, of the chimney, leaving an air-space between itself and the shade-neck, and having three or more projecting portions, or strips, pointing downwardly and lying between the chimney and the shade and conforming to the coincident curvature thereof, said vertical band of the collar extending sufficiently high to prevent the shade from coming in contact with the chimney-neck when in position or when tilted to one side or in any way disarranged, said strips of the collar projecting from one edge at intervals and resting upon the said shoulder, between the chimney and its shade, preventing their contact, and forming an air-space between each two adjacent strips, the chimney, and its shade, which air-space connects with the said air-space formed at the band and affords a continuous air-passage between the chimney and its shade, all substantially as described and for the purpose set forth.

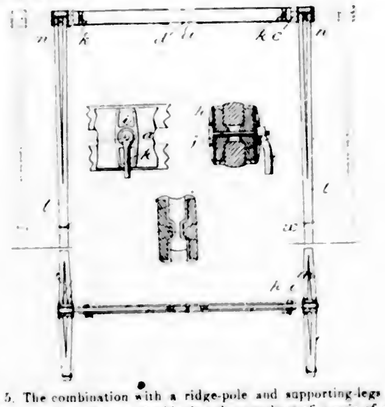
641,033. HAMMOCK-SUPPORT. ISAAC E. PALMER, Middletown, Conn. Filed June 26, 1899. Serial No. 721,911. (No model.)

Claim.—1. The combination with a ridge-pole, of supporting-legs, means for hinging the members of a pair of supporting-legs on the ridge-pole in position to swing toward and away from each other to grip and release the ridge-pole and means for holding the legs in their closed adjustment, substantially as set forth.

2. The combination with a ridge-pole, and collars arranged to loosely embrace the ridge-pole, of supporting-legs hinged to the collars to swing into and out of gripping contact with the ridge-pole and means for holding the legs in their closed adjustment, substantially as set forth.

3. The combination with one of the end sections of a ridge-pole comprising top and bottom bars, of a bracket for rigidly spacing the top and bottom bars apart at their outer ends, the said bracket being provided with seats, a collar arranged to loosely embrace the top and bottom bars and a pair of legs hinged to the said collar, the said legs being provided with brackets having inwardly-extended shoes adapted to engage the said seats for clamping the legs to the end section, substantially as set forth.

4. In a hammock-support, an end section of the ridge-pole comprising top and bottom bars, a bracket for rigidly spacing the inner ends of the top and bottom bars apart and a second bracket for rigidly spacing the outer ends of the top and bottom bars apart, substantially as set forth.



5. The combination with a ridge-pole and supporting-legs arranged in pairs, of means for hinging the members of a pair of supporting-legs on the ridge-pole to swing into and out of gripping contact and means for bodily adjusting a pair of supporting-legs toward and away from another pair of supporting-legs without removing them from the ridge-pole, substantially as set forth.

6. A backbone for a hammock-support, comprising a middle section, two extensible end sections, the middle section consisting of two side bars rigidly spaced apart about midway their length, for receiving between them the end sections and means for drawing the side bars into binding contact with the end sections in different longitudinal adjustments, substantially as set forth

7. A backbone for a hammock-support comprising a middle section and two extensible end sections fitted to be clamped thereto, each end section comprising top and bottom bars rigidly spaced apart at their opposite ends, substantially as set forth.

8. A backbone for a hammock-support comprising a middle section and two extensible end sections, the middle section comprising two side bars rigidly spaced apart at a point intermediate their ends and having longitudinal ribs on their inner faces, and the end sections each consisting of top and bottom bars fitted to be guided in their inward and outward sliding movements by the said ribs on the middle section, substantially as set forth

9. A backbone for a hammock-support comprising a middle section and end sections, the middle section comprising two longitudinal side bars and a bracket for spacing the side bars rigidly apart at a point intermediate their ends, said bracket having two vertical portions extending along the inner sides of the side bars, a web connecting the vertical portions, and top and bottom extensions which embrace the top and bottom edges of the said side bars, substantially as set forth.

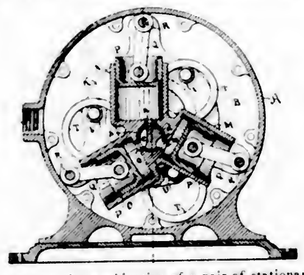
10. The combination with the middle section of the backbone of a hammock-support, said middle section comprising two side bars, and an end section fitted to slide between the said side bars, of a clamping device for securing the two sections together, consisting of clips secured to the outer sides of the two side bars of the middle section, a screw-bolt passing through the clips and side bars, said bolt having its head engaged with one of the clips and its screw-threaded end projecting through the other clip, and a clamping-nut engaging said screw-threaded end, substantially as set forth

11. The combination with a backbone, a collar fitted to loosely embrace the end of the backbone, swinging legs hinged to the said collar in position to engage the backbone when swung toward each other for clamping the legs to the backbone and stops carried by the legs in position to engage the collar for limiting the outward swinging movements of the legs, substantially as set forth.

12. The combination with a backbone and a collar arranged to loosely embrace the end of the same, a pair of swinging legs hinged to the collar in position to engage the backbone when swung toward each other and means for holding the legs in their closed adjustment comprising a pair of gripping devices arranged to slide along the legs and a flexible connection between the gripping devices, substantially as set forth.

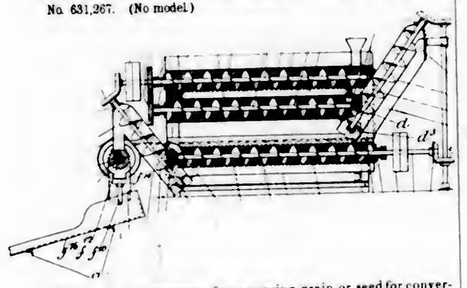
641,034. MOTOR. CAID H. PECK, Elmira, N. Y. Filed Apr 28, 1899. Serial No. 714,988. (No model.)

Claim.—1. In a motor, the combination of a pair of stationary disks, a shaft set eccentrically between said disks, two side plates journaled upon said disks, a main shaft driven by one of said plates, a plurality of cylinders revolnble upon the eccentric shaft, the axes of said cylinders being tangent to a circle inscribed with the axis of said shaft as a center, pistons in the cylinders, connecting-rods coupling the pistons to the side plates, connecting devices between the cylinders and one of said plates whereby the plates are caused to rotate with the cylinders, and admission and exhaust passages and ports whereby a fluid under pressure is admitted to and exhausted from the cylinders.



2. In a motor, the combination of a pair of stationary disks, a shaft set eccentrically between said disks, a hollow screw by which one of said disks is removably attached to said shaft, two side plates journaled upon said disks, a main shaft driven by one of said plates, a plurality of cylinders revoluble upon the eccentric shaft, pistons in the cylinders, connecting-rods coupling the pistons to the side plates, connecting devices between the cylinders and one of said plates whereby the plates are caused to rotate with the cylinders, an admission-port in the eccentric shaft opening from an inlet-passage through said shaft, an exhaust-port in said shaft opening to the passage through said hollow screw, apertures in the side plate adjacent to said screw, and ports to the cylinders to register with said admission and exhaust ports as the cylinders revolve about the shaft.

641,035. APPARATUS FOR FLAKING RICE. ALEXANDER PERRY and HENRY PERRY, London, England. Filed Apr. 8, 1897. Serial No. 631,267. (No model.)



Claim.—1. An apparatus for preparing grain or seed for conversion comprising hot and cold water tanks arranged one above the other, chambers arranged within a suitable casing having perforated walls located within said tanks, conveyers for carrying the material through the perforated chambers, a lift for removing the material from the hot water into a chute, and a chute for delivering the material to the cold water, an elevator for removing the material from the cold water, and means for draining the surplus water from the material; substantially as herein shown and described and for the purpose stated.

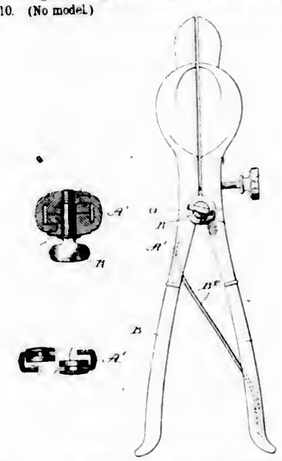
2. Apparatus for treatment of grain or seed by simultaneously flaking and converting the material, comprising two revolving hollow pressure-rollers open at both ends, between which rollers the material is passed, a heating-chamber open at both ends, a furnace for heating the chamber, and means adapted to continuously circulate a body of sand or pulverulent material through the heating-chamber and the pressure-rollers; substantially as herein described and for the purpose stated.

3. Apparatus for the treatment of grain or seed by simultaneously flaking and converting the material, comprising two revolving hollow pressure-rollers between which the material is passed, a heating cylinder or chamber, a furnace for heating the chamber, a high-level tunnel through which heated sand circulates from the heating-chamber to the pressure-rollers, a conveyer within the tunnel for carrying the heated sand to the pressure-rollers, a valve for distributing the heated sand equally between the pressure-rollers, a low-level tunnel upon the opposite side of the machine into which the heated sand flows from the pressure-rollers, a conveyer for carrying the heated sand along the low-level tunnel toward the heating-chamber, a lift for raising the spent sand again into the heating-chamber, and means for assisting the passage of the sand into, through and out of the heating chamber and pressure-rollers; substantially as herein shown and described and for the purpose stated.

4. An apparatus for the treatment of grain or seed by simultaneously flaking and converting the material, comprising two revolving hollow pressure-rollers between which the material is passed, a heating chamber, a furnace for heating the chamber, an inclined tunnel leading from the heating-chamber to the pressure-rollers, an inclined tunnel leading from the pressure-rollers to a point below the heating-chamber and adapted to circulate a body of sand by gravity from the heating-chamber through the inclined tunnels and the pressure-rollers, and a lift for raising the spent sand again into the heating-chamber; substantially as herein shown and described and for the purpose stated.

5. Apparatus for the treatment of grain or seed, comprising the combination of a preparatory apparatus consisting of hot and cold water chambers through which the grain is passed, a drainage apparatus to receive the grain from the cold-water chamber, two pressure-rollers between which the grain is passed after leaving the drainage-chamber, a heating chamber adjacent to the pressure-rolls, means for continuously circulating a body of sand or pulverulent material through the heating-chamber and pressure-rollers, and means for heating the heating-chamber; substantially as herein shown and described and for the purpose stated.

641,036. SURGICAL INSTRUMENT. CHARLES J. PILLING and GEORGE T. BARBER, Philadelphia, Pa., assignors to said Charles J. Pilling and George P. Pilling, same place. Filed Sept. 25, 1899. Serial No. 731,510. (No model.)

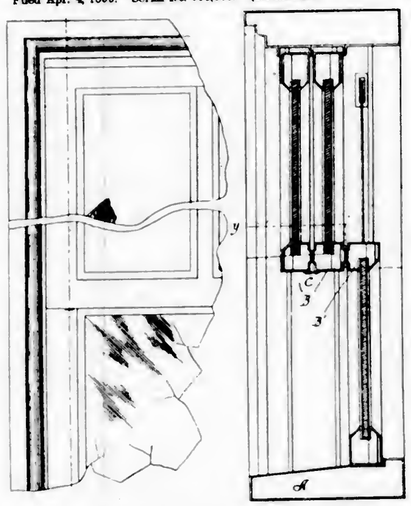


Claim.—1. The combination in an instrument of the character described, of a channeled portion in each member, a curved recess in one wall thereof and a hinge-section upon the opposite wall, said hinge-section consisting of an annularly-grooved button, the top and bottom portions of which are secured to one wall of one member and adapted to bear upon the oppositely-disposed wall of the opposite member; substantially as described.

2. In an instrument of the character described, each member having a grooved or channeled portion, an annularly-grooved button secured to one wall thereof, the opposite wall being recessed to adapt it to receive the neck of a like button on the opposite member, and a pivoting device adapted to fit a centrally-bored recess in each button, and thereby maintain the parts in register; said elemental parts being constructed and combined substantially as described.

3. In an instrument of the character described, the two members A′ A′ having each a grooved or channeled portion A^2, an oppositely-disposed wall of each member being recessed at E, a centrally-bored and annularly-grooved button portion D, D′ arranged on the oppositely-disposed walls of each member; said parts being adapted to register when brought together; with means to cause said parts to pivotally swing upon each other while maintaining the coincidence of said parts; substantially as described.

641,037. WINDOW FRAME AND SASH. ABRAHAM RASNER, Pittsburg, Pa., assignor to the Rasner & Dinger Company, same place. Filed Apr. 4, 1899. Serial No. 711,663. (No model.)



Claim.—1. A window-frame provided with a plurality of window-sashes, two of which are provided with wire-glass or other translucent fire-retardant material, and one with ordinary transparent glass, the fire-retarding sashes being adapted to close or screen the window-opening, substantially as set forth.

2. In a window-frame, a plurality of window-sashes, two of which are provided with wire-glass or other translucent fire-retardant material, one of which is maintained in an elevated position by a fusible catch whereby the same is adapted to be lowered over the transparent sash in case of fire, substantially as set forth.

641,038. HITCH-HOOK. MADISON W. REEVES, Sayre, Pa. Filed Feb. 20, 1899. Serial No. 706,168. (No model.)



Claim.—In an article of manufacture, a rope-hitch comprising a hook having its shank formed with a spiral shoulder from which projects a longitudinally-extending arm, said arm being at one side of the center of the shank and terminating at its end in a downwardly-projecting hook which is in alinement with the said shank, substantially as described.

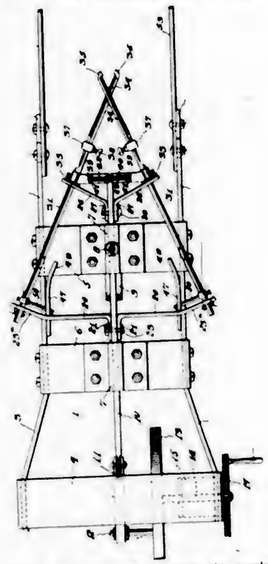
641,039. GIN-SAW FILER. RICHARD J. REYNOLDS, Taylor, Tex., assignor of one-half to Steven F. Evans and John B. Burke, same place. Filed Aug. 9, 1899. Serial No. 726,700. (No model.)

Claim.—1. In a machine for sharpening gin-saws, the combination of a frame, a reciprocating slide-bar mounted in said frame and adapted to be limited in its vertical play in one of its bearings, two crossed file-holders carried by the said slide-bar and capable of vertical and lateral adjustment, and means for operating the said reciprocating slide-bar.

2. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, adjustable pairs of arms projected outwardly from said bar, two crossed and vertically and laterally yielding file-holders supported by the said arms, and spring-actuated contracting-arms attached to the said file-holders.

3. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, a tension-plate and adjusting-screw engaging a part of the said slide-bar at opposite points, two crossed and vertically and laterally yielding file-holders carried by said slide-bar, and means for contracting the said holders.

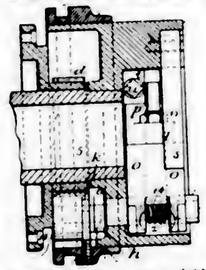
4. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, two crossed file-holders carried by said slide-bar and adapted to removably receive files, slotted keepers mounted adjacent portions of the said holders and having a vertical adjustment, and inwardly-extending horizontally-disposed devices connected to the said file-holders and movable in the said keepers.



5. In a machine for sharpening gin-saws, the combination of a frame, a reciprocating slide-bar adapted to be limited in its vertical movement in one of its bearings, two crossed file-holders carried by the said slide-bar and having both a vertical and lateral adjustment, means for automatically contracting the said holders and holding them in normal position, and means for operating the slide-bar.

6. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, pairs of oppositely-extending arms secured on the slide-bar for vertical adjustment, the front pair of arms having less lateral extent than the rear ones, holders adjustably mounted in the said arms and crossed in advance of the front pair of arms, files removably mounted in said holders, and spring actuated contracting means for the said holders.

641,040. ROD-FEEDING DEVICE. CHARLES G. RICHARDSON, Springfield, Vt. Filed June 15, 1899. Serial No. 720,669. (No model.)



Claim.—1. In a rod-feeding device, a revoluble hollow spindle, a carrier affixed thereto and revolving therewith, feed-rolls mounted in said carrier, a stationary gear fixed concentric with said revoluble spindle, a gear mounted on a shaft in the said carrier engaging with the said stationary gear, suitable connections between the gear on the said shaft and the feed-rolls, and means for bringing said connections into or out of operation at will, whereby the feed-rolls may be made to rotate about their axis or not while revolving with the carrier about the axis of the spindle, substantially as specified.

2. In a rod-feeding device, a revoluble hollow spindle, a carrier affixed thereto and revolving therewith, a stationary gear fixed concentric with said revoluble spindle, a movable gear mounted revolubly in said carrier engaging with said stationary gear, feed-rolls mounted revolubly within the carrier on each side of the axis thereof, connections between said movable gear and said feed-rolls whereby the latter derive rotary motion on their axes from the former, and means for shifting said movable gear laterally, whereby said connections are broken or restored at will, and the rotation of the feed-rolls on their axes thus arrested or restored without interfering with their motion of revolution about the axis of the carrier, substantially as specified.

3. In a rod-feeding device, a revoluble hollow spindle, a carrier affixed thereto and revolving therewith, a stationary gear fixed concentric with said revoluble spindle, a movable gear within the carrier in engagement with said stationary gear, a worm-shaft revolubly connected with said movable gear, a pair of feed-rolls mounted on revoluble shafts within the carrier, worm-gears on said shafts in engagement with the worm on said worm-shaft, whereby the feed-rolls receive rotary motion therefrom, and means for shifting said movable gear laterally, whereby the connection between the latter and said feed-roll shafts and gears may be interrupted at will, and the rotary motion of the feed-rolls on their axes thereby arrested or renewed independently of their motion of revolution about the axis of the carrier, substantially as specified.

4. In a rod-feeding device, a revoluble hollow spindle, a carrier affixed thereto and revolving therewith, a stationary gear fixed concentric with said revoluble spindle, a worm-shaft in said carrier, feed-rolls in mechanical connection with said worm-shaft and rotated thereby on their respective axes, a loose pinion mounted on said worm-shaft, in gear with the said stationary gear, and means for shifting said loose pinion into or out of connection with said worm-shaft, whereby the latter may communicate rotary motion to said feed-rolls or not at will while revolving about the axis of the carrier, substantially as specified.

5. In a rod-feeding device, a revoluble hollow spindle, a carrier affixed thereto and revolving therewith, a stationary gear fixed concentric with said revoluble spindle, a worm-shaft and worm, a pair of shaft-boxes pivoted on said worm-shaft, feed-roll shafts within said shaft-boxes, feed-rolls on said shafts, worm-gears on said shafts, engaging with said worm, and means for establishing a driving connection between said stationary gear and said worm-shaft at will, whereby rotary motion is communicated from said stationary gear to the feed-rolls while revolving about the axis of the carrier, substantially as specified.

6. In a rod-feeding device, the combination of the stationary gear, the revoluble spindle concentric therewith, the rotary carrier, the worm-shaft and worm mounted therein, the feed-rolls, the feed-roll shafts having worm-gears in engagement with the worm on the worm-shaft, the shaft-boxes pivoted on said worm-shaft, and the spring for maintaining elastic pressure of the feed-rolls upon the driven rod, substantially as specified.

7. In a rod-feeding device, the combination of a stationary gear, a revoluble spindle concentric therewith, a rotary carrier, a worm-shaft and worm mounted therein, shaft-boxes pivoted to oscillate about the axis of the worm-shaft, feed-roll shafts in said boxes, worm-gears on said shafts in engagement with said worm, feed-rolls *q* detachably borne on said feed-roll shafts, spring *s*, and means for adjustably limiting the inward movement of said feed-rolls against the thrust of said spring, substantially as specified.

8. In a rod-feeding device, the combination of a rotary carrier, a worm-shaft and worm mounted therein, a stationary gear concentric with the axis of said carrier, a loose pinion in engagement with said stationary gear, and means for bringing said loose pinion into and out of engagement with said worm-shaft, substantially as specified.

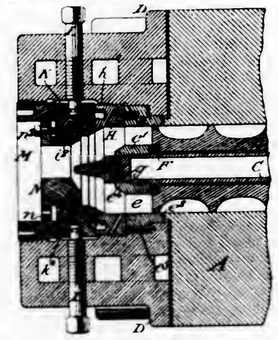
9. In a rod-feeding device, the combination of a rotary carrier, a worm-shaft and worm mounted therein, shaft-boxes pivoted to oscillate about the axis of the worm-shaft, feed-roll shafts *p*, *p*, in said boxes, feed-rolls mounted on said shafts, worm-gears on said shafts in engagement with said worm, spring *s*, blocks *t*, *t*, bearing against the extremities of said feed-roll shafts, and means for simultaneously adjusting the position of said blocks and the space between said feed-rolls, substantially as specified.

10. In a rod-feeding device, the combination of a rotary carrier, a worm-shaft and worm mounted therein, a stationary gear concentric with the axis of said rotary carrier, a pinion in engagement with said stationary gear and connected with said worm-shaft, a groove *k* in said pinion, a fork *j* in engagement with said groove *k*, and means for shifting said fork and pinion laterally while said carrier is in rotation, substantially as specified.

641,041. MACHINE FOR MANUFACTURING TUBING. VERNON ROYLE, Paterson, N. J. Filed Dec. 1, 1897. Serial No. 660,366. (No model.)

Claim.—1. The combination with a die, of means for moving it bodily in a lateral direction and means for holding the die against rotation during its lateral movement, substantially as set forth.

2. The combination with a die and a core, of means for adjusting the die laterally without varying its longitudinal position with respect to the core and means for holding the die against rotation during its lateral movement, substantially as set forth.



3. The combination with a die, of a die-holder having a polygonal periphery and means for holding the die-holder in position, substantially as set forth.

4. The combination with a die, of a die-holder having substantially two opposite sides parallel, substantially as set forth.

5. The combination with the die and its holder, of adjusting-screws and shoes interposed between the adjusting-screws and die-holder, substantially as set forth.

6. The combination with the die-holder, of the die having a rotary engagement therewith and a screw for holding the die in different rotary adjustment with respect to the holder, substantially as set forth.

7. The combination with the core and a die for coacting with the core, of a die-holder within which the die has a rotary movement and means for adjusting the die longitudinally toward and away from the core and means for locking the die in different adjustments corresponding to a fractional turn of the die, substantially as set forth.

8. The combination with the polygonal-shaped die-holder and the die having a screw-threaded engagement with the holder, of means for holding the die in different rotary positions within the holder corresponding to the sides of the die-holder, substantially as set forth.

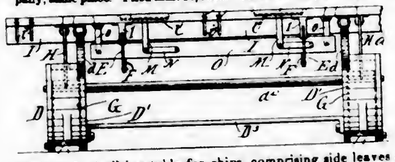
9. The combination with the core-bridge, core, die and plodder the core-bridge being free to slide directly toward and away from the plodder, of a dowel for preventing the turning of the core-bridge, substantially as set forth.

10. The combination with the core bridge and its support the core-bridge being free to slide directly toward and away from its seat, of an annular nut for holding the core-bridge against its seat, substantially as set forth.

11. The combination with the core-bridge and the annular nut for securing it against its seat of the adjustable die and means for adjusting it laterally and longitudinally, substantially as set forth.

12. The combination with the plodder, the central tube having a screw-threaded extension at its rear end and the core, of the bridge-piece having its hub interiorly screw-threaded for the reception of the ends of the central tube and the core, substantially as set forth.

641,042. SELF-LEVELING TABLE. BROR M. SCHAUMAR, New York, N. Y., assignor to himself and the White Manufacturing Company, same place. Filed Mar. 17, 1899. Serial No. 709,393. (No model.)



Claim.—1. A tilting table for ships, comprising side leaves and a center leaf arranged in parallel position, all of said leaves being collectively pivoted on uprights and attached to each other by means of transverse rods pivotally connected to said center and side leaves, and swinging weights pivoted to uprights and connected to the center leaf by means of the parallel rods extending upwardly from the respective sides of the pivot or fulcrum of said weight to a pivotal connection with the center leaf, the said weights adapted to main-

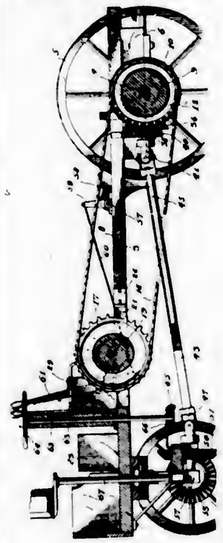
tain the leaves in relative horizontal position when the table is tilted by the rolling action of the ship, substantially as shown and described.

2. A tilting table, comprising three longitudinal leaves arranged parallel with each other and respectively supported upon arms extending from uprights, the said arms being pivoted to downwardly-projected lugs of the said leaves, and transverse rods connecting the said leaves to each other for maintaining them in relative parallel arrangement, and weights pivoted to the said uprights and connected to the center leaf by means of parallel rods, the said weights adapted for maintaining the leaves in horizontal position when the table is tilted transversely, substantially as shown and described.

3. As a tilting table, the combination of three parallel longitudinal leaves connected to each other by means of transverse rods and supported by means of uprights, and swinging weights secured to uprights and connected to the center leaf by means of parallel rods, and auxiliary weights which are pivotally attached within recesses of the said swinging weights and connected with bolts projecting through the said swinging weights for the purpose of governing the motion thereof, substantially as shown and described.

4. In a swinging table, the combination of uprights comprising respectively a segmental box and upwardly-extended arms, and parallel leaves pivotally connected to and supported by said arms and swinging weights within each of said boxes and connected to the central one of said leaves by means of parallel rods, and auxiliary swinging weights pivoted within recesses of each of the said main weights, and bolts bearing upon the inner walls of the said segmental boxes and connected to arms of the auxiliary weights, for the purpose of governing the main weights, and depending longitudinal plates between the said leaves, and double-acting hinged plates within recesses of the side leaves and means for operating the hinged plates comprising a swinging weight and lever attachments, to maintain them in horizontal position when the table is tilted longitudinally by the pitching action of a ship, substantially as shown and described.

641,043. **AUTOMOBILE.** PETER J. A. SCHNOOR, Holstein, Iowa, assignor of one-half to Henry Martensen, same place. Filed Sept. 14, 1899. Serial No. 730,440. (No model.)



Claim.—1. In a motor-vehicle, the combination of a pivotal truck movable on a vertical axis, a wheeled axle supported thereby, independent shafts geared to said wheeled axle, a single driving element, means for rotating the driving element, another pair of independent shafts likewise geared individually to the driving element, and compensating shafts, each connected at its opposite ends by universal joints with the short shafts which are geared respectively to the wheeled axle and to the driving element, substantially as described.

2. In a motor-vehicle, the combination of a driving-axle, a compound gear element fast with said axle, a motor-driven shaft, clutch-controlled gear elements mounted idly on the shaft and adapted to be independently made fast therewith, and transmission-gearing between the compound axle-gear element and the idle gear elements of the motor-driven shaft, substantially as described.

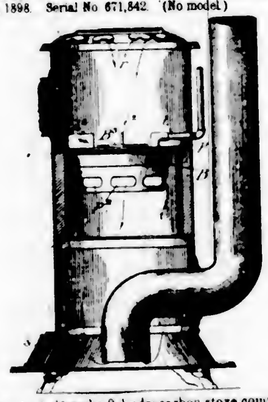
3. In a motor-vehicle, the combination of a pivotal truck capable of turning freely on a vertical axis and carrying a wheeled axle, a driving-axle having the carrying-wheels, a compound gear-drum fast with said driving-axle, compensating-gear connections between said gear-drum and the wheels on the axle carried by the pivotal truck, a motor-driven shaft, and clutch-controlled gearing between said motor-driven shaft and the compound gear-drum, for the purpose described, substantially as set forth.

4. In an automobile, the combination with a frame, rear shaft and wheels, a swiveled forward truck and wheels independently revoluble thereon, of means for transmitting power to the rear shaft, gears carried by said shaft and by the front wheels, gears meshing with said first-named gears and mounted on longitudinal shafts, and extensible shafts intermediate of the short shafts and connected thereto by universal joints.

5. In an automobile, the combination with a frame, rear shaft and wheels, a swiveled forward truck and wheels independently mounted thereon, of telescoping shafts intermediate of the rear axle and each of the front wheels, gearing connecting the opposite ends of said extensible shafts with the rear shaft and with the front wheels, and means for throwing either of the rear wheels out of engagement with the rear axle.

6. In an automobile, the combination with a power-shaft provided with a pair of sprockets loosely mounted thereon, of clutches designed to connect said sprockets with the shaft, a rear shaft provided with wheels, a gear-drum on said shaft operatively connected through intermediate chains with the sprocket-wheels on the power-shaft, gear-wheels in operative relation with a rear shaft and mounted on short horizontal shafts, extensible shafts composed of telescoping sections connected to the short horizontal shafts by universal joints, a swiveled forward truck, wheels independently mounted thereon, gear-wheels carried by said wheels, gears mounted upon short shafts and meshing with the gears on the front wheels, and universal joints connecting said last-named shafts with the extensible shafts.

641,044. **OIL-STOVE.** ANTHONY J. SCHLITT, Chicago, Ill. Filed Feb. 26, 1898. Serial No. 671,842. (No model.)



Claim.—1. A downdraft hydrocarbon-stove comprising an outer shell or casing provided at its top with draft openings or passages for the admission of air, a hydrocarbon-burner arranged within the said shell or casing and below the said draft-openings, a deflector arranged beneath the burner, and a smoke-pipe arranged to receive the fumes of combustion from beneath the said deflector.

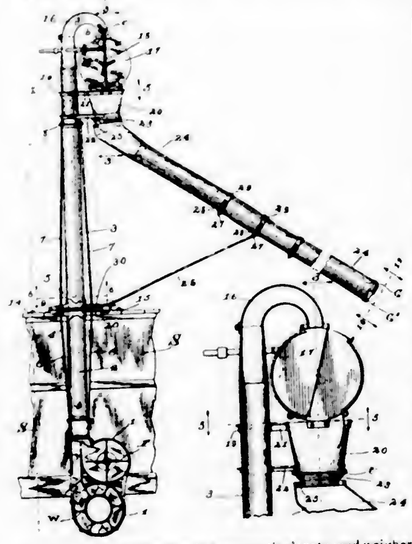
2. In a heating-stove, the combination of the combustion-chamber provided with an air-inlet opening toward the top, an outlet-flue extending from the lower central portion of said chamber, a hydrocarbon-burner in the chamber above the mouth of the outlet-flue, the casing of the burner filling the chamber transversely, adjustable air-inlets in the casing above the burner proper, and a deflector between the burner proper and the outlet-flue operating to direct the hot products of combustion against the sides of said chamber, substantially as and for the purpose set forth.

3. In a heating-stove, the combination of the combustion-chamber provided with an air-inlet opening toward the top, and an outlet-flue extending from the lower portion of said chamber, a shelf in said chamber above the outlet-flue, a flanged burner-casing supported on the shelf and closing the chamber transversely, a hydrocarbon-burner in the casing, adjustable air-inlets in the casing above the burner, outlets in the casing below the burner and a deflector between the burner and the outlet-flue operating to direct the hot products of combustion against the sides of said chamber, substantially as and for the purposes set forth.

4. In a stove, the combination with the air-inlet and the outlet for hot products of combustion, of a hydrocarbon-burner, between the said inlet and outlet, comprising upper and lower members forming between them an annular vaporizing-chamber and an inner annular burner-opening, the members being provided with intermeshing screw-threads, whereby they are turned one upon the other to regulate the size of the burner-opening, and a hydrocarbon-supply pipe extending to the vaporizing-chamber, substantially as described.

5. In a heating-stove, the combination of the combustion-chamber provided with an air-inlet opening toward the top, an outlet-flue extending from the lower central portion of said chamber, a shelf in the casing, a lining in the casing below the shelf, a burner-casing flanged at its upper end and supported by the shelf, and having adjustable air-inlets at the top and outlets near the bottom, a hydrocarbon-burner in the casing between the inlets and outlets, and a deflector below the outlets operating to direct the hot products of combustion against the lining of the chamber, substantially as and for the purposes set forth.

641,045. **PNEUMATIC ELEVATOR AND WEIGHER.** JAMES B. SCHUMAN, Columbia City, Ind., assignor to the Pneumatic Elevator and Weigher Company, Indianapolis, Ind. Filed Oct. 16, 1899. Serial No. 733,744. (No model.)



Claim.—1. The combination, in a pneumatic elevator and weigher, of the elevator-boot, suitable elevating-wheels therein, a pipe leading upwardly from the neck of said boot, a separating-head on the top of said pipe, a weighing-hopper supported from said pipe and separating-head, a receiving mouth or hopper arranged below said weighing-hopper and connected to the pipe below the head, a discharging-pipe mounted by means of a turn-table and hinge connection to said receiving mouth or hopper, a support perpendicularly below the center of said receiving-hopper and the turn-table thereon, and a brace-bar extending from said support to said discharging-pipe.

2. The combination, in a pneumatic elevator and weigher, of the boot, suitable elevating-wheels within said boot, a pipe leading from the neck of said boot upwardly and composed of two sections joining at about the level of the height of the separator, a hinge-and-truss structure at the point of union, and truss-rods running from the two halves of said structure downwardly and upwardly respectively, whereby the sections of the pipe are strongly braced and supported, substantially as set forth.

3. The combination, in a pneumatic elevator, of the elevator-boot, the two-section pipe leading therefrom, the hinge-and-truss structure at the point of union of the two sections of pipe, the same being composed of the two parts 4 and 5 united at one side by the hinge or pivot 9 and at the other side by the hinge-bolt 10, and truss-rods running from the lower hinge-half 4 to the neck of the housing, and other truss-rods running from the upper hinge-half 5 to a ring near the top of the upper pipe-section, said several parts being constructed, arranged and operating substantially as set forth.

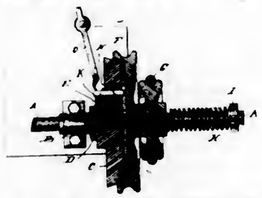
4. The combination, in a pneumatic elevator, of the boot, the pneumatic tube or pipe leading upwardly from said boot, a weigher supported from the dischargiog end of said pipe, a receiving mouth or hopper supported from said pipe below said weighing-hopper, and a discharge-pipe swiveled upon and leading from said receiving-mouth or discharging-hopper, substantially as set forth.

5. The combination, in a pneumatic elevator, with the conveyer-tube, its separating-head and weigher mechanism suspended from said head, of a receiving-hopper positioned below said weighing-hopper, bracket-like arms connected to said receiving-hopper and extending thence to and resting against said pipe, and clamps which with said bracket-like arms surround said pipe whereby said receiving-hopper is securely and rigidly supported directly from said pipe, substantially as shown and described.

6. The combination, in a pneumatic elevator, of the elevator-boot, the conveyer-tube, its separating-head, a hopper arranged below said head and supported from said conveyer tube and head, and a discharge-pipe swiveled upon and leading from the hopper.

7. The combination, in a pneumatic elevator, of the elevator-boot, the conveyer-tube, a separating-head on said tube, a hopper, and connections extending upwardly from said hopper to said head and laterally from said hopper to said tube, whereby said hopper is strongly supported and held in place.

641,046. **FRICTION AND STOP CLUTCH.** HENRY E. SHARP, Newark, N. J. Filed May 25, 1899. Serial No. 718,166. (No model.)



Claim.—1. In a clutch, two clutch members on a shaft, a driven member having a beveled flange and being loosely on the shaft, a spring to press said member toward the other, a tapered clutch member having an integral hub fixed to the shaft, a rocking lever on said hub, and means to rock said rocking lever so that one of its arms projects through an opening in one clutch member and presses the two clutch members apart, all combined substantially as described.

2. In a clotch, the shaft, the disk C attached to the shaft and having a mortise therein, a lever mounted on the disk in position to swing through the mortise, the driven cup F loose on the shaft, means for pressing the clutch members into frictional contact, and a stop movable into position to rock the said lever and disconnect the clutch, and simultaneously to stop the shaft, substantially as described.

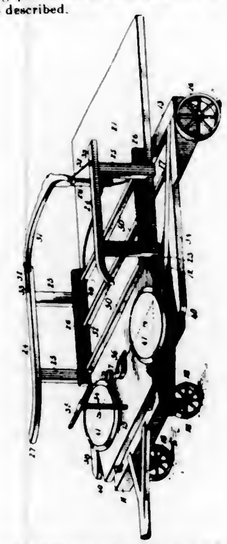
3. In a clutch, the clutch member loose on the shaft and means for driving it, a member fixed to the shaft and having a lever thereon which swings to force the clutch members apart, a sprieg by which the clutch members are normally forced into contact, a lever mounted on the frame in position to act as a rocking detent for the clutch-lever, and a rotating cam by which said detent-lever is operated, all combined substantially as described.

641,047. **MACHINE FOR HARVESTING AND SHOCKING CORN-STALKS.** THOMAS SHIELDS, West Woodville, Ohio. Filed Mar. 1, 1899. Serial No. 707,262. (No model.)

Claim.—1. A corn-harvester comprising a wheeled frame having an elevated permanent standing platform at its front end, horizontal revoluble cutters mounted on said frame in substantially the plane of said standing platform and having their working edges arranged to sweep beyond the rear and end edges of the platform, and a load-platform mounted slidably on said frame to abut against the standing platform and in lapping relation to said cutters, said load-platform adapted to slide rearwardly on the frame away from the cutters and, at the limit of its rearward movement, to tilt into a dumping position, substantially as described.

2. A corn-harvester comprising a wheeled frame having an elevated permanent standing platform at its front end, horizontally-revoluble cutters mounted on said frame in substantially the plane of the standing platform and having their working edges arranged to sweep beyond the rear and end edges of said platform, a load-platform mounted slidably on said frame to abut against the standing

platform and in lapping relation to the revoluble cutters, and limiting-straps attached to said frame and to the load-platform to arrest the rearward slidable movement of the latter and to permit it to assume a dumping position after having moved clear of the cutters, substantially as described.



3. A corn-harvester comprising a wheeled frame having an elevated, permanent standing platform at its front end, horizontally-revoluble cutters mounted on said frame in the plane of the standing platform and having their working edges arranged to sweep beyond the rear and end edges of said platform, a loading-platform mounted slidably on said frame to abut against the standing platform and in lapping relation to the cutters, and the inclined deflecting-bars fixed to the sides of said frame and projecting forwardly across the meeting line between the standing and load platforms, said frame and deflecting-bars being inclined one to the other to form tapering throats across which the cutters are adapted to rotate, substantially as described.

4. A corn-harvester comprising a frame having an elevated permanent standing platform at its front end, horizontally-revoluble cutters mounted on said frame in the horizontal plane of the standing platform and having their working edges arranged to sweep beyond the rear and end edges of said platform, a load-platform mounted slidably on said frame to abut against the standing platform and in lapping relation to the cutters, a wheeled axle below the load-platform, vertical cutter-shafts carrying the revoluble cutters and projecting below the standing platform, a transverse shaft journaled in said frame below the standing platform and geared to said cutter-shafts, and gearing between the axle and the transverse shaft, for the purpose described, substantially as set forth.

5. A corn-harvester comprising a wheeled frame having an elevated permanent standing platform, horizontal revoluble cutters mounted on said frame, a load-platform supported slidably on said frame to abut against the standing platform in lapping relation to said cutters, guard-rails 24, supported on opposite sides of said load-platform, a post secured removably to the load-platform and disposed between the guard-rails, a stacking-bar fixed to said post, and links connected to the stacking-bar and the guard-rails, substantially as described.

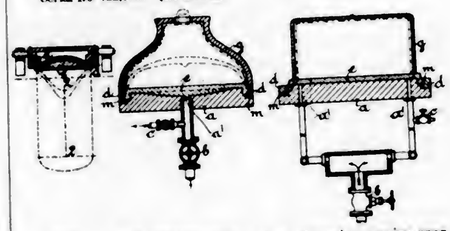
6. In a corn-shocking machine, a shock-removing appliance consisting of a cable and a series of bars connected at one end with the cable and having their other ends detachably fastened to the cable, substantially as described.

7. In a corn-shocking machine, a shock-removing appliance consisting of a looped cable and a series of cross-bars connected permanently at one end with a length of the cable and detachably fastened at the other end to another length of said cable, substantially as described.

8. In a corn-shocking machine, a shock-removing appliance comprising a looped cable having one length thereof provided with a series of spaced rings, a series of bars fitted to one length of the cable and notched to receive the rings or loops, and stops on the length of the cable to which each bar is permanently connected at one end thereof, substantially as described.

9. In a corn-shocking machine, the combination with a wheel-frame, of a dumping-platform carried by said frame and provided with guard-rails at the sides thereof, a post detachably fitted to the platform and having detachable linked connections with the guard-rails, and a shock-removing appliance comprising bars united by a cable, said appliance having its bars resting on the platform and confined against endwise displacement thereon; said post being adapted to be planted in the ground and the cable of the shock-removing appliance fitted to said post, for the purpose described, substantially as set forth.

641,048. APPARATUS FOR MANUFACTURING HOLLOW GLASS ARTICLES. PAUL T. SIEVERT, Dresden, Germany. Filed July 1, 1899. Serial No. 722,501. (No model.)



Claim.—1. The combination of a plate adapted to receive upon its upper surface a layer of plastic glass and perforated for the upward passage through it of an elastic pressure medium, and a frame which surrounds said plate and between which and the said plate there is provided a channel for the reception and retention of the edges of the layer of plastic glass spread upon said plate and which is supported on said plate but capable of opening outward therefrom, substantially as herein described.

2. The combination of a plate in which are one or more perforations for the passage through it of an elastic pressure medium and in the face of which are one or more dished recesses, and a frame surrounding said plate for confining thereto the edges of a layer of plastic glass spread upon said plate, substantially as herein described.

3. The combination of a hollow plate in the face of which are one or more perforations for the passage through it of an elastic pressure medium and which is provided with trunnions, means for securing to said plate the edges of a layer of plastic glass spread upon said plate, and bearings for said trunnions in which said plate is capable of being turned over, substantially as herein described.

4. The combination of a hollow plate in the face of which are one or more perforations for the passage through it of an elastic pressure medium and which is provided with trunnions one of which is hollow for the entrance of said pressure medium into the cavity in said plate, means for securing to said plate the edges of a layer of plastic glass spread upon said plate, and bearings for said trunnions in which said plate is capable of being turned over, substantially as herein described

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641,049. METHOD OF PREPARING MATERIALS FOR FEEDING OILS. LAZARUS SILVERMAN, Chicago, Ill. Original application filed Dec. 4, 1897, Serial No. 660,782. Divided and this application filed Nov. 13, 1899. Serial No. 736,864. (No specimens.)

Claim.—The method of preparing a composition for lubricating purposes which consists in separating the soft or cellular portion of the pith of cornstalk from the fibers, steaming the soft portion thus separated, and charging it with oil; substantially as described.

641,050. TAPE-LINE REEL. JOHN O. SMITH, Denver, Colo. Filed Mar. 8, 1899. Serial No. 708,250. (No model.)

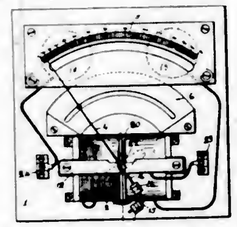


Claim.—1. The combination of two hollow sections adapted to be removably held together against accidental displacement, means in one section for supporting a tape-line a partition located in the other of said sections and a door opening into the compartment formed by said partition.

2. A tape-line reel, consisting of two sections removably connected together, a partition dividing one of said sections into compartments, a movable cover for the outer compartment, and a shaft for supporting a tape-line mounted in the other section.

3. The combination of a casing comprising two sections removably connected together, a reel located in one section, a partition located in the other section and dividing the same into two compartments, a door for closing one of said compartments, the first-mentioned section of the casing entering the outer compartment, and the reel-shaft mounted in the first-mentioned section having a bearing in said partition and a handle for turning said reel.

641,051. ELECTRICAL MEASURING INSTRUMENT. JOHN P. STEVENS, Philadelphia, Pa. Filed Oct. 4, 1899. Serial No. 732,455. (No model.)



Claim.—1. In an instrument for measuring electricity a fixed coil, a movable coil adapted to oscillate on diametrical pivots, a spiral spring connected with said movable coil, and an opposite pendulum-spring also connected with the movable coil and adapted to vibrate under tension from one side to the other of its position of equilibrium and to counteract the tension of the spiral spring during the first part of its movement and to reinforce the same during the latter part of its movement, substantially as and for the purpose herein set forth.

2. In an instrument for measuring electricity in combination with a fixed coil, a movable coil supported on diametrical pivots, a spiral spring secured to one of said pivots and having initial tension in excess of the lower potential of electricity to be measured, and a pendulum-spring secured to the pivot of the movable coil and adapted to cooperate with the spiral spring so as to diminish the resistance of said spring at zero, and by gradually approaching its position of equilibrium to restore the spiral spring to its full potential, substantially as described.

3. In an electrical measuring instrument a fixed and movable coil, and a circuit in series through the same in combination with a pointer and scale to indicate the movement of said movable coil under attraction or repulsion, and a spring in excess of initial movement to resist the same in combination with a counter-spring adapted to resist the tension of said spring, said movable coil and said pointer on said scale indicating, by the differential between said spring and said counter-spring under the action of said circuit, substantially as described.

4. In combination with a pivoted coil and a pointer rigidly secured to the same, a scale spaced off and traversed by said pointer, a spring adapted to act upon said pivoted coil and resist the same, and a counteracting-spring adapted to modify and vary the action of said spring on said coil in a constant and graduated resistance, substantially as described.

5. In an electrical measuring instrument having a fixed and movable coil, said coils mutually reacting upon each other in an electrical circuit, a pointer and a scale connected with and marked with indications of said instrument, and two springs acting on each other to modify and vary the tensions of each, and resisting the movement of said movable coil by the differential between the tensions of said springs first by reducing and afterward by adding to said tensions, substantially as described.

6. In an electrical measuring instrument in combination with a fixed and movable coil, and a spiral spring connected with said movable coil and resisting the rotation of the same, a pendulum-spring consisting of two divergent legs in the form of an inverted V one adapted to swing past the other, one leg secured to the pivot of said movable coil, and the other to a fixed abutment, so that said pendulum-spring will be drawn to one side to resist said spiral spring, while recording the lower electrical intensities, and gradually passing, as said coil rotates to the opposite side to add thereto, substantially as described.

7. In an electrical measuring instrument in combination with a pivoted coil, a mainspring adapted to resist strain, but in excess of strain of lowest resistances of said pivoted coil, a pendulum-spring in the form of an inverted V having a turn on each leg and below said turns attached rigidly one end to a fixed abutment, and the other end to the pivot of the movable coil and adapted to resist said mainspring and record weights in pressure by the differential between the tension of said springs, substantially as described.

8. As an article of manufacture a pendulum-spring consisting of two legs joined at the top and composed of a single length of elastic wire, and having a turn formed on each leg and below said turns a straight end, said straight ends adapted to be rigidly secured one to a fixed abutment and the other to an oscillating pivot, and said legs adapted to swing past each other as said pivot oscillates, substantially as described.

9. In an electrical measuring instrument the combination of the fixed coil 2, 2′ a pivoted movable coil 3, a pointer 4, a scale 5, a spiral spring 9, a counteracting pendulum-spring 20 and a resistance 18, the whole mounted upon a base-plate substantially as and for the purpose described.

10. In combination with coils 2, 2′ and coil 3 the latter pivoted diametrically, the pointer 4 secured to coil 3 or its supports, the scale 5, the spring 9 and the counter-spring 20, the whole constructed to operate, substantially as described.

11. In combination with the rotating pivoted coil 3, the pointer 4, the scale 5 together with spring 9 and counter-spring 20, substantially as and for the purpose described.

12. In a switch for an electrical measuring instrument the combination of a manually-operative rotatable member provided with two conducting-plates and an insulating-piece therebetween so disposed with respect to fixed contacts connected respectively with the terminals of the line, and of the instrument as to open, to close and to change the direction of the current through the instrument by turning the manually-operative member, substantially as described.

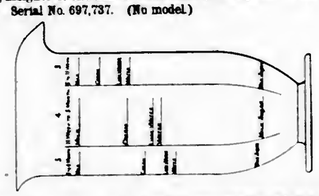
13. In an instrument for measuring electricity in combination with a fixed coil, a movable coil diametrically pivoted within the same, a spring adapted to resist the movement of said coil when a current is passed through said coil or coils, a differential spring adapted to oppose said spring and a pointer attached to and moving with said movable coil, together with a scale graduated and spaced so that the spaces and graduations increase in extent from zero along a part of the same and afterward diminish therefrom to end of scale, said spaces indicating units or multiples of units of electrical measurement.

14. In an instrument for measuring electricity in combination with a fixed coil, a movable coil pivoted to oscillate within the same, said coils connected in series and a rotary thumb-button provided with two switch-plates and an interposed insulating-piece so disposed with respect to fixed contacts connected with the terminals of the line and of the instrument as to open, to close and to change the direction of the current through the instrument by turning said button.

15. In a switch for an electrical measuring instrument the combination of a manually-operative rotatable button 25 carrying upon its under side the conducting-plates 27 and 28, and the interposed insulating-piece 29 so disposed with respect to the fixed contact-terminals 30, 31, 32 and 33, as to open, to close and to change the direction of current through the instrument by rotating the button 25, substantially as described.

16. In a switch for an electrical measuring instrument the combination of a manually-operative rotatable button 25 carrying upon its under side the conducting-plates 27 and 28, and the interposed insulating-piece 29 so disposed with respect to the fixed contact-terminals 30, 31, 32 and 33, as to open, to close and to change the direction of current through the instrument by rotating the button 25, and a pointer 26 carried by said button and marks upon the stationary part of the casing to cooperate therewith in indicating when the current is on and when off, substantially as described.

641,052. HOME MILK-MODIFIER. ERNEST STRAUS, New York, N. Y., assignor of one-half to Albert Haas, same place. Filed Nov. 29, 1898. Serial No. 697,737. (No model.)



Claim.—1. A measuring vessel for compounding mixtures adapted to successively-changing conditions, said vessel being provided with a plurality of columns of graduations, each column being gradu-

ated to define the proportions corresponding to one of said conditions, substantially as set forth.

2. A measuring vessel provided with marks indicating successively-changing conditions and further provided with varying columns of graduations arranged to harmonize with the marks indicating the changing conditions whereby a mixture may be compounded in the vessel under any of the said conditions by observing the column of graduations corresponding to that condition, substantially as set forth.

641,053. HOLDER FOR EYEGLASSES, &c. EDWIN P. TIRRELL, Boston, Mass., assignor of one-half to John D. Crosby, same place. Filed Sept. 28, 1899. Serial No. 731,946. (No model.)



Claim.—1. In a device of the class specified, a body provided with hooks at its opposite ends and having a bearing intermediate said hooks extending laterally therefrom, a keeper common to both hooks and free of said hooks when in its closed position, and means acting against the keeper to hold it normally in its effective position to close both hooks.

2. In a device of the class specified, a body provided with hooks at its opposite ends and having a bearing intermediate said hooks extending laterally therefrom, a keeper common to both hooks and pivoted substantially at its center to said bearing and free of said hooks when in its closed position, and springs of substantially equal force bearing against the keeper at opposite sides of its pivot.

3. A body provided with hooks at its opposite ends and a bearing intermediate said hooks extending laterally therefrom, a keeper common to both hooks and pivoted substantially at its center in approximate parallelism with the body, two casings situated at opposite sides of the bearing, and coiled springs inclosed by said casing and bearing against the keeper at opposite sides of its pivot.

4. In a device of the class specified, a body provided with hooks at its ends and having a bearing extending laterally therefrom situated intermediate the hooks, a keeper pivoted to the bearing and common to both the hooks and free of said hooks when in its closed position, and a device connected with the body to secure it to a garment.

641,054. NUT-LOCK. JAMES TIRRELL, Jr., Weymouth, Mass., assignor of one-half to Thomas Arnold, Abington, Mass. Filed Sept. 11, 1899. Serial No. 730,083. (No model.)

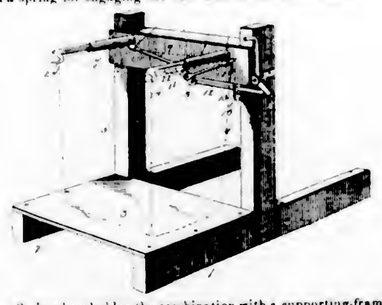


Claim.—1. An exteriorly-threaded two-part bolt having a longitudinal tubular pocket therein, one-half of the pocket being formed in each part of the respective halves of the bolt, the pocket being provided on its opposite walls with projections, and a nut adapted to embrace the two parts of the bolt.

2. A bolt in two parts, said bolt having a pocket, a nut embracing the threaded portion of the bolt to hold the parts thereof in clamping position, and having a closed end, a spindle clamped between the two parts of the bolt, and a washer surrounding the spindle and seated in the recess in the bolt.

641,055. BAG-HOLDER. JAMES THOMPSON, Greeley, Colo. Filed May 10, 1899. Serial No. 716,294. (No model.)

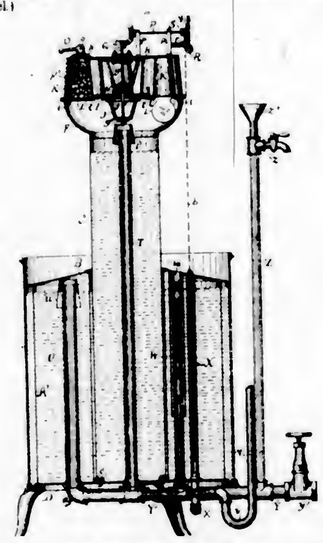
Claim.—1. In a bag-holder, the combination with a frame comprising uprights and a cross-bar, of a link pivotally supported in front of said cross-bar; oppositely-extending pointed rods pivotally secured at their inner ends to said link, a spring-retracted rod secured at its inner end to said link; a lever for operating said spring-retracted rod means for supporting the outer ends of said rods; tubes or sleeves the rear ends of which are held in openings in said cross-bar; rods arranged in said tubes and formed with hooks at their front ends, and a spring for engaging the rear ends of said hook-rods.



2. In a bag-holder the combination with a supporting-frame having a cross-bar, of a link pivotally secured in front of said cross-bar; oppositely-extending pointed rods secured at their inner ends to said link, and supported at their outer ends in eyes or keepers; a bell-crank lever fulcrumed at one side of the frame; a rod connecting said lever to the lower end of said link; a retracting-spring for said lever and connecting-rod; tubes or sleeves projecting from the front side of the cross-bar, and spring-controlled rods arranged in said tubes or sleeves and provided at their front ends with hooks to engage a bag.

3. In a bag-holder the combination with the frame provided with a cross-bar, of a link pivotally secured to said cross-bar, oppositely-disposed pointed rods pivotally secured at their inner ends to said link and supported in keepers at their outer ends; means for operating said pointed rods; means for engaging the front corners of the bag comprising independent rods formed at their front ends with hooks, while their rear ends extend through the cross-bar; and a spring at the rear side of the cross-bar, said spring being coiled at its center and fitting over a support and having its ends extending laterally in opposite directions to form independent spring-arms for the hook-rods.

641,056. ACETYLENE-GAS GENERATOR. PULASKI D. WESCOTT, Corning, N. Y. Filed Mar. 27, 1899. Serial No. 710,570. (No model.)



Claim.—1. A feed mechanism for acetylene-gas generators comprising a plate, a plurality of bottomless carbid-receptacles arising from said plate, drops to close the bottoms of said receptacles, arms on said drops rising through an annular series of slots in said plate, a disk provided with an opening to register with said slots, and mechanism to rotate the disk whereby the arms are actuated to open and close the drops.

2. A feed mechanism for acetylene-gas generators comprising a vertical shaft at the top of the generator, a plate suspended within the generator, a plurality of bottomless carbid-receptacles carried by said plate, drops to close the bottoms of said receptacles a mechanism operated by the shaft when turned in one direction to open and close the drops, clutch mechanism by which the shaft engages and rotates the plate and receptacles when turned in the opposite direction, a charging-aperture in the generator-top in the line of travel of the receptacles, and means for imparting motion to the shaft in either direction.

3. An acetylene-gas generator comprising a gasometer, a water-receptacle, a chamber above the water-receptacle in communication with the gasometer, a vertical shaft at the top of said chamber, a plurality of bottomless carbid-receptacles disposed around the shaft within said chamber, drops to close the bottoms of said receptacles, mechanism operated by the shaft to open and close the drops, a ratchet-gear operated by the rise and fall of the gasometer-bell to impart periodic motion to the shaft, and means for charging the carbid-receptacles.

4. An acetylene-gas generator comprising a gasometer, a water-receptacle, a chamber above the water-receptacle in communication with the gasometer, a vertical shaft hung from the top of said receptacle, a plate supported upon said shaft within the generator, a plurality of bottomless carbid-receptacles carried thereon, drops to close the bottoms of said receptacles, arms projecting from said drops through slots in the plate, a disk to rotate with the shaft above the plate provided with an opening to register with said slots in succession, a clutch whereby the plate is rotated with the disk when turned backward, means for holding the plate stationary at other times, a ratchet-gear operated by the gasometer-bell to impart periodic motion to the shaft, a dial carried thereby to indicate the number of receptacles discharged, and a charging-aperture in the line of travel of said receptacles.

5. An acetylene-gas generator comprising a water-receptacle, a carbid-containing chamber above said receptacle, means for feeding the carbid to the water in the water-receptacle, a gas-discharge pipe leading out from above the water in the water-receptacle, a hood over and extending below the top of the discharge-pipe, a filler-pipe rising from the water-receptacle to a point above the level of the bottom of said hood, whereby the water in the water-receptacle may be raised above the bottom of the hood to seal the discharge-pipe when the carbid-containing chamber is to be recharged, and a draw-off cock to reduce the water to normal level when the generator is in operation.

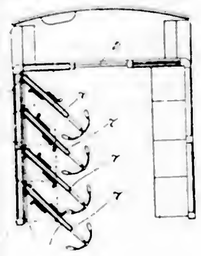
6. An acetylene-gas generator comprising a stand-pipe constituting the water-receptacle, a carbid containing chamber at the top of said stand-pipe, a gasometer surrounding the stand-pipe, the bottoms of the stand-pipe and gasometer walls being flanged and secured to a common base by packing-rings substantially in the manner shown, feed mechanism in the carbid-chamber operated by the rise and fall of the gasometer-bell, and pipes connecting the stand-pipe with the gasometer and the gasometer with the service-main.

641,057. COLLAR-BUTTON. THOMAS WHALEY, Florence, Colo. Filed Sept. 27, 1899. Serial No. 731,812. (No model.)



Claim.—A cover for the base-plate of a collar-button, comprising the hollow disk-shaped member made of elastic material having an imperforate cushion E, the upper wall of said member being thin and having an elongated aperture therein, the parallel ribs F on either side of said aperture, as shown and described.

641,058. CAR. FRANK W. WHITCHER, Boston, Mass. Filed June 15, 1898. Serial No. 683,516. (No model.)



Claim.—1. A car having seats for passengers, and bicycle supporting or carrying devices located above said seats and in such relation thereto as that bicycles may be carried in a vertical position in a seating-space unoccupied by passengers without encroaching upon an adjoining space or inconveniencing the occupants of adjacent seating-spaces.

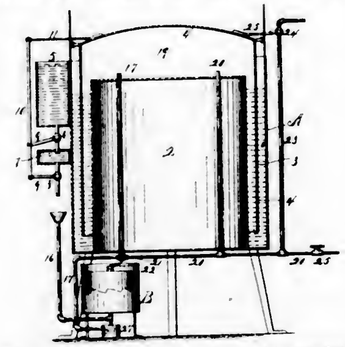
2. A car having within the same seats and bicycle-supports occupying the same sections of its interior space, said bicycle-supports being located above and below said seats and in such relation thereto that bicycles may be conveniently carried and closely packed in vertical positions in sections unoccupied by passengers, and such sections may, therefore, be devoted to the seating of passengers or the reception of bicycles, interchangeably, substantially as described.

3. A car having seats for passengers, and bicycle supporting and carrying devices located above and below said seats and in such relation thereto as that bicycles may be carried in vertical positions in a seating-space unoccupied by passengers without encroaching upon the adjoining space or inconveniencing the occupants of the adjacent seating-space, said seats being movable to provide spaces for the reception of bicycles.

4. In a car having portions of its interior convertible to accommodate either passengers or bicycles, the combination with the car-body of a movable seat adapted to be shifted from its position as a seat in order to make room for the reception of a bicycle, and bicycle-supporting devices secured to the car-body above said seat in proper relation to such seat to support a bicycle in a vertical position in the space made vacant by the shifting of the seat, substantially as described.

5. In a car having portions of its interior convertible to accommodate either passengers or bicycles, the combination with the car-body, of a movable seat adapted to be shifted from its position as a seat in order to make room for the reception of a bicycle, bicycle-supporting devices secured to the car-body above said seat, and bicycle-supporting devices secured to said hinged seat whereby the bicycle may be supported in a vertical position in the space made vacant by the shifting of the seat, substantially as described.

641,059. ACETYLENE-GAS GENERATOR. IRA C. WIGHTMAN, Norwich, N. Y. Filed Apr. 20, 1899. Serial No. 713,735. (No model.)



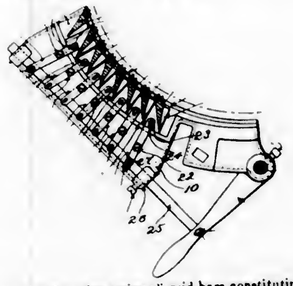
Claim.—An acetylene-gas generator, comprising a casing adapted to contain water, a bell in said casing, a carbid-holder situated in said casing beneath the bell, the said carbid-holder comprising an outer shell, a central tube, and partitions between them creating multiple segmental carbid-holding compartments connected by openings through said partitions and pipes therein leading down nearly to the bottom of each compartment, except the one first receiving the water and curved upward, a feed-water pipe extending upward through said tube and feeding water into the primary compartment, and a gas-eduction pipe extending downward from the gas-chamber above said carbid-holder through said tube and conducting it to a gasometer.

641,060. GRID FOR COTTON-OPENERS. FRED A. WILDE, Providence, R. I. Filed June 23, 1899. Serial No. 721,580. (No model.)

Claim.—1. In combination, the series of grid-bars constituting the grid cooperating with the beater of a cotton-opener, or the like machine, and means for simultaneously moving the respective grid-bars of the said series bodily through different distances in the required direction, to thereby simultaneously increase or diminish the widths of the series of intervening spaces.

2. In combination, the series of grid-bars constituting the grid cooperating with the beater of a cotton-opener, or the like machine.

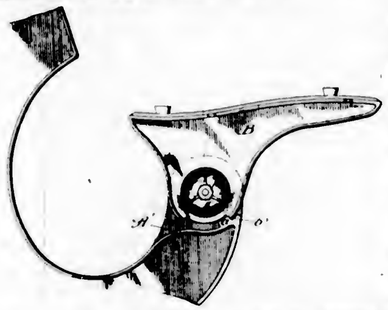
a support on which the said grid-bars are mounted with capacity to slide, and adjusting means operating to simultaneously slide the said grid-bars on the said support, to simultaneously increase or diminish the widths of the series of intervening spaces.



3. In combination, the series of grid-bars constituting the grid coöperating with the beater of a cotton-opener, or the like machine, a support on which the said grid-bars are mounted with capacity to slide, proportional levers connected with the respective grid-bars, and means to effect simultaneous movement of the said levers, whereby to simultaneously increase or diminish the widths of the spaces intervening between the respective grid-bars.

4. In combination, the series of grid-bars constituting the grid coöperating with the beater of a cotton-opener, or the like machine, a support on which the said grid-bars are mounted with capacity to slide, proportional levers connected with the respective grid-bars, a slide-bar connected with the series of levers, the operating-arm for the said slide-bar, and means of locking the parts in adjusted position.

641,061. FOLDING SEAT. CHARLES H. WOODRUFF, Elgin, Ill. Filed June 5, 1899. Serial No. 719,464. (No model.)



Claim.—1. In a folding seat, the combination of a standard or support and a seat-arm, each having an annular groove, an interposed washer having notches in its periphery, balls carried by the notches, and means for holding the parts together, substantially as described.

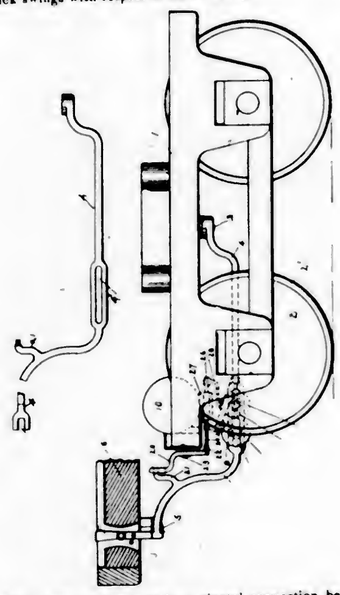
2. In a folding seat, the combination of a standard or support and a seat-arm, each having an annular groove in its face, an interposed washer having in its periphery recesses or notches, balls carried by the notches or recesses of the washer, and a clamping-bolt, substantially as described.

3. In a folding seat, the combination of a standard or support and a seat-arm, each having an annular groove in its face, an interposed washer provided with recesses or notches in its periphery, a series of balls carried by the washer, a locking-washer engaging the hub of the seat-arm, and a pivotal clamping-bolt having a nut held by the locking-washer when the parts are together, substantially as described.

641,062. RAILWAY-TRACK LUBRICATOR. REUBEN G. YORK, Lynn, Mass. Filed Sept. 5, 1899. Serial No. 729,563. (No model.)

Claim.—1. A car having a wheel-truck which is capable of motion with respect to the car-body as the car passes along a curve, means carried by the car for applying a lubricant to the car-wheel which is automatically operated upon the movement of the truck with respect to the car-body.

2. In a car, a wheel-truck, a pivotal connection between said truck and the car-body, means carried by said truck for applying a lubricant to the flange of the car-wheel, connections between said means and the car-body whereby said means will be operated when the truck swings with respect to the car-body.



3. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pump carried by said truck, pipe connections between said pump and the wheel, and means carried by said car-body which is adapted to operate said pump when the truck turns with respect to the car-body.

4. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pump carried by said truck, connections between said pump and the car-wheel, means for operating said pump carried by the car-body, a yielding connection between said means and the pump, whereby, when the truck turns with respect to the car-body, the working parts of the pump will not necessarily be moved to an extent corresponding to the movement of the truck.

5. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pair of pump-cylinders, a main pipe terminating adjacent to one of the wheels on each side of the truck, a separate pipe connecting each pump-cylinder with said main pipe, a valve located in said main pipe between the points where said pipes are connected to said main pipe, and means for operating one of said pumps when the truck turns in either direction.

6. In a car, a wheel-truck, a pipe terminating adjacent to the flange of the car-wheel, means for dischargiug a lubricant therethrough, a roller journaled directly beneath the end of said pipe, and means for moving said roller into and out of engagement with the flange of the car-wheel.

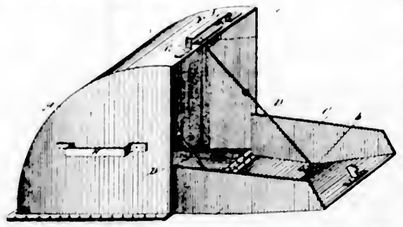
641,063. CORD-HOLDER. JOHANN ALTMANN, Mannheim, Germany. Filed Dec. 19, 1898. Serial No. 699,704. (No model.)



Claim.—The herein-described device, consisting of the pin *c* angular in cross-section and having lateral notches or recesses near one extremity, a spiral spring mounted upon said pin, the cap *b* rigid on the pin and surrounding the spring, and a cup *f f* longitudinally movable on the pin, and means for securing said device to a fabric *a* consisting of a plate A, riveted to the fabric and slotted to receive the pin, substantially as herein described and illustrated.

641,064. COMBINED ASH-BOX AND SHOVEL. WILLIAM S. ANDERSON, Jasper, Tenn. Filed May 4, 1899. Serial No. 715,562. (No model.)

Claim.—1. A combined ash-box and shovel, consisting of a box having one side hinged thereto to drop downward and adapted to act as a shovel, the side edges of said side having integral upturned flanges, and pivoted links connecting the box and shovel and limiting the outward swing of said shovel

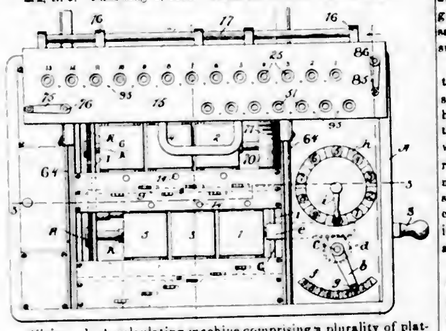


2. A combined ash-box and shovel, comprising a box in cross-section the quadrant of a circle, one of the flat sides being hinged at the center of the quadrant and having its side edges turned up to form a shovel, pivoted links connecting the box and shovel and limiting the outward drop of the shovel, a spring-catch holding the shovel when closed in the box, and a handle upon the edge adjacent the outer end of the shovel when closed.

3. A combined ash-box and shovel, consisting of a box having one side hinged thereto and adapted to act as a shovel, the bottom of said shovel being bent intermediate its ends

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641,065. CALCULATING-MACHINE. FRANK S. BALDWIN, Newark, N. J. Filed Aug. 3, 1899. Serial No. 726,012. (No model.)



Claim.—1. A calculating-machine comprising a plurality of platens having teeth thereon, and a calculating mechanism movable across the platens and actuated by the teeth thereon, substantially as described.

2. A calculating-machine comprising a plurality of series of platens, each series consisting of a plurality of platens, the platens of each series having projections so arranged as to have the platens represent respectively the numerals "1" to "0," and a calculating mechanism adapted to be moved across the platens and to be actuated thereby, substantially as described

3. A calculating machine comprising a plurality of series of platens, the platens of each series provided with teeth or projections arranged to have them represent the numerals "1" to "9," said platens movable to bring either in operative position and a calculating mechanism actuated by engagement with the said platens, substantially as described.

4. A calculating-machine comprising a plurality of series of toothed platens, a carriage adapted to travel across said platens, said carriage carrying a plurality of numeral-wheels, and intermediate mechanism operated by the toothed platens and in turn actuating the numeral-wheels, substantially as described.

5. A calculating-machine comprising a plurality of series of toothed platens, said platens movable in two directions one at right angles to the other, and a calculating mechanism operated by the toothed platens, substantially as described.

6. A calculating-machine comprising a plurality of movable series of toothed plateus, a plurality of numeral-wheels rotating in a plane parallel the plane of the platens and a plurality of intermediate gears rotating in a plane at right angles to the numeral-wheels, and meshing therewith and adapted to also engage the teeth upon the platens when one is moved in relation to the other, substantially as described

7. A calculating-machine comprising a plurality of series of toothed platens, a carriage movable across the said platens, the carriage having a member movable away from the platens, said member carrying a plurality of numeral-wheels adapted to be actuated when the movable member is in one position and carried out of operation when in the other position, substantially as described.

8. A calculating-machine comprising a plurality of series of toothed platens, a plurality of numeral-wheels, a carrier therefor movable across the face of the platens, the platens adapted to actuate the numeral-wheels, and carrying elements for the numeral-wheels situated at points beyond the platens in the direction in which the carrier is moved whereby the carrying is effected independent of the operation of the platens upon the numeral-wheels, substantially as described.

9. A calculating-machine comprising a plurality of series of toothed platens, a numeral-wheel carrier, a plurality of separate and independent numeral-wheels, a plurality of carrying elements supported independent of the numeral-wheel carrier, and also independent of the platens, said numeral elements adapted to actuate the numeral-wheels for carrying from one to the other, substantially as described.

10. A calculating-machine comprising a plurality of series of toothed platens, a numeral-wheel carrier, a plurality of independent numeral-wheels, a plurality of carrying mechanisms comprising members set in operative position by the numeral-wheel, and elements actuated by the set elements, substantially as described.

11. A calculating-machine comprising a plurality of series of toothed platens, a numeral-wheel carrier movable across the said platens, a plurality of independent numeral-wheels carried by the carrier, a plurality of gears situated intermediate the numeral-wheels and the platens and adapted to be actuated by the platens and in turn to actuate the numeral-wheels, and a carrying mechanism comprising a movable gear moved laterally by the numeral-wheel, and an element engaged by the carrying-gears and moved into engagement with the said intermediate gears for actuating the succeeding numeral-wheel, substantially as described.

12. A calculating-machine comprising a plurality of series of toothed platens, a numeral-wheel carrier movable across the face of said platen, a plurality of independent numeral-wheels carried thereby, a plurality of gears situated intermediate the numeral-wheels and the toothed gears and coöperating therewith for actuating the numeral-wheels, a movable carrier-gear revolving upon an axis in a plane at right angles to the said platens, and carried by the said carrier, the numeral-wheels provided with an actuating member for moving the said movable gear, a movable element supported independent of the carrier, and moved laterally by the said movable gear, the said carrying element constructed to engage the intermediate gear for operating the succeeding numeral-wheel, substantially as described.

13. A carrying mechanism for calculating-machines comprising a movable numeral-wheel carrier, a plurality of independent numeral-wheels carried thereby, actuating-gears for the numeral-wheels rotating on an axis at right angles thereto, a shaft extending at right angles to the axis of the actuating-wheels, and carrying a gear, and movable members 35 supported independent of the carrier and traveling in the path of but situated eccentric to the said movable gear, the movable gear engaging the carrying member 35 and moving it laterally in the path traveled by the driving-gear, substantially as described.

14. A carrying mechanism for calculating-machines comprising a movable numeral-carrier, a plurality of independent numeral-wheels carried thereby, an operating-gear engaging the numeral-wheels for actuating them, the numeral-wheels provided with cams, an endwise-movable shaft 32 carrying a gear 33, and a laterally-moving member supported independent of the carrier and situated in a line between the gear 33 and the actuating-gear 18, said member adapted to be moved laterally by engagement with the gear 33 and carried in engagement with the gear 18, substantially as described.

15. A carrying mechanism for calculating-machines comprising a movable numeral-carrier, a plurality of independent numeral-wheels carried thereby, actuating-gears engaging the numeral-wheels, a transversely-movable shaft carried by the carrier, said shaft provided with a gear 33, the numeral-wheels provided with a member for actuating the shaft, and a transversely-movable member supported independent of the carrier and situated in a line between the driving-gear and the gear carried by the movable shaft, said member constructed to move laterally in engagement with the driving-gear and to move the transversely-movable shaft to its original position, substantially as described.

16. A carrying mechanism for calculating-machines comprising a movable numeral-wheel carrier, a plurality of independent numeral-wheels carried thereby, driving-gears for the said numeral-wheels, transversely-movable gears carried by the carrier and situated at a point between the numeral-wheels and the actuating-gears, and an

element supported independent of the carrier and situated at a point between the transversely-movable gear and the actuating-gear, said member constructed to engage the movable gear when in its lowered position and to be carried thereby in engagement with the actuating-wheel, substantially as described.

17. A carrying mechanism for calculating-machines comprising a movable numeral-wheel carrier, a plurality of numeral-wheels carried thereby, a plurality of driving-gears 18, a plurality of shafts 32, numeral-wheels provided with cams adapted to engage one end of the shafts, and the opposite end of the shafts carrying gears 33, said shafts provided with two grooves, a retaining member adapted to engage the grooves, and a movable actuating member supported independent of the carrier, and adapted to cooperate with the gear 33 and to be thrown in engagement with the actuating-gear for carrying to the succeeding numeral-gear, substantially as described.

18. A carrying mechanism for calculating-machines comprising a movable numeral-wheel carrier, a plurality of independent numeral-wheels 18 carried thereby, a plurality of actuating-gears carried by the carrier and in engagement with the numeral-wheels, a longitudinally-movable shaft carrying a gear 33, the numeral-wheels carrying members for moving the shaft longitudinally, and an element 35 supported independent of the carrier and provided with a tooth 34 for engaging the wheel 33 to carry the carrier laterally in engagement with the actuating-wheel, and also provided with a shoulder 41 for elevating the gear 33 and moving its shaft longitudinally to restore it to its original position, substantially as described.

19. A calculating-machine comprising a plurality of series of toothed actuating members having two movements one at right angles to the other, and a numeral-wheel carrier movable across the face of the toothed members and adapted to be actuated thereby, substantially as described.

20. A calculating-machine comprising a plurality of series of platens movable in two directions one at right angles to the other, a mechanism and an index for moving the said platens simultaneously, and correspondingly, and a calculating mechanism movable across the face of the platens substantially as described.

21. A calculating-machine comprising a plurality of series of toothed platens movable in two directions one at right angles to the other, a numeral-wheel carrier carrying a plurality of numeral-wheels actuated through the medium of the toothed platens when moved across the face thereof, said carrier having two movements one at right angles to the other, substantially as described.

22. A calculating-machine consisting of a plurality of series of flat platens hinged together and movable in two directions one at right angles to the other, and a calculating mechanism movable across and actuated by the said toothed platens, substantially as described.

23. A calculating-machine comprising a frame, a plurality of series of flat platens, the platens of each series of platens hinged together, a revolving member for each series of platens, and a calculating mechanism movable across the face of the platens and actuated by engagement with the teeth thereof, substantially as described.

24. A calculating-machine comprising two parallel rows of separate series of toothed platens, each series of platens being movable independent of the other, a locking mechanism for the said series of platens, and a calculating mechanism movable across the face of the platens and actuated by the engagement with the teeth thereof, substantially as described.

25. A calculating-machine comprising two parallel rows of series of movable toothed platens, the series of one row of platens being staggered or out of line in respect to the series constituting the other row, and a calculating mechanism movable across the face of said platens and adapted to be actuated by the engagement of the teeth thereof, substantially as described.

26. A calculating-machine comprising a plurality of series of independently-movable toothed platens, independent locking and releasing members for said platens, actuating members for moving the platens, and a calculating mechanism movable across the face and adapted to be actuated by engagement with the teeth of said platens, substantially as described.

27. A calculating-machine comprising a plurality of series of flat platens, each series being movable independent of the other, a calculating mechanism consisting of a carriage made in two parts, one movable transverse the other, the transversely movable member provided with a plurality of numeral-wheels, and the relatively stationary member of the carriage provided with independent actuating mechanisms adapted to engage the toothed platens and to actuate the numeral-wheels, substantially as described.

28. A calculating-machine comprising a plurality of series of toothed platens, a numeral-wheel carrier provided with a plurality of numeral-wheels adapted to be actuated by the said platens, the said numeral-wheel carrier provided with a second set of numeral-wheels to represent the quotient or multiplier, and a movable toothed member adapted to actuate the quotient or multiplier numeral-wheel, substantially as described.

29. A calculating-machine comprising a plurality of series of toothed platens, a numeral-carrier carrying numeral-wheels to indicate the product, and a separate set of numeral-wheels to indicate the quotient or multiplier, the said platens movable transverse the said numeral-wheel carrier, and a toothed member actuated by the movement of the platens and adapted to actuate the quotient or multiplier numeral-wheels to indicate the multiplier or quotient digit or digits, substantially as described.

30. A calculating-machine comprising a stationary frame, a transversely-moving frame carrying a plurality of series of toothed segment-wheels carrying toothed platens, a carriage comprising a lower portion supported independent of said platens and provided with gears adapted to engage the teeth thereof, and also of an upper portion carrying a plurality of numeral-wheels engaged by said gears, substantially as described.

31. A calculating-machine comprising a stationary frame, a movable platen-frame carrying a plurality of series of toothed platens, a numeral-wheel carrier consisting of a frame movable across the stationary frame in a direction at right angles to the movement of the platen-frame, and means for moving the platen-frame, substantially as described.

32. A calculating-machine comprising a stationary frame, a movable platen frame carrying a plurality of series of toothed platens, the stationary frame provided with a track extending in a direction transverse the movement of the platens, and a calculating mechanism, movable upon the said track and adapted to be actuated for engagement with the teeth of the platen when moved thereacross, substantially as described.

33. A calculating-machine comprising a frame, a plurality of series of platens hinged together to form a chain, a plurality of revoluble polygon wheels, the shaft passing loosely through said wheels, the shaft provided with a wheel having a number of teeth corresponding to the sides of the polygon wheel, the polygon wheel having a tension member engaging the said toothed wheel, substantially as and for the purpose described.

34. A calculating-machine comprising a plurality of actuating members, a calculating device comprising a carriage consisting of a lower portion movable across the face of the actuating members and provided with wheels actuated by said actuating members, and a vertically-movable portion carrying numeral-wheels, and a support for the vertically-movable portion, substantially as described.

35. A calculating-machine comprising a plurality of series of actuating members, a calculating mechanism movable across the face thereof, said calculating mechanism comprising a carriage, a track therefor, said carriage having a vertically-movable portion, said vertically-movable portion carrying a plurality of numeral-wheels, the carriage having intermediate actuating members, a supporting member carried by the carriage and adapted to engage the vertically-movable portion thereof, said supporting member adapted to be supported by the track, and the track constructed to release the supporting member when the carriage is at the limit of its movements, substantially as described.

36. A calculating-machine comprising two parallel shafts carrying a plurality of series of toothed platens, an actuating member common to both shafts, and a calculating mechanism adapted to be moved across and actuated by the toothed segments, substantially as described.

37. A calculating-machine comprising a stationary frame, a relatively-movable platen-frame carrying a plurality of series of toothed platens, an index-hand operatively connected with the platen-frame for moving it, the index-hand provided with a stop member and the stationary frame with a cooperating stop member constituting an index, and a calculating mechanism adapted to be moved across and be actuated by the teeth of the said platen, substantially as described.

38. In a calculating-machine, a platen having two parallel sets of teeth, one representing the unit-digits and the other the tens-digits, in combination with a calculating mechanism having a units-wheel actuated by the units set of teeth and a tens-wheel actuated by the tens set of teeth of said platen, substantially as described.

39. A calculating-machine comprising a plurality of series of platens having an independent movement in one direction and arranged in fixed relations in respect to the other direction of movement.

40. A calculating-machine comprising a plurality of series of platens having two movements one at right angles to the other and arranged and constructed to move independently in one direction and in fixed relations in the other direction.

41. A calculating-machine comprising a plurality of toothed platens hinged together to constitute an endless chain and revoluble upon a support to bring either of said platens to operative position.

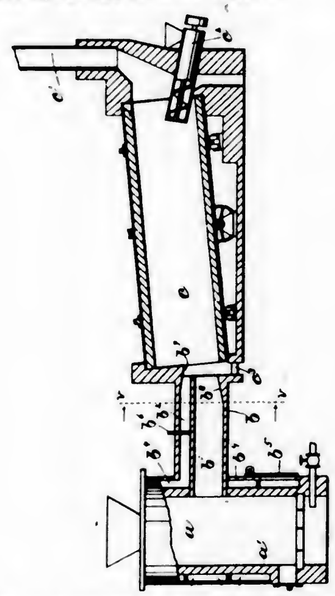
42. A calculating-machine comprising a plurality of platens arranged to move independently of each other in one direction and moved together and simultaneously in a direction at right angles to said first movement.

43. A calculating-machine comprising a plurality of series of platens, each series constituting an independently-movable endless chain, and a carrier for all of said platen-chains movable in a direction at right angles to the independent movement of the chains.

44. A calculating-machine comprising a plurality of series of platens arranged and constituting independent chains, and means supporting and adapted to actuate said chains to bring the desired platen to operative position.

45. A calculating-machine comprising a plurality of series of endless-chain platens and means arranged and constructed to move said chains independently in one direction and simultaneously and correspondingly in a direction at right angles to said independent movement.

641,066. APPLIANCE FOR MANUFACTURING CEMENT. HARRY I. BARTHOLOMEW and GEORGE W. BARTHOLOMEW, Bellefontaine, Ohio, assignors to the Buckeye Portland Cement Company, same place. Filed Oct. 11, 1899. Serial No. 733,332. (No model.)



Claim.—1. In appliances for burning cement, the combination and arrangement of the burning-furnace in connection with an air and gas supply, a conduit for conveying the same to said furnace, the gas-passage being surrounded or partially surrounded by air-passages, each of said passages being furnished with inclined ends or discharge-openings, and means for controlling the quantity of air through the respective passages, substantially as and for the purpose specified.

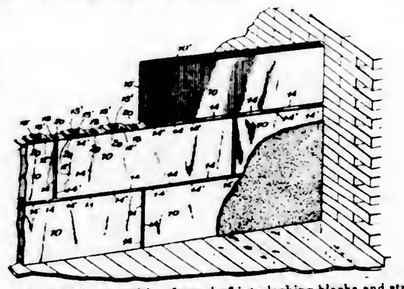
2. The combination with the rotating furnace, the gas-producer connected thereto by a passage, air-passages surrounding or partially surrounding said gas-passage, said air and gas passages being each provided with inclined discharge-openings and means for controlling the supply of air in said air-passages, substantially as specified.

3. The combination with the inclined rotating furnace, a gas-producer, a passage connecting said gas-producer to said furnace, air-passages adjacent to said gas-passage and surrounding or partly surrounding the same, a heating-chamber in said producer connected to said air passage or passages, said gas and air passages being inclined at their discharge ends, and means for controlling the air passing through said passages so as to control and vary the direction of the burning-flame substantially as and for the purpose specified.

641,067. FIREPROOF PARTITION. AUGUSTUS W. BLABO, New York, N. Y. Filed Sept. 22, 1899. Serial No. 731,260. (No model.)

Claim.—1. A wall or partition formed of interlocking blocks and strips, said strips having a series of supporting-faces projecting from opposite sides thereof and interlocked with said blocks.

2. A wall or partition formed of interlocking blocks and strips, said strips having a series of supporting-faces projecting from opposite sides thereof, and also having lips projecting from said supporting-faces and adapted to engage said blocks and interlock therewith.



3. A wall or partition formed of interlocking blocks and strips, said strips having transverse apertures and locking members projecting from opposite sides thereof, said blocks and strips being interlocked.

4. A wall or partition formed of blocks having grooves in their edges, and strips having lips projecting from opposite sides thereof and in engagement with the walls of said grooves.

5. A building-wall formed of blocks having grooves in their edges and strips having supporting-faces disposed alternately on the opposite sides thereof, and also having lips entering said grooves, said blocks and strips being united by a hardened binder.

6. A strip or binder comprising a series of alternately-raised block-supporting surfaces.

7. A strip or binder comprising a series of alternately-raised block-supporting surfaces each provided with an opening.

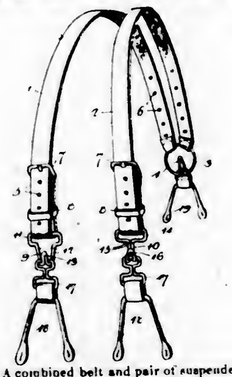
8. A strip or binder comprising a series of alternately-raised block-supporting surfaces each provided with one or more projections adapted to engage a block.

9. A strip or binder provided with alternately-raised block-supporting surfaces each provided with an opening and with one or more projections adapted to engage a block.

10. A strip or binder comprising a series of alternately-raised block-supporting surfaces, each of said surfaces having an opening and provided with a pair of projections alternately formed.

11. The herein-described partition comprising a plurality of blocks, each of said blocks having its edges provided with a recess, and a strip or binder located intermediate the edges of adjacent blocks and comprising a series of alternately-raised block-supporting surfaces each provided with one or more projections adapted to enter the recesses of said block.

641,068. COMBINED SUSPENDERS AND BELT. HOWARD J. BLOOMER, Norwalk, Conn. Filed Sept. 15, 1899. Serial No. 730,646. (No model.)

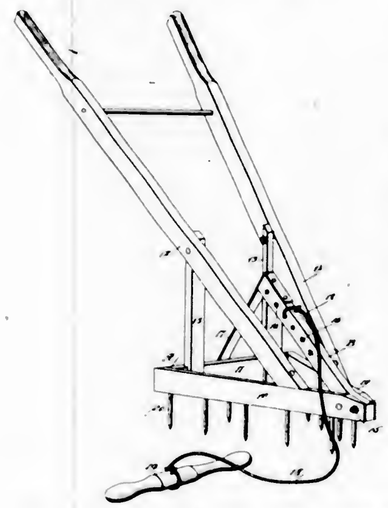


Claim.—1. A combined belt and pair of suspenders, consisting of two main parts or straps movably connected at their rear extremities by an intermediate coupling, and fastenings freely movable on the front terminals of the said main parts or straps having removably-interlocking ends to form a clasp, one of said fasteners having a reduced neck and open bill and the other an open neck and reduced

bill to removably fit in the open bill, the said fastenings being disposed in the same plane when interlocked and adapted to receive, together with the coupling, suspender-ends.

2. A combined belt and pair of suspenders, consisting of two main parts having doubled portions for lengthening and shortening the same, means for maintaining the desired adjustment of the said parts, a coupling to which the single extremities have movable attachment, and fastening devices loosely held by the folded extremities of the said main parts and adapted to extend outwardly clear of the latter, said fastenings having removably-interlocking members at their outer extremities in the same plane when interlocked to form a connecting-clasp without interior projections when the device is arranged in belt form, one of said fasteners having a reduced neck and open bill and the other an open neck and reduced bill to removably fit in the open bill, the said fasteuings and coupling also having means for quick application and release of suspender-ends.

641,069. CULTIVATOR. HENRY C. BOTHWELL, McArthur, Ohio. Filed Aug. 23, 1899. Serial No. 728,210. (No model.)



Claim.—1. In an agricultural implement, a frame carrying cultivating devices, a draft, and means for securing said draft to the frame at increasing intervals above the frame and at increasing intervals rearward of the forward cultivating devices as and for the purpose set forth.

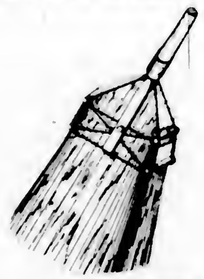
2. In an agricultural implement, a frame carrying cultivating devices, a draft-bar secured to said frame, a draft, and means for attaching said draft to points on said draft-bar at different intervals above said frame and at different intervals rearward of the front cultivating devices, as set forth.

3. In an agricultural implement, a frame carrying cultivating devices, a draft bar secured to said frame and having points for a draft, said points extending rearwardly of the front cultivating devices and at an oblique angle to the face of the frame, and a draft adapted to be secured to said draft-bar, as set forth.

4. In an agricultural implement, a base, a draft-frame rising gradually beyond the plane of the said base, having an upward and rearward inclination and provided with a series of longitudinally-arranged apertures, the forward end of the draft-bar being secured to the forward central portion of the base, the said draft-bar from a point just above the frame to its rear end being longitudinally straight, and means for supporting the rear end of said draft-bar, as specified.

641,070. BROOM-HEAD. OTHON M. BOWMAN, JAMES H. BLACKBURN, and GEORGE B. ROBBINS, Osage Mills, Ark. Filed Oct. 7, 1899. Serial No. 732,933. (No model.)

Claim.—The combination, with the broom-head composed of two pieces of wire having loops connected by a straight portion of the wire, cross-arms extending diagonally from the loops and terminating in half-loops, the brace-wires, and the bolts extending through the loops and half-loops, of the edge plates or strips secured to certain of said bolts and having pointed ends, the side plates or strips having one end secured to the brace-wires and the other end pointed, and the bolt extending through the side plates and through the broom at the crossing-point of the said arms substantially as and for the purpose set forth.



641,071. TACK. RICHARD A. BERUL, Bridgeport, Conn. Filed Mar. 4, 1899. Serial No. 707,775. (No model.)



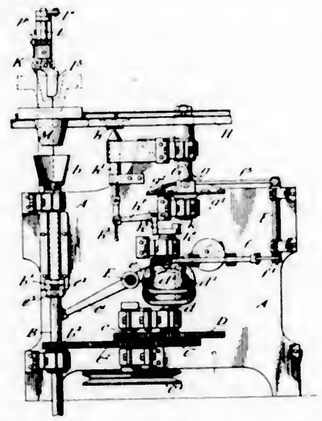
Claim.—1. As an improved article of manufacture, a tack having a flat tapering end portion or point shaped by a continuation of the rectangular shank slightly bent at the terminus or point proper, presenting two cutting edges and sides inclined in opposite directions from the center, substantially as shown and described.

2. A tack having a shank rectangular in cross section and a point diamond-shaped and flattened gradually toward the end, presenting four smooth faces those of the point proper being symmetrically tapered and bent as they define the sharp end

3. As an improved article of manufacture a tack having bracing-ribs on the under side of its head, extending outwardly from the shank and at right angles to the die-web, said ribs being formed integral with the head and shank, a rectangular shank and flattened point terminating in a bent end, presenting four smooth faces through the length of the shank and point, the latter being diamond-shaped gradually flattened and symmetrical, substantially as shown and described

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641,072. APPARATUS FOR MOLDING CUPS OR LIKE ARTICLES OF CLAY OR OTHER PLASTIC MATERIAL. HERBERT BRIGGS, Stoke-upon-Trent, England. Filed Feb. 16, 1899. Serial No. 705,670. (No model.)



Claim.—1. In a molding-machine, the combination with a rotatable table carrying a plurality of molds of an oscillating former arranged above the table, a vertical spindle disposed beneath the table, means for imparting an intermittent rotary movement to the table to successively bring the molds above the spindle and beneath the former, means for adjusting the former laterally, and means for imparting a combined rotary and vertical movement to the spindle to rotate and raise the molds up to the former, substantially as described.

2. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets disposed in an annular series, of molds disposed in said sockets and each provided with a peripheral flange arranged to rest on the table, an oscillating former arranged above the table, means for imparting intermittent rotary movement to the table to successively bring the molds eccentrically beneath the axis of the former, and means for successively lifting the molds from their seats and raising them about the former, substantially as described

3. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets and molds removably seated in said sockets, of an oscillating former arranged above the table, means for imparting intermittent rotary movement to the table to successively bring the molds eccentrically beneath the axis of the former, a vertically-movable cup arranged beneath the table, and means for imparting a combined rotary and vertical movement to said cup to raise the molds successively up to the former and rotate them about the latter, substantially as described.

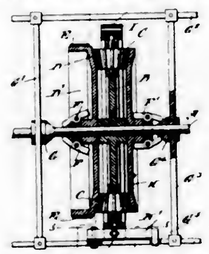
4. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets and molds removably seated in said sockets, of an oscillating former arranged above the table, a vertical spindle arranged beneath the table, means for imparting an intermittent rotary movement to the table to successively bring the molds above the spindle and eccentrically beneath the axis of the former, and means for imparting a combined rotary and vertical movement to the spindle to rotate and raise the molds up to the former, substantially as described.

5. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets and molds removably seated in said sockets, of an oscillating former arranged above the table, a vertical spindle arranged beneath the table, means for imparting intermittent rotary movement to the table to successively bring the molds above the spindle and eccentrically beneath the axis of the former, means for imparting a combined rotary and vertical movement to the spindle to rotate and raise the molds up to the former a pivoted scraper arranged above the table, and means for oscillating said scraper successively across the upper ends of the molds, substantially as described.

6. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets and molds removably seated in said sockets, of an oscillating former arranged above the table, a vertical spindle arranged beneath the table and provided at its upper end with a cup, means for imparting intermittent rotary movement to the table to successively bring the molds above the cup and eccentrically beneath the axis of the former, and means for imparting a combined rotary and vertical movement to the spindle to rotate and raise the cup and a contained mold up to the former, substantially as described.

7. In a molding-machine, the combination with a rotatable table provided with a plurality of sockets and molds removably seated in said sockets, of a vertical rock-shaft arranged above the table and provided at its lower end with an adjustable former, means for rocking said shaft, means for imparting intermittent rotary movement to the table to successively bring the molds eccentrically beneath the axis of the former, a vertical spindle arranged beneath the table and provided at its upper end with means for holding the molds one at a time, and means for imparting a combined rotary and vertical movement to the spindle, substantially as described.

641,073. REVERSING-GEAR. ANDREW BROTT, South Denver, Colo. Filed Sept. 29, 1899. Serial No. 732,042. (No model.)



Claim.—1. A reversing-gear, comprising two bevel-wheels arranged for connection with the shaft to be driven in a forward or backward direction, one of the wheels being driven, a supporting-wheel loose on the shaft and carrying a bevel-pinion for meshing with both wheels on opposite sides of the pinion, a clutch adapted to connect the driven wheel with the shaft, a brake adapted to engage the said support to lock the same, said brake being provided with an actuating-arm, a cone adapted to actuate said clutch, and a shifting-arm for said cone, said arm having a shoulder engaging and moving the actuating-arm for the brake when the cone is shifted in one direction as set forth.

2. In a reversing-gear, the combination with a shaft, two bevel-wheels both loosely mounted on said shaft, a support loose on said shaft and carrying a pinion meshing with said wheels, clutches on opposite sides of said wheels, cones slidable on said shafts and adapted to actuate said clutches, and shifting arms connected together and connected with said cones, whereby one clutch will be coupled to the adjacent wheel and the other uncoupled from its adjacent wheel at the same time, as set forth.

3. In a reversing-gear, the combination with a shaft to be driven, a support normally loose on the shaft and carrying a radially-disposed bevel-pinion, and bevel gear-wheels mounted to rotate loosely on the shaft and in mesh with opposite sides of said pinion, one of the gear-wheels being driven, of connected clutches on the shaft and adapted to engage said gear-wheels, clutch-actuating means under the control of the operator for throwing one clutch into engagement with its wheel and the other out of engagement with its wheel, and a brake mechanism controlled by the said clutch-actuating means and engaging the said support for the bevel-pinion, substantially as shown and described.

4. In a reversing-gear, the combination with a shaft to be driven, a support held on the shaft and carrying a radially-disposed bevel-pinion, and bevel gear-wheels mounted to rotate loosely on the shaft and in mesh with opposite sides of said pinion, one of the gear-wheels being driven, of clutches connected to move together on the shaft, and adapted to engage said gear-wheels, and clutch-actuating means under the control of the operator for throwing one clutch into engagement with its wheel and the other out of engagement with its wheel, substantially as shown and described.

5. A reversing-gear, comprising a shaft to be driven, a support held on the shaft and carrying a radially-disposed bevel-pinion, bevel gear-wheels mounted to rotate loosely on the shaft and in mesh with opposite side of said pinion, one of the gear-wheels being driven, connected clutches on the shaft, and adapted to engage said gear-wheels, clutch-actuating means under the control of the operator, for throwing one clutch into engagement with its wheel and the other out of engagement with its wheel, a device for braking said pinion-support, and a connection between said braking device and said clutch-actuating means whereby the latter serves to hold the support against rotation when in one position, as set forth.

6. A reversing-gear, comprising two bevel-wheels, on the shaft to be driven in a forward or backward direction, one of the wheels being driven, a support on said shaft, said support carrying a bevel-pinion for meshing with both wheels on opposite sides of the pinion, means for holding said support rigid, a clutch adapted to connect the driven wheel with the shaft, shifting-arms arranged to throw said driven wheel into gear with the other bevel-wheel, and a connection between said shifting-arms and the clutch for coupling the driven wheel to the shaft whereby said clutch is thrown out of action when the two bevel-wheels are thrown into gear, as set forth.

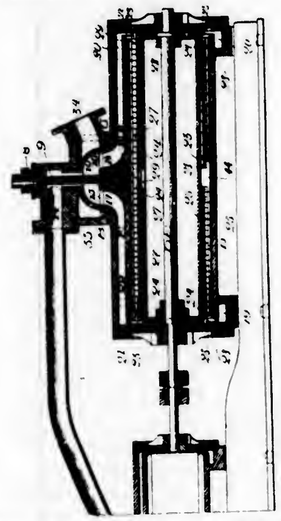
641,074. STEAM-TURBINE. JOHN BURGUM, Rio Janeiro, Brazil. Filed June 3, 1899. Serial No. 719,289. (No model.)

Claim.—1. The combination, in a steam turbine, of an external fixed cylinder and an internal revolving drum having their interior and exterior surfaces provided with a series of transverse steam-directing blades and a series of longitudinal steam-directing partitions intersecting said blades, the blades and partitions terminating centrally between the ends of the cylinder and drum to provide a central, annular steam-chamber, with a steam-inlet and steam-valve in the cylinder opposite to, or in coincidence with, said central, annular steam-chamber, substantially as described.

2. The combination, in a steam-turbine, of a fixed cylinder having attached steam-directing blades 23 and partitions 27 on its interior, a revolving drum arranged within said cylinder and having attached steam-directing blades 24 and partitions 29 on its exterior coacting with those on the interior of the fixed cylinder, and steam-ports and a steam reversing valve arranged centrally between the ends of said cylinder and drum and governing all of said ports, to admit steam at the center and exhaust from the opposite ends of the cylinder and drum, or to admit steam at the opposite ends of said cylinder and drum and exhaust from the center thereof, substantially as described.

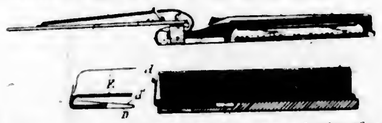
3. The combination, in a steam-turbine, of a fixed cylinder having an annular steam-chamber centrally between its ends, and a plurality of steam-directing blades and partitions on its interior from the

annular steam-chamber to its opposite ends, a revolving drum arranged within the fixed cylinder and having a plurality of steam-directing blades and partitions on its exterior from said annular steam-chamber to its opposite ends, the steam-ports leading from the center of the cylinder to its opposite ends and to said annular steam-chamber, and a steam-reversing valve controlling said ports to admit steam direct to the central annular steam-chamber and exhaust from opposite ends of the cylinder and drum or to admit steam to the opposite ends of the cylinder and drum and exhaust from the central annular steam-chamber, substantially as described



4 The combination, in a steam-turbine, of a fixed cylinder having a set of steam-ports and an annular steam-chamber centrally between its ends, a longitudinal, rotary motor-shaft, a rotary drum arranged on said shaft within the fixed cylinder, and an oscillatory reversing-valve controlling the set of steam-ports at the center of the cylinder and serving to admit steam direct to said central annular steam-chamber and exhaust from opposite ends of the cylinder and drum, or to admit steam to the opposite ends of the cylinder and drum and exhaust from the central annular steam-chamber, substantially as described.

641,075. MANIFOLD SALES-BOOK. EDWARD CARNEY, Toronto, Canada, assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed Apr. 4, 1899. Serial No. 711,644. (No model.)



Claim.—1. In a manifold sales-book, the combination of a cover or back, a pile of memorandum-leaves as described secured to the cover, a pocket in one edge of the cover, one or more carbon leaves, and a clamp to retain one edge of the said carbon leaf or leaves and adapted to enter said pocket, as and for the purpose described.

2. In a manifold sales-book, the combination of a cover or back, a pile of memorandum-leaves as described secured to the cover, a metallic pocket in one side edge of the cover, one or more carbon-leaves, and a metallic clamp to retain one edge of the said carbon leaf or leaves and adapted to enter said pocket, substantially as and for the purpose described.

3. In a manifold sales-book, the combination of a cover or back, a pile of memorandum-leaves, each folded upon itself and bound together at one edge, spurs projecting from the cover into the bound edge, an elastic band passing around the said cover and bound edge, a pocket in the side of the cover, one or more carbon-leaves having side edges confined by a clamp, and the said clamp adapted to enter the pocket and compress the edges of the carbon-leaves, as set forth.

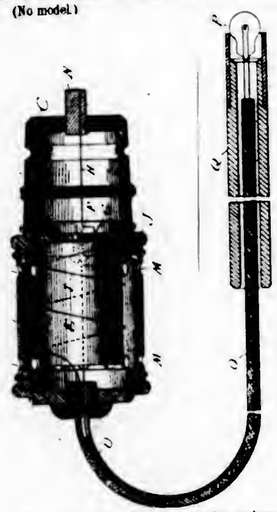
4. In a manifold sales-book, the combination of a cover or back, a pile of memorandum-leaves, each folded upon itself and bound together at one edge, means to secure the said bound edge to the cover, a metallic pocket in a side edge of the cover extending longitudinally therewith, one or more carbon-leaves, and a clamp formed of sheet metal and provided with a flange, and provided also with a bent-over edge adapted to enter the said pocket and be compressed by the latter, one of the side edges of each of the carbon-sheets being held in said clamp, substantially as described and shown.

5. In a manifold sales-book, the combination of a stiff cover having a pair of hinges, memorandum-leaves, each folded upon itself and bound together at one edge, spurs projecting from the inner side of the cover and entering the bound edge of the leaves, and a rubber band passing around the cover and said bound edge and lying with one of its sides between the pair of hinges, substantially as shown and described.

6. In a manifold sales-book, the combination of a cover having two stiff parts joined together by a hinge, a pile of memorandum-leaves composed of originals and duplicates secured to the cover, the carbon sheet or sheets, a swinging bar having one of its ends free and the other end bent over and lying parallel with the free end, and extending transversely across said cover, and a plate secured rigidly to the inside of one of the stiff parts of the cover, and provided with an eye in which one end of the swinging bar is journaled, substantially as and for the purpose described.

7. In a manifold sales-book, the combination of a cover having a pair of leaves, a pile of memorandum-leaves comprising originals and duplicates folded upon themselves and secured to the cover, a pocket in the side edge of one of the leaves of the cover, carbon-leaves between the cover and the pile, a carbon-leaf on the top of the pile between an original and duplicate, a metallic clamp secured to the edges of the carbon-leaves and contained in said pocket, and a swinging bar hinged to the inner side of the opposite leaf of the cover near the hinge of the latter and adapted to confine the duplicates to said leaf of the cover and lie close to the latter when the book is closed, substantially as described and shown.

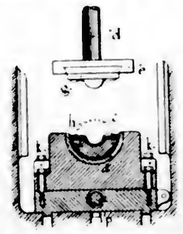
641,076. COMBINED RHEOSTAT AND ATTACHMENT-PLUG. LATTIMORE D. CARTER, Louisville, Ky. Filed Oct. 20, 1899. Serial No. 734,230. (No model.)



Claim.—In an attaching-plug for electric conductors, the combination of a base, a cylinder closed at one end and secured to the base, a lead-wire passing through the closed end of the cylinder to the terminal pin of the plug, a conductor making contact with the cylinder at one end and wound helically around the same, a perforated casing inclosing the cylinder, and a flexible pipe through which the conductors leading to the lamp pass.

641,077. DEVICE FOR MAKING PULLEYS WITH MULTIPLE PARTS. RUDOLF CHILLINGWORTH, Nuremberg, Germany. Filed July 18, 1899. Serial No. 724,323. (No model.)

Claim.—1. A machine for making pulleys with multiple parts from pieces of pipe or tube having means for reducing a piece of tube of circular cross-section to a semicircular cross-section having a flattened side and independent means for subsequently producing in said flattened side a semicircularly-cross-sectioned groove concentric with the rim of the half-pulley substantially as described.



2. A machine for making pulley-halves from pieces of metal tube having means for producing from a pipe or tube of circular cross-section a semicircular body of larger diameter, having a flattened side, and independent means for subsequently producing in the said flattened side a semicircularly-cross-sectioned groove running concentrically to the outer diameter and for depressing the interior flat surfaces, to form a facing substantially as described.

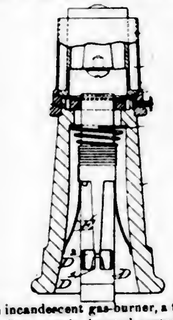
3. In a machine for making pulley-halves from pieces of tube, the combination of a semicircularly-recessed matrix, to receive the piece of tube, and a vertically-reciprocatory die thereabove, and laterally-movable matrices to be inserted into the said tube after it has been flattened at the upper surface and means for moving said matrices in the manner and for the purpose substantially as described.

4. In a machine for making pulley-halves from pieces of tube, the combination of a semicircular matrix to receive the tube, a vertically-reciprocatory die-carrier above the same, having alternately-acting dies and laterally-movable matrices capable of being projected into the ends of the said tube-piece, and means for forming the semicircular depression in the flattened side to receive the shaft substantially as described.

5. In a machine for making pulley-halves from tube-pieces, the combination of a semicircular matrix to receive the tube-piece, and a vertically-reciprocatory die-holder above the same, a flat die to flatten the upper surface of the said tube-piece, and laterally-movable matrices to extend into the tube ends after the said tube has been flattened, means for moving said laterally-movable matrices and a second die mounted on the die-carrier to form the concentric groove in the flattened pulley-half in the manner and for the purpose substantially as described.

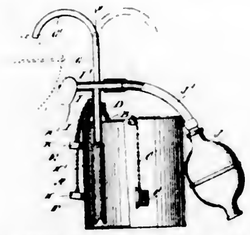
6. The combination of a stationary semicircular matrix to receive the piece of tube, and a vertically-reciprocatory die-carrier thereabove, a flat die and a die to form the shaft-depression on the flat side of the tube, said dies being adapted to slide along the die-carrier and to be substituted one for the other, laterally-sliding matrices to project into the ends of the said tube after one side has been flattened and a set of sections adapted to be placed within the tube after flattening and before the laterally-projecting matrices are projected into the same in the manner and for the purpose substantially as described.

641,078. INCANDESCENT GAS-BURNER. WILLIAM R. CLAY, Bolton, England. Filed Aug. 21, 1899. Serial No. 727,995. (No model.)



Claim.—In an incandescent gas-burner, a tubular member carrying a burner-top, a Bunsen tube located centrally within the tubular member, a spring supporting the tubular member and carried by the Bunsen tube, a metal or other suitable ring snugly fitting the Bunsen tube and of larger outside diameter than the hole in the neck of the tubular member and capable of sliding motion upon said neck, substantially as described herein.

641,079. FILLING-CAN. WILLIAM L. CLAYTON and NEWTON R. PERSINGER, Central City, Nebr. Filed June 1, 1899. Serial No. 719,033. (No model.)



Claim.—1. A filling device, comprising a cap, a delivery-pipe secured in the cap and having on its upper outer end a swinging spout, a T-shaped air-supply pipe secured in the cap alongside of the delivery-pipe with its horizontal member above the cap, an air-forcing device connected with one end of the horizontal member of the air-pipe, and means for closing the other end of the said horizontal member of the air-pipe when the device is in use, substantially as and for the purpose set forth.

2. A filling device, comprising a screw-cap, a delivery-pipe secured in the cap and projecting above and below the same, a spout mounted to turn on the upper projecting end of the delivery-pipe, a T-shaped air-supply pipe secured in the cap alongside of the delivery-pipe with its horizontal member above the cap, an air-bulb or bellows connected with one end of the horizontal member of the air-pipe, and a removable closure for the other end of the said horizontal member of the air-pipe, substantially as described.

3. A filling device, comprising a screw-cap, a delivery-pipe secured in the cap and projecting above and below the cap, a spout mounted to turn on the outer end of the pipe, an extension-pipe sliding on the inner end of the said delivery-pipe, a T-shaped air-pipe secured in the cap alongside of the delivery-pipe with its horizontal member above the cap, an air-bulb connected with one end of the horizontal member of the air-pipe, and a removable cap for the other end of the said horizontal member of the air-pipe, substantially as described.

641,080. REGISTERING CLINICAL THERMOMETER. LUIGI F. CONITTI, London, England. Filed Aug. 11, 1899. Serial No. 726,896. (No model.)



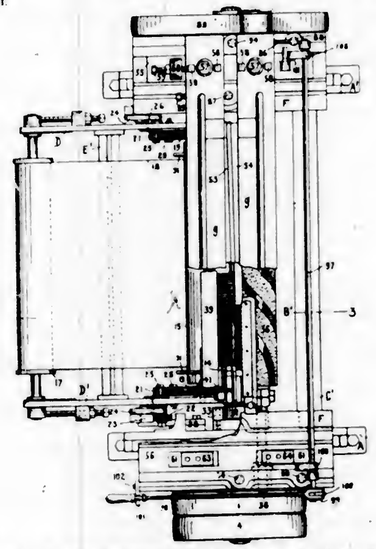
Claim.—A maximum-temperature-registering thermometer comprising a thermometer-tube provided with a fine index and having a bore formed with a constriction or contracted portion at a point below the index, and an enlargement formed in the bore beneath the constriction or contraction and in proximity thereto and connected by a contracted part of the bore with the bulb, substantially as described and for the purposes specified.

641,081. PELT-REFINING MACHINE. PERCY F. COMSTOCK and ANTON HEDRAVNY, New York, N. Y. Filed July 1, 1899. Serial No. 722,486. (No model.)

Claim.—1. A pelt-refining machine comprising a stationary frame, a shaft, a rotary brush and a stationary guard mounted in the stationary frame; means for removing water-hairs from pelts and mechanism for operating these means from the shaft, a vertically-movable rocking frame, set in guideways affixed to the stationary frame; a stretcher-bar, means for intermittently feeding the pelts over the stretcher-bar and a fur-retaining device mounted in the rocking frame; eccentrics set on the shaft, pivotal joints, connecting the rocking frame to the eccentrics; means for driving the shaft and means for driving the rotary brush in the direction of the feed of the pelt.

2. A pelt-refining machine, comprising a stationary frame, means for removing water-hairs from pelts mounted in the frame, a movable rocking frame set in guideways affixed to the stationary frame; a stretcher-bar, means for intermittently feeding the pelt over the stretcher-bar and a device for retaining the fur on one side of the stretcher-bar mounted in the rocking frame; a stationary guard mounted in the stationary frame in proximity to the hair-removing

device and to the path of the stretcher-bar; means for actuating the rocking frame and the hair-removing devices and means for drawing out the fur and the hair of the pelt, fed over the stretcher-bar from underneath the fur-retaining device, and for forcing it over the edge thereof.



3. A pelt-refining machine comprising a stationary frame, means for removing water-hairs from pelts mounted in the frame, a vertically-movable rocking frame set in the stationary frame, a shaft mounted in the stationary frame, a stretcher-bar and means for drawing the pelt over the stretcher-bar mounted in the rocking frame, eccentrics set on the shaft and means for pivotally connecting the rocking frame with the eccentrics, a balancing fly-wheel mounted on the shaft and having a counterweight affixed thereto opposite to the eccentrics operating the rocking frame.

4. A pelt-unhairing machine, comprising a stationary frame, shearing knives movably mounted upon the stationary frame; a vertically-movable rocking frame set in the stationary frame, means for stretching and intermittently feeding a pelt, mounted in the rocking frame, a shaft mounted in the stationary frame, cams and eccentrics set on the shaft, pivotal joints connecting the rocking frame to the eccentrics set on the shaft, longitudinally-movable bars set in guideways affixed to the stationary frame and engaging with the cams set on the shaft, brackets affixed to the knives and bell-crank levers pivotally mounted on the stationary frame and engaging with the brackets and with the longitudinally-movable bars.

5. A pelt-refining machine comprising a stationary frame, devices for removing water-hairs from pelts and mechanism for operating these devices mounted upon the stationary frame; a vertically-movable rocking frame set in guideways affixed to the stationary frame; a stretcher-bar, a fur-retaining device and means for intermitteutly feeding the pelts mounted in the rocking frame, a shaft mounted in the stationary frame, cams and eccentrics set on the shaft, pivotal joints connecting the rocking frame to the eccentrics set on the shaft, longitudinally-movable bars, set in guideways affixed to the stationary frame and engaging with the mechanisms operating the devices for removing the water-hairs and with the cams set on the shaft, rollers mounted on pins, set in the ends of the bars, a rotary brush and a fur-retaining device mounted in the stationary frame, means for driving the shaft and means for rotating the brush.

6. A stretcher-bar for pelt-refining machines having two bearing edges and a flat strip intervening between the bearing edges, both the bearing edges and the intervening flat strip being situated outside of the plane of the body of the bar.

7. A stretcher-bar for pelt-refining machines having two bearing edges and a flat strip, intervening between the bearing edges, disposed at an abtuse angle to the plane of the body of the bar.

8. A fur-retaining device comprising a stretcher-bar, oscillating arms hinged to the supports of the stretcher-bar, a brushing device mounted on the arms, contractile springs, connecting the oscillating arms to the stretcher-bar, slotted appendices to the oscillating arms projecting beyond their pivotal connection, a plate having screw-threaded bores secured to the stretcher-bar and set-screws screwed through the slots of the appendices in the corresponding bores of the plate.

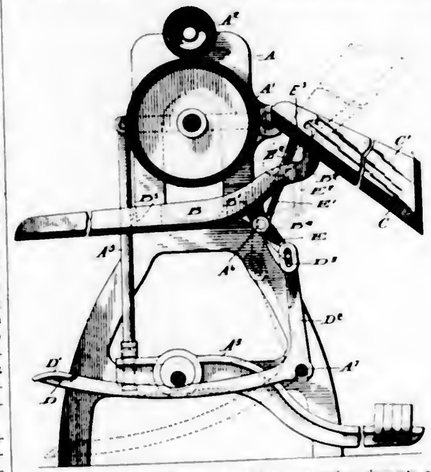
9. A fur-retaining device comprising a stretcher-bar, a rotary brush mounted on oscillating arms hinged to the supports of the stretcher-bar, contractile springs connecting the arms to the stretcher-bar and means for adjusting the position of the brush relative to the stretcher-bar.

10. Mechanism for operating shearing-knives of an unhairing-machine, comprising plates supporting the knives, guideways affixed to the frame of the machine, blocks, affixed to the plates and fitted in the guideways, brackets affixed to the blocks, bell-crank levers pivoted to the frame of the machine and engaging with the brackets and means for actuating the bell-crank levers.

11. Mechanism for operating shearing-knives of an unhairing-machine, comprising plates supporting the knives, transverse bores provided in the plates and recoil-springs set in the bores; plungers set in the frame of the machine and engaging with the springs, guideways affixed to the frame of the machine, blocks affixed to the plates and fitted in the guideways, means for moving the knives against the springs and means for releasing the knives.

12. The combination with movable plates, shearing-knives mounted upon them and with mechanism for operating shearing-knives of an unhairing-machine, of mechanism for diminishing the force and speed of the knives at the end of the stroke, comprising movable plugs and recoil-springs set in bores provided in the plates supporting the knives and pins set in the frame of the machine in position to engage with the plugs.

641,082. **RECEIVING-SHELF FOR MACHINES.** ALLEN CORKLINE, Chicago, Ill. Filed Aug. 29, 1899. Serial No. 728,912. (No model.)



Claim.—1. The combination with the operative elements of a machine, of a return-feed device comprising a shelf provided with goods-retaining means and disposed at an angle to a horizontal plane through the operative elements of the machine, and means for tilting said shelf; substantially as specified.

2. The combination with the operative elements of a machine, of a return-feed device comprising a shelf provided with goods-retaining means and mounted below the line of contact of the operative elements of a machine and at an angle to a horizontal plane therethrough, and means for tilting said shelf toward said elements; substantially as specified.

3. The combination with the operative elements of a machine, of a return-feed device comprising a shelf provided with goods-retaining means and mounted below the line of contact of the operative elements of a machine and at an angle to a horizontal plane therethrough, means for tilting said shelf toward said elements, and a receptacle adapted to receive goods from said shelf; substantially as specified.

4. The combination with the operative elements of a machine, of a return-feed device comprising a receptacle supported beneath the operative elements of a machine and provided with bearing-brackets, a tiltable shelf having goods-retaining means and pivoted in said brackets, a rock-shaft and crank-arms, a link pivoted to one of said crank-arms and said shelf, and means for actuating said rock-shaft; substantially as specified.

5. The combination with the operative elements of a machine, of a return-feed device comprising a shelf, mounted for oscillatory movement at the delivery side of the operative elements of a machine and provided with means for retaining goods upon said shelf when in an inclined position, pivots and bearings for said shelf located forward of the center thereof, and means for tilting said shelf; substantially as specified.

6. The combination with the operative elements of a machine, of a return-feed device comprising a shelf mounted for oscillatory movement at the delivery side of the operative elements of a machine and provided with means for retaining goods upon said shelf when in an inclined position, pivots and bearings for said shelf located forward of the center thereof, crank-arms pivoted below said shelf, a link connecting one of said arms with said shelf, and a foot-lever provided with a slotted angle-arm engaging the other crank-arm; substantially as specified.

7. The combination with the operative elements of a machine, of a return-feed device comprising a pivoted shelf provided with goods-retaining means and normally disposed at an angle to and below a horizontal plane through the line of contact of the operative elements of a machine, a receiving-receptacle below the inner end of said shelf, pivots for said shelf at one side of the horizontal center thereof, and means for tilting said shelf located between said pivots and the operative elements of the machine; substantially as specified.

8. The combination with the operative elements of a machine, of a return-feed device comprising a pivoted shelf provided with goods-retainiug means and normally disposed at an angle to and below a horizontal plane through the line of contact of the operative elements of a machine, a receiving-receptacle below the inner end of said shelf, pivots for said shelf at one side of the horizontal center thereof, a link pivoted to said shelf between the pivot thereof and said operative elements, a crank-arm connected to said link, and means for operating said crank-arm; substantially as specified.

9. The combination with a pair of rolls, of a receiving-shelf disposed at an angle to the vertical axis of said rolls below the horizontal line of contact thereof, an end wall for retaining goods upon said shelf when in an inclined position, and means for tilting said shelf toward said rolls; substantially as specified.

10. The combination with a pair of rolls, of a receiving-shelf disposed at an angle to the vertical axis of said rolls below the horizontal line of contact thereof, means for retaining goods upon said shelf, a receptacle beneath said rolls and extending to the opposite side thereof, a pivoted foot-lever mounted upon the frame of said rolls, and connections between said foot-lever and shelf for tilting the latter; substantially as specified.

641,083. **DEVICE FOR THROWING RAILWAY-TRACKS BY USE OF ENGINES AND CRABS.** DAVID C. CREBER, New Brighton, Pa. Filed Oct. 20, 1899. Serial No. 734,220. (No model.)

Claim.—1. In a track-throwing device, the combination of a movable support, a beam pivotally connected thereto, means carried by said beam to engage a rail of the track to move the same as the support is moved forward, and means for elevating said beam.

2. In a track-throwing device, the combination with a moving support, of a throwing device pivotally connected thereto, a wheel carried by the free end of said throwing device adapted to engage a rail of the track and move the latter as the support is moved forward, and means carried by the moving support for elevating and supporting the track-throwing device when in the inoperative position.

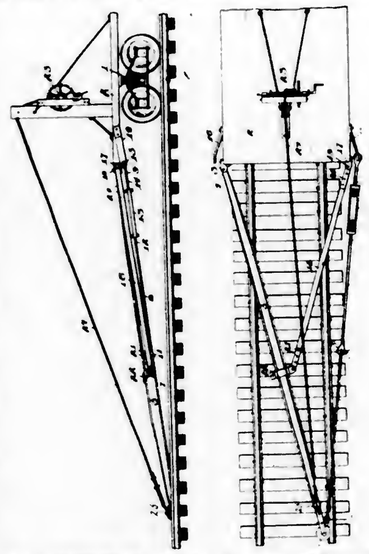
3. In a device of the character described, the combination with a car or engine, of a beam secured thereto carrying a wheel, a brace-rod, and means for adjusting said brace-rod, substantially as described.

4. In a device of the character described, the combination of a beam carrying a wheel adapted to engage the web of the rail, and a brace-rod formed in sections, substantially as set forth.

5. In a device of the character described, the combination with a car or engine, of a beam secured thereto, a wheel arranged at the end of said brace-rod adapted to engage the web of the rail, a brace secured to said beam, and a brace-rod formed in sections, substantially as set forth.

6. In a device of the character described, the combination with a car or engine, of a beam secured thereto extending at an angle therefrom carrying a wheel at its end adapted to engage the web of the rail, a brace or strut rod secured to the side of the car, and a brace-rod, and means for adjusting said brace and brace-rods, substantially as set forth.

7. The combination with the car or support, of the beam pivotally supported from said car or support and adapted to engage a rail of the track at an angle thereto, means connected to said beam and to the car or support for retaining the beam at the angle to which it has been set, and means carried by the car or support for elevating the beam and supporting the same when in the inoperative position



8. The combination with the car or support and the track, of the beam supported from the car at an angle to the track and car or support, means carried by said beam for engagement with the track, and means for holding said beam at the angle to which it has been set as the car or support moves forward.

9. The combination with the movable support, of the beam connected to said support at an angle thereto, the wheel mounted in the free end of said beam and adapted to engage with the track, the brace 18 connected to the beam and movable support, the adjustable brace-rod connected to the movable support and to the beam near its free end, and the windlass carried by the movable support with its operating rope or cable connected to the beam for elevating and supporting the same.

10. In a track-throwing device, a suitable support, a beam connected to the said support, and means carried thereby and adapted to engage a rail of a track for throwing the same when said support is moved.

11. In a track-throwing device, a suitable support, a beam connected thereto, means carried by said beam and adapted to engage a rail of a track for throwing the same when the said support is moved, and means connected to said support and said beam for adjusting the same.

12. In a track-throwing device, a suitable support, means carried thereby and adapted to engage a rail of a track for throwing the same, adjusting means therefor, and means for elevating and lowering said throwing means to an operative and inoperative position.

13. In a track-throwing device, a suitable support, a beam connected thereto, means carried thereby and adapted to engage a rail of a track for moving the same laterally, adjusting means for the said beam, and means carried by the said support for elevating and lowering said beam.

14. In a track-throwing device, a suitable support, a beam connected thereto, means carried thereby and adapted to engage a rail of a track for throwing the same, a brace or strut rod connected to said beam and said support, means for adjusting said rod, and an adjustable brace-rod 18 connected to said beam and said support, substantially as set forth.

15. In a track-throwing device, the combination with a beam carrying means to engage a rail of a track, of a support suitably connected thereto, a brace or strut rod formed in sections and connecting said beam to said support, and means for adjusting said brace or strut rod.

16. In a track-throwing device, the combination with a movable support, of a beam connected thereto and provided with means to engage a rail of a track for moving the same laterally when the said support is moved.

17. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an

angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, and means for adjusting said brace or strut rod.

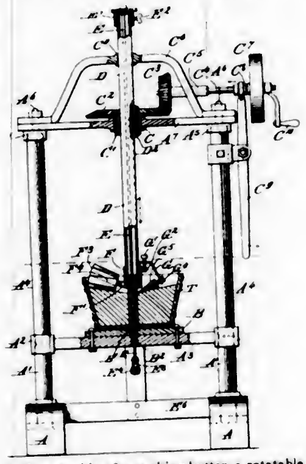
18. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, and an adjustable brace-rod 18 arranged at an angle and adapted to connect said beam and said support together.

19. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, a split collar secured to said beam, and an adjustable brace-rod 18 arranged at an angle and secured at one end to said collar and at its opposite end to said support.

20. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, a split collar secured to said beam, an adjustable brace-rod 18 arranged at an angle and secured at one end to said collar and at its opposite end to said support, and means carried by said support for elevating and lowering said beam.

21. In a track-throwing device, a suitable support, a beam connected thereto, means carried thereby and adapted to engage a rail of a track for throwing the same, a brace or strut rod connected to said beam and said support, means for adjusting said rod, an adjustable brace-rod 18 connected to said beam and said support, and means for elevating and lowering said beam.

641,084. MACHINE FOR PACKING BUTTER. RASMUS R. CROSS, Oneonta, N. Y. Filed Apr. 6, 1899. Serial No. 712,015. (No model.)



Claim.—1. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

2. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

3. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

4. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

5. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap, and means for raising and lowering said carrier.

6. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap and which have different inclinations, and mechanism for raising and lowering said carrier.

7. In a machine for packing butter, a rotatable carrier, rollers adjustably mounted on said carrier and traveling in different concentric paths which continuously overlap, means for moving said rollers to vary the relative inclinations of the paths in which they travel, and mechanism for raising and lowering said carrier.

8. In a machine for packing butter, a rotatable carrier, spindles carried by said carrier, a main roller journaled on one of said spindles, a spring pressing said main roller outwardly on its spindle, an auxiliary roller journaled on another of said spindles and traveling in a path inside of that traveled by said main roller and continuously overlapping the same, and mechanism for raising and lowering said carrier.

9. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier, and means for raising and lowering said carrier.

10. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier and traveling in a path inside of and continuously overlapping the path traveled by said main roller, and means for raising and lowering said carrier.

11. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle, a spindle adjustably mounted on said carrier, an auxiliary roller journaled on said adjustable spindle and traveling in a path inside of the path traveled by said main roller and overlapping the same, and means for raising and lowering said carrier.

12. In a machine for packing butter, a rotatable carrier a spindle attached to said carrier, a main roller journaled on said spindle and movable endwise thereon, a spindle vertically adjustable on said adjustable spindle, and means for raising and lowering said carrier.

13. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle and having an endwise movement thereon, a spring pressing said roller outwardly on its spindle, a spindle vertically adjustable on said carrier, an auxiliary roller journaled on said vertically-adjustable spindle, and means for raising and lowering said carrier.

14. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable shaft adapted to telescope with said tube, and a roller carried by said shaft.

15. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable shaft adapted to telescope with said tube, means for raising and lowering said shaft, and a roller carried by said shaft.

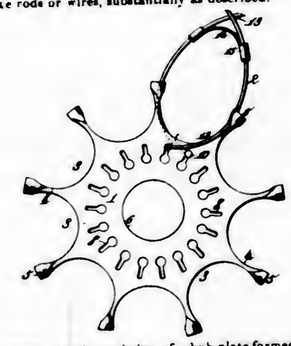
16. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of the path traveled by the main roller, and means for raising and lowering said carrier.

17. In a machine for packing butter, a carrier, a roller mounted on said carrier, and a spring normally pressing said roller outwardly from said carrier.

641,085. WHEEL FOR BICYCLES OR OTHER VEHICLES. ELIZA A. CROMBLEY, Auckland, New Zealand. Filed May 11, 1899. Serial No. 716,426. (No model.)

Claim.—1. A wheel-hub, consisting of a flattened hub-plate having a central axle-opening, radial arms each formed at its outer end portion with a duplex socket to receive two spokes, and an annular row of slots around said axle-opening for detachably engaging the inner ends of wheel-spokes, substantially as described.

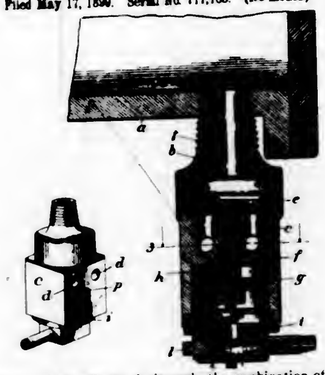
2. A vehicle-wheel, consisting of a hub-plate having a central axle-opening, a plurality of radial arms, each formed at its outer end with a duplex socket to receive two spokes, and an annular row of slots between said axle-opening and said radial arms, a plurality of spoke rods or wires having heads at their inner ends detachably engaged, respectively, with said slots, two of the spoke rods or wires passing through the duplex socket of each radial arm and crossing one another at points beyond said duplex sockets to form arches, and bracing-clips detachably embracing the spoke rods or wires and reinforcing and holding said arches in proximity to the crossing-points of the spoke rods or wires, substantially as described.



3. A vehicle-wheel, consisting of a hub-plate formed with a central axle-opening, a plurality of radial arms each bent at its outer end to provide a duplex socket, and an annular row of keyhole-slots around the axle-opening, the crossing spoke rods or wires provided with heads at their inner ends detachably engaging the keyhole-slots, two of said spoke rods or wires passing through the duplex socket of each radial arm and curved from said socket to their heads, and spring bracing-clips composed of arched or curved rods formed with split clips at their ends which embrace the spoke rods or wires and firmly bind them together at their crossing-points, substantially as described.

4. A vehicle-wheel, consisting of a flat hub-plate having a central axle-opening, a plurality of radial arms each reversely bent at its outer end to provide a duplex socket, and an annular row of keyhole-slots around said axle-opening, a plurality of reversely-curved crossing and recrossing spoke rods or wires passing in pairs through the respective duplex sockets and formed with heads at their inner ends detachably engaged with the keyhole-slots, and inner and outer sets of bracing-clips detachably engaging the said spoke rods or wires in proximity to their said crossing and recrossing points, substantially as described.

641,086. CYLINDER DRAIN-COCK. FRED M. DENNIG, Wabash, Ind. Filed May 17, 1899. Serial No. 717,185. (No model.)



Claim.—1. In a cylinder drain-cock, the combination of a casting provided with drain-passages and with a hollowed-out cylindrical portion, a valve adapted to close said drainage-passages, a piston working in said hollowed-out cylindrical portion, said valve and piston being connected together, a perforated nut closing the end of said cylindrical portion and the spring-operated valve in said nut, substantially as described.

2. In a cylinder drain-cock, the combination of a casting provided with drainage-passages, a hollowed-out cylindrical portion and a central passage, a valve adapted to close said drainage-passages, a piston in said cylindrical portion, a connection between said valve and piston, a nut closing the end of said cylindrical portion, said nut being provided with passages for the supply and escape of the motor fluid, and a spring-operated valve in said escape-passage, substantially as described.

3. In a cylinder drain-cock, the combination of a perforated cap, a casting adapted to be secured to said cap and provided with drainage-passages and with a hollowed-out cylindrical portion, a valve adapted to close said drainage-passages, a piston working in said hollowed-out cylindrical portion, said valve and piston being connected together, a perforated nut closing the end of said cylindrical portion, and a spring-operated valve in said nut, substantially as described.

4. In a cylinder drain-cock, the combination of a perforated cap, a casting secured to said cap, provided with drainage-passages, with a hollowed-out cylindrical portion, and with a central passage, a valve adapted to close said drainage-passages, a piston in said cylindrical portion, a connection between said valve and cylinder, a nut closing the end of said cylinder, said nut being provided with passages for the supply and escape of the motor fluid, and a spring-operated valve in said escape-passage, substantially as described.

641,087. DEVICE FOR FASTENING SHOES. MICHAEL M. DOOLEY, Loogootee, Ind. Filed Feb. 10, 1899. Serial No. 705,180. (No model.)



Claim.—1. In a device for fastening shoes a series of guide-plates attached to the inner edges of the flaps of a shoe, a locking-tongue having its under surface arranged to receive the said guide-plates, means for limiting the upward movement of the locking-tongue, and a latch device carried at the upper end of the locking-tongue and comprising a spring-pressed hook adapted to extend through an opening in the tongue and engage the uppermost guide-plate, substantially as described.

2. In a device for fastening shoes, a guide-plate adapted for attachment to the flap of a shoe-upper at its inner edge, said guide-plate consisting of a metal strip doubled upon itself and having a shank portion, a base having means for attachment to a shoe, and consisting of the two ends of the strip bent at right angles to the shank and extending respectively along the upper and under face of the flap, and a head extending at an angle from the shank, substantially as described.

3. In a fastening device for shoes the combination with a series of guide-plates attached to the inner edges of the flaps of a shoe, of a locking-tongue arranged for engagement with the guide-plates and consisting of a body of flexible material curved inward at each longitudinal edge, and a series of plates secured to the under face of the flexible body of the tongue, the said plates comprising an upper section and side sections following the contour of the side portions of the tongue, the ends of the plates extending outwardly to an engagement with the outer under faces of the sides of the flexible body of the tongue, whereby when the locking-tongue is placed in position, the plates of the tongue engage directly with the guide-plates, substantially as shown and described.

4. In a fastening device for shoes, the combination with the guide-plates, of a locking-tongue consisting of a flexible body having its longitudinal edges inwardly curved, and a latch device at one end of the tongue and comprising a clamp secured to the tongue, a spring secured to the clamp, and a pivoted hook engaged by the spring and adapted to extend through an opening in the tongue, substantially as specified.

5. In a fastening device for shoes, a series of guide-plates secured to the inner edges of the flaps of a shoe, a locking-tongue consisting of a flexible body having its longitudinal edges arranged to engage the guide-plates and a latch device at one end of the tongue and comprising a clamp secured to the tongue, a spring secured to the clamp, and a pivoted hook engaged by the spring and adapted to extend through an opening in the tongue and engage one of said guide-plates, substantially as described.

641,088. CHECKING OR UNCHECKING DEVICE. HOWARD H. DUDLEY, Spanish Lake, Mo. Filed May 15, 1899. Serial No. 716,978. (No model.)

Claim.—The improved checking and unchecking attachment, comprising the tubular casing 2 secured to the harness-saddle, the transverse bar or plate 6 arranged across the open rear end of said casing, the tongue 8 projecting rearwardly upon the interior of said casing, the leaf-spring 9, one end of which is riveted to said plate 6 and the body of said spring passing through slots 10 in the rear end of said casing in front of said plate, the check-rein-hook 11 provided

angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, and means for adjusting said brace or strut rod.

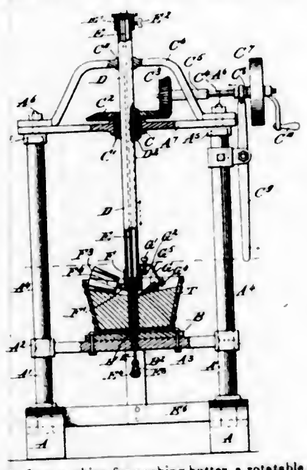
18. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, and an adjustable brace-rod 18 arranged at an angle and adapted to connect said beam and said support together.

19. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, a split collar secured to said beam, and an adjustable brace-rod 18 arranged at an angle and secured at one end to said collar and at its opposite end to said support.

20. In a track-throwing device, the combination with a suitable support, of a beam connected thereto and extending therefrom at an angle, a throwing-wheel connected to the free end of said beam and adapted to engage the web of a rail of a track for moving the same laterally, a brace or strut rod arranged at an angle and adapted to connect said support and beam together, means for adjusting said brace or strut rod, a split collar secured to said beam, an adjustable brace-rod 18 arranged at an angle and secured at one end to said collar and at its opposite end to said support, and means carried by said support for elevating and lowering said beam.

21. In a track-throwing device, a suitable support, a beam connected thereto, means carried thereby and adapted to engage a rail of a track for throwing the same, a brace or strut rod connected to said beam and said support, means for adjusting said rod, an adjustable brace-rod 18 connected to said beam and said support, and means for elevating and lowering said beam.

641,084. MACHINE FOR PACKING BUTTER. RADELAR R. CROSS, Oneonta, N. Y. Filed Apr. 6, 1899. Serial No. 712,015. (No model.)



Claim.—1. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

2. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

3. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

4. In a machine for packing butter, a rotatable carrier, a main roller adjustable on said carrier and traveling in a circular path, an auxiliary roller adjustably mounted on said carrier and traveling in a path inside of and concentric with the path of travel of said main roller, and means for raising and lowering said carrier.

5. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap, and means for raising and lowering said carrier.

6. In a machine for packing butter, a rotatable carrier, rollers mounted on said carrier and traveling in different concentric paths which continuously overlap and which have different inclinations, and mechanism for raising and lowering said carrier.

7. In a machine for packing butter, a rotatable carrier, rollers adjustably mounted on said carrier and traveling in different concentric paths which continuously overlap, means for moving said rollers to vary the relative inclinations of the paths in which they travel, and mechanism for raising and lowering said carrier.

8. In a machine for packing butter, a rotatable carrier, spindles carried by said carrier, a main roller journaled on one of said spindles, a spring pressing said main roller outwardly on its spindle, an auxiliary roller journaled on another of said spindles and traveling in a path inside of that traveled by said main roller and continuously overlapping the same, and mechanism for raising and lowering said carrier.

9. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier, and means for raising and lowering said carrier.

10. In a machine for packing butter, a rotatable carrier, a main roller mounted on said carrier and having an endwise movement, an auxiliary roller vertically adjustable on said carrier and traveling in a path inside of and continuously overlapping the path traveled by said main roller, and means for raising and lowering said carrier.

11. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle, a spindle adjustably mounted on said carrier, an auxiliary roller journaled on said adjustable spindle and traveling in a path inside of the path traveled by said main roller and overlapping the same, and means for raising and lowering said carrier.

12. In a machine for packing butter, a rotatable carrier a spindle attached to said carrier, a main roller journaled on said spindle and movable endwise thereon, a spindle vertically adjustable on said adjustable spindle, and means for raising and lowering said carrier.

13. In a machine for packing butter, a rotatable carrier, a spindle attached to said carrier, a main roller journaled on said spindle and having an endwise movement thereon, a spring pressing said roller outwardly on its spindle, a spindle vertically adjustable on said carrier, an auxiliary roller journaled on said vertically-adjustable spindle, and means for raising and lowering said carrier.

14. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable shaft adapted to telescope with said tube, and a roller carried by said shaft.

15. In a machine for packing butter, a supporting-table provided with an opening, a slotted tube having its lower end registering with the opening in said table, a rotatable shaft adapted to telescope with said tube, means for raising and lowering said shaft, and a roller carried by said shaft.

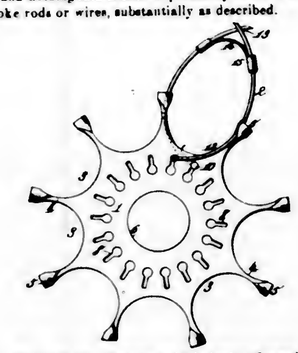
16. In a machine for packing butter, a rotatable carrier, a main roller supported by said carrier and traveling in a circular path, an auxiliary roller mounted on said carrier and traveling in a path inside of the path traveled by the main roller, and means for raising and lowering said carrier.

17. In a machine for packing butter, a carrier, a roller mounted on said carrier, and a spring normally pressing said roller outwardly from said carrier.

641,085. WHEEL FOR BICYCLES OR OTHER VEHICLES. ELIZA A. CROSSLEY, Auckland, New Zealand. Filed May 11, 1899. Serial No. 716,496. (No model.)

Claim.—1. A wheel-hub, consisting of a flattened hub-plate having a central axle-opening, radial arms each formed at its outer end portion with a duplex socket to receive two spokes, and an annular row of slots around said axle-opening for detachably engaging the inner ends of wheel-spokes, substantially as described.

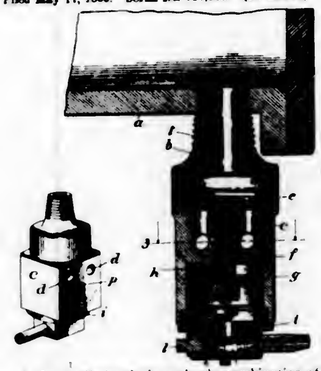
2. A vehicle-wheel, consisting of a hub-plate having a central axle-opening, a plurality of radial arms, each formed at its outer end with a duplex socket to receive two spokes, and an annular row of slots between said axle-opening and said radial arms, a plurality of spoke rods or wires having heads at their inner ends detachably engaged, respectively, with said slots, two of the spoke rods or wires passing through the duplex socket of each radial arm and crossing one another at points beyond said duplex sockets to form arches, and bracing-clips detachably embracing the spoke rods or wires and reinforcing and holding said arches in proximity to the crossing-points of the spoke rods or wires, substantially as described.



3. A vehicle-wheel, consisting of a hub-plate formed with a central axle-opening, a plurality of radial arms each bent at its outer end to provide a duplex socket, and an annular row of keyhole-slots around the axle-opening, the crossing spoke rods or wires provided with heads at their inner ends detachably engaging the keyhole-slots, two of said spoke rods or wires passing through the duplex socket of each radial arm and curved from said socket to their heads, and spring bracing-clips composed of arched or curved rods formed with split clips at their ends which embrace the spoke rods or wires and firmly bind them together at their crossing-points, substantially as described.

4. A vehicle-wheel, consisting of a flat hub-plate having a central axle-opening, a plurality of radial arms each reversely bent at its outer end to provide a duplex socket, and an annular row of keyhole-slots around said axle-opening, a plurality of reversely-curved crossing and recrossing spoke rods or wires passing in pairs through the respective duplex sockets and formed with heads at their inner ends detachably engaged with the keyhole-slots, and inner and outer sets of bracing-clips detachably engaging the said spoke rods or wires in proximity to their said crossing and recrossing points, substantially as described.

641,086. CYLINDER DRAIN-COCK. FRED M. DENNIS, Wabash, Ind. Filed May 17, 1899. Serial No. 717,185. (No model.)



Claim.—1. In a cylinder drain-cock, the combination of a casting provided with drain-passages and with a hollowed-out cylindrical portion, a valve adapted to close said drainage-passages, a piston working in said hollowed-out cylindrical portion, said valve and piston being connected together, a perforated nut closing the end of said cylindrical portion and the spring-operated valve in said nut, substantially as described.

2. In a cylinder drain-cock, the combination of a casting provided with drainage-passages, a hollowed-out cylindrical portion and a central passage, a valve adapted to close said drainage-passages, a piston in said cylindrical portion, a connection between said valve and piston, a nut closing the end of said cylindrical portion, said nut being provided with passages for the supply and escape of the motor fluid, and a spring-operated valve in said escape-passage, substantially as described.

3. In a cylinder drain-cock, the combination of a perforated cap, a casting adapted to be secured to said cap and provided with drainage-passages and with a hollowed-out cylindrical portion, a valve adapted to close said drainage-passages, a piston working in said hollowed-out cylindrical portion, said valve and piston being connected together, a perforated nut closing the end of said cylindrical portion, and a spring-operated valve in said nut, substantially as described.

4. In a cylinder drain-cock, the combination of a perforated cap, a casting secured to said cap, provided with drainage-passages, with a hollowed-out cylindrical portion, and with a central passage, a valve adapted to close said drainage-passages, a piston in said cylindrical portion, a connection between said valve and cylinder, a nut closing the end of said cylinder, said nut being provided with passages for the supply and escape of the motor fluid, and a spring-operated valve in said escape-passage, substantially as described.

641,087. DEVICE FOR FASTENING SHOES. MICHAEL M. DOOLEY, Loogootee, Ind. Filed Feb. 10, 1899. Serial No. 705,180. (No model.)



Claim.—1. In a device for fastening shoes a series of guide-plates attached to the inner edges of the flaps of a shoe, a locking-tongue having its under surface arranged to receive the said guide-plates, means for limiting the upward movement of the locking-tongue, and a latch device carried at the upper end of the locking-tongue and comprising a spring-pressed hook adapted to extend through an opening in the tongue and engage the uppermost guide-plate, substantially as described.

2. In a device for fastening shoes, a guide-plate adapted for attachment to the flap of a shoe-upper at its inner edge, said guide-plate consisting of a metal strip doubled upon itself and having a shank portion, a base having means for attachment to a shoe, and consisting of the two ends of the strip bent at right angles to the shank and extending respectively along the upper and under face of the flap, and a head extending at an angle from the shank, substantially as described.

3. In a fastening device for shoes the combination with a series of guide-plates attached to the inner edges of the flaps of a shoe, of a locking-tongue arranged for engagement with the guide-plates and consisting of a body of flexible material curved inward at each longitudinal edge, and a series of plates secured to the under face of the flexible body of the tongue, the said plates comprising an upper section and side sections following the contour of the side portions of the tongue, the ends of the plates extending outwardly to an engagement with the outer under faces of the sides of the flexible body of the tongue, whereby when the locking-tongue is placed in position, the plates of the tongue engage directly with the guide-plates, substantially as shown and described.

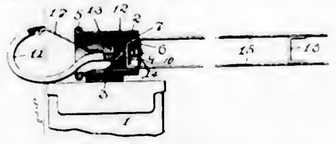
4. In a fastening device for shoes, the combination with the guide-plates, of a locking-tongue consisting of a flexible body having its longitudinal edges inwardly curved, and a latch device at one end of the tongue and comprising a clamp secured to the tongue, a spring secured to the clamp, and a pivoted hook engaged by the spring and adapted to extend through an opening in the tongue, substantially as specified.

5. In a fastening device for shoes, a series of guide-plates secured to the inner edges of the flaps of a shoe, a locking-tongue consisting of a flexible body having its longitudinal edges arranged to engage the guide-plates and a latch device at one end of the tongue and comprising a clamp secured to the tongue, a spring secured to the clamp, and a pivoted hook engaged by the spring and adapted to extend through an opening in the tongue and engage one of said guide-plates, substantially as described.

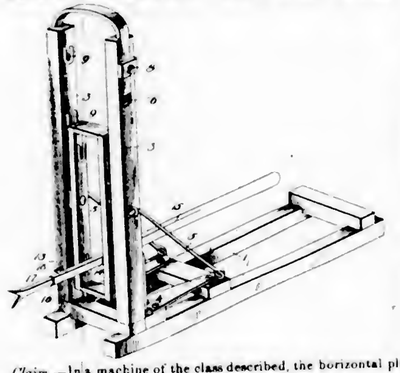
641,088. CHECKING OR UNCHECKING DEVICE. HOWARD H. DUDLEY, Spanish Lake, Mo. Filed May 15, 1899. Serial No. 716,978. (No model.)

Claim.—The improved checking and unchecking attachment, comprising the tubular casing 2 secured to the harness-saddle, the transverse bar or plate 6 arranged across the open rear end of said casing, the tongue 8 projecting rearwardly upon the interior of said casing, the leaf-spring 9, one end of which is riveted to said plate 6 and the body of said spring passing through slots 10 in the rear end of said casing in front of said plate, the check-rein-hook 11 provided

at its rear end with the circular block or base 12, said block being recessed at 13 for engaging said tongue 8, means for securing a strap to the rear of said block, and a doubled strap 15, one portion of which enters said casing through an opening above said transverse bar 6 and the other portion of which enters said casing through an opening beneath said bar, substantially as specified.

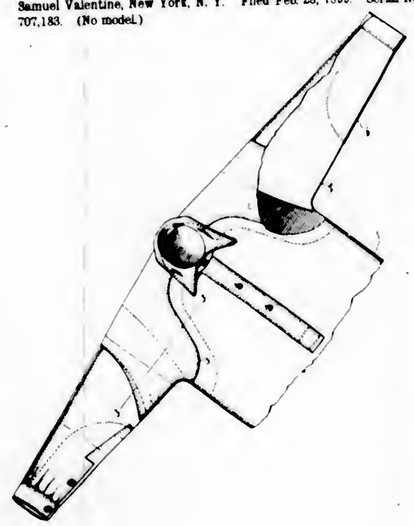


641,089. HAND COAL-CUTTING MACHINE. HENRY EBERT, Trenton, Ill. Filed Aug. 24, 1899. Serial No. 728,338. (No model.)



Claim.—In a machine of the class described, the horizontal platform, the standards hinged thereto and formed at their upper ends with the longitudinal guide-grooves, the U-shaped brace having a sliding engagement with said grooved standards, the stirrup-bearings fixed to the inner faces of said standards, the oscillating yoke and its trunnions having a bearing in said stirrups, the stirrup-bearings fixed in said oscillating yoke, and the cutter-bar and its trunnions having a bearing in said oscillating yoke, substantially as and for the purpose set forth.

641,090. SHIRT. SIMON ELBAUM, Wilkes-Barré, Pa., assignor to Samuel Valentine, New York, N. Y. Filed Feb. 28, 1899. Serial No. 707,183. (No model.)



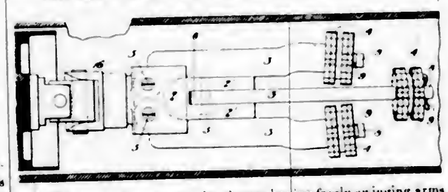
Claim.—The combination with a shirt or the like, of a reinforce in the form of a yoke extending over the shoulders both back and front, said yoke having front and rear portions extending down to a point below the lower connection of the sleeves with the body and secured in the side seams thereof, and provided with end portions extending over a portion of the length of the sleeves and wholly around the same and having their edges secured in the bottom seams of the sleeves, substantially as described.

641,091. CEILING. ADOLPH ELLE, Neustadt, Germany. Filed Nov. 16, 1898. Serial No. 697,152. (No model.)



Claim.—A ceiling composed of divergent and perforated blocks of gypsum having a heel portion and a recess at opposite sides whereby they are adapted to be united side to side, forming an integral plate, which is supported at its extremities upon wedge-shaped laths *g* attached to the joists or entablature of the ceiling, and wedge-fastenings *f* and reinforcing-strips *f'* adapted to be driven between the blocks centrally of the joists, whereby said blocks may be tightened transversely and longitudinally with respect to the joists, substantially as herein shown and described.

641,092. TUBE-CLEANER. WILLIAM S. ELLIOTT, Pittsburg, Pa. Filed Sept. 11, 1897. Serial No. 651,301. (No model.)



Claim.—1. A rotatory tube-cleaner having freely-swinging arms, the planes of movement of the arms being longitudinal of the axis of the tool, and cutting-disks secured to the arms and lying in planes transverse to the axes of said arms, substantially as described.

2. A rotatory tube-cleaner, having freely-swinging arms moving in planes longitudinal of the axis of the tool, each arm carrying a series of toothed disks lying in planes transverse to the axes of said arms; substantially as described.

3. A rotatory tube-cleaner having a head provided with an uninterrupted cross-slot and freely-swinging arms having their ends mounted in the slot and closely adjacent to each other, said arms projecting beyond the head and provided at their free outer ends with cutters; substantially as described.

4. A rotatory tube-cleaner having a head provided with a plurality of uninterrupted cross-slots arranged at opposing angles, and sets of arms having their pivotal ends mounted in the slots closely adjacent to each other, one set of such arms being in advance of the other; substantially as described.

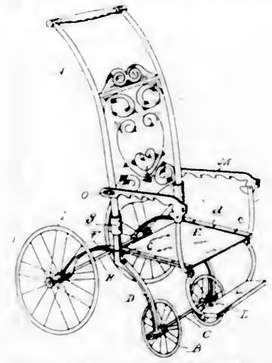
5. A rotatory tube-cleaner, having freely-swinging arms moving in planes longitudinal of the axis of the tool, said arms carrying cutting-disks lying in planes transverse to the axes of the arms, the cutters upon one arm being in advance of those upon the other; substantially as described.

6. A rotatory tube-cleaner, having pivoted thereto freely-swinging arms with free outer ends, said arms moving in planes longitudinal of the axes of the tool, and cutting-disks rotatably mounted upon the arms near their outer ends and lying in planes transverse of said arms; substantially as described.

641,093. PERAMBULATOR. WILLIAM H. ENGLISH, Detroit, Mich., assignor to Arthur E. Howlett, same place. Filed Mar. 31, 1899. Serial No. 711,246. (No model.)

Claim.—1. A perambulator comprising a handle-frame, wheels at the lower end thereof, a seat-frame formed of bars pivoted to the handle-frame, and extending rearwardly and forwardly therefrom, wheels connected to the rear ends thereof, the seat connecting the forwardly-extending portions thereof and bearing-lugs upon one of the frames against which the complementary frame is adapted to strike to limit the spreading and folding movement of the said frames.

2. A perambulator comprising a handle-frame having the forwardly-extending lower portion, wheels at the lower ends thereof, a seat-frame formed of bars pivoted to the handle, said bars extending rearwardly and downwardly from the pivotal point, a wheeled axle to which the rear ends thereof are connected, a seat connecting the bars forward of the pivotal point and inclined shoulders formed upon the handle-frame against which the seat-frame is adapted to strike to limit the pivotal movement in either direction between the handle and seat frames.



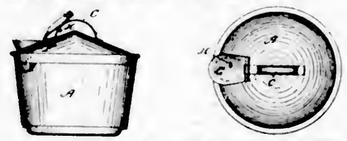
3. In a perambulator, the combination of the front and rear wheels, and the handle-frame, a seat-frame connected respectively thereto and pivoted together, of lugs *a b* on the handle-bars adapted to contact the seat-bars upon opposite sides of the pivotal point, substantially as and for the purpose described.

4. In a perambulator, the combination of the handle-frame A formed in two sections, the sockets *g* connecting the two sections, the forwardly-extending section *d* in the lower section, the wheels supporting the lower end of the handle-bars and the seat-frame substantially as described pivoted to the handle-bars and connected to the rear wheels.

5. In a perambulator, the combination of the wheeled handle-bars, of the rear wheels, seat-bars F connected to the rear axle thereof and extending upwardly and forwardly therefrom, a pivotal connection between the seat-bars and the handle-bars and flanges *d* on the side bars, the seat E, the edge of which extends under the flanges and means for securing the seat to the flanges.

6. In a perambulator, the combination of the handle-frame A formed in two parts or sections, sockets *g* fixedly secured to the lower section and adapted to receive the ends of the upper handle section, the forwardly-extending section *d* on the lower section, wheels supporting the lower ends of the handle-bars, the seat-frame substantially as described pivoted to the handle-bars and connected to the rear wheels, and means for limiting the spreading and folding movement of the handle and seat frames.

641,094. VESSEL-COVER. AMANDA C. ERICSON, Victoria, Ill. Filed May 26, 1899. Serial No. 718,463. (No model.)

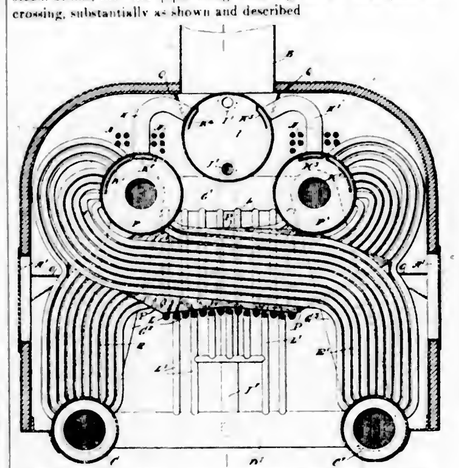


Claim.—A lid or cover for vessels adapted to fit within the vessel, and formed at one side with a group of perforations and a spout surrounding the perforations said perforations and spout being within the periphery of the lid; in combination with a central handle for the lid, a hinged flap or cover for the spout, and a catch on the flap or cover for engaging the handle.

641,095. WATER-TUBE BOILER. TOM FRENCH, Andover, Me. Filed July 6, 1899. Serial No. 722,951. (No model.)

Claim.—1. A boiler comprising spaced mud-drums, spaced steam-drums above the mud-drums, and sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the steam-drum on the opposite side, the pipes of the sets alternating and arranged close together at their point of crossing to form a solid roof for the fire-box, substantially as shown and described.

2. A boiler comprising spaced and connected mud-drums, spaced and connected steam-drums above the mud-drums, and sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the steam-drum on the opposite side, the sets of water-circulating pipes being alternately arranged and passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, the said pipes being close together at their point of crossing, substantially as shown and described.



3. A boiler comprising spaced and connected mud-drums, spaced and connected steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums and arranged close together at the point of crossing, to form the roof for the fire-box, and deflecting-plates extending from the sets of pipes to the walls of the shell, substantially as shown and described.

4. A boiler comprising spaced and connected mud-drums, spaced and connected steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, the sets of pipes leading from the tops of the mud-drums and entering the steam-drums near the top thereof, and baffle-plates on the inside of the steam-drums opposite the entrance ends of the water-circulating pipes, substantially as shown and described.

5. A boiler comprising spaced and connected mud-drums, spaced and connected steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, the sets of pipes leading from the tops of the mud-drums and entering the steam-drums near the top thereof, baffle-plates on the inside of the steam-drums opposite the entrance ends of the water-circulating pipes, a superheated steam-dome, steam-pipes for connecting the said steam-drums with the said dome, and baffle-plates in the steam drums and dome opposite the said steam-pipes, substantially as shown and described.

6. A boiler comprising spaced mud-drums, spaced steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, connecting-pipes for connecting the ends of the mud-drums with each other, a superheated steam-dome, steam-pipes for connecting the said steam-drums with the said dome, and return water-pipes leading from the said steam-dome to the said connecting-pipes, substantially as shown and described.

7. A boiler comprising spaced mud-drums, spaced steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, to form the roof for the fire-box, and transverse separating-plates between the sets of pipes at their crossing, substantially as shown and described.

8. A boiler comprising spaced mud-drums, spaced steam-drums

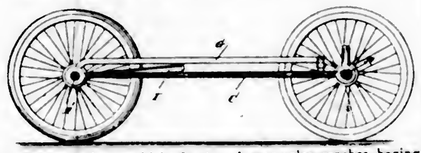
above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, to form the roof for the fire-box, transverse separating-plates between the sets of pipes at their crossing, a shell, and longitudinal deflecting-plates at the sides of the shell at the beginning of the crossing of the circulating-water pipes, substantially as shown and described.

9. A boiler comprising spaced mud-drums, spaced steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, connecting-pipes for connecting the ends of the mud-drums with each other, a superheated steam-dome, steam pipes for connecting the said steam-drums with the said dome, return water-pipes leading from the said steam-dome to the said connecting-pipes, and feed-water pipes above the steam-drums and leading to the said connecting-pipes, substantially as shown and described.

10. A boiler comprising spaced drums, spaced steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, connecting-pipes for connecting the ends of the mud-drums with each other, a superheated steam-dome, steam-pipes for connecting the said steam-drums with the said dome, return water-pipes leading from said steam-dome to the said connecting-pipes, a shell for inclosing the said drums and pipes at the sides, ends and roof, longitudinal deflecting-plates projecting from the sides of the shell to the beginning of the crossing of the water-circulating pipes, and longitudinal deflecting plates extending between the roof of the shell and the sides of the steam-dome, substantially as shown and described.

11. A boiler comprising spaced mud-drums, spaced steam-drums above the mud-drums, sets of transverse water-circulating pipes, each set leading from a mud-drum on one side to the opposite steam-drum on the opposite side, the sets of water-circulating pipes passing each other above the longitudinal plane of the mud-drums and below that of the steam-drums, transverse connecting-pipes for connecting the ends of the mud-drums with each other, connecting-pipes for the ends of the steam-drums, and sets of longitudinal water-circulating pipes, each set leading from the mud-drum-connecting pipe at one end of the boiler under the crossing of the transverse water-circulating pipes, to then open into the steam-drum-connecting pipe at the other end of the boiler, substantially as shown and described.

641,096. **MOTOR-CYCLE FRAME.** TOM FRENCH, Andover, Me. Filed July 6, 1899. Serial No. 722,962. (No model.)



Claim.—1. In a vehicle, front and rear axles, reaches having ball-and-socket-joint connections with the said front and rear axles, and a frame having ball-and-socket-joint connection with the rear axle and a longitudinal sliding connection with the front axle, substantially as shown and described.

2. A motor-cycle frame, provided with front and rear axles, and a triangular frame having ball-and-socket-joint connection with the rear axle and a longitudinal sliding connection with the front axle, substantially as shown and described.

3. A motor-cycle frame having front and rear axles, reaches connecting the same with each other, a triangular frame having a sliding connection with the front axle and a relatively-fixed connection with the rear axle, and a body-frame spring-supported from said triangular frame, and having a ball-and-socket-joint connection with the rear axle, substantially as shown and described.

4. A motor-cycle frame having a supporting-frame connected with the rear axle and slidably mounted on the front axle, and a body-frame connected with the rear axle and spring-supported from said supporting-frame, substantially as shown and described.

5. A motor-cycle frame having a supporting-frame connected with the rear axle and slidably mounted on the front axle, a body-frame connected with the rear axle and spring-supported from said supporting-frame, braces from said body-frame to the rear axle, and rods from said braces to the motor-shaft, to keep the latter a fixed distance from the rear axle, substantially as shown and described.

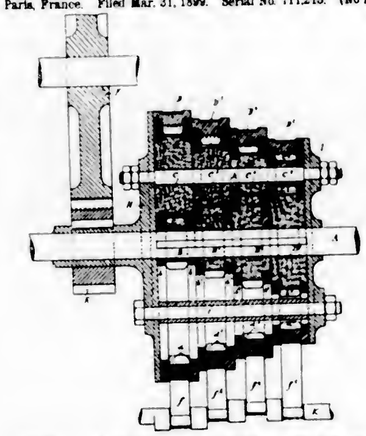
6. In a vehicle, front and rear axles, reaches having ball-and-socket-joint connections with the said front and rear axles, and a body-frame connected with the rear axle and spring-supported at its forward end, substantially as shown and described.

7. In a vehicle, front and rear axles, and reaches having ball-and-socket-joint connections with the said front and rear axles, each ball-and-socket joint comprising a ball on the axle, and a split socket on the reach and fitting upon the said ball, substantially as shown and described.

8. In a vehicle, front and rear axles, two bearings on the rear axle each provided with two balls formed thereon, the said bearings being each provided with a hub portion, reaches connected at their forward ends with the front axle and provided at their rear ends with sockets fitting respectively upon one of the balls of each bearing, a supporting-frame provided with sockets engaging the other balls of the two bearings, and a body-frame having its rear end provided with sockets engaging the hubs of the said bearings, substantially as shown and described.

9. In a vehicle, reaches connected with the front and rear axles, a body-frame connected with the rear axle, and a supporting-frame connected with the rear axle and provided at its front end with a longitudinally-extending pin mounted to slide in a bearing on the front axle, substantially as shown and described.

641,097. **VARIABLE-SPEED GEARING.** LOUIS L. H. GERARD, Paris, France. Filed Mar. 31, 1899. Serial No. 711,215. (No model.)



Claim.—1. In an apparatus for changing speed-gearing by epicycloidal trains, the combination of a driving-shaft A, pinions B B' B^2 B^3 of different diameters keyed on said shaft A, planet-pinions C C' C^2 C^3 loosely mounted on their axes *k*, means for supporting said axes *k*, internally-toothed wheels D D' D^2 D^3 and rings *b b' b² b³*, *c c' c² c³*, *d d' d² d³* of an external diameter exactly equal to that of the primitive circumference of the corresponding gearing, substantially as described and for the purpose set forth.

2. In an apparatus for changing speed-gearing by epicycloidal trains, the combination of a driving-shaft A, pinions B B' B^2 B^3 of different diameters keyed on said shaft, planet-pinions C C' C^2 C^3 loosely mounted on axes *k*, disks I loosely mounted on said shaft A and supporting the axes *k*, cross-pieces *i* interconnecting the disks I, internally-toothed rings D D' D^2 D^3, rings *b b' b² b³*, *c c' c² c³*, *d d' d² d³* having an external diameter exactly equal to that of the primitive circumference of the corresponding gearing, brake-bands for rendering stationary at will one of the rings and means for operating said brake-bands, substantially as described and for the purpose set forth.

641,098. **HEMMER.** JOHN J. GILLIS, Hattiesburg, Miss., assignor of one-half to John F. Bennett, same place. Filed July 3, 1899. Serial No. 722,715. (No model.)

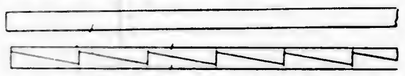


Claim.—1. An attachment for a sewing-machine of the character set forth, comprising a foot having an arm extending forwardly from one side portion thereof and provided with a flat plate projecting in the plane of the foot at a right angle to and in advance thereof, the inner end of the plate having an edge-turner approximately in line with the needle-eye of the said foot, feeding-guides on the plate of a conical form and directed at a downward incline toward the under portion of the said edge-turner and positioned in a plane at right angles to the latter, and a gage movably mounted on a projecting portion of the arm in advance of the edge-turner and guides and having a guiding edge in a plane parallel with the said edge-turner.

2. An attachment for a sewing-machine of the character set forth, comprising a foot supporting an edge-turning tube approximately in line with the needle-eye and feeding-guides in planes at right angles to the said tube and directed downwardly toward the under portion of the latter, and a gage also adjustably supported by said foot in operative relation to the edge-turning tube.

3. An attachment for a sewing-machine of the character set forth, comprising a foot having an arm extending therefrom provided with a flat plate projecting in a plane at right angles thereto, said plate having a terminal spirally-bent tube to form an edge-turner and downwardly-directed conical feeding-guides leading to the lower portion of the said tube, a space being formed between the edge-turner and the foot proper, and a gage adjustably mounted on a portion of the arm in advance of said edge-turner and guides and provided with a guiding edge in a plane parallel with the said edge-turner.

641,099. **STRING-NAIL.** GEORGE GODDU, Winchester, Mass., assignor to the United Shoe Machinery Company, of New Jersey. Filed Mar. 10, 1896. Serial No. 582,519. (No model.)



Claim.—1. As a new article of manufacture, a string-nail, consisting of a metal strip cut from a substantially flat, thin, ductile metal band or ribbon of substantially uniform thickness throughout its length, and characterized in that one side of the string-nail strip is substantially straight and the other side is composed of sections inclined and transverse with relation to the substantially straight side to subdivide the said strip into a series of connected headed and pointed tapering nails, with the inclined sections of uniform length and extended from one transverse section to the next contiguous transverse section, whereby duplicate string-nails may be formed from the ribbon or band without loss of metal and without decreasing the ductility of the original band or ribbon, substantially as described.

2. As an improved article of manufacture, a string-nail consisting of a series of substantially flat, thin, and ductile connected headed and pointed tapering nails, each nail having a substantially straight side, a substantially straight head extended substantially at right angles to the said straight side, and an inclined opposite side extended continuously from the end of the head of one nail to the head of the next adjacent or contiguous nail but between the sides of the head of the contiguous nail, whereby the said string-nail may be cut from a ribbon or band without loss of metal or without decreasing the ductility of the ribbon or band and may form one of a pair of duplicate string-nails into which the ribbon or band is cut, substantially as described.

3. A slug-strip cut from a thin ductile ribbon of sheet metal of substantially uniform thickness, said slug-strip having one practically straight edge, and the other edge composed of longer inclined faces, each of which forms one longitudinal edge of a slug, and shorter transverse faces, each of which forms a part of the outer end or head of a slug, whereby two slug-strips may be formed from a single strip of metal without waste.

641,100. **PROCESS OF MAKING PARA-OXY-PARA-AMIDO-ORTHO-OXYDIPHENYLAMIN.** HERMANN GUMMANN, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Nov. 7, 1899. Serial No. 736,084. (No specimens.)

Claim.—Process for the manufacture of para-oxy-para-amido-ortho-oxydiphenylamin, which consists in heating para-oxy-para-amido-diphenylamin-ortho-sulfonic acid with caustic alkalies at a temperature of from 150° to 200° centigrade; substantially as described.

641,101. **RAILWAY CONSTRUCTION.** FREDERICK HAGEMANN, St. Paul, Minn., assignor of seven-eighths to Charles Cristadoro, same place, and John M. Bassen and Elizabeth Bassen, Milwaukee, Wis. Filed May 24, 1899. Serial No. 718,047. (No model.)

Claim.—1. The combination with two adjoining rails provided in the upper surface of their adjacent ends with longitudinal recesses, of a bar extending between said rails and supported in said recesses, the upper surface of which is flush for its principal part with the upper surfaces of the rails, said bar being longitudinally movable, but vertically immovable with respect to one of said rails and being free to be moved vertically into and out of the recess of the other rail.



2. The combination with two adjoining rails provided in the upper surfaces of their adjacent ends with longitudinal recesses, of a bar extending between said rails and supported in said recesses, the upper surface of which is flush for its principal part with the upper surfaces of the rails, one end of said bar and the recess engaged thereby being of dovetail shape in cross-section and the other end of the bar having vertical sides which engage vertical side walls in the other recess.

3. The combination with two adjoining rails provided in the upper surfaces of their adjacent ends with longitudinal recesses, of a bar extending between said rails and supported in said recesses, said bar being longitudinally movable but vertically immovable with respect to one of said rails and being free to be moved vertically into and out of the recess of the other rail, the end of the bar engaging said last-mentioned recess having its upper surface inclined for a short distance to bring the same below the level of the upper surface of the rail.

641,102. **HAY-RACK.** JOHN F. HALLORAN, Jr., Chatfield, Minn. Filed Sept. 7, 1899. Serial No. 729,753. (No model.)



Claim.—1. A rack provided with an open side, vertical guides at the ends of the open side, corresponding supports located at different heights in the length of the vertical guides and movably mounted, and a series of individual slats for closing said open side, each detachably fitted to the guides, and supported and held spaced apart by means of the aforesaid supports, substantially as set forth.

2. A rack provided with an open side, vertical guides at the ends of the open side, corresponding supports pivoted at one side of the vertical guides and located at different levels and adapted to be turned aside or across the plane of the said vertical guides, and a series of individual slats for closing said open side, each detachably fitted to the guides, and supported and held apart by means of the aforesaid supports, substantially as specified.

3. A rack having an open side, slats for closing said open side detachably fitted thereto, supports located at different relative levels and pivoted to parts of the rack and adapted to be turned into a vertical and a horizontal position, and stops for holding the supports in a horizontal position, as and for the purpose set forth.

4. A rack having an open side, a series of individual slats for closing the open side, each detachably fitted thereto, means for automatically and separately placing the slats in position and removing

them when required, and cooperating engaging means between the said slats and their carrier mechanism, substantially as set forth.

5. A rack having an open side, a series of slats for closing the open side and detachably fitted thereto, an endless carrier, and cooperating means between the slats and the carrier for detachably connecting the slats thereto, substantially as described.

6. A rack having an open side, a series of slats for closing said open side and detachably fitted thereto, an endless carrier, and means applied to the slats for detachably connecting them to the said carrier, as and for the purpose set forth.

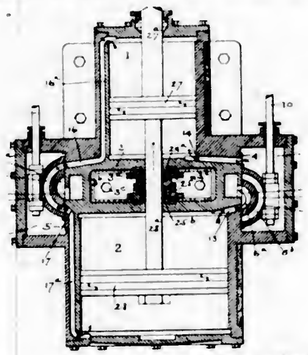
7. A rack having an open side, slats for closing said open side detachably fitted thereto, an endless carrier having offstanding plates, keepers applied to the slats for receiving one end of said plates, means applied to the slats for engagement with the opposite ends of said plates, and catches provided on the slats to engage with the ends of the plates from said keepers, as and for the purpose set forth.

8. A rack having an open side, a series of slats for closing said open side and detachably fitted thereto, an endless carrier having plates, keepers applied to the slats for engagement with one end of the plates, pairs of stops applied to the slats for engagement with the opposite ends of the plates, and pivoted catches to cooperate with the stops and keepers, as and for the purpose set forth.

9. A rack having an open side, individual slats for closing said open side and adapted to be separately and detachably fitted thereto, and a holder for the slats when not in position, the same consisting of spaced rods and end guards, substantially as set forth.

10. A rack having an open side and having its bed-timbers projecting beyond the plane of the open side, vertically-disposed tracks applied to the end of the rack bordering upon said open side and having their upper extremities tapering, pivoted supports located at intervals in the vertical length of the rack and adapted to be projected beyond the plane of the open side, a series of slats provided with runners to make positive engagement with the said tracks, endless chains having longitudinally-alined links provided with plates, upper and lower rotary supports for the endless chains, means applied to the slats for detachable engagement with the plates of the chains, and a holder applied to the projecting ends of the bed-timbers for receiving the slats when not in service, substantially as set forth.

641,103. COMPOUND STEAM-ENGINE. JOSEPH HARDILL, Strat ford, Canada. Filed June 4, 1898. Serial No. 682,520. (No model.)



Claim.—1. In a compound engine, a cylinder-section comprising a high-pressure and a low-pressure cylinder placed in axial line one with the other, an intermediate bulkhead connecting said cylinders having valve-seats located upon opposite sides thereof, one of said valve-seats having ports therein communicating with the inner ends of said cylinders and the other of said valve-seats having ports therein communicating with the outer ends of said cylinders, and slide-valves for controlling the port-openings located outside of the valve-seats, substantially as described.

2. In a compound engine, the combination with a high-pressure cylinder, of a low-pressure cylinder at one end thereof, an intermediate bulkhead having ports and valve-seats at opposite sides of the cylinders and upon the outer sides of the bulkheads and two slide-valves each having two steam-passages one located outside of the other, and set to admit steam to the outer ends of both the high-pressure cylinder and the low-pressure cylinder, and also to conduct steam therefrom to the inner ends of both of said cylinders, substantially as described.

3. A combined double and single acting compound engine, comprising a high-pressure and a low-pressure cylinder placed end for end of each other, an intermediate bulkhead having steam-chests and valve-seats located upon the outer opposite sides thereof connecting respectively the inner ends of said cylinders upon one side thereof, and the outer ends of said cylinders upon the other side thereof, and steam-pipes each having separate valves and leading to said steam-chests, substantially as described.

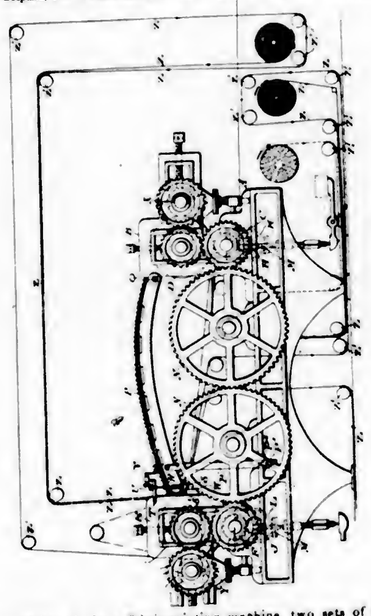
4. In a double-acting compound engine, the combination with a high-pressure and a low-pressure cylinder, of an intermediate bulkhead connecting said cylinders, having steam-chests and parallel valve-seats located upon the outer opposite sides of the bulkhead, valves adapted to reciprocate upon the outer faces of said valve-seats, and steam-chests secured to the outer sides of the bulkheads, substantially as described.

5. In a compound steam-engine, the combination of two cylinder-sections each comprising a high-pressure and a low-pressure cylinder, and an intermediate bulkhead between the cylinders of each section having steam and exhaust ports therein, valves and steam-chests secured upon the outer sides of the bulkheads, a separate valve-controlled steam-pipe leading to each of the steam-chests of the first cylinder-section, and pipes connecting the exhaust with the steam-chest upon the same side of said cylinder-sections, substantially as described.

6. In a double-acting compound engine the combination with the two cylinders of an intermediate double-walled bulkhead having a central chamber and an opening upon one of the outer sides thereof, a removable cover adapted to said opening a piston-rod passing through the walls of said bulkhead, pistons secured thereto and two oppositely-disposed stuffing-boxes fitted within the chamber of the bulkhead and accessible for adjustment by means of said covered opening substantially as described.

7. In a double-acting compound engine the double cylinder having an intermediate bulkhead, valve-seats located upon opposite sides of the cylinder upon said bulkhead, ports connecting the inner ends of the two cylinders with the valve-seat upon one side of the cylinder-ports, and steam ports and channels connecting the outer ends of the said cylinders with the valve-seat upon the opposite side of the cylinders and slide-valves having two steam-passages formed one outside the other therein bridging the face of the valve-seats to operate in connection with said cylinder-ports and steam-passages substantially as described.

641,104. FABRIC-PRINTING MACHINE. HENRY M. HARLEY, Gloucester City, N. J., assignor of one-half to George A. Heyl, Philadelphia, Pa. Filed June 21, 1898. Serial No. 684,039. (No model.)



Claim.—1. In a fabric-printing machine, two sets of printing and impression rolls, and an interposed swinging bridge consisting of an extended bed or support pivoted at one end having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls.

2. In a fabric-printing machine, two sets of printing and impression rolls, and an interposed curved swinging bridge consisting of an extended bed or support pivoted at one end and having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls.

3. In a fabric-printing machine, two sets of printing and impression rolls, an interposed bridge consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed and support throughout the entire length of the latter during its passage between said rolls, and a roller mounted upon the end of said bridge situated adjacent the feed of one of said sets of rolls.

4. In a fabric-printing machine, two sets of printing and impression rolls, an interposed bridge consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls, and an adjustable roller mounted upon the end of said bridge situated adjacent the feed of one of said sets of rolls.

5. In a fabric-printing machine, two sets of printing and impression rolls, an interposed bridge consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls, an adjustable roller mounted upon the end of said bridge situated adjacent the feed of one of said sets of rolls, and a blanket trained around said bridge, its adjustable roller, and the impression-roll delivering thereto.

6. In a fabric-printing machine, two sets of printing and impression rolls, and an interposed bridge adjustable transversely to the line of feed of said fabric, and consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls.

7. In a fabric-printing-machine, two sets of printing and impression rolls, an interposed bridge consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed or support throughout the entire length of the latter during its passage between said rolls, and a blanket passing around said bridge and the impression-roll delivering thereto.

8. In a fabric-printing machine, two sets of printing and impression rolls, an interposed bridge consisting of an extended bed or support having an end situated adjacent each set of rolls, said bridge being situated out of line with a direct line between the delivery and feed of said sets of rolls, whereby the fabric is caused to pass over and upon and to traverse and rest in close contact with said bed and support throughout the entire length of the latter during its passage between said rolls, a roller mounted upon the end of said bridge situated adjacent the feed of one of said sets of rolls, and a blanket passing around said bridge and roller and the impression-rolls delivering thereto.

9. In a fabric-printing machine, two sets of printing and impression rolls, an interposed swinging bridge having its axis situated adjacent the set of rolls delivering thereto, an adjustable roller upon the swinging end thereof, means for adjusting the swinging end of said bridge, and a blanket passing around the bridge and roller and the impression-roller delivering thereto.

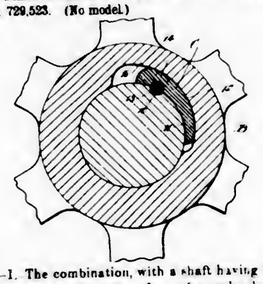
641,105. METHOD OF MAKING PINIONS. GEORGE E. HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Dec. 8, 1896. Serial No. 614,945. (No model.)

Claim.—1. The method of making pinions with teeth that are relatively wide and narrow, which consists, in forming on one side of a suitable blank a portion of each of the wide teeth, by subjecting the blank to pressure, whereby said portions of teeth stand in relief on the blank, and then removing the parts of the blank necessary to complete the said partial teeth and form the narrow teeth, substantially as specified.



2. The method of making pinions with teeth that are relatively wide and narrow, which consists in subjecting a blank to pressure so as to compress a portion of it, leaving parts that constitute portions of the body of the pinion and portions of the wide teeth in relief, and then removing all of the compressed portion of the blank save parts intermediate the teeth portions in relief, to complete the wide teeth and produce the narrow teeth, substantially as and for the purpose described.

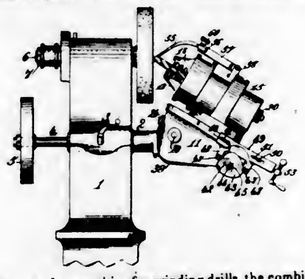
641,106. DEVICE FOR CONNECTING SHAFTS WITH OTHER PARTS. FRANK R. HAWKSWORTH, Helena, Mont. Filed Sept. 5, 1899. Serial No. 729,523. (No model.)



Claim.—1. The combination, with a shaft having a longitudinal semicircular groove in its outer surface, of a wedge having its inner face conforming to the exterior of the shaft and whose outer face is eccentric to its inner face, the said wedge having openings extending through it and a semicircular groove on its inner face, connecting the said openings, a rib circular in cross-section, having a portion of its body fitted in the groove of the wedge or key, the other portion of its body being adapted to enter the groove in the shaft, the ends of the said rib being carried through the openings of the wedge or key and riveted at the back thereof, and a part or member encircling the shaft and the wedge or key, the said part or member being provided with an interior seat or socket of greater length than the width of the wedge or key, but conforming to the shape of the said wedge or key, as described.

2. As a new article of manufacture, a key or wedge for connecting pulleys and the like to shafts, consisting of a curved and tapering wedge having two openings and a transversely-extending semicircular groove on its inner surface, connecting the said openings, and provided with a U-shaped rib, circular in cross-section, the body of the rib lying partially in the said groove and its ends extending through the openings and riveted at the outer surface of the wedge or key, as set forth.

641,107. MACHINE FOR GRINDING DRILLS. WILLIAM C. HEISTER, Dayton, Ohio, assignor to the Buckeye Iron and Brass Works, same place. Filed Oct. 7, 1899. Serial No. 732,947. (No model.)



Claim.—1. In a machine for grinding drills, the combination with a grinding-wheel, of a carriage provided with means for holding the

drill, means for oscillating said carriage in the arc of a circle lying in a plane at right angles to the operative face of the grinding-wheel to present the drill at varying angles to the grinding-wheel, and means for simultaneously reciprocating the carriage to compensate for its oscillating movement, substantially as described.

2. In a machine for grinding drills, the combination with a grinding-wheel, of a carriage provided with means for holding the drill, means for oscillating the carriage alternately toward and from the grinding-wheel in the arc of a circle lying in a plane at right angles to the operative face of the grinding-wheel to vary the angle at which the drill is presented thereto, means for reciprocating the carriage toward the grinding-wheel and simultaneously lowering it in the arc of a circle, means for reciprocating the carriage away from the grinding-wheel and simultaneously raising it in the arc of a circle, and means for rotating the drill, substantially as described.

3. In a machine for grinding drills, the combination with a grinding-wheel, of a table, a carriage arranged to reciprocate on the table and provided with means for holding a drill, means for oscillating the table in the arc of a circle to vary the angle at which the drill is presented to the grinding-wheel, and means for reciprocating the carriage on the table toward and from the grinding-wheel and simultaneously with the oscillating movement of the table, substantially as described and for the purpose specified.

4. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table in the arc of a circle to vary the angle at which the drill is presented to the grinding-wheel, and means for reciprocating the carriage on the table toward and from the grinding-wheel simultaneously with the oscillating movement of the table, substantially as described.

5. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table about its pivotal point in the arc of a vertical circle to vary the angle at which the drill is presented to the grinding-wheel, and means for reciprocating the carriage toward the grinding-wheel as the table is lowered and away from the grinding-wheel as the table is raised, substantially as described and for the purpose specified.

6. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table about its pivotal point in the arc of a circle toward and from the grinding-wheel, said means being constructed and arranged to communicate two complete oscillations to the table during each rotation of the drill-holder, and means for reciprocating the carriage toward the grinding-wheel as the table is lowered and in the opposite direction as the table is raised, substantially as described and for the purpose specified.

7. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table about its pivotal point in the arc of a circle toward and from the grinding-wheel, said means being constructed and arranged to communicate two complete oscillations to the table during each rotation of the drill-holder, means for reciprocating the carriage toward the grinding-wheel as the table is lowered and in the opposite direction as the table is raised, and means for feeding the carriage toward the grinding-wheel independently of its reciprocating movement, substantially as described.

8. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table about its pivotal point in the arc of a circle toward and from the grinding-wheel, means for reciprocating the carriage toward and from the grinding-wheel simultaneously with the oscillating movement of the table, and means for adjusting the carriage on the table toward and from the grinding-wheel independently of the reciprocating movement of the table, substantially as described.

9. In a machine for grinding drills, the combination with a grinding-wheel, of a pivotal table, a carriage arranged to reciprocate on the table and provided with a rotatable drill-holder, means for rotating the drill-holder, means for oscillating the table about its pivotal point in the arc of a circle toward and from the grinding-wheel, means for reciprocating the carriage toward and from the grinding-wheel simultaneously with the oscillating movement of the table, and means operated by hand for adjusting the carriage on the table, substantially as described.

10. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled in the table, a carriage arranged to reciprocate on the table, a rotatable drill-holder journaled on the carriage, a gear-wheel fixed on the drill-holder, a gear-wheel fixed on the driven shaft and operating to transmit rotary motion from said shaft to the drill-holder, means for oscillating the table about its pivotal point in the arc of a circle toward and from the grinding-wheel, and means for reciprocating the carriage toward and from the grinding-wheel as the table is lowered and raised, substantially as described and for the purpose specified.

11. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled in the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the driven shaft to the drill-holder, and mechanism operated by the driven shaft for imparting to the table an oscillating movement about its pivotal point toward and from the grinding-wheel in the arc of a circle and for simultaneously reciprocating the carriage toward and from the grinding-wheel, substantially as described and for the purpose specified.

12. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the driven shaft to the drill-holder, mechanism operated by the driven shaft for oscillating the table about its pivot in the arc of a circle toward and from the grinding-wheel, a cam rotated by the driven shaft, and an attachment carried by the carriage and engaging said cam to reciprocate the carriage, substantially as described.

13. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the driven shaft to the drill-holder, mechanism operated by the driven shaft for oscillating the table about its pivot in the arc of a circle toward and from the grinding-wheel, a cam rotated by the driven shaft, and a projection adjustably connected with the carriage and engaging said cam to reciprocate the carriage toward and from the grinding-wheel, substantially as described.

14. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the shaft to the drill-holder, mechanism operated by said shaft for oscillating the table about its pivot in the arc of a circle toward and from the grinding-wheel, a spirally-grooved cam fixed on the shaft, a block mounted in ways on the carriage, an adjusting-screw for adjustably fixing the block relatively to the table, and a finger carried by said block and engaging the grooved cam to reciprocate the carriage, substantially as described.

15. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the shaft to the drill-holder, a cam fixed on said shaft and rotating between fixed antifriction-rollers to oscillate the table in the arc of a circle toward and from the grinding-wheel, and means for reciprocating the carriage, substantially as described.

16. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driven shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, gearing for transmitting rotary motion from the driven shaft to the drill-holder, a cam fixed on said shaft, a fixed yoke, a ring swiveled in the yoke and provided with antifriction-rollers engaging the periphery of the cam to cause the table to oscillate about its pivot in the arc of a circle toward and from the grinding-wheel, and means for reciprocating the carriage, substantially as described.

17. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a driving-shaft journaled on the table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage and having a gear-wheel fixed thereon, a gear-wheel fixed on the driven shaft and gearing with the gear-wheel on the drill-holder to rotate the latter, a cam fixed on the shaft and rotating between fixed antifriction-rollers to oscillate the table about its pivot in the arc of a circle toward and from the grinding-wheel, a spirally-grooved cam on the driven shaft, and a finger carried by the carriage and engaging said spiral groove to reciprocate the carriage on the table simultaneously with the oscillating movement of the latter.

18. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, means for reciprocating the carriage, means for oscillating the table on its pivot in the arc of a circle toward and from the grinding-wheel, a rotatable sleeve journaled on the carriage, a chuck carried on the forward end of the sleeve, and a sleeve fitted in the rear end of the rotatable sleeve and having a tapered bore, substantially as described and for the purpose specified.

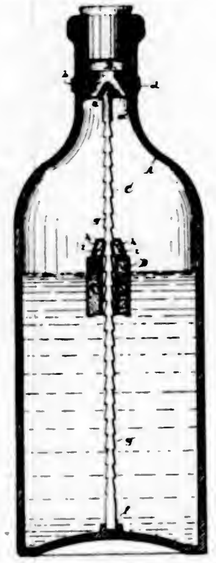
19. In a machine for grinding drills, the combination with a grinding-wheel, of a pivoted table, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, means for reciprocating the carriage, means for oscillating the table on its pivot in the arc of a circle toward and from the grinding-wheel, a rotatable sleeve journaled on the carriage, a chuck on the forward end of the sleeve comprising two sliding jaws fitted to move in a transverse slot in the end of the sleeve, a right-and-left screw fitted in said jaws, and means for rotating the sleeve, substantially as described.

20. In a machine for grinding drills, the combination with a grinding-wheel, of a table pivoted at a point in front of and below the grinding-wheel, a carriage arranged to reciprocate on the table toward and from the grinding-wheel, means for reciprocating the carriage, means for oscillating the table on its pivot in the arc of a circle toward and from the grinding-wheel, a rotatable drill-holder journaled on the carriage, and a guide for setting the drill in the holder, substantially as described.

21. In a machine for grinding drills, the combination with a combined oscillating and reciprocating carriage, of a rotatable drill-holder mounted on the carriage and provided with means for grasping and holding a drill, and a pivoted guide-finger carried by the carriage, for setting the drill, substantially as described.

22. In a machine for grinding drills, the combination with a combined oscillating and reciprocating carriage, of a rotatable drill-holder mounted on the carriage and provided with means for grasping and holding a drill, and a pivoted guide-finger carried by the carriage, said guide-finger being curved downward at its free end and jointed intermediate its ends, substantially as described.

641,108. BOTTLE-FLOAT. GEORGE R. HENSTREET, Cleveland, Ohio. Filed Oct. 27, 1898. Serial No. 694,662. (No model.)



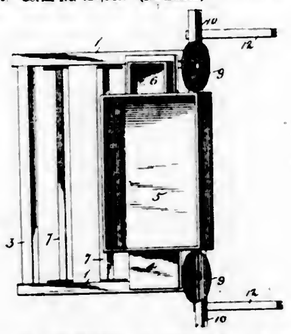
Claim.—1. A bottle having a permanently-secured collar in the neck thereof, provided with a plurality of passages, a notched bar held between said passages and the bottom of said bottle, and a float containing pawls which admit only of descension of said float in the manner as and for the purpose set forth.

2. In a bottle containing a floating device, said device being held secure between the bottom of said bottle and a recessed collar provided with passages and an expansion-ring in joint engagement with said collar, and a recess in the neck of said bottle all constructed and arranged substantially as and for the purpose set forth.

3. In a bottle the combination of a floating device comprising a notched bar, a float with automatically-operating pawls engaging said bar and a collar provided with passages and being interlocked with the neck of said bottle and receiving said bar between said passages and a support in the bottom of said bottle, all constructed and arranged substantially as and for the purpose set forth.

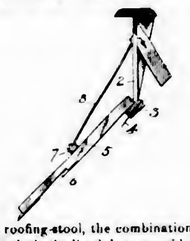
4. In a bottle, a float containing pawls, a notched bar into which said pawls engage for the purpose of locking said float, a collar provided with passages and receiving the bar between the same and a support in the bottom of said bottle, as set forth.

641,109. ROOFING-GAGE. JAMES HINDS, Paris, Ill. Filed Aug. 21, 1899. Serial No. 727,945. (No model.)



Claim.—In a roofing-gage, the combination with the side bars, the transverse connecting-bars and the hinged gages, of the shingle or tile receptacle, the shafts carried thereby, the rollers on said shafts, the straight edge on which said rollers travel and the brackets connecting said straight edge with the sheathing of a roof, substantially as described.

641,110. ROOFING-STOOL. JAMES HINDS, Paris, Ill. Filed Aug. 21, 1899. Serial No. 727,946. (No model.)



Claim.—1. In a roofing-stool, the combination with the seat, of the supporting-rod and the inclined legs, provided with prongs or teeth and the sill also provided with prongs or teeth, substantially as described.

2. In a roofing-stool, the combination with the seat, the supporting-rod, the sill provided with prongs or teeth, and the pitch-board, of the legs connected with said sill provided with prongs or teeth, the cross-bar connecting the same and the brace-bar connected with said cross-bar and with said supporting-rod, substantially as described.

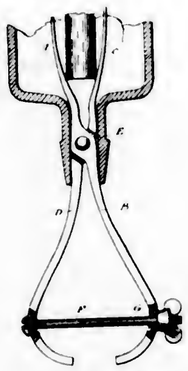
641,111. CORK-EXTRACTOR. HENRY HUNGERFORD, New Haven, Conn. Filed Oct. 2, 1899. Serial No. 732,278. (No model.)

Claim.—1. A cork-extractor comprising two handles pivoted together, a thin substantially flat and flexible blade extending outward from each handle, one of the said blades longer than the other, and the blades reversely bowed outward, substantially as described.

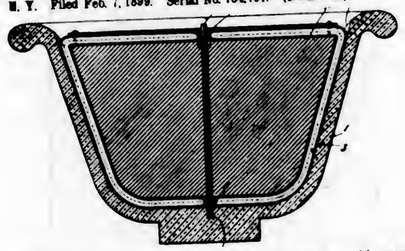
2. A cork-extractor comprising two handles pivoted together, and a thin substantially flat and flexible blade extending outward from each handle, the said blades reversely bowed outward, the portions of the handles adjacent to the pivot substantially straight, and the inner ends of the blades adjacent to the handle curved inward and thence outward, substantially as described, and whereby the blades of the extractor may be inserted into the neck of a bottle and the blades separated in the bottle.

3. A cork-extractor comprising two handles pivoted together, a thin, substantially flat and flexible blade extending outward from

each handle, one of the said blades longer than the other, substantially as described.



641,112. CONVERTIBLE TUB. NELLIE F. HURDEL, New York, N. Y. Filed Feb. 7, 1899. Serial No. 704,791. (No model.)

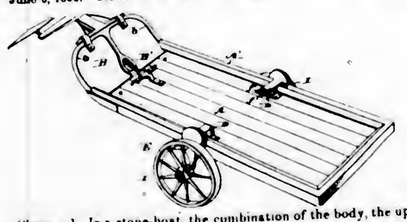


Claim.—1. The combination with a tub and are movable partition therefor, of a packing comprising a tubular pneumatic portion engaging with the side and bottom edges of the partition and having a portion extended along the top edge of the partition, the said packing having vertical openings through its upper and lower stretches, an eyelet in the opening of the lower stretch, and a clamping-rod adapted to pass through said openings and also through a vertical opening through the partition, substantially as specified.

2. The combination with a tub and a removable partition therefor, of a tubular packing of elastic or yielding material extended entirely around the edges of the partition so as to be self-sustained, eyelets in the upper and lower edges of the packing, and a clamping-rod extended through said eyelets and also through the partition to engage in a screw-threaded socket in the tub, substantially as specified.

3. The combination with a tub and a removable partition, of a packing-tube extending around the partition and having eyelets for the passage of a clamping-bolt, the portions of the tube receiving the eyelets being depressed, and a clamping-bolt, substantially as specified.

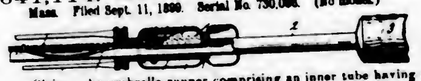
641,113. STONE-BOAT. JAMES INGELLS, Hesperia, Mich. Filed June 6, 1899. Serial No. 719,595. (No model.)



Claim.—1. In a stone-boat, the combination of the body, the upwardly-curved and flanged head secured thereto and formed of one piece, a tongue pivotally secured to the upper end of the head and a direct chain connection between the tongue and boat-body, substantially as described.

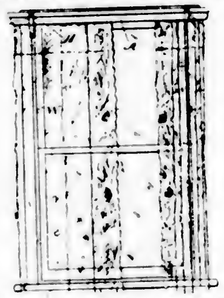
2. In a stone-boat, the combination with the body and head, of the journals, crank-shaped axles mounted therein, the intermediate portion of each of said axles enlarged and sockated, teeth on said journals adapted to engage with said sockets and means for clamping said teeth in their sockets, substantially as described.

641,114. UMBRELLA-RUNNER. NATHAN D. INGRAM, Holyoke, Mass. Filed Sept. 11, 1899. Serial No. 730,096. (No model.)



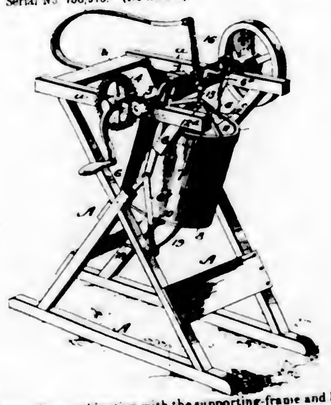
Claim.—An umbrella-runner comprising an inner tube having a projection thereon, and a catch-operating tubular slide of greater length than the inner tube and embracing and inclosing said inner tube, and having sliding connection therewith limited to the distance between one end of the tube and the projection on the tube, said catch-operating slide bent inward at its opposite ends and having a circumferential constriction formed intermediate of the ends, one slope of which constriction is adapted to have a cam action on one of the umbrella-catches and the other slope upon the other, to depress them preparatory to the runner being locked in either of its extreme positions.

641,115. CURTAIN-HOLDER. WILLIAM L. ISBILLA, Bayonne, N. J. Filed Sept. 23, 1898. Serial No. 691,676. (No model.)



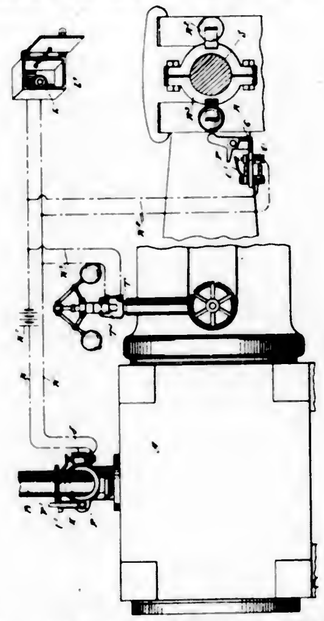
Claim.—The combination with a curtain-pole having a cavity *a b*, and narrower slot below, of runners each comprising a block, an inclosing shell of metal presenting the plane parallel vertical sides having sufficient length to prevent turning and provided with parallel bearing portions extending longitudinally of the travel of the runner, and a depending screw eye, the screw of the latter arranged to perform the double function of holding the block to the metal and supporting a curtain, substantially as herein specified.

641,116. CHURN. JOHN J. JONES, Braman, Okla. Filed Sept. 19, 1899. Serial No. 730,975. (No model.)



Claim.—The combination with the supporting-frame and horizontal crank-shaft thereon, of a hanger for the churn body which is suspended from the crank, a brace-bar arranged below the crank, a screw-nut attached thereto, a screw working vertically therein, and a device which is applicable to the churn-body for clamping it in place, substantially as shown and described.

641,117. STOPPING DEVICE FOR ENGINES. JOHN J. KAVE, Newburg, N. Y. Filed Aug. 25, 1899. Serial No. 728,446. (No model.)



Claim.—1. A stopping device for engines, comprising a gate-valve in the steam-supply, a shaft mounted to turn, and connected with said valve, a spring connected with said shaft and serving to close the said valve, an arm connected with the said shaft, a locking device for engaging the said arm to hold the valve normally in an open position against the tension of the spring, and an electric releasing device for releasing the said arm to allow the valve to automatically close.

2. A stopping device for engines, comprising a gate-valve in the steam-supply, a shaft mounted to turn and connected with said valve, a spring connected with said shaft and serving to close the said valve, an arm connected with the said shaft, a locking device for engaging the said arm to hold the valve normally in an open position against the tension of the spring, an electric releasing device for releasing the said arm to allow the valve to automatically close, an automatic circuit-closer for the said electric releasing device, and means for controlling said automatic circuit-closer.

3. A stopping device for engines, comprising a gate-valve in the steam-supply, a shaft mounted to turn and connected with said valve, a spring connected with said shaft and serving to close the said valve, an arm connected with the said shaft, a locking device for engaging the said arm to hold the valve normally in an open position against the tension of the spring, an electric releasing device for releasing the said arm to allow the valve to automatically close, an automatic circuit-closer for the said electric releasing device, and a speed-limit device controlling said circuit-closer.

4. A stopping device for engines, comprising a gate-valve in the steam-supply pipe, and comprising a gate consisting of disks, an arm on which said disks are hung, a shaft to which the said arm is secured, the said shaft being mounted to turn in suitable bearings in the casing of the valve-gate, a spring connected with said shaft to hold the said valve closed, a locking device for holding the valve in an open position against the tension of its spring, an electric releasing device for the said valve, and an automatic circuit-closer for the said electric releasing device and controlled by a speed-limit device.

5. A stopping device for engines, comprising a self-closing valve normally locked in an open position, an electric releasing device for unlocking the said valve to allow it to automatically close, a speed-limit device, comprising springs secured at one end to a support fixed to the engine-shaft, the other end of said springs being connected with a support movable on the engine-shaft, balls held on said springs, and a circuit-closer for the said releasing device controlled by the said balls.

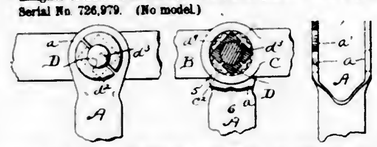
6. A stopping device for engines, comprising a self-closing valve normally locked in an open position, an electric releasing device for unlocking the said valve to allow it to automatically close, an automatic circuit-closer for the said electric releasing device, the said circuit-closer comprising contact-plates normally out of contact with each other, a bell-crank lever for engaging one of said plates to move it into contact with the other plate, and a speed-limit device for engaging said bell-crank lever, the free ends of the said bell-crank lever being normally out of contact with the contact-plates and the speed-limit device.

7. In a stopping device for engines, a valve for shutting off the steam from the engine, a shaft mounted to turn in suitable bearings, a spring connected with said shaft, an arm connected with the said shaft, an electric circuit including an electromagnet having its armature-lever provided with a hook end adapted to engage the said arm and hold it against the tension of the spring, and means for closing the said electric circuit to release the said arm, the movement of said arm under the tension of its spring causing a cut off of the steam from the engine, substantially as described.

8. A stopping device for engines, comprising a valve for shutting off the steam from the engine, and a controlling means for said valve to cause a cut off of the steam from the engine, the said means comprising an electric circuit having a branch circuit provided with an automatic circuit-closer controlled by the governor of the engine, and a second branch circuit having an automatic circuit-closer controlled by a speed-limit device, substantially as set forth.

9. A stopping device for engines comprising a valve for shutting off the steam from the engine, mechanism for operating said valve, and means for controlling said mechanism to cause a cut off of the steam from the engine the said means comprising an electric circuit having a branch circuit provided with an automatic circuit-closer controlled by the governor of the engine, and a second branch circuit having an automatic circuit-closer controlled by a speed-limit device, substantially as set forth.

641,118. HANDLE-BAR. WILLIAM E. KELLY, Cleveland, Ohio, assignor to Edward B. Weed, trustee, same place. Filed Aug. 12, 1899. Serial No. 726,979. (No model.)



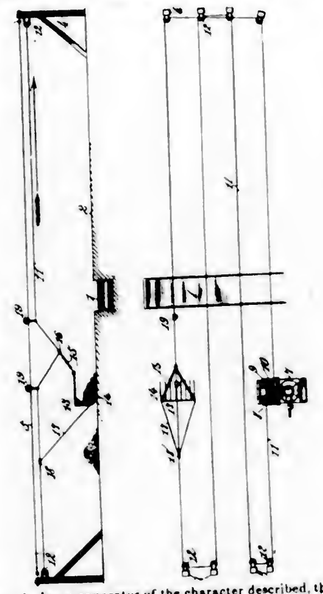
Claim.—1. In an adjustable handle-bar, the combination of the stem having the angularly-apertured ears, with two handle-bar sections having angularly-apertured inner ends, an angularly-expansible bolt which passes through the apertures in said ears and ends of the handle-bar sections, and means whereby said bolt may be expanded most in those parts which lie in the apertures in the handle-bar sections, substantially as specified.

2. In an adjustable handle-bar, the combination of the stem having the angularly-apertured ears, and two handle-bar sections having disk-shaped inner ends which are provided with angular apertures, with an expansible bolt passing through said apertures and consisting of an angular sleeve which is longitudinally slitted and has a bore which is reduced in diameter near its middle, a plug passing through said sleeve and having a coöperating tapered part, and means for moving said plug endwise to expand said sleeve, substantially as specified.

3. In a handle-bar, the combination of a stem having angularly-apertured ears, two handle-bar sections each having a disk-shaped inner end which is provided with an aperture having an inwardly-projecting serrated flange, with an angular expansible bolt which passes through the apertures in said ears and handle-bar ends, and is capable of endwise movement therein—said angular expansible bolt having an annular row of grooves in its corners, substantially as specified.

4. In an adjustable handle-bar, the combination of the stem having angularly-apertured ears, and two handle-bar sections having disk-shaped inner ends which are provided with apertures and have in said apertures projecting serrated flanges, with an expansible locking-bolt which consists of an angular sleeve which is slitted longitudinally and has a head at one end and has a bore with a tapered part near its middle, a plug in said sleeve having a coöperating tapered part, its smaller end being projected beyond the sleeve and screw-threaded, a pin passing through a hole of large diameter in the plug and being secured to the sleeve, and a nut which screws onto the threaded end of said plug, substantially as specified.

641,119. APPARATUS FOR HANDLING SUGAR-CANE. JAMES P. KEMPER, Franklin, La. Filed Mar. 24, 1899. Serial No. 710,351. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a carrier, of a series of posts or standards on opposite sides of said carrier, supporting-wires connecting said posts in pairs, a reversible engine or motor, an endless cable operated by said engine and guided back and forth between said posts beneath said supporting-wires, a rake connected to said cable, and pulleys connecting said cable with said support.

2. In an apparatus of the character described, the combination with a carrier, of a series of posts located at opposite sides thereof, supporting-wires connecting said posts in pairs, a reversible engine or motor, an endless cable operated by said engine and extending back and forth between said posts beneath said supporting-wires, blocks or pulleys connecting said cable with said supporting-wires, and a rake detachably connected to said cable.

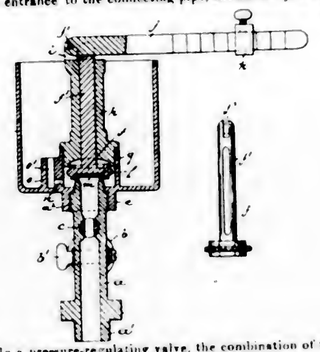
3. The combination with a reciprocating cable, of a rake having downwardly and forwardly extending tines, a flexible connection between the upper forward end of said rake and said cable, and a similar connection between the rear lower end of said rake and said cable.

4. The combination with a reciprocating cable, of a rake comprising an upper horizontal frame, and a series of downwardly and forwardly extending tines terminating in the rear of the forward end of said frame, a flexible connection between the forward end of said frame and said cable, and a similar connection between the rear lower ends of said tines and said cable.

641,120. PRESSURE-REGULATING VALVE. GEORGE KETTERING, Newark, N. J. Filed Apr. 29, 1899. Serial No. 714,967. (No model.)

Claim.—1. In a pressure-regulating valve, the combination of a stand-pipe, a cup-like casting, open at its top, supported upon said stand-pipe and having its bottom perforated and receiving the end of said stand-pipe, a valve closing the end of said stand-pipe and having a stem extending upward, an integral valve-chamber projecting upward from the bottom of the cup-like casting and surrounding the said end of the stand-pipe and the valve therefor, a post extending upward from the top of said chamber and being centrally hollow to receive the valve-stem, and means for normally holding said valve closed, substantially as set forth.

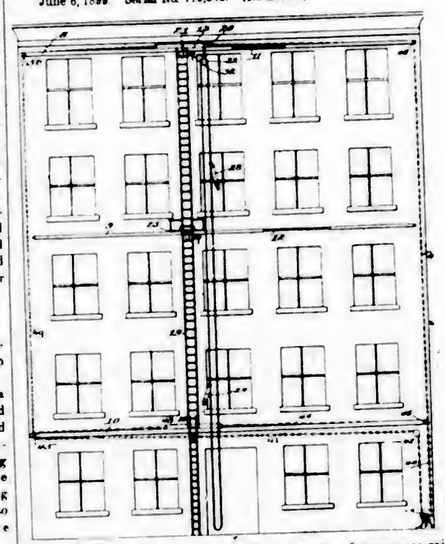
2. In a pressure-regulating valve, the combination of a connecting-pipe exteriorly threaded near its end and having a stop-cock back of said threaded end, a cup-like casting having its bottom perforated and interiorly threaded to screw upon said pipe, a valve-chamber projecting integrally upward from the floor of said cup-like receptacle and having an opening through one side, a tubular post secured at its lower end to the top of said valve-chamber, and a valve comprising a stem working in said tubular post and a lower end adapted to close the entrance to the connecting-pipe, substantially as set forth.



3. In a pressure-regulating valve, the combination of the stand-pipe *a*, cup *d*, having an interior valve-incasement perforated at one side, a tubular center post screwed into said valve-incasement, the lever *j*, and valve *f*, having a disk-like lower end adapted to close the passage into the stand-pipe and an upright stem working in said center post, substantially as set forth.

4. In a pressure-regulating valve, the combination of a connecting-pipe exteriorly threaded near its end, a cup-like casting having its bottom exteriorly provided with an annular extension interiorly threaded to screw upon said pipe, the bottom of said cup being perforated and the end of the pipe projecting therethrough, an interior valve incasement projecting integrally upward from the floor of said cup-like receptacle and having a passage through one side, a tubular post screwed at its lower end into the top of said valve-incasement, a weighted lever fulcrumed at the upper end of said post, and a valve comprising a stem working in said tubular post and a disk-like lower end recessed at the under side to receive a gasket and adapted to close the end of the connecting-pipe, substantially as set forth.

641,121. FIRE-ESCAPE. OSWALD KNIGHT, Richmond, Va. Filed June 6, 1899. Serial No. 719,573. (No model.)



Claim.—1. A fire-escape comprising a series of transverse rails secured to a building at the different stories, a transversely-movable carriage on the top and one on the bottom rail, a ladder secured to these carriages, a safety-platform secured to the ladder, resting on the intermediate rail, shafts depending from said platform, and rollers on said shafts, to engage the inner face of the rail, substantially as described.

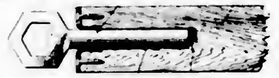
2. A fire-escape comprising a series of transverse rails secured to a building at the different stories, a transversely-movable carriage on the top rail and one on the bottom rail, a ladder secured to the top and bottom carriages, a pulley at each end of the top and bottom rails, a windlass-shaft near the ground formed into two parts or pulleys, a similar chain secured to each pulley, the cords or chains being arranged so that those from the right-hand end of each carriage unwind as those from the left-hand end wind up, substantially as described.

3. In a fire-escape the combination with transverse rails at each story, a carriage on the top and bottom rails, a ladder secured to the top and bottom carriages, a safety-platform resting on an intermediate rail close to the building and cut away at the front to straddle the ladder, depending rollers on the safety-platform engaging the inner surface of the rail, and a hand-rail on each side and the front of the safety-platform, substantially as described.

4. The combination in a fire-escape of a transverse rail, a platform resting thereon cut away at the front and having turned-up flanges, a ladder secured in the recess in the front, bolts or rivets securing the flanges to the ladder, and depending rollers journaled on the platform and bearing against the inner face of the rail, substantially as described.

5. The combination with the ladder and the rail, of a platform provided with an opening in which the ladder is located, and projections each side of the ladder, having lugs or ears for securing said platform to the ladder, and beneath the platform and secured thereto friction-rollers adapted to work on the inside face of the rail to prevent the ladder from yielding outward when loaded, substantially as shown and described.

641,122. SCYTHE-WRENCH. HERMAN O. KNUSCHER, Auroraville, Wis. Filed Oct. 24, 1896. Serial No. 609,911. (No model.)



Claim.—A means for securing a wrench to a scythe-snath consisting of a longitudinal opening formed in the end portion of said snath to receive the handle of said wrench, a plate adapted to fit over the end of said snath, said plate having a hole therethrough adapted to register with said longitudinal opening, spring-tongues secured to said plate, and arranged to extend within said longitudinal opening and terminating at their inner ends with a slightly-enlarged portion adapted to engage within a groove formed around the handle of said wrench, substantially as described.

641,123. CUTTER-BAR. JOHN F. KUKACKA, Montgomery, Minn. Filed June 27, 1899. Serial No. 722,084. (No model.)

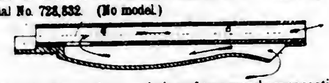


Claim.—1. In a cutting apparatus, the combination of a finger-bar having an elevated extension at its front edge and provided at regular intervals with lower shoulders which terminate in a plane parallel with the under surface of the finger-bar to thus form seats at regular intervals under the said extension, the front edge of said extension also having closely-arranged pairs of parallel openings at regular intervals in horizontal transverse directions, fingers having transversely-extending shoulders adapted to register with the lower portion of the front edge of the extension of the finger-bar, said shoulders having at their opposite extremities rearwardly-projected horizontally-disposed pins adapted to removably enter the said parallel openings, a portion of the fingers alone extending under the finger-bar and having seats at varying elevations to provide shoulders, and single fastenings removably extending through the rear of each finger and adjacent portion of the finger-bar and disposed in vertical planes.

2. In a cutting apparatus, the combination of a finger-bar, a finger removably fitted thereto and having an outer recess and an inner dovetailed recess, a ledger-plate provided with a tongue to engage the outer recess and an under dovetailed rib to removably fit in the dovetailed recess, and a knife or cutter adapted to travel over the ledger-plate.

3. In a cutting apparatus, the combination of a finger-bar, a finger removably attached thereto and having an overhanging top or shield with a recess in the inner termination thereof and other recesses below in the body of the finger, and a ledger-plate having projecting devices to engage the recesses in the body of the finger, and an upper recess adjacent the rear end for the reception of a removing tool or implement adapted to be placed in position through the recess at the inner end of the overhanging top or shield.

641,124. GRATE-BAR. GEORGE S. LEE, Hawthorne, N. J., assignor to Fred W. Wentworth, Paterson, N. J. Filed Aug. 29, 1899. Serial No. 728,632. (No model.)



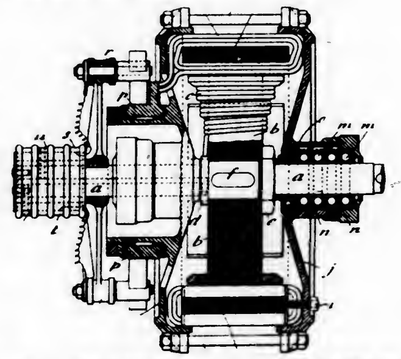
Claim.—1. A grate-bar consisting of two members or sections, one of said members being substantially tubular and the other of said members receiving said first-named member, said members having communication with each other and each having exterior communication at one of its ends, substantially as described.

2. A grate-bar consisting of two members, one of said members being substantially tubular and the other of said members having a longitudinal groove receiving said first-named member, said members having communication with each other and each having exterior communication at one of its ends, substantially as described.

3. A grate bar consisting of two members, one of said members being substantially tubular and the other of said members being substantially trough-shaped, said first-named member being disposed against the open side of the other member and having communication therewith and both of said members being open at the same end of the grate-bar, substantially as described.

4. A grate-bar consisting of two interlocking hollow members disposed the one above the other and communicating with each other, the upper member having downwardly-inclined orifices extending through its side wall and both of said members being open at the same end of the bar, substantially as described.

641,125. ELECTRIC MOTOR. HENRY LEITHER, London, England. Filed May 16, 1899. Serial No. 717,064. (No model.)

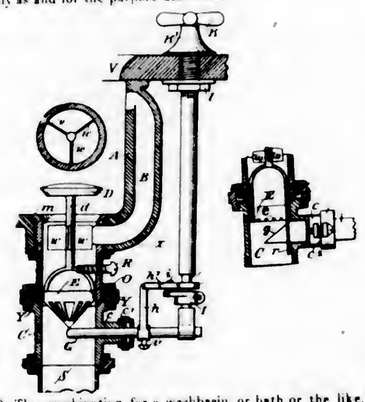


Claim.—The combination, in an electric motor, of a shaft having a bore, rings fixed on the end of the shaft, laminated field-magnets fixed to the shaft and having an even number of polar extensions the alternate ones of which have windings connected with some of said rings by conductors passing through the bore of the shaft, a laminated ring-armature surrounding the field-magnets, side frames loosely mounted on the shaft and between which the ring-armature is held, commutator-segments arranged on one of the side frames and connected by conductors with the armature-coils, and commutator-brushes arranged on the shaft and connected with some of said rings on the shaft, substantially as described.

641,126. WASTE APPARATUS FOR WASHBASINS, BATHS, &c. SAMUEL W. LEWIS, New York, N. Y. Filed Dec. 6, 1897. Serial No. 660,913. (No model.)

Claim.—1. In a waste device for a washbasin, bath or the like, the combination of a waste-outlet passage a valve or stopper for said passage, a horizontal slide adapted to open said valve a vertical handle-rod provided with an eccentric and capable of complete rotation in either direction, a yoke or traveler attached to or forming a part of said slide and surrounding said handle-rod and adapted to engage the front and back of said eccentric and a means between said handle-rod and slide supported upon one of them and engaging the other for preserving their alinement, whereby when said rod and its eccen-

tric are turned to impart motion to the slide the frictional contact or lateral effort of the eccentric against the yoke or slide cannot cause lateral displacement of the rod and slide from proper alinement, substantially as and for the purpose described



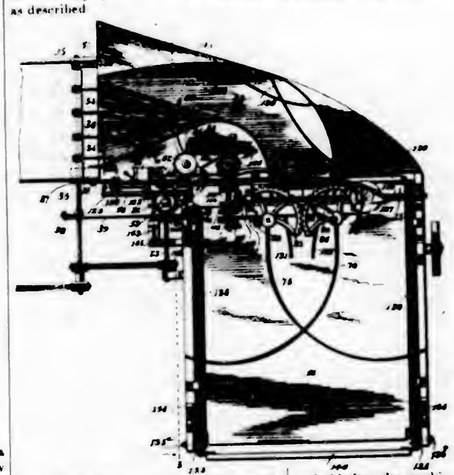
2. The combination for a washbasin, or bath or the like, of a waste-outlet passage and a stopper or valve for said passage, a hollow supporting-arm and packing-nut extending rigidly and laterally from said passage, a horizontally-moving slide fitting within and carried by said supporting-arm, the inner end of said slide forming an incline or cam *g* to slide under and open said stopper, a vertical handle-rod provided with an eccentric and capable of complete rotation in either direction, a yoke surrounding said rod and engaging said eccentric and means between said handle-rod and slide supported by one of them and engaging the other for preserving their alinement, whereby the rotation of said eccentric within said yoke will cause the slide in perfect alinement with said rod to open said stopper, substantially as described and set forth

3. The combination for a washbasin, or bath or the like, of a waste-outlet passage a stopper or valve for said passage a hollow supporting arm and packing-nut extending rigidly and laterally from said passage a horizontally-moving slide closely fitting within said supporting-arm the inner end of said slide forming an incline or cam to slide under and open said stopper a vertical handle-rod means for conveying motion from said handle-rod to said slide and a means of alinement for said rod and slide and a stop depending from said stopper under said slide, whereby the movement of said handle-rod will cause the slide in perfect alinement with said rod to open said stopper and the stop engaging the bottom of said slide will prevent removal of the stopper until the slide is withdrawn from contact with said stop, substantially as described.

641,127. SHEAF-SHOCKING MECHANISM FOR GRAIN-BINDERS. MELVIN LIGHT, ELVEN LIGHT, and ISAAC C. DUNBERT, Sheldon, Ill., assignors of one-fourth to Henry E. Strickler, same place. Filed Apr. 15, 1899. Serial No. 713,118. (No model.)

Claim.—1. In a sheaf-shocking mechanism for grain-binders, the combination of a vertical shock-forming mechanism having yieldable compressor members held under tension and arranged to compress sheaves delivered thereto, a horizontal delivery mechanism adapted to receive bound sheaves from a grain-binder, a turning chute or conduit between the shock-forming mechanism and said delivery mechanism and having a wall contiguous to the delivery mechanism inclined at one end and vertical at the other for turning the bound sheaves to an upright position and delivering said sheaves in such condition to the shock forming mechanism, and a binding mechanism for binding the upright sheaves confined within the shock-forming mechanism into a compact shock, substantially as described.

2. In a sheaf-shocking mechanism for grain-binders, the combination of a horizontal delivery mechanism, a vertical shock-forming mechanism, having yieldable members normally closed to subject bound sheaves to compression, a turning-conduit between the delivery mechanism and the shock-forming mechanism having a wall inclined at one end and vertical at the other for standing the bound sheaves grain-end up during their travel to the shock-forming mechanism, means for binding the sheaves into a shock while confined in their upright condition within the shock-forming mechanism, means for positively opening the shock-forming mechanism subsequent to binding of the sheaves and thereby releasing the latter, and a shock-delivery mechanism operable to discharge the completed shock on its release by opening of the shock-forming mechanism, substantially as described



3. In a sheaf-shocking mechanism for grain-binders the combination of a delivery mechanism, a shock-forming mechanism having yieldable members normally closed together, a constantly-operating feed mechanism for advancing sheaves to the shock-forming mechanism, a shock-delivery conveyer traversing the grain-space below the members of the shock-forming mechanism, a clutch-controlled driving mechanism for the shock-delivery conveyer, and trip connections between an element of the shock-forming mechanism and the clutch of the shock-delivery driving mechanism to automatically start the shock-delivery conveyer on the opening of the shock-forming members to their full limit, substantially as described

4. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism having members turning on vertical axis and yieldable laterally on the accumulation of sheaves between the same, means for normally moving the shock-forming members into crossing relation and resisting the outward movement of said members, a sheaf-delivery cradle vibratory on a horizontal axis, means for turning the sheaves grain-end up subsequent to their discharge from the sheaf-delivery cradle, a constantly operating feed mechanism for positively advancing sheaves to and between the yieldable members of said shock-forming mechanism, means for binding the sheaves into a shock, and means for discharging the sheaves, substantially as described.

5. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism having spring-actuated members pivotally mounted independently of each other and normally drawn toward one another to offer resistance to bound sheaves which accumulate therein, said members exerting pressure on the sheaves for compacting the same into a shock and arranged to yield automatically to the accumulation of sheaves therein, a feeding mechanism for continuously thrusting bound sheaves between the yieldable members of the shock-forming mechanism, means for binding sheaves into a shock, shock-discharge conveyer arranged to traverse the space below the members of the shock-forming mechanism, means for driving the shock-conveyer intermittently, and means for positively opening the members of the shock-forming mechanism prior to the propulsion of the shock-delivery conveyer, substantially as described.

6. In a sheaf-shocking mechanism for grain-binders, the combination with a vertical shock-forming mechanism, of a sheaf-delivery cradle mounted for vibration on a horizontal axis, a sheaf-turning chute situated between said cradle and shock-forming mechanism, said chute having one wall inclined at the end contiguous to the sheaf-delivery cradle and the other end of said wall vertical, the other wall of said chute being coextensive with the first-named wall, and means for impelling the sheaves along the chute, substantially as described.

7. In a sheaf-shocking mechanism for grain-binders, the combination with a shock-forming mechanism, of a sheaf-delivery cradle mounted for vibration on a horizontal axis, a turning chute or conduit consisting of two walls, one of said walls being vertical at one end and inclined at the other end which lies contiguous to the cradle, and oscillating feed-rakes mounted to travel longitudinally and transversely within said turning chute or conduit, for the purpose described, substantially as set forth.

8. In a sheaf-shocking mechanism for grain-binders, the combination of a vertical shock-forming mechanism, a sheaf-delivery cradle mounted for vibration on a horizontal axis, a turning chute or conduit having two walls one of which is provided with an inclined portion contiguous to said delivery-cradle and a vertical portion at its outer end, oscillating rakes provided with cranked hangers and mounted one in rear of the other contiguous to the wall of the chute and projecting into the sheaf-space of the latter, and means for driving the rakes at uniform speed, whereby the hangers of said rakes cause them to be moved lengthwise of and transversely across the chute, substantially as described.

9. In a shock-forming mechanism for grain-binders, the combination of a vertical shock-forming mechanism, a horizontal sheaf-delivery mechanism, a turning chute or conduit having one of its walls provided with longitudinal slots and with an inclined section arranged contiguous to the sheaf-delivery mechanism for the sheaves to lodge thereon and a vertical section contiguous to the shock-forming mechanism, upright crank-shafts mounted adjacent to said slotted wall of the conduit, feeding-rakes carried and actuated by said crank-shafts and arranged to play in the slotted wall of the conduit, and means for limiting the play of said rakes to make them overlap one another and to be advanced through and retracted from the conduit, substantially as described.

10. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism, a sheaf-delivery mechanism in active relation to a binder, a turning chute or conduit having two walls, one of which is inclined at one end and vertical at the other end, said wall being provided with longitudinal rake-finger slots, crank-formed shafts adjacent to the slotted wall of the conduit and geared together for rotation at uniform speed, feeding-rakes movable with the cranks of said shafts and operative in the slotted wall of said conduit, and stay-links connected with said rakes to limit their travel with the cranks of said shafts, substantially as described.

11. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism, a vibratory sheaf-delivery cradle hung on a horizontal shaft, a turning-chute having a curved wall adjacent to said cradle, a sheaf-feeding mechanism between said cradle and the shock-forming mechanism, a lever actuated by a member of the sheaf-feeding mechanism, and connections between the lever and the shaft of said cradle to vibrate the latter for depositing a sheaf on the curved wall of said conduit, substantially as described.

12. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism, a sheaf-delivery mechanism adjacent to a binder and consisting of a vibratory cradle arranged to receive the bound sheaves from said binder, a feeding mechanism operable to move the bound sheaves to the shock forming mechanism, and intermediate connections between one member of the feeding mechanism and the vibratory cradle to positively actuate the latter, substantially as described.

13. In a sheaf-shocking mechanism for grain-binders, a shock-forming mechanism comprising members arranged to overlap each other and carried by rock-shafts, gearing between said rock-shafts for insuring simultaneous movement to said members, and means for normally holding the members closed while permitting them to yield automatically to the accumulation of sheaves therein, in combination with means for feeding bound sheaves into the space inclosed by said members, means for positively opening said members to their full limits and free from engagement with the shock, a binding and tying mechanism, and a shock-delivery mechanism, substantially as described

14. In a sheaf-shocking mechanism for grain-binders, a shock-forming mechanism comprising rock-shafts intergeared together for simultaneous and uniform motion, in opposite directions, members carried by said rock-shafts and adapted to overlap each other to inclose a space within which bound sheaves may be deposited, a spring connected to one of said shafts to hold the members in their closed positions and to permit said members to yield automatically on the accumulation of sheaves therein, in combination with a shock binding and tying mechanism, a sheaf-feeding mechanism arranged to successively deposit the bound sheaves in the space between said members, and a shock-delivery mechanism, substantially as described.

15. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism having vertical members carried by vertical pivotal shafts arranged parallel one to the other and intergeared together, the members being yieldable simultaneously in opposite directions on the accumulation of sheaves therein, means for normally drawing together said members of the shock-forming mechanism and making them exert pressure on the sheaves, a sheaf-feeding mechanism, a binding and knotter mechanism, a knotter-driving mechanism, and trip devices between one of the pivotal shafts of the shock-forming mechanism and the knotter-driving mechanism to throw the latter automatically into gear when the members of the shock-forming mechanism shall have been spread laterally by the accumulation of bound sheaves therein, substantially as described.

16. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism having the vertical duplicate yieldable members carried by vertical pivotal shafts arranged parallel and intergeared together for simultaneous movement in opposite directions, means for normally holding the members of the shock-forming mechanism closed together to exert pressure on the sheaves, a sheaf-feeding mechanism, a knotter-shaft, a needle-bar reciprocable across the path of the sheaf-feeding mechanism, a driving mechanism geared to the knotter-shaft and connected operatively with the needle-bar for actuating said parts in unison one with the other, and alternately with respect to the yieldable movement of the members comprising the shock-forming mechanism, trip devices operable by one member of the shock-forming mechanism to automatically throw the driving mechanism into service at one period in the outward movement of the members constituting the shock-forming mechanism, and means for opening the shock-forming mechanism to their full limits subsequent to the operation of the binder and knotter devices, substantially as described.

17. In a sheaf-shocking mechanism for grain-binders, the combination of a vertical shock-forming mechanism having spring-actuated compressor members carried by intergeared vertical shafts and controlled by a retracting-spring to render said members yieldable under the accumulation of sheaves therein, a knotter-shaft, a needle-bar, a driving-shaft, 104, having a gear mounted idly thereon, a shaft connecting said idle gear with the knotter-shaft, operative connections between the knotter-shaft and the needle-bar to reciprocate the latter, a trip-arm fast with the shaft, 104, a trip-plate connected with the idle gear and disposed contiguous to the trip-arm, a stop-lever, 118, in the path of the trip-plate to hold the latter free from the trip-arm and a releasing-cam carried by the pivotal shaft of one member of the shock-forming mechanism to free the trip-plate from the stop, substantially as described.

18. In a sheaf-shocking mechanism having intergeared members carried by vertical pivotal shafts and controlled by a retracting-spring to render the members yieldable under accumulation of sheaves therein, a knotter-shaft, a needle-bar, a counter-shaft having an idle gear adapted to actuate the knotter-shaft, a trip mechanism having members which are fast with the counter-shaft and supported by the idle gear, respectively, a stop-lever, 118, normally interposed in the path of the member on the gear to hold the members of the trip mechanism free from each other, a cam carried by the shaft of one member of the shock-forming mechanism to retract the stop-lever from engagement with the trip mechanism, and an arm, 90, on the shaft of one member of the shock-forming mechanism actuated by the knotter-shaft-driving mechanism to release the trip mechanism and permit the shock-forming members to be returned by the retracting-spring to their closed positions, substantially as described.

19. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism having yieldable members carried by vertical pivotal shafts controlled by a retracting-spring to normally close the members, a knotter-shaft, a reciprocating needle-arm, a counter-shaft, 104, a driving-gear loose on said counter-shaft, an intermediate shaft geared to the knotter-shaft and driven intermittently from the driving-gear, a yieldable trip mounted on and revoluble with said idle gear, a trip-arm fast with the counter-shaft and adapted through intermediate projections to engage with the trip on said idle gear, a stop-lever, 118, normally engaging with said trip to hold the latter and the driving gear at rest, a releasing-cam carried by a shaft of one member of the shock-forming mechanism and engaging with the stop-lever, and mechanism for opening the members of the shock-forming mechanism to their full limits subsequent to the operation of the knotter mechanism, substantially as described.

20. In a sheaf-shocking mechanism for grain-binders, the combination of a grain-platform, a shock-forming mechanism having its members carried by pivotal shafts and normally closed together for confining a series of sheaves, a shock-delivery conveyer arranged to traverse the space below the members of the shock-forming mechanism, a clutch-controlled gear for propelling the shock-delivery conveyer, means for feeding sheaves in an upright condition to the grain-platform, between the members of the shock-forming mechanism and in the path of the shock-delivery conveyer, a binding and tying mechanism adapted to bind the sheaves while in an upright condition on the grain-platform into a shock, means for positively opening the members of the shock-forming mechanism, subsequent to the operation of binding and tying the shock, and shipping-levers operative from one member of the shock-forming mechanism to automatically throw the driving-gear for the shock-delivery conveyer into service, substantially as described.

21. In a sheaf-shocking mechanism for grain-binders, the combination of a shock-forming mechanism, a needle-bar, a knotter-shaft, a trip-controlled driving-gear for intermittently actuating the knotter-shaft, a stud movable with one member of the shock-forming mechanism, the needle-bar to

actuate the latter and adapted to ride against the stud for positively opening the members of the shock-forming mechanism to their full limit, and a shock-delivery mechanism for carrying the shock from the shock-forming mechanism subsequent to the positive opening of the members thereof, substantially as described.

22. In a shock-forming mechanism for grain-binders, the combination of a platform, a shock-forming mechanism having yieldable compressor members, means for positively opening said compressor members to their full limits, a shock-delivery conveyer having shock pusher-bars arranged to traverse the space beneath the shock-forming space inclosed by the said members of the shock-forming mechanism and to engage successively with a shock, and a clutch-controlled driving-gear for propelling the shock-delivery conveyer subsequent to the positive opening of the shock-forming mechanism, substantially as described.

23. In a sheaf-shocking mechanism for grain-binders, the combination with a shock-forming mechanism having members adapted to be positively opened subsequent to the binding of the shock, a shock-delivery conveyer having pusher-bars spaced to engage successively with a completed shock subsequent to the full opening of the members of the shock-forming mechanism, a clutch-controlled driving-shaft for propelling the shock-delivery conveyer, a shipping-lever, devices actuated by the shock-forming mechanism on the opening of the members to the full limit to move the shipping-lever and throw the clutch-driving shaft automatically into service subsequent to the binding of the shock, and trip devices carried by the shock-delivery conveyer and adapted to engage with the shipping-lever and to throw the driving-shaft out of service, substantially as described.

24. In a sheaf-shocking mechanism for grain-binders, the combination with a shock-forming mechanism having movable members arranged to confine a number of sheaves, means for binding and tying the shock, a shock-delivery mechanism including endless chains, and pusher-bars carried by said chains to successive engage with shocks subsequent to the binding thereof, a clutch-controlled driving-gear associated with the shaft of the shock-delivery mechanism, a trip-lever connected with said clutch of the driving-gear, trip-fingers movable with one of said chains and arranged to actuate the shipping-lever for throwing the driving-gear out of service, and a trip-shaft having a part disposed in the path of one member of the shock-forming mechanism and also connected operatively with the shipping-lever to automatically throw the driving-gear into service when the shock-forming mechanism is open to its full limit, substantially as described.

25. In a sheaf-shocking mechanism for grain-binders, the combination of a stationary grain-platform, a shock-forming mechanism above said platform, a shock-delivery mechanism including endless chains supported by shafts and pusher-bars carried by said chains, said chains and shock pusher-bars of the conveyer arranged to traverse the platform and to travel beneath the space inclosed by the shock-forming mechanism, a clutch-controlled driving-gear mounted idly on a shaft of the shock-delivery conveyer, means adapted to propel said gear, a shipping-lever connected with said clutch, and trip-fingers carried by the shock-delivery conveyer to operate the shipping-levers, substantially as described.

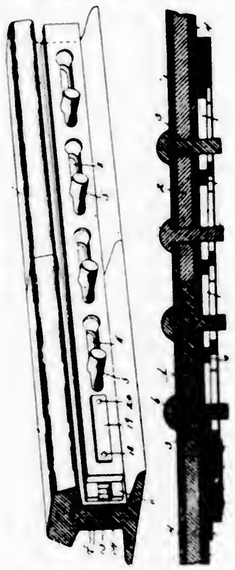
26. In a sheaf-shocking mechanism for grain-binders, the combination with a shock-forming mechanism consisting of laterally-yieldable members carried by vertical pivotal shafts and having one of its shafts provided near its lower end with a lifting-finger, a shock delivery conveyer arranged to travel beneath the shock-forming mechanism, a clutch-controlled driving-gear for said shock-delivery mechanism, a shipping-lever connected with said clutch of the driving-gear, a trip-shaft linked to the shipping-lever, and a finger fast with said trip-shaft and disposed in the path of the lifting-finger, said finger being adapted to hold the members of the shock-forming mechanism in their open positions during the operation of the shock-delivery mechanism, substantially as described.

27. In a sheaf-shocking mechanism for grain-binders, the combination of a platform, posts or columns erected thereon, a frame adjustable vertically on said posts or columns, a shock-forming mechanism having rock-shafts journaled on said posts or columns and the adjustable frame, and a binding and tying mechanism supported by the adjustable frame, substantially as described.

28. In a sheaf-shocking mechanism for grain-binders, the combination of a platform, posts or columns erected thereon, a frame adjustable vertically on said posts or columns, a shock-forming mechanism having extensible shafts which have the respective sections thereof mounted on said posts or columns and the adjustable frame, and a binding and tying mechanism supported or carried wholly by the adjustable frame, whereby the shock-forming mechanism is adapted to sheaves of different heights, and the binding mechanism may pass and tie a binding-twine around the upper part of the shock confined within said shock-forming mechanism, substantially as described.

29. In a sheaf-shocking mechanism for grain-binders, the combination of a platform, posts or columns erected thereon, a horizontal frame connected to and supported by said posts or columns for adjustment vertically thereon, the sectional rock-shafts carrying the members of the shock-forming mechanism and having their respective sections journaled in bearings on the columns and the adjustable frame, the extensible members of said shafts being slidably coupled to the non-extensible shaft members and also geared together for simultaneous movement, a knotter-shaft carried by said frame, a needle-bar suspended from said frame and adapted to reciprocate toward the knotter-shaft, and a driving mechanism mounted on the frame and having operative connections with the knotter-shaft and the needle-bar, for the purpose described, substantially as set forth.

641,128. **RAIL-JOINT.** FREDERICK LOTT, Pearl City, Ill. Filed July 15, 1899. Serial No. 723,930. (No model.)



Claim.—1. In a rail-joint, the combination with a series of shouldered bolts, of a pair of wedge-bars provided with keyhole-slots, the slots of one bar being disposed reversely to those of the other bar, and means carried by one bar adapted to automatically engage the other bar for locking the two bars against relative longitudinal movement, substantially as described.

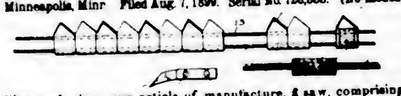
2. In a rail-joint, the combination with shouldered bolts, of a pair of wedge-bars having reversely-disposed keyhole-slots for engagement with the bolts, one of said bars having a longitudinal series of teeth or shoulders, and a spring actuated dog or latch carried by the other bar and adapted to automatically engage said teeth or shoulders to prevent relative longitudinal movement of the wedge-bars.

3. In a rail-joint, the combination with shouldered bolts, of a pair of wedge-bars having reversely-disposed keyhole-slots, one of said bars being provided with a longitudinal series of teeth or shoulders, a leaf-spring connected at one end to the other wedge-bar, and a dog or latch carried by the free end of said spring and adapted to engage the teeth or shoulders on the other wedge-bar, substantially as described.

4. In a rail-joint, the combination with shouldered bolts, of a pair of wedge-bars having reversely-disposed keyhole-slots, one of said bars having a longitudinal series of teeth or shoulders, a leaf-spring secured to the other wedge-bar, and a dog or latch connected to the free end of said spring and working through a transverse opening in said wedge-bar and adapted to successively engage the teeth on the other wedge-bar, substantially as described.

5. In a rail-joint, the combination with shouldered bolts, of a pair of wedge-bars having reversely-disposed keyhole-slots, the inner wedge-bar having a longitudinal series of teeth or shoulders and the other wedge-bar a transverse opening in line with said teeth or shoulders, a leaf-spring fastened at one end to the outer surface of the outer wedge-bar, and a dog or latch connected to said spring near its free end and working through said transverse opening and engaging the teeth on the inner wedge-bar, the free extremity of the spring being adapted to be moved outward by the insertion of an instrument between it and the outer face of the wedge-bar, substantially as described.

641,129. **CABLE-SAW.** JOHN E. LUBE and FREDERICK D. SEARS, Minneapolis, Minn. Filed Aug. 7, 1899. Serial No. 726,353. (No model.)



Claim.—1. As a new article of manufacture, a saw, comprising a series of flat separable teeth of substantially the same thickness throughout, and means included by the thickness of said teeth and between the same for securing them together.

2. As a new article of manufacture, a saw, comprising a series of flat separable teeth, their shanks having straight edges and said teeth being of substantially the same thickness throughout, each tooth having its edges in engagement with the abutting edges of the adjoining teeth, and independent means included by the thickness of said teeth and between the same for securing them together.

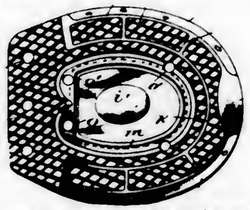
3. As a new article of manufacture, a saw having a series of separable teeth, their shanks having straight parallel edges and said teeth being of substantially the same thickness throughout, the edges of each tooth being in engagement with the edges of the abutting teeth but not connected thereto, and flexible means included by the thickness of said teeth and between the same for supporting or securing them together, substantially as described.

4. A saw comprising a series of teeth, having holes or openings extending through the same from edge to edge, the diameter of said holes being less than the thickness of said teeth between their cutting edges, flexible cables passing through said holes or openings, means securing the outer teeth of the series in position upon said cables, and means for securing the ends of said cables together, substantially as described.

5. The combination, with a series of flat teeth provided with straight-edged shanks having parallel holes or openings extending through the same from edge to edge, the holes in each tooth registering with corresponding holes in the abutting teeth, cables passing through said holes, means to prevent the slipping of said teeth upon said cable, and means for securing the ends of said cables together, substantially as described.

6. The combination, with a series of teeth having holes or openings extending through the same from edge to edge, cables passing through said holes or openings, means preventing the slipping of said teeth upon said cables, one of said teeth having a recess or depression wherein the ends of said cables meet, and means for securing said ends together, substantially as described.

641,130. **SOFT-TREAD HORSESHOE.** ELMER E. MEARS and JULES A. COLLET, New York, N. Y. Filed Sept. 2, 1899. Serial No. 729,367. (No model.)



Claim.—1. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having a channel extending around the bottom thereof and a flat top closing the upper side of the channel, said channel being bounded by thin inner and outer walls projecting from the top and being subdivided by thin transverse ribs or partitions to form a series of closely-related pockets or cavities, nail-flanges projecting beyond the outer sides of the channel and forming continuations of the top, and pads or cushions seated in said cavities.

2. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having a flat top, and a continuous channel extending around the bottom thereof, said channel being formed by inner and outer boundary-walls depending from said top and being subdivided by thin transverse ribs or partitions connecting said walls and forming a series of closely-related pockets or cavities, and pads or cushions seated in said pockets or cavities and having their ends coming closely together without abutting but separated slightly by the thin transverse ribs, whereby an effective coöperation between the cushion and metallic parts of the shoe is insured, substantially as described.

3. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having a flat top, and a continuous channel extending around the bottom thereof, said channel being formed by inner and outer boundary-walls depending from the top, their transverse ribs or partitions connecting said walls at the quarters and subdividing the channel into a series of pockets, short pads or cushions seated in the pockets at the quarters, and a toe-pad or cushion extending around the toe part of the channel continuously to the foremost transverse ribs of the quarter-pockets.

4. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having a flat top, and a continuous channel extending around the bottom thereof, said channel being bounded by thin inner and outer depending walls, a toe-calk and heel-walls and subdivided at the quarters by thin transverse ribs or partitions to form pockets or cavities, and the toe-calk being deflected inwardly to contact the central portion of the cavity, and pads or cushions seated in said cavity extending continuously around the toe to the foremost partitions at the quarters.

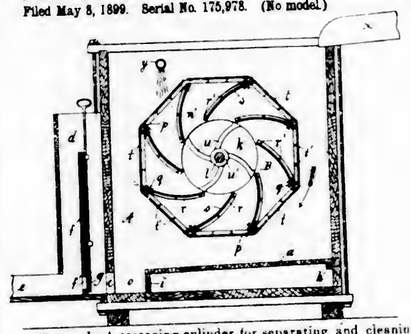
5. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having a flat top and a channeled bottom subdivided to form pockets or cavities, said top being provided with openings communicating with the cavities and upper seat depressions connecting with said openings, and pads or cushions seated in the pockets and provided with rivets passed up through the openings and having their upper ends upset, clenched or bent down into said depressions.

6. A soft-tread or cushioned horseshoe, comprising a U-shaped metallic frame having an elastic tread, and a pad having a heel-cushion and a body portion covering the opening between the sides of the frame and provided on the under side thereof with a resilient antiballing projection.

7. A soft-tread or cushioned horseshoe, comprising a metallic frame, a backing, and a pad, said pad being provided with openings, and rivets securing the backing and pad and having the lower surfaces of their heads countersunk in said openings and located wholly above the plane of the tread of the shoe.

8. A soft-tread or cushioned horseshoe, comprising a cushioned metallic frame, a pad coacting with cushions of the frame, a backing for the pad, and means for connecting the pad and backing, said connecting means being located wholly above the plane of the tread of the shoe.

641,131. **APPARATUS FOR SEPARATING AND CLEANING PULP FOR PAPER-MAKING.** FRED C. MICHAELIS, Ballston, N. Y. Filed May 8, 1899. Serial No. 175,978. (No model.)



Claim.—1. A screening-cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft, curved plates secured to the end plates and extending inwardly from the corners thereof to a point approximately midway between the center and the peripheries of the end plates and of screens secured to the end plates and composing together with the end plates the body of the cylinder.

2. A cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft, one of the end plates being provided with a flanged aperture located approximately in its center, of curved plates secured to the end plates and extending inwardly from the corners thereof to a point about midway between their centers and their peripheries, and of flat screens secured to the peripheries of the end plates and forming the body of the cylinder.

3. A screening-cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft and having corresponding curved plates extending from the corners of the end plates to a point about midway between their centers and their peripheries, curved plates secured to the flanges, ribs secured to the corners of the end plates and extending from one end

plate to the other, and flat screens secured to the end plates and to the ribs.

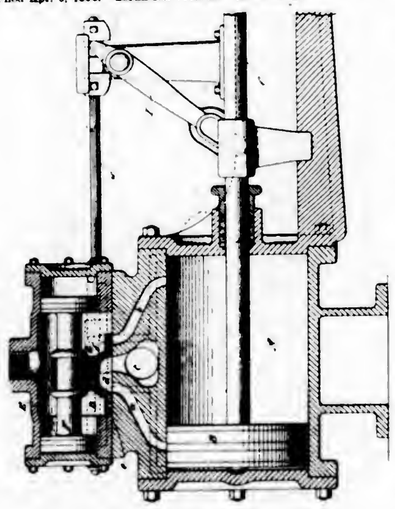
4. The combination with a screening-cylinder consisting of a shaft, polygonal end plates mounted on the shaft and of screens secured to the end plates and forming together with the end plates the body of the cylinder, of curved end plates set in the cylinder and extending inwardly from the corners of the end plates to a point approximately midway between their centers and their peripheries.

5. An apparatus for separating and cleaning pulp for paper-making, consisting of a vat, having an aperture approximately in center of one side of the vat, suitable standards, one on each end of the vat, a shaft passing longitudinally through the vat and mounted in bearings supported on the standards, a screening-cylinder mounted on the shaft within the vat and consisting of polygonal end plates secured to the shaft and provided with corresponding flanges extending between their centers and periphery, curved plates secured to the flanges and extending from one end plate to the other, and of flat screens secured to the peripheries of the end plates, the screening-cylinder having a flanged aperture in its end plate, opposite the aperture in the vat, an inlet end and an outlet-trough conveying the pulp material into and from the apparatus, an outlet for discharge of the residue, and means for rotating the shaft.

6. An apparatus for separating and cleaning pulp for paper-making, consisting of a vat, having an aperture approximately in center of one side thereof, suitable standards, one on each end of the vat, a shaft passing through the vat and mounted in bearings supported on the standards; a polygonal screening-cylinder secured to the shaft within the vat, and having an aperture in its end plate, opposite the aperture in the vat, curved plates set in the cylinder from each corner thereof to a point about midway between its center and periphery, a collar, covering the joint between the edges of the aperture of the cylinder and the aperture of the vat, a perforated water-pipe set in the vat above the screening-cylinder and to one side of the center thereof, discharge-water on the other side thereof, an inlet and an outlet conveying the pulp material into and from the aperture, an outlet for discharge of the residue, and means for rotating the shaft.

7. An apparatus for separating and cleaning pulp for paper-making, consisting of a vat, having a discharge-aperture approximately in center of one end side thereof and another aperture in the longitudinal wall, a trough provided in the bottom of the vat and alongside of its perforated longitudinal wall, a stand-pipe adjoining the vat and communicating therewith through the aperture, a partition-wall set in the stand pipe extending from a point below its upper edge and down to its bottom, and provided with an aperture opposite the aperture in the wall of the vat, a slide-valve closing the aperture in the partition-wall, a culvert communicating with the stand pipe, a trough connecting with the discharge-aperture of the vat, a straining-cylinder rotatably mounted in the vat, and having an aperture coinciding with the discharge-aperture of the vat, and means for rotating the cylinder in the vat.

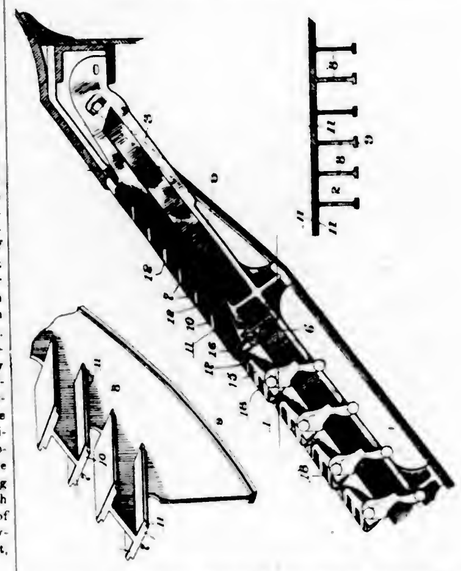
641,132. SLIDE-VALVE. ILA N MOORE, Battle Creek, Mich. Filed Apr. 6, 1899. Serial No. 711,981. (No model.)



Claim.—1. The combination with the cylinder having suitable ports, of a slide-valve having through-ports of less diameter than the cylinder-ports and adapted to register therewith, the ports at one end of the valve being of a different area from those at the other end, and means for operating the valve.

2. A slide-valve, provided with extended wings for covering, at all times, the admission-ports to the cylinder, said wings being provided with ports adapted to register with the admission-ports on either a short or a long stroke of the valve, the ports on one of the wings being of a different area from those on the other wing, substantially as shown and described.

641,133. GRATE. WILLIAM MCCLAVE, Scranton, Pa. Filed Oct. 21, 1899. Serial No. 734,372. (No model.)



Claim.—1. An inclined grate comprising rocking grate-bars, the said bars having webs extending upwardly, lateral teeth on said webs with air-spaces between them and provided with rabbeted portions at their ends, whereby meeting teeth extending from adjacent webs will have their rabbeted ends brought together and fit upon each other, to close the space between them so that fine fuel cannot run through the grate, substantially as described.

2. In a grate, the combination with inclined carrier-bars, of rocking bars mounted thereon, cross bearer-bars mounted on said carrier-bars, stationary grate-bars mounted upon the said cross bearer-bars having a body web portion, teeth upon their upper edges extending laterally from either side of the said web on the same plane, the forward edges of the said teeth overlapping the rear edges of the teeth below them, the said teeth overlapping the edges of the teeth on the adjacent bars, the construction being such that fine fuel is prevented from running through into the ash-pit, substantially as described.

3. An inclined grate comprising in its construction a series of stationary bars having lateral teeth, cut-away portions arranged between some of the teeth for securing short lines of metal to prevent warping, the forward edges of the said teeth overlapping the rear edges of the teeth below them, offset or rabbeted portions upon the edges of said teeth adapted to meet and correspond with the rabbeted portions of the teeth upon the next adjoining bar, whereby the space between the teeth will be sealed against the running through of fuel but sufficient play will be allowed for the expansion and contraction of the metal, substantially as described.

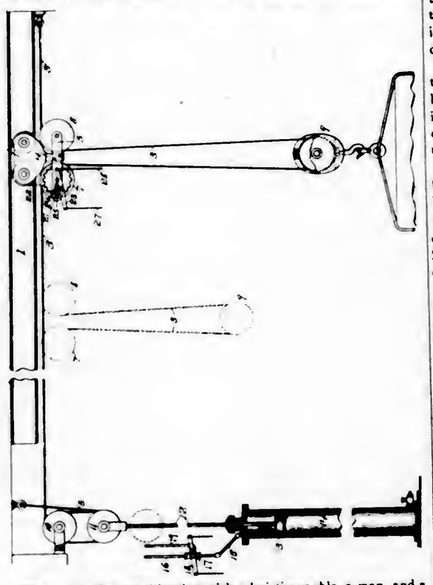
4. A grate comprising rocking grate-bars and stationary grate-bars, lateral teeth formed upon all of said bars, said teeth being rabbeted at their ends with respect to the teeth of the next bars, pivoted followers mounted at the lower end of the stationary bars and adapted to rest against the upper edge of the upper rocking bars for preventing the fuel from running through at this point, substantially as described.

641,134. COMPOSITION FOR CLEARING SUGAR. EDWIN L. MCTYER, Thomasville, Ga. Filed Mar. 7, 1899. Serial No. 708,079. (No specimens.)

Claim.—1. A batter for clarifying brown or crude cane-sugar, comprising clay, chopped corn-husks and water, as set forth.

2. A batter for clarifying brown or crude cane-sugar, consisting of clay, chopped corn-husks, bran and water, as set forth.

641,135. HOISTING APPARATUS. CARLETON W. MASON, New York, N. Y. Filed Oct. 4, 1898. Serial No. 692,596. (No model.)



Claim.—1. The combination with a hoisting-cable, a way, and a carrier thereon provided with supports over which the cable passes and between which it is looped to sustain the load, of means for effecting a variation in the relative amount of resistance offered on opposite sides of said looped portion to movement of the cable, whereby the carrier is caused to move with the draft end of the cable but is free to move relatively to the looped and rear portions thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

2. The combination with a hoisting-cable, a way, and a carrier thereon provided with supports over which the cable passes and between which it is looped to sustain the load, of means for increasing on the draft side of said looped portion the resistance offered to movement of the cable, whereby the carrier is caused to move with the draft end of the cable but is free to move relatively to the looped and rear portions thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

3. The combination with a hoisting-cable, a way, and a carrier thereon provided with a pair of sheaves journaled therein over which the cable passes and between which it is looped to sustain the load, of means for effecting a variation in the relative amount of resistance offered at said sheaves to movement of the cable relatively to the carrier, whereby the carrier is caused to move with the draft end of the cable but is free to move relatively to the looped and rear portions thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

4. The combination with a hoisting-cable, a way, and a carrier thereon provided with a pair of sheaves journaled therein over which the cable passes and between which it is looped to sustain the load, of means for increasing at the sheave on the draft side of said looped portion the resistance offered to movement of the cable, whereby the carrier is caused to move with the draft end of the cable but is free to move relatively to the looped and rear portions thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

5. The combination with a hoisting-cable, a way, and a carrier thereon provided with a pair of sheaves journaled therein over which the cable passes and between which it is looped to sustain the load, of means for restraining rotation of the sheave on the draft side of said looped portion, the other sheave remaining free to rotate, whereby the carrier is caused to move with the draft end of the cable and relatively to the looped and rear portions thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

6. The combination with a hoisting-cable, a way, and a carrier thereon provided with a pair of sheaves journaled therein over which the cable passes and between which it is looped to sustain the load, of a clutch for restraining rotation of the sheave on the draft side of said looped portion, the other sheave remaining free to rotate, whereby the carrier is caused to move with the draft end of the cable and relatively to the looped and rear portion thereof, said rear portion being suitably held against movement with the carrier, substantially as described.

7. The combination with a hoisting-cable, a way and a carrier thereon provided with sheaves 7, 8 over which the cable passes and between which it is looped to sustain the load, of clutch 20 restraining rotation of sheave 7 to cause the carrier to move with the draft end of the cable and relatively to the looped portion thereof, and means for operating said clutch, substantially as described.

8. The combination with a hoisting-cable, a way and a carrier thereon provided with sheaves 7, 8 over which the cable passes and between which it is looped to sustain the load, of clutch 20 restraining rotation of sheave 7 to cause the carrier to move with the draft end of the cable and relatively to the looped portion thereof, lever 23, and connections between said lever and clutch, substantially as described.

9. The combination with a hoisting-cable, a way and a carrier thereon provided with sheaves 7, 8 over which the cable passes and between which it is looped to sustain the load, of clutch 20 restraining rotation of sheave 7 to cause the carrier to move with the draft end of the cable and relatively to the looped portion thereof, lever 23, and connections between said lever and clutch, consisting of pins on one and an arm on the other, substantially as described.

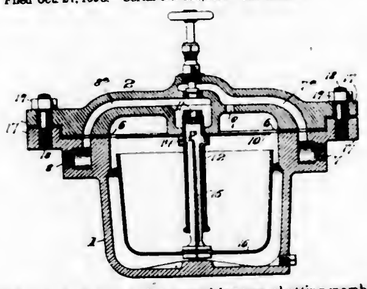
10. The combination with a hoisting-cable, a way and a carrier thereon provided with sheaves 7, 8 over which the cable passes and between which it is looped to sustain the load, the sheave 7 being toothed, of clutch 20 adapted to engage the teeth of sheave 7 to cause the carrier to move with the draft end of the cable and relatively to the looped portion thereof, and means for operating said clutch, substantially as described.

11. The combination with a hoisting-cable or the like, a way and a carrier thereon, of sheave 7, clutch 20, lever 23, and connections between said lever and clutch, substantially as described.

12. The combination with a hoisting-cable or the like, a way and a carrier thereon, of sheave 8, clutch 20, lever 23, and connections between said clutch and lever, consisting of pins on one and an arm on the other, substantially as described.

13. The combination with a way and a carrier thereon, of sheaves 7, 8 journaled therein, a cable 3 passing over the sheaves and looped between them, power mechanism at the end of the cable next the sheave 7, clutch 20 for engaging said sheave 7, and lever 23 and connections for operating such clutch, substantially as described.

641,136. STEAM-TRAP. CARLETON W. MASON, New York, N. Y. Filed Oct. 27, 1898. Serial No. 694,669. (No model.)

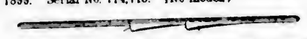


Claim.—1. A trap-casing comprising two abutting members, one bearing inlet and outlet ports and the other similarly-located inlet and outlet passages communicating therewith, said two members being secured together throughout their major portions by bolts or the like on opposite sides of the inlet and outlet points of the casing and additionally at such inlet and outlet points by bolts or the like passing through ears formed on the two members in line with and projecting laterally beyond the ports and the other securing-bolts or the like, substantially as described.

2. A trap-casing comprising the members 1, 2, bearing inlet and outlet ports 7, 8, and passages 7ª, 8ª, respectively, and provided with flanges 3, 4, held together by bolts 5, and with ears 17 in line with and projecting laterally beyond the ports and bolts 5, and secured together by bolts, 18, substantially as described.

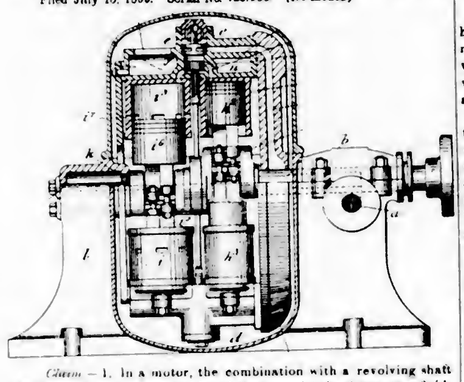
3. A casing designed for connection with a steam system and comprising two members, one provided with a port and the other with a passage communicating therewith, said two members being secured together by bolts or the like on opposite sides of the port and additionally at the port by a bolt or the like passing through ears formed on the two members in line with and projecting laterally beyond the port, substantially as described.

641,137. HAIR-PIN. HARRY NATHAN, New York, N. Y. Filed Apr. 27, 1899. Serial No. 714,713. (No model.)



Claim.—A hair-pin having its tines or branches provided with lateral projections on one side only thereof, the surfaces of each of said tines opposite each other and behind said projections being smooth or unobstructed throughout, the said projections being formed with inclined or converging outer edges and with rounded catch-faces no parts of which extend above the point of intersection of said faces with the tines or branches, substantially as described.

641,138. STEAM-MOTOR. PHILIP F. ODDIE, London, England. Filed July 15, 1899. Serial No. 723,988. (No model.)



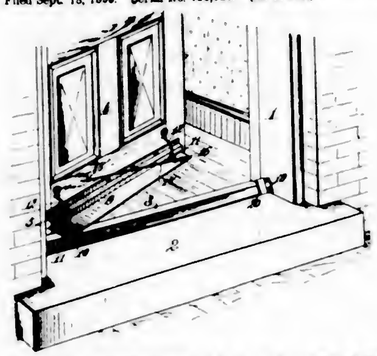
Claim.—1. In a motor, the combination with a revolving shaft from which the power developed is transmitted, of a motive-fluid-supply passage, a disk c provided with fluid-distributing passages, hollow projecting studs, each hollow arm having fluid-passages and carrying a distributing-valve, a high-pressure cylinder and a low-pressure oscillatory cylinder, each cylinder being provided with fluid-passages and with a piston and connections between said piston and the fixed centrally-located cranked shaft and a supporting-framing therefor, substantially as set forth.

2. In a motor, the combination of the cranked shaft, the fly-wheel disk mounted on the shaft and constructed in its interior with radial passages for distributing the working fluid, the hollow studs projecting laterally from the disk and communicating with the internal passages thereof, and having exhaust-ports, throttle-valves mounted in said lateral, hollow studs, cylinders having their ends seated upon and oscillating about said studs to control the exhaust-ports in the latter, and pistons connected with the cranked shaft, substantially as described.

3. In a motor the combination of the hollow cranked shaft, the balance-wheel disk formed internally with radial fluid-distributing passages communicating with the interior of said shaft, the hollow studs projecting laterally from one side of the disk and communicating with the said internal passages thereof, the cylinders journaled upon and oscillating about said lateral, hollow studs, the throttle-valves slidable transversely of and mounted within said studs, the pistons in the cylinders, and connections between the pistons and throttle-valves and the cranked shaft, substantially as described.

4. In a motor, the combination of the cranked shaft, the disk mounted on the shaft and having radial fluid-passages in its interior, the lateral, hollow studs projecting from the disk and communicating with the internal passages thereof, the cylinders oscillating upon the lateral, hollow studs and communicating with the interiors of said studs, pistons in the cylinders, connected with the cranked shaft, sliding throttle-valves mounted in and moving transversely of said hollow studs, and springs arranged to act against the outer ends of the throttle-valves and resist the centrifugal force thereof, substantially as described.

641,139. WEATHER-STRIP FOR DOORS. ANDREW G. OGAN, Meadville, Mo., assignor of one-half to Ray E. Prather, same place. Filed Sept. 18, 1899. Serial No. 730,926. (No model.)



Claim.—1. The combination with a weather-strip, of resilient hinge connections between the weather-strip and the door, each connection consisting of an elastic wire hanger having its upper end provided with means for rigidly securing it to the door and its lower end with means for pivotally connecting it with the weather-strip, substantially as described

2. The combination with a door, a cap or shield attached thereto, and a weather-strip, of resilient hinge connections between the weather-strip and the door, each connection consisting of an elastic wire hanger having its upper end provided with means for rigidly securing it to the door and its lower end with means for pivotally connecting it with the weather-strip, and a stop secured to the door-casing for depressing the weather-strip to its seat, substantially as described.

3. The combination with a door, a cap or shield attached to the door, and a weather-strip, of resilient hinge connections between the weather strip and the door, each connection consisting of an elastic wire hanger having its upper end provided with means for rigidly securing it to the door and its lower end with means for pivotally connecting it with the weather-strip, and a longitudinal spring-rod arranged above the weather-strip and secured at one end to the door and at the other end to said weather-strip, substantially as described.

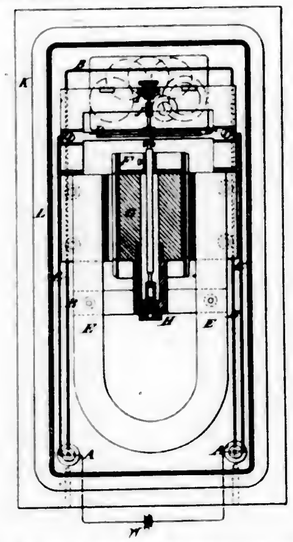
4. The combination with a door, a cap or shield attached to the door, and a weather-strip, of resilient hinge connections between the door and the weather-strip, each composed of an elastic hanger secured at its upper end to the door and pivotally engaged at its lower end with the weather-strip, a spring arranged above the weather-strip and operating to raise the latter, and a stop attached to the door-casing and operating to seat the weather-strip, substantially as described.

5. The combination with the cap or shield attached to the door, of the flat weather-strip, eyes attached to the weather-strip intermediate its upper and lower edges, resilient rods or wires engaging said eyes at their lower ends and attached at their upper ends to the door at a point above the cap or shield, a spring attached at one end to the door and at its other end to the weather-strip and operating to normally raise the latter, and a stop arranged to force said weather-strip into engagement with the cap or shield and the threshold when the door is closed, substantially as described.

641,140. ELECTRICITY-METER. CHARLES E. O'KEENAN, Paris, France. Filed June 2, 1898. Serial No. 682,340. (No model.)

Claim.—1. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils of wire of good conductivity, revolubly mounted in the field of the magnet; this armature giving no motion to, nor containing in its structure any movable parts which can produce a damping effect upon said armature, such as hysteresitic, Foucault, or parasitic losses induced therein, or in adjacent conducting parts, or even mechanical friction, the latter being in fact so minimized by construction that all retarding effect is practically avoided, substantially as set forth.

2. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils revolubly mounted in the field of the magnet, this armature giving no motion to, nor containing any parts that can produce a damping effect upon said armature; and a registering device actuated by said armature, substantially as described.



3. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils revolubly mounted in the field of the magnet, this armature giving no motion to, nor containing any parts that can produce a damping effect upon said armature, and a commutator connected to said coils, conducting-wires, and very light brushes, for connecting the commutator to an electrical resistance made of a single German-silver wire, which wire being traversed by almost the entire current to be measured will determine according to Ohm's law a fall of potential proportional to the current which will traverse it, substantially as set forth

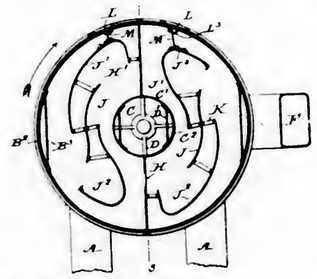
4. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils revolubly mounted in the field of the magnet, this armature giving no motion to, nor containing any parts that can produce a damping effect upon said armature, and a commutator connected to said coils, conducting-wires and very light brushes, for connecting the source of potential to said commutator, and said source of potential, which is made of a pile or galvanic cell of constant voltage, substantially as set forth.

5. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils revolubly mounted in the field of the magnet, this armature giving no motion to, nor containing any parts which can produce a damping effect upon said armature, and having its coils in a derived branch of a low resistance B, through which flows almost the entire current to be measured, and a resistance P, connected respectively with one brush of said armature and with one end of the resistance B, which resistance P, being traversed by an additional constant current, determines a small and constant additional fall of potential, which, reacting on armature produces therein a constant torque sufficient to balance exactly the small resisting torque of friction and thus render the proportionality of the meter still more perfect and accurate, substantially as set forth.

6. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature consisting of a plurality of coils revolubly mounted in the field of the magnet this armature giving no motion to, nor containing any parts that can produce a damping effect upon said armature, this armature consequently being without movable iron, without movable conducting parts, or parts in which parasite currents may form, and having antifriction-bearings, and a commutator connected to said coils, conducting-wires, and very light brushes for connecting the commutator to an electrical resistance B made of a single German-silver wire, this resistance being divided in sections of which the length is determined in such a manner as to permit of registering different rates, these rates being proportional to the resistance from the initial binding-post to the points of derivation, substantially as set forth.

7. In an electric motor-meter, the combination with a strong permanent magnet, of a movable armature giving no motion to, nor containing any parts that can produce a damping effect upon said armature, such armature having its coils in a derived branch circuit between the binding-posts of a fixed resistance B, and being practically without friction, and a special coil *s*, of fine wire connected in derivation to the main electric poles of the installation, through which coil flows a small derived current proportional to the voltage of the station, which coil reacts magnetically on the armature and diminishes therein the counter electromotive force, whereby the angular velocity of armature is made proportional to the electrical power to be measured, substantially as set forth.

641,141. COFFEE OR MALT DRIER. FRITZ E. R. OKRASSA, Antigua, Guatemala. Filed Oct. 23, 1899. Serial No. 734,465. (No model.)



Claim.—1. A drying-machine comprising a rotary drum provided with means for the admission and egress of the drying agent, stirrers held to rotate with the drum and provided with apertures for the insertion of the material, and slides or doors for closing said apertures, substantially as described.

2. A drying-machine comprising a rotary drum provided with means for the admission and egress of the drying agent, and stirrers held to rotate with the drum, and each comprising three members of which the end members are bent in opposite directions at their outer ends and spaced from each other at their inner ends, and a central member arranged between said spaced ends and substantially parallel with the spaced ends of the end members, substantially as described.

3. A drying-machine comprising a rotary drum provided with means for the admission and egress of the drying agent, and stirrers held to rotate with the drum, each stirrer being of substantially S shape and consisting of three members, namely two end members spaced from each other at their adjacent ends and bent in opposite directions at their outer ends, and a central member located in the space between the inner ends of the end members and curved correspondingly thereto, substantially as described.

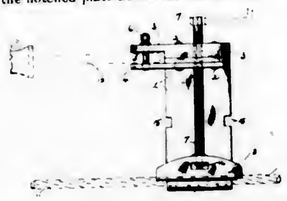
4. A drying-machine comprising a rotary drum provided with means for the admission and egress of the drying agent, and stirrers held to rotate with the drum, the outer wall of the drum and the stirrers being provided with apertures for the insertion of the material, and slides or doors for closing said apertures, substantially as described.

5. A drying-machine comprising a rotary drum provided with means for the admission and egress of the drying agent, and stirrers held to rotate with the drum, the outer wall of the drum and the stirrers being provided at adjacent points with apertures for the insertion of material, slides or doors for closing said apertures of the drum and stirrers respectively, and a locking connection between said slides or doors, substantially as described.

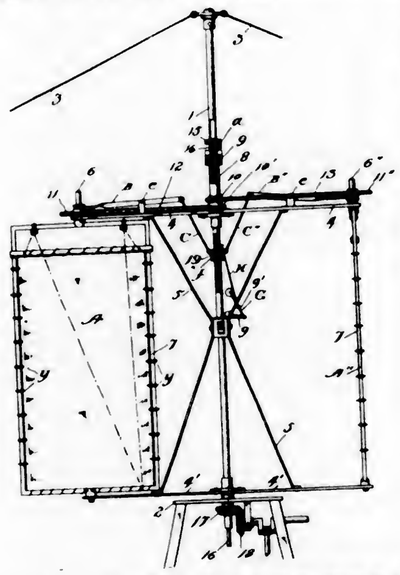
641,142. CABLE-GRIP. WALTER W. O'MALLEY, Guffey, Pa. Filed Sept. 2, 1898. Serial No. 690,236. (No model.)

Claim.—In a cable-grip, the combination, with a plate, one end of which is bent at right angles and perforated and the other end is bent in a curve and the intermediate portion is notched upon its edges, of two perforated plates secured to the top and bottom of the angled portion respectively, and projecting beyond the same at one end and separated from each other in a horizontal plane for the reception of the coupling-link, one set of perforations in the plates and the bent portion being screw-threaded, a screw-threaded shaft through said set of perforations, and a movable jaw swiveled to the lower end of

said shaft, the ends of which are provided with lugs for engaging with the sides of the notched plate above the curved end.



641,143. WINDMILL. JOHN O'TOOLE, San Francisco, Cal. Filed Apr. 10, 1899. Serial No. 712,521. (No model.)



Claim.—1. A windmill having a main vertical revoluble shaft provided with fixed bearings, a series of arms radiating from said shaft and secured thereto, wind-blades revolubly carried by said arms, a tail-vane loosely mounted on said shaft and connected to said blades by a speed-changing connection, and adjustable means for locking said vane to said shaft substantially as set forth.

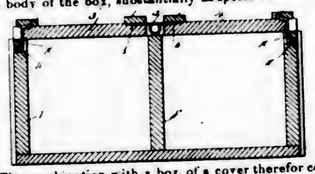
2. A windmill having a main hollow shaft, a series of arms radiating from and rigidly secured to said shaft, a series of vertical wind-blades revolubly mounted on said arms, a tail-vane mounted to turn loosely about said shaft, said vane being connected to said blades in such a manner that the revolution of said shaft independent of said vane produces a movement of said blades on their axes, and means for locking said vane to said shaft, substantially as set forth.

3. A windmill having a main vertical revoluble shaft provided with fixed bearings, a series of arms radiating from and secured to said shaft, wind-blades revolubly carried by said arms, a tail-vane loosely mounted on said shaft and connected to said vane by a speed-changing connection, and automatic means for locking said vane to said shaft as the mill reaches a predetermined velocity substantially as set forth.

4. In an apparatus of the character described, a horizontal wheel mounted upon a vertical rotary shaft having independently-journaled vertical vanes at its outer ends, a tail-vane loosely mounted upon the main shaft and connected to said vertical vanes by suitable gearing, a mechanism for moving said vanes to throw them out of action, and means for locking said tail-vane to said shaft, substantially as set forth.

641,144. BOX. JOSEPH V. OTTEN, Iola, Kans. Filed Oct. 14, 1899. Serial No. 733,612. (No model.)

Claim.—1. The combination with a box, of a cover consisting of two sections having spring connection at their inner or adjacent ends, and devices carried on the outer ends of said sections for engaging with the body of the box, substantially as specified.

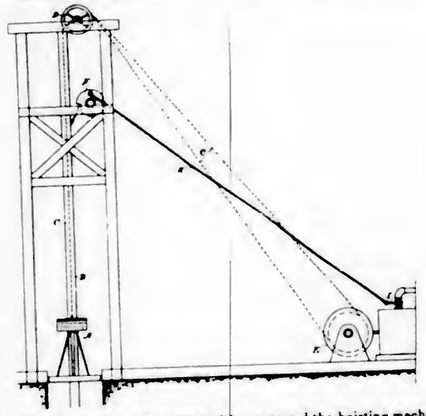


2. The combination with a box, of a cover therefor consisting of two sections, springs connecting the inner or adjacent ends of said sections, and lugs on the outer ends of the sections to engage in perforations formed in upright portions of the box, substantially as specified.

3. The combination with a box, of a cover consisting of two sections, coiled springs connecting the two sections at their adjacent ends, the central portions of the springs being connected to one of the cover-sections and the ends of said springs being connected to the other cover section, and lugs or hooks attached to the outer ends of the cover-sections and adapted to engage in perforations formed in upright portions of the box, substantially as specified.

4. The combination with a box, of a cover consisting of two sections, spring connections between the adjacent ends of said sections and lugs or hooks on the outer ends of said sections, the said lugs or hooks having vertical portions passed into slots formed in the sections and having their upper ends turned downward upon the sections and secured by cleats, substantially as specified.

641,145. SAFETY ATTACHMENT FOR HOISTING MACHINERY. THOMAS H. OXNAM, Los Angeles, Cal. Filed Sept. 26, 1899. Serial No. 731,748. (No model.)

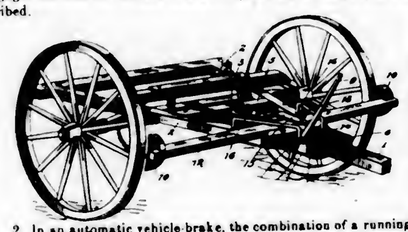


Claim.—1. The combination with a cage and the hoisting mechanism therefor, of a wheel journaled in the shaft at right angles to the path of movement of the cage and having a peripheral stop disposed in the path of the cage, a motor having a valve controlling the hoisting mechanism, and a rod or connection having one portion attached to the valve and another portion eccentrically and directly connected with the wheel whereby the axial movement of the latter imparts an endwise pushing movement to the rod or connection and actuates the valve.

2. The combination with a cage and the hoisting mechanism therefor, of a wheel journaled transversely in the shaft and having a portion of its periphery cut away and lying in the path of movement of the cage, a controlling mechanism having a valve controlling the power to the hoisting mechanism, a lever on the valve, and a rod connected directly with said lever and directly and eccentrically connected with the wheel whereby an axial movement of the latter moves the rod in the direction of its length and actuates the valve.

641,146. VEHICLE-BRAKE. AARON L. PARKER, Philadelphia, Miss., assignor of one-half to Z. H. Kimbrough, Dixon, Miss. Filed Oct. 28, 1899. Serial No. 735,102. (No model.)

Claim.—1. In an automatic vehicle-brake, the combination of a running-gear having a tongue capable of longitudinal movement, a brake-beam connected with the tongue and adapted to be actuated by the same and provided with brake-shoes, projections extending from one side of the tongue, and a lever fulcrumed on the running-gear at a point between the said projections and arranged to engage either of them, whereby the brake-shoes are locked in and out of engagement with the wheels, substantially as and for the purpose described.

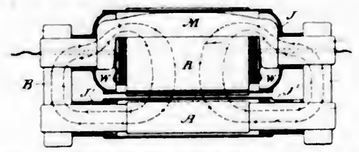


2. In an automatic vehicle-brake, the combination of a running-gear having a sliding tongue, a brake-beam connected with and operated by the tongue, projections extending from one side of the latter, and a substantially T-shaped lever fulcrumed on the running-gear at one side of the tongue, at a point between the said projections and provided at the ends of its arms with recesses or notches adapted to receive the said projections, substantially as and for the purpose described.

3. In an automatic vehicle-brake, the combination of a running-gear having front hounds and provided with upper and lower plates connecting the same, the upper plate being slotted and having resilient tongues or springs arranged at the ends of the slot, a sliding tongue arranged between the hounds and provided with stops, and a substantially T-shaped lever extending through the slot and fulcrumed on the adjacent hound at a point adjacent to the said stops, and arranged to engage the same, the upper arm being adapted to be engaged by the adjacent tongue or spring, substantially as described.

4. In an automatic vehicle-brake, the combination of a running-gear having upper and lower plates connecting its front hounds, the upper plate being slotted, said running-gear being provided in rear of the said plates, with a transverse bar having a guide-opening, a tongue slidingly mounted between the plates and having its rear end reduced and arranged in the guide-opening of the transverse bar, a brake-beam arranged upon the upper plate, connected with the tongue and provided with brake-shoes, loops or keepers mounted on the running-gear and supporting the brake-beam, and means for locking the tongue against longitudinal movement, substantially as described.

641,147. APPARATUS FOR MAGNETICALLY SEPARATING ORES. CLARENCE G. PAYNE, Stamford, Conn. Filed June 26, 1897. Serial No. 642,364. (No model.)



Claim.—1. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces, and means for producing line dispersions of the flux density within said field, substantially as described.

2. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces, and means for producing wide differences of magnetic potential within said field, arranged to pass through said field, substantially as described.

3. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a separating-carrier provided with means for producing line dispersions of the flux density within said field, and means for moving said carrier through said field on one side thereof, substantially as described.

4. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a separating-carrier provided with means for producing undulations of magnetic potential within said field, by moving said carrier through said field on one side thereof, substantially as described.

5. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a separating-carrier passing through said field on one side thereof provided with inductively-magnetized wedge terminations, and a feed-carrier also passing through said field on the other side thereof, substantially as described.

6. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a series of iron wedges passing through said field on one side thereof which are successively magnetized by induction as they pass through said field, and which produce line dispersions of the flux density and wide differences of magnetic potential therein; and means for feeding the material to be separated through said field on the other side thereof, substantially as described.

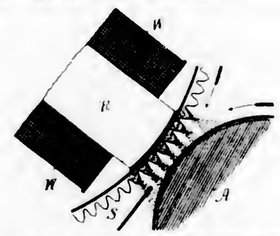
7. In a magnetic separator, the combination of a suitably-energized electromagnet; an armature; two yokes so connecting the electromagnet with the armature that a single magnetic field may be formed by two magnetic circuits in the air-gap between them; a feed-carrier, and a separating-carrier, each arranged to pass through said field, said separating-carrier being provided with a series of wedge terminations which are successively magnetized by induction as they pass through said field and produce line dispersions of the flux density therein, substantially as described.

8. In combination, a magnetic separator provided with two opposing magnetic surfaces; a suitably-energized unipolar electromagnet provided with suitable core extensions on each side; a suitable armature placed opposite the core end of the electromagnet; iron yokes joining the ends of the armature to the core extensions of the electromagnet; a rotating feed-cylinder surrounding the armature; a rotating separating-cylinder surrounding the electromagnet, each cylinder arranged to rotate through the magnetic field formed between the electromagnet and armature, said separating-cylinder being provided with a series of iron wedge terminations which are successively magnetized by induction as they pass through said field, and means for rotating said cylinder, substantially as described.

9. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a separating-carrier passing through said field on one side thereof provided with wedge terminations which are successively magnetized by induction as they pass through said field; a magnetic feed-carrier also passing through said field on the other side thereof, and means for feeding the ore through said field, substantially as described.

10. In combination, a magnetic separator provided with two opposing magnetic surfaces, connections forming two magnetic circuits whereby a single magnetic field may be formed in the air-gap between the two surfaces; a separating-carrier passing through said field on one side thereof provided with wedge terminations which are successively magnetized by induction as they pass through said field; a feed-carrier also passing through said field on the other side thereof, and means for feeding the ore through said field, substantially as described.

641,148. METHOD OF MAGNETICALLY SEPARATING ORES. CLARENCE G. PAYNE, New York, N. Y. Original application filed Jan. 20, 1897, Serial No. 619,881. Divided and this application filed Aug. 15, 1899. Serial No. 727,286. (No specimens.)

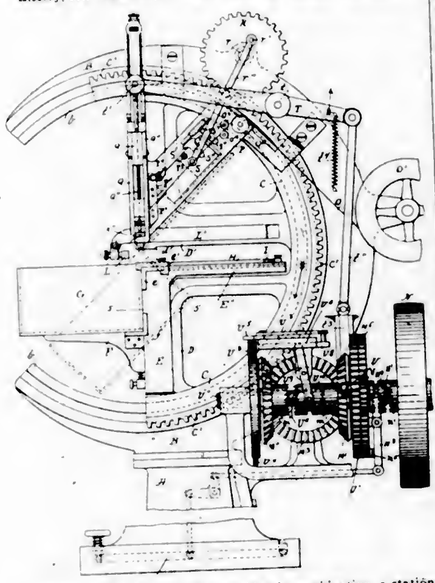


Claim.—1. The method of separating substances of all degrees of magnetic susceptibility from one another, or from non-magnetic substances with which they may be mixed, which consists in introducing the mixture into a magnetic field of undulating magnetic potential, formed in the air-gap of a magnetic circuit; attracting to one side of said field the more magnetic particles thereby separating them from the less-magnetic or non-magnetic particles; conveying

both groups of particles along vertically-diverging lines out of the field, and discharging them in different paths of movement at the end thereof.

2. The method of separating substances of all degrees of magnetic susceptibility from one another or from non-magnetic substances with which they may be mixed, which consists in inductively intercepting the lines of force on one side of a field formed between opposing magnetic surfaces in the air-gap of a magnetic circuit; producing line dispersions of the flux density and wide differences of magnetic potential within said field; generating cyclic variations, or undulations, of the magnetic potential therein; introducing the mixture to be separated into said field; attracting to one side thereof the more magnetic particles, thereby separating them from the less-magnetic or non-magnetic particles; conveying both groups of particles along vertically-diverging lines out of the field, and discharging them in different paths of movement at the end thereof.

641,149. **BOX-HINGING MACHINE.** DAVID H. SAUNDERS, Gloucester, Mass., assignor to the Merchant Manufacturing Company, Kittery, Me. Filed July 11, 1899. Serial No. 723,462. (No model.)



Claim.—1. In a box-hinging machine in combination, a stationary staple making and driving device, and an oscillating or rocking box and cover supporting and clamping device, substantially as and for the purpose set forth.

2. In a box-hinging machine in combination, a stationary and intermittently-operated staple forming and driving device, an intermittently-operated wire feeding, straightening, cutting and pointing device, and an oscillating or rocking box and cover supporting and clamping device, substantially as and for the purpose set forth.

3. In a box-hinging machine in combination, a stationary and intermittently-operated staple forming and driving device, an intermittently-operated wire feeding, straightening, cutting and pointing device, and an oscillating box and cover supporting and clamping device, which by its oscillation presents the box and cover in different directions to the staple-driving device, so as to cause the interlocking staples to be driven in different directions through the cover and box, substantially as and for the purpose set forth.

4. In a box-hinging machine, in combination, a stationary intermittent combined wire feeding, straightening, cutting and pointing device, a stationary staple forming and driving device, and an automatically-actuated oscillating or rocking box and cover supporting and clamping device, adapted to be automatically rocked and moved to and from the staple-driving device, and means for turning one staple at or about a right angle to its fellow, substantially as and for the purpose set forth.

5. In a box-hinging machine, in combination, a stationary intermittently-operated combined wire feeding, straightening, cutting and pointing device, a stationary staple forming and driving device, and an automatically-operated oscillating or rocking box and cover supporting device, adapted, during its oscillation, to be automatically moved to and from the staple-driving device and to different positions for receiving the driven interlocking staples in different directions respectively through the box and cover, substantially as and for the purpose set forth.

6. In a box-hinging machine, in combination, a stationary wire feeding, straightening, cutting and pointing device, a staple forming and driving mechanism, and an automatically oscillating box and cover supporting device, adapted to rock forward and back, relative to the stationary staple-driving device, so as to cause the staples to be driven interlocked at about a right angle respectively through the box and cover, and means for clenching the same, substantially as and for the purpose set forth.

7. In a box-hinging machine, in combination, a stationary segmental head, a segmental oscillating carrier guided in said head, a box and cover supporting and clamping device on said carrier, and an intermittently-actuated wire feeding, straightening, cutting and pointing mechanism, and a staple forming and driving device, substantially as and for the purpose set forth.

8. In a box-hinging machine, in combination, a stationary segmental head, a segmental oscillating carrier guided in said head, and having a segmental gear intermeshing with a reciprocating rotary driving-gear, a box supporting and clamping device on said carrier, and an automatic staple making and driving device, substantially as and for the purpose set forth.

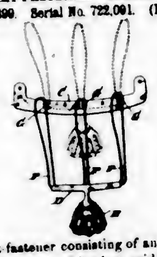
9. In a box-hinging machine, in combination, a staple making and driving device, and a box and cover supporting device, consisting of an angular adjustable slide E, E', having a yielding bracket F arranged thereon, and having side extensions or supporting-arms *e*, *f*, and adjustable gages *e'*, *e''*, substantially as and for the purpose set forth.

10. In a box-hinging machine, in combination, a staple making and driving device, an oscillating carrier, a box and cover supporting device adjustably arranged thereon, automatic means for moving the latter to and from the driving device, and an automatically-operated clamping device, adapted to clamp the box against the cover and box support, substantially as and for the purpose set forth.

11. In a box-hinging machine, in combination, a staple making and driving device, an oscillating or rocking box and cover supporting and clamping device, and automatic mechanism for intermittently oscillating the box and cover supporting and clamping devices, substantially as and for the purpose set forth.

12. In a box-hinging machine, in combination, a staple making and driving device, an oscillating or rocking box and cover supporting and clamping device, and automatic mechanism for intermittently oscillating the box and cover supporting and clamping device, and intermittently operating the staple-making and staple-driving mechanism, substantially as and for the purpose set forth.

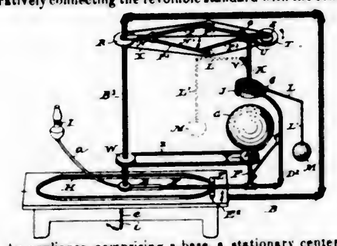
641,150. **HAT FASTENER.** GEORGES SCHMITT, New York, N. Y. Filed June 27, 1899. Serial No. 722,091. (No model.)



Claim.—A hat-fastener consisting of an elongated plate adapted to be secured to the interior of a hat, said hat-plate having on one of its flat faces a series of loops, a series of prongs spaced from each other at their outer ends and each composed of two members one of which passes through a loop on the hat-plate, the several prongs being connected at their outer ends by elongated transverse connecting members, and means for uniting the prongs and their transverse connecting members into a rigid bar, said bar extending approximately parallel with the hat-plate and having a head at its outer side, about centrally of the bar, as set forth.

641,151. **EDUCATIONAL APPLIANCE.** CHARLES A. SCHURRER, Lakeport, and WILLIAM STRAFFON, Otto, Mich. Filed Sept. 20, 1899. Serial No. 731,057. (No model.)

Claim.—1. An appliance comprising a base, a revoluble center shaft, a center post having a journal-bearing at the top of the center shaft, a framework supported by the base and laterally supporting the center post, a rotating frame attached to the center shaft and having an extensible portion on which is mounted a rotating frame carrying a globe revoluble on an inclined axis and also a vertical portion extending above the globe and carrying an inclined track central above the globe, a carriage attached to the extensible portion of the rotating frame, an elliptical guide for the carriage, an arm carried by the rotating frame attached to the center shaft and a solar representative mounted thereon, a standard revoluble above the inclined track, an arm pivoted to the standard, a globe carried by the pivoted arm, and a frame and gearing carried by the standard thereby operatively connecting the revoluble standard with the center post.



2. An appliance comprising a base, a stationary center post, a revoluble center shaft journaled in the base and in the bottom of the center post, a frame supporting the top of the center post, an extensible frame secured to the center shaft and having an arm carrying a representative of the sun, a carriage attached to the extensible frame, an elliptical guide for the carriage, an earth-globe mounted on the extensible frame, a circular inclined track mounted above the earth-globe, a standard revolubly mounted above the inclined track, a moon-globe carried by the standard, means whereby the standard is rotated when carried about the center post, and means whereby the earth-globe is caused to rotate about a vertical axis when carried about the center post.

3. In an educational appliance, the combination of a base, a stationary frame, a stationary center post, a revoluble center shaft, an elliptical track, an extensible rotating frame secured to the center shaft, means whereby the extensible frame is operated longitudinally, an earth-globe carried by the extensible frame, a standard carried by the extensible frame, a moon-globe carried by the standard, means whereby the moon-globe may be controlled either in an inclined orbit or in a horizontal orbit, an extensible or compensating frame mounted upon the standard and connected revolubly to the center post, and gearing connecting the standard operatively to the center post whereby the standard is caused to rotate.

4. In an educational appliance, the combination of a base, a stationary frame, a stationary center post, a revoluble center shaft, an elliptical track, a pulley secured to the center post, an extensible rotating frame secured to the center shaft, a revoluble globe mounted upon the extensible frame and provided with a pulley fixed to the globe-frame, an elastic belt engaging such pulleys whereby the globe is rotated, an arm attached to the rotating frame, a representation of the sun mounted upon such arm, and a globe and means whereby the same is supported and caused to rotate about such revoluble globe.

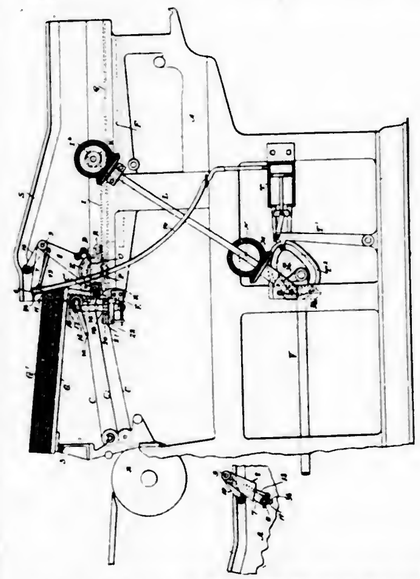
5. In an educational appliance, the combination of a base, a stationary frame, a stationary center post, a revoluble center shaft, an elliptical track, a pulley secured to the center post, an extensible rotating frame secured to the center shaft, means whereby the outer end of the extensible frame is caused to follow the path of the elliptical track, a globe mounted revolubly on the extensible frame and provided with a pulley, an elastic belt engaging such pulleys whereby such globe is rotated, a representation of the sun suitably supported, a circular inclined track mounted on the extensible frame and above the revoluble globe, a standard mounted revolubly at the center of the circular track and carrying an arm bearing upon the inclined track, a globe supported by such arm, an upper compensating extensible frame revoluble about the center post and carrying a sprocket-wheel and gear-wheels operated thereby, a sprocket-wheel secured to the center post, a chain connecting such sprocket-wheels, said standard being rotated by said gear-wheels, substantially as set forth.

6. In an educational appliance, the combination of a stationary center post, a revoluble center shaft, a pulley secured to the center post, a rotating frame mounted upon the center shaft and having an arm extending at the opposite side of the center shaft, a representation of the sun on such arm, a revoluble globe mounted in a revoluble frame upon the rotating frame, a pulley secured to the frame in which the globe is mounted, an elastic belt connecting such pulleys, a standard carried by the rotating frame and revolubly mounted, a globe supported by the standard, a gear-wheel secured to the standard, an upper frame mounted on the center post and adapted to be rotated about the post by the rotating frame carrying the revoluble globe, and gearing whereby the standard is rotated through the medium of the gear-wheel thereon, substantially as set forth.

7. In an educational appliance, the combination of the table, the elliptical track, the center post, the center shaft, the rotating extensible frame, the lamp, the earth-globe, the inclined circular track, the moon-globe, the standard carried by the rotating frame and revoluble at the center of the inclined track, the carriage supporting and controlling the rotating extensible frame, the pulley attached to the center post, the pulley attached to the earth-globe frame, the elastic belt connecting said pulleys, the arm detachably connected to the standard, the moon-globe supported by such arm, the gear-wheel secured to such standard, the sprocket-wheel attached to the center post, the upper compensating frame controlled laterally by said standard, the sprocket-wheel on said compensating frame, the gear-wheel operated by said last-mentioned sprocket-wheel and engaging the gear-wheel on said standard, and the chain connecting said two sprocket-wheels, substantially as set forth.

8. In an educational appliance, the combination of the table, the elliptical track, the center shaft, the gear-wheel *h*, the shaft *e*, the worm *f*, the crank, the center post having the shaft journaled in the lower end thereof, the frame supporting the center post, the rotating extensible frame having the arm *a*, the lamp, the carriage E, the column F and the rotating globe thereon, the pulley Y, the pulley W, the elastic belt connecting said pulleys, the inclined circular track on the rotating frame, the detachable arm L, the globe supported by said arm, the standard mounted revolubly at the center of said inclined track and carrying said arm over said inclined track, the devices whereby said arm may be attached elsewhere to said standard, the wheel U, the wheel R, the wheel S and connected wheel T engaging said wheel U, the chain X, and the compensating frame whereby said chain is maintained taut and adapted to be controlled laterally by said standard, substantially as set forth.

641,152. **INLAY-SHEET-SUPPLYING DEVICE.** WALTER SCOTT, Plainfield, N. J.; Bessie C. Scott and Helen S. Lock executrixes of said Walter Scott, deceased. Filed June 27, 1899. Serial No. 721,995. (No model.)



Claim.—1. A pivoted table for receiving the pile of inlay-sheets, means for raising the end of such table gradually as the sheets are taken off, in combination with suction-nipples, a carriage, a shaft and arms for supporting the suction-nipples, means for moving the carriage along gradually and for carrying the printed sheet therewith, and means for swinging the arms to lower the inlay-sheet and deliver the same simultaneously upon the top of the printed sheet, substantially as set forth.

2. The combination in a printing-press with the mechanism for delivering the printed sheet, of a carriage, means for moving the same

longitudinally, grippers for receiving the sheet and by which the sheets are taken successively from the delivery mechanism and laid in a pile, a table for receiving the sheets and the inlay-sheets and a mechanism connected to and moving with the carriage for drawing the top sheet off the pile of inlay-sheets simultaneously with the movement of the mechanism that delivers the printed sheet, substantially as set forth.

3. The combination with the sheet-delivery mechanism in a press, of a carriage, gearing upon the carriage, a stationary rack and a moving rack engaging such gearing, mechanism for reciprocating the rack and grippers for seizing the printed sheet and drawing the same along, a table for holding a pile of inlay-sheets and mechanism connected to and moving with the carriage for seizing the top sheet in the pile of inlay-sheets and drawing the same off simultaneously with the movement of the carriage that delivers the printed sheets, substantially as set forth

4. The combination in a printing-press with the means for delivering the printed sheet, of a carriage and grippers, mechanism for reciprocating the same, a table for carrying a pile of inlay-sheets, a rack and pinion for raising the table and pile of sheets at one end and adjustable mechanism for varying the action of the table-raising mechanism according to the thickness of the sheets and mechanism for grasping the top sheet of the pile and conveying the same away simultaneously with the movement of the printed sheet, substantially as set forth.

5. The combination in a printing-press with the reciprocating sheet-delivery mechanism for the printed sheets, and a receiving-table below the same, means for sustaining a pile of sheets and an automatic sheet-delivery mechanism for removing the upper inlay-sheet, lowering and laying it upon the printed sheet simultaneously with the delivery of said printed sheet, substantially as set forth.

6. The combination in a printing-machine, of a table to support inlay-sheets, a table to receive the inlay and printed sheets, a reciprocating carriage and means for delivering the printed sheet, and means for seizing, lowering and delivering the inlay-sheet simultaneously with the printed sheet, substantially as set forth.

7. In a printing-machine having an impression-cylinder and delivery-tapes to deliver the sheets from the impression-cylinder, a reciprocating sheet-carrier, a table for receiving the inlay-sheet above the feeding-tapes with its front edge above the place where the sheets are fed to the carrier, a sheet-seizing device and means for moving the same to carry the sheet to the place of delivery, and means for seizing the inlay-sheet at the pile and delivering it on the receiving-table, substantially as set forth.

8. The combination in a sheet-delivery apparatus, of belts and grippers for seizing the printed sheet, means for moving the grippers and carrying the sheet to the place of delivery, a table for receiving and supporting the inlay-sheets, means for gripping and moving the top sheet in a pile of inlay-sheets and for delivering the same simultaneously and upon the printed sheet, substantially as set forth.

641,153. PNEUMATIC RUBBER TIRE. FRANK A. SEIBERLING, Akron, Ohio. Filed Nov. 28, 1899. Serial No. 738,557. (No model.)

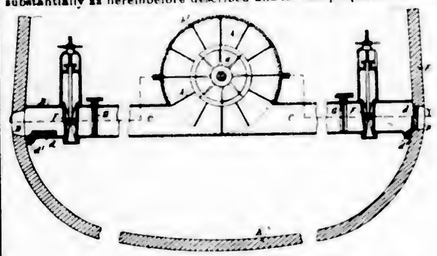


Claim.—1. An improved pneumatic tire consisting of an inner endless closed tube with an outer adhering layer of fabric, and an outer endless closed tube of rubber with an inner adhering layer of fabric, said tubes being of like outline in section, said fabric layers being arranged to lie against each other without cohering substantially as shown and described.

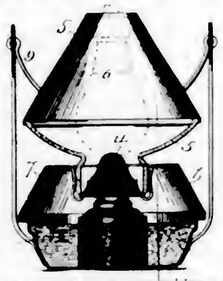
2. An improved pneumatic tire consisting of an inner endless closed tube of rubber with an outer adhering layer of fabric, and an outer endless closed tube of rubber with an inner adhering layer of fabric, said tubes being of like outline in section, said fabric layers being arranged to lie against each other without cohering, and all simultaneously vulcanized, substantially as described.

641,154. STEERING APPARATUS FOR VESSELS. JEAN P. SERVE, Caluire et Cuire, France. Filed May 15, 1899. Serial No. 716,930. (No model.)

Claim.—Means for steering and maneuvering vessels, comprising float or paddle wheels located on either side of the transverse median plane of the vessel, the axes of said wheels being parallel to the longitudinal axis of the boat, in combination with channels or passages having water-tight walls for containing the wheels and running from one side of the boat to the other, and doors for closing the ends of the passages, gratings for preventing the introduction of vegetation or seaweed and sliding valves for hermetically closing the passage, substantially as hereinbefore described and for the purpose set forth.



641,155. INSECT-DESTROYER. ASA F. SEVERANCE, Noblebor-ough, Me. Filed May 9, 1899. Serial No. 716,164. (No model.)



Claim.—1. An insect-destroyer comprising a pan or receptacle a tapering ring supported at its larger lower end upon the peripheral edge of said pan or receptacle, a flaring transparent shade disposed over the open upper end of the collar, a conical opaque chimney having its larger end disposed upon the outer edge of the flaring transparent shade and a lamp projecting into said shade.

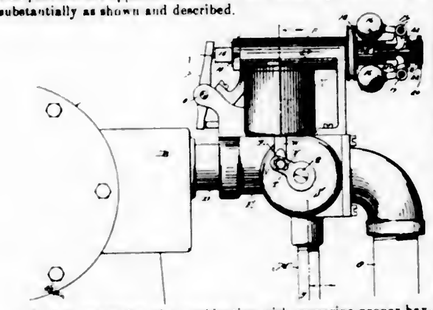
2. An insect-destroyer comprising a pan or receptacle, a lamp-reservoir located centrally within said pan or receptacle, a collar mounted at its lower edge upon the peripheral edge of the pan or receptacle and having an open upper end, a burner on the lamp-reservoir, a flaring transparent shade having a depending portion passing through the upper end of the collar and supported on said burner, and a conical opaque chimney supported at its larger end upon the upper edge of the flaring shade.

3. In an insect-destroyer, the combination with a pan or receptacle, a lamp-reservoir disposed centrally therein and a burner on said reservoir, of a tapering ring mounted upon the pan or receptacle, a transparent flaring shade having a depending contracted portion passing through the upper end of the tapering ring and mounted on the burner and a conical opaque chimney mounted at its larger end upon the flaring transparent shade.

641,156. GAS-ENGINE. GEORGE S. SHAW, Springfield, Ohio. Filed June 5, 1899. Serial No. 719,364. (No model.)

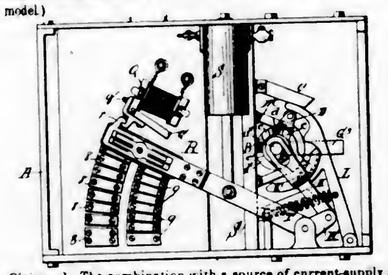
Claim.—1. In a gas-engine, the combination with an engine-cylinder having an inlet-passage and a suction-passage communicating therewith, a governor attachment connected with said inlet-passage, said attachment having a mixing-chamber therein, an inlet-valve mounted within said mixing-chamber, air and gas pipes communicating with said mixing-chamber and adapted to be more or less cut off by said valve, a suction-cylinder carried by said attachment and connected with said suction-passage, a piston mounted in said cylinder carrying a piston-stem, means for connecting said stem with said inlet-valve, a governor-controlled valve in said suction-passage for regulating the sucking action of the engine-piston upon the suction-piston, whereby said suction-piston will be operated in one direction to more or less rotate said inlet-valve, and means to return said suction-piston to normal position, thereby rotating said inlet-valve to its normal position, all substantially as shown and described.

2. In a gas-engine, the combination with an engine-cylinder having an inlet-port communicating therewith, of a governor attachment having an inlet-passage and a suction-passage therein, both of which communicate with said engine inlet-passage, an inlet-valve mounted in said attachment inlet-passage and adapted to more or less cut off the supply of air and gas, a valve adapted to normally close said suction-passage, a centrifugal governor adapted to operate said second valve to open it, a suction-cylinder communicating with said suction-passage, a piston mounted therein having a stem, a crank connected with said inlet-valve and with said stem, a spring to operate said suction-piston in the opposite direction to that caused by the suction, all substantially as shown and described.



3. In a gas engine, the combination with an engine proper having an inlet-passage communicating therewith, of a governor attachment connected with said inlet-passage and having a continuation of said inlet-passage, and a suction-passage communicating therewith, an inlet-valve having air-inlet, gas and explosive-mixture ports therein, a suction-cylinder, a suction-piston mounted therein having a stem extending therefrom, a crank connected with said inlet-valve having a slotted opening therein, a stud projecting from said piston-stem and adapted to project within said slot, a valve in said suction-passage having a stem extending therefrom, a pivoted lever carried by said attachment, one of whose arms is adapted to engage with said valve-stem, a slidably-mounted shaft arranged to engage with the other arm of said lever, a governor device for operating said shaft and a spring to normally hold said valve seated, whereby the inlet-valve is operated to cut off more or less of the supply of air and gas when the speed of the engine is above the normal, and means for setting the governors for such normal speed, all substantially as shown and described.

641,157. SWITCH FOR ELECTRIC MOTORS. OSCAR F. SHEPARD, Jr., Madeira, Ohio. Filed May 19, 1899. Serial No. 717,449. (No model.)



Claim.—1. The combination with a source of current-supply and an electric motor, of a reversing switch composed of two simultaneously-moving contact portions interposed between the source of current-supply and the motor, said switch being adapted to make electrical connection with the source of current-supply and with both the armature and field circuits of the motor, the parts making contact with the field and armature circuits being adapted to maintain said field and armature circuits always in connection with the main body of the switch, and means whereby the starting-resistance is always inserted in the armature-circuit immediately before the switch breaks connection with the source of current-supply.

2. The combination with a source of current-supply and an electric motor, of a reversing-switch composed of two simultaneously-moving contact portions interposed between the source of current-supply and the motor, said switch being adapted to make electrical connection with the source of current-supply and with both the armature and field circuits being adapted to maintain said field and armature circuits always in connection with the main body of the switch, and thereby always including the field of the motor in a closed circuit, means whereby the starting-resistance is always inserted in the armature-circuit immediately before the switch breaks connection with the source of current-supply and means for automatically snapping said contact portions into and out of connection with said source of current-supply.

3. The combination with a source of current-supply and an electric motor of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature and field circuits and always maintaining said circuits in electrical connection with the main body of the switch, whereby during the instant of reversal the armature and field terminals are temporarily short-circuited, and means whereby resistance is inserted in the armature-circuit whenever the switch is brought to said central or short-circuiting position, thus always keeping the field in a closed circuit, thereby preventing sparking and strain upon the field insulation.

4. The combination with a source of current-supply and an electric motor of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature-circuit, and the field-circuit being in continuous electrical contact with the main body of the switch; said armature and field portions being adapted to short-circuit the armature-terminals during the instant when the switch is upon center, and means whereby resistance is inserted in the armature-circuit whenever the switch is brought to said central or short-circuiting position, thus always keeping the field in a closed circuit, thereby preventing sparking and strain upon the field insulation.

5. The combination with a source of current-supply and an electric motor of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature and field circuits and always maintaining said circuits in electrical connection with the main body of the switch, whereby during the instant of reversal the armature and field terminals are temporarily short-circuited, thus always keeping the field in a closed circuit, thereby preventing sparking and strain upon the field insulation, and means for automatically snapping the contact portions of the switch into and out of connection with the source of current-supply.

6. The combination with a source of current-supply and an electric motor of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature-circuit, and the field-circuit being in continuous electrical contact with the main body of the switch; said armature portions being adapted to short-circuit the armature-terminals when the switch is upon center, means whereby resistance is inserted in the armature-circuit whenever the switch is brought to said central or short-circuiting position, thus always keeping the field in a closed circuit, thereby preventing sparking and strain upon the field insulation, and means for automatically snapping the contact portions of the switch into and out of connection with the source of current-supply.

7. The combination with a source of current-supply and an electric motor, of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature-circuit, and the field-circuit being in continuous electrical contact with the main body of the switch; said armature portions being adapted to short-circuit the armature-terminals when the switch is upon center, means whereby resistance is inserted in the armature-circuit whenever the switch is brought to said central or short-circuiting position, snapping mechanism consisting of a spring-tension arm with high and low points thereon, and a collar loose on the switch-operating shaft and having lost motion connection therewith and provided with arms cooperating with said spring-tension arm and having lost-motion connection with the contact portions of the switch whereby the latter are thrown quickly into and out of electrical connection to prevent sparking.

8. The combination with a source of current-supply and an electric motor, of a reversing-switch interposed between the source of current-supply and the motor, a portion of said switch being adapted to make electrical connection with the source of current-supply, other portions being adapted to make electrical connection with the armature-circuit, and the field-circuit being in continuous electrical contact with the main body of the switch; said armature portions being adapted to short-circuit the armature-terminals when the switch is

upon center, means whereby resistance is inserted into the armature-circuit whenever the switch is brought to said central or short-circuiting position, snapping mechanism consisting of a spring-tension arm with high and low points thereon, and a collar loose on the switch-operating shaft and having lost-motion connection therewith and provided with arms carrying rollers cooperating with said spring-tension arm and having lost-motion connection with the contact portions of the switch whereby the latter are thrown quickly into and out of electrical connection to prevent sparking.

9. In the electric-motor switch mechanism, the combination of a switch-operating shaft, electrical contact portions carried thereby, a starting-resistance, an arm therefor controlled by the operating-shaft, a magnet included in a circuit controlled by the switch, and an armature for said magnet provided with a catch engaging the resistance-arm, substantially as described.

10. In the electric-motor switch mechanism, the combination of a switch-operating shaft, electrical contact portions carried thereby, a starting-resistance, an arm therefor connected by link mechanism and a cam with the operating-shaft, a magnet included in a circuit controlled by the switch, an armature for said magnet provided with a catch engaging the resistance-arm, and a dash-pot connected to said resistance-arm, and means for regulating the movement of said resistance-arm, substantially as described.

11. In the electric-motor switch mechanism, the combination of a switch-operating shaft, electrical contact portions carried thereby, a starting-resistance, an arm therefor connected by link mechanism and a cam with the operating-shaft, a magnet included in a circuit controlled by the switch, an armature for said magnet provided with a catch engaging the resistance-arm, and means for regulating the movement of said resistance-arm, substantially as described.

641,158. COMBINATION STEP-LADDER. WALTER L. SKELLEY, Cabool, Mo., assignor of one-half to Carl E. Grant, same place. Filed Oct. 4, 1899. Serial No. 732,487. (No model.)



Claim.—1. A ladder comprising hinged sections, a platform having pivotal connection with one of the sections, and a link connection between said platform and the other section whereby the platform serves as a locking device when the sections are alined, substantially as specified.

2. A folding ladder having truss sides, and hinges for the sections of the ladder, which hinges in one position of the sections constitute struts for the truss sides.

3. A folding ladder having truss sides and hinges for the sections, constituting central struts for the ladder.

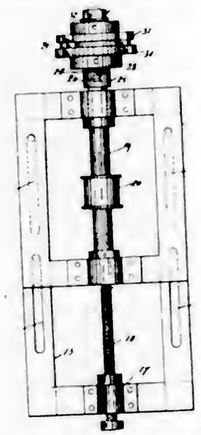
4. A folding ladder, a hinged connection between the sections of the ladder, and a platform having pivotal engagement with the sections of the ladder, the platform being supported on said hinges when the sections of the ladder are brought in longitudinal contact.

5. In a folding ladder, the combination, with the sections of the ladder, of hinges constructed in angular pivotally-connected members, the said members being attached to the abutting ends of the said sections of the ladder, and a platform above said abutting ends, having direct pivotal engagement with one of the sections and a link connection with the opposing section of the ladder, as set forth.

6. In a folding ladder, the combination, with the sections of the ladder, of hinges constructed in angular pivotally-connected members, the said members being attached to the abutting ends of the said sections of a ladder, and a platform above the abutting ends of the sections of the ladder and above the said hinges, the said platform being provided with flanges arranged to enter the spaces between the sides of the sections of the ladder, each flange having a direct pivotal connection with one section of the ladder and a link connection with the opposing ladder-section, as described.

7. In a folding ladder, hinges consisting of angular members pivotally connected and arranged to move one upon the other, one section of each hinge member being attached transversely to a side of a section of the ladder at the abutting ends of said sections, the other section of each hinge member extending longitudinally along a side of a ladder-section, and provided with strengthening projections for the ladder-sections, as described.

641,159. WOODWORKING-MACHINE. JOE SMITH and FRANK M. FOX, Springville, N. Y. Filed Oct. 26, 1898. Serial No. 694,594. (No model.)



Claim.—1. A mandrel provided with a sleeve 25 having oppositely-directed threads formed thereon, a collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter 30 mounted on said tubular extension and an interchangeable top disk or cutter mounted thereon, and adapted to be clamped to the bottom disk or cutter, said disks or cutters being provided on their adjacent sides with interlocking projections or raised portions and at their perimeters with cutting teeth or edges, substantially as shown and described.

2. A mandrel provided with a cutter-head, consisting of a bottom disk or cutter, and interchangeable top disks or cutters, said bottom disk or cutter being provided on its upper side with raised portions, and said interchangeable top disks or cutters being provided on their lower sides with corresponding raised portions, said disks or cutters being provided at their perimeters with cutting teeth or edges, and the raised portion on the bottom of one of the interchangeable disks or cutters being wider than the body portion, and being provided with cutting teeth or edges, substantially as shown and described.

3. A mandrel provided with a cutter-head, consisting of a bottom disk or cutter, and interchangeable top disks or cutters, said bottom disk or cutter being provided on its upper side with raised portions, and said interchangeable top disks or cutters being provided on their lower sides with corresponding raised portions, said disks or cutters being provided at their perimeters with cutting teeth or edges, and the raised portion on the bottom of one of the interchangeable disks or cutters being wider than the body portion, and being provided with cutting teeth or edges, and means for adjusting the space between said disks or cutters and for clamping the same in position, substantially as shown and described.

4. In a woodworking-machine, a vertically-adjustable mandrel-support, a mandrel mounted therein, a sleeve connected with said mandrel and provided with oppositely-directed screw-threads, a collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said collar and interchangeable top disks or cutters adapted to be mounted on said extension and clamped in connection with said bottom disk or cutter, substantially as shown and described.

5. In a woodworking-machine, a vertically-adjustable mandrel-support, a mandrel mounted therein, a sleeve connected with said mandrel and provided with oppositely-directed screw-threads, a collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said collar and interchangeable top disks or cutters adapted to be mounted on said extension and clamped in connection with said bottom disk or cutter, said bottom disk or cutter being provided on its upper side with raised portions, and said interchangeable disks or cutters being provided on their lower sides with corresponding raised portions, said disks or cutters being provided at their perimeters with cutting teeth or edges, substantially as shown and described.

6. In a woodworking-machine, a vertically-adjustable mandrel-support, a mandrel mounted therein, a sleeve connected with said mandrel and provided with oppositely-directed screw-threads, a collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said collar and interchangeable top disks or cutters adapted to be mounted on said extension and clamped in connection with said bottom disk or cutter, said bottom disk or cutter being provided on its upper side with raised portions, and said interchangeable disks or cutters being provided on their lower sides with corresponding raised portions, said disks or cutters being provided at their perimeters with cutting teeth or edges, and means for adjusting the space between the bottom disk or cutter and the interchangeable disks or cutters, substantially as shown and described.

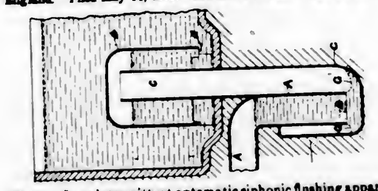
7. In a woodworking-machine, a vertically-adjustable mandrel-support, a mandrel mounted therein, a sleeve connected with said mandrel and provided with oppositely-directed screw-threads, a collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said collar and interchangeable top disks or cutters adapted to be mounted on said extension and clamped in connection with said bottom disk or cutter, said bottom disk or cutter being provided on its upper side with raised portions, and said interchangeable disks or cutters being provided on their lower sides with corresponding raised portions, said disks or cutters being provided at their perimeters with cutting teeth or edges, and means for adjusting the space between the bottom disk or cutter and the interchangeable disks or cutters, the raised portions on the bottom of one of said interchangeable disks or cutters being of greater radial diameter than the body thereof and being provided with cutting teeth or edges, substantially as shown and described.

8. A woodworking-machine provided with a vertically-adjustable frame, a mandrel mounted vertically therein, a screw-threaded sleeve secured to the upper end of said mandrel, a screw-threaded collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said extension, an interchangeable top disk or cutter also mounted on said extension, said disks or cutters being adapted to interlock, and means for clamping disks or cutters together, substantially as shown and described.

9. A woodworking device provided with a vertically-adjustable frame, a mandrel mounted vertically in said frame, a screw-threaded sleeve secured to the upper end of said mandrel, a screw-threaded collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said extension, an interchangeable top disk or cutter also mounted on said tubular extension, said disks or cutters being provided with interlocking portions on their adjacent surfaces, and means for clamping said disks or cutters together, and for regulating the distance between the same, substantially as shown and described.

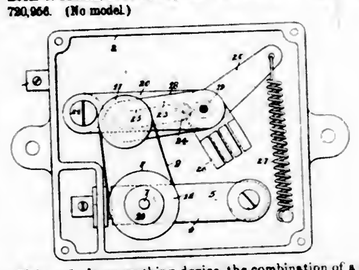
10. A woodworking device provided with a vertically-adjustable frame, a mandrel mounted vertically in said frame, a screw-threaded sleeve secured to the upper end of said mandrel, a screw-threaded collar mounted on said sleeve and provided with a tubular extension, a bottom disk or cutter mounted on said extension, an interchangeable top disk or cutter also mounted on said tubular extension, said disks or cutters being provided with interlocking portions on their adjacent surfaces, and means for clamping said disks or cutters together, and for regulating the distance between the same, consisting of screws passed through the upper disk or cutter and adapted to bear on the bottom disk or cutter, substantially as shown and described.

641,160. INTERMITTENT AUTOMATIC SIPHONIC FLUSHING APPARATUS. HERBERT F. STANDING and CHARLES F. DIXON, Leeds, England. Filed May 11, 1899. Serial No. 716,368. (No model.)



Claim.—In an intermittent automatic siphonic flushing apparatus, the combination with the receiving tank or vessel, of a substantially vertical case or tube C having its upper open end within said tank, and having an enlarged closed portion at the lower end outside the tank, a bell surrounding the upper portion of the case C and within the tank, and a discharge-pipe A having its open lower end dipping within the enlarged portion of said case C, substantially as and for the purposes set forth.

641,161. EARTHING DEVICE FOR ELECTRICAL CIRCUITS. LOUIS J. STEELE, London, England. Filed June 17, 1899. Serial No. 720,956. (No model.)



Claim.—1. In an earthing device, the combination of a conducting portion forming an earth-terminal of the protected circuit, a looped fuse-wire connected thereto so as to be insulated by a perforated micanite layer, an under lever having a shifting fulcrum and to which the other end of the looped fuse-wire is indirectly connected, a jointed arm carrying a contact-piece and to which the under lever is jointedly connected, and a spring acting upon the arm carrying the contact-piece, substantially as described.

2. In an earthing device, the combination of a conducting portion forming an earth-terminal of the protected circuit, a looped fuse-wire connected thereto by plates 10, 12 having between them a perforated micanite layer, a jointed arm carrying a contact-piece and fitted with a spring, an under lever jointedly connected to said arm and having a slot within it engaging a fixed stud to form a shifting fulcrum, and an arm connected to the under lever so as to move as one with it and over whose free end the other end of the looped fuse-wire passes, substantially as described.

3. In an earthing device, the combination of a suitable box-like casing, a conducting portion 4 arranged therein but insulated therefrom, a looped fuse-wire 9 connected to the said portion by plates 10 and 12, micanite layer 13, bush 15 and post 7, a jointed arm 20 carrying a contact-piece and fitted with a spring, an under lever 23 jointedly connected to arm 20 and having within it a slot 25 engaging a fixed stud 24 on the casing, an arm 18 connected to the arm 20 so as to move as one with the under lever, and a disk 17 around which the other end of the looped fuse-wire is adapted to take, substantially as described.

4. In an earthing device, the combination of a conducting portion 4 forming the earth terminal of the protected circuit, a looped fuse-wire 9 connected thereto by a carrier 8, a lever to which the other end of the looped fuse-wire is indirectly connected, and which holds from contact with the portion 4 a contact-piece, and a spring exerting an influence upon the said lever, substantially as described.

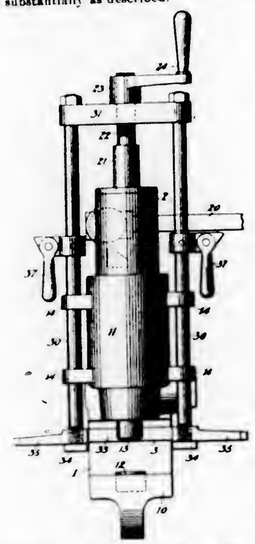
641,162. HYDRAULIC RIVETING-TOOL. FRANCIS H. STILLMAN, New York, N. Y. Filed May 19, 1899. Serial No. 717,439. (No model.)

Claim.—1. A hydraulic riveting-tool having its body composed of a united frame and ram-cylinder, the frame having a fixed jaw 10 under the ram-cylinder, said tool comprising the combination with said body, of an anvil on the jaw 10; a ram in the ram-cylinder; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10, and fashioned to fit on the flanges or bases of the rails of a railway; substantially as described.

2. A hydraulic riveting-tool having its body composed of a united frame and ram-cylinder, the frame having a fixed jaw 10 under the ram-cylinder, said tool comprising the combination with said body, of an anvil on the jaw 10; a ram in the ram-cylinder; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10, and fashioned to fit on the flanges or bases of the rails of a railway, and provided with means to facilitate the adjustment of the device on the rails; substantially as described.

3. A hydraulic riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device comprising a bar extending on opposite sides of the rivet-set, and fashioned near its ends to fit on the flanges or bases of the rails of a railway, the bar having on its under side, at the back, projections 34, and in its ends notches 36; substantially as described.

4. A hydraulic riveting-tool having its body composed of a united frame and ram-cylinder, the frame having a fixed jaw 10 under the ram-cylinder, said tool comprising the combination with said body, of an anvil on the jaw 10; a ram in the ram-cylinder; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10, and fashioned to fit on the flanges or bases of the rails of a railway, this device being movable with respect to the body and being one member of a clamp, the other member of which is the jaw and anvil; substantially as described.



5. A hydraulic riveting-tool having its body composed of a united frame and ram-cylinder, the frame having a fixed jaw 10 under the ram-cylinder, said tool comprising the combination with said body, of an anvil on the jaw 10; a ram in the ram-cylinder; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10, and fashioned to fit on the flanges or bases of the rails of a railway, and provided with means to facilitate the adjustment of the device on the rails, and this device being movable with respect to the body and being one member of a clamp, the other member of which is the fixed jaw and anvil; substantially as described.

6. A hydraulic riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device constituting also a member of a clamp, the other member of which is the jaw and anvil, this device comprising a bar extending on opposite sides of the rivet-set, and fashioned near its ends to fit on the flanges or bases of the rails of a railway, the bar having on its under side, at the back, projections 34, and in its ends notches 36; substantially as described.

7. A hydraulic riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a rivet-set on the face of the ram; a head containing a pump, on the ram-cylinder; and a device consisting of a bar extending on opposite sides of the rivet-set, rods connected with the bar and held in guides on the ram-cylinder, a yoke on the upper ends of the rods, and means for raising the head and body of the tool supported by the yoke, rods and bar; substantially as described.

8. A hydraulic riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a rivet-set on the face of the ram; a head containing a pump, on the ram-cylinder; and a device consisting of a bar extending on opposite sides of the rivet-set, rods connected with the bar and held in guides on the ram-cylinder, a yoke on the upper ends of the rods, a screw fixed on the head and extending through the yoke, and a nut on the screw above the yoke; substantially as described.

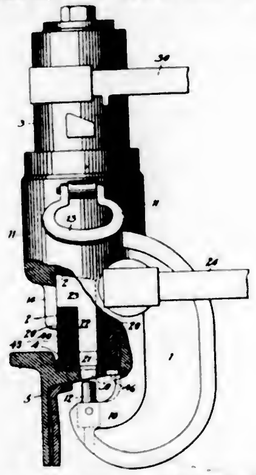
9. A hydraulic riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a rivet-set on the face of the ram; a head containing a pump, on the ram-cylinder; and a device consisting of a bar extending on opposite sides of the rivet-set, rods connected with the bar and held in guides on the ram-cylinder, a yoke on the upper ends of the rods, a screw fixed on the head and extending through the yoke, and a nut on the screw above the yoke, the bar being fashioned near its ends to fit on the flanges or bases of the rails of a railway, and having on its under side, at the back, projections 34, and in its ends notches 36; substantially as described.

10. A hydraulic riveting-tool having its body composed of a united frame and ram-cylinder, the frame having a fixed jaw 10 under the ram-cylinder, said tool comprising the combination with said body, of an anvil on the jaw 10; a ram in the ram-cylinder; a rivet-set on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting device fashioned to rest on the work in which the rivets are secured, at points on opposite sides of the rivet-set and on both sides of a transverse plane containing the axis of the rivet-set; substantially as described.

11. A riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a rivet-set, and its operating mechanism in the upper part of the body; and a tool-supporting device fashioned to fit on the flanges or bases of the rails of a railway, at points on opposite sides of the rivet-set and on both sides of a transverse plane containing the axis of the rivet-set; substantially as described.

12. A riveting-tool comprising the combination of: a jaw and anvil on the lower part of the body; a rivet-set, and its operating mechanism in the upper part of the body; and a tool-supporting device fashioned to fit on the flanges or bases of the rails of a railway, at points on opposite sides of the rivet-set and on both sides of a transverse plane containing the axis of the rivet-set, this device being movable with respect to the body of the tool and being one member of a clamp, the other member of which is the jaw and anvil; substantially as described.

641,163. HYDRAULIC PUNCH. FRANCIS H. STILLMAN, New York, N. Y. Filed May 19, 1899. Serial No. 717,440. (No model.)



Claim.—1. A hydraulic punching-tool having its body composed of a frame and a ram-cylinder, firmly united, the frame having the fixed jaw 10 under the ram-cylinder, and the tool comprising the combination with the body of: a punch on the jaw 10; a ram in the ram-cylinder; a die on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting base extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

2. A hydraulic punching-tool having its body composed of a frame and a ram-cylinder, firmly united, the frame having the fixed jaw 10, and the tool comprising the combination with the body of: a punch on the jaw 10; a ram in the ram-cylinder; a die on the face of the ram; and a pump connected with the ram-cylinder; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

3. A hydraulic punching-tool having its body composed of a frame and a ram-cylinder, firmly united, the frame having the fixed jaw 10, and the tool comprising the combination with the body of: a punch on the jaw 10; a ram in the ram-cylinder; a die on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting base on the ram, fashioned to fit on the rails of a railway on opposite sides of the body of the tool; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

4. A hydraulic punching-tool comprising the combination of: a jaw and punch on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a die on the face of the ram; a pump connected with the ram-cylinder; and a tool-supporting base on the ram, extending on opposite sides of the die, and fashioned to fit on the flanges of the rails of a railway, and having on its under side, at the back, projections 46, and on the front, surfaces 47; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

5. A hydraulic punching-tool having its body composed of a frame and a ram-cylinder, firmly united, the frame having the fixed jaw 10 under the ram-cylinder, and the tool comprising the combination with the body of: a punch on the jaw 10; a ram in the ram-cylinder; a die on the face of the ram; a pump connected with the ram-cylinder; and a device extending on opposite sides of the prolonged axis of the ram-cylinder, below the ram-cylinder and above the jaw 10, and fashioned as a guide to facilitate the adjustment of the tool on the rails; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

6. A hydraulic punching-tool comprising the combination of: a jaw and punch on the lower part of the body; a ram-cylinder containing a ram, on the upper part of the body; a pump connected with the ram-cylinder; a tool-supporting base comprising a collar 40 and having it in a hole 41, the base being held on the ram by the collar surrounding the lower end of the ram; and a die secured in the hole 41; the ram containing a slug-passage extending from the die to the exterior of the ram above the collar; substantially as described.

7. A hydraulic punching-tool having its body composed of a frame and a ram-cylinder, firmly united, the frame having the fixed jaw 10, and the tool comprising the combination with the body of: a punch on the jaw 10; a ram in the ram-cylinder; a die on the face of the ram; and a pump connected with the ram-cylinder; the ram containing a slug-passage extending from the die to the exterior of the ram; substantially as described.

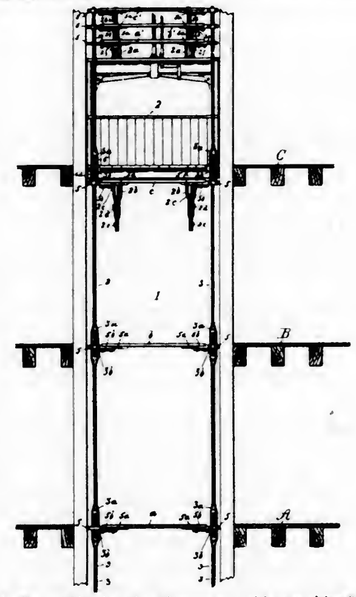
8. A hydraulic punching-tool having its body composed of the frame 1 and cylinder 11, firmly united, the frame having the fixed jaw 10, and the cylinder having the opening 14 in its front at the lower end, and the tool comprising the combination with the body of: a punch on the jaw 10; the ram 2 in the cylinder; a die on the face of the ram; and a pump connected with the cylinder; the slug-passage 22, 23 in the ram connecting the interior of the die with the opening 14 in the ram-cylinder when the punch and die are brought together; substantially as described.

9. A hydraulic punching-tool having its body composed of the frame 1 and cylinder 11, the frame having on it the jaw 10, and the cylinder having the opening 14 in its front at the lower end, and the tool comprising the combination with the body of: the punch 12 on the jaw 10; the ram 2 in the cylinder; the head 3 on the cylinder; the base 4 on the ram; and the die on the face of the ram in the base 4; the slug-passage 22, 23 in the ram connecting the interior of the die with the opening 14 in the ram-cylinder when the punch and die are brought together; substantially as described.

641,164. ELEVATOR. EDGAR STODDARD, Cleveland, Ohio, and ANNA I. RICHARDS, Toledo, Ohio, administratrix of Harry G. Richards, deceased, assignors, by direct and mesne assignments, to Edward J. Thobaben, Cleveland, Ohio, Harry C. Richards, and Jacob A. Riedt. Filed Dec. 13, 1898. Serial No. 699,191. (No model.)

Claim.—1. In combination with an elevator-car, rods extending the entire depth of the shaft, toggles pivoted to said rods at each floor, projections protruding inwardly from said rods, stepped posts rising from the top of the car, stepped posts depending from the bottom of the car, spring-dogs pivoted in each of the steps of all of said posts, hatch-covers carried by said posts, means for releasing said hatch-covers from the posts at their respective floors, and means for catching and holding the covers in the hatchways.

2. In combination with an elevator-car, rods extending the entire depth of the shaft, toggles pivoted to said rods at each floor and adapted to open, projections on the rods at each floor and protruding inwardly, posts rising from the top of the car, posts depending from the bottom of the car, said posts being stepped for floors in the building, spring-dogs pivoted in each of the steps of the posts and adapted to engage hatch-covers carried on the posts, spring-bolts arranged on said covers, one end of said bolts bearing against the spring-dogs and the other end extending into the path of one of the projections on the rods first mentioned.



3. The combination of an elevator-car, with posts rising from the top of the car and posts depending from the bottom of the car, said posts being stepped; hatch-covers supported on spring-dogs pivoted in the steps of the posts; spring-bolts of different lengths arranged in suitable guides on the under sides of the hatch-covers, one of the ends of each of said bolts bearing against certain of the spring-dogs; a rod extending the entire depth of the elevator-shaft, projections on the rod at each of the floors, said projections differing in width in the same proportion as the aforesaid bolts differ in lengths; rings rigidly attached to the hatch-covers, through which the rods pass, said rings being of different widths; toggles with different-sized openings corresponding with the different widths of the aforesaid rings, arranged in connection with the rod at each of the floors, so as to catch the proper ring and permit all the others to freely pass.

4. In an elevator, the combination of a hatch-closing device consisting of a hatch-cover mounted on posts rising from the top of the elevator-car and supported on spring-dogs protruding from said posts, with a hatch-cover mounted on posts depending from the bottom of the elevator-car and supported on spring-dogs protruding from said posts, rings rigidly attached to said hatch-cover, rods passing through said rings and extending the entire depth of the elevator-shaft, means for releasing the hatch-covers from the car at the desired places, and means connected with the said rods for retaining the covers at the desired places in the shaft when released from the elevator-car.

5. In an elevator, the combination of a series of hatch-covers held in engagement with the elevator-car by spring-dogs protruding from posts rising from the top of the elevator-car, with posts depending from the bottom of the elevator-car; slidable spring-bolts arranged on the under sides of the hatch-covers, their inner ends in contact with certain of the spring-dogs, said bolts being of different lengths; rings of different widths rigidly connected with the hatch-covers; rods extending the entire length of the shaft and passing through said rings; projections on said rods at each of the floors protruding inwardly different distances and arranged to come into contact each with one of the bolts aforesaid; toggles pivoted to the rods and arranged to open different widths to receive the rings of different widths.

6. In a hatch-closing device for elevators, hatch-covers provided with rings rigidly attached thereto, in combination with rods extending the entire depth of the shaft through the rings, toggles pivoted to said rods at each floor, said toggles consisting of two pairs of oppositely-disposed levers, and means for opening said levers.

7. In a hatch-closing device for elevators, posts rising from the top of the elevator-car, and posts depending from the bottom of the car, in combination with hatch-covers having holes therein through which said posts pass; spring-dogs pivoted in said posts and engaging the covers, and means for releasing the covers from their engagement with the dogs.

8. In a hatch-closing device for elevators, the combination of a series of hatch-covers carried on posts rising from the top and depending from the bottom of the elevator-car; with rings rigidly attached to the hatch-covers; rods extending the entire depth of the shaft through said rings; spring-bolts arranged on the hatch-covers; means for operating said bolts to release the hatch-covers from the car, and means connected with the rods for engaging and retaining the covers when so released.

9. In an elevator, the combination of a series of hatch-covers held in engagement with the elevator-car by spring-dogs protruding from posts rising from the top of the elevator-car, with posts depending from the bottom of the elevator-car; slidable spring-bolts arranged on the hatch-covers, their inner ends in contact with certain of the spring-dogs; rings of different widths rigidly connected with the hatch-covers; rods extending the entire depth of the shaft and passing through said rings; projections on said rods at each of the floors, said projections being arranged at different places on the circumferences of the rods; each of the aforesaid bolts so arranged on its respective hatch-covers as to come in contact with but one of the projections on one of said rods.

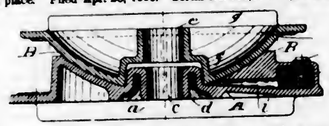
10. An elevator-shaft having in each corner a rod extending the entire depth thereof, and a set of toggles in pairs pivotally supported by said rods at each landing, in combination with hatch-covers adapted to be engaged by said toggles, substantially as described.

11. An elevator-shaft having a rod extending from top to bottom of the shaft at each corner, and two pairs of mechanically-connected toggles pivotally supported by each of said rods at each successive landing, in combination with hatch-covers adapted to be engaged by said toggles, substantially as described.

12. The elevator-shaft and the four several rods extending its full depth and a set of toggles for each rod at each landing, said toggles arranged in pairs pivoted at their outer ends and adapted to close at their inner ends and connected to work both pairs together, in combination with a hatch-cover having a ring to be engaged by said toggles, substantially as described.

13. A coupling for a line of rods in an elevator-shaft to be located at a landing consisting in a substantially tubular body threaded at each end and having a longitudinal recess between its threaded ends open at both its edges, and two sets of toggle-bars pivoted respectively in the ends of said recess and projecting toward each other, and the ends of the said pairs mechanically connected for conjoint action, in combination with hatch-covers adapted to be engaged by said toggles, substantially as described.

641,165. CENTER-PLATE FOR RAILWAY-CARS. CLEMENT F STREET, Dayton, Ohio, assignor to the Dayton Malleable Iron Company, same place. Filed Apr. 28, 1899. Serial No. 714,854. (No model.)



Claim.—1. In center-plates for railway-cars, the combination of a female truck-plate having a central upwardly-projecting boss and a lubricating-bearing surrounding the same, an interengaging car-body plate having its pivotal bearing both on the boss and surface of the truck-plate, and a lubricating-channel in the truck-plate extending from its exterior to the bearing-surfaces between the two plates with its feeding-opening above the lowest bearings of the two plates, whereby a supply of lubricant is constantly held in readiness for the bearing-surfaces of both plates, substantially as described.

2. In center-plates for railway-cars, the combination of a female truck-plate having a central upwardly-projecting boss and a lubricating-bearing surrounding the same, an interengaging car-body plate having its pivotal bearing both on the boss and surface of the truck-plate, a lubricating-channel extending from the bearing-surfaces between the two plates to an exterior reservoir contained in the truck-plate and having its upper feeding end above the lower bearings of the two plates, substantially as described.

3. In center-plates for railway-cars, the combination of the lower truck-plate provided with a central boss, a lubricating-reservoir surrounding the same, a chamber for the lubricant in the body of the plate near its exterior and a channel between said lubricating-chamber and lubricating-reservoir, and an interengaging car-body plate with a bearing-surface fitted to the lubricated bearing-surface of the truck-plate, substantially as described.

4. In center-plates for railway-cars, the combination, of a female truck-plate having a central upwardly-projecting boss and a curved dish-shaped bearing-surface extending therefrom and surrounding the same, an interengaging car-body plate having its lower surface curved to engage the curved dish-shaped bearing-surface of the truck-plate, and a lubricating-channel in the truck-plate extending from its exterior to the curved bearing-surfaces between the two plates with its feeding-opening above the lowest bearings of the two plates, whereby a supply of lubricant is constantly held in readiness for the bearing-surfaces of both plates, substantially as described.

5. In center-plates for railway-cars, the combination of a female truck-plate having a central upwardly-projecting boss and a curved dish-shaped bearing-surface extending therefrom, and surrounding the same, an interengaging car-body plate having its lower surface curved to engage the curved dish-shaped bearing-surface of the truck-plate, a lubricating-channel in the truck-plate extending from a point between the bearing-surfaces of both plates to a reservoir contained in the truck-plate, whereby a constant supply of lubricant is kept on hand and in contact with the bearing-surfaces, substantially as described.

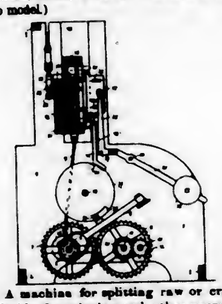
641,166. GLOBE. THOMAS W. STEBBETT, Wenonah, N. J. Filed Dec. 22, 1897. Serial No. 662,965. (No model.)



Claim.—1. As an improved article of manufacture, a globe having an exterior surface of uniform diameter for the greater portion of its length provided with bulbous formations near its mid-height, said formations being spaced both vertically and circumferentially of the globe, the interior surface of the latter being provided with a series of substantially parallel flutes, each having a rectilinear top and a base substantially parallel to each other and joined by inclined sides of substantially equal length, whereby a plurality of faces are produced and the light is softened and diffused.

2. As an improved article of manufacture, a lamp-globe of uniform diameter throughout the major portion of its length and provided with a series of exterior bulbous formations near its mid-height, said formations being spaced both vertically and circumferentially of the globe, a curved bottom for the latter, and a flange at the mouth thereof, said globe having a smooth, unbroken, exterior surface above and below said formations and having its interior surface provided with a series of longitudinally-extending flutes of varying length, and each flute having a rectilinear top and base joined by inclined sides of substantially equal length, whereby a plurality of faces are produced.

641,167. MACHINE FOR SPLITTING RAW OR CRUSHED FIBER. FRANZ SKYMANSKI, Berlin, Germany. Filed May 9, 1899. Serial No. 716,165. (No model.)



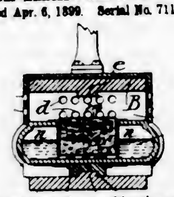
Claim.—1. A machine for splitting raw or crushed fibers into textile fibers suitable for spinning and other purposes, consisting of two pairs of bars movable with regard to one another, and capable of holding the fibers at short distances apart, means for applying pressure to said bars to press them toward each other and for giving them a reciprocating motion relative to each other, and means for automatically displacing the fibers between the gripping-bars after a predetermined interval substantially as described.

2. A machine for splitting raw or crushed fibers into textile fibers suitable for spinning and other purposes, consisting of two pairs of bars movable with regard to one another and capable of holding the fibers at short distances apart, means for pressing said bars toward each other and for giving them a reciprocating motion relative to each other and a vertically-adjustable roller in combination with a fixed roller, and means for rotating said rollers from time to time and thus moving the fibers to an extent corresponding to the finished work, substantially as described.

3. A machine for splitting raw or crushed fibers into textile fibers suitable for spinning and other purposes, consisting of two pairs of bars movable with regard to one another and capable of holding the fibers firmly at short distances apart, means for pressing said bars toward each other and for giving them a reciprocating motion relative to each other, a driving-shaft for operating said means, a clutch for coupling and uncoupling said shaft, and means for automatically displacing the fibers between the gripping-bars after a given number of revolutions of the driving-shaft substantially as described.

4. A machine for splitting raw or crushed fibers into textile fibers suitable for spinning and other purposes, consisting of two pairs of bars movable with regard to one another and capable of holding the fibers firmly at short distances apart, means for pressing said bars toward each other and giving them a reciprocating movement relative to each other, a driving-shaft for operating said means, means for automatically displacing the fibers between the gripping-bars after a given number of revolutions of the driving-shaft and means for automatically opening the gripping-bars by means of gearing from said shaft, substantially as described.

641,168. SELF-HEATING SAD-IRON. HOWELL P. TERRY, New York, N. Y. Filed Apr. 6, 1899. Serial No. 711,936. (No model.)



Claim.—1. In a sad-iron, the combination of a perforated shell, a heater within said shell, and a removable iron comprising two parallel plates and an end wall connecting them, and means for fastening the iron and the shell together, substantially as shown and described.

2. In a sad-iron, the combination of a shell having perforations therein, a heating-lamp within said shell, and a handle connected thereto, with a removable iron comprising two parallel plates adapted for alternate contact with the flame of said lamp, and means connecting the two said plates with each other, and means for retaining them in engagement with the said shell, substantially as shown and described.

3. In a sad-iron, the combination of a shell comprising a perforated upper portion and a ribbed lower portion, having a dovetailed groove therein, and a heater or lamp located within said shell, and an iron comprising two integrally-formed smoothing-plates connected by an end wall having a handle thereon, each plate being supplied upon its inner surface with a dovetailed tongue adapted for alternate engagement with the dovetailed groove of the said shell, substantially as shown and described.

641,169. ATTACHMENT FOR CYCLE-SADDLES. EDMOND H. THIBAULT, Waterbury, Conn., assignor of one-half to George H. Marshall, same place. Filed Nov. 27, 1899. Serial No. 738,265. (No model.)



Claim.—1. An attachment for cycle-saddles, comprising a body intermediate part and head, said intermediate part formed on one face with a tongue, and on its other face with a groove in line transverse to the line of the tongue, the head and body formed with tongues and grooves adapted for connection with the tongue and groove in the intermediate part, and springs between the head and body and the intermediate part, substantially as described.

2. An attachment for cycle-saddles, comprising a body adapted to be clamped to a saddle-post, said body formed at its upper end with a longitudinal tongue, an intermediate part having a groove in its under face adapted to set over the tongue on the body, and having a tongue in its upper face transverse to the tongue on the body, a head having a groove in its under face adapted to set over the tongue on the intermediate part, said intermediate part pivotally connected with the body and head, springs interposed between the intermediate part and the head and body, and a clamp at the upper end of said head, substantially as described.

641,170. DENTAL APPLIANCE. WALTER J. THURMOND and EDWIS W. CLARK, Macon, Ga. Filed July 26, 1899. Serial No. 725,167. (No model.)



Claim.—1. In a dental absorbent-holder, the combination with a pair of jaws having a spring connection, each of said jaws comprising two spaced members and the members of one of said jaws being provided with holding-loops for a detachable tongue-guard; of a tongue-guard having a portion thereof engaging with the said loop of one of the members of the said jaw, substantially as described.

2. In a dental absorbent-holder, the combination with a pair of jaws having a spring connection, each of said jaws comprising two spaced members and the members of one of said jaws being provided with holding-loops for a detachable tongue-guard; of a tongue-guard having a portion thereof engaging with the said loops of one of the members of the said jaw; and a bent tube secured to the said tongue-guard and having one end extending downwardly into position for drawing off the saliva, substantially as described.

3. In a dental absorbent-holder, the combination with a pair of jaws having a spring connection, each of said jaws comprising two spaced members and the members of one of said jaws being provided with holding-loops for a detachable tongue-guard; of a tongue-guard having a portion thereof engaging with the said loops of one of the members of the said jaw; a short bent tube secured to the said tongue-guard having one end arranged to depend into the mouth of the patient when in use; and a means for drawing off the saliva from the said tube, substantially as described.

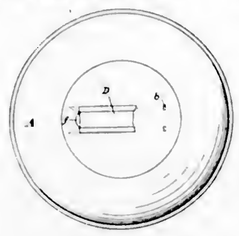
4. In a dental appliance of the character described, the combination with a holder composed of two compressible jaws comprising spaced members A' and A^2 united by the spring-coils A^6, the members A^2 being provided with pairs of holding-loops a^2; of the curved plate B having reduced portion B' adapted to engage between a pair of said loops a^2, the said plate serving as an adjustable tongue-depressor, substantially as described.

5. In a dental appliance of the character described, the combination with a holder composed of two compressible jaws comprising spaced members A' and A^2 united by the spring-coils A^6, the members A^2 being provided with pairs of holding-loops A^3; of the curved plate B having reduced portion B' adapted to engage between a pair of said loops a^2, the said plate serving as an adjustable tongue-depressor; the short bent tube C secured upon the inner side of the plate B and open at one end and having lateral openings at or near the other end with perforated bulb to prevent clogging by mucus, the one end being arranged to connect with a flexible tube for drawing off the saliva, and the other depending into the mouth, substantially as described.

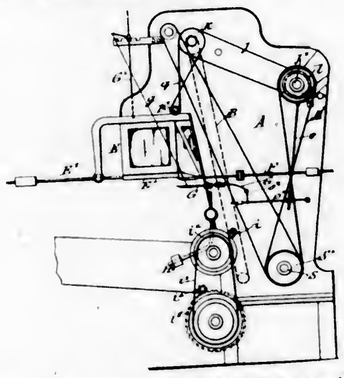
641,171. SHEET-METAL HANDLE. CHARLES L. WAGANDT, Baltimore, Md. Filed July 19, 1899. Serial No. 724,362. (No model.)

Claim.—1. A cover and handle united as herein set forth, consisting of the cover, A, having slits; and the sheet-metal loop handle D, provided at each end with three tangs at right angles with said handle of which one rests on the upper surface of the cover and extends in alinement with said handle, and of which two project down through said slits in the cover and rest laterally against the lower surface of the cover and extend in alinement with said handle, as set forth.

2. A cover and handle united as herein set forth, consisting of the cover, A, having slits; and the sheet-metal loop handle provided at each end with three tangs at right angles with said handle one or more of which project through said slits and of which two rest against one surface of the cover and one rests against the other surface of the cover all of said tangs being in alinement with the handle, as set forth.



641,172. AUTOMATIC FEEDING AND WEIGHING MECHANISM. PIERRE C. WARING, Yonkers, N. Y. Filed June 14, 1899. Serial No. 720,460. (No model.)



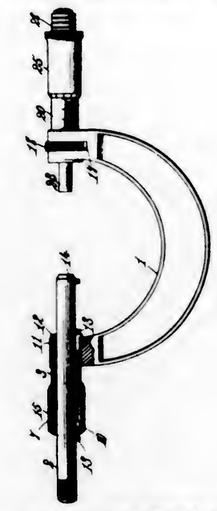
Claim.—1. In automatic feeding and weighing mechanism, the combination, with the feeding means; of weighing mechanism, into the scale-pan of which the fibrous material is delivered from the feeding means, a clutch mechanism connected with the feeding means, and a controlling-lever entirely independent of any influence of the weighing mechanism during the weighing out of the material, and being connected with the clutch mechanism for operating it, said controlling-lever being acted upon by and responding and being sensitive to the action of the scale-pan, during the motion of the same after the determined quantity of material has been fully weighed out, substantially as set forth.

2. In an automatic feeding and weighing mechanism, the combination, with the feeding means, and weighing mechanism below the latter; of a movable deflector for returning the supply-stream of fibrous material back to the feeding means, and a clearer arranged below the delivery end of the feeding means and above the weighing mechanism, out of the path of the supply-stream of fibrous material as it is being delivered to the weighing mechanism, and means for moving said clearer for removing any stray material deposited on it by the said movable deflector and which would otherwise be liable to be added to or increase the predetermined weight of the material which has already been weighed out, substantially as set forth.

3. In automatic feeding and weighing mechanism, the combination, with the weighing mechanism, and a receiving-box above it; of a clearer-roll journaled close to a ledge at the upper part of said box, and means for turning said roll so as to prevent the accumulation of fibrous material on said ledge, substantially as set forth.

4. In automatic feeding and weighing mechanism, the combination, with the weighing mechanism, a receiving-box above the same, and a movable deflector for returning the supply-stream of fibrous material over a ledge at the upper part of said box, back into the feed-hopper; of a clearer-roll journaled close to said ledge, and means for turning said roll so as to prevent the accumulation of fibrous material on said ledge, substantially as set forth.

641,173. MICROMETER-CALIPERS. JOHN P. B. WELLS, Athol Mass. Filed Mar. 24, 1899. Serial No. 710,346. (No model.)



Claim.—1. A micrometer-caliper, consisting of a frame carrying at one end an adjustable micrometer-screw and having at the other end a tubular bearing open at its opposite ends and provided with external screw-threads and a cylindrical bore having formed near its inner end an annular inwardly-projecting taper shoulder, an elastic cylindrical check having an inner slitted and beveled end fitting and bearing against said taper shoulder, a cylindrical anvil-rod passing through said chuck and extending at its end portions from the opposite ends of said tubular bearing, and a nut engaging the screw-threads of the tubular bearing and bearing against the outer end of the chuck, substantially as described.

2. A micrometer-caliper having a tubular bearing provided with an internal taper, a longitudinal slot and external screw-threads, an elastic, longitudinally-slitted chuck located in said bearing and having an outer flanged end, a longitudinal slot coinciding with the slot of the tubular bearing, and a tapered inner end corresponding to the taper in the tubular bearing, an anvil-rod longitudinally adjustable in said chuck and provided with a series of stops, a split bearing located at the inner end of said elastic chuck and against which one of said stops may be made to bear, and a nut engaged with the screw-threads of the tubular bearing and extended over the flanged outer end of the elastic chuck to move the chuck inward, so that the said tapers contract it into clamping engagement with the anvil-rod for holding it in adjusted position, substantially as described.

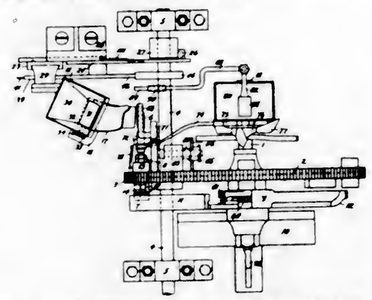
3. A micrometer-caliper having a tubular bearing provided with external screw-threads and a longitudinal slot with a notch therein, a split chuck located in said bearing and having a notched longitudinal slot coinciding with the slot of the tubular bearing, an anvil-rod longitudinally adjustable in said chuck and provided with a series of stops, a split bearing against which one of said stops may be made to bear while another is received in the coinciding notches of the slots in said chuck and tubular bearing, and a nut engaged with the screw-threads of the tubular bearing and adapted to impart an inward movement to the chuck, substantially as described.

4. A micrometer-caliper having a barrel, a micrometer-sleeve mounted on the barrel and having an elastic, split neck at its outer end, a collar movably arranged on said neck, a micrometer-screw extending through the barrel and elastic, split neck, and a screw engaged with the outer end of the micrometer-screw and bearing against said collar, to contract the elastic, split neck on the outer end of the micrometer-screw, substantially as described.

5. A micrometer-caliper having a barrel, a micrometer-sleeve, a measuring-screw to which said sleeve is detachably secured, a shell adjustable intermediate the barrel and micrometer-sleeve and having a reduced internally-threaded portion to engage the measuring-screw, and means for locking the measuring-screw in adjusted position, substantially as described.

6. A micrometer-caliper, consisting of a frame carrying at one end an adjustable anvil-rod and having the other end slotted and constructed with an internal, concealed taper, a micrometer-screw, an elastic, externally-screw-threaded bushing housed wholly within the slotted end of the frame and having an elastic, split tapered inner end to seat against said internal, concealed taper, and a screw-nut arranged within the slotted end of the frame and engaging the screw-threaded bushing to move it toward the anvil-rod and thereby cause the internal, concealed taper of the frame to clamp the split tapered end of the bushing upon the micrometer-screw, substantially as described.

641,174. CIGARETTE-MOUTHPIECE-MAKING MACHINE. THOMAS WHITEHORN and HENRY H. BRADY, Melbourne, Victoria. Filed Oct. 4, 1899. Serial No. 732,445. (No model.)



Claim.—1. In a machine for making cigarette-mouthpieces, the combination of a toothed disk and a shaft on which the same is mounted, a mandrel upon which the tube is formed mounted on said disk in a plane at right angles to said disk, a pinion upon said mandrel, a stationary toothed segment supported by the frame of the machine for rotating the mandrel, and means for giving said toothed disk an intermittent motion, substantially as specified.

2. The combination with the toothed disk 2 and the shaft upon which the same is mounted, of a mandrel 6 fitted to turn in said disk, a pinion on said mandrel, means for temporarily locking the disk, and means for turning the mandrel while the disk is locked, substantially as specified.

3. The combination with the toothed disk 2 and the shaft upon which the same is mounted, a toothed mandrel 6 fitted to turn in said disk and means for rotating the mandrel and disk, of the arms 68 pivoted to said disk, springs to press the outer ends of said arms against the paper as wound upon said mandrel, a sleeve 72 fitted to slide upon the mandrel 6 and means for actuating said sleeve to eject the tube from the mandrel, substantially as specified.

4. The combination with the toothed disk 2, and the shaft upon which it is mounted, a toothed mandrel carried by said disk and means for rotating said mandrel, of a receptacle containing paraffin, a rod 84 suitably supported, an absorbent pad 98, and an arm 82 connecting the pad to said rod 84, said pad being within the paraffin-receptacle, and means for raising said rod and pad so as to apply the paraffin to the tube on the mandrel at the time the mandrel 6 is immediately over said pad, substantially as specified.

5. The combination with the disk 2 and its shaft a toothed mandrel carried by said disk, and means for rotating said mandrel, of the holder 17 containing the paper blanks, a standard 18 for supporting said holder, means for maintaining said paper blanks at a constant level, a receptacle 30 for holding an adhesive material, a roller at the bottom of said receptacle, means for rotating said roller, means for lowering the receptacle and roller so that the roller is brought into contact with the top blank in the holder 17, and means for carrying the receptacle, roller and blank forward so as to present the blank to the mandrel upon which it is to be wound, substantially as specified.

6. The combination with the toothed disk 2 and its shaft, a mandrel carried by said disk, a pinion upon said mandrel, the mutilated gear 3 and its shaft 4 for turning said disk 2, of the pivoted toothed segment 61 and pinion 60, the rod 57 having a rack 59 at its upper end, the pivoted arm 55 upon which the lower end of said rod rests, and a cam 56 on the shaft 4 for lifting said rod, substantially as specified.

7. The combination with the toothed disk 2, and its shaft, means for giving the disk an intermittent motion, and a toothed mandrel 6 carried by said disk, of the pivoted backing plates or arms 68, the spindle 64 having a head 67 at one end between said arms and radial arms 65 66 at its opposite end, the hub or block 76 secured to the shaft 1, and having arms 77 which engage the radial arms 65 66 at the proper time and turn the spindle 64 and head 67 so as to open the arms 68, substantially as specified.

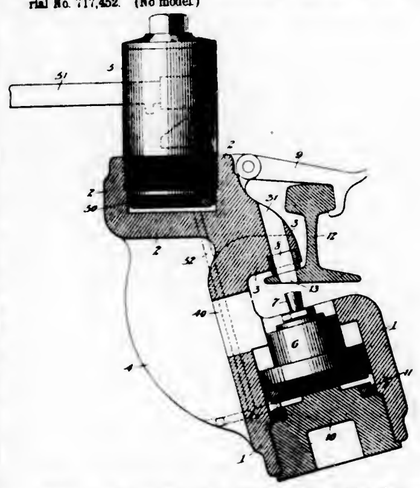
8. The combination with the toothed disk 2 and its shaft 1, a toothed mandrel carried by said disk, and means for giving said disk an intermittent motion, of the pivoted arms 68, the spindle 64 having a head 67 at one end between said arms and radial arms 65 66 at its opposite end, the hub or block 76 secured to said shaft 1 having arms 77 which engage the arms 65 66 at the proper time and turn the spindle 64, a sleeve 72 upon the mandrel 6, a block 75 loose on the shaft 1, and a lever 74 pivoted to said block 75, said lever 74 being actuated by the arm 77 to move the sleeve 72 and eject the tube from the mandrel at the time the jaws 68 are open, substantially as specified.

9. The combination with the toothed disk 2 and its shaft, a toothed mandrel carried by said disk, and means for rotating said mandrel, of the mutilated gear 3 having a flange or rim 46 upon its face, the tapering strip 54 having a hole in it and secured to the disk 2, the pivoted plate 50 having a roller 49 and a pin 53 at its free end, and a spring to press the free end of said plate in the direction of the axis of the disk 2, so that when in the rotation of the gear 3, the roller 49 passes off the inner face of the flange 46, the pin 53 enters the hole in the plate 54 and locks the toothed disk, substantially as specified.

10. The combination of the holder 17 for paper blanks, pivoted back plate 36 having an extension-arm 37, spring 38 for returning the back plate to its normal position, the screw-rod 21, the false-bottom plate 100 at the upper end of said rod 21, a sleeve 20 secured to the under side of the holder and through which sleeve the screw-rod passes, a ratchet-wheel at the lower end of said sleeve, and the side frame 23 and pawl 21 for actuating said ratchet and raising the rod 21, substantially as specified.

11. The combination of the receptacle 30, for adhesive material, a plate 29 for supporting said receptacle, a roller 31 at the bottom of said receptacle, a ratchet-wheel 33 on the roller-spindle, a pawl 34 to actuate the wheel 33 a rod 39 connected at its upper end to the plate 29, a rocking lever 41 42 upon one end of which the lower part of rod 39 rests, a cam 44 and its shaft 4 for acting upon the lever 41 42, the slide-plate 24, the cam 27 acting upon said slide-plate, and a spring 101 for returning the slide-plate and parts carried by it, substantially as specified.

641,175. HYDRAULIC PUNCH. CARL WIGTEL, New York, N. Y., assignor to Francis H. Stillman, same place. Filed May 19, 1899. Serial No. 717,452. (No model.)



Claim.—1. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a fixed jaw projecting over the punch, the jaw having a slug-passage extending through it on the prolonged axis of the ram; a die in the face of the jaw; a pump; and a water-passage extending from the pump to the cylinder containing the ram; the tool having its center of gravity behind the die, when the face of the die is in contact with the top of the base of a rail of a railway, and the tool being provided with means for connecting it at a point or points above its center of gravity with the rail; substantially as described.

2. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head

on the upper part of the body; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch, the jaw containing a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; the tool having its center of gravity behind the die, when the face of the die is in contact with the top of the base of a rail of a railway, and the tool being provided with means for connecting it at a point or points above its center of gravity with the rail; substantially as described.

3. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a fixed jaw projecting over the punch, the jaw having a slug-passage extending through it on the prolonged axis of the ram; a die in the face of the jaw; a pump; and a water-passage extending from the pump to the cylinder containing the ram; the tool having its center of gravity behind the die, when the face of the die is in contact with the top of the base of a rail of a railway, and the tool being provided with a hook or hooks hinged to the upper part of the body and properly fashioned to engage the head of the rail; substantially as described.

4. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; the tool being provided with means for securing it to a railway-rail, with the face of the die in contact with the upper surface of one side of the base of the rail; substantially as described.

5. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body, the prolonged axis of the head below the head being behind the axis of the ram; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch and in front of the head, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; substantially as described.

6. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body, the prolonged axis of the head below the head being behind the axis of the ram; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch and in front of the head, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; the tool being provided with means for securing it to a railway-rail, with the face of the die in contact with the upper surface of one side of the base of the rail; substantially as described.

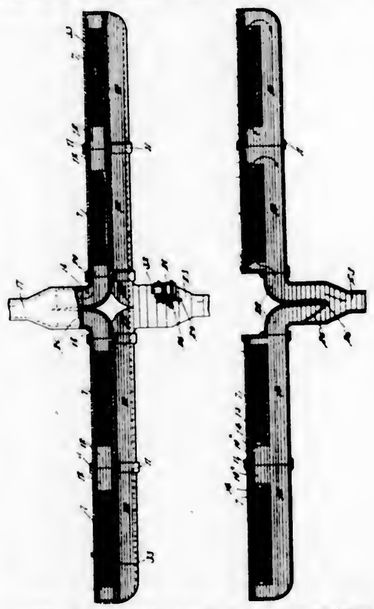
7. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body, the prolonged axis of the head below the head being behind the axis of the ram, and the axis of the ram being inclined to that of the head from the bottom of the ram upward at an angle equal to that made by the top of one side of the base of a railway-rail with the bottom of the rail; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch and in front of the head, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; substantially as described.

8. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body, the prolonged axis of the head below the head being behind the axis of the ram, and the axis of the ram being inclined to that of the head from the bottom of the ram upward at an angle equal to that made by the top of one side of the base of a railway-rail with the bottom of the rail; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch and in front of the head, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; the tool being provided with means for securing it to a railway-rail, with the face of the die in contact with the upper surface of one side of the base of the rail; substantially as described.

9. A hydraulic rail-punching tool comprising the combination of: a ram in the lower part of the body; a punch on the ram; a head on the upper part of the body; a water-passage extending from the head to the cylinder containing the ram; a fixed jaw projecting over the punch, the jaw having a slug-passage extending through it on the prolonged axis of the ram; and a die in the face of the jaw; the tool being provided with a hook or hooks hinged to the upper part of the body and properly fashioned to engage the head of a railway-rail, when the face of the die is in contact with the upper surface of one side of the base of the rail; substantially as described.

10. A hydraulic rail-punching tool having its body composed of the cylinders 1 and 2, the fixed jaw 3, and the back 4, the axis of the cylinder 1 being inclined to that of the cylinder 2 at an angle equal to that made by the top of one side of the base of a railway-rail with the bottom of the rail, and the jaw 3 projecting in front of the prolonged axis of the cylinder 1 and having a slug-passage extending through it on that axis, and the tool comprising the combination of: a ram in the cylinder 1; a punch on the ram; a head with its lower end in the cylinder 2; a water-passage extending from the head to the cylinder 1; and a die in the face of the jaw 3; the tool being provided with means for connecting it at the upper part of its body with a railway-rail, when the face of the die is in contact with the upper surface of one side of the base of the rail; substantially as described.

641,176. COTTON-ELEVATOR. GEORGE W. WILLIAMS, Waco, Tex., assignor to the Kellett-Chatham Machinery Company, same place. Filed Mar. 20, 1899. Serial No. 709,779. (No model.)



Claim.—1. A cotton-elevator, having an air-circulating apparatus and a number of boxes forming the body of the elevator, each box having an air-conduit therein, and the air-conduits having lateral extensions at their ends, each box also having a cotton-conduit therein, the cotton-conduit being at the upper portion of the box and communicating at its bottom with the main portion thereof, into which portion of the box the cotton is discharged, the lateral extensions of the air-conduit in each box communicating with the box directly adjacent to corresponding cotton-conduit and near the respective ends thereof, so that currents pass from each end of said cotton-conduit, thus forming cross or parting currents to facilitate the delivery of the cotton into the body of the box.

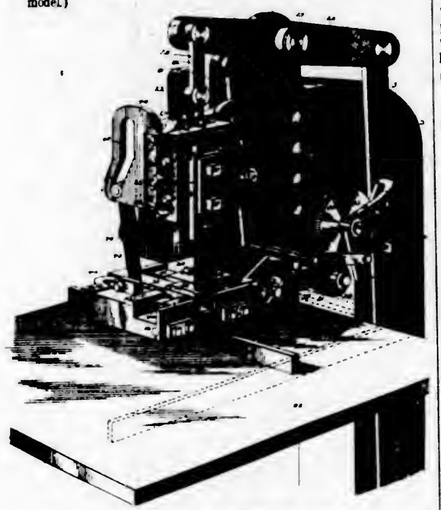
2. A cotton-elevator, comprising, with the air-circulating apparatus, a box having therein an air-conduit and a cotton-conduit, the cotton-conduit communicating directly with the main portion of the box, into which portion of the box the cotton is discharged, and the air-conduit having a lateral extension at each end, such extension communicating with the box directly adjacent to the cotton-conduit near the respective ends thereof, so that the air drawn into the air-conduit passes from both ends of the cotton-conduit, thereby establishing cross-currents in the box to effectively deliver the cotton into the body of the box.

3. A cotton-elevator, having a number of boxes joined end to end, each box having an air-conduit and a cotton-conduit, the respective conduits of the boxes communicating with each other to form two continuous conduits, the cotton-conduit of each box communicating with the main portion thereof, into which portion the cotton is discharged, and the air-conduit of each box having two extensions communicating with the box directly adjacent to the corresponding cotton-conduit, near the ends of the same, so that the air drawn into the air-conduits will pass from both ends of each cotton-conduit in cross-currents, and means for establishing an air circulation within the elevator.

4. In a cotton-elevator, the combination with a box, of walls forming a cotton-conduit, walls forming an air-conduit arranged below the cotton-conduit, the air-conduit having lateral offsets at its ends, and the walls of the box at the upper portions thereof having openings communicating with the offsets of the air-conduits, thus to produce cross or parting currents within the box.

5. A cotton-elevator, having an air-conduit and a cotton-conduit, the cotton-conduit having an open side communicating with the body of the elevator to discharge the cotton therein, and the air-conduit having communication with the body directly adjacent to the cotton-conduit, such communication being effected at two separate points respectively adjacent to the ends of the opening in the cotton-conduit, whereby the air is drawn through the cotton-conduit into the body of the elevator in cross or parting currents.

641,177. MACHINE FOR FORMING AND DRIVING STAPLES. MCCLINTOCK YOUNG, Frederick, Md., assignor to the Palmetto Fibre Company, of Illinois. Filed Feb. 17, 1898. Serial No. 670,681. (No model.)



Claim.—1. In a machine of the character described the combination of an anvil, a guide in advance of the same, a reciprocating staple-former and a reciprocating driver sustained in relatively-fixed relations, a reciprocating ejector adapted to engage the staple on the anvil and move it to the guide, a wire-feeding mechanism adapted to advance the wire over the anvil, an ejector-operating device, as plate 48, movable with the staple-former and staple-driver, a device for operating the wire-feeding mechanism as plate 64, also movable with the former and driver, and suitable connections between the said plates and the ejector and wire-feeding mechanism, constructed to cause the wire to be fed to the anvil on the advance of the former and driver and the staple to be moved to the guide, on the retraction of the former and driver.

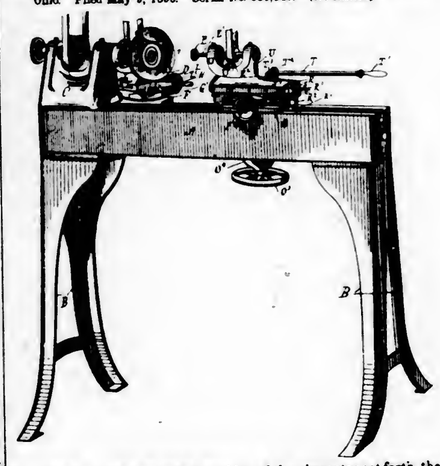
2. The combination with a horizontal anvil, of a main vertically-reciprocating plate, means for reciprocating the plate, a vertically-reciprocating combined wire cutting and bending device fixed to and movable with said plate, a wire-feeding mechanism adapted to advance the wire over the anvil beneath the cutting and bending device, an ejector embracing the anvil and movable back and forth thereon and acting to engage the staple and advance the same on the anvil, a staple-driving device movable with the bending and cutting device and situated below the same, a plate 48 fixed to the main plate and formed with a camway, a lever 45 engaging at its upper end in the camway and pivoted at its lower end to the ejector, a plate 64 connected with the main plate and formed with a camway, and a pendent lever 61 connected with the wire-feeding mechanism and engaging in the camway in the plate.

3. In a machine for forming and driving staples the combination of an anvil, a wire-feeding mechanism comprising opposing rolls adapted to advance the wire over the anvil, a vertically-reciprocating bending device comprising two fingers formed in their ends with grooves to receive the wire and adapted to straddle the anvil and bend the wire around, one of said fingers having an edge adapted to sever the wire, a vertical staple-guide arranged in advance of the anvil, a vertically-reciprocating staple-driver formed to enter said guide, a horizontal reciprocating ejector embracing the anvil and movable back and forth thereon in position to engage and push the staple into the guide, an operating-lever adapted to be operated by the vertical movement of the staple former and driver and pivoted to the ejector, and a second operating-lever connected with the feeding-rolls and actuated also by the reciprocating bending and driving devices.

4. The combination with the main reciprocating plate provided with a flange, of the bending slide-plate applied to the face of the main plate, clamping-screws extending through the flange and bearing on the edges of the slide-plate, a driving slide-plate 29 applied to the bending slide-plate, a through-bolt connecting said parts, and clamping-screws 31 extending through the flange and acting on the edges of the driving slide-plate.

5. The combination with an anvil and a vertically-movable bending-slide, of a cam-plate movable with said slide and formed with a slot extending rearward from its upper end, an ejector movable back and forth along the anvil, a vibratory lever 45 pivoted at its lower end to the ejector and engaging at its upper end in the cam-slot, a wire-feeding mechanism acting to advance the wire over the anvil, a plate 64, also movable with the bending-slide and formed with a camway extending laterally outward from its upper end and a pendent lever 61 operatively connected at its lower end with the wire-feeding mechanism and engaging between its ends in the cam in plate 64.

641,178. GRINDING-MACHINE. WALTER C. BAKER, Cleveland, Ohio. Filed May 9, 1898. Serial No. 680,149. (No model.)



Claim.—1. In a grinding-machine of the character set forth, the combination with a grinding-wheel, of a slide-rest upon which said wheel is mounted and is operated, said slide-rest being adjustable along the length of the bed of the machine, adjustable horizontally in a circle, in relation to its base, and adjustable in directions at right angles to each other, and means for automatically reciprocating the grinding-wheel along the range of feed substantially as shown and described.

2. In a grinding-machine of the character set forth, the combination with a rotary chuck adapted to hold and rotate the article, of a reciprocating grinding-wheel mounted and operating upon an adjustable slide-rest, said slide-rest being swiveled to a base, the base, in turn, adapted to be adjusted along the bed of the machine, means for automatically reciprocating said grinding-wheel above the swiveled connection, means for adjusting the extent of reciprocation and a transverse slide, and means thereon for regulating the cut of the grinding-wheel substantially as set forth.

3. In a grinding-machine of the character set forth, the combination with a rotary chuck, of a rotating and reciprocating grinding-wheel, said grinding-wheel being swiveled in relation to the bed of the machine and the chuck, for the purpose of regulating the range of feed, and means for adjusting the extent of the reciprocation and the cut located above said swiveled portion, and means for automatically reciprocating the grinding-wheel along the range of feed, substantially as set forth.

4. In a grinding-machine of the character set forth, the combination with a rotary chuck, of grinding-wheels mounted and operated upon slide-rests, said slide-rests being adjustable along the length of the bed of the machine, and both provided with sections which are automatically reciprocated, thus, in turn, reciprocating their respective grinding-wheels, and sections movable in relation to said automatically-reciprocated sections, said movement being in the same direction as the reciprocation, whereby an article may be finished on both its interior and exterior at the same time with one chucking, and whereby the wheels may be removed from their work quickly, substantially as and for the purpose set forth.

5. In a grinding-machine of the character set forth, the combination with the rotating chuck for holding and rotating the article to be operated upon, of a grinding-wheel, said grinding-wheel being mounted upon and automatically reciprocated by a suitably-operated slide-rest, said slide-rest, in turn, being provided with means substantially as set forth, whereby the grinding-wheel may be quickly removed from the work in line with its range of feed or reciprocation and the extent of reciprocation adjusted and a transverse slide and means thereon for regulating the cut of the grinding-wheel, substantially as and for the purpose set forth.

6. In a grinding-machine of the character set forth, the combination with the rotating chuck adapted to hold and rotate the article to be operated upon, of a grinding-wheel for operating upon the article, said wheel being mounted upon a slide-rest which is swiveled in relation to the bed of the machine automatically reciprocated in line with the axis of the article, thus, in turn, reciprocating said wheel, in combination with an adjustable lever, and a cam operating in conjunction with said lever to automatically reciprocate the said slide-rest and wheel, the cam, in turn, being so connected, to said slide-rest, as to move with the same as the slide-rest is adjusted along the length of the machine, and means for regulating the cut of the grinding-wheel substantially as and for the purpose set forth.

7. In a grinding machine of the character set forth, the combination with a rotating chuck for holding and rotating the article to be operated upon, of a grinding-wheel for operating upon the article, said grinding-wheel being mounted upon an automatically-reciprocated slide-rest, said slide-rest being swiveled and adjustable lengthwise, in relation to the bed of the machine, and a rack-and-pinion mechanism located above the swiveled portion of the slide-rest, a shaft connected to said pinion, and adjustable rocking levers connected with and operated by a cam for the purpose of automatically reciprocating the upper portion of the slide-rest, said cam being so connected to the slide-rest as to move with the same, as the slide-rest is adjusted along the bed of the machine, substantially as and for the purpose set forth.

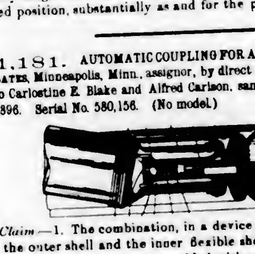
8. The combination, in a grinding-machine; of a rotating chuck, grinding-wheels operating upon the article, means for adjusting said grinding-wheels in relation to the work, whereby the article may be finished on both its interior and exterior simultaneously with one chucking, means for removing said grinding-wheels from the work independent of the reciprocating mechanism, and cams operating adjustable levers for automatically reciprocating the grinding-wheel, both cams being mounted upon, and operated by, a single shaft, and both cams being movable along the shaft, substantially as and for the purpose set forth.

9. The combination, in a grinding-machine; of a rotary chuck, a rotary reciprocating grinding-wheel, a second rotary reciprocating grinding-wheel, means for automatically reciprocating both wheels along their range of feed, means for adjusting both wheels in relation to the work, whereby the article may be finished on its exterior and interior at the same time, with one chucking, means for adjusting both wheels along the bed of the machine, and in relation to such bed, means for horizontally adjusting both wheels in relation to the work, cams and adjustable levers, with suitable intervening mechanism, for automatically reciprocating said wheels along their range of feed, or line of work, and independent means for removing the wheels from the work, in a line with the range of feed, without interfering with a "set" of said wheels, substantially as and for the purpose set forth.

641,179. FITTING FOR STEAM-HEATING SYSTEMS. CHARLES A. BALL, Washington, D. C. Filed Mar. 17, 1899. Serial No. 709,498. (No model.)

Claim.—1. In a steam-heating system, the combination with a radiator, a supply-pipe thereto, an exhaust-pipe therefrom, and a vacuum apparatus connected to said exhaust-pipe, of a fitting having communication with the radiator and the exhaust-pipe and provided with a water-of-condensation outlet and an air-outlet conduit extending above the water-of-condensation level.

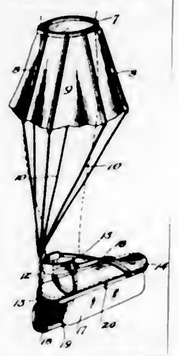
2. In a steam-heating system, the combination with a radiator, a supply-pipe thereto, an exhaust-pipe therefrom, and a vacuum apparatus connected to said exhaust-pipe, of a fitting having communication with the radiator and the exhaust-pipe and provided with an adjustable water-of-condensation outlet and an air-outlet conduit extending above the water-of-condensation level.



3. An exhaust-fitting for the radiators of steam-heating systems, consisting of a casing, a valve in said casing having an adjustable port for the escape of water of condensation from the lower part of said casing, and a port for the escape of air opening from above the water-of-condensation level.

4. An exhaust-fitting for the radiators of steam-heating systems, consisting of a casing, a rotatable chambered plug-valve therein having a port adapted to register with a similar port in said casing the two constituting a water-of-condensation outlet, and a conduit opening into the exhaust and extending up and terminating above the water-of-condensation level.

641,180. SWIMMING APPARATUS. JAMES S. BARTHOLOMEW, Guerneville, Cal. Filed Apr. 13, 1899. Serial No. 712,537. (No model.)



Claim.—1. A swimming apparatus of the class described, comprising the garter 7, the arms 8 8 pivoted at their inner ends to said garter, the flexible fabric 9, extending from the garter to the outer ends of said arms, the sandal and the cords extending from the outer ends of said arms to said sandal, substantially as and for the purpose set forth.

2. In a swimming apparatus of the class described, comprising a floatable or buoyant sandal 14, the buoyant wings 17 and 18 longitudinally hinged to said sandal, and means for securing said wings in a folded position, substantially as and for the purpose set forth.

641,181. AUTOMATIC COUPLING FOR AIR-PUMPS. JOSEPH W. BATES, Minneapolis, Minn., assignor, by direct and mesne assignments, to Carlostine E. Blake and Alfred Carlson, same place. Filed Feb. 21, 1896. Serial No. 580,156. (No model.)



Claim.—1. The combination, in a device of the class described, with the outer shell and the inner flexible shell, of a valve-plate secured to said outer shell and provided with openings permitting the entrance of air into the annular space between said shells, and a suitable valve arranged in said valve-plate.

2. In a device of the class described, the combination, with the outer shell, the inner flexible shell, the valve-plate secured to said outer shell and provided with the chamber 25 and with the opening 31, the valve located in said chamber, and the spring for holding said valve closed openings being arranged between said valve-plate and said outer shell to permit air to pass into the annular space between said shells, for the purpose set forth.

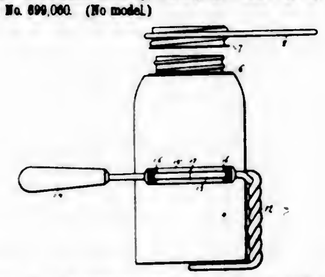
3. The combination with a pump-barrel, within which an air-pressure may be created, provided with a discharge-orifice into which the nipple of a bicycle-tire may be inserted, of a flexible shell or packing surrounding said orifice and adapted to be held, by the pressure of the air within the pump-barrel, against the outer surface of a nipple inserted in said orifice.

4. The combination, with an air-pump barrel, of an inflexible shell formed upon or secured to said pump-barrel, and provided with an orifice into which the nipple of a bicycle-tire may be inserted, and a flexible shell or packing arranged within said shell and surrounding said orifice and adapted to be held, by pressure of the air within said shell, against the outer surface of a nipple inserted in said orifice.

5. The combination, in a device of the class described, with the outer shell, of the inner flexible shell having one end secured to said outer shell, and a suitable support to which the other end of said flexible shell is secured.

6. The combination, in a device of the class described, with the outer shell and the inner flexible shell, of a plate or brace secured to said outer shell, and forming a support for the inner end of said flexible shell.

641,182. CAM-CLAMP. FRANK J. BECKER, Hamilton, Ohio, assignor to Thaddeus A. Neely, Muncie, Ind. Filed Dec. 12, 1898. Serial No. 699,060. (No model.)



Claim.—1. The combination of clamping-jaws, a step and a torsional shank connecting them together.

2. The combination of clamping-jaws, a torsional shank and a step all formed of a single wire substantially as shown and for the purpose specified.

641,183. INSTRUMENT FOR MEASURING ERRORS IN TARGET PRACTICE. JOHN B. BLISS, U. S. Navy. Filed Apr. 15, 1898. Serial No. 677,725. (No model.)



Claim.—1. An instrument for noting errors in target practice, comprising a tube, a lens held in said tube, a ground-glass plate with lines thereon in regular order arranged in the focus of said lens, the end of said tube beyond the ground-glass plate being left open for the observer, substantially as described.

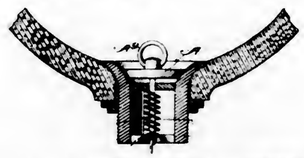
2. An instrument for noting errors in target practice, comprising a lens, a ground-glass plate with equidistant lines shown thereon, arranged in the focus of said lens, and an opening for observing said plate from the side opposite said lens, substantially as described.

3. An instrument for measuring errors in target practice, comprising a tube, a translucent plate mounted in said tube with a series of equidistant lines shown thereon, and means for throwing an image of the target and objects surrounding the same upon the said plate whereby the relative bearing of the target and the point of impact of the projectile may be noted, substantially as described.

641,184. RHODAMIN DYE. HERMANN BOEDEKER, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Dec. 29, 1897. Serial No. 664,437. (Specimens.)

Claim.—As a new dyestuff, the product resulting from the simultaneous action of phosphoroxychlorid and one of the specified aromatic bases upon symmetric diethylrhodamin as herein described, being a red powder of green metallic luster, soluble in water with a red color, in alcohol with a vivid fluorescence, and in concentrated sulfuric acid with a yellow color, crystallizing from water in green lamina of metallic luster, and dyeing cotton a fiery pink, substantially as set forth.

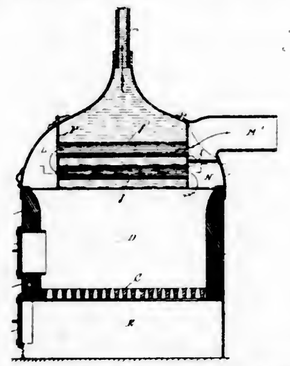
641,185. VALVE FOR VESSELS. CHARLES A. BOEHM, Oakland, Cal. Filed Feb. 10, 1899. Serial No. 705,315. (No model.)



Claim.—1. In a valve the combination of a cylindrical shell having a valve-seat in its one end, and a perforated spider in its other end; a disk secured within said cylindrical shell between the valve-seat, and spider, a valve having a stem extending through coincident perforations in the said disk, and spider, to aline said valve with said valve-seat; said valve and valve-seat adapted to be thrown into, and out of alinement, a spring, one end of which is in engagement with the valve-stem, the other end acting against the aforesaid disk; the valve being locked in its eccentric position by means of a shoulder on the valve-stem engaging the edge of the perforation in the spider, substantially as described.

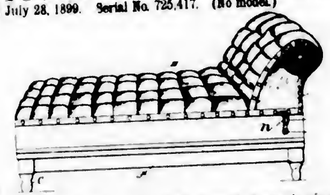
2. In a valve the combination of a cylindrical shell having a valve-seat in its one end, and the perforated spider in the other end, said shell having interior threads; a disk provided with threads whereby it is secured within said cylindrical shell between the valve-seat and the spider; a valve having a square stem extending through a square opening in said disk and having its lower extremity rounded to fit within the rounded perforation in the said spider; a spring secured to said stem and acting against the disk; a shoulder formed on the end of said rounded portion of the valve-stem to engage the edge of the perforation in the spider when said stem and valve are raised and thrown off center to lock the valve in its open position, substantially as described.

641,186. STEAM OR HOT-WATER HEATING DEVICE. WILLIAM F. BURNS, Beverly, Mass. Filed Apr. 26, 1899. Serial No. 714,508. (No model.)



Claim.—The herein-described steam or hot-water heating apparatus, comprising a furnace, a boiler disposed above the latter and having upper and lower series of horizontal tubes, a removable casing *k* arranged at one end of the boiler opposite the ends of the tubes, a casing M arranged at the opposite end of the boiler in rear of the other ends of the tubes and connected with the fire-pot and the smoke-flue, and a hinged deflector disposed within the casing M between the rear ends of the upper and lower series of tubes and operating when turned horizontally to conduct the products from the furnace successively through the lower and upper series of tubes, and when turned downward to close the lower tubes and conduct the furnace products directly to the smoke-flue, substantially as described and for the purpose specified.

641,187. BED-COUCH. WILLIAM E. BUSER, Chillicothe, Ohio. Filed July 28, 1899. Serial No. 725,417. (No model.)



Claim.—1. The combination with a couch-frame having headless sides, of a separate head having narrow end pieces extending parallel the sides of said frame to fold in respect thereto and at its inner end a cross-piece, hinges uniting the said cross-piece and the couch-frame, and springs situated between and engaging respectively the hinged head and the couch-frame, substantially as described.

2. The combination with a couch-frame having headless sides, of a separate head having narrow end pieces extending parallel the sides of the couch to fold in respect thereto and constituting head-pieces therefor and separate therefrom, hinges uniting the inner end of the head and said frame, and springs situated between and engaging the said head and frame, substantially as described.

3. A couch comprising a frame, a vertically-arranged bar spanning the frame at a point inside of one end thereof, a head, hinges having their lower leaves connected to the vertical side of said bar, the head having a transverse bar to which the upper leaves of the hinges are connected, and springs situated between and engaging respectively the head and the frame, substantially as described.

4. A couch comprising a frame, a head having longitudinally-extending side pieces, the inner end of the head being pivotally connected with the frame at a point inside of one end thereof, the frame having a seat portion inside of the inner end of the head, the side pieces of one of said members being recessed to permit the head to fold downward practically in a line with the seat portion, substantially as described.

5. A couch comprising a frame having headless sides, a separate head hinged at its inner end to said frame to fold in respect thereto and having narrow side pieces extending parallel said frame and constituting a head therefor, the outer ends of said side pieces projecting beyond the said frame and adapted to fold downward in relation thereto, and a spring situated between and engaging said hinged head and frame, substantially as described.

6. A couch comprising a frame having headless sides, a head hinged at its inner end to said frame at a point inside one end thereof, said head having narrow side pieces extending parallel the sides of the frame to fold in respect thereto and constituting a head therefor, a spring situated between and engaging said head and frame respectively, and a flexible limiting member having its upper and lower ends rigidly connected respectively to said head and frame, substantially as described.

7. A couch comprising a frame, a head hinged at its inner end to the frame at a point inside one end thereof, the head having end pieces extending parallel the sides of said frame, a spring situated between and engaging said head and frame, and upholstering having its edges connected respectively to the said end pieces of the head and to the adjacent portion of the sides of said frame, substantially as described.

8. A couch comprising a frame, a head hinged at its inner end to the frame at a point inside one end thereof, the head having side pieces extending parallel the sides of said frame and constituting a head therefor, flexible upholstering connected with the adjacent edges of the side pieces of the head and frame, a spring between the head and frame, and a limiting member connected respectively with the head and the frame and of a length to prevent the tension of the spring coming upon said upholstering, substantially as described.

9. A couch comprising a frame, a head hinged at its inner end to the frame at a point inside one end thereof, the head having side pieces extending parallel the sides of the frame and having their outer ends extending beyond the end of the frame, said side pieces having their under edges cut away to permit them to fold down close to or upon said frame, and a spring situated between and in engagement with said head and frame, substantially as described.

10. A couch comprising a headless frame, a head hinged at its inner end to said frame at a point inside of one end thereof, said head having side pieces extending parallel with the sides of said frame, a spring situated between and engaging respectively the head and the frame, upholstering attached at its edges respectively to said head and frame, a limiting member attached respectively to the head and the frame and adapted to prevent the tension of the spring coming upon said upholstering, and an adjusting member between said head and frame and adapted to hold the head at different angles, substantially as described.

11. A bed-couch comprising a lower and an upper section hinged at their longitudinal edges to fold outward, the upper section being headless and having a seat portion, a head hinged at its inner end at one end of the said seat portion and provided with longitudinally-extending end pieces adapted to fold downward to practically a horizontal line with the seat portion, a locking member for holding the head folded, and supporting-legs for both ends of the free edge of the upper section, substantially as described.

12. A bed-couch comprising an upper and a lower section hinged at their longitudinal edge to fold outward, the sides of the upper section being headless and having a seat portion stopping at a point inside one end thereof, a head hinged at the short end of the seat portion provided with longitudinally-extending end pieces and adapted to fold downward in respect to the seat portion and said section, a member for locking the head in its folded position, both ends of the free edge of the upper section carrying legs of said end pieces of a length sufficient to project beyond the outer surface of the head when in its folded position for the purpose described.

13. A bed-couch comprising a lower and an upper section hinged at their longitudinal edge to fold outward, the upper section having a seat portion stopping at a point inside one end thereof, a head hinged at said end of the seat portion and adapted to fold downward in respect to the seat portion and said section, an expanding spring situated between and engaging respectively the upper section and the head for holding the latter normally upward, the head and the upper section carrying spring-acting interlocking members for holding the head locked, substantially as described.

14. A bed-couch comprising a lower and an upper section hinged at their longitudinal edge to fold outward, the upper section having a seat portion stopping at a point inside one end thereof, a head hinged to the section at the said end of the seat portion and adapted to fold downward, an expanding spring situated between and engaging respectively the up persection and the head for holding the latter normally in an upward position, a spring-catch carried by one of said members, an interlocking member for engaging the spring-catch carried by the other member, and means for disengaging the catch from its cooperating member, substantially as described.

15. A couch comprising a frame, a seat portion stopping at a point inside one end of said frame, a head hinged to the frame at said end of the seat portion and adapted to fold downward, an expanding spring situated between and engaging respectively the head and the frame, a spring-catch carried by one of said members, an interlocking member carried by the other of said members and adapted to engage the spring-catch when the head is forced downward, and a member connected at one end to the said catch and its opposite end projecting outside of the couch for operating the catch, substantially as described.

16. A couch comprising a frame having a seat portion stopping at a point inside one end thereof, a head hinged to the frame at the said end of the seat portion, an expanding spring situated between and engaging respectively the head and said frame, a catch having its locking-shoulder extending in a direction transverse the head and frame and carried by one of said members, the other of said members having a locking projection extending in a direction longitudinal the frame and head and adapted to engage the locking-shoulder of the catch, substantially as described.

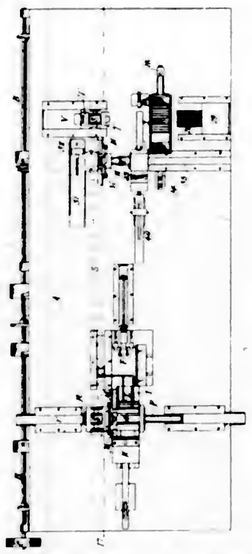
17. A couch comprising a frame having a seat portion stopping at a point inside of one end of the frame, a head hinged to the frame at the said end of the seat portion, an expanding spring situated between and engaging respectively the head and the frame, a spring-catch carried by the frame, an interlocking member carried by the head, a looped cord having one end connected with the spring-catch, and a projection carried by the frame with which the looped end of the cord is adapted to engage for holding the catch out of engagement with its cooperating locking member, substantially as described.

18. A couch comprising an upper frame, a separate head hinged at its inner end at a point inside one end of said frame, said head having end pieces extending parallel the sides of said frame, a spring situated between and engaging respectively the head and frame and holding the head normally outward, means for locking the head in a closed position, a lower frame to which the upper frame is hinged and adapted to fold outward, both ends of the free edge of the upper frame having inwardly-folding legs of a length greater than the extension of said head when folded, as and for the purpose described.

641,188. MACHINE FOR COUNTING AND PACKING CIGARETTES. MARCOS DEL CASTILLO, New York, N. Y. Filed Aug. 7, 1897. Serial No. 647,476. (No model.)

Claim.—1. In a mechanism in which flexible sheets are conveyed from one position to another while unsupported throughout a portion

of their length, the combination, substantially as set forth, of a concave channel or way, means for pressing the sheet upon the bed of the channel to give it a curvilinear shape in cross-section, and means for conveying the sheet.



2. In a wrapper-forming mechanism, the combination, substantially as set forth, of a reciprocating pusher, as F, a vertically-reciprocating mandrel, as G, a mold, as H, and a concave channel, as I, whereby a paper sheet, as it is conveyed over the channel by the pusher, is curved and stiffened for projection under the mandrel and over the mold.

3. In a wrapper-forming mechanism, the combination, substantially as set forth, of a stationary mold, a vertically-reciprocating mandrel, means for feeding wrapper-sheets between the the raised mandrel and the stationary mold, means for raising and lowering the mandrel and clamping the sheet as the mandrel descends into the mold, devices for folding the opposite side edges of the sheet over the mandrel, devices for supplying one edge of the sheet with paste and devices for pressing the pasted edge down to form an overlapped seam.

4. The combination, substantially as set forth, of a side-folder and paste-reservoir, connected together, means for moving the same to fold over one edge of a wrapper-sheet and devices for bringing the opposite edge of the sheet in contact with the paste-reservoir to supply it with paste and then to press it down to form an overlapped seam.

5. The combination, substantially as set forth, of a united reciprocating side-wrapper folder and a paste-reservoir, the latter being provided with perforations in its front face, a piston arranged to reciprocate in the reservoir, devices for limiting the movements of the piston, and means for bringing the opposite edge of the wrapper-sheet in contact with the front face of the combined paste-reservoir and wrapper-folder.

6. The combination, substantially as set forth, of the reservoir, *k*, provided with perforations in its front, a piston, k^4, a stop, k^3, an adjusting-screw, k^2, and means for reciprocating the reservoir and piston.

7. In a wrapper-forming mechanism, the combination, substantially as set forth, of a reciprocating side-folder, as K, a paste-reservoir, as *k*, mounted on the folder and provided with perforations in its front and means for delivering paste therefrom, and an opposite reciprocating side-folder, as L, whereby the opposite side edges of paper sheets are folded over and sealed in place.

8. In a mechanism for forming wrappers, the combination, substantially as set forth, of a mandrel and side end-folders, each provided with two folding-surfaces, one in advance of the other, and arranged to reciprocate on opposite sides of a wrapper-sheet folded around the mandrel and each operating to make two folds or laps at each forward movement.

9. An end-folder for forming side laps or folds of a wrapper, provided with two folding-faces arranged in different planes, whereby, when moved into contact with the end of the wrapper, two folds or laps will be formed at one advance movement of the folder, substantially as and for the purpose set forth.

10. An end-wrapper folder, as M, provided with two folding-faces, as m^2 and m^3, the former arranged in advance of the latter and inclined in an opposite direction thereto, substantially as and for the purpose set forth.

11. An end-wrapper folder, as M, provided with two folding-faces, as m^2, m^3, arranged in different planes and also provided with rounded inside surfaces or corners.

12. The combination, substantially as set forth, of a vertically-reciprocating paste-reservoir, as *n*, a roller, as N, attached to the reservoir and operating to fold down the top lap of a wrapper and apply paste thereto, and a vertically-reciprocating folder, as O, constructed and arranged to move upward with the roller N to fold up the bottom lap and seal it in place.

13. In a cigarette-packing mechanism, the combination, substantially as set forth, of a hopper, a series of narrow compartments arranged beneath the hopper, devices for moving the compartment-partitions to increase or decrease the width of the compartments, devices for exposing a limited number of cigarettes in the compartments and devices for expelling such limited number from the compartments.

14. In a cigarette-packing mechanism, the combination, substantially as set forth, of a hopper, devices for limiting the discharge of cigarettes therefrom, a series of narrow compartments located below the hopper, devices for giving a shaking movement to the compartments to facilitate the introduction of the cigarettes and means for expelling a predetermined number of cigarettes from the compartments.

15. The combination, in a hopper of a cigarette-packing mechanism, of a movable piece, as 2, elastically attached to the wall of the hopper and arranged to press against the ends of the cigarettes and means for momentarily moving the piece away from the cigarettes to permit them to fall, substantially as set forth.

16. The combination, substantially as set forth, in a cigarette-packing mechanism, of a series of compartments having movable partitions with projecting bottom pieces, as 8 and 9, a frame on which the compartments are mounted, stepped or notched pieces, as 12, a stepped or notched pusher, as 13, to take against the central portion of the bottom pieces of the partitions and move them apart, a pusher, as 14, to move the partitions together, and means for operating the pushers.

17. The combination, substantially as set forth, in a cigarette-packing mechanism, of a series of compartments with movable partitions, devices for moving the partitions apart and locking them in that position, devices for giving a shaking movement to the compartments, devices for unlocking the partitions and devices for moving them nearer together, whereby the cigarettes will be readily introduced into the compartments and be brought closely together.

18. The combination, substantially as set forth, in a cigarette-packing mechanism, of a series of compartments, a casing arranged to cover the ends of the compartments and provided with removable pieces, as 27, arranged in the opposite sides of the casing each provided with an opening or aperture to expose a limited number of cigarettes.

19. The combination of a sliding bar, as 15, means for operating the same, a cam-shaped projection, as 22, on the bar, a catch, as 20, and a pin, as 21, on the catch, substantially as set forth, for the purpose of operating the pushers, 13 and 14, and locking and unlocking the partitions of the compartments.

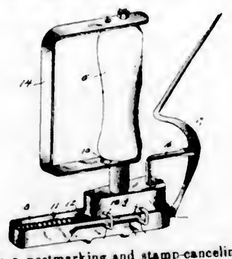
20. The combination, substantially as set forth, in a cigarette-packing mechanism, of a receptacle, as 32, provided with a wrapper-holder, as Y, packing-dies arranged in the receptacle, means for delivering a number of cigarettes for a package in the receptacle and between the dies, means for operating the dies to pack the cigarettes together and bring them to register with the wrapper and means for forcing the cigarettes into the wrapper.

21. The combination, substantially as set forth, in a cigarette-packing mechanism, of a series of compartments, means for feeding cigarettes thereto, means for removing therefrom a predetermined number of cigarettes, a movable receptacle, as 32, packing-dies, as 33, a wrapper-holder, as Y, a plunger, as 35, and means for moving the receptacle and holder to register with the plunger.

22. The combination, substantially as set forth, in a cigarette-packing mechanism, of a packing-receptacle, as 32, means for delivering thereto the desired number of cigarettes for a package, a wrapper-holder, dies operating to pack the cigarettes and bring them to register with the holder, a plunger operating to force the cigarettes into the wrapper and remove the filled wrapper from the holder.

23. A tapered expansible holder, as Y, for bag-shaped cigarette-wrappers, whereby the wrapper can be readily slipped onto the holder and when the cigarettes are forced into the holder it will readily expand to fill the wrapper.

641,189. HAND-STAMP. WILLIS B. CAUBLE and SAMUEL W. STARKS, Sidell, Ill. Filed Apr. 20, 1899. Serial No. 713,776. (No model.)



Claim.—1. In a postmarking and stamp-canceling device, the combination with the head provided with marking-stamps and an ink-supply between the stamps, of a frame slidably applied to the head and bearing inking-rollers to travel in alternation over the marking-stamps and ink-supply, and a lever for actuating the said frame, substantially as set forth.

2. In a device for postmarking mail-matter and canceling stamps and having a chamber for receiving a supply of ink and opening through the lower face of the head at a point intermediate of the dating and canceling stamps, of a pad applied to the opening in the lower face of the head, a frame slidably applied to the said head, an inking-roller applied to the frame and normally standing between the dating and canceling stamps, a second inking-roller journaled to the frame and located in the rear of the canceling-stamp, and actuating mechanism for imparting a reciprocating movement to the frame, as and for the purpose set forth.

3. In a device of the character set forth, a chambered head provided with a stamp, a pad applied to the head for distributing the ink contained in the chamber thereof, a frame slidably fitted to the head and carrying ink-distributing rollers, a spring interposed between the head and frame for returning the latter to a normal position, and a lever for actuating said frame, substantially as described.

4. In a device of the character specified, a head having a stamp, and provided with an ink-distributing pad, a handle applied to the head, a frame slidably connected with the head and bearing an ink-distributing roller, a spring interposed between the frame and head for returning said frame to a normal position, an arm projecting outwardly from the head, and a lever fulcrumed to the arm and having connection with the frame, and having an end portion extending within convenient reach of the handle to adapt the stamp and inking mechanism for operation with one hand, substantially as described.

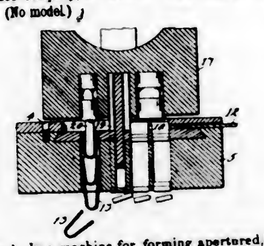
5. In a hand-stamp, the combination with the stamp-head, a handle applied thereto, and inking mechanism including a movable roller-frame, of a holder of approximately U form located at one side of the handle and having its parallel members connected therewith, and a lever located at the opposite side of the said handle and connected with the movable roller-frame and having a portion within convenient reach of the handle to admit of the stamp and inking mechanism being operated by one hand, substantially as set forth.

6. In a device of the character described, the combination with the stamp-head having an ink-distributer, a rod applied to the said head, and a frame slidably mounted with reference to the head and bearing an ink-distributing roller, an arm fitted to the head, a lever fulcrumed to the arm and having connection with the slide-frame, a holder of approximately U form having adjustable connection with the said rod, a handle slipped upon the rod and coming between the end portions of the holder, and means for confining the arm, holder and handle upon the rod, as and for the purpose specified.

7. In a device of the character described, a tapering head provided with dating and canceling stamps, and having an intermediate portion chambered and opening through the top and bottom sides of the head, a handle applied to the head and closing the upper end of the chamber, a pad applied to and closing the opening formed in the lower face of said head, a tapering frame slidably fitted to the head, a coil-spring interposed between the smaller ends of the slide-frame and head, ink-rollers journaled to the slide-frame, and a lever for actuating the slide-frame, the parts being arranged to cooperate substantially in the manner specified.

8. In a device of the character set forth, a head having impression means, a carriage consisting of a frame embracing the sides of the head and having longitudinal slots formed with a middle and terminal depressions, and provided with means for supplying ink to the impression means, and actuating mechanism for reciprocating the carriage, the latter receiving an upward movement at the ends of its travel to throw the ink-supplying means above the plane of the surface of the impression means, substantially as described.

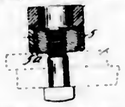
641,190. APPARATUS FOR MANUFACTURING FASTENING-CLIPS. FRANK CANFIELD, Boulder, Colo., assignor to the American Wire Fence Company, of Colorado. Filed June 26, 1899. Serial No. 721,833. (No model.)



Claim.—1. In a machine for forming apertured, U-shaped clips, the combination of a die-block having two separated openings 6, an opening 7 and an opening 8, a plate attached to the top of said die-block and having a continuous opening above the openings 6, 7 and 8 and registering therewith, a groove or way being formed in the lower surface of said plate to allow the feeding of the metal strip into the path of the punch-bits, and a vertical, reciprocating block provided with punch bits or tools adapted to enter the openings in the die-block for the purpose set forth.

2. In an apparatus for manfacturing clips of the class described, the combination of a die-block having two separated rectangular openings 6, an opening 7 and an opening 8, all of the said openings extending entirely through the die-block, a plate attached to the top of the die-block and having a continuous opening composed of parts 14, 15 and 16 registering with the openings 6 6, the opening 7 and the opening 8 of the die-block respectively, the said plate having a groove which is formed in its lower surface, of a width to receive the metal strip from which the clips are to be formed, and extending from one end of the plate underneath the opening part 14 to the opening part 15, and a vertically-reciprocating block provided with punch-bits 18, 19 and 20, the bit 18 being adapted to enter the opening 6 in the die-block and being provided with a central recess 18ª corresponding in width to the space separating the opening 6, the bit 19 being adapted to enter the opening 7 of the die-block and being longer than the bit 18, the bit 20 being adapted to enter the opening 8 of the die-block and engaging the clip centrally whereby the latter is bent and forced through the die-block.

641,191. SAFETY NUT AND BOLT-HEAD. JOHN W. CHAMPION, Denver, Colo. Filed Apr. 22, 1899. Serial No. 714,067. (No model.)



Claim.—1. The combination of a nut or bolt-head, and a safety-sleeve surrounding the same, the sleeve having a bottom flange and the nut or bolt-head being constructed to hold the flange in place, the nut or bolt-head being also provided with a neck projecting beyond the flange to prevent the clamping of the sleeve, whereby the latter is allowed to turn freely when in use.

2. The combination of a nut or bolt-head, a safety-sleeve surrounding the same and held in place thereby, the nut or bolt-head being provided with one or more tongues and means to prevent the locking of the sleeve against independent revoluble action.

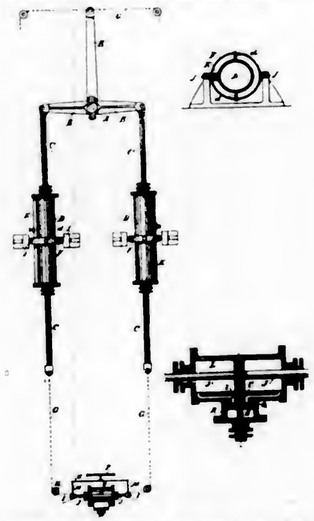
3. The combination of a nut or bolt-head, a surrounding revoluble safety-sleeve, the nut or bolt-head and the sleeve being each provided with one or more tongues, and means to prevent the locking of the sleeve against revoluble action.

4. The combination of a nut or bolt-head, a revoluble safety-sleeve, means to prevent the locking of the sleeve against independent revoluble action and a tool adapted to be inserted between the sleeve and the nut or bolt-head for turning the latter.

5. The combination of a nut or bolt-head, a revoluble safety-sleeve, means to prevent the locking of the sleeve against independent revoluble action and a tool adapted to be inserted between the sleeve and the nut or bolt-head for turning the latter, the tool and the nut or bolt-head being respectively provided with counterpart tongues and grooves for the purpose set forth.

641,192. STEERING MECHANISM FOR VESSELS. JORGEN CHRISTENSEN, San Francisco, Cal. Filed Mar. 18, 1899. Serial No. 709,599. (No model.)

Claim.—1. The combination in a steering mechanism of a cylinder having a piston movable therein, a piston-rod extending through both ends of the cylinder, means for applying a fluid-pressure upon either side of the piston whereby it may be moved within the cylinder, tiller ropes or chains connecting with opposite ends of said piston-rod leading to the tiller of the rudder, and balance-cylinders interposed between the power-cylinder and the rudder.



2. In a steering mechanism for vessels, a power-cylinder having a piston movable from end to end, a piston-rod to which the piston is fixed extending through both ends of the cylinder with tiller-ropes connecting therewith and leading to the tillers of the rudder-head, liquid-balance cylinders interposed between the tillers and the power-cylinder, said balance-cylinders being journaled both vertically and horizontally whereby a universal movement of said cylinders may be effected.

3. In a steering-gear for vessels, a power-cylinder contiguous to the pilot-house, having a piston movable therein, a piston-rod extending through opposite heads of the cylinder with tiller-ropes connected therewith, direction-pulleys around which the tiller-ropes are led to points adjacent to the rudder, liquid-balance cylinders with pistons and piston-rods, one end of which is connected with the rudder-turning tillers, and the other end with the tiller-ropes.

4. In a steering-gear for vessels, a rudder with a tiller or tillers, liquid-pressure balance, cylinders turnably pivoted and having pistons and rods therefor which extend through the opposite cylinder-heads, connections between one end of the rods and the tillers, ropes connecting with the opposite ends of the piston-rods and leading forward to the pilot-house, a power-cylinder therein, the piston-rod of which passes through both heads, and connections between it and the tiller-ropes, and inlet and exhaust valves for the power-cylinder with means for regulating the passage of the fluid medium through both inlet and exhaust passages.

641,193. BICYCLE. ARTHUR R. COLBURN, Washington, D. C. Filed June 15, 1899. Serial No. 595,377. (No model.)

Claim.—1. In a bicycle, the combination of the main frame, a sleeve pivoted at the apex of the frame, and a swinging and longitudinally-movable seat-standard having its upper end playing through said sleeve and guided thereby, with a rigid radial fork pivotally connected near its front end to the lower end of the seat-standard and having its bifurcations pivotally connected to the rear axle, and its front portion and suspended on the main frame by said standard; with a spring yieldingly supporting the seat-standard on the apex of the main frame, and a crank-hanger carrying the driving-gear, attached to the forward end of said radial fork, substantially as described.

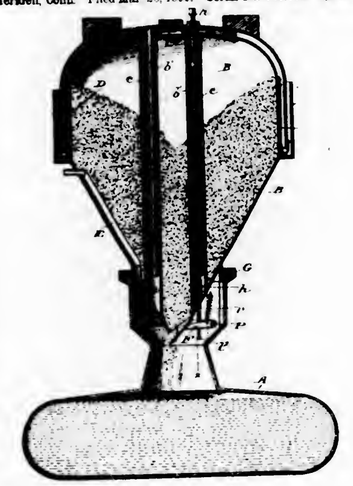
2. In a bicycle, a rigid main frame, substantially as described, connecting the steering-head with the rear wheel, and a pivoted sleeve journaled in the upper part of the main frame close to the apex thereof; in combination with a yielding auxiliary frame carrying the seat and driving-gear, and consisting of the seat-standard and a lower radial fork, the upper end of said standard passing freely through said sleeve, and its lower end depending below and through the lower fork of the main frame, and hinged to the front extremity of the lower radial fork, the bifurcations of said lower radial fork having a pivotal connection with the rear axle; and a spring interposed between the apex of the main frame and the upper end of the seat-standard, all substantially as and for the purpose set forth.



3. The herein-described truss-frame for bicycles, comprising an upper rear fork, a steering-head, a top bar connected thereto, and to the upper rear fork, and a lower forked bar, one end of which is connected to the steering-head and the bifurcated portion of the bar forming the lower rear fork, said parts forming a truss-frame without central braces; with a sleeve pivoted at the apex of the frame, a seat-standard having its upper end playing through said sleeve and guided thereby, a radial fork pivotally connected to the rear axle and pivotally connected to the lower end of the seat-standard and suspended thereby, a spring attached to the apex of the truss-frame and yieldingly supporting the seat-standard thereon, and a crank-hanger carrying the driving-gear attached to the forward end of said radial fork, substantially as described.

4. In a bicycle, a rigid main frame, of substantially triangular pattern, connecting the steering-head with the rear wheel, consisting of the upper bar, the upper rear fork, the steering-head, and the lower bar and fork, and a pivoted sleeve journaled in the upper part of the upper rear fork close to the apex of the main frame; in combination with a yielding auxiliary frame carrying the seat and driving-gear, consisting of the seat-standard and lower radial fork, said standard passing freely through said sleeve and through the lower fork of the main frame, and the lower end hinged to the lower radial fork which is journaled on the rear axle; and a spring, one end thereof connected with the main frame at its apex, and the other end attached to the seat-standard, supporting said auxiliary frame and the weight of the rider, substantially as described.

641,194. ACETYLENE-GENERATOR. WILLIAM F. COOPER, Meriden, Conn. Filed Mar 28, 1899. Serial No. 710,762. (No model.)



Claim.—1. An acetylene-gas generator having a water reservoir in the base, a carbid-holder in the top, and a gasometer having a bell that covers the carbid-holder, a flexible-fabric connection attached to the lower edge of the bell of the gasometer and to the carbid-holder inside the bell at a point above the lower edge of the bell when down substantially as and for the purpose described.

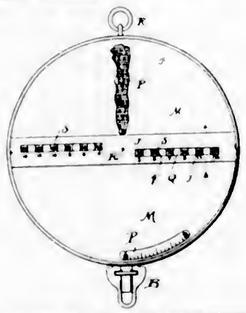
2. In an acetylene-gas generator, a water-reservoir in the base, a carbid-holder in the top with central outlet, a gasometer covering the carbid-holder and having a movable gas-tight connection between its bottom and the carbid-holder, eccentrically arranged guiding-tubes through the carbid-holder, corresponding guide-rods fastened to the gasometer, and an eccentrically-arranged rod fixed adjustably in the gasometer and passing through one of said tubes, a hinged valve in the water-chamber below the carbid-holder provided with a spring and arranged to be acted upon by the rod on the depression of the gasometer, for the purpose specified.

3. An acetylene-gas generator having a water-reservoir in the base with a contracted mouth having a screw connection, a carbid-holder in the top having correspondingly-contracted lower end with screw connection, a gasometer covering the carbid-holder, a flexible-fabric connection between the bottom of the gasometer and the carbid-holder, a valve in the water-chamber below the bottom of the carbid-holder, and an adjustable rod fixed eccentrically to the gasometer and passing through the carbid-holder and adapted to open the valve and feed a fresh supply of carbid upon depression of the gasometer, substantially as described.

4. An acetylene-gas generator having a water-reservoir in the base, a carbid-holder in the top, a gasometer covering the carbid-holder and having an escape-valve opening, a carbid-feed mechanism actuated by depression of the gasometer, and two parallel sliding rods, one of them held to the gasometer with a yielding spring connection to close the escape-valve, and the other connecting with the carbid-feed valve to close it, and the two rods having a slip connection over each other to close the carbid-feed valve and open the escape-valve when an excessive range of movement of the gasometer is attained, substantially as described.

5. An acetylene-gas generator comprising a water-reservoir in the base with contracted screw-threaded mouth, a carbid-holder with contracted lower end having a screw-threaded connection, and a central opening entirely through it, a hinged flap-valve arranged at the bottom of said central opening, and an eccentric trip-rod attached to the gasometer and arranged to act upon the flap-valve substantially as shown and described.

641,195. SPRING-BALANCE COMPUTING-SCALE. JOHN W. CULMER and GEORGE R. HOYT, Cleveland, Ohio, assignors to the National Computing Scale Company, same place. Filed Feb. 4, 1898. Serial No. 669,077. (No model.)



Claim.—1. In a spring-balance scale, the combination of a spring-suspended runner having lateral arms, and the scale-frame having stops above and below said runner-arms, with buffer-springs between said arms and stops and adapted to yieldingly stop the movement of the runner after it has passed the positions it would occupy when the scale is empty or when loaded to its capacity, substantially as specified.

2. In a spring-balance scale, the combination of a spring-suspended runner, the scale-frame, and stops therein, with buffer-springs carried by the runner and adapted to engage with said stops when the runner is carried up beyond its normal position when the scale is empty, or down below the position it occupies when the scale is loaded to its capacity, whereby said runner is yieldingly stopped, substantially as specified.

3. In a spring-balance scale, a spring-suspended runner having oppositely-extended lateral arms through each of which a vertical hole is formed, a rod passing freely through each of said holes, nuts which screw onto the opposite ends of said rods, and springs above and below said arms, surrounding said rods, and retained and adjusted by said nuts, in combination with the scale-frame having stops above and below said arms and adapted to be engaged by said rods, substantially as and for the purpose specified.

4. In a spring-balance-scale, a rotatable spindle and its operating mechanism, with a dial on said spindle and having an annular row of weight-indicating graduations, a face-plate secured over said dial and having an arc-shaped sight opening and a plate, carrying a pointer, and having a slot, and a screw passing through said slot and taking into the face-plate, whereby the reading-point on said dial may be adjusted or corrected, substantially as specified.

5. In a spring-balance scale, the combination of the scale-frame, the scale mechanism which includes a spindle, a graduated dial on said spindle, and a face-plate covering said dial, which face-plate is composed of a bridge-bar which is fastened to the scale-frame and furnishes the bearing for one end of the spindle, and two approximately semicircular plates secured to the scale-frame, said face-plates having a sight-opening, substantially as and for the purpose specified.

6. In a spring-balance scale, the combination of the scale-frame, a horizontal bridge-bar secured to said frame and furnishing a bearing for one end of the scale-spindle, said bar having grooves in its upper and lower edges, and two approximately semicircular plates whose straight edges fit in said grooves, said plates being fastened to the scale-frame, substantially as and for the purpose specified.

7. In a spring-balance scale, the combination of the scale-frame, the scale-spindle, its operating mechanism, and two dials made fast to said spindle near opposite ends thereof, which dials face in opposite directions, with two horizontal bridge-bars secured to the scale-frame and having bearings for the scale-spindle, and approximately semicircular plates secured to the scale-frame and forming with said bridge-bars the face-plates which cover said dials, said face-plates having sight-openings through which the graduations upon the dials may be read, substantially as specified.

641,196. ELECTRIC LAMP. CHRISTOPHER VAN DEVENTER, New York, N. Y. Filed June 3, 1899. Serial No. 719,259. (No model.)



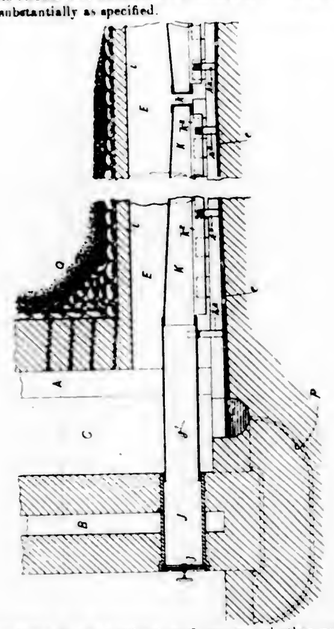
Claim.—1. An electric lamp, consisting of the combination of a finger of refractory material, being a non-conductor cold, and a conductor hot, an electric conductor embedded in said mass substantially throughout the length thereof and forming a heating-circuit from one end of the finger to the other and back again, conductors on the exterior of the finger and in contact therewith throughout their length, said electric conductors being located inside and outside so as to be adapted to permit an electric current to flow from the interior to the exterior of the finger.

2. An electric lamp consisting of the combination of a finger of refractory material, a refractory cylinder within the material, an electric conductor passing through the interior of the cylinder and helically around the exterior, filaments upon and in contact with the outside of said finger, and an electric switch adapted in one phase, to conduct a current through said conductor only, and in another phase from said conductor to said filaments through the material of said finger.

641,197. FILTER FOR PURIFYING SEWAGE &c. WALTER M. DUCAT, London, England. Filed Nov. 17, 1899. Serial No. 737,872. (No model.)

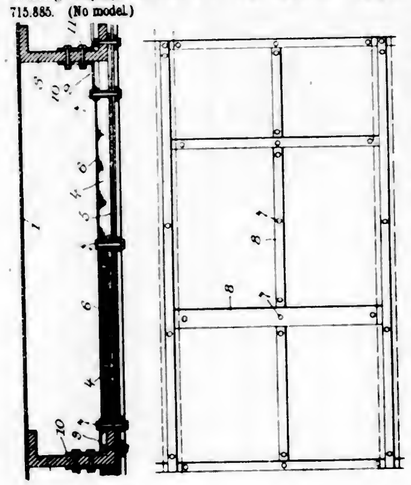
Claim.—1. In an aerobic bacterial filter for the purification of sewage and other waters, the combination, with the effluent-collecting floor of the filter, of air-supply pipes or ducts connecting the external atmosphere with the interior of the filter so as to cause the air-current passing to the filter-bed to be warmed by transference of heat from the stream of effluent on said floor for the purpose specified.

2. In filters for the purification of sewage and other waters by bacterial action, the herein-described means of raising the temperature of the inflowing air-supply, consisting in the combination with effluent-collecting channels traversing the floor of the filter-bed, of air-inlet pipes slitted or apertured so as to discharge the inflowing air in a thin stream onto the surface of the stream of effluent in the channels, substantially as specified.



3. In filters for the purification of sewage and other waters by bacterial action, the herein-described means of raising the temperature of the inflowing air-supply, consisting in the combination with effluent-collecting channels traversing the floor of the filter-bed, of air-inlet pipes or trunks submerged in the effluent in said channels and connecting the external air-inlet openings with ducts through which the air is delivered, for the purpose specified.

641,198. INSULATING-PANEL FOR WALLS OF SHIPS, &c. GEORGE P. EKHARD, Elizabeth, N. J., assignor to the H. W. Johns Manufacturing Company, New York, N. Y. Filed May 6, 1899. Serial No. 715,885. (No model.)



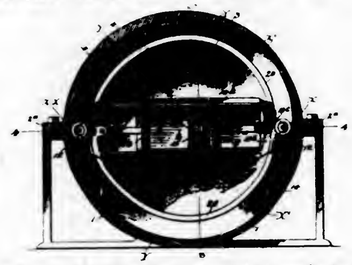
Claim.—1. An insulating-panel for application to walls and partitions composed of a body of asbestos fire-felt, a backing of wire-cloth and a facing of asbestos millboard.

2. An insulating-panel for application to walls and partitions composed of a body of asbestos fire-felt, a backing of wire-cloth and a facing of asbestos millboard, combined with frames of metal stripe on either side and bolts passing through said frames and panels.

3. An insulating-panel for application to walls and partitions composed of a body of asbestos fire-felt, a backing of wire-cloth and facing of asbestos millboard, combined with frames of metal stripe on either side and bolts passing through said frames and panels, together with angle-irons fastened to the edges of the panel and means for attaching same to the supporting structure.

4. An insulating-panel for application to walls and partitions, composed of a body of asbestos fire-felt, a backing of wire-cloth and a facing of asbestos millboard, combined with frames of metal stripe on either side and bolts passing through said frames and panels, the border-strips of the back frame being composed of angle-irons with projecting flanges parallel to the rib-beams of the structure to which the panel is to be attached.

641,199. ROTARY ENGINE. WILLARD M. FARROW, Washington, D. C., assignor of two-thirds to A. Fred. Jorns and L. C. Bailey, same place. Filed Apr. 19, 1899. Serial No. 713,632. (No model.)



Claim.—1. A rotary engine; comprising an annular trackway; a stationary valve disposed eccentrically of the trackway, said valve having inlet and exhaust ports; a duplex cylinder rotatably mounted upon the valve; a carriage longitudinally slidable upon the cylinder, said carriage having its ends engaging the annular trackway, said trackway having a pair of alternately-disposed and diametrically opposite eccentric orbits; the pistons and connections joining the pistons and the sliding carriage, all being arranged substantially as shown and described.

2. A rotary engine; comprising, in combination; a straightway shaft having a tubular portion provided with diametrically opposite ports; a stationary cut-off valve mounted within the tubular shaft; a double-ended cylinder mounted upon the shaft to rotate therewith, and having ports adapted to register with the shaft-ports; a piston operating in each end of the cylinder; a carriage rotatable with and reciprocally slidable on the cylinder; a trackway eccentric of the axis of the cylinder, said trackway having abutments or inclines for imparting a reciprocating action to the carriage as it rotates, substantially as described.

3. In a rotary engine: the combination with a straightway shaft; a stationary valve upon which the shaft rotates, said shaft having inlet and cut-off ports adapted to alternately aline the valve-ports; a tandem cylinder rotatable with the shaft; a carriage rotatable with the cylinder and a trackway within which the carrier rotates, said trackway having abutments for imparting a reciprocal movement to the carrier and thereby rotate the cylinder, as set forth.

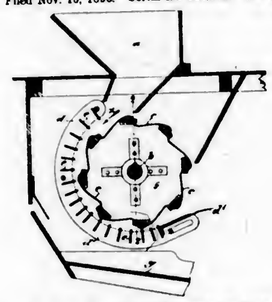
4. In combination; a closed casing having an annular internal trackway formed with a plurality of paths arranged eccentrically of the axis of the casing or track; a stationary valve eccentric with the track-paths; a duplex set of cylinders projecting radially through the valve and rotatable thereon; a piston within each cylinder; a carrier-frame rotatable with the cylinders and longitudinally slidable thereon, said carrier having bearings at its opposite ends engaging the annular trackway; the link connections joining the carrier and the pistons, all being arranged substantially as shown and for the purposes described.

5. The combination with the casing, said casing having an internal trackway formed with a plurality of eccentric abutment-surfaces; a straightway shaft passed eccentrically through the casing and having a tubular portion provided with oppositely-arranged ports; a valve movable within the tubular shaft-section; a cylinder rotatable on the shaft having a piston-chamber projected radially from opposite sides of the shaft, said chamber communicating with the hollow shaft inlet

and exhausts; a piston working in each chamber; a yoke-frame held to rotate with and slidable longitudinally upon the cylinder, and link connections joining the pistons with the carriage, all being arranged substantially as shown and described.

6. The combination with the casing and the eccentrically-held straightway shaft, said shaft having a tubular section, the casing having an annular trackway formed with a plurality of eccentric portions, and the annular rims 20, running parallel with the trackway of the casing, said trackway being formed of two distinct portions; a feed and valve adjustably held within the tubular shaft, said valve having inlet and exhaust ports communicating through the shaft; a cylinder mounted upon the shaft to turn therewith, said cylinder having a radially-projecting piston-chamber at each side of the shaft and communicating therewith; the carriage 10, longitudinally slidable upon the cylinder and rotatable therewith, said cylinder having exhaust-ports communicating with the exhausts of the valve; the carriage having a pair of roller-bearings 12, at each end adapted to engage the trackway of the casing and the guide-tracks 20, and means for shifting the valve, all being arranged substantially as shown and for the purposes described.

641,200. CYLINDER FOR THRESHING-MACHINES. ANIBAL FERRI, Calarasi, Roumania, assignor to Eugen Behles, Bucharest, Roumania. Filed Nov. 16, 1896. Serial No. 612,319. (No model.)



Claim.—1. A drum for removing the grain from the spikes or ears of Indian corn or maize comprising a continuous closed casing formed with longitudinal cam-shaped ribs or rounded projections providing longitudinal grooves, each groove having one front steeply-inclined wall and one gradually-inclined rearwardly-extending wall; substantially as described.

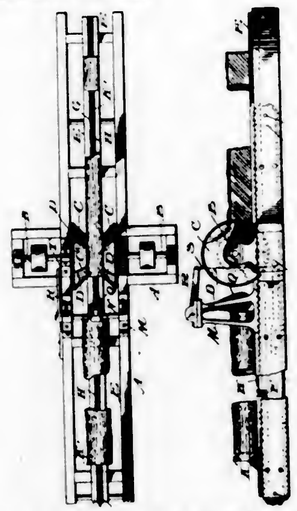
2. The combination, with the concave of an ordinary threshing-machine; of a drum for removing the grain from the spikes or ears of Indian corn or maize, comprising a continuous closed casing formed with longitudinal cam-shaped ribs or rounded projections providing longitudinal grooves each having one front steeply-inclined wall and one gradually-inclined rearwardly-extending wall; substantially as described.

641,201. SIPHON-SPOUT. JOSEF FLEISCHER, New York, N. Y. Filed Nov 10, 1899. Serial No. 736,565. (No model.)



Claim.—The combination with a siphon-spout of a guard of one or more projections affixed around the mouth of the spout substantially as set forth.

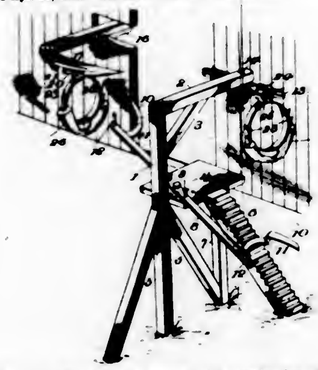
641,202. MACHINE FOR CUTTING RAILWAY-TIES. CHARLES W. GARLAND, Bluefield, W. Va., assignor of one-half to William Tazewell Poston and Ewell L. Warren, Lindsey, W. Va. Filed Oct. 21, 1899. Serial No. 734,385. (No model.)



Claim.—1. In combination in a machine for cutting railway-ties, the frame, the beveled cutters, the shafts carrying the same, the cutting-knives seated in apertures in the beveled faces of said cutters, the feeding-trough, the endless chain and dogs carried thereby, the pivoted pressure-bar having a laterally-extending arm, a spring secured to said arm, said bar being disposed in the path of the advancing log, adapted to hold the latter in position while being cut and to kick against the end of the following log to engage the rear end of said log with the spurs of the dog as shown and described.

2. In combination with the endless chain, and dogs carried thereby, and cutters mounted as described, a shaft mounted in suitable brackets on the frame of the machine, a weighted member depending from said shaft and normally resting in the path of the logs being fed forward by said chain, said member being adapted to be pushed out of the path of the advancing log by the latter, and to rest upon the log while being sawed, and then to drop off the end of the log and against the end of a following log whereby the latter is driven against the teeth of the dog engaging the end of said following log, as and for the purpose set forth.

641,203. MAIL-BAG CATCHER. SALLIE R. GIBSON, Princess, Ky. Filed Apr. 20, 1899. Serial No. 713,787. (No model.)



Claim.—1. In a mail-bag catcher, the combination with the receiving and delivering mechanisms, of a holder adapted to be applied to either of said mechanisms and provided at its sides with means for attachment thereto of both end portions of a mail-pouch, substantially as set forth.

2. In a mail-bag catcher, a bag-holder substantially of annular form and provided at its sides with a series of hooks to engage with the terminal rings of a mail-pouch, substantially as described.

3. In a mail-bag catcher, the combination with a supporting-bar, of a mail-bag holder having a suspension-loop, and having the top and sides of said loop provided with antifriction devices to engage with the top and sides of the said supporting-bar, substantially as and for the purpose specified.

4. In a mail-bag catcher, the combination with a supporting-bar, of a mail-bag holder provided with a suspension-loop, and a pair of antifriction devices at the top and sides of the loop, and having the elements of each pair separated to obviate binding between the supporting-bar and loop, substantially as set forth.

5. In a mail-bag catcher, the combination with a supporting-bar, and restraining-springs at the top and sides of said bar, of a mail-bag holder having a suspension-loop to embrace the top and sides of the supporting-bar and held thereon against accidental displacement by the combined action of the restraining-springs, substantially as set forth.

6. In a mail-bag catcher, the combination with a beam, of a catcher-hook of approximately U form, applied to said beam and having its inner or closed end depressed and having stop-shoulders at the ends of the depressed portion, substantially as described.

7. In a mail-bag catcher, the combination with a beam, of a catcher-hook applied to the end portion of said beam, and a pin applied to and rising vertically from the said extremity of the beam to prevent the mail-bag holder from slipping upon the said beam, substantially as and for the purpose specified.

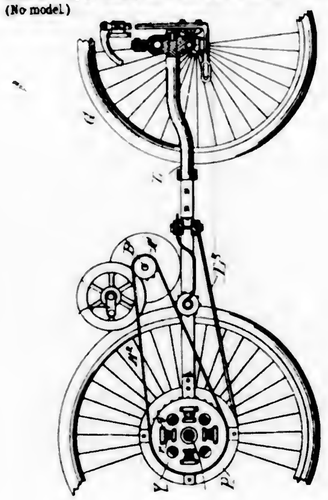
8. In a mail-bag catcher, the combination of a bar pivoted so as to swing horizontally and limited in its outward movement, and an arm disposed about at right angles to the length of said bar and hinged thereto so as to fold thereon, substantially as set forth.

9. In a mail-bag catcher, the combination with the catcher applied to the postal car, of a longitudinally-disposed bar secured at its front end to the lower forward portion of the catcher and spaced therefrom to receive and support the mail-matter to be delivered, and a spring coöperating with the said bar to prevent accidental displacement of said matter when in position, substantially as described.

10. In a mail-bag catcher, the combination with a beam, of a catcher-hook of substantially U form having one member attached to the beam and having its opposite member inclined upwardly and outwardly and having its closed end depressed forming stop-shoulders at the ends of the depressed portion, substantially as specified.

11. A mail-bag catcher comprising a bar, a folding arm disposed about at right angles to the bar and hinged thereto, and a hook or projection applied to the folding arm and extending therefrom to form a stop to limit the movement of the mail-matter when received upon the said arm, substantially as described.

641,204. GEARING FOR HORSELESS CARRIAGES. ERNST P. GRAY, Cincinnati, Ohio, assignor of two-thirds to Otto Armleder and Louis B. Sawyer, same place. Filed Aug. 24, 1899. Serial No. 728,268. (No model.)



Claim.—1. In horseless-carriage construction of the character described, the combination with a front axle composed of an arched piece and a straight piece below said arched piece and a bearing for the perch in the center of said axle and having at each end anti-friction-bearings for carrying stub-axles with bell-cranks attached thereto, of a steering-rod attached to the said bell-cranks having a pair of springs thereon on either side of a looped steering-lever to form a yielding connection between said rod and said lever, substantially as described.

2. In horseless-carriage construction, the combination with a front axle composed of a hollow arched piece and a hollow straight piece connected at their middle by a block having a central transverse opening forming a bearing for the perch allowing free movement of the axle vertically to allow the wheels to pass over obstructions, of a yoke or saddle for the forward spring composed of a pair of plates so bent as to form a rest for the spring and to pass over the central block and hinge upon it so as to allow it to swing with the bed, of a pair of vertical bearings at either end of said axle composed of a casing having a cup-shaped opening in the top and bottom thereof, and a stub-axle having an upward extension passing through the vertical bearing and carrying a pair of hemispheres within the cup-shaped openings in said bearing and a pair of steel cups interposed between said members with means for taking up wear, a steering-rod attached to rearward extensions on said stub-axle and having yielding connection with a steering-lever, substantially as described.

3. In a vehicle of the character described, the combination with a motor-shaft carrying thereon pinions meshing with pinions on the periphery of friction-disks loosely mounted on a counter-shaft carrying a sprocket-wheel centrally arranged, of lever mechanism so constructed that no two of the clutches may be thrown into connection at the same time, of a differential gear composed of a sprocket-wheel carrying a series of miter-wheels meshing with miter-wheels fast on the ends of the rear axle, substantially as described.

4. In a vehicle of the character described, the combination with a motor-shaft carrying pinions meshing with pinions on the periphery of friction-disks loosely mounted on a counter-shaft having the other members of the friction-clutches fast thereon with means for throwing the clutches into or out of connection with the friction-disks, and means whereby no two of the clutches may be thrown into gear at the same time consisting of lever mechanism consisting of a pair of slotted arms set at right angles to each other and having an operating-lever passed through them at the point of bisection in such manner that when the lever is moved forward or backward it will affect only one of the slotted arms to throw in or out of connection one of a pair of the clutches and when the said operating-lever is moved to either side it will throw in or out one of another pair of friction-clutches and means for locking the operating-lever in any of its positions for holding the clutches in gear, of a sprocket-wheel fast on the counter-shaft and connected to a differential gear mounted on the rear axle of the vehicle consisting of a sprocket-wheel driven by the before-mentioned sprocket-wheel and carrying a set of miter-wheels meshing constantly with a pair of miter-wheels fast on the ends of the rear axles so as to allow one rear wheel of the vehicle to turn faster than the other in turning a curve, of the coupling-pole connecting the front and rear axles and split toward the rear to allow the driving-chain to pass therethrough, of a chain-tightening wheel mounted on a spring adjustably mounted on the coupling-pole, and a brace extending from the lower part of the differential casing forward and upward to the coupling-pole and connected thereto by the same bolt that holds the adjustable chain-tightener for the purpose of preventing any rotary movement of the differential-gear case and for stiffening the construction of the vehicle, of a pair of braces extending from the vertical bearing of the front axle rearward and connected to the coupling-pole by a rocking member so as to provide for the rise and fall of the front axle in passing over an obstruction and to prevent lateral movement of the said front axle, and another pair of braces extending from the outer ends of the rear axle forward to the coupling-pole to prevent lateral movement of the rear axle, substantially as described.

5. In a vehicle of the character described, the combination with the rear axle composed of a pair of stub-axles splined into each other carrying on their inner ends miter-wheels fast thereon and contained in a pipe fast within the differential-gear case at the middle and fast to the outer bearings, of a pair of outer bearings to which the rear brace-rods are connected and having recesses at the top and bottom thereof to receive the springs of the vehicle and the brace-rods respectively, and the springs and brace-rods connected to the said outer bearings by having clips slipped over both of the said springs and brace-rods and having clip-ties to secure the same in place, substantially as described.

641,205. VENTILATED FRUIT-BOX. WALTER L. HAWLEY, Fort Collins, Colo., assignor of one-half to James C. Evans, same place. Filed May 22, 1899. Serial No. 717,705. (No model.)

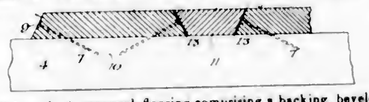
Claim.—1. The combination with a suitable box or case, of two crossed, interlocking, corrugated partitions, each partition being composed of two parts arranged with their corrugations coinciding and having their concave surfaces turned toward each other, forming channels to facilitate the circulation of air.



2. The combination with a suitable box or case, of two interlocking partitions crossed at right angles to each other, each being composed of two perforated, corrugated parts, the corrugations in the two parts of each partition being arranged to register with each other.

3. The combination with a box or case, of a number of perforated partitions, slotted to interlock and arranged at right angles to each other, whereby the space within the box is divided into a number of compartments, each partition being composed of two corrugated parts, arranged with their corrugations coinciding and having their concave surfaces turned toward each other, forming channels to facilitate the circulation of air.

641,206. VENEERED FLOORING. SAMUEL HEDGES, Los Angeles, Cal. Filed Apr. 26, 1899. Serial No. 714,583. (No model.)



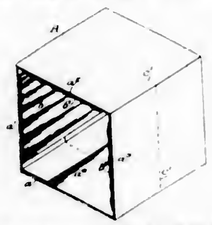
Claim.—1. A veneered flooring comprising a backing, beveled-faced flooring-boards, brads whereby the flooring-boards are secured to the backing, so driven that those from opposite sides of a board converge, and beveled-faced keys inserted between the flooring-boards, substantially as described.

2. A veneered flooring comprising a backing, beveled-faced flooring-boards, and beveled-faced flooring-keys having knuckle-joint connections with, and inserted between the flooring-boards; substantially as set forth.

3. A veneered flooring comprising a backing, beveled-faced flooring-boards, brads whereby the flooring-boards are secured to the backing, so driven that those from opposite sides of a board converge, and beveled-faced flooring-keys having knuckle-joint connections and inserted between the flooring-boards with their knuckle-joints located over the heads of the brads; substantially as set forth.

4. A veneered flooring comprising a floor-backing, with spaces between the boards forming the backing, beveled-faced flooring-boards laid upon the backing, and having intervening spaces, and beveled-faced keys having knuckle-joint connections and inserted in the spaces between the flooring-boards; substantially as set forth.

641,207. PACKING-BOX. HOWARD H. HIGHAM, Philadelphia, Pa. Filed June 3, 1898. Serial No. 682,469. (No model.)



Claim.—1. The combination in a packing-box, of two independent sections, one section adapted to be folded and secured together, to form a quadrangular box having open ends, and the other section adapted to be inserted in said box-section and be folded so as to form the ends of the same, a strip secured to the inner surface of one side of the box-section, and tongues carried by the other section adapted to be forced between said strip and the side of the box-section, substantially as described.

2. The combination in a packing-box, of the open-ended box-section, packing strips or veneers secured to three sides of said section, a section adapted to be folded to form three sides, packing strips or veneers secured to the three sides of the same, the said section being adapted to be inserted in the box-section to form the ends of the same and having tongues at each end adapted to be inserted between one of the packing-strips of the box-section and the side of the same when the box is closed, substantially as described.

3. The combination in a packing-box, of a quadrangular section with open ends, corrugated packing-strips permanently secured to three sides of said section, a section having tongues at each end adapted to be folded to form three sides independent of said tongues, corrugated packing-strips permanently secured to said section, the said section being adapted to be inserted in the box-section to form the ends of the same and having tongues formed integral therewith adapted to a space between one of the packing-strips of the box section and the side of the same when the box is closed, substantially as described.

4. The combination in a packing-box, of a quadrangular section with open ends, corrugated packing-strips permanently secured to three sides of said section by a line of stitches at or near the center of the packing-strips, a section having tongues at each end adapted to be folded to form three sides independent of said tongues, corrugated packing-strips permanently secured to said section, the said section being adapted to be inserted in the box-section to form the ends of the same and having tongues formed integral therewith adapted to a space between one of the packing-strips of the box-section and the side of the same when the box is closed, substantially as described.

641,208. CUPEL-MACHINE. FRANKLIN M. ILER, Denver, Colo. Filed May 27, 1898. Serial No. 681,888. (No model.)



Claim.—1. In a cupel-machine, the combination of the base and top castings provided with openings, two rods, whose extremities engage the openings in the castings, set-screws entering the castings and arranged to fasten the rods in place, a vertically-movable bar located between the rods and engaging a socket in the base, the upper extremity of the bar being formed into a die, the top casting being provided with a matrix which the die extremity of the bar is adapted to enter, a lever fulcrumed on the base and adapted to engage the lower extremity of the bar, which rests thereon, and a cap movably mounted on the top casting and adapted to close the top of the matrix.

2. The combination of the base containing a socket, a lever fulcrumed on the base and projecting into the socket, a top containing a matrix, connecting-rods entering openings formed in the top and base, means for fastening the rods in place, whereby the distance between the top and base may be regulated at will, a vertically-reciprocating bar engaging the socket in the base, and provided with a die adapted to enter the matrix of the top, the lower extremity of the bar lying in the path of the inner arm of the lever, and a cap movably attached to the top of the device and adapted to close the matrix.

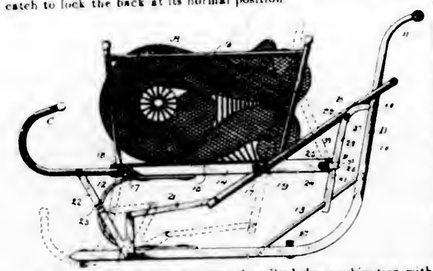
3. The combination of the top and base, the top containing a matrix, and the base a socket in line with the matrix, a sleeve detachably applied to the matrix for limiting its size, a lever fulcrumed on the base and projecting into the socket, a vertically-movable bar engaging the socket in the base and lying in the path of the inner arm of the lever, a die attached to the upper extremity of the bar and adapted to enter the matrix, two adjustable rods for connecting the top and base, whereby the distance between them may be regulated at pleasure, and a suitable cap applied to the top of the device and arranged to swing on a vertical axis to open and close the matrix.

4. The combination of the base containing a socket, a lever fulcrumed on the base and projecting into the socket, a top containing a matrix, a suitable connection between the top and base, a vertically-reciprocating bar engaging the socket in the base and provided with a die adapted to enter the matrix of the top, the lower extremity of the bar resting on the inner arm of the lever, whereby the said arm is raised by the lever, its downward movement being accomplished by gravity, the bar being of sufficient weight to return the lever to its normal position.

641,209. CHILD'S RECLINING-CARRIAGE. CHARLES B. JONES, New Haven, Conn., assignor of one-half to Frederick L. Cowles, same place. Filed Oct. 23, 1899. Serial No. 734,452. (No model.)

Claim.—1. In a device of the character described the combination with the back, and foot-rest and intermediate connections, substantially as described and shown, of a cross-rod 29, a locking-lever

pivoted on said cross-rod and provided with notches 30 and 31, and a guide and catch at the rear end of the body, said locking-lever passing through said guide and notch 31 engaging the rear end thereof in the reclining position of the back and notch 30 engaging the catch to lock the back at its normal position.

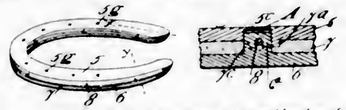


2. In a device of the character described the combination with the body having side rails 14 with extensions 24 and a fixed dowel 25 between said extensions carrying a guide 26 and catch 27, of a pivoted back and a locking-lever depending therefrom and passing through the guide and having a notch adapted to engage the rear end of the guide when the back is in the reclining position and a notch to engage the catch when the back is in the normal position.

3. In a device of the character described the combination with the body having side rails 14 with extensions 24 and a fixed dowel between said extensions carrying a guide 26 and catch 27, of a pivoted back, a cross-rod 29 rigidly secured thereto and having pairs of lugs 38 and a smooth portion 39 between said pairs of lugs, of a locking-lever provided with notches adapted to engage the rear end of the guide and the catch respectively and having a hole 36 adapted to receive the cross-rod and recesses leading therefrom and adapted to receive the lugs, so that in assembling one pair of lugs may be passed through the recesses and then the lugs turned out of alinement and the locking-lever will be retained in position on the cross-bar.

4. In a device of the character described the combination with the body having a fixed dowel 25 and a back pivoted to the body, of a pivoted locking-lever depending from the back and having notches 30 and 31 and a catch and guide upon the dowel which are adapted to be engaged respectively by the notches in the locking-lever, said locking-lever passing through said guide, substantially as shown, for the purposes specified.

641,210. SOFT-TREAD HORSESHOE. THEODORE N. JONES, Crisman, Colo. Filed Sept. 5, 1899. Serial No. 729,503. (No model.)



Claim.—1. In a soft-tread horseshoe, the combination of the two metal members and the intermediate cushion member, one of the metal members being provided with lugs passing through openings formed in the cushion member and entering recesses formed in the other metal member, a space being normally left between the extremity of the lug and the top of the recess, and pins fitted into horizontal openings formed in one metal part and passing through vertically-slotted openings formed in the lugs of the other metal part.

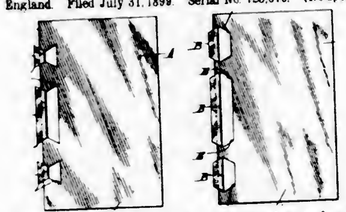
2. In a soft-tread horseshoe, the combination of two metal members and an intermediate cushion member, the latter being provided with transverse recesses 7^a and openings 7^b, one metal part having projections 5^a adapted to engage the recesses 7^a of the cushion member, the said metal part also having recesses 5^c which register with the openings 7^b of the cushion member, the other metal part 6 having lugs adapted to enter the openings and recesses respectively formed in the cushion member and the first-named metal member, and pins passed through the horizontal openings formed in one metal member and vertically-elongated openings formed in the lugs of the other metal member.

3. In a soft-tread horseshoe, the combination of two rigid members 5 and 6 and an interposed cushion member 7, the member 5 having depending projections 5^a and recesses 5^b formed part way through said projections whereby the rear wall of each recess is of the maximum depth, the part 7 being provided with recess 7^a to receive the projections 5^a of the part 5, the openings 7^b registering with the recesses 5^c of the part 5, the part 6 having lugs 6^a adapted to pass through openings in the cushion member and enter the recesses 5^c of the member 5, a space being normally left between the top of the lug and the top of the recess to permit movement as the cushion member yields, and suitable means for fastening the three parts in the assembled position.

4. In a soft-tread horseshoe, the combination of two metal members and an intermediate cushion member, one of the metal members being provided with lugs passing through openings formed in the cushion member and entering recesses formed in the other metal member, a space being normally left between the extremity of the lug and the top of the recess, and pins fitted into horizontal openings formed in one metal part and passing through vertically-slotted openings formed in the lugs of the other metal parts, one of the metal parts having a flange formed part way around its outer edge, and adapted to engage a counterpart groove or recess formed in the cushion member.

5. In a soft-tread horseshoe, the combination of two metal members and an intermediate cushion member, the metal part 5 having projections 5^a and horizontal openings formed adjacent said projections, the projections 5^a being adapted to engage the recess 7^a of the cushion member, the part 5 having also recesses 5^c which register with the openings 7^b of the cushion member, the other metal parts having lugs adapted to enter the openings and recesses respectively formed in the cushion member and in the first-named metal member, the pins passing through horizontal openings formed in one metal member and vertically-elongated openings formed in the lugs of the other metal member.

641,211. BINDING BOOKS. JOSEPH LEWTHWAITE, Eastbourne, England, assignor of one-half to Arnold Elworthy Williams, London, England. Filed July 31, 1899. Serial No. 725,676. (No specimens.)



Claim.—1. A bound book or pamphlet having the leaves slitted at the back portions to form flaps integral therewith which are folded outwardly therefrom and united to one another, substantially as and for the purposes described.

2. A bound book or pamphlet having the leaves slitted at their back portions to form foldable flaps integral therewith which are folded outwardly and cemented to one another, substantially as and for the purposes described.

3. A bound book or pamphlet having doubled leaves slitted at their folding-lines to form flaps integral therewith which are folded outwardly at said folding-lines and secured to one another, substantially as and for the purposes described.

4. A bound book or pamphlet having leaves slitted at their back portions to form groups of superimposed flaps integral with the leaves which are folded outwardly and the flaps of each group cemented to one another, substantially as and for the purposes described.

641,212. SHELVING. JAMES M. LIPPINCOTT, Oakland, Ill. Filed Jan. 12, 1899. Serial No. 701,919. (No model.)

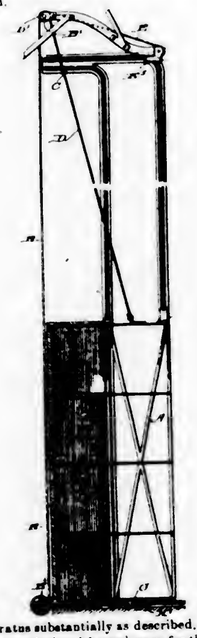
Claim.—1. In an apparatus substantially as described, the combination of the vertically and laterally movable shelving-section, a cord or cable having a head, means on the shelving-section for detachably engaging said head, and a guide for said cord or cable forming a stop for the head substantially as set forth.

2. In an apparatus substantially as described, the combination of the shelving-section, the framing having a guide for the cable or cord, the cable or cord passed through such guide and having a head arranged to be stopped by the guide, and a catch on the shelving-section for detachably engaging said head substantially as set forth.

3. In an apparatus substantially as described, the combination of the shelving-section, a cord for operating the same, a guide for such cord, a head on the cord too large to pass through such guide, and a catch on the shelving-section, by which to engage said head and by pressure thereagainst to draw the cord through the guide substantially as set forth.

4. In an apparatus substantially as described the combination of the framing having vertical and lateral guideways, the shelving-section, means for lifting said section and for adjusting the same rearwardly in the lateral guideways, a cord for advancing the shelving-

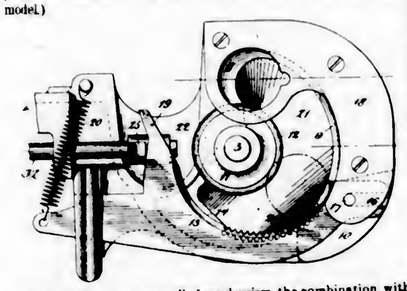
section in the lateral guideways, means whereby to stop said advancing cord when the shelving-section is in its foremost position and a detachable connection between said cord and the shelving-section substantially as set forth.



5. In an apparatus substantially as described, the combination of the framing having vertical and lateral ways for the shelving-section, the shelving-section, the line or cord for elevating said section, a separate line for moving said section forward in the lateral guideways, a drive-shaft, drums to which said lines or cords are connected and means whereby said drums may be clutched to the drive-shaft substantially as set forth.

6. The herein-described improvement in shelving comprising the frame having vertical and lateral guideways, the shelving-section movable in said guideways, the drive-shaft, the drums thereon and spaced apart, the lines for lifting and for advancing the shelving-section, such lines being connected with their respective drums, the pivoted lever arranged to clutch one of the drums to the drive-shaft, and a second lever pivoted to said first lever and arranged to clutch the other drum to the drive-shaft substantially as set forth.

641,213. COIN-CONTROLLED APPARATUS. JOSEPH MASON, London, England, assignor to the American Mutoscope and Biograph Company, New York, N. Y. Filed Nov 14, 1899. Serial No. 736,919. (No model.)



Claim.—1. In a coin-controlled mechanism, the combination, with a movable driving member and a concavely-curved coin-guide, said driving member being adapted to impart to a coin a rolling motion along said guide, of means operated by the movement of the coin for controlling the operation of other apparatus.

2. In a coin-controlled mechanism, the combination of a driving member and a movable concavely-curved coin-actuated member together forming a tapering coinway, said driving member being arranged to impart a rolling motion to a coin, and the coin-actuated member being adapted to be displaced by a coin moving along the coinway.

3. In a coin-controlled mechanism, the combination, with a rotatable disk, and means for driving the same, of a concavely-curved guide member forming with said disk a tapering coinway, and adapted to be displaced by a coin rolled through said coinway.

4. In a coin-controlled mechanism, the combination, with a rotatable disk grooved to receive the edge of a coin, and having one flange of greater diameter than the other, of a curved guide member having a guide-rib, adapted with said disk to support a coin, said curved guide member forming with the disk a tapering coinway, and being adapted to be displaced by a coin moving through said coinway.

5. In a coin-controlled mechanism, the combination, with a rotatable disk and a concavely-curved guide member together forming a coinway, said disk being provided with a flange and the guide member being provided with a corresponding rib for supporting a coin, and the disk being adapted to communicate a rolling motion to a coin, of means operated by the movement of the coin for controlling the operation of other apparatus.

6. In a coin-controlled mechanism, the combination, with a rotatable disk and a concavely-curved guide member together forming a coinway, said disk being provided with a flange and the guide member being provided with a corresponding rib for supporting a coin, and the disk being adapted to communicate a rolling motion to a coin, of means operated by the movement of the coin for controlling the operation of other apparatus, and a chute below the coinway for receiving coins which fall between the disk and the guide.

7. In a coin-controlled mechanism, the combination, with a driving member, of a movable coin-actuated member forming therewith a coinway, said driving member being adapted to impart a rolling motion to a coin, and said coin-actuated member being arranged to be displaced by a coin moving along the coinway, and being provided with teeth by which objects of soft metal may be detected.

8. In a coin-controlled mechanism, the combination, with a rotatable disk grooved to receive the edge of a coin, and having at the base of said groove a slot adapted to receive the edge of a disk of thin metal, of a concavely-curved guide member forming with the disk a tapering coinway, and adapted to be displaced by a coin of proper denomination moving through said coinway, but not to be displaced to an extent sufficient to cause the operation of mechanism controlled by the coin-controlled mechanism, when a disk of thin metal has entered the groove in said disk.

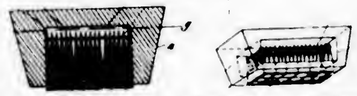
9. In a coin-controlled mechanism, the combination, with a rotatable disk and a curved guide member together forming a coinway, and means for controlling the operation of suitable mechanism, operated by a coin when rolling along said coinway, of means for preventing the withdrawal of a coin from said coinway by a cord or equivalent device.

10. In a coin-controlled mechanism, the combination, with a rotatable disk, of a guide member forming with said disk a coinway, said guide member being formed in two sections, one of which is movable in two directions, and means for returning such movable section to its normal position.

11. In a coin-controlled mechanism, the combination, with a rotatable disk, of a guide member forming with said disk a coinway, said guide member being formed in two sections, one of which is movable in two directions, and is arranged to be moved first in one direction and then in the other by a coin passing through the coinway, and means for returning such movable section to its normal position.

12. In a coin-controlled mechanism, the combination, with a rotatable disk, of a concavely-curved guide member forming with said disk a coinway, said guide member being formed in two sections, one of which is movable both about an axis and radially on it, and is arranged to be so moved by a coin passing through the coinway, and means for returning such movable section to its normal position.

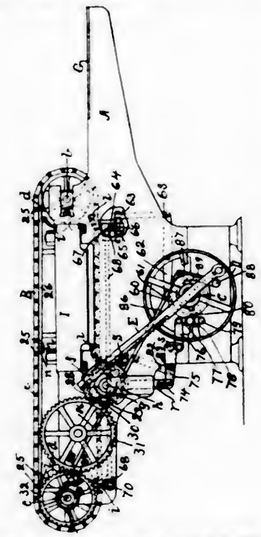
641,214. THERMO-ELECTRICAL BUILDING BRICKS OR BLOCKS. JOSEPH MATTHIAS, Stuttgart, Germany. Filed Dec. 13, 1898. Serial No. 699,172. (No model.)



Claim.—1. For the thermo-electrical utilization of waste heat hollow building bricks or blocks partly closed on two opposite sides by the pointed ends of the electrodes and completely closed on the side which is turned toward the source of the heat by the other ends of the electrodes and the insulating material between them.

2. For the thermo-electrical utilization of waste heat hollow building bricks or blocks partly closed on two opposite sides by the pointed ends of the electrodes and completely closed on the side which is turned toward the source of the heat by the other ends of the electrodes and the insulating layers or bands of the material of the brick or block or still of other insulating layers between them.

641,215. MACHINE FOR CUTTING, SCORING, AND EMBOSSING PAPER FOR BOXES. FRANCIS MEISEL, Boston, Mass. Filed Mar. 31, 1899. Serial No. 711,229. (No model.)



Claim.—1. The combination with impression members and an operating means therefor, of an intermittently-moving sheet-carrier provided with grippers, means for opening and closing the grippers, and a movable sheet-support provided with means for moving it into line with the grippers to permit a sheet to be fed thereto and then moving it out of the plane of the grippers before the carrier begins to move forwardly, substantially as set forth.

2. The combination with impression members and an operating means therefor, of an intermittently-moving sheet-carrier provided with gripping-fingers and means for opening and closing the fingers at the receiving and discharging ends, respectively, a movable sheet-support at the receiving end of the machine and provided with front stops to stop the sheet within the grippers and means for moving the sheet-support into line with the open grippers to permit a sheet to be fed thereto and then moving it to throw its front stops out of the plane of the grippers before the carrier begins its forward movement, substantially as set forth.

3. The combination with impression members, of an intermittently-actuated sheet-carrier provided with grippers, means for opening and closing the grippers, a vertically-movable sheet-support having front stops to project between the grippers at their receiving-point and deliver a sheet thereto, toggles for raising and lowering the sheet-support at the proper times and means for actuating the toggles, substantially as set forth.

4. The combination with impression members, of an intermittently-actuated sheet-carrier provided with grippers to seize the sheets and carry them singly to the impression devices, a locking device to lock the carrier while the grippers so hold the sheet for action by the impression members, means for closing the grippers upon a sheet, and opening them to release the sheet operated upon, and a vertically-movable sheet-support to guide a sheet between the grippers and then move away before the carrier moves the sheet forwardly, substantially as set forth.

5. The combination with the frame, parallel end shafts, sprocket-wheels mounted thereon, endless chains carried by said sprockets, and impression members operating between the lower runs of the chains, of gripper mechanisms comprising cross-bars connecting the two chains, stationary and movable gripper-fingers mounted on said cross-bars, a movable gripper-operating bar on every cross-bar and engaging the outer sides of the said movable fingers, to open and close them, and means for operating said gripper-operating bar at the receiving and delivery ends of the machine, substantially as set forth.

6. The combination with impression members, of endless carrier-chains provided with grippers, and having an intermittent movement, means for locking the chains at the termination of each movement to produce register of the sheet, a movable sheet-supporting table, and means for raising and lowering said table, substantially as described.

7. The combination with an intermittently-moving sheet-carrying device, of means for locking and holding the driving mechanism of said sheet-carrying device while at rest, and a second locking device for accurately positioning said sheet-carrying device, substantially as described.

8. The combination with the endless chains and their sprocket-shafts, of cross-bars connecting the chains, stationary and movable gripper-fingers mounted on said cross-bars, gripper-operating bars having oblique slots through which screws or pins pass into the cross-bars, said slotted bars operatively engaging the movable gripping-fingers to close them as described or allow them to open, and means for actuating said slotted bar, substantially as set forth.

9 The combination with the frame, the parallel end shafts having sprocket-wheels, the endless chains mounted on said sprockets and connected by cross-bars, means for intermittently operating said chains, and the impression devices between the lower runs of the chains, of stationary and movable gripper-fingers mounted on the cross-bars, sliding bars mounted on the cross-bars to operate the movable gripper-fingers, and provided with end projections, a longitudinal shaft having an arm at the delivery end of the machine to engage said end projections and open the grippers, a short shaft at the feed end of the machine geared to the longitudinal shaft, a bell-crank on the short shaft with its upper arm adapted to engage said end projections and close the grippers upon a sheet, and means for actuating the bell-crank from the main shaft, substantially as set forth.

10. The combination with the endless carrier-chains, their sprocket-shafts one of which has a drive-pinion 32 and the impression members between the lower runs of the chains, of a main shaft operatively connected with the impression mechanism, a rack-bar E reciprocated from the main shaft, a loose gear *g* mounted on a short shaft *h* and meshing with the upper end of said rack-bar, a pawl-carrying disk 28 secured to said loose gear, a notched disk 21 fastened on said short shaft and engaged by the pawl 29 on the disk 28, a gear 30 fast on said short shaft, and having a notch 73 in its hub, a gear 31 meshing with gears 30 and 32, a vertically-movable locking-bar *r* to enter the notch 73 and lock the chain-operating mechanism, and a lever mechanism operatively connecting the lower end of the locking-bar with the drive-shaft.

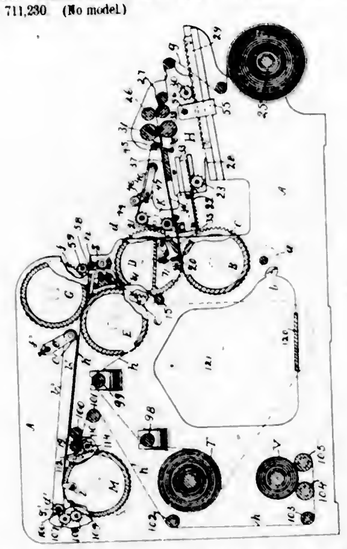
11. The combination with the endless sheet-carrying chains and their sprocket-shafts and a drive-shaft operatively connected to one of said sprocket-shafts, to intermittently operate it and the chains, of a friction-strap encircling a hub on the driven sprocket-shaft, a bell-crank 85 to which the free end of the friction-strap is connected, a lever 88 actuated by a cam on the drive-shaft and a rod 86 connecting the lever 88 to the said bell-crank, substantially as set forth.

12. The combination with the frame, the end shafts having sprocket-wheels, endless chains mounted on said sprocket-wheels and connected at intervals by cross-bars, upper and lower longitudinal guides at the sides of the frame to prevent any raising and lowering of the chains between their sprockets, and impression members located between the lower runs of the chains, of gripping-fingers on chain cross-bars and projecting at the lower run of the chain toward the receiving end of the machine to receive and grip the sheets as fed, carry them to and hold them for action by the impression devices and release them at the delivery end of the machine, means for operating the grippers and means for locking the chains during their intervals of rest.

13. The combination with the endless chains provided with grippers to seize the sheets, the impression members between the lower runs of the chains, and means for intermittently operating the chains, of vertically-sliding locking-bars having a forked upper end to engage the chain-link pivots or pins and lock the chains when at rest, and means for operating said locking-bars from the drive-shaft of the machine.

14. The combination with a stationary and a movable member, of a pair of toggles for supporting the movable member, a driving-shaft located between said toggles and beneath said movable member, cams on said driving-shaft for operating said toggles, endless carrier-chains having an intermittent movement, and provided with a series of sets of grippers, and means for actuating the chains and operating the grippers at fixed intervals, substantially as described.

641,216. WEB AND SHEET FEEDING AND PRINTING MACHINE. FRANCIS MEISEL, Boston, Mass. Filed Mar. 31, 1899. Serial No. 711,230. (No model.)



Claim.—1. The combination with a cylinder, of a normally stationary sheet support or table adjustable in length for sheets of varying lengths and traveling sheet-feeding belts over said table or support with their lower runs parallel therewith to move the sheets over the table or support to the cylinder.

2. The combination with a cylinder, of a sheet support or table, adjustable in length for sheets of varying lengths and movable bodily toward and from the cylinder, means for adjusting the length and position of the table or support, and traveling sheet-feeding belts over said table or support with their lower runs parallel with the upper surface thereof to feed the sheets therealong to the cylinder; said belts being movable away from the cylinder with the said table or support.

3. The combination with a cylinder, of a carriage or frame movable toward and from the cylinder, web feeding and cutting mechanisms mounted on said carriage or frame, a sheet supporting and feeding mechanism on said carriage or frame and extending between the cutting mechanism and the cylinder and movable with said frame or carriage away from the cylinder to allow access thereto.

4. The combination with a cylinder, of a main carriage movable toward and from the cylinder, web feeding and cutting mechanisms mounted on said carriage, a sheet supporting and feeding mechanism on said carriage and extending between the cutting mechanism and the said cylinder, and movable with said carriage away from the cylinder to allow access thereto, and means for effecting an independent adjustment of said sheet supporting and feeding mechanism on the main carriage.

5. The combination with a cylinder, of a main carriage movable toward and from the cylinder to allow access thereto, web feeding and cutting mechanisms mounted on said carriage, and an adjustable sheet-support mounted on the carriage and extending between the cutting mechanism and the cylinder, means for adjusting the length of the said sheet-support, and endless, traveling, sheet-feeding belts over said support with their lower runs parallel with the upper surface thereof to feed the sheets thereover to the cylinder, and take-ups for the said sheet-feeding belts to adjust them to the adjustment of the said sheet-support.

6. The combination with the main carriage, web cutting and feeding mechanisms mounted thereon, and a take-up roll beyond the web-cutting mechanism, of an auxiliary carriage adjustable on the main carriage, a flexible web or sheet support connected at one end to the auxiliary carriage and at its opposite end connected to said take-up roll, traveling sheet-feeding belts mounted on the auxiliary carriage over the said flexible web with their lower runs extending along the upper surface thereof, the lower inner shaft or roller of the sheet-feeding belts being mounted on the main carriage, and means for taking up the slack of said sheet-feeding belts.

7. The combination with the main carriage, the web feeding and cutting mechanisms mounted thereon, a take-up roll, and a table on said main carriage, of an auxiliary carriage adjustable on the main carriage and having a table at its forward end, a flexible sheet-support connected to said table and extending thence over the first-named table to the said take-up roll, rolls or shafts journaled on the auxiliary carriage above the flexible sheet-support, endless, driven, sheet-carrying belts mounted on said rolls or shafts and also extending around a roll or shaft on the main carriage with their lower runs over the flexible sheet-support, and a take-up for said sheet-feeding belts.

8. The combination with a support for a sheet or web, of an endless traveling belt provided on its outer face with a soft or yielding surface of rough or pile material to engage the paper and feed it along said support.

9. The combination with a sheet or web support, of an endless traveling feeding-belt provided on its outer face with a narrower surface of rough or pile material to engage the paper and feed it along said support, and a take-up roll engaging the said outer side of the belt and having a groove to receive and protect its rough or pile surface.

10. The combination of a supporting-frame, a carriage thereon, an auxiliary carriage adjustable on the main carriage and provided with a web or sheet supporting device variable in length, a web or sheet feeding belt mounted on the two carriages with its lower run traveling over said web or sheet support, means for operating said belt, and pivoted belt-tightening arms carrying rolls engaging opposite sides of said belt.

11. The combination with a supporting-frame, of a carriage having mounted thereon a sheet or web feeding device, an auxiliary carriage adjustable on the main carriage, and a web or sheet supporting device, substantially as described.

12. The combination with a supporting-frame, of a carriage having mounted thereon a sheet or web feeding device and a cutting device, an auxiliary carriage adjustable on the main carriage, and a web or sheet supporting device, substantially as described.

13. The combination with a supporting-frame, of a carriage having mounted thereon a sheet or web feeding device, an auxiliary carriage adjustable on the main carriage, a web or sheet supporting device, and a web or sheet feeding belt arranged above the web or sheet supporting device, substantially as described.

14. The combination with a supporting-frame, of a carriage having mounted thereon a sheet or web feeding device and a cutting device, an auxiliary carriage adjustable on the main carriage, a web or sheet supporting device, and a web or sheet feeding belt arranged above the web or sheet supporting device, substantially as described.

15. The combination of a supporting-frame, a carriage, an auxiliary carriage adjustable on the main carriage, a web or sheet supporting device variable in length, a web or sheet feeding belt arranged above the web or sheet supporting device, means for driving said feeding-belt, and means for taking up the slack of said feeding-belt, substantially as described.

16. The combination of a supporting-frame, a carriage provided with a table and a take-up roll, an auxiliary carriage adjustable on the main carriage, and a flexible web or sheet supporting device variable in length, and having one end attached to the auxiliary carriage, and the other end to the take-up roll, said web passing over said table, substantially as described.

17. The combination with the first impression-cylinder and a series of guides placed between the first and second impression-cylinders, of the gripper-shaft and grippers, a cooperating gripper-bar provided with a slot, shoo-fly plates passing through said slot, and means for actuating the same, said shoo-fly plates being provided at their outer ends with notches for the reception of the ends of the guides, substantially as described.

18. In a perfecting printing-machine, the combination with the first impression-cylinder provided with means for seizing and holding the sheet, of a second impression-cylinder and a sheet-carrying device encircling a portion only of the second impression-cylinder lying between the first impression-cylinder and the second plate-cylinder without passing between the second plate and impression cylinders, for holding the sheet against the second impression-cylinder and carrying it to the second plate-cylinder, substantially as described.

19. In a perfecting prioting-machine, the combination with the first impression-cylinder provided with means for seizing and holding the sheet, of a second impression-cylinder, and means consisting of endless tapes encircling a portion only of the second impression-cylinder lying between the first impression-cylinder and the second plate-cylinder without passing between the second plate and impression cylinders, for holding the sheet against the second impression-cylinder and carrying it to the plate-cylinder, substantially as described.

20. In a perfecting printing-machine, the combination with the first impression-cylinder provided with means for seizing and holding the sheet, of a second impression-cylinder, and means consisting of endless tapes encircling a portion only of the second impression-cylinder lying between the first impression-cylinder and the second plate-cylinder without passing between the second plate and impression-cylinders, for holding the sheet against the second impression-cylinder and carrying it to the second plate-cylinder, and guides for guiding the sheet, substantially as described.

21. The combination with a cylinder, of a support parallel therewith, a frame or bracket adjustable along said support and provided with pulleys, and an endless tape running over said pulleys and partially encircling the cylinder between two of said pulleys to guide the sheets around the cylinder.

22. The combination with a cylinder, of a support parallel therewith, a frame or bracket adjustable along said support and provided with pulleys, an endless tape running over said pulleys and partially encircling the cylinder between two of said pulleys to guide the sheets around the cylinder, and a tightening device for the tape to increase or lessen its pressure on the cylinder.

23. The combination with a cylinder, of a support, a frame or bracket adjustable on the support in the direction of the length of the cylinder and provided with pulleys, said bracket having an adjustable arm carrying one of the innermost pulleys, and movable toward and from the cylinder, and an endless tape running over said pulleys and partially encircling said cylinder between the two innermost pulleys to guide the sheets around the cylinder.

24. The combination with a cylinder, of a support parallel therewith, a series of frames or brackets adjustable toward and from each other along said support, guide-pulleys on said brackets, a driving-shaft passing through said brackets, pulleys sliding on and rotating with said shaft, endless tapes extending around said guide and drive pulleys and partially encircling the cylinder between the former, and means on the brackets for moving the drive-pulleys along their shaft.

25. The combination with a cylinder, of a support, a series of frames or brackets adjustable on said support, a driving-shaft passing through said brackets, pulleys mounted on said shaft and sliding on but rotating with the same, tapes running over said pulleys, and a belt-tightening device for every tape provided with a common operating means, whereby the entire series of tapes may be simultaneously tightened or loosened, substantially as described.

26. The combinatioc with a cylinder, of a support, a series of frames or brackets adjustable along said support and provided with guide-pulleys, a driven shaft passing through said brackets and provided with pulleys sliding on and rotating therewith, tapes running on said guide and drive pulleys and partially encircling the cylinder, arms pivoting on the said shaft and having tightener-pulleys engaging said tapes, and an eccentric shaft having rods connecting it adjustably to the free ends of said pivoted arms.

27. In a web-perfecting printing-machine, the combination with the first impression-cylinder to the under side of which the sheets are fed, and means for seizing and holding the sheet, of a second impression-cylinder, an offset web enveloping the second impression-cylinder and carrying the printed sheets to the delivery device, and a series of driven tapes partially encircling the second impression-cylinder to hold the sheets to said web, substantially as described.

28. In a web-perfecting printing-machine, the combination with the second impression-cylinder, of an offset web having its dispensing-roll located below the level of that portion of the offset web on which the printed sheet is carried away from said second impression-cylinder, substantially as described.

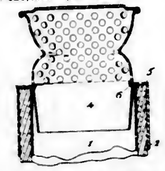
29. In a web-perfecting printing-machine, the combination with the second impression-cylinder, of an offset web having its dispensing-roll located below the level of that portion of the offset web on which the printed sheet is carried away from the said impression-cylinder, and placed at such distance from the printing-cylinders as to afford access to said cylinders, substantially as described.

30. In a web-perfecting printing-machine, the combination with the second impression-cylinder, of an offset web having its dispensing-roll located below the level of that portion of the offset web on which the printed sheet is carried away from said second impression-cylinder, and a removable guide-roll for supporting and guiding the offset web in its passage from the dispensing-roll to the second impression-cylinder, substantially as described.

31. In a rotary web-perfecting printing-machine, the combination with the second impression-cylinder, an accumulating cylinder, an offset web, and a guide-roll for the offset web located near the accumulating-cylinder, of a rotary brush, substantially as described.

32. The combination with a pair of cutting-cylinders, one of which is provided with a longitudinal groove and the other with a cutter-blade cooperating therewith, of a presser-spring arranged in front of the cutter-blade, and a brush placed behind the same, substantially as described.

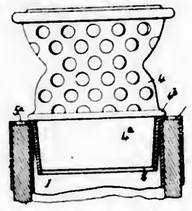
641,217. LAMP-BURNER. STEPHEN B. MORSS, Rahway, N. J., assignor to Frederick W. Keasbey, Morristown, N. J. Filed Feb. 26, 1897. Serial No. 625,088. (No model.)



Claim.—1. A central-draft-lamp thimble or cone having a perforated flange secured to and extending therefrom and adapted to extend over and rest upon a wick and arranged to be raised and lowered by the wick, substantially as described.

2. The combination of wick-tubes adapted to receive a wick between them, with a thimble or cone and a perforated incombustible flange or ring that is secured to the thimble or cone and greater in cross-section than the wick so as to rest upon the latter when it is raised, said flange being adapted to generate vapors when heated and in contact with the wick, the perforations in the flange serving to permit the vapors to rise to the flame, substantially as described.

641,218. LAMP-BURNER. STEPHEN B. MORSS, Rahway, N. J., assignor to Frederick W. Keasbey, Morristown, N. J. Filed Aug. 24, 1899. Serial No. 728,320. (No model.)



Claim.—1. A combined wick-tip and extinguisher comprising a perforated flange or ring adapted to rest upon a wick and having a guide secured to and depending from the same to direct its vertical movement when lifted by the wick, substantially as described.

2. A combined wick-tip and extinguisher comprising a metal flange or ring adapted to rest upon a wick and having a guide secured to and depending from the same to direct its vertical movemeht when lifted by the wick, substantially as described.

3. The combination of inner and outer wick-casing tubes, and a wick therebetween, with a tip comprising a metal flange having a guide integral therewith and depending withiu the casing, substantially as described.

4. The combination of a thimble or air-distributer with a metal flange or ring adapted to rest upon a wick and having a guide secured to and depending from the same, and means for supporting the thimble or air-distributer above said flange, substantially as described.

641,219. VARIABLE-SPEED GEAR. EDWARD J. MCCLELLAN, New York, N. Y., assignor to the Garvin Machine Company, of New York. Filed July 8, 1898. Serial No. 685,413. (No model.)

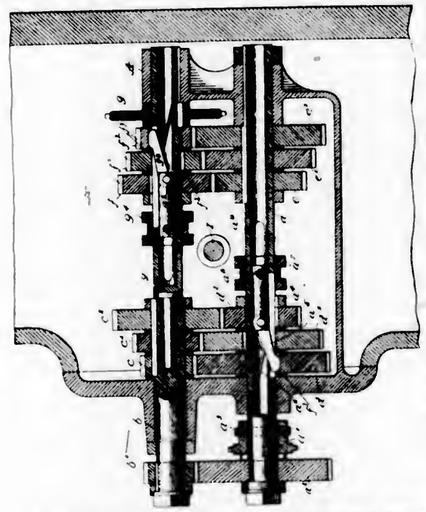
Claim.—1. In a variable-speed gear, two sets of loose gears each having gears of graduated diameters, a shifting key for each set whereby any one of a set may be locked to its shaft, a controlling device determining the position of the keys and two sets of connections between the controlling device and the two keys respectively whereby the motions of the former are imparted to the latter.

2. In a variable-speed gear, two sets of loose gears each having gears of graduated diameters, a shifting key for each set whereby any one of a set may be locked to its shaft, a controlling device acting simultaneously upon both keys and determining the position of the keys and independent connections between the controlling device and each key whereby the motions of the former are imparted to the latter.

3. In a variable-speed gear, two sets of loose gears each having gears of graduated diameters, a shifting key for each set whereby any one of a set may be locked to its shaft and a controlling device acting simultaneously but independently on each key to fix the position thereof.

4. In a variable-speed gear, the combination of two sets of gears of graduated diameters meshing with each other, one set being loose

on its shaft, a slidable key adapted to lock any one of the loose gears to the shaft, a slidable collar on the shaft, a pivoted arm loosely engaging said collar, a crank engaging and adapted to swing said arm, a pointed wheel carrying the crank and a rotary disk provided with projections arranged to engage with the points of the pointed wheel to impart motion thereto and so to the key, substantially as described.



5. In a variable-speed gear, two sets of loose gears each having gears of graduated diameters, a shifting key for each set whereby any one of a set may be locked to its shaft, a controlling device consisting of a disk provided with two sets of projections, two wheels adapted to be engaged and rotated respectively, by the sets of projections and connections between the wheels and the respective keys whereby the latter are moved by the wheels, substantially as described.

6. In a variable-speed gear, two sets of loose gears each having gears of graduated diameters, a shifting key for each set whereby any one of a set may be locked to its shaft, a controlling device consisting of a disk provided with two sets of projections, two wheels adapted to be engaged and rotated respectively, by the sets of projections, a crank carried by each wheel, two independent pivoted arms moved respectively by the cranks and connections between the respective arms and keys whereby the keys are moved by the arms.

7. In a variable-speed gear, the combination of two sets of gears mounted on parallel axes, two other sets mounted respectively on the same axes, one of each set being loose on their shafts, slidable keys adapted to connect any one of the loose gears to its shaft, a slidable collar connected with each key, a shaft arranged between and at right angles to the gear-axes, two levers pivoted on said shaft and respectively engaging the two collars and a controlling device mounted on the intermediate shaft and acting independently upon said levers, for the purpose set forth.

8. In a variable-speed gear, the combination of two parallel shafts carrying a plurality of intermeshing gears, a key inside of one shaft adapted to lock any one of its gears to the shaft, a third shaft carrying a controlling device determining which gear shall be locked, means whereby said third shaft may be rotated and an index disk or pointer attached to the shaft showing the speed for any position of the shaft, substantially as described.

9. In a variable-speed gear, the combination of the speed-changing devices, a clutch transmitting power to the gear and an interlocking connection between the two whereby the clutch is necessarily opened before the speed-changing devices can be operated.

10. In a variable-speed gear the combination of two sets of gears of graduated diameters meshing with each other, one set being loose on its shaft, two other sets of gears of graduated diameters also meshing with each other and one set being loose on its shaft and deriving their motion from the first two sets and a single mechanism for connecting or disconnecting any one of the loose gears in either set, substantially as described.

11. In a variable-speed gear, the combination of two sets of gears of graduated diameters meshing with each other, one set being loose on its shaft, two other sets of gears of graduated diameters also meshing with each other and one set being loose on its shaft and deriving their motion from the first two sets and means for simultaneously connecting or disconnecting any one of the loose gears in the respective sets, and a single operating-handle for controlling said means, substantially as described.

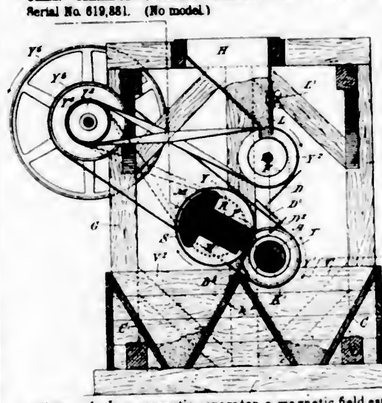
12. In a variable-speed gear the combination of a plurality of sets of wheels connected in a train, means whereby any particular wheel in two or more sets may be connected or disconnected from its shaft and a single controlling mechanism arranged to make all of said connections or disconnections, substantially as described.

13. The combination in a variable-speed gear, of a set of gears of graduated diameters engaging with another set of gears and a second double set of gears of various diameters engaging together and deriving their motion from the first group, and a single controlling mechanism for independently throwing any pair of each group of gears into simultaneous coöperative action, substantially as described.

14. The combination in a variable-speed gear, of a set of gears of graduated diameters engaging with another set of gears, and a second group of gears of various diameters connected with and deriving their motion from the first group, and suitable controlling mechanism operated by one handle, for throwing any pair of each connecting group of gears into simultaneous coöperative action, substantially as described.

15. The combination in a variable-speed gear, of a set of gears of graduated diameters engaging with another set of gears, and a second group of gears of various diameters connected with and deriving their motion from the first group, suitable controlling mechanism operated by one handle for throwing any pair of each connecting group of gears independently into simultaneous coöperative action, and an index connected to said controlling mechanism, automatically indicating the speed simultaneously with the corresponding movement of the operating-handle, substantially as described.

641,220. APPARATUS FOR MAGNETICALLY SEPARATING ORES. CLARENCE G. PAYNE, Stamford, Conn. Filed Jan. 20, 1897. Serial No. 619,881. (No model.)



Claim.—1. In a magnetic separator, a magnetic field established in an air-gap between two opposing magnetic surfaces, in combination with a separating-carrier provided with means for producing a series of line dispersions of the flux density within said field, and means for moving said carrier through the field on one side thereof.

2. In a magnetic separator, an electromagnet and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field, in combination with means, adapted to pass between the magnet and inducing body, for producing wide differences of magnetic potential within the field between the two sides thereof, and means for feeding ore into the field, substantially as and for the purpose described.

3. In a magnetic separator, an electromagnet and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field, in combination with a separating-carrier traveling through the field between the magnet and the inducing body, and provided with means for intercepting and converging the lines of force at a series of separated locations upon the surface of the carrier, thereby inducing wide differences of magnetic potential in the field on the two sides thereof, substantially as and for the purpose described.

4. In a magnetic separator, an electromagnet, and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field, combined with a plurality of wedge terminations arranged to travel through the magnetic field, to establish wide differences of magnetic potential in a magnetic field between the two sides thereof, substantially as and for the purpose described.

5. In a magnetic separator, an electromagnet, and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field, in combination with an inductive carrier traveling through the field and between the electromagnet and inducing body, said carrier being provided with a plurality of wedge terminations on the side thereof nearest the inducing body, whereby the lines of force are magnetically intercepted and converged at those projections of the carrier which at that time pass through the field.

6. In a magnetic separator, an electromagnet, and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field; a rotating carrier provided with devices acting to induce wide differences of magnetic potential in the field between the two sides thereof; means for rotating said carrier, and a non-magnetic carrier between the inducing body and the magnetic carrier, substantially as and for the purpose described.

7. In a magnetic separator, the combination of an electromagnet and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field; a rotating magnetic cylinder surrounding the electromagnet, said cylinder being provided with a plurality of devices for establishing wide differences of magnetic potential in the field between the two sides thereof; means for rotating said cylinder; and a non-magnetic cylinder surrounding the inducing body.

8. In a magnetic separator, the combination of an electromagnet, and an oppositely-disposed inducing body separated therefrom by an interval constituting a magnetic field; a rotating magnetic carrier intercepting the lines of force in the magnetic field, said carrier being provided with a plurality of devices for establishing wide differences of magnetic potential in the field between the two sides thereof; means for operating said carrier; a non-magnetic carrier surrounding the inducing body; and a plate attachable to the inducing body for adjusting the width of the magnetic field, substantially as and for the purpose described.

9. In a magnetic separator, an electromagnet, and an oppositely-disposed inducing body, separated therefrom by an interval constituting a magnetic field, forming jointly the circuit for the total magnetic flux generated by the electromagnet, in combination with a separating-carrier traveling through said field, and provided with means for inducing wide differences of magnetic potential in the field on the two sides thereof, by intercepting and converging the lines of force at a series of wedge terminations upon the surface of the carrier, substantially as and for the purpose described.

10. In a magnetic separator, an electromagoet and an oppositely-disposed inducing body, separated therefrom by an interval constituting a magnetic field, in combination with a separating-carrier traveling through the field between the magnet and the inducing-body and arranged to intercept and magnetically induce wide differences of magnetic potential in the field between the two sides thereof, by opposing to the surface of the inducing body on one side of the field, a series of wedge terminations upon the separating-carrier on the other side of the field, substantially as and for the purpose described.

11. In a magnetic separator, a magnetic field formed between two opposing magnetic surfaces, in combination with a separating-carrier, passing through said field on one side thereof, and provided with a series of inductively-magnetized wedge terminations and a non-magnetic carrier also passing through said field on the other side thereof, substantially as and for the purposes described.

12. In a magnetic separator, an electromagnet, and an oppositely-disposed inducing body, separated therefrom by an interval constituting a magnetic field, in combination with a separating-carrier passing through said field, and provided with a series of wedge terminations which are successively opposed to said inducing surface as they pass through the magnetic field, substantially as and for the purpose described.

13. In a magnetic separator, the combination of means for creating two unipolar magnetic fields upon the same circuit; combined with two series of wedge terminations, each series arranged to travel through one of said magnetic fields, for inducing wide differences of magnetic potential in each of the fields between the two sides thereof; and means for moving said wedge terminations through the fields, substantially as and for the purpose described.

14. The combination of a suitably-energized electromagnet, an armature so arranged with reference thereto as to form two unipolar fields upon the same magnetic circuit; a separating-carrier provided with means for producing a series of line dispersions of the magnetic flux density within both of said fields; a feed-carrier for conveying the material to be separated into both fields, and means for moving the separating and feed carriers through both of said fields, substantially as described.

15. The combination of a suitably-energized electromagnet, an armature so arranged with reference thereto as to form two unipolar magnetic fields upon the same magnetic circuit; a rotating cylinder surrounding the armature for conveying the material to be separated into both fields, and an inductively-magnetized carrier for removing the magnetic portion of the material, provided with means for causing a series of parallel wedge-shaped convergences of the lines of force in both of said fields.

16. The combination of a suitably-energized electromagnet, a cylindrical armature so arranged with reference thereto as to form two unipolar magnetic fields upon the same magnetic circuit; a non-magnetic cylinder surrounding the armature for conveying the material to be separated into both fields, and a carrier surrounding and arranged to rotate around the electromagnet, composed of a central non-magnetic portion, and two independent inductively-magnetized iron portions, each of which passes through one of the unipolar fields, and is provided with a series of parallel wedge terminations for removing the magnetic portion of the material attracted by the electromagnet.

17. The combination of a suitably-energized electromagnet; means for extending the cores of the electromagnet; an armature so arranged with reference thereto as to form two unipolar fields upon the same magnetic circuit; means connected with the armature for adjusting the width of the air-gap between it and the electromagnet; an inductively-magnetized carrier surrounding the electromagnet provided with a series of wedge terminations upon the outer surface of the carrier; and a non-magnetic cylinder.

18. The combination of a suitably-energized electromagnet; suitable pole-pieces for extending the cores of the electromagnet; an armature so arranged with reference thereto as to form two unipolar magnetic fields upon the same magnetic circuit; a removable plate attached to the armature for adjusting the width of the air-gap between it and the electromagnet; a rotating magnetic carrier surrounding the electromagnet, provided with wedge terminations and a non-magnetic screen surrounding the armature, both the magnetic carrier and the non-magnetic carrier being arranged to rotate through both of said fields.

19. The combination of a suitably-energized electromagnet provided with suitable pole-pieces for extending the cores thereof, a rotating iron separating-carrier surrounding said electromagnet provided with wedge terminations upon its outer surface; an armature so arranged with reference to the electromagnet as to form two unipolar fields upon the same magnetic circuit, plates of different thicknesses attachable to the armature for adjusting the width of the air-gap between it and the electromagnet and a non-magnetic feed-screen surrounding the armature arranged to rotate through both of said fields.

20. The combination of an electromagnet composed of two cores suitably energized connected by a back piece extending beyond the cores and terminating in hollow shafts through which the wires conveying the current are admitted; suitable pole-pieces for extending the cores of the electromagnet; a separating-carrier surrounding said electromagnet rotating on the shafts of said extending back piece, provided with wedge terminations upon its outer surface; an armature terminating at both ends in shafts, so arranged with reference to the electromagnet as to form two unipolar fields upon the same magnetic circuit; plates of different thicknesses attachable to the armature for adjusting the width of the air-gap between it and the electromagnet; and a non-magnetic feed-screen surrounding the armature arranged to rotate on the shaft extensions of the armature through both of said unipolar fields.

21. The combination of an electromagnet composed of two cores suitably energized connected by a back piece extending beyond the cores and terminating in shafts; suitable pole-pieces for extending the cores of the electromagnet; a separating-screen rotating on said extended back-piece shafts composed of two magnetic portions connected by a central non-magnetic portion, the magnetic portions being provided with wedge terminations upon their outer surfaces; an armature, so arranged with reference to the electromagnet as to form two unipolar fields on the same magnetic circuit, provided with shaft extensions at each end, plates of different thicknesses attachable to the armature for adjusting the width of the air-gap between it and the electromaguet; a non-magnetic feed-screen surrounding the armature and rotating on said shafts formed by the extensions of the armature; and means for rotating said screens.

641,221. LAMP-SHADE. REINHARD W. PITTMAN, New York, N. Y. Filed Aug. 9, 1898. Serial No. 688,172. (No model.)

Claim.—1. The combination, with a shade adapted to partially encircle an incandescent lamp and having an integral neck portion also adapted to partially encircle one part of said lamp, of means for removably securing said shade in position and having one part thereof rigidly secured to one part of said neck portion and another part thereof detachably secured to another part of said neck portion, said

means and integral neck portion coöperating to completely encircle said lamp; and means for maintaining a part of said shade out of contact with the lamp.



2. The combination, with a shade adapted to partially encircle an incandescent lamp and having an integral neck portion also adapted to partially encircle one part of said lamp, of a spring for removably securing said shade in position and having one part thereof rigidly secured to one part of said neck portion for swinging movement and another part thereof detachably secured to another part of said neck portion, said means and integral neck portion coöperating to completely encircle said lamp; and means for maintaining a part of said shade out of contact with the lamp.

3. The combination, with a shade having an integral neck portion adapted to partially encircle one part of a lamp, of a coiled spring having one part thereof rigidly secured to one edge of said neck portion and having a pair of its coils receiving and overlapping another edge of said neck portion for detachably securing said shade in position.

4. The combination, with a lamp-shade having an integral neck portion adapted to partially encircle one part of a lamp, of a coiled spring rigidly secured to one part of said shade and having its coils adapted for removable attachment to another part of said shade and provided with a finger-piece formed adjacent to the detachable end of said coils.

5. The combination, with a rotatable lamp-shade having an integral neck portion adapted to partially encircle one part of a lamp and provided with a flaring ear, of means automatically adjustable in a circular path for removably maintaining said shade in rotatable engagement with the lamp and comprising a coiled spring rigidly secured at one end to one edge of said neck portion for swinging movement and having its coils adjacent to its other end adapted for removable attachment to said flaring ear.

6. The combination of a substantially semicircular lamp-shade having a neck portion; a coiled spring rigidly secured to one part of said shade and removably secured to another part thereof for maintaining said shade in position on a lamp; and means free of connection with said neck portion for adjusting the shade toward and from the lamp.

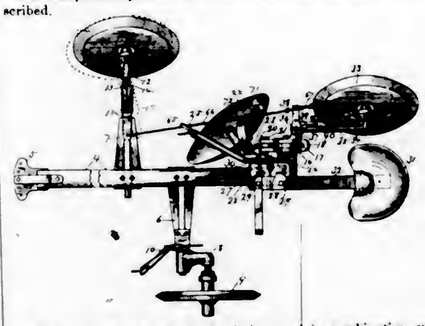
7. The combination of a semicircular lamp-shade having a neck portion adapted to engage the glass neck of an incandescent bulb; means for securing said shade in position directly on said bulb; and independent means adapted to contact with bulb for adjusting one part of said shade toward or from that portion of the lamp having the greatest diameter.

8. The combination of a lamp-shade comprising a substantially semicircular, conically-shaped shield having its apex adjacent to that portion of the lamp having the largest diameter, and having a neck adapted to partially encircle the lamp, said neck having a pair of flaring ears; a coiled spring rigidly secured to one of said ears and detachably secured to the other of said ears and adapted to partially encircle the lamp; and an adjusting device carried by said shield and adapted to engage the lamp adjacent to that portion thereof having the largest diameter, thereby to move the same toward or from the lamp-bulb.

9. The combination of a lamp-shade comprising a conically-shaped, semicircular shield; means for securing the same in position on a lamp, whereby said shade has a rotary adjustment relatively thereto; and means, carried at the apex of said member, for laterally adjusting the same relatively to the lamp.

641,222. TONGUELESS DISK WHEEL-PLOW. STALEY D. POOLE, Moline, Ill., assignor to the Deere & Company, same place. Filed Sept. 10, 1898. Serial No. 690,672. (No model.)

Claim.—1. The combination, in a wheel-plow, of a plow beam or frame, a plow supported thereby, supporting-wheels, two of which are located, one in advance of the plow, and the other in rear thereof, and both of which are caster-wheels, a movable link connection between said caster-wheels whereby upon the turning of the forward end of said beam or frame the control of said forward wheel is effected by the rearward wheel, and means under control of the operator interposed in said link connection for swinging the front caster-wheel independently of the rear caster-wheel, substantially as described.



2. In a tongueless, disk, wheel-plow, and in combination, substantially as described, a plow-frame, a plow mounted thereon, supporting-wheels, two of which are located, one in advance of the plow and the other in rear thereof, and both of which are caster-wheels, crank-arms projecting radially from the pivotal shafts on which said wheels caster, and a link connecting said crank-arms, and comprising a rod pivotally connected at one end with one of said crank-arms, a locking hand-lever pivotally connected at its end with the other crank-arm and above its end with said rod, and a rack-bar mounted on said rod, whereby the dog on said hand-lever may engage therewith after adjustments to lengthen and shorten said link and thereby guide the plow.

3. The combination in a wheel-plow, of a plow beam or frame, a front caster-wheel, a rear caster-wheel, means whereby upon the turning of the forward end of the beam or frame the control of the said forward wheel is effected by the rearward wheel, and means for effecting a swinging movement of said wheels under the control of the operator.

4. The combination in a wheel-plow, of a plow beam or frame, a front caster-wheel, a rear caster-wheel, means whereby upon the turning of the forward end of the beam or frame the control of the said forward wheel is effected by the rearward wheel, and crank-arms and a hand-lever for effecting a swinging movement of said wheels under the control of the operator.

5. In a wheel-plow, and in combination, substantially as described, a plow frame, or beam, supporting-wheels, a standard rigidly fixed to said plow frame or beam, a link pivotally connected at its rear end with said fixed standard, a standard pivotally connected at its lower end with the forward end of said link, a plowing-disk mounted on said pivoted standard, a ratchet-bar adjustably mounted on said plow frame, or beam, and a bent, or elbow-shaped hand-lever pivotally connected at one end with said pivoted standard and pivotally connected at its bend with said ratchet-bar whereby adjustments of said ratchet-bar will adjust said pivoted standard at different angles, and thereby adjust the inclination of said disk substantially as described.

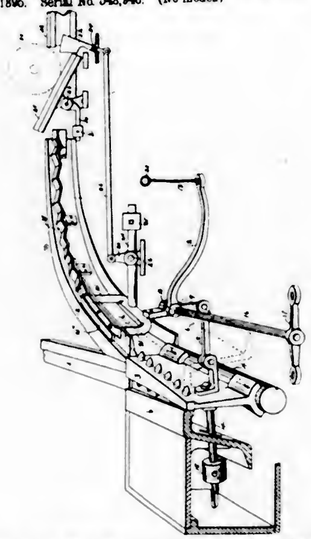
6. In a disk wheel-plow, and in combination, substantially as described, a plow-beam 4, fixed standard 17, link 18, pivoted standard 20, disk 22, rack-bar 26 adjustably mounted on the beam 4, and bent hand-lever 25 pivotally connected at its bend with said rack-bar, and at its shorter end with the pivoted standard 20, whereby adjustments of said rack-bar will adjust the pivoted standard 20 at different angles and thereby adjust the inclination of the disk 22 substantially as described.

7. In a tongueless wheel-plow, and in combination, substantially as described, a plow-frame, a plow mounted thereon, supporting-wheels, one of which is a caster-wheel located to run in the furrow in rear of the plow, and a set-bolt, or stop, adjustably seated in said plow-frame to contact with the arm on which the caster-wheel is journaled.

8. In a tongueless wheel-plow, and in combination, substantially as described, a plow-frame, a plow mounted thereon, supporting-wheels, two of which are located, one in advance of the plow and the other in rear thereof, and both of which are caster-wheels, crank-arms projecting radially from the pivoted shafts on which said wheels caster, a link pivotally connected with said crank-arms, and a set-bolt, or stop, adjustably seated in said frame to contact with the arm on which the caster-wheel is journaled.

9. In a disk, wheel-plow, a combination comprising a furrow-forming disk 22, a standard 20, a journal 44 having a stud-bolt 42 with enlargements 43 and 52 and a lug 46 on one of its ends, a hub 54, a bearing 59, a cap 47, bolts 48, oil-inlet 62, bolt 63, and nut 45, all constructed and combined substantially as described and for the purpose specified.

641,223. RAILROAD SWITCHING DEVICE. JOSEPH Y. PORTER, Cleveland, Ohio, assignor to James W. Morrison, Detroit, Mich. Filed May 11, 1896. Serial No. 543,946. (No model.)



Claim.—1. In a derailing-switch, the combination with a suitable switch, of a depressible portion of track, a catch for holding the same, and operating-levers connecting with said track, a termination of such connecting mechanism being placed in the path of travel of the car-wheel, whereby the catch will be released and the depressible portion of the track deprived of its support to derail a car, as set forth.

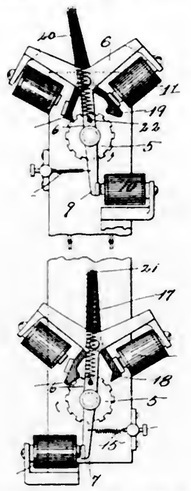
2. In a derailing-switch, the combination with a switch-point, adapted to be held normally in one position and to be moved in the opposite position, of a depressible portion of track, a catch for holding the same, and operating-levers connecting with said track, a termination of such connecting mechanism being placed in the path of travel of the car-wheel, whereby the catch will be released and the depressible portion of the track deprived of its support to derail a car, as set forth.

3. The combination with a section of track, of a depressible section pivoted in the line of said track, mechanism for maintaining said depressible section in normal position, and mechanism located in advance of said depressible section and connected thereto by suitable levers, whereby said depressible section is automatically operated to derail a car, as set forth.

641,224. ELECTRIC STREET-INDICATOR. JOSEPH Y. PORTER, Detroit, Mich., assignor to James W. Morrison, same place. Filed Dec. 17, 1896. Serial No. 616,102. (No model.)

Claim.—1. In an electric street-railway system the combination of hangers supported in different planes from a trolley-wire, contact-sleeves on the trolley-pole arranged to contact electrically with said hangers, a street-indicating mechanism, a magnet operating said indicating mechanism in one direction, and two sets of magnets one for each end of the line, and each set in circuit with a contact-sleeve, operating to automatically reverse the indicating mechanism, so that it may be operated in the opposite direction.

2. In an electrical street-railway system, the combination of a series of hangers supported from a trolley-wire in the same plane, a series of contact-sleeves arranged on the trolley-pole to make electrical contact with said hangers, street-indicating mechanism, magnet in circuit with said sleeves for operating said indicating mechanism, a hanger supported from the trolley-wire, at one end of the line, in a different plane, a second contact-sleeve on the trolley-pole, and a set of magnets operating to automatically reverse the indicating mechanism when the car has reached the end of the line, said set of magnets being connected with said contact-sleeve as set forth.



3. In an automatic electric street-indicator, the combination of the street-indicating band and drums, the Y-shaped levers provided with suitable armatures at their lower ends, electromagnets disposed opposite said armatures, electromagnets carried by said levers, and bifurcated pawls mounted on said levers and provided with suitable armatures, whereby the street-indicating band is moved step by step and reversed at the end of the line.

4. In an automatic electric street-indicator, the combination of a display-band, a Y-shaped lever, provided with an armature, mounted on the shaft of one of the drums carrying the band, an electromagnet disposed opposite said armature, a ratchet-wheel mounted on the shaft carrying the lever, a pawl pivoted in said lever and adapted to engage said ratchet-wheel, and magnets carried by the lever and arranged to operate the pawl.

5. In an electric street-railway system, the combination of hangers supported in different planes from a trolley-wire, contact-sleeves on the trolley-pole arranged to contact electrically with said hangers, a street-indicating mechanism, a magnet operating said indicating mechanism in one direction, and two sets of magnets one for each end of the line, operating to automatically reverse the indicating mechanism, so that it may be operated in the opposite direction.

6. In an electric street-railway system, the combination of a series of hangers supported from a railway-wire in the same plane, contact-sleeves arranged on the trolley-pole to make electrical contact with said hangers, a street-indicating mechanism, magnets operating said indicating mechanism, a hanger supported from the trolley-wire, at one end of the line, in a different plane, and two sets of magnets operating to automatically reverse the indicating mechanism, when the car has reached the end of the line.

641,225. DETERGENT. CHARLES E. POSTLETHWAITE, London, England. Filed Oct. 9, 1899. Serial No. 733,092. (No specimens.)

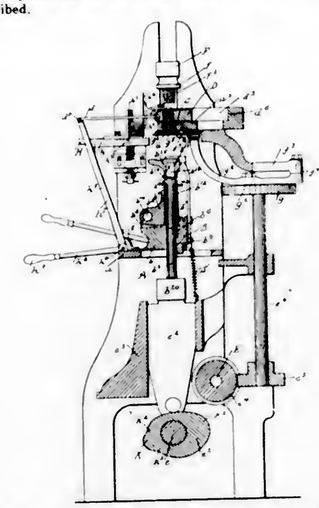
Claim.—1. A cleansing compound for various surfaces, consisting of a mixture of oxalate of ammonia, boracic acid, water and glycerin, combined in or in about the proportions stated, substantially as hereinbefore described.

2. A cleansing compound for various surfaces consisting of a mixture of oxalate of ammonia, boracic acid, water and glycerin in or in about the proportions stated, having combined therewith a quantity of the flour of a cereal, preferably wheat, substantially as hereinbefore described.

641,226. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass., assignor, by mesne assignments, to the McKay Shoe Machinery Company, of Maine. Filed Feb. 20, 1892. Serial No. 422,318. (No model.)

Claim.—1. In a heel-attaching machine, the combination of a movable nail-carrier, a top-lift-feeding slide connected with the nail-carrier and hand-operated means such as a lever or handle for simul-

taneously moving the nail-carrier and top-lift slide, substantially as described.



2. The combination in a heel-nailing machine of a nail holder or distributer, a nail-carrier movable from the nail holder or distributer to the nail-driving devices, a movable top-lift holder and spanker, a top-lift-feed slide, a box for holding top lifts in stack in operative relation with the top-lift-feeding slide, a connection between the top-lift-feeding slide and nail-carrier and hand devices such as a handle or lever for simultaneously moving the nail-carrier from the nail-driving devices to the nail holder and distributer and back again and the top-lift feeder from the top-lift stack to the top-lift spanker and holder and back again, substantially as described.

3. The combination in the heel-attaching machine of the top-lift slide H and the bent lever h^3 connected with the slide at its upper end and having the handle h^5 and a retracting-spring substantially as described.

4. The combination in a heel-attaching machine of a last or work-support, a movable pressure-head for imparting movement to the last or work-support, the nail-driving devices, a nail-carrier and a top-lift-feeding slide coupled together to be simultaneously moved by a lever, handle or other hand-actuated device, a spanker and top-lift centerer, substantially as described

5. The combination in a heel-attaching machine of the last or work-support, a pressure-head for imparting movement to the jack-spindle and means such as a cam mounted beneath said head for giving it two reciprocations during one reciprocation of the nail-driving devices, said reciprocating nail-driving devices, a nail-carrier movable into operative position before the machine is started and held in such position during the operation of the machine and a movable top-lift spanker and holder, as and for the purposes described.

6. The combination in a heel-nailing machine of the jack-base b, the section b^3 of the jack-spindle carried thereby and shoe centering and holding devices secured thereto to be vertically movable therewith with the movable jack-post b^9, the section b^{13} of the jack-spindle carried thereby and the last or work-support mounted thereon, substantially as described.

7. The combination in a heel-attaching machine of the shoe holders and centerers m m', their pivoted actuating and supporting arms m^3 m^4 and the nuts m^{15} m^{16} and right and left threaded screw m^{17} with the pivoted or hinged jack-post b^9 and its jack-spindle b^{13} and last or work-support carried by said spindle, substantially as described.

8. The combination of the table of the machine, the jack-base b, horizontally adjustable thereon and means such as the screw b' and nut b^2 for adjusting it, a section b^3 of the jack-spindle carried thereby and projecting below the said base, shoe holding and centering devices attached to said spindle b^3, the hinged or pivoted jack-post b^9, the section b^{13} of the jack-spindle carried thereby, a last or work-support mounted thereon and the vertically-movable pressure-head to act against the lower end of the section b^3 of the jack-spindle, the templet C and the nail-driving devices substantially as described.

9. The combination of the spindle b^3, the shoe holding and centering devices carried thereby, the section of the jack-spindle b^{13}, the last or work-support carried thereby, the pressure-head for moving the jack-spindle in one direction and the spring S attached to th shoe-holders or their holding-block, as and for the purposes described.

10. The combination of the templet C, the pressure-head and the intermediate jack-spindle, last or work-support carried thereby and shoe centering and holding devices carried by the jack-spindle with the jack-spindle-lifting lever as and for the purposes described.

11. The combination of the pressure-head operating against one end of the jack-spindle, the templet C, the jack-spindle, a last or work-support mounted thereon and the spindle-lifting lever R, substantially as described.

12. The combination of the last or work-support, the shoe-holders, their actuating and supporting arms, devices for opening and closing the same and the adjustable lever m^{17} as and for the purposes described.

13. The combination of the hinged or pivoted jack-post b^9, the spindle carried thereby, and last or work-support with a jack-post holder for holding it in vertical position as and for the purposes described.

14. The combination of the hinged or pivoted jack-post b^9, the spindle carried thereby, and last or work-support with a jack-post holder for holding it in vertical position and jack-post holder for holding it in an inclined position, substantially as described.

15. The combination of the hinged or pivoted jack-post b^9, the jack-spindle b^{13} carried thereby, a last or work-support mounted thereon and a latch or holding device to hold the jack-post both in its inclined position and in its vertical position, substantially as described.

16. The combination of the pivoted jack-post b^9 the jack-spindle b^{13} carried thereby, the last or work-support, the shaft or pivot b^{11} to which the jack-post is fastened and which turns therewith a latching projection upon said pivot and its engaging spring o, shaped as specified, substantially as described.

17. The combination of the pivoted or hinged jack-post b^9, the jack-spindle carried thereby, the last or work-support upon said spindle and a handle or lever P for moving the jack-post upon the pivot or hinge, substantially as described.

18. The combination of the jack-post b^9, the jack-spindle carried thereby, a last or work-support mounted thereon, the pivot or trunnions b^{11} of the jack-post and the lever P attached to one of the trunnions or pivots as and for the purposes described.

19. The combination of the pivoted or hinged jack-post b^9 the jack-spindle b^{13} carried thereby, a last or work-support mounted thereon, and the adjusting-screw n as and for the purposes described.

20. The combination of the last or work-support having a spindle-hole elongated crosswise it, a spindle having a stem to enter said hole and a holding-stud extending from the side of the spindle through a hole in the side of the last for holding the last to the spindle but not to prevent sidewise movement thereof upon the spindle as and for the purposes described.

21. The combination of the last or work-support with the opening and closing arms m^3 m^4 having the horizontal extensions m^5 provided with ways m^6 and slots with the blocks m^7 having their curved inner faces and tongues to fit said ways and locking-screws m^9 as and for the purposes described.

22. The combination in a jack of the blocks M M' undercut upon their inner edges and a facing of rubber or other material applied to such undercut surfaces whereby the overlapping portions of the block serve to hold the rubber or facing as against a vertical strain, as and for the purposes described.

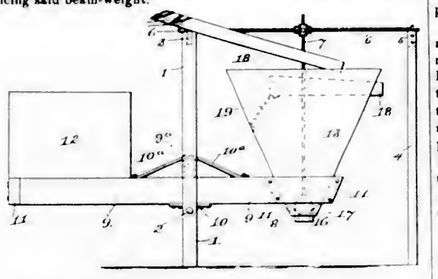
23. The combination in a heel-nailing machine of shoe-centering devices and a last or work-support between the same and laterally movable by them as and for the purpose described.

24. The combination in a heel-nailing machine of a templet, a last or work-support, a gang of drivers and a top-lift-applying device and means for moving the last or work-support toward and from the templet and toward and from the top-lift-applying device during a single reciprocation of the nail drivers, as and for the purpose set forth.

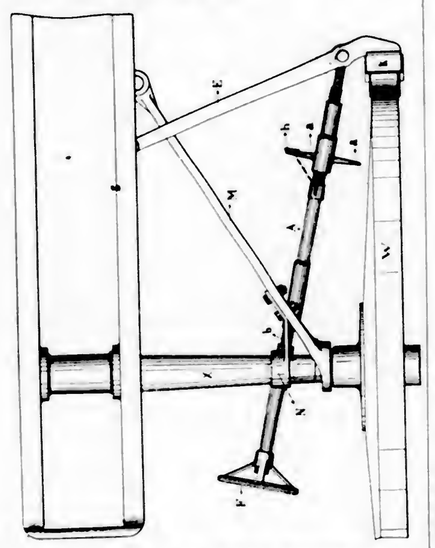
641,227. AUTOMATIC SAND AND WATER SEPARATOR AND SAND-WASHER. JOHN F. REINERT, Elgin, Ill. Filed Sept. 2, 1899. Serial No. 729,348. (No model.)

Claim.—1. The combination, with the balanced tank having a separate sand and water discharge, of the water-receptacle secured in and to the tank to hold the water from the sand as it rises in the tank, and connected to the water-discharge, and a fixed or stationary valve to open and close the sand-discharge by the balanced movement of the tank.

2. In an automatic sand and water separator and sand-washer, the combination, with the uprights, the cross-shaft, the horizontal beams having a weight on one end and pivoted or journaled centrally on the shaft to swing vertically, the horizontal bar secured to the uprights, and the rod depending from the said bar and having a stationary valve, of the tank carried by the other end of said beams and having a sand-discharge independent of the water-discharge, the water-receptacle suspended in and over the upper portion of the tank to hold the water separate from the sand and discharge it through the side of the tank, and a valve-seat in the sand-discharge which is opened and closed with said valve by the sand in the tank overbalancing said beam-weight.



641,228. WHEEL-BRAKE FOR FIELD-GUNS. ADOLF RESOW, Essen, Germany, assignor to Fried. Krupp, same place. Filed Nov. 26, 1898. Serial No. 697,520. (No model.)

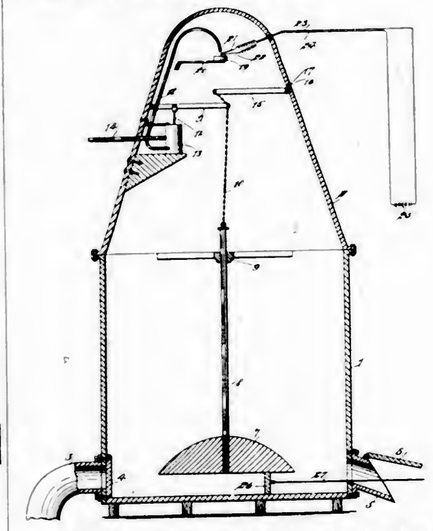


Claim.—1. A wheel-brake for field-guns embodying the combination of a brake-arm pivoted to the carriage and carrying a brake-shoe, a brake-rod pivoted to the brake-arm and consisting of an outer part, a middle part, and an inner part, the outer and inner parts being connected by a hand-wheel with right and left hand screw-threads, engaging corresponding threads of the inner and outer part, which parts are secured against rotation, so that by turning the hand-wheel, the aggregate length of the three parts is altered; and a second hand-wheel mounted on a screw-shank secured against longitudinal motion, the thread of the shank engaging a corresponding thread of the outer part of the brake-rod, the second hand-wheel actuating the brake when rotated, and securing the outer end of the brake-rod against longitudinal motion, when the hand-wheel forming the middle part of the brake-rod is rotated, substantially as and for the purpose specified.

2. In a wheel-brake for field-guns, a brake-arm E pivoted to the carriage and carrying a brake-shoe k; a brake-rod consisting of an inner, an outer, and a middle part, the inner threaded part pivoted at one end to the brake-arm E; the outer part secured against rotation and threaded at both ends; the middle part consisting of a hand-wheel with extensions, one with right-hand thread, the other with left-haod thread, one of the threaded ends engaging the threaded part of the inner part of the brake-rod, and the other engaging the corresponding thread of the outer part of the brake-rod, so that by rotating this haod-wheel, the brake is actuated; and a hand-wheel F with a screw-shank b held against longitudinal motion in a fixed journal, the screw-shank engaging the outer part of the brake-rod, so that by rotating the hand-wheel F, the three parts of the brake-rod are moved bodily to actuate the brake, substantially as and for the purpose specified.

3. In a wheel-brake for field-guns, the combination of a brake-arm E pivoted to the carriage and carrying a brake-shoe k; a brake-rod consisting of an inner part D pivoted at one end to the brake-arm E and threaded at the other end; an outer part C secured against rotation by the slotted shank F of the part D and by the pin G passing through the slot; a middle rotatable sleeve B with extensions having right and left hand threads engaging corresponding threads of the parts C and D of the brake-rod; a screw-shank b with a hand-wheel F at its outer end, the screw-thread of the shank engaging a corresponding thread of the part C of the brake-rod, and a fixed bearing holding the shank b and hand-wheel F against longitudinal motion, substantially as and for the purpose specified.

641,229. PUMP. ALVA L. REYNOLDS, Santa Ana, Cal. Filed May 17, 1899. Serial No. 717,178. (No model.)



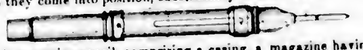
Claim.—1. A pump, comprising a vacuum-cylinder, having a valve-controlled inlet and a valve-controlled outlet, a float arranged in the cylinder, an oil-pump arranged in the cylinder and having operative connection with the float, an oil-receiver in the cylinder, means for igniting the oil therein, and an air-inlet, controlling valve having connection with the float, substantially as specified.

2. A pump, comprising a vacuum-cylinder, having a valve-controlled inlet and a valve-controlled outlet, a float movable vertically in the cylinder, a stem extended from the float, a spider in the cylinder and through which the stem is movable, an oil-pump in the cylinder and having operative connection with the float-stem, a firing-pan in the cylinder and adapted to receive oil from the oil-pump, electrodes arranged adjacent to the pan, a source of electricity with which the electrodes are connected, and an air-inlet-controlling valve adapted to be operated by the float, substantially as specified.

3. A vacuum-pump, comprising a cylinder having a valve-controlled inlet and a valve-controlled outlet, a float in the cylinder, an oil-pump in the cylinder, a firing-pan in the cylinder, a pipe leading from the pump to the firing-pan, electrodes arranged over the firing-pan and having connection with a source of electricity, a lever to which the oil-pump piston is connected, a flexible connection between said lever and the stem of a float, and another lever having a valve at its end for controlling an air-inlet, the said other lever also having connection with the float-stem, substantially as specified.

641,230. MAGAZINE-PENCIL. GEORGE W. RICE and GUSTAVE ZERRMANN, New York, N. Y. Filed May 8, 1899. Serial No. 716,151. (No model.)

Claim.—1. A magazine-pencil, comprising a casing having an eccentric opening at one end for the projection of the leads, a magazine having lead-holder receiving pockets or guides and mounted to turn in said casing; lead holders carried in the magazine and independently movable, and means for engaging said holders to project them as they come into position, substantially as described.



2. A magazine-pencil, comprising a casing, a magazine having guiding-pockets for receiving the lead-holders, lead-holders lying one in each of said pockets, a casing inclosing the magazine and turnable thereon, and a slide adapted to engage the holders to project them as they are turned into position, the casing having a slot accommodating a member of the slide, substantially as described.

3. A magazine-pencil, comprising a casing having an eccentric opening in one end for the projection of the leads, a magazine mounted to turn in said casing and having guiding-pockets for the lead-holders, lead-holders slidable in the pockets in the magazine and independently movable, means for engaging said holders to project them as they come into position, and a registering lock for the casing and magazine, substantially as described.

4. A magazine-pencil, comprising a casing, a magazine mounted to turn within said casing and having separate pockets for the lead-holders, independently-movable lead-holders in said pockets, a registering catch or lock holding the casing and magazine in proper position for using each holder, and a slide adapted to engage the holders to project them as they are turned into position, the casing having a slot accommodating a member of the slide, substantially as described.

5. A pencil, comprising a casing having an eccentric opening for the projection of the leads, a magazine mounted to turn in said casing and having slots for receiving the lead-holders, lead holders carried in the pockets of the magazine and independently movable, means for engaging said holders to project them as they come into position, and a spring-held catch and ratchet holding the casing and magazine in registry for the projection of the holders, substantially as described.

6. A magazine-pencil, comprising a casing, a magazine mounted to turn within said casing and having cells or pockets receiving the lead-holders, independently-movable lead-holders in said pockets, a spring-held catch and ratchet, holding the casing and magazine in registry for the projection of the holders, and a slide adapted to engage the holders to project them as they are turned into position, the casing having a slot accommodating a member of the slide, substantially as described.

7. A magazine-pencil, having a series of tubes secured together and having each a slot in its outer side, a lead-holder in each tube, and means for engaging each holder to project it through the slot in its tube, substantially as described.

8. A magazine-pencil, having a series of tubes secured together and having each a slot in its outer side, and a lead-holder in each tube having a transverse notch, a ring adapted to turn and slide outside of the magazine and having a pin adapted to engage the notches in the holders, whereby the holders may be projected, substantially as described.

9. A magazine-pencil, comprising a casing having a longitudinal slot therein, and an eccentric end opening for the projection of the leads, a magazine mounted to turn in the casing and containing a series of tubes secured together and having each a slot in its outer side, a lead-holder in each tube, and means for engaging each holder to project it through the slot in its tube, substantially as described.

10. A magazine-pencil, comprising a casing having a longitudinal slot therein, and an opening for the projection of the leads, a magazine mounted to turn in the casing and containing a series of tubes secured alongside of each other and having each a slot in its outer side, a lead-holder in each tube, means for engaging each holder to project it through the slot in its tube, and a spring-catch and notched ring, holding the casing and magazine in proper registry to engage and project the different holders, substantially as described.

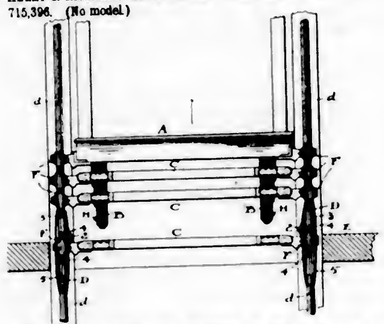
11. A magazine-pencil, comprising a casing having a sloping or beveled end integral therewith and an eccentrically-located hole at the extremity of its bevel for the projection of a lead, a revoluble magazine within the casing having plural leads therein, and means for positively engaging and projecting the leads when brought into registry with the hole in the casing, substantially as described.

12. A magazine-pencil, comprising a casing, a magazine mounted to turn within the casing, independently-movable lead-holders in the magazine, a slide having means for engaging and projecting the lead-holders as they are rotated, a casing extension at the upper end of the pencil secured to the magazine and turnable on the casing-body, a toothed ring and a spring-held catch engaging it, one carried by the magazine and the other by the casing-body and adapted to hold the magazine with the lead-holders in engagement with the slide whereby they may be projected, substantially as described.

13. A magazine-pencil, comprising a magazine and a series of lead-holders, the magazine having independent sliding and guiding attachment with each lead-holder, a casing inclosing said magazine and having a holder at one end for the projection of the leads, and means for positively engaging and projecting any desired lead, substantially as described.

14. A magazine-pencil, comprising a magazine, and a series of lead-holders therein, the magazine having independent sliding and guiding attachment with each lead-holder, a casing inclosing said magazine and having an eccentric hole at one end for the projection of the leads and also having a longitudinal slot in one side, and an exterior slide movable on the casing and having a pin entering said slot to engage the lead-holders to project them, substantially as described.

641,281. HATCH-DOOR MECHANISM FOR ELEVATORS. HARRY C. RICHARDS, Cleveland, Ohio. Filed May 3, 1899. Serial No. 715,396. (No model.)



Claim.—1. A holding and releasing device for elevator hatch-doors comprising a body and a frame in a separate piece therein, arms pivotally supported in said frame and projections on said arms normally extending beyond the surface of said body, and springs to spread the said arms, substantially as described.

2. A device for elevator hatch-doors consisting of a substantially cylindrical body, two sets of oppositely-disposed arms pivotally supported in said body and having projections near their ends extending outward beyond the said body, and a spring to spread each set of arms and hold them normally apart, substantially as described.

3. A device for elevator hatch-doors comprising a body and a two-part frame within the body, arms pivoted in said frame and having projections extending outward beyond the frame, and means to keep said arms normally extended, substantially as described.

4. A device for elevator hatch doors comprising a substantially cylindrical body, a separable frame removably fixed within said body, two sets of arms pivoted in said frame, and means to keep said arms in each set normally spread, substantially as described.

5. A device for elevator hatch-doors having a body part, a separable frame removably fastened therein, and arms pivoted in pairs in the ends of said frame and having their proximate extremities connected, substantially as described.

6. A device for elevator-hatches comprising a body part, a removable frame within said body, arms pivoted in pairs in said frame, and means to spread said arms, in combination with an elevator hatch-door having means to engage said arms, substantially as described.

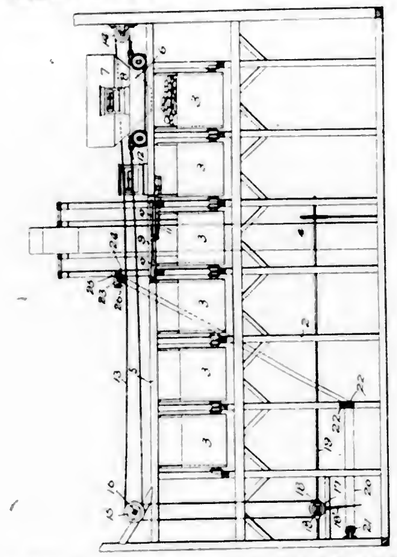
7. An elevator hatch-door having an engaging ring, in combination with fixed supporting-bodies in the corners of the shaft, a removable frame in each body, and arms pivoted within said frame constructed to engage the corresponding ring on the hatch-door, substantially as described.

8. In elevator hatch-door mechanism, the combination of a hatch and a bolt thereon, a carrier on the car having a pivoted catch constructed to be engaged by said bolt between the pivot-point and hook of said catch, and fixed means to be engaged by said bolt as the bolt travels up and down, substantially as described.

9. In hatch-door mechanism the combination of a carrier having a pivoted catch pivoted at one end and a hook on the other, and a hatch-door having a sliding bolt engaging said catch between its hook and pivot, and a stationary projection to engage and operate said bolt, substantially as described.

10. In hatch mechanism for elevators, a hatch having in each corner a fixed body and two pairs of arms pivoted at one end in said body and at their opposite ends operatively connected with each other, and said arms having laterally-projecting lugs exposed without said body and spaced apart to enable a platform to be engaged between them, substantially as described.

641,232. PORTABLE SCALE AND HOPPER FOR COALING-STATIONS. DIGHTON A. ROBINSON, Minneapolis, Minn. Filed Jan. 28, 1898. Serial No. 668,317. (No model.)



Claim.—1. The combination, with a framework 2 and an elevator 4, of a series of movable coal-pockets 3 supported in said framework, a track arranged above said coal-pockets, a car movable on said track and at right angles to the line of movement of said coal-pockets, a hopper carried by said car to receive coal from said elevator, and means for moving said car back and forth upon said track to distribute the coal to a series of coal-pockets, substantially as described.

2. The combination, with a frame 2 and an elevator 4, of a series of coal-pockets 3 mounted on said frame, and movable back and forth on tracks provided thereon, a track arranged above said coal-pockets at right angles to the line of travel of the same, a car adapted to travel over said track, a hopper having an open bottom carried by said car and adapted to receive coal from said elevator and distribute it among the series of coal-pockets, substantially as described.

641,233. WAVE-MOTOR. CORNELIS F. A. ROELL, Los Angeles, Cal., assignor of one-half to John G. Orth, same place. Filed Mar. 31, 1898. Serial No. 675,988. (No model.)

Claim.—1. In a wave-motor, the combination of a power-wheel, slats pivoted to the power-wheel, bars for connecting said slats, means for supporting the power-wheel and mechanism for transmitting power from the power-wheel, substantially as set forth.

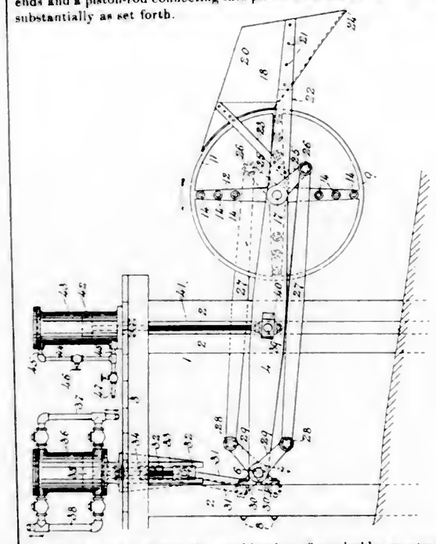
2. In a wave-motor, the combination of a power-wheel, means for adjustably supporting the power-wheel, and a hood located in advance of the power-wheel in order to give direction to the water passing onto the power-wheel, substantially as set forth.

3. In a wave-motor, the combination of a power-wheel, means for supporting the same, means for transmitting power from the power-wheel, a hood located in advance of the power-wheel, said hood being inclined downwardly and outwardly in order to give direction to the water passing to the power-wheel, substantially as set forth.

4. In a wave-motor, the combination of a power-wheel, a movable frame to which the power-wheel is journaled, an extension on said movable frame, and a hood secured to said extension in advance of the power-wheel, substantially as set forth.

5. In a wave-motor, the combination of a suitable structure, a frame having its inner ends pivoted to said structure, a power-wheel journaled to said frame, a cylinder having a cushion medium contained therein, a piston in said cylinder and a piston-rod connecting the piston with the supporting-frame of the power-wheel, substantially as set forth.

6. In a wave-motor, the combination of a suitable structure, a movable frame having its inner ends pivoted to the structure, a power-wheel supported by said movable frame, a cylinder, a piston operating in the cylinder, a pipe connecting the cylinder at its respective ends and a piston-rod connecting said piston with the movable frame, substantially as set forth.



7. In a wave-motor, the combination of a suitable structure, a movable frame pivoted to the structure, a power-wheel journaled to said frame, a shaft on which said power-wheel is mounted, cranks connected with said shaft, a shaft located at the inner ends of said frame, cranks on said shaft, drive-rods for connecting the cranks on the respective shafts, a pump-cylinder, a piston operating in said cylinder, a piston-rod connected with said piston, and a crank on the shaft at the inner end of the operating-frame with which said piston-rod is connected, substantially as set forth.

8. In a wave-motor, the combination of a suitable structure, a frame pivoted to said structure, a power-wheel journaled to the frame, a compression-cylinder, a piston in said cylinder, a piston-rod connecting said piston with the supporting-frame of the power-wheel, and orifices extending through said piston to permit the passage of the element confined within the compression-cylinder, substantially as set forth.

641,234. CORSET-FASTENER. MARY O. ROSS, Carlinville, Ill. Filed July 3, 1899. Serial No. 722,721. (No model.)

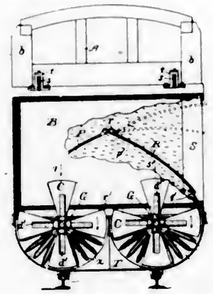


Claim.—1. A corset-fastener comprising a case attachable upon a corset-busk over a hole therein, a latch-plate slidable in the case and having a projecting push-piece thereon, and a perforation in said latch-plate, a bow-spring held in the case and at its bow end embracing with its resilient limbs the opposite convex edges of the latch-plate, and a notched locking-stud on an opposing busk, which stud may enter the case, pass through the perforation in the latch-plate, and be locked therein by engagement of an edge of the latch-plate perforation within the notch of the stud.

2. The combination with a corset-busk having spaced ears thereon, and latching-sections each comprising a case secured upon an ear of the busk, a latch-plate the body of which is flat and ovate, and from which a push-piece projects through a slot in the case, said latch-plate having a perforation therethrough, a bow-spring held at its bow end by a stud that projects from the bottom of the case, and guard-pins erected in the case and contacting with the bow-spring to press its resilient limbs upon the convex edges of the latch-plate, of a plurality of locking-studs on an opposing busk and spaced to enter the perforations of the latch-plates, each stud having a cross-notch adapted to receive the edge of a latch-plate perforation through which said stud is inserted.

641,235. TRACK-CLEANER. GEORGE W. RUGGLES, Charlotte, N.Y. Filed Sept. 2, 1899. Serial No. 729,322. (No model.)

Claim.—1. In a track-cleaner, a pair of equal blade-wheels placed side by side, on parallel shafts, means for turning said shafts, bucket-wheels on the shafts back of the blade-wheels, and a scoop within which said wheels and shafts are disposed, said scoop having cylindrical corners each concentric with the periphery of one set of blade and bucket wheels and its shaft, substantially as specified.



2. In combination with the scoop of a track-cleaner, a pair of blade-wheels, and a pair of bucket-wheels coacting with the blade-wheels, and an inclosure for the bucket-wheels, with means for moving the parts in vertical directions, substantially as shown and described.

3. The bucket-wheel of a track-cleaner, having a hub provided with projections, and radially-disposed leaves secured to said projections in pairs, said leaves being alike and each pair constituting a bucket, substantially as set forth.

4. The bucket-wheel of a track-cleaner, having a hub provided with flanged radial projections equally spaced around the axis, and a series of similar leaves or plates secured to said projections in pairs, the leaves of each pair facing each other and curved together at their outer ends, substantially as and for the purpose specified.

5. The bucket-wheel of a track-cleaner, formed of a series of similar hubs each having flanged radial projections equally spaced, and a series of similar leaves or plates secured to said projections in pairs forming buckets, the buckets of each hub being offset from or in advance of the buckets of the adjacent hub, substantially as and for the purpose specified.

6. A scoop for a track-cleaner composed of a single piece and made straight without flare at the corners which latter are cylindrical with three straight parts two of which extend upward from the said corners and the other connecting said corners, combined with two parallel shafts journaled lengthwise of the scoop each with its blades of its wheels mounted to revolve concentric with and adjacent to one of said corners, substantially as and for the purpose specified.

7. A device of the kind described, having a pair of snow-controlling shafts and sprocket-wheels thereon, in combination with a driving-shaft with sliding clutch a coacting non-sliding clutch formed with sprockets, and chains for said sprockets, substantially as shown and set forth.

8. The bucket-wheel of a track-cleaner, having a hub, and radially-disposed leaves or plates secured to the hub in pairs, the leaves of each pair together constituting a bucket.

9. The bucket-wheel of a track-cleaner, having a series of hubs, and leaves secured in pairs to the peripheries of said hubs, each pair constituting a bucket, the buckets of one hub being in advance of the buckets of the adjacent hub.

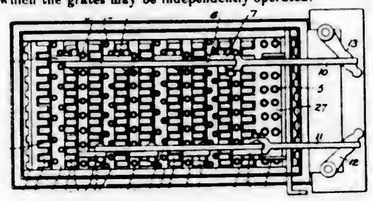
10. The bucket-wheel of a track-cleaner, having a hub formed with equally-spaced peripheral projections and a series of similar leaves secured to said projections in pairs, the leaves of each pair being parallel next the hub and curved together at their ends, each pair of leaves constituting a bucket, substantially as shown.

11. A combined scoop and wheel-house for a track-cleaner, composed of a single piece and made straight without flare at the corners which latter are cylindrical with three straight parts two of which extend upward from the corners to form the sides of the scoop and portions of the wheel-house and the other connecting said corners, all substantially as shown and described.

641,236. FURNACE-GRATE. JOHN W. RUMPF, Chillicothe, Ohio. Original application filed Aug. 18, 1898, Serial No. 688,866. Divided and this application filed Dec. 30, 1898. Serial No. 700,774. (No model.)

Claim.—1. In a furnace, the combination with a series of smaller-sized grate-bars, of a second series of alternating larger-sized grate-bars, and means for independently operating the same.

2. In a device of the character described, the combination with a series of smaller-sized grate-bars and a second series of alternating larger-sized grate-bars, said bars having integral arms extending from the same, of horizontal bars pivotally connected with the integral arms, vertical bearings on the front of the furnace, rock-shafts journaled in said bearings, levers connected with the same, and links pivotally connecting the rock-shafts with the horizontal bars, by means of which the grates may be independently operated.



641,287. METALLIC WALL-COVERING. GEORGE RUSSELL, McKeesport, Pa. Filed May 29, 1899. Serial No. 718,738. (No model.)

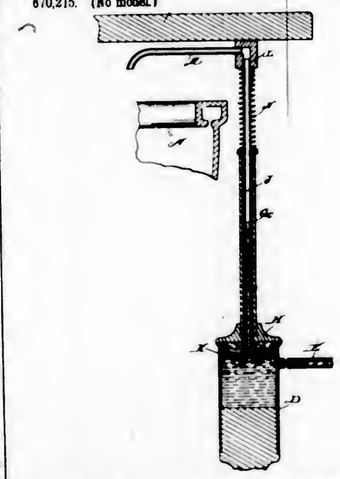
Claim.—1. As a new article of manufacture, a covering for walls and ceilings, composed of a plate of sheet metal having a coating on each side, one of said coatings having a burned enameled surface.

2. As a new article of manufacture, a covering for walls and ceilings, composed of a plate of sheet metal having a coating on each side, both of said coatings being burned and one having an enameled decorated surface.

3. As a new article of manufacture, a covering for walls and ceilings, composed of a plate of sheet metal having a burned coating on each side.

4. As a new article of manufacture, a covering for walls and ceilings, composed of a plate of sheet metal having a burned primary coating on each side, a second burned enameled coating on one of the primary coatings; and decorations applied to the burned enameled coating.

641,238. DISINFECTING APPARATUS FOR WATER-CLOSETS. WILLIAM RUTHVEN, Chicago, Ill. Filed Feb. 14, 1898. Serial No. 670,215. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the supply-reservoir, of the measuring apparatus below the level of the supply-reservoir, and a hollow piston-rod cooperating with the measuring apparatus in its operative stroke to cut off its connection with the supply-reservoir and to force a liquid through said piston-rod and into the bowl above the level of the supply-reservoir, said piston-rod being adapted to be operated by the depression of the seat, and the working capacity of said measuring apparatus exceeding that of the piston-rod above the level of the supply-reservoir, whereby all valves may be dispensed with.

2. In an apparatus of the class described, the combination with the supply-reservoir, of the measuring-cylinder below the level of the supply-reservoir, connections between the reservoir and the cylinder comprising an orifice opening into the cylinder and a hollow piston-rod carrying an apertured piston coöperating with the cylinder and normally above said orifice and depressible past it to cut off the supply and force a liquid through the piston-rod and into the bowl above the level of the supply-reservoir, said piston being adapted to be operated by the depression of the seat, substantially as described.

3. In an apparatus of the class described, the combination with a supply-reservoir, of a measuring-cylinder closed at both ends and below the level of the supply-reservoir, connections between the reservoir and the cylinder comprising an orifice opening into the cylinder, and a hollow piston-rod carrying an apertured piston coöperating with the cylinder and normally above said orifice and depressible past said orifice to cut off the supply and force the contents of the cylinder through the piston-rod, and operating on its return stroke to force the fluid backward through said connections thereby flushing them, substantially as described.

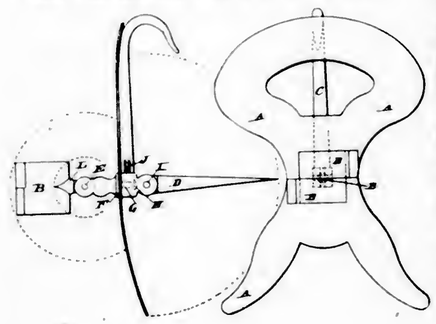
4. In an apparatus of the class described, the combination of the supply-reservoir C, with the cylinder D, located below said reservoir and connected thereto by the pipe E, the hollow piston-rod J extending above the reservoir C and adapted to be depressed by the seat and carrying the piston K normally resting above the orifice of the tube E but passing below it at the beginning of its operative stroke, and the spring N interposed between the cylinder and the piston-rod, all coöperating substantially as and for the purposes described.

5. In a device of the class described, the combination with a supply-reservoir, of a measuring-cylinder connected therewith and located outside of the bowl, a piston in said cylinder, a hollow piston-rod connected therewith and having its upper end reaching over the edge of and adapted to discharge into the bowl, a spring adapted to hold said piston-rod yieldingly in its uppermost position, and a seat normally resting substantially on the upper end of said piston-rod, and adapted when depressed to cause the descent of the piston and piston-rod to cause the discharge of a measured quantity of the fluid into the bowl, substantially as and for the purpose described.

6. In a device of the class described, the combination with a supply-reservoir, of a measuring-cylinder connected therewith and located outside of the bowl, a piston in said cylinder normally above but adapted to pass beneath the supply-port when depressed, a hollow piston-rod connected therewith and having its upper end reaching over the edge of and adapted to discharge into the bowl, a spring adapted to hold said piston-rod yieldingly in its uppermost position, and a seat normally resting substantially on the upper end of said piston-rod, the operative capacity of said measuring-cylinder exceeding that of the piston-rod above the level in the supply-reservoir, substantially as and for the purpose described.

7. In an apparatus of the class described, the combination with the supply-reservoir C, of the measuring-cylinder D closed at both ends and below the level of the supply-reservoir, the pipe E connecting said reservoir and cylinder, a hollow piston-rod J having its upper end reaching over the edge of and adapted to discharge into the bowl, and an apertured piston connected to said rod and coöperating with the cylinder D and normally above the entrance of the pipe E into said cylinder and depressible past said entrance to cut off the supply and force the contents of the cylinder through the piston-rod and into the bowl, and operating on its return stroke to force the fluid backward through the pipe E, substantially as and for the purpose described.

641,239. CANDLE-HOLDER. HUGO SCHRODER, Spokane, Wash., assignor of one-fourth to R. J. Danson and William A. Huneke, same place. Filed Feb. 21, 1899. Serial No. 706,430. (No model.)



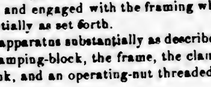
Claim.—1. In a candle-holder a supporting-plate, a socket-support swiveled to said plate, a socket for the reception of a candle having resilient walls hinged to said support the said swivel and hinge forming friction-joints and means for securing said supporting-plate in operative position, as and for the purposes set forth.

2. In a candle-holder in combination a supporting-plate, a hook frictionally swiveled thereon and an attaching prong or spike hinged to the lower extremity of the shaft of the hook, as and for the purposes set forth.

3. In a candle-holder in combination a supporting-plate, a socket-support swiveled to said plate for the reception of a candle having resilient walls, frictionally hinged to said support, a hook frictionally swiveled thereon and an attaching prong or spike frictionally hinged to the lower extremity of the shaft of the hook, as and for the purposes set forth.

4. In a candle holder in combination a supporting-plate, a socket for the reception of the candle, a socket-support having a joint and an attaching prong or spike having a hinge, as and for the purposes set forth.

641,240. INCANDESCENT MANTLE. CHARLES P. SCHULTZ, Pawtucket, R. I. Filed Dec. 1, 1898. Serial No. 698,015. (No model.)

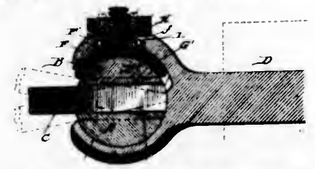


Claim.—1. An incandescent mantle provided with an incandescent external body, and one or more incandescent diametrically or radially directed longitudinal partitions, adapted to increase the volume of light given out from the mantle, substantially as described.

2. An incandescent mantle provided with an incandescent partition, and with an external body extending below the lower edge of the partition, whereby the mantel may be supported upon the burner without requiring a support for the upper end of the mantel, substantially as described.

3. An incandescent mantle provided with an internal longitudinal partition, and with a loop attached to the said partition, for suspending the mantle over the burner, substantially as described.

641,241. TOOL-HOLDER. GEORGE R. SHERWOOD, Kearney, Nebr. Filed Apr. 17, 1899. Serial No. 713,357. (No model.)



Claim.—1. A tool-holder comprising the hemispherical base and crown blocks flat on their inner faces whereby they are adapted to receive and permit the lateral adjustment or swinging of the tool and convex on their outer faces, the opposite parts having concave seats for said blocks, and clamping means substantially as set forth.

2. A tool-holder comprising the base and crown blocks hemispherical on their outer faces, the frame having a concave seat for one of the blocks, the concave clamping-plate receiving the other block, and means for operating the clamping-plate substantially as set forth.

3. The frame having an arm provided with a concave seat and an opposite arm provided with an opening for the shank of the clamp, the base and crown blocks convex on their outer sides, the clamping-plate having a concave seat and a shank, and operating devices in connection with such shank for setting the clamp substantially as set forth.

4. A tool-holder comprising the base and crown blocks spherical on their outer faces, the frame having jaws spaced apart and separated at their sides and front, one of such jaws being provided with a seat for one block, and a clamping-plate for the other block arranged in the other jaw, and operating devices for said clamping-plate substantially as set forth.

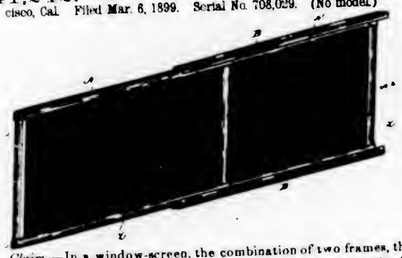
5. A tool-holder comprising the base and crown blocks convex on their outer surfaces, the frame, the clamping-plate having a concave seat and having a threaded shank, and the operating-nut threaded on said shank and engaged with the framing whereby to operate the clamp substantially as set forth.

6. In an apparatus substantially as described the combination of the convex clamping-block, the frame, the clamping-plate having a threaded shank, and an operating-nut threaded on said shank and

having a lateral flange underlying a portion of the frame and arranged to operate the clamp substantially as described.

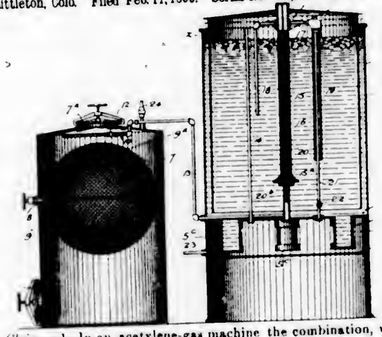
7. The tool-holder herein described comprising the base and crown blocks convex on their outer surfaces, the frame having an arm provided with a concave seat for one of the blocks and an opposite arm having an opening for the clamping devices, the clamp having a concave plate to fit one of the blocks and a screw-shank, the nut threaded on said shank and having at its inner end a lateral flange underlying a portion of the frame, the balls between said portions, and the head by which to operate the nut all substantially as and for the purposes set forth.

641,242. WINDOW-SCREEN. RICHARD M. SPENCER, San Francisco, Cal. Filed Mar. 6, 1899. Serial No. 708,029. (No model.)



Claim.—In a window-screen, the combination of two frames, the ends and sides of which are formed from sheet metal bent upon itself, and the ends of the vertical sides being inclosed within the fold of the horizontal sides to constitute a continuous surface on the said horizontal sides; and U-shaped pieces rigidly secured to the outside of the upper and lower horizontal binding edges of one frame, and adapted to extend over and receive the corresponding horizontal binding edges of the other frame, substantially as described.

641,243. ACETYLENE-GAS GENERATOR. WILLIAM C. STERNE, Littleton, Colo. Filed Feb. 11, 1899. Serial No. 706,285. (No model.)



Claim.—1. In an acetylene-gas machine the combination, with the generator, the water-supply pipe and the gasometer, of a tube projecting upwardly into the water-tank and provided with an opening located below the water-level, a pipe attached to the gasometer and projecting into the open end of the said tube and having an opening normally below the water-level whereby the water from the tube is allowed to enter said pipe, whose lower extremity is open to allow the water to pass to the lower part of the tube, means to prevent the water from passing into the lower portion of the tube except by way of said pipe, and a water-conduit leading from the lower portion of the tube to the generator.

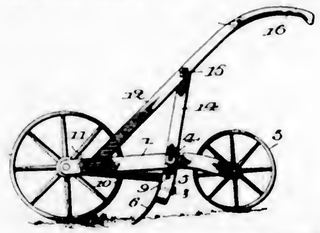
2. In an acetylene-gas machine the combination, with the generator, the water-supply pipe and the gasometer, of a tube projecting upwardly into the water-tank and provided with an opening located below the water-level, a pipe attached to the gasometer and projecting into the open end of the said tube, and having an opening normally below the water-level whereby the water from the tube is allowed to enter said pipe, whose lower extremity is open to allow the water to pass to the lower part of the tube, the pipe being provided with means performing the function of a piston to prevent the water from passing into the lower portion of the tube except by way of said pipe, and a water-conduit leading from the lower portion of the tube to the generator.

3. The combination, with a generator, a gasometer, and the water-supply tank, of a chamber located below the water-tank, cooling-wells located in said chamber and communicating with the water-tank, a conduit connecting said chamber with the gas-space of the gasometer, a conduit leading from the generator to said chamber, and another conduit leading from said chamber to the locality where the gas is to be used.

4. The combination, with a generator, a gasometer, and the water-supply tank, of a chamber located below the water-tank, cooling-wells located in said chamber and communicating with the water-tank, a conduit connecting said chamber with the gas-space of the gasometer, a conduit leading from the generator to said chamber, another conduit leading from said chamber to the locality where the gas is to be used, and an interposed water-trap through which the gas passes.

5. The combination, with a generator, a gasometer, and the water-supply tank, of a chamber located below the water-tank, cooling-wells located in said chamber and communicating with the water-tank, a conduit connecting said chamber with the gas-space of the gasometer, a conduit leading from the generator to said chamber, another conduit leading from said chamber to the locality where the gas is to be used, an interposed water-trap through which the gas passes, said trap being provided with a valve, and a float attached to the valve-stem whereby the surplus water is allowed to escape, a water seal however being maintained for the purpose set forth.

641,244. GARDEN-PLOW. WILLIAM A. STOWE, Poolville, Tex. Filed May 31, 1899. Serial No. 718,846. (No model.)



Claim.—In a garden-plow, the combination of a pair of side bars, a traveling wheel journaled in the forward ends of said bars and a traveling wheel of less diameter journaled in the rear ends thereof, said bars being bowed or bent downwardly to bring the axial line of the rear wheel below the axial line of the front wheel, a foot-piece detachably connected to the side bars, an adjustable plow bit or shovel connected to said foot-piece, a pair of foot-braces connected to said foot-piece and to the side bars, a pair of handles connected to the side bars, and a pair of adjustable braces connected to said handles and to the side bars, substantially as shown and described.

641,245. BASKET. GEORGE P. SUGG, St. Lewis, N. C., assignor of one-half to Robert Pitt and Pennington West, same place. Filed May 17, 1899. Serial No. 717,176. (No model.)



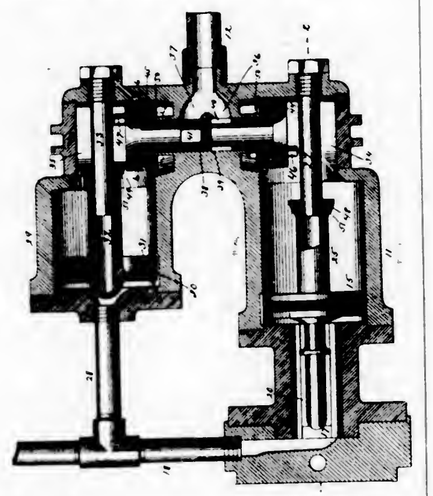
Claim.—1. A basket of rectangular shape comprising a flexible bag or body portion, and diagonally-arranged and pivoted spring-bars anchored at their ends to the angular corners of the bag or body portion whereby the folding of the basket causes the spring-bars to move radially to a less distance from the center than they occupied when distending the corners the bag portion connecting the spring-arms serving to put the latter under tension when the basket is collapsed whereby it will automatically open substantially as set forth.

2. A basket comprising the two frames or bars each having a base-plate and upright plates at the opposite ends thereof, the base-plates being crossed and pivoted together at their middles, and the flexible body portion secured at its upper edge to the upright plates of the two frame-bars substantially as set forth.

3. A basket comprising the two frame-bars having base-plates and end upright plates and having the base-plates crossed and pivoted centrally forming right-angle triangles when the base-bars are at right angles to each other and causing two adjacent upright plates to depart when the base-plates are adjusted toward a parallel relation, and the flexible bag or body portion connecting the upper ends of the upright plates whereby the tension of the plates will operate to open the basket when folded substantially as set forth.

4. A basket having the two frames composed of base-bars pivoted together at their middles movable freely on such pivot and provided each at its opposite ends with the upright plates and the flexible body portion secured at its free edge to and forming a flexible connection uniting the upper free ends of the several uprights substantially as set forth.

641,246. RAILWAY-BRAKE. ROBERT WEIR, Montclair, N. J. Filed Aug. 29, 1899. Serial No. 728,853. (No model.)



Claim.—1. The combination with an air-brake of the general character described, of a way from the supply-pipe to the auxiliary reservoir independent of the triple valve, an auxiliary pressure-cylinder and piston in said way, an auxiliary valve to cut off the train-pipe alternately from the triple valve and from the auxiliary cylinder, and means whereby the motion of the triple-valve piston and the auxiliary piston operates the auxiliary valve substantially as described.

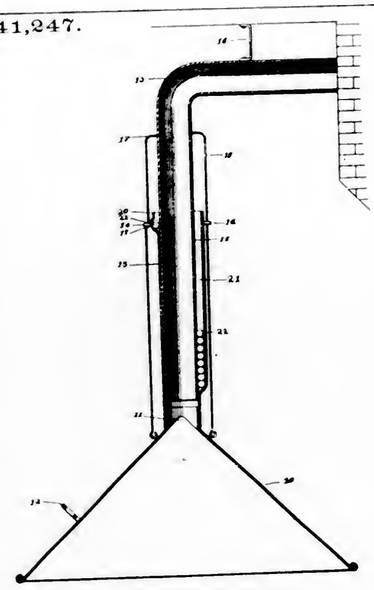
2. The combination with an air-brake of the general character described, of a way from the supply-pipe to the auxiliary reservoir independent of the triple valve, an auxiliary pressure-cylinder and piston in said way, a rotary valve to cut off the train-pipe alternately from the triple valve and from the auxiliary cylinder, and crank-pins or projections on said rotary valve in the path of parts moved by the triple-valve piston and the auxiliary piston respectively.

3. The combination with an air-brake of the character described, of an auxiliary way from the supply-pipe to the auxiliary reservoir, a pressure-cylinder in said way, a piston in said cylinder having a check-sleeve and plunger, an auxiliary rotary valve to cut off the supply-pipe alternately from the auxiliary reservoir and from the triple valve and crank-pins or projections on the rotary auxiliary valve in the paths of the auxiliary-piston sleeve and of the triple-valve-piston sleeve respectively.

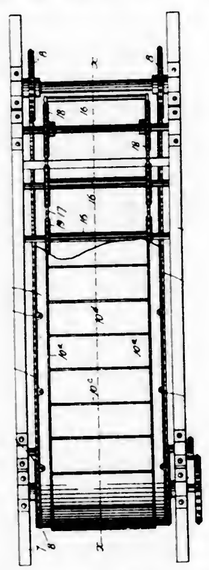
641,247. ADJUSTABLE HOOD FOR VAPOR-STOVES. SAMUEL A. WILSON, Ocheyedan, Iowa. Filed June 13, 1899. Serial No. 720,420. (No model.)

Claim.—An adjustable hood for vapor-stoves, comprising in combination a hood proper 10, a handle 12 at its front edge, a pipe-section 13 fixed to the top of the hood, a pipe-section 15 telescopically connected with the pipe 13 and having a long vertical groove in its rear surface and a short vertical groove in its front surface at its top said front groove being deeper at its lower end than at its upper end, said grooves being formed by bending the metal of the pipe outwardly, a series of bearing-balls in the said rear groove and a single bearing-ball in the front groove, substantially as and for the purposes stated.

641,247.



641,248. ORE-CONCENTRATOR. AUGUST TEN WINKEL, Denver, Colo. Filed June 26, 1899. Serial No. 721,837. (No model.)



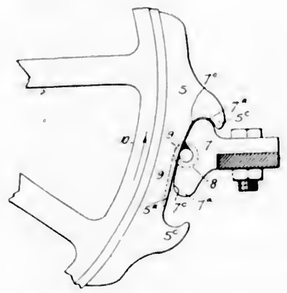
Claim.—1. In an ore-concentrator, the combination with a suitable frame, provided with sprocket-wheels at both extremities, and chains engaging said wheels, of an endless apron, attached to said chains at suitable intervals, and left sufficiently slack to form pockets, transverse strips extending between the points where the apron is attached to the chains and defining the length of the pockets, the mechanism being so arranged that the mineral is carried upward with the apron, and the gangue downward by the flow of the water.

2. In an ore-concentrator, the combination of a suitable frame, end sprocket-wheels, chains mounted thereon, an endless, traveling

apron impervious to water, attached to said chains in a manner to form pockets or valleys in the apron, the frame being provided with longitudinal, side ledges, upon which the apron-chains are supported between the terminal sprockets, sprocket-wheels mounted on the frame between the apron-sprockets, chains mounted on said wheels, agitating-rollers attached to the last-named chains engaging the apron underneath, a stationary support mounted above the apron, depending fingers hinged to said support and engaging the apron from above, and means for propelling the apron and agitators in the same direction, but at different rates of speed.

3. In an ore-concentrator the combination with a suitable frame provided with sprocket-wheels at both extremities and chains engaging said wheels, of an endless apron impervious to water, attached said chains at suitable intervals and left sufficiently slack to form pockets, transverse riffles attached to said apron, each pocket having a riffle at each extremity and one or more intermediate riffles, the mechanism being so arranged that the mineral is carried upward with the apron and the gangue downward by the flow of the water.

641,249. AUTOMATIC BRAKE BLOCK OR SHOE. HENRY N. WOOD, Denver, Colo., assignor of one-half to William Henry Sauvage and Charles C. Welch, same place. Filed Apr 22, 1899. Serial No. 714,037. (No model.)



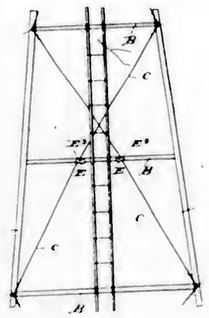
Claim.—1. In an automatic brake the combination of a brake-head mounted on a suitable support, and a shoe whose front face is curved to engage the tread of a wheel, and whose opposite surface is recessed to receive the brake-head which forms the support for the shoe, the wall of the recess in the shoe being rearwardly inclined from the point of normal engagement with the head when the shoe is inactive, whereby the rotation of the wheel in one direction when the brake-shoe is in contact therewith, automatically raises the shoe and applies the brake by wedging the shoe between the wheel and the brake-head, the upper portion of the shoe being provided with a rearwardly-projecting hook which engages the brake-head from above when the shoe is at rest.

2. In an automatic brake the combination with a truck provided with two pairs of wheels and brake-beams respectively located in front and rear of said wheels, and means for shifting the beams toward the tread of the wheels, of brake-heads mounted on said beams, and shoes supported by the heads and adapted to engage the tread of the wheels as the beams are shifted, each shoe having its rear surface recessed to receive the brake-head, and rearwardly inclined downward from the point of normal engagement with the head, whereby one set of shoes acts automatically by moving upwardly when the car is moving in one direction, and the other set of shoes acts in the same manner when the car is moving in the opposite direction.

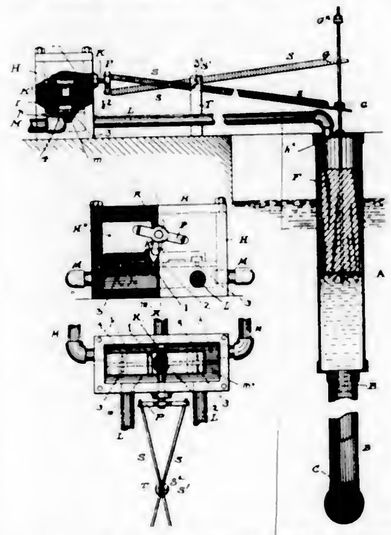
641,250. TOWER FOR WINDMILLS. HARRISON WOODMANSE and JOHN AUE, Freeport, Ill.; said Aue assignor to said Woodmanse. Filed Apr. 24, 1899. Serial No. 714,244. (No model.)

Claim.—In a windmill-tower, in combination, angle-iron corner-posts, angle-iron cross-girths securely connecting them together, crossed brace-rods—attached by their opposite ends to adjacent and opposite corner-posts—tensely drawn, by applying force to their middle portions and forcing them, in opposite directions, in a plane parallel to their points of attachment, and tighteners having slots therein, to admit the edge of the angle-iron cross-girth, and provided with jaws for clamping the crossed brace-rods to such cross-girth, and set-screws for securing said tighteners in position on the cross-girth, substantially as and for the purpose specified.

641,250.



641,251. APPARATUS FOR RAISING WATER. LELL H. WOOLLEY, Oakland, Cal. Filed Aug. 18, 1898. Serial No. 688,921. (No model.)

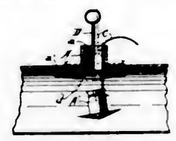


Claim.—1. The herein-described apparatus for raising water comprising pressure-chambers A A', suction-pipes B B having foot-valves C, a common discharge-pipe D, connections between the suction-pipe and the discharge-pipe, check-valves in said connections, a steam-chest in which there are separate compartments for each pressure-chamber having ports and passages for admitting steam to and exhausting it from the pressure-chamber, a slide-valve controlling the two sets of ports and passages, floats F F in the pressure-chambers, float-rods G G, and the means whereby the slide-valve is operated by the rising and falling movements of the floats consisting of the rock-shaft arm fixed thereon, levers attached to said arm and the tappets on the float-rods adapted to engage the levers, substantially as described for operation as set forth.

2. In an apparatus of the character herein described, the combination with a pair of pressure-chambers having inlet-pipes and discharge-pipes provided with suitable valves to prevent the return flow of the water; of the steam-chest having a set of inlet ports and passages and a set of exhaust ports and passages for each pressure-chamber, a valve adapted to control said ports and passages in alternate manner through the medium of the float-rod of the chamber, a tappet on the rod, a rock-shaft adapted to move the valve and a pivoted lever connected to the rock-shaft and set with relation to the tappet of the float-rod, as described for operation as set forth.

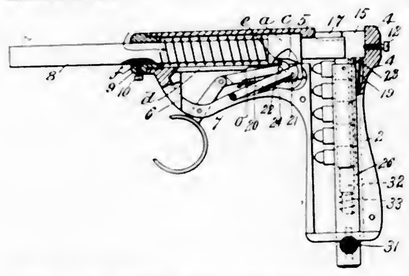
641,252. TIRE-PLUG. FRED R. PARKS, Grand Rapids, Mich. Filed Apr. 13, 1899. Serial No. 712,960. (No model.)

Claim.—In a tire-plug casing, a body having an aperture entirely through it to form a cylindrical wall of uniform thickness, and a thin flange radiating from the end of the cylindrical wall, substantially as, and for the purpose set forth.



REISSUES.

11,800. MAGAZINE-PISTOL. JOSEPH H. WESSON, Springfield, Mass. Filed Mar. 2, 1899. Serial No. 707,546. Original No. 616,692, dated Dec. 27, 1898.



Claim.—1. In a firearm, a frame, a barrel supported for longitudinal reciprocating movement in said frame, a spring acting to move said barrel in one direction, a trigger, means controlled by said trigger for moving said barrel in an opposite direction, and means for automatically locking said barrel in a firing position, combined and operating substantially as set forth.

2. In a firearm, a frame, a barrel supported for longitudinal reciprocating movement in said frame, a spring acting to move said barrel in one direction, a trigger, means controlled by said trigger for moving said barrel in an opposite direction, means for automatically locking said barrel in a firing position, and means controlled by said trigger whereby said barrel-locking devices are disengaged therefrom, combined and operating substantially as set forth.

3. In a firearm, a frame, a barrel supported for longitudinal reciprocating movement in said frame, a spring actuating said barrel for a rearward movement, a trigger, a trigger-spring, a barrel draw-bar connected to said trigger having an intermittent engagement with said barrel whereby the latter is moved forwardly against said spring, means for automatically locking the barrel at the termination of said rearward movement, and mechanism actuated by the spring-induced trigger-swinging movement for disengaging the said barrel-locking devices therefrom, combined and operating substantially as set forth.

4. In a firearm, a frame, a barrel supported for longitudinal reciprocating movement in said frame, a spring actuating said barrel for a rearward movement, a trigger, a trigger-spring, a barrel draw-bar connected to said trigger for engagement with said barrel, means for automatically disengaging said draw-bar from the barrel at the termination of the forward movement thereof, means for automatically locking the barrel at the termination of said rearward movement, and mechanism actuated by the spring-induced trigger-swinging movement for disengaging said barrel-locking devices therefrom, combined and operating substantially as set forth.

5. In a firearm of the class described, a frame having a tubular barrel-support thereon, a barrel for sliding movements in said support, and a spring forcing said barrel rearwardly, combined with a trigger 7, a barrel draw-bar 20 pivotally connected to said trigger and having an intermittent engagement with said barrel whereby a forward movement is imparted thereto against the action of said spring, a trigger-spring 21, and a barrel-brace 23, holding said barrel in a firing position, and means actuated by the swinging movement of the trigger for disconnecting said brace from the barrel, substantially as set forth.

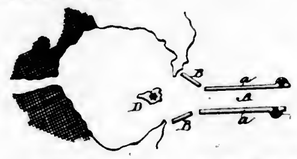
6. The magazine-case 26, having a longitudinal slot in one side and cartridge-engaging borders 27, on opposite edges thereof, a spring-actuated plunger 32, within said case, a spring-hook 28 retaining cartridges in the case until the latter is placed in the arm, stop-pins 34 on said plunger controlling its outward movement, and a spring-hook 29, retaining said case in the arm, combined with the bridge 19, in the frame of the arm to which the magazine is applied with which the free end of said hook 28 engages, whereby the cartridges are disengaged therefrom, substantially as set forth.

7. In a magazine-firearm, a magazine therefor having a spring thereon for engaging the upper cartridge therein when charged, combined with the spring-releasing part 19, within the arm, against which said spring is moved when the loaded magazine is placed therein, and a spring-hook on said magazine acting to retain the same in the arm, substantially as described.

8. In a magazine-firearm of the class described, a frame, a longitudinally-movable barrel supported therein, a cartridge-magazine in the handle of the arm, a cartridge-chamber located over said magazine, an opening through the top wall of said chamber, a portion of which lying over the magazine is narrower than a portion of the cartridge-shell, and the opposite end of said opening having a diameter somewhat greater than that of the widest part of said shell, and means for moving said cartridge vertically in said magazine into said chamber, and longitudinally in the latter to firing and ejecting position under said wider portion of said opening, substantially as described.

9. In a magazine-firearm of the class described comprising a hollow handle and a longitudinal sliding barrel supported in the frame of the arm; a magazine in said handle in which the cartridges are vertically movable; a cartridge-chamber at the top of said magazine communicating therewith and extending rearwardly beyond the line of vertical movement of the cartridges, and a firing-pin in the rear wall of said chamber; an opening through the top wall of said chamber having a transverse diameter at the forward end thereof less than the greatest diameter of the cartridge-shell, and a diameter at the rear end thereof greater than the greatest diameter of the shell, whereby ejection of a cartridge-shell is impossible until it has been moved rearwardly of the position it occupied in the magazine, substantially as described.

11,801. HARBOR OR COAST DEFENSE. ANDREW VAN BIBBER, Cincinnati, Ohio. Filed Nov. 2, 1899. Serial No. 735,634. Original No. 627,313, dated June 20, 1899.



Claim.—1. A fortification comprising submerged embankments arranged to extend out from the harbor or city to be defended and forming between them a canal or channel, and forts located on the embankments to supply a defensive fire more remote from the city or harbor than is afforded by the shore-guns.

2. A fortification comprising embankments arranged to extend out from the harbor or city to be defended and forming between them a canal or channel, said embankments having their inner ends located away from the shore to form passages at the inner end of said canal or channel and affording access to said harbor or city, and forts located on the embankments to supply a defensive fire more remote from the city or harbor than is afforded by the shore-guns.

3. A fortification comprising embankments arranged to extend out from the harbor or city to be defended and forming between them a canal or channel, said embankments being constructed not to extend above the water a sufficient distance to interfere with the fire of the guns, and forts located on the embankments to furnish a defensive fire more remote from the city or harbor than is afforded by the shore-guns.

4. A fortification comprising embankments which extend out from a harbor or city to be defended and forming between them a canal or channel, said embankments being constructed not to extend above the water a sufficient distance to interfere with the fire of the guns, forts located on the embankments to afford a defensive fire more remote from the city or harbor than is afforded by the shore-guns, and a raking-fort located at a point in rear of the artificial channel and in line with the same.

5. A fortification comprising embankments arranged to extend out from the harbor or city to be defended and forming between them a canal or channel, said embankments having their inner ends located away from the shore to form passages at the inner end of said canal or channel and affording access to said harbor or city, and forts located on the embankments to furnish a defensive fire more remote

from the city or harbor than is afforded by the shore-guns, and a raking-fort located at a point in rear of the artificial channel in line with the same, so as to afford a raking fire outwardly along the channel, substantially as described.

6. A fortification comprising embankments extending out from the harbor or city to be defended and forming between them a canal or channel, said embankments not extending above the water a sufficient distance to interfere with the range of the guns, and a fort located in rear of the artificial channel and in line therewith to afford a raking fire outwardly along the channel, substantially as described.

7. A fortification comprising embankments extending outwardly from a harbor or city to be defended and forming between them two divergent canals or channels, and a fort located at a point in rear of said channels and in line therewith so as to afford a raking fire outwardly along both channels, substantially as described.

8. A fortification comprising embankments extending outwardly from a harbor or city to be defended and forming between them two divergent canals or channels, and a fort located at a point in rear of said channels and in line therewith so as to afford a raking fire outwardly along both channels, and forts on the said embankments to furnish a defensive fire more remote from the city or harbor than is afforded by the shore-guns, substantially as described.

DESIGNS.

32,078. BADGE. JAMES C. DERBY, Concord, N. H. Filed Dec. 6, 1899. Serial No. 739,443. Term of patent 14 years.



Claim.—The design for a badge as herein shown and described.

32,079. RING OR SIMILAR ARTICLE. MARTIN GEBHARDT, New York, N. Y. Filed Dec. 6, 1899. Serial No. 739,451. Term of patent 7 years.



Claim.—The design for a ring or similar article as herein shown and described.

32,080. LINK-BAR FOR CUFF-BUTTONS. CHARLES H. ALLEN, Attleborough, Mass., assignor to Charles H. Allen & Co., same place. Filed Dec. 13, 1899. Serial No. 740,225. Term of patent 14 years.



Claim.—The design for a link-bar for cuff-buttons herein shown and described.

32,081. SHOE FOR COLLAR-BUTTONS. THERON I. SMITH, North Attleborough, Mass., assignor to T. I. Smith & Co., same place. Filed Dec. 13, 1899. Serial No. 740,226. Term of patent 7 years.



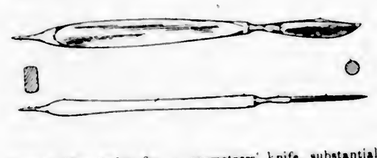
Claim.—The design for the shoe of a collar-button herein shown and described.

32,082. SPOON, FORK, OR KNIFE HANDLE. CARL C. SCHMIDT, St. John, Canada. Filed Dec. 12, 1899. Serial No. 740,129. Term of patent 3½ years.



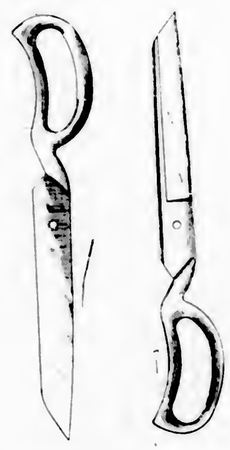
Claim.—The design for a spoon, fork, or knife handle, as herein shown and described.

32,083. SEAMSTRESS' KNIFE. JENNIE CONLEY, Chicago, Ill. Filed Dec. 11, 1899. Serial No. 740,008. Term of patent 14 years.



Claim.—The design for a seamstress' knife, substantially as herein shown and described.

32,084. MEMBER FOR PAIRS OF SHEARS. JOHN J. ALVORD, Bridgeport, Conn. Filed Nov. 4, 1899. Serial No. 735,837. Term of patent 7 years.



Claim.—The design for a member of a pair of shears, as herein shown and described.

32,085. WOODEN SPRINKLING-BOTTLE STOPPER. WEBSTER C. ESTES, New York, N. Y. Filed Nov. 13, 1899. Serial No. 736,881. Term of patent 14 years.



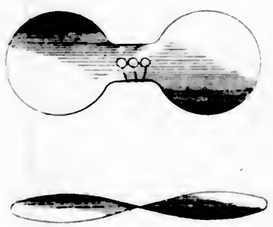
Claim.—The design for a wooden sprinkling-bottle stopper, substantially as shown and described.

32,086. BOTTLE OR JAR. CALEB C. DULA, New York, N. Y., assignor to the Continental Tobacco Company, same place. Filed Dec. 15, 1899. Serial No. 740,478. Term of patent 14 years.



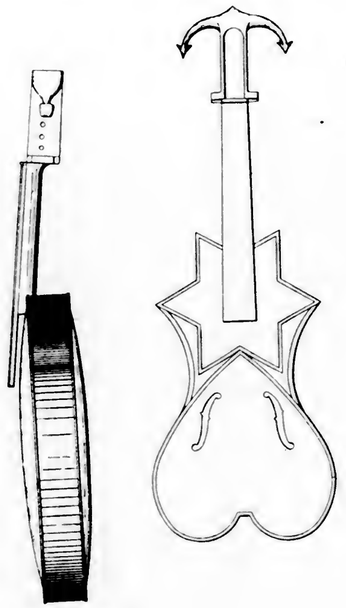
Claim.—The design for a bottle or jar substantially as shown and described.

32,087. TOY-FAN BLADE. WILLIAM MORGAN, Fort Plain, N. Y. Filed Nov. 29, 1899. Serial No. 738,738. Term of patent 7 years.



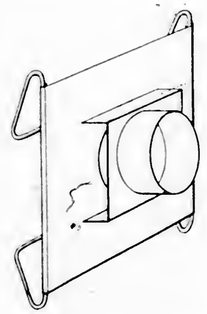
Claim.—The design for a toy-fan blade, herein shown and described.

32,088. VIOLIN-BODY. ELIZA A. R. KITCHEN, Monroe, Ohio. Filed Dec. 4, 1899. Serial No. 739,206. Term of patent 14 years.



Claim.—The design for a violin-body, as herein shown and described.

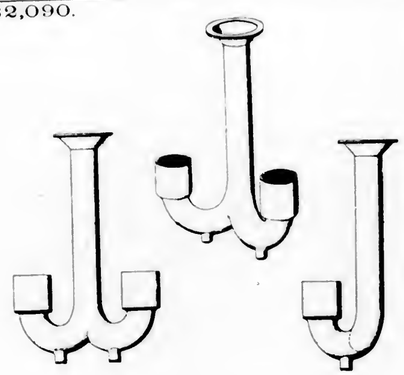
32,089. MAGIC-LANTERN ATTACHMENT. JOHN GARL BROWN, Evanston, Ill. Filed Aug. 12, 1899. Serial No. 727,077. Term of patent 3½ years.



Claim.—The design for a magic-lantern attachment, as herein shown and described.

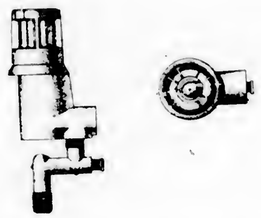
32,090. LAMP-BODY. DAVID S. WILLIAMS, Philadelphia, Pa. Filed Dec. 8, 1899. Serial No. 739,717. Term of patent 7 years.

32,090.



Claim.—The design for a lamp-body substantially as herein shown and described.

32,091. HYDROCARBON-BURNER. HERMANN MERKEL, St. Louis, Mo. Filed Nov. 22, 1899. Serial No. 737,955. Term of patent 7 years.



Claim.—The design for a hydrocarbon-burner, substantially as herein shown and described.

32,092. INNER-TUBE MEMBER FOR HYDROCARBON-BURNERS. JOHN S. SHERMAN and GEORGE H. HARMS, Detroit, Mich. Filed Dec. 17, 1898. Serial No. 699,602. Term of patent 14 years.



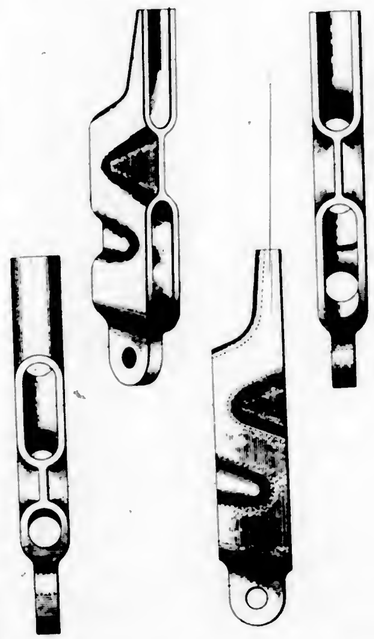
Claim.—The design for the inner-tube member of a hydrocarbon-burner, substantially as described.

32,093. INFLATION-VALVE CASING. EUGENE CHILDS, Boston, Mass. Filed Nov. 17, 1899. Serial No. 737,377. Term of patent 14 years.



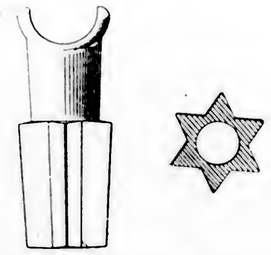
Claim.—The design for an inflation-valve casing as herein shown and described.

32,094. CLEAT FOR FIRE-ESCAPES. MAURITZ W. HOGLUND, New York, N. Y. Filed Dec. 6, 1899. Serial No. 739,446. Term of patent 7 years.



Claim.—The design for a cleat for a fire-escape, substantially as herein shown and described.

32,095. PITCH-REAMER. MATTHIAS REDLINGER, Jr., Freeport, Ill. Filed Dec. 8, 1899. Serial No. 739,719. Term of patent 14 years.



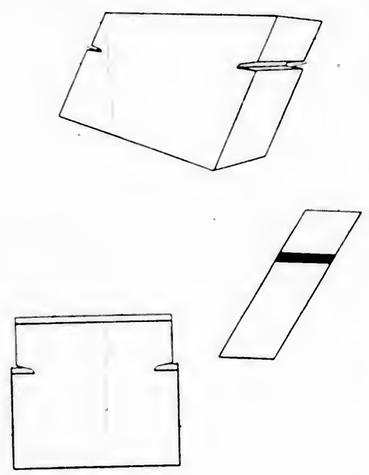
Claim.—The design for a pitch-reamer, as herein shown and described.

32,096. SASH-FASTENER. JAMES T. MCMAHON, New Haven, Conn., assignor to the Columbia and Electric Vehicle Company, Jersey City, N. J., and Hartford, Conn. Filed Nov. 20, 1899. Serial No. 737,701. Term of patent 14 years.



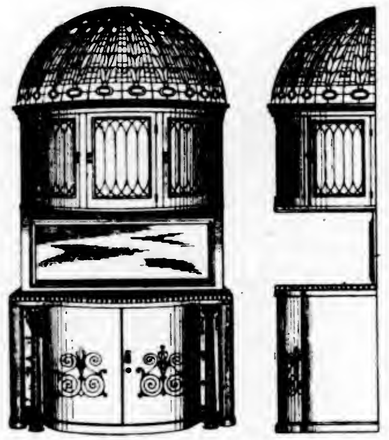
Claim.—The design for a sash-fastener substantially as shown and described.

32,097. BRICK. JOHN M. QUINN, Cincinnati, Ohio. Filed Nov. 15, 1899. Serial No. 737,145. Term of patent 14 years.



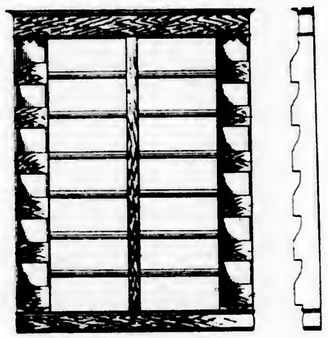
Claim.—The design for a brick, substantially as shown and described.

32,098. BUFFET. JAMES H. HORNE, Dayton, Ohio, assignor to the Barney & Smith Car Company, same place. Filed Dec. 1, 1899. Serial No. 738,926. Term of patent 7 years.



Claim.—The design for a buffet, substantially as herein shown and described.

32,099. ADVERTISING-FRAME. SIMEON W. PERRY, Chicago, Ill. Filed Oct. 13, 1899. Serial No. 733,532. Term of patent 7 years.



Claim.—The design for an advertising-frame, as herein shown and described.

32,100. CURTAIN. PETER MACCAFFRAY, Philadelphia, Pa., assignor to the E. H. Godshalk Company, of Pennsylvania. Filed Dec. 16, 1899. Serial No. 740,600. Term of patent 3½ years.



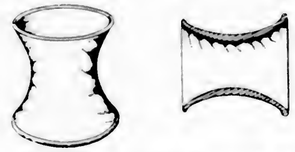
Claim.—The design for a curtain, substantially as shown and described.

32,101. CURTAIN. PETER MACCAFFRAY, Philadelphia, Pa., assignor to the E. H. Godshalk Company, of Pennsylvania. Filed Dec. 16, 1899. Serial No. 740,601. Term of patent 3½ years.



Claim.—The design for a curtain substantially as shown and described.

32,102. BANDAGE. CORYELL BARTHOLOMEW, Jackson, Mich. Filed Nov. 18, 1899. Serial No. 737,525. Term of patent 14 years.

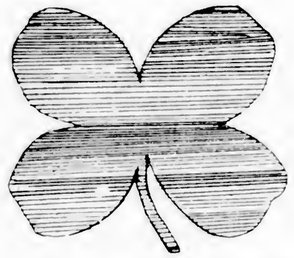


Claim.—The design for a bandage, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 9, 1900.

34,014. DRESS-FACINGS. HAY'S WATERPROOF BINDING COMPANY, Oshkosh, Wis. Filed Dec. 15, 1899.



Essential feature.—The representation of a four-leaf clover. Used since June, 1899.

34,015. SPOOL-COTTON. JAMES CHADWICK & BROTHER, LIMITED, Bolton, England. Filed Oct. 21, 1899.



Essential feature.—The representation of a lion rampant. Used since November, 1877.

34,016. TAILORS' TRIMMINGS. DOBLIN & SCHAMBERG, New York, N. Y. Filed Dec. 16, 1899.



Essential feature.—The representation of a closed volume. Used since July 1, 1899.

34,017. CERTAIN NAMED RUBBER FOOTWEAR. MONARCH RUBBER COMPANY, St. Louis, Mo. Filed Dec. 11, 1899.

PRAIRIE

Essential feature.—The word "PRAIRIE." Used since December 4, 1899.

34,018. CERTAIN NAMED LEATHER BELTING. MAYER & CO., Norfolk, Va. Filed Oct. 13, 1899.

HERCANO

Essential feature.—The word "HERCANO." Used since September, 1898.

34,019. HOG-CHOLERA MEDICINE OR REMEDIES. THE AMERICAN PROPRIETARY MEDICINE COMPANY, Chicago, Ill. Filed Nov. 23, 1899.

HOCHOLERA

Essential feature.—The word "HOCHOLERA." Used since March 15, 1899.

34,020. NERVE-TONIC. THE S. R. FEIL COMPANY, Cleveland, Ohio. Filed Dec. 4, 1899.

Palmo

Essential feature.—The word "PALMO." Used since June, 1897.

34,021. OPIUM ANTIDOTE. HARRISON & ROTH COMPANY, Evanston, Wyo. Filed June 10, 1899.

H O A

Essential feature.—The word "HOA." Used since March 1, 1899.

34,022. TOBACCO. THE BLOCH BROTHERS TOBACCO COMPANY, Wheeling, W. Va. Filed Nov. 15, 1899.

MAIL POUCH



Essential feature.—The representation of a leather mail-pouch and the words "MAIL" and "POUCH" used in connection therewith. Used since May 1, 1881.

34,023. BUTTER AND ARTIFICIAL BUTTER. THE CAPITAL CITY DAIRY COMPANY, Columbus, Ohio. Filed Dec. 6, 1899.

PURITAN

Essential feature.—The word "PURITAN." Used since July, 1899.

34,024. CERTAIN NAMED GROCERIES. ADVANCED BEET SUGAR CONSTRUCTION COMPANY, New York, N. Y. Filed Sept. 13, 1899.

ADVANCED XXX

Essential feature.—The word and letters "ADVANCED XXX." Used since July 20, 1899.

34,025. CERTAIN NAMED GROCERS' GOODS. FOLEY BROS. & KELLY MERCANTILE COMPANY, St. Paul, Minn. Filed Aug. 14, 1899.



Essential feature.—The representation of a moccasin-flower. Used since September 1, 1898.

34,026. NUT AND CEREAL FOODS. SANITAS NUT FOOD COMPANY, LIMITED, Battle Creek, Mich. Filed Nov. 27, 1899.

PROTOSE

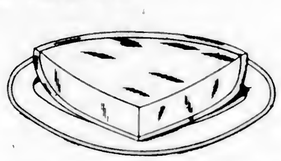
Essential feature.—The word "PROTOSE." Used since February 7, 1899.

34,027. PEANUTS IN PACKAGES. GEORGE BOYD & SONS, Philadelphia, Pa. Filed Apr. 18, 1899.

BIG NICKEL

Essential feature.—The words "BIG NICKEL." Used since July 12, 1893.

34,028. CANNED PUMPKIN. VAN CAMP PACKING COMPANY, Indianapolis, Ind. Filed Dec. 16, 1899.



Essential feature.—The representation of a piece of pie. Used since November 17, 1899.

34,029. WHEAT-FLOUR. WASHBURN-CROSBY COMPANY, Minneapolis, Minn. Filed Dec. 1, 1899.



Essential feature.—The representation of two girls handling a barrel. Used since July 1, 1893.

34,030. SAL-SODA. CHURCH & DWIGHT COMPANY, New York, N. Y. Filed Dec. 6, 1899.

COW

Essential feature.—The word "COW." Used since July 1, 1880.

34,031. TOILET PREPARATIONS. PHOEBE A. HOUGHTON, Boston, Mass. Filed Dec. 14, 1899.



Essential feature.—A monogram composed of the letters "PGA." Used since 1896.

34,032. LAUNDRY AND TOILET SOAPS. FIDANQUE, HIRTO & CO., New York, N. Y. Filed Dec. 11, 1899.

DOTEIN

Essential feature.—The word "DOTEIN." Used since November 15, 1897.

34,033. SHOE-POLISH AND LEATHER-DRESSING. THE "WORLD" POLISH MANUFACTURING CO., York, Pa. Filed Nov. 27, 1899.

BLACKOLA

Essential feature.—The word "BLACKOLA." Used since December 4, 1897.

34,034. PAINTS, VARNISHES, AND OILS. STANDARD VARNISH WORKS, New York, N. Y. Filed Dec. 13, 1899.

FLATTINE

Essential feature.—The word "FLATTINE." Used since February 1, 1899.

34,035. CERTAIN SURFACE-FINISHING MATERIALS. THE MURALO COMPANY, New York, N. Y. Filed Dec. 6, 1899.

INDELIBLO

Essential feature.—The word "INDELIBLO." Used since October 1, 1899.

34,036. RUG-FASTENERS. SAMUEL B. DONCHIAN, Hartford, Conn. Filed Dec. 7, 1899.

SULTAN

Essential feature.—The word "SULTAN." Used since June, 1895.

34,037. ACETYLENE-GAS GENERATORS OR MACHINES. ACETYLENE GAS MACHINE IMPROVEMENT COMPANY, Jersey City, N. J. Filed Dec. 1, 1899.



Essential feature.—The word "NUERALITE" within a band and a star with rays. Used since September 19, 1899.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

IN RE LOWRY.

Decided November 18, 1899.

1. ACCESS TO RECORDS OF THE OFFICE—CAVEAT—AFFIDAVIT UNDER RULE 75 DISCLOSING CAVEAT—INTERFERENCE.

An applicant by referring to a caveat and quoting therefrom in an affidavit filed under Rule 75 to overcome a prior patent upon which the application was rejected does not thereby withdraw the caveat from the secret archives of the Patent Office and lose the right to have it "preserved in secrecy" so that another applicant with whose application his application is placed in interference becomes entitled to a copy of the caveat.

2. SAME—SAME—RULES 97, 103, AND 108.

Rules 97, 103, and 108, which relate to interference proceedings, do not contain anything which authorizes the disclosure of a caveat which may have been referred to during the *ex parte* consideration of a case.

3. SAME—CAVEAT AND APPLICATION, COURT MAKING DISTINCTION BETWEEN.

A distinction was made by the court in the case of U. S., *ex rel. Pollock*, v. *Commissioner of Patents* (48 O. G., 1283) between a caveat and an abandoned or rejected application for a patent.

IN the matter of the petition of George A. Lowry for a copy of a caveat of William E. Anderson and Frank L. Dyer.

Messrs. Brown & Darby for the petitioner.

Mr. Frank L. Dyer for Anderson and Dyer.

DUELL, *Commissioner:*

The petitioner seeks to obtain a copy of a caveat filed by Anderson and Dyer on March 9, 1895, and bases his petition upon the following state of facts: Anderson and Dyer filed an application for Letters Patent, which was rejected by the Examiner upon reference to a prior patent. To overcome that patent, Anderson and Dyer filed affidavits under Rule 75 and in such affidavits referred to and quoted certain paragraphs from a caveat filed by them on March 9, 1895. The showing thus made was held by the Examiner sufficient to overcome the reference, and it was therefore withdrawn. Thereafter an interference was declared between Anderson and Dyer's application and an application filed by this petitioner.

These facts present this question: Does an applicant by referring to a caveat and quoting therefrom in an affidavit filed under Rule 75 to overcome a prior patent upon which the application stands rejected withdraw the caveat from the confidential archives of the Patent Office and lose the right to have it "preserved in secrecy" so that another applicant with whose application his application is placed in interference becomes entitled to a copy of the caveat?

Section 4902 of the Revised Statutes, after providing by whom and for what purpose and under what conditions a caveat may be filed, states:

Such caveat shall be filed in the confidential archives of the Office and preserved in secrecy.

In conformity with the statute there has been for many years a rule in this Office which provides that—

15. Caveats and pending applications are preserved in secrecy. No information will be given, without authority, respecting the filing by any particular person of a caveat or of an application for a patent or for the reissue of a patent, the pendency of any particular case before the Office, or the subject-matter of any particular application, unless it shall be necessary to the proper conduct of business before the Office, as provided by Rules 97, 103, and 108.

Rules 97, 103, and 108 relate to interference proceedings and, as I read them, contain nothing which authorizes the disclosure of a caveat which may have been referred to during the *ex parte* consideration of a case.

The Office practice for many years has been consistent in refusing to furnish copies of caveats. By special order, under date of December 9, 1875, Mr. Commissioner Duell directed that—

the practice of furnishing copies of expired caveats to parties not authorized to order them by the caveator is discontinued from this date. The law prescribes that a caveat shall be operative for the term of one year from the filing thereof. The limitation in the law appears to effect the operativeness of the caveat and limits it, but not the secrecy; and while a failure to pay a new fee must deprive the caveator of the right to notice, it seems an unjust and unnecessary construction of the law to make it operate as a punishment by the publication of his caveat.

This order has expressly been held to be in force. There are several decisions of my predecessors refusing to furnish copies of caveats, even when they were desired for use in infringement suits.

Mr. Commissioner Hall decided two of these cases—*Hopkins & Robinson Manufacturing Company, ex parte*, (35 MS. Dec., 250,) and *George J. Harding, ex parte*, (37 MS. Dec., 248.) These decisions are referred to in *ex parte Ellis Spear*, (44 MS. Dec., 452,) in which Acting Commissioner Robert J. Fisher said:

The general question involved in this petition is the same as arose in the cases decided by Mr. Commissioner Hall, [*supra.*] In each of these cases the conclusion was reached that the section of the statute which provides that caveats shall be filed in the confidential archives of the Office and preserved in secrecy prevents the furnishing of a copy of a caveat to any one, unless it is shown that permission was given by the caveator. * * * I am informed that since these decisions and even for some time before, it has been the practice of the Office to refuse copies of caveats under circumstances like the present, unless the party filing the caveat shall first consent. My own judgment commends this practice, and I therefore must decline to furnish the copy asked for.

In the case last referred to the caveat was de-

sired for use in an infringement suit, and the decision was rendered after the decision of the Supreme Court of the District of Columbia in *U. S., ex rel. Pollok*, v. *Hall, Commissioner of Patents*, (48 O. G., 1263,) wherein it was held that the Commissioner of Patents could not lawfully decline to furnish a certified copy of an abandoned or rejected application for a patent where it was shown that there was necessity for its use for the purposes of evidence in a pending suit. A distinction seems to have been made by the court between a caveat and an abandoned or rejected application for a patent. The statute (section 4902) expressly prohibits the disclosure of a caveat. It is to—

be filed in the confidential archives of the Office and preserved in secrecy.

An Office rule which would nullify the statute would be unlawful and void.

The question presented in this case is somewhat different in that no patent has yet issued upon the application, an inspection of the file-wrapper and contents of which disclosed the fact that the caveat had been filed, and, furthermore, the copy is not desired for the purpose of evidence in a suit brought upon any such patent. The nearest case in point I find is that of *ex parte Pollok et al.*, (59 O. G., 939.) In that case a copy of a caveat was asked for, based upon the following facts: A patent had issued to one Ford upon which suit for infringement had been brought, and on behalf of the defendant the request was made for a copy of the caveat upon the ground that in an interference proceeding the patentee had given in evidence the fact that he had filed a caveat describing the invention of the patent long before he filed his application for the patent. The petition was denied in view of the statute and the uniform practice of the Office.

No authority is cited in support of the petition; but in the brief it is stated:

How can Lowry now determine whether the action of the Examiner overcoming the date of the Lowry patent was correct, without inspecting the caveat and determining whether it really disclosed the same invention, or whether it was followed by an application with reasonable diligence.

From this I gather that the petitioner bases his claim of right to a copy of the caveat upon the ground that without it he cannot make a motion to dissolve the interference under Rule 122 upon the ground that Anderson and Dyer have not the right to make the claim in interference. To this I think there is a perfect answer. Anderson and Dyer made a partial disclosure of their caveat in an *ex parte* proceeding and for the purpose of overcoming a prior patent cited as a reference. That was a question between the Office and the applicants. Had Anderson and Dyer thereafter asked to have the affidavits in which they referred to their caveat sealed up their request under the well-settled practice of the Office would have been granted. Through inadvertence or because they were willing to have so much of their caveat as they had disclosed in their affidavits made known to their adversary no such request was made, and Lowry has had the advantage, if any, of such disclosure. This, however, does not entitle him to have a copy of the caveat or to use it on a motion to dissolve the interference upon the ground that Anderson and Dyer have not a right to make the claim. If the affidavit had been sealed up, Lowry could have made the motion referred to, basing it upon any grounds known to him. Because he has accidentally come into the possession of the fact that a caveat was filed he is not thereby entitled to a copy of it. Furthermore, there may be other matter in the caveat than that which has any possible bearing upon the interference, and it would be manifestly wrong to disclose such parts to Lowry. It was necessary for Anderson and Dyer to overcome the reference of the prior patent cited by the Examiner by proofs that they had full and complete knowledge of the invention embodied in their application prior to the date of the filing of the application upon which the patent cited as a reference was issued. It was possible to prove that fact by affidavits or in some other way than by referring to the caveat. Because they referred to the caveat for the sole purpose of overcoming the reference I do not think that the protest made by them that the Office should not furnish a copy of the caveat should be ignored.

I cannot agree with the proposition advanced by counsel for Lowry that Anderson and Dyer have made their caveat a part of their open case by referring to it in an affidavit filed to overcome a rejection based upon a prior patent.

The petition might have been denied upon the ground that Lowry's time to make the motion to dissolve long since expired and that the present condition of the case is such that it is still undecided whether any testimony is to be taken in the interference; but I prefer to base my decision upon the ground that under section 4902 of the Revised Statutes copies of caveats may not be furnished even in view of the state of facts set forth in the petition.

The petition is therefore denied.

EX PARTE CASLER.

Decided December 4, 1899.

1. DIVISION—COIN-CONTROLLED APPARATUS.

Upon the question whether the class of coin-controlled apparatus or the class of machines to which that apparatus is applied should take the claims for the combination of the coin-controlled apparatus with that machine, *Held* that to the class of coin-controlled apparatus should be assigned all patents and applications which contain any claim for the coin-controlled device, or for the combination of such devices with the apparatus or machine to which it is applied, or for any structure of that apparatus which would be useful only in a coin-controlled device.

2. SAME—SAME.

Held, further, that if such a case contains, in addition to the matter above specified, any claim for the specific construction of the machine to which the coin-controlled apparatus is applied and which would not be limited in its use to the coin-controlled apparatus it should be divided out, and if made the subject of another application should be classified with that class of machines to which the coin-controlled apparatus is applied.

3. SAME—SAME.

Held, further, that if a case contain a claim for a combination of a coin-controlled device, broadly or specifically stated, with any machine to which it is applied, a claim for the same combination, differing only in setting forth a specific construction of the machine to which the coin-controlled apparatus is applied, should not be allowed in that application or in any other unless the specific form of such machine is not merely an improvement in the machine, but actually enters into the new combination affecting the action of the coin-controlled apparatus.

4. SAME—SAME.

Held, further, that when an application contains claims for a coin-controlled apparatus, in combination with a machine to which said apparatus is applied, and also claims broadly for means for setting that apparatus in operation, in combination with the apparatus, and the only means shown for setting the apparatus in operation is the coin-controlled means, all the claims should remain in the same application and the case be classified under coin-controlled apparatus.

5. SAME—SAME.

Held, further, that if a claim reads "In a coin-controlled apparatus, a telephone," for example, followed by a specific statement of the construction of the telephone, such a claim should be classified with telephones and not with coin-controlled apparatus, as under the court decisions the introductory phrase is not an element of the combination and does not limit the claim to such apparatus.

6. SAME—SAME.

Held, further, that if this practice were followed the class of coin-controlled apparatus would be kept clear of all claims covering *per se* the construction of the machine to which the coin-controlled apparatus is applied, and the classes to which such machines are assigned would also be kept clear of claims involving, broadly or specifically, a coin-controlled device. Under this practice applications would be divided on structural lines, and the decision of *Miller* v. *Eagle Mfg. Co.* (66 O. G., 847) would not prohibit such division.

ON petition.

CONSECUTIVE-VIEW APPARATUS.

Application of Norman Casler filed March 1, 1899, No. 707,295.

Messrs. E. M. Marble & Sons for the applicant.

DURELL, *Commissioner:*

This case is before the Commissioner by petition from the action of the Primary Examiner in refusing to admit an amendment.

The facts in the case may be briefly stated as follows: On February 2, 1898, the petitioner filed an application, Serial No. 668,796, for a patent for "Consecutive-view apparatus." As that case had claims including coin-controlled apparatus, it was assigned to Division XIV and classified under Coin-Controlled Apparatus, Exhibitors, Surface. On September 2, 1898, the Examiner of Division XIV required that application to be divided, saying:

Claims 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 21, 22, and 23 relate to kinetoscopes. These claims do not specifically cover, either as a combination or as a portion of a combination, coin-controlling means which the remaining claims do. Since these sets of claims belong to different arts and are classified differently in the Office, applicant is required to elect which invention he will prosecute in this case and confine his case to the invention so elected.

The applicant complied with the requirement and filed the application now under consideration and changed the title of the original case to "Coin-controlled apparatus." The drawings of the divisional application are substantially a copy of the drawings of the original application, and the claims of the divisional application are the claims relating to the kinetoscope, which the Examiner referred to in his letter requiring division. These claims contain no reference whatever to a coin controlled or operated device. After being informed that these claims were allowable applicant submitted an amendment containing three claims, which included as an element of the combination coin-controlled apparatus. As to these three claims the applicant has this to say in his paper submitting them:

The claims herewith presented were originally included in the parent application, Serial No. 668,796, of which this application is a division, said claims having been substituted for other claims covering the same subject-matter and which were present in the case from the beginning. But upon careful consideration it has been decided that said claims belong in the divisional application rather than in the parent application. In dividing the parent application the line of division suggested by the Examiner having charge of said application was followed. But in view of the decision in *Miller* v. *Eagle Manufacturing Company* and other well-known decisions following the decision in that case, it is clear that where two applications illustrate and describe the same machine or apparatus, the claims of the two applications must be distinguished along structural lines. If one of these two applications of Casler claims simply the structure of the coin-operated controlling mechanism, the other features of invention being claimed in the other application, then it cannot be questioned that the division is along structural lines. We also call attention to decisions in *ex parte Richter* (85 O. G., 1908) and in *ex parte Mathews*, (82 O. G., 1691,) under which decisions it is clear that these claims should be presented in the divisional application rather than in the parent application.

The Examiner refused to admit the proposed claims in the case on the ground that as they included as an element coin-controlled mechanism division would have to be required if they were incorporated in the present case. It is from this action of the Examiner that this petition is taken.

As the applications are substantially the same, both showing and describing the kinetoscope and the coin-controlled apparatus, if there is a legitimate combination between the two devices the proposed claims might properly be placed in either application. The question as to which case they shall be included in should be governed by the Office policy as to classification and examination. If our system of examination is to stand, it is necessary that some proper and definite line of classification should be indicated and followed. This case seems to be a fit one in which to indicate the course of classification and examination of applications containing claims involving coin-controlled mechanism.

Upon examination of the question I find that in the early history of the applications for coin-controlled devices in this Office they were classified with the machines or apparatus to which they were applied, and under this system of classification they were scattered in several different classes in the Office and patents were granted for the combination of a coin-controlled device with a telephone, a coin-controlled device with a photographic camera, a coin-controlled device with a weighing-machine, a coin-controlled device with a music-box, etc. Claims for specific coin-controlled mechanism which should have been placed in interference were patented in different divisions until this condition became intolerable, and therefore orders were issued to form a single class of coin-controlled apparatus which was to take all such apparatus, and under such orders the class was assigned to Division XIV.

At that time the question of division was uncertain, and as the class of coin-controlled apparatus grew subclasses were established of opera-glasses, music-boxes, telephones, etc. Numerous patents

now in this class contain claims for coin-controlled apparatus *per se*, for combination of such apparatus with other machines, as music-boxes, etc., and also for music-boxes *per se*. The question is as to which of these classes—that is, the coin-controlled apparatus or the machines to which the coin-controlled apparatus is applied—shall take the combination claims. It seems to me that it would be bad practice and would lead to confusion and establish the objectionable features that obtained in the old classification were the class of coin-controlled apparatus to be divided and sent to the arts which have the machines to which such apparatus is applied. I am of the opinion that the best results would be produced if the following practice were established: First, that to the class of coin-controlled apparatus should be assigned all patents and applications which contain any claim for the coin-controlled device, or for the combination of such devices with the apparatus or machine to which it is applied, or for any structure of that apparatus which would be useful only in a coin-controlled device. Second, if such a case contained, in addition to the matter above specified, any claim for the specific construction of the machine to which the coin-controlled apparatus is applied and which would not be limited in its use to the coin-controlled apparatus it should be divided out, and if made the subject of another application should be classified with that class of machines to which the coin-controlled apparatus is applied. Third, if a case contain a claim for a combination of a coin-controlled device, broadly or specifically stated, with any machine to which it is applied, a claim for the same combination, differing only in setting forth a specific construction of the machine to which the coin-controlled apparatus is applied, should not be allowed in that application or in any other unless the specific form of such machine is not merely an improvement in the machine, but actually enters into the new combination affecting the action of the coin-controlled apparatus. This is for the reason that if the broader combination be allowed the more specific combination cannot give any additional protection, except such as would be given by a claim to such specific machine in a division or second application. If the broad combination be rejected, a specific claim should not be allowed, because the improvement is not in the combination, which is old, but in such specific machine. In either case the novel specific construction of the machine to which the coin-controlled apparatus is applied should be claimed as an improvement in such machine in a separate application from that in which the broader combination is claimed and passed upon by the division in which such machines are classified and not by the Examiner who has charge of coin-controlled apparatus and who may be unfamiliar with that class of machines. Fourth, when an application contains claims for a coin-controlled apparatus, in combination with a machine to which said apparatus is applied, and also claims broadly for means for setting that apparatus in operation, in combination with the apparatus, and the only means shown for setting the apparatus in operation is the coin-controlled means, all the claims should remain in the same application and the case be classified under coin-controlled apparatus. Fifth, if a claim reads "In a coin-controlled apparatus, a telephone," for example, followed by a specific statement of the construction of the telephone, such a claim should be classified with telephones and not with coin-controlled apparatus, as under the court decisions the introductory phrase is not an element of the combination and does not limit the claim to such apparatus.

If this practice be followed, I am of the opinion that the class of coin-controlled apparatus would be kept clear of all claims covering *per se* the construction of the machine to which the coin-controlled apparatus is applied, and the classes to which such machines are assigned would also be kept clear of claims involving, broadly or specifically, a coin-controlled device. Under this practice applications would be divided on structural lines, and the decision of *Miller* v. *Eagle Manufacturing Co.* (66 O. G., 847) would not prohibit such division.

In reaching this conclusion I have considered the decisions in *ex parte Mathews* (82 O. G., 1691) and *ex parte Richter*, (85 O. G., 1908,) upon which the applicant relies in his contention that these claims should be admitted in the application under consideration. Whatever those decisions may hold, I am of the opinion, after a full consideration of the question, that when the coin-controlled apparatus is placed directly in combination with the machine to which it is attached such a claim should be regarded as a claim for a coin-controlled apparatus as an integral machine and that less confusion of classification will arise if such claim be required to be placed in the application in which the coin-controlled device is claimed. The decisions of Mathews and Richter, so far as they may be inconsistent with this view of the question, are therefore overruled. The Assistant Commissioner, who rendered these decisions, concurs in this.

In reaching the conclusion at which I have arrived I have also taken into consideration what might be said about the present practice of the Office in permitting claims including machine elements, motors, etc., in combination with apparatus to which they are applied to be classified with such apparatus. It seems to me that the question as to how these different things should be classified is merely one of expediency, and the Office practice has determined that it is more satisfactory to permit the machine elements, when they are claimed in combination with the apparatus to which they are attached, to be classified in the art to which that apparatus belongs and that coin-controlled apparatus of all kinds should be put in one class.

Following the practice as here indicated, the proper place for the proposed claims is in the original case, where they now are, and the Examiner's action in refusing to admit them in the present application was correct.

The petition is therefore denied.

Patents No. 641,253 to 641,668.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 3. TUESDAY, JANUARY 16, 1900 PRICE—$5 per year.

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Cancellation of Revenue-Stamps.

Amending regulations as to cancellation of documentary and proprietary stamps.

CIRCULAR No. 142.—INT. REV. No. 549.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
Washington, D. C., December 1, 1899.

To Collectors of Internal Revenue and others:

Existing regulations providing for the cancellation of adhesive revenue-stamps by writing or stamping thereon, with ink, the initials of the name and the date when attached, or by cutting and canceling said stamp with a machine or punch which will affix the initials and date as aforesaid, and the cancellation of imprinted stamps on checks, drafts, or other instruments by filling out the dates and blank lines on said instruments in the usual manner of drawing checks and drafts, or by perforating through the stamp and paper to which it is attached the amount in figures for which said instrument was drawn, having proved inadequate to prevent frauds on the revenue which have been, and now are, extensively practiced, said regulations are hereby amended by adding thereto the following provision and requirement:

In all cases where a documentary stamp of the denomination of 10 cents or any larger denomination shall be used for denoting any tax imposed by the act of June 13, 1898, the person using or affixing the same shall, in addition to writing or stamping theron, with ink, the initials of his name and the date when affixed, mutilate said stamp by cutting three parallel incisions lengthwise through the stamp, beginning not more than one-fourth of an inch from one end thereof, and extending to within one-fourth of an inch of the other end.

Where such stamp is canceled by cutting or perforating in any manner authorized by existing regulations, as aforesaid, the mutilation herein provided will not be required.

This provision shall take effect and be in force on and after December 15, 1899.

G. W. WILSON,
Commissioner.

Approved:
L. J. GAGE,
Secretary.

Amended Rule of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 5, 1899.

Rule 47 of the Rules of Practice of the United States Patent Office, edition of July 18, 1899, is amended to read as follows:

"47. If the application be made by an executor or administrator of a deceased person or the guardian, conservator, or representative of an insane person, the form of the oath will be correspondingly changed.

"The oath or affirmation may be made before any person within the United States authorized by law to administer oaths, or, when the applicant resides in a foreign country, before any minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States, or before any notary public of the foreign country in which the applicant may be, *who is authorized by the laws of his country to administer oaths*, the oath being attested in all cases, in this and other countries, by the proper official seal of the officer before whom the oath or affirmation is made. When the person before whom the oath or affirmation is made is not provided with a seal, his official character shall be established by competent evidence, as by a certificate from a clerk of a court of record or other proper officer having a seal.

"*When the oath is taken before an officer in a country foreign to the United States, all the application papers must be attached together and a ribbon passed one or more times through all the sheets of the application, and the ends of said ribbon brought together under the seal before the latter is affixed and impressed, or each sheet must be impressed with the official seal of the officer before whom the oath was taken, or if he is not provided with a seal, then each sheet must be initialed by him.*"

C. H. DUELL,
Commissioner.

DEPARTMENT OF THE INTERIOR, *December 6, 1899.*

Approved, the last paragraph of this rule to take effect May 1, 1900.

E. A. HITCHCOCK,
Secretary of the Interior.

CERTIFICATES OF REGISTRATION ISSUED JANUARY 16, 1900

Labels.

7,298.—Title: "CANFIELD DRESS SHIELDS." (For Dress-Shields.) *The Canfield Rubber Company*, Bridgeport, Conn. Application filed December 20, 1899.

7,299.—Title: "BRENNERBERG RED SEAL." (For Wine.) *Jacob Brenner Wine Company*, Doniphan, Kans. Application filed December 21, 1899.

7,300.—Title: "DRY CLIMATE." (For Cigars.) *The Solis Cigar Company*, Denver, Colo. Application filed December 26, 1899.

7,301.—Title: "WHITE PREMIUM SOAP." (For Soap.) *Joseph Biechele*, Canton, Ohio. Application filed December 22, 1899.

7,302.—Title: "REYNOLDS' PETROLEUM HAIR TONIC." (For Hair Tonic.) *Thomas S. Armstrong*, Plainfield, N. J. Application filed August 18, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 9, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Dec. 18	Dec. 28	82
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Dec. 18	Dec. 26	39
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 18	Dec. 26	166
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Dec. 16	Jan. 2	83
346	I. Tillage and Fences	Dec. 14	Dec. 26	126
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Dec. 13	Dec. 27	147
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 13	Dec. 26	121
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Dec. 13	Dec. 26	142
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 12	Dec. 26	126
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Dec. 12	Dec. 26	164
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 11	Dec. 29	87
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 11	Dec. 28	156
93	XXI. Textiles, etc	Dec. 11	Dec. 27	192
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 11	Dec. 27	153
106	II. Farm Stock, Products, etc	Dec. 11	Dec. 26	208
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Dec. 11	Dec. 26	187
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Dec. 11	Dec. 26	106
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 11	Dec. 26	200
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 11	Dec. 26	134
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Dec. 11	Dec. 26	143
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 11	Dec. 26	208
102	XIX. Stoves and Furnaces	Dec. 11	Dec. 26	212
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Dec. 11	Dec. 26	144
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Dec. 11	Dec. 26	145
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 11	Dec. 26	150
97	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 11	Dec. 26	121
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 11	Dec. 26	160
	Between one and two months.			
253		Dec. 9	Dec. 28	138
105	X. Carriages and Wagons	Dec. 9	Dec. 26	172
248	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 7	Dec. 16	187
120	XVIII. Steam-Engineering, etc	Dec. 6	Dec. 26	118
240	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 6	Dec. 11	238
291	VII. Velocipedes, Games, and Toys.	Dec. 4	Dec. 30	93
91	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Nov. 28	Dec. 16	242
35	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 20	Dec. 11	290
123	XXVIII. Pneumatics, Air and Gas Engines, etc.	Nov. 20	Dec. 6	118
	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.			

Total number of applications awaiting action..... 5,643

Applications Under Examination—Continued.

Under one month			
*Designs	Jan. 2	Jan. 6	40
†Trade-Marks	Jan. 4	Jan. 8	14
‡Labels and Prints	Jan. 6	Jan. 9	1

ISSUE OF JANUARY 16, 1900.

Patents	411—No. 641,253 to No. 641,663,	inclusive.
Designs	15—No. 32,103 to No. 32,117,	inclusive.
Trade-Marks	22—No. 34,038 to No. 34,059,	inclusive.
Labels	5—No. 7,298 to No. 7,302,	inclusive.
Prints	None.	
Reissues	1—No. 11,862.	
Total issue	454	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1		Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	2		New Jersey	18	1
California	13		New Mexico Territ'y		
Colorado	10	1	New York	66	8
Connecticut	4	1	North Carolina	1	
Delaware			North Dakota	2	
District of Columbia	3		Ohio	32	1
Florida	1		Oklahoma Territ'y	1	
Georgia	1		Oregon	2	
Hawaii			Pennsylvania	44	2
Idaho			Rhode Island	2	
Illinois	35	2	South Carolina	2	
Indian Territory			South Dakota		
Indiana	9		Tennessee	2	
Iowa	8		Texas	3	
Kansas	7	1	Utah		
Kentucky	2		Vermont	2	
Louisiana	3		Virginia	4	1
Maine	2		Washington	1	
Maryland	5	1	West Virginia	5	
Massachusetts	39	1	Wisconsin	4	
Michigan	14	6	Wyoming	1	
Minnesota	6		U. S. Army		
Mississippi			U. S. Navy		
Missouri	9		Total to citizens of the United States	360	26
Montana	1				
Nebraska	2				

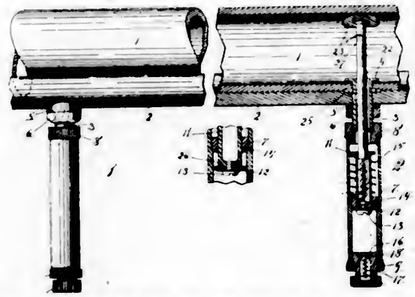
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	2	
Australia			Japan		
Austria-Hungary	2		Jamaica		
Barbadoes			Mexico	4	
Belgium			Netherlands		
Brazil			Newfoundland		
British West Indies			New South Wales	1	
Canada	4	1	New Zealand	1	
Cape Colony			Norway		
China			Queensland		
Colombia			Roumania		
Cuba	1		Russia		
Denmark			Scotland		
Dutch West Indies			South African Republic	1	
Egypt			Sweden		
England	22		Switzerland	1	
Finland			Victoria	2	
France	4		Western Australia		
Germany	20		Total to citizens of foreign countries	66	1
Guatemala					
India					
Ireland	1				

PATENTS

GRANTED JANUARY 16, 1900.

641,253. AIR-PUMP FOR PNEUMATIC TIRES. CHARLES H. AMIDON, Buffalo, N. Y. Filed May 1, 1899. Serial No. 715,115. (No model.)



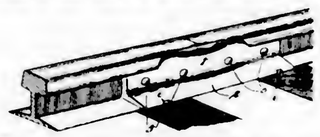
Claim.—1. In a device of the class described, the combination with a pump barrel or cylinder, of a piston-rod, a sleeve loose on the piston-rod and having a plunger or piston and a flange, a spring interposed between the piston-rod and the plunger, a collar loose on the sleeve which is adapted to engage an abutment on the barrel, and a spring interposed between the flange and the collar.

2. In a device of the class described, the combination with a pump-barrel having an internal abutment, of a hollow piston-rod having air-exits, a stem loosely fitted into and resting against one end of the hollow piston-rod, a spring inside the piston-rod and abutting the end of the stem at one end and extending beyond the end of the piston-rod at the other end, a sleeve loose on the piston-rod and having a piston or plunger, a collar loose on this sleeve which is adapted to engage the interior abutment of the barrel, and a spring bearing on the collar which actuates the sleeve.

3. In a device of the class described, the combination with a pump-barrel, of a cylinder-head therefor having an air-inlet, and a valve controlling said inlet, a dust-cap screwed onto said head, air-filtering material held between the head and dust-cap, an air-inlet tube secured to the cap and provided with inlet-apertures, and a cap provided with inlet-apertures which is adapted to turn on the tube whereby the apertures can be brought into register with the aforesaid apertures or moved out of register therewith.

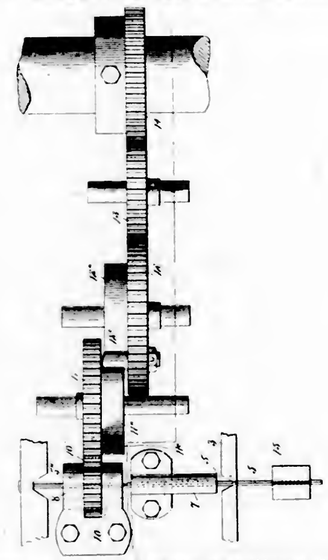
4. In combination with the herein-described automatic pump for pneumatic tires; the air-inlet cap 30, and cap-tube 29, said cap 30 and tube 29, being provided with registering holes through which air is drawn to the pump, and the cap 30, adapted to be turned so as to close said openings substantially as shown and described.

641,254. RAIL-JOINT. WILLIAM T. ANDERSON, Harmony, S. C. Filed June 15, 1899. Serial No. 720,641. (No model.)



Claim.—The combination with adjacent cross-ties, and the rail-sections supported thereon and abutting therebetween, of an outer connecting angle-plate, fitting against the webs and flanges of the rails, overlapping the joint therebetween, and having an inwardly-projecting longitudinal flange located at an intermediate portion of the lower edge of the plate, said lower edge having openings or notches located beyond the opposite ends of the intermediate flange, over the respective cross-ties, and for the reception of fastenings, and an intermediate lateral enlargement of the upper portion of the plate projecting at the outer side and above the top thereof, and terminating flush with the treads of the rail-sections, and an inner angle-plate, having an inwardly-projecting longitudinal flange at the lower edge and intermediate of the opposite ends thereof, the flanges of both plates extending beneath the joint between the rail-sections, and located between the adjacent cross-ties, substantially in the manner described.

641,255. NAIL-MAKING MACHINE. JAMES ATKINS, New York, N. Y. Filed Mar. 25, 1899. Serial No. 710,444. (No model.)



Claim.—1. In a wire-nail machine, the combination of a cutting-off device, means for feeding non-circular wire through the cutting-off device, a holding device, an intermittently-rotating twisting device located between the cutting-off device and the holding device, and means for rotating said twisting device while the cut-off wire is being held by the holding device, substantially as set forth.

2. In a machine for making twisted non-circular wire nails, the combination of a cutting-off device, means for holding from rotation a cut-off wire section, a twisting device located between such holding means and the cut-off device, and a guiding device for guiding the cut-off wire section into the twisting device, such guiding devices engaging with the non-circular wire to present same in proper angular relation to the twisting means.

3. In a machine for making twisted non-circular wire nails, the combination of a cutting-off device, feeding and guiding devices for feeding the wire and the cut-off sections in definite angular position, a twisting device comprising a chuck conforming to the wire and adapted to receive the wire when fed in such definite angular position, and to allow same to pass longitudinally through it, holding means for holding from rotation a part of a wire section that has passed through the said chuck, and means for rotating said twisting device while the wire section is so held and for maintaining said twist-

ing device in fixed and definite angular position while the wire is being fed through same.

641,256. AUTOMATIC LOCKING DEVICE FOR CAN-COVERS. JOHN W. BADDOCK and DANIEL W. CLEARY, Haverhill, Mass. Filed Mar. 24, 1899. Serial No. 710,310. (No model.)



Claim.—1. A receptacle having an interior recess near the top thereof, a cover having a downwardly-projecting flange, catches secured thereto which are adapted to automatically engage said recess, a main handle fixed on said cover, apertures in said cover, a supplemental handle arranged within said main handle and having arms extending through said apertures, said arms being arranged to slide therein, and means carried by said arms for engaging said catches and withdrawing them from engagement with said projection when said supplemental handle is drawn in the direction for removing the cover.

2. A receptacle having an interior recess near the top thereof, a cover therefor, spring-catches carried thereby which are adapted to be automatically pressed inwardly as the cover is placed in position, and spring outwardly when opposite said recess so as to engage the same, a movable handle having arms which slide in and out with respect to the cover, and a projection carried by each of said arms for engaging said catches and drawing them out of engagement with said recess when said handle is moved outwardly.

3. A receptacle having an interior recess near the top thereof, a cover having a main handle secured thereto, and having a depending flange which is adapted to enter the top of said receptacle, a catch secured to said flange which is adapted to automatically engage said recess when the cover is placed in said receptacle, a supplemental handle located under said main handle which is adapted to slide with respect thereto, means disconnected from said catch and controlled by said supplemental handle for engaging said catch and withdrawing the same from said recess when said supplemental handle is moved in the direction for removing the cover.

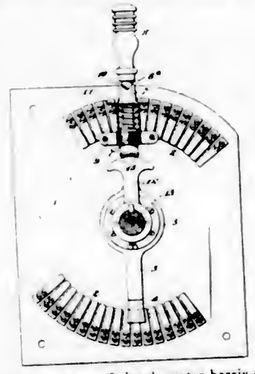
4. A receptacle having an interior recess near the top thereof, a cover having a depending flange which fits into said receptacle, spring-catches secured to the inner wall of said flange which are adapted to engage said recess when the cover is placed on the receptacle, inclined projections connected to said catches, a handle having arms which pass through the top of the cover, projections carried by the lower ends of said arms which are adapted and arranged to engage said inclined projections upon upward movement of said handle and its arms and withdraw said catches from engagement with said recess.

5. A receptacle having a notch or groove near the top thereof, a cover having a depending flange which fits into said receptacle, spring-catches secured to the inner wall of said flange, side projections carried by said catches which are adapted to engage said groove, top projections on said catches, each having an inclined side, a handle having arms extending through the top of said cover, inclined projections carried by the lower ends of said arms, the inclined surfaces thereof being adapted and arranged to engage the inclined sides of said top projections upon an upward movement of said handle.

6. A receptacle having an annular groove near the top thereof, a cover having a main handle secured thereto and having a depending flange which is adapted to enter the top of said receptacle, spring-catches secured to said flange and adapted to automatically engage said groove when the cover is placed on said receptacle, a supplemental handle located under said main handle, a sliding connection between said supplemental handle and said cover, means carried by said supplemental handle for engaging said catches and withdrawing the same from said groove upon said supplemental handle being pulled outwardly.

7. A receptacle having a notch or groove near the top thereof, a cover having a handle secured thereto, a flange depending from said cover which is adapted to enter said receptacle, catches pivoted to said flange which are adapted and arranged to engage said groove, a supplemental handle arranged adjacent to said main handle having depending arms which extend through the top of said cover, means carried by said arms for engaging said catches and withdrawing the same from said groove upon movement of said supplemental handle, a spring interposed between said handles for returning the supplemental handle to its normal position after it has been moved.

641,257. ELECTRICAL CONTROLLING DEVICE. HENRY P. BALL, New York, N. Y., assignor to the Ward Leonard Electric Company, Hoboken, N. J. Filed Oct. 24, 1896. Serial No. 609,940. (No model.)



Claim.—1. In apparatus of the character herein described, the combination with a series of stationary and moving contact members, of an operating-handle for each movable contact member, a shaft common to said movable members, a locking device for each movable switch member whereby said members may be locked to the shaft, and means for disengaging said locking device through the rotation of the handles on their own axes, substantially as set forth.

2. In apparatus of the character herein described, the combination with a series of stationary and moving contact members, of an operating-handle for each movable contact member, a shaft common to said movable members, a locking-arm adjacent to each movable switch member and secured to said shaft, said arm having a head provided with a socket, a bearing in each movable switch member for a rotary and longitudinally-movable operating-handle carrying a locking-head adapted to enter the socket of its adjacent locking-arm and whereby the movable switch members are locked to the shaft, and means for disengaging said locking heads and arms by the rotation of the handles on their own axes, substantially as set forth.

3. In apparatus of the character herein described, the combination with a series of stationary and moving contact members, of an operating-handle for each movable contact member, a shaft common to said movable members, a locking-arm adjacent to each movable switch member and secured to said shaft, said arm having a curved head provided with a socket, a bearing in each movable switch member, for a rotary and longitudinally-movable operating-handle carrying a locking-head adapted to enter the socket of its adjacent locking-arm and whereby the movable switch members are locked to the shaft, a spring on the spindle of each handle for forcing its locking-head automatically into its respective socket as it rides over the curved head, and means for disengaging said locking heads and arms by the rotation of the handles on their own axes, substantially as set forth.

4. In apparatus of the character herein described, the combination with a series of stationary and moving contact members, of an operating-handle for each movable contact member, a shaft common to said movable members, a locking-arm adjacent to each movable switch member and secured to said shaft, said arm having a head provided with a socket, a bearing in each movable switch member, for a rotary and longitudinally-movable operating-handle carrying a locking-head adapted to enter the socket of its adjacent locking-arm, and whereby the movable switch members are locked to the shaft, cam edges on the bearings for the handles, and pins passing through the spindles of said handles whereby through the rotation of the handles on their own axes said pins will move upward on said cams and raise the locking-heads from their respective sockets, substantially as set forth.

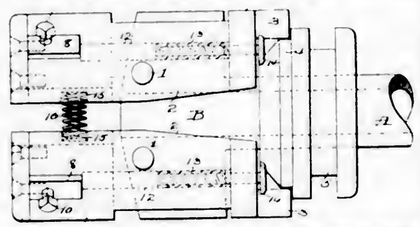
5. In apparatus of the character herein described, the combination with a series of stationary and moving contact members, of an operating-handle for each movable contact member, a shaft common to said movable members, a locking-arm adjacent to each movable switch member and secured to said shaft, said arm having a curved head provided with a socket, a bearing in each movable switch member, for a rotary and longitudinally-movable operating-handle carrying a locking-head adapted to enter the socket of its adjacent locking-arm, and whereby the movable switch members are locked to the shaft, a spring on the spindle of each handle for forcing its locking-head automatically into its respective socket as it rides over the curved head, cam edges on the bearings for the handles, and pins passing through the spindles of said handles whereby through the rotation of the handles on their own axes said pins will move upward on said cams and raise the locking-heads from their respective sockets, substantially as set forth.

6. In a regulator for electric circuits, the combination with a pair of switchboards each provided with a series of stationary contact-plates, of two movable switch-arms, and means for operating said arms simultaneously.

7. In apparatus of the character herein described, the combination with two or more pairs of switchboards, each provided with a series of stationary contact-plates, of a movable switch member for each board, an operator for each pair of movable switch members, and means for locking said operators together to operate two or more pairs of switches simultaneously.

8. In apparatus of the character herein described, the combination with two or more pairs of switchboards each provided with a series of stationary contact-plates, of a movable switch member for each board, an operator for each pair of movable switch members, a shaft passing through said switchboards, and means for locking said operators to said shaft to operate two or more pairs of switches simultaneously.

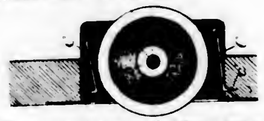
641,258. SCREW-CUTTING MACHINE. JAMES A. BECHER, Mishawaka, Ind., assignor to the Becher Machinery Company, same place. Filed Sept. 22, 1899. Serial No. 731,298. (No model.)



Claim.—1. In a screw-cutting machine, the combination of a head, jaws pivotally connected therewith, said jaws having a series of radial grooves of equal sizes in their forward ends and extending from the inner to the outer edges of said jaws, plates secured to the forward ends of said jaws, die-casings removably disposed in said grooves and extending through the same, a die-adjusting screw in the outer end of each casing and each casing having a socket in one side, and a series of spring-actuated longitudinally-disposed pins mounted in the jaws and entering the sockets in the removable die-casings.

2. The combination with a shaft having a head at one end, of jaws recessed to receive the head and provided at their outer ends with recesses or sockets, die-casings mounted in said recesses or sockets, spring-actuated locking-pins for locking the die-casings in place, curved plates secured to the rear ends of said jaws, each plate having a rearwardly-projecting lug, a conical collar engaging said lugs and springs tending to normally separate the front ends of the jaws.

641,259. PULLEY. JOHN BLACK, Blue Island, Ill. Filed June 12, 1899. Serial No. 720,178. (No model.)



Claim.—The combination of a pulley-frame having a front plate and rearwardly-extending side plates, a pulley-wheel mounted or journaled in the side plates, and a dog or dogs fastened to the side plates near the rear edge of the same and having their free ends bent outwardly at substantially right angles and lying within the ends of the plates before the pulley-frame is inserted in place for use and adapted to be forced outward beyond the ends of the side plates to attach and fasten the pulley-frame in place, substantially as described.

641,260. CANCELING-STAMP. CARL R. BLASSE, Pittsburg, Pa. Filed Mar. 1, 1899. Serial No. 707,248. (No model.)



Claim.—1. The combination with a hand-stamp, of ribbon-feeding devices operating independently of the action of the stamp including an operating element disposed within reach of a hand grasping the grip of the stamp, substantially as specified.

2. The combination with a hand-stamp, of ribbon-feeding devices including an operating-lever extending upward adjacent to the handle of the stamp said lever being adapted to operate the ribbon-feeding devices independently of the action of the stamp, substantially as specified.

3. The combination with a hand-stamp, of an inking-ribbon, ribbon-spools carrying said ribbon, the spindle of one of the ribbon-spools having a ratchet-wheel, an operating-lever arranged adjacent to the grip of the stamp and adapted to be grasped by the hand and operated independently of the action of the stamp, and a pawl carried by said lever in operative relation with the ratchet-wheel, substantially as specified.

4. The combination with a hand-stamp, of inking devices having a ribbon, ribbon-spools having their spindles mounted in bearings in the head of the stamp, pressure-springs for frictionally holding the ribbon-spools in their adjusted positions, and ribbon-spool-feeding devices including an operating-lever adapted to be grasped by the hand and operated independently of the action of the stamp and a pawl for engaging a ratchet-wheel on one of the ribbon-spool spindles, substantially as specified.

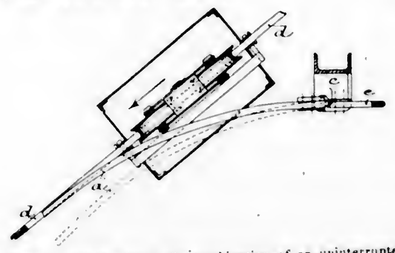
5. The combination with a hand-stamp, of inking devices having a ribbon, ribbon spools having their spindles mounted in bearings in the head of the stamp, and provided with exposed thumb-wheels, pressure devices for frictionally holding the ribbon-spools in their adjusted positions, and ribbon-spool-feeding devices having an operating-lever adapted to be grasped by the hand and operated independently of the action of the stamp and a pawl for engaging a ratchet-wheel on one of the ribbon-spool spindles, substantially as specified.

6. A hand-stamp having a head provided at its under side with a type-plate seat and adjacent parallel guides, a type-plate removably fitted in said guides, and a locking device consisting of a bolt vertically disposed having the outturned ear forming a grip, said bolt being mounted upon the head of the stamp to engage and secure the type-plate in its operative position, substantially as specified.

7. A hand-stamp having a hollow head provided at its under side with a type-plate seat, a type-plate fitted to slide in said seat, a spring-actuated locking-bolt mounted upon the head of the stamp for securing the type-plate in its normal position, inking devices including a ribbon and ribbon-spools, and ribbon-feeding devices including an operating-lever, a pawl carried by the lever, and a ratchet-wheel fixed to one of the ribbon-spool spindles, said locking-bolt being provided with an ear or grip overhanging said pawl to limit the backward movement thereof, substantially as specified.

8. A hand-stamp having a hollow head comprising side walls, a connecting lower wall forming, at its under side a type-plate seat and parallel opposite guide-flanges, and a flanged cap inclosing the upper edges of said side walls, a stamp-handle having a shank or stem connecting said cap and lower wall, a type-plate removably fitted upon said seat, and inking devices including a ribbon, ribbon-spools, and ribbon-spool-feeding devices, substantially as specified.

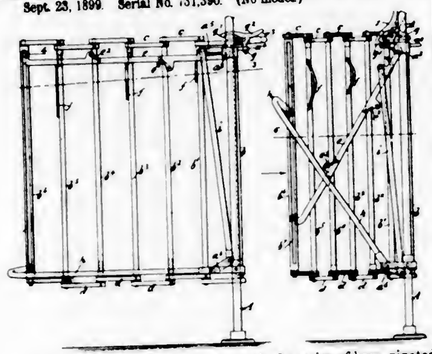
641,261. SWITCH FOR SUSPENDED TRAMWAYS. ADOLF BLEICHERT and RUDOLF PFAFFENBACH, Leipsic, Germany. Filed Feb. 1, 1899. Serial No. 704,097. (No model.)



Claim.—1. In a railway, the combination of an uninterrupted chief rail, a branch, a switch connecting or disconnecting the branch rail with the uninterrupted chief rail and adapted to swing in approximately a horizontal plane, an inclined but nearly-vertical pivot for the switch, whereby the switch after having been opened automatically swings shut by gravity on said nearly-vertical pivot.

2. An automatic switch for suspended railways consisting of the combination of suitable hangers supporting the rails forming the switch, a movable rail pivoted in a bearing supported on one of said hangers, means for automatically closing the switch when said movable rail is released, a rigid arm fastened to said movable rail and extending by said bearing along one of the rails leading into the switch, a catch-lever pivoted to said rail and being provided with a notch adapted to engage with said rigid movable-rail arm and an extension of said catch-lever projecting along said rail leading into the switch and adapted to be depressed by the flanges of the wheels of approaching cars, substantially as and for the purpose set forth.

641,262. FOLDING GATE. JOHN BODE, Jersey City, N. J. Filed Sept. 23, 1899. Serial No. 731,390. (No model.)



Claim.—1. A folding gate composed of a series of bars, pivoted connecting-links, a lever traversing the gate, eyes on the lever that engage alternate bars, and a sliding connection between the outermost bar and the free end of the lever, substantially as specified.

2. A folding gate composed of a series of bars, pivoted connecting-links, tapering abutments on alternate bars, a lever adapted to contact with the abutments, and eyes on the lever which engage the intermediate bars, substantially as specified.

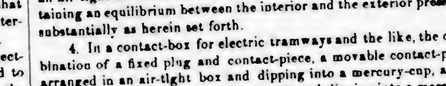
3. A folding gate composed of a series of bars, pivoted connecting-links, tapering abutments on alternate bars, a lever adapted to contact with the abutments, eyes on the lever which engage the intermediate bars, and means for causing a sliding engagement between the lever and the outermost bar, substantially as specified.

4. A folding gate composed of a series of bars, pivoted connecting-links, a pair of levers that movably engage the outermost bar, and a rod that connects the levers, substantially as specified.

5. A folding gate composed of a series of bars, pivoted connecting-links, a pair of levers that movably engage the outermost bar, means for connecting the levers, means for throwing alternate bars out of vertical alinement, and means for locking the gate in its terminal positions, substantially as specified.

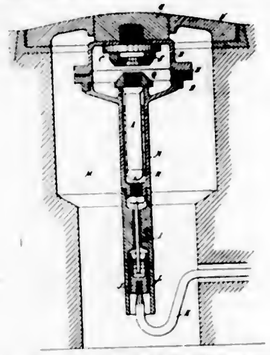
6. A folding gate composed of a series of bars, pivoted connecting-links, a pair of levers that movably engage the outermost bar, tapering abutments on alternate bars, eyes on one of the levers that engage the intermediate bars, and a catch for locking the gate in its terminal positions, substantially as specified.

641,263. HYDRAULIC PACKING. JAMES A. BONFIGLIO, New Orleans, La. Filed May 3, 1898. Serial No. 679,606. (No model.)



Claim.—The herein-described hydraulic packing-ring consisting of a straight strip of leather provided with chamfering ends, bent longitudinally into cylindrical form with the ends overlapped and secured together with flexible cement, bent laterally into U shape in radial section, and finally lined with a yielding metallic ring of the same shape, substantially as described.

641,264. CONTACT-BOX FOR ELECTRIC TRAMWAYS. EDOUARD BONNET, JULES PAUFIQUE, and GEORGES LINIÈRE, Lyons, France. Filed June 16, 1899. Serial No. 720,860. (No model.)



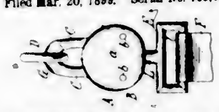
Claim.—1. In a contact-box for electric tramways and the like in which the current is taken from plugs level with the surface of the road by means of a magnetized bar, the combination with the fixed contact C and movable contact A, of a metallic rod I in electric contact with the movable contact A and connected to the end of the conducting-cable, so as to transmit the current from the cable to the contact A without a rigid connection, substantially as herein shown and described.

2. In a contact-box for electric tramways and the like in which the current is taken from plugs level with the surface of the road by means of a magnetized bar, the combination of an air-tight box inclosing and protecting the contact-pieces C and A, with a bell arranged at the lower part of said air-tight box for protecting that part of the cable from which the current is taken, substantially as herein shown and described.

3. In a contact-box for electric tramways and the like in which the current is taken from plugs level with the surface of the road by means of a magnetized bar, the combination of an air-tight box with an air-tight elastic chamber P communicating with the box and maintaining an equilibrium between the interior and the exterior pressure, substantially as herein set forth.

4. In a contact-box for electric tramways and the like, the combination of a fixed plug and contact-piece, a movable contact-piece arranged in an air-tight box and dipping into a mercury-cup, a rod in communication with said mercury-cup and dipping into a mercury-cup carried by the conducting-cable, and a protecting-bell carried by the air-tight box, substantially as herein set forth.

641,265. SNAP-CATCH, &c. JOHN DE GROAT BRAMINGTON, New York, N. Y. Filed Mar. 20, 1899. Serial No. 709,752. (No model.)



Claim.—1. In snap-catches, the combination with a body and hook-jaws pivoted thereto and having opposed bearing-faces, of a rotary block between said jaws having a cam-face acting against the faces thereof, and a shank connected to said block for operating it.

2. In snap-catches and the like, the combination with a body, of two jaws pivoted thereto and having opposing bearing-faces, of a block between said faces of said jaws having an annular cam-face engaging said faces for opening and closing the jaws, and a shank for operating said block.

3. In snap-catches and the like the combination with a body and two jaws pivoted therein and having opposing cam-faces, of an approximately spherical cam between and engaging said faces, and movable forwardly and rearwardly for opening and closing the jaws, and a shank connected to said cam for operating it.

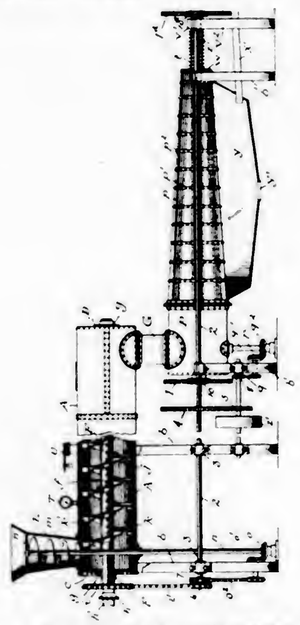
4. In snap-catches and the like, a body and two jaws pivoted thereto and having opposing cam-faces, in combination with a rotary block between and engaging said faces and movable to open and close said jaws, and a shank formed integrally with said block for operating it.

5. In snap-catches and the like, a body having sockets *f* and *h* and a recess between said sockets, two jaws pivoted thereto within said recess, and having opposing cam-faces, of a rotary loop member connected to said body and consisting of a single integral part having a shank L within said socket *h*, a block J forming part of and rotating with said member between said jaws and having a cam-face bearing against the cam-faces thereof, and a pin M extending from said block into said socket *f*, said member movable forwardly and rearwardly to open and close said jaws.

6. In snap-catches, the combination with two pivoted jaws of a body carrying said jaws and consisting of two halves having internal cavities *i*, said jaws pivoted at opposite sides of said cavities and having opposing cam-faces opposite the cavities, a circular rotary block J within said shell between and engaging said cam-faces, and movable forwardly and rearwardly to open and close said jaws, and a shank connected to said block for operating the latter.

7. The improved snap-catch consisting of two jaws, a body carrying said jaws and consisting of two half-shells having opposite jaw-recesses *d*, and opposing cavities *i*, of a block J between said half-shells and having an annular face fitting and rotative in said cavity, a shank L fixed to said block, and an eye *l* connected to said shank outwardly of said body, substantially as and for the purpose set forth.

641,266. RENDERING AND PRESSING APPARATUS. JOSEPHUS F. BUSHELLS, Irvington, Va., assignor of one-fourth to Albro J. Morse, Harborton, Va. Filed July 19, 1898. Renewed May 31, 1899. Serial No. 718,921. (No model.)



Claim.—1. The combination of a cooking-cylinder; an agitator in the said cylinder to stir the material that is being cooked; a compressor-case having means for pressing the cooked material after it has passed from the cylinder; a neck joining a discharge-opening in the cooking-cylinder with the said compressor-case; and a force-feed screw revolving in said neck.

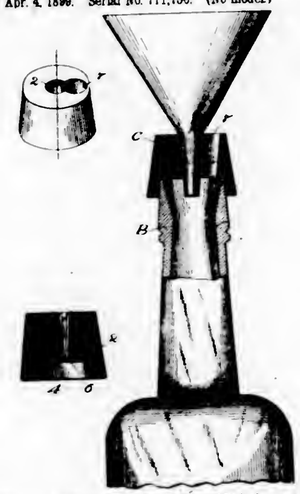
2. In a cooking apparatus the combination of a cooking-cylinder; a revoluble agitator extending lengthwise within the cylinder; inlets for steam under pressure and opening into the cylinder; a feeding-in device at one end of the cylinder which permits continuous feeding of the material to be cooked and at same time prevents back escape of steam; a discharge-opening at the other end of the cylinder; a compressor-case having means for pressing the cooked material after it has passed from the cylinder; and a force-feed device interposed between the said discharge-opening of the cylinder and the entrance to the compressor.

3. The combination of a cooking-cylinder; an agitator in the said cylinder to stir the material that is being cooked; a compressor-case below the cylinder; a neck, G, connecting the side of the cylinder with the side of the compressor-case; a shaft extending longitudinally through the compressor-case and projecting from both ends thereof; two gear-wheels—one on each of said projecting ends of the compressor-shaft; a driven shaft extending lengthwise of the compressor-case and having two gear-wheels each of which meshes with a different one of said wheels on the compressor-shaft.

4. The combination of a tapered compressor case having its small end open; a revoluble compressing-screw in the said case and having its shaft end projecting from said small end; and a spring-pressed plate aronnd the shaft end and closing the small end of the said case.

5. In a compressor-case the combination of a large section end cylindric in shape and imperforate; a tapered section having longitudinal bars or slats with open spaces between them and its large end joined to said cylindric section end; and hoops exteriorly surrounding the bars or slats of said tapered section.

641,267. LIQUID-SAVER. HENRY T. CAHILL, West Union, W. Va. Filed Apr. 4, 1899. Serial No. 711,756. (No model.)



Claim.—1. A device of the class specified, formed in one piece from rubber or cork and constructed to fit over the neck of a bottle and also to receive a funnel and having an air-escape outlet, substantially as described.

2. A device of the class specified, consisting of compressible material and having a bore of different sizes and also having an outlet beyond the bore, substantially as described.

3. A device of the class specified, having a bore of different diameters one portion of which is adapted to receive the neck of a bottle and the other portion of which is tapered to receive the tube of a funnel, and also having an air-escape outlet opening into the tapered portion of the bore, substantially as described.

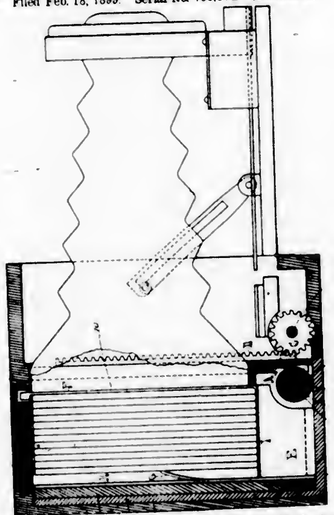
4. A device of the class described, formed of compressible material having a bore of different diameters, one portion of which is adapted to receive the neck of a bottle and the other portion of which is constructed to receive the tube of a funnel, substantially as described.

5. A device of the class described formed of compressible matter adapted to be sprung over the neck of a bottle and held thereon

solely by frictional engagement therewith, and having a bore to receive the tube of a funnel and an air-escape outlet opening into the bore, substantially as described.

6. A device of the class described, constructed to fit over the neck of a bottle or the like and having a bore in which the tube of a funnel is adapted to fit, said device being formed of compressible material, and a casing or jacket of metal surrounding it and provided with an opening adapted to register with the bore of the compressible part, substantially as described.

641,268. MAGAZINE-CAMERA. JACOB J. CHASE, Newburyport, Mass. Filed Feb. 18, 1899. Serial No. 706,074. (No model.)



Claim.—1. In a device of the character specified, the combination with the body of the camera, of a box forming a part thereof, means in said box for supporting a stack of plates, yielding means therein for holding the plates closely grouped, a drawer mounted to slide into and out of said box and having an open front, said drawer acting, when withdrawn, as a receptacle in which the exposed plate is transferred, a flexible opaque curtain, and means for automatically drawing said curtain over the front of the drawer as the latter is withdrawn, to shield the exposed plate during transfer.

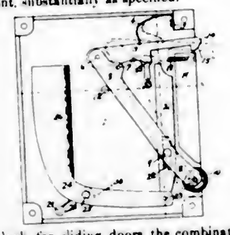
2. In a device of the character specified, the combination of a box and a drawer adapted to be slid into and out of said box and having an open front, means in one of said members for supporting a stack of plates, the other member acting as a receptacle for the transfer of the exposed plate when the drawer is withdrawn, a spring-roller mounted in one of said members, and an opaque curtain attached at one end to said roller and at the other end to the other member, said curtain automatically unrolling and covering the front of the drawer when the latter is withdrawn and automatically rolling up when the drawer is returned.

3. In a device of the character specified, the combination with the body of the camera, of a box forming a part thereof, means in said box for supporting a stack of plates, a drawer mounted to slide into and out of said box and having an open front, said drawer acting, when withdrawn, as a receptacle in which the exposed plate is transferred, a spring-roller carried by the drawer, and an opaque curtain fastened at one end to said roller and at the other end to the box, and adapted to cover the front of the drawer when the latter is withdrawn.

4. In a device of the character specified, the combination of a box having a double wall, a drawer mounted to slide into and out of said box, and having a wall fitted and adapted to slide in the space between the portions of said double wall, means in one of the members for supporting a stack of plates, the other member acting, when the drawer is withdrawn, as a receptacle in which the exposed plate is transferred, and a flexible opaque curtain acting as a shield during the transfer of the exposed plate.

641,269. SLIDING-DOOR LOCK. ALBERT B. CLAY, Scranton, Pa. Filed Apr. 8, 1899. Serial No. 712,260. (No model.)

Claim.—1. A lock of the kind described having a latch-bolt provided with a catch adapted to engage with the socket of a jamb, the inner end of said latch-bolt being pivoted to a lever the said lever being fulcrumed and provided with a roller extending outward of the lock and said roller adapted to strike a portion of the jamb with which the latch-bolt engages and automatically to throw the latch-bolt out into engagement, substantially as specified.



2. In a lock for sliding doors the combination of a latch-bolt pivoted to one end of a lever, the said lever being provided with an external projection at its other end adapted to strike against a jamb and provided with a fulcrum between the external projection and the latch-bolt, whereby, the latch-bolt may automatically be thrown outward into engagement with a socket in the jamb when the door is slid shut, substantially as specified.

3. In a lock for sliding doors, a lock-case, a latch-bolt pivoted to a lever, the said lever fulcrumed within the lock-case and having a projection extending beyond the confines of the lock-case and adapted to be driven inward automatically in the process of closing the door for the purpose of throwing the latch-bolt outward and means for releasing said latch-bolt, substantially as specified.

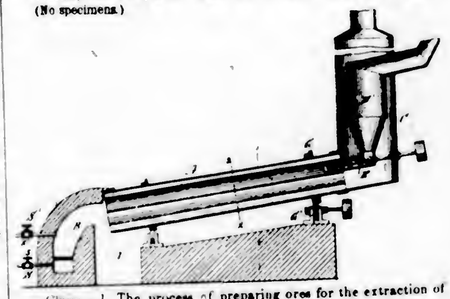
4. In a lock for sliding doors, a lever, a projecting roller on the end of said lever in combination with a hooked latch-bolt pivoted to the other end of said lever and adapted to hook into a socket, means for disengaging said latch-bolt, and a spring adapted to draw the said latch-bolt within the lock-case automatically when disengaged substantially as specified.

5. In a lock of the kind described the combination of a hooked latch-bolt pivoted to a lever the said lever being provided with a stop determining its angle with the latch-bolt and a spring constraining the said latch-bolt to impinge on said stop, and the said spring also adapted to hold the said latch-bolt and lever to the inner limit of their course, with means for driving said latch-bolt outward into engagement as specified.

6. In a lock the combination of a spring and lever controlled latch-bolt 3 the said latch-bolt having a projection 13, adapted to act as a stop, limiting its outward motion, with a lock-case having an adjustable screw 18 secured to a portion thereof and adapted to engage with the said projection and limit the inward motion of the said latch-bolt, together with means for engaging and releasing said latch-bolt, substantially as specified.

7. In combination with a lock for sliding doors, a latch-bolt adapted to project therefrom and engage with a socket in a jamb, a jamb having a suitable socket for said purpose, a projection from said lock adapted to strike the jamb aforesaid and be driven inward, of the lock, and automatically to drive the said latch-bolt out into engagement, together with a portion of said jamb capable of adjustment at the contact-point of the aforesaid projection for the purpose specified.

641,270. PROCESS OF REDUCING METALLIC ORES. CALEB G. COLLINS, New York, N. Y. Filed Feb. 21, 1898. Serial No. 671,062. (No specimens.)

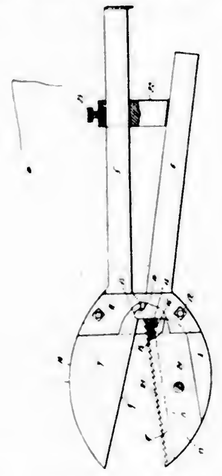


Claim.—1. The process of preparing ores for the extraction of metals which consists in commingling a powdered ore with a powdered fluorid and subjecting the mixture to a temperature below the point of fusion, substantially as and for the purpose specified.

2. The process of preparing ores for the extraction of metal which consists in mixing the powdered ore with a powdered fluorid and subjecting the mixture to a temperature below the fusion-point in the presence of hydrogen gas, substantially as and for the purpose specified.

3. The process of preparing ores for the extraction of metal which consists in exposing a commingled mixture of ore and metallic fluorid heated to a point below fusion to the action of a gaseous reducing reagent, substantially as and for the purpose specified.

641,271. PIPE-WRENCH. JOSEPH H. CONDY, Stockton, Cal., assignor of one-fourth to Randolph C. Stroup, same place. Filed June 19, 1899. Serial No. 721,018. (No model.)



Claim.—1. A wrench of the class described, comprising two handles, each of which is provided with a jaw, said jaws being connected at their heels by transverse plates bolted thereto, one of said jaws being provided in line with said bolts with a notch or recess, and the other with a corresponding lug or projection which enters said notch or recess, substantially as shown and described.

2. A wrench of the class described, comprising two handles, each of which is provided with a jaw, said jaws being connected at their heels by transverse plates bolted thereto, one of said jaws being provided in line with said bolts with a notch or recess, and the other with a corresponding lug or projection which enters said notch or recess, and one of said jaws being also provided with a removable supplemental jaw, substantially as shown and described.

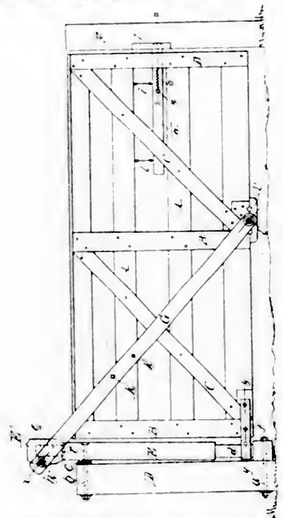
3. A wrench of the class described, comprising two handles, each of which is provided with a jaw, said jaws being connected at their heels by transverse plates bolted thereto, one of said jaws being provided in line with said bolts with a notch or recess, and the other with a corresponding lug or projection which enters said notch or recess, and one of said jaws being also provided with a removable supplemental jaw, and means for limiting the inward movement of the handle, substantially as shown and described.

4. A wrench of the class described, comprising two handles, each of which is provided with a jaw, said jaws being connected by means of a transverse plate pivotally secured to each, said jaws engaging each other pivotally adjacent said plate, substantially as shown and described.

5. A wrench of the class described, comprising two handles, each of which is provided with a jaw, said jaws being connected by means of a transverse plate pivotally secured to each, said jaws being provided respectively with a notch or recess and a lug or projection which operates in connection therewith, substantially as shown and described.

641,272. GATE. EMON COOK, Imlay City, Mich. Filed Sept. 14, 1899. Serial No. 730,521. (No model.)

Claim.—1. In a swinging gate, the combination of a gate-supporting post composed of a lower member fixedly connected to the gate-post, and an upper member pivotally supported on said lower member free to turn on its axis, a gate-body having at its inner lower corner a hinge-eye engaging with a pintle-bearing on the fixed member of the pivot-post, a stirrup formed of bars diagonally embracing the body of the gate and having their upper and lower ends pivotally connected to the upper member of the pivot-post and to the gate at a point along its lower edge at or near the middle thereof and means for adjusting its position in the stirrup.



2. In a swinging gate, the combination of the gate-post, a pivot-post composed of a lower member fixedly connected to the gate-post and an upper member pivotally supported on said lower member free to turn on its axis, a gate-body having at its inner lower corner a hinge-eye, a pintle-bearing on the fixed member of the pintle-post with which said hinge-eye engages, and on which it is vertically adjustable and a stirrup diagonally embracing the body of the gate and having its upper end pivotally secured to the upper member of the pintle-post, its lower end being adjustably pivoted to the lower edge of the gate, which is free to tilt thereon.

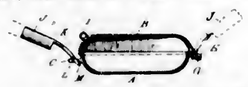
3. In a self-closing swinging gate, the combination of a vertical gate-post, a pintle-post composed of a fixed lower member secured to the gate-post with its axis inclined thereto and an upper member pivotally mounted on said lower member free to turn, an extended pintle-bearing on the fixed member of the pintle-post, a gate-body having a hinge-eye at its lower inner corner loosely engaging said pintle-bearing, two bars diagonally embracing the gate-body upon opposite sides and having their upper ends pivotally secured to the upper member of the pintle-post above the top of the gate-body, a pivot-pin through the lower ends of said bars, a plurality of bearings on the lower edge of the gate-body with any one of which said pivot-pin may engage to support the gate-body.

4. In a self-closing gate, the combination of the vertical gate-post, the pivot-post having a lower fixed member adjustably secured to the gate-post with its axis inclined thereto, a pintle-bearing at the foot of said pivot-post, a pintle formed at the upper end of said pintle-post, an upper member or cap mounted upon said pintle, a gate-body having a hinge-eye secured to its lower inner corner engaging with the pintle-bearing on the pivot-post, a stirrup composed of two bars diagonally embracing the gate-body, a pivot-bolt pivotally securing the upper ends of said bars to the cap of the pivot-post, a pivot-bolt passing through the lower ends of said bars, a series of bearings for said pivot-bolt on the lower edge of the gate-body at or near its middle, a clamping-bolt through the bars adjustably securing the gate-body in position in the stirrup, a self-closing latch in the gate-body, and a keeper for said latch in the gate-post.

5. In a swinging gate, the combination with the gate-body and gate-post supporting it, of a pintle-post E, having its lower end in contact with the gate-post and with its upper end inclined away therefrom inwardly, the bolts *a b* passing through said pintle and gate-posts and adjustably securing the former to the gate-post, and the washers *c* upon the bolt *b* interposed between the pintle and gate-post, said pintle-post formed with a pintle-bearing *d* near its foot and a pintle *e* at its upper end provided with an upper extension or cap pivotally

mounted thereon and constituting the hinge member at the upper inner corner of the gate-body.

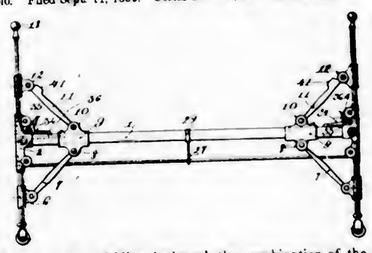
641,273. COOKING UTENSIL. JOHN D. COON, Nathrop, Colo. Filed June 3, 1899. Serial No. 719,290. (No model.)



Claim.—1. The herein-described cooking utensil, comprising the pan A provided with horizontal ear or lug C having a downwardly and inwardly inclined opening D and a horizontal ear E with downwardly and outwardly inclined opening F, and the cover-pan B, provided with outwardly-inclined lug G having opening H inwardly inclined, the opening F being adapted to receive lug G and form a hinge and the opening D, being adapted to receive a handle, substantially as described.

2. The herein-described cooking utensil, comprising a pan proper provided at one end with a horizontal ear or lug having a downwardly and inwardly inclined opening, and at its opposite end with a horizontal ear or lug having a downwardly and outwardly inclined opening and a cover-pan provided at one end with an outwardly-inclined lug or ear projecting from its edge adapted to engage in the downwardly and outwardly inclined opening within the ear in the lug of the pan proper to form a hinge and at its opposite end with an eye to facilitate lifting, the cover-pan being slightly larger than the pan proper, whereby it will overlap its edge when in position, the opening in the lugs at either end of the complete utensil being adapted to receive a removable handle, substantially as described.

641,274. FOLDING BEDSTEAD. FREDERICK CRAMER, Denver, Colo. Filed Sept. 11, 1899. Serial No. 730,166. (No model.)



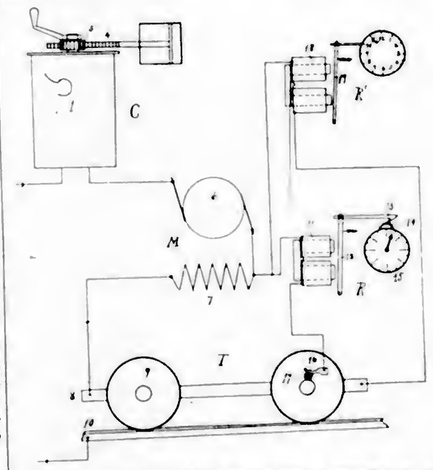
Claim.—1. In a folding bedstead, the combination of the side rails and the end posts, with the sleeve, two arms pivoted at one end to said sleeve on opposite sides and diverging from said sleeve to the upper and lower portions of said posts and pivotally attached at their opposite ends to said end posts, two pivotal hinge-joints at substantially equal distances apart above and below the center of said side rails in said post portions, a two armed lever pivotally attached to the central portion of said posts, a spring secured to said side rails, a slot in said side rail, a keeper on said spring, a slot in said sleeve into which said keeper normally projects and a depending end on said lever in engagement with said spring, substantially as described.

2. In a folding bedstead, the combination with the corner-posts, of side rails of any suitable form of cross-section, a T-shaped socket secured at one end to said side rails and having a pivotal hinge-joint at each end, head and foot board posts secured to the upper joints and legs secured to said lower joints, a coupling in said head and foot board posts and said legs, an arm pivoted at one end to each coupling, a sleeve slidably mounted on said side rails and pivotally secured to the opposite ends of said arms and means including a hand operating-lever for locking said hinged and folding portions in a vertical operative position and against accidental folding, substantially as described.

641,275. MOTORMAN'S RECORDER. JAMES R. CRAVATH, Chicago, Ill. Filed Apr. 1, 1899. Serial No. 711,451. (No model.)

Claim.—1. The combination of an electric motor, a controller for said motor, means whereby the maximum possible rate of turning on said controller is kept within a predetermined limit, and a device or devices operated by the turning off or on of said controller, said device or devices adapted to record the number of revolutions said motor operates with current on.

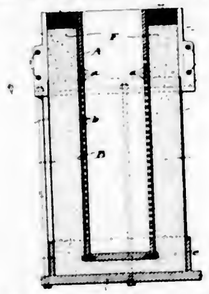
2. The combination of an electric motor, a controller for said motor, means whereby the motorman is prevented by an electrical or mechanical device from turning on the controller faster than a predetermined rate for which the device is set, and device or devices adapted to record the duration of time said motor operates with current on



3. The combination of an electric motor, a controller for said motor, means whereby the maximum possible rate of turning on current is kept within a predetermined limit and a revolution-counter operated by the turning on of the controller to record the number of revolutions made by the motor with current turned on.

4. The combination of an electric motor, a controller for said motor, means whereby the maximum possible rate of turning on said controller is kept within a predetermined limit and a stop watch or clock operated by the turning on of said controller to record the duration of time the current is turned on by said controller.

641,276. POROUS DIAPHRAGM FOR CELLS EMPLOYING FUSED ELECTROLYTES. JAMES D. DARLING, Philadelphia, Pa., assignor to the Harrison Bros. & Company, Incorporated, same place. Filed Dec. 6, 1898. Serial No. 698,407. (No model.)

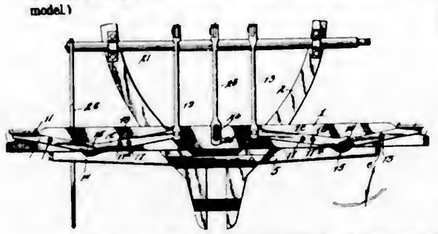


Claim.—1. The combination of a vessel adapted to withstand the action of a molten electrolyte; means for maintaining the electrolyte in a molten condition; electrodes; and a diaphragm, consisting of Portland cement and a powdered oxid, substantially resistant to combination or fluxing by the fused electrolyte, interposed between the electrodes, substantially as described.

2. The combination of a vessel adapted to withstand the action of a molten electrolyte; means for maintaining the electrolyte in a molten condition; electrodes; and a diaphragm, consisting of Portland cement and ground burned magnesite, interposed between the electrodes, substantially as described.

3. The combination of an inclosed shell, consisting of an inner perforated tube; a cylindrical covering of wire-gauze having smaller perforations; an exterior perforated shell; a porous filling arranged between said shells; and removable top and bottom pieces provided with projecting flanges and with bolts engaging said flanges, substantially as set forth.

641,277. WAGON-BRAKE. BENJAMIN I. DAVIS, Booneville, Va., assignor of one-half to James C. Sullivan, Charles P. Davis, and Robert L. Wood, same place. Filed Oct. 16, 1899. Serial No. 733,817. (No model.)



Claim.—1. In a device of the class described, the combination with a brake-beam, of brake-shoes connected with the brake-beam and capable of movement independent thereof, and means for successively actuating the brake-shoes and the brake-beam, substantially as and for the purpose described.

2. In a device of the class described, the combination of a brake-beam, brake-levers fulcrumed thereon and carrying brake-shoes, a rock-shaft, and connections between the rock-shaft and the levers and the brake-beam, whereby the levers and the beam will be successively actuated, substantially as and for the purpose described.

3. In a device of the class described, the combination of a brake-beam, brake-levers fulcrumed thereon and carrying brake-shoes, a rock-shaft, side links or rods connected with the rock-shaft and with the brake-levers, and a link or rod connected with the rock-shaft and with the brake-beam and capable of a limited movement independent of one of such parts, whereby when the rock-shaft is operated, the brake-shoes and the beam will be successively actuated, substantially as described.

4. In a device of the class described, the combination of a brake-beam, brake-levers fulcrumed thereon, a rock-shaft connected with the brake-levers, and a link or rod connected with the rock-shaft and with the beam and having a slot-and-pin connection with one of them, whereby the beam and the brake-shoes will be successively actuated, substantially as described.

5. In a device of the class described, the combination of a brake-beam, brake-levers fulcrumed thereon and carrying brake-shoes, intermediate levers fulcrumed on the brake-beam and connected between their ends with the same and having their outer ends connected with the brake-levers, a rock-shaft connected with the inner ends of the intermediate levers, and connections between the beam and the rock-shaft, substantially as described.

6. In a device of the class described, the combination of a brake-beam, a shaft designed to be mounted on a running-gear and having depending arms supporting the brake-beams, brake-shoes movably mounted on the brake-beam, and means for successively actuating the brake-shoes and the beam, substantially as and for the purpose described.

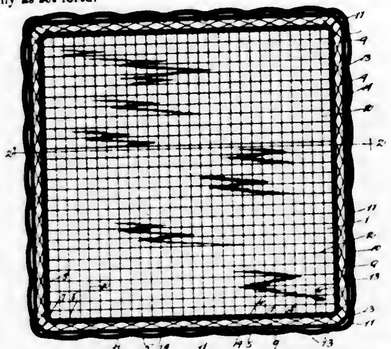
7. In a device of the class described, the combination of a brake-beam having a longitudinal opening and provided at its ends with recesses, brake-levers fulcrumed within the opening of the beam and provided at their outer ends with brake-shoes located at the said recesses, intermediate levers fulcrumed within the opening of the beam and connected with the inner ends of the brake-levers, a rock-shaft provided with central and side arms, side links connecting the side arms with the intermediate levers, and a central link connected with the central arm and having a slotted connection with the beam, substantially as and for the purpose described.

641,278. LIFE-SAVING NET. JOHN DICK, Chicago, Ill. Filed May 11, 1899. Serial No. 716,360. (Model.)

Claim.—1. In a life-saving net the combination of a marginal or grip rope, a second rope extending around the inner side of said grip-rope and being attached thereto at intervals, a double fabric for receiving the falling body arranged within said inner rope and a web connecting said double fabric and inner rope together, substantially as set forth.

2. In a life-saving net the combination of a surrounding grip-rope, a second rope extending around the inner side of said grip rope and being attached thereto at intervals only so as to form grip-loops and a net or fabric attached at its edges to said inner rope, substantially as set forth.

3. In a life saving net the combination of a surrounding grip-rope, a second rope surrounding the inner side of said grip-rope, said grip-rope being formed with loops constituting part thereof passing around said second rope at short intervals and a net or fabric arranged within and attached at its edges to said second rope, substantially as set forth.

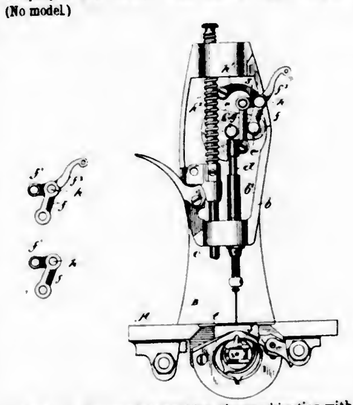


4. In a life-saving net the combination of a surrounding grip-rope, a second rope to which said grip-rope is attached at intervals, a third rope arranged at the inner side of said second rope, a net arranged within and secured to said third rope and a web or net connecting said second and third ropes together, substantially as set forth.

5. In a life-saving net the combination of a surrounding grip-rope, a second rope secured to said grip-rope at short intervals, a third rope arranged at the inner side of said second rope and being connected thereto but at a distance therefrom, a net supported by said third rope, a fourth rope surrounding the under side of said third rope and being attached thereto and a canvas of larger area than said net and arranged thereunder and connected to said fourth rope, substantially as set forth.

6. In a life-saving net the combination of a surrounding grip-rope, a net having the knots 8 at its edges, the rope 4 surrounding said net, a canvas arranged under said net and having the marginal rope 3 attached to the rope 4 and the net 9 secured to the grip-rope and having the knots 5 straddling the knots 8 and surrounding the marginal cord of the first said net and the rope 4, substantially as set forth.

641,279. NEEDLE-BAR MECHANISM FOR SEWING-MACHINES. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Sept. 20, 1898. Serial No. 691,452. (No model.)



Claim.—1. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a bell-crank or elbow lever one arm of which is connected to said crank and the other arm of which is jointed to said pitman, and a swinging arm or link one end of which is pivotally attached to the frame of the machine and at the free end of which the said lever is fulcrumed at its elbow.

2. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a bell-crank or elbow lever one arm of which is connected to said crank and the other arm of which is jointed to said pitman, and a swinging arm or link one end of which is pivotally attached to the frame of the machine and at the

free end of which the said lever is fulcrumed at its elbow, the said bell-crank lever being provided with a take-up arm.

3. In a sewing-machine, the combination with a rotating shaft provided with a crank, of a needle-bar, a pitman connected at one end to said needle-bar, a bell-crank or elbow lever one arm of which is jointed to said crank and the other arm of which is jointed to the other end of said pitman, and a swinging arm or link one end of which is pivotally attached to the frame of the machine and at the free end of which said bell-crank or elbow lever is fulcrumed, said parts being so arranged and proportioned that when said needle-bar is at its lowest point the centers of the pivotal points or joints of said pitman and the fixed pivotal point of said swinging arm or link are brought into line with each other, or approximately so.

4. In a sewing-machine, the combination with a rotating shaft provided with a crank, of a needle-bar, a pitman connected at one end to said needle-bar, a bell-crank or elbow lever one arm of which is jointed to said crank and the other arm of which is jointed to the other end of said pitman, and a swinging arm or link one end of which is pivotally attached to the frame of the machine and at the free end of which said bell-crank or elbow lever is fulcrumed, said parts being so arranged and proportioned that when said needle-bar is at its lowest point the centers of the pivotal points or joints of said pitman and the fixed pivotal point of said swinging arm or link are brought into line with each other, or approximately so, said lever being provided with a take-up arm.

5. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a swinging arm or link one end of which is pivoted to the frame of the machine, and a rocking device having its axis or fulcrum at the free end of said swinging arm or link and pivotally connected with said crank and pitman, said parts being so arranged and proportioned that when said needle-bar is at its lowest point the centers of the pivotal points or joints of said pitman and the fixed pivotal point of said swinging arm or link are brought into line with each other, or approximately so.

6. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a swinging arm or link one end of which is pivoted to the frame of the machine, and a rocking device provided with a take-up arm and having its axis or fulcrum at the free end of said swinging arm or link and pivotally connected with said crank and pitman, said parts being so arranged and proportioned that when said needle-bar is at its lowest point the centers of the pivotal points or joints of said pitman and the fixed pivotal point of said swinging arm or link are brought into line with each other, or approximately so.

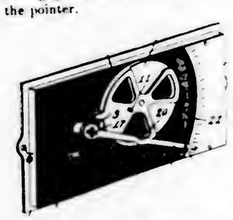
7. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a swinging arm or link one end of which is pivoted to the frame of the machine, and a rocking device having its axis or fulcrum at the free end of said swinging arm or link and pivotally connected with said crank and pitman, the pivotal connection of the said pitman with the said rocking device being nearer to the axis or fulcrum of the latter than the pivotal connection of the said rocking device with the said crank is; whereby a differential movement will be imparted to said needle-bar so that the said bar will be caused to perform its downward movements quickly and a part of its upward movements slowly, substantially as set forth.

8. In a sewing-machine, the combination with a rotating crank and a needle-bar, of a needle-bar pitman, a swinging arm or link one end of which is pivoted to the frame of the machine, and a rocking device provided with a take-up arm and having its axis or fulcrum at the free end of said swinging arm or link and pivotally connected with said crank and pitman, the pivotal connection of the said pitman with the said rocking device being nearer to the axis or fulcrum of the latter than the pivotal connection of the said rocking device with the said crank is; whereby a differential movement will be imparted to said needle-bar so that the said bar will be caused to perform its downward movements quickly and a part of its upward movements slowly, substantially as set forth.

9. In a sewing-machine, the combination, with a rotating crank and a needle-bar, of a needle-bar pitman, a rocking device or rocker pivotally connected with said crank and needle-bar pitman and having a fulcrum movable toward and from the axis of rotation of said crank, and means for controlling the path of movement of the fulcrum of said rocking device or rocker during the rotation of the said crank, said parts being so proportioned and arranged that said crank is caused to move the rocker bodily downwardly in the descending portion of its rotation, to then turn said rocker in one direction upon its fulcrum while said fulcrum is substantially stationary, and to finally turn said rocker backward upon its fulcrum and simultaneously move the said rocker bodily upward into its initial position.

641,280. OVEN-THERMOMETER. LOUIS DUEBER, Hamilton, Ohio. Filed May 6, 1899. Serial No. 715,811. (No model.)

Claim.—1. In an oven-thermometer, the combination, substantially as set forth, of a body-plate, a pair of pivots mounted thereon, a pair of bars pivoted together and having their outer extremities mounted on said pivots, the combined length of said bars being somewhat in excess of the distance between said pivots, a lever pivoted to said body-plate over and having an intermediate portion engaging the juncture of said bars, a spindle journaled in said body-plate, an arm fast directly on one end of said spindle and engaging the free end of said lever, a pointer on the other end of said spindle, an arc of graduations adapted to be traversed by said pointer, a self-closing register mounted on said body-plate, and a projection from said register adapted to be engaged by said pointer in the advanced portion of the travel of the pointer.



2. In an oven-thermometer, the combination, substantially as set forth, of a body-plate, a pair of pivots mounted thereon, a pair of bars pivoted together and having their outer extremities mounted on said pivots, the combined length of said bars being somewhat in excess of the distance between said pivots, a lever pivoted to said body-plate over and engaging the juncture of said bars, a spindle journaled in said body-plate, an arm on one end of said spindle engaging the free end of said lever, a pointer on the other end of said spindle and provided with a cam-shaped curve portion, an arc of graduations adapted to be traversed by said pointer, a self-closing register mounted on said body-plate, and a projection from said register adapted to be engaged by said pointer and traverse the cam-shaped portion thereof.

3. In an oven-thermometer the combination, substantially as set forth, of a body-plate, a pair of pivots mounted thereon, a pair of bars pivoted together and having their outer extremities mounted on said pivots, the combined length of said bars being somewhat in excess of the distance between said pivots, a lever pivoted to said body-plate over and engaging the juncture of said bars, a spindle journaled in said body-plate, an arm on one end of said spindle engaging the free end of said lever, a pointer on the other end of said spindle, a plate bearing an arc of graduations adapted to be traversed by said pointer and disposed to the rear of the pointer, and a retaining-lip at the inner edge of said graduated plate and engaging forwardly of a portion of a pointer to serve in restraining the outward movement of the pointer.

4. In an oven-thermometer, the combination of a vibratory pointer, means for vibrating said pointer as the heat in the oven varies, and a self-closing register having a pin projecting from its side in the path of the pointer and above the plane of the pivot of the same whereby the ordinary travel of the pointer will not disturb the register but its extended travel under excessive heat will cause it to engage said pin and open the register.

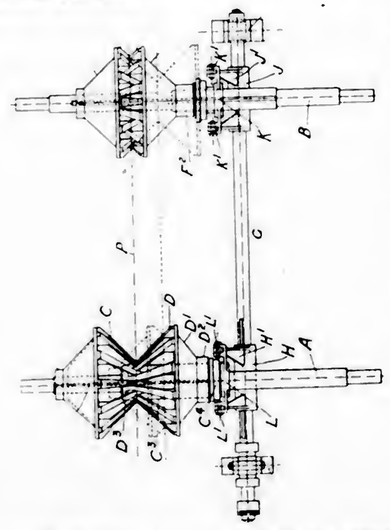
641,281. EXPANDING PULLEY. THOMAS A. EDISON, Llewellyn Park, N. J., and CHARLES M. JOHNSON, Redhill, England. Filed Apr. 24, 1899. Serial No. 714,340. (No model.)

Claim.—1. In an expansible pulley, the combination of a conical section fixed against lateral movement, a conical section movable laterally, said conical sections comprising intercalated bars or ribs, a conical sheath for the movable section inverted with respect to the same, and a sleeve to which the inner ends of the movable section are secured, substantially as set forth.

2. In an expansible pulley, the combination of a conical section fixed against lateral movement, a conical section movable laterally, said conical sections comprising intercalated bars or ribs, a conical sheath for the movable section inverted with respect to the same, a sleeve to which the inner ends of the movable section are secured, and means for moving said sleeve to vary the working diameter of the pulley, substantially as set forth.

3. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, substantially as set forth.

4. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, and means for simultaneously shifting the movable section of each pulley, substantially as set forth.



5. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, a rock-shaft, and connections between said rock-shaft and the movable sections of both pulleys, whereby the latter may be shifted simultaneously, substantially as set forth.

6. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, and means for moving the pulleys toward and away from each other for adjusting the tension of a belt between them, substantially as set forth.

7. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, a rock-shaft, connections between the rock-shaft and the movable section of each pulley for shifting the same, and means for moving one pulley laterally with respect to the rock-shaft, whereby the tension of a belt may be varied, substantially as set forth.

8. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, and a rock-shaft having arms which are attached to the movable section of each pulley and from which the rock-shaft will be supported, substantially as set forth.

9. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, a rock-shaft having arms which are attached to the movable section of each pulley and from which the rock-shaft will be supported, and end bearings for said rock-shaft permitting vertical movements thereof, substantially as set forth.

10. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, a rock-shaft having arms which are attached to the movable section of each pulley and from which the rock-shaft will be supported, end bearings for said rock-shaft permitting vertical movements thereof, and means for shifting one of the pulleys toward and away from the other to adjust the tension of a belt, causing the ends of the rock-shaft to be moved in the bearings therefor, substantially as set forth.

11. The combination of two expansible pulleys, each comprising two intercalated conical sections, one section of each set being stationary, the stationary element of one set being reverse to that of the other set, whereby when the movable sections of both sets are moved longitudinally in one direction or the other the line of the working diameter of both pulleys will be shifted in parallelism, a rock-shaft having arms which are attached to the movable section of each pulley and from which the rock-shaft will be supported, end bearings for said rock-shaft permitting vertical movements thereof, means for shifting one of the pulleys toward and away from the other to adjust the tension of a belt, causing the ends of the rock-shaft to be moved in the bearings therefor, and a power or work shaft with respect to which the adjustable pulley is radially movable, substantially as set forth.

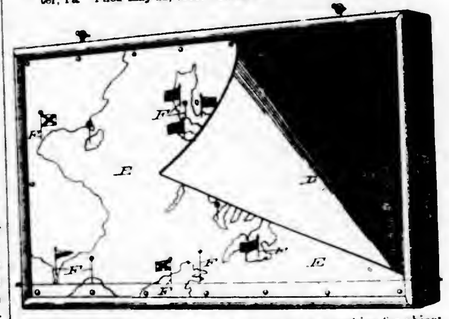
641,282. STRING-FASTENING DEVICE. WILLIAM O. ELLIOTT, Wauseon, Ohio, assignor to Clara A. Belding, same place. Filed Aug. 8, 1899. Serial No. 726,609. (No model.)



Claim.—1. An improved string-fastening device comprising a section of wire bent to form a shank or loop *e*, the return bends O, H, and the outwardly-flaring free ends or forks *d*, substantially as described.

2. In a string-fastening device, a section of wire doubled at its middle to form substantially parallel spring-arms, flaring extremities for the two arms thus formed constituting a fork or crotch for the reception of a string, and a loop or bend in said two arms adapted to receive a string, the arrangement being such that said two arms may be caused to swing toward each other by tension upon a string disposed in said bead and in said fork or crotch.

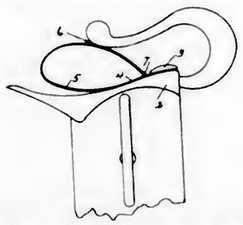
641,283. EDUCATIONAL DEVICE. CLARENCE A. EVANS, Chester, Pa. Filed May 22, 1899. Serial No. 717,717. (No model.)



Claim.—1. As a new article of manufacture, a cushion for object teaching, amusement, &c., consisting of a facing of gauze, a characteristic field on said facing, a supporting-mat on the back of said facing, and means for connecting said parts.

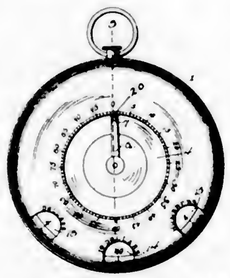
2. A piece of gauze, a supporting-mat therefor, a characteristic field on said piece, means for connecting parts as one, and markers adapted to be inserted through said field and piece into said mat, the parts named being combined forming a device for teaching, amusement, &c., of the order stated.

641,284. CHECKREIN-HOOK. ROYAL P. FARIES, Wichita, Kans. Filed May 10, 1898. Serial No. 680,282. (No model.)



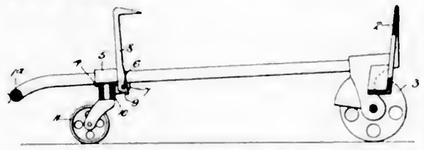
Claim.—The combination with a checkrein-hook, of a spring fixed at one end to the base of said hook having its free end bent around to form a complete loop with the extreme end of said free portion in contact with the fixed portion and the upper side of said loop normally in engagement with the end of said hook.

641,285. POCKET CASH-REGISTER. HENRY D. GARDY and TAYLOR C. BURKE, Chester, Pa. Filed Aug. 15, 1899. Serial No. 727,343. (No model.)



Claim.—In a cash-register, a casing, a spindle centrally thereof provided with an operating-knob which projects from the rear of the casing, a disk loosely mounted on the spindle having a toothed periphery inclined in one direction to form ratchet-teeth, an arm mounted on the spindle and taking motion therefrom, a spring-dog secured to the edge of the arm with its end curved to engage the teeth of the disk, a face-plate for the casing having a stop 20 formed therewith adapted to arrest the arm, a dial on the face-plate, a spur struck from the arm and bent up over the edge of the dial, a stud projecting from the lower edge of the disk, a series of toothed wheels, each on a different horizontal plane, lugs on the first and second wheels engaging teeth on the second and third wheels respectively, the lug of the disk engaging the teeth of the first-named wheel, springs attached to the bottom of the casing and bearing against the under faces of the disk and several wheels, the upper faces of the said wheels being provided with suitable characters, as and for the purpose specified.

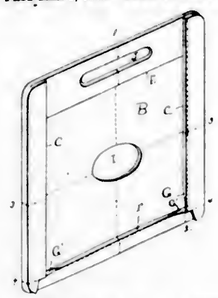
641,286. TRUCK. EBSINGTON N. GILFILLAN, Chicago, Ill., assignor to Edward E. McMoran, same place. Filed Mar. 30, 1898. Serial No. 675,716. (No model.)



Claim.—1. As a new and useful article of manufacture a truck having a cross-bar adjustable with relation to the wheels of the truck, and a caster-wheel pivoted to said cross-bar, substantially as set forth.

2. As a new and useful article of manufacture a truck having the side members 1, the wheels 3 journaled at the lower or forward ends thereof, a cross-bar 4 having sleeves 5 embracing said side members and being adjustable thereon and the hook 8 pivoted to said cross-bar, substantially as and for the purpose set forth.

641,287. BAGGAGE-CHECK CARRIER. ALPHONSO M. GOODWIN, Saco, Me. Filed Mar. 9, 1899. Serial No. 708,328. (No model.)

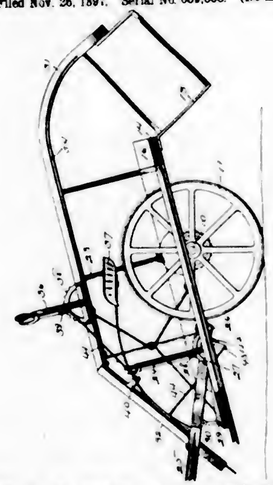


Claim.—1. A baggage-check carrier consisting of a suitable casing having a depressed central area substantially equal to the area of the check, a hole through the casing within said area, grooves at the sides formed by overhanging flanges and abutments at the ends formed by vertical walls.

2. A baggage-check carrier consisting of a suitable casing having a depressed central area substantially equal to the area of the check, a hole through the casing within said area, grooves at the sides formed by overhanging flanges and abutments at the ends formed by vertical walls, one of said vertical walls terminating outside of the grooves formed by said overhanging flanges.

3. A baggage-check carrier, consisting of a suitable casing having a depressed central area substantially equal to the area of the check, a hole through the casing within the area, lateral grooves formed by overhanging flanges, said grooves having open ends, and end retaining-abutments formed by vertical walls, the portion of said vertical walls near the flanges being beveled, whereby the insertion and removal of the check through the open end of said grooves is facilitated.

641,288. CORN-HARVESTER. WILLIAM H. GRAY, Eddyville, Iowa, assignor to the Keystone Manufacturing Company, Rock Falls, Ill. Filed Nov. 26, 1897. Serial No. 659,800. (No model.)



Claim.—1. In a corn-harvester, the combination of a conveyer-track, a conveyer therein, means for driving said conveyer, a conveyer-track above the first and having its rear end inclined downwardly and rearwardly, a conveyer mounted in this upper track, means for driving same, and a shock-holder at the rear of the machine arranged at a rearwardly-inclined angle to receive the stalks of corn placed therein by the conveyers.

2. In a corn-harvester, the combination of a conveyer-track, a conveyer therein, means for driving the conveyer, a second conveyer-track arranged above the first with its rear end projecting rearwardly beyond the lower track and inclined downwardly, a conveyer in this upper track, means for driving same and a shock-holder to receive the stalks in a rearwardly-inclined position as they are delivered from the said conveyers, for the purposes stated.

3. In a device for engaging standing cornstalks and after they are severed conveying them in a substantially upright position to the shock-holder of a corn-harvester or similar machine, the combination of a hollow continuous track, a hinge-joint in both sides of the track near its forward end whereby the forward section is made capable of a vertical movement independent of the main portion, means for moving this hinged portion, an endless conveyer-chain in said track, said chain comprising a series of links pivotally connected at their ends and capable of movement relative to each other in a horizontal plane, a joint in the central portion of each link to permit a movement of the parts in a vertical plane, means for preventing the ends of the links from moving upwardly beyond a position in which the parts are substantially in alinement with each other, for the purposes stated.

4. A conveyer-chain comprising a series of links pivotally connected at their ends, a joint in the central portion of each link to permit the ends to move relative to each other in a plane at right angles to the aforesaid joint, means for limiting the movement of said latter joint in one direction beyond a position of alinement with the ends, and a roller at said latter joint substantially as and for the purposes stated.

5. In a corn-harvester, the combination of a continuous hollow track widened at one or more points and bent or inclined in directions substantially at right angles to each other, a chain in the track of a length greater than the distance around the track so that it must fold or kink at one point, and having alternate joints capable of folding in opposite directions, antifriction-rollers at said joints to engage the sides, top and bottom of the track at various points and means for pushing the chain through the track so that it may kink or fold, substantially as set forth.

6. In a corn-harvester, the combination of a continuous hollow track bent downwardly at its forward and rear ends and widened at the said rearward downwardly-bent portion, a chain in the track of a length greater than the distance around the track so that it must kink or fold at one point, joints in the alternate links of said chain designed to move in directions at right angles to each other, antifriction-rollers in said joints to engage the interior of the track, means for limiting the movement of the vertically-movable joints whereby they may bend upwardly but not downwardly beyond a position of alinement, and means for pushing the chain into the said widened portion of the track, so that the chain will rise above the bottom of the track to prevent a dragging of the rollers on the bottom when the links stand at an angle relative to the outer wall of the track, for the purposes stated.

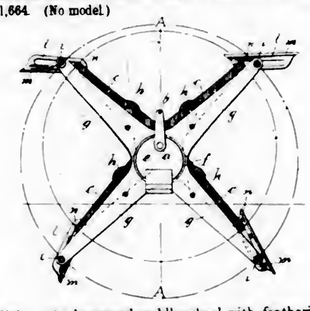
7. In a corn-harvester, the combination of a continuous hollow track having both laterally and vertically inclined portions and also having a widened portion and a slot in the outer side of the track, except at said widened portion, a series of link-sections each having a bifurcation in each end extended at right angles to each other, an antifriction-roller at each joint also extended at right angles to each other, pivots for connecting the joints and rollers as set forth, said links being sufficient to form a chain longer than the distance around the track so that the chain must kink or fold at the widened portion of the track-fingers on the chain to project through the slot and a single sprocket-wheel for driving the chain, for the purposes stated.

8. In a corn-harvester, the combination with an endless conveyer-track, of a conveyer-chain composed of a series of links pivotally connected at their meeting ends to be capable of movement relative to each other in a horizontal plane, rollers between the meeting ends of the links arranged in a horizontal plane, a joint formed in the central portion of each link to permit the parts of the link to move vertically relative to each other, means for limiting the movement of the inner or jointed ends of these parts in a downward direction below a position in alinement with each other, and a roller interposed at this joint to stand in a vertical plane, and conveyer-fingers formed on the links, substantially as and for the purposes stated.

9. In a corn-harvester, the combination of a conveyer-track widened at its rear turn, a roller fixed within the track near this rear turn, an endless conveyer-chain of a length greater than the distance around the track so that it must kink or fold at some point within the track, and composed of a series of links pivotally connected to be capable of movement relative to each other in a horizontal plane, rollers interposed between the links in a horizontal plane to engage the sides of the track at its narrowest point, conveyer-fingers formed on each alternate link to project outwardly from the track, a lug formed on the links not having the conveyer-fingers and designed to be engaged by the said roller, a joint in the central portion of each link arranged to permit the ends of the link to move in a vertical plane with relation to each other, means for limiting this vertical movement in a downward direction beyond the position in which the ends are in alinement, and rollers in each of these joints, in a vertical position, substantially as and for the purposes stated.

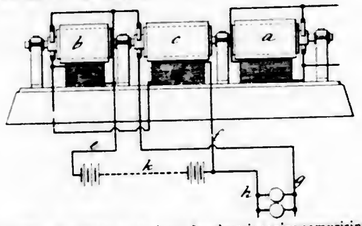
10. In a corn-harvester, the combination of a suitable frame, an axle rotatably mounted therein, two traction-wheels fixed to the axle, cutting mechanism at the forward end of the machine, a lower endless conveyer-track connected with the frame with its part in which the conveyer moves rearwardly extended diagonally across the frame, a conveyer therein having the conveyer-fingers projecting outwardly therefrom, a second conveyer-track above the first inclined diagonally across the machine-frame, and a shock-holder arranged in the rear of the machine-frame and directly back of the same wheel that is encircled by the lower track to thereby provide means whereby the weight of the machine is thrown over one of the wheels thereof, and a tongue connected with the machine-frame between the cutting mechanism and the wheel that is encircled by the lower track for the purpose of preventing side draft, substantially in the manner set forth and for the purposes stated.

641,289. PADDLE-WHEEL WITH FEATHERING-BLADES. REINHOLD HEERR, Berlin, Germany. Filed June 23, 1899. Serial No. 721,664. (No model.)



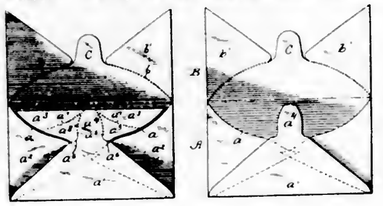
Claim.—An improved paddle-wheel with feathering-vanes having the vanes *m* supported in a cross-shaped frame *c* rigidly mounted on the shaft *a*, a second cross-shaped frame *g* for regulating the feathering of the vanes being movably mounted on stationary eccentrics and rotated by the first frame *c* by being pivotally connected to the latter by means of suitable couplings, substantially as and for the purposes set forth.

641,290. PRESSURE-REGULATING APPARATUS FOR MAINS. JOHN S. HIGHFIELD, St. Helens, England. Filed July 21, 1899. Serial No. 724,655. (No model.)



Claim.—A pressure-regulator for electric mains comprising a motor, an exciting-dynamo and a generating-dynamo or booster all having their armatures on one shaft, the exciter being arranged so that its currents oppose those from the source of energy and excite the field-magnet of the booster which has its armature-coils in the lead from the source to the circuit, substantially as described.

641,291. SAFETY-ENVELOP. MORTIMER L. HINCHMAN, New York, N. Y. Filed Apr. 14, 1899. Serial No. 713,045. (No model.)



Claim.—1. An envelop or wrapper comprising a body portion, and a sealing-flap provided with a centrally-ungummed portion, and having tearing-lines formed therein and terminating at said ungummed portion, adapted to register with the edge of the body portion, substantially as and for the purpose set forth.

2. An envelop or wrapper comprising a body portion having a central upper extension thereof, and a sealing-flap, having an ungummed portion, adapted to cover said extension, and having tearing-lines extending from said ungummed portion and on each side thereof to the upper corners of the envelop and adapted to register with the upper edge of said body portion, substantially as and for the purpose set forth.

3. An envelop comprising a body portion and a sealing-flap, the former being provided with an extension having a central portion, and side portions separated from the body as far as said central portion and adapted to be torn from said central portion along upwardly-extending tearing-lines, the said sealing-flap having an ungummed portion to cover said central portion, and a tearing-line on each side thereof adapted to register with the line formed by the separation of the said extension from the body portion, substantially as described and for the purpose set forth.

4. An envelop having its bottom fold provided with a portion adapted to extend beyond the end folds, lie separated from said end folds, and provided with upwardly-extending tearing-lines connecting the line of separation between it and the end folds, and a sealing-flap adapted to be secured down over the lap of the bottom fold on the end folds, and provided with an ungummed portion and a tearing-line on each side of said ungummed portion, extending therefrom to the upper corners of the envelop and registering with the said line of separation between the body portion and its extension, substantially as described and for the purpose set forth.

5. An envelop or wrapper comprising a body portion and a sealing-flap, the former having a portion thereof adapted to be overlapped by, and torn away with, the sealing-flap, the said sealing-flap having tearing-lines inclosing a portion adapted to correspond and register with the said detachable portion and having a foldable extension substantially conforming to and registering with the said portion of the flap inclosed by the tearing-lines, as and for the purpose set forth.

641,292. WRENCH. WILLIAM HINTON, Hinton, W. Va. Filed May 13, 1899. Serial No. 716,725. (No model.)



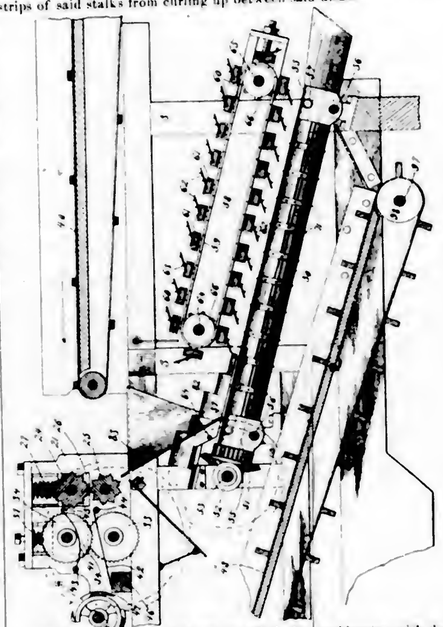
Claim.—1. In a wrench the combination with a fixed jaw, the shank of which is slotted longitudinally and carries a rotatable threaded bolt swiveled therein, of a movable jaw provided with a rearwardly-extending arm passing through said slot, a shank depending from said movable bar and designed to be engaged by the threaded bolt, and a handle on said bolt for turning the same, substantially as described.

2. In a wrench, the combination, with the rigid jaw having a slotted shank, a cross-arm projecting from the shank below the slot, a movable jaw provided with a rearwardly-projecting arm passing through said slot, a shank depending from said movable jaw and passing through an opening in the first-named arm and a rotatable threaded bolt swiveled in the shank of the rigid jaw and designed to engage the depending shank of the movable jaw, substantially as described.

3. In a wrench, the combination with the rigid jaw and its bar slotted longitudinally and provided with a transverse space near the handle end bounded by cross-arms and the two parts of the jaw, of a movable jaw and bar, the bar sliding on the fixed bar, and the bar between flanges in the transverse space, and having teeth on its inner face, with perpendicular rear sides, and a screw connected with the handle swiveled in the fixed bar in the transverse space, having teeth to engage the teeth on the movable bar and cut away for about one-fourth of its circumference, substantially as described.

641,293. CORN-HUSKING AND STALK-CUTTING MACHINE. LOUIS HOLLAND-LETZ, Crown Point, Ind. Filed Aug. 30, 1895. Renewed Nov. 1, 1899. Serial No. 735,545. (No model.)

Claim.—1. In a machine of the kind specified, the combination with devices for crushing the stalk and breaking the ears therefrom, devices for cutting said stalk transversely into small pieces, of devices for cutting said stalk longitudinally into strips consisting of rollers 33 and 34 provided with interfitting serrated disks adapted to shear said stalks, said rollers being situated between said stalk-crushing devices and said devices for cutting said stalks transversely, and devices situated between the disks of said rollers for preventing the strips of said stalks from curling up between said disks.



2. In a machine of the kind specified, the combination with devices for crushing the stalk and breaking the ears therefrom, devices for removing the husks from the ears, devices for cutting the stalk transversely into small pieces, of devices situated between said crushing devices and said cutting devices, for cutting said stalks longitudinally into strips, consisting of rollers 33 and 34 situated one above the other and provided with interfitting serrated disks of less width than said stalks, which are adapted to shear said stalk, and devices situated between the disks of said rollers for preventing the strips of said stalks from curling up between said disks.

3. In a machine of the kind specified, the combination with devices for separating the ears of corn from the stalk, of devices for removing the husks from said ears consisting of rollers provided with pins or teeth to tear said husks, a belt consisting of a series of movable slats adapted to pass over said ears and rub the same to loosen said husks, and devices for moving said slats from side to side.

4. In a machine of the kind specified, the combination with devices for separating the ears of corn from the stalk, of devices for removing the husks from said ears consisting of rollers provided with pins or teeth to tear said husks and remove the same, a belt consisting of a series of movable slats adapted to pass over said ears and rub the same to loosen the said husks, and devices for moving said slats from side to side consisting of a series of eccentrics mounted upon shafts adjacent the ends of said slats and adapted to throw said slats alternately in opposite directions at every revolution.

5. In a machine of the kind specified, a feed-belt to feed the cornstalks thereto, devices for separating the ears from said stalks, devices for cutting said stalks into small pieces and removing the same, and devices for removing the husks from said ears consisting of rollers provided with pins or teeth to tear said husks, a belt consisting of a series of movable slats adapted to pass over said ears and rub the same to loosen said husks, and devices for moving said slats from side to side.

6. In a machine of the kind specified, a feed-belt to feed the cornstalks thereto, devices for separating the ears from said stalks, devices for cutting said stalks into small pieces and removing the same, and devices for removing the husks from said ears consisting of a plurality of sets of rollers geared to each other and provided with pins or teeth to tear the husks from said ears, and a belt having laterally-reciprocating slats coacting with said rollers and adapted to loosen said husks on said ears and move said ears toward their exit from said husking devices.

7. In a machine of the kind specified, the combination with rollers adapted to tear the husks from the ears of corn, of devices for feeding said ears of corn to said rollers consisting of a plurality of reciprocating fingers situated between each pair of said rollers and adjacent the outside rollers, said fingers being adapted to guide said ears of corn away from the spaces between each pair of rollers and onto said rollers.

8. In a machine of the kind specified, the combination with rollers adapted to tear the husks from the ears of corn, of devices for loosening said husks on said ears consisting of a belt provided with laterally-movable slats adapted to pass over said ears, said slats being moved alternately from side to side during the passage of said belt by means of eccentrics mounted upon shafts running parallel with the edges of said belt and adapted to engage said slats at their ends.

9. In a machine of the kind specified, the combination with rollers adapted to tear the husks from the ears of corn, of devices for loosening said husks on said ears consisting of a belt provided with laterally-movable slats adapted to pass over said ears, said slats being moved alternately from side to side during the passage of said belt by means of eccentrics mounted upon shafts running parallel with the edges of said belt, said eccentrics being situated to engage the opposite ends of adjacent slats to move said slats in opposite directions.

10. In a machine of the kind specified, devices for separating the ears of corn from the stalk and crushing said stalk, devices for cutting said stalk longitudinally into strips, devices for cutting said strips transversely into small pieces, rollers for removing the husks from the ears, and devices situated between said husking devices and said crushing and cutting devices for feeding said ears into said husking devices consisting of a plurality of reciprocating fingers of irregular contour so situated with relation to said husking-rollers as to guide said ears over each pair of coacting husking-rollers, substantially as described.

11. In a machine of the kind specified, a feed-belt adapted to feed cornstalks into the same, devices for separating the ears from said stalks and cutting said stalks consisting of rollers 24 and 25 adapted to crush said stalks and separate the ears therefrom, rollers 33 and 34 adapted to cut said stalks into strips, and knives adapted to cut said strips transversely into small pieces, devices for removing the husks from said ears consisting of a plurality of rollers having pins or teeth to tear the husks, and a belt having movable slats to loosen said husks on said ears, devices for feeding said ears into said husking devices consisting of fingers situated in front of said husking devices and adapted to push said ears into the same at regular intervals, devices for removing said husks and said small pieces of said stalks and mixing the same consisting of conveyers 48 and 49 situated beneath said husking devices and said stalk-cutting devices and adapted to carry the products thereof and drop them into any suitable receptacle, and devices for removing said ears consisting of a conveyer 89 adapted to carry said ears and drop them into a receptacle, substantially as described.

12. In a corn-husking machine the combination with a pair of stripping-rolls, of turning and abrading plates for acting conjointly with the rolls, and means for imparting to such plates a reciprocatory movement transverse to the rolls.

13. In a corn-husking machine the combination with stripping-rolls arranged in pairs, of devices for feeding ears along the rolls, and means for giving such devices a lateral reciprocation to turn the ears.

14. In a corn-husking machine the combination with stripping-rolls arranged in pairs, of a carrier for conveying the corn along the rolls and having transverse movable slats and means for causing the reciprocation of the slats transversely as to the rolls, and for causing adjacent slats to move in opposite directions.

15. In a corn-husking machine, the combination with husking-rollers arranged in pairs, of abrading-plates mounted above the rollers and adapted to engage ears of corn lying thereupon; and means for causing the reciprocation of such plates transversely as to the rollers, adjacent plates being moved in opposite directions.

16. In a corn-husker, the combination with husking-rolls arranged in pairs for tearing the husks from the ears, of reciprocating abrading-plates for engaging the ears.

17. In a corn-husker, the combination with husking-rolls arranged in pairs for tearing the husks from the ears, of reciprocating abrading-plates for engaging the ears, adjacent plates moving in opposite directions.

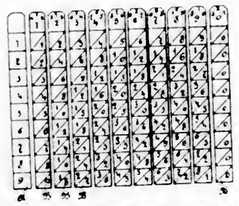
18. In a corn-husking machine, the combination with snapping-rolls, and with husking-rolls arranged in pairs and receiving the ears as they fall from the snapping-rolls, of guide-fingers for directing the ears to the husking-rolls, and pushers located between the guides and reciprocating to and from the receiving ends of the husking-rolls.

19. In a corn-husker, the combination with snapping-rolls and with husking-rolls arranged in pairs and receiving the ears as they fall from the snapping-rolls, of a chute or deflecting-plate leading from the snapping-rolls toward the husking-rolls, guide-fingers, 82 projecting upwardly from such chute or plate intermediate of each pair of husking-rolls, and having their sides inclined.

20. In a corn-husker, the combination with snapping-rolls, and with husking-rolls arranged in pairs and receiving the ears as they fall from the snapping-rolls, of a chute or deflecting-plate leading from the snapping-rolls toward the husking-rolls, guide-fingers, 82, projecting forwardly from said chute or plate intermediate of each pair of husking-rolls, and having their sides inclined, and pushing-fingers located between the guide-fingers and having a longitudinal reciprocation.

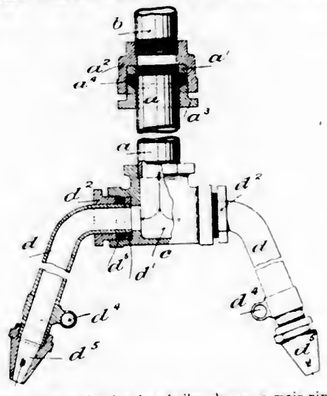
21. In a corn-husking machine, the combination with snapping-rolls, and with husking-rolls receiving the ears as they fall from the snapping-rolls and being arranged in pairs, of a chute or deflecting-plate for conveying the ears as they so fall, guide-fingers projecting forward from such chute or plate intermediate of adjacent pairs of husking-rolls and having their sides inclined, and pusher-fingers located between such guide-fingers, both sets of fingers having a longitudinal reciprocation.

641,294. SYSTEM OF CALCULATING. ARPÁD HORVÁTH, Buda-Pesth, Austria-Hungary. Filed Feb. 11, 1899. Serial No. 705,260. (No model.)



Claim.—A system of calculating-bars, consisting of an index-bar upon which the figures "1" to "9" are inscribed in squares or divisions in numerical order, in combination with calculating-bars carrying at their respective heads the figures "0" to "9" and below them in squares or divisions the multiples of the respective head figures, whereby the product of a number on the index-bar by the head numbers on the calculating-bars may be caused to lie in a horizontal row by placing the bars involved, side by side, substantially as described.

641,295. BOILER-CLEANER. WALTER JACKSON, Whitefield, England. Filed Nov. 14, 1899. Serial No. 736,952. (No model.)

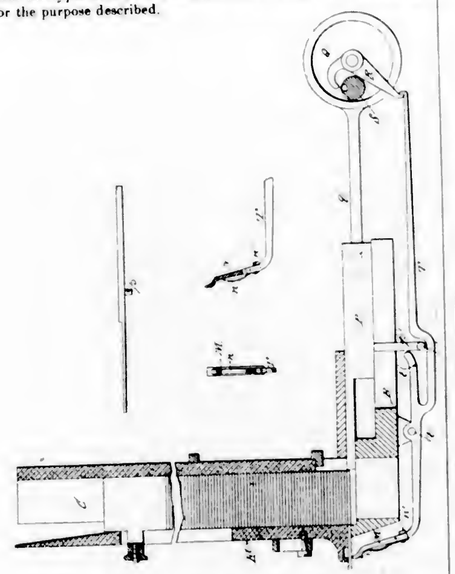


Claim.—In combination, in a boiler-cleaner, a main pipe, a coupling at the end thereof, a pipe leading from each end of the coupling, said pipes diverging from each other, and engaging devices on each pipe to permit them to be swung independently of each other.

641,296. TYPE-SETTING APPARATUS. LOUIS K. JOHNSON and ABBOT A. LOW, New York, N. Y., assignors to The Alden Type Machine Company, same place. Filed Oct. 22, 1896. Serial No. 609,652. (No model.)

Claim.—1. In a type-setter case substantially as described the combination of the type-channel holder and forwarding mechanism, a type-forwarder, a trigger-lever formed with an inclined surface and a lifter for engaging with said inclined surface traveling parallel and suspended from the pusher substantially in the manner and for the purpose described.

2. The combination with the type-containing channel, channel-holder, and type-forwarding mechanism substantially as described, of the trigger-lever T, formed with the pivoted type-finger N, and spring *n*, and stop *n'*, whereby the type-finger is allowed to yield during the withdrawal of the type and to spring back into its normal position after the types have been withdrawn, substantially in the manner and for the purpose described.



3. The combination with a type-channel, channel-holder, and type-forwarding mechanism, of the pusher P, formed with the downwardly-projecting arm *p'*, having the lateral lifter *p*, whereby said lifter *p*, has a parallel movement with the pusher P, and the trigger-lever T, formed with the inclined surface *t*, the whole arranged and operating substantially in the manner and for the purpose described.

4. The combination with a type-channel, channel-holder, and type-forwarding mechanism consisting of the shouldered power-shaft S, eccentric Q, eccentric-rods *q*, and the gravity-pawl R, of the pusher P, formed with the dependent lifter *p'*, moving parallel therewith and the trigger-lever T, provided with the yielding type-finger N, *n*, the whole arranged and operating substantially in the manner and for the purpose described.

641,297. **TYPE-SETTING APPARATUS.** LOUIS K. JOHNSON and ABBOT A. LOW, New York, N.Y., assignors to The Alden Type Machine Company, same place. Filed Nov. 3, 1896. Serial No. 610,905. (No model.)

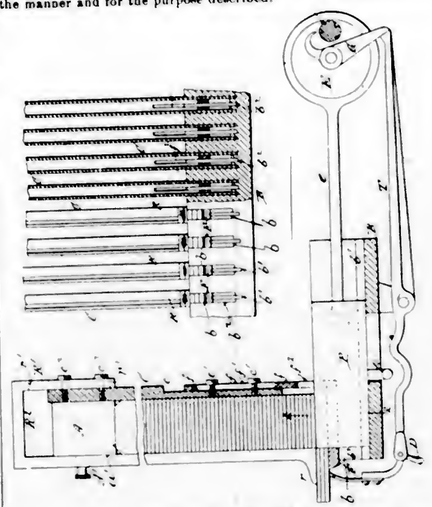
Claim.—1. In a type-setting apparatus substantially such as described, the combination of a series of type-containing channels formed with individual type-supporting shoulders, a table formed with a series of sockets for the reception of the lower ends of the channels, and a series of individual-type-forwarding devices arranged substantially in the manner and for the purpose described.

2. In a type-setting apparatus substantially such as described, the combination with a type-pusher of maximum height, and with mechanism for reciprocating it, of a type-channel formed with a type-supporting floor adjustable with relation to the pusher, substantially in the manner and for the purpose described.

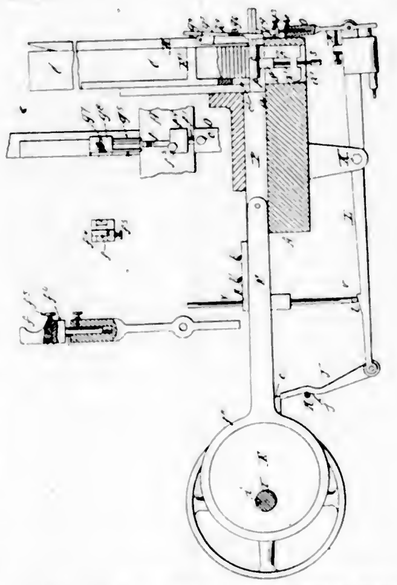
3. In type-setting apparatus substantially such as described, the combination with a channel-support and type-forwarding mechanism, of a channel formed with a guard adjustable upon its spine and extending across the top of the channel substantially in the manner and for the purpose described.

4. In type-setting apparatus substantially such as described, the combination of the guard-rail R, of less width than the channel C, the locking-slug A, formed with the screw-stud *a*, and the set-nut A', for securing the said slug to the guard-rail R, substantially in the manner and for the purpose described.

5. In type-setting apparatus substantially such as described, the combination of the pusher P, and means for reciprocating the same, with the channel C, formed with the adjustable type-floor F, having the slots f^2, for the accommodation of the pusher, substantially in the manner and for the purpose described.



641,298. **TYPE-SETTING MECHANISM.** LOUIS K. JOHNSON and ABBOT A. LOW, New York, N.Y., assignors to The Alden Type Machine Company, same place. Filed May 10, 1897. Serial No. 635,781. (No model.)



Claim.—1. In a compositor's type-case, substantially such as designated, the combination of a channel-holder, forwarding-blade having a prescribed path of reciprocation, a bearing for the heel of the type pivoted to the holder and provided with a spring for holding it in its normal position and a type-finger for supporting the types below said type-finger being mounted upon the trigger-lever which controls the type-forwarding mechanism, substantially in the manner and for the purpose described.

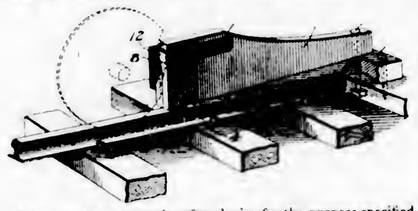
2. In a compositor's type-case of the character designated the combination of a pivoted support for the heels of the type, a spring for holding the said heel-bearing in its normal position, and means for supporting and forwarding the types substantially in the manner and for the purpose described.

3. In a compositor's type-case of the character designated the combination of a pivoted bearing for the heels of the type, said bearing being formed with side extensions for supporting the type laterally, and means for supporting and forwarding the type substantially in the manner and for the purpose described.

4. In a compositor's type-case of the character designated, the combination of a pivoted bearing for the heels of the type said bearing being formed with lateral bearings for the type, means for adjusting one lateral bearing with relation to the other, and means for supporting and forwarding the type substantially in the manner and for the purpose described.

5. In a compositor's type-case of the character designated, the combination of a pivoted bearing for the heels of the type said bearing being formed with extensions which support the type laterally and which are adjustable with relation to each other, means for adjusting said finger-piece laterally, and means for supporting and forwarding the type, substantially in the manner and for the purpose described.

641,299. **SAFETY DEVICE FOR CARS.** JAMES KELSO, Murray, Ala. Filed Nov. 23, 1899. Serial No. 738,088. (No model.)



Claim.—1. An automatic safety device for the purpose specified, consisting of a catch-block hinged on an axis perpendicular to the road-bed, and mounted adjacent to the road-bed to swing horizontally into the path of the wheels of a car, and means for yieldingly urging the free end of the block into position to engage such wheel, substantially as specified.

2. An automatic safety device for the purpose specified, consisting of a catch-block, hinged at one end on an axis perpendicular to the road-bed, and free at its other end and mounted adjacent to the road-bed to swing horizontally into the path of the wheels, and means for yieldingly urging the free end of the block into position to engage such wheel, substantially as described.

3. An automatic safety device for the purpose specified, consisting of a catch-block hinged on an axis perpendicular to the road-bed, and mounted adjacent to the road-bed to swing horizontally into the path of the wheels, and a spring arranged behind the catch-block and adapted to urge the same yieldingly into position to engage one of the wheels, substantially as described.

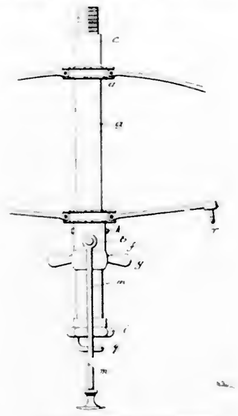
4. An automatic safety device for the purpose specified, consisting of a catch-block hinged on an axis perpendicular to the road-bed, and mounted adjacent thereto to swing horizontally into the path of the wheels, a bracket located adjacent to the catch-block, a bolt attached to the catch-block and passing through said bracket, and a coil-spring encircling said bolt and interposed between the bracket and block, substantially as described.

5. An automatic safety device for the purpose specified, consisting of a catch-block hinged on an axis perpendicular to the road-bed, and mounted adjacent thereto to swing horizontally into the path of the car-wheels, a supporting-roller carried by the free end of said catch-block, and means for yieldingly urging the free end of the block into the path of the wheels, substantially as described.

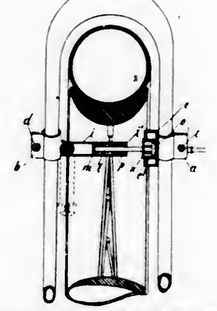
641,300. **SELF-OPENING UMBRELLA.** HENRY H. KESSLER, JR., Cleveland, Ohio. Filed Oct. 27, 1899. Serial No. 734,947. (No model.)

Claim.—1. In an umbrella, the combination of a top notch having a depending, tubular portion provided with longitudinal slots and also provided at its lower end with a hook disposed below said end, a runner movable on the tubular portion and having a cross-pin extending through the slots thereof, a coiled spring arranged in the tubular portion and connecting the cross-pin and the lower end of said tubular portion, and the bail-shaped handle pivotally connected to opposite sides of the runner and straddling and depending below the tubular portion of the top notch; the said handle being arranged, when the umbrella is closed, to rest on the hook of the tubular portion, and when the umbrella is open to depend below the said tubular portion, substantially as specified.

2. In an umbrella, the combination of a top notch having a depending, tubular portion provided with longitudinal slots and also provided at its lower end with a hook, ribs connected to the top notch, a runner movable on the tubular portion and having a cross-pin extending through the slots thereof, stretchers connected to the runner, a hook on one of the stretchers, a coiled spring arranged in the tubular portion and connecting the cross-pin and the lower end of said tubular portion, and a handle pivotally connected to the runner and adapted to be placed in engagement with the hook on the tubular portion and the hook on one of the stretchers, substantially as specified.



641,301. **BICYCLE-LOCK.** PAUL KLOSE, Sorau, Nieder-Lausitz, Germany. Filed Aug. 9, 1898. Serial No. 688,170. (No model.)



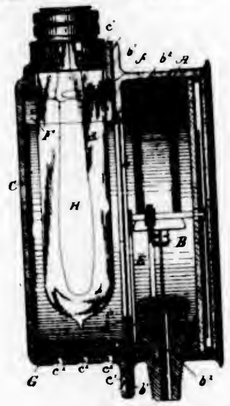
Claim.—1. In a locking device for cycles, the combination of the clamps *a*, *b*, a locking-bolt pivoted to one of said clamps and comprising a cylindrical casing *i*, a bolt *l* movable longitudinally in said casing, and a spring *p* tending to draw the bolt *l* within the casing, and a spring-lock upon the other clamp, said spring-retained bolt adapted to be drawn outwardly in its casing into position to be engaged by the spring-lock, substantially as and for the purpose set forth.

2. In a locking device for cycles, the combination of the clamps *a*, *b*, adapted to be fixed to the forked parts of a machine, a locking-bolt pivotally mounted upon the clamp *b* and comprising a cylindrical casing *i*, a bolt *l* mounted longitudinally movable in said casing and formed with a piston *m* within the casing engaging head *o* at its opposite end and an operating-collar *n*, a spiral spring confined between the end of the bolt-casing and the piston *m* for normally drawing the bolt within its casing, and a spring lock or latch mounted upon the clamp *a* and adapted to engage the head *o* when the bolt *l* is forced outwardly in its casing, substantially as set forth.

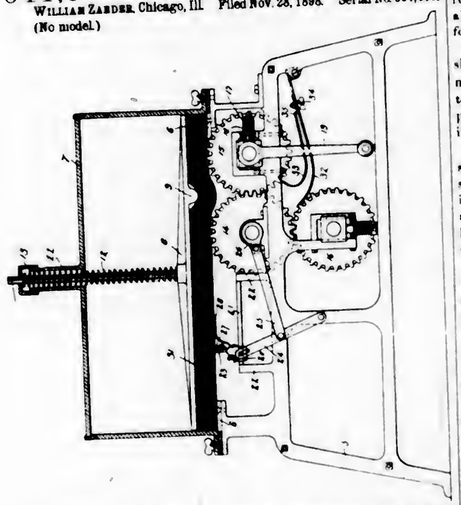
641,302. **ILLUMINATED GAGE.** FREDERICK LANE, Brookline, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Mar. 3, 1898. Serial No. 672,368. (No model.)

Claim.—As a new article of manufacture, a gage having the cham-

ber, B, for the gage mechanism and the receptacle, C, for an illuminator secured together with an opening between them; a ring of asbestos, D, between the meeting edges of the two; a sheet of mica, closing the opening between the chamber and receptacle; the reflectors, E and F, at top and bottom of the receptacle, C, and a source of light between the two reflectors, as set forth.



641,303. PAPER-FOLDING MACHINE. WILLIAM LANG and WILLIAM ZABDER, Chicago, Ill. Filed Nov. 28, 1898. Serial No. 697,619. (No model.)



Claim.—1. In a folding-machine, the combination with a pair of folding-rollers, of a fixed guide to receive a sheet of paper after such paper has been folded by said folding-rollers and a second pair of folding-rollers engaging the sheet as such sheet bends in toward the bite of said second pair of rollers after being stopped in the said guide, said second pair of rollers acting to withdraw the sheet from said guide and impart to the sheet a second fold, substantially as and for the purpose specified.

2. In a folding-machine, the combination with a pair of folding-rollers, of a reciprocating carriage, means for actuating said rollers and carriage, a device carried by said carriage for frictionally engaging the lower sheet of a pile of papers located above said rollers and carriage, and a support for said pile of papers connected to and moving with said carriage, substantially as and for the purpose specified.

3. In a folding-machine open at the top to receive a pile of sheets, the combination with a pair of folding-rollers, of means for supporting a pile of papers over said rollers, and other means for buckling the lower sheet of such pile above the bite of said rollers so as to be caught by the rollers and folded, substantially as and for the purpose specified.

4. In a folding-machine, the combination with a pair of folding-rollers, of means for supporting a pile of papers over said rollers, means for moving the lower sheet of such pile to cause it to buckle downward over the line of contact of said rollers and be folded by said rollers, a guide to receive said folded sheet, and means for withdrawing such sheet from said guide and giving to it an additional fold, substantially as and for the purpose specified.

5. In a folding-machine, the combination with a pair of folding rollers, of devices for supporting a pile of sheets above said rollers means for moving the lower sheet of said pile, and a follower resting upon said pile and provided with a projection for depressing said sheets over the line of contact of said rollers, substantially as and for the purpose specified.

6. In a folding-machine, the combination with a pair of folding-rollers, of a reciprocating carriage, means for actuating said rollers and carriage, a strip extending across said carriage and adapted to frictionally engage the lower sheet of a pile of papers located above said rollers and carriage when said carriage is moved toward the rollers, and adapted to be swung out of operative engagement on the return movement of the carriage, and a spring to return said strip to its operative position, substantially as and for the purpose specified.

7. In a folding-machine, the combination with a pair of folding-rollers, of a reciprocating carriage, means for actuating said rollers and carriage, a device carried by said carriage for frictionally engaging the lower sheet of a pile of papers located above said rollers and carriage when said carriage is moved toward the rollers, means for allowing such engaging device to yield on the return movement of the carriage so as not to disarrange or disturb the position of the paper, and a supporting device carried by said carriage on which the pile of papers rests, substantially as and for the purpose specified.

8. In a folding-machine, the combination with a pair of folding-rollers, of means for supporting a pile of sheets or papers over said rollers, said means being arranged to receive the sheets above said rollers, and other means for buckling the lower sheet of such pile above the bite of said rollers so as to be caught by the rollers and folded, substantially as and for the purpose specified.

9. In a folding apparatus open at the top to receive a pile of sheets, the combination of sheet-supporting means, sheet-creasing mechanism arranged below the sheet-supporting means and adapted to receive the sheet to be folded from above, and other means for projecting a buckled portion of the sheet to be folded into the creasing mechanism, substantially as and for the purpose specified.

10. In a folding apparatus open at the top to receive a pile of sheets, the combination of means adapted to support such pile of sheets, sheet-creasing mechanism arranged below the sheet-supporting means and adapted to receive the sheets to be folded from above, and other means for projecting successively a buckled portion of the lowermost sheet of the pile into the creasing mechanism, substantially as and for the purpose specified.

11. In a folding apparatus open at the top to receive a pile of sheets, the combination of means adapted to support such pile of sheets, sheet-creasing mechanism arranged below the sheet-supporting means and adapted to receive the sheets to be folded from above, a stop at one end of the sheets, and means adapted to engage the lowermost sheet and carry the opposite end forward, thereby buckling said sheet and causing said buckled portion to engage the creasing mechanism, substantially as and for the purpose specified.

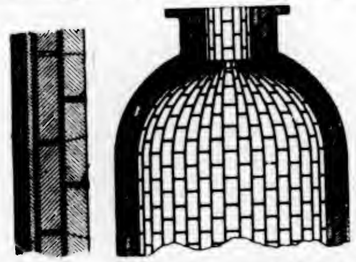
12. The combination with sheet-folding mechanism, of means upon which a pile of sheets is adapted to be supported at each end of said pile, other means for affording an intermediate support for the pile, each of said supporting means being arranged to receive the said pile over said folding mechanism, and means for moving the lowermost sheet of said pile to cause it to buckle downward over said folding mechanism and be caught and folded thereby, substantially as and for the purpose specified.

13. The combination with a pair of folding-rollers, of means upon which a pile of sheets is adapted to be supported at each end of said pile, other means for affording an intermediate support for said pile, each of said supporting means being arranged to receive the said pile over said rollers, and means for moving the lower sheet of said pile to cause it to buckle between said rollers and be caught and folded thereby, substantially as and for the purpose specified.

14. The combination with a pair of folding-rollers over which a pile of sheets can be placed, of means for supporting such pile of sheets over said rollers, said rollers constituting a portion of said supporting means, and other means for buckling the lower sheet of said pile above the bite of said rollers so that said buckled portion will be caught and the sheet folded, substantially as and for the purpose specified

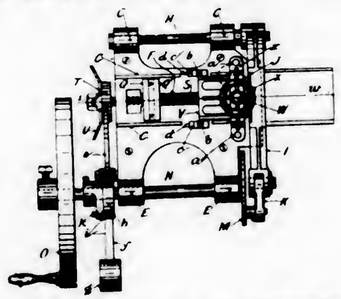
641,304. PROTECTIVE LINING FOR VESSELS. GEORGE LANDENDORFER, Boston, Mass., assignor of one-third to Jeremiah C. Spillane, same place. Filed Aug. 26, 1899. Serial No. 728,542. (No model.)

Claim.—1. The protective lining to the wall of metal and other vessels comprising a surface or body of brick or other earthy or stony non-heat-conducting material, the joints of which are closed to any desired extent with a homogeneous, vitreous body uniting and combining with the edges of the brick, as and for the purposes set forth.



2. A lining for vessels comprising blocks of brick or stone or other earthy or stony non-heat-conducting material laid in whole or in part in a cement capable of vitrifaction, and which cement or portions thereof is vitrified by heat after the bricks and cement have been laid, caused during vitrifaction to unite with the edges of the brick, and furnishing an impervious, homogeneous joint between the bricks, as and for the purposes set forth.

641,305. TOBACCO-CUTTING MACHINE. JAMES C. LAWRENCE, Manly, New South Wales, assignor of two-thirds to Alexander Ogden and Thomas William Miller, Sydney, New South Wales. Filed July 20, 1898. Serial No. 686,451. (No model.)

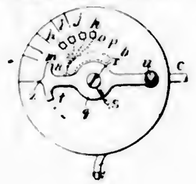


Claim.—1. In a tobacco-cutting machine, the combination of the feed way or channel, a vertical knife or cutter, a presser-plate at the rear of said cutter, a screw connected with the presser-plate, a bridge adjustable toward and from the cutter and which carries the screw, said presser-plate having pintles, and the adjustable slotted bracket receiving said pintles, substantially as described.

2. In combination in a tobacco-cutting machine, the cutter, the feed-plate, the screw and traveling nut for moving the same forward, a bell having a spring-tongue, a pendant supporting the bell and free to swing backwardly but held against forward movement, and a rigid pendent piece *u* secured to the traveling nut for operating the bell, substantially as described.

3. In combination in a tobacco-cutting machine, the cutter, the feed-channel having its front end inclined and having a drop-piece beneath and a tray having an inclined end, and a hook passing under the front edge of the channel and engaging said drop-piece, substantially as described

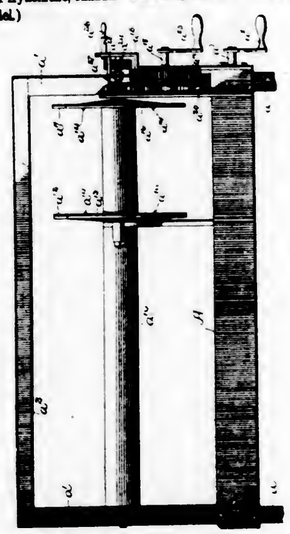
641,306. ELECTRIC WATER-HEATER. ARTHUR W. LAWTON, New York, N. Y. Filed Apr. 6, 1899. Serial No. 711,929. (No model.)



Claim.—1. An electric water-heater comprising a coiled pipe, a layer of insulating material surrounding said pipe, a plurality of conducting-wires separated from each other wound spirally around said insulating material, and a second layer of insulating material surrounding said wires, said insulating material being fused so as to completely inclose said conducting-wires separated from each other, a valve controlling the flow of water through said pipe, a plurality of contact-strips, one connected to each of said conducting-wires, and a combined contact-maker and valve-lever for simultaneously making an electric connection with one or more of said conducting-wires and for moving said valve, substantially as described.

2. An electric water-heater comprising a casing, a coiled water-pipe within said casing, a layer of refractory insulating material covering said water-pipe, a plurality of conducting-wires coiled around said material but separated from each other, a second layer of insulating material surrounding said wires, said layers of insulating material being fused together so as to tightly inclose said wires and insulate them from each other, a valve controlling the flow of water through said pipe, contact-strips projecting through said casing, one of said strips being connected to each of said conducting-wires, and a combined contact-lever and valve-lever for simultaneously making electric connection through one or more of said conductors of said wires and for moving said valve, substantially as described.

641,307. RIBBON-MEASURING MACHINE. JARVIER LETOURNEAU, St. Hyacinthe, Canada. Filed May 19, 1898. Serial No. 681,109. (No model.)



Claim.—1. A ribbon-measuring machine, comprising a frame; a support for the measuring device; a ribbon-spool holder and a drum mounted in said frame, one side of said holder and said drum being adjustable, to vary the width of said holder and said drum; and means for simultaneously moving said adjustable sides to their adjusted positions, substantially as described.

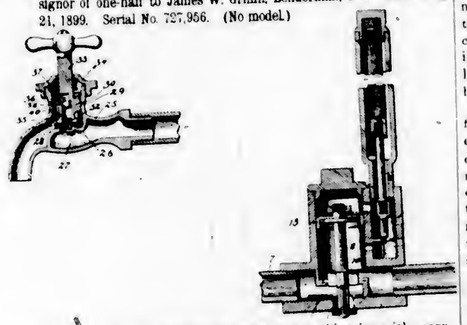
2. A ribbon-measuring machine, comprising a frame; a support for the measuring device; a ribbon-spool holder and a drum mounted in said frame, one side of said holder and said drum being adjustable; a carrier-frame, slidably mounted in said frame, connected to said adjustable sides; and means for moving said carrier-frame adjustably within said frame, substantially as described.

3. A ribbon-measuring machine, comprising a frame; a measuring device support affixed thereto; a ribbon-spool holder secured at one end of said frame; a shaft mounted at the opposite end of said frame, said shaft being provided with a disk at one end thereof, said disk having a movement with said shaft; a disk slidably mounted on said shaft, said disk being held against rotary movement, a carrier-frame slidably mounted in said frame, said carrier-frame being connected to said slidable disk and to one of the sides of said spool-holder, means for adjusting the position of said carrier-frame; and means for imparting movement to said spool-holder and to said shaft, substantially as described.

4. In a ribbon-measuring machine, the combinaton with a frame; a drive-gear mounted thereon; and means for imparting movement

to said drive-gear; of a shaft pivotally mounted in said frame; a pinion slidably mounted on said shaft, said pinion being adapted to be intermittently brought into operative engagement with said drive-gear; a spring mounted on said shaft and interposed between said frame and said pinion, said spring being adapted to hold said pinion normally out of engagement with said gear; a yoke slidably mounted on said shaft and adapted to embrace said pinion, said yoke serving to move said pinion into and out of engagement with said drive-gear; and an adjustable pawl pivotally connected to said yoke, said pawl serving to hold said yoke in its adjusted positions, substantially as described.

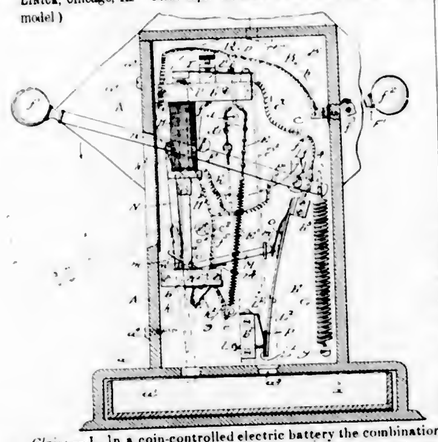
641,308. FAUCET. ROBERT F. LINDSEY, Greenville, S. C., assignor of one-half to James W. Griffin, Lenderman, S. C. Filed Aug. 21, 1899. Serial No. 727,956. (No model.)



Claim.—1. In a water-supply system, the combination with a service-pipe, automatic cut-off having connected oppositely-opening cut-off and drain valves, of which the latter is exposed at one side to service-pressure, a piston connected with said valves for simultaneous operation and permanently exposed at one side to supply pressure, valve-mechanism for controlling inlet and exhaust ports in communication with the piston-cylinder at the opposite sides of the pistons, and a thermostatic rod for controlling said valve mechanism, and an air-inlet for the pipe having a valve adapted to close the inlet under the influence of pressure within the pipe, and to open the inlet when pressure is removed.

2. A faucet comprising a casing having a valve-seat therein, a valve having a stem in threaded engagement with the casing above the seat, said valve being adapted for engagement with the seat, a chamber in the casing above the threaded portion of the stem, a passage in the stem communicating with said chamber and with the casing beyond the valve-seat, an inwardly-opening valve in said passage, and a passage through the stem communicating with said chamber and with the discharge end of the casing.

641,309. COIN-CONTROLLED ELECTRIC BATTERY. ADOLPH LINICK, Chicago, Ill. Filed Apr. 15, 1899. Serial No. 713,088. (No model.)



Claim.—1. In a coin-controlled electric battery the combination of the frame with the electrode-handle supported thereon and connected with one end of the circuit, an induction-coil, a movable shield therein, a vibratory lever adapted to operate said shield and connected with the other end of the electric circuit and a coin-holding contact-plate operated by the vibrating lever, substantially as described.

2. In a coin-controlled electric battery the combination with the frame and casing, of the electrode-handle supported thereon and connected to one end of a circuit, an induction-coil and a movable shield therein, a vibratory lever connected with the other end of said circuit and shield to operate it, a spiral spring for holding the lever in its normal position and a coin-holding contact-plate in the electric circuit operated upon by the vibratory lever, substantially as described.

3. In a coin-controlled electric battery the combination with the frame and casing, of the electrode-handle supported thereon and connected to one end of a circuit, an induction-coil and movable shield therein, a vibratory lever connected with the other end of said circuit and shield to operate it and a spiral spring for holding the lever in its normal position, an index operated by said lever, and a coin-holding contact-plate in the electric circuit operated upon by the vibratory lever, substantially as described.

4. In a coin-controlled electric battery the combination with the frame and casing, of the handle supported thereon and connected with one end of the circuit, an induction-coil, a movable shield therein, an operating-lever connected with the other end of said circuit and connected to the shield to operate it, an index-shaft and a pinion thereon and a flexible connection secured to the lever and passing over the pinion, a spiral spring connected to the ends of said flexible connection and to the frame, and a coin-holding contact-plate in the electric circuit operated upon by the operating-lever, substantially as described.

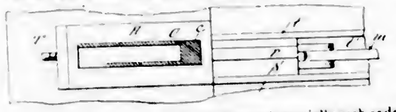
5. In a coin-controlled electric battery, the combination with the frame and casing, of the handles connected to a battery-circuit and connected to said circuit, an induction-coil, a battery connected therewith, contact-plates located in said battery-circuit, a shield movable in the induction-coil and adapted to operate the cut-out to open and close the battery-circuit, and a coin-holding contact-plate in the electric circuit operated upon by one of the handles, substantially as described.

6. In a coin-controlled electric battery the combination with the frame and casing of an electrode and an operating-handle, an induction-coil, a battery-circuit, a circuit-breaker and coin-holding contact-plates operated upon by the handle to release the coin and break the battery-circuit, substantially as described.

7. In a coin-controlled electric battery, the combination with the frame and casing, of an electrode, an operating electrode-handle, an electric circuit connecting the same, coin-holding contact-plates located in said circuit, an adjustable set-screw to regulate the distance between said contact-plates, and a push-bar operated by the electrode-handle to separate said plates and release the coin, substantially as described.

8. In a coin-controlled electric battery, the combination with the frame and casing, of the electrode, the vibratory electrode-lever pivoted to the casing, the battery-circuit, the induction-coil and secondary circuit, a vibratory coin-holding contact-plate, a finger operated by the said lever and a push-bar operated by the finger to actuate the coin-holding plate, substantially as described.

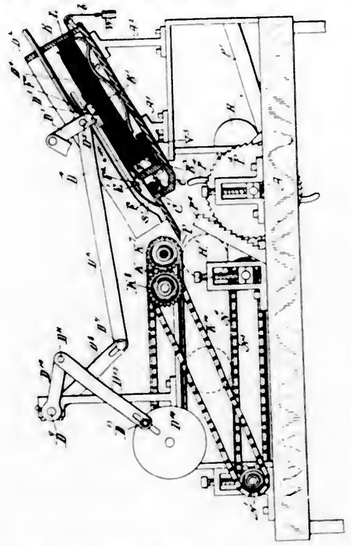
641,310. TYPE-SETTING APPARATUS. ABBOT A. LOW, New York, N. Y., assignor to The Alden Type Machine Company, same place. Filed Feb. 27, 1899. Serial No. 706,908. (No model.)



Claim.—1. In a compositor's type-case substantially such as designated, the combination of a type-containing channel formed with a type-floor at its lower extremity of less width than the width of a type to be used, a vertical pusher-blade of less thickness than the width of said type, said pusher-blade being formed with a lateral flange at its upper edge projecting over the said type-floor of the channel when the pusher is in the latter, and means for reciprocating said pusher-blade, substantially in the manner and for the purpose described.

2. In a compositor's type-case substantially such as designated, the combination of the type-containing channel C, formed with a slotted type-floor c^4, at its lower extremity, the vertical pusher-blade P, formed with the lateral extension p, on its upper edge, the slide S, formed with the vertical slot s, and provided with the adjusting and set screws s^2, s^3, s^4, and means for reciprocating said slide S, for the purpose and substantially in the manner set forth.

641,311. LABELING-MACHINE. JAMES MACLEAN, Boston, Mass. Filed Mar. 8, 1899. Serial No. 708,247. (No model.)



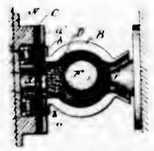
Claim.—1. In a labeling-machine, a label feeding and pasting mechanism, in combination with endless aprons provided with lags having faces that unite to form a continuous working surface for the said aprons, the said lags being so formed as to constitute moving tables, the surfaces of which conform to the shape of the bottle, whereby the label is pressed down so as to come in contact with the surface of the said bottle however irregular; substantially as and for the purpose set forth.

2. In a labeling-machine a label-box adapted to hold the labels, a label-carrier with mechanism for giving a reciprocating motion to the carrier, trunnions upon said carrier adapted to work in ways, said ways provided with a switch whereby the carrier is forced to traverse in one plane in its forward movement and to be lifted above said plane in its backward movement, substantially as and for the purpose set forth.

3. In a labeling-machine a label-box a label-carrier and two sets of guiding-ways connected by cross-ways at their rear ends as described whereby the carrier at the end of its back stroke abruptly drops onto the label, said carrier and mechanism for giving motion to it, substantially as and for the purpose set forth.

4. In a labeling-machine, a horizontally-sliding label-box having a retracting cord and weight, and adapted to be moved horizontally to a limited degree by the label-carrier, thereby allowing the label-carrier time to engage with the label; and said label-carrier and mechanism for operating the same; substantially as and for the purpose set forth.

641,312. DOOR STOP AND HOLDER. GOTTLIEB MAIER, Jr., Newark, N. J. Filed Oct. 16, 1899. Serial No. 733,820. (No model.)



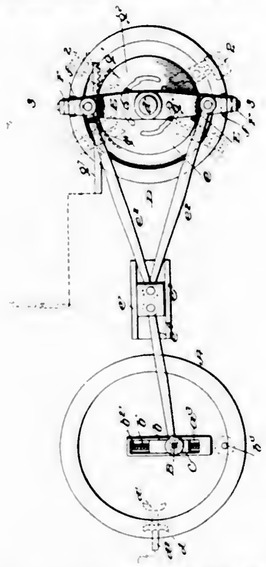
Claim.—1. In a door-stop, the combination with a base-plate, of two oppositely-arranged jaws fashioned to receive and hold a suitable head, of means for pivotally securing the jaws to the base-plate and independent springs interposed between the base-plate and the base of the jaws beyond the plane of the pivot, substantially as described.

2. In a door-stop, the combination with a base-plate, of pivoted jaws secured thereto, springs for normally closing the jaws and a buffer secured between the jaws adjacent the base thereof, substantially as described.

3. In a door-stop, the combination with a base-plate, of two jaws, means for pivotally securing the jaws to the base-plate, springs on opposite sides of the pivot interposed between the plate and bases of the jaws adjacent to the bases thereof and a knob fashioned to fit between the jaws, substantially as described.

4. In a door-stop, the combination with a base-plate, of two jaws, a central pivot securing the jaws to the base-plate and springs interposed between the jaws and the base-plate on opposite sides of the pivot and a buffer through which the pivot passes, substantially as described.

641,313. MOTOR-VEHICLE. ANDREW J. MARTIN, Buffalo, N. Y. Filed Jan. 13, 1899. Serial No. 702,077. (No model.)



Claim.—1. In a motor-vehicle, a fly-wheel having a shiftable crank-pin and a counterbalancing-weight, and means for effecting the adjustment thereof while the wheel is in motion.

2. In a motor vehicle, a fly-wheel having a shiftable crank-pin, a revoluble bearing therefor, a counterbalanciug-weight also on said bearing, and means for revolving said bearing while the wheel is in motion.

3. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a threaded shaft therefor, a weight also on said shaft, and means for turning said shaft, substantially as set forth.

4. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a revoluble bearing therefor, a wheel, for effecting the turning of such bearing, having its engaging periphery movable outside of the planes of the fly-wheel, and a slide for contacting with opposite points of the periphery of such wheel, as set forth.

5. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a shaft in said wheel having a thread on which said crank-pin is movable, a second shaft at right angles to said former shaft, gearing between such shafts, a wheel, on said second shaft, having its engaging periphery outside of the planes of the fly-wheel, and a frictional device designed to engage opposite points of the periphery of such latter wheel, substantially as set forth.

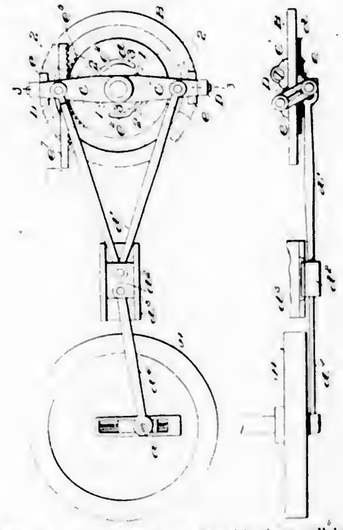
6. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a shaft in said wheel having a thread on which said crank-pin is movable, a second shaft at right angles to said former shaft, gearing between said shafts, a wheel on said second shaft, and a slide having frictional sides with which said latter wheel is designed to engage, substantially as set forth.

7. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a revoluble bearing therefor, a counterbalancing-weight also on such bearing, a wheel, for effecting the turning of such bearing, having engaging portions outside of the fly-wheel and a slide for contacting with such engaging portions, as set forth.

8. In a motor-vehicle, a fly-wheel having a shiftable crank-pin, a shaft in said wheel having a thread on which said crank-pin is movable, a counterbalancing-weight also on said shaft, a second shaft at

right angles to said former shaft, gearing between said shafts, a wheel on said second shaft, and means designed to effect the turning of said latter wheel comprising a device capable of engaging therewith, substantially as set forth.

641,314. CLUTCH FOR MOTOR-VEHICLES. ANDREW J. MARTIN, Buffalo, N. Y. Original application filed Jan. 13, 1899, Serial No. 702,077. Divided and this application filed May 27, 1899. Serial No. 718,554. (No model.)



Claim.—1. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms having contact portions for engaging such faces when moved in the direction of the wheel's rotation, and means for changing the positions of the contact portions in relation to said faces for reversing the rotation of the wheel, as set forth

2. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms having contact portions for engaging such faces when moved in the direction of the wheel's rotation, and means for holding the contact portions out of engagement with said faces, as set forth.

3. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms having contact portions for engaging such faces when moved in the direction of the wheel's rotation, a positively-operated device for changing the positions of the contact portions for reversing the rotation of the wheel, as set forth.

4. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms having each a member projected across such plane, independently-movable contact portions carried by such members for automatically conforming to and engaging diagonally opposite points of such faces, and means for changing the lines of projection of such members and the relative positions of the contact portions for reversing the rotation of the wheel or holding said contact portions out of engagement therewith, as set forth.

5. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms, contact elements designed to engage diagonally opposite points of such faces, supports for such contact elements carried by the clutch-arms, and means for changing the relative positions of such elements for reversing the rotation of the wheel, as set forth.

6. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the axis of such wheel, clutch-arms, shoes designed to engage and automatically conform to diagonally opposite points on such faces, movable supports for such shoes, carried by the clutch-arms, and means for changing the relative positions of such shoes for reversing the rotation of the wheel, as set forth.

7. A clutch comprising a wheel having parallel faces on opposite sides of a plane at right angles to the wheel-axis, clutch-arms, plates carried by such arms extended transversely of such plane, shoes on the plates for engaging diagonally opposite points of such faces, and a positively-operated device for changing the relative positions of the shoes for reversing the rotation of the wheel or holding said shoes out of engagement therewith, as set forth.

8. The combination with a wheel having parallel faces on opposite sides of a plane at right angles to the wheel-axis, of clutch-arms, shoes, supports therefor carried by such arms, pivoted bearings for such shoes, and means for changing the relative positions of the shoes for reversing the rotation of the wheel, said shoes being adapted to engage diagonally opposite points of said faces, as set forth.

9. The combination with a wheel having engaging faces on opposite sides of a plane at right angles to the wheel-axis, of clutch-arms, pivotally-mounted shoes carried by such arms, and a positively-operated device for binding such shoes against diagonally opposite points of such engaging faces and also for holding them out of engagement with such faces, as set forth.

10. The combination with a wheel having opposite engaging faces at right angles to its axis, of clutch-arms, plates carried by such arms extended transversely across the wheel, shoes mounted on the plates for engaging and conforming to such faces and capable of moving independently of their supporting-plates, and a positively-operated device for changing the positions of the plates for reversing the rotation of the wheel, as set forth.

11. The combination with a wheel having opposite, flat, parallel faces, of clutch-arms, shoes for automatically conforming to said faces and engaging diagonally opposite points thereof, supports for such shoes carried by the clutch-arms, and means for reversing the rotation of the wheel by changing the relative lines of engagement of said shoes, as set forth.

12. The combination with a wheel having opposite faces at right angles to its axis, of clutch-arms, plates carried by such arms extended at right angles to such faces, shoes carried by said plates, rods for shifting the plates, and cam-disks for setting such rods, substantially as set forth.

13. The combination with a wheel having opposite flat faces at right angles to its axis, of clutch-arms, shoes having flat faces designed to conform to the faces of the wheel and to engage diagonally opposite points of such faces, supports for such shoes carried by the clutch-arms, said shoes being capable of moving independently of their supports, and means for changing the positions of said supports for reversing the rotation of the wheel or holding said shoes out of engagement therewith, as set forth.

14. The combination with a wheel having opposite flat faces at right angles to its axis, of clutch-arms, plates pivoted on the arms and extended over the periphery of the wheel, shoes pivoted on the plates, a spring-rod engaging one shoe of each set of shoes for shifting the plates, levers on the arms to which the rods are secured, and a cam-disk having slots into which projections of the levers extend, as set forth

15. The combination with a clutch-wheel having flat faces, of two oppositely-extended arms having pivoted plates extended across the periphery of the wheel, shoes carried by the plates opposed to said flat faces, and means for setting the plates obliquely and straight across the periphery, of the clutch-wheel, substantially as set forth.

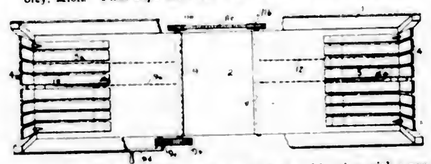
16. The combination with a clutch-wheel having engaging faces upon opposite sides of a plane at right angles to the axis of the wheel, of two arms, shiftable plates projected across the said plane, and carried by said arms, shoes mounted on the plates for engaging said faces when said plates are set obliquely to said plane, and means for changing the direction of projection of both of such plates for reversing the rotation of the wheel or holding said shoes out of engagement therewith, substantially as set forth

17. The combination with a clutch-wheel having flat sides, of two arms mounted on the same axis as the wheel, means connected to the arms for reciprocating them back and forth, shiftable plates carried by said arms, extended across the periphery of the wheel, shoes mounted on the plates for engaging the sides of the wheel, and means for changing the direction of projection of said plates for reversing the rotation of the wheel, substantially as set forth.

18. The combination with a clutch-wheel having flat sides, of two arms mounted on the same axis as the wheel, shiftable plates, carried by the arms, extended across the periphery of the wheel, shoes mounted on the plates, levers on said arms for shifting said plates, and a disk on the same axis as the wheel having two sets of slots with each of which one of the levers engages, each of said slots being composed of a plurality of sections of different radii, substantially as set forth.

19 The combination with a clutch-wheel, of a plurality of clutches engaging the sides of the clutch-wheel, on oblique lines, when moved in the direction of rotation of such wheel, the engagement of such clutches being alternate, means for shifting the engaging portions of each clutch for reversing the rotation of the clutch-wheel or holding the clutches out of engagement therewith, and means for reciprocating the clutches, substantially as set forth.

641,315. DUMPING-WAGON BOX. GEORGE W MERRILL, Bay City, Mich. Filed Sept. 29, 1899 Serial No. 732,059. (No model.)



Claim.—1. In a dumping-wagon box, the combination with a central opening having a door, of longitudinally-movable inclined bottom sections, downwardly and inwardly movable end sections pivotally attached to said bottom sections, and means, substantially as described for moving said bottom sections toward or away from said central opening.

2. In a dumping-wagon box having a central discharge-opening and a door for said opening, the combination with longitudinally-movable bottom sections of end sections attached at their lower ends to the outer ends of said bottom sections, and means for moving said bottom sections toward or away from said opening, together with the hinged members 7 and 7ª resting upon said end and bottom sections, and having means for drawing said members toward said opening, substantially as described and for the purposes set forth

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641,316. HARNESS-FASTENING. LOUIS C. MEYER, Davenport, Iowa. Filed Apr. 28, 1899. Serial No. 714,899. (No model.)



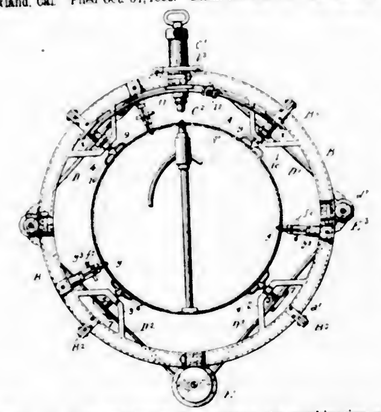
Claim.—1. A harness-fastening consisting of sister hooks, the shank of one being a flat wedge adapted to receive the strap and the shank of the other being a clasp adapted to receive and retain said strap and wedge-shaped shank, substantially as shown and described.

2. A harness-fastening consisting of sister hooks, the shank of one flat and wedge-shaped, widest nearest the hook, adapted to receive the strap, and the shank of the other being a clasp adapted to receive and retain said strap and wedge-shaped shank, substantially as shown and described.

3. A harness-fastening consisting of sister hooks, one bowed away from the other toward the shank and having its shank wedge-shaped and adapted to receive the strap and the shank of the other being a clasp adapted to receive and retain said strap and wedge-shaped shank, substantially as shown and described

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641,317. TOOL-HOLDER FOR RIVETERS. ROBERT S. MOORE, Oakland, Cal. Filed Oct. 31, 1898. Serial No. 695,118. (No model.)



Claim.—1. In a tool-holder for riveters, the combination with the securing-frame, of a plurality of power-operated devices for adjusting or alining the frame to the work to be riveted, and a single means for controlling said alining devices

2. In a tool-holder for riveters, the combination with a securing-frame and a movable riveter-support thereon, of a swinging plate and a centering-plug carried thereby and adapted to be swung into and out of the path of a riveter carried by said support.

3 In a tool-holder for riveters, the combination with a two-part securing-frame, and a riveter-carriage mounted to travel thereon and support a riveter between said frame parts, of swinging tie-plates, and centering-plugs carried by said tie-plates

4 In a tool-holder for riveters, the combination with the securing-frame, of the power-operated alining devices, a single means for controlling said alining devices, and of means for centering the frame to the work to be riveted.

5. In a tool-holder for riveters, the combination with the securing-frame composed of two circular plates or rings, of air-cylinders secured to and carried by each plate or ring, connection between said cylinders and a source of air-supply, and of a piston working in each cylinder and actuated by the pressure of air therein, said piston terminating in a foot or enlargement which bears against the pipe-sections as the piston is forced outward.

6. In a tool-holder for riveters, the combination with the securing-frame, of a series of pneumatic-actuated devices for adjusting or alining the frame to the work to be riveted, and a single means for controlling said alining devices.

7. In a tool-holder for riveters, the combination with the two-part securing-frame, and a riveter-carriage mounted to travel thereon and support a riveter between said frame parts, of a series of pneumatic-actuated devices for adjusting or alining the frame, a series of swinging tie-plates, and of the vertically-adjustable centering devices carried by the swinging tie-plates.

8. In a tool-holder for riveters, the combination with the securing-frame, of a series of hand-actuated adjusting or alining devices carried thereby, and of a series of power-operated adjusted or alining devices likewise secured to and carried by the frame, and a single means for controlling said power-operated alining devices.

9. In a tool-holder for riveters, the combination with the securing-frame, of a series of vertically-movable alining devices for the frame, air-actuated mechanism connected with and for operating certain of said alining devices, a single means for controlling said air-actuated mechanism and of means for centering the frame to the work to be riveted.

10. In a tool-holder for riveters, the combination with the securing-frame composed of two circular plates or rings, and a riveter-carriage mounted to travel thereon and support a riveter between said plates, of a series of tie-plates hinged or pivoted to one of the plates or rings and adapted to lock with the opposite plate or ring of the frame, and of a centering device carried by each tie-plate.

11. In a tool-holder for riveters, the combination with a securing-frame adapted to surround the work and a normally-fixed alining device or devices thereon, of a plurality of pneumatically-operated alining devices opposed to the latter, a supply-pipe therefor, and a single device for controlling all said pneumatic alining devices, substantially as described.

641,318. FEED-WATER HEATER. CHARLES D. MOSHER, New York, N. Y. Filed Feb. 21, 1899. Serial No. 706,343. (No model.)

Claim.—1. A feed-water heating apparatus having provisions for subjecting the feed-water successively to different degrees of temperature, in combination with a plurality of different heaters connected with said apparatus and adapted to furnish heat thereto at said different temperatures, said heaters being respectively connected with the exhausts of a plurality of different-pressure steam-engine cylinders.

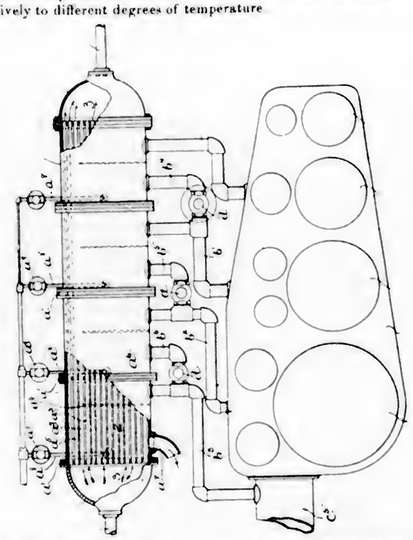
2 A feed-water-heating apparatus comprising a series of separate heaters, a feed-water conduit common to the several heaters, and a series of independent inlets to the several heaters, connected respectively with the exhausts of a plurality of different-pressure steam-engine cylinders.

3. A feed-water heater comprising a series of separate heating sections or compartments, provisions for admitting steam thereto from the exhausts of a plurality of different-pressure steam-engine cylinders, a feed-water conduit common to the several compartments, connections from one compartment to another, and pressure-reducing valves in said connections, whereby different steam pressures and temperatures are maintained in the several compartments and the feed-water is subjected successively to different degrees of temperature.

4. A feed-water heater comprising a series of separate heating sections or compartments, a feed-water conduit common to the several compartments, a series of independent steam-inlets to the several compartments, adapted to be connected to a number of different sources of steam, connections from one compartment to another, and pressure-reducing valves in said connections, whereby different steam-pressures and temperatures are maintained in the several compartments and the feed-water is subjected successively to different degrees of temperature.

5. The combination with a multiple-expansion steam-engine, of

a feed-water heater having a series of separate heating sections or compartments, a feed-water conduit common to the several compartments, and connections between the several compartments and the exhausts from the several cylinders of the engine, whereby steam at different degrees of pressure and temperature is admitted to the respective compartments, and the feed-water is thereby subjected successively to different degrees of temperature.



6. The combination with a multiple-expansion steam-engine, of a feed-water heater having a series of separate heating sections or compartments, a feed-water conduit common to the several compartments, connections between the several compartments and the exhausts from the several cylinders of the engine, whereby steam at different degrees of pressure and temperature is admitted to the respective compartments, connections from one compartment to another, and pressure-reducing valves in said connections, whereby successively-decreasing pressures and temperatures are maintained in the several compartments and the feed-water is subjected to successively-increasing temperatures.

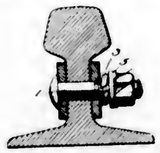
7. A feed-water heater comprising a casing, a series of three or more transverse partitions dividing said casing into a number of separate heating-compartments, and two water-compartments at the ends, said end compartments having respectively an inlet and an outlet for feed-water, a series of tubes connecting said end compartments and traversing the heating-compartments, and inlets to the several compartments for the admission of steam from the exhausts of a plurality of different-pressure steam-engine cylinders.

8. A feed-water heater, comprising a casing, one or more transverse partitions dividing said casing into a number of separate heating-compartments, a series of feed-water tubes traversing said compartments, an inlet to each compartment for the admission of steam from a number of independent sources, a pipe connection between each compartment and its neighbor, and a pressure-reducing valve in each of said connections, whereby different pressures and temperatures are maintained in the several compartments and the feed-water in the tubes is thereby subjected successively to different degrees of temperature.

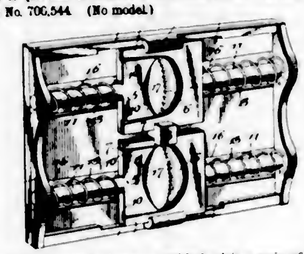
9. In apparatus of the character specified, the combination of a series of separate heating sections or compartments, a feed-water conduit common to the several compartments, a series of independent steam-inlets to the several compartments and connected with the exhausts of a plurality of different-pressure steam-engine cylinders, branch pipes connected with the bottoms of the several compartments and communicating with a drain-pipe common to all, and drain-traps in said branch pipes.

641,319. NUT AND BOLT LOCK. JOSEPH PARBEL, Grand Rapids, Mich. Filed Nov. 29, 1898. Serial No. 697,806. (No model.)

Claim.—In a nut and bolt lock, the combination of the bolt having a portion thereof cut away along its threaded part to form a flat surface; the split spring-washer having its spring ends projecting and bearing in opposite directions; the rigid washer having its aperture corresponding in outline to the cut-away portion of the bolt in cross-section, and provided in its outer face with notches; and the nut provided on its inner face with lugs corresponding with and formed to fit the notches of said rigid washer, and adapted to be turned upon the threaded portion of the bolt to cause the ends of the spring-washer to engage opposed bearing-points and lie in the same plane, substantially as specified.



641,320. CANE-STRIPPER. GEORGE W. PARRISH, Salem, Va., assignor of one-half to Monroe Garst, Medley, Va. Filed Dec. 28, 1898. Serial No. 700,544. (No model.)



Claim.—1. A cane-stripper provided with a pair of yieldingly-mounted jaws provided at opposite sides with approximately parallel overlapping arms, said jaws being recessed at their contiguous faces to receive the arms and arrange their engaging edges in the same plane, substantially as described.

2. A cane-stripper comprising a frame provided with guides 2 having longitudinal recesses and overhanging flanges, the oppositely-disposed jaws arranged in pairs and having their outer edges engaged by the said flanges, and a removable central guiding device engaging the inner adjacent edges of said jaws, substantially as described.

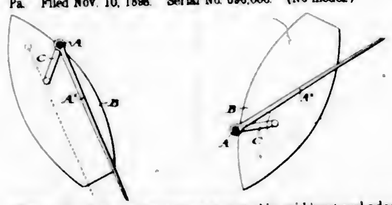
3. A cane-stripper comprising a frame provided with guide-openings, the stationary guides, the jaws arranged in pairs, and having their outer edges engaged by the stationary guides, stems extending from the jaws and passing through the guide openings, springs disposed on the stems and engaging the jaws, and a central guiding device removably mounted on the frame, substantially as described.

4. A cane-stripper provided with a pair of jaws consisting of flat blades operating in the same plane and capable of movement to vary the size of the opening between them, said jaws having concave edges beveled outwardly and provided with smooth outer portions and having inner corrugations or teeth, substantially as described.

5. A cane-stripper comprising a frame, jaws arranged in pairs, and a combined fastening device and guide interposed between the pairs of jaws detachably securing the same to the frame and forming a guide for the said jaws, substantially as described.

6. A cane-stripper comprising a frame provided with outer fixed guides, jaws arranged in pairs and having their outer edges fitting in the fixed guides, and a combined guide and fastening device interposed between the pairs of jaws and detachably securing the same to the frame, substantially as described.

641,321. SAILING VESSEL. GEORGE H. PERKINS, Philadelphia, Pa. Filed Nov. 10, 1898. Serial No. 696,008. (No model.)



Claim.—1. A boat, a structure mounted in said boat and adapted for horizontal movement with respect thereto, a mast connected to said structure, means for occasioning the movement of said structure to carry the mast to different positions in the boat, and means for trimming or extending in any desired direction a sail attached to said mast independently of the movement of said mast, substantially as set forth.

2. A boat, a mast, a movable structure in said boat in which said mast is stepped, means for occasioning the movement of said structure to carry the mast to different positions in the boat, and means for trimming or extending in any desired direction a sail attached to said mast regardless of the position or movement of the mast, substantially as set forth.

3. A boat, a mast, a revoluble structure in said boat to which said mast is connected, means for occasioning the revolution of said structure to carry the mast to different positions in the boat, and means for trimming or extending in any desired direction a sail attached to said mast, without moving said mast substantially as set forth.

4. A boat, a mast, a movable structure on said boat to which said mast is connected, and adapted to carry the mast to different positions in the boat, and means for trimming or extending in any desired direction a sail attached to said mast, regardless of the position of said mast, substantially as set forth.

5. In combination with a boat, a mast, an approximately horizontal movable arm to the outer portion of which said mast is connected and by which it is carried, a stationary device engaged with the inner end of said arm, and means for trimming or extending in any desired direction a sail attached to said mast, without moving said mast, substantially as set forth.

6. A boat, a mast, a boom arranged to be set in any desired direction with reference to said mast without moving said mast, and a device supporting said mast and capable of movement to shift said mast from place to place, substantially as set forth.

7. A boat, a mast capable of bodily movement from place to place therein in relation to its support, means to occasion such movement, and a boom carried by said mast and adapted to be set in any desired position, regardless of the position of the mast, substantially as set forth.

8. A boat, a mast capable of movement from place to place therein in relation to its support, means to occasion such movement, and means for extending in any desired direction a sail attached to said mast, substantially as set forth.

9. In combination, a boat, a mast, a substantially horizontal arm at the lower end of said mast, a swivel connection between said arm and the structure of the boat, means for occasioning the movement of said arm, to carry the mast to different positions in the boat, and means for extending in any desired direction a boom attached to said mast, substantially as set forth.

10. In combination, a boat, a movable device mounted in said boat, a mast upheld by said movable device, a boom or equivalent sail trimming or extending device or devices,—and means for securing said mast and boom in various positions in the boat without altering the angular relation of the vertical plane of the boom to that of the boat keel, substantially as set forth.

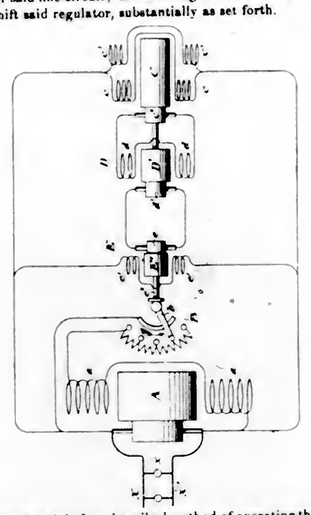
11. In combination, a boat, a movable device mounted in said boat, a mast upheld by said movable device, a boom or equivalent sail trimming or extending device, a bowsprit or equivalent device carried by said mast, and means for securing said mast, boom, and bowsprit, in various successive positions in the boat without altering the angular relation of the vertical plane of the boom and bowsprit to that of the boat keel, substantially as set forth.

12. A boat, a structure mounted in said boat and adapted for horizontal movement with respect thereto, a mast connected to said structure, means for occasioning the movement of said structure to carry the mast bodily at the will of the sailor, to windward or to leeward; or forward or aft,—substantially as set forth.

641,322. METHOD OF REGULATING ELECTRIC CIRCUITS. MATHIAS PFATISCHER, Philadelphia, Pa. Filed July 7, 1899. Serial No. 723,034. (No model.)

Claim.—1. The hereinbefore-described method of operating the regulator of an electric line-circuit, which consists in the creation of a preponderance in one of a plurality of opposed normally-balanced magnetic fields, as the manifestation of variations in the circuit to be regulated; subjecting a rotating armature to the action of the preponderant field and thus generating a current in accordance with the differential value of said fields, and utilizing the current thus generated for the movement of the regulator, substantially as set forth.

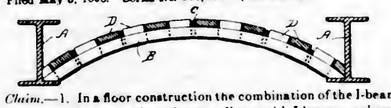
2. The hereinbefore-described method of operating the regulator of an electric line-circuit, which consists in opposing two normally-balanced differential fields in such relation with a continuously-rotating armature that the magnetic preponderance of one of said fields, with respect to the other, shall produce a current of corresponding polarity in said armature; maintaining the magnetic circuit of one of said fields substantially constant; varying the magnetic circuit of the other of said fields in accordance with the fluctuations in the voltage of said line-circuit; and utilizing the resultant armature-current to shift said regulator, substantially as set forth.



3. The hereinbefore-described method of operating the regulator of an electric line-circuit, which consists in opposing two normally-balanced differential fields in such relation with a continuously-rotating armature that the magnetic preponderance of one of said fields, with respect to the other, shall produce a current of corresponding polarity in said armature; energizing both of said fields by shunt connection with said line-circuit, in such relation therewith that one of said fields shall be excited beyond its magnetic saturation limit, and that the other of said fields shall be excited below its magnetic saturation limit; and deriving from the differential magnetic flux of said fields, consequent upon variations in the voltage of said line-circuit, a current for shifting said regulator, substantially as set forth.

4. The hereinbefore-described method of operating the regulator of an electric generator, which consists in opposing two normally-balanced differential fields in such relation with a continuously-rotating armature that the magnetic preponderance of one of said fields, with respect to the other, shall produce a current of corresponding polarity in said armature; maintaining the magnetic circuit of one of said fields substantially constant; varying the magnetic circuit of the other of said fields in accordance with fluctuations in the terminal voltage of said generator; exciting the field of an auxiliary electric generator by means of the resultant armature-current; actuating a motor by means of the current thereby generated; and shifting said regulator by the action of said motor, substantially as set forth.

641,323. FIREPROOF FLOOR. JOHN W. RAPP, New York, N. Y. Filed May 5, 1898. Serial No. 679,746. (No model.)



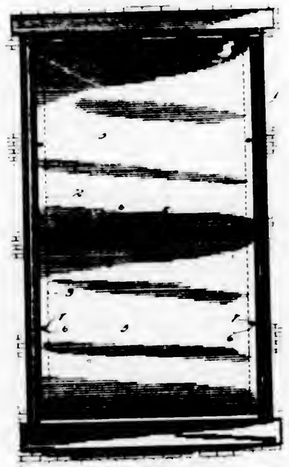
Claim.—1. In a floor construction the combination of the I-beams suitably supported, cross-bars intermediate said I-beams and supported by their ends on the flanges of said I-beams, suitable spacing-strips for said cross-bars, and blocks supported by said cross-bars, said blocks being arranged to overlap each other, substantially as described.

2. In a floor construction the combination of the I-beams suitably supported, cross-bars intermediate said I-beams and supported by their ends on the flanges of said I-beams, bricks or blocks supported by said cross-bars, each of said blocks being provided with a recess into which the cross-bars project and said blocks being overlapped when in position on the cross-bars, substantially as described.

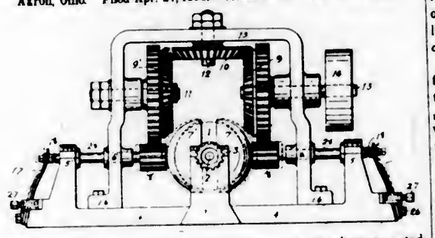
641,324. WINDOW-SHIELD. MARY C. READ, Torch Lake, Mich. Filed Sept. 20, 1899. Serial No. 731,116. (No model.)

Claim.—The combination with a window-sash, of a shield therefor, comprising a translucent sheet of pasteboard or like material, having a waterproof finish, fitted to the sash and entirely covering and

protecting the latter, and also provided with a marginal series of eyelets, and fastenings passing through the eyelets and detachably securing the shield to the rails of the sash.



641,325. MECHANICAL MOVEMENT. MARK A. REPLOGLE, Akron, Ohio. Filed Apr. 27, 1899. Serial No. 714,638. (No model.)



Claim.—1. A mechanical movement comprising a sphere mounted upon a shaft passing diametrically therethrough, and the said sphere and shaft interposed between revolving concaved hemispherical members revolving in opposite directions, the inner concave surfaces thereof being adapted to be pressed into frictional engagement with the convex surface of the sphere for the purpose of transmitting a circular motion, in either direction, to it, substantially as specified.

2. In a mechanical movement the combination of a revoluble shaft, a sphere mounted on the same, a second revoluble shaft at right angles to the first, a hemispherical concave friction member mounted thereon and the convex surface of said sphere being adapted to engage with the concave surface of the said friction member, for the purpose specified.

3. In a mechanical movement a revolving shaft, having a hemispherical concave member axially mounted thereon, a revolving shaft having a spherical body axially mounted thereon, the latter shaft being substantially at right angles to the former and means for shifting the latter shaft so that the convex surface of the said spherical body is brought into frictional engagement with the concave surface of the hemispherical member, substantially as specified.

4. The combination of revolving hemispherical concave members and a spherical body disposed between the concaves of said members and mounted axially on a shaft, the said shaft and sphere being shiftable endwise for the purpose of transmitting circular motion to it from the said members by friction, substantially as specified.

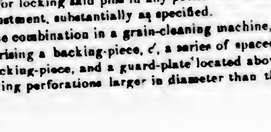
5. A friction-gear comprised in a concaved member mounted axially on a revoluble shaft, the concave surfaces thereof in frictional engagement with a spherical body mounted axially on a revoluble shaft substantially at right angles to the first shaft as specified.

6. In a mechanical movement, a revoluble shaft having a spherical body axially mounted thereon, a pair of opposing hemispherical concave members engaging laterally with the spherical body aforesaid and the said members axially mounted on the ends of revoluble shafts extending at right angles with the shaft aforesaid, in combination with driving mechanism adapted to revolve the said hemispherical members equally in opposite directions for the purpose of transmitting circular motion to the spherical body substantially as specified.

641,326. CARPET-TACK. OTTO J. RIEDMILLER, Hawley, Pa. Filed Apr. 25, 1899. Serial No. 714,410. (No model.)

Claim.—A tack having a laterally-extended head, the end of which is beveled or undercut, and a short foot-piece arranged intermediate the shank of the tack and the beveled end of the head, substantially as shown and described.

641,327. REED FOR TEXTILE MACHINERY. THOMAS A. ROBINSON and ROBERT L. SHAW, Paterson, N. J. Filed Sept. 21, 1899. Serial No. 731,164. (No model.)



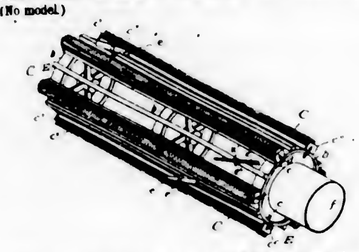
Claim.—1. In a reed, dents mounted in a broken line, in combination with a glass rod or rods, shaped and adapted to fit against said dents and provided with bent ends to lock over the bottom rail of the reed-frame, substantially as set forth.

2. In a reed for textile machinery the combination with the reed-frame, of a guide-rod, of glass or other suitable substance, having one or more V-shaped portions throughout the length thereof, and overlapping ends, adapted to pass behind and lock over the bottom rail of the reed-frame, substantially as set forth.

3. In a reed for creel-frames or other textile machinery, the reed-frame in combination with dents secured and arranged therein so as to form one or more V-shaped angles throughout the line of dents, and a guide-rod, of glass or other suitable substance, having one or more V-shaped portions, to fit against the V-shaped angles of dents, and having bent ends to overlap the reed-frame, substantially as set forth.

4. In a creel-frame, the main body of the frame and pins rigidly affixed thereto, in oblique rows, and adapted to support bobbins thereon in close proximity, in combination with a reed secured to said frame, the dents of said reed being out of alinement so as to form one or more V-shaped angles throughout the line of dents, and a guide-rod having one or more V-shaped portions adapted to fit against the V-shaped angles of dents and having bent ends to lock over the bottom rail of the reed-frame, substantially as set forth.

641,328. GRAIN CLEANING AND SCALPING MACHINE. BELFORD G. ROYAL, Camden, N. J. Filed Dec. 11, 1897. Serial No. 661,489. (No model.)



Claim.—1. The combination in a grain-cleaning machine, of the abrading-cylinder, a revolving grain-carrier cylinder within the abrading-cylinder and having a series of brushes or carriers on its surface, feeding-blades, e, arranged between the brushes, supports as E, pins, e', carrying said blades and adjustable in said supports, and a set-screw, e^3, for locking said pins in any position of radial or circumferential adjustment, substantially as specified.

2. The combination in a grain-cleaning machine, of a grain-carrier comprising a backing-piece, c', a series of spaced wires secured in said backing-piece, and a guard-plate located above the backing-piece having perforations larger in diameter than the diameters of the wires, the said spaced wires in the backing-piece adapted to pass through the apertures in the guard-plate, substantially as described.

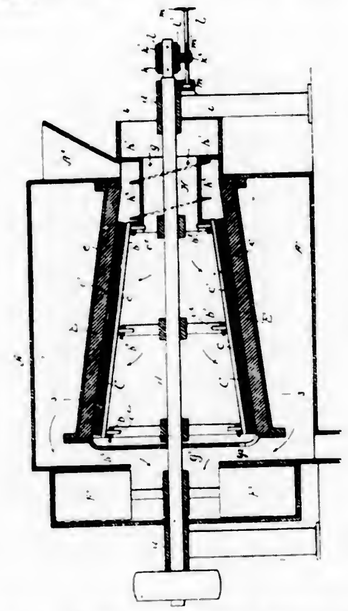
3. The combination in a grain-cleaning machine, of a grain-carrier comprising a backing-piece, c', a series of spaced wires, c^2, carried thereby, a guard-plate, c^3, having perforations for the reception of the wires, c^2, end pieces, c^4, formed on said guard-plate for attachment to the backing-piece, c', and means for adjusting the said guard-plate with respect to the length of the wires, substantially as described.

4. The combination in a grain-cleaning machine, of a grain-carrier comprising a backing-piece, c', a series of spaced wires, c^2, carried thereby, and a guard-plate located above the said backing-piece and having perforations for the reception of the wires, said guard-plate being adjustable with respect to the length of the wires, substantially as described.

5. The combination in a grain-cleaning machine, of a grain-carrier comprising a backing-piece, c', a series of spaced wires, c^2, carried thereby, a guard-plate, c^3, located above said backing-piece at a point about midway of the said wires, perforations provided in said guard-plate adapted to receive the wires, and flanges, c^4, formed on the ends of said guard-plate provided with elongated slots through which the said flanges are adjustably bolted to the backing-piece, c', substantially as described.

6. The combination in a carrier for a grain-cleaning machine of the backing, c', spaced wires, c^2, a guard-plate, c^3, having perforations for the admission of the wires, slotted end plates, c^4, secured to or formed integral with said guard-plate, and a locking-screw, c^5, passed through each of said slotted end plates and securing the same to the backing, c', substantially as specified.

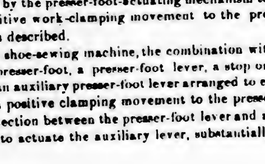
641,329. GRAIN CLEANING AND SCALPING MACHINE. BELFORD G. ROYAL, Camden, N. J. Filed Dec. 17, 1897. Serial No. 662,361. (No model.)



Claim.—1. In a grain-cleaning machine, the combination of an outer casing open at one end, an exhaust-fan, F, located at the opposite end, a tapering cylinder, E, composed of alternately-arranged abrading-stones and foraminous material open at one end, a disk, f' adapted to partially close the opposite end of the cylinder, a discharge-opening, f^2, provided in said disk, a longitudinally-disposed driving-shaft running centrally through the abrading-cylinder, a series of rings, b, b', b^2, supported on spider-arms carried by the driving-shafts, a series of longitudinally-disposed brush-carriers supported on said rings, dowel-pins, c^2, formed on said carriers adapted to openings in the rings, set-screws, b^3, for securing the same in an adjusted position, a feed-hopper located in the outer casing, and a hollow cylinder, H, having a feed-screw, h^2, on its outer periphery located in the open end of the abrading-cylinder for feeding the grain to the carriers, substantially as described.

2. The combination of the outer casing having an opening at one end, an exhaust-fan located in the other end, a centrally-disposed driving-shaft, a series of rings, b, b', b^2, supported on spider-arms carried by the driving-shaft, a series of inclined brush-carriers adjustably mounted on said rings, an abrading-cylinder surrounding said carriers open at the feeding end, a discharge-opening in the closed end, and a hollow feed-screw located in the open end of the cylinder thereby leaving a central draft-opening through the machine, substantially as described.

641,330. NEEDLE-LUBRICATING DEVICE FOR SEWING-MACHINES. JOHN T. RUSH, Northampton, England, assignor to John B. Hadaway, Brockton, Mass. Filed Feb. 11, 1899. Serial No. 705,330. (No model.)

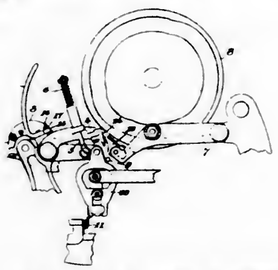


Claim.—1. In a shoe-sewing machine, the combination with a needle-segment and needle, and means for oscillating the segment, of a lubricating device carried by the segment-actuating means, arranged to be brought in contact with the needle when the needle is retracted and withdrawn from the work, substantially as described.

2. In a shoe-sewing machine, the combination with a needle-segment and needle, and a lever for actuating the segment of a lubricating device secured to the actuating-lever and projected into the plane of the path of movement of the needle, arranged to be moved to contact with the needle when the segment is oscillated to retract the needle, substantially as described.

3. In a shoe-sewing machine, the combination with a curved needle, its segment, and a lever for actuating the segment, of a lubricating device comprising a hollow box having a curved opening in one side, a fibrous packing in the box projecting from the opening, and a rearwardly-extended shank, secured to the segment-actuating lever in position to engage the needle when retracted, substantially as described.

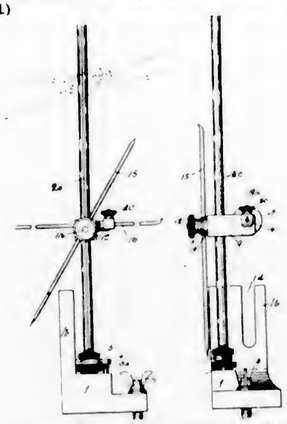
641,331. PRESSER-FOOT MECHANISM FOR SOLE-SEWING MACHINES. JOHN T. RUSH, Northampton, England, assignor to John B. Hadaway, Brockton, Mass. Filed Feb. 11, 1899. Serial No. 705,331. (No model.)



Claim.—1. In a shoe-sewing machine, the combination with a work-support, of a presser-foot, mechanism for actuating the presser-foot, a spring interposed between the presser-foot and its actuating mechanism whereby the actuating mechanism imparts an initial yielding movement to the presser-foot, and a stop or shoulder arranged to be engaged by the presser-foot-actuating mechanism to impart a subsequent positive work-clamping movement to the presser-foot, substantially as described.

2. In a shoe-sewing machine, the combination with a work-support, of a presser-foot, a presser-foot lever, a stop on said presser-foot lever, an auxiliary presser-foot lever arranged to engage the stop to impart a positive clamping movement to the presser-foot lever, a spring connection between the presser-foot lever and auxiliary lever, and means to actuate the auxiliary lever, substantially as described.

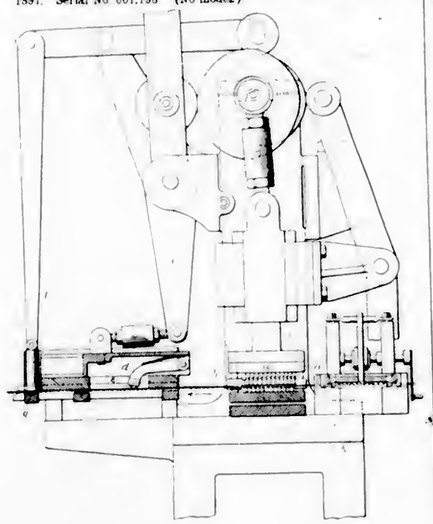
641,332. SURFACE-GAGE. ANASTAZY SADOWSKI, Cleveland, Ohio. Filed Dec. 27, 1897. Renewed Sept. 14, 1899. Serial No. 730,511. (No model.)



Claim.—1. In a surface-gage, in combination with a vertically-adjustable scribing-block, a hollow pin threaded exteriorly and having a hole through it vertically at right angles to its longitudinal bore, a nut upon the hollow pin, said nut being carried by the scribing-block and adapted to give to the hollow pin a longitudinal movement by turning the nut; a lock-pin fitted in the vertical hole in the exteriorly-threaded pin, said lock-pin having a transverse hole that registers with the longitudinal bore of the exteriorly-threaded pin, a nut screwed upon the lock-pin, and a scribe projecting through the exteriorly-threaded pin and the lock-pin, substantially as described.

2. In a surface-gage, a vertical spindle; a scribing-block having a bore through which the vertical spindle passes, and being provided with an opening which intersects from one end the said bore, a holding-piece within said opening, the holding-piece having a transverse bore that registers with the bore through the scribing-block; a pin carried by the holding-piece, said pin having its outer end threaded and being provided with a transverse bore; and a nut screwed upon the threaded end of the last-named pin to clamp the scribing-block to the vertical spindle to fix its adjustment thereon, substantially as described.

641,333. PUNCHING-MACHINE FOR METAL STRIPS. EMIL SALTZKORN and LUDWIG NICOLAI, Dresden, Germany, assignors to the American Metal Edge Box Company, Philadelphia, Pa. Filed Dec. 8, 1897. Serial No. 661,198. (No model.)



Claim.—1. In a machine for punching metal strips, the combination with the punching mechanism, of means for holding the metal strip on each side of the punch during the punching operation, and means for keeping taut the punched portion of the strip prior to its passing to the winding-reel, substantially as set forth.

2. In a machine for punching metal strips, the combination with the punching mechanism, of means for holding the metal strip on each side of the punch during the punching operation, mechanism for stretching and keeping taut the punched portion of the strip prior to its passing to the winding-reel, and mechanism for engaging with and feeding the strip forward after each punching operation, substantially as set forth.

3. In a machine for punching metal strips for use in the manufacture of cardboard boxes a feeding-guide before the punch, means for holding the strip in advance of the punch while the material is being punched and means for holding that part of the strip already operated upon by the punch prior to its passing to the winding-reel in combination with a reciprocating carriage provided with a spring-controlled pawl adapted to engage with and feed the strip forward after each punching operation as set forth.

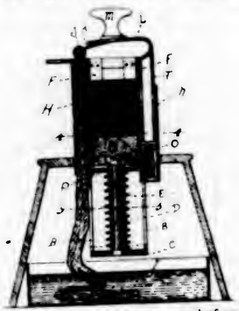
4. In a machine for punching metal strips for use in the manufacture of cardboard boxes a feeding-guide before the punch, pins adapted to engage with the strip in advance of the punches just before the punching upon the strip and pins on a reciprocating plunger adapted to hold that part of the strip already operated upon by the punch prior to its passing to the winding-reel as set forth.

5. In a machine for punching metal strips, the combination with the punching mechanism, of a feeding-guide located in front of the punch pins carried by the punch-support adapted to engage with the strip in advance of the punch and hold the strip taut during the punching operation, and a reciprocating carriage provided with a pawl adapted to engage with and feed the strip forward after each punching operation, substantially as set forth.

6. In a machine for punching metal strips, the combination with the punching mechanism, a feeding-guide located in front of the punch, pins carried by the punch-support adapted to engage with the strip in advance of the punch and hold the strip taut during the punching operation, a reciprocating carriage provided with a pawl adapted to engage with and feed the strip at certain intervals and a reciprocating plunger having pin adapted to hold the strip during the return of the feeding-carriage, substantially as set forth.

7. In a machine for punching metal strips, the combination with the punching mechanism, of a guide, A, adapted to bear firmly against the strip, pins, *b*, carried by the punch-support on the side opposite the guide, A, adapted to engage and hold the strip during the punching operation, a reciprocating carriage provided with a pawl, *d*, having prongs, *e*, adapted to engage and feed the strip after the punching operation and a reciprocating plunger provided with prongs, *g*, adapted to engage and hold the strip during the return of the feeding-carriage substantially as set forth.

641,334. STAMP-AFFIXING MACHINE. PAUL H. SANBORN and JOHN L. KINDT, Waukegan, Ill. Filed Mar. 18, 1899. Serial No. 709,586. (No model.)



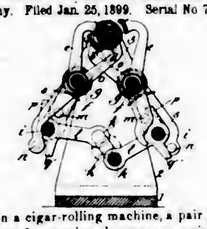
Claim.—A stamp-affixing machine composed of a supporting-base having a moisture-receptacle therein, a stamp-holder yieldingly supported and vertically slidable in said base, a spring-supported top for depressing the holder, a tube secured to said holder, an absorbent material carried in said tube and communicating with said moisture-receptacle for the purpose set forth.

641,335. GALVANIC BANDAGE. PHILIPP L. SCHMIDT, Worms, Germany. Filed Apr. 11, 1899. Serial No. 712,617. (No specimens.)

Claim.—A galvanic bandage consisting of a device arranged after the manner of dry cells in the form of a bandage and provided with a soft or elastic material upon its under side which is connected by means of metallic studs *c* with one of the battery elements and also by means of metallic studs *c'* with the other element of the battery in such a manner that upon applying the device upon the body this latter forms the connection between the two sets of conductors thereby closing the electric circuit substantially as and for the purposes hereinbefore described.



641,336. CIGAR-MACHINE. CLARENCE R. SCHULTZ, Charlottenburg, Germany. Filed Jan. 25, 1899. Serial No. 703,326. (No model.)



Claim.—1. In a cigar-rolling machine, a pair of separable wrapping-shapers, means for opening the same, a spring for closing the same, and means for swinging said shapers about their axis of closure.

2. In a cigar-rolling machine, a pair of separable wrapping-shapers, means for opening the same, stops for limiting the closing thereof, springs for closing said wrapping-shapers, and means for swinging the same about their axis of closure.

3. In a cigar-rolling machine, the coacting pairs of wrapping-shapers, the shapers in each pair being held in a closed position under spring tension, means for separating said shapers, and means for swinging the same about their axis of closure.

4. In a cigar-rolling machine, the separable wrapping-shapers mounted to swing about their axis of closure, a spring for closing said shapers, and vibratory members engaging and separating said shapers.

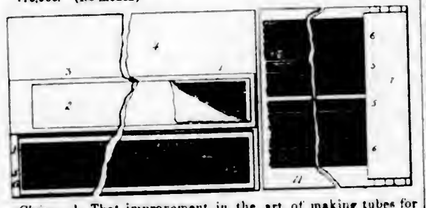
5. In a cigar-rolling machine, the separable wrapping-shapers mounted to swing about their axis of closure, a spring for closing the same, a vibratory member for swinging said shapers, and provided with vibratory parts for opening said shapers.

6. In a cigar-rolling machine, the separable wrapping-shapers mounted to swing about their axis of closure, a spring for closing the same, rods connected with a rotary driving device and having a pivotal connection with the frame supporting said shapers and having projections or levers engaging the said shapers.

7. In a cigar-rolling machine, the separable wrapping-shapers mounted to swing about their axis of closure, a spring for closing the same against suitable stops, a vibratory member pivotally connected with the frame supporting said shapers and having projections engaging the said shapers, and means for swinging said member on its pivot.

8. In a cigar-rolling machine, the coacting pairs of swinging wrapping-shapers, springs for closing said shapers, rods swinging with said shapers and situated between the end portions thereof, a double-crank shaft, connecting-rods connected with said crank-shaft and with the swinging rods of said shapers, levers upon said connecting-rods, and projections upon shapers situated in the path of said levers.

641,337. PROCESS OF MANUFACTURING PNEUMATIC TIRES. FRANK A. SEIBERLING, Akron, Ohio. Filed May 15, 1899. Serial No. 716,900. (No model.)

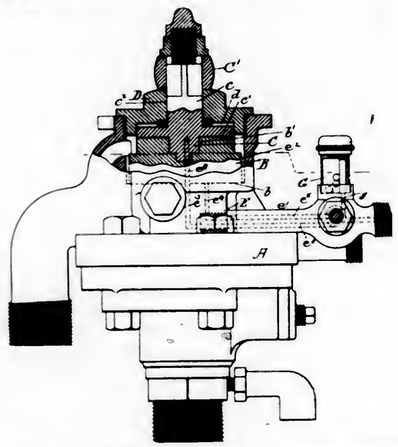


Claim.—1. That improvement in the art of making tubes for pneumatic tires which consists in forming a blank for the body of rubber-saturated fabric; placing at determined locations thereon strips of rubber to form a reinforcing portion and a cover, and rolling the same under external pressure upon an inner tube, substantially as described.

2. That improvement in the art of making tubes for pneumatic tires which consists in forming a blank for the body of rubber-saturated fabric; placing at determined places thereon strips of rubber to form a reinforcing portion and a cover, and rolling the same under pressure from three directions upon an inner tube, substantially as shown and described.

3. That improvement in the art of making tubes for pneumatic tires which consists in forming a blank for the body of rubber-saturated fabric, placing adjacent thereto and with its edge lapped thereon, a strip of rubber to form a cover and rolling the same under pressure simultaneously from different radial directions upon an inner tube, substantially as shown and described.

641,338. TRACK-SANDING APPARATUS. CHARLES W. SHERBURNE, Boston, Mass. Filed Oct. 28, 1899. Serial No. 735,080. (No model.)



Claim.—1. An engineer's air-valve for a combined train-brake and track-sanding apparatus, having a stationary valve-seat provided with the train-brake air-ports and a track-sanding air-port, and a rotary valve having train-brake air-ports and a track-sanding air-passage which is adapted, upon the movement of the rotary valve in applying the brakes, to make an operative connection with the track-sanding air-port in the stationary seat, as and for the purposes described.

2. An engineer's air-valve for a combined train-brake and track-sanding apparatus having a stationary valve-seat provided with train-brake air-ports, a track-sanding air-passage and a track-sanding air-port, a rotary valve having train-brake air-ports and a track-sanding air-passage, which latter, upon the rotation of the valve, is adapted to be connected with the track-sanding air-port in the stationary seat, an air-chamber upon the side of the rotary valve opposite the valve-seat and a connection or passage from said chamber to the track-sanding air-passage in the valve-seat, as and for the purposes described.

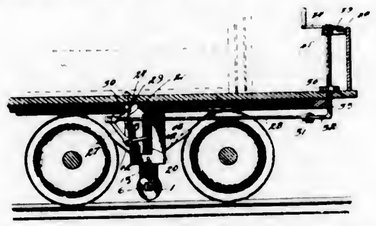
3. An engineer's air-valve for a combined train-brake and track-sanding apparatus having a stationary valve-seat provided with the usual train-brake air-ports, a track-sanding air-passage and a track-sanding air-port, a rotary valve having the usual train-brake air-ports and a track-sanding air-passage which is adapted, upon the rotation of the valve, to make connection with the track-sanding air-port in the stationary seat, an air-chamber upon the side of the rotary valve opposite the stationary seat, an air-passage from said chamber to the track-sanding air-passage in the stationary seat and a hand-operative, independent valve to open and close said last-named passage.

4. An engineer's air-valve for a combined train-brake and track-sanding apparatus, having a stationary valve-seat provided with the usual train-brake air-ports and also provided with a track-sanding air-port, a rotary valve having the usual train-brake air-ports and a track-sanding air-passage, which valve is adapted to have imparted to it a movement for a service stop and an additional movement for an

emergency stop, the said track-sanding air-port in the stationary valve and the said air-passage in the rotary valve not making connection during the movement of the rotary valve in service stops and only making connection during the movement of the valve in emergency stops, as and for the purposes set forth.

5. In a track-sanding apparatus, a sight-feed chamber through which the air supplying the sand box or pipe passes, having an air-inlet at the lower end of said chamber, an air-outlet from the upper end of said chamber and interposed independent indicators contained in the chambers below the air-outlet and adapted to be moved by the air in its passage through the chamber.

641,339. **CAR-BRAKE.** ALFRED S. SLYKER, Wilkes-Barré, Pa. Filed July 20, 1899. Serial No. 724,536. (No model.)



Claim.—1. In a track-brake, the combination of a vertically-sliding brake-shoe carrier, an oscillating brake-shoe mounted thereon, and operating means for said carrier.

2. In a track-brake, a vertically-sliding brake-shoe carrier, means for reciprocating said carrier, and an oscillating brake-shoe mounted on said carrier and consisting of a wheel journaled on the carrier and having a flattened braking-surface, substantially as described.

3. In a track-brake, the combination with brake-operating mechanism, of a vertically-movable brake-shoe carrier, an oscillating brake-shoe mounted thereon, and a tension-spring cooperating with said brake-shoe and mounted on and movable up and down with the carrier, substantially as described.

4. In a track-brake, the combination with brake-operating mechanism, of a slidable brake-shoe carrier, a stationary hanger for said carrier, an oscillating brake-shoe on said carrier, and a resistance-spring interposed between and connecting said shoe and hanger.

5. In a track-brake, the combination with brake-operating mechanism, of a brake-shoe carrier movable up and down, an oscillating brake-shoe on said carrier, and means on the movable carrier for limiting the movements of said brake-shoe.

6. In a track-brake, the combination with brake-operating mechanism, of a brake-shoe carrier movable up and down, an oscillating brake-shoe mounted thereon, shoulders on said brake-shoe, and a limiting-stop on the movable carrier cooperating with said shoulders, substantially as described.

7. In a track-brake, the combination with a sliding brake-shoe carrier, of an oscillating brake-shoe mounted thereon and provided with a concentric groove terminating in shoulders, and a stop on the carrier entering said groove and cooperating with said shoulders.

8. In a track-brake, the combination with a vertically-slidable brake-shoe carrier, of a flanged rail-engaging brake-shoe thereon, and means on the carrier permitting said brake-shoe to yield laterally with relation to the carrier and beneath the car, substantially as described.

9. In a track-brake, the combination with a brake-shoe carrier, of a flanged rail-engaging brake-shoe journaled thereon, and equalizing-springs on opposite sides of said brake-shoe, substantially as described.

10. In a track-brake, the combination with a brake-shoe carrier, of a flanged rail-engaging brake-shoe adapted to yield laterally with respect to said carrier, equalizing-springs for sustaining said shoe in working position, and a device for adjusting the tension of said springs.

11. In a track-brake, the combination with a brake-shoe carrier, of a spindle thereon, a flanged rail-engaging brake-shoe journaled on said spindle, a spring encircling said spindle and operating upon the brake-shoe, and means for adjusting the tension of said spring, substantially as described.

12. In a track-brake, the combination with a brake-shoe carrier, of an oscillating flanged rail-engaging brake-shoe journaled thereon, and a resistance-spring connected eccentrically to said brake-shoe and acting with increasing force as the brake is applied, substantially as described.

641,340. **BAG CARRIER AND CLOSURE.** ELDRIDGE J. SMITH, Washington, D. C., assignor of one-half to Charles A. Baker. Filed May 19, 1899. Serial No. 717,514. (No model.)



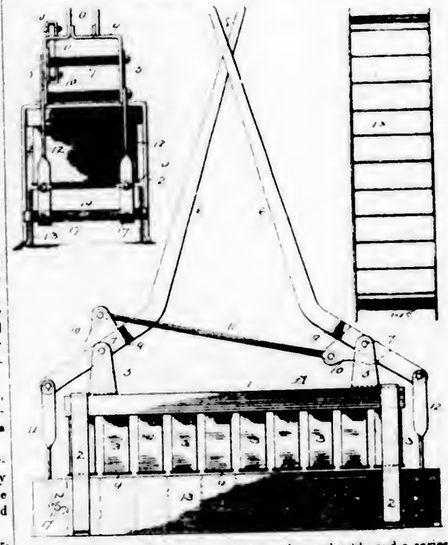
Claim.—1. As a new article of manufacture, a combined bag closure and carrier comprising a frame formed from a single piece of wire having parallel side arms and a bag-embracing cross-bar, combined with a hand-holding portion formed of a channeled metal strip having openings at its opposite ends to receive the free ends of the said parallel side arms, and a locking-bar slidably mounted upon said frame and movable to and from the cross-bar.

2. As a new article of manufacture, a combined bag closure and carrier comprising a single-wire frame having a hand-holding portion at one end, a bag-embracing cross-bar at the opposite end and a locking-bar slidably mounted upon said frame and movable to and from the said cross-bar said locking-bar being formed of wire and having its opposite ends bent to form eyes which encircle the wire frame.

3. As a new article of manufacture, a combined bag closure and carrier comprising a hand-holding means provided with openings at the opposite ends thereof, a single-wire frame having a bag-embracing cross-bar and parallel arms the free ends of which are shaped to enter the openings in said handle, and a locking-bar slidably mounted upon said wire frame.

4. As a new article of manufacture, a combined bag closure and carrier, comprising a substantially U-shaped wire frame having a hand-holding portion and a bag-embracing portion, and a locking-bar slidably supported upon the frame said locking-bar being formed of wire having its opposite ends bent to provide eyes which freely encircle the parallel arms of the frame.

641,341. **MACHINE FOR MAKING BRICKS.** HENRY B. SPERRY, Akron, Ohio. Filed Apr 28, 1899. Serial No. 714,875. (No model.)

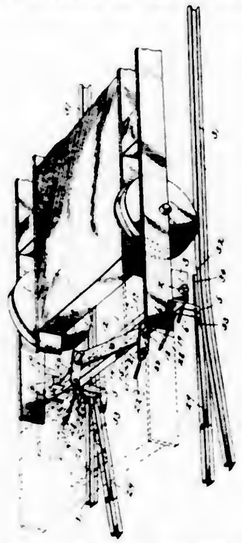


Claim.—1. The combination with an elevated table and a series of plungers depending therefrom, of levers pivotally mounted near their lower ends upon the ends of said table, and links depending from the free ends of the short arms of said levers and constructed at their lower ends to be removably connected with a mold disposed under the same.

2. The combination with an elevated table and a series of plungers depending therefrom, of levers pivotally mounted near one end upon the respective ends of the table, links depending from the short arms of the respective levers and adapted at their lower ends for attachment to a mold, arms projecting in opposite directions from the respective levers and a rod connecting said arms.

3. The combination with an elevated table and a series of plungers depending therefrom, of levers pivotally mounted on the table, the short arms of the levers projecting beyond the ends of the table, links depending from the ends of the short arms of said levers and adapted at their lower ends for attachment to a mold and means connecting said levers and arranged to cause them to move in unison.

641,342. **SWITCH-OPERATING MECHANISM.** ELLIS J. STANLEY, Lanark, Ill. Filed Sept. 30, 1899. Serial No. 732,192. (No model.)



Claim.—1. In a switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes thereon, and means for rocking the shaft and simultaneously moving the shoes laterally in the same direction.

2. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, and means for rocking the shaft and simultaneously swinging the shoes laterally in the same direction.

3. In switch-operating mechanism for cars, a rock-shaft, operating means therefor, rail-shifting shoes swiveled thereon, and means for simultaneously rocking said shoes, substantially as described.

4. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, and means for rocking said shaft and simultaneously swinging the shoes laterally.

5. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, connections between the shoes causing them to simultaneously swing laterally in the same direction, and means for operating said shaft and shoe connections.

6. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes journaled thereon in axes transverse to the axis of the shaft, operating means for the shaft, and connections for causing the shoes to simultaneously swing laterally in the same direction, substantially as described.

7. In switch-operating mechanism for cars, a rock-shaft, shoes swiveled thereon and adapted to be swung upward and downward thereby, a shifting-lever operatively coupled to both shoes, and operating means for said lever and rock-shaft, substantially as set forth.

8. In switch-operating mechanism for cars, a rock-shaft, shoes swiveled thereon, crank-arms connected to said shoes, a shifting-lever fulcrumed on the rock-shaft and having its opposite ends in engagement with said crank-arms, and operating means for said shaft and lever, substantially as described.

9. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, crank-arms connected to said shoes, a shifting-lever fulcrumed on the rock-shaft and engaging said crank-arms, and operating means for said rock-shaft and lever, substantially as described.

10. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, a pair of treadle-levers having their foot portions arranged in close proximity to each other so that they may be simultaneously depressed, and operative connections between said treadles and the rock-shaft and shoes, substantially as described.

11. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes swiveled thereon, a pair of treadles having foot portions arranged in close proximity to each other whereby they may be collectively or individually depressed, and operative connections between the treadles and the rock-shaft and shoes, substantially as described.

12. In switch-operating mechanism for cars, a sectional rock-shaft provided with recesses in the meeting faces of its sections forming bearings for operative parts of the mechanism, substantially as described.

13. In switch-operating mechanism for cars, a sectional rock-shaft divided on a central longitudinal line, the sections being provided in their meeting faces with oppositely-located recesses forming bearings for operative parts of the mechanism, substantially as described.

14. In switch-operating mechanism for cars, a rock-shaft provided with a bearing-opening, a shifting-lever having a stud or pivot arranged in said opening and provided itself with a transverse opening, and a shaft-operating spring having one end passed through the rock-shaft and also through the opening in the pivot of the lever, substantially as described.

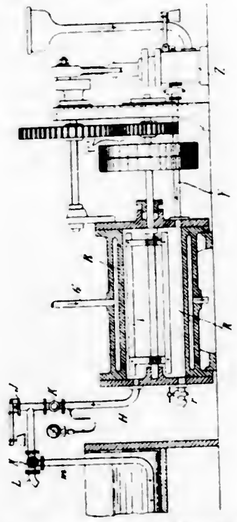
15. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes carried thereby, and stays embracing said shoes and serving to engage the shoes and limit the rocking movement of the shaft, substantially as described.

16. In switch-operating mechanism for cars, a rock-shaft, rail-shifting shoes thereon, means for rocking said shaft to throw the shoes into operation, and a retracting-spring for said shaft, substantially as described.

17. In switch-operating mechanism for cars, a rock-shaft, a rail-shifting shoe thereon, means for rocking said shaft, and a torsion-spring for restoring said shaft to its normal position and elevating the shoe, substantially as described.

18. In switch-operating mechanism for cars, a rock-shaft, a rail-shifting shoe thereon, means for rocking said shaft and pressing the shoe, and a torsion-spring for elevating the shoe, said spring extending lengthwise of the rock-shaft and having one end connected thereto the spring being connected at its opposite end to a fixed part of the car or truck, substantially as described.

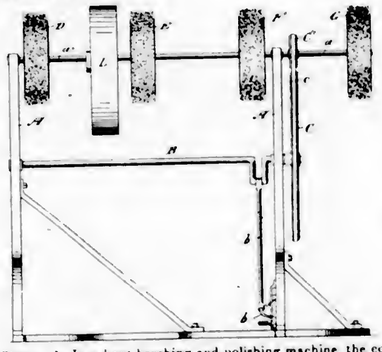
641,343. **APPARATUS FOR TREATING SIZE.** AUGUST STEPHAN, Breitenbach, Germany. Filed Apr 15, 1898. Serial No. 677,754. (No model.)



Claim.—An apparatus for preparing finishing and dressing substances from raw material which when heated becomes pasty and then fluid, comprising a boiler, means for forcing the raw material into the boiler and continuously endwise thereof, steam heating means for heating the boiler without direct contact of the heating-steam with the heated substance, an outlet-pipe connected to the boiler, an

automatic escape-valve and a three-way valve in said outlet-pipe, and two pipe connections L, M leading from the three-way valve.

641,344. BOOT BRUSHING AND POLISHING MACHINE. ROBERT J. STIRLING, Ermelo, South African Republic. Filed Nov. 16, 1897. Serial No. 658,771. (No model.)



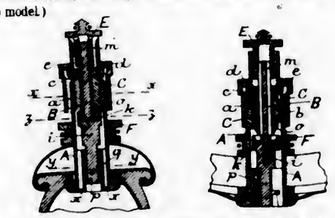
Claim.—1. In a boot brushing and polishing machine, the combination of a rotary shaft, brushes rigidly mounted upon said shaft, and a shield L loosely mounted upon the shaft between said brushes and movable longitudinally upon the shaft toward either brush, substantially as set forth.

2. In a boot brushing and polishing machine, the combination of a rotary shaft, two or more brushes rigidly mounted upon said shaft, and a shield L loosely mounted upon said shaft between said brushes so as to move longitudinally upon said shaft, said shield comprising a disk having a wide flange or periphery which is adapted to inclose one of the brushes when shifted into position adjacent to said brush, substantially as set forth.

3. In a boot brushing and polishing machine, the combination of a rotary shaft carrying rigidly-mounted rotary brushes, a shield loosely mounted upon the shaft between said brushes and adapted to be shifted toward either brush, and a receptacle or well M within the shield adapted to contain blacking, substantially as set forth.

4. In a boot brushing and polishing machine, the combination of a rotary shaft, with a brush rigidly mounted upon said shaft and comprising a flanged pulley having cut-out portions in its flanges, a flexible band carrying bristles, and a clamp K engaging the periphery of the pulley adjacent to the cut-out portions of the flanges and securing the flexible bristle-band to the pulley, substantially as set forth.

641,345. BACK-PRESSURE VALVE. CARL A. G. STORZ, Frankfort-on-the-Main, Germany. Filed Dec. 12, 1898. Serial No. 699,048. (No model.)



Claim.—1. In an exteriorly-accessible air-valve for bicycle-tires and the like, the combination with the valve-box having a thickened wall at the upper end thereof provided with a longitudinal groove, of a valve head or seat having a tongue or projection entering said groove, and a valve cooperating with said head, substantially as described.

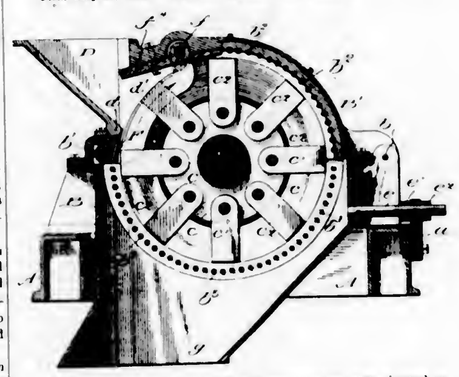
2. In an exteriorly-accessible air-valve for bicycle-tires and the like, the combination with the valve box or casing having a thickened wall at the upper part and an enlarged space directly under the same, of a valve head or seat located in said upper portion and a valve located in said enlarged portion and coacting with said valve head or seat, substantially as described.

3. In combination, the valve box or casing, the valve head or seat located in the upper portion thereof and having an annular sharpened lower edge, the valve located in the lower portion, and the annular washer carried by said valve and having both its inner and outer edges held by said valve, substantially as described.

4. In combination, the valve box or casing, the valve head or seat located in the upper portion and having a single tongue or projection engaging a groove in the valve-casing and a valve located in the lower part and having a single projection engaging a groove in the lower part, substantially as described.

5. In combination, the valve-box having a thickened upper wall and enlarged space just below and a thickened bottom portion forming a shoulder or stop below said enlarged space, a valve-seat in said upper portion, a valve in said enlarged space coacting with said seat and arrested by said stop and having a shank extending down into said lower portion, and a spline connection between said stem and lower portion, substantially as described.

641,346. CRUSHING-MILL OR DISINTEGRATOR. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Newton, Mass. Filed May 25, 1899. Serial No. 718,348. (No model.)



Claim.—1. In a crushing-mill, the combination with pivoted revolving beaters or hammers, of a casing in which said beaters or hammers are inclosed and which is provided with a hopper, a grate interposed between the chamber of said hopper and the chamber of said casing, and between and through the bars of which grate the ends of said revolving beaters or hammers extend, and means for inducing an indraft of air from the said hopper-chamber into the chamber of said casing.

2. In a crushing-mill, the combination with pivoted revolving beaters or hammers, of a casing in which the said beaters or hammers are inclosed and which is provided with a hopper, a grate adjacent to said hopper and between and through the bars of which the ends of the pivoted revolving beaters or hammers extend, and an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing and which serves, in connection with the said revolving beaters or hammers, to induce an indraft of air from the said hopper into the chamber of said casing.

3. In a crushing-mill, the combination with pivoted revolving beaters or hammers, of a casing in which the said beaters or hammers are inclosed and which is provided with a hopper, a grate adjacent to said hopper and between and through the bars of which the ends of the pivoted revolving beaters or hammers extend, an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing, and a deflecting-plate at the lower side of said hopper cooperating with said grate-chamber and revolving beaters or hammers, to induce an indraft of air from the said hopper-chamber to the chamber of the mill.

4. In a crushing-mill, the combination with a casing provided with a hopper, the said mill having an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing, of a grate adjacent to said hopper, and pivoted revolving beaters or hammers extending between the bars of said grate and rotating in a direction to cause them to move upward on the hopper side of the casing.

5. In a crushing-mill, the combination with a casing provided with a hopper, of a grate adjacent to said hopper, an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing, pivoted revolving beaters or hammers rotating in a direction to cause them to move upward on the hopper side of the casing, and a deflecting-plate at the lower side of said hopper and closely adjacent to which the ends of the upwardly-moving beaters or hammers extend.

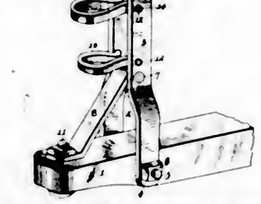
6. In a crushing-mill, the combination with a casing having a hopper at one side of the upper portion thereof, of pivoted revolving beaters or hammers rotating within the chamber of said casing and running upward on the hopper side of said casing, the latter having on the side opposite said hopper a corrugated interior portion, and a grate interposed between the chamber of said hopper and the chamber of said casing, and between and through the bars of which grate the ends of said beaters extend.

7. In a crushing-mill, the combination with a casing provided with a hopper and having at its lower part a tangential discharge-outlet, of a grate adjacent to said hopper, the said mill being provided with an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing, and pivoted revolving beaters or hammers rotating in a direction to cause them to move upward on the hopper side of the casing.

8. In a crushing-mill, the combination with a casing provided with a hopper, of a grate adjacent to said hopper, the said mill having an outwardly-flaring and inwardly-contracted grate-chamber between the chamber of said hopper and the chamber of said casing, pivoted revolving beaters or hammers rotating in a direction to cause them to move upward on the hopper side of the casing, and an adjustable or removable feed-plate whereby the feed of the material and the indraft of air to the casing may be governed.

9. In a crushing-mill, the combination with pivoted revolving beaters or hammers, of a casing provided with a hopper, a grate fixed relative to said casing and interposed between the chamber of the hopper and the chamber of said casing, the said mill having an outwardly-flaring and inwardly-contracted grate-chamber between the hopper-chamber and casing-chamber, pivoted revolving beaters or hammers within the casing-chamber and arranged to extend between and through the bars of the said grate, and means for adjusting said casing and grate to cause the said beaters or hammers to project more or less through the bars of the grate.

641,347. WAGON-STANDARD. RECTOR M. THOMPSON, Brumley, Mo. Filed Mar. 30, 1899. Serial No. 711,054. (No model.)

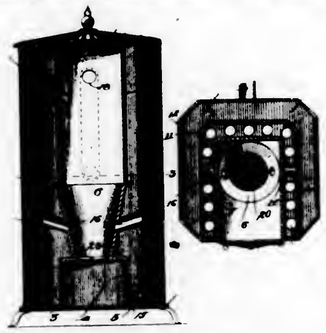


Claim.—1. In a wagon-standard, a standard constructed to be applied to the sides of the bolster and held thereto by a bolt brace secured to a pin passed through the standard, said brace secured to the top of said bolster by a bolt, rigidly bracing said standard, metallic loops provided with turned ends held in apertures formed in said standard, said loops for the purpose to carry an extension rod or stake, substantially as shown and for the purpose set forth.

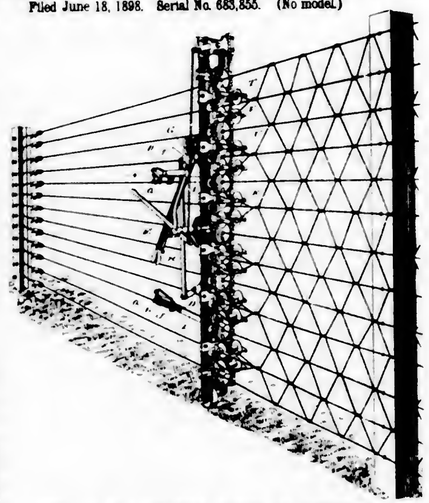
2. In a wagon-standard, having a standard formed of a strip of metal suitably bent and secured to the sides of a bolster, apertures formed in said strip, metallic loops provided with bent ends carried in said apertures, a pin placed through said strip, a brace provided with an eye through which said pin passes, said brace secured to the top of said bolster, said brace and standard secured to said bolster by bolts passing therethrough, said standard so constructed for the purpose to be removed at will, substantially as shown and for the purpose set forth.

641,348. STOVE. JOHN A. UHLAUB, Woodson, Ill. Filed Aug. 30, 1899. Serial No. 728,998. (No model.)

Claim.—In a stove, the combination of outer and inner spaced shells of equal length and forming a smoke-chamber extending the entire length of the stove, top and bottom plates fitted to the respective upper and lower ends of the shells and closing the opposite ends of the smoke-chamber, an ash-box located within the inner shell and supported upon the bottom plate, a fire-pot supported upon the upper end of the ash-box, radial upwardly-inclined flues extending from the fire-pot to the inner shell, communicating with the smoke-chamber, and bracing the fire-pot, a cylinder supported upon the upper end of the fire-pot, and having its upper end closed by the top plate, the space between the inner shell and the ash-box, the fire-pot and the cylinder, forming a hot-air space, the top plate being provided with a plurality of openings located between the inner shell and the cylinder, the bottom plate being provided with similar openings located between the inner shell and the ash-box, a main stovepipe extending through the two shells and communicating with the interior of the upper portion of the cylinder, a damper located within the main stovepipe and exteriorly of the stove, and a branch pipe communicating with the smoke-chamber at a point below the main pipe, and discharging into the latter and outward from the damper.



641,349. WIRE-FENCE MACHINE. SAM WATSON, Dublin, Ind. Filed June 18, 1898. Serial No. 683,855. (No model.)



Claim.—1. In a wire-fence machine, the combination with an operating-lever, of a clamping-lever, a sliding block, a link pivotally connecting said clamping-lever and block, and a pitman connecting the operating-lever and sliding block, substantially as set forth.

2. In a wire-fence machine, the combination with bell-crank levers, of clamping-levers, sliding blocks, links pivotally connecting said blocks and clamping-levers, pitmen connecting said sliding blocks and bell-crank levers, and a connection between said bell-crank levers whereby they move simultaneously, substantially as described.

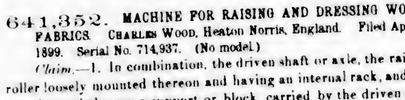
3. In a wire-fence machine, the combination of a casting movable upon the wire-strand, a clamping-lever intermediately pivoted thereto, a block sliding upon said casting, a link pivotally connecting said block and clamping-lever, an operating-lever, and a connection between said operating-lever and sliding block, substantially as described.

4. In a wire-fence machine, the combination with the weaving mechanism, of a clamping-lever therefor, and means for changing the point of engagement of said clamping-lever with the wire strand after effecting the movement of the machine consisting of an operating-lever, a sliding block, a link pivotally connecting said clamping-lever

and block, and means for connecting the operating-lever and sliding block, substantially as described.

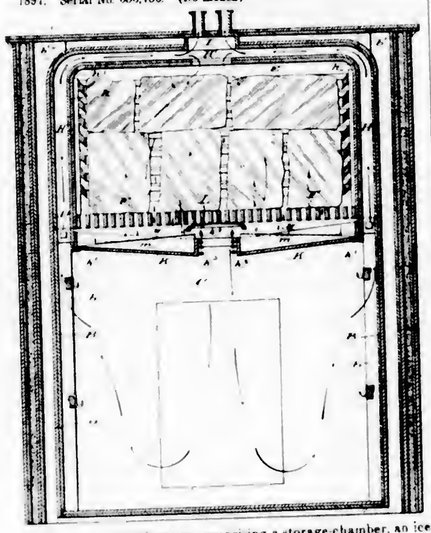
5. In a wire-fence machine, the combination with the weaving mechanism, of a casting movable upon the wire strand, a clamping-lever pivoted thereto, a block sliding upon said casting, a link pivoted to said block and to the clamping-lever above its pivotal point, an operating-lever, and a connection between said operating-lever and sliding block, substantially as described.

641,350. DUSTLESS SWEEPING-BRUSH. JOHN P. WIKNS, Milwaukee, Wis. Filed Jan. 26, 1899. Serial No. 703,425. (No model.)



Claim.—A dustless sweeping-brush having a recessed back, the butts of the absorbent tufts exposed in the recessed portion of the back, absorbent material contained in said recessed portion of said back, a back-cover provided with ports, and closures for the ports.

641,351. REFRIGERATOR. MICHEL WILLETT, Blue Island, Ill., assignor of one-half to Charles Wilkinson, same place. Filed Sept. 7, 1897. Serial No. 650,756. (No model.)



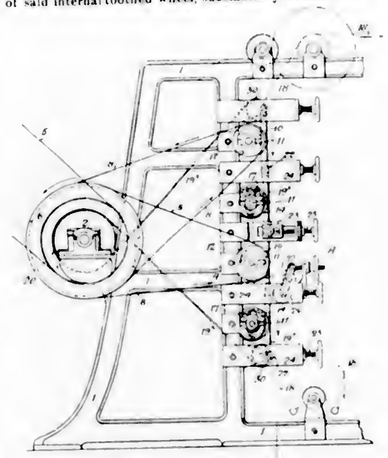
Claim.—1. A refrigerator comprising a storage-chamber, an ice-chamber, air-passages extending from said storage-chamber around the said ice-chamber and pans affixed to the side walls of the storage-chamber to incline downwardly toward the central part of said chamber, each having a shelf inclined downwardly from near the inner to near the outer sides of said pans, substantially as described.

2. A refrigerator comprising a storage-chamber, an ice-chamber, air-passages extending from said storage-chamber around the ice-chamber, pans affixed to the side walls of the storage-chamber to incline downwardly toward the central part of said chamber within a suitable distance from each other, each having a shelf inclined from near the inner to near the outer side of said pans and a cover-plate extending over the space at the adjacent ends of said pans to overlap the edges thereof, substantially as described.

641,352. MACHINE FOR RAISING AND DRESSING WOVEN FABRICS. CHARLES WOOD, Heaton Norris, England. Filed Apr. 29, 1899. Serial No. 714,937. (No model.)

Claim.—1. In combination, the driven shaft or axle, the raising-roller loosely mounted thereon and having an internal rack, and pinions journaled upon a support or block carried by the driven shaft and engaging said internal rack, substantially as described.

2. In combination, the driven shaft or axle, the raising-roller loosely mounted thereon and having an internal toothed wheel, a disk or block carried upon said shaft, pinions journaled thereon and meshing with said rack and a driven belt in contact with the periphery of said internal toothed wheel, substantially as described.



641,353. VAPOR-BATH APPARATUS. SYLVESTER WYGAL, Paola, Kans. Filed June 10, 1898. Serial No. 683,078. (No model.)



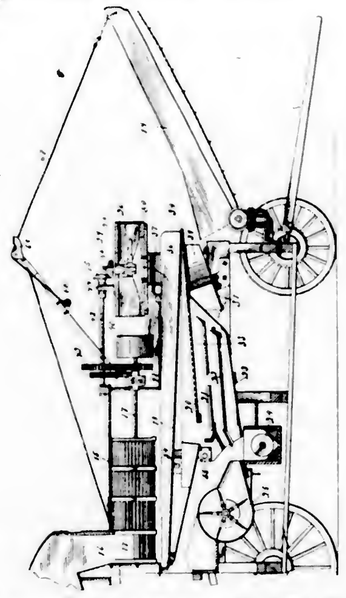
Claim.—In a vapor-bath apparatus, the combination of a chair, a bracket 1 clamped upon the seat of the chair, an upright rod 5 secured to the bracket, a sliding sleeve 6 mounted upon the rod and provided with laterally-projecting ears 8 having vertical holes therein, a set-screw 7 carried by said sleeve and impinging upon said rod, a staple 2^a embracing the rod and secured to the chair-back, a pair of semicircular arms 9, having their rear ends bent vertically downward and pivotally engaged with the holes of said sleeve, and a flexible cover 10, suspended from said swinging arms and adapted to open or close coincidently with the free ends of said arms, substantially as described.

641,354. CORN-SHELLER. HENRY A. ADAMS, Sandwich, Ill. Filed July 20, 1899. Serial No. 724,440. (No model.)

Claim.—1. In a corn-sheller, in combination, a case, shelling, conveying and riddling mechanism within the case, a blower arranged to drive an air-current below the riddles toward the cob delivery end of the machine, an exhaust-fan above the cob-passage and having its eye open thereto, and wind-chests for leading the blast from the blower from below the cob-delivery passage to the field of suction of the exhaust-fan.

2. In a corn-sheller, in combination, a case, shelling mechanism, a cob-carrier leading therefrom to the cob-delivery orifice of the case, riddles below the carrier, riddle-shoes for conveying the grain to a receiver, a blower arranged to drive a blast of air over the riddle in the direction of delivery of the cobs, a deflector for dividing the blast, wind-chests leading through the side walls of the case for receiving the blast from the deflector, an exhaust-fan mounted above the cob-passage and having its eye open thereto, the wind-chests leading to the field of suction of the fan.

3. In a corn-sheller, in combination with a case having a cob-discharge passage, a transverse channel in the roof of such passage near its delivery end, and a chamber below the passage, of wind-chests leading laterally from such chamber and entering the cob-passage in line with its roof-channel, a blower arranged to drive a blast through the interior of the case and into the chamber named, and an exhaust-fan having its eye open to the roof-channel of the cob-passage.

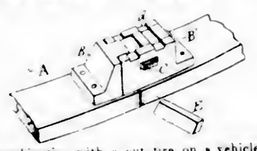


4. In a corn sheller, the combination with a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft and being oblique to the axis thereof, of a block or plate adapted to be attached to the face of the beater such block or plate being of greater thickness at its rearward than at its forward end.

5. In a corn-sheller, the combination with a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft and being oblique to the axis thereof through a portion of its length and parallel with such axis through a portion of its length, of a block or plate adapted to be attached to the face of the beater, the plane of the front face of the block being oblique to the plane of the face of the beater at the point of attachment.

6. In a corn-sheller, the combination with a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft and being oblique to the axis thereof through a portion of its length and parallel with such axis through a portion of its length, of a block or plate adapted to be attached to the face of the beater at the rearward end of the oblique portion and having its front face substantially parallel with the axis of the shaft.

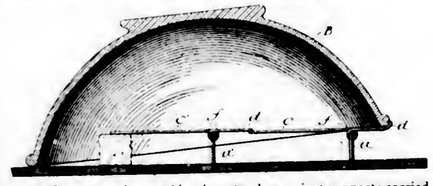
641,355. TIRE-TIGHTENER. JOHN K. ADAMS, Tonkawa, Okla. Filed Nov. 15, 1899. Serial No. 737,138. (No model.)



Claim.—In combination with a cut tire on a vehicle-wheel, a rigidly-secured tenon-piece on one end and a corresponding socket-piece on the other end, the two adapted to form an adjustable tenon-and-socket joint and provided with registering slots by which the two ends of the tire may be brought together by one wedge action and with registering grooves by which keys may hold them together afterward as shown and described.

641,356. MOUSE-TRAP. ADAM W. AGEE, Mapleton, N. D. Filed Nov. 13, 1899. Serial No. 736,817. (No model.)

Claim.—1. In a trap, the combination of a base, levers pivotally supported between their ends on said base, the end of one lever adapted to engage beneath the end of the other lever and support at its opposite end a cage or bowl, the disengaged end of the said other lever being adapted to be supported in set position by a bait.

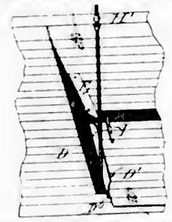


2. In a trap, the combination of a base, pivot-supports carried thereby, two levers pivoted respectively between their ends on said supports, one of said levers adapted to be held in operative or set position by a bait beneath one end thereof the other lever positioned to engage beneath the free end of the bait-supported lever, and to support a cage or bowl on its opposite end.

3. In a trap, the combination of a base, two pivot-supports carried thereby, a lever pivoted between its ends on each of said supports, one of said levers adapted to be held in the set position by a bait beneath the end thereof, the other lever positioned to engage beneath the free end of the bait-supported lever and provided with means on its disengaged end for supporting a cage or bowl.

4. In a trap, the combination of a base, pivot-supports carried thereby, two levers bent to form a pivot or hinge connection with said supports, one of said levers adapted to be held in operative or set position by a bait placed beneath the end thereof, the other lever positioned to engage beneath the free end of said bait-supported lever, and having its disengaged end turned upward to afford a support for the edge of a cage or bowl.

641,357. FOLDING-HATCH ATTACHMENT. EDWIN E. ANGELL, Somerville, Mass., assignor to the Angell Elevator Lock Company, Saco, Me. Filed May 26, 1899. Serial No. 718,315. (No model.)



Claim.—1. In a folding-hatch attachment, a hatch, a flap hinged to said hatch, a spring acting on said flap and tending to hold the same in a raised position, and means adapted to contact with said flap and hold the same down when the hatch is in its closed position.

2. In a folding-hatch attachment, two opposite hatches, a flap hinged to one of said hatches, means acting on said flap and tending to hold the same in a raised position and means on the other hatch adapted to contact with said flap and hold the same down when the hatches are closed.

3. In a folding-hatch attachment, two opposite hatches, a flap hinged to one of said hatches, a spring acting on said flap and tending to hold the same in a raised position, and means on the other hatch adapted to contact with said flap and hold the same down when the hatches are closed.

4. In a folding-hatch attachment, two opposite hatches, a flap hinged to one of said hatches and cut away at one end to allow the movement of the shipper-cable and rounded at the opposite end, a spring acting on said flap and tending to hold the same in a raised position, a flap-closer secured to the other hatch and having a rounded edge adapted to engage with the rounded edge of the flap and to move said flap downwardly as the hatches close.

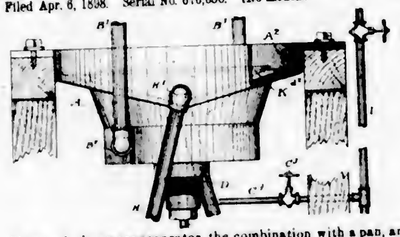
5. In a folding-hatch attachment, two opposite hatches, a flap hinged to one of said hatches and cut away at one end to allow the movement of the shipper-cable and rounded at the opposite end, a spring acting on said flap and tending to hold the same in a raised position, a flap-closer secured to the other hatch and having a rounded edge adapted to engage with the rounded edge of the flap and to move said flap downwardly as the hatches close, and a hatch-iron secured to the hatch to which is hinged the flap adapted to rest upon the opposite hatch.

641,358. CHANGE-TRAY. BURR F. BARNES, Jersey City, N. J. Filed June 9, 1899. Serial No. 719,944. (No model.)



Claim.—A change-tray, having an elongated, elliptical and concaved bowl portion with upwardly-curved ends, and an inclined trough-shaped projection integral with one side of the tray, the rubbers on the under side of the bowl of the tray, the under faces of which rubbers are in a plane with the beveled under surface of the free end of said trough-shaped projection, as shown and described.

641,359. ORE-SEPARATOR. JAMES BARRON, San Francisco, Cal. Filed Apr. 6, 1898. Serial No. 676,650. (No model.)



Claim.—1. In an ore-separator, the combination with a pan, and an outlet therefor; of an inlet directed on a substantially tangential line through the side of the pan near its bottom, and a nozzle swiveled to said inlet and having a contracted outlet end standing eccentric to its axis, as and for the purpose set forth.

2. In an ore-separator, the combination with a pan having a flat bottom, an amalgamating-disk removably resting thereon and having a sloping surface highest in the center, and an outlet for the pan; of an inlet directed on a substantially tangential line through the side of the pan near its bottom and above the edge of said disk, and a nozzle swiveled to said inlet and having a contracted outlet end standing eccentric to its axis, as and for the purpose set forth.

3. In an ore-separator, the combination with a pan having sloping walls and a flat bottom, an inlet-aperture in the sides at the bottom adapted to deliver the material and water in a stream at and substantially tangential to the circumference of the pan, a surface-overflow around the rim, and central outlet-apertures in the bottom of the pan for discharge of the concentrates from the locality of least motion; of the removable amalgamating-disk having a sloping surface highest in the center at the outlet-apertures and sloping regularly outward to the circumference of the pan, as and for the purpose set forth.

4. In an ore-separator, the combination with a pan having substantially perpendicular walls at its lower portion, thence flaring upwardly, and finally formed into an overflow-trough, an outlet from this trough, and a tangential inlet to said lower portion of the pan; of amalgam-coated linings of various heights shaped to removably and interchangeably fit the flaring portion of the pan but not to extend to its bottom, as and for the purpose set forth.

5. In an ore-separator, the combination with a pan having flaring sides, an overflow-trough surrounding its edge, and tangential inlets for supplying mixed water and ore with a swirling motion; of a vertically-adjustable tube rising within and extending through the center of the pan, a series of exits for the concentrates formed through the bottom of the pan around said tube, a channel to which they lead, and a passage delivering from this channel, as and for the purpose set forth.

6. In an ore-separator, the combination with a pan having a central hub pierced with a hole, an outlet, and a tangential inlet for said pan; of a hollow plug engaging said hole from beneath and having a channel in its upper end, apertures for the concentrates leading to this channel, an exit-passage leading therefrom, a scum-exit consisting of a tube extending upwardly through said plug and having a funnel-shaped top, and a screw-plug attached to the lower end of said hollow plug and packed around the tube, as and for the purpose set forth.

7. In an ore-separator, the combination with a pan having a central hole, an outlet, and a tangential inlet; of a plug in said hole, a reduced and exteriorly-threaded neck at the upper end of the plug, a channel around said neck, an outlet from this channel, a flange screwed onto the neck and having openings for the concentrates, and a cone mounted on the flange and rising within the pan, as and for the purpose set forth.

8. In an ore-separator, the combination with a pan having a central hole, an outlet, and a tangential inlet; of a hollow plug seated in the hole from below, an adjustable flange at its upper end, a cone supported on this flange and having outlet-springs, a channel adjacent said openings, concentrate inlet and outlet apertures to and from said channel, and a source of clear-water supply upward through the plug into the cone, out its openings, and through said apertures, substantially as described.

9. In an ore-separator, the combination with a pan having a central hole, a hollow plug therein, an outlet-passage bored through the wall of the plug, a source of clear-water supply upward through the bore of the plug, an outlet for the pan, and a tangential inlet therefor; of spaced flanges within said hole above the plug and each having apertures, a hollow cone mounted on the lower flange and contacting with the upper to form a channel between the flanges, said channel communicating through the upper apertures with the pan and through the lower apertures with said outlet-passage and the interior of the cone communicating with the bore of the plug, and outlet-openings through the wall of the cone into said channel, substantially as described.

10. In an ore-separator, the combination with a pan having a central depending hub pierced with a threaded hole, a plug inserted therein from below and provided with clear-water inlet and concentrate-outlet passages, a tangential inlet for mixed ore and water to the pan, and an overflow over the rim of the latter; of an annular channel in the upper end of the plug communicating with the outlet-passage therethrough, two spaced flanges fitted into said hole, the lower one resting upon said plug and the upper one being normally flush with the bottom of the pan, concentrate-apertures through both flanges, and a hollow cone contacting with both flanges, rising above the uppermost, standing upright within the center of the pan, communicating interiorly with the water-inlet passage of the plug, and having openings through its wall leading into the channel between the flanges, substantially as described.

11. In an ore-separator, the combination with a pan having an outlet over the rim, a tangential inlet at the bottom of the pan, and a standing hollow cone at the center having a series of flat radial abutments having openings beneath the level of the bottom of the pan; of a channel surrounding the base of the cone opposite its openings and having apertured top and bottom walls, a collecting-channel below the lower apertures communicating with a discharge-passage, and a source of supply of clear water under pressure to the interior of said cone and out its openings into the channel, as and for the purpose set forth.

12. In an ore-separator, the combination with a pan having an outlet, a tangential inlet thereto, and a standing hollow cone at the center of the pan made in sections with curved outer faces and flat radial abutments, the latter having openings beneath the level of the bottom of the pan; of flanges closely surrounding the cone above and below said openings so as to form a channel, inlet-apertures for the concentrates through the upper flange, outlet-apertures therefor through the lower flange just forward of said openings in the abutments, and a source of clear-water supply leading to the interior of the cone and directing the water out the openings and across said outlet-apertures, all as and for the purpose set forth.

13. In an ore-separator, the combination with a pan having flaring sides, an overflow-trough surrounding its edge, and tangential inlets for supplying mixed water and ore with a swirling motion; of a scum-exit consisting of an upright tube rising through the center of the pan and open at its upper end, means for adjusting this tube vertically, and exits for the concentrates arranged in a ring around said tube and opening through the bottom of the pan, as and for the purpose set forth.

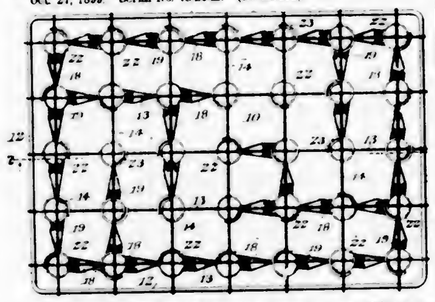
641,360. ELECTRIC AMALGAMATOR. LOUIS H. BARRICKS, San Francisco, Cal. Filed Oct. 2, 1899. Serial No. 732,326. (No model.)



Claim.—1. An electric amalgamator including a metallic frame or body having a perforated plate secured to its bottom, a porous plate resting upon the metal plate and forming a bottom upon which mercury is placed, a pan or box upon which the frame or body is supported, adapted to contain a saline solution, a sluice connecting with the frame above the porous plate, and having a copper plate in its bottom dipping into the mercury and serving as the negative pole of an electric circuit, and a plate in the pan or box and serving as the positive pole of said circuit.

2. An electric amalgamator interposed in a sluice or other conductor and consisting of an iron frame or body having an open central portion with flanges, a perforated plate secured to the bottom of said portion, a porous plate resting upon the perforated plate and having a hermetical cement joint around the periphery whereby a body of mercury may be retained upon said plate, a pan upon which the frame or body is supported, said pan having a conductor disposed along the bottom, a copper plate forming the bottom of the sluice which delivers into the frame or body, said plate having its edge turned downwardly to dip into the mercury, and an electrical circuit having a positive pole connecting with the conductor within the pan, and a negative pole with the copper plate.

641,361. BED-SPRING. ALBERT E. BEALL, Eldora, Iowa. Filed Oct. 27, 1899. Serial No. 734,942. (No model.)



Claim.—1. In a spring-bed, a spring-connector comprising a central coil, the diverging arms, and the open locks each having a yieldable terminal arm which is provided near its free extremity with upwardly and downwardly facing crimps, 24, 25, the entire spring-connector being bent from a single length of wire, substantially as described.

2. In a spring-mattress, a spring connector provided with an open lock having an extended yieldable arm provided near its free extremity with the oppositely-bent crimps, 24, 25, arranged contiguous to each other and forming locking-recesses which face in upward and downward directions respectively, substantially as described.

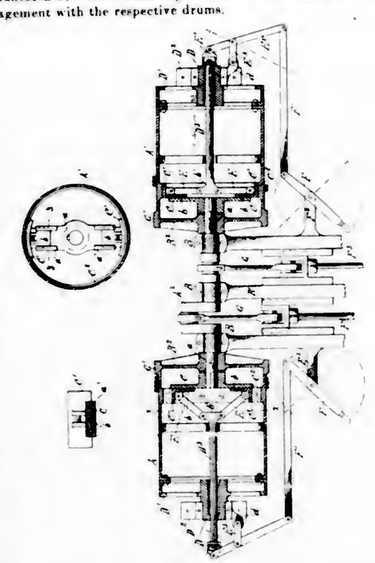
3. A spring-mattress comprising the series of intersecting longitudinal and filling wires, each wire of one series having the wire-intersecting crimps, 15, and the lock-crimps, 16, 17, disposed on opposite sides of the intersecting crimp, and a plurality of spring-connectors each having a central coil and the diverging arms, the latter terminating in open locks, each lock having an extended yieldable arm provided with oppositely-facing crimps, 24, 25, each lock engaging with one wire at the crimped portions, 16, 17, thereof and said lock also having engagement with the other wire, the yieldable arm of the lock having one of its crimps interlocked with the last-named wire at a point opposite to the engagement of the lock therewith, substantially as described

641,362. HOISTING APPARATUS. HANS C. BERG, San Francisco, Cal. Filed Jan. 26, 1899. Serial No. 703,440. (No model.)

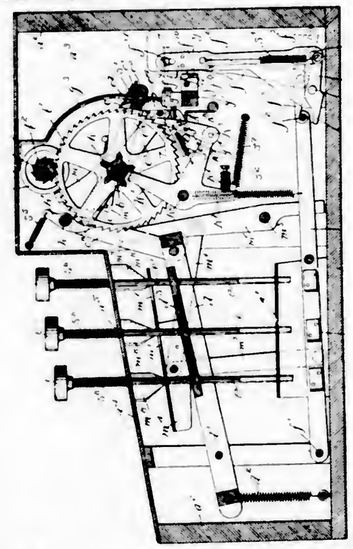
Claim.—1. The combination with a hollow hoist or winding drum, of a drive or power shaft-extending into one end thereof and upon which the drum is loosely mounted, an independent support for the opposite end of the drum, clutch mechanism secured to and carried by the drive or power shaft, said mechanism being located within the drum, and independently-operated connected devices for throwing the clutch mechanism in or out of engagement with the drum.

2. The combination with the drive or power shaft, of the winding or hoist drums loosely mounted upon each end thereof, an independent support for the outer end of each drum, clutch mechanism secured to and carried by each end of the drive or power shaft, said clutch mechanisms being located within the drums, and independently-operated mechanisms for throwing the clutch mechanism into or out of engagement with the hoist or winding drums.

3. The combination with the drive or power shaft, of the hollow hoist or winding drums arranged at each end thereof, clutch mechanism located within each hollow drum, and independently-operated connected devices for throwing the clutch mechanism in or out of engagement with the respective drums.



641,363. ADDING-MACHINE. JAMES E. BLACKER, Boston, Mass. Filed Dec. 1, 1898. Serial No. 697,966. (No model.)



Claim.—1. In a machine of the kind described, number-wheels, means to rotate them including a pawl and ratchet-wheel, operating-keys, means for positively locking said pawl and ratchet-wheel together during rotation of the latter, an independent stop cooperating with a plurality of said keys, and means for moving said stop to different extents according to the place a wheel is to be stopped for positively stopping rotation of said number-wheels beyond given points, substantially as described.

2. In a machine of the kind described, a plurality of operating-

keys, a plurality of number-wheels, mechanism actuated by said keys for rotating said wheels, and a single stop mechanism separate from the actuating means engaging said wheels, connected with and operated by all of said keys for positively stopping rotation of said number-wheels beyond certain given points, said several keys automatically changing to different extents the position of said stop mechanism for permitting a varying rotation of the number-wheels according to the key operated, substantially as described.

3. In a machine of the kind described, a plurality of operating-keys, a plurality of number-wheels, mechanism actuated by said keys for operating said wheels, and stop mechanism connected with said keys for positively stopping rotation of said number-wheels beyond certain given points, cooperating cam devices operated by said keys for automatically changing the position of said stop-mechanism, to change the stopping-point of movement of the number-wheels to correspond with the key operated, substantially as described.

4. In a machine of the kind described, a plurality of operating-keys, a plurality of number-wheels, mechanism actuated by said keys for operating said wheels, a stop for positively stopping rotation of the number-wheels beyond points desired, a slotted plate connected with and to move said stop, and cams actuated by said keys and engaging said plate, for changing the position of said stop, substantially as described.

5. In a machine of the kind described, number-wheels, ratchet-wheels operating the same, a pawl to engage the ratchet-wheels, a lever for engaging said pawl, and means for operating said lever, said pawl being normally out of engagement with said ratchet-wheels, and said lever moving it into positive locking engagement therewith, to operate said number-wheels, substantially as described.

6. In a machine of the kind described, number-wheels, ratchet-wheels operating the same, a pawl to engage the ratchet-wheels, a lever for engaging said pawl, and means for operating said lever, said pawl being normally out of engagement with said ratchet-wheels, and said lever moving it into positive locking engagement therewith, to operate said number-wheels, and means for shifting said pawl laterally step by step from one ratchet-wheel to the next, substantially as described.

7. In a machine of the kind described, a plurality of number-wheels, a plurality of ratchet-wheels therefor, a pawl to operate said ratchet-wheels, and means to shift said pawl laterally from one ratchet-wheel to the next, said means including a laterally-movable ratchet-plate, independent dogs for alternately engaging the teeth of said ratchet, and means to reciprocate said dogs, substantially as described.

8. In a machine of the kind described, a plurality of number-wheels, a plurality of ratchet-wheels therefor, a pawl to operate said ratchet-wheels, and means to shift said pawl laterally from one ratchet-wheel to the next, said means including a laterally-movable ratchet-plate, independent dogs for alternately engaging the teeth of said ratchet, means to reciprocate said dogs, and means for shifting one of said dogs sidewise when out of engagement with said ratchet-plate, substantially as described.

9. In a machine of the kind described, a plurality of number-wheels, a plurality of ratchet-wheels therefor, a pawl to operate said ratchet-wheels, and means to shift said pawl laterally from one ratchet-wheel to the next, said means including a laterally-movable ratchet-plate, independent dogs for alternately engaging the teeth of said ratchet, and means to reciprocate said dogs, one of said dogs being loosely mounted with room for lateral movement relatively to the ratchet-plate, and a spring automatically moving said dog laterally when the dog is out of engagement with the ratchet-plate, substantially as described.

10. In a machine of the kind described, a plurality of number-wheels, a plurality of ratchet-wheels for operating them, a cam projection rotating with each ratchet-wheel, a tappet to be actuated by each cam projection, a pawl operated by said tappet and in engagement with the next ratchet-wheel, means for actuating said ratchet-wheels one at a time, and a sliding rod for preventing the overcarrying of any of said pawls on wheels higher than the wheel being operated, substantially as described.

11. In a machine of the kind described, a plurality of counters, mechanism to actuate said counters successively, means to restore or shift back said mechanism to the first counter, and auxiliary means for restoring said mechanism to another predetermined counter when desired, said auxiliary means having mechanism to stop it before said actuating mechanism has been restored to its original position, substantially as described.

12. In a machine of the kind described, a plurality of counters, mechanism to actuate said counters successively, and a lever for shifting said mechanism back again, said lever having means to stop it before said actuating mechanism has been restored to its original position, substantially as described.

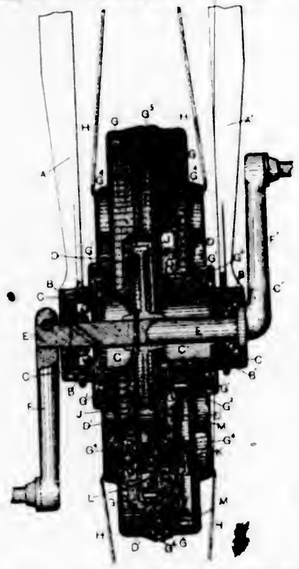
13. In a machine of the kind described, a plurality of number-wheels, a sight-opening for viewing said wheels, an indicator between said sight-opening and said wheels for showing the wheel operated, means to move said indicator to the successive number-wheels as the respective wheels are operated, and stationary marks for indicating at said sight-opening particular numerical positions, substantially as described.

641,364. SURFACE DECORATION. ALFRED BOWERS, New York, N. Y., assignor to Frank K. Bowers, same place. Filed Apr. 11, 1898. Serial No. 677,132. (No model.)



Claim.—The process of making surface decorations which consists in uniting a sheet of paper and a sheet of woven-wire cloth and simultaneously impressing an ornamental design in relief thereon with substantially parallel face and back surfaces, by moistening the paper and compressing and embossing the paper and wire-cloth, substantially as set forth.

641,365. BICYCLE-GEARING. JOHN F. BRADY, Chicago, Ill. Filed Aug. 10, 1898. Serial No. 688,237. (No model.)

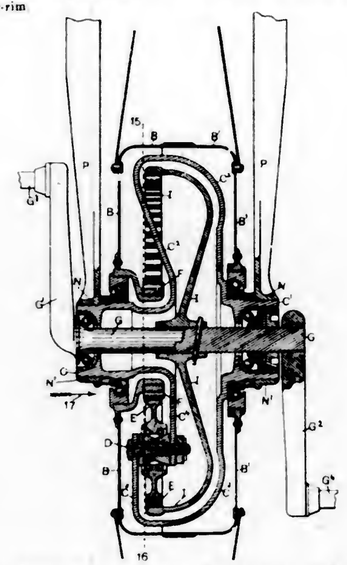


Claim.—The combination with a frame, shaft and hollow axle comprising cylindrical end portions, and intermediate U-shaped portions, of a wheel provided with a metal hub, comprising two sections having interfitting rims, provided with spiral corrugations, annular corrugations extending from the side walls of the sections for the reception of the inner ends of the wheel-spokes, internal and external annular flanges projecting from one hub-section and surrounding the axle, ball-bearings intermediate of the external flange and axle, a gear-rim carried by the internal flange, a gear-wheel keyed upon the shaft and extending into the U-shaped portions of the axle, a short shaft journaled in one of the U-shaped portions of the hollow axle and projecting into one of the annular corrugations of the hub, and differential gear-wheels mounted upon said shaft upon the interior and exterior, respectively, of one of the U-shaped portions of the hollow axle and meshing with the gear-wheel and gear-rim respectively; and mechanism for actuating the shaft, substantially as specified.

641,366. BICYCLE. JOHN F. BRADY, Chicago, Ill. Filed Sept. 8, 1898. Serial No. 690,504. (No model.)

Claim.—1. In a bicycle, the combination with a frame and hollow axle comprising two cylindrical end portions and connecting-webs, of a wheel-hub mounted upon the axle and provided with an inwardly-

extending concentric spur-rim, a shaft extending through the axle, an internal gear-wheel fixed upon the shaft and a gear supported by one of the webs of the hollow axle and meshing with the internal gear and spur-rim.

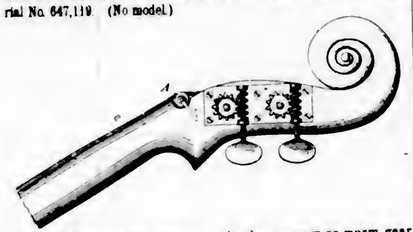


2. A bicycle-gearing comprising a hollow hub provided with an internally-mounted annular gear-rim, an internal gear, a gear-wheel intermediate of and meshing with the rim and internal gear, a hollow axle comprising two cylindrical end portions and an intermediate frame springing from one of the end portions beyond the inner end of the gear-rim and extending thence across the train of the gears and around the periphery of the internal gear to the other end portion of the axle.

3. In a bicycle the combination with the axle of the rear wheel, comprising substantially cylindrical end portions, substantially U-shaped lateral webs connecting and spacing the end portions of the axle, one of said webs being composed of two parts springing respectively from the end portions of the axle, of a bolt connecting the divided web, a gear-wheel journaled upon said bolt, a hub, a gear-rim, and an internal gear mounted between said webs and meshing with the gear-wheel.

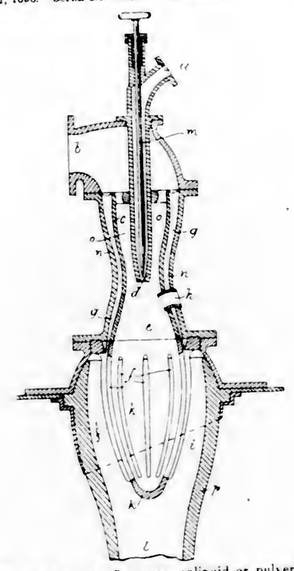
4. A bicycle-frame comprising a bifurcated seat-post column, a bifurcated lower reach connected at its lower ends to the lower ends of the seat-post column, a curved yoke extending between the bifurcations of the lower reach adjacent to their lower ends, and lower braces of less length than the radius of the bicycle-wheel and extending from the lower end of the seat-post column.

641,367. TUNING MECHANISM FOR STRINGED INSTRUMENTS. GEORGE BRAUER, Sacramento, Cal. Filed Aug. 4, 1897. Serial No. 647,119. (No model.)



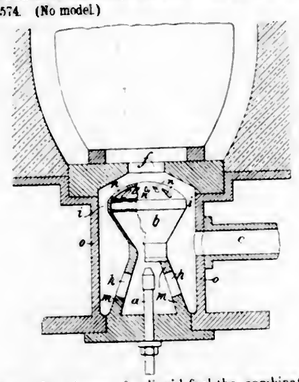
Claim.—On a stringed instrument having a screw or worm gear tuning mechanism and a bridge to separate the sounding portion of the strings from that portion contiguous to the tuning mechanism a friction-roller or friction-rollers to serve as a bearing for the strings upon said bridge; one separate roller being provided for each string; substantially as and for the purpose set forth.

641,368. BURNER. OSCAR BRÜNLER, Eilenburg, Germany. Filed Oct. 31, 1898. Serial No. 695,055. (No model.)



Claim.—In a burner for gaseous, liquid or pulverized fuel the combination of the fuel-nozzle *d*, a casing *c* surrounding said nozzle and extending beyond the same, said casing terminating in a bulb-shaped enlargement *k*, having slots in the walls thereof, a casing *n* surrounding the casing *c* and enlargement *k* and an air-inlet *b* adapted to supply air to the casing *c* and to the space between the casing *c* and the casing *n*, substantially as and for the purpose set forth.

641,369. BURNER WITH VAPORIZER FOR LIQUID FUEL. OSCAR BRÜNLER, Eilenburg, Germany. Filed Nov. 15, 1898. Serial No. 696,574. (No model.)

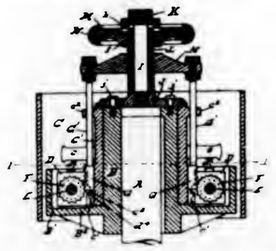


Claim.—In a burner for liquid fuel the combination of a fuel-feed pipe, a cone-shaped mantle having elongated slots and surrounding said fuel-feed pipe, a hollow vaporizer, communicating with the said cone-shaped mantle and having an outwardly-dished cover-plate, provided with slots, an outer mantle surrounding the said cone-shaped mantle and the vaporizer at some distance and an air-supply pipe, opening into the space formed between the said outer mantle, the cone-shaped mantle and the vaporizer, the parts being constructed and arranged substantially as set forth.

641,370. CLUTCH. JOHN CARRUTHERS and EDWIN J. FITBIAN, Grove City, Pa. Filed May 4, 1899. Serial No. 715,630. (No model.)

Claim.—1. In a friction-clutch, the combination with the driv-

ing and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement by movement in a radial direction; a screw for moving said shoes into engagement; means actuated by the relative movement of the members one to the other for actuating said screw; and means for actuating said screw in a reverse direction while the clutch members are in motion.



2. In a clutch, the combination with the driving and driven members; of means for locking said members rotatively together; a male screw journaled with the axis of the clutch as an axis; an auxiliary clutch device for locking it with the driving member; and means actuated by the rotative action of its threads when said screw is locked with the driving member upon a relatively stationary part of the driven member for moving the means for locking said clutch members rotatively together into locking position.

3. In a clutch, the combination with the driving and driven members; of means for locking said members rotatively together; a male sleeve-screw journaled with the axis of the clutch as an axis; an auxiliary clutch device for locking it with the driving member; and means actuated by the rotative action of its threads when said screw is locked with the driving member upon a relatively stationary part of the driven member for moving the means for locking said clutch members rotatively together into locking position.

4. In a clutch, the combination with the driving and driven members; of means for locking said members rotatively together; a male sleeve-screw journaled with the axis of the clutch as an axis; an auxiliary clutch device for locking it with the driving member; a nut on said screw locked to rotate with the driven member; and a connection between said nut and the means for locking said clutch members rotatively together, whereby said members are moved into locking engagement with a relative movement of the clutch members one to the other.

5. In a clutch, the combination with the driving and driven members; means for locking said members together; mechanism for moving said locking means into and out of locking position; the rods, G', for actuating said mechanism; cross-head, H, to which said rods are secured; the extension, I, carried by the driving member; the sleeve-screw, L, journaled on said extension, I, and having its threads arranged to operate with threads in the cross-head, H; the clutch-plate, K, secured to the extension, I; the hand-wheel, M, feathered on the screw-sleeve, L, and having a means for being brought into and out of engagement with the clutch-plate, K.

6. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement by movement in a radial direction; a screw journaled with the axis of the clutch as an axis for moving said shoes into engagement; and means actuated by relative movement of the members one to the other for actuating said screw.

7. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement by movement in a radial direction; a screw journaled with the axis of the clutch as an axis, for moving said shoes into engagement; means actuated by relative movement of the members one to the other for actuating said screw; and means for actuating said screw in a reverse direction.

8. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement by movement in a radial direction; a male screw journaled with the axis of the clutch as an axis, for moving said shoes into engagement; and means actuated by relative movement of the members one to the other for actuating said screw.

9. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement by movement in a radial direction; a male screw journaled with the axis of the clutch as an axis, for moving said shoes into engagement; means actuated by relative movement of the members one to the other for actuating said screw; and means for actuating said screw in a reverse direction.

10. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; and means actuated by the relative movement of the members one to the other for actuating said gears.

11. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; means for actuating said gears; mechanism journaled with the axis of the clutch as an axis for actuating said means with a relative movement of the clutch members; and an auxiliary clutch for locking and disengaging said mechanism from and with the driving member.

12. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; racks arranged in mesh with said gears; means for moving said racks in axial direction; and mechanism actuated by the relative movement of said members one to the other for actuating said means.

13. In a friction-clutch, the combination with the driving and driven members; of a friction-device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; racks arranged in mesh with said gears; a screw journaled with the axis of the clutch as an axis; means for locking it with the driving member; and means actuated by the rotative action of its thread for moving said racks for the purposes specified.

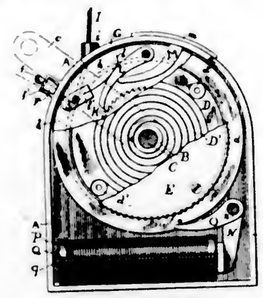
14. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; racks arranged in mesh with said gears; a screw-and-nut mechanism journaled with the axis of the clutch as an axis; means for locking one of the elements of said screw-and-nut mechanism with the driving member and the other with the driven member; and a connection for transmitting the relative axial movement of the screw and nut to said racks.

15. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; racks arranged in mesh with said gears; a screw journaled with the axis of the clutch as an axis; means for disengaging the screw from the driving member; and means for giving it movement in a reverse direction relatively to the driving member.

16. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into operative engagement by movement in a radial direction; reversely-threaded screws interposed between said shoes; gears on said screws for turning said screws; racks arranged in mesh with said gears; a screw-and-nut mechanism journaled with the axis of the clutch as an axis; means for locking one element of the screw-and-nut mechanism with the driving member and the other with the driven member; a connection for transmitting the relative axial movement of the screw and nut to said racks; means for disengaging the screw or nut from the driving member; and means for giving the screw or nut so disengaged movement in a reverse direction relatively to the driving member.

17. In a friction-clutch, the combination with the axle, A; the driving member comprising the hub, B, spider, B^3, flange, B', secured to said axle; the driven member, C, having the hub, C', journaled on the hub, B; the friction-shoes, D, adapted to engage the flange, B'; the reverse-screws, E, between the ends of said friction-shoes; the gears, F, on said screws; the racks, G, arranged to engage said gears; the rods, G', extending from said racks; the cross-head, H, to which said rods are secured; the extension, I, secured to the driven member; the screw-sleeve, L, journaled on said extension, I; the auxiliary clutch-plate, K, on said extension; and the hand-wheel, M, feathered on the sleeve, L, and arranged to engage the clutch-plate, K.

641,871. TROLLEY ARRESTER. WILLIAM E. CARLILE, New York, N. Y., assignor to himself and Edward N. Dickerson, same place. Filed May 27, 1899. Serial No. 718,521. (No model.)



Claim.—1. In a trolley-arrester the combination of a device for holding the trolley-cord taut, means for lowering the trolley-cord, and an electromagnet for causing the operation of said lowering means, substantially as specified.

2. In a trolley-arrester the combination of means for keeping the trolley-cord taut, a spring adapted to pull down the trolley-pole, and a device for setting in operation said spring, said device operated by the breaking of the circuit through the trolley, substantially as specified.

3. In a trolley-arrester the combination of an electromagnet operated by the current which passes through the trolley, a device operated by said magnet and adapted to arrest the trolley, and means for pulling down the trolley, whereby when the trolley leaves the wire it is lowered, substantially as specified.

4. In a trolley-arrester the combination of a spool on which the trolley-cord is wound, means for rotating said spool, and a device for causing the operation of said means, said device comprising an electromagnet operated by the current passing through the trolley, whereby when said current is broken, said spool will be rotated to draw in the trolley-cord, substantially as specified.

5. In a trolley-arrester the combination of means for holding the trolley-cord taut, a spring for drawing in the cord, means for setting the spring, a device for holding the spring when set, an electromagnet in circuit with the trolley adapted to operate said device, and means for releasing said spring, whereby when said magnet is demagnetized, said spring will operate to draw in the trolley-cord, substantially as specified.

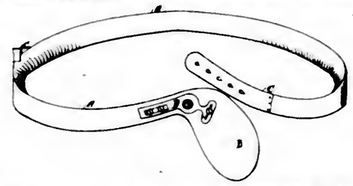
6. In a trolley-arrester the combination of a spool on which the trolley-cord is wound, means in connection therewith for keeping the cord taut, a device for engaging said spool to prevent the unwinding of the cord therefrom, and an electromagnet adapted to operate said device when the trolley jumps the overhead wire, substantially as specified.

7. In a trolley-arrester the combination of a spool on which the trolley-cord is wound, means for keeping the cord taut, a spiral spring, means for winding said spring, and a device for holding the spring when wound: an electromagnet adapted to release said spiral spring and means for coupling said spring with said spool when said spring is released by said magnet whereby said spool may be rotated by said spring to draw in the trolley-cord, substantially as specified.

8. In a trolley-arrester the combination of a spool on which the trolley-cord is wound, means for keeping the cord taut, a spiral spring for causing the rotation of the spool to wind the cord thereon, means for winding said spiral spring, and a device for holding the spring when wound, a pawl and ratchet for connecting said spool and said spiral spring, means for causing the engagement of said pawl and ratchet, and an electromagnet for releasing said spiral spring, whereby when the circuit of the magnet is broken, said spring will act upon said spool to draw in the trolley-cord, substantially as specified.

9 In a trolley-arrester the combination of a spool on which the trolley-cord is wound, a spiral spring acting on said spool to keep said cord taut, a second spring, a barrel inclosing said second spring, means for turning said barrel to wind said second spring, means for holding said barrel when the spring is wound, a ratchet on said spool, a pawl on said barrel adapted to engage said ratchet, means for causing the engagement thereof, a device adapted to cause the disengagement of said pawl and ratchet when said second spring is wound, whereby said spool is free to rotate, and an electromagnet in circuit with the trolley, and adapted to release said second spring, whereby said spool is rotated to draw in the trolley-cord when the circuit through said trolley is broken, substantially as specified.

641,372. TRUSS. WILLIAM R. CLOSE-ERSON, Onehunga, New Zealand. Filed Dec. 22, 1898. Serial No. 699,985. (No model.)

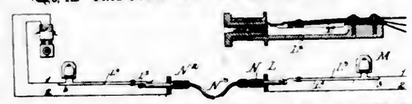


Claim.—1. A combined truss and pad consisting of a continuous flexible exterior covering, a continuous, hollow, flexible interior tube, adapted to be inflated, and a stiffening and shaping plate at one side of the truss and pad and interposed between the inside tube and the exterior covering.

2. A truss including a pad and a body portion consisting of inner and outer tubes, a plate interposed between said tubes at the side opposite to the body, for retaining the shape of the tubes, and means for connecting the inner tube to an inflater.

3. A truss comprising a tubular body portion and a pad of pliable material, an interior inflatable tube and a stiffening and shaping plate attached to one side of the inner inflatable tube and lying between said inner tube and the adjacent inner wall of the outer tube.

641,373. TELEPHONE-SWITCHBOARD. FRANK B. COOK, Chicago, Ill. Filed Feb. 8, 1898. Serial No. 669,506. (No model.)



Claim.—1. A spring-jack switch and connections therefor, comprising a main contact-strip and a supplemental contact-strip of relative different dimensions, together with plugs of different relative dimensions, one of which is of such dimensions that when inserted it makes contact with the main strip only and the other plug of such dimensions as to make contact with the supplemental strip.

2. In a telephone central-station system the combination with the spring-jacks and plug connections, of a circuit comprising a plurality of branches from the line, one of which includes the annunciator and plugs of different dimensions, the larger adapted to open the branch including the annunciator and make contact with the other, whereby the annunciator is excluded from the line-circuit and the other plug of lesser dimension adapted to make contact with the line but not open the branch including the annunciator whereby the annunciator remains in the line-circuit to respond as a clearing-out signal.

3. In combination with a spring-jack switch, a circuit comprising two branches from the line, one of which including the annunciator is normally closed and the other normally open and means for making contact with either one of said branches independent of the other.

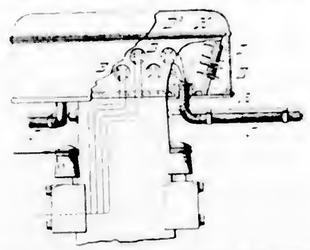
4. In a telephone-switchboard, spring-jacks, connecting conductor and plugs therefor, two branch limbs from the line-circuit, one normally open and the other normally closed, an annunciator in the branch which is normally closed, and spring-jack contact-strips, one for each of the said branch limbs, in such proximity to each other that the plug, when inserted in the spring-jack, forces one contact-strip into contact with the other, thereby cutting out the annunciator.

5. In a telephone-switchboard, spring-jacks, two branch limbs from the line-circuit, one normally open and the other normally closed, an annunciator in the branch which is normally closed, spring-jack contact-strips, one for each of the said branch limbs, plugs of different dimension, said contact-strips being in such proximity to each other that when one of said plugs is inserted in the spring-jack, one of the contact-strips is forced into contact with the other, thereby cutting out the annunciator, and when the other plug is inserted establishing connection between itself and the line and leaving the annunciator in the closed branch.

641,874. COMBINED TERMINAL HEAD AND JUNCTION-BOX. FRANK B. COOK, Chicago, Ill. Filed Feb. 26, 1898. Renewed Nov. 29, 1899. Serial No. 738,726. (No model.)

Claim.—1. In a combined terminal and junction-box, a containing-shell, a cover therefor, a plurality of bolding-heads in the said containing-shell, and conducting arms or rods in said holding-heads together with an outer cover disposed over said containing-shell and holding-heads.

2. In a combined terminal and junction-box an inner containing-shell a cover therefor, holding-heads held in the side of said shell, a cap for each of said holding-heads and a cover for the whole.

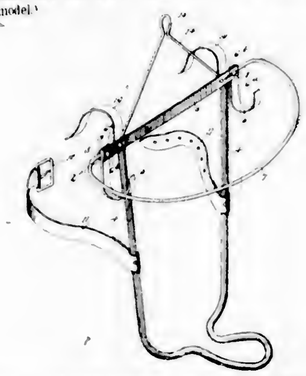


3. Holding-heads comprising in construction an insulating-base and conducting arms or rods extended therethrough.

4. Holding-heads comprising in construction an insulating-base, studs therefor of insulating material and conducting arms or rods extended through the studs and base.

5. In a combined terminal and junction-box, a containing-shell, a cover therefor, a plurality of holding-heads in said containing-shell, conductor rods or arms in said holding-heads, a base-plate upon which the containing-shell may rest and an outer cover disposed over said containing-shell and holding-heads.

641,375. FIREMAN'S LIFE-SAVING APPLIANCE. WILLIAM H. CORNELL, New York, N. Y. Filed Apr. 21, 1899. Serial No. 713,914. (No model.)



Claim.—1. In a life-saving appliance, the combination of a main portion comprising a saddle and upwardly-extended parts leading from the saddle, a cross-bar attached to said parts, hooks carried by the cross-bar for receiving the arms of the person to be rescued, a bow mounted to swing on the cross-bar to hold the person in place, and means for attaching the appliance to the back of the user.

2. In a life-saving appliance, the combination of a main portion having a saddle and having upwardly-extended parts leading from the saddle, a cross-bar to which said parts are attached, hooks carried by the cross-bar and projecting rearwardly to carry the arms of the person to be rescued, a bow mounted on the cross-bar and adapted to swing back of the said person to hold the person in place, additional hooks projecting forwardly and adapted to be engaged with the user's shoulders, and straps attached to said upwardly-extended parts and adapted to fasten on the user.

3. A life-saving appliance, having a saddle on which a person is to be seated, hooks adapted to engage the arms of the person to be rescued, and a bow mounted to swing on the appliance and capable of extending over the body, to hold the person in place.

4. A life-saving appliance, having a main portion, hooks supported thereon and adapted to carry the arms of the person to be saved, and a bow mounted to swing on the appliance and to embrace the body to hold the person in place.

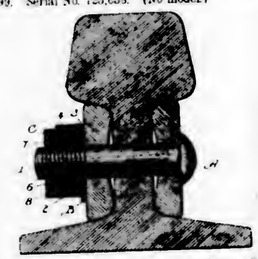
5. A life-saving appliance, having means for attaching it to the person of the user, a saddle for carrying the person to be saved, hooks for engaging the arms of said person, and a bow mounted to swing on the appliance and to engage the person to be saved to hold the same.

6. A life-saving appliance, having means for holding the person to be saved, sleeves mounted on the appliance, and a yielding bow, the ends of which are loosely fitted in the sleeves.

7. A fireman's life-saving appliance, having means for supporting the person to be saved, and a bow formed of spring material, the ends of the bow being mounted to rock and to slide in the life-saving appliance, the bow being capable of embracing the person to be saved, and of automatically adjusting itself to the size of such person.

8. A fireman's life-saving appliance, having means for attaching it to the fireman, such means comprising a strip adapted to encircle the body of the fireman, and means for securing the person to be saved to the appliance, so that such person may be carried bodily by the fireman.

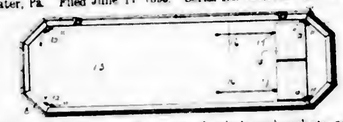
641,376. NUT-LOCK. JOHN S. DODDRIDGE, Red Cliff, Colo. Filed July 31, 1899. Serial No. 725,638. (No model.)



Claim.—1. The combination with a bolt and nut, of an apertured clamp-plate having a point on one side thereof, a pronged washer, the prongs of which are of greater length than the thickness of the clamp-plate, said prongs being adapted to be embedded in the part through which the bolt passes whereby the washer and clamp-plate are locked against turning, said plate and washer held in place by the nut and the point on the clamp-plate bent against the side of the nut to lock it against turning.

2. The combination with a bolt and nut, of an apertured clamp-plate having a point or points on the side thereof, a pronged washer, the prongs of which are adapted to enter apertures in the clamp-plate and be embedded in the part through which the bolt passes, said plate and washer held in place by the nut, and the point or points on the clamp-plate bent against the side of the nut to lock it against turning.

641,377. BURIAL-CASKET. WALTER C. DUNLAP, West Bridgewater, Pa. Filed June 17, 1899. Serial No. 720,890. (No model.)

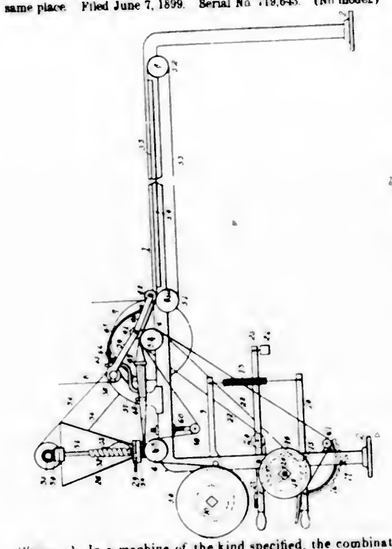


Claim.—1. An improved construction in burial-caskets, comprising a bottom piece or base having semi-octagon ends, shallow side pieces hinged direct to said bottom piece, shallow ends, each composed of three sections hinged together with the central ones hinged direct to the bottom piece, hooks and eyes to engage one another and hold the said ends and sides in their upright position, and a removable hinged lid having tapered sides and ends whose depth is about equal to the hinged side and end pieces, all arranged and combined as shown and set forth.

2. An improved construction in burial-caskets, comprising a bottom piece or base having semi-octagon ends, shallow side pieces hinged direct to said bottom piece, shallow ends each composed of three sections hinged together with the central ones hinged direct to the bottom piece, hooks and eyes to engage one another to hold the said ends and sides together in their upright position, an adjustable pillow having rods connecting thereto which pass through eyelets attached to said bottom piece, and a hinged lid having tapering sides and ends which have a depth of about equal to the said hinged side and end pieces, all arranged and combined as shown and for the purpose set forth.

3. In combination with a casket having its sides and ends arranged to be let down and form a lounge, of a bolster-pillow having its ends folded over to form a pillow of double thickness when the casket sides and ends are in their closed position and a means whereby the same is adjustably attached to the casket-bottom for the purpose of covering the open space between the end and side pieces when they are let down to form a lounge, as shown and set forth.

641,378. MACHINE FOR FORMING INNER TUBES OF PNEUMATIC TIRES. AUGUSTUS E. ELLINWOOD and STEPHEN S. MILLER, Akron, Ohio, assignors to the Goodyear Tire and Rubber Company, same place. Filed June 7, 1899. Serial No. 719,643. (No model.)



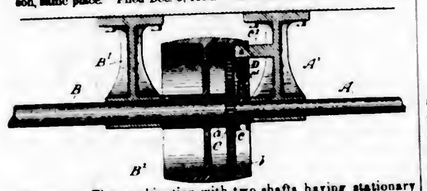
Claim.—1. In a machine of the kind specified, the combination in a supporting-frame of devices to support the fabric and rubber-ribbon spool; mechanism to lead forward the fabric and ribbon; hoppers and brushes to coat a part of said ribbon with a non-adhering dust; devices for separating and leading forward the ribbon, and folding the same to lap the edges; and rollers to press the lapped edges; all constructed and arranged to simultaneously coact to successively perform their several functions, substantially as shown and described.

2. In a machine for forming the inner tubes for pneumatic tires, the combination of a supporting-frame, a spool to hold a strip of fabric and a superimposed band of rubber, of a pulley to lead said band and strip forward in tension, tube-forming mechanism to receive the rubber band, pulleys to divert said strip from said band at said pulley to a rewinding-spool, and a rewinding-spool to receive said strip, all constructed to simultaneously coact, substantially as shown and described.

3. In a machine of the kind designated, the combination with devices for separating the fabric strip and rubber ribbon; a spool for rewinding the fabric strip, and a belt for turning said spool; of a pulley-carrying arm to regulate the tension of said belt, and a latch to release the pressure of said arm and pulley, substantially as shown and described.

4. In a machine of the kind designated, the combination with means for forming a fold of rubber ribbon with lapped edges, and a pulley and pressure-roller to receive and compress said folded edges; of a pulley to convey said folded ribbon from said pulley and pressure-roller, and arranged to run at a surface speed in excess of the surface speed of the pulley on which the edges are compressed, substantially as shown and for the purpose specified.

641,379. DEVICE FOR TRANSMITTING POWER. ERNEST R. REMOND, New York, N. Y., assignor to himself and Edward N. Dickerson, same place. Filed Dec. 3, 1894. Serial No. 530,652. (No model.)



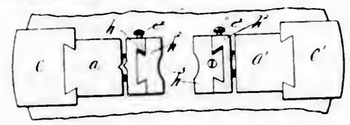
Claim.—1. The combination with two shafts having stationary bearings and in line with each other, of means connecting said shafts, whereby power may be transmitted from one to the other thereof without shock in the transmission, said means comprising a gear on each of said shafts, a gear intermediate the gears on said shafts, a support on which is mounted the axle of said intermediate gear, means in connection with said support for permitting a limited movement of said axle around one of said shafts, and a spring having one end thereof held stationary and the other end connected to said support, whereby the support will be returned when released, to a normal position, substantially as specified.

2. A coupling for transmitting power from one to the other of two shafts mounted in line and in stationary bearings, said coupling comprising a pinion on the driven shaft, an arm mounted loosely on the driven shaft, a gear mounted on said arm and in engagement with said pinion, an internal gear on the driving-shaft and in engagement with the gear on said arm, and a spring having one end thereof held stationary and the other end connected to said arm, whereby said spring may act upon said arm to return the latter to an absolute normal position, substantially as and for the purpose specified.

3. A shaft-coupling consisting of a shaft having an internal gear thereon, a shaft having a pinion thereon and concentric with said internal gear, a support free to revolve about said shafts and having attached thereto a rod, said rod having the form of an arc concentric with said shafts, an intermediate gear on said support and in mesh with said pinion and internal gear, a spring surrounding the bar upon said support, and a stationary piece for holding said spring at one point thereof, whereby, when said intermediate gear is released it will be returned to the normal position, substantially as and for the purpose specified.

4. In a shaft-coupling the combination with two shafts, of a gear on each shaft, a gear intermediate of the first-mentioned gears, a support on which is mounted the axle of said intermediate gear, said support constructed to permit a movement of said axle in an arc concentric with one of said shafts, a compressible spring, an arc-form guide for said spring arranged concentrically with said shaft, said spring having one end thereof held stationary and the other end connected to said support, whereby said spring may act to return said support to a normal position, substantially as described.

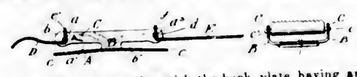
641,380. AUTOMATIC MACHINE-CHUCK. OWEN F. GARVEY, Providence, R. I., assignor to the United States Safety Gas Cock Company, same place. Filed Sept. 8, 1899. Serial No. 729,865. (No model.)



Claim.—1. In a combination-chuck, the combination with the jaws of the chuck, of stationary blocks attached to the faces of the jaws, blocks held to rotate in sockets in said stationary blocks, a spring-washer arranged to bear on one of the rotating blocks and press it out of its socket, a spring-washer arranged to draw the other rotating block into its socket in its plate, dovetailed grooves made in the faces of the rotating blocks, blocks fitted to slide in said dovetailed grooves, substantially as described.

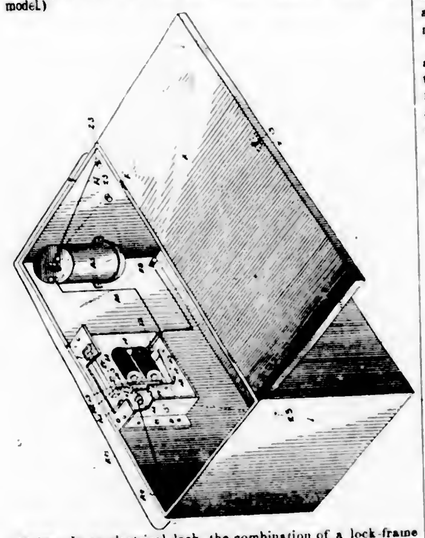
2. In a machine-chuck the combination with the jaws of the chuck, of blocks attached to the faces of the jaws, blocks held to slide across the face of the chuck in grooves in said blocks, a stop placed in the groove in one of said blocks, a portion of one of the sliding blocks that slides in the grooves, cut away to accommodate the stop, set-screws fitted in the end portions not cut away, to bring up against the stop and limit the motion either way, notches made in the other sliding block, a stationary spring-stop arranged to catch in said notches, substantially as described.

641,381. SUSPENDING DEVICE. ARTHUR R. GEOFFROY, New York, N. Y. Filed Dec. 19, 1898. Serial No. 699,667. (No model.)



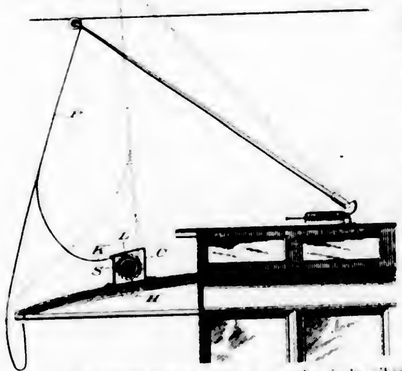
Claim.—The combination with the back plate having arms, B, at or near its middle and side walls extended in opposite directions from the arms with spaces between the side walls and the adjacent portions of the back plate, of the lever-plate having a gripping-lip, C^1, and the swinging plate having a corresponding lip, the said plates being pivoted in the outer ends of the side walls and the swinging plate arranged to lie upon the lever-plate when in normal or operative position, substantially as herein set forth.

641,382. ELECTRIC LOCK. LEVI GOUGHENOUR and CHARLES R. MCCABE, Braddock, Pa. Filed Feb. 7, 1899. Serial No. 704,783. (No model.)



Claim.—In an electrical lock, the combination of a lock-frame having suitably arranged therein a pair of electromagnets connected to a source of electrical supply, a series of contact-points adapted to be connected to the said magnets, an armature operated by the said magnets, a lever connected to the said armature, a locking-bar connected to the said lever, a metal spring-bar connected to the said armature for keeping the locking-bar in a locked position, and means adapted to engage a pair of the said contact-points to form an electrical circuit for energizing the magnets operating the armature and releasing the locking-bar, substantially as set forth.

641,383. TROLLEY-CATCHER. HUGH W. GRAHAM, Louisville, Ky. Filed Nov. 15, 1899. Serial No. 737,122. (No model.)

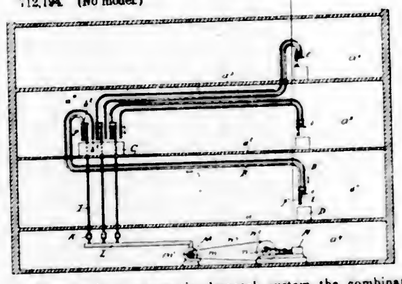


Claim.—1. The spring-actuated trolley-catcher herein described, consisting of an inclosing casing, a gravitating lid therefor, an operating-cord attached to the trolley-rod at one end and to a drum within the casing at the other, said cord passing into the casing beneath the lid and being adapted to lift the lid when it is tightened, a ratchet-wheel (or wheels) mounted on the drum and adapted to engage with a dog (or dogs) secured to the under side of the lid, a shaft within the casing carrying the drum rotatably mounted thereon, a coil-spring fastened at one end to the shaft and at the other to the inside of the drum, and means for coiling the spring and holding the drum and shaft from rotating when the spring is coiled.

2. A trolley-catcher consisting of a spring-actuated drum for retracting the operating-cord, a gravitating cover over the drum adapted to hold the drum from rotating when the spring is coiled and to release the drum when the operating-cord is tightened, and means for coiling the actuating-spring.

3. In a trolley-catcher, the spring-actuated drum and its cover adapted to hold the spring when coiled and to release it when the trolley jumps its wire, a rotating shaft for coiling the spring, cogs for rotating the shaft mounted on the shaft and on an operating-spindle, and means for holding the shaft from rotating when the spring is coiled.

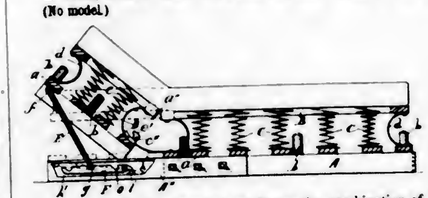
641,384. PNEUMATIC-DESPATCH TUBE. CHARLES A. GRAY, Kansas City, Kans., assignor of one-half to John Logan Jones and Laurence Monroe Jones, same place. Filed Apr. 7, 1899. Serial No. 712,194. (No model.)



Claim.—1. In a pneumatic-despatch system the combination with the pneumatic delivery and return tubes of a tube connection, connecting said tubes near the ends thereof, an exhaust-tube and a tube connection connecting said exhaust-tube with the return-tube, means substantially as described for creating a suction in said tubes, a valve pivotally connected with and closing the end of the despatch-tube in which the carrier is inserted and a self-closing inclined valve-plate in the end of the return-tube and an inclined valve-seat in said tube, lugs upon the upper end of said valve-plate a pin extending through the side of said return-tube and said lugs, a spring having one end connected with said pin and the other end bearing upon the under side of said valve-plate and an adjustable tension device connected with said spring.

2. In a pneumatic-despatch apparatus the combination with a pneumatic-despatch tube having an opening in one side thereof of a valve, lugs upon the upper end of said valve a pin extending through the sides of said despatch-tube and said lugs, a spiral spring upon said pin having one end connected therewith and the other end bearing upon the under side of said valve, a ratchet-wheel on said pin on the outside of said tube and a pawl pivotally connected with said tube and engaging with the said ratchet-wheel.

641,385. ADJUSTABLE SPRING COT-FRAME. PARKER D. HEATHER, Pontiac, Mich. Filed Nov. 28, 1898. Serial No. 697,642. (No model.)

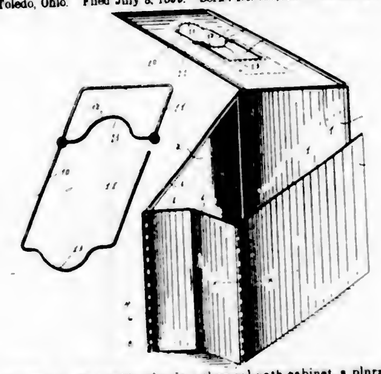


Claim.—1. In an adjustable cot-frame, the combination of the mattress-supporting frame having a hinged section, the base-frame having a jointed section, the springs interposed between said frames, the bow-springs interposed between the mattress-frame and the base-frame at the joint between the hinged and the stationary portions thereof and so as to flexibly unite said frames, and means for supporting the hinged section at various degrees of inclination.

2. In a cot, the combination of the rigid portion of the frame, the hinged portion attached thereto, the bail hinged to said hinged portion and extending transversely thereof, said bail consisting of a quadrangular frame provided at its upper hinged portion with a depending loop and its free end having lateral projections *f'*, the rails of the cot-frame having oblong recesses in the opposed inner faces thereof, the bars having notches in their upper edges located centrally within said recesses forming a continuous way around said bars between their marginal edges and the wall of said recesses, the lateral projections on the free end of said bail lying in said ways and traveling therein as the bail is swung, said projections being adapted to engage the notches in said bars, and a dog pivoted to one end of each of said bars to swing downward across said ways.

3. In a cot-frame, the combination of the fixed and hinged portions of said frame, the bowed springs interposed between said frames at the point of hinging, the keepers upon the hinged portion of the frame adapted to freely receive said springs, and the stops upon said springs adapted to be engaged by said keepers.

641,386. THERMAL-BATH CABINET. WILLIAM E. HETTRICK Toledo, Ohio. Filed July 8, 1899. Serial No. 723,155. (No model.)

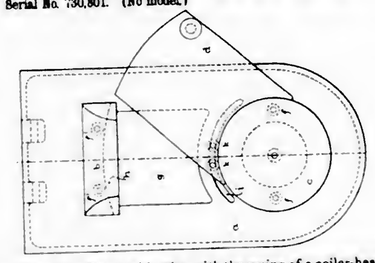


Claim.—1. In combination in a thermal-bath cabinet, a plurality of side sections, and a top closure section, each section comprising a frame having its own separate covering of impervious flexible material secured thereto by being bighted around the frame, and having a portion of the bights projecting beyond the sides of the frame to form margins; eyelets secured in the margins; lacings run through the eyelets of adjacent margins, whereby the side sections are pivotally secured together in succession and the top-closure section is secured to the top of one of the end side sections, the top section being adapted, when the free margins of the end side sections are brought together with the side sections in vertical position resting on the floor, to complete the inclosure formed by the side sections and the floor; an opening in the covering material of the top section for obtruding the head of the occupant of the inclosure so formed, the opening being provided with a frame secured to the covering material, having an embrasure formed on one side of the frame to receive the neck of the occupant; and a flap secured to the frame of the opening adapted to close the opening about the neck of the occupant and to be adjusted by the occupant from within the inclosure.

2. In combination in a thermal-bath cabinet, a plurality of side sections and a door-section, each side section comprising a frame having its own separate covering of impervious flexible material secured thereto by being bighted around the frame, and having a portion of the bight projecting beyond the sides of the frame to form margins, and the door-section comprising a side frame and a top-closure frame pivotally connected by having the covering of the door-frame extended to cover the top frame and similarly bighted about the frames with margins; eyelets secured in the margins; lacings run through the eyelets of adjacent margins whereby the side sections are pivotally secured together in succession and to the door-section, the top-closure portion of the door-section being adapted, when the free margin of the end side section is brought to connect with the free margin of the door-section with the side sections in vertical position resting on the floor, to complete the inclosure formed by the side sections and the floor; an opening in the covering material of the top frame for obtruding the head of an occupant of the inclosure so formed, the opening being provided with a frame secured to the covering, having a semicircular embrasure in one end adapted to receive the neck of the occupant, and with a movable bar, having an oppositely-disposed similar embrasure; and a flap secured at one end to the movable bar and at the opposite end to the top closure, adapted to close the opening about the neck of the occupant and be operated by the occupant from within the cabinet so formed.

3. In combination in a thermal-bath cabinet, a plurality of side sections and a door-section, each side section comprising a frame having its own separate covering of impervious flexible material secured thereto by being bighted around the frame, and having a portion of the bight projecting beyond the sides of the frame to form margins, and the door-section comprising a side frame and a top-closure frame pivotally connected by having the covering of the door-frame extended to cover the top frame and similarly bighted about the frames with margins; eyelets secured in the margins; lacings run through the eyelets of adjacent margins whereby the side sections are pivotally secured together in succession and to the door-section, the top-closure portion of the door-section being adapted, when the free margin of the end side section is brought to connect with the free margin of the door-section with the side sections in vertical position resting on the floor, to complete the inclosure formed by the side sections and the floor; an opening in the covering material of the top frame for obtruding the head of the occupant of the inclosure so formed, the opening being provided with a frame secured to the covering, having a semicircular embrasure in one end adapted to receive the neck of the occupant, and with a movable bar, having an oppositely-disposed similar embrasure; and a flap secured at one end to the movable bar, and to a spring-roller secured to the frame, at the opposite end, adapted to automatically roll up the flap and allow it to be unrolled by the occupant, to close the opening from within the cabinet.

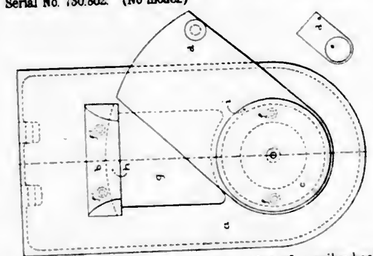
641,387. COILER-HEAD. CHARLES I. HILDRETH, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed Sept. 18, 1899. Serial No. 730,801. (No model.)



Claim.—1. The combination with the casing of a coiler-head containing mechanism and having in its top an opening and a guideway substantially concentric with the trumpet, of a trumpet sliver-guide which is fixed to the said top, a back sliver-guide which is fixed to the said top and is rabbeted to receive a cover for the opening and a cover to engage with the trumpet sliver-guide and the guideway, to cover the opening and fit into the rabbet of the back sliver-guide and to uncover the opening in the casing, substantially as described.

2. The combination with the casing of a coiler-head containing mechanism and having in its top an opening and a guideway, of a trumpet sliver-guide which is fixed to the said top, a back sliver-guide which is fixed to the said top and is rabbeted to receive a cover for the opening, a cover to contact with the trumpet sliver-guide and engage the guideway, to cover the opening and fit into the rabbet of the back sliver-guide, and to uncover the opening in the casing, and means to keep the cover in contact with the trumpet sliver-guide and the guideway, substantially as described.

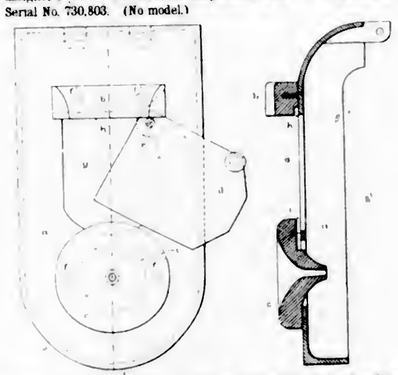
641,388. COILER-HEAD. CHARLES I. HILDRETH, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed Sept. 18, 1899. Serial No. 730,802. (No model.)



Claim.—The combination with the casing of a coiler-head containing mechanism and having in its top an opening, of trumpet and back sliver-guides each of which is fixed to the said top and is rabbeted to receive a cover for the opening and a cover which is perforated to receive the trumpet sliver-guide and is rotatably mounted upon the top of the casing in the rabbet of that guide to cover the

opening and fit into the rabbet at the back sliver-guide and to uncover the opening in the casing, substantially as described.

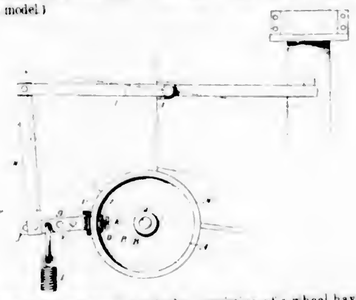
641,389. COILER-HEAD. CHARLES L. HILDRETH, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed Sept. 18, 1899. Serial No. 730,803. (No model.)



Claim.—1. The combination with the casing of a coiler-head containing mechanism and having in its top an opening, of trumpet and back sliver-guides each of which is fixed to the said top and is rabbeted to receive a cover for the opening and a cover to cover the opening and fit into the rabbets of the trumpet and back sliver-guides and to uncover the opening in the casing, substantially as described.

2. The combination with the casing of a coiler-head containing mechanism and having in its top an opening, of trumpet and back sliver-guides each of which is fixed to the said top and is rabbeted to receive a cover for the opening and a cover pivoted to the casing-top near to the back sliver-guide to cover the opening and fit into the rabbets of the trumpet and back sliver-guides and to uncover the opening in the casing, substantially as described.

641,390. FRICTION-WHEEL GRIP FOR ORE-FEEDERS. CHAS. D. HOOPER, Telluride, Colo. Filed Sept. 7, 1899. Serial No. 729,674. (No model.)



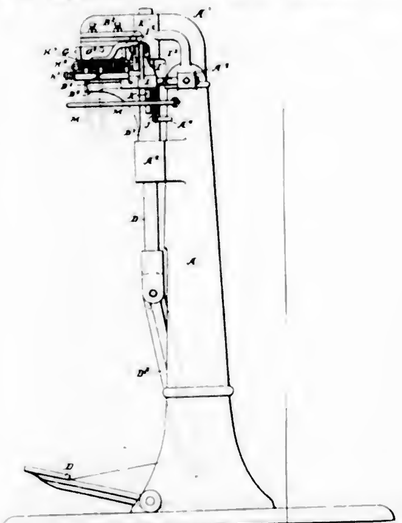
Claim.—An improved ore-feeder, consisting of a wheel having a central web and a flange extending some distance each side thereof, a rectangular yoke having sufficient width between its arms to permit it to inclose said flange and extend inwardly upon each side to a point beyond the inner periphery thereof, a block having approximately the width of the flange of the wheel and introduced between the flange and the inner wall of the cross-bar of the yoke, stub-bolts projecting inwardly one from each arm of the yoke and at a point interior to the inner periphery of the flange, and independent blocks one on each side of the web and confined between one of the said bolts and the inner periphery of the flange, and having a curvature substantially corresponding thereto, the inner portions of said last-named blocks being cut away to fit the bolts whereby they rock on the latter, an arm extending from the cross-bar of the yoke and provided with adjusting-holes, and means for operating the yoke by the tappet of a rising and falling stamp.

641,391. HERMETICALLY-SEALED CAN OR JAR. KEZIA J. HUTCHISON, Knoxville, Ohio. Filed June 28, 1899. Serial No. 722,155. (No model.)

Claim.—The combination with a can having a screw-threaded neck extending above its top with the extreme upper end of the said neck terminating in an inwardly-extending broadened horizontal flange, the top of the can in proximity to the junction with the said neck being formed with an inclined shoulder and a downward and outward incline upon a different angle, of a soft-metal cap having a portion to rest upon the horizontal flange of the neck and a threaded portion to engage the threads of the neck and at the lower end of the threaded portion with a flange or rim extending outwardly and downwardly upon two different inclines whereby a tight joint is formed with the can-top, substantially as shown and described.



641,392. STAYING-MACHINE. HORACE INMAN, Amsterdam, N. Y. Filed Nov. 21, 1898. Serial No. 697,061. (No model.)



Claim.—1. In a staying-machine, the combination with a stationary upper die, of a movable lower die, a stay-strip-feeding device, connections between the same and the movable die whereby the feeding device is operated at the beginning of the movement of the movable die, a stay-cutting device, and connections for operating the same having a lost motion so that the cutting device will be operated as the movable die reaches nearly its final upward movement, substantially as described.

2. In a staying-machine, the combination with an adjustable stationary upper die having a cutting edge, of a gate carrying a cutter and arranged to cooperate with the cutting edge of the die, substantially as described.

3. In a staying-machine, the combination with a stationary upper die having a cutting edge, of a gate sliding thereon, a cutter mounted on the gate and cooperating with the cutting edge of the die, and means for moving the gate and cutter to sever the stay, substantially as described.

4. In a staying-machine, the combination with a stationary upper die having a cutting edge, of a gate sliding thereon, a cutter carried thereby and arranged to cooperate with the cutting edge of the die, a movable lower die, an arm connected to move with the lower die, and devices providing lost motion between the arm and the gate whereby the gate is moved at a predetermined time, substantially as described.

5. In a staying-machine, the combination with a stationary upper die having a cutting edge, of a gate sliding thereon, a cutter carried by the gate and arranged to cooperate with the cutting edge of the die, stop-pins on the gate, a movable lower die, and an arm connected to move with the lower die and arranged to engage the stop-pins at different points of its movement whereby there is lost motion between the movement of the lower die and the gate, substantially as described.

6. In a staying machine, the combination with a stationary upper die, of a gate sliding thereon, a cutter secured to the gate, and a guide-plate secured to the gate above the cutter, substantially as described.

7. In a staying-machine, the combination with the stationary and movable dies, of a combined feeding and damping device, one of the rollers of which is eccentrically mounted, substantially as described.

8. In a staying-machine, the combination with the stationary and movable dies, of a combined feeding and damping device comprising a box and feeding and damping rollers mounted in bearings therein one of the rollers being mounted on an eccentric shaft having means for securing and adjusting the same, substantially as described.

9. In a staying-machine, the combination with the stationary and movable dies, of a feeding and damping device comprising a box, feeding and damping rollers mounted in bearings therein one of which is eccentrically mounted with relation to the other, and means for intermittently operating them to feed the strip, substantially as described.

10. In a staying-machine, the combination with the stationary and movable dies, of a feeding and damping device, and connections between the movable die and feeding device whereby the latter is operated at the beginning of the movement of the movable die upward toward the stationary die, substantially as described.

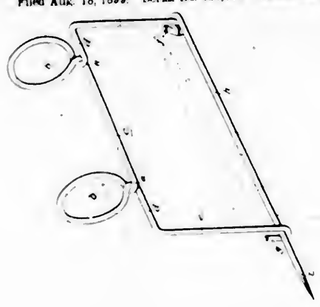
11. In a staying-machine, the combination with the stationary and movable dies, of a feeding and damping device, a pawl-and-ratchet mechanism for operating the feeding and damping device, and an arm connected thereto and operated by the movable die at the beginning of the movement of the movable lower die toward the stationary upper die, substantially as described.

12. In a staying-machine, the combination with the stationary and movable dies, of a feeding and damping device, a sleeve carrying an arm adapted to be engaged by the movable die, and a pawl-and-ratchet mechanism connected to the sleeve and operating the feeding and damping rolls, substantially as described.

13. In a staying-machine, the combination with the stationary and movable dies, of a feeding and damping device, a movable cutter mounted on the stationary die and arranged between the feeding and damping device and the stationary die, and means connected with the movable die to operate the feeding and damping device at the beginning of the movement of the movable lower die toward the stationary upper die and the cutter near the end of such movement, substantially as described.

14. In a staying-machine, the combination with the stationary and movable dies, of a stationary feeding and damping device, a movable cutter arranged between the feeding and damping device and stationary die, a gate supporting said cutter and having a guide for the stay-strip, and connections between the cutter and feeding and damping rolls and movable die whereby the feeding and damping rolls are operated at the beginning of the movement of the die and the movable cutter near the end of the upward movement of the die, substantially as described.

641,393. MEAT-HANGER. WILLIAM O. JOHNSON, Seattle, Wash. Filed Aug. 18, 1899. Serial No. 727,677. (No model.)



Claim.—The improved meat-hanger described composed of the wire having the two eyes formed therein and disposed transverse to the body thereof, and also having the depending branches terminating at their lower ends in hooks, and the pointed rod hinged at one end to one of the hooks and adapted to detachably engage the other hook, substantially as specified.

641,394. PROCESS OF COLORING LEATHER. PAUL H. KAUSCHKE, Freiberg, Germany. Filed Sept. 5, 1899. Serial No. 729,879. (No specimens.)

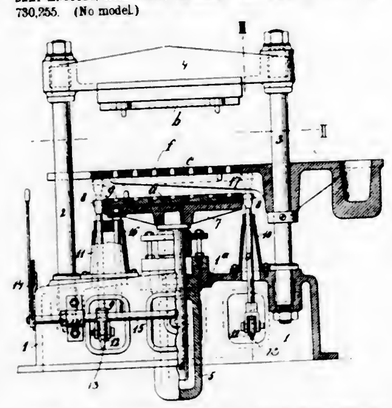
Claim.—1. A process for coloring vegetable tanned leather consisting in neutralizing a diazo solution with carbonate of lime, and afterward rendering it acid again by the addition of a suitable acid applying the solution in a dilute form to the leather, causing a chemical reaction with the vegetable tanning material precipitated in the leather, whereby the dyeing is effected, substantially as described.

2. A process for coloring vegetable tanned leather consisting in neutralizing a diazo solution with carbonate of lime and afterward rendering it acid by the addition of a suitable acid, and applying the solution mixed with a proportion of tar-coloring material to the leather, substantially as described.

3. The process of coloring vegetable tanned leather consisting in subjecting the leather to a neutralized diazo solution; substantially as described.

4. The process of coloring vegetable tanned leather consisting in subjecting the leather to a diazo solution neutralized with carbonate of lime, substantially as described.

641,395. MACHINE FOR MAKING CORES FOR CASTINGS. ALBERT KNUTTEL, Remscheid, Germany. Filed Sept. 12, 1899. Serial No. 730,255. (No model.)

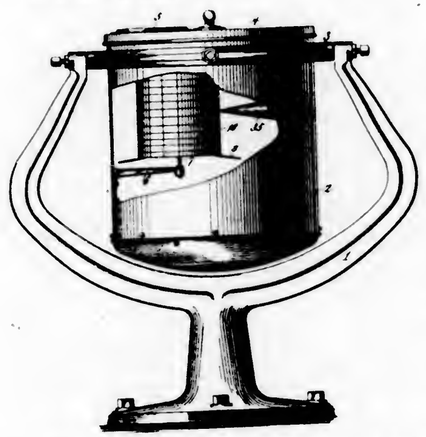


Claim.—1. In a machine for molding cores, in combination with a frame 1, standards 2, 3, a cross-beam 4 connecting the top ends of said standards, a hydraulic-press cylinder 5 fixed to the table of said frame, a piston 6 working in said cylinder and carrying a table 7, an upper molding-plate *b* fixed permanently to the lower side of said cross-beam 4, and having the mold of the upper half of the core to be formed engraved in its lower face, a removable molding-plate *a* upon the table of the hydraulic press and having the mold of the lower half of the core to be formed engraved in its upper side, and a removable intermediate molding-plate *c* having holes worked right through it corresponding in exterior outlines to the shape of the core to be formed and of such thickness that the volume of the said holes equals the volume of the upper half-core, the whole as illustrated and described and for the purpose set forth.

2. In a machine for molding cores, in combination with a frame 1, standards 2, 3, a cross-beam 4 connecting the top ends of said standards, a hydraulic-press cylinder 5 fixed in the middle of the table of said frame, a piston 6 working in the cylinder 5 and carrying a table 7, a molding-plate *b* fixed permanently to the lower side of said cross-beam 4, a molding-plate *a* held removably on the table 7, said plate *a* having pins 8 at the sides facing the standards 2, 3, an intermediate molding-plate *c*, capable of being inserted between the upper and lower molding-plates *b* and *c*, boxes 10, 11 bolted to the table of the frame 1 guiding vertically bars 9 forked at their upper ends and capable of carrying the lower molding-plate *a* by the pins 8, a shaft 15 fixed to the frame of the machine, levers 13 keyed to said shaft and supporting by their free ends the bars 9, a lever 14

keyed to one end of shaft 15 and engaging by a latch 14ª with a toothed segment 14ᵇ on the frame 1, the whole as described and illustrated and for the purpose set forth.

641,396. INSTRUMENT FOR RECORDING COURSE AND SPEED OF VESSELS. ALBERT DE LASKI, New York, N. Y., assignor of one-third to Edward N. Dickerson, same place. Filed Dec. 3, 1897. Serial No. 660,586. (No model.)



Claim.—1. In a recording instrument the combination of a surface adapted to receive a record, a magnetic needle for moving said surface, and means for tracing said record upon said surface, substantially as specified.

2. In a recording instrument the combination of a surface adapted to receive a record, said surface having marked thereon divisions representing the points of the compass and the hours of the day, means for tracing a record upon said surface, means for moving said tracing means across said surface, and a magnetic needle for moving said surface, substantially as specified.

3. In a recording instrument the combination with a surface adapted to receive a record, of means for tracing lines upon said surface, means for moving said tracing means across said surface, and means for moving said surface synchronously with the variations of a ship's course, substantially as specified.

4. In a recording instrument the combination with a sensitized surface, of a magnetic needle for moving said surface, and means for projecting a ray or rays of light thereon, substantially as specified.

5. In a recording instrument the combination with a sensitized surface carried upon a magnetic needle, of means for projecting light thereupon, and means for moving said light across said surface, substantially as specified.

6. In a recording instrument the combination with a sensitized surface ruled to indicate the points of the compass and the hours of the day, of a magnetic needle for carrying said surface, means for projecting a ray or rays of light upon said surface, and means for moving said ray or rays from the first to the last of the said hour divisions, substantially as specified.

7. In a recording instrument the combination with a sensitized cylindrical surface, of a magnetic needle carrying said surface, means for projecting light in a point or points upon said surface, means for moving said light-projecting means across said surface, and means for stopping said movement, substantially as specified.

8. In a recording instrument for vessels or analogous objects the combination with a sensitized cylindrical surface ruled to indicate the divisions of the compass and of the day; of a magnetic needle, means operatively connecting said needle and said surface whereby a change in the course of the vessel will effect a corresponding movement of the said cylindrical surface, relatively to the vessel, means for projecting light upon said surface, and means for moving said light over said surface, substantially as specified.

9. In a recording instrument the combination with a magnetic needle, of a sensitized vertical cylindrical surface carried upon said needle, means for projecting a ray or rays of light upon said surface, and means for moving said ray or rays from the bottom to the top thereof, substantially as specified.

10. In a recording instrument the combination with a sensitized surface carried upon a magnetic needle, of means for continuously projecting a ray or rays of light upon said surface, means for intermittently projecting a ray or rays of light upon said surface, and means for causing said light-projecting means to travel across said surface, substantially as specified.

11. In a recording instrument for vessels or analogous articles the combination with a sensitized surface carried upon a magnetic needle, of means for projecting a ray or rays of light upon said surface, means for cutting off said rays from said surface at regular intervals of distance in the vessel's travel, means for causing said light-projecting means to travel across said surface, and means for stopping said movement, substantially as specified.

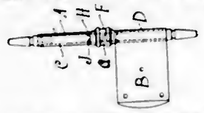
12. In a recording instrument the combination with a sensitized surface, of means for projecting a ray or rays of light thereupon, consisting of a hollow receptacle, a support therefor, a source of light contained within said receptacle, and an aperture in said receptacle through which rays of light may project upon said surface, substantially as specified.

13. In a recording instrument the combination with a sensitized surface, of means for projecting a ray or rays of light thereupon consisting of a source of light, and a receptacle therefor—said receptacle having a tapering form and an opening at the end thereof, substantially as specified.

14. In a recording instrument the combination with a sensitized surface, of means for projecting a pencil of light thereupon, consisting of a hollow cone having an exit for the light-rays at the apex thereof, a source of light contained within said cone, a reflecting-surface at the base of said cone, and a support for said cone, substantially as specified.

15. In a recording instrument the combination with a surface adapted to receive a record, of means for tracing said record, and means for moving said tracing device over said surface, said means consisting of a support for said tracing device, a screw-threaded rod in connection with said support, and clock work for rotating said screw-threaded rod, substantially as specified.

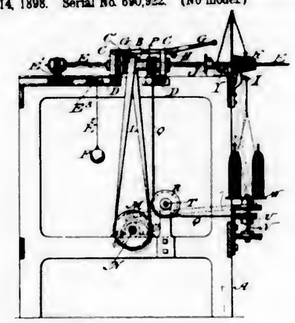
641,397. HINGE. FRIEDRICH LIEDGENS, Vohwinkel, Germany. Filed Aug. 21, 1899. Serial No. 727,960. (No model.)



Claim.—1. In combination with the leaves, knuckles and pintle of a hinge, a pair of collars arranged on the said pintle and between the said knuckles, the said collars being provided with opposed cam-faces and the said knuckles and collars being provided with interlocking parts arranged and adapted to allow the said cam-faces to be shifted into and secured in position for operation with a door opening to the right or the left or both ways, substantially as set forth.

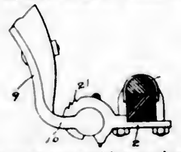
2. In combination with the pintle E and hinge-leaves A and B having knuckle C which are provided with notches or recesses in their opposing faces, a pair of interposed collars F G, having opposed cam-faces and on their outer sides projections H adapted to fit into the said recesses, the number and arrangement of the projections and recesses being such that the hinge may be set at will for automatic closing action in either one of two directions, substantially as set forth.

641,398. MACHINE FOR DOUBLING AND TWISTING YARN AND FOR COP-FORMING. JOHN F. LODGE, Philadelphia, Pa. Filed Sept. 14, 1898. Serial No. 690,922. (No model.)



Claim.—In a cop forming and shaping machine, the combination with the cop-shaping device, the spindle, the sleeve through which said spindle is adapted to slide and the differential pulley on said sleeve, of a supplemental pulley on said sleeve, a guide-pulley on the frame of said machine, a flier on said frame having a driving-pulley, an endless belt extending from said supplemental pulley around said guide-pulley to said driving-pulley, and a guide interposed between said flier and cop-shaping device.

641,399. THILL-COUPLING. JOHNSTON MEALEY, Howard Lake, Minn. Filed Jan. 28, 1899. Serial No. 703,664. (No model.)



Claim.—1. A thill-coupling comprising an axle member or shackle, having a socket and a slot leading thereto, a series of teeth in the surface of said shackle, a thill-iron having a bar adapted to enter said slot when the thills are elevated and fit within said socket, and said thill-iron being also provided with a shoulder or edge to engage said teeth, substantially as described.

2. In a thill-coupling, the combination, with a shackle or axle member having a socket 7 and a slot 8 leading thereto, of a thill-iron having a slot 11 to receive the end of said shackle, and a bar 12 to enter said slot when the thills are elevated, said bar being of greater width than said slot to prevent the members from uncoupling when the thills are in their normal position, and a pin 14 provided in said shackle, and having a curved portion 20 to engage the edge of said bar, substantially as described.

3. A thill-coupling, comprising an axle member or shackle having a cylindrical transverse socket 7 and a slot 8 leading to said socket, a thill-iron having a longitudinal slot 11 to receive the end of said shackle, a flat cross-bar 12 of less thickness but of greater width than the width of said slot to permit it to enter said cylindrical socket when the thills are elevated and be locked therein when the thills are in their normal position, and a spring-pin provided in said shackle to engage the edge of said cross-bar and prevent the same from shaking or rattling in said socket, substantially as described.

4. A thill-coupling, comprising an axle member or shackle having a transverse socket 7 and a slot 8 leading thereto and a series of teeth or projections in its upper side, a thill iron or member having a longitudinal slot 11 to receive the end of said shackle, and a cross-bar 12 adapted to enter said socket through said slot when the thills are elevated and be locked therein when the thills are in their normal position, and a shoulder on said thill-iron to engage said teeth or projections, substantially as described.

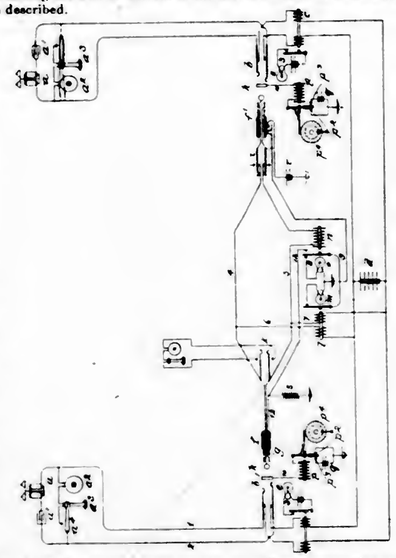
5. In a thill-coupling the combination, with a shackle having a socket and a slot upon its under side leading thereto and provided in its upper surface with a series of teeth or projections, of a thill-iron having a cross-bar adapted to enter said socket through said slot when the thills are elevated and to be locked therein when the thills are in their normal position, a shoulder provided on said thill-iron to engage said teeth or projections when the thills are elevated to support them in an upright position and permit said cross-bar to drop out of said socket and a spring-pin provided in said shackle in position to be engaged by said cross-bar when the same is within said socket and said thills are in their normal position and to be disengaged or released therefrom when the thills are elevated and supported upon said teeth or projections, substantially as described.

6. In a thill-coupling, the combination, with a shackle having a transverse socket 7 and a slot 8 leading thereto, of a thill-iron having a cross-bar 12 adapted to enter said socket through said slot when the thills are elevated and be locked therein when the thills are in their normal position, a groove 14′ provided in the edge of said cross-bar, and a spring-pin 14 fitting within an opening in said shackle and having a curved portion 20 to enter said groove 14′, substantially as described.

641,400. CONNECTION-COUNTER FOR TELEPHONE-LINES. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Jan. 9, 1897. Serial No. 618,535. (No model.)

Claim.—1. The combination with two telephone-lines and means for uniting them, of a connection-counter associated with one of the lines, circuit connections of the said counter and means at the substation of the other line for rendering said circuit connections operative to actuate the counter, as described.

2. The combination with two telephone-lines and means for uniting them, of a connection-counter associated with one of the lines, a magnet controlling the counter connected with the other line and responsive to current therein, and a switch at said second-mentioned line actuated in the use of the telephone at the station thereof and determining the flow of current in the line to control the said magnet, as described.



3. The combination with two telephone-lines, a connection-socket for each line and plugs and a plug-circuit uniting the sockets, of a connection-counter permanently associated with one line having a controlling-magnet, means for producing current in the called line controlled by a switch, and circuit connections including the said counter-controlling magnet extended through the agency of the plug and socket of the corresponding line to bring said magnet under the control of current in the called line, as described.

4. The combination with two telephone-lines, a switch for each line at the substation and means for producing current in the line controlled by the switch, and link conductors for uniting the lines, of a connection-counter associated with each line and circuit connections closed in the operation of uniting the lines by means of said link conductors adapted to bring the counter-controlling magnet of one line into association with the other line to respond to current therein, substantially as described.

5. The combination with two telephone-lines, sockets for the lines, plugs and a plug-circuit for uniting the sockets, the lines having means at their stations for determining the flow of current in the line-circuits during the use of the telephones, of a connection-counter for each line and a magnet controlling the counter, a magnet connected with the called line and responsive to current therein, and local-circuit connections including the magnet of the counting mechanism and controlled jointly by said magnet in connection with the called line and by registering switch-contacts of the plug and socket of the calling line, substantially as described.

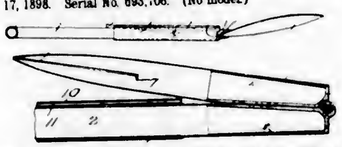
6. The combination with two telephone-lines, means for uniting them, and means for producing current in each line during the use of the corresponding telephone, of a connection-counter permanently associated with one line, a magnet controlling the counter connected with the circuit of the other line and responsive to current therein, mechanism actuated by said magnet in its first movement adapted to prevent subsequent actuation of the counter, and means for rendering said mechanism inoperative, as described.

7. The combination with two telephone-lines, means for producing current in the lines during their use, sockets for the lines and plugs and a plug-circuit for uniting the sockets, of a connection-counter associated with each line, an actuating-magnet for the counter and circuit connections including the magnet completed through registering contacts of the answering-plug and the spring-jack into which it is inserted, a relay connected with the called line responsive to current therein controlling the local circuit, and means actuated in the first response of said relay adapted to prevent subsequent breaking of the local circuit excepting at said plug and socket, as described.

8. The combination with two telephone lines and a switch at each station to close the circuit during the use of the telephone, a socket for each line, an answering-plug in one of the sockets, a calling-plug in the other socket, a plug-circuit uniting the plugs, and a source of current in a bridge of the united circuits, of a connection-counter associated with the calling line having a controlling-magnet, a local circuit including the said controlling-magnet and completed in registering contacts of the answering plug and socket, a relay connected in the circuit of the called line between the source of current and the station thereof controlling the local circuit, and switch-contacts actuated in the closure of said local circuit closing circuits adapted to prevent subsequent actuation of the said controlling-magnet, whereby the response of the called subscriber causes the operation of the counter, as described.

9. The combination with two telephone-lines, spring-jacks for the lines, an answering-plug and a calling-plug for making connection with the spring-jacks, and a plug-circuit uniting the plugs, of a connection-counter associated with one of the lines, circuit-connections with the answering-plug closed in registering switch-contacts of the said plug and a spring-jack adapted to actuate the counter; whereby the counter of the answered line alone is operated, as described.

641,401. SHOVEL. PETER NICOLAY, Minneapolis, Minn. Filed Oct. 17, 1898. Serial No. 693,706. (No model.)



Claim.—1. A shovel, comprising a blade, and a handle composed of folding tubular sections or parts, a single hinge connecting said sections, the leaves or straps of said hinge lying within the circumference of the respective sections to which they are secured these being cut away to permit the shovel to be compactly folded, a sleeve slidable on said handle, and means for locking said sleeve over said hinge against both longitudinal and rotary movement, substantially as described.

2. In a folding shovel having its handle composed of tubular sections, a hinge having its leaves or straps secured respectively to said sections within recesses provided in their abutting ends, to permit compact folding of the shovel, and reinforcing means provided within said sections, substantially as described.

3. A shovel having its handle composed of folding sections, a blade secured to one of said sections, a slidable sleeve arranged upon said handle and provided with a longitudinal bead and a spring-catch adapted to enter said bead and permit the longitudinal movement of said sleeve and to engage the upper end of said sleeve and lock the same securely in position while the shovel is in use, substantially as described.

4. The combination, with a shovel having its handle composed of sections hinged together and provided with a suitable blade, of a sleeve slidable over the sections composing said handle said sleeve being provided at its lower end with notches to engage the edge of said blade, and a spring-catch to engage the upper end of said sleeve to lock the same in position, substantially as described.

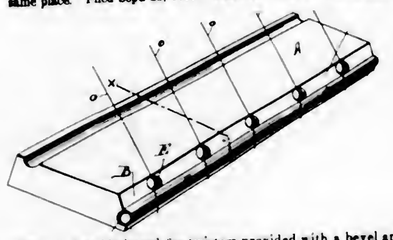
5. A shovel comprising folding sections, the lower section having a slot 6 provided with an offset 7, a sleeve slidable upon said sections, means for locking said sleeve over the joint between said sections, a blade 8 fitting within said slot and provided with a turned-up edge to enter said offset 7 and means securing said blade in said slot, substantially as described.

6. A folding shovel having a handle composed of hollow steel sections 2 and 3 hinged together, a sleeve slidable upon said sections, means locking said sleeve against longitudinal movement over the joint connecting said sections, a blade, and means securing the same to one of said sections, said sleeve having notches in its lower end to receive the edge of said blade whereby said blade is strengthened and a twisting strain upon the hinge connection between said sections is prevented, substantially as described.

7. In a folding shovel, having its handle composed of tubular sections, a hinge having its leaves or straps included within the circumference of the sections to which they are respectively secured these being cut away to permit one section to be folded over upon the other into a close compact bundle, substantially as described.

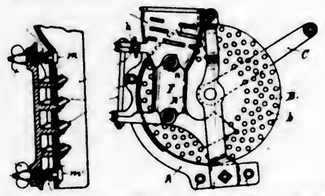
8. A shovel having its handle composed of folding sections, a blade secured to one of said sections, a sleeve provided on said handle and slidable over said sections, means for locking said sleeve over the joint between said sections and means for preventing a twisting strain upon said joint when the shovel is in use, substantially as described.

641,402. GUIDE-BOARD FOR TWISTING-MACHINES. WILLIAM L. NORDEN, Warwick, R. I., assignor of one-half to Sven R. Swanson, same place. Filed Sept. 22, 1899. Serial No. 731,306. (No model.)



Claim.—A guide-board for twisters provided with a bevel and a semicircular slot or groove in its forward edge, a series of semispherical studs provided each with a channel secured upon said bevel and adapted to have their flat side flush with said bevel, and a metal tube running parallel with said stud but extending beyond the plane thereof secured in said slot of the board.

641,403. CORN-SHELLER. JESSE P. OUTCALT, Lancaster, Ohio, assignor to The Eagle Machine Company, same place. Filed Nov. 2, 1899. Serial No. 735,572. (No model.)



Claim.—1. In a corn-shelling device, the combination of a frame, a rotary studded disk journaled thereon, a hopper supported against the studded side of the disk, the throat of the hopper being provided with slots, a rag-bar adjustably secured against the hopper and provided with ribs extended through said slots, and a spring engaging the rag-bar and hopper and pressing the former member normally outward, substantially as specified.

2. In a corn-shelling device the combination of a frame, a rotary studded disk journaled thereon, a hopper supported against the studded side of the disk, the throat of the hopper being provided with slots, a rag-bar supported against the hopper and having ribs extending inwardly through said slots, means for regulating the position of the rag-bar relative to the hopper, and a spring interposed between said members and pressing them normally apart, substantially as specified.

3. In a corn-shelling device the combination of a frame, a rotary studded disk journaled thereon, a hopper supported against the studded side of the disk, the throat of the hopper being provided with slots, a rag-bar having ribs extended through said slots, one or more bolts supporting the rag-bar against the hopper having adjustable heads engaging the outside of the rag-bar and a spring wound around each bolt between said rag-bar and hopper, substantially as specified.

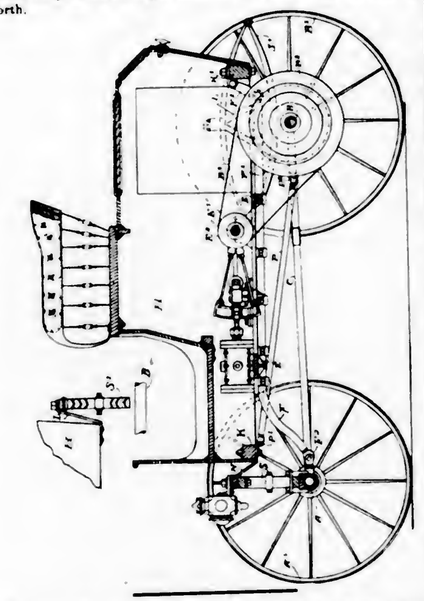
4. In a corn-shelling device the combination of a frame, a rotary studded disk journaled thereon, a hopper pivoted to said frame, a spring engaging said hopper and pressing it yieldingly against the studded side of the disk, the throat of said hopper having elongated slots, a rag-bar supported against said hopper, having ribs extended through said slots, means for regulating the depth of insertion of said ribs, and a spring interposed between said hopper and rag-bar and pressing them normally apart, substantially as specified.

641,404. MOTOR-CARRIAGE. WILLIAM R. PEARSON, Boston, Mass. Filed Nov. 4, 1899. Serial No. 735,830. (No model.)

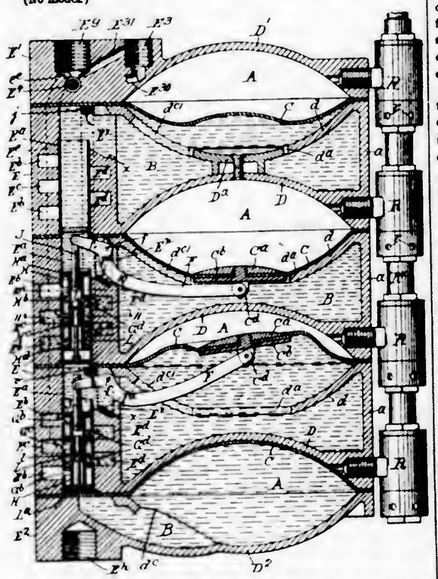
Claim.—1. In a motor-carriage an actuating-motor supported upon a frame detached from the body of the carriage, one end of said frame being attached to one axle of the carriage by a hinged joint, the other end being attached to the swinging links suspended from one end of the body of the carriage substantially as and for the purpose set forth.

2. In a motor-carriage, a rigid running-gear frame, consisting of the front and rear axles, side rods (as C C) and inclined braces connecting said side rods with one of the axles; a motor-supporting

frame, detached from the body of the carriage, one end of said frame being attached to one axle of the carriage by a hinged joint, and the other end being attached to swinging links suspended from the end of the body of the carriage substantially as and for the purpose set forth.



641,405. FLUID-ACTUATED MOTOR FOR ACTUATING FLUID. THOMAS O. PERRY, Chicago, Ill. Filed Sept. 9, 1897. Serial No. 651,062. (No model.)



Claim.—1. A fluid-actuated device for actuating a fluid, which comprises a plurality of cylinders having each a movable head or diaphragm, such cylinders being assembled in series end to end, with intervening fixed heads, and fixed heads at the ends of the series; whereby there are formed chambers in couples which are separated by fixed heads, the individuals of each couple being separated by the movable heads or diaphragms, one of the chambers of each couple having inlet and outlet valve controlled connections for the actuated fluid, and the other chamber of each couple having inlet and outlet valve controlled connections for the actuating fluid.

2. A fluid-actuated device for actuating a fluid which comprises a plurality of cylinders having each a movable head or diaphragm, such cylinders being assembled in series end to end, with intervening fixed heads and fixed heads at the ends of the series; whereby there are formed chambers in couples which are separated by the fixed heads and individuals of each couple being separated by the movable heads or diaphragms, one of the chambers of each couple having inlet and outlet valve controlled connections for the actuated fluid, and the other chamber of each couple having inlet and outlet valve controlled connections for the actuating fluid, in combination with mechanical connections for moving the heads or diaphragms to the valve which controls the actuating fluid, said connections from such head or diaphragm of any chamber being extended to and adapted to operate a valve of another chamber.

3. A hydraulic air-compressor comprising a plurality of cylinders having each an open end and a fixed head closing the opposite ends and a movable head or diaphragm between the ends and inclosing an air-chamber between itself and the fixed head, such cylinders being assembled, the closed end of one to the open end of the next, whereby a water-chamber is inclosed between the fixed head of one cylinder and the movable head of the next; suitable air inlet and outlet valves for the air-chambers, and water inlet and outlet valves for the water-chambers, and mechanical connections for the moving heads to the water-controlling valves respectively, the valve pertaining to one water-chamber being actuated by the moving head pertaining to another.

4. In combination with the water-chambers and the water-controlling valves thereof, the valve-bodies having axial valve-seats and piston-valves therein and having inlet and outlet ports and other ports leading to the water-chambers respectively, each valve being actuated by the diaphragm of a water-chamber with which the ports controlled by such diaphragm do not communicate.

5. In combination with the water-chambers, the water-controlling valves thereof having bodies provided with axial seats, and communications therefrom to the water-chambers respectively, the piston-valves which control such communication, said bodies having lateral inlet and outlet cavities opening into the valve-seat at the same side thereof, the inlet-cavities extending in one direction farther than the outlet-cavities, and the outlet-cavities extending in the other circumferential direction farther than the inlet-cavities; a longitudinal passage connecting all the inlet-cavities where they extend beyond the outlet-cavities, and a longitudinal passage connecting all the outlet-cavities where they extend beyond the inlet-cavities.

6. In combination with the water-chambers and the diaphragms thereof, the valve-bodies located laterally with respect to the water-chambers, the piston-valves operating in such bodies, the latter having passages leading from the valve-stems to the adjacent water-chambers respectively, and lever connections extending through said passages from the diaphragms to the valve-stems respectively, said passages serving also as water inlets and outlets for the water-chambers.

7. In combination with the water-chambers and the diaphragms thereof, the valve-bodies located laterally with respect to the water-chambers, the piston-valves operating in such bodies, the latter having passages leading from the valve-stems to the adjacent water-chambers respectively, and lever connections extending through said passages from the diaphragms to the valve-stems respectively; the valve-cavities E^4 communicating with the valve-seat, and ducts leading from such cavities respectively in one body to the lever-passages in other bodies, whereby, each valve operated by such lever connections controls the flow of water to and from the chamber whose diaphragm operates another valve.

8. In combination with a water-chamber and the diaphragm thereof, the valve-body laterally adjacent thereto having a passage for the valve-operating lever, such lever extending in such passage from the diaphragm to the valve-stem respectively, said passage having an inclined bottom and shoulder and the lever-fulcrum standard stepped and stopped on said bottom and shoulder respectively.

9. In combination with a plurality of water-chambers and their respective diaphragms, the valve-bodies laterally adjacent to the water-chambers respectively, having a passage for the valve-operating lever, the lever extending in such passage from the diaphragm to the valve-stem, and said passage having an inclined bottom and shoulder and extended from the top of the valve-body in which it is formed, the lever-fulcrum standard lodged in such cavity and stepped and stopped on the bottom and shoulder thereof respectively, and extending to the top of the body, whereby it is adapted to be stopped

by such interposed valve-body and bound between the same and the inclined bottom and shoulder.

10. In combination with a plurality of water-chambers, the valve-bodies laterally adjacent thereto respectively, having each a passage for a valve-operating lever, such lever extending from the water-chamber through the passage to the valve-stem, the lever-fulcrum standard comprising two uprights between which at the upper ends, the lever is pivoted, the passage in the body being adapted to receive said standard and embrace it closely at the upper end, whereby the lever being pivotally attached to the standard, has its pivot retained against endwise displacement when the standard is lodged in the passage.

11. In combination with the water-chamber and the valve-body adjacent thereto respectively and the valves operating therein, said bodies having each a passage leading into the adjacent water-chamber and having a cavity E^1 communicating with the valve-seat and a duct leading from such cavity to the water communicating passage of another valve-body.

12. In combination with the expanding and collapsing chamber, the valve which controls the flow of fluid to cause its expansion and collapse comprising a body having inlet and outlet ports at one side and ports at the other side which lead to the chambers, and a piston-valve having wings which seat beyond the inlet and outlet ports in both directions, and other wings which seat between the inlet and outlet ports, the ports leading to the chambers being located opposite the intervals between the inlet and outlet ports.

13. In combination with the water-chambers and the water-controlling valves thereof having inlet and outlet ports, inlet and outlet passages to the valve-seats and a duct which connects the outlet-passage to the inlet-passage at a point between which and the final outlet, the outlet-ports of the valves are located, and means for opening and closing such duct at will.

14. In combination with the water-chambers and the water-controlling valves thereof having inlet and outlet ports, inlet and outlet passages to the valve-seats and a duct which connects the outlet-passage to the inlet-passage at a point from which the water flowing through the outlet-passage to the final outlet passes the outlet-ports of the valve, and a governing device which opens such duct when the air-pressure falls below a predetermined point.

15. In combination with a hydraulic air-compressor, a pressure reducer or governor comprising a valve interposed in the compressed-air conduit, a chamber to which air-pressure is admitted from a point beyond such valve, a diaphragm in such chamber and mechanical connections by which the diaphragm operates the valve, and a spring acting upon such diaphragm to resist its movement in a direction tending to seat the valve.

16. In combination with a hydraulic air-compressor, a pressure reducer or governor comprising a valve interposed in a compressed-air conduit, a chamber to which air-pressure is admitted from a point beyond such valve, a diaphragm in such chamber, and mechanical connections by which the diaphragm operates the valve, a spring acting upon the diaphragm to resist its movement in a direction tending to seat the valve, and to impel it in the opposite direction, the mechanical connections from the diaphragm to the valve being extensible under pressure upon the diaphragm in the direction which seats the valve, and a spring which resists such extension, and a waste-passage for air, which is opened by such extension.

17. In combination with a hydraulic air-compressor, a governor comprising a chamber to which the compressed air is admitted and a diaphragm exposed to the pressure of such air in such chamber, a valve connected to the diaphragm and operating to control communication between the water inlet and outlet passages of the compressor, and a spring operating upon the diaphragm in a direction tending to resist the air-pressure and move the diaphragm to open the valve.

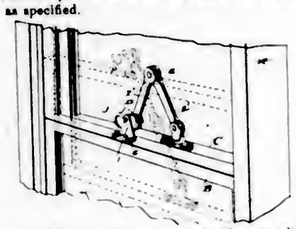
18. In a hydraulic air-pump, an expansible and collapsible water-chamber and valves and their operating connections for controlling the admission and discharge of water to and from such chamber, said chamber having a vent-passage leading from the highest point of the same when in collapsed condition into the water-outlet passage.

641,406. PROCESS OF OBTAINING SOLUBLE POTASSIUM SALTS FROM FELSPAR. JOHN G. A. RHODIN, Manchester, England. Filed Oct. 27, 1899. Serial No. 734,977. (No specimens.)

Claim.—The herein-described process for the production of soluble potassium salts from felspar (orthoclase) said process consisting in heating a finely-powdered mixture, in suitable proportions, of felspar (orthoclase), lime, and common salt to a sufficient heat to cause reaction without melting or fusion, substantially as herein set forth, for the purposes specified.

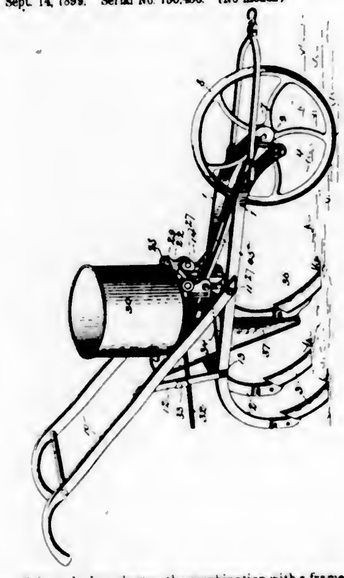
641,407. SASH-FASTENER. EDWARD L. SCHACHT, Chicago, Ill. Filed May 22, 1899. Serial No. 717,790. (No model.)

Claim.—1. A fastener comprising two flexibly-connected links, one of which is provided with an aperture *h* and a depression *j*, and the other with means for attaching it to a window-sash or the like, a fixture adapted to be attached to a window-sash or the like and having a threaded aperture and also having a lug provided with a head shaped in conformity to and adapted to pass through the aperture *h* of the link, and a screw bearing in the threaded aperture of the fixture and adapted to enter the depression *j* of the said link, substantially as specified.



2. In a sash-fastener, the combination of lower and upper sashes, two flexibly-connected links, one of which is provided with an aperture *h*, means connecting the other link to one sash, and a fixture connected to the other sash and having a lug provided with a head shaped in conformity to and adapted to pass through the aperture *h* of the link, substantially as specified.

641,408. PLANTER. JAMES D. SCHOFIELD, Dallas, Tex. Filed Sept. 14, 1899. Serial No. 730,458. (No model.)



Claim.—1. In a planter, the combination with a frame; a ground-wheel; an axle for the same having cranked portions at each side of said wheel; a rear transverse bearing; a counter-shaft journaled therein; a gear-wheel; and opposite end cranks on said shaft; and connecting-rods between the cranks of the axle and those of the counter-shaft, the same being arranged between the side bars of the frame; of a hopper, and a feed mechanism carried thereby and comprising a gear-wheel meshing with that of the drive mechanism of the frame.

2. In a planter, the combination with the opposite side bars; the cranked axle; the ground or drive wheel mounted thereon; a yoke arranged between and bolted at its opposite sides to the said side bars; an arm extending rearwardly from and secured to the yoke, and provided with a transverse bearing; a counter-shaft journaled therein; a beveled gear; and end cranks carried by the counter-shaft; and connecting-rods between the cranks of the axle and the end cranks of the counter-shaft; of a hopper; and a feed mechanism carried by the hopper, said mechanism comprising a beveled gear adapted to mesh with and be driven by the beveled gear of the counter-shaft.

3. In a planter, the combination with the opposite side bars downwardly curved at their rear ends to form shovel-standards; shovels mounted thereon; a yoke-frame arranged between and bolted to said side bars, and provided with a central opening; a pair of diagonal braces connected to the said side bars in rear of the said yoke and having their front ends extended through and beyond the opening in the yoke-frame; and a shovel-carrying standard clamped and bolted between said ends; of a feed-spout embraced by the said braces and secured to the said shovel-carrying standard.

4. In a planter, the combination with the frame; a yoke-frame, provided with upper and lower openings arranged between and bolted to the side bars of the said frame; and provided at its upper end with bearing-openings; of a central shovel-carrying standard secured within the lower opening of the yoke-frame; a bracket-arm having a transverse bearing secured within the upper opening of the yoke frame; a counter-shaft arranged in the bearing; a gear, and end cranks carried by the shaft; a cranked axle; a drive-wheel carried thereby; connecting-rods between the cranks of the axle and the end cranks of the counter-shaft; a superimposed hopper; lugs extending therefrom and journaled in the said bearing-openings at the upper end of the yoke-frame; and a feed mechanism carried by the said hopper and comprising a gear-wheel adapted to engage with the gear-wheel of the counter-shaft; and means for raising and lowering the said hopper and supporting the same in either of its positions.

5. In a planter, the combination with the opposite side bars; of a yoke-frame located between and bolted to the said bars; and a hopper having opposite trunnions in front of its center journaled in said bearings; and means for raising and lowering the said hopper.

6. In a planter, the combination with the opposite side bars; and a yoke-frame located between and bolted to the same; said yoke being provided with outwardly-projecting angular lugs 21; and with forwardly-projecting ears 25; of opposite plates 22, provided with openings 23 for said lugs, bolt-holes 24, and bearing-openings 26; bolts connecting the said holes with the ears; and a hopper having opposite trunnions journaled in the bearing-openings of the plate.

7. In a planter, the combination with the opposite side bars; and the transverse casting or yoke arranged between and bolted to the same, said casting or yoke being provided with angular lugs; of bearing-plates removably secured upon the lugs; and a hopper having bearing-trunnions arranged in openings in the said plates.

8. In a planter the combination with a frame comprising opposite side bars; and the casting 14 located between and bolted thereto, said casting comprising the flanged feet 15, the opposite side openings 16, the upper central opening 17, having the flange 19, the lower opening 20, angular studs 21, and the forwardly-projecting slotted ears 25; of the cranked axle, and its drive-wheel; the bracket-arm 40, provided with a transverse bearing; the bolt 39 passing through the front end of the bracket-arm and the flange 17; the counter-shaft arranged in the bearing of the bracket-arm; the gear-wheel and end cranks thereon; the connecting-rods passed through the openings 16 and connecting the end cranks and the cranks of the axle; the opposite diagonal braces bolted to the side bars in rear of the yoke and having their front ends passed through and beyond the lower central opening in the yoke; the shovel-carrying standard extended at its upper end through the lower central opening of the yoke and between the front ends of the braces; and bolts clamping the front ends of the braces and said standard; a superimposed hopper provided with opposite bearing-trunnions; and opposite plates having openings for the trunnions and provided with angular openings for the reception of the angular studs 21; and bolts passed through the said plates and slots in the forwardly-projecting ears 25.

9. In a planter, the combination with a frame; and a driving mechanism carried thereby, and comprising a beveled gear; of a hopper having a central flanged opening in its bottom; a bridge-piece spanning the same; a threaded stud rising from the said bridge-piece and surrounded by a track; and a beveled gear mounted on the track surrounding the stud and journaled on the said stud, said gear being in mesh with the gear of the driving mechanism and adapted to support a corn or cotton feed plate or disk.

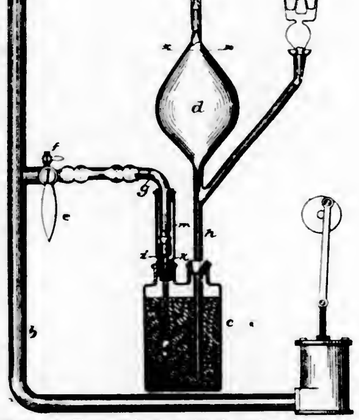
10. In a planter, the combination with a frame; and a drive mechanism carried thereby; of a hopper having a cotton-seed discharge at one side thereof; a vertically-yielding rotatable cotton-seed feed located in the hopper; and means for conveying motion to the same from the driving mechanism.

11. In a planter, the combination with a frame; and a driving mechanism carried thereby; of a hopper having a cotton-seed-discharge opening at one side of its center; a vibratory cotton-seed feed located therein; a rotatable cotton-seed disk located in the hopper; means for conveying motion from the driving mechanism to the disk; and means for yieldingly retaining the latter in the bottom of the hopper.

12. In a planter, the combination with a frame; and a driving mechanism carried thereby; of a hopper having a feed-slot; a vibratory feed device mounted therein; a gear journaled in the hopper; means for conveying motion from the drive mechanism to said gear; and a cotton-seed disk carried by the gear, said disk comprising a lower member mounted on the gear, and an upper member having radiating arms adapted to operate the vibratory feed, a central stem extending from the lower member upwardly through the upper member and terminating in a head, and a coiled spring surrounding the stem and interposed between the head thereof and the said upper member.

13. In a planter, the combination with the frame; and a driving-gear carried thereby and comprising the gear 44; of the hopper mounted in the frame, said hopper having a segmental cotton-seed-discharging opening; the central opening having a flange; the transverse bridge-piece; and the central stud and tracks 50 and 51, the cup-shaped gear-wheel mounted on the stud and the track 50 and meshing with the gear 44; the lower cotton-seed-disk member 82 secured to the cup-shaped gear, the hollow stem 85 and agitating-studs 90 and 91 rising therefrom; the upper member 87 having openings for the studs and stem and telescoping over the lower member and having the fingers 92; the head 86 at the upper end of the stem 85; the interposed spring 94; the hollow bolt 95; and the bolt 97 extending through the hollow bolt and threaded in the stud of the bridge.

641,409. AIR-PUMP. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 13, 1893. Serial No. 477,477. (No model.)



Claim.—1. The combination with the exhausting-chamber of a vacuum-pump, a chamber connected therewith, a body of mercury in said last-mentioned chamber, and means for alternately forcing the mercury into the exhausting-chamber and withdrawing it therefrom, of a valve or equivalent device controlling the application of pressure to the mercury to force it into the exhausting-chamber, and a float adapted to dip into the mercury controlling the said valve, said float being placed to close the valve to restrict the flow of pressure fluid and thereby of mercury when the exhausting-chamber is nearly full of mercury, substantially as described.

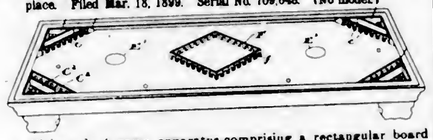
2. The combination with the exhausting-chamber of a vacuum-pump, a mercury-chamber, a tube connecting the mercury-chamber with the exhausting-chamber, and an inlet to the mercury-chamber adapted to admit air to force the mercury into the vacuum-chamber, a valve controlling the air-inlet and thereby the rate of flow of the mercury, and a float in the mercury adapted to close the said valve to restrict the flow of mercury when the mercury has nearly filled the exhausting-chamber, whereby the mercury is permitted to

flow rapidly into the exhausting-chamber until the same is nearly filled and its flow is thereafter retarded, as described.

3. The combination with the inlet for the air to the vessel for the mercury of an air-pump, of a float-valve in said inlet supported by the mercury so that as the mercury is lowered within the vessel the valve partially closes the inlet for the air and thereby retards the flow, substantially as and for the purpose specified.

4. The combination with a mercury vacuum-pump, of a vessel of mercury connected with the exhausting-chamber thereof, an air-passage leading into said chamber, and a valve controlled by a float in the said vessel of mercury and constructed when seated to restrict the flow of air through said passage and thereby to reduce the rate of flow of the mercury into the chamber, whereby the flow of mercury into the chamber is retarded after a predetermined point, substantially as described.

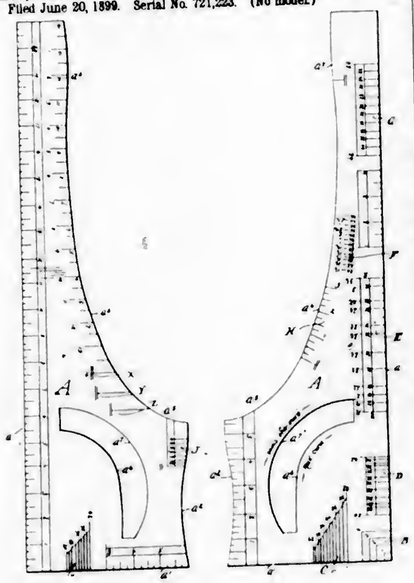
641,410. GAME APPARATUS. GEORGE A. SHAW, Toronto, Canada, assignor of one-half to William Egerton Lincoln Hunter, same place. Filed Mar. 18, 1899. Serial No. 709,648. (No model.)



Claim.—1. A game apparatus comprising a rectangular board and a straight cross-piece arranged across each angle of the board and provided with eight passage-ways or openings colored correspondingly to the colors of the rainbow plus an extra color and resilient rebounding-cushions extending along the sides and ends between the ends of the cross-pieces and a series of balls corresponding in number to the arches in each cross-piece and correspondingly colored, each of said balls being designed to be shot into its correspondingly-colored arch, substantially as described.

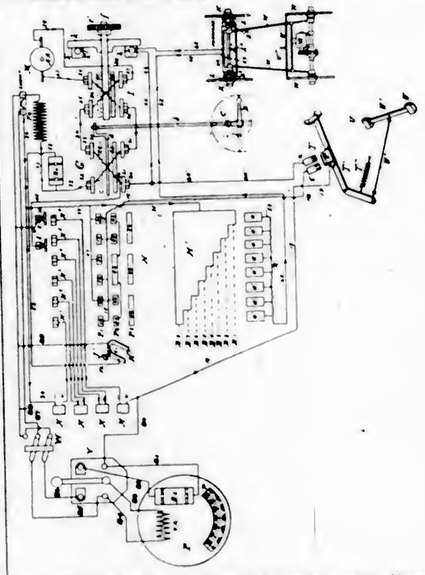
2. A game apparatus comprising a rectangular board having suitable bounding sides, the angular cross-pieces having eight arches correspondingly colored to the colors of the rainbow plus white, and forming four sides of the board, the intermediate sides provided with suitable rebounding-cushions, the centering-rings and the central rectangular frame supported upon the face of the table and having on each side eight arches correspondingly colored to the colors of the rainbow plus white, and the eight balls colored to correspond to the arches designed to be shot therein as and for the purpose specified.

641,411. DRESS-CHART. ZELDA G. SHELTON, Rockyford, Colo. Filed June 20, 1899. Serial No. 721,223. (No model.)



Claim.—A chart for drafting garments having a side edge a, and base-line a' extending from each other at right angles, the other side edge of the chart forming a compound curve a^3, a quick inward curve a^2, gradual curve a^4 and outward curve a^5, while the body of the chart is provided with an opening presenting a neck-curve a^6 and opposite arm-size curve a^7, together with the scales on opposite sides of the chart and arranged with respect to the edges of the chart in the manner shown and described.

641,412. SYSTEM OF ELECTRIC CIRCUITS AND BRAKES FOR VEHICLES. ELMER A. SPERRY, Cleveland, Ohio. Filed Sept. 16, 1899. Serial No. 730,692. (No model.)



Claim.—1. In a vehicle, a source of electrical supply, a dynamo-electric machine, used as both motor and generator, for braking, a reverse-switch in the armature-circuit of electric machine, a power-circuit, a brake-circuit, a conductor forming a part of each circuit, an ammeter located in the conductor between the machine and the said source of supply.

2. In a vehicle, a source of electrical supply, a dynamo-electric machine, used for both a motor and generator, for braking, a controller for the vehicle, a reverse-switch in the armature-circuit of the electric machine, a power-circuit, a brake-circuit, a conductor forming a part of each circuit, an ammeter located in the conductor between the field of the second machine and the said controller.

3. In a vehicle, a storage battery, a series motor, a reverse-switch in the armature-circuit, an ammeter in the outer field-circuit, a reverse-switch for the ammeter and a charging-terminal connected in circuit, between the ammeter and the motor.

4. In a vehicle, a moving controller, a series motor, a field-shunt for the motor, a contact for the shunt on the moving controller, connections from the field to the controller, an ammeter located in such connection and a conductor leading from said contact to the connection at a point between the ammeter and the field.

5. In a controlling system for electric vehicles, a motor, employed also as a generator, for braking, a source of electrical supply, a switch as T, located in the motor-circuit, a mechanical brake for the vehicle and a common actuator for the brake and the switch in combination with a shunt for the switch in the braking-circuit.

6. In a controlling system for electric vehicles, a motor, employed also as a generator, for braking, a source of electrical supply, a switch as T located in the motor-circuit, a shunt for the switch in the braking-circuit, a mechanical brake for the vehicle, a lever for controlling the brake and an operating connection from the lever to the switch.

7. In an electric vehicle, storage batteries, a motor for the vehicle, a charging-terminal for the batteries and two switches as G and T in series-circuit relation in the motor-circuit between the charging-terminal and the batteries, for the purpose specified.

8. In a vehicle, a battery, a meter-coil, an artificial resistance

adapted to be thrown in series with the meter-coil, a meter-shunt in the battery-circuit, a circuit from the coil to the shunt and a switch in the last-named circuit.

9. In a vehicle, a battery, a meter-coil, an artificial resistance adapted to be thrown in series with the meter-coil, a meter-shunt in the battery-circuit, a circuit from the coil to the shunt, a reversing-switch in the last-named circuit and an independent connection from the free end of the resistance to the battery.

10. In a vehicle, a battery, a meter-coil, an artificial resistance adapted to be thrown in series with the meter-coil, a meter-shunt in the battery-circuit, a circuit from the coil to the shunt, a reversing-switch in the circuit, an independent connection from the free end of the resistance to the battery and a switch in connection with the resistance.

11. In a vehicle, an electric generator, a meter-coil an artificial resistance adapted to be thrown in series with the meter-coil, a meter-shunt in the generator-circuit, a circuit from the coil to the shunt, an additional connection from the free end of the resistance to the generator-circuit and a switch connected for throwing the coil to the resistance or to the shunt.

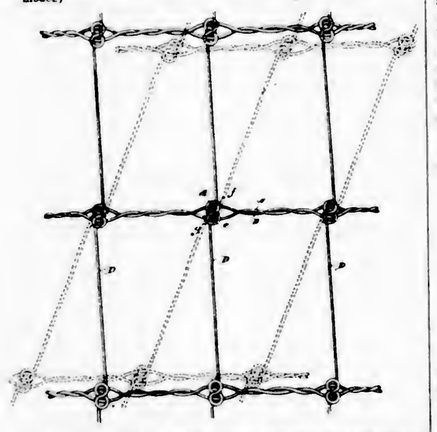
12. In a vehicle, an electric generator, a meter-coil, an artificial resistance adapted to be thrown in series with the coil, a meter-shunt in the generator-circuit and a circuit from the coil to the shunt, an independent connection from the free end of the resistance to the generator, with a switch-contact in each of the circuits, a third circuit from the free end of the meter-coil, to a suitable point on the generator-circuit, in combination with a two-scale face for the meter.

13. In a vehicle, an electric generator, a meter-coil, an artificial resistance adapted to be thrown in series with said coil, a charging-terminal for the generator, a meter-shunt in the battery-circuit, between the terminal and the generator, a circuit from the coil to the shunt, an independent connection from the free end of the resistance to the generator, a switch for the said two circuits, in combination with a reversing-switch between the meter-shunt and the aforementioned switch.

14. In an electric system, a plurality of electric generators, a parallel-series controller, provided with contacts for the generator-circuits, a translating device, a main circuit therefor, in combination with a switch, as T, having three or more terminals, one in connection with the parallel contacts of the said controller and another connected with one of the generators, substantially for the purpose specified.

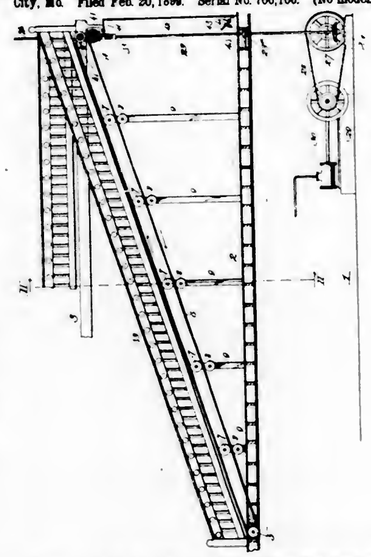
15. In a vehicle, a battery, a meter-coil, an artificial resistance, adapted to be thrown in series with the coil, a meter-shunt in the battery-circuit and a circuit from the coil to the shunt, an independent connection from the free end of the resistance to the battery, a switch in each of the circuits, a third circuit from the free end of the meter-coil to a suitable point on the battery-circuit, in combination with a switch, as into the last-named circuit.

641,413. WIRE FENCING. ARTHUR W. SPRAGUE, De Kalb, Ill., assignor, by mesne assignments, to the American Steel and Wire Company, Chicago, Ill. Filed Nov. 24, 1896. Serial No. 613,258. (No model.)



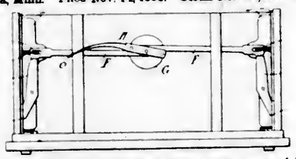
Claim.—A wire fencing comprising in combination a plurality of longitudinal cable-strands and a plurality of transverse ties or stays, said ties or stays each consisting of a single wire having its body portion crossed upon itself and twisted to provide oppositely-projecting loops lying in the same plane parallel with the plane of the fence, said crossed portions being offset from the plane of the body of the stay-wire and embraced by the cable-wires, the latter being twisted together between adjacent stays, substantially as described.

641,414. INCLINED ELEVATOR. FREDRICK S. STEWARD, Kansas City, Mo. Filed Feb. 20, 1899. Serial No. 706,106. (No model.)



Claim.—An inclined passenger-elevator extending from one floor of a building to another, comprising an inclined endless belt 6, a roller 5 engaged by said belt at its lower end, a drive-roller 4 engaging the upper end of the belt, a series of intermediate rollers 7 8 supporting the belt between said end rollers, a roller 21 below the drive-roller, intermeshing cog-wheels 19 20 secured upon the shafts of the drive-roller and roller 21 respectively, a beveled cog-wheel formed integral with cog-wheel 20, a driven shaft 23, a beveled cog-wheel 31 journaled thereon and meshing with the first-named beveled cog-wheel 22, a collar 33 upon the shaft above said journaled cog-wheel, a collar 34 upon the shaft below said cog-wheel, a clutch member 32 formed integral with said wheel, a companion clutch member 35 adapted to slide upon and rotate only with said shaft, and provided with an external groove 36, a collar 38 below the sliding clutch member, a spring 37 encircling the shaft and bearing against said collar and said sliding clutch member, a bifurcated lever 40 engaging the groove of said sliding clutch member, a toothed sector 45, a lever 43 pivoted thereto and adapted to engage one or another of the teeth of the sector, and a link-rod 42 connecting said lever with the clutch member, substantially as described.

641,415. SAFETY END-BOARD LOCK. HERMAN A. STREUK, Winona, Minn. Filed Nov. 14, 1898. Serial No. 696,476. (No model.)

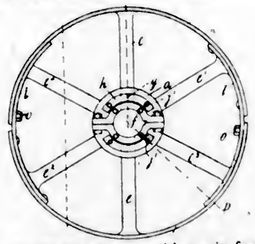


Claim.—1. The end-board lock for vehicles, comprising sliding ratchet or tooth-ended links or bars, a lever having eccentric or cam like connection with said links or bars, hooks on castings on the vehicle-body, and ratchet or tooth-ended levers adapted to engage the ratchet or tooth-ended portions of said links and slots or apertures in said castings substantially as specified.

2. The end-board lock for vehicles, comprising sliding ratchet or tooth-ended links or bars, a lever having a cam or eccentric like con-

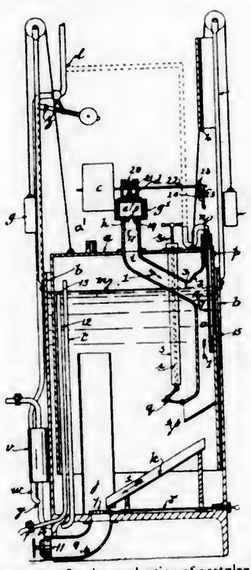
nection with said links or bars and having a bent-down handle portion provided with a hook adapted to take under, or engage, one of said links, hooks on castings on said vehicle-body, adapted to pass through slots in said links, and ratchet or tooth-ended levers adapted to intermesh or gear with the ratchets or teeth of said links, and engage slots in said castings, substantially as specified.

641,416. PULLEY. ARNOLD STROUD, London, England. Filed May 15, 1899. Serial No. 716,885. (No model.)



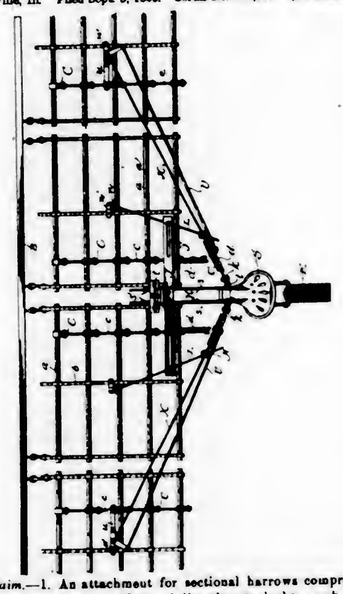
Claim.—An expansible pulley comprising a rim formed of plates adapted to slide over one another, spokes or arms secured to the outer plates of the rim and certain of said spokes or arms also secured to the inner plates and all the spokes passing through slots in said inner plates, the spokes having their inner ends slotted, a sectional pulley, hub or boss loosely receiving the slotted ends of the spokes or arms, wedges carried by the boss and adapted to enter the slots in the spokes and adjust said spokes and the rim-plates, and means for securing the sections of the hub and the wedges in position, substantially as set forth.

641,417. ACETYLENE-GAS APPARATUS. HENRI DE THIERSANT, London, England. Filed Sept. 6, 1898. Serial No. 690,285. (No model.)



Claim.—In apparatus for the production of acetylene gas in combination; an outer tank or holder for water, and an inner holder or gasometer adapted to move in said outer tank through the medium of suitable guides and counterpoises; a passage or tube in said gasometer containing a layer of oil; a flap operated by a rod or handle for closing said passage when required, a feeder consisting of a series of compartments closed by flaps and operated by clockwork mechanism for the purpose of delivering carbid as required; a slide or guide in the interior of said outer casing for delivering the carbid to the required position; a casing or split cylinder into which the carbid is delivered; a passage in said outer casing closed by a sliding door operated from the exterior and closed upon the exterior by a door or stopper, said passage being for the removal of the products; a filter through which the gas generated passes before consumption; an escape-tube operated by a valve through the medium of stop-piece upon the gasometer; a gradnated slide upon which a rotating stop-piece upon the clockwork-spindle engages in order to cause the stoppage of the clockwork mechanism; a sliding rod provided with a brush and adapted for the purpose of cleaning a transparent surface carried in the gasometer; a transparent surface carried in the outer casing so arranged as to correspond therewith when the gasometer is at or about the lower position in the gasometer.

641,418. HARROW ATTACHMENT. ELMER E. VOORHEES, Bloomingville, Ill. Filed Sept. 5, 1898. Serial No. 729,537. (No model.)



Claim.—1. An attachment for sectional harrows comprising a seat-support partly carried by, and directly attached to, each section of the harrow and a seat-post adjustably mounted on said support, substantially as described.

2. An attachment for sectional harrows comprising a seat-support partly carried by, and directly attached to, each section of the harrow and a seat-post loosely and adjustably connected to said support, substantially as described.

3. An attachment for harrows comprising a seat-support partly carried by the sections of the harrow, a seat-post having its lower end arranged to engage the under side of the support and a cross-plate to engage the upper side of said support, substantially as described.

4. An attachment for harrows comprising a seat-support, rods connected to the sections of the harrow and to said support, a cross-plate supported by said rods and connected with the seat-support and a seat-post mounted on said seat-support, substantially as described.

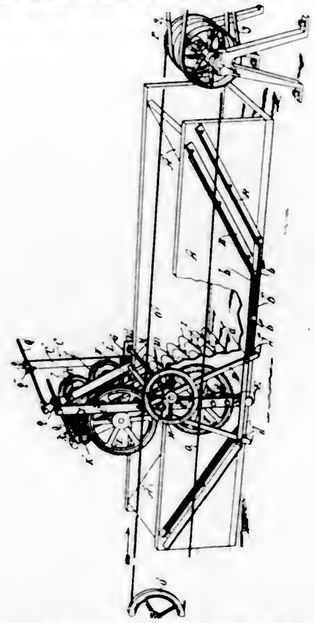
5. An attachment for harrows comprising a seat-support, rods connected with the sections of the harrow and said support, a cross-plate supported by said rods, the forward end of the seat-support being adjustably connected with said cross-plate, and an adjustable seat-post carried by said support, substantially as described.

6. An attachment for harrows comprising a cross-plate, a seat-support mounted on a caster-wheel at its rear end and having its forward end adjustably secured to said cross-plate and rods connected with the sections of the harrow and said seat-support and carrying the cross-plate, substantially as described.

7. An attachment for harrows comprising a cross-plate, a seat-support mounted on a caster-wheel at its rear end and having its forward end adjustably secured to said cross-plate and rods having a universal-joint connection at their forward ends with the sections of the harrow and at their rear ends with the seat-support and carrying the cross-plate, substantially as described.

8. A harrow attachment comprising a seat-support, rods extending from the harrow-sections to said support and partly supporting the same, said harrow-sections having rocking tooth-bars and a device carried by said rods for adjusting said tooth-bars, substantially as described.

641,419. AGITATOR. HENRY C. WHEELER, Winchester, Cal. Filed Nov. 16, 1898. Serial No. 696,636. (No model.)



Claim.—1. In an agitator, the combination set forth of a straight vat having inclined ends; a supporting-track arranged parallel with the bottom and the ends of the vat; a carrier adapted to travel upon the track; agitators revolubly supported on the carrier; means for operating the agitators; and means for operating the carrier.

2. In an agitator, the combination set forth of a straight vat having a horizontal bottom and inclined ends; a track arranged parallel with the bottom and having its ends inclined and arranged parallel with the ends of the vat; a carrier adapted to travel upon the track; agitators revolubly supported on the carrier; means for operating the carrier; and means for operating the agitators.

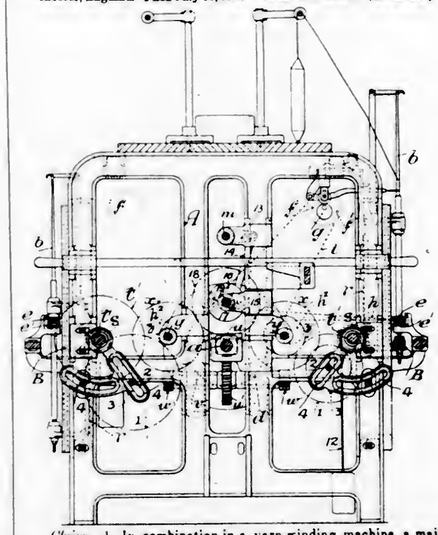
3. In an agitator, the combination set forth of a vat; a track having inclined ends; a supplemental track arranged parallel with the inclined portion of the track; a carrier having supporting-wheels to travel upon the track, and guiding-wheels to travel on the supplemental track; agitators carried by the carrier; means for operating the carrier, and means for operating the agitators.

4. In an agitator, the vat; the main track having a portion of its length inclined; a carrier having wheels to travel on the track, and supporting-wheels embracing the track between them, the track being provided with openings for the passage of the supporting-wheels; agitators carried by the carrier; and a supplemental track arranged parallel with the inclined portion of the main track and adapted to guide the supporting-wheels when the driving-wheels are upon the inclined portion of the track, and to thereby hold the carrier in the same vertical position during its travel along the track.

5. In an agitator, the combination set forth of the vat; the track provided with the cog-rack; the carrier provided with the pinion meshing with the cog-rack; the first driving-shaft provided with the driving-pinion; the driven cog-wheel meshing with the driving-pinion; the gear-wheels connecting the driven cog-wheel with the pinion meshing with the cog-rack; the agitator-frame journaled or pivoted to the carrier-frame; the second driving-shaft journaled in the agitator-frame; the agitators journaled in the agitator-frame and adapted to be operated by the second driving-shaft; intermediate gearing connecting the second driving-shaft with the driven cog-wheel, one of such gears being journaled with its axis in line with the axis of the pivotal support of the agitator-frame; and means for rotating the first driving-shaft.

6. In an agitator, the combination set forth of a vat having inclined ends; a main track having its ends inclined to correspond to the ends of the vat; a supplemental track corresponding to the inclined ends of the track; a carrier having wheels to travel upon the main track, and guiding-wheels to travel upon the supplemental track when the carrier is traveling up the inclined portion of the main track; agitators carried by the carrier; means for operating the agitators; and means for propelling the carrier along the track.

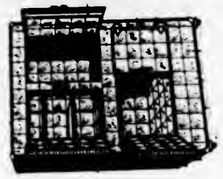
641,420. YARN-WINDING MACHINERY. JOHN D. WHYTE, Urmston, England, assignor to the Whytes Patents, Limited, Manchester, England. Filed July 10, 1899. Serial No. 723,385. (No model.)



Claim.—1. In combination in a yarn-winding machine, a main driving-shaft *a*, a driving-cylinder *d* thereon, spindles *b* having fast and loose wharves, a band from the driving-cylinder for driving said wharves, a yarn-guide, a cone-cam having fast and loose pulleys for vibrating the yarn-guide, a band from the cylinder for driving said pulleys, a counter-shaft *t*, a reduced train of gearing from the shaft *a* for driving said shaft, a clutch interposed between said counter-shaft and gearing, a pinion *s* operated thereby, a rack *r* meshing with said pinion *s* and connected with the spindle-carriage, a vertical rod *n* adapted to shift the driving-bands of the spindle and cone-cam onto the loose pulley and wharve and to disengage the clutch 5, a drop-finger *j* for operating said bar on the breakage of a thread and a connecting-rod and treadle for returning the parts to normal position, substantially as described.

2. In a yarn-winding machine, means for effecting the lowering of the spindle-carriage comprising a counter-shaft, a reduced train of gearing for driving said counter-shaft from the main shaft, a clutch carried by said counter-shaft and a loose pinion meshing with a rack on the spindle-carriage, a clutch half or section connected to said loose pinion, a sliding clutch-half on said counter-shaft, a yoke connected to said sliding clutch-half and rock-shaft for operating said yoke, substantially as described.

641,421. REFRIGERATOR. FREDERICK A. WILKE, Richmond, Ind., assignor to The Wilke Manufacturing Company, Anderson, Ind. Filed May 15, 1899. Serial No. 716,838. (No model.)

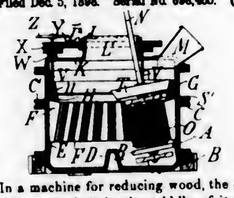


Claim.—1. A double-wall tile refrigerator consisting of an intermediate frame having glazed tile blocks applied to the outside and inside thereof and secured thereto, by means of fastening devices inserted between the meeting edges of the blocks and tapping into the abutting sections of the intermediate frame on opposite sides thereof, substantially as specified.

2. A double-wall tile refrigerator consisting of an intermediate skeleton frame, having tile blocks applied to the outside and inside thereof, and secured thereto by means of fastening devices inserted between the meeting edges of the blocks abutting the ribs of the skeleton frame and tapping into the same from opposite sides whereby a jacket-space is provided between the tile walls and intermediate ribs of the frame, substantially as specified.

3. A double-wall tile refrigerator consisting of an intermediate skeleton frame, having tile blocks applied to the outside and inside thereof, and secured thereto by means of fastening devices inserted between the meeting edges of the blocks abutting the ribs of the skeleton frame and tapping into the same from opposite sides, the outside corner edges having overlapping covering-strips secured to the intermediate frame substantially as described.

641,422. PENDULUM-MILL. JULIUS WÜSTENHÖFER, Hagen, Germany. Filed Dec. 5, 1898. Serial No. 698,405. (No model.)



Claim.—1. In a machine for reducing wood, the combination of a circular trough having a hub in the middle of its bottom and a shoulder around its inner circumference near its bottom, a ring on the said trough having a flange projected inwardly, knives held in place between the said shoulder and flange, a cover on top of the said ring, a feed-chute secured to the cover, a neck on the cover and having a central opening, a pendulum-shaft, a cutter-roller on the free end of the shaft, an internal solid core for said cutter-roller, ring-knives and plain rings alternating with each other on the core, a disk on the shaft below the roller, stirrers on the shaft one above and the other below the outer roller, a conical guide-roller on the shaft above the upper stirrer and a guide-ring on the trough for the guide-roller substantially as described.

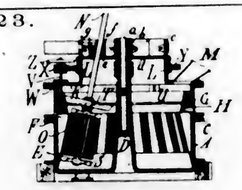
2. In a machine for reducing wood the combination of a circular trough having a hub in the middle of its bottom and a shoulder around its inner circumference near its bottom, a ring on the said trough having a flange projected inwardly, knives held in place between the said shoulder and flange, a cover on top of the said ring, a neck on the cover and having a central opening, a gear-wheel movable on said neck, a series of screw-threaded spindles provided at their upper ends with pinions which engage the said gear-wheel, a hand-wheel on one of the said spindles, a conical guide-ring suspended by said spindles, a conical guide-roller arranged for contact with the inclined inner face of said guide-ring, a shaft having the said guide roller fast thereon, means for causing the said shaft and roller to travel around the inner circumference of the said guide-ring, knives carried by the said shaft and cooperating with the fixed knives of the ring first above mentioned, and stirrers also carried by the said shaft, the said spindles passing through screw-tapped fixed parts and engaging the same, in order that the said guide-ring may be adjusted upward or downward at will substantially as set forth.

3. In combination with a circular series of fixed knives and a series of rotating knives coacting therewith, a shaft carrying the latter knives, a guide-roller on said shaft, a guide-ring internally in contact with the said roller, adjusting devices for raising and lowering the said ring and means for rotating the said shaft and causing the said roller to travel around the interior of the said guide-ring substantially as set forth.

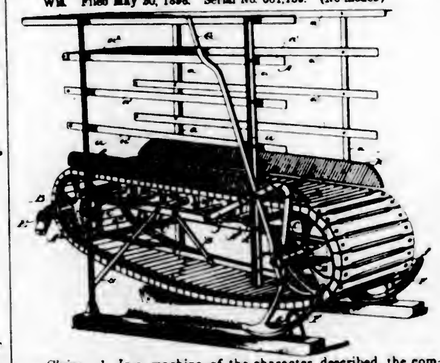
641,423. PENDULUM-MILL. JULIUS WÜSTENHÖFER, Hagen, Germany. Filed Dec. 5, 1898. Serial No. 698,406. (No model.)

Claim.—In a machine for reducing materials the combination of a trough A, a ring G, and a cover K, with a neck L on said cover, with a pulley *c*, a pin *a* holding said pulley, of a column D, rising from the bottom of the trough A, the pulley resting with its rim upon the edge of neck L, a slot *e*, in the disk *d* of said pulley and stays *g* therein, slide-blocks *f* guided in said stays and for the pendulum-shaft N, passing through said slide-blocks *f* and slot *e*, in the pulley, the whole as described and illustrated and for the purpose set forth.

641,423.



641,424. ANIMAL-POWER. ROBERT ZIEBELL, Sheboygan Falls, Wis. Filed May 20, 1898. Serial No. 681,189. (No model.)



Claim.—1. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support with its forward end suitably maintained upon said main frame, an endless apron or tread, the shafts or axes of whose bearing or sprocket wheels are carried by said auxiliary frame, segments eccentrically mounted upon the rear one of said axes or shafts, and arranged to contact with the surface, or their supports, at a point below said apron or tread, to permit the vertical adjustment of the rear end of said apron or tread and means for holding in position and effecting the actuation of said segments, substantially as set forth.

2. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support, with its forward end suitably mounted on said main frame, an endless apron or tread, the shafts or axes of whose bearing or sprocket wheels are carried by said auxiliary frame, segments eccentrically mounted upon the rear one of said axes or shafts, and arranged to contact with the surface, or their supports, at a point below said apron or tread, to permit the vertical adjustment of the rear end of said apron or tread, a hand-lever connected to said segments, and means for effecting the retention and adjustment of said lever in position, substantially as specified.

3. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support, with its forward end suitably carried by said main frame, an endless apron or tread, the shafts or axes of whose bearing or sprocket wheels are carried by said auxiliary frame, the segments eccentrically mounted upon the rear one of said axes, and arranged to contact with the surface, or their supports, at a point below said apron or tread, to permit the vertical adjustmeut of the rear end of said apron or tread, a substantially V-shaped bracket suitably supported in position, and a hand-lever connected to one of said segments and adapted to be retained and adjusted in position in connection with said bracket, as specified.

4. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support with its forward end suitably mounted and maintained upon said main frame or support, an endless apron or tread, the shafts or axes of whose sprocket or bearing wheels are carried by said auxiliary frame or support, the segments eccentrically mounted upon the rear one of said shafts or axes and arranged to contact with the surface, or their supports, at a point below said apron or tread, to permit the vertical adjustment of the rear end of said apron or tread, a substantially V-shaped serially-perforated bracket, suitably supported in position, a hand-lever connected to one of said segments, and an adjusting pin or device adapted to adjustably engage said lever with said bracket, all as described.

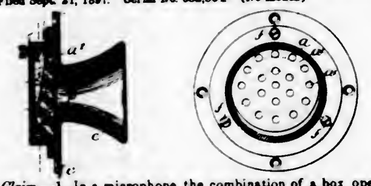
5. In an animal-power the combination with a main frame with vertical uprights on which the machine is supported in front, an auxiliary frame, and means by which it is supported and may be adjusted vertically in the rear, sprocket or pulley wheels, an endless apron or tread, and cleats or bars provided with means for receiving the front uprights, and at the rear with cut-out portions to receive the eccentrically-pivoted segments, substantially as described.

6. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support, suitably supported upon said main frame, an endless apron or tread, sprocket-wheels for said apron or tread, having their shafts or axes supported in the apertured forward and rear end bars of said auxiliary frame or support, segments eccentrically mounted upon the rear one of said shafts or axes and arranged to contact with the surface, or their supports, at a point below said apron or tread, to permit the vertical adjustment of the rear end of said apron or tread, and means for the retention and adjustment in position of said segments, substantially as set forth.

7. In a machine of the character described, the combination of a main frame or support, with an auxiliary frame or support, having its forward end suitably mounted and maintained upon said main frame, and provided with a series of inwardly-extending lateral axes or shafts bearing antifriction-rolls, an endless apron or tread, sprocket-wheels for said apron or tread, having their shafts or axes supported in the apertured end bars of said auxiliary frame, segments eccentrically mounted upon the rear one of said axes or shafts, a hand-lever connected with one of said segments and a V-shaped serially-apertured bracket, with an adjusting pin or device to engage said lever with said bracket, substantially as set forth.

8. In a machine of the character described, the combination of a main frame or support, an auxiliary frame or support with its forward end suitably maintained upon said main frame or support, an endless apron or tread, the shafts or axes of whose bearings or sprocket-wheels are carried by said auxiliary frame, segments eccentrically mounted upon the rear one of said axes or shafts, means for effecting the retention and adjustment in position of said segments, and cleats or bars provided with cut-out portions to receive said segments at their lower end, substantially as set forth.

641,425. MICROPHONE. JULIUS O. ZWARG, Freiberg, Germany. Filed Sept. 21, 1897. Serial No. 652,504. (No model.)



Claim.—1. In a microphone the combination of a box open at the front containing granular carbon, a plate closing the front of said box and provided with a central hole for the mouthpiece, a back plate *b* provided with a feed-opening for granulated carbon opposite the thickest part of the carbon mass, a diaphragm clamped between said front plate and box and a disk against said diaphragm provided with numerous holes or passages from back to front, the mass of carbon contained within the said box being arranged to communicate with the said holes and supply the same and being also of downwardly-tapering form as to thickness, substantially as set forth.

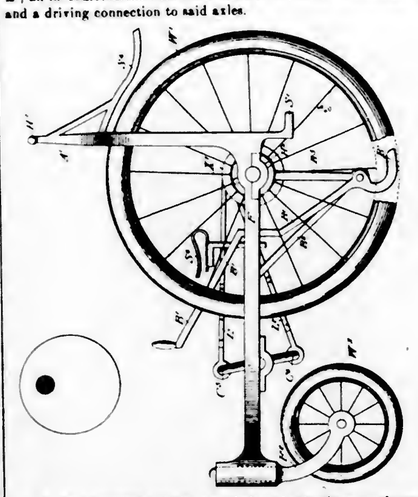
2. In a microphone the combination of a box open at the front containing granular carbon, a plate closing the front of said box and provided with a central hole for the mouthpiece, a diaphragm clamped between said plate and box and a disk against said diaphragm provided with tubular holes from back to front inclined downward, said diaphragm increasing in thickness from top to bottom, substantially as set forth.

3. In a microphone the combination of a box containing granular carbon provided with a feed-opening near its periphery at the point normally held uppermost, and a screw adapted to close said opening and to act as an electric conductor, substantially as set forth.

4. In a microphone, the combination of a diaphragm and mouthpiece with a perforated disk in contact with the said diaphragm and having its rear face inclined downward and rearward and a box containing the carbon and the said perforated disk, the said box being provided with a feed-opening which supplies the upper part of the downwardly-tapering space left by said disk and with means for closing the same, substantially as set forth.

641,426. TRICYCLE. ARTHUR M. ALLEN, New York, N. Y. Filed June 16, 1897. Serial No. 641,062. (No model.)

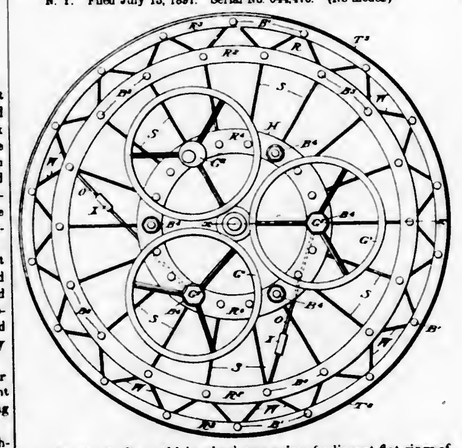
Claim.—1. The frame F arches A', A^3, road-wheels W' W^3, provided with cranks C', C^2, C^3, C^4, each arranged between one side of its road-wheel and the inside of its arch, hind seats S^6, S^9, and axles A^4, all in combination with front seats S^4, S^7, caster road-wheel W^2, and a driving connection to said axles.



2. In a wheeled vehicle, an axle bent in six places as shown, its central parts secured in the tubular hub of a road-wheel by clips, the two next parts serving for cranks, and the two ends being in line, and resting in bearings, in the ends of an arched frame, which thereby is supported on the road-wheel.

3. In a wheeled vehicle, two road-wheels rigidly fixed on one axle, in combination with a wheel-frame, and one road-brake mounted on each side of said frame, close to each wheel, whereby either or both wheels may be lifted clear from the ground.

641,427. WHEEL AND AXLE. ARTHUR M. ALLEN, New York, N. Y. Filed July 13, 1897. Serial No. 644,470. (No model.)



Claim.—1. In a vehicle-wheel, two pairs of adjacent flat rings of different diameters, secured by bolt connections, and serving for the hub and rim respectively, in combination with eyebars arranged for spokes on transverse pivots in the rings.

2. In a vehicle-wheel, a hub and a rim, connected by eyebars for spokes, and provided with oblique adjustable braces, between the hub and rim for tangential tension.

3. The hub H rim P and spokes S in combination with oblique braces O and means to adjust their tension.

4. In a vehicle-wheel, an axle with collars fixed thereon, in combination with grooved wheels mounted, either in the frame, or on extensions from the sides of the hub, and cooperating with the axle-collars to support the frame, and reduce friction.

5. In a vehicle-wheel, a rigid metallic tire, composed of a metallic tread arranged over, and secured to, the edge of a flat metallic ring, to independently maintain the true circular shape, in combination with a road-wheel rim, and an elastic connection thereto.

6. In a vehicle-wheel, two flat rings with one metallic tread, fixed transversely on both outside edges, in combination with a road-wheel rim, and an elastic connection thereto.

7. In a vehicle-wheel, a metallic arch-tread with two flat rings supporting it on their edges, and an elastic connection to the rim.

8. Tire T with tubes I^v in combination with elastic strap W, and the body of the wheel.

9. Tread T^3 side rings R^3, tube I^v with projections I^{v4} and bolts B^v in combination with elastic strap W and the rim.

10. Elastic strap W, in combination with tube projections I^{v4} on tire-tubes I^v and projections P^3 on rim-tubes R^3.

11. In a vehicle-wheel, an axle with two collars fixed thereon, in combination with grooved wheels pivoted on projections from the hub ends, and arranged to run on the collars to retain the wheel in position sidewise, and to reduce friction.

12. In a vehicle-wheel, a barrel-hub with three equidistant transverse projections, on each end, and six wheels mounted thereon, which inclose, and rest on the axle between them.

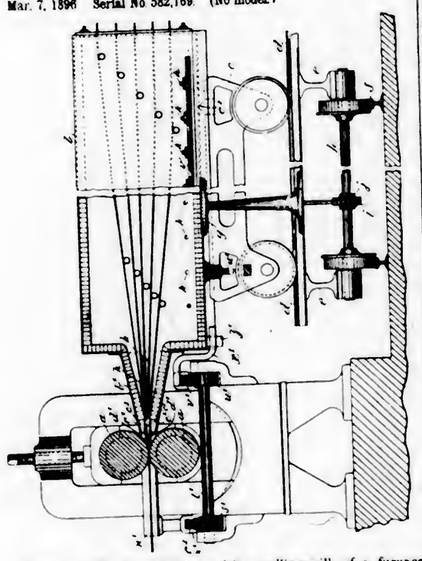
13. In a vehicle-wheel, six grooved wheels G' mounted on projections, three on each side of the hub, in combination with axle A, and collars A^2.

14. In a vehicle-wheel, eccentric sleeve G^2, in combination with grooved wheel G' and bolt B^4 for exact adjustment of wheels G' in collars A^2.

15. In a vehicle-wheel, offset axles C and hub H and means to secure them together.

16. Offset axles C, hub H and bolts B^5 arranged in a vehicle-wheel as shown.

641,428. METHOD OF AND APPARATUS FOR HOT-ROLLING METAL TO THIN GAGES. THOMAS V. ALLIS, New York, N. Y. Filed Mar. 7, 1896. Serial No. 582,169. (No model.)



Claim.—1. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and edge-guides for directing the strips through the rolls, the furnace being adjustable back and forth at right angles to the rolls, and controlled in said adjustment by tracks or guides, substantially as described.

2. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and edge-guides for directing the strips through the rolls, the furnace being adjustable laterally and parallel with the axes of the rolls and controlled in said adjustment by tracks or guides, substantially as described.

3. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and edge-guides for directing the strips through the rolls, the furnace being adjustable both at right angles to, and parallel with the axes of the rolls and controlled in said adjustments by tracks or guides, substantially as described.

4. The combination of a rolling-mill, a furnace for heating strips or bars while being fed into the rolls, and an air-excluding feedway for the strips extending from the body of the furnace to close proximity with the rolls and thereby adapted to continue the application of hot gases and flame to the point of reduction and between the rolls, also to exclude air from the passing strips or bars, also to keep them hot, and also to heat the rolls, substantially as described.

5. The method of rolling metal which consists in heating strips or bars while being fed into the rolls and protecting said strips or bars from air while issuing from the furnace and entering the rolls by an envelop of hot gases and flame, substantially as described.

6. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, the feedway prolongation of said furnace extending to or into the gap between the rolls, and the edge-guides for controlling the alinement of the strips, said furnace and feedway being mounted on a truck or guides and thereon movable up to and away from the rolls substantially as described.

7. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and the feedway prolongation of said furnace extending to or into the gap between the rolls, the furnace being adjustable laterally and parallel with the axes of the rolls on trucks or guides substantially as described.

8. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and the feedway prolongation of said furnace extending to or into the gap between the rolls, the furnace being mounted on a truck or guides and thereon movable up to and away from the rolls, and also back and forth laterally to the rolls substantially as described.

9. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, of the feedway prolongation of said furnace extending to or into the gap between the rolls, and guide attachments to the mouth of said feedway, substantially as described.

10. The combination with the mouth extremity of the feedway prolongation of the furnace, and with the rolls, of the tapered edge-guides for the strips or bars detachably connected with the sides of said feedway, and intermediate means of adjustment, substantially as described.

11. The combination with the inlet-opening in one end of the furnace for the strips or bars, of the horizontally-moving door for access to the furnace having the separating and guiding slots in the opening and closing edge, substantially as described.

12. The combination with the inlet-opening in one end of the furnace for the strips or bars, of the door having the separating and guiding slots, and the detachable and adjustable edge-guides, located relatively to said slots for guiding the strips and sustaining the wear of the strips substantially as described.

13. The combination with a furnace adapted to heat strips or bars while being fed into the rolls, of the cross guides for separating the strips or bars, removably inserted in holes in the sides of the furnace substantially as described.

14. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being movable laterally to the rolls, and a discharging-guide for the rolled product coupled with the furnace coincidently with the feeding-guide and movable laterally in unison therewith, substantially as described.

15. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being movable laterally to said rolls, the discharging-guide for the rolled product, the laterally-sliding support for said guide, the laterally-sliding bar coupled to said furnace, and the gear connecting said bars for synchronous action, substantially as described.

16. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being movable laterally to said rolls, and also forward and backward thereto, the discharge-guide for the rolled product, the laterally-sliding support for said guide, the laterally-sliding bar coupled to said furnace, and the gear connecting said bars for synchronous action, the connecting devices of said bar with the furnace being adapted for automatic connection and disconnection through moving the furnace up to and away from the rolls, substantially as described.

17. The combination with the rolls and the guide extension of the furnace, of the metallic guide-pieces in the mouth of said extension having grooves for gases, substantially as described.

18. In the art of reducing metallic strips in packs, the method of graduating the entering end of the pack to insure its entry between the rolls, and the reduction of the pack by a single pass between the rolls by arranging the ends of the plates or strips one in advance of the other, and fastening them together so that the plates cannot slip one upon the other, substantially as described.

19. The herein-described improvement in rolling packs of metal stripe which consists in shingling the end of the pack to insure its entry into the bite of the reduction-rolls of a rolling-mill, and fastening said shingled ends to prevent any movement or disarrangement of said stripe in passing into the bite between said rolls, substantially as described.

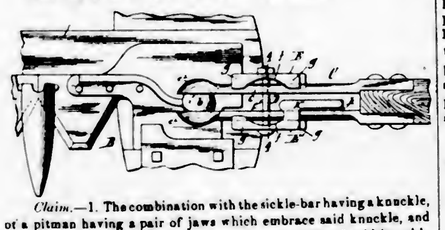
641,429. FEED FOR PLANTERS. EDWIN T. BASKIN, Malta Bend, Mo. Filed Oct. 14, 1899. Serial No. 733,855. (No model.)



Claim.—1. In a device of the character described the combination of a stationary knob having a socket therein, a cylinder having perforations or recesses in its periphery, said cylinder adapted to retain a ball loosely seated within said sockets, and plates inclosing the sides of the cylinder and spaced apart at the top and bottom thereof, for the purpose and substantially as described.

2. In a device of the character described the combination, with a hopper, of plates secured to the bottom thereof, a knob, a cylinder mounted on said knob and between the plates, a ball loosely mounted within a socket in the knob and adapted to register with recesses formed within the periphery of the cylinder, and means for revolving said cylinder upon the knob, said plates adapted to retain seed within the recesses of the cylinder when revolving in either direction, substantially as described.

641,430. COUPLING FOR MOWERS. HARRY F. BONESTEELE, Shannon, Mont., assignor of one-half to Ernest F. Greene, Buffalo, N. Y. Filed May 8, 1899. Serial No. 716,047. (No model.)



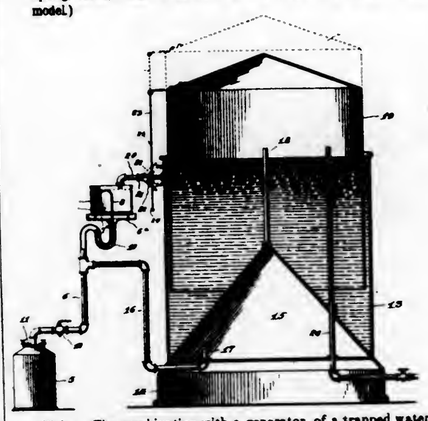
Claim.—1. The combination with the sickle-bar having a knuckle, of a pitman having a pair of jaws which embrace said knuckle, and a transverse bolt passing through said jaws in rear of said knuckle and provided with a rotary locking button or cam which bears against the outer side of one of said jaws, said button being provided on its inner face with a raised portion adapted to bear against the outer side of said jaw, for closing the jaws, and a recessed or depressed portion adapted to be turned in line with said jaw, for allowing the jaws to open, substantially as set forth.

2. The combination with the sickle-bar having a knuckle, of a pitman having a pair of jaws which embrace said knuckle, a transverse tie-bolt passing through said jaws in rear of said knuckle, and rotary locking buttons or cams applied to said bolt on the outer sides of said jaws, each of said buttons being provided on its inner side with a transverse groove adapted to receive the adjacent jaw for allowing the jaws to open, and on opposite sides of said groove with raised portions adapted to bear against said jaw for holding the jaws in their closed position, substantially as set forth.

3. The combination with the sickle-bar having a knuckle, of a pitman having a pair of jaws which embrace said knuckle and which are provided with convex outer sides, a transverse tie-bolt passing through said jaws in rear of said knuckle, and rotary locking buttons or cams applied to said bolt on the outer sides of said jaws, each of said buttons being provided with a transverse groove adapted to receive the adjacent jaw, and on opposite sides of said groove with raised portions provided with concave grooves or faces which are arranged at right angles to said transverse groove and adapted to bear against the convex outer side of the jaw, substantially as set forth.

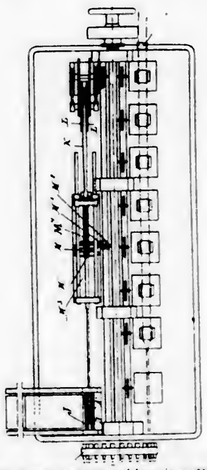
4. The combination with the sickle-bar having a knuckle, of a pitman having a pair of jaws which embrace said knuckle, a transverse tie-bolt passing through said jaws in rear of said knuckle, and rotary locking buttons or cams applied to said bolt on the outer side of said jaws and provided on their inner face with a raised portion adapted to bear against the outer sides of said jaws for closing the same and a recessed or depressed portion adapted to be turned in line with the jaws for allowing the same to open, one of said buttons having an elastic retaining-arm arranged to pass between said jaws and provided at its free end with a lip adapted to engage under the adjacent jaw, substantially as set forth.

641,481. ACETYLENE-GENERATOR. GEORGE S. BOWERS, Spring Grove, Minn. Filed July 22, 1899. Serial No. 724,811. (No model.)



Claim.—The combination with a generator, of a trapped water-supply pipe connected to said generator, a head-plate fixed to the upper end of said trapped pipe, a reservoir supported on the head-plate in spaced relation thereto and to the receiving end of said trapped pipe to leave an open space between said elements for the free circulation of air, a siphon having its long leg extended through the bottom of said tank, across the air-space and terminating in the trapped pipe, the short leg of the siphon terminating above the bottom of said reservoir, and a bell-controlled water-feed mechanism for supplying water to the reservoir on the rise and fall of the gas-bell substantially as described.

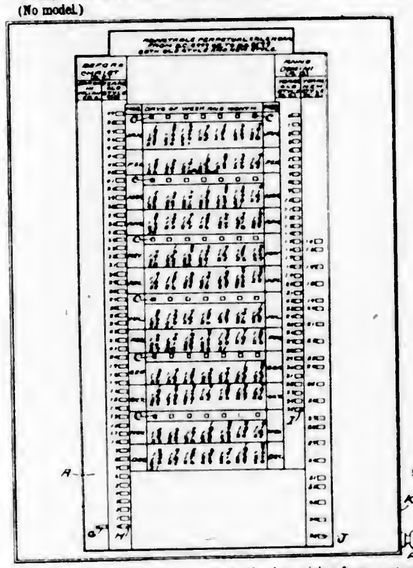
641,482. CIGARETTE-MACHINE. MAURICE BRAUNSTEIN and LOUIS CHAMBON, Paris, France. Filed Nov. 13, 1897. Serial No. 658,434. (No model.)



Claim.—1. In a machine for making cigarettes, the combination with means for holding a cigarette-tube, of a rotatable and longitudinally-movable rod carrying a helical wire in line with said tube, means for rolling a filler of tobacco around said wire, means for advancing the rod without rotation to insert the filler within the tube, and means for rotating the rod on its return movement whereby the wire is unscrewed from the filler without removing it from the tube, substantially as described.

2. In a cigarette-machine, the combination with the tube forming and holding mechanism, of the rotatable and longitudinally-movable rod arranged in line with the tube-holding mechanism, the helical wire carried on the end of said rod, means for rolling a filler upon said helical wire, a pitman having a rotatable connection with said rod, means for reciprocating said pitman to advance and retract the helical wire, half-nuts adapted to engage the screw-rod and means for causing said nuts to engage the screw-rod on the return movement of the screw-rod whereby the helical wire is unscrewed from the filler, substantially as described.

641,433. ADJUSTABLE PERPETUAL CALENDAR. SALMON A. BUELL, Minneapolis, Minn. Filed Dec. 19, 1898. Serial No. 699,882. (No model.)



Claim.—1. The combination, in a calendar, with a front part provided with groups of figures representing the days of the months, and with successive rows of week-day openings, with seven openings in each row, of a movable back part provided with characters representing the week-days in duplicate sets of rows that are progressively arranged, and means for guiding the movable part, whereby, as said movable part is moved the rows of week-day characters are shown at said week-day openings, substantially as and for the purpose set forth.

2. The combination, in a calendar, with a front part, provided with groups of figures representing the days of the month, and with successive rows of openings, with seven openings in each row, arranged in the described relation to said groups of figures, of a movable back part provided with duplicate sets or rows of week-day characters that are progressively arranged in series, as described, and means for guiding said movable part, substantially as and for the purpose set forth.

3. The combination, in a calendar, with a front part, provided with groups of figures representing the days of the months, with successive rows of openings, with seven openings in each row, arranged as described over the month-day figures, and provided also with two openings in the same row or in one of the same rows of subdivisions with and in the column of subdivisions next following the figures representing February 28, (said last-named openings being separated by one subdivision,) of a movable back part provided with duplicate sets or rows of week-day characters that are progressively arranged and with the figures "2" and "9" arranged each on the adjoining subdivision on either side of the middle week-day character in one set of the duplicate sets that are progressively arranged, and means for guiding the movement of said movable part, substantially as and for the purpose set forth.

4. The combination, in a calendar, with a front part, provided with groups of figures representing the days of the months, with successive rows of openings, having seven openings in each row, arranged over the month-day figures, as described, and provided also with two openings, in the same row, or in one of the same rows of subdivisions with and in the column of subdivisions next following the figures representing February 28, (said last-named openings being separated by one subdivision below and in the same column of subdivisions with the middle opening in the upper row of week-day openings) and provided also with one or more columns of openings preceded by figures or characters representing the hundreds and thousands of years, of a movable part provided with duplicate sets or rows of week-day characters that are progressively arranged, with seven characters in each set or row that are progressively arranged in the set or row, with the figures "2" and "9" arranged each in the adjoining subdivision on either side of the middle week-day character in one set of said duplicate sets that are progressively arranged, said movable part being also provided with columns of figures or characters representing the units and tens of the years, whereby when said movable part is adjusted to show, with figures on the front part, the number representing any year whether a common or leap year, the two parts will also show the days of the week and days of the month for that year, substantially as described and for the purpose set forth.

5. The combination, in a calendar, with a front part having century-numerals thereon and openings adjacent thereto; having numerals for the days of the months and openings adjacent thereto, and separate openings for the figures representing the 29th day of February, of a movable back part having week-day characters in duplicate sets that are progressively arranged, so that whenever week-day characters of one set of the duplicate sets appear through the openings in the front part corresponding to January and February, week-day characters from the other set of the duplicate sets appear in connection with the other months, said back part having also numerals for indicating the 29th day of February, and year-numerals so arranged that when they indicate the desired year in connection with the century-numerals the calendar is set correctly for that entire year, substantially as described.

6. The combination, in a calendar, with a front part provided with groups of figures representing the days of the months, and having successive rows of openings C for the week-day characters that with such figures complete the calendar for each month, and having separate openings for the figures representing the 29th day of February, of a movable back part having week-day characters F in duplicate sets that are progressively arranged and also having the figures "2" and "9" arranged upon opposite sides of the middle character of each alternate set of the duplicate sets, said sets of week-day characters being progressively and continuously arranged and so related to the openings in the front part that when the week-day characters of one set of the duplicate sets appear through the openings in the front part for January and February, characters from the other set of the duplicate sets will appear in connection with the other months, and, on leap-years the figures "2" and "9" will appear in the February-29 openings, said front part also having year-openings, and said back part having numerals arranged in order thereon and so related to the sets of duplicate sets of week-day characters that placing the figures for any leap-year in said year-openings will arrange said week-day characters in proper relation to the figures representing the days of the months for that year.

7. A calendar comprising a back part bearing week-day characters in duplicate sets that are progressively, successively and regularly arranged and said part also bearing year-figures successively, but irregularly arranged, according to the kinds of years, and one set of each of said duplicate sets having the figures "2" and "9," in combination, with a face part bearing figures representing the days of the months, and having week-day, 29th-of-February and figured year perforations so arranged that the indications of the year, by the adjustment of the parts, completes the calendar for that year, whether a leap-year or a common year, substantially as described.

8. The combination, in a calendar, with a front part provided with suitable openings and calendar indications, of a movable back part provided with week-day characters in duplicate sets that are progressively arranged, and said back part being also provided with the figures "2" and "9" arranged upon opposite sides of a character of each alternate set, for the purpose set forth.

9. The combination, in a calendar, with a front part provided with calendar indications, and with means whereby the indications on the front part and the characters on the back part may coact, of a movable back part provided with duplicate sets of week-day characters that are progressively arranged, for the purpose set forth

10. In a calendar, the combination, with a front part bearing calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the characters on the back part can coact, of a back part provided with week-day characters in duplicate sets that are progressively arranged, so that whenever, for a common year, one set of a duplicate set coacts with said calendar indications upon the front part for January and February, the other set of the like duplicate sets will coact with the calendar indications upon the front part for the other months, substantially as described.

11. In a calendar, the combination, with a front part bearing calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the characters on the back part can coact, of a back part provided with week-day characters in duplicate sets that are progressively arranged, so that whenever, for a leap-year, one set of a duplicate set coacts with the calendar indications upon the front part for January and February, the other set of other duplicate sets, that next follow in the order of said progressive arrangement a duplicate set like the duplicate set of which one set coacts with the calendar indications upon the front part for January and February, will coact with other calendar indications upon the front part for the other months, substantially as described.

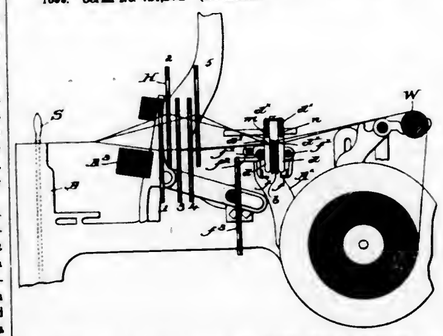
12. In a calendar, the combination, with a front part bearing calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the characters and figures on the back part can coact, of a back part bearing week-day characters in duplicate sets that are progressively arranged, having a week-day character in one set of each duplicate set immediately preceded by the figure "2" and followed by the figure "9," so that whenever, for a leap-year, one set of a duplicate set coacts with the calendar indications upon the front part for January and February, the figures "2" and "9" in one set of another duplicate set will so coact with the calendar indications on the front part for February as to complete such indications for that month, substantially as described.

13. In a calendar, the combination, with a front part bearing indications for centuries that are progressively arranged and calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the indications and characters on the back part can coact, of a back part bearing indications for the years in any century that are progressively arranged and week-day characters in duplicate sets that are progressively arranged, so that whenever, the indications upon the back part for any common year in any century coact with the indications upon the front part for any century, thus completing the calendar indications for that common year, one set of a duplicate set of the week-day characters upon the back part proper for January and February of that common year, will coact with the calendar indications upon the front part for such months, and the other set of other like duplicate sets will coact with the calendar indications upon the front part for the other months, substantially as described.

14. In a calendar, the combination, with a front part, bearing indications for centuries that are progressively arranged and calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the indications and characters and figures on the back part can coact, of a back part bearing indications for the years in any century that are progressively arranged, and week-day characters in duplicate sets that are progressively arranged, having a week-day character of one set of each duplicate set immediately preceded by the figure "2" and followed by the figure "9," so that whenever, the indications upon the back part for any leap-year in any century coact with the indications upon the front part for any century, thus completing the calendar indications for that leap-year, one set of a duplicate set of the week-day characters upon the back part proper for January and February of that leap-year will coact with the calendar indications upon the front part for such months, and the other set of other duplicate sets, that follow next in the order of said progressive arrangement a like duplicate set to the duplicate set of which one set coacts with the calendar indications upon the front part for January and February, will coact with the calendar indications upon the front part for the other months, and the figures "2" and "9" in one set of another duplicate set will so coact with the calendar indications on the front part for February as to complete such indications for that month, thus forming a calendar for that leap-year, substantially as described.

15. In a calendar, the combination, with a front part bearing calendar indications for the several months that are progressively arranged and provided with means whereby the indications on the front part and the indications and characters and figures on the back part can coact, of a back part bearing week-day characters in duplicate sets that are progressively arranged, so that whenever one set of a duplicate set coacts with the calendar indications on the front part for January and February, sets of other duplicate sets will coact with the indications upon the front part for the other months respectively, one set of each duplicate set including the figures "2" and "9," and said front and back parts respectively bearing century and year indications coacting to complete the calendar for any year, all substantially as and for the purpose specified.

641,434. LOOM. JOHN L. BURTON, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed June 21, 1899. Serial No. 721,274. (No model.)



Claim.—1. A loom provided with leasing means comprising a series of independent, movable members in engagement with and separating the warp-threads from each other.

2. A loom provided with leasing means comprising a series of independent, movable members in engagement with and separating the warp-threads from each other, the number of said members being equal to at least one-half of the number of threads to be leased.

3. In a loom, a series of independent movable members in engagement with the warp-threads and separating the latter from each other, to constitute the sole leasing means for the threads, said members also serving as stop-motion-controlling detectors and being held in normal position by the warp-threads, and stopping means for the loom operated by or through a detecter in abnormal position due to failure or undue slackness of a warp-thread.

4. In a loom, two banks or series of independent members each having a thread-receiving opening, the warp-threads being engaged by members of the two series in alternation, the banks or series being located between the shed-forming mechanism and the whip-roll, and the independent members composing the banks or series constituting the sole leasing means for the threads.

5. In a loom, the following instrumentalities in combination, viz: harnesses, a whip-roll, warp-stop-motion-controlling detectors located between the whip-roll and harnesses, the threads passing directly over the roll to the detectors and thence to the harnesses, whereby the detectors constitute means for leasing the threads, and stopping means for the loom, operated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

6. In a loom, a series of detectors mounted upon and dividing the warp-threads at the point of decussation into groups which are to form the planes of the shed, thereby constituting the means for leasing the threads, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

7. In a loom, a series of vertically-movable stop-motion detectors controlled as to their vertical position by and mounted upon the warp-threads and dividing the same at the point of decussation into the two groups which are to form the planes of the shed, a fixed support for and relative to which the detectors have a limited longitudinal movement individually, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

8. In a loom, two parallel and adjacent series of stop-motion detectors controlled as to their position by and mounted upon the warp-threads and dividing the same into the two groups which are to form the planes of the shed, to thereby lease the threads, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

9. In a loom, two parallel and adjacent series of stop-motion detectors controlled as to their position by and mounted upon the warp-threads and dividing the same into the two groups which are to form the planes of the shed, to thereby lease the threads, a support for each series of detectors and relatively to which the detectors have a limited longitudinal movement individually, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

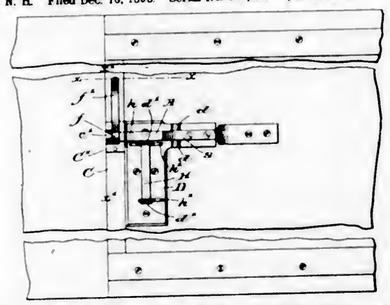
10. In a loom, shed-forming mechanism, the warp-beam, vertically-movable stop-motion detectors mounted on the warp-threads intermediate said mechanism and the beam at the point of decussation and dividing the warp-threads thereat into the two groups which are to form the planes of the shed, thereby leasing the threads, and

stopping means for the loom, actuated by or through abnormal vertical positioning of a detector due to failure of a warp-thread.

11. In a loom, vertically-movable stop-motion detectors mounted on the warp-threads at the point of decussation and dividing the threads into the groups which are to form the planes of the shed, to thus lease the warp-threads, a support for and relatively to which the detectors have a limited longitudinal movement individually, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure of a warp-thread.

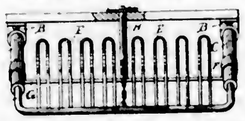
12. In a loom, two parallel, adjacent series of thin, flat stop-motion detectors provided with eyes through which the warp-threads are passed, to divide the said threads into the groups which are to form the planes of the shed, thereby leasing the warp-threads, the latter controlling the vertical position of the detectors, supporting means for the detectors, relative to which the latter have a limited vertical movement, said means preventing movement of the detectors in the direction of travel of the warp-threads, and stopping means for the loom, actuated by or through abnormal positioning of a detector due to failure or undue slackness of a warp-thread.

641,435. SLIDING-DOOR LATCH. ENOS M. CLOUGH, Lakeport, N. H. Filed Dec. 16, 1898. Serial No. 699,412. (No model.)



Claim.—In a latch mechanism for doors, a substantially inverted L-shaped metallic plate secured to the inside of the door, a latch pivotally supported upon one branch of said L-shaped plate, an actuating-handle mounted upon the other branch of said L-shaped plate, and provided with a projection located to engage the latch and lift the same laterally, a fixed metallic keeper mounted upon the jamb, and a latch-locking member pivotally supported upon said keeper and provided with a cam portion located to bear directly against the outer face of the latch and normally prevent the lifting movement of the latter.

641,436. CAR-FENDER. JOSEPH W. CRAMER, Kansas City, Kans., assignor of one-half to Theodore O. Cramer, same place. Filed Nov. 2, 1896. Serial No. 610,792. (No model.)

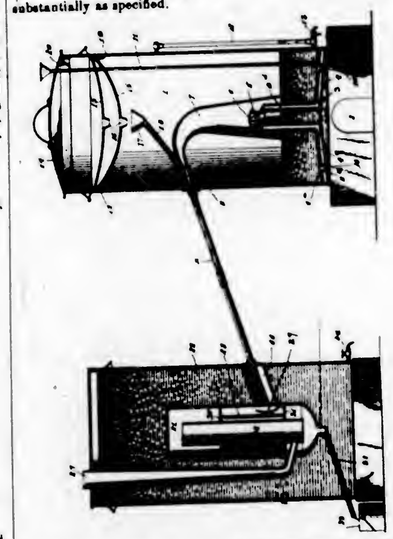


Claim.—1. In a car-fender, the combination with the car-platform, of two forwardly and downwardly extending tubular guides, a horizontal brace connecting the free forward ends of the tubular guides, a vertical rotatable post connecting the horizontal brace and the platform and serving as a vertical brace for the forward ends of the tubular guides, an apron provided with two arms forwardly and rearwardly movable in the tubular guides, means for forcing the apron forward, a chain secured to the apron and the vertical post and adapted to be wound on the post when the same is rotated, and a locking device for preventing rotation of the post, substantially as described.

2. In a car-fender, the apron comprising a frame provided with a transverse horizontal portion from which rearwardly extend two arms, and a series of U-shaped rods the forward ends of which are secured to the transverse portion of the frame and the rear ends of which are upwardly and forwardly turned, substantially as described.

641,437. DISTILLING APPARATUS. JOSEPH F. CROSS, Brattleborough, Vt. Filed Nov. 15, 1898. Serial No. 696,530. (No model.)

Claim.—1. In a distilling apparatus, a reservoir divided interiorly by a partition consisting of parallel-spaced walls, respectively forming the bottom of a superjacent liquid-receiving chamber and the top of a subjacent boiler-chamber, said walls being extended upwardly at their centers to form the spaced walls of a vapor-outlet, which is in communication with the boiler-chamber and extends into the liquid-receiving chamber, feeders spanning the interval between said partition-walls to connect the liquid-receiving chamber with the boiler-chamber, and a vapor-conveyer in communication with said outlet, substantially as specified.



2. In a distilling apparatus, a reservoir provided with a boiler having a vapor-outlet projecting therein, a main conveyer arranged within the liquid-chamber of the reservoir, in communication with said vapor-outlet, vapor-condensing pans also arranged in the liquid-chamber, and a conveyer for receiving liquid from said pans and conducting it to said main conveyer, substantially as described.

3. In a distilling apparatus, a reservoir provided with a boiler having a vapor-outlet, a vapor-conveying device within the liquid-chamber of the reservoir in communication with said outlet, centrally-depressed condensing-pans also arranged in the liquid-receiving chamber and provided with central outlets, and a conveyer in communication with said vapor-conveying device, and provided with a hopper for receiving liquid from the condensing-pans, substantially as specified.

4. In a distilling apparatus, a reservoir provided with a boiler having a vapor-outlet, a vapor-conveying device within the liquid-chamber of the reservoir in communication with said outlet, an interior annular support arranged on the wall of the liquid-chamber, separate centrally-depressed vapor-condensing pans of different depths peripherally mounted upon said support and provided with central outlets, and a conveyer in communication with said vapor-conveying device and provided with a hopper for receiving liquid from the condensing-pans, substantially as specified.

5. In a distilling apparatus, a reservoir provided at its bottom with a boiler having an upwardly-extending vapor-outlet, a vapor-conveying device including a hood, inclosing the discharge end of said vapor outlet, and water sealed by submersion in the liquid-chamber within the reservoir, and a deflector spanning said vapor-outlet to prevent liquid from passing through the hood, substantially as specified.

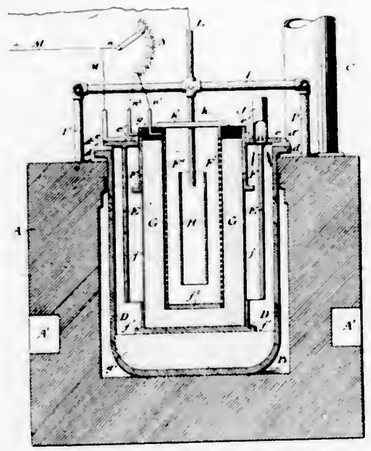
6. In a distilling apparatus, a reservoir provided at its bottom with a boiler having an upwardly-extending outlet, and above the boiler with a liquid-receiving chamber into which the outlet projects, and vapor-conveying devices including a hood fitted over the boiler-outlet for submersion at its lower edge in the contents of the liquid-receptacle, substantially as specified.

7. In a distilling apparatus, the combination with a vaporizing device, of the condenser having a tank or receptacle for a cooling agent, a vapor-condensing chamber arranged within the tank or receptacle and in communication with the vaporizing device, said vapor-condensing chamber being provided with an outlet for condensed vapor, a tubular shield arranged inside of the vapor-condensing chamber adjacent to the inlet-port thereof, and a deflector interposed between said tubular shield and said inlet-port, substantially as set forth.

8. In a distilling apparatus, the combination with a vaporizing device, of a condenser having a tank or receptacle for a cooling agent, a vapor-condensing chamber arranged within the tank or receptacle and provided with an outlet for condensed vapor, a vapor-conveyer connecting the vaporizing device with said vapor-condensing chamber, and extending through the tank or receptacle at a point intermediate the top and bottom thereof, a tubular guard or shield inclosing the portion of the conveyer within the tank or receptacle, a tubular shield arranged inside of the vapor-condensing chamber adjacent to the inlet-port thereof, and a deflector interposed between said shield and the inlet-port, substantially as set forth.

9. In a distilling apparatus, the combination with a vaporizing device, of a condenser having a tank for a cooling agent, a vapor-condensing chamber arranged within the tank and in communication with the vaporizing device, said vapor-condensing chamber being provided at one end with an outlet for condensed vapor, said outlet being in communication with the outer air to also form a cool-air inlet, a cooling-tube supported within the vapor-condensing chamber and open at both ends, and a pipe leading through the tank and connected at one end with said interior cooling-tube, substantially as set forth.

641,438. ELECTROLYTIC APPARATUS. JAMES D DARLING, Philadelphia, Pa., assignor to the Harrison Bros. & Company, Incorporated, same place. Filed Mar. 27, 1899. Serial No. 710,571. (No model.)



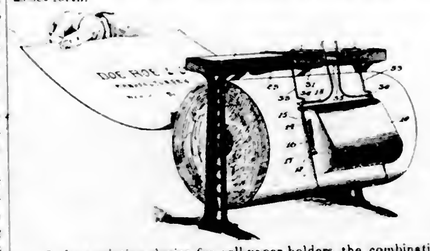
Claim.—1. In an electrolytic apparatus, the combination, with the anode and the cathode, of an intervening porous diaphragm having a metallic wall, said wall being electrically connected with the positive pole of the source of electricity, substantially as described.

2. In an electrolytic apparatus, the combination of a furnace-wall with an exterior vessel mounted in said wall; a downwardly-depending annular anode having an overhanging flange and supported thereby upon the top of said vessel; a porous diaphragm comprising inner and outer metallic walls with an intermediate filling of porous material, the outer wall being indirectly supported by the flange of the anode; an intervening packing of insulating material between said flanges and said wall; a cathode arranged within said porous cup; and an escape-pipe leading from an opening in the flange of the anode, substantially as and for the purposes described.

641,439. ROLLER PRINTING DEVICE. LINFORD J. DAVIS, Battle Creek, Mich. Filed May 29, 1899. Serial No. 718,711. (No model.)

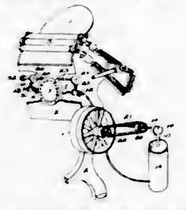
Claim.—1. In a printing device for roll-paper holders, the combination with a casing having a bail, of an arbor, a spring fitted to said arbor and connected with the bail; and a separable clamp connected to the arbor and to the bail of the casing, whereby the clamp may attach the printing device to a part of a roll-holder frame, substantially as described.

2. In a printing device for roll-paper holders, the combination with a casing having a bail, of an arbor also provided with a bail, a clamp loosely connected with the bail of said arbor and adapted to have interlocking engagement with the bail of said casing, and a spring supported by the arbor and having arms which are engaged with the bail of said casing, for the purpose described, substantially as set forth.



3. In a printing device for roll-paper holders, the combination with a casing, of an arbor provided with transverse perforations, a coiled spring fitted on said arbor and having a central loop and the extended arms which are engaged with the casing-bail, an adjustable pin connected to the arbor and engaging with the loop of the spring, and a clamp for supporting the arbor on the frame of a roll-paper holder, substantially as described.

641,440. DECORATING-MACHINE. WILLIAM H. DEIDRICK, East Liverpool, Ohio. Filed June 16, 1899. Serial No. 720,813. (No model.)



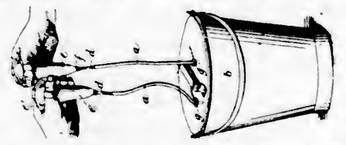
Claim.—1. In a printing-press, a flexible diaphragm suitably secured thereto provided with designs or characters on its one face, air-passages arranged therein, and means connected to the said press for alternately supplying and exhausting air to and from the said diaphragm, substantially as described.

2. In a printing-press, a flexible diaphragm suitably secured thereto and provided with designs or characters on its one face, air-passages arranged therein, means connected to the said press for alternately supplying and exhausting air to and from the said diaphragm, and an impression or platen plate adapted to carry an article to engage the diaphragm when the platen-plate is operated, substantially as set forth.

3. In a printing-press, a flexible diaphragm suitably secured thereto, air-passages arranged therein, a supply-pipe connected to the said diaphragm and a suitable air-supply, a valve arranged in the said pipe, an exhaust-pipe connected to the said diaphragm, a valve arranged in said exhaust-pipe, and means connected to the said press for operating the said valves alternately, substantially as described.

4. In a printing-press, a flexible diaphragm suitably secured thereto, air-passages arranged therein, a supply-pipe connected to the said diaphragm and a suitable air-supply, a valve arranged in the said pipe, an exhaust-pipe connected to the said diaphragm, a valve arranged in said exhaust-pipe, means for operating the said valves alternately, and an impression or platen plate suitably connected to the said press adapted to carry an article to engage the said diaphragm when the platen-plate is operated, substantially as set forth.

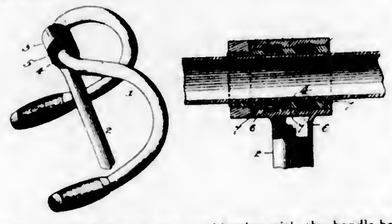
641,441. MILKING DEVICE. JOHN C. DUIGAN, Melbourne, Victoria. Filed Oct. 28, 1899. Serial No. 735,085. (No model.)



Claim.—1. A teat-cup comprising a flexible bag and finger-loops arranged longitudinally thereof

2. A teat-cup comprising a flexible bag and finger and thumb loops arranged longitudinally thereof on opposite sides of the same, substantially as described.

641,442. **ADJUSTABLE HANDLE-BAR FOR BICYCLES.** SAML C. EISENHART, York, Pa., assignor, by mesne assignments, to William C. Brumder, Milwaukee, Wis. Filed Nov. 30, 1895. Serial No. 570,644. (No model.)



Claim.—1. In a bicycle, the combination with the handle-bar stem having a transverse hollow head or eye provided on its inner surface with an annular series of longitudinally-arranged corrugations, each two adjacent angular series of corrugations being separated by an annular groove, of a longitudinally-movable and revoluble handle-bar having thereon corresponding annular series of corrugations, similarly separated by annular grooves, the width of said grooves being at least equal to the width of the adjacent series of corrugations, and means for holding the corrugations of the head and handle-bar in engagement.

2. In a bicycle, the combination with the handle-bar stem having a transverse hollow head or eye provided on its inner surface with a series of longitudinally-arranged beveled corrugations extending its whole length, and with exterior screw-threads at one end thereof, of a longitudinally-movable and revoluble handle-bar having a tapered stationary sleeve rigid therewith and provided with corresponding longitudinally-arranged beveled corrugations, adapted to register with those within the said hollow head or eye, and a nut adapted to engage against an end of said sleeve, and having a flange provided with interior screw-threads for union with the exterior screw-threads on the adjacent end of said head or eye.

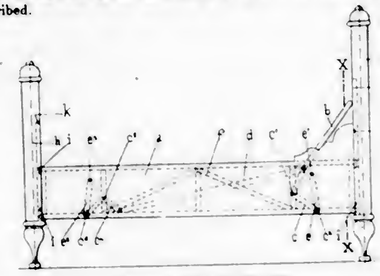
3. In a bicycle, the combination with the handle-bar stem having a transverse hollow head or eye, the bore of said head or eye tapering from one end to the other and being formed with longitudinally-arranged beveled corrugations extending from end to end thereof, of a longitudinally-movable and revoluble handle-bar having a stationary integral tapered sleeve rigid therewith and formed with corresponding longitudinally-arranged beveled corrugations equal in length to the length of said transverse hollow head or eye, and adapted to register with the corrugations therein, and a nut for holding the handle-bar from moving longitudinally after it has been adjusted.

4. In a bicycle, the combination with the handle-bar stem having a transverse hollow head or eye provided on its inner surface with longitudinally arranged beveled corrugations normally extending from end to end, of a longitudinally-movable and revoluble handle-bar having thereon a correspondiog series of beveled corrugations, the said corrugations of both the head or eye and handle-bar being cut away at one or more points to form annular grooves or recesses into which the divided portions of the corrugations may be moved, and a nut for holding the handle-bar from moving longitudinally after it has been adjusted.

5. An adjustable handle-bar, consisting of a handle-bar stem having a transverse hollow head or eye provided on its inner surface with longitudinally-arranged beveled corrugations normally extending from end to end, but interrupted or cut away intermediate of said ends, a longitudinally-movable and revoluble handle-bar provided with a stationary integral tapered sleeve rigid therewith provided with corresponding longitudinally-arranged beveled corrugations also correspondingly cut away or interrupted intermediate of their ends, whereby the corrugated portions of the said hollow head or eye may be moved in line withithe cut-away portions of the said sleeve to permit revoluble adjustment of the handle-bar, and a nut for restoring the corrugated portions of both parts into engagement with each other, after adjustment, and locking them against endwise movement.

641,443. **BEDSTEAD.** GUSTAV ELSTERMANN, Osnabrück, Germany. Filed Mar. 31, 1899. Serial No. 711,314. (No model.)

Claim.—A bedstead comprising a side or sides *a*, head and foot posts *g h*, having vertical guideways *k* to receive said side or sides, a rigid framing *f* extending between said posts and a lever mechanism attached at one or both sides of the bedstead, consisting of a bell-lever *c* pivoted to the rigid frame *f*, a hand-lever *b* forming one arm of said bell-lever, an arm *c* hinged to the side *a* of the bedstead and pivoted to the other arm of said bell-lever, a connecting-rod *d* pivoted at one end to said hand-lever *b*, a second bell-lever *c*⁴ pivoted to said frame *f* having an arm pivoted to the other end of said connecting-rod *d* and an arm *c'* hinged to the side *a* of the bedstead and pivoted to the other arm of said second bell-lever *c*⁴, all operating as described.



641,444. **MANUFACTURE OF GAS.** ETTORE DE FAZI, Rome, Italy, assignor to A. Piatti & Co., same place. Filed Feb. 8, 1897. Serial No. 622,559. (No specimens.)

Claim.—The herein-described process consisting in mixing calcium monoxid, colophony and calcium carbid, and treating the mixture with water.

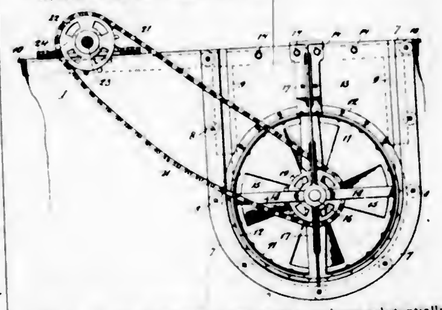
641,445. **BICYCLE-WHEEL TIRE.** ALBERT M. FERGUSON and KENDRICK P. SHEDD, Rochester, N. Y.; said Shedd assignor to the Rochester Non-Puncturable Tire Company, same place. Filed Jan. 20, 1899. Serial No. 702,817. (No model.)



Claim.—1. As a new article of manufacture, a shield for pneumatic tires, said shield comprising a series of overlapping concavo-convex metal plates, an inner and an outer elastic cover of greater width than the plates and rivets whereby each plate is centrally secured between the two elastic covers, as and for the purpose described.

2. In combination with a pneumatic tire, a shield composed of a series of overlapping concavo-convex plates, an inner and an outer elastic cover of greater width than the plates, rivets whereby the plates and covers are secured together, as described, and a shoe, or outer cover of elastic material, substantially as set forth.

641,446. **AGITATOR FOR REFRIGERATING AND ICE MANUFACTURE.** EDWARD N. FRIEDMANN, New York, N. Y., assignor to the De La Vergne Refrigerating Machine Company, same place. Filed Apr. 22, 1899. Serial No. 714,079. (No model.)



Claim.—1. In combination, a tank having an inner substantially vertical partition with an opening therein, and a fluid-propeller the axis of which does not extend through the walls of the tank and a frame carrying the same, said frame constructed to fit into the opening in said partition and partly close the same, and means for actuating said propeller from above the fluid-level of the tank, substantially as set forth.

2. The combination with a tank of a fluid-propeller located therein below the fluid-level and fitted to rotate on a substantially horizontal axis the shaft of which does not extend through the walls of the tank, a driving-shaft wholly above the fluid-level and means for actuating the propeller from the driving-shaft, substantially as set forth.

3. The combination with a tank having an inner substantially vertical partition with an opening therein, of a fluid-propeller located in said opening below the fluid-level and fitted to rotate on a substantially horizontal axis the shaft of which does not extend through the walls of the tank, a driving-shaft above the fluid-level and means for actuating the propeller from the driving-shaft, substantially as set forth.

4. In combination, a tank having a substantially vertical inner partition with an opening therein, a fluid-propeller and a frame carrying the same, said frame constructed to fit said opening and slide-guides about the edges of said opening whereby the propeller-frame has a sliding connection with the inner partition, and means for actuating said propeller substantially as set forth.

5. In combination, a tank having a substantially vertical inner partition with an opening therein, a fluid-propeller and a frame carrying the same, said frame constructed to fit said opening and slide-guides about said opening whereby the propeller has a sliding connection with the inner partition, an independent driving-shaft at the upper part of the tank and means for actuating said propeller from the driving-shaft, substantially as set forth.

6. A removable agitator comprising a fluid-propeller fitted to rotate on a substantially horizontal axis, a housing for the same, a bracket secured to said housing and constitnting the sole support of the propeller-shaft and a plate secured to said bracket and housing, substantially as set forth.

7. In combination, a tank having a substantially vertical inner partition with an opening therein, a fluid-propeller, a removable frame carrying said propeller and constructed to fit said opening and comprising a housing for the propeller, a bracket secured to said housing and having one or more bearings for the propeller, and a plate secured to said bracket and housing, substantially as set forth.

8. In combination, a tank having a substantially vertical inner partition with an opening therein, a guide about said opening, a fluid-propeller, a housing for the propeller, said housing having a rim fitting said guide, a bracket secured to the housing and having one or more bearings for the propeller, and a plate fitting the upper part of the opening and secured to said bracket and housing, substantially as set forth.

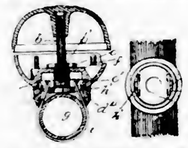
9. In combination, a tank having an inner partition with an opening therein, a front guide about said opening and spacing means at intervals between said guide and partition, and an upper guide, a fluid-propeller, a housing for the propeller, said housing having a rim fitting said front guide, a bracket secured to the housing and having one or more bearings for the propeller, and a plate fitting the upper part of said opening and bearing against the upper guide, said plate being secured to said bracket and housing, substantially as set forth.

10. In combination, a tank having an inner partition with an opening therein, the front guide 7 and spacing-washers 8 about said opening, rear guides 9, 9, and upper angle-bar 10, a fluid-propeller, the propeller-shaft 16, a power-receiving wheel on said propeller-shaft, the housing 11 for said propeller and the rim 12 of said housing, the bracket 17 having bearings for the propeller-shaft 16, the plate 13 secured to the bracket 17 and to the rim 12, and a driving-wheel connected to said power-receiving wheel and fitted to rotate at the upper part of the tank, substantially as set forth.

11. In combination, a tank having an inner partition with an opening therein, the front guide 7 and spacing-washers 8 about said opening, the rear guides 9, 9, and upper angle-bar 10, a fluid-propeller, the propeller-shaft 16, the sprocket-wheel 19 on said propeller-shaft, the housing 11 for said propeller and the rim 12 of said housing, the bracket 17 having bearings for the propeller-shaft 16, the plate 13 secured to the bracket 17 and to the rim 12, the side braces 18, 18, connecting the housing and bracket, the driving-shaft 23 fitted to rotate in bearings at the top of the tank, the driving sprocket-wheel 22, on the driving-shaft 23, and the chain 21 connecting the sprocket-wheels 22 and 19, substantially as set forth.

641,447. **BICYCLE-BELL CLAMP.** HERBERT N. GALE, Bristol, Conn. Filed Apr. 25, 1898. Serial No. 678,717. (No model.)

Claim.—1. In combination with a base-plate having a socket in its lower surface, a flexible clamping-band with its ends located within the socket and engaging a nut, a nut located in the socket and engaging a screw, the screw loosely mounted in the base-plate with a shoulder overhanging the edge of the opening through the floor of the base-plate, a removable member having a threaded stem with its end fitting within the threaded socket in the screw, all substantially as described.



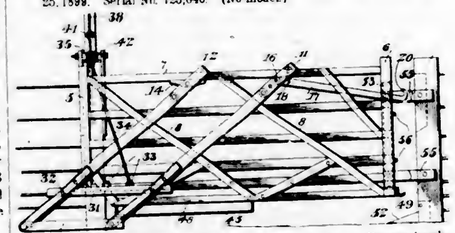
2. In combination with a base-plate having a socket in its under surface, a flexible clamping-band with its ends located in the socket and having means for attachment to a nut, the nut having means for engaging the ends of the clamping-band, a removable member having a stem permanently secured thereto and means connecting said stem with the nut whereby on the rotation of the stem the nut is moved in the socket, all substantially as described.

3. In combination with a base-plate formed in two sections rotarily connected, a socket in the under surface of the base-plate, a nut located within the socket and having means for attachment to a band, a flexible band having its ends extending within the socket and means for attachment to the nut, a gong or like removable member with the stem permanently connected thereto, and means connecting said stem and the nut whereby on the rotation of the gong the nut is moved in the socket, all substantially as described.

4. In combination with a base-plate formed in sections rotarily connected, the lower section shaped across its edge to fit a cylindrical surface, a socket in the under surface of the base-plate, a nut located within the socket, a flexible band having its ends extending within the socket, means for connecting the ends of the flexible band and the nut, a screw having a shoulder resting on the floor of the base-plate and a threaded end engaging the nut, a gong having a rigid stem and threaded lower end, the latter located in a threaded socket in the screw, all substantially as described.

5. In combination in a bicycle-bell, a base-plate having a socket in its under surface and an undercut groove formed in the wall of the socket, a lower section or saddle having a flange with outturned lugs engaging the groove and its lower edge shaped to fit a cylindrical surface, a flexible clampin band with its ends extending within the saddle, a nut located with n the saddle, means for attaching the ends of the band to the nut, a screw extending through a central hole in the floor of the base-plate and having a shoulder resting on said floor, a threaded end engaging the nut and a central socket opening upward, and a gong having a rigid stem with a threaded end fitting the socket in the screw, all substantially as described.

641,448. **GATE.** HENRY H GORTON, Wallace, Mo. Filed July 25, 1899. Serial No. 725,046. (No model.)



Claim.—1 The combination with a gate and an adjacent latch-post, of a latch pivoted to the gate and adapted for engagement with the post, a rock-lever pivoted to the latch and adapted to operate the latch and raise the gate, a second latch adapted to engage the latch-post, an additional rock-lever connected with the gate, a tie-bar adjustably connected with the levers, additional levers, and adjustable connections between the tie-bars and the last-named levers for transmitting motion from one to the other.

2. The combination with a gate, of a rock-lever pivoted thereto and to a support, a latch pivotally connected with the gate, a second rock-lever pivoted upon a suitable support and pivotally connected with the latch, and a second latch upon the gate disengaged from the post by the action of the first-named lever.

3. The combination with a gate and an adjacent latch-post, of a latch having a swinging and pivotal connection with the gate and provided with a hook adapted to engage a keeper upon the post, a

rock-lever pivotally connected with the latch, means for operating said lever to move the latch upon its connection, from the keeper and the post and to move the gate, and a second lever pivotally connected with the gate and connected with the operating means of the first lever, the second lever being adapted to exert a raising action upon the gate in advance of the first lever.

4. The combination with a gate and an adjacent latch-post, of a latch pivoted to the gate and adapted for engagement with the post, a rock-lever pivotally connected with the latch and having initially lost motion with respect to the gate, to operate the latch in advance of the gate, and a second rock-lever pivoted to the gate and having means in common with the first-named lever for operating it.

5. The combination with a gate, of a rod fixed thereto and lying therebelow, and at a sufficient distance therefrom to permit rooting of an animal between it and the gate.

6. The combination with a gate and an adjacent post, of uprights pivotally connected with the post to lie at various distances from the points of the post to which they are attached, and adapted to receive between them the adjacent end of the gate.

7. The combination with a gate and an adjacent post, of uprights pivotally connected with the post and adapted to project therefrom at various elevations and to receive between them the adjacent end of the gate, and cross-bars adapted to limit the movement of the gate between the uprights.

8. The combination with a gate and an adjacent post, of uprights adjustably connected therewith and adapted to lie at various distances from the points of the post to which they are attached and to receive between them the adjacent end of the gate.

641,449. BUTTON. ROBERT A. HALL and EDWARD A. GRIFFITH, Baltimore, Md., assignors to the Raymond Button Company of Baltimore City, of Maryland. Filed May 17, 1899. Serial No. 717,167. (No model.)

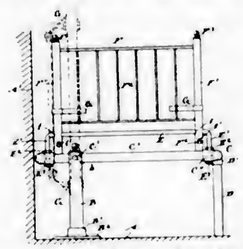


Claim.—1. The combination of the hollow shank, 2; a rivet, 3, having a stem, 6, secured in the said hollow shank, 2; a head, 1, which is free to revolve on the stem, 6; and means to secure the parts to the fabric.

2. The combination of the head, 1, having a central hole, 5; a hollow shank, 2, having a base, 7; a rivet, 3, to secure the said head and shank together; and a stud, 4, having an annular flange, 10, and a base, 9, to secure the button to the fabric.

3. The combination of the head, 1, having a central hole, 5; a hollow shank, 2, having a contracted opening at the upper end and a base, 7, at the lower end; a rivet, 3, to secure the said shank and head together; and a stud, 4, having an annular flange, 10, and a base, 9, to secure the button to the fabric.

641,450. FOLDING BED. RICHARD HANDY, New York, N. Y., assignor of two-thirds to Harriet B. Whiton, same place, and Ira L. Willits, Bloomfield, N. J. Filed Oct. 16, 1899. Serial No. 733,720. (No model.)



Claim.—1. A bed-frame, and a pair of uprights adapted to be secured to the floor and located at the ends of the frame near one side, pivotally supporting said frame at the rear, in combination with legs jointed to said frame at the front, rods E E mounted on the ends of said frame, head and foot boards pivotally mounted on said rods above said ends and adapted to fold downward upon said frame, and locking means for holding said boards in an upright position relatively to said rods when required, the said frame and its connections arranged to be folded against an adjacent wall and supported in an elevated position upon said uprights, all substantially as herein specified.

2. The bed-frame, comprising the side rails C^3 C^3 and end rails C^3 C^3, the elevated rods E E on the latter, head and foot boards F F carried by said rods and adapted to fold downward upon said frame, in combination with each other and with the uprights B B, secured to the floor, the pivots C C connecting the said end rails and uprights near the rear, and the legs D D loosely connected to said frame at the front all substantially as and for the purposes herein specified.

3. The bed-frame comprising the side rails C^3 C^3 and end rails C^3 C^3, the elevated rods E E on the latter, the head and foot boards F F carried on said rods and adapted to be folded downward upon said frame, and locking means for holding said boards in the upright and folded conditions, in combination with each other and with the uprights B B, secured to the floor, the pivots C C connecting the said end rails and uprights near the rear, and the legs D, D, loosely connected to said frame at the front, all substantially as and for the purposes herein specified.

4. In a folding bed the frame comprising the side rails C^3 C^3 and end rails C^3 C^3, the elevated rods E E on the latter, the head and foot boards F F carried on said rods and adapted to be folded downward upon said frame and bed-clothing thereon, the sliding bolts F^4 F^4 adapted to engage in centers c c c, in said end rails, and the hooks G G adapted to engage said side rails, and means for supporting said frame, all combined and arranged to serve substantially as herein specified.

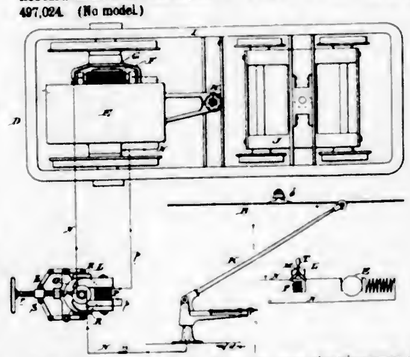
641,451. WRENCH. WILLIAM T. HATTEN, Canyon City, Oreg. Filed May 18, 1899. Serial No. 717,310. (No model.)



Claim.—1. A wrench comprising a main shank or bar, a stationary or fixed jaw, a movable jaw adapted to slide longitudinally of the shank or bar and provided with a short shank, a yoke having one end bifurcated and pivoted to the short shank of the movable jaw, said yoke being provided with an opening to receive the main shank or bar, and having the inner end wall of the opening rounded and provided at the outer end of the opening with a tooth, and a spring mounted on the short shank and engaging the yoke, substantially as described.

2. A wrench comprising a main shank or bar, a fixed jaw, a movable jaw slidingly mounted on the main shank or bar and provided with an integral short shank lying flat against the front face of the main shank or bar, a clamping-yoke pivoted at one end to the outer end of the short shank and having an opening receiving the main shank or bar, the free end of the yoke engaging with the rear face of the main shank or bar and being operated from the rear side of the wrench, and a spring secured to the short shank and having its inner end hook-shaped and extending around the pivoted end of the yoke and engaging the same at a point between the pivot and the main shank or bar, whereby it is adapted to throw the yoke into engagement with the main shank or bar, substantially as described.

641,452. MEANS FOR CONTROLLING ELECTRIC MOTORS. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Jan. 16, 1894. Serial No. 497,024. (No model.)



Claim.—1. The combination of one or more electric-power motors receiving current from a source of electrical energy of maximum potential, with a counter-electromotive-force regulator consisting of electric conductors independent of and in series with the armature of the motor or motors and moving in a magnetic field independent of that of the power motor or motors, and provided with means to positively vary the speed of movement of said conductors independently of and in advance of changes of speed of the motor or motors and circuits for maintaining the counter-electromotive-force regulator in series connection with the power-motors while the latter are performing their normal duty.

2. The combination of one or more electric motors receiving current from a source of electrical energy of maximum potential, with a counter-electromotive-force regulator consisting of electric conductors maintained in series with the motor or motors while performing their normal duty and moving in a magnetic field, and provided with means to vary the speed of movement of said conductors independently of and in advance of changes of speed of the motor or motors and circuits for maintaining the counter-electromotive-force regulator in series connection with the power-motors while the latter are performing their normal duty.

3. The combination of one or more series electric motors receiving current from a source of electrical energy of constant potential, with a counter-electromotive-force regulator consisting of electric conductors maintained in series with the armature and field coils of the motor or motors while the same are performing their normal duty and moving in a magnetic field, and provided with means to positively increase or decrease the speed of movement of said conductors independently of and in advance of changes of speed of the motor or motors but while the motors are performing their normal duty whereby their speeds may be increased or decreased at will without stopping.

4. The combination of one or more electric motors receiving current from a source of electrical energy of maximum potential, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor or motors and moving in a constant magnetic field, and provided with means to vary the speed of movement of said conductors consisting of hand operated or controlled devices for producing a difference in speed of the moving electrical conductors to vary the supply of current to the motor without changing the potential of the source of energy.

5. The combination of one or more electric motors receiving current from a source of electrical energy of maximum potential, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor or motors and moving in a magnetic field, provided with movable brushes to vary the speed of movement of the conductors, and hand operated or controlled devices for shifting the brushes into different positions relatively to the field-poles to change the counter electromotive force of the regulator in advance of the changes of speed in the motor and independent of the maximum potential of the source of energy.

6. The combination of one or more electric motors receiving current from a source of electrical energy of maximum potential, with a counter-electromotive-force regulator independent of the motor or motors and consisting of electric conductors in series with the entire motor or motors and moving in an electromagnetic field produced independently of the winding of the motor, means to vary the speed of movement of the conductors, and field-magnet coils of high resistance in shunt relation to the entire motor or motors and moving conductors to maintain a constant field in the regulator and supplied with current independently of the current traversing the motor or motors and regulating moving conductors.

7. The combination of one or more electric motors receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors in series with the motor or motors and moving in a magnetic field, means to vary the speed of movement of the conductors, field-magnet coils of high resistance in a shunt-circuit about the motor or motors and moving conductors to maintain a constant field in the regulator and supplied with current independently of the current traversing the motor or motors and moving conductors of the regulator, and hand-operated devices for varying at will the counter electromotive force of the regulator.

8. The combination of one or more electric motors receiving current from a source of electrical energy of constant potential, with a counter-electromotive-force regulator maintained in electrical connection with said motors during the normal performance of their work and consisting of electric motors permanently coupled in series with said motors and said conductors moving in a magnetic field, and hand-operated means to vary at will during the normal operation of the motors while performing their work the speed of movement of the conductors to vary the total current flowing through the motor or motors by increasing or decreasing the counter electromotive force exterior to said motor or motors while performing their normal duty and inversely to the counter electromotive force desired in the motors in their coupled condition with the counter-electromotive-force regulator.

9. In an electric railway, the combination of a positive conductor and a return or negative conductor, a constant-potential generator supplying current to said conductors, two or more electrically-propelled vehicles receiving current from said conductors and working in parallel, and in which each of said electrically-propelled vehicles is provided with an electric motor to rotate the axle capable of generating a variable counter electromotive force between wide limits from nothing to that approaching the electromotive force of the generator, and a counter-electromotive-force regulator consisting of electric conductors in series with the motor and revolving within a magnetic field and provided with means to vary the speed of movement of its conductors to vary the counter electromotive force of the regulator in advance of the desired changes in speed of the power-motor.

10. In an electric railway, the combination of a positive conductor and a return or negative conductor, a constant-potential generator supplying current to said conductors, two or more electrically-propelled vehicles receiving current from said conductors and working in parallel, and in which each of said electrically-propelled vehicles is provided with an electric motor to rotate the axle, and a counter-electromotive-force regulator consisting of electric conductors in series with the motor and revolving within a magnetic field and provided with means to vary the speed of movement of the conductors consisting of hand operated or controlled devices to vary the position of the poles produced by the revolving electric conductors within the field to vary the counter electromotive force of the regulator in advance of the desired changes of speed in the power-motor.

11. In an electric railway, the combination of a positive conductor and a return or negative conductor, a constant-potential generator supplying current to said conductors, two or more electrically-propelled vehicles receiving current from said conductors and working in parallel, and in which each of said electrically-propelled vehicles is provided with an electric motor to rotate the axle, and a counter-electromotive-force regulator consisting of electric conductors in series with the motor and revolving within a magnetic field and provided with means to vary the speed of movement of the conductors to vary the counter electromotive force of the regulator in advance of the desired changes in speed of the power-motors, and means for maintaining a substantially constant field consisting of a shunt-circuit about the moving conductors and receiving current only from the constant-potential generator.

12. In an electric railway, the combination of a positive conductor, a return-conductor, a generator of constant potential having one pole connected with the return-conductor, feeding-conductors connecting the other pole of the generator at distant places with the positive conductor, an electrically-propelled vehicle, a series electric motor to operate the vehicle, a counter-electromotive-force regulator to control the operation of the electric motor consisting of a revolving armature operating within a magnetic field and in series with the propelling-motor, and hand-controlled devices for varying the speed of the counter-electromotive-force-regulating armature in advance of the changes of speed in the power-motor.

13. In an electric railway, the combination of a positive conductor, a return-conductor, a generator of constant potential having one pole connected with the return-conductor, feeding-conductors connecting the other pole of the generator at distant places with the positive conductor, an electrically-propelled vehicle, a series electric motor to operate the vehicle, a counter-electromotive-force regulator to control the operation of the electric motor consisting of a revolving armature operating within a magnetic field and in series with the propelling-motor, and means for varying the speed of the counter-electromotive-force-regulating armature in advance of the changes of speed in the motor consisting of hand operated or controlled parts to shift the brushes and vary the position of the poles of the revolving armature.

14. The combination of one or more electric motors receiving current from a source of electrical energy, with a counter-electromotive-force regulator consisting of electric conductors independent of and electrically connected in series with the armature of the motor or motors while performing their normal duty and moving in a magnetic field having coils independent of that of the motor or motors, and provided with means to positively vary the speed of movement of said conductors independently of and in advance of changes of speed of the motor or motors while they are performing their normal work.

15. The combination of a high-speed motor, a low-speed motor capable of producing a variable counter electromotive force, electric circuits connecting the armatures of the two motors in series with a source of electric energy of maximum potential, and mechanical devices for shifting the magnetic poles of the armature of the high-speed motor relatively to the field-poles thereof to vary the counter

electromotive force of the high-speed motor inversely to the counter electromotive force of the low-speed motor for the purpose of controlling the current delivered to the low-speed motor.

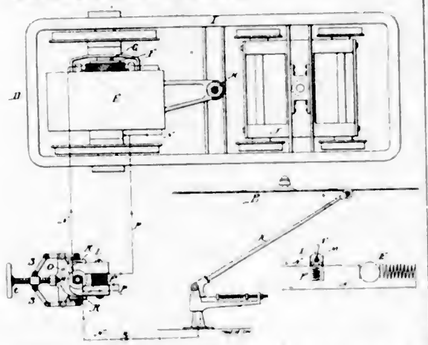
16. The combination of two motors having their revolving elements electrically connected in series, means to maintain a substantially constant magnetic field in the vicinity of the revolving element of one of the motors irrespective of the counter electromotive force of its revolving element, and means for shifting the poles of said revolving element relatively to the poles of the magnetic field in said last-mentioned motor whereby its counter electromotive force is varied and opposed to the initial electromotive force of the operating-current of electricity to vary the speed of the other or power motor.

17. The combination of a power-motor, a regulating-motor, electric circuits leading from a source of maximum potential connecting the revolving elements of the two motors in series with the source of electrical energy, electromagnetic devices for maintaining a magnetic field in the vicinity of the revolving element of the regulating-motor, and mechanical devices for shifting the poles of the revolving element of the regulating-motor, whereby its counter electromotive force is varied inversely to and in advance of the changes in speed and counter electromotive force of the power-motor required and opposed to the initial electromotive force of the operating-current of electricity to vary the speed of the power-motor.

18. The combination of a circuit of constant potential, a power-motor receiving current therefrom, a regulating-motor having its revolving electromagnetic element connected in series with the power-motor as an entirety while performing its normal duty, and hand-controlled means to positively decrease or increase the speed of rotation of the revolving electromagnetic element of the regulating-motor to vary the counter electromotive force thereof while the power motor is performing its maximum duty said decrease or increase taking place independently of and in advance of the changes required in the speed of the power-motor for the purpose of controlling the current delivered to the power-motor and regulating its speed as required in and during the performance of its normal duty independent of the current in the circuit of constant potential.

19. The combination with an electric motor of a second motor having its armature in circuit with the field-magnets and armature of the first-mentioned motor, a circuit for supplying current to the first-mentioned motor through the second motor, and means for varying the load of the second motor whereby the current supplied to the first motor may be varied.

641,453. METHOD OF CONTROLLING ELECTRIC MOTORS. RUDOLPH M. HUNTER, Philadelphia, Pa. Original application filed Jan. 16, 1894, Serial No. 497,024. Divided and this application filed Nov. 9, 1899. Serial No. 736,304. (No model.)



Claim.—1. The herein-described method of varying the speed of electric motors during their normal maximum work, which consists in supplying to the motor a current of constant potential, producing by magnetic induction in the circuit wholly exterior to the motor while in the performance of its normal duty and between the source of supply and motor a gradual varying magnetically-induced counter electromotive force variable independently of and in advance of the speed of the motor and current flowing through it during the performance of its maximum work, maintaining said counter electromotive force, and more or less opposing the said current of constant potential by varying by hand regulation the magnetically-induced counter electromotive force by weakening or strengthening the inductive influence of the circuits in which the counter electromotive force is generated during and inversely with the corresponding inductive influence required in the motor or motors during the performance of their normal duty.

2. The herein-described method of varying the speed of electric motors during the performance of their normal work, which consists in supplying to the motor a current of constant potential, producing by magnetic induction in the circuit between the source of supply and motor an induced counter electromotive force independent of and inversely to the counter electromotive force and speed of the motor, maintaining and opposing to the said current of constant potential the magnetically-induced counter electromotive force during the period of the power-motor performing its normal duty, and increasing and decreasing the magnetically-induced regulating counter electromotive force without interrupting it by hand regulation in advance of the required changes in the speed and counter electromotive force of the motor.

3. The herein-described method of positively varying the speed of electric motors while performing their maximum work, which consists in supplying to the motor an electric current of constant potential opposing the said current between the source of supply and motor by an induced counter electromotive force set up by two relatively movable parts capable of producing inductive effects one upon the other, and gradually increasing or decreasing without interrupting the inductive effects in the circuit exterior to the motor inversely with the counter electromotive force required in the motor during the performance of its maximum work to vary the regulating counter electromotive force produced by said relatively movable parts independently of and in advance of the changes in the speed of the motor or current in the line to vary the speed and power of the electric motor at will during its continuous running operation.

4. The herein-described method of regulating the speed of an electric power-motor consisting of supplying a current of constant potential to the armature and field of the motor in series, causing the current to divide and part to flow through and energize a regulating revolving electromagnetic element in series with the armature and field of the power-motor and part through an electromagnetic field electrically independent of the power-motor and in the vicinity of the revolving electromagnetic element for maintaining a magnetic field around the said regulating revolving electromagnetic element unaffected by the field of the motor, and varying the speed of rotation of the revolving electromagnetic element independently of and in advance of the changes in speed of the power motor or current in the motor-circuit to vary the induced counter electromotive force thereof.

5. The herein-described method of regulating an electric motor consisting in passing a current of electricity successively through the revolving elements of two motors, maintaining a magnetic field in the vicinity of the revolving element of one of the motors, and shifting the poles of the said revolving element relatively to the poles of the magnetic field of the last-mentioned motor by hand in advance of desired changes in speed of the motor to be regulated whereby its induced counter electromotive force is varied and opposed to the initial electromotive force of the operating-current of electricity to vary the speed of the other motor and in which the counter electromotive forces of the two motors vary inversely.

6. The herein-described method of regulating electric motors consisting in causing a current of electricity to flow successively or in series through the revolving elements of a high-speed motor and a low-speed motor, and shifting the magnetic poles of the revolving element of the high-speed motor relatively to the field-poles thereof to vary the counter electromotive force of the revolving element in advance of desired changes in speed of the low-speed motor for the purpose of controlling the current delivered to the low-speed motor.

7. The herein-described method of operating an electric railway and controlling the movement of cars thereon, consisting in supplying current of constant potential to conductors extending along the railway, delivering current from said conductors to motors upon a series of independently-movable cars for propelling said cars, maintaining a movable connection between the conductors and the motors during the travel of the cars, separately controlling the current passing through the motors of the respective cars by causing the current on each car to pass successively through the revolving elements of the motor and a counter-electromotive-force-generating regulator for the purpose of opposing the current from line-conductors by a counter electromotive force independent of the motors, and independently of and in advance of changes of the speed of the power-motor varying the speed of the revolving element of the counter-electromotive-force-generating regulator by hand control to vary the counter electromotive force opposed to the current supplied to the motor, whereby the various cars may be made to move at different speeds, while being maintained in parallel and receiving current from a single source of supply of constant potential.

8. The herein described method of regulating the speed of an electric motor while performing its normal duty, consisting in continuously passing a current of electricity successively through the revolving elements of two separate motors each having a magnetic field one of which is loaded and the other revolving freely, and positively varying the counter electromotive force of the revolving element of the motor revolving freely independently of the counter electromotive force or variations in speed of the other or loaded motor at a time when it is performing its maximum duty, whereby the current supplied to the latter motor is either positively increased or decreased without being interrupted.

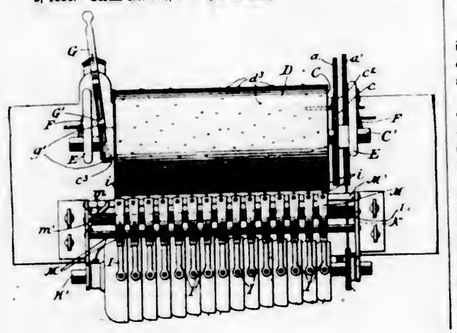
9. The herein-described method of regulating the speed of an electric motor while performing its normal duty, consisting in continuously passing a current of electricity successively through the revolving elements of two separate and distinct motors each having a magnetic field and in which one of said motors is loaded and the other unloaded, and increasing and decreasing the speed of the revolving element of the unloaded motor (in advance of and) independently of the speed of the loaded motor for the purpose of producing a variable counter electromotive force in advance of changes in speed of the loaded motor to continuously oppose to a greater or less extent the initial electromotive force of the current supplied to the motor having the loaded revolving element while performing its normal duty, whereby the latter is made to increase or decrease its speed.

10. The herein-described method of controlling the speed of an electric motor while performing its normal duty, which consists in operating an electric motor and producing a counter electromotive force therein by passing a current of electricity in a circuit through it, generating by self-induction a variable counter electromotive force in the said circuit intermediate of the source of energy and the electric motor during the time the motor is performing its normal duty, and varying the self-induction during the normal running of the motor in advance of, and inversely to the decrease or increase of the counter electromotive force and speed of the motor required.

11. The method of regulating a continuously-flowing current to a translating device capable of producing a counter electromotive force from nothing to a maximum, consisting in supplying a current of constant potential to a translating device having the above qualities, producing by the current intermediate of its source and the translating device a counter electromotive force by self-induction, maintaining this counter electromotive force during the normal action of the translating device, varying this counter electromotive inversely in advance of the changes desired in the counter electromotive force of the translating device while performing its maximum duty, and opposing the initial electromotive force of the source of energy by the combined counter electromotive forces in series while the said translating device is performing its normal work.

12. The method of operating an electric railway having a number of cars, which consists in supplying to a circuit extending along the railway a current of constant potential, operating in parallel across the circuit the motor or motors of the several cars, interposing in parallel in the line-circuits but in series with each of the respective motors independent regulating variable counter electromotive forces whereby the counter electromotive force of the motor and regulating counter electromotive force on each car are employed in series to oppose the electromotive force of the line, and independently varying the regulating counter electromotive force for each car in advance of desired changes of speed and counter electromotive force in its motor or motors to change or regulate the speed without affecting the speed of the motors of the other cars.

641,454. MUSIC-BOX. KARL LANDA, Bayonne, N. J. Filed Apr. 5, 1899. Serial No. 711,782. (No model.)



Claim.—1. The combination with a music-box cylinder having a longitudinal groove of a tune sheet having its ends turned in to snap over the opposite edges of said groove, substantially as shown and described.

2. The combination with the driving mechanism and cylinder of a music-box, of bearings for the shaft of said cylinder said bearings being slotted concentrically with the driving-gear to permit the shaft and cylinder to be moved back, and latches to engage said shaft and retain the cylinder in operative position, substantially as shown and described.

3. The combination with the cylinder of a music-box, said cylinder being movable longitudinally and also movable laterally, of a shifting-lever for shifting said cylinder longitudinally and pivoted on the frame, said shifting-lever having an extensible portion engaging said cylinder to move therewith as the cylinder is moved laterally.

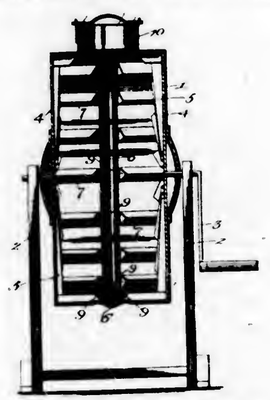
4. A music-box comprising a series of sounding bodies, a series of hammers therefor, means to actuate said hammers, and a bearing-block for said hammers, said bearing-block comprising two parts forming between them a bearing for the pivot-pin or rod of the hammers and slotted at intervals to receive the shanks of the hammers, substantially as shown and described.

5. A music-box comprising a series of sounding bodies, a series of hammers, means to actuate said hammers, a bar rotatably mounted in proximity to said hammers, a series of flat springs secured to said bar and bearing directly and separately upon said hammers, and means to rotate said bar and hold it in adjusted position, substantially as shown and described.

6. A music-box comprising driving mechanism, a bell rotatable on its support, a hammer, actuating devices therefor, and driving connections between said mechanism and said bell, substantially as shown and described.

7. In a music-box, the combination of a tune-sheet carrier, driving mechanism geared to said carrier, a series of bells, a common shaft upon which said bells are mounted, a series of hammers actuated by said tune-sheet, and operative connections between said driving mechanism and said shaft whereby the bells are rotated while the hammers act thereon, substantially as shown and described.

641,455. WASHING-MACHINE. ULYSSES G. LAWRENCE, Glenlock Kans. Filed Oct. 1, 1898. Serial No. 692,374. (No model.)



Claim.—1. In a washing-machine, a rotary cylindrical body having upon its inner side an annular gutter, and ribs at opposite sides of said gutter extending from the side walls inward and terminating adjacent to the gutter, substantially as described.

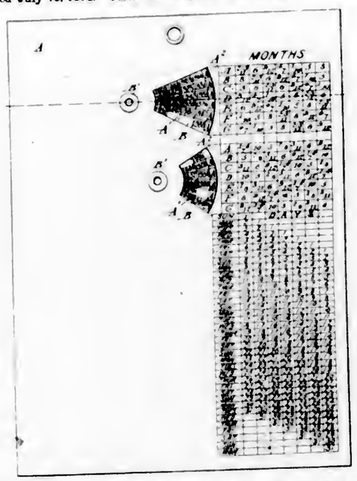
2. In a washing-machine, a rotary cylindrical body having an opening in its periphery, and provided upon its inner side with an annular gutter communicating with said opening, and ribs at opposite sides of the gutter, extending from the side walls inward and terminating adjacent to the gutter, substantially as described.

3. In a washing-machine, a rotary cylindrical body, having an annular gutter upon its inner side, and ribs on opposite sides of the gutter extending from the side walls inward and terminating adjacent to the gutter, the inner ends of said ribs being beveled, substantially as described.

4. In a washing-machine, a rotary cylindrical body provided on the inner surface of its periphery with oppositely-disposed transverse ribs arranged in annular series and extending from the sides of the cylinder inward and terminating short of the center with their inner

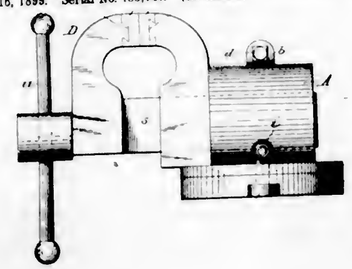
ends spaced apart, said cylinder being provided in the space between the inner ends of the transverse ribs, with an annular groove or gutter, extending entirely around the body and providing a passage for water, substantially as and for the purpose described.

641,456. CALENDAR. CASWELL L. LEONARD, Weedersburg, Ind. Filed July 18, 1898. Serial No. 686,318. (No model.)



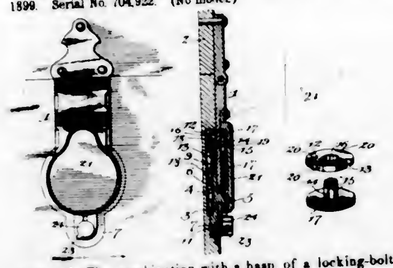
Claim.—In a time-calendar having a base part, an upper revoluble disk pivoted on the base part and having a table of common years in both circular and radiating columns grouped into seven series, designated by seven, alphabetically-arranged series of letters at the periphery of the radial columns, a lower revoluble disk pivoted to the base part having a table of leap-years in both circular and radiating columns grouped in seven series designated by seven, alphabetically-arranged series of letters at the periphery of the radial columns and a table of months and days on the base part of eight vertical columns having two alphabetically-arranged series of letters in the upper portion of the first column at the right of the disks which tally with the seven, alphabetically-arranged series of letters of the revoluble disks for the purpose specified, a table beginning with Sunday containing the names of thirty-seven days in their regular consecutive order tabulated in the lower portion of the first column for the purpose set forth, a series of horizontal columns having a horizontal column for each letter of the two alphabetically-arranged series of letters and for each name of the table of names of thirty-seven consecutive calendar days for the purpose named, a series of figures in the upper horizontal columns which designate certain months of the calendar year and seven series of numbers from "1" to "31" respectively in the seven vertical columns at the right of the names of the calendar days, each series beginning one horizontal column lower than its left-hand series which positions the seventh series of numbers at the right seven horizontal columns lower than the beginning of the first vertical series of numbers at the left, all in the manner and for the purposes set forth.

641,457. BENCH-VISE. WILLIAM H. LIGHT, Lebanon, Pa. Filed Oct. 16, 1899. Serial No. 733,747. (No model.)



Claim.—A vise having an expansible and contractible body and provided with a circular flange, a projection below said flange, a base having an opening engaged by said projection and a seat below said opening, a disk engaging said seat and means for rotatably connecting said body to said base; in combination with suitable apertures in said flange, apertures in said base arranged in a circle, pins for securing the two parts against rotation, a jaw having a cylindrical shank and a non-cylindrical passage therethrough, a jaw having a non-cylindrical shank engaging the passage in the former shank, and an adjusting-screw.

641,458. TRUNK-LOCK. CRAWFORD D. LOGAN, Coal Hill, Ark., assignor of one-half to L. A. Srygley & Co., same place. Filed Feb. 8, 1899. Serial No. 704,922. (No model.)



Claim.—1. The combination with a hasp, of a locking-bolt arranged upon the rear side of the hasp and having a finger-grip projecting through and operating in a slot formed in the hasp, tumblers located upon the rear side of the hasp, and operating-knobs arranged upon the front side of the hasp and connected with the tumblers, substantially as and for the purpose set forth.

2. The combination with a hasp having locking mechanism located upon its rear side and actuating mechanism upon its front side, of a cap-plate hingedly connected with the hasp and adapted to protect and conceal the actuating mechanism, and a locking device for securing the cap-plate when closed, substantially as set forth.

3. In a combination-lock, a knob-spindle provided at its inner or remote end with a series of corrugations, a tumbler fitted upon the inner end of the knob-spindle and having an inwardly-extending cog to act jointly with any one of the series of corrugations to hold the tumbler in an adjusted position and limit its inward movement upon the spindle, means for securing the tumbler upon the knob-spindle, and a knob upon the spindle and having a character thereon corresponding to each of said corrugations, substantially as described.

4. In a permutation-lock, the combination of a knob-spindle having a series of corrugations at its inner end, a tumbler adjustably mounted upon the knob-spindle and provided with an inwardly-extending cog to engage with any one of the series of corrugations thereof to limit the inward movement of the tumbler and fix its position with reference to the knob-spindle, a fastening-screw and washer as means for securing the tumbler to the knob-spindle, and a knob upon the spindle having characters thereon corresponding in number and location to the said corrugations, substantially as described.

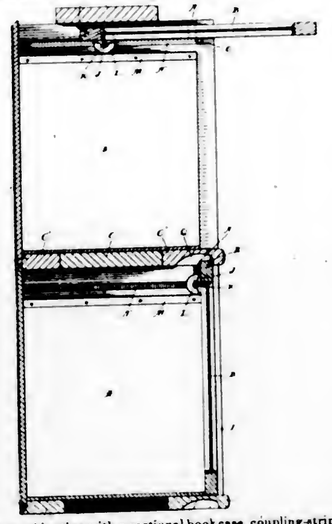
5. The combination with a hasp, of a locking-bolt carried by the hasp and having a finger-grip projecting through and operating in a slot in the hasp, tumblers carried by the hasp, operating-knobs upon the front side of the hasp and connected with a tumbler, a cap-plate hingedly connected with the hasp and arranged to cover the actuating mechanism, and means for latching the cap-plate in a closed position, substantially as described.

641,459. SECTIONAL BOOKCASE. FRANK MACEY, Grand Rapids, Mich. Filed Sept. 7, 1899. Serial No. 729,698. (No model.)

Claim.—1. The combination of a case having horizontal grooves in its ends, a rod having its ends in said grooves and traversing the same, a front pivotally supported on said rod and adapted to turn thereon from vertical to horizontal planes, and means on said casing and cooperating means on said rod for limiting and equalizing the movement of the respective ends of the front.

2. The combination of a case having horizontal grooves in its ends, racks attached to the ends of the case parallel with the grooves, rolls in the grooves and adapted to traverse the same, a rod journaled in said rolls, a front, journal-bearings on the front, and engaging the rod, and pinions fixed on the rod and engaging the racks, substantially as described.

3. In combination with a sectional bookcase, a joint-strip consisting of a strip of metal having a perforated vertical portion at one edge, a middle portion at right angles thereto, and an inclined portion at the other edge, substantially as described.



4. In combination with a sectional bookcase, coupling-strips having tubular portions, and coupling-staples having round parallel prongs to engage and rotative in the tubular portions, substantially as described.

5. In combination with a sectional bookcase, coupling-strips having embracing flanges and tubular portions, and coupling-staples having round parallel prongs to engage said tubular portions, substantially as described.

6. In combination with a sectional bookcase, coupling-strips having offset portions with inwardly-turned flanges and tubular portions near each end, and coupling-staples having round parallel prongs to engage said tubular portions, substantially as described.

7. In combination with a sectional bookcase, strips having parallel embracing flanges, offset portions having inwardly-turned flanges and tubular portions near the ends, and coupling-staples having round parallel prongs to engage said tubular portions, substantially as described.

641,460. FURNACE FOR ROASTING AND REDUCING ORES. HARRISON B. MEECH, Denver, Colo. Filed Mar. 4, 1899. Serial No. 707,799. (No model.)



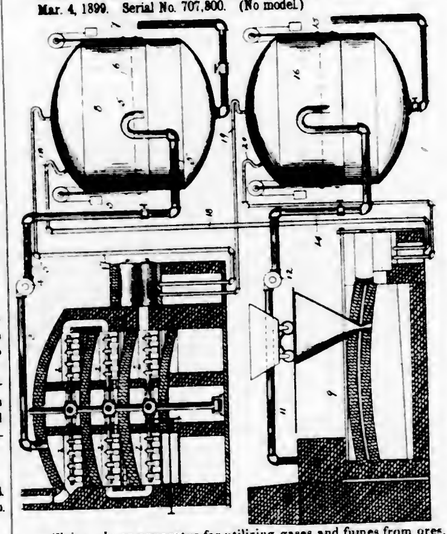
Claim.—1. In a cylindrical roasting-furnace, an oven, a hollow vertical shaft in sections, joined together by center pieces, having horizontal arms fast thereto, said center pieces and arms each interiorly divided into two chambers by a horizontal partition therein.

2. In a cylindrical roasting-furnace, an oven, a hollow vertical shaft in sections joined together by center pieces, having horizontal arms fast thereto, said center pieces and arms each interiorly divided into two chambers by a horizontal partition therein, and an opening in each of the partitions in said arms, connecting said chambers.

3. In a cylindrical roasting-furnace, two or more ovens one above the other, each having an opening in the bottom or bed thereof, a flanged discharge-wheel located in each of said openings, and mechanism for rotating said discharge-wheel, in combination with a hollow vertical shaft in sections, joined together by center pieces, having horizontal arms fast thereto, said center pieces and arms each interiorly divided into two chambers by a horizontal partition therein, and mechanism for rotating said shaft.

4. In a cylindrical roasting-furnace, two or more ovens one above the other, each having an opening in the bottom or bed thereof, and a rotary, flanged, discharge-wheel located in each of said openings; in combination with a hollow vertical shaft in sections, joined together by center pieces having horizontal arms fast thereto, said center pieces and arms each interiorly divided into two chambers by a horizontal partition therein, and mechanism for rotating said shaft, in combination with a pawl-and-ratchet mechanism connected to said discharge-wheel and actuated by said arms.

641,461. APPARATUS FOR UTILIZING WASTE GASES AND FUMES FROM FURNACES. HARRISON B. MEECH, Denver, Colo. Filed Mar. 4, 1899. Serial No. 707,800. (No model.)



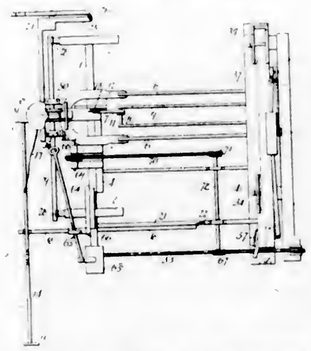
Claim.—In an apparatus for utilizing gases and fumes from ores, a roasting-furnace in combination with a gasometer, means for forcing the gases and fumes from said furnace into said gasometer, a smelting-furnace in combination with a gasometer, means for forcing the gases and fumes from said furnace into said gasometer, and return-pipes leading from each of said gasometers to each of said furnaces, substantially as described for the purpose specified.

641,462. CHECK-ROW CORN-PLANTER. JAMES M MITCHELL, Jordan, Ky. Filed Jan. 26, 1898. Serial No. 668,098. (No model.)

Claim.—1. In a planter for corn and the like, the combination with a seed-hopper and a seed-passage leading therefrom, of a slotted slide in said passage, and means for reciprocating said slide consisting of a rock-shaft operatively connected with the slide and having an arm extending therefrom, and a chain connected with the drive-wheel and carrying spring-fingers adapted to successively engage the arm, substantialy as described.

2. In a planter for corn and the like, the combination with a seed-hopper and a seed-passage leading therefrom, of a slotted slide in said passage, and means for reciprocating said slide consisting of a pivoted lever having rod connection with the slide and rod connection with a second lever, arms extending from the ends of said second lever, a spring-retained rock-shaft having a slotted arm extending therefrom, a rod having crank connection with the shaft and adapted to successively engage the arms of the second lever, and a sprocket-chain passing through the slot of the shaft-arm and provided with spring-fingers adapted to successively engage the latter, substantially as described.

3. In a planter for corn and the like, the combination with a corn-discharging slide and means for reciprocating it, consisting of a rock-shaft operatively connected with the slide and provided with an outwardly-extending arm, and a sprocket-chain passed around sprocket-wheels and carrying spring-fingers for successively engaging the shaft-arm, a clutch at one of the wheels for the chain, means for controlling the clutch, andh and means for rotating the sprocket-chain when the wheel is unclutched, substantially as described.



4. In a planter for corn and the like, the combination with a seed-hopper and a seed-passage leading therefrom having two outlets at its lower end, a slotted slide in said passage having means for operating it, and a pivoted gate-lever the upper end of which is confined in a slot in the slide and the lower end of which alternately controls the said outlets, substantially as described.

5. A marker for corn and other planters, consisting of a rod pivoted at its inner end to a swivel-pin, and a yielding support for the rod comprised of a spring-controlled lever having a rod-seat at its outer end, substantially as described.

641,463. PORTABLE ELECTRIC LAMP. HERMANN J. MULLER, New York, N. Y. Filed Apr. 27, 1899. Serial No. 714,718. (No model.)



Claim.—A portable electric lamp, consisting of a lamp-body, a source of electricity located in said lamp-body, an incandescent electric lamp supported on the body, electric conductors connecting said source of electricity and incandescent lamp, and forming two independent electric circuits between the same, a gravity-switch located in one of said circuits, said switch being adapted to close the circuit when the portable electric lamp is lifted from its point of support, and open the circuit when the lamp is set down, and a hand-operated switch located in the other of said circuits and adapted to open or close the same independently of said gravity-switch, substantially as set forth

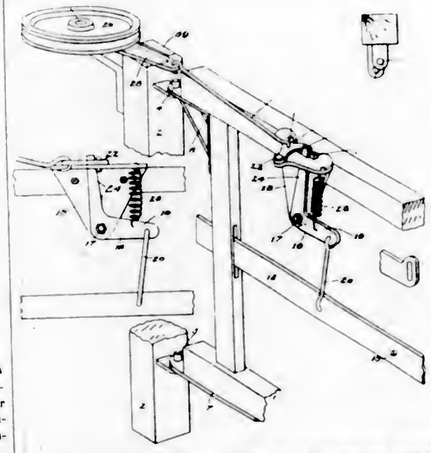
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641,464. GATE. SIMON L. MCCOLLOCH, Wheeling, W. Va. Filed Dec. 20, 1898. Serial No. 699,797. (No model.)

Claim.—1. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, and means for operating the crank-arm.

2. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, and to transmit swinging movement to the gate.

3. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, a hand-lever, and operating mechanism connected with the actuating crank-arm and with the hand-lever



4. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, an operating-wheel secured to the actuating crank-arm, an actuating-wheel mounted independent of the operating-wheel and provided with a hand-lever, and a power-transmitting connection between the actuating-wheel and the operating-wheel.

5. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, an operating-wheel secured to the actuating crank-arm, and oppositely-disposed actuating-wheels mounted independent of the operating-wheel and provided with hand-levers, and power-transmitting connections between such actuating-wheels and the operating-wheel.

6. A swinging gate provided with a pivotally-mounted latching-bar, a lever mounted on the gate connected to and adapted to actuate the latching-bar, an actuating crank-arm mounted independent of the gate, a connecting-pitman attached to the crank-arm and to a movable attachment on the gate adapted to operate said lever by bearing against one side thereof, an operating-wheel secured to the actuating crank-arm, and oppositely-disposed actuating-wheels mounted independent of the operating-wheel and provided with hand-levers, and connected with the operating-wheel by intervening cables.

7. A swinging gate mounted on a post provided with an abutment, mechanism for latching the gate, a wheel pivotally mounted on the post, a crank-arm secured to the wheel and adapted to bear against the abutment, an actuating-wheel provided with a hand-lever and cables connecting such wheel with the wheel carrying the crank-arm, and a connecting-pitman attached to the arm and to the mechanism for latching the gate and adapted to cooperate with the crank-arm to bind the parts in position.

8. Means for swinging and locking a gate consisting of a crank-arm mounted on the gate-post, a pitman connected to the crank-arm and to a movable attachment on the gate, and an abutment against which the crank-arm is adapted to bear and by which its motion is arrested.

9. Means for swinging and locking a gate consisting of a crank-arm mounted on the gate-post, a pitman connected to the crank-arm and to a movable attachment on the gate whereby movement of the crank-arm will impart swinging motion to the gate, the crank-arm and pitman assuming a position in alinement with each other at the limit of motion of the gate, and an abutment against which the crank-arm is adapted to bear upon a slight further additional movement of the crank arm and by which its further movement is arrested beyond the alining position of the crank-arm and pitman, so as to lock the parts in position.

10. In mechanism for unlatching and swinging a gate: a lever mounted on the gate connected to and adapted to actuate a latching-bar and adapted to transmit swinging movement to the gate, an actuating-dog, a pitman connected with the dog, and an operating-crank connected with the pitman, substantially as set forth.

11. In mechanism for unlatching and swinging a gate, a bracket mounted on the gate, a lever connected to a latching-bar and having a limited movement in the bracket, a pivoted dog mounted on the bracket adapted to engage the lever, a connecting-pitman attached to the dog, and an operating-crank connected with the pitman, substantially as set forth.

12. In mechanism for unlatching and swinging a gate, a bracket mounted on the gate, a lever mounted on the bracket connected with a locking-bar and having a limited movement in the bracket, a retracting-spring attached to the lever, a shifting-dog adapted to engage the lever and an operating-crank mounted independent of the gate and connected by a pitman, with the shifting-dog, substantially as set forth.

13. In mechanism for unlocking and swinging a gate: a bracket mounted on the gate, a lever mounted on the bracket connected with a locking-bar and having a limited movement in the bracket, a shifting-dog mounted on the bracket adapted to engage the lever, limiting-stops for the dog, a retracting-spring attached to the lever, a connecting-pitman attached to the shifting-dog, and an operating crank-arm mounted on a sheave-wheel and attached to the connecting-pitman with means for imparting partial rotatory movement to the sheave-wheel, substantially as set forth.

14. In mechanism for unlocking and swinging a gate: a bracket mounted on the gate, a lever mounted on the bracket connected with a locking-bar and having a limited movement in the bracket, a shifting-dog mounted on the bracket adapted to engage the lever, limiting stops for the dog, a retracting-spring attached to the lever, a connecting-pitman attached to the shifting-dog, and an operating crank-arm mounted on a sheave-wheel and attached to the connecting-pitman and sheave-wheels provided with crank-handles and connected with such crank-operating sheave-wheel by intervening operating-cables, substantially as set forth.

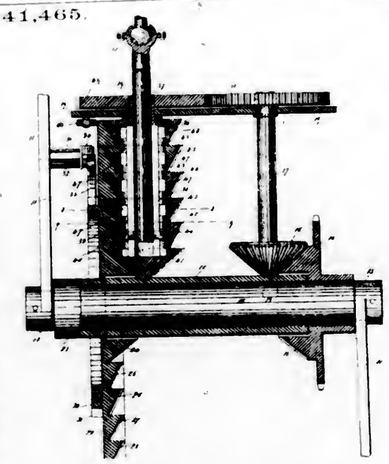
15. In mechanism for unlocking and swinging a gate: a bracket mounted on the gate, a lever mounted on the bracket connected with the locking-bar and having a limited movement in the bracket, a shifting-dog mounted on the bracket adapted to engage the lever, limiting-stops for the dog, a retracting-spring attached to the lever, a connecting-pitman attached to the shifting-dog, and an operating crank-arm mounted on a sheave-wheel and attached to the connecting-pitman with means for imparting a partial rotatory movement to the sheave-wheel and crank-arm and means for limiting the movement of the crank-arm, substantially as set forth.

16. In a fence, the combination of a supporting-post, a gate hinged thereon provided with a pivotally-mounted latching-bar, posts for limiting the swinging movement of the gate at open and closed positions respectively provided with latches adapted to engage the latching-bar, a lever mounted on the gate and connected with the latching-bar, a movable attachment mounted on the gate and adapted to engage the lever, a pitman connected therewith and with a crank-arm, a sheave-wheel secured to the crank-arm and pivotally mounted on the gate-post, operating sheave-wheels located on opposite sides of the gate-post provided with handles and connecting-cables or the like adapted to transmit motion from the operating sheave-wheels to the crank-arm sheave-wheel.

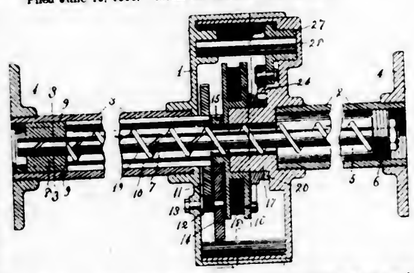
641,465. PROPELLING MECHANISM FOR BICYCLES. JOSEPH MCNEILL, New York, N. Y. Filed Apr. 4, 1899. Serial No. 711,696. (No model.)

Claim.—In a propelling mechanism for bicycles and similar vehicles, a pedal-shaft passing through a stationary support, a sprocket-wheel loosely mounted on one end thereof, a main gear-wheel mounted on the opposite end and adapted to turn therewith, said gear-wheel being provided on its inner side with a plurality of concentrically-arranged beveled gears, a sleeve mounted radially of the inner side of said gear-wheel, supplemental beveled gear-wheels loosely mounted on said sleeve, a shaft mounted radially of said sprocket-wheel and on the inner side thereof, a gear-wheel connected with said shaft for operating said sprocket-wheel, said sleeve and said shaft being also geared in connection, and means for locking the said supplemental beveled gear-wheels to the said sleeve, substantially as shown and described.

641,465.



641,466. FIRE-ESCAPE. ARTHUR P. O'BRIEN, New York, N. Y. Filed June 19, 1899. Serial No. 721,103. (No model.)



Claim.—1. In a fire-escape, a receptacle comprising a casing, tubes secured to each side of said casing and adapted to be secured at their other ends to the sides of a window, a reel in said casing, a tape on said reel adapted to support a descending person, and gearing between said reel and devices for reversing the motion of same when released, substantially as described.

2. In a fire-escape, the combination with a reel, a tape adapted to wind upon same, and a governor adapted to be actuated by the revolution of the tape in one direction, of a spring adapted to be compressed by the rotation of the reel in one direction, a member bearing against said spring, and gearing between said member and said reel for actuating said member to compress said spring, substantially as described.

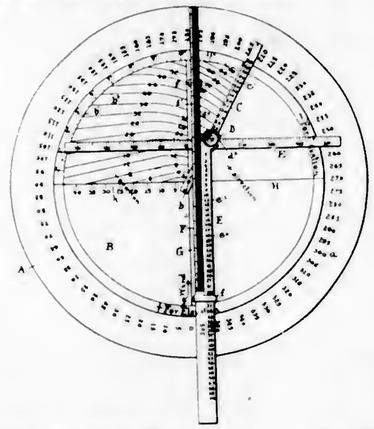
3. In a fire-escape, the combination with a tubular casing, enlarged at its middle portion and adapted to span a window, of a reel in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, connection between said reel and a governor for actuating the latter to regulate the speed of descent, a rigid shaft passing centrally through said casing, a spring on said shaft, a member longitudinally movable on said shaft and bearing against said spring, and gearing between said member and said reel to move said member to compress said spring during the descent of a person, said spring being adapted to reverse the movement of said reel to wind up said tape when the latter is released, substantially as described.

4. In a fire-escape, the combination with a tubular casing, enlarged at its middle portion and adapted to span a window, of a reel in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, connection between said reel and a governor for actuating the latter to regulate the speed of descent, a partially-screw-threaded rigid shaft passing centrally through said casing, a spring on said shaft, a screw-threaded member longitudinally movable on said shaft and bearing against said spring, and gearing between said member and said reel to move said member to compress said spring during the descent of a person, said spring being

adapted to reverse the movement of said reel to wind up said tape when the latter is released, substantially as described.

5. In a fire-escape, the combination with a tubular casing enlarged at its middle portion and adapted to span a window, of a reel pivotally mounted in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, a shaft passing centrally through said casing and said reel, a spring and devices for compressing same carried by said shaft, and gearing between said compressing devices and said reel to compress said reel during the descent of a person, said spring being adapted to reverse the motion of said reel to return said tape when the latter is released, substantially as described.

641,467. DEVICE FOR RESOLVING FORCE INTO ITS RECTANGULAR COMPONENTS. WILLIAM C. RAFFERTY, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,315. (No model.)



Claim.—1. A base having an azimuthal scale or graduation, a revoluble disk mounted thereon, and having lines, marks or other indications at right angles to each other upon said disk, and means coacting therewith for determining the rectangular components of a force, substantially as set forth.

2. A base having an azimuthal scale or graduation, a revoluble disk mounted thereon, lines, marks or other indications at right angles to each other carried by said disk, a mark or other indication upon said disk coacting with said scale or graduation to indicate the direction in which a force is applied, and means for mechanically determining, in conjunction with said marks or other indications, the rectangular components of said force.

3. A base having an azimuthal scale or graduation, a revoluble disk mounted thereon and having a mark or other indication coacting with the scale or graduation upon said base to indicate the direction in which a force is applied, a mark or other indication at right angles to the mark or indication first named, and means, acting in conjunction with said base and said disk, for mechanically determining the rectangular components of a force, substantially as set forth.

4. A base having an azimuthal scale or graduation, a revoluble disk mounted thereon, and bearing lines, marks or other indications at right angles to each other and means coacting with said base and disk for determining the effect of deviating influences upon a projectile, substantially as set forth.

5. A base having an azimuthal scale or graduation, a revoluble, graduated disk mounted thereon, means for determining the effect of deviating influences upon the flight of a projectile, and means for determining the correction to be applied to the direction of such flight to compensate for the effect of such deviating influence, substantially as set forth.

6. A base having an azimuthal scale or graduation, a revoluble, graduated disk thereon, means for indicating upon said disk the direction between a gun and a distant object, means for indicating the force tending to influence the flight of a projectile and the direction of application of said force, and means for determining the correction in the training of said gun upon said distant object, to compensate for the deviating influence of said force, substantially as set forth.

7. A base having an azimuthal scale or graduation, a revoluble disk mounted thereon, a peripheral scale or graduation upon said disk, indicating approximately the distance between a gun or battery of guns and a distant object, and means coacting with said base and disk for mechanically determining the correction to be applied to the direction of fire and elevation of said gun or guns, to compensate for the effect of forces tending to influence the flight of a projectile, substantially as set forth.

8. A base having an azimuthal scale or graduation, a revoluble disk, a mark or other indication upon said disk representing, with reference to said azimuthal scale or graduation, the direction in which a force is applied, mechanism for resolving said force into its rectangular components, and means for ascertaining the correction to the application of another force made necessary by the influence of the force first named, substantially as set forth.

9. The combination with a base having an azimuthal scale or graduation, of a revoluble, graduated disk mounted thereon and having a mark or other indication representing the direction in which a force is applied, a pivoted arm having a scale or graduation, and an arm mounted upon said pivoted arm and adjustable thereon, said adjustably-mounted arm having a scale or graduation, substantially as set forth.

10. The combination with a base having an azimuthal scale or graduation, of a revoluble disk mounted thereon and having a mark or other indication representing the direction in which a force is applied, a pivoted arm, and two arms adjustably mounted upon said pivoted arm, said disk and pivoted arm and the two arms mounted upon said pivoted arm having scales or graduations, substantially as set forth.

11. The combination with a base having an azimuthal scale or graduation, of a revoluble, graduated disk mounted thereon and having a mark or other indication representing the direction in which a force is applied, a pivoted arm, and two arms located at right angles to each other and adjustably mounted upon said pivoted arm, substantially as set forth.

12. The combination with a base having an azimuthal scale or graduation, of a revoluble, graduated disk mounted thereon and having a mark or other indication representing the direction in which a force is applied, a pivoted arm, and two arms located at right angles to each other and adjustably mounted upon said pivoted arm, said two arms having scales or graduations, substantially as set forth.

13. The combination with a base having an azimuthal scale or graduation, of a revoluble disk mounted thereon and having a scale or graduation and a mark or other indication representing the direction in which a force is applied, a pivoted arm, a sliding block upon said pivoted arm, and two arms located at right angles to each other and pivotally mounted upon said sliding block, substantially as set forth.

14. The combination with a base having an azimuthal scale or graduation, of a revoluble disk mounted thereon and having a scale or graduation and a mark or other indication representing the direction in which a force is applied, a pivoted arm, a sliding block upon said pivoted arm, two arms located at right angles to each other and pivotally mounted upon said sliding block, and means for clamping said block in position upon said pivoted arm, substantially as set forth.

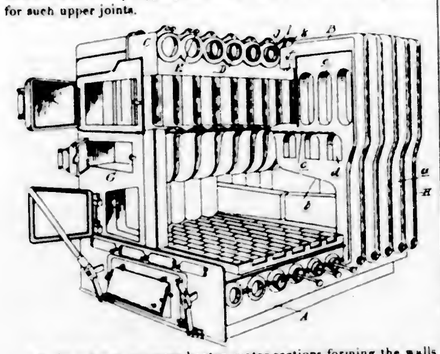
15. The combination with a base having an azimuthal scale or graduation, of a revoluble disk mounted thereon and having a scale or graduation and a mark or other indication representing the direction in which a force is applied, a pivoted arm, two arms located at right angles to each other and adjustably mounted upon said pivoted arm, and a graduated rule adjustably mounted upon one of said two arms, substantially as set forth.

16. The combination with a base having an azimuthal scale or graduation, of a revoluble disk mounted thereon and having a scale or graduation and a mark or other indication representing the direction in which a force is applied, a pivoted arm, two arms located at right angles to each other and adjustably mounted upon said pivoted arm, and a graduated rule mounted upon one of said two arms and having longitudinal movement thereon, substantially as set forth.

641,468. STEAM OR HOT-WATER HEATER. JOHN A. RATHBONE, Detroit, Mich. Filed Feb. 1, 1899. Serial No. 704,153. (No model.)

Claim.—1. A steam or water heater comprising a water-base having side headers, a series of hollow heater-sections, a horizontal slip-nipple connection between the bottom of each section and the water-base, a top header between the upper ends of the sections and forming a complementary part of the heater-casing, and slip-nipple connections between the top of each section and said header.

2. In a steam or water heater the grates, headers at each side of the grates, a series of hollow heater-sections extending over the grates and a water-leg on each section extending down beside said headers said sections forming the heater-walls or casing, a slip-nipple connection between said legs and headers, exteriorly-extending clamping means for such slip-nipple joints, a header between the nipple ends of the sections, forming a part of the top header-wall, slip-nipple connections between each section and said header, arranged parallel to the lower slip-nipple joint thereof and exterior clamping means for such upper joints.



3. In a steam or water heater, water-sections forming the walls of the heater, overhanging the grate, and forming the side portions of the top of the combustion-chamber, a header closely fitting between the tops of the sections and forming the middle portion of the top of such casing.

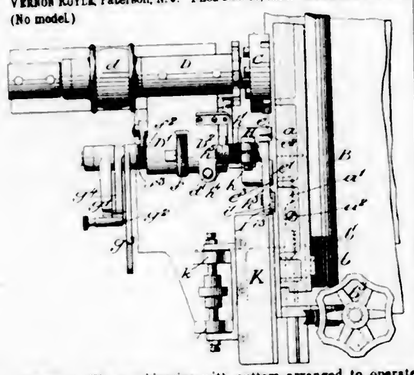
4. In a heater the combination with a water-base of hollow sections connected to said base and arranged side by side adjoining each other upon opposite sides thereof, said opposite sections having abutting overhanging portions forming the top of the furnace-chamber and being cut away above to form a return-flue, and a header interposed and closely fitting between and connected to the upper ends of said sections and forming the top of said return-flue.

5. The combination with an annular water-base of a series of hollow sections B connected thereto each consisting of the water-leg *a* extending down outside the base, the inwardly-extending portion *b* abutting the opposite section and the horizontal rib or enlargement abutting the adjacent section, the portion *b* being provided with the apertures *d* and *e* below and above the horizontal rib, and being cut away at *f*, a header C interposed between the upper ends of the sections, parallel slip-nipples connecting said sections to said header and base respectively and clamping-bolts for securing them thereto.

6. In a steam or water heater, sections forming the walls of the heater and overhanging the grate, the upper ends of such sections being separated, a header closely fitting between and forming with the sections, a closed top of the combustion-chamber, slip-nipple joints between the sides of such headers and each section, and exterior clamping means for such slip-nipple joints.

7. In a steam or water heater, a water-base, a top header, a series of hollow heater-sections arranged side by side, parallel slip-nipples extending from the same side of each section and connecting respectively with said top and bottom headers, and exterior clamping means for securing said sections to said headers.

641,469. LINE ATTACHMENT FOR BEVELING-MACHINES. VERNON ROYLE, Paterson, N. J. Filed Dec. 18, 1897. Serial No. 662,388. (No model.)



Claim.—1. The combination with cutters arranged to operate upon the plate at its edge, a gage for determining the path of said cutters and means for supporting the plate during its movement back and forth in proximity to said cutters of a channeling-cutter mounted to move toward and away from the face of the plate at or near its margin and means arranged to coact with the channeling-cutter and adapted to rest upon the surface of the plate at or near its margin to determine the depth of cut whereby the cut formed by the channeling-cutter may be a predetermined depth whether the margin of the plate be raised above or on a level with the central portion, substantially as set forth.

2. The combination with a furrow-cutter, means for leveling the bur formed by the furrow-cutter and means for feeding the plate, of a channeling-cutter arranged to travel along the margin of the furrow and an adjustable heel arranged to act in conjunction with the channeling-cutter to regulate the depth of cut, substantially as set forth.

3. The combination with a furrow-cutter and a beveling-cutter arranged to engage a plate and means for feeding the plate to the cutters, of a shaving-cutter for operating upon the bur raised by the furrow-cutter, a channeling-cutter arranged to travel along the margin of the furrow and an adjustable heel arranged to travel along the path of the shaving-cutter to regulate the depth of cut of the channeling-cutter, substantially as set forth.

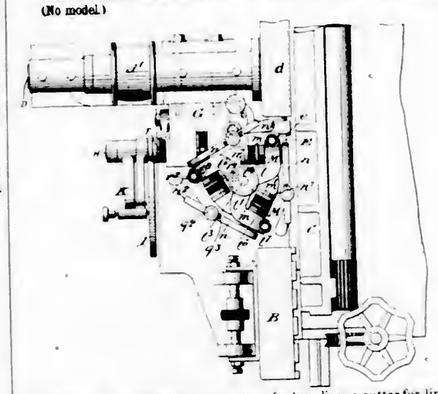
4. The combination with a furrow-cutter and suitable means for feeding a plate to the cutter, of a beveling-cutter, a heel-piece in proximity to the channeling-cutter, an adjusting-screw for adjusting the heel-piece relatively to the cutter and means for throwing the heel-piece and channeling-cutter into and out of engagement with the plate at pleasure, substantially as set forth.

5. The combination with the furrow-cutter and means for feeding the plate thereto, of the channeling-cutter arranged to follow the margin of the furrow and a swinging arm forming a support for the channeling-cutter, substantially as set forth.

6. The combination with the furrow-cutter, the shaving-cutter, their rocking support and means for feeding the plate into position to be operated upon by the cutters, of a channeling-cutter and a swinging arm forming a support for the channeling-cutter, the said swinging arm being supported in position to swing the channeling-cutter into and out of position at the margin of the furrow, substantially as set forth.

7. The combination with the beveling-cutters and the channeling-cutter, of a feed-table, a clamping-plate, means for adjusting the clamp-plate toward and from the table, an auxiliary clamping-piece and means for adjusting it to and removing it from the clamp-plate to accommodate plates of widely-different dimensions, substantially as set forth.

641,470. LINING ATTACHMENT FOR BEVELING-MACHINES. VERNON ROYLE, Paterson, N. J. Filed Jan. 19, 1899. Serial No. 702,642. (No model.)



Claim.—1. In combination a cutter for beveling, a cutter for lining and a sliding work-support arranged to bring a plate into engagement with the said beveling and lining cutters and means coacting with the lining-cutter and arranged to depend upon the plate to regulate the depth of cut of the lining-cutter, substantially as set forth.

2. In combination a lining-cutter, a work-support arranged to present the work to the cutter and means coacting with the lining-cutter and arranged to rest upon the work to determine the depth of cut of the lining-cutter, substantially as set forth.

3. In combination, a lining-cutter, a support for the cutter free to move toward and away from the work, a reciprocatory table for

supporting the work in position to engage the cutter and a cutter-guard arranged to rest upon the surface of the work to determine the depth of cut of the cutter, substantially as set forth.

4. In combination a rotary cutter for beveling the edge of the plate, a lining-cutter, means coacting with the lining-cutter and arranged to depend upon the surface of the plate to determine the depth of cut of the lining-cutter, a set-gage for indicating the line of cut and a sliding table and clamp for presenting the work to the beveling and lining cutters, substantially as set forth.

5. The combination with a plate-support, of a plurality of independent cutters, a main support common to the several cutters and independent supports one for each cutter, the said common support being arranged to bring the cutters on the independent supports into positions to engage the plate at different distances from the edge of the plate, substantially as set forth.

6. The combination with a reciprocatory plate-support, of a plurality of cutters, a rotatably-adjustable support common to the several cutters and means for adjusting the cutters at different distances outwardly from the center of the rotary support to bring them into working positions at different distances from the edge of the plate, substantially as set forth.

7. The combination with a reciprocatory plate-support, of a plurality of cutters, a rotatably-adjustable support common to the several cutters and individual cutter-holders having a swinging engagement with said rotary support, substantially as set forth.

8. The combination with a reciprocatory plate-support, of a plurality of cutters, a horizontal rotatably-adjustable support common to the several cutters and vertically-swinging individual cutter-holders carried by said rotatably-adjustable support, substantially as set forth.

9. The combination with a plate-support, of a rotary cutter-support provided with a plurality of branches, an adjustable sleeve located in each of the branches, a cutter-holder having a spindle secured in the adjustable sleeve for permitting a swinging movement of the cutter relative to the said rotary support and means for locking the said rotary support in its various rotary adjustments, substantially as set forth.

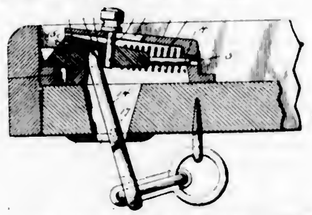
10. The combination with the swinging cutter-support and means for securing the cutter thereto, of a spring-guard for determining the depth of cut and means for holding the said spring-guard in varying positions with respect to the point of the cutter, substantially as set forth.

11. A lining attachment for beveling-machines comprising the cutter-holder provided with a seat for the reception of the cutter, the cutter provided with an offset along its side, a clamp or cheek piece having its lower edge engaged with the side and back of the cutter and its upper edge engaged with the offset on the holder and means for holding the clamping-piece removably in position, substantially as set forth.

12. The combination with the swinging cutter-support, the cutter and a spring-guard for determining the depth of cut, of a micrometer-screw for holding the spring-guard in the desired operative position with respect to the point of the cutter, substantially as set forth.

13. In combination a suitable supporting-frame, a rocking cutter-head, a shaft and connecting mechanism for operating the rocking cutter-head, a lining-cutter, a bracket forming a common support for the said rocking cutter-head, shaft and lining-cutter, and means for connecting the said bracket with the supporting-frame, substantially as set forth.

641,471. DOOR-CATCH. CHRISTIAN F. SCHEEL, Western, Nebr. Filed Mar. 21, 1899. Serial No. 709,956. (No model.)



Claim.—1. The combination with a spring-actuated bolt having an operating-knob projecting from one side of the casing and provided on its opposite side with a socket, of a pivoted pin or lever projecting from the opposite side of the casing and having its inner end removably fitted in the socket, said pin or lever being adapted to be rotated on its longitudinal axis, and an escutcheon-plate permitting the insertion and withdrawal of said pin without removing the escutcheon and having oppositely-disposed notches on its inner face adapted to engage trunnions on the pin when the latter is in operative position, substantially as and for the purpose described.

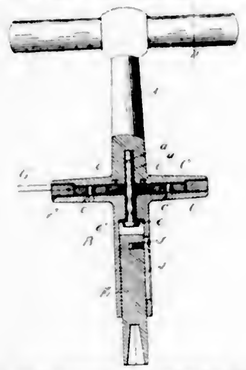
2. The combination with a spring-actuated bolt, bolt-operating knob and casing, of an escutcheon-plate having an oblong slot and with oppositely-disposed notches on its inner face, and a rounded pin adapted to be rotated on its longitudinal axis for permitting its insertion and removal without removing the escutcheon, said pin having a pointed inner end adapted to engage a socket in the bolt and provided with a loop on its projecting outer end and oppositely-disposed studs or trunnions at a point intermediate said ends adapted to engage the notches in the escutcheon, and an eye or ring on the door adjacent to the looped end of the pin or lever, which, together with said end of the pin or lever is adapted to receive a padlock for locking the bolt against movement from either side of the door, substantially as described.

641,472. WIRE HAME-FASTENER. JOHAR S SHAFFER, Laramie, Wyo. Filed May 15, 1899. Serial No. 716,889. (No model.)



Claim.—A hame-fastener comprising a lever having a terminal eye, and a laterally-offset fulcrum extension, a single hook having a looped shank and an integral end cross-bar which passes through said fulcrum extension, and a double hook comprising parallel members which pass through the looped shank of the single hook, and limit the throw of the lever and lock the same by coming in contact with the end cross-bar of the single hook, said parallel members being connected by an integral end cross-bar which passes through the terminal eye of the lever, both hooks being pivotally connected with the lever and inseparably attached thereto by bending the lever to form the terminal eye and fulcrum extension, which encircle portions of the hooks, substantially as set forth.

641,473. TUNING-KEY FOR PIANOS. GEORGE B SIBLEY, Detroit, Mich. Filed Feb. 27, 1899. Serial No. 706,913. (No model.)



Claim.—1. The combination in a tuning-key, of an arm turning loosely upon said key in a plane at right angles thereto, an extensible socket-piece carried by the key and a clamp having a swiveled guide-bearing for the arm vertically extensibly connected with the clamp.

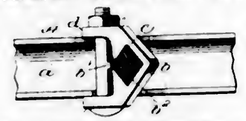
2. The combination in a tuning-key, of a shank composed of separate grip and socket portions having corresponding circular enlargements, at their inner ends an internally-geared ring interposed between and against which said enlargements are seated means for holding the ring stationary, a pin axially connecting the grip and socket portions of the shank which are free to rotate upon their axes independently of each other and of the ring, said ring forming the stationary part of a reducing-gear inclosed within the ring and adapted to transmit motion from the grip to the socket portion of the shank, and a vertically-adjustable socket-piece carried by said socket portion.

3. The combination in a tuning-key, of a shank composed of separate grip and socket portions, an internally-geared ring against which the inner ends of said shank portions are seated on opposite sides by means of corresponding enlargements on the inner ends of said shank portions, a center pin axially connecting the shank portions which are free to revolve on the ring independently of each other, means for holding the ring stationary, a gear-pinion concentric with the ring and connected to the grip portion of the shank, and one or more intermediate pinions carried by the socket portion of the shank and intermeshing with the aforesaid geared ring and pinion, and the adjustable pocket-piece E detachably secured to said socket portion.

4. The combination in a tuning-key, of a shank composed of separate grip and socket portions formed with circular enlargements at their inner ends, an internally-geared ring interposed between said enlargements and forming in connection therewith a housing, means for holding the shank portions in axial line with each other and with the ring free to turn independently of each other, a center pinion inclosed within the housing and carried by the grip portion of the shank, one or more intermediate pinions between the ring and center pinion and carried by the socket portion of the shank, an arm on the ring and a clamp having a swiveled guide-bearing for the arm.

5. The combination in a tuning-key, of a shank composed of separate grip and socket portions, a ring interposed between and against which said shank portions are seated axially with each other and with the ring and adapted to rotate independently of each other, an internal gear on the ring, a center pinion carried by the grip portion of the shank, one or more intermediate pinions carried by the socket portion of the shank, an arm on the ring and a clamp having a swiveled guide-bearing for the arm extensibly connected to the clamp.

641,474. HARROW-TOOTH HOLDER. MARQUIS J. TODD, Buffalo, N. Y. Filed Feb. 28, 1899. Serial No. 707,206. (No model.)



Claim.—1. The combination with a harrow-bar, of a clip engaging such bar and having integral therewith a split portion formed with an opening for the harrow-tooth, and a binding-bolt for holding the clip on its bar and gripping the tooth by said split portion, as set forth.

2. The combination with a harrow-bar, of a clip embracing such bar and having a horizontal portion formed with an angular opening which is split at one point, and a bolt for clamping said clip on said bar and gripping said horizontal portion against a tooth inserted in said opening.

3. The combination with a harrow-bar, of a clip embracing such bar and having a horizontal split portion formed with an angular opening to accommodate a harrow-tooth, apertured ears carried by said clip on opposite sides of said bar, said split portion being intermediate of said ears, and a bolt inserted through said ears, substantially as set forth.

4. The combination with the U-shaped bar, of a clip embracing the top and sides of said bar, and having apertured ears in line beneath said bar, a horizontal split portion formed with said clip and having an angular opening therein, and a bolt inserted through said ears and extended beneath said bar, substantially as set forth.

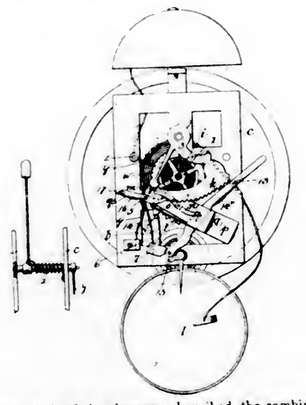
5. The combination with the U-shaped bar, of a clip embracing the top and sides of said bar, and having apertured ears in line beneath said bar, a horizontal split portion located beneath said bar and having an angular opening therein, and a bolt inserted through said ears, substantially as set forth.

6. The combination with the U-shaped bar having an angular opening therein, of a clip embracing said bar having a split portion formed with an angular opening coincident with the opening in said bar, said split portion being extended beneath the bar, and a bolt engaging the sides of said clip for binding the latter on said bar and gripping a tooth inserted through said angular openings, substantially as set forth.

641,475. REPEATING CLOCK. ENRIQUE TORRES, Guadalajara, Mexico. Filed July 29, 1899. Serial No. 725,497. (No model.)

Claim.—1. In a clock of the character herein described, the combination with a time mechanism and mainspring, of an independent striking mechanism, and an independent power-spring for said striking mechanism, said latter independent spring consisting of a coiled spring and a spring-band, one end of the coil secured to the hand, a rivet connecting said spring and band, one end of said band bearing against said rivet, a drum within which said band and coil are placed, a central minute-hand arbor extending through said drum, one end of the coil secured to said arbor, the opposite end of the coil and the connected band adapted to slide within the drum as the coil is tightened by the rotation of said arbor, substantially as described.

2. The drum provided with the sliding band and the coiled spring connected at one end to such band, a rivet connecting such parts, and the free end of said band bearing against said rivet, substantially as described.

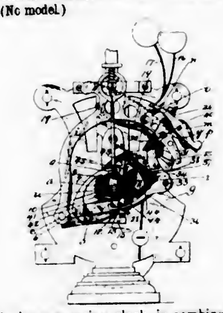


3. In a clock of the character described, the combination with a time mechanism and mainspring, of an hour-snail carried upon the hour-hand sleeve and central arbor, and an independent striking mechanism connected with said snail and consisting of a toothed lever engaging with said snail, a spring-actuated rocking rod to which said lever is connected, a swinging frame hung at the end of said rod and provided with a segmental rack, a gathering-pawl provided with a pin for engaging with and moving said rack, a spur-wheel, pinion, and escapement mechanism to which said gathering-pawl is connected, a spring-controlled pivoted pawl, engaging with and holding said rack at the point turned by said gathering-pawl, a spring-controlled rocking frame carrying said pawl, said rocking frame provided with a finger, a cam on the central time-arbor by which said finger is operated to rock the said frame, a toothed spring-actuated time-wheel on the same arbor, said wheel provided with trips at intervals, and a spring-actuated rod carrying a bell-striking hour-hammer, adapted to connect with and be operated by said tripping time-wheel, substantially as described.

4. In a clock of the character described, bells and hammers for striking the hours and half-hours, a controlling-cam common to both hammers, and mounted on the main arbor, a hammer-vibrating mechanism for the hours-hammer, a spring for driving said hammer-vibrating mechanism, an escapement controlling said vibrating mechanism and said cam controlling said escapement, substantially as described.

5. A pivoted lever on the framework in combination with the hour and half-hour striking mechanisms, an escapement controlling said hour-striking mechanism, one end of said lever adapted to engage with the escapement and the opposite end with the half-hour-striking mechanism, whereby the striking mechanism may be arrested or prevented, substantially as described.

641,476. REPEATING STRIKING MECHANISM FOR CLOCKS. ENRIQUE TORRES, Guadalajara, Mexico. Filed July 29, 1899. Serial No. 725,498. (No model.)



Claim.—1. In a repeating clock, in combination with the time-train, means for repeating the hours at certain fractions thereof, a

stop for preventing the operation of said repeating means, and a trip for said stop, carried by the time-train, whereby the hours are struck when indicated, but not repeated at the fractions thereof, substantially as described.

2. In a repeating clock, a pivoted rack, said rack having teeth corresponding to the hours and other teeth to certain fractions thereof, means for releasing and for driving raid rack, a striking mechanism, a pivoted check-lever adapted to engage with said rack, a rocking releasing-arm for said striking mechanism, a setting-lever, having means to adjust said check-lever or release-arm in locking position, and a trip adapted to release said check-lever, substantially as described.

3. In a repeating clock, in combination with striking mechanism, a locking and release device for said striking mechanism, a rocking arm, connections between said arm and the striking mechanism whereby the former is operated by the latter, a snail having steps of varying lengths, said snail mounted on the locking and release device, said rocking arm adapted to contact with said snail, substantially as described.

4. In a repeating clock, in combination with the time-train, a swinging rack, means to control the movement of the rack by the time-train, a striking mechanism, a pivoted lever adapted to engage and release said mechanism, a snail mounted on said lever, a rocking contact-arm secured to said rack and extending below said snail and adapted to engage the same, substantially as described.

5. In a repeating clock, in combination with the time-train, a star-wheel mounted on the main arbor thereof, said wheel having its points corresponding in number to certain fractions of an hour, a snail, said snail provided with pins adapted to be engaged by the star-wheel, a rocking arm on which said snail is mounted, a striking mechanism, a locking-pin on said rocking arm, means of engagement between the pin and the striking mechanism, means to release said pin, and a second rocking arm adapted to contact with the snail to restore said pin to locking position, substantially as described.

6. In a repeating clock, in combination with a mainspring and a time-train, a striking mechanism, a spring for driving said striking mechanism, a connection between the time-train and spring whereby the latter is wound, a star-wheel having points corresponding to certain intervals of an hour, a rocking arm, a latch at one end of said arm, an escapement for said spring, connections between said latch and escapement, a trip at the other end of said arm, said star-wheel bearing against said trip end of the arm, whereby each point of the star-wheel will trip the arm and latch and release the spring, substantially as described.

7. In a clock, a plurality of pivoted bell-hammers, means to simultaneously vibrate said hammers, an winging stop mechanism operated by the vibration of the hammers, a projection on said stop mechanism, an arm on one of said hammers, adapted to contact with said projection, substantially as and for the purpose described.

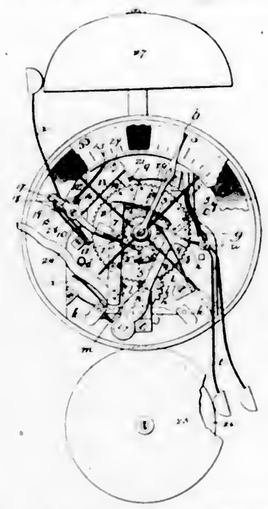
8. In a clock, a swinging rack, a detent-pawl for said rack, means on the time-train to release said pawl, an hour-snail, a rocking bar carried by said rack and adapted to contact with the snail to control the extent of movement of the rack, a vibrating bell-hammer, a rotating wheel carrying pins to actuate said hammer, an escapement controlling said wheel, a rocking arm, a pin carried by said arm and adapted to engage said escapement, a star-wheel carried by the time-train and means on said rocking arm with which said star-wheel engages to control the release of the escapement and an impulse-pawl carried by said hammer and adapted to engage the rack, whereby the latter is retained by the vibration of the hammer, substantially as described.

9. In a repeating clock in combination with the hours and quarters striking mechanism, mechanism to repeat the hours at the quarters, the swinging rack, a projection on said rack, a pivoted check-lever, an escapement controlling the striking mechanism, a rocking release-arm engaging said escapement, a setting-lever movable into three positions, to hold the check-lever out of engagement with the rack, to carry the check-lever into engagement with the rack to thereby prevent the operation of the hour-repeating mechanism, and to lock the rocking release-arm into engagement with the escapement to prevent striking, substantially as described.

10. In a clock, mechanisms for striking hours and fractions of an hour, means to repeat the hours at the quarters, the swinging rack, the bell-hammers, a rotating wheel, pins on said wheel to vibrate said hammers, an arm on one of said hammers, a projection on said swinging rack, said projection adapted to strike said arm and separate the hammers at the end of the repetition of the hours, whereby in the continued vibration of the hammers the striking of the fractions of the hours will give a double sound, substantially as described.

641,477. REPEATING CLOCK. ENRIQUE TORRES, Guadalajara, Mexico. Filed July 29, 1899. Serial No. 725,499. (No model.)

Claim.—1. In a clock, in combination with a movable dial, a ratchet-wheel carried thereby, a rocking ratchet-lever, a time-train, a wheel released by said train, means to drive the wheel, and a trip on said wheel to rock said lever, substantially as described.



2. In a clock, in combination with a movable dial, a ratchet-wheel carried thereby, a hammer, a hammer-vibrating mechanism, a second ratchet-wheel carried by said mechanism, a rocking ratchet-lever, oppositely-working ratchet-pawls carried by said lever to engage said wheels, means to rock said lever, a time-train, connections between said train and rocking means and means on said second ratchet-wheel to control the operation of the hammer-vibrating mechanism, substantially as described.

3. In a clock, in combination with a time-train, a rocking latch-lever, an escapement-wheel, a hammer, hammer-actuating mechanism, a latch at each end of said lever adapted to engage said escapement-wheel and hammer-actuating mechanism respectively, a trip on said time-train to release said latch-lever, and means to operate said trip at certain intervals of an hour, substantially as described.

4. In a clock, a mechanism for striking quarters or other fractions of an hour, comprising a hammer, a rotating wheel, a spring to drive said wheel, a latch to hold said wheel and a trip to release said latch, said wheel provided with several series of pins, each series corresponding to one of said fractional periods, said hammer having a trip-arm extending into the path of said pins, and a stop-pin in each series to engage said latch, substantially as described.

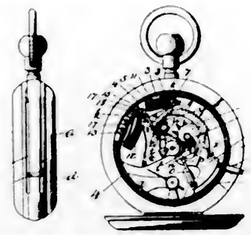
5. In a clock, in combination with a hammer or hammers for striking the quarters, means to actuate said hammer or hammers, a rotating wheel, a hammer for striking the hour, a rocking carrier for said hammer, a carrier-rocking pin on said wheel, and means on said wheel to vibrate said hammer, substantially as described.

6. In a clock, in combination with a bell-hammer, a rocking carrier therefor, a rotating wheel, projections on said wheel, an arm on said hammer, means to rock said arm into line with said projections, a spring-latch for said arm, a release or trip device for said latch carried by said wheel, and means to successively retard the action of said release or trip device, substantially as described.

7. In a clock, in combination with a hammer and carrier therefor, a time-train, a rotating wheel, a latch and trip mechanism for said wheel operated by the time-train, said wheel provided with means to rock said carrier, pins on said wheel to vibrate said hammer, a ratchet-wheel carried by said pin-wheel, releasing or trip pins carried by said ratchet-wheel, a rocking ratchet adapted to engage said ratchet-wheel, a projection on said pin-wheel adapted to rock said ratchet, whereby on each revolution of the pin-wheel, the ratchet-wheel trip-pin will be turned back the distance of one tooth of said ratchet-wheel to thereby permit a succeeding pin of the pin-wheel to vibrate said hammer, substantially as described.

641,478. REPEATING WATCH. ENRIQUE TORRES, Guadalajara, Mexico. Filed July 29, 1899. Serial No. 725,500. (No model.)

Claim.—1. In a repeating timepiece, in combination with a bell and a hammer, a hammer-vibrating member, an operating handle-lever directly and integrally attached to said member to move it, and a pawl connection between said vibrating member and hammer to enable said vibrating member to move freely past the hammer when pushed in one direction by the handle and to vibrate the hammer when the handle is pulled back, whereby the vibrating member is positively positioned for vibrating the hammer and positively pulled back to vibrate the hammer, by said handle-lever, substantially as described.



2. In a repeating timepiece, in combination with a bell and hammer, a swinging rack, a click intermediate said rack and hammer, an operating-handle directly and integrally attached to said rack for positively pushing it past the click and for positively pulling it back to engage the click and vibrate the hammer, substantially as described.

3. In a repeating timepiece, in combination with a bell and a plurality of hammers, for striking the hours and fractions of an hour, a swinging rack having a series of teeth corresponding to the hours and a plurality of series of teeth corresponding to the fractions of an hour, the teeth of all the series pointing in the same direction, whereby the rack moves freely past the hammers in one direction but is adapted to engage them in the other direction and caused to give a double sound to indicate the fractions of an hour, and an operating-handle directly and integrally attached to said rack for positively swinging the same, substantially as described.

4. In a repeating watch, in combination with a hammer and actuating means therefor, an operating-lever, a handle therefor, said handle extending outside the case, a locking-slot in the cover of the watch through which said handle projects when the cover is closed, said slot extending from the starting end of the sliding movement of the handle for a shorter distance than the length of movement of the handle whereby the handle and actuating means must be returned to starting position before the watch can be closed, substantially as described.

5. In a repeating watch, in combination with the hours and quarters snails, the swinging hammer-actuating rack, an operating-handle positively attached to said rack, said handle extending outside the case, a slot in the face-cover of the watch through which said handle projects, said slot at the starting end of the movement of said handle and shorter than the length of said movement whereby the handle and rack must be returned to starting position before the watch can be closed, substantially as described.

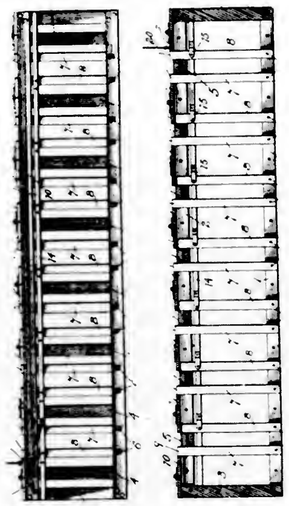
641,479. MEANS FOR ATTACHING HANDLES TO BRUSHES. JOHN W. TOTTLE, Baltimore, Md., assignor to William A. Tottle, same place. Filed Sept. 16, 1899. Serial No. 730,702. (No model.)



Claim.—1. The combination of a plate having an inclined handle-socket which latter is provided in its bottom with an opening; a handle to fit the socket having a screw-threaded end which passes through the opening in said socket; a brush-block provided with means for receiving the screw-threaded end of said handle, and means pivotally connecting said plate to admit the socket and plate being turned with respect to said brush-block.

2. The combination with a brush-block; a plate, *c*, rigidly secured on top of said brush-block and provided with a number of screw-threaded holes; a plate having an inclined socket which latter is provided in its bottom with an opening; means pivotally securing said socket-plate to the rigid plate; and a handle provided in its end with a screw-threaded pin which latter passes through the opening in the bottom of the socket and is adapted to be secured into any one of the holes in said rigid plate for the purpose set forth.

641,480. CATTLE-STANCHION. CHARLES H. TURNER, Westphalia, Kans. Filed Sept. 6, 1899. Serial No. 729,628. (No model.)

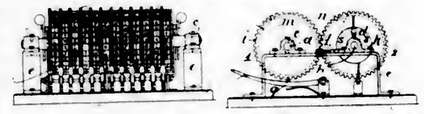


Claim.—1. The combination of a plurality of stanchions, each consisting of two stanchion-bars both of which are pivoted at corresponding ends to the stanchion-frame, one bar of each stanchion being engaged by an individual latch on the frame, and the other bar connected to a common operating-bar for simultaneously opening and closing all the stanchions, substantially as described.

2. The combination of a plurality of stanchions, each consisting of two stanchion-bars, both of which are pivoted at corresponding ends to the stanchion-frame, one bar of each stanchion being engaged by an individual latch on the frame, and the other bar connected to a common operating-bar for simultaneously opening and closing all the stanchions, and a terminal latch pivotally mounted on the frame for holding said common operating-bar, substantially as described.

3. The combination of a plurality of stanchions, each consisting of two stanchion bars of unequal length both pivoted at corresponding ends to the stanchion-frame, individual latches on the frame for each of the longer stanchion-bars, a common operating-bar operatively connected to all of the shorter stanchion-bars, and means for locking the common operating-bar, substantially as described.

641,481. CIPHER APPARATUS. GIOVANNI B. N. VALVASORI, Padua, Italy. Filed Apr. 7, 1899. Serial No. 712,129. (No model.)



Claim.—1. In a cipher apparatus, two rows of rotatable disks bearing peripheral characters, means for throwing opposite disks into and out of engagement, means for simultaneously rotating opposite disks, and eyes above the disk-rims through which one of the characters on each disk is exposed, substantially as specified.

2. In a cipher apparatus, a pair of shafts, a laterally-adjustable bearing for supporting one of the shafts, two rows of opposite intergeared disks rotatable on the shafts and bearing peripheral characters, and eyes above the disk-rims through which one of the characters on each disk is exposed, all being so constructed that opposite disks are intergeared and simultaneously rotatable, substantially as specified.

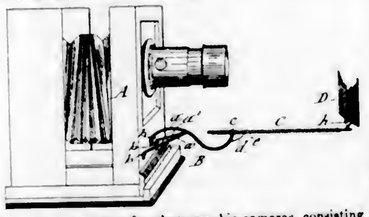
3. In a cipher apparatus, a pair of shafts of which one is laterally adjustable, two rows of opposite intergeared disks rotatable on the shafts and bearing peripheral characters, eyes above the disk-rims through which one of the characters on each disk is exposed, and means for locking the disks in position, all being so constructed that opposite disks are adapted to be intergeared and simultaneously rotated, substantially as specified.

641,482. ROTARY MOTOR. WILLIAM H. WINELAND, Williams, Pa. Filed Mar. 15, 1899. Serial No. 709,228. (No model.)



Claim.—In a rotary motor, a cylinder having inlet and outlet ports and a central depending portion, a flanged wheel or hub, the flanges thereof extending upon each side of the central depending portion, said hub having recessed sides, blades carried by said wheel or hub, blocks supporting said blades at the ends thereof and guides carried by the hub, said guides directing the movement of the blocks and springs between the blocks, substantially as described.

641,483. PHOTOGRAPHIC-NEGATIVE VIGNETTER. JOHN WINTER, Jr., Syracuse, N. Y. Filed Oct. 5, 1897. Renewed Nov. 27, 1899. Serial No. 738,451. (No model.)



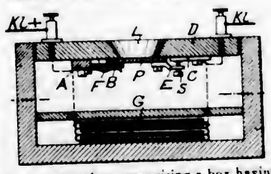
Claim.—1. A vignetter for photographic cameras, consisting of a bracket supported on the camera, an arm flexibly connected at one end to said bracket to permit said arm to be deflected to different angles of inclination, a brace on said bracket and adjustably supporting said arm in its position, and a vignetting-board supported on the free end of said arm, as set forth.

2. A vignetter for photographic cameras, consisting of a bracket supported on the camera, an arm pivoted to said bracket movable to different angles of inclination, a ratchet on said arm, a brace pivoted to the bracket and adapted to engage the ratchet, and a vignetting-board mounted on the free end of the arm, as set forth.

3. The combination with a photographic camera, of a bracket supported on said camera, a metallic tube pivoted at one end to said bracket to swing vertically thereon, a ratchet on the under side of said tube, a brace pivoted to the bracket and adapted to engage the ratchet to support the tube in its position, a rod sliding in said tube, and a vignetting-board supported on the free end of said rod, as set forth.

4. The combination with a photographic camera, of a bracket supported on the camera, a metallic tube pivoted at one end to said bracket to permit said tube to be deflected to different angles of inclination, a brace on said bracket and adjustably supporting said tube in its position, a rod sliding in said tube, and a vignetting-board mounted on the free end of said rod, as set forth.

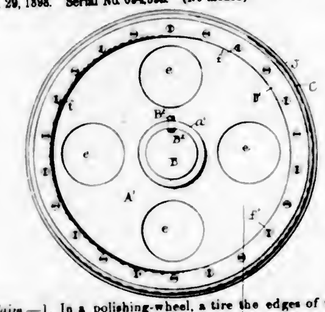
641,484. APPARATUS FOR MEASURING VELOCITY OF SOUND-WAVES. WALTHER WOLFF, Charlottenburg, Germany. Filed Nov. 26, 1898. Serial No. 697,552. (No model.)



Claim.—1. A contact-box comprising a box having an opening communicating with the atmosphere, a rigid lid hinged to the wall of the box at one side of the opening, an electrical contact carried directly by the lid at the opposite side of said rigid lid controlled thereby, a spring for holding the lid in position to keep the opening closed and suitable electrical connections to the lid and contact, substantially as described.

2. A contact-box comprising a box having an opening communicating with the atmosphere, a rigid lid hinged to the inner wall of the box and held over the opening, a contact controlled by the rigid lid, electrical connections leading to the lid and contact, a condenser and connections thereto whereby said lid and condenser are connected in the same circuit in parallel.

641,485. POLISHING-WHEEL. EDWARD D. WOODS, Granville, N. Y., assignor to the Woods Specialty Company, of New York. Filed Oct. 29, 1898. Serial No. 694,892. (No model.)



Claim.—1. In a polishing-wheel, a tire the edges of which are unsecured to any fixed supports and are free to move under the influence of the rotation of the wheel, whereby the tire may have a bodily radial movement under the influence of the rotation of the wheel and the diameter of the tire may be varied by such rotation.

2. A polishing-wheel having a tire adapted to move radially under the influence of the rotation of the wheel, and a removable polishing-band adapted to be slipped upon the tire when the wheel is at rest and to be firmly held thereon when the wheel rotates, whereby the diameter of the tire may be varied by the rotation of the wheel, and the removable polishing-band be firmly held in place during the rotation of the wheel.

3. A polishing-wheel having sides, adjustable relatively to each other, and provided with a flexible tire, and a removable polishing-band adapted to be slipped upon the tire when the wheel is at rest, whereby the width and diameter of the tire may be varied at will and whereby the band may be securely held in place upon the tire as the wheel rotates.

4. In a polishing-wheel sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire secured to the sides, whereby the width and diameter of the tire can be varied by the rotation of the wheel.

5. A polishing-wheel having sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire secured to the sides, and a removable polishing-band adapted to be slipped upon the tire when the wheel is at rest, whereby by the rotation of the wheel the width and diameter of the tire may be varied.

6. In a polishing-wheel sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire secured to the sides, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along said shaft toward and away from the other side, whereby upon rotating the wheel the width and diameter of the tire will be varied.

7. The combination of a shaft, a pair of side-wheel members mounted thereon against rotation relative thereto, one of said members being free to slide on said shaft, and a flexible tire attached to and connecting said side members.

8. A polishing-wheel having sides, adjustable relatively to each other, and provided with a flexible tire secured to the sides, and a removable polishing-band adapted to be slipped upon the tire when the wheel is at rest, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along said shaft toward and away from the other side, whereby upon rotating the wheel the width of the tire will be lessened and its diameter will be increased, and whereby the removable polishing-band will be firmly held in place.

9. In a polishing-wheel the combination of sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire secured to the sides, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along, said shaft toward and away from the other side, a groove in said shaft and a pin projecting from said movable side into said groove to cause the said side to rotate with the shaft but to permit it to move along the shaft toward or away from the other side, whereby upon rotating the wheel the width of the tire will be lessened and its diameter will be increased.

10. A polishing-wheel having sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire secured to the sides, and a removable polishing-band adapted to be slipped upon the tire when the wheel is at rest, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along, said shaft toward and away from the other side, a groove in said shaft and a pin projecting from said movable side into said groove to cause the said side to rotate with the shaft but to permit it to move along the shaft toward or away from the other side, whereby upon rotating the wheel the width of the tire will be lessened and its diameter will be increased and whereby the removable polishing-band will be firmly held in place.

11. A polishing-wheel having sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with a flexible tire, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along, said shaft toward and away from the other side, a groove in said shaft, a screw-threaded pin projecting from said movable side into said groove and adapted to lock said side to the shaft or to unlock it, whereby the location of said side during said rotation may be fixed at will or the said side may be free to move inward under the influence of the rotation of the wheel.

12. A polishing-wheel having sides, adjustable relatively to each other and provided with openings to the outer air, and having a flexible tire whereby the width, diameter and hardness of the tire may be varied at will.

13. A polishing-wheel having sides, adjustable relatively to each other under the influence of the rotation of the wheel, and provided with openings to the outer air and having a flexible tire secured to the sides, a shaft upon which the sides are mounted, one of said sides being loosely mounted upon and movable along, said shaft toward and away from the other side, whereby upon rotating the wheel the width of the tire will be lessened and its diameter and hardness will be increased.

14. In a polishing-wheel a tire, provided with one or more depressions in its surface and a removable band mounted upon the tire having one or more projections extending into said depressions, whereby the slipping of the band upon the tire is prevented.

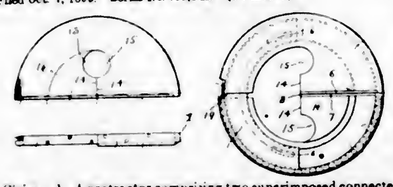
15. In a polishing-wheel the combination of a tire, sides to which the tire is secured, clamping-rings for securing the tire to the sides, means for fastening the clamping-rings, grooves in the clamping-rings and ribs upon the edges of the tire adapted to fit into the grooves whereby the tire will be firmly held in place upon the wheel.

16. In a polishing-wheel the combination of a tire, sides to which the tire is secured having beveled edges, clamping-rings for securing the tire to the sides, means for fastening the clamping-rings, grooves in the clamping-rings, and ribs upon the edges of the tire adapted to fit into the groove, whereby the slipping of the band upon the tire is prevented.

17. An endless flexible removable polishing-band having its interior provided with locking projections adapted to engage locking-recesses of a suitable polishing-wheel.

18. In a polishing-wheel, the combination of two side rims having their peripheries beveled, and a flexible tire connected and secured to said beveled rims.

641,486. PROTRACTOR. HUGO AHLSTRAND, Waltham, Mass. Filed Oct. 7, 1899. Serial No. 732,842. (No model.)



Claim.—1. A protractor comprising two superimposed connected plates guided to slide circularly with respect to each other about a center, and provided with indicating means for measuring angles, said plates being provided with straight edges adapted to open to one hundred and eighty degrees or close parallel with each other, and means for preventing separation of the plates when said straight edges are in the latter position.

2. A protractor comprising two superimposed connected plates guided to slide circularly with respect to each other about a center, said plates having terminal radial straight edges for bounding the angle to be measured and indicating means for measuring said angle, said straight edges being adapted to open to one hundred and eighty degrees or close parallel with each other, and means for preventing separation of the plates when said straight edges are in the latter position.

3. A protractor comprising two superimposed connected plates guided to slide circularly with respect to each other about a center, said plates having terminal radial straight edges which meet at said center and are arranged to include a free angular space to coincide with the angle to be measured, and indicating means for measuring said angle, said straight edges being adapted to open to one hundred and eighty degrees or close parallel with each other, and means for preventing separation of the plates when said straight edges are in the latter position.

4. A protractor comprising two superimposed connected plates guided to slide circularly with respect to each other about a center, said plates having terminal radial straight edges for bounding the angle to be measured, and coregistering semicircular indexes on the respective plates, said straight edges being adapted to open to one hundred and eighty degrees or close parallel with each other, and means for preventing separation of the plates when said straight edges are in the latter position.

5. A protractor comprising two superimposed plates, a tongue interposed between the two and having a sliding circular connection with each, permitting said plates to slide with respect to each other and to the tongue about a common center, and indicating means for measuring angles.

6. A protractor comprising two superimposed plates, a tongue interposed between the two and having a sliding circular connection with each, permitting said plates to slide with respect to each other and to the tongue about a common center, said plates having terminal radial straight edges for bounding the angle to be measured and indicating means for measuring said angle.

7. A protractor comprising two superimposed plates, a tongue interposed between the two and having a sliding circular connection with each, permitting said plates to slide with respect to each other and to the tongue about a common center, spring friction-producing means for increasing friction between said tongue and plates, and indicating means for measuring angles.

8. A protractor comprising two superimposed plates, a tongue interposed between the two and having a sliding circular connection with each, permitting said plates to slide with respect to each other and to the tongue about a common center, stops for limiting the movement of extension of said tongue with respect to said plates and indicating means for measuring angles.

9. A protractor comprising two semicircular superimposed plates, a segmental tongue interposed between the two and having a sliding connection with each permitting said plates to slide with respect to each other and to said tongue about a common center, coregistering indexes on the semicircular edges of each of said plates, radial terminal abutting straight edges on said plates for bounding the angle to be measured, and indexing-points in diametrical line with said straight edges.

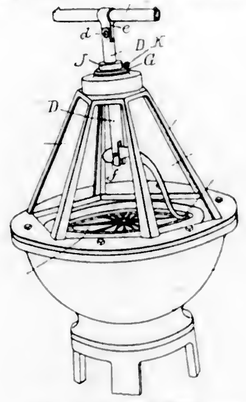
10. A protractor comprising two superimposed connected flat plates guided to slide circularly with respect to each other about a center, said plates having terminal radial abutting straight edges for bounding the angles to be measured, said straight edges being adapted to open to one hundred and eighty degrees or close parallel with each other, and means for preventing separation of the plates when said straight edges are in the latter position, and one of said plates having a guiding-lip extended laterally beyond the remote face of the other plate, and indicating means for measuring the said angle.

641,487. INDICATOR FOR SHIPS' COMPASSES. HARRY P. ARBECAM, Boston, Mass., assignor to the Arbecam Indicator Company, same place. Filed Jan. 23, 1899. Serial No. 703,054. (No model.)

Claim.—1. The described indicator for ships' compasses, consisting of a tubular pointer attached to the upper end of a rotatable vertical shaft which extends through the top of a ship's binnacle, in combination with a pivoted indicating-arm attached to the lower end of said shaft above the compass, in the vertical plane of said pointer, and extending downwardly and outwardly in one direction only nearly to the margin of the compass-dial, so as to indicate thereon the bearing of any object toward which the pointer is directed, substantially as set forth.

2. The described indicator for ships' compasses, consisting of a vertical, rotatable shaft mounted centrally in the binnacle-top and a pointer pivoted to the top of said shaft for movement thereon in vertical planes and adapted to rotate with the shaft only, in combina-

tion with a radial and counterbalanced indicator-arm pivoted to the foot of said shaft in the same plane as said pointer at such height above the dial as to afford an unobstructed view thereof and extending to the margin of the dial, the counterbalancing of said arm keeping its extremity at a uniform distance from the dial, substantially as set forth.



641,488. PULLEY. HORACE E. BAKER, Malden, Mass. Filed June 25, 1897. Serial No. 642,265. (No model.)



Claim.—The combination of a sheave or pulley and a block open on both sides of the pulley, the side plates forming the block extending beyond the pulley on one side a greater distance than that between the side plates, the inner faces of the extended portions of the side plates being parallel and said side plates having flanges, substantially as described.

641,489. BODY-GARMENT. MAURICE BARTELSTONE, Rochester, N. Y. Filed Oct. 14, 1899. Serial No. 733,605. (No model.)

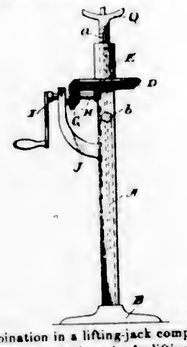


Claim.—1. As an article of manufacture, a body-garment having a waistband, slits upon the sides of the garment extending from the top of the waistband and down below the same, attaching means secured to the waistband upon each side of said slits, and detachable means for holding the slits closed to hold the garment upon the wearer, said means consisting of the bodies arranged in pairs one of each carrying a buckle and the other of each provided with a tongue to be engaged by said buckle to the other bodies, and means carried by said bodies to engage said attaching means of the waistband to hold the bodies in place.

2. As an article of manufacture, a body-garment having a waistband, slits upon the sides of the garment extending from the top of the waistband and down below the same, and detachable means for holding the slits closed to hold the garment upon the wearer, said means consisting of the bodies arranged in pairs one of each carrying a buckle and the other of each provided with a tongue to be engaged by said buckle of the other bodies, and a plate provided with a hook carried by each body to detachably secure them to the waistband of the garment.

641,490. LIFTING-JACK. ANTON BAUER, Boyd, Oreg. Filed Aug. 17, 1899. Serial No. 727,558. (No model.)

Claim.—1. The combination in a lifting-jack comprising a vertical standard and a vertically-adjustable rod, of an attachment consisting of a vertical portion having an inwardly-extending arm at its upper end adapted to be connected with the vertical rod, an outwardly-extending lifting-step at its lower end, and a roller situated at the inner side of the vertical portion thereof and adapted to engage the outer side of the said standard, substantially as described



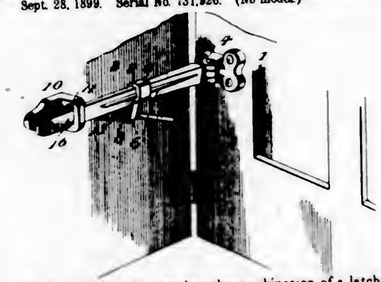
2. The combination in a lifting-jack comprising a vertical standard and a vertically-adjustable rod, of a lifting attachment consisting of a vertical bar having its upper end turned inward and capable of attachment to the upper end of the said rod, the lower end of the vertical bar having outturned lifting-steps, and a grooved roller carried by the lower end of the vertical arm and adapted to engage the said standard, substantially as described.

3. The combination in a lifting-jack comprising a vertical standard and a vertically-adjustable rod having a projection on its upper end, of a lifting attachment consisting of a vertical bar having its end inturned and provided with an opening adapted to receive the projection upon the said rod and an outturned lifting-step at its lower end, the inner side of the lower end of the said vertical bar having a roller adapted to engage the vertical standard of the lifting-jack, substantially as described.

641,491. IODOCHLOROXYQUINOLIN. AUGUSTUS BIEDERLER, Basle, Switzerland, assignor to Basle Chemical Works, same place. Filed Sept. 7, 1899. Serial No. 729,733. (Specimens.)

Claim.—As a new article of manufacture, the described iodochlor-(5)-oxy-(8)-quinolin, which is applicable in medicine and pharmacy as a substitute of iodoform, and constitutes in dry state a greyish-yellow, scentless powder, almost insoluble in water, very difficult to dissolve in alcohol and more easily soluble in hot glacial acetic acid, from which it crystallizes as yellow-brown small needles, which melt by 178° to 180° centigrade.

641,492. DOOR-SPRING. JAMES H. BODMAN, Clinton, Mass. Filed Sept. 28, 1899. Serial No. 731,926. (No model.)



Claim.—1. In a door-spring, the combination of a latch-lever, a keeper cooperating with the latch-lever, and means arranged to exert force to hold said lever in constant engagement with the lower face of the keeper and to lock the lever, when the locking device thereon is brought into engagement with said keeper, and to close the door when released.

2. In a door-spring, the combination of a latch-lever and a projection therefrom, a keeper cooperating with said latch-lever, and means operating in connection with said projection, whereby sufficient force is exerted to hold the lever in constant engagement with the face of the keeper and to lock said lever, when the locking device is brought into engagement with the keeper, and to close the door when released.

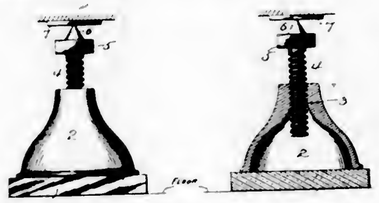
3. In a door-spring or similar device, the combination of a lever, having one end hinged or pivoted to a suitable base-plate and the other end slidable in a keeper, said lever being provided with means for engaging the keeper, a bracket mounted on the lever, a rod, having one end connected to the keeper and the other end slidable in the bracket, a coil-spring on the rod, whereby a door, when the device is attached to the same, will be opened with a cushioning effect, and automatically locked in its open position.

4. In a door-spring or similar device, the combination with a latch-lever, having one end hinged or pivoted to a suitable base-plate, and the other end slidable in a keeper, a bracket mounted on the latch-lever, a rod, one end of which is connected to the keeper and the other end slidable in the bracket, and a spring coiled around the rod, said bracket being adjustable on said rod, whereby the tension force of the spring may be regulated.

5. In a door-spring or similar device, the combination of a latch-lever, having one end hinged or pivoted to a suitable base-plate and the other end slidable in a keeper, a bracket, having an arm 6', a rod, having one end slidable in said arm, and a spring coiled around the rod, whereby a torsional force is exerted to hold said bracket in position upon the latch-lever.

6. In a door-spring or similar device, the combination of a latch-lever, having one end hinged or pivoted to a suitable base-plate and the other end slidable in a keeper, an adjustably-mounted bracket, upon the latch-lever, having an arm 6', a rod having one end connected to the keeper and the other end slidable in said arm, and a spring coiled around the rod, whereby a torsional force is exerted to hold said latch-lever in engagement with the keeper, and the bracket in position upon the latch-lever.

641,493. SUPPORT FOR MUSICAL INSTRUMENTS. DAVID BOORMAN, Altoona, Pa. Filed Oct. 12, 1898. Serial No. 693,324. (No model.)



Claim.—1. A device adapted to support a musical instrument and improve the tone thereof, consisting of a hollow metal body adapted to be disposed under the instrument and provided with adjustable parts having a contracted bearing adapted for contact with the instrument, and a block under said hollow body.

2. A device for supporting a musical instrument and improving the tone thereof, consisting of a hollow metal body, a part projecting from said hollow body and having a pointed upper end, and a glass block under said hollow body.

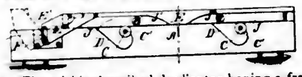
3. A device for supporting a musical instrument and improving its tone, consisting of a hollow conical metal standard, a glass block under and supporting said standard, a screw passing through the small upper end of the standard and provided at its upper end with an angular head, a pointed projection upon said head and a metal plate above and constituting a bearing for said pointed projection.

641,494. COUPLING FOR RAILWAY-RAILS. HENRY W. BROSKI, Bland, Va., assignor of one-third to Robert C. Atkins, same place. Filed Sept. 1, 1899. Serial No. 729,267. (No model.)



Claim.—A coupling for the ends of railway-rails, comprising vertical slots formed in the webs of the rails adjacent to the ends thereof, plates adapted to fit the sides of the webs of the rails, one of said plates being provided with staples or loops which pass through the slots in said webs, and the other plate with corresponding slots or openings, and in the outer side thereof with a longitudinal space and a key-pin which is passed through said staples or loops, and which is provided at its smaller end with a screw-threaded extension and a nut mounted thereon, and washers which are placed between the first-named plate and the webs of the rails, substantially as shown and described.

641,495. DUPLICATOR. ARTHUR S. BURNELL, Marshalltown, Iowa, assignor to the A. B. Dick Company, Chicago, Ill. Filed Jan. 28, 1898. Serial No. 668,303. (No model.)



Claim.—The within-described duplicator having a frame E with removable wings E', a woven fabric or cloth exposed at the rear with the marginal portion made impervious and the remainder highly pervious, stretched uniformly in all directions in the frame E with confining means E^3, E^3, and the stencil I, with clamps J and J' pivoted at their inner ends, independently operated, adapted to hold the stencil by its upper and lower edges and allow its easy adjustment and exchange, all substantially as herein specified.

641,496. SORTING APPARATUS FOR COINS. CHARLES BUSCH, Paris, France. Filed Mar. 10, 1899. Serial No. 708,587. (No model.)



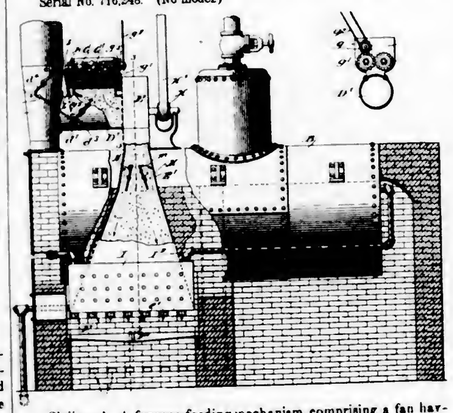
Claim.—1. In a sorting apparatus, a longitudinally and transversely inclined channel having a transversely-curved bottom along which objects to be sorted roll and an under wall *b* having an opening increasing in width from the inlet end, through which objects fall at points of corresponding width.

2. In a sorting apparatus, a longitudinally and transversely inclined channel having a transversely-curved bottom along which objects to be sorted roll and an under wall *b* having an opening increasing in width by steps from the inlet end, through which objects fall at points of corresponding width, in combination with several separate compartments in two rows, the sections or steps of the opening in wall *b* communicating alternately with compartments of said rows.

3. A longitudinally and transversely inclined chute or channel for sorting apparatus having a quick descent near the inlet end and a decreasing descent or inclination toward the lower end, having a transversely-curved bottom, the under wall *b* of the channel having an opening of comparatively small width near the inlet end and increasing in width toward the other end.

4. A chute or channel for sorting apparatus having in combination a wall *b* with opening of increasing width and a wall *c* with opening *d* opposite the opening in wall *b*, said walls together forming a transversely-curved bottom or gutter.

641,497. FURNACE-FEEDING DEVICE. ROBERT M. CAMPBELL and ALBERT H. SCHOFIELD, Port Huron, Mich. Filed May 10, 1899. Serial No. 716,248. (No model.)



Claim.—1. A furnace-feeding mechanism, comprising a fan having suction connection with the flue carrying the exhaust-gases from the furnace, a fuel-supply discharging into the said connection, dampers in the flue leading from the furnace and in the connection from said flue to the fan, connections between said dampers, whereby they are held in opposite positions, and means for automatically and periodically shifting the dampers, substantially as described.

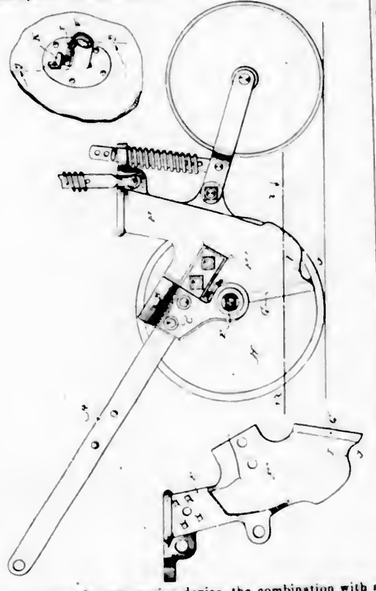
2. A furnace-feeding mechanism, comprising a fan having suction connection with the flue carrying the exhaust-gases from the furnace, a fuel crushing and feeding device discharging into said connection, dampers in the flues leading from the furnace and in the connection from said flue to the fan, connections between said dampers, whereby they are held in opposite positions, means for automatically and periodically shifting the dampers, and a flue leading from the fan-discharge to the furnace and discharging therein above the grates, substantially as described.

3. A furnace-feeding mechanism, comprising a fan having suction connection with the flue carrying the exhaust-gases from the furnace, fuel-crushing rolls and means for turning them, connections between the discharge from said rolls and the fan-suction, flues leading from the fan-discharge to the flues above the grates, dampers in the flue leading from the furnace and in the connection from said flue to the fan, connections between said dampers, holding them in opposite position, a crank geared to turn with one of the rolls, a lever vibrated by engaging with said crank, and connections from said lever to the dampers, whereby they are periodically opened and shut, substantially as described.

4. A furnace-feeding device for use with a comminuted fuel, comprising a draft connection or flue leading from the flue carrying the exhaust-gases from the furnace back to the furnace above the grate, a fuel-feeding mechanism discharging into said draft connection, adjustable deflecting or guide plates in the flue between the point of receiving the fuel and the furnace, a draft-forcing mechanism connected with said draft connection, substantially as described.

5. A furnace-feeding device for use with comminuted fuel, comprising a forcing mechanism for hot gas, a fuel-feed discharging into the hot-gas supply, a flue for conducting the hot gas and fuel to the furnace, said flue expanding in one direction to substantially the width of the furnace and discharging into the furnace through numerous openings in the walls and adjustable guide or deflector plates within said flue and between the fuel-feed and the furnace, substantially as described.

641,498. GRAIN-DRILL. CHARLES R. CRAIN, LOUIS C. EVANS, and HARRY E. DOBSON, Springfield, Ohio, assignors to the P. P. Mast & Company, same place. Filed Feb. 18, 1899. Serial No. 706,968. (No model.)



Claim.—1. In a furrow-opening device, the combination with a revoluble journaled disk, of a shield or wing having along its forward edge a surface conforming to the disk and in such relation thereto as to constitute slight contact, as defined, thereby leaving only a most attenuated space in width along the vertical direction of said surface, but of great comparative length along the horizontal direction of said surface, the inner side of the shield or wing from the rear edge of said surface dropping away so as to form the clearance-space, as described.

2. In a combined furrow-opening and seed-delivering device, the combination with a journaled disk, of a boot working in conjunction with said disk, and means connected with the forward edge of the lower part of said boot for scraping and breaking up the earth clinging to the side of the disk adjacent to the boot, such means back of the scraping features receding from the disk to form a clearance-space for the descent of the broken soil.

3. In a combined furrow-opening and seed-delivering device, the combination with a journaled disk, of a boot having a wing working in conjunction with said disk, and a scraping device, connected with the forward edge of said wing, the wing dropping away abruptly from the inner edge of said scraping device, substantially as shown and described.

4. In a combined furrow-opening and seed-delivering cevice, the combination with a journaled disk, of a boot having a wing working in conjunction with said disk, scrapers, having abrupt rear edges, connected with the forward inner portion of said shield, and adapted to scrape and break the soil, clinging to said disk adjacent to said wing, substantially as shown and described.

5. In a combined furrow-opening and seed-delivering device, the combination with a journaled disk, of a boot having a wing working in conjunction with said disk, and conformed to its shape along the wing's forward edge, said wing having a notch therein back of its forward edge, substantially as shown and described.

6. In a combined furrow-opening and seed-delivering device, a boot having a wing connected therewith and having a scraping device along its forward edge and a notched or cut-away portion in its lower edge, substantially as shown and described.

7. In a combined furrow-opening and seed-delivering device, the combination with a journaled disk, of a boot having a wing working in conjuction with said disk and conforming to the shape thereof along its forward edge, a scraping device having its inner edge raised from said wing, said wing being constructed to also release the soil from its grain-delivery opening, substantially as shown and described.

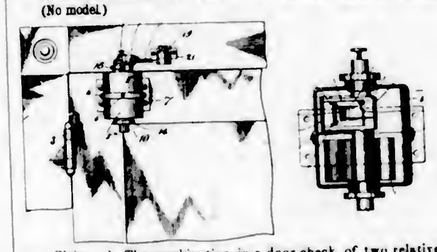
8. In a combined furrow-opening and seed-delivering device, the combination with a journaled disk, of a boot having a wing working in conjunction therewith, and having its lower contour shaped to release the soil, which crowds into the grain-delivery passage, from such passage, when the disk rotates.

9. In a combined furrow-opening and seed-delivering device, the combination with a bracket carrying a stud, an oil-hole covering pivoted upon said stud and an interposed spring between said bracket and cover, whereby the cover is held closed.

10. In a combined furrow-opening and seed-delivering device, the combination with a bracket carrying a stud adapted to extend within a hole or depression in the bracket-support, of an oil-hole cover pivoted upon said stud and having a lug projecting therefrom adapted to fit in the oil-hole, substantially as shown and described.

11. In a combined furrow-opening and seed-delivering device, the combination with a bracket carrying a stud adapted to extend within a hole or depression to support its free end, of an oil-hole cover pivoted upon said stud and having a lug for fitting within the oil-hole and having its outer end bifurcated to fit over a projection, and an interposed spring on said stud between the cover and bracket for holding said cover in position, substantially as shown and described.

641,499. DOOR-CHECK. WARREN K. CROFFORD, New York, N. Y. Filed June 1, 1898. Renewed May 24, 1899. Serial No. 718,106. (No model.)



Claim.—1. The combination, in a door-check, of two relatively movable members having coacting frictional surfaces, and means for connecting them respectively to a door and door-frame, a link or arm pivotally connected with one member and arranged to control the action of the members one upon the other, and means for adjusting the angular relation of the link or arm to the pivotally-connected member, substantially as set forth.

2. The combination, in a door-check, of two relatively movable members having coacting frictional surfaces, and means for connecting them respectively to a door and door-frame, a link or arm pivotally connected with one member and arranged to control the action of the members one upon the other, a spring interposed between the link or arm and controlled member, and means for adjusting the angular relation of the link or arm to the controlled member, substantially as set forth.

3. The combination, in a door-check, of two members having coacting frictional surfaces, and means for connecting them respectively to a door and door-frame, one of said members being movable to and from the frictional surface of the other member, and pivoted or toggle links or arms arranged to control the action of the movable member, substantially as set forth.

4. The combination, in a door-check, of two members having coacting frictional surfaces, and means for connecting them respectively to a door and door-frame, one of said members being movable to and from the frictional surface of the other member, pivoted or toggle links or arms arranged to control the action of the movable member, and means for adjusting the angular relation of the pivoted or toggle arms, substantially as set forth.

5. The combination, in a door check, of a spring-actuated rotary member, a relatively stationary member, a friction-shoe, means connecting the friction-shoe with one of said members and supporting the shoe in operative relation to the other of said members with which it frictionally coacts, means for connecting the rotary member and stationary member with a door-frame and door, and an adjusting device for regulating the relation of the friction-shoe to said other coacting member, as set forth

6. The combination, in a door-check, of a spring-actuated rotary member, a stationary member having a frictional surface, a friction-shoe, means connecting the shoe with the rotary member and supporting it in operative relation to the frictional surface of the stationary member, means for connecting the rotary member and stationary member with a door-frame and door, and an adjusting device adapted to regulate the relation of the friction-shoe to the friction-surface of the stationary member, substantially as set forth.

7. The combination, in a door-check, of a spring-actuated rotary member, a stationary frictional surface surrounding the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, means yieldingly connecting the friction-shoe with the rotary member and supporting it in operative relation to the stationary friction-surface, and an adjusting device mounted upon the rotary member and adapted to regulate the relation of the shoe to the friction-surface, as set forth.

8. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, and a pair of pivoted or toggle links or arms yieldingly connecting the shoe with the rotary member, substantially as set forth.

9. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, a pair of pivoted links connecting the friction-shoe with the rotary member, and a spring interposed between the friction-shoe and one of the links, substantially as set forth.

10. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, a pair of pivoted links connecting the friction-shoe with the rotary member, a spring interposed between the shoe and one of the links, and an adjusting device mounted to move with and engaging one of the links, substantially as set forth.

11. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, a pair of pivoted links connecting the friction-shoe with the rotary member, a spring interposed between the shoe and one of the links, and a second spring interposed between the rotary member and one of the links, substantially as set forth.

12. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, a pair of pivoted links connecting the friction-shoe with the rotary member, a spring interposed between the shoe and one of the links, a second spring interposed between the rotary member and one of the links, and an adjusting device mounted to move with and engaging one of the links, substantially as set forth.

13. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for operatively connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, an arm rigidly secured to and projecting from the rotary member, and means yieldingly connecting the friction-shoe with the rigid arm of the rotary member, substantially as set forth.

14. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member, means for operatively connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, an arm rigidly secured to and projecting from the rotary member, means yieldingly connecting the friction-shoe with the rigid arm of the rotary member, and an extension on said rigid arm projecting into close proximity to the friction-shoe for confining it in operative relation to the friction-surface, substantially as set forth.

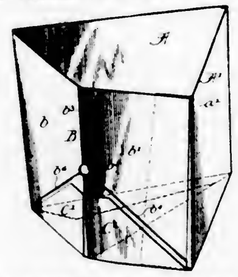
15. The combination, in a door-check, of a spring-actuated rotary member, a friction-surface stationary with relation to the rotary member; means for operatively connecting the rotary member and friction-surface to a door-frame and door, a friction-shoe, a pair of pivoted links or arms connecting the friction-shoe with the rotary member, one of said links or arms being formed with an inclined or beveled face, and an adjusting-screw threaded into a suitable support and engaging the inclined or beveled face of the link for regulating the relation of the friction-shoe to the friction-surface, substantially as set forth.

16. The combination, in a door-check, of an approximately cylindrical casing having a frictional surface, a rotary member journaled in said casing, means for operatively connecting the casing and rotary member to a door-frame and door, a helical spring attached at its inner end to the rotary member and at its outer end to the casing, a friction-shoe, and a pivoted arm or link yieldingly connecting the friction-shoe with the rotary member and supporting the shoe in operative relation to the friction-surface, substantially as set forth.

17. The combination, in a door-check, of an approximately cylindrical casing, a rotary member journaled in said casing, means for operatively connecting the casing and rotary member to a door-frame and door, a helical spring attached at its inner end to the rotary member and at its outer end to the casing, a friction-shoe, means yieldingly connecting the friction-shoe with the rotary member and supporting it in operative relation to the friction-surface, and an adjusting device carried by the rotary member and regulating the position of the friction-shoe with relation to the friction-surface, substantially as set forth.

18. The combination, in a door-check, of a spring-actuated rotary member, a friction-shoe, toggle links or levers connecting the friction-shoe with the rotary member, a relatively stationary outer casing inclosing the friction-shoe and toggle links or levers and having an inner friction-surface against which the friction-shoe operates, and means for operatively connecting the rotary member and casing member to a door and door-frame, substantially as set forth.

641,500. PAPER BOX. FRANK B. DAVIDSON, Chicago, Ill., assignor, by mesne assignments, to the Howe & Davidson Company, same place. Filed Oct. 17, 1898. Serial No. 693,742. (No model.)



Claim.—1. A collapsible sector-shaped carton comprising connected radius arc and bottom walls, said arc and bottom walls being provided centrally thereof with score-lines which divide each of said walls into similar and equal sections and the arc-wall being provided with two oblique score-lines which extend from the outer and lower angles formed by the side and bottom margins thereof and meet each other at a point on the central score-line of said arc-wall, said bottom wall being formed at one of the radius-walls and attached to the other radius-wall and the arc-wall by flexible pasting-flaps.

2. A collapsible sector-shaped carton comprising connected radius, arc and bottom walls, said arc and bottom walls being provided with central score-lines, said arc-walls being provided with two oblique score-lines which extend from the outer and lower angles formed by the side and bottom margins thereof and meet each other at a point on the central score-line of said arc-wall, and the bottom wall

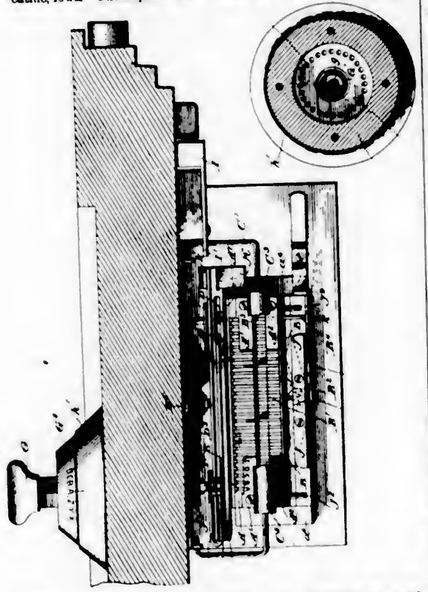
being provided with flexible flaps which are folded upwardly over the lower margin of the arc-wall on either side of the central score-line thereiu and pasted to said arc-wall.

3. A collapsible sector-shaped carton comprising connected radius, arc and bottom walls, said arc and bottom walls being provided with central lines of fold, said arc-wall being provided with two oblique lines of fold which extend from the outer and lower angles formed by the side and bottom margins thereof and meet each other at a point on the central line of fold in said arc-wall, and the bottom wall being provided with flaps which are permanently attached to the arc-wall on either side of the central line of fold therein, with their outer edges adjacent to and generally parallel with said oblique lines of fold.

4. A blank for sector-shaped cartons, divided by score-lines into radius, bottom and arc walls, said bottom wall being provided on one side with two flaps for attaching it to the arc-wall, a flap on one of the arc-walls for attachment to the bottom wall, and the bottom and arc walls being provided with central score-lines and the arc-wall having also two oblique score-lines which extend from the outer and lower angles formed by the side and bottom margins thereof and meet each other on the central score-line of said arc-wall.

5. A blank for sector-shaped cartons divided by lines of fold into sections forming radius, bottom and arc walls, a pasting-flap on one end of said blank for uniting the ends thereof when bent into tubular form, said bottom wall being formed on a section constituting one of the radius-walls, a pasting-flap on the section constituting the other radius-wall for permanently attaching one edge of said bottom wall to the said radius-wall and pasting-flaps on said bottom wall for permanently attaching the same to the arc-wall, said bottom and arc walls being provided with central lines of fold and the arc-wall being provided also with two oblique weakened lines which extend from the outer and lower angles formed by the side and bottom margins thereof and meet each other on said central line of fold.

641,501. PERMUTATION-LOCK. GEORGE W. DILLAWAY, Muscatine, Iowa. Filed Apr. 24, 1899. Serial No. 714,230. (No model.)



Claim.—1. In a lock, the combination of a locking-plate, with an endwise-reversible tumbler adapted to normally lock the plate, when in one position, but not to lock it when reversed; with means for moving said tumbler so as to permit the unlocking of the plate when the tumbler is in locking position, and means for simultaneously returning the tumbler and locking-plate to normal or locked position.

2. In a permutation-lock, the combination of a series of tumblers, a locking-plate controlled by the tumblers, an adjustable pusher adapted to operate any of the tumblers, and means adapted to be operated by the pusher for returning all the tumblers simultaneously to normal or reset position whenever desired.

3. In a permutation-lock, the combination of a series of tumblers, a locking-plate controlled by the tumblers, an adjustable pusher adapted to operate any of the tumblers and a "day-lock" tumbler which must be operated after the other locking-tumblers have been shifted into unlocking position before the lock can be opened and means for returning the day-lock tumbler to locking position independently of the other tumblers, substantially as described.

4. In a permutation-lock, the combination of a series of tumblers, a locking-plate controlled by the tumblers, an adjustable pusher adapted to operate any one of the tumblers, and means adapted to be operated by the pusher for returning all the tumblers simultaneously to normal or reset position whenever desired; with a day-lock tumbler which must be operated after the other locking-tumblers have been shifted into unlocking position before the lock can be opened.

5. In a permutation-lock, the combination of a series of removable and reversible tumblers, a locking-plate controlled thereby, and an adjustable pusher adapted to operate any of the tumblers, singly and successively; with means for returning all the tumblers simultaneously to normal or reset position whenever desired, the said means being also operated from and by said pusher.

6. In a permutation-lock, the combination of a series of reversible tumblers, a locking-plate controlled thereby, an adjustable pusher adapted to operate any of the tumblers singly, and successively, and a day-lock tumbler which must be operated by the pusher after the other locking-tumblers have been shifted into unlocking position before the lock can be opened, said day-lock tumbler being also constructed and adapted to immediately return to locked position independently of the other tumblers.

7. In a permutation-lock, the combination of a series of reversible tumblers, a locking-plate controlled by the tumblers, an adjustable pusher adapted to operate any of the tumblers, singly and successively; and means for returning all the tumblers simultaneously to normal or reset position whenever desired; the said means being also mediately operated by said pusher; with a day-lock tumbler which must be operated by said pusher after the other locking-tumblers have been shifted into unlocking position before the lock can be opened, said day-lock being constructed and adapted to immediately return the plate to locked position.

8. In a permutation-lock, the combination with a vertically-movable straight locking bar or plate, of a horizontal series of parallel tumblers adapted when in one position to normally lock the plate; with means whereby any one or more of the tumblers can be successively displaced, and means for returning all the displaced tumblers simultaneously to their normal position.

9. In a permutation-lock, the combination with the locking bar or plate, of a series of reversible tumblers adapted when in one position to normally lock the plate and when reversed to normally not interfere with the plate; with an adjustable pusher whereby any one or more of the tumblers can be successively displaced, means for returning all the displaced tumblers to their normal position, and means for returning the locking-plate to normal position.

10. In a lock, the combination of the locking plate or bar, a sliding tumbler for locking said plate, a pusher for operating said tumbler, and the sliding bar adapted to be moved in one direction by the tumbler when the latter is shifted to unlocking position, and to be thrown back in the opposite direction by the pusher when the latter is retracted, and thereupon return the tumbler and plate to locking position.

11. In a lock, the combination of the bolt-locking lever, a locking plate or bar for operating said lever, a sliding tumbler for locking said plate, the longitudinally-movable pusher for operating said tumbler, and the sliding rod adapted to be moved in one direction by the tumbler, when the latter is shifted to unlocking position, and to be thrown back in the opposite direction by the pusher, when the latter is retracted, said rod thereupon returning the tumbler to locking position, and said tumbler returning the locking-plate to locked position.

12. In a lock, the combination of the locking bar or plate, the day-lock tumbler for locking said plate, the pusher for operating said tumbler, and the sliding bar or rod adapted to be moved in one direction by the day-lock tumbler when the latter is shifted to unlocking position and to be thrown back in the opposite direction by the pusher when the latter is retracted, and thereupon return the day-lock tumbler and plate to locking position, in combination with a series of tumblers any one or more of which may be set to prevent the movement of the locking-plate until they are displaced, notwithstanding the movement of the day-lock tumbler, substantially as described.

13. In a lock, the combination of the locking bar or plate, the sliding day-lock tumbler for operating said bar, the longitudinally-movable pusher for operating said tumbler, and the sliding rod adapted to be moved in one direction by the day-lock tumbler when the latter is shifted to unlocking position, and to be thrown back in the opposite direction by the pusher when the latter is retracted, and thereupon return the day-loca tumbler to locking position, said tumbler in its return also returning the locking-plate to locking position; with a series of tumblers any one or more of which may be set to lock the said plate until they are displaced by the pusher and thereby prevent the descent of the plate until they are displaced, notwithstanding the movement of the day-lock tumbler, and means for returning the locking-tumblers to normal position, after displacement.

14. In a permutation-lock, the combination of a locking bar or plate, a series of tumblers adapted to lock the plate, and a pusher for displacing any one of said tumblers; with a day-lock tumbler adapted to be operated by said pusher and to normally lock the plate when all the other locking-tumblers have been displaced and to return to locking position independently of she other tumblers, substantially as described.

15. In a permutation-lock, the combination of a locking bar or plate, a series of independently-reversible tumblers adapted when in one position to normally lock the plate and when reversed to normally not interfere with the plate, and a pusher for displacing any one of said tumblers; with a day-lock tumbler adapted to lock the plate when all the other tumblers have been displaced, said day-lock tumbler being operated by the pusher and being adapted to return the locking-plate to normal locked position, substantially as described.

16. In a permutation-lock, the combination of a locking bar or plate, a series of tumblers adapted to lock the plate, and a pusher for displacing any one of said tumblers; with a day-lock tumbler adapted to lock the plate when all the other tumblers have been displaced, said day-lock tumbler being operated by the pusher and being adapted to return the locking-plate to normal locked position, and a setting-tumbler and devices whereby all the locking-tumblers are returned to normal position, substantially as described.

17. In a permutation-lock, the combination of a locking bar or plate a series of independently-reversible tumblers adapted when in one position to normally lock the plate and when reversed to normally not interfere with the plate, and a pusher for displacing any one of said tumblers; with a day-lock tumbler adapted to lock the plate when all the other tumblers have been displaced, said day-lock tumbler being operated by the pusher and being adapted to return the locking-plate to normal locked position, a setting-tumbler adapted to be operated by said pusher, the levers, and sliding plate operated by said setting-tumbler whereby all the reversible tumblers are returned to normal position, substantially as described.

18. The combination of the locking-plate, a series of independently endwise-reversible locking-tumblers adapted to normally lock the plate when in one position but not to lock it when reversed, and the rearwardly-slotted block carrying said tumblers, said block being removable with the tumblers from the lock to facilitate the rearrangement of the permutation.

19. In a permutation-lock, the combination with a locking bar or plate, the longitudinally-grooved and transversely-slotted block opposite said locking-plate; and a series of removable endwise-reversible notched tumblers in the slots of said block adapted to lock the plate when the notches therein do not register with the groove in the block, said block and tumblers being removable from the other parts of the lock, for the purpose and substantially as described.

20. In a permutation-lock, the combination with a vertically-movable locking bar or plate, the removable longitudinally-grooved and transversely-slotted block opposite said locking-plate; with a horizontal series of sliding endwise-reversible tumblers in the slots of said block adapted to lock the plate, when the notches therein do not register with the groove in the block, an adjustable pusher for shifting said tumblers singly and successively, said block being removable with the tumblers from the lock to facilitate the rearrangement of the permutation, for the purpose and substantially as described.

21. In a permutation-lock, the combination of a locking bar or plate, a series of parallel tumblers, a movable plate in front of said tumblers, an adjustable pusher carried by said plate, means for adjusting said pusher longitudinally of the series of tumblers, and means for moving said plate to cause said pusher to displace any tumbler, substantially as described.

22. In a permutation-lock, the combination of a locking bar or plate, and connections between the same and the bolt-locking devices; with a removable series of parallel reversible tumblers, a slotted hinged plate in front of said tumblers, an adjustable pusher carried by said plate, means for adjusting said pusher longitudinally of the series of tumblers, and means for rocking said plate to cause said pusher to displace any tumbler, substantially as described.

23. In a permutation-lock, the combination with a locking bar or plate, a longitudinally-grooved and transversely-slotted block, a series of notched tumblers mounted in the slots of said block adapted to lock the plate until their notches register with the groove in the block, a movable plate in front of said block, a longitudinally-adjustable pusher on said plate and means for rocking said plate to cause the said pusher to displace any one of the tumblers.

24. In a lock, the combination of a locking-plate, the series of locking-tumblers, the movable pusher in front of said tumblers, the rotatable and longitudinally-movable shaft, indicating devices connected to said shaft, and connections substantially as described, whereby its rotary movement shifts the pusher longitudinally of the series of tumblers, and its longitudinal movement imparts a similar movement to the pusher, substantially as described.

25. In a lock, the combination of a locking-plate, the series of locking-tumblers, the plate in front of said tumblers, the pusher mounted on said plate and longitudinally adjustable thereon, the rotatable and longitudinally-movable shaft, indicating devices connected to said shaft, and connections substantially as described whereby its rotary movement shifts the pusher longitudinally on the plate, and its longitudinal movement imparts a similar movement to the pusher, substantially as described.

26. The combination of a series of removable and reversible tumblers, a hinged locking-plate, and connections between said locking-plate and the bolt-locking devices; with a movable plate in front of the tumblers, a pusher thereon adapted to displace the tumblers when the plate is moved toward the block, a hinged lever for operating said plate, a rotary shaft having a loose connection with said lever and adapted to swing the latter when the shaft is moved endwise, and a gear provided with an arm engaging the said slide to shift the plunger longitudinally of the plate, said gear being operated by the rotary movement of said shaft, substantially as described.

27. The combination of the longitudinally-grooved block, a series of removable and reversible tumblers having notches adapted to register with the groove in the block, a hinged locking-plate adapted to enter the groove of the block when the notches of the tumbler register therewith, and connections between said locking-plate and the bolt-locking devices; with a hinged plate in front of the tumbler, a slide thereon, a pusher on said slide adapted to displace the tumblers when the plate is swung toward the block, a hinged lever for operating said plate, a rotary shaft having a loose connection with said lever and adapted to swing the latter when the shaft is moved endwise, a gear provided with an arm engaging the said slide to shift the tumbler longitudinally of the plate, said gear being operated by and from the rotary movement of the shaft, substantially as described.

28. In a permutation-lock, the combination of the longitudinally-movable and rotatable shaft, and connections for operating the locking mechanism therefrom; with a disk or arm fixed on said shaft and adapted to prevent rotation of the shaft when the same is moved longitudinally, substantially as described.

29. In a permutation-lock, the combination of the longitudinally-movable and rotatable shaft, and connections for operating the locking mechanism therefrom; with the index-plate rotatable with said shaft, a disk or arm fixed on said shaft and provided with a tooth adapted to enter one of a series of perforations and prevent rotation of the shaft when the same is moved longitudinally for the purpose and substantially as described.

30. In a permutation-lock, the combination of a locking-plate, a series of tumblers adapted to lock said plate, a sliding and longitudinally-movable pusher adapted to displace the tumblers and a rotatable and longitudinally-movable shaft and connections substantially as described whereby said shaft is caused to operate said pusher and shift the same laterally when the shaft is rotated, and to shift it longitudinally when the shaft is moved longitudinally, substantially as described.

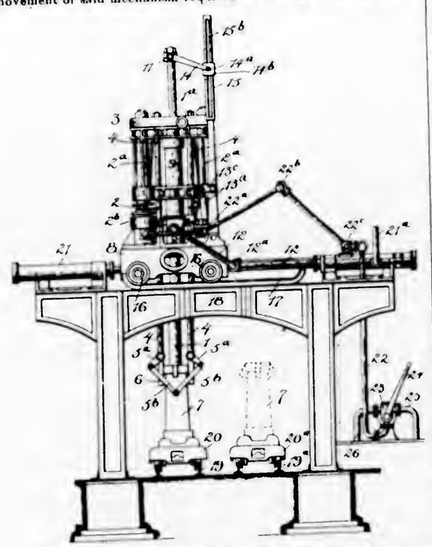
31. In a permutation-lock, the combination of a locking-plate, a series of tumblers adapted to lock said plate, a sliding and longitudinally-movable pusher adapted to displace the tumblers singly; and a rotatable and longitudinally-movable shaft and connections substantially as described between the shaft and pusher, whereby the shaft is caused to operate said pusher and shift the same laterally when the shaft is rotated, and to shift it longitudinally when the shaft is moved longitudinally; with tumbler-indicating devices for determining the extent of rotation of the shaft, and an arm on said shaft provided with a tooth adapted to engage with one of a series of perforations and prevent rotation of the shaft while it is moving longitudinally.

641,502. APPARATUS FOR REMOVING MOLDS FROM INGOTS. JOHN EVANS, Merthyr Tydvil, England. Filed Sept. 6, 1898. Serial No. 690,323. (No model.)

Claim.—1. Apparatus for removing molds from ingots, comprising a vertical hydraulic ram adapted to act as an abutment against one end of an ingot, mechanism for lifting the mold off the ingot when the latter is so held, and means for automatically connecting said mechanism to said ram so as to raise the same after the mold has been partially raised.

2. Apparatus for removing molds from ingots, comprising a vertical hydraulic ram adapted to act as an abutment against one end of an ingot, mechanism for lifting the mold off the ingot when the latter is so held, means for automatically effecting connection between said mechanism and said ram so that said ram will be thereby raised

after the mold has been partially raised, and means for varying the movement of said mechanism required to effect said connection.



3. Apparatus for removing molds from ingots, comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of the ram remote from the ingot and the corresponding end of the barrel, a valve for controlling said passage, two rams arranged one on each side of aforesaid ram, barrels in which the last-mentioned two rams are located, means for supplying pressure fluid to the last-mentioned barrels and discharging it therefrom, means for connecting and disconnecting the last-mentioned rams with and from the ingot-mold, and means for connecting the last-mentioned rams with the first-mentioned ram after a movement of the former dependent on the length of the ingot, substantially as hereinbefore described.

4. Apparatus for removing molds from ingots, comprising a vertical hydraulic ram adapted to act as an abutment against one end of an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of the ram remote from the ingot and the corresponding end of said barrel, a valve for controlling said passage, mechanism for lifting the mold off the ingot when the latter is held by the said ram as aforesaid, means for automatically effecting connection between said mechanism and said ram so that said ram will be thereby raised after the mold has been partially raised, and means adapted to open said valve automatically after a movement of said mechanism of an extent dependent on the length of the ingot.

5. Apparatus for removing molds from ingots, comprising a vertical hydraulic ram adapted to act as an abutment against one end of an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of the ram remote from the ingot and the corresponding end of said barrel, a valve for controlling said passage, mechanism for lifting the mold off the ingot when the latter is held by said ram as aforesaid, means for automatically effecting connection between said mechanism and said ram so that said ram will be thereby raised after the mold has been partially raised, means adapted to open said valve automatically after a movement of said mechanism of an extent dependent on the length of the ingot, and means for varying the necessary extent of said movement.

6. Apparatus for removing molds from ingots, comprising means for holding an ingot, two rams arranged on opposite sides of said means and each having a portion of larger cross-sectional area and a portion of smaller cross-sectional area, a relatively-fixed barrel and a relatively-movable barrel for each ram, one barrel receiving the portion of larger cross-sectional area and the other barrel the portion of smaller cross-sectional area, means for supplying pressure fluid to, and discharging it from, said barrels, a fluid-passage connecting the interiors of said barrels, means for arresting the movement of the portions of larger cross-sectional area within their respective barrels after a short initial movement of the respective rams, and means for connecting and disconnecting with and from the ingot-mold those barrels of the said rams that are the more remote from the said mold substantially as described.

7. Apparatus for removing molds from ingots, comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of the ram remote from the ingot and the corresponding end of the barrel, a valve for controlling said passage, two rams arranged on opposite sides of aforesaid ram and each having a portion of larger cross-sectional area and a portion of smaller cross-sectional area, a relatively-fixed barrel and a relatively-movable barrel for each of said two rams, one barrel receiving the portion of larger cross-sectional area and the other barrel the portion of smaller cross-sectional area, means for supplying pressure fluid to, and discharging it from, the last-mentioned two barrels, a fluid-passage connecting the interiors of the last-mentioned two barrels, means for arresting the movement of the portions of larger cross-sectional area within their respective barrels after a short initial movement of the respective rams, means for connecting and disconnecting with and from the ingot-mold those barrels of the last-mentioned two rams that are the more remote from said mold, and means for connecting the last-mentioned rams with the first-mentioned ram after a movement of the former dependent on the length of the ingot, substantially as hereinbefore described.

8. Apparatus for removing molds from ingots comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of said ram remote from the ingot and the corresponding end of said barrel, a valve for controlling said passage, two rams arranged one on each side of aforesaid ram, barrels in which the last-mentioned two rams are received, a cross-piece connecting the two last-mentioned barrels, means for supplying pressure fluid to the two last-mentioned barrels and means for discharging it therefrom, means for connecting and disconnecting the last-mentioned rams with and from the ingot-mold, a lever connected with said valve, a link connecting said lever, along which it is adapted to slide, to the first-mentioned ram, and an abutment carried by the upper barrels of the last-mentioned rams and adapted to come against and operate said lever and thereby to open said valve automatically after a movement of the two side rams of an extent dependent on the length of the ingot, substantially as hereinbefore described.

9. Apparatus for removing molds from ingots, comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of said ram remote from the ingot and the corresponding end of said barrel, a valve for controlling said passage, two rams arranged one on each side of aforesaid ram, barrels in which the last-mentioned two rams are received, a cross-piece connecting the two last-mentioned barrels, means for supplying pressure fluid to the two last-mentioned barrels and means for discharging it therefrom, means for connecting and disconnecting the last-mentioned rams with and from the ingot-mold, a lever connected with said valve, a link connecting said lever, along which it is adapted to slide, to the first-mentioned rams and adapted to come against and operate said lever and thereby to open said valve automatically after a movement of the two side rams, and means whereby the connection between said lever and said first-mentioned ram can be adjusted so as to vary the time of opening of said valve.

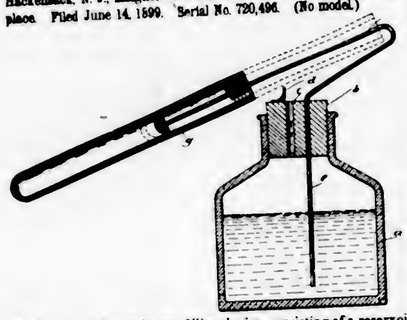
10. Apparatus for removing molds from ingots, comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of said ram remote from the ingot and the corresponding end of said barrel, a valve for controlling said passage, two rams arranged one on each side of aforesaid ram, barrels in which the last-mentioned two rams are located, means for supplying pressure fluid to the two last-mentioned barrels and means for discharging it therefrom, means for connecting and disconnecting the last-mentioned rams with and from the ingot-mold, means for automatically opening said valve after a movement of the last-mentioned two rams of an extent dependent on the length of the ingot, and means for immediately thereafter automatically connecting the last-mentioned two rams with the first-mentioned ram.

11. Apparatus for removing molds from ingots, comprising a ram adapted to hold an ingot, a barrel in which said ram is located, a passage adapted to supply liquid to the space between the end of the ram remote from the ingot and the corresponding end of the barrel, a slide-valve for controlling the said passage, two rams arranged on opposite sides of aforesaid ram and each having its lower portion of larger cross-sectional area and its upper portion of smaller cross-sectional area, two fixed barrels in each of which a larger diameter portion of a side ram is located, and two movable barrels in each of which a smaller diameter portion of a side ram is located, a three-way-valve apparatus for supplying pressure fluid to and discharging it from the two side barrels a fluid-passage extending through each side ram from end to end, a cross-piece connecting said two movable barrels, pendent rods provided with slings adapted to engage with

and disengage from lugs on the mold, an external projection or external projections on the lower end of each side ram, an internal projection or internal projections on each of said fixed barrels and located on over and adapted to engage with said internal projection or projections, rings fixed to said side rams and engaging loosely with said pendent rods, a two-armed lever pivoted to a fixed bracket, a second lever having a fixed fulcrum, links connecting said two-armed lever with said valve and with said second lever respectively, a link adapted to slide along said second lever and connecting it with an extension of the first-mentioned ram, and a roller carried by aforesaid cross-piece and adapted to come against the last-mentioned link, substantially as hereinbefore described.

12. Apparatus for removing molds from ingots, comprising means for holding an ingot, two rams arranged on opposite sides of said means and each having a portion of larger cross-sectional area and a portion of smaller cross-sectional area, a relatively-fixed barrel and a relatively-movable barrel for each ram, one barrel receiving the portion of larger cross-sectional area and the other barrel the portion of smaller cross-sectional area, means for supplying pressure fluid to, and discharging it from, said barrels, a fluid-passage connecting the interiors of said barrels, an external projection or external projections on the lower end of each of the said rams, an internal projection or internal projections on each of said fixed barrels and located over and adapted to engage with said internal projection or projections, means for preventing the said rams from rotating in their barrels, and means for connecting and disconnecting with and from the ingot-mold those barrels of the said rams that are the more remote from the said mold substantially as described.

641,503. FOUNTAIN-PEN-FILLING DEVICE. LYMAN FISK, Hackensack, N. J., assignor of one-half to Edward L. Beekman, same place. Filed June 14, 1899. Serial No. 720,496. (No model.)

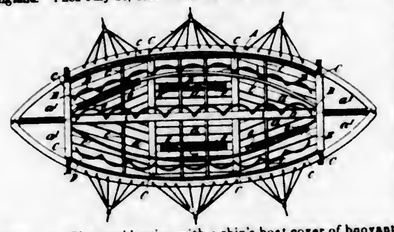


Claim.—1. A fountain-pen-filling device, consisting of a reservoir with a stopper therein, the stopper having a vent, a valve commanding the vent, a suction-tube passed through the stopper and having a U-shaped portion, and a piston carried at the end of one arm of the said U-shaped portion of the suction-pipe.

2. A fountain-pen-filling device, consisting of a stopper, a suction-pipe extending through the stopper, and a piston secured to the outer end of the suction-pipe.

3. A fountain-pen-filling device, consisting of a reservoir or receptacle for the ink, a stopper fitted in the same, a suction-pipe extending through the stopper, and a piston secured to the outer end of the suction-pipe.

641,504. BUOYANT BOAT-COVER. GERARD K. GANDY, London, England. Filed July 20, 1899. Serial No. 724,481. (No model.)



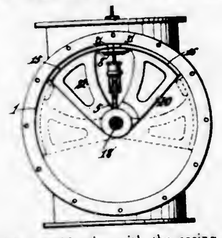
Claim.—1. The combination with a ship's-boat cover of buoyant sections attached thereto and a straight central longitudinal spar removably secured thereto, substantially as described for the purpose specified.

2. The combination with a ship's-boat cover of buoyant sections and straight transverse stretchers attached thereto and a straight central longitudinal spar removably secured thereto, substantially as described, for the purpose specified.

3. The combination with a ship's-boat cover, of buoyant sections and straight transverse stretchers attached thereto, a straight central longitudinal spar, removably secured thereto, life-lines, and flaps at each end thereof, substantially as described for the purpose specified.

4. A ship's-boat cover provided with buoyant sections, a central longitudinal spar removably attached thereto and provided with a notch near each end, light ribs secured thereto, transverse stretchers having notches at their outer ends and attached near the ends of the cover on either side of the longitudinal spar, life-lines, flaps at each end of the said cover, clamps to secure the outer ends of the notched transverse stretchers together when the cover is converted to form a boat, stretchers to extend between the notches on the longitudinal spar and the notches on the end transverse stretchers and other stretchers to extend between the sides of the cover when the latter is converted to form a boat, substantially as described for the purpose specified.

641,505. AIR-LOCK FOR CAISSONS, &c. RICHARD S. GILLESPIE, New York, N. Y. Filed July 29, 1896. Serial No. 600,942. (No model.)



Claim.—1. The combination with the casing and the opposite alined shafts therein, of means for turning the doors to close the opening in the casing, and the overlapping arms provided at opposite sides of the doors, one arm of each door being mounted on one shaft and the opposite arm mounted on the opposite shaft, substantially as described.

2. The combination with an air-lock casing having a bucket-passage therethrough, two oscillatory doors adapted to be moved toward and from each other to close and open the air-lock, shafts, arms at opposite sides of the doors, the arms of one door overlapping those of the other door, and journaled on the same center, and means for opening and closing the said doors, substantially as described.

3. The combination with an air-lock casing having a bucket-passage therethrough, of two oscillatory doors arranged in said casing and having a common center about which they oscillate, and mechanism connected with both of said doors, whereby they are caused to move in unison to their open and closed positions, substantially as described.

4. The combination with an air-lock casing, having a bucket-passage therethrough, of two oscillatory segmental doors journaled in said casing and movable in circular paths toward and from each other to close and open the air-lock, and gearing, substantially such as described, for oscillating the doors, substantially as described.

5. The combination with an air-lock casing having a bucket-passage therethrough, of two alined axles or shafts arranged in the casing, two oscillatory doors supported by said shafts and movable in circular paths toward and from each other, to close and open the air-lock, and a lever and gearing substantially such as described, for oscillating the doors, substantially as described.

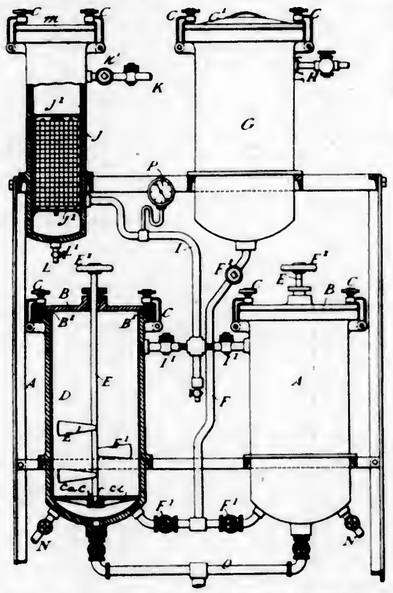
6. The combination with an air-lock casing having a curved internal surface, and a bucket-passage, of two oscillatory doors provided with curved surfaces fitting the curved surfaces of the casing and both having a common center about which they oscillate, a lever, and gearing connecting the lever with both of said doors, whereby they are caused to move in unison to their open and closed positions, substantially as described.

7. An air-lock for caissons, comprising a casing having a rounding end portion with an opening therein for the passage of a bucket, and gates to close said opening, the gates being pivoted at the ends and shaped and hung so as to follow the walls of the casing and form when closed a practical continuation of said walls across the opening, substantially as described.

8. An air-lock for caissons, comprising a casing having a rounding end portion with an opening therein for the passage of a bucket, and gates to close said opening, the gates being pivoted at the ends and shaped and hung so as to follow the walls of the casing and form

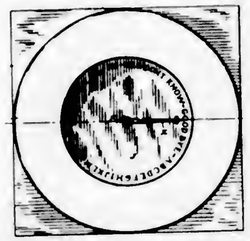
when closed a practical continuation of said walls across the opening, said gates being geared together so as to open and close in unison, substantially as described.

641,506. APPARATUS FOR PRODUCING ACETYLENE AND CARBONIC-ACID GAS COMBINED. ROBERT GOODWIN, Dublin, Ireland, assignor to Michael Crowley, same place. Filed Jan. 23, 1897. Serial No. 620,464. (No model.)



Claim.—In apparatus for the manufacture of a mixture of acetylene gas and carbonic acid the combination of a vessel such as A charged with a mixture of calcium carbid and limestone, chalk, or marble, a second vessel such as G from which acidulated water is supplied in regulated quantities to the vessel A for generating both acetylene and carbonic acid, and a purifying vessel such as J divided by perforated partitions into three compartments the upper one of which is charged with sulfate of copper for purifying the gases, while the middle one contains wire filling for effectually mixing the gases passing through it; the lowest compartment serving to collect the separated impurities, substantially as described.

641,507. DIAL-PLANCHETTE. HENRY C. HACHMUTH, Mill Creek, Mich. Filed Apr. 15, 1899. Serial No. 713,111. (No model.)



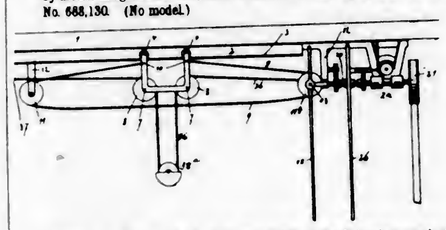
Claim.—1. The combination of a turn-table, a dial, a movable index traversing the dial, and gearing connecting the table and index, whereby the index traverses the entire circuit of the dial while the table traverses a small arc of its revolution, substantially as described.

2. The combination of a turn-table, a dial mounted on said table, a rotative shaft in the axis of the table, an index mounted on the shaft traversing the dial and gearing connecting the shaft and turn-table, substantially as described.

3. The combination of a bed-plate having a sleeve attached to the bed-plate, a turn-table rotative about the sleeve, a dial on the table concentric to its axis, a shaft journaled in the sleeve, an index mounted on the shaft and traversing the dial, a pinion on the shaft, a gear engaging the pinion, and a gear on the table engaging the said gear, substantially as described.

4. A circular turn-table rotative about its central axis an index rotative about the same axis and in the opposite direction, a dial on the turn-table concentric with the axis thereof and traversed by the index, a rotative shaft in the axis of the turn-table and supporting the index, a pinion on the shaft, an intermediate gear engaging the pinion and rotating on a fixed bearing, and an internal gear attached to the turn-table and rotating therewith, and engaging the intermediate gear; whereby the index and turn-table rotate in opposite directions about a common axis, substantially as described.

641,508. HOISTING AND CARRYING MACHINE. CYNTHIA S. HARRIS, Rome, N. Y., executrix of Lewis Harris, deceased, assignor, by mesne assignments, to Cynthia S. Harris. Filed Aug. 8, 1898. Serial No. 688,130. (No model.)



Claim.—1. The track, the car, the cable, a shaft having a spiral gear secured thereto, and two gear-wheels mounted and held thereon, the driving-shaft with two loose gears, the loose gears provided with clutch-engaging hubs, the intermediate gear, the worm-gear and cable-drum on the same shaft in combination with the rotating and sliding clutch and means for operating the same, for the purposes stated.

2. The track, the car, the cable, the driving-shaft having loose clutching-gears thereon, the reversible shaft with gears rigidly secured thereto and having a worm-gear and cable-drum on the same shaft, an intermediate gear in combination with movable clutching mechanism for engaging and operating the loose gear alternately, substantially as set forth for the purposes stated.

3. The track, the car, the cable secured at its opposite ends to the opposite ends of the car and passing over grooved-face pulley, in combination with reversing mechanism consisting of two beveled pulleys mounted on an adjustable shaft, a beveled driving-pulley mounted between the two beveled-face pulleys, with means for moving the two beveled pulleys into and out of contact with the driving-pulley, clutching mechanism for engaging and disengaging the operative gear and means for operating the parts, substantially as set forth.

4. The track, the car, the pulleys located at the limit of the track, one pulley connected with the power and the other pulley being independent, the cable connected to the car, and extending over the pulley, the shaft carrying one of the pulleys, the plain beveled friction-pulleys mounted on the adjustable pulley-carrying shaft, the plain beveled friction driving-pulley mounted between the adjustable pulleys, in combination with mechanism substantially as set forth, for moving the shaft and pairs of plain beveled friction-pulley into and out of contact with the plain beveled friction driving-pulley substantially as set forth for the purposes stated.

5. The driving-shaft having thereon a pair of loosely-mounted gears with clutching-hubs, a shaft having a spiral gear thereon, and a pair of gears secured to, and rotating with the shaft, the third gear meshing into the gear on each shaft, the shaft having a cable-drum and a worm-gear mounted thereon, a rotary sliding clutching mechanism movable in the direction of the length of the shaft and rotating with the shaft, a beveled driving-pulley on the driving-shaft and mechanism for operating the sliding clutch, beveled pulleys on an adjustable shaft and mechanism for adjusting the pulleys in and out of engagement with the driving-pulley, substantially as set forth, for the purposes stated.

6. The driving-shaft having a pair of gears loosely mounted thereon with clutching-hubs, a second shaft having a spiral gear thereon, and a pair of gears secured to and rotating with the shaft, a third gear meshing into gears on each shaft, a shaft having a cable-drum and a worm-gear and a beveled gear rigidly secured to and moving with the shaft, a sliding clutch on the driving-shaft rotating therewith, means for operating the sliding clutch in combination with a beveled gear having a screw-threaded stem and a sliding catch operated by the screw for moving the clutch out of engagement with the lever, substantially as set forth for the purposes stated.

7. The combination with track, car and rope, of the shaft adjusted in the direction of its length, having two plain beveled friction-pulleys mounted thereon, a plain beveled friction driving-pulley mounted between the plain beveled friction-pulleys on the adjustable shaft, and mechanism for adjusting the shaft endwise, for the purposes stated.

8. The track, the car and cables operated on the pulleys and drum, in combination with the adjustable shaft carrying a beveled pulley, a pair of beveled friction-pulleys rigidly secured thereto, mechanism for end adjustment of the shaft, a driving-shaft having a beveled friction-pulley rigid thereon and two loose clutching-gears, a sliding clutch splined on the driving-shaft and joining clutch, sliding mechanism for engaging the loose gears, mechanism for operating the clutch, a shaft having a spiral gear thereon and two gears secured to and rotating with the shaft, an intermediate gear meshing into the gears on the two shafts, a shaft having a cable-drum and worm-gear, substantially as set forth, for the purposes stated.

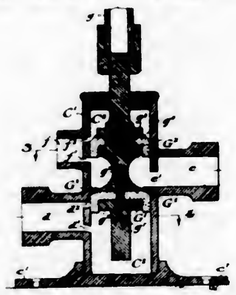
9. In a hoisting and carrying machine the combination of the car and connecting mechanism, the gears and sliding clutch on the driving-shaft, the plain beveled driving-pulley, the adjustable plain beveled friction-pulleys mounted to alternately engage the face of the plain beveled driving-pulley, with means for operating the parts substantially as set forth.

10. In a hoisting and carrying machine, the combination of the car and connecting mechanism, the gears, the sliding clutch, the plain beveled pulleys, the plain beveled driving-pulley mounted between the plain beveled adjustable pulleys, on opposite sides of the driving-pulley, with means for moving the plain beveled adjustable pulleys into and out of engagement with the driving-pulley, substantially as set forth.

11. In a hoisting and carrying machine, the combination of the track, car and its connecting mechanism, and a plain rotating beveled driving-pulley, a pair of adjustable plain beveled friction-pulleys mounted to be alternately adjusted for engaging the driving-pulley, and a friction-brake for the purposes stated.

12. A hoist provided with mechanism for reversing the travel of the load, in combination with a track, a car provided with grooved pulleys or sheaves mounted upon the car, a grooved pulley mounted at the end of the travel of the car and a pulley at the other end of the travel of the car, said last-mentioned pulley being mounted on a shaft on which are mounted two beveled friction-pulleys for reversing the travel of the pulley mounted on the shaft, and a cable attached at its ends to the opposite ends of the car, the said cable running over the pulleys mounted at the extremity of the travel of the car, and being attached or secured to the pulley of the friction-pulley shaft for reversing the travel of the car, substantially as set forth for the purposes stated.

641,509. VALVE. WILLIAM E. HASKELL, Philadelphia, Pa. Filed Aug. 19, 1899. Serial No. 727,787. (No model.)



Claim.—1. In a valve, in combination, a closed casing having a water supply inlet, a delivery outlet port above said supply inlet, and a waste outlet formed as two independent openings or ports above the delivery outlet port, an annular valve or plunger seat formed in said casing between the supply inlet and the delivery outlet port, and a plunger provided with two heads mounted in said casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet port and the lower head is in the annular seat, and when at the lower limit of its stroke the lower opening of the waste outlet and the lower head is below the upper portion of the water supply inlet, substantially as set forth.

2. In a valve, in combination, a closed casing having a water supply inlet, a delivery outlet above said supply inlet, and a waste outlet formed as two indepennent openings or ports above the delivery outlet, an annular valve or plunger seat formed in said casing between the supply inlet and the delivery outlet, a plunger provided with two heads mounted in said casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet and the lower head is in the annular seat, and when at the lower limit of its stroke the upper head closes the lower opening of the waste outlet and the lower head is below the upper portion of the water supply inlet, a stem connected to said plunger and extending through the top of the casing, and a stud depending from the plunger and adapted, by contact with the floor of the casing to limit the descent of the plunger, substantially as set forth.

3. In a valve, in combination, a vertically disposed casing having a bore of circular section, and embodying a water supply inlet, a delivery outlet above said supply inlet, and a waste outlet formed as two independent openings or ports above the delivery outlet, an annular seat formed in said casing between the supply inlet and the delivery outlet, and a plunger, provided with two heads, mounted in said casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet and the lower head is in the annular seat, and when at the lower limit of its stroke the upper head closes the lower opening of the waste outlet and the lower head is below the upper portion of the water supply inlet, each head of the plunger being provided with a cup leather the depending flanges of which are in contact with the wall of the casing, substantially as set forth.

4. In a valve, in combination, a closed casing having a water supply inlet formed as two independent openings or ports, a delivery outlet port above said supply inlet, and a waste outlet formed as two independent openings or ports above the delivery outlet port, an annular valve or plunger seat formed in said casing between the supply inlet and the delivery outlet port, a plunger provided with two heads, mounted in said casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet and the lower head is in the annular seat, and when at the lower limit of its stroke the upper head closes the lower opening of the waste outlet and the lower head is between the two openings of the water supply inlet, substantially as set forth.

5. In a valve, in combination, a closed casing having a water supply inlet formed as two independent openings or ports, a delivery outlet port above said supply inlet, and a waste outlet formed as two independent openings or ports above the delivery outlet port, an annular valve or plunger seat formed in said casing between the supply inlet and the delivery outlet port, a plunger provided with two heads, mounted in said casing, each having its depending flange in constant contact with the wall of the casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet and the lower head is in the annular seat, and when at the lower limit of its stroke the upper head closes the lower opening of the waste outlet and the lower head is between the two openings of the water supply inlet, substantially as set forth.

6. In a valve, in combination, a casing having a water supply inlet formed as two independent openings, a delivery outlet port above said supply inlet, and a waste outlet formed as two independent openings or ports above the delivery outlet port, an annular seat formed in said casing between the supply inlet and the delivery outlet port, a plunger provided with two heads, mounted in said casing, the arrangement being such that when the plunger is at the upper limit of its stroke the upper head is between the two openings of the waste outlet port and the lower head is in the annular seat, and when at the lower limit of its stroke the upper head closes the lower opening of the waste outlet and the lower head is below the upper portion of the water supply inlet, a stem connected to said plunger and extending through the top of the casing, and a stud depending from the plunger and adapted by contact with the floor of the casing to limit the descent of the plunger, substantially as set forth.

7. In a valve, in combination, a casing formed as a cylindrical structure having a water inlet formed as two independent ports or openings, a delivery outlet above said openings, and a waste outlet formed as two independent ports or openings above said delivery outlet the apertures of said inlet and outlets opening through the cylindrical inner face of the casing, which inner face is, except for the plunger seat, of uninterrupted cylindrical contour, an annular plunger seat formed on the inner face of said casing between the water supply inlet and the delivery outlet, a plunger mounted in said casing and having two heads united by a connecting portion of reduced diameter, each head of such diametric proportions as to snugly and closely fit the bore or cylindrical interior of the casing, and the lower head being adapted to the plunger seat referred to, substantially as set forth.

641,510. CURTAIN-SUPPORTER. ANNIE T. K. HAWLEY, Delhi, La. Filed Aug. 16, 1899. Serial No. 727,398. (No model.)

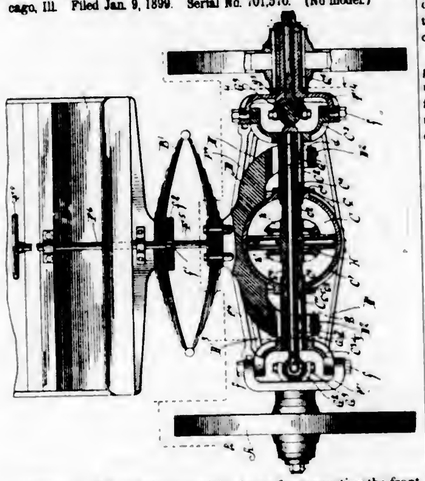


Claim.—1. In a curtain-supporter, the combination of a tube having a longitudinal slot formed therein, one end of the tube being open, a head removably engaging the said end, a retractile coil-spring fitted in the tube and having one end secured to the removable head, and fastening devices for the curtain, such devices being engaged with the coils of the spring and projecting slidably through the slot in the tube.

2. In a curtain-supporter, the combination of a tubular body portion, heads fitted in the ends of the body portion, a retractile spring carried thereby in the body portion and extensible longitudinally therewith, the ends of the spring being fastened to the heads, fastening devices for the curtain, attached to the spring and having guided movement longitudinally on the body portion, fastening devices attached to the heads for holding the outer portions of the curtain and a bar having connection with the last-named fastening devices, the bar lying in front of the first-mentioned fastening devices to obscure the same.

3. A curtain-supporter, comprising a tube formed with a longitudinal slot therein, a head fixed to one end of the tube, a second head provided with means for removably connecting it with the other end of the tube, a retractile spiral spring the ends of which are respectively attached to the heads, fastening devices for the curtain, connected with the coils of the spring and projected through the slot in the tube, such fastening devices being slidable longitudinally in the slot, and additional fastening devices respectively attached to said heads.

641,511. DRIVING AND STEERING MECHANISM FOR MOTOR-VEHICLES. CHARLES T. HILDEBRANDT and FRANK R. MCMULLIN, Chicago, Ill. Filed Jan. 9, 1899. Serial No. 701,570. (No model.)



Claim.—1. The combination with a frame for supporting the front part of a vehicle-body, of a rotative shaft mounted in said frame, shaft-sections joined to said shaft by universal joints, and hollow stub-axles pivoted to said frame by vertical pivots separate from and in vertical alinement with said universal joint, the shaft-sections passing through the stub-axles and being operatively connected with said hubs at the outer ends of the stub-axles

2. The combination with a rigid frame for supporting the front part of a vehicle-body, said frame being provided with outwardly-extending fork-arms, a rotative shaft mounted in said frame, shaft-sections joined to said shaft by universal joints, stub-axles for the wheel-hubs provided with inwardly-extending fork-arms adapted to overlap and pivoted to the fork-arms on the frame, said pivots being located in vertical alinement with said universal joints, and means connecting said shaft-sections with the wheel-hubs.

3. The combination with a frame for supporting the front of a vehicle-body, of hollow stub-axles adapted to receive the steering-wheels, said axles being pivoted to the frame to swing in horizontal planes, a rotative driving-shaft mounted in said frame, shaft-sections which have bearing in said hollow stub-axles and are connected at their inner ends with said rotative shaft by universal joints, and are connected at their outer ends with said wheel-hubs, said stub-axles being pivoted to the frame by pivots separate from and in alinement with said universal joints.

4. The combination with a frame for supporting the front of a vehicle-body provided with oppositely-extending, vertically-arranged fork-arms on its outer ends, of hollow stub-axles adapted to receive the steering-wheels, said axles being provided with inwardly-extending fork-arms which overlap said fork-arms of the frame and are united thereto by vertical pivots, a rotative driving-shaft in said frame and shaft-sections connected at their inner ends with said rotative shaft by universal joints which are located centrally of and in vertical alinement with the pivotal connection of the stub-axles with the frame, said shaft-sections being connected at their outer ends with the wheel-hubs.

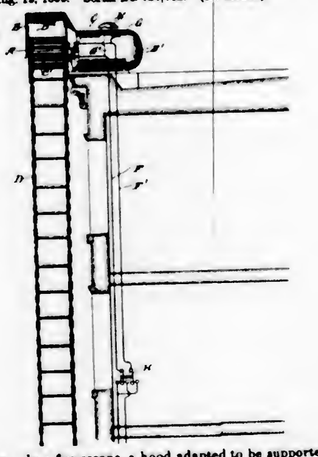
5. The combination with a frame for supporting the front part of a vehicle-body, of a rotative shaft mounted therein, hollow stub-axles pivoted to said frame to swing in horizontal planes and adapted to receive the steering-wheels, shaft-sections connected to said shaft by universal joints and passing through the stub-axles and means for connecting the outer ends of the shaft-sections with the wheel-hubs comprising a flange non-rotatively connected with the outer end of said shaft-section and attached to the outer end of said hub.

6. The combination with a frame for supporting the front part of a vehicle-body, a rotative shaft mounted therein, shaft-sections connected with said shaft by universal joints, hollow stub-axles pivoted to said frame to swing in horizontal planes and adapted to receive a wheel-hub, said shaft-sections extending through said tubular stub-axles, and means for connecting the outer ends of said shaft-sections with the wheel-hub, comprising flanges on the outer ends of said shaft-sections and one or more bolts passing through said flange and engaging longitudinal apertures in said hubs.

7. The combination of a frame for supporting the front of a vehicle-body, a hollow stub-axle pivoted to said frame to swing in a horizontal plane and adapted to receive a steering-wheel, a rotative driving-shaft mounted in said frame, said driving-shaft extending through and having bearing in said hollow stub-axle and adapted for connection at its outer end with the wheel-hub.

8. The combination with the four parts of the shaft, differential-gear mechanism connected with and actuating the two middle parts, universal joints connecting the middle and outer parts, four sleeves forming bearings for the four parts of the shaft, vertical joints connecting the outer and middle sleeves and means connected with the outer sleeves for turning the same in steering the vehicle.

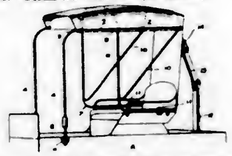
641,512. FIRE-ESCAPE. ALFRED HOLDEN, New York, N. Y. Filed Aug. 19, 1899. Serial No. 727,782. (No model.)



Claim.—In a fire-escape, a hood adapted to be supported on the roof of a building, one end section of said hood being closed and the other end section being open at the bottom, a motor in the closed end section of the hood, and having a shaft formed with an axial extension projecting beyond the roof of the building into the open

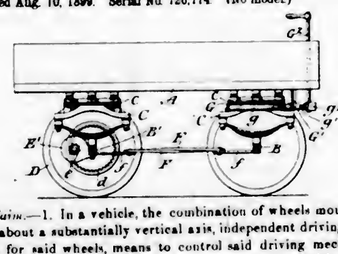
end section of the hood, a drum mounted on the said shaft extension, and a ladder arranged to be wound on said drum and to pass through the bottom of the open end section, as set forth

641,518. BUGGY-TOP. JAMES F. HOGUE, Lone Grove, Tex. Filed Sept. 6, 1899. Serial No. 729,591. (No model.)



Claim.—In combination with a vehicle-body and break-down top, of the stud-post 3 fixed to the body, and the jointed side rail fixed to the collapsible top, the seat-rail, the vertical and diagonal bows or braces 8 and 10 hinged to said seat and side rails, and the vertical arms 4 4 hinged to said side rail or to the ends of short bow at the upper front part of the top and having their free ends terminating in sockets 6 6 adapted to encompass said vertical stud-posts, substantially as and for the purpose set forth.

641,514. MOTOR-VEHICLE. CHARLES W. HUNT, New York, N. Y. Filed Aug. 10, 1899. Serial No. 726,774. (No model.)



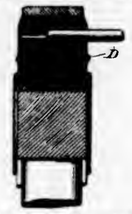
Claim.—1. In a vehicle, the combination of wheels mounted to swing about a substantially vertical axis, independent driving mechanisms for said wheels, means to control said driving mechanisms whereby one of said wheels is retarded or accelerated with relation to the other of said wheels, and means to retard or check the swinging of the wheels.

2. In a vehicle, the combination of wheels mounted to swing about a substantially vertical axis, independent driving mechanisms for said wheels, means to control said driving mechanisms whereby one of said wheels is retarded or accelerated with relation to the other of said wheels, a brake normally checking or retarding the swinging of the wheels, and means to relieve the brake.

3. In a vehicle, the combination of wheels mounted to swing about a substantially vertical axis, independent electric motors for said wheels, means to vary the current through each of said motors, whereby one wheel is retarded or accelerated with relation to the other wheel, and means to retard or check the swinging of the wheels.

4. In a vehicle, the combination of wheels mounted to swing about a substantially vertical axis, independent electric motors for said wheels, a single-current controller and connections therefrom to said motors whereby the current may be divided as desired between said motors and one wheel relatively retarded or accelerated, and means to retard or check the swinging of the wheels.

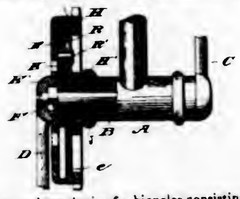
641,515. TIRE. CHARLES W. HUNT, New York, N. Y. Filed Sept. 20, 1899. Serial No. 731,039. (No model.)



Claim.—1. The combination with a wheel, of a yielding or cushion tire, a hard tread or shoe and expanders forced into said tire from the side to expand the same outwardly against the tread or shoe to hold the same in place.

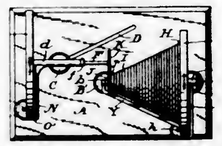
2. The combination with a wheel, of a yielding or cushion tire, a hard tread or shoe and pins driven through the tire from side to side to expand the same outwardly against the tread or shoe to hold the same in place.

641,516. BICYCLE PROPULSION. ALFRED KAUFFMAN, Pottstown, Pa. Filed Sept. 13, 1899. Serial No. 730,382. (No model.)



Claim.—A propulsion device for bicycles consisting of the crank-hanger and shaft journaled therein, the wheel E having a flange with internal teeth, a crank integral with said wheel, the hub portion of the latter having a square recess and central aperture to receive said shaft, a nut P mounted to rotate with the shaft, and seated in said recess, the stationary member K mounted on the crank-hanger, combined with the sprocket-wheel having an integral pinion formed out of a reduced portion of the hub of the latter, and the intermeshing geared wheels for communicating power from said wheel E to the sprocket-wheel, as set forth.

641,517. AUTOMATIC COMPUTING-MACHINE. CHARLES E. KEEL, Indianapolis, Ind. Filed Sept. 23, 1899. Serial No. 731,382. (No model.)



Claim.—1. A computing-machine comprising a pair of counterpart disks one of which is secured to a rotating shaft permanently mounted and the other of which is secured to a rotating shaft mounted adjustably both laterally and longitudinally, identical numerals arranged at the peripheries of the disks, and toothed wheels secured to the shafts and meshing with each other.

2. A computing-machine comprising a horizontal permanently-mounted rotating shaft, a disk secured to the permanently-mounted shaft and having numerals arranged at the periphery thereof, an adjustably-mounted rotating shaft situate in a line parallel to the permanently-mounted shaft, a disk secured to the adjustably-mounted shaft and having numerals arranged at the periphery thereof, a toothed wheel secured to the adjustably-mounted shaft, and a toothed wheel secured to the permanently-mounted shaft and engaging the toothed wheel on the adjustably-mounted shaft.

3. A computing-machine consisting of a main rotating disk having a peripheral rim and a series of numbers ranging from a unit upward arranged on the outer face of the rim, a secondary disk having numbers arranged on the periphery thereof and operated by the main disk, a second main rotating disk suitably mounted on a movable frame and having a peripheral rim and a series of numbers ranging from a unit upward arranged on the outer face of the rim, a secondary disk having numbers arranged on the periphery thereof and operated by the second main disk, and a gage having a sight-aperture permanently mounted at the face of each of the main disks so as to designate the reading of each main and secondary disk together.

4. A computing-machine comprising a frame, a pair of horizontal stationary journal-bearings in alinement, a rotating shaft in the bearings and having an operating-wheel, a horizontal movable journal-bearing situate in a line parallel to the line of the stationary bearings, a rotating shaft in the movable bearing, a pair of counterpart main disks provided each with numerals at the periphery thereof and secured one to each of the rotating shafts, secondary disks mounted on vertical shafts at the peripheries of the main disks and controlled thereby, sight-gages mounted at the peripheries of the disks, and gear-wheels connecting the two rotating shafts.

5. A computing-machine comprising a frame, a pair of rotating shafts one of which is mounted in fixed bearings and the other of which is mounted in movable bearings and provided each with a main disk secured thereto and having at the periphery thereof a rim and a scroll or cam, identical numerals arranged upon the rims of both

disks, secondary disks engaged by the scrolls and having numerals arranged at their peripheries, toothed wheels secured to the rotating shafts and engaging one with another, and sight-gages permanently supported at the peripheries of the main and secondary disks, whereby the readings of the main and secondary disks together may be determined.

6. In a computing-machine, the combination of a base, a frame, a rotating shaft mounted in permanent bearings, a main disk secured to the rotating shaft and having a series of numbers arranged on the periphery thereof, a secondary disk operated by such main disk, means for actuating the rotating shaft, a series of toothed wheels secured to such rotating shaft, a rotating shaft mounted in movable bearings in a line parallel to said first-described rotating shaft and having a toothed wheel secured thereto and engaging one of said series of toothed wheels, a second main disk secured to said second-described rotating shaft and having a series of numbers arranged on the periphery thereof, a secondary disk operated by such second main disk, and a sight-gage supported at the periphery of each of said main disks.

7. In a computing-machine, the combination of the base; the permanent frame; the movable frame; the rotating shaft journaled in the permanent frame; a main disk and a series of toothed wheels secured to the rotating shaft, a rotating shaft journaled in the movable frame, a second main disk and a toothed wheel secured to the second-described rotating shaft and operated by the first-described rotating shaft; numerals arranged at the periphery of each of the main disks and identical in both disks so as to designate any value from a unit to one thousand, the latter represeeted by three "ciphers;" a secondary disk mounted at the left-hand side of each of the main disks and having each numerals whereby values from "one thousand" upward are added to the values of the numerals upon the main disks; and sight-gages whereby to indicate the reading of each main and secondary disk together.

8. In a computing-machine, the combination with the series of toothed wheels secured to a shaft, of the indicator mounted in front of such wheels and designating the diameter and ratio of each of such wheels.

9. In a computing-machine, the combination of the base, the permanent frame, the movable frame, the rotating shaft mounted on each of said frames, the pair of counterpart numbered disks one of which is secured to one and the other of which is secured to the other of said shafts and moving in parallel vertical planes, the series of toothed wheels secured to one of the rotating shafts, the toothed wheel secured to the other one of said rotating shafts and meshing with one of said series of toothed wheels, the secondary disks, the sight-gages, and the indicator for the series of toothed wheels.

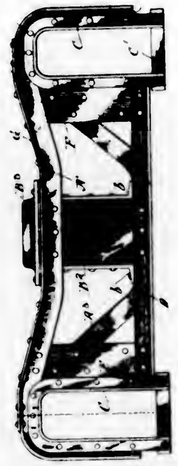
10. In a computing-machine, the combination of the base, the permanent frame, the movable frame, the rotating shafts mounted on said frames, the pair of counterpart numbered main disks secured one to each of the rotating shafts, the series of toothed wheels secured to one of the rotating shafts, the toothed wheel secured to the other one of the rotating shafts and meshing with one of said series of toothed wheels, the secondary disks mounted at the periphery of the main disks and operated thereby, and the sight-gages mounted permanently whereby to indicate the simultaneous reading of each of the main and secondary disks together.

641,518. CAR-TRUCK FRAME. DWIGHT R. KENNEDY, Oakmont, Pa., assignor to Samuel W. McMunn, trustee, Chicago, Ill. Filed Jan. 21, 1899. Serial No. 702,942. (No model.)

Claim.—1. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising an upper or compression member, and a lower or tension member, which members are attached centrally thereof to the bottom and top of the transom member and have their end portions arranged parallel with each other; the said tension member consisting of an angle-bar, the web of which is arranged vertically and the flange of which is located at its upper edge and in bearing contact with the transom member, the horizontal parts or flanges, as well as the webs of the said parallel end portions of the tension and compression members being rigidly attached together.

2. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising an upper or compression member and a lower or tension member, consisting of angle-irons having vertical webs and flanges at their upper edges; said members being attached centrally thereof to the bottom and top of the transom members and having their end portions adjacent to each other with their flanges in the same plane, and plates attached to the flanges of the end portions of the tension and compression members and rigidly connecting the same.

3. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising two pedestals, an upper or compression member and a lower or tension member, said members being attached centrally thereof to the bottom and top of the transom member and with their end portions arranged side by side and bent to extend over the top and downwardly over the sides of the pedestals, said tension member consisting of an angle-bar having its web portion in a vertical plane and its flanged portion at its upper edge and in bearing contact with the transom member, the outer parallel portions of the tension and compression members being rigidly secured to each other.



4. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising two pedestals, an upper or compression member and a lower or tension member, which compression and tension members are attached centrally to the bottom and top of the transom member and are extended at their end portions over the tops, and downwardly at the outer sides of the pedestals; said tension and compression members being made of angle-bars and having their end portions arranged parallel and with their vertical parts or webs adjacent to each other and their flanges extending oppositely and outwardly, and plates attached to the flanges of said compression and tension members at the said parallel end portions thereof.

5. A car-truck frame comprising a transom member which consists of two vertical and parallel channel side plates having the flanges at their upper and lower edges directed outwardly, and two end plates extending between and attached to said side plates, and two parallel side members, each of said side members comprising an upper or compression member attached centrally thereof to the upper side of the transom member and a tension member attached centrally thereof below the transom member, said tension member consisting of an angle-bar having its web arranged vertically, and its flange at its upper edge and in contact with the transom member, and its vertical web attached to a downwardly-extending lip or projection on the end plate of said transom member; said compression and tension members being arranged parallel with, and rigidly secured to each other at their outer ends.

6. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising two pedestals, an upper or compression member and a tension member, which tension and compression members are attached centrally thereof at the top and bottom of the transom member, and are arranged side by side and parallel with each other at their middle and outer ends, and bent over the pedestals at their outer portions; said pedestals embracing two continuous angle-bars of L shape in cross-section which are bent in inverted-U form and arranged side by side and attached to the bent ends of said compression and tension members.

7. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising two pedestals, an upper or compression member and a tension member, said tension and compression members being attached centrally thereof to the top and bottom of the transom member, arranged side by side and parallel with each other at their end portions, and bent in such end portions to extend over the pedestals, said compression and tension members also being made of angle-bars of L shape in cross-section, and arranged in their end-portion parts with their webs vertical and adjacent to each other, and their flanges directed oppositely and in the same planes with each other; said pedestals each embracing two continuous angle-bars of L shape in cross-section, bent in inverted-U form and arranged side by side, said bars having overlapping engagement with, and being attached to the webs of the compression and tension members.

8. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising two pedestals, an upper or compression member, and a tension member, and a tie-bar; said compression and tension members consisting of angle-bars having vertical webs and horizontal flanges at their upper edges attached centrally thereof to the top and bottom of the transom member, and arranged side by side and parallel with each other at their end portions, and bent at such end portions to embrace the pedestals, with their extremities directed downwardly and the tie-bar being attached to the central portions of the tension member, vertical web-plates attached at their upper ends to said compression and tension members between the outer ends thereof and the transom member, and attached at their lower ends to the said tie-bar, and said pedestals embracing angle-bars of inverted-U shape and of L shape in cross-section, arranged side by side and having overlapping engagement at their outer sides and upper ends with the webs of the compression and tension members, and at their inner sides with said vertical web-plates.

9. A car-truck frame comprising a transom member and two parallel side members, each of said side members comprising an upper or compression member and a tension member which are attached centrally thereof at the upper and lower sides of the transom member, are arranged side by side and parallel with each other, and bent at their end portions to form portions of the pedestals, said compression and tension members being made of angle-bars arranged with their webs vertical, and their flanges at their upper edges and oppositely directed, and plates extending over the top of said side members, said plate extending over and being attached to the top of the transom member, and being attached at their opposite ends to the oppositely-directed flanges of the compression and tension members.

10. A car-truck frame comprising a transom member which consists of two vertical channel-plates having outwardly-directed flanges at their upper and lower edges, two parallel side members, each of said side members comprising an upper or compression part attached to the upper side of the transom member and a lower or tension member attached to the lower edges of and bearing against the transom member, and upright struts or brace-bars applied to the outer faces of said channel-plates at the ends thereof and bearing at their lower ends against the lower flanges of said channel-plates.

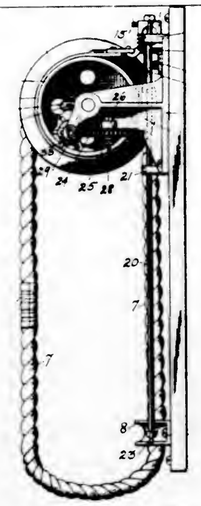
11. A car-truck frame comprising a transom member which consists of two vertical channel-plates having outwardly-directed flanges at their upper and lower edges, end plates applied to the ends of the side plates and extending outwardly past the web portions of the same, upright struts or brace-bars having the form of angle-bars which are riveted to the webs of the channel-bars and to the margins of the end plates and bear at their lower ends against the lower flanges of the channel-bars, and two parallel side members, each of which comprises a lower or tension member which extends beneath and is attached to the lower surface of the transom member and bears against the flanged lower edges of said channel-plates.

641,519. EXERCISING-MACHINE. EDWARD J. KERR, Worcester, Mass. Filed Mar. 8, 1899. Serial No. 708,181. (No model.)

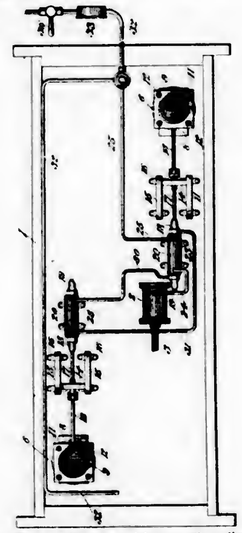
Claim.—1. In an exercising-machine, in combination, a stand or base, brackets extending out therefrom, a shaft in bearings on said brackets, a peripheral grooved wheel or pulley on said shaft having ridges or corrugations in the groove, an endless rope extending at one end loosely around said wheel in the groove, with its other or lower end free and loose to be grasped by the operator, a friction mechanism for regulating the strength required to turn said wheel, consisting of a belt passing around a pulley or annular flange connected with said wheel, and secured at one end in a fixed position, and its other end adjustably attached to vary the friction of the belt on the pulley, and a spring forming a yielding attachment for one end of the belt, substantially as shown and described.

2. In an exercising-machine, the combination with a peripheral grooved wheel having corrugations or ridges in the groove, and an endless rope extending around said wheel in the groove, of friction mechanism for regulating the strength required to turn said wheel, comprising a belt passing around a pulley or annular flange connected with said wheel, said belt secured in a fixed position at one end, and the other end adapted to be adjusted, to vary the friction of the belt on said pulley or flange, and a spring forming a yielding attachment for the adjustable end of the belt, and a rod having a sprocket-wheel thereon to engage and turn a nut on the screw-threaded end of a pin or stud, secured to the adjustable end of the belt or band, and said nut and pin or stud, substantially as shown and described.

641,519.



641,520. WATER-CLOSET SYSTEM. MATHIAS LAUX and ALONZO L. VAUGHAN, Little Rock, Ark. Filed Aug. 24, 1898. Serial No. 689,447. (No model.)



Claim.—1. The combination with a car of a railway or like train, of a closet-bowl and dumping member thereon, dumping-member-actuating mechanism and means remote from the car for operating said actuating mechanism.

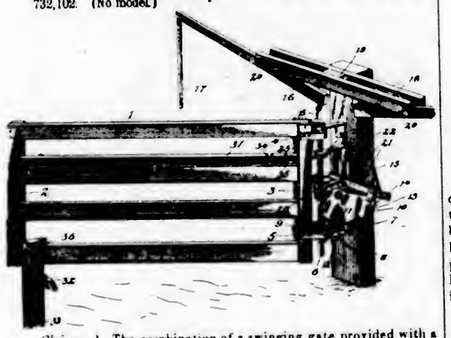
2. The combination with a plurality of cars composing a train, of a closet-bowl and dumping member on each of a plurality of said cars, and means for simultaneously actuating said dumping members.

3. The combination with the car or cars of a train and its locomotive, of a plurality of car-closet bowls, and dumping members, dumping-member-actuating mechanism common to the several members, and means upon the locomotive for operating the dumping-member-actuating mechanism.

4. In a railway-train equipped with a system of air-brakes, the combination therewith of a car provided with a closet, a dumping member, and pneumatically-operative mechanism for actuating the dumping member operatively connected with the air-exhaust of the brake system.

5. In a railway-train equipped with a system of air-brakes supplying one source of pneumatic energy, the combination therewith of a car provided with a closet, a dumping member, dumping-member-actuating mechanism operatively connected with said source of energy, and a second source of pneumatic energy also operatively connected with said actuating mechanism, the two energies being adapted to actuate the dumping member alternately in different directions for opening and closing the bowl.

641,521. GATE. CHARLES F. LEE, Astoria, Ill., assignor of one-half to William Scripps, same place. Filed Sept. 29, 1899. Serial No. 732,102. (No model.)



Claim.—1. The combination of a swinging gate provided with a latch and having a pinion, an oscillating gear, a pair of latch-operating levers fulcrumed on and carried by the gear, operating mechanism connected with the said levers, and connections between the latch and the said levers, whereby the latch will be operated when the gear is oscillated, substantially as described.

2. The combination of a swinging gate provided with a pinion, an oscillating segment meshing with the pinion, a latch, a slide connected with the latch, a pair of latch-operating levers fulcrumed on the segment on opposite sides thereof and engaging the slide, and operating mechanism connected with the said levers, substantially as described.

3. The combination of a swinging gate provided with a latch, a vertically-movable slide connected with the latch, a support having ways receiving the slide, a pinion mounted on the gate, a segment pivotally mounted on the support and having teeth to mesh with those of the pinion, a pair of latch-operating levers fulcrumed on the segment and having inner overlapping ends engaging the slide, and operating mechanism connected with the outer ends of the levers, substantially as described.

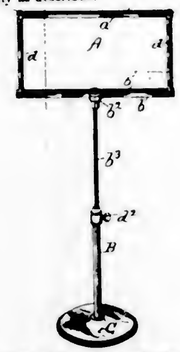
4. The combination of a support, a pintle mounted thereon, a gate having eyes receiving the pintle and provided with a pinion, a latch fulcrumed on the gate and having an eye receiving the pintle, a vertically-movable slide guided on the support and having upper and lower arms provided with eyes receiving the said pintle, a segment mounted on the support and provided with teeth, latch-operating levers fulcrumed on the segment and engaging the lower arm of the slide and adapted to carry the upper arm into engagement with the latch, and operating mechanism connected with the said levers, substantially as described.

5. The combination of a support provided with ways, a vertical pintle mounted on the support, a gate hinged to the pintle, a vertically-movable slide mounted in the said ways and having arms guided on the said pintle, a latch mounted on the gate and arranged to be engaged by one of the arms of the slide, and means for depressing the other arm of the slide, substantially as described.

6. The combination of a support, a toothed segment mounted thereon, a swinging gate provided with a pinion meshing with the segment, a slide guided on the support, a pair of latch-operating levers fulcrumed on the segment and provided at their inner portions with projections engaging the slide, a latch connected with the slide, and means for operating the said lever, substantially as described.

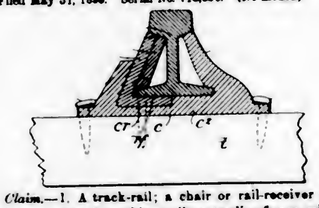
641,522. PRICE-CARD HOLDER. EDWARD LEGER, Chicago, Ill. Filed Mar. 30, 1899. Serial No. 711,046. (No model.)

Claim.—1. A holder-frame for price-cards, comprising companion tubular side bars, a top bar, provided, longitudinally, with a slot-opening and having rounded closed ends which inclose the upper ends of the respective side bars, the bottom bar, grooved along its upper edge and having the lower ends of the side bars fixed in the respective ends of the bottom bars, and means for raising and lowering said frame, substantially as described.



2. In a holder-frame for price-cards, the combination with the companion tubular side bars, slotted along their inner edges, of the top bar, having a longitudinal opening therein, the respective ends being rounded and inclosing the ends of the side bars, the grooved bottom bar, connecting the lower ends of said side bars, the head-piece, in which said bottom bar is secured, the stem, mounting said head-piece, and the tubular supporting-standard, in which said stem is vertically adjustable, substantially as described.

641,523. COMBINED CHAIR AND RAIL-BRACE. LEWIS LESSER, Tamaqua, Pa., assignor of one-half to Charles R. Christ, same place. Filed May 31, 1899. Serial No. 718,853. (No model.)

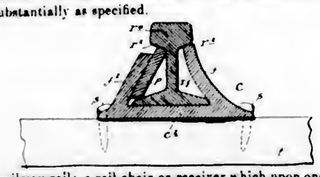


Claim.—1. A track-rail; a chair or rail-receiver which at one side has an upwardly and inwardly extending flange, which flange at its base directly engages the flange of the rail, and which bears against the shoulder of the rail, which chair at its opposite side has a corresponding flange which extends toward the opposite shoulder of the rail, and which chair on such opposite side has a horizontal recess; an angular brace-plate which in one portion is adapted to the recess in the receiver and constitutes with the receiver a flat bearing for the flange of the rail; and a slightly-tapered bar or brace-plate which is insertible longitudinally, and which bears against the angular brace-plate, against the flange of the rail, and against the shoulder of the rail; in combination, substantially as described and shown.

2. A track-rail; a rail chair or receiver which is flat in its base or lower portion, and is recessed in such portion, which is upturned or inwardly and upwardly extended, to constitute a retaining-flange which bears against the corresponding shoulder of the rail, and which at its opposite side is upturned and extended, in a like direction, but to a lesser extent, to form a secondary retaining-flange; an angular holder block or bar, within the recess and within the secondary flange; and a slightly-tapered flat brace or bar, within the angle of the angular holder-bar, bearing against the flange of the rail at the bottom and bearing against the shoulder of the rail at the top; in combination, substantially as shown and described.

641,524. COMBINED CHAIR AND RAIL-BRACE. LEWIS LESSER, Tamaqua, Pa., assignor of one-half to Charles R. Christ, same place. Filed Aug. 2, 1899. Serial No. 725,850. (No model.)

Claim.—1. A railway-rail; a rail chair or receiver which upon one of its margins has an upwardly and inwardly extending retaining-flange which in its main portion is not in contact with the web or body of the rail, which at its upper extremity bears against the coincident shoulder of the rail, and which at its opposite margin has a corresponding flange which is flat upon its inner surface, and which is similarly inclined toward but which comes short of the opposite shoulder of the rail; and an inclined brace plate or bar which has flat, parallel, inner and outer surfaces, which is longitudinally received intermediately of the rail and its receiver, in face-to-face contact with such opposite corresponding flange, which by its edges bears against the shoulder and against the flange of the rail; and which in its main portion is remote from the body or web of the rail, in combination, substantially as specified.

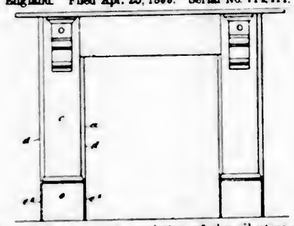


2. A railway-rail; a rail chair or receiver which upon one of its margins has a retaining-flange which at its upper extremity bears against the shoulder of the railway-rail, and which upon its opposite margin has a corresponding similarly-inclined flange which extends toward the opposite shoulder of the rail; and a flat or straight sided inwardly-inclined brace plate or bar which is longitudinally received between the rail and its chair, which by its outer face bears flatly against the inner face of such corresponding flange, and which by its edges bears against the shoulder and against the flange of the rail; the brace-plate, and each of such inner and outer flanges, being out in contact with the vertical body of the rail, in combination.

3. The combination with a track-rail, of a rail chair or receiver which at one side has an inclined marginal flange or brace-plate which bears against the tread of the rail, and which at its opposite side has an inclined marginal flange which extends toward the tread of the rail; and a flat brace plate or bar unprovided with recess or projection which is insertible endwise between the rail and its receiver, and which bears only by its upper extremity against the tread or shoulder of the rail, by its lower extremity against the flange of the rail, and by its main body against the inner face of the opposite inclined marginal flange of the chair or receiver; substantially as set forth.

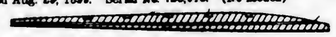
4. A combined chair and rail-brace which consists of a horizontal rail-supporting portion or base; an upwardly and inwardly extending marginal flange or brace which at its upper extremity is adapted to bear against the shoulder of the rail; an opposite marginal flange, of like inclination, which when the rail is in place, extends nearly to the shoulder thereof; and a flat parallel-sided brace plate or bar which is adapted to be inserted between the rail and such opposite flange, and to bear only against the same, and against the shoulder and against the flange of the rail; substantially as specified.

641,525. SLATE MANTELPIECE. WILLIAM J. LEWIS, Birmingham, England. Filed Apr. 25, 1899. Serial No. 714,411. (No model.)



Claim.—A slate mantel consisting of the pilasters each having orifices in its inner side near the opposite vertical edges, the metallic screw-sockets removably located in said orifices and each formed with a flat rectangular plate having screw-holes and set in the pilaster flush with the inner surface thereof, attaching-screws passing through the screw-holes of said plates into the pilasters, the sides or slips formed integral with right-angled flanges having flat outer surfaces and bolt-holes registering with the said screw-sockets, the screw-bolts detachably screwed into the screw-sockets and passing through the bolt-holes in said right-angled flanges, the screw-nuts on the inner ends of the screw-bolts for clamping the pilasters against the outer flat faces of the sides or slips and their flanges, the plinths detachably secured to the sides or slips, substantially as and for the purposes described.

641,526. APPAREL-PAD. ISIDORE LÖWENTHAL, Baltimore, Md. Filed Aug. 29, 1899. Serial No. 728,910. (No model.)



Claim.—1. A shoulder-pad comprising a crescent-shaped body of pulpy or fleecy material, the upper surface of which is unbroken, and its lower surface provided with grooves impressed therein, substantially as described.

2. A pad of the character described composed of pulpy fleecy material and provided with a central pliable binder, and having grooves impressed in the surface of said pad and binder, substantially as described.

641,527. NEGATIVE HOLDER. FRANK C. MEYER, New York, N. Y. Filed May 28, 1897. Serial No. 638,509. (No model.)

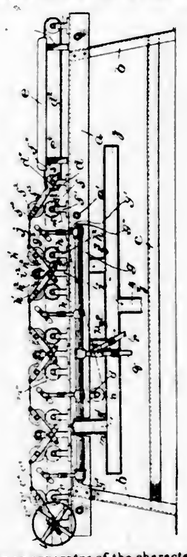


Claim.—1. An improved holder proper for photographic negatives, which consists of a series of flexible leaves, and a series of strips 5, which are arranged between the base portions of said leaves, both said leaves and strips being secured solidly together, so that the strips form a solid base-support for the negatives, as shown and described.

2. The improved photograph negative-holder proper, consisting of a series of flexible, parallel leaves having their central portions cut out to allow circulation of air, a series of thick pasteboard strips 5 arranged between the bases of said leaves, and rods passing transversely through both leaves and strips and securing them permanently and firmly together, as shown and described.

3. The improved photograph negative-holder comprising the negative-holder proper, formed of a series of parallel flexible leaves, a series of interposed base-strips for spacing the leaves and supporting negatives, means for securing such leaves and strips together, and an inclosing rectangular box, or case, into which the negative-holder proper fits when it is permanently secured, said box having a hinged and folding front adapted to be turned outward to allow a single leaf or series of leaves to be bent outward, as and for the purpose specified.

641,528. APPARATUS FOR SINGEING HOSIERY. ROBERT MEYER, Philadelphia, Pa. Filed Mar. 16, 1899. Serial No. 709,302. (No model.)



Claim.—1. In an apparatus of the character described, the combination of feed-rollers arranged in a series of aligning pairs between which the goods under treatment successively pass, means for continuously driving said feed-rollers to advance the goods, a burner lo-

cated between two pairs of the feed-rollers and adapted to direct flames against the passing goods, and a brush located between one of said two pairs of feed-rollers and the adjacent pair in position to remove singed matter from the surface of the goods.

2. In an apparatus of the character described, the combination of feed-rollers arranged in a series of alining pairs between which the goods under treatment successively pass, means for continuously driving said feed-rollers to advance the goods, burners located between two pairs of the feed-rollers and on opposite sides of the path of movement of the goods, said burners adapted to direct flames against the latter, and brushes located on opposite sides of the path of movement of the goods between one of said two pairs of feed rollers and the adjacent pair in position to remove singed matter from the surfaces of the goods, substantially as described.

3. In an apparatus of the character described, the combination of feed-rollers arranged in a series of alining pairs between which the goods under treatment successively pass, means for continuously driving said feed-rollers to advance the goods, burners located between two pairs of the feed-rollers and on opposite sides of the path of movement of the goods; said burners adapted to direct flames against the latter, a pair of rotary cylindrical brushes located between one of said two pairs of feed-rollers and the adjacent pair in alinement therewith, and means for driving said brushes oppositely to the feed-rollers.

4. In an apparatus of the character described, the combination of feed-rollers arranged in a series of alining pairs between which the goods under treatment successively pass, means for continuously driving said feed-rollers to advance the goods, one or more burners located between every other two adjacent pairs of feed-rollers, and one or more brushes located between the alternating two adjacent pairs of rollers, substantially as described.

5. An apparatus of the character described, the same comprising a horizontal feed-apron and supports, a horizontal series of vertically-paired feed-rollers, means for driving the feed-apron and feed-rollers continuously in directions to constantly advance goods placed on the apron and introduced between the rollers, burners located between certain pairs of the feed-rollers and arranged to direct flames against the passing goods as they are transferred between the said pairs of rollers, rotary brushes arranged in pairs between certain of the pairs of feed-rolls where the goods in passing from one of such pairs of feed-rolls to another must pass between the brushes, and means for rotating the latter oppositely to the feed-rollers, substantially as described.

6. In an apparatus of the character described, the combination of feed-rollers arranged in confronting pairs, concentrically-pivoted arms supporting the upper rollers of the pairs, tie-rods connecting the arms in pairs, means for continuously rotating the rollers in directions to advance the goods under treatment, brushes to act on the goods while passing between the pairs of rollers, and burners arranged to direct flames against the goods as they approach the rollers.

7. In an apparatus of the character described the combination of feed-rollers arranged in confronting pairs, pivoted arms supporting the upper rollers of the pairs, retractile springs connecting the arms, means for limiting the movement of the said upper rollers toward the lower rollers, means for driving the rollers so as to advance goods brought between them, burners for directing flames against the surface of the goods, and brushes to remove singed matter from the surface of the goods.

8. An apparatus of the character described the same comprising a horizontal series of vertically-paired feed-rollers, one roller of each pair movable toward and from the other, rotary brushes located between certain pairs of feed-rollers, burners in the form of pipes transversely arranged between certain other pairs of feed-rollers, a gas-conduit extending longitudinally of the machine and having branches to supply the burner, means for driving the feed-rollers in directions to advance the goods continuously and expose them to the flames of the burners, together with means for driving the brushes in opposition to the advance of the goods, substantially as and for the purpose described.

9. The combination of burner-tubes arranged on opposite sides of the path of the article to be singed, pairs of rolls arranged on opposite sides of the singeing device, and a former over which the fabric is adapted to be stripped, substantially as described.

10. In a stocking-singeing machine, burner-tubes arranged to direct their flames toward each other, a suitable former over which the stockings to be singed are stripped, whereby the threads or fibers thereof are stretched or spread apart, the means for bodily moving said former and surrounding stockings between the flames of the burner-tubes, substantially as described.

11. In a stocking-singeing machine, a pair of burner-tubes located in different planes and each provided with jet-openings, so as to produce an upwardly and a downwardly disposed flame, a suitable former over which the stockings to be singed are stretched, and pairs of rollers located at opposite sides of the burner-tubes for conducting the said former and surrounding stocking between the flames of the burner-tubes, whereby both sides of the stocking are singed at one operation.

12. In a stocking-singeing machine, a pair of burner-tubes located in close proximity to each other, so as to produce a downwardly and an upwardly disposed flame, a suitable former for supporting the stockings from within in a comparatively flat condition, and pairs of rollers located at opposite sides of the burner-tubes for conducting the said former and surrounding stocking through the flames of the burner-tubes, so that both sides of the stocking will be singed at one operation.

13. In a stocking-singeing machine, a pair of burner-tubes arranged to project jets of flame in opposite directions, a suitable former over which the stockings to be singed are stretched and by which they are supported in a flat condition, and means for feeding said former and surrounding stocking through the jets of flame, whereby both sides of the stocking are singed at one operation.

14. In a stocking-singeing machine, a pair of burner-tubes located in close proximity to each other and each provided with jet-openings, a pair of feed-rollers arranged upon each side of the burner-tubes, the adjacent peripheries of each pair of said rollers being on a line substantially horizontal with the said burners, and means for causing said feed-rollers to rotate in unison.

15. In a stocking-singeing machine, a pair of burner-tubes located in close proximity to each other so as to produce an upwardly and a downwardly disposed flame, respectively, a feed-table at one end of the machine, guard-plates or guides upon said table, a suitable former for supporting the stocking from within in a practically flat condition, and pairs of rollers located at opposite sides of the burner-tubes for conducting the former and stocking from the feeding-table through the flames of the burner-tubes, for the purpose specified.

641,529. GRASS OR STUBBLE BURNER. DANIEL MORRISON, Maple Creek, Canada, assignor of one-half to John H. Fleming, same place. Filed July 13, 1899. Serial No. 723,692. (No model.)



Claim.—1. A grass and stubble burner, comprising a bottomless inclosing structure having fireproof curtains at the sides and adapted to be moved over the ground, and a flexible weighting device as a chain secured to the bottom of the curtains, substantially as described.

2. A grass and stubble burner, comprising a bottomless inclosing structure having fireproof curtains at the sides and adapted to be moved over the ground, a flexible weighting device as a chain secured to the bottom of the curtains, and a fan at the rear, discharging forwardly upon the grass, substantially as described.

3. A grass and stubble burner, comprising a bottomless inclosing structure, having flexible fireproof curtains at its sides and adapted to be moved over the ground, a flexible weighting device as a chain secured to the bottom of the curtains, a fan at the rear, discharging forwardly upon the grass, and fire-setting devices within the forward end of the inclosure, substantially as described.

4. A grass and stubble burner, comprising a bottomless inclosing structure having flexible fireproof curtains at its sides and adapted to be moved over the ground, a flexible weighting device as a chain secured to the bottom of the curtains, and fire-setting devices within the forward end of the inclosure, substantially as described.

5. A grass and stubble burner, comprising a frame mounted on wheels to be moved over the ground, curtains adapted to be secured to the frame to form a bottomless inclosure, bars pivoted by their upper ends to the frame and adapted to drag their lower ends upon the ground, said bars being connected at their lower ends with the curtains, and means for securing and maintaining a fire within the inclosure as the device is moved over the ground, substantially as described.

6. A grass and stubble burner, comprising a frame mounted on wheels to be moved over the ground, curtains adapted to be secured to the frame to form a bottomless inclosure, bars pivoted by their upper ends to the frame and adapted to drag their lower ends upon the ground, chains secured to the lower ends of said bars and extending along the sides and forward end of the device, the curtains being secured to the chains, and means for securing and maintaining a fire within the inclosure, as the device is moved over the ground, substantially as described.

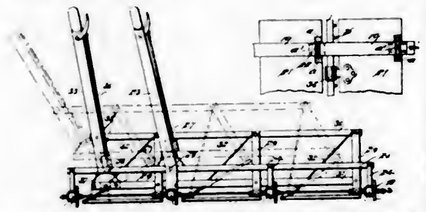
7. A grass and stubble burner, comprising a frame mounted on wheels to be moved over the ground, curtains adapted to be secured to the frame to form a bottomless inclosure, bars pivoted by their upper ends to the frame and adapted to drag their lower ends upon the ground, the said bars being connected at their lower ends with the curtains, torches at the forward end of the inclosure, and a fan at the rear, discharging forwardly upon the grass, substantially as described.

8. A grass and stubble burner, comprising a frame adapted to be moved over the ground, curtains suspended from the frame, bars pivoted by their upper ends to the frame and adapted to drag their lower ends upon the ground, the said bars being connected at their lower ends with the curtains, and a traction-operated fan at the rear of the inclosure discharging forwardly, substantially as described.

9. In a grass and stubble burner, the inclosing aprons having a flexible weighting device as a chain at their lower edges, substantially as described.

10. In a grass and stubble burner, the inclosing aprons having a flexible weighting device as a chain at their lower edges, and hooks adapted to support the chains in an elevated position, substantially as described.

641,530. HARROW AND PULVERIZER. HENRY G. MOSHER, Fairmount, Nebr. Filed Aug. 17, 1899. Serial No. 727,550. (No model.)



Claim.—1. In a harrow and pulverizer, a frame consisting of a series of forwardly and rearwardly extending bars, transverse plates, a hinge connection between a longitudinal surface of the plates and the frame bars, all of said plates having corresponding edges free from the frame-bars, transverse toothed bars adjacent to the longitudinal edges of the plates, bearings for said toothed bars, a lifting device for the plates, and a shifting mechanism for the toothed bars.

2. In a harrow and pulverizer, a frame consisting of parallel straps provided with sockets at intervals in their length, toothed bars mounted to turn in said sockets, extending transversely of the frame, plates located between the toothed bars, said plates having their forward longitudinal edges hinged to the straps and their rear longitudinal edges free from the straps, a shifting lever connected with one of the toothed bars, and link connections with the other toothed bars, a lift-lever, and connections, substantially as described, between the lift-lever and the rear portion of all the plates, whereby all the plates may be simultaneously raised or lowered at the rear portions, as specified.

3. In a harrow and pulverizer, the combination, with a frame consisting of parallel straps having sockets at intervals in their length, angle-bars mounted to turn in the sockets of the straps, each bar being provided with elongated openings and with circular openings adjacent thereto, spring-clips having one member provided with a hook and the other adapted to receive a nut, the members of the clips provided with hooks being adapted to enter elongated openings in the toothed bars and the other members the adjacent circular openings in the toothed bars, teeth held within the clips in engagement with the said bars, and plates located between the toothed bars, the said plates having a hinged connection at their forward edges with the said straps, of a lever attached to one of the toothed bars, standards attached to the other toothed bars, and a connecting-rod pivotally connected with all of the standards and with the said lever, standards secured to the said plates, connecting-bars pivotally attached to the upper and lower portions of said standards, a lever pivotally attached to said connecting-bars, and locking devices for the said levers, for the purpose set forth.

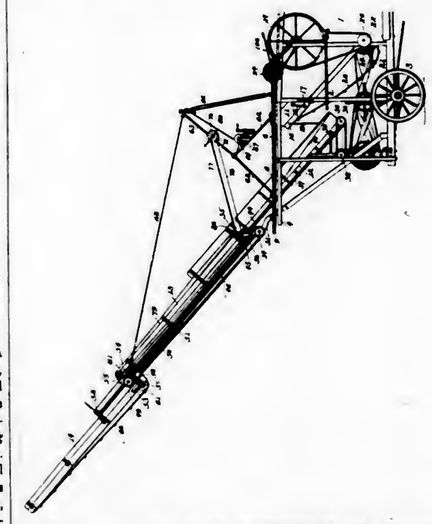
641,531. COMB. WILLIAM P. MURPHY, San José, Cal., assignor of one-half to Albert E. Winlow, same place. Filed May 1, 1899. Serial No. 715,195. (No model.)



Claim.—1. In an article of the character specified, the combination of a receptacle for the comb having extensions adapted to fill the spaces between the teeth of the comb; and a pivotal connection between the receptacle and comb whereby revolution of the comb on the pivot would cause the teeth of the comb to pass between the said extensions of the receptacle, substantially as described.

2. In an article of the character specified, the combination; of a skeleton, or open receptacle pivotally attached to the back of the comb and having extensions adapted to fill the spaces between the teeth of the comb when the same are rotated past the said extensions, substantially as described.

641,532. STRAW-STACKER. JOSEPH A. MUSSETTER, Painterville, Ohio. Filed June 30, 1898. Serial No. 684,892. (No model.)



Claim.—1. In a straw-stacker, the combination with a straw-elevator having sections adjustably connected together and independent carriers for the sections, of means for driving the carrier of one of the sections, a sprocket-chain actuated by the movement of the driven carrier aforesaid, a sprocket-wheel operatively connected with the carrier of the other section of the straw-elevator, and means straddling the sprocket-wheel for keeping the sprocket-wheel constantly in mesh with the sprocket-chain.

2. In a straw-stacker, the combination with a straw-elevator having sections adjustably connected together and independent carriers for the sections, of means for driving the carrier of one of the sections, a sprocket-chain actuated by the movement of the driven carrier aforesaid, a sprocket-wheel operatively connected with the carrier of the other section and meshing with the sprocket-chain, and a hanger car-

ried by the last-named section, having antifriction-rollers bearing against a single lead of the sprocket-chain on opposite sides of the sprocket-wheel and preventing the disengagement of the sprocket-chain and sprocket-wheel.

3. In a straw-stacker, the combination with a frame, tracks supported by the frame and carrying turn-table supports 6 and antifriction-rollers 7 and 8, carried by the supports at right angles to each other, of a turn-table having peripheral teeth and provided with an inwardly-projecting track 9" the rollers on the supports operating between the turn-table and track and upon the inner edge of the track respectively, and means for engaging the teeth of the turn-table for turning the latter.

4. In a straw-stacker, the combination with a straw-elevator composed of sections, one of which is adjustably connected to the other so as to be capable of extension and contraction in relation thereto, of pulleys on the other section, a winding-shaft provided with a sprocket-wheel, a sprocket-chain running over the sprocket-wheel and one of the pulleys, a flexible connection between one end of the chain and the movable section and a second flexible connection between the other end of the chain and the said section, said second connection passing around the pulley and extending to the section from an opposite direction to the first-named flexible connection whereby rotation of the winding-shaft in one direction shifts the movable section one way and rotation in the other direction shifts it in an opposite direction.

5. In a straw-stacker, the combination with a turn-table having gear-teeth, of a shaft carrying a worm meshing with the gear-teeth, slidable clutches on said shaft, independent shafts driven in opposite directions and equipped with fixed clutches adapted to engage the slidable clutches and shifting mechanism operated by the movement of the turn-table for moving the slidable clutches to alternately couple the worm-shaft to the respective driving-shafts.

6. In a straw-stacker, a table-reversing mechanism comprising a shifting member, a pivoted link, a connection between the link and lever, a trip-lever pivoted to the link and a spring connecting the trip-lever and link and keeping their joint or knee normally bowed.

7. In a straw-stacker, a table-reversing mechanism comprising a pivoted shifting lever, a pivoted link, a bar pivoted to the free end of the link and to the lever, a trip-lever pivoted at one end to the link where the bar is pivoted thereto, and a spring connecting the trip-lever and link and keeping their joint or knee normally bowed.

8. In a straw-stacker, a table-reversing mechanism comprising a bed having a slot, a movable shifting member, a link pivoted to the bed, a bar connected to the shifting member, and to the link by a member which is adapted to move in the slot, a trip-lever pivoted to the link and a spring connecting the link and trip-lever and keeping their knee or joint normally bowed.

9. In a straw-stacker, a table-reversing mechanism comprising parallel pivoted shifting levers, a bar pivotally connecting them together, a pivoted link, bars pivoted to the shifting levers and to the link, and a spring connecting the trip-lever and link and keeping their joint or knee normally bowed.

10. In a straw-stacker, the combination with a turn-table having a depending band provided with an inwardly-exteoding track, of turn-table supports located inside the track and provided with antifriction-rollers which bear against the edge of the same and also having a roller on which the table rests.

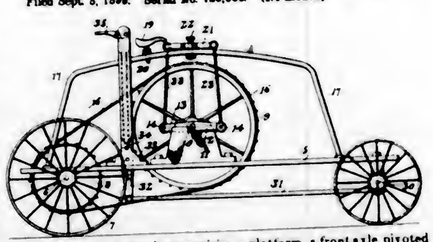
11. In a straw-stacker, the combination with a turn-table having a depending band provided with a track, of turn-table supports and rollers journaled on the supports and located between the top of the table and the track and of less diameter than the distance between the top and the track and adapted to bear against either of them.

12. In a straw-stacker, the combination with a turn-table having a depending band and an inwardly-extending track, of turn-table supports, rollers journaled to the supports and bearing against the edge of the track and a roller journaled to each support and located between the top of the table and the track, and of less diameter than the distance between the top and the track and adapted to bear against either of them.

13. In a straw-stacker, the combination with a straw-elevator section mounted for horizontal oscillation and having movable sides and means for keeping them retracted, of a second straw-elevator section for delivering the straw to the first-named section and means for engaging and spreading the movable sides alternately when the first-named section oscillates.

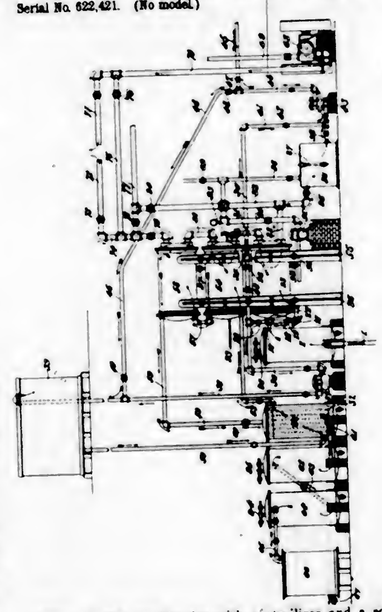
14. In a straw-stacker, the combination with a straw-elevator section mounted for horizontal movement and having longitudinally-hinged sides adapted to spread laterally and means for keeping said sides normally closed, of a second straw-elevator section adapted to deliver the straw to the first-named section, and a loop depending from the second section and located between the hinged sides, being adapted to alternately engage and spread said sides as the first-named section oscillates.

641,533. VELOCIPEDE. JAMES M. MYERS, Kirbyville, Tex. Filed Sept. 8, 1899. Serial No. 729,868. (No model.)



Claim.—A velocipede comprising a platform, a front axle pivoted to the platform, a rear axle having journals fixed to the platform and provided with fixed supporting-wheels, a gear-wheel fixed to the rear axle, pillow-blocks mounted upon the platform between the front and rear axle, a crank-shaft mounted in the pillow-blocks, a sprocket fixed to the crank-shaft, a chain connecting the sprockets, a seat-support attached at one end to the platform adjacent the front axle, and having its rear end bifurcated and straddling the sprocket of the rear axle, the extremities of the bifurcations being fixed to the platform in the rear of the rear axle, a seat upon the support, a lever pivoted transversely of the support, pitmen pivotally connected with the lever and with the cranks of the crank-axle, a seat mounted upon the support in the rear of said lever, a second lever pivoted upon the platform and extending above and below the platform, a connecting-rod attached at the lower end of the lever and to the front axle, a notched segment upon the platform, a hand-lever pivoted to the upper end of the second lever, and a reciprocatory dog mounted upon the second lever and attached to the hand-lever and adapted for engagement with the segment.

641,534. WATER STERILIZING AND CONDENSING APPARATUS. JOSEPH H. MCDONALD, New York, N. Y. Filed Feb. 8, 1897. Serial No. 622,421. (No model.)

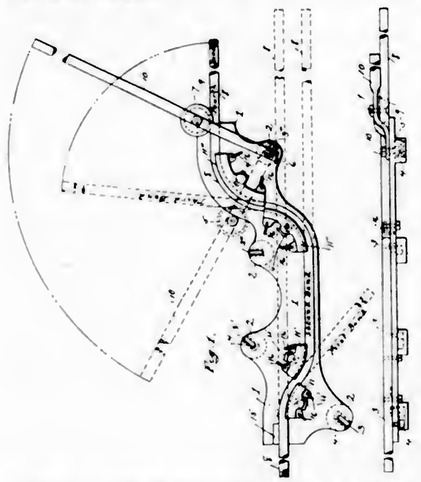


Claim.—1. The combination with a sterilizer and a source of water-supply, of means for diverting a portion of such water to be heated, and another portion to the sterilizer to be sterilized, means for directing the heated water to the sterilizer whereby it operates as the sterilizing agent, and means for commingling the two portions of water, substantially as set forth.

2. The combination with a source of water-supply, and a sterilizer, of a divided watercourse leading from the source of supply, one part leading to a heater where water may be converted into steam, and the other part to the sterilizer, a steam-conduit which in its course passes through the sterilizer, a condensing apparatus for the steam, and a conduit for the coudensed water leading back to the conduit from the source of supply, substantially as set forth.

3. The combination with a source of water-supply and source of steam-supply, of a condenser for the steam, means whereby the water of condensation, and of the direct supply may be commingled, sterilizing and filtering elements arranged in successive order, and means for supplying the commingled water of condensation and of the direct supply through the same, substantially as set forth.

641,535. DEVICE FOR BENDING SPECIAL SHAPES OF TUBES OR PIPES. CHARLES R. MCKIBBEN, Pittsburg, Pa., assignor to Shook, Anderson Manufacturing Co., same place. Filed Feb. 24, 1899. Serial No. 706,732. (No model.)



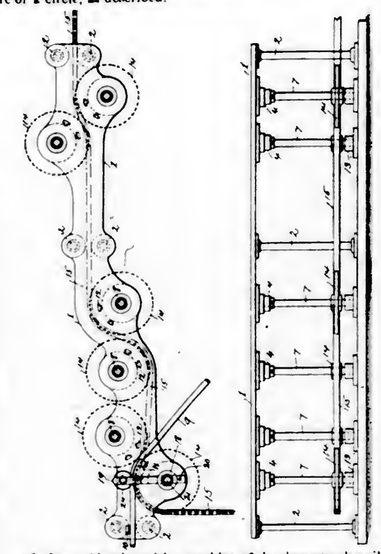
Claim.—1. A bending apparatus consisting of a bed-plate provided with a series of fulcrum-slots, a series of former-blocks detachably secured to the said bed-plate, said former-blocks consisting of a block of metal formed in the arc of a circle analogous to the bend of or curve to be given to the article to be bent, and being provided at its periphery with a groove, and having lugs provided each with a hole whereby the said former is attached to the bed-plate, and a bending-lever capable of being removed from one of the said fulcrum-slots to another, substantially as described.

2. A bending apparatus consisting of a bed-plate having detachably secured thereon a series of alternately-arranged former-blocks, said bed-plate being provided at opposite sides with fulcrum-slots, in combination with a bending-lever capable of being removed from one to another of said fulcrum-slots, and provided with means whereby it may be secured in any one of the said fulcrum-slots, said means consisting of a fulcrum-bolt attached to the extremity of the said bending-lever, and arranged at right angles thereto, substantially as described.

3. A bending apparatus consisting of a bed-plate provided at opposite sides with fulcrum-slots, a series of alternately arranged former-blocks detachably secured to the said bed plate, said former-blocks being formed analogous to the desired bend of or curve to be given the article to be bent and being provided with a peripheral groove, lugs at each end of said former-blocks each provided with a hole, and a centering-bolt extending through each of the said former-blocks and into the bed-plate, and a bending-lever capable of being removed from one of said fulcrum-slots to another.

641,536. PIPE-BENDING MACHINE. CHARLES R. MCKIBBEN, Pittsburg, Pa., assignor to Shook, Anderson Manufacturing Co., same place. Filed Apr. 28, 1899. Serial No. 714,911. (No model.)

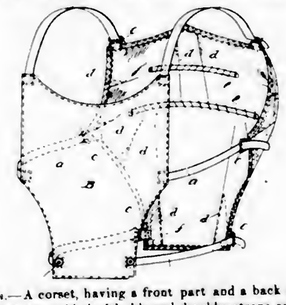
Claim.—1. The herein-described power-machine for bending pipe consisting of a suitable bed-plate, a series of vertical shafts journaled therein, each of which is provided with a pin 8, a removable and bending lever provided with a socket for engaging with the said pins, a means of adjusting the said socket along the length of the lever, a bending-wheel journaled to the outer end of the said lever, and a suitable power applied to the pins to cause the lever to move in the arc of a circle, as described.



2. In combination with a machine of the character described, the bending-lever 19, having an adjustable socket and a pivoted bending-wheel, substantially as described.

3. In a machine for the purpose described, the bed-plate 1, the vertical shafts 7, each provided with a pin 8, the sprockets 14 and operating-chain 15, all arranged and combined for service substantially as described.

641,537. CORSET. LAMYESIA P. C. PACKWOOD, Lake Maitland, Fla. Filed Mar. 8, 1899. Serial No. 708,207. (No model.)



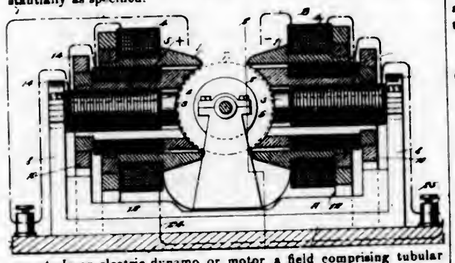
Claim.—A corset, having a front part and a back or rear part, the latter being provided with side and shoulder straps, and the former being provided with buckles to which the straps are fastened, the back being widened at its upper portion to lie across the shoulders of the person, and the bosom being formed convex to fit the bust of the person, and the upper portion of the bosom being widened, and a number of horizontally-exteoding flexible strips secured to the front section to yieldingly hold the same in proper form.

641,538. ELECTROMAGNETIC APPARATUS. FRANCISCO DE BORJA PAVON, Calbarien, Cuba. Filed Nov. 4, 1899. Serial No. 735,775. (No model.)

Claim.—1. A compound electromagnet consisting of a series of electromagnets arranged one within another and each supported independently.

2. The combination of a series of supports arranged one in advance of another, with a series of electromagnets arranged one within another and projecting stepwise beyond one another at one end, the projecting ends being secured to said supports.

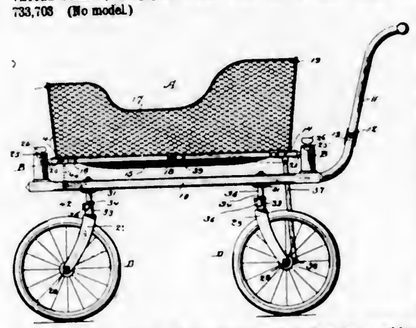
3. In an electric apparatus, a field comprising a series of independently-supported electromagnets one arranged within another, the windings of the several magnets being connected in series, substantially as specified.



4. In an electric dynamo or motor, a field comprising tubular cores arranged one within another and a cylindrical core arranged in the inner tubular core, the cores being independently supported and out of contact one with another, and windings on the several cores, the several windings being connected, substantially as specified.

5. A field for an electric apparatus, comprising a series of magnets arranged one within another and independently supported, the windings of the several magnets being connected in series, whereby the current will successively pass through the windings, and from one field to another, substantially as specified.

641,539. COMBINED FOLDING CARRIAGE AND CRADLE. SALVATORE PERSICO, Bridgeport, Conn. Filed Oct. 16, 1899. Serial No. 733,703. (No model.)



Claim.—1. In a device of the character described the combination with a frame and wheels, of standards rigidly secured to the frame, vertically-movable bearings in said standards and a body having trunnions engaging the bearings so that the body may rock laterally.

2. In a device of the character described the combination with the frame, standards rigidly secured thereto, vertically-movable bearings in said standards and the body having trunnions engaging the bearings, of wheels, forks therefor having shanks 30 which are rigidly secured to the frame and are provided with hinge-joints so that the wheels may be folded inward upon the body and means for locking said joints in operative position.

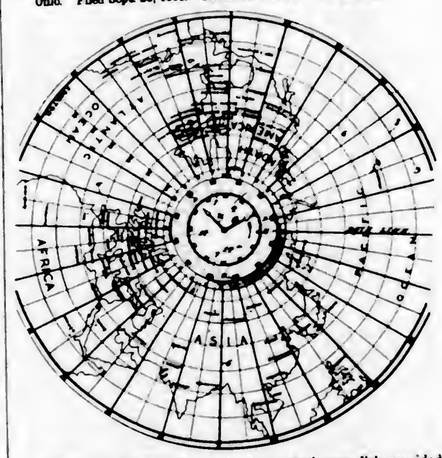
3. In a device of the character described the combination with a frame and wheels, of standards extending upward from the frame and having central openings, and slots 22, bearings in said openings, springs supporting the bearings and a body having trunnions extending therefrom which pass through the slots and engage the bearings in the standards.

4. In a device of the character described the combination with a frame and wheels, one of which is provided with a crank 38, of standards extending upward from the frame, a body having trunnion bearing in said standards and a pivoted link upon the body, the other end of which may be connected to the crank so that forward or backward movement of the carriage will rock the body.

5. In a device of the character described the combination with the frame and wheels, one of which is provided with a crank 38, of standards extending upward from the frame, a body having trunnions bearing in said standards, means for locking the body to the frame and means for connecting the body to the crank when it is desired to rock the body by movement of the carriage.

6. In a device of the character described the combination with the frame and wheels, of standards extending upward from the frame and having central openings, bearings in said openings, springs by which said bearings are supported, a body having trunnions adapted to engage the bearings and a removable cover upon one of the standards so that the bearing may be removed when it is desired to detach the body from the frame.

641,540. GEOGRAPHICAL CLOCK. ISAAC F. PERILS, Woodville, Ohio. Filed Sept. 29, 1898. Serial No. 692,229. (No model.)



Claim.—1. A time-indicator having a stationary disk provided with a field containing a superficial geographical representation including radiating meridian-lines and an international date-line, an annular time-dial revolubly mounted at the center of said disk with its axis at the point from which said meridian-lines radiate, and provided with a scale of time characters adapted for respective registration with the meridian-lines, and a fractional-time-indicating device mounted within the space encircled by the time-dial and concentric therewith for indicating the fractions of the periods represented upon the time-dial, said fractional-time-indicating device having a movable element operatively connected with for actuation by the time-dial, substantially as specified.

2. A time-indicator having a stationary disk provided with a field containing a superficial geographical representation including radiating meridian-lines and an international date-line, an annular time-dial revolubly mounted at the center of said disk in an opening of the field with its axis at the point from which said meridian-lines radiate, and provided with a scale of time characters adapted for respective registration with the meridian-lines, arms radiating from the time-dial and terminating at the periphery of the field for arrangement in coincidence with the radial planes of points representing geographical locations upon the surface of the disk, and a fractional-time-indicating device mounted within the space encircled by the time-dial for indicating the fractions of the periods of time represented upon the time-dial, said fractional-time-indicating device having a movable element operatively connected with for actuation by the time-dial, substantially as specified.

3. A time-indicator having a stationary base provided with a field containing a superficial geographical representation including meridian-lines and an international date-line, a revoluble time-dial mounted with its axis at the point from which said meridian-lines radiate, and provided with a time-scale including characters for registration with said meridian-lines, and an adjustable day-register actuated by said dial, and having an annular series of characters representing days of the week arranged at intervals around the axis of the time-dial, the change from one day to the next occurring at said date-line, substantially as specified.

4. A time-indicator having a stationary base provided with a superficial geographical representation including meridian-lines and an international date-line, a time-dial revolubly mounted upon the base with its axis at the point from which said meridian-lines radiate, day-registers consisting of revoluble disks mounted upon and carried by the dial, and a stationary pin carried by the base on said date-line, for contact with spaced spurs on the registers, to impart a step-by-step movement in one direction to the registers as they cross said date-line, substantially as specified.

5. A time-indicator having a base provided with a superficial geographical representation, a time-dial revolubly mounted upon the base and having time characters for registration with meridian-lines of said geographical representation, day-indicating devices consisting of independently-revoluble disks actuated by said time-dial, and auxiliary time-indicating devices, concentric with and actuated by said time-dial, for indicating fractions of time, and including a pointer traversing a stationary time-scale, substantially as specified.

6. The herein-described time-indicator having a base provided with a superficial geographical representation including radiating meridian-lines and an international date-line, a revoluble time-dial mounted upon the base with its axis at the point from which the meridian-lines radiate, said time-dial having its body portion elevated above the plane of the base and provided with peripheral beveled surfaces inscribed to represent divisions of time for registration with the meridian-lines of the base, a time-indicating device having a fixed time-scale arranged in a central opening of the time-dial, and indexes or pointers mounted coaxially with the time-dial for traversing said time-scale, day-registers consisting of disks revolubly mounted upon the under surface of the time-dial, a fixed pin arranged in the plane of said date-line and adapted for successive engagement by peripheral spurs on said day-register disks, and gearing for communicating motion from the time-dial to the spindles of said indexes or pointers, substantially as specified.

7. The herein-described time-indicator having a base provided with a superficial geographical representation including radiating meridian-lines and an international date-line, a revoluble time-dial mounted upon the base with its axis at the point from which the meridian-lines radiate, said time-dial having its body portion elevated above the plane of the base and provided with peripheral beveled surfaces inscribed to represent divisions of time for registration with the meridian-lines of the base, a time-indicating device having a fixed time-scale arranged in a central opening of the time-dial, and indexes or pointers mounted coaxially with the time-dial for traversing said time-scale, day-registers consisting of disks revolubly mounted upon the under surface of the time-dial, a fixed pin arranged in the plane of said date-line and adapted for successive engagement by peripheral spurs on said day-register disks, and gearing for communicating motion from the time-dial to the spindles of said indexes or pointers, the same including an annular master-gear carried by the time-dial, intermediate gears between said master-gear, and a pinion on the spindle of one of the indexes or pointers, and speed-multiplying gearing connecting the spindles of the pointers, substantially as specified.

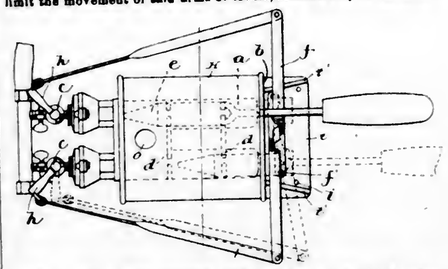
8. A time-indicator, comprising a stationary body and a revoluble body, one of said bodies being provided with a geographical representation including meridian-lines, the other body being provided with a time-scale, a plurality of disks mounted on one of said bodies in a concealed manner with the exception of a small portion of each, each of said disks being provided with a series of characters representing the days of the week only one of which characters is exposed on each disk, and means to successively expose said characters.

9. A time-indicator, comprising a body having a superficial geographical representation including meridian-lines, a second body mounted at a point of said first body from which said meridian-lines radiate and provided with a time-scale, one of said bodies being revoluble, a plurality of disks mounted on one of said bodies in a concealed manner with the exception of a small portion of each, each of said disks being provided with a series of characters representing the days of the week only one of which characters is exposed on each disk, and means to successively expose said characters.

10. A time-indicator, comprising a stationary body having a superficial geographical representation including meridian-lines, a disk mounted at a point of said first body from which said meridian-lines radiate said disk being provided with a time-scale and with characters adapted to register with said meridian-lines, means to rotate said disk, a plurality of disks mounted beneath said time-scale disk which is provided with a corresponding number of slots therethrough, each of said last-named disks being provided with a series of characters representing the days of the week one of which characters is always exposed through the corresponding opening, and means to rotate said last-named disks whereby the said day-indicating characters are successively exposed through said openings.

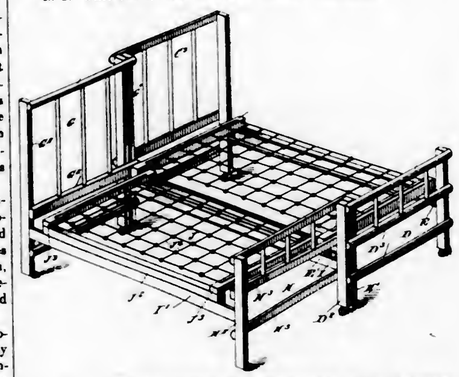
641,541. HEATER FOR SOLDERING-IRONS. CHARLES E. PIERCE, Cambridge, Mass. Filed Oct. 15, 1898. Serial No. 693,580. (No model.)

Claim.—1. A heater of the character herein described, comprising a supporting-frame, a dome or heating-chamber supported thereby, rests or supports located within said dome or chamber, burners supported by said frame below said rests or supports, cocks adapted to control the supply of fuel to said burners, arms or levers pivoted to said frame and having upwardly-curved portions lying in the path of the article to be heated and also serving as rests or supports, connections between said levers and said cocks, and stops designed to limit the movement of said arms or levers, substantially as set forth.



2. A heater of the character herein described, comprising a supporting-frame having a platform or extension, a dome or heating-chamber supported by said frame, rests or supports located within said dome or chamber, burners supported by said frame below said rests or supports, cocks adapted to control the supply of fuel to said burners, arms or levers pivoted to said platform or extension and curved to extend into the path of the article to be heated, said curved portions also serving as rests or supports, connections between said levers and said cocks, and stops on said platform designed to limit the movement of said levers, substantially as set forth.

641,542. BEDSTEAD. ADRIAN DE PIRRO-MALLET, New York, N. Y. Filed Oct. 4, 1899. Serial No. 732,476. (No model.)



Claim.—1. Two bedsteads movable relatively one to the other in a transverse direction to form either a single or double bed, a head and foot post of one bedstead being in alinement with and movable between the head and foot posts respectively of the other bedstead, whereby the bedsteads will be interlocked and when arranged as a double bed, the head and foot posts of the bedsteads will abut against each other and prevent the bedsteads from being separated, as set forth.

2. Two bedsteads, one having its mattress-support lower than the other and movable upon the same in a transverse direction, a head and foot post of one bedstead being in alinement with and movable between the head and foot posts respectively of the other bedstead, whereby the head and foot posts of the bedsteads will abut against each other to limit the movement of the bedsteads, one upon the other, as specified.

3. A bedstead, comprising a stationary bedstead, and a movable bedstead having its head and foot posts in alinement with the head and foot posts of the stationary bedstead, one head and foot post of the movable bedstead being between the head and foot posts respectively of the stationary bedstead, and the side rail of the said movable bedstead being between the side rails of the stationary bedstead, substantially as described.

4. Two complete bedsteads having an interlocking engagement and movable transversely one upon the other to form either a single bed or a double bed, one bedstead having a transverse connection between its posts on the outside, and the other bedstead having a transverse connection between its posts on the inside, substantially as shown and described.

5. Two complete bedsteads having an interlocking engagement and movable transversely one upon the other to form either a single bed or a double bed, one bedstead having a transverse connection between its posts on the outside, and the other bedstead having a transverse connection between its posts on the inside, the posts of one bedstead being movable between the posts of the other bedstead, substantially as shown and described.

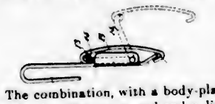
641,548. ROTARY-DISK RASP. JOHN L. POPE, Croft, N. C. Filed Oct. 10, 1899. Serial No. 733,180. (No model.)



Claim.—1. In a device of the character set forth, the combination of a rotatable spindle, and a disk mounted thereon having a marginal rim beveled equally on opposite sides to an outer edge and provided with straight file-teeth on both sides, the opposite faces of the body between the inner limit of the rim and the center being formed with rasp-teeth.

2. In a device of the character set forth, the combination of a spindle, a disk thereon having file-faces, a handle or grip loosely fitted on the spindle, and a cap secured to a projecting portion of the spindle and adapted to have rotary motion imparted thereto.

641,544. COMBINED HOOK AND CLASP. CHARLES V. RICHARDS, Skowhegan, Me., assignor of one-half to John M. Carroll, Hyde Park, Mass. Filed May 23, 1899. Serial No. 717,893. (No model.)



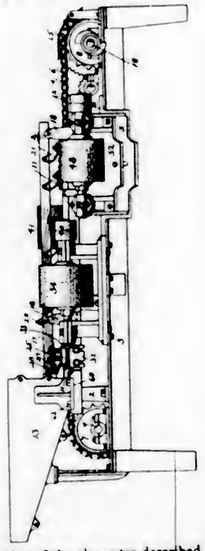
Claim.—1. The combination, with a body-plate having a downwardly-extending hook at its upper end and a lip at its lower end, inclined toward the side of the body-plate opposite that at which the hook is located, said body-plate being also provided with side ears near the lip, of a U-shaped link or yoke, having its members pivoted in said ears near their lower ends, the link or yoke being of sufficient length to extend above the ears, the upper or bow section of the link or yoke being also curved away from the body-plate, and a bowed clamping-plate pivotally attached to the bow-section of the link and provided with a gutter at its lower end adapted to receive the lip of the body-plate when the body-plate and clamping-plate are in locking position, as described.

2. The combination with a body-plate having a lip at its lower end, the lip being inclined outwardly from the body-plate and the body-plate also having ears near the lip and respectively at the side edges of the body-plate, of a U-shaped yoke having its end members pivoted in the ears, the yoke lying between the same and the free portion of the yoke being curved outward from the body-plate, and a clamping-plate carried pivotally at the free portion of the yoke and provided at its lower end with an upturned portion or gutter capable of engaging under the lip of the body-plate when the yoke is raised to clamped position.

641,545. BUTTING AND POINTING MACHINE. CHARLES T. RICHMOND and MAHLON M. ZELLERS, Cleveland, Ohio, assignors to the National Carbon Company, Trenton, N. J. Filed July 10, 1899. Serial No. 723,355. (No model.)

Claim.—1. In a machine of the character described, the combination of a carrier consisting of two endless chain belts, and grooved carrier-plates secured, near their ends, to the outer faces of the links of said chain belts, sprocket-wheels over which said chain belts pass, a support for the upper leg of said carrier, and spring-pressure plates for engaging with carbons in the grooves of said carrier-plates, with a guide-plate at one side of the carrier for engagement with one end of said carbons which guide-plate has an outwardly-beveled front end, and mechanism at the other side of said carrier for operating upon said carbons, substantially as and for the purpose specified.

2. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, a hopper above the carrier having an inclined floor, an opening in its bottom, and a gate 15, with spring-pressure plates for engaging with the carbons in said grooves, a guide-plate at one side of the carrier for engaging with the ends of the carbons, and mechanism at the other side of the carrier for operating upon said carbons, substantially as and for the purpose specified.



3. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, means for delivering the carbons into said grooves, and spring-pressure plates for engaging with said carbons, with a guide-plate at one side of the carrier and having an outwardly-beveled front end and mechanism at the other side of the carrier for operating upon the carbons in said grooves, substantially as and for the purpose specified.

4. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, means for delivering the carbons into said grooves, and spring-pressure plates for engaging with the carbons in said grooves, with a guide-plate at one side of the carrier and having an outwardly-beveled front end, a spring-actuated scoring-knife for scoring the carbons near their opposite end, and a breaker-plate, substantially as and for the purpose specified.

5. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, means for delivering the carbons into said grooves, and spring-pressure plates for engaging with said carbons, with a guide-plate at one side of the carrier and having an outwardly-beveled front end, a lifting-plate for engaging beneath the carbons near their opposite end, a scoring knife located above said lifting-plate and spring-pressed toward the same, and a breaker-plate, substantially as and for the purpose specified.

6. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, means for delivering carbons into said grooves, and spring-pressure plates for engaging with said carbons, with a guide-plate located at one side of the carrier and having an outwardly-beveled front end, and a grinding-wheel located at the opposite side of said carrier and adapted to engage with the adjacent ends of the carbons, a guide-plate beyond said grinding-wheel and on the same side of the carrier, which guide-plate has an outwardly-beveled front end, and a grinding-wheel on the other side of said carrier opposite the last-named guide-plate, substantially as and for the purpose specified.

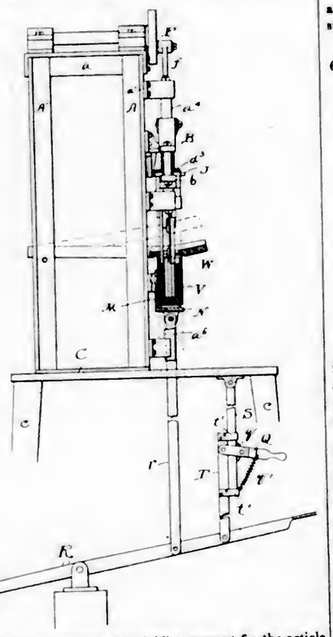
7. In a machine of the character described, the combination of a movable carrier having transverse grooves adapted to receive the carbons, means for delivering carbons into said grooves, and spring-pressure plates for engaging with said carbons, with a guide-plate at one side of the carrier, a grinding-wheel on the opposite side of said carrier, bearings for said grinding-wheel which lie normally below

the plane in which the carbons move, inclined supports for said bearings, and means for securing the bearings to said inclined supports in various positions, substantially as and for the purpose specified.

8. In a machine of the character described, the combination of an endless flexible movable carrier having transverse grooves adapted to receive the carbons, a support for the upper leg of said carrier, and means for delivering the carbons into said grooves, and pressure-plates for engaging with the carbons in said grooves, with guide-plates at one side of the carrier for engaging with the adjacent ends of the carbons, and mechanism at the other side of the carrier for operating upon the opposite ends of said carbons, an inclined plate located at the rear end of said carrier, whereby the carbons falling from the carrier-grooves will fall upon said plate, and a swinging gate with which the carbons will engage which roll down said plate, substantially as and for the purpose specified.

9. In a machine of the character described, the combination of a movable carrier consisting of two endless chain belts, and grooved carrier-plates secured near their ends to the outer faces of the links of said belt, sprocket-wheels over which said chain belts pass, and a support for the upper leg of said carrier, with a curved shield held close to the rear curved end of said carrier, an inclined plate upon which the carbons drop out of the grooves of the carrier, and a swinging gate with which the carbons rolling down said plate must engage, substantially as and for the purpose specified.

641,546. BATTERY-FILLER. CHARLES T. RICHMOND and MAHLON M. ZELLERS, Cleveland, Ohio, assignors to the National Carbon Company, Trenton, N. J. Filed Sept. 5, 1899. Serial No. 729,513. (No model.)



Claim.—1. The combination of a yielding support for the article to be filled, with a vertically-reciprocating cross-head, a vertical member rotatably mounted in said cross-head, tamping-bars secured to said member, and means for turning said member on its axis, substantially as described.

2. The combination of a yielding support for the article to be filled, and a stationary vertical bar having on its lower end means for holding a core, with a vertically-reciprocating cross-head, a vertical sleeve which embraces the said vertical bar and is rotatably mounted in the cross-head, tamping-bars secured to said sleeve, and means for turning said sleeve upon its axis, substantially as described.

3. The combination of a vertical reciprocating cross-head, a member rotatably mounted therein on a vertical axis, tamping-bars secured to said member, a pawl-carrying plate supported on the cross-head and loosely mounted on the same axis as the rotatable member, and having a shoulder, a pawl carried by said plate, a ratchet secured to said member, an inclined plate engaging with said shoulder, and a spring, substantially as specified.

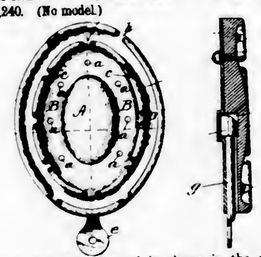
4. The combination of a yielding support for the article to be filled, an immovable vertical bar, and spring-fingers on the lower end of said bar, with a vertically-reciprocating cross-head which embraces said bar, a vertical sleeve which also embraces the bar and is rotatably mounted in the cross-head, tamping-bars secured to said sleeve, and mechanism for turning said sleeve upon its axis, substantially as specified.

5. The combination of a yielding support for the article to be filled, and means for packing material into said article and thereby forcing said support downward, with a table which is supported on a horizontal pivot at its rear end, and has its front end extended over said yielding support and provided with a hole directly over the article to be filled, whereby the table may rest upon the said article while the table is moving down during the packing operation.

6. The combination of a movable support for the article to be filled, means for yieldingly upholding the said support, and a clutching device which acts automatically to permit said support to move downward and to prevent it from moving upward, with a vertically-reciprocating cross-head, a member rotatably mounted therein, tamping-bars secured to said member, and means for turning said member upon its axis, substantially as specified.

7. The combination of a vertically-movable cross-head adapted to support the article to be filled, a pivoted lever having a weight upon one arm, a link connecting the other arm with said cross-head, and a clutching device which acts automatically to permit the downward movement of said cross-head, and to prevent its upward movement, with a vertically-reciprocating cross-head, a member rotatably mounted in said cross-head, tamping-bars secured to said member, and means for turning said member upon its axis, substantially as specified.

641,547. TRUSS. ROBERT R. ROBERTS, Washington, D. C., assignor to Rollo W. Browne, same place. Filed Aug. 23, 1899. Serial No. 728,240. (No model.)



Claim.—1. A truss-pad, oval in shape, in the center of whose face there is a raised oval disk, and near the periphery of said pad are small ridges, arranged annularly with spaces between them, said pad being provided with perforations from front to back, substantially as shown and described and for the purposes set forth.

2. A truss-pad, oval in shape, in the center of whose face there is a raised, hollow oval disk, and near the periphery of said pad are small ridges, arranged annularly, with spaces between them, said pad being provided with perforations from front to back, substantially as shown and described and for the purposes set forth.

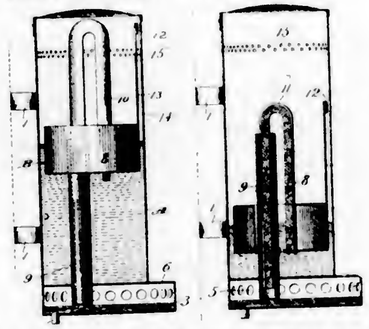
3. The combination of the pad, having in the center of its rear face, a depression; the rear metal plate, having a raised angular part, forming with the depression a socket, substantially triangular in shape; the rod perforated in one end and having a head, substantially triangular in shape, adapted to fit loosely in said socket, thus allowing a tilting or side motion of the pad, substantially as shown and described and for the purposes set forth.

4. The combination of the hollow pad, having in the center of its rear face, a depression; the rear metal plate, having a raised angular part, forming with the depression a socket, triangular in shape; the rod, having on one end a head, substantially triangular in shape, adapted to fit loosely in the socket, allowing a tilting or side motion of the pad, one-eighth of an inch and no more, substantially as shown and described and for the purposes set forth.

641,548. DISINFECTING DEVICE. WILLIAM H. ROSE, Baltimore, Md. Filed Sept. 26, 1899. Serial No. 731,764. (No model.)

Claim.—1. In a disinfecting apparatus, the combination with a suitable reservoir, of a tube vertically arranged therein having a discharge-opening at its lower end, a float in said reservoir, and a U-shaped wick carried by the float, one leg of said wick extending into said tube, for the purpose set forth.

2. In a disinfecting apparatus, the combination with a reservoir, of a vertically-arranged tube having its upper end in communication with the reservoir and having a discharge-opening in its lower end, a float in said reservoir, a U-shaped wick-support having one leg connected to said float, and the other leg extending into said tube, and a wick carried by said support, for the purpose set forth.



3. In a disinfecting apparatus, the combination with a suitable reservoir, of the tube extending upward from the bottom of the reservoir, the float in said reservoir, a U-shaped tube having one leg connected to the float and the other leg arranged in said first-named tube, and a wick in said U-shaped tube, for the purpose set forth.

4. In a disinfecting apparatus, the combination with a reservoir, of a tube extending upward from the bottom of said reservoir, a float in said reservoir, a wick carried by the float and arranged to discharge into said tube, and an indicator carried by the float and arranged to indicate at an opening in the reservoir the amount of fluid in said reservoir, for the purpose set forth.

641,549. GAS-BURNER. THOMAS E. ROSS and NICHOLAUS B. VOLZ, Indianapolis, Ind. Filed Aug. 23, 1899. Serial No. 728,164. (No model.)

Claim.—1. A gas-burner consisting of a foundation composed of fibrous material whereby warping is prevented, a series of distributing-pipes secured horizontally at the front of the foundation and composed of fibrous material, and a supply-pipe at the back of the foundation provided with a series of nipples extending through perforations in the foundation and connected to the distributing-pipes.

2. A gas-burner consisting of a vertical supply-pipe provided with nipples projecting at a right angle from one side thereof, a foundation secured to the supply-pipe and composed of fibrous non-combustible material whereby the foundation and the supply-pipe are prevented from warping by heat and provided with a series of perforations registering with the nipples projecting from the supply-pipe, distributing-pipes composed of non-combustible fibrous material secured horizontally at the opposite side of the foundation and connected to the nipples projecting from the supply-pipe whereby warping of the distributing-pipes by the heat is prevented, the distributing-pipes being supplied with perforations for the escape of gaseous fluid.

3. A gas-burner consisting of a perforated foundation composed of fibrous material, whereby warping is prevented, a series of distributing-pipes secured horizontally at the front of the foundation and composed of fibrous material and having perforations at the front sides thereof, a vertical supply-pipe attached to the back of the foundation and provided with nipples extending through the perforated foundation and into the distributing-pipes at the rear thereof, and a layer of fibrous material cemented to the front of the foundation between the distributing-pipes.

4. A gas-burner comprising a supply-pipe, a substantially rectangular perforated foundation composed of fibrous material whereby warping is prevented and situate at the front of the supply-pipe, nipples attached to the supply-pipe and extending through the perforations in the foundation, and perforated distributing-pipes at the front of the foundation and connected to the nipples extending therethrough.

5. A gas-burner having a supply-pipe and a foundation at the front of the supply-pipe and provided with distributing-pipes at the front of the foundation and composed of laminated fibrous material glued together whereby warping and erodation are prevented, and communicating with the supply-pipe.

6. In a gas-burner, the combination of the foundation provided with a central row of perforations, the supply-pipe secured to the back of the foundation and provided with a series of pipe-nipples projecting through said perforations, the distributing-pipes secured to the front of the foundation and provided each with minute perforations at one side and at the opposite side thereof with a perforation in which is entered one of said pipe-nipples, and the layer of fibrous substance covering the front of the foundation and the unattached portions of the distributing-pipes.

641,550. PROCESS OF MAKING MAGNESIA AND PLASTER-OF-PARIS. MATHEW E. ROTHBERG, Westmont, Pa. Filed Mar. 28, 1899. Serial No. 710,824. (No specimens.)

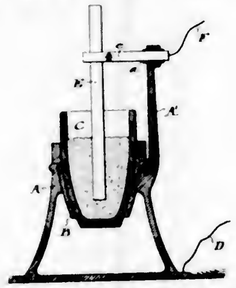
Claim.—The process of preparing magnesia and plaster-of-paris, which consists in first, dissolving limestone containing carbonate of magnesia in hydrochloric acid, and thereby producing a solution of the chlorides of calcium and magnesia; second adding calcium oxide to such solution to react with the magnesium chloride, precipitate magnesia, and form an additional portion of calcium chloride; third separating the magnesia from the calcium chloride and fourth adding sulphuric acid to the calcium chloride obtained from such first and second steps, to precipitate calcium sulphate, and recover the hydrochloric acid, and finally separating, drying and calcining the said calcium sulphate to form plaster-of-paris, substantially as specified.

641,551. FIRE-BRICK AND LINING OF REFRACTORY CHARACTER. MATHEW E. ROTHBERG, Westmont, Pa. Filed May 8, 1899. Serial No. 716,052. (No specimens.)

Claim.—1. A refractory fire-brick or lining, composed of pure alumina and pure magnesia in the proportions of about equal parts of each, together with about three per cent. of a bond more fusible than either of said principal ingredients, substantially as specified.

2. A fire-brick or lining of refractory and neutral character, composed principally of alumina and magnesia, in the proportions of about equal parts of each, substantially as specified.

641,552. PROCESS OF AGGLOMERATING COMMINUTED ORES OR CONCENTRATES. MARCUS RUTHENBURG, Philadelphia, Pa. Filed Nov. 22, 1899. Serial No. 737,354. (No specimens.)



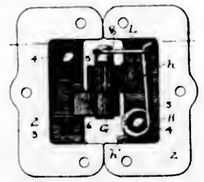
Claim.—1. The hereinbefore-described process, which consists in assembling a mass of independent particles of ore or concentrate, in the path of an electrical current, subjecting said material to the action of an electrical current, until the contiguous corners of its component particles cohere, and terminating the action of said electric current, while the coherent body, thus produced, is of open, porous structure, substantially as set forth.

2. The hereinbefore-described process, which consists in assembling a mass of independent particles of magnetite, in the path of an electrical current, subjecting said material to the action of an electrical current, until the contiguous corners of its component particles cohere, and terminating the action of said electric current, while the coherent body, thus produced, is of open, porous structure, substantially as set forth.

641,553. LOOSE-JOINT SPRING-HINGE. LOUIS H. SHOLDER, Cleveland, Ohio. Filed July 10, 1899. Serial No. 723,286. (No model.)

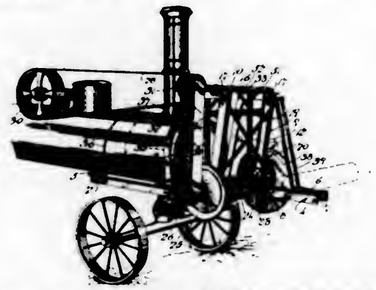
Claim.—1. In loose-joint boldback spring-hinges of the variety substantially as shown, a hinge-section constructed to be attached to a door, and having an arm for the pintle, in combination with a pintle rotatable in said arm and a spring operatively connected with the upper part of said pintle and with said section, substantially as set forth.

2. A loose-joint holdback spring-hinge consisting of two interchangeable sections, a pintle fixed against rotation in one section and having the other rotatable thereon, a spring secured to the rotatable section at one end and connections between the top of said pintle and the opposite end of the spring, substantially as set forth.



3. In loose-joint holdback spring-hinges, a hinge-section having a perforated arm on its inner edge, a pintle in said arm having a lateral projection at its top, a spring in said section and a link connecting the spring with said projection, in combination with the opposite section of the hinge having an arm in which said pintle is locked against rotation, substantially as set forth.

641,554. WOOD-SAWING MACHINE. FREDERICK E. SHORE and EDWARD L. SHORE, Eldon, Iowa. Filed Feb. 8, 1899. Serial No. 704,932. (No model.)

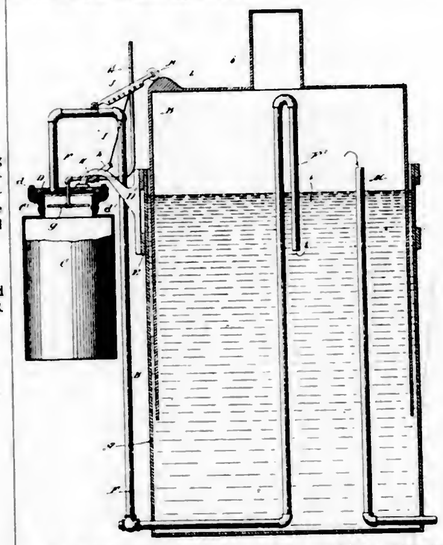


Claim.—In a sawing apparatus adapted for attachment to a traction-engine, the combination with two side bars, each consisting of a beam, L-shaped in cross-section and having the flanges thereof disposed outwardly, one of said beams extending beyond the other to receive a body to be sawed, a supplemental similar beam connected with the extended beam at the outer side thereof and having its flange disposed inwardly, parallel uprights secured to the flanges of the first-named beams and consisting of irons L-shaped in cross-section and having their upper ends curved forwardly over their respective first-named beams, additional uprights, similar in cross-section, connected with the forwardly-extending portions to the first-named uprights and with their respective supporting-beams, a saw-frame comprising parallel channel-irons pivotally connected with the first-named uprights at their outer extremities, a saw mounted in said frame and adapted to swing and rotate intermediate the extended beam and the supplemental beam, and guard-braces connected with the flanges of the last-named beams at both sides of the saw and with the upper ends of the adjacent first-named uprights and separated by an interspace adapted to receive the saw when cutting, said braces lying in the path of the saw-shaft to prevent engagement of the saw-frame with the body to be sawed.

641,555. ACETYLENE-GAS GENERATOR. AUGUSTUS F. SHRIVER, Arbuckle, Cal., assignor to himself, and Walter Storey, San Francisco, and James H. Smith, Stonyford, Cal. Filed Aug. 2, 1899. Serial No. 725,886. (No model.)

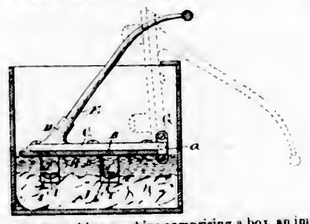
Claim.—1. In an acetylene-generator, the combination of a gasometer having a rising and falling bell, with a generator, a water-supply connecting by a pipe with the generator, a valve in said pipe, and a lever connected with the valve to operate it and having a roller upon its free end adapted to normally engage the side of the gasometer-bell and thereby to be held in an inclined position, and being also adapted to pass over the upper end of the bell when it falls sufficiently and to thereby open the water-supply valve, substantially as described.

2. In an acetylene-generating apparatus, the combination of a gasometer having a rising and falling bell, and a cam on the top of the bell, with a generator, a water-supply connecting by a pipe with the generator, a valve in said pipe provided with an operating handle or arm, a lever having a roller upon its free end adapted to engage the side of the gasometer-bell and to pass over the cam on the upper end thereof when the bell falls sufficiently, said lever having a series of holes, and a link connected with the valve-arm and adapted to enter the holes in the lever, whereby the opening of the valve may be varied in amount, substantially as described.



3. An acetylene-generating apparatus, comprising a gasometer having a rising and falling bell, and a tank, two hoops secured about the upper end of the tank and adapted to support the generators, a series of arms or brackets secured to said hoops and adapted to each support a generator, said generators each consisting of a cover secured to its arm, and a tank or holder adapted to be secured to the cover, pipes leading from the covers and discharging beneath the water in the generator by a downwardly-extending leg which rises above the water-level, the gasometer-bell having an upward extension accommodating said pipe when the bell falls, an elevated water-supply connected by a pipe with the generators, a valve in the water-pipe having a crank-arm connected therewith, a lever pivoted by one end and having a roller on the other end engaging the side of the gasometer-bell when the bell is raised, the lever being at such time inclined with the roller end upward, said roller end of the lever being adapted to pass over the top of the bell when it descends sufficiently, and a curved projection or cam on the top of the bell adapted to engage said roller, the lever having a series of holes, and a link engaging the valve-arm or crank and adapted to enter said holes, substantially as described.

641,556. WASHING-MACHINE. HENRY R. SMITH, Gambrills, Md., assignor of one-half to Asa A. Joyce, same place. Filed June 8, 1899. Serial No. 719,826. (No model.)

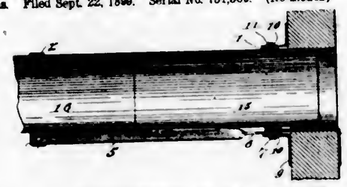


Claim.—1. A washing-machine comprising a box, an imperforate follower pivoted at one edge within the box at a point between its bottom and its upper edge, the follower having a compressing bar or bars at its under side and out of contact therewith, the imperforate

follower being made narrower than the box to form water-passages at its free and its pivoted edges, substantially as described.

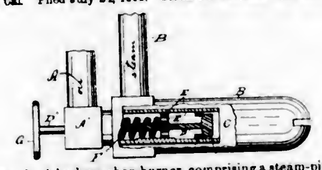
2. A follower for washing-machines of the character described comprising a board having depending projections, bars connecting the said projections, and transversely-extending castings at each end thereof, one end of the castings provided with a handle-socket and the opposite ends of the casting with outwardly-projecting pivots, substantially as described.

641,557. STOVEPIPE-FASTENER. WILLIAM H. SMITH, Topeka, Kans. Filed Sept. 22, 1899. Serial No. 731,309. (No model.)



Claim.—In a stovepipe-fastener, the combination of front and rear clamping-bands, each clamp formed from a single flat metal strap bent into circular form, and having the opposite ends thereof formed into opposite ears, and fastenings connecting said ears, a flat connecting-bar, having its rear end held between the ears of the rear clamp, and its front end twisted into a plane at substantially right angles to that of the bar, and fastened exteriorly to the front clamp, diametrically opposite and substantially L-shaped clamps secured to the front clamp, and another longer substantially L-shaped clamp secured to the front clamp, and alined longitudinally with one of the former L-shaped clamps, substantially as and for the purpose set forth.

641,558. HYDROCARBON-BURNER. SPENCER SPILLARS, Pomona, Cal. Filed July 24, 1899. Serial No. 725,003. (No model.)



Claim.—1. A hydrocarbon-burner, comprising a steam-pipe, having a contracted horizontal discharge-orifice, an oil-pipe entering into and terminating in said steam-pipe in the rear of the discharge-orifice of said steam-pipe, a mixing-chamber within said steam-pipe intermediate the termination of the oil-pipe and the discharge-orifice of the steam-pipe, a pressure-regulated valve in the discharge end of the oil-pipe adapted to be partially or entirely closed when the steam-pressure in the mixing-chamber becomes excessive, whereby the flow of the oil therethrough is automatically regulated by the steam-pressure in the mixing-chamber when pressure in said chamber rises above normal.

2. A hydrocarbon-burner, comprising steam-pipe B, having contracted horizontal discharge-orifice B', mixing-chamber C within pipe B, oil-pipe A entering and terminating in pipe B, valve D in the discharge end of pipe A having stem D', nut E having passage E' therethrough on stem D', spring F surrounding stem D' all substantially as described herein for the uses set forth.

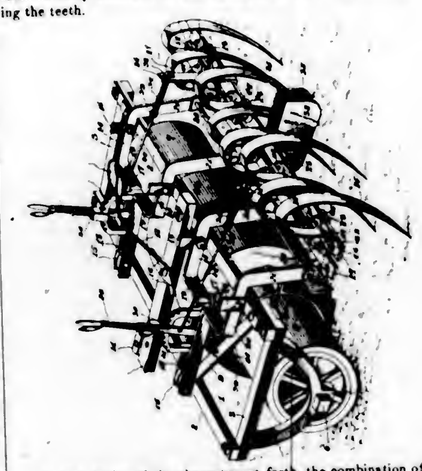
641,559. CULTIVATOR. CHARLES L. M. ST. CLAIR, Blue Springs, Mo. Filed July 6, 1899. Serial No. 722,955. (No model.)

Claim.—1. In a device of the character set forth, the combination with rollers, of sleeves mounted thereon and having clamping-collars to bind against said rollers.

2. In a device of the character set forth, the combination with rollers, of sectional sleeves removably mounted thereon and provided with sectional collars adapted to be clamped around the rollers.

3. In a device of the character set forth, the combination of a main frame, a roller carried by said frame, a supplemental frame removably supported by the main frame, a gang of teeth connected to the supplemental frame and having an arm extending upwardly therefrom, with a slot therein, adjusting devices attached to the said supplemental frame, and a connecting-rod between the said adjusting devices and arm, said connecting-rod having a yielding movement in the arm.

4. In a device of the character set forth, the combination of a main frame, a roller journaled therein, a supplemental frame removably attached to the main frame and having rear depending portions, a bearing-rod mounted in the terminals of said depending portions, teeth movably connected to said bearing-rod, and means for adjusting the teeth.



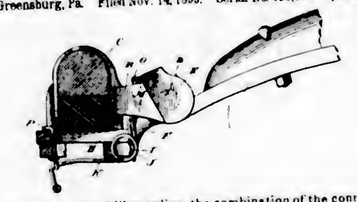
5. In a device of the character set forth, the combination of a main frame adapted to be propelled by suitable means, a supplemental frame removably attached thereto, a gang of teeth pivotally connected to rear parts of said supplemental frame, adjusting devices carried by the supplemental frame, and a yielding connection between the said adjusting devices and the gang of teeth.

6. In a device of the character set forth, the combination of a main frame adapted to be supported by movable devices, a supplemental frame removably supported by the said main frame and having a bearing-rod in rear depending portions thereof, head-bars arranged parallel and movably connected to the bearing-rod, teeth arranged in alternation in connection with the head-bars, adjusting devices at the front of said supplemental frame, and a yielding connection between said adjusting devices and the head-bars.

7. In a device of the character set forth, the combination of a main frame, rollers supported thereby and having a space between their inner ends, a pair of followers movably positioned in rear of the rollers and in line with the space between the inner ends of the same, guide-pins on the followers freely movable upwardly through adjacent parts, and adjustable devices in the said guide-pins for regulating the depression of the said followers.

8. In a device of the character set forth, the combination of a main frame, rollers carried thereby, opposite supplemental frames removably supported on the said main frame, independent gangs of teeth movably attached to the rear portions of the said supplemental frames, adjusting devices held by the front portions of said supplemental frames, and yielding connections between the said adjusting devices and the gangs of teeth, whereby the latter are permitted to have a self-adjustment to conform to irregularities of the ground-surface and also positively adjustable to elevate or depress the said gangs of teeth relatively to the ground-surface over which the device travels.

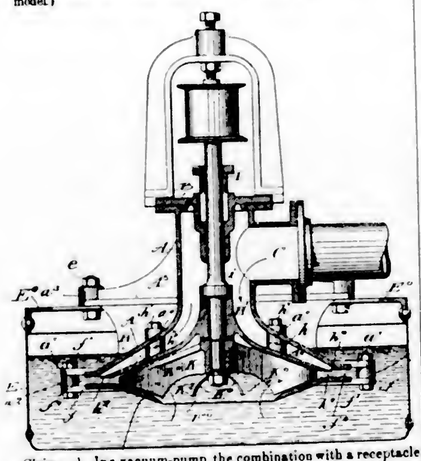
641,560. ANTIRATTLING THILL-COUPLING. JOHN STYER, Greensburg, Pa. Filed Nov. 14, 1899. Serial No. 736,938. (No model.)



Claim.—1. In a thill-coupling, the combination of the connecting cross-plate L, the ears E, E provided with tangs N, N forming a cam M, and a bearing O, with the shoe F, and spring-securing device, substantially as and for the purposes set forth.

2. As an article of manufacture, the thill-coupling attachment comprising the cross-plate L, the ears E, E, the cam M, and the bearing O, stamped out of a single piece of metal, substantially as described.

641,561. CENTRIFUGAL VACUUM-PUMP. BURCHARD THOMS, New Orleans, La. Filed June 16, 1899. Serial No. 720,832. (No model.)



Claim.—1. In a vacuum-pump, the combination with a receptacle for liquid; of a pump-casing suspended therein; a wheel-chamber in the lower portion of said casing having a suction-opening in its bottom and a discharge-opening at its periphery; a diaphragm above said chamber; an air or gas passage above said diaphragm communicating with said peripheral discharge-opening; and a bladed wheel mounted to rotate within said wheel-chamber, substantially as described.

2. In a vacuum-pump, the combination with a receptacle for liquid; of a pump-casing suspended therein; a wheel-chamber in the lower portion of said casing having a suction-opening in its bottom and a continuous discharge-opening at its periphery; a diaphragm above said chamber; an air or gas passage above said diaphragm communicating with said peripheral discharge-opening; and a bladed wheel mounted to rotate within said wheel-chamber, with its blades free from contact with the sides of said chamber, substantially as described.

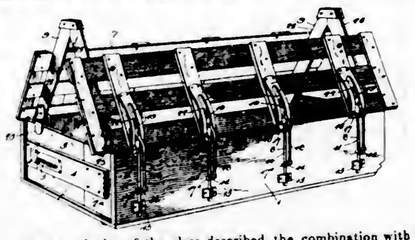
3. In a vacuum-pump, the combination with a body of liquid; and a pump-casing suspended therein, said pump-casing having a water-suction opening, a peripheral discharge-opening, and an annular opening, concentric to and communicating with the said discharge-opening also communicating with the vessel to be exhausted; of a centrifugal pumping-wheel mounted in said casing, and arranged to cause a flow of water outwardly through said peripheral discharge-opening, substantially as described.

4. In a vacuum-pump, the combination with a liquid-containing vessel; a pump-casing mounted therein and having a bell-shaped lower end, said casing having a pump-chamber provided with a central suction-opening, an annular air or gas passage above said pump-chamber, narrowing outwardly in a cross-section, and a peripheral discharge-opening with which said pump-chamber and said air or gas passage communicate; a rotary shaft mounted in said casing; and a bladed wheel mounted upon said shaft in the pump-chamber, substantially as described.

5. In a vacuum-pump, the combination with a body of liquid; a pump-casing suspended therein, said pump-casing having a water-suction opening, a peripheral discharge-opening, and an annular opening narrowing outward in cross-section, concentric to and communicating with the said discharge-opening, also communicating with the vessel to be exhausted; of a centrifugal pumping wheel mounted in said casing, and arranged to cause a flow of water outwardly through said peripheral discharge-opening, substantially as described.

641,562. COMBINED HAY AND STOCK RACK. IRA M. TOUBE, Frontier, Mich. Filed Aug. 29, 1899. Serial No. 728,867. (No model.)

Claim.—1. In a device of the class described, the combination with a wagon-body, and a hay-rack side hinged to the wagon-body, of a guide mounted on the hay-rack side, a brace hinged to the wagon-body and operating in said guide, and a spring arranged to cushion the brace to prevent the same from rattling, substantially as described.



2. In a device of the class described, the combination with a wagon-body, and a hay-rack side hinged to the wagon-body, of a brace hinged to the wagon-body, a slotted guide receiving the upper end of the brace and mounted on the hay-rack side, and a spring mounted within the guide and cushioning the brace, substantially as described.

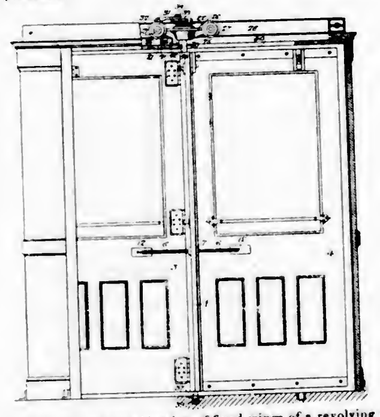
3. In a device of the class described, the combination with a wagon-body, and a hay-rack side hinged to the wagon-body, of a hinged brace mounted on the wagon-body, a curved guide mounted on the hay-rack side and provided with a longitudinal slot and receiving the upper end of the brace, and a bowed spring housed within the guide and engaging the brace to cushion the same, substantially as described.

4. In a device of the class described, the combination with a wagon-body, of hook-shaped brackets engaging the upper edges of the sides of the wagon-body, keepers mounted on the wagon-body and receiving the lower ends of the brackets, the rack sides hinged to the brackets, the bowed guides mounted on the rack sides and provided with slots, the braces hinged to the brackets and having T-shaped upper portions interlocked with the guides, and springs housed within the guides and cushioning the braces, substantially as described.

5. In a device of the class described, the combination with a wagon-body, hinged rack sides mounted on the wagon-body, hay-rack standards provided with inclined sides and having hooks for engaging the upper edges of the end-gates, and supports arranged within the wagon-body and fitting against the sides of the standards, substantially as described.

6. In a device of the class described, the combination with a wagon-body and a hay-rack side hinged to the body, of a slotted guide mounted on the hay-rack side, a brace hinged to the wagon-body and passing through the slot of the guide and provided with a projection arranged to support the said guide, and a spring mounted within the guide and engaging the brace, substantially as described.

641,563. REVOLVING-DOOR STRUCTURE. THEOPHILUS VAN KANNEL, New York, N. Y. Filed Sept. 18, 1899. Serial No. 730,884. (No model.)



Claim.—1. The combination of fixed wings of a revolving door, an intermediate swinging wing, a chain connected at its opposite ends to the fixed wings and passing over a bearing on the intermediate

swinging wing and means for locking the chain to said swinging wing when the latter is extended, substantially as specified.

2. The combination of fixed wings of a revolving-door structure, an intermediate swinging wing, a chain secured at its opposite ends to the fixed wings, and passing around a bearing on the intermediate swinging wing, said bearing being adjustable longitudinally to maintain the chain under tension and means for locking the chain to said swinging wing when the latter is extended, substantially as specified.

3. The combination of fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected to said fixed wings and passing around a bearing on the swinging wing, and a trigger on said swinging wing for engaging with a locking-lug on the chain when the swinging wing is projected, substantially as specified.

4. The combination of fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected at its ends to the fixed wings and passing around a bearing on the intermediate wing, and means for locking the chain to said swinging wing when the latter is extended and means for taking up the slack of said chain as the swinging wing is folded against a fixed wing, substantially as specified.

5. The combination of the fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected at its opposite ends to the fixed wings and passing around a bearing on said intermediate wing, and means for locking the chain to said swinging wing when the latter is extended, and a swinging arm serving as a means of connecting one end of the chain to a fixed wing of the door, and when folded in against said fixed wing taking up the slack of the chain, substantially as specified.

6. The combination of the revoluble structure of a rotating door, with a central post, a hanger-block secured to the upper end of said post, and having a conical recess in its lower end, and a conical bearing-block upon which said hanger-block rests, substantially as specified.

7. The combination of the revoluble structure of a rotating door, with a central post carrying said revoluble structure, a hanger-block secured to the upper end of said post, a bearing-block upon which said hanger-block rests, and a support for said bearing-block containing an oil-receiving well and having a ball-and-socket bearing upon its carrier, substantially as specified.

641,564. STEAM-ACTUATED VALVE. WILLIAM VIVIAN, Camborne, England. Filed Sept. 23, 1899. Serial No. 731,469. (No model.)



Claim.—1. The combination with the valve-box, of the end covers having, respectively, the annular groove and the space in their inner faces and the inlet and outlet, the partially-rotating valve arranged in the valve-box and having a longitudinal bolt-hole, and the bolt passing through said valve and end covers and securing the latter in place, substantially as described.

2. The combination with a valve-box having a longitudinal channel *q*, lateral channels *r*, *s*, leading from the latter and ports *t*, *u*, to lead to the engine-cylinder, of the end covers *c*, *d*, having respectively, the inlet *f*, and outlet *g* and the annular groove *h* and space *i* communicating with said longitudinal channel, the partially-rotating valve *k* arranged in the valve-box and having a longitudinal passage *c'*, lateral port *l* leading from the latter and recesses *m*, *n*, communicating with said lateral channels, and means for securing said end covers in position, substantially as described.

3. The combination with a valve-box having a longitudinal channel *q*, lateral channels *r*, *s*, leading from the latter and ports *t*, *u* to lead to the engine-cylinder, of the end covers *c*, *d*, having, respectively, the inlet *f*, and outlet *g*, and the annular groove *h* and space *i*, communicating with said longitudinal channel, the partially-rotating valve *k* having the longitudinal passage *c'*, lateral port *l* and recesses *m*, *n*, and the bolt *e* passing through said valve and the end covers, substantially as described.

4. The combination with the valve-box having the channel *w*, port *v* and small hole *o*, of the partially-rotating valve *k* having the radial wing *p* located between said channel and port and working over said hole, substantially as described.

5. The combination with a valve-box having a longitudinal channel *q*, lateral channels *r*, *s*, leading from the latter, ports *t*, *u*, to lead to the engine-cylinder, the channel *w*, the port *v* and the small hole *o*, of the end covers *c*, *d*, having, respectively, the inlet *f*, and the outlet *g* and the annular groove *h* and space *i*, the partially-rotating valve *k* having the radial wing *p*, longitudinal passage *c'* lateral port *l* and recesses *m*, *n*, and means for securing the end covers in position, substantially as described.

641,565. COLLAR-BUTTON. EDWARD H. WHEELER, Waterbury, Conn. Filed Mar. 28, 1899. Serial No. 710,764. (No model.)



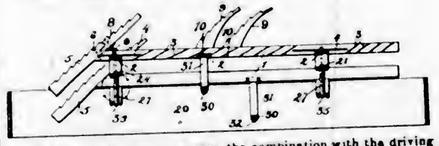
Claim.—1. The combination in a collar-button, of a base having a hollow oblong post with an open top and tubular enlargement, a U-shaped laterally-yieldable shank slidably mounted in said post, a spring within the post and enlargement to normally hold said shank in a retracted position, a head pivoted between the free ends of said shank and adapted to be seated within the open end of said post when extended, and to rest thereon at a right angle when locked, substantially as described.

2. The combination in a button of the class described, of a base provided with a hollow post and having a central enlargement, a U-shaped shank laterally yieldable, slidably mounted in said post and provided with inwardly-disposed ends, a spring to normally hold said shank in a retracted position, a head pivotally mounted between said ends, a socket formed in the edge of said head to engage the ends of the shank, substantially as described.

3. In a button of the class described, the combination with a base, of a hollow post having an open top, a U-shaped shank slidably mounted in said post and having inwardly-disposed ends, a spring to operate said shank, a head pivotally mounted between said ends and adapted to rest centrally in the open top of the post when extended, substantially as described.

4. A collar-button or like article comprising a base having a post, of a hollow head suitably hinged thereto and comprising two concave sheet-metal disks suitably united together, an internal piece of sheet metal in the hollow head, the outer edges of which sheet metal are rolled up to form bearings for the hinge-points of the shank, substantially as shown and described.

641,566. STRAW-CARRIER. WILLIAM R. WHITE, Cambridge, Minn. Filed May 20, 1899. Serial No. 717,633. (No model.)

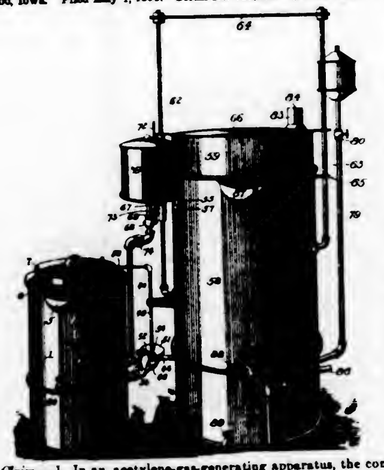


Claim.—1. In a straw-carrier, the combination with the driving mechanism, and a series of slats each consisting of side pieces standing on edge and connected by cross-pieces to which said mechanism is attached; of rearwardly-inclined oblique arms standing across the front ends of the side pieces, oblique bolts through the arms and side pieces, angle-irons in the acute angles through these members, and bolts through the arms of the angle-irons into the respective members; risers in rear of the arms, curving throughout their lengths, inclining toward the delivery end, and notched on their upper edges, and means for securing said risers detachably to the slats, as and for the purpose set forth.

2. In a straw-carrier, the combination with two alternating banks of slats each consisting of side pieces carrying the agitating devices, cross-pieces connecting the side pieces, a plurality of spacing-blocks beneath the cross-pieces, a cross-bar extending beneath one set of spacing-blocks, and a bolt through each cross-piece and its block and said bar; of a double-cranked shaft extending beneath another set of said spacing-blocks which latter form upper members of bearings on the cranks, complementary members beneath said cranks, and two bolts through the cross-pieces and each block and member of this set, all of said spacing-blocks being of greater length than the throw of the cranks, as and for the purpose set forth.

3. In a straw-carrier, the combination with a series of slats each consisting of side pieces carrying the agitating devices, perforated strips and cross-pieces connecting the side pieces, solid strips also connecting the side pieces above the cross-pieces, spacing-blocks beneath the cross-pieces, the solid strips, cross-pieces and blocks being provided with alined holes; of a rotary crank-shaft beneath all the blocks, the latter forming the upper members of bearings on the cranks thereof, and complementary members beneath said cranks, as and for the purpose set forth.

641,567. ACETYLENE-GAS MACHINE. ALEXANDER WHITE and HENRY M. ROSWEDER, Epworth, Iowa, assignors, by mesne assignments, to the Epworth Gas Light and Heating Company, Waterloo, Iowa. Filed May 1, 1899. Serial No. 715,160. (No model.)



Claim.—1. In an acetylene-gas-generating apparatus, the combination with the gas-holder and the generator of a pipe affording communication between the two, a valve in said pipe for controlling such communication, a cock in said pipe for admitting air therethrough to the generator, means for operating said valve and cock and means operating to prevent the opening of said cock until said valve has been closed or the opening of said valve until said cock has been closed, substantially as described.

2. In an acetylene-gas-generating apparatus, the combination of the gas-holder, of a generator having a removable bell, a pipe affording communication between the generator and gas-holder, a valve in said pipe for controlling such communication, an air-cock in said pipe for admitting air therethrough to the generator, a rod for operating said valve having an arm projecting over said bell, a handle for operating said air-cock and a disk carried by said rod and lying immediately beneath said handle and having a cut-away portion cooperating therewith, substantially as described.

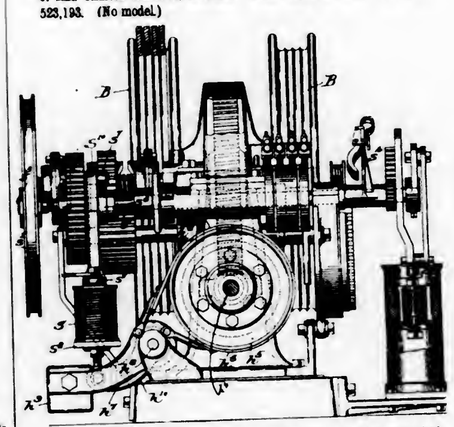
3. In an acetylene-gas-generating apparatus, the combination with a casing affording a generating-chamber, of a removable bell located in said casing having a rectangular bail depending from the under side of its top, and a carbid-pail, open at its upper end only, located in said generating-chamber and extending upward in said bell and detachably supported from the top thereof by means of bayonet-lugs secured on opposite inner sides of said pail and engaging over said bail, whereby said bell and pail may be removed together from the generating-chamber without permitting the escape of gas and the pail may subsequently be removed from the bell by turning the bail out of engagement with said lugs, substantially as described.

4. In an acetylene-gas-generating apparatus, the combination with the generator and a pipe for supplying water thereto, of a guard on the discharge end of said pipe for preventing the water from running down on said pipe, said guard comprising a cap having a discharge-orifice and surrounded by an outwardly-flaring flange, substantially as described.

5. In an acetylene-gas-generating apparatus the combination with the generating-chamber of a generator located therein comprising a vessel having a series of carbid-compartments and provided with a series of inlet-openings located at progressively different heights, each of said openings communicating with one of said compartments, a second vessel supported on the first vessel and having similar compartments and a similar arrangement of inlet-openings therefor, a chimney or flue communicating with the upper vessel, and an upright tube in said upper vessel communicating with said lower vessel, substantially as described.

6. In an acetylene-gas-generating apparatus the combination with the generating-chamber of a generator located therein and comprising a vessel having a series of carbid-compartments and provided with a series of inlet-openings located at progressively different heights, each of said openings communicating with one of said compartments, a second vessel supported on the first vessel and having similar compartments and a similar arrangement of inlet-openings therefor, a chimney or flue communicating with the upper vessel, and an upright tube in said upper vessel communicating with said lower vessel, substantially as described.

641,568. ELEVATOR. CHARLES WHITTIER, Boston, Mass.; Sumner Robinson, Newton, and Eliza I. Whittier, Boston, Mass., executors of said Charles Whittier, deceased. Filed Sept. 17, 1894. Serial No. 523,193. (No model.)



Claim.—1. A self-equalizing multicable driving and counterbalance system for operating an elevator-car, consisting of a series of endless cables each attached to said car, driving-sheaves about which said cables pass and by which they are frictionally driven in endless paths, and separate counterbalances for the respective endless cables, said counterbalances acting to counterbalance the car and in addition thereto acting automatically to maintain the respective cables under uniform tension and with uniform driving efficiency, thereby distributing automatically the total driving effect uniformly among the said cables and preventing impairment by stretching, &c., of any one cable more than another, substantially as described.

2. In an elevator system, the combination of the following-mentioned cooperative parts arranged and constructed to constitute an elevator system especially adapted for high-speed service in high buildings, viz: suitable driving mechanism, starting and stopping and braking devices therefor controllable from the elevator-car and governing the operation of the said driving mechanism, a plurality of endless combined hoisting and counterbalancing cables for said car, each passed over and in frictional contact with a driving drum or wheel and each provided with a suitable counterbalance, whereby said cables one and all bear their proportionate driving and counterbalancing load; the whole constituting an elevator system wherein the shocks incident to starting and sudden braking and stopping are uniformly equalized among and distributed through all the several elements of the combination, enabling the highest degree of speed and safety to be obtained, together with simplicity of construction and certainty of operation, substantially as described.

3. In an elevator system, the combination of the following-mentioned cooperative parts arranged and constructed to constitute an elevator system especially adapted for high-speed service in high buildings, viz: an elevator-well, sheaves at the top and bottom of said well, suitable driving mechanism, a plurality of endless combined hoisting and counterbalancing cables each attached to said car and passed over and under said top and bottom sheaves respectively, each cable between its points of attachment to the car being connected to a counterbalance moved in unison with the car but in an opposite direction, and means for regulating the tension of said cables in those portions thereof which are beneath said counterbalance and said car, substantially as described.

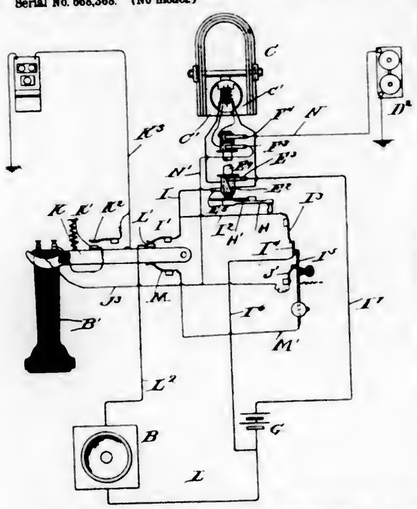
4. A self-equalizing multicable driving and counterbalance system for operating an elevator-car, consisting of a series of endless cables each attached to said car, driving-sheaves about which said cables pass and by which they are frictionally driven in endless paths, and separate counterbalances for the respective endless cables, said counterbalances acting to counterbalance the car and in addition thereto acting automatically to maintain the respective cables under uniform tension and with uniform driving efficiency, thereby distributing automatically the total driving effect uniformly among the

said cables and preventing impairment by stretching, &c., of any one cable more than another, a hoisting-machine to rotate said sheaves, a connected electric motor to operate said hoisting-machine, a current-regulator, means operable from the elevator-car to move said regulator for the control of said elevator system, and a mechanical brake also operated by said controlling mechanism, substantially as described.

5. A high-service elevator system containing the following instrumentalities, viz: an elevator-well, a sheave or set of sheaves at the top and bottom of said well; a single cable or set of cables attached at one of their ends to the top of said car, passed up over and about the said top and bottom sheaves, and attached at their opposite ends again to the said car, said sheaves being provided with ring-like grooves in which said cables lie, one groove for each cable; a counterbalance intermediate the ends of said cables and between said top and bottom sheaves, whereby uniformity of counterbalance is obtained at all times, unaffected by the changing position of the elevator-car, an elevator mechanism to rotate the sheaves to cause the said sheaves to frictionally drive said cables and the attached car; and controlling mechanism for the said elevator mechanism operable from the elevator-car, substantially as described.

6. A high-service elevator system, containing the following instrumentalities, viz: an elevator-well, and sheaves at the top and bottom thereof: a car movable in said well; a counterbalance-weight; a single cable or set of cables attached at one of their ends to the said car and passed up over the sheaves at the top of the well, thence down about the sheaves at the bottom of said well, and attached at their opposite ends again to the said car, and carrying intermediate their ends and between their top and bottom sheaves said counterbalancing-weight, whereby uniformity of counterbalance is obtained at all times unaffected by the changing position of the elevator-car; a hoisting-machine to rotate said sheaves, a connected electric motor to operate the same; a current-regulator, and means operable from the traveling elevator-car to move the same for the control of said elevator system; and a mechanical brake also operated by said controlling mechanism, substantially as described.

641,569. TELEPHONE APPARATUS. DAVID H. WILSON, Chicago, Ill., assignor to Jay Morton, same place. Filed Jan. 29, 1898. Serial No. 668,368. (No model.)



Claim.—1. The combination in a telephone system of a transformer provided with a primary and secondary coil wound upon a core, a permanent magnet provided with opposed pole-pieces between which the core of the said coils is interposed so as to form part of the magnetic circuit of said permanent magnet, a transmitter, a receiver, and suitable electrical connections whereby the transformer, transmitter and receiver are connected in circuit.

2. A telephone system comprising a transformer, consisting of a core of magnetic material provided with two separate coils wound one on top of the other, a permanent magnet provided with opposed pole-pieces, said core of magnetic material being movably mounted between said pole-pieces so as to form part of the magnetic circuit of the permanent magnet, a transmitter, a receiver, an alarm device, and suitable electrical conductors connecting the parts in circuit.

3. A transformer for telephone-circuits and the like, comprising a permanent magnet having opposed pole-pieces, two separate coils, one a primary coil and the other a secondary coil, wound upon a core of magnetic material, said core and coils mounted between said opposed pole-pieces so as to form part of the magnetic circuit of the permanent magnet.

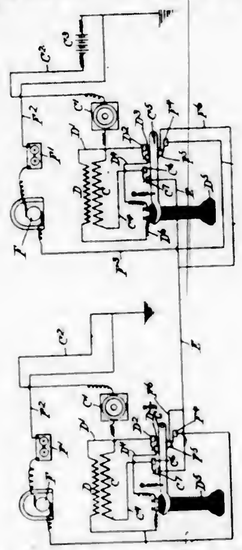
4. A transformer for telephone-circuits and the like, comprising a permanent magnet formed with opposed pole-pieces, two separate coils wound upon a core of magnetic material, said core and coils movably mounted between said opposed pole-pieces so as to form part of the magnetic circuit of the permanent magnet, means for connecting one of said circuits with a telephone-circuit and the other with a source of electric supply, and a switch interposed between the source of electric supply and the coil connected therewith.

5. The combination in a telephone system of a transformer, consisting of a core of magnetic material having two separate coils wound thereon, a permanent magnet provided with opposed pole-pieces between which said core and coils are rotatably mounted so as to form part of the magnetic circuit of the permanent magnet, a transmitter adapted to be connected in circuit with one of said coils, an alarm device adapted to be connected in circuit with the other coil, a receiver also adapted to be connected in circuit with said latter coil, and means associated with the circuits so that the alarm device may be connected in a circuit including said latter coil either with or without said receiver.

6. The combination in a telephone system of a transformer consisting of a core of magnetic material having two coils wound thereon, a permanent magnet provided with opposed pole-pieces, between which said core and coils are rotatably mounted so as to form part of the magnetic circuit of the permanent magnet, one of said coils adapted to be connected with the source of electric supply and a telephone-transmitter, the other coil adapted to be connected with an alarm device and a telephone-receiver, and means for rotating both of said coils when the alarm is in circuit so as to generate a current in one of the coils and actuate the alarm device.

7. A transformer, comprising a permanent magnet having separated and opposed pole-pieces, two separate coils of different-sized wire wound upon a suitable core, one acting as a primary coil and the other as a secondary coil, said core and coils movably mounted between said opposed pole-pieces, so as to form part of the magnetic circuit of the permanent magnet, and means for connecting said respective coils with a primary and a secondary circuit.

641,570. TELEPHONE. DAVID H. WILSON, Chicago, Ill., assignor to Jay Morton, same place. Filed Jan. 20, 1899. Serial No. 702,777. (No model.)



Claim.—1. A telephone system, comprising at least two instruments located at different points, each comprising a receiver and a transmitter, means for connecting the two instruments together by an electric circuit, an induction-coil associated with each instrument, said induction-coil comprising a permanent magnet having opposed pole-pieces, with two separate coils wound upon a core of magnetic material mounted between said opposed pole-pieces, so as to form part of the magnetic circuit of the permanent magnet, one of said coils being the primary coil and the other the secondary coil, the primary coil of each induction-coil being connected in the main circuit between the two instruments when the talking-circuit is completed.

2. A telephone system, comprising at least two instruments located at different points, each comprising a receiver and a transmitter, means for connecting the two instruments together by an electric circuit, an induction-coil associated with each instrument, said induction-coil comprising a permanent magnet having opposed pole-pieces, with two separate coils wound upon a core of magnetic material mounted between said opposed pole-pieces, so as to form part of the magnetic circuit of the permanent magnet, one of said coils being the primary coil and the other the secondary coil, the primary coil of each induction-coil being connected in the main circuit between the two instruments when the talking-circuit is completed, the secondary coil of each induction-coil connected in a local secondary circuit with its associated receiver.

3. A telephone system, comprising at least two instruments located at different points, each comprising a receiver, a transmitter, an induction-coil and a signaling device, a main line connecting said instruments normally arranged so that the signaling devices and the secondary coils of said induction-coils are in circuit, a switching device associated with each instrument and adapted to vary the circuits so as to connect the secondary coil of each instrument in a local circuit with its associated receiver and to connect the two primary coils and transmitters in the main line so as to form the talking-circuit.

4. A telephone system, comprising at least two instruments located at different points, each instrument comprising a receiver, a transmitter, a signaling device and an induction-coil, a main-line circuit between the two instruments normally connected in circuit through the signaling devices, a source of electric supply in the transmitter-circuit, a local secondary circuit connected with the secondary coil of each instrument normally open, a switching device associated with each instrument and adapted when operated to disconnect the signaling device from the main circuit and connect the transmitters and the primary coil of the transformers in said main circuit and close the local secondary circuit.

5. A telephone system, comprising at least two instruments located at different points, each instrument comprising a receiver, a transmitter, a signaling device and an induction-coil, a main-line circuit between the two instruments normally connected in circuit through the signaling devices, a source of electric supply in the transmitter-circuit, a local secondary circuit connected with the secondary coil of each instrument normally open, a movable arm upon which each receiver is supported, a series of contacts associated with each arm, said arms adapted to move when the receivers are taken therefrom, so as to disconnect the signaling devices from the main circuit, close the local secondary circuit and connect the transmitters and the primary coils of the induction-coils in said main circuit, substantially as described.

641,571. PROCESS OF PRODUCING SOLUTION OF CYANOGEN HALIDE. WILHELM WITTER, Hamburg, Germany. Filed Nov. 20, 1899. Serial No. 737,685. (No specimens.)

Claim.—The herein-described process for producing a solution of cyanogen halide by electrolyzing in a bath without a diaphragm and with inert electrodes a solution containing an alkali cyanide, an alkali halide and the salt of a metal which forms an insoluble hydroxid.

641,572. COMBINED SHOE VENTILATOR AND CUSHION. SAMUEL ARMFIELD and JOHN KOLLER, Johnstown, N. Y. Filed Feb. 11, 1899. Serial No. 705,359. (No model.)

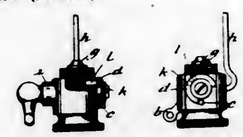
Claim.—1. A combined cushion and ventilator for shoes, consisting of a pliable base provided upon its upper side with a series of spaced ribs and projections to form ventilating-channels and having a slit opposite one of the medial projections, and a spring-shank applied to the bottom side of the base and having a terminal portion thrust into said slit and confined between the base and the projection opposite the said slit, substantially as set forth.

2. A combined cushion and ventilator for boots and shoes, consisting of a pliable base or intermediate sole provided upon its upper side with projections to form air-channels, a rear concavo-convex ventilator provided upon its inner concaved surface with ribs forming an air-channel in communication with the said channels in the sole and having the lower ends or edges of its side wings free to allow said wings to yield and conform to the shape of the counter of the shoe and heel of the wearer, and a covering-strip secured to said sole and adapted to be applied to said ribs on the rear ventilator to close the inner side of the channel formed thereby.



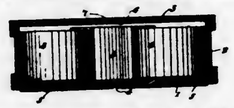
3. In a boot or shoe of the character described, the combination, with an insole having openings, of a combined cushion and ventilator interposed between the outer sole and insole and comprising a pliable base forming a single intermediate sole proper having its under side plane-surfaced and resting directly upon the outer sole and provided upon its upper side with projections forming longitudinal air-channels, a concavo-convex rear ventilator formed with upper outlets registering with corresponding outlets in the counter of the shoe and having upon its inner concaved surface longitudinal ribs forming a channel in communication with said outlets and the channels in the sole and also having the lower ends or edges of its sides free to form yielding wings, eyelets passed through the registering outlets in the rear ventilator and counter of the shoe and connecting said parts, and a flexible covering-strip secured directly to the rear portion of the said single intermediate sole and to the ribs upon the rear ventilator and closing the inner side of the channel formed by said ribs, substantially as described.

641,573. BY-PASS COCK FOR SELF-IGNITING GAS-BURNERS. AUGUST BACHMEYER, London, England. Filed Aug. 14, 1899. Serial No. 727,187. (No model.)



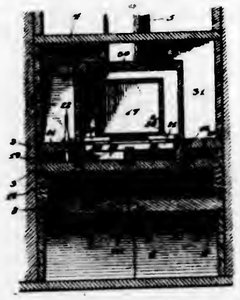
Claim.—The combination of the plug *a* having a through-passage *c* provided with a segmental passage *f* across one end, a by-pass pipe *h* with which said segmental passage is adapted to communicate, a burner *g* with which the plug-passage *c* is adapted to communicate, a washer *d* having a segmental recess, a stop-pin *c* to engage said recess, said washer being also provided on its opposite side with a slotted recess *k*, and a spring-plunger *l* adapted to engage the recess *k*, substantially as described.

641,574. PACKING AND STORING VESSEL. EDWARD C. BERRY, Plymouth, Wis. Filed May 4, 1899. Serial No. 715,574. (No model.)



Claim.—A ventilated packing and storing vessel adapted to contain cheeses, and provided with centrally-alined openings formed through the top and bottom of the vessel, the outer face of the bottom thereof being provided with radial grooves communicating at their inner ends with the central opening in the bottom, and also opening outward at their outer ends through the outer sides of the bottom, and a spacing device resting upon the bottom of the vessel, surrounding the opening therein, and terminating short of the top of the vessel, the sides of the spacing device being bowed inward to accommodate the cheeses, substantially as and for the purpose set forth.

641,575. FIREPLACE. EATON D. BOUD, Mercer, Tenn. Filed Sept. 15, 1899. Serial No. 730,606. (No model.)



Claim.—1. The combination with the fireplace of a chimney, of horizontal partitions forming a flue and dividing the fireplace into upper and lower portions, an inclined back extending downward and rearward from the front of the lower one of the said partitions, and a flue or pipe extending from the upper one of the said partitions to the upper portion of the chimney and communicating with the space between the partitions, and the stove-lids mounted on the partition at the top of the horizontal flue, substantially as described.

2. The combination with the fireplace of a chimney, of horizontal partitions 2 and 3 spaced apart to form a horizontal flue, and dividing the fireplace into upper and lower portions, the lower portion being adapted to receive a grate, and the upper portion being adapted to receive either an oven or a tank or boiler, stove-lids mounted on the partition 2, a pipe or flue extending from the horizontal flue to the upper portion of the chimney, and pipes extending from the upper portion of the fireplace and adapted to convey either hot air or steam from the same to the rooms to be heated, substantially as described.

3. The combination with the fireplace of a chimney, of the upper and lower horizontal partitions 2 and 3 forming a horizontal flue and dividing the fireplace into upper and lower portions, the lower portion being adapted to receive the grate and the upper portion being adapted to be used for heating or cooking purposes, and a pipe or flue extending from the horizontal flue to the upper portion of the chimney, substantially as described.

4. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3 spaced apart to form a horizontal flue, an inclined back 7 provided at its upper edge with a groove to receive the front edge of the horizontal partition 3, and a flue extending from the horizontal flue to the upper portion of the chimney, substantially as described.

5. The combination with the fireplace of a chimney, of the horizontal partition 3 provided at its back with a vertical flange having a tongue, the horizontal partition 2 spaced from the partition 3 to form a horizontal flue, and provided with a groove to receive the said tongue, an inclined back extending downward from the front edge of the partition 3, and the horizontal strip 18 arranged at the front of the horizontal flue, substantially as described.

6. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3 spaced apart to form a horizontal flue and dividing the fireplace into upper and lower portions, the upper portion being adapted to receive either a boiler or an oven and the upper partition being provided with an opening, removable stove-lids fitted in the said opening, and the front and rear dampers, substantially as described.

7. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3, spaced apart to form a horizontal flue, the partition 2 being provided with an opening, the bars interposed between the upper and lower partitions and located at the ends of the said opening and at a point between the ends of the same, the front and rear dampers supported by the bars, and means for operating the dampers, substantially as described.

8. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3, spaced apart to form a horizontal flue, the partition 2 being provided with an opening, the bars interposed between the upper and lower partitions and located at the ends of the said opening and at a point between the ends of the same, dampers journaled on the said bars and provided at their outer ends with cranks, and operating-levers connected with the cranks, substantially as described.

9. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3, spaced apart to provide a horizontal flue and dividing the fireplace into upper and lower portions, a vertical pipe or flue extending from the horizontal flue to the upper portion of the chimney, the strips 33 arranged at opposite sides of the upper portion of the fireplace and adapted to receive a door between them, a horizontal bar arranged at the front edges of the partitions 2 and 3 and adapted to have a blower suspended from it, and pipes extending from the bars 33, substantially as described.

10. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3 spaced apart to form a horizontal flue, the partition 2 being provided with an opening, front and rear dampers, and an oven arranged over the opening and provided with a passage extending around it and terminating in openings communicating with the opening of the upper partition 2, substantially as described.

11. The combination with the fireplace of a chimney, of the horizontal partitions 2 and 3 spaced apart to form a horizontal flue and dividing the fireplace into upper and lower portions, the partition 2 being provided with an opening, front and rear dampers, and the oven composed of an outer shell and an inner lining spaced apart to provide a passage for the products of combustion, said oven being provided at its bottom with openings and having a removable lid at its top communicating with the said passage, substantially as described.

641,576. INTERCEPTING-VALVE FOR AIR-BRAKES. GEORGE W. BUCKALEW, Memphis, Tenn., assignor of one-half to Jackson H. Bucknew, same place. Filed Sept. 11, 1899. Serial No. 730,160. (No model.)

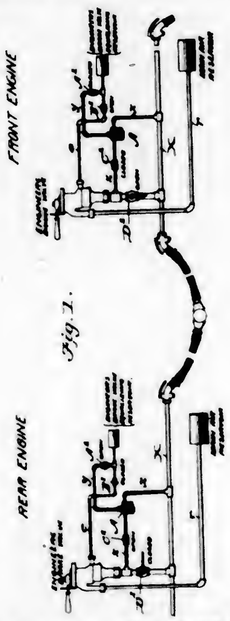


Fig. 1.

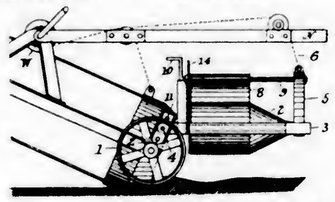
Claim.—1. In an air-brake system, the combination with the train-pipe and engineer's brake-valve; of an intercepting-valve placed at a point between the train-pipe and engineer's brake-valve and above the cock of the latter which cuts off the train-pipe therefrom, said intercepting-valve having a piston and attached valve-head which latter controls the flow from the main reservoir and engineer's valve to the train-pipe, and the piston having its working face exposed to the influence of the varying pressure in the train-pipe substantially as described.

2. In an air-brake system, the combination with the train-pipe, and engineer's brake-valve; of an intercepting-valve placed at a point between the train-pipe and the engineer's brake-valve and above the cock of the latter which cuts off the train-pipe therefrom, said intercepting-valve having a piston and attached valve-head, which latter controls the flow from the main reservoir and engineer's valve to the train-pipe, and which piston has its working face exposed to the varying pressure of the train-pipe, and an air-reservoir having a pipe leading to the opposite side of the piston from its working face substantially as and for the purpose described.

3. In an air-brake system as described, the combination with a pipe leading to the engineer's valve and having a stop-cock, a pipe leading to the engineer's brake-valve-equalizing reservoir also having a stop-cock, and a pipe leading to the main train-pipe; of an intercepting-valve interposed between these pipes, said valve comprising a case bored to form cylinders of different diameters at its opposite ends and having screw-plugs fitting in the outer ends of said cylinders, a transverse passage-way leading through the smaller of said cylinders, and a longitudinal passage-way establishing communication between this transverse passage-way and the more remote end of the larger cylinder, and having also a longitudinal groove M on the inner face of the larger cylinder, and a piston and valve-head connected to the same stem, the piston being in the larger cylinder, and the valve-head in the smaller cylinder and having a transverse port through it adapted to register with or be cut off from the said transverse passage-way substantially as and for the purpose described.

4. The intercepting-valve comprising a case bored to form cylinders of different diameters at its opposite ends, and having screw-plugs fitting in the outer ends of said cylinders, a transverse passage-way leading through the smaller of said cylinders, and a longitudinal passage-way establishing communication between the transverse passage-way and the more remote end of the larger cylinder, and having also a longitudinal groove M on the inner face of the larger cylinder, a piston and valve-head connected to the same stem, the piston being in the larger cylinder, and the valve-head in the smaller one and having a transverse port through it adapted to register with or be cut off from the said transverse passage-way; said intercepting-valve being placed in and combined with an air-brake system, and having its transverse passage-way on one side connected to the engineer's brake-valve above the cock leading to the train-pipe, and on the other side connected directly to the train-pipe, and the upper part of the larger cylinder of the intercepting-valve being connected to an air-reservoir as described.

641,577. POTATO-DIGGER. DAVID BUCHANAN, Auburn, Victoria. Filed Nov. 10, 1899. Serial No. 736,506. (No model.)



Claim.—1. In a potato-digger, the combination with the frame thereof of a pair of rollers 2 (each having a tapered front) attached to a frame 3, and pivoted or hinged at the rear 4, to one of a series of holes 11, a carrier 5 and a chain or connection 6 to a windlass as W all substantially as and for the purposes set forth.

2. In a potato-digger, the combination with the frame thereof of a pair of adjustable revoluble rollers each having a tapered front, means (as a flexible shaft) for causing revolution of one of said rollers as the machine advances, a fork beneath and an adjustable guard above the said rollers, and a vertical sheet-metal guard at the rear of the rollers all substantially as and for the purposes set forth.

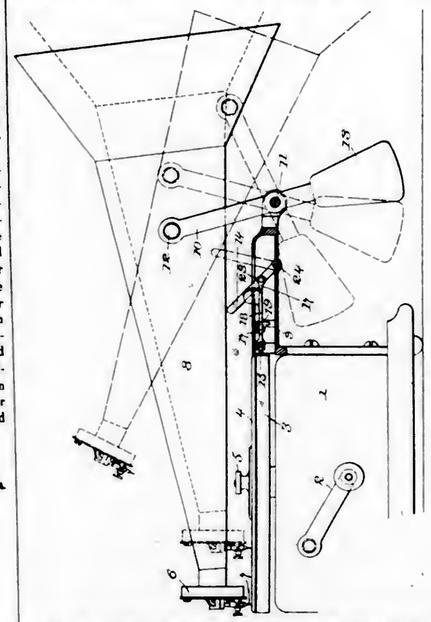
641,578. TALKING-MACHINE. GEORGE K. CHENEY, New York, N. Y. Filed Apr. 29, 1899. Serial No. 714,977. (No model.)

Claim.—1. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith, the supporting-frame hinged to the main frame and to the reproducer, the axes of both hinges being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus, and the rest for said reproducer also hinged to the main frame.

2. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith and the supporting-frame hinged to the main frame and to the reproducer, the axes of both hinges being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus.

3. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith, and the supporting-frame hinged to the main frame and to the reproducer, the axes of both hinges being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus, together with the counterweight suspended from the hinged frame below its pivotal point of attachment to the main frame.

4. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith, and the hinged support on the main frame for said reproducer, the axis of the hinge being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus, together with the rest for said reproducer also hinged to the main frame, the axis of its hinge being substantially parallel to that of the hinged support.



5. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith, and the hinged support on the main frame for said reproducer, the axis of the hinge being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus, together with the rest for said reproducer also hinged to the main frame, the brake for the rotating record, and connecting mechanism between said brake and the hinged rest.

6. The combination of the main frame, the rotating sound-record, the reproducer cooperating therewith, and the hinged support on the main frame for said reproducer, the axis of the hinge being substantially parallel to the line of travel of the sound-record at the point of its contact with the reproducer-stylus, together with the rest for said reproducer also hinged to the main frame, the brake for the rotating records, and connecting mechanism between said brake and the hinged rest, and the lever for simultaneously operating said brake and hinged rest.

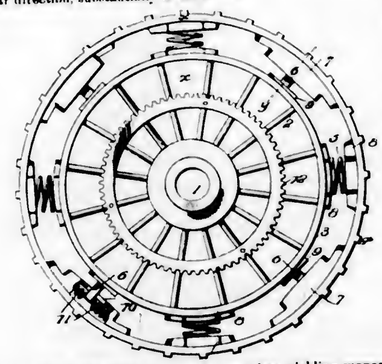
641,579. TRACTION-WHEEL. JOSEPH D. CULLEN, Sitka, Ind. Filed Nov. 16, 1899. Serial No. 737,228. (No model.)

Claim.—1. A traction-wheel comprising spaced concentric rims having relatively independent radial and circular movement, supports interposed between the rims and yieldable radially and in the plane of motion of the wheel, and positive interlocking devices between the respective rims and movable radially and in the plane of the wheel and constructed to prevent lateral displacement of said rims, substantially as described.

2. A traction-wheel comprising spaced concentric rims having relatively independent radial and circular movement, supports interposed between the rims and yieldable radially and in the plane of motion of the wheel, positive interlocking devices having their elements rigidly attached to the respective rims and movable radially and in the plane of the wheel and constructed to prevent lateral displacement of said rims, and springs interposed between the said rims to compensate for sudden movements of either rim in a circular direction, substantially as specified.

3. A wheel comprising inner and outer rims, yielding supports interposed between the rims, interlocking devices telescopically related and having a limited circumferential movement and attached to the respective rims, and springs interposed between the interlock-

ing devices to compensate for sudden movement of either rim in a circular direction, substantially as set forth.

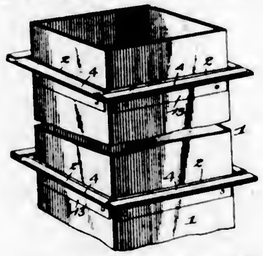


4. A wheel comprising inner and outer rims, yielding supports interposed between the rims, a box-casting secured to one of the rims and having a longitudinal slot, a lug attached to the other rim and entering the slot of the box-casting, and springs located in the front and in the rear of the lug and between it and the ends of the box and housed by the latter, substantially as specified.

5. A wheel comprising inner and outer rims, yielding supports interposed between the rims, box-castings attached to one of the rims and having longitudinal slots, lugs attached to the other rim and having a radial and a circumferential movement in the slots of the box-castings, said boxes and lugs alternating with the yielding supports, and springs housed by the box-castings and located in the front and in the rear of the lugs, substantially as described.

6. A traction-wheel comprising a central portion having a gear element for transmitting power, a rim encircling the central portion, yielding supports between the rims of the parts, longitudinally-slotted box-castings and lugs attached to the respective rims, and springs housed by the castings and arranged between the ends thereof and the end portions of the lugs, substantially as and for the purpose specified.

641,580. **FLUE OR PIPE COUPLING.** MICHAEL CUNNIFF, New York, N. Y. Filed Apr. 24, 1899. Serial No. 714,204. (No model.)



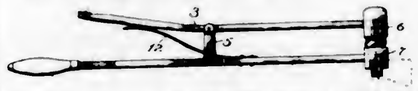
Claim.—1. A coupling or joint for flue or pipe sections, comprising a female member having opposite parallel portions to fit over the end of a section and an outwardly-extending angular projection, a male member on the adjacent section having a main body and inturned retaining-bend, and an outwardly-projecting lip provided with a locking-flange, and a binder having locking portions substantially opposite one another and adapted to embrace parts of the contiguously-arranged male and female members.

2. A coupling or joint for flue or pipe sections, comprising male and female members arranged on adjacent interlocking portions of contiguous section ends, the female member having opposite parallel portions to fit over the end of the one section and an outwardly-extending angular projection, the male member having a main body, a retaining-bend, an outwardly-projecting lip and a locking-flange on the latter, and a binder having the locking inclosing portions and adapted to embrace the said male and female members, a part of the binders surrounding the sections having the ends respectively overlapping the adjacent ends of other binders arranged at an angle thereto.

3. A coupling or joint for flue or pipe sections, comprising a female member having an inturned retaining-bend, an outward rectangular bend, a rebend on the latter to form an angular projection, and a securing-flange parallel with the retaining-bend, a male member having a main body, an inturned retaining-bend and a full-length lip having a locking-flange primarily bent at an oblique angle, and a binder for connecting said male and female members consisting of a supporting-body with a locking-flange bent thereover a short distance to serve as a companion to the flange of the male member and also provided with a closing-flange slightly less than a right angle to the supporting-body.

4. A coupling or joint for pipe or flue sections surrounding the latter in separate parts and having contiguously-arranged projections, and binders fitted over the separate parts and projections thereof, the ends of the binders being extended at the corners, the outer end portions of opposite binders being adapted to receive and hold the opposite ends of the remaining binders at an angle thereto.

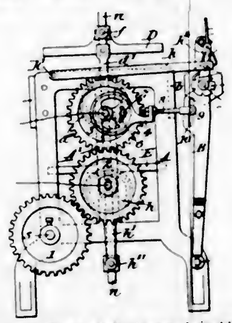
641,581. **NUT-CRACKER.** LORING L. J. CURRENCE, Elkins, W. Va. Filed Apr. 27, 1899. Serial No. 714,742. (No model.)



Claim.—1. A nut-cracker comprising a support provided with a jaw having a recess in its inner face, a bar pivoted intermediate of its ends to the said support and provided at one end with a rest for the application of power, a hammer applied to the opposite end of the pivoted bar and recessed to cooperate with the aforesaid jaw, and a spring interposed between the support and the pivoted bar, substantially as specified.

2. A nut-cracker comprising a bar, a handle at one end of the bar, an anvil at the opposite end of the bar provided with a recess, a standard secured to the bar at an intermediate point, a second bar pivoted at an intermediate point to the standard and provided with a rest at one end, a hammer at the opposite end of the pivoted bar recessed to correspond with the anvil, and a spring interposed between the two bars, substantially as set forth.

641,582. **JACQUARD-MACHINE FOR LOOMS.** JOHN DEAR, Patterson, N. J., assignor of two-thirds to John F. Kerr and George Simpson, same place. Filed Aug. 23, 1899. Serial No. 728,818. (No model.)

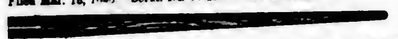


Claim.—1. The frame of the jacquard-machine provided with studs on each end, and the intermeshing wheels mounted upon said studs, and having on their inner sides long-necked hubs or collars, in combination with eccentrics adjustably secured to the sides of said intermeshing wheels, the hook-plates and rods connected with said eccentrics for operating the hook-plates, all constructed substantially as set forth.

2. In a jacquard-machine the driving-shaft provided with a gear-wheel at each end, the frame provided with two studs at each end, the intermeshing wheels carried by the studs and provided with long collars or hubs in combination with eccentrics suitably secured to the sides of said intermeshing wheels, the hook-plates, rods connecting the eccentrics and hook-plates, the batten carrying the pattern-cylinder, an eccentric on the outer face of each upper gear-wheel, and rods connecting the said eccentrics and batten to rock it, constructed substantially as set forth.

3. In a jacquard mechanism, the combination of the upper and lower hook-plates, with intermeshing wheels having eccentrics thereon, and connections between said eccentrics and hook-plates, for operating said hook-plates.

641,583. **PENHOLDER.** EDWARD K. DE PUY, Washington, D. C. Filed Mar. 18, 1898. Serial No. 674,357. (No model.)



Claim.—1. In a penholder a tenon, a stem, a sleeve capable of longitudinal movement over the tenon but not over the stem, and means removably securing the sleeve to the stem, whereby the sleeve may be detached from the holder for removing the pen and cleaning the tenon and sleeve and then readily secured in place again, substantially as described.

2. In a penholder, a stem, a tenon thereon having a slit terminating in an enlarged cavity at its inner end, a sleeve capable of longitudinal movement over the tenon but not over the stem and means removably securing the sleeve to the stem, substantially as described.

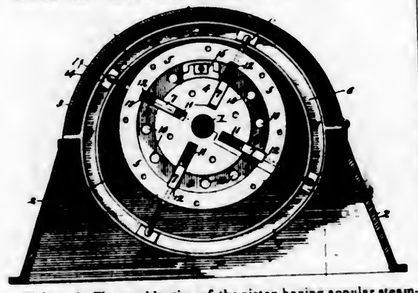
641,584. **HAIR-CLIPPER.** PASQUALE FARACCHIO, Philadelphia, Pa. Filed May 26, 1899. Serial No. 718,334. (No model.)



Claim.—1. In a hair-clipper, a suitable frame, a stationary handle formed therewith or attached thereto, a sleeve projecting upward from the frame, a guard-plate, a post projecting upward from said plate and passing through the sleeve, an adjusting-nut run upon the threads formed upon the upper ends of the post, and a fork for holding said nut against other than rotary movements, as and for the purpose set forth.

2. In combination, a suitable frame, a stationary handle carried thereby, a sleeve projecting upward from the frame, a movable handle pivoted around said sleeve, a movable cutter adapted to be actuated by the last-named handle, a cap passed over said sleeve, a nut run upon the threaded end of the sleeve to hold the cap in place, a guard-plate arranged beneath the frame, a post projecting upward therefrom and passing through the sleeve, said post having its upper end threaded, an adjusting-nut run upon the threads of this post, a fork embracing the edge of the adjusting-nut to hold it against vertical movements, and pins projecting upward from the guard-plate through holes in the frame to prevent the rotation of the guard-plate, as specified.

641,585. **ROTARY ENGINE.** HORACE FISHERING, Xenia, Ohio, assignor to Hattie Fishering, same place. Filed Aug. 29, 1898. Renewed June 29, 1899. Serial No. 722,325. (No model.)



Claim.—1. The combination of the piston having annular steam-spaces and an intermediate web, radial slots for sliding blades, chambered to obviate cushioning steam, and having rods centrally attached extending out through the rim of piston and engaging a stationary cam causing reciprocation of the blades in the rotating piston as shown and described.

2. The combination of the stationary end plates or rings the piston operating between the same and having a groove in each end for steam-spaces and a central web, bladeways from end to end of piston and through the web, the fixed end rings holding abutments projecting therefrom into the grooves of piston, and the blades being chambered to prevent cushioning steam in their movement, rods attached to the blades and projecting out through the rim of piston and engaged by an exterior cam which controls the blades in the rotating piston, as shown and described.

3. In a rotary engine substantially as described, the combination of the fixed end plate, the rotating body having end steam-spaces, the blades operating in radial slots and controlled by an exterior stationary cam, and the abutments held by the end plates and projecting into said spaces and formed with an intermediate fixed portion and inner and outer spring-pressed covers or sections for taking up wear and maintaining steam-tight joints, as shown and described.

4. The combination with the track or grooved guide having opposite inner and outer concentric portions united on either side by eccentric portions, of blocks adapted to slide therein, rods pivoted to such blocks, blades attached to the rods, and the rotatable rim and piston having radial bladeways and lateral annular steam-spaces, as shown and described.

5. The combination with the eccentric track, the rotating body having lateral annular steam-spaces and radial slots, and blades operated by said track, of fixed concentric side rings having pivot-pins projecting inward, blocks pivotally mounted on the pins, and the spring-pressed covers or abutments properly secured on said blocks, thus being capable of rocking and adapting themselves perfectly to walls of the steam-spaces of piston, as shown and described.

6. The combination of a rotatable piston with end steam-grooves, blades operating in radial slots, fixed end plates or rings between which the piston revolves, abutments held to the end rings and projecting into the steam-spaces, and the rings or plates being recessed or grooved to equalize the steam-pressure upon the moving blade, thus obviating side thrusting of said blade, as shown and described.

7. A rotary engine comprising a piston, with a central shaft, which rotates between two end rings or plates, said piston having an annular groove in each end to a central web, and radial slots wherein move blades chambered to prevent cushioning steam, and controlled by an exterior stationary track composed of an inner and an outer opposite concentric portion which are united by eccentric portions on either side, the outer concentric portion allowing no radial action of the blade between the inlet and exhaust ports, the eccentric portions guiding the blades inwardly or outwardly as the piston revolves one way or the other, the inner concentric portion smoothly uniting the two eccentric portions serving to hold the blades entirely within the core of piston to pass an abutment, as shown and described.

8. The combination with the stationary end plates, the T-rings attached thereto, between which the piston rotates, said T-rings holding abutments as described, of the rotatable parts comprising the piston with a central core and shaft, the outer rim, and lateral steam-spaces, and the intermediate web, the rabbeted ring attached to said rim and overlapping the outer flange of the T-ring, the groove in the overlapping portion, the packing-ring fitting closely into the groove and held by inner springs in frictional contact against the rear side of said flange, the rabbeted end plate attached to the core of piston and overlapping the inner flange of the T-ring, the groove in the overlapping portion, the ring in the groove held in frictional contact against the rear side of said inner flange by springs, such packing device deflecting leakage twice before reaching the packing-ring and proving efficient, as shown.

9. In combination with a rotatable body having an annular groove in each end to a central web, for steam-spaces, of fixed end plates between which the body revolves said plates holding abutments which project into the grooves of the body to resist pressure and made with an intermediate fixed portion and inner and outer spring-pressed covers for keeping tight friction-joints as shown and described.

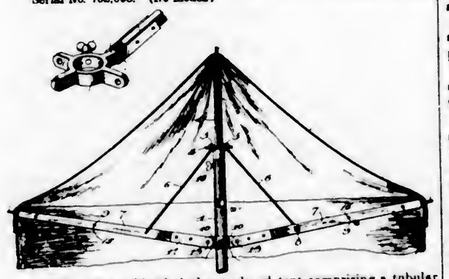
10. The combination of a circular body having annular end grooves in both ends to a central partition, and bladeways from end to end and through the partition, chambered blades operating in these ways giving passage for steam and also serving to obviate cushioning or pounding steam as the blade plays automatically in and out of piston-slot or bladeways, rods attached to the middle section of blades and extending out through the rim and having slides attached to their outer ends engaging a cam or track the orbit of which is composed of arcs each of an inner and an outer true circle to the center of piston-shaft, the centers of these arcs being diametrically opposite each other from the shaft of piston, the inner arc permitting the blade to be in its innermost position to pass the abutment, and of a length just sufficient to accomplish this, the outer arc permitting the blade to be in its outermost position covering the steam-space, the length of this arc being the distance between the inlet and exhaust port, an arc on either side uniting these two arcs causing the automatic action of the blade, and completing an orbit or track absolutely without an abrupt point.

11. The combination of a circular body having annular end

grooves and bladeways, and plates or rings between which the piston rotates, one of which is provided with two port-holes, one on either side of the abutments equidistant therefrom, and opening directly into the annular steam-space of piston, said port-holes being recessed or extended as at 18 a distance toward the abutment, the port-holes acting reciprocally as inlet and exhaust ports as to the forward and reverse actions of the piston, a port-hole maintaining an equally-charged section of the steam-space between itself and the abutment (owing to the presence of a blade always between this inlet and the opposite exhaust-port) within which space the blade completes its automatic action across and covering the steam-space, arriving at the port set in its outermost position, simultaneously receiving the force of the steam upon one side, driving the piston toward the opposite port or exhaust, the recess or groore serving to equalize the pressure upon the blade while it is closing the steam-space, before contact with the port-hole, the steam having ingress to the rearside of the blade along the recess, the recess also obviating the momentary closing of the port-hole by the end of blade in passing it.

12. The combination with the eccentric track, the rotating body having lateral annular steam-spaces and radial slots, and blades operated by said track, of fixed concentric side rings, having pivot-pins projecting inward, blocks pivotally mounted on the pins, and the abutments proper secured on said blocks and thereby adapted to oscillate, substantially as shown and described.

641,586. COMBINED CLOTHES-REEL AND TENT. CARL E. FRENCH and OSCAR D. FRENCH, Monticello, Iowa. Filed Sept. 29, 1899. Serial No. 732,093. (No model.)



Claim.—A combined clothes-reel and tent comprising a tubular standard adapted to receive a stake in its lower end, whereby it may be readily supported in an upright position, a head slidingly mounted on the standard, arms hinged at their inner ends to the head, and provided at their outer ends with means for engaging a tent-cloth, bracing-rods permanently hinged to the top of the standard and connected at their lower ends to the arms, a removable tent-cloth engaged by the arms, the tent pole or rod detachably fitted in the upper end of the tubular standard and supporting the center of the tent-cloth, and means for securing the tent pole or rod at the desired adjustment, substantially as described.

641,587. PROCESS OF MAKING BLACK SULFUR DYE. ARTHUR G. GREEN and ALEXANDER MEYENBERG, Manchester, England. Filed July 21, 1899. Serial No. 724,709. (Specimens.)

Claim.—The new process for the production of a black sulfur containing direct cotton-dyeing coloring-matter by oxidation of a paradiamin together with a base of the benzene series in presence of thiosulfuric acid in aqueous solution under conditions substantially as described.

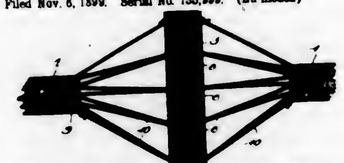
641,588. BLACK SULFUR DYE. ARTHUR G. GREEN, Heaton Moor, and ALEXANDER MEYENBERG, Manchester, England. Filed Sept. 29, 1899. Serial No. 732,074. (Specimens.)

Claim.—As a new product and new article of manufacture the hereinbefore-described coloring-matter derived from paraphenylene diamin which forms a black powder insoluble in water dilute acids, or alkaline carbonates, but readily soluble in alkaline sulfids, slightly soluble in concentrated sulfuric acid with blue-black color, and which by reducing agents is converted into a readily-oxidizable leuco compound; and which dyes unmordanted cotton direct a deep black from a bath containing sodium sulfid.

641,589. BLACK SULFUR DYE. ARTHUR G GREEN, Heaton Moor, and ALEXANDER MEYENBERG, Manchester, England. Filed Sept. 29, 1899. Serial No. 732,075. (Specimens.)

Claim.—As a new product and a new article of manufacture the coloring-matter hereinbefore described derived from paratolylenediamin and which forms a black powder insoluble in water dilute acids or alkaline carbonates but readily soluble in alkaline sulfids, slightly soluble in concentrated sulfuric acid with blue-black color; and which, by reducing agents, is converted into a readily-oxidizable leuco compound; and which dyes unmordanted cotton direct a deep black from a bath containing sodium sulfid.

641,590. SUSPENDERS. ALVA S. GRIEM, St. Mary's, W. Va. Filed Nov. 6, 1899. Serial No. 735,999. (No model.)



Claim.—1. The combination with a pair of suspenders, of supports to rest on the shoulders exclusively and arranged in planes at right angles to the direction of and interposed between the webs.

2. The combination with a pair of suspenders, of supports to bear exclusively on the shoulders and arranged in planes at right angles to the direction of and interposed between the webs, and adjustable connecting means between the opposite portions of the said supports and the ends of the webs.

3. A pair of suspenders having shoulder-supports to bear exclusively on the shoulders at an angle to the direction of the webs and provided with shaping devices.

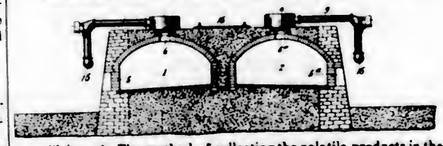
4. A pair of suspenders having shoulder-supports to bear exclusively on the shoulders and arranged in planes at angles to the direction of the web and flexibly and adjustably connected to the latter.

5. A pair of suspenders having shoulder-supports to bear exclusively on the shoulders with eyelets along the side edges of the same, the said supports being arranged at an angle to the direction of the webs, and cords threaded through the said eyelets and connected to the webs.

6. A pair of suspenders comprising webs intermediately interrupted and having the webs supplied with eyelets, shoulder-supports with eyelets along the opposite side edges at a greater distance apart than those in the webs, and a cord threaded through the eyelets of the supports and webs.

7. A pair of suspenders comprising webs and shoulder-supports flexibly connected thereto and having stiffening means therein.

641,591. CONSERVATION OF VOLATILE PRODUCTS FROM BEEHIVE COKE-OVENS. CHARLES B. JACOBS, Schenectady, N. Y. Filed Nov. 22, 1897. Serial No. 659,453. (No model.)



Claim.—1. The method of collecting the volatile products in the coking of coal in beehive ovens, which consists in laterally deflecting the volatile products from the charging-hole of the beehive oven by means of suction applied laterally to such charging-hole, such suction being insufficient to affect the natural draft of the oven, and communication with the outer air being maintained through such charging-hole.

2. In combination with a beehive oven provided with a charging-hole at its top in free communication with the outer air, of means for collecting the volatile products arising from such oven, consisting of a duct leading laterally from such hole, and regulable suction apparatus for establishing in such duct a suction sufficient to draw off such volatile products, without materially affecting the natural draft of the oven.

3. In combination with a beehive oven provided with a charging-hole at its top in free communication with the outer air, of means for collecting the volatile products arising from such oven, consisting of a duct leading laterally from such hole, regulable suction apparatus for establishing in such duct a suction sufficient to draw off such volatile products, without materially affecting the natural draft of the oven and condensing apparatus connected to such duct to receive and condense such volatile products.

4. In combination with a beehive oven provided with a charging-hole at its top in free communication with the outer air, of means for collecting the volatile products arising from such oven, consisting of a fire-brick frame surrounding the charging-hole, and provided with lateral openings, an annular chamber around such frame communicating with such openings, suction apparatus and a duct leading from such chamber to such suction apparatus.

641,592. CUFF-HOLDER. HENRY V. JOHNSON, Denver, Colo. Filed Nov. 17, 1899. Serial No. 737,326. (No model.)



Claim.—1. As an improved article of manufacture a cuff-holder comprising a body part having a T-head at each extremity, a shank bifurcated to form two spring-arms which are provided with openings adjacent the slot between the arms whose free extremities are crossed and bent in opposite directions whereby the spring-arms may be opened by pressure on said extremities.

2. A cuff-holder comprising an oval ring having a T-head at each extremity extending parallel with the shorter axis of the oval, a shank extending from one side of the ring in a direction parallel with the T-heads, said shank being divided by a slot cutting the ring, to form two spring-arms whose extremities are crossed and bent in opposite directions, the shank being provided with a button-opening formed adjacent or on a line with the bifurcating-slot.

3. A cuff-holder comprising a ring, two heads located on opposite sides of the ring and having necks which engage the buttonholes of the cuff when the device is in place, a shank projecting from the side of the ring intermediate the heads, said shank being bifurcated by a slot cutting the ring, to form two spring-arms terminating in crossed bent extremities, said shank being provided with an opening adapted to receive the head of a button and a number of other openings adapted to embrace the shank of a button.

4. A cuff-holder comprising a ring 5, two necks 6 located on opposite sides of the ring, a head 7 connected with each neck, two spring-arms 8 connected with the ring on one side and separated by a slot cutting the ring, the said arms terminating in crossed bent extremities 8, an opening 14 and a number of openings 12 being formed in the spring-arms adjacent to the separating-slot, a portion of each opening being formed in each arm.

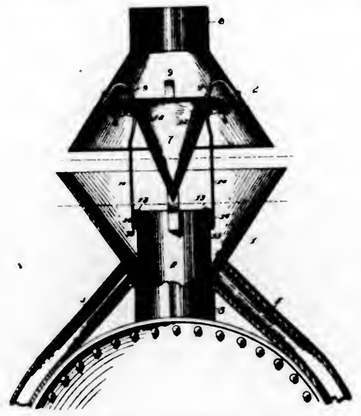
5. A cuff-holder formed from a single piece of material, comprising an oval ring, a T-head at each extremity of the ring, a shank bifurcated by a slot cutting the ring to form two spring-arms which are bent to cross each other at the end of the shank and terminate in arms which open the bifurcating-slot when pressure is applied, the said shank being provided with openings which are located on the line of the slot and are formed partly in each arm.

641,593. SPARK-ARRESTER. JAMES W. HARRELSON, Belton, Mo. Filed Nov. 17, 1899. Serial No. 737,363. (No model.)

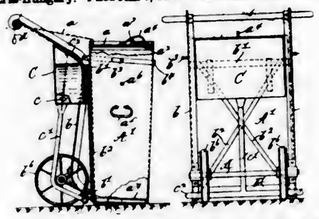
Claim.—1. A spark-arrester comprising a lower tapering section designed to be mounted on a smoke-stack, an upper section spaced from the adjacent edges of the lower section to form an opening, and provided at its top with an opening, and a conical deflector located above the smoke-stack, connected therewith and supporting the upper section of the casing, substantially as described.

2. A spark-arrester comprising a casing having upper and lower sections spaced apart, the lower section being mounted on a smoke-stack, a conical deflector supporting the upper section of the casing and located centrally of the stack at a point above the same, rods depending from the conical deflector and provided at their lower ends with double U-shaped bends forming outer hooks and inner loops, the outer hooks engaging the stack, and a clamping-ring supported in the inner loops, substantially as described.

3. A spark-arrester comprising the lower tapering section of the casing designed to surround a stack and provided with depending tubes, an upper tapering section spaced from the lower section, a conical deflector provided at its top with a corrugated flange, the substantially V-shaped braces or bars secured to the upper section of the casing and to the conical deflector, and rods depending from the conical deflector and provided with means for engaging a stack, substantially as described.



641,594. GARBAGE-CART. ALEXANDER HARTWICH, Vienna, Austria-Hungary. Filed Jan. 7, 1899. Serial No. 701,443. (No model.)



Claim.—1. The combination with a garbage hand-truck of a water-reservoir and a sprinkler connected therewith, for the purposes set forth.

2. The combination with a two-wheeled garbage hand-truck of a water-reservoir, a perforated pipe extending across the forward end of said truck connected with said reservoir, a valve controlling the flow of water from the reservoir to said pipe, and means for unseating said valve, for the purpose set forth.

3. A two-wheeled garbage hand-truck having side bars made of angle-iron bent at different angles in an upward direction at their forward ends to form abutments for the lower end of a garbage-receptacle, while the horizontal web or flange of said side bars form bearings for said receptacle, substantially as set forth.

4. A two-wheeled garbage hand-truck having side bars made of angle-iron bent at different angles in an upward direction at their forward ends to form abutments for the lower end of a garbage-receptacle, while the horizontal web or flange of said side bars form bearings for said receptacle; in combination with a yoke pivoted to said side bars near the handle end of the truck for securing the upper end of the receptacle, substantially as set forth.

5. The combination with a two-wheeled garbage-truck having the forward or wheel end of its side bars bent upwardly at different angles, and a yoke pivoted to said side bars near their handle ends; of a sheet-metal garbage-receptacle supported at its bottom end by said upwardly-bent side bars and held on the truck near its opposite end by the aforesaid yoke, substantially as and for the purpose set forth.

6. The combination with a two-wheeled garbage hand-truck having side bars made of angle-iron connected by flat cross-bars secured to the horizontal webs or flanges of said bars near the wheel and handle ends thereof respectively, and crossed flat-bar reaches secured to said cross-bars, said side bars having their forward or wheel ends suitably bent in an upward direction, and a yoke pivoted to the vertical flanges of the side bars near their handle ends; of a sheet-metal garbage vessel fitting between the vertical flanges of the truck side bars and seating on their forward upturned ends and held to the truck by the aforesaid yoke, substantially as and for the purposes set forth.

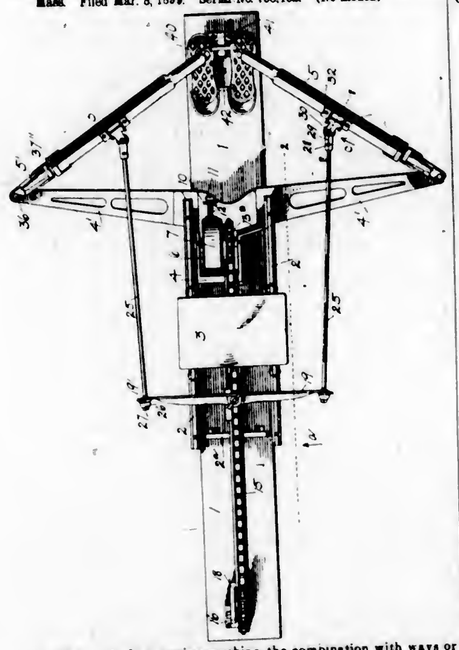
641,595. PLOW ATTACHMENT. STEPHEN A. HUNT, Cedartown, Ga. Filed Aug. 22, 1899. Serial No. 728,089. (No model.)



Claim.—1. The combination with a plow-standard and an adjustable ratchet-plate having an inclined notched face, of a scraper provided with correlatively-notched shank and means for binding the shank against the face of the ratchet-plate.

2. The combination with a standard and bolt, of a longitudinally-slotted ratchet-plate provided with an inclined, notched enlargement, a scraper provided with an apertured shank having a longitudinal channel and transverse notches, and a nut screwed upon the bolt and abutting against the rear face of the shank.

641,596. ROWING-MACHINE. EDWARD J. KERBS, Worcester, Mass. Filed Mar. 8, 1899. Serial No. 708,182. (No model.)



Claim.—1. In a rowing-machine, the combination with ways or tracks, a seat sliding thereon, oars supported at one end to have a movement in a vertical and horizontal plane, and also a rotary movement, and connected with an endless chain passing around two sprocket-wheels, and said chain and sprocket-wheels, of friction mechanism connected with one of the sprocket-wheels, and consisting of a pulley, a belt extending around the same, and secured at one end, and the other end adjustable, to vary the friction of the belt on the pulley, and a spring forming a yielding attachment for the adjustable end, substantially as shown and described.

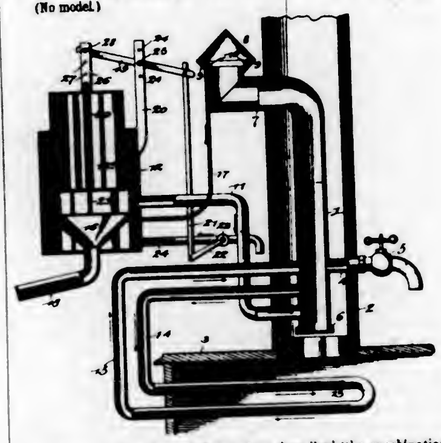
2. In a rowing-machine, the combination with ways or tracks, a seat sliding thereon, an oar supported at one end, a connector from said oar to an endless chain passing around two sprocket-wheels, and said chain and sprocket-wheels, of friction mechanism connected with one of said sprocket-wheels, and consisting of a pulley, a belt extending around the same, and secured at one end, and the other end adjustable, to vary the friction of the belt on the pulley, and yieldingly attached to allow of the free reverse movement of the pulley, substantially as shown and described.

3. In a rowing-machine, the combination with ways or tracks, a seat sliding thereon, oars supported at one end to have a movement in a vertical and horizontal plane, and also a rotary movement, and connected with an endless chain passing around two sprocket-wheels, and said chain and sprocket-wheels, of friction mechanism connected with one of the sprocket-wheels, and consisting of a pulley having an oil reservoir or chamber therein, a belt extending around the same, and secured at one end, and the other end adjustable, to vary the friction of the belt on the pulley, and a spring forming a yielding attachment for the adjustable end, substantially as shown and described.

4. The combination with a pivoted or swivel support, and a slotted stand thereon having internal ribs or ways, of an oar extending through said slotted stand, and having a rounded portion to engage said ribs or ways, and having its end rounded to extend into a recess in said support, and a spring acting to hold said oar in its elevated position, substantially as shown and described

5. The combination with an oar, supported at its outer end to have a pivotal motion in a horizontal and vertical plane, and also a rotary motion, of a connector-rod, pivotally attached at one end to a slide or casting, moving in ways or guides on said oar, to allow said oar to have a rotary motion, and connected at its other end by a ball-and-socket joint to a transverse bar or whiffletree on an endless chain, substantially as shown and described.

641,597. WATER HEATER AND CONDENSER. CHARLES S. KINNEY, Arroye Grande, Cal. Filed Mar. 30, 1899. Serial No. 711,098. (No model.)



Claim.—1. In a device of the class described, the combination with a stove and a stovepipe, of a reservoir or boiler arranged within the stovepipe and having its upper portion extending through the same and provided with a hood for collecting steam and vapor, and means for supplying water to the boiler, substantially as described.

2. In a device of the class described, the combination with a stove and a stovepipe, of a reservoir or boiler arranged within the stovepipe and having its upper portion extending through the same and provided with a hood for collecting steam and vapor, and a water-heating device arranged within the stove and extending to the stovepipe and communicating with the boiler or reservoir, substantially as described.

3. In a device of the class described, the combination with a stove, and a stovepipe, of a boiler located within the stovepipe, a water-heating device arranged within the stove and extending therefrom to the stovepipe and communicating with the boiler, a tank connected with the boiler and having means for discharging the distilled water, a condenser arranged within the tank and connected with the said means, and pipe connections between the boiler and the condenser, substantially as described.

4. In a device of the class described, the combination with a stove, and a stovepipe, of a boiler arranged within the stovepipe and extending through one side thereof and having an exterior vertical portion, a hood for collecting steam and vapor connected with the exterior of the vertical portion of the boiler at a point below the upper edges thereof, to form a gutter, a tank, and a condenser connected with the gutter, substantially as described.

5. In a device of the class described, the combination of a stovepipe, of a boiler arranged therein and extending through one side thereof and having a vertical exterior portion, and a hood secured to the outer face of the said vertical portion of the boiler at a point below the upper edges thereof to form a gutter, substantially as described.

6. In a device of the class described, the combination of a boiler arranged within a stovepipe and having its upper portion extending through the same and terminating in a vertical exterior top portion, a hood arranged over the upper end of the boiler and having a base portion united with the exterior of the boiler at a point below the upper edges thereof and forming a gutter at the exterior of the boiler, a pipe extending from the gutter and designed to be connected with a condenser, and means for supplying the boiler with water, substantially as described.

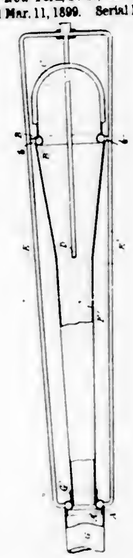
7. In a device of the class described, the combination with a stove and a stovepipe, of a vertical boiler arranged within the same and having a horizontal portion extending through the stovepipe, a water-heating device arranged within the stove and extending to the stovepipe and communicating with the boiler, an exteriorly-arranged hood mounted on the extended portion of the boiler, a tank connected with the latter, a condenser arranged within the tank, and a steam-pipe extending from the hood to the condenser, substantially as described.

8. In a device of the class described, the combination with a stove and a stovepipe, of a boiler arranged within the stovepipe, a water-heating device arranged within the stove and extending to the stovepipe and communicating with the boiler, an exteriorly-arranged hood connected with the boiler, a tank, a condenser arranged within the tank and connected with the hood, a feed-pipe 11 extending from the tank to the boiler, a cold-water-supply pipe having a cut-off or valve, and a float arranged within the tank and connected with the cut-off or valve, substantially as described.

9. In a device of the class described, the combination of a tank, a supply-pipe communicating with the tank and having a valve or cut-off, a conical condenser arranged within the tank and having a horizontal top, a rod forming a guide and mounted on the condenser, a float arranged within the tank and having an opening receiving the guide-rod, and connections between the float and the valve or cut-off, substantially as described.

10. In a device of the class described, the combination of a tank, a condenser arranged within the tank at the bottom thereof, a supply-pipe communicating with the tank and having a valve or cut-off, and a float operating in the tank above the condenser and connected with the valve or cut-off, substantially as described.

641,598. GRAIN-CONVEYER. GEORGE E. MAHAN, ALFRED FITZROY, and ROBERT ORR, New York, N. Y.; said Fitzroy assignor to said Mahan and Orr. Filed Mar. 11, 1899. Serial No. 708,759. (No model.)



Claim.—1. In a grain-conveyer, the combination, with a suitable conveyer tube or cylinder having a grain-receiving inlet and a grain-discharge outlet, of an air-supply pipe, a central air-discharge conduit, and upper and lower annular air-discharge conduits, whereby the inflowing grain is caused to be transmitted rapidly through the conveyer-tube by the force of the air.

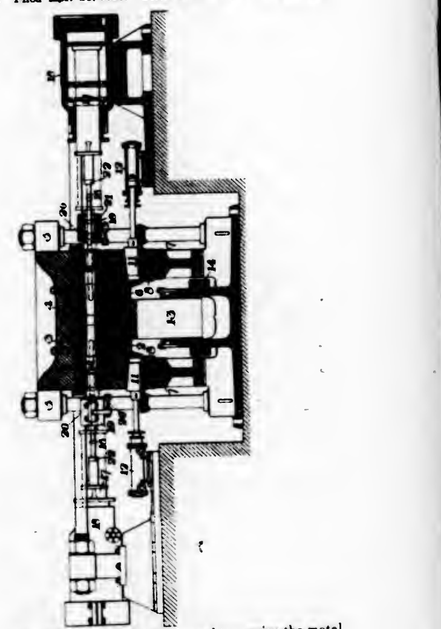
2. In a grain-conveyer, the combination, with a conveyer tube or cylinder having a grain-receiving inlet and a grain-discharge outlet, of upper and lower annular air-discharge conduits, a central air-discharge conduit, an air-supply pipe, and air-conduits connecting the air-discharge conduits with the supply-pipe.

3. In a grain-conveyer, the combination, with a conveyer tube or cylinder provided with a grain-receiving hopper and a grain-discharge outlet, of an annular air-discharge conduit located between the hopper and upper end of the conveyer-tube, and a similar air-discharge conduit located between the discharge-outlet and the lower end of said conveyer-tube, an air-supply pipe having branches leading therefrom and connected with the two annular conduits, and a central air-discharge conduit connected with the supply-pipe.

4. In a grain-conveyer, the combination, with a conveyer tube or cylinder having a grain-receiving inlet and a grain-discharge outlet, of upper and lower air-conduits, a central air-conduit, reduced at one or more points and provided with air-outlets at the reduced points, an air-supply pipe, and connections between the supply-pipe and air-conduits, whereby air may be forced through said conduits and discharged to force the grain through the conveyer-tube.

5. In a grain-conveyer, the combination, with a conveyer tube or cylinder provided with a receiving-hopper and a discharge-outlet, of an air-supply pipe having two side branches and a central branch extending into the conveyer-tube, upper and lower air-discharge conduits, and means connecting the side branches with the upper and lower conduits.

641,599. AXLE-FORGING MACHINE. CAMILLE MERCADER, Braddock, Pa. Filed Apr. 28, 1899. Serial No. 714,796. (No model.)



Claim.—1. The combination of dies adapted to receive the metal blank, means by which the dies are caused to approach, and in addition to said means, locking mechanism by which they are held in contact, and a punch adapted to penetrate the blank; substantially as described.

2. The combination of dies adapted to receive the metal blank, means by which the dies are caused to approach, and, in addition, means by which they are held in contact, and a punch, substantially as described.

3. The combination of dies adapted to hold the article to be formed, mechanism by which one of the dies is movable laterally from

opposition to the other die, means for bringing said dies into contact to grip an axle-blank, and an end punch; substantially as described.

4. The combination of dies adapted to hold the article to be formed, a slide on which one of said dies is mounted, means for moving said slide, a motor adapted to move said die vertically on the slide into contact with the other die, and an end punch; substantially as described.

5. The combination of dies adapted to hold the article to be formed, mechanism by which one of the dies is movable laterally from opposition to the other die, means for bringing said dies into contact to grip an axle-blank, means for locking the dies in such engagement, and an end punch; substantially as described.

6. The combination of dies adapted to hold an article to be formed, an end punch adapted to pierce the end of the article, a shaping follower-die through which the punch moves, and which serves as a guide therefor, and a stop carried by the end punch and adapted to engage the follower-die at an advanced period of motion of the punch and to force it against the article to shape the end thereof; substantially as described.

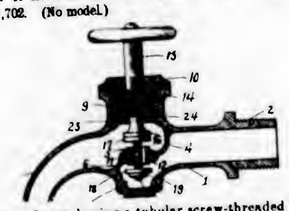
7. The combination of axle-forming dies, having a matrix-cavity adapted to shape the wheel-seat and taper of an axle, a punch and mechanism adapted to force the punch lengthwise into the axle to the inner end of the wheel-seat, substantially as described.

641,600. AXLE. CAMILLE MERCADER, Braddock, Pa. Original application filed Apr. 28, 1899, Serial No. 714,746. Divided and this application filed Oct. 18, 1899. Serial No. 733,966. (No model.)



Claim.—As a new article of manufacture, a car-axle, having a solid middle portion, and hollow end portions with internally-compacted skins extending inwardly at least to the inner ends of the wheel-seats of the axle; substantially as described.

641,601. FAUCET. GEORGE O. MILLER, North Tonawanda, N.Y., assignor to Alice M. Miller, same place. Filed Jan. 10, 1899. Serial No. 701,702. (No model.)



Claim.—A faucet having a tubular screw-threaded extension for connection to the source of water-supply, a spout and an upper and lower screw-threaded opening and having its interior divided into two compartments by a partition provided with a screw-threaded opening enlarging into an upper countersunk portion, a double-faced valve-seat having screw-threaded ends screwing into the screw-threaded opening in the partition and a central flange seating in the counter-sunk portion, a plunger having a screw-threaded portion, a hand-wheel and upper and lower washers adapted to contact with the faces of the valve-seat, a hollow cap having exterior screw-threads adapted to engage in the upper screw-threaded opening and interior screw-threads engaging with the screw-threaded portion of the plunger, and a lower screw-cap adapted to close the lower screw-threaded opening, as set forth.

641,602. TRUCK OR ROLLER. WILLIAM MCGUINNIGLE, Brockton, Mass. Filed Apr. 27, 1899. Serial No. 714,682. (No model.)

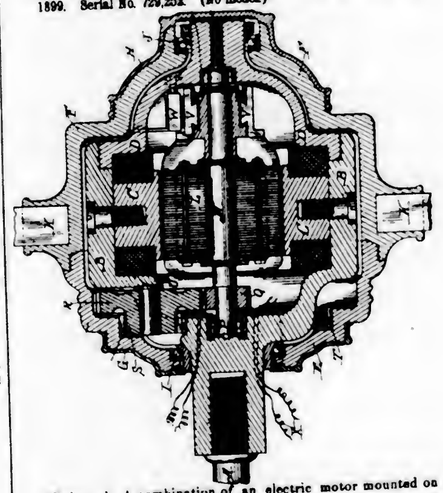


Claim.—1. The herein-described roller comprising a central hub and the elastic or yielding body or covering firmly adherent to the said hub and vulcanized thereto, the said hub having the series of radially-extending arms separated by the interiorly-enlarged spaces which are filled by inwardly-projecting portions of the rubber, whereby the said body or covering is locked to the said hub.

2. The herein-described roller comprising the central hub and the elastic yielding body or covering, the said hub having the series of radially-extending arms separated by the interiorly-enlarged spaces which are filled by inwardly-projecting portions of the rubber, whereby the said body or covering is locked to the said hub, the outer faces of the said arms being roughened to prevent the body or covering from slipping transversely with reference thereto.

3. The herein-described roller comprising the central hub and the elastic or yielding body or covering, the said hub having the series of radially-extending arms separated by the interiorly-enlarged spaces which are filed by inwardly-projecting portions of the rubber, whereby the said body or covering is locked to the said hub, the outer surfaces of the said arms being circumferentially corrugated for better engagement with the rubber.

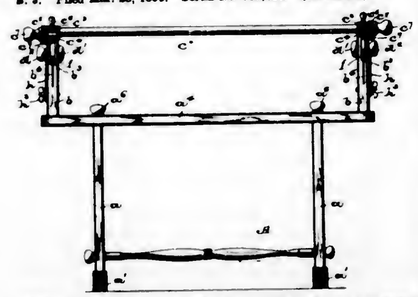
641,603. ELECTRICALLY-PROPELLED VEHICLE. FREDERICK J. NEWMAN and JOSEPH LEDWINKA, Chicago, Ill. Filed Sept. 1, 1899. Serial No. 729,252. (No model.)



Claim.—1. A combination of an electric motor mounted on a vehicle-axle, a hollow hub of a vehicle-wheel inclosing said motor, said hub journaled about said motor, the armature of said motor connected with the interior of said hub, so that when said armature is caused to revolve, its revolving motion would be transmitted to the said vehicle-hub.

2. A combination of a hollow hub of a vehicle-wheel inclosing an electric motor, the stationary magnetic field of said motor rigidly fastened to the vehicle-axle, the armature of said motor carrying with it a gear meshing with intermediate gearing properly supported and journaled, said intermediate gearing meshing with an internal gear fastened rigidly to the interior of said hub, thus causing the said hub to rotate when an electric current is applied to said motor.

641,604. EMBROIDERY-FRAME. JOHN R. OELKERS, Newark, N. J. Filed Mar. 23, 1899. Serial No. 710,189. (No model.)

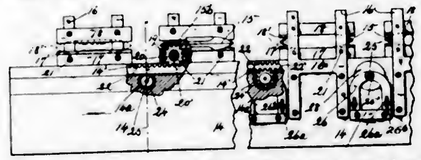


Claim.—1. The herein-described embroidery-frame, consisting, essentially, of a base or standard having an upright or uprights *a*, a screw portion a^3 on each upright, a cross-piece a^4 arranged over said screw portion and a knob or nut a^5 thereon, a pair of posts *b* on said cross-piece, each post being slotted, as at b^3, having a saw cut b^4, and provided with perforated bearing portions, journal-pins *d* in said bearing portions, having an ornamental head *d'*, a screw portion d^3 and an ornamental nut d^5, and an embroidery-frame pivotally connected with said pins *d*, so as to swing in the center, a pair of side bars connected with said embroidery-frame, having bearing portions, a pair of rollers removably arranged in said bearing portions, and means connected with said side bars and rollers to prevent the turning of said rollers, substantially as and for the purposes set forth.

2. The herein-described embroidery-frame, consisting, essentially, of a base or standard having an upright or uprights *a*, a screw portion a^3 on each upright, a cross-piece a^4 arranged over said screw portion and a knob or nut a^5 thereon, a pair of posts *b* on said cross-pieces, each post being slotted, as at b^3, having a saw cut b^4, and provided with perforated bearing portions, journal-pins *d* in said bearing portions, having an ornamental head *d'*, a screw portion d^3 and an ornamental nut d^5, and an embroidery-frame pivotally connected with said pins *d*, so as to swing in the center, substantially as and for the purposes set forth.

3. The herein-described embroidery-frame, consisting, essentially, of a base or standard having an upright or uprights *a*, a screw portion a^3 on each upright, a cross-piece a^4 arranged over said screw portion and a knob or nut a^5 thereon, a pair of posts *b* on said cross-piece, each post being slotted, as at b^3, having a saw cut b^4, and provided with perforated bearing portions, journal-pins *d* in said bearing portions, having an ornamental head *d'*, a screw portion d^3 and an ornamental nut d^5, and an embroidery-frame pivotally connected with said pins *d*, so as to swing in the center, comprising, a pair of side bars *c*, having bearing portions at their ends, a pair of rollers removably arranged in said bearing portions, means connected therewith for preventing accidental displacement of said rollers from said bearings, and a locking or holding means connected with each roller to prevent the turning of said rollers in one direction, consisting, of a ratchet-wheel on each roller, and spring dogs or pawls on the frame in operative engagement with said ratchets, substantially as and for the purposes set forth.

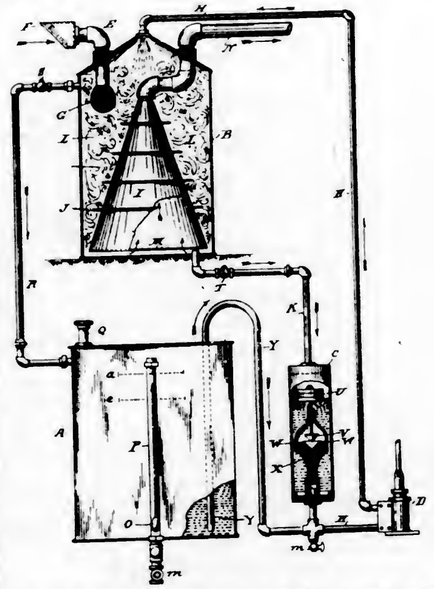
641,605. NARROW-FABRIC LOOM. EDWIN OLDFIELD, Norwich, Conn. Filed May 9, 1898. Serial No. 680,136. (No model.)



Claim.—In combination with the batten of the loom, a reciprocating rack mounted upon the rolls 24, said rolls being supported axially on studs, the frames 26 through which the studs extend at right angles, and which are adjustably secured to said batten and stops 28 coacting with said frames, substantially as specified.

641,606. COMBINING APPARATUS. VALENTINE J. A. REY, San Francisco, Cal. Filed Mar. 4, 1899. Serial No. 707,747. (No model.)

Claim.—1. In mixing or combining apparatus for fluids, a primary containing vessel for a liquid, a chamber for combining or saturating gas or air with the liquid, a cone-shaped vessel provided with a perforated diaphragm and an outlet-pipe for drawing off the saturated gas or air, a pump to supply and circulate the liquid, and an overflow vessel to collect and return to the pump the liquid not entrained or taken up by the gas or air in passing through the vaporizing-chamber, substantially as specified.



2. In mixing or combining apparatus for fluids, a mixing or incorporating chamber B, inlets thereto for gas or air and for liquid, and a conical diffusing vessel I set concentrically within said chamber B, provided on its exterior with a series of dripping ledges or flanges J increasing in diameter from the top downward, said vessel being provided with means for conveying away the saturated gas or air, substantially as specified.

3. In mixing or combining apparatus for fluids, a mixing or incorporating chamber, provided with inlets and outlets for gas or air and for liquid to be incorporated therewith, a conical diffusing vessel therein having circular dripping ledges or flanges of diminishing diameter from the top downward, perforations at the bottom to permit the saturated gas or air to rise in the conical vessel, and a discharge-pipe at its top, substantially as described.

4. In mixing and combining apparatus for fluids, a mixing or combining chamber B, a conical diffusing vessel therein having dripping-ledges of an increasing diameter from the top downward, inlets at the bottom for saturated air or gas, the annular space around this vessel filled with pervious material to diffuse and combine the liquid and air or gas as these descend to the bottom, substantially as specified.

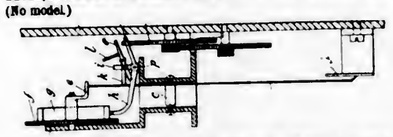
5. In mixing or combining apparatus for fluids, a supply-tank for liquid, a mixing or incorporating chamber placed at a higher position, means for drawing off the mixed air and vapor, a pump to raise the liquid to this chamber, and a drain-pipe to return the surplus liquid to the pump, and in combination, a collecting-chamber C having a valve and float forming a seal to prevent the flow of air or gas to the pump, substantially as described.

6. In mixing or combining apparatus for fluids, a supply vessel A for liquid, a mixing or combining chamber B, placed at a higher level, a pipe R connecting said chamber with said supply vessel, with a check-valve therein to prevent the backflow of air, vapor or other fluid from the said mixing or combining chamber, and a means located within said chamber B for drawing off the mixed air and vapor, substantially as specified.

7. In mixing or combining apparatus for fluids, a supply vessel A for liquid, a pump to raise the liquid to the top of a mixing and combining chamber above, a siphon suction-pipe from the supply vessel to pump intersected by a draining-pipe K from the bottom of the mixing and combining chamber, a valve and float to prevent the passage of air or gas to the pump, all combined and operating substantially as specified.

combining or mixing apparatus for fluids, a combining and mixing chamber B provided with devices to diffuse and incorporate the fluids to be mixed or combined, a liquid-supply vessel A, a pump to raise and circulate the liquid, and the overflow-chamber C, with connecting-pipes and a float-valve whereby surplus liquid from the mixing and combining chamber is returned thereto, substantially as specified.

641,607. ELECTRICITY-METER. PAUL RISSLER and HEINRICH BAUER, Freudenstadt, Germany. Filed Nov. 18, 1899. Serial No. 737,480. (No model.)

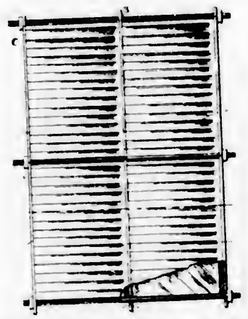


Claim.—1. In combination in an electricity-meter, a pointer or index adapted to be moved in one direction under electrical influence, means for mechanically returning the same and recording means operated on the return stroke of the pointer or index, substantially as described.

2. In combination in an electricity-meter, a pivoted pointer adapted to be moved forward by electrical influence, recording mechanism, means for locking the same during the forward stroke of the pointer and means for mechanically returning the pointer and for releasing the locking means.

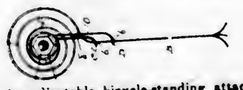
3. In combination, a pivoted pointer, recording mechanism including a toothed wheel, a wheel mechanically driven, a pawl normally engaging the toothed wheel and means carried by the mechanically-driven wheel adapted to release the pawl and means adapted to shift the pointer when the pawl is released, substantially as described.

641,608. WINDOW-SASH. RICHARD J. ROSS and FRANKLIN P. SMITH, Chicago, Ill. Filed Apr. 21, 1899. Serial No. 713,894. (No model.)



Claim.—The combination with a framework made up of a series of longitudinal bars and a series of transverse rods passing through the longitudinal bars and provided with means for tightening them thereupon, of a series of panes or blocks of a size corresponding to the rectangular spaces of the frame, said blocks having grooves in their sides fitted to the longitudinal bars and grooves in their ends fitted to the transverse rods; substantially as described.

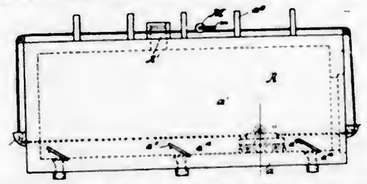
641,609. BICYCLE-STANDING ATTACHMENT. CLARENCE L. RYNAL, Hamilton, Canada. Filed May 11, 1899. Serial No. 716,428. (No model.)



Claim.—1. An adjustable bicycle-standing attachment of the character described, consisting of a scroll or coil spring, a lower lock, a lower stay and a lock attached to the rear-fork brace, the central part of said spring inwardly extended and formed with a central eye to fit on the rear-wheel axle and secured thereto and against the rear-fork brace by a washer and nut, the outer fore part of said spring extending downward with extended foot and secured by its own inherent resiliency against the forwardly-closed ends of the lower lock and the lower stay forming a part of the spring, said leg capable by its own inherent resiliency of locking in the lock attached to the rear-fork brace of the bicycle.

2. An adjustable bicycle-standing attachment of the character described, consisting of a scroll-spring, a lower lock, a lower stay and a lock attached to the rear-fork brace, the central part of said spring extending inwardly and formed with a central eye to fit on the rear-wheel axle against the rear-fork brace and fastened thereto by the axle-nut, the outer and rear part of said spring extended downward as a leg and secured in the lower lock and in the lower stay, forming a part of said spring by its own inherent resiliency against the forwardly-closed openings in said lock and stay, said leg capable of being secured by means of its inherent resiliency in the lock of the rear brace.

641,610. APPARATUS FOR MAKING BLEACHING-POWDER. FRANK P. SCHMELZER, Erie, Pa., assignor of one-third to J. M. Sherwin, same place. Filed June 8, 1899. Serial No. 719,822. (No model.)



Claim.—1. In a device for forming bleaching-powder and the like, the combination of a chamber for confining the gas and lime; means for agitating the lime while subjected to the gas; a cable for actuating said means extending from said means within the chamber to without the chamber; and means for sealing the opening through which said cable passes.

2. In an agitator for agitating lime for the formation of bleaching-powder, the combination of the frame; a series of shovel-blades carried by said frame and arranged to form ridges in the body of lime through which they are passed; a series of agitating-plates arranged to move more rapidly than the frame and to operate upon the ridges so formed; and means for actuating said agitating-plates.

3. In an agitator for agitating lime for the formation of bleaching-powder, the combination of a frame; a wheel carrying said frame; agitating-plates carried by said frame and arranged to move more rapidly than the frame; a power-transmitting mechanism for transmitting the movement of said wheel to said agitators; shovel-blades carried by said frame and arranged to form ridges in the material through which the device is passed in the path of the agitator-plates.

4. In a device for forming bleaching-powder, the combination of a chamber arranged to confine lime and gas; an agitator comprising agitator-plates adapted to enter and throw the material from the floor of said chamber when moved at sufficient speed; mechanism for actuating said agitator-plates with sufficient speed to effect the throwing of the material through the movement of said plate; and means for sealing the opening in the walls.

5. In a device for forming bleaching-powder, the combination of a chamber arranged to confine lime and gas; an agitator comprising a frame adapted to be moved to and fro across the floor of said chamber, and agitator-plates carried by said frame and arranged to agitate material spread upon the floor of said chamber as said frame is moved to and fro across the floor; mechanism passing through the walls of the chamber for actuating said frame and plates from without the chamber; and means for sealing the opening in said walls through which said mechanism passes.

6. In a device for forming bleaching-powder, the combination of a chamber for confining lime and gas, an agitator comprising a frame; agitating-plates carried by said frame; mechanism passing through the walls of said chamber for moving the said frame from without the chamber; means for sealing the opening in said walls, through which said mechanism passes; mechanism actuated by the movement of said frame for actuating said plates; and means for actuating said frame from without the chamber.

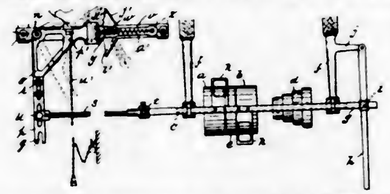
7. In a device for forming bleaching-powder, the combination of a chamber for confining the gas and lime; of an agitator comprising a frame; a series of shovel-blades carried by said frame and arranged to form ridges through the material, through which the frame is passed; a series of agitating-plates carried by said frame and arranged to operate upon the ridges so formed; and means for actuating said frame and plates from without the chamber.

8. In a device for producing bleaching-powder, the combination with the chamber for confining gas and lima; of an agitator arranged in said chamber; a frame for carrying said agitator; means actuated by the movement of said frame for actuating said agitator; a scraper carried by said frame; a clutch device for throwing out the agitating mechanism when the device is desired to be used as a scraper.

9. In a device for producing bleaching-powder, the combination with the chamber for confining gas and lime; of an agitator arranged in said chamber; a frame for carrying said agitator; means actuated by the movement of said frame for actuating said agitator; a scraper carried by said frame; a clutch device for throwing out the agitating mechanism when the device is desired to be used as a scraper; and means for actuating said agitator and scraper from without the chamber.

10. In a device for producing bleaching-powder, the combination of a chamber for confining gas and lime, said chamber having openings in the bottom thereof; doors for closing said openings; means for actuating said doors from without the chamber, an agitator arranged in said chamber; said agitator comprising a frame and wheel carrying said frame; agitating-plates carried by said frame and actuated by the movement of said wheel; scraping-plates carried by said frame; means for adjusting the height of said plates; clutch mechanism for throwing out said agitating mechanism; a cable extending from said agitator to without the walls of said chamber for actuating said agitator.

641,611. BELT-SHIFTER ATTACHMENT. CHARLES SCHOPKE, Paterson, N. J. Filed Nov. 3, 1899. Serial No. 735,710. (No model.)



Claim.—1. The combination of an element to be shifted, a suitable support, two members pivotally arranged on said support, one yieldingly engaging the other, a spring connecting one of said members and the support, and operative connecting means between one of said members and said element, substantially as described.

2. The combination of a suitable support, two members arranged on said support and having a yielding engagement with each other, one of said members being oscillatory relatively to the other and said members having a plurality of appreciably-spaced and coacting points of bearing for the one against the other each adapted as an individual fulcrum, and an element to be shifted operatively connected to said movable member, substantially as described.

3. The combination of an element to be shifted, a suitable support, two members pivotally arranged on said support and having a yielding engagement with each other, and said members having a plurality of appreciably-spaced and coacting points of bearing for the one against the other, each adapted as an individual fulcrum, and operative connecting means between one of said members and said element, substantially as described.

4. In a belt-shifting mechanism, the combination of a shifting-fork, a suitable support, two members pivotally arranged on said support and engaging each other, a spring connecting one of said members and the support, said members having a plurality of points of bearing for the one against the other, each adapted as an individual fulcrum, and operative connecting means between one of said members and said shifting-fork, substantially as described.

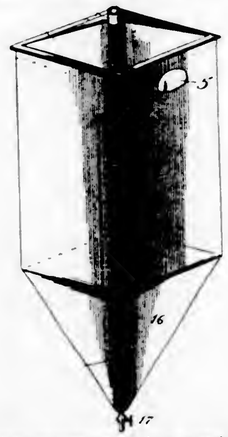
5. In a belt-shifting mechanism, the combination of a shifting-fork, a suitable support, two members pivotally arranged on said support, the one being movable rectilinearly on its fulcrum toward the other and each having its points of bearing for the other appreciably remote from each other, a spring operatively connecting said support and the movable member, and operative connecting means between one of said members and the shifting-fork, substantially as described.

6. In a belt-shifting mechanism, the combination of a shifting-fork, a suitable support, pins projecting from said support, levers fulcrumed on said pins, one of said levers yieldingly engaging the other and having a rectilinear slot receiving the fulcruming-pin therefor, and each of said levers having its points of bearing for the other appreciably remote from each other, a spring operatively connecting the slotted lever and the fulcrum for the latter and preserving the engagement between said levers, and operative connecting means between one of said levers and the shifting-fork, substantially as described.

7. In a belt-shifting mechanism, the combination of a shifting-fork, a suitable support, two members pivotally arranged on said support and engaging each other, and the one having pins and the other having corresponding notches adapted to coact to afford bearings for said members the one against the other, a spring operatively connecting one of said members and the support, said last-named member being movable rectilinearly on its pivot, stops projecting from said support, and operative connecting means between one of said members and the shifting-fork, substantially as described.

8. In a belt-shifting mechanism, the combination of a shifting-fork, a suitable support, two members pivotally arranged in said support and engaging each other, and the one having pins and the other having corresponding notches adapted to coact to afford bearings for said members the one against the other, a spring operatively connecting one of said members and the support, said last-named member being movable rectilinearly on its pivot, stops projecting from said support, operative connecting means between one of said members and the shifting-fork, and locking means mounted on said support and adapted to secure said members against movement, substantially as described.

641,612. CREAM-SEPARATOR. GEORGE L. SMITH and AUSTIN HUFFMAN, Princeton, Ill. Filed Apr. 19, 1899. Serial No. 713,678. (No model.)



Claim.—A cream-separator comprising an angular vessel, having an inclined bottom and a valve-controlled outlet at the lowest portion of the said bottom and provided with a sight-gage, a reversible cover for closing the upper end of the vessel, comprising a horizontal portion to rest upon the top edge of the vessel in either position of the cover, a pendent rim to enter the vessel and a central raised portion provided at a middle point with an opening over which extends a strainer material, and said cover having a collar extending therefrom in line with the protected opening, a short tube adapted to be fitted at one end by a slip-joint to the collar and having its opposite end portion tapering and terminating in a nozzle, a strainer-cloth fitted over the said nozzle, and an induction-tube fitted to the nozzle and confining the strainer-cloth thereon, substantially as described.

641,613. SHADE FOR ELECTRIC LIGHTS. WALTON D. SMITH, Prophetstown, Ill., assignor of one-half to William McNeill, same place. Filed Aug. 1, 1899. Serial No. 725,785. (No model.)

Claim.—1. A lamp-shade comprising a canopy having a clutch connected therewith and adapted for engagement with a support, said clutch comprising a spring-ring and a plurality of elements pivotally connected with the ring and adapted for slidable engagement with each other to exert a clutching action, substantially as specified.

2. The combination with a canopy, of a spring-ring carried thereby, and clutch elements connected with the ring and extending inwardly thereof and adapted to move into and out of their engaging positions to recede and approach when the ring is distorted and released.

3. The combination with a canopy, of a spring-ring fixed thereto, clutch elements pivotally connected at opposite sides of the ring and adapted to be swung into and out of mutual engagement, and to slide with respect to each other as the ring is distorted and released, to operate the clutch, substantially as specified.

4. The combination with a canopy, of a spring-ring carried thereby, and clutch elements connected with the ring at opposite sides thereof, each of said elements having an inwardly-extending portion provided with a clutch-jaw adapted to coöperate with a similar portion of the opposite element, said jaws being adapted to recede and

approach as the ring is distorted and released, substantially as specified.



5. The combination with a canopy, of a spring-ring fixed to the canopy, and clutch elements connected with the ring and having inwardly-directed portions provided with laterally-extending clutch-faces adapted to exert a clutching action, said elements being adapted for slidable contact to move the clutch-faces toward or away from each other, and means for holding the clutch-faces normally in a predetermined position, substantially as specified.

6. The combination with a canopy, of a spring-ring fixed to the canopy, and clutch elements connected with the ring and having inwardly-directed portions provided with laterally-extending clutch-faces adapted to exert a clutching action, said elements being adapted for slidable contact to move the clutch-faces toward or away from each other, and means for holding the clutch-faces yieldably in a predetermined position, substantially as specified.

7. The combination with a canopy, of a spring-ring fixed to the canopy, and clutch elements pivotally connected with the ring and having inwardly-directed portions provided with laterally-extending clutch-faces adapted to exert a clutching action, said elements being adapted for slidable contact to move the clutch-faces toward or away from each other, and means for holding the clutch-faces normally in a predetermined position, substantially as specified.

8. The combination with a canopy, of a spring-ring fixed to the canopy, and clutch elements connected with the ring and having inwardly-directed portions provided with laterally-extending clutch-faces adapted to exert a clutching action, said elements being adapted for slidable contact to move the clutch-faces toward or away from each other, and means for holding the clutch-faces yieldably in a predetermined position, substantially as specified.

9. The combination with a canopy, of a spring-ring fixed thereto, and spring-pressed clutch elements connected with the ring and extending inwardly thereof, and adapted to exert pressure in opposite directions upon an interposed body passed through the ring and out of engagement therewith, substantially as specified.

10. The combination with a canopy, of a spring-ring connected therewith, and clutch elements pivotally connected with the ring and having clutching-faces adapted normally to lie mutually adjacent and adapted for movement into and out of their engaging positions as the ring is distorted and released, the clutching-faces lying above and inwardly of the ring, substantially as specified.

11. The combination with a canopy, of a clutch element pivoted thereto and having vertically-alining recesses, and a second clutch element pivoted to the canopy and having vertically-alining recesses adapted to aline with the first-named recesses, said elements being adapted to lie one within the other, and means for holding said elements yieldably in a clutching position, substantially as specified.

12. The combination with a canopy, of a spring-ring carried thereby, a clutch element pivotally connected with the ring and having a clutching-face, and a second clutch element pivotally connected with the ring and adapted to receive the first-named element and having also a clutching-face adapted to cooperate with the first-named face, substantially as specified.

13. The combination with a canopy, of a spring-ring carried thereby, a clutch element carried by the ring and having a clutch-face, said element having longitudinal corrugations, a second clutch element longitudinally corrugated and carried by the ring and having a clutch-face, and adapted to receive the first-named element with their corrugations intermeshing, said elements being adapted for slidable movement with respect to each other to establish and destroy the clutching action, substantially as specified.

14. A device of the class described comprising a casing adapted for application to a wire or other lamp-hanger and including two elements which have separate members and a connected web, one of said members being adapted to inclose the other member and slide toward and away from it to exert different degrees of clamping action thereagainst.

15. A device of the class described, comprising a casing adapted to receive a wire or other lamp-hanger and including two elements each having separate members and a connecting-web, one of said elements being adapted to receive the other element throughout its length and slide toward and away from it to exert different degrees of clamping action thereagainst.

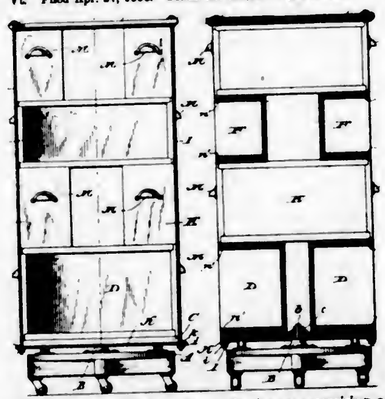
16. In a lamp-shade, the combination with a casing adapted for application to a cord or other lamp-hanger and including similar elements in slidable engagement to exert a clamping action upon the hanger, of a canopy having a spring-operated clutch adapted to engage the casing and clamp it upon the hanger.

17. In a lamp-shade, the combination with a casing adapted for application to a cord or other lamp-hanger and including similar elements in slidable engagement to exert a clamping action upon the hanger, of a canopy having a spring-operated clutch adapted to engage the elements of the casing and move them toward each other to exert a clamping action.

18. In a lamp-shade, the combination with a casing adapted for application to a cord or other lamp-hanger and including similar elements in slidable engagement to exert a clamping action upon the hanger, of a canopy having spring-operated clutching-jaws adapted to engage the elements of the casing to support the canopy and clamp said elements upon the hanger.

19. The combination with a canopy, of clutch elements pivoted thereto and adapted for mutual cooperative clutching action, said elements being independently movable upon their pivots in directions transversely of their clutching movements to establish and destroy their clutching relation.

641,614. ROTARY BOOKCASE. CHARLES M. STEBBINS, Wolcott, Vt. Filed Apr. 27, 1898. Serial No. 678,991. (No model.)



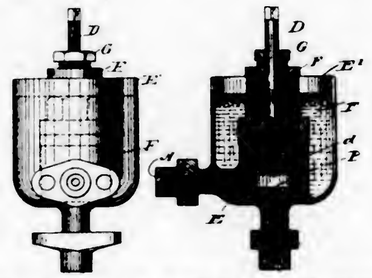
Claim.—1. A knockdown rotary bookcase, comprising a rotatable supporting-base, boxes stacked upon the supporting-base in vertical series, the boxes of each series being disposed at an angle with respect to the boxes of the adjoining series and separated to form additional book-compartments, as shown; together with means for rigidly connecting the boxes to the rotatable supporting-base, substantially as set forth.

2. A knockdown rotary bookcase, comprising a rotatable supporting-base, boxes stacked thereon in vertical series, the boxes of each series being disposed at an angle with respect to those of the adjoining series and separated from each other to form additional book-compartments, as shown; a top board placed upon the stack of boxes, and rods connecting the top board and rotatable supporting-base to clamp the boxes between them, substantially as shown and for the purpose set forth.

3. A knockdown rotary bookcase, comprising a rotatable supporting-base, boxes stacked thereon to form book-compartments at all sides of the case or cabinet and the boxes of each set or tier separated from each other to form additional book-compartments in connection with the adjoining sets or tiers; together with means for rigidly connecting the boxes to the supporting-base, substantially as shown and for the purpose set forth.

4. A knockdown rotary bookcase or cabinet, comprising a base, a board or support rotatably mounted thereon, a cross-bar attached to said board and provided with apertured lugs or eyes, open boxes stacked upon said support in vertical series, those of one series being disposed at right angles to those of the adjoining series and the boxes of each series separated to form additional book-compartments, a top or covering board placed upon the stack and provided at its edges with notches, and threaded rods or long bolts engaging the notches of the top board and the eyes at the ends of the cross-bar attached to the bottom board, the said bolts having nuts screwed thereon, as shown and described.

641,615. REFRIGERATING SYSTEM. MAXIMILIAN M. SUPPES, Elyria, and JOHN M. DORRER, Cleveland, Ohio, assignors to the Cochran Company, Lorain, Ohio. Filed Dec. 27, 1897. Serial No. 663,776. (No model.)



Claim.—1. A valve-casing member, as E, containing the expansion-orifice of a refrigerating system, and comprising a passage from the high-pressure side of the system to the said orifice and a short pipe member leading from said orifice, in combination with a heat-absorbing member of comparatively large area secured to the outside of the valve-casing member and adapted to prevent the formation of ice thereon.

2. A valve-casing member, as E, containing the expansion-orifice of a refrigerating system, and comprising a passage from the high-pressure side of the system to the said orifice, and a short pipe member leading from said orifice, in combination with a heat-absorbing member of comparatively large area secured about the said pipe member and closely adjacent to said orifice and adapted to prevent the formation of ice on the valve-casing member.

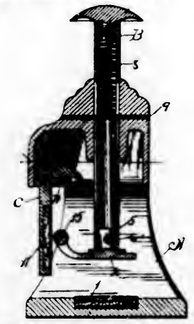
3. A valve-casing member, as E, containing the expansion-orifice of a refrigerating system and comprising a passage from the high-pressure side of the system to said orifice and a short pipe member leading from said orifice in combination with a collar of comparatively large area secured about the said pipe member in close proximity to said orifice and adapted to prevent the formation of ice on the outside of the said valve-casing member.

4. In a refrigerating system, the combination with an expansion-valve and its casing having a pipe member connecting the expansion-orifice of said valve to the refrigerating-coil, of an ice-guard for said valve, comprising a member of comparatively large area secured to the outside of the valve-casing adjacent to the valve, said member performing the double office of absorbing heat from the atmosphere and thereby prevent undue reduction of the temperature of the valve-casing, and of a barrier over which the ice accumulating on the pipe member must creep in order to reach that portion of the casing which intermediately surrounds the valve, substantially as described.

641,616. SELF-INKING STAMP. HENRY A. TREXTON, St. Thomas, N. D. Filed Mar. 6, 1899. Serial No. 707,902. (No model.)

Claim.—1. In a device of the class specified, the combination of a reciprocating plunger carrying the printing-form; an inking device at one side of the path of travel of the plunger; and means carried by the plunger and the inking device, which are adapted to become engaged by the retraction of the plunger, when the inking device is out of the path of travel thereof, and to move the inking device against the printing-form.

2. In a device of the class specified, the combination of a reciprocating plunger carrying the printing-form; means tending to hold the plunger normally in a retracted position; a swinging leaf or flap provided with an inking-pad and arranged to swing back and forth into, and out of the path of travel of the printing-form; means tending to hold the leaf or flap normally out of such path of travel, and cooperating engaging devices carried by the plunger and the leaf or flap, and adapted to cause the latter to swing into contact with the printing-form upon the retraction of the plunger.

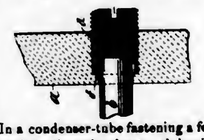


3. In a device of the class specified, the combination of a reciprocating plunger carrying the printing-form; a spring tending to hold the plunger in its retracted position; a swinging leaf or flap provided with an inking-pad and arranged to swing against the printing-form when the plunger is in such position; a spring tending to hold the leaf or flap normally away from the printing-form of the plunger; and cooperating engaging devices consisting of a laterally-extending arm on the swinging leaf or flap, and a projection such as the roller 15, carried by the plunger.

4. A device of the class specified comprising a base or standard providing a horizontal seat; a vertically-reciprocating hollow plunger confined within a guideway formed in an overhanging portion of the base or standard; a printing-die secured to the lower end of the plunger and constructed with a couple of projecting arms, which, in turn, carry a roller; a coil-spring confined within the plunger and adapted to maintain the same in its elevated position; a pin extending through the upper portion of the base or standard, and also through the plunger and working in slots, formed in the latter; a swinging leaf or flap pivotally suspended from an elevated portion of the base or standard at one side of the path of travel of the printing-form, and constructed with a laterally-exteoding arm, adapted to be engaged by the roller on the printing-die; and a spring tending to hold the leaf or flap in a lowered position.

5. In a device of the class specified, the combination of a reciprocating printing-die provided with a projection; an inking device pivotally suspended at one side of the path of travel of the die and provided with a laterally-extending arm adapted to be engaged by the projection on the die when the inking device is swung back out of the path of travel of the die, and to swing said inking device against said die, substantially as described.

641,617. FASTENING OF CONDENSER-TUBES. JOHN R. THORNYCROFT, London, England. Filed June 29, 1899. Serial No. 723,942. (No model.)



Claim.—1. In a condenser-tube fastening a ferrule provided with means for securing it to the tube-sheet and having its inner end slit or nicked as set forth.

2. In a condenser-tube fastening a ferrule provided with means for securing it to the tube-sheet and having its inner end slit or nicked and beveled at the inner edge as set forth.

3. In a condenser-tube fastening a ferrule externally screw-threaded and having its inner end slit or nicked as set forth.

4. In a condenser-tube fastening a ferrule externally screw-threaded and having its inner end slit or nicked and beveled at the inner edge as set forth.

5. In a condenser-tube fastening a ferrule screw-threaded externally, formed with an internal shoulder to bear against the tube end and having its inner end slit or nicked as set forth.

6. In a condenser-tube fastening a ferrule screw-threaded externally, formed with an internal shoulder to bear against the tube end and having its inner end slit or nicked and beveled at the inner edge as set forth.

7. In a tube-fastening device, the combination with the tube-plate having a perforation therethrough to receive the tube, of a flexible packing surrounding the tube, a ferrule for securing the tube in position said ferrule being provided with means for securing it to the tube-sheet, and means whereby an automatic lock is established between the packing and the ferrule when the ferrule is forced into position, substantially as described.

8. In a condenser the combination for fastening a tube end of the tube-plate of the condenser having a hole to receive said tube end, said hole being formed with a screw-threaded part of enlarged diameter and with a shoulder, packing surrounding the tube end in proximity to said shoulder and a ferrule externally screw-threaded, formed internally with a shoulder and having its inner end slit or nicked, said ferrule being screwed into said screw-threaded hole so as to surround the tube end, to bear with its shoulder against the end of the tube and to compress the packing between the inner end of the ferrule and the shoulder of the tube-plate so as to cause the said ferrule to lock itself in place as set forth.

9. In a condenser the combination for fastening a tube end of the tube-plate of the condenser having a hole to receive said tube end, said hole being formed with a screw-threaded part of enlarged diameter and with a shoulder, packing surrounding the tube end in proximity to said shoulder and a ferrule externally screw-threaded, formed internally with a shoulder and having its inner end slit or nicked and beveled at the inner edge, said ferrule being screwed into said screw-threaded hole so as to surround the tube end, to bear with its shoulder against the end of the tube and to compress the packing between the inner end of the ferrule and the shoulder of the tube-plate so as to cause the said ferrule to lock itself in place as set forth.

641,618. HOSIERY-SINGEING MACHINE. FRED WUNDERLY, Nazareth, Pa., assignor to Robert Meyer and William C. Foulds, Philadelphia, Pa. Filed Apr. 6, 1899. Serial No. 712,010. (No model.)



Claim.—1. In a singeing-machine, a pair of burners located in close proximity to each other and each provided with jet-openings arranged to produce an upward and a downward disposed flame, respectively, a feeding-table at one end of the machine and a receiving-table at the other end, and means for causing the article to be singed to travel from the feeding-table, between the burners, and to be delivered onto the receiving-table.

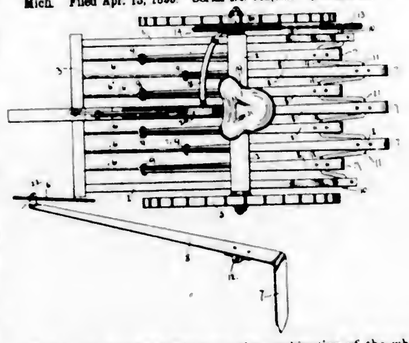
2. In a stocking-singeing machine, a pair of burners located in different planes and each having jet-openings therein arranged to direct their flames in an upward and a downward direction, respectively, a feeding-table at one end of the machine and a receiving-table at the other end, and feed-rollers arranged adjacent to the said burners and adapted to conduct the stockings to be singed, from the feeding-table, between the burners and deliver them onto the receiving-table.

3. In a stocking-singeing machine, the combination with the bed-frame, of a table arranged at each end thereof, two pairs of feed-rollers journaled in bearings on said bed-frame, a train of gears connecting said rollers to rotate them in unison, and a suitable burner or burners located intermediate the said feed-rollers, out of a line taken horizontally along the level of the said tables.

4. In a stocking-singeing machine, the combination with the bed-frame, of a table arranged at each end thereof, two pairs of feed-rollers journaled in bearings on said frame, a train of gears connecting said rollers to cause them to rotate in unison, and a pair of burner-tubes located intermediate the said feed-rollers, and each provided with jet-openings arranged to produce an upward and a downward flame, respectively, the parts cooperating, substantially as described.

5. In a stocking-singeing machine, the combination with the bed-flame, of a table arranged at each end thereof, a pair of lower feed-rollers, a pair of upper feed-rollers arranged above the said lower rollers, the adjacent peripheries of said rollers being on a level with the said tables, means for causing said rollers to rotate in unison, a main burner-tube supported by an extension on the said bed-frame and arranged between the feed-rollers on a line slightly below the level of the tables and a branch burner-tube arranged parallel with the said main tube, but slightly above the same and above the level of the tables, said burner-tubes being provided with jet-openings so disposed as to produce an upward and a downward flame, respectively, substantially as described.

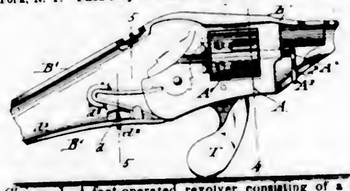
641,619. LAND-CULTIVATOR. JOHN E. ANDERSON, Alabaster, Mich. Filed Apr. 13, 1899. Serial No. 712,949. (No model.)



Claim.—1. In a land-cultivator, the combination of the wheels carrying the axle and the frame mounted upon the axle, the guide-rods arranged in series with their front ends secured to the front cross-piece of the frame and with their rear ends secured to the axle, a series of vertical blades arranged in rear of the axle and provided with arms extending forwardly beneath the axle and provided on their front ends with devices for attachment to and for sliding on the guide-rods, a shaft mounted on the rear portion of the frame and provided with a series of cranks each crank being journaled to the rear portion of one of said arms, a sprocket-wheel mounted upon the end of the crank-shaft, a sprocket-wheel mounted to turn with one of the wheels on the axle, and an endless chain mounted on the said sprocket-wheels, substantially as set forth.

2. In a land-cultivator the combination of the wheels carrying an axle, and a frame mounted on the axle, with a series of guide-rods having their forward ends secured to the front cross-piece of the frame and extending rearwardly to the axle, a series of vertical blades having their upper ends provided with forwardly-extending arms having their front ends arranged for sliding on said guide-rods, a shaft journaled upon the rear portion of said frame and provided with a series of cranks each of which is journaled to the rear portion of one of said arms and mechanism for revolving the shaft as the machine is drawn forward, substantially as set forth.

641,620. FOOT-OPERATED REVOLVER. JOSEPH ASTER, New York, N. Y. Filed May 24, 1899. Serial No. 717,986. (No model.)



Claim.—1. A foot-operated revolver, consisting of a casing, a stockless revolver in said casing, and a trigger extending below said casing and adapted to be actuated on pressing on the casing, substantially as set forth.

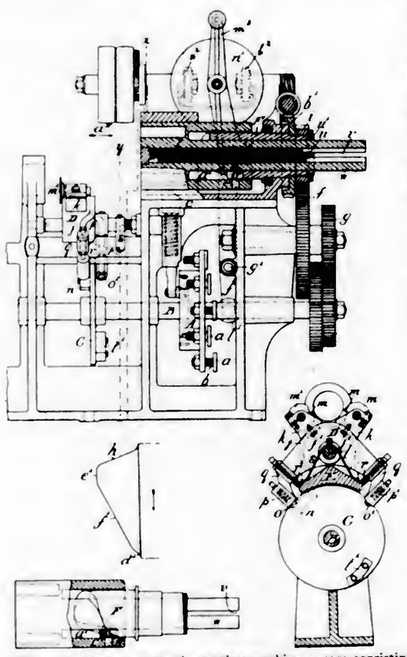
2. A foot-operated revolver, consisting of a casing formed of two hinged semisections, means for locking said semisections together, a stockless revolver in said casing and a forked trigger extending below the casing, and adapted to be actuated by depressing the same, substantially as set forth.

3. A foot-operated revolver, composed of a casing formed of two hinged semisections having an enlarged rear end, a revolver in said casing having a trigger-operated hammer, and a forked trigger, extending below the casing and forming the support for the front of the same, substantially as set forth.

4. A foot-operated revolver, composed of a metallic casing formed of two hinged semisections, having an opening at its front end, means for supporting said casing on the floor, a revolver in the front part of the casing, its barrel being in line with the opening in the end of the casing, a trigger projecting through a recess in the bottom of the casing, and a locking device for holding the sections together, substantially as set forth.

5. A foot-operated revolver, comprising a casing formed of hinged semisections provided with a front opening and an enlarged rear end, a revolver in the front portion of the casing, its barrel being in line with the front opening of the casing, and a trigger projecting through a bottom opening of the casing, means for locking the sections of the casing together, and means for locking the spindle of the cartridge-cylinder to said casing so as to permit its removal when the casing is opened, substantially as set forth.

641,621. AUTOMATIC TURNING-MACHINE FOR SHAPING OR SHAPING AND CUTTING OFF LENGTHS OF METAL. HERBERT AUSTIN, Birmingham, England. Filed Sept. 17, 1898. Serial No. 691,138. (No model.)



Claim.—1. In an automatic turning-machine, a cam consisting of a main, or disk portion adapted to be fixed to the shaft, and provided with a plurality of separate operating-heads secured to said main portion, each of said heads having a bearing-face and a shank parallel with the cam-axis and mounted adjustably in the said main portion, whereby the several faces of the operating-heads may be set at different distances from a plane at right angles to the cam-axis, in combination with variable-speed mechanism, through which the speed of the machine is automatically varied by the cam, substantially as set forth.

2. In an automatic turning-machine, a rotating cam consisting of a disk provided with a plurality of operating-heads secured to the lateral face of said disk, each of said heads having a bearing-face, and at its back a screw-shank which passes through the disk and is furnished with a nut, whereby the said heads may be set at different distances from a plane at right angles to the cam-axis, in combination with variable-speed mechanism through which the speed of the machine is automatically varied, substantially as set forth.

3. In an automatic turning-machine, the combination with a cam-shaft B, of an adjustable cam A, thereon, said cam comprising a main disk fixed on the shaft, a plurality of screw-shanks *b*, set concentrically in said disk parallel with the cam-axis, heads *a*, on said shanks, the intermediate lever *f''*, having a roller *l'*, to impinge upon the heads *a*, the slide *m'*, engaged by the upper end of said lever, and the disks *n'* of the speed-varying mechanism, carried by said slide, substantially as set forth.

4. In an automatic turning-machine, a capstan or turret head having a plurality of locking-recesses, a movable locking-pin for engagement with either of said recesses, a cam which holds said pin out of engagement, and means for continuously rotating said head when unlocked, substantially as set forth.

5. In an automatic turning-machine, a capstan or turret head having a plurality of locking-recesses, a movable locking-pin for engagement with either of said recesses, a cam which holds said pin out of engagement, means for continuously rotating said head when unlocked, and means for varying the speed of said cam relatively to that of the turret-head, substantially as set forth.

6. In an automatic turning-machine, means for varying the number of stops of the turret during each of its rotations, said means comprising a locking mechanism whereby the rotatory movement of the turret-head is intermittently arrested, a rotating shaft which operates said locking mechanism, and change-wheels between said rotating shaft and the axis of the turret.

7. In an automatic turning-machine, the combination with a rocking tool-carrier for sidewise cutting, of a striker mounted on said carrier and having behind it a cushion-spring, the said spring, and a rotating cam adapted to impinge upon the striker, and acting through it and its cushion-spring, to rock the tool-carrier, substantially as set forth.

8. In an automatic turning-machine, a rocking arm, for use in sidewise cutting, formed with a bearing-face for a tool holder or holders which constitutes a portion of a cylindrical surface concentric with the axis about which the arm turns, and a tool-holder having a bearing-face which forms a portion of an interior cylindrical surface, and means for adjustably fixing the holder upon the portion of the surface of the arm which constitutes a portion of a cylinder, in a manner which allows it to be adjusted in position circumferentially thereof, substantially as described.

9. In an automatic turning-machine, the combination with the rocking piece D, provided with a tool-holder *k*, mounted adjustably thereon, with an arm *q*, with a cushioned striker *o*, mounted in the said arm, with a spring S, and with an adjustable stop-pin *r*, of the rotating disk G, provided with a cam *n*, adapted to act on the striker *o* and rock the piece D, and a fixed part for the stop-pin to impinge upon, substantially as set forth.

10. In an automatic turning-machine, the combination with the capstan or turret head, of means for intermittently arresting the rotary motion of said head, a cam which rotates concentrically with said head, a stud on the said head, and means which keep said stud pressed forcibly but yieldingly up to the operative face of said cam, whereby when said turret-head is free to rotate it will be carried around by said cam, and when held against rotation, it will be moved forward by the cam, substantially as set forth.

11. In an automatic turning-machine, the combination with the capstan or turret head adapted for rotation and for endwise movement, of means for intermittently locking said head against rotary movement, a cam which rotates concentrically with said head, a stud on said head, and means which keep said stud pressed up forcibly but yieldingly against the face of said cam, the inclination of the face of said cam being too steep to overcome the yielding pressure of said stud when the head is free to rotate, substantially as and for the purposes set forth.

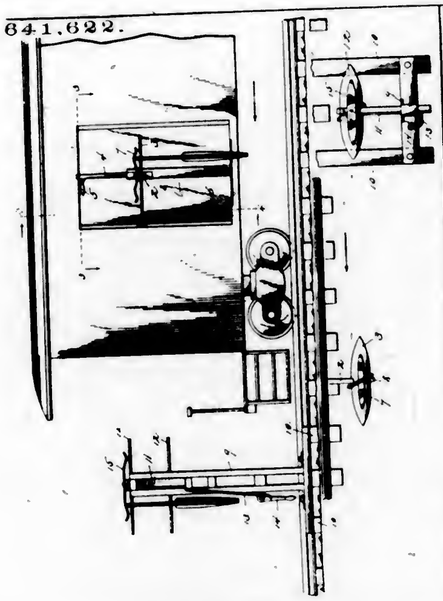
12. In an automatic turning-machine, the combination with means for varying the number of stops of the turret-head during each of its rotations, with change-wheels situated between the axis of said head and the axis of the shaft which controls those movements of the turning-machine which are required to be synchronous with the rotary movement of said turret-head, and with said controlling-shaft, of a cam which rotates concentrically with said head, a stud on the said head and means which keep said stud pressed forcibly but yieldingly up to the operative face of said cam, whereby when said head is free to rotate it will be carried around by said cam, and, when held against rotation, it will be moved forward by the cam, substantially as described.

13. In an automatic turning-machine, the combination with the cam-shaft B, the adjustable cam A thereon, the capstan-head, the sleeve-cam F, the wheel *b'* thereon, the roller b^3, which drives the wheel *b'*, and the driving-roller a^3, alined axially with the roller b^3, of the slide $m\times$, the lever *f''*, having one arm coupled operatively to the slide $m\times$ and the other arm adapted to be operated by the cam A, the arms m^3, m^3, pivotally attached to the slide $m\times$, the disks *n'*, *n'*, rotatively mounted on the respective arms m^3, and embracing the rollers a^3 and b^3, and elastic means connecting the upper ends of the said arms m^3, substantially as set forth.

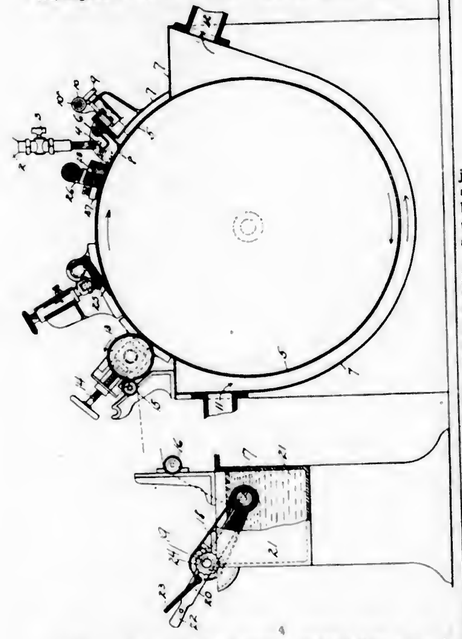
641,622. MAIL-BAG CATCHER AND DELIVERER. EDWIN G. BOOTH and JOHN P. SPANGLE, Hopewell Centre, N. Y. Filed Apr. 13, 1899. Serial No. 712,921. (No model.)

Claim.—In mail-bag catching and delivering apparatus, the combination of a mail-car having a passage through its side, a rigid or fixed pillar arranged in the passage, a holder attached to said pillar through horizontal pivots so as to swing in a vertical plane, a keeper attached to the holder, and an arm jointed to the holder so as to swing laterally when not in use, substantially as described.

641,622.



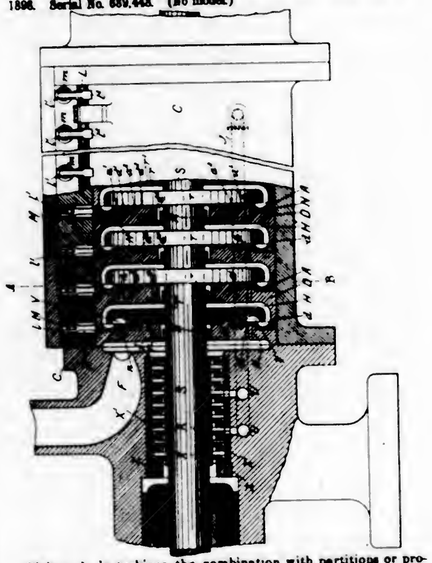
641,628. MACHINE FOR PRODUCING CELLULOSE FILMS FOR PHOTOGRAPHIC OR OTHER PURPOSES. JOHN C. CHORLEY, Warrington, England. Filed June 29, 1899. Serial No. 722,330. (No model.)



Claim.—1. A machine for producing cellulose films of any desired length consisting of a steam-heated cylinder to receive the viscose material, means for supplying said material and spreading it on the cylinder in regulated quantities, means for rotating the cylinder, a casing through which a current of hot air is drawn in the direction opposite to that in which the cylinder is rotating, means for stripping the film from the cylinder and for conducting it to a brine-tank, a brine-tank containing boiling brine and a batching-roller therein on which the film is wound up in a continuous sheet of any desired length, substantially as described.

2. A machine for producing cellulose films said machine consisting in its essential features of means for supplying viscose in regulated quantities and distributing the same evenly and uniformly on the surface of a slowly-rotating heated cylinder, means for drying the viscose film while still upon the cylinder and means for conducting the film away for subsequent treatment with brine, with a tank for holding the said brine, substantially as herein set forth.

641,624. TURBINE. WILLIAM H. CLARKE, Gateshead, and FREDERICK J. WARBURTON, Newcastle-upon-Tyne, England. Filed Aug. 24, 1898. Serial No. 689,443. (No model.)



Claim.—1. In turbines, the combination with partitions or projecting rings upon the casing of free floating rings having vertical and lateral annular flanges and fitting well but easy on the shaft and having a sliding movement and being free upon or in the said partitions or projecting rings and kept tight thereon by the steam-pressure on one of their transverse faces, substantially as described.

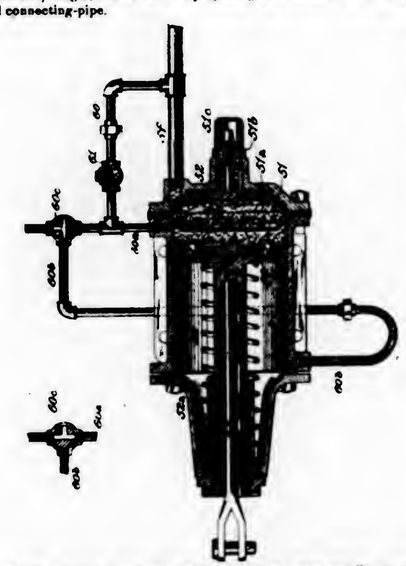
2. In turbines the combination with the series of partitions or projecting rings X' X' upon the casing of free floating rings X, X, having vertical and lateral annular flanges and fitting well but easy on the shaft and having a sliding movement and being free upon or in the said partitions or projecting rings, kept tight thereon by the steam-pressure on one of their transverse faces, substantially as set forth.

3. In turbines, the combination of a series of turbine wheels having symmetrical cells or vanes and a series of dividing partitions each having a double set of oppositely-inclined apertures, ports or nozzles for directing the operating fluid upon the turbine wheels and also having a movable slide disposed directly over the said apertures, nozzles or ports and provided with a double set of oppositely-inclined holes or ports, each set of the latter being adapted, on the proper operation of the slide, to form with the corresponding set of apertures, nozzles or ports in the partition, a set of nozzles or ports inclined in one or the opposite way, so that the direction in which the operating fluid issues to act upon the vanes or cells, and consequently the rotation of the shaft can be reversed, substantially as set forth.

4. In turbines, the combination of partitions D, D, each having apertures, ports or nozzles N, N', and a slide A having holes or ports *n*, *n'* and being connected to parts *l*, *l*, *p*, *p*; chambers M, M, a shaft L and a reversing-lever G, all arranged and adapted to operate, substantially as and for the purposes herein set forth.

641,625. HYDRAULIC BRAKE. FRANCIS L. CLARK, Pittsburg, Pa. Filed June 3, 1899. Serial No. 719,050. (No model.)

Claim.—1. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a flexible diaphragm fixed peripherally thereto at one of its ends, a fluid-supply pipe leading to the outer side of said diaphragm, a piston fitted to traverse in the cylinder on the inner side of said diaphragm, a piston-rod fixed to said piston and having its outer end adapted for connection with a brake-lever, a retracting-spring bearing on the piston, a connecting-pipe leading from the fluid-supply pipe into the cylinder, on the inner side of the diaphragm, and an inwardly-opening check-valve controlling said connecting-pipe.



2. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a piston fitted to traverse therein, a piston-rod fixed to said piston and having its outer end adapted for connection with a brake-lever, a retracting-spring bearing on the piston, a flexible diaphragm fixed peripherally to the brake-cylinder on the opposite side of the piston from the retracting-spring, a perforated stop-plate fixed in the cylinder between the diaphragm and piston, a fluid-supply pipe leading into the cylinder on the outer side of the diaphragm, a connecting-pipe leading from the fluid-supply pipe into the cylinder, on the inner side of the diaphragm, and an inwardly-opening check-valve controlling said connecting-pipe.

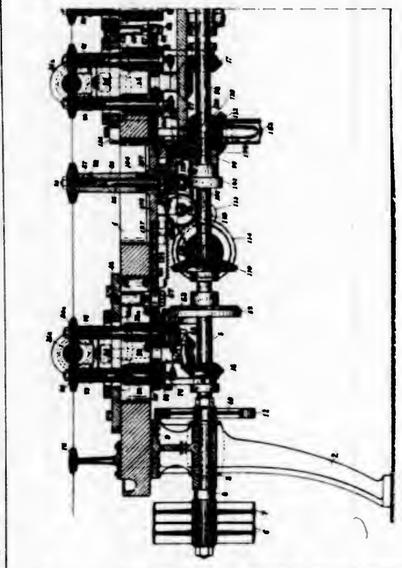
3. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a piston fitted to traverse therein, a piston-rod fixed to said piston and having its outer end adapted for connection with a brake-lever, a retracting-spring bearing on the piston, a flexible diaphragm extending across the cylinder on the opposite side of the piston from the retracting-spring, a perforated stop-plate located between the diaphragm and piston, a cylinder-head by which the diaphragm and stop-plate are connected peripherally to the cylinder, a check-plate connected to the cylinder-head and adjustable toward and from the diaphragm, a fluid-supply pipe leading into the cylinder on the outer side of the diaphragm, a connecting-pipe leading from the fluid-supply pipe into the cylinder, on the inner side of the diaphragm, and an inwardly-opening check-valve controlling said connecting-pipe.

4. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a flexible diaphragm fixed peripherally thereto at one of its ends, a fluid-supply pipe leading to the outer side of said diaphragm, a piston fitted to traverse in the cylinder on the inner side of said diaphragm, a piston-rod fixed to said piston and having its outer end adapted for connection with a brake-lever, a retracting-spring bearing on the piston, a connecting-pipe leading from the fluid-supply pipe into the cylinder, on the inner side of the diaphragm, an inwardly-opening check-valve controlling said connecting-pipe, and a valve-controlled release-pipe leading from the cylinder, on the inner side of the piston to a point of discharge.

5. In a brake apparatus, the combination, substantially as set forth, of a brake-cylinder, a flexible diaphragm fixed peripherally thereto at one of its ends, a fluid-supply pipe leading to the outer side of said diaphragm, a piston fitted to traverse in the cylinder on the inner side of said diaphragm, a piston-rod fixed to said piston and having its outer end adapted for connection with a brake-lever, a retracting-spring bearing on the piston, a connecting-pipe leading from the fluid-supply pipe into the cylinder, on the inner side of the diaphragm, an inwardly-opening check-valve controlling said connecting-pipe, a release-pipe connected with the cylinder end of the connecting-pipe, a leakage-discharge pipe leading from the cylinder, on the outer side of the piston, to the release-pipe, and a cock controlling communication between said pipe and the release-pipe, and between the connecting-pipe and the release-pipe.

641,626. WITHDRAWN.

641,627. MACHINE FOR MANUFACTURING SEWING-NEEDLES. EDOUARD HEUSCH, Paris, France. Filed May 26, 1898. Serial No. 681,826. (No model.)



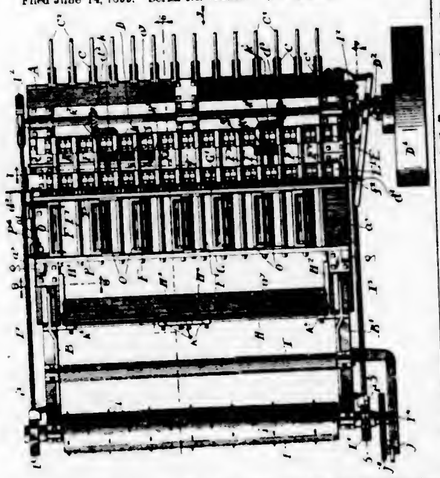
Claim.—1. A machine for manufacturing sewing-needles comprising in combination with a set of milling-cutters 31 and 31^a adapted to finish the grooves on the needle-shafts completely and the eyes of the needles in part, brackets wherein the adjustable spindles carrying said cutters are journaled; adjustable dovetailed intermediate pieces, whereon said brackets are mounted, containing devices adapted to adjust the cutters when wear takes place; rotating profiled disks influencing the cutters so as to mill the desired depressions into the needle-shaft means for rotating said profiled disks, a pierced dovetailed slide 43 moving lengthwise of the table and at right angles to the axis of the cutters, means to advance and means to return said slide, tongs to hold the wire during the milling operation and means for locking and unlocking said tongs at the precise moment substantially as described and illustrated.

2. A machine for manufacturing sewing-needles, comprising in combination with two sets of milling-cutters consisting of the cutters 31^b, 31^c, 31^d and 31^e of which 31^b and 31^c as well as 31^d and 31^e are offset equal to the distance from center to center of two adjacent needle-eyes and the two sets of cutters separated by two lengths of a needle, adapted to finish and polish the eyes of the needles, brackets wherein the adjustable spindles carrying the said cutters are journaled; adjustable dovetailed intermediate pieces whereon said brackets are mounted, containing devices adapted to adjust the cutters when wear takes place; rotating profiled disks influencing the cutters so as to remove the partitions left standing after the first milling operation and to finish the eyes of the needles, means for rotating said profiled disks, a pierced dovetailed slide 62 moving lengthwise of the table and at right angles to the axis of the cutters, means for advancing and means for returning said slide, tongs for holding the wire during the second milling operation, and means for locking and unlocking said tongs at the precise moment, substantially as described and illustrated.

3. A machine for manufacturing sewing-needles, comprising in combination with sets of milling-cutters adapted to mill the eyes of needles; brackets wherein the adjustable spindles, carrying said cutters, are journaled; adjustable dovetailed intermediate pieces, whereon said brackets are mounted, containing devices adapted to adjust said cutters when wear takes place; rotating profiled disks to influence said cutters, means for rotating said disks, slides adapted to move lengthwise of the table, means for advancing and means for returning said slides, tongs to hold the wire during the milling operation, means for locking and unlocking said tongs at the precise moment, tongs whose head consists of halves with hook-shaped extensions supporting the wire close to the disk cutters 154 and 155, disk cutters driven by means of universal joints and journaled in slides capable of being made to approach and separate from each other, an oscillating face-plate containing the mechanism causing the approach of said slides and the cutters mounted thereon, means for forcing said parts asunder, means for actuating said oscillating face-plate and means for driving said universal joints, substantially as described and illustrated.

4. A machine for manufacturing sewing-needles, comprising in combination with sets of milling-cutters adapted to mill and polish the eyes of needles; brackets wherein the adjustable spindles, carrying said cutters, are journaled; adjustable dovetailed intermediate pieces, whereon said brackets are mounted, containing devices adapted to adjust said cutters when wear takes places; rotating profiled disks to influence said cutters, means for rotating said disks, slides adapted to move lengthwise of the table, means for advancing and means for returning said slides, tongs to hold the wire during the milling operations, means for locking and unlocking said tongs at the precise moment, a pair of coupled tongs adapted to take hold of the wire at fixed intervals, carry it forward, release their hold on the wire and return to their starting-point; means for causing these motions comprising a shaft 111 receiving its motion by means of angle-wheels from the shaft 5, wheels mounted on shaft 111 imparting motion to the wheels on shaft 116, a pinion keyed to the shaft 116 and meshing with a rack secured to a dovetailed slide 123, a two-armed bracket 124 containing in its two arms spring-actuated plungers adapted to insure a gentle transmission of motion to the tongue 127 secured to the dovetailed slide 109 upon which the tongs 85 is mounted, a disk provided with a curvilinear slot adapted to influence one end of the lever 137 at certain intervals in such a manner so as to cause the other end encompassing a clutch on shaft 116 to engage the wheels loosely mounted thereon alternately; means for rotating the central shaft carrying the cams for unlocking said coupled tongs and means for preventing the wheel 192 to take part in the back-and-forward motion of said shaft, substantially as described and illustrated.

641,628. **MACHINE FOR MAKING FENCE-WIRE.** FREDERICK W. HOEFER, AUGUST G. HOEFER, and EMIL A. HOEFER, Freeport, Ill. Filed June 14, 1899. Serial No. 720,455. (No model.)



Claim.—1. In a machine of the class described, the combination with the frame, a series of rotating twisting-spindles, a series of overlapping notched shuttle-carrying disks upon said spindles near the delivery end thereof and a supporting-plate carried by the frame having a series of overlapping circular openings fitted to the said disks whereby the delivery ends of the twisting-spindles are supported by the said plate; substantially as described.

2. In a machine of the class described, the combination with a series of twisting-spindles provided with notched shuttle-carrying disks, of a series of shuttles having a pair of gudgeons at each end adapted to enter said notches, one of said gudgeons being perforated to permit of the passage of the wire and a series of bobbins suitably supported in the shuttles; substantially as described.

3. In a machine of the class described, a lateral stretching device, consisting of an oscillating dog containing a zigzag slot through which the transverse wires may travel; substantially as described.

4. In a machine of the class described, an oscillating dog bearing overhanging portions provided with teeth or points arranged to form a zigzag slot whereby a longitudinal strand may be held between the body of the dog and the overhanging points while the oscillation of the dog permits the transverse strands to pass through the zigzag slot; substantially as described.

5. In a machine of the class described, a straightening or tension device consisting of a channeled standard bearing grooved friction plates held against longitudinal movement in the standard and a spring-pressed lever bearing upon said friction-plates to hold them together; substantially as described.

6. In a machine of the class described, the combination with a positive-feed device, of a winding-drum and shaft for said drum bearing a loose pulley positively geared to the driving mechanism, friction devices fast upon the shaft and bearing upon the pulley, a spring crowding the friction devices toward the pulley and means for adjusting said spring; substantially as described.

7. In a machine of the class described, the combination with a series of spindles geared together so that the alternate ones rotate in the same direction, disks, M, M', N, N', mounted upon said spindles and a series of shuttles arranged in pairs upon the alternate pairs of disks, of a series of switch-points adapted to engage said shuttles and shift them from one set of disks to the other, bars supporting said switch-points and suitable mechanism interposed between said bars and the spindles adapted to reciprocate the switch-points at the proper times to shift the shuttles; substantially as described.

8. In a machine of the class described, the combination with the hollow spindles, F, F', geared together and provided with suitable means for their rotation in unison, the alternate ones of which move in the same direction, and shuttles arranged in pairs and adapted to rotate with the alternate spindles, of switch-points, p, p', p^3, p^4, adapted to engage said carriages, switch-bars, P, P', P³, P⁴, carrying said switch-points, an arm, P⁵, connected to said bars, a pitman, R, adapted to oscillate said arm, a cam for reciprocating the pitman at suitable intervals and suitable gearing between said cam and the spindles adapted at the proper times to actuate said cam; substantially as described.

9. In a machine of the class described, two plates, G, G', formed with circular overlapping openings, g^3, g^4, in their faces, a series of suitably-supported disks rotating in said openings and formed with notches in their peripheries, said disks being geared so that the adjacent ones rotate in opposite directions and the alternate ones in the same direction and shuttles having gudgeons adapted to rest in said notches and be carried by the disks; substantially as described.

10. In a machine of the class described, the combination with a series of rotatable disks formed with notches in their peripheries, the notches in the adjacent disks being adapted to register with each other as they pass by the center line of the disks, shuttles having suitable gudgeons adapted to rest in said notches, plates, G, G', formed with the overlapping openings, g^3, g^4, embracing said disks and forming a track for the gudgeons, suitably supported and reciprocated switch-points adapted to engage said gudgeons on either side and switch the shuttles from one set of disks to the other at suitable intervals; substantially as described.

11. In a machine of the class described, a shuttle therefor, having the arms, o^3, o^4, gudgeons, o, o', o^3, o^4, extending from said arms, one of said gudgeons being hollow to permit the wire to pass through the same; substantially as described.

12. A shuttle for fence-wire machines having two transversely-extending arms, o^3, o^4, gudgeons, o, o', o^3, o^4, extending from said arms, one of said gudgeons being hollow to permit the wire to pass through the same, a pin, o^5, extending from the inside of the arm, o^4, a socket, o^6, in the inner end of the pin, o in the arm, o^3, a bobbin, O', having one end journaled upon the pin, o^5, and a spring-pressed bolt, o^6, in said bobbin adapted to be seated in the socket, o^6, in the arm, o^3; substantially as described.

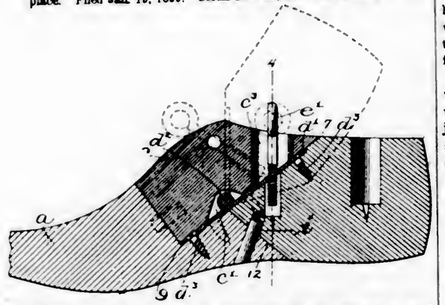
13. In a fence-wire machine, the combination with suitable devices for weaving fence-wire having longitudinal and transverse strands, of means for winding up said wire, and oscillating dogs arranged between the weaving devices and the winding devices having fingers pointing toward each other, the adjacent fingers being adapted to engage the outside longitudinal strand upon both sides of a transverse strand, whereby the oscillation of the dogs may permit the transverse wire to pass successively past said points; substantially as described.

14. In a fence-wire machine, a dog arranged adjacent to the devices for weaving the fence-wire and comprising substantially a vertically-extending plate formed with flanges along its upper and lower margin, suitably-separated fingers, h^3, h^4, h^5, extending from said flanges and adapted to engage the end strand of the fence, said fingers being formed with inclined faces whereby the transversely-extending strands of the fence may ride up or down said inclined faces and between the fingers without disengaging the longitudinal strands from said fingers; substantially as described.

15. In a fence-wire machine, the combination with a suitably-driven shaft, of a series of devices for weaving transverse and longitudinal strands of fence-wire, a feed-roller adapted to feed said fence-wire at suitable predetermined intervals, a suitably-journaled shaft supporting said feed-roller, a ratchet-wheel mounted upon said shaft, a pawl engaging said shaft, an eccentric mounted upon the main driving-shaft and a connecting-rod between said pawl and eccentric whereby said feed-roller may be actuated at the proper time; substantially as described.

16. In a fence-wire machine, a drum for winding up the completed fence-wire, a shaft carrying said drum and journaled in suitable bearings, disks keyed to said shaft, a hand-wheel threaded upon the shaft, a coiled spring interposed between the hand-wheel and one of said disks, a sprocket-wheel having a web confined between said disks and suitable gearing between said sprocket-wheel and the driving mechanism of the machine; substantially as described.

641,629. **HINGED LAST.** FRANK L. HOVEY, Brockton, Mass., assignor of one-half to Frederick A. Hoyt and Daniel B. Tibbetts, same place. Filed Jan. 19, 1899. Serial No. 702,623. (No model.)



Claim.—1. A three-part last comprising a toe portion, a heel portion, hinged thereto, a locking-block overlapping the said toe and heel portions, and a fastening device adapted to adjustably force said block toward the toe end of the last and against the heel portion whereby the three members are all locked rigidly together.

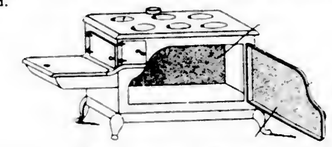
2. A three-part last comprising a toe portion, and a heel portion having faces in the same plane, said toe portion having a second face at an angle to the first-mentioned face, a flat hinge having leaves secured to said first-mentioned faces, a block adapted to engage the faces in the said toe and heel portions, and having a slot and a fastening-screw arranged at an acute angle to said first-mentioned faces and passing through the slot in the block for forcing said block toward the toe of the last and for rigidly securing said block and said toe and heel portions together.

3. A last divided by three cuts or planes of division 6, 10 and 12 into a toe portion a, a heel portion b, and a block c, said last having a hinge connecting the toe and heel portions together at the intersection of sections 6 and 12, and means for rigidly securing said parts together, said means including a screw passed through an elongated slot in said block and through a threaded aperture in the hinge, whereby said block may be forced toward the toe of the last or removed without detaching the screw.

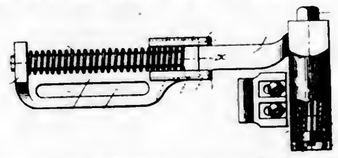
641,630. **RADIANT OVEN FOR COOKING-STOVES.** FREDERICK W. KIDD, Detroit, Mich., assignor to the Michigan Stove Company, same place. Filed Apr. 7, 1898. Serial No. 676,841. (No model.)

Claim.—1. An oven heated from without having relatively cool sides lined with relatively strong reflecting-surfaces, substantially as described.

2. An oven heated from without having its heat-transmitting walls lined with relatively strong radiating-surfaces and its other walls lined with relatively strong reflecting-surfaces, substantially as described.



641,631. **LOOM-TEMPLE.** NICHOLAS I. ALLEN, Everett, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed July 21, 1899. Serial No. 724,602. (No model.)

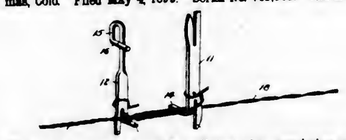


Claim.—1. In a loom-temple, a temple-head having a shank provided with lateral projections, a stand having parallel undercut guideways open at their rear ends to receive said projections, stops at the front ends of said guideways, and a transverse ear at the inner end of the stand, apertured to receive the shank.

2. In a loom-temple, a stand having a shank-guide at its outer end, provided with undercut, parallel ways, a transverse ear at its inner end having an aperture with a rearwardly and downwardly beveled bottom, and a temple-head provided with a shank, the latter having lateral projections normally retained in place by the parallel ways of said guide and by the apertured ear, the beveled bottom of the latter permitting the shank to be tipped to withdraw the shank from or to insert it in its guide on the stand.

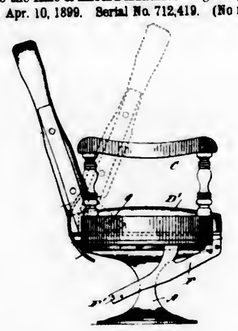
3. In a loom-temple, a temple-head having a shank provided with lateral projections, a stand having parallel upturned ears provided on their inner faces with undercut grooves to receive said projections, an apertured, transverse ear on the stand, to receive the shank, and stops at the rear ends of the parallel ears, to engage the projections on the shank and maintain the temple-head retracted.

641,632. **WIRE-SPLICING TOOL.** HORATIO C. ARNOLD, Las Animas, Colo. Filed May 4, 1899. Serial No. 715,565. (No model.)



Claim.—A wrapping-tool for splicing wire, consisting of a shank having one end bent parallel to the shank and then bent at right angles to itself and its other end provided with separated fingers, one of which is bent at right angles to its length.

641,633. **CAR-SEAT.** FREDERICK BENNETT, New York, N. Y., assignor to the Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Filed Apr. 10, 1899. Serial No. 712,419. (No model.)



Claim.—1. A car-seat, comprising a fixed base or support, a seat carried thereby and turning on a vertical pivot, the back of said seat being hinged to its base to swing forward from its normal position, and a locking-arm rigidly secured to the back at the rear of its pivot and normally engaging the support to prevent turning of the seat and releasable therefrom by the forward swinging of the back, substantially as described.

2. A car-seat, comprising a fixed base or support, a seat carried thereby and turning on a vertical pivot, said seat having a back hinged thereto to swing forward from its normal position, the pivots of said hinges being carried forward from the line of the back, and a locking-arm rigidly secured to the back at the rear of its pivot and adapted to engage the seat-support to prevent turning thereon when the back is in its normal or rearward position and freed therefrom when the back swings forward, substantially as described.

3. A car-seat mounted to turn upon a central vertical pivot, a back having arms projecting forward from each outer lower corner and pivoted by their forward ends to the revolving-seat support, substantially as described.

4. A car-seat mounted to turn upon a central vertical pivot, and a back having arms projecting forward from each lower corner and pivoted by their forward ends to the revolving seat, the rearward portion of said arms resting upon the ends of the seat when the back is in its normal position, substantially as described.

5. A seat comprising a fixed support, a base having locking-notches therein, a seat pivoted to turn upon said base, a back hinged to the seat to swing forward, and an arm extending from the back and rigidly secured thereto, forming in effect an integral part thereof, and adapted to engage the notches in the base when the back is in its normal position and to be swung laterally to clear the notches when the back is swung forward, substantially as described.

6. A seat comprising a fixed base or support having a seat-pivot and locking-notches, a seat mounted to turn upon said pivot, a back pivoted upon the seat to swing forward, an arm depending from the back and having a constant frictional engagement with the rear edge of the seat, said arm being adapted to enter the locking-notches in the base to lock the seat.

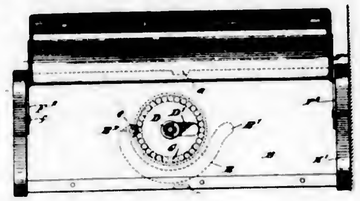
7. A seat comprising a base or fixed support having a seat-pivot and locking-notches, a seat mounted to turn upon said pivot and having a complementary locking-notch, a back pivoted upon the seat to swing forward, a locking-arm depending from the back and having a constant frictional contact with the notch in the seat, said arm being adapted to enter the locking-notches in the seat base or support when the back is swung backward, and to rest with its end upon said base to support the back in its forward position, during turning.

8. A seat, comprising a fixed support or base having locking-notches therein, a seat pivoted to turn upon said base, a back having arms projecting forward from each outer lower corner and pivoted by their forward ends to the revolving seat, and an arm upon the back adapted to engage the notches in the base when the back is in its normal position and to be freed therefrom when the back is swung forward, substantially as described.

9. A car-seat, comprising a fixed base or standard having a vertical pivot and an arm extending therefrom to one side a separate seat-arm carried by said arm, a seat mounted to turn on said pivot, arms projecting downwardly and rearwardly from the forward edge of the seat, and a foot-rest supported on said arms and extending beneath the rear edge of the seat, substantially as described.

10. A car-seat, comprising a fixed base or standard having a vertical pivot, and an arm extending to one side a separate seat-arm carried by said arm, a seat mounted to turn on said pivot, and a foot-rest extending beneath the rear edge of the seat and supported therefrom, substantially as described.

641,634. CAR-SEAT. FREDERICK BENNETT, New York, N. Y., assignor to the Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Filed Apr. 10, 1899. Serial No. 712,420. (No model.)



Claim.—1. A car-seat comprising a fixed base having a pivot projecting upwardly therefrom, a seat having a longitudinal slot receiving said pivot, one of said elements having a cam-slot and the other a pin entering said slot, whereby the seat is moved longitudinally and returned at the beginning and end of the turning movement, a back hinged to the seat inward from its edge and having a downwardly-projecting arm having constant frictional contact with the seat, and acting as a check or brake to prevent the back from dropping with a jar, and the base having notches engageable by said arm to lock the seat in opposite positions, the base engaging the end of the locking-arm to support the seat in its forward position while turning.

2. A car-seat, comprising a fixed base or support having a seat-pivot and locking-notches, a seat mounted to turn upon said pivot, means actuated by the turning of the seat for giving the seat an outward or longitudinal movement during the first of the turning movement, and a return longitudinal movement during the last of the turning movement, a back pivoted upon the seat to swing forward, an arm depending from the back and having a constant frictional engagement with the rear edge of the seat, said arm being adapted to enter the locking-notches on the base to lock the seat when the back is in its normal position, substantially as described.

3. A seat, comprising a base or fixed support having a seat-pivot and locking-notches, a seat mounted to turn upon said pivot and having a complementary locking-notch, means actuated by the turning of the seat for giving the seat an outward or longitudinal movement during the first of the turning movement, and a return longitudinal movement during the last of the turning movement, a back pivoted upon the seat to swing forward, a locking-arm depending from the back and having a constant frictional contact with the notch in the seat, said arm being adapted to enter the locking-notches in the said base or support when the back is swung backward and to rest with its end upon said base to support the back in its forward position during turning, substantially as described.

4. A car-seat, comprising a fixed base, having a fixed pivot projecting upwardly therefrom, a seat having a longitudinal slot receiving said pivot, one of said elements having a substantially semicircular slot one end of which turns inward toward the center and the other turns outward away from the center, and the other a pin entering said slot, whereby the seat is moved longitudinally and returned at the beginning and end of the turning movement, substantially as described.

5. A car-seat, comprising a fixed base having a fixed pivot outside of the normal center of the seat, a seat having a centrally-located longitudinal slot receiving said pivot, the base having a half-circle slot concentric with said pivot except at its ends which curve toward the longer end of the base, and a pin or cam-roller carried by the seat and entering said curved slot, substantially as described.

6. A car-seat, comprising a fixed support or base, a seat, a vertical pivotal connection between seat and support adapted to permit the seat to have a limited movement in the direction of its length, the base and seat having one a semicircular slot one end of which turns toward the center and the other away from the center, and the other having a pin fitting said slot whereby the seat is given a movement longitudinal of its normal position at the beginning of the turning movement, and a return longitudinal movement at the end of said turning movement, and means for locking the seat in either position, substantially as described.

7. A car-seat mounted to turn upon a vertical pivot, means actuated by the turning of the seat for giving the seat an outward or longitudinal movement during the first of the turning movement, and a return longitudinal movement during the last of the turning movement, a back hinged to the base to swing forward, a seat and base locking device freed by swinging the back forward, and a friction device between the back and seat checking its backward drop, substantially as described.

8. A car-seat, comprising a fixed base having a pivot projecting upwardly therefrom, a seat having a longitudinal slot receiving said pivot, one of said elements containing a semicircular cam-slot having one end turned inward and the other outward and the other a pin entering said slot, whereby the seat is moved longitudinally and returned at the beginning and end of the turning movement, a back hinged to the seat inward from its edge and having a downwardly-projecting arm, and the base having notches engageable by said arm to lock the seat, said arm being freed from the base when the back is swung forward, substantially as described.

9. A car-seat mounted to turn upon a base having a vertical pivot, means for giving it a movement longitudinal of its normal position at the beginning of the turning movement and for giving it a return longitudinal movement at the end of said turning movement, a back hinged to the seat by pivots which are offset forwardly and an arm carried by the back and adapted to engage the base to lock the two together when the back is in its normal position and to be freed therefrom when the back is swung forward, substantially as described.

641,685. KEY FOR TYPE-WRITERS. FRANK C. BOYNTON, Springfield, Mass. Filed Apr. 21, 1899. Serial No. 713,910. (No model.)



Claim.—1. A type-writer or similar machine key having its body composed of two disks of elastic material as described, a loop or staple having its ends extending through one of the disks and turned in under the other, and a covering-cup of plastic material inclosing the label, all substantially as described.

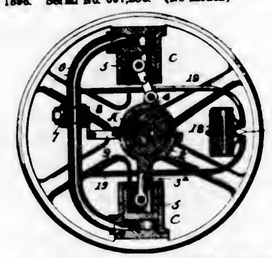
2. In a type-writer or similar key, a flat disk, a concave disk, and a covering-cup, and a label inclosed in the cup, the inclosed disk in the cup having a concave face, to give an elastic surface, substantially as described.

3. A type-writer-key cap composed of flexible transparent material, said cap being in cup form having a disk which rounds into the hollow cylindrical extension, said extension capable of inclosing the sides of a type-writer key and turning under the same, substantially as described.

4. The type-writer-key cap consisting of an integral cup of translucent flexible material as described, said cup having a flexible label permanently attached to the inner surface of the disk portion.

5. The celluloid key-cap as described, being an integral celluloid cup with a label inside of and visible through the disk portion, substantially as described.

641,686. FLUID-CLUTCH. FRANK BURBER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed Nov. 23, 1898. Serial No. 697,256. (No model.)



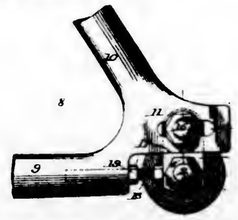
Claim.—1. In a clutch, the combination with normally-disconnected driving and driven members, of two cylinders carried by the driven member, a pipe connecting the cylinders, an eccentric carried by the driving member and movable therewith, a strap surrounding the eccentric, pistons in the cylinders, rods connecting the pistons to the strap, a valve in the pipe connecting the cylinders, means to operate the valve, a reservoir for containing fluid, two pipes leading from said reservoir to the connecting-pipe, one on each side of the valve, and suction-valves between the connecting-pipe and reservoir, substantially as and for the purpose specified.

2. In a clutch, the combination with normally-disconnected driving and driven members, of an eccentric loosely mounted on the driving member, and provided with an extension having a clutch member, a sliding sleeve mounted on the driving member to turn therewith and provided with a clutch member to engage the member on the eccentric, means to move the sliding sleeve, cylinders carried by the driven member and communicating with each other, pistons in the cylinders, a strap on the eccentric, connecting-rods between the strap and the pistons, a valve controlling the communication between the cylinders, and a connection between the sliding sleeve and the valve to operate the latter on the movement of the former, substantially as and for the purpose specified.

641,687. BICYCLE. DANIEL W. CASWELL, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Dec. 7, 1897. Serial No. 661,024. (No model.)

Claim.—1. In a bicycle, a frame, an adjustable removable hanger on each side thereof for carrying the rear wheel, said hanger being provided with flat ends lying in different but parallel planes and having a shoulder adapted to fit against the lower edge of a plate of the frame, combined with an adjusting device bearing against each hanger substantially in line with the axle, as set forth.

2. In a bicycle, a rear-fork end, a removable hanger on each side adapted to carry the rear wheel, said hanger being provided with flat ends lying in different but parallel planes and having a shoulder adapted to rest against the lower edge of a part of the rear-fork end, combined with a device for adjusting the hanger with relation to said rear-fork end, said device bearing against such hanger substantially in line with the axle, as set forth.

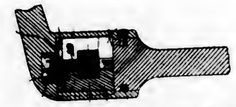


3. In a bicycle, a slotted rear-fork end, and a hanger having a shoulder adapted to bear against one side and the lower edge of a part of said rear-fork end, combined with an adjusting device connected to said part of the rear-fork end and bearing against the hanger substantially in line with the axle, as set forth.

4. In a bicycle, slotted rear-fork ends, a hanger secured to each rear-fork end by means of a bolt passing through the slot, each hanger having a shoulder adapted to fit against its fork end, and an axle supported by the hangers, combined with an adjusting device between each fork end and the hanger attached thereto, and adapted to bear against such hanger substantially in line with the axle, as set forth.

5. In a bicycle, the combination, with flattened rear-fork ends having each a substantially horizontal slot formed therethrough, of hangers bolted to and horizontally adjustable on the slotted rear-fork ends, said hangers having each a flattened side and a shoulder arranged to bear against one side and the lower edge of its rear-fork end, a fastening device for each hanger, an axle bolted to the hangers, and an adjusting device bearing against each hanger, substantially in line with the axle, substantially as set forth.

641,688. CAR-BRAKE-OPERATING DEVICE. EDWARD C. COLLINS, Taunton, Mass. Filed Aug. 3, 1899. Serial No. 726,000. (No model.)



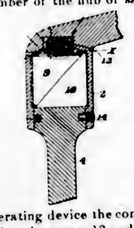
Claim.—1. In a car-brake-operating device the combination of a brake-shaft having a longitudinal slot cut diametrically through its upper end; a binding-ring embracing the extreme end of the slotted portion of said shaft, to tie the two prongs thereof together; a brake-handle provided with a chambered hub to embrace the upper end of said shaft and revoluble thereon; a series of ratchet-teeth formed in the wall of said chamber; a pair of radially-movable pawls fitted to said slot from opposite sides of said shaft and having a combined width, at their ends, substantially equal to the diameter of said shaft; and a spring interposed between said pawls and operating to move both of said pawls outward or away from each other to cause them to be alternately engaged by said ratchet-teeth.

2. In a car-brake-operating device the combination of a brake-shaft having a longitudinal slot cut through its upper end; a binding-ring embracing the extreme end of the slotted portion of said shaft to tie the two prongs thereof together; a pair of pawls fitted to said slot from opposite sides of said shaft; a spring interposed between said pawls and acting to force them outward or away from each other; a brake-handle having a chambered hub fitted to and inclosing the upper end of said shaft, and said pawls; a series of ratchet-teeth formed in the wall of said chamber, and extending longitudinally thereof and adapted to engage said pawls; and means for preventing movement of said handle endwise of said shaft.

641,689. BRAKE-HANDLE. EDWARD C. COLLINS, Taunton, Mass. Filed Dec 2, 1899. Serial No. 738,948. (No model.)

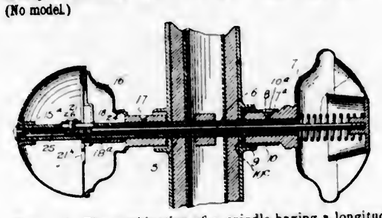
Claim.—1. In a brake-handle for cars the combination of a handle having a chambered hub to inclose the upper end of the brake-shaft; a series of ratchet-teeth formed in the inner perimeter of said chambered hub; a brake-shaft having a slot cut diametrically through it at or near its upper end; a pair of triangular sliding pawls fitted

in said slot with their outer edges parallel to each other and adapted to be moved laterally in opposite directions in said slot by pressure being applied to the upper end of one of said pawls; and a spring interposed between the upper end of one of said pawls and the closed upper end of the chamber of the hub of said handle.



2. In a brake-operating device the combination of a handle provided with a hub having the recess 13 and a larger chamber; a series of ratchet-teeth formed in and extending longitudinally of said chamber; a brake-shaft having a slot cut diametrically through it at or near its upper end, and having a cylindrical recess formed in its upper end concentric with its axis, and having its upper end reduced to fit the recess 13 in said hub; a pair of triangular sliding pawls fitted to said slot with their outer edges parallel and their oblique edges abutting against each other; and the spring 12 inserted in the recess 11 and bearing at one end upon one of said pawls and at the other against the closed upper end of the recess 13.

641,640. BELL DOOR-KNOB. JAMES I. FLINT, Denver, Colo., assignor to Benjamin F. Flowers, Edward H. Kinnaman, and Thomas C. Ramey, Fort Collins, Colo. Filed May 17, 1899. Serial No. 717,224. (No model.)



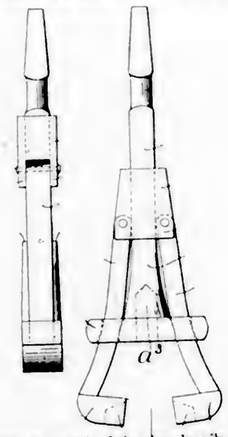
Claim.—1. The combination of a spindle having a longitudinal opening, knobs attached to the respective extremities of said spindle, a push-rod located in the spindle-opening and protruding therefrom into one of the knobs, which is open to permit access to the rod, a cam attached to the push-rod by a screw passing through a slot formed in the spindle, the cam having a movement on its fastening-screw, and formed with a flange, projecting at right angles to the body portion of the cam, and a hammer-lever suitably fulcrumed and arranged to be operated by the cam as the push-rod is actuated.

2. The combination of the spindle having a longitudinal opening, knobs attached to the respective extremities of the spindle, a push-rod located in the spindle-opening and arranged to be operated through an opening formed in one of the knobs, a cam attached to the push-rod, the spindle being slotted to permit the movement of the cam, a bracket made fast to the spindle and comprising a part 18^a, embracing the spindle, a slotted arm 18^d, a lug 18^c, and an arm 18^e, extending at right angles to the slotted arm, a hammer-lever fulcrumed on the arm 18^e of the bracket, one arm of the lever passing through the slot in the bracket-arm 18^d, and a spring connecting the extremity of said lever-arm with the lug 18^c of the bracket, the said lever-arm lying in the path of the cam as the push-rod is operated.

3. The combination with a spindle, a door-knob attached thereto, and a screw or other suitable fastening device, of a sleeve surrounding the hub of the knob and having an opening to permit the insertion of the said fastening device, the sleeve being arranged to turn on the hub of the knob to lock the fastening device in place, the sleeve being also provided with an interior collar or flange, adapted to engage the inner extremity of the hub of the knob.

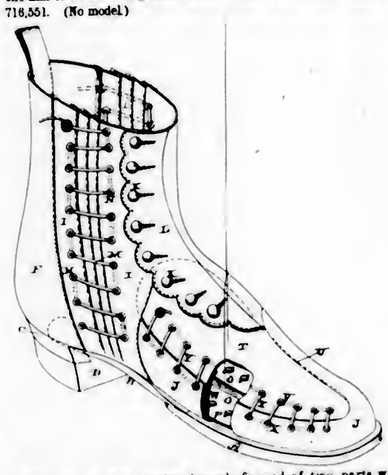
641,641. WRENCH. SAMUEL S. GROVE, Summit, Pa., assignor of one-third to Watson M. Grove, Airy Dale, Pa. Filed Aug. 10, 1898. Serial No. 688,298. (No model.)

Claim.—1. An improved wrench of the class described, comprising the bit-shank A, having the integral elongated squared extension *a*, carrying the conical or spreading solid projection *a'*, provided across its bottom or face with the head *a*, having the apertures a^4, the recess a^3 formed in the bottom of the cross-head a^3 and adapted to receive and accommodate the bolt in the operation of tightening a nut, the upper portion of the projection *a'* being provided with the side shoulders a^5, the slide B surrounding the squared extension *a* of the bit-shank, and having the downwardly-extended hangers *b* at each side thereof, and the outwardly-curved levers C pivoted to the hangers *b*, and passing downwardly through the apertures a^4 and having the jaws C' at their lower ends, substantially as set forth.



2. In an improved wrench of the class described, comprising a bit-shank having the extension carrying the projection provided with the apertured cross-head formed upon its face, the slide operating upon said extension, and the levers pivoted to the slide and passing through the head, the recess a^3 formed in the bottom of said cross-head to accommodate the bolt in the operation of tightening a nut, substantially as set forth.

641,642. SHOE. SELIM W. GUSS, Agawam, Mass., assignor of one-half to Oscar L. King, same place. Filed May 12, 1899. Serial No. 716,551. (No model.)



Claim.—1. A shoe, having its sole formed of two parts which are slidably connected at the heel of the shoe, combined with the upper, and inserted pieces at the sides, which are adapted to be let out and taken up according to the length of the shoe, substantially as described.

2. In a shoe, a shank having its rear end slotted, an upper provided with inserted side pieces which are adapted to be expanded and contracted, combined with an insole, a clamping-screw which extends through a slot in the rear end of the shank, and a heel into which the lower end of the screw extends, substantially as shown.

3. In a shoe, the sole, and the upper, combined with adjustable side pieces, and suitable fastening devices which extend through the pieces into the sole, substantially as described.

4. A shoe provided with a sole, and an upper, combined with adjustable pieces to which the edges of the upper are attached, and which pieces are adapted to be adjusted laterally upon the sole, substantially as set forth.

5. In a shoe, the sole, and the upper provided with the seam U, combined with an inserted piece T which is attached to the upper along the seam U, and has its free end turned inside of the upper, and means for adjusting the inserted piece, substantially as specified.

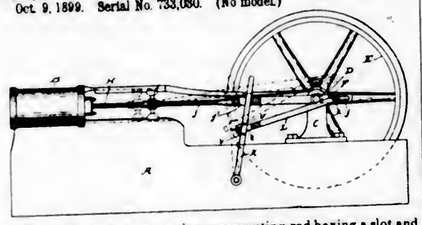
6. In a shoe, the upper provided with the seam U, and the sole, combined with the inserted piece T which is secured to the upper along the seam U and has its edge turned down inside of the upper, and a lacing-cord for adjusting the inserted piece, substantially as shown.

7. In a shoe, the upper divided into two parts, inserted pieces placed between the two parts of the upper, and means for expanding and contracting the inserted pieces according as the shoe is lengthened or shortened, combined with the inserted piece T which is connected to the front part of the upper, means for adjusting this inserted piece, the sole, the slotted adjustable pieces to which the edges of the front portion of the upper are attached, and means for lengthening and shortening the shoe, substantially as set forth.

8. In a shoe which is adapted to be widened or narrowed, the sole, and the upper, having an opening through one side, combined with the inserted piece T which is connected to the upper at one edge, and which has its free edge passed down through the opening in the upper, and means for adjusting the inserted piece, substantially as specified.

9. In a shoe, the sole, the upper, and laterally-adjusting pieces O, placed inside of the shoe and to which the edges of the upper are secured, and which pieces rest upon the sole, combined with an inserted piece T which is attached to the upper, and means for adjusting the inserted piece, substantially as described.

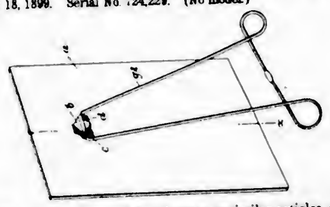
641,643. STEAM-ENGINE. JOSEPH HARRIS, Boston, Mass. Filed Oct. 9, 1899. Serial No. 733,080. (No model.)



Claim.—1. In a steam-engine, a connecting-rod having a slot and a wrist-pin passing through same, in combination with a lever and an auxiliary connecting-rod; substantially as and for the purpose set forth.

2. In a single-cylinder engine a device for preventing dead-centers, consisting of a connecting-rod having a slot a wrist-pin passing through same, an auxiliary connecting-rod, fulcrumed on said wrist-pin, and a lever passing through slots in both the connecting-rods, whereby the motion is transmitted to crank by the auxiliary connecting-rod, when the crank is on the dead-centers, as set forth.

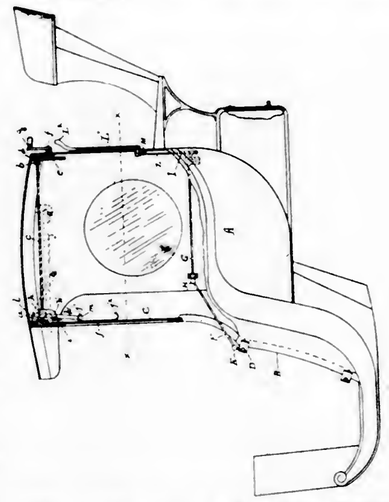
641,644. PICTURE-SUPPORT. ERNEST OLDENBUSCH, Weehawken N. J., assignor to the Kronheimer, Oldenbusch & Company. Filed July 18, 1899. Serial No. 724,229. (No model.)



Claim.—1. In a support for pictures or similar articles a sheet-metal hinge member provided with a socket bent out of the plane of the hinge and one or more outwardly and downwardly extending stops in combination with one or more pivotally-connected supporting-rods substantially as shown and described.

2. The improved support for pictures and similar articles consisting of the face-plate *a*, the sheet-metal hinge member *b* having an outwardly-projecting socket and a stop partially cut out of the sheet-metal hinge member, in combination with a pivotally-connected backstay or support having at its upper end a downwardly-bent portion *g'* substantially as shown and described.

641,645. HANSOM-CAB. LUBIN PARADIS, Cambridge, and NARCISSE DESROSIERS, Boston, Mass. Filed June 26, 1899. Serial No. 721,816. (No model.)



Claim.—1. A cab, a window for the front thereof, a screw-threaded rod mounted in suitable bearings under the roof, and means for rotating said screw-threaded rod, in combination with a nut working upon said screw-threaded rod, said nut having an arm dependent therefrom, and pivoted to the upper portion of the window-sash, as set forth.

2. A cab, a window for the front thereof, a screw-threaded rod mounted in suitable bearings under the roof, a small cog-wheel mounted upon the end of said screw-threaded rod, a large cog-wheel in gear with the small cog-wheel, and a lever for rotating the same, in combination with a nut working on said screw-threaded rod having an arm pivoted to a bracket secured to the upper portion of the window-sash, as set forth.

3. A cab, and a window for the front thereof, having a flat bar provided with a hook at each end, secured to each side of the sash-frame, in combination with flat bars hinged at their upper ends to brackets secured to the front of the body, and having rollers at their lower ends for supporting and sustaining the window-sash in either the lowered or raised position, as set forth.

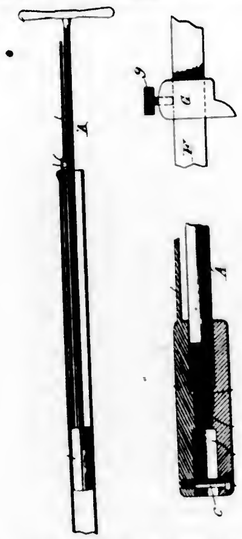
4. A cab, a window for the front thereof, a screw-rod mounted under the roof, means for rotating the same, a nut working thereon having an arm attached at its outer end to a bracket secured to the upper end of the window-sash, arms fulcrumed to the top of the body, each having a roller at its outer end, and plates having hooked ends secured to the sides of the sash for said rollers to work in, as set forth.

5. In a cab, folding doors for the same, the pintles of the upper hinges being secured to the leaves attached to the door, oblique rods connected to said pintles by universal joints, horizontal rods one on each side connected to the oblique rods by universal joints, and having at their rear ends sprocket-wheels, chains and rods for operating said sprocket-wheels, and levers for imparting motion to the rods and chains, as set forth.

6. In a cab, folding doors for the same, sprocket-wheels at the rear of the cab connected to the pintles of the upper door-hinges by rods and universal joints, crossed rods and chains connecting the sprocket-wheels, and a lever for operating said rods and chains, as set forth.

7. In a cab a longitudinal and an oblique rod on each side connected together by universal joints, the front ends of the oblique rods being connected by universal joints to the pintles of the upper hinges of the door, and the rear ends of the longitudinal rods having sprocket-wheels secured thereon, and means such as described for operating said sprocket-wheels by means of a lever, as set forth.

641,646. INSTRUMENT FOR REMOVING DENTS FROM GUN-BARRELS. EDWIN R. PARKER, Scranton, Pa., assignor of two-thirds to Mark K. Edgar and Samuel W. Edgar, same place. Filed Apr. 27, 1899. Serial No. 714,750. (No model.)



Claim.—1. An implement of the character described, consisting of an expanding head composed of two semicylindric sections, a pin or screw rigidly secured to one of said sections and loosely engaging the other section, said sections having an internal screw-bearing, and a rod having a threaded tapered end portion engaging the said bearing, substantially as specified.

2. An implement of the character described, consisting of the expanding head, formed in two loosely-connected sections and having an internal-tapered screw-bearing, a bar connected to one of said sections and carrying a gage, and an expanding rod having a tapered threaded end for engagement with said bearing, substantially as specified.

3. An implement of the character described, consisting of an expanding head composed of two semicylindrical sections loosely connected at one end portion and having an internal-tapered screw-bearing, and a rod having a threaded and tapered end which engages the said bearing, together with a split bushing adapted to fit over the said head, substantially as specified.

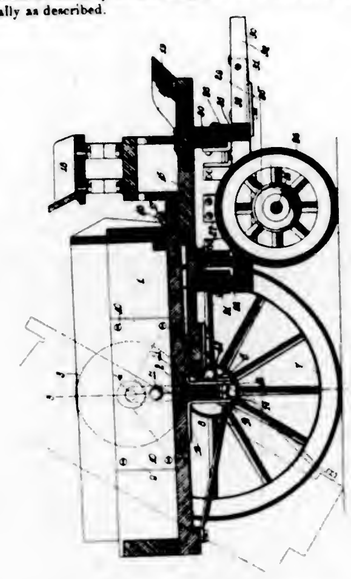
641,647. CART. THOMAS L. QUIGLEY and PETER MALONE, Boston, Mass. Filed Apr. 12, 1899. Serial No. 712,706. (No model.)

Claim.—1. In a cart, in combination, a body, an upper and a lower axle, a pair of wheels on each axle, the peripheries of the wheels on the upper axle arranged to bear upon the peripheries of the hubs of the pair of wheels on the lower axle, said body being fast to said upper axle and having a sliding connection with said lower axle, substantially as described for the purpose specified.

2. In a cart in combination, a body, an upper and a lower axle, a pair of wheels on each axle, the peripheries of the wheels on the upper axle arranged to bear upon the peripheries of the hubs of the pair of wheels on the lower axle, said body being fast to said upper axle, angle-irons fast to said body and forming a sliding connection with said lower axle, all so constructed and arranged that the weight of the body is transferred directly from the wheels upon the upper axle through the wheels upon the lower axle to the ground, substantially as described for the purpose specified.

3. In a cart, in combination, a body, two axles, a pair of wheels on each axle, the peripheries of one of said pairs of wheels arranged to bear upon the peripheries of the hubs of the other pair of wheels, angle-irons 12 and springs 41 fast to said body, and arranged to bear against one of said axles, substantially as described.

4. In a cart, a body, an axle fast to said body, and a pair of wheels on said axle, in combination with a single wheel pivotally connected to said body in front of and midway between said pair of wheels, a cylindrical flange 20 fast to said body, a cylindrical flange 23, attached to said single wheel, a plate 22 fast to said flange 23, angle-irons 27 and a cylindrical flange 28 fast to said flange 20, substantially as described.



641,648. DEVICE FOR APPLYING SEALING-WAX. HERBERT E. RIDER, New York, N. Y., assignor to Stanley & Patterson, and Celinda P. Robinson, same place. Filed Oct. 19, 1898. Serial No. 694,006. (No model.)



Claim.—1. A device for applying sealing-wax comprising an incasing envelop for the sealing-wax having an orifice at one end and means located in proximity to said orifice for preventing the outflow of unmelted sealing-wax, substantially as set forth.

2. A device for applying sealing-wax comprising an incasing envelop for the sealing-wax having an orifice at one end and a screen interposed in proximity to said orifice, substantially as set forth.

3. A device for applying sealing-wax comprising a casing having an orifice at one end and a cup-shaped screen located within said casing in proximity to said orifice, substantially as set forth.

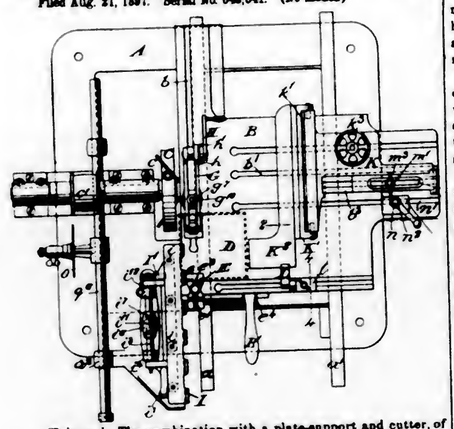
4. A device for applying sealing-wax comprising an incasing envelop having a restricted orifice at one end and a shield-spout at such orifice, substantially as set forth.

5. A device for applying sealing-wax comprising an incasing envelop having an orifice at one end and a screen interposed in proximity to said orifice and a shield-spout at said orifice, substantially as set forth.

6. A device for applying sealing-wax comprising an incasing envelop having an orifice at one end, a reservoir for inflammable fluid, and means for supporting said envelop in an inclined position on said reservoir, substantially as set forth.

7. A device for applying sealing-wax comprising a casing for the sealing-wax having a restricted orifice at one end, a screen located within said casing in proximity to said orifice, a shield-spout at said orifice, a burner and reservoir for inflammable fluid, and an angular arm thereon supporting said casing in inclined position, substantially as set forth.

641,649. EDGING-MACHINE. VERNON ROYLE, Paterson, N. J. Filed Aug. 21, 1897. Serial No. 649,041. (No model.)



Claim.—1. The combination with a plate-support and cutter, of a gage mounted to be swung into and out of position over the plate and means for adjusting the gage forward and backward and to the right and left along the plate for locating the plate with respect to the cutter by means of one or more controlling-lines on the plate, substantially as set forth.

2. The herein-described top gage for adjusting plates comprising a gage proper, a swinging head-piece, means for removably securing the gage proper to the head-piece and means for supporting the head-piece in swinging adjustment through space, substantially as set forth.

3. The herein-described gage comprising a transculent plate provided with one or more right lines across it and means for supporting the said plate in swinging adjustment through space, substantially as set forth.

4. The herein-described gage comprising the gage-plate proper, the head-piece, means for securing the gage proper to the head-piece in sliding adjustment, means for rotating the gage proper in its own plane, a jointed rod forming a support for the head-piece, means for clamping the rod in longitudinal adjustment, a rocking support for the rod and means for adjusting the rocking support in a direction lateral with respect to said jointed rod, substantially as set forth.

5. The combination with a plate-supporting table and cutter, of a front clamp provided with clamping-jaws located at different distances above the level of the table for adapting the clamp to different thicknesses of plates, means for swinging the one or other of the jaws into operative position at pleasure and means for operating the clamp, substantially as set forth.

6. In combination, a plate-supporting table, a cutter, a clamp-support adjustable along the table toward and away from the edge of the plate, a clamp-lever, means for fulcruming the lever on the clamp-support in different vertical adjustments, a clamping-jaw pivotally secured to one end of the lever and a rocking eccentric engaged with the opposite end of the lever, substantially as set forth.

7. The rear clamp comprising a base-piece, a tilting lever, a transverse pin on which the lever is fulcramed, a bolt extending through the base and said transverse pin, a spring for sustaining the transverse pin and lever, an adjustable stop on the bolt for determining the height to which the fulcrum-pin shall rise, means for tilting the lever and a clamping-jaw carried by the lever, substantially as set forth.

8. The combination with the plate-supporting table and cutter, of a plate-holder having a sliding movement toward and away from the edge of the plate opposite the cutter, an auxiliary holder hinged to the advance edge of the holder in position to swing the advanced edge of the auxiliary holder into holding position between the cutter and advanced edge of the main holder and means for securing the holder in the desired adjustment, substantially as set forth.

9. The combination with the plate-supporting table and cutter, of a plate-holder arranged to slide toward and away from the edge of the plate opposite the cutters, an auxiliary holder having a swinging movement and attached to the advance edge of the holder, a filling-piece having a removable engagement with the auxiliary holder and means for clamping the holder in the desired adjustment, substantially as set forth.

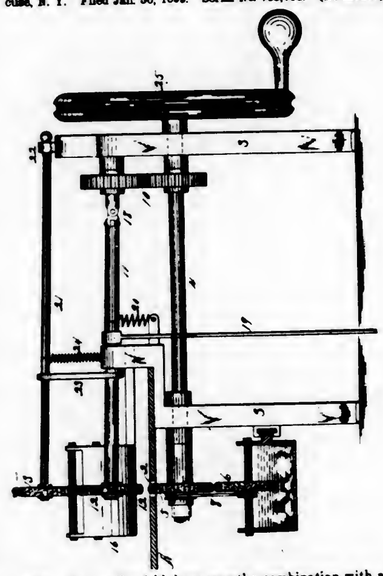
10. The combination with the plate-supporting table and cutter, of a holder arranged to slide toward and away from the edge of the plate opposite the cutter, means for locking the holder in its desired adjustment, a sliding plate seated upon the holder and arranged to move relatively to the holder in the same general direction as the holder, means for clamping the sliding plate to the holder and an adjustable stop arranged to engage the sliding plate to limit the movement of the holder, substantially as set forth.

11. The combination with the plate-supporting table and cutter, of a dog or stop arranged to move along the front of the table toward and away from the edge of the plate opposite the cutter, the said dog or stop being mounted to swing toward and away from the table into and out of position to hold the work up to the cutter, substantially as set forth.

12. The combination with a work-supporting table and cutter, of a gage for determining the line of cut, a vertically-adjustable gage-support and means for hinging the gage to the vertical support, substantially as set forth.

13. The combination with a work-supporting table and cutter, of a gage for determining the line of cut, said gage comprising a straight-edge, a yoke to which the straight-edge is secured, a screw seated in the yoke and bearing against the back of the straight-edge for adjusting it, a rocking support for the yoke provided with eccentrics for throwing the gage bodily toward and away from the edge of the table and means for adjusting the said support vertically to suit plates of different thicknesses, substantially as set forth.

641,650. DAMPENING-MACHINE. WILLIAM SCHILLINGER, Syracuse, N. Y. Filed Jan. 30, 1899. Serial No. 703,798. (No model.)

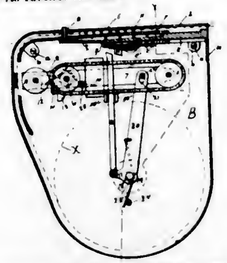


Claim.—In a collar-fold dampener the combination with a suitably-supported slotted table, a trough below said table, and a train of dampening-rollers below said table, the ultimate roller of which extends into said slot, of a swing-frame above said table, a dampening device and a feed-roller carried thereby, a trough above the table, a train of rollers of which said feed-roller is one, a spring holding said feed-roller in contact with the adjacent roller of the dampening device and means to drive said dampening devices and roller-trains.

641,651. APPARATUS FOR HOLDING AND DELIVERING TICKETS. WILLIAM H. SNOWMAN, Chelsea, Mass., assignor to Albert N. Southwick, New York, N. Y. Filed Dec. 17, 1898. Serial No. 699,591. (No model.)

Claim.—1. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a device constructed and arranged to positively engage the strip and stop its advance when its forward end has reached the length of an individual ticket from the delivery-point of the apparatus, means for operating such device to bring it into stopping engagement with the strip and means to withdraw it from such stopping engagement to permit a further advance of the strip.

2. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a detent, as Q, constructed and arranged to enter perforations in the strip whose distances apart are equal to the length of the individual tickets, means for operating such detent to cause it to enter perforations and stop the advance of the strip and means to withdraw the detent therefrom to permit its further advance.



3. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a spring-actuated stop or detent constructed and operating to engage the strip and stop its advance when its forward end has reached the length of an individual ticket from the delivery-point of the apparatus, and a spring-actuated slide constructed and arranged to withdraw the detent from its stopping engagement with the strip by its inward movement and to be restored to its outward position by its spring.

4. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a slide whose outer end is provided with a presser-plate, as M, and a tearing edge, as P, normally at the delivery-point of the apparatus, a device constructed and operating to engage the strip and stop its advance, means for engaging the slide when pressed inwardly with the stopping device and means, as spring N, for giving an outward movement to the slide, whereby the forward end of the strip is uncovered, the stopping device withdrawn from stopping engagement with the strip and the tearing edge brought into operative position at the delivery-point of the apparatus.

5. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a slide, as K, whose outer end is provided with a presser-plate, as M, and a tearing edge, as P, and a stop constructed and operating to engage the strip and stop its advance and provided with a shoulder or incline as *f*, against which the inner end of the slide engages, when moved inwardly, to withdraw the stop from engagement with the strip, and means, as spring N, for moving the slide outwardly to its normal position.

6. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of means for exposing the forward end of the strip whereby it can be grasped by the hand of the operator, consisting of a cut-away portion of the case on one side of the strip at the delivery-point and a slide arranged upon the other side of the strip, means for stopping the advance of the strip when its forward end has reached the length of an individual ticket from the delivery-point of the apparatus, consisting in a device constructed and operating to positively engage the strip, and means to withdraw such device from its stopping engagement by the inward movement of the slide.

7. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a stop or detent, as Q, means for bringing the detent into stopping engagement with the strip when it has advanced the length of an individual ticket from the delivery-point of the apparatus, a slide, as K, operating to withdraw the detent from such stopping engagement; a device for printing upon the strip, and a suitable connection between the detent-withdrawing slide and the printing device, whereby the movement of the slide brings the printing device into printing connection with the strip.

8. In an apparatus for holding and delivering strip tickets or checks, the combination substantially as set forth, of a reciprocating printing device, a slide for uncovering the ends of the strip-tickets, a projection on such slide and a bell-crank lever arranged to reciprocate the printing device in one direction through its contact with the projection on the slide, for the purpose of bringing the type-belt in contact with the strip as it rests on the printing-bed.

641,652. PROCESS OF EXTRACTING GOLD OR OTHER METALS FROM REFRACTORY ORES. ALBERT G. STEPHENS, Los Angeles, Cal. Filed May 8, 1899. Serial No. 716,063. (No specimens.)

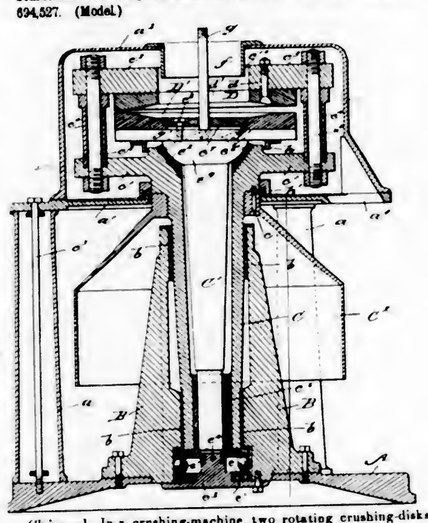
Claim.—A composition for the extraction of gold and other metals, composed of water, chlorid of lime, muriatic acid, nitric acid, bromid of potassium, and chlorid of sodium, to be varied according to the refractory conditions of the ores treated.

641,653. TOP. IRA E. STUMP, Canton, Ohio, assignor to Edward S. Raff, same place. Filed May 29, 1899. Serial No. 718,641. (No model.)



Claim.—As an improved article of manufacture, a top provided with a socket the spindle formed of the wires 4, 5 and 6, the wires 5 and 6 twisted around the wire 4, this block 7 having journaled thereto the wire or bar 4, and the sliding handle 9 located through the block 7, and the head 11, substantially as and for the purpose specified.

641,654. CRUSHING-MILL. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Framingham, Mass., assignors to the Sturtevant Mill Company, of Maine. Filed Oct. 25, 1898. Serial No. 694,527. (Model.)



Claim.—1. In a crushing-machine, two rotating crushing-disks which are tilted or inclined relative to each other, combined with two rotating shafts with which said disks are connected and which shafts have their axes inclined relative to each other, and both of which shafts are on the same side of said disks.

2. In a crushing-machine, the combination with two rotating crushing-disks which are inclined or tilted relative to each other, and one of which is provided with an eye or opening for the passage of the material to be crushed, of two shafts with which said disks are rigidly connected, said shafts having their axes inclined relative to each other and both of which shafts are on the same side of said disks.

3. In a crushing-machine, the combination with two horizontally-disposed rotating crushing-disks which are inclined or tilted relative to each other and the upper of which is provided with an eye or opening for the passage of the material to be crushed, of two shafts by which said disks are carried and which shafts have their axes inclined relative to each other, said shafts both extending from the same side of said disks, and a ball-and-socket bearing between portions of the said shafts.

4. In a crushing-machine, the combination with two crushing-disks the crushing-faces of which are inclined or tilted relative to each other and one of which disks is provided with a central feed-opening, of two rotating shafts both extending from the same side of said disks and the axes of which shafts are inclined relative to each other, and two heads connected with one of said shafts and between which heads said crushing-disks are arranged, said heads serving to resist most of the strain due to crushing action.

5. In a crushing-machine, the combination with two horizontally-disposed crushing-disks the upper of which is provided with a central feed-opening, of two rotating shafts with which said disks are respectively connected so as to rotate therewith, and the axes of which shafts are inclined relative to each other, one of said shafts being hollow and the other of said shafts being inclosed by said hollow shaft, and means for positively rotating the last-named shaft.

6. In a crushing-machine, the combination with two shafts the axes of which are out of line with or inclined to each other, one of said shafts being hollow and the other of said shafts being within said hollow shaft, the said hollow shaft having at its upper end an attached head or plate, a second head or plate rigidly connected with the first-named head or plate, a horizontally-disposed crushing-disk attached to the said second head or plate and provided with a central feed-opening and a second horizontally-disposed crushing-disk carried by the inner shaft.

7. In a crushing-machine, the combination with the base A, of the standard B rigid with said base and within which is formed an oil-pot, the hollow shaft C, an antifriction step-bearing for said shaft within said oil-pot, a fixed eccentric bearing c^4 also within said oil-pot, the shaft C' journaled in said fixed bearing and having its axis inclined relative to the axis of the said shaft C, and crushing-disks operatively connected with said shafts.

8. In a crushing-machine, the combination with the base A, of the standard B rigid with said base and within which is formed an oil-pot, the hollow shaft C, an antifriction step-bearing for said shaft within said oil-pot, a fixed eccentric bearing c^4 also within said oil-pot, the shaft C' journaled in said fixed bearing and having its axis inclined relative to the axis of the said shaft C, and crushing disks operatively connected with said shafts, said step-bearing for the shaft C comprising the plates c and a series of balls interposed between said plates.

9. In a crushing-machine, the combination with the base A, of the standard B rigid with said base and within which is formed an oil-pot, the hollow shaft C provided with the driving-pulley C^3 having the converging or inclined web C^4 for connection with said shaft and which permits said pulley to surround the said standard B, an antifriction step-bearing for said shaft within said oil-pot, a fixed eccentric bearing c^4 also within said oil-pot, the shaft C' journaled in said fixed eccentric bearing and having its axis inclined relative to the axis of the said shaft C, and crushing-disks operatively connected with said shafts.

10. In a crushing-machine, the combination with the rotating shafts C and C' the axes of which are inclined relative to or out of line with each other, and relatively tilted or inclined crushing-disks carried by said shafts, the said shaft C being provided at its upper part with a ball-and-socket or semispherical bearing, of a central oil-tube fixed in a head or plate at the upper end of said shaft C and communicating, by means of suitable ducts, with the said ball-and-socket or semispherical bearing.

11. In a crushing-machine, the combination with the base A and the standard B rigid therewith, of the shafts C and C' journaled in said standard one within the other, crushing-disks carried by said shafts, an eccentric bearing c^4 within which the lower end of said shaft C is journaled, and the block c^5 to which the said eccentric bearing c^4 is fixed or locked to prevent it from turning.

12. In a crushing-machine, the combination with the base A, of the standard B rigid therewith, the shafts C and C' having their bearings in said standard, crushing-disks operatively connected with said shafts, the block c^5 removably attached to the bottom of the said standard, a step-bearing for said shaft C supported by said block, and an eccentric bearing for said shaft C' rigidly fixed to said block and thus also supported thereby.

13. In a crushing-machine, the combination with a crushing-disk having a driving-shaft, of a second disk the crushing-face of which is tilted or inclined relative to said first-named disk, a driving shaft or spindle on which said second disk is mounted, said shaft or spindle being inclined relative to the driving-shaft of said first-named disk, said shafts being both on the same side of said disks, means for positively rotating said first-named disk, and connections between said disks whereby the second disk may be frictionally rotated.

14. In a crushing-machine, the combination with a crushing-disk having a hollow rotating driving-shaft, of a second disk having its crushing-face tilted or inclined relative to said first-named disk, a rotary shaft for said second disk housed within said hollow shaft but inclined relative thereto, and means for positively rotating said hollow shaft.

15. In a crushing-machine, the combination with a crushing-disk provided with a central eye or feed-opening and having a hollow rotating driving-shaft, of a second disk having its crushing-face tilted or inclined relative to said first-named disk, a rotary shaft for said second disk housed within said hollow shaft but inclined relative thereto, and means for positively rotating said hollow shaft.

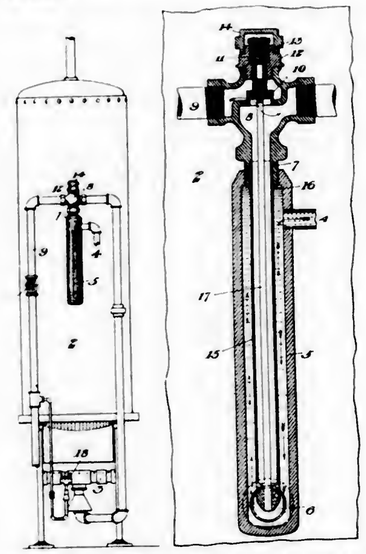
16. In a crushing-machine, two crushing-disks revolving on different axes, combined with two rigidly-connected rotating heads or plates between which the said crushing-disks are mounted and by which one of them is carried, said rotating heads or plates extending beyond the circumference of the said crushing-disks, the said rotating heads or plates thus resisting most of the stress or strain incident to the crushing operation.

17. In a crushing-machine, the combination with a suitable supporting-frame, of a hollow shaft mounted therein, a crushing-disk carried by said shaft, means for rotating said hollow shaft, a second shaft or spindle rotatably mounted within said hollow shaft but having its axis eccentric thereto, a second crushing-disk carried by said second shaft, the crushing-faces of said disks being inclined relative to each other, and connections between said disks and their supporting-shafts whereby endwise thrust due to stress of grinding is taken up by the said parts and is not transmitted to the supporting-frame.

18. In a crushing-machine, the combination with two rotating crushing-disks tilted or inclined relative to each other, two rotating shafts with which said disks are rigidly connected and which shafts extend in the same direction from said disks, said shafts rotating on different axes and one of said disks being provided with an eye or opening for the passage of the material to be crushed, and said disks having their adjacent faces recessed or cut away for the reception of material between them, combined with means for rotating said disks so that portions of their proximate faces are continuously approaching while other portions are constantly receding from each other; thereby crushing the material and then discharging the crushed material by centrifugal action.

19. In a crushing-machine, the combination with two shafts the axes of which are out of line with or inclined to each other, one of said shafts being hollow and the other of said shafts being within said hollow shaft, the said hollow shaft having at one end a head or plate, a second head or plate connected with the first-named head or plate, a crushing-disk attached to the said second head or plate and provided with a central feed-opening, and a second crushing-disk carried by the inner shaft.

641,655. THERMOSTATIC REGULATOR. WILLIAM G. TAYLOR, Pittsburg, Pa., assignor to the Taylor Burner and Electro-Plating Company, Limited, same place. Filed May 5, 1899. Serial No. 715,705. (No model.)



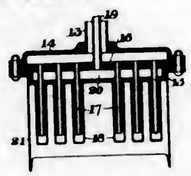
Claim.—1. The combination with a water-heater, of a water barrel or chamber external to the heater and having a single connection therewith at a point remote from the burner, said barrel having a cold-water inlet arranged to be connected to the branch main and located above the connection to the heater, the arrangement of the barrel relatively to the heater being such as to allow hot water to diffuse in the barrel when water is not being drawn from the heater; a thermostatic device in the barrel arranged to be exposed to the entering cold water, and a gas-valve connected to said thermostatic device; substantially as described.

2. The combination with a water-heater, of a vertically-extend-

ing water-barrel external thereto and having its lower portion only connected to the heater at a point remote from the burner, said barrel having a cold-water inlet above the connections to the heater and arranged to be connected to the branch main, the arrangement of the barrel being such as to allow hot water to diffuse therein to from the heater when water is not being drawn; a thermostatic rod or bar within the barrel, and a gas-valve connected to said rod; substantially as described.

3. The combination with a water-heater, of a water barrel or chamber external to the heater and having a single connection therewith at a point remote from the burner, said barrel having a cold-water inlet arranged to be connected to the branch main and located above the connection to the heater, the arrangement of the barrel relatively to the heater being such as to allow hot water to diffuse in the barrel when water is not being drawn from the heater; a thermostatic device in the barrel arranged to be exposed to the entering cold water; a gas-supply pipe extending over the barrel and containing a gas-valve, and a direct connection between the gas-valve and the thermostatic device; substantially as described.

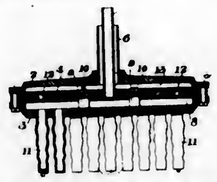
641,656. WATER-HEATER AND BURNER THEREFOR. WILLIAM G. TAYLOR, Pittsburg, Pa., assignor to the Taylor Burner and Electro-Plating Company, Limited, same place. Filed July 8, 1899. Serial No. 723,230. (No model.)



Claim.—1. A water-heater having drop-tubes depending from its bottom, a central circulating-pipe, a main burner located beneath the drop-tubes, and a pilot-light burner in the center of the main burner and having a separate source of supply; substantially as described.

2. A water-heater, having drop-tubes, depending from the lower head, with an open central space in the central portion of the head, a central circulating-pipe over the said space, a main burner located beneath the drop-tubes, and a pilot-light burner arranged centrally to direct its flame into the central space of the lower head; substantially as described.

641,657. WATER-HEATER ATTACHMENT. WILLIAM G. TAYLOR, Pittsburg, Pa., assignor to the Taylor Burner and Electro-Plating Company, Limited, same place. Filed Oct. 6, 1899. Serial No. 732,779. (No model.)



Claim.—1. A heater attachment having an upper and lower chamber, drop-tubes depending from the lower chamber, and openings directly connecting the two chambers, substantially as described.

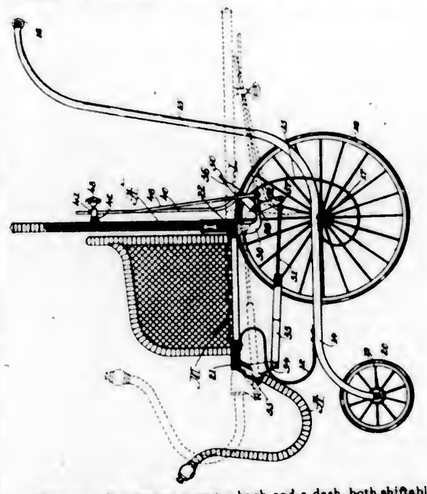
2. A heater attachment having an upper and a lower chamber, drop-tubes depending from the lower chamber and being enlarged upwardly from their lower ends, and openings directly connecting the two chambers; substantially as described.

3. A heater attachment, having drop-tubes, gradually enlarged upwardly from their lower ends and having a substantially sinuous surface, substantially as described.

4. A heater attachment having an upper and lower chamber with a slotted partition between them, and drop-tubes secured to the lower chamber, at least a portion of the tubes having removable closures, substantially as described.

5. A heater attachment, having an upper and lower chamber separated by a slotted partition, a tube-section screwed into the upper head and arranged to be secured to the lower end of a boiler, an inner circulating-tube connected to the partition and opening into the lower chamber and a series of drop-tubes secured to the lower head, substantially as described.

641,658. GO-CART. ALBERT A. TISDALE and GEORGE T. LAMONT, Leominster, Mass., assignors to the Whitney-Reed Chair Company, same place. Filed Sept. 11, 1899. Serial No. 730,094. (No model.)



Claim.—1. In a go-cart a seat, a back and a dash, both shiftable relatively to the seat, and means coöperative with both the back and the dash for effecting the simultaneous movement of said parts or the independent action of each of them relatively to the other, and for locking the same in their different adjusted positions, said means including a self-locking device.

2. In a go-cart a seat, a back and a dash, both shiftable relatively to the seat, and means coöperative with both the back and the dash for effecting the simultaneous movement of said parts or the independent action of each of them relatively to the other, and for locking the same in their different adjusted positions, said means including a toggle.

3. In a go-cart a seat, a dash and a back, shiftably mounted relatively to the seat, two rods, a fixed bearing for supporting one of the rods, a lever to which the other rod is connected, a connection between said lever and the dash, two bearings upon the back adapted to receive said rods, and holding devices mounted upon the bearings and located to engage and hold the rods.

4. In a go-cart a seat, a dash and a back shiftably mounted relatively to the seat, two rods adjustably connected to the back, a fixed bearing for supporting one of the rods, a lever to which the other rod is connected and a link connected respectively with said lever and the dash and constituting with one arm of the lever, a toggle.

5. In a go-cart a seat, a dash and a back shiftably mounted relatively to the seat, a self-locking toggle connected with the dash and adjustably connected with the back, a rod also adjustably connected with the back and a fixed bearing upon which said rod is mounted.

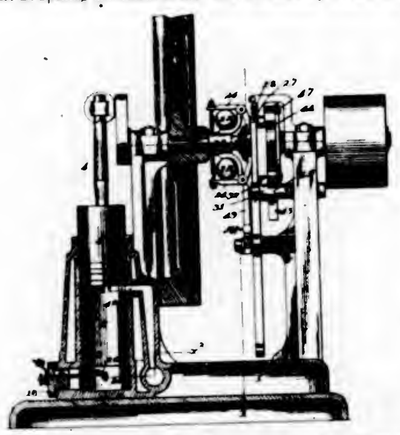
6. In a go-cart, a seat, a dash and a back shiftably mounted relatively to the seat, two rods adjustably connected to the back, a fixed bearing for supporting one of the rods, a lever to which the other rod is connected, and a connection between said lever and the dash.

641,659. EXPLOSIVE-ENGINE. GUSTAVUS A. TUREK, Chicago, Ill. Filed Mar. 25, 1899. Serial No. 710,481. (No model.)

Claim.—1. The combination with the outlet-valve of an explosive-engine, and the lever for operating said valve, of a governor provided with a coned extension on its movable sleeve, and a detent-lever on the engine-frame, one end of which engages such coned extension and the other end of which is adapted to engage the upper end of the valve-operating lever to hold the same in a dormant position, substantially as set forth.

2. The combination with the cylinder and piston of an explosive-engine, of an outlet-valve mechanism, a rotary cam receiving motion from the engine-shaft, a lever pivoted to the main frame with one arm engaging said cam, a rock-shaft having arm-and-link connection with the lower end of said lever, an inwardly-opening outlet-valve the stem of which projects outwardly and is provided with a closing-spring, and an arm on the rock-shaft adapted to engage said valve-stem to impart an opening movement to the valve, substantially as set forth.

3. The combination with the cylinder and piston of an explosive-engine, of an outlet-valve mechanism comprising a rotary cam receiving motion from the engine-shaft, a lever pivoted to the main frame with one arm engaging said cam, a rock-shaft having arm-and-link connection with the lower end of said lever, a coiled spring extending from said rock-shaft arm to the lower end of the lever, an inwardly-opening outlet-valve the stem of which projects outwardly, and an arm on the rock-shaft adapted to engage said valve-stem to impart an opening movement to the valve, substantially as set forth.



4. The combination with the cylinder and piston of an explosive-engine, of an outlet-valve mechanism comprising, a rotary cam receiving motion from the engine-shaft, a lever pivoted to the main frame with one arm engaging said cam, a rock-shaft having arm-and-link connection with the lower end of said lever, an inwardly-opening outlet-valve the stem of which projects outwardly and is provided with a closing-spring, an arm on the rock-shaft adapted to engage said valve-stem to impart an opening movement to the valve, a governor provided with a coned extension on its movable sleeve, and a detent-lever on the engine-frame, one end of which engages such coned extension and the other end of which is adapted to engage the upper end of the valve-lever to hold the same in a dormant position, substantially as set forth.

5. The combination with the cylinder and piston of an explosive-engine, of an outlet-valve mechanism comprising a rotary cam receiving motion from the engine-shaft, a lever pivoted to the main frame with one arm engaging said cam, a rock-shaft having arm-and-link connection with the lower end of said lever, a coiled spring extending from said rock-shaft arm to the lower end of the lever, an inwardly-opening outlet-valve the stem of which projects outwardly, an arm on the rock-shaft adapted to engage said valve-stem to impart an opening movement to the valve, a governor provided with a coned extension on its movable sleeve, and a detent-lever on the engine-frame, one end of which engages such coned extension and the other end of which is adapted to engage the upper end of the valve-lever to hold the same in a dormant position, substantially as set forth.

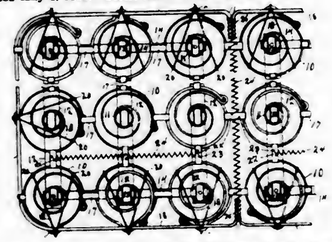
6. The combination with the outlet-valve of an explosive-engine and the lever for operating said valve, of an intermittent gear or driver on the main shaft, a pinion on a counter-shaft and an operating-cam moving with said pinion, said intermittent gears being so formed that the driver on the main shaft will make two or more revolutions to one of the pinion, and said pinion will travel faster than the driver during the active movements of said pinion, substantially as set forth.

7. The combination with the outlet-valve of an explosive-engine and the lever for operating said valve, of an intermittent gear or driver on the main shaft, a pinion on a counter-shaft, and an operating-cam moving with said pinion, the said intermittent gear comprising a driver carrying diametrically opposite pins or studs and intermediate concentric rim-sections, and a pinion formed with a series of radial recesses and marginal concaved depressions, substantially as set forth.

8. The combination with the outlet-valve of an explosive-engine and the lever for operating said valve, of a spring contact-finger secured to said lever in an insulated manner, and the rotary operating-cam for said valve-lever provided with a contact-pin adapted to contact with said spring-finger, substantially as set forth.

9. The combination with the outlet-valve of an explosive-engine and the lever for operating said valve, of a spring contact-finger secured to said lever in an insulated manner, the rotary operating-cam for said valve-lever provided with a contact-pin adapted to contact with said spring-finger, a governor provided with a coned extension on its movable sleeve, and a detent-lever on the engine-frame, one end of which is adapted to engage the upper end of the valve-operating lever to hold the same in a dormant position, substantially as set forth.

641,660. SPRING-BED. WILLIAM C. VAN CISE, Mayville, N. Y. Filed May 8, 1899. Serial No. 716,043. (No model.)



Claim.—1. In combination with a bed, couch or chair spring having projections beyond the outer row of coils, a metal binding-rim extending around the edge of the spring and resting on said projections, a binder for said rim which catches under said projection outside of said rim and has two legs or stays to attach to the coil at widely-separated points to brace and stiffen the end of the cone-spring, as shown and described.

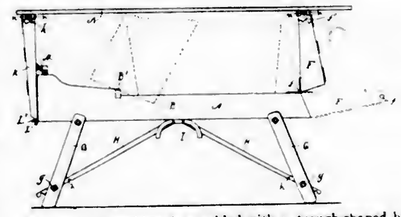
2. In a bed or couch spring, metal connecting-clips to join the cone-springs, openings in said clips made at the angle of coil of a coiled-wire stay in combination with a coiled-wire stay which passes through said openings in said clips to hold the cone-springs in position, as shown and described.

3. A spring-bed having double cone-springs, straight and flat metal connecting-strips for the middle of said springs, flanges on the edges of said strips to hold against the inside of said cone-springs, as shown and described.

4. In a bed-spring made in two parts, a hinge composed of metal clips having openings therein and connecting the cone-springs in pairs, rim-wires for the two parts turned inward and abutting on each other at each end of the hinge, a spiral coil of wire passing through said openings in the connecting-clips and embracing the ends of the abutting rim-wires, as shown and described

5. In a spring-bed composed of cone-springs having projections beyond the circumference of the outer coil, a metal rim or edge wire resting on said projections, double binders to hold said rim on said springs, connecting-clips having openings to hold spiral stays, spiral stays to hold the springs and to form a hinge with said clips and rim, connecting-strips for the middle of the cone-springs having flanges turned on the edges to engage and hold the middle of the cone-springs, cross-strips fastened to said springs, as shown and described.

641,661. COMBINED WASHBENCH AND IRONING-BOARD. ALVIN C. WAKEMAN, Waterloo, Wis. Filed Mar. 24, 1899. Serial No. 710,302. (No model.)



Claim.—1. A washbench provided with a trough-shaped body adapted to receive a tub upon the sides thereof, and having a water-receiving compartment crossed by a transverse bar in a higher plane than the tub, supporting side edges, and adapted to furnish a bearing for the tub when tilted upon the supporting side edges of the body, substantially as described.

2. A washbench, provided with a trough shaped body and adapted to receive a tub upon the sides thereof; adjustable folding legs secured to said body; notched brace-rods for holding said legs in

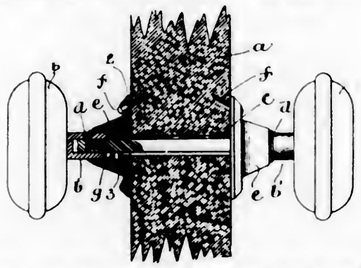
various positions of adjustment; and an extension-piece hinged to one end of the body and adapted to be folded over upon the body, said body being divided into compartments, one of which is crossed by a transverse bar arranged to furnish a bearing for the side of the tub when partially tilted upon the side edges of the body, substantially as described.

3. A washbench provided with a trough-shaped body, divided into compartments by a transverse partition; a folding tub-support located in one of said compartments; and a transverse bar crossing the other of said compartments, over which a tub is adapted to be tilted, substantially as described.

4. A washbench provided with a trough-shaped body, divided into compartments by a transverse partition; a tub-support located in one of said compartments; a transverse bar crossing the other of said compartments, over which the tub is adapted to be tilted; and an extension-piece hinged to one end of said body and adapted to receive a clothes-basket or similar article, substantially as described.

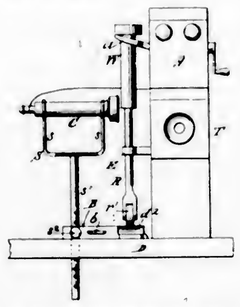
5. A washbench comprising a body; folding legs hinged thereto; brace-bars pivotally secured to the body near the center thereof and provided with notches adapted to engage the cross-rungs of said legs; curved guide-bars secured to the body near its center, and adapted to provide a lateral support for the brace-bars; a removable frame adapted to be secured to said body in a vertical position at one end; and a hinged extension adapted to be raised to a vertical position at the other end; together with an ironing-board; and means for attaching the same to said frame and said extension, substantially for the purpose set forth.

641,662. KNOB ATTACHMENT. JOHN G. WILLIAMS, Everett, Mass. Filed Apr. 7, 1899. Serial No. 712,141. (No model.)



Claim.—In combination a door, a spindle, two knobs having their shanks fitted to the ends of said spindle, screws attaching said shanks to said spindles, two roses attached to opposite sides of the door and normally overlapping the heads of the screws, each of said roses having a socket and a spring confined between the end wall or bottom of said socket and the end of the knob-shank, the two springs acting to hold the spindle in an intermediate longitudinal position with the two shank-attaching screws overlapped by the outer ends of the roses, and permitting said spindle to be moved in either direction to expose either screw.

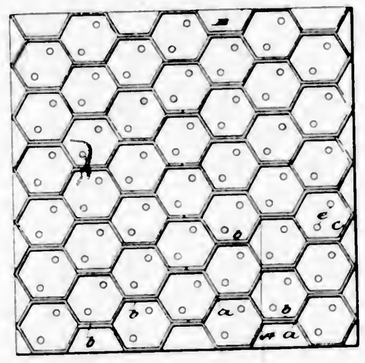
641,668. TELEPHONE. ABBOT A. LOW, New York, N. Y. Filed Feb. 5, 1898. Serial No. 669,263. (No model.)



Claim.—In a telephone the combination with a transmitter T, alarm A, provided with the automatic switch *a*, the auxiliary weight W, the lifting-rod R, provided with the roller *r'*, the sliding base B, formed with the inclined plane d^3, interposed between the upper and lower planes d^2, d^4, the receiver-support S, and said receiver C, the whole arranged and operating substantially in the manner and for the purpose described.

REISSUES.

11,802. EGG-CASE FILLER. CHARLES R. LA FLEUR, Baltimore, Md., assignor to George A. Horner and Arthur L. Horner, same place. Filed Nov. 20, 1899. Serial No. 737,714. Original No. 621,609, dated Mar. 21, 1899.



Claim.—An egg-case filler comprising a series of independent sections, each section consisting of a sheet or strip properly scored to form hexagonal cells when folded upon itself, and the proper panels united to form a series of cells with a panel between each two cells, the ends being united intermediate the ends of the section, and made collapsible to admit of its being flattened and clamped to a corresponding and similar section, the sections having the contacting panels secured together so that the filler will consist of a series of an odd number of rows of cells at right angles to the axis of the sections.

DESIGNS.

32,103. BOTTLE. ALEXANDER M. HAMILTON, Avalon, Pa. Filed Dec. 14, 1899. Serial No. 740,370. Term of patent 3½ years.



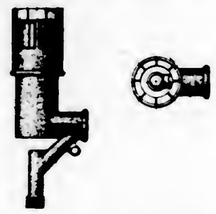
Claim.—The design for a bottle herein shown and described.

32,104. BOTTLE OR JAR. CALEB C. DULA, New York, N. Y., assignor to the Continental Tobacco Company, same place. Filed Dec. 15, 1899. Serial No. 740,479. Term of patent 14 years.



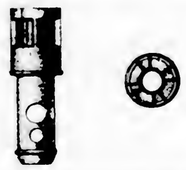
Claim.—The design for a bottle or jar substantially as shown and described.

32,105. HYDROCARBON-BURNER. HERMANN MERKEL, St. Louis, Mo. Filed Nov. 10, 1899. Serial No. 736,547. Term of patent 7 years.



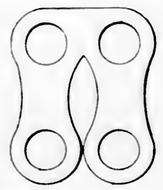
Claim.—The design for a hydrocarbon-burner substantially as herein shown and described.

32,106. HYDROCARBON-BURNER. HERMANN MERKEL, St. Louis, Mo. Filed Nov. 13, 1899. Serial No. 736,877. Term of patent 7 years.



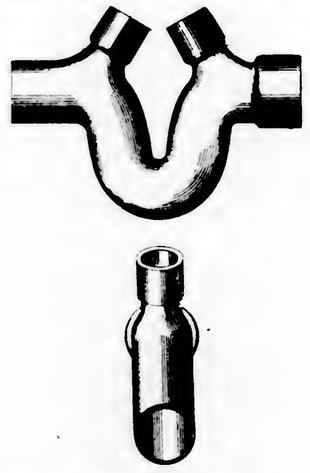
Claim.—The design for a hydrocarbon-burner, substantially as herein shown and described.

32,107. CHAIN-LINK BLANK. FRANK S. WEAVER, Mount Holly, N. J. Filed Dec. 16, 1899. Serial No. 740,604. Term of patent 3½ years.



Claim.—The design for a chain-link blank, herein shown and described.

32,108. SEWER-TRAP. ALFRED P. MORAN, New York, N. Y. Filed Dec. 11, 1899. Serial No. 740,010. Term of patent 14 years.



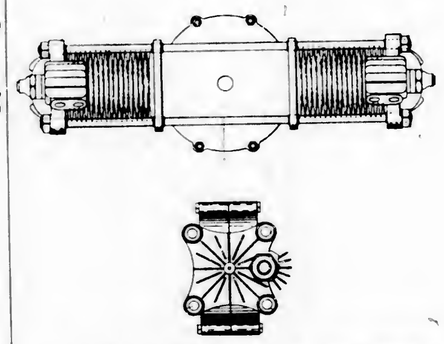
Claim.—The design for a sewer-trap, as herein shown and described.

32,109. DOOR-STOP BASE OR FRAME. FREDERICK T. RUSSELL and MILTON M. FAVOR, Gardner, Mass. Filed Jan. 27, 1899. Serial No. 703,616. Term of patent 3½ years.



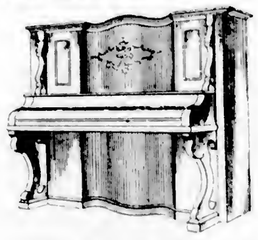
Claim.—The design for a door-stop base or frame as herein shown and described.

32,110. MOTOR-FRAME FOR ENGINES. GEORGE C. BECKWITH, Cambridge, Mass., assignor to E. D. Mellen, same place, and Isaac H. Davis, Boston, Mass. Filed Nov. 16, 1899. Serial No. 736,052. Term of patent 14 years.



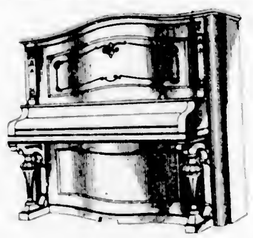
Claim.—The design for a motor-frame for engines, substantially as shown and described.

32,111. PIANO-CASE. EDMUND SCHNABEL, New York, N. Y. Filed Nov. 4, 1899. Serial No. 735,832. Term of patent 7 years.



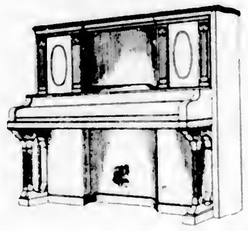
Claim.—The design for a piano-case as herein shown and described.

32,112. PIANO-CASE. EDMUND SCHNABEL, New York, N. Y. Filed Nov. 4, 1899. Serial No. 735,833. Term of patent 7 years.



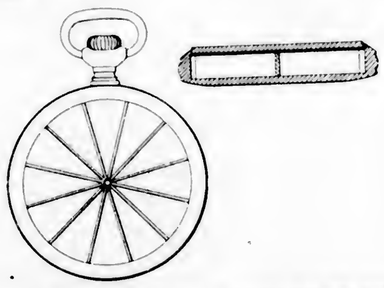
Claim.—The design for a piano-case as herein shown and described.

32,113. PIANO-CASE. EDMUND SCHNABEL, New York, N. Y. Filed Nov. 4, 1899. Serial No. 735,834. Term of patent 7 years.



Claim.—The design for a piano-case as herein shown and described.

32,114. DISPLAY SHOW-CASE. JOSEPH G. HUTCHINSON, Attleborough, Mass. Filed Nov. 13, 1899. Serial No. 736,835. Term of patent 3½ years.



Claim.—The design for a display show-case; as herein shown and described.

32,115. KITCHEN-CABINET. WILLIAM M. HERSON, Kansas City, Mo. Filed Nov. 20, 1899. Serial No. 737,705. Term of patent 14 years.



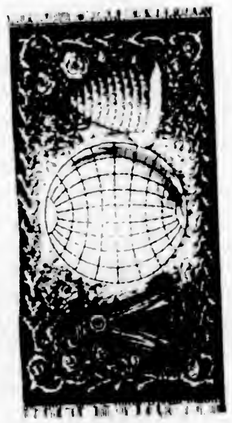
Claim.—The design for a kitchen-cabinet, as herein shown and described.

32,116. FONT OF PRINTING-TYPE. ROBERT L. STILLSON, New York, N. Y., assignor to the Barnhart Brothers & Spindler, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,068. Term of patent 3½ years.



Claim.—The design for the font of printing-type herein shown and described.

32,117. RUG. JOHN GATELY, Chicago, Ill. Filed Dec. 20, 1899. Serial No. 741,026. Term of patent 7 years.



Claim.—The design for a rug substantially as shown and described.

TRADE-MARKS

REGISTERED JANUARY 16, 1900.

34,038. CORSETS AND CORSET-CLASPS. KOPS BROS., New York, N. Y. Filed Nov. 13, 1899.

Whip.

Essential feature.—The word "WHIP." Used since October 10, 1897.

34,039. LADIES' KID GLOVES. LYMAN G. BLOOMINGDALE, New York, N. Y. Filed Oct. 16, 1899.

Jumel

Essential feature.—The word "JUMEL." Used since April, 1899.

34,040. SUITS OF OUTER CLOTHING. SMITH, CHASE & CUTTING, Boston, Mass. Filed Dec. 20, 1899.

THE NEW CENTURY

Essential feature.—The words "THE NEW CENTURY." Used since October 2, 1899.

34,041. DRESS GOODS. SKIDMORE & LARRABEE, New York, N. Y. Filed Feb. 21, 1899.



Essential feature.—The representation of a mailed arm bearing aloft a dagger or poniard. Used since December 1, 1898.

34,042. CARPETS. E. S. HIGGINS CARPET COMPANY, New York, N. Y. Filed Dec. 23, 1899.

SULTAN

Essential feature.—The word "SULTAN." Used since July, 1896.

34,043. REMEDIES FOR CERTAIN NAMED DISEASES. THE SYDNEY ROSS COMPANY, New York, N. Y., and Maplewood, N. J. Filed Dec. 18, 1899.

JAQUEQUINA

Essential feature.—The word "JAQUEQUINA." Used since October 13, 1896.

34,044. PURIFIED WOOL-FAT PREPARED FOR MEDICAL AND PHARMACEUTICAL USE. MERCK & CO., New York, N. Y. Filed Nov. 9, 1899.

LANUM

Essential feature.—The word "LANUM." Used since October 15, 1899.

34,045. CERTAIN NAMED TOBACCOS AND TOBACCO PRODUCTS FOR FUMIGATING, VETERINARY, OR MEDICINAL PURPOSES. THE TOBACCO WAREHOUSING AND TRADING COMPANY, Danville, Va. Filed Dec. 8, 1899.

NICOTICIDE

Essential feature.—The word "NICOTICIDE." Used since October 16, 1899.

34,046. BAKING-POWDER. PARRISH BROS., Baltimore, Md. Filed Dec. 19, 1899.

ADMIRAL

Essential feature.—The word "ADMIRAL." Used since November 29, 1899.

84,047. CONFECTIONS AND TOILET PREPARATIONS. HY-JEN CHEMICAL CO., Detroit, Mich. Filed Nov. 21, 1899.

HY-JEN

Essential feature.—The compound word "HY-JEN." Used since September, 1898.

84,048. SHOE-DRESSING. JAMES F. J. GUNNING, Toronto, Canada. Filed Dec. 20, 1899.

SHUVENIR

Essential feature.—The word "SHUVENIR." Used since December 4, 1899.

84,049. CLEANING AND POLISHING PREPARATION. BYRON R. TRUMBULL, Johnstown, N. Y. Filed Dec. 20, 1899.

O.K.

Essential feature.—The letters "O K." Used since December 1, 1898.

84,050. SOLUBLE COMPOUND OF NUCLEIN AND IRON. KARL SCHWICKERATH, Detroit, Mich. Filed May 27, 1899.

FERRINOL

Essential feature.—The word "FERRINOL." Used since June, 1898.

84,051. SOLUBLE COMPOUND OF NUCLEIN AND COPPER. KARL SCHWICKERATH, Detroit, Mich. Filed May 27, 1899.

CUPROL

Essential feature.—The word "CUPROL." Used since January, 1899.

84,052. SOLUBLE COMPOUND OF NUCLEIN AND SILVER. KARL SCHWICKERATH, Detroit, Mich. Filed May 27, 1899.

NARGOL

Essential feature.—The word "NARGOL." Used since January, 1898.

84,053. SOLUBLE COMPOUND OF NUCLEIN AND MERCURY. KARL SCHWICKERATH, Detroit, Mich. Filed May 27, 1899.

MERCUROL

Essential feature.—The word "MERCUROL." Used since June, 1898.

84,054. NUCLEIN. KARL SCHWICKERATH, Detroit, Mich. Filed May 27, 1899.

NUCLEOL

Essential feature.—The word "NUCLEOL." Used since January, 1898.

84,055. LIQUID COMPOUND FOR CERTAIN NAMED PURPOSES. OLIVER C. LIPPINCOTT, Philadelphia, Pa. Filed Dec. 12, 1899.

DRAWLINE

Essential feature.—The word "DRAWLINE." Used since January 1, 1899.

84,056. PRINTING-MACHINES. ADDRESSOGRAPH COMPANY, Chicago, Ill. Filed Dec. 23, 1899.

ADDRESSOGRAPH

Essential feature.—The word "ADDRESSOGRAPH." Used since November 1, 1893.

84,057. FILTERING DEVICES. EDWARD A. HIBBS, Philadelphia, Pa. Filed Dec. 23, 1899.

EXCELSIOR

Essential feature.—The title "EXCELSIOR." Used since November 15, 1899.

84,058. AGRICULTURAL IMPLEMENTS. THE STANDARD HARROW COMPANY, Utica, N. Y. Filed Nov. 28, 1899.



Essential feature.—A female head and face shown in profile and with the hair on the head of the figure represented as falling around the forehead and loosely bound. Used since November 1, 1898.

84,059. PNEUMATIC TOOLS. STANDARD RAILWAY EQUIPMENT COMPANY, East St. Louis, Ill. Filed Sept. 30, 1899.

MONARCH

Essential feature.—The word "MONARCH." Used since October, 1897.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

IN RE SWIHART.

Decided November 11, 1899.

1. ACCESS TO ORIGINAL APPLICATION—DIVISIONAL APPLICATION IN INTERFERENCE—RULE 106 CONSTRUED.

Rule 106 cannot fairly be construed to mean that an original application upon which a party relies for an award of priority or for the benefits of the burden of proof may be concealed from his opponent. The rule means that where a part only of an application is involved in interference it may be divided, so that the subject-matter not involved may be sent to patent before the termination of the interference proceeding. It does not provide either by express terms or by implication that an opposing party shall be denied access to an original application so divided.

2. SAME—SAME—SAME.

If an original application is to be used in favor of a party in interference and against his opponent, under the rules of evidence the opponent should be permitted to examine it and raise all the objections thereto to which the rules give him a right.

3. SAME—SAME—JUDGMENT ON THE RECORD.

Where judgment is entered against a junior party on the record, to deprive such party of the right to see the papers of his opponent by virtue of which that judgment was made would be giving a judgment against him on a piece of evidence which he is denied the right to see and of the character and contents of which he is ignorant, which would be contrary to the laws of evidence.

IN the matter of the petition of John H. Swihart for a copy of the application of Ira C. Koehne filed December 1, 1896, Serial No. 614,066, for price-computing scales.

Mr. H. H. Bliss for Swihart.

Messrs. Church & Church for Koehne.

DUELL, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to permit Swihart to have a copy of an application of Koehne, of which that involved in Interference No. 20,122 (*Swihart* v. *Koehne*) is stated to be a division.

The record discloses that on December 1, 1896, Koehne, the senior party, filed an application, Serial No. 614,066, for a patent for price-computing scales. On November 1, 1897, Swihart, the junior party, also filed an application, Serial No. 657,127, for computing-scales, which matured into Patent No. 616,743, dated December 27, 1898. On July 20, 1899, the Primary Examiner declared an interference between claims 29, 30, 31, and 32 of the application and claims 1, 2, 3, and 4 of the patent. On September 21, 1899, Koehne filed application Serial No. 731,173 as a division of application Serial No. 614,066 and accompanied said application with the request that it be substituted in the interference in place of the original application. On October 2, 1899, before the preliminary statement of Koehne was approved, the Primary Examiner granted the request and placed claims 3, 4, 5, and 6 of the divisional application in the interference. On October 9, 1899, after the preliminary statements had been approved, Swihart filed a letter requesting that he be furnished with a copy of the application of Koehne filed on September 21, 1899, and also a copy of the application filed on December 1, 1896. On that day the Primary Examiner ruled that—

> application No. 614,066 includes matter divisible from that covered by No. 731,173, and in no way involved in the interference. This attorney is not entitled to copies of that portion of the record in the earlier application relating to such divisible matter not connected with the interference. The later application was filed to attain this end.

Thereupon on October 10, 1899, Swihart petitioned the Commissioner—

> that the Primary Examiner be instructed to permit a full and complete copy of the said alleged application of December 1, 1896, to be made for and delivered to your petitioner upon the payment of the usual charges for such copies as provided for in the rules.

In support of the petition it is urged on behalf of Swihart that—

> without such copy your petitioner is powerless to obtain the absolutely thorough and complete knowledge of all matters of record which are necessary to enable him to ascertain whether the application of September 21, 1899, is a legal and proper division of the alleged application of December 1, 1896. The application of September 21, 1899, does not even purport to present a true copy of the language or descriptive terms or any of them, or any part of the specification or a copy of any of the claims presented in the alleged application of December 1, 1896; nor is there any allegation that the drawings in the application of September 21, 1899, are a correct copy of any of the drawings in the alleged application of December 1, 1896. Your petitioner is in ignorance as to whether the matter presented by the drawings and the description in the application of September 21, 1899, is or is not based upon drawings and descriptive matter added by amendment to the alleged application of December 1, 1896.
>
> Your petitioner is at present in such position that a final award of priority may be entered against him because of the said alleged application of December 1, 1896, of the character and contents of which he is in ignorance.
>
> Your petitioner further represents that Rule 106 (which provides for the filing of divisional applications pending interference) positively excludes provision, and was never intended to provide, for the concealment of any "parent" application, or of any part thereof, and particularly where, as in this case, the applicant derives any benefit from the concealed application. That rule provides, and was intended to provide merely that an applicant should not have the entire subject-matter of an application unnecessarily tied up by an interference where parts thereof can properly be divided out and sent to patent. The opposing applicant in this case did not elect to withhold from inspection of your petitioner the application of December 1, 1896, for had he so elected he would have taken the course prescribed by Rule 105 which is radically different in its contemplation and its provisions from Rule 106.
>
> An inspection of the entire drawings, file and contents of the application of December 1, 1896, is not only necessitated by the rights of your petitioner, but by the principles of evidence. If the opposing party is willing to stand upon September 21, 1899, as his filing date and become the junior party to the interference and rely upon his alleged application of December 1, 1896, as a matter of proof, then, of course, the right of your petitioner for an inspection and a copy falls. But so long as the burden of

proof is upon your petitioner he is entitled to such inspection and copy.

The Examiner's answer to this petition is that—

the earlier application covers several other distinct features than those of the divisional application. After the elimination of all the claims of the divisional application from the parent case the latter still contains forty-three claims, which in no way relate to the subject-matter involved in the interference or covered by the divisional case. The division was filed for the express purpose of preventing Swihart or his attorney from becoming acquainted with those features of Koehne's invention which were in no way related to the interference.

Koehne's invention relates to a computing or price scale. The subject-matter of the interference refers to the price-beam C' of Koehne, the pendant K' of Koehne, suspended from said beam, the graduations upon these two parts and the counterpoise-weights 14 of Koehne, used in connection with the pendant. The divisional application includes a drawing showing what is substantially a copy of Figure 1, omitting levers E' and B with the rod connections thereto, and Fig. 12 of the parent case. These figures of the parent case are the only ones which show the subject-matter of the interference, though it would perhaps be desirable that another figure be added to the drawings of the divisional case which should be a substantial copy of Fig. 2 of the parent case. All the remaining figures show details which are in no way related to the subject-matter of the interference and are distinct from the invention covered by the later case. It would seem that Swihart is simply concerned to know that the subject-matter of the later application was clearly disclosed in the earlier application when the latter was filed. It is therefore thought that he is entitled to copies of all those portions of Koehne's original application, including the drawings, which relate to the subject-matter of the divisional case. It is submitted that he is entitled to copies of Figs. 1, 2, and 12 of the parent case, and to copies of all those portions of the original specification of said case as well as all amendments that in any way relate to the subject-matter of the interference or of the divisional case. The Examiner, however, cannot recommend that Swihart be furnished with copies of those portions of the drawings and specification of the original Koehne application which cover inventions distinct from that of the divisional case, since the division was filed for the express purpose of preventing Swihart from having knowledge of said inventions.

Rule 106, under which the divisional application was filed, provides that—

when a part only of an application is involved in an interference, the applicant may withdraw from his application the subject-matter adjudged not to interfere, and file a new application therefor, or he may file a divisional application for the subject-matter involved, if the invention can be legitimately divided: *Provided*, That no claim shall be made in either application broad enough to include matter claimed in the other.

I do not think that this rule can fairly be construed to mean that original applications upon which a party relies for an award of priority or for the benefits of the burden of proof may be concealed from his opponent. I consider the rule to mean that where a part only of an application is involved in interference the application may be divided, so that the subject-matter not involved may be sent to patent before the termination of the interference proceeding. It does not provide, either by express terms or by implication, that an opposing party shall be denied access to an original application so divided.

By virtue of Koehne's original application Swihart has been made the junior party to the interference and the burden of proof has been placed upon him. Suppose judgment is entered on the record against Swihart by reason of that original application. Then he would have a judgment against him on a piece of evidence which he is denied the right to see and of the character and contents of which he is kept in ignorance. This would be contrary to the laws of evidence and unjust to Swihart and would deprive him of certain rights under the rules. If the original application is to be used in Koehne's favor and against Swihart, under the rules of evidence Swihart should be permitted to examine it and raise all objections thereto to which the rules give him a right. It may be that upon having access to this original application Swihart would convince the Office that for some reason not now apparent to the Examiner the original application is void *ab initio*, or that the divisional application is not a proper division, or that there is new matter in the original application on which the divisional application is based, or that the original application discloses an inoperative machine, or that for some other reason Koehne could not rely upon his original application. Such cases in practice occur more or less frequently, especially where priority is awarded to the senior party on the strength of his filing date and thereafter the award is reversed on the ground that the application as originally filed did not disclose the invention or that the invention as originally presented did not disclose an operative device. In any such case Koehne would have to rely on his alleged divisional application and the burden of proof would be shifted. Unless Swihart is permitted to have access to the original application how is he to consider these matters and intelligently make any of the motions which he has a right to make under the rules, especially under Rule 122?

As has been suggested on behalf of Swihart for the purpose of testing the question further, suppose that priority be awarded to Koehne on the record as it now stands, that he obtains a patent on the divisional application, and that he brings suit against Swihart on that patent, the original application still being in the Office, would Swihart have a right to have access to and obtain copies of the original application? Under the decisions the affirmative is the only proper answer to this question.

In the case of *U. S., ex rel. Pollok*, v. *Hall* (48 O. G., 1263) the court in ruling on a similar question stated:

It appears upon the face of the application not only that it is wanted for the purpose of evidence, but that, in point of fact, properly considered, the paper which is in question, and which he denies access to, belongs to the public and is properly part and parcel of the patent with reference to the litigation about which the document has been wanted for purposes of evidence, for the reason that that rejected application and the descriptions of the matter contained in that rejected application are made by reference part of the very specification of the patent in question, and therefore it was his duty, independent of the general requirement of furnishing a copy for the purpose of evidence, to have given that copy as part and parcel of the published patents and published specifications of the patents in question. Being incorporated into it by reference, it is in contemplation of law part and parcel of the specification of the patent.

What was laid down there has been followed by the Office since, and in a recent case (*Metropolitan R. R. Co.* v. *Siemens*, 85 O. G., 290) I said:

• • • when a patentee has referred to a prior application for a patent, whether such reference appears upon the face of the specification or only among the application papers, and thereafter brings suit upon his patent, he cannot with very good grace urge that the papers referred to by him are "private papers."

While it is true that Koehne's divisional application has not yet become a patent, and therefore to that extent this case differs from the two cases cited, yet by referring to the original case in the divisional application Koehne has made it known to his opponent that he has such an application and to that extent has put it into the record, and by analogy his opponent should have access to the original application, especially as Koehne uses it as evidence in his own favor against Swihart.

For the reasons herein stated my conclusion is that the Examiner was in error in holding that Swihart should not have access to the original application of Koehne.

The petition is granted.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Sixth Circuit.

WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY *v.* TRIUMPH ELECTRIC COMPANY.

Decided October 3, 1899.

1. SCHMIDT—DESIGN PATENT—FRAME FOR ELECTRIC MACHINE—NON-INVENTION—VOID.

Design Letters Patent No. 21,416, issued March 22, 1892, to Albert Schmidt for the frame of an electric machine, the only originality claimed for which is the curvature of the bases of the pillars for supporting the shaft and of the supports to the cylinder-frame for the field, *Held* not to disclose patentable invention and to be void.

2. DESIGN—INVENTIVE GENIUS—PATENTABILITY.

As much inventive genius is required to support a design patent as a mechanical patent. (*Smith* v. *Saddle Co.*, 63 O. G., 912; *Northrup* v. *Adams*, 12 O. G., 430; 2 B. & A., 567, and *Foster* v. *Crossin*, 54 O. G., 1115; 44 Fed. Rep., 62, cited.)

3. SAME—CONSTRUCTION OF STATUTE—UTILITY.

The purpose of Congress in authorizing the granting of patents for designs was to give encouragement to the decorative arts. It contemplated not so much utility as appearance.

4. SAME—SAME—"USEFUL."

By the act of 1870, which was a revision as well as an amendment of the patent laws, the word "useful" in the design statute was transferred from the office of qualifying patterns and prints to that of qualifying shapes or configurations of matter.

5. SAME—SAME—"USEFUL" AS DISTINGUISHED FROM "VICIOUS."

The term "useful" was inserted in the design statute merely out of abundant caution to indicate that things which were vicious and had a tendency to corrupt and in this sense were not useful were not to be covered by the statute.

APPEAL from the Circuit Court of the United States for the Southern District of Ohio.

STATEMENT OF THE CASE.

This is an appeal from a decree of the circuit court dismissing the bill of the Westinghouse Electric and Manufacturing Company against the Triumph Electric Company seeking to enjoin the alleged infringement of a design patent (No. 21,416) issued March 22, 1892, to Albert Schmid and assigned by Schmid to the complainant. The patent was for a design of a new and useful configuration of a frame for electric machines. The frame is seen in Figures 1 and 2 of the patent:

Fig. 1.

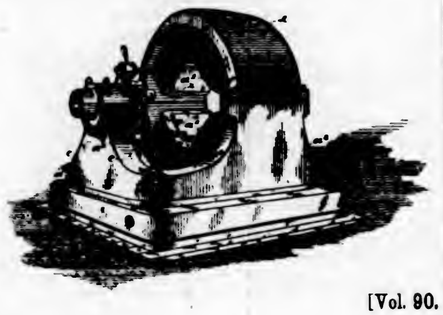
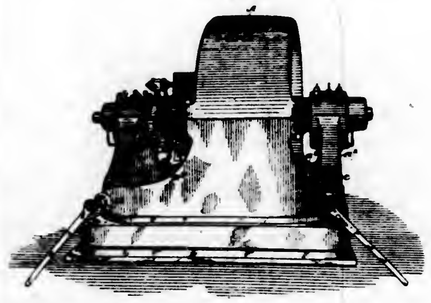


Fig. 2.



The patent says:

The leading feature of the design is the general configuration of the frame with the extensions which constitute the supporting-pillars for a shaft. A represents this frame. The bottom portion is of a somewhat rectangular shape, being rounded, however, at the corners, as indicated at *a*. The central portion is cylindrical in form. It is located nearer to one end of the base than the other, and its sides, resting upon the base, are curved, as indicated at a^3. The pillars, a^2, rise from the bottom portion or base at opposite ends. The sides of these pillars are of curved contour, as shown at *c*, gradually sinking to the base, and joining or nearly joining the curves of the adjacent edges of the cylindrical portion, thus giving a pleasing appearance to the structure. Owing to the greater distance of the cylindrical portion from one end of the base than the other, the curves will unite less acutely at one end than at the other.

What I claim as my invention is—

The design for the frame of a machine substantially as herein shown and described.

Before TAFT, LURTON, and SEVERENS, Judges.

Mr. Wesley G. Carr for the appellant.

Mr. L. M. Hosea for the appellee.

TAFT, *J.*:

Section 4929 of the Revised Statutes provides that—

any person who by his own industry, genius, efforts and expense, has invented and produced (1) any new and original design for a manufacture, bust, statue, alto-relievo or bas-relief; (2) any new and original design for the printing of woolen, silk, cotton or other fabrics; (3) any new and original impression, ornament, pattern, print or picture to be printed, painted, cast or otherwise placed on or worked into any article of manufacture; (4) or any new, useful and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any printed publication, may, upon payment of the fee prescribed and other due proceedings had, the same as in cases of invention or discoveries, obtain a patent therefor.

Of this statute the Supreme Court says, speaking by the Chief Justice, in the case of *Smith* v. *Saddle Co.*, (63 O. G., 912; 148 U. S., 674–678; 13 Sup. Ct., 768, 769:)

The first three of these classes plainly refer to ornament or to ornament and utility, and the last to new shapes or forms of manufactured articles; and it is under the latter clause that this patent was granted.

The same is true of the patent in suit, and the question is whether that which is here claimed to be a patented configuration is new, useful, and original and is the shape or configuration of an article of manufacture. The court below held that the term "useful," which was introduced into the statute by the amendment of 1870, required that the shape or configuration should embrace some new utility and that as the patent in suit was conceded not to involve any utility different from that presented in other and previous machine-frames the patent was void. We should think it very doubtful whether the word "useful," introduced by revision of the patent laws into the statute, is

to have the same meaning as it has in the section providing for patents for useful inventions. The whole purpose of Congress, as pointed out by Mr. Justice Strong, speaking for the Supreme Court, in the case of *Gorham Co.* v. *White*, (4 O. G., —; 14 Wall., 511,) was to give encouragement to the decorative arts. It contemplated not so much utility as appearance.

> The law manifestly contemplates that giving certain new and original appearances to a manufactured article may enhance its salable value, may enlarge the demand for it, and may be a meritorious service to the public. * * * It is the appearance itself which attracts attention and calls out favor or dislike. It is the appearance itself, therefore, no matter by what agency caused, that constitutes mainly, if not entirely, the contribution to the public which the law deems worthy of recompense.

This decision was rendered at a time when the statute of 1861 was in force. By that statute a design patent was provided for "any new and original shape or configuration of any article of manufacture." The word "useful" did not appear in this phrase. It did, however, appear in another part of the same section—to wit: "any new and useful pattern, or print, to be either worked into or worked on, or printed, or painted, or cast, or otherwise fixed on any article of manufacture." By the act of 1870, which was a revision as well as amendment of the patent laws, the word "useful" was transferred from the office of qualifying patterns and prints to that of qualifying shapes or configurations of matter. (12 Rev. Stats., 246.) We cannot infer from the transfer of a single word from one phrase to another where both are in *pari materia* that thereby as to one of the classes of designs protected by the statute the whole purpose of Congress, as pointed out by the Supreme Court, was changed. We must infer that the term "useful" was inserted merely out of abundant caution to indicate that things which were vicious and had a tendency to corrupt and in this sense were not useful were not to be covered by the statute. As already said, the statute is a revision, and the presumption of the legislative intention to change the meaning by a change of language is by no means so strong as when the sole object of the statute is to amend. We concur in the opinion of Mr. Commissioner Hall in *ex parte Schulze-Berge*, (42 O. G., 293,) in which he says:

> There can be no doubt that an invention, to be the subject of a mechanical patent, must possess utility or usefulness; but it is a usefulness which relates to mechanics—the modification or control of physical forces. On the other hand, the subject of a design patent may also be useful in an entirely different sense or direction, and I think the word "useful" in the statute (section 4929, Rev. Stats.) is employed in a different sense. The subject of invention, so far as form or shape or configuration is concerned, must be useful in the sense that it tends to promote pleasure, refinement, comfort, depending upon the sense of the beautiful. It must be useful in the sense that it must not be mischievous, obscene, or tending to produce evil or wicked reflections. Invention in this field of art relates to the intangible, and its power consists in its ability to awaken pleasant and agreeable sensations, conceptions, and thoughts, and the usefulness involved is that which brings about these results.

See also *ex parte Norton* (22 O. G., 1205) and *Kraus* v. *Fitzpatrick*, (34 Fed. Rep., 39.)

It is further objected by the appellee that the frame of the electric machine is not an article of manufacture within the meaning of the statute above quoted and that a design patent cannot be granted for the configuration of what is part of a machine rather than an article of manufacture within the meaning of the law. The question is not free from difficulty and we do not find it necessary to consider it. Assuming that a frame for an electric machine might be made the subject of a design patent, we are clearly of opinion that the frame here patented was not new or original in view of the existing state of the art.

It is conceded on behalf of the appellant that the physical and mechanical necessities of the electric machine of which the subject-matter of this patent was to form the frame required a cylindrical frame in which should be the field of the multipolar dynamo and in which the armature must revolve and that there must be pillars at each side of this cylinder to support the axis or shaft of the armature. It is also conceded that it was a necessary mechanical arrangement that the field and revolving armature should be nearer to one of the supports than the other. Many forms of the frame of the electric machine have been introduced in evidence by model and drawing, and in each we find the pillars and cylindrical frame between, and the only distinction which counsel for complainant has been able to point out between the patented design and previous forms is in the curvature of the base of the pillars and of the bases of the supports to the cylinder-frame for the field. In the patented design the bases of the pillars and of the cylinder are curved so as to make them almost continuous from the cylinder to the pillar. In the Elwell Parker machine-frame we find the curve at the base of the pillars, but with only a very slight curve, if any, at the base of the cylindrical frame. In the Alioth machine we find curved bases to the pillars, with a curved web connecting one pillar with the cylinder, while the other pillar, though curved to the base, is not directly connected with the cylinder. As pointed out by counsel for the defendant and as admitted by the witnesses for the complainant, the insertion of a small curved fillet at the base of the cylinder on each side would destroy all material difference in appearance between the patented design and the Elwell Parker frame. It is further shown by the evidence that curves like this at the base of a standard or pillar are of the commonest use and are at once suggested to the practical builder of such a machine by the fact that they render the casting of them much easier and more certain of success. In general appearance the Alioth and the Elwell Parker machine are very like the patented design. The difference in the curve at the bottom is one which would suggest itself to any workman and does not involve that exercise of the inventive genius which is as necessary to support a design patent as a mechanical patent. (*Smith* v. *Saddle Co.*, 63 O. G., 912; 148 U. S., 674–679; 13 Sup. Ct., 768; *Northrup* v. *Adams*, 12 O. G., 430; 2 Ban. & A., 567, Fed. Cas. No. 10,328; *Foster* v. *Crossin*, 54 O. G., 1115; 44 Fed. Rep., 62.) For this reason and without considering the other interesting questions presented in full in the briefs of counsel we affirm the decree of the circuit court at the costs of the appellant.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Drawings.

RULES TO BE OBSERVED IN PREPARING AND FORWARDING DRAWINGS TO THE UNITED STATES PATENT OFFICE.

Where drawings are to be filed in connection with an application for Letters Patent in the United States Patent Office, each sheet, before it can be accepted by the Office as a part of the application, must be signed in the name of the inventor at the lower right-hand corner, either by him or by an attorney whose written authorization from the applicant is filed in connection with the application. This signature must also be attested by two witnesses, each of whom should sign the drawing at the lower left-hand corner of the sheet. The signatures should never be written on a line parallel with the longer edges of the sheet, one of the shorter edges being always regarded, for the purpose of locating the signatures, as the lower edge of the sheet. The signatures must all be within the margin-lines of the sheet and below the lines of the drawing. The title of the invention should be written with pencil on the back of each sheet of drawings.

When there are filed on the same day two or more applications by the same inventor, each of the documents and drawings belonging to the same application should have placed thereon the same letter or number, which should be different from the letter or number placed upon those of any other of the applications.

It is desirable that all parts of the complete application, including the drawings, be deposited in the Office at the same time. Should, however, the other parts of the application be filed before the drawings are sent, the latter when forwarded should be accompanied by a letter stating the number of sheets inclosed, and that the drawings are to be filed with the other parts of the application, giving the date at which such other parts were filed in the Office, the name of the inventor, and title of the invention. If the application has received a serial number, that should also be given, and it should be indorsed with pencil on the back of each sheet of drawings. The letter should also state, if such be the case, that the new drawings are to be substituted for those previously filed.

Drawings should be rolled—never folded—for transmission, and should be incased in a substantial mailing-tube.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

CERTIFICATES OF REGISTRATION ISSUED JANUARY 23, 1900

Labels.

7,303.—Title: "DR. MILES' COMPOUND WINE OF SARSAPARILLA." (For a Medical Preparation.) *Dr. Miles Medical Company*, Elkhart, Ind. Application filed December 16, 1899.

7,304.—Title: "DR. MILES' LAXATIVE COLD CURE." (For a Medical Preparation.) *Dr. Miles Medical Company*, Elkhart, Ind. Application filed December 16, 1899.

7,305.—Title: "SALOFORM." (For a Medicine.) *Fleemer Chemical Co.*, Louisville, Ky. Application filed December 28, 1899.

7,306.—Title: "PEPTO-MANGAN." (For a Medicine.) *M. J. Breitenbach & Company*, New York, N. Y. Application filed December 8, 1899.

7,307.—Title: "BUENA TONIC." (For a Lotion.) *Jean Wallace Butler*, Chicago, Ill. Application filed December 28, 1899.

7,308.—Title: "CROWN HAIR PRESERVER." (For Hair-Tonic.) *Maurice Scholder & Co.*, New York, N. Y. Application filed December 28, 1899.

7,309.—Title: "THE 20TH CENTURY SCALP HEALER AND VEGETABLE HAIR RESTORER." (For Hair-Tonic.) *Mrs. E. V. Freligh*, Lynn, Mass. Application filed November 27, 1899.

7,310.—Title: "RAM'S HORN." (For Fruits.) *Charles N. Holden*, Chicago, Ill. Application filed December 29, 1899.

7,311.—Title: "NATURAL OYSTERS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed December 30, 1899.

7,312.—Title: "NATURAL LOBSTERS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed December 30, 1899.

7,313.—Title: "FAIRMOUNT FINE OLD WHISKEY." (For Whisky.) *Barker & Wheeler Company*, Peoria, Ill. Application filed December 23, 1899.

7,314.—Title: "BREESPORT OXYGENATED MINERAL SPRINGS." (For Mineral Water.) *J. A. Westlake & Co.*, Breesport, N. Y. Application filed December 28, 1899.

7,315.—Title: "BROOKS BRAND." (For Roofing Material and Roofing-Paint.) *H. W. Johns Manufacturing Company*, Jersey City, N. J., and New York, N. Y. Application filed December 30, 1899.

Reregistration.

7,316.—Title: "BROOKS HOUSE CIGAR." (For Cigars.) *John D. Ross*, Brattleborough, Vt. Application filed December 20, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 16, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc	Jan. 2	Jan. 8	74
217	XXXIII. *DESIGNS, †TRADE-MARKS ‡LABELS AND PRINTS, Optics.	Jan. 2	Jan. 2	25
250	VIII. Furniture, Beds, Store Furniture, etc.	Dec. 30	Jan. 4	146
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Dec. 21	Jan. 4	160
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc	Dec. 20	Jan. 5	102
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Dec. 20	Jan. 4	81
106	II. Farm Stock, Products, etc	Dec. 20	Jan. 3	215
95	XXX. Paper Manufactures. Lamps, and Gas-Fittings.	Dec. 19	Jan. 2	187
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Dec. 19	Jan. 2	317
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 18	Jan. 6	152
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 18	Jan. 5	158
253	X. Carriages and Wagons	Dec. 18	Jan. 4	136
140	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 18	Jan. 4	112
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 18	Jan. 3	109
39	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 18	Jan. 3	155
246	I. Tillage and Fences	Dec. 18	Jan. 2	149
243	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 18	Jan. 2	141
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Dec. 18	Jan. 2	160
98	XXI. Textiles, etc	Dec. 18	Jan. 2	173
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Dec. 18	Jan. 2	191
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Dec. 18	Jan. 2	119
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 18	Jan. 2	165
256	V. Fine Arts, Harvesters, Book Binding, Music, etc.	Dec. 18	Jan. 2	152
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Dec. 18	Jan. 2	150
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Dec. 18	Jan. 2	139
129	XXIV. Sewing-Machines, Apparel, and Toilet.	Dec. 18	Jan. 2	173
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 18	Jan. 2	228
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 18	Dec. 26	175
	Between one and two months.			
248	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Dec. 17	Jan. 3	150
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Dec. 17	Jan. 2	118
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 16	Jan. 2	153
248	XVIII. Steam-Engineering, etc	Dec. 14	Dec. 20	149
102	XIX. Stoves and Furnaces	Dec. 12	Dec. 30	231
240	VII. Velocipedes, Games, and Toys	Dec. 6	Dec. 15	276
133	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 27	Dec. 28	111
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Nov. 24	Dec. 14	275

Total number of applications awaiting action..... 5,660

Applications Under Examination—Continued.

Under one month.			
*Designs	Jan. 10	Jan. 10	35
†Trade-Marks	Jan. 10	Jan. 15	13
‡Labels and Prints	Jan. 10	Jan. 16	1

ISSUE OF JANUARY 23, 1900.

Patents	395—No.	641,664 to No. 642,058, inclusive.
Designs	27—No.	32,118 to No. 32,144, inclusive.
Trade-Marks	29—No.	34,060 to No. 34,081, inclusive
Labels	14—No.	7,303 to No. 7,316, inclusive.
Prints	None.	
Reissues	8—No.	11,798 to No. 11,805, inclusive.
Total issue	461	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	1	....
Arkansas	1	....	New Jersey	10	3
California	9	....	New Mexico Territ'y	....	....
Colorado	2	....	New York	51	8
Connecticut	14	....	North Carolina	2	....
Delaware	1	....	North Dakota	1	....
District of Columbia	2	....	Ohio	33	3
Florida	2	....	Oklahoma Territ'y	2	....
Georgia	3	....	Oregon	3	....
Hawaii	....	....	Pennsylvania	41	3
Idaho	....	....	Rhode Island	2	....
Illinois	27	4	South Carolina	2	....
Indian Territory	....	....	South Dakota	1	....
Indiana	8	3	Tennessee	2	....
Iowa	13	....	Texas	12	1
Kansas	6	....	Utah	2	....
Kentucky	4	1	Vermont	1	1
Louisiana	2	....	Virginia	3	....
Maine	1	....	Washington	5	....
Maryland	9	....	West Virginia	1	....
Massachusetts	43	4	Wisconsin	7	....
Michigan	12	....	Wyoming	....	....
Minnesota	5	1	U. S. Army	....	....
Mississippi	5	1	U. S. Navy	....	....
Missouri	14	....			
Montana	3	....	Total to citizens of the United States	369	33
Nebraska	2	....			

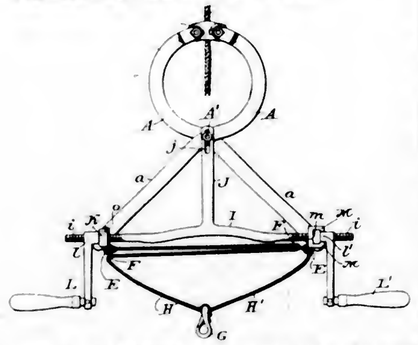
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	1	Italy	....	....
Australia	....	....	Japan	....	....
Austria-Hungary	1	....	Jamaica	....	....
Barbadoes	....	....	Mexico	1	....
Belgium	....	....	Netherlands	....	....
Brazil	....	....	Newfoundland	....	....
British West Indies	....	....	New South Wales	1	....
Canada	9	....	New Zealand	....	....
Cape Colony	....	....	Norway	2	....
China	....	....	Queensland	....	....
Colombia	....	....	Roumania	....	....
Cuba	....	....	Russia	....	....
Denmark	....	....	Scotland	1	....
Dutch West Indies	....	....	South African Republic	....	....
Egypt	....	....	Sweden	....	....
England	14	1	Switzerland	3	....
Finland	....	....	Victoria	....	....
France	5	1	Western Australia	....	....
Germany	15	....			
Guatemala	....	....	Total to citizens of foreign countries	53	3
India	....	....			
Ireland	1	....			

PATENTS

GRANTED JANUARY 23, 1900.

641,664. FIRE-ESCAPE. BERNARD W. ABBE, Fort Lee, N. J. Filed June 22, 1899. Serial No. 721,451. (No model.)



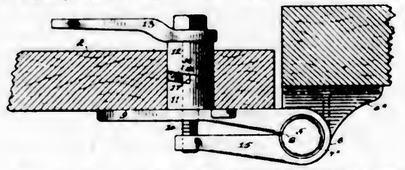
Claim.—1. In a fire-escape, the combination with the tong-arms having wheels or rollers, of mechanism for regulating the grip of the wheels upon the rope, consisting essentially of a T-rod engaging the pivot of the tong-arms and the lower ends of said arms, and crank-handles provided with nuts traveling on the ends of the horizontal part of said T-rod.

2. In a fire-escape, the combination with the tong-arms having rope-gripping wheels, of the screw-threaded bar having a central branch arm slotted to engage the pivot of the tong-arms, and traveling nuts on said bar for controlling the bite of the wheels against the rope.

3. In combination with the tong-arms, a horizontal screw-threaded rod, eyebolts in the lower ends of said arms through which the said screw-threaded bar passes, and crank-handles having nuts traveling on the screw-threaded bar, one of the nuts flanged to engage flanges on one of the eyebolts.

4. In a fire-escape, the combination of the pivoted tong-arms having rope-gripping wheels, perforated bolts supported in the lower ends of said arms, a T-rod engaging the pivot of the tong-arms and passing through said perforated bolts, traveling nuts on the horizontal portion of the T-rod, one of which engages lips on one of the aforesaid perforated bolts.

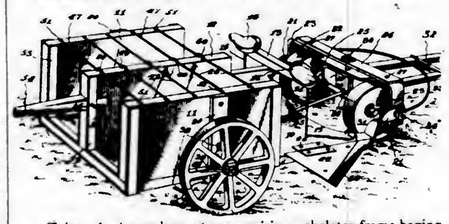
641,665. FRICTIONAL LOCKING-HINGE. FRED H. BASSETT, Waterbury, Conn. Filed Apr. 11, 1899. Serial No. 712,585. No model.



Claim.—1. The herein-described frictional locking-hinge, consisting of a bracket carrying a stud, said bracket adapted to be secured to the casing or door-frame, a movable member comprising in its construction a head portion having a circular split bearing adapted to embrace said stud, one leg of said movable member secured to a blind, door or other like movable support, a cam-face hub integral with said leg adapted to enter a hole provided in said blind or door, a cam-face lever on the opposite side of said blind, a bolt passing through said hubs and anchored in the other leg of said movable member so that, by the operation of the hand-lever and said cam-faces the bearing is expanded or contracted, for the purpose set forth.

2. The herein-described frictional locking-hinge, comprising in combination, a bracket or stationary member adapted to be secured to the casing a stud on said bracket, a movable member adapted to be secured to a door or blind, a head portion having a circular split bearing adapted to embrace said stud, combined with a non-corrosive split bushing as shown, a locking-lever having a cam-face hub combined with a cam-face hub on said movable member and a binding-bolt, for the purpose set forth.

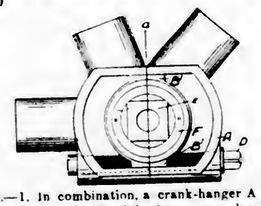
641,666. CORN-HARVESTER. DANIEL BAUGHMAN, Columbus Grove, Ohio. Filed Apr. 28, 1899. Serial No. 714,843. (No model.)



Claim.—1. A corn-harvester comprising a skeleton frame having the cross-bars, 17, 19, united to the longitudinal bars, 16, 18, said bars, 16, being prolonged and twisted at the front ends into the hangers, 21, a platform secured on the skeleton frame and having the side walls fastened to vertical extensions of the cross-bar, 19, a bolster fastened to the hangers of the bars, 16, in advance of the platform, a draft-yoke provided with openings, 34, draft-links fitted in said openings, a king-bolt, a stay-rod, 35, connected to the frame cross bar, 17, and to the king-bolt, and carrying-wheels mounted in the draft-yoke and on the metallic frame, respectively, substantially as described.

2. The combination of the platform, the side and middle walls fixed to the platform and said middle wall having the rearwardly-opening socket in its rear edge, a shock-pole fitted removably in said socket, and a fastener fitted in the wall and the pole to hold the latter removably in place, substantially as described.

641,667. CRANK-HANGER BEARING. HERBERT BEESTON, Wolverhampton, England. Filed July 18, 1899. Serial No. 724,254. (No model.)



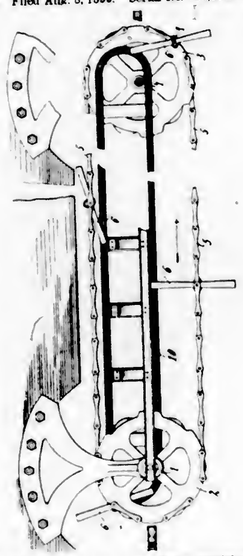
Claim.—1. In combination, a crank-hanger A having an opening elongated longitudinally of the frame, a crank-axle casing having a head B^3 projecting laterally therefrom at one end and fitting over the outer end of the crank-hanger against the edge of the elongated opening, said casing having an external screw-thread at its other end and a locking-ring C on said external screw extending over the other end of the crank-hanger, substantially as described.

2. In combination, a crank-hanger A having an opening elongated longitudinally of the frame, a crank-axle casing having a head B^3 projecting laterally therefrom at one end and fitting over the

outer end of the crank-hanger against the edge of the elongated opening, said casing having an external screw-thread at its other end, a locking-ring C on said external screw extending over the other end of the crank-hanger, and a covering-plate G fitting between the locking-ring C and the end of the crank-hanger, substantially as described.

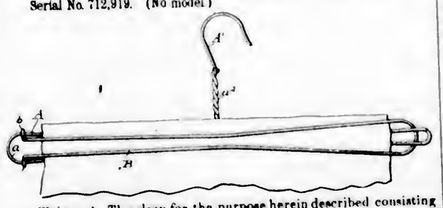
3. In combination, a crank-hanger A having an opening elongated longitudinally of the frame, a crank-axle casing having a head B^3 projecting laterally therefrom at one end and fitting over the outer end of the crank-hanger about the elongated opening, said casing having an external screw-thread at its other end, a locking-ring C on said external screw extending over the other end of the crank-hanger, said casing being also internally screw-threaded, a cup E screwed therein and a locking-ring F fitting the internal screw-threads and holding the cup in place, substantially as described.

641,668. ENDLESS-CHAIN PROPELLER. REINHOLD BEGAS, Berlin, Germany. Filed Aug. 8, 1899. Serial No. 726,534. (No model.)



Claim.—A paddle-chain ship-propeller comprising a pair of endless chains passing over two sprocket-wheels each and having rectangular paddles hung up between them and fastened to the screws connecting the chain-links, said paddles having slots with pins projecting therein and embracing an endless guiding-rail of I shape located vertically between the chains, its lower part lying just below the axles of the sprocket-wheels, the paddles being thus forced to glide on the track always with the head first, substantially as shown and described.

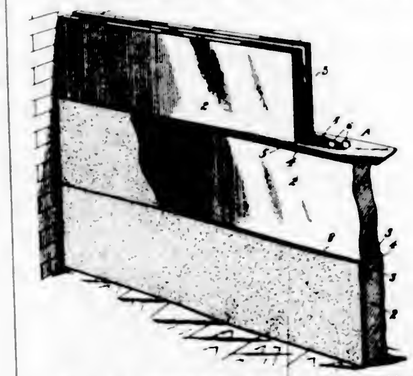
641,669. DISPLAY-CLASP FOR GARMENTS. ARTHUR J. BENNER and WILLIAM A. FLOCK, Burlington, Iowa. Filed Apr. 13, 1899. Serial No. 712,919. (No model.)



Claim.—1. The clasp for the purpose herein described consisting of an elongated body member provided with a centrally-projecting suspension-hook, and a parallel side-clasping member of spring character adapted to make a clasping contact with the body member throughout its entire length, and formed with end loops or eyes which slidingly engage opposite end portions of the body member, substantially as specified.

2. The clasp for the purpose herein described, comprising a body member constructed of wire having each end portion bent upon itself to form closed loop-arms and a central projecting suspension-hook, and a parallel side-clasping member also formed of wire of resilient character bent upon itself and having eyes or loops at its free ends which slidingly engage one of said loop-arms of the body member, and through whose opposite large looped end portion the other smaller loop-arm of the body member is pressed and slid, substantially as specified.

641,670. PARTITION OR WALL. AUGUSTUS W. BLAKE, New York, N. Y. Filed Oct. 19, 1899. Serial No. 734,081. (No model.)



Claim.—1. A partition or wall comprising a series of blocks disposed in rows; a plate located intermediate the rows of such blocks and projecting beyond one or both edges thereof and effective to regulate the depth of the plaster coat applied to said partition.

2. A partition or wall comprising a series of blocks disposed in rows; a plaster-regulating plate located intermediate the rows of said blocks and projecting beyond one or both faces thereof; and a plaster coat disposed on said partition and having a depth corresponding to the extension of the plates beyond the faces of said blocks.

3. A partition or wall comprising a series of blocks disposed in rows; a binder having one or more projections adapted to engage said blocks and maintain the same in position; a plate provided with apertures for the passage of said projection or projections, said plate extending beyond one or both sides of said blocks.

4. A partition or wall comprising a series of blocks disposed in rows; a binder having a series of projections adapted to engage said blocks and maintain the same in position; a plate provided with apertures for the passage of said projections, said plate projecting beyond one or both sides of said partition; and a plaster coat assembled on said wall and having a depth corresponding to the extension of the plates beyond the faces of said blocks.

5. A partition or wall comprising a series of blocks disposed in rows; a binder located intermediate said rows and having a series of alternately-raised surfaces having projections adapted to engage said blocks; a plate provided with openings through which said projections extend, said plate having greater width than the width of the blocks; and a plaster coat having its outer surface flush with the edges of said plate.

6. A partition or wall comprising a series of blocks disposed in rows, each of said blocks having a recess the full length of each edge thereof; a binder located intermediate the rows of said blocks and having alternately-raised surfaces provided with openings and with projections adapted to extend into the recesses of said blocks; a plate provided with openings registering with the openings of said binder and through which the projections thereof extend, said plate having greater width than the width of the blocks; and a plaster coat disposed on said wall and having its outer surface flush with the edges of said plates.

7. A combined binder and plaster-regulating plate, consisting of a binder having a series of alternately-raised surfaces each having one or more projections, and a plate having greater width than said binder and provided with openings through which said projections extend.

8. A combined binder and plaster-regulating plate, consisting of a binder having a series of alternately-raised surfaces each provided with an opening and with projections, and a plate having greater width than said binder and provided with openings through which said projections extend.

9. A combined binder and plaster-regulating plate, consisting of a binder having a series of alternately-raised supporting-surfaces provided with openings and with projections alternately located at the edges of said openings, and a plate having greater width than said binder and provided with openings through which said projections extend.

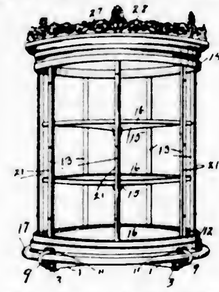
10. A partition or wall comprising a series of blocks disposed in rows, a binder member, and a plate member, the latter extending beyond one or both sides of said blocks and effective to regulate the depth of the plaster coat applied to said partition, and one of said members having apertures and the other having projections extending through said apertures and engaging the blocks.

11. A partition or wall comprising a series of blocks disposed in rows, a binder member, and a plate member connected with said binder member and extending beyond one or both sides of said blocks and effective to regulate the depth of the plaster coat applied to said partition, one of said members having means for engaging the blocks.

12. A combined binder and plaster-regulating plate consisting of a binder member and a plate member, the latter having greater width than said binder member, and one of said members having means for engaging the other member and for engaging the blocks to maintain the combined structure in position.

13. A combined binder and plaster-regulating plate consisting of a binder member and a plate member connected with said binder member and having greater width than said binder member, and one of said members having means for engaging the blocks, thereby to unite the combined structure.

641,671. REVOLVING SHOW-CASE. BENJAMIN C. BRADLEY, Alliance, Ohio, assignor to the Crystal Case Company, same place. Filed Mar. 3, 1899. Serial No. 707,564. (No model.)



Claim.—1. The combination of a stationary frame, a supporting-base having arms, notches or recesses formed in the ends of the arms, links connected to the supporting-base and to the stationary frame, substantially as and for the purpose specified.

2. The combination of the bracket or frame sections 27 and 28, located upon the upper end of the stationary case, the section or frame 27 provided with the hook 30, the flange 32 and the shoulder 34, and the section 28 provided with the hooks 29 and 31 and part 33, substantially as and for the purpose set forth.

3. The combination of a stationary frame, the posts 13 connected to the stationary frame, the clamping-bolts 19 located as shown and said posts provided with cut-out portions 23, and ribs 22 formed upon the posts and the caps 21 located over the ribs 22, substantially as and for the purpose specified.

641,672. DENTAL CLAMP. WALTER I. BRIGHAM, South Framingham, Mass. Filed May 1, 1899. Serial No. 715,089. (No model.)



Claim.—1. A dental cervical clamp, comprising a bow having near each end tooth-engaging portions, one of which presents but a single point to contact with said tooth adjacent the region to be treated.

2. A dental cervical clamp, comprising a bow having near each end tooth-engaging portions, one of which consists of a single-point-contacting member adjustable toward and away from said tooth.

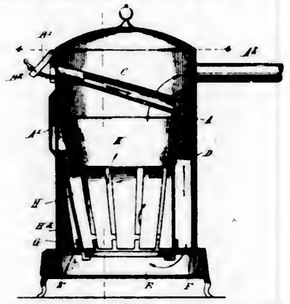
3. A dental cervical clamp, comprising a bow having near one end a portion to contact with a tooth on the side thereof opposite that to be treated, said bow being provided near its opposite end with an adjustable screw to contact with, and attach said clamp to, said tooth on the side adjacent the region to be treated.

4. A dental cervical clamp, comprising a bow, provided near each end with a portion to contact with a tooth on the side opposite that to be treated, and with bearings near said ends respectively to receive an attaching-screw; and a screw to enter either of said bearings interchangeably and contact with said tooth.

5. A bow for dental cervical clamps, said bow having near one end an attaching portion adapted to contact with a tooth on the side opposite that to be treated, said bow having near its opposite end a bearing adapted to receive an adjustable contact member and present the same toward said first-mentioned attaching portion but at a point farther removed from said bow.

6. A bow for dental cervical clamps, composed of a blank of flat metal formed at each end with a concave attaching portion, and having integral lugs bent up adjacent and beyond said attaching portions respectively, to provide on each side a bearing to receive an adjustable contacting member and present the same toward the concave attaching portion on the opposite side.

641,673. HEATER. ARTHUR R. BROOMHALL, Paris, Ky. Filed Mar. 7, 1899. Serial No. 708,139. (No model.)



Claim.—1. In a heating-stove, the combination with a casing, of a series of radially-extending arms positioned in said casing and projecting inwardly, of a grate engaged by the outer ends thereof, a fire-pot comprising a series of sections properly spaced and provided with rearwardly-extending side flanges beveled at their upper end and resting against the inner side of the casing, a notched ring resting on the radial arms and means whereby the said sections and ring are engaged, substantially as described.

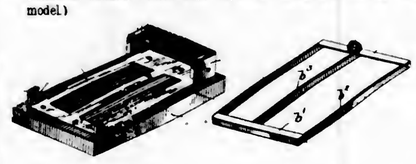
2. In a stove of the kind described, a vertical air-duct, arranged at the rear of the fire-pot and below the stovepipe-opening, said air-duct discharging into the ash pit or chamber, and an air-feed pipe extending from the front of the stove across the top of the fire-pot into the upper end of the air-duct, said air-feed pipe having a regulating-door at its outer end, substantially as shown and described.

3. In a stove of the kind described, a fire-pot consisting of a series of sections having a central rib and rearwardly-extending side flanges, laterally-projecting lugs secured on said side flanges and a supporting-ring upon which the sections rest, substantially as described.

4. In a stove of the kind described, a fire-pot, comprising a series of sections having rearwardly-extending side flanges, and a central longitudinal rib, the upper portion of each section being inclined and adapted to rest flush against the side of the stove, lugs on said side flanges for spacing them apart and an annular ring upon which the said section rests, substantially as described.

5. In a stove of the kind described, the combination with the body, of the ring supported therein, the ribs arranged upon the said ring and forming the fire-pot and vertical air-duct forming the portion of said fire-pot, an air-pipe leading into the said air-duct, and the regulating-door and means for adjusting the same, substantially as and for the purpose described.

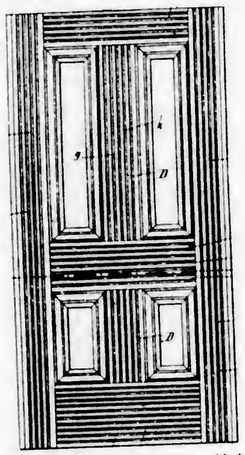
641,674. CARD-HOLDER FOR FREIGHT-CARS. DAVID P. CORY, Consecon, Canada. Filed Sept. 18, 1899. Serial No. 730,799. (No model.)



Claim.—1. A card-holder for freight-cars, comprising a rectangular base-plate; lugs mounted on each corner of said base-plate; guideways formed on said lugs; a clamp-plate having suitable pins adapted to engage said guideways, whereby said clamp-plate is slidably secured to said base-plate, substantially as described.

2. A card-holder for freight-cars, comprising a rectangular base-plate; lugs formed on each corner of said base-plate, inclined guideways formed on said lugs; a clamp-plate having pins adapted to engage said inclined guideways, a suitable stop for limiting the movement of the clamp-plate formed on the upper of said lugs, whereby the clamp-plate may be raised up off the base-plate or lowered down upon the same, substantially as described.

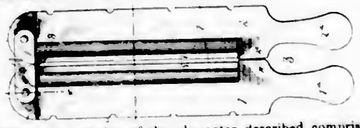
641,675. DOOR. CHARLES H. CRAMER, Middleport, N. Y. Filed Oct. 31, 1899. Serial No. 735,379. (No model.)



Claim.—1. A cored door having its core provided in its face with grooves or depressions which divide the same into separate bearing-surfaces for the veneering of the door, substantially as set forth.

2. A door composed of a core having its members provided in opposite sides with parallel grooves extending lengthwise of each member, and veneering applied to opposite sides of the grooved core and bearing against the narrow bearing-surfaces between said grooves, substantially as set forth.

641,676. BUTTON-STICK AND CLEANING-SHIELD. THOMAS O. CURTISS, New York, N. Y. Filed May 4, 1899. Serial No. 715,517. (No model.)



Claim.—1. A device of the character described comprising a pair of plates or strips hinged together so that corresponding pairs of edges may be brought into substantially parallel juxtaposition to receive button-shanks between them respectively, substantially as described.

2. A device of the character described comprising a pair of plates or strips and a transverse bar pivoted thereto so that pairs of edges may be brought into juxtaposition to receive button-shanks between them by reversing the relative position of the plates, substantially as described.

3. A device of the character described comprising a pair of plates having shoulders or abutments near their outer ends and a cross-bar pivotally connected with said plates, whereby said shoulders and bar may abut, and whereby opposite edges of said plates may be brought into juxtaposition to receive button-shanks between them, substantially as described.

4. A device of the character described comprising a body having a slot to receive button-shanks, the opposed edges of said slot being raised from the surface of the body providing a channel beneath them and a slot between them, whereby a button can be held raised from the surface of the body to enable its edges to be polished, substantially as described.

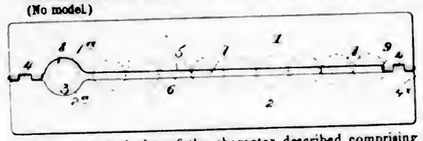
5. A device of the character described comprising a body having a longitudinal slot the edges of which are raised from the surface of the body providing a channel on the opposite side, and an abutment at the end of the slot, substantially as described.

6. A device of the character described comprising two plates or strips pivotally connected together and adapted to form a slot to receive button-shanks between them, the edges of said slot being raised from the surface of the plates, the material of the plates forming abutments to limit the movement of the button-shanks in the slot, substantially as described.

7. A device of the character described comprising a pair of plates or strips connected together and having a slot between them, and handles extending from said plates having recessed edges to form a space for the passage of buttons into the slot, substantially as described.

8. A device of the character described comprising a pair of plates or strips pivotally connected together and each having an edge raised from the surface of the plate adapted to be brought into juxtaposition, the opposite edge of each plate having notches adapted to register when said edges of the plate are brought together, substantially as described.

641,677. BUTTON-STICK AND CLEANING-SHIELD. THOMAS O. CURTISS, Jr., New York, N. Y. Filed Nov. 15, 1899. Serial No. 737,036. (No model.)



Claim.—1. A device of the character described comprising a body having a slot to receive button-shanks, and means to enable the opposite side portions of said body to be folded toward each other, so as to incline at an angle to each other, substantially as described.

2. A device of the character described comprising a pair of plates or strips joined together so that they may fold toward each other so as to incline at an angle to each other and having a slot between them to receive button-shanks, substantially as described.

3. A device of the character described comprising a pair of plates or strips having hinges near opposite ends so that said plates can fold toward each other and having a slot between the adjacent edges of said plates and between said hinges to receive button-shanks, said hinges closing the ends of the slot, substantially as described.

4. A device of the character described comprising a pair of plates or strips hinged together so that they may fold toward each other, said plates having opposed recesses forming a space to receive a button-head, and having a slot extending from said space to receive a button-shank, substantially as described.

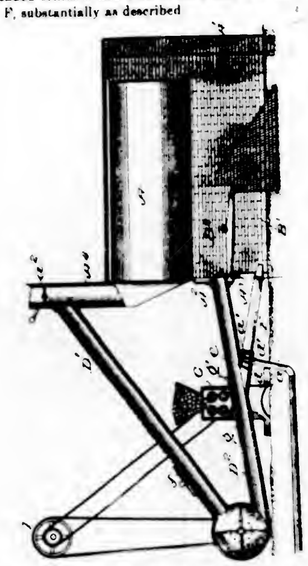
641,678. COMBINED SMOKE AND GAS CONSUMER AND FUEL-FEEDER FOR FURNACES. WILLIAM N. DECKER, Toledo, Ohio, assignor of two-thirds to Albert S. Fitts and Minot I. Wilcox, same place. Filed Mar. 6, 1899. Serial No. 707,960. (No model.)

Claim.—1. In a smoke and gas consuming device for furnaces, the exhaust-pipe D′ connecting with chamber A⁴ and provided with valve *f*, in combination with fan E and blast-pipe D³, provided with feed-pipe *g* and valve *g′*, said pipe D³ connecting with pipe D′ and being adjustably attached at its far end to door A² and opening into chamber B³, substantially as shown and described.

2. In a smoke and gas consuming device for furnaces, the exhaust-pipe D′ connecting with chamber A⁴ and provided with valve *f*, in combination with fan E and blast-pipe D³ provided with feed-pipe *g*, connecting with hopper G, and valve *g′*, said pipe D³ connecting with pipe D′ and being adjustably attached at its far end to door A² and opening into chamber B³, substantially as shown and described.

3. In a smoke and gas consuming device for furnaces, the exhaust-pipe D′ provided with valve *f* and connecting at one end with stack A⁴ provided with damper *a²*, in combination with fan E and blast-pipe D³ connecting with pipe D′ and provided with feed-pipe *g* and valve *g′* and arm *d* having a screw-threaded end connecting with hose-pipe F and screw-threaded orifice *d′* and valve *e*, said pipe D³ being adjustably attached at its far end to door A² and opening into chamber B³, substantially as shown and described.

4. In a smoke and gas consuming device for furnaces, the exhaust pipe D′ provided with valve *f* and connecting with stack A⁴ provided with damper *a²*, in combination with fan E and blast-pipe D³ connecting with pipe D′ and adjustably attached to its far end to door A² and opening into chamber B³ and connected with hopper G by feed-pipe *g* and valve *g′* and provided with arm *d* having valve *e* screw-threaded orifice *d* and a screw-threaded end and connecting with pipe F, substantially as described



5. In a smoke and gas consuming device for furnaces, the combination of the exhaust-pipe D′ provided with valve *f* and opening into chamber A⁴, and the blast-pipe D³ connecting with pipe D′ and adjustably attached to door A² and opening into chamber B³, and the fan E, and the pulverizer G provided with feed-pipe *g* and valve *g′* all located substantially as shown and described.

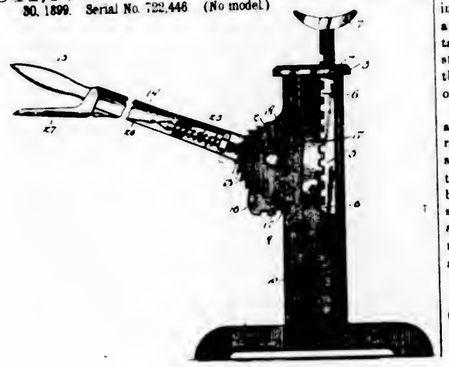
6. In a smoke and gas consuming device for furnaces, the combination of the exhaust-pipe D′ provided with valve *f* and opening into stack A⁴ provided with damper *a²*, and the blast-pipe D³ connecting with pipe D′ and adjustably attached to door A² and opening into chamber B³ and provided with arm *d* having a screw-threaded orifice *d′* and screw-threaded end and valve *e* and connecting with hose-pipe F, and the pulverizer G provided with feed-pipe *g* and valve *g′* all being located substantially as shown and described.

7. The combination of the blast-fan E with the pipe D³ provided with valve *e* and arm *d* provided with screw-threaded end and screw-threaded orifice *d′*, and hose-pipe F, and water-pipe *a* having screw-threaded perforated nozzle *a′* substantially as shown and described.

8. In a smoke and gas consumer for furnaces, the combination of pipe D′ provided with valve *f* and connecting with stack A⁴, with fan E connecting with pipe D³ provided with valve *e* and arm *d* screw-threaded at one end and provided with screw-threaded orifice *d′*, and hose F, and water-pipe *a* provided with screw-threaded spraying-nozzle substantially as shown and for purpose described

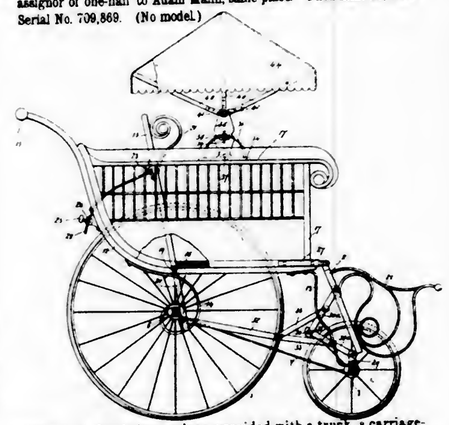
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641,679. WAGON-JACK. URIAH DUETZ, Bangor, Pa. Filed June 30, 1899. Serial No. 722,446. (No model.)



Claim.—In a device of the character set forth, the combination of a standard having opposite sides with enlargements or segments projecting rearwardly from the upper portions thereof, one of said enlargements or segments having ratchet-teeth formed on its edge, a toothed lifting-bar movably mounted in said standard, an operating-lever having a segmental head pivotally supported between the enlargements or segments of the sides and provided with teeth meshing with those of the lifting-bar, said head holding the lifting-bar in vertical position against the inner surface of the front end of the standard, and the width of the opening in the latter being just large enough to permit the operation of the segment and bar, and a spring-actuated dog mounted on said lever for engagement with the ratchet-teeth on one of the enlargements or segments.

641,680. BABY-CARRIAGE. CHARLES DILLING, New York, N. Y., assignor of one-half to Adam Mann, same place. Filed Mar. 21, 1899. Serial No. 709,869. (No model.)



Claim.—1. In a baby-carriage, provided with a truck, a carriage-body consisting of side bars, a bottom secured thereto, upwardly-directed side pieces secured to said side bars, a foot-rest pivotally connected with the forward end of said bottom, a back pivotally supported by and between said side bars, and rearward of said bottom, and provided with a downwardly-directed arm, and devices operatively connecting said arm and said foot-rest, and comprising a connecting-rod pivoted to said arm, and a double-jointed lever pivotally secured to said foot-rest at one end, and to said truck at the other end, and pivotally connected with said connecting-rod, substantially as shown and described.

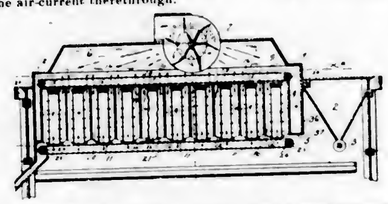
2. In a baby-carriage provided with a truck, a carriage-body provided with a pivoted back, and a pivoted foot-rest, said back being provided with downwardly-directed arms beneath said carriage-body, a double-jointed lever secured at one end to said foot-rest at each side thereof, and at the other end to said truck, and composed of two members, a pair of links connected with each of said pairs of members and a connecting-rod pivoted to each of said arms, and with which each of said pairs of links is connected, substantially as shown and described.

3. In a baby-carriage, a carriage-body, and a sunshade comprising a foldable frame provided with a cover and supported by a standard pivotally supported at each side of said carriage-body, a segmental rod secured to said carriage-body in proximity to each of said standards, each of said standards being provided with a keeper and thumb-screw in connection with which the adjacent segmental rod operates, substantially as shown and described.

4. In a baby-carriage, a carriage-body, a sunshade, consisting of a standard adjustably mounted upon each side of said carriage-body, radial arms adjustably secured to each of said standards, devices for securing said radial arms in adjusted position, cross-arms supported transversely of said carriage-body by pairs of said radial arms, a flexible cover supported by said cross-arms, a segmental rod secured to said carriage-body in proximity to each of said standards, each of said standards being provided with a keeper and thumb-screw in connection with which the adjacent segmental rod operates, substantially as shown and described.

641,681. DUST-COLLECTOR. EMIL R. DRAVER, Stillwater, Minn., assignor, by mesne assignments, of one-half to Marie L. Draver, same place. Filed Nov. 5, 1896. Serial No. 611,185. (No model.)

Claim.—1. In a dust-collector, the combination with a casing having dust-receiving and clean-air chambers, said chambers being connected together only through the intermediacy of a series of stationary cells and dust-collecting tubes arranged in said cells, of means for inducing a forced circulation of air from the dust-chamber into the tubes and thence through the cells into the clean-air chamber, means for intermitting the passage of air through the tubes and cells, and means for jarring or shaking the tubes during the intermission in the air-current therethrough.



2. In a dust-collector, the combination with a casing having dust-receiving and clean-air chambers, said chambers being connected together only through the intermediacy of a series of stationary cells and dust-collecting tubes arranged in said cells, of a suction-fan located in the clean-air chamber and operating to draw air from the dust-chamber through the tubes and cells into its own chamber, means for intermittingly closing the cells and tubes against the passage of air, and means for jarring or shaking the tubes during the intermission in the air-passage to shake off the dust collected on the tubes.

3. In a dust-collector, the combination with a casing having dust-receiving and clean-air chambers, said chambers being connected together only through the intermediacy of a series of stationary cells having dust-collecting tubes arranged therein, of means for inducing a forced circulation of air from the dust-chamber through the tubes and cells into the clean-air chamber, a traveling closure adapted to intermittingly close the cells of said series in succession, and a shaker traveling in unison with said closure and operating to successively jar the tubes of the closed cells and shake off the dust collected thereon while said cells are closed.

4. In a dust-collector, the combination with a casing having dust-receiving and clean-air chambers, said chambers being connected together only through the intermediacy of a series of cells having dust-collecting tubes arranged therein, of means for inducing a forced circulation of air from the dust-chamber to the clean-air chamber through the tubes and cells, means for intermitting the passage of the air through certain of said cells while the current is uninterrupted in others, means for jarring the collecting-tubes in those cells only where the air is cut off, so as to shake off the dust in a dead-air space, and a dust-receiver on which the dust is deposited by gravity.

5. In a dust-collector, the combination with a series of cells having air-proof walls, which cells are normally open at one end and closed at the other, of collecting tubes or pockets in said cells closed at one end and mounted with their open ends forming passages through the closed ends of said cells, means for forcing air through said tubes and cells, a traveling cut-off device mounted to move over the open ends of said series of cells, for cutting off the forced circulation of air therethrough, in succession, and a traveling dust-receiver mounted to move under the open ends of said tubes, for cooperation with said cut-off device, substantially as described.

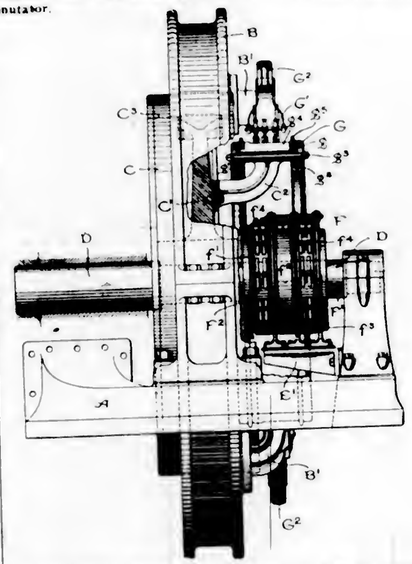
6. In a dust-collector, the combination with a series of cells having air-proof walls, which cells are normally open at their upper ends and are closed at their lower ends by flexible bottoms, of collecting tubes or pockets in said cells closed at their upper ends and mounted with their open lower ends forming passages through said flexible bottoms of said cells and secured thereto, means for forcing air through said tubes and cells, a traveling cut-off device mounted to move over the upper or open ends of said series of cells, a traveling dust-receiver mounted to move under the open ends of said collecting-tubes, and means carried by said traveling dust-receiver for action on the flexible bottoms of said cells to rap or jar the collecting-tubes, substantially as described.

641,682. DYNAMO-ELECTRIC MACHINE. WILLIAM L. R. EMMET, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 16, 1898. Serial No. 699,435. (No model.)

Claim.—1. A dynamo-electric machine provided with alternating and direct current terminals, and a commutator and collector overhanging one another in a plane transverse to the shaft.

2. A dynamo-electric machine provided with alternating-current and direct-current terminals and corresponding armature-circuits, and a commutator and collector between the terminals nesting within one another.

3. A dynamo-electric machine provided with alternating and direct current terminals and armature-circuits connected therewith, a commutator mounted upon the armature and overhanging the shaft, and a collector for alternating currents mounted beneath said commutator.



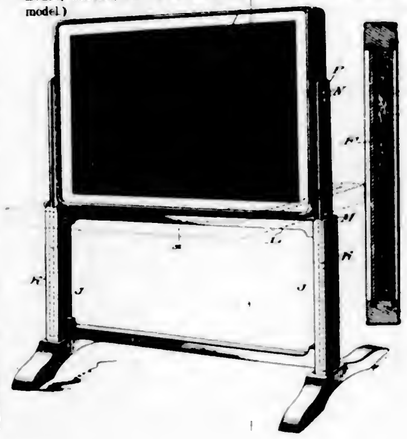
4. A dynamo-electric machine provided with a collector mounted close to the shaft, and a commutator overhanging said collector and secured to the armature-spider.

5. A rotary converter provided with direct and alternating current leads, a commutator and collector connecting with said leads and superposed one over the other in the same plane transverse to the shaft.

6. The combination in a converter of an armature and field-magnet, a shaft, an outboard-bearing for the shaft, a commutator secured to the armature, a collecting device secured to the shaft, and a bracket upon the outboard-bearing for supporting the collector-brushes.

7. In a dynamo-electric machine, the combination with the armature of a commutator and a collector on the same end of the shaft, one surrounding the other.

641,683. EDUCATIONAL OR SIMILAR DEVICE. CLARENCE A. EVANS, Chester, Pa. Filed Aug. 14, 1899. Serial No. 727,182. (No model.)

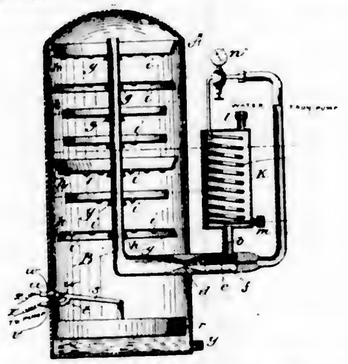


Claim.—1. An educational device provided with two faces, one formed of a gauze or other perforated material and the other face consisting of a blackboard, a pad interposed between said faces and a frame connecting said parts.

2. An educational device of the character stated, in combination with a support formed of vertically-extending sections telescopically fitted to each other, and a table-top on the lower stationary section of said support, the frame of said device being mounted by a horizontal axis on the upper movable section of said support, and adapted in its various adjustments to be supported by said table-top.

3. An educational device provided with two faces, one formed of a gauze or other perforated material, and the other face consisting of a blackboard which is removable, a pad interposed between said faces, and a frame carrying said parts and provided with an opening in its side through which said blackboard is movable.

641,684. MEANS FOR CARBONATING LIQUIDS. HARVEY S. FERRY, Mount Vernon, N. Y. Filed Oct. 13, 1898. Serial No. 693,467. (No model.)



Claim.—1. A carbonator provided with a supply-pipe, diaphragms having tubular passages and imperforate diaphragms supported on said pipe and provided with flanges at their perimeter and outwardly-distended flanges surrounding said pipe.

2. A carbonator provided with a supply-pipe, diaphragms provided with an outwardly-distended annular flange in the center thereof and a flange at the perimeter, and supported by said pipe.

3. A carbonator provided with a supply-pipe, a plurality of graduated diaphragms having tubular passages extending below the body of the diaphragm, an outwardly-distended annular flange surrounding said pipe and a flange at the perimeter, and supported by said pipe.

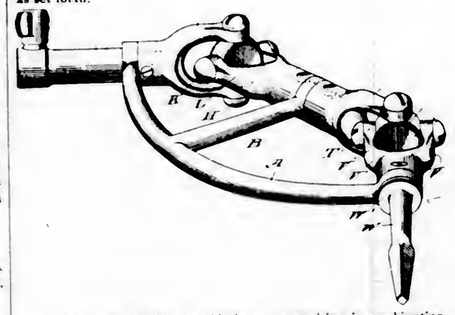
4. A carbonator provided with a reservoir for water, a receptacle for carbonic-acid gas in said reservoir, a connection between the reservoir and the carbonator, and a connection between said receptacle and the water and gas supply pipe to the carbonator; in combination with a plurality of distributing-diaphragms provided with outwardly distended flanges in the center thereof and surrounding the supply-pipe within the carbonator.

5. A carbonator provided with a supply-pipe, a reservoir for water supported by and communicating with the supply-pipe and having a receptacle for carbonic-acid gas within said reservoir, and a connection between the reservoir and the supply-pipe; in combination with a plurality of distributing-diaphragms provided with outwardly-distended flanges in the center thereof and surrounding the supply-pipe within the carbonator.

6. A carbonator provided with a plurality of diaphragms having outwardly-distended flanges in the center thereof, a supply-pipe supporting said diaphragms and having a *vena contracta*, a reservoir for water, a receptacle for carbonic-acid gas in said reservoir, and a connection between the reservoir and the carbonator terminating in the *vena contracta*; in combination with a connection between said receptacle and the supply-pipe.

641,685. RIGHT-ANGLED BORING-BIT BRACE. CHARLES A. FOGG, Burnham, Me. Filed Nov. 11, 1899. Serial No. 736,719. (No model.)

Claim.—1. A right-angled boring-bit-stock brace, consisting of a rack of substantially anchor shape, the ends of which are apertured, shafts mounted to rotate in said apertures, the bit-socket and universal-joint connections between the shafts set at angles to one another, as set forth.



2. A right-angled boring-bit brace, comprising in combination with the rack with curved portion, apertured at its ends, the right-angled arm with apertured end, the shaft mounted at one end of the rack, and socket keyed to rotate with said shaft, the shaft journaled in the aperture at the end of said right-angled arm, the shaft with squared end and provided with a collar, and the universal-joint connections between the shafts, as shown and for the purpose set forth.

641,686. SPRING-BALANCE. RICHARD H. FORSCHNER, New York, N. Y. Filed Aug. 17, 1899. Serial No. 727,509. (No model.)

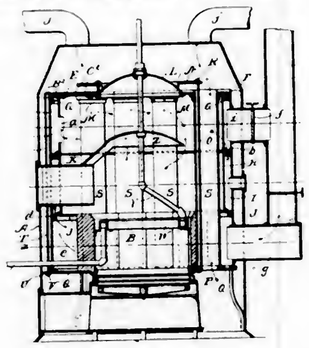


Claim.—1. In a spring-balance, the combination with a face-plate, of a U-shaped shell, provided at each end with a hollow bead forming an interior groove, filling-pieces placed in the ends of the shell, the edges of the filling-pieces resting in the grooves, the face-plate being secured on the shell whereby the shell and face-plate are held together and the filling-pieces are held in the shell without the use of any further attaching device, substantially as herein shown and described.

2. In a spring-balance, the combination with a face-plate, of a shell secured on the back of the same and provided at the top edge with an interior groove, a filling-piece placed in the upper end of the shell, the edges of the filling-piece resting in the groove, which filling-piece is provided on its upper surface with an eye, and on its under surface with a hook, both made integral with the filling-piece, substantially as herein shown and described.

3. In a spring-balance, the combination with a face-plate, of a shell secured on the back of the same and U-shaped in section and provided with interior grooves at its ends, a filling-piece placed in the groove at the upper end of the shell and having an eye on its upper surface and a hook on its under surface both made integral with the filling-piece and a filling-piece placed in the groove at the bottom of the shell and having a slot for the tang, substantially as herein shown and described.

641,687. HOT-AIR FURNACE OR HEATER. URIAS S. FORTINER, Philadelphia, Pa. Filed Aug. 17, 1898. Serial No. 688,783. (No model.)

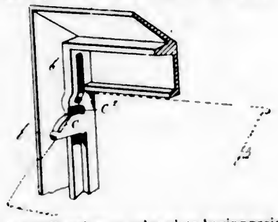


Claim.—1. In combination, a furnace of the character described, an inner casing so disposed within the outer casing of the furnace as to produce a space therebetween, an intermediate casing between the inner and outer casing, a deck for closing the upper end of the inner casing, a deck for closing the lower end of the inner casing, rods so arranged as to tie these parts together, a deck closing the space between the outer and intermediate casing, having flanged edges embedded in asbestos fiber, a channel formed with the upper edge of the casing C, hot-air pipes extending through the two decks so as to form passages for the air, a cone-shaped deck-head for closing the central opening in the upper deck, rods for securing this head in place, a circular partition located inside the inner casing so as to form a space a series of openings for causing the products of combustion to follow a circuitous outlet, draft-flues leading from the furnace and suitable dampers located therein for regulating the draft, as specified.

2. In combination with a furnace of the character described, decks or horizontal partitions formed in ring shape, the ends of which do not meet, a joint formed at these ends consisting of a plate, and a suitable packing of asbestos fiber so interposed as to make the joint air-tight, as specified.

3. In combination with an inner casing of a furnace of the character described, suitable decks connected therewith by joints containing asbestos fiber, a dome-shaped deck-head closing the central opening in the upper deck, a suitable groove formed in the deck, asbestos fiber placed therein and flanges formed upon the deck-head for fitting within said groove against the fiber, as and for the purpose described.

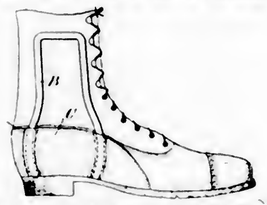
641,688. **HOT-AIR REGISTER.** CHARLES E. FRICK, Norwood, Ohio. Filed Feb. 17, 1899. Serial No. 705,920. (No model.)



Claim.—1. In a wall-register a valve-plate having projections *e e* on its upper corners and similar supplementary projections *f f* on its sides, the latter projections resting upon inclined segmental bearings formed or secured on the inside of the register-opening, the higher projections engaging in guide-grooves above and in suitable relation to the segmental bearings, the said plate being held to any inclination by its projections movable along inclined segmental bearings, substantially as set forth.

2. In a wall-register a register-frame having its interior vertical side portions provided each with a substantially vertical guide-recess and below said recess a rearwardly-projecting segmental bearing whose upper face tends downwardly, serving to sustain the projections of the valve-plate to hold the latter at any desired inclination, substantially as and for the purpose herein specified.

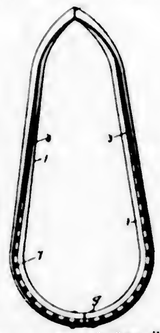
641,689. **ANATOMICAL SHOE.** ALBERT R. GARROD, New York, N. Y. Filed Feb. 16, 1899. Serial No. 706,713. (No model.)



Claim.—A shoe comprising an upper and a lining, double counter-stiffeners secured between the said upper and lining, and ankle-braces secured between and held by said counter-stiffeners, substantially as described.

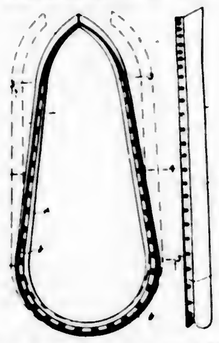
641,690. **COLLAR.** HENRY L. GOLLIER, Granby, Canada. Filed Mar. 8, 1898. Serial No. 673,141. (No model.)

Claim.—1. A horse-collar rim made of metal and having a hollow body portion and a perforated flange projecting therefrom, the base of the flange being located near the inside of the contour of such body portion and the angle of flare of such flange varying throughout its length from the throat portion to the peak as shown and described.



2. A horse-collar rim composed of two like hollow metal halves united at the throat portion by a spring-hinge connection comprising block-pieces set in the ends of the rim-halves and united by a knuckle-joint and a spiral spring with one end bearing in one block-piece and a portion of its length passed through the block-pieces so that its other end may bear upon the other block-piece, the block-pieces being hollowed and slotted to accommodate such spring, as set forth.

641,691. **COLLAR.** HENRY L. GOLLIER, Granby, Canada. Filed Apr. 18, 1898. Serial No. 678,086. (No model.)



Claim.—As a new article of manufacture, a horse-collar rim of tubular form with a closed flange extending the full length thereof, said rim and flange consisting of a single strip of metal curved into tubular form and having one of its side edges extending in a continuous straight line from the curve, the other side edge offset and doubled over said straight edge, as set forth.

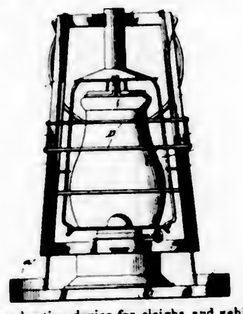
641,692. **NON-REFILLABLE BOTTLE.** CHARLES X. GUTLEIT, PETER M. OWEN, and MOUNT L. OWEN, San Antonio, Tex. Filed Nov. 23, 1898. Serial No. 697,940. (No model.)



Claim.—1. A device of the class described comprising a casing having a removable bottom and provided with a hook arranged to have its mouth closed by the wall of the casing when the bottom is in place, said bottom being provided with a valve-opening, and a valve provided with an opening receiving the hook, and hinged by the same to the bottom, said valve being retained in engagement with the hook by the casing and adapted to be detached when the bottom is removed from the said casing, substantially as described.

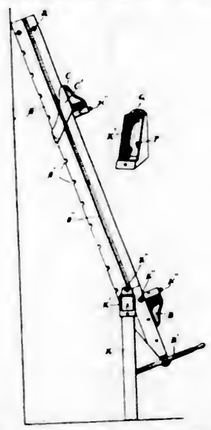
2. A device of the class described comprising a casing provided at its top with discharge-openings and having are movable bottom with a flat upper face, said bottom being provided with a valve-opening and forming a valve-seat, a pair of hooks extending from the upper face of the removable bottom, and arranged to have their mouths closed by the wall of the casing, when the bottom is in place, and a valve arranged on the bottom and provided with perforations receiving the hooks, said valve being retained in engagement with the hooks by the said casing, substantially as described.

641,698. **HEATING DEVICE FOR SLEIGHS, &c.** PETER HACK, Michigan City, Ind. Filed Oct. 13, 1898. Serial No. 693,382. (No model.)



Claim.—In a heating device for sleighs and vehicles, the combination with a lantern having side pieces and a top cross-piece, of upright wires or spring-bars secured to a suitable support and provided with hooks at their upper ends; together with a dress-guard comprising rings separated from each other, and plates connecting the rings at opposite sides, the plates having inturned edges, and adapted to slidably engage the side pieces of the lantern and hold the retaining-wires in place, substantially as shown and for the purpose set forth.

641,694. **FURNITURE-CLAMP.** ADOLPH HAMELEHLE, Grand Rapids, Mich. Filed Apr. 3, 1899. Serial No. 711,496. (No model.)



Claim.—1. The combination of a beam having longitudinal grooves in its sides and transverse recesses in its bottom, an adjustable head having inclined side plates embracing the beam and a transverse rib connecting said plates and engaging said recesses, and springs attached to the plates and engaging the respective upper and lower walls of the grooves, substantially as described.

2. The combination of a beam having transverse recesses in the bottom and longitudinal grooves in the sides, a head mounted on the beam and having inclined sides embracing the beam and a transverse rib connecting the sides and engaging the recesses, springs in said grooves and attached to the inclined sides, and stops on the sides engaging the walls of the grooves and limiting the angular relation of the side to the beam, substantially as described.

3. In a clamp, the combination of a beam having adjustable clamping-heads and detachable legs, two of said legs being adjustable in two different relations to said beam, whereby the clamp may be used either horizontally or in an inclined position, substantially as described.

4. The combination of a beam having adjustable heads, legs having sockets, each socket being provided with a keyhole-slot and a recess, screws in the beam to engage the slots and recesses and auxiliary screws for two of the legs, whereby they may be attached in a second position relative to the beam, substantially as described.

5. The combination of a beam having longitudinal grooves and transverse recesses, a screw-adjusted head near one end of the beam, a head slidable on said beam having inclined sides embracing the beam, a transverse rib connecting said sides and engaging the recesses, a spring attached to the sides and near their respective ends engaging the respective walls of the grooves, and detachable legs to support said beam, two of said legs being adapted to be attached to the bar in two different positions, substantially as described.

6. The combination of a clamp having adjustable heads, a bar adjustably attached to the heads and having a longitudinal slot, a presser-foot consisting of a plate vertically slotted and bent at right angles near the bottom, and a bolt passing through the slots in the said bar and presser-foot, substantially as described.

7. The combination of a clamp having adjustable heads, a bar having a T-slot in its under side, T-heads on the adjustable heads engaging the T-slot in the bar, and a vertically-adjustable presser-foot attached to the bar, substantially as described.

8. The combination of a clamp having adjustable heads, a bar having a T-slot in its lower side and a longitudinal slot, a presser-foot having a vertical slot, a bolt in the two last-named slots at their intersection, and T-heads in the heads of the clamp and engaging the T-slots in the bar, substantially as described.

9. In a clamp, the combination of a head and clamping-block having counterpart hinge, members separable and connecting the same, that on the head being arranged with its axis vertical, and an attachment having corresponding hinge members at its opposite sides and arranged transversely to each other, substantially as described.

10. In a clamp, the combination of a head, a vertical cylindrical portion connected by a neck to the head, a swivel-block having a vertical groove to engage said cylindrical portion, and an intermediate block having a corresponding groove at one side and a corresponding cylindrical portion at the other side at right angles to said groove, substantially as described.

11. In combination with a clamp having an adjustable head, an angle-block pivotally connected to the said head, and having cylindrical projections at each end arranged at right angles to each other, and swivel-blocks having concave channels to engage said portions, and having their respective faces normally at substantially right angles to each other, said blocks being adapted to turn on said pivots, and fit work having acute, obtuse, or right angles, substantially as described.

12. In a clamp, a head having a cylindrical part, an angle-block having a groove to engage the same and a like cylindrical part at each end, and swivel-blocks having grooves to engage the cylindrical portions of the angle-block and having their faces to contact the work, at substantially right angles to each other or at various other angles, substantially as described.

13. In a clamp, a beam having transverse recesses on both its upper and lower sides, and heads both reversible and adjustable, and a slide having a head at one side and a horn at the other side and a screw adapted to engage the horn, substantially as described.

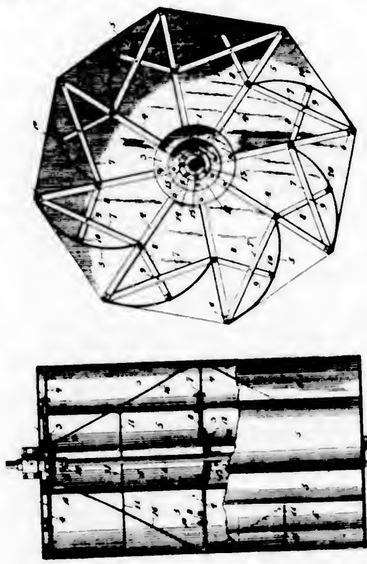
14. In a clamp, the combination of a beam having transverse recesses on both its upper and lower sides, heads having inclined sides embracing the beam, and transverse ribs connecting the sides and engaging the recesses, a screw in one of said heads and a slide on said beam having a clamping-head at one side to engage the work and a horn at the other side to engage the screw, substantially as described.

641,695. **SUBMERGED CURRENT-MOTOR.** ROBERT E. HARDAWAY, Austin, Tex. Filed Sept. 26, 1898. Serial No. 691,891. (No model.)

Claim.—1. A current-wheel having a shaft and radial arms, cross-sectionally-bowed blades disposed diagonally with relation to the radii of the wheel, with their rear edges located contiguous to the periphery of the wheel, said blades being secured at their front and rear edges to different sets of radial arms, and strut-braces connecting the arms near the front and rear edges of the blades, and located in the position of chords of the curves described by said blades to brace said arms and prevent relative movement of the arms under the strain of the blades, substantially as specified.

2. A current-wheel having a shaft and frame comprising radial arms, cross-sectionally-bowed blades disposed diagonally with rela-

tion to the radial arms and attached thereto at their front and rear edges, and tensile braces extending from intermediate points of the blades to which they are attached at one end and connected at their opposite ends to the frame of the wheel, said braces being arranged approximately perpendicular to the chords of the curves described by said blades, substantially as specified.



3. A current-wheel having radial arms, cross-sectionally-bowed blades secured at their rear edges to the outer extremities of said arms and at their front edges to intermediate points of the arms, strut-braces connecting said arms in the planes of lines connecting the front and rear edges of the blades, and tensile braces extending forwardly from intermediate points of said strut-braces to intermediate points of the blades, substantially as specified.

4. A current-wheel having radial arms, cross-sectionally-bowed blades secured at their rear edges to the outer extremities of said arms and at their front edges to intermediate portions of said arms, strut-braces connecting said arms in the planes of lines connecting the front and rear edges of the blades, and tensile braces extending inwardly from the centers of the blades to the arms of the wheel, and intersecting and secured to said strut-braces, substantially as specified.

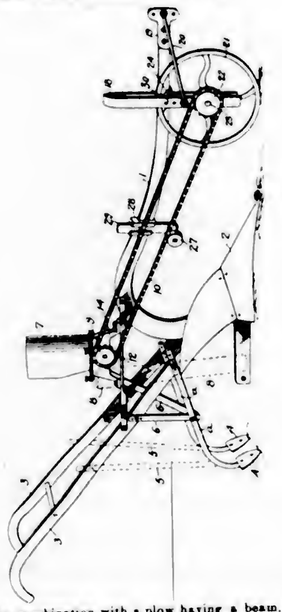
5. A current-wheel having radial arms secured at their inner ends to a shaft, cross-sectionally-bowed blades disposed diagonally with their front and rear edges secured respectively to the extremities and intermediate points of the arms, and intersecting strut and tensile braces arranged respectively in the planes of lines connecting the front and rear edges of said blades and approximately perpendicular to said lines, to connect intermediate points of the blades with the radial arms, substantially as specified.

6. A current-wheel having a shaft, hubs consisting of flanged collars or sleeves secured to the shaft, hub-plates bolted to the flanges of the collars or sleeves and reinforcing-plates interposed between said hub-plates and flanges, arms radiating from the shaft in the planes of said hub and secured to the hub-plates, cross-sectionally-bowed blades disposed diagonally with their front and rear edges secured to said arms, and means for bracing the arms near their outer extremities, and respectively in the planes of lines connecting the front and rear edges of the blades, substantially as specified.

7. A current-motor having a supporting-frame and a current-wheel mounted therein, said supporting-frame having a forwardly and downwardly inclined deflector, a top shield extending forwardly over the current-wheel from the upper edge of said deflector, an adjustable shutter closing the upper or front end of the frame in advance of said deflector, and means for operating the shutter, substantially as specified.

641,696. ATTACHMENT FOR PLOWS AND CULTIVATORS. JAMES M. HARDEMAN and CHARLES T. BELT, Taylor, Tex. Filed Apr. 19, 1899. Serial No. 713,596. (No model.)

Claim.—1. In a corn and cotton planting attachment for plows, the combination with a plow having a share and coverers at the rear of said share said coverers being detachably secured to the plow-handles, of a feed-box mounted upon horizontal bars that are secured at their rear ends to the plow-handles, and at their front ends to the plow-beam, a yoke adjustably secured to the beam near its front end and carrying a ground-wheel, a chain for communicating motion from the ground-wheel to the feed-box, and an adjustable idle wheel journaled in a boxing or angle-plate on the plow-beam for regulating the tension of the chain, substantially as described.



2. The combination with a plow having a beam, a plowshare, detachable coverers, and handles, of a feed-box having a boot, and an operating sprocket-wheel, a yoke adjustably secured on the beam near its front end, a ground-wheel journaled in said yoke and having a sprocket secured upon its shaft, a belt or chain connecting the ground-wheel sprocket and the feed-box sprocket-wheel, and an adjustable idler device journaled on the plow-beam for regulating the tension of said belt or chain, substantially as described.

641,697. SLEEPER FOR USE ON RAILWAYS OR THE LIKE. FRANÇOIS HENRIBIQUE, Paris, France. Filed July 21, 1899. Serial No. 724,700. (No model.)



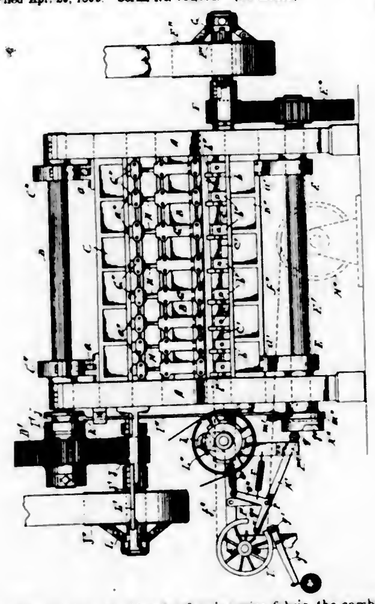
Claim.—1. A composite sleeper comprising a horizontal base portion, a vertical portion having bearing-shoulders for the rails, rods at the top and below said vertical portion, and stirrup-shaped pieces connecting said rods, substantially as described.

2. A composite sleeper comprising a horizontal base portion, a vertical portion having bearing-shoulders for the rails, rods at the top and below said vertical portion, and stirrup-shaped pieces connecting said rods and the horizontal stirrups embedded in said horizontal portion and engaging the lower rod, substantially as described.

641,698. MANUFACTURE OF INCANDESCENT MANTLES. LOUIS HICKS, New York, N. Y. Filed Sept. 18, 1899. Serial No. 730,892. (No specimens.)

Claim.—The herein-described method of spreading, between the threads forming the network of the fabric of a completed mantle for incandescent gas-light, a layer of pyroxylin impregnated with a quantity of a salt or salts, suitable for the making of the mantle, sufficient to leave a layer of the oxid of the metal of the salts spread between the threads when the mantle is heated to incandescence and the pyroxylin is consumed, substantially as, and for the purposes, described.

641,699. MACHINE FOR FORMING WIRE FABRICS. GEORGE L. HOXIE, Adrian, Mich., assignor of four-fifths to Delos M. Baker, David Metcalf, William H. Shearson, and Ira Waterman, same place. Filed Apr. 29, 1899. Serial No. 714,931. (No model.)



Claim.—1. In a machine for forming wire fabric, the combination with the main frame, the movable cross-head carrying one member of the dies, the fixed cross-beam carrying the other member of the dies, means for feeding the cross-wire into the machine between said dies and across the longitudinal wires of the fabric, and the reciprocal plungers standing in line with said dies adapted to drive the tying-staples around the intersecting strands of wire within said dies.

2. In a machine for forming wire fabric, the combination with the main frame, the vertically-movable cross-head carrying the lower dies, the fixed cross-beam carrying the upper dies, a series of guides upon said cross-beam in line with said dies, the upper cross-head adapted to move vertically, the plungers carried by said upper cross-head supported in the guideways in the cross-beam in line with said dies, and means for actuating said cross-heads.

3. In a machine for forming wire fabric, the combination with the main frame, the vertically-movable cross-head carrying the lower dies, the fixed cross-beam carrying the upper dies, a series of guides upon said cross-beam in line with said dies, the upper cross-head adapted to move vertically, the plungers carried by said upper cross-head supported in the guideways in the cross-beam in line with said dies, means for feeding the cross-wire intermittently into the machine between the faces of said dies and across the longitudinal wires, and means for actuating said cross-heads.

4. In a wire-fabric machine, the combination with the main frame, the vertically-movable cross-head, the laterally-adjustable dies mounted on said cross-head, the cross-beam, the laterally-adjustable guides mounted on said cross-beam, the upper cross-head adapted to move vertically, laterally-adjustable head-blocks mounted on said upper cross-head, and vertical plungers carried by said head-blocks and adapted to reciprocate in said guides.

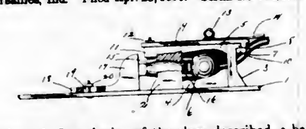
5. In a wire-fabric machine, the combination with the main frame, the lower cross-head adapted to move vertically, the dies carried by said cross-head, the upper cross-head adapted to move vertically, the plungers carried by said upper cross-head, the upper dies mounted on the frame in line with the lower dies, guides to direct said plungers in line with said dies, the lower shaft having cams adapted to actuate the lower cross-head, an upper shaft having eccentrics adapted to actuate the upper cross-head, and means connecting the upper shaft with the lower shaft to impart an intermittent movement to said upper shaft.

6. In a wire-fabric machine, the combination with the main frame, the movable cross-heads carrying the dies and plungers, said cross-heads having an intermittent movement, means for feeding the longitudinal wires through the machine over said dies, mechanism for feeding the cross-wire into the machine adjacent to said dies and over the longitudinal wires, the lower shaft for actuating the lower cross-head, and means connected with said shaft for imparting an intermittent movement to the mechanism for feeding the cross-wire.

7. In a machine for weaving wire fabric, the combination with the main frame of the machine, means for feeding the longitudinal wires through said machine, means for intermittently feeding the woof-wires into the machine across said longitudinal wires, dies for embracing said wires at their junction, said dies having direct channels in their opposed faces, and means for forcing a tying-staple around said wires within said dies at the point of crossing of said wires.

8. In a machine for the purpose set forth, the combination with the main frame, movable dies adapted to receive the wires and tying-staples, means for feeding the longitudinal wires intermittently through the machine, a drive-shaft for actuating said movable dies, vertically-movable plungers in line with said dies, mechanism for feeding the cross-wire into the machine in line with said dies and plungers, means for feeding staples astride of the crossed wires within said dies, and means connected with said drive-shaft for imparting an intermittent movement to the mechanism for feeding the cross-wires.

641,700. REVERSIBLE-BALL COUPLING. CHARLES N. HUNTER, Versailles, Ind. Filed Apr. 25, 1899. Serial No. 714,468. (No model.)



Claim.—1. In a device of the class described, a ball bored and screw-threaded, a pitman-rod having its end screw-threaded to receive said ball, said ball being reversible end for end upon said pitman-rod, and a suitable framework forming a socket in which said ball operates, substantially as specified.

2. In a device of the class described, a ball bored and screw-threaded, a pitman-rod having its end screw-threaded to receive said ball, said ball being reversible upon said pitman-rod relative to the ends of said screw-threaded bore, the bearing-block 4 having a concavity in its upper face, the bearing-block 5 in opposition to said bearing-block 4 and forming a socket to receive said ball, means of securing said bearing-blocks in position relative to each other, and the dust-guard 14 secured in position to have its free end engage said pitman-rod and covering the slot in which said pitman-rod operates, substantially as specified.

3. In a device of the class described, a ball bored in one or more directions and screw-threaded, a pitman-rod having its end screw-threaded to receive said ball, said ball being reversible relative to the ends of its bores upon said pitman-rod, means of forming an adjustable socket in which said ball operates; said means consisting of a lower portion having a concavity in its upper face, an upper portion having a concavity in its lower face, means of securing said upper and lower portions together in opposition to each other, a third portion mounted between said first and second portions to slide to and from the ball and having its inner end concave, and a take-up rod connected to said third portion as required to adjust said third portion to and from the ball, substantially as specified.

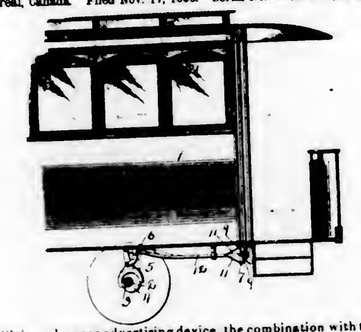
641,701. CUTTER. GREENLEAF JOHNSON, Jr., Baltimore, Md. Filed Apr. 30, 1897. Serial No. 634,261. (No model.)



Claim.— A pair of cutters, oppositely placed, to reduce a plank into two boards with tongues at their adjacent edges, at one operation, each one of which comprises three cutting edges, viz., the first to cut a shallow rectangular channel, the second which projects beyond the first, and is provided with hollow sides and is narrower than the first, adapted to cut to near the center of the tongue, and the third which projects still farther and has hollow sides which cut in continuation of the second, to penetrate to the center of the tongue, the last two edges being set back from the first in the order named,

so as to out independently, substantially as, and for the purpose specified.

641,702. CAR ADVERTISING DEVICE. WILLIAM KEYS, Montreal, Canada. Filed Nov. 17, 1898. Serial No. 696,697. (No model.)



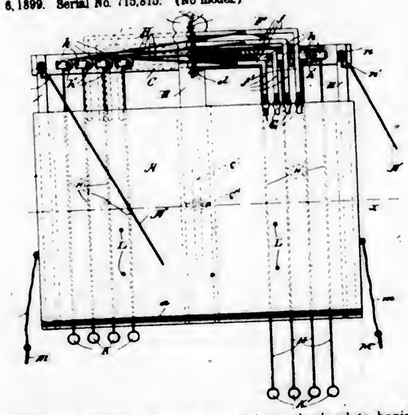
Claim.—In a car advertising device, the combination with the car and its truck; of the cam 4 mounted on one of the axles of said truck and deriving its movement therefrom; the bifurcated lever 5, actuated by said cam; the rod 12; the shaft 7; the ratchet-wheel 8; the oscillating arms 9, each having the spring-actuated pawl 10, each pawl being adapted to have a contact with said ratchet-wheel; the arms 11, connecting the rod 12 with the arms 9; the endless band 21, having a movement within the car; and operating connections between the shaft 7 and said band 21, the whole arranged to impart a movement to the band 21 in one direction, regardless of the direction of movement of the car, substantially as described.

641,703. LEMON-SQUEEZER. JOHN J. KIELER, Hillsborough, Kans. Filed May 23, 1899. Serial No. 717,929. (No model.)



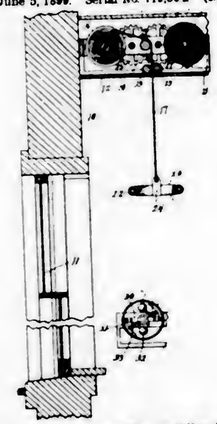
Claim.—As an improved article of manufacture, a fruit-juice extractor constructed of relatively stout or heavy spring-wire bent into the form of a cone, the elements being spaced and having a spiral disposition, and a handle at the smaller end of the cone to be grasped when steadying and relatively turning the extractor, substantially as set forth.

641,704. MUSIC-LEAF TURNER. KNUDT N. KNUDTSON, Beaver Creek, Minn., assignor to Laura M. Knudtson, same place. Filed May 6, 1899. Serial No. 715,815. (No model.)



Claim.—A music-leaf turner, comprising a back plate having guide-apertures near its lower end, a ledge on the back plate slightly above the apertures, turning-arms pivoted to the back plate, oppositely-arranged operating-cords for the turning-arms, pulleys arranged in substantially vertical alinement with the apertures in the back plate over which the respective cords pass and extend downwardly in rear of the back plate and through the guide-apertures below the ledge, and means at the ends of the cords constituting grips and retaining-stops to prevent accidental withdrawal of the cords through the apertures, substantially as described.

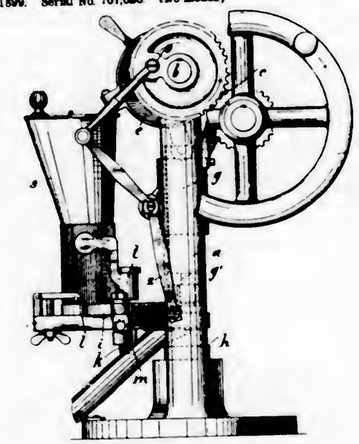
641,705. FIRE-ESCAPE. MARGARET A. KOENIG, Milwaukee, Wis. Filed June 5, 1899. Serial No. 719,394. (No model.)



Claim.—1. The combination with a building inclosing a room, of fire-escape mechanism including a frame, a drum, ropes winding on the drum, and a spring adapted to wind up the ropes and sustain them yieldingly located permanently in the superceiling-space above the room of the building, the ropes extending normally down through the ceiling into the room, an attaching-belt on the extremities of the ropes below the ceiling in the room, and a bearing-roller mounted on the sill of a window of the room adapted to carry the ropes thereon when running down or up over the window-sill.

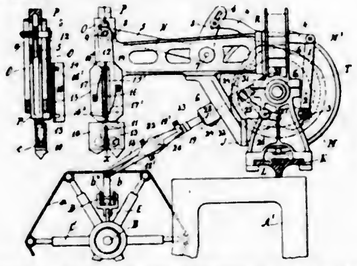
2. In a fire-escape apparatus, the combination with ropes depending from means adapted to wind them up and to permit of their being run down, of an annular flexible elastic belt comprising segmental tubular members attached to the ropes, other segmental tubular members of less diameter than and telescoping in the first-named segmental tubular members, and an endless coiled-wire elastic and expansible spring therein.

641,706. PASTIL-PRESS. WILHELM KRAEMER, Charlottenburg, Germany, assignor to R. Goetze & Co., Berlin, Germany. Filed Feb. 27, 1899. Serial No. 707,080. (No model.)



Claim.—In an apparatus for pressing pastil or the like from powdered masses, a working table having a perforation therein, a press-bar receiving an up-and-down movement from a fly-wheel, an anvil projecting through an aperture in the working table, a circular rotating plate provided with apertures, and a groove in the under side thereof, flaps which rest ordinarily in the groove of said plate, a ratchet mechanism for intermittently revolving the plate, a hopper fixed to the working table and pressed with its lower side against the plate, and two powder-boxes and means for shaking them, substantially as described.

641,707. AUTOMATIC MACHINE FOR TWISTING AND KNOTTING THREADS. ALBERT KRYSZAT, Berlin, Germany, assignor to Albert Kryszat & Co., same place. Filed Dec. 13, 1898. Serial No. 699,160. (No model.)



Claim.—1. An automatic knotting-machine for binding the hanks of reeled yarn, comprising a reel having devices for feeding a lower thread, a vertically-moving bifurcated bobbin-carrier carrying a bobbin for supplying the upper thread, a pair of pivoted arms having hooked ends adapted to engage said lower thread, means for rotating said arms to form a loop and then separating them to enlarge the loop sufficiently to permit the entrance of one leg of the bifurcated bobbin-carrier and means for shifting the bobbin back and forth from one leg to the other of the carrier to wind said upper thread around the loop, substantially as described.

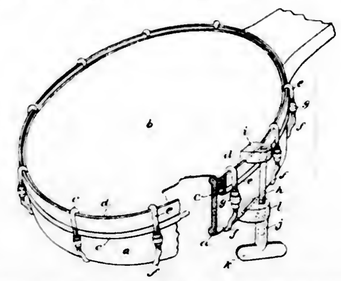
2. In combination, the reel, the bobbin carried thereby for supplying a lower thread, tension means for such thread, means for imparting to such bobbin a step-by-step movement longitudinally of the reel, a bifurcated bobbin-carrier with a bobbin for an upper thread movably carried therein, a pair of arms having hooked ends for engaging the lower thread, means for rotating said arms to form a loop and separating said arms to enlarge the loop, means for reciprocating the bobbin-carrier to cause the loop of the lower thread to enter the slot between the legs thereof, means for simultaneously moving the bobbin from one leg to the other to wind the upper thread about the loop, and means for imparting to the bobbin-carrier and twisting-arms an intermittent horizontal movement, substantially as described.

3. In combination with the reel and means carried thereby for supplying a lower thread, a bobbin-carrier for supplying an upper thread and a device for forming a loop in said lower thread comprising a rod capable of a reciprocating and axially-rotary movement, a pair of arms pivoted on said rod and having thread-engaging ends, stationary guides coacting with said arms for opening and closing the same on the reciprocating of the rods, means for imparting to said rod a reciprocating motion and means for rotating said rod, substantially as described.

4. In combination with the reel and means carried thereby for supplying a lower thread, a bobbin-carrier and bobbin with operating means for supplying an upper thread, a bearing-sleeve Q carried by the frame of the machine, a rod 24 mounted thereon capable of longitudinal and rotary movement therein, loop-forming arms pivotally mounted on said rod 24, means for reciprocating said rod, a guide-slot in the sleeve Q, a pin 28 projecting from the rod into said guide-slot, a bifurcated lever engaging said pin, and means for operating said lever to impart a rotary movement to said rod, substantially as described.

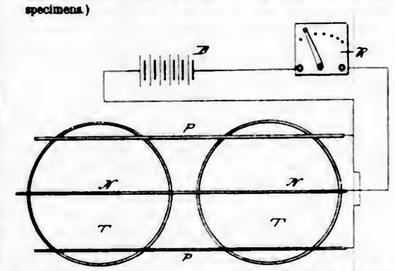
5. In a machine of the class described, the combination with the reciprocating bobbin-carrier and bobbin for the upper thread and the loop-forming devices, with means for imparting movement bodily to said parts after each tying operation, of a reel for the skeins to be tied, a rack arranged longitudinally thereof, a bobbin-carrier movable longitudinally of said rack, a bobbin for a lower thread carried by said carrier, a spring-actuated pawl carried by said carrier and engaging the rack and arranged to be struck and operated by the descending bobbin-carrier of the upper thread, substantially as described.

641,708. BANJO. RICHARD KUENSTLER, Philadelphia, Pa. Filed Apr. 6, 1899. Serial No. 711,831. (No model.)



Claim.—In a device for securing the head of a banjo in place, and in combination with the head, the rim, the flesh-hoop, and the tightening-hoop, two rods the outer ends of which are hooked and the inner ends of which are furnished the one with a right and the other with a left handed screw-thread and the upper one of which is straight and the lower one of which is bent inward, and a right and left threaded thumb-nut joining the threaded ends of said rods.

641,709. PROCESS OF PLATING ALUMINIUM. WILLIAM H. LEGATE, Hartford, Conn. Filed Mar. 10, 1899. Serial No. 708,574. (No specimens.)



Claim.—1. The method of treating aluminium and its alloys preparatory to the electrodeposition of the final coating thereon, consisting of the successive immersion in solutions as follows: muriatic acid, cyanid of potassium, phosphoric acid, and thence into a solution containing a mercurial salt, whereby the surface of the aluminium has fixed thereon an amalgam of mercury before being immersed in an electrically-operated solution, substantially as described.

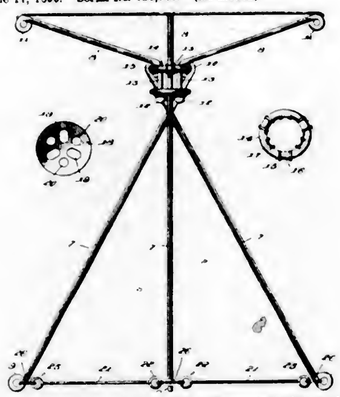
2. The process of electrically depositing metals on aluminium and its alloys consisting in cleaning the surface thereof, then dipping it, first, in a muriatic-acid solution having a gravity of substantially 15° Baumé; second, in a cyanid-of-potassium solution having a gravity of substantially 20° Baumé; third, in a phosphoric-acid solution having a gravity of substantially 50° Baumé; fourth, in a solution containing bichloride of mercury, and, fifth, then into an alkaline solution; sixth, passing it through suitable electrically-operated striking solutions, and from thence, seventh, into the electrically-operated solutions for depositing thereon the final coating of metal, substantially as described.

3. The process of plating aluminium comprising the following steps, after suitably cleansing it, by dipping it in a suitable alkali, as a solution of whale-oil soap, first, dipping in muriatic-acid solution having a gravity of substantially 15° Baumé; second, dipping in cyanid-of-potassium solution having a gravity of substantially 20° Baumé; third, dipping in a phosphoric-acid solution having a gravity of substantially 50° Baumé; fourth, dipping in a solution comprising one gallon of water, two pounds of either sal-ammoniac or muriate of ammonia, and one ounce of bichlorid of mercury; then, fifth, dipping in an alkaline solution, as caustic potash; sixth, and thence through the electrically-connected whitening or striking solutions, and then, seventh, into the electrically-connected solutions containing the metal to be deposited, substantially as described.

4. The method of preparing aluminium for the deposition of the final metallic coating thereon, consisting in chemically cleansing the surface thereof substantially as described, applying an amalgam of mercury to said surface, then passing the metal successively through baths containing in solution the metal to be deposited thereon as a

primary coating, which solution is operated by currents of progressively-increasing strength and are progressively graded as to the amount of metal in solution therein, substantially as described.

641,710. CAMP-STOOL. DAVID LEMLEY, New Orleans, La. Filed June 17, 1899. Serial No. 720,965. (No model.)

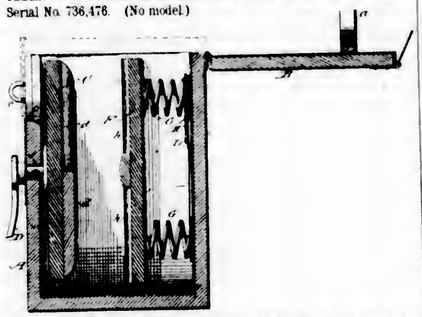


Claim.—1. In a camp-stool, the combination with a ring, and yoke, of a series of spreaders passed upward through the yoke and ring, a flexible seat secured to the spreaders, a series of legs pivotally secured to the ring at their upper ends and carried downward through the yoke, and connections to limit the spreading of the lower ends of the legs, substantially as described.

2. The combination with the ring having a series of bearings between collars, the yoke, having a series of radial slots and intervening round holes, legs having the upper ends bent around the bearings and passed through the slots, spreaders having balls at their lower ends, passed up through round holes of the yoke, and through the ring, and a flexible seat secured to the outer ends of the spreaders, substantially as described.

3. The herein-described camp-stool, comprising the yoke having alternating series of holes and radial slots, the ring above the yoke having bearings between collars, and curved recesses alternating therewith, legs passed through the yoke-slots having eyes at their upper ends around the ring-bearings, and eyes at their lower ends, radially-arranged links with eyes at each end, chains connecting their inner eyes together, chains connecting their outer eyes to the bottom eyes of the legs, spreaders having balls at their inner ends and eyes at their outer ends, the spreaders passing through the yoke-holes, with the balls below the yoke, and bent outward in the curved recesses of the ring, and a flexible seat sewed to the eyes of the spreaders, substantially as described.

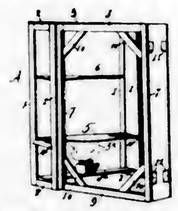
641,711. WASHING-MACHINE. OLIVER LINEBARGER and CHARLES A. LINEBARGER, Council Bluffs, Iowa. Filed Nov. 10, 1899. Serial No. 736,476. (No model.)



Claim.—1. In a washing-machine, a suitable suds receptacle or tub, a rotatable rubber-head, a stationary rubber-head, a metal frame, suitable springs connecting the rubber-head with the frame, and a supporting-plate upon the interior of the tub for attaching the frame to the tub, substantially as and for the purpose described.

2. In a washing-machine, a suitable suds receptacle or tub, a rotatable rubber-head, a removable block having guide-plates to hold the shaft of the head in its bearing, a spring actuated stationary rubber-head detachably connected to the interior of the receptacle or tub, said head being semicircular upon its lower end, substantially as and for the purpose set forth.

641,712. FOLDING VAPOR-BATH CABINET. FRANK B. LOSEE, Toledo, Ohio. Filed May 10, 1899. Serial No. 716,263. (No model.)

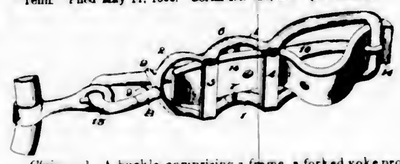


Claim.—1. In a bath-cabinet, a box-frame A open at front, a frame C pivotally connected with one side thereof, another frame B pivotally connected with the frame C the arrangement of said three frames being such that they may be brought into substantially triangular form, and a pair of triangular frames pivotally secured together and pivotally secured to said frames B and C at top, substantially as and for the purpose specified.

2. In a bath-cabinet, a frame A, a frame C, hinged to one side of the frame A, a frame B pivotally connected with the frame C, a pair of drop-frames hinged to each other and to said frames B and C, and means for supporting said drop-frames in horizontal position, substantially as and for the purpose specified.

3. A bath-cabinet comprising a box-frame, a tilting seat supported therein, a pair of frames pivotally connected together, one of said frames being hinged to one side of the box-frame, and a pair of triangular frames hinged together and to the top of said first-mentioned pair of frames, and means for securing said drop-frames in horizontal position, substantially as and for the purpose specified.

641,718. HAME-TUG BUCKLE. EPHRAIM MANN, Chattanooga, Tenn. Filed May 11, 1899. Serial No. 716,425. (No model.)



Claim.—1. A buckle, comprising a frame, a forked yoke projecting laterally from one side of the frame at one end, and a tongue pivoted to the frame and normally seated in said yoke which prevents lateral displacement of the toogue, substantially as set forth.

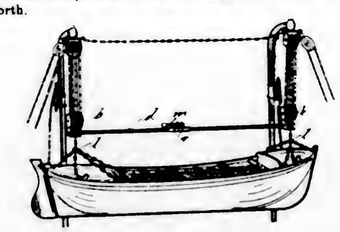
2. A hame-tug buckle, comprising a frame, having a stud projecting longitudinally from one end of the frame, lugs located at opposite sides of the plane of the stud and projecting laterally therefrom at one side, and a tongue pivoted intermediate of its ends to the frame and having one end formed into a hook adapted to coöperate with the stad, the hook end of the tongue being normally seated between the lugs, substantially as set forth.

3. A buckle, comprising a frame having an intermediate crossbar reduced in thickness intermediate of its ends, and a tongue provided intermediate of its ends with a pair of wings adapted to be bent about the reduced portion of the intermediate cross-bar, whereby the tongue is pivoted intermediate of its ends and coöperates at opposite ends with the respective ends of the frame, the wings engaging the opposite shoulders formed by the reduced portion of the cross-bar, thereby preventing lateral movement of the tongue, substantially as set forth.

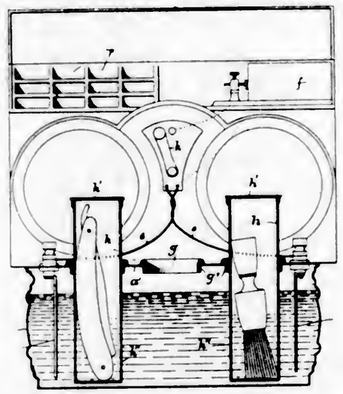
641,714. BOAT-DETACHING APPARATUS. AUGUST MAY, Hamburg, Germany. Filed May 31, 1899. Serial No. 718,817. (No model.)

Claim.—1. In boat-lowering apparatus, the combination with the davit and tackle, of lower blocks having downward extensions, rotatable connecting-rod between said blocks and having bearings in said extensions, chain-supporting pins in said rod, and means for locking and releasing said rod substantially as set forth.

2. In boat-lowering apparatus, the combination with the davits and tackle, of lower blocks having downward extensions, rotatable connecting-rod between said blocks and having bearings in said extensions, chain-supporting pins in said rod, and means for locking and releasing said rod, consisting of a collar, a pin working through said collar, a lever for operating said pin and means for locking said lever, as set forth.



641,715. ANTISEPTIC APPARATUS. JAMES A. MERRITT, Boston, Mass., assignor, by mesne assignments, to George L. Storrs, Willimantic, Conn. Filed May 25, 1899. Serial No. 718,142. (No model.)



Claim.—1. In a disinfecting apparatus, the combination of the receptacle containing an antiseptic solution, battery-electrodes located in said solution at widely-separated points, a battery and induction-coil connected with said electrodes, and the elongated holders perforated at their lower ends and provided with air-tight covers at their upper ends, and each adapted to receive a razor or other article, whereby when said holders have their perforated ends immersed in said solution between said electrodes, the articles contained therein are quickly and thoroughly disinfected, substantially as set forth.

2. In a disinfecting apparatus, the combination of the receptacle adapted to contain an antiseptic solution and formed with the apertures through its top, the non-conductive rims applied to said apertures, the holders fitting in said rims and formed with the perforated lower ends immersed in said solution, the air-tight covers for said holders, the electrodes suspended in said solution with said holders located between them, the battery and induction-coil, and conductors between said electrodes, battery and induction-coil, substantially as set forth.

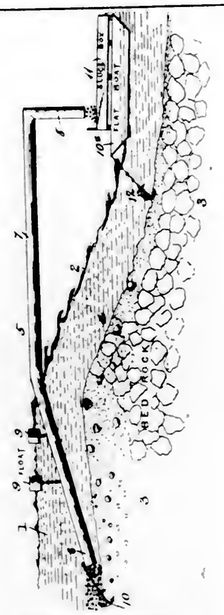
641,716. APPARATUS FOR HYDRAULIC DREDGING. BOLING J. METEVIE, Tacoma, Wash. Filed July 15, 1899. Serial No. 723,958. (No model.)

Claim.—1. In a device of the character described, an angular pipe adapted to be placed in a stream or the like, means for anchoring the rear end of the same near the bed of the stream, and floats for supporting the device.

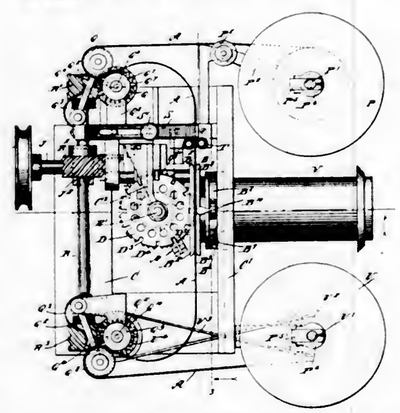
2. In a hydraulic dredger, a pipe adapted to be placed in a stream or the like and formed with a rear inclined end adapted to reach the bed of the stream and a forward downwardly-projecting end, and means for anchoring and supporting the same in the stream.

3. In a device of the character described, a tube having an angular end, so that it may be placed over a waterfall or the like, its rear end contacting with the bed of the stream, whereby a suction is created and the material received at one end and discharged at the other.

641,716.



641,717. WEB-FEEDING MECHANISM. WILLIAM V. MILLER and ELIAS R. DUNN, New York, N. Y., assignors of one-third to Gertrude Prince Coombs, same place. Filed Dec. 31, 1898. Serial No. 700,849. (No model.)



Claim.—1. A web-feeding mechanism, provided with spaced and toothed feed-wheels mounted on independent vertical pivots for engaging the web or film at top and bottom of the slide-opening, a positive mechanism acting directly on the said wheels for imparting an intermittent rotary motion to the same, and a locking device operating in conjunction with the said feed mechanism, and engaging the said wheels at points intermediate of the points engaged by the said positive mechanism, to lock the wheels against rotation during the period of rest, substantially as shown and described.

2. A web-feeding mechanism for photographic projecting-machines, provided with a slide, a positive mechanism for intermittently feeding the film horizontally and on edge through the slide, and a pair of vertically-disposed and revoluble brushes at or near the entrance of the film to the slide and engaging the faces of the film, substantially as shown and described.

3. A web-feeding mechanism for photographic projecting-ma-

chines, provided with a slide, a positive mechanism for intermittently feeding the film horizontally and on edge through the slide, a pair of vertically-disposed and revoluble brushes at or near the entrance of the film to the slide and engaging the faces of the film, and a slidable bar adjacent to the brushes and under which the film passes to prevent the film from rising out of the brushes, substantially as shown and described.

4. A web-feeding mechanism, provided with a driven sprocket feed-roll, and a pressing-roll for giving the desired tension to the film, the said pressing-roll being journaled in a pivoted spring-pressed arm, and an adjustable stop for limiting the swinging motion of the said arm to prevent the pressing-roll from marring the film, substantially as shown and described.

5. In a photographic projecting-machine, a slide through which the film passes, consisting of a fixed member, a movable member, a ring to which the movable member is secured, a fixed and slotted tube in which the ring slides, a second ring mounted to turn on the tube and provided with a spiral slot, and a pin secured to the first-named ring and projecting into the slots of the tube and second ring, substantially as described.

6. In a web-feeding mechanism for photographic projecting-machines, the combination of spaced and toothed feed-wheels mounted on independent and vertically-alined shafts, each having two sets of notches, means for engaging one set of notches of the wheels for imparting an intermittent rotary motion to the wheels, and a locking device for engaging the other set of notches for locking the said feed-wheels against rotation during the period of rest, substantially as described.

7. In a photographic projecting-machine, the combination with a slide having an opening in the field of the lens-tube, of intermittently-rotating toothed feed-wheels mounted on independent and vertically alined shafts at top and bottom of the slide-opening, film-reels on opposite sides of the machine, and auxiliary feed-wheels arranged on each side of the first-named feed-wheels and between the same and the reels, said auxiliary feed-wheels comprising a sprocket-wheel and a pivoted and spring-pressed guide-roller over which the film passes and by which the film is pressed upon the sprocket-wheel, substantially as described.

8. A photographic projecting-machine, comprising a slide having an opening in the field of the lens-tube, intermittently-rotating toothed feed-wheels mounted on independent and vertical shafts at top and bottom of the slide-opening, film-reels on opposite sides of the machine, auxiliary feed-wheels arranged on each side of the first-named feed-wheels, and between the same and the reels and a pair of vertically-disposed brushes between the two sets of feed-wheels and between which the film passes, substantially as described.

9. A photographic projecting-machine, comprising a slide having an opening in the field of the lens-tube, intermittently-rotating feed-wheels mounted on independent vertical shafts at top and bottom of the slide-opening, film-reels on opposite sides of the machine, auxiliary feed-wheels arranged on each side of the first-named feed-wheels and between the same and the reels, a pair of vertically-arranged brushes between the two sets of feed-wheels, and a slide-bar adjacent to the upper ends of the brushes and under which the film passes and by which the film is prevented from rising out of the brushes, substantially as described.

641,718. GRAIN-DRILL. WILSON W. MILLER, Saxman, Kans. Filed Mar. 1, 1899. Serial No. 707,379. (No model.)

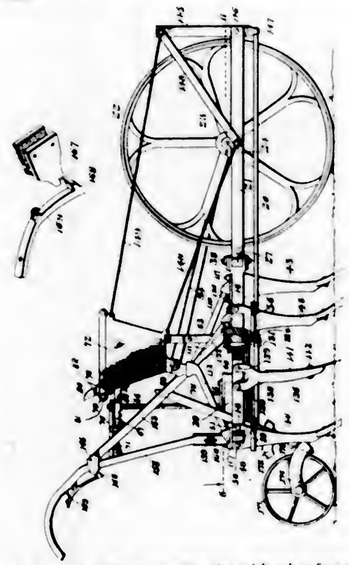
Claim.—1. In a grain-drill, the combination with a hoe-frame carrying a gang of hoe-tubes, and a frame provided with cleaner devices, of means for adjusting the hoe-frame and the tubes thereon with relation to the other frame and its scrapers or cleaners, substantially as described.

2. In a grain-drill, the combination with a carrying-frame having cleaner devices, and a hoe-frame supporting a gang of hoe-tubes, of lever lifting mechanism substantially such as described, to exert compound leverage on the hoe-frame for adjusting the latter and its gang of hoe-tubes with relation to the carrying-frame, substantially as described.

3. In a grain-drill, the combination with a carrying-frame having cleaner devices, and a hoe-frame supporting a gang of hoe-tubes, of a lifting mechanism comprising a lifting-frame fulcrumed on the carrying-frame, and a lifting-lever also fulcrumed on the carrying-frame and engaging with the lifting-frame and the hoe-frame, substantially as described.

4. In a grain-drill, the combination with a carrying-frame having cleaner devices, and a hoe-frame supporting a gang of hoe-tubes, of a lifting-frame fulcrumed on the carrying-frame and arranged to rest thereon, a lifting-lever fulcrumed on the carrying-frame and arranged to span the lifting-frame for its free end to bear against the hoe-frame, and handles rigid with the lifting-frame, substantially as described.

5. In a grain-drill, a lifting-frame provided with offstanding arms adjacent to its pivotal connection with a carrying-frame, and handles fastened firmly to said offstanding arms and connected thereby rigidly with the lifting-frame, in combination with a carrying-frame on which the lifting-frame is pivoted, and a hoe-frame arranged above the lifting-frame to be adjusted vertically thereby, substantially as described.



6. In a grain-drill, the combination with a hoe-frame, of a carrying-frame arranged to support the hoe-frame, and means for supporting and adjusting the carrying-frame vertically, substantially as described.

7. In a grain-drill, the combination with a hoe-frame carrying a gang of hoe-tubes, of a wheeled carrying-frame having means for adjusting the same vertically, and an independent adjusting contrivance for moving the hoe-frame vertically with respect to the carrying-frame, substantially as described.

8. In a grain-drill, the combination of a carrying-frame, the caster-adjusters attached pivotally to the rear end of the carrying-frame, wheeled hangers swiveled on the caster-adjusters, levers for shifting the position of the adjusters and provided with locking devices, a hoe-frame carrying a gang of hoe-tubes, and means for adjusting the hoe-frame relatively to the carrying-frame and independently of the vertical adjustment of said carrying-frame by the adjuster-levers, substantially as described.

9. In a grain-drill, a carrying-frame provided at its rear end with the transverse, fixed bar, segments fast with said bar, pivoted adjusters supported by the bar and having the wheeled hangers connected thereto, and levers fast with said adjusters and provided with locking devices to engage the segments, in combination with a hoe-frame carrying a gang of hoes and means for adjusting the hoe-frame relatively to the carrying-frame, substantially as described.

10. In a grain-drill, the carrying-frame provided at its rear end with the armed transverse bar, a lifting-frame pivotally supported above said transverse bar and provided with the operating-handles, and a lifting-lever which extends across the lifting-frame, in combination with a hoe-frame arranged above the carrying-frame for the lifting-lever to engage therewith, a gang of hoe-tubes on said hoe-frame, and cleaner devices on the carrying-frame, substantially as described.

11. In a grain-drill, the combination of a clearer-frame having the carrying-wheels, a wheeled main frame which carries the shovels and is pivoted to the clearer-frame at or near the front end thereof, and means for adjusting the main frame and its shovels vertically with relation to the clearer-frame, substantially as described.

12. In a grain-drill, the combination with a main frame supported at one end from the ground and equipped with drills at its opposite end portion, of a clearer-frame having pivotal connection with the supported end of the main frame and supported at its opposite end from the ground and in turn supporting the movable end portion of the main frame, and means interposed between the supported end of the clearer-frame and the free end of the machine-frame for raising and lowering the latter, substantially as and for the purposes described.

13. In a grain-drill, the combination with a main frame supported at its front end from the ground and provided with drills at its rear end, of a clearer-frame having pivotal connection with the front end of the main frame and supported at its rear end from the ground and extending beneath the main frame to form a support therefor, and a lever-frame fulcrumed upon the clearer-frame and adapted to have its horizontal portion engage with said main frame for effecting a vertical movement thereof, substantially as and for the purposes described.

14. In a grain-drill, the combination with a main frame supported from the ground at its front end, of a clearer-frame having pivotal connection at its front end with the forward end of the main frame, ground-wheels supporting the rear end of the clearer-frame, drills carried by the main frame, and a lever-frame mounted at the rear of the clearer-frame and adapted to engage with the main frame to raise and lower the latter and the drills thereon, substantially as described.

15. In a grain-drill, the combination with a carrying-frame, of adjustable side bars having the hoe-tubes, a hopper, seed-tubes adapted to discharge to the hoe-tubes, adjustable arms mounted on said carrying-frame, and broadcast seed-sowers confined on the frame by said adjustable arms, substantially as described.

16. In a grain-drill, the combination with a frame, a hopper and a seeding mechanism, of a flexible broadcast seed-sower, a slotted arm having said flexible sower confined or held thereon, and means for firmly holding the slotted arm in variable positions on the frame, substantially as described.

17. In a grain-drill, the combination of a horizontal frame supported at its rear end by ground-wheels, a main frame having pivotal connection with the front end of said horizontal frame and carrying the seed-dropping mechanism, laterally-adjustable bars mounted on said main frame and provided with drills and shovels, and grain-tubes arranged to deliver to the drills and to sow the grain broadcast in advance of the shovels, substantially as described.

18. In a grain-drill, the combination with a hopper and a gang of hoe-tubes arranged to be supplied from said hopper, of broadcast sowers connected with the hopper and arranged to distribute grain in the intervals between said gang of hoe-tubes, substantially as described.

19. In a grain-drill, the combination with a frame, and a hopper, of a gang of distributing and drilling devices arranged in staggered relation, broadcast sowers situated between certain of the drilling devices to distribute grain in the intervals between the latter, and means for supplying grain from the hopper to the drilling devices and the broadcast sowers, substantially as described.

20. In a grain-drill, the combination with a frame and a gang of staggered drill-hoes communicating with a hopper, of freely-movable broadcast sowers supported on the frame between the drill-hoes and having operative connections with the hopper, for the purpose described, substantially as set forth.

21. In a grain-drill, the combination with a frame, a hopper, and a gang of staggered drill-hoes communicating with the hopper, of broadcast sowers supported on opposite sides of the frame in the intervals between certain of the drill-hoes and adapted to sway or play freely on the frame, and conveying-tubes between the broadcast sowers and the hopper, substantially as described.

22. In a grain-drill, the combination with a hopper and a gang of drill-hoes, of broadcast sowers communicating with the hopper and adapted to distribute grain freely over corn-rows, and covering-shovels situated in rear of the broadcast sowers, substantially as described.

23. In a grain-drill, the combination with a frame, a hopper and a gang of drill-hoes, of broadcast sowers clamped to said frame and having freely-movable lengths which are suspended from the frame, means connecting said broadcast sowers with the hopper, and covering-shovels supported on the frame and arranged to travel in rear of the broadcast sowers substantially as described.

24. In a grain-drill, a broadcast sower consisting of a length of flexible tubing reinforced by a metallic jacket, a supporting-plate in which said tube is confined, and means for clamping the supporting-plate on a frame, in combination with a hopper, a gang of drill-hoes, and conveying-tubes leading from the hopper to the drill-hoes and the broadcast sower, substantially as described.

25. In a grain-drill, the combination with a hopper, and a frame having laterally-adjustable members, of a gang of drill-hoes carried by said adjustable members of the frame, broadcast sowers supported on said adjustable frame members, and conveying-tubes substantially such as described, connected with the hopper, the gang of drill-hoes and the broadcast sowers to permit the hoes and sowers to be adjusted with the frame members without interrupting the communication thereof with the hopper, substantially as described.

26. In a grain-drill, the combination with a hopper and a frame having laterally-adjustable members, of a gang of drill-hoes carried by said adjustable members of the frame, and connected individually with the hopper, a broadcast sower fitted to each of the adjustable frame members independently of the drill-hose, and telescopic conducting-tubes connecting said sowers with the hopper, substantially as described.

27. In a grain-drill, the combination with a wheeled carrying-frame having means for raising and lowering the same, a hoe-frame carrying a hopper and a gang of drilling and distributing devices which are mounted on said hoe-frame to be adjusted at variable distances from the median line of the frame, means for adjusting the hoe-frame relatively to the carrying-frame and independently of the vertical adjustments of said carrying-frame, and an adjusting contrivance supported by the hoe-frame for shifting the position of the drilling and sowing devices independently of the vertical adjustments of the carrying-frame or the hoe-frame, substantially as described.

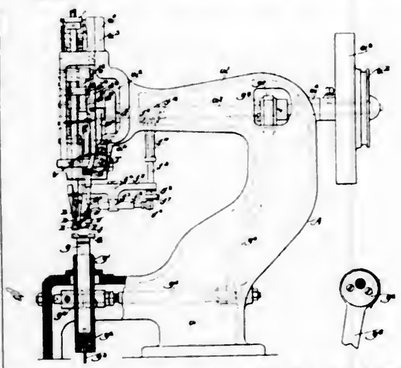
28. In a grain-drill, a bisected clamp having its members pivoted at one end and detachably confined at their overlapping ends, in combination with a hoe-frame carrying a drill-hoe, a hopper, and a conveying-tube connected at one end with the hopper and having its other end confined detachably on the hoe-frame by the bisected clamp, substantially as described.

29. In a grain-drill, the combination with a hopper having a series of seed-cups, a force-feed shaft, and a driving device, of a driven pinion mounted loosely on the shaft and engaging with the driving device, a shiftable clutch splined on the shaft for engaging with the driven pinion, a shipping-lever engaging with said clutch, and a spring-pressed locking-lever arranged to engage with the shipping-lever and holding the clutch in engagement with the driving-pinion, substantially as described.

30. In a grain-drill, the combination with handle-bars and a lifting-frame having the upwardly-extended handles, of a clasp attached to the handle-bars to receive the handles, and a latch mounted on the handles for engagement with the clasp, substantially as described.

31. In a grain-drill, the combination with handle-bars and a lifting-frame having the upwardly-extending handles, of the forked clasps fast with the handle-bars and arranged to embrace the handles of said lifting-frame, and latches pivoted to the handles and engaging with the clasps to confine the handles therein, substantially as described.

641,719. SEWING-MACHINE. EDWIN F. MOWER and PETER A. COUPAL, Boston, Mass., assignors to the United Shoe Machinery Company, Paterson, N. J. Filed Sept. 14, 1898. Serial No. 690,998. (No model.)



Claim.—1. The combination with stitch-forming and stitch-separating mechanisms, of means for adjusting the stitch-forming mechanism to vary the length of stitch, and means to adjust the stitch-separating mechanism relatively to and simultaneously with the adjustment of the stitch-forming mechanism, substantially as described.

2. The combination with a laterally-movable head, of stitch-forming and stitch-separating tools mounted in said head, means to actuate said head and tools, means for varying the lateral movement of the head and mechanism for adjusting the working end of the stitch-separating tool toward and from the stitch-forming tool simultaneously with the adjustment for varying the lateral movement of the head, substantially as described.

3. The combination with a swinging frame, of vertically-reciprocating bars mounted in said swinging frame, a stitch-forming tool carried by one bar and a stitch-separating tool carried by the other bar,

means to vary the swinging movements of the swinging frame, connected mechanism to adjust the stitch-separating tool and its bar toward and from the stitch-forming tool and its bar, simultaneously with the adjustment of the movement of the swinging frame, and a retaining device to maintain said adjustment, substantially as described.

4. The combination with a stitch-forming tool, and means to move said tool toward and from the work, of a thread-slackener, arranged to be projected toward and from the line of stitches formed by the stitch-forming tool, and to have a lateral movement toward and away from the said tool between said tool and the standing thread, a horizontal reciprocating rod, carrying said thread-slackener, a pivoted bearing for said rod and means to reciprocate and oscillate said rod, substantially as described.

641,720. ORE WASHER AND AMALGAMATOR. JAMES MURPHY, Butte, Mont. Filed May 4, 1899. Serial No. 715,588. (No model.)



Claim.—1. In a gold-ore washer, the combination with a main frame provided with a vertical operating-shaft, of a washer on top of the shaft provided with toothed flanges, a horizontally-movable frame on the main frame, an eccentric on the movable frame provided with toothed flanges to register with the toothed flanges of the washer, means for holding said flanges yieldingly together, and a screw-threaded shaft for moving the flanges longitudinally upon each other, substantially as shown and described.

2. In a gold-ore washer, the combination with a main frame, provided with a vertical operating-shaft, of a washer on the upper end of the shaft provided with toothed flanges and a notched sleeve, a horizontally-movable frame on the main frame, an eccentric on the movable frame provided with toothed flanges and a rib, a spring for holding the toothed flanges of the washer in yielding engagement with the flanges of the eccentric, and a screw-threaded shaft for moving said flanges longitudinally upon each other, substantially as shown and described.

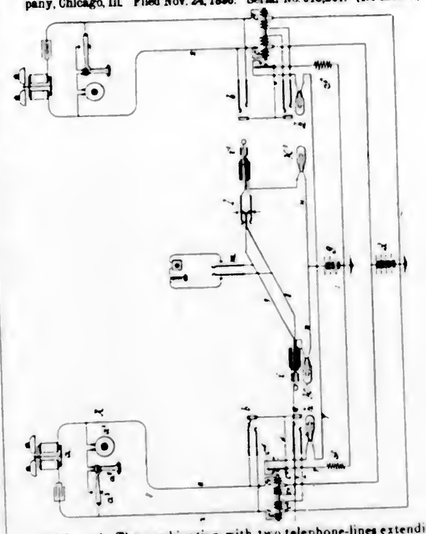
3. In a gold-ore washer, the combination with a main frame, provided with a vertical operating-shaft, of a washer on the shaft provided with toothed flanges, a horizontally-movable frame on the main frame, a sliding frame in the movable frame provided with a circular opening, an eccentric in said opening, provided with an upwardly-projecting flange at its periphery and with downwardly-projecting toothed flanges, means for adjustably securing the eccentric to the washer, and a screw-threaded shaft connected at one end with the sliding frame and projecting through the movable frame at the other end, substantially as shown and described.

4. The combination of the stationary frame, a movable frame surmounting it, having a longitudinally-arranged grooved portion, a slidable plate therein, an adjustable eccentric connected to said plate, a threaded adjusting-rod projecting from said plate and extending through the end of the movable frame inverted concave bearing-plates secured near one end of the two frames and facing each other, balls in their concavities, longitudinally-grooved bearing-plates secured to the movable and stationary frames near their opposite ends and balls in their grooves, substantially as described.

5. The combination with the stationary frame, of a movable frame surmounting it, the inverted concave bearing-plates, secured near the end of the two frames and facing each other, balls in their cavities, longitudinally-grooved bearing-plates secured to the movable and stationary frames near their opposite ends one of them being mounted on a swiveling vertical axis a pan having a concave depression mounted on said movable frame and rotatable screw-threaded supporting-rods connecting said frame and pan whereby the same can be adjusted, substantially as described.

6. The combination with the stationary and movable frames, of the vertical shaft, a washer on it above the frame, a spring above the washer, a washer-casing above the spring having diametric upwardly-projecting toothed flanges, the eccentric above the flanged washer having similar and registering downward-projecting toothed flanges, a casing for the eccentric carried by the movable frame and means for longitudinally adjusting the casing, substantially as described.

641,721. TELEPHONE-EXCHANGE SYSTEM. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 24, 1898. Serial No. 613,261. (No model.)



Claim.—1. The combination with two telephone-lines extending from substations and adapted to be connected together at a central office to form a complete circuit, of switches, one at each substation, for controlling the continuity of the circuit, a signal-controlling electromagnet associated with one of the circuit, a signal-controlling electromagnet associated with one of the lines, said electromagnet having a winding included in series in the circuit of the united lines, a bridge-circuit including a source of current, extending from a point within said winding to the other side of the circuit, and a second signal-controlling electromagnet associated with the other line and having a winding connected in a parallel branch of the bridge-circuit, whereby the first-mentioned signal-controlling electromagnet is controlled by the switches at both substations, and the other electromagnet is controlled by the switch of one substation alone, substantially as set forth.

2. The combination with two united telephone-lines forming a complete circuit and switches at the substations for controlling the continuity of such circuit, of a repeating-coil associated with one of the lines at the central office and having two windings c^1 c^2 and c^3 c^4 connected one in each side of the circuit, an armature for said repeating-coil controlling a signal, a source of current connected in a bridge-circuit between points within the said windings, and a signal-controlling electromagnet associated with the other line and having a winding connected in a branch of the bridge-circuit, forming a bridge including the source of current and connecting said electromagnet in parallel with one of the windings of the repeating-coil, substantially as described.

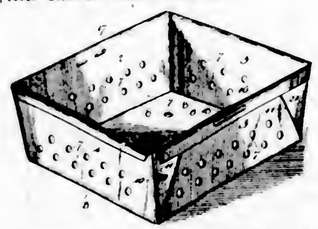
3. In combination, two telephone-lines, a repeating-coil for each line having its primary and its secondary windings united, a source of current and a bridge of each circuit from the point of junction of the said windings including the source of current, a spring-jack connected with the primary circuit of one line, a spring-jack connected with the secondary circuit of the other line, and plugs and a plug-circuit uniting the said spring-jacks, an armature and switch-contacts controlled thereby for each line, and a supervisory signal for each line in a local circuit controlled by the corresponding switch-contacts, substantially as described.

4. In combination, two telephone-lines each with a switch adapted to close the circuit at the substation during the use of the telephone, a repeating-coil for each line, the primary and secondary windings of the repeating-coil being united, a bridge of each line-circuit, and a common source of current in the said bridge, a line spring-jack connected with the primary winding of each repeating-coil and an answering-jack connected with the secondary winding of each repeating-coil, plugs and a plug-circuit for uniting any answering-jack with any line-jack, an armature and switch-contacts controlled thereby for each repeating-coil, a subsidiary line-signal for each line in a circuit controlled by the corresponding switch-contacts, a supervisory signal for each plug, and means for bringing the supervisory signal into a circuit controlled by the corresponding repeating-coil when a

plug is inserted into the spring-jack of that line, substantially as described.

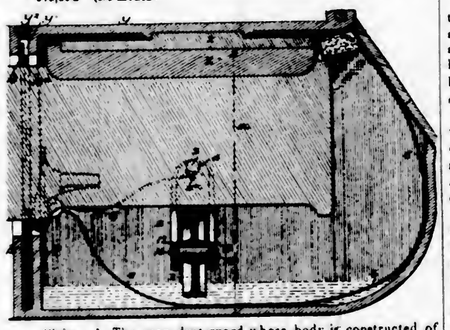
5. The combination with two telephone-lines, of a switch at each station for closing the line-circuit to produce a flow of current in the line during the use of the telephone, an answering-jack and a line-jack for each line, plugs for uniting any answering-jack with any line-jack, a signal-controlling instrument associated with each line, circuit connections between the instrument and one of said spring-jacks adapted to bring the signal-controlling magnet into circuit with both lines, and other circuit connections between the said instrument and the other spring-jack of the line adapted to bring it into circuit with that line alone, and a bridge of the plug-circuit and a source of current therein adapted to operate the said signal-controlling instruments, as described, whereby one signal is controlled by currents in both lines and the other is responsive to current in one line only.

641,722. BOX. ARLANDA C. MCCANDLESS, Los Angeles, Cal. Filed Mar. 1, 1899. Serial No. 707,301. (No model.)



Claim.—A box formed integral and comprising a bottom, upright folds connected with the bottom to form sides and ends, corner folds connected with the edges of the adjacent upright folds and lying against opposite adjacent upright folds, flaps formed integral with the upright folds against which the corner folds lie, said flaps being folded downwardly from the upper edges of the upright folds to lie upon the outer faces thereof and to inclose the upper edges of the corner folds to hold them in position against their respective upright folds, and fastening means passed through the upright folds intermediate the corner folds to hold said flaps in position, whereby the corner folds may be inserted beneath the flaps to hold them in position, and may be withdrawn therefrom to cause the box to lie flat.

641,723. CAR-AXLE LUBRICATOR, DUST-GUARD, AND WIPER. JAMES S. PATTEN, Baltimore, Md. Filed Mar. 31, 1898. Serial No. 675,894. (No model.)



Claim.—1. The rear dust-guard whose body is constructed of flexible metal, the same having inwardly-projecting hollow arms arranged at the opposite ends thereof and adapted for holding and securing wipers proper, substantially as shown and described.

2. The combination with the axle-journal and axle-box, of the lower rear dust-guard and wiper comprising the plate composed of flexible metal and having inwardly-projecting hollow arms, and the leather pieces arranged in such arms and clamped by the inwardly-bent sides of the latter, as shown and described.

3. The blank for the rear dust-guard and wiper, constructed of metal having a due degree of flexibility, as specified, the same comprising a flat curved body having a series of claws or fingers projecting from the rear side or face at right angles thereto, and the hollow arms projecting from the opposite or inner face of the body also at right angles thereto, whereby the blank is adapted to be drawn from the mold, as specified.

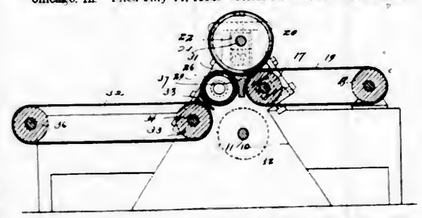
4. In an axle-lubricator, the combination, with the supporting spring-arms having open bearings, of the roller-hanger having trunnions which are detachable from such bearings, substantially as shown and described.

5. In an axle-lubricator, the combination, with the supporting-springs, having bearings constructed with a space or slot as specified, of the roller-hanger having trunnions provided with projections adapted to pass through such slots when in one position and to engage the bearings when the hanger is in pendent or working position, substantially as shown and described.

6. The combination with spring-supports, of the V-shape roller-hanger having end trunnions or pivots provided with pendent projections, as and for the purpose specified.

7. The combination with the axle-box front dust-guard composed of a thin metal plate, adapted to extend over the mouth of the axle-box, and supporting-springs connected with such plate and extending to and resting upon the bottom of said axle-box, substantially as shown and described.

641,724. CRACKER OR BISCUIT MACHINE. FRANK M. PETERS, Chicago, Ill. Filed July 11, 1898. Serial No. 685,698. (No model.)



Claim.—1. In a cracker or biscuit machine, the combination, with a cutting or molding device, of a revolving air-suction device for stripping and conveying away the dough from the cutting or molding device, substantially as described.

2. In a cracker or biscuit machine, the combination, with a revolving cutting or molding cylinder, of a revolving air-suction device for stripping and conveying away the dough from the cutting or molding cylinder, substantially as described.

3. In a cracker or biscuit machine, the combination, with a revolving cutting or molding cylinder, of an air-suction device for stripping and conveying the dough therefrom, comprising a revolving perforated cylinder and means for exhausting the air from the interior thereof, substantially as described.

4. In a cracker or biscuit machine, the combination, with a rotary cutting or molding cylinder, of a rotary perforated cylinder and an inner non-revolving cylinder, provided with a longitudinal slot, and means for exhausting the air from the said inner cylinder, whereby the dough may be stripped from the cutter-cylinder and carried by the perforated cylinder away from the cutter, substantially as described.

5. In a cracker or biscuit machine, the combination, with a revolving cutting or molding cylinder and means for conveying a sheet of dough thereto, of a revolving air-suction device movable in a path adjacent to the circumference of the revolving cutting-cylinder and adapted for stripping the dough from the cutting-cylinder and for conveying it away from the cylinder, substantially as described.

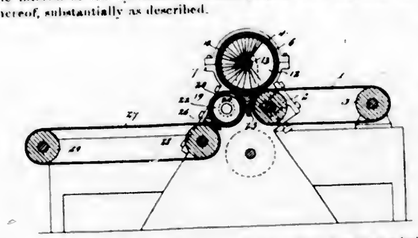
6. In a cracker or biscuit machine, the combination, with an endless belt or apron and rollers over which it passes, of a cutting or molding cylinder cooperating with said belt and one of its rollers, a revolving perforated stripper provided with means for exhausting the air from its interior to strip the dough from the cutting or molding cylinder, and an endless belt or apron to receive the dough from said stripper, substantially as described.

641,725. CRACKER OR BISCUIT MACHINE. FRANK M. PETERS, Chicago, Ill. Filed Aug. 26, 1899. Serial No. 728,543. (No model.)

Claim.—1. In a cracker or biscuit machine, a hollow rotary cutting-cylinder provided on its exterior with cutters to form the crackers or biscuit from the sheet of dough and having apertures between the cutters through which the scrap may pass into the interior of the cylinder, substantially as described.

2. In a cracker or biscuit machine, a hollow rotary cutting-cylinder provided on its exterior with cutters to form the crackers or biscuit from the sheet of dough and having apertures of inwardly-increasing diameter between the cutters through which the scrap may pass into the cylinder, substantially as described.

3. In a cracker or biscuit machine, a hollow rotary cutting-cylinder open at one end, provided on its exterior with cutters to form the crackers or biscuit from the sheet of dough, and having apertures between the cutters through which the scrap may pass into the interior of the cylinder, in combination with means for feeding the scrap along the interior of the cylinder and discharging it from the open end thereof, substantially as described.



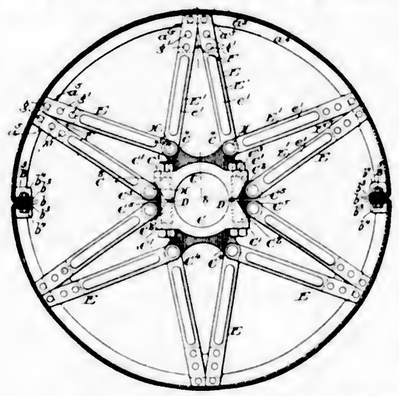
4. In a cracker or biscuit machine, the combination, with a hollow rotary cutting-cylinder, open at one end and provided with apertures through which the scrap may pass into the interior thereof, of a spiral conveyer located within the cutting-cylinder and adapted to feed the scrap to and through the open end thereof, substantially as described.

5. In a cracker or biscuit machine, the combination, with a hollow rotary cutting-cylinder open at one end and having apertures through which the scrap may pass into the interior thereof, of a fixed spiral conveyer located within said cylinder and extending longitudinally thereof to the open end, substantially as described.

6. In a cracker or biscuit machine of the character described, the combination, with a hollow rotary cutting-cylinder having apertures between the cutters through which the scrap may pass into the interior of the cylinder, of a revolving air-suction device for stripping and conveying away the cut crackers or biscuit from the cutting-cylinder, said device being constructed and arranged to operate only upon those portions of the cylinder lying within the cutters, whereby the discharge of the scrap through the apertures of the cutting cylinder is not affected, substantially as described.

7. In a cracker or biscuit machine of the character described, the combination, with a hollow rotary cutting-cylinder having apertures between the cutters through which the scrap may pass into the interior of the cylinder, said apertures being circularly arranged around the cylinder, of an air-suction device for stripping and conveying the cut crackers or biscuit from the cutting-cylinder, comprising a revolving cylinder perforated except as to those parts which coincide with the scrap-apertures, and means for exhausting the air from the interior thereof, substantially as described.

641,726. **WHEEL CONSTRUCTION.** FERDINAND PHILIPS, Philadelphia, Pa. Filed Jan. 21, 1899. Serial No. 702,903. (No model.)



Claim.—1. A wheel having its rim and hub connected by a series of wide and thin bars arranged in pairs with their wide sides parallel to each other and lying in planes transverse to the axis of the wheel, each such pair having their outer ends secured to a point on the rim and the bars diverging thence to two separated points on the hub to which they are secured so as to form a triangular truss-spoke as described.

2. A wheel having its rim and hub connected by a series of wide and thin longitudinally-corrugated bars arranged in pairs with their wide sides parallel to each other and lying in planes transverse to the axis of the wheel, each such pair having their outer ends secured to a point on the rim and the bars diverging thence to two separated points on the hub to which they are secured so as to form a triangular truss-spoke as described.

3. A wheel having its rim and hub connected by a double series of triangular truss-spokes secured at their apices to the rim and at their bases to the hub and each lying in a plane transverse to the axis of the wheel, the one series angling from the center of the rim outward toward one end of the hub and the other series angling outward from the center of the rim toward the other end of the hub.

4. A wheel having its rim and hub connected by a double series of triangular truss-spokes each made up of two wide and thin bars secured at their apices to the rim and at their bases to the hub and each lying in a plane transverse to the axis of the wheel, the one series angling from the center of the rim outward toward one end of the hub and the other series angling outward from the center of the rim toward the other end of the hub.

5. A wheel having its rim and hub connected by a double series of triangular truss-spokes each made up of two wide and thin bars the spokes of each series being secured at their apices to the center of the rim and at their bases to the hub and each lying in a plane transverse to the axis of the wheel and being arranged in pairs, one spoke of each series being secured to the same point on the rim and diverging thence toward opposite ends of the hub.

6. A wheel having a rim provided with an inwardly-turned flange formed with notches as a^5 a^5, in combination with spokes formed of wide and thin bars secured to the rim-flange above such notches, and plates, as F, secured to the spokes and fitting into the notches in the rim-flange.

7. A wheel having a rim provided with an inwardly-turned flange formed with notches, as a^5 a^5, in combination with triangular truss-spokes formed of wide and thin bars as described, plates F securing said spokes together near their outer ends and said spokes being fastened to the rim by securing their extreme outer ends to the rim-flange and by the engagement of plates F in the notches a^5 a^5.

8. A wheel having a rim provided with an inwardly-turned flange formed with notches as a^5 a^5, in combination with triangular truss-spokes formed of wide and thin bars, plates F securing said spokes together in pairs as described and said spokes being fastened to the rim by securing their ends to the rim-flange and by the engagement of plates F with notches a^5 a^5.

9. A wheel-rim segment formed of a single sheet of metal folded inward under a central section at both sides and downward toward the center of the rim at the ends so as to form a two-ply rim with an intermediate flange or flanges as described.

10. A wheel-rim segment formed of a single sheet of metal folded inward under a central portion at both sides and downward toward the center of the rim at the ends to form a two-ply rim with double centrally-extending flanges at its middle substantially as described.

11. A wheel-rim segment formed of a single sheet of metal folded inward under a central portion at both sides and downward toward the center of the rim at the ends and the folded edges being bent also downward toward the center of the rim all substantially as described and so as to form a two-ply rim with centrally-extending flanges at its middle and lateral edges.

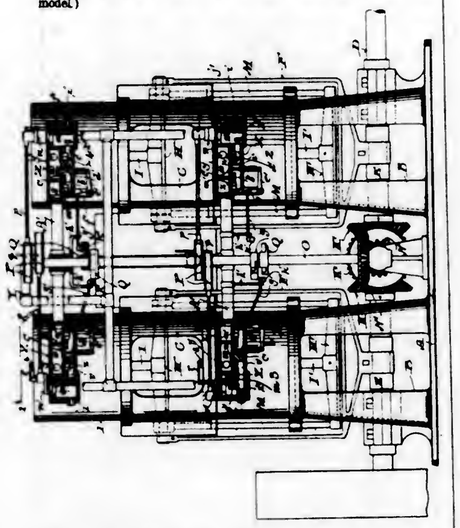
12. A metal rim-section formed with one or more centrally-extending flanges and with end flanges, as b^5, formed by turning inward toward the center the metal of the ends of the section, lapping the portions of the centrally-extending flange or flanges corresponding to the turned-in portion of the rim on the adjacent portions of the said flange or flanges and securing said lapped portions together.

13. A two-ply metal rim-section formed of a single sheet of metal with a middle centrally-extending double flange and end flanges b, b^5 formed by turning inward the ends of the pulley-section, lapping the section of the middle flange corresponding to said turned-in portion on the adjacent portion of the flange and securing said lapped flange portions together.

14. A wheel having in combination a hub formed with a series of transverse longitudinal perforations, a series of triangular spokes lying transverse to the axis of the wheel, each consisting of two wide and thin bars secured at their inner ends on the same side of the hub by pins passing through different perforations in the hub, and a rim to which the outer ends of the bars forming the triangular spokes are secured.

15. A wheel having in combination a hub formed with a series of transverse longitudinal perforations, two series of triangular spokes lying transverse to the axis of the wheel, each spoke consisting of two wide and thin bars, said triangular spokes being secured at their apices to the rim and the diverging bars being secured to and on the same side of the hub by pins passing through the perforations in the hub and each securing in place the inner ends of two or more bars.

641,727. **GASOLENE-ENGINE.** PETER ROBERTSON and CHRIST MATSON, Racine, Wis. Filed Apr. 10, 1899. Serial No. 712,396. (No model.)



Claim.—1. In a gas-engine, a plurality of cylinders arranged one above another, coupled pistons in the cylinders, a shaft having crank connection with the coupled pistons, valve-gear and igniting mechanism for all said cylinders comprising a shaft, and clutch-controlled gearing in connection with the two shafts organized to permit reversal of the crank-shaft without changing the direction of motion on the part of the other shaft.

2. In a gas-engine, a plurality of cylinders arranged in pairs one above another, means for coupling the pistons in each pair of cylinders, a shaft having crank connection with each pair of coupled pistons, valve-gear and igniting mechanism for all of said cylinders comprising a shaft, and clutch-controlled gearing in connection with the two shafts organized to permit reversal of the crank-shaft without changing direction of motion on the part of the other shaft.

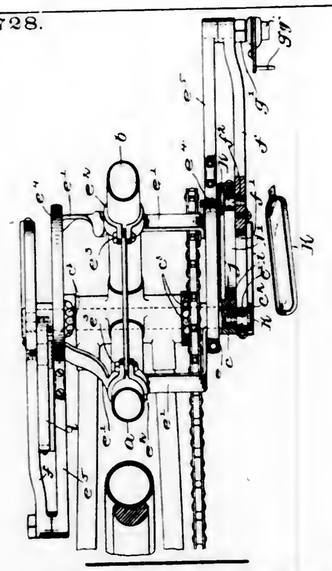
3. In a gas-engine, a plurality of cylinders arranged in pairs one above the other, means for coupling the pistons in each pair of cylinders, a shaft having crank connection with each pair of coupled pistons, valve-gear and igniting mechanism for all said cylinders comprising a shaft, a miter-gear fast on the latter shaft, a pair of similar wheels loose on the crank-shaft in mesh with the former wheel, and a clutch-sleeve splined on said crank-shaft to have engagement with either of the miter gear-wheels thereon.

641,728. **BICYCLE DRIVING MECHANISM.** THOMAS C. ROBINSON, Malden, Mass., assignor of one-half to E. Baker Welch, Cambridge, Mass. Filed Feb. 12, 1898. Serial No. 670,019. (No model.)

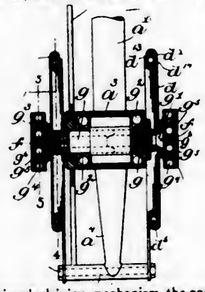
Claim.—1. In a mechanism of the character described, in combination, a crank-shaft, an eccentric affixed to the bicycle-frame and having a strap, a lever carrying at its outer end the pedal-shaft and formed with a slot in its inner end, a pivotal connection between said lever and the eccentric-strap, a roller attached to the crank-shaft, and forming a fulcrum for said lever, an auxiliary crank secured to the crank-shaft and formed with a slot, and a roller attached to the lever and operating in said slot.

2. In a mechanism of the character described, in combination, a crank-shaft, an eccentric affixed to the bicycle-frame, an arm or crank attached to the strap of said eccentric and carrying the pedal-shaft at its outer end, a lever attached at its outer end to the pedal-shaft and formed with a slot in its inner end, a roller attached to the crank-shaft and forming a fulcrum for said lever, an auxiliary crank secured to the crank-shaft between the strap-crank and the lever and formed with a slot, and a roller attached to the lever and operating in said slot.

641,728.



641,729. **BICYCLE DRIVING MECHANISM.** THOMAS C. ROBINSON, Revere, Mass., assignor of one-half to E. Baker Welch, Cambridge, Mass. Filed Nov. 12, 1898. Serial No. 696,210. (No model.)



Claim.—In a bicycle driving mechanism, the combination of the bicycle-frame, an eccentric affixed thereto, the crank-axle having the recessed bearing-blocks at its ends, cranks operating in said blocks and attached to the eccentric-straps, the hardened bearing-gibs g^9 occupying the recesses in said bearing-blocks, the antifriction-balls interposed between said gibs and the cranks, the dust-cap g^4 covering the bearing-block and holding the gibs g^9 in place therein, and the screws securing said dust-cap to the bearing-block.

641,780. **APPARATUS FOR TREATING PLATES.** WILLIAM ROGERS, Leechburg, Pa. Filed Mar. 19, 1898. Serial No. 674,476. (No model.)

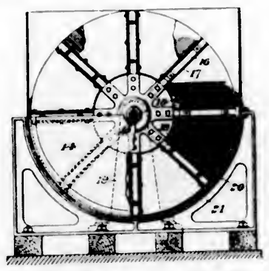
Claim.—1. A plate-cleaner comprising an endless carrier, having compartments each arranged to receive a series of plates endwise, and a support arranged to contact with the ends of the plates during at least a portion of their travel; substantially as described.

2. A plate-cleaner consisting of a rotary drum having radial compartments, each arranged to receive a series of plates, and a support partly encircling the drum and arranged to contact with the ends of the plates; substantially as described.

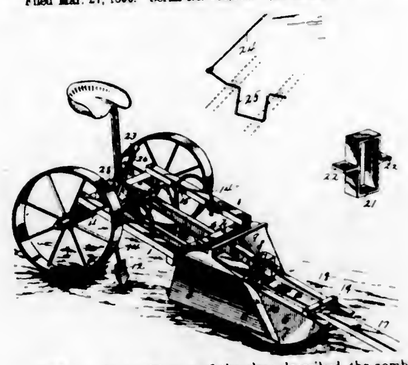
3. The combination with a cylindrical drum, having vanes forming compartments, each arranged to receive a set of plates, of a curved shield having closed ends forming a case partially surrounding the drum and contacting with the ends of the plates; substantially as described.

4. The combination with a receptacle arranged to contain a liquid-bath, of an endless carrier movable therethrough and having compartments each arranged to receive a series of plates, and a support

arranged to contact with the ends of the plates; substantially as described.



641,731. CULTIVATOR. WILLIAM R. SALISBURY, Lamoni, Iowa. Filed Mar. 27, 1899. Serial No. 710,605. (No model.)



Claim.—1. In a cultivator of the class described, the combination of a frame, a supporting-truck, a pair of runners rigidly connected to said truck, a pair of moldboards adjustably connected to said runners with their lower edge inclined outwardly and having their forward ends tapering downwardly, and a pair of adjustable shovels carried by said frame and set at a reverse incline to the adjustable moldboards, substantially as described.

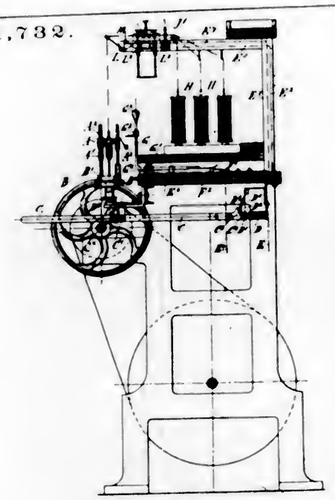
2. In a cultivator of the class described, the combination of a frame, a pair of runners rigidly connected to said frame, a pair of moldboards adjustably connected to said runners and having their forward ends tapering downwardly, an adjustable tongue, and means carried by said frame for adjusting said tongue, substantially as described.

3. In a device of the character described, the combination of a frame, a pair of adjustable shovels carried by said frame, a pair of runners connected to the frame, a pair of adjustable moldboards connected together and supported from said runners, said moldboards having their forward ends tapering downwardly and their lower edge inclined outwardly, an adjustable tongue, a keeper connected to said runners and adapted to receive the rear end of said tongue, a lever pivotally connected to one of said runners, and a bell-crank journaled in the runners and connected to said lever and adapted to engage said tongue for operating the same, substantially as described.

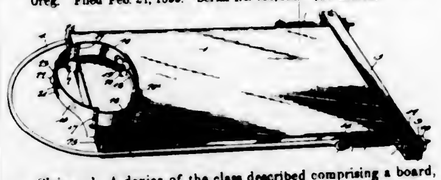
641,732. SPOOLING-MACHINE. JEAN SCHWEITER, Horgen, Switzerland. Filed Aug. 15, 1898. Serial No. 688,601. (No model.)

Claim.—In combination with a spooling-machine comprising a plurality of spindles and their operating means, means for stopping the operation of spooling of that spindle of which the thread is broken or the bobbin filled comprising a thread-guide lever for each thread, electrical contacts controlled thereby, circuit-wires, a magnet and armature for each spindle, a lever supported by each armature and arranged to throw out of operation the spooling device of the respective spindle when it is released, a lever G and contacts F^3 F^4 in the circuit, for each spindle, said lever having a part to be operated when the spool is full whereby upon the movement of either the thread-guide lever or the lever G the armature will be attracted to allow the operation of the throw-out lever, substantially as described.

641,732.



641,733. IRONING-BOARD. GEORGE T. SIMPSON, Baker City, Oreg. Filed Feb. 21, 1899. Serial No. 706,404. (No model.)



Claim.—1. A device of the class described comprising a board, having grooves 1^a and a substantially U-shaped clamping-frame having parallel sides pivoted to the side edges of the board and extending along the sides within the grooves and adapted to clamp the sides of a garment against the same, said clamping-frame being extended beyond the board at one end forming a handle, and adjustable fastening devices for the clamping-frame, said fastening devices serving to compress the sides of the clamping frame to impart the necessary clamping action thereto, substantially as described.

2. A device of the class described, comprising a board, provided at opposite sides with adjustable fastening devices, a substantially U-shaped clamping-frame fulcrumed to the side edges of the board by the said fastening devices, and extended beyond one end of the same to form a handle, and a transverse clamping-bar located at the other end of the board and provided at opposite sides of the same with springs connected to the said fastening devices, substantially as described.

3. An ironing-board provided with a neck-receiving ring consisting of a curved rear section resting on the board, and a pair of curved front sections projecting from the board and secured adjustably at their inner ends, by means substantially as described, the curved front sections being hinged at their outer ends to the curved rear section, substantially as shown.

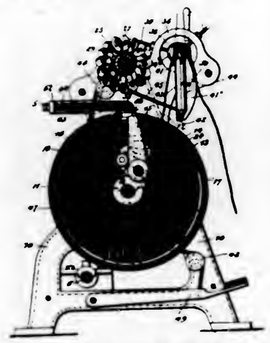
4. In a device of the class described, the combination of a board, a neck-receiving ring provided with an opening, a collar-button extending through the opening, and a slide mounted on the ring and having a forked or bifurcated portion straddling the button and detachably securing the same to the ring, substantially as described.

5. An ironing-board provided with a ring comprising a rear section, front sections hinged to the rear sections and having overlapping ends adjustably connected together, and a slide arranged on the overlapped ends, substantially as described.

641,734. LEATHER-FINISHING MACHINE. FRANK F. SLOCOMB, Wilmington, Del. Filed Aug. 11, 1898. Serial No. 688,358. (No model.)

Claim.—1. In a leather-finishing machine, the combination with helically-arranged knives, of an opposing pressure-apron, the distance between the opposing portions of said apron and knives at the ends thereof being greater than at the central portion of the same.

2. In a leather-finishing machine, the combination with helically-arranged knives, of an opposing pressure-apron, the distance between the opposing portions of said apron and knives at the ends thereof being greater than at the central portion of the same, and means for varying the relative distance between the knives and the aprons at different points throughout their opposing portions.



3. In a leather-finishing machine, the combination with the helically-arranged knives, of a flexible opposing pressure-apron, and means for imparting a longitudinal curvature to the portion of said apron that is opposed to said knives, whereby the ends of said apron are farther from said knives than the central portion thereof.

4. In a leather-finishing machine, a cylinder having a plurality of helically-disposed knives mounted thereon, said knives being inclined or pitched relative to said cylinder, and means for adjusting the direction of inclination or pitch of said knives without varying the angle thereof.

5. In a leather-finishing machine, a rotatable cylinder having a plurality of axially-pivoted circular knives or disks, said knives or disks being arranged so as to provide a helical cutting device.

6. In a leather-finishing machine, a rotatable cylinder having a plurality of axially-pivoted circular knives or disks, said knives being helically disposed throughout said cylinder with the sides of adjacent knives overlapping.

7. In a leather-finishing machine, the combination of a cylinder having circular knives or disks, said knives or disks being axially supported upon the ends of fingers having angular stems by which they are secured to the cylinder, said stems being secured within radial openings in said cylinder to give a pitch or inclination to the finger and knife or disk.

8. In a leather-finishing machine, the combination of the knives, a swinging pressure-apron pivotally supported, and means for adjusting the pivot of said apron to vary and regulate the distance between said pivot and said knives.

9. In a leather-finishing machine, a pressure-apron or carrier, means for imparting a longitudinal curvature to the same and a brake for holding said apron in any desired position when released by the operator.

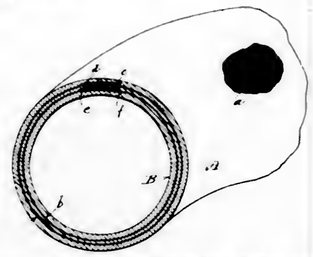
10. In a leather-finishing machine, a cylinder, knives mounted thereon, a pressure-apron adapted to engage with said knives, a knife adjustably supported and adapted to supplement the effect of the cylinder-knives and to determine the action of said knives on the work after the latter has passed beyond the pressure-apron, and a rotary drum provided with means for gripping the leather or skin to be treated.

11. In a leather-finishing machine, a cylinder, knives mounted thereon, a pressure-apron adapted to engage with said knives, means for controlling the motion of the same, a rotary drum having an opening to receive one end of the leather or skin to be worked and provided with an automatic clamp operating within said drum, and a knife adapted to contact with the skin or leather to be worked between its point of connection with said drum and the said knives.

12. In a leather-finishing machine, a cylinder, knives mounted thereon, a pressure-apron or carrier adapted to engage with said knives, means for controlling the motion of the latter, a rotary drum provided with an automatic clamp and an adjustably-supported and cushioned knife adapted to contact with the skin or leather to be worked.

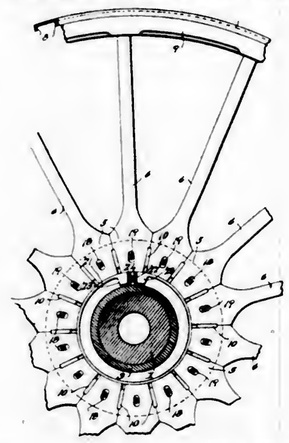
13. In a leather-finishing machine, the helically-arranged knives, and opposing pressure-apron, means for imparting a longitudinal curvature to the opposing portion thereof, a lever upon which said apron is supported, so as to be moved bodily therewith, and means for actuating said lever.

641,735. TIRE FOR VEHICLE-WHEELS. HENRY W. THEIS, Milwaukee, Wis., assignor of two-thirds to Gustav Podoll and Gustav H. Gottschalk, same place. Filed Apr. 19, 1899. Serial No. 713,540. (No model.)



Claim.—A tire for vehicle-wheels comprising an inner and outer tubular portion of rubber, with a series of interposed concentric layers of woven animal hair, having overlapping ends at the tread of the tire, each of said layers and its overlapping ends being everywhere free from contact with the adjacent layer and ends, and separated therefrom by continuous layers of rubber, and all vulcanized together, substantially as shown and described.

641,736. VEHICLE-WHEEL. WILLIAM F. THOMAS, Burlington, Iowa. Filed July 10, 1899. Serial No. 723,360. (No model.)



Claim.—1. A device of the class described comprising a hub, spokes, a split expansible ring engaging the inner ends of the spokes, and an adjustable screw interposed between the ends of the split ring and adapted to expand the latter, substantially as described.

2. A device of the class described comprising a hub composed of separable sections, spokes interposed between the sections of the hubs and provided with slots, and a removable ring arranged within the hub and provided with pins extending into the slots of the spokes, substantially as described.

3. A device of the class described comprising a hub, spokes, and an expanding device composed of a split ring engaging the inner ends of the spokes and provided with beveled lugs, and a screw engaging the beveled faces of the lugs and adapted to expand the ring, substantially as described.

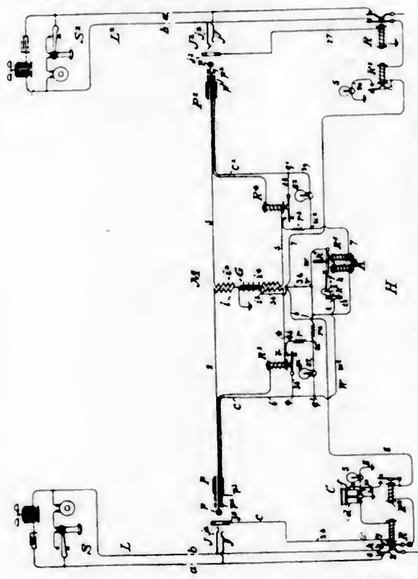
4. A device of the class described comprising the main section having an outwardly-extending annular flange provided with radial lugs forming spoke-sockets, slotted spokes fitting between the lugs, a ring provided with pins extending into the slots of the spokes, a removable section detachably secured to the main section and engaging the ring, and an expanding device, substantially as described.

5. A device of the class described comprising a main section having an outwardly-extending annular flange provided with radial lugs, a removable section having an annular recess, slotted spokes fitting between the lugs, a ring interposed between the spokes and the removable section and provided with pins fitting in the slots, an ex-

pansible ring arranged within the hub and engaging the inner ends of the spokes, and a screw mounted on the main section and engaging the ring, substantially as described.

6. A device of the class described comprising a main section having annular flanges 11 and 15, the flange 15 being threaded, and provided with a threaded perforation, an expansible ring fitting between the said flanges, a screw mounted in the threaded perforation and engaging the ring, and a removable section having interior screw-threads to engage those of the flange, substantially as described.

641,737. REGISTERING APPARATUS AND CIRCUIT FOR TELEPHONIC MEASURED SERVICE. GEORGE K. THOMPSON, Malden, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed June 15, 1899. Serial No. 720,700. (No model.)



Claim.—1. The combination in a telephone central-station switch-board apparatus, of two substation-circuits equipped with the usual switch-socket and call-signal devices; a switch-cord connection with terminal plugs fitting the said switch-sockets respectively, and uniting or adapted to unite the said substation-circuits; and a local associate circuit for each line, passing through switch-contacts in the switch-socket thereof, and composed of fixed and cord conductors; with a call or connection counting mechanism for one of the said substation-circuits actuated by two coöperating electromagnets, one connected in parallel with the call-signal device of said substation-circuit and the other in the local associate circuit of said substation-circuit but adjusted to be irresponsive to the normal current thereof; a circuit-changer organized to reduce the resistance or increase the current of said associate circuit for the operation of said second magnet, and an actuating-magnet for said circuit-changer connected in the associate circuit of the other substation-circuit; substantially as and for the purposes set forth.

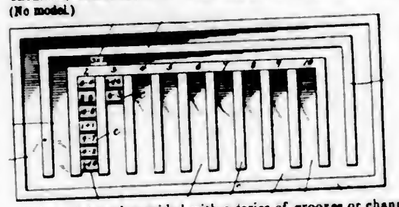
2. The combination with two telephone-lines; and means for uniting them; of a connection-counter for one of the said lines actuated for the registration of a completed call by the successive action of two electromagnets, one responsive to the action of sending in a call over the line associated with said counter, and the other in the cut-off-relay circuit of said line; a source of current connected with the said cut-off-relay circuit by the initial step of switching the two telephone-lines together, and adapted to establish a current therein sufficient for the operation of said relay, but insufficient for the operation of the said counter-magnet; and means responsive to the establishment of connection between the two lines concerned, for increasing the said current to the strength required for the operation of the said counter-magnet; substantially as set forth.

3. The combination with two main telephone-circuits; and switch-plug and cord connections for uniting them at a central station; a call or connection counter associated with one or both of the said main circuits, having two actuating-electromagnets and adapted to become operative for the registration of a call, only on the successive action of both magnets, one of the said magnets being in a derived circuit of the line-signal and adapted to respond to the act of sending such line-signal, and the other placed in the cut-off-relay circuit of the associated line; and a source of current-supply; of means controlled by the connection of the answering switch-plug with a switch-socket of the calling-line for establishing through the said cut-off relay and counter-magnet a current from the said source sufficient in strength for the operation of the former, but too weak for the operation of the latter; and other means controlled wholly or in part by the connection of the companion plug of a pair in a switch-socket of the desired line, for strengthening the said current to a degree sufficient to fully energize the said counter-magnet; substantially as and for the purposes set forth.

4. In a telephone system, the combination of a substation line entering a central station, and having a call-relay controlling the circuit of a signal, and a cut-off relay in a local circuit; a call or connection counter associated therewith having two actuating-electromagnets connected respectively in a branch of the said signal-circuit, and in the circuit of the said cut-off relay, the said counter being adapted to register a call only after the successive orderly operation of both magnets; switch devices comprising first, main conductors for answering calls, second, main conductors for uniting a calling-line with a desired line, and third, local conductors for closing the cut-off-relay circuits of both of the said lines; a source of current included in the latter, and adapted when a call is answered to establish a current through the cut-off relay of the calling-line; a regulating-resistance in the said cut-off-relay circuit maintaining the strength of said current at a value insufficient for the operation of the counter-magnet; a normally-open shunt around the said resistance; and an electromagnetic switch associated with the said switch-device conductors of the line wanted controlling the said shunt, and adapted on, or subsequent to, the establishment of connection between the said calling and called lines to close the said shunt, and thereby to increase the strength of the current through the counter-magnet to a value sufficient for the operation of the said magnet.

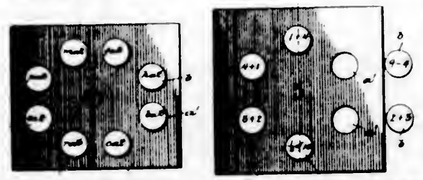
5. In a telephone-switchboard apparatus, the combination of a substation-line having a call-signal device in a branch circuit, a jack or switch socket, and a cut-off relay in an incomplete local circuit normally terminating in the said socket; an associated connection-counting mechanism with two coöperating actuating-magnets, one in a derivation of the signal-device branch circuit, and the other in the said cut-off-relay local circuit; a second substation-line also provided with a switch-socket; a switch-cord connection for uniting the said substation-lines, provided with the usual terminal switch-plugs, and comprising main-line conductors extending between the plugs, and a local-circuit conductor extending from a source of current to each plug, and adapted on the insertion of the plug to complete the cut-off-relay circuit; a lamp-signal provided with a resistance-shunt in the said local-circuit conductor of the answering-plug, serving to maintain the current flowing in the said cut-off-relay circuit at a strength insufficient for the operation of the counter-magnet contained therein; a normally-open short circuiting shunt around the said lamp and resistance-shunt; an electromagnet in the local circuit of the companion switch-plug; and a switch operated thereby, controlling the said short-circuiting shunt, and adapted when the said magnet is excited to transiently close the same, and thereby to increase the current through the counter-magnet to a strength sufficient for the operation of said magnet, and the consequently complete operation of the call-counting mechanism.

641,788. EDUCATIONAL APPLIANCE OR GAME. THOMAS R. THOMPSON, Leominster, Mass. Filed June 22, 1899. Serial No. 721,414. (No model.)



Claim.—A board provided with a series of grooves or channels closed at one end, and with a groove or channel connecting the other ends of said grooves; each closed groove having at its closed end or head a distinctive symbol, character, or designation, the symbols of the several grooves differing from each other; and a series of groups of movable blocks adapted to slide into and out of the closed grooves of said series and through the connecting-groove, each block of a group bearing an expression or embodiment of the symbol at the head of one of the closed grooves.

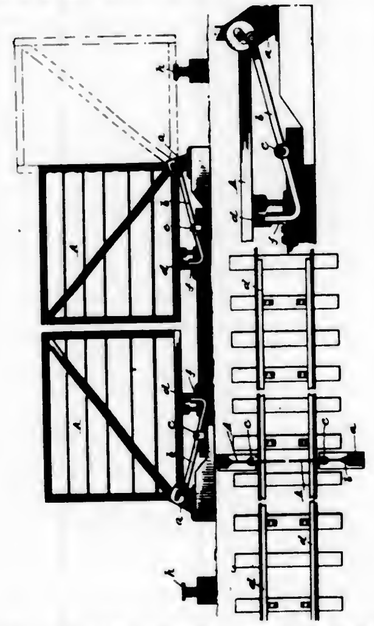
641,789. EDUCATIONAL APPLIANCE OR GAME. THOMAS R. THOMPSON, Leominster, Mass. Filed June 22, 1899. Serial No. 721,415. (No model.)



Claim.—1. An apparatus of the character specified, comprising a series of cards each formed with a number of holes and each bearing a distinctive symbol, character, or designation; and a series of groups of disks or plugs adapted to fit interchangeably in the holes of said cards, each disk or plug of a group bearing a different expression or embodiment of the symbol of one of the cards.

2. An apparatus of the character specified comprising a suitable body made either in sections or as one part, and provided with a series of groups of holes, each group being accompanied by a distinctive symbol, character, or designation and a series of groups of plugs adapted to fit interchangeably in the said holes, each plug of a group bearing a different expression or embodiment of the symbol accompanying one of the groups of holes.

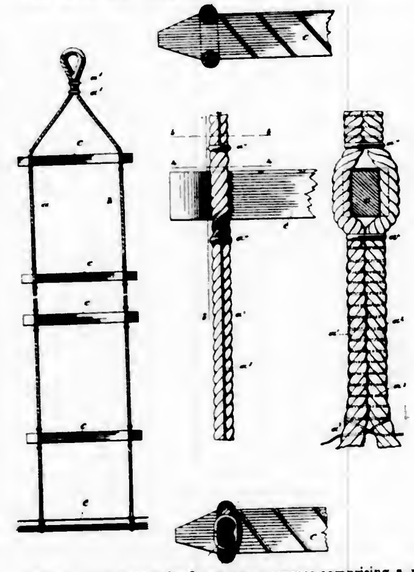
641,740. CATTLE-GUARD. JOHN H. THRELKELD, Indianola, Iowa. Filed Oct. 20, 1899. Serial No. 734,241. (No model.)



Claim.—1. A cattle-guard for railways, comprising a pair of gates pivoted at their outer lower corners, brackets supporting the pivot of each gate, said brackets being slotted to permit a bodily inward and outward movement of the gate during the act of opening and closing, a lever pivoted to each gate near its pivot and fulcrumed between the pivotal point of the gate and the adjacent track-rail, the inner end of each of these levers being extended inward under the adjacent rail, a long trip-rail supported parallel to the inner side of each track-rail and pivotally connected to the inner end of one of said levers, means whereby each trip-rail is normally pressed upward and guided in its bodily vertical movements, as and for the purposes set forth.

2. In a cattle-guard for railways, the combination of a pair of gates movably supported one at either side of the track, a pivoted lever extending outward from each track and connected to one of the gates, a trip-rail pivotally connected to the inner end of each lever and supported parallel to the adjacent track-rail, and means for resiliently supporting each trip-rail at intervals throughout its length, said means consisting of a series of headed pins or bolts depending from the rail, a socket for each of said pins, inclosing its lower end and secured to an adjacent tie of the track-bed, and a spring inclosed in each socket and normally pressing up against the head of the pin working in the socket, substantially as set forth.

641,741. FIRE-ESCAPE LADDER. VINCENT P. TRAVERS, New York, N. Y., assignor to the Travers Brothers Company, same place. Filed Apr. 27, 1899. Serial No. 714,634. (No model.)



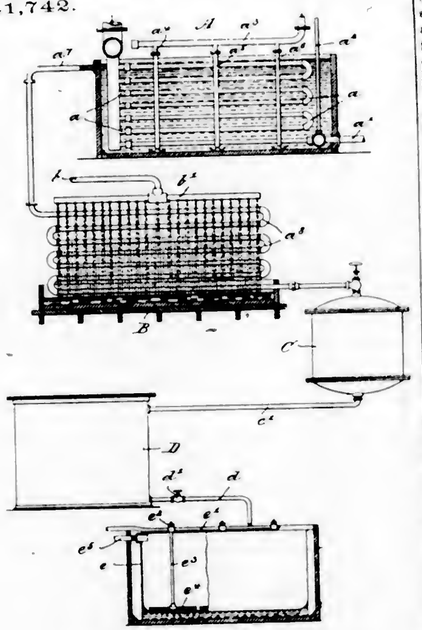
Claim.—1. A ladder for fire-escape purposes comprising a pair of ropes laid side by side with the "twist" of one rope running in the opposite direction to the "twist" of the other rope in order to obviate twisting of the structure and rounds or rungs inserted between the said ropes and securing means embracing the said ropes above and below said rounds and adapted to maintain the rounds or rungs in position.

2. A ladder for fire-escape purposes, comprising a pair of ropes laid side by side with the "twist" of one rope running in the opposite direction to the "twist" of the other in order to obviate twisting of the structure, means for securing the said two ropes together side by side, but nevertheless allowing openings between the ropes at intervals and rounds inserted into the said openings and thereby secured in place in the structure, substantially as described.

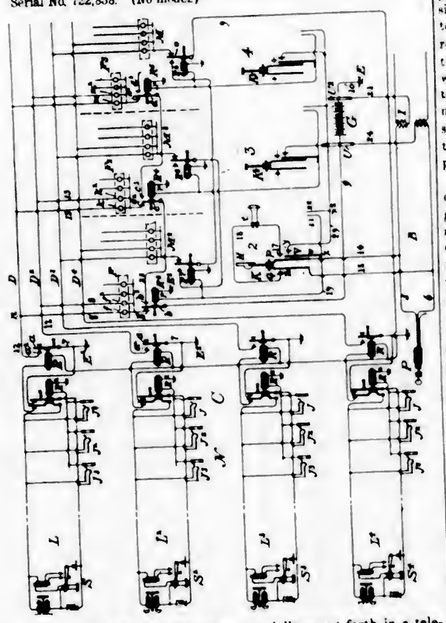
641,742. METHOD OF MANUFACTURING ICE. JACOB F. WAGNER and ARTHUR FRESTON, Philadelphia, Pa., assignors to the Ice Manufacturing Company of Germantown, same place. Filed Aug. 16, 1899. Serial No. 727,346. (No specimens.)

Claim.—The herein-described method of making plate or block ice, which consists in introducing water into an open vessel, passing a heating media through the body of water maintained in a substantially quiescent state in said vessel and in a direction opposite to the introduction of the water into said vessel, discharging the water in its hottest condition from said vessel, cooling the water in transit without agitation of the same, liberating impurities from the volume of cooled water without coming into contact with atmospheric air and then freezing the water maintained in a quiescent state progressively into ice toward a median plane of the body of such treated water, substantially as and for the purposes described.

641,742.



641,743. TELEPHONE-SWITCHBOARD APPARATUS AND APPLIANCE. THOMAS C. WALES, Jr., Newton, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed July 5, 1899. Serial No. 722,838. (No model.)



Claim.—1. The combination substantially as set forth, in a telephone-exchange, of a multiple switchboard; a substation-circuit provided with a switch device at a plurality of the sections or operators' positions of the said switchboard; and the ordinary or primary call-signal-receiving device at one of the said positions; an auxiliary or supplementary signal-receiving device for the said substation-circuit at another of the said positions; and means for the automatic transfer of an incoming call-signal from the said primary to the said supplementary signal device, when the operator at the position of the former is busy.

2. In a telephone-exchange, the combination of a switchboard; and a number of subscribers' lines connected with, and represented by switch devices at the several operators' positions of the said switchboard; with a plurality of call-signal-receiving devices for each of the said subscribers' lines, associated with the said switchboard, the said signal devices being located at different operators' positions; and means for automatically distributing the call-signals received from the said subscribers' lines with substantial equality between the operators' positions at which their signal devices are respectively placed; substantially as set forth.

3. The combination in the switchboard apparatus of a telephone-exchange, of a series of main substation-circuits having switch devices at each of a number of sections or operators' positions of the said switchboard; a listening or telephone-connecting key at each section, adapted for temporary connection with any main circuit by means of the switch devices thereof; and a series of regular or primary call-signal-receiving devices for the said main circuits respectively, at some one of the switchboard-sections; with an alternative series of call-receiving devices for the same main circuits; a current-supply conductor with alternative branches to the said two series of signals respectively; an automatic electromagnetic switch adapted to transfer the said conductor from either of the said branches to the other, but normally maintaining the connection thereof with the branch leading to the signals of the primary series; and a circuit-closer associated with and actuated by the said listening-key and controlling the circuit of the said electromagnetic switch; substantially as and for the purposes specified.

4. The combination in a telephone-exchange call-transfer system, of a multiple switchboard; a series of substation-circuits respectively provided with switch devices at the several sections of said switchboard; a listening or telephone-connecting key at each section, and a local-circuit closer associated therewith, and actuated by the operation thereof; a primary group of call-signal devices for a portion of the said substation-circuits, placed at some one section of the said switchboard; alternative groups of call-signals for the same lines at other sections of the said switchboard; a conductor normally connecting a source of current-supply with the signal devices of the first group; a normally discontinuous extension thereof leading to the signals of the several alternative groups successively; a series of automatic switches for the primary and alternative groups of signals respectively, each normally in a position to unite the supply-conductor or its extension with the signals of its group, and each adapted when operated, to move to a second position, and thereby to render the said supply-conductor continuous to the switch and group of signals next in succession; and an electromagnet for each of the said switches, each in the local circuit controlled by the circuit-closer of the listening-key of its own section; substantially as and for the purposes described.

5. In a telephone exchange, a switchboard comprising several operators' positions; substation-circuits divided into groups, each group having for each of its members a primary call-signal device at a different one of the said operators' positions, a secondary call-signal device at each of the several other operators' positions at which are placed the primary call-signals of the other groups, and a switch device at all of the said positions; and a source of signaling-current in normal conductive relation at each position with the primary signal devices thereof; combined with a telephone-key adapted for connection with any substation-circuit by means of the switch devices thereof; and having a special circuit-closer attached thereto and actuated thereby at each position; a circuit-controlling relay having its armature directly connected with the said source, associated with the primary signals of each group; and a succession of normally-disconnected subordinate circuit-controlling relays, one for each set of secondary signals of the said group, each relay having its actuating-magnet in circuit with and responsive to the operation of the special circuit-closer of the telephone key at its particular operator's position, each subordinate relay having its armature connected with said source, only through, and after the operation of all preceding relays of the series, and each of the said relays being adapted on and by means of the attraction of its armature, to transfer such connection with the said source from its own set of signals, to the circuit-controlling-relay armature of the next set; whereby the incoming calls of any substation-circuit may be automatically transferred to the first switchboard position of any series having no telephone-key in use; and whereby the calls from the substation-circuits may be evenly distributed between the operators' positions.

6. The combination substantially as hereinbefore described, of a switchboard comprising several operators' positions; substation-circuits divided into groups, each group having for each of its members a primary call-signal device at a different one of the said operators' positions, and a switch device at all of the said positions; a source of signaling-current for the operation of said signal devices; and a telephone or listening key adapted for connection with any substation-circuit by means of the switch devices thereof; with a set of secondary signal devices for each group, one for each member thereof at each of the several other operators' positions at which the primary call-signals of the other groups are located; a special circuit-closer attached to the telephone-key at each operator's position and actuated to close a local circuit by the operation thereof; and a series or succession of circuit-controlling relays for each group, one for each set of primary and secondary signals thereof, the armature of the primary signal-relay being in direct connection with the source of current, the armature of each of the others being united with the front armature-contact of the one preceding it; the back contact of the armatures of each being in connection with the associated set of signals; and the electromagnet of each being in the local circuit controlled by the special circuit-closer of the telephone-key at the same operator's position; substantially as, and for the purposes set forth.

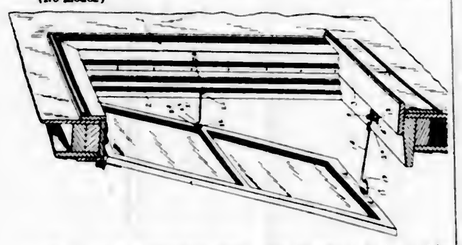
641,744. MOP-WRINGER. ALFRED B. WESTRUP, New York, N. Y. Filed June 6, 1899. Serial No. 719,534. (No model.)



Claim.—1. In a mop-wringer, the combination with opposite angular standards having opposing guide-slots converging toward their inner upper ends, of opposing wringer-rolls having their ends journaled in said slots, and U-shaped handles connected at their terminals to the journals of the rolls.

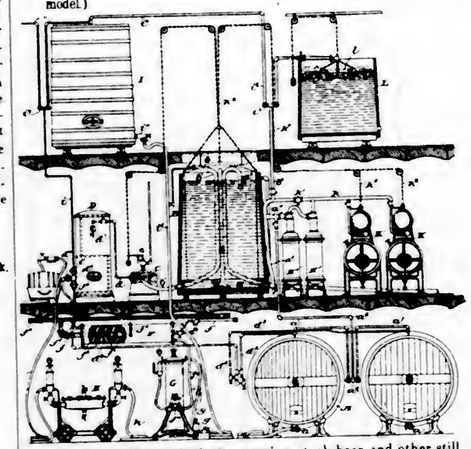
2. In a mop-wringer, the combination with opposite standards, each of which is provided with a guide-slot, said slots being inclined and parallel, a wringer-roll journaled in said slots, an opposing roll, and a bail or handle of inverted-U shape having its terminals connected to the ends of the roll.

641,745. COMBINED STAY AND FASTENER. RUDOLPH G. WIEFER, Minneapolis, Minn. Filed Feb. 17, 1899. Serial No. 705,762. (No model.)



Claim.—The combination with a sash or similar device and its relatively-fixed frame or support, of a combined stay and fastener, comprising the cam lug or projection on said frame, provided with the cam-surface 8 and seat or depression 10, and the rod 14 hinged to said sash and provided with the laterally-curved cam section 17 terminating in the lock-notch or depression 18, and provided at its free end with one or more laterally-offset sections 20, the said parts 17 and 18 cooperating with said cam-surface 8, and said offset portion or portions 20 cooperating with said seat 10, substantially as described.

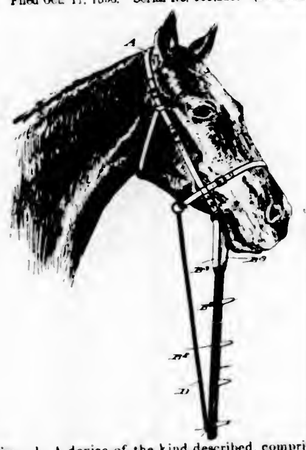
641,746. METHOD OF CARBONATING BEER. JACOB F. WITTEMANN, New York, N. Y. Filed June 30, 1896. Serial No. 597,577. (No model.)



Claim.—1. The method of preparing stock-beer and other still liquids for the market, which consists in racking the liquid from its containing vessel under a substantially constant head at a temperature above the freezing-point of water, charging the liquid with carbonic-acid gas at a temperature about the freezing-point of water, so as to effect a complete amalgamation of the liquid and gas, and finally racking the charged liquid into shipping casks or packages under the pressure of said carbonic-acid gas, substantially as described.

2. The method of preparing stock-beer and other still liquids for the market, which consists in racking the liquid from its containing vessel under a substantially constant head at a temperature above the freezing-point of water, and charging the liquid with carbonic-acid gas at a temperature about the freezing-point of water, so as to effect a complete amalgamation of the liquid and gas, substantially as described.

641,747. ANIMAL YOKE OR POKE. FRANK A. WORLEY, Bowie, Tex. Filed Oct. 11, 1898. Serial No. 693,223. (No model.)

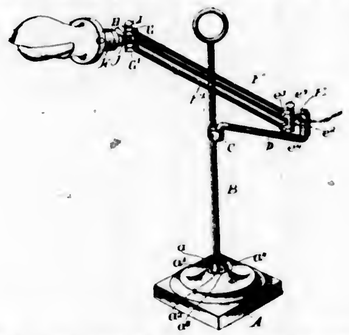


Claim.—1. A device of the kind described, comprising a bridle or halter having a depending yoke or poke attached to the cheek-straps thereof and provided with forwardly-projecting teeth and the chain or straps connecting the lower edge of said yoke or poke with the halter or bridle in rear of the connection of the poke therewith.

whereby an upward or forward movement of the poke is prevented, substantially as described.

2. A depending yoke or poke, composed of two pieces riveted together and having a forwardly-projecting tooth secured at each rivet, the upper ends of said pieces being curved and supported for the purpose of attachment to the bridle or halter and the chain connected to the lower end of the straps and adapted to be connected to the bridle or halter at its upper end in rear of the connection of the poke therewith, substantially as described.

641,748. ADJUSTABLE BRACKET. THEODORE SMITH, Georgetown, Ill. Filed Feb. 20, 1899. Serial No. 706,139. (No model.)



Claim.—1. In a device of the class described, the combination with a suitable support, of a removable post supported therein, means for clamping the post in said support, a vertically-adjustable block provided with means for clamping it to the post, an arm pivoted at one end to said block upon a vertical pivot and swinging in a horizontal plane, a block pivoted to the other end of said arm upon a vertical pivot, and swinging in a horizontal plane, a series of arms pivoted upon horizontal pivots to said second block at one end and swinging upon said pivots in vertical planes, a block pivoted to the opposite ends of said series of arms upon horizontal pivots, means for clamping said series of arms against oscillation upon their pivots, a block pivoted to said third block upon a vertical pivot and means for the attachment of a lamp-socket pivoted to said fourth block upon a horizontal pivot; substantially as described.

2. In a joint, the combination with a block having a plurality of perforations and slits upon one side of each of said perforations, of two or more members having pivotal portions in said perforations and a clamping device bearing upon the outer sides of the outside slit portions and thereby tending to contract all of the perforations upon the pivots; substantially as described.

3. In a joint, the combination with two blocks having substantially parallel perforations and slits extending from one side of the same, of two members having pivotal portions in said perforations, an intermediate block, and a clamping-screw passing through the three blocks and bearing upon the outside of the slit blocks, whereby the screw contracts the slit blocks upon the pivotal portions of the two members, clamps them upon the intermediate block and acts as a pivot for said intermediate block; substantially as described.

4. In a joint, the combination with a block having two series of perforations, the perforations of each series being substantially parallel and the perforations of the two series being substantially at right angles to each other and each perforation being slit upon one side, of clamping-screws for each series and pivoted members having pivotal portions in said perforations; substantially as described.

5. The combination with a clamping-block having a slit and two perforations, one in the plane of the slit and one intersecting said slit, of a post fitted to both of said perforations and means for clamping the opposite sides of the slit toward each other to contract one of said perforations and throw the two portions of the other out of line; substantially as described.

6. The combination with a post adapted thereto of a clamping-block having two perforations at right angles and a slit through one and transverse to the other, said block being provided with a clamping device for drawing the opposite sides of the slit together, thereby contracting the perforation in the slit and throwing out of line the two portions of the transverse perforations; substantially as described.

7. The combination with a post, of a universal clamping-block therefor provided with means for conveniently fastening it upon a suitable object, said clamping-block having three perforations, two of which are in the same plane and any one of which is at right angles to both of the others, slit through two of the perforations and transverse to the other and a clamping-screw for drawing the opposite sides of the slit together, contracting the perforations in the slit and throwing out of line the parts of the perforation transverse thereto; substantially as described.

8. In a joint, the combination with a block having a perforation and a slit upon one side thereof, of a member having a pivotal portion pivoted in said perforation, a second block and a clamping-screw drawing the second block and the slit portions of the first block together and acting as a pivot between the two blocks; substantially as described.

641,749. NIGHT-LAMP. GEORGE A. SMITH, Alberni, Canada. Filed May 3, 1899. Serial No. 715,457. (No model.)



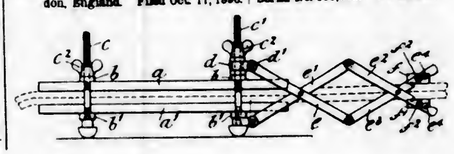
Claim.—1. An attachment for lamps, comprising a tubular extension adapted to support the wick, a rotatable cap slidably mounted in the top of said extension and adapted to cover all but a portion of said wick, and means for lowering and holding said cap upon the wick, substantially as described.

2. An attachment for lamps, comprising a tubular extension adapted to support the wick, a rotatable cap slidably mounted in the top of said extension, a flange integral with said cap and having a perforation, and means for lowering and holding said cap upon the wick, substantially as described.

3. An attachment for lamps, comprising a tubular extension adapted to support the wick, a rotatable cap slidably mounted in the top of said extension, a flange integral with said cap and provided with a perforation, a spring-pressed rod connected with said cap and provided with an operating-handle, and means for locking the said rod in its retracted position, substantially as described.

4. The combination with a lamp provided with the usual burner, reservoir and standard, of an attachment therefor, comprising a tubular extension integral with the standard and connected at its upper end with the burner, a wick slidably mounted on said tubular extension, means for adjusting said wick, a rotatable cap slidably mounted in the top of said extension, a flange integral with said cap and provided with a perforation, a spring-pressed rod connected with said cap and extending downwardly through said extension and provided with an operating-handle, and means for locking said rod in its retracted position, substantially as described.

641,750. TROUSERS-STRETCHER. WILLIAM F. STEGGALL, London, England. Filed Oct. 17, 1898. Serial No. 693,775. (No model.)



Claim.—1. A combined trousers presser and stretcher comprising two plates or boards fitted with adjusting or tightening screws or bolts and nuts constituting the presser, and a series of pivoted cross-bars fitted to the bolts and nuts at one end of the presser, in the manner of a lazy-tongs, and carrying at their other end two cross pieces between which the upper end of the trousers is gripped for stretching the same by reason of these ends coming together by the extending action of the said cross-bars owing to the pressure exerted upon the ends by means of the nuts being screwed down upon them substantially as described.

2. In a trousers presser and stretcher the combination of two plates, or boards such as a, a' provided with bars b, b' formed with slots b^2, b^3, for receiving and holding the bolts or screws c, c', and the pivoted cross-bars or lazy-tongs devices e, e', e^3, e^4 connected to the front bolts c', and to the nuts c^2 thereon by means of a loose collar d, and carrying the cross-pieces f, f', adjustably mounted in the slots e^4, or e^5 formed in the front cross-bars e^3, e^4 substantially as described and for the purposes specified.

641,751. PROCESS OF PRODUCING BASIC LEAD CARBONATE. OSCAR J. STEINHART and JULIUS L. F. VOGEL, London, England, assignors to the Foreign Chemical and Electrolytic Syndicate, Limited, same place. Filed May 21, 1896. Serial No. 592,504. (No specimens.)

Claim.—The herein-described process of producing basic lead carbonate which consists in forming a solution of lead nitrate and a solution of sodium carbonate twenty per cent. in excess of the theoretical equivalent required to act upon the said solution of lead nitrate to form normal carbonate of lead and mixing the said two solutions and boiling and agitating the same, whereby the lead nitrate will be decomposed and a precipitate of basic lead carbonate will result together with carbonate of soda and sodium nitrate and thereupon separating the precipitate from the solution.

641,752. COMBINED SKATE SHARPENER AND GROOVER. ALBERT A. STEPHENSKI, Peoria, Ill. Filed Sept. 9, 1899. Serial No. 730,009. (No model.)

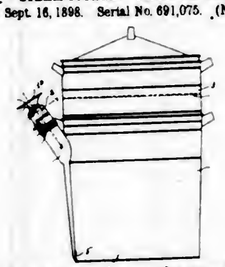


Claim.—1. In a skate-sharpener, the combination with a support to which a file is removably secured, of truncated conical guide-rollers secured to said support and adapted to be moved to and away from the longitudinal center of said file, substantially as described.

2. In a device of the kind described, the combination with the casing provided with depending side flanges, of a file longitudinally arranged in said casing, inwardly-projecting arms extending through said flanges and guide-rollers on the free ends of said arms adapted to secure the skate-runner in operative connection with the file, substantially as described.

3. In a skate-sharpener, the combination with a casing and a longitudinally-arranged file secured thereto, of two supplemental plates adjustably secured to the sides of said casing, parallel arms secured to the plates and projecting inwardly through the casing, and vertically-journaled rollers carried by the free ends of said arms adapted to guide the skate-runner against the cutting-surface of the file, substantially as described.

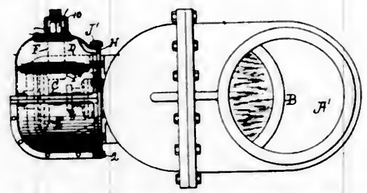
641,753. STEAM-COOKER. CHARLES E. SWARTZBAUGH, Toledo, Ohio. Filed Sept. 16, 1898. Serial No. 691,075. (No model.)



Claim.—1. In a steam-cooker, an alarm mechanism comprising a conduit connected with the water-chamber, and having a funnel-shaped upper end, a spring-pressed diaphragm normally closing said conduit, a whistle in said diaphragm, and means for swinging the diaphragm to open or close the conduit.

2. In a steam-cooker, an alarm mechanism connected with the water-receptacle, comprising a tube, a diaphragm within the tube having a whistle arranged therein, means for depressing the diaphragm, and a catch for holding the diaphragm depressed.

641,754. LUBRICATING ATTACHMENT FOR GATE-VALVES. WALTER R. ADDICKS, Boston, Mass. Filed May 13, 1899. Serial No. 716,670. (No model.)



Claim.—1. The combination with a valve-body, a gate or valve, and mechanism extended outside said body for operating said gate or valve, of a casing secured to said valve-body and provided with an opening through which said valve-operating mechanism extends into said casing, and means within said casing to support the valve-operating mechanism independent of said casing, substantially as described.

2. The combination with a valve having its operating mechanism located at one end of the body thereof, of a casing composed of a plurality of sections detachably connected one to another to be removed in different directions and shaped to form an opening at one end, means to secure the open end of said sectional casing to said valve, and means within said sectional casing to support the valve-operating mechanism independent of said casing, substantially as described.

3. The combination with a valve having the body A provided with the flange H and having valve-operating mechanism comprising the spindle C, shaft F, gears E and F', and supporting-brackets D, of the casing J having the flange J' which is secured to the flange H on said body as described, said casing inclosing said valve-operating mechanism and having at its upper side an opening through which projects the end of the shaft F of said mechanism, substantially as described.

4. The combination with a valve and its operating mechanism, of casing J secured to the valve-body and inclosing said operating mechanism, said casing being composed of the sections 3, 4 and 5 flanged and bolted together as described, and having the removable cover J^9.

5. The combination with a valve-body, a gate or valve, and mechanism extended outside of said body for operating said gate or valve, of a casing secured to said valve-body and provided with an opening through which said valve-operating mechanism extends into said casing, and having a second opening at an angle to the first-mentioned opening and through which said valve-operating mechanism is actuated, and means within said casing to support the valve-operating mechanism separate from said casing, substantially as described.

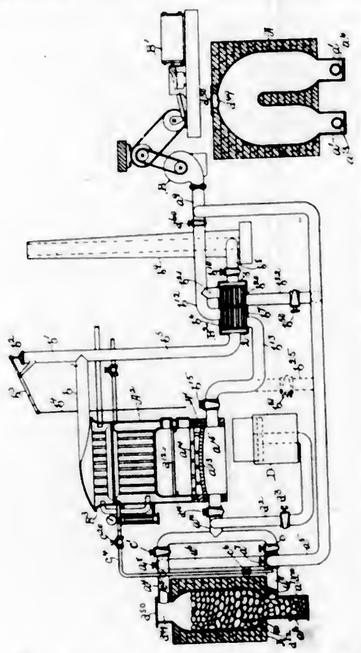
6. The combination with a valve-body, a gate or valve, and mechanism extended outside of said body for operating said gate or valve, of a casing secured to said valve-body and provided with an opening through which said valve-operating mechanism extends into said casing, and having a second opening provided with a cover, and a cap coöperating with said cover.

7. The combination with a valve-body, a gate or valve, and mechanism extended outside of said body for operating said gate or valve, of a casing secured to said valve-body and provided with an opening through which said valve-operating mechanism extends into said casing, and having a second opening through which said valve-operating mechanism is actuated, and a cap to render said valve-operating mechanism normally inaccessible, substantially as described.

8. The combination with a valve and its operating mechanism, of a casing secured to said valve and provided with an opening through which said valve-operating mechanism extends into said casing and with a second opening substantially at right angles to the first-mentioned opening through which said valve-operating mechanism is actuated, and a removable cover for said second opening, substantially as described.

641,755. HEAT-GENERATING APPARATUS. WALTER R. ADDICKS, Brookline, Mass. Filed Oct. 31, 1895. Serial No. 567,509. (No model.)

Claim.—1. The combination of the following instrumentalities, viz: a producer provided at the opposite ends of the fuel therein with gas-outlets having means for controlling the passage of the gases out of the producer, air-admission pipes connected to the producer at the opposite ends of the fuel therein, a combustion-chamber separate from the producer but connected directly thereto by the gas-outlets for said producer, a boiler located above said combustion-chamber, refractory material in said combustion-chamber, and an air-supply pipe for said combustion-chamber, whereby the gases generated in the producer may pass directly into the combustion-chamber and be consumed therein, substantially as and for the purpose specified.



2. The combination of the following instrumentalities, viz: a gas-producer, gas-outlet pipes connected to the producer at the opposite ends of the fuel therein, air-admission pipes connected to the producer at the opposite ends of the fuel therein, a combustion-chamber separate from the gas-producer and connected directly thereto by said gas-outlet pipes, and a separate air supply pipe for said combustion-chamber, whereby the gases generated in said producer are led directly into the said combustion-chamber and are consumed therein, substantially as described.

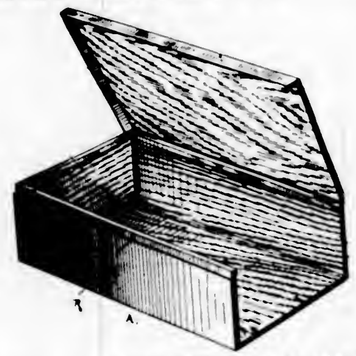
3. The combination of the following instrumentalities, viz: a gas-producer, gas-outlet pipes connected to the producer at the opposite ends of the fuel therein, air-admission pipes connected to the producer at the opposite ends of the fuel therein, a combustion-chamber separate from the gas-producer and connected directly thereto by said gas-outlet pipes, a separate air-supply pipe for said combustion-chamber, a tubular boiler located above said combustion-chamber, and refractory material in said combustion-chamber which is heated by the gases consumed in said combustion-chamber, for the purpose specified.

641,756. HANDSAW. ROBERT BACH, Rockford, Ill., assignor of one-half to Joseph E. Broadie, Hans Petersen, Peter Petersen, and Frederick Larsen, same place. Filed July 22, 1899. Serial No. 724,764. (No model.)



Claim.—A handsaw having a segmental slot in the blade thereof near the handle, combined with two bars provided with perforations in the opposite end portions thereof, each bar having an upturned edge or flange extending throughout its entire length, one of said bars being located on each side of the saw-blade and both pivoted thereto at one end by a single bolt passed through the perforations in such ends of the bars and through the saw-blade, and the opposite ends of said bars being connected to move in unison by a bolt passed through the perforations in said ends, said latter-named bolt being freely movable within the segmental slot in the saw-blade, and thumb-screws upon the bolt for locking the bars in different positions of adjustment on the saw-blade, the construction being such that the extreme opposite end portions of the bars are supported by the bolts passing therethrough, substantially as described.

641,757. CIGAR-BOX. MARES BLASKOWER, San Francisco, Cal. Filed June 15, 1899. Serial No. 720,642. (No model.)



Claim.—1. As a new article of manufacture, a cigar-box consisting of an interior lining of wood having a rabbet around the outer face of its upper edge, and an exterior body of sheet metal entirely covering the lining and turned over its upper edge, the metal being forced into the rabbet of the lining; combined with a lid also consisting of a wooden lining and a sheet-metal exterior having flanges turned over the edges of the lining and projecting beyond its inner face so as to engage the double rabbet when the lid is closed, as and for the purpose set forth.

2. As a new article of manufacture, a cigar-box consisting of an interior lining or facing of wood, and an exterior body of sheet metal covering the same and having a rabbet around the upper edge of the box on its exterior; combined with a lid also consisting of a wooden lining or facing and a sheet-metal exterior attached thereto and having peripheral flanges projecting below the inner face of the lining so as to enter said rabbet when the lid is closed, and a metal strip leading from the lid-covering over the wooden lid-facing throughout the length of its free edge and turned into contact with its inner face, as and for the purpose set forth.

3. As a new article of manufacture, the herein-described cigar-box comprising a body and a lid each consisting of an interior facing of wood and a complete exterior covering of sheet metal, the covering on the lid being bent over the edges of the facing into a flange adapted to embrace the body of the box when the lid is closed, and metal strips connected with the lid-covering and turning over and extending entirely along the edges of the lid-facing, substantially as described.

4. As a new article of manufacture, the herein-described cigar-box comprising a body and a lid each consisting of an interior facing of wood and a complete exterior covering of sheet metal, means for sealing the lid in closed position, and metal strips *f* attached to the metal lid-covering and extending entirely along and turned over the edges of the wooden lid-facing into contact with the inner face thereof, substantially as described.

5. As a new article of manufacture, a cigar-box consisting of an interior lining of wood having a rabbet around the outer face of its upper edge, and an exterior body of sheet metal forced into the rabbet of the lining; combined with a lid also consisting of a wooden lining and a sheet-metal exterior having flanges turned over the edges of the lining and projecting beyond its inner face so as to engage the double rabbet when the lid is closed, and a sealing ribbon or strip covering the joint between said flange and the metal body portion beneath its rabbet, as and for the purpose set forth.

6. As a new article of manufacture, a cigar-box consisting of an interior lining of wood having a rabbet around its outer face of its upper edge, and an exterior body of sheet metal entirely covering the lining and turned over its upper edge, the metal being forced into the rabbet of the lining; combined with a lid also consisting of a wooden lining and a sheet-metal exterior having flanges turned over

the edges of the lining and projecting beyond its inner face so as to engage the double rabbet when the lid is closed, and metal strips connected with the lid-flanges and turned into contact with the inner face of the lid-facing so as to contact with the turned-over portion of the metal body when the lid is closed, as and for the purpose set forth.

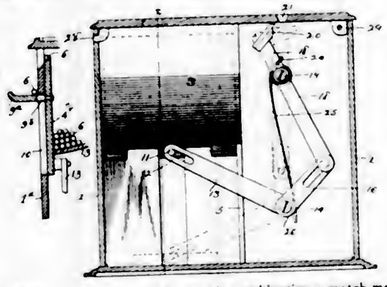
7. As a new article of manufacture, a cigar-box consisting of an interior lining of wood having a rabbet around its outer face of its upper edge, and an exterior body of sheet metal entirely covering the lining and turned over its upper edge, the metal being forced into the rabbet of the lining; combined with a lid also consisting of a wooden lining and a sheet-metal exterior having flanges turned over the edges of the lining and projecting beyond its inner face so as to engage the double rabbet when the lid is closed, metal strips connected with the lid-flanges and turned into contact with the inner face of the lid-facing so as to contact with the turned-over portion of the metal body when the lid is closed, and a sealing ribbon or strip covering the joint between said flange and the metal body portion beneath its rabbet, as and for the purpose set forth.

641,758. TRIMMING ATTACHMENT FOR MACHINES FOR SEWING LOOPED FABRICS. EUGENE H. BROWN, Troy, N. Y., assignor to the Union Raveler Company, North Bennington, Vt. Filed Apr. 27, 1894. Serial No. 509,207. (No model.)



Claim.—The adjustable gage-dial in combination with the adjustable loop-cutter means connected with said dial and cutter for registering upon the former the position of adjustment of the latter, the point-wheel, means for guiding the fabric and actuating devices for the said wheel, substantially as specified.

641,759. MATCH-SAFE. HENRY T. BUIE, Buffalo, Ark., and FRANK J. ARNEY, Chicago, Ill. Filed Oct. 24, 1898. Serial No. 694,358. (No model.)



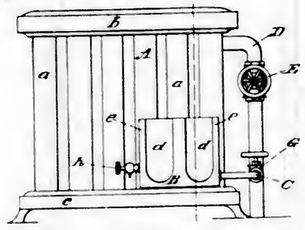
Claim.—1. A match-safe having in combination a match-magazine provided with a vertically-slotted front wall and said wall also having a horizontal slot above said vertical slot, a vertically-movable ejector-plate arranged against said wall and extending upwardly through the bottom of said magazine for carrying a single match to said horizontal slot, a thumb-piece 9^a secured to said ejector-plate and projecting through said vertical slot and also constituting a receiver for catching the match as it drops from said horizontal slot, said ejector-plate having a downward extension 4 extending below said thumb-piece and also below said match-magazine so as to close said vertical slot, a spring for raising said ejector, a lever pivoted to the lower end of said downward extension 4 at a point below the bottom of the magazine and a cigar-cutter operatively connected with said lever, substantially as set forth.

2. A match-safe having in combination the box or casing 1 having the front wall 1^a, the inclined bottom 3 extending from said wall 1^a and constituting therewith the front, back and bottom of a match-magazine, the guide-strip 5, a vertically-movable ejector-plate arranged between and adjacent to one of the end walls of said box and said strip 5 and passing upwardly through the inclined bottom 3 and being contiguous to the front wall 1^a, the upper edge of said ejector-plate being beveled toward the wall 1^a and said wall 1^a being provided with a longitudinal slit opposite said beveled edge and the vertical slot 10 below the match-magazine, the thumb-piece 9^a extending outwardly from the ejector-plate through said slot 10 and constituting at once a match-receiving support and a means for operating said ejector, and a spring for actuating said ejector-plate in one direction, substantially as set forth.

3. A match-safe having in combination a match-magazine, a vertically-movable ejector-plate arranged therein for ejecting the matches therefrom, a lever having one arm connected with said ejector-plate for operating the latter, a cigar-cutter knife, an operative connection between said lever and knife, means for actuating said lever and knife simultaneously and a spring for raising said ejector-plate to eject the match and simultaneously withdrawing said knife, whereby the cigar will be clipped by the pressure applied by the operator and the match will be ejected by the pressure of the spring, substantially as set forth.

4. A match-safe having in combination a match-magazine, an ejector for ejecting the matches therefrom, the arm 13 having pin-and-slot connection with said ejector, the arm 16, the elongated hub 26 connecting said arms, the pivot 14, the lever 18 having sliding connection with the arm 16, the knife 20 carried by said lever 18, the elongated hub 23 on the lever 18, the boss 27, the screw 19 passing through said elongated hub 23 and into said boss 27, the spring 22 wound around said hub 23 and having engagement with said lever 18 at one end and its other end fixed, substantially as set forth.

641,760. FOOT WARMER AND REST. CHRISTOPHER CLARKE, Northampton, Mass. Filed May 9, 1899. Serial No. 716,106. (No model.)



Claim.—1. The within-described foot-rest attachment for radiators, comprising the foot rest or block flat upon its back, provided upon its face with two compartments for seating a pair of feet, by a flange rising from the face and adapted to form side and heel supports to the shoes, as shown; and a clamp for encircling a radiator-pipe, and insulating-block secured to the back of the rest and to the clamp, and adapted to set off the rest an air-space from the radiator.

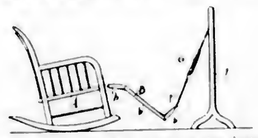
2. The within-described foot warmer and rest for attachment to radiators comprising a block flat upon its back, divided upon its face into feet-receptacles by a flange rising from the face and extending upon the sides and bottom of the foot-spaces, and provided with a cavity between its back and face to receive a heating medium, a clamping-band secured to the back of the block, an insulator interposed between the clamping-band and back of the block and adapted to set off the block by an air-space from the radiator—and heat connecting-pipe between the foot-warmer and radiator supply-pipe—all combined and operating as and for the purpose set forth.

3. The within-described foot warmer and rest for radiators, comprising a block divided upon its face into foot-compartments by a flange rising from the face and forming side and bottom walls to retain the shoes in place, an internal cavity for receiving steam or hot water, a clamp-band and non-conducting washer for securing the hollow block to the radiator with an air-space intervening—and a heat-supply pipe C and valve G combined with the supply-pipe D and operating to permit an independent supply of heat to the foot-warmer.

641,761. ATTACHMENT FOR ROCKING-CHAIRS. OTTO CLAUSEN, Davenport, Iowa. Filed Oct. 16, 1899. Serial No. 733,733. (No model.)

Claim.—1. In an attachment to a chair a board, one end loosely fastened to the front edge of the chair; a flexible cord one end of which is attached to the outer end of said board, a stationary object located above the board and to which the free end of the flexible

cord is attached so as to suspend the free end of said board, for the purposes stated.

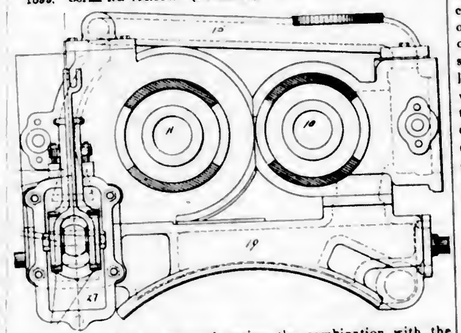


2. In an attachment to a chair, a board one end of which is loosely fastened to the chair; a frame or stand having a cross-piece; an elastic cord, one end of which is secured to said cross-piece and its other end fastened to the free end of said board for the purposes stated and substantially as described.

3. In an attachment to a chair, a board composed of sections hinged together, one end loosely attached to the front edge of the chair, an elastic cord one end of which is fastened to the outer end of said hinged board, a frame or stand provided with a cross-piece to which the free end of said elastic cord is fastened for the purpose stated and substantially as described.

4. The combination of the chair A, the board loosely attached to the front edge of said chair, a spiral spring, one end of which is fastened to the outer end of said board; a stationary object located above the board to which the other end of said spiral spring is attached for the purposes stated and substantially as shown and described.

641,762. COMPOUND ENGINE. HARRY C. CLAY, Columbus, Ind., assignor to the Reeves & Company, same place. Filed May 11, 1899. Serial No. 716,357. (No model.)



Claim.—1. In a compound engine, the combination with the high and low pressure cylinders, of a receiver, receiving the exhaust from the high-pressure cylinder, a feed-water heater receiving exhaust from the low-pressure cylinder, an auxiliary high-pressure passage, and a valve arranged to be thrown so as to cut off the heater from the receiver and allow communication between the receiver and low-pressure cylinder, or to connect the receiver and heater and allow communication between the auxiliary passage and the low-pressure cylinder.

2. In a compound engine, the combination with the high and low pressure cylinders, of a receiver, receiving the exhaust from the high-pressure cylinder, a feed-water heater receiving exhaust from the low-pressure cylinder, a valve-chamber, a port leading from said chamber to the heater, a high-pressure passage leading into said chamber, and a valve mounted in said chamber, the said valve arranged to be thrown so as to cut off the heater from the receiver and allow communication between the receiver and low-pressure cylinder, or to connect the receiver and heater and allow communication between the high-pressure passage and the low-pressure cylinder.

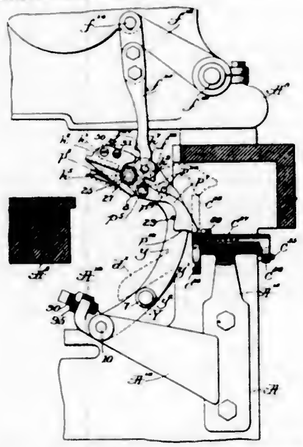
3. In a compound engine, the combination with the high and low pressure cylinders, of a receiver receiving the exhaust from the high-pressure cylinder, a port leading from said receiver, a port leading to the low-pressure cylinder, a high-pressure port, and an exhaust-port, a removable valve-plate having a series of ports corresponding to and registering with said ports, a valve-chamber mounted upoo said plate and inclosing said ports, a slide-valve mounted in said chamber on the valve-plate, and means for throwing said valve whereby the exhaust-port may be closed and communication formed between the receiver and low-pressure cylinder, or the receiver and exhaust connected and communication formed between the high-pressure port and the low-pressure cylinder.

4. In a compound engine, the combination with the high and low pressure cylinders, of a receiver receiving the exhaust from the high-pressure cylinder, a heater receiving the exhaust from the low-pressure cylinder, a port leading from said receiver, a port leading to the low-pressure cylinder, an exhaust-port leading into the heater, and a high-pressure port, a valve-plate having a series of ports corresponding to and registering with said ports, a valve-chamber inclosing said ports, a slide-valve mounted in said chamber on the valve-plate, and means for throwing said valve whereby the exhaust-port may be closed and communication formed between the receiver and the low-pressure cylinder, or the receiver and heater be connected through the exhaust and communication formed between the high-pressure port and the low-pressure cylinder.

5. In a compound engine, a casing extending between and arranged to support the high and low pressure cylinders, a receiving-chamber formed in said casing, a passage leading from the high-pressure exhaust into said receiving-chamber, a heating-chamber formed in said casing and having suitable feed-water conductors mounted therein, an exhaust-passage leading from the low-pressure cylinder into said heater, a port-face formed upon adjacent portions of the low-pressure cylinder and said casing, a high-pressure port opening into said face, a port leading from said face to the low-pressure cylinder, a port leading into said face from the receiver, a port leading from said face to the heater, a valve, and means for throwing said valve whereby a connection may be established between the high-pressure port and low-pressure cylinder and betweeo the receiver and heater, or communication established between the receiver and low-pressure cylinder and the heater-port closed.

6. In a compound engine, a casing extending between and arranged to support the high and low pressure cylinders, a receiving-chamber formed in said casing, a passage leading from the high-pressure exhaust into said receiving chamber, a heating-chamber formed in said casing and having suitable feed-water conductors mounted therein, an exhaust-passage leading from the low-pressure cylinder into said heater, a port-face formed upon adjacent portions of the low-pressure cylinder and said casing, a high-pressure port opening into said face, a port leading from said face to the low-pressure cylinder, a port leading into said face from the receiver, a port leading from said face to the heater, a removable valve-plate provided with openings therethrough corresponding to the ports before mentioned, a slide-valve mounted upon said plate, a valve-chamber inclosing said valve and said ports, and means for throwing said valve so as to close the port leading to the heater and establish communication between the receiver and low-pressure cylinder, or so as to establish communication between the receiver and heater and between the high-pressure port and low-pressure cylinder.

641,763. LOOM. ALVAH W. CLEMENT, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Aug. 17, 1899. Serial No. 727,472. (No model.)



Claim.—1. In a loom provided with filling-supplying mechanism, a temple having a filling-cutter and located at the filling-changing side of the loom, a shuttle adapted to carry a supply of filling, and means to hold and to part the thread of the filling-carrier to be ejected upon a change of filling and operated at such time by said filling-supplying mechanism, the return movement of the thread-holding means bringing the filling end held thereby into position to be severed by the temple-cutter.

2. In a loom provided with filling-supplying mechanism, a temple having a filling-cutter and located at the filling-changing side of the loom, a shuttle adapted to carry a supply of filling, a swinging support, means mounted thereunto hold and to part the thread of the filling-carrier to be ejected upon a change of filling, said mechanism at such time effecting the movement of said support into operative position, a filling-feeler operative upon exhaustion of the filling to a predetermined extent to effect the actuation of the filling-supplying means, and controlling devices governed by the filling-feeler, to cause the thread to be held, and thereafter parted between the holding means and the filling-carrier.

3. In a loom provided with filling-supplying mechanism, a temple having a filling-cutter and located at the filling-changing side of the loom, a shuttle adapted to carry a supply of filling, means to hold, and means to part the thread of the filling-carrier to be ejected upon a change of filling, a common, movable support upon which said means are mounted side by side, said support being moved into operative position by or through the action of the filling-supplying mechanism when changing filling, a filling-feeler to effect the operation of said mechanism upon exhaustion of the filling to a predetermined extent, devices governed by said feeler, to place the holding and the parting means in condition to operate prior to the change of filling, and independent devices actuated by the filling-supplying mechanism to cause the holding means to engage the thread and thereafter to actuate the parting means to sever it, the return of the support to normal position operating through the holding means to bring the filling end into position to be severed by the temple-cutter adjacent the edge of the cloth.

4. In a loom provided with filling-supplying mechanism, a thread-cutting temple, a swinging yoke governed by said mechanism, normally-closed thread holding jaws and severing-blades mounted upon said yoke, means controlled by the filling-feeler to open said jaws and blades, a filling-feeler to effect the actuation of the filling-supplying mechanism when the filling is exhausted to a predetermined extent, such actuation permitting the yoke to move the jaws and blades into operative position relative to the thread of the filling-carrier to be ejected, and means governed by the operation of the filling-supplying mechanism to first close the jaws upon the thread and thereafter to close the blades to sever it, the return of the yoke to normal position acting through the holding-jaws to bring the filling end into position to be severed by the temple-cutter.

5. In a loom, filling-supplying mechanism including a transferrer, a shuttle-feeler operatively connected with said mechanism, thread-parting means and thread-holding means mounted on the shuttle-feeler, a filling-feeler to effect the operation of said mechanism upon exhaustion of the filling in the shuttle to a predetermined extent, a device controlled by the feeler to place said holding and parting means in operative condition, the shuttle-feeler moving said holding and parting means into position to hold and part the thread of the filling-carrier to be ejected when the shuttle is properly boxed, a device operatively connected with the transferrer to close said holding means upon the thread and to thereafter actuate the parting means as the change of filling is effected, and a thread-cutting temple located at the filling-changing side of the loom, the return of the shuttle-feeler to normal position operating through the holding means to bring the thread into position to be cut at the temple.

6. In a loom provided with filling-supplying mechanism, a filling-feeler to effect the operation thereof upon the exhaustion of the filling in the shuttle to a predetermined extent, a bifurcated swinging arm having mounted upon it fixed and movable thread-parting blades and thread-holding jaws, an actuating-arm connected with one of the holding-jaws and with the movable blade to actuate them, a lifter in engagement with said actuating-arm when the parts are in normal position, connections between the filling-feeler and said lifter to operate the latter and thereby open the jaws and blades prior to a change of filling, and independent means operatively connected with the filling-supplying mechanism to successively close the jaws upon the thread and to close the blades to part it adjacent the filling-carrier to be ejected.

7. In a loom, filling-supplying mechanism including a transferrer, a swinging yoke operatively connected with said mechanism and normally held in inoperative position, thread-holding jaws and parting means mounted upon said yoke, actuating devices to open and close the jaws and operate the parting means, a filling-feeler to effect the operation of the filling-supplying mechanism upon exhaustion of the filling in the shuttle to a predetermined extent, means intermediate the filling-feeler and the device for operating the jaws and parting means to place said jaws and parting means in operative position when a change of filling is to be effected, and a depending leg operatively connected with the transferrer to close the jaws upon the thread and to thereafter actuate the parting means to part the thread as the change of filling is made.

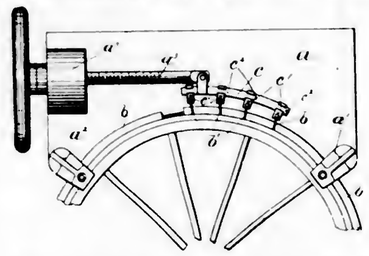
8. In a loom, a bifurcated arm, fixed and movable parting-blades mounted thereon, a gravity jaw and a cooperating positively-movable jaw to engage and hold the thread of a filling-carrier to be ejected, means to close the jaws and the blades and including an actuating-arm, filling-supplying mechanism, a filling-feeler to effect the operation of said mechanism upon exhaustion of the filling to a predetermined extent, a lifter controlled by the feeler to move said actuating-arm to open the blades and jaws, and independent means to close them operated by or through the action of the filling-supplying mechanism upon a change of filling.

9. In a loom, a bifurcated shuttle-feeler, fixed and movable parting-blades mounted thereupon, a pivotally-mounted holding-jaw, and a cooperating gravity-actuated jaw both mounted upon the shuttle-feeler adjacent the parting-blades, an actuating-arm fulcrumed on the shuttle-feeler and provided with a transversely-extended lug adapted to enter a slot in the movable blade and to engage and move one of the holding-jaws, means to engage and move said arm in one direction to open the jaws and blades to receive a filling-thread between them, an independent means to engage and depress the laterally-extended lug to thereby close the holding-jaws, and thereafter close the blades to part the thread.

10. In a loom provided with filling-supplying mechanism, a shuttle-feeler operatively connected therewith and provided with thread holding and parting means, movable into position when said mechanism is operated to effect a change in filling, a thread-cutting temple, a filling-feeler to effect the operation of the filling-supplying mechanism upon exhaustion of the filling in the shuttle to a predetermined extent, means controlled by said feeler to place the holding and parting means in active condition before the movement of the shuttle-feeler takes place, and independent means controlled by the filling-supplying mechanism to engage a thread by the holding means and to thereafter part it as the filling-carrier is ejected, the return of the shuttle feeler to normal position acting through the holding means to bring the end of filling into position to be severed by the temple-cutter.

11. In a loom provided with filling-supplying mechanism, a filling-feeler to effect the operation thereof upon the exhaustion of the filling in the shuttle to a predetermined extent, a shuttle-feeler operatively connected with said mechanism, flat holding-jaws and thread-parting means mounted upon the shuttle-feeler, devices including an actuating-arm to govern the action of said jaws and parting means, means controlled by the filling-feeler to open the jaws and place the parting means in condition to act upon the thread of the filling-carrier to be ejected, a device operated by the filling-supplying mechanism to close the jaws upon the thread and to thereafter operate the parting means to part the thread when a change of filling is effected, and a temple provided with a thread-cutter adapted to part the thread between the cloth and the holding-jaws as the latter return with the shuttle-feeler to normal position.

641,764. RUBBER-TIRE MACHINE. SAMUEL W. COLLINS, Indianapolis, Ind., assignor to the Rubber Tire Wheel Company, Springfield, Ohio. Filed May 26, 1899. Serial No. 718,456. (No model.)



Claim.—1. In a tire-setting machine, the combination with a series of flexible connecting devices arranged and adapted to be placed between the channel and the rubber of a rubber tire, a series of clamping devices to engage said pulling devices, a support for said clamping devices on which said clamping devices are loosely mounted, and stops to limit the movement of said clamping devices thereon, and means for pulling said supporting-bar to cause said clamps to successively be engaged with said stops, substantially as and for the purpose specified.

2. The combination with a wheel-support, a pulling device, a curved bar attached to said pulling device, a series of clamps mounted loosely on said bar, and a series of stops to limit the movement of said clamps, in combination with flexible metallic connecting devices arranged and adapted to be placed between the rubber and its supporting-channel, substantially as specified.

3. The combination with a wheel-support, a pulling device, a bar attached to said pulling device, and a series of holding devices mounted

loosely on said bar, a series of stops to limit the movement of said holding devices, and means for connecting said holding devices to the rubber tire, substantially as specified.

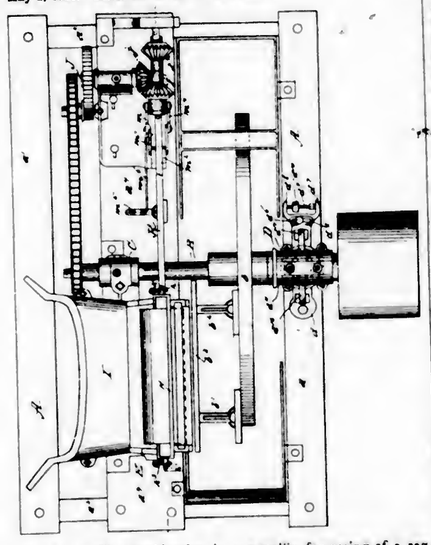
641,765. HOLDER FOR COP-SKEWERS. JOHN V. CUNNIFF, New Bedford, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Oct. 19, 1899. Serial No. 734,053. (No model.)



Claim.—1. As a new article of manufacture, a holder for cop-skewers, consisting of a two-part handpiece each part having a half-seat formed therein, to register when the holder is applied to a cop-skewer, the head of the latter being received and gripped in the seat, and means to normally and yieldingly separate the parts.

2. As a new article of manufacture, a holder for cop-skewers, consisting of two leaves pivotally connected and having their adjacent faces oppositely recessed to form a seat for the head of a cop-skewer, a spring to normally separate the leaves, and a stop to limit their separation.

641,766. FODDER-CUTTER. JOSEPH DICK, Canton, Ohio. Filed May 2, 1898. Serial No. 679,485. (No model.)



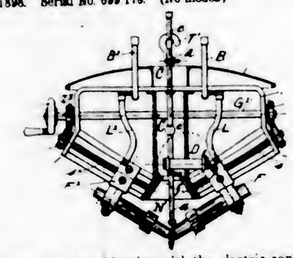
Claim.—1. The combination in a metallic fan-casing of a segmental plate with projecting lugs and stays mounted on either side of the casing, and locking-rods adapted to engage the lugs and stays, substantially as described and for the purpose set forth.

2. A metallic fan-casing for fodder-cutters, having an upper and lower discharge-aperture, and provided with a segmental plate having projecting lugs, clips attached to the sides of the fan-casing, and locking-rods adapted to engage the clips and lugs, substantially as described and for the purpose set forth.

3. In a fodder-cutter, the combination with the supporting-frame provided with a driving-shaft carrying rotatable cutters, with a journal-box having a swiveled connection with a movable plate pivotally connected at one end to a sill of the frame, of the segmentally-slotted plate d provided with an integral boss d' and secured in pivotal engagement with the sill by a bolt and nut d^4, and a bolt d^5 passed through the slot and sill to permit said movable plate to be adjusted forward and backward, substantially as set forth.

4. In a fodder-cutting machine, the combination with the supporting-frame provided with a boss carrying an adjustable bolt, of an adjustable journal-box for the cutter-shaft having a swiveled connection with a movable plate pivoted at one side to said supporting-frame and provided with jaws engaging the adjusting-bolt, substantially as specified.

641,767. METHOD OF ELECTRIC-ARC HEATING AND APPARATUS THEREFOR. HERMANN DÜRRER, Berlin, Germany. Filed Dec. 13, 1898. Serial No. 699,178. (No model.)

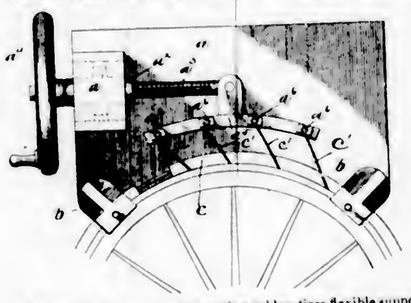


Claim.—1. In combination with the electric conductors and carbons forming an electric arc, adjusting mechanism for the said carbons, a blast-tube for discharging air or gas against the arc, and adjusting devices for varying at will the direction of the said tube and the blast issuing therefrom, the said tube-adjusting devices being independent of the carbon-adjusting devices, in order that the blast may be applied to the arc at different inclinations, substantially as set forth.

2. In an apparatus of the character described the combination with a suitable frame, of suitable means for holding the electrodes and suitable movement-transmission devices for controlling said electrodes in accordance with the consumption, a chimney arranged at the center of the apparatus and connecting the parts of the frame, a blast-pipe extending through said chimney and having a movable nozzle to permit the deviation of the electric arc in any required direction, substantially as set forth.

3. The method or process of assisting the action of the electric arc on metals and other materials consisting in directing a flow of liquid hydrocarbons or other liquid-reducing agents against and into the electric arc, substantially as set forth.

641,768. APPARATUS FOR SETTING RUBBER TIRES. ARTHUR W. GRANT, Springfield, Ohio, assignor to the Rubber Tire Wheel Company, same place. Filed Sept. 25, 1897. Serial No. 653,035. (No model.)



Claim.—1. In a machine for setting rubber tires flexible supports arranged and adapted to be placed between the tire and its channel, engaging devices for said supports and means substantially as described for moving the engaging devices approximately in line with the periphery of the tire, substantially as specified.

2. In a machine for setting rubber tires, a bed or support, wheel-clamps thereon, flexible supports arranged and adapted to be placed between the tire and channel, engaging devices to engage the supports and means for forcibly moving said engaging devices, substantially as specified.

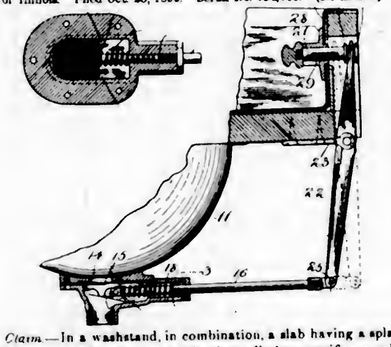
3. The combination with a frame or support having wheel-holding devices, of a traveling bar having gripping devices, flexible connections engaged by said gripping devices and connected to the tire, and means, substantially as described, for moving said bar, as and for the purpose specified.

4. The combination with the frame or support, swiveled clamps thereon, a swiveled head on said support, and a movable bar having gripping devices, a screw-threaded shaft connected to said bar, and means engaged by said gripping devices for connecting the movable bar to the tire, substantially as specified.

5. In a machine for setting rubber tires, wheel-holding means, tire-supports to extend between the tire and the rim, engaging devices for said supports, and means for forcibly moving said engaging devices, substantially as specified.

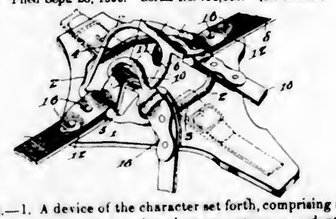
6. In combination with pulling devices, flexible metallic supports arranged and adapted to be placed between a rubber tire and its channel, substantially as and for the purpose set forth.

641,769. WASHSTAND. WILLIAM S. HAHN and WILLIAM WISHART, Chicago, Ill., assignors to the Adams & Westlake Company, of Illinois. Filed Oct. 25, 1899. Serial No. 734,711. (No model.)



Claim.—In a washstand, in combination, a slab having a splash-rail, a bowl carried by the slab and having a discharge-orifice, a valve-casing covering the orifice, a valve-rod entering the casing, a valve for closing the orifice and being pivoted to the rod, guideways for forcing the valve to its seat as the rod is advanced, a pull-rod projecting through the splash-rail, and a lever connecting the pull-rod and valve-rod.

641,770. TRACE-SUPPORT. HENRY HAMMER, Mountain Lake, Minn. Filed Sept. 25, 1899. Serial No. 731,616. (No model.)



Claim.—1. A device of the character set forth, comprising a supporting device to which the back and crupper straps are adapted to be connected and having opposite side bearings, clip-hooks movably mounted on the said bearings and having inwardly-directed hook members and hip-straps connected to said clip-hooks.

2. A device of the character set forth, a carrier having opposite reduced side bearings, clip-hooks each having an inwardly-extending hook member with the hook portion directed downwardly, and an outer bifurcated shank to movably embrace one of the bearings of the carrier, and hip-straps secured in the outer bifurcated shanks of the clips and having their inner terminals adjacent the said bearings to hold the clips in proper relation to the latter.

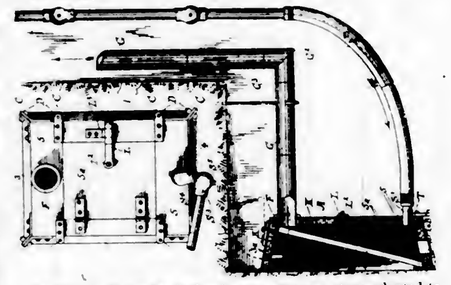
3. A device of the character set forth, comprising in its essential organization a carrier-frame having opposite side bearings and clip-hooks movably mounted on said bearings and having the hook members directed inwardly toward the interior of the frame and outer bifurcated shanks for attaching purposes.

641,771. WAGON RUNNING-GEAR. STEPHEN M. HARRIS, Cheney, Wash. Filed June 8, 1897. Serial No. 639,835. (No model.)

Claim.—In a wagon running-gear the combination with the bolster and axle of two blocks attached respectively to the forward and rear sides of the bolster and axle, the blocks being independent of each other and each provided with openings for the reception of a king-bolt, and a strap for each block surrounding the same and detachably connected to the axle and bolster, whereby a king-bolt may be placed in either block and either block may be removed independently of the other, substantially as described.



641,772. EARTH-THAWING APPARATUS. ALVIN HEITZELMANN, San Francisco, Cal. Filed July 25, 1898. Serial No. 686,835. (No model.)



Claim.—1. In an earth-thawing apparatus, a stove adapted to be operated either in a horizontal or vertical position, a grate therefor, and means for supporting said grate in two positions in the stove to hold the fuel in either position of the stove, substantially as described.

2. In an earth-thawing apparatus, a stove having a filling-opening in each of two sides thereof at an angle to each other, a grate, and means for supporting said grate in position to receive the fuel from either of said filling-openings, substantially as described.

3. A bottomless stove comprising a top having a suitable filling-door, and a smoke-opening near one end, a side adjacent said smoke-opening having a filling-door, a grate, and means for supporting said grate in position to support the fuel whether the stove is placed on its bottom or with said side uppermost, said stove having a suitable draft-opening near the end opposite the smoke-opening, substantially as and for the purpose specified.

4. In an earth-thawing apparatus, the combination of a stove adapted to be operated in either a horizontal or a vertical position, a grate therefor, and means for supporting said grate in two positions in the stove to hold the fuel in either position of the stove, and means for supplying heated air under pressure to the stove, substantially as described.

5. In an earth-thawing apparatus, a stove comprising a top and sides detachably secured together, said top and one side having suitable filling-openings, a detachable grate, means for supporting the grate in either of two different positions whereby it is enabled to support the fuel whether the stove is placed in a horizontal position or on end, said stove having suitable smoke and draft openings, substantially as described.

641,773. CENTRIFUGAL MACHINE. HENRY HORSCHER, Omaha, Nebr. Filed May 13, 1899. Serial No. 716,739. (No model.)

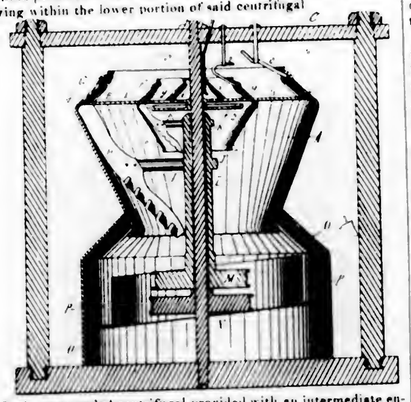
Claim.—1. The combination with an open-ended centrifugal provided with a perforated diaphragm dividing said centrifugal into an upper and a lower section, of an exit-duct entering the upper section of said centrifugal, and a scoop within the lower portion of said centrifugal supported independently of said centrifugal.

2. The combination with an open-ended centrifugal, provided with an enlargement intermediate of its ends and having a perforated diaphragm positioned within said enlargement, of an exit-duct entering one end of said centrifugal, and a revolving scoop within the remaining end of said centrifugal.

3. The combination with an open-ended centrifugal provided with an enlargement intermediate of its open ends and having a diaphragm positioned within said enlargement, said diaphragm having a plurality of openings disposed in series within said diaphragm, of a flange extending outward from said diaphragm to divide said diaphragm into a series of concentric annular chambers, a supply-pipe entering the innermost of said annular chambers, and exit-pipes extending from said remaining annular chambers.

4. The combination with an open-ended centrifugal provided with an intermediate enlargement, of a diaphragm within said en-

largement, provided with a plurality of openings disposed in series within said diaphragm, a plurality of upwardly-extending flanges surrounding said perforations to provide a series of concentric annular compartments, a supply-pipe entering one of said compartments, exit-pipes extending from the remaining compartments a table positioned below said perforations and secured to said diaphragm, and a scraper revolving within the lower portion of said centrifugal

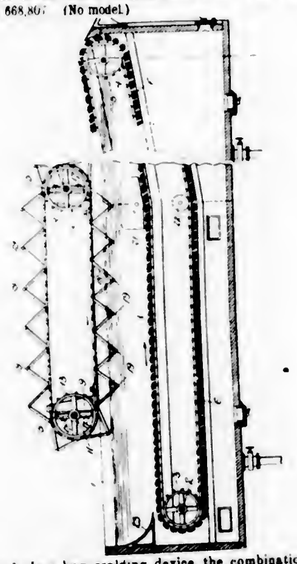


5. An open-ended centrifugal provided with an intermediate enlargement, and having a perforated diaphragm within said enlargement, a plurality of upwardly-extending flanges surrounding said openings to form a series of annular compartments, a table below said perforated diaphragm and revolving with the same, a hood surrounding said table, a scraper revolving within said hood, and a scoop working within the lower portion of said centrifugal, all arranged substantially as and for the purpose set forth

6. The combination with an open-ended centrifugal, having a perforated diaphragm positioned intermediate of said ends, of an exit-duct entering one end of said centrifugal, an intake-pipe entering said centrifugal, and a plurality of revolving plow-shaped scoops, within the remaining end of said centrifugal

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641,774. HOG-SCALDING DEVICE. FRED C. HOLDER, Chicago, Ill., assignor to the Swift & Company, same place. Filed Feb. 2, 1898. Serial No. 668,807. (No model.)



Claim.—1. In a hog-scalding device, the combination, with a scalding-tub, of an endless traveling platform located in the tub and adapted to pass the hogs therethrough, an endless belt substantially horizontal and supported above the water-line of the tub, pairs of links projecting from the belt, cross-bars connecting the pairs of links, and means for actuating the belt

2. In a hog-scalding device, the combination, with a scalding-tub, of an endless traveling platform located in the tub and adapted to pass the hogs therethrough, an endless belt substantially horizontal and supported above the water-line of the tub, an angular framework connected to and projecting from the belt, and means for actuating the belt.

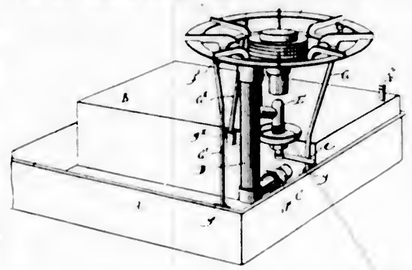
3. In a hog-scalding device, the combination, with a scalding-tub, of an endless traveling platform located within the tub and having a horizontal portion for a part of its length and an inclined portion for the remainder of its length to form a bristle-picking bench and a delivery device and a submerging device arranged substantially above the horizontal portion only of the endless platform.

4. In a hog-scalding device, the combination, with a scalding-tub, of an endless traveling platform located in the tub and inclined upward toward one end thereof above the water-line so that such upper end forms a bristle-picking bench and a belt supported above the tub and adapted to keep the hogs submerged, such belt being of less width than the tub and providing a passage at the sides for returning a hog from the forward part of the tub so as to again traverse the length of the tub when desired

5. In a hog-scalding device, the combination, with a scalding-tub, of an endless carrier or platform therein running substantially from end to end, and adapted to carry the hogs through the tub, such carrier having a horizontal portion for a portion of its length and an inclined portion for the remainder of its length to provide a bristle-bench, and a submerging device located substantially above the horizontal portion of the carrier

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641,775. KIT-STOVE. GEORGE E. HUGHES, Chicago, Ill., assignor to the Mighty Mite Manufacturing Company, same place. Filed Sept. 20, 1897. Serial No. 652,224. (No model.)



Claim.—1. A kit-stove comprising an inclosing casing or receptacle containing a reservoir and a burner-carrying pipe hinged or swiveled to said tank and adapted to be folded into the receptacle, substantially as described.

2. A kit-stove comprising an inclosing casing or receptacle, a reservoir within said casing or receptacle, a pipe leading from said reservoir, a burner-pipe swiveled or hinged to said pipe that leads from said reservoir and a burner connected to said burner-pipe, said burner-pipe and burner being adapted to be folded into the body of the casing or receptacle, substantially as described

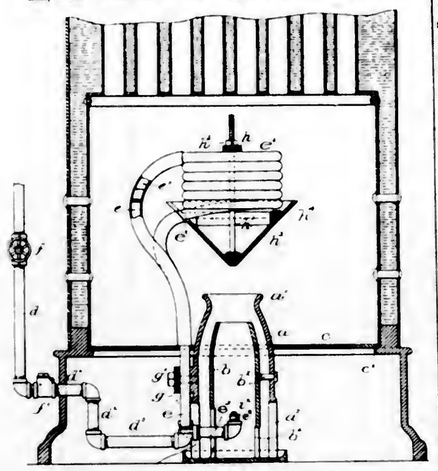
3. A kit-stove comprising an inclosing casing or receptacle and a cover for the same, a reservoir or tank for fuel, a burner swiveled so as to permit said burner to assume a vertical position for use and to be turned downward to permit the top of the casing to be closed by its cover, a top plate and means for movably holding said top plate adjacent the burner when the latter is in position for use.

4. A kit-stove comprising an inclosing receptacle or casing, a reservoir or tank within said casing, a burner-pipe swiveled or hinged to said reservoir or tank and adapted to be folded into the body of the receptacle, a skeleton top and supports for said skeleton top and sockets for holding said supports in place, substantially as described.

5. A kit-stove comprising an inclosing receptacle or casing and its cover, a burner pivotally sustained within said casing and adapted to be folded into the casing when not in use and to be turned to a vertical position when in use, a removable top plate and movable supports for sustaining said top plate adjacent the burner.

6. A kit-stove comprising an inclosing casing or receptacle, a reservoir or tank within said casing, a burner-pipe and burner hinged or swiveled to said reservoir or tank whereby it may be folded within the casing, a movable top plate of a size adapted to fit within the casing and movable supports for said top plate whereby it may be held adjacent the burner when said burner is turned to position for use.

641,776. HYDROCARBON-BURNER. ALMOND T. INGALLS, Malden, Mass. Filed Mar. 21, 1898. Serial No. 674,559. (No model.)

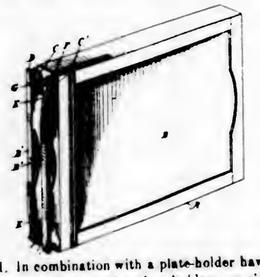


Claim.—1. A conduit for the vaporization of hydrocarbons, comprising in its construction inner and outer coiled tubes or shells having an air-space between them, and an interposed coil of wire for preserving the relative positions of the two shells.

2. An apparatus for burning hydrocarbons, comprising a burner, a combustion-chamber in which said burner is located, and a vaporizing-coil located above the burner, and formed of an inner shell or tube and an outer shell or tube separated by an air-space, and a wire wrapped spirally around the inner shell or tube to maintain the two shells or tubes in their relative positions.

3. An apparatus for burning hydrocarbons, comprising a burner, a vaporizing-coil, a bar resting on said coil, a rod passed through said bar and threaded at its upper end and having a nut resting on the bar, and a deflector secured to the lower end of the rod and arranged below the coil and above the burner and adapted to spread the flame more or less, said deflector having an internal annular trough containing absorbent material, substantially as described.

641,777. PHOTOGRAPHIC-PLATE HOLDER. DANIEL KELLY, Jr., Muskegon, Mich. Filed Nov 18, 1899. Serial No. 737,399. (No model.)



Claim.—1. In combination with a plate-holder having a removable slide, a stop attached to the plate-holder, a projection on the slide to engage the stop, and a spring on the slide adapted to engage the respective sides of the stop, substantially as described.

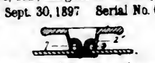
2. In combination with a plate-holder having a reversible slide, a stop attached to the plate-holder, projections at opposite sides of the slide adapted to engage the inner side of the stop, and a projection on the slide adapted to cover the outer side of the stop, substantially as described.

3. In combination with a plate-holder having a slide, a stop attached to the plate-holder, projections at opposite sides of the slide adapted to engage the inner side of the stop, a spring at one side of the slide adapted to alternately engage the respective inner and outer sides of the stop, and a projection at the other side of the slide adapted to cover the outer side of the stop, substantially as described.

4. In combination with a plate-holder and a removable slide for the same, a transverse bar on the end of the slide having one end reduced and provided at its respective ends with projections, a spring-stop attached to the plate-holder and adapted to engage the projections on the bar, a spring attached to the bar and adapted to alternately engage the respective inner and outer sides of the said stop, and a projection on the bar adapted to cover the outer side of the stop, substantially as described

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641,778. BUTTON AND BUTTON-FASTENER. OLIVER W. KETCHUM, Baltimore, Md., assignor to the Raymond Button Company, same place. Filed Sept. 30, 1897. Serial No. 653,597. (No model.)

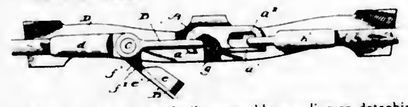


Claim.—1. In a button and fastener the combination of, a body, a hollow shank attached to said body having at a certain point a contracted section over which said contracted section and against the walls of the said hollow shank the prongs of the fastener may be secured, with a fastener consisting of a plurality of prongs which penetrate the said hollow shank to a point above the said contracted section and are there bent so as to mutually wedge themselves against the walls of the said hollow shank thereby becoming secured therein, substantially as described.

2. In a button and fastener the combination of, a body, a hollow shank attached to said body having at a certain point a contracted section over which said contracted section and against the walls of the said hollow shank the prongs of the fastener may be secured, with a fastener consisting of two prongs which penetrate the said hollow shank to a point above the said contracted section and are there bent substantially parallel to each other so as to mutually wedge themselves against the walls of the said hollow shank thereby becoming secured therein, substantially as described.

3. In a button and fastener the combination of, a body, a hollow oblong shank attached to said body having at a certain point a contracted oblong section over which said contracted oblong section and against the walls of the said hollow oblong shank the prongs of the fastener may be secured, with a fastener consisting of a plurality of prongs which enter the said hollow oblong shank to a point above the said contracted oblong section and are there bent so as to mutually wedge themselves against the walls of the said hollow oblong shank thereby becoming secured therein, substantially as described.

641,779. BURIAL APPARATUS. RICHARD R. KINNEY and GARDNER P. BARNARD, Coldwater, Mich. Filed Jan. 9, 1899. Serial No. 701,619. (No model.)



Claim.—1. An automatically-separable coupling or detaching device, comprising a hook, a link and a trip, said link and trip arranged on a common pivot or pintle and said trip adapted to engage said hook, substantially as set forth.

2. The combination of a hook having a freely playing or turning connection with the part to which it is attached, a link having a pivotal connection with the part to which it is attached, and a trip or shoe having a salient portion pivotally connected with, and depending from, the keeper, said salient portion of the trip adapted to pass into said link and engage said hook, substantially as set forth.

3. The combination of a hook, a link, and a trip, having a salient portion, said trip and the link having a common pivot or pintle and the link adapted to receive the salient portion or projection of the trip, and the trip having a lateral flange or extension at its normally bottom edge adapted to form a rest for said link and prevent its displacement after the tripping operation, substantially as set forth.

4. The combination of a hook, a link, and a trip, having a salient portion, said trip and the link having a common pivot or pintle and the link adapted to receive the salient portion of said trip, said salient portion having an inclined engaging edge, and adapted to engage said hook, substantially as set forth.

5. The combination of a hook, a link, and a trip, having a salient portion, said trip and the link having a common pivot or pintle and the trip having its salient portion compassed by said link and adapted to normally stand or be deflected downward at an angle to said link, substantially as set forth.

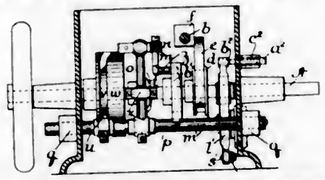
6. The combination of a hook having a laterally-flanged or plate-like portion, and a link, and a trip, having a salient portion, said trip having a laterally-flanged or plate-like portion, the salient portion of said trip adapted to pass into said link and engage said hook, and

a retaining device having horizontal and vertical shoulders or stops adapted to engage the lateral and forward edges of said hook and link, substantially as set forth.

7. The combination of a hook having a laterally-flanged or plate-like portion, and a link, and a trip, having a salient portion, said trip having a laterally-flanged or plate-like portion, the salient portion of said trip adapted to pass into said link and engage said hook, and a retaining device having horizontal and vertical shoulders or stops adapted to engage the lateral and forward edges of said hook and link, said retaining device adapted to engage at its ends the ropes or parts to which said hook and link and trip are attached, substantially as set forth.

8. In a burial apparatus, a coupling for lowering-straps consisting of a hook member adapted to be carried by one strap, a keeper member adapted to be carried by the other strap, and a tripping-arm pivotally connecting with, and depending from, the keeper member, the depending portion of said arm being movable to engage and release the hook member from the keeper member.

641,780. **OVEREDGE SEWING-MACHINE.** HERMANN A. KLEMM, New York, N. Y. Filed Sept. 3, 1898. Serial No. 690,161. (No model.)



Claim.—1. In an overedge sewing-machine, the combination with the horizontally-reciprocating needle-bar, and the horizontal feed-disks, of the vertically-oscillating and forwardly and backwardly swinging looper-bar, the forwardly and backwardly rocking and laterally-sliding supporting-bar whereon the looper-bar is pivoted, rocking and reciprocating shaft carrying said supporting-bar, cam on the main shaft for reciprocating the needle-bar, and the eccentric and cam on said main shaft for respectively rocking and sliding said supporting-bar.

2. The combination with the feed-lever having the slotted aperture for its supporting-pivot, said supporting-pivot, the supporting-sleeve ℓ for said pivot, adapted to be adjusted along its support and relatively to the lever, the pivot-sleeve m' carried in the supporting-sleeve and having a clamping-head for the lever, and the clamping-bolt x' also having a clamping-head for positively securing the lever between its head and the head of the pivot-sleeve and being inserted in the pivot-sleeve substantially as described.

3. The combination of the feed-lever, its supporting-pivot, said pivot being adjustable along said feed-lever; the push-pin, said push-pin located in the case and adapted to engage and temporarily hold the lever while adjusting the pivot, and the eccentric for operating the lever.

641,781. **HOLDER FOR HAND-STAMPS.** ERNEST J. KLINGENBERG, Chicago, Ill. Filed Mar. 20, 1899. Serial No. 709,786. (No model.)



Claim.—1. A device of the character described, comprising the body portion, a slotted shelf, and a spring normally engaging with said shelf, for the purpose described.

2. A device of the character described, comprising the body portion, a slotted shelf, and a spring normally engaging with the edge of said shelf for the purpose described.

3. A device of the character described, comprising the body portion, means at one end whereby the same may be suspended, a slotted, inclined shelf at the opposite end, and a spring overlapping and normally engaging with said shelf, substantially as described.

4. A device of the character described, comprising the body portion, a hook at one end thereof, an inclined, slotted shelf at the opposite end, and a slotted plate secured to said body portion and overlapping said shelf, substantially as described.

5. A device of the character described, comprising the body portion, means for attaching said body portion to a rack, &c., a slotted shelf at the lower end thereof, there being grooves on said body portion, for the purpose described.

6. A device of the character described, comprising a body portion, a slotted shelf at one end thereof, a spring-plate secured to said body portion and overlapping, and normally bearing upon the edge of said shelf, said spring having a slot registering with the slot in said shelf, substantially as described.

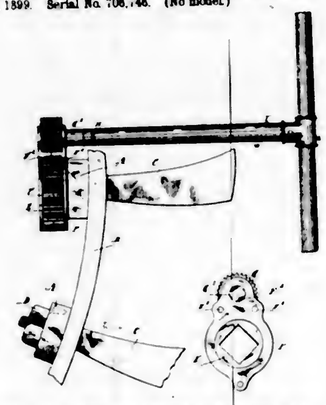
7. The combination, with a body portion, hook, and slotted shelf, of a spring-plate secured to said body portion and overlapping, and normally engaging with the edge of said shelf, said spring provided with a slot registering with the slot of the shelf, and also having a receiving-slot, all substantially as described.

8. A device of the character described, comprising a body portion, hook, shelf and card-holder all formed from one blank, and a retaining spring-plate secured to said body portion and normally engaging with the edge of the shelf, said plate having a substantially Y-shaped receiving-slot and a T-shaped releasing-slot, all arranged substantially as described.

9. A device of the character described, comprising a body portion, the hook, and the slotted shelf adapted to receive a suitable object, as an eye-screw, attached to one end of a hand-stamp, and means for retaining said object in said slot, comprising a spring-plate, secured to said body portion and slotted as described, said plate overlapping, and normally engaging with the edge of, said shelf, substantially as described.

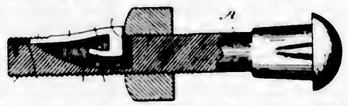
10. The combination with a holder having a slotted shelf, of a stamp having an eye-screw secured to one end thereof and adapted to be suspended in said slot, said screw comprising the eye or head, the flattened stem and the threaded portion, substantially as described.

641,782. **WRENCH.** FRANK KOSTLAN, Traer, Iowa. Filed Feb. 24, 1899. Serial No. 706,746. (No model.)



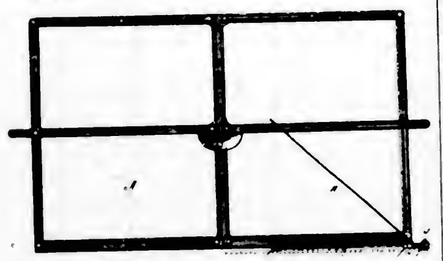
Claim.—The described wrench, comprising the gear E with a straight rectangular hole therein adapted to fit the nut of a thresher-cylinder tooth, and provided with short cylindrical journals concentric with said hole, the pinion G meshing therewith, and having similar journals at each side, and a shank for the attachment of a handle, the bearing-plates F F, having flat external faces and inwardly-projecting lugs E^3, connecting rivets or studs E^4, and the T-lever I secured to the shank of the pinion.

641,783. **NUT-LOCK.** ARTHUR W. LEWIS, Prairie Station, Miss. Filed Nov. 20, 1899. Serial No. 737,726. (No model.)



Claim.—A nut-lock, comprising a bolt having a recess therein, a spring-knee substantially L-shaped, one end of said knee being seated in a groove leading into said recess, and a screw for retaining same in place, the threads F in registration with the threads of the bolt, the retaining-pin Q supported in the walls of said recess, the hooked end of the knee being slightly upwardly bent and passed underneath said pin, whereby the free end of the knee is securely retained in said recess, and serving normally as a stop for the nut, as set forth.

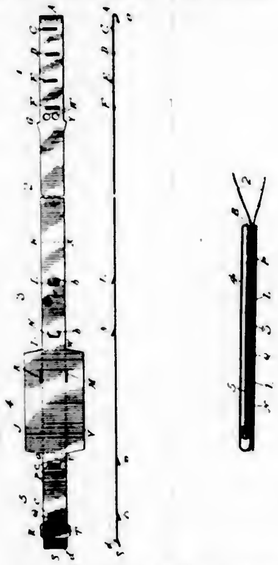
641,784. **ATTACHMENT FOR BOOK-SUPPORTS.** WILLIAM A. LUBY, Kansas City, Mo. Filed Apr. 17, 1899. Serial No. 713,421. (No model.)



Claim.—1. The combination of a book-support having a shelf, a substantially straight spring-rod secured firmly to and extending approximately parallel with and projecting beyond the end of said shelf and an arm pivoted to the free end of the spring-rod so as to swing in a plane substantially parallel with the face of the support, and to occupy an operative position at an angle to the spring-rod and above the shelf, or an inoperative position below the shelf and substantially parallel with the said spring-rod, substantially as described.

2. The combination of a book-support, having a shelf, a rod underlying the shelf of the book-support, and having one end riveted to said shelf and the other projecting beyond the end of said shelf and bent upward and bifurcated vertically, a pivot-pin carried by the bifurcated end of said rod, and an arm frictionally pivoted upon said pin and in said bifurcation, and having its pivoted end of substantially hook form, or curved, substantially as described.

641,785. **CAR-SEAL.** ROCKWELL M. MACCORMAC, Kansas City, Mo. Filed Apr. 17, 1899. Serial No. 713,352. (No model.)



Claim.—1. A car-seal made of flexible metal and having a tongue, a body portion, a neck, a base having wings, and a tail; the tail bent on the base and secured thereto, the base and tail bent on the neck, and the sides closed and the parts permanently united by the wings; the said tongue being provided with a hook for automatically engaging over the end of the tail and interlocking therewith; in substance as set forth.

2. A car-seal made of flexible metal and having a tongue, a body portion, a neck, a base having wings, and a tail; the tail bent on the base, the base and tail bent on the neck, and the several parts properly secured together and the sides closed by the wings; the said tongue being provided with a hook having a slot a, and the said tail being provided with a lip d struck up from the metal, which latter engages the slot a when the hook engages the end of the tail; in substance as set forth.

3. A car-seal made of flexible metal and having a tongue, a body portion, a neck, a base having wings, and a tail; the tail bent on the base, the base and tail bent on the neck, and the several parts properly secured together by the wings; the said tongue and tail being provided with lips and slots, made in the body of the metal, which interlock; in substance as set forth.

4. A car-seal made of flexible metal and having a tongue, a body portion, a neck, a base having wings, and a tail; the tail bent on the base, the base and tail bent on the neck, and the several parts properly secured together by wings; the said tongue and neck being provided with lips and slots, made in the body of the metal, which interlock; in substance as set forth.

5. A car-seal made of flexible metal, having one end bent upon itself to form a casing, and the other end fashioned to form a tongue; the said casing and tongue provided with lips and slots which automatically interlock, and the lips having notches, as c c, b b, for engaging the ends of the slots; in substance as set forth.

6. A car-seal having a tongue, a body portion, a neck, a base, and a tail, the said tail bent on the base and secured thereto by the wings R T and slots K M; and the base and tail bent on the neck and secured thereto by the wings J V; the said portions bent as described constituting a casing having an opening; and the said casing and tongue provided with means which automatically interlock; in substance as set forth.

641,786. **VEHICLE-SPRING.** HERBERT C. MARTELL, Columbus, Ohio. Filed June 17, 1899. Serial No. 720,969. (No model.)



Claim.—1. A vehicle leaf-spring provided with a lug which projects laterally from its middle part in the plane of the leaf and affords an attachment for the body-hanger, substantially as set forth.

2. A vehicle leaf-spring comprising a series of superposed leaves operatively connected together, each said leaf being provided with a lug which projects laterally from its middle part, said lugs forming an attachment for the body-hanger, substantially as set forth.

3. A vehicle leaf-spring comprising a series of superposed leaves operatively connected together, one of the inner leaves of the series being provided with a lug which projects laterally from its middle part and from between the two next adjacent leaves, said lug forming an attachment for the body-hanger, substantially as set forth.

4. The combination, with a vehicle leaf spring provided with a lug which projects laterally from its middle part in the plane of the leaf, of a body-hanger secured to the said lug and arranged between the spring and the vehicle-body, substantially as set forth.

641,787. **AUTOMOBILE TORPEDO.** HUDSON MAXIM, London, England. Filed Feb. 12, 1898. Serial No. 670,041. (No model.)

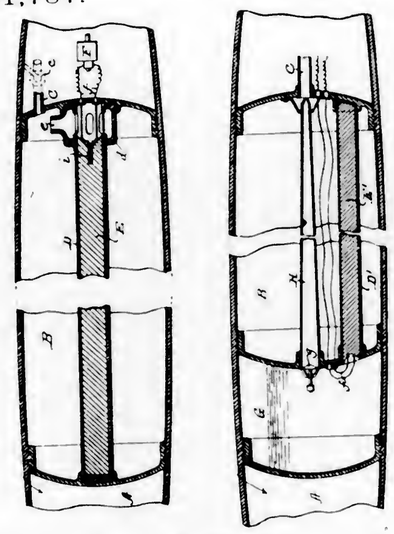
Claim.—1. In an automobile torpedo a shell or hull having a chamber for the explosive charge, a reservoir containing a motive fluid, with a pipe or conduit leading therefrom to the motor, a solid combustible charge, a passage-way for the gases of combustion from said charge to the reservoir, and means for igniting said charge.

2. In an automobile torpedo, a shell or hull having a chamber for the explosive charge, a reservoir for the motive fluid, with a pipe or conduit leading therefrom to the motor, a combustion-chamber within said reservoir, a combustible nitro compound in said chamber, a passage for the gases of combustion from said combustion-chamber to said reservoir and means for igniting said nitro compound.

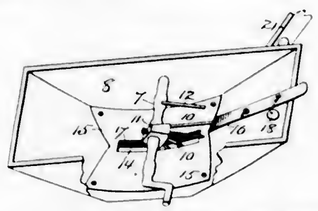
3. A self-propelling torpedo provided with a chamber for an explosive charge, a compressed-air reservoir, a water-chamber, a combustible charge having communication with said water-chamber, and thence with the air-chamber, means for igniting the combustible charge, and a conduit leading from the reservoir to the motor.

4. A self-propelling torpedo provided with a chamber for an explosive charge, a reservoir for motive fluid, a water-chamber, two combustible charges, one communicating with the reservoir and one with the chamber, means for igniting said charges, and means commingling the gases of combustion with the motive fluid and conducting the same to the motor.

641,787.



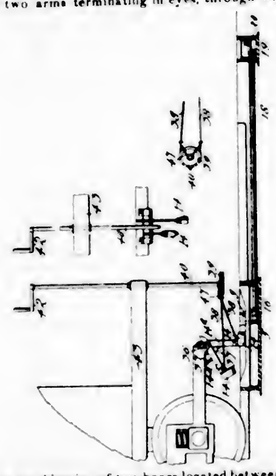
641,788. PLANTER. WILLIAM J. MCCLURE, Sr., and WARREN C. MCCLURE, Shuqualak, Miss. Filed Sept. 2, 1899. Serial No. 729,341. (No model.)



Claim.—1. In a planter, the combination with a beam having furrow-coverers at the rear end, a furrow-opener in advance of said coverers, a crank-shaft mounted in bearings depending from the beam in advance of the furrow-opener, and a rimless wheel secured to said crank-shaft, of a seedbox mounted on the beam between the furrow opener and coverers said box having a fixed slotted bottom, a false bottom above the fixed bottom and having a slot therein, a valve pivoted to the inner face of the box and projecting into the space between the two bottoms so as to regulate the width of the slots therein, a crank-shaft mounted in the box, fingers projecting from said shaft and arranged to project through the slots in said bottoms, and a pitman connecting the crank-shaft in the box with the crank-shaft to which the rimless wheel is secured.

2. In a planter, the combination with a beam comprising two parallel members connected together at their forward ends, the rear end of each of said members bent downwardly to form rigid standards, a tooth secured to the lower end of each standard, a standard disposed between the parallel members of the beam in advance of the parallel standards and provided at its lower end with a tooth, a seedbox supported upon the parallel members of the beam and having a spout depending between the parallel standards and said forward standard, a slotted bottom in said seedbox, a false bottom in the seedbox and having an elongated slot therein, a valve projecting between said bottom and false bottom, a crank-shaft mounted in the seedbox, arms on said shaft adapted to project through the slots in said bottoms, a crank-shaft mounted in bearings depending from the members of the beam in advance of the seedbox, a rimless wheel secured to said shaft, and a pitman connecting said crank-shafts.

641,789. SWITCH MECHANISM. CHARLES W. MCCRORE, Denver, Colo. Filed Mar. 27, 1899. Serial No. 710,563. (No model.)



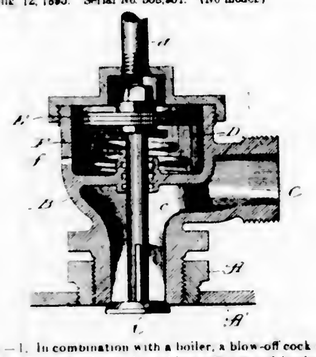
Claim.—1. In switch-operating mechanism, the combination of a box located between the rails of the track and having a depression in its cover, separated by a central partition into ways, a cam located between these ways, and adapted to project into one or the other according to the position of the switch point or tongue, a shaft to which the cam is made fast, the said shaft projecting through an opening in the cover into the closed chamber of the box, a packing-washer seated in said cover and surrounding the shaft-opening therein to make the cover water-tight around this shaft, a crank attached to the lower extremity of the shaft, a rod connected with said crank and passing through the slot of the box, another box located between the track-rails, adjacent the switch-point, a bell-crank lever located therein, one arm of the lever being connected with the said rod which passes through the walls of the last-named box, a tube connecting the two boxes and forming a water-tight sheath around said rod, a second rod connected with the other arm of the lever at one extremity, passing through a water-tight opening formed in the wall of the box, and connected with the switch-point at the opposite extremity, two spring-held shoes mounted on the car and adapted to actuate the cam mounted on the first-named box, a cable whose extremities are respectively connected with said shoes, a pulley to which said cable is made fast, a shaft mounted on the car for imparting to the pulley partial rotations in reverse directions, whereby the shoes may be alternately thrown into position to operate the cam and shift the switch-point as the car is passing, and a cable-retaining device pivotally mounted on the shaft adjacent the pulley and comprising a collar, and two arms terminating in eyes, through which the cable passes.

2. The combination of two boxes located between the track-rails and provided with covers seated on packing material and cemented in place to prevent the entrance of water, one box being placed adjacent the switch-point, operating parts located in each box, an exposed cam mounted on the first box, a connection between said cam and the operating parts of the box, a water-tight packing seated in the cover and surrounding the opening through which the said connection passes, a rod leading from the operating device of one box to the operating device of the other box, a tube surrounding said rod and having its extremities attached to the boxes, said tube forming a water-tight sheath for the rod and preventing the entrance of water to the boxes at the rod-openings, another rod leading from the device in the box adjacent the switch-point, the opposite extremity of said rod being connected with the switch-point, a water-tight packing located in the wall of the box and surrounding the opening through which the last-named rod passes, and means mounted on the car for shifting the cam mounted on the box remote from the switch-point, said means comprising two spring-held shoes, a cable whose extremities are respectively connected with said shoes, a pulley to which said cable is made fast, a shaft mounted on the car for imparting to the pulley partial rotations in reverse directions, whereby the shoes may be alternately thrown into position to operate the cam and shift the switch-point as the car is passing, and a cable-retaining device pivotally mounted on the shaft adjacent the pulley, and comprising a collar, and two arms terminating in eyes, through which the cable passes.

3. The combination of two boxes, one being located adjacent and the other comparatively remote from the switch-point, a cam mounted on the remote box, an operating device located in each box, a connection between said cam and the operating device in the box, a rod leading from the operating device of this box to the operating device of the other box, another rod leading from the operating device of the adjacent box, its opposite extremity being connected with the switch-point, suitable means for preventing the entrance of water at the tops of these boxes, and where the rods pass through their walls, and suitable means mounted on the car for actuating the operating-cam, said means comprising two spring-held shoes, a cable whose extremities are respectively connected with said shoes, a pulley to which said cable is made fast, a shaft mounted on the car for imparting to the pulley partial rotations in reverse directions, whereby the shoes may be alternately thrown into position to operate the cam and shift the switch-point as the car is passing, and a cable retaining device pivotally mounted on the shaft adjacent the pulley, and comprising a collar, and two arms terminating in eyes, through which the cable passes.

4. The combination with the switch-point-operating mechanism, provided with a cam, of means mounted on the car for actuating the said cam, said means comprising two spring-held shoes, a cable, whose extremities are respectively connected with said shoes, a pulley, to which said cable is made fast, a shaft mounted on the car for imparting to the pulley partial rotations in reverse directions, whereby the shoes may be alternately thrown into position to operate the cam and shift the switch-point as the car is passing, and a cable-retaining device pivotally mounted on the shaft adjacent the pulley and comprising a collar, and two arms terminating in eyes, through which the cable passes.

641,790. BLOW-OFF COCK. WILLIAM MCINTOSH, Winona, Minn. Filed Aug. 12, 1895. Serial No. 558,951. (No model.)



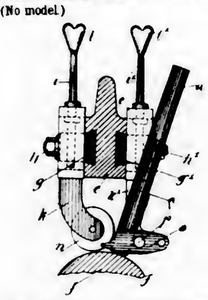
Claim.—1. In combination with a boiler, a blow-off cock consisting of a valve-casing having a single blow-off port and having a discharge-passage to the atmosphere, a single valve normally closing such passage and alone governing the direct discharge from the boiler through said single port, a stem for the valve, a cylinder, a piston-head secured to this stem and operating in the cylinder, a source of fluid-pressure, and a connection between the cylinder and said source of fluid-pressure under control of the engineer or operator, such connection being independent of the valve or its stem.

2. In combination with a boiler, a blow-off cock consisting of a valve-casing having a discharge-passage leading from the boiler to the atmosphere and a cylinder, a single valve controlling the discharge-passage, a stem upon the valve extending into the cylinder, a piston-head secured upon the valve-stem and adapted to travel in the cylinder whereby the valve is directly responsive to the movements of the piston-head and a connection under the control of the engineer or operator with a source of fluid-pressure for actuating the piston-head, such connection being extraneous of the valve and its stem and independent thereof.

3. The combination with a boiler, of a valve-casing having a discharge-passage through the boiler-shell and leading from the boiler to the atmosphere, a single valve controlling the passage and located in the plane of said shell and adapted to be forced into the boiler, a stem for the valve, a cylinder, a piston-head secured directly upon the valve-stem and adapted to travel in the cylinder when fluid-pressure under control of the engineer is admitted thereto and a connection between the cylinder and a source of fluid-pressure independent of that particular pressure against the valve.

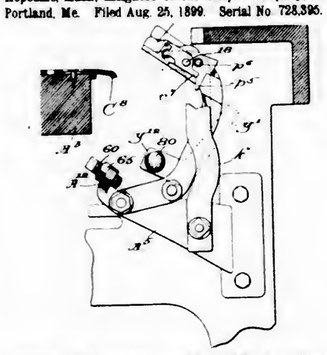
4. The combination with a boiler, of a valve-casing having a single discharge passage and port communicating with the boiler and atmosphere and also provided with an adjacent cylinder H, a stem *e* reciprocating in the discharge-passage and also in the cylinder, a single valve C mounted upon one end of the stem and adapted alone to govern the discharge-passage, a piston-head E secured to the other end of the stem and traveling in the cylinder, a spring F to normally hold the piston-head to its outward limit of movement and a connection *d* with a suitable source of fluid-pressure under the control of the engineer or operator and leading into the cylinder.

641,791. CARDBOARD CUTTING AND GROOVING DEVICE. LUDWIG NICOLAI, Dresden, Germany. Filed Aug. 30, 1894. Serial No. 521,718. (No model.)



Claim.—In combination, a continuous cutting-knife formed of a thin, narrow strip of sheet-steel of uniform thickness throughout its length, clamping-jaws *o*, between which the knife is held, a clamping-screw *p*, a bracket *k'*, carrying the clamping-jaws, a guided block *g'*, a frame carrying said block, an adjusting-screw *i'*, connecting the bracket *k'*, to the block, a feed-roller *f*, and a vertically-adjustable roller *n*, coacting with the roller *f*, to feed the material to be acted upon to the knife, substantially as specified.

641,792. LOOM. JONAS NORTHROP and EDWARD S. STIMPSON, Hopedale, Mass., assignors to the Draper Company, same place and Portland, Me. Filed Aug. 25, 1899. Serial No. 728,395. (No model.)



Claim.—1. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-carrier to be ejected, means to close the clamp and actuate the thread-parter successively upon change of filling, and a device to open the clamp as it is moved into position to act upon the thread.

2. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-carrier to be ejected, means carried by the lay to close the clamp and actuate the thread-parter successively upon change of filling, and a relatively-fixed device to open the clamp as it is moved into position to act upon the thread.

3. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, each having a movable member, a differential connection between said members to move them successively, said thread parter and clamp being bodily movable into position to act upon the thread of the filling-carrier to be ejected, means to engage the movable member of the parter upon a change of fill-

ing, and through said differential connection close the clamp upon the thread and thereafter actuate the parter, and a device to put the clamp and parter into operative condition before they are moved into position to act upon the thread.

4. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, each having a movable member, a spring to normally close such member of the clamp, a differential connection between and to move said members successively, said connection acting against the spring to open the clamp, means operating through said connection upon a change of filling to permit closure of the clamp and thereafter to positively operate the parter to part the thread, and a device to open the said movable members of the clamp and parter as the latter are moved into position to act upon the thread.

5. In a loom provided with filling-supplying mechanism, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, each including a movable member, means operative upon a change of filling to close the clamp upon the thread of the filling-carrier to be ejected and to thereafter actuate the parter to part the thread while clamped, and an independent device to open said movable members prior to the next change of filling.

6. In a loom provided with filling-supplying mechanism a shuttle adapted to carry a supply of filling, a thread-parter comprising a fixed member and a relatively-movable member having a heel, a thread-clamp comprising a fixed member and a relatively-movable member, a spring to close the latter, a lug mounted on the movable member of the parter, to engage and open the movable clamp member against the action of its spring, a hunter on the lay, to engage the heel of the movable parting member upon a change of filling and move it to first permit closure of the clamp and thereafter to part the clamped thread, and an independent device to open said parter and clamp prior to the next change of filling.

7. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-carrier to be ejected, the clamp including a movable member, a spring to close it, the thread-parter including a member having a lug to engage and open the movable clamp member against its spring, a relatively-fixed device to engage said lug when the clamp and thread-parter are bodily moved into operative position, to open the clamp and the thread-parter, means to close the clamp upon the thread and to thereafter operate the parter upon a change of filling, and a detent to maintain said clamp and the parter closed as they are bodily returned to normal position.

8. In a loom provided with filling-supplying mechanism, controlling means therefor, a thread-cutting temple located at the same side of the loom with said mechanism, a shuttle adapted to carry a supply of filling, a thread-clamp and a thread-parter, a support therefor actuated upon change of filling by the controlling means to bodily move the clamp and parter into position to act upon the thread of the filling-carrier to be ejected, and means carried by the lay to permit closure of the clamp and thereafter to operate the parter, when they are in operative position, the return of the clamp into normal position bringing the filling end thereby into position to be severed by the temple-cutter.

9. In a loom provided with filling-supplying mechanism, a temple located at the same side of the loom and having a thread-cutter, a shuttle adapted to carry a supply of filling, a thread-parter, movable prior to change of filling into position to part the thread adjacent the filling-carrier to be ejected, a thread-clamp movable into position to engage and hold the thread between the temple and the parter, prior to the action of the latter, means to move the parter and the clamp into position to operate, the return of the clamp to normal position drawing the parted thread held thereby into position to be severed by the temple-cutter, and means to actuate the parter and the clamp when in operative position, to respectively part and clamp the filling-thread.

10. In a loom provided with filling-supplying mechanism, a temple located at the same side of the loom and having a thread-cutter, a shuttle adapted to carry a supply of filling, a swinging support, means mounted thereon side by side to clamp and to part the thread of the filling-carrier to be ejected upon a change of filling, said filling-supplying mechanism at such time effecting the movement of the support into operative position, the lay, a bunter thereon to effect the successive operation of the clamp and the parter as the lay beats up, and an independent device to open the clamp and the parter as they are moving bodily into operative position, the return of said support to normal position causing the clamp to draw the filling end into position to be severed by the temple cutter.

11. In a loom provided with filling-supplying mechanism, a thread-cutting temple, a swinging yoke governed by said mechanism, normally-closed thread-clamping jaws and parting-blades mounted upon the yoke, a fixed device to open the jaws and blades as they are bodily moved by the yoke into operative position, the actuation of the filling-supplying mechanism effecting such movement of the yoke, and means mounted on the lay to first close the jaws upon the thread to thereafter close the blades to sever it, the return of the yoke to normal position acting through the holding-jaws to bring the filling end into position to be severed by the temple-cutter.

12. In a loom provided with filling-supplying mechanism, controlling means therefor operative upon exhaustion of the filling in the shuttle to a predetermined extent, a shuttle adapted to carry a supply of filling, a shuttle-feeler, means, including a movable blade, mounted thereon to part the thread of the filling-carrier to be ejected upon change of filling, the lay, a bunter thereon to engage said blade and close it as the lay beats up, a friction device to act upon and retain the blade closed, and an independent device to engage the blade and positively open it prior to the next change of filling.

13. In a loom provided with filling-supplying mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a support governed as to its position by said controlling means and movable into operative position upon a change of filling, a thread-clamp mounted on said support and compriaing a fixed jaw having a guideway, a pivoted jaw to coöperate therewith and movable in the guideway, and a spring to close the jaw; a thread-parter, iocluding a movable blade, a differential connection between said blade and the movable jaw, to control the operation of the latter, a device to act upon said connection and open the clamp and parter as they are bodily moved by the support into operative position, and independent means to act upon the blade and through said connection permit first the closure of the clamp upon the thread and thereafter the closing of the blade to part the thread of the filling to be ejected.

14. In a loom, the lay, filling-supplying mechanism, a shuttle-feeler operatively connected therewith, a thread-clamp and a thread-parter mounted on the shuttle-feeler, means to effect the operation of said mechanism upon exhaustion of the filling in the shuttle to a predetermined extent, a device to place said clamp and parter in operative condition as the shuttle-feeler moves toward the lay, to carry the clamp and parter into position to clamp and part the thread of the filling-carrier to be ejected when the shuttle is properly boxed, a hunter on the lay, to close the clamp on the thread and to thereafter actuate the parter as the change of filling is effected, and a thread-cutting temple located at the filling-changing side of the loom, the return of the shuttle-feeler to normal position operating through the clamp to bring the thread into position to be cut at the temple.

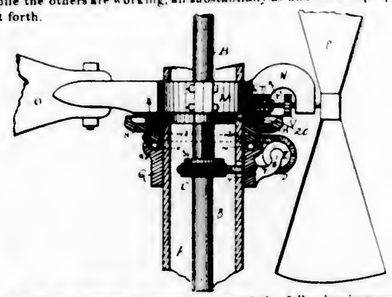
15. In a loom provided with filling-supplying mechanism, controlling means to effect the operation thereof upon exhaustion of the filling in the shuttle to a predetermined extent, a swinging arm having mounted upon it fixed and movable thread-parting blades and clamping-jaws, a spring to close the movable jaw, a lug carried by the movable blade to engage and open said jaw against its spring, a switch-cam to depress the lug and open the clamp and parter as the swinging arm moves them into operative position, and independent means to close the clamp and thereafter to operate the parter to sever the thread adjacent the filling-carrier to be ejected.

16. In a loom, an arm having a thread-receiving notch in its end, fixed and movable blades thereon adjacent the notch, a fixed clamping-jaw and a cooperating pivoted jaw, both mounted on the arm to clamp the thread of a filling-carrier to be ejected, a closing-spring for the pivoted jaw, means to move said arm to bring the blades and jaws into operative position upon exhaustion of the filling to a predetermined extent, a differential connection between the movable blade and jaw, the lay, a bunter thereon to operate through said connection and close the clamping-jaws upon the thread, and thereafter to close the blades and sever it adjacent the filling-carrier to be ejected, and an independent device to open the blades and jaws prior to the next change of filling.

17. In a loom provided with filling-supplying mechanism, a shuttle-feeler, fixed and movable parting-blades mounted thereupon, a friction device to act upon the movable blade, said blade having a depending heel, a yielding detent to hold the blade open; a thread-clamp mounted on the shuttle-feeler at the side of the blades, said clamp including a pivoted jaw having an extension at one end, a spring to close the jaw; a transverse lug on the movable blade, to engage the jaw extension and rock the jaw against its spring, a device to depress said lug to open the movable blade and the said jaw, means to move the shuttle-feeler into operative position prior to a change of filling, the lay, and a bunter thereon to engage the heel of and close the movable blade to part the thread of the filling-carrier to be ejected, releasing said blade from its detent, the initial movement of the blade permitting the clamp-jaw to be first closed by its spring.

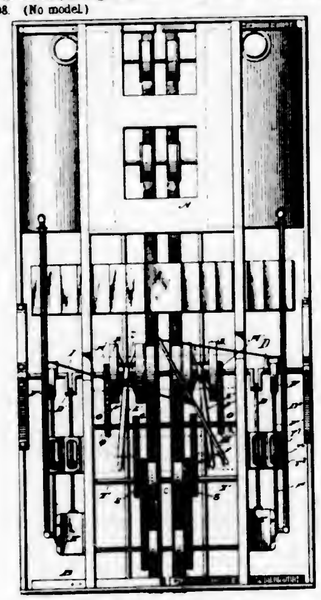
641,793. MULTIPLE AERMOTOR. SPENCER OTIS, Omaha, Nebr. Filed June 25, 1897. Renewed July 8, 1899. Serial No. 723,194. (No model.)

Claim.—1. In a multiple aermotor the combination with a suitable standard of supports for said standard a shaft within said standard clutch-wheels upon said shaft independently working superposed wind-wheels belt connection between said wind-wheels and clutch-wheels the relation between said shaft and clutch-wheels being such that said shaft may revolve in the working direction independent of said clutch mechanisms each of said wind-wheels being arranged to operate independently and in such a manner that one may ride dead while the others are working, all substantially as and for the purpose set forth.



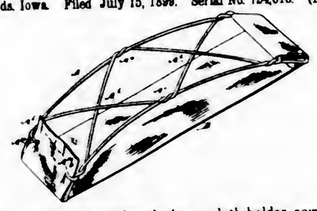
2. In an aermotor the combination of the following instrumentalities, to wit: the tubular standard A, the shaft B, working within said standard A, the pulley C secured to said shaft and working within said standard A, said standard A being provided with openings opposite said pulleys, the guide-sheave E secured upon the outside to said standard adjacent to said openings, the collar G, secured to said standard, the crown-gear H supported by said collar G and loosely working about said standard, the fixed collar K above said crown-gear, the sleeve M removably supported about said standard and upon said collar, and provided with the downwardly-curved gooseneck N provided with the seating T, the vane O, secured to said collar opposite said gooseneck, the shaft R working within the lower end of the said gooseneck and passing through said seating T, the spring U upon said shaft R and working within said seating and against said collar S, the cable D working over and connecting said pulley C and crown-gear H, and the pinion V secured to said shaft R and adapted to engage said crown-gear, as in manner set forth.

641,794. LOCOMOTIVE FOR ELEVATED RAILWAYS. MATHIAS A. PATTON, Livingston, Mont. Filed July 27, 1899. Serial No. 725,298. (No model.)



Claim.—A locomotive for elevated railways comprising in combination the truck having downwardly and outwardly extending beams, the truck-wheels, the braces on the sides of the truck-frame, the operating-shaft mounted in said braces, the driving-wheel loosely mounted on said shaft and the clutch turning with the shaft and designed to engage said drive-wheel, the sprocket-wheel turning with the drive-wheel, the counter-shafts Q and T, the sprocket-wheel turning with the latter and chain connection with said sprocket-wheels, the eccentric movable longitudinally on the operating-shaft, the steam-chest, piston-stem and connections between same and a crank on the operating-shaft, the slide-valve to the steam-chest, the rod F^6 secured to the slide-valve, and the rod F^7 having at one end jointed connection with said rod F^7, and its other end connected to the eccentric, and means for shifting the latter, as set forth.

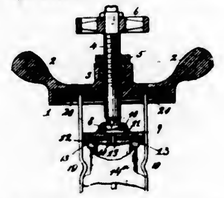
641,795. SHOE-POLISHING DEVICE. CHARLES H. POORE, Cedar Rapids, Iowa. Filed July 15, 1899. Serial No. 724,010. (No model.)



Claim.—1. In a polishing device, a cloth-holder comprising a curved, rectangular frame having a cross-bar near one end, adapted to take a fold in the polishing-cloth, and inwardly and backwardly turned tangs near the other end, substantially as described.

2. In a polishing device, a cloth-holder composed of intertwisted wires forming a curved, rectangular frame, with a cross-bar near one end, adapted to take a fold in the cloth, and inwardly and backwardly turned tangs near the other end, to which the opposite end of the cloth is secured, substantially as described.

641,796. CHEMICAL FIRE-EXTINGUISHER ATTACHMENT. WILLIAM F. PRIER, Kansas City, Kans. Filed Jan. 17, 1899. Serial No. 702,442. (No model.)



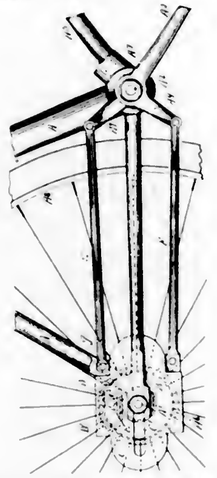
Claim.—1. In a chemical fire-extinguisher, a cylinder-cap, and a bottle-carrying cage pendent therefrom, the same comprising a base-plate and a plurality of rods connecting the base-plate and the cap, one of said rods being composed of two parts, one pivoted at its upper end to the cap and terminating in a hook at its lower end, and the other pivoted at its lower end to the plate and terminating at its upper end in a book hooked to the first-named hook, and a stopper adjustably carried by the cap, substantially as and for the purpose set forth.

2. A chemical fire-extinguisher, embodying a cap, a stem carried by said cap, and a bottle-cap swiveled on the lower end of said stem, and provided with a central perforation, a depending annular marginal flange, and an inwardly-projecting flange at the lower end of said depending flange, a perforated rubber disk 11, fitting in said bottle-cap, and a lead disk also fitting in said bottle-cap between said rubber disk and said inwardly-turned flange, said lead disk being thickest at its center and tapering to a thin outer edge, and provided also centrally with a perforation, and a lead rivet extending through the perforations of the bottle-cap, the lead disk and the interposed rubber disk and having each end riveted, substantially as described.

641,797. DRIVING MECHANISM. SAMUEL N. RAPP, Detroit, Mich., assignor to the Ives-Rapp Manufacturing Company, same place. Filed Jan. 16, 1899. Serial No. 702,223. (No model.)

Claim.—1. The combination of a pinion, mechanism to be turned by said pinion provided with a shaft or axle, a planet-gear to drive

the pinion meshing on its periphery with said pinion, a reciprocatory case provided with a longitudinal channel through which the shaft or axle projects, and with channels projecting upwardly and downwardly from said channel, and means to reciprocate said case, the planet-gear made vertically reciprocatory in said vertical channels of the case, whereby the outer periphery of the planet-gear will be carried around and about said pinion, substantially as set forth.



2. The combination of a pinion, mechanism to be turned by said pinion provided with a shaft or axle, a planet-gear meshing on its outer periphery with the pinion, and a reciprocatory case mounted astride the axle, and means to reciprocate said case, said planet-gear having a vertically-reciprocatory engagement with said case, whereby the outer periphery of the planet-gear will be carried around and about the pinion, substantially as set forth.

3. The combination of an axle and its hub, of a pinion mounted upon said hub, a channeled planet-gear to drive the pinion meshing on its periphery with said pinion, a crank-arm mounted upon the hub and working in the channel of the planet-gear, a channeled reciprocatory case astride the axle provided with vertical channels and arranged to carry the periphery of the planet-gear about the pinion, the planet-gear made vertically movable in said case, and said crank-arm housed within the hub and between the gear and pinion on the one side thereof and the hub on the other side thereof, substantially as set forth.

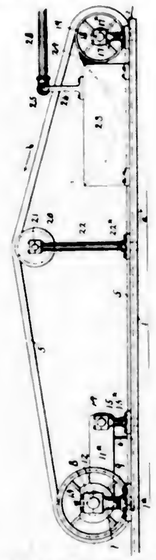
4. In combination, a pinion, mechanism to be turned by said pinion, a channeled planet-gear to drive the pinion having its periphery in mesh with said pinion, a crank-arm upon said mechanism working in the channel of the planet-gear, and a vertically-channeled case reciprocatory in one direction only to carry the planet-gear around about the periphery of the pinion, and means to reciprocate the case, said planet-gear having a vertical movement in the channels of the case on opposite sides of the pinion, substantially as set forth.

5. The combination of an axle and its hub, a gear toothed upon its periphery mounted upon said hub, a channeled planet-gear meshing on its periphery with the gear upon the hub, a crank arm mounted upon the hub and working in the channel of the planet-gear, a horizontally-channeled case astride the axle provided with upwardly and downwardly projecting channels and arranged to carry the periphery of the channeled gear about the gear upon the hub and around about the axle, the planet-gear made vertically reciprocatory in said upwardly and downwardly projecting channels, for the purpose set forth.

6. The combination with an axle and its hub, of a gear mounted upon said hub, a planet-gear toothed upon its periphery in mesh with the gear upon the hub, and a horizontally-channeled reciprocatory case astride the axle and arranged to carry the periphery of the planet-gear about the periphery of the gear upon the hub, and around about the axle, said planet-gear provided with a tongue having a vertically-reciprocatory engagement with the case, for the purpose described.

641,798. MECHANISM FOR MANUFACTURING DECKLE-EDGE PAPER. JAMES H. REYNOLDS, Mittineague, Mass. Filed May 20, 1899. Serial No. 717,588. (No model.)

Claim.—1. In a paper-making machine, of the character described, the combination with the wire-cloth and a suitable supporting-frame, of a shaft mounted across the frame, sleeves mounted on the shaft, pulleys loosely mounted on the sleeves, collars on the sleeves to retain the pulleys on their bearings, a drum remote from the pulleys, and deckle-straps connecting the pulleys and the drum.



2. In a paper-making machine of the character described, the combination with the wire-cloth and a suitable supporting-frame, of a shaft mounted across the frame, sleeves mounted on the shaft having slice-carriers projecting therefrom, pulleys on the sleeves, collars detachably secured to the sleeves to secure the pulleys thereon and having slice-carriers projecting therefrom, slices secured to the slice-carriers, and a shaft to support the free ends of the slice-carriers, a drum journaled in the frame, and deckle-straps about the pulleys and drum.

3. In a paper-making machine of the character described, the combination with the wire-cloth and a suitable supporting-frame, of a shaft mounted across the frame, sleeves mounted on the shaft each having a slice-carrier projecting from one end thereof, loose pulleys on the sleeves, a retaining-collar on each sleeve to hold the pulleys thereon and having a slice-carrier projecting therefrom, a slice carried by the slice-carriers, a drum journaled on the frame remote from said pulleys, a shaft mounted intermediate of the said pulleys and the drum, pulleys on the intermediate shaft, and deckle straps about the pulleys and the drum and over the pulleys on the intermediate shaft.

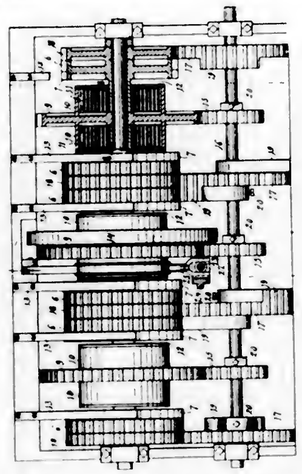
4. The combination in mechanism for manufacturing paper, of two shafts, a sleeve on one of the shafts, two slice-carriers on the sleeve, and a deckle-pulley mounted on said sleeve, the whole arranged to be laterally adjusted on the shafts, substantially as set forth.

5. The combination in mechanism for manufacturing paper, of two shafts, a sleeve on one of the shafts, a slice-carrier and a block on the sleeve, said carrier being mounted on both of said shafts and said block on one of the same, and a deckle-pulley mounted on said sleeve, the whole being arranged to be laterally adjusted on said shafts, substantially as set forth

6. In a paper-making machine, the combination with the deckle-straps and the drum on which they are arranged, of a water-tank disposed across the machine between the upper and lower stretches of the straps, a perforated water-pipe transversely across the machine above the upper stretch of the said straps, and a scraper secured to the water-tank and engaging with the perimeter of the drum, substantially as described and shown.

641,799. MOTOR. AUGUST C. RUTZEN and HERMANN RUTZEN, Milwaukee, Wis. Filed Oct. 18, 1899. Serial No. 733,950. (No model.)

Claim.—1. A motor comprising a main shaft, a plurality of hub-provided gears loose on the shaft, ratchet-wheels rigid to said hub-provided gears, slip-catches engaging said ratchet-wheels, other gears provided with barrels tight on the shaft, springs coiled in the barrels about the hubs and secured to the barrels and to the hubs, a counter-shaft provided with pinions meshing with the barrel-provided gears on the main shaft, and segmental racks on the counter-shaft arranged to mesh severally successively with the several hub-provided gears on the main shaft.

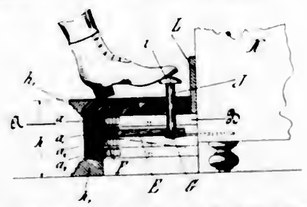


2. In a motor, the combination of a main shaft provided with a belt-pulley, a plurality of hub-provided gear-wheels loose on the shaft, ratchet-wheels rigid to said hub-provided gears, slip-catches engaging said ratchet-wheels, a corresponding number of barrel-provided gear-wheels tight on the shaft, springs coiled about the hubs and secured to the hubs and to the barrels, a counter-shaft provided with pinions meshing with the barrel-provided wheels, segmental racks on the counter-shaft meshing successively with their complementary hub-provided gears on the main shaft, guide gear-wheels fixed to the segmental racks on the counter-shaft, and traveler gear-wheels loose on the main shaft meshing with the guide-wheels on the counter-shaft.

3. In a motor, the combination of a main shaft, a hub-provided gear loose on the shaft, a ratchet-wheel rigid to said hub-provided gear, a slip-catch engaging said ratchet-wheel, another gear provided with a barrel tight on the shaft, a spring coiled in the barrel about the hub and secured to the barrel and to the hub, a counter-shaft provided with a pinion meshing with the barrel-provided wheel, a segmental rack on the counter-shaft meshing with a complementary hub-provided gear on the main shaft, a brake consisting of clampable arms pivoted on the frame and contacting with said barrel, and means for clamping the brake-arms to said barrel

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641,800. AUXILIARY PEDAL FOR MUSICAL INSTRUMENTS FURNISHED WITH PEDALS. ERNST SEILER, Pforzheim, Germany. Filed Mar. 14, 1899. Serial No. 709,009. (No model.)



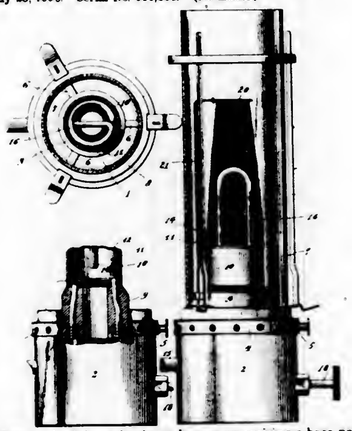
Claim.—The combination, in a footstool for musical instruments which can be provided with pedals, the back of the footstool being open and its height adjustable, of a cover, removable frames a, a', a^2, the levers E, E', hinged to one of the frames, the pins J, J', which project through the cover and engage the levers enabling the player to press the pedals either directly or by means of levers E, E', substantially as described.

641,801. FIREPROOFING COMPOUND AND METHOD OF MAKING SAME. CARL SCHROETER, Chicago, Ill., assignor, by direct and mesne assignments, to William G. King, same place. Filed Feb. 20, 1899. Serial No. 706,113. (No specimens.)

Claim.—1. The hereinbefore-described compound for fireproofing, comprising borax, sulphate of magnesia, gypsum and ammonium chloride, substantially as described.

2. The hereinbefore-described method of fireproofing, which consists in forming separate solutions of borax and sulphate of magnesia and successively applying said solutions to the article or substance to be treated, whereby said article or substance is impregnated with an insoluble borate of magnesia, substantially as described.

641,802. BURNER. WILLIAM SCOTT, Kansas City, Mo. Filed July 25, 1898. Serial No. 686,861. (No model.)



Claim.—1. A lamp having a burner comprising a base provided with a central vertical opening, a burner-tube supported by said base and having a perforated cap, an injector-nozzle arranged below the base in axial alinement with the burner-tube, a sleeve or shell depending from the base and provided, in connection with the space above the base, with air-inlet openings, a ring adjustably fitted on the sleeve or shell and having openings adapted to register with those of the latter, a conveyer-tube having the terminals thereof fitted in the said base on opposite sides of the central opening in the latter, a supply-tube attached to one terminal of the conveyer-tube, a casing connected to the injector-nozzle and also to the opposite terminal of the conveyer-tube, and a valve controlling an opening through the said casing and the injector-nozzle.

2. A burner having a base provided with a central vertical opening, a vertical tube supported by said base and having a perforated cap, an injector-nozzle arranged below the base in axial alinement with the burner-tube, a sleeve or shell depending from the base and provided, in communication with the space above the base, with air-inlet openings, and a ring adjustably fitted upon the sleeve or shell and provided with openings adapted to register with those of the sleeve or shell, said ring being fitted for rotary adjustment, substantially as specified.

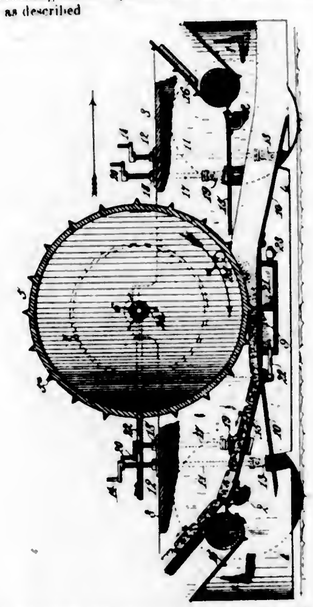
3. A lamp having a base provided with a central vertical opening and with a peripheral series of upstanding lugs, a burner-tube rising from the base and fitted with a perforated cap, an injector-nozzle located below the base in axial alinement with the burner-tube, a sleeve or shell secured to the periphery of the base and depending therefrom, and provided in the plane of said lugs of the base with air-inlet openings, and an adjustable ring fitted upon the sleeve or shell and provided with openings adapted to register with the air-inlet openings, substantially as specified.

641,803. SNOW-REMOVING APPARATUS. REUBEN SHIRREFFS, Richmond, Va. Filed May 13, 1899. Serial No. 716,717. (No model.)

Claim.—1. A snow-removing apparatus, comprising means for gathering snow and snow-compressing mechanism consisting of a stationary member and an opposed rotating member, substantially as described.

2. A snow-removing apparatus, comprising means for gathering snow and snow-compressing mechanism consisting of a stationary member and a rotating drum or cylinder, substantially as described.

3. A snow-removing apparatus, comprising means for gathering snow and snow-compressing mechanism consisting of a stationary member and a rotating drum or cylinder provided with snow-pushers, substantially as described



4. A snow-removing apparatus, comprising means for gathering snow and snow-compressing mechanism consisting of a stationary member and a rotary drum or cylinder provided with peripheral snow pushing and dividing ribs, substantially as described.

5. A snow-removing apparatus comprising means for gathering snow and heated snow-compressing mechanism, substantially as described.

6. A snow-removing apparatus comprising means for gathering snow, snow-compressing mechaniam and means for heating the latter, substantially as described.

7. A snow-compressing apparatus, comprising means for gathering snow and snow-compressing mechanism consisting of two hollow members provided with means for introducing heat thereinto, substantially as described

8. A snow-removing apparatus, comprising means for gathering snow, snow-compressing mechanism consisting of a hollow stationary member provided with means for introducing heat thereinto, and a rotary drum or cylinder arranged in operative relation thereto, substantially as described.

9. A snow-removing apparatus, comprising means for gathering snow, snow-compressing mechanism consisting of a stationary member and a hollow rotary member provided with means for introducing heat thereinto, substantially as described.

10. A snow-removing apparatus, comprising means for gathering snow, snow-compressing mechanism consisting of a hollow stationary member and a hollow rotary drum or cylinder, both thereof provided with means for introducing heat thereinto, substantially as described.

11. In a snow-removing apparatus, the combination of a rotary drum and an opposed stationary plate operatively arranged to compress the snow, and a snow-shovel leading to said stationary plate, substantially as described.

12. In a snow-removing apparatus, the combination of a rotary drum and a stationary plate operatively arranged to compress the snow, and an adjustable snow-shovel leading to said stationary plate, substantially as described.

13. In a snow-removing apparatus, the combination of a rotary drum and a stationary plate operatively arranged to compress the snow, and adjustable snow-shovels leading to said stationary plate, substantially as described.

14. In a snow-removing apparatus, the combination with snow-compressing mechanism, of means for delivering the snow from the machine, and adjustable snow-inclines, adapted to be adjusted to bridge the space between the compressing and delivering mechanisms, substantially as described.

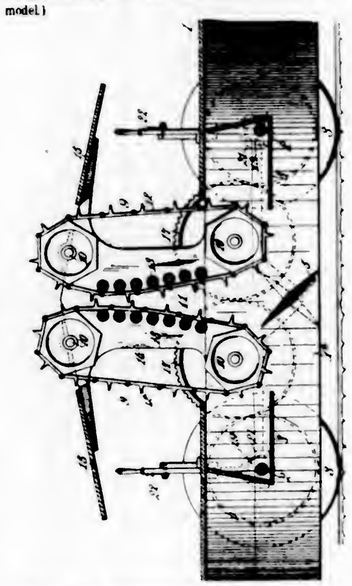
15. In a snow-removing apparatus, the combination with snow-compressing mechanism, of adjustable snow-inclines operatively arranged in relation thereto, and connected to be adjusted to serve as guides to direct the snow to the compressing mechanism and as inclines to deliver the compressed snow therefrom, substantially as described.

16. In a snow-removing apparatus, the combination with snow-compressing mechanism, of snow-inclines adjustably connected to the wheel-axles of the vehicle, substantially as described.

17. In a snow-removing apparatus, the combination with snow-compressing mechanism, of snow-shovels connected thereto, and adjustable snow-inclines, substantially as described.

18. In a snow-removing apparatus, the combination with snow-compressing mechanism consisting of a stationary plate and a rotary drum, of snow-shovels leading to said plate, and adjustable snow-inclines leading therefrom, substantially as described

641,804. APPARATUS FOR REMOVING SNOW. REUBEN SHIRKEYS, Richmond, Va. Filed Mar. 24, 1899. Serial No. 710,307. (No model.)



Claim.—1. An apparatus for removing snow, comprising snow-compressing chains provided with snow-lifters, substantially as described.

2. An apparatus for removing snow, comprising snow-compressing chains provided with devices to lift and cut the snow, substantially as described

3. An apparatus for removing snow, comprising snow-compressing mechanism, carrying unsymmetrically-arranged snow-lifters, substantially as described.

4. In an apparatus for removing snow, the combination with snow-compressing chains, of unsymmetrical snow-lifters carried thereby, substantially as described

5. In an apparatus for removing snow, the combination with many-sided shafts, of snow-compressing chains trained thereon and driven thereby, substantially as described.

6. In an apparatus for removing snow, the combination with sets of unsymmetrically-arranged many-sided shafts, of snow-compressing chains carrying snow-lifters trained on said shafts, substantially as described.

7. An apparatus for compressing snow, comprising unsymmetrically-arranged chain carrying and driving shafts, substantially as described.

8. An apparatus for removing snow, comprising a shaft having unsymmetrically-arranged sections, substantially as described.

9. An apparatus for removing snow, comprising snow-compressing mechanism consisting of opposing chains each composed of sections carrying snow-lifters in staggered relation substantially as described.

10. In an apparatus for removing snow, the combination with shafts composed of unsymmetrically-arranged sections, of opposing snow-compressing chains arranged thereon and composed of sections, carrying snow-lifters in staggered relation, substantially as described.

11. An apparatus for removing snow, comprising snow-compressing mechanism consisting of a plurality of members each composed of unsymmetrically-arranged sections, carrying snow-lifters in staggered relation, substantially as described.

12. In an apparatus for removing snow, the combination with snow-compressing chains provided with snow-lifters, of devices supporting the compressing-faces thereof, substantially as described.

13 In an apparatus for removing snow, the combination with snow-compressing chains provided with snow-lifters, of a converging series of devices supporting the compressing-faces thereof, substantially as described.

14. In an apparatus for removing snow, the combination with snow-compressing chains provided with snow-lifters, of a converging series of rollers supporting the compressing-faces thereof, substantially as described.

15. In an apparatus for removing snow, the combination with snow-compressing chains the opposing faces of which move in converging paths and are provided with snow-lifters, of supports for said faces, substantially as described.

16. An apparatus for removing snow, comprising opposing snow-compressing chains provided with snow-lifters moving in converging paths to gradually compress the snow, substantially as described.

17. In apparatus for removing snow, the combination with snow-compressing mechanism provided with snow-lifters, of a snow-shovel which takes the snow from the ground and delivers it to the compressing mechanism, substantially as described.

18. In apparatus for removing snow, the combination with snow-compressing mechanism of a reversible snow-shovel arranged to take the snow from the ground and deliver it to the compressing mechanism, irrespective of which end of the apparatus is forward in travel, substantially as described.

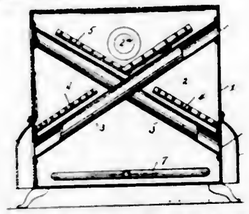
19. In apparatus for removing snow, the combination with snow-compressing chains, of a reversible snow-shovel arranged to take the snow from the ground and deliver it to the compressing mechanism, irrespective of which end of the apparatus is forward in motion, substantially as described.

20. An apparatus for removing snow, comprising snow-compressing mechanism consisting of opposing chains each composed of sections carrying snow-lifters, substantially as described.

21. In an apparatus for removing snow, the combination with shafts composed of unsymmetrically-arranged sections, of opposing snow-compressing chains arranged thereon and composed of sections, carrying snow-lifters, substantially as described.

22. An apparatus for removing snow, comprising snow-compressing mechanism consisting of a plurality of members each composed of unsymmetrically-arranged sections, carrying snow-lifters, substantially as described.

641,805. HEATER. AMOS C. STEERE, Columbus, Ohio, assignor of one-half to Jacob W. Thein, same place. Filed Sept. 23, 1899. Serial No. 731,430. (No model.)



Claim.—In a heater two series of air-heating tubes, the tubes of each series being arranged in the same plane, but the tubes of both series alternating with those of the other in intersecting planes, a deflector 5 arranged in the angle between the upper portions of the tubes so as to direct heat along said tubes toward the opposite sides of the heater, and deflectors or plates 4, arranged above and parallel to the lower portions of said tubes with an opening between the inner edges of said plates 4, substantially as described.

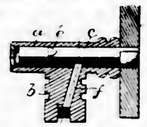
641,806. CLOSURE OR STOPPER FOR VESSELS. ALLEN STONE, Washington, D. C. Filed Oct. 25, 1899. Serial No. 734,767. (No model.)

Claim.—1. A stopper for vessels comprising a cup-shaped body portion provided with a tab projecting from an upright rim thereof, substantially as described.

2. A stopper for vessels comprising a cup-shaped body portion having an upright rim which is cut away and slitted at several points and provided with a tab projecting from the said rim substantially as described.



641,807. KEY. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Nov. 4, 1899. Serial No. 735,804. (No model.)



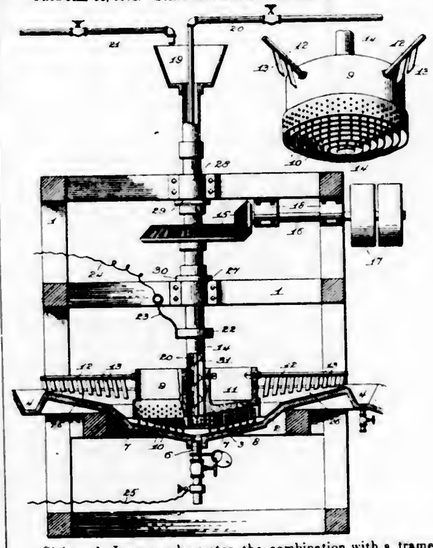
Claim.—1. A key consisting of a hollow shank having an angular opening in its neck, a stem angular in cross-section and passing through said neck and provided with means for preventing its complete withdrawal from the shank, and devices for securing the shank and stem together.

2. A key consisting of a hollow shank carrying a bit, a stem telescoping with the shank, and securing devices passing through the bit and engaging the shank for locking the parts against movement.

3. A key consisting of a hollow shank carrying a bit, a stem telescoping with the shank, a securing-pin passing through the bit and engaging the shank and a set-screw for locking the pin in place.

4. A key consisting of a hollow shank carrying a bit, a stem telescoping with the shank, a securing-pin passing inwardly and forwardly through the bit and engaging the stem and a set-screw secured within a threaded seat in the bit and locking the pin in place.

641,808. AMALGAMATOR. HUGH M. THOMPSON, St. Louis, Mo. Filed Jan. 10, 1898. Serial No. 666,242. (No model.)



Claim.—1. In an amalgamator, the combination with a framework, provided with bearings; an amalgamating-pan, having an inclined bottom provided with a central depressed portion forming an amalgamating-chamber; and annular series of upwardly-projecting agitators located in said chamber; of a hollow shaft journaled in the bearings of the framework and having its lower discharge end ex-

tended into the said chamber; an agitating-head carried by the shaft and adapted to revolve therewith in said chamber; a series of perforated flanges located on the under side of the said head and alternating with those of the chamber; and agitating-arms radiating at intervals from the said head and extending over the bottom of the amalgam-pan and having depending agitators.

2. In an amalgamator, the combination with a framework, provided with bearings; an amalgamating-pan having an inclined bottom provided with a central depressed portion forming an amalgamating-chamber; and annular series of upwardly-disposed agitating-fingers located in said chamber; of a hollow shaft journaled in the bearings of the framework and provided with a lower discharge end projecting into the said chamber; an agitating-head carried suspended by the shaft and adapted to revolve therewith, said head having its under side convexed to conform to the shape of said chamber; a series of annular concentric flanges perforated and depending from the said head and corresponding to the convexity thereof, and agitating-arms extending radially from the said head at intervals over the said pan and provided with depending agitating-fingers.

3. In an amalgamator, the combination with a framework; an amalgam-pan located therein, provided with a surrounding overflow-gutter having a draw-off, an inclined bottom, provided with a centrally-located depressed portion forming an amalgamating-chamber, having a central outlet; and an annular series of agitating-fingers extending upwardly from said amalgamating-chamber; of a hollow shaft journaled in bearings in the framework and terminating at its lower end in a discharge; a convexed agitating-head suspended and revolved by the said hollow shaft within the said amalgamating-chamber; a series of perforated annular concentric flanges depending from the under side of the head and conforming to the convexity thereof; and radiating agitating-arms radiating from the said head and provided with depending fingers.

4. In an amalgamator, the combination with a framework; and an amalgamating-pan located therein; of a hollow shaft journaled in bearings in the framework, said shaft having a lower closed end provided with lateral perforations or discharges; a head carried by the shaft immediately above its discharges; and a series of perforated rings depending from the said head.

5. In an amalgamator, the combination with a framework; and an amalgamating-chamber; of a hollow shaft journaled in bearings in the framework and provided near its bottom with lateral discharges; a head carried by said shaft and provided with a surrounding vertical flange; a series of perforated rings or flanges depending from the under side of the head; and agitating-arms provided with agitators extending radially from the vertical flange of said head over that portion of the pan not under said head.

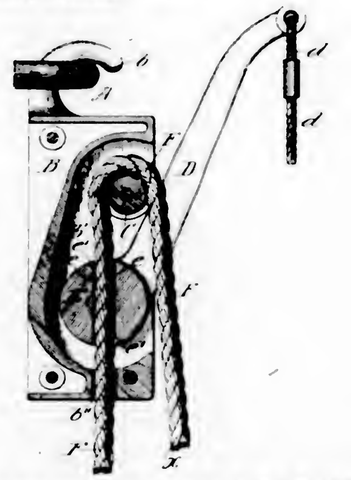
6. In an amalgamator, the combination with a frame; and an amalgamating pan or chamber; of a hollow shaft having lateral discharges near its lower end; a head carried by the shaft; perforated flanges depending from said head; and a steam-pipe extending in said shaft and terminating near its bottom or lower end, said pipe being provided with an external fin spirally disposed thereon; and means for rotating the shaft.

7. In an amalgamator, the combination with a framework; an amalgamating-pan provided with a central depression forming an amalgamating-chamber, and a lining seated in the said pan and chamber and within the latter having upwardly-disposed agitating-fingers arranged in annular series; of a hollow shaft journaled in bearings in the framework, and provided with a lower discharge end; a head carried by the shaft; radiating agitating-arms carrying agitators extending from the side of the head; and perforated annular flanges, also of copper, depending from the under side of the said head and alternating with the said fingers.

8. In an amalgamator, the combination with a frame; the amalgamating-pan having the surrounding overflow, inclined bottom, and central depression, forming an amalgamating-chamber; of the vertical shaft; the agitating-head 11, having the central flanged opening adjustably mounted on said shaft, said head having an outer vertical surrounding flange provided with sockets; agitating-arms located in and radiating from the sockets and provided with agitating-fingers; perforated annular rings or flanges 10 depending from the under side of the head and arranged in convexed form to correspond with the concavity of the amalgam-chamber; means for rotating the shaft; means for introducing ore between said head and the bottom of the chamber; and agitators extending upwardly from the bottom of the amalgamating-chamber between the said rings or flanges.

641,809. FIRE-ESCAPE. HENRY C. TILLOTSON, Lincoln County, Mo., assignor of one-half to Richard H. Norton, Omer H. Avery, and William R. Young, Troy, Mo. Filed July 5, 1899. Serial No. 722,789. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a casing formed with a recess opening at one side, and an opening in the bottom portion of said casing, of a pulley arranged in the upper portion of said recess, and a lever formed with a head portion pivotally mounted in the lower portion of said recess, said head portion of the lever being provided with an opening at an angle to its axis of rotation for receiving a rope which is designed to be placed in alinement with the opening in the bottom of the casing; substantially as described.



2. In an apparatus of the character described, the combination with a suitable casing formed with a recess opening at one side, a pulley mounted in the upper portion of said casing in said recess, and a lever formed with a hub pivotally mounted in the lower portion of said casing, said hub being provided with an opening arranged at an angle to its axis of rotation, diagonally opposite corners of the hub adjacent to said opening being round; substantially as described.

3. In an apparatus of the character described, the combination with a suitable casing, of a pulley mounted therein, a lever D, a controlling-rope *d*, a hub E on said lever formed with an opening arranged at an angle to its axis of rotation, and a rope F which passes over said pulley and through said opening in the hub portion of said lever; substantially as described.

4. In an apparatus of the character described, the combination with a casing, means for supporting the same, pulley C, lever D, a controlling-rope attached to said lever, a hub portion rotatable with said lever and provided with an opening arranged at an angle to its axis of rotation, a rope F passing over said pulley and through the opening in said hub portion, said casing being formed with an eccentric portion in juxtaposition to the hub for the purpose of locking the rope in position when the lever and hub are rotated; substantially as described

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641,810. DEVICE FOR CONTROLLING HORSES. WILLIAM TREVERTON, Carlisle, Pa. Filed Nov 5, 1898. Serial No. 695,596. (No model.)



Claim.—1. In a strangling device, the combination with a stationary member comprising a brow-band, of a T-shaped plate at each end of the brow-band, said plate being formed integral and comprising similar elements bent to lie parallel and having a connecting-web, said band being connected between the elements of the plate at the end of the stem, an adjustable neck-strap connected with one end of the head of each plate between the elements thereof, a roller rotatably mounted near the opposite end of the head of each plate between the elements and adjacent their connecting-web, a throat-latch having a roller at each end, and a flexible runner connected with the roller end of each of said plates and passed over the adjacent roller of the throat-latch and then over its respective roller of its respective plate.

2. In a strangling device, the combination with a stationary member comprising a brow-band, of a T-shaped plate at each end of the brow-band, said plate being formed integral and comprising similar elements bent to lie parallel and having a connecting-web, said band being connected between the elements of the plate at the end of the stem, an adjustable neck-strap connected with one end of the head of each plate between the elements thereof, a roller rotatably mounted near the opposite end of the head of each plate between the elements and adjacent their connecting-web, a throat-latch having a roller at each end, a flexible runner connected with the roller end of each of said plates and passed over the adjacent roller of the throat-latch and then over its respective roller of its respective plate, and a housing extending continuously from the farther side of one plate-stem to the farther side of the other plate-stem and including the throat-latch, the rollers, the connection between the rollers and the intervening portions of the plate.

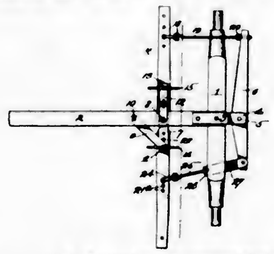
641,811. POLISHING-PASTE. ALBERT P. TROHLFER, St. Louis, Mo. Filed Oct. 9, 1899. Serial No. 733,016. (No specimens.)

Claim.—1. The herein-described polishing paste for vulcanized rubber plates, consisting essentially of wax and a vegetable gum or gums partially saponified; substantially as described.

2. The herein-described polishing-paste, resulting from the mixing of wax, resin, caustic potash and camphor; substantially as described.

3. The herein-described polishing-paste, resulting from the mixing of wax, resin, caustic potash, camphor, and a suitable coloring-matter; substantially as described.

641,812. DRAFT-EQUALIZER. HUGH VALIANT, Kelly, Kans. Filed June 23, 1899. Serial No 721,610. (No model.)



Claim.—1. In a draft-equalizer, a transverse plate secured rigidly to the tongue of the machine, clips secured to said plate, a pair of levers 16 and 21 extending through said clips and secured to said plate, and projecting laterally from opposite sides of the tongue, one being pivoted to the plate about centrally thereof, and the other between such point and the end of the plate, a lever supported rearward of said plate, and links pivotally connecting said lever with the first-named levers, substantially as described.

2. In a draft-equalizer, a transverse plate secured to the tongue of the machine, an oblique brace-plate connecting one end of the transverse plate with the tongue, a pair of clips secured to the ends of said transverse plate, a pair of levers extending through said clips, one of the levers being pivoted to the transverse plate to one side of the tongue and the other lever to said plate vertically below the tongue, a bracket secured to and depending from the rear end of the tongue, a lever pivoted thereto, and links connecting said lever with the first-named lever, substantially as described.

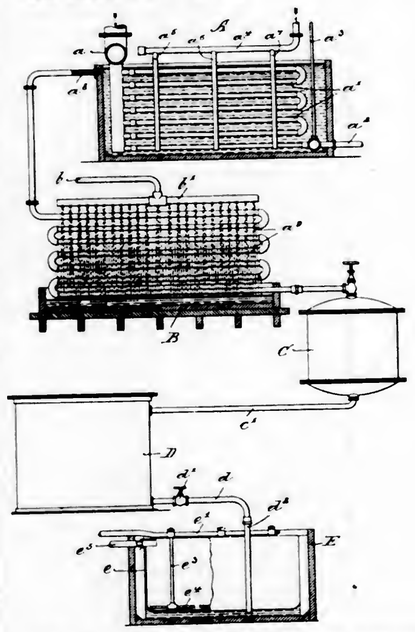
641,818. JOURNAL-BOX LID. HENRY H. VAUGHAN, Chicago, Ill., assignor to Charles F. Quincy, same place. Filed Nov. 23, 1899. Serial No. 738,534. (No model.)

Claim.—1. The combination with a journal-box lid having a transverse spring-slot and a foot-stop exterior of the lid and in line with the spring-slot, of a detachable lid-spring having shoulders which engage the walls of the spring-slot; substantially as and for the purpose specified.



2. The combination with a journal-box lid having a transverse spring-slot and on its exterior a foot-stop in line with the spring-slot and lateral spring-stops at right angles to the foot-stop, of a detachable lid-spring having lateral shoulders to engage the end walls of the spring-slot; substantially as and for the purposes specified.

641,814. APPARATUS FOR MANUFACTURING ICE. JACOB F. WAGNER and ARTHUR PRESTON, Philadelphia, Pa., assignors to the Ice Manufacturing Company of Germantown, same place. Filed Oct. 11, 1899. Serial No. 733,266. (No model.)

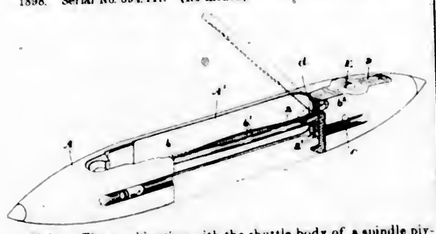


Claim.—1. An apparatus for manufacturing ice, comprising a tank, means adapted to distribute the water in a certain portion of said tank, means for conducting a heating media through the water in said tank in a direction opposite to the distribution and movement in volume of the water in said tank, means for permitting of the discharge of the water in its hottest condition in volume in said tank from the same, said tank connected with a cooling coiled tank by means of a pipe connection from said coils in said tank and having a perforated water-discharge over said coils, a filtering appliance connected with said cooling coil-tank and through a reservoir with an ice-forming tank having a cell on each side for containing brine or ammonia and an exit from said cell, substantially as and for the purposes described.

2. An apparatus for manufacturing ice, comprising an open tank having a water-outlet at its upper end, a series of steam-coils having an inlet arranged near the water-outlet of said tank, a steam-outlet near the base thereof, a water-inlet pipe having branches traversing the tank and terminating at the bottom thereof, said tank connected with a cooling-tank by pipe connections formed into coils in said tank and having a water-discharge, a filtering appliance connected with said cooling-tank and with ice-forming tanks having cells for containing brine or ammonia for congealing the treated fluid within said

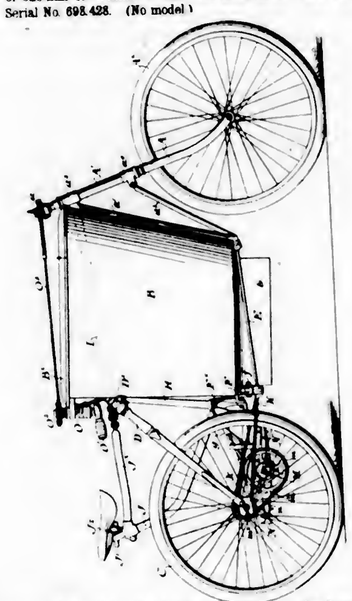
tanks and an exit from said cells, substantially as and for the purposes described.

641,815. LOOM-SHUTTLE. WILLIAM H. WALTON, Brantford, Canada, assignor of one-fourth to John Cook, same place. Filed Oct. 24, 1898. Serial No. 694,441. (No model.)



Claim.—The combination with the shuttle body of a spindle pivoted therein having spring sides and bases, a spring secured to the body for holding the spindle down and a projection depending from said spring adapted to enter between the bases to hold the same separated when the spindle is in normal position with the cop thereon, substantially as described.

641,816. TRICYCLE. HENRY F. WATSON, Philadelphia, Pa., assignor of one-half to William J. Chaninel, same place. Filed Dec. 6, 1898. Serial No. 698,428. (No model.)



Claim.—1. In a wheeled vehicle, in combination, the front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members and pivotally connected to the rear extremities of each, a rear upright connected with said yoke, devices connective of the upper end of said upright and the front fork, a pair of yielding horizontally extending forks, and a pair of yielding vertically disposed forks, substantially as set forth.

2. In a wheeled vehicle, in combination, the front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members and pivotally connected to the rear extremities of each, brackets rigidly connected with said yoke, an upright rigidly connected with said yoke, devices connective of the upper end of said upright and the front fork, a pair of horizontally extending forks, a pair of vertically disposed forks, and a containing body disposed between said front hanger and said rear upright and permanently secured thereto, substantially as set forth.

3. In a wheeled vehicle, in combination, the front fork, the front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members and pivotally connected to the rear extremities of each, an upright connected with said yoke, devices connective of the upper end of said upright and the front fork, a pair of horizontally extending forks pivotally connected with the frame members, and a pair of vertically disposed forks connected to the main frame through a spring, substantially as set forth.

4. In a wheeled vehicle, in combination, the front fork, a front hanger connected therewith, a pair of horizontal frame members pivotally connected as to their front ends to said hanger, a yoke extending transversely with respect to said members and pivotally connected to the rear extremities of each, a rear upright connected with said yoke, devices connective of the upper end of said upright and the front fork, a pair of horizontally extending forks pivotally connected with the frame members, a pair of vertically disposed forks, a band spring the respective extremities of which are connected with said vertically disposed forks, and the intermediate portion of which is connected with said rear upright, substantially as set forth.

5. In a wheeled vehicle, in combination, the front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members, brackets rigidly connected with said yoke, a rear upright rigidly connected with said yoke, devices connective of the upper end of said upright and the front fork, a pair of horizontally extending forks pivotally connected with the frame members, a pair of vertically disposed forks connected by a spring to the main frame, pedal axles carrying sprocket wheels mounted on the brackets, sprocket wheels connected with driving wheels mounted in said horizontally extending forks, and chains connecting said sprocket wheels on the pedal axles with those connected with said driving wheels, substantially as set forth.

6. In a wheeled vehicle, in combination, a front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members, a rear upright connected with said yoke, a pair of horizontally extending forks, a pair of vertically disposed forks, a steering wheel, a pair of driving wheels, a containing body mounted between the front hanger and the upright connected with the yoke, a hinged lid connected with the top of said body, a sleeve mounted on said hinged lid, a shaft mounted in said sleeve, a handle bar connected to said shaft, and devices connective of said shaft and the front fork, substantially as set forth.

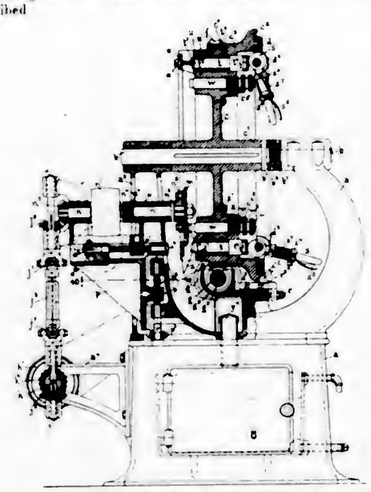
7. In a wheeled vehicle, in combination, a front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members, a rear upright connected with said yoke, a pair of horizontally extending forks, a pair of vertically disposed forks, a steering wheel, a pair of driving wheels, a containing body mounted between the front hanger and the upright connected with the yoke, a hinged lid connected with the top of said body, a sleeve mounted on said hinged lid, a shaft mounted in said sleeve, a handle bar connected to said shaft, a wheel mounted on the upper end of said shaft, a wheel mounted upon the upper end of the steering fork, and a band or chain connective of said wheels, substantially as set forth.

8. In a wheeled vehicle, in combination, a front fork, a front supporting hanger connected therewith, a pair of horizontal frame members connected as to their front ends to said hanger, a yoke extending transversely with respect to said frame members, a rear upright connected with said yoke, a pair of horizontally extending forks, a pair of vertically disposed forks, a steering wheel, a pair of driving wheels, a containing body mounted between the front hanger and the upright connected with the yoke, a hinged lid connected with the top of said body, a sleeve mounted on said hinged lid, a shaft mounted in said sleeve, a handle bar connected to said shaft, and devices connective of said shaft and the front fork, and means for locking said sleeve to the rear upright, substantially as set forth.

9. In a wheeled vehicle, in combination, the front fork, a pair of horizontal frame members connected to said front fork, a yoke extending transversely with respect to said frame members and hingedly connected to the rear extremities of each, a rear upright connected with said yoke, a pair of yielding horizontally extending forks, and a pair of yielding vertically extending forks, substantially as set forth.

641,817. MILLING-MACHINE. GEORG WEISS, Chicago, Ill. Filed Feb. 19, 1898. Serial No. 670,930. (No model.)

Claim.—1. In a milling-machine the combination with a vertical rotatable portion, of a series of clamps on the side and within the periphery thereof and adapted to hold the object to be milled upon one side of said rotatable portion, means for rotating said rotatable portion and a single adjustable milling-tool shaft adapted to present the milling-tool at the side of the rotatable portion, substantially as described.



2. In combination with a milling-tool and means for operating same, of a vertical rotatable portion in proximity thereto, a series of clamps adapted to hold the object to be milled on the side of the rotatable portion and within the periphery thereof whereby the objects are successively presented to the milling-tool as the said rotatable portion is rotated, substantially as described.

3. The combination with a milling-tool shaft of a vertical laterally-adjustable rotatable portion, of a series of clamps provided within the periphery and on one side of said rotatable portion and handles on the opposite side of said rotatable portion and adapted to operate said clamps, substantially as described.

4. In a milling-machine the combination with a horizontal shaft and bearings therefor, of a rotatable portion on said shaft carrying a series of clamps between said bearings, a milling-tool at one side of said rotatable portion, an adjustable brace at the other side thereof and means for laterally adjusting said rotatable portion whereby any wear between said bearings and said rotatable portion can be taken up, substantially as described.

5. In a milling-machine the combination with an adjustable milling-tool shaft of a rotatable portion, a series of clamps on the side of said rotatable portion and within the periphery thereof and an adjustable brace adapted to prevent lateral deflection of said rotatable portion, substantially as described.

6. In a milling-machine, the combination with a rotatable wheel of two rings attached thereto whereby one of said rings is adapted to form a side of the form or clamp for holding the object to be milled and the other of said rings is adapted to hold and to form a part of the mechanism for operating the clamp and a clamping device for engaging and holding in position the object to be milled, substantially as described.

7. In a milling-machine, the combination with a rotatable wheel having an adjusting-pin and a clamping-plunger therein, of a ring thereon adpated to form one side of the clamping-form opposite the clamping-plunger, substantially as described.

8. In a milling-machine, the combination with a rotatable wheel of two rings attached thereto, a clamping device and a handle journaled in one of said rings for controlling said clamping device, substantially as described.

9. In a milling-machine, the combination with a rotatable portion having a plunger therein, of two rings attached thereto, a handle journaled in one of said rings and having a cam thereon adapted to advance said plunger to clamp the object to be milled and an adjusting-pin carried in said rotatable portion, for adjusting the object to be milled, substantially as described.

10. In a milling-machine the combination with a rotatable portion having forms or clamps thereon, of an adjustable screw for each clamp within and extending through said rotatable part to engage the object to be milled whereby by the advancement or retraction of said adjustable screw the object to be milled may be separately adjusted for the milling-tool, substantially as described.

11. The combination with a milling-machine having an adjustable milling-tool shaft, of a rotatable portion having a plunger or locking-rod therein, two rings attached to said rotating portion, a handle journaled in one of said rings and adapted to advance the said plunger, and an adjusting pin or portion carried in said rotatable portion, substantially as described.

12. In a milling-machine, the combination with a milling-tool shaft *n* and the movable bearings *o*, of the vertically-adjustable member *p*, the wheel *c* carrying the adjusting-pin *w*, the plunger *t*, the handle *s*, the adjustable brace *r*, and the locking-nuts b^3 b^3 substantially as described.

641,818. PROCESS OF EXTRACTING GOLD FROM ORES. CARELL WHITEHEAD, Washington, D. C. Filed July 24, 1899. Serial No. 724,964. (No specimens.)

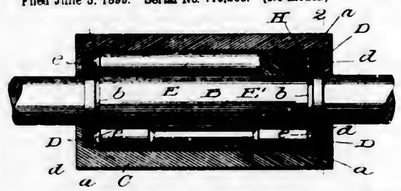
Claim.—1. The process of extracting gold from ores in which it occurs enveloped in an oxidized compound of a base metal which is practically impervious to a solvent solution, such as one of cyanid, and not readily removable by washing with water, consisting in first subjecting the crushed ore to heat sufficient to convert the coating into a porous condition and afterward treating the ore with a cyanid solution.

2. The process of extracting gold from orea in which it occurs enveloped in an oxidized compound of a base metal which is practically impervious to a solvent solution, such as one of cyanid, not readily removable by washing with water, and insoluble in water but soluble in dilute acids, consisting in subjecting the crushed ore to heat sufficient to convert the coating into a porous condition and afterward treating the ore with a cyanid solution.

3. The process of extracting gold from orea in which the particles of free gold are enveloped in a compound of a base metal having the following characteristics, to wit: non-silicious, oxidized, practically impervious to a solvent solution, such as one of cyanid, not readily removable by washing with water, and insoluble in water but soluble in dilute acids, consisting in first subjecting the crushed ore to the action of heat sufficient to convert the coating into a porous condition and afterward treating the ore with a cyanid solution.

4. The process of extracting gold from orea in which it occurs enveloped in a hydrated oxid of a base metal which is practically impervious to a solvent solution, such as one of cyanid, and not readily removable by washing with water, consisting in subjecting the crushed ore to heat sufficient to convert the coating into a porous condition and afterward treating the ore with a cyanid solution.

641,819. ROLLER-BEARING. BURR F. BARNES, Jersey City, N. J. Filed June 3, 1899. Serial No. 719,208. (No model.)

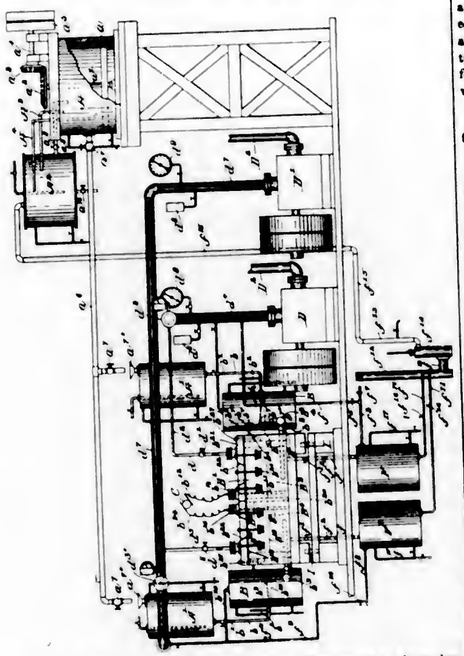


Claim.—A roller-bearing for spindles comprising in combination with the spindle having shoulders with their inner edges beveled, hub-sections one having a recessed edge in which a projecting portion of the other engages, the rings D held within said hub-sections, and about the circumferences of said shoulders, a series of conical bearing-lugs *d* on said rings and the rollers having recessed ends in which said conical lugs engage, ball-bearings between the latter and the walls of the recesses in the rollers, the ends of the latter having beveled, and bearing against beveled edges of the hub and shoulders on the spindles, as set forth.

641,820. ELECTROLYZING APPARATUS. WILFRED BARNES, Lynn, Mass. Filed Jan. 17, 1898. Serial No. 666,845. (No model.)

Claim.—1. In electrolyzing apparatus, the combination of an electrolyzing-cell containing a diaphragm which forms two compartments within the cell; a cover for the cell; means for hermetically sealing the cover on the cell; an anode in one compartment; a cathode in the other compartment; an electrical generator electrically connected with the anode and cathode; a vacuum-creating device; a vacuum-conduit which serves as a gas-escape and is operatively connected with the vacuum-creating device and with the anode-compartment; and a vacuum-conduit which serves as a gas-escape and

is operatively connected with the vacuum-creating device and with the cathode-compartment; a hermetically-sealed feed-regulator constructed and arranged to be actuated by the level of the liquid in the cell; and conduit connections from the regulator to the cell.



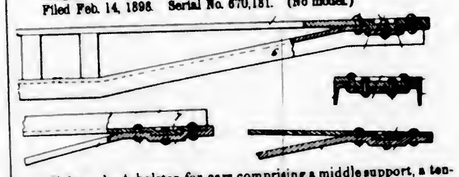
2. In electrolyzing apparatus, the combination of an electrolyzing-cell containing a diaphragm which forms two compartments within the cell; a cover for the cell; means for hermetically sealing the cover on the cell; an anode in one compartment; a cathode in the other compartment; an electrical generator electrically connected with the anode and cathode; a vacuum-creating device; a vacuum-conduit which serves as a gas-escape and is operatively connected with the vacuum-creating device and with the anode-compartment; and a vacuum-conduit which serves as a gas-escape and is operatively connected with the vacuum-creating device and with the cathode-compartment; a hermetically-sealed feed-regulator constructed and arranged to be actuated by the level of the liquid in the cell; and conduit connections from the regulator to the cell; a main feed or supply reservoir; and an intermediate feed-reservoir; and a conduit connection between the intermediate feed-reservoir and the regulator; the intermediate feed-reservoir having an inlet; and the main feed-reservoir having an outlet which discharges into said inlet without contact therewith.

3. In electrolyzing apparatus, the combination of a hermetically-closed, compartmental cell; a diaphragm therein; an electrode in each compartment; an electrical generator electrically connected with the electrodes; a feed-reservoir piped to the cell a hermetically-sealed feed-regulator piped to the cell; a vacuum-creating device for and operatively connected with at least one compartment and comprising a conduit which is both a vacuum-conduit and a gas-escape conduit; a vacuum-chamber on a lower level than the cell and connected with at least one compartment of the cell, said chamber having an outlet and means for opening and controlling the same.

4. In electrolyzing apparatus, the combination of a hermetically-closed, compartmental cell; a diaphragm therein; an electrode in each compartment; an electrical generator electrically connected with the electrodes; a feed-reservoir piped to the cell; a hermetically-sealed feed-regulator piped to the cell; a vacuum-creating device for and operatively connected with at least one compartment and comprising a conduit which is both a vacuum-conduit and a gas-escape conduit; a vacuum-chamber on a lower level than the cell and connected with at least one compartment of the cell, and with the feed-reservoir; and, intermediate said vacuum-chamber and the feed-reservoir, a testing device.

5. In electrolyzing apparatus, the combination of a hermetically-closed, compartmental cell; a diaphragm therein; an electrode in each compartment; an electrical generator electrically connected with the electrodes; a feed-reservoir piped to the cell; a hermetically-sealed feed-regulator piped to the cell; a vacuum-creating device for and operatively connected with at least one compartment and comprising a conduit which is both a vacuum-conduit and a gas-escape conduit; a vacuum-chamber on a lower level than the cell and connected with at least one compartment of the cell, and with the feed-reservoir; and, intermediate said vacuum-chamber and the feed-reservoir, a testing device; and a conduit from the testing device to a feed-regulator.

641,821. BOLSTER FOR CARS. CARL E. BAUER, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Feb. 14, 1898. Serial No. 670,181. (No model.)

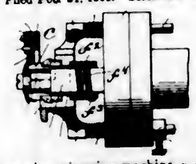


Claim.—1. A bolster for cars comprising a middle support, a tension member and a compression member, one of said members at or near its end having a depression formed therein intermediate its edges and the other of said members formed with a corresponding projection thereon engaging said depression, substantially as described.

2. A bolster for cars comprising a middle support, a tension member and a compression member, one of said members at or near its end having a depression formed therein intermediate its edges the sides of said depression transverse to the bolster being in an abrupt or rectangular plane relative to the longitudinal plane of its member and the other of said members constructed with a corresponding projection thereon engaging said depression, substantially as described.

3. A bolster for cars comprising a middle support, a tension member and a compression member, one of said members at or near its end having a depression formed therein intermediate its edges and the other of said members constructed with a corresponding projection thereon engaging said depression, the lower surface of said projection adapted to contact with the upper surface of said depression so that the two may securely interlock, and means for securely holding the ends of said members in contiguous relation to each other.

641,822. EDGE-TRIMMING MACHINE. CHARLES G. BELMER, Chelsea, Mass. Filed Feb. 21, 1899. Serial No. 706,340. (No model.)



Claim.—1. In an edge-trimming machine, a rotary cutter, a stationary support, a segmental bottom rest partially surrounding the cutter and having a rod or leg guided in the said stationary support, a spring interposed between said support and the bottom rest and surrounding the said rod or leg, a collar working on said rod or leg behind the said support to limit the forward movement of the bottom rest and a set-screw working in said collar and designed to engage said rod or leg.

2. In an edge-trimming machine, a rotary cutter, a stationary support, and an edge-rest holder pivotally mounted on the stationary support at one side of the cutter, and an edge-rest adjustably mounted on said holder and arranged to swing toward and from the cutter in the plane thereof.

3. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, means for adjusting said holder, and an edge-rest mounted in said segmental guide and adjustable on the holder concentrically with the cutter.

4. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, means for adjusting said holder, an edge-rest mounted on the guide of said holder and movable concentrically with the cutter, and a spring adapted to hold the edge-rest yieldingly against the work.

5. In an edge-trimming machine, a rotary cutter, an edge-rest holder having a segmental guide, an edge-rest mounted in the guide of said holder and movable concentrically with the cutter, and a set-screw for fixing the edge-rest at different adjustments on the holder.

6. In an edge-trimming machine, a supporting-frame, a rotary cutter mounted therein, an edge-rest holder carried by said frame and having a segmental groove therein, and an edge-rest carried by said holder and having a rib fitting within said segmental groove, substantially as set forth.

7. In an edge-trimming machine, a supporting-frame, a rotary cutter mounted therein, an edge-rest holder pivotally mounted on said frame, said holder having a slot formed therein concentric with its pivot, a threaded bolt working in said slot, a nut working on said bolt and designed to engage said holder, and an edge-rest carried by said holder, substantially as set forth.

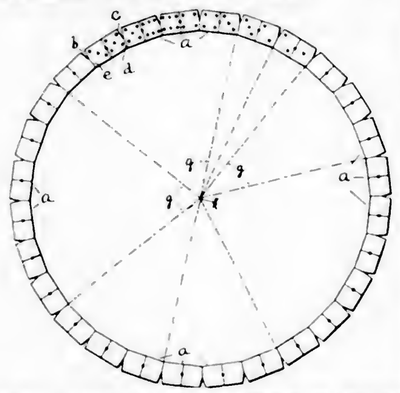
8. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent thereto, an edge-rest, and an overlapping plate designed to retain said edge-rest in position on said holder, as set forth.

9. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent thereto, an edge-rest, an overlapping plate secured to said holder and designed to retain said edge-rest in position, and a spring carried by said plate and engaging studs on the latter and said holder, substantially as set forth.

10. In an edge-trimming machine, a rotary cutter, an edge-rest holder mounted adjacent thereto, an edge-rest, a plate secured to said holder and designed to retain said edge-rest in position, said plate having a slot therein, and a pin carried by said edge-rest and working in the slot of said plate, substantially as set forth.

11. In an edge-trimming machine, a rotary shaft, a cutter mounted thereon, a longitudinally-slotted sleeve mounted on said shaft and having forwardly-extended buffer-blades projecting between the blades of the cutter, said sleeve having channeled portions adjacent the slots thereof, a collar surrounding said shaft and also provided with channeled portions, means for adjustably fixing said collar to said shaft, connecting-bars secured to said collar and fitting within said channeled portions, said bars having hooks at their forward ends occupying the slots of said sleeve and normally abutting the rear ends thereof, and a spring located within said buffer-sleeve and interposed between the same and said collar, said spring surrounding the shaft outside of said connecting-bars, substantially as set forth.

641,823. DOMINO. EMANUEL W. BLOOMINGDALE and ALAN D. KENYON, New York, N. Y.; said Kenyon assignor to said Bloomingdale. Filed Mar. 1, 1899. Serial No. 707,283. (No model.)



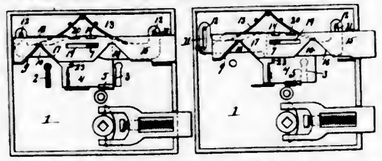
Claim.—1. A set of dominoes, each domino having a middle division-line and a representation upon each side of said division-line, each representation corresponding to similar representations upon some others of the dominoes of the set and each domino having two matching faces at each end arranged at such an angle to each other that each domino can be played at either end of the domino or the line of dominoes theretofore played, and the lines of junction, formed by the contacting matching faces of adjacent dominoes, being such as, if continued inward, to form radial lines meeting in a common center, the angle made by two matching faces meeting each other being sufficiently great to permit all or a large number of the dominoes to be played before the circle formed by the line of played dominoes, is completed, whereby the dominoes of the set can be played in a line and the line of dominoes, when played, will form a circle or the arc of a circle.

2. A set of polygonal dominoes, each domino having a middle division-line and a representation upon each side of said division-line, each representation corresponding to similar representations upon some others of the dominoes of the set and each domino having its upper and lower sides straight and parallel to each other and parallel to a plane passing at right angles to the surface of the domino through the longitudinal median line of the same, and having two matching faces at each end arranged at such an angle to each other that each domino can be played at either end of the domino or the line of dominoes theretofore played, and the lines of junction, formed by the contacting matching faces of adjacent dominoes, being such as, if continued inward, to form radial lines meeting in a common center, the angle made by two matching faces meeting each other being sufficiently great to permit all or a large number of the dominoes to be played before the circle formed by the line of played dominoes, is completed, whereby the dominoes of the set can be played in a line and the line of dominoes, when played, will form a circle or the arc of a circle.

3. A set of polygonal dominoes, each domino having a middle division-line and a representation upon each side of said division-line, each representation corresponding to similar representations upon some others of the dominoes of the set and each domino having its upper and lower sides straight and parallel to each other and parallel to a plane passing at right angles to the surface of the domino through the longitudinal median line of the same, said domino being symmetrically divided by said longitudinal median plane, and each domino having two matching faces at each end arranged at such an angle to each other that each domino can be played at either end of the domino or line of dominoes theretofore played, and the lines of junction, formed by the contacting matching faces of adjacent dominoes being such as, if continued inward, to form radial lines meeting in a common center, the angle made by two matching faces meeting each other being sufficiently great to permit all or a large number of the dominoes to be played before the circle formed by the line of played dominoes, is completed, whereby the dominoes of the set can be played in a line and the line of dominoes, when played, will form a circle or the arc of a circle.

4. A set of polygonal dominoes, each domino having a middle division-line and a representation upon each side of said division-line, each representation corresponding to similar representations upon some others of the dominoes of the set and each domino having its upper and lower sides straight and parallel to each other and parallel to a plane passing at right angles to the surface of the domino through the longitudinal median line of the same, said domino being symmetrically divided by said longitudinal median plane, the median line of the domino being longer than the upper and lower sides thereof, each domino having two matching faces at each end, arranged at such an angle to each other that each domino can be played at either end of the domino or line of dominoes theretofore played, and the lines of junction, formed by the contacting matching faces of adjacent dominoes, being such as, if continued inward, to form radial lines meeting in a common center, the angle made by two matching faces meeting each other being sufficiently great to permit all or a large number of the dominoes to be played before the circle formed by the line of played dominoes, is completed, whereby the dominoes of the set can be played in a line and the line of dominoes, when played, will form a circle or the arc of a circle.

641,824. LOCK. WILLIS J. BOON, Perry, Ga. Filed Oct. 20, 1899. Serial No. 734,173. (No model.)



Claim.—1. In a lock, the combination of the lock-bolt, a spring-actuated bar having engagement with said bolt, the guard-plate adapted to slide over the outer keyhole and having a raised portion thereof lying between said spring-actuated bar and said lock-bolt, said plate being adapted to be engaged by the key together with said bar and lock-bolt and moved simultaneously therewith.

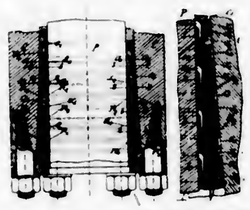
2. In a lock, the combination of a movable plate adapted to cover the outer keyhole, a spring-actuated bar adapted to have vertical movement at both ends, the lock-bolt lying adjacent to said spring-actuated bar having notches in the edge thereof, a lug on said bar adapted to lie in said notches, said movable plate having a raised projecting wing which extends parallel with and lies adjacent to the key-engaged end of the lock-bolt and between said bolt and said spring-actuated bar whereby said plate is caused to slide when said bolt is actuated by the operation of the key.

3. In a lock, the combination of the spring-actuated bar each end

of which is adapted to move vertically against the action of said spring, a movable plate the body of which lies under said bar and is adapted to close the keyhole-opening, said plate having a raised projecting wing which extends onto the upper surface of said bar and is notched to receive the key, and a bolt lying upon the upper surface of said wing and notched to register therewith, said bolt being adapted to be engaged by a lug projecting from said spring-actuated bar.

4. In a lock, the combination of a spring-actuated bar, a movable plate adapted to close the keyhole-opening having opposed shoulders adapted to be engaged by a projection on the lower edge of said bar, a lock-bolt lying adjacent to and registering with the wing of said plate, said wing and lock-bolt standing in the plane of said spring-actuated bar whereby all of said parts may be engaged and operated by the key, substantially as set forth.

641,825. PISTON-ROD PACKING. EUGÈNE F. BOULET, Montluçon, France. Filed Dec. 31, 1897. Serial No. 664,835. (No model.)



Claim.—1. A compound piston-rod packing, composed of a plurality of packing-rings and stay-rings for supporting the same, said stay-rings and packing-rings being provided with intervening spaces or chambers communicating with each other and filled with a fluid, the pressure of which decreases gradually from one space or chamber to the other from the high-pressure to the low-pressure end of the packing, so that said packing-rings are pressed against the surface of the piston-rod with pressures decreasing in the same direction, substantially as set forth.

2. A compound piston-rod packing, consisting of a plurality of packing-rings, stay-rings for supporting the same, annular spaces or chambers intervening between the packing-rings and stay-rings, and channels communicating with said annular spaces or chambers so as to conduct a fluid under pressure from one chamber to the other, substantially as set forth.

3. A compound piston-rod packing, consisting of a plurality of packing-rings, stay-rings for supporting said packing-rings, annular spaces or chambers intervening between said packing-rings and stay-rings and between the stay-rings and the surface to be tightened, and channels in said stay-rings communicating with each other and with said annular spaces or chambers, substantially as set forth.

4. A compound piston-rod packing, consisting of a plurality of packing-rings, stay-rings for supporting the same, annular spaces or chambers intervening between the packing-rings and stay-rings, main channels in said stay-rings communicating with each other, and lateral channels connecting the main channels with said intervening spaces or chambers, substantially as set forth.

5. A compound piston-rod packing, consisting of a plurality of packing-rings, stay-rings for supporting said packing-rings, said stay-rings being provided with capillary channels communicating with each other, annular spaces or chambers intervening between the packing-rings and stay-rings and the surface to be packed, and lateral channels connecting said capillary channels with said intervening spaces or chambers, substantially as set forth.

6. A compound piston-rod packing, provided with a plurality of packing-rings, stay-rings for supporting the same, annular spaces or chambers formed between said stay-rings and packing-rings and between the same and the surface to be tightened, longitudinal channels in said stay-rings communicating with each other, and lateral channels connecting said longitudinal channels with said intervening chambers, substantially as set forth.

7. A compound piston-rod packing, consisting of a plurality of packing-rings and stay-rings for the same, said stay-rings being provided with conically-tapering channels, and conically-tapering plugs located in said channels and provided with capillary channels on their surfaces, substantially as set forth.

8. A compound piston-rod packing, consisting of a plurality of packing-rings, stay-rings for the same, annular channels intervening between said stay-rings and packing-rings, channels in said stay-rings communicating with each other and with said annular channels, and an exterior box extending over all the stay-rings, substantially as set forth.

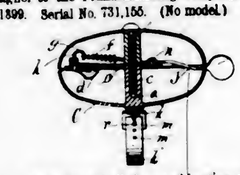
641,826. SAW-FRAME. FRANK S. BRADLEY, West Haven, Conn., assignor to the West Haven Manufacturing Co., same place. Filed Nov. 10, 1899. Serial No. 736,452. (No model.)



Claim.—1. In a saw-frame, the combination with the frame thereof, of arms at the opposite ends of the frame, said arms provided with pins over which the perforated ends of the saw-blades may be passed, screw-pins adjacent to said arms, and nuts on said pins adapted to overlap the ends of the saw-blades, substantially as described.

2. In a saw-frame the combination with the frame, of arms extending inward from opposite ends thereof, said arms formed with saw-receiving seats, studs in said seats over which the perforated ends of the saw-blades may be passed, screw-pins projecting outward from said arms parallel with said studs and nuts on said screw-pins and adapted to overlap the ends of the saw-blades, substantially as described.

641,827. BICYCLE ALARM-BELL. CARL A. BRIDE, Attleborough, Mass., assignor to the Frank Mossberg Company, same place. Filed Sept. 21, 1899. Serial No. 731,155. (No model.)



Claim.—1. In an alarm-bell the combination of two gongs, a stationary plate held on a stud fast in the center of said gongs, a short shaft having a hammer on one end and a crank on the other end held in bearings in the outer end of the stationary plate, substantially as described.

2. In a bicycle-bell the combination of two gongs held on one stud, a stationary plate held on said stud between said gongs, an oscillating lever pivoted to said stationary plate, a short shaft held in a bearing in the stationary plate and having a crank on one end and a hammer on the other end, a short spiral spring connecting said crank on the end of the oscillating plate, substantially as described.

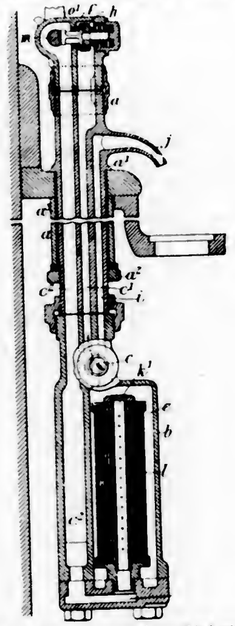
3. In a bicycle-bell the combination of a stationary plate, an oscillating plate pivoted to the stationary plate, a shaft held in a bearing on the stationary plate and having a hammer on one end and a crank on the other end, a short stiff spiral spring rigidly secured to one end of the oscillating plate and one end connected to the crank so the spring will be compressed as the crank passes the center and strike the gong by the expansion of the spring when the crank has passed the center, and a closed spiral spring to connect said oscillating plate and stationary plate, substantially as described.

4. An adjustable clamp for bicycle-bells consisting of a U-shaped strip of metal fastened to the bell, one end being provided with a screw-threaded ear and the other end having an opening in it with a pin or buckle-tongue on the side nearest the end, an adjustable band passing through said opening and having holes in it to fit on said pin or buckle-tongue, with a screw and a hole in the end of said band to receive it, substantially as described.

641,828. APPARATUS FOR SUPPLYING HOT OR COLD WATER IN BATH-ROOMS, LAVATORIES, &c. MICHAEL M. BROPHY, London, England. Filed June 23, 1899. Serial No. 721,593. (No model.)

Claim.—1. The combination with the mixing-chamber provided with a discharge-passage, of a steam-inlet pipe connected with said mixing-chamber, a separate water-inlet pipe connected with said chamber, a valve controlling the admission of steam to said mixing-chamber, a separate valve controlling the admission of water to said mixing-chamber, and devices connected with the steam-controlling valve for simultaneously operating the water-controlling valve, whereby the water-controlling valve may be opened without affecting the steam-controlling valve, but the opening of the steam-controlling valve will simultaneously open the water-controlling valve, substantially as described.

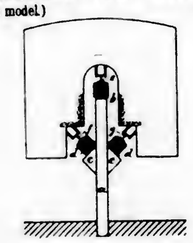
2. The combination with the mixing-chamber provided with a discharge-passage, of a steam-inlet pipe connected with said mixing-chamber, a separate water-inlet pipe connected with said chamber, a valve controlling the admission of steam to said mixing-chamber, a separate valve controlling the admission of water to said mixing-chamber, an operating-lever for the steam-valve, and an operating-lever for the water-valve having a part in the path of the operating-lever for the steam-valve, whereby the water-valve can be operated alone but the operation of the steam-valve will cause the simultaneous operation of the water-valve, substantially as described.



3. The combination with a standard provided with a mixing-chamber, a delivery-passage communicating therewith, a water-inlet, a steam-inlet, and passages from said water and steam inlets to the said mixing-chamber, of independent water and steam controlling valves in said passages, an operating device for the steam-valve, and an operating device for the water-valve, having a part in the path of the operating device for the steam-valve, substantially as described.

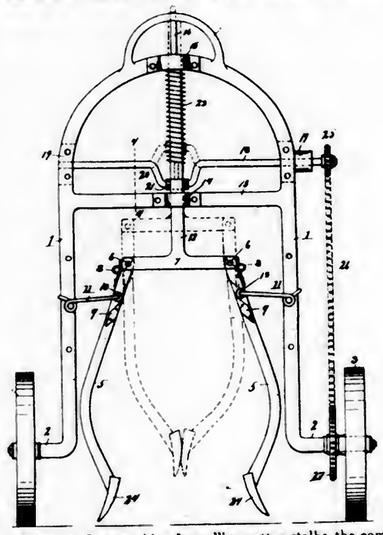
4. The combination with the vertically-disposed standard provided with a delivery-passage and spout, and a series of independent vertical passages, a water-inlet connected with one of said passages, and a steam-inlet connected with another of said passages, and means for attaching said standard to a suitable support, of a heater below said standard provided with a mixing-chamber, communicating with said delivery-passage, and spout, and a series of independent vertical passages communicating with the vertical passages in said standard and adapted to conduct steam and water to said mixing-chamber, a perforated steam-pipe in said mixing-chamber communicating with one of said vertical passages, a series of layers of wire-gauze surrounding said perforated pipe a valve located in the upper part of said standard for controlling the passage of water to the mixing-chamber, and an independent valve in the upper part of said standard for controlling the admission of steam to the mixing-chamber, substantially as described.

641,829. ELECTRIC OVERHEAD RAILWAY. LOUIS J. BRUBS and HANS R. OTTESEN, Hanover, Germany. Filed Aug. 16, 1899. Serial No. 727,270. (No model.)



Claim.—In electric overhead railways, the combination of the posts, cables *j* located in grooves therein, insulating-plates *i* covering the grooves, the protecting hoods or caps *k* arranged on the plates and the rails resting on the caps and in conducting contact with the same, essentially as described.

641,830. MACHINE FOR PULLING COTTON-STALKS. GEORGE H. BRIAN, Ridgely, Tenn., assignor of one-half to Robert L. Keating, same place. Filed Nov. 2, 1899. Serial No. 735,598. (No model.)



Claim.—1. In a machine for pulling cotton-stalks, the combination with the transporting-wheels, the arched frame or axle connecting said wheels, the vertically-reciprocatory pulling-arms having serrated feet, said arms being pivoted so as to allow their feet to close together upon the cotton-stalk, and means for reciprocating said arms vertically and bringing together and separating the feet of said arms concurrent with said vertical movement.

2. In a machine for pulling cotton-stalks, the combination of the transporting-wheels, the U-shaped axle connecting said wheels, a vertically-reciprocatory stem, curved pulling-arms pivoted to said stem and having roughened feet adapted to be brought together during their upward movement and separated during their downward movement, a crank-shaft having engagement with said reciprocatory stem, and the sprocket-wheels and chain for driving said shaft.

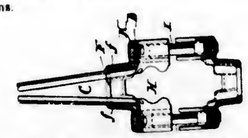
3. In a machine for pulling cotton-stalks, the combination of a U-shaped axle, transporting-wheels journaled on said axle, vertically-reciprocatory arms hung within the arc of said axle and pivoted to swing toward and from each other at their lower ends, means for reciprocating said arms, cams upon the face of said arms, and antifriction-rollers suitably mounted adapted to engage said cams to swing said arms upon their pivots.

4. In a machine for the purpose set forth, the combination of the transporting-wheels, the U-shaped axle connecting said wheels, a cross-bar connecting the upper portions of said axle, the vertically-reciprocatory stem adapted to slide in said cross-bar, a cross-head on the lower end of said stem, the depending arms pivoted at their upper ends in said cross-head and having roughened feet at their lower ends, springs for normally throwing said arms outwardly, cams upon the faces of said arms, antifriction-rollers adapted to engage said cams, and a coiled spring interposed between a stop on said stem and the arc of the axle whose force is exerted to carry said stem downwardly.

641,831. SHEET-METAL PULLEY. EDWARD G. BUDD, Philadelphia, Pa., assignor to the American Pulley Company, of Pennsylvania. Filed Jan. 27, 1899. Serial No. 703,533. (No model.)

Claim.—1. In a pulley the combination of two sets of spoke-arms terminating at their inner ends in semicircular hub portions, combined with two semicircular box-shaped hub-sections each formed of one piece and having sockets through which the spoke-arms pass and snugly fit the cross-bars of the sections fitting between the adjacent spokes and by which they are directly braced and in which said sec-

tions directly fit upon the outside of the semicircular hub portions of the spoke-arms.



2. In a pulley the combination of two sets of spoke-arms terminating at their inner ends in semicircular hub portions, combined with two semicircular box-shaped sections each having side frames and cross connecting-bars forming sockets through which the spoke-arms pass and snugly fit and by which they are directly braced and in which said sections fit upon the outside of the semicircular hub portions of the spoke-arms and secured thereto to hold them in pairs at proper distances apart and further provided with bolt-holes through which clamping-bolts may pass to draw the two semicircular box-shaped sections toward each other.

3. In a pulley the combination of the spoke-arms forming two oppositely-directed structures terminating in semicircular hub portions, with clamping and reinforcing sections respectively tightly fitted upon the outer sides of the semicircular hub portions and having sockets through which the spoke-arms snugly pass and by which they are directly braced, and clamping-bolts for drawing the two clamping and reinforcing sections toward each other.

4. In a pulley the combination of the spoke-arms C C arranged in pairs as shown, and terminating in semicircular hub-sections D D, with a clamping and bracing section E having a central socket F and side sockets H adapted to receive the spoke-arms and in which the socket F is inclosed on all sides and the socket H open upon one side.

5. In a pulley the combination of the spoke-arms C C arranged in pairs as shown and terminating in semicircular hub-sections D D, with a clamping and bracing section E having sockets F H as set out adapted to receive the spoke-arms, and in which the socket F is central and inclosed on all sides and the sockets H open upon one side, and suitable means for rigidly connecting the clamping-section E to the semicircular hub portions

6. In a pulley the combination of a series of spokes radiating from a common semicircular hub portion with which they are integrally formed, with a semicircular clamping and bracing section extending upon both sides of the spoke-arms having apertures or socket portions through which the spokes pass provided with walls or edges at their outer parts shaped to conform to the edges or surfaces of the spoke-arms, whereby said spoke-arms are directly braced and supported against torsional strains by said clamping and bracing section.

7. The combination of two sets of spoke-arms terminating in semicircular hub portions, with an externally-arranged semicircular bracing-section fitted to the outer parts of said hub portions and extending transversely between the spoke-arms and directly supporting them, and means for rigidly connecting the said hub portions to the bracing-section whereby said hub portions are held in alinement and at a proper distance apart and the spokes directly braced.

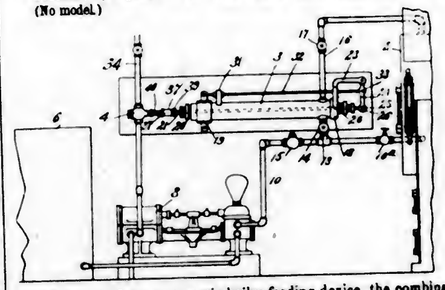
8. The combination of two sets of spoke-arms corresponding to one-half of the wheel, each set having the arms thereof terminating in a semicircular hub portion adjacent to the axis of the wheel, with an externally-arranged bracing-section fitted to the outer parts of said hub portions and extending between the spoke-arms, means for rigidly connecting the said hub portions to the bracing-section whereby said hub portions are held in alinement and at a proper distance apart, a second and similar set of spoke-arms and bracing-section opposed to the first-mentioned set, and clamping-bolts extending between the two bracing-sections for drawing them together with the semicircular hub-sections to tightly grasp the shaft.

9. In a half-section of a pulley the combination of spoke-arms terminating in oppositely-directed semicircular flanges or hub portions, with a clamping and bracing section made with a semicircular bearing to fit down upon the semicircular hub portions or flanges of the spoke-arms and provided with transverse portions which extend between the spoke-arms and directly support and brace the same at a distance from the semicircular flanges or hub portions.

10. A hub-clamp for sheet-metal pulleys consisting of a box-shaped structure having its inner surface curved to approximately correspond to the diameter of the shaft or bushing upon which the pulley is to be clamped, and having its outer portions provided with a centrally-surrounded socket F and two lateral sockets H H open on their sides farthest from the central socket.

11. A hub-clamp for sheet-metal pulleys consisting of a box-shaped structure having its inner surface curved to approximately correspond to the diameter of the shaft or bushing upon which the pulley is to be clamped, and having its outer portions provided with a centrally-surrounded socket F and two lateral sockets H H open on their sides farthest from the central socket, and further provided with bolt-holes arranged adjacent to the last-mentioned sockets, and upon opposite sides of the curved inner portion.

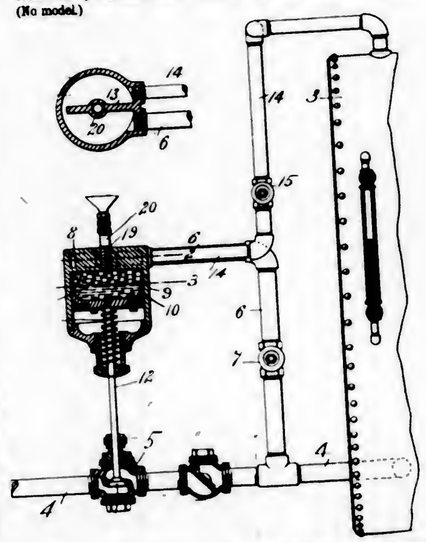
641,882. AUTOMATIC BOILER-FEEDING DEVICE. JAMES H. BULLARD, Springfield, Mass. Filed Feb. 3, 1899. Serial No. 704,393. (No model.)



Claim.—1. In an automatic boiler-feeding device, the combination with a boiler and a water-supply pipe therefor, of a valve in said pipe, and a thermally-actuated device for automatically operating said valve, which device consists of a tubular chamber of expansible metal rigidly held by one end thereof, an expansible metal rod or tube extending through said chamber, and movable mechanically lengthwise therein, a swinging abutment for one end of said rod or tube, and a rigid connection extending from the free end of said chamber to said swinging abutment, and connected therewith, whereby expansive movements of said chamber may impart mechanical movement to said rod or tube, in addition to its expansive movement, substantially as described.

2. The combination in a thermally-actuated valve-operating mechanism, of a tubular member immovably fixed by one end thereof, a second member within said first-named member, a connection pivoted to the fixed end of the latter and one end of the second member, and a rigid connection between the free end of said first-named member to said pivoted connection whereby a mechanical movement will be imparted to said second member by expansive movements of the first member in the direction of movement of the latter, in addition to any expansive movement of the second member, substantially as described.

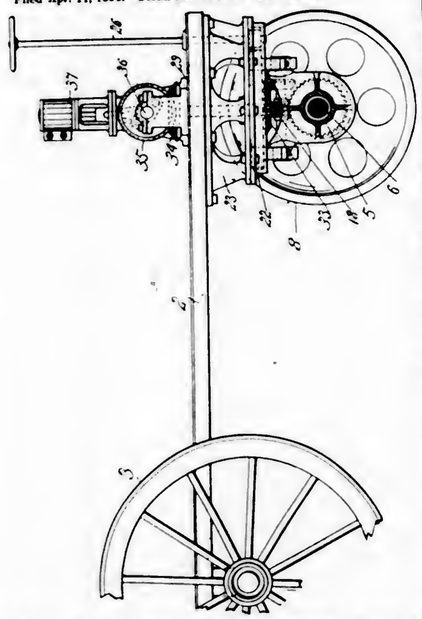
641,883. AUTOMATIC BOILER-FEEDING DEVICE. JAMES H. BULLARD, Springfield, Mass. Filed Feb. 3, 1899. Serial No. 704,394. (No model.)



Claim.—1. The combination with a boiler having a suitable water-supply pipe and a valve therein, of an open passage between said supply-pipe and the steam-space in said boiler, a cylindrical casing, a movable partition therein, an expansible liquid confined between one side of said partition and one end of said casing, a rod bearing against said partition and connected with said valve, and a chamber on said casing and forming a part of said passage lying in the plane of the normal water-level of the boiler, which chamber is adapted to receive alternately, cold water and steam therein by the rise and fall of the water-level in the boiler, whereby said valve may be actuated by the expansion and contraction of the liquid within said casing, substantially as set forth.

2. The combination with a boiler having a suitable water-supply pipe and a valve therein, of an open passage between said supply-pipe and the steam-space in said boiler, a cylinder, a piston-head therein, an expansible liquid confined between one side of the piston-head of said cylinder and one end of the latter, a piston-rod connected with said piston and with said valve, and a chamber on said cylinder and constituting a part of said passage lying in the plane of the normal water-level of said boiler, which chamber is adapted to receive, alternately, cold water and steam therein by the rise and fall of the water-level in said boiler, and whereby said valve may be operated by the expansion and contraction of said liquid within said cylinder, substantially as described.

641,884. COMBINED DRIVING AND STEERING AXLE FOR AUTOMOBILE VEHICLES. JAMES H. BULLARD, Springfield, Mass. Filed Apr. 11, 1899. Serial No. 712,636. (No model.)



Claim.—1. In a self-propelled vehicle, a motor, a driving and steering axle adapted to swing in a horizontal plane, and whose ends are adapted to oscillate in a vertical plane, an axle-driving member located on the axis of oscillation of said axle, engaging the latter and connected with said motor, the axis of said driving member passing through the axis of oscillation of the axle, normally at right angles to the latter, whereby rotary movements may be imparted to said axle during the oscillations thereof, substantially as described.

2. In a self-propelled vehicle, a motor, a driving and steering axle whose ends are adapted to oscillate in a vertical plane, a driving member located on the axis of oscillation of said axle, engaging the latter and connected with said motor, the axis of said driving member passing through the axis of oscillation of the axle, normally at right angles to the latter, whereby rotary movements may be imparted to said axle during the oscillations thereof, an annular member adapted to rotate in a fixed horizontal plane on which said driving member is supported, and means for rotating said annular member, substantially as described.

3. In a self-propelled vehicle, a member supported thereon for rotary movements about a fixed point, and means for rotating said member, a driving and steering axle supported on said member, a motor, a rotatable driving connection for said axle supported on said member transversely thereof and rotatable in a horizontal plane therewith, and means located on the axis of rotation of said member for imparting rotary movements to said driving connection, substantially as described.

4. In a self-propelled vehicle, a member supported thereon for rotation about a fixed center, a driving and steering axle, hung on said member, whose extremities are adapted to move independently thereof in vertical planes, and to move therewith in a horizontal plane, a motor, and suitable connections between said motor and axle for rotating the latter, substantially as described.

5. In a self-propelled vehicle, a member supported thereon for rotation about a fixed center, a driving and steering axle hung on said member, said axle consisting of two parts united, by differential gear connections, to rotate as one piece and adapted to move independently of said member in vertical planes, and with said member in a horizontal plane; a motor, and suitable connections between said motor and the driving member of said differential gears, whereby said axle may be rotated, substantially as described.

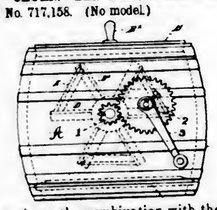
6. In a self-propelled vehicle, a rotatable member supported thereon for rotation about a fixed point, a driving-shaft supported on said member and located normally on the longitudinally-central line of the vehicle, a driving and steering axle supported in a casing, bearings in said casing for said driving-shaft, whereby said axle is supported on said rotatable member; a worm on said driving-shaft, a worm-gear on said axle engaging therewith, and a shaft located centrally of said rotatable member and at right angles to said driving-shaft, and connected with the latter by bevel-gears, for rotating said axle, substantially as described.

7. In combination with a suitable motor, a driving and steering axle for a self-propelling vehicle, comprising a rotatable member supported on the vehicle, an axle pivotally supported on said member, a shaft axially located relative to said pivotal supports, and also constituting the driving member of said axle, and suitable connections between the axle and said driving-shaft, and the latter and said motor, substantially as described.

8. In a self-propelled vehicle, a horizontally-rotatable turn-table, an axle pivotally supported on said turn-table and adapted to swing in a vertical plane relative thereto, a gear on said axle, a driving-shaft concentric with the pivotal supports of said axle, a driving connection between said shaft and said gear, and means for rotating said shaft, substantially as described.

9. A turn-table mounted on a vehicle-body for rotation in a horizontal plane, a pivotally-supported axle on said turn-table, adapted to swing thereon in a vertical plane, a gear on said axle, a shaft located on the axis of vertical oscillation of said axle, a worm on said shaft engaging said gear, and means for rotating said shaft, substantially as described.

641,835. CHURN. EMIL BÜRK, Paterson, N. J. Filed May 17 1899. Serial No. 717,158. (No model.)



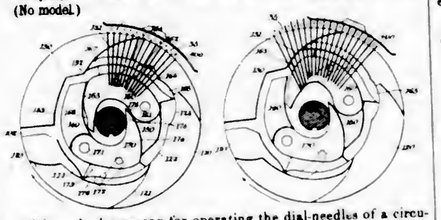
Claim.—In a churn, the combination with the body portion, being elliptical in cross-section, of a horizontal dasher consisting of the arms D and D' secured to the horizontal hub C, adjacent to the front and back ends respectively of the hub, the broad sides of the arms being out of parallel to the plane of the ends of the hub, turned in a direction oblique to the plane of the ends of the hub, and the beater-blades E secured to the outer ends of the side arms, connecting the obliquely-opposite front and back arms in pairs, said hub being provided with a collar having a square hole, a square-ended trunnion K adapted to pass through the body of the churn and into the square hole in the collar of the hub on one end thereof, a trunnion H secured in the other end of the hub and bearings F and F' secured on the inside of the body of the churn on the longer sides thereof, on and in which trunnions H and K rest and rotate, to permit the dasher to rotate lengthwise in said body, and means for operating or turning said dasher, substantially as set forth.

641,836. STEAM-WASHER. WASHINGTON P. BURKE, Quitman, Ga. Filed Jan. 7, 1899. Serial No. 701,486. (No model.)

Claim.—In a steam-washer, the conbination of a body provided at the upper edge of its walls with supporting-flanges, a vertical partition extending upward from the bottom of the body adjacent to one side thereof and having a valve-opening, and provided at its upper edge with a supporting-flange having a guide-opening, vertical strips secured to the partition at opposite side of the valve-opening and forming ways, a vertically-movable valve consisting of a plate mounted in the ways and arranged to cover and uncover the valve-opening, the separate covers 12 and 13 arranged on the supporting-flanges, and the vertically-movable operating-rod passing through the guide-opening and connected with the valve and adapted to operate the same without removing the covers, the latter being adapted to be removed without affecting the valve, substantially as and for the purpose described.



641,837. CIRCULAR-KNITTING MACHINE. JOSEPH A. BURLEIGH, Laconia, N. H., assignor to the American Knitting Machine Company, Providence, R. I. Filed July 30, 1898. Serial No. 687,244. (No model.)



Claim.—1. A cam-cap for operating the dial-needles of a circular-knitting machine, adapted for rotation in either direction and provided with fixed cams forming segmental cam-tracks, a movable knitting-cam having a segmental cam-track, and a movable work-casting cam having a segmental cam-track, said segmental cam-tracks forming a complete reversible cam-track which positively controls the needles throughout its path in either form which it assumes under the different positions of said movable cams.

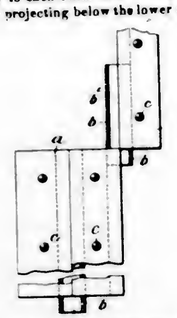
2. In a dial mechanism for a circular-knitting machine, the combination of a dial-needle bed, needles disposed in said bed, a cam-cap provided with fixed cams forming segmental cam-tracks, and with a movable knitting-cam having a segmental cam-track, and with a movable work-casting cam having a segmental cam-track, said segmental cam-tracks forming a complete reversible cam-track which positively controls the needles throughout its path in either form which it assumes under the different positions of the movable cams, and automatic mechanism for shifting said movable cams into their different positions at the required intervals of time.

3. In a dial mechanism for a circular-knitting machine, the combination of a dial-needle bed, needles disposed in said bed, a cam-cap provided with fixed cams forming segmental cam-tracks, and with a swinging knitting-cam having a segmental cam-track and being adjustable into three positions, to wit: an inner position in which the needles are inoperative, an outer position in which the needles are operative, and an intermediate position in which the needles take yarn, said cam-cap being also provided with a movable work-casting cam having a segmental cam-track and being adjustable into a plurality of positions, and automatic mechanism for shifting said movable cams into their different positions at the required intervals of time; said segmental cam-tracks of the fixed and movable cams forming a complete reversible cam-track which positively controls the needles throughout its path in either form which it assumes under the different positions of said movable cams.

641,838. SHEET-PILING. GEORGE H. CAVANAGH, Boston, Mass. Filed Feb. 27, 1899. Serial No. 706,937. (No model.)

Claim.—1. A piling consisting of two sections abutting edge to edge, and a coupling member uniting the two sections and holding them in rigid relation relatively to each other and inclosed by said sections.

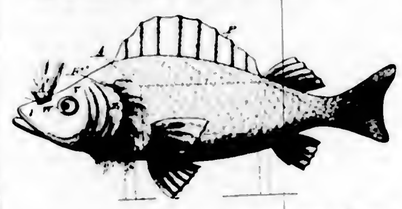
2. A piling consisting of two sections abutting edge to edge, and a coupling member uniting the two sections and holding them in rigid relation relatively to each other and inclosed by said sections, said coupling member projecting below the lower end of the two sections.



3. A piling composed of timbers having flat faces upon their adjacent edges which are adapted to abut against each other, and a metallic coupling member uniting the two timbers and holding them in rigid relation relatively to each other and inclosed by said timbers.

4. A piling consisting of timbers presenting flat engaging faces, having T-shaped grooves, and an I-beam adapted to be driven into said grooves and to hold the timbers in rigid relation relatively to each other.

641,839. BUILDING FOR AMUSEMENT, &c. HENRY CLAY, Fernwood, Pa., assignor to Mary C. Lafferty, Philadelphia, Pa. Filed May 25, 1899. Serial No. 718,138. (No model.)



Claim.—1. A building having a pulsatory side-wall member connected at its edges with the adjacent portions of the side wall proper, and means for reciprocating the same.

2. A building having a flexible pulsatory side-wall member, and means for reciprocating the same.

3. A building having a pulsatory side-wall member, means for reciprocating the same and means for ejecting a fluid from the building adjacent to said member.

4. A building having a pulsatory side-wall member provided with an opening, means for reciprocating said side-wall member and means for ejecting a fluid through said opening.

5. A building having a pulsatory side-wall member, and means for ejecting a fluid longitudinally from the edge portion thereof.

6. A building having a pulsatory side-wall member, a motor, and connections between said motor and side-wall member for reciprocating the latter.

7. A building having a pulsatory side-wall member, a motor, and connections between said motor and an end portion of said side-wall member for reciprocating the latter.

8. A building having a pulsatory side-wall member, an opening therein, and a pipe connected therewith and with a fluid-supply source.

9. A building having a pulsatory side-wall member, a motor for reciprocating the same, a fluid-supply pipe for said motor, a fluid-discharge for said motor, and an opening in said side-wall member connected with said fluid-discharge.

10. A building having a flexible web or fin, and means for independently moving laterally different portions of said web or fin.

11. A building having a flexible web or fin thereon and means for imparting sinuous motions thereto.

12. A building having a flexible web or fin thereon, movable standards connected with said web or fin, means for imparting rolling motions to said standards.

13. A building having a flexible web or fin thereon, movable standards which are connected with said web or fin, a bar on which said standards are freely supported, a slide engaging with said standards and means for operating said slide.

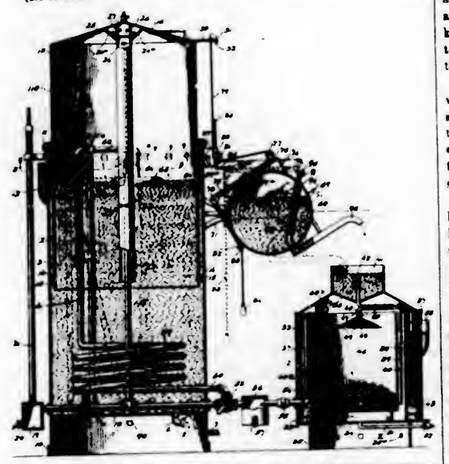
14. A building having a flexible web thereon, movable standards which are connected with said web, a bar on which said standards are freely supported, a slide having deflected slots which receive the adjacent portions of said standards, and means for operating said slide.

15. In a building, a flexible web or fin, standards connected therewith, a bar and a slide to which said standards are freely fitted, and cheeks connected with said standards supporting said standards on said bar and slide.

16. A building having an opening in the wall thereof, a vibratory nozzle pivotally mounted upon a fixed support opposite said opening, and means for vibrating said nozzle upon its pivot, said nozzle communicating with a fluid-supply source.

17. A fish-configured building having a vibratory web or fin, a pulsatory side-wall member, means for ejecting a fluid adjacent to said member, a vibratory nozzle adapted to discharge through an opening in the wall of the building and communicating with a fluid-supply source, an oscillatory body simulating an eyeball, and means for actuating said web or fin, side-wall member, nozzle, and body.

641,840. ACETYLENE-GAS GENERATOR. WILLIAM M. CLINE, Lansing, Mich., assignor of one-half to John N. Alexander and Charles H. Alexander, same place. Filed Apr. 15, 1898. Serial No. 677,689. (No model.)



Claim.—1. In an acetylene-gas apparatus, a generator comprising a double-walled tank having a central carbid-chamber, a double-walled cover provided on its top with an external water-cistern which is situated in a position within the plane of the inner wall of said cover, said inner wall of the cover arranged within the corresponding wall of the tank and forming therewith a double gas-circulating space, and means for conveying water from the cistern to the carbid-chamber, whereby the bottom of the elevated water-cistern is exposed to contact with the gas rising from the carbid-chamber of the generator, substantially as described.

2. In an acetylene-gas apparatus, a generator comprising a double-walled tank, a carbid vessel arranged within the inner wall of the tank and forming therewith a gas-circulating space, and a double-walled cover having a central water-cistern, the inner wall of said cover being arranged between the carbid vessel and the inner wall of the tank to subdivide the gas-circulating space therebetween, the outer wall of said cover being sealed between the walls of the tank, substantially as described.

3. In an acetylene-gas apparatus, a generator comprising a double-walled tank forming a seal-chamber, a carbid vessel within the inner tank-wall and said vessel having its shell arranged concentric therewith to form an intervening gas-circulating space, a cover provided with a central external water-cistern and with the depending concentric walls, one of which walls is immersed in the seal-chamber of the tank and the other wall is fitted between the carbid vessel and the inner tank-wall to subdivide the gas-circulating space therebetween, and a trap-shaped water-pipe attached to said cover and fitting in the seal-chamber of the tank, one end of said pipe communicating with the water-cistern and the other end thereof terminating over the carbid vessel, substantially as described.

4. In an acetylene-gas apparatus, a generator having a conical cover an auxiliary tank mounted on said cover and provided with an inverted, conical or dished bottom which is formed by the central part of said cover, a carbid pail or vessel within said generator, and an inverted siphon-pipe leading from the auxiliary tank and having its delivery end arranged to discharge to the carbid vessel, substantially as described.

5. In an acetylene-gas apparatus, a generator comprising a tank having an internal shell forming a water-seal chamber, a carbid vessel provided with a perforated base-flange which rests upon the tank-bottom within said internal shell, a head or cover having the double concentric shells arranged for one shell to enter the water-seal chamber and the other shell to fit between the inner tank-shell and the carbid vessel, a gas-pipe passing through the water-seal chamber, a looped water-pipe situated in the water-seal chamber on the opposite side from the gas-pipe, an elevated water-tank connected to one extremity of the looped water-pipe, and a drain-pipe connected to the bottom of the tank-shell within the perforated flange of the carbid vessel, substantially as described.

6. In an acetylene-gas apparatus, a generator comprising a double-walled tank, a carbid vessel arranged therein for its shell to form with the inner tank-wall the gas-circulating space, a cover having a central water-cistern and the double walls, one of said walls being interposed between the shell of the carbid vessel and the inner tank-wall to subdivide the gas-circulating space therebetween, another shell arranged within the carbid vessel and having a conical top with a gas-outlet, and means for conveying water from the water-cistern and discharging the same upon the conical top, whereby the top is kept in a relatively-cool condition by water flowing thereover and the ascending gas is caused to impinge against the lower surface of the top, substantially as described.

7. In an acetylene-gas apparatus, a generator having an elevated water-reservoir on the tank thereof, a carbid pail or vessel within said generator, an inverted siphon-pipe situated within the generator and having one end connected to the water-reservoir and its other end overhanging the carbid-pail, a radially-perforated nipple attached to the overhanging end of said siphon-pipe, and a distributer below said nipple, substantially as described.

8. In an acetylene-gas apparatus, a generator consisting of a carbid vessel provided with a distributing top or cover having a gas-outlet, and water-ingress ports at the bottom thereof, an elevated water-reservoir, a looped water-inlet pipe leading from the reservoir to a point above the carbid vessel, and a distributer which receives from the discharge end of said pipe, substantially as described.

9. In an acetylene-gas apparatus, a generator consisting of a tank having an interior shell adapted to form a water seal, a conical cover clamped to said tank and provided with a depending shell which is concentric with the shell of the tank and forms therewith a double circulating-space for the passage of gas, a carbid vessel within the tank and the shell of the cover, an elevated water-reservoir mounted directly upon the cover and having an inverted conical bottom over the carbid-pail, a siphon water-inlet pipe with its receiving end extending into the reservoir, a distributer attached to the delivery end of the pipe, and an outlet pipe extending through the water seal of said generator, substantially as described.

10. In an acetylene-gas apparatus, the combination with a generator and a gasometer-bell, of a tiltable water-tank arranged to deliver to said generator, and operative connections from the gasometer-bell to said tiltable water-tank, said operative devices having a slip connection with the water-tank to allow the latter to remain in operative position during a part of the travel of said bell and serving also to gradually adjust the tiltable water-tank and diminish the flow of water therefrom as the bell approaches the last stage of its upward travel, substantially as described.

11. In an acetylene-gas apparatus, the combination with a generator and a gasometer, of a rocking water-feed mechanism arranged in operative relation to the generator and connections between the gasometer-bell and said rocking water-feed devices to insure practically a continuous flow of water to the generator, permitting a limited motion of the gasometer-bell without interruption to the flow of water and adapted to positively cut off the flow of water on the descent of the gasometer-bell below a certain limit, substantially as described.

12. In an acetylene-gas apparatus, the combination with a generator and a gasometer bell, of a tiltable water-tank, and operative connections between the gasometer-bell and said tiltable tank to actuate the latter gradually during the interval between the first and last stages of the ascension of said gasometer-bell, and trip devices to positively move the water-tank out of operative position on the downward travel of the gasometer-bell, substantially as described.

13. In an acetylene-gas apparatus, the combination with a generator having means for feeding water to the carbid contained therein and a gasometer, of a rocking drum in operative relation to the water-supply means of the generator, connections between said rocking drum and the gasometer-bell to turn said drum on the rising and

falling movements of the bell and permit the latter to have a limited vertical movement without influencing said drum, and trip devices to turn the drum to an inoperative position on the descent of the bell below its normal working position, substantially as described.

14. In an acetylene-gas apparatus, the combination with a generator and a gasometer, of a movable water-drum having an adjustable valve to predetermine the volume of water which may escape from the drum within a given period, and connections between the gasometer-bell and said drum to control the latter automatically on the upward travel of the gasometer-bell, substantially as described.

15. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking water-drum, an operating-cord attached to the gasometer-bell and having a slip connection with said drum, and coacting stop devices on the drum and the cord to make the cord turn the drum after the gasometer-bell shall have completed the first stage of its upward travel, substantially as described.

16. In an acetylene-gas apparatus, the combination with a generator and a gasometer, of a rocking water-drum, an operating-cord attached to the gasometer-bell and fitted to the rocking drum to have a limited movement thereon, and means for making the operating-cord fast with the drum to actuate the latter on a continued ascent of the gasometer-bell, substantially as described.

17. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking drum carrying a guide-sheave, and a trip-catch, a weighted operating-cord fitted to said guide-sheave and the drum to have a limited movement thereon, and a trip on said cord to engage with the catch on the drum, substantially as described.

18. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking water-drum provided with guide-sheaves, a guide-sheave mounted on the gasometer in substantially the horizontal plane of one sheave on the drum, a weighted operating-cord threaded around said guide-sheaves to partially embrace the drum, and coacting trip devices on the drum and cord, substantially as described.

19. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking drum, connections between said drum and gasometer-bell to control the position of the drum within normal working position of the gasometer-bell, and means carried by the gasometer-bell to throw the drum out of operative position on the descent of said bell below its normal working position, substantially as described.

20. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking drum, a trip-slide in the path of said drum, and a trip carried by the gasometer-bell and arranged to depress the trip-slide and turn the drum out of operative position, substantially as described.

21. In an acetylene-gas apparatus, the combination with a gasometer, of a rocking drum provided with a bracket, a trip-slide lying in the path of said bracket, a guide in which the trip-slide is fitted, and a trip on the gasometer-bell to actuate the trip-slide, substantially as described.

22. In an acetylene-gas apparatus, a rocking water-supply drum, and a two-part perforated valve fitted therein, substantially as described.

23. In an acetylene-gas apparatus, the combination with a generator and a gasometer, of a rocking drum operatively connected with the gasometer-bell, and a water-regulating valve carried by the drum for operation independently of the movement of the drum under its operative connections with the gasometer-bell, substantially as described.

24. In an acetylene-gas apparatus, a rocking drum having a discharge-spout, and a two-part valve within said drum, one member of the valve being fixed and perforated radially and the other member being also perforated and adjustably fitted within the fixed member, substantially as described.

25. In an acetylene-gas apparatus, the combination with a gasometer and a generator, of a float situated within the gasometer and disconnected from the bell thereof, a gas-pipe connected with the generator and having a flexible connection with said float to discharge below the submerged part thereof, and an antisiphon check-valve in said gas-pipe, substantially as described.

26. In an acetylene-gas apparatus, the combination with a gasometer, of a cooling-coil therein and having a pipe extending above the water-level, a flexible tube or hose, a float arranged to afford a broad baffle-surface at its submerged portion, and a discharge-pipe suspended by the float and attached to the flexible tube, said discharge-pipe having its delivery end opening through the submerged portion of the float, substantially as described.

27. In an acetylene-gas apparatus, the combination with a gasometer and a generator, of a gas-pipe leading from the generator and terminating above the water-level in the gasometer, a float, a pipe connected with said gas-pipe and the float, and a check-valve to overcome siphonic action from the gasometer to the generator, substantially as described.

28. In an acetylene-gas apparatus, the combination with the gasometer-bell and an outlet-pipe therefrom, of means operatively connected with said bell to resist the upward movement of the bell and consisting of levers carrying drop-weights, substantially as described.

29. In an acetylene-gas apparatus, the combination with a gasometer-bell and a gas-outlet pipe, of counterpoise-levers, operative connections between said bell and said levers, and counterweights clamped to said levers, substantially as described.

30. In an acetylene-gas apparatus, the combination with a gasometer and a generator, of a gas-pipe leading from the generator and having a trap, a vent-pipe in said gasometer and connected with said trap, a three-way valve uniting the gas-pipe and vent-pipe, and a condensing-coil having one end connected with said valve, and a vertical branch from said coil discharging into the gasometer-bell, substantially as described.

31. In an acetylene-gas apparatus, a generator provided with an annular water-seal chamber, a cover coupled to the generator and provided with an internal shell arranged within said generator to provide a condensing-surface for the circulating gas, and a carbid-pail situated within the generator and having an internal shell which is formed with an imperforate head, combined with means for supplying water over the imperforate head of the carbid-pail shell, substantially as described.

32. In an acetylene-gas apparatus, the combination with a generator, of a carbid vessel situated therein, a shell having a conical imperforate head and arranged within the carbid vessel to deliver water at the bottom thereof in a plane coincident with the lower strata of the carbid charge, and a looped water-pipe having its discharge end arranged over the conical imperforate head of the shell within said carbid vessel, substantially as described.

33. In an acetylene-gas apparatus, the combination of a generator having a trapped water-inlet pipe, a gasometer-bell, a rocking water-feed device, a valve controlled by the rocking movement of the water-feed device to regulate the quantity of water delivered to said trapped pipe, and means for connecting said floatable bell with the rocking water-feed device to control the outflow of water therefrom on the vertical travel of the bell, substantially as described.

34. In an acetylene-gas apparatus, the combination of a generator having a trapped water-inlet pipe, a rocking water-feed device, a controlling-valve carried by the rocking water-feed device and arranged to deliver water to said trapped pipe, and a floatable gas-bell operatively connected to said water-feed device to rock the latter and control the outflow of water therefrom to the trapped pipe, substantially as described.

641,841. ENDLESS BELT. JENNET COLLIER, Chicago, Ill. Filed Mar. 18, 1897. Serial No. 628,179. (No model.)



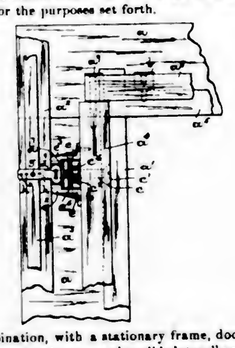
Claim.—1. As a new article of manufacture, a woven power-transmission belt comprising a transverse section of seamless tubular fabric having substantially inelastic weft-threads running circumferentially of the section, said section being folded or rolled to form a belt having a plurality of plies and the severed ends of the warp secured to prevent raveling.

2. As a new article of manufacture, a woven power-transmission belt comprising a transverse section of seamless tubular fabric having substantially inelastic weft-threads running circumferentially of the section, said section being folded or rolled to form a belt having a plurality of plies and the plies cemented together.

641,842. DOOR. SAMUEL S. COLT, Orange, N. J. Filed Aug. 5, 1899. Serial No. 726,246. (No model.)

Claim.—1. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb, and an adjusting mechanism secured in said rabbet-strip for adjusting the same in a direction toward or from the door, said mechanism having an operative connection with a fixed piece secured to said stationary frame, and an adjusting means between the stationary frame and said rabbet-strip-adjusting mechanism, substantially as and for the purposes set forth.

2. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb, and an adjusting-screw in said rabbet-strip, means on said screw arranged to retain said screw in a fixed position and prevent a longitudinal movement of the same, and an operative connection between the free end of said screw and stationary framework, whereby said rabbet-strip is adjustable in a direction toward or from the door, and an adjusting means between the stationary frame and the operative connection connected with the free end of said screw, substantially as and for the purposes set forth.



3. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, and an adjusting means between the stationary frame and said rabbet-strip-adjusting mechanism, substantially as and for the purposes set forth.

4. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb, and adjustable in a direction toward or from the door, and a bracket secured to said framework arranged to coöperate with said rabbet-strip to retain said rabbet-strip in a fixed angular position to said door-jamb and prevent distortion of the rabbet-strip, and a means of adjustment between said bracket and rabbet-strip, substantially as and for the purposes set forth.

5. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting of a bracket secured to said door-jamb, and ribs or guides on said bracket, and retaining-plates secured on said rabbet-strip, guiding portions connected with said plates, with which said ribs are slidably connected, substantially as and for the purposes set forth.

6. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting, essentially, of a bracket secured to said door-jamb, and ribs on said bracket, a pair of retaining-plates c secured on said rabbet-strip, grooved guiding portions on said plates e, with which said ribs are slidably connected, web-like portions or flanges c' connected with said plates, and a tightening-screw operatively connected with said flanges, substantially as and for the purposes set forth.

7. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, a rotative means of adjustment connected with said rabbet-strip, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting of a pair of guide-plates having guiding portions, and an operative connection between said plates, for adjustment of said guiding portions, substantially as and for the purposes set forth.

8. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, a rotative means of adjustment connected with said rabbet-strip, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting, essentially, of a bracket, and a rotative means of adjustment connected with said bracket and rabbet-strip, substantially as and for the purposes set forth.

9. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the door, a rotative means of adjustment connected with said rabbet-strip, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting, essentially, of a bracket secured to said door-jamb, and ribs on said bracket, a pair of retaining-plates secured on said rabbet-strip, and grooved guiding portions connected with said plates, with which said ribs are slidably connected, and an adjusting means between said stationary frame and said bracket, substantially as and for the purposes set forth.

10. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the edge of the door in the same plane in which the door is hung when closed against the rabbets of the door-casing, a rotative means of adjustment connected with said rabbet-strip, and mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, consisting, essentially, of a bracket secured to said door-jamb, and ribs on said bracket, a pair of retaining-plates c secured on said rabbet-strip, grooved guiding portions on said plates e, with which said ribs are slidably connected, web-like portions or flanges c' connected with said plates, and a tightening-screw operatively connected with said flanges, substantially as and for the purposes set forth.

11. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the edge of the door in the same plane in which the door is hung when closed against the rabbets of the door-casing, mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of said rabbet-strip, and an adjusting-screw in said rabbet-strip having its free end operatively connected with said retaining mechanism, substantially as and for the purposes set forth.

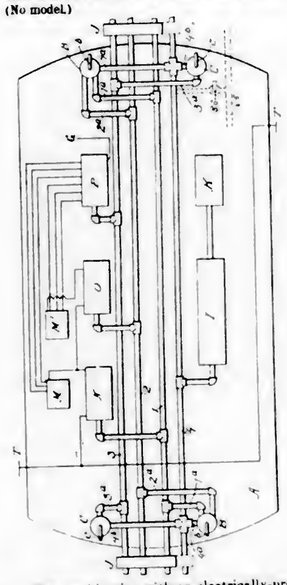
12. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the edge of the door in the same plane in which the door is hung when closed against the rabbets of the door-casing, mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of said rabbet-strip, consisting, essentially, of a bracket, and a guide-plate having guiding portions with which said bracket is slidably connected, and an adjusting-screw in said rabbet-strip having its free end operatively connected with said bracket, substantially as and for the purposes set forth.

13. The combination, with a stationary frame, door-casing, and door-jamb, of a rabbet-strip arranged to slide laterally across the said door-jamb and adjustable in a direction toward or from the edge of the door in the same plane in which the door is hung when closed against the rabbets of the door-casing, mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of said rabbet-strip, consisting, essentially, of a bracket secured to said door-jamb, and ribs on said bracket, a pair of retaining-plates secured on said rabbet-strip, grooved guiding portions connected with said plates, with which said ribs are slidably connected, and an adjusting-screw in said rabbet-strip, having its free end operatively connected with said bracket, substantially as and for the purposes set forth.

14. The combination, with a stationary frame, a ground connected with said frame, door-casing, and door-jamb, of a rabbet-strip, arranged to slide laterally across the door-jamb, mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, and a rigid connection between said rabbet-strip mechanism and said ground, substantially as and for the purposes set forth.

15. The combination, with a stationary frame, a ground connected with said frame, door-casing, and door-jamb, of a rabbet-strip, arranged to slide laterally across the door-jamb, mechanism arranged to coöperate with said rabbet-strip to retain said rabbet-strip in its proper relative position to said door-jamb and prevent distortion of the rabbet-strip, and a rigid connection between said rabbet-strip mechanism and said ground, consisting, essentially, of a stud d' of said mechanism, a nail or screw g in said ground, and a connecting-arm h between said stud and nail or screw, substantially as and for the purposes set forth.

641,843. PNEUMATIC CONTROLLING SYSTEM FOR ELECTRIC-RAILWAY CARS. WILLIAM COOPER, Cincinnati, Ohio, assignor of five-sixths to Blood & Hale, Boston, Mass. Filed June 23, 1898. Serial No. 684,241. (No model.)



Claim.—1. The combination with an electrically-propelled train comprising a plurality of motor-cars, of electric controlling apparatus on each car for controlling the operation thereof, fluid-pressure mechanism connected to and operating said controlling apparatus, a source of fluid-pressure supply connected to each motor-car, a controlling-pipe extending to all of the motor-cars and means for controlling the fluid-pressure therein, and automatic valve mechanism connected to the aforesaid controlling devices to the source of fluid-pressure and to the controlling-pipe and responding to certain conditions of pressure in the controlling-pipe to open communication between the fluid-pressure mechanism and the source of fluid-pressure.

2. The combination with an electrically-propelled train comprising a plurality of motor-cars, of electric controlling apparatus on each car for controlling the operation thereof, fluid-pressure mechanism connected to and operating said controlling apparatus, a source of fluid-pressure supply connected to each motor-car, a controlling-pipe extending to all of the motor-cars and means for controlling the fluid-pressure therein, and automatic pneumatically-controlled valve mechanism connected to the aforesaid controlling devices, to the source of fluid-pressure, to the outer air, and to the controlling-pipe, and responding to certain conditions of pressure in the controlling-pipe to open communication between the fluid-pressure mechanism and the source of fluid-pressure and close the communication from same to the outer air, and under other conditions to close the communication to the said fluid-pressure mechanism from the source of fluid-pressure supply and open communication from same to the outer air.

3. The combination with an electric switch of pneumatic mechanism for operating same, comprising a cylinder, a piston moving therein and connected to the switch, a source of fluid pressure supply, a pneumatically-operated valve connected to said cylinder and placing same in communication either with the source of fluid-pressure or with the outer air, according to its position, a controlling-pipe, means connected thereto and controlling the operation of said valve and means for controlling the pressure in said pipe.

4. The combination with an electric switch, of a pneumatic operating device for same, a source of air-pressure supply, a valve controlling the connections from the source of air-pressure supply to the switch-operating device, pneumatically-operated means for operating such valve, a manually-controlled valve controlling a connection between the source of air-supply and such pneumatic valve-operating means, and a pop-valve included in such connection and provided with means normally closing the connection but responsive to a definite pressure in same to open communication to the said pneumatically-operated valve.

5. The combination with an electric switch, of a pneumatic operating device for same, a source of air-pressure supply, a pneumatically-operated valve controlling the communication to said switch-operating device from the source of air-pressure supply and the outer air, a manually-controlled valve and a connection controlled thereby between the source of air-supply and the pneumatically-operated valve, and a pneumatically-controlled pop-valve included in such connection and normally closing the connection, while opening the pneumatic valve to communicate with the outer air, but responsive to a definite pressure in such connection to open the communication to, the pneumatic valve from such connection while closing the communication to the outer air.

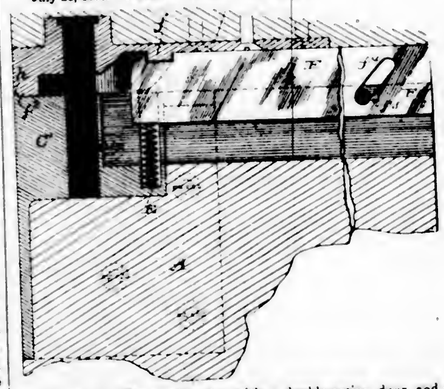
6. The combination with an electric controlling device, of a pneumatic operating device for same, a controlling-pipe leading to a source of air-pressure supply and provided with a valve for controlling the pressure therein, and a pop-valve connected to said controlling-pipe, to the said operating device and to the outer air and responding to a definite pressure in the controlling-pipe to place same in communication with the said operating device while cutting off communication from the latter to the outer air.

7. The combination with a plurality of electric switching devices, of fluid-pressure mechanisms for operating same, a fluid-pressure-supply pipe and means for regulating the pressure therein, and a plurality of automatically-operating valves connected to said supply-pipe and to said mechanisms and acting normally to cut off the communication between said supply-pipe and the said switch-operating mechanisms but responding to different conditions of pressure in said pipe to put same in communication with the respective switch-operating mechanisms.

8. The combination with a plurality of electric switching devices, of fluid-pressure mechanisms for operating same, a fluid-pressure-supply pipe and means for regulating the pressure therein, and a plurality of automatically-operating valve mechanisms connected to said supply-pipe and to said mechanisms and acting normally to cut off the communication between said supply-pipe and the said switch-operating mechanisms but responding to different conditions of pressure in said pipe to put same in communication with the respective switch-operating mechanisms.

9. The combination with an electrically-propelled train, comprising a plurality of motor-cars each having its own motor equipment, of a plurality of electric controlling devices for the motor equipment of each motor-car, a plurality of fluid-pressure devices operating the respective electric controlling devices and responding to different pressures, a pipe connecting with all of such fluid-pressure devices and means for controlling the fluid-pressure in such pipe.

641,844. DOOR. WILBUR R. CORBIN and WILLIAM K. HENRY, New Britain, Conn., assignors to the P. & F. Corbin, same place. Filed July 29, 1899. Serial No. 725,505. (No model.)



Claim.—1. The combination with a double-acting door, and a movable weather-strip, of means engaging the weather-strip for housing the latter while the door is open and for forcing the strip outwardly when the door is closed.

2. The combination with a double-acting door, and a movable weather-strip seated in a kerf in the upper end of the door, of means engaging the weather-strip for forcing it into the kerf as the door is opened and for moving it upwardly as the door is closed.

3. The combination with a double-acting door and a movable weather-strip for closing the space between the top of the door and the casement, of a cam engaging said weather-strip for moving it longitudinally and also vertically as the door is opened and closed, substantially as set forth.

4. The combination with a double-acting door a movable weather-strip seated in a kerf in the top of the door, and a spring supporting one end of said weather-strip, of a stationary cam engaging the weather-strip for moving it longitudinally and also against the pressure of the spring.

5. The combination with a double-acting door, a weather-strip seated in a kerf in the door and provided near one end with an inclined slot a pin secured to the door and passing through said slot and a spring supporting said strip near its opposite end, of a stationary cam engaging said weather-strip for moving it longitudinally and vertically.

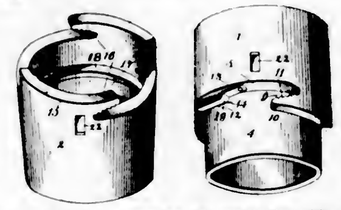
6. The combination with a double-acting door, a weather-strip for closing the space between the top of the door and the casement and means engaging the weather-strip for housing the latter while the door is open and for forcing the strip outwardly when the door is closed, of door-closing mechanism connecting the door and casement.

641,845. TRUSS. JOHN M. CULLIS, Yonkers, N. Y. Filed Aug. 3, 1898. Serial No. 687,626. (No model.)



Claim.—A truss constructed with a spring formed of elastic or resilient metal in its main or central portion, and of comparatively soft or ductile metal at a point near one or both ends, and bent at the extremity to form a projecting leg or stud; a suitable pad and a clip having a hole or seat in which the upturned end of the spring is inserted and between which clip and the pad the spring is securely clamped, substantially as explained.

641,846. HOSE-COUPLING. ROBERT L. DAVENPORT and FELIX Q. RAST, Cleburne, Tex. Filed Apr. 1, 1899. Serial No. 711,406. (No model.)



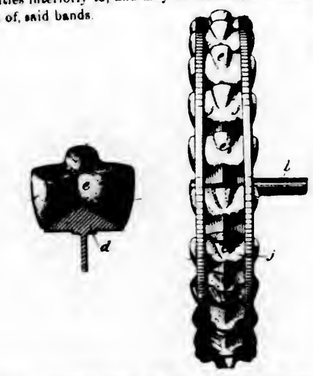
Claim.—1. In a hose-coupling, the combination with male and female members, having lugs which are provided with hooks or fingers at one end and transverse stop-shoulders at the other end thereof, of a bowed or shouldered spring carried by one of the members, adjacent to the transverse shoulder of one of the lugs, the shouldered or bowed portion of the spring being adapted to engage the transverse stop-shoulder of the adjacent lug of the other member, when the device is in coupled position, and prevent accidental uncoupling of the same, substantially as shown and described.

2. In a hose-coupling, the combination with male and female members having lugs which are provided at one end with hooks or fingers and transverse stop-shoulders at the other end thereof, of a leaf-spring carried by one of the members, having one of its ends bent or offset and fastened to the edge of the member, and its other end being fastened to the stop-shoulder of the adjacent lug, the bent end of the spring forming a shoulder, which is adapted to engage the shoulder of the adjacent lug upon the opposite member, substantially as and for the purpose set forth.

3. In a hose-coupling, the combination of a female member having an inner annular shoulder, and hooked lugs provided upon one edge thereof, a male member having a portion reduced in thickness forming a tongue having a raised stop-shoulder at its rear end and provided with hooked lugs, which extend outward from the stop-shoulder, and a bowed or shouldered leaf-spring carried by the raised stop-shoulder, the tongue of the male member being adapted to fit within the female member, and against the inner annular shoulder thereof, the hooked lugs being interlocked respectively, and the shoulder of the spring engaging the adjacent lug of the other member, substantially as shown and described.

641,847. IMPACT-WHEEL OR TURBINE. SAML. C. DAVIDSON, Belfast, Ireland. Filed May 8, 1899. Serial No. 715,934. (No model.)

Claim.—1. In impact-wheels of the Pelton-wheel type, the combination with a bucket-carrying wheel, of a plurality of buckets carried by said wheel and having each two cup-like concavities forming respectively the right and left sides of the bucket, and a central guide-duct projecting outwardly between said concavities, and encircling bands engaging the circumferential sides of the buckets opposite said concavities, said guide-ducts projecting between said bands, whereby motive fluid employed to drive the wheel may enter the buckets through said guide-duct between said bands, and flow around said concavities interiorly to, and may be discharged within the circumference of, said bands.

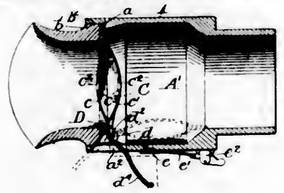


2. In impact-wheels of the Pelton-wheel type, the combination with a bucket-carrying wheel, of a plurality of buckets carried thereby, each having two cup-like concavities forming respectively the right and left sides of the bucket, and having the circumferential sides thereof approximately parallel with the periphery of the carrying-wheel, and a central guide-duct projecting outwardly between said concavities and communicating with both of them for receiving the motive fluid employed to drive the wheel and directing it into said concavities, the sides of said duct being of sufficient depth to control the inflowing motive fluid against lateral expansion until it reaches the central meeting edges of the cup like concavities, whereby the entering fluid is directed by the duct to these meeting edges and deflected by the latter into the right and left sides of the bucket without shock.

3. In impact-wheels of the Pelton wheel type, the combination with a bucket-carrying wheel, of a bucket having two cup-like concavities forming respectively the right and left sides of the bucket, and having central meeting edges at the bottom thereof, said buckets having their circumferential sides approximately parallel with the periphery of the said carrying-wheel, and having between said concavities a central guide-duct leading to the meeting edges of said concavities, said duct having outwardly-projecting sides in the plane of the wheel and an approximately circumferential side in advance of the frontal edges of said concavities.

4. In impact-wheels of the Pelton-wheel type, the combination with a bucket-carrying wheel having a periphery which in axial cross-section is of approximately V shape, in combination with buckets carried on the periphery of said wheel, and having inner sides of approximately the shape of such periphery, and mounted saddle-like upon such periphery of the wheel, said buckets having two cup-like concavities forming respectively the right and left sides of the bucket, a central guide-duct leading to said concavities, and outer sides for said concavities having portions substantially parallel with the axis and also concentric with the circumference of said carrying-wheel, and outer sides for said duct projecting outwardly beyond the circumference of such portions, and an encircling band on each side of said guide-duct and engaging said portions of the outer sides of said concavities.

641,848. SPEAKING-TUBE. THOMAS L. DENNIS, New York, N. Y. Filed Oct. 23, 1899. Serial No. 734,433. (No model.)



Claim.—1. The combination, with a tubular body or socket provided with an interior chamber or recess, and a tubular mouthpiece secured thereto, of a ring or annulus arranged in such recess, and a signal jointed thereto, substantially as described.

2. The combination, with a body or socket provided with an interior annular chamber or recess, and a mouthpiece detachably secured thereto, of a detachable ring or annulus arranged in such chamber or recess, a signal pivoted thereto, and devices by means of which the signal may be swung upon its pivot, substantially as described.

3. The combination, with a tubular body or socket, and a mouthpiece detachably secured thereto, of a ring or annulus detachably arranged within the body or socket, a signal pivoted thereto near its periphery, a spring for swinging the signal in one direction upon its pivot and yieldingly holding it in one position, and devices by which it may be swung in the other direction, substantially as described.

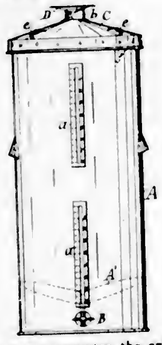
4 The combination, with a tubular body or socket provided with an annular chamber or recess formed in its interior and an orifice through its side, and a mouthpiece detachably secured thereto, of a ring or annulus detachably secured in such chamber or recess, a signal pivoted thereto and provided with a finger-piece extending through such orifice whereby to swing the signal in one direction, and a spring for swinging it in the other and yieldingly holding it in contact with the ring or annulus, substantially as described.

5. The combination, with a tubular body or socket provided with an annular chamber or recess in its end and an orifice through its walls, and a mouthpiece secured therein, of a ring or annulus detachably clamped between the vertical walls of the chamber or recess and the inner end of the mouthpiece, a whistle pivoted to the face of such ring or annulus near its periphery and provided with a finger-piece that extends outward from its edge over the pivot to the opposite side thereof and through said orifice, for swinging such whistle in one direction, and a spring for swinging the whistle in the opposite direction and yieldingly holding it in contact with the ring or annulus, substantially as described.

6. The combination, with a tubular body or socket provided with a chamber or recess in its end, and an orifice through its walls, and a mouthpiece detachably secured thereto, of a ring or annulus detachably secured in such chamber or recess, a signal pivoted thereto and provided with a finger-piece that extends outward through said orifice, and a secondary signal or telltale, comprising an orifice and lever arranged with its free end in close relationship to the said finger-piece, substantially as described.

7. The combination, with a ring or annulus provided with lugs on its side, and a whistle composed of two perforated hemispherical disks united in lenticular form and provided with two narrow radially-extended strips bound together to form a finger-piece, and carrying lugs, and a pivot passing through these lugs and through the former lugs, to hinge the whistle to the ring or annulus, substantially as described.

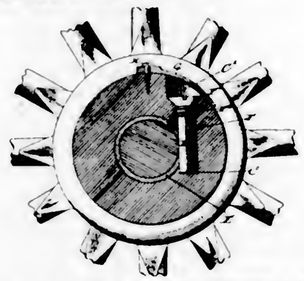
641,849. CREAM-SEPARATOR. ELLSWORTH P. DOTY, Cato, N. Y., assignor of one-half to Charles A. Chase, same place. Filed June 9, 1899. Serial No. 719,927. (No model.)



Claim.—1. In a cream-separator, the cylindrical body A, provided with a bottom which is inclined toward one side, and which is raised a distance above the lower end of the body, a faucet secured to the bottom and inclosed by the chamber in the lower end of the body, there being a circular series of perforations near the top edge of the cylindrical body, a reversible funnel-shaped cover provided with a flange to inclose the upper end of said body and of sufficient size to permit air to pass from the outside to the said holes, a strainer at the center of the cover, and a conical deflector connected to the cover but remote from the strainer, said deflector having a circular groove near its circular edge, substantially as and for the purpose described.

2. In a cream-separator, the cylindrical body provided with an inclined bottom, a faucet connected to the lowest point of said bottom, a reversible funnel-shaped cover provided with a flange to inclose the upper end of said body, and of a size to provide an annular air-space between the flange and the outer surface of the cylindrical body, standards *c*, *c*, secured to the cover to rest on the top edge of the body when the cover is inverted, a strainer in the center of the cover, a conical deflector supported below the strainer and having its center nearer the strainer than its periphery, and having a circular groove on the side turned toward the cover, and near the periphery of the deflector, as and for the purpose described.

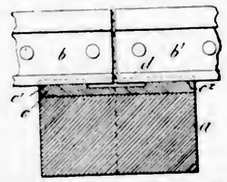
641,850. CARRIAGE-WHEEL OILER. PETER H. FISHELL, Marion, Iowa, assignor of one-half to G. L. Snyder, same place. Filed Oct. 16, 1899. Serial No. 733,846. (No model.)



Claim.—1. A carriage-wheel oiler, comprising a hub provided with an oil-hole tangential to and intersecting the bore thereof, and a plug fitting in said hole and extending each side of the opening into said bore, said plug being screw-threaded a short distance near the upper end, substantially as and for the purpose set forth.

2. In a carriage-wheel oiler, the combination with a hub having an oil-hole therein tangential to the axle-bore thereof and intersecting the same, of a plug fitting in said hole and screw-threaded a short distance near its upper end, and an elastic cap attached to the hub and adapted to cover the oil-hole and the head of said screw, as described.

641,851. JOINT FOR RAILS. AUGUST K. FLEISCHER, Christiania, Norway. Filed Oct. 14, 1899. Serial No. 733,639. (No model.)



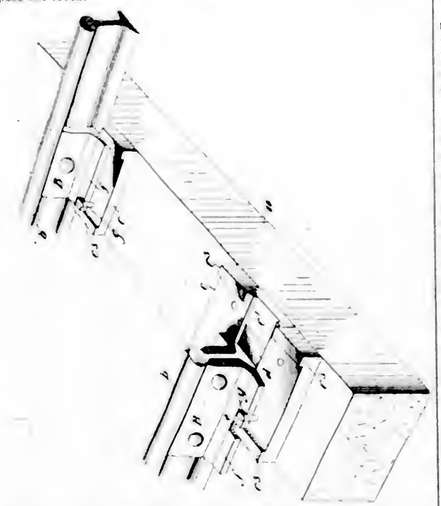
Claim.—A rail-chair provided with a bearing-surface on opposite sides of a recess formed in said plate, over which recess the rail ends project, when in position on the chair, said bearing-surfaces sunk below the upper face of the chair to lock the rail ends against lateral displacement, substantially as set forth.

641,852. ATTACHMENT FOR RAILS. AUGUST K. FLEISCHER, Christiania, Norway. Filed Oct. 14, 1899. Serial No. 733,640. (No model.)

Claim.—1. A rail-chair having a rail-seat sunk below its upper face, and flanges projecting therefrom on opposite sides and at each end of said rail-seat, for the purpose set forth.

2. The combination with a railway-rail, a sleeper, and a chair having a rail-seat sunk below its upper face, and flanges projecting therefrom on opposite sides, and at each end of said rail-seat, and means for bracing the rail to the chair held against displacement in the direction of the length of the rail by the aforesaid flanges, for the purpose set forth.

3. The combination with a railway-rail, a sleeper, and a chair having a rail-seat sunk below its upper face, and flanges projecting therefrom on opposite sides and at each end of said rail-seat: of a brace having a foot-flange fitting between said flanges, for the purpose set forth.



641,853. WIRE-JOINT. ALFRED GARTNER, Paterson, N. J., assignor to Charles H. McIntire, Newark, N. J. Filed Nov. 27, 1899. Serial No. 738,323. (No model.)

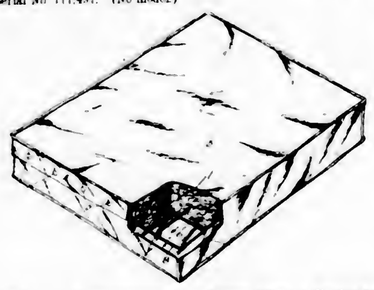


Claim.—1. A connector for electric wires, consisting of two metal tubes lengthwise secured together, one end of the one tube extending beyond the corresponding end of the other, said tubes being adapted to receive the wires from opposite directions and to be twisted together with said wires, substantially as shown and described.

2. A connector for electric wires, consisting of two metal tubes—lengthwise secured together, one end of the one tube extending beyond the corresponding end of the other, said tubes being adapted to receive and be penetrated by the wires from opposite directions, and to be twisted together with said wires, the end portion of each wire extending through and beyond its respective tube and is in contact with the end portion of the other tube, substantially as and for the purposes described.

3. A connector for electric wires, consisting of two metal tubes—lengthwise secured together, one end of the one tube extending beyond the corresponding end of the other, said tubes being adapted to receive and be penetrated by the wires from opposite directions, and to be twisted together with said wires, the end portion of each wire extending through and beyond its respective tube and is coiled around the end portion of the other tube, substantially as and for the purposes described.

641,854. MATTRESS. THOMAS S. GILL, Richland, Fla., assignor of one-half to Jesse I. Cross, same place. Filed May 19, 1899. Serial No. 717,497. (No model.)



Claim.—1. In combination with fibrous filling, a diaphragm located between opposite sides of the filling and consisting of crossing wires, the filling being secured between the meshes formed by the crossing wires, substantially as described.

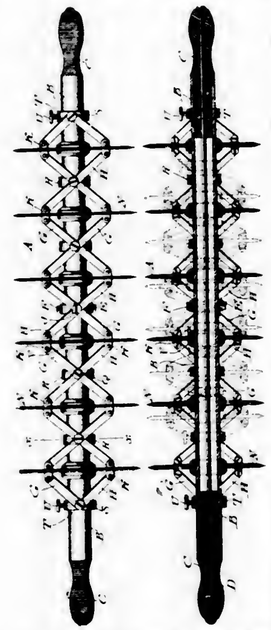
2. In combination with fibrous filling, a diaphragm located between opposite sides of the filling and consisting of crossing wires having terminal eyes and confining the filling between the meshes formed by the crossing of said wires, and a binder passed through the terminal eyes of the wires and securing them together and encircling the filling, substantially as described.

3. A mattress or similar article having a reticulated wire diaphragm or mesh-frame, and fibrous filling material secured in the meshes of said diaphragm or frame and held in its operative position by the diaphragm and projecting from the opposite sides of the latter, and a removable inclosing sheath or casing, substantially as specified.

4. A mattress or similar article comprising a fibrous filling, a reticulated wire diaphragm or mesh-frame embedded in the same between the planes of the opposite side surfaces thereof and having the fibrous material threaded through the meshes thereof, and an inclosing sheath or casing, substantially as specified.

5. A mattress consisting of fibrous filling, a diaphragm located between opposite sides of the filling and consisting of crossing wires having terminal eyes and confining the filling between the meshes formed by the crossing of said wires, a binder passed through the terminal eyes of the wires and securing them together and encircling the filling, and a textile casing removably inclosing the bound filling and having an end closed by a flap provided with detachable fastenings, substantially as set forth.

641,855. ADJUSTABLE CUTTER. ADOLPH A. GLASER, Philadelphia, Pa. Filed Sept. 27, 1899. Serial No. 731,820. (No model.)



Claim.—1. In an adjustable cutter, a mandrel having a plurality of knives mounted thereon, and connections mounted on said mandrel and common to said knives, whereby the latter are simultaneously adjustable according to requirements.

2. In an adjustable cutter, a mandrel, a plurality of knives mounted thereon, and toggle-levers having their ends connected with adjacent knives whereby the latter are simultaneously adjustable.

3. In an adjustable cutter, a mandrel, a plurality of knives mounted thereon, toggle-levers pivotally connected with said knives and means for locking the parts in the desired position.

4. In an adjustable cutter, a mandrel, a plurality of knives mounted thereon, collars intermediate said knives mounted on said mandrel and toggle-levers common to said knives and said intermediate collars.

5. In an adjustable cutter, a mandrel, a stationary collar mounted thereon, a plurality of knives movably mounted on said mandrel, a

plurality of collars intermediate said knives and toggle-levers common to said stationary and movable collars and common to said knives.

6. In an adjustable cutter, a mandrel, a stationary collar mounted thereon, toggle-levers pivoted to each other and located on either side of said collar, a plurality of knives movably mounted upon said mandrel and a plurality of collars intermediate said knives, said toggle-levers being common to said stationary and movable collars and to said knives.

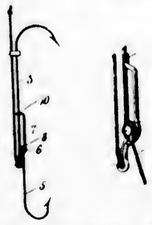
7. In an adjustable cutter, a mandrel, a stationary collar secured thereto, a series of blades or knives adjustably mounted on said mandrel, slots oppositely arranged in said knives, guides in said slots, a series of toggle-levers arranged on either side of said mandrel and pivotally secured to said guides, movable collars intermediate said knives, connections common to said collars and levers, and means for locking the latter in the desired position.

641,856. **THERMOMETER-CASE.** JOHN M. GRAY, Port Carbon, Pa. Filed Mar. 1, 1899. Serial No. 707,314. (No model.)



Claim.—The combination with a casing having an open upper end, of a tube disposed within the casing and projecting above the upper end thereof, a bead upon the projecting end of the tube, a rubber cap engaged over the bead and having a central perforation, a cap for the casing adapted for engagement therewith and having a narrowed upper portion resulting in the formation of a shoulder which extends inwardly beyond the upper end of the tube and in the path of outward movement thereof, whereby the shoulder will receive contact of the rubber cap when the tube is moved outwardly of the casing, an antiseptic solution within the bottom of the tube, and a filling snugly filling the tube upon the upper surface of the solution and adapted to cover the solution and to permit the passage of a thermometer therethrough and into the solution, said thermometer being adapted to pass through the perforation in the rubber cap and having a diameter greater than the normal diameter of the perforation, said thermometer being adapted to lie in a position to be free from engagement with the end of the cap of the casing when the tube is moved outwardly and into engagement with the shoulder of the cap.

641,857. **FISH TRAP-HOOK.** MOSES GREER, Atlanta, Ga. Filed May 31, 1899. Serial No. 718,923. (No model.)



Claim.—1. A trap-hook comprising a supporting-bar, a striker hinged to said supporting-bar, a yielding clasp holding the striker normally to the supporting-bar, and a bait-hook having pivotal sliding connection with the striker.

2. A trap-hook comprising a striker having its end bent to form an attaching-eye, and a slide longitudinal of the striker, and a bait-hook pivotally connected in said slide and movable longitudinally of the trap-hook; substantially as set forth.

3. A trap-hook comprising the striker, the bait-hook having a pivotal sliding connection with the striker, and a swell for retaining the bait-hook with a yielding force against sliding movement on the striker; substantially as set forth.

4. In a trap-hook, the combination of a striker and the bait-hook secured to the striker through the medium of the telescoping stud 12 and bur 13; substantially as herein set forth.

641,858. **FRONT-FORK CROWN FOR VELOCIPEDES.** JOHN B. HALIFAX, Chicago, Ill., assignor to the Geo. L. Thompson Manufacturing Company, of Illinois. Filed May 22, 1899. Serial No. 717,732. (No model.)

Claim.—1. A sheet-metal fork-crown, comprising an outer shell provided with hollow arms having a seam extending longitudinally throughout the length of both and an integral stem drawn out from a portion of the blank untraversed by said seam and a reinforcement inserted in said outer shell and extending through both crown-arms and protruding through the latter to form fork-nipples, said reinforcement being provided at its center with an integral nipple extending up into the stem of the outer shell and fitting the interior thereof



2. A sheet-metal fork-crown comprising an outer shell provided with hollow arms having a seam extending longitudinally throughout the length of both arms and an integral stem drawn up from a portion of the blank untraversed by said seam, a lining reinforcement fitting within said stem and provided with a radially-outturned portion fitting within the base portion of the stem and a second main reinforcement inserted within said outer shell and extending through both crown-arms, said reinforcement being provided at each end with a fork-nipple arranged to protrude from the end of the crown-arm and being provided at its center with an integral nipple extending to and telescoping partly with in the stem of the outer shell.

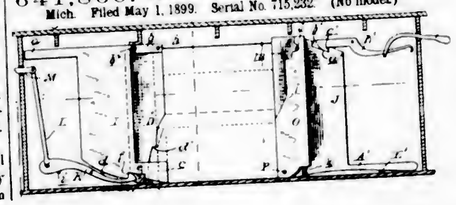
3. A fork-crown comprising an outer shell provided with hollow arms having a seam extending longitudinally throughout the length of both arms along the inner sides of the latter and having an integral stem drawn out at the junctore of the arms at the side opposite the seam surrounded by an angular bearing supporting-surface, a lining reinforcement conformed to, and fitting within said stem and having a radial portion extending beneath the bearing supporting-surface, and a second reinforcement inserted in said outer shell, having arms extending through the crown-arms and protruding from the latter to form fork-nipples and provided at its center with an integral nipple extending to, and telescoping partly within, the lower end of the stem; said reinforcement-arms being made approximately semicircular in cross-section throughout the principal part of their length within the crown-arms and having circumferentially complete nipple portions, substantially as described.

641,859. **VINE-SUPPORT.** EDWARD A. HENRY, Woodville, Tex. Filed Mar. 6, 1899. Serial No. 707,941. (No model.)



Claim.—In a vine-support, the combination with two series of standards, the elements of which are oppositely disposed in pairs, a screw-eye at the upper end of each standard, the eyes of each series lying in alinement, a transverse beam for each pair of standards having a screw-eye at each end in alinement with the eyes of their respective standards, a crown-pole passed through the alining eyes of each series of standards and their respective cross-beams, and on which the standards and beams are adapted for oscillatory movement, and a common attaching means connected with each crown-pole and inclosing portions of each standard-eye and its adjacent beam-eye to prevent movement thereof longitudinally of the crown-pole, whereby the standards and cross-beams may be adjusted mutually to lie at different angles.

641,860. **GRAIN-CAR DOOR.** GEORGE P. HOFFMAN, Durand, Mich. Filed May 1, 1899. Serial No. 715,232. (No model.)



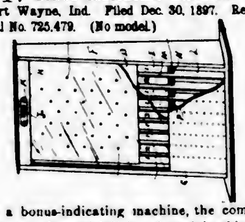
Claim.—1. In a grain-car door, the combination of a slotted housing arranged adjacent to one side of the door-opening, a door-section for closing a portion of said opening, pivoted and adapted to swing in its own plane within the housing, and an extension upon the section at its pivoted side, and in the plane of the section, constructed to extend vertically within and fully close the housing when the door is in its forward or closed position.

2. In a grain-car door, the combination of a slotted housing arranged adjacent to one side of the door-opening, a door-section for covering a portion of the said opening pivoted and adapted to swing in its own plane within the housing, said section being of a length to entirely close the housing when in its open or retracted position, and an extension upon the section side having the lesser dimension, said extension being of a length sufficient to make the length of said lesser side equal at its edge to the length of the longer side, to fully close the housing when the section is in its closed position.

3. In a grain-car door, the combination of slotted housings arranged respectively adjacent to opposite sides of the door-opening, a door-section pivoted to swing into one of said housings in its open position and in its closed position to extend across into the slot of the opposite housing and a latch-strip in said latter housing adapted to engage with said door-section to lock the same and to close the slot in said housing.

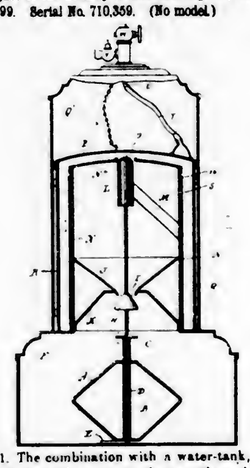
4. In a grain-car door the combination of slotted housings arranged respectively adjacent to opposite sides of the door-opening, door-sections pivoted to swing in parallel planes adjacent to each other and respectively into said opposite housings, and latch-strips in said housings adjacent to said door-sections each adapted to engage with the door-section pivoted in the opposite housing, when in its closed position.

641,861. **BONUS-INDICATING MACHINE.** CHARLES D. C. HUESTIS, Fort Wayne, Ind. Filed Dec. 30, 1897. Renewed July 29, 1899. Serial No. 725,479. (No model.)



Claim.—In a bonus-indicating machine, the combination of a coin-diverting pin-board, a multiplicity of receiving-bins beneath said pin-board, a sliding bar having a number of projecting pins corresponding with the respective bins, and being adapted to normally obstruct their entrances; and a removable pane having indicating characters corresponding in position with said bins, and varying in denomination, substantially as shown and described.

641,862. **ACETYLENE-GAS LAMP.** JOSEPH JAUCH, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Mar. 24, 1899. Serial No. 710,359. (No model.)

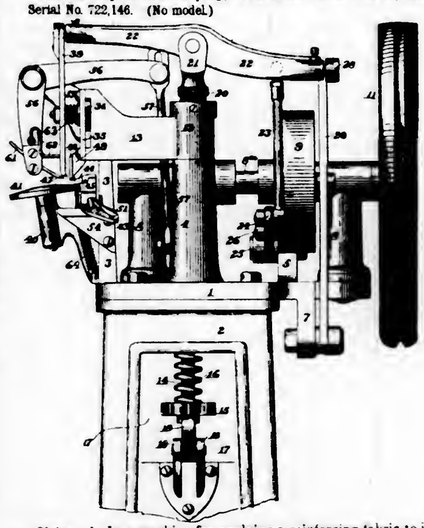


Claim.—1. The combination with a water-tank, of a carbid-receptacle located above the same, a valve-seat through which calcium carbid is fed from the said receptacle into the said tank, a valve-stem extending downward into the said tank and upward above the said receptacle, a float located within the tank and coacting with the lower end of the stem which it lifts to force the valve against its seat, a gas-bell located over the said carbid-receptacle and engaging, when in its depressed position, with the upper end of the valve-stem which it depresses for the opening of the valve which is at other times closed by the lifting power of the float, a shell inclosing the said bell and hence the carbid-receptacle above which it extends, and an annular water-chamber in which the lower edge of the bell is submerged.

2. The combination with a water-tank, of a carbid-receptacle located directly above the same, a support for the said receptacle, an annular water-chamber surrounding the said support, a gas-bell located above the said carbid-receptacle and having its lower portion submerged in the water in the said water-chamber, a valve for controlling the fractional feeding of calcium carbid from the cartridge-chamber into the said tank, and a valve-stem carrying the said valve and extending downward for coaction with the said float which lifts the stem to close the valve, and extending upward for coaction with the said bell which depresses the stem to open the valve.

3. The combination with a carbid-receptacle having a valve located in the lower end thereof for controlling the fractional feeding of calcium carbid therefrom, a valve-stem upon which the valve is mounted, extending upward through the receptacle, a gas-bell extending down over the receptacle, and coacting with the upper end of the stem for depressing the same, and opening the valve, and a bearing located within the upper end of the receptacle and supported therein by a handle-arm, by means of which the receptacle is manipulated.

641,863. **MACHINE FOR REINFORCING INSOLES.** ALBERT E. JOHNSON, Brockton, Mass., assignor, by direct and mesne assignments, to the Economy Machine Company, Portland, Me. Filed June 28, 1899. Serial No. 722,146. (No model.)



Claim.—1. In a machine for applying a reinforcing fabric to insoles, the combination of a work-support; a gage to locate the position of the sole upon said support, and guide it as it is being fed through the machine; a presser-plate provided with an acute-angled inwardly-projecting lug constructed and arranged to fit the inclined bottom and acute angle of the sole-channel; means for imparting to the acute-angled end of said presser-plate a vertical reciprocation to clamp the work between it and said work-support; means for imparting to said plate a laterally-vibrating movement to feed the work; and means for imparting to said presser-plate an independent vibratory movement toward and from the gage, the motion toward the gage being made while said plate is pressed into firm contact with the work, whereby the reinforcing material is firmly pressed into contact with the inclined surface of the channel, and is forced into the acute angle of said channel, and into contact with the inner surface of the channel-lip.

2. In a machine for applying a reinforcing textile fabric to a channeled insole, the combination of a work-support; a gage arranged above the upper surface of said work-support; a vertically-reciprocating and laterally-vibrating presser-plate provided at its lower end with an acute-angled inwardly-projecting lug constructed and ar-

ranged to fit the inclined bottom and acute angle of the sole-channel; means for imparting to said presser-plate a vertically-reciprocating and a laterally-vibrating movement in one direction to feed the work; means for vibrating said presser-plate in a plane at right angles to the line of feed of the material to press the reinforcing material in the acute angle of the channel and cause it to adhere to the inner surface of the channel-lip; a reciprocating cutter; a soft-metal plate to receive the impact of the edge of said cutter; means for moving said cutter toward and from said soft-metal plate; and means intervening between the cutter-carrier and presser-plate whereby said plate is compelled to move in the same direction as said cutter and in unison therewith

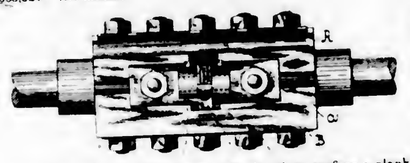
3. In a sole-reinforcing machine the combination with a work-support, and a gage to locate the work upon said support, of a vertically and laterally movable presser-plate, provided with an acute-angled inwardly-projecting lug, constructed and arranged to fit the inclined bottom and acute angle of the channel; the elbow-lever 56; the spring-arm 62 carried by the pendent arm of said lever in position to bear against said presser-plate; means for imparting to said lever a vibratory movement to move the lower end of said presser-plate toward said guide; and the spring 63 constructed and arranged to move said presser-plate in the opposite direction.

4. The combination in a sole-reinforcing machine, of a work-support; an adjustable gage to receive the edge of the sole and guide it while being fed; a vertically-movable bracket; a swiveling support carried by said bracket; a two-armed lever fulcrumed in said swiveling support; a presser-plate mounted upon an adjustable fulcrum and provided at its lower end with an acute-angled inwardly-projecting lug or operating part and connected at its upper end to one end of said two-armed lever; means for imparting to said lever vertical and horizontal vibrations; and means for raising said bracket and the parts carried thereby to enable the work to be placed in position on the work-support.

5. In a sole-reinforcing machine the combination with a work-support and a suitable gage for locating the work on said support, of a vertically-reciprocating and laterally-vibrating presser-plate having an inclined lower end and an acute-angled inwardly-projecting lug; the bracket 13; the stand 55 secured to and movable vertically with said bracket; a lever fulcrumed upon said stand; a cutter adjustably secured to the movable end of the pendent arm of said lever; the disk 10 provided with the cam-path 60; lever 58; and rod 57 for imparting motion to said lever; and means for imparting to the lower end of said presser-plate a vertical reciprocation and a vibratory motion in two vertical planes at right angles to each other.

6. In a machine for reinforcing insoles, the combination with a work-support, a gage to locate the sole upon the work-support, and means for pressing the reinforcing material into the acute angle of the channel and into firm contact with the inner surface of the channel-lip, of the lever 56 mounted upon an adjustable fulcrum, a cutter carried by the free end of the pendent arm of said lever and means for imparting to said lever a vibratory movement substantially as described

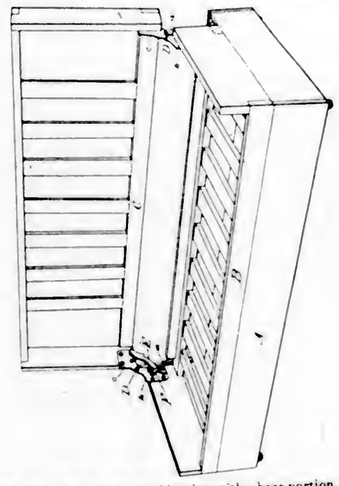
641,864. CUTTER FOR WOOD-PLANING MACHINES. GREENLEAF JOHNSON, Jr., Baltimore, Md. Filed June 15, 1898. Serial No. 683,527. (No model.)



Claim.—A pair of cutters, oppositely placed, to surface a plank and reduce it into two boards with tongues at their adjacent edges, at one operation, each one of which comprises a surfacing-cutter, and a cutter adapted for adjustment longitudinally of the cutter-head, having three cutting edges, viz., the first to cut a shallow rectangular channel, the second which projects beyond the first and is provided with hollow sides and is narrower than the first, adapted to cut to near the center of the tongue, and the third which projects still farther and has hollow sides which cut in continuation of the second, to penetrate to the center of the tongue, the last two edges being set back from the first in the order named, so as to cut independently, substantially as specified

641,865. SOFA-BED. HUGO R. KUERSTEN, Chicago, Ill., assignor to the Jamestown Lounge Company, Jamestown, N. Y. Filed July 28, 1899. Serial No. 725,396. (No model.)

Claim.—1. In a sofa-bed, the combination with a base portion, a seat portion and a back portion, of a hinge common to all of said portions and connecting same pivotally together, said portions of said hinge secured to said seat and back portions respectively carrying a pivoted lug provided with ears and an arm having projections and a recess adapted to engage the ears of said lug to turn said lug to opposite limits of its movement, whereby said seat and back are alternately locked together at an angle and released, said arm and lug being actuated by the relative movements of said seat and back



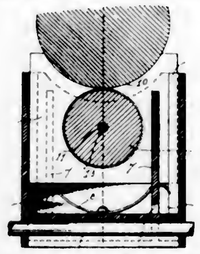
2. In a sofa-bed, the combination with a base portion, a seat portion and a back portion, of a hinge common to all of said portions and connecting same pivotally together, said portions of said hinge secured to said seat and back portions respectively carrying a pivoted lug provided with ears, and a pivoted arm adapted to pass over said lug and provided with projections adapted to engage said ears of said lug to turn the latter to opposite limits of its movement, and a recess in said arm adapted to be engaged by one of said ears of said lug when the latter is at one limit of its movement to lock said seat and back portions together at an angle, said lug and arm being relatively actuated by relative movements of said seat and back portions.

3. In a sofa-bed, the combination with a rigid base portion and seat and back portions pivotally mounted thereon and movable with relation to each other, of an arm pivotally secured to one of said last-named portions and provided adjacent its ends with projections, and a recess between said projections, and a lug pivotally mounted on the other of said portions and provided with an ear adapted to engage one of said projections of said arm and the recess therein, and an ear adapted to engage said other projection on said arm, said lug being adapted to be turned in opposite directions by said projections to alternately throw said first-named ear into and out of the path of said recess, whereby said seat and back portions are alternately locked together at an angle and released, said arm and lug being actuated by relative movements of said seat and back portinns.

4. In a sofa-bed, the combination with a rigid base portion and seat and back portions pivotally mounted thereon and movable with relation to each other, of an arm pivotally secured to one of said last-named portions and provided adjacent its ends with projections, and a recess between said projections, and a lug pivotally mounted on the other of said portions and provided with an ear adapted to engage one of said projections of said arm and the recess therein, and an ear adapted to engage said other projection on said arm, said lug being adapted to be turned in opposite directions by said projections to alternately throw said first-named ear into and out of the path of said recess, whereby said seat and back portions are alternately locked together at an angle and released, and means for limiting the motion of said lug, said arm and lug being actuated by relative movements of said seat and back portions.

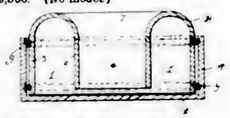
5. In a sofa-bed, the combination with a rigid base portion and seat and back portions pivotally mounted thereon and movable with relation to each other, of an arm pivotally secured to one of said last-named portions and provided adjacent its ends with projections, and a recess between said projections, and a lug pivotally mounted on the other of said portions and provided with an ear adapted to engage one of said projections of said arm and the recess therein, and an ear adapted to engage said other projection on said arm, said lug being adapted to be turned in opposite directions by said projections to be alternately locked together at an angle and released, means for limiting the movements of said lug, and a spring bearing upon said lug and adapted to hinder the free motion thereof, said arm and lug being actuated by relative movements of said seat and back.

641,866. AUTOMATIC JOURNAL-OILER FOR LOCOMOTIVE-AXLE JOURNALS. EDWIN R. KINNEY, Norwalk, Ohio. Original application filed June 21, 1899, Serial No. 721,264. Divided and this application filed Nov. 6, 1899. Serial No. 735,919. (No model.)



Claim.—In an automatic journal-oiler for locomotive-axle journals, a body portion comprising an oil-well, in form adapted to be substituted for the lower section of a locomotive-axle journal-box of the form in common and general use on locomotives, having walls 5 integral therewith, forming with the ends of the body portion transverse vertical pockets, in combination with oil-retaining plates inserted in the pockets and movable vertically therein, and having incuts in their upper edges adapted to conform circumferentially to the locomotive-axle journal; an oiling-roller having its ends journaled in the plates and held thereby within the well parallel with and underneath the axle-journal; and springs inserted in the pockets beneath the plates, adapted to yieldingly hold the plates, and therewith the roller, in constant contact with the bearing-surface of the axle-journal, substantially as and for the purpose described.

641,867. SPONGE-CUP. HARRY C. KENNEDY, Philadelphia, Pa., assignor to Julius E. Kennedy, Denver, Colo. Filed Mar. 18, 1899. Serial No. 709,580. (No model.)



Claim.—1. A sponge-cup comprising separable outer and inner members that fit one within the other, the outer member being a cup or receptacle open at its upper end, and the inner member being provided with an inner chamber open at its upper end and an outer chamber closed at its upper end and open at its lower end, said outer and inner chambers of the inner member communicating at their lower end portions, when the members are assembled in operative relation.

2. A sponge-cup comprising two separable members A and B, the member A forming a cup or receptacle, and member B being provided with an annular chamber 1 open at its lower end and an inner sponge-compartment 4 open at its upper end and inclosed by said chamber 1, and communicating therewith.

3. A sponge-cup comprising two separable members A and B, the member B being provided with a sponge-compartment 4 open at its upper end and a surrounding annular chamber 1 open at its lower end and communicating with said compartment 4, the said compartment and annular chamber being formed by two walls joined together at their upper edges.

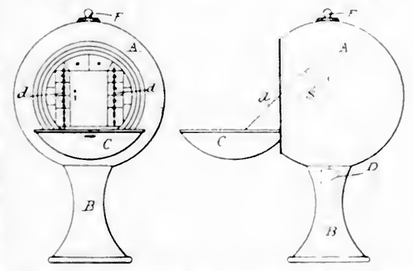
4. A sponge-cup comprising two separable members A and B, the member A forming a cup, and the member B being provided with a sponge-compartment 4 open at its upper end and an annular surrounding chamber 1 communicating therewith, said compartment and chamber being formed by an outer and inner wall joined together at their upper edges, with the inner wall shorter than the outer wall.

5. A sponge-cup comprising two separable members A and B, the member A forming a cup or receptacle, and the member B being provided with an inner wall 2 and an outer wall 3 joined at their upper edges and seated within said member A, the said walls 2 and 3 forming an outer chamber 1 and an inner compartment 4 communicating with each other at their lower ends.

6. The combination with an outer cup-like member A, of an inner member B being provided with an annular chamber or reservoir, and a sponge-chamber surrounded thereby and communicating therewith, and a packing inserted between the cup-like member and the inner member; whereby the passage of the water from the reservoir between the chambers by a sudden pressure on the sponge is prevented.

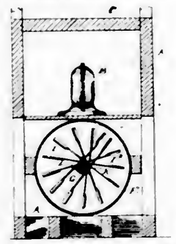
7. A sponge-cup comprising two members A and B, the member A forming a cup or receptacle, and the member B being provided with an outer annular water-chamber 1 open at its lower end, and an inner sponge-compartment 4 inclosed by said water-chamber and communicating therewith, said compartment having an enlarged upper end portion; whereby the water is prevented from overflowing the sponge-compartment in case of excessive pressure on the sponge.

641,868. COMBINED SAFE AND DESK. JOSEPH M. KLINGELSMITH, Chatham, N. Y. Filed Jan. 12, 1899. Serial No. 701,963. (No model.)



Claim.—In a combined safe and writing-desk, a safe provided with a door adapted to open downward and to be retained in a horizontal position forming a writing-desk; a hollow standard upon which said safe is supported; compensating weights arranged within said standard, one on each side of the safe; chains connecting each of said weights with said door, said chains passing over suitable sheaves, substantially as described.

641,869. GRAIN CLEANER OR BEATER. CHARLES W. KLOCK and GEORGE W. ROSE, Hennessey, Okla.; said Rose assignor to Albert S. Barr, same place. Filed June 15, 1899. Serial No. 720,684. (No model.)



Claim.—1. In a grain beater or cleaner, the combination of a hollow cylindrical casing, a rotating shaft extending lengthwise thereof, and a series of beater-bars, each bar having a flat central portion secured to the shaft, and inclined outer ends projecting nearly to the cylindrical casing, all substantially as described.

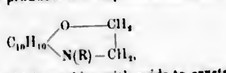
2. In a grain-beater, the combination of the inclosing casing, an axial shaft therein, and a series of beater-bars each independently secured to the shaft by a yoke passing through the bar and the bend of the yoke lying next the shaft, and securing mechanism, whereby the bars may be arranged at different distances and at different radial positions, all substantially as described.

3. In a grain-beater, the cylindrical casing having proper feed and exhaust mechanism, the rotating shaft arranged axially of said casing, and the beater-bars, each having a flat central portion and inclined ends, and a yoke with its ends extending through holes in the bar and its bend around the shaft and nuts securing each bar to the shaft, all combined substantially as described.

4. In a grain-beater, the shaft, an integral beater-bar having a flat central portion and inclined ends, and a yoke with its ends extending through holes in the flat portion of the beater-bar and its bend around the shaft, and nuts on the yoke whereby the bar is secured, all substantially as described.

641,870. NAPHTHALANMORPHOLIN. LUDWIG KNORR, Jena, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Feb. 4, 1899. Serial No. 704,452. (Specimens.)

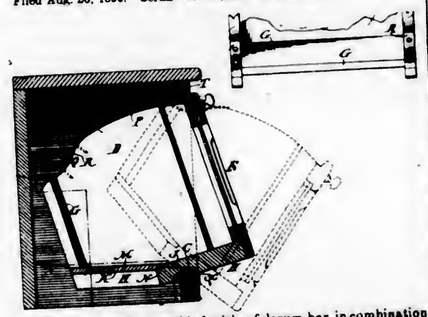
Claims.—1. As new products the naphthalanmorpholins of the general formula:



being basic compounds which combine with acids to crystalline salts soluble in water with a neutral reaction, colorless and easily soluble in alcohol, ether, benzene and soluble with difficulty in water.

2. As a new product the ethylnaphthalanmorpholin, being a thick oil, distilling at 320° centigrade, forming a chlorhydrate crystallizing in prisms, melting at 237° to 238° centigrade, soluble in water with a neutral reaction, the oil is easily soluble in alcohol, ether, benzene and soluble with difficulty in water.

641,871. GROCER'S BIN. FRANK W. KRAUSE, Philadelphia, Pa. Filed Aug. 26, 1899. Serial No. 728,541. (No model.)



Claim.—1. A casing provided with a fulcrum-bar, in combination with a bin, the latter having sides, front face and part of the bottom projecting outside of said casing forward of said fulcrum-bar, said bottom being formed of diverging sections, the front section having a recess in its under side in advance of its rear terminal, said front section being sustained at said recess on said bar in both the open and closed positions of the bin and means for enabling the rear section of said bottom to be removed.

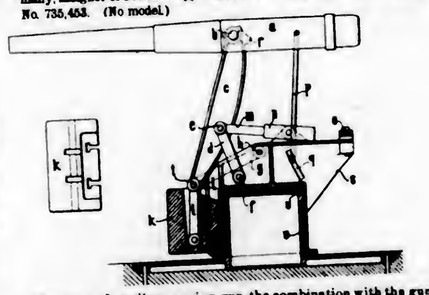
2. A bin having a recess in the under side of its bottom, and depressions on the upper walls of its sides at the rear thereof, and a casing having on its lower end a fulcrum-bar adapted to receive said recess, and on its upper end a cross-bar with which said walls may abut at the rear terminals of the depressions, said bottom being formed of diverging sections, the front section having a recess in the underside thereof and projecting with the attached sides and front face outside of said casing forward of said recess, said bin being supported by said front section on said fulcrum-bar in both the open and closed positions thereof and means for enabling the rear section of said bottom to be readily removed.

3. A bin consisting of front, sides, back and bottom and a recess in said bottom, said sides having grooves therein, said bottom being formed of separate sections, one of which is fixed to said sides, and the other one is removably fitted in said grooves and supported in front on said fixed section.

4. A bin consisting of front, sides, back and bottom and a recess in said bottom, said sides having grooves therein, and said bottom being composed of a removable rear section which is fitted in said grooves, and a stationary front section which is formed with a rabbet on which the end of the removable section is seated, and a casing having a transversely-extending fulcrum-bar at bottom, said recess receiving said bar and being formed in the under side of said stationary section, the latter projecting forwardly outside of said casing.

5. A bin, a casing, a fulcrum-bar on the bottom of the casing on which said bin may rock, a cross-bar on the top of the casing, and an upwardly-projecting limb on the upper wall of the side of said bin adapted to abut against said bar, the portion of said wall in front of said limb and back of the main portion of said upper wall being depressed, said fulcrum-bar constituting the front of the bottom of the casing, the bottom of the bin being formed of upwardly-diverging sections, the main portion of the front section of said bottom, the front face and the adjacent portions of the side of the bin projecting outwardly of the casing beyond said fulcrum-bar, the latter being seated in a recess in the under side of said front section forward of the rear terminal thereof, in combination with means for enabling the rear section of said bottom to be removed.

641,872. DISAPPEARING GUN. JOHANNES KROSE, Essen, Germany, assignor to Fried. Krupp, same place. Filed Nov. 1, 1899. Serial No. 735,453. (No model.)



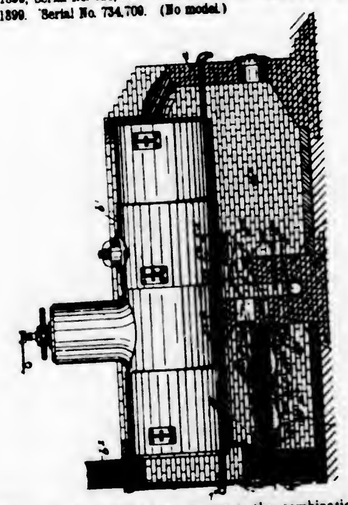
Claim.—1. In a disappearing gun, the combination with the gun-barrel and carriage-frame, of a floating gun-barrel support; links hinged to the carriage-frame and to the floating support, and crossing each other; and a suitable resistance to take up the force of the recoil, substantially as specified.

2. In a disappearing gun, the combination with the gun-barrel and carriage-frame, of a floating gun-barrel support; links crossing each other and hinged at their ends to the carriage and to the floating support, and a weight guided in a vertical direction and supported by links pivoted thereto and to the lower end of the floating gun-barrel support, substantially as specified.

3. In a disappearing gun, the combination with the gun barrel and carriage-frame, of a floating gun-barrel support; links crossing each other and hinged at their end to the carriage and to the floating support, a weight guided in a vertical direction and supported by links pivoted thereto and to the lower end of the floating gun-barrel support, and a recoil-brake connected to the upper cross-link pivot on the floating support, substantially as specified.

4. In a disappearing gun, the combination with the gun-barrel *a* and carriage-frame *z*, of a floating gun-barrel support consisting of two parts *c*, *c* provided at their upper ends with bearings for the trunnions *b*; links *d* and *g* crossing each other and pivoted to the carriage-frame by bolts *f* and *h* respectively and to the floating support by bolts *e* and *i*; a balance-weight *k* guided vertically on the carriage-frame and suspended on the lower end of the floating gun-barrel support, and a recoil-brake *s* having its piston-rod *w* connected to the bolt *e*, substantially as specified.

641,878. FURNACE. GEORGE S. LEE, Hawthorne, N. J., assignor to Fred W. Wentworth, Paterson, N. J. (Original application filed Aug. 29, 1899, Serial No. 728,532. Divided and this application filed Oct. 25, 1899. Serial No. 734,709. (No model.)



Claim.—1. In a combustion apparatus, the combination, with two compartments and a spaced bridge-wall and a partition structure separating said compartments, said bridge-wall having an opening through it, of a suitable fuel-support disposed in one of said compartments in a plane beneath the top of said opening, and air-conducting means discharging through said bridge-wall and disposed beneath said opening, said partition structure being arranged in effective proximity, and having a contracted opening approximately opposed to said opening in the bridge-wall and the discharge end of said air-conducting means, said last-named opening being disposed in the partition structure appreciably below the top thereof, substantially as described.

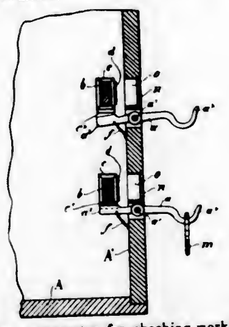
2. In a combustion apparatus, the combination, with two compartments and a bridge-wall and a deflector separating said compartments, and said bridge-wall having openings arranged one above the other and affording communication between said compartments, of a series of tubular grate-bars arranged in one of said compartments and communicating with the subjacent openings, said deflecting-wall being arranged in effective proximity to said openings, and another wall disposed above said deflecting-wall and spaced therefrom to form an opening approximately opposite said first-named openings, substantially as described.

3. In a furnace, the combination, with two compartments and a bridge-wall and a deflecting-wall separating said compartments, and said bridge-wall having openings arranged one above the other and affording communication between said compartments, of a series of tubular grate-bars arranged in one of said compartments and communicating with the subjacent openings, spaced dispersing-blocks arranged in the upper openings, and another wall disposed above said deflecting-wall and spaced therefrom to form an opening approximately opposite said first-named openings, said deflecting-wall being arranged in effective proximity to said openings, substantially as described.

4. In a furnace, the combination, with two compartments, of walls separating said compartments, one of said walls being the bridge-wall and having openings arranged one above the other and the other walls being disposed the one above the other and spaced from said bridge-wall to form a mixing-chamber and also from each other to form a confined opening, a series of tubular grate-bars arranged in one of said compartments and affording communication between the same and the subjacent openings, and beveled and spaced blocks arranged in the upper opening, one of said last-named walls being a deflecting-wall and arranged in effective proximity to said openings, substantially as described.

5. In a furnace, the combination, with two compartments, of walls separating said compartments, one of said walls being the bridge-wall and having openings arranged one above the other and the other walls being disposed one above the other and spaced from said bridge-wall to form a mixing-chamber and also from each other to form a confined opening, a series of tubular grate-bars arranged in one of said compartments and affording communication between the same and the subjacent openings, and beveled and spaced blocks arranged in the upper opening, one of said last-named walls being a deflecting-wall and arranged in effective proximity to said openings, the top of said wall being inclined, substantially as described.

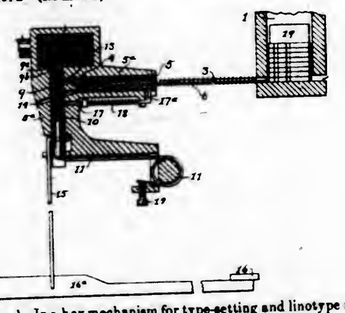
641,874. APPARATUS FOR CHECKING WORKMEN'S TIME. FRIEDRICH W. MAAS, Isserlohn, Germany. Filed Feb. 11, 1899. Serial No. 705,261. (No model.)



Claim.—1. In an apparatus for checking workmen's time, the combination of a rod or carrier having a regular forward movement, a carriage loosely mounted thereon and adapted normally to travel with said rod, means for detaining said carriage and means whereby the workmen can operate said detaining means, substantially as described.

2. In an apparatus for checking workmen's time, the combination of a rod or carrier having a regular forward movement, a carriage loosely mounted thereon and adapted normally to travel with said rod, said carriage being provided with a series of notches, a pivoted lever arranged to engage and disengage with said notches, and means whereby the workman is enabled to operate said lever, substantially as described.

641,875. KEY MECHANISM FOR TYPE-SETTING MACHINES. FRANK MCCLINTOCK, Colorado Springs, Colo., assignor to the Empire Machine Corporation, of New Jersey. Filed Apr. 22, 1899. Serial No. 714,014. (No model.)



Claim.—1. In a key mechanism for type-setting and linotype machines the combination with suitable means for ejecting or releasing types from their containing channels or cases, of a piston adapted to be moved longitudinally within a cylinder and operatively connected to said type-ejecting mechanism, a reservoir or other means for supplying compressed gas to the cylinder, a valve or valves adapted to alternately admit and release compressed gas to and from said cylinder, and means for causing the proper movement of said valve or valves.

2. In a key mechanism for type-setting and linotype machines, the combination with suitable means for ejecting or releasing types from their containing channels or cases, of a piston adapted to be moved longitudinally within a cylinder and operatively connected to said type-ejecting mechanism, a reservoir or other means for supplying compressed gas to the cylinder, a valve or valves adapted to alternately admit and release compressed gas to and from said cylinder, and an operating-key connected to the valve or valves.

3. In combination with means for ejecting or releasing types from their containing-channels, a cylinder having a piston fitted therein which is connected to said type-ejecting mechanism, a reservoir containing compressed gas, a suitable valve or valves adapted to alternately admit and release compressed gas to and from said cylinder, a key or other suitable means for properly operating said valves, and means for locking the key in its depressed position whenever the piston is prevented from making a complete operative movement.

4. In combination with means for ejecting or releasing types from their containing-channels, a cylinder having a piston fitted therein which is connected to said type-ejecting mechanism, a reservoir containing compressed gas, an inlet from said reservoir to the cylinder, a longitudinally-movable valve-rod adapted to open and close said inlet, a spring adapted to hold the valve-rod normally in such position that the inlet will be closed, an outlet from the cylinder passing directly through the valve-rod when in its normal position, and means for causing the required longitudinal movement of said valve-rod.

5. In combination with means for ejecting or releasing types from their containing-channels, a cylinder having a piston fitted therein which is connected to said type-ejecting mechanism, a reservoir containing compressed gas, an inlet from said reservoir to the cylinder, a longitudinally-movable valve-rod having one end adapted to close the inlet, means for normally holding the valve-rod in position to close the inlet against the pressure of the confined gas, an outlet from the cylinder passing directly through the valve-rod when in its normal position, and a key so connected to the valve-rod that its depression will cause the necessary longitudinal movement of said valve-rod.

6. In combination with means for ejecting or releasing types from their containing-channels, a cylinder having a piston fitted therein which is connected to said type-ejecting mechanism, a reservoir containing compressed gas, an inlet from said reservoir to the cylinder, a longitudinally-movable valve-rod having one end adapted to close the inlet, a spring for normally holding the valve-rod in position to close the inlet against the pressure of the confined gas, means for readily changing the tension of said spring, an outlet from the cylinder passing directly through the valve-rod when in its normal

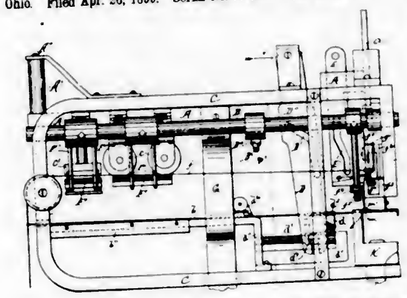
position, and a key so connected to the valve-rod that its depression will cause the necessary longitudinal movement of said valve-rod.

7. In combination with a type-ejecting rod adapted to be forced directly into and through a type-channel and having a spring adapted to return the ejecting-rod back to its normal position after ejecting a type, a cylinder having a piston fitted therein which is attached to said ejecting-rod, a reservoir containing compressed gas, a suitable valve or valves adapted to alternately admit and release compressed gas to and from said cylinder and a key or other suitable means for properly operating said valves.

8. In combination with a type-ejecting rod adapted to be forced directly into and through a type-channel and having a spring adapted to return the ejecting-rod back to its normal position after ejecting a type, a cylinder having a piston fitted therein which is attached to said ejecting-rod, a reservoir containing compressed gas, a suitable valve or valves adapted to alternately admit and release compressed gas to and from said cylinder a key suitably connected to operate said valves, means for locking the key in its depressed position whenever the piston and ejecting-rod are prevented from making a complete operative movement, and a follower-block on the types contained in the channel.

9. The combination with mechanism for ejecting or releasing types from their containing-channels by compressed gas or other equivalent means, of a suitable operating-key and a locking-pin adapted to retain the operating-key in a depressed position whenever the ejecting mechanism fails to complete its necessary normal movement to eject or release a type.

641,876. STAPLING-MACHINE. WILLIAM G. METCALF, Dayton, Ohio. Filed Apr. 26, 1899. Serial No. 714,501. (No model.)



Claim.—1. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members and means for oscillating the other member operated by said vertically-reciprocable member, of ribbon-feeding mechanism actuated by said vertically-reciprocable member, printing mechanism carried on said vertically-reciprocable member, and inking-pads supported on said oscillating member.

2. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members and means for oscillating the other of said members operated by said vertically-reciprocating member, of wire-feeding devices actuated by said oscillating member, and staple forming and driving mechanism actuated by said vertically-reciprocable member.

3. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members and means for oscillating the other of said members operated by said vertically-reciprocating member, of wire-feeding mechanism actuated by said oscillating member, and ribbon-feeding, and staple forming and driving mechanisms actuated simultaneously by said vertically-reciprocable member.

4. In a pin-ticket machine, the combination with a primary vertically-reciprocating member, a primary oscillating member, and means for imparting such oscillating movement thereto operated by the said vertically-reciprocating member, of wire-feeding devices actuated by said oscillating member, a ribbon-feeding device actuated by said vertically-reciprocable member, a staple-former, a staple driver and depositor actuated by said vertically-reciprocable member.

5. In a pin-ticket machine, the combination with a primary vertically-reciprocating member, a primary oscillating member, and means for imparting such oscillating movement to the latter from the former, of ribbon-feeding, and staple forming and driving devices actuated by said vertically-reciprocating member, wire-feeding devices actuated by said oscillating member, a plateo disconnected from said members and adapted to cooperate with the staple-forming mechanism in uniting a staple and ticket, and means for actuating said platen.

6. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members, and means for oscillating the other of said members operated by said vertically-movable member, of ribbon-feeding mechanism, and staple forming and driving devices actuated by said vertically-reciprocating member, wire feeding and cutting devices actuated by said oscillating member, a platen adapted to cut a ticket from said ribbon and to cooperate with the staple-driver in attaching said ticket, and independent means for actuating said platen.

7. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members, and means operated by said vertically-reciprocating member for actuating said oscillating member, of a ribbon-feeding slide, means for operating said slide from the vertically-reciprocating member, type-wheels supported on and actuated by said vertically-reciprocating member, and inking-pads actuated by the oscillating member to ink said wheels.

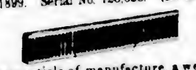
8. In a pin-ticket machine, the combination with two primarily-movable members, means for vertically reciprocating one of said members, and means operated by said vertically-reciprocating member for actuating the oscillating member, of a ribbon-feeding slide, means for actuating said slide from the vertically-reciprocating member, type-wheels mounted on said vertically-reciprocating member, each of said type-wheels having an index-wheel by means of which said wheels may be regulated to vary the printing, and inking-pads actuated by the oscillating member to ink said wheels.

9. In a pin-ticket machine, the combination with an actuating-bar, of a ribbon-feeding device controlled thereby, and one or more series of type-wheels supported on said bar, telescopic tubes extending from said type-wheels, and an index-wheel on each of said telescopic tubes, the figures on said index-wheels corresponding with those on the type-wheels, and means for locking said index-wheels in position after each change in the location of the figures of the type-wheels.

10. In a pin-ticket machine, the combination with a primary actuating member, and a paper-feeding device controlled thereby, of a series of type-wheels, telescopic shafts to which said wheels are attached, index-wheels on said shafts having indications corresponding with the figures on the type-wheels, and means engaging with each of said index-wheels to hold them in position after an adjustment thereof.

11. In a pin-ticket machine, the combination with a primary actuating member, of a ribbon-feeding device controlled thereby, a series of adjustable type-wheels to print upon said ribbon after each feed thereof, the said type-wheels having telescopic shafts, index-wheels fixed to said shafts, the said index-wheels having indications thereon corresponding with the figures on the type-wheels and by means of which the positions of the type-wheels are changed, drop-pawls engaging with said index-wheels to lock them, and inking-pads for said type-wheels.

641,877. WELT. NATHANIEL H. MERRIAM, Lexington, Mass. Filed June 10, 1899. Serial No. 720,028. (No model.)



Claim.—1. As an article of manufacture, a welt of a single thickness of leather, having the finish edge thereof formed of the hair side of the leather, and the body thereof formed of the flesh side of the leather, substantially as described.

2. As an article of manufacture, a welt, having its finish edge formed of the hair side of the leather and its body of the flesh side of the leather, and having a series of transverse indentations throughout the length of said body, substantially as described.

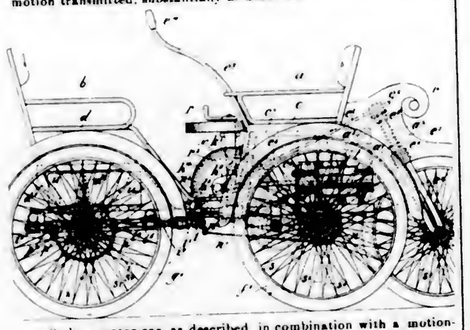
3. As an article of manufacture, a welt of a single thickness of leather having the hair face thereof rounded transversely by compression to form the finish edge of the welt, the body thereof being formed of the flesh side of the leather, substantially as described

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641,878. MOTOR-CAR. CLÉMENT A. A. MONGREDIEN, Levallois-Perret, and FRANÇOIS D. BERNIER, Paris, France. Filed Nov. 21, 1898. Serial No. 696,981. (No model.)

Claim.—1. In a motor-car, as described, a pivot or joint, having three axes of rotation, to connect together the two parts of the under-frame in such a manner that the latter is capable of adapting itself, without effort or strain, to the inequalities of the ground traveled over, and to all the curves or turns of the road, substantially as described.

2. In a motor-car, as described, gearing for transmitting motion at variable speed and located between two parallel shafts, and comprising a series of miter-pinions of different diameters and fixedly attached to one of the said parallel shafts, a series of miter-pinions fixed opposite the first-named miter-pinions and on the second shaft, but being of such diameters that the interval or space between the corresponding pinions remains always the same, an intermediate shaft arranged obliquely in the same plane as the two first-named shafts and loosely mounted in its bearings, and a cylindrical pinion movable along the said intermediate shaft in such a manner as to be capable of gearing successively with the different pairs of corresponding miter-pinions, each of which corresponds to a different proportion of motion transmitted, substantially as described.



3. In a motor-car, as described, in combination with a motion-transmitting device located between two parallel shafts and composed of a pinion mounted on an intermediate shaft, a reversing device for propelling the car in an opposite direction and composed of two pinions gearing together and loosely mounted in a support which is movable along the said intermediate shaft in such a manner as to allow the said pinions to gear with any pair of pinions fixed on the parallel shafts, substantially as described.

4. In a motor-car, as described, a shaft revolving on points the conical ends of which are supported by ball-race bowls having each a conical recess to center the point of the said shaft, and a groove in which is housed a ball-race rim having balls on which rests the conical surface of the said point, the said ball-race bowls being provided with external screw-threads, which allow of adjusting or regulating the pressure between the said balls and the said points of the shaft, substantially as described.

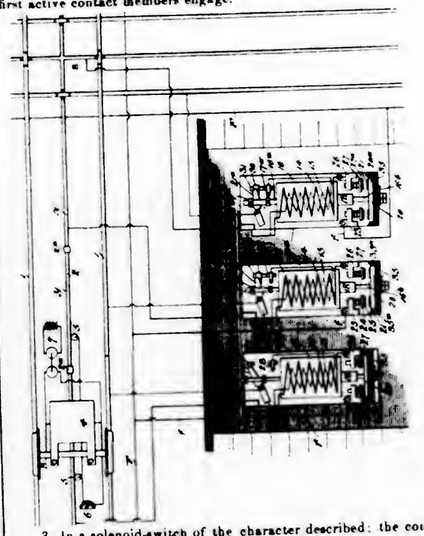
5. In a motor-car, as described, in combination with an under-frame comprising a driving fore part and a carrying rear part, a brake acting automatically on the said rear part to prevent it from being violently thrown against the fore part when the latter is suddenly brought to a stop or reduced in speed, the said brake being operated by a pull-rod connecting the rear and fore parts together and capable of moving forward or backward with respect to the said rear part, substantially as described.

6. In a motor-car, in combination, a speed-changing mechanism which comprises a pinion movable along a shaft and adapted to mesh with pairs of gear-wheels, each corresponding with a different ratio of transmission, a fork engaging with said pinion, a joint-socket k^7, an endless screw k^8 placed parallel with and above the shaft of the intermediate pinion, and gear-wheels for revolving said endless screw, and the seat of the motor-car.

641,879. SURFACE-CONTACT ELECTRIC-RAILWAY SYSTEM. JOHN M. MURPHY, Torrington, Conn., assignor to the Safety Third Rail Electric Company, New York, N. Y. Filed Feb. 7, 1899. Serial No. 704,841. (No model.)

Claim.—1. In a surface-contact railway system, a solenoid-switch having independent inner and outer windings of different resistance, the high-resistance coil being grounded and having a lead connected with the low-resistance coil; a circuit-breaker in the said lead governed by the shifting of the plunger; a plunger carrying a duplex set of contacts, said contacts being set in different planes whereby one set of which makes after and breaks before the other set of contacts correspondingly acts, for the purposes specified.

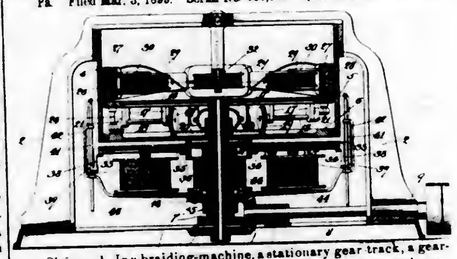
2. An automatic circuit making and breaking mechanism of the character described, comprising a high-resistance coil having a ground-return and connected with one of the sectional conductor-rails; a switch in said high-resistance coil; a low-resistance coil connected with the feeder-wire and with the conductor-rail section; a pair of contacting members in said low-resistance coil normally held open, said members each consisting of a fixedly-held portion and a portion having a limited free movement projected in a plane in advance of the fixedly-held portions of the said contacting members; a plunger-rod governed by the energizing of the high or low resistance coils, said plunger including a pair of contacting members, said plunger-contacting members being held in different planes, whereby one set will engage the forwardly-projecting contacting members of the low-resistance coil before the other set engage the fixedly-held portion of the said low-resistance contacting members, said plunger having means for breaking the switch in the high-resistance winding immediately after the first active contact members engage.



3. In a solenoid-switch of the character described: the combination with the fixedly-held contacting portions, the yielding carbon-block-holding contacts and the circuit-wires: of the plunger-armature carrying a bridge-piece having carbon blocks to engage the yielding contacts and carrying metallic contacts consisting of a laminated pack of spring copper plates, the ends of which are bent up to engage the fixedly-held or bracketed contacts after the carbon contacts are closed, said ends having their impacting portions arranged to engage the brackets successively from the outermost one toward the innermost one, for the purposes specified.

4. In an electromagnetic switch mechanism of the character described; the combination with the lead connecting the inner and outer windings and the armature-plunger; of a circuit-breaker in the aforesaid lead, consisting of a fixedly-held contact; a bracket connected with the inner terminal of the lead; a hinged member carrying a contact to engage the fixedly-held contact, said hinged member being arranged in the path of the plunger and adapted to be swung in opposite directions by the opposite movements of said plunger, and a spring device for holding the said swinging member in either its open or closed position until positively engaged by the plunger in its opposite movements, all being arranged substantially as shown and for the purposes described.

641,880. BRAIDING-MACHINE. THOMAS K. OBER, Philadelphia, Pa. Filed Mar. 3, 1899. Serial No. 707,578. (No model.)



Claim.—1. In a braiding-machine, a stationary gear track, a gear-wheel revolved by said gear-track, a reciprocating pin, a carrier arranged to be engaged by said pin and eccentric mechanism operated by said gear-wheel for reciprocating said pin, in combination with a revoluble spider which carries said mechanism, through which said pin reciprocates, substantially as specified.

2. In a braiding-machine, a fixed circular gear-track, a journaled gear-wheel revoluble upon said track, a reciprocating pin revoluble with said gear-wheel, mechanism operated by said gear-wheel for

reciprocating said pin, and a movable carrier alternately engaged and disengaged by said pin, substantially as specified.

3. In a braiding-machine, a fixed circular gear-track, a pair of journaled gear-wheels revoluble upon said track, a pair of reciprocating pins revoluble with said gear-wheels, eccentric mechanisms connecting said gear-wheels with said pins whereby said pins are reciprocated oppositely, and a movable carrier alternately engaged and disengaged by each of said pins, substantially as specified.

4. In a braiding-machine, a journaled shaft, a spider fixed thereon, a journaled gear-wheel supported by said spider, a fixed circular gear-track upon which said gear-wheel revolves, a movable carrier, a pair of oppositely-reciprocating pins for operating said carrier, mechanism operated by said gear-wheel for reciprocating one of said pins, and means for effecting the opposite reciprocation of the other of said pins, substantially as specified.

5. In a braiding-machine, a stationary gear-track, a gear-wheel revolved by said gear-track, a reciprocating thread-guide, and mechanism operated by said gear-wheel for reciprocating said thread-guide, in combination with a revoluble spider which carries the aforesaid mechanism, and a bobbin carried by said spindle, substantially as specified.

6. In a braiding-machine, a fixed circular gear-track, a journaled gear-wheel revoluble upon said gear-track, a reciprocating thread-guide, ways for controlling the movements of said thread-guide, and mechanism operated by said gear-wheel for reciprocating said thread-guide, substantially as specified.

7. In a braiding-machine, a sectional raceway, a bobbin-carrier movable thereon, a revoluble spider, a pair of alternately-reciprocating pins passing through said spider and engaging with said carrier, a yoke in each of said pins, a crank-and-pin connection for each of said yokes, a shaft for revolving each of said cranks, and means for revolving said shafts, substantially as specified.

8. In a braiding-machine, a fixed circular gear-track, a revoluble frame, a series of gear-wheels journaled in said frame and revoluble upon said gear-track, a series of pins arranged in pairs passing through said frame, mechanism connecting said gear-wheels with said pins for reciprocating said pins, a series of movable bobbin-carriers each operated by a pair of said pins, a sectional raceway for said bobbin-carriers, in combination with a second fixed circular gear-track, a second revoluble frame, a second series of gear-wheels journaled in said second frame and revoluble upon said second gear-track, a series of reciprocating thread-guides, mechanism operated by each of said second series of gear-wheels for reciprocating each of said thread-guides, and mechanism for revolving said frames in opposite directions, substantially as specified.

641,881. HUB FOR VEHICLE-WHEELS. JAMES H. O'BRIEN, St. Louis, Mo. Filed Apr. 1, 1899. Serial No. 711,383. (No model.)



Claim.—1. In a vehicle-wheel hub, the combination of a sleeve formed with a central enlargement and with circumferential seats tapering toward said enlargement, and rings formed with faces conforming to the enlargement and seats, shrunk in position between the lateral faces of the enlargement and the tapering seats, and spaced apart by the enlargement to provide a space to receive the inner ends of the wheel-spokes; substantially as described.

2. In a vehicle-wheel hub, the combination of a sleeve provided with an annular enlargement and inwardly-tapering seats adjacent thereto, and rings shrunk onto said tapering seats and by them held against said enlargement and having their opposed free faces formed to provide a tapering seat between them for the inner ends of the wheel-spokes; substantially as described.

3. In a vehicle-wheel hub, the combination of a sleeve provided with an annular enlargement, rings shrunk thereon, a collar surrounding said enlargement between said rings provided with ribs adapted to form sockets for the inner extremities of the wheel-spokes, said rings being adapted to receive the inner ends of the wheel-spokes and confine them in position with their inner extremities resting between the ribs on said collar, substantially as described.

641,882. WIRE-STRETCHER. JOHN L. OLSON, Cranfill's Gap, Tex. Filed Aug. 23, 1899. Serial No. 728,235. (No model.)

Claim.—1. In a wire-stretcher, the combination with a main bar, of a wire-clamp carried by and normally located at one side of the bar, and adjustable transversely thereof, a ratchet-bar slidable longitudinally of the main bar, a fixed wire-clamp carried by the ratchet-bar and in longitudinal coöperation with the normal position of the adjustable clamp, and both clamps for engagement with opposite portions of the same wire, the adjustable clamp being movable into longitudinal alinement with the main bar, the ratchet-bar having means for fixing the same for coöperation with the adjusted position of the latter clamp, and means for operating the bars.



2. In a wire-stretcher, the combination with a main bar, of a substantially L-shaped bracket pivoted at its angle and to one end of the main bar, and having a shoulder projecting laterally from one end of one arm of the bracket and adapted to engage the upper edge of the main bar, a wire-clamp located at the opposite end of the other arm, a ratchet-bar slidable longitudinally upon the main bar, and a means for operating the bars to slide the latter longitudinally in opposite directions, substantially in the manner shown and described.

3. In a wire-stretcher, the combination with a main bar, of a bracket pivoted intermediate of its ends to the main bar, provided at one end with a shoulder for engagement with the main bar, and at its opposite end with a wire-clamp, the shoulder normally engaging the bar and holding the bracket transversely of the latter, and said bracket being adjustable into a position longitudinally of the main bar, a ratchet-bar, a fixed wire-clamp carried by the ratchet-bar and in longitudinal coöperation with the normal position of the adjustable clamp, and both clamps for engagement with opposite portions of the same wire, means for fixing the ratchet-bar for coöperation with the adjusted position of the adjustable clamp, and means for operating the bars.

4. In a wire-stretcher, the combination with a main bar, of a substantially L-shaped bracket pivoted at the vertex of its angle to one end of the main bar, a lateral shoulder provided at one free end of the bracket and adapted to engage over the upper edge of the main bar, a lateral foot provided at the opposite end of the bracket, an eccentric wire-clamp mounted adjacent to the foot, and having a guard-flange overlapping the end of said foot, a ratchet-bar slidable longitudinally upon the main bar, and provided at one end, opposite the bracket, with a pendent arm, having a lateral foot, and an eccentric wire-clamp, provided with a guard-flange overlapping the outer end of the foot, and means for sliding the two bars longitudinally in opposite directions, substantially as and for the purpose set forth.

5. In a wire-stretcher, the combination with a main bar, having a wire-clamp, of a ratchet-bar slidable longitudinally upoo the main bar, and provided with a wire-clamp, and an operating-lever for sliding the two bars longitudinally in opposite directions, and having one end provided with means for holding opposite ends of the wire, while being spliced or connected, substantially in the manoer shown and described.

6. In a wire-stretcher, the combination with a main bar, having a wire-clamp, of a ratchet-bar slidable longitudinally upon the main bar, and provided with a wire-clamp, and an operating-lever for sliding the two bars longitudinally in opposite directions, and having its lower end provided with a pivoted vise for holding opposite ends of a wire, while the latter is being spliced or connected, substantially in the manner shown and described.

7. In a wire-stretcher, the combination with a main bar having opposite, longitudinally-alined, and laterally-offset guide-loops, of a substantially L-shaped bracket pivoted at the vertex of its angle to one end of the main bar, and provided with a lateral shoulder at one end of the bracket and a wire-clamp at the opposite end thereof, a double ratchet-bar slidable longitudinally through the guide-loops, and having a pendent arm at one end opposite the bracket, and a wire-clamp mounted at the lower end of the arm, and an operating-lever located between the two bars, pivoted to the main bar, provided with upper and lower dogs engaging the respective sides of the ratchet-bar, and having its lower end provided with a longitudinal bifurcation forming prongs, substantially as and for the purpose set forth.

641,888. CANOPY. ISAAC R. PALMER, Middletown, Conn. Filed June 26, 1899. Serial No. 721,910. (No model.)

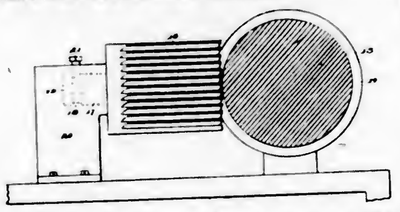
Claim.—1. The combination with the ridge-pole of a hammock-support, of a stationary upright carried thereby, a swinging bolt hinged to the upright, the said bolt being provided with an elongated slot concentric with its hinge-pivot, a canopy-frame carried by the swinging bolt and a clamping-bolt passing through the said slot and the stationary upright for clamping the swinging bolt to the upright in different tilted adjustments, substantially as set forth.



2. In combination a bolt, a canopy-frame comprising a central socket-piece removably secured to the bolt, ribs hinged to the socket-piece and means for clamping the ribs in their extended position comprising a sliding washer having a feather-and-groove connection with the bolt below the socket-piece, the feather-and-groove connection between the washer and bolt extending only part way to the socket-piece whereby the washer may partially rotate when in proximity to the ribs to hold the washer in its locked position, substantially as herein set forth.

3. The combination with the ridge-pole of a hammock-support, of a pair of stationary supporting-uprights carried thereby, a swinging bolt hinged between the uprights, the said bolt being provided with an elongated slot concentric with its hinge-pivot, a canopy-frame carried by the swinging bolt and a clamping device comprising a bolt passing through the said elongated slot and the two supporting-uprights and a clamping-nut engaging the said bolt for clamping the swinging bolt in different tilted adjustments, substantially as set forth.

641,884. FINISHING-TOOL FOR FACING GROOVES IN PISTON-HEADS. JOSIAH PEARCE and GEORGE H. JACKSON, Swissvale, Pa. Filed June 20, 1899. Serial No. 721,255. (No model.)



Claim.—1. In a device of the character described, the combination of the tool-holder, a facing-tool comprising in its construction, a plate provided on both of its faces with cutting-teeth, with a shank secured to its rear end and adapted to engage in the tool-holder, said shank having a peripheral groove to receive means for holding the tool in the tool-holder, substantially as described.

2. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both of its faces and on its forward end with cutting-teeth, the cutting-teeth of the sides extending in horizontal alinement with the plate and the teeth on the forward end extending transversely thereto, and a shank formed integral with the rear end of said plate for securing the same in a tool-holder, substantially as described.

3. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both of its faces and on its forward end with cutting-teeth, the cutting-teeth on the faces extending in horizontal alinement with the plate and the teeth on the forward end extending transversely thereto, and a shank secured to the rear end of said plate for fastening the tool in a tool-holder, said shank having a peripheral groove, as and for the purpose specified.

4. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both faces and on its forward end with cutting-teeth, and a shank connected to the rear end of said plate for fastening the same in a tool-holder, said shank having a peripheral groove to receive retaining means carried by the tool-holder, substantially as described.

5. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both of its faces with teeth extending in alinement with the plate and on its one end with teeth extending at right angles to the teeth on the faces of the plate, and means connected to said plate for securing the same in a tool-holder.

6. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both of its faces with teeth extending in alinement with the plate and on its one end with teeth extending at right angles to the teeth on the faces of the plate, combined with means connected to said plate for rotatably securing the same in a tool-holder.

7. A tool for facing grooves in piston-heads, comprising in its construction, a plate provided on both of its faces with cutting-teeth extending in alinement with the plate, combined with means connected to the plate for securing the same in a tool-holder in a manner to allow the alinement of the plate at all times with the groove in the piston-head.

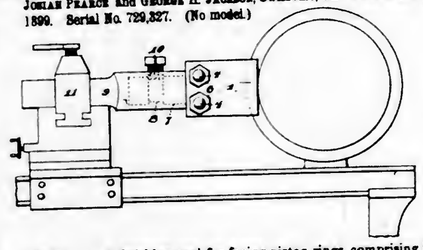
8. A tool for facing grooves in piston-heads, consisting of a substantially rectangular plate provided on both faces thereof with a series of cutting-teeth extending in horizontal and longitudinal alinement with the plate, substantially as described.

9. A tool for facing grooves in piston-heads, consisting of a substantially rectangular plate provided on both faces thereof with a series of cutting-teeth extending in horizontal alinement with the plate and farther provided on its one end with teeth extending at right angles to the teeth on the sides of the plate, substantially as described.

10. A tool for facing grooves in piston-heads, comprising in its construction, a substantially rectangular plate provided with a series of horizontally-extending cutting-teeth, and means connected to the said plate for rotatably securing the same in a tool-holder, substantially as described.

11. A tool for facing grooves in piston-heads, comprising in its construction, a substantially rectangular plate provided with horizontally and longitudinally extending teeth, and means connected to the said plate for rotatably securing the same in a tool-holder, substantially as described.

641,885. FINISHING-TOOL FOR FACING PISTON-RINGS. JOSIAH PEARCE and GEORGE H. JACKSON, Swissvale, Pa. Filed Sept. 8, 1899. Serial No. 729,827. (No model.)



Claim.—1. A finishing-tool for facing piston-rings, comprising in its construction a pair of substantially rectangular plates which are suitably spaced apart and secured together, said plates being provided on their inner faces with cutting-teeth, and means for securing said plates in a tool-holder.

2. A finishing-tool for facing piston-rings, comprising in its construction a pair of plates provided on their inner faces with cutting-teeth extending in longitudinal alinement therewith, said plates being suitably spaced apart and secured together, and means for securing said plates in a tool-holder.

3. A finishing-tool for facing piston-rings, comprising in its construction, a pair of plates provided on a portion of their inner faces with cutting-teeth extending in horizontal and longitudinal alinement, and means connected to the said plates for securing the same in a tool-holder.

4. A finishing-tool for facing piston-rings comprising in its construction, a pair of substantially rectangular plates which are provided on their inner faces with cutting-teeth, and means connected to said plates for securing the same in a tool-holder.

5. A finishing-tool for facing piston-rings, comprising in its construction, a pair of similar-shaped plates provided on their inner faces with cutting-teeth extending in horizontal and longitudinal alinement therewith, a spacing-block secured between said plates, and a stock or shank connected to said spacing-block.

6. A finishing-tool for facing piston-rings, comprising in its construction, a pair of similar-shaped plates which are provided on a portion of their inner faces with cutting-teeth extending in horizontal and longitudinal alinement therewith, means arranged between the plates for spacing the same apart and to which they are secured, and a stock or shank for securing the same in a tool-holder.

7. A finishing-tool comprising in its construction, a pair of substantially rectangular plates which are provided on their inner faces with cutting-teeth extending in horizontal alinement therewith, means arranged between the plates for spacing the same apart and to which they are secured, and means for securing said plates in a tool-holder.

8. A finishing-tool for facing piston-rings, comprising in its construction, a pair of plates suitably supported and spaced apart and

provided with a series of horizontally and longitudinally extending cutting-teeth, substantially as described.

9. A finishing-tool for facing piston-rings, consisting of a pair of plates provided with a series of horizontally and longitudinally extending teeth, means for spacing the plates apart, and means for securing said plates in a tool-holder, substantially as described.

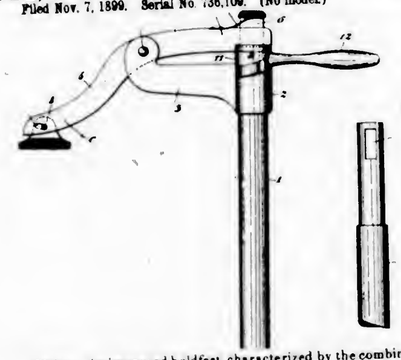
10. A finishing-tool for facing piston-rings, consisting of a pair of plates provided with a series of horizontally and longitudinally extending cutting-teeth, a center block arranged between the said plates, means for securing the said plates and block together, and means connected to the said block for securing the tool in a tool-holder, substantially as described.

11. A tool for facing piston-rings, consisting of a pair of substantially rectangular plates provided with a series of horizontally-extending cutting-teeth, a center block arranged between the said plates, means for securing the said plates and block together, and means connected to the said block for securing the tool in a tool-holder, substantially as described.

12. A finishing-tool for facing piston-rings, comprising in its construction a pair of plates provided on one face thereof with a series of horizontally and longitudinally extending cutting-teeth and having a shouldered portion, a center block secured to the said plates at the shouldered portion, and a shank connected to the said center block for rotatably securing the tool in a tool-holder, substantially as described.

13. A tool for the purpose described, comprising in its construction, a pair of substantially rectangular plates suitably spaced apart and secured together, said plates being provided on a portion of their inner faces with cutting-teeth which extend horizontally in alinement therewith, and means for rotatably securing said tool in a tool-holder, substantially as described.

641,886. HOLDFAST. FRANCIS PLANQUE, Ferreyres, Switzerland. Filed Nov. 7, 1899. Serial No. 736,109. (No model.)



Claim.—An improved holdfast, characterized by the combination of a rod or shank 1 with a rotative arm 3 to which is hinged a lever 5 bearing a shoe 9, connected to said lever 5 by means of a pivot 8 playing in an inclined slot 7 of said lever 5 so as to automatically lower the shoe 9 when abandoned to itself and with a hand-lever 12 pivoted to the rod or shank 1 between the lever 5 and arm 3 and provided with suitable wedges or inclines for causing the said lever 5 to press upon the shoe 9 when suitably rotated substantially as shown and described.

641,887. SAND-BOX FOR STREET-RAILWAYS. SIDNEY W. PHELPS, Southbridge, Mass. Filed Dec. 21, 1898. Serial No. 699,956. (No model.)

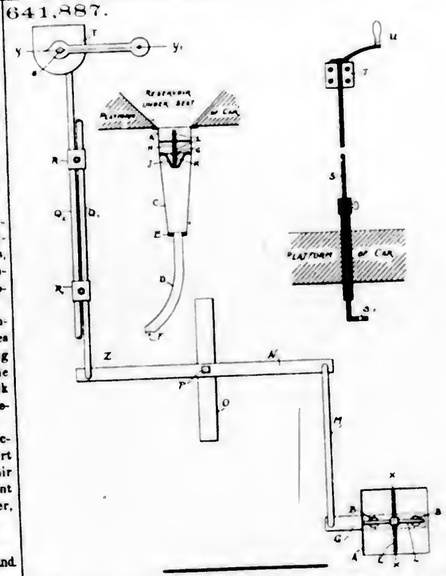
Claim.—1. The combination of the sand-box A A, having the holes B therein, with the closing shutter G, the pin K, post H, yoke J, and radial pins L, substantially as described.

2. The combination with the sand-box and connected therewith by the shutter G, of levers M, N, Q', Q², the supporting-yoke O, and the pin P, post S, and indicator-controller U, substantially as described.

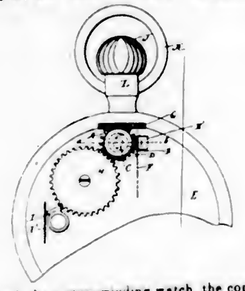
3. The combination of the yoke J, the post H, the radial arms L, the shutter G, with the pin K, the levers M, N, Q', Q², the yoke O, pin P, the post S, and the arm U, substantially as described and for the purpose specified.

4. The combination of the box A, provided with the holes B, the tunnel C, pipe D provided with the hole F, union E, shutter G, post H, yoke J, pin K, radial pins L, with the levers M, N, Q', Q², yoke O, post P, clamps R and R', shaft S, arm S', and controller U for holding and distributing sand to rails substantially as described.

641,887.



641,888. STEM-WINDING WATCH. WILSON R. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed May 29, 1899. Serial No. 718,676. (No model.)

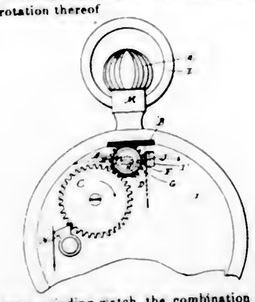


Claim.—1. In a stem-winding watch, the combination with the winding-wheel and the ratchet-wheel thereof, of a vibratory intermediate winding-wheel normally engaging with both of the said wheels, and having a relatively-large central opening, a stud passing through the said intermediate winding-wheel and provided at its outer end with a large head for holding the same in place, and a cam-shaped bearing located upon the said stud, larger than the same in diameter and occupying the large central opening of the intermediate winding-wheel affording a large bearing therefor during the winding rotation thereof, and permitting the same to vibrate in "ratcheting back."

2. In a stem-winding watch, the combination with the ratchet-wheel thereof, of a winding-wheel located at a right angle to the plane of the said wheel, and rotated in one direction or the other by the stem of the watch, a vibratory intermediate winding-wheel located in the plane of the said ratchet-wheel, normally engaging with both of the said wheels, and having a relatively-large central opening, a stud passing through the intermediate winding-wheel, and provided at its outer end with a large head which holds the said wheel in place by engaging with its edge, and a cam-shaped bearing located upon the said stud, and occupying the large central opening of the intermediate winding-wheel, affording a large bearing therefor during the winding rotation thereof, and permitting the same to vibrate in "ratcheting back."

641,889. STEM-WINDING WATCH. WILSON R. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed May 29, 1899. Serial No. 718,677. (No model.)

Claim.—1. In a stem-winding watch, the combination with a winding-wheel and a ratchet-wheel, of an annular intermediate winding-wheel, a non-rotatable reciprocatory disk upon which the said intermediate winding-wheel is mounted, and means passing through the said disk for holding it against movement during the winding rotation of the wheel and allowing it to reciprocate during the "ratcheting-back" rotation thereof



2. In a stem-winding watch, the combination with a winding-wheel and a ratchet-wheel, of an annular intermediate winding-wheel, a non-rotatable reciprocatory disk formed with a diametric slot, and having the said intermediate winding-wheel mounted upon it, and a stud adapted to confine the disk and intermediate winding-wheel in place, and formed with a bearing passing through the slot of the disk, and shaped to hold the same against rotation, and arranged to prevent the reciprocation of the disk and the said intermediate winding-wheel during the winding rotation of the said wheel, and to permit them to reciprocate during the "ratcheting-back" rotation of the wheel, which is thus allowed to free itself from the ratchet-wheel.

641,890. ELECTRIC FOOT-BATTERY. DAVID W. PROSSER, Jamestown, N. Y. Filed Nov. 6, 1899. Serial No. 736,071. (No model.)

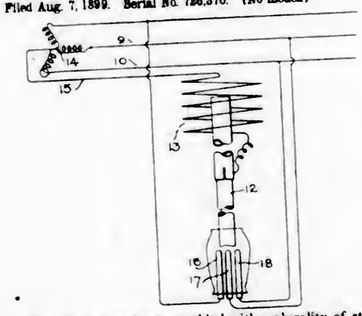


Claim.—1. An electrical foot-battery consisting of a perforated compound silver and copper upper or negative plate, a zinc under or positive plate held by said compound plate, substantially as shown and described and for the purpose set forth.

2. An electric foot-battery consisting of a perforated compound silver and copper upper or negative plate, a zinc under or positive plate held by said compound plate, an excitant placed between said plates to act on the metals, as shown and for the purpose specified.

3. An electric foot-battery consisting of a compound silver and copper upper or negative plate, a zinc under or positive plate held by said compound plate, an excitant placed between said plates, openings in said plates to admit moisture, a piece of flexible material attached to the under side of the plates having cement on its under side for attaching to the shoe-sole, substantially as shown and described and for the purpose set forth.

641,891. ELECTRIC-ARC LAMP. EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 7, 1899. Serial No. 726,370. (No model.)



Claim.—1. An arc-lamp provided with a plurality of stationary electrodes adapted for connection with currents differing in phase, a single movable electrode in circuit, and a regulator controlling said electrode to adjust and maintain the arc.

2. A multiphase arc-lamp with a plurality of electrodes in circuit with two or more currents differing in phase, a movable electrode in a common return for said currents, and a regulating device for maintaining and adjusting the arc.

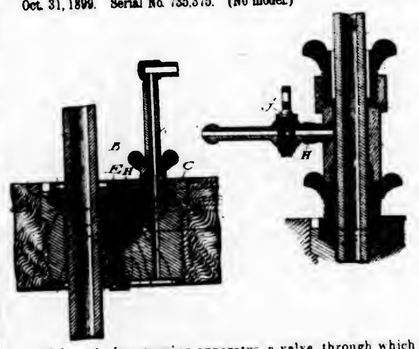
3. A triphase arc-lamp, comprising three electrodes adapted for connection with the three leads of a triphase circuit, a fourth electrode connecting with a point common to the three phases, and means for feeding the electrodes relatively to one another, to maintain the arc constant.

4. A triphase arc-lamp provided with three electrodes connecting respectively with the three leads of a triphase circuit, a fourth electrode connected to a point of zero potential with respect to said circuit, and a regulating-coil between said electrode and point of zero potential.

5. A triphase arc-lamp provided with three electrodes connecting respectively with the three leads of a triphase circuit, a fourth electrode connected to a point symmetrically related electrically to said leads, and means for regulating the arc.

6. An arc-lamp provided with a plurality of electrodes all symmetrically related electrically with respect to the leads of a polyphase alternating-current circuit and means for effecting relative movement between one of the electrodes and the others to maintain the arc.

641,892. TAPPING APPARATUS. SAMUEL M. RHOADS, Philadelphia, Pa., assignor of one-half to Frank McKernan, same place. Filed Oct. 31, 1899. Serial No. 735,375. (No model.)



Claim.—1. In a tapping apparatus, a valve, through which the liquid-tube is adapted to pass, provided with an independently-operative gas-valve.

2. In a tapping apparatus, a valve-seat provided with a port, a valve having a port adapted to register therewith, a gas-valve carried by said valve, a port in said gas-valve adpated to register with a port in said valve, and a port in said valve-seat adapted to register with the last-mentioned port in said valve.

3. In a tapping apparatus, a valve-seat provided with a port, a valve having a port adapted to register therewith, a gas-valve carried by said valve and provided with a port, a port in said valve adapted to register with said port in the gas-valve, and ports in said valve-seat adapted to register with said last-mentioned port of the valve at either limit of the movement of the latter.

4. In a tapping apparatus, a valve-seat provided with a port, a valve provided with a port adapted to register therewith, the outer end of the port in said valve being provided with a washer and gland, and a gas-valve carried by said valve and adapted to communicate with a port in said valve-seat.

5. In a tapping apparatus, a valve-seat provided with shoulders, a port in said valve-seat, a valve having a projection adapted to engage said shoulders, a port in said valve that registers with said port in the valve-seat when said projection is in engagement with one of said shoulders, and a gas-valve carried by said valve and adapted to communicate with a port in said valve-seat when said port of the valve is in communication with said first-mentioned port of the valve-seat.

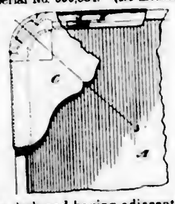
6. In a tapping apparatus, a valve-seat provided with shoulders, a port in said valve-seat, a valve having a projection adapted to engage said shoulders, a port in said valve that registers with said port in the valve-seat when said projection is in engagement with one of said shoulders, and a gas-valve carried by said valve and adapted to communicate with a port in said valve-seat, when said valve is at either limit of its movement.

641,893. SOAP-DISH OR SPONGE-HOLDER. WILLIAM M. ROBERTS, Detroit, Mich. Filed July 30, 1898. Serial No. 687,293. (No model.)



Claim.—In a soap-dish or like receptacle, the combination of a receptacle, a sheet-metal bracket for the receptacle, ears on the bracket to which the receptacle is pivotally secured near its inner end, an overhanging portion on the bracket to limit the swinging of the rear end of the receptacle in an upward direction, suction-tips on the rear of the bracket, and an extension or rest on the bracket projecting downwardly to a plane below the receptacle and rearwardly to substantially the plane of the suction-tips, substantially as described.

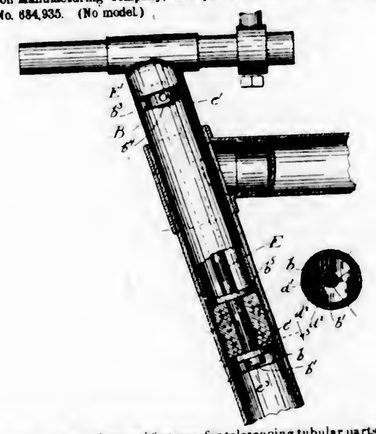
641,894. DESK-PAD. LOUIS SAINBERG, New York, N. Y. Filed Dec. 17, 1898. Serial No. 699,531. (No model.)



Claim.—1. The desk-pad having adjacent to the corner thereof the spring-latch J, combined with a removable corner-piece comprising a frame F adapted to inclose the edges of the pad and having the opening K therein to receive the engaging portion of said latch when said frame is passed upon said edges; substantially as set forth.

2. The pad and the corner-pieces thereof, said corner-pieces consisting of the hinged section C and carrying-frame F, combined with the spring H thereon to lock the hinged section in its open and closed positions, and a latch for removably securing said frame F to the pad; substantially as set forth.

641,895. INTERNAL FASTENER FOR TUBULAR TELESCOPING PARTS. JAMES P. SCOVILL, Chicago, Ill., assignor to the Geo. L. Thompson Manufacturing Company, same place. Filed July 1, 1898. Serial No. 684,935. (No model.)

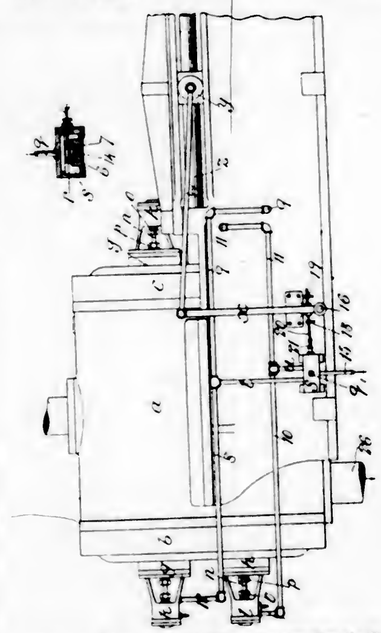


Claim.—1. An internal fastener for telescoping tubular parts comprising a tubular inner member having yieldable wall portions capable of being expanded outwardly, an expanding device located within the part of the tubular member having the expansible wall portions, comprising a body of yieldable material capable of being compressed in a direction longitudinally of the member to increase its transverse measurement, whereby the yieldable parts of the tubular member may be forced into engagement with the outer telescoping member, and means for compressing said yieldable body comprising confining-blocks arranged at opposite ends of the body and means for effecting the forcible approach of said blocks.

2. An internal fastener for telescoping tubular parts comprising an outer member, an inner tubular member slotted longitudinally so as to permit a portion of its side wall to be expanded outwardly, compressing-blocks arranged within said slotted portion, provided with projections engaging the slots to prevent rotation, a body of compressible material interposed between the compressing-blocks, and means for forcing one of the blocks toward the other, comprising an actuating-rod operatively engaged with one of said blocks and extending longitudinally through the inner tubular member to a point beyond the telescoped portion thereof, and means enabling said rod to be operated from the outside.

3. An internal fastener for telescoping tubular parts comprising an outer member, an inner tubular member slotted longitudinally so as to permit a portion of its side wall to be expanded outwardly, compressing-blocks arranged within said slotted portion, provided with projections engaging the slots to prevent rotation, a body of yieldable rubber interposed between the compressing-blocks, means for forcing one of the blocks toward the other comprising an actuating-rod positively engaged with one of said blocks and extending thence loosely through the rubber block and the second compressing-block to a point within the exposed portion of the inner tubular member, and means enabling said rod to be moved endwise to compress the rubber block comprising a nut with which said rod has screw-threaded engagements rotatably mounted but held from endwise movement within the exposed portion of the inner member and an opening in said inner member opposite the nut and through which the latter may be operated.

641,896. VALVE-OPERATING DEVICE FOR COMPRESSORS. HENRY C. SERGEANT, Westfield, N. J., assignor to the Ingersoll-Sergeant Drill Company, New York, N. Y. Filed July 14, 1899. Serial No. 723,777. (No model.)

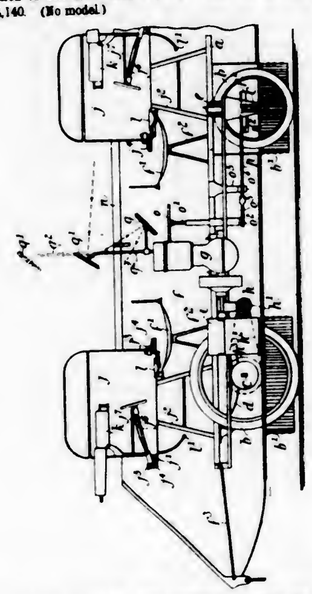


Claim.—1. In an air-compressor, the combination of a discharge-valve and an inlet-valve at the same end of the compression-cylinder, fluid-pressure motors one for each of said valves, and an induction and eduction valve which is common to both of said motors and is controlled by the engine which drives the compressor for admitting fluid-pressure to the discharge-valve motor for closing said valve and at the same time exhausting it from the inlet-valve motor to permit the free opening of the latter valve, substantially as herein described.

2. In an air-compressor, the combination of an inlet-valve and a discharge-valve at the same end of the compression-cylinder, fluid-pressure motors one for each of said valves, and an induction and eduction valve which is common to both of said motors and is controlled by the engine which drives the compressor for admitting fluid-pressure to the inlet-valve motor for closing said valve and at the same time exhausting it from the outlet-valve motor to permit the free opening of the latter valve, substantially as herein described.

3. In a double-acting air-compressor having an inlet-valve and a discharge-valve at each end of its compression-cylinder, the combination with such several valves, of fluid-pressure motors for closing them, one of such motors for each of said valves, and a valve which is common to all of the said motors and is controlled by the engine which drives the compressor for admitting fluid-pressure to the discharge-valve motor at one end of the cylinder and exhausting it from the inlet-valve motor at the same end and at the same time admitting said pressure to the inlet-valve motor and exhausting it from the discharge-valve motor at the other end of said cylinder, substantially as herein described

641,897. MOTOR-DRIVEN CAR FOR USE IN WARFARE. FREDERICK R. SIMMS, London, England. Filed Oct. 20, 1898. Serial No. 694,140. (No model.)



Claim.—1. In a war-car, the combination with the horizontal main frame, provided with vertical supports, of a casing composed of armor-plate surrounding said main frame, and springs connected to said supports and to said armor-plate whereby the weight of said casing is supported by said springs, substantially as described.

2. In a war-car, the combination with the horizontal main frame, provided with vertical supports, a casing of armor-plate surrounding said main frame, supporting-springs secured to said supports and engaging said casing, and rigid links pivotally connected to said main frame and to said casing for securing it to the main frame while permitting it a slight rising-and-falling movement with respect to the main frame, substantially as described.

3. In a war-car the combination with the main frame, of a surrounding casing of armor-plate, and a laterally-projecting flange at the lower edge of said armor-plate electrically insulated therefrom, substantially as described.

4. In a war-car, the combination with the main frame, of a surrounding casing of armor-plate, and a laterally-projecting flange secured to the lower edge of said casing and having its outer edge sharpened, substantially as described.

5. In a war-car, the combination with the main frame, and supporting-wheels therefor, of a casing of armor-plate surrounding said main frame and forming the sides of the car, and depending flexible guards surrounding the wheels, substantially as described.

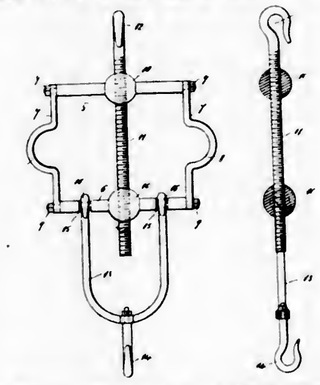
6. In a war-car, the combination with the main frame, and supporting-wheels therefor, of a casing of armor-plate surrounding said main frame and forming the sides of the car and depending guards of chain armor surrounding the said wheels, substantially as described.

7. In a war-car, the combination with the main frame, of a surrounding casing of armor-plate supported thereby the upper edges of said plate being beveled and a series of rollers secured to the upper edges of said armor-plate and having their peripheries lying close to and extending above said beveled portions, substantially as described.

8. In a war-car, the combination with the main frame, of a surrounding casing of armor-plate supported thereby and provided with a horizontal slit, a bracket secured to said plate on the inside in line with said slit, and a flat step-plate extending through said slit provided outside of said plate with a depending lip, and on the inside with means for detachably engaging said bracket, substantially as described.

9. In a war-car, the combination with the main frame, and its supporting-wheels, of a surrounding casing of armor-plate, springs interposed between said casing and said frame to support the weight of said casing, horizontal links pivotally connected to said main frame and to the casing for holding it in respect to the main frame, while permitting it to rise and fall, a motor operatively connected to said wheels, revolving turrets supported by said main frame, mechanism for operating said turrets from within the same, a steering mechanism, a vertically-adjustable rod, a mirror carried thereby, and a stationary mirror adjacent to said steering mechanism, substantiallly as described.

641,898. TURNBUCKLE. THOMAS SHERWOOD, Belchertown, Mass. Filed June 26, 1899. Serial No. 721,863. (No model.)



Claim.—1. A device of the class described, comprising a frame, a screw-threaded and adjustable shaft passed longitudinally therethrough and provided at one end with a hook, and a yoke connected with said frame and adapted to turn thereon in line with said shaft, said yoke being provided with a hook, substantially as shown and described.

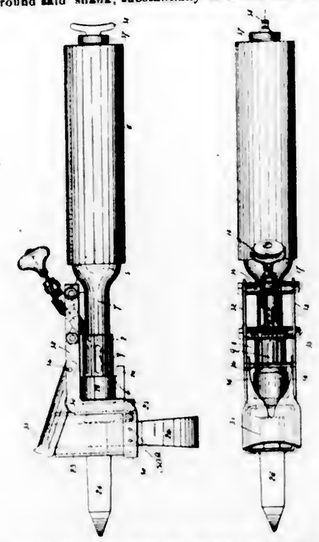
2. A device of the class described, comprising a frame composed of parallel bars, side bars detachably connected therewith, a screw-threaded shaft passed longitudinally through said frame or through said parallel bars and provided at one end with a hook, and a yoke connected with and adapted to turn on one of said parallel bars in line with said shaft, said yoke being provided with a hook, substantially as shown and described.

3. A device of the class described, comprising a frame composed of separate detachable parts, a screw-threaded shaft passed through said frame and provided at one end with a hook, and a yoke connected with said frame and adapted to turn thereon in line with said shaft, said yoke being provided with a hook, substantially as shown and described.

641,899. SOLDERING-IRON. CHARLES SHIELDS, New York, N. Y. Filed Mar. 7, 1899. Serial No. 708,065. (No model.)

Claim.—1. A device of the class described, comprising a tubular handle forming a reservoir open at one end and provided at the other with a tubular extension, said extension being provided with a transverse partition having passages, and the end thereof adjacent to said partition with a diaphragm having a perforation, a tubular casing connected with said extension and inclosing said diaphragm, and provided with side openings for admitting air, and a transverse head connected with said tubular casing and communicating therewith and provided with soldering-irons, one end of said head being closed by a collar, and one of said irons being provided with a shank which is inserted through said collar and into and through said head, and the other iron being provided with a shank which is inserted through the outer side of the said head, and in line with the handle and into the shank of the other iron, said head being also larger in cross-sec-

tion than the shank of the first-named iron, whereby an annular space is formed around said shank, substantially as shown and described.



2. A device of the class described, comprising a tubular handle forming a reservoir open at one end and provided at the other with a tubular extension, said extension being provided with a transverse partition having passages, and the end thereof adjacent to said partition with a diaphragm having a perforation, a tubular casing connected with said extension and inclosing said diaphragm, and provided with side openings for admitting air, and a transverse head connected with said tubular casing and communicating therewith and provided with soldering-irons, one end of said head being closed by a collar, and one of said irons being provided with a shank which is inserted through said collar and into and through said head, and the other iron being provided with a shank which is inserted through the outer side of the said head, and in line with the handle and into the shank of the other iron, said head being also larger in cross-section than the shank of the first-named iron, whereby an annular space is formed around said shank, said casing being also provided with a valve-tube in communication with the passages in said partition, and a valve-pin mounted in said tube and controlling said passages, substantially as shown and described.

3. A device or the class described, comprising a tubular handle forming a reservoir open at one end and provided at the other with a tubular extension, said extension being provided with a transverse partition having passages, and the end thereof adjacent to said partition with a diaphragm having a perforation, a tubular casing connected with said extension and inclosing said diaphragm, and provided with side openings for admitting air, and a transverse head connected with said tubular casing and communicating therewith and provided with soldering-irons, one end of said head being closed by a collar, and one of said irons being provided with a shank which is inserted through said collar and into and through said head, and the other iron being provided with a shank which is inserted through the outer side of the said head, and in line with the handle and into the shank of the other iron, said head being also larger in cross-section than the shank of the first-named iron, whereby an annular space is formed around said shank, said casing being also provided with a valve-tube in communication with the passages in said partition, and a valve-pin mounted in said tube and controlling said passages, and said handle and said reservoir being provided with a removable packing which is adapted to close said tubular extension, and a rod connected with said packing, whereby it may be inserted and removed, substantially as shown and described.

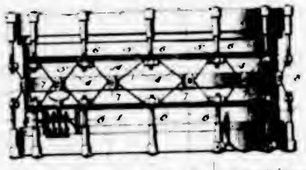
641,900. PENHOLDER. DANIEL L. SMITH, Pittsburg, Pa. Filed July 8, 1899. Serial No. 723,225. (No model.)

Claim.—1. In a penholder, the combination of an outer casing having formed therein an annular recess, an inner casing carrying a raised lug, a forwardly-extending tongue formed integral with said casing having arranged therein a slot, a head arranged on said casing, a spring arranged in the interior of said inner casing, a follower, and a discharge-lever secured to said follower, substantially as described.



2. In a penholder, the combination of an outer casing having a recess formed therein, an inner casing carrying a head adapted to operate in said recess, a tongue arranged in said casing and having formed therein a slot, a spring arranged in said casing, a follower carrying a discharge-lever having arranged thereon a lug operating through said casing adapted to engage the end of the pen-point, all parts being arranged and operating substantially as herein shown and described.

641,901. DRUM. ADOLPH G. SOUTHMANN, Philadelphia, Pa. Filed Sept. 11, 1899. Serial No. 730,079. (No model.)



Claim.—1. In combination with a drum, a straining cord, straining-bolts and adjustable nuts thereon, as means for adjusting the tension of the head, slots in said adjustable nuts for receiving the straining-cord semisurrounding the bolts and delivering on diametrically opposite sides thereof.

2. In combination with a drum, a straining-cord, a straining-bolt and a nut threaded thereon having a slot for the reception of the straining-cord semisurrounding the bolt and delivering upon diametrically opposite sides thereof.

3. In combination with a drum and adjusting means, a straining-cord with knotted or enlarged ends and a hollow head secured to the body of the drum and adapted to receive and securely hold said knotted or enlarged ends of the straining-cords.

4. In a drum the combination of a cylinder, heads and head-hoops, straining-bolts, cord-buttons and a straining-cord to cooperate therewith, and a hoop surrounding the cylinder as a brace for the same and as a support for the securing-heads of the cord buttons.

5. In combination with a drum having cords and straining-hooks for tension adjustment, a folding knee-rest and outwardly-projecting apertured lugs upon two neighboring straining-hooks for rotatably securing the ends of the knee-rest, having projections thereon for limiting the movement of the knee-rest and for normally maintaining the same in the open or closed position as desired.

6. In a snare-drum the combination with the snare of independently-adjustable means for tightening each strand of the snare, substantially as described.

7. In a snare-drum the combination with a snare of independent means for adjusting each strand of the snare, a yoke for securing the independently-adjustable means and manually-operative means for adjusting the yoke.

8. In combination with a snare-drum, means for the independent adjustment of the different strands of the snare and means for the adjustment of all the strands of the snare together.

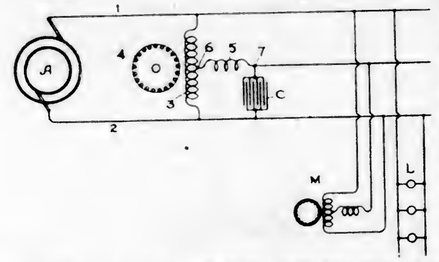
641,902. BURGLAR-ALARM. CLARENCE E. SPENCER and JOHN T. PETHICK, Carbondale, Pa. Filed Sept. 22, 1899. Serial No. 731,313. (No model.)

Claim.—1. The combination with a frame constructed and adapted to receive a cap or cartridge therein, of a hammer substantially L-shaped at one end, and pivoted to the frame, a rod, one end of said rod being pivotally connected to the hammer at the angle of the L-shaped portion and the other end having loose sliding connection with the frame, and a spring on this rod bearing upon the hammer in a direction out of direct alinement with the pivot of the hammer and the point where the rod is connected to the frame whereby the hammer is held normally in its set position from which it is moved when struck by the sash and moved past its dead-center.

2. The combination in a burglar-alarm, of a frame provided with ears and longitudinally slotted, one wall of said slot forming a shield and guard for the mechanism, a hole or socket formed in the body portion of the frame for the reception of a cap or cartridge and connected with a second hole which permits the smoke and noise to escape, a hammer pivotally mounted in said slot and the head of which is provided with a knob for raising and setting the hammer, a projection upon the striking-face of the hammer to facilitate the explosion of the cap or cartridge, the foot of the hammer formed in substantially L shape, a cut-away portion, a spring mounted upon a rod operating therein, said spring movably connected with the foot of the hammer, a hole and slot in one end of the frame in which is loosely inserted one end of the rod.



641,903. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Sept. 30, 1899. Serial No. 732,154. (No model.)



Claim.—1. A system of distribution comprising single-phase mains, a rotary phase-transforming device connected across said mains, a teaser-wire leading from said phase-transforming device and cooperating with said single-phase mains, and means for compensating for the wattless magnetizing-current consumed by the phase-transforming device.

2. A system of distribution, comprising single-phase mains, a rotary phase-transforming device connected across said mains, a teaser-wire leading from said phase-transforming device, and a condenser connected between the teaser-wire and one of said mains.

3. The combination of single-phase mains, an induction-machine with a primary winding connected across said mains, a teaser-winding with one end connected to an intermediate point in the primary winding and the other end to the teaser-wire, and a condenser connected between the teaser-wire and one of the single-phase mains.

4. A phase-transforming device consisting of an induction-machine having a main winding, a teaser-winding, and a condenser connected between one terminal of the main winding and one terminal of the teaser-winding.

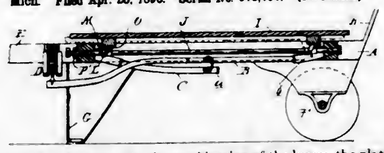
5. The combination of conductors upon which single-phase electromotive forces are maintained, an induction-machine supplied by said mains and operating to produce an out-of-phase electromotive force, and means for compensating for the lagging current flowing in windings of said machine.

6. The combination with single-phase mains, of a rotary phase-changing device connected thereto, and means for compensating for the lagging magnetizing-current taken by said device.

7. The combination with single-phase mains, of a phase-changing device connected thereto and a condenser for compensating for the lagging current supplied to said device.

8. The combination with single-phase mains, of a rotary, phase-changing device, an additional conductor upon which an electromotive force of displaced phase is maintained by said phase-changing device, and means for starting the phase-changing device and compensating for the lagging current supplied to it when running.

641,904. PLATFORM-SCALE. WALTER F. STIMPSON, Milan, Mich. Filed Apr. 25, 1898. Serial No. 678,737. (No model.)



Claim.—1. In a scale, the combination of the levers, the platform resting on the lever-pivots, means for lifting the platform from the pivots, said means being arranged centrally and longitudinally of the platform, a single actuating device for operating the raising means, and side bearings independent of said raising means for preventing the tilting of the platform members, comprising lugs upon the platform-corners and cooperating shoulders upon the scale-frame.

2. In a platform truck-scale, the combination of a truck, the scale-levers, a platform mounted upon the truck normally out of engagement with the lever-pivots and adapted to be lowered into engagement with said pivots and to be shifted longitudinally, and means for lowering and longitudinally shifting the platform.

3. In a platform truck-scale, the combination of a truck, the scale-levers, a platform mounted upon the truck normally out of engagement with the lever-pivots, and adapted to be lowered into engagement with said pivots and to be shifted longitudinally, and means for simultaneously lowering and shifting the platform.

4. In a platform truck-scale, the combination of the truck, a nose-piece thereon, the scale-levers, a platform mounted upon the truck normally out of engagement with the lever-pivots, connection between the platform and the truck, permitting the frame to be gradually lowered into engagement with the pivots and to be shifted longitudinally away from the nose-piece, and a single actuating device for operating the connections adapted to simultaneously lower and shift the platform.

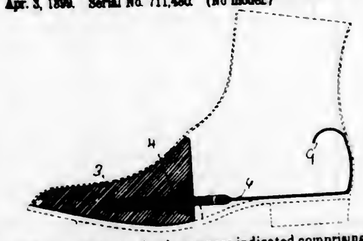
5. In a platform-scale, the combination of the frame, the levers, the platform, a longitudinal shaft journaled in the frame, across the middle line of the platform, worm-shaped cams thereon and bearings on the platform with which said cams engage to raise and lower and longitudinally move the platform.

6. In a platform-scale, the combination with the beam, the levers, and the platform, means for separating the platform-bearing and the pivots of the scale-levers, and a locking means for the beam, operated by and upon the actuation of said separating means.

7. In a platform-scale, the combination with the beam, the levers and the platform, of a raising and lowering device for the platform and a device for locking the beam which is operated when the platform is raised.

8. In a platform-scale, the combination with the beam, the levers, the platform resting upon the pivots thereof, of means for raising the platform from, and lowering it upon the pivots, a lock to prevent the oscillations of the weighing-beam, and a common actuating device for the platform and for the beam-locking device, arranged so that as the platform is raised from the pivots the beam is locked, and as the platform is lowered into weighing position, the beam is released.

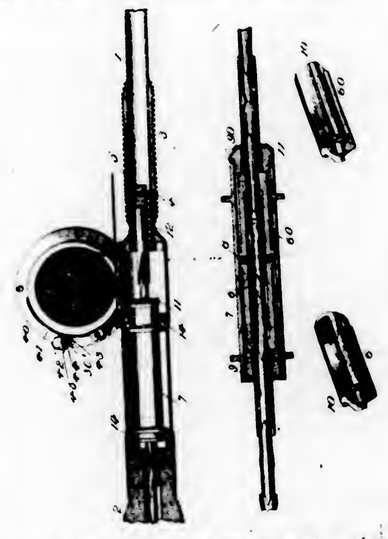
641,905. SHOE-FORMER OR LAST. ALFRED W. SUTHERLAND, Haverhill, Mass., assignor to I. G. Sutherland & Sons, same place. Filed Apr. 3, 1899. Serial No. 711,480. (No model.)



Claim.—1. A device for the purpose indicated comprising a forepart last having a longitudinal bore therein, a nut rigidly secured in the bore, a threaded rod adjustable in the nut and a plate pivoted to the rod and bent at its outer end to conform to the interior surface of the heel of the shoe.

2. A device for the purpose indicated comprising a fore-part last having a longitudinal bore therein, a nut rigidly secured in the bore, a threaded rod adjustable in the nut, and a strip or plate pivoted to the rod and extending therefrom to the heel of the shoe, the rear end of this strip or plate bent into convex shape to conform approximately to the inner curvature of the heel and its extreme upper end bent forwardly to form the take-hold 9.

641,906. FISHING-REEL. WILLIAM TRABUE and BEN HOWE, Louisville, Ky., assignors to themselves and Robert W. Bingham, same place. Filed Oct. 18, 1899. Serial No. 733,966. (No model.)



Claim.—1. In a fishing-reel, the combination of a spool and its train of driving-gears, of a handle reciprocating lengthwise on the rod, a spirally-grooved cylinder reciprocated by said handle, two nuts engaging reverse grooves in said cylinder, and clutch mechanism connected to the nuts and alternately engaging one of the spool-moving gears, whereby a movement of the handle in either direction causes a forward movement of the spool, substantially as described.

2. In a fishing-reel, the rod, reciprocating handle, and a cylinder having reverse spiral grooves connected to said handle, two nuts on said cylinder engaging the spirals in reverse directions, a sleeve inclosing both nuts, clutch mechanism by which one or the other nut may engage said sleeve, a train of driving-gears connected to the sleeve, and a winding-spool driven by said train, all combined substantially as described.

3. In a fishing-reel, the rod, the reciprocating handle thereon, the double-grooved cylinder connected to said handle, the two nuts on said cylinder and the sleeve inclosing the same, and the rolls inclosed between the sleeve and nuts and acting alternately as described, combined with the winding-gear and its train, substantially as described.

4. In a fishing-reel, the hollow rod, a reciprocating handle on the same forward of the reel, gear mechanism connected to said handle, substantially as described, whereby the spool may be rotated by the reciprocation of said handle, a hand-grip on the rod behind the reel, and a lever within reach of the hand when grasping the butt-piece, said lever serving to connect or disconnect the spool-driving gear, all combined substantially as described.

5. In a reel, the combination with a reciprocating handle and driving-gears operating the spool by the reciprocation of the said handle, a clutch in the train of gears by which the same may be uncoupled, a thumb-lever by which said clutch may be uncoupled, and mechanism controlled by the thumb-lever, by which the gears may be held uncoupled, substantially as described.

6. In a reel, the driving-gears, the spool, and a clutch by which the driving-gears are operatively connected to the spool, a rock-shaft supported by the frame, a lever connected to said rock-shaft and acting to disengage said clutch, as described, and a slip-sleeve on the rock-shaft engaging the frame in position to hold the clutch uncoupled, all combined substantially as described.

7. In a reel of the character described, the driving-gears and a clutch for engaging or disengaging said gears, a rock-shaft and connections extending to the clutch by which the same may be disengaged, the drag, and connections from the rock-shaft by which the drag may be applied as the rock-shaft operates to disengage the driving-gears, all combined substantially as described.

8. In a reel of the character described, the driving-gear and a clutch by which the same may be connected and disconnected, a rock-shaft and connections therefrom by which said clutch may be disconnected, and means for locking said clutch in open position, the drag, and means connected to the rock-shaft for applying the drag, all combined.

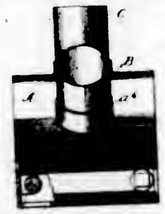
9. In a fishing-reel, the spool, a curved spring-drag in position to engage one rim of said spool, and the thumb-piece extending outside the casing so that the drag may be operated by hand, and a cam-lever in position to engage the drag, substantially as described.

10. In a fishing-reel, the driving-gears and a clutch in the train, a rock-shaft and lever extending therefrom by which the clutch may be disengaged, the drag and means for applying it by hand, and connections on the rock-shaft by which the drag is automatically applied when the clutch is uncoupled, all combined.

11. In a fishing-reel, the rod, a handle-piece reciprocating lengthwise thereof, a cylinder spirally grooved in reverse directions and connected to the handle, two nuts on the cylinder engaging the reverse spirals, said nuts externally flattened, a sleeve surrounding both nuts and operatively connected to the reel, and clutch-pieces interposed between the nuts and sleeve, whereby the nuts are alternately clutched to the sleeve as the grooved cylinder reciprocates, all combined substantially as described.

12. In a fishing-reel, the combination of the spool, its driving-train, and a sleeve within the rod having geared connections to said train, antifriction-bearings for said sleeve at each end thereof and within the rod, oppositely-rotating nuts having clutch mechanism to engage said sleeve alternately, and a spirally-grooved cylinder engaging said nuts and reciprocated by a handle, all substantially as described.

641,907. VELOCIPEDE CRANK-HANGER. GEORGE L. THOMPSON, Chicago, Ill. Filed July 19, 1899. Serial No. 724,355. (No model.)



Claim.—1. A velocipede crank-hanger comprising a metal barrel of generally cyliodric form, provided at one of its cylindric sides with an integral radially-extending extension forming an enlargement of its interior extending longitudinally thereof, as and for the purposes set forth.

2. A velocipede crank-hanger comprising a metal barrel of generally cylindric form in cross-section but provided at one side with a radially outward extending integral extension forming an enlargement of its interior extending throughout the length of the barrel.

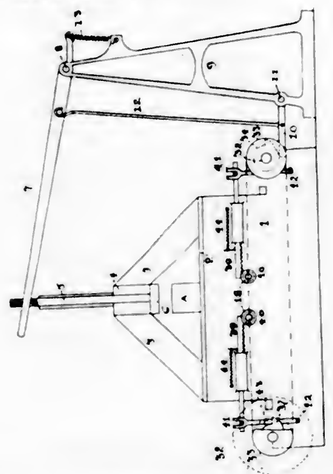
3. A velocipede crank-hanger comprising a metal barrel of generally cylindric form but provided at one side with a radially outward extending integral extension forming an enlargement of its interior extending throughout the length of the barrel, a slot extending longitudinally inward from each end of said extension and means for drawing the sides of the latter together to contract the ends of the hanger.

4. A velocipede crank-hanger comprising a metal barrel of generally cylindric form but provided at one side with a radially outward extending integral extension extending throughout the length of the barrel, a slot extending longitudinally inward from each end of said extension, means for drawing the sides of the latter together to contract the ends of the hanger, and end-closing plates fitted and secured to each end of said extension.

5. A velocipede crank-hanger comprising a sheet-metal barrel having integral nipple-lugs struck up from the body thereof, nipples seated in said nipple-lugs, each provided with an outturned flange fitted and secured against the interior of the hanger-barrel, said barrel being of generally cylindric form but provided at its lower side with a radially outward extending integral extension or enlargement extending throughout the full length of the barrel, an electrically-welded seam traversing the lower side of the hanger, longitudinally,

a slot extending longitudinally inward from each end of said enlargement, the hanger being circumferentially continuous except for said slots, a clamping-bolt inserted through the slotted portion of each end of said enlargement and end-closing plates fitted and secured to each end thereof, as and for the purposes set forth.

641,908. WRAPPING-MACHINE. THOMAS M. TRIPP, PERCY I. JACOBSON, and HARRY D JACOBSON, Liverpool, England. Filed Jan. 31, 1899. Serial No. 704,037. (No model.)



Claim.—1. The combination of a slotted table adapted to support the caramel and its paper, means for pushing the caramel downward through said slot, a pair of folders mounted on spindles adjacent to the track of the caramel, each folder comprising a central flap loose on its spindle and two wings rigid on said spindle, the latter adapted to make the end tucks in the paper, a spring connecting said flap and wings together in such manner that they constantly tend to maintain their relative positions, and means for completing the folding or parceling, substantially as described.

2. In a parceling-machine the combination of means for pushing the caramel and its paper downward through a slotted table and thus turning the paper up at each side, spindles 18 carrying flaps 17 loose thereon and wings 19 rigid therewith, a spring connecting said flap and wings, pinions mounted on said spindles, racks adapted to turn said pinions, and means to actuate said racks substantially as described and shown.

3. In a parceling-machine the combination of means for pushing the caramel and its paper through a slotted table and thus turning the paper up at each side, and means for folding the paper over the top of the caramel, and effecting the first step in the folding of it over the ends thereof, of a pair of rectangular guides located adjacent to the caramel-chute and having doors 25 pivoted in their adjacent corners, and fingers 26 adapted to close said doors and to lie flat against them when closed, with means for operating said fingers in a right line, substantially as described.

4. The combination of side plates 1, transverse plate 21 supported thereby, guides 22 carried by said plate, fingers 26 supported by said guides, doors 25 adapted to be closed by said fingers, spindles 28 upon which said doors are mounted, arms 29 carried by said spindles, beneath said plate 21, and springs 30 attached to said arms, whereby the return of doors 25 to normal or inoperative position is effected, substantially as described.

641,909. BUTTON. WILLIAM J. WAGNER, Vallsburg, N. J. Filed May 4, 1899. Serial No. 715,543. (No model.)



Claim.—1. A button, stud, or the like, comprising a shoe, a tubular post connected with said shoe, said post having an open end, and a chambered head having a central hole in the back thereof, and provided with radially-arranged slots extending from the circumferential edge of said hole, said slots being arranged at right angles to each other, and some of said slots being longer than others, a post or stem in said head having its free end extending into and partly through said hole in said head, onto which the open end of said post connected with the shoe can be forced, locking or holding portions connected with said post, in holding engagement with said short slots, but capable of disengagement therefrom and insertion through said longer slots for removal of said post from said chambered head, said holding portions normally extending partly from said shorter slots to prevent turning, and means within said chambered head arranged to cause the holding or locked engagement of said post with said head, substantially as and for the purposes set forth.

2. A button, stud, or the like, comprising a shoe, a tubular post connected with said shoe, said post having an open end, and a chambered head having a central hole in the back thereof, and provided with radially-arranged slots extending from the circumferential edge of said hole, said slots being arranged at right angles to each other, and some of said slots being longer than others, a post or stem in said head having its free end extending into and partly through said hole in said head, onto which the open end of said post connected with the shoe can be forced, locking or holding portions connected with said post, in holding engagement with said short slots, but capable of disengagement therefrom and insertion through said longer slots for removal of said post from said chambered head, said holding portions normally extending partly from said shorter slots to prevent turning, and a spring-actuated disk slidably arranged on said post or stem in said head arranged to cause the holding or locked engagement of said post of the shoe with the head, substantially as and for the purposes set forth.

3. A button, stud, or the like, comprising a shoe, a post connected with said shoe, oppositely-extending holding portions a^3 and a^4 on said post, and a chambered head having a central hole in the back thereof, and also provided with radially-arranged cut-away portions or slots c^4 and c^5, said slots c^4 being longer than said slots c^5, said holding portions on said post being capable of insertion through said slots c^4 and brought in holding engagement with said slots c^5, and extending partly from said slots to prevent turning, and means within said chambered head for retaining said holding portions on said post in their holding engagement with said chambered head, substantially as and for the purposes set forth.

4. A button, stud, or the like, comprising a shoe, a post connected with said shoe, oppositely-extending holding portions a^3 and a^4 on said post, and a chambered head having a central hole in the back thereof, and also provided with radially-arranged cut-away portions or slots c^4 and c^5, said slots c^4 being longer than said slots c^5, said holding portions on said post being capable of insertion through said slots c^4 and brought in holding engagement with said slots c^5, and extending partly from said slots to prevent turning, and a spring e and disk d in said chambered head arranged to retain said holding portions on said post in their holding engagement with said chambered head, substantially as and for the purposes set forth.

5. A button, stud, or the like, comprising a shoe, a tubular post connected with said shoe, oppositely-extending holding portions a^3 and a^4 on said post, and a chambered head having a central hole in the back thereof, and also provided with radially-arranged cut-away portions or slots c^4 and c^5, said slots c^4 being longer than said slots c^5, said holding portions on said post being capable of insertion through said slots c^4 and brought in holding engagement with said slots c^5, and extending partly from said slots to prevent turning, a post or stem b in said chambered head having its free end extending into and partly through said hole in said head, onto which the open end of said post connected with the shoe can be forced, and a spring-actuated disk slidably arranged on said post or stem b to retain said holding portions on said post connected with said shoe in their holding engagement with the chambered head, substantially as and for the purposes set forth.

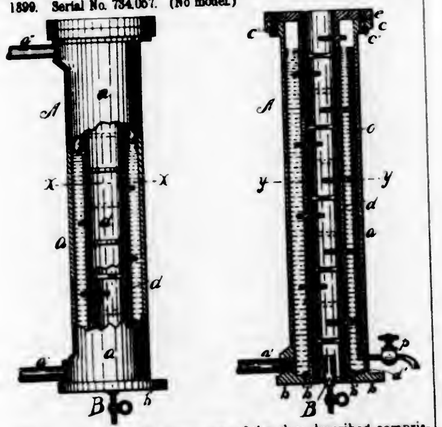
641,910. PROCESS OF MAKING MALTOSE AND DEXTROSE. FREDERICK W. A. WIESEBROCK, New York, N. Y. Filed Feb. 24, 1899. Serial No. 706,723. (No specimens.)

Claim.—1. A step in the process of manufacturing maltose, dextrose and malt-sugar, which consists in separating the meal from the hull of the malt, separating the diastase from the meal, cooking the meal, adding the diastase together with the hull to the cooked meal, and mashing the product in the presence of carbonic-acid gas, substantially as specified.

2. A step in the process of manufacturing maltose, dextrose and malt-sugar, which consists in coagulating the glutinous and albuminous impurities of the mash by treating the mash with carbonic-acid gas at a low temperature, and removing such coagulated impurities, substantially as specified.

3. The process of manufacturing maltose, dextrose and malt-sugar, which consists in separating the meal from the hull of the malt, separating the diastase from the meal, cooking the meal, adding the diastase together with the hull to the cooked meal, mashing the product in the presence of carbonic-acid gas, coagulating the glutinous and albuminous impurities by re-treating the mash with carbonic-acid gas at a low temperature, and removing the coagulated impurities, substantially as specified.

641,911. **HEATING APPARATUS.** JOHN T. WILKINS, WILLIAM H. WELLS, and WILLIAM BAKER, Baldwinsville, N. Y. Filed Oct. 19, 1899. Serial No. 734,057. (No model.)



Claim.—1. A heating apparatus of the class described comprising an outer cylinder and an inner cylinder secured together so as to provide a water-chamber between the walls of the two cylinders, and metallic legs, or lugs secured in the inner cylinder, their inner ends arranged spirally, and their outer ends passing into the water-chamber.

2. A heating apparatus of the class described comprising an outer cylinder and an inner cylinder secured together so as to provide a water-chamber between the walls of the two cylinders, and metallic legs, or lugs secured in the inner cylinder, their inner ends arranged spirally, and their outer ends passing into the water-chamber, said metallic legs being in the form of a quadrant.

641,912. **ICE-CUTTING MACHINE.** ALLEN W. WIETERS, Greenwood Lake, N. Y. Filed Mar. 21, 1899. Serial No. 710,004. (No model.)

Claim.—1. An ice-machine provided with a cylindrical planer-frame having a horizontal axis and inclined blades attached at the extremities thereof to the ends of said frame, saws and means for propelling the machine and actuating said parts.

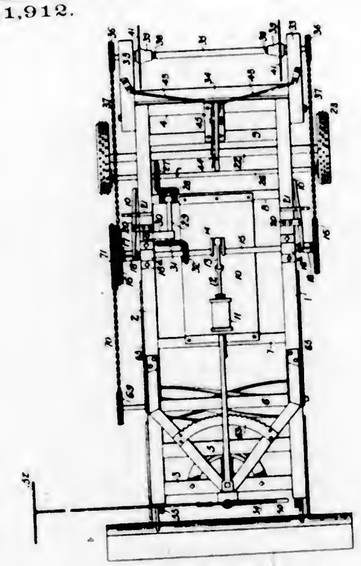
2. An ice-machine provided with a horizontal cylindrical rotary planer having a plurality of inclined cutting-blades attached at both ends thereof to the planer-frame, constructed to cut or shave the ice at one point of the blade in a gradually-progressing operation along the entire edge of the blade.

3. An ice-machine provided with a planer-frame having a horizontal axis and a movable connection with the sides of the machine, adjusting-rods mounted in the frame of the machine and engaging said planer-frame, constructed to move the planer-frame up and down upon said connections, the planer carried by said frame having inclined cutting-blades and means for operating the parts.

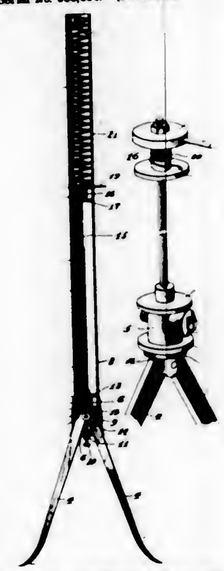
4. An ice-machine provided with a cutter-frame pivoted within the rear end of the machine and carrying a shaft, cutters or saws having screw threaded connection with said shaft and jam-nuts to afford horizontal adjustment thereon and a ratchet-lever mounted upon the machine and connected with both sides of the cutter-frame to elevate and depress the latter.

5. An ice-machine provided with driving and steering mechanism, a scraper, a cylindrical planer having a horizontal axis and movably connected with the sides of said machine carrying inclined cutter-blades, adjusting-rods mounted in said machine engaging said frame to elevate or depress the same, a cutter-frame movably mounted within one end of the machine and carrying a shaft, cutters having screw-threaded connection with said shaft and means for operating the parts.

641,912.



641,913. **ADJUSTABLE BICYCLE-REST.** HARRY WISE, San Antonio, Tex., assignor of one-half to H. Wulff Mayer, same place. Filed Aug. 8, 1898. Serial No. 688,056. (No model.)



Claim.—1. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with means for attachment to a frame-bar, a follower mounted for reciprocatory movement in the casing or sheath, supporting-legs pivotally connected with the follower, and a spreader fitted in the lower end of the casing or sheath between said supporting-legs, and provided with an adjustable stop in the path of the lower end of the follower to limit the extension of the legs, substantially as specified.

2. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with means for attachment to a frame-bar, a follower mounted for reciprocatory movement in the casing or sheath, supporting-legs pivotally connected with the follower, a spreader fitted in the lower end of the casing or sheath between the supporting-legs, and an adjustable stop consisting of a screw fitted axially in the spreader with its inner extremity in the path of said follower, and means for locking said screw at the desired adjustment, substantially as specified.

3. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with means for attachment to a frame-bar, a follower mounted for reciprocatory movement in the casing or sheath, supporting-legs pivotally connected with the follower, a stationary spreader arranged between the supporting-legs for contact with their inner surfaces to deflect them as they are extended, and spring-scrapers mounted upon the casing or sheath with their lower extremities in contact with the surfaces of the supporting-legs, and bearing inward thereon, to hold the inner surfaces of the legs in contact with the spreader, substantially as specified.

4. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with means for attachment to a frame-bar, a follower mounted for reciprocatory movement in the casing or sheath, supporting-legs pivotally connected with the follower, a spreader arranged between the supporting-legs to deflect them as they are extended, and guide or bearing springs arranged in contact with the outer surfaces of the supporting-legs to hold them yieldingly in contact with the spreader and prevent excessive deflection thereof, substantially as specified.

5. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with means for attachment to a frame-bar, a follower mounted for reciprocatory movement in the casing or sheath, supporting-legs pivotally connected with the follower, the casing or sheath being provided at its lower end with diametrically opposite longitudinal slots in which the outer sides of the supporting-legs are adapted to operate, a spreader arranged between the supporting-legs to deflect them as they are extended, and guide or bearing springs mounted in alinement with said slots and bearing terminally against the exterior surfaces of the supporting-legs, substantially as specified.

6. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with a longitudinal guide-slot having terminal offsets or seats, a follower mounted for reciprocatory movement in the casing or sheath, pivotal supporting-legs carried by the follower, means for preventing rotary movement of the follower in the casing, and a plunger having its body portion rigidly connected with the follower and provided with a revoluble disk or head carrying an operating pin or grip to operate in said slot, substantially as specified.

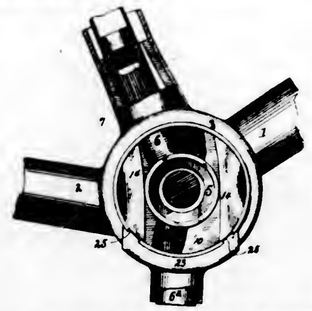
7. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with a longitudinal guide-slot having terminal offsets or seats, a follower mounted for reciprocatory movement in the casing or sheath, pivotal supporting-legs carried by the follower, means for preventing rotary movement of the follower in the casing, and a plunger having its body portion rigidly connected with the follower and provided with a revoluble spring-actuated disk or head carrying an operating pin or grip to operate in said slot, substantially as specified.

8. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with a longitudinal slot having terminal offsets or seats, supporting-legs mounted in the casing or sheath for extension beyond the lower end thereof, in coöperation with a spreader, a plunger mounted for reciprocatory movement in the casing and provided with a revoluble disk or head carrying an operating pin or grip extending through said slot of the casing, an actuating-spring for said disk or head, to cause the automatic engagement of the pin or grip with one of the terminal offsets or seats of said slot, and connections between the plunger and the supporting-legs, substantially as specified.

9. A rest for bicycles and similar vehicles, having a tubular casing or sheath provided with a longitudinal guide-slot having terminal offsets or seats, a follower mounted for reciprocatory movement in the casing, a radial guide pin adjustably mounted upon the follower and extending terminally into a second longitudinal slot in the casing or sheath, said guide-pin having a shoulder adapted to bear against the inner surface of the casing or sheath and prevent lateral play, supporting-legs mounted upon the follower and coöperating with a spreader at the lower outlet end of the casing, and a plunger rigidly connected with the follower and having a rotary head or disk carrying an operating pin or grip extending through the first-named slot of the casing, substantially as specified.

641,914. **BICYCLE.** EDWARD Y. WHITE, San Antonio, Tex. Filed Oct. 16, 1899. Serial No. 693,577. (No model.)

Claim.—1. In a bicycle, the hollow hanger connected to the frame, the bearing-sleeve for the crank within said hanger having an arm extending upward inside the seat-standard, the seat-post adjustably connected to said arm, and a hollow segmental pneumatic cushion within the hanger and supporting the bearing-sleeve, all combined substantially as described.



2. In a bicycle, a hollow crank-shaft hanger connected to the frame, a pneumatic cushion within said hanger, and a crank-shaft bearing-piece resting on said cushion, all combined substantially as described.

3. In a bicycle, the frame, a hollow shaft-hanger connected to the frame, a pneumatic cushion within said hanger, the crank-shaft bearing-piece resting on said cushion, and guides by which the movement of the said bearing-piece is controlled as the cushion yields, all combined substantially as described.

4. In a bicycle, a hollow shaft-hanger, a pneumatic cushion therein, the crank-shaft bearing-piece resting on said cushion, and the saddle-support connected directly to said crank-shaft bearing, so that the saddle and crank-shaft bearing will yield together, in combination.

5. In a bicycle, a hollow hanger connected to the frame and provided with guides on a curve concentric with the driven shaft, a yielding pneumatic cushion within the hanger, and a crank-shaft supported by a yielding bearing-piece on the cushion and guided by said curved guides in its yielding movement, all combined.

6. In a cycle, the hollow hanger, a pneumatic cushion within the same, the crank-shaft bearing resting on said cushion and guided in its yielding movement in a curve concentric with the driven point, and the seat-support connected to said shaft-bearing and having a yielding movement in the frame to compensate for the curved movement of the shaft-bearing, all combined substantially as described.

7. In a cycle, the hollow hanger, the broken hollow rubber ring-cushion within said hanger, and the crank-shaft bearing resting on said cushion and having arms projecting nearly radially through openings in the ring-cushion, substantially as described.

8. In a bicycle, the hollow hanger having an opening at bottom and a removable cover therefor, the pneumatic cushion and crank-shaft bearing applicable through said opening, and means for connecting said cover to the crank-hanger, all combined substantially as described.

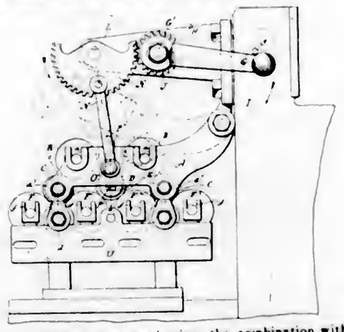
9. The hollow hanger connected to the frame and having top and bottom openings, the cushion within said hanger, the crank-shaft bearing-piece resting on said cushion and having arms projecting through said openings in the hanger, curved guides on the hanger controlling the direction of movement of the shaft-bearing, and a connection from the upper arm of the shaft-hanger to the seat, all combined substantially as described.

10. In a bicycle, the hollow hanger connected to the frame, a hollow segment of a ring forming a pneumatic cushion therein, the crank-shaft bearing mainly inclosed in said hanger but projecting at the sides thereof and resting on the cushion, and the end covers connected to the ends of the said hanger and extending over the openings through which the sleeve projects at the sides of the hanger, all combined substantially as described.

11. In a bicycle, the frame having a hollow shaft-hanger, the crank-shaft bearing resting on a hollow segment of a ring forming a pneumatic cushion in said hanger, curved guides in the hanger by which the shaft-bearing is guided in an arc about the center to which power is communicated, and the seat-support directly connected to the crank-shaft bearing, all combined substantially as described.

12. In a bicycle, the crank-shaft bearing-sleeve supported on a cushion in the hanger, said sleeve having a tapering tubular arm extending upward inside the seat-standard, the seat-post split at its lower end and having a tapering internal recess, and extending inside the said arm, and a tapering nut and bolt by which said seat-post may be spread and thereby secured to said arm, all combined substantially as described.

641,915. INKING MECHANISM. STURGES WHITLOCK, Shelton, Conn., assignor to the Whitlock Machine Company, Derby, Conn. Filed June 26, 1899. Serial No. 721,808. (No model.)



Claim.—1. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of means for lifting the distributer-rollers out of contact with the form-rollers, and means coacting with the corresponding ends of all of the form-rollers for tilting them so as to lift them out of contact with the form or inking-plate at the same time the distributer-rollers are lifted out of contact with them.

2. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of a swinging carrier for the distributer-rollers, means located above the carrier for raising the same, whereby the distributer-rollers may be cleared from the said form-rollers, and devices operated by the movement of the carrier for tilting the form-rollers to clear them from the form or inking-plate at the same time the distributer-rollers are cleared from them.

3. In an inking mechanism, the combination with the form-rollers thereof, of vertically-movable sockets therefor, distributer-rollers, a swinging carrier therefor, means located above the carrier for raising the same, whereby the distributer-rollers may be cleared from contact with the form-rollers, and devices coacting with the said vertically-movable sockets and actuated by the movement of the carrier, whereby all of the form-rollers are correspondingly tilted to clear them from contact with the form or inking-plate at the same time the distributer-rollers are lifted out of contact with the form-rollers.

4. In an inking mechanism the combination with the form-rollers and the distributer-rollers thereof, of an instrumentality for carrying the said distributer-rollers, and means located above the said instrumentality, and coacting therewith for raising and lowering the same, whereby the distributer-rollers are cleared from the form-rollers, the said means including mechanism performing the twofold office of automatically locking the said carrying instrumentality in its raised and in its lowered positions.

5. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of a swinging roller-carrier in which the distributer-rollers are mounted, and means located above the carrier for raising and lowering it and for automatically locking it in its raised and lowered positions, including a handle, a link connected at its lower end with the carrier, and gearing between the upper end of the said link and the said handle, whereby the movement of the handle effects the raising or lowering of the carrier for the movement of the distributer-rollers into or out of contact with the form-rollers, and the automatic locking of the carrier in its raised and lowered positions.

6. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of a swinging carrier in which the distributer-rollers are mounted, and mechanism for raising and lowering the carrier, whereby the distributer-rollers may be sufficiently lifted above the form-rollers to permit the ready removal thereof, the said mechanism being located above the said carrier, and comprising a shaft, a crank and a link, all constructed and arranged to automatically lock the carrier in its raised position and in its lowered position when the centers of the link and shaft are brought into line.

7. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of a swinging carrier for the distributer-rollers, an adjustable auxiliary distributer-roller mounted in the said carrier at a point between and below the said distributer-rollers for coaction with the said form-rollers with respect to which it is adjustable to compensate for their shrinkage, and mechanism located directly above the carrier and connected therewith for raising the same, whereby the carrier may be raised sufficiently to clear its distributer-rollers and the said auxiliary rollers from the form-rollers so as to permit the same to be readily removed.

8. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of a carrier in which the said distributer-rollers are mounted, and which comprises two pivotal carrier-arms, and mechanism located above the said carrier for raising and lowering the same, and including a handle, a pinion connected therewith, a sector intermeshed by the said pinion, a shaft upon which the sector is mounted, a link connecting the sector with one of the carrier-arms, and operating connections between the other end of the shaft and the other carrier-arm, the centers of the link and shaft being brought into line for locking the carrier in its raised and lowered positions.

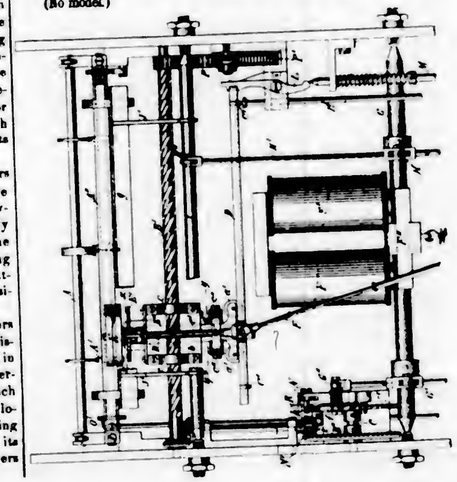
9. In an inking mechanism, the combination with the form-rollers thereof, of vertically-movable sockets for the journals of the said rollers, lifting-fingers coacting with the said sockets, a shaft upon which the said fingers are mounted, a lever carried by the said shaft for rocking it for the operation of said fingers, and means coacting with the lever for operating it to lift the sockets and hence tilt all of the form-rollers for clearing them from contact with the form or inking plate.

10. In an inking mechanism, the combination with the form-rollers and the distributer-rollers thereof, of stands in which the form-rollers are journaled, a swinging carrier in which the said distributer-rollers are mounted, mechanism located above the carrier for raising the same, and adjustably connected therewith for regulating the position of the carrier with respect to the said stands when the carrier is in its lowered position, and devices connected with the form-rollers, whereby they are tilted and cleared from the form or inking-plate at the same time the distributer-rollers are cleared from the form-rollers by the lifting of the carrier.

11. In an inking mechanism, the combination with the form-rollers thereof, of two fixed stands in which the said form-rollers are mounted, a swinging carrier having its lower edges adapted to be interlocked with the stands for preventing the lateral deflection of the carrier when the same is in its lowered position, distributer-rollers mounted in the carrier, mechanism located above the carrier for raising the same, adjustable connections between the carrier and the said mechanism, whereby the carrier when lowered is rightly interlocked with the said stands, and means coacting with the form-rollers for tilting them to clear them from the form or inking-plate at the same time the distributer-rollers are lifted above the form-rollers by the elevation of the carrier above the said stands.

12. In an inking mechanism for printing-presses, the combination with the form-rollers and the distributer-rollers thereof, of a carrier in which the distributer-rollers are mounted, means located above the carrier and connected therewith for raising it, an auxiliary distributer-roller for coaction with the said form-rollers, and brackets secured to the said carrier at a point between and below the said distributer-rollers, and having the auxiliary roller mounted in them and made vertically adjustable for the adjustment of the said auxiliary distributer-roller with respect to the form-rollers to compensate for the shrinkage thereof.

641,916. PRINTING-TELEGRAPH INSTRUMENT. JOHN E WRIGHT, New York, N. Y. Filed May 5, 1899. Serial No. 715,703. (No model.)



Claim.—1. In a column-printing telegraph, the combination with a shaft mounted parallel to the printing-surface and containing four spiral grooves, of a type-wheel carriage having at each side a guide through which said shaft passes, each of the said guides having four pins or projections that correspond with and enter the spiral grooves, and means for imparting an intermittent movement of rotation to the shaft for advancing the type-wheel transversely, step by step, as set forth.

2. The combination with the spirally-grooved shaft and means for imparting an intermittent movement of rotation thereto, a type-wheel and a carriage carrying the same and engaging with the shaft so as to be moved transversely by its rotation, a bar or plate parallel to the line of travel of the type-wheel carriage, and means for moving said plate or bar and thereby tilting the type-wheel into contact with the printing-surface, as set forth.

3. The combination of the spirally-grooved shaft, a type-wheel carriage engaging therewith, a type-wheel and its mountings movable vertically with respect to said carriage, a guide supporting the type-wheel, means for raising and lowering the said guide, and means for tilting the type-wheel into contact with the printing-surface, as set forth.

4. In a column-printing telegraph instrument, the combination with a spirally-grooved shaft, and means for imparting an intermittent movement of rotation thereto, of a type-wheel carriage composed of two parts, one engaging with the spirally-grooved shaft and adapted to be moved transversely by its rotation, the other movable vertically with respect to the first, and a rotary type-wheel mounted thereon and capable of oscillation in a plane at right angles to the line of travel of the carriage, as set forth.

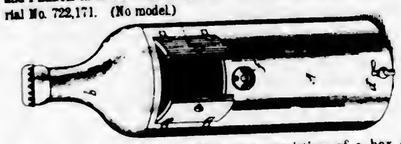
5. The combination with the type-wheel carriage, a shaft and a ratchet and pawl for advancing the said carriage, of a lever for releasing the pawl, a catch for locking said lever when tilted, and a pin or projection on the ratchet-wheel that encounters and trips said catch when the type-wheel carriage has completed its return movement, as set forth.

6. The combination with the spirally-grooved shaft, of the plate with guides through which said shaft passes and with which it engages, the frame connected with said plate and movable vertically with respect thereto, a plate pivoted to said frame, a rotary type-wheel passing through said pivoted plate, and capable of oscillation in a plane at right angles to the axis of the grooved shaft, as set forth.

7. The combination with the spirally-grooved shaft, of a type-wheel carriage engaging therewith, a rotary type-wheel capable of oscillating in a plane at right angles to the axis of the grooved shaft, an arm or upright as *c* pivoted to the carriage, and a toothed wheel *E* on the spindle of the type-wheel shaft with which said arm *c* engages when it is tilted, to force the type-wheel against the printing-surface, as set forth.

8. The combination with the shaft having four spiral grooves, of a type-wheel carriage having guides with corresponding projections that engage with said grooves, a frame connected with and movable vertically with respect to the carriage and a trough or guide D in which said frame is supported on rollers, as set forth.

641,917. ADVERTISING-REFRIGERATOR. FREEMAN N. YOUNG, and FRANCIS R. THOMPSON, Arlington, Mass. Filed June 28, 1899. Serial No. 722,171. (No model.)

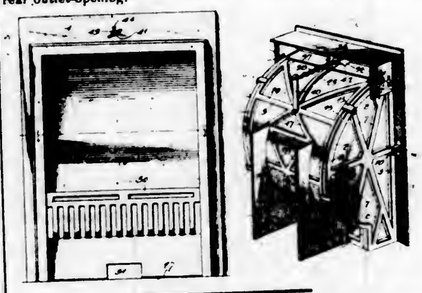


Claim.—1. An advertising-refrigerator consisting of a box or casing in the form of a bottle, the body portion having a door or doors and adapted to contain ice and material to be kept cool, and the neck portion being separable from the body portion and provided with racks for supporting glasses, substantially as described.

2. An advertising-refrigerator consisting of a box or casing in the form of a bottle provided with a door or doors in its side, and with a spigot for drawing off the loose liquid contents, the inner walls of the casing being coated with a material capable of imparting an obnoxious taste to any liquid contained in the refrigerator.

641,918. FIREPLACE. LEWIS C. ANDER, Mars, Pa. Filed May 29, 1899. Serial No. 718,724. (No model.)

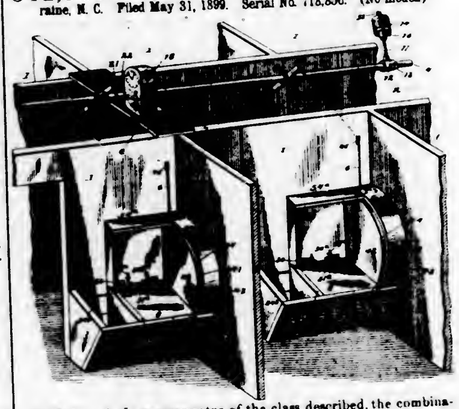
Claim.—In a fireplace, the combination of a front section having an entrance-opening, opposite side sections, a back section, having its upper end extending inwardly between the side sections, terminating at or above the upper edge of the entrance-opening, and having a vertical flue-opening located adjacent to the upper edge of the entrance-opening in the front section, vertically-adjustable plates provided upon the upper ends of the side sections, normally extending above the upper edge of the entrance-opening, and having their front edges fitting snugly the rear or inner side of the front section, and a baffle-plate supported solely upon the adjustable plates, normally located above the upper edge of the entrance-opening, having its front longitudinal edge fitting snugly against the inner or rear side of the front section, also movable with the adjustable plates, and forming an adjustable smoke and hot-air chamber, closed at its upper end, opposite sides and front, and having a bottom inlet-opening, and a rear outlet-opening.



641,919. PROCESS OF INTENSIFYING PHOTOGRAPHS. MORRIS ANDRESEN and ERNST LEUPOLD, Berlin, Germany, assignors to the Action-Gesellschaft für Anilin Fabrikation, same place. Filed July 20, 1899. Serial No. 724,569. (No specimens.)

Claim.—The process herein described of intensifying photographic silver prints, which consists in subjecting the prints to the action of the herein-described solutions containing double salts of mercuric sulfocyanid.

641,920. AUTOMATIC STOCK-FEEDER. DAVID A. ASKEW, Coleraine, N. C. Filed May 31, 1899. Serial No. 718,856. (No model.)



Claim.—1. In an apparatus of the class described, the combination with the stalls arranged in series separated by an intervening space or passage, of troughs arranged within the stalls and having hinged covers, fastening devices for holding the cover closed, a rock-shaft extending longitudinally of the space or passage and provided with oppositely-disposed arms, flexible connections extending from the said arms to the fastening devices, a weighted arm mounted on the rock-shaft and adapted to actuate the same, means for setting and tripping the rock-shaft, and an operating device for returning the rock-shaft to its initial position, substantially as described.

2. In an apparatus of the class described, the combination of troughs having automatically-opening covers, fastening devices for retaining the covers in their closed position, a rock-shaft connected with the fastening devices and adapted to release the covers, a setting-arm carried by the rock-shaft, a catch engaging the setting-arm, a lever adapted to trip the catch, and an oscillating arm arranged to engage the lever and designed to be connected with clock

mechanism, whereby the device may be tripped at any desired time, substantially as described.

3. In an apparatus of the class described, the combination of a rock-shaft having a setting-arm, a catch arranged to engage the setting-arm, a lever fulcrumed between its ends and arranged to carry the catch out of engagement with the setting-arm, an oscillating arm arranged to engage the lever, and gearing for connecting the oscillating arm with a clock mechanism, substantially as described.

4. In an apparatus of the class described, the combination of a reciprocating spring-actuated catch, a lever fulcrumed between its ends and having one end connected with the catch, a pinion designed to be connected with the alarm mechanism of a clock, and a gear-wheel meshing with the pinion and carrying means for engaging the lever, whereby the latter is oscillated, substantially as described.

5. In an apparatus of the class described, the combination of a rock-shaft having a weighted actuating-arm, feed-troughs having automatically-opening covers, catches adapted to retain the covers in their closed positions and connected with the rock-shaft, means for setting and tripping the rock-shaft, and a flexible connection attached to the actuating-arm and adapted to raise the same for setting the device, substantially as described.

6. In an apparatus of the class described, the combination of a rock-shaft having a setting-arm and provided with a weighted actuating-arm, a catch arranged to engage the setting-arm, means for tripping the catch, and a flexible connection attached to the actuating-arm and arranged to swing the same upward to carry the setting-arm into engagement with the catch, substantially as described.

7. In an apparatus of the class described, the combination of a feed-trough having a hinged cover, a rock-shaft, a catch engaging the cover and adapted to retain the same in its closed position, a flexible connection passing over guide-pulleys and extending from the catch to the rock-shaft, a cord or rope provided with a weight and connected with the cover, and means for setting and tripping the rock-shaft, substantially as described.

8. In an apparatus of the class described, the combination with a stall provided with a feed-trough having an automatically-opening cover, a catch for holding the cover in its closed position, a rock-shaft, a flexible connection extending from the rock-shaft to the catch, and a cord or rope connected with the cover and extending through the head of the stall, substantially as and for the purpose described.

9. In an apparatus of the class described, the combination of a trough having an inclined hinged cover, a weighted flexible connection attached to the cover and adapted to swing the same upward, a spring connected with the cover and adapted to lift the same to a horizontal position, and means for fastening and unfastening the cover, substantially as described.

10. In an apparatus of the class described, the combination of a stall having a trough, and provided at one side with a housing having a curved slot or opening, a hinged cover provided with a laterally-extending arm operating in the slot or opening and projecting into the housing, a catch engaging the arm and adapted to hold the cover in its closed position, and means for disengaging the catch and for opening the cover, substantially as described.

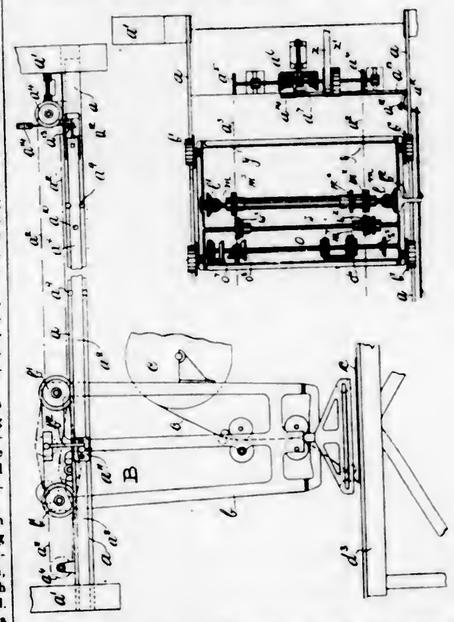
11. In an apparatus of the class described, the combination with a stall provided with a trough, a cover hinged at its rear edge, means for operating the cover to open and close the same, and a frame extending upward from the rear edge of the cover, arranged to receive the latter when the same is open and forming a shield adapted to exclude an animal from the edges of the cover, substantially as and for the purpose described.

12. In an apparatus of the class described, the combination with the stalls arranged in series, separated by an intervening space or passage, of troughs arranged within the stalls and having hinged coverings, fastening devices for holding the covers closed, a rock-shaft extending longitudinally of the space or passage and provided with oppositely disposed arms, flexible connections between the arms and the fastening devices, a weighted arm extending from the rock-shaft and adapted to actuate the same, stops arranged to limit the movement of the rock shaft and located in the path of the arm, and means for setting and tripping the rock-shaft, substantially as described.

641,921. CLOTH-PILER. JAMES R. BARTON, Manchester, England. Filed Mar. 2, 1899. Serial No. 707,596. (No model.)

Claim.—1. In a reciprocating carriage B, the combination of the cloth-delivery rollers d, e, and their bearings d^4; the blocks d^5; the frame h, the chains or bands attached to the block; the wheels k', k^3, operating the chains; the gearing j, j'; shafts k, k'; bushes l^3, l^3, and gearing l, l' actuating the said wheels k', k^3; the shaft m, slotted disks m^5, m^6, and chain-wheels m^3, m^3, operating the gearing l, l'; and the chains a^3, a^3, operating the chain-wheels m^3 m^3, substantially as, and for the purpose set forth.

2. In a reciprocating carriage B; and in combination, the bands d', e'; the rollers b^5, b^6, d, e, carrying the same; the rollers f, g, g', guiding said bands, the tension-levers f'; the cranked arms g^3, and the frames h, h, for the purpose and substantially as set forth



3. In a reciprocating carriage B, and in combination, the saddle n, rods n', carrying same; knife n^2, and pinion n^3, on the saddle; rack n^4; "dead-knife" n^5; lever o^3, operating said saddle n, link o^3, crank o^4, gearing o', half-wheel o'', and shaft o, operating said lever o^3; gearing o^{10}, pawls and ratchets o^{11}, o^{12}; wheel o^6, chain m^7, wheel m^4, and chains a^2, a^3, operating shaft o, for the purpose and substantially as set forth.

4. In a reciprocating carriage B, and in combination, the chains a^2, a^3, wheel m^1, chain m^7, wheel o^6, gearing o^{10}, and ratchets and pawls o^{12}, o^{11}, all operating shaft o; said shaft o, half-wheel o'', and gearing o^9; wheel l' operated thereby, band l, and pawl l^3, operated by wheel l'; and ratchet l^4, acted on by pawl l^3, for the purpose and substantially as set forth.

5. In a reciprocating carriage B, and in combination, the chains a^2, a^3; chain-wheels m^3, m^3, driven thereby, disks m^5, ratchets m', pawls m^6, and shaft m, operated by said chain-wheels m^3, m^3; band u, roller b^2, band v, and roller b^3, driven by said shaft m, for the purpose and substantially as set forth.

6. In a reciprocating carriage B, and in combination, the frame h, pinions p, raising same; counterbalance h^4; shaft p' carrying pinions p; ratchet p^2, pawl p^3, link p^4, lever p^5, and cam x', operating shaft p'; shaft x, operating said cam; gearing x^3, x^3, and shaft o, actuating-shaft x; the shaft o, being driven as aforesaid, for the purpose, and substantially as set forth.

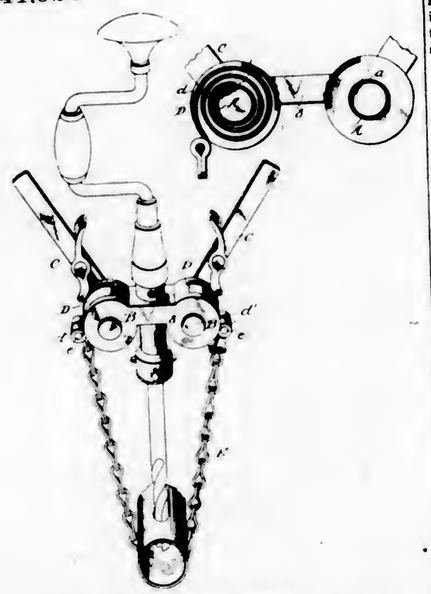
7. In a reciprocating carriage B, and in combination with the cam x', aforesaid, the levers p^7, p^8, and p^9; and the feeler-roller r operating such levers, for the purpose and substantially as set forth.

8. In combination, the carriage B; reciprocating chains a^2, a^3, and stops y, on said chains, operating said carriage; wheels a^4, a^5, driving said chains, and wheels m^2, m^3, operated by said chains, substantially as and for the purpose set forth.

641,922. BRACE OR BIT STOCK ATTACHMENT. WILLIAM L. BAUMGARDNER, Watsonville, Cal. Filed July 22, 1899. Serial No. 724,781. (No model.)

Claim.—The combination with the yoke or bracket S, of the tubular shaft A formed with the longitudinal slot a, the hand-lever C fixed to the closed end of said tubular shaft, the spiral spring D formed with the shined eyes d' d' and the radial lip d^3 and the removable cap B having a threaded engagement with the open end of said tubular shaft, substantially as shown and described.

641,922.



641,928. **PROCESS OF PRODUCING A NON-CONDUCTING MATERIAL OR COMPOSITION.** LOUIS PIRWITZ and WILHELM BERR, Hanover, Germany. Filed Feb. 1, 1899. Serial No. 704,164. (No specimens.)

Claim.—The process for the production of a non-conducting material or composition consisting in adding to fifty per cent. of carbonate of lime, fifteen per cent of chlorid of manganese, twenty per cent. of a three-per-cent. chlorid-of-calcium lye, ten per cent. of finely-ground down-feathers and five per cent. of large ordinary feathers; the whole is then mixed into a papescent mass and thereupon applied to the surfaces to be coated, substantially as set forth.

641,924. FIRE-ALARM BOX. HENRY F. BLACKWELL, Jr., New York, N. Y. Filed Aug. 24, 1899. Serial No. 728,297. (No model.)

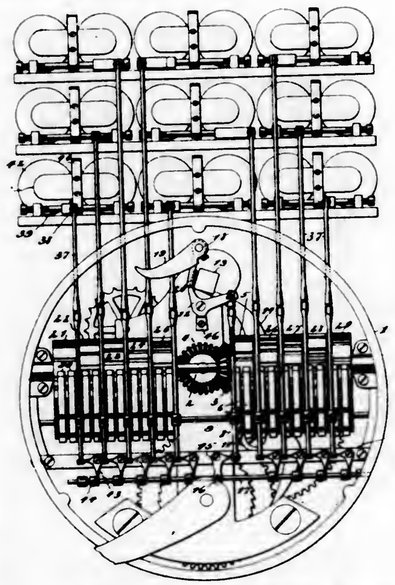
Claim.—1. In a fire-alarm box, a motor, a detent for the motor, a public signal-wheel operated by the motor, an auxiliary signal-wheel operated by the motor, contact-fingers for engaging with the wheels, one set of fingers being normally in contact with its wheel, and electrically-operated devices for releasing the motor-detent, permitting a signal to pass over a circuit controlled by one of the wheels, substantially as specified.

2. In a fire-alarm box, a motor, a public signal-wheel operated by the motor, a series of auxiliary or private signal-wheels mounted on the same shaft with the public signal-wheel, contact-fingers for engaging with the various signal-wheels, and an electrically-operated means for moving contact-fingers into engagement with an auxiliary wheel and at the same time moving contact-fingers out of engagement with the public wheel, substantially as specified.

3. A fire-alarm box, comprising a motor, a public signal-wheel operated by the motor, a series of auxiliary signal-wheels operated by the motor, contact-fingers for engaging with the several signal-wheels, a detent for the motor, and electrically-operated means for moving contact-fingers into engagement with an auxiliary wheel and at the same time moving the contact-fingers out of engagement with the public wheel and also releasing the detent from the motor, substantially as specified.

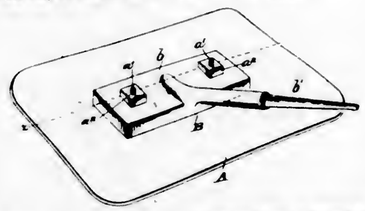
4. In a fire-alarm box, a series of signal-wheels, a shaft on which all of said wheels are mounted, a motor for rotating the shaft, a pair of contact-fingers for each signal-wheel, blocks on which the contact-fingers are mounted, the said blocks being mounted to rock independently of each other, electromagnets in the box, and devices operated by said electromagnets for moving the contact-fingers into engagement with a signal-wheel, substantially as specified.

5. In a fire alarm box, a motor, a series of independent signal-wheels operated by the motor, a pair of contact-fingers for each signal-wheel, rocking blocks upon which the fingers are mounted, the several blocks being independent one of another, tracker-rods having connection with said blocks, and electrically-controlled means for operating said rods to move the contact-fingers relatively to the signal-wheels, substantially as specified.



6. In a fire-alarm box, a motor, a public signal-wheel operated by the motor, contact-fingers normally engaging with said wheel, a plurality of auxiliary signal-wheels, contact-fingers for engaging with said auxiliary wheels, each pair of contact-fingers being mounted to swing independently one of another, electromagnets in the box, tracker-rods operated by said electromagnets, the said tracker-rods having connection with the contact-fingers of the auxiliary wheels, a thrust-rod, levers operated by the tracker-rods for moving said thrust-rod in one direction, a tracker-rod having connection with the contact-fingers for the public wheel, and a lever operated by said tracker-rod for releasing the motor, substantially as specified.

641,925. WEEDING-HOE. EVERT C. BLUNDELL, Sioux City, Iowa. Filed July 28, 1899. Serial No. 725,412. (No model.)

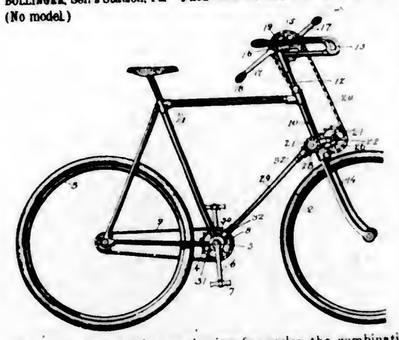


Claim.—1. In a weeding-hoe, a weighted tank provided with an inclined upwardly-projecting arm to receive the handle and adapted to be removably secured to the upper surface of the blade, substantially as shown and described.

2. In a weeding-hoe, the combination of a weighted tang and a horizontal rectangular blade with rounded corners and edges beveled from the top toward the bottom, substantially as shown and described.

3. A weeding-hoe consisting of a rectangular horizontal blade with rounded corners and edges beveled from the top toward the bottom; a weighted tang provided with an inclined upwardly-projecting arm to receive the handle, and adapted to be removably secured to said blade and a handle adapted to be placed on said arm, substantially as shown and described.

641,926. DRIVING MECHANISM FOR CYCLES. MARTIN E. BOLLINGER, Sell's Station, Pa. Filed Mar. 30, 1899. Serial No. 711,091. (No model.)



Claim.—1. In a driving mechanism for cycles, the combination with a bicycle-frame and with a wheel to be driven, of a steering-stem movable in the frame, a shaft secured to said steering-stem and having cranks, a second shaft in two sections one of which has a bearing fixed to the frame, and the other of which has a bearing movable with the steering-stem and which sections are connected by a universal joint, operatively-connected devices on the crank-shaft and on the movable section of the two-part shaft for conveying motion from the former to the latter, power-transmitting mechanism operatively connected respectively with the fixed section of said shaft and with said wheel, and handles independent of the crank-shaft and secured to a forwardly-extending bracket upon the steering-stem, said handles lying at either side of the power-transmitting mechanism, substantially as described.

2. In a driving mechanism for cycles, the combination with a bicycle-frame and a wheel to be driven, of a steering-stem movable in the frame, a shaft secured to said steering-stem and having cranks, a second shaft in two sections one of which has a bearing fixed to the frame and the other of which has a bearing movable with the steering-stem, which sections are connected by a universal joint, operatively-connected devices on the crank-shaft and on the movable section of the two-part shaft for conveying motion from the former to the latter, power-transmitting mechanism operatively connected respectively with the fixed section of said shaft and with said wheel, and a handle independent of the crank-shaft and secured to the steering-stem, and said handle being of double-U shape, substantially as described.

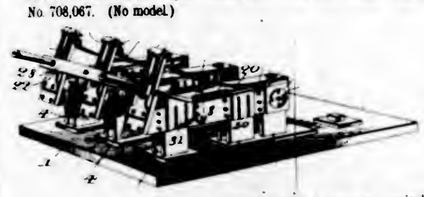
3. In a driving mechanism for cycles, the combination with a bicycle-frame and a wheel to be driven, of a steering-stem movable in the frame, a shaft secured to said steering-stem and having cranks, a second shaft in two sections one of which has a bearing fixed to the frame and the other of which has a bearing movable with the steering-stem and in which said shaft-section is longitudinally movable and which sections are connected by a universal joint, means for supporting the respective sections of said shaft, operatively-connected devices on the crank-shaft and on the movable section of the two-part shaft for conveying motion from one to the other, a crank-axle, driving mechanism between the crank-axle and said wheel, and driving connections between said crank-axle and the fixed section of the two-part shaft, substantially as described.

4. In a driving mechanism for cycles, the combination with a bicycle-frame and a wheel to be driven, of a steering-stem movable in the frame provided with a handle, a shaft rotatably supported by said steering-stem and having cranks provided with grips, a second shaft in two sections one of which has a bearing fixed to the frame and the other of which has a bearing movable with the steering-stem, a sprocket-wheel on said crank-shaft, a second sprocket-wheel on the movable section of the two-part shaft, a sprocket-chain connecting said sprocket-wheels, a beveled gear fixed to the fixed section of said two-part shaft, a longitudinal shaft having beveled gears at its opposite ends one of which meshes with the other beveled gear, a crank-axle having a beveled gear meshing with the adjacent beveled gear on said longitudinal shaft, bearings on the framing for supporting said longitudinal shaft, sprocket-wheels secured respectively to the crank-axle and to the axle of the wheel to be driven, a chain connecting said last-mentioned sprocket-wheels, and cranks secured to the crank-axle and provided with pedals, substantially as described.

5. In a driving mechanism for cycles, the combination with a frame and a wheel to be driven, of a steering-stem, a shaft secured to said steering-stem and having cranks, a second shaft in two sections connected by a universal joint, a bearing for one of said shaft-sections carried by a fixed portion of the frame, a bearing for the second shaft-section movable with the steering-stem, and in which said movable shaft-section is adapted to slide as the steering-stem turns, operatively-connected devices on the crank-shaft and on the movable section of the two-part shaft for conveying motion from the former to the latter, and power-transmitting mechanism operatively connected respectively with the fixed section of said two-part shaft and with said wheel, substantially as described.

6. In a driving mechanism for cycles, the combination with a bicycle-frame and a wheel to be driven, of a steering-stem movable in the frame, a shaft secured to said steering-stem and having cranks, a second shaft in two sections operatively connected one of which has a bearing fixed to the frame and the other of which has a bearing movable with the steering-stem, operatively-connected devices on the crank-shaft and on the movable section of the two-part shaft for conveying motion from the former to the latter, and power-transmitting mechanism operatively connected respectively with the fixed section of said shaft and with said wheel, substantially as described.

641,927. QUICK-BREAK ELECTRIC SWITCH. WILLIAM F. BOSSERT and GEORGE L. HOLTON, Utica, N. Y., assignors to the Bossert Electric Construction Company, same place. Filed Mar. 7, 1899. Serial No. 708,067. (No model.)



Claim.—1. An electric switch comprising fixed contacts, a switch-blade, a throw-plate, a spring arranged above the throw-plate and a locking device carried by the switch-blade adapted to engage one of said contacts, and having a portion extending within the path of the throw-plate.

2. An electric switch comprising fixed contacts, a switch-blade, a throw-plate, a spring arranged above the throw-plate, a guide-arm projecting from the switch-plate, and a locking device pivotally secured to said guide-arm adapted to engage one of said contacts, and having a projection extending within the path of the throw-plate.

3. In electric-switch apparatus comprising fixed contacts, a switch-blade, a throw-plate, and an actuating-spring, a locking device applied to the switch-blade and interlocking with one of the contacts and having a portion extending within the path of the throw-plate to be engaged thereby and effect a release of the switch-blade.

4. In electric-switch apparatus comprising fixed contacts, a switch-blade, a throw-plate, and an actuating-sprang, a guide-arm projecting from the switch-blade, and a dog pivoted to the guide-arm and adapted to interlock with one of the said contacts and having a portion extending withio the path of the throw-lever to be struck thereby and automatically release the switch-blade.

5. In electric-switch apparatus comprising fixed contacts, a switch-blade, a throw-plate, and an actuating-spring a guide-arm projecting from the switch-blade and having a vertical slot, a dog pivoted midway of its ends within the said slot and interlocking at its lower end with one of the said terminals, and having its upper end extending within the path of the throw-plate to be engaged thereby, and a spring for holding the dog in a normal position.

6. In electric-switch apparatus, front and rear contacts provided in pairs, cooperating pairs of switch-blades, a guide-arm applied to the outer or front ends of the switch-blades and having parallel slots, an actuating-spring, a throw-plate, dogs pivoted medially within the slots of the guide-arm and engaging with the front contacts and automatically released by the throw-plate, and a spring for the dogs to hold them in normal position.

7. In electrical-switch apparatus, fixed terminals, in combination with a pair of switch-blades adapted to embrace the sides of the said terminals and having longitudinal slots in transverse alinement and in position to come opposite the terminals, and means adjustably connecting the separated portions of the switch-blades at their ends.

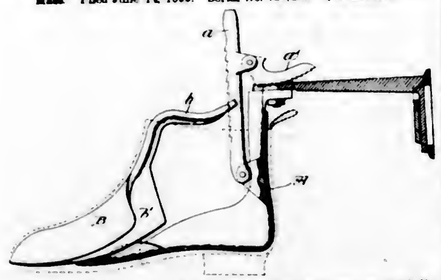
8. In electrical-switch apparatus, fixed terminals, in combination with a pair of switch-blades having portions longitudinally slotted and adapted to embrace the sides of the said terminals, means adjustably connecting the parts separated by the slots, and a throw-plate having pairs of slotted contacts embracing the slotted portions of the switch-blades.

9. An electric switch comprising fixed contacts, and a throw-plate having contacts adapted to overlap said fixed contacts; a switch-blade; a lock-spring bearing upon said throw-plate; a guide-arm carried by the switch-blade; a pivoted locking device for engaging one of the fixed contacts and projecting in the path of the throw-plate to be released thereby.

10. In electrical-switch apparatus, the combination with fixed terminals, and a throw-plate having opposite notches in its edges, of an auxiliary plate having bent-up portions entering the said notches of the throw-plate, and having pairs of integral wings.

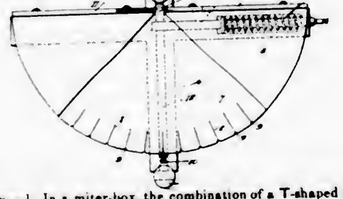
11. In electrical-switch apparatus, the combination with a hinge-post, and a switch-blade, of an approximately U-shaped spring having its members slotted and slipped upon the hinge-post and an oppositely-disposed auxiliary spring engaging the inner faces thereof.

641,928. HOLDER FOR SHOES. EDWIN R. BOWIE, New Bedford, Mass. Filed June 14, 1899. Serial No. 720,453. (No model.)



Claim.—A holder for shoes consisting of two separate and disconnected parts comprising a heel-piece shaped to distend the heel portion of the upper having a forwardly-projecting extension along the inner sole toward the toe, and a fore-part piece shaped to distend the fore part of the upper resting and sliding at its lower end on the forward extension of the heel-piece, a lever interposed between the upper ends of said heel and fore part pieces for positively sliding said pieces apart to distend the shoe and means for locking said lever in its operative position substantially as described.

641,929. MITER-BOX. CHARLES F. BOYCE, Malden, Mass., assignor of one-half to John N. Mayo, same place. Filed May 12, 1899. Serial No. 716,557. (No model.)



Claim.—1. In a miter-box, the combination of a T-shaped base, a rigid pin projecting upward therefrom at the front of the base midway its length, a semicircular table mounted to swing on such pin over the top of the base, the pin being central to the edge of the table, a spring-dog mounted on the base and serving to engage the edge of the table to hold the table, a rock-shaft extending through the frame beneath the table, saw-guides mounted respectively at the ends of the rock-shaft and swinging therewith, an angular collar fastened to the shaft, and a spring-pressed rod serving to engage said collar to hold the rock-shaft at any desired axial position.

2. In a miter-box, the combination of a base, a table mounted to move thereon, means for holding the table at the desired adjustment, a rock-shaft mounted in the frame below the table, saw-guides carried respectively at the ends of the rock-shaft, an angular collar attached to the rock-shaft, and a spring-pressed rod having a forked end, the fork serving to engage the angular collar of the rock-shaft to hold the rock-shaft.

3. The combination with a base, of a semicircular table mounted to swing thereon, of an axis central to the edge of the table, a spring-pressed dog carried by the base and engaging the edge of the table opposite the axis thereof to hold the table at the desired adjustment, the table being formed with a segmental depression in the top thereof to provide room for the teeth of the saw, upwardly-extended flanges attached to the front edge of the table, the flanges being separated at the pivot of the table to permit the passage of the saw, and means for guiding the saw, such means being supported on the base.

4. In a miter-box, the combination of a base, a work-table adjustable thereon, a rock-shaft mounted in the base, a saw-guide carried by the rock-shaft, and a spring-pressed rod having a portion serving to engage with a part of the rock-shaft to hold the rock-shaft at the desired adjustment.

641,930. ARTIFICIAL TOOTH. ROBERT BREWSTER, Chicago, Ill. Filed July 29, 1899. Serial No. 725,468. (No model.)



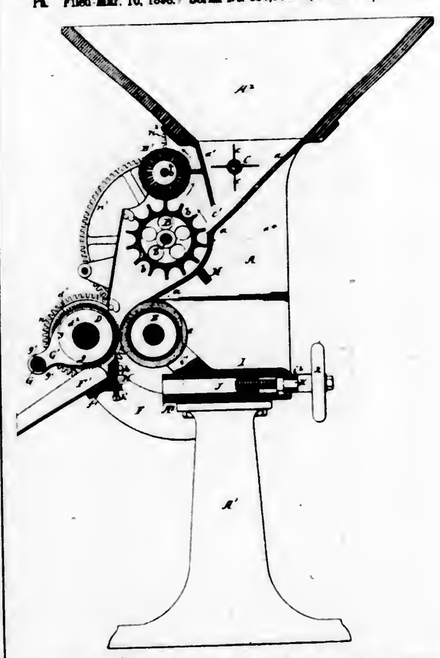
Claim.—1. An improved tooth-crown having an elongated recess or slit extending from front to back thereof, a metallic lining for said slit, and a flat-headed pin situated in the said slit and adapted to be united to the said lining, substantially as described.

2. An improved tooth-crown having an elongated slit extending from front to back thereof, and an edgewise-movable flat-headed pin situated within the slit and engaging the side walls thereof, whereby the pin may be moved edgewise to the proper angle for fitting the root of the tooth to which it is applied, substantially as described.

3. An improved tooth-crown having an elongated recess or slit in the base thereof extending from front to back, a metallic lining in said slit and united to the porcelain of the crown, in combination with a flat pin having a head of less size than said slit, and with its edge removed to permit the pin to extend at an abnormal angle in respect to the tooth, substantially as described.

4. An improved tooth-crown having an elongated metal-lined slit extending from front to back thereof, and an edgewise-movable flat-headed pin, the head of the pin having two integral pointed legs, the head of the pin situated within the slit and engaging the side walls thereof, whereby the pin may be moved edgewise to the proper angle for fitting the legs of the head to the root of the tooth to which it is applied.

641,931. FRUIT-SEEDER. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Mar. 10, 1898. Serial No. 657,382. (No model.)



Claim.—1. The combination in a fruit-seeding machine, of a base-plate, arms projecting from said base-plate, a seeding-roll carried by said arms, a frame A supported on the base-plate and having a diagonal cross-plate forming the bottom of the hopper of the machine,

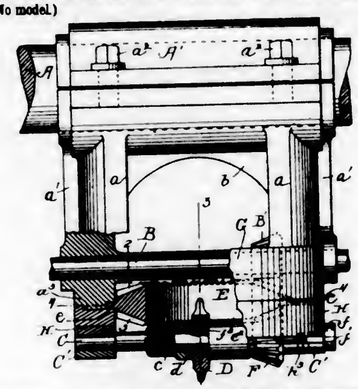
the side plates of the frame extending to and secured to the base-plate and forming an opening under the inclined plate, a slide mounted on the base-plate and having bearings, a pressure-roll carried by said bearings mounted directly under the inclined plate of the frame, and means for adjusting the pressure-roll toward and from the roll adapted to fixed bearings in the machine, substantially as described.

2. The combination in a fruit-seeding machine, of the base, a toothed seeding-roll, a plate secured to said base and carrying arms for supporting the toothed seeding-roll, a frame detachably secured to said plate and carrying the hopper, an adjustable slide adapted to the plate, and a pressure-roll carried by said slide, said frame being extended at both sides to allow for the passage of the bearings for the pressure-roll and entirely open at the rear so as to permit of the ready adjustment or removal of said pressure-roll, substantially as described.

3. The combination in a fruit-seeding machine, of the base, a toothed seeding-roll, a plate secured to said base and carrying arms for supporting the toothed seeding-roll, a frame detachably secured to said plate and carrying the hopper, an adjustable slide adapted to a guide in the plate, and a pressure-roll mounted in bearings carried by arms secured to said slide, said frame being extended at each side so as to accommodate the bearings of the pressure-roll, substantially as described.

4. The combination in a fruit-seeding machine, of the base, a toothed seeding-roll, a plate F secured to said base and carrying arms for supporting said toothed seeding-roll, an adjustable slide adapted to said plate, a pressure-roll carried by said arms secured to said slide, and a cross-bar connecting the arms of said plate F, a seed-removing plate carried by said cross-bar, means for adjusting said plate, and a discharge-spout also carried by the cross-bar, substantially as and for the purpose set forth.

641,982. **MILLING, GEAR-CUTTING, OR SIMILAR MACHINE.** FRANK BURGESS, Boston, Mass. Filed Jan. 3, 1899. Serial No. 700,891. (No model.)



Claim.—1. In a machine of the class described, a cutter-carrying arbor, means to sustain it, and a cutter and bevel-gear carried thereby, a machine-arbor having a bevel-gear, a rotative connection or device intermediate said bevel-gears and having two circular sets of bevel-teeth, one for engagement with each of said bevel-gears and means for holding said intermediate connection or device against movement transversely of its path of rotation, substantially as described.

2. A frame having a machine-arbor provided with a bevel-gear, a bearing-ring, a cutter-carrying arbor mounted therein and provided with a bevel-gear, means to adjust said bearing-ring in a circular path, a connection or device intermediate said bevel-gears and having two circular sets of bevel-teeth, one for engagement with each of said bevel-gears and means for holding said intermediate connection or device against movement transversely of its path of rotation, substantially as described.

3. A frame having a machine-arbor provided with a bevel-gear, a bearing-ring, a cutter-carrying arbor mounted in said ring and provided with a bevel-gear, means to adjust said bearing-ring in a circular path, and a connection or device intermediate said bevel-gears, said device being free to be rotated in a plane parallel with the said arbors and being held against movement transversely of the path of said connection or device, substantially as described.

4. A frame having a machine-arbor provided with a bevel-gear, a bearing-ring, a cutter-carrying arbor mounted in said ring and provided with a bevel-gear, means to adjust said bearing-ring in a circular path, and a connection or device intermediate said bevel-gears, said device being free to be rotated in a plane parallel with and between said arbors and being held against movement transversely of said plane, substantially as described.

5. A frame having a machine-arbor provided with a bevel-gear, a bearing-ring, a cutter-carrying arbor mounted therein and provided centrally between its ends with a cutter and having a bevel-gear, and a connection or device interposed between the said machine-arbor and cutter-carrying arbor and provided at its upper and under sides with a circular series or set of teeth, said teeth engaging said bevel-gears, said connection or device presenting at its center of rotation a space in which may move the cutter when in action, substantially as described.

6. A frame having a machine-arbor provided with a bevel-gear, a circularly-adjustable bearing-ring, a cutter-carrying arbor mounted in said ring and provided with a bevel-gear, and a cutter, an open-centered ring having two circular sets of bevel-teeth, one for engagement with each of said bevel gears, said ring rotating in a fixed horizontal plane between the said two arbors, substantially as described.

7. A frame having a machine-arbor provided with a bevel-gear, a bearing ring circularly adjustable on or with relation to said frame, means to effect the adjustment of said ring on said frame, a cutter-carrying arbor mounted in said bearing-ring and provided with a bevel-gear and a cutter, combined with an open-centered ring having two circular sets of bevel-teeth, one for engagement with each of said bevel-gears, said ring having an annular flange to enter a raceway connected with the said frame, substantially as described.

8. A device of the class specified comprising two arbors, one of which is adjustable relatively to the other, an intermediate power-transmitting device peripherally supported, and driving and driven members cooperative respectively with said power-transmitting device, and connected with said arbors, and a tool carried by the adjustable arbor.

9. A device of the class specified, comprising two arbors, a peripherally-supported power-transmitting member, driving and driven elements cooperative with the power-transmitting member and connected with said arbors, a turning bearing for supporting one of the arbors, and a tool connected with that arbor which is supported by said turning member.

10. A device of the class specified, comprising two arbors, a tool carried by one of the arbors, a power-transmitting member having an opening to receive said tool, driving and driven elements cooperative with said power-transmitting member and connected with the respective arbors, and means for supporting the tool-carrying arbor for angular adjustment.

11. A device of the class specified, comprising two arbors, a rotary power-transmitting member, means for supporting the power-transmitting member beyond its axis of rotation, driving and driven elements connected with said arbors and cooperative with said power-transmitting member, a tool on one of the arbors, and means for supporting the tool-carrying arbor for angular adjustment relatively to the other arbor.

12. A device of the class specified, comprising two arbors, means for supporting said arbors in fixed parallel relation and one of them for angular movement relatively to the other, a bevel-gear having two sets of teeth, bevel-gears secured to the respective arbors and meshing respectively with the sets of teeth on said first-mentioned bevel-gear, and a tool connected to the angularly-adjustable arbor and disposed within the area defined by said bevel-gear.

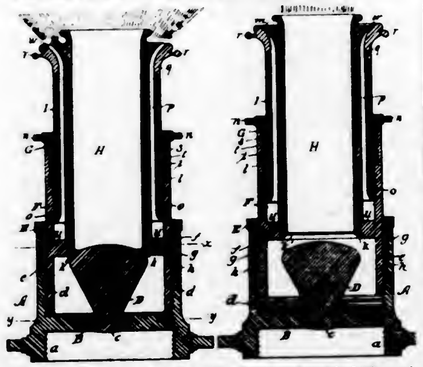
13. A device of the class specified, comprising two arbors, means for supporting the same in fixed parallel relation, and one of them for angular movement relatively to its companion, a rotative power-transmitting member supported beyond its axis of rotation and having a central opening, a tool connected to said angularly-adjustable arbor, and disposed in said central opening.

14. A device of the class specified, comprising a rotative arbor held in bearings against transverse movement, a bearing adapted to turn in a plane parallel with the axis of rotation of said arbor, a second arbor supported by said bearing and held therein in parallel relation with said first-mentioned arbor, and a power-transmitting device supported also by said bearing and operatively connected with said arbors for transmitting power from the first mentioned to the second mentioned.

15. A device of the class specified, comprising two arbors, means for supporting said arbors in fixed parallel relation, and one of them for angular adjustment in the plane of said support, a gear having sets of teeth upon its opposite faces, a pair of gears meshing with the respective sets of teeth and secured to said parallel arbors, and a tool carried by the angularly-adjustable arbor and disposed centrally of the gear having two sets of teeth.

16. A device of the class specified, comprising two arbors, means for supporting said arbors in fixed parallel relation and one of them for rotative movement relatively to its companion, a power-transmitting member rotatively supported between and operatively connecting said arbors, and its path of rotation being parallel with the axes of said arbors, and a tool secured to the angularly-adjustable carrier and disposed within the periphery of said power-transmitting member.

641,933. **CONVERTIBLE HOSE-NOZZLE.** WILLIAM H. CANNER, New York, N. Y., assignor of one-half to John M. Fisher, same place. Filed Mar. 25, 1897. Serial No. 629,217. (No model.)



Claim.—1. A convertible hose-pipe nozzle composed of telescopic sections and having orifices for discharging a solid straight stream and a circular or conical sheet of water, consisting of a sleeve telescoped into the hose-pipe, and making a screw connection therewith, a central straight-stream pipe connected at its inner end with the sleeve and having at its outer end an outwardly-curved flange, an exterior nozzle-pipe telescoped into the sleeve and forming a screw connection therewith, and having a bell-shaped cap at its outer end, a space between the exterior and central nozzle-pipe, and a stationary valve connected with the hose-pipe under the central nozzle-pipe, the construction being such that by screwing the sleeve out the central nozzle-pipe is lifted off the valve and the water flows into the said pipe and is discharged therefrom in a solid stream, and by screwing the exterior nozzle-pipe into the sleeve the orifice between the cap and flanges is opened, and the water flowing through the space between the two nozzle-pipes is discharged in a circular or conical sheet, substantially as specified.

2. In a convertible hose-nozzle, a hose-pipe, a sleeve screwed into the hose-pipe, an outer nozzle-pipe screwed into the sleeve and having a bell-shaped cap at its outer end, a central nozzle-pipe placed inside of the outer nozzle-pipe, and connected at its lower end with a valve-seat, which in turn is connected by a bridge with the sleeve and having at the upper end a bell-shaped exterior flange, and a conical valve connected with a bridge in the hose-pipe, the central nozzle-pipe and the outer nozzle-pipe being separately movable whereby the central nozzle-pipe can be raised off the valve to admit the water to the central nozzle-pipe from which it is ejected in a solid stream, or the outer pipe moved inward to open the orifice which ejects the circular or conical sheet of water, substantially as specified.

3. In a convertible hose-pipe nozzle, central nozzle-pipe having an exterior bell-shaped flange at its upper end, an exterior nozzle-pipe having a bell-shaped cap at its upper end, the central nozzle-pipe being connected with the valve-seat, which in turn is rigidly connected by a bridge with a sleeve, and the exterior nozzle-pipe being screwed into the sleeve, and the sleeve screwed into the hose-pipe and a valve at the lower end of the central nozzle-pipe connected with the bridge in the hose-pipe, there being a space between the exterior and central nozzle-pipes for the passage of the water to the circular orifice, the construction being such, that by screwing the sleeve out of the hose-pipe the valve-seat is lifted off the valve and the water passes to the central water-pipe, and by means of the exterior nozzle-pipe when screwed in or out, opens or closes the orifice *w*, the central nozzle-pipe and exterior nozzle-pipe being independently movable whereby a straight stream can be discharged from the nozzle or a circular stream at will, substantially as specified.

4. In a hose-pipe nozzle, the combination with a hose-pipe of a valve, connected with a bridge in the hose-pipe, a sleeve screwed into the hose-pipe, a straight-stream nozzle-pipe connected at its lower end with a valve-seat and with the sleeve, whereby the water is turned on or off by screwing the sleeve in or out of the hose-pipe, whereby too sudden shutting off the water is prevented and liability of bursting the hose thereby avoided, substantially as specified.

641,934. **PREPARING LOCUST-BEANS FOR EXTRACTING GUM.** PETER C. D. CASTLE, Liverpool, England. Filed Oct. 12, 1899. Serial No. 733,400. (No specimens.)



Claim.—1. The process of separating the husk and germ from the cotyledons of locust-beans, which consists in first breaking the locust-bean into two or more portions, secondly, grading the fragments and separating the finer particles therefrom, thirdly, grinding off the apex of the shell on the split kernels, fourthly, abrading off a large further part of the husk by means of rotary motion against abrasive surfaces, and again applying rotary abrasion, and sifting and so on alternately until the kernel and the germ are sufficiently removed.

2. The improvement in the process of separating the husk from the split kernels of the locust-bean which consists in first grinding off the apex of the shell between two approximately flat surfaces, and then grinding off the remainder of the shell by pearling.

3. The improvement in the process of separating the shells and germs of locust-beans from the cotyledons, which consists in cracking the locust-beans, grinding off the protruding apex of the shell, and after that the remainder of the shell, substantially as described.

4. The improvement in the process of separating the shell and the germ from the cotyledons of the locust-bean, which consists in first grinding on the flat, and then pearling, but a little only at a time, and grading between each operation, whereby the detritus is separated as it is broken off, instead of being allowed to react upon the kernel.

641,935. **SWIFT.** JAMES L. CHALMERS, Salt Lake City, Utah. Filed Apr. 13, 1899. Serial No. 712,915. (No model.)



Claim.—1. A stationary swift provided with radiating spokes and a rim of greater diameter than the body of the swift made concavo-convex in form in cross-section with its convex face outward, said rim engaging the outer ends of the spokes and being held in place thereon by its own resiliency, substantially as described.

2. The combination with a stationary swift provided at one end with radiating spokes extending beyond the body of the swift, in combination with a concavo-convex rim engaging the outer ends of the spokes and held in place thereon only by its own resiliency, substantially as described.

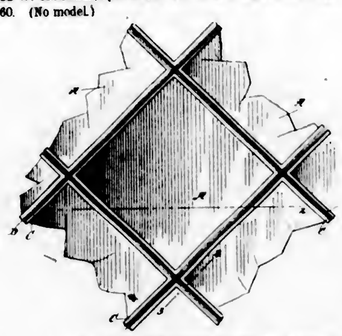
3. A swift provided with radiating spokes, in combination with a removable rim having a concave inner face fitting and engaging the ends of the spokes and provided with overlapping ends, said rim being retained in place by its engagement with the spokes and its own resiliency, substantially as described.

4. A swift comprising radiating spokes, in combination with a rim fitted upon the ends of said spokes and having a semicircular cross-sectional shape with laterally-extending flanges on both sides, substantially as described.

5. A swift comprising radiating spokes in combination with a rim mounted upon the ends of said spokes and having a semicircular cross-sectional shape with laterally-extending flanges, the edges of which are deflected inward, substantially as and for the purpose specified.

6. A stationary swift comprising two sets of radiating spokes located in oppositely-arranged pairs, in combination with yokes connecting the pairs of spokes and mounted slidingly thereon, and an outer rim made concavo-convex in form, one for each set of spokes, said rims engaging the ends of the spokes and being held in place thereon by their own resiliency, substantially as described.

641,936. LATTICED OR LEADED GLASS. EDWIN R. CHILDS and GEORGE W. CANTRELL, Spokane, Wash. Filed Aug. 9, 1899. Serial No. 726,660. (No model.)

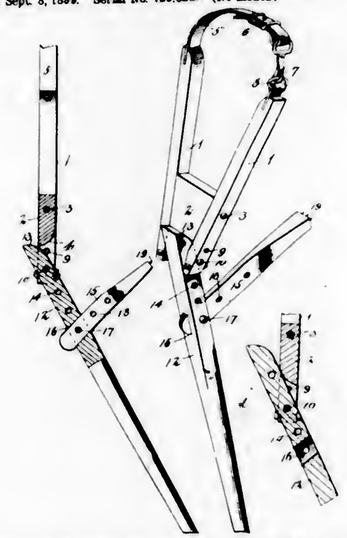


Claim.—1. Leaded glass, comprising cames for receiving the panes, and reinforcing-wires soldered to the faces of the cames, as set forth.

2. Leaded glass, comprising cames for receiving the panes, a layer of solder on each face of each came, and wires embedded in said layers, as set forth.

3. Leaded glass, comprising cames for receiving the panes, a layer of solder on each face of each came, and wires embedded in said layers, the wires crossing over one another at the joints of the cames, as set forth.

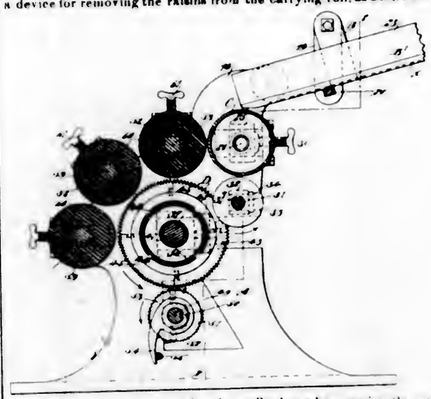
641,937. ANIMAL-POKE. STEPHEN A. CLARK, Amoy, Ohio. Filed Sept. 8, 1899. Serial No. 729,820. (No model.)



Claim.—In an animal-poke, the combination with the arms having a series of holes near the lower ends, the block, the bolt passing therethrough, the strap and means for connecting the same to the upper ends of said arms, of the adjustable and reversible preventer-bar having a series of holes near the upper end, the bolt connecting it to said arms, and the adjustable and removable short bar provided with pins at the rear end and the bolt for connecting it with the preventer-bar, substantially as described.

641,938. RAISIN-SEEDER. CARY S. COX, Fresno, Cal. Filed Jan. 28, 1899. Serial No. 703,678. (No model.)

Claim.—1. In a raisin-seeder, a heating-roll adapted to receive the raisins to be seeded, a carrying-roll arranged to receive the raisins from the heating-roll, the carrying-roll being provided with peripherally-toothed rings held separated, brushes located adjacent to the carrying-roll, and adapted to take the seeds from said roll, and a device for removing the raisins from the carrying-roll, as described.



2. In a raisin-seeder, a heating-roll adapted to receive the raisins to be seeded, a carrying-roll arranged to receive the raisins from the heating-roll, the carrying-roll being provided with spaced peripherally-toothed rings, pressure-rolls arranged adjacent to the heating-roll and around the carrying-roll, brushes located adjacent to the carrying-roll and adapted to take the seeds therefrom, strippers for the brushes, and means for removing the seeded raisins from the carrying-roll, as specified.

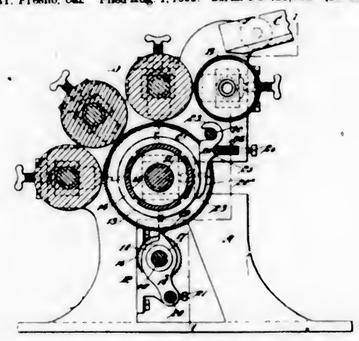
3. In a raisin-seeder or a like machine, a hopper, a drum located within the hopper, and mounted to revolve therein, means for regulating the supply of material to the drum, a screen having swinging support, one end of which screen is adapted to travel beneath the drum, the screen being provided with a slotted bottom, pitmen connected with supports for the said screen and with cranks attached to said drum, a receiving-roller located at the outlet end of the screen, and means for supplying heat to the receiving-roller, said roller being adapted to convey the raisins to a seeding device, for the purpose specified.

4. In a raisin-seeder, the combination, with a feed device and a seeding device, of a heating-roll located between the two devices, as described.

5. In a raisin-seeder, the combination, with a feeding device and a seeding device, of a heating-roll located between the two devices, and pressure-rolls arranged around the seeding device and adjacent to the heating-roll, as and for the purpose specified.

6. In a seeder, a carrying-roll for fruit, brushes independent of and rotating adjacent to said roll, acting to remove the seed from the roll, strippers in connection with the rotating brushes, and rotating disks intercurrent with the members of the carrying-roll and adapted to remove the seeded raisins from the carrying-roll, said raisin-removing device being independent of the carrying-roll, and independent of said brushes, as described.

641,939. RAISIN-SEEDER. CARY S. COX and THOMAS R. LANGLEY, Fresno, Cal. Filed Aug. 1, 1899. Serial No. 725,744. (No model.)



Claim.—1. In a machine for seeding fruit, an impaling-roller, a comb consisting of serrated disks mounted to revolve adjacent to the

periphery of said impaling-roller, but out of contact with said roller and the seeds carried thereby, and strippers held stationary between the said disks and each provided with a projection extending in direction of the teeth of the impaling-roller and adapted to engage with the seed to be removed from the said roller, said serrated disks of the comb serving as cleaners for the strippers, as and for the purpose specified.

2. In a machine for seeding fruit, an impaling-roller, a comb adapted to remove seeds from said roller, said comb comprising a series of serrated disks mounted to revolve adjacent to the impaling-roller, but out of contact with said roller and the seeds carried thereby and strippers held stationary between the disks, the disks being of greater diameter than the portions of the strippers located between them, each stripper having a tooth extending beyond the peripheries of the disks in direction of the teeth of the impaling-roller and adapted to engage with the seed to be removed from the said roller.

3. In a machine for seeding fruit, the combination, with an impaling-roller, of a self-cleaning comb, said comb comprising a shaft mounted to revolve below the impaling-roller, serrated disks secured on said shaft, the serrated disks being far enough removed from the impaling-roller and its teeth so that they will not interfere with the teeth carried thereby, spacing-collars located between the said serrated disks and secured to the said shafts and strippers located between the various serrated disks, each stripper comprising a ring-like head loosely mounted on a spacing-collar and provided with a tooth extending in direction of the teeth of the impaling-roller, being adapted to engage with the seed carried by said roller, and means, substantially as described, for securing the lower portion of the said strippers, whereby the serrated disks serve as cleaners for the seed-removing teeth of the strippers.

4. In a machine for seeding fruit, an impaling-roller, a comb consisting of serrated disks mounted to revolve adjacent to the impaling-roller and strippers located between the serrated disks and each comprising a ring-like head, and a shank extending therefrom, the said head being provided with a tooth extending in direction of the impaling-roller and adapted to engage with the seed carried by said roller, a rod extending through openings in the shanks of the said strippers, and means for fastening the shanks to the rod.

5. In a machine for seeding fruit, the combination with an impaling-roller having a series of serrated disks, a shaft mounted to revolve adjacent to the impaling-roller, strippers for removing the seed from said impaling-roller, each stripper comprising a ring-like head through which the said shaft loosely extends and a shank extending from said head, the head of each stripper being provided with a tooth extending in direction of the impaling-roller and having one surface curved and the opposite surface straight, the said straight surface of the teeth facing the impaling-teeth of the impaling-roller as said roller revolves, means connected with the shanks of said strippers for holding the strippers stationary, and means carried by said shaft for cleaning the strippers.

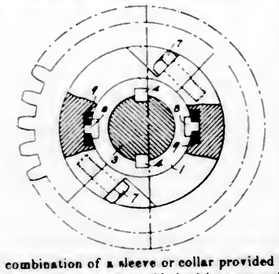
6. In a machine for seeding fruit, the combination with an impaling-roller comprising a body, a series of serrated disks and a spacing device for the disks, of fruit-strippers each comprising a hook-shaped head and an elongated body, a fixed shaft extending adjacent to the impaling-roller and adapted to be engaged by the hook-shaped heads of the strippers, the body portion of the strippers extending downward between the disks of the impaling-roller, the said strippers being each provided with a recess below the head, and a device for engaging said recess to adjust the strippers.

7. In a machine for seeding fruit, a heating-roller, an impaling-roller comprising a body, a series of serrated disks, and spacing devices for the disks, a series of pressure-rollers, fruit-strippers having hook-shaped heads, and body portions extending between the serrated disks of the impaling-roller, a shaft engaged by the hook-shaped heads of the strippers and means for engaging the strippers below the hook-shaped heads to adjust the strippers to and from the said impaling-roller, substantially as described.

8. In a machine for seeding fruit, the combination with an impaling-roller comprising a body and a series of spaced toothed disks, of a stripping device for removing the seeds from the teeth of the impaling-roller, a series of pendent fruit-strippers having hook-shaped heads and body portions extending downward between the disks of the impaling-roller, a shaft engaged by the hook-shaped heads of the strippers whereby they are supported in the pendent position, a bar extending through slots in the machine-frame and adapted to engage the rear edge of said strippers below their heads, and means for adjusting the said bar, substantially as described.

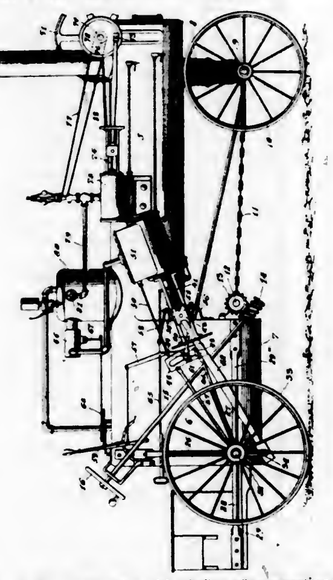
641,940. GEARING. FREDERICK I. DANA, Providence, R. I., assignor to the Thomas Phillips Company, same place. Filed Oct. 4, 1897. Serial No. 653,953. (No model.)

Claim.—1. The combination of a support for a rotary member provided with a spherical surface, a rotary member provided with an engaging spherical surface, a key projecting from and rigidly connected with one of said surfaces and having a curved outer surface coucentric with said spherical surfaces, and a keyway in the other surface having a curved bottom concentric with said spherical surfaces, the sides of one of said parts being curved whereby said parts may rock on each other, substantially as described.



2. The combination of a sleeve or collar provided with a spherical surface, a rotary member provided with an engaging spherical surface, a key projecting from one of said surfaces and rigidly connected therewith, said key having a curved outer surface concentric with said spherical surfaces and having curved sides, a keyway in the other surface having a curved bottom concentric with said spherical surface and having curved sides engaging the sides of said key, substantially as described.

641,941. TRACTION-ENGINE. THOMAS E. DODDS, Crider, Ky. Filed June 19, 1899. Serial No. 721,127. (No model.)



Claim.—1. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and connected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last-named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, a driving-axle journaled in said boxes, drive-wheels connected with said axle, and an engine adjacent each wheel and connected directly with said axle.

2. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and con-

nected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last-named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, a driving-axle journaled in said boxes, and having drive-wheels, and an engine for each of said wheels comprising a pitman forming a direct connection between said engine and the crank-axle.

3. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and connected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last-named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, and a driving-axle journaled in said boxes.

4. The combination with a boiler of rearwardly-extending sills connected therewith and having a platform thereon, a frame comprising boxes having braces extending radially thereof, one of said braces extending below and in contact with the boiler, a corresponding pair of braces extending forwardly of and connected with the boiler, a corresponding pair of braces extending upwardly of and connected with the boiler, a corresponding pair of braces extending rearwardly of the boiler and connected with the platform upon the sills, a crank-axle journaled in said boxes and disposed with its cranks arranged to rotate within the inclosure of said frame, and means energized from the boiler for rotating the crank-axle.

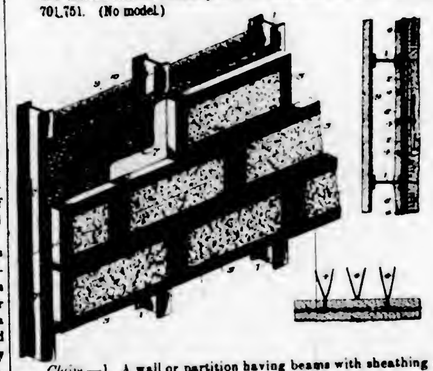
5. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and connected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last-named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, a driving-axle journaled in said boxes, drive-wheels connected with said axle, the cranks of the axle being disposed between the wheels and the boiler, a cylinder at each side of the boiler having a piston adapted to be energized from the boiler, and a pitman connected directly with its respective piston and crank.

6. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and connected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last-named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, a driving-axle journaled in said boxes, drive-wheels connected with said axle, an engine adjacent each wheel and connected with the axle, a power-shaft mounted upon the boiler, and an engine operatively connected with said power-shaft and independent of the first-named engines.

7. The combination with a boiler, of a crank-axle rotatably mounted with respect thereto, drive-wheels connected with said axle, an engine adjacent each wheel and comprising a piston and cut-off mechanism, direct connections between each piston and its respective crank of the axle, eccentrics carried by the crank-axle, a link mechanism connected with the eccentrics and the cut-off mechanism, a rock-shaft connected with the link of each mechanism, a radial extension on said shaft, an angular lever connected with said extension through the medium of a link, and an operating-lever connected with the angular lever to rock said shaft and shift the link.

8. The combination with a boiler, of a supporting-frame comprising boxes having lugs oppositely disposed in pairs, a bar connected with corresponding lugs of each box, extending below and connected with the boiler, braces connected with corresponding lugs and connected with the boiler, said braces extending forwardly of the boiler, braces connected with corresponding lugs opposite the last-named lugs, said braces extending rearwardly of the boiler, a platform connecting the last named braces, additional braces connected with corresponding lugs opposite the first-named lugs, extending upwardly of and connected with the boiler, a driving-axle journaled in said boxes, drive-wheels connected with said axle, an engine connected with the axle adjacent each drive-wheel, connections between said engines and the boiler comprising a common throttle, a power-shaft mounted upon the boiler, a separate engine operatively connected with the power-shaft, a steam-pipe connecting the last-named engine with the boiler, and a separate throttle in said steam-pipe.

641,942. BUILDING CONSTRUCTION. WILLIAM J. DONALDSON and CYRUS BORGNER, Philadelphia, Pa. Filed Jan. 10, 1899. Serial No. 701,751. (No model.)



Claim.—1. A wall or partition having beams with sheathing applied thereto, and facing-blocks having wires projecting in close proximity to each other at the rear face of the block, whereby they can be twisted together after engagement with said sheathing in order to hold the blocks in place, substantially as specified.

2. A wall or partition consisting of beams having sheathing thereon, and facing-blocks having structures embedded therein, and wires engaging with said embedded structures and having projecting portions in close proximity to each other at the rear face of the block, whereby they can be twisted together after engagement with the sheathing in order to hold the blocks in place thereon, substantially as specified.

3. A wall or partition consisting of beams having sheathing applied thereto, an external layer of cement or plaster applied to said sheathing, facing-blocks applied and adhering to said external plaster-coating, and wires projecting from said blocks and engaging with the sheathing, substantially as specified.

4. A wall or partition consisting of beams having sheathing applied thereto, facing-blocks having wires projecting therefrom and engaging with said sheathing, and a mass of plaster applied to the inner face of the sheathing and covering the engaging portions of the wires, substantially as specified.

5. A wall or partition consisting of beams with sheathing applied thereto, plaster or cement applied to the inner and outer faces of said sheathing so as to envelop the same, and facing-blocks seated against said external mass of plaster and having wires passing through the same and engaging with the sheathing, substantially as specified.

6. A wall or partition consisting of beams having sheathing applied thereto, a mass of plaster on said sheathing, facing-blocks having structures embedded therein, and wires engaging with said embedded structures and projecting from the blocks, the projecting portions of the wires engaging with the sheathing, substantially as specified.

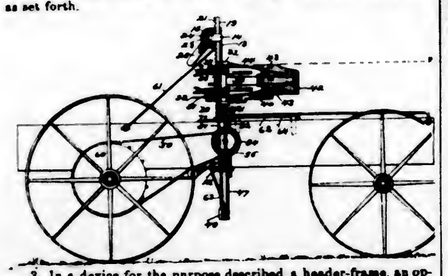
7. A building-block having wires securely connected thereto, and having ends projecting therefrom, in close proximity to each other at the rear face of the block, whereby they can be twisted together as a means of securing blocks in place upon a wall or partition structure, substantially as specified.

8. A building-block having a structure embedded therein, and wires engaging with said embedded structure, and having ends projecting beyond the rear face of the block, in close proximity to each other at the rear face of the block, whereby they can be twisted together to secure the blocks in place upon a wall or partition, substantially as specified.

641,943. CANE-HEADER. WILLIAM D. EASLEY, Ringgold, Tex. Filed Sept. 1, 1899. Serial No. 729,228. (No model.)

Claim.—1. In a device for the purpose described, a header-frame, a cranked shaft mounted therein, gathering-fingers pivotally mounted upon and operated by said shaft, and stripping-fingers fixedly secured on said shaft as set forth.

2. In a device for the purpose described, a header-frame, a cranked shaft mounted therein, gathering-fingers mounted upon the cranked portions of said shaft and having a hinged connection with the frame at their rear ends, stripping-fingers fixedly secured on said shaft, a revolving knife operated by said shaft, and a bifurcated stop on the frame in the path of the knife through which said knife passes as set forth.

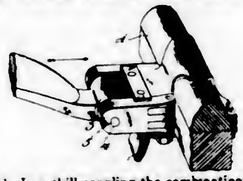


3. In a device for the purpose described, a header-frame, an operating-shaft in said header-frame, a curved gathering-finger mounted on said shaft and moved thereby, stripping-fingers fixedly held on said shaft, a revolving knife carried by said shaft and located in line with the stripping-fingers, and a stop through which the knife passes, as set forth.

4. The combination with the support, of a header-frame, an arched operating-shaft journaled in said frame, raking-fingers mounted on the arches of said shaft and having a hinged connection with the frame, a knife-carrier fixed on said shaft and having a knife thereon, a bifurcated stop through which said knife passes, and stripping-fingers fixedly held on said shaft between and on each side of said raking-fingers, as set forth.

5. The combination with the support, of the header-frame movable up and down thereon, an operating-shaft for the heading devices and movable up and down with said frame, a sleeve on said support, said sleeve receiving the lower end of said shaft and provided with a longitudinal slot, a bearing-plug in said sleeve, the said plug forming a bearing for the lower end of said shaft and having an extension projecting through the slot in the sleeve to the outside thereof, a rod having one end secured to the extension of plug and its other end secured to the header-frame, and means for turning said shaft, as set forth.

641,944. THILL-COUPLING. WILLIAM H. EDWARDS, Hillsborough, Ind. Filed July 5, 1899. Serial No. 723,829. (No model.)



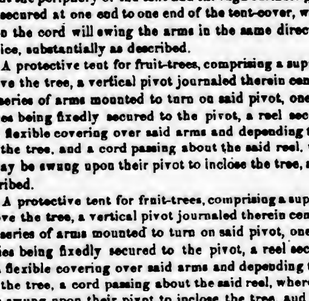
Claim.—1. In a thill-coupling the combination with a clip provided with parallel ears, one of which is hinged and is provided with an aperture, and the other of which is provided with a fixed pin to project through said aperture, the hinged ear being provided with an angular arm which is located between said ears and is arranged back of the fixed pin, substantially as set forth.

2. In a thill-coupling the combination with a clip provided with parallel ears, one of which is hinged and is provided with a transverse aperture, and the other of which is fixed and is provided with a pin to project into said aperture, a thill-iron having its eye engaged with said pin, an angular arm carried by the hinged ear and provided with a bifurcated end, and a spring inserted between the angular arm and the eye of the thill-iron whereby the hinged ear is locked against outward movement, substantially as set forth.

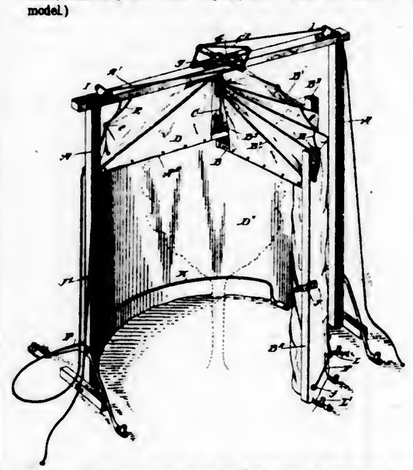
641,945. VEHICLE-GEAR. GEORGE W. FARRELL, Au Sable Forks, N. Y., assignor to Adelle Farrell, same place, and Albert W. Shields and B. B. Mason, Keeseville, N. Y. Filed Mar. 31, 1899. Serial No. 711,260. (No model.)

Claim.—1. In a vehicle-gear, the combination with the head-block and hind axle, of normally-arched metallic springs fixedly connected with both the block and axle; a normally-straight spring-board fixedly connected with both the block and axle; and means for securing the middle parts of the springs and board approximately in a common horizontal plane, substantially as described.

2. In a vehicle-gear, the combination with the head-block and hind axle, of metallic springs with relatively-flexible ends connecting the block and axle; a spring-board with relatively-inflexible ends connecting the block and axle; a spring-block rigidly secured to the middle part of the springs; and a pivotal connection between the board and springs, whereby the vibratory movements of the board ends do not communicate similar movements to a spring-block, substantially as described.



641,946. PROTECTIVE TENT FOR TREES. WILLIAM H. MCFARLAND, Titusville, Fla. Filed July 26, 1899. Serial No. 725,177. (No model.)



Claim.—1. A protective tent for fruit trees, comprising a support having a pivot-bar centrally located above the tree, a series of arms mounted to swing thereon, and a flexible covering over said bars and depending from the ends thereof and adapted to inclose the tree when the arms are properly spaced, substantially as described.

2. A protective tent for fruit-trees, comprising a support having a pivot-bar centrally located above the tree, a series of arms mounted to swing thereon, a flexible covering over said bars and depending from the ends thereof adapted to inclose the tree, and a cord extending about the periphery of the tent and through suitable guides thereon and secured at one end to one end of the tent-cover, whereby pulling upon the cord will swing the arms in the same direction to open the device, substantially as described.

3. A protective tent for fruit-trees, comprising a support extending above the tree, a vertical pivot journaled therein centrally of the tree, a series of arms mounted to turn on said pivot, one end arm of the series being fixedly secured to the pivot, a reel secured to said pivot, a flexible covering over said arms and depending therefrom to inclose the tree, and a cord passing about the said reel, whereby the arms may be swung upon their pivot to inclose the tree, substantially as described.

4. A protective tent for fruit-trees, comprising a support extending above the tree, a vertical pivot journaled therein centrally of the tree, a series of arms mounted to turn on said pivot, one end arm of the series being fixedly secured to the pivot, a reel secured to said pivot, a flexible covering over said arms and depending therefrom to inclose the tree, a cord passing about the said reel, whereby the arms may be swung upon their pivot to inclose the tree, and a cord passing in the opposite direction about the device and through suitable guides, whereby the arms may be swung to open the device and fold it together, substantially as described.

5. A protective tent or covering device for fruit-trees, comprising a fixed support extending over the top of the tree and having a

vertical pivot-shaft placed centrally over the tree, a series of arms journaled on said shaft, one end arm of the series being secured to turn with the shaft, a bar or post depending from the end of said arm, a flexible cover for the framework formed by said arms and bar, one end of the cover being fixed to the fixed support, whereby the tree may be quickly inclosed or uncovered, substantially as described.

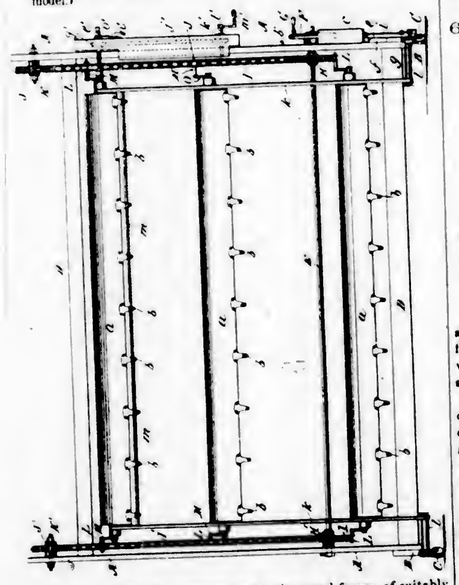
6. A protective tent or covering device for fruit-trees, comprising a fixed support extending over the top of the tree and having a vertical pivot-shaft centrally placed over the tree, a series of arms journaled on said shaft, one end arm of the series being secured to turn with the shaft, a bar or post depending from the end of said arm, a flexible cover for the framework formed by said arms and bar, one end of the cover being fixed to the fixed support, a cord passing about the frame, through suitable guides and secured to the swinging ends of the cover, whereby the cover may be quickly folded, a reel secured to the central pivot-shaft and a cord passing about said reel in the opposite direction to the other cord, whereby the cover may be quickly extended about the tree, substantially as described.

7. A circular protective tent for trees, provided with a slit extending up one side thereof to the center of the top, a fixed support or pivot above the tree at the center of the top of the tent, and means swinging horizontally on said pivot or support for supporting the tent to move circularly to open or close the same.

8. A protective tent for trees, provided with a slit extending up one side to the center of the top, a fixed central support or pivot above the tree, means for swinging the tent about said support to open or close the tent, and a fixed curved support for holding the bottom of the tent, substantially as described.

9. A protective tent for fruit-trees, comprising a support having a pivot-bar centrally located above the tree, a series of arms mounted to swing thereon, and a flexible covering or tent upon said arms and depending from the ends thereof and adapted to inclose the tree when the arms are properly spaced, and a fixed curved support extending within the tent at one side and adapted to engage and hold the bottom of the tent, substantially as described.

641,947. PHOTOGRAPHIC-BACKGROUND FRAME. WILLIAM C. FARRAND, New York, N. Y., assignor to the E. & H. T. Anthony & Company, same place. Filed May 20, 1899. Serial No. 717,543. (No model.)



Claim.—1. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, background-rollers supported upon said chains, a spring-actuated brake which controls said sprocket mechanism, and means to operate the brake, for the purposes set forth.

2. In a background-fraime the combination of suitably supported and actuated sprocket-chains, lugs on the chains for the support of rollers, backgrounds on the rollers, a frame pivoted to the background-frame proper, adapted to engage with the free edge of the background and to project the same forwardly and horizontally, and means to engage the edge of the background with said pivoted frame, for the purposes set forth.

3. The combination, in a background-frame, of suitably supported and actuated rollers, backgrounds on the rollers, a frame pivoted to the frame proper and adapted to project the background forwardly and horizontally, and hooks upon the free edge of the background adapted to engage with said pivoted frame, for the purposes set forth.

4. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, rollers supported by said lugs, backgrounds on the rollers, a spindle adapted to engage with the axes of the rollers, a vertically-adjustable support for the spindle, and means to rotate said spindle, for the purposes set forth.

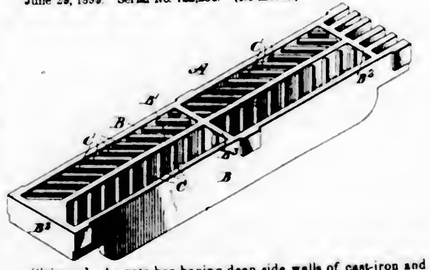
5. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, rollers supported by said lugs, backgrounds on the rollers, a spindle adapted to engage with the axes of the rollers, a vertically-adjustable support for the spindle, means to rotate said spindle, and a frame pivoted to the main frame of the apparatus, adapted to engage with the free edge of the backgrounds and to project the same forwardly and horizontally, for the purposes set forth.

6. The combination, in a background-frame, of a series of rollers supported at opposite sides of the machine upon movable endless supporting devices, backgrounds upon said rollers, means to move said devices, means to hold them in any desired position, a spindle detachably attachable to the axes of the rollers, means to rotate said spiudle, and a vertically-adjustable support for said spindle and the means whereby it is rotated, for the purposes set forth.

7. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, pendent hooks loosely engaging with said lugs, rollers supported by said pendent hooks, and backgrounds on the rollers, for the purpose set forth.

8. In a background-frame the combination of laterally-arranged sprocket-chains, a hand-wheel for actuating the chains, a spring-controlled brake which engages with the hand-wheel, pendent hooks attached loosely to the sprocket-chain, background-rollers supported upon said hooks, a spindle detachably attachable to the axes of said rollers, means to rotate said spindle, and means to lock the spindle in position when engaged with the axis of each roller, for the purposes set forth.

641,948. GRATE-BAR. HORACE E FRICK, Philadelphia, Pa. Filed June 29, 1899. Serial No. 722,230. (No model.)



Claim.—1. A grate-bar having deep side walls of cast-iron and a central web of cast-iron running parallel to the side walls, a center formed of relatively-thin wrought-iron bars made up of parallel wrought-iron bars cast into the side walls, and the central web, respectively.

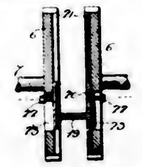
2. A grate-bar having deep walls of cast-iron and a center formed of relatively-thin wrought-iron bars set slightly below the top edges of the cast-iron walls parallel to each other in one or more rows and all running at an acute angle to the center line of the grate-bar said wrought-iron bars having their ends incorporated into the cast-iron walls in the process of casting.

3. A grate-bar having deep walls and a central web running parallel to the side walls all of cast-iron and a center formed of relatively-thin wrought-iron bars set slightly below the top edges of the walls and web in two rows, each row made up of parallel wrought-iron bars having their ends cast into a wall and the central web respectively-and the bars in each row being set at an acute angle to the center line of the grate-bar and at an acute angle to the bars in the other row.

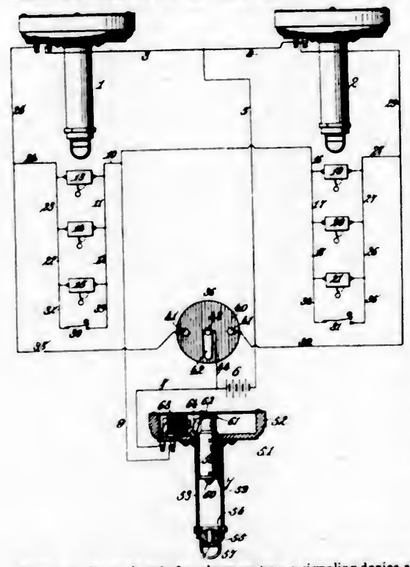
641,949. MECHANICAL MOVEMENT. WILLIAM FROST, Athens, Ill. Filed Feb. 8, 1899. Serial No. 704,906. (No model.)

Claim.—In a baling-press, the combination with the parallel gears 6 6 formed with the dovetail grooves 21 and coinciding slots

23 of the parallel dovetail arms 20 20, having a sliding adjustment in said grooves 21, the crank-pin 19 connecting said arms and means for adjustably securing said arms in place in said grooves, substantially as shown and described



641,950. ELECTRIC FIRE-ALARM SYSTEM. MARIOUS GARL, Akron, Ohio. Filed Sept. 12, 1899. Serial No. 730,269. (No model.)



Claim.—1. In an electric fire-alarm system, a signaling device at a central station, and a plurality of the same at distances therefrom, a battery, circuit connections between the distant signaling devices and one side of said battery, circuit connections between each of the distant signaling devices, the signaling device at the central station, and the other side of said battery, and circuit-controlling means for throwing into operation each of the distant signaling devices and simultaneously placing the signaling device at the central station in series therewith, whereby the signaling device at the central station and the distant signaling device which has been thrown into operation will be actuated simultaneously.

2. In an electric fire-alarm system, a signaling device at a central station and a plurality of the same at distances therefrom, a battery, a general return-wire connected with one side of each of the distant signaling devices and with one pole of said battery, circuit connections between each of the distant signaling devices, the signaling device at the central station and the other side of said battery, and a plurality of thermostatic circuit-controllers for each of the distant signaling devices, the said circuit-controllers being in multiple with each other and adapted to throw into operation one or the other of said distant signaling devices and to place in series therewith the signaling device of the central station, whereby the signaling device at the central station and the distant signaling device which has been thrown into operation will be actuated simultaneously.

3. In an electric fire-alarm system, a signaling device at a central station and a plurality of the same at distances therefrom, a battery, circuit connections between said battery and said signaling devices, circuit-controlling means for placing one of the distant signaling devices in series with the signaling device of the central station and for actuating both simultaneously, and circuit-controlling means at the central station for throwing the distant signaling devices into operation.

4. In an electric fire-alarm system, the combination with a signaling device at a central station and a plurality of the same at distances therefrom, a battery, circuit connections between the distant signaling devices and one side of said battery, circuit connections between each of the distant signaling devices and the other side of said battery, circuit-controllers for each of the distant signaling devices for throwing into operation the distant signaling devices, coupling in series therewith the signaling device at the central station and thereby actuating both of said signaling devices simultaneously, of a switch, contact-points thereon forming the terminals of circuits leading from the distant signaling devices, and a rotatable arm connected with said battery and adapted to engage each of the contact-points on said switch, as and for the purpose set forth.

5. In an electric fire-alarm system, a signaling device comprising a cartridge-holder, a gravity-actuated exploder therefor, having a shoulder thereon, an electromagnet and an armature for said magnet lying within the path of movement of said exploder and adapted to engage said shoulder for retaining said exploder in raised position and to be released therefrom by said inaguet.

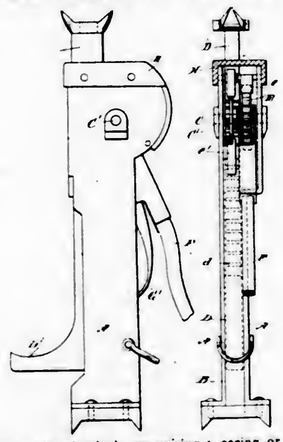
6. In an electric fire-alarm system, a signaling device consisting of a pendant having a casing and a cylindrical extension thereon, a cartridge-holding plug fitting the lower end of said extension, a gravity-actuated exploder for the cartridge movable in said tubular extension, means for retaining said exploder in raised position and an electromaguet in said casing for releasing said exploder.

7. In an electric fire-alarm system, a signaling device consisting of a pendant having a casing and a cylindrical extension thereon, a cartridge-holding plug fitting the lower end of said extension, a gravity-actuated exploder for the cartridge movable in said tubular extension, and having a flange or shoulder thereon, an electromagnet in said casing and an armature therefor adapted to engage said shoulder for retaining said exploder in its raised position and adapted to be released by said magnet.

8. In an electric fire-alarm system, a signaling device consisting of a pendant having a casing and a cylindrical extension thereon, a cartridge-holding plug fitting the lower end of said extension, a guard on said plug, an exploder for the cartridge, and means controlled by an electromagnet for throwing said exploder into operation.

9. In an electric fire-alarm system, a plurality of signaling devices, a battery, circuit connections between said signaling devices and one side of said battery, a switch-box, contact-points thereon, circuit connections between said signaling devices and said contact-points, a traveling arm electrically connected with the other side of said battery and adapted to engage each of said contacts, a motor for rotating said arm including a system of gearing, and a vibrating escapement having an arm thereon, and a lever fulcrumed to the switch-box and having a pin or projection thereon adapted to engage the arm on said escapement whereby said motor may be controlled, as and for the purpose set forth.

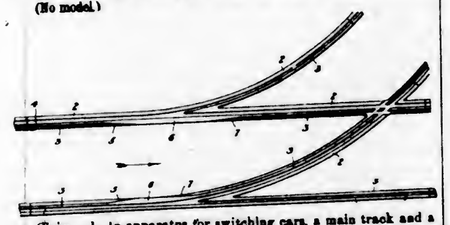
641,951. LOGGING-JACK. ALEXANDER M. GILCHRIST, South Bend, Wash. Filed Apr. 14, 1899. Serial No. 713,047. (No model.)



Claim.—A logging-jack, comprising a casing or standard consisting of two side plates, a filler-bar secured between one side edge of the plates, said plates projecting at one side beyond the filler-bar to form a channel, and one of them in the upper part of the casing or

standard extending across to and being secured to the other plate, thus inclosing said channel, a lifting-bar alongside the filler-bar and within the channel between the side plates and having teeth on the edge next the filler-bar, a cap having flanges embracing the upper ends of said plates, a hole receiving the lifting-bar, and a flange extending downward from the inner edge of the hole and engaging the inner edge of the lifting-bar, a pinion journaled in the casing or standard and meshing with said teeth, a lock engaging the pinion to prevent backward movement, and a step-by-step forward rotating device for said pinion, substantially as described.

641,952. STREET-RAILWAY SWITCHING DEVICE. ROBERT W. GRANGE, Jr., Pittsburg, Pa. Filed Apr. 7, 1899. Serial No. 712,076. (No model.)



Claim.—1. In apparatus for switching cars, a main track and a switching-track leading off therefrom, an inner guide-rail conforming to the main track and to the switching-track having a tapered reinforced section at each side respectively in advance of the switch-points, such reinforcement merging into the switching-track guide-rail, and receding in the main-track guide-rail beyond the switch-point.

2. In apparatus for switching cars, in combination with a main track and a switching-track leading off therefrom, provided with inner guide-rails conforming to the main track and switching-track respectively, and having tapered reinforced sections at each side in advance of the switch-points; a flanged switching-wheel mounted on the car or truck with means for depressing it into contact with the guide-rail.

3. In combination with a main track and a switching-track leading off therefrom, and guide-rails on the inside of such tracks; a flanged switching-wheel mounted on a support in a housing secured to the car-truck, a lever mounted by a pin in horizontal slots on the housing, pivotally connected to the wheel-support, and an operating-lever mounted in the car with a connecting-bar attached to the upper end of the wheel-support lever, substantially as set forth.

4. In apparatus for switching cars, in combination with a main track and a switching-track leading off therefrom provided with inner guide-rails conforming to the main track and switching-track respectively and having tapered reinforced sections at each side in advance of the switch-points; a flanged switching-wheel mounted on a support in a housing secured to the car-truck, a lever mounted by a pin in horizontal slots on the housing, pivotally connected to the wheel-support, and an operating-lever mounted in the car with a connecting-bar attached to the upper end of the wheel-support lever.

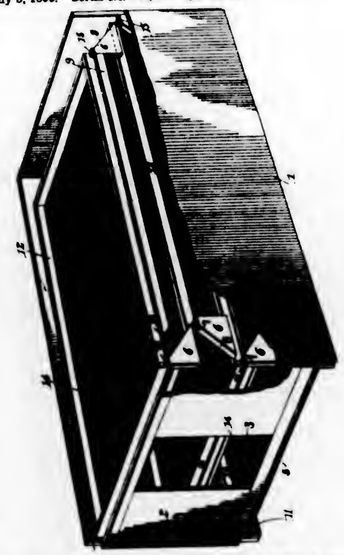
641,953. PROCESS OF MAKING FAST BROWN DYES. ARTHUR G. GREEN, Stockport, and ALEXANDER MEYNERSEN, Manchester, England. Filed Oct. 7, 1899. Serial No. 732,873. (No specimens.)

Claim.—The new process for the production or manufacture of fast brown coloring-matter containing sulfur consisting in oxidizing a polyamin of the benzene series (containing at least two amido groups in para or ortho position to each other) in the presence of thiosulfuric acid in aqueous solution, under conditions substantially as hereinbefore described.

641,954. FAST BROWN DYE. ARTHUR G. GREEN, Stockport, and ALEXANDER MEYNERSEN, Manchester, England. Filed Oct. 7, 1899. Serial No. 732,877. (Specimens.)

Claim.—As a new product and new article of manufacture the hereinbefore-described fast brown coloring-matter derived from para-tolulene-diamin and containing sulfur which coloring-matter is a brownish-black powder insoluble in water and dilute acids sparingly soluble in alkaline carbonates readily soluble in sodium sulfid forming a brown solution and soluble in concentrated sulfuric acid forming a greenish-black solution and which is readily reduced by zinc-dust and caustic soda to a leuco compound which rapidly reoxidizes on exposure to air; and which dyes unmordanted cotton from an alkaline sulfid bath deep-brown shades of great fastness, and which can be obtained substantially as hereinbefore described.

641,955. PRUNE-DRIER. FRED HAMPTON, Canby, Oreg. Filed July 5, 1899. Serial No. 722,870. (No model.)



Claim.—1. In a drier, the combination of a casing or frame, tray-supports therein having reversely-arranged inclined faces forming guides and upper horizontal seats or rests, said supports being arranged vertically one above the other, and trays having lateral projections at opposite ends adapted to bear upon the said seats or rests and permit the descent of the trays by gravity by alternate backward and forward movements.

2. In a drier, the combination of a casing or frame, tray-supports therein having downwardly-inclined faces being in alternate reverse arrangement, trays having lateral projections to bear upon the seats or rests and move over the inclined faces of the supports, and guide-rails on the inner upper portions of the said frame or casing having their front ends terminating short of the upper tray-support.

3. In a drier, the combination of a frame or casing, a series of supports having inclined faces in alternate reverse arrangement and upper seats or rests, and trays having lateral projections adapted to gravitate on the said supports and be held thereby to form alternate end hot-air passages.

4. In a drier, the combination of a casing or frame, tray-supports therein having downwardly-inclined faces in alternate reverse arrangement to form guides and also provided with upper horizontal seats or rests, and trays of materially less length than the casing and having lateral projections adapted to bear upon the said seats or rests and movable over the inclined faces, the said seats or rests being alternately arranged under the terminations of the inclined faces above to locate the trays at a distance from the opposite ends of the casing in alternation.

641,956. BOLT. HUBERT C. HART, Unionville, Conn. Filed Nov. 21, 1899. Serial No. 737,834. (No model.)

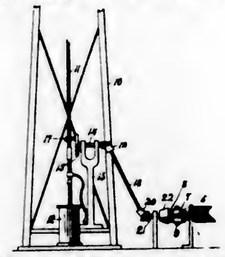


Claim.—1. A bolt, rivet, screw, or the like, formed with an integral forged head, the latter being concave on its inner side a short distance from the outer edge, forming a bearing-surface, between said concavity and the outer edge, and a series of intersecting ribs in the concavity, and diametrically connecting the outer surface, as set forth.

2. A bolt, rivet, screw or the like, formed with an integral forged head, the latter being concaved on its inner side, a bearing-surface surrounding said concavity, and a series of ribs radiating from the bolt across the concavity and diametrically connecting the bearing-surface, as set forth.

3. A bolt, rivet, screw, or the like, formed with an integral forged head, the latter having a cavity on its inner side a short distance from the outer edge, forming a bearing-surface, between said cavity and the outer edge, and a series of intersecting ribs in the cavity, and diametrically connecting the outer surface, as set forth.

641,957. ELECTRIC-LIGHTING APPARATUS. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Feb. 20, 1899. Serial No. 706,173. (No model.)



Claim.—In an electric-lighting apparatus, the connecting-rod of a windmill, a wrist-pin carried thereby, a drive-shaft, a disk carried by said drive-shaft provided with a cam-groove adapted to receive said wrist-pin, a dynamo, and means of connection between said drive-shaft and the armature-shaft of said dynamo, substantially as described.

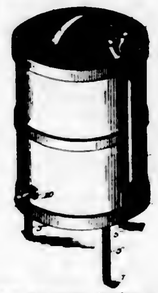
641,958. PENCIL FOR ELECTRIC-ARC LAMPS. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Mar. 16, 1899. Serial No. 709,252. (No model.)



Claim.—1. As a new article of manufacture, a negative pencil for arc-lamps composed of aluminium.

2. A negative pencil for arc-lamps composed of aluminium used in conjunction with a positive pencil composed of carbon.

641,959. CREAM-SEPARATOR. JOHN D. HENDRICKSON and WILLIAM R. KIMBALL, Madison, Wis. Filed Oct. 19, 1899. Serial No. 734,102. (No model.)

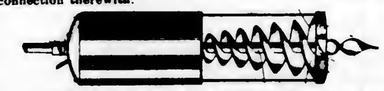


Claim.—1. A cream-separator, having a filling-pipe, provided with a pair of inlets, and strainers therefor, one of the inlets receiving the milk, and the other inlet receiving a liquid cooling agent.

2. A cream-separator, comprising a receptacle, a cover having an opening formed therein, a filling-pipe fitting in the opening, and having a pair of divergent branch inlet members, frictionally engaging the walls of the opening, and removably suspending the pipe within the receptacle, and strainers for the inlet members, one of the latter receiving the milk, and the other inlet member receiving a liquid cooling agent.

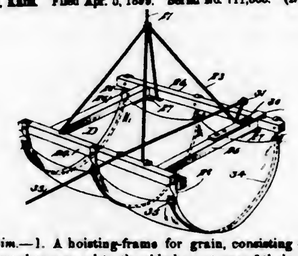
641,960. EARTH-AUGER. JOSEPH HERPERT, Tucker, Wash. Filed June 23, 1899. Serial No. 721,630. (No model.)

Claim.—1. An earth-auger comprising a stem, cutting-blades removably connected with the stem, the cutting edge of one of said blades exceeding beyond the other, a starting-screw removably connected with the blade, concentric helical webs connected with the blades inclosing portions of the stem and diminishing in diameter upwardly, guide-rods carried by the blade and a casing adapted to cover and uncover the webs, said casing being cylindrical and having tubular portions fitted upon the guide-rods to establish slidable connection therewith.



2. An earth-auger comprising a stem, having a diminished end provided with a longitudinal recess, cutting-blades having a socket in which the diminished portion of the stem is seated, a starting-screw seated in the socket of the stem, a pin holding the stem, the blades and the screw in position, concentric helical webs connected with the blades and inclosing portions of the stem and tapering upwardly, rods mounted upon the blades and a cylindrical casing having slidable connection with the rods upon the blades and adapted to cover and uncover the webs.

641,961. DEVICE FOR HOISTING GRAIN. DAVID D. HILL, Logan, Kans. Filed Apr. 5, 1899. Serial No. 711,803. (No model.)



Claim.—1. A hoisting-frame for grain, consisting of side bars, and a cross-bar secured to the side bars at one of their ends, a drop-bar hinged to the opposite ends of the side bars, a locking device for the drop-bar and a trip for the locking device, substantially as described.

2. A hoisting-frame for grain, consisting of two side bars, a cross-bar fastened to the side bars at one of their ends, a drop-bar having a hinged connection with the side bars, a latch for the drop-bar carried by a side bar, a releasing-lever for the latch, and retaining devices for a grain-receptacle carried by the cross-bar and drop-bar, substantially as described.

3. A hoisting-frame for grain, consisting of side bars, a cross-bar fastened to the side bars, a drop-bar having a hinged connection with the side bars, and retaining devices for a grain-receptacle carried by the cross and drop bars, a releasing device for the latch, and a sling consisting of ropes or chains grouped together at one of their ends, sundry of the said ropes or chains being secured at their opposite ends to a cross-bar, and others to the hinged surface of the drop-bar, exerting tension in a direction to release said drop-bar from its latch, substantially as described.

641,962. PROCESS OF SOLIDIFYING PETROLEUM. BERNHARD HOFFMANN, Paris, France. Filed Apr. 1, 1899. Serial No. 711,405. (No specimens.)

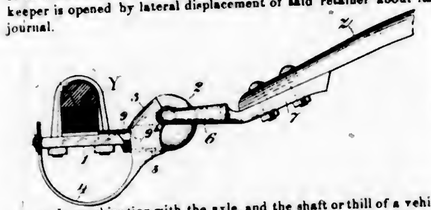
Claim.—The herein-described process of solidifying petroleum oil, which consists in mingling, approximately, ninety-one parts by weight of such oil with seven parts of curd soap and two parts of stearin, heating the mixture until the soap and stearin are melted and thoroughly mixed, and then cooling and solidifying the same, substantially as specified.

641,963. THILL-COUPLING. NATHAN HORNING, Johnstown, N. Y., assignor of three-fourths to Charles B. Knox, same place. Filed June 10, 1899. Serial No. 720,114. (No model.)

Claim.—1. A thill-coupling for vehicles, having on one of its parts an eyebar and on the other part a keeper, said keeper comprising a hook to engage said eyebar, and a spring-retainer rotatable about the shank of said hook as a pivotal axis, whereby the retainer is displaceable only by rotation laterally about said shank.

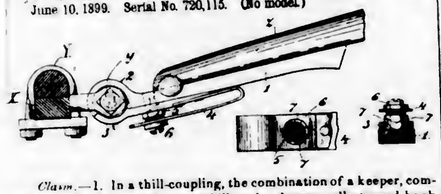
2. A thill-coupling for vehicles having on one of the parts an eyebar and on the other part a keeper, said keeper consisting of a hook to engage said eyebar, said hook having a camway formed on its shank, and a spring-retainer mounted to rotate laterally about said shank as a pivotal axis, and having a stud engaging said camway, whereby the said retainer is displaced laterally in opening the keeper, and is drawn back for clearance by said camway.

3. A thill-coupling for vehicles having on one of its parts an eyebar, and on the other part a detachable keeper, said keeper comprising a shank 1, having a camway 9 on its cylindrical part and a hook 2, to engage the eyebar, and a retainer comprising a head 3, rotatively mounted on the said shank and provided with a stud 8 engaging said camway, and a spring 4, pivotally journaled on the end of said shank in alinement with the journal of the head, whereby the keeper is opened by lateral displacement of said retainer about its journal.



4. In combination with the axle, and the shaft or thill of a vehicle, of the keeper mounted on the said axle and comprising the shank 1, secured to the axle, said shank having on its cylindrical portion a camway 9, and at its front end an upturned hook 2, and the retainer, comprising a head 3, rotatively mounted on said cylindrical portion of the shank and furnished with a stud 8, engaging said camway and the spring 4, and the thill-iron 7, fixed to the thill and having an eyebar to engage the keeper on the axle.

641,964. THILL-COUPLING. NATHAN HORNING, Johnstown, N. Y., assignor of three-fourths to Charles R. Knox, same place. Filed June 10, 1899. Serial No. 720,115. (No model.)



Claim.—1. In a thill-coupling, the combination of a keeper, comprising a shank secured to the thill, and a downwardly-turned hook to take over the eyebar of the vehicle, of a laterally-displaceable spring-retainer, pivotally mounted on a journal projecting downwardly from said shank and having a head at its free end which embraces the under side of said eyebar, and a cam device at the pivot of the retainer, which device displaces the latter downwardly when the retainer is turned about its pivot, substantially as set forth.

2. In a thill-coupling, the combination with an eye bar or bolt on the vehicle, of the shank 1, secured to the thill and having at its free end a downwardly-turned hook 2 to engage said bar, and the journal-stud fixed in the lower face of said shank and projecting downward therefrom, of the retainer 3, pivotally journaled on said stud, said retainer having a spring 4 at one end, and a head 3× at its other end which closes the keeper, and a cam device which depresses the retainer when the latter is turned about its journal, substantially as set forth.

3. The combination with an eye bar or bolt on the vehicle, of a keeper on the thill to engage said eyebar in effecting the coupling, said keeper comprising a shank 1, secured to the thill and having a downwardly-turned hook 2 to embrace the eyebar, and a pendent journal-stud 5, provided with a camway 7, a retainer 3, journaled on said stud and having a head 3×, to close the keeper, and a stud 9 to engage said cam-groove, and the bent spring 4, fixed at one end to the retainer and pivoted at the other end on the stud 5, substantially as set forth.

641,965. LOCK. WINFIELD S. HOUSER, Bellefonte, Pa., assignor to the Houser Springless Lock Company, of Pennsylvania. Filed May 16, 1899. Serial No. 717,032. (No model.)

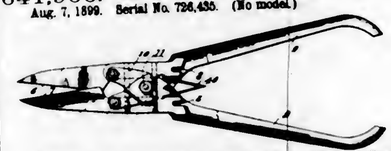
Claim.—1. A lock having a latch-bolt formed with a hollow shank portion with transverse studs *a* extending across from one side to the other of the bolt in the middle longitudinal line, and a pivoted weight with teeth meshing with said studs as described.

2. A lock having a latch-bolt formed of a piece of steel bent on itself and having its two sides connected by a series of studs or rivets, and a pivoted weight with teeth arranged between the two sides of the bolt, and meshing with said studs substantially as and for the purpose described.

3. A lock having a key-bolt formed with two parallel sides spaced apart and having a longitudinal slot through both sides and yokes at its ends inclosed on all sides to receive the key, a pivot passing transversely through the two sides of the bolt and one or more tumblers pivoted between the two sides of the bolt on said pivot and lying in parallel plane to the bolt and also having longitudinal slots and inclosed yoke ends registering with the yoke ends of the bolt substantially as and for the purpose described.



641,966. SHEARS. HENRY W. HOWE, Mexico, Mexico. Filed Aug. 7, 1899. Serial No. 726,435. (No model.)



Claim.—1. A shears comprising jaws having longitudinal slots and transverse perforations, handles having ears mutually overlapping and receiving opposite portions of their respective jaws, pivots passed through the extremities of said ears and the perforations of their respective jaws, and pins passed through the ears and playing in the slots of the jaws.

2. A shears comprising jaws having cutting edges normally overlapping transversely, handles pivotally connected with said jaws, recesses in the jaws, and a spring engaging said recesses and adapted to hold the jaws normally separated.

3. A shears comprising jaws having cutting edges, overlapping transversely, handles, and spring-ears formed thereon, and pivoted to the jaws.

4. A shears comprising jaws having cutting edges normally overlapping transversely, handles, ears formed thereon crossed and pivoted to the jaws, said ears being adapted to yield and permit operation of the jaws.

5. A shears comprising jaws having cutting edges, handles, ears formed thereon crossed and pivoted to the jaws, and guide-pins carried by one of said jaws and adapted for movement in the opposite jaw to prevent lateral displacement of the jaws.

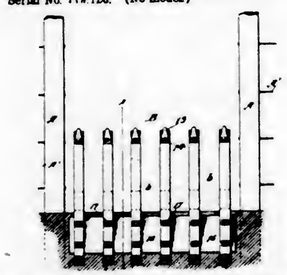
641,967. TELLURIAN. GEORGE T. HUFF, Mill Green, Md. Filed Aug. 30, 1899. Serial No. 729,004. (No model.)



Claim.—1. A tellurian comprising a supporting-stand, a single upright arbor secured firmly to said stand in a vertical position and provided with cranks which lie on opposite sides of the axis thereof, arms fitted loosely on said cranks to be sustained wholly by the arbor, a shiftable spindle supported loosely by the arms, and a globe mounted on said spindle, substantially as described.

2. A tellurian comprising a supporting-stand, a single vertical arbor secured firmly to the stand and provided with the spaced cranks which lie on opposite sides of the axis of said arbor and with an extended stem, horizontal arms fitted respectively on said cranks and provided with slots near their free ends, a representation of the sun fixed to said stem of the arbor, a shiftable spindle fitted loosely in the slots of the arms and provided with a pin adapted to rest on one arm, and a globe mounted loosely on the spindle, substantially as described.

641,968. GATE. OLAUS B. JACOBS, Roland, Iowa. Filed June 2, 1899. Serial No. 719,126. (No model.)



Claim.—1. A gateway having a plurality of parallel partitions arranged therein and at an angle thereto, to form uninterrupted passage-ways, the said partitions being of a height and spaced apart such a distance that long-legged animals can pass through the gateway, while short-legged animals are effectually prevented from passing through the same, as set forth.

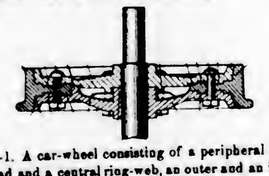
2. A gateway having a series of parallel partitions of sufficient height to prevent the passage of small stock, rising between the sides of the gateway-opening at an angle to a line drawn across said opening, and continuous passage-ways between the partitions of sufficient width to receive an animal's leg, as described.

3. A gateway having a series of parallel and spaced partitions arranged therein and at an angle thereto, the partitions having unbroken upper surfaces and so placed and arranged that short-legged animals are prevented from passing through the gateway, while long-legged animals can freely pass, substantially as described.

4. A partition for gateways, consisting of posts having concave upper ends, horizontal openings adjacent to the concaved ends, and bores extending from said openings through the posts at their concaved ends, a top bar fitted into the concaved end portions of the posts, bolts passed through the top bar and through the bores in the posts, and locking devices for said posts located in the horizontal openings in said posts, for the purpose described.

5. A gateway having a series of parallel and spaced partitions arranged in and at right angles thereto, the partitions being of sufficient height to prevent the passage of small stock, each partition being formed of posts spaced apart and connected together, substantially as described.

641,969. CAR-WHEEL. CHARLES P. JONES, Cleveland, Ohio. Filed May 15, 1899. Serial No. 716,876. (No model.)



Claim.—1. A car-wheel consisting of a peripheral section comprising a tread and a central ring-web, an outer and an inner section having locking engagement with the ring-web, the said outer and inner sections being provided with annularly-arranged lugs and recesses whereby the said outer and inner sections have locking engagement with each other, and fastening devices for securing all of the sections together, for the purpose set forth.

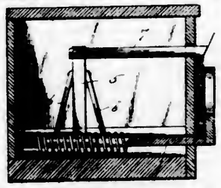
2. A car-wheel consisting of a peripheral section, comprising a tread and a central ring-web, an outer and an inner section having locking engagement with the ring-web and locking engagement with each other, bolts passed through the inner and outer sections and the web of the peripheral section, and a second series of bolts passed through the inner and outer sections around their hub portions, for the purpose set forth.

3. In the construction of car-wheels, the combination, with a peripheral section, comprising a flanged tread and a central apertured ring-web having corresponding ribs upon both side faces and lugs projected from the inner peripheral surface of the said web, of an outer facing-section, having its inner surface prepared to receive the ribs on the outer side of the said web, the said outer face-section being likewise provided with an inner annular rib having alternately-arranged recesses and lugs, and a series of arms radiating from the opening through which the axle is to pass, the inner face-section having its outer surface also prepared to receive the ribs on the outer face of the said web, the outer face of the inner side section being also provided with lugs arranged to enter sundry of the recesses in the rib of the outer face-section, some of the recesses in said rib being arranged to receive the lugs from the web, the lugs of the inner rib on the outer face-section being arranged to enter the spaces between the lugs on the inner face-section, a hub-flange formed upon the inner face-section, having slots to receive the arms of the outer face-section, and bolts connecting all of the sections, for the purpose specified.

4. A car-wheel consisting of a peripheral section comprising a tread and a central ring-web, an outer and an inner section having locking engagement with the ring-web, the said outer and inner sections being also provided with registering lugs and recesses, and the hub portion of one of said sections having arms adapted to enter slots in the other section, and fastening devices passed through all of the sections for the purpose set forth.

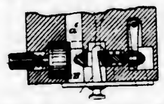
5. A car-wheel consisting of a peripheral section comprising a tread and a central ring-web having a recess in each of its faces and provided at its inner peripheral surface with lugs, an outer and an inner section having their surfaces arranged to engage the recesses in the faces of the web, the said outer and inner sections being each provided with lugs and recesses, whereby the outer and inner sections have locking engagement with each other, some of the recesses in one of said sections being arranged to receive the inner peripheral lugs of the web, and fastening devices for securing the sections together, substantially as set forth.

641,970. LABEL-HOLDER. FREDERICK H. KELLY, Au Sable, Mich. Filed May 24, 1899. Serial No. 718,086. (No model.)



Claim.—In label-holders, the combination of a case, a spring-operated clamp mounted in the case, and a gage-stop projecting outside the plane of the case above the clamp attached to and movable with the clamp, substantially as described.

641,971. VENDING-MACHINE. GRACE I. KELSEY, Beach Bluff, Mass. Filed June 3, 1899. Serial No. 719,215. (No model.)

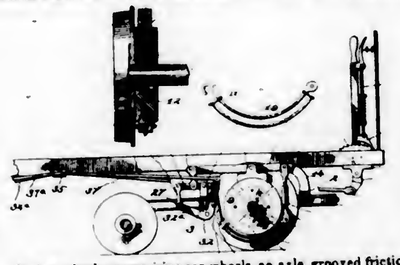


Claim.—The combination in a vending-machine of the receptacle-frame with the door having a projecting arm a^3 engaging with a slotted plunger a^3 projecting into a coin-guideway and cooperating with a coin resting on the shelf *a* and in line with the hollow plunger *a'* extending through the frame A substantially as set forth.

641,972. CAR-BRAKE. PHILIP S. KINGSLAND, St. Louis, Mo., assignor to the Kingsland Friction Car Brake Company, same place. Filed Nov. 25, 1898. Serial No. 697,366. (No model.)

Claim.—1. A car-brake comprising car-wheels, an axle, friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, sectional brake-shoes loosely seated and detachably held in

the cradles, and means for suspending the cradles from beneath the friction-disks and for lifting the cradles to carry the brake-shoes into frictional contact with the friction-disks; substantially as described.



2. A car-brake comprising car-wheels, an axle, grooved friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, sectional brake-shoes loosely seated and detachably held in the cradles and adapted to fit in the grooved friction-disks, and means for suspending the cradles from beneath the friction-disks and for lifting the cradles to carry the brake-shoes into frictional contact with the friction-disks; substantially as described.

3. A car-brake comprising car-wheels, an axle, friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, lower sectional brake-shoes loosely seated and detachably held in the cradles, means for suspending the cradles beneath the friction-disks and for lifting the cradles to carry the brake-shoes into frictional contact with the friction-disks, auxiliary upper brake-shoes supported above the friction-disks, and adapted to be thrown into contact with the friction-disks, and means for applying the upper brake-shoes simultaneously with the application of the lower brake-shoes; substantially as described.

4. A car-brake comprising car-wheels, an axle, grooved friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, sectional brake-shoes loosely seated and detachably held in the cradles and adapted to fit in the grooved friction-disks, means for suspending the cradles beneath the friction-disks, and for lifting the cradles to carry the brake-shoes into frictional contact with the friction-disks, auxiliary upper brake-shoes supported above the friction-disks and adapted to be thrown into contact with the friction-disks, and means for applying the upper brake-shoes simultaneously with the application of the lower brake-shoes; substantially as described.

5. A car-brake comprising car-wheels, an axle, grooved friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, sectional brake-shoes loosely seated and detachably held in the cradles, pivoted levers to which the cradles are connected and whereby the cradles are suspended beneath the friction-disks, a rock-shaft with which the levers are connected, and means for operating the rock-shaft; substantially as described.

6. A car-brake comprising car-wheels, an axle, grooved friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, brake-shoes located in the cradles, and adapted to fit in the grooved friction-disks, pivoted main levers to which the cradles are connected, and whereby the cradles are suspended beneath the friction-disks, auxiliary levers pivotally supported and connected to the main levers, auxiliary upper brake-shoes carried by the auxiliary levers above the friction-disks and adapted to be thrown into contact with the friction-disks, and means for operating the main and auxiliary levers; substantially as described.

7. A car-brake comprising car-wheels, an axle, friction-disks carried by the wheels, pivotally-supported segmental brake-shoe cradles, brake-shoes located in the cradles, pivoted main levers to which the cradles are connected and whereby the cradles are suspended beneath the friction-disks, auxiliary levers pivotally supported and connected to the main levers, auxiliary upper brake-shoes carried by the auxiliary levers above the friction-disks, and adapted to be thrown into contact with the friction-disks, a rock-shaft connected with the main levers, and means operating the rock-shaft; substantially as described.

8. A car-brake comprising car-wheels, an axle, sleeves, having radial grooves and dovetail tenons, and carried by the wheels, friction-disks having a groove, and radial tongues, and dovetail channels, fitted to the grooves and tenons of the sleeves, pivotally-supported cradles, sectional brake-shoes, loosely seated and detachably held in the cradles, adapted to seat in the grooves of the friction-disks, and means for moving the brake-shoes; substantially as described.

9. A car-brake comprising car-wheels, an axle, outer and inner cross-bars, the brackets mounted on the outer cross-bar, the links suspended from the brackets, the bearings on the inner cross-bar, the main levers mounted on the bearings, the links pivoted to the main levers, the friction-disks carried by the axle, the brake-shoes, cradles supported by the links beneath the friction-disks, the shaft having arms, connected with the main levers, the bell-crank lever connected with the shaft and means for operating the bell-crank lever; substantially as described.

10. A car-brake comprising car-wheels, an axle, outer and inner cross-bars, the brackets mounted on the outer cross-bars the links suspended from the brackets, the bearings on the inner cross-bar, the main levers mounted on the bearings, the links pivoted to the main levers, the friction-disks carried by the axle, the brake-shoe cradles supported by the links beneath the friction-disks, the auxiliary brake-shoe levers pivoted to the brackets, the links connecting the main and auxiliary levers, the shaft having arms connected with the main levers, the bell-crank lever connected with the shaft, and means for operating the bell-crank lever; substantially as described.

11. A car-brake comprising a pivoted cradle and sectional brake-shoes loosely seated and detachably held in the cradle, whereby provision is afforded for the expansion and contraction, as well as the ready renewal of the brake-shoes.

641,978. CAR-BRAKE. PHILIP S. KINGSLAND, St. Louis, Mo., assignor to the Kingsland Friction Car Brake Company, same place. Filed Nov. 25, 1898. Serial No. 697,367. (No model.)



Claim.—1. In a car-brake, the combination with the car wheels and axles, of a friction-disk carried by said wheels, upper and lower brake-shoes adapted to engage said disk, a lever by which the brake-shoes are operated, means for moving the lever, connections between the lower brake-shoe and the lever, and a second lever pivoted to a fixed fulcrum and to the first-mentioned lever and connected by a link to the upper brake-shoe; substantially as described.

2. In a car-brake, the combination with the car wheels and axles, of friction-disks carried by said wheels, pivotally-supported brake-shoes, levers from which said brake-shoes are suspended, a rock-shaft, and cams on said rock-shaft arranged to elevate said levers, substantially as described.

3. In a car-brake, the combination with the wheels and axles, of friction-disks carried by said wheels, pivotally-supported brake-shoes, levers from which said brake-shoes are suspended, and which are fulcrumed at their outer ends, connections between the inner ends of said levers and said brake-shoes, a rock-shaft, and cams carried by said rock-shaft adapted to elevate the inner ends of said levers, substantially as described.

4. In a car-brake, the combination with car wheels and axles, of friction-disks carried by said wheels, pivotally-supported brake-shoes, levers fulcrumed at their outer ends, brake-shoe frames pivotally connected to the outer ends of said levers, brake-shoes in said frames, connections between said brake-shoe frames and the inner ends of said levers, a rock-shaft, and cams carried by said rock-shaft arranged to elevate said levers, the brake-shoe frames being suspended from the levers, substantially as described.

5. In a car-brake, the combination with the car wheels and axles, of friction-disks carried by said wheels, levers fulcrumed at their outer ends arranged in pairs and having their inner ends connected, rollers carried in connection with said levers at the junction of their inner ends, brake shoe frames pivotally connected to said levers and suspended therefrom, a rock-shaft, and cams carried by said rock-shaft arranged to operate under said rollers to elevate the inner ends of said levers, substantially as described.

6. In a car-brake, the combination with the car wheels and axles, of friction-disks carried by said wheels, levers fulcrumed at their outer ends and connected in pairs at their inner ends by links, rollers mounted in said links, brake-shoe frames pivotally connected to said levers and suspended therefrom, a rock-shaft, and cams carried by said rock-shaft arranged to operate under said rollers for the purpose of elevating them, substantially as described.

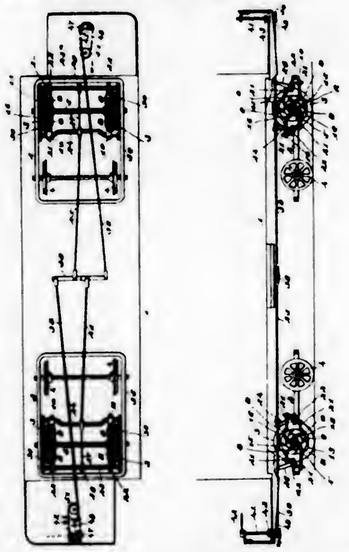
7. In a car-brake, the combination with the car wheels and axles, of friction-disks carried by said wheels, levers arranged in pairs fulcrumed at their outer ends and connected together at their inner ends, brake-shoes pivotally suspended from said levers, auxiliary brake-shoes arranged in guides above said disks and connected to said levers, and means for elevating the inner ends of said levers, whereby said first-named brake-shoes are raised into contact with said friction-disks and said auxiliary shoes are moved downwardly in their guides into contact with said disks, substantially as described.

8. In a car-brake, the combination with the car wheels and axles, of friction-disks carried by said wheels, levers arranged in pairs fulcrumed at their outer ends and connected at their inner ends, brake-shoes pivotally suspended from said levers, auxiliary brake-shoes mounted in guides above said disks, toggles connecting said levers and said auxiliary brake-shoes, and means for elevating the inner ends of said levers, substantially as described.

9. In a car-brake, the combination with the wheels and axles, of friction-disks carried by said wheels, levers arranged in pairs fulcrumed at their outer ends and connected together at their inner ends, rollers carried by the connections of said levers, pivotally-suspended brake-shoes carried by said levers, auxiliary shoes mounted in guides, toggles connecting said levers and said auxiliary shoes, a rock-shaft, and cams carried by said rock-shaft arranged to elevate said rollers, substantially as described.

10. A car-brake comprising the lifting-levers, the upper and lower brake-shoes, the lower brake-shoes being suspended from the levers, and the upper brake-shoes being connected to the levers by toggle-links and adapted to slide in bearings so that the lower brake-shoes are drawn upward and the upper brake-shoes are forced downward against the disks; substantially as described.

641,974. CAR-BRAKE. PHILIP S. KINGSLAND, St. Louis, Mo., assignor to the Kingsland Friction Car Brake Company, same place. Filed June 28, 1899. Serial No. 723,170. (No model.)



Claim.—1. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, holders supporting the brake-shoes, rock-shafts to which each holder is connected at both ends, and means for simultaneously operating the rock-shafts so that the brake-shoes are moved bodily away from and toward the disks, substantially as set forth.

2. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, holders supporting the brake-shoes, and rock-shafts to which each holder is adjustably connected, at each end, substantially as and for the purpose set forth.

3. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, holders supporting the brake-shoes, rock-shafts, blocks secured to the rock-shafts, and bolts adjustably connecting each end of each holder with said blocks, substantially as set forth.

4. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, and holders supporting the brake-shoes; said disks having V-shaped grooves with annular recesses at the bases of the grooves, substantially as and for the purpose set forth.

5. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage said disks, and holders supporting said brake-shoes; said disks having V-shaped grooves with annular recesses at the bases of the grooves, and said brake-shoes being V-shaped and recessed at 9, substantially as set forth.

6. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to bear against the disks, and formed in sections, and holders carrying the brake-shoes; said holders being provided with shoulders and ledges adapted to receive projections on the brake-shoes whereby the brake-shoe sections can be readily removed and replaced, substantially as set forth.

7. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to bear against disks and formed in sections, and holders supporting the disks; said holders being formed with shoulders 12 and ledges 13 and 13ª, and said brake-shoe sections being formed with ears 14 and 19 and with projections 15 and 16, and a bolt 17, extending through the holder for securing the brake-shoe sections, substantially as and for the purpose set forth.

8. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to bear against the disks, rock-shafts with which the brake-shoes are connected, and means for supporting said rock-shafts consisting of frames provided with pedestals to receive the axle-boxes of the car-wheels inside of the truck-frame, substantially as set forth.

9. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, rock-shafts to which the brake-shoes are connected, and means for supporting the rock-shafts, consisting of frames having pedestals to receive the axle-boxes of the car-wheels, and having openings in which the journal-boxes of said rock-shafts are adjustably held, substantially as set forth.

10. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, rock-shafts to which the brake-shoes are connected, and vertically-adjustable boxes in which said rock-shafts are journaled, substantially as set forth.

11. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, holders supporting the brake-shoes, rock-shafts to which each holder is connected at each end, a crank on one of the rock-shafts to which the other rock-shaft is connected, brake-rods secured to the rock-shafts, and a brake-staff to which said brake-rods are joined by a positive connection, whereby the brake-shoes are moved positively toward and away from said disks, substantially as set forth.

12. In a car-brake, the combination of brake-shoes, brake-rods for moving the brake-shoes, a brake-staff, and a positive connection between said rods and staff, consisting of a cam provided with a horn, a link pivoted to the cam and carrying a roller adapted to be engaged by said horn, and a connection between the brake-rod and the free end of said link and secured at one end to the cam; whereby when the brakes are applied the point of contact between said horn and roller approaches the brake-staff, substantially as set forth.

13. In a car-brake, the combination of brake-shoes brake-rods for moving the brake-shoes, a brake-staff, and a positive connection between said rods and staff, consisting of a cam secured to the staff and provided with a horn, a link pivoted to the cam and adapted to be engaged by said horn, and a connection between the brake-rod and said link and secured at one end to the cam; whereby when the brake-staff is turned the point of contact between said horn and said link approaches the staff, substantially as set forth.

14. In a car-brake, the combination of brake-shoes, brake-rods for moving the brake-shoes, a brake-staff, and a positive connection between said rod and staff, consisting of a cam provided with a horn, a link pivoted to said cam, and adapted to be engaged by said horn, a chain secured by one end to said cam and by the other end to said link, and an idler over which said chain passes; said brake-rod being connected to said chain, substantially as described.

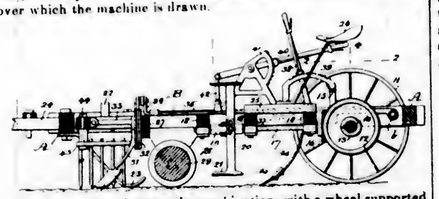
15. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, rock-shafts to which the brake-shoes are connected, and one of which is formed with a crank portion, disks carried by the pony-wheels of the truck, brake-shoes adapted to engage the last-mentioned disks, bars carrying the last-mentioned shoes, and links connecting said bars to the crank of said rock-shaft, substantially as set forth.

16. In a car-brake, the combination of disks carried by the car-wheels, brake-shoes adapted to engage the disks, rock-shafts to which the brake-shoes are connected, and one of which is formed with a crank portion, disks carried by the pony-wheels of the truck, brake-shoes adapted to engage the last-mentioned disks, bars carrying the last-mentioned shoes, and links connecting said bars to the crank of said shaft; said bars being made in two parts adjustably connected together, substantially as set forth.

641,975. COTTON-CHOPPER. RICHARD W. KIRBY, Cookville, Tex. Filed Oct. 4, 1899. Serial No. 732,493. (No model.)

Claim.—1. In a cotton-chopping machine, a frame, scrapers adjustable vertically in said frame, a chopping device mounted in the frame, means for driving said chopping device, and a roller mounted

in the frame between the adjustable scrapers and the chopping device, whereby to adapt the chopping device to the surface of the land over which the machine is drawn.



2. In a cotton-chopper, the combination, with a wheel-supported frame, an auxiliary frame mounted in the main frame, and a lifting device for the auxiliary frame, of scrapers carried by the auxiliary frame, a shaft mounted in the auxiliary frame, means for driving the said shaft from the axle of the main frame, hoes mounted upon the said shaft, and rollers located between the scrapers and hoes, the said rollers being adapted to travel in the furrows formed by the scrapers and adapt the hoes to the surface of the land over which the machine is drawn.

3. In a cotton-chopper, the combination, with a wheel-supported main frame, an auxiliary frame pivoted in the frame, and means for lifting the auxiliary frame, of scrapers adjustably mounted in the auxiliary frame, a regulating device for the said scrapers, a shaft mounted in the auxiliary frame and driven through connection with the axle of the main frame, choppers carried by the said shaft, and cultivator-blades suspended from the auxiliary frame, and arranged to travel in the spaces between the furrows, as described.

4. In a cotton-chopper, the combination, with a wheel-supported main frame, the axle whereof is provided with an adjustable driving-wheel, an auxiliary frame pivoted in the main frame, a shaft carried by the auxiliary frame, receiving motion from the driving-wheel of the axle of the main frame, hoes carried by the said shaft, vertically-adjustable scrapers also carried by the auxiliary frame, a lever arranged to raise and lower the said scrapers, cultivator-blades located at the rear of the said hoes, and rollers located in front of the hoes and at the rear of the said scrapers, the said rollers being adapted to travel in the track of the scrapers, and means for raising and lowering the auxiliary frame, as and for the purpose described.

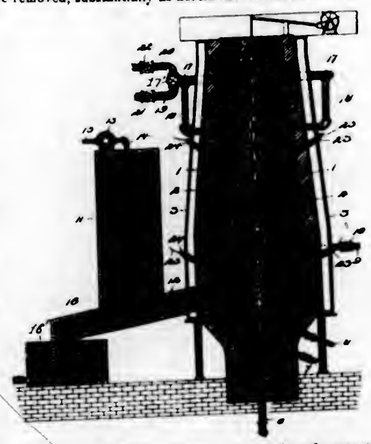
5. In a cotton-chopper, the combination with a main frame, an axle mounted at the rear of the main frame, supporting-wheels carried by the axle, and pivoted trailers located at the forward portion of the main frame, an auxiliary frame pivoted to the main frame, and means for raising and lowering the auxiliary frame, of a shaft mounted in the auxiliary frame, means for driving said shaft from the axle of the main frame, choppers carried by the said shaft, cultivator-blades located at the rear of the said choppers and attached to said auxiliary frame, scrapers located in advance of the choppers, a sliding support for the said scrapers, which support is mounted in the auxiliary frame, means for raising and lowering the said supports for the scrapers, and rollers located between the scrapers and the choppers and adapted to travel in the track of the said scrapers, as described.

6. In a cotton-chopper, the combination, with a main frame, an axle mounted at the rear of the said main frame, supporting-wheels carried by the said axle, and pivoted trailers located at the forward portion of the main frame, an auxiliary frame pivoted to the main frame, and means for raising and lowering the said auxiliary frame, of a shaft mounted in the auxiliary frame, means for driving the said shaft from the axle of the main frame, choppers carried by the said shaft, cultivator-blades located at the rear of the choppers and attached to the auxiliary frame, scrapers located in advance of the choppers, a sliding support for said scrapers, which support is mounted in the said auxiliary frame, means for raising and lowering the said supports for the scrapers, rollers located between the scrapers and the choppers and adapted to travel in the track of the said scrapers, and a rake detachably connected to the said auxiliary frame in advance of the said scrapers, for the purpose set forth.

7. In a cotton-chopping machine, a wheel-supported frame, an auxiliary frame pivoted at its rear end in said frame and having means attached to its front end for raising it, scrapers and choppers supported by said frame, the former being in advance of the latter, and a roller supported by said frame and located between the scrapers and the choppers, said roller being adapted to follow in the furrow made by the scrapers whereby to control the elevation of the choppers.

641,976. DOWNDRAFT ELECTRICAL FURNACE. ROBERT H. LAIRD, Pittsburg, Pa. Filed July 24, 1897. Serial No. 645,514. (No model.)

Claim.—1. In an electrical downdraft-furnace, having walls of suitable refractory material, a jacket of metal surrounding said walls and provided with a receptacle to receive cooling means, two sets of spirally-arranged electrodes projecting through the walls of said furnace, said electrodes being arranged at an angle to the outer face thereof, and opposite each other, insulating stuffing-boxes arranged around said electrodes, flues communicating with the lower part of said furnace whereby the by-products of metals fed into said furnace are removed, substantially as herein shown and described.



2. A downdraft electrical furnace consisting of a receptacle provided with a cone-shaped bottom, said receptacle having lining of suitable refractory material, a water-jacket surrounding said receptacle, a hopper arranged in the upper part of said receptacle, a bell-shaped closure for said hopper, a double series of spirally-arranged electrodes projecting through the water-jacket and wall of the furnace and at an angle to the face thereof, flues arranged in the lower part of the furnace whereby the by-products are removed, and means carried by the upper part of the furnace whereby water and vapor are supplied to aid combustioo, substantially as herein shown and described.

3. In an electrical furnace, a receptacle provided with a suitable closure, flues communicating with the lower part of said receptacle, two rows of spirally-arranged electrodes projecting through the receptacle and at an angle to the face thereof, a water-jacket surrounding said receptacle, a tank arranged at one side of said furnace and communicating therewith by means of a pipe, and a fan secured to the top of said tank whereby the gaseous products generated in the furnace are exhausted, substantially as herein shown and described.

641,977. ORE-CONCENTRATOR. JACOB LAMPERT, Hill City, S. D. Filed Mar. 16, 1899. Serial No. 709,300. (No model.)

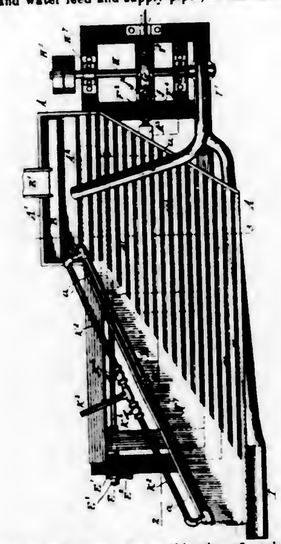
Claim.—1. In an ore-concentrator, the table having its head and tail ends beveled and each provided with upstanding flanges, a feed-trough at the rear side of the table, and longitudinal parallel riffles extending from the head-flange toward the tail-flange, said riffles gradually increasing in length from the box toward the front edge of the table, substantially as described.

2. In an ore-concentrator, the combination of the table having its head and tail ends beveled and each provided with upstanding flanges, a laterally-projecting feed-box on the rear side of the table, and longitudinal parallel riffles extending from the head-flange toward the tail-flange and gradually increasing in length from the box toward the front edge of the table; with means for vibrating said table, substantially as described.

3. In an ore-concentrator, a table having parallel front and rear sides, its head cut on an obtuse angle to its sides, and its tail cut on an acute angle thereto, upstanding flanges on its rear side and head and tail ends, and parallel longitudinally-disposed riffles extending from its head toward its tail end.

4. In an ore-concentrator, the combination of a table having parallel front and rear sides, and beveled head and tail ends, the tail-end angle being more acute than the head angle, each end being provided with upstanding flanges, and a feed-box at the side of the table, and parallel longitudinally-disposed riffles on said table; with the removable amalgamating-plate in said feed-box, and means for vibrating said table longitudinally, and the ore and water feed and supply pipes.

5. In an ore-concentrator, the combination of a table having parallel front and rear sides, an obtuse-angled head end, an acute-angled tail end, said ends being provided with upstanding flanges, and a feed-box at the rear side of the table, and parallel longitudinally-disposed riffles on said table extending from the head toward the tail end of the table, of successively greater length as they approach the front side of the table, and terminating some distance from the tail end so as to leave a smooth surface between their extremities and the tail-end flange; with means for vibrating said table longitudinally, and the ore and water feed and supply pipes, all substantially as described.

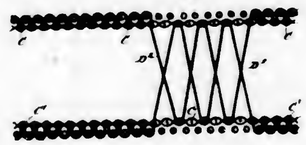


6. In an ore-concentrator, the combination of a table having its head end cut on an obtuse angle, and its tail end cut on an acute angle and provided with upstanding flanges, a series of parallel longitudinally-disposed riffles extending from the head toward the tail end of the table and of successively greater length as they approach the front side of the table, said riffles terminating some distance from the tail end so as to leave a smooth surface between their extremities and the tail-end flange; in combination with the ore and water feed and supply pipes, means for vibrating said table, and means for returning partially-treated ores back to the feed-box.

7. In an ore-concentrator, the combination of a table having parallel front and rear sides, an obtuse-angled head end, an acute-angled tail end both ends being provided with upstanding flanges, a feed-box at the rear side of the table, and parallel longitudinally-disposed riffles on said table, extending from the head toward the tail end of the table and being of successively greater length as they approach the discharge edge of the table; with the ore and water supply pipes leading to the feed-box, the wash-water-supply pipe along the tail end of the table, means for vibrating said table, and the pipe and pump for returning partially-treated ores back to the feed-box.

8. In an ore-concentrator, the combination of the concentrating-tables arranged one above the other and rigidly connected together, the adjustable laterally-tilting frame supporting said tables, means for imparting longitudinally-reciprocatory motion to said tables, the ore and water supply pipes for each table, a pump, a pipe for collecting tailings for each table and returning the same to the pump, and the branch outlets from the pump for returning the tailings to the respective tables, for the purpose and substantially as described.

641,978. FIGURED DOUBLE PLUSH FABRIC. HENRY LANGER, New York, N. Y., assignor of one-half to Edward F. Timme and Otto Timme, same place. Filed Apr. 3, 1899. Serial No. 711,523. (No model.)



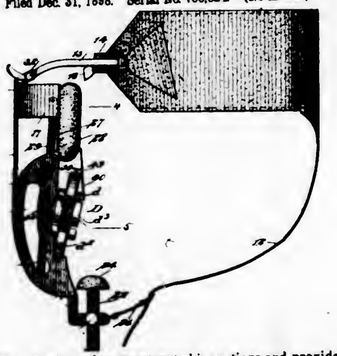
Claim.—1. A figured plush fabric, consisting of ground warps and wefts and pile-warps and a filling for said pile-warps, the pile-thread from its departure from the ground to its return connection therewith spanning a plurality of picks and being of a length corresponding to the pile-warp thread bound in a number of picks equaling the number of picks spanned, substantially as shown and described.

2. A figured plush fabric, consisting of two opposite fabrics each composed of a warp and a weft for forming the ground, and pile-warps and pile-warp fillings for forming figured plush, the pile-warps crossing alternately from one fabric to the other and spanning a plurality of picks in each fabric, the length of the crossed pile from its departure to its return connection being of a length corresponding to the pile-warp bound in in a number of picks equaling the number of picks spanned.

3. A figured plush fabric, consisting of two opposite fabrics each composed of a warp and a weft for forming the ground, and pile-warps and pile-warp fillings for forming figured plush, the pile-warps crossing alternately from one fabric to the other and spanning a plurality of picks in each fabric, the length of the crossed pile from its departure to its return connection being of a length corresponding to the pile-warp bound in in a number of picks equaling the number of picks spanned, as specified.

4. The herein-described method for forming figured double plush fabric, consisting in simultaneously weaving two opposite fabrics by interweaving separate sets of warps and wefts to form the grounds for the separate fabrics, interweaving pile-warps and fillings with the said grounds, and crossing a portion of the pile-threads from one fabric to the other and connecting it thereto at the ground and then passing it back again to the ground of the first fabric and spanning a number of picks therein, the distance traversed by a pile-warp from its departure to its return corresponding to the length of the bound-in pile-thread for a number of picks equal to the number of picks spanned by the pile-thread.

641,979. SURGICAL APPLIANCE. JOSEPH LEES, Summit Hill, Pa. Filed Dec. 31, 1898. Serial No. 700,824. (No model.)



Claim.—1. A receiver constructed in sections and provided with an opening for a member or organ of the body, adjusting devices connecting the sections of the receiver, locking devices for the adjusting devices, and contact-points extending within said opening, said contact-points being mounted to slide in the body of the receiver, substantially as described.

2. A surgical appliance consisting of a shield, a receiver adjustable in the shield, said receiver being constructed in adjustable sections surrounding a space adapted to receive a member or organ of the body, contacts carried by the receiver, adapted for electric connection with a warning mechanism, sundry of the contacts extending within said space, and means for adjusting the sections of the receiver and locking said sections in adjustment, substantially as described.

3. In an appliance of the character described, a shield, means for supporting the shield, pads carried by the shield, a receiver located between the pads, said receiver being constructed in adjustable sections, a warning mechanism, and an electric connection between the sections of the receiver and the warning mechanism, as specified.

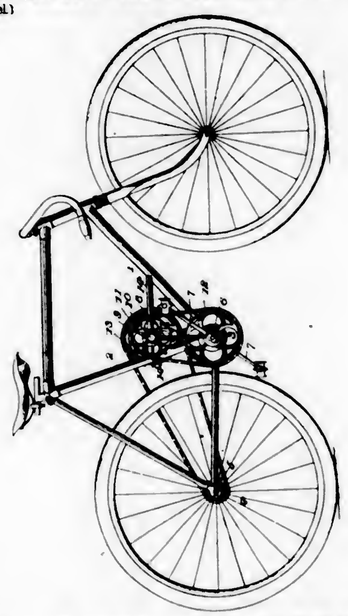
4. An appliance of the character described, a waistband, a shield connected with the waistband, pads carried by the shield, a receiver located within the shield between the pads, an adjustable connection between the waistband and the support for one of the pads, and a warning mechanism connected with said receiver, for the purpose set forth.

5. In an appliance for the purpose specified, a waist-belt, a shield, a connection between the shield and waist-belt, a pad connected with the upper portion of the shield, the shield being likewise provided with a lower pad, a receiver consisting of adjustable sections located within the said shield, an electrically-operated warning mechanism, movable contact-points located within the receiver in the circuit of the warning mechanism, and stationary contact-points adapted for engagement with the movable contact-points, for the purpose set forth.

6. In an appliance of the character described, a receiver constructed in adjustable sections, a central opening being provided between the sections, contact-points mounted to slide in sundry of the said sections, the same sections being provided with stationary contact-points adapted for engagement with the movable ones, and an electric warning mechanism, the contact-points being in the same circuit with the electric warning mechanism, as and for the purpose specified.

7. In an appliance of the character described, a receiver constructed in adjustable sections, a central opening being provided between the sections, contact-points mounted to slide in sundry of the said sections, the same sections being provided with stationary contact-points adapted for engagement with the movable ones, an electric warning mechanism, the contact-points being in the same circuit with the said electric warning mechanism, springs having bearing upon the movable contact-points, serving to hold a portion of said points within the central opening of the receiver, means for disengaging the springs from the movable contact-points, and wires connecting the said springs, for the purpose specified.

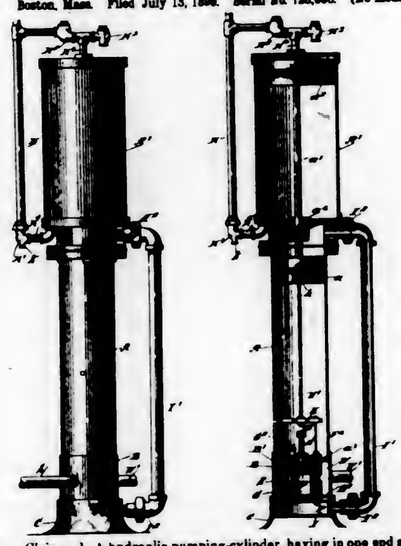
641,980. HIGH-SPEED GEAR FOR BICYCLES. WARREN W. LOWER, Blue Ridge Springs, Va., assignor of one-half to David I. L. Bachman, Roanoke, Va. Filed Apr. 23, 1898. Serial No. 678,626. (No model.)



Claim.—1. The combination, with the frame of a bicycle having the usual lower main tube 1 and diagonal down-tube 2 converging toward each other and connected at their point of juncture to a crank-hanger 3, and a crank-shaft 6 rotatable in said hanger, of brace-standards 8 rising perpendicularly from opposite ends of the said hanger and connected to opposite ends of an upper hanger 9 directly above and parallel with the said lower hanger, opposite V-shaped braces 14 having their converged portions respectively connected to the tubes 1 and 2 and their divergent ends secured to opposite sides of said upper hanger adjacent to the ends thereof and forming a diamond-shaped auxiliary frame to firmly support the upper hanger above the crotch of the tubes in advance of the tube 2 and between the tubes 1 and 2 and to concentrate the forward strain in the line of the frame, a second crank-shaft 10 in the upper hanger, an ordinary drive-sprocket-wheel 12 on one end of the lower crank-shaft, a sprocket-wheel 11 on the adjacent end of the upper crank-shaft which is smaller and directly over and operatively connected to the lower sprocket-wheel, and a sprocket-wheel 13 on the opposite end of the upper crank-shaft larger than said sprocket-wheel 11 and operatively connected to the rear drive-wheel of the machine, whereby all parts of the attachment are supported by that portion of the frame offering the greatest resistance to a downward and forward strain and without modifying the ordinary power-receiving structural features of the bicycle substantially as shown and described.

2. In a bicycle, the combination, with the ordinary diamond frame having the usual main and diagonal down-tubes converging at their lower ends and connected to the crank-hanger, of an auxiliary gearing-supporting frame comprising a pair of brace-standards rising perpendicularly from opposite ends of the crank-hanger, a supplemental crank-hanger connected to the upper ends of said standards and extending transversely of the frame in parallelism with and above the main or first-named crank-hanger, and V-shaped braces arranged horizontally upon opposite sides of the supplemental hanger and having their converged portions respectively connected to the said lower main and diagonal down-tubes and their divergent ends respectively connected to the supplemental hanger adjacent to the ends of the latter, substantially as described.

641,981. HYDRAULIC AIR-COMPRESSOR. LEE R. MITCHELL, Boston, Mass. Filed July 13, 1899. Serial No. 723,690. (No model.)



Claim.—1. A hydraulic pumping-cylinder, having in one end supply and waste-water chambers provided oppositely with ports communicating with opposite ends of the power-cylinder, connected supply and waste-water valves adapted to control the flow of water through said ports to and from the power-cylinder, a shifting cylinder having a piston connected with said valves, a plurality of valve-chambers alongside of and parallel with the shifting cylinder, shifting valves movable in said chambers and controlling the shifting piston and tappet connections for moving said shifting valves from the power-piston at each end of its stroke, substantially as described.

2. A hydraulic pumping-cylinder having in one end supply and waste-water chambers provided oppositely with ports communicating with opposite ends of the power-cylinder, connected supply and waste valves adapted to control the flow of water through said ports, a shifting cylinder having a piston connected with said valves, valve-cylinders located alongside the shifting cylinder and connected therewith, shifting valves in said cylinders movable parallel with the power-piston to control the shifting piston, a hollow rod for the power-piston, a rod slidable in said hollow rod, means whereby said rod is moved by the power-piston at each end of its stroke, and connections from the rod to the shifting valves, substantially as described.

3. A hydraulic pumping-cylinder, having in one end supply and waste-water chambers provided oppositely with ports communicating with opposite ends of the power-cylinder, connected supply and waste-water chambers, the said chamber forming a shifting cylinder, a piston in said shifting cylinder and connected with the said valves, and means for controlling the shifting piston, substantially as described.

waste valves adapted to control the flow of water through said ports, a shifting cylinder having a piston connected with said valves, two valve-cylinders lying alongside the shifting cylinder and connected therewith by ports at their ends, one of said cylinders and its valves controlling the water-supply to the shifting cylinder, and the other controlling the waste-water discharge therefrom, said valve-cylinders having respectively a supply and waste connection with their central portions, the supply-cylinder having longitudinal grooves or ports in its central portion communicating with its supply-opening and the waste or discharge cylinder having similar grooves or ports within each end connecting with the ports leading from the shifting cylinder, two connected piston-valves in each cylinder adapted when reciprocated to alternately uncover the longitudinal ports or grooves, and means for moving them from the power-piston, substantially as described.

4. In a hydraulic power-cylinder, a valve-shifting cylinder and piston and valve mechanism controlling the shifting piston, comprising two valve-cylinders lying alongside of the shifting cylinder and communicating therewith by ports at each end, said valve-cylinders having respectively a supply and a waste-water connection with the central portion thereof, and longitudinal grooves or ports lying respectively in the central portion of the supply-cylinder and communicating with the supply-opening thereof and at the ends of the waste-cylinder and communicating with the shifting-cylinder ports, and two connected piston-valves in each cylinder adapted when reciprocated to uncover diagonally opposite grooves, and externally-operated means for shifting said valves, substantially as described.

5. A hydraulic power cylinder and piston, the cylinder having at one end a section having a longitudinally-extending partition forming supply and waste-water chambers, and provided with a central circular chamber forming a shifting cylinder, the supply and waste-water chambers having ports at one end connecting directly with one end of the power-cylinder and at the other end communicating by a pipe with the other end of the power-cylinder, valves controlling said ports, a piston in the shifting cylinder and connected with said valves, auxiliary or shifting valves controlling the shifting piston and connections whereby said valves are adapted to be operated by the power-piston, substantially as described.

6. A hydraulic pumping-cylinder having in one end supply and waste-water chambers each provided with ports communicating respectively with opposite ends of the cylinder, supply and waste-water valves controlling said ports, a shifting cylinder, a piston in said cylinder a cross-head carried at the upper free end of the shifting piston-rod the stems of said supply and exhaust valves being connected with the cross-head, shifting valves controlling the shifting piston, and connections whereby said shifting valves are moved from the power-piston at each end of its stroke, substantially as described.

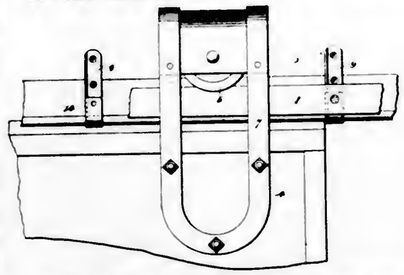
7. A hydraulic pumping-cylinder provided with a power-piston having a hollow piston-rod, the said cylinder having in one end supply and waste-water chambers provided oppositely with ports communicating with opposite ends of the power-cylinder, connected supply and waste-water valves adapted to control the flow of water through said ports to and from the power-cylinder, a shifting cylinder having a piston connected with said valves, shifting valves movable at opposite sides of the shifting cylinder and controlling the shifting piston, a cross-head connecting the stems of the shifting valves and a rod connected with the cross-head and adapted to slide in the hollow rod of the power-piston, the movement of said rod and the parts connected therewith being controlled by the movement of the power-piston, substantially as described.

8. The combination with a hydraulic cylinder having in one end supply and waste-water chambers provided oppositely with ports communicating with opposite ends of the power-cylinder, of connected supply and waste-water valves adapted to control the flow of water through said ports, a shifting cylinder having a piston connected with said valves, shifting valves movable alongside of and parallel with said shifting cylinder and controlling the shifting piston, a hollow rod for the power-piston, an air-compressing cylinder into which said hollow rod extends, the said rod carrying the air-compressing piston, a rod slidable in said hollow rod, and provided at its ends with means adapted to be engaged by the power-piston at each end of its stroke, and a cross-head carried by said rod and connected with the stems of the shifting valves, substantially as described.

9. In a hydraulic power-cylinder, a supply and a waste-water chamber in one end of said cylinder, each chamber being provided with a port at each end having a valve-seat, the ports at opposite ends of the chambers communicating with opposite ends of the power-cylinder, the valve-seats for the ports of one of said chambers being located within the chamber and facing each other, and the valve-seats for the ports of the other chamber being located at the outside of the chamber, and facing in opposite directions, a valve for each port the said valves being adapted to control the flow of water through said ports to and from the power-cylinder, a chamber between the

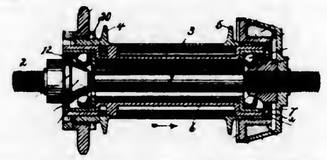
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641,982. COMBINED DOOR-HANGER TRACK AND WEATHER-SHED. SAXTON J. MORGAN, Albany, Wis. Filed Apr. 7, 1899. Serial No. 712,056. (No model.)



Claim.—A door-track way, comprising a number of brackets having their inner ends secured to the building and having their outer ends provided with inwardly-turned extensions, a track proper held by the brackets, and a shed-plate extending parallel with the track below the brackets, the shed-plate having its front portion held by the extensions of the brackets and the rear portion of the shed-plate being fastened to the building.

641,988. BACK-PEDALING BRAKE. ALEXANDER P. MORROW, Elmira, N. Y., assignor of one-half to Harmon H. Fulton, same place. Filed Aug. 1, 1896. Renewed Nov 1, 1899. Serial No. 735,557. (No model.)



Claim.—1. In a bicycle or like vehicle, the combination with a wheel-hub provided at one end with spirally-disposed slots, of a sleeve within the hub enlarged at one end and provided with spiral teeth coöperating with the slots in the hub, and threaded to receive the sprocket-wheel, opposing friction devices on the hub and axle, and means for driving the sleeve.

2. In a bicycle or like vehicle, the combination with the spirally-slotted hub, and a toothed sleeve provided with spirally-disposed teeth, of an internally and externally threaded and flanged collar secured upon the threaded end of the hub, a friction-ring secured upon the collar between the external threads and laterally-projecting flange, and a cap secured upon the axle and provided with a flange adapted to clamp the periphery of said friction-ring.

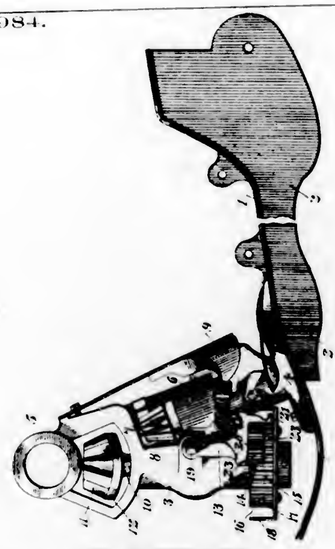
641,984. ATTACHMENT FOR BINDERS. WILLIAM L. MUENDER, Montfort, Wis. Filed July 31, 1899. Serial No. 725,662. (No model.)

Claim.—1. The combination with knotting mechanism for grain-binders, of a rotatable holder-disk with an upstanding exteriorly-toothed flange formed with notches at regular intervals, and a shoe depending adjacent the said flange and carrying a toothed device meshing with the teeth of the said flange.

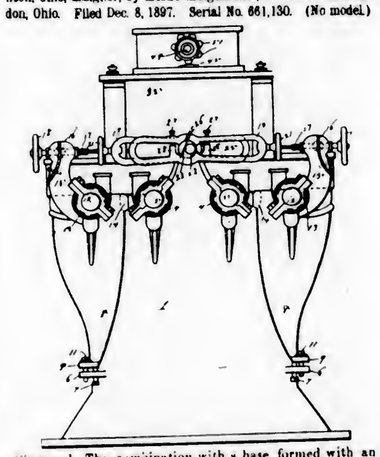
2. The combination with the knotter mechanism of a grain-binder, of a rotatable holder-disk having an upstanding flange with exterior teeth and notches at regular intervals therein, and a shoe depending adjacent the said flange and carrying a pair of independently-rotatable pinions meshing with the teeth of the said flange.

3. The combination with the knotter mechanism of a grain-binder, of a rotatable holder-disk having an upstanding flange with exterior teeth extending vertically thereof, a shoe depending adjacent the said flange and having a lower cut-away portion, and a pair of pinions vertically disposed in the said cut-away portion of the shoe and having an independent rotation, the teeth of said pinions regularly meshing with the teeth on the exterior of the flange of the holder-disk.

641,984.



641,985. ROLLER GRINDING-MILL. JOHN A. MCANULTY, Hamilton, Ohio, assignor, by mesne assignments, to Walter Morris, Shandon, Ohio. Filed Dec. 8, 1897. Serial No. 661,130. (No model.)



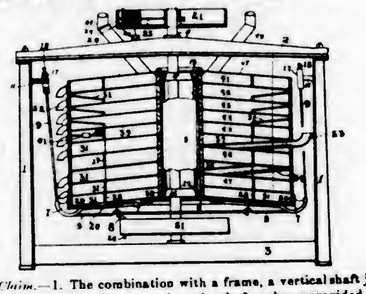
Claim.—1. The combination with a base formed with an open front, with tongues projecting forwardly from the top portion of its respective sides and with supports projecting forwardly from the lower portion of its front corners and tramming-bolts threaded in the supports of a bracket formed with grooves in the top portion of its edges adapted to movably engage with the tongues on the base and with slotted feet on the lower portion of its corners to correspond with the supports on the base, said bracket being mounted on the tramming-bolts and arranged to close the open front and binding-bolts threaded in the supports and adjustably engaging with the feet through the slots therein.

2. The combination with a base provided with a grinding-roll and formed with an open front and with supports projecting from its opposite front corners, tramming-bolts threaded in the supports, a bracket adapted to close the open front of the base and formed with bearings wherein a grinding-roll is journaled, slotted feet projecting from the base of the bracket under the bearings and movably engaging with the tramming-bolts of binding-bolts adjustable in the slots in the feet and threaded in the supports and nearer the ends thereof than the tramming-bolts, whereby the adjustment of the grinding contact of the rolls is maintained.

3. In a roller grinding-mill, the combination with a movable roll of an expansible link formed with curved seats on the middle portion of its sides and adapted to engage with an eccentric, a stop projecting inwardly from the rear portion of one of its sides to limit the extent of displacement of the seats on the eccentric an adjusting-screw in the other side to engage with the stop to separate and maintain the seats in proper engagement with the eccentric and differential adjusting mechanism connected with the roll-bearing and engaging with the front end of the link to regulate the grinding contact of the rolls.

4. The combination with a movable roll and its bearing, of a closed link having its opposite sides formed with a tendency to spring together or forcibly approach each other, and having curved seats on their adjacent faces facing each other to movably engage with an eccentric, a stop projecting inwardly from one side of the link to limit the extent of the displacement permitted of the seats on the eccentric an adjustable screw in the other side of the link and detachably engaging with the stop to relieve the eccentric of the clamping pressure of the seats, to resist their further separation under normal duty.

641,986. FLOUR-BOLT. JOHN A. MCANULTY, Hamilton, Ohio, assignor, by mesne assignments, to Walter Morris, Shandon, Ohio. Filed Dec. 8, 1897. Serial No. 661,131. (No model.)



Claim.—1. The combination with a frame, a vertical shaft journaled therein, eccentrics secured on the shaft, a sleeve provided with eccentric-straps adapted to movably engage with the respective eccentrics, and a sieve-supporting base secured thereto, of a swing adjustably suspended from the frame and arranged to support the base, said swing being formed with a ring under the base to encircle the shaft without contact therewith.

2. The combination with a frame, a vertical shaft journaled therein, eccentrics on the shaft, a sleeve mounted on the shaft by means of eccentric-straps therein that movably engage with the respective eccentrics, and a sieve-supporting base carried by the sleeve, of a swing arranged to adjustably support the base and consisting of a plural number of members each depending from a pivotal connection with the frame, said swing being formed with an opening under the base for the passage therethrough, without contact, of the shaft.

3. The combination with a vertical shaft journaled in a frame and eccentrics secured thereon and toward its respective ends each eccentric being in form the frustum of a cone, the upper eccentric being smaller than the other of a removable sleeve provided with tapering eccentric-straps to engage with the respective eccentrics, a sieve-supporting base secured to the sleeve and a swing adjustably depending from the frame to support the base and sleeve, whereby the sleeve is automatically adjustable on the shaft.

4. The combination with a circular screen provided with a discharge-opening and formed with a rim and with a spiral partition of a canting-board declining toward the center of the screen from the rim and over said partition.

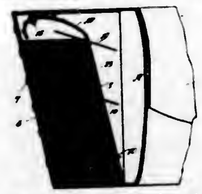
5. The combination with a screen containing a partition and arranged to receive gyratory motion of a weight arranged to automatically slide on a rod, said rod being secured at its respective ends to the partition and to the rim of the screen and in a horizontal plane and adjusting mechanism projecting without the rim and arranged to limit the movement of the weight from without the screen.

6. The combination with a circular screen arranged to receive gyratory motion in a horizontal plane and being formed with a rim and with a spiral partition of a bridge spanning the distance between the rim and the partition and having transverse corrugations in its floor and a perforated and laterally-corrugated approach to the bridge from the sifting-surface of the screen.

7. The combination with a circular flour-board formed with a rim of a substantially spiral partition therein, a portion of said partition consisting of a series of segments each having one end hinged to the board and movable to engage the other end with the rim.

8. The combination with a circular flour-board formed with a rim of a partition of substantially spiral form therein, a portion thereof consisting of segments each having one end hinged to the board and means communicating with the outside of the board and with the respective segments and being arranged in a manner to permit the movement of the free end of the segments to or from the rim during the action of the board.

641,987. LETTER-CARRIER'S BAG. MICHAEL MCCARTHY, Boston, Mass. Filed Oct. 20, 1899. Serial No. 734,199. (No model.)



Claim.—1. A letter-carrier's bag, having a body with an open top, a flap swinging over the body to close the top thereof, an inner wall situated in the bag and fastened at its lower end to the bottom of the bag, the side and top edges of the inner wall being free, and the wall forming the bag into two compartments, and means for adjustably holding the upper end of the said inner wall, the end of the bag adjacent to said inner wall being formed of two flaps having fastening devices for removably joining their contiguous edges.

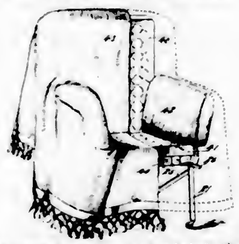
2. A letter-carrier's bag, having a wall situated therein to form the bag into a main portion and a letter-holder at one end of the bag, the wall being fastened at its lower edge to the bottom of the bag and having its side and top edges free, means for adjustably holding the upper end of the wall, and a flap attached to the bag to close the main portion thereof and the letter-holder.

3. A letter-carrier's bag, having a wall situated therein and forming the bag into a main portion and a letter-holder, the wall having its lower end secured to the bottom of the bag and having its side and top edges free, means for adjustably holding the upper end of the wall, and two flaps forming the outer end wall of the letter-holder, such flaps having their inner vertical edges provided with fastening devices for removably joining them with each other, for the purpose specified.

4. A letter-carrier's bag, having a vertically-disposed wall situated therein to form the bag into two compartments, the lower end of the wall being permanently fastened to the bottom of the bag and the side and top edges of the wall being free, means for removably holding the upper end of the said wall, and guide-rods fastened to the sides of the bag within the same, and disposed diagonally with respect to the bottom thereof, the side edges of the said wall having slidable connection with the guide-rods.

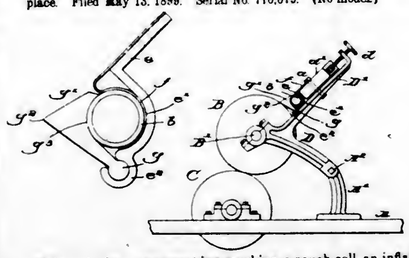
5. A letter-carrier's bag, having a wall situated therein, the lower end of the wall being secured permanently to the bag and the side and top edges of the wall being free, and means for removably holding the upper end of the wall, the adjacent end of the bag being slanted outwardly from the bottom, for the purpose specified.

641,988. FOLDING BED. JOSEPH J. MCINTYRE, New York, N. Y. Filed Apr. 6, 1899. Serial No. 711,951. (No model.)



Claim.—In a combined folding bed and chair, the combination of an intermediate section, a head-section pivoted thereto, a foot-section pivoted to the intermediate section opposite the head-section, a bracket mounted on the head-section, a spring-sustained pin movably engaged with the bracket, a latch-plate having a slot therein, and a screw carried by the foot-section and projected through the slot of the latch-plate, whereby to adjustably mount the latch-plate, the latch-plate having notches capable of engaging the pin of the bracket.

641,989. PAPER-MAKING MACHINERY. DENNIS B. MCMURRAY, Fitchburg, Mass., assignor of one-half to George R. Wallace, same place. Filed May 13, 1899. Serial No. 716,679. (No model.)

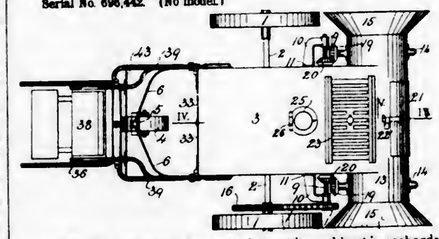


Claim.—1. In a paper-making machine, a couch-roll, an inflated tube, means to sustain said tube, and a scraper occupying a position between the said inflated tube and the covering of the couch-roll and having an edge bearing upon said couch-roll, substantially as described.

2. In a paper-making machine, a couch-roll, a guard board or device having sustained upon it an inflated tube; combined with a pivoted scraper located between said inflated tube and said couch-roll and acted upon at its rear side by the tube, it holding an edge of the scraper in a yielding manner against the surface of the couch-roll, substantially as described.

3. In a paper-making machine, a guard-board having attached bearings concaved to receive an inflated tube, and also one edge of a scraper; combined with an inflated tube sustained by said bearings, and a scraper also pivotally mounted in said bearings, an edge of said scraper acting against the surface of the couch-roll, the inflated tube acting against the rear side of the scraper and holding it in a yielding manner with its edge pressed against the surface of the couch-roll, substantially as described.

641,990. MACHINE FOR PRODUCING SMOKE AND HEAT IN ORCHARDS. PETER NEYERS, Dunsmuir, Cal. Filed Nov. 14, 1898. Serial No. 696,442. (No model.)



Claim.—1. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, and the register located in the top of the furnace-body and over the fan; substantially as described.

2. A machine for producing smoke and heat in orchards comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, and a register located in the bottom of the furnace-body and under the fan; substantially as described.

3. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, a register located in the top of the furnace-body and over the fan, and a register located in the bottom of the furnace-body, and under the fan; substantially as described.

4. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, and the horizontal distributing-cylinder extending across the end of the furnace-body and into which the fan discharges the products of combustion from the furnace-body; substantially as described.

5. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body, and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, and the horizontal distributing-cylinder having funnel-shaped extensions and extending across the end of the furnace-body; substantially as described.

6. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, and the horizontal distributing-cylinder extending across the end of the furnace-body, and provided with a door in the side thereof whereby access may be gained to the furnace-body, and to the fan; substantially as described.

7. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the main shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the main shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the main shaft within the furnace-body, the horizontal distributing-cylinder extending across the end of the furnace-body, and into which the fan discharges, the auxiliary shafts, extending across and through the distributing-cylinder, gearing whereby the auxiliary shafts are connected with the main shaft and the combined draft and blast fans, mounted on the auxiliary shafts within the distributing-cylinder; substantially as described.

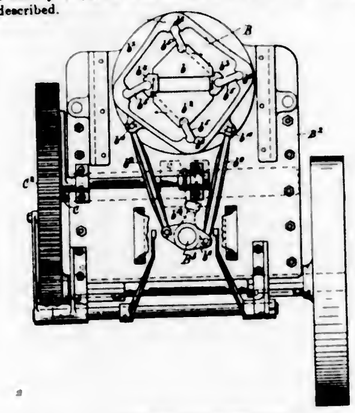
8. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, the horizontal distributing cylinder extending across the end of the furnace-body, and the smoke-stack provided with a series of vertical openings through which part of the smoke and heat are distributed; substantially as described.

9. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined draft and blast fan mounted on the shaft within the furnace-body, the horizontal distributing-cylinder extending across the end of the furnace-body, a fire-box, the stepped oil-supply pipe connected with the fire-box, the driver's seat supported from the furnace-body, and the tank supported on the stepped oil-supply pipe beneath the driver's seat; substantially as described.

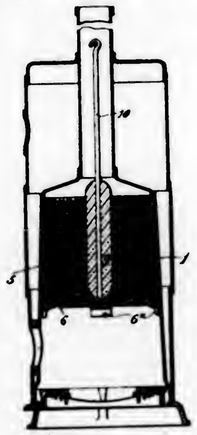
10. A machine for producing smoke and heat in orchards, comprising a pair of drive-wheels, a horizontal furnace-body, a crank-axle whereby the furnace-body is mounted on the drive-wheels, brackets secured to the sides of the furnace-body, the shaft extending across and through the furnace-body and journaled in the brackets, gearing whereby the shaft is connected with a drive-wheel, a combined blast and draft fan mounted on the shaft within the furnace-body, the horizontal distributing-cylinder extending across the end of the furnace-body, the rods secured to the furnace-body, the driver's seat supported on the rods, and the shields suspended on the rods between the furnace-body and the driver's seat; substantially as described.

641,991. BRICK-MAKING MACHINE. FREDERICK C. NORRIS, Detroit, Mich. Filed Apr. 12, 1898. Serial No. 677,383. (No model.)

Claim.—In a brick-making machine, the combination with a die and plunger, of a mold having movable sides, a frame or boxing inclosing the walls of the mold, fulcrums interposed between the walls and the inner sides of the boxing, rods connecting at one end with the boxing, a shaft carrying a plate to which the other ends of the rods are secured, and a cam adapted, at predetermined times, to rotate the shaft and, through the medium of the rods, to turn the boxing, thereby to open and close the members of the mold, substantially as described.



641,992. STEAM-GENERATOR. GUILLAUME A. NUSBAUM, London, England. Filed Mar. 31, 1898. Serial No. 675,918. (No model.)



Claim.—1. In a steam-generator, the combination with the furnace-flue or fire-tube through which hot gas and air flow and which is surrounded by water to be heated, of an open-work metallic mixing and heating device arranged lengthwise within said flue or tube and in contact with the inner surface thereof, said device being composed of metal such as wire in a coiled, twisted, crumpled, matted or netted condition adapted to fill or extend across the flue without offering undue resistance to the flow of hot gases and air therethrough and to intimately mix all parts of such hot gases and air together so as to effect efficient combustion thereof and to itself become heated and act as a heat-accumulator whereby heat will be transmitted in an efficient manner from all parts of the stream of hot gases to the wall of the flue, substantially as described and shown.

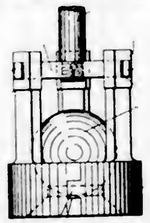
2. In a steam-generator, the combination with a furnace flue or tube surrounded by water of a mixing and heating device comprising an open-work metallic mass having a core of refractory material that is a bad conductor of heat, said device being arranged in said flue or tube so as to be in contact with the inner surface thereof and so as to break up the stream of hot gases and air flowing through said flue or tube, substantially as described for the purposes specified.

3. A heating and mixing device for flue-tubes and the like, comprising a number of open-work metal elements built up of lengths of spirally-coiled metal arranged side by side, substantially as described for the purpose specified.

4. A heating and mixing device for flue-tubes and the like comprising an open-work metallic mass built up of spirally-coiled metal wire and provided with a core of refractory non-conducting material, substantially as described for the purpose specified.

5. In a steam-generator, the combination with a metal furnace-flue or fire-tube surrounded by water, of a metallic mixing and heating device comprising a plurality of open-work diaphragms or divisions arranged in said flue or tube so as to be in contact with the wall thereof and in the path of hot gases and air passing to the chimney or uptake, said devices, diaphragms or divisions being composed of plate-like elements of coiled, twisted or crumpled lengths of metal wire or strip and arranged at right angles to the length of said flue or tube so as to break up and mix together said hot gases and air and deflect them against the heating-surface of said flue or tube, substantially as described.

641,993. PUMP-PLUNGER. HENRY W. OMEK, St. Charles, Mo. Filed May 19, 1899. Serial No. 717,441. (No model.)



Claim.—1. In a pump-plunger, the combination, with a series of radially-slidable segments provided with a valve-seat, of a valve which spreads the said segments when pressed against the said seat, an arm projecting upward from each said segment, and a pump-rod operatively connected with all the said arms, substantially as set forth.

2. In a pump-plunger, the combination, with a series of radially-slidable segments provided with a valve-seat and interlocking tongues or grooves, of a valve which spreads the said segments when pressed against the said seat, an arm projecting upward from each said segment, and a pump-rod operatively connected with all the said arms, substantially as set forth.

3. In a pump-plunger, the combination, with a series of radially-slidable segments provided with a concave valve-seat, of a ball-valve engaging with the said seat, and operating to spread the said segments, an arm projecting upward from each said segment, said arms forming guides for the said ball-valve, and a pump-rod operatively connected with all the said arms, substantially as set forth.

4. In a pump-plunger, the combination, with a series of radially-slidable segments provided with a valve-seat, each said segment having also a projecting arm, of a cross-head operatively connected with the said arms, and a valve which moves the said segments and arms outwardly when pressed into engagement with the said valve-seat, substantially as set forth.

641,994. APPARATUS FOR COVERING SHOE-HOOKS WITH PLASTIC MATERIAL. MAXIME O. PARENTEAU, Springfield, Mass. Filed Aug. 12, 1898. Serial No. 688,422. (No model.)



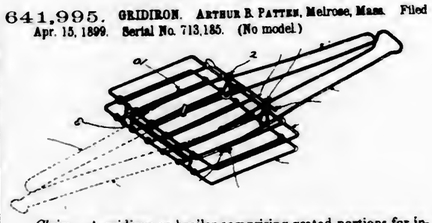
Claim.—1. The combination of a receiving-plate and a plate arranged to slide thereon provided with a series of complete openings, or openings that are wholly within said sliding plate, substantially as shown.

2. The combination of a receiving-plate having openings to receive the shoe-hooks and a pin-plate having pins to enter said openings and bear against and raise the hooks, substantially as shown.

3. The combination of a receiving-plate having openings to receive the hooks, a sliding plate having complete holes or holes wholly within said sliding plate to slide on the receiving-plate and fill the lace-openings in the hooks, a die above said last-mentioned plate and means to hold the whole in registry, substantially as shown.

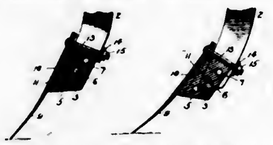
4. The combination of a receiving-plate, a sliding plate mounted thereon to fill the string-receiving openings in the hooks and provided with complete openings or openings wholly within said sliding plate, other holes or openings to permit the passage of pins when in position to close the string-receiving openings, a die, and pin-plate having pins to pass through the receiving-plate and sliding plate and bear against the lower face of the hook-head.

641,995. GRIDIRON. ARTHUR R. PATTEN, Melrose, Mass. Filed Apr. 15, 1899. Serial No. 713,185. (No model.)



Claim.—A gridiron or broiler comprising grated portions for inclosing and supporting the material to be broiled, handles for each of said side portions pivotally secured thereto, one edge of one of said side portions being secured by a hinge connection to the corresponding edge of the other side portion, and means for securing the said gridiron in a closed position, said means comprising a plurality of loops, each having a plurality of eyes and each attached to the free edge of one of the said side portions, and a pin to extend through one of the eyes of each loop and to engage the other of said grated side portions, whereby the free edges of the said grated side portions may be secured at varying distances from each other, to accommodate various thicknesses of material to be broiled, substantially as described.

641,996. PLOW-FOOT. JACOB P. PHILLIPS, Yantley, Ala. Filed Oct. 21, 1899. Serial No. 734,295. (No model.)



Claim.—1. The combination with a plow-standard, of a plow-foot having a plurality of apertures, a removable fastening passing through one of said apertures and the standard, said foot being pivoted on said fastening and having a portion of itself abutting the standard, and a second removable fastening bolding said abutting portion against the standard, whereby the foot is held rigid.

2. The combination with a plow-standard, of a plow-foot having a body fitted into the standard and a face which bears against the standard, said body having a row of apertures, a removable fastening passing through one of the apertures and the standard and serving as pivot, and a removable fastening clamping the face of the foot against the standard, whereby the foot is held rigid.

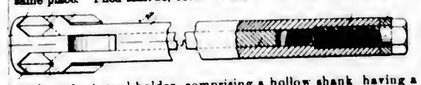
3. The combination with a plow-standard, of a plow-foot having a body fitted into the standard and provided with a broadened face bearing against the outside of the standard, a bolt passing through the body and the standard, and a bolt passing through said face and bearing against the back of the standard and holding the face drawn against the front of the standard.

4. The combination with a plow-standard, of a plow-foot having a body provided with a row of apertures and fitted in the standard, said foot also having a broadened face bearing against the front of the standard and extending above the top of the body and there split or divided, a bolt passing through one of the apertures and through the standard from side to side, and a bolt passing through the split extension of the face of the foot and through the standard to the back thereof and engaging said back of the standard and holding the foot rigid in relation to the standard.

5. The combination with a plow-standard composed of two separated members, of a plow-foot having a body and a broadened face, said body being adapted to fit in between the members of the standard and provided with a row of apertures which is inclined in relation to said face and said face lying against the front of the standard and having a split portion extending above the top of the body, a bolt passing through one of said apertures and the members of the standard, a plow lying against the face, a bolt passed through said plow and the split extension of the face and passed between the mem-

bers of the standard, a plate on the bolt which abuts the back of the standard, and a nut on the bolt which bears against the plate.

641,997. TOOL-HOLDER. CHARLES F. PRESTON, Chicago, Ill., assignor of two-thirds to J. Charles Stamm and Otto R. Amundson, same place. Filed Mar. 28, 1899. Serial No. 710,788. (No model.)

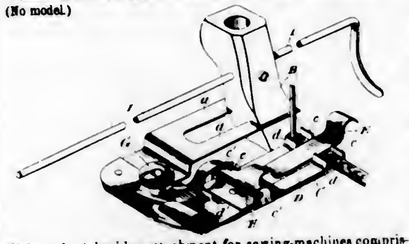


Claim.—1. A tool-holder, comprising a hollow shank having a head, a clamp for clamping one or more tools on the head, said clamp being provided with a bar or rod working in the hollow shank and having its end terminating short of the end of the shank and provided with a screw-threaded socket therein, and a screw turning in a bearing in the outer end of the shank and working in the socket of the said bar or rod, substantially as described.

2. A tool-holder, comprising a hollow shank provided with a head having recesses on opposite sides, a clamp having recesses opposite the recesses of the said head and provided with a rod or bar working in the hollow shank, the end of the rod or bar terminating short of the end of the shank and provided with a screw-threaded socket, and a screw turning in a bearing in the end of the shank and entering the socket of the rod or bar, substantially as described.

3. The combination with a tool-holder, comprising a shank, a head on said shank and having recesses, a clamp having recesses opposite the head-recesses, for engaging and clamping the tools in place on said head, a bar carrying said clamp and fitted to slide in said shank, and means for adjusting the bar longitudinally in the shank, of a tool formed of a plate having different-sized cutting edges, and provided with a shank on one side of the plate, for securing the tool in position in the holder, substantially as shown and described.

641,998. BRAIDER ATTACHMENT FOR SEWING-MACHINES. WILLIAM E. PRINDLE, Elgin, Ill. Filed Nov. 22, 1898. Serial No. 697,173. (No model.)



Claim.—1. A braider attachment for sewing-machines comprising a plate provided with upturned lips or shoulders, a second plate also having upturned lips or shoulders and being movable to adjust the space between its lips or shoulders and those on the first-mentioned plate, and a pivoted spring-pressed braid-engaging bar constituting with the opposing plate a tension device for the braid, substantially as and for the purpose described.

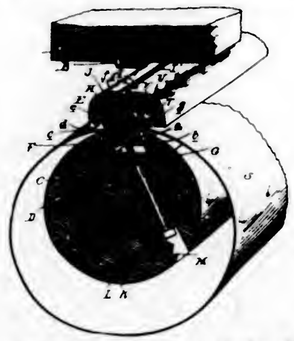
2. A braider attachment for sewing-machines comprising a plate provided with upturned lips or shoulders, a sliding plate mounted on said first-mentioned plate and having upturned lips or shoulders, and a spring-pressed braid-engaging bar constituting with the opposing plate a tension device for the braid pivoted to the second plate, substantially as and for the purpose described.

3. A braider attachment for sewing-machines, comprising a plate slotted to form fingers to engage slits in the presser-foot, a second plate attached to the first-mentioned plate and provided with lips or shoulders, a sliding plate mounted on the second plate, and having lips or shoulders, and a spring-pressed braid-engaging bar pivoted to the second plate, substantially as and for the purpose described.

4. A braider attachment for sewing-machines, having a guide that is open on one side for a portion of its length, a pivoted arm for bearing upon and causing tension on the braid at said open portion of the guide, a bearing or lug on said pivoted arm, and a spring, one portion of which presses on said bearing or lug and which spring is bent away from said portion in a curve whose radius is greater than the radius of the path of travel of said bearing or lug, substantially as and for the purpose set forth.

641,999. MACHINE FOR SEAMING SHEET METAL. CHARLES PUDDEFOOT, Detroit, Mich., assignor of one-half to Benjamin Briscoe, Jr., same place. Filed June 19, 1899. Serial No. 721,097. (No model.)

Claim.—1. In a die-seaming machine, the combination of a pressure-block, a support provided with dies thereon, inclined guides carried by the support, said guides being arranged at an acute angle to the plane of movement of the block and a reciprocating die-carrier intermediate the pressure block and support slidingly engaging the guides.



2. In a die-seaming machine, the combination of a pressure-block, a horn provided with dies thereon and having formed therein a longitudinal recess inclined at an acute angle to the plane of movement of the block, a reciprocating die-carrier, intermediate the block and horn, arranged within the recess, and cooperating dies upon said carrier.

3. In a die-seaming machine, the combination of a pressure-block, a horn having formed therein a longitudinal recess inclined at an acute angle to the plane of movement of the block, a reciprocating die-carrier substantially T-shaped in configuration, the head being arranged in proximity to and in a plane parallel with the pressure-block and the depending shank being arranged at an angle to the head to engage the inclined recess, dies upon the horn, and cooperating dies upon the head of the reciprocating carrier, substantially as described.

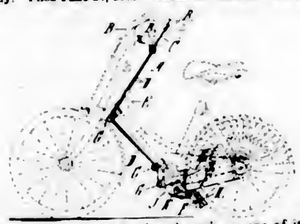
4. In a die-seaming machine, the combination of a pressure-block, a horn having formed therein a longitudinal recess inclined at an acute angle to the plane of movement of the block, a reciprocating die-carrier substantially T-shaped in configuration, the head being arranged in proximity to and in a plane parallel with the pressure-block and the depending shank being arranged at an angle to the head to engage the inclined recess, dies upon the horn, cooperating dies upon the head of the reciprocating carrier, and a spring-impelled block carried by the head, substantially as described.

642,000. CIGAR. FRANCIS C. REED, Council Bluffs, Iowa. Filed Dec. 20, 1897. Serial No. 662,556. (No model.)



Claim.—As a new article of manufacture, a cigar in combination with an absorber, said absorber being in convoluted form within the cigar near the mouth end and positioned as the cigar is rolled, substantially as and for the purpose set forth.

642,001. BICYCLE-BRAKE. VICTOR REEH, Baden-Baden, Germany. Filed June 27, 1899. Serial No. 722,023. (No model.)



Claim.—1. A bicycle having the grip on one of its handle-bars made to rotate, a loose cord connecting said rotatable grip with the opposite handle-bar, a ring slidable on said cord, another cord led through said ring down to and operatively connected with a brake mechanism comprising a spring-pressed lever pivoted near the hind wheel and carrying a brake-shoe, whereby when said grip is turned the brake is applied, substantially as set forth.

2. The combination in a bicycle of a handle-bar provided with a rotatable grip having a flange and a ring, said grip, a loose cord fastened to said ring and looped over the opposite handle-bar, a ring slidable on said cord, a stationary support, a downwardly-extended lever fulcrumed upon said support, a brake-shoe pivoted to its lower arm, a spring normally holding said brake-shoe out of contact with the wheel, and a cord operatively connecting the upper arm of said lever with said slidable ring, whereby when the grip is turned the brake will be applied, substantially as described.

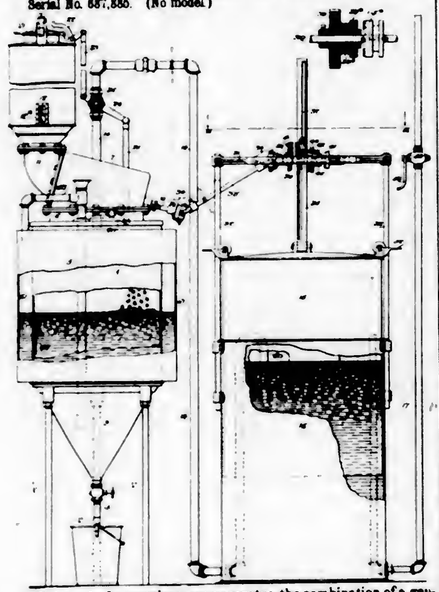
642,002. BORDER-FILLET FOR PLACARDS. ANTON REICHE, Plauen, Germany. Filed May 27, 1899. Serial No. 718,593. (No model.)



Claim.—1. A fillet comprising a short and a long leg clamping the material between them with a cylindrical bead connecting them the said long leg having at an intermediate point thereof an angular corner or edge, substantially as described.

2. A fillet comprising a short and a long straight limb, said limbs being connected at one end by a hollow bead, extending thence parallel with each other and the long limb being bent across the edge of the short leg, substantially as described.

642,003. ACETYLENE-GAS GENERATOR. ROBERT REID, Philadelphia, Pa., assignor to John Condon, same place. Filed Aug. 6, 1898. Serial No. 687,885. (No model.)



Claim.—1. In acetylene-gas apparatus, the combination of a generator having a closed chamber at the upper end, a carbid-feeder contained in said closed chamber, and having as an element a drum open at the lower end, means for delivering carbid to said drum, and a shaft connected to the lower end of the feeder and projecting through the casing at the upper end of the generator, substantially as specified.

2. In acetylene-gas apparatus, the combination of a generator having a closed chamber, and consisting of a drum open at both ends and free to rotate in said chamber, means for delivering carbid to said drum, and a shaft connected to the open discharge end of the drum, and projecting through the casing at the upper end of the generator, substantially as specified.

3. In acetylene-gas apparatus, the combination of a generator having a closed chamber at the upper end, a carbid-feeder contained in said chamber and consisting of a drum having a free passage through the same for the carbid, in combination with means for stirring up the unconfined mass of carbid as it passes through the drum, substantially as specified.

4. The combination in acetylene-gas apparatus, of a generator having a carbid-feeder consisting of a drum mounted so as to rotate on an axis inclined in respect to the horizontal, said drum having internal ribs and being adapted to discharge at the lower end, with means for rotating said drum, substantially as specified.

5. The combination in acetylene-gas apparatus, of a generator having a carbid-feeder consisting of a drum mounted on an axis inclined in respect to the horizontal and adapted to discharge at its lower end, provision for stirring up the carbid as it flows through said drum, a movable gas-holder in communication with the generator, and means whereby the stirring up of the carbid in the drum is effected by said movable gas-holder, substantially as specified.

6. The combination in acetylene-gas apparatus, of a gas-generator having a carbid-feeder consisting of a drum mounted on an axis inclined in respect to the horizontal, an inclined feeder-shaft, a gas-holder, a horizontal shaft having a driving connection with said holder, and an intermediate power-transmitting shaft having universal-joint connections with said horizontal and inclined shafts, substantially as specified.

7. The combination in acetylene-gas apparatus, of a generator having a carbid-feeder, a shaft for operating the latter, a movable gas-holder, and mechanism whereby said shaft can be turned on the movement of the gas-holder, said mechanism including a clutch on the shaft, and a cam-bar moving with the gas-holder and controlling said clutch, substantially as specified.

8. The combination in acetylene-gas apparatus, of a generator, a carbid-feeder, a shaft whereby said feeder is operated, a movable gas-holder, and mechanism whereby said shaft can be turned on the movement of the gas-holder, said mechanism having as elements a clutch on the shaft, a cam-bar moving with the gas-holder, a swinging lever acted on by said cam-bar and a connection between said lever and the clutch, substantially as specified.

9. The combination in acetylene-gas apparatus, of a generator, a carbid-feeder, a shaft whereby said feeder is operated, a movable gas-holder, and mechanism whereby said shaft is operated on the movement of said holder, said mechanism having as elements a clutch on the shaft, a clutch-shifter, and means whereby said clutch-shifter is operated so as to release the clutch when the gas-holder reaches a predetermined point of movement, substantially as specified.

10. The combination in acetylene-gas apparatus, of a generator, a carbid-feeder, a shaft for operating the latter, a movable gas-holder, a ratchet-wheel loose on the shaft, means for operating said ratchet-wheel by the movement of the gas-holder, a disk secured to the shaft and having a pawl engaging with said ratchet-wheel, a lever for tripping said pawl, a cone for operating said lever, and means for effecting the movement of said cone when the gas-holder reaches a predetermined point in its movement, substantially as specified.

11. The combination in acetylene-gas apparatus, of a generator, a carbid-feeder, a shaft for operating the same, a movable gas-holder, a ratchet-wheel loose on said shaft, means for operating said ratchet-wheel by the movement of the gas-holder, a disk secured to the shaft and carrying a pawl which engages with said ratchet-wheel, a lever for tripping said pawl, a cone for acting on said lever, a cam-bar movable with the gas-holder and means whereby said cam-bar is caused to effect movement of said cone, substantially as specified.

12. The combination in acetylene-gas apparatus, of a generator having a carbid-feeder consisting of an open drum through which the carbid is loosely fed, a casing for said drum, a carbid-holder having an elbow projecting into said casing and forming a bearing for one end of the drum, a shaft connected to the other end of the drum, and means for rotating said shaft, substantially as specified.

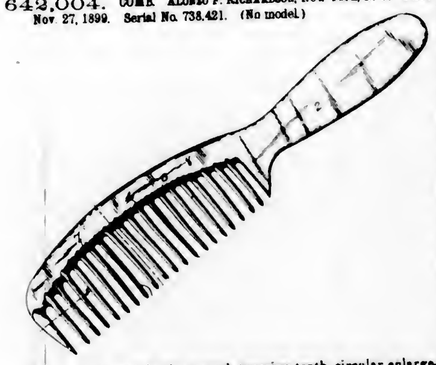
13. The combination in an acetylene-gas apparatus of the generator having a surrounding water-jacket, and an inwardly-opening valve through which the water from said jacket can flow into the generator, substantially as specified.

14. The combination in an acetylene-gas apparatus, of a generator having a rotating feed-drum, a carbid-holder having a neck through which the carbid passes into said drum, a rod contained in said neck and projecting into the path of a portion of the feed-drum so as to be struck and moved thereby as the drum rotates, substantially as specified.

15. The combination in an acetylene-gas apparatus, of a generator having a rotating feed-drum, the carbid-holder having a neck through which the carbid passes into said drum, and a rod passing through said neck, said rod being hung to a fixed fulcrum and connected at its upper end to a support in the neck, and projecting at its lower end into the path of a rotating portion of the feed-drum, substantially as specified.

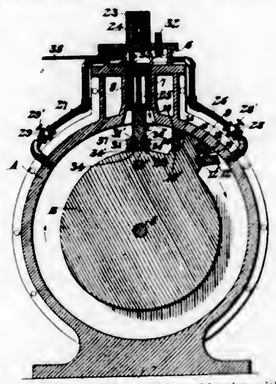
16. The combination in an acetylene-gas apparatus, of a generator having a feeding device adapted to be rotated, a gas-holder, a shaft connected to the feeding device, a rack, pinions and clutches whereby said shaft will be rotated in the same direction both by the rise and fall of the gas-holder, and means for throwing said rotating device out of operation when the gas-holder rises to a predetermined point, substantially as specified.

642,004. COMB. ALONZO F. RICHARDSON, New York, N. Y. Filed Nov 27, 1899. Serial No. 738,421. (No model.)



Claim.—A comb having round, tapering teeth, circular enlargements at the base of said teeth, and arched notches between the teeth, said notches being rounded or curved in cross-section, for the purpose set forth.

642,005. ROTARY ENGINE. GRANT S. ROBINSON and NELSON SKILLER, Seward, Okla. Filed Feb. 7, 1899. Serial No. 704,828. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston, a stem connected with the said abutment-valve, a piston on said stem, a tube inclosing said piston and having a port, and an exhaust-pipe leading from the exhaust side of the cylinder to said tube to deliver exhaust-steam to the latter and move the piston therein to move the abutment from the cylinder, substantially as described.

2. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston, a stem connected to said abutment-valve and provided with a piston, a tube surrounding said last-mentioned piston and having a port, an exhaust-pipe leading from the cylinder to said tube and adapted to deliver exhaust-steam from the cylinder to the tube to move the abutment-valve from the cylinder, means for supplying live steam to the cylinder, and means connected with said abutment-valve for controlling the supply of steam to the cylinder, substantially as described.

3. In a rotary engine, the combination with a cylinder, of a piston-wheel supported therein and provided with a piston, an abutment-valve movable across the path of the piston, a stem connected with said abutment-valve, a tube surroupding said last-mentioned piston and having a port, and valved exhaust-pipes leading from the cylinder at opposite sides of the abutment-valve to said tube to deliver exhaust-steam to the tube and move the abutment-valve from the cylinder, substantially as described.

4. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston and having wings hinged thereto and adapted to engage the periphery of the piston-wheel, springs arranged between the wings and the abutment-valve and adapted to hold the latter normally from engagement with the surface of the piston-cylinder, a stem connected with said abutment-valve, a piston on said stem, a tube inclosing said piston and having a port, an exhaust-pipe leading from the cylinder to said tube, a supply-port leading into the cylinder, and a valve carried by said abutment-valve for covering said port thereby to cut off the supply, substantially as described.

5. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of the piston, plates connected respectively with the abutment-valve and piston, springs arranged to hold said plates normally from engagement with their respective opposing surfaces and a supply-port communicating with the cylinder, substantially as described.

6. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston, plates hinged to the abutment-valve and to the piston and movable respectively into contact with the piston-wheel and the outer wall of the cylinder by steam-pressure, springs arranged to hold said plates normally from engagement with their respective opposing surfaces, steam-supplying means, and an exhaust-pipe connected with the cylinder, substantially as described.

7. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston and separated therefrom when in its lowermost position, a stem connected with said abutment-valve, a piston on said stem, a tube inclosing said piston and having a port, exhaust-pipes leading from the cylinder to said tube at opposite sides of the abutment-valve, and each of said pipes having valve plates or leaves hinged respectively to the abutment-valve and to the piston at opposite sides of each of said parts, springs acting against the plates and also against the piston and abutment-valve, ports leading into the cylinder, and supply-valves carried by the plates on said abutment-valve and serving to close said supply-ports, substantially as described.

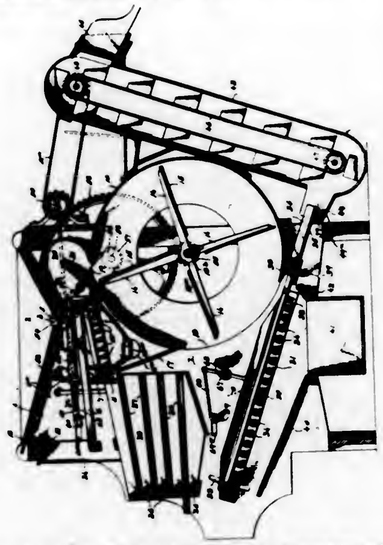
8. In a rotary engine, the combination with a cylinder, of a piston-wheel therein provided with a piston, an abutment-valve movable across the path of said piston, vertical stems connected with said abutment-valve and provided with pistons, tubes inclosing said pistons and having ports, valved exhaust-pipes leading from the cylinder at opposite sides of the abutment-valve to said tubes, a steam-chest, ports, connecting the steam-chest with the cylinder, a slide-valve in said steam-chest, spring-actuated plates connected respectively with the abutment-valve and piston upon the opposite faces thereof, and supply-controlling valves on said plates carried by the abutment-valve and adapted to close said supply-ports, substantially as described.

642,006. FANNING-MILL. EMILIEN ROUSSE, Weston, Oreg. Filed Jan. 31, 1898. Serial No. 668,656. (No model.)

Claim.—1. In a fanning-mill, the combination with a hopper, a fan-casing, and a primary cleaning-shoe, of a stationary clearer-frame 10, situated above the shoe, a reciprocating screen or riddle 7 fitted to said clearer-frame to travel thereon, a discharge-chute arranged between the fan-casing and the shoe, below the clearer-frame, to receive the seed from the screen or riddle, and inclined to discharge through one side of the machine-casing, a chaffing-screen, 6, imperforate for a part of its length and having its perforated section arranged between the hopper and the riddle 7, said chaffing-screen being suspended at one end within the machine-casing independently of the riddle 7 and overhanging the primary shoe, and means connected with the riddle 7 and the chaffing-screen 6 to simultaneously reciprocate the same, substantially as described.

2. In a fanning-mill, the combination with a hopper, a fan-casing, and a primary shoe, of the screen or riddle, 7, supported above the clearer-shoe to deliver its tailings thereto, a removable chaffing-screen, 6, imperforate for a part of its length and arranged with its perforated section between the hopper and the screen or riddle, the imperforate part of said chaffing-screen being suspended adjustably over the primary shoe to deliver its tailings to the latter, a pitman connected detachably to the riddle, 7, and the chaffing-screen to reciprocate the same simultaneously, and a wind-trunk connected to the fan-casing and having an inclined deflector arranged to divert a part of the blast upon the riddle and the chaffing-screen, substantially as described.

3. In a fanning-mill, the combination with a primary shoe and a blast-fan, of a transverse delivery-chute adjacent to said shoe, a clearer fixed above the delivery-chute and provided with a series of bars, a vibrating screen mounted on said clearer to contact with the bars or slats thereof, a chaffing-screen above the first-named screen and delivering to said primary shoe, and a wind-trunk connected with the fan to deliver a part of the blast therefrom over the screen and the chaffing-screen, substantially as described.



4. In a fanning-mill, the combination with a primary shoe, of a blast-fan having its casing provided with an inclined partition, 17, a clearer-frame fixed in the space between said inclined partition and a wind-trunk, the double inclined seat, 11, on the upper edge of said partition and in the horizontal plane of the clearer-frame, a transversely-inclined chute below the clearer-frame and between the fan-casing and its inclined partition, a reciprocating screen or riddle fitted upon the clearer-frame and the inclined seat, 11, and a wind-trunk connected with the fan-casing and discharging over the screen or riddle, substantially as described.

5. In a fanning-mill, the combination with a primary shoe and a blast-fan, of a hopper provided with a positively-driven feed-roller, a fixed transverse chute adjacent to the shoe and below said hopper, a clearer above the chute, a vibrating screen mounted upon said clearer, a chaffing-screen connected at one end to the vibrating screen and independently suspended at its other end over the primary shoe, and a wind-trunk connected with the fan to deliver a part of the blast therefrom over the screen and chaffing-screen, substantially as described.

6. In a fanning-mill, the combination with a fan, and a cleaning-shoe, of the riddle arranged to deliver its tailings to the shoe, a chaffing-screen provided with the perforated section and with the imperforate section and arranged over said riddle for its perforated section to lie in the vertical plane of said riddle, the imperforate section of the chaffing-screen being arranged to deliver tailings to the shoe, and a wind-trunk connected to the fan-casing and arranged to discharge a part of the blast over the chaffing-screen, substantially as described.

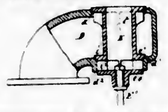
7. In a fanning-mill, the combination with a fan, and a cleaning-shoe, of the riddle arranged to deliver tailings to said shoe, a chaffing-screen provided with the perforated section and with the imperforate section arranged respectively over the riddle and the shoe, the space between the heads of said riddle and the chaffing-screen being closed, and a wind-trunk connected to the fan-casing and arranged to discharge a part of the blast over the chaffing-screen, substantially as described.

8. In a fanning-mill, the combination with a fan-casing, and a cleaning-shoe, of the riddle arranged to deliver tailings to said shoe, a chaffing-screen provided with the perforated section and the imperforate section arranged respectively over the riddle and the shoe, the head end of said chaffing-screen being seated upon the corresponding end of said riddle, means for suspending the delivery imperforate end of the chaffing-screen over the shoe, means for vibrating the riddle and the chaffing-screen, and the wind-trunk arranged to discharge a blast of air over the chaffing-screen, substantially as described.

9. In a fanning-mill, the combination with a shoe, and an inclined reciprocatory screen, of an elevator-casing provided with a laterally-extended foot offset therefrom contiguous to its lower end, said foot having an upstanding ledge at its receiving end, a separate delivery-spout arranged in flush relation to the screen for movement therewith and having its lower end projecting into and overhanging the ledge of said offset foot, a supporting-roller arranged beneath and in the plane of movement of the joint between the screen and the spout, and a similar roller arranged alongside of said upstanding ledge and bearing under the discharging end of the spout, substantially as set forth.

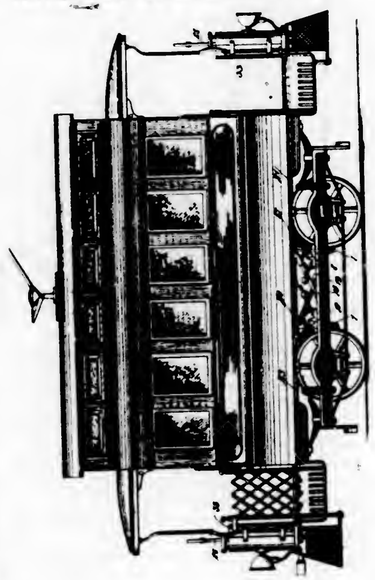
10. In a fanning-mill, the combination of an upper screen or riddle, a chaffing-screen over the upper riddle, a primary shoe receiving from the upper riddle and the chaffing-screen, a lower riddle below the shoe, a vertical rock-shaft disposed at one side of the riddles, the shoe and its chaffing screen, horizontal rock-shafts adjacent to the upper and lower riddles, link connections between each horizontal shaft and one of the riddles, an independent connection from the vertical rock-shaft to the primary shoe, other link connections between the horizontal rock-shaft and the vertical rock-shaft, and a link connecting the chaffing-screen with the vertical rock-shaft, substantially as described.

642,007. THROTTLE-VALVE. KENNETH RUSSTON, Philadelphia, Pa., assignor to Burnham, Williams & Co., same place. Filed Dec. 1, 1897. Serial No. 660,390. (No model.)



Claim.—The combination of a valve-casing having two seats, a valve having upper and lower flanges adapted to said seats, said valve having a central opening, and a disk adapted to the valve-casing formed integral with the valve and arranged below the lower flange of the same, such location of the disk providing a passage between the same and the lower flange, with which the opening in the valve communicates so that steam will be admitted to the valve-casing only from above, substantially as described.

642,008. CAR-BRAKE. PETER SCHRIEFFER, New Orleans, La. Filed Aug. 26, 1899. Serial No. 728,591. (No model.)



Claim.—1. In a brake, a rock-shaft, an eccentric mounted on the rock-shaft, a brake-block loosely mounted on the eccentric, a shoe on the block and a weight on the side of the block opposite that of the shoe and operating to move the shoe out of engagement with a wheel, substantially as specified.

2. In a car-brake a rock-shaft supported on the car-truck, eccentrics secured to said shaft, brake-blocks loosely mounted on the eccentrics, weighted arms extended from the blocks, brake-shoes attached to the blocks, a draw-rod having connection with an arm extended from the rock-shaft, and a lever having connection with the draw-rod, substantially as specified.

3. In a brake, rock-shafts arranged adjacent to front and rear wheels eccentrics mounted on said shafts, a rod extended from a downwardly-extended arm of each shaft to an upwardly-extended arm of the other shaft, draw-rods extending from both the extended arms on each of the shafts, the said draw-rods being extended in opposite directions, levers having connection with said draw-rods, brake-blocks loosely mounted on the eccentrics, and weighted arms extended from the block, substantially as specified.

4. In a brake, a rock-shaft, an eccentric mounted on the rock-shaft, a brake-block loosely mounted on the eccentric, a weighted arm extended from the said block, a shoe on the block, and means for operating the shaft, substantially as specified.

5. In a brake, a rock-shaft, an eccentric secured to the rock-shaft, a brake-block loosely mounted on the eccentric, a lug on the brake-block adapted for engagement with the lug on the eccentric, a weighted arm extending from the block, and means for rocking the rock-shaft, substantially as specified.

6. In a brake, a brake-block, a brake-shoe having lugs for removably engaging recesses formed in the block, fastening-pins extending through said block and through the lugs, and a weight attached to the inner side of the block, substantially as specified.

7. In a brake, a rock-shaft, a brake-block mounted eccentrically on the rock-shaft, weighted arms extended from the blocks, a draw-rod extended from an arm on the rock-shaft, a curved lever with one end of which said draw-rod engages, an operating-lever and a link connection between said operating-lever and the curved lever, substantially as specified.

8. In a brake, a rock-shaft, an eccentric mounted on the rock-shaft, a brake-block loosely mounted on the eccentric and having a portion to engage frictionally against a car-wheel, and a weight on the block adapted to move the bearing portion thereof out of engagement with the wheel when released, substantially as specified.

9. In an electric car, a brake, a laterally-swinging lever for operating the brake, a rack-bar, a pin on said rack-bar extended through a slot in the lever, a controller shaft, and a pinion on said shaft adapted for engagement with the rack, substantially as specified.

642,009. **HYDRAULIC PRESS.** WILLIAM SELLERS, COLEMAN SELLERS, and WILFRED LEWIS, Philadelphia, Pa., assignors to the William Sellers & Company, Incorporated, Philadelphia, Pa. Filed July 11, 1895. Serial No. 555,662. (No model.)

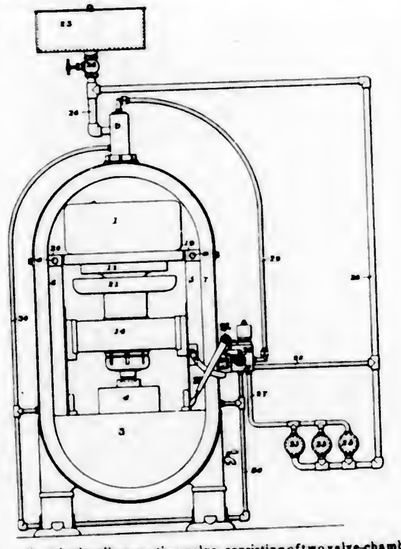
Claim.—1. In a hydraulic press, a lifting-ram, a pressing-ram, a pump and a tank, in combination with a valve which deflects the liquid flow from the pump, to the lifting-ram, to the pressing-ram, to the tank, locks the liquid under the lifting-ram, and maintains at all times an open passage for the flow from the pump, and means which provide an open passage from the tank and from the pump to the descending pressing-ram, and automatically closes the passage from the tank to the pressing-ram when the descent of the ram is retarded by an obstruction which will sustain its weight.

2. In a hydraulic press, a lifting-ram, a pressing-ram, a pump and a tank with mechanism to deflect the liquid flow from the pump to the lifting-ram, to the pressing-ram, to the tank, to provide at all times an open passage for the flow from the pump, in combination with a reciprocating hydraulic plunger which operates the mechanism, and the pilot-valve which determines the direction of the flow from the pump to the hydraulic plunger.

3. In a hydraulic press, a lifting-ram, a pressing-ram, a tank and a pump, a valve-case provided with a port, which receives the flow from the pump, and ports which discharge it to the lifting-ram, the pressing-ram and the tank, respectively, in combination with a valve which moves within the valve-case, and deflects the flow from the pump, to the lifting-ram, to the pressing-ram, and directly to the tank, without passing to the pressing-ram or to the lifting-ram, *seriatim*, in combination with a reciprocating hydraulic plunger which operates the valve, and the pilot-valve which determines the direction of the flow from the pump to the hydraulic plunger.

4. In a hydraulic press, a pressing-ram, a pump and a tank, a valve which controls the admission from the tank to the pressing-ram and an open passage connecting opposite ends of said valve, in combination with a conduit between the pump and the pressing-ram.

5. In a hydraulic press, a pressing-ram, a lifting-ram, a tank and a pump, in combination with a valve the seat end of which is smaller than the other end and which controls the admission form the tank to the pressing-ram, an open passage connecting opposite ends of said valve, a conduit between the pump and the pressing-ram, and a conduit between the valve and the lifting-ram whereby the valve will be raised and sustained by fluid-pressure under the lifting-ram, seated by gravity and locked upon its seat by fluid-pressure upon the pressing-ram.



6. A hydraulic operating-valve, consisting of two valve-chambers with a valve in each, the valves so connected that they must move together over their respective ports, in combination with a conduit which connects a port over which the valve in one chamber moves, with a corresponding port in the other chamber.

7. In a hydraulic press, a pressing-ram, a lifting-ram, a tank and a pump, an operating-valve movable by a reciprocating hydraulic plunger, and a pilot-valve which determines the direction of the flow from the pump to the hydraulic plunger, in combination with an epicyclic train, one member of which is driven from a reciprocating part of the press, another member is adjustable about a shaft in the axis of the train, and a third member is provided with stops which actuate the pilot-valve.

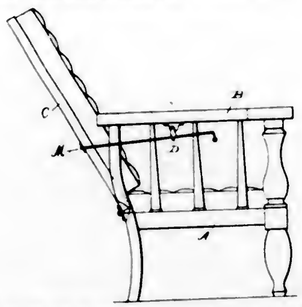
8. In a hydraulic press, a pressing-ram, a lifting-ram, and an operating-valve, an adjustable safety-valve, and a pilot-valve, in combination with mechanism operated by a ram of the press which moves the pilot-valve in one direction, and a system of levers actuated by the adjustable safety-valve which moves the pilot-valve in the opposite direction.

9. A hydraulic operating-valve, provided with a latchable lever for moving the valve by hand, in combination with a lever vibratable about the fulcrum of the latchable lever, and connected to a reciprocating hydraulic plunger operated by a pilot-valve which determines the position of the operating-valve, with means for latching together or unlatching the two levers at will.

642,010. **RECLINING-CHAIR FIXTURE.** WILLIAM J. SHAW, Chicago, Ill. Filed Dec. 23, 1899. Serial No. 741,411. (No model.)

Claim.—1. In a reclining-chair, the combination with a chair-body having a pivoted back, and rods pivotally secured to said back, of clutches pivotally mounted upon a rigid part of the chair and adapted to engage said rods to hold said back in any desired position, said clutches being pivoted at points eccentric to the parts engaging the rods, whereby they are adapted to be actuated to engage or release said rods by turning said rods on their pivots.

2. In a reclining-chair, the combination with a chair-body having a pivoted back, and rods pivotally secured to said back, of clutches secured to a rigid part of the chair and engaging the free ends of said rods, said clutches each including a depending plate having a slot through which said rods pass, and having a flange extending transversely to said plate, said member being pivotally secured to said chair by means of a pin passing through said flange at a point out of the plane of said plate, whereby when pressure is applied to said plate by lowering or raising the free end of the rod, said plate will be turned on its pivot to engage and release the rod.



3. In a reclining-chair, the combination with a chair-body having a pivoted back, and rods pivotally secured to said back, of clutches carried by a rigid part of the chair, said clutches each including a member having a slot through which a rod passes, said member being pivotally secured to said chair at a point offset from the plane of said member, whereby said clutches may be actuated by the movements of said rods.

4. In a reclining-chair, the combination with a chair-body having arms, and a back pivotally mounted on said chair-body, of rods pivotally secured to said back and passing underneath said arms, and clutches mounted on said arms and adapted to engage said rods, said clutches each including a depending member pivotally secured to each arm, the pivot being eccentric to the part engaging the rod, whereby said clutch is operated by raising and lowering the rod.

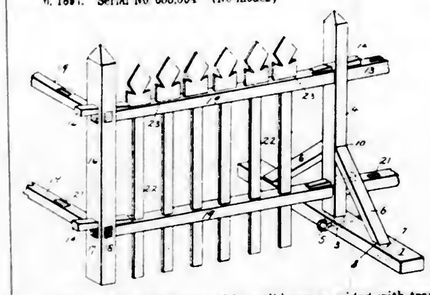
5. In a reclining-chair, the combination with a chair-body having arms rigid therewith, and a pivoted back, of rods pivotally secured to said back and passing under said arms, and clutches carried by said arms and adapted to engage said rods, said clutches each comprising a plate secured to the arm and provided with a downwardly-extending projection, a plate provided with a slot through which the rod is adapted to pass and with flanges pivotally secured to said projection of said first-named plate, said last-named plate being pivoted at a point eccentric thereto, whereby same can be operated to engage or release the rod by pivotal movement of the latter.

6. In a reclining-chair, the combination with a chair-body having arms rigid therewith, and a pivoted back, of rods pivotally secured to said back and passing under said arms, and clutches carried by said arms and adapted to engage said rods, said clutches each comprising a plate secured to the arm and provided with downwardly-extending parallel flanges, a plate provided with a slot through which the rod is adapted to pass and with parallel flanges pivotally secured to said flanges of said first-named plate, at a point offset from said slotted plate whereby the latter can be operated to engage or release the rod by pivotal movement of the rod.

7. In a reclining-chair, the combination with a chair-body having arms rigid therewith, and a pivoted back, of rods pivotally secured to said back and passing under said arms, and clutches carried by said arms and adapted to engage said rods, said clutches each comprising a plate secured to the arm and provided with downwardly-extending parallel flanges, a plate provided with a laterally-elongated perforation through which said rod is adapted to pass and in which it has lateral play, and provided with parallel flanges pivotally secured to said flanges of said first-named plate, the pivot of said plate being eccentric thereto, whereby same can be operated to engage and release the rod by pivotal movement of the latter.

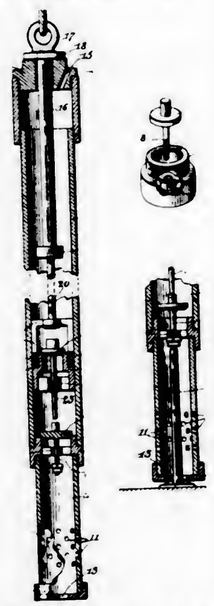
8. In a reclining-chair, the combination with a chair-body having arms rigid therewith, and a pivoted back, of rods pivotally secured to said back and extending underneath said arms, and clutches carried by said arms and adapted to engage said rods to hold said back in any desired position, each of said clutches comprising a plate secured to the lower face of the arm and provided with downwardly-extending parallel flanges, a plate provided with parallel flanges between which said flanges of said first-named plate are adapted to be received, perforations in all of said flanges, a pin passing through said perforations and pivotally securing said plates together, a projection on one of the flanges of said last-named plate adapted to engage one of the flanges of said first-named plate to limit the motion of said last-named plate in one direction, and a laterally-elongated perforation in said last-named plate through which said rod is adapted to pass, whereby said rod is given lateral play, substantially as described.

642,011. **FENCE.** EMILY L. SILL, Flat Rocks, S. C. Filed May 6, 1897. Serial No. 635,384. (No model.)



Claim.—The combination with a solid post provided with transverse mortises in the same horizontal plane and intersecting each other at right angles, of right-angularly-disposed rails having interfitting end tenons removably fitted in said mortises and provided with reversely-disposed mortises, and a wedge removably inserted in one of such mortises.

642,012. **BAILER OR PUMP.** EVERETT B. SHAW, Kane, Pa. Filed Sept. 12, 1899. Serial No. 730,240. (No model.)



Claim.—1. A bailer comprising a main tube and a suction-tube a valve-casing joining the two, the said casing having a bearing formed therein, a valve seated on said casing, and having a downwardly-extending guiding-stem engaging said bearing, and an upwardly-extending stem, a piston working in said main tube provided with a bearing, a valve seated on said piston and having a long stem extending through said bearing and sufficiently far below the same to be struck and lifted by the upwardly-extending stem on the lower valve when the piston is in its lowest position and the lower valve is raised from its seat, and means for raising the lower valve whereby both valves are operated to discharge the contents of the bailer, substantially as described.

2. A bailer, comprising a main tube, a suction-tube provided with lateral apertures, a valve-casing joining the two, a valve in said cas-

ing having upwardly and downwardly extending stems, a piston working in said main tube, a valve carried by said piston and having a stem extending downwardly below the piston so as to engage the upper stem of the lower valve, a cap closing the lower end of the said suction-tube, the said cap having a central orifice, whereby the bailer when filled with liquid from a well may be placed over a suitable projection, the said projection being permitted to pass through the orifice and engage the lower stem of the lower valve to raise it and through the upper stem of the said lower valve to raise the piston-valve so as to discharge the contents of the bailer, substantially as described.

642,013. DRIVING MECHANISM FOR BICYCLES. JOSHUA SHELLABARGER, Rockford, Ohio, assignor of one-fourth to C. S. Mauk, same place. Filed Mar. 3, 1899. Serial No. 707,690. (No model.)



Claim.—1. In a bicycle, the combination with a pitman, of a ring connected to one end of said pitman, a disk within said ring and having a ball-bearing connection therewith, said disk having an oblique opening therethrough and a crank exteuding through said opening, substantially as described.

2. In a bicycle, the combination with a pitman, of a ring connected to one end of said pitman, a disk within said ring and having a ball-bearing connection therewith, said disk having an oblique opening therethrough, a spring-retained pin extending transversely through the disk adjacent said opening and a crank extending through the oblique opening and having transverse recesses to receive the pin, substantially as described.

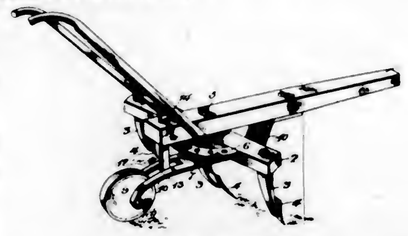
3. In a bicycle, the combination with a driving-wheel, of a pitman connected thereto consisting of a hollow middle section having a transverse web in the center, elastic blocks on either side of said web, and sections having a transverse web near each end, and a clamping-bolt extending through the webs of the end sections and through the blocks and web of the middle section, substantially as described.

4. A driving mechanism for bicycles, compriaing a casing, a pinion within the casing, a yoke surrounding the pinion and having a transverse movement in the casing, a pitman rigidly connected to the casing, a ring connected to the other end of the pitman, a disk within said ring and having a ball-bearing connection therewith, said disk having an oblique opening therethrough and a crank-arm extending through said opening, substantially as described.

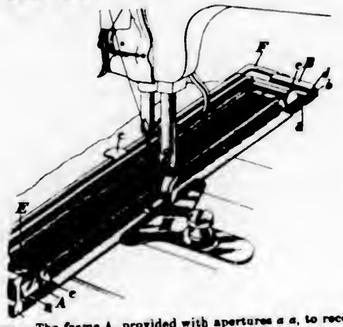
5. A driving mechanism for bicycles comprising a casing, a pinion within the casing, a yoke surrounding the pinion and having a transverse movement in the casing, a pitman rigidly connected to the casing, a ring connected to the other end of the pitman, a disk within the ring and having a ball-bearing connection therewith, said disk having an opening obliquely therethrough, a spring-pressed pin extending transversely through the disk adjacent the oblique opening, and a crank having transverse recesses through the oblique opening whereby the disk can be raised or lowered on the crank, substantially as described.

642,014. CULTIVATOR. SAMUEL R. SPENCER, Watson, Miss. Filed Nov. 16, 1899. Serial No. 737,204. (No model.)

Claim.—The combination with a cultivator-beam; of a cultivator-head provided with cultivator-standards having secured to their lower ends cultivator-blades, one of said standards being provided with a reduced portion and projecting through the head and the beam, a nut for clamping the parts together, a segmental plate provided with a segmental row of apertures to be brought into alinement with the aperture in the rear end of the cultivator-beam, a spring-plate secured to the under side of the cultivator-beam and provided with a roller projecting at the rear of the cultivator-beam, and a vertically-adjustable bar engaged with the rear end of the spring-plate and adaptad to hold the roller in vertical adjustment, substantially as and for the purpose set forth

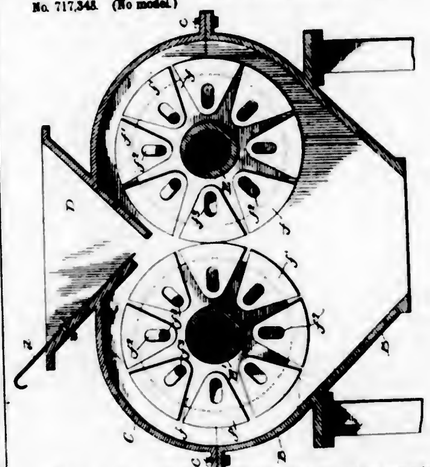


642,015. SMOCKING ATTACHMENT FOR SEWING-MACHINES. AURELIUS STEWARD, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Mar. 17, 1899. Serial No. 709,502. (No model.)



Claim.—The frame A, provided with apertures *a a*, to receive a row of clusters of stitches, means for forming said stitches, in combination with means whereby each successive row of said stitches will be placed the proper distance from, and the clusters properly intermediate, those of the succeeding row, substantially as described.

642,016. CRUSHING-MILL. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Newton, Mass. Filed May 18, 1899. Serial No. 717,343. (No model.)



Claim.—1. In a crushing-mill, the combination with an opposing roll, of a crushing hammer-roll provided with a series of pivoted hammers having slotted connections with the body of said hammer-roll, whereby the said hammers are adapted to strike yielding blows and to be projected outward by centrifugal force, during rotation, to crush the material between them and the periphery of said opposing roll, said slotted connections permitting said hammers to yield inwardly to excessive resistance.

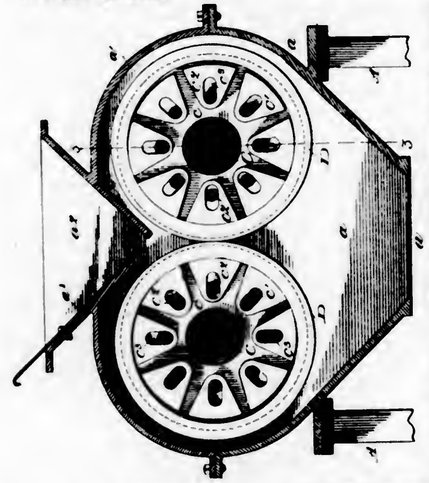
2. In a crushing-mill, the combination with an opposing roll, of a crushing hammer-roll provided with a series of pivoted hammers having slotted connections with the body of said hammer-roll, whereby the said hammers are adapted to strike yielding blows and to be projected outward by centrifugal force, during rotation, to crush the material between them and the periphery of said opposing roll, said slotted connections permitting said hammers to yield inwardly to excessive resistance, and means for adjusting one of said rolls relative to the other.

3. In a crushing-mill, the combination with a hammer-roll having a practically continuous, yielding or flexible, acting face composed of a series of pivoted hammers having slotted connections with the body of said roll and adapted to be held projected outward when the machine is running by centrifugal force, of an opposing roll between the periphery of which and the said hammers the material is crushed by the conjoint action of said hammers and opposing roll.

4. In a crushing-mill, two cooperative rolls the acting faces of both of which consist of practically continuous, yielding or flexible, acting faces composed of pivoted and inwardly and outwardly or radially movable hammers or weights adapted to be held outwardly, or toward each other, by centrifugal force, to crush the material between the said hammers or weights, and to yield inwardly to excessive resistance.

5. In a crushing-mill, the combination with a hammer-roll having a yielding or flexible, acting face composed of a series of hammers or weights which are inwardly and outwardly movable bodily, and which are adapted to be held projected outward, by centrifugal force, when the machine is running, and which are also adapted to yield inwardly to excessive resistance, of an opposing roll between the periphery of which and the said hammers or weights the material is crushed.

642,017. CRUSHING-MILL. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Newton, Mass. Filed May 18, 1899. Serial No. 717,349. (No model.)



Claim.—1. In a crushing-mill, the combination with a resisting member, of a crushing-roll comprising a shaft, a hub, a tire loose relative to said hub and affording a circumferential crushing-surface, and a series of weights located inside of said tire and tending, by centrifugal action, to force the latter into a central position relative to the said shaft of the said roll.

2. In a crushing-mill, the combination with a resisting member, of a driving-shaft, a hub fixed to said shaft, a tire loose in relation to said hub and affording a circumferential crushing-surface and a series of weights interposed between said tire and shaft and tending, by centrifugal action, to force said tire into a central position relative to said shaft.

3. In a crushing-mill, the combination with a yielding resisting member, of a driving-shaft, and a crushing-roll having a loose tire forming a circumferential crushing-surface, and a series of weights interposed between said tire and shaft and tending, by centrifugal action, to force said tire toward said yielding resisting member.

4. In a crushing-mill, a rotating shaft, and a crushing-roll comprising a loose tire forming a circumferential crushing-surface, and a series of movable weights interposed between said tire and said shaft, combined with a resisting member cooperating with said loose tire.

5. In a crushing-mill, a rotating shaft, and a crushing-roll comprising a loose tire forming a circumferential crushing-surface, and a series of movable weights interposed between said tire and said shaft, combined with a yielding resisting member cooperating with said loose tire.

6. In a crushing-mill, the combination with a resisting member, of a driving-shaft, a hub fixed to said shaft and provided with flanges, a tire loosely mounted between said flanges and affording a circumferential crushing-surface, and a series of weights interposed between said tire and shaft and tending, by centrifugal action, to force said tire into a central position relative to said shaft.

7. In a crushing-mill, the combination with two rotating shafts, of two crushing-rolls each of which comprises a loosely-mounted tire and a series of weights interposed between said tire and its shaft, said weights tending, by centrifugal action, to force each loosely-mounted tire into a central axial position, when said shafts are in rotation.

8. In a crushing-mill, the combination with two rotating shafts, of two crushing-rolls each of which comprises a loosely-mounted tire and a series of weights interposed between said tire and its shaft, said weights tending, by centrifugal action, to force the loosely-mounted tires of the two rolls into central positions relative to their shafts when the latter are in rotation, one of said rolls being mounted in adjustable bearings whereby its position relative to the other roll may be varied.

9. In a crushing-mill, the combination with a rotating shaft, of a hub fixed to said shaft and provided with two separated flanges of unequal diameter, a tire loosely mounted between said flanges, a series of movable weights interposed between said tire and shaft, and a removable ring serving to hold the said tire in place after said tire has been placed in position by being slipped over the smaller of said flanges.

10. In a crushing-mill, the combination with a driving-shaft, of a flanged hub fixed to said shaft, a tire loosely mounted between the flanges of said hub, and a series of pivoted and inwardly and outwardly movable weights mounted between the flanges of the hub and interposed between said tire and shaft.

11. In a crushing-mill, the combination with a resisting member, of a crushing-roll having a loose tire affording a circumferential crushing-surface, a series of weights located inside said tire and tending, when the said roll is in rotation, to force said tire into a central position relative to the shaft of the said roll, and stops to limit the outward movements of the said weights.

12. In a crushing-mill, the combination with a resisting member, of a driving-shaft, a hub fixed to said shaft, a tire loosely mounted on the said hub and affording a circumferential crushing-surface, a series of weights interposed between said shaft and tire, and stops serving to limit the outward movements of said weights and to connect the latter with said shaft through said hub.

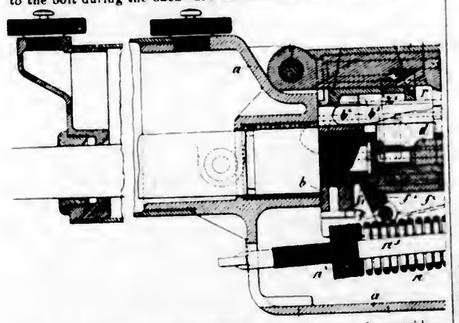
13. A roll comprising a shaft, a hub, a tire loose relative to said hub and a series of weights located inside said tire and adapted to be pressed against the latter by centrifugal action as the said roll and weights rotate.

642,018. AUTOMATIC MACHINE-GUN. ERNST TREMSTRÖM, Paris, France. Filed July 25, 1898. Serial No. 686,850. (No model.)

Claim.—1. An improved automatic machine-gun in which firing by hand can be effected by continuously turning a crank, comprising in combination, a stationary frame having an abutment-plate, a breech-piece sliding in the said frame, a bolt sliding in the said breech-piece, an oscillating locking-lever pivoted to the breech-piece and adapted to release the bolt after a partial backward movement of the breech-piece and when one end of the said locking-lever comes in contact with the said abutment-plate, and an operating-cam pivoted to the stationary frame, governed by the other end of the locking-lever, and giving the said bolt an additional backward movement relatively to the said breech-piece.

2. An improved automatic machine-gun in which firing by hand can be effected by continuously turning a crank, comprising in combination, a stationary frame having an abutment-plate, a breech-piece sliding in the said frame, a bolt sliding in the said breech-piece, an oscillating locking-lever pivoted to the breech-piece and adapted to release the bolt after a partial backward movement of the breech-piece and when one end of the said locking-lever comes in contact with the said abutment-plate, and an operating-cam pivoted to the stationary frame, governed by the other end of the locking-lever,

and giving the said bolt an additional backward movement relatively to the said breech-piece, and the firing-pin sliding in the said bolt and adapted for operation by the directing-cam, in such a manner as to give the said firing-pin an additional backward movement relative to the bolt during the backward movement of the breech-piece



3. In an automatic machine-gun, the combination of a cartridge-extractor mounted on the bolt, and of a spring-controlled locking-lever for the said extractor, pivoted to the breech-piece and having a locking part which, under the action of the spring, takes under the lip or rim of the extractor when the latter is pushed forward, in order to prevent the extractor from being prematurely separated from the cartridge said locking-lever also having an inclined plane which serves to raise the bullet of the cartridge when being inserted in the chamber of the barrel.

4. In an automatic machine-gun, the combination of the stationary frame, a winged spring-barrel for feeding the cartridges, the sliding breech-piece having a projection and carrying a fork, a rod having helical faces and adapted to be rotated by the said fork, a clutch or ratchet connection which serves to join together the spring-barrel and the said rotating rod during the recoil, a slide mounted on the stationary frame and having two abutment-heels, carried forward by the projection on the breech-piece at the end of each stroke of the latter, and carrying a spring-abutment and an escapement-stop to limit the rotation of the spring-barrel during the recoil, and a stop on the stationary frame for arresting the backward movement of the spring-barrel.

5. In an automatic machine-gun, a stationary frame having a projection, a sliding breech-piece, a lever pivoted to said breech-piece, a spiral spring attached on the one hand to the stationary frame and on the other hand to said lever, the latter engaging at its free end the projection of the stationary frame during the first part of the recoil, and being provided with a projection which couples it with the breech-piece during the latter part of the recoil in such a manner as to suitably control the resistance of the spring.

6. In an automatic machine-gun, a stationary frame, a reciprocating breech-piece, and an ejector fixed to the side of the breech-piece by means of a stud about which it can oscillate, its lower end being engaged in an opening in the fixed frame in such a manner that the reciprocation of the breech-piece causes the ejector to oscillate.

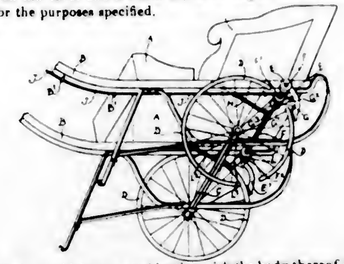
7. In an automatic machine-gun, an ejector fixed on the side of the breech-piece by means of a spindle on which it can oscillate, its lower end fitting into an opening of the fixed case, so that the reciprocating movement of the breech-piece shall impart to the ejector an oscillating movement amplified at its upper end.

8. In a recoil-operated machine-gun, the combination with the cartridge-drum, and the sliding breech-piece, of an extractor, a locking-lever for preventing a premature separation of the extractor from the cartridge, and means for operating the said lever by the movement of the breech-piece.

9. In a recoil-operated machine-gun, the combination with the cartridge-drum and the sliding breech-piece, of an extractor, a locking-lever for preventing a premature separation of the extractor from the cartridge, said locking-lever extending adjacent to the cartridge in the firing-chamber to guide and center the cartridge during its insertion, and means for operating said lever by the movement of the breech-piece.

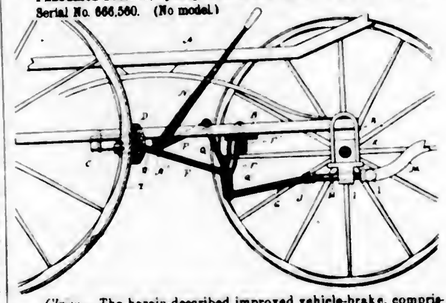
642,019. BRAKE FOR CHILDREN'S CARRIAGES. HARRY THOMSETT, Leicester, England. Filed July 8, 1899. Serial No. 723,173. (No model.)

Claim.—1. In a vehicle, the combination with the body thereof, a handle, and the wheels, of a rock-shaft supported by the body, a brake-arm arranged at each end of the rock-shaft and having one end secured to the latter and the other end arranged and adapted to be brought into engagement with the wheels, arms G^2 G^2 having connection with the rock-shaft, a spring secured at one end to the arm G^2 and at the opposite end to the body of the vehicle, an operating-lever arranged adjacent to the handle of the vehicle, and a connection between the lever and the arm G^2, all arranged for cooperation, as and for the purposes specified.



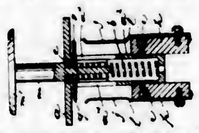
2. In a vehicle, the combination with the body thereof, a handle and the wheels, of a rock-shaft supported by the body, a brake-arm arranged at each end of the rock-shaft and having one end secured to the latter and the other end arranged and adapted to be brought into engagement with the wheels, arms G^2 G^2 having connection with the rock-shaft, a spring secured at one end to the arm G^2 and at the opposite end to the body of the vehicle, an operating-lever arranged adjacent to the handle of the vehicle, and a connection between the lever and the arm G^2, an arm L′ in connection with the rock-shaft and a spring secured at one end to the said arm and at the opposite end to a fixed part of the vehicle.

642,020. VEHICLE-BRAKE. ROBERT TUCKER, Newcastle, and FREDERICK BOYLING, Sydney, New South Wales. Filed Jan. 13, 1898. Serial No. 666,560. (No model.)



Claim.—The herein-described improved vehicle-brake, comprising a pivotally supported slotted lever, a brake-arm having a joint-ball at its forward end working in the slot of said lever, a brake-shoe pivoted to the rear end of said brake-arm, a sliding bar designed to be connected to the shafts of a vehicle, a link connecting the same with the lower end of said slotted lever, a hand-lever pivotally supported at its lower end and having an angular arm extending therefrom, and a lever pivoted to said arm or extension and connecting the same with said bolt-joint; substantially as and for the purpose set forth.

642,021. CIRCUIT-CHANGER. ALBION A. VANDERPOOL, Newark, N. J. Filed Mar. 25, 1899. Serial No. 710,423. (No model.)



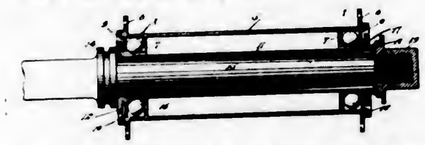
Claim.—1. The combination with the plate a, and tubular extension having a longitudinal slot at one side, a closed inner end a^1, providing a bearing for an interior spring b, and a terminal screw c, of a tubular plunger arranged in said extension, a spring arranged in said extension and plunger, the said plunger being provided with a tongue which extends from one side of said plunger out through said longitudinal slot to engage the contact-spring, said tongue serving as a detent for the plunger and an electric terminal and a contact-spring fastened upon the tubular extension at its extremity of extension from the plate a but electrically insulated therefrom and adapted to be engaged by said tongue to change a circuit, substantially as set forth.

2. In a circuit-changer, the combination with the plate and slotted tubular extension having a closed end providing a bearing for an interior spring b, a plunger arranged in said extension and having a retaining-tongue extending laterally out through the slot in said extension, a spring b, a block of insulation fastened at one side of said extension and a contact-spring fastened to said block and bent at l, and from the bend extending toward the contact and retaining tongue, substantially as set forth.

3. In a circuit-changer, the combination of the plate having a tubular extension, a tubular plunger, a spring arranged in said extension and plunger, a block of insulation seated upon the projecting extremity of the extension lying away from the plate, and a contact-spring seated on said block of insulation and extending therefrom toward the said plate where it is free and arranged to contact with the retaining-tongue, substantially as set forth.

4. In a circuit-changer, the combination of the plate having a tubular extension, a tubular plunger having a lateral retaining-tongue, a spring arranged in said extension and plunger, a block of insulation and a contact-spring having a tongue j', a circuit extension-rod o, and plunger extension m, having a push-plate m', and connections for circuit-wires, all arranged and adapted to operate, substantially as set forth.

642,022. WHEEL-HUB. FRANCIS J. VIEL, Blossburg, Pa. Filed Oct. 18, 1899. Serial No. 733,979. (No model.)



Claim.—1. The combination of a hub proper having ball-races formed thereon, a hollow journal extended through the hub proper, cones on the hollow journal, the cones opposing the ball-races and the outer of such cones being mounted on the hollow journal near the end of the same, bearing-balls situate between the ball-races and cones, and an annulus secured rigidly to the outer side of the outer end of the hollow journal, to hold such outer cone in place, the annulus projecting inwardly beyond the end of the hollow journal to engage the outer portion of the axle-spindle, whereby to hold the hollow journal concentrically on the spindle.

2. The combination of a hub proper, a hollow journal extended through the same, on which journal the hub proper is mounted to turn, the hollow journal serving to receive an axle-spindle, and an annulus fastened to the outer end of the hollow journal and extended inward of the inner walls of the hollow journal to engage the outer end of the axle-spindle, and to hold the hollow journal concentric with the spindle.

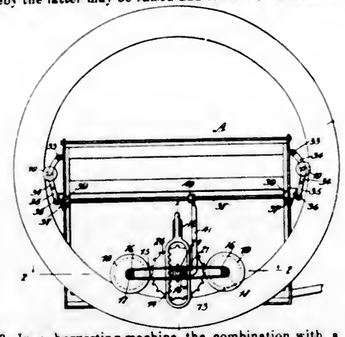
642,023. PROCESS OF PURIFYING BRINE. GERHARD M. VIS, Schweizerhalle, Switzerland. Filed Dec. 5 1899. Serial No. 739,254. (No specimens.)

Claim.—The process of purifying brine which consists in passing through the brine an electric current not sufficient to decompose the calcium and magnesium salts present, but sufficient only to produce sodium hydroxid by decomposing part of the sodium chlorid, allowing the sodium hydroxid to decompose the calcium and magnesium salts present, and removing the redissolved portion of calcium hydroxid by means of carbonic acid, substantially as and for the purpose described.

642,024. HARVESTING-MACHINE. WILLIAM L. WALTON, Neche, N. D. Filed July 19, 1899. Serial No. 724,396. (No model.)

Claim.—1. In a harvesting-machine, the combination with a ring-like master-wheel provided with recesses in its inner peripheral surface, of a truck having at each end flanged guide-wheels traveling on the inner peripheral surface of the master-wheel, a shaft at the center of the truck, a sleeve loose on the shaft, a toothed wheel at the outer end of the sleeve and engaging the recesses of the master-wheel, a driving-wheel on the inner end of said sleeve, outside of the master-wheel, an elevator extending into the master-wheel and having adjustable guides engaging the inner face of the same, and means for raising and lowering the elevator from the truck, substantially as described.

2. In a harvesting-machine, the combination with a ring-like master-wheel, of an elevator extending into the master-wheel and having adjustable guides engaging the inner face of the same, a truck mounted to travel on the inner peripheral surface of the master-wheel, and a rack-and-pinion connection between the truck and elevator, whereby the latter may be raised and lowered, as set forth



3. In a harvesting-machine, the combination with a ring-like master-wheel, and a truck mounted to travel on the inner peripheral surface of the same, of an elevator extending into the master-wheel and provided with movable guides engaging the inner face of the master-wheel, means for raising and lowering the elevator, and means whereby the guides are made to conform to the circle of the master-wheel, as the elevator is raised and lowered, as set forth.

4. In a harvesting-machine, the combination with a ring-like master-wheel, and a truck mounted to travel on the inner peripheral surface of the same, of an elevator extending into the master-wheel and provided at opposite sides with flanged guide-wheels engaging the inner face of the master-wheel, means for raising and lowering the elevator from the truck, and means for adjusting the said guide-wheels to compensate for the change in curvature of the master-wheel as the elevator is raised and lowered, substantially as described.

5. In a harvesting-machine, the combination with a ring-like master-wheel, a truck mounted to travel on the inner peripheral surface of the same, an elevator extending into the master-wheel, and means for raising and lowering the elevator from the truck, of frames hinged to opposite sides of the elevator, flanged guide-wheels mounted in the frames and engaging the inner face of the master-wheel, and cams operated by the raising and lowering of the elevator, and with which the frames engage for holding the guide-wheels in contact with the master-wheel, substantially as described.

6. In a harvesting-machine, the combination with a ring-like master-wheel, a truck mounted to travel on the inner peripheral surface of the master-wheel, an elevator extending into the master-wheel, and means for raising and lowering the elevator, of frames hinged to opposite sides of the elevator and provided with friction-rollers, flanged guide-wheels mounted in the frames and engaging the inner face of the master-wheel, a shaft mounted in the elevator and provided with an arm between its ends, a cam on each end of the shaft and with which the friction-rollers of the said frames engage, and a rod having one end connected with the arm of the shaft and the other with the truck, substantially as described.

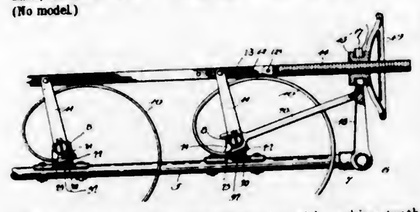
7. In a harvesting-machine, the combination with a ring-like master-wheel, and a truck mounted to travel on the inner peripheral surface of the master-wheel, of an elevator extending into the master-wheel, an arch or yoke secured to the elevator and having each member thereof formed with a rack, pinions mounted on the truck and engaging the racks of the yoke or arch, and means for operating the said pinions, substantially as described.

8. In a harvesting-machine, the combination with a ring like master-wheel, and a truck mounted to travel in the inner peripheral surface of the master-wheel, of an elevator extending into the master-wheel, a yoke secured to the elevator and having looped ends, each loop being provided with interiorly-located teeth, pinions mounted on the truck and engaging the teeth of the said loops, a worm-wheel secured to one of the pinions, and a worm-shaft engaging the worm-wheel, substantially as described.

9. In a harvesting-machine, the combination, with the frame thereof, an axleless master-wheel through which a portion of the frame extends, and guides carried by the frame and engaging with the master-wheel, the said master-wheel being provided with a series of openings in its inner peripheral surface, of an arch connected with the said frame, extending through the master-wheel, one member of the arch being connected with the frame and both pendent members of the arch being of looped formation and having teeth formed thereon, a truck located at the bottom portion of the master-wheel within the same, the said truck being provided with guide-wheels engaging with the inner peripheral surface of the master-wheel and with the outer

faces thereof, an axle carried by the said truck pinions secured to the said axle, adapted to extend within the loop portion of the arch and engage the teeth thereof, means for turning the said axle, whereby the frame may be raised and lowered, a sprocket-wheel loosely mounted upon the said axle, the teeth whereof are adapted to enter openings in the master-wheel, and a driving-pulley connected with the said sprocket-wheel, as and for the purpose set forth.

642,025. HARROW. HELUM J. WASHBURN and CLINTON G. CUDABACK, Ransomville, N. Y. Filed June 10, 1899. Serial No. 720,011. (No model.)



Claim.—1. In a harrow, the combination with rocking tooth-bars, of a feed-screw, connections between the feed-screw and the tooth-bars, and a feed-nut mounted upon the frame of the harrow and engaging said feed-screw, substantially as specified.

2. In a harrow, the combination with rocking tooth-bars having arms, of an operating-bar connecting said arms, a feed-screw carried by said bar, and a feed-nut swiveled upon the harrow-frame and engaging said feed-nut, substantially as specified.

3. In a harrow, the combination with rocking tooth-bars having arms and an operating-bar connecting said arms, of a feed-screw connected with said operating-bar, a bearing carried by the frame of the harrow, and elongated in the plane of swinging movement of said tooth-bar arms, and a feed-nut mounted in said bearing and engaging the feed-screw, whereby the feed-nut is capable of movement in its bearing to compensate for the swinging movement of said arms, substantially as specified.

4. In a harrow, the combination with rocking tooth-bars having arms, and an operating-bar connecting said arms, of a standard rising from the harrow-frame and provided with a parallel-armed yoke, a feed-nut having a reduced journal portion mounted in said yoke for vertical movement, and a feed-screw connected with said operating-bar and engaged by the feed-nut, substantially as specified.

5. The herein-described harrow having tubular side and end bars connected by elbows, rocking tooth-bars mounted in bearings upon said side bars, a standard rising from the rear bar of the frame, a brace extending forward and downward from said standard and having a bifurcated front end engaged with the rear tooth-bar, an operating-bar pivotally connected with arms on said tooth-bars, a feed-nut mounted in a bearing in said standard, and a feed-screw connected with said operating-bar and engaged by the feed-nut, substantially as specified.

6. The combination with a harrow-frame, of a clevis provided with means for engagement with a member of said frame, a colter shoe or runner pivotally mounted at its front end upon the lower end of said clevis, and means for maintaining the rear end of said shoe or runner in an adjusted position, substantially as specified.

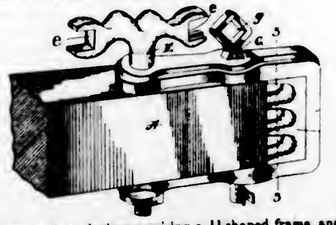
7. The combination with a harrow-frame, of a clevis having rearwardly-extending arms connected by a securing-bolt, a bracket on one of said arms, a colter shoe or runner pivotally mounted upon the lower end of said clevis, and a link connecting the rear end of said shoe or runner with said bracket, substantially as specified.

8. The combination with a harrow-frame, of a clevis provided with means for attachment to a member of the harrow-frame, and also provided above and below the plane of the harrow-frame with openings, a draft-bar having a hook for engagement with clevis-openings above the plane of the frame, a colter shoe or runner provided at its front end with means for engaging clevis-openings below the plane of the frame, and adjustable means for securing the rear end of the shoe or runner in its adjusted positions, substantially as specified.

9. The combination with a harrow-frame, of a clevis pivotally mounted upon the frame for horizontal swinging movement, a colter shoe or runner having pivotal connection with the clevis for vertical swinging movement at its rear end, and means for securing the rear end of the colter shoe or runner in an adjusted position, substantially as specified.

10. The combination with a harrow-frame, of a clevis pivotally mounted upon said frame for horizontal swinging movement and provided with means for the attachment of a draft-bar, a colter shoe or runner having pivotal connection at its front end with said clevis, and an adjustable brace connecting the rear end of the shoe or runner with the clevis to secure the shoe in an adjusted position, substantially as specified.

642,026. CLEVIS. JOHN R. WEATHERSBY, Springhope, N. C. Filed Oct. 18, 1899. Serial No. 734,010. (No model.)



Claim.—1. A clevis comprising a U-shaped frame, and a draft-block having rearwardly-extending notches, said draft-block separate from and detachably fitting within the outer closed end of the frame, substantially as described.

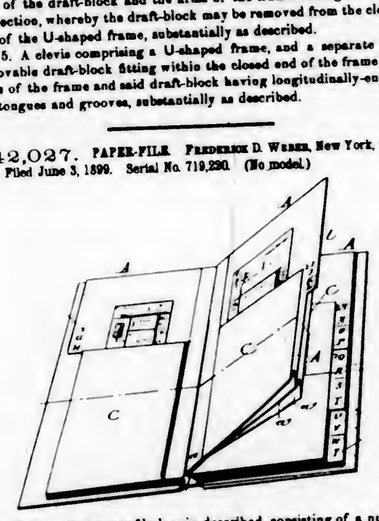
2. A clevis comprising a U-shaped frame, the parallel arms thereof having longitudinal grooves at their inner sides, and a separate draft-block having at its ends tongues for engagement with the said grooves, whereby the blocks can be removed or placed within the U-shaped frame, substantially as described.

3. A clevis comprising a U-shaped frame, a separate draft-block fitting within the closed end of the frame and longitudinally movable upon and from the arms of the U-shaped frame substantially as described.

4. A clevis comprising a U-shaped frame, and a draft-block fitting within the closed end of the frame and separate therefrom, the ends of the draft-block and the arms of the frame having a slidable connection, whereby the draft-block may be removed from the closed end of the U-shaped frame, substantially as described.

5. A clevis comprising a U-shaped frame, and a separate and removable draft-block fitting within the closed end of the frame, the arms of the frame and said draft-block having longitudinally-engaging tongues and grooves, substantially as described.

642,027. PAPER-FILE. FREDERICK D. WEBER, New York, N. Y. Filed June 3, 1899. Serial No. 719,290. (No model.)



Claim.—The paper-file herein described, consisting of a number of hinged leaves of stiff material and pockets formed at each side of each leaf, each pocket being formed of a stiff board connected at its inner edge with the inner edge of the leaf and open at its top and outer side and connected with the lower end of the leaf by a folding gusset, substantially as set forth.

642,028. COMBINED SECTION-CLOSER AND FOUNDATION-FASTENER FOR HONEY-SECTIONS OF BEEHIVES. LEWIS J. WHITNEY, Mapleton, Utah. Filed Sept. 16, 1899. Serial No. 730,757. (No model.)

Claim.—1. In a combined section-closer and foundation-fastener, the combination of the frame, the heater-plate, the hinged face-plate connected to the frame and having the standards, and the center block, the plunger working in guideways in the face-plate and having the standard S, and the pitman connecting the plunger to the frame, for the purpose set forth, substantially as described.

2. In a combined section-closer and foundation-fastener, the frame

comprising the central portion B, the upper arm E and the pair of lower arms F, the heater-plate secured to the frame, the hinged face-plate connected to the lower arms F and having standards O, the plunger in a guideway in the face-plate and having standards S, and the pivoted pitman connecting the plunger to the arm E, for the purpose set forth, substantially as described.

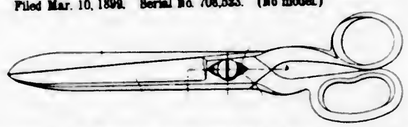


3. In a combined section-closer and foundation-fastener, the combination with the frame, the face-plate pivoted or hinged thereto, and having the guideways and standards, of the plunger in said guideways, and having the standard S, and the adjustable or extensible pitman, connecting the plunger to the frame, for the purpose set forth, substantially as described.

4. In a combined section-closer and foundation-fastener, the combination with the frame A and the pivoted face-plate H having the standards O, of the plunger having the standard S and in guideways in the face-plate and having the pivotal point U disposed at a distance without the plane of the inner side of the face-plate, and the pitman T connected to the pivotal point U and also pivotally connected to the frame A, whereby when the face-plate is at the inner limit of its movement, the said pitman will lie at an angle to and within a line between the pivotal connections of the face-plate and pitman, respectively, with the frame, for the purpose set forth, substantially as described.

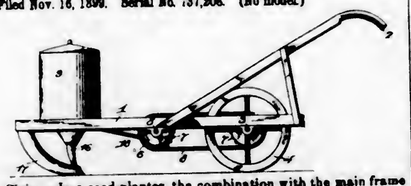
5. In a combined section-closer and foundation-fastener, the combination of the frame A having the arm E, with stops *e*; the swinging face-plate pivoted to the frame having the standards O; the plunger having the standard S, and in guides in the face-plate; and the pitman pivoted to the arm E and connected to the plunger, said pitman being adapted to engage the stops *e*, and thereby limit the outward throw of the face-plate, substantially as described.

642,029. SCISSORS. FRANCIS R. WILKINSON, Buffalo, N. Y. Filed Mar. 10, 1899. Serial No. 708,523. (No model.)



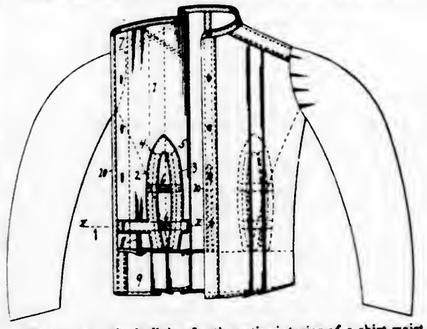
Claim.—An improved scissors composed of two members having circular transverse openings, and one member having a depression, a projection extending into the circular opening of one member, a bolt having a central screw-threaded opening, and a longitudinal channel into which the projection fits, a spring seated in the depression and having a central opening and one or more upwardly-extending ribs, and a locking-screw screwing into the screw-threaded opening in the bolt and having a series of grooves upon its under surface into which the ribs of the spring seat, as set forth.

642,030. SEED-PLANTER. WILLIS C. WILLEY, Clinton, Ky. Filed Nov. 16, 1899. Serial No. 737,208. (No model.)



Claim.—In a seed-planter, the combination with the main frame provided with a furrow-opener; of a drive-shaft journaled in said frame, a supporting-wheel fixed to said drive-shaft, a counter shaft journaled in said frame and geared with said drive-shaft, a seedbox formed with two compartments having discharge-apertures, a seed-dropper disk journaled to the bottom of said compartments and provided with an odd number of holes or seed-cups to alternately discharge the seed from the two compartments, said disk being provided in its periphery with a serpentine groove, a pulley upon the counter-shaft, and a belt or cord engaging the serpentine groove and the pulley, substantially as and for the purpose set forth.

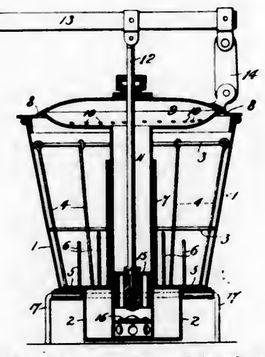
642,031. SHIRT-WAIST LINING. THEODORE A. WINTER, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,867. (No model.)



Claim.—1. A body-lining for the entire interior of a shirt-waist, said lining being wholly composed of two front and two back pieces, the front lines or edges of the front pieces being straight so as to be loose or shirt-like at the chest when closed on the wearer, said front pieces having open darts, and plaits at the top or neck portion and in front of the darts substantially as described.

2. A body-lining for the entire interior of a shirt-waist, said lining being wholly composed of two front and two back pieces, the front lines or edges of the front pieces being straight so as to be loose or shirt-like at the chest when closed on the wearer, said front pieces having open darts, elastics and curved steels at the darts, and plaits at the top and in front of the darts substantially as described.

642,032. APPARATUS FOR CLEANING DISHES. JOHN W. WRIGHT, Lampasas, Tex. Filed Oct. 23, 1899. Serial No. 734,511. (No model.)



Claim.—1. A dish-washing apparatus, consisting of a pail having a central pendent water-reservoir at its bottom, a perforated plate supported on said bottom, extending over said reservoir and having a central opening coincident with the latter, a series of vertical dish-supporting bails secured to and rising from said perforated bottom and separated from one another to receive between them the dishes to be washed, a pail-lid fitting the pail and constructed with a water-chamber having a perforated bottom wall, a wire basket arranged in the pail and secured to and removable with said perforated plate, a pump-cylinder extending through the central opening in the perforated plate and having its upper end communicating with the water-chamber in the pail-lid, a plunger working in the pump-cylinder, a rod connected with the plunger, and a lever for working the rod, substantially as described.

2. A dish-washing apparatus, consisting of a pail having a con-

tral pendent water-reservoir at its bottom, a perforated plate supported on said bottom, extending over said reservoir and having a central opening coincident with the latter, an upright pipe arranged in the center of the pail and rising from the central opening of the perforated plate, a series of vertical dish-supporting frames secured to and rising from said perforated plate at opposite sides of said pipe and separated from one another to receive between them the dishes to be washed, a pail-lid fitting the pail and constructed with a water-chamber having a perforated bottom wall, a wire basket arranged in the pail and secured to and removable with said perforated plate, a pump-cylinder arranged in said pipe, extending through the central opening in the perforated plate into said reservoir and having its upper end communicating with the water-chamber in the pail-lid through the perforated bottom wall thereof, a plunger working in the pump-cylinder, a rod connected with the plunger, and a hand-lever for working the rod, substantially as described.

642,033. **COMPOUND FOR PRESERVING ROPES, &c.** GOTHARD WYSS and VINCENT WYSS, Pittsburg, Pa. Filed Aug. 23, 1899. Serial No. 728,238. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of oil and tallow combined substantially in the manner and in the proportions specified, with a sufficient quantity of nitrobenzol to act as a preservative.

2. The herein-described composition of matter, consisting of boiled linseed-oil and tallow, combined substantially in the manner and in the proportions specified, with a sufficient quantity of nitrobenzol to act as a preservative.

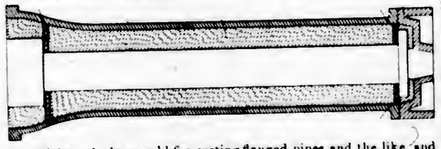
642,034. **FLASK FOR PIPE-MOLDS.** GEORGE P. BASSETT, Jr., Cincinnati, Ohio. Filed Mar. 1, 1899. Serial No. 707,327. (No model.)



Claim.—1. A flask for pipe-molds, made in two sections, the one arranged to slide within the other, the outer section provided with flanges recessed to form internal grooves, and the inner section having tongues or ribs engaging said grooves, with means for clamping both sections together for any desired length of flask, substantially as shown and described.

2. A flask for pipe-molds made in two sections, the one arranged to slide within the other, the outer section provided with flanges recessed to form internal grooves, and the inner section having tongues or ribs engaging said grooves said flanges of the outer section being slightly separated with clamps fitting over said flanges to draw same together and exert sufficient pressure on the tongues of the inner section to lock both securely together, substantially as shown and described.

642,035. **MOLD FOR CASTING.** GEORGE P. BASSETT, Jr., Cincinnati, Ohio. Filed Mar. 1, 1899. Serial No. 707,328. (No model.)

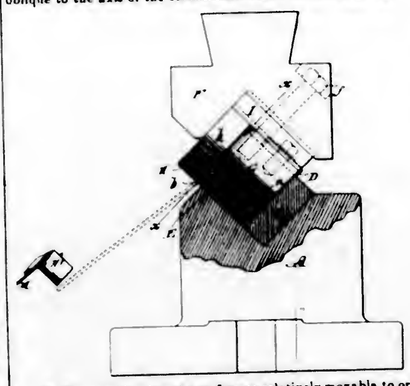


Claim.—1. In a mold for casting flanged pipes and the like, and having the mold-wall of sand in the usual way, a layer of combustible material of suitable thickness, embedded in the surface of the exterior mold underneath the flange-cavity to allow the mold to shorten with the contraction of the pipe in cooling.

2. In a mold for casting flanged pipe and the like, and having the mold-wall of sand in the usual way, a pair of annular layers of combustible material embedded in the surface of the exterior mold underneath the end flange-cavities respectively, as and for the purpose specified.

642,036. **DIE FOR MAKING SHEET-METAL SPOKE-ARMS FOR PULLEYS.** ADELINE J. CORSCADEN, Philadelphia, Pa., administratrix of Thomas Corscaden, deceased. Filed Oct. 20, 1898. Serial No. 694,099. (No model.)

Claim.—1. The combination of two frames relatively movable to or from each other, a die secured to one of said frames and formed with an obliquely-arranged semicircular recess having its curvature formed with equal radii throughout its length, and a semicircular oblique die adapted to the recessed portion of the first-mentioned die and secured to the other movable frame and movable in a direction oblique to the axis of the semicircular recess of the other die.



2. The combination of two frames relatively movable to or from each other, a die secured to one of said frames and formed with an obliquely-arranged semicircular recess having its curvature formed with equal radii throughout its length and its lower edge formed at right angles to its curved surface, a lining-plate also carried by said frame and interposed between it and the lower edge of the die thereon and having its upper working surface lying in a plane at right angles to the curved surface of the semicircular recess of the die, and a semicircular die having its curvature formed by equal radii throughout its length adapted to the recessed portion of the first-mentioned die and secured to the other movable frame and movable in a direction oblique to the axis of the semicircular recess of the other die.

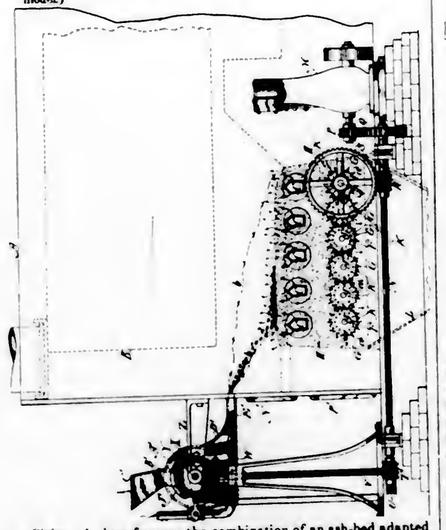
3. The combination of two frames relatively movable to or from each other, a die secured to one of said frames and formed with an obliquely-arranged semicircular recess having all portions made with equal radii and in which the upper and outer surface of said die is made conical and meets the upper curved edge of the recessed portion in a plane at right angles to the length of the curved surface of the recessed portion, and a semicircular die adapted to the recessed portion of the first-mentioned die and secured to the other movable frame and further provided with an upper flanged portion having a conical working face adapted to cooperate with the conical upper surface of the first-mentioned die and movable in a direction oblique to the axis of the semicircular recess of the other die.

4. The combination of two frames relatively movable to and from each other, a die secured to one of said frames and formed with an obliquely-arranged semicircular recess having its curvature formed with equal radii throughout its length and also having an upper flanging-surface the juncture of which with the upper edge of the curved recessed portion lies in a plane at right angles to the length of the curved surface, a lining-plate C or base portion having its upper edge fitting to the bottom of the recessed die and arranged in a plane at right angles to the length of the surface of the recessed portion of said die, and a semicircular oblique die adapted to the recessed portion of the said first-mentioned die and having a flange at the top and in which the length of the semicircular part is greater than the length of the recessed die, whereby when the bottom of the semicircular die rests upon the lining-plate C the flanging portions of the two dies do not touch and movable in a direction oblique to the axis of the semicircular recess of the other die.

5. The combination of the frame A, with the oblique die B having a semicircular recessed surface B' and an outer and upper surface arranged at an angle to said recessed surface, a lining-plate C arranged obliquely in the frame A and upon which the lower edge of the oblique die B rests, an upper frame F and a semicircular die G arranged obliquely thereon provided with a flanged upper portion to operate in conjunction with the upper surface of the die B and further movable in a direction oblique to the axis of the semicircular recessed surface B'.

6. The combination with the frame A, with the oblique die B having a semicircular recessed surface B' and an outer and upper surface arranged at an angle to said recessed surface and which outer and upper surface of the die B is provided with the curved edges E E arranged at intervals about the curvature of the recessed portion as shown, an upper frame F and a semicircular die G arranged obliquely thereon provided with a flanged upper portion to operate in connection with the upper surface of the die B.

642,037. **AUTOMATIC GRATELESS STOKER.** THOMAS M. BYNON, Philadelphia, Pa., assignor to the Bynon Gratelees Stoker Company, of Pennsylvania. Filed June 26, 1899. Serial No. 721,852. (No model.)



Claim.—1. In a furnace, the combination of an ash-bed adapted to support fuel, air tubes or passages therethrough and slightly below the surface thereof and means for maintaining a uniform height of said ash-bed or fuel-bed.

2. In a furnace, a bed of ashes, adapted to serve as a fuel-bed, a series of air-passages in the latter located slightly below the surface of said bed and ash-removers located below said passages.

3. A furnace provided with a bed of ashes adapted to serve as a fuel-bed, an ash-removing device consisting of a plurality of rotatable fingered members situated below the surface of the fuel-bed, whereby a substantially uniform height of said bed is maintained, means for supplying fuel to said bed, air-supplying devices located slightly below the surface of said bed and means for operating said ash-removing device and said means for supplying fuel.

4. In a furnace, a fuel-bed consisting of ashes, air-supplying devices located slightly below the surface of said bed and an ash-removing device situated below said fuel-bed, and consisting of a plurality of rotatable fingered members.

5. In a furnace, a fuel-bed consisting of ashes, air-supplying devices located slightly below the surface thereof, an ash-removing device situated below the surface of the fuel-bed and consisting of a plurality of fingered members geared together so as to cause adjacent bars to rotate in opposite directions.

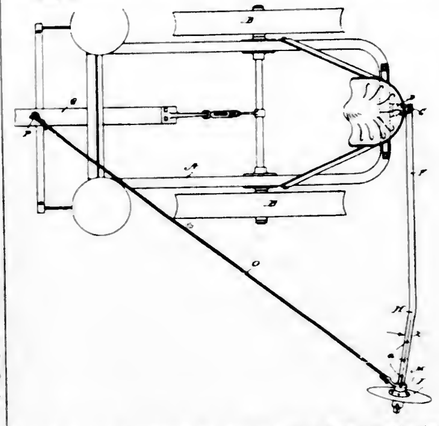
6. In a furnace, a fuel-bed consisting of ashes, air-supplying devices located slightly below the surface thereof, an ash-removing device situated below the surface of the fuel-bed and consisting of a plurality of rotatable fingered members, the fingers of adjacent members overlapping each other and situated out of alinement.

7. In a furnace, a fuel-bed consisting of ashes, a plurality of air-tubes located slightly below the surface of said bed and embedded therein, said tubes communicating at one end with a chamber, means for supplying a fluid to said chamber, and an ash-removing device situated below said grate-bars and consisting of a plurality of rotatable fingered members.

8. In a furnace, a bed of ashes adapted to serve as a fuel-bed, a series of air-passages located therein and slightly below the surface of said bed, an ash-removing device located below the surface of said bed and consisting of a plurality of fingered members and means for actuating said members.

9. In a furnace, the combination of a bed of ashes, adapted to support fuel, air-supplying devices located slightly below the surface of said bed, and adapted to furnish air to support combustion, devices for maintaining a substantially constant height of said ash-bed and means for operating said devices.

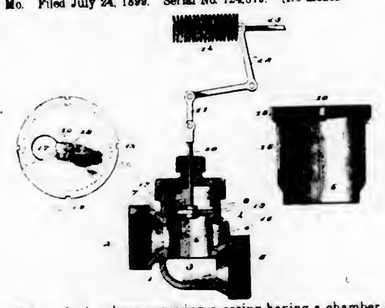
642,038. **MARKER FOR SEEDING-MACHINES.** WILLIAM M. FRANK, Springfield, Ohio. Filed Apr. 3, 1899. Serial No. 711,511. (No model.)



Claim.—1. In a marker for seeding-machines, the combination with a marker-rod connected with the main frame proper, of a marking-disk adjustable on said rod to different widths of rows and having a pair of collars secured thereto on opposite sides to constitute a bearing-sleeve, mounted thereon, a notched collar adapted to come in contact with one of said disk collars and a draft-arm adapted to come in contact with the other of said disk collars and means to secure said notched collar and said draft-arm to said rod, substantially as shown and described.

2. In a marker for seeding-machines, the combination with a marker-rod, of a draft-arm consisting of a sleeve and arm proper, the sleeve having a pair of notches therein, and adapted to be mounted on said rod, and a cotter-pin adapted to pass through said marker-rod and project within the notches of said draft-arm, substantially as shown and described.

642,039. **THROTTLE-VALVE.** WILLIAM L. GARRELS, St. Louis, Mo. Filed July 24, 1899. Serial No. 724,879. (No model.)



Claim.—1. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, two flanges on the inner wall of said chamber above and below the admission-port respectively and constituting valve-seats, and the lower flange extending farther inwardly than the upper flange, and a cylindrical plug having shoulders to fit said valve-seats simultaneously, substantially as described.

2. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, two flanges on the inner wall of said chamber above and below the admission-port respectively and constituting valve-seats, two valves rigidly connected to fit said valve-seats simultaneously, the sectional area of the lower valve being equal to the area of opening through the upper flange and said device having an open communication on the exhaust side between the spaces above and below said valves, substantially as described.

3. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, two flanges on the inner wall of said chamber above and below the admission-port respectively and

constituting valve seats, and the lower flange extending farther inwardly than the upper, and a plug having shoulders to fit said valve-seats simultaneously, said plug having a hole therethrough whereby the space above said plug is in open communication with the space below it, substantially as described.

4. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, two flanges on the inner wall of said chamber above and below the admission-port respectively and constituting valve-seats, two valves rigidly connected to fit said valve-seats simultaneously, said device having an open communication on the exhaust side between the spaces above the upper valve and below the lower valve, and a spring or equivalent device connected by suitable connecting devices to the stem for forcing said valves toward their seats, substantially as described.

5. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, two flanges on the inner wall of said chamber above and below the admission-port respectively and constituting valve-seats, the lower flange extending farther inwardly than the upper, and a plug having shoulders to fit said valve-seats simultaneously, said plug having a hole therethrough whereby the space above said plug is in open communication with the space below it, and said plug having a stem extending through the lower end of the casing whereby the area of steam-pressure is equal to or greater on the upper than on the lower end of the plug, substantially as described.

6. A valve comprising a casing having a chamber provided with an admission-port and an exhaust-port, a plug adapted to open and close said admission-port, said plug having a hole therethrough whereby the space above said plug is in open communication with the space below it, and said plug having a stem extending through the lower end of the casing whereby the area of steam-pressure is equal to or greater on the upper than on the lower end of the plug, substantially as described.

642,040. BUTTON AND BUTTON-FASTENER. EDUARD A. GRIFFITH, Baltimore, Md. Filed May 7, 1898. Serial No. 680,042. (No model.)

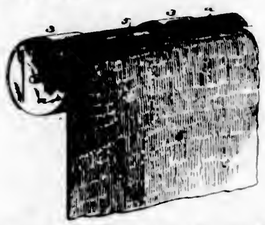


Claim.—1. As a new article of manufacture, a button having a hollow oblong shank with a cross-bar at the bottom thereof, and curved strips projecting from the inside of said tubular shank toward each other and above said cross-bar, and serving to turn the prong or prongs of an entering fastener over said bar, as set forth.

2. A button having a hollow oblong shank with a bar extending across its lower end, and curved strips projecting from the inside of said tubular shank toward each other and above said cross-bar, and serving to turn the prong or prongs of an entering fastener, over said bar, in combination with a prong-fastener having its prongs bent over and engaging the cross-bar at the lower end of said button, as set forth.

3. A button having a hollow tubular shank with a bar extending across its lower end, and curved strips projecting from the inside of said oblong shank, toward each other and above said cross-bar, and serving to turn the prong or prongs of an entering fastener over said bar, said curved strips being adapted to be crossed together by compression of the hollow shank, as set forth.

642,041. SHADE-ROLLER AND CLAMP. HERMAN GUNTHER and ARTHUR A. ROBERTS, Wellsburg, W. Va. Filed Dec. 27, 1898. Serial No. 700,474. (No model.)



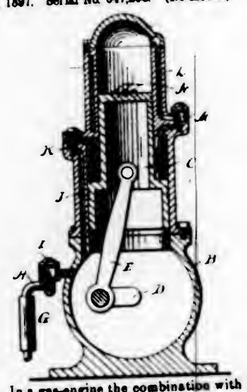
Claim.—The improved curtain-roller fastening formed by the combination with a roller having a lengthwise groove, arranged tangentially to an inner circle which is concentric with the circumference of the roller, of a series of spring-metal clamps, which are made of such length as to embrace more than half the roller circumferentially, and provided at one end with an inturned and acute-angle lip, or flange, adapted to conform to the angle of said groove and to fit loosely therein, so as to secure the curtain, as specified.

642,042. BUTTON. ROBERT A. HALL and EDUARD A. GRIFFITH, Baltimore, Md., assignors to the Raymond Button Company of Baltimore City, of Maryland. Filed May 17, 1899. Serial No. 717,168. (No model.)



Claim.—A button consisting of a head, 1, a shank, 2, and a base, 3, formed of one continuous piece of wire; a metal band, 8, aroond the periphery of the button-head to prevent the end of the wire from catching in the fabric: and a stud, 4, having a recessed portion, 6, around which the shank is coiled to prevent the said stud from pulling out when the button is secured to the fabric.

642,043. GAS-ENGINE. WILLIAM A. KOPE, Kansas City, Kans. Filed Aug. 9, 1897. Serial No. 647,290. (No model.)



Claim.—1. In a gas-engine the combination with a cylinder provided with two communicating chambers of different diameters, of a reciprocable piston fitted to one of the chambers and provided with a peripheral enlarged portion fitted to the other chamber, an inclosed crank-shaft-casing chamber, a gas-passage leading from the supply to the said crank-shaft-casing chamber, a gas-passage leading from the crank-shaft-casing chamber to one of the cylinder-chambers, a gas-passage connecting the two cylinder-chambers, and suitable valves controlling the said gas-passages, substantially as described.

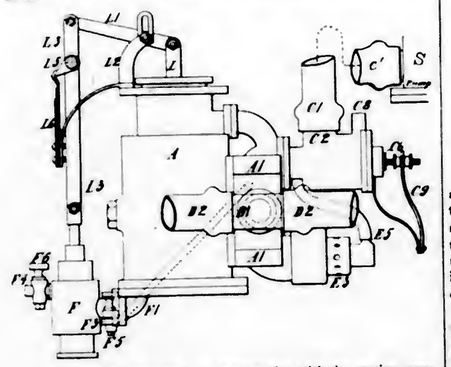
2. In a gas-engine, the combination with a casing B, of a cylinder A secured at its open end thereto and provided with an inner peripheral enlargement, a piston C fitted in the said cylinder A, an inlet-passage leading to the interior of the casing, a valve controlling said passage, a passage leading from the casing to the enlarged portion of the cylinder, a valve controlling said passage, a passage leading from said enlarged portion of the cylinder to the smaller end thereof, a valve controlling said passage, an exhaust passage leading from the cylinder, and a valve controlling said passage, substantially as described.

642,044. MILKING APPARATUS. WILLIAM H. LAWRENCE and ROBERT KENNEDY, Glasgow, Scotland. Filed Apr. 27, 1896. Serial No. 589,263. (No model.)

Claim.—1. An automatic pulsating mechanism for milking apparatus operated by suction, provided with pneumatic means for operating the same to intermittently alter the pressure or degree of suction in the pipes connected to the milk-pails, substantially as described.

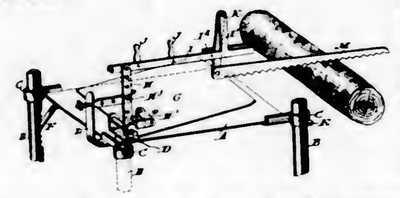
2. In milking apparatus by suction, the combination with the suction apparatus, of an automatic pulsating apparatus, and pneumatic means for operating the same to intermittently alter the pressure or degree of suction in the pipes connected to the milk-pails, substantially as described.

3. In milking apparatus operating by suction, the combination with the suction apparatus, of pipe connections to the suction apparatus and to the milk-pails, with an interposed pneumatic pulsating apparatus comprising a valve mechanism actuated automatically by the suction itself to intermittently alter the pressure or degree of suction in the pipes connected to the milk-pails, substantially as set forth.



4. In milking apparatus, the combination with the suction apparatus, of pipe connections to the suction apparatus and to the milk-pails with an interposed pneumatic pulsating apparatus, comprising a cylinder and a piston and valve adapted to alternately connect the passage to the milk-pail with the suction and with the atmosphere, passages connecting each end of the cylinder with the suction-pipe and a valve in one of the said passages actuated by the movement of the piston, all substantially as set forth.

642,045. MACHINE FOR RUNNING CROSSCUT-SAWS. HERBERT G. LOCKE, Ukiah, Cal. Filed Apr. 7, 1899. Serial No. 712,190. (No model.)



Claim.—1. In a device for the purpose described, the combination with the base and the bell-crank lever mounted on said base, of a handle-rod connected to said bell-crank lever, and a rocking lever pivotally connected to said handle-rod and having the saw secured thereto, as and for the purpose set forth.

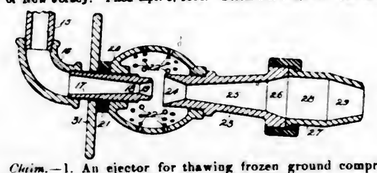
2. In a device for the purpose described, the combination with the posts and the base adjustably supported on said posts, of the bell-crank lever mounted on said base, the treadle mounted on said base and connected with said lever to reciprocate the same, the handle-rod pivotally connected to said lever and provided with an upright arm and a guideway near its free end, and a rocking lever pivoted to said arm and movable in said guideway, such lever being arranged to carry the saw, as and for the purpose set forth.

3. In a device for the purpose described, the combination with the base, of a bell-crank lever mounted on said base, a treadle operatively connected with one arm of said lever, a handle-rod connected to the other arm of said lever, and a rocking lever having one end pivotally connected to said handle-rod and having the saw rigidly secured to its other end as set forth.

4. In a device of the character described, the base, the handle-rod supported above said base and being provided with a guideway closed at both ends and an upright arm extending therefrom between the ends of the guideway means for reciprocating said rod and a rocking lever having one end pivotally connected to the arm of said rod and having the saw rigidly secured to its free end, the said lever extending through said guideway and being limited in its rocking movement by the ends of said guideway, as and for the purpose set forth.

5. In a machine for running a crosscut-saw, the combination with the base, of the saw-reciprocating lever pivotally mounted at its lower end on said base and rising therefrom, a spring-bracket secured to said base and likewise extending upwardly therefrom, a rod having one end secured to the lever and the other end slidable through said bracket, whereby to assist in guiding said lever, and means for limiting the sliding movement of such end in the bracket whereby to bend the latter, as and for the purpose set forth.

642,046. EJECTOR. LOUIS E. MILLER, Helena, Mont., assignor, by mesne assignments, to the Elliot Machine and Mining Company, of New Jersey. Filed Apr. 5, 1898. Serial No. 676,547. (No model.)



Claim.—1. An ejector for thawing frozen ground comprising among its members, a hollow main body provided with apertures for the admission of water, a discharge-nozzle rigidly secured to said main body, a steam-inlet pipe secured to said main body in line with the discharge-nozzle, and a supporting device connected with said main body for holding the main body above the bottom of the pool in which the ejector operates, and giving the nozzle a downward inclination, substantially as described.

2. An ejector for thawing frozen ground comprising among its members, a hollow main body provided with apertures for the admission of water, a discharge-nozzle rigidly connected to said main body, a longitudinally-adjustable steam-inlet tube secured to said main body in line with the discharge-nozzle and a supporting device secured to said main body for holding it above the bottom of the pool in which the ejector operates, and giving a downward inclination to said nozzle, substantially as described.

3. An ejector for thawing frozen ground, comprising among its members, a hollow main body provided with apertures for the admission of water, a discharge-tube provided with a detachable nozzle, a longitudinally-adjustable steam-inlet pipe in line with said discharge-tube and a rotary supporting-disk secured to said main body on the side opposite said nozzle, substantially as described.

4. An ejector for thawing frozen ground, comprising among its members, a hollow main body having its walls provided with water-inlet apertures, a discharge-tube secured to said main body and extending into the same, said tube having its longitudinal passage contracted at a point near its inner end and flaring in both directions from said contracted portion, and a longitudinally-adjustable steam-tube extending into said hollow body in line with the discharge-tube having its longitudinal passage contracted at a point near the inner end of the tube and flaring outwardly toward the ends of the tube from such contracted portion, a nozzle detachably secured to said discharge-tube and a supporting device for said main body, substantially as described.

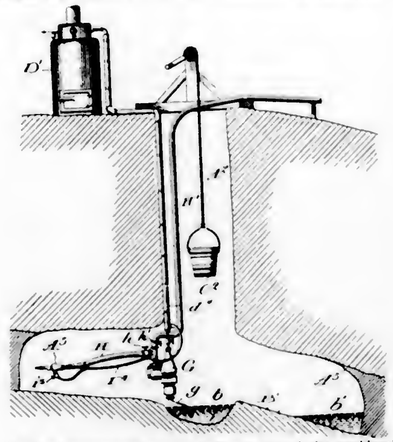
5. An ejector for thawing frozen ground, comprising among its members, a hollow, substantially spherical body having its walls provided with water-inlet apertures, a discharge-tube rigidly secured to said main body, a nozzle detachably but rigidly secured to said discharge-tube, a longitudinally-adjustable steam-inlet tube having a threaded portion extending into said main body, and a revolubly supporting disk or wheel mounted on said steam-inlet tube and adapted to hold the main body above the bottom of the pool in which the ejector operates and to give said nozzle a downward inclination, substantially as described.

642,047. APPARATUS FOR MINING IN FROZEN GROUND. LOUIS E. MILLER, Dawson, Canada, assignor, by mesne assignments, to the Elliot Machine and Mining Company, of New Jersey. Filed May 27, 1899. Serial No. 718,549. (No model.)

Claim.—1. In an apparatus for mining in frozen ground, the combination with a receptacle for holding a pool of water at the bottom of the mine, an ejector located at the bottom of the mine, means for supplying the water in said receptacle to said ejector, means for conveying steam to said ejector and introducing it into the water to heat the water and expel it in a stream forcibly against the frozen material and means for conveying the water back to said receptacle whereby a circulation of the water is established within the mine and the raising of the water continuously to the surface of the ground is obviated, substantially as described.

2. In an apparatus for mining in frozen ground, the combination with a receptacle at the bottom of the mine for holding a pool of water, of a steam-ejector located at the bottom of the mine, a steam-generator located above the surface of the ground, means for conveying steam from said generator to the ejector, means for forcing a column of water from said receptacle through the ejector in contact with the steam, means for regulating the admission of steam to said ejector to control the temperature and velocity of the water and means for conveying the water back to said receptacle, whereby a circulation of the water is established within the mine and the raising of the water continuously to the surface of the ground is obviated, substantially as described.

3. In an apparatus for mining in frozen ground the combination with a receptacle located at the bottom of the mine for containing a pool of water, an ejector located at the bottom of the mine, a pump, connected with said receptacle and with said ejector, a steam-pipe connected with said ejector for imparting heat and velocity to the water adjacent to the point of its discharge and means for conducting the water back to said receptacle, whereby a circulation of the water within the mine is established and the raising of the water continuously to the surface of the ground is obviated, substantially as described



4. In an apparatus for mining in frozen ground, the combination with a steam vacuum-pump located at the bottom of the mine for partially heating and forcing a stream of water, a water-supply located at the bottom of the mine connected with said steam-pump, a steam-supply for said pump, a nozzle connected with said pump and provided with a steam-jet tube within the same and a connection between the steam-supply and said steam-jet tube for imparting heat and velocity to the stream of water at a point adjacent to its discharge from the nozzle, substantially as described.

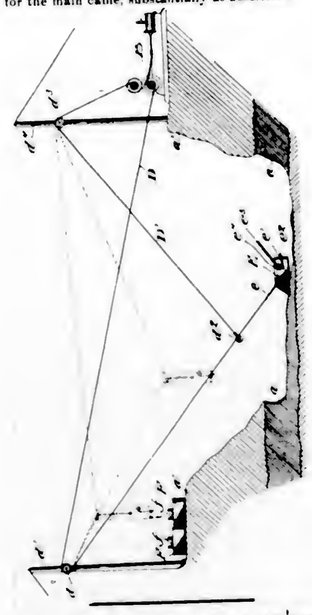
5. In an apparatus for mining in frozen ground, the combination with a steam vacuum-pump located at the bottom of the mine for partially heating and forcing a stream of water, a water-supply located at the bottom of the mine connected with said steam-pump, a steam-supply for said pump, a nozzle connected with said pump and provided with a steam-jet tube within the same, a steam-pipe leading from the steam-supply to the said jet-tube and a controlling-valve for controlling the supply of steam to said jet-tube to regulate the temperature and velocity of the stream discharged by the nozzle, substantially as described.

642,048. APPARATUS FOR EXCAVATING AND ELEVATING GRAVEL. LOUIS E. MILLER, Dawson, Canada, assignor, by mesne assignments, to the Elliot Machine and Mining Company, of New Jersey. Filed June 15, 1899. Serial No. 720,688. (No model.)

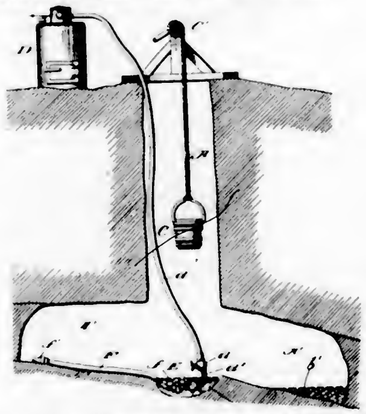
Claim.—1. In an excavating and elevating apparatus, the combination with two independent hoisting-drums, and means for operating and controlling the same, of a main cable, extending from a receptacle, over a pulley secured to a fixed support at a distance from said drums, and thence to one of said drums, and an auxiliary cable secured to the other drum, and having a sliding engagement with the main cable between the receptacle and said pulley, substantially as described.

2. In an excavating and elevating apparatus, the combination with two independent hoisting-drums, and means for operating and controlling the same, of a receptacle, a main cable extending from one of said drums, over a pulley secured to a stationary support at a distance from the hoisting-drums, and thence to said receptacle, a sheave on said main cable between the receptacle and said pulley, and an auxiliary cable secured to said sheave and extending to the other of said hoisting-drums, substantially as described.

3. In an excavating and elevating apparatus, the combination with two independent hoisting-drums, and means for operating and controlling the same, of a receptacle, a stationary support at a distance from and entirely independent of said hoisting mechanism, a pulley carried by said support a main cable extending from one of said drums over said pulley, to said receptacle, a sheave on said cable between the receptacle and said pulley, an auxiliary cable connected to said sheave and extending to the other drum, and means for driving the drum for the auxiliary cable at greater speed than the drum for the main cable, substantially as described.



642,049. PROCESS OF MINING IN FROZEN GROUND. LOUIS E. MILLER, Dawson, Canada, assignor, by mesne assignments, to the Elliot Machine and Mining Company, of New Jersey. Original application filed May 27, 1899, Serial No. 718,549. Divided and this application filed Aug. 7, 1899. Serial No. 726,445. (No model.)

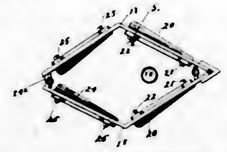


Claim.—1. The herein-described process of mining in frozen ground which consists in forming a pool of water in the shaft or mine, conveying steam into the shaft or mine and bringing it in contact with the water from said pool to heat the water and force it into contact with the frozen soil, to disintegrate it, conducting the water back to said pool and removing the disintegrated soil, whereby a circulation of the water is established within the shaft or mine and the continuous raising of the water to the surface of the ground is obviated, substantially as described.

2. The herein-described process of mining in frozen ground which consists in forming a sump or depression in the shaft or mine to contain a pool of water, conveying steam to the bottom of the shaft or mine, mingling the steam with the water from the pool to heat it, forcing said heated water into contact with the frozen soil, to disintegrate the soil, conveying the water back into the sump or depression, and removing the disintegrated soil from the shaft or mine, whereby a circulation of the water is established within the shaft or mine, and the continuous raising of the water to the surface of the ground is obviated, substantially as described.

3. The herein described process of mining in frozen ground which consists in forming a sump or depression in the shaft or mine to contain a pool of water, conveying steam to the bottom of the shaft or mine, drawing the water from the pool and forcing it into contact with the frozen soil to disintegrate it, admitting steam into the water immediately before it is discharged against the frozen soil, conducting the water back to the sump or depression, and removing the disintegrated soil, whereby a circulation of the water is established within the shaft or mine and the continuous raising of the water to the surface of the ground is obviated, substantially as described.

642,050. COTTON-SEED PLANTER. GEORGE W. MURRAY, Sumter, S. C. Filed Feb. 14, 1898. Renewed Dec. 12, 1899. Serial No. 740,115. (No model.)



Claim.—The combination in a cotton-seed planter of a frame 1 mounted on wheels 3, a diamond-shaped cultivator 18, provided with outward-curved blades 20, on the forward sides of the cultivator, and inward-curved blades 24 on the rearward sides of the cultivator, and means for dropping the cotton-seed within the cultivator, substantially as described.

642,051. PNEUMATIC TIRE. JOHN J. MCDONALD, Cardiff, England, assignor to Thomas John Rogers, Brantford, and Edward James Whyte, Lucius Norman Van Stone, and George Richard William Rogers, Toronto, Canada. Filed Oct. 25, 1899. Serial No. 734,773. (No model.)



Claim.—1. In a tire a grooved rim and an outer cover having pockets formed in each edge thereof in combination with two metallic bands, one in each pocket, each band having a fixed end and a free end extending out of the under side of the edge of the cover through a slot therein, substantially as and for the purpose specified.

2. In a tire a grooved rim; an inner tube provided with a valve, and an outer cover having pockets formed in each edge thereof in combination with two metallic bands one in each pocket, each band having an end extending out of the under side of the cover through a slot therein, and each band having a hole for the passage of the valve formed therein toward its other end but clear of the aforesaid exteoded end, substantially as and for the purpose specified.

3. In a tire a grooved rim; an inner tube provided with a valve and an outer cover having pockets formed in each edge thereof in combination with two metallic bands, one in each pocket, each with overlapping ends, one of which extends out through a slot in the under side of the edge of the cover while the other end has a hole formed therein for the passage of the valve, clear of the aforesaid extended end substantially as and for the purpose specified.

4. In a tire a grooved rim; an inner tube provided with a valve; and an outer cover having pockets formed in each edge thereof in combination with a metallic band located in each pocket and having an end extending out through a slot in the under side of the edge of the cover and roughened or corrugated on its upper surface, the edge of the cover in contact therewith being also roughened or corrugated, while the other end of the band has a hole formed therein for the passage of the valve clear of the aforesaid extended end, substantially as and for the purpose specified.

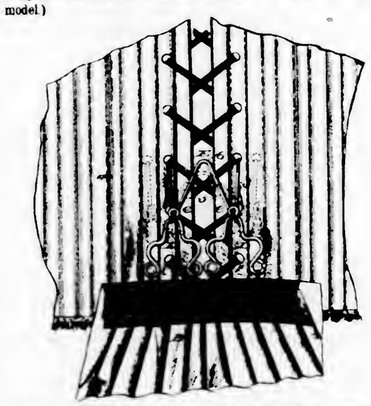
5. In a tire a grooved rim; an inner tube provided with a valve; and an outer cover having pockets formed in each edge thereof in combination with a metallic band with overlapping ends located in each pocket and having an end extending out through a slot in the under side of the edge of the cover and roughened or corrugated on its upper surface, the edge of the cover in contact therewith being also roughened or corrugated, while the other end of the band is secured within the pocket and has a hole formed therein for the passage of the valve clear of the aforesaid extended end, substantially as and for the purpose specified.

6. In a tire a grooved rim; an inner tube provided with a valve; and an outer cover having pockets formed in each edge thereof in combination with a metallic band located in each pocket and having an end extending out through a slot in the under side of the edge of the cover and roughened or corrugated on its upper surface, the edge of the cover in contact therewith being also roughened or corrugated, while the other end of the band is secured within the pocket and has a hole formed therein for the passage of the valve clear of the aforesaid extended end, substantially as and for the purpose specified.

7. In a tire a grooved rim; an inner tube provided with a valve; and an outer cover having pockets formed in each edge thereof in combination with a metallic band with overlapping ends located in each pocket and having an end extending out through a slot in the under side of the edge of the cover and roughened or corrugated on its upper surface, the edge of the cover in contact therewith being also roughened or corrugated, while the other end of the band is secured within the pocket and has a hole formed therein for the passage of the valve clear of the aforesaid extended end, substantially as and for the purpose specified.

8. In a tire a grooved rim; an inner tube provided with a valve, and an outer cover having pockets formed in each edge thereof in combination with two metallic bands one in each pocket, each band having an end with a hole therein extending out of the under side of the cover through a slot therein, and each band having a hole for the passage of the valve formed therein toward its other end but clear of the aforesaid extended end, substantially as and for the purpose specified.

642,052. SKIRT-SUPPORTER. LAURA NITSCHELM, Peoria, Ill., assignor, by mesne assignments, of one-half to the American Novelty Company, of Michigan. Filed Dec. 20, 1897. Serial No. 662,649. (No model.)



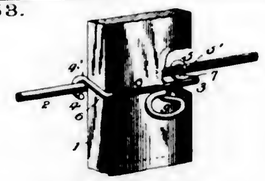
Claim.—1. The combination, with a skirt and a corset, of eye members secured to the skirt, and an integral two-hook member adapted to receive the eye members, said hook member being formed with hooks for entering the eyelets in the corset and with eye-hooks adapted to receive the eye members on the skirt, the eye-hooks being connected by a strand of wire leading from one eye-hook upward at an incline, theo broadly bent and projected downward at an incline to the other eye-hook, whereby the eye-books are capable of lateral adjustment relative to each other without affecting their shape.

2. As an article of manufacture, a two-hook member made of a single length of wire bent at one end to form a hook, then projected downward a suitable distance and formed into an eye-hook, then projected upward at an incline and formed with a broad bend, then projected downward at an opposite incline from the first, then projected outward and formed into an eye-hook, and finally projected upward and bent into a hook, the two hooks being on a horizontal plane, and the two eye-hooks being also on a horizontal plane lower than the plane of the hooks, substantially as described.

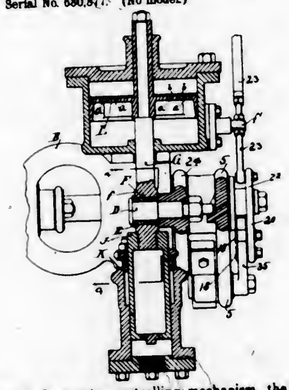
642,053. FENCE-PICKET FASTENER. SAMUEL J. REA, De Graff, Ohio. Filed Jan. 28, 1899. Serial No. 703,724. (No model.)

Claim.—In combination with a picket and cross-bar, a picket-fastener comprising the arms provided with oppositely-turned open hooks adapted to embrace the cross-bar, the wire joining the hooks having a loop, said loop being formed by twisting the wire in a direction opposite the bend of the hooks, whereby the tightening of the device will not affect the hooks.

642,053.



642,054. STEAM-ACTUATED DASH-POT FOR ENGINES. RICHARD H. RICE and JOHN W. SARGENT, Providence, R. I. Filed May 16, 1898. Serial No. 680,877. (No model.)



Claim.—1. In a valve-controlling mechanism, the combination of the valve, with the steam-cylinder, the steam-actuated plunger and piston-rod, the cushioning air-piston at the opposite end of the piston-rod, the air-cushion cylinder, the valve-lever attached to the valve-stem, and means for connecting the valve-lever with the piston-rod between the steam-plunger and the air-piston, substantially as described.

2. In a valve-controlling mechanism, the combination of the valve and the valve-bonnet, with the steam-cylinder attached to the valve-bonnet, the steam-actuated plunger, and piston-rod, the cushioning air-piston at the opposite end of the piston-rod, and means for connecting the piston-rod and the valve-stem.

3. In a valve-controlling mechanism, the combination of the valve and the valve-bonnet, with the steam-cylinder and the air-cushion cylinder attached to the valve-bonnet, the steam-actuated plunger and piston-rod provided with the cross-head opening for connection with the valve, the cushioning air-piston at the opposite end of the piston-rod, the valve-stem and connecting means between the cross-head opening and the valve-stem, substantially as described.

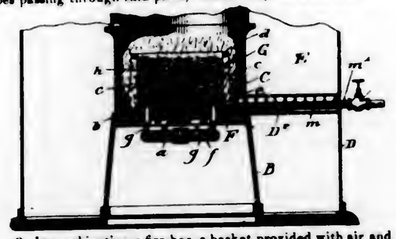
4. In a valve-controlling mechanism, the combination of the steam-cylinder and the air-cushion cylinder, with the steam-actuated plunger and piston-rod, the packing-gland around the said piston-rod, the cushioning air-piston at the opposite end of the piston-rod, the steam-pipe, and the downwardly-directed connecting-pipe between the steam-cylinder and the steam-pipe, whereby the water of condensation will be retained in the steam-cylinder, and serve to prevent leakage.

5. In a valve-controlling mechanism, the combination of the steam-cylinder, and the air-cushion cylinder, with the steam-actuated plunger and piston-rod, provided with a cross-head opening, the cushioning air-piston at the opposite end of the piston-rod, the valve, and the valve-lever attached to the stem of the valve and connected with the piston-rod at the cross-head opening, substantially as described.

642,055. FURNACE OR THE LIKE FOR BURNING GAS. CHARLES L. RIDEWAY, Winthrop, Mass. Filed Feb. 20, 1899. Serial No. 706,349. (No model.)

Claim.—1. A basket, a plate completely closing the bottom thereof, and having portions thereof projecting beyond the walls of the basket adapted to support a gas-lighting pipe, a series of inlet-pipes passing through said plate and into said basket, the walls of said basket being provided with openings for the passage of gas, substantially as described.

2. In combination a fire-box, a basket adapted to contain incombustible material and fitted to said fire-box to provide a combustion-space between said box and basket, a plate completely closing the bottom of the basket and fire-box and a series of air and gas inlet pipes passing through said plate, substantially as described.



3. In combination a fire-box, a basket provided with air and gas inlet pipes and adapted to contain incombustible material said basket being fitted to said box to provide a space between the walls of the fire-box and basket, the walls of said basket having openings for the passage of gas, and a gas-lighting tube surrounding the basket between the walls of the fire-box and basket, substantially as described.

4. In combination a fire-box, a basket having open side walls and adapted to contain incombustible material, a plate adapted to close the bottom of the fire-box and basket, air and gas inlet pipes passing through said plate, said fire-box and basket having a space between their respective walls, whereby the flame produced by the burning gas impinges upon the inner wall of the fire-box and gas-lighting pipe communicating with said space, substantially as described.

642,056. METALLIC LATHING. GEORGE A. TURNBULL, Chicago, Ill., assignor, by direct and mesne assignments, to Rosella R. Turnbull and Raymond G. Sykes, same place. Filed Mar. 24, 1899. Serial No. 710,361. (No model.)



Claim.—1. A metallic lath comprising twisted webs formed in a single piece of metal.

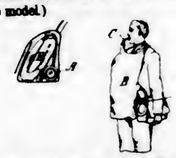
2. A metallic lath comprising parallel series of keys having inclined convergent sides.

3. A metallic lath comprising spiral or twisted webs made from a single piece of metal and forming parallel series of alternately-arranged cups having convergent sides, substantially as described.

4. A metallic lath comprising a series of keys each converging toward its ends and formed of reversely-twisted webs, substantially as described.

5. A metallic lath comprising parallel series of keys each key having inwardly-inclined, convergent sides.

642,057. FIREMAN'S RESPIRATOR. RUDOLF VON WALCHER-UTHEDAL and GUSTAV GAERTNER, Vienna, Austria-Hungary, assignors of one-third to Gustav Benda, same place. Filed Dec. 10, 1898. Serial No. 615,130. (No model.)

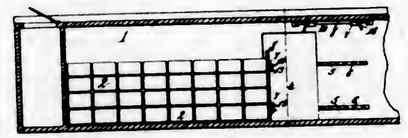


Claim.—1. In apparatus such as described, a fluid-tight bag adapted to be supported from the person and provided with a valveless inhaling-tube also serving to conduct the exhaled air into the bag, a breakable vessel therein for the reception of a liquid absorbent of or binding agent for carbonic acid, means substantially such as described for shattering the vessel, a vessel for the reception of oxygen, and a valved connection between said vessel and the bag, for the purpose set forth.

2. In apparatus such as described, a fluid-tight bag adapted to be supported from the person and provided with a valveless inhaling-tube also serving to conduct the exhaled air, into the bag, and with an absorbent lining, a breakable vessel therein for the reception of a liquid absorbent of or binding agent for carbonic acid, a vessel for the reception of oxygen likewise contained in the bag, and a valved connection between the two controllable from without such bag, for the purpose set forth.

3. In apparatus such as described, a fluid-tight bag adapted to be supported from the person and provided with a valveless inhaling-tube serving also to conduct the exhaled air into the bag, and with an absorbent lining, a breakable vessel for the reception of a liquid absorbent of or binding agent for carbonic acid, an open holder attached in the bag for the reception of said vessel, means for shattering the same adapted to be manipulated from without the bag, and means for supplying oxygen to the bag and for regulating the supply, for the purpose set forth.

642,058. ADJUSTABLE LOAD-GATE. GEORGE D. WORSWICK, San José, Cal. Filed Nov. 4, 1899. Serial No. 735,825. (No model.)



Claim.—1. An adjustable load-gate, for securing merchandise in place in cars or upon ships, said gate consisting of a rigid structure adapted to support the strain of the load during transportation, hook-bolts adjustable in the ends of said gate and adapted to engage rigidly-attached fastening-plates arranged in the compartment containing the merchandise, and means for placing said hook-bolts under strain to draw the gate forcibly against the material it is to maintain in place, substantially as described.

2. A load-gate for maintaining merchandise in its proper, loaded position during transportation by rail or water, said gate consisting of a rigid structure adapted to support the strain of the said merchandise caused by the movements of the vehicle or vessel, fastening devices at suitable points upon said gate to engage rigidly-attached fastening-plates in the compartment containing the merchandise, means for adjusting said fastening devices on said plates at different points and means for placing said fastening devices under strain to draw the load-gate forcibly against said merchandise, the said means serving to retain said merchandise in place at any point in the movement of said gate, substantially as described.

3. The combination with a transportation-compartment having fastening-plates rigidly secured to its walls, of one or more load-gates, each consisting of a rigid structure adapted to extend from wall to wall of said compartment or nearly so, hook-bolts having threaded ends which pass loosely through openings in said gate, their hooked ends engaging slots formed at intervals in the fastening-plates, and nuts turned upon the threaded ends of said bolts and bearing against the outer face of the gate, to draw the latter against the stowed merchandise with suitable pressure, substantially as described.

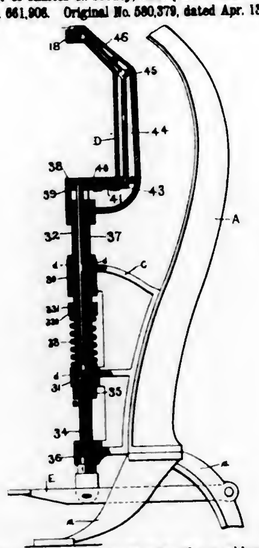
4. The combination with two or more fastening-plates, each having a series of slots and arranged rigidly along the walls of a compartment in which merchandise is stowed for transportation, of one or more load-gates each adapted to extend from one fastening-plate to, or nearly to, the other, hook-bolts having threaded ends lying loosely in openings in those parts of each gate adjacent to the fastening-plates, the hooked ends of said bolts engaging the slots in the latter, lever-nuts turned upon the threaded ends of said bolts and bearing against the outer face of the gate, and holding-pawls to retain said nuts at the points to which they are adjusted, substantially as described.

5. The combination with a refrigerator or other car for the transportation of freight, of two or more fastening-plates arranged horizontally along each of the longer walls of said car, each plate being provided with a series of openings, a load-gate extending from side to side of the car, or nearly so, bolts having hooked ends to engage the openings in the fastening-plates and threaded ends passing loosely through openings in the ends of the load-gate, nuts turned upon said threaded ends and bearing against the outer face of the load-gate, means for holding said nuts at any point to which they are turned, and one or more truss-rods to stiffen said gate, substantially as described.

6. The combination with a car for transporting fruit, of fastening-plates arranged along each of its longitudinal walls, said plates having openings at suitable intervals, a load-gate consisting of two or more horizontal bars supporting a series of vertical cleats, or slats, bolts having threaded ends lying loosely in openings in said horizontal bars and hooked ends engaging openings in the fastening-plates, nuts having levers and turned upon the threaded ends of said bolts and bearing against the outer faces of the bars, and pawls engaging ratchet-teeth on said nuts to prevent displacement due to strains, said gate being adapted to be drawn against the outer of a series of tiers of fruit-boxes piled in said car, substantially as described.

REISSUES.

11,803. PEGGING-MACHINE. PATRICK R. CONDON, Spencer, Mass., assignor to Charles N. Prouty, same place. Filed Dec. 14, 1897. Serial No. 661,908. Original No. 580,379, dated Apr. 13, 1897.



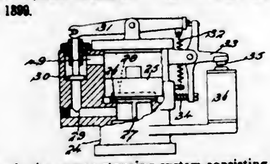
Claim.—1. In a pegging-machine, the combination of a vertical spindle journaled in the frame of the machine by means of suitable ball-bearings, a horn carried by said spindle, a lifting-spring coiled around said spindle, a button or anvil journaled in said horn, a treadle-rod loosely connected to the lower end of said spindle, a rod rigidly connected to said treadle-rod, and a train of gearing for holding the button stationary independently of the rotation of the horn, substantially as described.

2. In a pegging-machine, the combination of a vertical spindle journaled in the frame of the machine, a horn carried by said spindle, a button or anvil journaled in said horn, a treadle-rod loosely connected to the lower end of said spindle, a rod or spindle rigidly connected to said treadle-rod, and a train of gearing for holding the button stationary independently of the rotation of the horn, substantially as described.

3. In a pegging-machine, the combination of a reciprocating awl arranged to move transversely to advance the work, a peg-driving mechanism, a button or anvil, said button or anvil being provided with a movable piece, and a stationary knife or blade for trimming off the ends of the pegs, substantially as described.

4. In a pegging-machine, the combination of a peg-driving mechanism and a button or anvil having a stationary blade or knife 23, a movable piece 24 for receiving the projecting ends of the pegs, said piece 24 being provided with a spring 28 for holding the same in its normal position, substantially as described.

11,804. SYSTEM OF STOPPING STEAM-ENGINES. ARTHUR J. PURLETON, Waterbury, and JOHN R. REYNOLDS, Hartford, Conn., assignors to the Monarch Manufacturing Company, Waterbury, Conn. Filed Dec. 22, 1899. Serial No. 741,335. Original No. 635,060, dated Oct. 17, 1899.

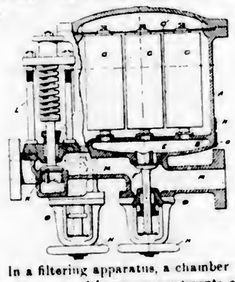


Claim.—1. An engine-stopping system consisting of an electromagnetic stop connected with a throttle-valve in the steam-main, an electromagnetic vacuum-breaker connected with the condenser, and an electric circuit connecting the stop and the vacuum-breaker with a supply of electrical energy, substantially as specified.

2. In combination with the condenser of a steam-engine, an electromagnetic vacuum-breaker, and an electric circuit connecting the vacuum-breaker with a supply of electrical energy whereby, when the circuit is closed, the vacuum-breaker is freed and allowed to operate and open a passage from the outer air to the condenser-chamber, substantially as specified.

3. A vacuum-breaker consisting of a shell adapted to be connected with a condenser-chamber, a piston-valve normally held to its seat in the shell by the influence of the vacuum and closing a port through the shell, a plunger-valve normally closing a passage from one side to the other side of the piston-valve, a spring tending to move the plunger-valve and open the passage, a trip normally holding the plunger-valve against movement, and an electromagnet for causing the trip to release the plunger-valve, substantially as specified.

11,805. FEED-WATER FILTER FOR STEAM-BOILERS. HENRY S. WATSON and JOHN S. WATSON, Newcastle-upon-Tyne, England. Filed Aug. 1, 1899. Serial No. 725,762. Original No. 611,667, dated Oct. 4, 1898.

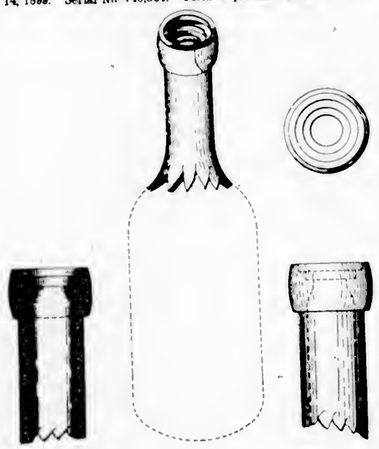


Claim.—1. In a filtering apparatus, a chamber A, having a diaphragm B forming upper and lower compartments, a series of reticulated cases or frames seated upon said diaphragm and having their interiors communicating with the lower compartment, an inlet-passage communicating with the upper compartment, an outlet-passage communicating with the lower compartment and a by-pass valve in communication with the inlet-passage, substantially as described.

2. In combination, the chamber A having a diaphragm B forming upper and lower compartments, the series of reticulated frames having necks seated in openings in the diaphragm, filtering material surrounding said frames, heads protruding from the upper ends of said frames, a removable cover or plate C having openings to engage and guide said heads, an inlet to the upper compartment, an outlet from the lower, with valves controlling said inlet and outlet and a by-pass valve connecting said inlet directly with the outlet, substantially as described.

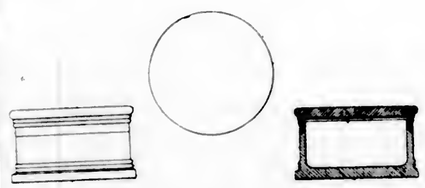
DESIGNS.

32,118. BOTTLE. WILLIAM E. HEATH, Baltimore, Md. Filed Dec. 14, 1899. Serial No. 740,361. Term of patent 7 years.



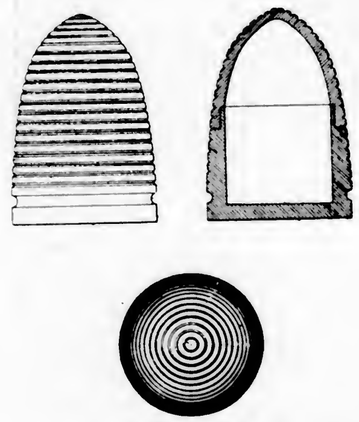
Claim.—The design for a bottle, substantially as described and shown.

32,119. TURNED WOODEN BOX. WEBSTER C. ESTES, New York, N. Y. Filed Nov. 13, 1899. Serial No. 736,882. Term of patent 14 years.



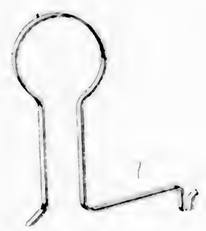
Claim.—The design for a turned wooden box, substantially as shown and described.

32,120. TURNED WOODEN BOX. WEBSTER C. ESTES, New York, N. Y. Filed Nov. 21, 1899. Serial No. 737,824. Term of patent 14 years.



Claim.—The design for a turned wooden box, substantially as shown and described.

32,121. SUSPENDING-HOOK. MAX ROBIN, New York, N. Y. Filed Dec. 20, 1899. Serial No. 741,063. Term of patent 7 years.



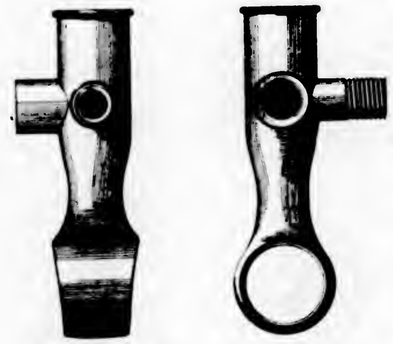
Claim.—The design for a suspending-hook as herein shown and described.

32,122. DOOR-FASTENER. JAMES R MEACHAM, Bennington, Vt. Filed Dec. 14, 1899. Serial No. 740,359. Term of patent 14 years.



Claim.—The design for a door-fastener, as herein shown and described.

32,123. CONNECTING-BRACKET FOR LAMP-FIXTURES. GEORGE BOSSER, Chicago, Ill. Filed Nov. 16, 1899. Serial No. 737,260. Term of patent 14 years.



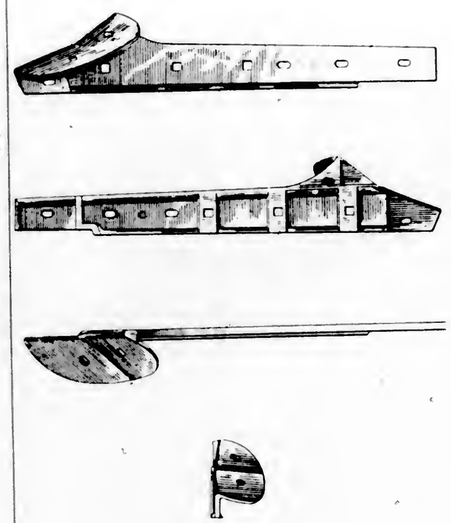
Claim.—The design for a connecting-bracket for lamp-fixtures, as herein shown and described.

32,124. ROD FOR WINDOW-SHADE BRACKETS AND CURTAIN-POLE SUPPORTS. LE ROY HUTSON and ALBERT SCHUPP, Jr., Hurleyville, N. Y. Filed Dec. 7, 1899. Serial No. 739,581. Term of patent 14 years.



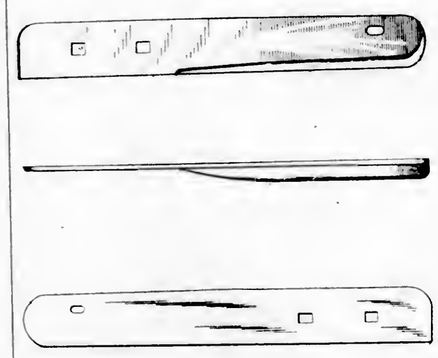
Claim.—The design for a rod for a window-shade bracket and curtain-pole support, substantially as herein shown and described.

32,125. SHOE FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,051. Term of patent 14 years.



Claim.—The design for a shoe as herein shown and described.

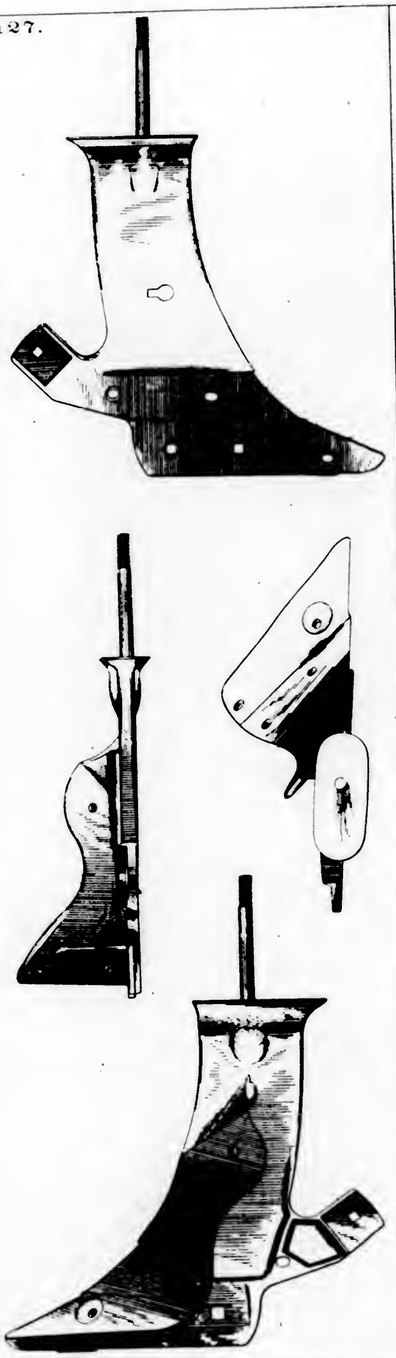
32,126. SHOE FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,052. Term of patent 14 years.



Claim.—The design for a plow-shoe as herein shown and described.

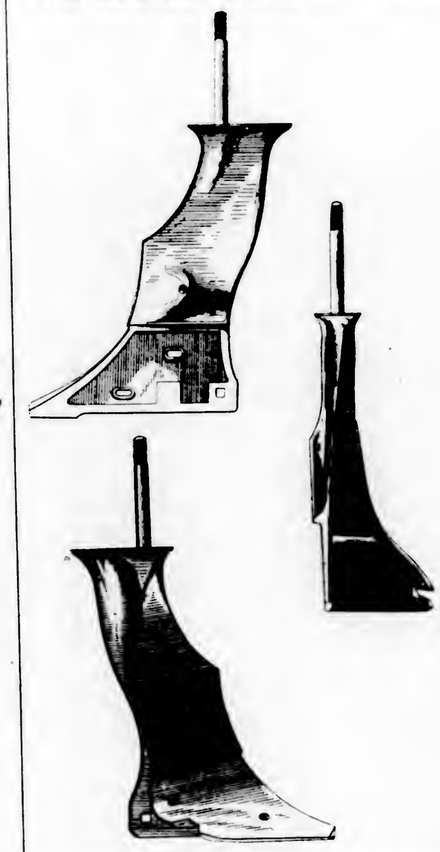
32,127. PLOW-STANDARD. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,050. Term of patent 14 years.

82,127.



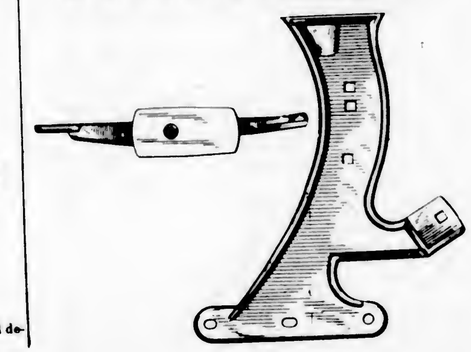
Claim.—The design for a plow-standard as herein shown and described.

82,128. PLOW-STANDARD. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,056. Term of patent 14 years.

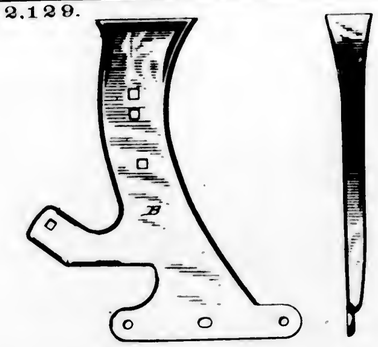


Claim.—The design for a plow-standard herein shown and described.

82,129. STANDARD FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,048. Term of patent 14 years.

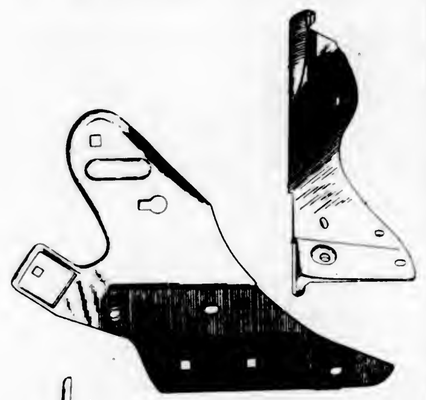


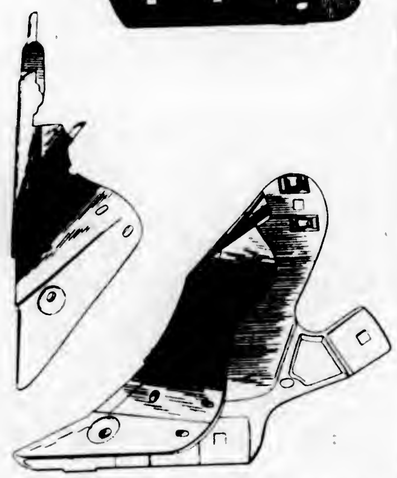
82,129.



Claim.—The design for a plow-standard as herein shown and described.

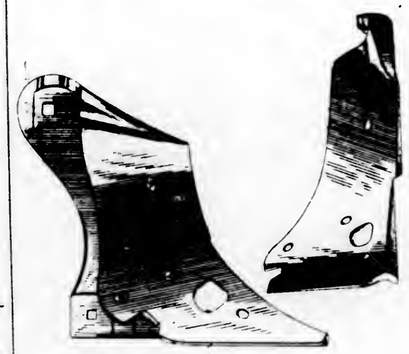
82,130. STANDARD FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,049. Term of patent 14 years.

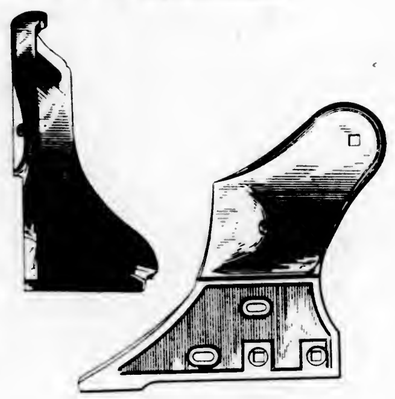




Claim.—The design for a plow-standard as herein shown and described.

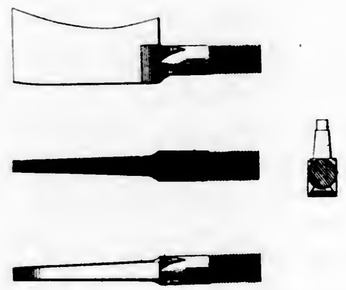
82,131. STANDARD FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,057. Term of patent 14 years.





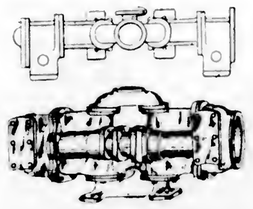
Claim.—The design for a plow-standard as herein shown and described.

82,132. THRESHING-MACHINE TOOTH. WILLIAM H. GEORGE, Dexter, Iowa. Filed Dec. 11, 1899. Serial No. 740,030. Term of patent 14 years.



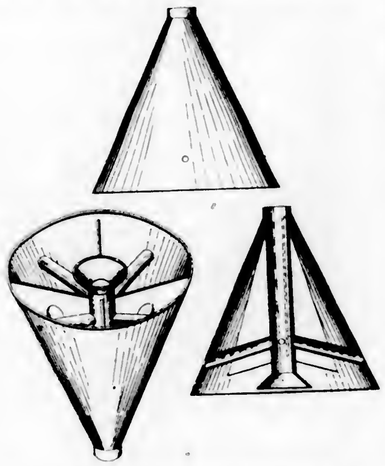
Claim.—The design for a threshing-machine tooth substantially as herein shown and described.

32,133. FRAME FOR WATER ENDS FOR STEAM-PUMPS. EDWIN M. CORYELL, New York, N. Y., assignor to Julia E. Cameron, same place. Filed Dec. 13, 1899. Serial No. 740,131. Term of patent 14 years.



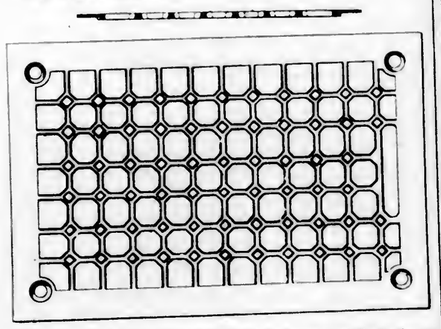
Claim.—The design for a frame for water ends of steam-pumps, as herein shown and described.

32,134. CLOTHES-POUNDER. JOHN D. HUSSEY, Walthall, Miss. Filed Dec. 8, 1899. Serial No. 739,721. Term of patent 3½ years.



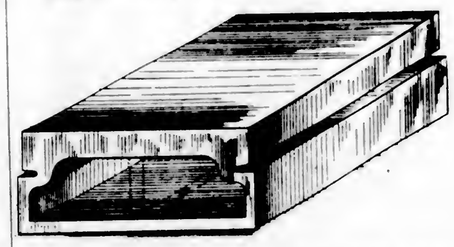
Claim.—The design for a clothes-pounder substantially as herein shown and described.

32,135. HOT-AIR REGISTER. GEORGE H. DIPPO, Chagrin Falls, and WILLIAM M. POWELL, Cleveland, Ohio, assignors to the Ferrosteel Company, Cleveland, Ohio. Filed Dec. 26, 1899. Serial No. 741,683. Term of patent 14 years.



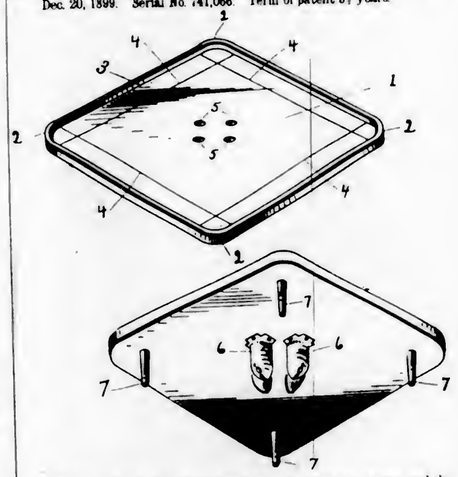
Claim.—The design for a hot-air register substantially as shown and described.

32,136. HOLLOW TILE FOR BAKE-OVENS. JOHN I. MARSHALL, Boston, Mass. Filed Dec. 15, 1899. Serial No. 740,476. Term of patent 14 years.



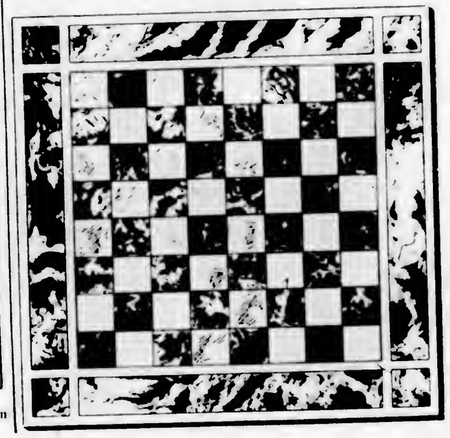
Claim.—The design for a hollow tile for bake-ovens, as herein shown and described.

32,137. GAME-BOARD. ROBISON W. CAMELL, Toledo, Ohio. Filed Dec. 20, 1899. Serial No. 741,066. Term of patent 3½ years.



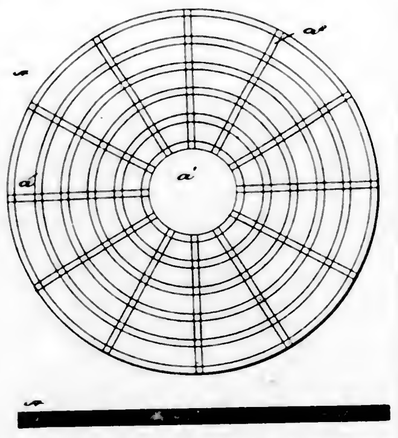
Claim.—The design for a game-board, as herein shown and described.

32,138. GAME BOARD. NEIL ROSS, New York N. Y. Filed Dec. 20, 1899. Serial No. 741,065. Term of patent 3½ years.



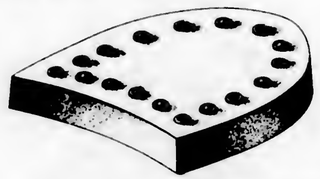
Claim.—The design for a game-board, as herein shown and described.

32,139. GAME-BOARD. WILLIAM OWEN WEATHERBY, Coahoma, Miss. Filed Aug. 29, 1899. Serial No. 728,286. Term of patent 7 years.



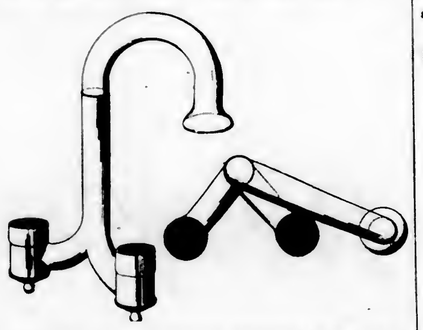
Claim.—The design for a game-board, as herein shown and described.

32,140. BOOT OR SHOE HEEL. JOHN W. BROWN, Trenton, N. J., assignor to the Grieb Rubber Company, same place. Filed Oct. 30, 1899. Serial No. 736,390. Term of patent 14 years.



Claim.—The design for a boot or shoe heel, substantially as described and shown in the accompanying drawing.

32,141. LAMP-BODY. DAVID S. WILLIAMS, Philadelphia, Pa. Filed Dec. 23, 1899. Serial No. 741,474. Term of patent 7 years.



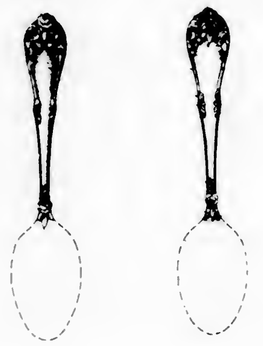
Claim.—The design for a lamp-body substantially as herein shown and described.

32,142. BUTTON. JOHN W. SIMMONS, Hagerstown, Md. Filed Dec. 18, 1899. Serial No. 740,829. Term of patent 14 years.



Claim.—The design for a button as herein shown and described.

32,143. SPOON OR FORK HANDLE. SAMUEL J. LARGE, Bristol, Conn., assignor to the Bristol Brass and Clock Company, same place. Filed Dec. 30, 1899. Serial No. 742,155. Term of patent 3½ years.



Claim.—The design for a spoon or fork handle as herein shown and described.

32,144. GARMENT-FASTENING HOOK. LOU L. DEIDRICK, Canton, Ohio. Filed Dec. 16, 1899. Serial No. 740,615. Term of patent 7 years.



Claim.—The design for a garment-fastening hook, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 23, 1900.

34,060. CERTAIN NAMED STATIONERY MISCELLANY. UNITED SOCIETY OF CHRISTIAN ENDEAVOR, Boston, Mass. Filed Nov. 23, 1899.



Essential feature.—The letters "C E." Used since May 15, 1888

34,061. PEN-NIBS. PERRY & COMPANY, LIMITED, Birmingham, England. Filed Nov. 23, 1899.



Essential feature.—A combination of devices made up of roses, shamrocks, and thistles, diamonds, the portrait of the late Prince Consort, and the word "ALBERT." Used since May, 1866

34,062. LEATHER AND SHOES. JOHN LINDNER, Carlisle, Pa. Filed Sept. 26, 1899.

VITALIC

Essential feature.—The word "VITALIC." Used since April 1, 1899.

34,063. MATTRESSES, PILLOWS, CUSHIONS, AND HASSOCKS. OSTERMOOR & Co., New York, N. Y. Filed Dec. 21, 1899.



Essential feature.—The representation of expanded superimposed layers of a fabric material appearing from a partly-opened-up cover. Used since January 15, 1895.

34,064. MATTRESSES, PILLOWS, CUSHIONS, AND HASSOCKS. OSTERMOOR & Co., New York, N. Y. Filed Dec. 21, 1899.



Essential feature.—The representation of expanded superimposed layers of a fabric material appearing from a partly-opened-up cover, with a woman in the act of attaching a binding to the said cover. Used since January 15, 1895.

34,065. CIGARS. BOHEN BROS., Buffalo, N. Y. Filed Apr. 15, 1899.



Essential feature.—A portrait of the actress May Irwin, together with the words "MAY IRWIN." Used since February 23, 1899.

34,066. CEREAL PRODUCTS. THE CEREALINE MANUFACTURING COMPANY, Indianapolis, Ind. Filed Dec. 23, 1899.

Pansitose

Essential feature.—The word "PANSITOSE." Used since November, 1898.

34,067. BREAKFAST-FOODS. CREAM OF WHEAT COMPANY, Minneapolis, Minn. Filed Dec. 9, 1899.



Essential feature.—A half-length representation of a negro cook or chef dressed in a white coat and cap and the words "CREAM OF WHEAT." Used since March 1, 1895.

34,068. CERTAIN NAMED MEDICINES. FREDERICK W. COOK, Jr., San Antonio, Tex. Filed Dec. 9, 1899.



Essential feature.—The pictorial representation of an aged woman wearing a pair of spectacles, with her hands held up in front and engaged in the operation of knitting. Used since May, 1898.

34,069. CERTAIN NAMED REMEDIES. WILLIAM J. HOPE, Tunica, Miss. Filed Oct. 4, 1899.

BLUE LINE

Essential feature.—The words "BLUE LINE" and the representation of a blue line. Used since June 17, 1897.

34,070. REMEDIES FOR CERTAIN NAMED DISEASES. JOHN V. STEPHENSON, Greensburg, Pa. Filed Dec. 29, 1899.

BA-HA-NI

Essential feature.—The word "BAHANI." Used since August 1, 1899.

34,071. COUGH-SYRUP. SEITZ & REISINGER, York, Pa. Filed Nov. 22, 1899.



Essential feature.—A bust-portrait of Mrs. Elizabeth Glosser, deceased. Used since February 10, 1890.

34,072. TOOTH-PASTE. THE THYMO CHEMICAL AND MANUFACTURING COMPANY, Columbus, Ohio. Filed Mar. 5, 1898.

THYMO

Essential feature.—The word "THYMO." Used since February 1, 1898.

34,073. CERTAIN LOCAL ANESTHETIC. ALBERT J. RUST, Chicago, Ill. Filed Dec. 28, 1899.

Hydrocaine

Essential feature.—The word "HYDROCAINE." Used since January 1, 1897.

34,074. CERTAIN NAMED PHARMACEUTICAL COMPOUND. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Dec. 23, 1899.

CUPRAGOL

Essential feature.—The word "CUPRAGOL." Used since July 1, 1899.

34,075. BATTERY COMPOUNDS OR SALTS. FEDERAL BATTERY COMPANY, Bound Brook, N. J., and New York, N. Y. Filed Dec. 26, 1899.

FEDERAL

Essential feature.—The word "FEDERAL." Used since September 1, 1899.

34,076. BATTERY COMPOUNDS OR SALTS. FEDERAL BATTERY COMPANY, Bound Brook, N. J., and New York, N. Y. Filed Dec. 26, 1899.

FEDERALITE

Essential feature.—The word "FEDERALITE." Used since September 1, 1899.

34,077. POLISH AND DRESSING FOR SHOES. VEUVE CH. LEROY & CIE., Levallois-Perret and Paris, France. Filed Dec. 11, 1899.

CIRAT

Essential feature.—The word "CIRAT." Used since May, 1898.

34,078. CLOTH-FINISHING COMPOSITIONS. WARREN & STEVENS, Boston, Mass. Filed Dec. 18, 1899.

FULDI

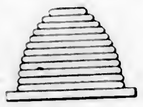
Essential feature.—The word "FULDI." Used since November 22, 1899.

34,079. OILS AND LUBRICANTS. WM. PAATS, ROSER & CO., Buenos Ayres, Argentina. Filed Oct. 23, 1899.



Essential feature.—A symbol composed of two anchors. Used since 1868.

34,080. CERTAIN NAMED ROOFING MATERIALS. NEW ENGLAND FELT ROOFING WORKS, Boston, Mass. Filed Nov. 28, 1899.



Essential feature.—The representation of a beehive. Used since March 1, 1857.

34,081. CERTAIN NAMED MACHINERY AND APPLIANCES. H. WM. DOPP & SON, Buffalo, N. Y. Filed Nov. 27, 1899.



Essential feature.—The representation of a hollow triangular pyramid or tetrahedron with a circle interlaced with or superimposed upon its triangular base. Used since July, 1899.

PHOTO LITH. THE NORRIS PETERS CO. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

Erratum.

OFFICIAL GAZETTE, Vol. 90, No. 1, January 2, 1900, pages 223 and 228, decisions, Christensen *v.* Noyes, names of counsel, for "Messrs. Dodge & Sons for the appellant" read *Messrs. Winkler, Flanders, Smith, Bottum & Vilas* and *Mr. Enek Cowen for appellant.*

COMMISSIONER'S DECISIONS.

IN RE TROPENAS.

Decided December 15, 1899.

1. APPLICATION—SUBSTITUTING APPLICATION EXECUTED BY APPLICANT FOR ONE EXECUTED BY ATTORNEY—CHANGING DATE OF APPLICATION—FOREIGN PATENT.

A petition, specification, and an oath executed by an inventor on October 26, 1899, before the United States Consul-General at Paris cannot be substituted for the petition, specification, and oath executed by the attorney in fact of applicant, which latter papers were deposited in the Patent Office on October 27, 1899, for the purpose of giving the date of October 27, 1899, to the application, so that the applicant will not forfeit his rights to obtain a valid patent under section 4887, Revised Statutes, by reason of a prior foreign patent, as the power to make such substitution is not vested in the Commissioner of Patents.

2. SAME—SAME—SAME—PLACE OF FILING APPLICATIONS.

The application executed by applicant before the United States Consul-General on October 26, 1899, can be of no assistance in giving applicant a date of filing earlier than the actual date of the receipt of the application papers in the Patent Office. There is but one place in which an application for a United States patent can be filed, and that is the United States Patent Office. The papers executed by the attorney cannot be treated as forming any part of a valid application.

3. SAME—SAME—INVALID PATENT.

A patent issued upon such substitute papers as presented in this case would be invalid, for the reason that the application for the patent must have been made by the inventor not later than October 28, 1899; but no application was made by him until November 11, 1899.

IN the matter of the petition of Alexandre Tropenas for the substitution of certain papers.

Messrs. Baldwin, Davidson & Wight, for the petitioner.

DUELL, *Commissioner:*

By this petition applicant seeks to have a petition, specification, and oath executed by him October 26, 1899, before the United States Consul-General at Paris substituted for the petition, specification, and oath executed by Charles Colne as attorney in fact for Tropenas, which latter papers were deposited in the Patent Office October 27, 1899.

This substitution is sought for the purpose of enabling applicant to have for his application the date of October 27, 1899, in view of the fact that he had filed an application in a foreign country on March 28, 1899, which foreign application had already matured into a patent, and unless a date not later than October 28, 1899, be given to the application applicant forfeits his right to obtain a valid United States patent in view of section 4887 of the Revised Statutes.

It appears that applicant had been ill for several weeks prior to October 26 and unable to execute the papers for an application for a United States patent. The invention as disclosed seems to possess merit, and had I the power to grant the petition I should be inclined to do so. That such power is not vested in the Commissioner of Patents seems too clear for argument. In the first place, the application executed by Tropenas before the United States Consul-General at Paris on October 26 can be of no assistance in giving Tropenas a date of filing earlier than the actual date of the receipt of the application papers in the Patent Office. There is but one place in which an application for a United States patent can be filed, and that is in the United States Patent Office. The papers executed by Colne as attorney in fact for Tropenas and deposited in the Office on October 27, 1899, cannot be treated as forming any part of a lawful application.

Section 4888 of the Revised Statutes provides that the application shall be made in writing by the inventor or discoverer, and that—

the specification and claim shall be signed by the inventor and attested by two witnesses.

Section 4892 provides that—

the applicant shall make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent. * * *

Section 4893 provides that—

on the filing of such application and the payment of the fees required by law, the Commissioner of Patents shall cause an examination to be made of the alleged new invention or discovery. * * *

The Rules of Practice of the Patent Office provide that—

the petition must be signed by the applicant, (Rule 33:)

that—

the specification must be signed by the inventor or by his executor or administrator, and his signature must be attested by two witnesses, [Rule 40,]

and that—

the applicant, if the inventor, must make oath or affirmation that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent. (Rule 46.)

An inspection of the papers deposited in the Office shows that not one of these requirements

was complied with until November 11, when the petition, specification, drawing, and oath signed and executed by Tropenas were filed. The express provisions of the statutes and the rules cannot be ignored, and I can find no case in which all of them have been disregarded. A patent issued upon such a substitution of papers as is here sought would be invalid for the reason that the application for the patent must have been made by the inventor not later than October 28, 1899, and such application was not in fact made until November 11.

The United States Supreme Court in *Kennedy* v. *Hazelton* (46 O. G. 973) said:

> The patent law makes it essential to the validity of a patent that it shall be granted on the application, supported by the oath, of the original and first inventor, (or of his executor or administrator,) whether the patent is issued to him or to his assignee. A patent which is not supported by the oath of the inventor, but applied for by one who is not the inventor, is unauthorized by law, and void, and, whether taken out in the name of the applicant or of any assignee of his, confers no rights as against the public. (Rev. Stats., secs. 4886, 4888, 4892, 4895, 4896, 4920.)

Therefore it follows that the petition must be denied.

EX PARTE RUSSELL.

Decided December 21, 1899.

1. JURISDICTION—EXAMINERS-IN-CHIEF, QUESTIONS TO BE PASSED UPON BY.

Where the only question before the Examiners-in-Chief was that of aggregation, *Held* that under the rule their decision should have been confined to that question and that if in their opinion the claims appealed to them were not allowable in view of the prior patent they should have called attention to this matter with the proper recommendation annexed to their decision.

2. SAME—SAME—RULES OF THE OFFICE TO BE FOLLOWED.

While it is true that this Office is not a court, yet there are certain rules promulgated for the conduct of proceedings in the Office, and the fewer the departures from a positive rule of procedure the less chance there is of confusion in the practice and of cause for complaint by parties practicing before it. If such a rule be wrong, it should be amended by the proper authorities and not ignored.

3. SAME—REMANDING CASE TO PRIMARY EXAMINER.

Where the only ground on which the Primary Examiner refused the claims was that of aggregation, and this was the only ground on which appeal or petition was taken and was the only point discussed by the appellant when the case was carried from the Primary Examiner, but the appellate tribunals held that the claims did not define a combination and, again, that they were not for a patentable combination, on appeal to the Commissioner from the Examiners-in-Chief *Held* that it is better not to pass upon the patentability of the appealed claims, and the decisions heretofore made on the claims are set aside and the case remanded to the Primary Examiner to consider the claims again, so that the case may proceed in accordance with the rules.

APPEAL from Examiners-in-Chief.

CARTRIDGE-CLIP.

Application of Andrew H. Russell filed November 12, 1897, No. 658,334.

Mr. W. A. Bartlett for the appellant.

DUELL, *Commissioner:*

This case comes before the Commissioner by appeal from the decision of the Examiners-in-Chief in refusing to appellant certain claims. In this appeal the appellant complains that the different tribunals who have had the case before them have decided it adversely to him on different grounds and on grounds of which he had no notice before appeal or petition.

Four claims are involved, which read as follows:

7. The cartridge-clip consisting of a sheet-metal trough, a detent connected thereto and extending over the end of the trough and having a trip-arm extending to the side of the trough, combined with a gun having a cartridge-receptacle, and an inclined piece in the path of movement of the trip and engaging the same to push the detent backward as the clip is pressed into the magazine, substantially as described.

8. In combination, a gun-magazine having an inclined surface at the side of the cartridge-clip passage, and a cartridge-clip having a spring-detent with a trip-arm extending at the side and engaging the incline of the gun so as to press the detent backward as the clip passes down in the magazine, substantially as described.

9. The combination with a sheet-metal clip having a spring-detent and a trip-arm connected thereto, and projecting at the side thereof, of the gun-magazine having an incline with which said clip-arm engages and by which it is pressed backward, substantially as described.

10. A cartridge-holding clip and a detent therefor, a gun having means for opening said clip, and a stop by which the detent is retained in open position while in the gun, all combined substantially as described.

The record shows that on May 31, 1898, the Primary Examiner a second time rejected these claims on the ground that "they are for aggregations." From this action of the Examiner petition was taken to the Commissioner. The Acting Commissioner in a decision dated August 23, 1898, dismissed the petition; but he discussed the question of the aggregation of the claims and in that decision used this language:

> What the Examiner does hold in the present case, and it is believed that his position has been clearly expressed in his letters of rejection, is that the claims rejected do not define a patentable combination. * * *
>
> While the Examiner in holding that the claims rejected in this case do not define patentable combinations may or may not be correct, such holding is not inconsistent with the decision of the Examiners-in-Chief, and does not indicate any hesitation on his part to give to that decision the full force and effect which it was intended to have.

On September 2, 1898, appeal was taken to the Examiners-in-Chief for the reason that the Examiner erred in rejecting these claims—

> on the ground of "aggregation" or that they "present illegitimate combinations, in that the gun is improperly included as an element thereof."

In answering the appeal the Examiner stated:

> The appeal purports to be taken from the action of the Examiner, holding that these claims are for illegitimate combinations. In reality, phenomenal as it may seem, it is from the decision of the Acting Commissioner to the effect that the said claims are not sufficiently definite, as will appear from a general analysis of the case. * * *
>
> Upon disposing of the petition, the Acting Commissioner showed that the petitioner's deductions were erroneous. On page 3 of his decision, he affirmed the legitimacy of combination between a cartridge-clip and the magazine of a gun. On the same page, he defined the Examiner's position and, also, on pages 3 and 4 intimated that the claims do not clearly define the construction which they seek to cover.

On October 1, 1898, the appellant filed a paper asking—

> that the Commissioner make an order to the Board of Examiners-in-Chief that the claims appealed to them may be decided on the merits of the case without regard to any expression of opinion as to the claims by the Acting Commissioner. I further ask such investigation as may show what basis, if any, may be found in the record as it existed prior to the date of petition, for the statement in the decision of the Acting Commissioner first above quoted; and if nothing is so found, then how much interpolation has since been made in the record.

On October 4, 1898, the Assistant Commissioner disposed of this request in this language:

> While it would seem to be clear from the decision that nothing therein was calculated in any way to control the decision of the Examiners-in-Chief in affirming or reversing the Examiner's rejection of any of the claims on appeal, should appeal be taken, I see no objection to here stating that my decision should not be taken as in any way instructing the Examiners-in-Chief as to the merits of the claims appealed to them.
>
> To this extent the request made by applicant's attorney is granted. As to the other matters contained in the request, the request is dismissed.

The Examiners-in-Chief in their decision of November 21, 1898, refusing the claims, referred to a prior patent of appellant as a reference against the appealed claims and held that while the claims were for a combination they were not patentably new, saying:

> It would hardly seem to be open to question but that there is a combination to produce a mechanical result between the cartridge-chamber of the gun, particularly shaped to affect the trip-arms of a cartridge-clip, since the cartridges cannot be automatically released from the trip-arm to enable them to be fed unless some means is provided for releasing them from the clip. But this mechanical combination to effect this result is itself old, and in this old combination the applicant has substituted differently-formed elements, each of which, however, coöperates with the other to produce the same old result. The applicant's real invention lies in the clip, and it is this clip which he has substituted for the old one in the same combination. * * *
>
> In this particular case we think there is no invention in the combinations covered by the claims, and that the appealed claims do not present a new combination of elements.

From this record it will be seen that the Primary Examiner held that the claims were not for a combination, but for an aggregation. The Acting Commissioner held that the claims did not define a combination, and the Examiners-in-Chief held that they were for a combination, but that the combination was not new.

In his appeal paper the appellant says:

> It is respectfully submitted that under Rule 68, and under the general practice of the Patent Office, if these various objections really exist, they existed at the outset. The applicant should have had notice of them, so that, on appeal or petition, he might combat the real objection, or all the objections; that he might be able to show, if possible, that his claims are in fact warranted, and that the objections raised are not valid objections. So far as he has been heard, the objections made below have been overruled by the appellate tribunal; but his claims have been rejected for reasons not stated before the appeal, and on which he has had no hearing.

I think the appellant has just ground for complaint in this case. While the only ground on which the Primary Examiner refused the claims was that of aggregation, and this was the only ground on which appeal or petition was taken, and it appears that this was the only point discussed by appellant when the case was carried from the Primary Examiner, yet it was held that his claims did not define a combination and, again, that they were not for a patentable combination.

Rule 139 (*a*) of the Rules of Practice of this Office distinctly states that—

> the Examiners-in-Chief in their decision will affirm or reverse the decision of the Primary Examiner only on the points on which appeal shall have been taken. Should they discover any apparent grounds not involved in the appeal for granting or refusing Letters Patent in the form claimed, or any other form, they will annex to their decision a statement to that effect, with such recommendation as they shall deem proper.

The only question before the Examiners-in-Chief was that of aggregation, and under the rule their decision should have been confined to that question. If in their opinion the claims were not allowable in view of a prior patent, they should have called attention to this matter with the proper recommendation annexed to their decision. While it is true that this Office is not a court, yet there are certain rules promulgated for the conduct of proceedings in the Office. The fewer the departures from a positive rule of procedure the less chance there is of confusion in the practice and of cause for complaint by parties practicing before the Office. If such a rule be wrong, it should be amended by the proper authorities and not ignored.

As the case has come before me, I think it better not to pass upon the patentability of the appealed claims at this time. The decisions heretofore made on these claims are set aside and the case is remanded to the Primary Examiner to again consider the claims, so that the case may proceed in accordance with the course indicated above. While the Examiner may in considering the case as remanded to him take due notice of the expression of opinion in the decisions set aside, yet he need not feel bound by such decisions.

In view of the circumstances of this case it is directed that it be given preference in the order of consideration by the various tribunals before whom it may come.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

HUEBEL *v.* BERNARD.

Decided December 6, 1899.

1. INTERFERENCE—ORIGINALITY—EMPLOYER AND EMPLOYEE.

Where Bernard employed Huebel to make the device and pointed out the distinctive and dominating feature of his improvement, but did not make anything resembling a perfect drawing for his guidance or describe the proposed construction in detail, *Held* that Huebel is not entitled to claim the invention, although by reason of his mechanical skill he may have made a neater and more perfect device than was in the mind of Bernard.

2. SAME—SAME—MECHANICAL SKILL OF EMPLOYEE.

An inventor who employes a mechanic to embody his conception in practical form retains his exclusive right to the perfected improvement notwithstanding the perfection is partly due to the exercise of the mechanical skill of the employee. The latter must invent something, not merely improve by the exercise of his mechanical skill upon a conception which he has been employed to work out. (*Agawan Co.* v. *Jordan*, 7 Wall., 583; *Milton* v. *Kingsley*, 75 O. G., 2193.)

3. SAME—PRIORITY.

Held that the evidence on behalf of Bernard has overcome the burden of proof imposed upon him by the earlier application of Huebel and has successfully established his claim to the award. The decision appealed from affirmed. (67 MS. Dec., 26.)

Mr. George H. Evans for the appellant.

Mr. H. A. Seymour for the appellee.

SHEPARD, *J.:*

The appeal in this case is from a decision of the Commissioner of Patents in an interference case awarding priority to William Bernard of invention of an improvement in soap and sponge holders for attachment to bath-tubs.

The issue of the controversy was thus defined in the Patent Office:

> 1. As an article of manufacture, a combined holder comprising a rectangular top frame which constitutes the upper open portion of the holder, a cross-wire secured to this frame for dividing it into sections, receptacles of different depths depending from each of these sections, the back of the deeper section constituting an extended bearing to rest against a support, and hangers extending above the rectangular frame for supporting the holder and retaining the back in position against its support.
>
> 2. A combined sponge and soap holder comprising an open, horizontal, oblong frame, provided at its rear longitudinal edge with attaching or suspension devices, a series of wires having short upturned ends secured to one end of the frame and forming a shallow depressed soap-holder, and another series of wires having upturned ends of greater length than those of the first series and secured to the remaining larger portion of the said frame and forming a depressed sponge-holder of greater depth and width than the soap-holder.

Huebel is the senior party, his application having been filed September 25, 1897. That of Bernard was filed four days later. Huebel's preliminary

statement alleges conception in April, 1896, disclosure to others and construction of full-sized model in August, 1897, and reduction to practice in August, 1897. Bernard alleges conception in November or December, 1895, disclosure to others in December, 1895, or January, 1896, making of drawings and order of model in July, 1897, and reduction to practice in August, 1897.

The gist of the controversy as developed by the evidence is well stated in the decision of the Commissioner:

> The testimony shows and it is admitted by both parties that the first device embodying the invention was made by Huebel, but each party claims that device as his reduction to practice. The ground upon which Bernard bases that claim is that he disclosed the invention to Huebel, and that it was upon his request that Huebel made it. The whole case, therefore, turns upon the question as to whether or not Bernard did in fact explain the invention in issue to Huebel and employ him to construct the device.

Bernard was a member of a firm (Bernard & Frank) whose business, carried on in New York, was the jobbing sale of novelties of the character of this invention and others. He was something of a mechanic, having spent some years of his youth as apprentice and journeyman in shops of manufacturing jewelers. He was traveling salesman for his firm at the time that he claims to have had his conception of the invention of the issue and claims that it was suggested by objections raised to a soap and sponge holder which was on sale by his firm.

The objection was that the holder being too low in the bath-tub was in the way and suffered the drip of the soap-box to fall on the sponge. He claims to have conceived the idea embodied in the issue to meet this objection and to have explained it to Huebel in giving him an order for the construction of a full-size model on August 13, 1897.

Huebel and his partner, Manger, had a shop in Brooklyn where they manufactured electrical and brass goods, bath-room specialties, and novelties. Huebel was the inventor of the soap and sponge holder that was on sale by Bernard & Frank. He assigned the patent to Frank under an agreement that he should manufacture the device for his firm. It is this that was intended to be improved upon by both him and Bernard. Huebel admits that Bernard asked him to make a model of a new holder about August 13, 1897, but denies that he gave him either drawing or special description at the time. He claims to have conceived the idea of the improvement more than a year before this, and that the model which he made and delivered to Bernard on August 27, 1897, was an embodiment of his own independent conception, and he has undertaken to show that the device which Bernard had in mind and explained to him on August 20 was a very different construction.

The chief reliance of each party is upon his own statements as a witness, though there was some important evidence of other witnesses and of documents offered in corroboration.

From an examination of this evidence, which after the careful review it has received in the tribunals of the Patent Office it would be supererogation to repeat, we agree with the Commissioner in the conclusion that Bernard has overcome the burden of proof imposed upon him by the earlier application of Huebel, and has successfully established his claim to the award.

Whether Huebel had an independent conception of the improvement it is immaterial to consider. Grant that he had, and still he made no attempt to give it practical form until after he had the request of Bernard for the new model, notwithstanding his knowledge and appreciation of the objections to the old device and possession of the time and means to develop the idea.

The positive statement of Bernard that he fully explained his idea to Huebel and substantially described the desired construction which Huebel embodied in the full-size model delivered on August 27, 1897, is made reasonably certain by the correspondence between him and Huebel between the date of suggestion and completion—namely, August 13 and 27.

The statements contained in these letters, which were confessedly written and received, have not been explained or accounted for by Huebel upon any theory consistent with his claims.

There is one other question that arises on the contention of the appellant. Bernard does not profess to have made anything resembling a perfect drawing for the guidance of Huebel when he ordered the construction of the improved holder or to have described the proposed construction in detail. He pointed out the distinctive and dominating feature of his improvement, which was the arrangement of a rectangular frame, with the small soap-box at the end of the longer sponge-rack, to be fastened to or suspended above the bath-tub. He reasonably accounts for the lack of particularity of detail by saying that he was talking to a mechanic familiar with the devices then in use and the ordinary modes of fastening or suspending them and one who had been engaged in manufacturing one kind of combination-holder for Bernard & Frank, as well as other novelties, for their sale.

Now it is reasonable to believe, and doubtless true, that Huebel by means of his mechanical skill and knowledge of the art has made a neater and more nearly perfect device than that in the mind of Bernard at the time of the communication of his idea; but it does not follow that he is entitled to claim the invention on that ground. The improvement has been declared a patentable novelty; but considering the state of the development of the art at the time it must be admitted that the remaining room for the exercise of inventive genius was contracted and narrow.

Whatever additional improvement may have been made by Huebel in the course of construction could have been the result of ordinary mechanical skill and nothing more. There was scarcely room left for a novel arrangement reaching the dignity of invention.

An inventor who employs a mechanic to embody his conception in practical form retains his exclusive right to the perfected improvement notwithstanding the perfection is partly due to the exercise of the mechanical skill of the employee. The latter must invent something, not merely improve by the exercise of his mechanical skill upon a conception which he has been employed to work out. (*Agawam Co.* v. *Jordan*, 7 Wall., 583, 603; *Milton* v. *Kingsley*, 75 O. G., 2193; 7 App. D. C., 531, 537.)

For the reasons given the decision of the Commissioner is affirmed, and this decision and the proceedings in this court are ordered to be certified to the Commissioner of Patents, as required by the law.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 5. TUESDAY, JANUARY 30, 1900. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 17, 1900.

SIR: The Secretary of the Interior has ordered that J. B. Bowlin, of Williamsburg, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 18, 1900.

SIR: The Secretary of the Interior has ordered that Thaddeus H. Allen, of Natchez, Miss., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 18, 1900.

SIR: The Secretary of the Interior has ordered that J. W. Hicks, of Louisville, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 19, 1900.

SIR: The Secretary of the Interior has ordered that Newton Handy, of Canton, Miss., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 20, 1900.

SIR: The Secretary of the Interior has ordered that Frank A. Harrison, of Washington, D. C., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED JANUARY 30, 1900.

Labels.

7,317.—Title: "FLETCHER-FLOYD'S FINE CHOCOLATES AND BONBONS." (For Candy.) *Fletcher-Floyd Candy Co.*, Kansas City, Mo. Application filed January 8, 1900.

7,318.—Title: "WOODMEN OF THE WORLD CIGARS." (For Cigars.) *John Boothe, J. E. Gould, C. F. Mansfield,* and *A. Morgan Duke*, Tyler, Tex. Application filed January 6, 1900.

7,319.—Title: "ROYAL, PETER HAND BREWERY CO." (For Beer.) *Peter Hand Brewing Company*, Chicago, Ill. Application filed January 2, 1900.

7,320.—Title: "DIOGENES WHISKEY." (For Whisky.) *John Badenhoop & Co.*, New York, N. Y. Application filed January 3, 1900.

7,321.—Title: "CITIZENS CLUB." (For Whisky.) *George W. Holloway*, Syracuse, N. Y. Application filed December 28, 1899.

7,322.—Title: "UNDERBERG BOONEKAMP OF MAAG-BITTER." (For Bitters.) *H. Underbery-Albrecht*, Rheinberg, Germany. Application filed January 4, 1900.

7,323.—Title: "UNDERBERG BOONEKAMP." (For Bitters.) *H. Underberg-Albrecht*, Rheinberg, Germany. Application filed January 4, 1900.

7,324.—Title: "ROSEINE." (For a Lotion.) *John F. Van Nort*, Elmira, N. Y. Application filed January 8, 1900.

7,325.—Title: "SMOKELESS FUEL." (For Parcels of Smokeless Fuel.) *The New England Gas and Coke Company*, Boston, Mass. Application filed October 14, 1899.

7,326.—Title: "MYSTIC BRAND OF SULPHATE OF AMMONIA." (For Parcels of Sulfate of Ammonia.) *The New England Gas and Coke Company*, Boston, Mass. Application filed October 17, 1899.

Prints.

197.—Title: "THEY ALL ROLL BEST, THE BEST ALL ROLL ON GOODYEAR TIRES." (For Pneumatic Tires.) *The Goodyear Tire and Rubber Company*, Akron, Ohio. Application filed January 2, 1900.

198.—Title: "WONDER WORKER SOAP." (For Soap.) *J. K. Hogg* and *Sam R. Hogg*, Baltimore, Md. Application filed December 22, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 23, 1900

Room No.	Divisions and subjects of invention	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action
	In arrears Under one month.			
38	XXIV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Jan. 10	Jan. 15	77
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 9	Jan. 15	147
217	XXXIII. *Designs. †Trade-Marks, ‡Labels and Prints, Optics.	Jan. 9	Jan. 10	27
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 5	Jan. 8	156
106	II. Farm Stock, Products, etc.	Dec. 30	Jan. 10	212
353	X. Carriages and Wagons.	Dec. 27	Jan. 10	134
346	I. Tillage and Fences.	Dec. 27	Jan. 10	164
96	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 26	Jan. 13	121
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Dec. 26	Jan. 11	110
309	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Dec. 26	Jan. 10	90
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Dec. 26	Jan. 10	67
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 26	Jan. 10	168
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Dec. 26	Jan. 10	132
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Dec. 26	Jan. 10	188
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers	Dec. 26	Jan. 10	145
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Dec. 26	Jan. 9	172
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Dec. 26	Jan. 9	136
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Dec. 26	Jan. 9	110
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 26	Jan. 9	139
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Dec. 26	Jan. 9	92
255	XII. Mechanical Engineering, Store-Service, etc.	Dec. 26	Jan. 9	188
256	V. Fine Arts, Harvesters, Book Binding, Music, etc	Dec. 26	Jan. 9	171
215	XVII. Printing, Type-Writing Machines, and Linotyping	Dec. 26	Jan. 9	185
87	XXVI Electricity, Generation, Distribution, Motive Power, Electric Railways, etc	Dec. 26	Jan. 9	129
91	XVI Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 26	Jan. 9	295
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Dec. 26	Jan. 9	137
102	XIX Stoves and Furnaces	Dec. 26	Jan. 9	198
120	IX. Hydraulics, Fire-Extinguishers, etc.	Dec. 26	Jan. 5	113
248	XVIII. Steam-Engineering, etc	Dec. 26	Jan. 5	135
	Between one and two months			
359	VI. Chemistry Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery	Dec. 24	Jan. 9	309
92	XXI Textiles, etc	Dec. 24	Jan. 8	177
122	XXIV Sewing-Machines, Apparel and Toilet.	Dec. 18	Jan. 9	161
105	XI Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery	Dec. 18	Jan. 4	198
340	VII Velocipedes, Games, and Toys	Dec. 8	Jan. 5	254
95	XXVIII. Pneumatics, Air and Gas Engines, etc.	Dec. 6	Dec. 22	288
122	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Dec. 1	Jan. 15	94

Total number of applications awaiting action.....5,487

Applications Under Examination—Continued.

Under one month			
*Designs	Jan. 16	Jan. 20	44
†Trade-Marks	Jan 19	Jan. 22	12
‡Labels and Prints	Jan. 23	Jan. 23	....

ISSUE OF JANUARY 30, 1900.

Patents	508—No.	642,059 to No. 642,566, inclusive.
Designs	40—No.	32,145 to No. 32,184, inclusive.
Trade-Marks	48—No.	34,082 to No. 34,129, inclusive.
Labels	10—No.	7,317 to No. 7,326, inclusive.
Prints	2—No.	197 to No. 198, inclusive.
Reissues	2—No.	11,806 to No. 11,807, inclusive.
Total issue	610	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	4	....
Arkansas	5	1	New Jersey	18	....
California	12	....	New Mexico Territ'y	....	....
Colorado	6	....	New York	71	12
Connecticut	21	....	North Carolina	4	....
Delaware	....	....	North Dakota	2	....
District of Columbia	3	....	Ohio	46	2
Florida	2	....	Oklahoma Territ'y	2	....
Georgia	4	1	Oregon	....	....
Hawaii	....	....	Pennsylvania	49	8
Idaho	....	....	Rhode Island	5	....
Illinois	47	9	South Carolina	2	....
Indian Territory	....	....	South Dakota	1	....
Indiana	10	....	Tennessee	3	....
Iowa	13	....	Texas	7	2
Kansas	7	....	Utah	1	....
Kentucky	3	....	Vermont	1	....
Louisiana	....	....	Virginia	6	1
Maine	1	....	Washington	1	....
Maryland	14	1	West Virginia	3	....
Massachusetts	41	15	Wisconsin	15	....
Michigan	14	1	Wyoming	1	....
Minnesota	18	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	21	2	Total to citizens of the United States	498	55
Montana	1	....			
Nebraska	4	....			

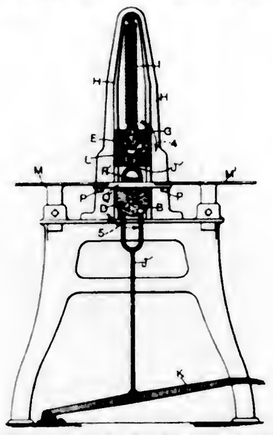
TO CITIZENS OF FOREIGN COUNTRIES.

Countries	Patents and Designs.	Trade-Marks and Prints.	Countries	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Italy	1	....
Australia	....	....	Japan	....	....
Austria-Hungary	3	....	Jamaica	....	....
Barbadoes	....	....	Mexico	....	....
Belgium	....	....	Netherlands	....	....
Brazil	....	....	Newfoundland	....	....
British West Indies	....	....	New South Wales	....	....
Canada	10	....	New Zealand	....	....
Cape Colony	....	....	Norway	1	....
China	....	....	Queensland	1	....
Colombia	....	....	Roumania	....	....
Cuba	....	....	Russia	1	....
Denmark	....	....	Scotland	1	....
Dutch West Indies	....	....	South African Republic	....	....
Egypt	....	....	Sweden	1	....
England	18	2	Switzerland	1	....
Finland	....	....	Victoria	....	....
France	5	1	Western Australia	....	....
Germany	15	2	Total to citizens of foreign countries	60	5
Guatemala	....	....			
India	....	....			
Ireland	1	....			

PATENTS

GRANTED JANUARY 30, 1900.

642,059. MACHINE FOR MOUNTING ORNAMENTAL COMPOSITION DIRECTLY UPON CIRCULAR PICTURE-FRAMES. FRANK E. ADAMS, Chicago, Ill. Filed Nov. 18, 1898. Serial No. 696,748. (No model.)



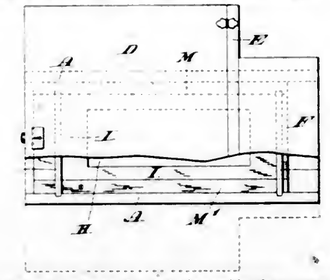
Claim.—1. In a machine for directly mounting ornamental composition on frames, the combination, with a support provided with an impression-roller and means for operating the same, of two tables on the support, each of which is provided with a slot, two bolts in each slot, two cross-pieces between the tables, the ends of which extend under the slots and engage with the bolts, a guide projecting from the central portion of each cross-piece above the tops of the tables, and a wheel journaled between the tables and the cross-pieces, the axis of which is substantially in alinement with the guides and the periphery is provided with teeth and projects above the tops of the tables.

2. In a machine for directly mounting ornamental composition on frames, the combination, with a support provided with an impression-roller and means for operating the same, of two tables on the support, the adjacent edges of which are parallel, each table being provided with a slot, parallel with its edge and having a portion of its top around the slot cut away, two cross-pieces between the tables, each end of each of which is halved and extends under the table and the top fits squarely between the tables and is even with the tops thereof, a bolt through each end of each cross-piece, the head of which fits within the recessed portion of the table and the nut clamps the cross-piece against the under side of the table, a roller journaled at the central portion of each cross-piece so as to project above the tops of the tables, and a roller journaled between the tables and the cross-pieces, the axis of which is substantially in alinement with the rollers on the cross-pieces and the periphery projects above the tops of the tables and is provided with teeth.

642,060. CHAIR-BACK DESK OR STAND. WILLIAM H. ANDERSON, New Rochelle, N. Y. Filed Nov. 9, 1899. Serial No. 736,322. (No model.)

Claim.—1. In an attachment for chairs in combination, a frame, a top therefor, a stationary clamping member thereon, a movable clamp slidably mounted upon the said frame and means for actuating said movable clamp, and an intermediate clamping device slidably mounted upon the frame and located between said stationary clamp and said movable clamp for the purpose described.

2. In an attachment for chairs in combination, a cover, a frame, a stationary clamping member thereon, a movable clamp slidably mounted on said frame, and a box slidably mounted on said frame between said stationary clamp and said movable clamp.



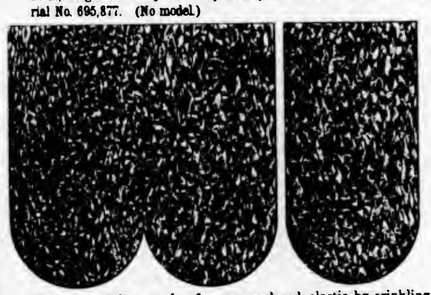
3. In an attachment for chairs in combination, a cover, a frame, a stationary clamping member thereon, a movable clamp slidably mounted on said frame, means for moving said clamp, a box slidingly mounted on said frame between said stationary clamp and said movable clamp, a shelf hinged to said frame, and means for holding said shelf in a tilted position.

4. In an attachment for chairs in combination, a cover, a frame, a stationary clamping member thereon, a movable clamp, guides therefor, means for allowing a slight yielding movement of said clamp on said guides, and a box slidably mounted on said frame between said stationary clamp and said movable clamp.

5. In an attachment for chairs in combination, a hinged cover, a frame, a stationary clamping member thereon, a movable clamp slidably mounted on said frame, means for moving said clamp, and a box slidably mounted on said frame between said stationary clamp and said movable clamp.

6. In an attachment for chairs in combination, a cover, a frame, a stationary clamping member thereon, a movable clamp, guides pivotally attached to said clamp and slidably mounted on said frame between said stationary clamp and said movable clamp, a shelf hinged to said frame, and means for adjustably supporting said shelf.

642,061. LINING FOR BARRELS. JAMES ARKELL, Canajoharie, N. Y., assignor to Mary F. Burnap, same place. Filed Nov. 8, 1898. Serial No. 695,877. (No model.)

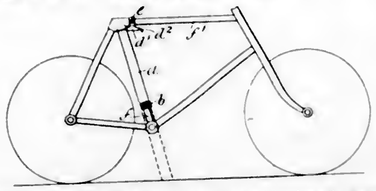


Claim.—1. A bag made of paper rendered elastic by crinkling or corrugating and having a closed bottom and closed sides sewed together whereby the elasticity of the united edges is preserved.

2. A lining for vessels consisting of paper rendered elastic by crinkling or corrugating and having the meeting edges at the side and bottom sewed together whereby said side and bottom will be

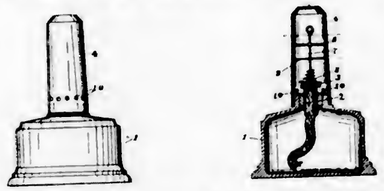
united without detracting from the elasticity of the united edges of the paper.

642,062. BICYCLE-SUPPORT. GORDON ASTON, Grimsby, England. Filed Oct. 25, 1897. Serial No. 656,353. (No model.)



Claim.—In a support for bicycles the combination of a prop *a* of semicircular cross-section and formed with arms *a'* pivoted by the pin *c* to the lugs *b²* formed on the ring *b* hinged at *b'* and clamped to the frame *f* of the machine by the screw *b³*, the coiled spring *c'* fitted to the pin *c* for holding the prop rigidly in its lowered position, and the spring-catch *d* formed with a handle *d³*, and carried by the ring *c* which is hinged at *c'* and clamped to the tube *f'* of the frame of machine by the screw *c²*, the spring-catch *d* engaging with the teeth or serrations *a²* formed at the outer end or bottom of the prop *a* for keeping the latter in its raised position when out of use, substantially as described.

642,063. FORMALDEHYDE-LAMP. FRANK E. AVERILL, Buffalo, N. Y. Filed July 28, 1898. Serial No. 687,136. (No model.)



Claim.—1. In combination in an aldehyde-lamp of ordinary construction, having a wick, burner and tubular top, a tubular member fitted to said top and an adjustable, depending structure consisting of platinum wire composed of fine strands, overlaid with fine granules of platinum.

2. In combination in a lamp for generating aldehyde, the lamp of ordinary construction for containing alcohol and a wire to be used therewith, said wire being formed of fine strands twisted together and overlaid with fine granules of platinum.

3. In combination in an aldehyde-lamp, the lamp of ordinary construction for containing methyl alcohol and provided with a wick, a removable support fitted to the top of said lamp, a rod adjustably carried on said support, a platinum coil attached to the lower end of said rod and adapted to be elevated or depressed at varying distances from the lamp-wick.

4. In combination in an aldehyde-lamp, the lamp of ordinary construction for containing methyl alcohol, a removable metallic chimney fitted to the upper portion of said lamp, a perforated diaphragm within said chimney, a cross-bar arranged within said chimney above said diaphragm, a supporting-stem longitudinally movable carried in said diaphragm and said supporting-bar, and a platinum coil secured to the lower end of said stem.

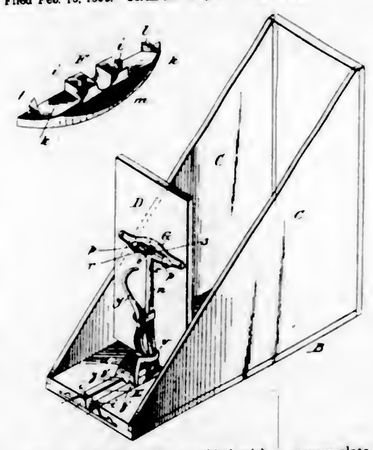
642,064. TREE-PROTECTOR. SAMUEL V. BAILEY, Reisterstown, Md. Filed May 27, 1899. Serial No. 718,480. (No model.)



Claim.—1. As a new article of manufacture, the tree box or protector, consisting of the body portion having longitudinal lapping edges, and clasps at its bottom and top edges, arranged upon opposite points of said lapping portions or edges, respectively, and the annular or circular top guard resting upon said body portion with its radially-slotted inner edge in contact with the tree and its outer edge having a pendent flange compassing said body portion, at the upper edge, substantially as set forth.

2. The tree box or protector comprising the body portion provided with clasps arranged upon its bottom and top edges, and at diagonally opposite corners thereof, one clasp underlapping or embracing the bottom edge of the opposite portion and the other clasp overlapping the upper edge of the portion opposite, and the top annular plate radially slitted at its inner edge, and having a pendent outer edge portion or flange compassing the upper edge of the said body portion, substantially as set forth.

642,065. FILE-HOLDER. RICHARD RANKHAM, Washington, D. C. Filed Feb. 18, 1899. Serial No. 705,947. (No model.)



Claim.—1. A file-holder provided with a groove-plate having lateral rigid projections on the edges of its embedded portions to prevent lateral displacement in the base-board.

2. A file-holder provided with a groove-plate having right-angled rigid projections on its embedded portions to prevent lateral and longitudinal displacement in the base-board.

3. A file-holder having a groove-plate provided with right-angled rigid projections on the outer edges to embed in the base-board and prevent lateral displacement therein.

4. A file-holder having a groove-plate provided with one or more lateral rigid projections on opposite sides of the outer edges to embed in the base-board and prevent lateral displacement therein.

5. A file-holder having a groove-plate, in combination with a head-block provided with vertical studs to which the groove-plate is attached and having laterally-extending arms provided with projections on one of their surfaces to embed in the base-board, and prevent splitting through the groove.

6. A file-holder having a groove-plate, in combination with a head-block to which the groove-plate is attached and having laterally-extending arms provided with projections inclined on their inner sides.

7. A file-holder having a groove-plate, in combination with a head-block to which the groove-plate is attached and provided with a transverse groove in its upper surface and a curved inner side cut away on its upper surface, a follower and a clamp.

8. A file-holder having an angular groove-plate, and a follower, in combination with a clamp having upwardly-inclined arms engaging said groove-plate, for the purpose described.

9. A file-holder having a groove-plate and a follower provided with a clamp-plate, in combination with a clamp-bar pivotally connected to the clamp-plate and engaging the groove-plate, a clamp-shoe pivotally connected to the clamp-bar, and an operating-lever pivotally connected to said clamp-bar and engaging the shoe.

10. A file-holder having a groove-plate and a follower, in combination with a clamp-bar, a clamp-shoe connected to the bar and having tripping-toes, and a separate tripping-lever connected to the bar and engaging said toes.

11. A file-holder having a groove-plate and a follower, in combination with a clamp-plate connected to and extending across the follower, a clamp-bar pivotally connected to said plate and having an extension at its upper end normally engaging the plate, a clamp-shoe, and a tripping-lever.

12. A file-holder having a groove-plate and a follower, in combination with a clamp having a shoe provided with inclined ends engaging the groove-plate as described.

13. A file-holder having an angular groove-plate and a follower; in combination with a clamp having upwardly-inclined arms engaging the under side of the groove-plate, and a clamp-shoe provided with inclined ends engaging the upper side of the groove-plate, as described.

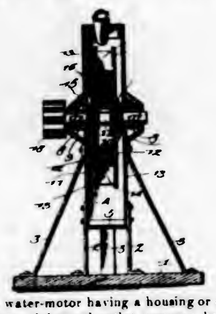
14. A file-holder having a follower, in combination with a clamp having a shoe provided with inclined ends for the purpose described.

642,066. NUT-LOCK. ROBERT L. BARGELT, Woodstock, Va. Filed Feb. 1, 1899. Serial No. 704,140. (No model.)



Claim.—In a nut-lock, the combination with a bolt provided with a longitudinal slot through its threaded portion, and a nut, of a locking device consisting of two separate members, a washer provided on one face with two alined recesses, and a wedge provided at its base with laterally-extending arms to engage the said recesses, the wedge, when in operative position adapted to fit within the slot of the bolt, and the nut to bear upon the washer, substantially as and for the purpose specified.

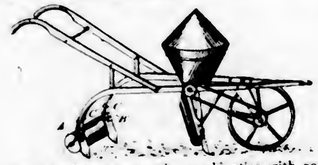
642,067. WATER-MOTOR. MICHAEL H. BASH and JOHN C. MARTIN, Conemaugh, Pa. Filed Mar. 17, 1899. Serial No. 709,476. (No model.)



Claim.—1. A water-motor having a housing or casing provided with upper and lower inlet and outlet passages, bearing-boxes arranged in the side walls of the housing and consisting of bearing-sleeves, fitted at their inner ends in openings in said side walls, and conical braces supporting the outer ends of said sleeves, a water-wheel arranged within the housing, and shaft members mounted in said bearing-sleeves and detachably engaged at their inner ends with the water-wheel, substantially as specified.

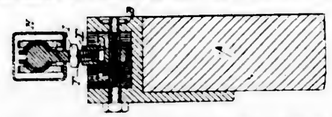
2. A water-motor having a housing or casing provided with upper and lower inlet and outlet passages, and also provided with transversely-alined bearings, a water-wheel arranged within the housing and having spaced side plates, collars fitted at their inner ends in central openings in said side plates, conical braces extending outward from the side plates and supporting the outer ends of said collars, and a shaft having an intermediate member transversely spanning the wheel and terminally threaded in the inner ends of said collars, and terminal shaft members fitted in said bearings of the housing and threaded at their inner ends in the outer ends of said collars, substantially as specified.

642,068. ROLLER ATTACHMENT FOR COTTON OR CORN PLANTERS. EMERZIAH B. BECK, Sulphur Springs, Tex. Filed June 7, 1897. Serial No. 639,784. (No model.)



Claim.—In a walking planter the combination with covering-plows and their standards, located in transverse alinement of a single transversely-disposed combined gage and leveling-roller located immediately in rear of said plows and extending from one to the other, hangers to which the roller is journaled at its ends and which have a plurality of vertically-arranged bolt-holes, and removable bolts passed through said holes and holes in the plow-standards, whereby vertical adjustment of the hangers and roller can be had.

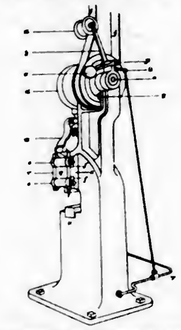
642,069. ADJUSTABLE DOOR-HANGER. ALBERT G. BIERBACH, Milwaukee, Wis. Filed July 17, 1897. Serial No. 644,940. (No model.)



Claim.—1. In a door-hanger, the combination of a bracket adapted to be attached to the upper edge of a door; an adjusting-bolt arranged transversely through the upper projecting walls or lugs of said bracket, having smooth bearings at each end thereof in said walls, and provided with a central screw-threaded portion between said walls; a hanger-bar provided with a screw-threaded eye operating upon the central screw-threaded portion of said adjusting-bolt, substantially as described.

2. In a door-hanger, the combination of a bracket adapted to be attached to the upper edge of a door; an adjusting-bolt arranged transversely through the upper projecting walls or lugs of said bracket, having smooth bearings at each end thereof in said walls, and provided with a central screw-threaded portion between said walls; a vertical hanger-bar formed in two parts, having the lower end of the lower part provided with a horizontal screw-threaded eye operating upon the central screw-threaded portion of said adjusting-bolt, and its upper end provided with a screw-threaded socket operating upon the screw-threaded lower end of the upper section or part of the hanger, the latter being swiveled to a supporting bracket or carriage, all substantially as and for the purpose specified.

642,070. POWER-HAMMER. EDWARD H. BLOSSOM, St. Johnsbury, Vt., assignor to the Dupont Manufacturing Company, same place. Filed Feb. 26, 1898. Serial No. 671,871. (No model.)



Claim.—In combination with a power-hammer and its operating mechanism, including a driving-belt and driving-pulley a divided spring brake-hand, provided with internal lugs near its point of division, and arranged to bear against the said pulley when these lugs are forced apart, a bell-crank lever having its horizontal stem extended at one end, flattened and arranged between the said lugs to act thereon when partly turned, a tightening-pulley carried by the said bell-crank lever and arranged to bear against the said driving-belt, a counterbalance-weight attached to an arm of the said lever and operating to force the said pulley against the said belt and to turn the said stem so as to allow the contraction of the said brake-band and the free rotation of the said driving-pulley substantially as set forth.

642,071. BICYCLE-BELL. CARL A. BRINK, Attleborough, Mass., assignor to the Frank Mossberg Company, same place. Filed Oct. 20, 1899. Serial No. 734,161. (No model.)

Claim.—1. In a bell, the combination of two gongs, a main plate removably attached to one of them, a hammer pivoted to said plate, and arranged to strike the gongs alternately, a pallet pivoted to said main plate, an escapement-wheel held on a central pin and engaging

with the pallet, with means for operating said escapement-wheel, substantially as described



2. The combination of two gongs a main plate removably held on a stud fast in one of the gongs, a hammer pivoted to said plate, a pallet pivoted to said plate and connected by a pin to the hammer, an escapement-wheel held on a central stud and engaging with said pallet, a swinging plate pivoted to said main plate and having a toothed rack made on it, a gear-wheel fast on said escapement-wheel and engaging with the rack, a spring connecting the two plates and arranged to draw the swinging plate in one direction, substantially as described.

3. In a bicycle-bell, the combination of a gong a main plate attached to said gong, a hammer pivoted to said main plate, a swinging plate pivoted to said main plate, a spring attached to said swinging plate and arranged to press on said hammer and prevent it from rattling, and means for operating said hammer to strike the gong, substantially as described.

4. In a bicycle-bell the combination of a gong, a stud fast therein, a main plate removably held on said stud, a hammer pivoted to said main plate, a pallet pivoted to said main plate, an escapement-wheel held on a central pin and engaging with said pallet, and means for operating said escapement-wheel, substantially as described.

642,072. HARNESS ATTACHMENT. MICHEL F. BRODERICK, Oberlin, Kans. Filed July 6, 1896. Serial No. 598,174. (No model.)



Claim.—In harness, a wear-strap folded upon itself intermediate of its ends and having transverse slits formed in the folded end portions, and having the parts between the said slits deflected outwardly to form side loops integral with the wear-strap, substantially as set forth.

642,073. MORTISING-MACHINE. ROBERT S. BROWN, New Britain, Conn. Filed Apr. 22, 1899. Serial No. 714,024. (No model.)

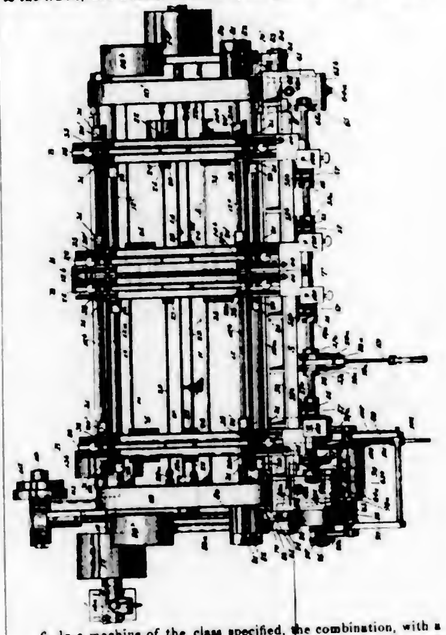
Claim.—1. In a machine of the class specified, the combination, with framework having ways, of a head mounted on said ways; a cutter mounted in said head; a shaft journaled in the head and carrying means for driving the cutter; a pulley journaled on a bushing through which the shaft passes; means for manually actuating said pulley; and means carried by the framework and cooperating with the pulley to adjust the head on said framework.

2. In a machine of the class specified, the combination, with framework, of a head spanning the same and mounted on ways thereof; a device carrying a cutter carried by said head; a shaft for driving the cutter journaled in the head; a grooved pulley mounted for rotation in said head; gearing for actuating said pulley; and a device passing around the pulley and connected at its ends with the framework, the construction being such that by rotating the pulley the head may be adjusted to the desired position.

3. In a machine of the class specified, the combination with framework of a series of heads adjustable on the same; a series of cutters, one mounted in each head; shafts for driving the cutters mounted in bearings in the heads; a pulley mounted for rotation in each head and having a gear; a series of gears engaging the gears on said pulleys; and a series of cords in engagement with the pulleys and attached at their free ends to the framework.

4. In a machine of the class specified, the combination, with a head adjustably mounted on the framework and having a projecting apron, of a block adjustably mounted on the apron; a cutter-bar carried by the block; a cutter-chain fitted for movement on the cutter-bar; a shaft mounted in bearings of the head and carrying a gear for driving the cuttar-chain; and means for simultaneously clamping the cuttar-bar to the block and the block to the head.

5. In a machine of the class specified, the combination with a frame having ways, of a head spanning the frame and adjustably mounted on the ways, said head having a series of bearings; a driving-shaft mounted in two of the bearings and carrying a gear; a pulley sleeved on one of the bearings; gearing for driving said pulley; a chain or cord carried around the pulley and connected at its ends to the frame; and a cutter actuated by the gear on the driving-shaft.



6. In a machine of the class specified, the combination, with a laterally-adjustable head having a depending apron, of a driving-shaft mounted in bearings of the head; a block adjustably mounted on the apron; a cutter-bar carried by the block; a cutter-chain fitted over the cutter-bar; and gearing connecting said cutter-chain and driving-shaft.

7. In a mortising-machine, the combination, with a head, of a cutter-chain; a chain-bar; a block to which the chain-bar is attached; and means for securing said block whereby it may be moved to afford a longitudinal adjustment of the chain-bar, said means serving to clamp the chain-bar to the block and the block to the head.

8. In a mortising-machine, the combination, with a cutter-chain and a chain-bar, of a block adapted to receive said chain-bar; means whereby said block may be adjusted in two directions; and means for simultaneously clamping the block and chain-bar in position.

9. In a mortising-machine, the combination, with a cutter-chain, a chain-bar and a block for holding said chain-bar, of means whereby said block may be adjusted laterally; means whereby the chain-bar may be adjusted vertically; and means for simultaneously clamping said block in its adjusted position and securing the chain-bar to the block.

10. In a mortising-machine, the combination, with a cutter-chain, a head for carrying said cutter-chain, and a support for the head, of a drum mounted on a bearing in the head; a shaft geared to the drum; and means engaged by the drum and connected with the support for moving said head longitudinally of said support.

11. In a mortising-machine, the combination, with a cutter-chain, a head carrying said chain, and a frame supporting the head, of a grooved drum carried by the head; a shaft mounted in the head and having a gear meshing with a gear on the drum; and rope gearing carried around the drum and attached at its ends to the frame.

12. In a mortising-machine, the combination, with a cutter-chain, of a movable head carrying said cutter-chain; a cutter-driving shaft journaled in bearing-boxes of said head; a frame supporting said head; a drum carried by the head and sleeved on a bearing therein; a rope carried by the frame and encircling said drum; and means for rotating the drum.

13. In a mortising-machine, the combination, with a cutter-chain, of a movable head carrying said chain and having a depending apron; a frame supporting said head; means for clamping said head to the frame; a block adjustably mounted on the apron; a series of adjusting devices carried by the block; a chain-bar; and a bolt for attaching the chain-bar to the block and the block to the apron.

14. In a machine of the class specified, the combination, with a head, of a block having a series of adjustable pins adapted to bear against the head thereby to regulate the position of said block relatively thereto; a chain-bar carried by the block; and means for clamping the block to the head.

15. The combination, with a head having a depending apron, of a block carrying a chain-bar; a series of screw-pins one mounted in each corner of the block, the heads of said pins bearing against the apron; and means for clamping the block to the apron.

16. The combination, with a head having a projecting apron, equipped with a groove, of a block; means for adjusting the block at an angle to the apron; a chain-bar; and a bolt, the head of which is received in the groove of the apron, for securing the cutter-bar to the block and the block to the apron.

17. The combination, with a double-track support, of a pair of heads one movable relatively to the other and each provided with a pair of unalined ears in engagement with the tracks of said support; a pulley or drum journaled in one head at one side the center thereof; a pulley or drum journaled in the second head at the other side the center thereof; means connecting each of said pulleys or drums with the frame, the arrangement being such that said heads may be adjusted closely together when required; and means for rotating the drums.

18. The combination, with a frame having ways, of a movable table guided by said ways; a weighted lever for operating said table; a rock-shaft; and means connected with the rock-shaft at its pivot and with the frame to the rear of said pivot, whereby the table is caused to hug the ways.

19. The combination, with a frame having ways and a vertically-movable table guided thereon, of a rock-shaft for operating said table, a weighted lever carried thereby, and a link pivoted on the frame and supporting said rock-shaft and having its pivot-point rearward of the vertical plane of the axis of the rock-shaft.

20. The combination, with a frame having ways, of a table slidable thereon, a rock-shaft, links pivoted on the frame and supporting said rock-shaft in a plane forward of their pivot-points, arms mounted on the rock-shaft and carrying the table, and a weight carried by the shaft.

21. The combination, with a frame having ways, of a table slidable on said ways; a rock-shaft journaled on the frame; arms carried by said rock-shaft and supporting the table; levers for counterbalancing the table; and links pivoted to the frame and supporting the rock-shaft in a plane forward of the pivotal point of said links.

22. The combination, with a table, of a gage-block upon which the work is supported grooved on a side face to engage a supporting-rib, said block having a series of faces at varying distances from its point of support; and means for adjustably securing said block to the table.

23. The combination, with a table having a longitudinal rib, of a gage-block for supporting the work having a series of faces at varying distances from its point of support and having grooves arranged in parallelism with said faces adapted to engage said rib.

24. The combination, with a table having a longitudinal rib provided with a series of perforations, of a series of grooved gage-blocks secured to the rib in the desired positions, each of said blocks having a number of work-supporting faces.

25. The combination, with a work-table having a back plate, of blocks secured to said back plate and each having work-sustaining faces at varying distances from its point of support; a shaft; a series of clamping devices secured to the shaft; and means for actuating the shaft.

26. The combination, with movable knees, of a work-table mounted on said knees; a series of clamp-arms; a shaft for actuating said clamp-arms; angular plates having bearings for said shaft and attached to the work-table; a series of yokes secured to the work-table and also having bearings for the shaft, said yokes receiving between them the clamp-arms; a lever attached to the shaft; and means carried by the lever and in engagement with one of the yokes for securing the shaft when actuated.

27. In a machine of the class specified, the combination, with a work-table and with means for actuating the same, of plates attached to said work-table; a series of yokes adjustably secured to the work-table; a shaft journaled in bearings in the plates and yokes; clamp-arms secured to the shaft, each of said arms being located between a pair of yokes; a device for actuating said shaft; and means carried by said device and cooperating with one of the yokes for securing the shaft when actuated.

28. The combination, with a work-table, of means for supporting and reciprocating the same; a series of yokes arranged in pairs and secured to said table, one of said yokes having a toothed surface; a shaft mounted in the free ends of the yokes; a series of clamp-arms carried by the shaft; and a lever attached to the shaft and having a pawl for engaging with the toothed surface of the yoke.

29. The combination, with vertically-movable knees and with means for actuating said knees, of a work-table adjustably mounted on said knees; a series of yokes adjustably secured to said work-table; screws engaging the knees and each carrying a gear; a shaft having gears in engagement with the gears on the screws, said shaft being mounted in bearings of the yokes; a lever for actuating the shaft; and a pawl carried by said lever and in engagement with one of the yokes.

30. The combination, with a table, of a series of individually-yieldable clamping devices; means for simultaneously operating said devices to clamp the work; means for adjustably retaining said devices in position; and a series of adjustable blocks, each having a series of work-supporting faces, carried by the table and upon which the work is supported.

31. The combination, with a table, of a shaft; clamping devices mounted thereon; yokes carrying the shaft; means for adjustably securing said yokes to the table; a screw for adjusting the table; and a shaft mounted in bearings of the yokes and intergeared with the screw.

32. The combination, with a reciprocatory table, of a flexible band connected with the table; a drum in engagement with the band; an eccentric for forcing the band against the drum and thereby causing it to move in unison therewith, said band passing between the drum and eccentric; and means for actuating the eccentric.

33. The combination, with a reciprocatory table and a flexible band connected with the table, of a drum; means for rotating said drum; arms secured to the bearings of the drum; an eccentric journaled in said arms; and a roller mounted on the eccentric and serving to force said band, which passes between the drum and eccentric, into contact with the periphery of the drum.

34. The combination, with a reciprocatory table and a flexible band connected at one end with the table, of a drum; means for continuously rotating said drum; a roller eccentrically mounted for forcing said band, which passes between the drum and eccentric, into contact with the drum; means for actuating said roller; and means for automatically shifting the eccentric.

35. The combination, with a reciprocatory table and a flexible band, of a drum; means for rotating said drum; an eccentrically-mounted roller for forcing the band, which passes between the roller and drum, into contact with the drum; a pair of links in which the eccentric for actuating the roller is journaled; and means for actuating said links.

36. The combination, with a vertically-movable table, of a flexible band connected with the table; a rotating drum adapted frictionally to engage the band; an eccentrically-mounted roller for forcing said band, which passes between the roller and drum, into contact with the drum to raise the table; means for actuating the roller; and means for checking the descent of the table.

37. The combination, with a vertically-movable table, of a flexible band connected with the table; a rotating drum adapted frictionally to engage the band; an eccentrically-mounted roller for forcing said band, which passes between the roller and drum, against the periphery of said drum to raise the table; and a dash-pot for retarding the descent of the table.

38. In a mortising-machine, the combination, with a table, of a pair of chain cutters; and means for driving said cutters in opposite directions, whereby the thrust of the cutters upon the material is neutralized.

39. In a machine of the class specified, the combination, with a pair of mortising cutter-chains, of means for driving said chains in opposite directions, whereby their thrust upon the work is neutralized; a work-table; means for reciprocating said work-table; and means for securing the work to said table.

40. In a machine of the class specified, the combination, with a series of adjustable heads, of a mortising cutter-chain mounted for movement in each head; a shaft journaled in each head and carrying a gear for actuating the cutter-chain; means for driving the cutter-chain of one head in one direction; means for driving the cutter-chain of the other head in the opposite direction, whereby the thrust of said chains upon the work is neutralized; a work-table; and means for clamping the work to said table.

41. In a machine of the class specified, the combination, with a frame having ways, of a head having a bearing at each end and an intermediate depending arm carrying a bearing; a shaft mounted in said end bearings and passing freely through the other bearing; a cutter; means carried by the shaft for driving the cutter; a pulley mounted on the depending arm of the head; means connecting said pulley with the frame; and means for actuating the pulley to adjust the head on the frame.

42. In a machine of the class specified, the combination, with a frame having ways, of a head adjustably mounted on said ways and provided with three alined bearings and with a projecting apron; a

shaft having a gear at one end journaled in two of said bearings; a pulley journaled on the third bearing and connected with the frame; a block adjustably mounted on the apron; a cutter-bar carried by the block; and a cutter-chain sustained by the cutter-bar and driven by the gear on the shaft.

43. In a machine of the class specified, the combination, with framework, of a head comprising an arched frame consisting of a single casting provided with a bearing at each end, with an arm having an intermediate bearing, and with a projecting apron; a shaft mounted in the bearings of said head; means carried by the arm and in engagement with means on the frame for adjusting the head; a cutter supported on the apron; and means carried by the shaft for driving said cutter.

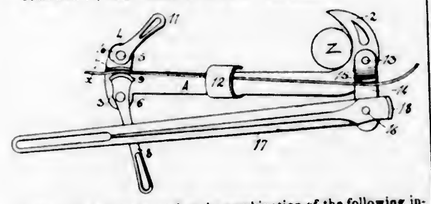
44. In a machine of the class specified, the combination, with a frame having ways, of an arched head comprising a single casting having a bearing at each end and an intermediate bearing; means mounted on the intermediate bearing and in engagement with means on the frame for adjusting the head; a shaft carrying a sprocket-wheel; a block adjustably mounted in an apron carried by the head; a cutter-bar secured to the block; and a cutter-chain sustained by said bar and engaged by the sprocket-wheel.

45. In a machine of the class specified, the combination, with framework having ways, of a head having alined end bearings, an intermediate bearing and a projecting apron, and provided at its ends with a pair of unalined ears in engagement with the ways; a drum or pulley journaled on the intermediate bearing of said head; a gear mounted on a shaft journaled in the support for the intermediate bearing and in engagement with the drum or pulley; means connecting said drum or pulley with the frame; a block secured to the apron of the head; a cutter carried by the block, and means carried by the shaft for driving the cutter.

46. In a machine of the class specified, the combination, with framework having ways, of a series of heads adjustably mounted on said ways, each of said heads being provided with end bearings, with an arm intermediate said bearings and with a projecting apron; a series of shafts mounted in said heads; a series of drums or pulleys journaled on the intermediate arms of said heads; means connecting said drums or pulleys with the framework, whereby the heads may be individually adjusted thereon; a series of blocks secured to the projecting aprons of the heads; cutters carried by said blocks; means carried by the shafts for driving said cutters; a work-table; means for clamping the work on said table; and means for reciprocating said work-table.

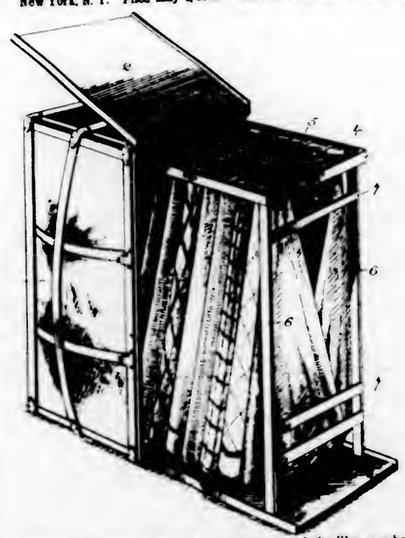
47. In a machine of the class specified, the combination, with framework having ways, of a series of heads each equipped at each end with a pair of unalined ears fitted on said ways; a series of bearings carried by each of said heads; a drum or pulley carried by each head and journaled on one of the bearings thereof; means for actuating said drum or pulley; means connecting each drum or pulley with the framework, whereby the heads may be individually adjusted thereon; a shaft having a gear mounted in the bearings of each head; blocks mounted in projecting aprons of the heads; a cutter-bar carried by each of said blocks; a cutter-chain sustained by each cutter-bar; a gear carried by each shaft for driving the cutter-chains; a work-table; a series of clamps for securing the work to said table; and means for actuating said work-table.

642,074. WIRE-STRETCHER. ROBERT C. BOLOS, Lineville, Iowa. Filed Feb. 17, 1899. Serial No. 705,943. (No model.)



Claim.—In a wire-stretcher the combination of the following instrumentalities, to wit: the approximately J-shaped holder A provided centrally with the upwardly-extending curved keeper 12, upon one side, and with the hook 20 upon the opposite side, a rib 7 extending in the same direction with the keeper 12, the gripper 8 pivotally secured to said holder, said gripper being adapted to bind upon said rib, the second gripper 11 secured by means of the pivot 5 upon the side opposite to the rib 7, said gripper 11 also being adapted to work against said rib 7, the swivel-head 14 secured by means of the pin 13 adjacent to said keeper 12, said swivel-head being provided with the nosing 15, and the tension-lever 17 secured by means of the pivot 16, said tension-lever being adapted to bind upon the extending nosing 15, all arranged substantially as and for the purpose set forth.

642,075. RECEPTACLE FOR CLOTHING. SEYMOUR W. BOSSALL, New York, N. Y. Filed May 4, 1899. Serial No. 715,500. (No model.)



Claim.—1. In a receptacle for garments and the like, a substantially horizontal rod, a retaining-bar free at its lower end and a socket attached to said bar, said socket being made in two parts, one of which acts permanently to support the bar and the other to prevent excessive swing inward thereof.

2. In a receptacle for garments and the like, a substantially horizontal rod, a retaining-bar having its top beneath said horizontal-rod, a socket attached to said bar and adapted to slide on said rod, said socket being so placed that the rod is wedged between said socket and the top of said bar when the latter is pressed forward at the bottom.

3. In a receptacle for garments and the like, a pair of substantially horizontal rods, a frame depending therefrom, and two sockets attached to the sides of said frame, said sockets being adapted to slide on said rods and to grip the latter when the bottom portion of said frame is pressed forward

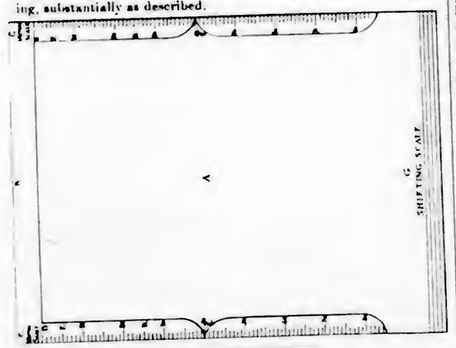
4. In a receptacle for garments and the like, a sliding rack having side rods, and a confining-frame sliding on said rods and adapted to serve as a support for said rack when the latter is drawn out.

5. In a receptacle for garments and the like, a sliding rack having side rods, a confining-frame, and sockets on said frame adapted to slide on said rods, said frame being hung so as to incline inward when unconfined, and said sockets acting to grip said rods when the lower part of said frame is pressed outward.

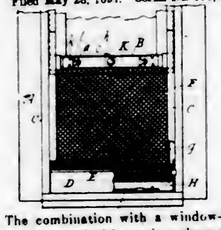
642,076. CARBON-HOLDER FOR MANIFOLD TYPE-WRITING. WILLIAM M. P. BOWEN, Providence, R. I. Filed Aug. 11, 1899. Serial No. 726,955. (No model.)

Claim.—1. The combination of a rectangular back sheet forming the back of a carbon-holder for manifold type-writing, with a straight flap folded over and formed from the top of such back sheet, extending along the top of such back sheet, and permanently fastened at the corner or corners to a side flap or flaps, the latter folded over and formed from the side or sides of such back sheet, extending along the upper larger portion only of the marginal side or sides of such back sheet forming the back of the holder, and provided with one or more indentations, all without any fastening between the holder and its contents, and all providing for quick, easy, even and accurate manifold type-writing, all substantially as set forth.

2. The combination of a rectangular back sheet forming the back of a carbon-holder for manifold type-writing, and of a straight flap folded over, formed from and extending along the top of such back sheet, permanently fastened at the corner or corners to a side flap or flaps folded over, formed from and extending along the upper larger portion only of the marginal side or sides of such back sheet, provided with one or more indentations, with a writing-scale composed of short lines all parallel with the top of the holder, printed or placed upon the face of the side flap or flaps, extending over upon such back sheet at such indentations, numbered beginning at and down from the top of the face of such side flap or flaps, for the purpose of providing for writing, at different times, at the same position up or down the page, and with a shifting scale, composed of one or more lines parallel with the foot of such back sheet, printed or placed upon the face of and near to the foot of such back sheet, extending partly or entirely across the face of such back sheet near its foot, for the purpose of providing a gage for the shifting of the carbon sheet or sheets up or down at different times to receive the type-impressions, and all providing for quick, easy, even and accurate manifold type-writing, substantially as described.



642,077. AUTOMATIC WINDOW-SCREEN. JOHN L. BUCHER and FERDINAND C. MUELLER, Milwaukee, Wis.; said Mueller assignor to said Bucher. Filed May 28, 1897. Serial No. 638,666. (No model.)



Claim.—1. The combination with a window-frame and lower sash, of a roller-casing formed with openings through its bottom plate and with guides upon the upper surface of said plate; a slotted sliding bar movable in said guides, and having lips on its upper surface; T-hooks rising from the bottom of the window-frame and extending through the openings in said bottom plate and the slots in said sliding bar; a lever pivoted to said bottom plate, and in engagement with said lips; a spring-controlled roller journaled or supported in said casing, and a screen connected to said lower sash and to said roller, substantially as set forth.

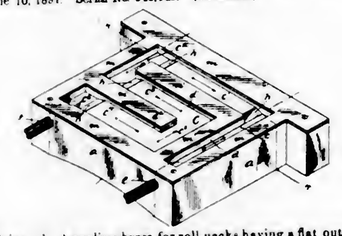
2. The combination with a window-frame and lower sash, of a roller-casing comprising a bottom plate detachably connected to the bottom of said window-frame, a closed back and top, and open ends; an extension-piece adjustably movable within one of said ends, and a door hinged to the other of said ends; a spring-controlled roller journaled or supported in the extension-piece and hinged door of the casing; means for fastening said door, when closed, to hold the said roller in place; and a screen connected to said lower sash and to said roller, substantially as set forth.

3. The combination with a window-frame and window-sash, of a cross-bar detachably connected to a horizontal rail of said sash; an extensible roller-casing connected to said window-frame; vertical slotted tubes secured at each side of said frame; extension-pieces adjustably secured to said cross-bar to vary the length thereof and having tubular ends fitting within said slotted tubes; a spring-controlled roller journaled or supported in said casing and a screen connected to said roller and to the tubular ends of said extension-pieces on the cross-bar, with the side edges of said screen passing through the slots in said vertical slotted tubes, and traveling therein, substantially as set forth.

4. The combination with a window-frame and window-sash, of T-hooks projecting from a horizontal rail of said sash; a cross-bar having slots for the passage therethrough of said T-hooks, an intermediate slot, and series of guides; a sliding bar provided with slots for the reception of said T-hooks, and an intermediate rivet in engagement with the intermediate slot of the cross-bar; a lever pivotally secured to said rail in engagement with said rivet; a roller-casing connected to said window-frame, a spring-controlled roller journaled or supported in said casing; and a screen connected to said cross-bar and to said roller, substantially as set forth.

5. The combination with a window-frame and window-sash, of vertical tubes secured at each side of said frame, the corresponding ends of the slots at one end of said tubes being increased in width; a cross-bar detachably secured to a horizontal rail of said sash; a roller-casing detachably secured to the window-frame; a spring-controlled roller detachably journaled or supported in said casing; extension-pieces adjustably secured to said cross-bar, and terminating in tubular ends fitting within said slotted tubes, the said ends being of greater diameter than the width of the main portion of said slots, but of less diameter than the width of the widened portions thereof; and a screen secured to the tubular ends of said extension-pieces on the cross-bar, and to said roller, and having travel in said slots, substantially as set forth.

642,078. ROLL-JOURNAL. OLIVER H. BURGHAM, New Kensington, Pa., assignor of one-half to James R. Tindle, Pittsburg, Pa. Filed June 10, 1897. Serial No. 640,143. (No model.)



Claim.—1. A cooling-brass for roll-necks having a flat outer face and having inlet and outlet passages communicating with a tortuous water-passage formed in the outer face of said brass, and a flat cover-plate secured to the upper face of said brass, substantially as set forth.

2. A cooling-brass for roll-necks having a flat outer face, an entrance-passage formed along one side of the outer face of said brass and an outlet-passage at the opposite side of said brass, cross-walls projecting from opposite sides and forming cross-passages communicating with said side passages, the entrance and outlet passages being deeper and narrower than said cross-passages, and a flat cover-plate secured to the outer face of said brass, substantially as set forth.

3. A cooling-brass for roll-necks having a flat outer face, an entrance-passage formed along one side of the outer face of said brass and an outlet-passage at the opposite side of said brass, cross-walls projecting from opposite sides and forming cross-passages communicating with said side passages, the offset at the juncture of said side and cross passages being inclined, and a flat cover-plate secured to the outer face of said brass, substantially as set forth.

4. A cooling-brass for roll-necks having a flat outer face, an entrance-passage formed along one side of the outer face of said brass and an outlet-passage at the opposite side of said brass, cross-walls projecting from opposite sides and forming cross-passages communicating with said side passages, and a gasket adapted to rest upon the outer edges of said box and on said cross-walls, and a flat cover-plate secured to said box, substantially as set forth.

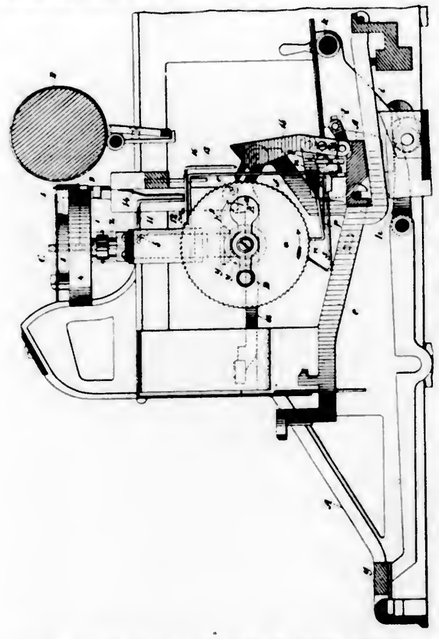
642,079. RIBBON-FEEDING MECHANISM FOR TYPE-WRITERS. LEE S. BURRIDGE, New York, N. Y., assignor to John T. Underwood, same place. Filed Jan. 12, 1898. Serial No. 666,376. (No model.)

Claim.—1. The combination of an inking-ribbon, means for feeding said ribbon in the direction of its length at each operation of a key-lever, means for reversing the direction of feed, said reversing means being operated by the spacing mechanism, shifting mechanism adapted to be operated by the ribbon and cooperating with the reversing means to automatically change the direction of feed when the end of the ribbon is reached, the said shifting mechanism being at all times connected to the inking-ribbon.

2. The combination of an inking-ribbon, spacing mechanism, means connected with said spacing mechanism for feeding said ribbon, means for reversing the direction of the feed, said reversing means being operated at each operation of the spacing mechanism, shifting mechanism cooperating with said reversing means, said shifting mechanism comprising a vibrating arm adapted to rotate with a ribbon-spool and to be moved by the tension exerted by the ribbon.

3. In a type-writing machine, the combination of a ribbon-spool

having slots in the head thereof, a driving-spindle upon which said spool is carried, ribbon-feed mechanism for operating said spindle, a swinging or vibrating arm independent of the ribbon-spool but adapted to project into the slots thereof, said vibrating arm being pivoted to and rotatable with said ribbon-spool spindle, an inking-ribbon connected to said vibrating arm and intermediate mechanism between the vibrating arm and the ribbon-feed mechanism to automatically reverse the direction of feed when the end of the ribbon is reached.



4. The combination of a vibrating arm adapted to rotate with the ribbon-spool, an inking-ribbon having an end thereof connected to said vibrating arm, mechanism for feeding the ribbon, a shifting abutment adapted to be moved by said vibrating arm and to cause a movement of the feeding mechanism to change the direction of feed and means independent of the vibrating arm for moving said abutment.

5. The combination of a vibrating arm adapted to rotate with a ribbon-spool, an inking-ribbon having an end thereof connected to and adapted to vibrate said vibrating arm, mechanism for feeding the ribbon, a shifting abutment adapted to be moved by said vibrating arm and to cause a movement of the feeding mechanism to change the direction of feed and means controlled by the finger-keys for moving said abutment.

6. The combination of a vibrating arm adapted to rotate with a ribbon-spool, an inking-ribbon having an end thereof connected to said vibrating arm, mechanism for feeding the ribbon, means for changing the direction of feed, a shifting abutment connected thereto and adapted to be moved by said vibrating arm and means connected with the spacing mechanism for moving said shifting abutment to change the direction of feed.

7. The combination of a vibrating arm adapted to rotate with a ribbon-spool, an inking-ribbon having an end thereof connected to to said vibrating arm, mechanism for feeding the ribbon, means for changing the direction of feed, a shifting abutment connected to and adapted to be moved into operative position by said vibrating arm and means connected with the spacing mechanism and moved at each operation thereof for moving said shifting abutment bodily together with the change-feed mechanism connected thereto to change the direction of feed of the ribbon.

8. The combination of a vibrating arm, ribbon-feeding mechanism, means for changing the direction of feed, a shifting abutment connected thereto and adapted to be moved by said vibrating arm, means operated by the spacing mechanism for moving said shifting abutment together with the change mechanism, a ribbon and connections between said ribbon and vibrating arm, whereby when the end of the ribbon is reached the vibrating arm will be moved by the ribbon and the parts will be automatically operated to effect a reversal of the feed of the ribbon.

9. The combination of an inking-ribbon, means for feeding said ribbon in opposite directions, key-levers adapted to operate the ribbon-feeding mechanism, mechanism for changing the direction of said feed, a shifting device operated by the spacing mechanism for operating the changing mechanism and means moved by the tension of the ribbon for rendering said shifting device operative.

10. The combination of an inking-ribbon, means for feeding said ribbon in opposite directions, said feeding means being operated at each operation of a key-lever to feed the ribbon in a longitudinal direction, mechanism for changing the direction of said feed, a shifting device for operating the changing mechanism, said shifting device being connected to and operated at each movement of the spacing mechanism and means connected to the free end of and controlled by the ribbon for rendering said shifting device operative.

11. The combination of an inking-ribbon, separate feed mechanism for feeding the ribbon longitudinally in opposite directions, reversing mechanism for simultaneously throwing one of said feed mechanisms into operation and the other out of operation, shifting means connected with the spacing mechanism and adapted to be operated at each operation thereof for operating the reversing mechanism and means for automatically rendering the shifting means operative when the end of the ribbon is reached to reverse the direction of the feed.

12. The combination of an inking-ribbon, separate feed mechanism for feeding the ribbon longitudinally in opposite directions, reversing mechanism for simultaneously throwing one of said feed mechanisms into operation and the other out of operation, shifting means connected with the spacing mechanism and adapted to be operated at each operation thereof for operating the reversing mechanism and a shifting abutment adapted to be interposed in the path of the shifting means to operate the reversing mechanism when the end of the ribbon is reached.

13. The combination of an inking-ribbon, separate feed mechanism for feeding the ribbon longitudinally in opposite directions, said feed mechanism being adapted to be operated at each operation of a key-lever, reversing mechanism for simultaneously throwing one of said feed mechanisms into operation and the other out of operation, shifting means connected with the spacing mechanism for operating the reversing mechanism, a shifting abutment adapted to be interposed in the path of the shifting means to operate the reversing mechanism when the end of the ribbon is reached and means connected to a free end of the ribbon for moving the shifting abutment to operative position when the ribbon reaches the end of its movement.

14. The combination of an inking-ribbon, means for feeding said ribbon in opposite directions, mechanism for changing the direction of feed, a shifting device operated at each operation of the spacing mechanism for operating the changing mechanism, a vibrating arm to which an end of the ribbon is attached and means operated by said vibrating arm to render the shifting means operative to reverse the feed.

15. The combination of an inking-ribbon, means for feeding said ribbon in opposite directions, mechanism for changing the direction of feed, a shifting device operated at each operation of the spacing mechanism for operating the changing mechanism, a vibrating arm to which an end of the ribbon is attached and which vibrating arm is adapted to rotate with a ribbon-spool and means operated by the vibrating arm to render the shifting means operative to reverse the feed.

16. The combination of an inking-ribbon, ribbon-spools therefor, feed mechanism for operating said ribbon-spools, reversing means for throwing the feed mechanism of one spool into operation and that of the other spool out of operation, a shifting abutment connected to said reversing means, said shifting abutment being normally maintained out of operative position, means operated at each operation of the spacing mechanism to contact with the shifting abutment when the same is in the operative position and means connected to the ribbon to throw the shifting abutment into operative position when the ribbon reaches the end of its movement, whereby the direction of feed of the ribbon is automatically reversed when the end of the ribbon is reached.

17. The combination of an inking-ribbon, ribbon-spools having slots therein, feed mechanism for operating said ribbon-spools, reversing mechanism for changing the direction of the feed, a vibrating arm pivoted to and rotatable with a ribbon-spool spindle of the operating mechanism and adapted to pass through a slot in a ribbon-spool and intermediate mechanism between the vibrating arm and the reversing mechanism, said intermediate mechanism being disconnected from the vibrating arm, whereby the direction of the feed of the ribbon is reversed when the ribbon has about reached the limit of its movement.

18. The combination of an inking-ribbon, ribbon-spools, feed mechanism for operating said ribbon-spools, reversing mechanism for changing the direction of the feed, a vibrating arm adapted to pass through a slot in a ribbon-spool and to be connected to an end of the ribbon, a shifting abutment which controls the operation of the reversing mechanism and which is adapted to be projected into the path of a part intermittently operated by the machine and intermediate mechanism between the vibrating arm and the shifting abutment, whereby the direction of the feed of the ribbon is reversed when the ribbon has about reached the limit of its movement.

19. The combination of an inking-ribbon, ribbon-spools, feed mechanism for operating said ribbon-spools, reversing mechanism for changing the direction of feed, a vibrating arm pivoted to and rotatable with a ribbon-spool spindle of the feed mechanism and adapted to pass through a slot in a ribbon-spool and to be connected to an end of the ribbon, a shifting abutment which controls the operation of the reversing mechanism and which is adapted to be projected into the path of a part intermittently operated by the machine and intermediate mechanism between the vibrating arm and the shifting abutment, whereby the direction of the feed of the ribbon is reversed when the ribbon has about reached the limit of its movement.

642,080. ANIMAL-EXTERMINATOR. FRANKLIN BURHAM, Fortuna, Cal. Filed May 15, 1899. Serial No. 716,912. (No model.)



Claim.—1. In an exterminator, the combination of a barrel or body having a distributing end and provided with a handle an expelling-cylinder slidingly mounted on said barrel or body and having a guard attached thereto, a valve movably applied to the closed end of said expelling-cylinder, a valve-rod attached to said valve and movable through the guard, and arms on opposite sides of the guard and attached to the said valve-rod.

2. In an exterminator, the combination of a barrel or body having a distributing end, and an expelling-cylinder slidingly mounted on said barrel or body and provided with a flexible valve adapted to be manually operated in reverse directions, during the movement of the said expelling-cylinder, a guard, and a rod attached to the valve and movable through the guard.

642,081. PROCESS OF UNHAIRING ANIMAL HIDES OR SKINS. GEORGE D. BURTON, Boston, Mass., assignor to the United States Electrical Leather Process Company, of Maine. Filed Mar. 5, 1898. Serial No. 672,796. (No specimens.)

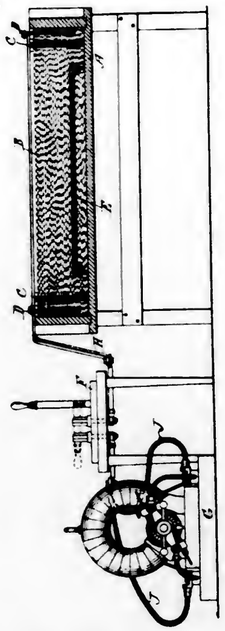
Claim.—1. The process of unhairing animal hides or skins, which consists in subjecting the hides or skins to the action of an unhairing solution and a current of electricity passed through said solution, said current entering said solution and passing out therefrom at points away from the hides or skins, and being of sufficient volume to raise the hair and permit circulation through it.

2. The process of unhairing animal hides or skins, which consists in subjecting said hides or skins to the action of a solution of quicklime, and red sulfid of arsenic, and an electric current passed through said solution, said current being of sufficient volume to raise the hair and permit circulation through it.

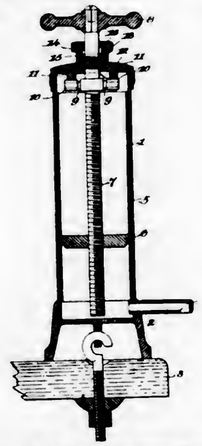
3. The process of unhairing hides or skins, which consists in subjecting said hides or skins to the action of a solution composed of quicklime, red sulfid of arsenic, and water in the proportions of about ten pounds of quicklime, one pound of red sulfid of arsenic, and seventy gallons of water, and an electric current passed through said solution containing the hides or skins, said current being of sufficient volume to raise the hair and permit circulation through it.

4. The process of unhairing animal hides or skins, which consists in subjecting said hides or skins to the action of an unhairing solution and a suitable electric current passed through said solution, and avoiding injury to said hides or skins by preventing their coming into direct contact with sediment should the solution remain too long unstirred, said current being of sufficient volume to raise the hair and permit circulation through it.

5. The process of unhairing animal hides or skins which consists in subjecting the hides or skins to the action of an unhairing solution and a current of electricity passed through said solution in lines parallel with the layers of hides or skins, said current entering the solution and passing out therefrom at points away from the hides or skins and being of sufficient volume to raise the hair and permit circulation through it.



642,082. MACHINE FOR DISPENSING VISCOUS SUBSTANCES. WILLIAM W. CARTER, Needham, Mass., assignor to himself, Charles H. Carter, and Frank B. Carter, same place. Filed May 6, 1899. Serial No. 715,827. (No model.)



Claim.—1. In a machine for dispensing viscous substances, the combination with a receptacle for the substance provided with a suitable outlet, of means for applying pressure to, and withdrawing it from, the substance, and actuating mechanism for said means, acting when continuously operated in one direction to successively actuate said means to apply pressure to and withdraw it from the substance, substantially as described.

2. In a machine for dispensing viscous substances, the combination with a receptacle for the substance provided with a suitable outlet, of means for applying pressure and suction to the substance, and actuating mechanism for said means, acting when continuously oper-

ated in one direction to successively actuate said means to apply pressure and suction to the substance, substantially as described.

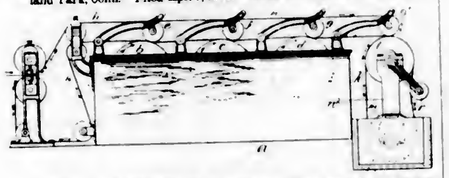
3. In a machine for dispensing viscous substances, the combination with a cylindrical receptacle for the substance provided with an outlet-tube projected outwardly therefrom and inwardly thereinto, the inwardly-projecting end forming a support for the substance-containing shell, of means for applying pressure to the substance, substantially as described.

4. In a machine for dispensing viscous substances, the combination with a receptacle for the substance provided with a suitable outlet, of a piston for applying pressure to and withdrawing pressure from, the substance, and means for imparting to the piston a gradual progressive movement and longitudinal reciprocations, substantially as described.

5. In a machine for dispensing viscous substances, the combination with a receptacle for the substance provided with a suitable outlet, of a piston, a rod screw-threaded therethrough, a spring normally tending to raise the rod, and a cam-surface, said rod having an arm adapted to engage said cam-surface, whereby rotation of said rod will impart a gradual progressive movement and longitudinal reciprocations to said piston, substantially as described.

6. In a machine for dispensing viscous substances, the combination with a receptacle for the substance provided with a suitable outlet, of means for applying pressure to the substance and actuating mechanism therefor acting when continuously operated in one direction to expel the substance in successive modicums, substantially as described.

642,083. PAPER-MAKING MACHINE. ALBERT W. CASE, Highland Park, Conn. Filed Apr. 6, 1899. Serial No. 711,923. (No model.)



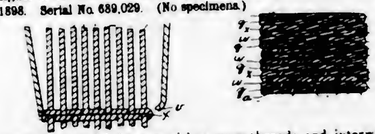
Claim.—1. In combination in a paper-making machine, a paper-making cylinder adapted to form a layer of paper, a supplemental vat having a paper-making cylinder and a pattern-wire made in the form of an endless apron and removably secured to the cylinder.

2. In combination with a paper-making machine of ordinary construction, a supplemental vat having a paper-making cylinder, and a pattern-wire formed in the shape of an endless apron and means for removing the pattern-wire from the vat without breaking its continuity.

3. In combination with a cylinder paper-making machine of ordinary construction, a supplemental vat with paper-making cylinders, the appurtenant coucher-roll, a paper-making wire in form of an apron and the water-tight removable vat side.

4. In combination with a cylinder of a paper-making machine, a supplemental vat, a standard having a sidewise-projecting bracket, paper-making rolls arranged above and below the bracket in suitable bearings, a pattern-wire made in the form of an apron and adapted to fit upon the cylinders and removable laterally therefrom, all substantially as described.

642,084. WOVEN FABRIC. FRANK M. CLARK, Tilton, N. H., assignor of one-half to William I. Holmes, Boston, Mass. Filed Aug. 19, 1898. Serial No. 689,029. (No specimens.)



Claim.—1. A fabric comprising warp-threads and interwoven filling-threads, said filling-threads being composed of U-shaped strands inserted alternately from opposite sides of the warp, the loop of each strand encircling the outer warp-thread and the arms of said strand being respectively disposed in adjacent sheds without other filling material between, substantially as described.

2. A fabric comprising warp-threads and interwoven filling-threads, said filling-threads comprising U-shaped strands inserted alternately from opposite sides of the warp, the two arms of each U-shaped strand being respectively laid in next adjacent sheds without other filling material between said arms, the loop of said strand encircling the outer warp-thread at the side from which its arms are thus inserted, and the ends of said arms terminating at the opposite outer warp-thread without being encircled by an adjacent filling-strand loop substantially as specified.

642,085. PISTON-VALVE. FRANK H. CLARK, Chicago, Ill. Filed June 5, 1899. Serial No. 719,450. (No model.)



Claim.—1. In a piston-valve, the combination of a spider or head portion provided with a radially-extending flange or stop portion, a follower portion provided with an extending flange or stop portion forming in connection with the head portion a stepped annular groove, a continuous "bull-ring" having side flanges fitting between the first step of such annular groove dividing it into two side-stepped annular grooves, and a transversely-split L-shaped packing-ring in each of the last-named annular grooves fitting into the steps of such grooves with their flanged portions extending out and over the piston stops or flanges, substantially as described.

2. In a piston-valve, the combination of a spider or head portion provided with a radially-extending flange or stop portion, a follower portion provided with a radially-extending flange or stop portion forming in connection with the head portion a stepped annular groove having a solid or imperforate bottom portion, a continuous "bull-ring" having side flanges fitting the first step in such side-stepped annular groove dividing it into two annular grooves, one on each side of the bull-ring, and a transversely-split L-shaped packing-ring in each of the last-named annular grooves fitting the side steps of such grooves with their flange portions extending out and over the piston stops or flanges, substantially as described.

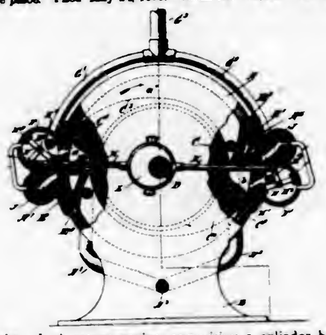
3. In a piston-valve, the combination of a spider or head portion provided with a radially-extending stop or flange, a follower portion provided with radially-extending stops or flanges and forming in connection with the head portion a stepped annular groove having a solid imperforate bottom portion, a "bull-ring" having its side flanges fitting into the first step of the said groove and dividing the stepped annular groove into two side-stepped annular grooves one on each side thereof, a transversely-split L-shaped packing-ring in each of the last-named side-stepped annular grooves fitting the side steps of such grooves with their flange portions extending out and over the piston stops or flanges, and a pin engaging the "bull" and packing rings and the piston-head and follower-plate to prevent independent rotation of such parts, substantially as described.

4. In a piston-valve, the combination of two spider or head portions connected together in one integral portion by a reduced hollow cylindrical or tubular portion, a follower-plate for each head portion forming in connection therewith a stepped annular groove having a solid imperforate bottom portion and an internal chamber which provides a dead-air space, a bull-ring having side flanges fitting the first step in each annular groove and dividing it into two side-stepped annular grooves, one on each side thereof, a transversely split L-shaped packing-ring in each of the last-named annular grooves fitting the side steps of the grooves with their flange portions extending out and over the piston flanges, a pin passed through the bull-ring and engaging each packing-ring and piston-head and follower-plates to prevent independent rotation of the parts, and a valve-stem passed through the follower-plates and piston-heads and provided with nut mechanism for securing the parts together, substantially as described.

5. In a piston-valve, the combination of a head portion provided with a radially-extending flange, an annular portion provided with a radially-extending flange and forming in connection with the head portion a stepped annular groove having a solid imperforate bottom portion, a bull-ring having a flange on each side fitting the first step of the groove and dividing the annular groove into two side-stepped annular grooves one on each side thereof, a transversely-L-shaped split packing-ring in each of the last-named annular grooves fitting the steps of such grooves with their flange portions extending out and over the piston-flanges, and a pin passed through the bull-ring and packing-rings and engaging with the piston-head and follower-plate to prevent independent rotation of such parts, substantially as described.

6. In a piston-valve, the combination of a piston-head portion provided with radially-extending flanges forming stops for packing-rings, a stepped annular groove between the flanges, two transversely-split L-shaped packing-rings arranged in a stepped annular groove of the piston-head portion and fitting the steps of such groove and having their flange portions extending out and over the stops on the piston-head, and a pin or similar element engaging with the piston-head and with the packing-rings to prevent independent rotation of such parts, substantially as described.

642,086. ROTARY ENGINE. GEORGE A. CULVER, Glenwood, Iowa, assignor of one-half to Alpheus H. Wintler and Oscar R. Patrick, same place. Filed May 24, 1899. Serial No. 718,082. (No model.)

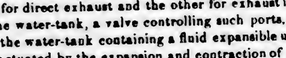


Claim.—1. A rotary engine, comprising a cylinder having an abutment-recess and ports connecting the abutment-recess and the cylinder with the steam-supply, an abutment pivoted in said recess, a piston and head rotating in the cylinder and an engine-operated valve controlling both ports, substantially as described.

2. A rotary engine comprising a cylinder, a piston mounted to turn concentrically therein and having a piston cam-head in contact with the inner surface of the cylinder, an abutment pivoted in the cylinder-wall and adapted to swing inward with its free end against the peripheral surface of said piston, said piston-head being adapted to move against and swing said abutment outward for the piston-head to pass, said abutment being provided with a segmental arm extending outwardly, a cushioned chamber for said arm to move in, a steam-chest having a port leading to the cylinder adjacent to the free end of said abutment, a valve controlled from said piston-shaft and controlling said port, and a connection between said steam-chest and said cushioned chamber, for imparting an inward swinging motion to the abutment, substantially as shown and described.

3. A rotary engine, comprising a cylinder, a piston mounted to turn concentrically therein and having a piston cam-head in contact with the inner surface of the cylinder, an abutment pivoted in the cylinder-wall and adapted to swing inward with its free end against the peripheral surface of said piston, said piston-head being adapted to move against and swing said abutment outward for the piston-head to pass, said abutment being provided with a segmental arm extending outwardly, a cushioned chamber for said arm to move in, a steam-chest having a port leading to the cylinder adjacent to the free end of said abutment, a valve controlled from said piston-shaft and controlling said port, a connection between said steam-chest and said cushioned chamber, for imparting an inward swinging motion to the abutment, the said valve being for this purpose provided with two heads, one for the port and the other for the connection, and means for imparting a rocking motion to said valve for the heads to control the said ports, in such a manner that the steam-chest is connected with the cushioned chamber immediately previous to connecting the steam-chest with the interior of the cylinder, substantially as shown and described.

642,087. THERMOMETER-CASE. STEPHEN A. CUNNINGHAM, Marietta, Ohio. Filed Dec. 17, 1898. Serial No. 699,570. (No model.)



Claim.—1. A case for thermometers or the like, comprising a box or container, one side of which is open, open-sided seats provided between the ends thereof and adapted to hold the article from contact with the box, and a cover closing the open side of the box and adapted to rest upon the open ends and close the openings of the seats, substantially as shown and described.

2. A case for thermometers or the like, comprising a box, one side of which is open, open-sided cushioned seats within the box adapted to hold the article from contact with the box, and a cover closing the open side of the box and adapted to rest upon the open ends of the seats, said cover carrying on its under side a cushion which fits within the openings of the seat and securely clamps the article in place, substantially as described.

3. In a case for thermometers or other fragile objects, the combination with a box or container, of yielding or cushioned stops provided at each end thereof, rubber or yielding V-shaped seats provided between the stops, and a cover having a longitudinal like strip provided upon the under side thereof, said strip being adapted to fit snugly within the V-shaped seats and in engagement with the object, substantially as shown and described.

4. In a case for thermometers or other fragile objects, the combination with a box or container, of cushioned or yielding stops provided at each end of the box and terminating short of the top of the box, cushioned V-shaped seats provided between the stops and terminating short of the top of the box, and a cover having a longitudinal raised portion upon the under side thereof, and a rubber or like strip secured thereto, the raised portion of the cover being adapted to fit within the opening of the box and upon the tops of the stops and seats, and the rubber strip to bind within the V-shaped seats and engage the thermometer or other object, substantially as shown and described.

5. In a case for thermometers or other fragile objects, the combination with a box or container, of cushioned or yielding stops provided at each end of the box and terminating short of the top thereof, yielding V-shaped seats provided between the stops and terminating short of the top of the box, and a cover having a central raised longitudinal portion, and a rubber or like strip terminating short of the ends of the raised portion and secured longitudinally thereof, substantially as shown and described.

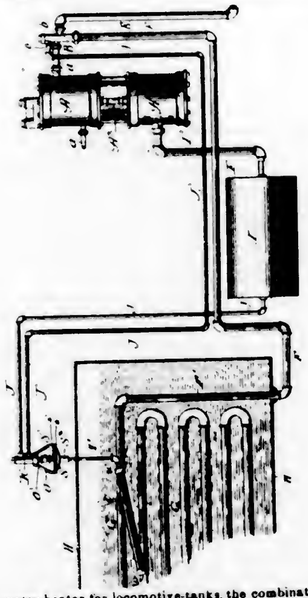
642,088. WATER-HEATER FOR LOCOMOTIVE-TANKS. JOHN F. DRESS, Burlington, Iowa. Filed Sept. 18, 1899. Serial No. 730,860. (No model.)

Claim.—1. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports and a regulator operated by the temperature of the water in the tank for automatically moving the valve and opening and closing the ports, substantially as described.

2. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing a fluid expansible under heat and a valve actuated by the expansion and contraction of the fluid from the temperature of the water in the tank for automatically moving the steam-valve and opening and closing the exhaust-ports, substantially as described.

3. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing a fluid expansible under heat, a diaphragm moved by the expansion and contraction of the fluid from

the temperature of the water in the tank, and a valve actuated by the movements of the diaphragm for automatically moving the steam-valve and opening and closing the exhaust-ports, substantially as described.



4. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing a fluid expansible under heat, a diaphragm moved by the expansion and contraction of the fluid from the temperature of the water in the tank, an adjustable stem carried by the diaphragm and a valve actuated by the movements of the diaphragm and stem for automatically moving the steam-valve and opening and closing the exhaust-ports, substantially as described.

5. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing a fluid expansible under heat, a diaphragm moved by the expansion and contraction of the fluid from the temperature of the water in the tank, a return-spring for the diaphragm, an adjustable stem carried by the diaphragm, and a valve actuated by the movements of the diaphragm and stem for automatically moving the steam-valve and opening and closing the exhaust-ports, substantially as described.

6. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing a fluid expansible under heat, a diaphragm moved by the expansion and contraction of the fluid from the temperature of the water, a valve actuated by the movements of the diaphragm and two fluid-pressure chambers having a passage between them controlled by the diaphragm-valve for automatically moving the steam-valve and opening and closing the exhaust-ports, substantially as described.

7. In a water-heater for locomotive-tanks, the combination of a valve-chamber communicating with the exhaust of the steam-chest of an air-compressing pump, exhaust-ports leading from such chamber, one for direct exhaust, and the other for exhaust into a heating-coil in the water-tank, a valve controlling such ports, a tube or cylinder in the water-tank containing fluid expansible under heat, a diaphragm moved by the expansion and contraction of the fluid from the temperature of the water, a valve actuated by the movements of the diaghragm, a fluid-pressure chamber having communication with a compressed-air reservoir, a fluid-pressure chamber having communication with the chamber of the steam-valve, and a passage between the two fluid-pressure chambers controlled by the diaphragm-valve for automatically moving the steam-valve and opening and closing the ports, substantially as described.

8. In a water-heater for locomotive-tanks, the combination of an air-compressing pump, a valve controlling the direction of the exhaust from the steam-chest of the pump, a heating-coil in the water-tank, a compressed-air reservoir, a fluid-pressure chamber communicating with the compressed-air reservoir, a fluid-pressure chamber communicating with the chamber of the exhaust-controlling valve, a passage between the two chambers and a valve for such passage actuated by the differential pressure from the temperature of the tank-water for automatically moving the steam-exhaust-controlling valve, substantially as described.

9. In a water-heater for locomotive-tanks, the combination of an air-compressing pump, a valve controlling the direction of exhaust from the steam-chest of the pump, a heating-coil in the water-tank, a compressed-air reservoir, a fluid-pressure chamber, a pipe leading from the compressed-air reservoir to such chamber, a second fluid-pressure chamber, a pipe leading from such chamber to the valve-chamber of the steam-exhaust, a passage between the two fluid-pressure chambers, a valve controlling such passage, and a diaphragm for actuating the valve moved by differential pressure from the temperature of the water in the tank, for automatically moving the exhaust-controlling valve, substantially as described.

10. In a water-heater for locomotive-tanks, the combination of an air-compressing pump, a valve controlling the direction of exhaust from the steam-chest of such pump, a heating-coil in the water-tank, a compressed-air reservoir, a fluid-pressure chamber, a pipe leading from the compressed-air reservoir to such chamber, a second fluid-pressure chamber, a pipe leading from such chamber to the steam-exhaust-valve chamber, a passage between the two fluid-pressure chambers, a valve controlling such passage, a diaphragm for actuating the valve, and a tube or cylinder containing fluid expansible under heat and contracting and expanding from the temperature of the water in the tank, to move the diaphragm and automatically move the steam-exhaust-controlling valve, substantially as described.

642,089. TIRE. ABEDNEGO DEWEY and HENRY A. WHITING, New York, N. Y. Filed June 9, 1899. Serial No. 719,894. (No model.)



Claim.—1. In a vehicle-wheel, the combination, of a plain-sided felly; a band or felly-tire located on the felly and having its edges recessed or undercut, so that its contacting surface with the felly is less in width than the periphery of the felly; a flexible tire extending wholly beyond the periphery of the felly, formed to embrace the felly-tire and extend into its undercut edges, and seating against the exposed parts of the periphery of the felly; and side rings secured to the sides of the felly and formed to embrace the sides of the flexible tire.

2. In a vehicle-wheel, the combination of a plain-sided felly; a band or felly-tire located on the felly and having its edges recessed or undercut, so that its contacting surface with the felly is less in width that the periphery of the felly; a flexible tire extending wholly beyond the periphery of the felly, formed to embrace the felly-tire and extend into its undercut edges, and seating against the exposed parts of the periphery of the felly and having extensions or beads formed on its sides; and side rings secured to the sides of the felly and formed to embrace said extensions or beads of the flexible tire and to force and hold it in the undercut edges of the band or felly-tire.

3. In a vehicle-wheel, in combination, a plain-sided felly; a band of less width than the felly and fitted on its periphery and having the edges recessed or undercut; a flexible tire formed to seat against the periphery of the band, which is of less width than the periphery of the felly, and the exposed portions of the periphery of the felly and to fit into and fill the undercuts of the band, and having extensions or beads on its sides; and rings secured to the sides of the felly extending beyond its periphery and formed to embrace the beads on the sides of the flexible tire and to force and hold the flexible tire in the undercut edges of the band.

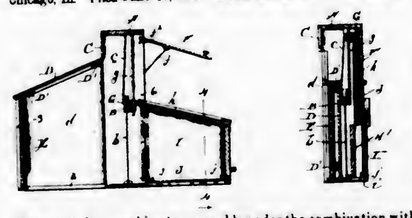
4. In a vehicle-wheel, in combination, a felly; a band of less width than the felly and fitted on its periphery and having its edges recessed or undercut; a flexible tire composed of an idlerior soft and elastic material and a comparatively hard and resisting exterior, having extensions or beads formed on its sides, said hard and resisting exterior seating against exposed parts of the periphery of the felly and extending into the undercuts of the felly-bands, and the soft interior portions seating against the periphery of the felly-band; and rings secured to the sides of the felly and formed to embrace the beads on the hard exterior sides of the flexible tire and to hold it into the undercuts of the band and against the periphery of the felly.

5. In a vehicle-wheel, in combination, a felly; a flexible tire having spring-cells formed in its inner face and recesses or pockets around said cells so as to leave their walls of substantially uniform thickness; springs located in the cells; and means for securing the tire to the felly.

6. In a vehicle-wheel, in combination, a felly; a flexible tire having a comparatively hard exterior shell and a series of spring-cells of comparatively soft and elastic material, the walls of which are substantially uniform in thickness; springs located in the cells; and means for securing the flexible tire to the felly.

7. In a vehicle-wheel, in combination, a felly; a flexible tire having spring-cells formed in its inner face and recesses or pockets around said cells so as to leave their walls of substantially uniform thickness; springs located in the cells; a band located on the felly and having undercut edges, into which extend portions of the flexible tire; and rings secured to the sides of the felly and formed to embrace the sides of the tire and hold it firmly against the band and periphery of the felly.

642,090. COMBINED COOP AND BROODER. JOHN R. DIXON, Chicago, Ill. Filed June 17, 1898. Serial No. 683,747. (No model.)



Claim.—1. In a combined coop and brooder the combination with a central rectangular frame, and a suitable open vertical partition arranged transversely across the same at about its center of length, of side walls, suitably hinged to the rear edges of the vertical sides of said central frame, a rear wall removably secured to said side walls, and a removable roof supported by said walls and covering the same, and a knockdown "lean-to" brooder at the other end of said central frame, which together with the aforesaid movable elements constituting the brooder are adapted to be inclosed and confined within said central frame.

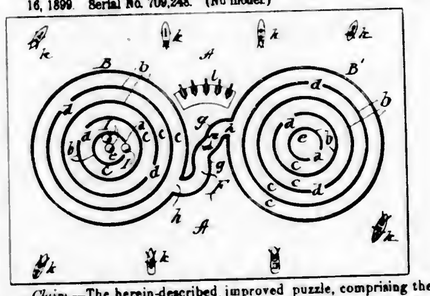
2. In a combined coop and brooder the combination with a central rectangular frame, a suitable open vertical partition arranged transversely across the same at about its center of length, and a knockdown "lean-to" coop located at the rear of said frame and adapted to be inclosed and compactly confined in said central frame, of a brooder located at the front of said central frame and comprising suitable side walls hinged to the lower portion of the front edges of the vertical sides of said central frame, a glass roof, the frame of which is vertically adjustable in the upper portion of said rectangular frame in front of said partition and arranged when in use to cover the space between the said side walls, and drop-doors hinged to the outer horizontal edge of said glass roof and arranged to close the front of the brooder.

3. In a combined coop and brooder, the combination with a central rectangular frame having vertical rods, *g*, secured thereto, and a knockdown coop at one end thereof, of a knockdown brooder at the other end thereof consisting of side walls, a removable floor detachably connected therewith, a cover, *h*, and drop-doors connected with said cover and forming the end of the brooder, the said cover being hinged to a vertically-movable cross-head, G, mounted between the rods *g*, substantially as and for the purpose set forth.

4. In a combined coop and brooder the combination with a central rectangular frame, a suitable open vertical partition arranged transversely across the same at about its center of length, and knockdown "lean-to" coop located at the rear of said central frame and adapted to be inclosed and compactly confined in the same, of suitable side walls hinged to the lower portion of the front edges of the vertical sides of said central frame having cleats secured to their inner surfaces next their lower edges and pins projecting vertically therefrom, a removable floor having openings near its side edges up through which said pins pass, a glass roof the sash-frame of which is vertically adjustable in the upper portion of said rectangular frame in front of said partition, and drop-doors hinged to the outer horizontal edges of said glass roof, as set forth.

5. In a combined coop and brooder the combination with a central rectangular frame, a suitable open vertical partition arranged transversely across the same at about its center of length, and a knockdown "lean-to" coop located at the rear of said central frame which is adapted to be inclosed and compactly confined in the same, of suitable side walls hinged to the lower portion of the front edges of the vertical sides of said central frame having cleats secured to their inner surfaces next their lower edges, pins projecting vertically from said cleats, a removable floor having openings at each side up through which said pins are adapted to pass, vertical guide-cleats secured to the inner surface of the vertical sides of the central frame in front of the upper portions of said open partition thereof, a horizontal cross-head adapted to be vertically adjustable on said guide-cleats, a glass roof, the sash of which is hinged to said cross-head and drop-doors hinged to the outer horizontal edges of said glass roof, as set forth.

642,091. PUZZLE. HENRY C. DOERSCH, Nyack, N. Y. Filed Mar. 16, 1899. Serial No. 709,248. (No model.)



Claim.—The herein-described improved puzzle, comprising the base-board, the two separate and distinct sets of rings or circular flanges projecting from said base-board and forming the circular channels or passage-ways c, arranged one within the other, the arrangement being such that the innermost ring forms the central chamber *e*, said two sets of rings being separated from each other, and the irregular or convoluted flanges projecting from the base-board in the space between said separate sets of circular rings and forming the connecting indirect neck or passage-way F between said separate sets, the rings or circular flanges being provided with the openings *d*, and *h*, in combination with the spheres or marbles, substantially as and for the purpose set forth.

642,092. TRICK-CHAIR. EDMUND DE MOULIN and ULYSSES S. DE MOULIN, Greenville, Ill. Filed Aug. 15, 1899. Serial No. 727,296. (No model.)



Claim.—1. A chair comprising a seat and a back rigidly connected, supports fixed to the seat, additional supports pivoted relatively to the seat, a connection between the pivoted supports, a latch adapted to engage said connection and hold the pivoted supports normally in operative position, a detonating mechanism, a common means for holding the latch and detonating mechanism and a common means for releasing the latch and detonating mechanism simultaneously.

2. A chair, comprising a seat and a back rigidly connected, supports fixed to the seat, rockers having rigid connection with the seat, the back and the support, movable supports pivoted to the rockers and having a common connection and adapted to hold the rockers normally in inoperative position, a latch adapted for engagement with said connection to hold the movable supports in operative position, and means for operating the latch to release the movable supports.

3. A chair, comprising a seat and a back rigidly connected, supports fixed rigidly to the seat, rockers fixed to said supports and to the back and extending along the back, movable supports connected

to the rockers and adapted to hold them normally inoperative, a latch adapted to hold the movable supports in operative position, and means for operating the latch to release the movable supports.

4. A chair, comprising a seat and a back rigidly connected, rigid supports fixed to the seat, rockers fixed to the lower ends of the supports and to the back and extending along the back, movable supports pivoted to the rockers and adapted to hold the rockers inoperative, a latch adapted to hold the movable supports in operative position, and means for operating the latch to release the movable supports.

642,093. ADJUSTABLE GATE. ROBERT J. DORNEY, Arlington, Ohio. Filed Oct. 15, 1898. Serial No. 693,677. (No model.)



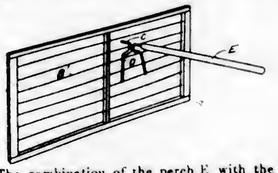
Claim.—1. In combination with a gate having a vertical adjustment substantially as herein described, the rearwardly-adjustable extension-frame 11, mounted upon the inner end of the gate, substantially in the manner and for the purpose set forth.

2. In combination with a gate adjustable in the manner described, the extension-frame 11, comprising the upright 12 and rearwardly-extending bars 14, said frame being adjustable relatively to the gate to protect the opening between said gate and the post, substantially as explained.

3. In combination with a gate adjustable as described, the extension-frame 11, comprising the upright 12, pivotally supported at its lower end upon the lower rail of the gate and having its upper portion movable relatively to the gate and carrying rearwardly-extending short bars 14, substantially as and for the purpose set forth.

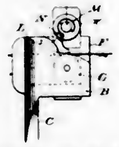
4. In combination with a gate having its lower rear portion provided with a hinge, the supporting tension-brace for supporting the upper portion of the gate and the extension-frame pivoted at its lower portion to the gate and having its upper portion movable relatively to the gate and connected to the supporting-brace, substantially as and for the purpose set forth.

642,094. BIRD-CAGE PERCH AND ATTACHMENT. FRED DOWNING, Toronto, Canada. Filed Feb. 25, 1899. Serial No. 706,899. (No model.)



Claim.—The combination of the perch E, with the herein-described spring-wire attachment secured to the said perch by the ends of the wire K and K' and provided with clasps H and H' and handle C, substantially as described.

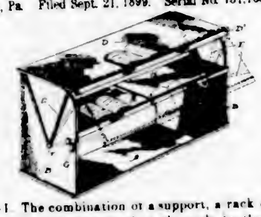
642,095. AUTOMATICALLY-LOCKING THREAD-GUIDE. DANIEL A. DUGAN, New York, N. Y. Filed May 9, 1899. Serial No. 716,143. (No model.)



Claim.—1. In an automatically-locking thread-guide, the combination with a casting consisting of a base-plate having a downwardly-projecting portion for fastening to a frame and a standard on each side of the base converging rearwardly to form a thread-guide, a horizontal roller pivoted near the base and between the said standards, and a vertically-adjustable eccentric above the said roller provided with a spring to hold the said eccentric away from the roller in its normal position, substantially as set forth.

2. In an automatically-locking thread-guide the combination with a casting consisting of a base-plate having a downwardly-projecting portion for fastening to a frame and a standard on each side of the said base converging rearwardly to form a thread-guide, a horizontal roller pivoted near the base and between the said standards, and an adjustable plate on one of the said standards having projecting therefrom over the said roller an arm or pin carrying a sleeve loosely fitted thereon, an eccentric secured to the said sleeve and adapted to swing downwardly adjacent to the said roller, substantially as set forth.

642,096. STUDENT'S-DESK BOOK-HOLDER. THOMAS DUNCAN, Pittsburg, Pa. Filed Sept. 21, 1899. Serial No. 731,163. (No model.)



Claim.—1. The combination of a support, a rack slidable thereon, and strips of webbing secured at the ends to the rack and between the ends to the support, whereby when moved over the edge of the support the rack is sustained by the webbing, substantially as shown and described.

2. The combination of a horizontal support, a rack slidable thereon, and strips of webbing secured at their ends adjacent opposite longitudinal edges of the rack, the webbing between its ends being secured to the horizontal support, the webbing serving to sustain the rack in forwardly-inclined position in the manner shown and described.

3. The combination of a horizontal support, cleats arranged transversely on the top thereof, a rack, cleats on the under side of the rack which cooperate with the support-cleats to slide the rack, and strips of webbing secured between their ends to the support and at their ends to the under side of the rack adjacent opposite edges thereof, substantially as shown and described.

4. The combination of a cabinet provided with a horizontal longitudinal partition and end members rising above the partition, a rack adapted to rest in horizoutal position at the upper ends of the end members, arms secured at their upper ends to the rack and at their lower ends hinged to the cabinet ends, stops or rests for the arms when in forwardly-inclined position, rack supported by the cabinet-partition, and mechanism for sustaining said racks in forwardly-inclined position, the racks being adapted to lie flatly on the partition when not in use, substantially as shown and described.

642,097. TURBINE WATER-WHEEL. JOHN T. FANNING, Minneapolis, Minn. Filed July 31, 1899. Serial No. 725,569. (No model.)

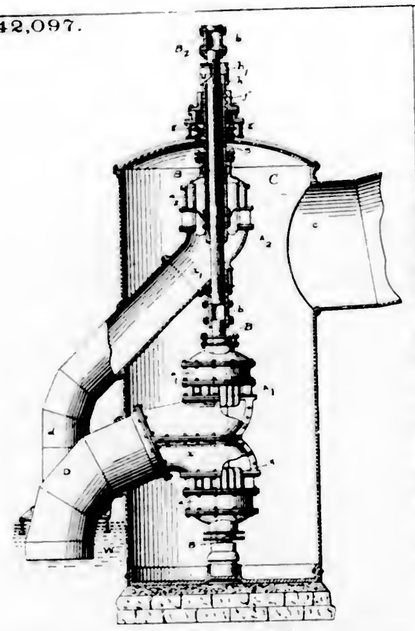
Claim.—1. The combination, of a plurality of inward-flow water-wheel cases and their contained independent turbine water-wheels, said water-wheels being arranged upon a vertical shaft, common to all, and adapted to work in unison or separately, with a vertical, cylindrical, metallic pressure-chamber inclosing said wheel-cases, common to all of them, and supplying water to each of said water-wheels independently, and with metallic draft-tubes extending from said water-wheel cases through the wall of said metallic pressure-chamber, all being arranged substantially as and for the purpose specified.

2. The combination, of a plurality of inward-flow water-wheel cases and their contained independent turbine water-wheels, said water-wheels being arranged upon a vertical shaft, common to all, and adapted to work in unison or separately, with a pressure-chamber inclosing said wheel-cases, common to all of them, and supplying water to each of said water-wheels independently, and with draft-tubes extending from said water-wheel cases through the wall of said pressure-chamber, all being arranged substantially as and for the purpose specified.

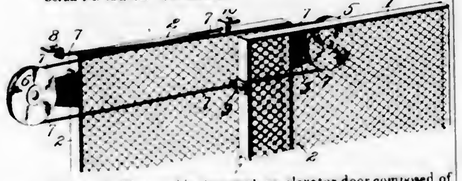
3. The combination, of a plurality of inward-flow water-wheel cases and independent turbine water-wheels contained therein, a vertical shaft common to all said wheels, and means for connecting said wheels separately with said shaft, with a pressure-chamber inclosing said wheel-cases, common to all of them, and supplying water to each of said water-wheels independently, substantially as described.

4. The combination of a turbine water-wheel upon an independent sleeve-shaft which has a thrust-bearing, with a shaft passing through said sleeve-shaft and containing one or more turbine water-wheels and with a clutch uniting said shafts, a wheel-case containing said turbine wheel and a draft-tube into which said water-wheel discharges its water.

642,097.



642,098. MECHANISM FOR OPERATING ELEVATOR-DOORS. FRANCIS K. FASSETT, St. Louis, Mo., assignor, by mesne assignments, to the Winslow Brothers Company, Chicago, Ill. Filed July 22, 1899. Serial No. 724,752. (No model.)



Claim.—1. The combination with an elevator-door composed of slidable sections, of pulleys or sheaves arranged near the opposite edges of one of said sections, and a flexible cord or chain passing around said pulleys or sheaves and having its ends fixed to a stationary support, said flexible cord or chain being attached to the other of said slidable sections, whereby, when power is imparted to one of said sections, both sections will move in the same direction at different speeds; substantially as described.

2. The combination with an elevator-door composed of slidable sections adapted to partially pass each other in their opening and closing movement, one of said sections being provided with sheaves, of a flexible member passing around said sheaves and having its ends fixed to stationary parts, said flexible member being fixed to said other slidable section, substantially as described.

3. The combination with an elevator-door composed of two pairs of slidable sections, of flexible connections between said pairs of slidable sections for insuring the simultaneous movement of said two pairs in opposite directions, and means for causing one slidable section of each pair of doors to move at a different speed from the other section of that pair, when power is applied to either section of the pair to open or close the door; substantially as described.

4. The combination with an elevator-door composed of four slidable sections arranged in pairs, adapted to move in opposite directions, of sheaves secured near the opposite edges of each inner section of a pair, separate flexible cords or chains which pass around said sheaves and are secured to stationary supports, said cord or chain of each pair of sections being attached to the other section of the pair at a point between the sheaves of the companion section, stationarily-mounted sheaves, and a flexible cord or chain which passes around said sheaves, and is attached at opposite sides to one of a pair of sections; substantially as described.

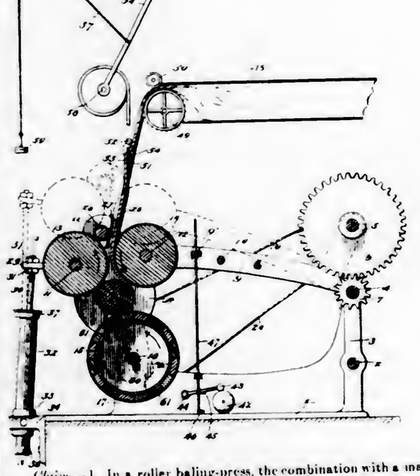
5. The combination with two pairs of door-sections, and mechanism connecting each pair to insure the simultaneous movement of the sections of a pair in the same direction at different speeds, so that one section of a pair will partially pass its companion in the opening or closing movement, and means cooperating with a door-section in each pair, whereby, when power is applied to either section of one pair to open or close the door, a like movement in the opposite direction will be imparted to the other pair of sections; substantially as described.

6. The combination with an elevator-door composed of slidable sections, of bracket-hangers secured to the upper edges of said sections, track-rollers mounted in said bracket-hangers, sheaves or pulleys mounted in the bracket-hangers of one of said door-sections, and a flexible cord or chain passing around said sheaves or pulleys and having its ends fixed to a stationary support, said flexible cord or chain being attached to the other of said slidable sections, whereby, when power is imparted to one of said sections, both sections will move in the same direction at different speeds; substantially as described.

7. The combination with a door comprising sliding sections, of a flexible member having fixed ends and attached to one of said door-sections and so arranged over sheaves on the other door-section as to insure a positive and differential movement of both door-sections in the same direction when power is applied to either section to open or close the door, substantially as described.

8. The combination with a door comprising two pairs of sections, of means for causing the simultaneous movement of said pairs of sections in opposite directions, and means for causing the sections of one pair to move differentially in the same direction, comprising a flexible member having fixed ends and attached to one of said sections of a pair and so arranged over sheaves on the other section of said pair as to insure a positive and differential movement of the two sections of said pair in the same direction when power is applied to either section of the pair to open or close the door, substantially as described.

642,099. ROLLER BALING-PRESS. JAMES J. FAULENER, Memphis, Tenn. Filed Mar. 21, 1899. Serial No. 710,008. (No model.)



Claim.—1. In a roller baling-press, the combination with a main frame and a bed-roller mounted thereon in fixed bearings, of a frame pivoted at one end to the main frame and projecting over the bed-roller, two compression-rollers mounted in the pivoted frame over the bed-roller, gearing for driving said rollers, a cylinder having two compartments, a rod attached to the free end of the pivoted frame, passing through the upper compartment of the cylinder and entering the lower compartment, a piston on the lower end of said rod, a pipe for fluid-pressure communicating with the lower end of the cylinder, and a spring in the upper compartment of the cylinder, one end of said spring connected with the rod, and the other end bearing against the upper end of the upper compartment of the cylinder.

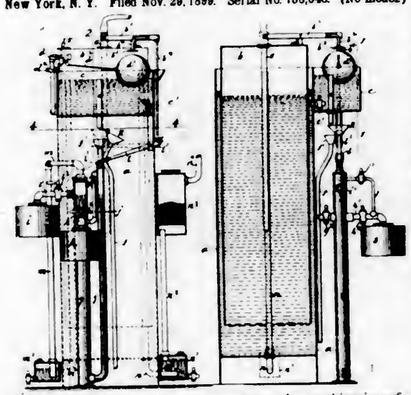
2. In a continuous cylindrical-bale press, a stationary bed-roller, a

movable frame above the stationary roller, a pair of compression-rollers journaled in said frame, a fender carried by the movable frame above the compression-rollers, and a guard-plate also carried by said frame parallel with the fender and adapted to conduct the material to said rollers, substantially as and for the purpose set forth.

3. In a press of the class described, a stationary bed-roller, a movable frame above said stationary roller, a pair of compression-rollers mounted on said movable frame, a fender carried by the movable frame, and a parallel guard-plate carried by said frame and adapted to travel to and from said bed-roller, and a pair of parallel end plates closing the end space between said bed and compression rollers, substantially as and for the purpose set forth.

4. In a continuous bale-press, the combination with a main frame and a bed-roller mounted in fixed bearings thereon, of a frame pivoted at one end and projecting over the bed-roller, two compression-rollers disposed above the bed-roller and carried by the pivoted frame, a cylinder pivoted between its ends to the main frame, a plunger in said cylinder, a rod connecting said plunger with the free end of the pivoted frame for raising the same and the compression-rollers and a spring normally resisting the upward movement of the pivoted frame and compression-rollers.

642,100. ACETYLENE-GAS GENERATOR. RUDOLPH FEDERROLL, New York, N. Y. Filed Nov. 29, 1899. Serial No. 738,640. (No model.)

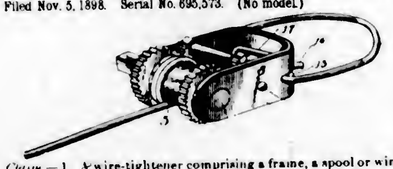


Claim.—1. In an acetylene-gas generator, the combination of a tank and bell, with a water-reservoir, an overflow-pipe entering the same, a carbid-pot adapted to communicate therewith, a water-cock, a float within the water-reservoir connected to the cock, and means on the bell for depressing the float upon the descent of the bell, to displace the water and simultaneously open the cock, substantially as specified.

2. In an acetylene-gas generator, the combination of a tank and bell, with a water-reservoir, an overflow-pipe, a water-pipe communicating therewith, a number of carbid-pots communicating with the water-pipe at different levels, a pipe *j*, that connects the water-pipe, above the level of the uppermost pot to the lowermost pot, and pipes that are adapted to convey the generated gas respectively into and out of the bell, substantially as specified.

3. In an acetylene-gas generator, the combination of a tank and bell, with a water-reservoir, an overflow-pipe entering the same, a water-pipe, a carbid-pot connected thereto, a funnel pivoted to the water-pipe, a ball-cock communicating with the water-reservoir, and means on the bell for depressing the ball of the ball-cock and simultaneously tilting the funnel upon the descent of the bell, substantially as specified.

642,101. WIRE-TIGHTENER. PETER FRANTZ, Sterling, Ill. Filed Nov. 5, 1898. Serial No. 695,573. (No model.)



Claim.—1. A wire-tightener comprising a frame, a spool or windlass journaled on the frame and provided with a ratchet-wheel, a transverse pivot spaced from the spool or windlass, and an eccentrically-arranged pawl provided at its rear edge with a recess loosely receiving the pivot, said pawl being provided at its front edge with a convexly-curved series of teeth engaging the ratchet-wheel, substantially as described.

2. A wire-tightener comprising a frame, a spool or windlass journaled on the frame and provided at opposite sides thereof with ratchet-wheels, and an eccentrically-arranged pawl mounted on the frame and provided at opposite sides with convexly-curved series of teeth engaging the ratchet-wheel, said pawl being provided with a lug arranged to engage the ratchet-wheel, whereby the swing of the pawl is limited, substantially as described.

3. A wire-tightener comprising a frame, a spool or windlass journaled on the frame and having a ratchet-wheel, a pawl mounted on the frame and provided with a curved series of teeth to engage the ratchet-wheel, and a lug depending from the pawl, forming a weight to maintain the same normally in engagement with the ratchet-wheel, and arranged to limit the backward swing of the pawl, substantially as described.

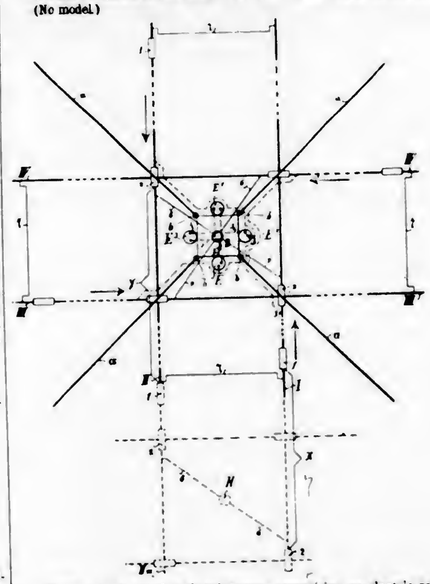
4. A wire-tightener comprising a frame, a spool or windlass journaled on the frame and provided at opposite sides thereof with ratchet-wheels, a transverse pivot arranged in rear of the spool or windlass, and an eccentrically-arranged pawl loosely journaled on the pivot, provided with upper engaging portions to interlock with the ratchet-wheels and having depending lugs forming weights and adapted to limit the swing of the pawl, substantially as described.

5. An wire-tightener comprising a frame, a spool or windlass mounted on the frame and provided with ratchet-wheels, a transverse pivot, and a pawl provided at its back with bearing-recesses to receive the pivot and having engaging portions at its front to interlock with the ratchet-wheels, substantially as described.

6. The combination with a wire-stretcher having a frame provided at its back with opposite slots or openings, of an open substantially U-shaped loop arranged horizontally and adapted to encircle a fence-post and having its ends bent on themselves, arranged within the slots or openings and forming eyes, and a key engaging the eye and detachably connecting the loop and the wire-stretcher, substantially as described.

7. The combination of a wire-tightener having an open frame provided at its back with opposite slots, an open substantially U-shaped loop arranged horizontally and adapted to be placed around a post and provided at its ends with hooks or eyes extending through the said slots, and a substantially U-shaped key engaging the eyes or hooks, substantially as and for the purpose described.

642,102. ELECTRIC SIGNALING DEVICE FOR CROSSINGS. OSKAR FUCHS, Dresden, Germany. Filed Nov. 1, 1898. Serial No. 695,213. (No model.)



Claim.—1. A crossing signal system, comprising an electric railroad provided with intersecting lines, trolley-wires for supplying current thereto, insulated sections in said trolley-wires adjacent the crossing, independent signals through which current is supplied to the insulated sections of the intersecting lines and a common main for supplying current to both signals and insulated sections; substantially as described.

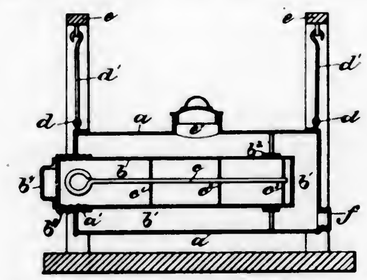
2. In a signal system for intersecting trolley-lines the combination with a signal located at the point of intersection and comprising electrically-operated independent signaling mechanism taking current from a common connector, of trolley-wires electrically connected with said common connector, and insulated sections in said trolley-wires respectively connected with said common connector through the appropriate signaling mechanism; substantially as described.

3. In a signaling apparatus, for electric trolley-lines, the combination with intersecting trolley-lines, of a signal embodying independent solenoids, through which the lines are fed, independent cores working in said solenoids, independent springs acting in opposition to the solenoids and independent signal-disks connected with the cores, whereby when the circuit is completed on any line by a car, one of the solenoids will be energized and the signal set to block the intersecting line; substantially as described.

4. An electric signaling device of the character described comprising a casing provided with a series of independently-movable signal-disks each connected to the core of a corresponding solenoid-coil on the casing, a lamp below the center of the casing, and means for electrically operating the disks of the cross-lines independently by an approaching car substantially as described.

5. An electric signaling device of the character described comprising a casing provided with a series of independently-movable signaling disks each connected to the core of a corresponding solenoid-coil on the casing, a lamp below the center of the casing conductors each having an insulated portion adjacent to said casing and wires connecting said insulated portions through its appropriate solenoid to the main portion of the line beyond the casing as and for the purpose described.

642,108. COMBINED CHURN AND ICE-CREAM FREEZER. CHARLES J. EDDY, Springfield, Ohio. Filed Oct. 5, 1899. Serial No 732,616. (No model.)

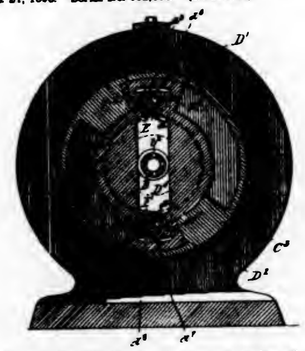


Claim.—1. The combination of an outer can open at one end, supports for said can and links securing said cans to said supports, and formed to permit a longitudinal movement only of said can, an inner receptacle of less diameter and shorter in length than said outer can, open at one end and adapted to be supported at its closed end within said outer can, the open end of said inner receptacle extending slightly beyond the open end of said can and adapted to be closed with a cap, and a loose dasher in said inner receptacle having one or more pivoted disks, substantially as specified.

2. The combination of an outer suspended can or receptacle having a screw-threaded opening in the center of one end, frames supporting said can, an inner receptacle of less diameter and shorter length than said outer can, closed at one end and screw-threaded at its open end and adapted to be supported within said outer receptacle at its closed end, and having its open end screw-threaded into the open end of said outer can, and projecting slightly beyond the same, and a screw-threaded cap fitting onto the screw-threaded end of said inner can, substantially as specified.

3. The combination of an outer can supported in a suitable frame, formed with an opening at one end, an opening in the top of said outer can and a small opening at or near the bottom thereof, closed by a cap, an inner receptacle supported in said outer can, said inner receptacle being open at one end, the open end of which projects slightly through and is supported in the opening in said outer can, a cap on one end of said inner receptacle and means for producing a longitudinal movement of said outer can in its supporting-frame, substantially as specified.

642,104. ROTARY ENGINE. SAMUEL V. BENICK, Yonkers, N. Y., assignor of one-fourth to Justus K. Ewing, New York, N. Y. Filed Sept. 27, 1898. Serial No. 692,038. (No model.)



Claim.—1. The combination in a rotary engine, of a casing having rigidly attached to its inner face one or more pistons, a cylinder inclosed within said casing carrying on its periphery one or more pistons, a valve device for each piston of the cylinder, and means for operating it whereby the valve alternately directs the motor fluid on each side of the piston and simultaneously controls the exhaust motor fluid, substantially as described.

2. The combination in a rotary engine, of a shaft, a casing loosely mounted on the shaft and having rigidly attached to its inner face one or more pistons, a cylinder loosely mounted on the shaft and inclosed within the casing and having on its periphery one or more pistons, a valve for each piston of the cylinder, and means for operating the valve whereby the valve controls the live and exhaust steam and directs it alternately in opposite directions, substantially as described.

3. The combination in a rotary engine, of a shaft, two disks rigidly attached to said shaft and forming clutch members, a casing loosely mounted on the shaft having one or more internally-projecting pistons, a sleeve for said casing, clutch devices mounted on the sleeve, a cylinder having a sleeve loosely mounted on the shaft and carrying one or more pistons, valves for the pistons controlling the live and exhaust steam, disks mounted on said sleeve, and clutch devices carried by the disks, substantially as described.

4. The combination in a rotary engine, of supports provided with recesses forming clutch members, a shaft having disks mounted thereon provided with recesses forming clutch members, a casing having a sleeve mounted on said shaft and provided with internally-projecting pistons, a cylinder having a sleeve mounted on the shaft and provided with one or more pistons, valve devices for the pistons, means for controlling the valves, and disks mounted on both the sleeves and forming clutch members coöperating with the clutch members of the frame and disks, substantially as described.

5. In a rotary engine, the combination with a casing having a piston, of a cylinder mounted therein and having a piston, a valve in said piston, and means for operating the valve, the valve being constructed and arranged substantially as described to direct live steam alternately to one side or the other of said piston and to exhaust the steam from the side opposite the piston from which the live steam passes, substantially as set forth.

6. In a rotary engine, the combination with a casing having inwardly-projecting pistons, of a cylinder mounted within the casing and provided with pistons on its periphery, and a single valve for each cylinder-piston alternately admitting live steam to first one side and then the other of the cylinder-piston and exhausting steam from the corresponding side, substantially as described.

7. In a rotary engine, the combination with a hollow shaft, of a casing carrying a piston mounted thereon, a cylinder carrying a piston mounted on the shaft and extending within the casing, steam-passages from the hollow shaft to the cylinder, and a valve in the piston controlling the inlet and outlet steam-passages, substantially as described.

8. In a rotary engine, the combination with a casing carrying two pistons, of a cylinder mounted therein and carrying two pistons, a valve in each of said cylinder-pistons adapted to control the admission and exhaust of the steam, a pinion on each valve, a gear meshing with said pinions, and means for actuating said gear to actuate the valves, substantially as described.

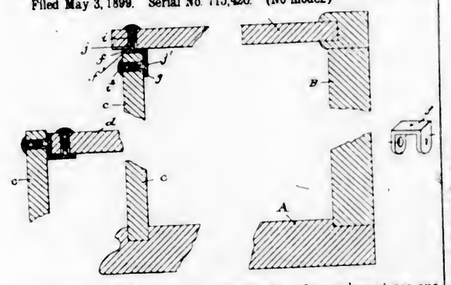
9. In a rotary engine, the combination with a casing having one or more internally-projecting pistons, of a cylinder having one or more radial pistons, a valve for each radial piston, and means for operat-

ing the valve, the construction of the valve being such that when turned in either direction the live steam passes out on one side of said piston and the exhaust enters from the other side, the pistons of the casing and cylinder acting alternately as pistons and abutments, substantially as described.

10. In a rotary engine, the combination with a casing having one or more internally-projecting pistons, of a cylinder having one or more radial pistons, a valve for each radial piston, means for operating the valve, the construction of the valve being such that when turned in either direction the live steam passes out on one side of said piston and the exhaust enters from the other side, the pistons of the casing and cylinder acting alternately as pistons and abutments, and clutch devices for alternately holding said casing and said cylinder while permitting the other to rotate, substantially as described.

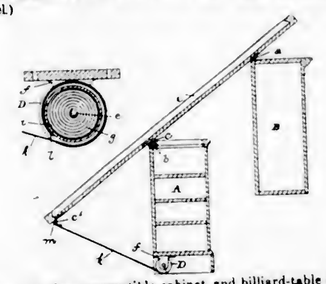
11. The combination in a rotary engine of a casing having pistons, a cylinder having pistons, recesses in the cylinder-pistons, a rotary valve having a longitudinal projection extending from one side mounted in said recesses, inlet and outlet ports extending to and from said valve, and means for actuating the valve, substantially as described.

642,105. **SHOW-CASE.** FRANCIS X. GANTER, Baltimore, Md. Filed May 3, 1899. Serial No. 715,420. (No model.)



Claim.—In a glass case the combination of two glass plates one overlapping the edge of the other; an angle-plate, *f*, *g*, having a bolt-hole in each of its two sides and one side let into a notch cut into the edge of one plate while the other side is on the inner surface of the same plate; a tubular socket, *i*, having a head at its closed end and entered in a hole in the overlapping plate with its head on the outside; a screw, *j*, entered from the inside through the hole in the angle-plate side which is in the said notch and into the said socket—the head of the said screw being concealed; a second tubular socket, *i'*, entered in a hole in the other plate; and a screw, *j'*, entered through from the inside hole in the other side of the angle-plate and into the second tubular socket, as set forth.

642,106. **CONVERTIBLE CABINET AND TABLE.** FRANCIS X. GANTER, Baltimore, Md. Filed June 12, 1899. Serial No. 720,130. (No model.)

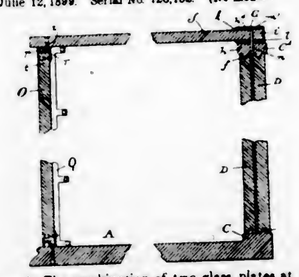


Claim.—1. In a convertible cabinet and billiard-table the combination of a cabinet divided horizontally into separable sections, and a table-top suitably connected to said sections and adapted, when the upper section is removed, to tilt from a vertical position behind both sections to a horizontal position and in the latter position supported by both sections, as set forth.

2. The combination of two separable cabinet-sections one normally resting upon the other, a table-top which in one position is vertically behind both sections and is hinged to the upper section and adapted to tilt, while resting on the lower section, from a vertical to a horizontal position and vice versa; and a tension device connecting from the lower section to the table-top and serving as a counterbalance to the upper cabinet-section when changing from the one position to the other, as set forth.

3. The combination of a cabinet, A, resting on the floor; a roller on the upper rear part of said cabinet; a table-top arranged to have two positions—one vertically behind the said section serving as a back and the other horizontally above said section serving as a table—and capable of tilting and also sliding on the said roller from the vertical to the horizontal position; means hinged to the upper part of the table-top and which will tilt forward and serve as a support when the parts are in the table position; and a tension device connecting from the said cabinet to the table-top and serving as a counterbalance, as set forth.

642,107. **SHOW-CASE.** FRANCIS X. GANTER, Baltimore, Md. Filed June 12, 1899. Serial No. 720,132. (No model.)

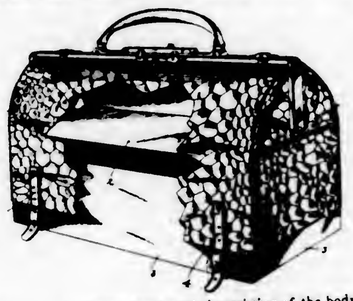


Claim.—1. The combination of two glass plates at angles with respect to each other—the edge of one being presented to the side surface of the other to form a corner or joint; a metal joint-strip between the two glass plates and separating them and flush with the outer surface of the plate against whose edge the strip bears—said joint-strip provided with tangs or arms, *u*, which project from the strip onto the inner side surface of one plate; a bolt attaching each tang or arm to said glass plate; and a bolt which passes through the said strip and through the other glass plate.

2. The combination of two glass plates at angles with respect to each other—the edge of one being presented to the side surface of the other to form a corner or joint; and a metal joint-strip between the two plates and separating them and flush with the outer surface of the plate against whose edge the strip bears—said strip having longitudinal grooves or spaces on its opposite sides which receive packing material.

3. The combination of two glass plates at angles with respect to each other—the edge of one being presented to the side surface of the other to form a corner or joint; a metal joint-strip between the two plates and separating them and flush with the outer surface of the plate against whose edge the strip bears—said strip having longitudinal grooves or spaces on its opposite sides and provided at its ends with an attached bolt projecting in line with the strip; and means at the top glass plate and at the bottom for engaging said bolts.

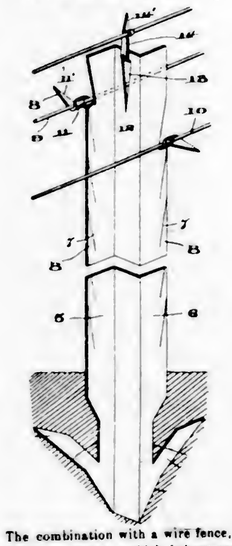
642,108. **VALISE OR HAND-SATCHEL.** CHARLES L. GILBERT, Cleveland, Ohio. Filed May 5, 1899. Serial No. 715,760. (No model.)



Claim.—1. A valise or hand-satchel consisting of the body portion hinged at its upper portion to swing outward, with a fixed partition beneath and in proximity to the hinges, and walls depending below the said partition, and a lower compartment having means attached thereto for engaging means on the outer walls of the depending portion for adjustably securing the same within the open lower end of the said body portion, substantially as shown and described.

2. A valise or hand-satchel consisting of the body portion having the upper portions of its sides adapted to open outward, with a fixed partition below and in proximity to the pintles of the hinges and walls depending below said partition and open at the bottom, a lower compartment adapted to be inserted within the open bottom of said body to telescope therewith, and straps secured to the bottom of the lower compartment and adapted to engage means on the outer walls of the body portion, substantially as and for the purpose specified.

642,109. **FENCE-POST.** JOHN H. GREEN, Hannibal, Mo. Filed Jan. 25, 1897. Serial No. 620,534. (No model.)



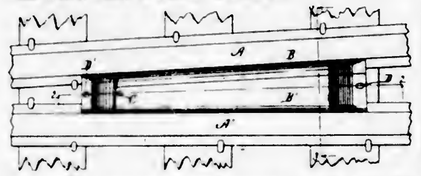
Claim.—1. The combination with a wire fence, of a fence-post having a pointed fastening-tongue which is bent completely around the fence-wire and has its end projecting outwardly from the post, said fastening-tongue holding the wire against the face of the post and serving as the sole means for retaining said wire.

2. The combination with line-wires, of a fence-post of a substantial Z shape in cross-section which has its opposite sides or parallel portions cut or slit, thereby providing pointed fastening devices, the line-wires being located in alternate relation against the opposite sides of said post and said tongues being bent around said wires, and having their pointed ends bent around the wires and projecting out from the posts in opposite directions.

3. The combination with a fence-post having a tongue projecting upwardly from its upper end, of a fence-wire around which the tongue is wrapped.

4. The combination with a fence-post which is slitted thereby providing a pointed fastening-tongue which projects upwardly from the upper end of the post, of a fence-wire around which the tongue is wrapped and has its ends free and pointing upwardly.

642,110. **FOOT-GUARD FOR RAILWAYS.** JOHN D. GREEN, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed Mar. 7, 1898. Serial No. 673,002. (No model.)

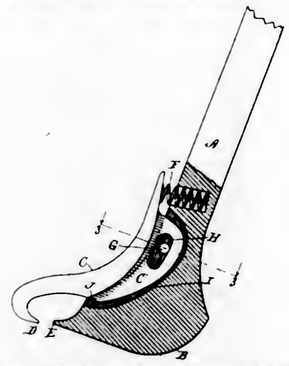


Claim.—1. A foot-guard for railways consisting of a metal plate formed with a flange adapted to extend under the head of the rail and fitting against the same; and having a body portion inclined downwardly at its side and having its ends inclined and fitting against the top of the base of the rail and having a suitable aperture to receive a spike to retain the same in position for the purpose specified.

2. A foot-guard for railways consisting of a metal plate formed with a flange adapted to extend under the head of the rail and fitting against the same; and having a body portion inclined downwardly at its side and having its ends inclined and fitting against the top of the base of the rail and adapted to receive a spike to retain the same in position for the purpose specified.

3. A foot-guard for railways consisting of sections pivotally connected together at one end, and each having flanges adapted to project under the heads of the rails and fit against the sides thereof, and downwardly inclined to increase the strength thereof, and the ends thereof downwardly inclined to contact with the upper sides of the base of the rails; the end of which is adapted to be engaged by a spike to retain them securely in position.

642,111. **SPIKE-PULLER.** JOHN D. GREEN, Toledo, Ohio, assignor to Warren J. Willits and Edward B. Linsley, Three Rivers, Mich. Filed May 27, 1899. Serial No. 718,606. (No model.)

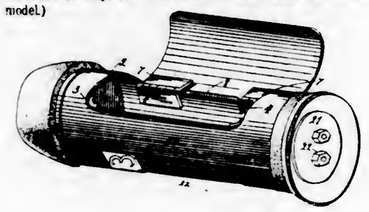


Claim.—1. In a spike-puller, the combination of the main lever A, with a heel B, thereon, having a jaw E, at its forward portion and containing a longitudinal mortise-slot I, on its front side: an auxiliary lever C, formed into a hooked jaw D, at its front and adapted to fulcrum on the main lever and having a web C', to project into the mortise I, the said web containing a suitable longitudinal slot H; a pin G, through said slot; and a spring F, to throw said auxiliary lever normally into engagement with the main lever to permit its easy adjustment, all coacting together substantially as described, for the purpose specified.

2. In a spike-puller, the combination of a main lever having a jaw at its lower end; an auxiliary lever with a hooked jaw at its lower end located opposite the jaw on the main lever, the said auxiliary lever being adapted to fulcrum against the main lever and containing a longitudinal slot; a pin through said slot connecting the auxiliary lever to the main lever, coacting as specified.

3. In a spike-puller, the combination of a main lever having a jaw at its lower end; an auxiliary lever with a hooked jaw at its lower end located opposite the jaw on the main lever, the said auxiliary lever being adapted to fulcrum against the main lever and containing a longitudinal slot; a pin through said slot connecting the auxiliary lever to the main lever; a spring between said levers to hold them in engaging position, coacting as specified.

642,112. **PNEUMATIC CASH-CARRIER.** FREDERICK W. GREMELS, Kansas City, Mo. Filed Oct. 10, 1899. Serial No. 733,160. (No model.)

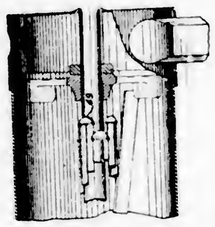


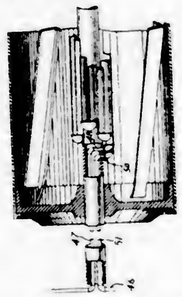
Claim.—1. A cash-carrier, comprising a tube closed at both ends and provided with an opening in its side, a clasp rotatably mounted on the tube and provided with an opening adapted to register with the tube-opening, and a door controlling the tube-opening, substantially as described.

2. A cash-carrier comprising a tube having an opening, a door hinged in said opening, a spring tending to throw said door outward through said opening, and a clasp journaled upon said tube and provided with an opening which is adapted to register with said tube-opening, and thereby permit said spring to open said door, substantially as described.

3. A cash-carrier, comprising a tube having an opening in its side and its rear end closed, a clasp journaled on the tube and provided with an opening adapted to register with the tube-opening, and a plate secured to and closing the front end of the tube and provided with a shoulder to cause the end of the tube to sustain endwise the pressure incidental to the stopping of the carrier, substantially as described.

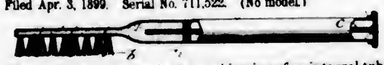
642,113. APPARATUS FOR COOKING AND DRYING CEREALS. BRADNER L. HARRIS, Indianapolis, Ind., assignor of one-half to Leon O. Bailey, same place. Filed Nov. 10, 1897. Serial No. 658,668. (No model.)





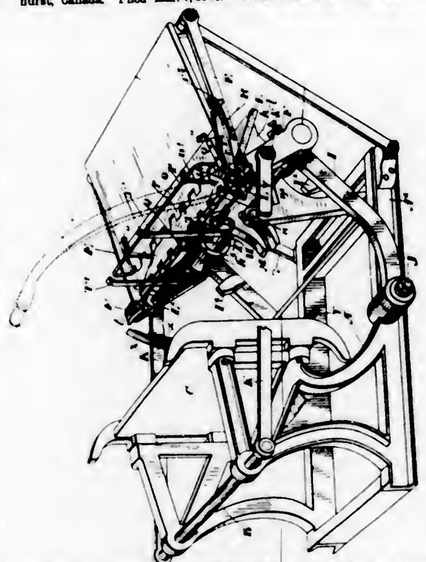
Claim.—In a drier for serial products having a rotary cylinder a tubular axle on which the cylinder is mounted, a series of radiator-pipes secured about the tubular axle connected by return-bends, a steam-inlet pipe extending into the tubular axle and then through its shell and connected with a radiator-pipe, and an outlet-pipe extending from the radiator through the shell of the tubular axle and then out of such axle, substantially as set forth.

642,114. TOOTH-BRUSH. CHARLES L. HALL, Oconto, Wis. Filed Apr. 3, 1899. Serial No. 711,522. (No model.)



Claim.—In a tooth-brush, the combination of an integral tubular handle, open at one end and flattened at its opposite closed end, the inner surface of said tube being non-circular in cross-section, and the exterior surface being circular at the open end and formed with exterior screw-threads; a series of nipples projecting from the flattened end of the brush and having openings communicating with the interior of the tube; tufts of bristles alternating with said nipples; flexible tubes or ducts secured to said nipples; a screw-cap having an annular screw-threaded flange for engagement with the exterior screw-threads on the tubular handle, and provided with a central smooth-bored opening; a non-rotatable follower having a screw-threaded central opening; a screw-rod passing through the described openings in the said follower and screw-cap and provided with a rigidly-secured collar bearing against said screw-cap; and a rotatable outer cap rigidly secured to the outer projecting end of the said screw-rod and bearing against the said screw-cap.

642,115. PLATEN-PRESS. FREDERICK J. HARRIDGE, Gravenhurst, Canada. Filed Mar. 7, 1898. Serial No. 672,927. (No model.)



Claim.—1. In a platen printing-press, in combination the type plate or form, the platen, the cross-shaft, and bracket supporting the platen upon the shaft, the arms suitably pivoted at the bottom on the frame and through which the cross-shaft extends, the upwardly-extending arms from the cross-shaft the rear cross-shaft and the links connected thereto and to the arms above the moving cross-shaft to provide fulcrums for said arms, one of such arms being extended into the form of a lever for the purpose of manipulation as and for the purpose specified.

2. In a platen printing-press, in combination the type plate or form, the platen, the cross-shaft, and bracket supporting the platen upon the shaft, the arms suitably pivoted at their lower ends on the frame and at their upper ends on said cross-shaft, the upwardly-extending arms from the cross-shaft, the links pivoted to the rear of the type-plate and connected to the arms above the moving cross-shaft, one of such arms being extended into the form of a lever for the purpose of manipulation, the feeding-table horizontally supported with its delivery end normally above the platen and means for transferring the sheet from the feeding-table onto the platen whereby it may be held thereon and carried forward as and for the purpose specified.

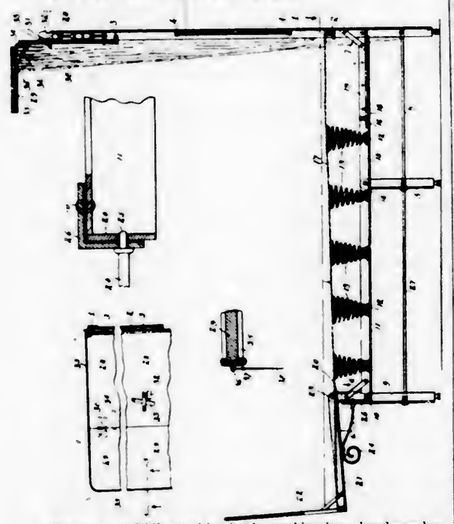
3. In a platen printing-press, in combination the type plate or form, the platen, the cross-shaft and bracket supporting the platen upon the shaft, the arms suitably pivoted at the bottom on the frame and through which the cross-shaft extends, the upwardly-extending arms from the cross-shaft, the links connected to the rear cross-shaft of the frame and to the arms above the moving cross-shaft, one of such being extended into the form of a lever for the purpose of manipulation, the feeding-table provided with depending front jaws, the side bars pivotally connected at the forward end to the arms secured on the end of the movable cross-shaft and provided with a supporting-block for the feeding-table, the supporting-bars pivotally connected to the front ends of the side bars and to the bottom of the frame, the top connecting-bolts of the side bars and supporting-bars forming a support for the depending jaws of the table and means for transferring the sheet from the feeding-table onto the platen whereby it may be held thereon and carried forward as and for the purpose specified.

4. In a platen printing-press, in combination the type plate or form, the platen, the cross-shaft and bracket supporting the platen upon the same, the arm suitably pivoted at the bottom on the frame and through which the cross-shaft extends, means for carrying the cross-shaft on the arc of the circle of the arms toward the type-form, and an arm secured to the frame and provided with an extension-rest for the cross-shaft as and for the purpose specified.

5. In combination, the platen and means for operating the same, arms extending from the platen, the nippers, nipper-rod journaled in the same, the yielding guide-track, means carried by said nipper-rod normally out of engagement with said track adapted to engage therewith on the forward movement of the platen to operate the nippers and the feeding-table having a flap with recesses to receive said nippers, substantially as described.

6. In a platen printing-press, in combination the type plate or form, the platen, the cross-shaft and bracket supporting the platen upon the shaft, the arms suitably pivoted at the bottom on the frame and through which the cross-shaft extends, the upwardly-extending arms from the cross-shaft and the links connected to the rear cross-shaft of the frame and to the arms above the moving cross-shaft, the feeding-table, the side bars thereof, pivotally supported to the front and pivotally connected at the rear to the upwardly-extending arms secured on the end of the movable cross-shaft, the arm pivoted on one side bar and provided with inner curvular ribs, the arms secured in the lower end of the platen, the nipper-arm and nippers and crank-arm on the end of the nippers designed to coact with the inner ribs on the end of the arm pivoted on the side bar and the spring connected to the arm of the rod and to a suitable portion of the platen-frame as and for the purpose specified.

642,116. FOLDING BED. THEODORE HAUBER, Chicago, Ill. Filed Feb. 9, 1899. Serial No. 705,034. (No model.)



Claim.—1. A folding bed having in combination a head member, intermediate legs, foot-posts, a rigid connection between said head member and intermediate legs, side rails hinged to said intermediate legs and foot-posts and a mattress secured to said head member and supported on said side rails, said side rails having horizontal projections extending beyond said intermediate legs toward said head member and being each provided with a lip and fixed stops on said rigid connections and under which said lips engage for preventing upward deflection of said extensions, substantially as set forth.

2. A folding bed having in combination a head member, a canopy hinged thereto and composed of two hinged members, a flange-rail extending around the outer edges of said hinged members and being intersected by the hinge thereof, slides engaging with said rail and having means for supporting a curtain, substantially as set forth.

3. A folding bed having in combination a head member, the foot-posts, intermediate legs arranged between the foot-posts and head member and being rigidly connected to said head member, side rails pivoted to said foot-posts and intermediate legs, the bars 27 also pivoted to said intermediate legs and foot-posts, means for locking the foot-posts and side rails from turning on their pivotal connection and a mattress fixed at its upper end and supported upon said side rails, substantially as set forth.

4. A folding bed having in combination a head member, foot-posts, intermediate legs rigidly secured to said head member, side rails pivoted to said intermediate legs and foot-posts, the bars 27 pivoted to said intermediate legs and foot-posts, a hinged foot extension projected from and supported upon the side rails, a mattress fixed at its upper end and being attached to said hinged extension and a bracket or connection between said hinged extension and the foot-posts for preventing the foot-posts from turning on their pivotal connection with the side rails, substantially as set forth.

5. A folding bed having in combination a head member, foot-posts, intermediate legs rigidly secured to the head member, side rails pivoted to said intermediate legs and to said foot-posts and having extensions extending above said foot-posts, a foot extension pivoted to said first extensions, a mattress fixed at its upper end and secured to said foot extension and a bracket-bearing between said foot extension and foot-post for holding said first extension and foot-post together, substantially as set forth.

6. A folding bed having in combination a head member, foot-posts, intermediate legs rigidly secured to said head member, side rails pivoted to said intermediate legs and to said foot-posts, and having upright extensions at their lower ends, said foot-posts being provided with extensions 26 adjacent to said upright extensions, foot extensions hinged to said upright extensions, a mattress secured at its upper end and also to said foot extension at its lower end and a bracket attached to said foot extension, and bearing against the foot-post for supporting the foot extension and preventing the foot-posts from turning on their pivotal connection with the side rails, substantially as set forth.

7. A folding bed having in combination a head member, foot-posts, intermediate legs, a rigid connection between said head member and intermediate legs, side rails pivoted to said foot-posts and intermediate legs and being provided at their lower ends with vertical extensions extending above said rigid connection and all rigid parts of the side rails and intermediate legs, a hinged foot extension supported by said vertical extensions and a mattress secured at its lower end to said hinged foot extension and extending directly to the head member and being secured thereto at its upper end whereby the bed will possess a soft edge from the head member to the foot-posts, substantially as set forth.

8. A folding bed having in combination a head member, a canopy hinged to said head member and adapted to fold forwardly from said hinge over the bed, said canopy being composed of two hinged members adapted to break joint upwardly and means for holding one of said members upright and the other horizontal, substantially as set forth.

9. A folding bed having in combination a head member, a canopy hinged thereto and adapted to fold forwardly from its said hinge over the bed and being composed of two hinged members adapted to break joint upwardly, a catch secured to the head member for holding one of said hinged members in a vertical position back against the head member and a bracket secured to one of said hinged members and bearing against the other for holding one of the hinged members in a horizontal position while the other is vertical substantially as set forth.

10. A folding bed having in combination a head member, the foot-posts, the intermediate legs rigidly secured to said head member, the side rails having the extensions 20, hinged to said intermediate legs and to said foot-posts and the foot-posts being provided with the extensions 26 above the pivotal point of the side rails, the hinged extensions 21 secured to the extensions 20, a mattress secured to the head member and to said extensions 21, a canopy hinged to the head member and adapted to fold down forwardly over the bed and to rest upon the extensions 26 and the brackets 24 secured to the extensions 21 and adapted to rest under and support said canopy at an intermediate point, substantially as set forth.

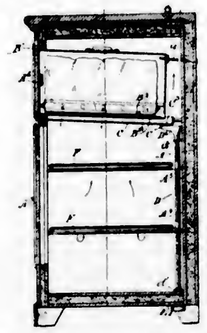
11. A folding bed having in combination a head member, foot-posts, intermediate legs rigidly secured to the head member, side rails pivoted to said intermediate legs and to said foot-posts and having extensions extending above said foot-posts, a foot extension pivoted to said first extension, a mattress fixed at its upper end and secured to said foot extension and brackets secured to the under side of said foot extension and having tenons and the said foot-posts having apertures receiving said tenons, substantially as set forth.

12. A folding bed having in combination a head member, a canopy hinged thereto and being composed of two hinged members, a flat bar secured around the edges of said canopy and being severed at the point of fold of said canopy, and curtain-supports consisting of slides having their ends hooked around the edges of said flat bar, substantially as set forth.

642,117. REFRIGERATOR. JOHN W. HEATON, Chattanooga, Tenn. Filed Oct. 26, 1898. Serial No. 694,512. (No model.)

Claim.—1. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and having openings for the admission and exit of air communicating

with the interior of the refrigerator through dampers at top and lower part respectively, and an air-channel, at both sides of the said refrigerator, leading from said openings in the lower part of ice-box to the lower part of the refrigerator, and an air-channel, at back of said ice-box, leading from the lower part of said refrigerator to a space above the said ice-box.



2. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and surrounded upon five sides by air-spaces and having openings for the admission of air and exit of the same communicating with the interior of the refrigerator through dampers at its upper and lower part respectively, and an air-channel, at two sides of the said refrigerator, leading from said openings in the lower part of the ice-box to the lower part of the refrigerator, and an air-channel, at back of said ice-box, leading from the lower part of said refrigerator to a space above the said ice-box, and a tube having a cap thereon leading from said space to the exterior.

3. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and located in the upper part of the same and having air-spaces at five sides and openings at its upper and lower part communicating with the interior of the refrigerator through dampers, preferably controlled by dampers, for the admission and exit of air respectively, and an air-channel, at two sides of the said refrigerator, leading from the said openings in the lower part of the ice-box to the lower part of the refrigerator, and an air-channel, at back of said ice-box leading from the lower part of said refrigerator to a space above the said ice-box.

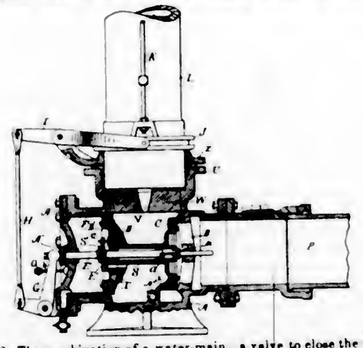
4. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and having upward projections adapted to come in contact with the ice upon the upper side of its false bottom parallel to its four sides and openings for the admission and exit of air at top and sides, and air-channels leading from said openings to the lower part of the refrigerator.

5. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and in the upper part thereof, and shelves in the lower part, composed of intersecting wires forming a fabric having two of its parallel edges inturned and strips of metal running along the said inturned edges to form a helix conforming to the shape of same, and rods running across said fabric at right angles to said inturned edges and having their ends inturned to conform to the shape of said edges.

6. In a refrigerator the combination of a backwardly-inclined ice-box supported at its front, open end by turned-over edges and at the upper part of same, having openings therein, and a tray, situated directly beneath said ice-box, having an opening leading to a vertical drip-pipe, and a trap communicating between the said drip-pipe and the exterior of the refrigerator; said trap being provided with a cap having a central tube which is screw-tapped into the tube leading to the said drip-pipe.

642,118. STAND-PIPE FOR LOCOMOTIVES. JAMES HENDERSON, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed Mar. 14, 1898. Serial No. 673,886. (No model.)

Claim.—1. In a stand-pipe for locomotives the combination with the water-main P, of the T connection A, on a suitable base; a vertical pipe L, pivotally supported thereon; the main valve C, adapted to rest against a suitable seat at the end of the pipe P; a cylinder F, opposite said valve and of larger diameter; a piston-head B, with suitable packing B', in said cylinder having a passage F, therethrough and connected by a stem or piston-rod having passage S, therethrough to said valve C; an auxiliary valve M, on stem E, adapted to open and close the passage S, through the valve and piston; a disk E', fixed on said stem E, adapted to close the passage T, through the piston and having a passage S', cut in it to connect with passage S; a guide as pin e, to properly locate said disk; a stuffing-box around said stem E; connections as lever G, rod H, bifurcated lever I, collar J, and rods K, to actuate said auxiliary valve so that the main valve shall be opened and closed by the pressure of water in the main as specified.



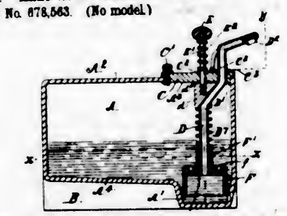
2. The combination of a water-main, a valve to close the end of the same; an engine-cylinder of larger cross-section than said valve; a piston with a passage therethrough connected to said valve with a separate passage through the piston and valve, an auxiliary valve adapted to control the passage through the main valve and piston; an auxiliary valve adapted to control the passage through the piston; suitable means of opening and closing said auxiliary valves to admit water to the cylinder from the water-main or to allow the escape of water from the cylinder to control the main valve as specified.

3. The combination of a water-main, a main valve to close the same; an engine-cylinder of larger cross-section than the valve; a piston with a passage therethrough connected by a stem or piston-rod to said valve with a separate passage through the piston and valve; an auxiliary valve on a stem extending through the last-named passage out through the cylinder; a disk on said stem adapted to close the passage through the piston when the other passage is opened and vice versa; and a means of actuating said valve-stem for the purpose specified.

4. In a stand-pipe for locomotives the combination of a base part with upwardly-projecting portion having a bridge across the same a vertical portion having a pivot-pin at the bottom resting on said bridge; a ring or collar around the vertical portion and resting on the part below; and a packing clamped beneath the ring, as specified.

5. The combination of a water-main; a main valve to close the same; an engine-cylinder of larger cross-section than the valve; a piston with a passage therethrough connected by a stem or piston-rod to said valve with a separate passage through the piston and valve; an auxiliary valve on a stem extending through the last-named passage out through the cylinder; a means controlled by said stem adapted to close the passage through the piston when the other passage is opened and vice versa; and a means of actuating said valve-stem for the purpose specified.

642,119. DISCHARGING MECHANISM FOR SYRUP OR OTHER JARS. ISAAC W. HEYSINGER, Philadelphia, Pa. Filed Apr. 23, 1898. Serial No. 678,563. (No model.)



Claim.—1. In discharging mechanism for syrup-jars and the like, in combination with a jar having closed sides and bottom, and a vertical recess with tapered sides formed in said bottom, a cup-shaped forcing-chamber open beneath and adapted to be loosely guided by and seated in said recess, a handle above said forcing-chamber projecting above the top of said jar, adapted to operate the same, together with a discharge-pipe leading from within said forcing chamber and recess upward, and provided with an overhanging discharge-nozzle above the surface level of fluids contained in said jar, and means operatively connected with said handle and stem for compressing the fluid in said forcing-chamber, and causing its discharge through said pipe and nozzle, and means for subsequently raising said forcing-chamber from the bottom of said recess, so as to admit a new supply of said fluid from said jar, into said forcing-chamber, substantially as and for the purposes described.

2. In combination with a jar open at top and having closed sides and bottom, and having a vertical recess in said bottom opening upwardly, a reciprocative forcing-chamber loosely fitted in said recess, and open beneath, said forcing-chamber adapted, when slightly raised to admit fluid from said jar at the bottom of said recess and into the same, and when forced down to make a sealed joint between said fluid in said forcing-chamber and said fluid in said jar, and means to compress the fluid in said chamber, together with an exit-pipe for said fluid, leading upwardly and above the level of the fluid in said jar, and adapted to discharge the contents of said forcing-chamber from said jar, and a handle operatively connected with said forcing-chamber and compressor, to operate said chamber to make said sealed joint, and afterward, by continuous pressure, force said contained fluid through said exit-pipe and discharge the same from said jar, substantially as and for the purposes described.

3. In combination with a jar having an opening above, and closed sides and bottom, and a flat-bottomed recess with sloping sides in said bottom, and a reciprocative cylindrical forcing-chamber, open beneath, fitted to said recess, and guided downward to the bottom thereof by said sloping sides, and adapted, when slightly raised, to present an opening between the sides of said recess and the bottom of said forcing-chamber, and a plunger operating in connection with said forcing-chamber, together with a vertical stem above said plunger, and secured thereto, and extended above the level of fluid contained in said jar, and a handle for operating the same, and means for retracting said plunger from said forcing-chamber and subsequently retracting said forcing-chamber from said recess, and an exit-pipe therefrom, extended above the level of the fluid containable in said jar, and adapted to discharge the same when pressure is applied to said handle, substantially as described.

4. In discharging mechanism for syrup-jars and the like, in combination with a jar having an opening above, and with closed sides and bottom, and having a recess in said bottom at the forward side of said jar, and a slightly-sloping bottom adapted to cause fluid to flow by gravity thereto, a reciprocative cylindrical forcing-chamber loosely fitted to said recess when slightly raised therein, said chamber open beneath, and provided with a plunger adapted to vertically reciprocate therein, and an exit-pipe extended above said jar and adapted to discharge its contents laterally over the top thereof, together with a stem and handle operatively connected therewith, and a spring adapted to retract said plunger in said chamber, and means for subsequently retracting said forcing-chamber from the bottom of said recess, substantially as and for the purposes set forth.

5. The combination of a jar open above and having closed sides and bottom, and a recess in said bottom having a flat bottom and sloping sides, a cylindrical cup-shaped forcing-chamber slightly reciprocative in said recess, a plunger reciprocative in the cylinder of said chamber, a tube attached to the middle of said plunger, and forming an exit-pipe from said chamber, a handle above said tube and above the level of fluid containable in said jar, and said exit-pipe having a discharge-nozzle above the level of the top of said jar, together with means for retracting said plunger in said chamber and also for retracting said chamber in said recess, substantially as described.

6. The combination of a syrup-jar with closed bottom and recess therein, a cylindrical forcing-chamber reciprocative therein, a centrally-perforated plunger reciprocative in said chamber, an exit-tube secured to and continuous with said perforation in said plunger, an operating-handle at top of said tube, and exit-nozzle above top of said jar continuous with said tube, together with means for causing said plunger to reciprocate in said chamber and said chamber in said recess by continuous downward pressure of said tube or handle, substantially as described.

7. In combination with jar, A, having recess, A', and opening, A^3, above the same, the cylindrical forcing-chamber, F, reciprocative in said recess, the reciprocative plunger, D^2, in said chamber, the tube, D, leading from said chamber, F, through said plunger, D^2, and secured thereto to operate the same, the discharge-nozzle, D^3, above the top of said jar, and a lever-handle, E^3, operatively connected with said exit-tube, D, together with a spring adapted to operate the same, substantially as and for the purposes described.

8. In a soda-water apparatus a series of jar-supports at bottom of the same, and in combination therewith a series of syrup-jars, said jars having closed sides and bottoms, and upwardly opening recesses within said jars, and with forcing-chambers reciprocative in said jars and recesses, and with exit-pipes connected therewith and adapted to discharge over the tops of said jars, and a series of handles extended above said jars and operatively connected, one with each of said forcing-chambers, and with means for compressing the fluid in said forcing-chambers and causing it to ascend through said pipe and be discharged over the top level of the fluid in said jar, and with means operatively connected with said handles to retract said chambers in said recesses, substantially as described.

9. In a syrup-discharging mechanism, a jar having closed sides and bottom, an upwardly-opening tapered recess in the said bottom, and a vertically-reciprocative and loosely-fitting forcing-chamber of definite capacity guided by the tapered sides of said recess, a plunger operating in said chamber reciprocatively, an exit-pipe, adapted to discharge upwardly and outwardly over the top of said jar, a handle adapted to reciprocate said chamber in said recess, and said plunger in said chamber, so that, at each reciprocation, a graduated quantity of said syrup shall be taken from the contents of said jar, and forced upward through said exit-pipe, together with means for retracting said chamber and said plunger, after said reciprocation thereof, substantially as described.

10. In combination with the jar, A, having closed sides, and recess in its bottom, A', the cover, C, cylindrical forcing-chamber, F, plunger, D^2, perforated at center and communicating with exit-pipe, exit-pipe, D, discharge-nozzle, D^3, retracting-spring to retract the said forcing-chamber, and handle for operating the same, substantially as described.

11. In combination with jar, A, discharge mechanism, D^2 F, A', exit-pipe, D, and handle adapted to vertically reciprocate said exit-pipe D, an arm, E^3, secured, at (3, to the fixed cover, C, and drip-plug, E^4, adapted to cover discharge-nozzle, D^3, and to be pushed away from same when said exit-pipe is depressed and the discharge of the contained fluid thereby effected, substantially as described.

12. In a syrup-discharging mechanism, in combination with a vertically-reciprocative exit-pipe, adapted to be depressed to cause the discharge of syrup from the same, a slide adapted to normally close the discharge-nozzle of said reciprocative pipe, and constructed to be pushed aside, when the discharge takes place, by means of an operative arm connected therewith, said arm supported at its opposite end on the fixed part of said mechanism, substantially as described.

13. In a syrup-discharging mechanism, in combination with the discharging-nozzle of a syrup-exit pipe, a slide adapted to normally close said nozzle, and to be forced therefrom during the discharge of said syrup, together with a spring or its equivalent for operating said slide, substantially as described.

14. In combination with a soda-water apparatus, a series of syrup-jars arranged along the same at the base or bottom part of said apparatus, said jars having closed bottoms, and tops open upward, and said open tops closed by detachable covers fitted thereto, and in combination with said covers, and supported thereby, a syrup-forcing apparatus operatively connected with the inside of each of said jars, with operating-handles supported by said covers and extended above the same, and discharge-pipes for said syrup extended upward from the lower portions of and within said jars, operatively connected with said forcing apparatus, and adapted to discharge the syrup, under pressure thereof, upwardly and thence over the tops of said jars, and into portable receptacles supported under the discharge-outlets of the the same, substantially as described.

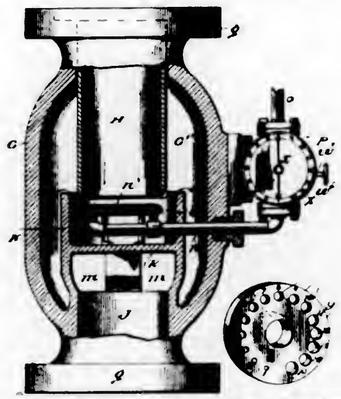
642,120. SEPARATING AND CONDENSING DEVICE FOR AMMONIA SUCTION. GEORGE B. HIETT, Atlanta, Ga., assignor of one-half to Samuel L. Brewer, Tuskegee, Ala. Filed Feb. 15, 1899. Serial No. 705,544. (No model.)

Claim.—1. In an ice-making or refrigerating apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a casing connected with said pipe and having inlet and discharge-ports, an expansion-chamber in communication with the discharge-port, an interior chamber in communication with the inlet-port and expansion-chamber, an injecting device located in said interior chamber, and a supply-pipe independent of or auxiliary to the suction-pipe, for conveying a volatile liquid to said injecting device.

2. In an ice-making or refrigerating apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a casing arranged in said pipe and having a deflector located between its inlet and discharge ports, an inlet pipe or tube leading from the inlet end of the casing to said deflector, an injecting device located in proximity to the meeting ends of the deflector and pipe, a supply-pipe leading through the wall of the casing to said injecting device, and a valve in the supply-pipe.

3. In an ice-making or refrigerating apparatus, the combination, with a compressor-cylinder and its suction pipe, of a casing arranged in said pipe and having a deflector projecting from its discharge end and having ports in communication therewith, and a pendent tube

removably fitted in the inlet end of the casing and leading to said deflector.



4. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing arranged in said pipe and having an expansion-chamber, a deflector forming a pocket or trap, and an inlet-tube leading into said trap.

5. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing arranged in said pipe, said casing having a deflector forming a pocket or trap and an inlet-tube leading to the trap, one of said parts being removable for access to the casing.

6. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing arranged in said pipe and having a deflector and an inlet-tube leading thereto, said deflector and tube being of relatively smaller diameter than the casing to form an intermediate expansion-chamber

7. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing removably applied in said pipe and provided with a deflector and a removable inlet-tube leading thereto.

8. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing having an interior annular deflector rising from its discharge end and having a diaphragm forming a cup-like trap or pocket and discharge-ports below said diaphragm, and a pendent inlet-pipe projecting down into the mouth of the pocket, said deflector and tube being of relatively less diameter than the casing and forming an intermediate expansion-chamber.

9. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing arranged in said pipe and having a deflector, a sprayer supported by the deflector, and an inlet-pipe for conducting the entering gases and liquids directly to said deflector and sprayer before entering the body of the chamber

10. In an ice-making or refrigerating apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a casing applied in the pipe and having a deflector arranged to form a pocket or trap located between its inlet and discharge ports, a pendent inlet pipe or tube extending from the inlet end of the casing into the mouth of said pocket, a spraying device arranged in the pocket, a supply-pipe leading through the wall of the casing to said spraying device, and a valve in the supply-pipe.

11. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid, such as anhydrous ammonia, into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with a port, a rotary disk having a plurality of feed-openings either one of which is adapted to be brought into coincidence with the port by turning the disk, and means for operating the disk from the exterior of the casing.

12. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid, such as anhydrous ammonia, into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with a port, a rotary disk having a plurality of feed-openings either one of which is adapted to be brought into coincidence with the port by turning the disk, a dial having a hand or pointer operatively connected with the disk, and means for turning the disk from the exterior of the casing.

13. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid, such as anhydrous ammonia, into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with duplicate seats each having a port, a plug-valve controlling the port in the seat on the discharge side, a rotary feed-disk mounted on the plug valve and provided with a plurality of graduated feed-openings either one of which is adapted to be brought into coincidence with the port in the seat on the inlet side, and means for operating the plug-valve from the exterior of the casing.

14. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid, such as anhydrous ammonia, into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with duplicate seats each having a port, a plug-valve controlling the port in the seat on the discharge side and having a threaded stem working in a threaded opening in the case, a rotary feed-disk mounted on the plug-valve and provided with a plurality of graduated feed-openings either one of which is adapted to be brought into coincidence with the port in the seat on the inlet side, and a slotted hub or collar, a pin on the valve having its ends working in the slots in the collar, a spring for pressing the disk against its seat, and means for operating the plug-valve from the exterior of the casing.

15. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid such as anhydrous ammonia, into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with duplicate seats each having a port, a plug-valve controlling the port in the seat on the discharge side and having oppositely-projecting stems extending to the exterior, one of said stems being threaded to work in a threaded opening in the case, a rotary feed-disk mounted on the plug-valve and provided with a plurality of graduated feed-openings either one of which is adapted to be brought into coincidence with the port in the seat on the inlet side, operating means connected with the threaded stem of the plug-valve, and a dial having a hand or pointer connected with the other stem of said valve.

16. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a device for injecting a volatile liquid into said pipe, a supply-pipe leading to the injecting device, and a valve arranged in the supply-pipe and comprising a casing having inlet and discharge passages separated by a partition provided with duplicate seats each having a port, a plug-valve controlling the port in the seat on the discharge side, a rotary feed-disk mounted on the plug-valve and provided with graduated feed-openings either one of which is adapted to be brought into coincidence with the port in the seat on the inlet side, a clutch connection between the plug-valve and disk adapted to permit the former to have independent longitudinal movement but cause both to turn in unison, and means for operating the plug-valve from the exterior of the casing.

17. In a refrigerating or ice-making machine, the combination, with a volatile-liquid-supply pipe, of a feed-valve arranged in said pipe and comprising a casing having inlet and discharge passages separated by a chambered partition having duplicate ports in communication respectively with said chamber and inlet and discharge passages, and valves governing the ports, the valve controlling the port on the inlet side having graduated feed-openings either one of which is adapted to be brought into coincidence with said inlet-port.

18. In an ice-making or refrigerating apparatus, the combination, with a compressor and its suction-pipe, of a casing arranged in said pipe, said casing having a deflector and an inlet leading thereto, one of said parts being removable for access to the casing.

19. In a refrigerating or ice-making apparatus, the combination, with a compressor, expansion-coils, and a suction-pipe leading from the expansion-coils to the suction-port of the compressor, of a device for injecting a volatile liquid into said pipe, and a valve governing the supply of liquid to the injecting device and having a plurality of graduated feed-openings, whereby the feed of the volatile liquid to said injecting device may be controlled in definite proportions according to the state of density of the gas or vapor passing through the pipe.

20. In a refrigerating or ice-making apparatus, the combination, with a compressor, expansion-coils, and a suction-pipe leading from the expansion-coils to the suction-port of the compressor, of a device for injecting a volatile liquid into said pipe, and a valve governing the supply of liquid to said device and having a plurality of feed-openings, a dial, and a pointer turning therewith and traversing the dial.

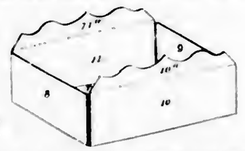
21. In a refrigerating or ice-making apparatus, the combination, with a compressor, expansion-coils, and a suction-pipe leading from the coils to the compressor, of a device for injecting a volatile liquid into said pipe, and a valve governing the supply of liquid to the injecting device and having a plurality of graduated feed-openings, and means for indicating when the desired opening is brought into feeding position.

22. In a refrigerating or ice-making apparatus, the combination, with a volatile-liquid-supply pipe, of a feed-valve therein having a plurality of graduated feed-openings, and means for indicating when the desired opening is brought into feeding position.

23. In an ice-making or refrigerating apparatus, the combination, with a volatile-liquid-supply pipe, of a feed-valve therein comprising a casing having inlet and discharge passages separated by a chambered partition having duplicate ports in communication respectively with said chamber and inlet and discharge passages, a plug-valve controlling the port in the seat on the discharge side, a rotary feed-disk controlling the port in the seat on the inlet side and having a plurality of graduated feed-openings, means for operating said valve and disk, and means for indicating the extent of movement of the disk to bring either one of its openings into register with said inlet-port.

24. In a refrigerating or ice-making apparatus, the combination, with a compressor-cylinder and its suction-pipe, of a casing removably applied in said pipe and having a deflector and an expansion-chamber in communication with its discharge-port through ports in the deflector, an injecting device located at or near the top of said deflector and in said expansion-chamber, a supply-pipe leading through the wall of the casing to the injecting device, and a valve in said supply-pipe.

642,121. FOLDING BOX. HERBERT L. HILDRETH, Boston, Mass. Filed May 20, 1898. Serial No. 681,207. (No model.)



Claim.—1. The herein-described folding box having double side and double end walls and consisting of two independent sections, one section forming the outer side and end walls and the cover for the box and the other section forming the inner side and end walls and the bottom of the box, the latter section being fitted within the first-named section, and said sections having at their upper edges means for engaging with each other whereby the sections are held together when the box is in use.

2. A folding box having double side and double end walls, composed of two distinct and separable parts, one part comprising the outer side and end walls and the top, and the other part the inner side and end walls and the bottom of the box, the said last-mentioned part being fitted within the first-mentioned, the side walls of one part being provided with flaps, and the end walls of the other part being provided with similar flaps adapted to interlock therewith when the two parts are fitted together, for the purpose set forth.

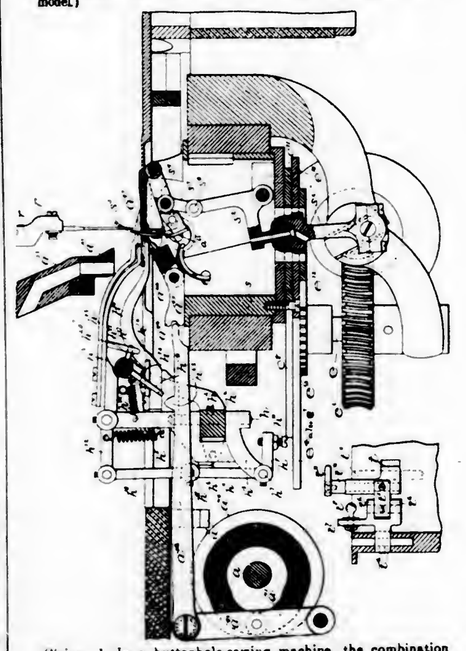
3. A folding box having double side and double end walls consisting of two detachable and separately-constructed sections, one section forming the outer side and end walls, the cover of the box and a flap on the front edge of said cover, and the other section forming the bottom of the box and the inner side and end walls, the end walls of the first section having inwardly-extending flaps, 5^a, 6^a, at their upper edges and side walls of the second said section having at their upper edges inwardly-extending flaps, 10^a, 11^a, adapted to rest on the flaps, 5^a, 6^a, and to support the second section within the first-mentioned section.

4. A folding box of the character described composed of three blanks, one forming the top and one of the sides of the box, another connected to that aforesaid and forming the other side and the ends of the box, and the third forming the bottom of the box, the two last-named blanks being provided with flaps adapted to overlap and connect said parts together.

5. The herein-described box embodying in its construction three blanks, A, B, C, the blank A forming the back side wall, 1, and the cover, 2, the blank B forming the front wall, 4, and end walls, 5, 6, and adapted to be secured firmly to the blank A, the end sections 5, 6 of the blank B having the inwardly-extending flaps, 5^a, 6^a, at their upper ends, and the blank C forming the bottom of the box and having upwardly-extending portions, 10, 11, terminating in flaps, 10^a, 11^a, which engage with the aforesaid flaps, 5^a, 6^a.

6. The herein-described box having double sides and embodying in its construction three blanks, A, B, C, the blank A forming the outer part, 1, of the back side wall and the cover, 2, which is provided with a retaining-flap, 3, the blank B forming the outer parts of the front side and end walls and adapted to be firmly secured to the blank A, the end sections, 5, 6, of the blank B having inwardly-extending flaps, 5^a, 6^a, at their upper ends, and the blank C forming the bottom of the box and the inner parts of the side and end walls thereof, the inner parts of the side walls having at their upper ends inwardly-extending flaps, 10^a, 11^a, which overlap the aforesaid flaps, 5^a, 6^a.

642,122. BUTTONHOLE-SEWING MACHINE. GEORGE S. HILL and DANIEL A. HITCHCOCK, Haverhill, Mass., assignors to John J. Sullivan, Ipswich, Mass. Filed Jan. 17, 1898. Serial No. 666,848. (No model.)



Claim.—1. In a buttonhole-sewing machine, the combination with stitch-forming mechanism, including an upper needle and its bar, and a lower needle and a rotary turret therefor, of an operatively-movable cutter-block mounted on the turret, a buttonhole-cutter adapted to coact with said cutter-block, said cutter and block being movable into and out of the lines of the needle-bar, and means for giving said cutter and block their described operations.

2. In a buttonhole-sewing machine, the combination with stitch-forming mechanism including an upper needle and its bar, and a lower needle and a rotary turret therefor, of a cutter mounted on a stationary support, a cutter-block mounted movably on said turret, and automatic mechanism for bodily moving said cutter and block into operative position with respect to the stitch-forming mechanism, whereby the cutting is accomplished without shifting or moving the work.

3. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a buttonhole-cutter, a rotary turret carrying a part of the said stitch-forming mechanism, and a cutter-block pivotally located upon the turret.

4. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a turret carrying a part of the said stitch-forming mechanism, a cutter, a cutter-block mounted on the turret and normally in an inoperative position, and means for moving said cutter and block simultaneously into and out of operative position.

5. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a cutter, a turret for carrying a portion of the stitch-forming mechanism, a cutter-block, a support for the cutter-block hinged to the turret, and means for operating the cutter and the cutter-block.

6. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a cutter, a turret carrying a portion of the stitch-forming mechanism, a cutter-block movably mounted on the turret,

a shaft, and connections between the shaft and the cutter and cutter-block.

7. In a buttonhole-sewing machine, the combination of stitch-forming mechanism including a rotary turret, a cutter, a cutter-block and a throat-plate mounted on said turret, and means for moving the cutter-block and throat-plate into and out of operative position alternately.

8. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a cutter, a turret carrying a portion of the stitch-forming mechanism, a movable support mounted on the turret, and a throat-plate and cutter-block located on said support, and means for actuating said support to move said throat-plate and cutter-block alternately into operative position.

9. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a turret carrying a portion of said stitch-forming mechanism, a cutter, a throat-plate and a cutter-block connected together and having their operative faces lying in intersecting planes, and a support for said work-plate and cutter-block pivoted upon the turret.

10. In a buttonhole-sewing machine, the combination of a work-clamp, buttonhole-cutting mechanism, a shaft connected to the cutting mechanism, a continuously-rotating wheel loose on the shaft, and having a cam, a two-armed lever adapted to operate the work-clamp, a spring-tensioned clutch, connected to the shaft and disengaged and normally held out of engagement with the said wheel by the two-armed lever, and manually-operated devices for temporarily connecting the two-armed lever with the cam, to cause first the operation of the work-clamp, and secondly, the operation of the cutting mechanism.

11. In a buttonhole-sewing machine, the combination with a work-clamp, buttonhole-cutting mechanism, and stitch-forming mechanism, of a shaft, a rotating wheel loose thereon, and clutch mechanism fast thereon for actuating the stitch-forming mechanism, a second shaft, a wheel on said second shaft and having cams fast therewith, a lever adapted to actuate the work-clamp and arranged to be actuated by one of said cams, a spring-tensioned clutch fast on the second shaft adapted to engage the other of said cams but disengaged from and held out of engagement with the said cam by said lever, a second lever adapted to be acted on by one of said cams for engaging and operating the clutch mechanism on the first-mentioned shaft, and manually-controlled devices for engaging the second-mentioned lever with its cam to cause, first, the operation of the work-clamp by the first-mentioned lever, second, the operation of the cutting mechanism by the second-mentioned shaft, and third, the operation of the stitch-forming mechanism by connecting the first-mentioned shaft and its wheel through the medium of the second-mentioned lever.

12. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, a rotary turret carrying a portion of the stitch-forming mechanism, buttonhole-cutting mechanism including a movable cutter-block mounted on the turret and a movable cutter, a work-clamp, and mechanism for operating the work-clamp to engage the work, mechanism independent of the stitch-forming mechanism for operating the cutting mechanism to cut a buttonhole-slit while the work is in position for but before the stitching operation, mechanism for setting in motion the stitch-forming mechanism, devices for stopping the said stitch-forming mechanism, and means for operating the clamp to release the work.

13. In a buttonhole-sewing machine, the combination of an upper needle, means for actuating said upper needle, a lower-needle or under-thread carrier adapted to pass through a buttonhole-slit, means for causing the rotation of said upper needle and said under needle or thread carrier, and a toggle for operating the under needle or thread carrier.

14. In a sewing-machine, the combination with an upper needle, an actuating means therefor whereby said needle is caused automatically to travel around the end of a buttonhole-slit, of a turret, means for imparting a rotatory movement to said turret, an under or lower needle supported by said turret, a toggle for actuating said lower or under needle, and means for operating the toggle.

15. In a sewing-machine, the combination with an upper needle, and actuating means to automatically cause the said needle to sew around the end of a buttonhole-slit, of a turret, means for imparting a rotatory movement to said turret, an under or lower needle supported by said turret, toggle-levers for actuating said under or lower needle, one of the toggle-levers being a bell-crank, and means for actuating the bell-crank.

16. In a sewing-machine, the combination with an upper needle, and actuating means to automatically cause the said needle to sew around the end of a buttonhole-slit, of a turret, means for imparting a rotatory movement to said turret, an under or lower needle supported by said turret, a needle-carrier pivoted at its end, toggle-levers one of which is pivoted to the needle-carrier between its ends, and means for actuating the toggles.

17. In a sewing-machine, the combination with an upper needle, and actuating means to automatically cause the said needle to sew around the end of a buttonhole-slit, of a turret, means for imparting a rotatory movement to said turret, a lower or under needle supported by said turret, a pivoted needle-carrier, a support, a toggle pivoted to the support and to the needle-carrier, one of the levers of the toggle being a bell-crank, and mechanism for operating the bell-crank.

18. In a sewing-machine, the combination of an upper needle, means to reciprocate it, means for automatically causing the said needle to sew around the end of a buttonhole-slit, a turret, means for imparting a rotatory movement to said turret, a lower needle, a toggle supported by said turret for reciprocating said lower needle, and means for actuating the toggle.

19. In a buttonhole-sewing machine, a cutter for forming a buttonhole-slit, a work-clamp, and stitch-forming mechanism, said stitch-forming mechanism comprising an upper needle, means to actuate said needle to cause it to sew around the end of a buttonhole-slit, a turret, means for imparting a rotatory movement to said turret, a lower needle adapted to pass through the buttonhole-slit supported by said turret, and means including a toggle for actuating said lower needle.

20. In a buttonhole-sewing machine, a cutter for forming a buttonhole-slit, a work-clamp, and stitch-forming mechanism, said stitch-forming mechanism comprising an upper needle, means to actuate said needle to cause it to sew around the end of a buttonhole-slit, a turret, means for imparting a rotatory movement to said turret, a lower needle adapted to pass through the buttonhole-slit, and supported by said turret, and lever mechanism including a toggle and a bell-crank for actuating said lower needle.

21. In a buttonhole-sewing machine, a cutter for forming a buttonhole-slit, a work-clamp, and stitch-forming mechanism, said stitch-forming mechanism comprising an upper needle, means to actuate said needle to cause it to sew around the end of a buttonhole-slit, a lower needle adapted to pass through the buttonhole-slit, turret, means for imparting a rotatory movement to said turret, a movable support for said lower needle mounted on said turret, and a toggle for actuating said support, said toggle being constructed and arranged to have its knuckle traverse a path intersecting the line connecting the outer ends of the toggle, whereby said lower needle is caused to dip when it reaches the end of its movement through the said slit, and before it begins its reverse movement.

22. In a sewing-machine, the combination of an upper needle, means to reciprocate it, a turret, means for imparting a simultaneous intermittent rotatory movement to the turret and the upper needle, a lower needle supported on said turret, and means to reciprocate said lower needle, said means comprising a toggle, one member of which is a bell-crank, and means for oscillating the bell-crank.

23. In a sewing-machine, the combination of an upper needle, means to reciprocate it, a turret, means for imparting a simultaneous intermittent rotary movement to the turret and the upper needle, a lower needle mounted on said turret, and means to reciprocate said lower needle, said means comprising a pivoted needle-carrier, a toggle pivoted to the turret and to the needle-carrier, and means for oscillating one member of the toggle.

24. In a buttonhole-sewing machine, a stitch-forming mechanism comprising an upper needle, a lower needle, a loop-spreader, a turret upon which the lower needle and loop-spreader are mounted, means for operating the turret, and a toggle for actuating the loop-spreader.

25. In a sewing-machine, the combination of an upper and a lower needle and their carriers, means for actuating said needles, a loop-spreader, a swinging loop-spreader carrier separate from the lower needle and its carrier, and a toggle for actuating the loop-spreader.

26. In a sewing-machine, the combination with an upper and a lower needle, carriers for said needles, and actuating mechanism therefor, of a loop-spreader, a pivotal loop-spreader carrier, separate from the lower-needle carrier, a toggle for imparting a movement of translation to the loop-spreader carrier, and a movement of rotation to the loop-spreader and mechanism for actuating the toggle.

27. In a sewing-machine, the combination of an upper and a lower needle, said lower needle being adapted to pass through a buttonhole-slit, mechanism for actuating said needles, a loop-spreader supported independently of the said needles, and a toggle for actuating the said loop-spreader.

28. In a sewing-machine, the combination with an upper and a lower needle, said lower needle being adapted to pass through a buttonhole-slit, and mechanism for actuating said needles, of a loop-spreader located permanently below the work, and toggle mechanism for actuating the said loop-spreader.

29. In a buttonhole-sewing machine, the combination of a cutter for making a buttonhole-slit, a work-clamp, an upper needle, actuating means for said needle, a lower needle adapted to pass through the buttonhole-slit, actuating means for said lower needle, a loop-spreader, and a toggle for operating said loop-spreader.

30. In a sewing-machine, the combination with an upper and a lower needle, and means for actuating said upper needle, of a toggle for actuating the lower needle, a loop-spreader, a toggle for actuating the loop-spreader, and connections between the toggles whereby one is actuated by the other.

31. In a buttonhole-sewing machine, the combination of a rotatory upper needle, means for actuating said upper needle, a lower needle, a turret carrying the lower needle, means to rotate the turret in one direction only, a loop-spreader mounted on the turret and toggles for operating the lower needle and the loop-spreader.

32. In a buttonhole-sewing machine, the combination of a rotatory upper needle, a lower needle, mechanism for actuating said needles, a rotatory turret carrying the lower needle, a looper mounted on the turret, and a toggle for operating the looper.

33. In a buttonhole-sewing machine, stitch-forming mechanism comprising an upper needle, a lower needle, a turret carrying said lower needle, and mechanism for imparting an intermittent rotatory movement always in the same direction to the upper needle and the turret, the last said mechanism comprising coacting disks and coacting mutilated gears.

34. In a buttonhole-sewing machine, stitch-forming mechanism, comprising an upper needle, a lower needle, a turret, and mechanism for imparting an intermittent differential rotatory movement to the upper needle and the turret, said mechanism including coacting gears each having its teeth farther from its center on one side than on its other side.

35. In a buttonhole-sewing machine, stitch-forming mechanism comprising an upper needle, a lower needle, a turret, and mechanism for imparting an intermittent differential rotatory movement to the upper needle and the turret, said mechanism including coacting mutilated gears each having its teeth farther from its center on one side than on the radially opposite side.

36. In a buttonhole-sewing machine, the combination of stitch-forming mechanism and a turret carrying a lower needle, and mechanism for imparting an intermittent rotatory movement to the upper needle and the turret, the last said mechanism comprising a shaft having two mutilated disks each provided with gear-teeth, a mutilated disk and gears on the turret and gears and a mutilated disk on the upper-needle bar.

37. A buttonhole-sewing machine, comprising a turret having a mutilated disk, and a gear on each side of the disk, a shaft having a mutilated disk in engagement with the first-mentioned disk, and a mutilated gear on each side of the second-mentioned disk adapted to alternately engage with the mutilated gears of the turret.

38. A buttonhole-sewing machine, comprising an upper-needle bar having a mutilated disk and a gear on each side of the disk, and a shaft having a mutilated disk with mutilated gears on each side thereof.

39. A buttonhole-sewing machine comprising a needle-carrier having a mutilated eccentric gear, and a driving-shaft having a mutilated eccentric gear to mesh intermittingly with the first-mentioned gear, whereby a differential movement is imparted to said needle-bar.

40. In a buttonhole-sewing machine, the combination with stitch-forming mechanism of clamping mechanism comprising two clamping members, toggle-levers connected to the outer ends of said members, a lever for throwing the toggle into operative position, a cam and devices operated by the cam for throwing the toggle into inoperative position.

41. In a buttonhole-sewing machine, stitch-forming mechanism including an upper needle, a lower-thread carrier, and a rotatory turret for said lower-thread carrier, and a throat-plate mounted on said turret and having an aperture to permit of the passage of the buttonhole-cord, said throat-plate also having a slot extending from said aperture to its edge.

42. In a buttonhole-sewing machine, stitch-forming mechanism including an upper needle, a lower-thread carrier, and a rotatory turret for said lower-thread carrier, and a throat-plate mounted on said turret and having an aperture to permit of the passage of the buttonhole cord, said throat-plate also having a slot for the cord to lie in, and undercut edges for the purpose set forth.

43. In a buttonhole-sewing machine, upper-thread mechanism, under-thread mechanism including a rotary turret, a throat-plate supported on said turret, and mechanism for rocking said throat-plate relatively to the turret for the purpose set forth.

44. In a buttonhole-sewing machine, an upper needle, a lower needle, a turret, a loop-spreader mounted on said turret, mechanism for actuating said loop-spreader to take a loop from one needle and present it to the other, means for operating the upper needle, and lever mechanism including a toggle for operating said lower needle.

45. In a sewing-machine, an upper needle, a lower needle, a turret, a loop-spreader mounted on said turret independently of the needles to take a loop from one needle and present it to the other, means for operating the upper needle, lever mechanism including a toggle for operating said lower needle and connections between the said mechanism and said loop-spreader.

46. In a sewing-machine, an upper needle, a lower needle, a turret, a loop-spreader mounted on said turret independently of the needles to take a loop from one needle and present it to the other, means for operating the upper needle, lever mechanism including a toggle for operating said lower needle, and lever mechanism for operating the said loop-spreader.

47. In a buttonhole-sewing machine, an upper needle, a lower needle adapted to pass through a buttonhole-slit, a pivoted carrier for said lower needle, means for operating the upper needle, a turret for the lower needle to swing it around the end of a buttonhole-slit, and toggle mechanism for operating said lower needle, said mechanism being connected to said lower needle-carrier to move it positively into and out of operative position.

48. In a buttonhole-sewing machine, an upper needle, a lower needle adapted to pass through a buttonhole-slit, a pivoted carrier for said lower needle, means for operating the upper needle, a turret for the lower needle to swing it around the end of a buttonhole-slit, and mechanism for operating said lower needle, said mechanism comprising a shaft, and positive connections including a toggle between said shaft and said lower-needle carrier whereby said needle is moved positively into and out of operative position.

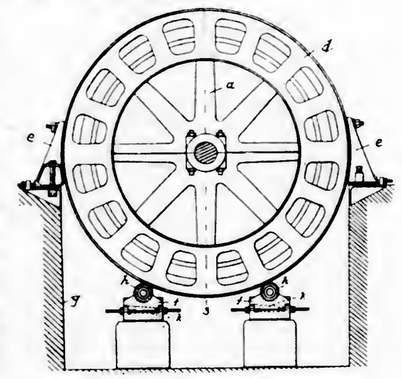
49. In a buttonhole-sewing machine, an upper needle, a lower needle adapted to pass through a buttonhole-slit, a pivoted carrier for said lower needle, means for operating the upper needle, a turret for the lower needle to swing it around the end of a buttonhole-slit, and mechanism for operating said lower needle, said mechanism comprising a shaft, and positive connections between said shaft and said lower-needle carrier whereby said needle is moved positively into and out of operative position, said connections including a toggle and provisions for permitting a rotatory movement of the needle relatively to the shaft.

50. In a buttonhole-sewing machine, an upper needle, a lower needle adapted to pass through a buttonhole-slit, a pivoted carrier for said lower needle, means for operating the upper needle, a turret for the lower needle to swing it around the end of a buttonhole-slit, a shaft and positive connections between said shaft and said lower-needle carrier whereby the needle is carried into and out of operative position by the shaft, said connections including a toggle and a swivel-joint.

51. In a buttonhole-sewing machine, an upper needle, a lower needle adapted to pass through a buttonhole-slit, a pivoted carrier for said lower needle, means for operating the upper needle, a turret for the lower needle to swing it around the end of a buttonhole-slit, a shaft and positive connections between said shaft and said lower-needle carrier whereby the needle is carried into and out of operative position by the shaft, said connections including a toggle and a ball connected to the toggle and a socket connected to the shaft.

52. In a buttonhole-sewing machine, an upper needle, a lower needle, complemental stitch-forming mechanism, a turret and actuating means therefor, in combination with cutting mechanism comprising an anvil or cutter-block movably mounted on the turret, and a cutter mounted upon a suitable support to which the turret and cutter-block are relatively rotatable.

642,123. DYNAMO-ELECTRIC MACHINE. ERNST W. G. C. HOFFMANN, Charlottenburg, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed July 21, 1899. Serial No. 724,633. (No model.)



Claim.—1. The combination, in a dynamo-electric machine, with the stationary member thereof, of a roller-mounting for said stationary member permitting the same to be rotated, and means for normally preventing the stationary member from being rotated, substantially as described.

2. The combination, in a dynamo-electric machine, with the stationary member thereof, of rollers *h h* disposed in position to support the same and permit its rotation, and devices *e e* adapted normally to hold said stationary member against rotation, substantially as described.

3. The combination, in a dynamo-electric machine, with a stationary member, of a rotatable member, means for supporting and permitting the rotation of the normally stationary member and adjusting mechanism permitting the relative adjustment of the stationary and rotatable members, whereby the air-gap is regulated, substantially as described.

4. The combination, in a dynamo-electric machine, with the stationary member thereof, of a roller-mounting for said stationary member permitting the same to be rotated, and means for securing the adjustment of the position of the stationary member, substantially as described.

5. The combination, in a dynamo-electric machine, with the stationary member thereof, of rollers *h h* disposed in position to support the same and permit its rotation, and an adjustment for the rollers, comprising coacting portions having inclined faces and actuating screws, substantially as described.

6. The combination, in a dynamo-electric machine, with the stationary member thereof, of rollers *h h* disposed in position to support the same and permit its rotation, devices *e e* adapted normally to hold said stationary member against rotation, and an adjustment for the rollers, comprising coacting portions having inclined faces and actuating-screws, substantially as described.

7. The combination with the stationary member of a dynamo-electric machine, of a rotatable member inclosed thereby, and rolling-bearing devices *f f* located beneath the stationary member and serving normally to support the same and upon which the stationary member is adapted to be turned, substantially as described.

8. The combination with the stationary member of a dynamo-electric machine, of a rotatable member inclosed thereby, and adjustable rolling-bearing devices *f f* located beneath the stationary member and serving normally to support the same and upon which the stationary member is adapted to be turned, substantially as described.

9. The combination with the stationary member of a dynamo-electric machine, of a rotatable member inclosed thereby, rolling-bearing devices *f f* located beneath the stationary member and serving normally to support the same and upon which the stationary member is adapted to be turned, and adjusting devices *e e* for effecting the adjustment of the air-gap between the stationary member and the rotating member and cooperating with the said rolling-bearing devices to support the stationary member, substantially as described.

10. The combination with the stationary member of a dynamo-electric machine, of flanges *d d* secured thereto, adjusting devices *e e* for adjusting the air-gap between the stationary and rotating members, and rolling-bearing devices *f f* located beneath the stationary member and engaging the said flanges, substantially as described.

11. The combination with the stationary member of a dynamo-electric machine, of flanges *d d* and a peripheral flange *c* interposed between the flanges *d d* and secured to the stationary member, adjusting devices *e e* for adjusting the air-gap between the stationary and rotating members, and rolling-bearing devices *f f* located beneath the stationary member and engaging the said flanges, substantially as described.

642,124. STEERING APPARATUS FOR SLEDS. JOSHUA HOLDSWORTH, Woonsocket, R. I. Filed June 12, 1899. Serial No. 720,317. (No model.)



Claim.—1. The herein-described rubber consisting of a block of suitable material, provided with teeth on its under surface and hollowed out on its sides forming attaching-ribs, substantially as described.

2. The herein-described rubber consisting of a block of suitable material, provided with teeth on its under surface and hollowed out on its sides forming attaching-ribs in combination with a holder or box provided with downwardly-turned under sides embracing the ribs, and a rear downwardly-turned flange to prevent rearward displacement, substantially as described.

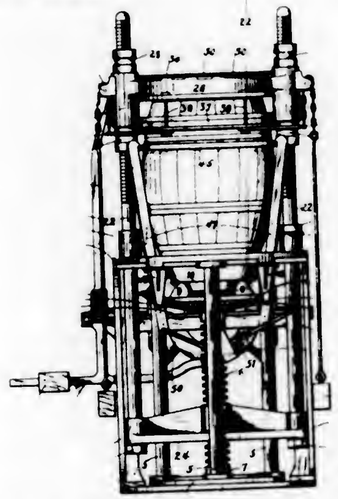
3. A lever for steering apparatus for sleds, provided with a horizontal socket to engage over a shaft and a rubber-holding box having downwardly-turned under sides and a downwardly-turned rear end flange, substantially as described.

4. The combination with a sled of a shaft extending horizontally through the runners with its ends projecting beyond them, of levers provided with rubbers, and journaled on the ends of the shaft, substantially as described.

5. The combination with a sled, of a shaft extending horizontally through the runners with its ends projecting beyond them, of levers, provided with sockets journaled on the shaft ends, boxes carried at the rear ends of the levers, and rubbers secured in said boxes, substantially as described.

6. The combination with a sled and a shaft secured horizontally in the runners and having projecting ends, of levers carrying rubbers journaled on the projecting ends, stops to limit the downward movement of the forward ends of the levers, and springs to normally hold the forward ends in contact with the stops, substantially as described.

642,125. BARREL-HEADING-UP MACHINE. BRITAIN HOLMES and EDWIN F. BEUGLER, Buffalo, N. Y., assignors to the E. & B. Holmes Machinery Company, same place. Filed Jan. 21, 1899. Serial No. 702,879. (No model.)



Claim.—1. In a barrel-heading-up machine, the combination with the frame, of hoop-driving mechanism supported in slideways in said frame, trussing mechanism supported from said hoop-driving mechanism and having a certain range of movement independent of the driving mechanism, said driving mechanism having a driving device provided with a series of drivers adapted to be moved inwardly to project over a hoop, or outwardly to permit the driving mechanism to force the trussing mechanism firmly upon the barrel to compress the staves together, the independent range of movement of the trussing mechanism permitting the elevation of the hoop-driving mechanism above a barrel without removing the trussing mechanism from said barrel, as set forth.

2. In a barrel-heading-up machine, the combination with the frame and the operating mechanism, of a driving mechanism comprising a driving-ring having a number of drivers mounted in slideways in said ring and provided with operating-fingers, and adapted to be moved inwardly to project over the hoop upon the upper edge of the barrel, and a rotatable device for so moving them having a series of diagonal slots in which the fingers seat.

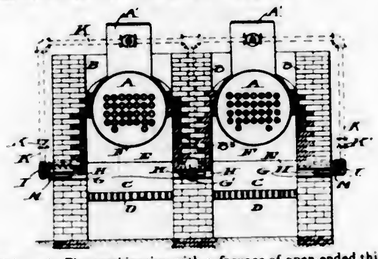
3. In a barrel-heading-up machine, the combination with the hoop-driving mechanism, of trussing mechanism connected to said driving mechanism by bolts sufficiently long to permit a certain range of movement independent of the driving mechanism, and counterweights for maintaining said trussing mechanism normally in close proximity to the hoop-driving mechanism, as set forth.

4. In a barrel-heading-up machine, the combination with the hoop-driving mechanism, of trussing mechanism connected to said driving mechanism and having a certain range of movement independent of the driving mechanism, and counterweights for maintaining said trussing mechanism normally in close proximity to the hoop-driving mechanism, as set forth.

5. In a barrel-heading-up machine, the combination with the machine-frame, of a vertical operating-shaft journaled in said frame, hoop-driving mechanism supported by said shaft, and raised or lowered by the rotation of said shaft, a driving-shaft having connection to a source of power, means for transmitting power from the driving-shaft to rotate the vertical operating-shaft in either direction while the driving-shaft is in constant rotation in but one direction and trussing mechanism suspended from the hoop-driving mechanism and having a certain range of vertical movement independent of said hoop-driving mechanism, as set forth.

6. In a barrel-heading-up machine, the combination with the machine-frame, of a vertical operating-shaft journaled in said frame, hoop-driving mechanism supported by said shaft, and raised or lowered by the rotation of said shaft, a driving-shaft having connection to a source of power, mechanism for transmitting power from the driving-shaft to the operating-shaft, means controlling said transmitting mechanism for adjusting it to rotate the vertical operating shaft in either direction or disengage it to stop the operation of the machine, and trussing mechanism suspended by bolts from the hoop-driving mechanism and having a certain range of movement upon said bolts, as set forth.

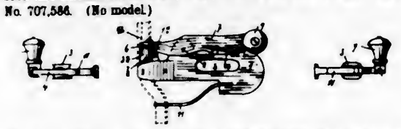
642,126. SMOKE-CONSUMER. JOSEPH JACKSON, Chicago, Ill. Filed Oct. 29, 1898. Serial No. 694,919. (No model.)



Claim.—1. The combination with a furnace of open-ended thimbles passing through the side walls thereof leading from the outer air directly to the interior of the furnace above the fire-surface, a steam-pipe leading from the steam-dome to a longitudinal steam-pipe extending along the outside of the side walls of the furnace, nozzles thereon projecting partly into the said thimbles, a stop-valve to open and close said pipes, an exhaust-steam pipe leading from the exhaust-port of the engine to the said longitudinal steam-pipes and a stop-valve to close said exhaust-steam pipe, a discharge-pipe leading from the exhaust-steam pipe and a pressure-regulating valve therein substantially as described.

2. In a double-shell boiler-furnace set in brickwork the combination with the dividing furnace-wall, of an air-supply pipe placed longitudinally therein above the fire-surface of lateral thimbles leading from said pipe on each side directly to the interior of the furnace, of a steam-pipe located axially in said air-supply pipe and nozzles leading from each side thereof and located to pass axially into said lateral thimbles to the middle part thereof, substantially as described.

642,127. BINDER FOR SEWING-MACHINES. JAMES S. JOHNSTON and KATHARINE MAGNER, Utica, N. Y. Filed Mar. 3, 1899. Serial No. 707,586. (No model.)



Claim.—1. The combination in a binding-guide of a groove to guide the goods or work, a guide-eye to form the binding and jaws operating in connection with the wall between the goods or work groove and the guide-eye to engage and advance the binding, substantially as set forth.

2. In a binding-guide, the combination of walls between the folded edges of the binding and the goods and operative part cooperating with said walls to advance the binding.

3. The combination in a binding-guide of a wall or portion formed to provide a groove for the work as to its inner surface and a guide for the binding as to its outer surface, and movable jaws to advance the binding in the guide, substantially as set forth.

4. The combination in a binding-guide of a body having the portion 3 forming the guide-groove 4 and the binding-eye 5 and the extension 3^a, of the binding-advancing lever 7 having the spring-jaws 6 operating on either side of the extension 3^a, substantially as set forth.

5. In a binding-guide, the combination of the body having the folded portion 3 forming the guide-groove 4 and the binding-eye 5 and the extension 3^a and the projection or portion 1^a opposed to the back of the extension 3^a, substantially as set forth.

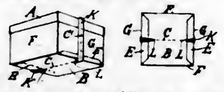
6. The combination in a binding-guide of the body formed to provide the work-groove and the binding-eye, of the operative part operating in connection with the wall between the goods or work groove and the binding-eye for advancing the binding, substantially as set forth.

7. The combination in a binding-guide attachment of the stationary guide for the binding, an operative part for advancing the binding in the binding-guide independently of the goods, and means for limiting the movement of said operative part, substantially as set forth.

8. The combination in an attachment of a binding-guide for folding the binding to receive the edge of the work or goods, and means for plaiting the edges of the binding after folding, substantially as set forth.

9. The combination in a binding-guide attachment for sewing-machines, of a stationary binding-guide and operative means for feeding the binding through the guide toward the needle of the sewing-machine independently of the goods or work or the machine, substantially as set forth.

642,128. PAPER BOX. MICHAEL J. KANE, St. Paul, Minn. Filed Sept. 25, 1899. Serial No. 731,594. (No model.)



Claim.—1. A box having four folding corners, two opposite solid sides, and two opposite sides being loose from the bottom and folding at a central vertical line; the bottom of the box being secured in a folding manner to the two solid sides of the body, and having a central folding joint or crease in plane with the vertical central folding-creases in the sides, substantially as set forth.

2. A box having folding corners, two opposite solid sides, and two opposite sides being loose from the bottom and folding at a central vertical line, a bottom secured in a folding manner to the base of the solid sides, and having a central folding joint or crease in line with the vertical joints in the sides, and the folding flaps E, for covering and supporting the adjacent loose edges of the centrally-folding sides and bottom, substantially as set forth.

3. A box having folding corners, two opposite solid sides, and two opposite sides being loose from the bottom and folding at a central vertical line, a bottom secured in a folding manner to the base of the solid sides, and having a central folding joint or crease in line with the central vertical joints in the sides, the flaps E, E, supporting the adjacent loose edges of the folding sides and the bottom, and the tape, or tapes, inserted in the bottom, crossing said flaps E, and being adapted to have the ends passed upward and tied together on the top of the box, substantially as and for the purpose described.

4. A box having folding corners, two opposite solid sides, and two opposite sides being loose from the bottom and folding at a central vertical line, a bottom secured in a folding manner to the base of the solid sides, and having a central folding joint or crease in line with the central vertical creases in the sides, the flaps E, E, projecting out from the bottom of the box and being adapted to fold up to the centrally-creased sides, and a tape or tapes secured in the bottom, crossing said flaps and being adapted to have the ends passed upward and tied together upon the top of the box.

642,129. WRENCH. ADAM E. KARSNER, New York, N. Y., assignor to Edward M. Foote and Orville G. Wales, same place. Filed June 24, 1899. Serial No. 721,744. (No model.)



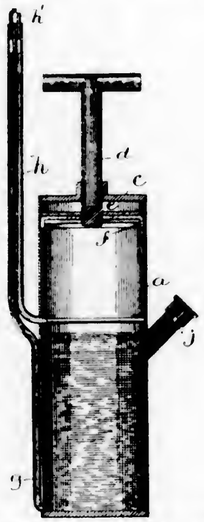
Claim.—1. A wrench attachment consisting of a spring-metal plate essentially V-shaped in form and having a spring-clip at its up-

per end adapted for engagement with the shank of the wrench, substantially as shown and described.

2. A wrench attachment, consisting of a spring-metal plate, essentially V-shaped in form, the shorter arm being adapted to rest within the socket of the wrench, and the longer arm having a spring-clip at its upper end adapted to engage the shank of the wrench, substantially as shown and described.

3. The combination with a wrench having a shank and rigid socket, of the essentially V-shaped spring-metal plate having a spring-clip at its upper end, said spring-clip being adapted to engage the shank of the wrench, the free end of the spring-metal plate projecting forwardly and into the socket of the wrench, substantially as shown and described.

642,130. ATOMIZER. THOMAS KENNEY, Jr., Boston, Mass., assignor to Henry Tolman, Newton, Mass. Filed July 28, 1899. Serial No. 725,399. (No model.)



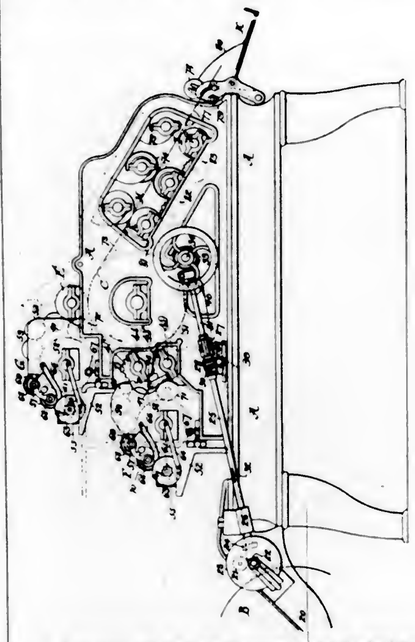
Claim.—An atomizer comprising a cylindrical casing, an air-discharge tube extending outwardly from a point below the top of the receptacle and having an air-discharge nozzle at its outer end, the portion of the receptacle above the receiving end of said air-discharge tube constituting an air-cylinder having a cap or cover at its upper end formed to guide a piston-rod, while the portion below the said receiving end constitutes a liquid-reservoir; a liquid-inlet communicating with the upper portion of the liquid-receptacle at a point below the air-discharge tube, whereby the liquid is prevented from rising above the receiving end of the said tube; a liquid-outlet extending outwardly from the lower portion of the liquid-reservoir and terminating in a nozzle in operative proximity to the nozzle of the air-discharge tube; a piston fitting the said air-cylinder; and an operating-rod for said piston passing through and guided by the said cap or cover, the said air-cylinder being integral with the liquid-reservoir, so that there is no joint between the two for leakage of air, whereby the entire air-pressure caused by the descent of the piston is caused to force air and liquid through the said discharge tubes and nozzles.

642,131. PRINTING-MACHINE. JAMES A. KEYES, New York, N. Y., assignor to the Carter-Crume Company, Niagara Falls, N. Y. Filed May 29, 1894. Serial No. 512,912. (No model.)

Claim.—1. In a printing-machine, the combination of a driven shaft, a numbering-head consisting of a pair of disks mounted upon a sleeve, splined to said shaft and movable longitudinally thereon, and a longitudinally-adjustable guide or yoke for said head to hold it in position on the driven shaft, said yoke consisting of two rigid arms, one on each side of the head, as set forth.

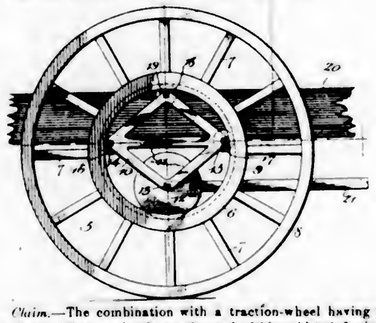
2. In an inking device, the combination of the ink-fountain roll, a ductor-roll, the ink-roll, 58, an oscillating disk, a connection between said disk and the ductor-roll for vibrating the latter, containing a bell-crank lever fulcrumed on the shaft of roll 58, and a rod 66 between one arm of said bell-crank lever and the disk, and a rod connecting the disk with said shaft for oscillating the disk, as set forth.

3. In a printing-machine, the combination with the shaft, 44, and the pinion thereon, of a units-wheel secured to a pinion in mesh with the first-mentioned pinion, a radially-yielding tooth carried with the units-wheel, a tens-wheel, a pinion on a shaft in mesh with teeth on the tens-wheel and a pinion on the last-mentioned shaft and adapted to cooperate with the yielding tooth.



4. In a printing-machine, the combination with the shaft, 44, and the pinion keyed thereon, of a disk loosely mounted on said shaft, of a units-wheel secured to a pinion pivoted on the disk and in mesh with the first-mentioned pinion, a disk carried with the units-wheel, having a pair of teeth, a radially-yielding tooth between the said teeth, a tens-wheel, a pinion engaging with teeth on the tens-wheel, and a pinion secured to the latter pinion having its alternate teeth partially cut away and adapted to engage the yielding tooth, as set forth.

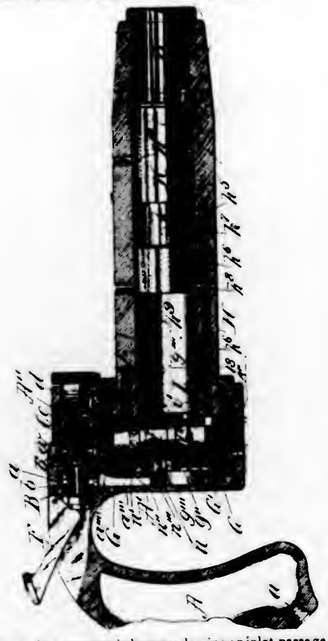
642,132. TRACTION-WHEEL. ISRAM S. KIMBRIEL, Somis, Cal. Filed Jan. 31, 1899. Serial No. 704,028. (No model.)



Claim.—The combination with a traction-wheel having an annular hub, of the angular frame situated within said hub for its horizontal diameter to lie above the axis of the hub, burden-rods lying in the same horizontal plane and connected to opposite corners of the frame, a draft-rod connected to the lower corner of the frame, guide-wheels mounted on the burden-rods and engaging the hub, a burden-wheel of larger diameter than the guide-wheels and mounted on the draft-rod to ride upon the hub, and a separate guide-wheel

journaled at the upper angle of the frame and disposed in the vertical plane of the burden-wheel, substantially as described.

642,133. DIRECT-ACTING ENGINE. HENRY J. KINMAN, Chicago, Ill., assignor of one-half to Edward Nash Hurley, same place. Filed Mar. 30, 1899. Serial No. 711,121. (No model.)



Claim.—1. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination with the throttle-valve controlling said passage, of a sleeve, in which said valve is mounted, and means for adjusting said sleeve so as to change the relation of the port-openings therein relative to said throttle-valve; substantially as described.

2. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination with the throttle-valve controlling said passage, of a spring for pressing said valve in a direction to close said passage, a sleeve in which said valve is mounted, and means for adjusting said sleeve so as to change the position of ports therein relative to said valve; substantially as described.

3. In a pneumatic hammer having an inlet-passage for the admission of motive fluid, the combination with the throttle-valve controlling said passage, of a spring pressing said valve in its closed position, a sleeve in which said valve is mounted, a plug having a threaded engagement with said sleeve, whereby, upon the rotation of said plug, the sleeve is adjusted longitudinally on its axis, and means for locking said plug in a rotatable adjustable position; substantially as described.

4. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination with the throttle-valve controlling said passage, of means for pressing said valve in one direction to close said passage, a lever for moving said valve in the opposite direction for opening said passage, and an adjustable sleeve inclosing said valve; substantially as described.

5. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination with the throttle-valve controlling said passage, of a spring for pressing said valve in a direction to close said passage, a sleeve inclosing said valve, said sleeve containing ports, a plug having a threaded connection with said sleeve for adjusting the same longitudinally, and means for holding said plug in its different rotatory positions; substantially as described.

6. In a pneumatic hammer having an inlet-passage for the admission of the motive fluid, the combination with a reciprocating throttle-valve for controlling said passage, of means for pressing said valve in one direction to close said passage, a lever for moving said valve in an opposite direction to open said passage, a sleeve inclosing said valve, an adjustable screw-plug engaging said sleeve to move the same longitudinally, and means for locking said screw-plug in its different adjusted positions; substantially as described.

7. In a pneumatic hammer, the combination of the handle having the inlet-passage extending through it, the throttle-valve arranged to reciprocate in a bore of said handle for controlling said inlet-passage, an adjustable sleeve inclosing said valve, and provided with ports which are constantly in register with the inlet-passage through the handle, and other ports which are constantly in register with a supply-passage to the engine, means in engagement with said sleeve for adjusting the same longitudinally, and a lever for operating said valve independently of said sleeve; substantially as described.

8. In a pneumatic hammer, the combination with the handle provided with an inlet-passage for the motive fluid, of a sleeve introduced in said passage, and provided with suitable port-openings for the admission of pressure from said passage into said sleeve, means for adjusting said sleeve, a throttle-valve arranged in said sleeve, and means for operating said valve independently of said sleeve; substantially as described.

9. The combination with a cylinder provided with a flange on its rear end, of a coupling-sleeve cooperating with said flange and provided with a threaded groove, a handle-base formed with a tangential opening, a bolt which passes through said opening and engages the threaded groove of the coupling-sleeve for locking the same against movement, and means for locking the handle-base against rotary movement relative to the cylinder; substantially as described.

10. The combination with a handle-base formed with a smooth tangential bore, of a collar or coupling-sleeve having a threaded connection with said base, the periphery of said coupling-sleeve being provided with a threaded groove, and a screw-bolt which is introduced into the bore in the handle-base, where it is free to be thrown to engage the threaded groove of the coupling-sleeve; substantially as described.

11. In a pneumatic hammer, the combination with a handle-base, of a coupling-sleeve having a threaded connection therewith, a screw-bolt which is received by a plain-bored opening in said handle-base and which engages with a threaded groove in the coupling-sleeve in such manner that when said screw-bolt is rotated it will have a tendency to force said coupling-sleeve to its home position; substantially as described.

12. In a pneumatic hammer, the combination with a handle-base formed with a tangential bore, of a collar or coupling-sleeve, which is secured in said handle-base, the periphery of said coupling-sleeve being provided with a threaded groove, and a screw-bolt, which is introduced into the bore in the handle-base for engaging the threaded groove of the coupling-sleeve, and locking the parts against independent rotation; substantially as described.

13. In a pneumatic hammer, the combination with the cylinder and its piston, of a cylindrical valve comprising a hollow body portion open at one end, and an enlarged head at the other end of said body portion, said head being closed, said valve admitting and exhausting pressure to and from the ends of said cylinder to throw said piston, and ports controlled by said piston for intermittently admitting and exhausting pressure to the enlarged closed end of said valve; substantially as described.

14. The combination with a cylinder having a bore of the same diameter throughout its length, of a piston arranged therein, which piston is formed with a reduced portion intermediate its ends, a differential valve for admitting and exhausting pressure to and from the ends of said cylinder, said valve comprising a hollow body portion open at one end and an enlarged head at the other end of said body portion, said head being closed, ports which are controlled by the reduced portion in said piston for admitting and exhausting pressure to and from the outer face of the enlarged closed head portion of said valve, a port for admitting constant pressure against the inner face of the shoulder of the head of said valve, and a port leading from the other or small end of the valve-chamber, which last-named port is constantly open to the exterior; substantially as described.

15. The combination with a cylinder having a bore of uniform diameter throughout its length, of a piston arranged in said cylinder, and formed with a reduced portion intermediate its ends, a hollow valve formed with an enlarged closed head at one end, said valve admitting and exhausting pressure to and from the ends of the cylinder to throw said piston, a constantly-open port leading from the end of the valve-chamber of small diameter, and from the hollow body portion of the valve and communicating with the exterior, suitable ports leading behind the larger or closed head portion of said valve, and which are controlled by the reduced portion of said piston for intermittently admitting and exhausting pressure to and from said larger or closed head portion of the valve, and a port for admitting constant pressure to the inner face of the shoulder of the head of said valve; substantially as described.

16. The combination with a cylinder and its piston, of a hollow valve comprising a body portion and an enlarged closed head portion, said body portion being externally reduced near said head, and suit-

able ports, whereby said valve admits pressure to one end of the cylinder while exhausting pressure from the opposite end of said cylinder, and vice versa, said valve being thrown in proper position to accomplish the admission and exhaust of pressure to and from the ends of the piston, by the piston; substantially as described.

17. The combination with a cylinder and its piston, said piston being formed with a reduced portion, of a hollow valve comprising a body portion and an enlarged closed head at one end, said body portion being reduced externally near said head, a valve-block containing a chamber bored to two different diameters, in which said valve reciprocates, ports in said valve near its end for exhausting pressure from the rear end of the cylinder, ports controlled by said reduced portion in the valve for admitting pressure to the front end of the cylinder, and a port controlled by the head of said valve for admitting pressure to the rear end of the cylinder; substantially as described.

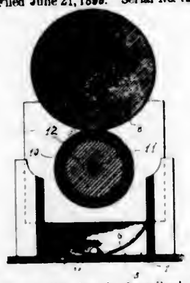
18. The combination with a cylinder and its piston, of a differential valve for controlling the movements of said piston, the movement of said valve in one direction being controlled by said piston, suitable port arrangements coöperating with said valve and piston for accomplishing the above, one of which ports h', is located some distance from the end of the cylinder to provide a cushion of dead air for the piston; substantially as described.

19. The combination with a cylinder and its piston, of a differential valve for admitting and exhausting pressure to and from each end of said cylinder, said valve comprising a hollow body portion and an enlarged head at one end of said body portion, said head being closed, a chisel-shank which is introduced into the cylinder to form part of one of its end walls, whereby, upon the removal of said chisel-shank, pressure will blow through the opening provided to receive the same; substantially as described.

20. The combination with a cylinder and its piston formed with a reduced portion, of a differential valve formed with a reduced portion and suitable ports or openings, said valve being hollow and formed with an enlarged closed head at one end, admission and exhaust passages in said cylinder which are controlled by said valve for admitting and exhausting pressure to and from the ends of said cylinder, a passage communicating with the space behind the enlarged or closed head portion of said valve and entering the cylinder at different points to coöperate with the reduced portion of said piston, and a chisel-shank loosely inserted in said cylinder; substantially as described.

21. The combination with a cylinder formed with exhaust-ports h' and h^3, a port h'', which intermittently admits and exhausts pressure to the forward end thereof, a port h^7, which is constantly open to pressure, ports h^5 and h^6 connecting the bore of the cylinder with the passage h^8, for intermittently admitting and exhausting pressure to one end of a controlling-valve, a piston formed with a reduced portion for coöperating with the ports h^3, h^4, h^7, h^5, and h^6, and a differential valve for opening and closing the exhaust-port h', intermittently admitting and exhausting pressure through the port h'', and intermittently admitting pressure through the ports g'', substantially as described.

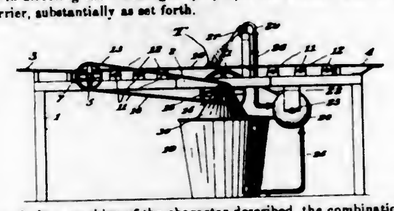
642,184. AUTOMATIC JOURNAL-OILER. EDWIN R. KINNEY, Norwalk, Ohio. Filed June 21, 1899. Serial No. 721,284. (No model.)



Claim.—The journal-oiler herein described, compriaing a body portion 1, having integral therewith a base-flange 4, and provided with pockets 2 and oil-well 3; oil-retaining plates 7, inserted within the pockets; an oiling-roller 10, journaled in the plates, and springs 6 inserted in the pockets beneath the plates, all constructed, placed and operating as and for the purpose shown and described.

642,185. TILE-DIPPING MACHINE. AUGUST W. KOCH, Cincinnati, Ohio, and CHARLES F. KOCH, Covington, Ky. Filed Apr. 8, 1899. Serial No. 712,221. (No model.)

Claim.—1. In a machine of the character described, the combination of a frame, an endless carrier extended thereon, a nozzle, a reservoir, a pump, a pipe extended between the reservoir and the pump and arranged to supply coloring-matter, glaze or the like to the pump from the reservoir, and a flexible connection between the pump and the nozzle for supplying coloring-matter, glaze or the like from the pump to the nozzle while permitting adjustment of the nozzle in directing the discharged spray upon the articles held by the carrier, substantially as set forth.



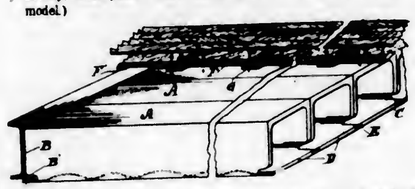
2. In a machine of the character described, the combination of a frame, a carrier thereon, a nozzle arranged above the carrier in position to discharge coloring-matter, glaze or the like in finely-divided form to the articles held by the carrier, a reservoir for containing a supply of said coloring-matter, glaze or the like, said reservoir being arranged beneath the carrier in position to receive the surplus coloring-matter, glaze or the like from the nozzle, a shaft extended across the frame above the reservoir, an agitator-shaft having an agitator for stirring the material in the reservoir, gearing between said shafts, a shield arranged over the gears and also extended over the reservoir, and a strainer carried by the lower edge of said shield to strain the material discharged thereon from the nozzle, substantially as described.

3. In a machine of the character described, the combination of a frame, a carrier extended thereon, a nozzle arranged above the carrier in position to discharge a spray of coloring-matter, glaze or the like in finely-divided form to the articles held by the carrier, a reservoir arranged beneath the carrier in position to receive the surplus coloring-matter, glaze or the like from the nozzle, and means for drawing the coloring-matter, glaze or the like from said reservoir and forcing the same through said nozzle, substantially as set forth.

4. In a machine of the character described, the combination of a frame, a carrier thereon, a nozzle arranged above the carrier in position to discharge a spray of coloring-matter, glaze or the like in finely-divided form to the articles held by the carrier, a reservoir arranged beneath the carrier in position to receive the surplus coloring-matter, glaze or the like from the nozzle, a strainer over the reservoir and means for drawing the coloring-matter, glaze or the like from said reservoir and forcing the same through said nozzle, substantially as set forth.

5. In a machine of the character described, the combination of a frame, a carrier thereon, a nozzle arranged above the carrier in position to discharge coloring-matter, glaze or the like in finely-divided form to the articles held by said carrier, a reservoir for containing a supply of said coloring-matter, glaze or the like, an agitator for stirring the material in the reservoir, and a pump for drawing the coloring-matter, glaze or the like from said reservoir and forcing the same through said nozzle, substantially as set forth.

642,186. FIREPROOF CONSTRUCTION. JOHN H. LAING, Pittsburg, Pa., assignor of two-thirds to Percy C. Hamilton and Alexander Dickey, same place. Filed Mar. 23, 1899. Serial No. 710,190. (No model.)



Claim.—1. In fireproof construction, the combination of the lintels, and composite slabs resting on and nailed to the lintels, the slabs extending transverse the lintels and breaking joints therewith and forming a transverse bond.

2. In fireproof construction, long-length lintels formed of cement and ground cinder, longitudinal metallic bonds embedded in the lintels adjacent their lower edges, the lintel ends being routed to fit around and protect the lower portions of the beams, slabs of cement and ground cinder resting on and secured to the lintels and extending transversely thereof, the slabs forming a transverse bond as described, and wood strips confined between the slabs and to which the flooring is nailed, substantially as set forth.

642,187. TRACTION-PULLEY. GEORGE LEASK and ROBERT G. DRINNAN, Nanaimo, Canada. Filed June 27, 1899. Serial No. 722,060. (No model.)



Claim.—1. A traction-pulley comprising a shaft, a pulley-hub fixed to said shaft, and a pulley-rim having a frictional engagement with said hub, substantially as and for the purpose set forth.

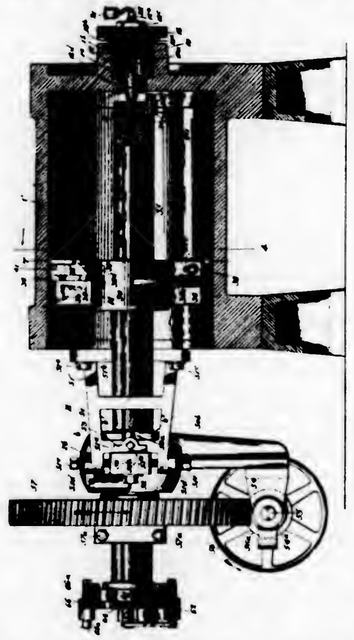
2. A traction-pulley comprising a shaft, a pulley-hub fixed on said shaft, a separable section having a frictional engagement with said hub, and means for regulating the traction between the hub and section, substantially as and for the purpose set forth.

3. A traction-pulley having its plane face arranged diagonal to its axis, and a spiral guide encompassing the face of said pulley, substantially as and for the purpose set forth.

4. A traction-pulley having a diagonal face, a spiral guide encompassing said face, and a series of bearing-rollers mounted in said guide, substantially as and for the purpose set forth.

5. A traction-pulley comprising a hub and a separable section, in combination with a series of spring-bolts connecting said hub and section, substantially as and for the purpose set forth.

642,188. MACHINE FOR BORING METAL. HENRY K. LEE, Hartford, Conn. Filed Apr. 24, 1899. Serial No. 714,153. (No model.)



Claim.—1. In a machine of the class specified, the combination with a boring-bar and means for operating the same of a center; a bushing closely fitting said center and adapted to engage the opening for the piston-rod in the cylinder; a device for engaging the stuffing-box of said cylinder; and a nut mounted in said device and adapted to engage a thread on the center.

2. In a machine of the class specified, the combination with a boring-bar and with means for actuating the same of a cutter-head on said boring-bar; a screw-threaded center; a block having surfaces adapted to fit various sizes of openings in cylinders; and a nut carried by said block and in engagement with the thread of said center.

3. In a machine of the class specified, the combination with a boring-bar and with means for actuating the same, of a center-head on said boring-bar; a screw-threaded center; a bushing fitted on said center and adapted to fit the opening for the piston-rod in the cylinder; a block having a series of steps for fitting various-sized openings in cylinders; and a flanged nut mounted in said block and in engagement with the thread of said center.

4. In a machine of the class specified, the combination, with a boring-bar shaft, of a split or divided ball member adapted exactly to fit said shaft; and means for clamping the ball member to the shaft, whereby said ball member engages the shaft at all points around the circumference thereof.

5. The combination, with a boring-bar shaft, of a split or divided ball member adapted snugly to fit and engage the same at all points around its circumference; a journal-box for receiving said ball member; and means for adjusting said journal-box, and consequently the ball member, longitudinally of the boring-bar shaft.

6. In a machine of the class specified, the combination with a boring-bar shaft of a split or divided ball member attached thereto means for clamping said ball member to the shaft at all points around the circumference thereof; a sectional journal-box for receiving said ball member provided with a groove for the reception of a lubricant; and linings at the sides of said groove and fitting upon the periphery of the ball member.

7. In a machine of the class specified, the combination with a boring-bar shaft of a split or divided ball member clamped thereto at all points around the circumference of said shaft; and a tubular key fitted in grooves of the ball member and boring-bar shaft.

8. In a machine of the class specified, the combination with a boring-bar shaft of a split or divided ball member clamped thereto at all points around the circumference thereof; bolts for clamping said member to the shaft; a tubular key carried by one of the sections of the ball member and engaging a groove in said shaft; a sectional journal-box for sustaining said ball member; and means within said journal-box for permitting the constant lubrication of the ball member, substantially as and for the purpose specified.

9. In a machine of the class specified, the combination with a boring-bar shaft of a split or divided ball member; means for clamping the same to the shaft at all points around the circumfereuce thereof; a tubular key carried by the ball member and engaging a groove in said shaft; a journal-box for sustaining said ball member; a cutter-head carried by the boring-bar shaft; and a screw passing through said tubular key and adapted to feed said cutter-head to its work.

10. In a machine of the class specified, the combination with a boring-bar shaft of a split or divided ball member adjustably secured to the said shaft and clamped to the same at all points around its circumference; a journal-box in which said ball member is mounted; a key carried by the ball member and fitting a groove in the shaft; a feed-screw loosely fitted in said key; and gearing for intermittingly actuating said feed-screw.

11. In a machine of the class specified, the combination with a boring-bar shaft of a cutter-head mounted thereon; a device for feeding said cutter-head to its work; gearing for actuating said feed device in either direction; a star-wheel adapted to be fitted to any member of said gearing; and means carried by the framework for actuating said star-wheel and thereby intermittingly turning the feed device as the shaft of the boring-bar rotates.

12. In a machine of the class specified, the combination with a boring-bar shaft and with means for sustaining and for operating the same, of a boring-tool carried by said shaft; a device mounted on the end of the shaft; a feed-screw one end of which passes through said device; a gear attached to said feed-screw; a second gear mounted on the device above mentioned; a star-wheel having a hub adapted to be attached to either of said gears; and means for intermittingly actuating said star-wheel as the shaft rotates.

13. In a machine of the class specified, the combination with a boring-bar shaft having a longitudinal groove or key way of a cutter-head mounted on said shaft and carrying a boring-tool; a feed-screw; a nut having a stud fitted in the cutter-head, said nut being located in the longitudinal groove of said shaft; gearing, one member of which is attached to said feed-screw; a star-wheel adapted to be applied to one or another member of said gearing; and means for actuating said star-wheel.

14. In a machine of the class specified, the combination with a boring-bar shaft of a cutter head mounted on said shaft; a nut having a stud fitted in an aperture of the cutter-head, said nut being located in a longitudinal groove of the shaft; a feed-screw passing through said nut; gearing, one member of which is attached to said feed-screw; a device adapted to be applied to one or another member of said gearing; and means for intermittingly actuating said device upon the rotation of the boring-bar shaft.

15. In a machine of the class specified, the combination, with a boring-bar shaft, of a cutter head mounted thereon and consisting of a collar; an interchangeable arm or bracket attached to said collar and shaped to fit the periphery thereof; and a boring-tool carried by said arm or bracket.

16. The combination, with a shaft, of a collar secured thereto; interchangeable arms or brackets attached to said collar and each shaped to fit the periphery thereof; and boring-tools carried by said brackets.

17. The combination, with a shaft, of a cutter-head secured thereto, said cutter-head comprising interchangeable arms or brackets shaped to fit the periphery thereof; and boring-tools adjustably mounted on said brackets.

18. The combination, with a shaft, of a collar keyed thereon; shoes carried by the collar and bearing at different points upon the periphery of the shaft; interchangeable arms or brackets attached to said collar and shaped to fit the periphery thereof; and boring-tools carried by said arms or brackets.

19. An attachment for machines consisting of a block having a series of steps adapted to fit various-sized openings; a center; and a device carried by the block for adjusting said center.

20. A cutter-head comprising a collar and means for securing the same at different points to a shaft; a grooved interchangeable block attached to said collar; a device fitted in the groove of said block; a tool-holder pivoted to said device; a cutting-tool mounted in said tool-holder; means for adjusting said cutting-tool; and means for adjustably securing the device carrying the tool-holder to the block.

21. The combination with a boring-bar shaft and a cutter-head carrying a boring-tool mounted thereon of a feed-screw for actuating said cutter-head in either direction; a gear attached to one end of said screw; a second gear mounted adjacent to the first-named gear; a star-wheel having a hub adapted to fit the hub of either of said gears; and means for intermittingly actuating said star-wheel.

22. In a machine of the class specified, the combination with a boring-bar shaft and a cutter-head having a boring-tool carried thereby of means for sustaining said shaft at both ends of the cylinder to be bored; a sectional ball member clamped to the shaft at all points of the circumference thereof; a journal-box for sustaining said ball member; and a gear-wheel for operating the boring-bar shaft also clamped to said shaft at all points of the circumference thereof.

23. In a machine of the class specified, the combination, with a boring-bar shaft, of brackets for adjustably sustaining said shaft upon the cylinder to be bored; a split or divided ball member clamped to the shaft at all points around the circumference thereof; a journal-bearing for said ball member; means for clamping said journal-bearing to the brackets; and means connected with said brackets for adjusting the journal-bearing in a line perpendicular to the axis of said shaft.

24. In a machine of the class specified, the combination with a boring-bar shaft and a cutter-head mounted thereon of means for sustaining said shaft at one end of the cylinder to be bored; brackets adjustably connected to the cylinder at the other end of the same; a sectional ball member carried by the shaft; a journal-box for sustaining said ball member, said journal-box having an arm projecting from each side of the same; means carried by the brackets attached to the cylinder for adjusting the journal-box, and consequently the ball member and shaft, in a line perpendicular to the longitudinal axis of the shaft; and means for clamping the arms of said journal-box to said brackets.

25. The combination, with a boring-bar shaft, of a cutter-head mounted thereon; a screw for feeding said cutter-head to its work; a device for actuating said screw; an annular frame carrying means with which said device engages; a bearing carried by the boring-bar shaft over which said frame is fitted; and a stop-rod carried by said annular frame.

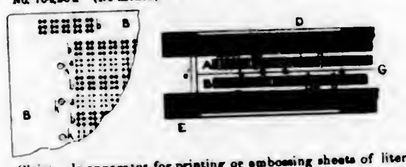
26. The combination, with a boring-bar shaft, of a cutter-head mounted thereon; a screw for feeding said cutter-head to its work; a star-wheel for intermittingly actuating said screw; an annular frame carrying a series of studs or rollers and having an arm; a disk carried by the boring-bar shaft; a stud carried by said arm; and a stop-rod secured to said stud.

27. A cutter-head compriaing a body portion in the shape of a collar; a series of arms or brackets shaped to fit the periphery of said collar and detachably secured thereto, each of said arms or brackets having a slot and a groove; a shoe having a rib fitted in said groove and adjustably attached to the cutter-head by clamping means passing through the slot; a tool-holder pivoted to said shoe and having a tongue fitting in a groove of the shoe; a cutting-tool adjustably secured to the tool-holder; and means for adjusting said tool-holder on its pivot.

28. A cutter-head consisting of a block or collar, a series of interchangeable arms or brackets, grooved and slotted on their front faces, detachably secured to said collar; a radially adjustable shoe fitted to the front face of each of said brackets; a tool-holder mounted for swinging movement in each of said shoes and provided with a grooved face for receiving the cutting-tool; means for clamping said tool when adjusted; and a screw carried by the tool-holder and bearing against the shoe.

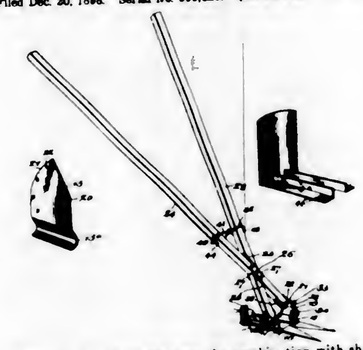
29. An attachment for machines consisting of a block having a series of concentric steps of different diameters; a nut carried by said block; a threaded center; and a bushing carried by said center.

642,189. APPARATUS FOR PRODUCING LITERATURE FOR USE BY THE BLIND. WALTER LITTLEWOOD, Liverpool, England, assignor to Greevs Fisher, Leeds, England. Filed Feb. 1, 1899. Serial No. 704,204. (No model.)



Claim.—In apparatus for printing or embossing sheets of literature for the use of the blind the combination with two plates A and B perforated and pitted at *a* and *b* to correspond with the Braille characters of a number of embossing-pins C for insertion in the perforations *a* from the back of the plate, the heads *c* on the pins C to prevent them passing through the plates, two back plates D and E clamped to the plates A and B to lock or maintain the embossing-pins C in position the studs *d* affixed thereto guide-pins *e* projecting from one plate to the other and springs F to raise and maintain the plates out of contact substantially as described.

642,140. LAWN-TRIMMER. WILLIAM LUKE, San Antonio, Tex. Filed Dec. 20, 1898. Serial No. 699,239. (No model.)



Claim.—1. In a lawn-trimmer, the combination with shears, of pivoted handle-bars, hangers attached to said handle-bars and attached to the shears, and a shoe supported on the shears-spring, substantially as described.

2. In a lawn-trimmer, the combination with shears, of handle-bars pivoted together, hangers clamped to the members of the shears and pivoted on the respective handle-bars, a locking device carried by one of the handle-bars and engaging with a hanger, and a shoe supported on the heel of the shears; said hangers, the shears and the shoe being foldable on the handle-bars by turning the hangers on their pivotal connection to said bars, substantially as described.

3. In a lawn-trimmer, the combination with shears and pivoted handle-bars, of a hanger pivoted to one of the bars and embracing one shank of the shears, another hanger provided with apertures and pivoted on the other handle-bar, a clamping-plate attached to the hanger and coacting therewith in engaging with the other shank of the shears, and a latch mounted on the handle-bar and engaging with the perforated hanger, substantially as described.

4. In a lawn-trimmer, the combination with shears and pivoted handle-bars, of a strap applied to one of the handle-bars and having a guide-clip, a perforated hanger pivoted on said handle-bar and fitted in the clip of the strap, a locking device engaging with said hanger and the handle-bar, means for attaching the hanger to one shank of the shears, and another hanger pivoted to the other handle-bar and engaging with the other shank of the shears, substantially as described.

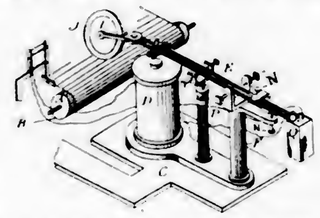
5. In a lawn-trimmer, the combination of handle-bars pivoted together, independent hangers clamped to the handle-bars to partake of the movement thereof, spring-shears having the members fastened independently to said hangers, and a shoe attached to the heel of the shears between the members thereof, substantially as described.

6. In a lawn-trimmer, the combination with shears and pivoted handle-bars connected therewith, of a clip attached to one handle-bar, a guide-plate fitted to the other handle-bar, and a stop device having a loop engaged by the clip and another loop which is slidably fitted to the guide-plate and arranged to limit the relative movement of the handle-bars when opened, substantially as described.

7. In a lawn-trimmer, the combination with shears and handle-bars connected therewith, of a supporting device clamped adjustably to the bowed spring of the shears, and a wheel-shoe supported by the device within the shears, substantially as described.

8. In a lawn-trimmer, the combination of handle-bars pivotally joined at a point intermediate their extremities, a spring-shears having means for operatively connecting the respective blades thereof to said handle-bars on one side of the pivot of the latter, and a stop device connected to the handle-bars on the opposite side of the pivot thereof from the shear-connecting means, said stop device comprising the short loop snugly fitting one handle-bar, and a long loop slidably fitted to the opposite handle-bar to arrest the play of said bars within the limits of the spring of said shears.

642,141. WEB SHIFTER AND REGULATOR. FRED LYON, Ithaca, N. Y. Filed Apr. 5, 1899. Serial No. 711,774. (No model.)



Claim.—1. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever and a wheel journaled thereon, the lever being mounted in proximity to said material and in such relation thereto that the lever may be actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

2. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever and a wheel journaled thereon, a band or tire of rubber or elastic or inflated material rigidly affixed to the periphery of the wheel, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

3. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever and a wheel journaled thereon, the lever rigidly and adjustably mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

4. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm attached thereto, a wheel journaled to said arm, the lever mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

5. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm attached thereto, a wheel journaled to said arm, the lever rigidly and adjustably mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

6. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm adjustably attached thereto, a wheel journaled to said arm, the lever mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

7. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm adjustably attached thereto, a wheel journaled to said arm, the lever rigidly and adjustably mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

8. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever and a wheel journaled thereon, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

9. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever and a wheel journaled thereon, the lever rigidly and adjustably mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

10. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm attached thereto, a wheel journaled to said arm, the lever mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

11. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm attached thereto, a wheel journaled to said arm, the lever rigidly and adjustably mounted in proximity to said material, and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding, smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

12. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm adjustably attached thereto, a wheel journaled to said arm, the lever mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding, smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

13. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, an arm adjustably attached thereto, a wheel journaled to said arm, the lever rigidly and adjustably mounted in proximity to said material, and in such relation thereto that the lever is actuated at will to bring the periphery of the wheel in contact with the surface of said material in a tangent line of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding, smooth surface, with means to prevent deflection of the lever and the wheel from their respective planes of motion, substantially as described.

14. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, a plurality of wheels journaled thereto, with their planes of revolution parallel to each other, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the periphery of all the wheels simultaneously in contact with the surface of said material in tangent lines of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheels from their respective planes of motion, substantially as described.

15. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, a plurality of wheels journaled thereto with their planes of revolution parallel to each other, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the peripheries of all the wheels simultaneously in contact with the surface of said material in tangent lines of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding, smooth surface, with means to prevent deflection of the lever and the wheels from their respective planes of motion, substantially as set forth.

16. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, a plurality of arms thereto attached, one or more wheels journaled to each arm, with the planes of revolution of all of the wheels parallel to each other, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the peripheries of all the wheels simultaneously in contact with the surface of said material in tangent lines of contact oblique to the line of travel of said material, and thereby press against the latter, with means to prevent deflection of the lever and the wheels from their respective planes of motion, substantially as set forth.

17. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a lever, a plurality of arms thereto attached, one or more wheels journaled to each arm, with the planes of revolution of all of the wheels parallel to each other, the lever being mounted in proximity to said material and in such relation thereto that the lever is actuated at will to bring the peripheries of all the wheels simultaneously in contact with the surface of said material in tangent lines of contact oblique to the line of travel of said material, and thereby press the latter against an adjacent, unyielding, smooth surface, with means to prevent deflection of the lever and the wheels from their respective planes of motion, substantially as set forth.

18. In a shifter and regulator of moving paper or other flat material in a machine, a wheel rigidly journaled in proximity to said material, with its plane of revolution intersecting the surface of said material always obliquely to the line of travel of said material, with means to at will press said wheel against said surface, as set forth.

19. In a shifter and regulator of moving paper or other flat material in a machine, a plurality of wheels rigidly journaled in proximity to said material, with their planes of revolution parallel and intersecting the surface of said material always obliquely to the line of travel of said material, with means to at will press said wheels simultaneously against said surface, as set forth.

20. In a shifter and regulator of moving paper or other flat material in a machine, two wheels mounted in proximity to said material with their planes of revolution intersecting the surface of said material obliquely (by opposite angles) to the line of travel of said material, with means to at will press either of said wheels against said surface, as set forth.

21. In a shifter and regulator of moving paper or other flat material in a machine, a plurality of wheels mounted in series in proximity to said material, with the respective planes of revolution of the wheels of each series parallel and intersecting the surface of said material obliquely to the line of travel of said material, with means to at will press any series of said wheels simultaneously against said surface, substantially as described.

22. In combination with the moving paper or other flat material in a machine, a wheel rigidly journaled in proximity to said material with its plane of revolution intersecting the surface of said material always obliquely to the line of travel of said material, an unyielding, smooth surface forming part of said machine and adjacent to one of the surfaces of said material but independent of said wheel, and means to at will bring said wheel in contact with the opposite surface of said material and thereby press the latter against said smooth surface, substantially as set forth.

23. In combination with the moving paper or other flat material in a machine, a plurality of wheels rigidly journaled in proximity to said material, with their planes of revolution parallel, and intersecting the surface of said material always obliquely to the line of travel of said material, an unyielding, smooth surface forming part of said machine and adjacent to one of the surfaces of said material but independent of said wheels, and means to at will bring said wheels simultaneously in contact with the opposite surface of said material, and thereby press the latter against said smooth surface, substantially as set forth.

24. In combination with the moving paper or other flat material in a machine, a plurality of wheels mounted in proximity to said material with their respective planes of revolution intersecting the surface of said material obliquely to the line of travel of said material, an unyielding smooth surface forming part of said machine and adjacent to one of the surfaces of said material, and means to at will bring any wheel, or in series, two or more, said wheels revolving in the same or parallel planes, in contact with the opposite surface of said material, and thereby press the latter against said smooth surface, substantially as set forth.

25. In combination with a shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel rigidly journaled in proximity to the surface of said material with its plane of revolution intersecting said surface always obliquely to the line of travel of said material, an electric circuit, an electromagnet in said circuit, a circuit maker or breaker actuated by the edge of said material and an armature adapted to make said wheel operative upon the surface of said material, as set forth.

26. In combination with a shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel rigidly journaled in proximity to the surface of said material, with its plane of revolution intersecting said surface always obliquely to the line of travel of said material, a normally-open electric circuit, an electromagnet in said circuit, the armature adapted to make said shifter operative upon the surface of said material whenever and as long as the circuit is closed, and a circuit-maker actuated by the edge of said material, as set forth.

27. In combination with a shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel rigidly journaled in proximity to the surface of said material with its plane of revolution intersecting said surface always obliquely to the line of travel of said material, a normally-closed electric circuit, an electromagnet in said circuit, the armature adapted to make said shifter inoperative whenever and as long as the circuit is closed, and a circuit-breaker actuated by the edge of said material, as set forth.

28. In combination with a machine in which paper or other flat material is normally in motion, one or more wheels rigidly journaled in proximity to the surface of said material, with their respective planes of revolution intersecting the said surface always obliquely to the line of travel of said material, an unyielding smooth body in proximity to the opposite surface and opposite said wheels, but independent thereof, and means to press said wheel or wheels against said intervening material and the latter against said body, the contact and pressure of said wheel or wheels being operative to shift said material laterally as desired, substantially as described.

29. In combination with a machine in which paper or other flat material is normally in motion, wheels mounted in proximity to the surface of said material, with their respective planes of revolution intersecting the said surface obliquely to the line of travel of said material, an unyielding, smooth body in proximity to the opposite surface, and opposite said wheels, and means to press said wheels independently of each other against said intervening material, and the latter against said body, the contact and pressure of said wheels independently being operative to shift said material laterally as desired, substantially as described.

30. In combination with a machine in which paper or other flat material is normally in motion, wheels mounted in proximity to the surface of said material with their respective planes of revolution intersecting the said surface obliquely to the line of travel of said material, an unyielding, smooth body in proximity to the opposite surface, and opposite each of said wheels, and means to press said wheels independently of each other against said intervening material and the latter against said body, the contact and pressure of said wheels being independently operative to shift said material laterally as desired, substantially as described.

31. In combination with a machine in which paper or other flat material is normally in motion, a wheel mounted in proximity to the surface of said material with its plane of revolution intersecting the said surface obliquely to the line of travel of said material, an unyielding, smooth body in proximity to the opposite surface and opposite said wheel, means to automatically press said wheel against said intervening material and the latter against said body, the contact and pressure being operative to shift said material laterally as desired, and means to automatically intermit said contact and pressure, as set forth.

32. In combination with a machine in which paper or other flat material is normally in motion, wheels mounted in proximity to the surface of said material with their respective planes of revolution intersecting the said surface obliquely to the line of travel of said material, an unyielding, smooth body in proximity to the opposite surface and opposite each of said wheels, independent means to automatically press each or any of said wheels against said intervening material and the latter against said body, the contact and pressure being operative to shift said material laterally as desired, and means to automatically intermit said contact and pressure, as set forth

33. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel mounted in proximity to said material with its plane of revolution intersecting the surface of said material obliquely to the line of travel of said material, a roller mounted in proximity to the other surface of said material and directly opposite said wheel, with means to at will press said roller against said intervening material and the latter against said wheel, operative to shift said material laterally, as set forth.

34. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a plurality of wheels mounted in proximity to said material, with their respective planes of revolution intersecting the surface of said material obliquely to the line of travel of said material, a plurality of rollers mounted in proximity to the other surface of said material and respectively directly opposite said wheels, with means to at will press said rollers against said intervening material and the latter against said wheels, operative to shift said material laterally, as set forth.

35. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel mounted in proximity to said material, with its plane of revolution intersecting the surface of said material obliquely to the line of travel of said material, a smooth body mounted in proximity to the other surface of said material and directly opposite said wheel, with means to at will press said body against said intervening material and the latter against said wheel, operative to shift said material laterally, as set forth.

36. A shifter and regulator of moving paper or other flat material in a machine, and consisting of a wheel mounted in proximity to said material, with its plane of revolution intersecting the surface of said material obliquely to the line of travel of said material, a wheel mounted in proximity to the other surface of said material and directly opposite said first-mentioned wheel, and with its plane of revolution intersecting said material coincidently with that of said first-mentioned wheel, with means to at will press said wheels against the intervening material and thereby shift the same laterally, as set forth.

37. In combination with a "web-printing press," so called, or other machine in which the paper or other flat material is fed to or through the press or machine in the form of a web, a wheel mounted in proximity to a coaxing or guide roll, with the said web intervening, the plane of revolution of said wheel intersecting the surface of said web obliquely to its line of travel, and means to at will bring said wheel in contact with said web and press the same against said roll, thereby making said wheel operative to shift said web laterally, as set forth.

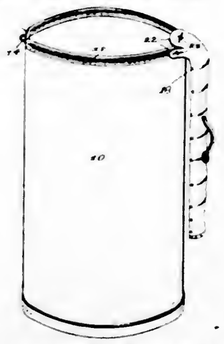
38. In a "web-printing press," so called, or other machine in which the paper or other flat material is fed to or through the press or machine in the form of a web, a plurality of wheels mounted in proximity to a coaxing or guide roll, with the said web intervening, the respective planes of revolution of said wheels intersecting the surface of said web obliquely to its line of travel, with means to at will bring any of said wheels into contact with and pressure against said web, and shift the web laterally, as set forth.

39. In a "web-printing press," so called, or other machine in which the paper or other flat material is fed to or through the press or machine in the form of a web, a plurality of wheels mounted in proximity to a coaxing or guide roll, with the said web intervening, the respective planes of revolution of said wheels intersecting the surface of said web obliquely to its line of travel, with means to at will bring the wheels revolving in parallel planes into contact with and pressure against said web, and thereby shift the web laterally, as set forth.

40. In a "web-printing press," so called, or other machine in which the paper or other flat material is fed to or through the press or machine in the form of a web, the web shifting and regulating mechanism herein described consisting of one or more wheels rigidly journaled in proximity to the surface of said material, and whose respective planes of revolution intersect said surface always obliquely to the line of travel of said material automatically controlled and operative by an electric circuit, an electromagnet in said circuit, the armature actuating the shifter wheel or wheels, and a circuit maker or breaker actuated by the edge of the web, as set forth.

642,142. MAIL-POUCH. WILLIAM H. LYON and JAMES C. WALLACE, Creston, Iowa. Filed May 16, 1899. Serial No. 717,014. (No model.)

Claim.—1. The combination with a mail-pouch, of a rope secured to the top edges of the pouch, a series of metal loops with downwardly-projecting ends to encircle the ropes and admit the top edges of the bag or pouch between the ends, a flexible cover to overlap said loops and closed at one end, means, as shown, for securing the ends only of the loops to the cover, and means for locking the cover to the pouch at the end opposite from the closed end, arranged and combined substantially as and for the purposes stated.



2. The combination with a mail-pouch, of a rope 11 secured to its top edges, a strip 12 secured to the pouch to cover said rope, a series of metal loops 15 to overlap the rope, an arm 21 in one of said loops 15, as shown, a flexible cover 17 to overlap the loops closed at one end and rivets 18 for connecting the cover with the lower ends of the loops 15, all arranged and combined as and for the purposes stated.

3. An improved mail-pouch, comprising in combination, a bag or pouch proper, a rope secured to its top edges, a cover therefor composed of a series of metal loops with downwardly-projecting ends to encircle the ropes and admit the top edge of the mail-pouch between the ends, a flexible cover to overlap said loops and secured thereto, a downwardly-projecting arm on the end of one of said loops to enter between the ropes, to prevent the detachment of the cover from the pouch, and means for locking the pouch for purposes stated.

642,143. EXPLOSIVE-ENGINE. THOMAS MALCOLMSON, Siverly, Pa., assignor of one-fourth to John George Sigmann, Oil City, Pa. Filed Aug. 13, 1898. Serial No. 688,500. (No model.)



Claim.—1. An explosive-engine embodying two cylinders, pistons working in the respective cylinders, a part moving to and fro through which the driven member of the engine is actuated, and a member having rocking connection with said to-and-fro-moving part, and to which the respective pistons are connected on opposite sides of its rocking connection; substantially in the manner and for the purposes set forth.

2. The combination of the driven member of an explosive-engine, two cylinders into which a charge is alternately introduced, pistons in said cylinders, a rocking beam connected on opposite sides of its pivot with the respective pistons, whereby said pistons are rendered alternately yielding under the resistance of the charge being compressed, and a connection between the rocking beam and the driven member of the engine; for the purpose herein explained.

3. The combination of a pair of cylinders, pistons therein, a crank-shaft and cross-head driven thereby, a rocking beam mounted on the cross-head and connected to the pistons; substantially as described.

4. In an explosive-engine, the combination of a pair of cylinders, a crank-shaft, a cross-head having connection at its respective ends with the crank-shaft, a rocking beam centrally pivoted upon the cross-head, and link connections between the respective pistons and the ends of the rocking beam, which link connections are in line with the connections between the cross-head and the crank-shaft; substantially as and for the purposes set forth.

5. In an explosive-engine, the combination of a pair of cylinders, pistons working in the respective cylinders, a cross-head, a rocking beam centrally pivoted on the cross-head and connected at its ends with the respective pistons, and an air-cushion interposed between each end of the rocking beam and the cross-head: substantially as and for the purposes set forth.

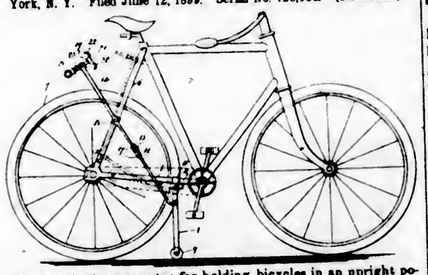
6. In an explosive-engine, the combination of a pair of cylinders, pistons working in the cylinders, a cross-head having connection with the crank-shaft, a rocking beam centrally pivoted on said cross-head and connected at its ends with the respective pistons, flanges projecting from the rocking beam on opposite sides of the cross-head, and packing-strips arranged transversely between said flanges and forming in connection with the flanges and face of the cross-head a chamber which confines the air and provides an air-cushion at each end of the rocking beam; substantially as and for the purposes set forth.

7. In an explosive-engine, the combination of a crank-shaft, a cylinder, a piston working in said cylinder, and a connection between the piston and the crank-shaft including a rocking beam to one end of which the piston is connected, and means connected with the other end of said rocking beam for counterbalancing it and providing a cushion whereby the said piston may move to the end of the cylinder and expel all the gases, or may yield in compressing the charge; substantially in the manner and for the purposes set forth.

8. An explosive-engine comprising a shaft having two cranks, a pair of cylinders provided with induction-valves, first exhaust-ports, and second exhaust-valves, the pistons located in the cylinders the sliding cross-head the pitmen connecting the cross-head with the cranks, the rocking-beam pivoted to the cross-head, and the links whereby the pistons are connected with the rocking beam: substantially as described.

9. An explosive-engine embodying a driven member: two cylinders; pistons working in the respective cylinders: and a to-and-fro-moving part through which the driven member is actuated and with which the respective pistons have alternately-yielding connection.

642,144. SUPPORT FOR BICYCLES. CHARLES MELLISH, New York, N. Y. Filed June 12, 1899. Serial No. 720,160. (No model.)

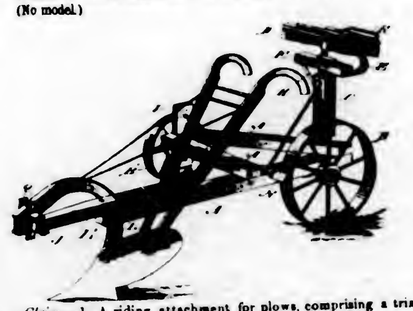


Claim.—1. An apparatus for holding bicycles in an upright position, comprising rods pivotally connected with the sides of the upright rear fork of the frame of the vehicle, legs pivotally connected with the sides of the lower horizontal fork adjacent to the support of the pedal-shaft, rods pivotally connected with said legs and with said first-named rods, said first-named rods being also connected at their upper ends and provided with a spring-catch, and a clamp secured to the rear upper fork adjacent to the seat-support, and with which said spring-catch is adapted to engage, substantially as shown and described.

2. An apparatus for holding a bicycle in an upright position, comprising legs pivotally connected with the sides of the lower horizontal fork adjacent to the support of the pedal-shaft and provided at their lower ends with rollers, rods pivotally connected with said legs adjacent to their pivotal supports, other rods pivotally connected with said first-named rods and also pivotally connected with the sides of the upper rear fork, said last-named rods being connected at their upper ends and provided with a spring-operated catch, and a clamp secured to the frame of the vehicle below the seat-support, and with which said spring-catch is adapted to engage, substantially as shown and described.

3. An apparatus for holding a bicycle in an upright position, comprising legs pivotally connected with the sides of the lower horizontal fork adjacent to the support of the pedal-shaft and provided at their lower ends with rollers, rods pivotally connected with said legs adjacent to their pivotal supports, other rods pivotally connected with said first-named rods and also pivotally connected with the sides of the upper rear fork, said last-named rods being connected at their upper ends and provided with a spring-operated catch, and a clamp secured to the frame of the vehicle below the seat-support, and with which said spring-catch is adapted to engage, the rods which are pivotally connected with said legs and with said upright fork being so connected as to turn in one direction only, substantially as shown and described.

642,145. ADJUSTABLE RIDING ATTACHMENT FOR PLOWS. THOMAS E. MOON, Sabina, Ohio. Filed June 9, 1899. Serial No. 719,875. (No model.)



Claim.—1. A riding attachment for plows, comprising a triangular frame having a frame-bar forming one side of the triangle arranged in the line of draft, and provided with a forward extension or tongue, together with a front and rear frame-bar forming the other two sides of the triangle extending laterally from said side bar and joined together at a suitable distance therefrom; the rear bar being arranged at an acute angle to said side and front bars and intersecting the latter so as to serve as a diagonal brace therefor, a furrow-wheel journaled to said frame between the divergent ends of said front and rear frame-bars, a land-wheel journaled at the intersection said front and rear bars, in advance of said furrow-wheel, a seat mounted on said frame, and means for connecting said tongue with a common plow.

2. A riding attachment for plows, comprising a triangular frame having a frame-bar forming one side of the triangle arranged in the line of draft, and provided with a forward extension or tongue, together with a front and rear frame-bar forming the other two sides of the triangle extending laterally from said side bar and joined together at a suitable distance therefrom; the rear bar being arranged at an acute angle to said side and front bars and intersecting the latter so as to serve as a diagonal brace therefor, a furrow-wheel journaled to said frame between the divergent ends of said front and rear frame-bars, a vertically-adjustable land-wheel journaled at the intersection of said front and rear bars, in advance of said furrow-wheel, a seat mounted on said frame, and means for connecting said tongue with a common plow.

3. A riding attachment for plows, comprising a triangular frame having a frame-bar forming one side of the triangle arranged in the line of draft, and provided with a forward extension or tongue, together with a front and rear frame-bar forming the other two sides of the triangle extending laterally from said side bar and joined together at an acute angle to said side and front bars and intersecting the latter so as to serve as a diagonal brace therefor, a furrow-wheel journaled to said frame between the divergent ends of said front and rear frame-bars, a land-wheel journaled at the intersection of said front and rear bars, in advance of said furrow-wheel, a seat mounted on said frame, and means for connecting said tongue with a common plow so as to permit vertical and lateral, or oscillatory movement of the riding attachment.

4. A riding attachment for plows, comprising a triangular frame having a frame-bar forming one side of the triangle arranged in the line of draft, and provided with an extensible tongue, together with a front and rear frame-bar forming the other two sides of the triangle extending laterally from said side bar and joined together at a suitable distance therefrom; the rear bar being arranged at an acute angle to said side and front bars and intersecting the latter so as to serve as a diagonal brace therefor, a furrow-wheel journaled to said frame between the divergent ends of said front and rear frame-bars, a land-wheel journaled at the intersection of said front and rear bars, in advance of said furrow-wheel, a seat mounted on said frame, and means for connecting said tongue with a common plow.

5. In combination with an ordinary walking-plow, a detachable riding attachment therefor consisting of a triangular frame mounted upon two wheels, one large and the other comparatively small, the larger wheel being journaled at one side of the triangle and the smaller wheel at the angle thereof formed at the intersection of two of its sides, forward of the larger wheel; said frame being provided with a tongue or draft-bar for attachment to said plow, and having a seat mounted thereon, and said tongue being a continuation or extension of one of the frame-bars forming one side of said triangle, at the furrow-wheel side of the plow, substantially as described.

6. In combination with an ordinary walking-plow having suitable handles, an adjustable riding attachment therefor consisting of a triangular frame mounted upon two wheels, one large, the other comparatively small, the larger wheel being journaled at one side of the triangle and the smaller wheel at the angle thereof formed at the intersection of two of its sides, forward of the larger wheel, said frame having a tongue or draft-bar which is a continuation or extension of one of said frame-bars, forming one side of the triangle at the furrow-wheel side of the plow, and adapted for attachment to the beam of said plow, a seat mounted on said frame, and means for adjusting said smaller wheel vertically, substantially as described.

7. A detachable riding attachment for an ordinary walking-plow, consisting of a triangular frame having a side bar extending in the line of draft at the furrow-wheel side of the plow, and forming one side of the triangular frame; said side bar being provided with a forward extension or tongue, front and rear frame-bars extending from said side bar across the line of draft; said rear bar being arranged at an acute angle to the other two bars, so as to intersect the front bar at one side of the frame and serve as a diagonal brace therefor, a land-wheel journaled in said frame at the point of intersection of said front and rear bars, and a furrow-wheel journaled at the other side of the frame rearwardly of said land-wheel, together with a seat mounted at the rear of the frame, and means for connecting said tongue to the beam of said plow.

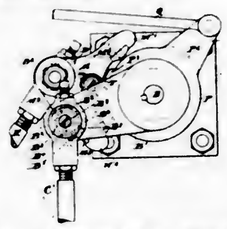
8. In combination with an ordinary walking-plow, having suitable rearwardly-extending handles, a riding attachment therefor consisting of a triangular frame having a tongue or draft-bar at one side thereof forming one side of the triangle, and extending forwardly therefrom in the line of draft, a furrow-wheel journaled at said side, a smaller vertically-adjustable land-wheel journaled at the junction of two sides of the triangle, in advance of said furrow-wheel, a seat mounted on said frame rearwardly of said land-wheel, and means for connecting said tongue to the beam of the plow so as to permit a rising-and-falling and a laterally-swinging movement of the riding attachment, substantially as described.

9. The combination with an ordinary walking-plow, of a detachable riding attachment consisting of a triangular frame mounted on wheels, a seat on said frame, and an extensible tongue or draft-bar extending forwardly from and forming one side of said frame for connection with the beam of the plow; the furrow-wheel being journaled to said extensible draft-bar and the land-wheel at the opposite side of the frame at the junction of two sides of the triangle, whereby the attachment is adapted to be connected to plows of different lengths in position for convenient manipulation of the plow by the operator mounted on said seat, substantially as described.

10. In combination with the riding attachment for plows having a tongue or draft-bar extending therefrom, the clevis pivotally secured to said draft-bar and the clamp pivotally secured to said clevis, the axes of said pivots being arranged at an angle to each other so as to permit vertical and lateral or oscillating motion of the riding attachment.

11. In combination with the wheeled frame having the forward extension or tongue, the clamp consisting of two parts provided with a series of holes to receive the fastening-bolts by which it may be secured to beams of different widths; one of said parts being pivotally secured to a clevis, and the latter pivotally secured to said tongue, so as to permit a swinging, or oscillatory, and also vertical movement of the riding attachment.

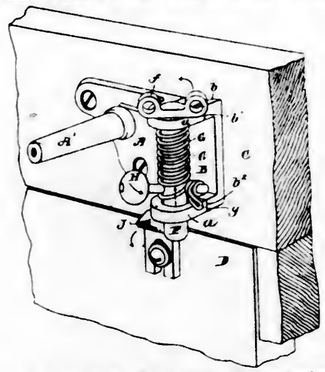
642,146. VALVE-GEAR. MATTHEW B. MOORE, Indianapolis, Ind., assignor to the Atlas Engine Works, same place. Filed Feb. 13, 1899. Serial No. 705,384. (No model.)



Claim.—1. In a Corliss engine, having the valve-stem B with its arm B', the combination therewith of the hook M, the pin B^3 having an extension B^4 adapted to carry the two catch-plates B^5 and securing means as the bolt B^6 and nut B^7, and the removable head B^8 and securing means B^9 therefor, all substantially as herein specified.

2. In a Corliss engine, having the positively-rocking part D' carrying the soft-surfaced stop T on its face, the valve-stem B with its arm B', and the cam-ring P carrying the cams P^4 and P^5, the combination therewith of the hook M arranged to be engaged by an outward movement of said hook, and provided with the recess *m* larger than the said stop and holding the same, adapted to allow the hook to swing but to limit its movement, all substantially as herein specified.

642,147. BURGLAR-ALARM APPARATUS. SUMNER L. MORSE, Athol, Mass. Filed Nov. 6, 1899. Serial No. 735,890. (No model.)

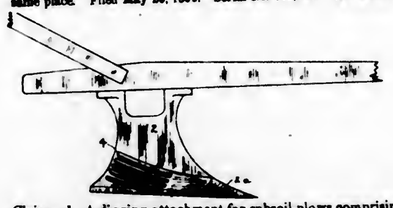


Claim.—1. In an alarm-bell apparatus, the base having a stem upon which the gong is mounted and provided with suitable bearings, the shaft movable in said bearings and carrying the alarm-hammer, and a setting-arm engaging with said base, in combination with a spring adapted to give both a rotary and a longitudinal movement to said shaft when said arm is released, and with a tripping device adapted to disengage said arm.

2. In an alarm-bell apparatus, the base made in two parts with raised bearings between them formed by semicircular recesses in engaging end standards of said parts, in combination with a shaft mounted in said bearings and carrying a radial hammer and setting-arm, a spring coiled around said shaft and arranged to partially rotate it, and with a tripping device serving to release the setting-arm when the door is opened.

3. In an alarm-bell apparatus, the base made in two parts with terminal standards having circular openings between them forming bearings for the hammer-shaft, said base parts engaging marginally and at the bearings to prevent their independent movement, in combination with a shaft mounted in said bearings and carrying the alarm-hammer, and with a coiled spring thereon actuating said shaft and hammer, and formed with an extension engaging the base, to hold the hammer when released at proper distance from the gong.

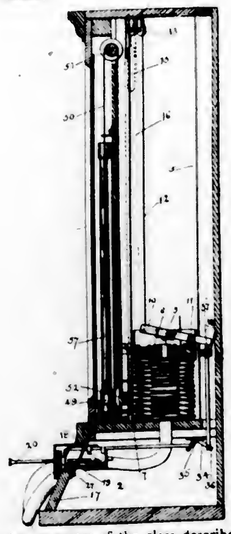
642,148. DIGGING ATTACHMENT FOR SUBSOIL-PLOWS. JOHN MUTART, Bay City, Mich., assignor of one-half to George B. Willcox, same place. Filed May 29, 1899. Serial No. 718,761. (No model.)



Claim.—1. A digging attachment for subsoil-plows comprising a laterally-projecting and approximately horizontal shoe having means for varying the elevation of the rear portion of the shoe, substantially as described and for the purpose set forth.

2. A digging attachment for subsoil-plows comprising a laterally-projecting shoe adapted to be removably attached to the plow-standard; the forward part of said shoe being arranged to fit the rear of the plow-point, and means, substantially as described for securing the shoe to the standard and permitting its vertical adjustment relatively thereto.

642,149. COIN-RELEASED LUNG-TESTING APPARATUS. BENJAMIN MCKENZIE, St. Paul, Minn. Filed Mar. 22, 1898. Serial No. 674,726. (No model.)



Claim.—1. An apparatus of the class described, comprising in combination the expansible air-receiver, the means for inflating the same, the exhaust-valve, the counterbalancing-weight normally holding said valve in open position, the arm carried by said valve, the devices arranged adjacent to said arm and adapted when operated to engage said arm to close the valve, and the coin-controlled means for actuating said mechanism.

2. A lung-testing apparatus comprising in combination the bellows, its gravity exhaust-valve having a projecting arm, the means for normally holding said exhaust-valve open, the devices arranged adjacent to said arm and adapted when actuated to engage said arm to close the valve, and the coin-controlled means for actuating said devices.

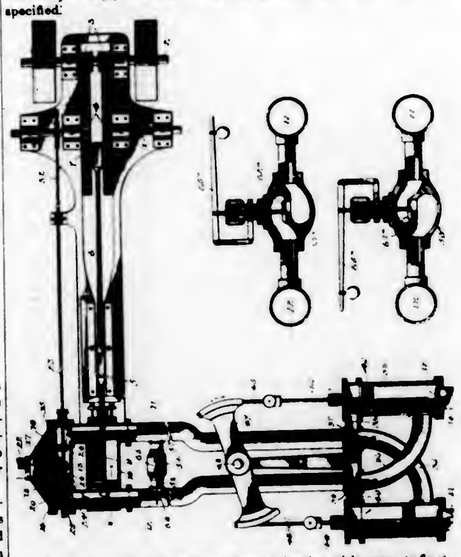
3. An apparatus of the class described, comprising in combination the bellows, its gravity exhaust-valve, means for normally holding said exhaust-valve open; the devices arranged adjacent to said valve and adapted when actuated to engage the same to carry it to closed position, the coin-receiving plunger arranged in connection with said devices, and adapted when supplied with a coin of certain size to be operated to actuate said valve-closing devices.

4. An apparatus of the class described, comprising in combination the bellows, its gravity exhaust-valve, and the means for normally holding the same in open position, the mechanism arranged adjacent to said valve, and adapted when actuated to carry said valve to closed position, the spring-restrained coin-receiving plunger, the device arranged intermediate of said plunger and the valve-closing mechanism, and adapted to be operated to close said valve when the plunger is supplied with a coin of certain size, and forced inward against the tension of its restraining-spring.

642,150. PUMPING MECHANISM. JOHN OLSEN, Salt Lake City, Utah. Filed Oct. 29, 1898. Serial No. 694,954. (No model.)

Claim.—1. In a pumping mechanism, the combination with separate pumping cylinders, connected pumping-pistons, conveyers, and connections between the conveyers and the pumping-cylinders, a main cylinder in communication at opposite ends with said conveyers, a main piston operating in said main cylinder, valves for controlling the outlets of said conveyers, a cross connection between the conveyers, comprising a valve-casing, oppositely-opening valves in said casing, a common valve-seating device for said valves adapted to yieldingly resist pressure in the cross connection of a rotary crank-wheel having connection with said main piston, a reciprocatory tappet-ring connected with said valves and provided with spaced shoulders 29 and 30, and a cross-head 31 carried by the crank-shaft for engagement successively with said shoulders when the main piston is at the limit of its throw, whereby the shifting of the valves is accomplished during the time that they are not exposed to liquid pressure, substantially as specified.

2. In a pumping mechanism, the combination with pumping-cylinders having valved suction-pipes, conveyers, each having direct communication with one of said pumping-cylinders at one end and valved connection with the other cylinder at the other outer end, connected pumping-pistons operating respectively in said pumping-cylinders, a main piston for applying pressure alternately to the contents of said conveyers, and operating connections between said valves and the main piston, of a compensator or pressure-equalizer having valve-chambers and passages connecting said conveyers with the chambers, valve-controlled ports communicating with the valve-chambers, a separate valve for each port and a common valve-seating device for yieldingly resisting pressure in the passages, substantially as specified.



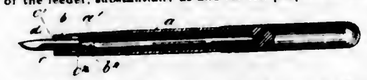
3. In a pumping mechanism, the combination with separate fluid-conveyers, and means for applying pressure alternately to the contents of said conveyers, of a compensator or pressure-equalizing device connecting said conveyers, and having valve-chambers respectively in communication with said conveyers, and connected by relief-ports, oppositely-opening relief-valves normally closing said ports, and a common compensating lever connected with the stems of said valves, substantially as specified.

4. In a pumping mechanism, the combination with pumping-cylinders having valved suction-pipes, conveyers having direct communication with said pumping-cylinders at one end and valved connection therewith at the other end, connected pumping-pistons operating in said pumping-cylinders, a main piston for applying pressure alternately to the contents of said conveyers, valves for controlling the outlets from the conveyers, and operating connections between said valves and the main piston, of a compensator or pressure-equalizing device connecting said conveyers and having valve-chambers respectively in communication with said conveyers and connected by relief-ports, oppositely-opening relief-valves for normally closing said ports, and a compensating lever connected with the stems of said relief-valves, substantially as specified.

5. In a pumping mechanism, the combination with pumping-cylinders having valved suction-pipes, conveyers having direct communication with said pumping-cylinders at one end and valved connection therewith at the other end, connected pumping-pistons operating in said pumping-cylinders, a main piston for applying pressure alternately to the contents of said conveyers, valves for controlling the outlets from the conveyers, and operating connections between said valves and the main piston, of a compensator or pressure-equalizing device connecting said conveyers and having valve-chambers respectively in communication with said conveyers and connected by relief-ports, oppositely-opening relief-valves for normally closing said ports, and a compensating lever connected with the stems of said relief-valves, and provided with an adjustable counterbalancing-weight, substantially as specified.

642,151. FOUNTAIN-PEN. GEORGE S. PARKER, Janesville, Wis. Filed June 30, 1899. Serial No. 722,365. (No model.)

Claim.—1. A fountain-pen, consisting of a barrel, a nozzle *b* carrying a pen *d* and feeder *c* said feeder having capillary ink-ducts therein, said nozzle being adapted to fit snugly within the end of the barrel, and a resilient tongue *b'* provided upon the inner end of said nozzle and having engagement with the side of the barrel, said tongue having a slit extending longitudinally thereof and affording a capillary passage for the ink between the side of the barrel and the ink-ducts of the feeder, substantially as and for the purpose set forth.



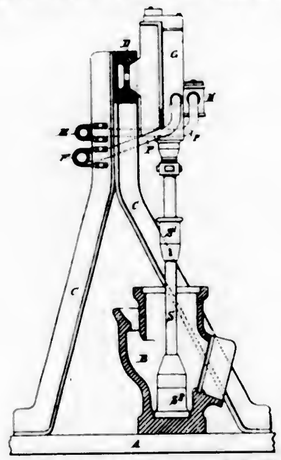
2. In a fountain-pen, the combination with a barrel, of a plug or nozzle *b* therefor adapted to fit within the bore of the barrel, a pen and feeder mounted within the nozzle, said feeder having capillary ink-ducts therein, and a resilient locking-tongue *b'* provided upon the inner end of said nozzle, the inner end of said feeder terminating substantially at the root of the said resilient locking-tongue, said tongue having one or more capillary passages provided therein and communicating with the ink-ducts in the inner end of the feeder at the root of the tongue, substantially as and for the purpose set forth.

3. In a fountain-pen, the combination with a barrel having an annular recess *a'* in its inner wall, a nozzle *b* adapted to fit snugly within the mouth of said barrel, a resilient locking-tongue *b'* provided upon the inner end of said nozzle and having engagement with the said annular groove, said locking-tongue having one or more capillary passages therein, and a pen and feeder mounted in said nozzle, said feeder having a capillary passage c^3 communicating with the capillary passage b^3 in said locking-tongue, substantially as set forth.

4. In a fountain-pen, the combination with a barrel having a cylindrical bore, of a cylindrical plug adapted to fit within said bore, a pen and feeder mounted in the plug, said feeder having a capillary passage c^3 therein, and an extension *b'* of the nozzle for holding the nozzle in position within the bore of the barrel, said extension having a capillary passage communicating with the capillary passage c^3 of the feeder, substantially as set forth.

5. In a fountain-pen, the combination with a barrel *a* having a cylindrical bore and having an annular recess *a'* in its wall near the mouth, of a nozzle in the form of a cylindrical plug adapted to fit snugly within the mouth of the barrel, a pen and feeder mounted in said nozzle, said feeder having ink-ducts therein for conveying ink through the nozzle to the point of the pen, the nozzle, pen and feeder being removable from the barrel as a single piece, and a resilient locking-tongue *b'* formed upon the inner end of said nozzle and adapted to engage with the annular recess in the barrel, said locking-tongue having one or more capillary passages therein extending from its extremity to the main body of the nozzle and communicating with the ink-ducts of the feeder, substantially as set forth.

642,152. STAMP FOR CRUSHING ORES. FREDERICK A. PARNELL, London, England. Filed Dec. 23, 1897. Serial No. 663,821. (No model.)



Claim.—1. In stamps for crushing ore and the like, the combination with a shoe, a cylinder, a piston in said cylinder, connected to said shoe for reciprocating it, means for revolving said piston, suitable valves and passage-ways for supplying pressure in said cylinder, a cross-beam connected to said cylinder intermediate of its ends and at one side of its longitudinal axis, and a frame consisting of braces having parallel upper portions connected to said cross-beam, and separated lower portions connected at their extremities to said base respectively in front and in rear, substantially as and for the purpose set forth.

2. In stamps for crushing ore and the like, the combination with a shoe and a base A, of a frame C rising from said base and consisting of inclined braces connected together at top and diverging at bottom, and respectively connected to said base at front and rear, a cross-beam D carried by the upper side of said frames at one side of the vertical axis of the die, a cylinder G carried by said cross-beam, a piston L in said cylinder, connected to said shoe for reciprocating it, and means for revolving said piston, substantially as and for the purpose set forth.

3. In an ore-crushing stamp, the combination with a cylinder and reciprocating piston, and piston-valve having semicircular piston-valve rings, of spiral springs interposed between the ends of said piston-valve and the crowns of the semicircular rings, as and for the purpose set forth.

642,153. HOSE-NOZZLE. CHARLES H. PERKINS, Lawrence, Mass. Filed Feb. 5, 1898. Serial No. 669,175. (No model.)



Claim.—1. The combination with a pipe, of a plug supported thereby and having a waterway and also having an oil-passage, of an operating device for the plug, and means for connecting the operating device to the plug, said means including a device having an oil-passage in communication with the oil-passage of the plug.

2. A hose-nozzle having a plug provided with a waterway and having oil-passages therein, and a hollow screw screwed into the end of said plug and in communication with the oil grooves or ways of said plug, combined with a ball and spring to normally act upon said ball and keep it seated in the passage in said screw to exclude dust and dirt, said ball being readily moved inwardly by the nose of an oil-can to enable oil to be admitted in the said hollow screw and pass therefrom into the exterior of said plug, substantially as described.

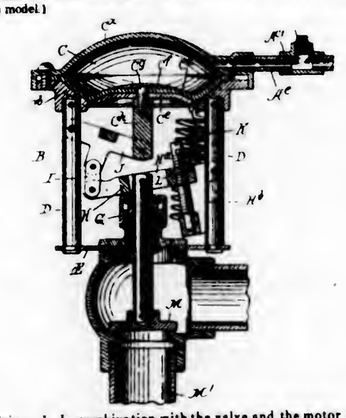
3. A hose-pipe having a plug provided with a waterway and with external oil-grooves, and a handle applied to the opposite ends of said plug, combined with hollow screws inserted into the opposite ends of said plug, the interior of said hollow screws being shaped to present seats, a washer inserted in each of said screws, an oil-delivery passage, and a valve, and means to normally keep the said valve closed against the seats at the interior of said screws, substantially as described.

4. The combination with a pipe, of a plug supported thereby and having a waterway and also having an oil-passage, an operating device for the plug, and means for connecting the operating device to the plug, said means including a bored screw in threaded engagement with the plug, and the bore being in communication with said oil-passage.

5. The combination with a pipe, of a plug supported thereby and having an oil-passage, a lever having flanges united to the opposite ends of the plug screws seated in said opposite ends and adapted to secure the lever in place, and each having bores communicating

with said oil-passage, valves disposed in said bores, and means acting against the valves to normally hold them closed.

642,154. THERMOSTATICALLY-OPERATED VALVE-MOTOR. THOMAS O. PERRY, Chicago, Ill. Filed Mar. 27, 1897. Serial No. 629,510. (No model.)



Claim.—1. In combination with the valve and the motor for the same, two levers having their fulcrums fixed with respect to the valve-body and pivotally connected respectively to the valve-stem and the moving element of the motor, adapted in the movements of said parts to which they are respectively connected to oscillate through arcs whose chords are substantially parallel with the paths of movement of said moving parts respectively; and a link which connects said levers having its pivotal connection to the motor-operated lever widely out of line with the other pivots of said lever.

2. In combination with the valve and the motor which operates the same, levers having their fulcrums fixed with respect to the valve-body and connected respectively to the valve-stem and to the moving element of the motor and adapted by said connections to oscillate in arcs whose cords are substantially parallel to the paths of movement of the valve-stem and motor element respectively; a link which connects said levers at points in a line which makes an increasing angle with a line from the fulcrum of the motor-operated lever to the link-pivot on said lever as the valve moves toward its seat and approximates one hundred and eighty degrees when the valve is seated.

3. In combination with the valve-body, the valve and the cap through which the valve-stem emerges, the base-plate E, adapted to be bound between the valve-body and its cap, the motor chamber C, and the posts D D, which attach it to the plate; the levers H and J fulcrumed on the posts respectively, and connected respectively to the valve-stem and the moving element of the motor; and the link I which connects said levers.

4. In combination with a valve which controls the flow of the heating or heat-producing fluid and a motor for operating said valve, the operating connections between the motor and valve comprising a lever attached to the valve-stem; a spring reacting upon said lever to resist the closing of the valve; the connection of the spring to the lever being made by attachment thereto at a point remote from a line extended from the lever-fulcrum to its valve-stem connection on the side of the lever toward the valve-body, and on the side of the valve-stem toward the lever-fulcrum.

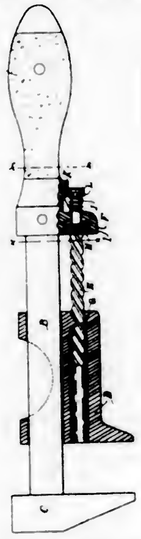
5. In combination with a valve which controls the flow of the heating or heat-producing fluid, a motor for operating said valve, the operating connections between the motor and valve comprising a lever connected to the valve-stem; a spring pivoted at one end and operating at the other end upon said lever to resist the closing of the valve; the connection of the spring to the lever being made by attachment thereto at a point remote from a line between its fulcrum and valve-stem connection on the side of the lever toward the valve-body and on the side of the valve-stem toward the lever-fulcrum.

6. In combination with a valve which controls the flow of the heating or heat-producing fluid, a motor for operating said valve; the operating connections between the motor and valve comprising a lever connected to the valve-stem; a spring operating upon said lever to resist the closing of the valve, the connection of the spring to the lever being made by attachment at a point remote from the line extending from the lever-fulcrum to its valve-stem connection on the side of the lever toward the valve-body and on the side of the valve-stem toward the lever-fulcrum, the other end of the spring being pivotally attached at a point fixed with respect to the body; whereby the angle between the lines from the pivotal attachment of the spring to the fulcrum of the lever and to the opposite connection of the spring, respectively, and the tendency of the spring to resist the closing of the valve, diminish as the valve approaches its seat.

7. In combination with the valve and motor and the lever connections between the two, the springs K K which operate with a tendency to unseat the valve, said springs being secured at the upper end, and the cross-head I' to which the lower ends of said springs are connected, and the screw L, which is screwed through the valve-operating lever and takes into the cross-head, whereby the springs may be put under tension and their tension regulated after assembling the parts.

8. In combination with a valve and motor and the lever connections between the springs K K, which operate with a tendency to unseat the valve, the cross-head I' and a screw L screwed into the lever and taking into the cross-head to put the springs under tension; the lever having the brackets extending downwardly therefrom at opposite sides of the screw and having their edges toward the cross-head parallel with the axis of the screw.

642,155. WRENCH. GEORGE REDFORD and EDWIN CAMPBELL, Sussex, Wis. Filed Sept. 5, 1899. Serial No. 729,419. (No model.)

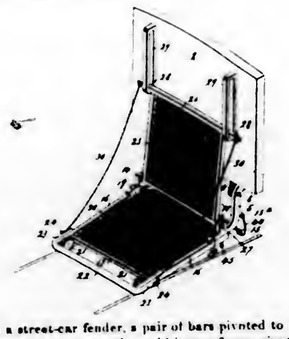


Claim.—1. In a wrench, the combination with a movable jaw and a supporting-shank; of an adjusting-screw having threaded bearings in the bearings of the movable jaw, the pitch of the thread of said screw and the bearings, being such as to cause said screw to be turned by the longitudinal movement of said jaw; and means for locking said screw and jaw at the desired point of adjustment.

2. In a wrench, the combination with a movable jaw and a supporting-shank; of an adjusting-screw having threaded bearings in the bearings of the movable jaw, the pitch of the thread of said screw and the bearing being such as to cause said screw to be turned by the longitudinal movement of said jaw; and means for locking said screw and jaw at the desired point of adjustment, consisting of a stationary bracket F; pinion H having bearings in said bracket; bearing-block K swiveled to one end of said adjusting-screw; and spiral spring or elastic bearing J interposed between said stationary bracket and said block, adapted when released from pressure to hold said pinion in contact with said bracket, all substantially as and for the purpose specified.

642,156. STREET-CAR FENDER. LOUIS H. REPPELL and JOHN P. GROFF, Kansas City, Mo. Filed Mar. 3, 1899. Serial No. 707,683. (No model.)

Claim.—1. In a street-car fender, a pair of bars pivoted to the front end of the car, a frame carried thereby, slotted brackets secured to the dashboard, a frame pivoted to said bars and engaging said slotted brackets, a toothed frame pivoted to said bars, and a dog engaging one of the teeth of said frame to hold the fender at the desired point of adjustment, substantially as described



2. In a street-car fender, a pair of bars pivoted to the front end of the car, a cross-bar engaging said bars, a frame pivoted upon said cross-bar to swing in a substantially horizontal plane, and a pair of chains engaging said pair of bars and the pivoted frame, substantially as described.

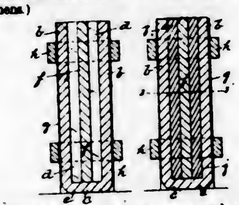
3. In a street-car fender, a pair of bars pivoted to the front end of the car, a cross-bar engaging said bars and provided with a pivot-pin at its center and a pin near each end, a frame pivoted upon said pivot-pin, and a spring secured to the rear end of said frame and having its ends pressing forwardly against the pins near the ends of the cross-bar, substantially as described.

4. In a street-car fender, a pair of bars pivoted to the front end of the car, a cross-bar engaging said bars and provided with a pivot-pin at its center and a pin near each end, a frame pivoted upon said pivot-pin, a spring secured to the rear end of said frame and having its ends pressing forwardly against the pins near the ends of the cross-bar, and a pair of chains connecting said pivoted bars to the said pivoted frame, substantially as and for the purpose described.

5. In a street car fender, a pair of bars pivoted to the front end of the car, a frame carried thereby and provided with wheels to run upon the car-tracks, and a buffer extending across the front end of said frame, which springs downward and rearward when striking an object on the track, a guard-frame also pivoted to said bars and having its upper end arranged to reciprocate vertically, chains connecting the upper end with the front portion of the first-named frame, a spring-actuated dog to hold the fender at the desired point of adjustment, and means to trip said dog and permit the fender to fall to its operative position, substantially as described.

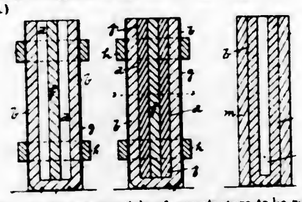
6. In a street-car fender, a pair of bars pivoted to the front end of the car, a frame carried thereby and provided with wheels to run upon the car-tracks, a buffer extending across the front end of said frame, which springs downward and rearward when striking an object on the track, a guard-frame also pivoted to said bars and having its upper end arranged to reciprocate vertically, chains connecting the upper end of said frame with the front portion of the first-named frame, a spring-actuated dog to hold the fender at the desired point of adjustment, a depressible bifurcated bolt, a slide-rod formed with a hook engaging said bifurcated bolt, and a spring to force said slide-rod forward to trip the dog when said bifurcated bolt is depressed, substantially as described.

642,157. MANUFACTURE OF COMPOUND INGOTS. JAMES C. RUSSELL, Pittsburg, Pa., assignor of one-third to Charles A. Fagan and Joseph G. Vilsack, same place. Filed Oct. 8, 1897. Serial No. 654,568. (No specimens.)



Claim.—The method of forming compound plates, which consists in bending transversely a plate of low-carbon metal into U shape so as to form a protecting or inclosing end portion, inserting metal of greater carbon content than the plate into the cavity formed by the bending, heating the body thus formed, and then rolling the same, the ingot during the rolling operation being presented to the rolls closed end first and with the low-carbon sides in contact with the operative faces of the rolls.

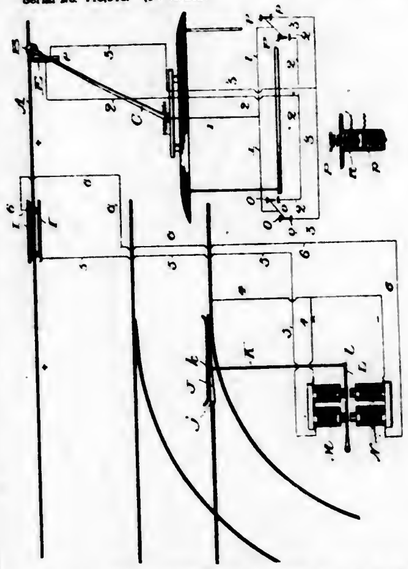
642,158. COMPOUND INGOT. JAMES C. RUSSELL, Pittsburg, Pa., assignor of one-third to Charles A. Fagan and Joseph G. Vilsack, same place. Original application filed Oct. 8, 1897, Serial No. 654,568. Divided and this application filed Oct. 11, 1899. Serial No. 733,269. (No model.)



Claim.—1. As a new article of manufacture to be rolled, a compound ingot composed of a plate of low-carbon metal transversely bent to U shape to form outside layers and but one protecting end portion, and a layer of high-carbon metal or alternate layers of high and low carbon metal cast between the arms of said U-shaped plate, substantially as described.

2. As a new article of manufacture to be rolled, a compound ingot composed of a plate of low-carbon metal transversely bent to U shape to form outside layers and but one protecting end portion, and a layer of high-carbon metal or alternate layers of high and low carbon metal between said outside layers, substantially as described.

642,159. ELECTRIC SWITCH. IRA ROBBINS, Camden, N. J., assignor to Timothy D. Kelly, Philadelphia, Pa. Filed May 26, 1899. Serial No. 718,318. (No model.)



Claim.—1. The combination with a pivoted switch, the trolley-wire and the fixed contacts, of a trolley and its pole, swinging weighted contacts on said pole independent of the trolley, and electrical devices and connections for actuating said switch, substantially as specified.

2. The combination with a pivoted switch, the trolley-wire and the fixed contacts, of the trolley, its hollow pole, swinging weighted contacts independent of the trolley, on the pole, a pivoted armature, magnet and connections between said armature and switch, and wires connected with each swinging contact and passed through the pole and connected with said magnet, substantially as specified.

3. The combination with the trolley-wire and the fixed contacts insulated therefrom, of the trolley, its pole, the swinging contacts thereon on pivots out of line with the axis of the trolley, foot-levers

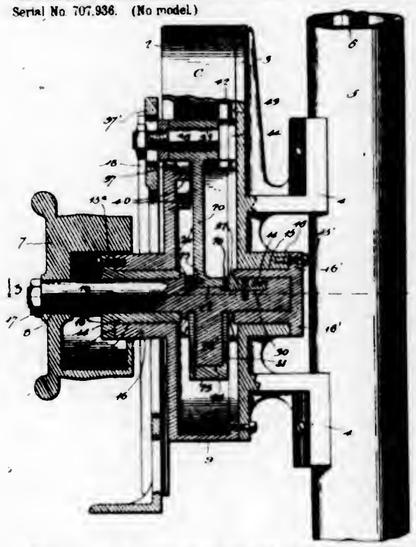
and contacts, a switch and electric devices and connections for actuating the same, substantially as specified.

4. A hollow trolley-pole, a sleeve thereon, laterally-projecting studs on said sleeve independent of and out of line with the axis of the trolley and projecting beyond the sleeve, and weighted contacts pivotally mounted on said studs, substantially as specified.

5. A hollow trolley-pole, a sleeve thereon with laterally-projecting studs, between the axis of the trolley and the other end of said pole, weighted arms pivotally mounted on said studs, wires running through the pole and connected with the said arms, a main wire connected with the pole, a pivoted switch, and foot-levers or switches and their contacts and electrical connections substantially as specified.

6. The combination of a pivoted switch, magnets, an armature disposed between the same, a connection between the free end of the armature and the switch, fixed contacts connected with the magnets, a trolley-pole, weighted swinging contacts thereon upon opposite sides of the pole out of line with the axis of the trolley, foot-levers and contacts, a main-line wire connected with the pole and with the said levers, and wires connecting the swinging contacts with the contacts of the foot-levers, substantially as specified.

642,160. DABBING-BRUSH APPARATUS FOR WOOL-COMBING MACHINES. ISAAC RUSHWORTH, Jamestown, N. Y. Filed Mar. 6, 1899. Serial No. 707,936. (No model.)



Claim.—1. In an apparatus of the class specified, the combination of a shaft having an eccentric partially within the plane of the adjacent part thereof, a driving member for the shaft, an eccentric-arm having an eccentric-strap surrounding the said eccentric and provided with an inwardly-directed annular flange fitted in the shaft to one side of the eccentric, means for connecting said eccentric-strap and eccentric, a slide provided with a brush, and a bolt connecting said eccentric-arm and slide.

2. In an apparatus of the class specified, the combination of a shaft having an eccentric and provided with a driving member, an eccentric-arm having an eccentric-strap surrounding the eccentric and having an inwardly-directed annular flange fitted in a portion of the shaft adjacent the eccentric, means for fastening the eccentric-strap and eccentric, a slide provided with a brush, a bolt connecting said eccentric-arm and slide, and a casing adapted to contain a lubricant and also inclose said eccentric and eccentric-arm and having an opening through which said bolt passes.

3. In an apparatus of the class specified, the combination of a shaft having an eccentric a reciprocating arm provided with an eccentric-strap having an inwardly-directed annular flange fitted in a portion of said shaft, means for connecting said strap and eccentric, a slide provided with a brush, a bolt connecting said arm and slide, and a casing adapted to contain a lubricant and also inclose said eccentric and arm and having an opening through which said bolt passes, the casing having one or more guard-flanges extending inwardly therefrom, with the edges in proximity to the arm and serving to prevent the escape of oil.

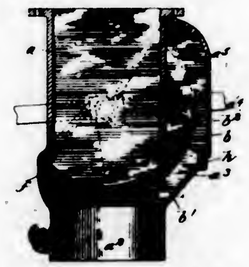
4. In an apparatus of the class specified, the combination of a shaft having an eccentric and provided with a driving member, an arm carrying an eccentric-strap surrounding the eccentric and provided with an inwardly-directed annular flange fitted in a portion of the shaft, means for connecting the eccentric-strap and eccentric, a filling-block disposed in a socket in the said shaft, adjacent the inwardly-directed annular flange and having its outer surface curved to conform to the curvature of the shaft, a slide provided with a brush, and a bolt connecting said eccentric-arm and slide.

5. In an apparatus of the class specified, the combination of a shaft having an eccentric and provided with a driving member, an eccentric-arm carrying an eccentric-strap surrounding the eccentric and provided with an inwardly-directed annular flange fitted in a portion of the shaft, means for connecting said eccentric-strap and eccentric, a filling-block secured in a socket in the shaft adjacent the said eccentric-strap flange, a casing consisting of front and back plates separated by a space in which said eccentric is located and provided with bushings for sustaining said shaft, one of the bushings inclosing said filling-block, a slide, a bolt connecting the slide and eccentric-arm and extending through an opening in the casing, and a guide operable in connection with the head of said bolt.

6. In an apparatus of the class specified, the combination of a shaft having an eccentric and provided with a driving member, an eccentric-arm carrying an eccentric-strap surrounding the eccentric and provided with an inwardly-directed annular flange snugly fitted in a portion of said shaft, means for connecting said eccentric-strap and eccentric, a filling-block secured in a socket in the shaft, adjacent the eccentric-strap flange, a casing consisting of front and back plates, one of said plates having a web extending around the same which is flanged and secured to the other plate, a slide, a bolt connecting said slide and eccentric-arm and extending through a slot in the casing, and a guide for the head of the bolt having a rabbet to receive the correspondingly-shaped portion of the bolt-head.

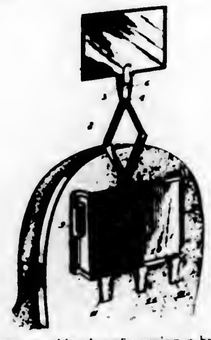
7. In an apparatus of the class specified, the combination of a shaft having an eccentric and provided with a driving member, an eccentric-arm carrying an eccentric-strap surrounding the eccentric and provided with an inwardly-directed annular flange snugly fitted in the said shaft, means for connecting said eccentric-strap and eccentric, a filling-block secured in a socket in the shaft, adjacent to the eccentric-strap flange, a casing consisting of front and back plates, one of said plates having a web extending around the same, which is flanged and secured to the other plate, a slide, a bolt connecting said slide and eccentric-arm and extending through a slot in the casing, a guide for the head of the bolt having a rabbet to receive the correspondingly-shaped portion of the bolt-head, and two superposed curved flanges on the inside of the front plate of the casing, the inner edges of said flanges being adjacent to the eccentric-arm and said flanges constituting guards to prevent the escape of oil through the slot in the casing.

642,161. VALVE FOR CHUTES. FREDERICK SARGENT and HENRY J. WHITOVER, Chicago, Ill. Filed June 12, 1899. Serial No. 720,192. (No model.)



Claim.—The combination with a chute having a downwardly-opening mouth, of a continuation or section a^3 of said chute below said mouth adapted to receive coal therefrom, said continuation having side walls a^2 a^2 integral therewith extending upwardly outside the walls of the mouth and inclosing the same, bearings a^4 a^4 formed in the upper portions of the side walls, a cradle-valve b having trunnions b^2 b^2 adapted to rest in said bearings, whereon said valves may swing to and fro under the mouth of the chute to open and close the same, said valve being adapted to swing out between the wall of the chute and the side wall a^2 of the outside of the chute, whereby it may be removed from its place, and a housing a^5 adapted to cover the opening between the wall of the chute and the upwardly-extending side walls a^2, substantially as described.

642,162. MIRROR. GORHAM T. SEABURY and CHARLES W. MORGARIDGE, Sheridan, Wyo. Filed Apr. 18, 1898. Serial No. 678,042. (No model.)



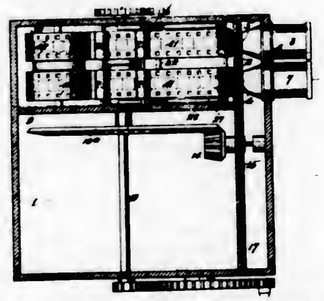
Claim.—1. The combination of a casing, a bracket of lazy-tongs construction mounted at one end within the casing, the part of the lazy-tongs within the said casing being connected by a single pivot, a mirror carried by and hingedly mounted upon the opposite ends of the bracket and adapted with the bracket to be arranged within the casing, the surface of the said mirror being parallel with the elements of the bracket, and means for securing the mirror in its extended or operative position with relation to the bracket, the said means having a contact-pressure on the mirror in a plane parallel with the surface of the latter.

2. The combination of a casing, a bracket of lazy-tongs construction mounted at one end within the casing, a mirror carried by and hingedly mounted upon the bracket at the other end, and adapted with the bracket to be arranged within the casing, and a pivotal holding-tongue for arrangement in operative relation with the mirror to hold it in its extended position, substantially as specified.

3. The combination of a casing, a bracket of lazy-tongs construction mounted for folding within a casing, a supporting-ear pivotally mounted upon the free end of the bracket, a mirror hingedly mounted upon said ear for folding movement, and a holding-tongue for securing the mirror in its extended or operative position, substantially as specified.

4. In an attachment for an opera-chair back, the combination of a flat casing adapted for arrangement approximately parallel with a chair-back, an extensible bracket having one end pivotally mounted within the casing, and adapted to be adjusted laterally in opposite directions and parallel with the width of the casing, a mirror arranged with its surface parallel with the width of the bracket and hingedly mounted thereon for swinging movement in a plane perpendicular to the plane of swinging movement of the bracket, said mirror and bracket being adapted to fit within the casing when the bracket is folded, and a movable holding device for securing the mirror in its extended or operative position with relation to the bracket, when the latter is extended to carry the mirror beyond the casing, substantially as specified.

642,163. KINETOGRAPHIC CAMERA. HOWARD W. SCHROEDER, Kansas City, Mo., assignor to the Edison American Phonograph Company, same place. Filed June 13, 1898. Serial No. 683,307. (No model.)



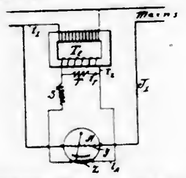
Claim.—1. In a machine for photographing moving objects, a pair of drums which tend to rotate continuously and impart movement to a pair of films, a pair of shouldered cams secured to said drums, and a pair of escapement-levers, provided with arms at opposite sides of said shouldered cams, and means to oscillate said levers and thereby cause them to alternately engage and arrest the movement of said cams, substantially as described.

2. In a machine for photographing moving objects, a pair of drums which tend to rotate continuously and impart movement to a pair of films, shouldered cams movable with said drums, a pair of escapement levers having arms at opposite sides of the shouldered cams, and a pair of driven eccentrics arranged at an angle to each other and imparting oscillatory movement to said levers, substantially as and for the purpose described.

3. In a machine for photographing moving objects, a suitable casing having a pair of windows, a pair of drums which tend to rotate continuously and impart movement to a pair of films, shouldered cams movable with said drums, a pair of escapement-levers having arms at opposite sides of said cams to alternately engage and arrest the movement of the latter, means to oscillate said levers, and a rotating shutter provided with two semicircular slots, one of said slots being adapted to register with one window and film and the other slot with the other window and film, the slots being so arranged that they never register simultaneously with said windows, substantially as described.

4. In a machine for photographing moving objects, a suitable casing, a driven shaft therein, a pair of eccentrics geared to said shaft, a pair of spring-actuated drums journaled upon said driven shaft and adapted to impart movement to a pair of films, a pair of shouldered cams carried by said drums, and a pair of escapement-levers provided with openings to snugly receive said eccentrics, and provided also with arms at opposite sides of the shouldered cams, said arms being adapted under the oscillatory movement imparted to the levers by the eccentrics to alternately engage said cams and thereby arrest the movement of said drums, substantially as described.

642,164. ALTERNATING-CURRENT WATTMETER. KARL O. F. SCHROTTKE, Berlin, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Apr. 22, 1899. Serial No. 714,044. (No model.)



Claim.—1. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a phase-modifier to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

2. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a phase-modifier in parallel with one of the windings of the meter to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

3. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a phase-modifier in parallel with the secondary coil of the transformer and the coil of the meter connected therewith to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

4. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a phase-modifier associated with the secondary circuit, to restore the proper phase relation between the current in the coils of the meter

that would otherwise be destroyed by the transformer, substantially as described.

5. The combination with a transformer having a winding in circuit with main conductors of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a resistance in parallel with one of the windings of the meter to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

6. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a resistance in parallel with the secondary coil of the transformer and the coil of the meter connected therewith to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

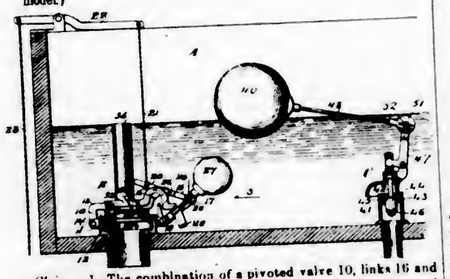
7. The combination with a transformer having a winding in circuit with main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding receiving its current independently of the said transformer, and a resistance associated with the secondary circuit, to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

8. The combination with a transformer having a winding in a bridge of main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding in series with a main conductor, and a phase-modifier connected in parallel with one of the meter-windings to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

9. The combination with a transformer having a winding in a bridge of main conductors, of a secondary winding therefor, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding in series with a main conductor, and a resistance included in parallel with the secondary coil of the transformer and the winding of the meter connected therewith, to restore the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

10. The combination with the main conductors of an alternating-current-supply circuit, of a transformer having a winding in a bridge of the main conductors of the circuit, a secondary for the transformer, a wattmeter having one winding out of circuit with the main conductors and in circuit with the secondary of the transformer, a second winding of the meter receiving its current independently of the transformer, and a phase-modifier for restoring the proper phase relation between the currents in the coils of the meter that would otherwise be destroyed by the transformer, substantially as described.

642,165. FLUSH-TANK VALVE MECHANISM. WILLIAM H. SCHULTE, Trenton, N. J. Filed Mar. 31, 1899. Serial No. 711,206. (No model.)



Claim.—1. The combination of a pivoted valve 10, links 16 and 17 forming a toggle, the link 16 being connected to the valve and having an extended end 20, connections between the end 20 and an operating member, a movable member, and a float for controlling the movement of said movable member to cause it to engage one of said links as the float moves downward to break the toggle for the closing of the valve, substantially as described.

2. The combination of a pivoted valve 10, links 16 and 17 forming a toggle, the link 16 being connected to the valve, means for straightening the toggle to open the valve and for moving the joint of the toggle past the center to lock the valve in its open position, pivoted arm 25, float 27 for moving the arm to cause it to engage the link 17 as the float moves downward to break the toggle for the closing of the valve, substantially as described.

3. The combination of a main outflow-valve having a supplementary flow-opening through the valve, a valve for closing said opening mounted to move with the main valve, means for opening and closing the main valve, a member for engaging a part connected with the supplementary valve as the main valve closes, and a float for moving said member to release said part for the closing of the supplementary valve, substantially as described.

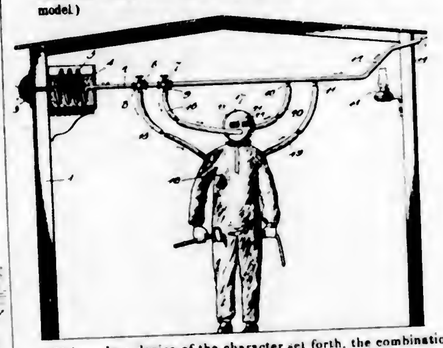
4. The combination of a main outflow-valve having a supplementary flow-opening through the valve, a valve for closing said opening mounted to move with the main valve, means for opening and closing the main valve, a member for engaging a part connected with the supplementary valve as the main valve closes, and means for automatically moving said member to release said part for the closing of the supplementary valve, substantially as described.

5. The combination of a pivoted valve 10 having a supplementary flow-opening 30, supplementary valve 31 for closing said opening carried by a pivoted arm 32 having a toe 33, means for opening and closing the valve 10, a movable stop for engaging the toe 33 as the valve 10 moves toward its seat, and a float and connections for moving said stop out of engagement with the toe 33, substantially as described.

6. The combination of a pivoted valve 10 having a supplementary flow-opening 30, supplementary valve 31 for closing said opening carried by a pivoted arm 32 having a toe 33, links 16 and 17 forming a toggle, the link 16 being connected to the valve 10, means for straightening the toggle to open the valve and for moving the joint of the toggle past the center to lock the valve in its open position, pivoted arm 25 having a member forming a stop to engage the toe 33 as the valve 10 moves toward its seat, and a float and connections for moving the arm 25 to engage the link 17 as the float moves downward to break the toggle for the closing of the valve 10 and for moving said arm in the opposite direction as the float moves upward to carry the stop out of engagement with the toe 33 for the closing of the supplementary valve, substantially as described.

7. In a flush-tank valve mechanism, the combination of pivoted outflow-valve 10, operating-links 16, 17 between said valve and a support, connections between said links and an operating member for opening the valve and moving the joint of the links past the center to lock the valve in its opened position, a float, and connections between said float and the links for moving the links to unlock the valve for closing the latter as the float moves downward, substantially as described.

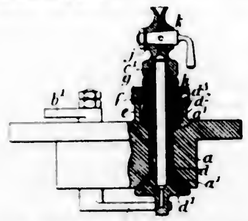
642,166. PROTECTIVE DEVICE FOR ARTISANS. UDOLPH SHERMAN, Girard, Mich. Filed Aug. 14, 1899. Serial No. 727,211. (No model.)



Claim.—In a device of the character set forth, the combination of a pipe extending through a building and having its opposite terminals opening out to the exterior, the one terminal of the pipe serving as the ingress and having an adjacent coil continuous with the length thereof, the opposite terminal providing the egress and bent upwardly at an angle for location over a heating medium, a pair of closely-arranged valves in the pipe near the ingress terminal inside of the location of the coil, the said valves being adapted for individual use and operating to prevent the passage of air through the pipe beyond the same, articles of wearing-apparel having flexible pipes running to and connected with the said valves, the valves when operated to close the pipe in which they are located providing means

of communication between the said flexible pipes and the pipe in which the valves are situated, and an outlet-pipe running away from opposite portions of each of the articles of wearing-apparel and attached to the pipe containing the valves at a distance from the latter so that the exhaust may take place through the pipe serving as a feed, a suction being set up by the heated extremity of the pipe to facilitate the exhaust.

642,167. ELECTRIC-SPARKING PLUG FOR EXPLOSIVE-ENGINES. FREDERICK R. SIMMS, London, England. Filed July 7, 1899. Serial No. 723,071. (No model.)



Claim.—1. The combination with an electric igniting device provided with electric terminals, of means, independent of the means for introducing the explosive charge for the cylinder, for introducing a quantity of highly-inflammable liquid adjacent to the igniting-point of said terminals, for the purpose of insuring the explosion of the cylinder charge, substantially as described.

2. An electric igniting device provided with electric terminals for igniting the cylinder charge, and having a passage, independent of the means for introducing the explosive charge for the cylinder, extending to the outside of the ignition-chamber, for introducing a quantity of highly-inflammable liquid adjacent to the igniting-point of said terminals for insuring the explosion of the cylinder charge, substantially as described.

3. An electric igniting device provided with electric terminals for igniting the cylinder charge, and having a passage, independent of the means for introducing the explosive charge for the cylinder, extending to the outside of the ignition-chamber, for introducing a quantity of highly-inflammable liquid adjacent to the igniting-point of said terminals for insuring the explosion of the cylinder charge, and means for closing said passage outside of the ignition-chamber, substantially as described.

4. An igniting device comprising among its members, a plug provided with two electric terminals, said plug having a passage extending through it and terminating adjacent to said terminals for supplying an inflammable liquid to said terminals and a closing device for the outer end of said passage, substantially as described.

5. An igniting device comprising two electric terminals, one of said terminals being provided with a passage extending through the same from the outside of the plug to a point adjacent to the other terminal for supplying a highly-inflammable material to said terminals, substantially as described.

6. An igniting device comprising among its members two electric terminals adapted to produce a spark between them within the ignition-chamber of an explosive-engine, one of said terminals extending outside of the engine and being provided with a passage extending longitudinally through it for an inflammable liquid, said passage extending from a point outside the engine to a point adjacent to the other terminal, substantially as described.

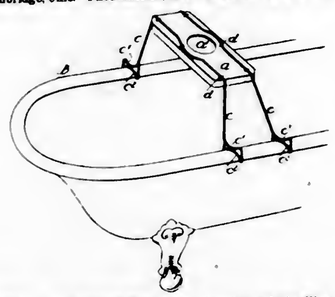
7. An igniting device for explosive-engines comprising among its members a stationary electrode provided with a passage through it for a highly-inflammable fluid, a movable electrode adapted to engage said stationary electrode adjacent to the delivery end of said passage, and a closing device for the outer end of said passage, substantially as described.

8. In an igniting device, the combination with the plug, provided with a passage for the stationary electrode, and a cylindrical extension on the outside of said plug surrounding the end of said passage, the said electrode being provided with an enlarged portion engaging the plug on its inner side, an insulating-packing in said passage surrounding the electrode, a securing-nut on said electrode within said cylindrical extension, an insulating-cover surrounding said electrode and closing the outer end of said extension and means for securing said cover in position and a movable electrode mounted in said plug, substantially as described.

9. In an igniting device the combination with the plug, provided with a passage for the stationary electrode, a conical recess at each end of said passage and a cylindrical extension surrounding one of said recesses, on the outside of the plug, of a stationary electrode provided with a cone for engaging the inner of said recesses, a conical washer on said electrode engaging the outer recess, an insulating-packing surrounding said electrode, a nut on said electrode within said extension engaging said washer, an insulating cover for said extension surrounding said electrode, a nut on said electrode for holding said cover in place and the movable electrode mounted in said plug, substantially as described.

10. In an igniting device the combination with the plug, of a movable electrode mounted therein, the stationary electrode extending through said plug and provided with a passage for inflammable fluid extending through the electrode from a point outside the plug to a point adjacent to the point of contact between said electrodes on the inner side of said plug, and a cock for controlling said passage, substantially as described.

642,168. ATTACHMENT FOR BATH-TUBS. ADDISON T. SMITH, Cambridge, Ohio. Filed June 15, 1899. Serial No. 720,616. (No model.)



Claim.—1. An attachment for bath-tubs and the like, comprising an invertible shelf provided with supporting-arms each arm having at its end the double hook portions *c c'* oppositely disposed and conforming to and adapted to hook over the edge of the tub or the like, whereby the shelf may be securely positioned below the edge to afford a seat, or securely placed in inverted position above the edge to afford a stand for a bowl or other vessel.

2. An attachment for bath-tubs and the like, comprising a shelf having a depression in one of its sides to receive the base of a bowl or other vessel, supporting-legs for the shelf formed of wire having the offsets as described the legs at their ends being provided with oppositely-disposed hook portions adapted to rest on the edge of the tub and to engage the sides of said edge to prevent transverse movement whereby the shelf may be positioned below the edge to afford a seat or inverted to bring it above the edge to afford a stand for a bowl or other vessel.

642,169. GROUNDING-SHOE FOR ELECTRIC WIRES. THOMAS H. STOKES, Lincoln, Ill. Filed June 12, 1899. Serial No. 720,312. (No model.)



Claim.—1. A grounding device for an electric wire, comprising a shoe sharpened at its lower end and having a transverse hole for receiving a grounding-wire, substantially as specified.

2. A grounding device for an electric wire, comprising a shoe pointed at its lower end, the said shoe having a longitudinal channel at one side, a recess at the other side, and a hole connecting the recess and the channel, substantially as specified.

3. A grounding device for an electric wire, comprising a shoe having a sharpened or pointed end, and having a socket at its upper portion, the said shoe also having at one side a longitudinal channel and at the opposite side a recess, and a transverse hole connecting the recess and channel, substantially as specified.

642,170. SPLIT NUT. LEROY S. STARRETT, Athol, Mass. Filed Nov. 3, 1897. Serial No. 657,289. (No model.)

Claim.—1. The two-part nut described provided with the transversely-elastic annular washer F, secured to and embracing both sections of the nut, and forming a fulcrum, hinge, separator and spring therefor, the head of said nut having a thin integral flange *e* infolding said washer substantially as set forth.

2. The described split nut formed of two members each having the parts D E *e*, in combination with the thin, elastic, unperforated annulus F arranged transversely around the part D, between the parts E and *e*, substantially as set forth.

3. The threaded stem C, the split nut D E *e* with its members tapered, internally threaded, and reamed to engage with and move freely along said stem, and the transversely-elastic washer F, enfolded by the flange *e*, in combination with the hardened, sliding cap or collar G having a tapering socket to receive the tip of the nut and close its threads upon the stem, substantially as set forth.



642,171. ELEVATOR-BUCKET. MAXIMILIAN M. SUPPER, Elyria, Ohio. Filed Nov. 7, 1899. Serial No. 736,178. (No model.)



Claim.—1. An elevator-bucket having a guard extension telescopically engaging its upper portion, substantially as described.

2. An elevator-bucket having a guard extension telescopically engaging its upper portion, and means for effecting a lifting engagement between said extension and the bucket, substantially as described.

3. An elevator-bucket having a cylindric open-end guard telescopically engaging its upper portion and having a lifting connection therewith, and a hoisting bail or loop on said guard, substantially as described.

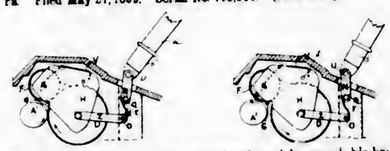
4. An elevator-bucket, having a cylindric open-end guard telescoping its upper portion, and means for connecting a hoist-chain to said extension, substantially as described.

5. The combination with an elevator-bucket having an exterior rim at its upper portion, of a cylindrical guard extension telescoping the upper portion of said bucket and having an internal bottom flange for engagement with the said rim, and means for connecting a hoist-chain to said extension, substantially as described.

6. The combination with an elevator-bucket and angle-plates secured to its upper portion and forming a surrounding rim, of a cylindric open-end guard extension telescoping the upper portion of said bucket, an angle-plate secured within its lower portion for engagement with the said rim, and means for connecting a hoist-chain to the said extension, substantially as described.

7. The combination with an elevator-bucket, of a cylindric open-end guard extension telescoping the bucket and having a lifting engagement therewith, a cross-bar secured across the upper end of said extension, and a loop secured to said cross-bar, substantially as described.

642,172. CARPET-SWEEPER. CHARLES C. SWEITZER, Mishawaka, Ind., assignor, by direct and mesne assignments, of three-fourths to W. S. Hemperley, Harrisburg, and Charles R. Harris, Williamsport, Pa. Filed May 27, 1899. Serial No. 718,580. (No model.)



Claim.—1. In a sweeper, the combination with a revoluble brush, of a wheel in the sweeper adapted to engage the surface to be swept, another wheel in the sweeper in engagement with said first-mentioned wheel and means for throwing either of said wheels into engagement with the brush to revolve the latter.

2. In a sweeper, the combination with a revoluble brush, of a frame disposed in proximity to the brush, two wheels revolubly mounted in said frame and engaging each other, one adapted to engage the surface to be swept, and means for throwing one or the other of said wheels into engagement with the brush to turn the latter.

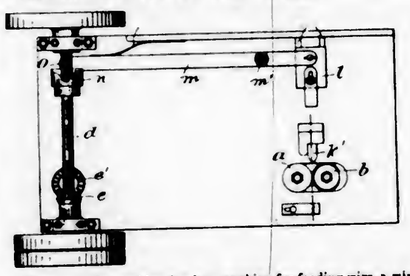
3. In a sweeper, the combination with a body, of a brush revolubly mounted in the body, a frame pivotally supported in the body, two wheels revolubly mounted in the frame in engagement or mesh with each other and one of said wheels adapted to engage the surface to be swept, a link pivotally connected to the frame, another link pivotally connected to the body, a spring connecting said links, and a handle connected to the last-mentioned link so that when the handle is thrust in one direction it will operate the frame to throw one or the other of the wheels into position to actuate the brush.

4. In a sweeper, the combination with a body and a revoluble brush, of a frame pivotally mounted in the body having notches therein, a cross-bar disposed in said notches, links connecting said cross-bar with the pivotal support of the frame, wheels revolubly mounted in the frame, and means for moving said frame so as to throw one of said wheels into engagement with the brush to revolve the latter.

5. In a sweeper, the combination with a body, of a brush revolubly mounted in said body comprising a cylindrical shaft, a central friction-wheel on said brush, brushes around the shaft, the brushes on the end and central portion of the shaft made longer than the rest and project beyond the ends thereof and inclosing the friction-wheel, and the periphery of the completed brush made smooth to engage a broad surface of ground, and means in said body for engaging the friction-wheel to revolve the brush.

6. In a carpet-sweeper, the combination with a body, and a brush revolubly mounted therein, a spring-rod adjustably mounted in the body, a frame pivotally supported on said rod, wheels revolubly mounted in said frame and means for throwing one of said wheels into engagement with the brush to revolve the same.

642,173. WIRE-FEED. HENRY TETLOW, Manchester, England. Filed June 5, 1899. Serial No. 719,408. (No model.)



Claim.—1. In combination in a machine for feeding wire, a wire-reel, feeding-rolls, one of said rolls having a portion adapted to engage directly with the wire in its feeding action, and an adjustable portion coacting with the other roll to vary the feed.

2. In combination in a machine for feeding wire, a wire-reel and two feed-rolls, one of said rolls having a concentric portion adapted to engage the wire in the feeding action an eccentric part below said concentric portion and an adjustable portion coacting with said eccentric portion and the other roll to vary the feed of the wire.

3. In combination in a machine for feeding wire, a wire-reel, feed-rolls adapted to feed at each operation a length of wire in excess of the amount required and means adapted to return the excess, substantially as described.

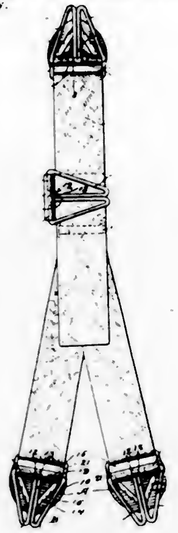
4. In combination in a machine for feeding wire, feed-rolls, and a reciprocating stop adapted to control the wire fed by said rolls, substantially as described.

5. In combination in a wire-feeding machine, two feed-rolls adapted to clamp the wire in feeding the same, means whereby said rolls are separated to release the wire and a stop adapted to reciprocate toward the rolls during their separation to return any excess of feed.

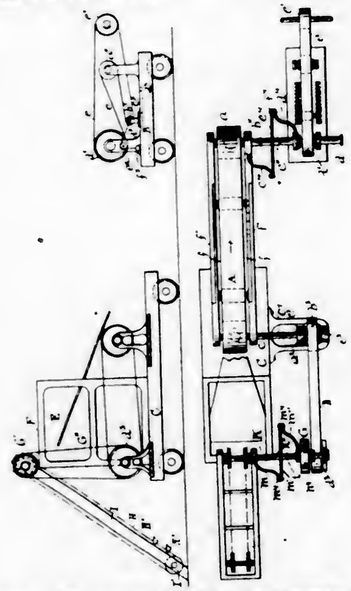
642,174. CLASP. PHILO B. TIBBLES, New York, N. Y. Filed June 29, 1899. Serial No. 722,278. (No model.)

Claim.—1. A clasp comprising a member A made from sheet metal and a member B made from wire, said member A having eyes 11 with an opening 12 having a wall 13 between them and said member B consisting of a spring-tongue the end of which lies in opening 12 and engages the wall and side pieces 20 having ends 21 which engage the eyes, the tongue and the side pieces normally lying in the same plane but the tongue being sprung out of the plane of the side pieces when the free ends of the members are separated whereby the members are caused to grasp and hold a garment firmly.

2. A clasp comprising a member A made from sheet metal and having eyes 11, opening 12 with wall 13, and teeth formed from the metal of the plate and extending obliquely outward from the plate in the opposite direction to the strain in use and a member B consisting of a spring-tongue lying in opening 12 and engaging the wall, and side pieces having ends 21 which engage the eyes, said tongue and side pieces lying normally in the same plane but the tongue being turned out of the plane of the side pieces by separation of the free ends of the members so that the clasp is caused to engage and hold a garment firmly.



642,175. EXCAVATING APPARATUS. JOHN TITUS, Oyster Bay, and WILLIAM TITUS, North Hempstead, N. Y. Filed Nov. 29, 1898. Serial No. 697,814. (No model.)



Claim.—1. The combination with a movable excavating apparatus, of a movable platform, a drum carried thereon, a drum independent of the platform, a frame for carrying the two drums constructed with side pieces arranged to move longitudinally upon each other, idler-pulleys carried by said frame, and a carrier-apron carried by the drums and looped around the idler-pulleys so that its carrying length may be varied by the shortening or lengthening of the frame, substantially as and for the purposes set forth.

2. The combination with a movable excavating apparatus, of a drum, a standard for carrying said drum and horizontal side pieces, *f*, provided on said standard, a movable platform, a standard on said platform, a drum carried by said standard, horizontal side pieces, *f*, provided on said standard and arranged to cooperate with the corresponding side pieces of the other standard, a movable bracket, d^3, an idler-pulley carried by said bracket, an idler-pulley provided on the opposing side of the frame, and a carrier-apron upon the drums and looped about the two idler-pulleys, the whole constructed and arranged substantially as and for the purposes herein set forth.

3. The combination with a movable excavating apparatus, of drums adjustable at variable distances apart, idler-pulleys also adjustable at variable distances apart, a carrier-apron carried by the drums and looped about the idler-pulleys, an independent shaft, *d*, for actuating that one of the drums which gives motion to the carrier-apron, a universal joint connecting said shaft with said drum-actuating shaft, an arm extended from the standard or support of the drum which actuates the carrier-apron, a similar arm extended from the support of the shaft, *d*, and a bar which loosely connects the said arms, substantially as and for the purposes herein set forth.

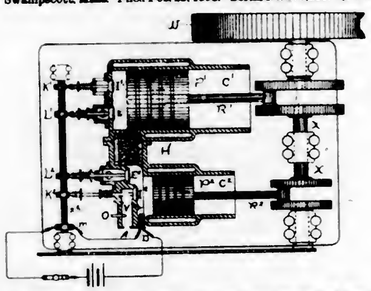
4. The combination of an endless-chain excavating apparatus, a traveling platform which supports the upper end thereof, a driving-shaft, G, provided with a suitable pulley at the said upper end of the excavating apparatus and arranged to transmit motion thereto, a pulley, d^3, provided to the platform, a belt connecting said pulley with the pulley of the driving-shaft, G, a shaft, n^4, connected by a universal joint and means for operating the shaft, n^4, and consequently the excavating apparatus in concert with the carrier-apron, A, substantially as herein set forth.

5. The combination of an endless-chain excavating apparatus, a traveling platform which supports the upper end thereof, a driving-shaft, G, provided with a suitable pulley at the said upper end of the excavating apparatus and arranged to transmit motion thereto, a pulley, d^3, provided to the platform, a belt connecting said pulley with the pulley of the driving-shaft, G, a shaft, n^4, connected by a universal joint, a carrier-apron, drums for supporting and operating the same a shaft, *c*, for actuating one of said drums, a shaft, d^2, connected with the shaft, *c*, with a universal joint and a belt, D, which connects the pulley, b^2, with the pulley of the shaft, d^2, all substantially as and for the purposes herein set forth.

6. The combination of an endless-chain excavating apparatus, a traveling platform which supports the upper end thereof, a driving-shaft, G, provided with a suitable pulley at the said upper end of the excavating apparatus and arranged to transmit motion thereto, a pulley, d^3, provided to the platform, a belt connecting said pulley with the pulley of the driving-shaft, G, a shaft, n^4, connected by a universal joint, an arm, *m*, provided to the top of the frame of the excavating apparatus, a similar arm provided to the bearing of the shaft, d^3, and a bar, *m'*, which connects the arm, *m*, with the arm, m^2, all substantially as and for the purposes herein set forth.

7. The combination of an endless excavating apparatus, a movable platform supporting the same, a shaft, belts and pulleys for transmitting motion thereto, a driving-shaft connected by a universal joint with the said shaft, a drum supported upon a movable platform, a drum independently supported, idler-pulleys arranged in connection with said drums, an endless carrier-belt carried by said drums and looped about the idler-pulleys, a shaft connected by a universal joint with the shaft which gives motion to the drums and an endless belt for simultaneously communicating motion to the mechanism which operates the endless carrier-belt, all substantially as and for the purposes herein set forth.

642,176. INTERNAL-COMBUSTION ENGINE. ELIHU THOMSON, Swampscott, Mass. Filed Feb. 23, 1898. Serial No. 671,239. (No model.)



Claim.—1. In a gas or oil engine, the combination of two cylinders, into one of which a fuel charge is indrawn and compressed, and

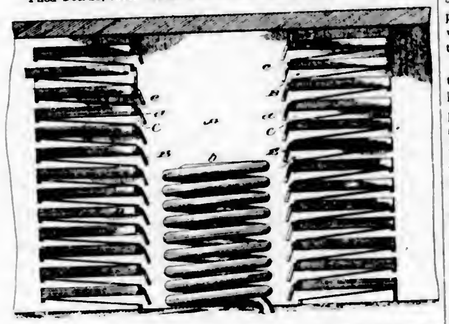
in the other of which an air charge is indrawn and compressed, of a passage between the two lined with fire-resisting material, with spaces through the refractory material for the passage of gases, or exchange of charges between the cylinders, substantially as described.

2. In a gas or oil engine, in combination with a fuel-mixture cylinder and an air-cylinder, of a heated transfer-passage, and means for causing the transfer of the fuel charge from the fuel-cylinder to the air-cylinder, at or about the conclusion of the compression-stroke, substantially as described.

3. In a gas or oil engine, the cylinder and piston moving therein, suitable openings for indrawing a mixture of gaseous fuel and air in said cylinder; a second cylinder and piston operating synchronously or nearly synchronously with the first, and openings for admitting a charge, substantially all air to the second cylinder, a passage joining the two cylinders filled with refractory packing with interstices therethrough, the clearance in the fuel-cylinder being made less than that in the air-cylinder whereby upon compression a fuel charge is forced through the refractory packing and burned; suitable exhaust-valves and mechanism for operating the same for exhausting the gases after the power-stroke, substantially as described.

4. In a gas or oil engine, a larger cylinder, with a piston working therein, the stroke of which provides a definite clearance in said cylinder; a smaller cylinder a piston working therein, but with little or no clearance, said pistons being either simultaneously moved in synchronism or the piston of the smaller following the larger through a definite angle, as described; means such as a suitable inlet-valve, operated by proper mechanism, and fuel-passages for filling the smaller cylinder with air mixed with combustible during its intake-stroke; means for simultaneously filling the larger cylinder with air during its intake-stroke, after which, on the compression-stroke, the compression of the charges takes place, together with the transfer from the smaller to the larger cylinder through hot, refractory, material; and means for exhausting the charges from the cylinders at the conclusion of the power-stroke.

642,177. FRUIT-DRIER. EDWARD THOMPSON, Pasadena, Cal. Filed Dec. 23, 1898. Serial No. 700,123. (No model.)



Claim.—1. In a fruit-drying device the combination of a hot-air or dry-air chamber having ports, depending gravity valves or flaps normally covering the ports when the drawer is withdrawn, and perforated, laterally-movable, port-opening drawers or trays, substantially as described and shown

2. In a drying device having a hot-air or dry-air chamber, and a port communicating from said chamber and a valve for opening or closing the port to the air without the chamber, a laterally-movable, port-opening and port-closing drawer or tray, for holding the material to be dried, substantially as described and shown.

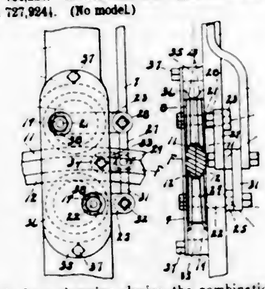
3. In a fruit-drying device the combination of the hot-air or dry-air port C, the laterally-movable drawer or tray D inserted in the port and having an attachment *d*, to graduate the current of air, and the drawer-controlled gravity-flap E, substantially as described and shown.

4. In a fruit-drying device the port C, drying drawer or tray D, projection *d*, and gravity-valve E, substantially as described and shown.

5. In a fruit-drier having a hot-air chamber and one or more trays or drying-compartments for holding the material to be dried, a valve interposed between the air-chamber and the interior of the compartment, said valve being adapted to be partially or wholly opened or closed by the adjustment of the tray to govern or control the quantity of air or heat admitted to the compartment.

6. In a fruit-drying device the combination of a hot or dry air chamber, ports opening from the chamber directly into the air without the chamber, perforated or sieve-bottomed trays to hold the fruit located in the ports so that the ports must discharge through or around the trays, and tray-controlled valves between the air-chamber and the trays, adapted to open as the tray is inserted in place, and close as the tray is withdrawn, substantially as described and shown.

642,178. CLAMPING DEVICE. JOHN R. THOMAS, Cincinnati, and HARRY S. SPENCER, Bond Hill, Ohio, assignors to the J. A. Fay & Egan Company, Cincinnati, Ohio. Original application filed Feb. 20, 1899, Serial No. 706,227. Divided and this application filed Aug. 21, 1899. Serial No. 727,924. (No model.)



Claim.—1. In a clamping device, the combination of a lever, with a tongue therefor, a receding face on the tongue receding transversely of its length and extending longitudinally of the tongue, a shoe for the tongue, a pivotal connection between the lever and the shoe, a face on the shoe receding oppositely to the tongue-face and constructed and arranged for approaching the tongue-face in a direction parallel to the axis of the shoe when clamping the lever and the tongue together, substantially as described.

2. In a clamping device, the combination of a lever, with a tongue therefor, a receding face on the tongue receding transversely of its length and extending longitudinally of the tongue, a shoe for the tongue, a pivotal connection between the lever and the shoe, a face on the shoe receding oppositely to the tongue-face and gradually approaching the tongue-face in a plane parallel to the axis of the shoe when taking against the tongue-face, and clamping the lever and the tongue together, substantially as described.

3. In a clamping device, the combination of a lever, with a tongue therefor, a receding face on the tongue receding transversely of its length and extending longitudinally thereof, a shoe for the tongue, a pivotal connection between the lever and the shoe, a face on the shoe receding reversely to the tongue-face and also mounted to gradually approach and recede from the tongue-face in a plane parallel to the axis of the shoe, for taking against the tongue-face and clamping the lever and tongue together, and a shifting link connecting with the shoe and extending adjacent to the handle on the lever, substantially as described.

4. In a clamping device, the combination of a lever, a tongue therefor, faces on the tongue receding from each other transversely of the tongue and extending longitudinally of the tongue, a shoe, a pivotal connection between the lever and the shoe for mounting the shoe eccentrically on the lever, faces on the shoe receding from each other oppositely to the tongue-faces, and converging toward each other, and constructed and arranged for contacting with the tongue-faces for clamping the lever and tongue together, substantially as described.

5. In a clamping device, the combination of a fixed part, a movable part, a shifting lever for adjusting the movable part with relation to the fixed part, a shifting link connecting with the shifting lever, a tongue, and a pair of clamping-shoes connecting with the shifting link, a pivotal connection for each of the shoes for eccentrically pivoting the shoes on the lever, oppositely-receding faces on the tongue and on each of the shoes, receding transversely of the length of the tongue and constructed and arranged for clamping the faces of the one between the faces of the other, and having the receding faces of each of the shoes arranged to converge along their length, one of the shoes taking against the one and the other shoe taking against the other edge of the tongue, substantially as described.

6. In a clamping device, the combination of a fixed part, a movable part, a shifting lever for adjusting the movable part with relation to the fixed part, a pair of clamping-shoes, a pivotal connection for each of the shoes for eccentrically pivoting the shoes to the lever, a tongue taking between the shoes, a clamping-face on each edge of the tongue and on each of the shoes, and constructed and arranged for clamping the faces on the edges of the tongue between the faces on the shoes, a shifting link, and a link between the shifting link and each of the shoes controlled by the shifting link, and constructed and arranged for clamping the lever and the tongue together, substantially as described.

7. In a clamping device, the combination of a fixed part, a movable part, a shifting lever for adjusting the movable part with relation to the fixed part, a pair of clamping-shoes, a pivotal connection for each of the shoes for eccentrically pivoting the shoes to the lever, a tongue taking between the shoes, oppositely-receding faces on the tongue and on each of the shoes receding transversely of the length of the tongue, and constructed and arranged for clamping the faces of the one between the faces of the other, a shifting link, a link rocking on the shifting lever and connecting with the shifting link and operated thereby, and a link between the rocking link and each of the shoes, controlled by the shifting link and the rocking link, constructed and arranged for clamping the lever and the tongue together, substantially as described.

8. In a clamping device, the combination of a fixed part, a movable part, a shifting lever for adjusting the movable part with relation to the fixed part, a shifting link, a pair of clamping-shoes, a tongue taking between them, a connection between each clamping-shoe and the shifting link, a contact-face on each shoe for contacting with the tongue, a pivotal connection for one of the shoes with the shifting lever between the connection of the shoe with the shifting link and its contact-face for the tongue, and a pivotal connection for the other shoe with the shifting lever constructed and arranged with its contact-face for the tongue between its pivotal connection with the shifting lever and its connection with the shifting link, constructed and arranged for clamping the shoes against opposite sides of the tongue from opposite directions, substantially as described.

9. In a clamping device, the combination of a fixed part, a movable part, a shifting lever for adjusting the movable part with relation to the fixed part, a shifting link; a pair of clamping-shoes; a tongue taking between them; a rocking link pivoted to the shifting lever; a link pivoted to each clamping-shoe; and a common pivot for the rocking link, a link for each clamping-shoe and the shifting link; a contact-face on each shoe for contacting with the tongue; a pivotal connection for one of the shoes with the shifting lever between the connection of the shoe with the shifting link and its contact-face for the tongue; and a pivotal connection for the other shoe with the shifting lever constructed and arranged with its contact-face for the tongue between its pivotal connection with the shifting lever and its connection with the shifting link; constructed and arranged for clamping the shoes against opposite sides of the tongue from opposite directions, substantially as described.

642,179. PIN CARD OR TAG. CHARLES R. TROUT, Philadelphia, Pa., assignor to the Reyburn Manufacturing Company, same place. Filed Apr. 27, 1899. Serial No. 714,633. (No model.)



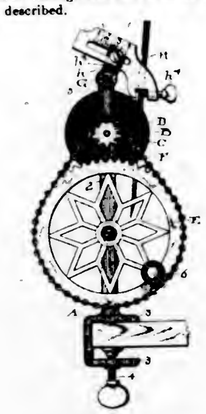
Claim.—A double-pronged pin for attachment to a card or tag, having end prongs, a central retaining-loop, and connecting members between each prong and the loop, the prongs, connecting members and loops all being in the same plane, the prongs and loop being adapted to be passed through the card or tag from the face thereof, and the loop being adapted to be bent over the edge and down upon the face thereof, substantially as described.

642,180. SCISSORS OR KNIFE GRINDER. WILLIAM H. TWIST, Cleveland, Ohio, assignor of one-half to G. V. Ashdown, same place. Filed May 24, 1899. Serial No. 718,072. (No model.)

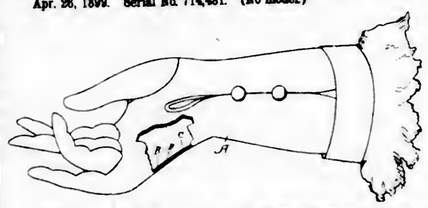
Claim.—1. The standard having an angle-arm at one side, a shaft in said standard and arm and a grinding-wheel thereon, in combination with a rod exteeding through the top of said standard and arm parallel to the said shaft and slidably supported therein and a blade-holding arm engaged on said rod and constructed to support the blade in varying relations to the grinding-wheel, and means to rotate the grinding-wheel in either direction, substantially as described.

2. The standard constructed to be removably clamped to a support and the grinding-wheel and its shaft, and means to turn the wheel supported on the standard, in combination with a rod slidably and rotarily supported in said standard above and parallel to said shaft, a post fixed to the said rod, and an arm for holding the blade to be sharpened adjustably secured to the said post, substantially as described.

3. In a device substantially as described, means for holding and guiding a blade to be sharpened, comprising a supporting-rod, a post fixed to said rod and an arm having clamping-jaws and a thumb-screw to engage the blade to be sharpened and a slot lengthwise thereof and a screw through said slot to fasten the arm to said post, substantially as described.



642,181. GLOVE. REUBEN WARNER, Jr., St. Paul, Minn. Filed Apr. 26, 1899. Serial No. 714,481. (No model.)



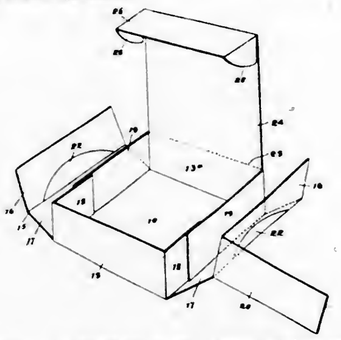
Claim.—1. As an improved article of manufacture, a kid glove having a lining, consisting of an absorbent fabric C, and a moisture-proof film D, as shown, and for the purposes specified.

2. A kid glove having on its inner side, first a film of moisture-proof material and then a lining of vegetable textile fabric, for the purposes specified.

3. A kid glove, having a lining, consisting of an absorbent and moisture-proof vegetable fabric suitably attached to the glove, for the purposes specified.

4. A kid glove, with a thin absorbent lining of vegetable fabric coated with rubber, for the purposes specified.

642,182. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor, by mesne assignments, to Henry S. Washington, Locust, and John S. W. Thompson, Morristown, N. J. Filed May 20, 1899. Serial No. 717,664. (No model.)



Claim.—1. A folding box having a bottom, end pieces connected to opposite sides thereof, side pieces connected to the two remaining sides of the bottom and adapted to be folded over upon themselves to form the box sides, and a locking-strip connected to the outer por-

tion of one of the side pieces and adapted to fold into the box at right angles to the side pieces and parallel with and against one of the end pieces, substantially as described.

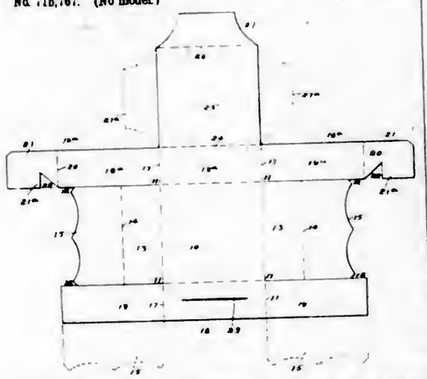
2. A folding box comprising a bottom, end pieces connected to opposite sides thereof and provided with end flaps adapted to fold inward at angles to the end pieces, side pieces connected to the two remaining sides of the bottom, said side pieces being adapted to fold in the middle and be doubled over the flaps of the end pieces, and a locking-strip connected to one of the side pieces near the outer part thereof and adapted to fold inward at right angles to the side pieces and lie parallel with and against one of the end pieces, substantially as described.

3. A folding box comprising a bottom, end pieces connected to opposite edges thereof and provided with flaps adapted to turn inward at angles to the end pieces, side pieces connected to the two remaining sides of the bottom and adapted to be doubled over the aforesaid flaps, of the end pieces, and interned flaps cut from the said side pieces and adapted to project laterally into the box, substantially as described.

4. The combination with the box and the folding end pieces having inwardly-turnable flaps, of the side pieces connected to the bottom and adapted to be doubled over the said flaps, and a locking-strip connected to the outer part of one of the side pieces and adapted to fold inward at right angles to the side pieces and flat against one of the end pieces so as to extend from side to side of the box between the doubled side pieces, substantially as described.

5. A folding box comprising a bottom, end pieces connected to opposite edges thereof and provided with inwardly-turnable end flaps, side pieces connected to the two remaining edges of the cover and adapted to be doubled over the flaps of the end pieces, a locking-strip extending from one side piece to the other, a cover connected to one of the end pieces and provided with a terminal flap to overlap the box-front, and locking-wings at the end of the said front flap, said wings being adapted to enter the sides of the box, substantially as described.

642,183. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor, by mesne assignments, to Henry S. Washington, Locust, and John S. W. Thompson, Morristown, N. J. Filed May 13, 1899. Serial No. 716,767. (No model.)



Claim.—1. A folding box comprising a bottom having at opposite edges side pieces adapted to turn upward perpendicular to the bottom, and oppositely-arranged end pieces connected to the bottom and adapted to fold perpendicular thereto, one end piece having side strips projecting from the ends and adapted to fold inward against the first-mentioned side pieces and the second end piece having side strips to fold in against the first and second side pieces and strips and terminating in flaps carrying tongues to engage the slot of the end piece, the second end piece having also connected thereto a top or cover adapted to fold inward over the box-top and provided with a tongue to engage the aforesaid slot, substantially as described.

2. In a folding box, the combination with the bottom having folding side pieces on opposite edges, of the folding end pieces connected to the two remaining sides of the bottom, one end piece carrying side strips adapted to turn inward against the side pieces, the other end piece carrying side strips to fold inward against the first-mentioned side strips, and means as the tongue-flaps on the second side strips and the slot in the end piece to lock the above-mentioned parts together.

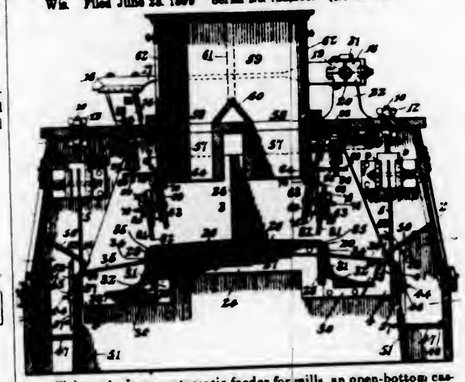
3. A folding box comprising a bottom having folding side pieces at two opposite edges, folding end pieces at the two opposite edges of the bottom, one of said end pieces being slotted horizontally, side strips connected to the slotted end pieces and adapted to fold inward against the side pieces, a second pair of side strips connected to the whole end piece and adapted to fold inward against the first side strips, flaps at the ends of the second side strips adapted to fold around against the box front, said flaps carrying tongues to engage the slot of the end piece, and a top for the box, substantially as described.

4. A folding box comprising a bottom having folding side pieces at two opposite edges, folding end pieces at the two remaining edges of the bottom, one of said end pieces being slotted, side strips connected to the slotted end piece and adapted to fold inward against the side pieces, a second pair of side strips connected to the second end piece and adapted to fold inward against the first side strips, flaps at the ends of the second side strips to fold against the box front, said flaps having tongues thereon to enter the slot of the end piece, a top or cover connected to the whole end piece and adapted to fold inward over the box-top, and a tongue at the front edge of the cover, substantially as described.

5. The combination with the folding box having a slotted end piece, of the overlapping side strips extending from the opposite end of the box around to the slotted end thereof and provided with tongues to enter the aforesaid slot, substantially as described.

6. The combination with a folding box having a slotted end, of the side strips connected to the opposite end and adapted to fold around to the slotted end thereof, said side strips being cut under near the ends and on the under side to produce tongues adapted to enter the aforesaid slot, substantially as described.

642,184. AUTOMATIC FEEDER. JOHN P. WEBBER, La Crosse, Wis. Filed June 23, 1899. Serial No. 722,206. (No model.)



Claim.—1. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted therein and provided with opposite open ends and feed-boards declining in reverse directions toward said ends, the outer ends of said feed-boards being provided with curved bevels and projecting beyond their supports to form seats immediately below, and screens adjustably and removably mounted in the opposite ends of the feed-pan and having their inner rails normally located directly under the said outer ends of the feed-boards, the outer rails of the said screens also having depending slotted holding devices to engage projections on the opposite ends of the feed-pan to maintain the said screens in fixed adjusted positions.

2. In an automatic feeder for mills, a casing having an open bottom, a feed-pan vibratingly mounted in the said casing and having opposite open ends, screens in the feed-pan adjacent the opposite open ends thereof, and adjustable, inwardly-inclined deflectors supported in the ends of the casing above and adapted to be projected partially over the said screens.

3. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted in the casing and having opposite open ends, mote-boxes in opposite ends of the casing operatively related to the open ends of the feed-pan, and inwardly-inclined, adjustable deflectors located above the said mote-boxes and adapted to be partially projected over the adjacent open ends of the feed-pan.

4. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted therein and having opposite open ends, screens located in the opposite end portions of the said feed-pan, and inwardly-inclined, adjustable deflectors adapted to be partially projected over the said screens and having dust-cloths on the inner edges thereof.

5. The combination with a feed chute or box, in a feeder for mills, of a regulating device comprising a gate having a rocking movement, and yielding devices in operable relation to the said gate, one of said devices having a continual contact with a portion of the gate and exerting a downward pressure thereon to resist upward movement of the gate and the other device normally out of contact with any part of the gate and operating to increase the resistance to the upward movement of the gate beyond a predetermined distance.

6. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly and adjustably mounted in said casing and having opposite open ends, screens adjustably and movably mounted in the said opposite ends of the feed-pan, and mote-boxes in the opposite ends of the casing, having guards rising therefrom, with the inner edges cut away to facilitate the removal and adjustment of the said screens.

7. In an automatic feeder for mills, a casing having a feed chute or box extending downwardly therein, a longitudinally-vibrating feed-pan mounted in the casing under the feed chute or box, a regulating-gate movably and adjustably connected to the outer portion of the feed chute or box, a resilient device for normally holding the gate down against a predetermined pressure or feed, and an auxiliary yielding device adapted to coact with the said resilient device to limit the upward or opening movement of the gate.

8. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted in the said casing, a feed chute or box depending into the said pan, a regulating-gate movably attached to the outer portion of the said feed chute or box and comprising a freely-movable main gate or support and an outer regulator thereon, and adjusting-shoes interposed between the opposing faces of the main gate-support and regulator, the said shoes having straight faces bearing against one of the latter parts and inclined faces bearing against the other.

9. In an automatic feeder for mills, an open-bottom casing, a longitudinally-vibrating feed-pan arranged within the casing and having a feed-board, a feed chute or box above the feed-board, a rock-shaft on the outer portion of the said feed chute or box, and a gate attached to said rock-shaft and comprising a main gate-support having slides thereon with beveled faces and a regulator provided with shoes to adjustably engage the said slides and operating to project the said regulator away from the support.

10. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted in said casing and having a feed-board therein, a feed chute or box depending into the casing over the feed-board of the pan, a rock-shaft attached to the outer portion of the said feed chute or box, arms extending outwardly from the said shaft and having engaging terminals, a regulating-gate connected to the shaft, posts depending from the casing through the engaging terminals of the said arms, and springs on the said posts, one of which exerts a downward tension to hold the gate against a predetermined feed-pressure, and the other serving as a stop to limit the opening movement of the said gate.

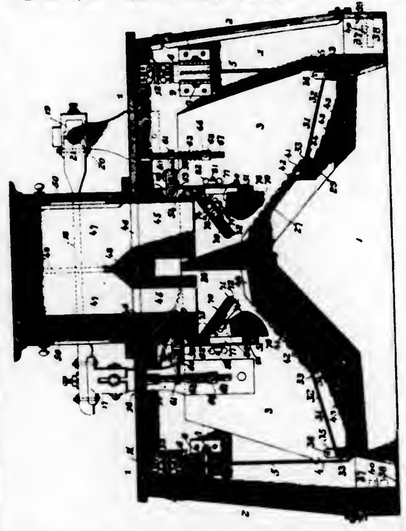
11. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted therein and having a feed-board, a feed chute or box depending from the casing over the said feed-board, a movable supporting device on the outer portion of the said feed chute or box, a gate connected to the said supporting device and comprising a main gate-support, a back adjusting-board, inclined slides at opposite portions of the said gate-support having screw-stems projecting outwardly therefrom, a regulator provided with inclined shoes to engage the said slides, and openings through which the said screw-stems extend, and yielding devices for controlling the opening movement of the gate.

12. In an automatic feeder for mills, an open-bottom casing, a feed-pan vibratingly mounted therein and having a feed-board declining toward one end and provided with an outer curved bevel edge, a feed chute or box above and leading to the said feed-board, a gate having a freely-movable suspension from said feed chute or box and provided with an outer adjustable member having an inner face movable inwardly toward and outwardly from the remaining portion of the gate and thereby made shiftable toward or away from the outer curved bevel edge of the said feed-board, and shoes interposed between the said member and the adjacent part of the gate having straight faces on one side and beveled faces on the opposite side.

13. In an automatic feeder for mills, a casing having an open bottom, a feed-pan vibratingly and adjustably mounted therein and provided with a feed-board, a feed chute or box leading to the said feed-board, movable arms on said feed chute or box, a main gate-support connected to said arms and provided with slides having outer beveled faces and outstanding screw-threaded stems, gates on the said slides, a regulator having slotted shoes to engage the said slides and receive the screw-stems, and clamping devices to hold the said stems.

14. In an automatic feeder for mills, a casing having an open bottom and an end door or access opening, a longitudinally-vibrating feed-pan arranged in the casing and having a feed-board, a screen at the end of the pan, to which the said feed-board leads, a regulating-gate adjustably suspended over the outer portion of the feed-board, a mote box below the outer end of the pan and provided with a hinged sieve-bottom, and a deflector having an inward inclination and adjustably mounted above the plane of the outer end of the said screen.

642,185. AUTOMATIC FEEDER FOR MILLS. JOHN P. WEBBER, La Crosse, Wis. Filed June 13, 1896. Serial No. 595,476. (No model.)



Claim.—1. In an automatic feeder for mills, the casing, a longitudinally-vibrating feed-pan arranged within the casing, swinging spring-metal hanger-straps secured at their lower ends to the corners of said pans, angled clamp-plates secured in pairs to the inner sides of the casing and provided therein with slots, adjustable supporting-blocks fitted on the upper ends of said straps, bolts passed transversely through said blocks and the upper ends of the spring-straps therein and having their opposite ends working in the slots of said angled clamp-plates, and an adjusting screw-and-nut connection with each of said blocks, substantially as set forth.

2. In an automatic feeder for mills, an open-bottomed casing, a vibrating feed-pan supported to swing longitudinally within the casing and provided with inclined imperforate bottom boards declining from both sides of the center thereof, and depressed step extensions at the lower edges of said bottom boards, and removable separating-sieves arranged over said step extensions beyond the lower edges of said inclined bottom boards and provided with inner and outer frame-strips the inner strips being detachably secured to the step extensions immediately below the lower edges of the inclined bottom boards, and the outer strips having at their terminals short plates 35, detachably secured to the sides of the pan directly at the ends thereof, substantially as set forth.

3. In an automatic feeder for mills, an open-bottomed casing, a longitudinally-vibrating feed-pan suspended within the casing and provided with opposite parallel sides, a central transverse partition-board, opposite inclined bottom boards having transversely-corrugated faces formed with short feed-grooves in the ridges thereof, depressed inclined distributing-boards arranged in front of and below the plane of said inclined bottom boards, and separating-sieves arranged over said distributing-boards, substantially as set forth.

4. In an automatic feeder for mills, the casing, a longitudinally vibrating or swinging feed-pan suspended within the casing and having a central upright partition-board, opposite sharply-inclined bottom boards provided with a longitudinally-corrugated surface having grooves intersecting the corrugations, upper feed-board sections arranged directly adjacent to and at both sides of the partition-board, and inclined distributing-boards disposed below the plane of and beyond the corrugated bottom boards, said distributing-boards being provided with a series of longitudinal, wide flat riffles, substantially as set forth.

5. In an automatic feeder for mills, a casing, a longitudinally vi-

brating or swinging feed-pan suspended within the casing and having a central upright partition-board, opposite sharply-inclined bottom boards provided with a longitudinally-corrugated surface, having grooves intersecting the corrugations, upper feed-board sections arranged directly adjacent to and at both sides of the partition-board and provided on their upper sides with a series of short feed-strips having flared spaces between their front ends, said feed-strips being of an inverted-V shape and tapered or narrower between their front ends, to form flared spaces therebetween, a riffled distributing-board arranged below the plane of and extending beyond the front lower edges of said inclined bottom board, and means for feeding stock into the pan at both sides of the partition-board

6. In an automatic feeder for mills, the casing, a vibrating feed-pan suspended within the casing and provided with an inclined bottom board, a feed box or chute arranged within the top of the casing over the pan, and a self-adjusting feed-regulating gate suspended from the front side of said feed box or chute and provided with an adjustable evener-block working over said inclined bottom board and having a widened lower rounded side, substantially as set forth.

7. In an automatic feeder for mills, an open-bottom casing, a longitudinally-vibrating feed-pan having an inclined bottom board and a feed-board section at the upper edge of said bottom board, a stationary feed box or chute projecting into the pan directly above said feed-board section, and a self-adjusting feed-regulating gate suspended from the front side of said feed box or chute, and provided with an adjustable evener-block having a wide lower side 79 and working over the inclined bottom board, and at its inner side with an inclined back board disposed directly below the lower open side of the feed box or chute and intersecting the vertical plane of the latter, substantially as set forth.

8. In an automatic feeder of the class described, the casing, a longitudinally-vibrating feed-pan suspended within the casing and having an inclined bottom board, a stationary feed box or chute depending within the pan above the higher portion of the inclined bottom board, a self-adjusting feed-regulating gate suspended from the front side of the feed box or chute and provided at its rear side with an offstanding angularly-disposed pressure back board arranged below the lower open side of the feed box or chute, a spring-adjusted hanger for said gate, a gage-slat adjustably fitted to one side of said pressure back board, and an evener-block adjustably fitted to one side of the gate proper and having a wide rounded lower side 79, substantially as set forth.

9. In an automatic feeder of the class described, the casing, a vibrating feed-pan suspended within the casing and having an inclined bottom board, a stationary feed box or chute depending within the pan above the higher portion of the inclined bottom board, a self-adjusting feed-regulating gate suspended from the front side of the feed box or chute and provided with a hand-hole and at its inner side with an offstanding inclined back board disposed below the lower open side of the feed box or chute, a spring-adjusted hanger for the gate, a gage-slat slidably fitted to one side of the back board, thumb-nut and bolt-clamping devices for securing said slat in position and exposed for manipulation through said hand-hole, and a rounded evener-block adjustably fitted at one side of the gate proper and working over said inclined bottom board, substantially as set forth.

10. In an automatic feeder for mills, a casing, a longitudinally vibrating or swinging feed-pan suspended within the casing and having a central upright partition-board, oppositely-inclined bottom boards provided with a longitudinally-corrugated surface having grooves intersecting the corrugations, upper feed-board sections arranged directly adjacent to and at both sides of the partition-board and having feed-strips thereon, a riffled distributing-board arranged below the plane and extending beyond the front lower edges of said inclined bottom boards, and means for feeding stock into the pan at both sides of the partition-board.

642,186. RAILROAD-TIE AND FASTENING. FREDERICK C. WEISS and HENRY G. BURKHART, Altoona, Pa. Filed June 1, 1899. Serial No. 719,015. (No model.)



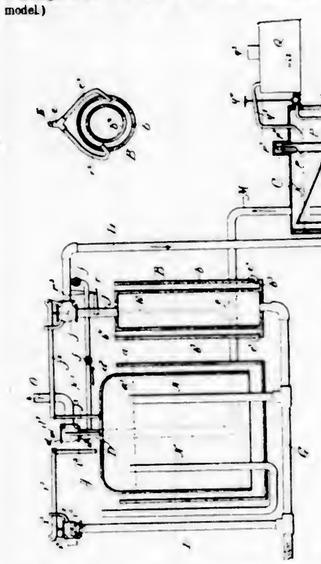
Claim.—1. A hollow railroad-tie having U-shaped sides and top and bottom plates, the sides extending partially inward in reverse position and providing the opening through the tie, and a two-part reinforcing-block in the tie each part having inwardly-extending portions and vertical sides and horizontal bolts passed through said vertical sides, as set forth.

2. A railroad-tie composed of opposite sides and top and bottom plates, the sides having a space between them to form an opening from end to end of the tie and the top plate provided with centrally-located longitudinally-extending flanges and opposite pairs of slots, and reinforce-blocks within the tie having vertical sides and inwardly-extending portions, and bolts passed horizontally through said sides, substantially as and for the purpose specified.

3. The combination of a hollow tie having pairs of slots adjacent the opposite ends, reinforce-blocks in the ties under the portions thereof between the slots, railroad-rails resting on the upper portions of the ties between the slots, and fastening-irons having parts thereof attached to the rails and depending portions extending through the slots and secured to the blocks.

4. The combination with ties having slots adjacent their ends and railroad-rails resting thereon between the slots, of fastening-irons adapted to extend across the joint of the rails and having legs depending through the slots of adjacent ties.

642,187. CARBURETING APPARATUS. ABRAHAM T. WELCH, Washington, D. C. Filed Jan. 21, 1895. Serial No. 535,713. (No model.)



Claim.—1. In a carbureting apparatus, the combination with a regulator and a carbureter, of pipes connecting the parts, and valves on the pipes operated by the movement of the regulator, the valves on two of the pipes being opened and closed in advance of the remaining one, substantially as described.

2. In a carbureting apparatus, the combination with a regulator, carbureter, and retort, of pipes connecting the parts, and valves on the pipes operated automatically at different intervals by the movement of the regulator, substantially as described.

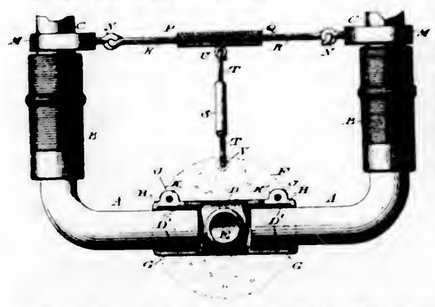
3. In a carbureting apparatus, the combination with a receiver, and a carbureter provided with a float, of means for supplying air to the regulator and to the carbureter, the said float serving to absorb any irregularity or variation of pressure in the air supplied to the carbureter, and mechanism for supplying oil to the carbureter and automatically stopping the supply when a predetermined amount has been fed, substantially as described.

4. In a carbureting apparatus, the combination with a retort, of air and gas supply pipes connecting therewith at the bottom, said pipes entering at opposite angles whereby to cause the rapid rotation and swirling of the products of combustion, substantially as described.

5. In a carbureting apparatus, the combination with a regulator and a carbureter, of pipes connecting the parts, valves on the pipes, and depending arms carried by the valves and located in the path of movement of the regulator, substantially as described.

6. The combination with a heater or retort, and a carbureting apparatus in communication therewith, of a regulator for supplying air to the retort, and mechanism actuated by the movement of the regulator to control the passage of air through the retort to the carbureter, substantially as described.

642,188. SPRINKLER. GEORGE W. WESTON and WILLIAM H. WESTON, Philadelphia, and MITCHEL ANCKER, Bristol, Pa. Filed Aug. 20, 1898. Serial No. 689,148. (No model.)



Claim.—1. In a sprinkler, a branch, a rose at one end thereof, a pliable sleeve at the other end thereof, a clip attachable to a faucet, and adjustable connections between said clip and rose.

2. In a sprinkler, a branch, a rose at one end thereof, a pliable sleeve at the other end thereof, attachable to a faucet, a clip adapted to be fitted on said faucet, and adjustable connections between said rose and clip, the latter being divided and its ends provided with a clamping-screw.

3. In a sprinkler, confluent branches, a coupling therefor, a rose on said coupling, clips attachable to faucets, a bridge attached to said clips, and a hanger attachable to said bridge and said rose.

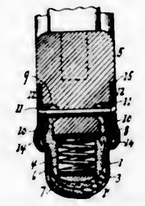
4. In a sprinkler formed of confluent branches and a rose thereon, a support for said branches consisting of an adjustable bridge attachable to faucets, and an adjustable hanger attachable to said bridge and said rose.

5. In a sprinkler, confluent branches, sleeves connectible with said branches and with faucets, a coupling for said branches and a rose on said coupling, in combination with clips attachable to said faucets, eyes on said clips, rods attached to said eyes, a buckle engaging said rods and additional rods connected with said buckle and said rose and a buckle engaging said additional rods.

6. The combination of a branch, a rose thereon, a sleeve in engagement with an end of said branch, a packing located in the upper portion of said sleeve, a collar or clip adapted to engage a faucet, a screw-eye connected with the ends of said collar, an eye on said rose and a buckle common to said eyes.

7. In a sprinkling device of the character stated, a plurality of branches A, sleeves B engaging the upper ends of said branches, a split T-coupling D for said branches, packing within said coupling at opposite ends thereof, means for compressing said coupling, a rose attached to a member E of said coupling, collars or clips adapted to engage faucets, screw-eyes engaging said collars, a buckle common to said eyes, and a buckle common to said rose and to said first-mentioned buckle.

642,189. WHEEL-TIRE. HENRY A. WHITING, New York, N. Y., assignor of one-half to Abednego Dewes, same place. Filed Mar. 2, 1899. Serial No. 707,514. (No model.)



Claim.—1. In combination, a felly having grooves formed in its sides; a flexible tire comprising a body portion and inwardly-extending side portions provided with internal ridges or beads formed to seat in the side grooves of the fellies, said body portion having external ridges or beads formed on its sides beyond the periphery of the felly; and rings clamped to the sides of the felly and bearing against the side portion of the tire to hold their internal ridges in the grooves of the felly, and having their outer edges extended and formed to embrace the external ridges of the tire.

2. In combination, a flexible tire having side portions extending inwardly from the body portion and exterior ridges or beads opposite the junctures of the side portions with the body portion; a felly upon which the tire is placed with its side portions against the sides of the felly; and clamping-rings secured to the side of the felly, bearing against the side portions of the tire and with its outer edge extending beyond the periphery of the felly to support the sides of the body of the tire and formed to embrace the exterior ridges on the body.

3. In combination, a felly having grooves formed in its sides; a flexible tire comprising a body portion and inwardly-extending side portions, the outer parts of the body and side portions consisting of comparatively hard material and the inner parts of the body and side portions of a softer and more elastic material for contact with the felly, said side portions being provided at their edges internally with ridges or beads formed to seat in the side grooves of the felly, the soft interior of the body having cells formed therein; springs located in these cells, arranged to play between the bottoms of the cells and the periphery of the felly; and clamping-rings secured to the sides of the felly and bearing against the hard exterior parts of the sides of the body and side portions of the tire.

642,190. LETTER-FILE. CLARENCE H. WILEY, Hartford, Conn. Filed Dec. 26, 1896. Serial No. 616,992. (No model.)



Claim.—1. In combination with a case having gusseted bottom and ends and partitions forming a plural number of compartments, a removable pocket consisting of two side pieces connected at one edge by a gusseted piece.

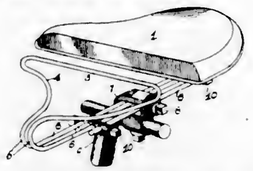
2. In combination with a case having gusseted bottom and sides and partitions forming a plural number of compartments, a removable pocket consisting of two side pieces connected at one edge by a gusseted piece, and with an index formed on an upper edge of the pocket.

3. In combination with a case having gusseted ends and bottom, partitions forming a plural number of compartments and a flap adapted to close the open edge thereof, a removable partition consisting of two side pieces connected at one edge by a gusseted piece.

4. In combination with a case having gusseted ends and bottom and partitions forming a plural number of compartments, a removable pocket consisting of two side pieces connected at one edge only by a gusseted piece.

5. In combination with a case having gusseted ends and bottom and partitions forming a plural number of compartments, a removable pocket consisting of two side pieces shorter in length than the distance between the inner edge of the gussets at the ends of the case, the side pieces of the pocket being connected at the bottom by a gusseted piece.

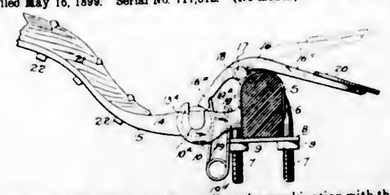
642,191. BICYCLE-SADDLE. JOHN S. WRIGHT, Duxbury, Mass. Filed Jan. 3, 1898. Serial No. 665,496. (No model.)



Claim.—1. A bicycle-saddle, consisting of two pads or seats, each pad supported by a single wire spring, comprising a rim to which the pad is fastened, the free ends of the wire being bent downwardly at the outer side of the seat or rim, midway between the front and rear of said seat or rim, thence extending inwardly to a clamp, to which they are adjustably fastened, substantially as described for the purpose specified.

2. A bicycle-saddle, consisting of two pads or seats, each pad supported by a single wire spring comprising a rim 4, to which the pad is fastened, both ends of said wire spring having a downward bend 5 at the side of the rim or seat and extending inwardly to and beyond a saddle-post clamp 7, to which they are adjustably fastened, in combination with adjustable auxiliary clamps 9, 9, substantially as described, for the purpose specified.

642,192. THILL-COUPLING. TIMOTHY G. ALDRICH, Denver, Colo. Filed May 16, 1899. Serial No. 717,012. (No model.)



Claim.—1. In a thill or shaft coupling, the combination with the thill-iron and clip, of arms projecting forwardly from the clip and having open recesses, the eye of the shaft or thill iron being placed between said arms, a bolt or pin passed through the eye of the shaft-iron and engaging the sockets in the clip-arms, a lever fulcrumed on the clip above the bolt, one arm of said lever extending forwardly and downwardly and normally occupying a position above and in contact with the shaft-iron, the other arm of the lever extending rearwardly beyond the clip, and a spring located between the arms of the clip, said spring engaging the forward arm of the lever and normally holding the latter in position to lock the shaft-iron in place.

2. The combination with the thill-iron, of recessed arms between which the eye of the thill-iron is located, a coupling-pin passing through the eye of the thill-iron and engaging the recesses in said arms, and a spring-actuated lever for locking the thill-iron in place, said lever being fulcrumed above the thill-iron and having an arm extending forwardly and downwardly to engagement with the said iron.

3. The combination with the thill-iron, of supporting-arms having recesses open at the top, the eye of the thill-iron being located between the arms, a bolt or pin engaging the thill-iron eye and engaging the recesses of said arm, a lever fulcrumed on a suitable support above the thill-iron, having one arm extending forwardly and downwardly to engagement therewith, the other arm of the lever extending rearwardly beyond the clip and terminating in a step, and a spring having one extremity engaging said lever, while the other extremity engages the thill-iron-supporting arms.

4. The combination with the thill-iron and fastening-clip, of recessed arms projecting forwardly from the clip, and between which the extremity of the thill-iron is located, a bolt or pin engaging the recesses of the said arms and supporting the thill-iron in place, one end of the bolt being fashioned to fit a recess in one arm, the parts being shaped to prevent the bolt from turning, the other arm of the clip engaging the bolt between the nut and the shaft-iron, and a spring-held locking-lever adapted to engage the thill-iron.

642,193. TELESCOPIC TUBE-CLAMP. JOHN BAKUMLE, Milwaukee, Wis. Filed May 19, 1899. Serial No. 717,387. (No model.)



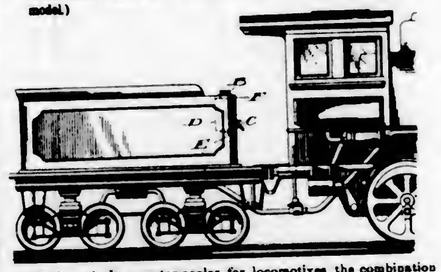
Claim.—1. In an adjustable shaft or analogous construction, the combination of a tubular member, a member fitted and telescopable in the tubular member, one of said members being provided with a spiral groove of diminishing depth along the line of its extent, and a spiral key of substantially the same thickness as the deepest part of said spiral groove fitted movably in said spiral groove and adapted to bear against and to frictionally engage the non-grooved member when the grooved member is rotated therein to bring the shallower part of the groove to the spiral key.

2. The combination of a tubular member, a member fitted and movable in the tubular member, the insertible member being provided with a spiral groove diminishing regularly in depth along its line, and a spiral key fitted movably in and filling the deeper portion of the spiral groove and having an exterior surface adapted to bear against and frictionally engage the inner surface of the exterior member when the interior member is rotated to bring the shallower portion of the spiral groove to the spiral key.

3. The combination of a tubular member, a member fitted and movable in the tubular member, one of said members being provided with a spiral groove diminishing regularly in depth along its line, a spiral key fitted movably in the deeper portion of the spiral groove and adapted to bear against and frictionally engage the surface of the non-grooved member when the grooved member is rotated to bring the shallower portion of the spiral groove to the spiral key, and a stop adapted to be inserted in the grooved member projecting into the groove at the rear of the spiral key to prevent movement of the key in the groove in that direction.

4. The combination with a tubular member, and a member fitted and adjustable in the tubular member, one of said members being provided with a spiral groove diminishing gradually in depth along its line, of an elastic expanding and compressible spiral key of a thickness substantially equal to the depth of the deepest part of said groove fitted in the groove and adapted to engage the non-grooved member against rotation relatively thereto.

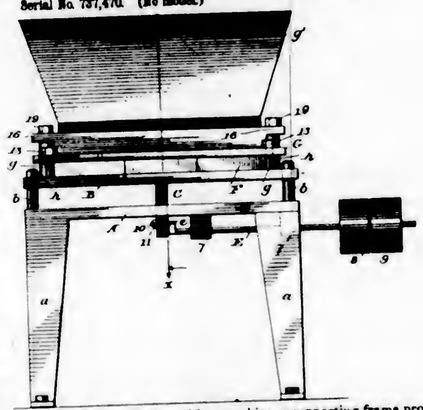
642,194. LOCOMOTIVE DRINKING-WATER COOLER. CHARLES A. BARRETT, Atlanta, Ga. Filed July 1, 1899. Serial No. 722,511. (No model.)



Claim.—1. In a water-cooler for locomotives, the combination with the water-tank; of a vessel adapted to be placed within said tank, provided with a cover removable from the outside of said tank, and a water-tight connection from the bottom of said tank, consisting of a flanged rubber tube extending through a hole through the vessel and tank, and a faucet forced into the flanged end of said tube, substantially as described.

2. In a water-cooler for locomotives, the combination with the water-tank; of a vessel adapted to be placed within said tank, provided with a flanged opening upon the top thereof which extends through the top of said tank, and a cover adapted to fit within said opening and a water-tight connection from said vessel to the outside of said tank, consisting of a flanged flexible tube extending through a hole through the vessel and tank, and a faucet forced into the flanged end of said tube, substantially as described.

642,195. BRUSH-MACHINE. PETER BECKER, New York, N. Y., assignor to the Peter Becker Company, same place. Filed Nov. 18, 1899. Serial No. 737,470. (No model.)

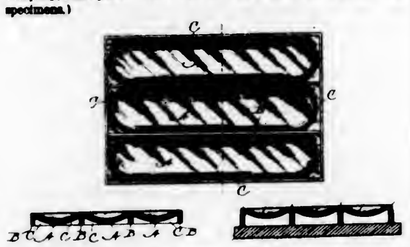


Claim.—1. In a brush-making machine, a supporting-frame provided with upwardly-extending guide-pins, a table having openings to receive said pins and movable vertically thereon, means to impart a vertical reciprocating movement to the table, brush-holders detachably clamped upon the table and movable therewith, and a bristle-hopper supported by the table and connected thereto to move with it and the brush-holders, said hopper having a reticulated bottom and being supported to leave a space between it and the brush-holders, for the purpose set forth.

2. In a brush-making machine, a supporting-frame provided with guides, a table movable vertically on said guides, means to impart a vertical reciprocating movement to the table, brush-holders supported on said table, clamping-bars G engaging the holders and detachably connected to the table, stud-bolts A secured to and projecting upwardly from the table and having shouldered and reduced ends, a bristle-hopper having perforated flanges 16 to fit over said reduced ends and rest upon the shoulders, and means to detachably hold the flanges upon the pins, substantially as set forth.

3. In a brush-making machine, a supporting-frame provided with guides, a table movable vertically on said guides, a bristle-hopper and bristle-holders detachably connected to the table to move uniformly with it, a tongue projecting downwardly from the frame and provided with a horizontally-extending slot, a perforated block slidably supported in the slot to move vertically with the tongue but to have independent lateral movement in the slot, a shaft journaled for rotation in the frame and having a crank adjacent to the tongue, a pin extending from the crank and fitting loosely in the block, and means to rotate the shaft, for the purpose set forth.

642,193. PROCESS OF FORMING ORNAMENTAL PLATES. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 21, 1898. Serial No. 678,436. (No specimens.)



Claim.—1. The process of forming ornamental plates from a series of tiles, which consists in binding the tiles into a suitable plate, then heating the tiles and then bending such tiles to the desired shape.

2. The process of forming ornamental plates from tiles or the like, consisting in placing the tiles in proximity to each other with their edges slightly separated, then inserting metallic cross-pieces between the edges of the tiles and providing the whole with a surrounding frame, then immersing the tiles and associated parts in an electrolytic bath and depositing metal upon the cross-pieces so as to bind the tiles together, then heating the tiles until they become plastic, then forming the tiles into the desired shape.

3. As an article of manufacture, an ornamental plate consisting of a series of tiles bound together in a suitable frame, said tiles being stretched after they are placed in the frame so as to be moved out of their original places.

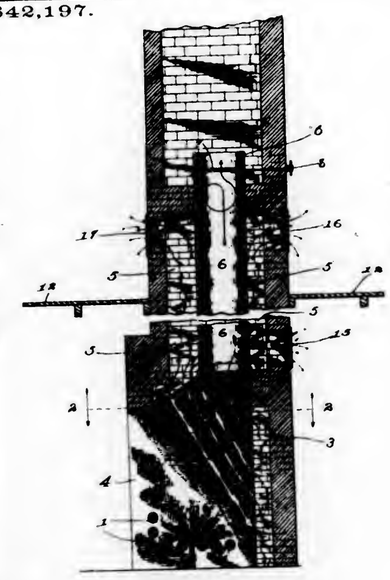
4. The process of forming ornamental windows, which consists in binding a series of tiles into a permanent frame with metallic strips interposed between the tiles, then heating the tiles while in said permanent frame and then bending such tiles to the desired shape, substantially as described.

642,197. HEATING APPARATUS. CONRAD RENDER, Indianapolis, Ind., assignor of one-half to Belle M. Gates, same place. Filed Sept. 1, 1899. Serial No. 729,197. (No model.)

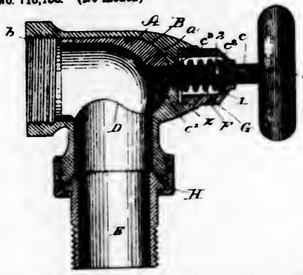
Claim.—1. In a heating apparatus, the combination of the fire-box set in a surrounding casing with a cold-air chamber on one side and at its rear, and a hot-air chamber surrounding its opposite side and top, a flue leading from the top of said fire-box up through said hot-air chamber, and a series of pipes forming the bottom, front and rear of the fire-pot, a part running horizontally and communicating at one end with the cold-air chamber and at the other end with the hot-air chamber, and a part running diagonally from near the bottom to the top of the fire-box, communicating at their lower ends with the cold-air chamber in the rear and at their tops with the hot-air chamber above, all substantially as set forth.

2. In a heating apparatus, the combination, of the fire-box set in a surrounding casing arranged with a cold-air chamber around its rear and one side, and a hot-air chamber around its top and other side, the fire-pot composed of tubes running near together horizontally across the box and communicating at one end with the cold-air chamber and at the other end with the hot-air chamber, the back of the box composed of pipes running diagonally from near the bottom of the box at its rear to near its front at its top, and communicating at their lower ends with the cold-air chamber and at their top ends with the hot-air chamber, said pipes being set in rows and staggered, the flue running upward through the hot-air chamber, and the dampers and registers for controlling the draft, and flow of air, all substantially as set forth.

642,197.



642,198. VALVE FOR HOT-WATER RADIATORS. WILLARD E. BLAKE and RANDALL B. ANDROS, Boston, Mass. Filed May 1, 1899. Serial No. 715,153. (No model.)



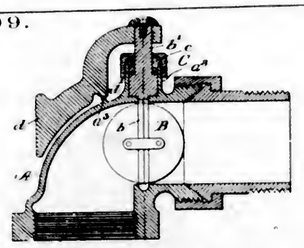
Claim.—1. In a valve for hot-water radiators the combination of the curved valve-seat B, the exteriorly and interiorly curved valve A, a, and a spindle, with a stuffing-box, a beveled washer c^4, seated in the valve-seat, and a spring set within said stuffing-box, normally acting with the pressure of water to hold the valve tight, and also acting to press upon and take up any wear of the washer c^4, substantially as described and shown.

2. In a valve for hot-water radiators the combination of the curved valve-seat B, the exteriorly and interiorly curved valve A, a, and a spindle c, stuffing-box F, adapted to be inserted in the valve-seat B, and properly perforated for the passage of said spindle; a key c^3, and washer 2, resting upon said key, and beveled washer c^4, surrounding said spindle and its apex situated in the valve-seat B, a helical spring G, one end bearing against said washer 2, and its other end bearing against said beveled washer c^4, the said key, washer, and spring turning with its handle, all substantially as described and shown.

642,199. ELBOW-VALVE FOR HOT-WATER RADIATORS. WILLARD E. BLAKE and RANDALL B. ANDROS, Boston, Mass. Filed July 13, 1899. Serial No. 723,667. (No model.)

Claim.—In a hot-water-radiator valve, the combination of the angle-pipe A having the track a^2 and the projection a^3, the damper-plate B constructed to admit a continuous circulation of sufficient water to prevent freezing the rod b, b', the handle D having the parts d, d', properly connected with said damper-plate rod, substantially as described and shown.

642,199.



642,200. MINE-GATE. NEWTON K. BOWMAN, North Lawrence, Ohio. Filed May 26, 1899. Serial No. 718,393. (No model.)



Claim.—1. In a self-closing mine-gate of the character described, actuating mechanism operated by means of the approaching car to open the gate, a transverse shaft extending across the entry, pulleys secured to opposite ends of the transverse shaft, a flexible connection at one side of the entry between one of the said pulleys and the operating mechanism, a corresponding flexible connection at the opposite side of the entry between the other of the pulleys and the gate, and a guide for the said flexible connection located at a distance from the plane of the gate, substantially as set forth.

2. In a mine-gate of the character described, actuating mechanisms located at opposite sides of the entry and upon opposite sides of the plane of the gate and adapted to be operated by the approaching car, a transverse shaft extending across the entry, pulleys secured to opposite terminals of the transverse shaft, independent flexible connections between said actuating mechanisms and the respective pulleys, another pulley secured to an end portion of the transverse shaft, and a flexible connection between the last-mentioned pulley and the gate and passing over a guide located a distance from the plane of the gate, substantially as specified.

3. In a mine-gate of the type specified, sections or parts hinged at their outer edges and meeting at their inner edges and adapted to swing from the center in opposite directions, actuating mechanisms located at opposite sides of the entry and upon opposite sides of the gate, a transverse shaft, a pair of pulleys secured to each end of the shaft, flexible connections between corresponding pulleys at opposite ends of the shaft and said actuating mechanisms, other flexible connections between the other terminal pulleys of said shaft and the sections of the gate, and guides for the latter connections located a distance from the plane of the gate, substantially as described.

4. A mine-gate composed of sections hinged at their outer edges to swing from the center in opposite directions, closing-springs for the sections of different tension, the closing-spring corresponding with the section opening with the draft of air being the stronger, means for varying the tension of said closing-springs consisting of disks having the respective springs attached thereto and located adjacent to the hinges and formed with a circular series of openings, and pins to pass through any one of the openings and engage with the hinges, actuating mechanisms located at the sides of the track and upon opposite sides of the plane of the gate and in such relation as to have the gate-sections open outwardly therefrom and positive connections between the gate-sections and the said actuating mechanisms, substantially as set forth.

5. A mine-gate composed of sections hinged at their outer edges to swing from the center in opposite directions, closing-springs applied to the said sections, a transverse shaft, companion pulleys applied to the terminals of said shaft, and cords or like connections applied to the gate-sections and adapted to wind in reverse directions upon corresponding pulleys, actuating mechanisms to be operated by the approaching car, and flexible connections between said actuating mechanisms and the other corresponding pulleys and wound upon the latter in opposite directions and reversely to the adjacent cords in connection with the gate-sections, substantially as set forth.

6. A mine-gate of the character described, composed of sections hinged to swing from the center in opposite directions, a transversely-arranged shaft provided at its ends with companion pulleys, closing-springs for the said sections, cords connecting the gate-sections with corresponding pulleys and adapted to wind upon the latter in reverse directions, actuating mechanisms for the gate-sections located upon opposite sides of the plane of the gate and comprising upright levers, and cords connecting said levers with the other pulleys of the transverse shaft, substantially as and for the purpose set forth.

7. In a mine-gate of the class described, comprising sections hinged to swing from the center in opposite directions, closing-springs applied to said sections, a transversely-arranged shaft provided at its ends with companion pulleys, cords or like connections between corresponding pulleys and the gate sections, actuating mechanisms disposed at the sides of the track upon opposite sides of the plane of the gate and including a lever, and cords adjustably connecting said levers with the other pulleys of the transverse shaft, substantially as described.

8. The herein-described mine-gate comprising a frame, oppositely-disposed braces strengthening and staying the said frame, direction-pulleys applied to the braces at a point between their ends and inclining transversely with reference to said braces, a transverse shaft provided with companion pulleys at its ends of different diameters, cords or like connections secured at one end to the gate-sections and at their opposite ends to the smaller of the companion pulleys and passing around the said direction-pulleys intermediate of their ends, closing-springs for the gate-sections provided with means for varying their tension, actuating devices including movable bars, rock-shafts and upright levers, and cords or like connections adjustably connecting said upright levers with the larger of the aforesaid companion pulleys and adapted to wind upon the latter in reverse directions, substantially as specified.

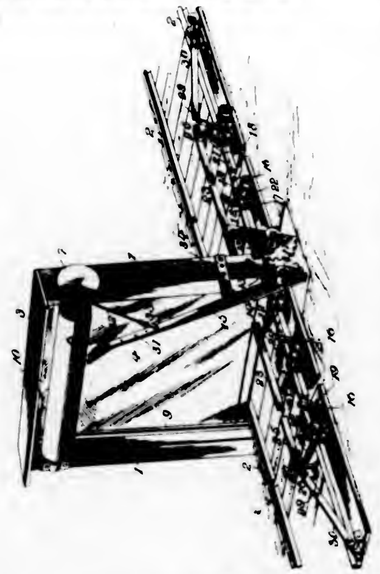
642,201. MINE-GATE. NEWTON K. BOWMAN, North Lawrence, Ohio. Filed May 26, 1899. Serial No. 718,394. (No model.)

Claim.—1. In a self-closing mine-gate of the variety set forth, rock-shafts disposed upon opposite sides of the plane of the gate, positive interlocking means between said rock-shafts for effecting a simultaneous movement thereof in opposite directions, means connecting one of the rock-shafts with the gate to compel an opening thereof when the rock-shafts are operated, and actuating means operatively connected with each of the rock-shafts, and adapted to be engaged by the moving car, substantially as set forth.

2. In a mine-gate of the character described, actuating-bars located upon opposite sides of the gate in longitudinal alinement and mounted for simultaneous movement in opposite directions, positively-connected rock-shafts having independent connection with the respective actuating-bars, a connection between one of the rock-shafts and the gate to effect an opening of the latter, and means operatively connected with the actuating-bars and adapted to be engaged by the moving car to cause a movement thereof, substantially as described.

3. In a self-closing mine-gate of the class specified, actuating-bars disposed upon opposite sides of the plane of the gate in longitudinal alinement and mounted for simultaneous movement in opposite directions, rock-shafts having independent connection with the respective actuating-bars, positively-interlocking means applied to the rock-shafts to compel a synchronous movement thereof in reverse directions, a lever applied to one of the rock-shafts, an adjustable connection between said lever and the gate, and operating means applied to the operating-bars, substantially as set forth.

4. In a self-closing mine-gate of the character described, actuating-bars located upon opposite sides of the plane of the gate, rock-shafts operatively connected with the said actuating-bars, intermeshing toothed elements applied to the rock-shafts to effect a simultaneous movement thereof in opposite directions, a lever adapted to be applied to either one of the toothed elements, and a connection between said lever and gate, substantially as set forth.



5. In a mine-gate of the type described, actuating-bars located upon opposite sides of the plane of the gate, rock-shafts operatively connected with said actuating-bars, interlocking toothed elements applied to the rock-shafts and formed with arms, a lever adapted to be attached to the arm of either of the toothed elements, an adjustable stop disposed in the path of said lever, and an adjustable connection between the said lever and gate, substantially as specified.

6. In a self-closing mine-gate of the character set forth, a longitudinally-disposed actuating-bar operatively connected with the gate, an inclined actuating-bar mounted upon a fixed pivot, a bracket-arm applied to the proximal end of one of the actuating-bars, and a swinging link pivotally connecting the terminal of the bracket-arm with the other proximal end of the other actuating-bar, substantially as set forth.

7. In a self-closing mine-gate of the variety set forth, a longitudinally-disposed actuating-bar operatively connected with the gate, a relatively-inclined actuating-bar mounted upon a fixed pivot, a bracket-arm pendent from the proximal end of an actuating-bar, a link pivotally connected with the terminal of the bracket-arm, and a rock-shaft provided with a crank-arm having its wrist pivotally connecting the other end of the said link with the proximal end of the opposite actuating-bar, substantially as described.

8. In combination with a mine-gate of the character set forth and actuating mechanism therefor, a gathering device applied to the lower end of the gate and adapted to receive the folds of said gate as the latter is operated to clear the entry, substantially as specified.

9. In a mine-gate of the class set forth, and actuating mechanism therefor, gatherers of approximately U form applied to the lower end of the gate for receiving the folds, substantially as described.

10. In a mine-gate of the character described, and actuating mechanism therefor, U-shaped gatherers applied to the lower end of the gate and having the end portions of their side members oppositely flared, substantially as and for the purpose set forth.

11. In a mine-gate of the variety set forth, vertical guides disposed at the sides of the gate, gatherers of approximately U form applied to the lower end of the gate and having the end portions of their side members oppositely flared, said gatherers extending a short distance into said guideways and having the flaring portions of the parts entering said guideway cut away, substantially as and for the purpose set forth.

642,202. AMALGAMATOR. JOHN L. BRADBURY, San Francisco, Cal. Filed Apr. 10, 1899. Serial No. 712,519. (No model.)

Claim.—1. In an amalgamator for the treatment of pulp, slime or tailings, the combination with a closed receiver or vessel for the material to be treated having flat interior sides, of a drive-shaft extending therethrough and to which the same is rigidly secured, a frame within which the shaft is mounted, means for imparting rotary motion to the shaft and receiver or vessel, and of a series of breaking-arms arranged within the receiver or vessel and securely attached to the sides thereof.



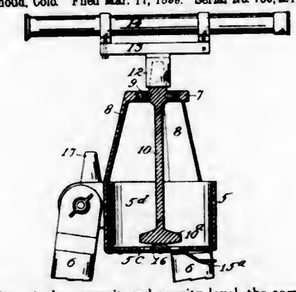
2. In an amalgamator for the treatment of pulp, slime or tailings, the combination with a closed receiver or vessel for the material to be treated, and having interior longitudinal surfaces arranged at an angle, of a drive-shaft extending therethrough and to which the same is secured, means for imparting rotary motion to the shaft so as to rotate the receiver or vessel, a sleeve inclosing that portion of the drive-shaft within the receiver or vessel, a series of breaking-arms arranged within said receiver or vessel and secured so as to rotate therewith, said arms being arranged at an angle to each other, and of the end plates secured to the ends of the receiver or vessel outside of its heads or end.

3. In an amalgamator for the treatment of pulp, slime or tailings, the combination with a closed receiver or vessel for the material to be treated polygonal in cross-section, of a feed-opening therein, a cover for said opening, a drive-shaft extending through said receiver or vessel and to which the same is secured, means for imparting rotary motion to the shaft so as to rotate the receiver or vessel, a covering for that portion of the shaft within the receiver or vessel, a series of breaking-arms arranged therein so as to rotate with the shaft and receiver or vessel, said arms being arranged at an angle to each other, end plates secured to the receiver or vessel outside of its heads or ends, each plate being formed with a bearing-hub within which the drive-shaft is secured, and of an outlet for the treated material.

4. In an amalgamator for the treatment of pulp, slime or tailings, the combination with a suitable frame, of a receiver or vessel polygonal in cross-section suspended therein, a feed-opening within the receiver or vessel and a cover therefor, means for imparting rotary motion to said vessel, a series of breaking-arms arranged therein so as to rotate therewith, said arms being arranged at an angle to each other and each extending entirely across the vessel, and of the outlet for the treated material.

5. In an amalgamator for the treatment of pulp, slime or tailings, the combination of a receiver or vessel polygonal in cross-section, means for rotatably supporting said receiver, means for rotating the same, a plurality of breaking-arms within the receiver secured to and extending across the same, said arms being inclined relative to the axis of rotation of the receiver, substantially as described.

642,203. COMBINED TRANSIT AND GRAVITY LEVEL. FRANK C. BROWN, Loveland, Colo., assignor to John Beal and Oscar J. Smith, Berthoud, Colo. Filed Mar. 17, 1899. Serial No. 709,421. (No model.)



Claim.—1. In a transit and gravity level, the combination of a suitable supporting frame or casing, of a weighted rod mounted to vibrate freely therein, its upper extremity being fashioned to support a telescope, and a spring attached to the casing and adapted to engage the weighted extremity of the rod for locking the latter in the desired position.

2. The combination with the casing having openings in its top and bottom respectively, a disk located in the top opening and pivoted at two diametrically opposite points, a rod inserted in an open-

ing formed in the disk and pivoted therein at points in a line at right angles to the pivotal axis of the disk, said rod projecting above the disk sufficiently to form a support for the telescope, or other instrument its lower extremity being weighted and located just above the opening in the bottom of the casing, a locking-spring attached to the bottom of the casing and extending across the opening therein, and a button or projection attached to said spring and adapted to project upwardly into the bottom opening to engagement with the weighted end of the vibrating rod.

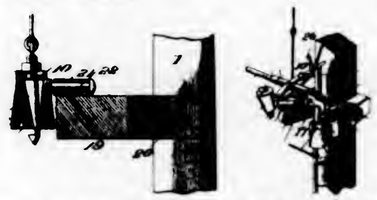
642,204. ANTIFRICTION-BEARING. EVERETT W. BROOKS, Chicago, Ill., assignor of two-thirds to John D. Ross and William S. Sharpneck, same place. Filed Dec. 21, 1898. Serial No. 699,890. (No model.)



Claim.—1. The combination with a suitable box and axle or shaft, of a series of metallic rollers connected by rings at the ends and having compressed fiber fixedly attached to said rollers and projecting from the ends thereof beyond the metal to reduce the friction on the rings, substantially as described.

2. As an improved article of manufacture, a metallic antifriction-roller provided with a lining of compressed fiber, and a facing of the same covering the ends of the metal body, substantially as described.

642,205. GATE. SOLON O. CAMPBELL, East Peru, Iowa, assignor of one-half to L. Pettingill, Omaha, Nebr. Filed June 8, 1899. Serial No. 719,787. (No model.)



Claim.—1. In operating mechanism for gates, a beam applied directly to the gate and provided with terminal interlocking devices, corresponding interlocking devices disposed upon opposite sides of the plane of the gate and adapted to coöperate with the interlocking devices of the said beam to effect an opening of the gate, and operating means for actuating said beam when it is required to open or shut the gate, substantially as set forth.

2. In operating mechanism for gates, a swing-beam applied to the gate and provided with terminal interlocking devices, corresponding interlocking devices provided at the sides of the gate to coöperate with the interlocking devices of the spring-beam and mounted for movement therewith, and operating means for actuating the swing-beam to effect an opening and closing of the gate, substantially as specified.

3. In gate-operating mechanism, a beam mounted upon the gate midway of its ends so as to swing vertically and horizontally, interlocking devices applied to the end portions of the said beam, corresponding interlocking devices at opposite sides of the plane of the gate adapted to coöperate with the interlocking devices of the beam and mounted to turn therewith, and operating means for actuating the said beam, substantially as set forth.

4. In gate-operating mechanism, a sleeve applied to the gate, a beam mounted to turn with and upon said sleeve, coöperating interlocking devices at opposite sides of the plane of the gate, a set of interlocking devices being applied to the said beam, and operating means for actuating the beam, substantially as described.

5. In actuating mechanism for gates, a divided sleeve applied to a bar of the gate, a beam having its middle portion separated and embracing the parts of the sleeve and holding them in place and movable with and upon the said sleeve, coöperating interlocking devices at opposite sides of the gate, a set thereof being applied directly to the beam, and operating means for the said beam, substantially as set forth.

6. In operating mechanism for gates, a sleeve applied to a bar of the gate, a swing-beam composed of upper and lower parts embracing the said sleeve and mounted for movement therewith and thereon, means for securing the parts of the beam, coöperating interlocking devices at opposite sides of the gate, a set thereof being applied to the said beam, and actuating means for the beam to effect an opening and closing of the gate.

7. In gate-operating mechanism, a divided sleeve applied to a bar of the gate, and provided with upper and lower pins, a beam composed of parts embracing the sections of the divided sleeve and centrally apertured to receive the pins thereof, said members of the beam having their terminal portions brought together and apertured, interlocking devices serving to connect the end portions of the aforesaid members, other interlocking devices arranged at the sides of the gate for coöperation with the interlocking devices of the said beam, and means for actuating the beam, substantially as described.

8. In operating mechanism for gates, a swing-beam applied to the gate, interlocking pins applied to the end portions of the swing-beam, pendent sleeves at the sides of the gate to coöperate with the interlocking pins, and operating means for actuating the spring-beam, substantially as set forth.

9. In gate-operating mechanism of the class described, a swing-beam applied to the gate, vertically-arranged pins applied to the terminal portions of the swing-beam and having interlocking heads at their lower ends, and swing-sleeves disposed for coöperation with said pins, substantially as set forth.

10. In gate-operating mechanism of the character set forth, a swing-beam, pins pendent from the end portions of the swing-beam and provided at their lower ends with heads projecting wholly from one side of the pins, and swing-sleeves arranged to coöperate with the said pins, substantially as specified.

11. In gate-operating mechanism of the class specified, a swing-beam, pins pendent from the end portions of the swing-beam and inclining from the perpendicular and provided at their lower ends with heads projecting wholly from one side of the pins, and sleeves disposed for conjoint operation with the pins, substantially as set forth.

12. In gate-operating mechanism of the type set forth, a swing-beam, pins pendent from the end portions of the swing-beam and having heads at their lower ends, and vertically-disposed swing-sleeves arranged to coöperate with the said pins and having the openings therein upwardly flared, as and for the purpose specified.

13. In gate-operating mechanism of the character specified, a swing-beam, pins pendent from the end portions of the swing-beam and having heads at their lower ends, and swing-sleeves of frusto-conical form arranged to coöperate with the aforesaid pins, and having upwardly-flaring openings, substantially as described.

14. In gate-operating mechanism of the type described, a swing-beam, pendent pins having conical heads at their lower ends disposed wholly to one side thereof, and pendent swing-sleeves of frusto-conical form and having upwardly-flaring openings therethrough, substantially as specified.

15. In gate-operating mechanism of the character set forth, a swing-beam, inclined pins pendent from the end portion of the swing-beam and having conical heads at their lower ends, disposed wholly at one side thereof, and swing-sleeves of frusto-conical form and having upwardly-flaring openings therethrough, substantially as set forth.

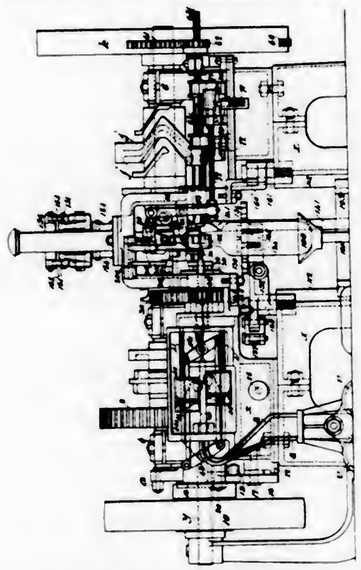
16. In gate-operating mechanism of the class specified, a swing-beam, interlocking pins pendent from the end portions of the swing-beam, sleeves for coöperation with the said interlocking pins, and divergent journals projecting from the said sleeves and loosely mounted in corresponding bearings, substantially as set forth.

17. In gate-operating mechanism of the character specified, a divided sleeve applied to a bar of the gate and having vertically-disposed pins, a swing-beam composed of corresponding members having their middle portions spaced and receiving between them the divided sleeve and apertured to receive the pins thereof, interlocking pins extending through openings in the ends of the said members, clamping devices applied to the pins for securing the ends of said members, swing-sleeves disposed to coöperate with the interlocking pins, and operating devices connected with the said interlocking pins for actuating the swing-beam, substantially as described.

642,206. MACHINE FOR WIRING BOTTLES. ROBERT M. CHAMBERS and CHARLES R. CHAMBERS, Belfast, Ireland. Filed Oct. 23, 1899. Serial No. 734,496. (No model.)

Claim.—1. In a bottle-wiring machine, wherein the driving-pulley is connected to the driving-shaft, by a spring-actuated sliding key engaging with a recess in the boss of the pulley, means for automatically withdrawing the said key when a bottle has been tied consisting of a wedge on a lever actuated by a cam through suitable connections, said cam forcing the wedge against a spring into engagement with the key, in combination with a latch temporarily retaining the said wedge-shaped lever in engagement with the key, said latch being adapted to be withdrawn by a push-rod so as to release the lever and start the machine substantially as described.

2. In a bottle-wiring machine, means for lifting the bottle consisting of a support automatically adjustable to bottles of considerably-varying length comprising a pan or table, carried upon the end of a rack-bar sliding vertically in guides in the lifting-bracket, the said pan being brought against the bottom of a bottle suspended above it during the first part of the stroke of the lifting-bracket by friction, allowing it to adjust itself to the length of the bottle and afterward being definitely raised with the lifting-bracket by means of a pawl engaging the rack, either directly or through suitable gearing, when actuated by a cam-plate substantially as described.



3. In a bottle-wiring machine means for allowing a self-adjustment between the bottle-support and bottle-lifting bracket consisting of a rack-bar gearing with a pinion which is prevented from rotating by friction during the greater part of the upward stroke of the lifting-bracket but is locked by a pawl engaging with a ratchet-wheel toward the end of the stroke substantially as hereinbefore described.

4. In a bottle-wiring machine the combination with the bottle-lifting bracket of a bottle holder or support carried upon the upper end of a piston-rod or plunger traveling in a cylinder containing oil or other liquid and connected to a reservoir or jacket said cylinder communicating with the reservoir by passages controlled by a valve operated as required by a lever engaging with a cam-plate attached to the machine-frame, substantially as hereinbefore described.

5. In a bottle-wiring machine means for allowing an automatic adjustment between the bottle-support and the bottle-lifting bracket consisting of a piston-rod and piston or plunger working in a cylinder containing oil or other liquid and connected to a reservoir or jacket with which the said cylinder communicates by passages controlled by a valve in such a manner that the piston-rod carrying the bottle-holder is prevented from descending on the fore part of the upward stroke of the lifting-bracket by friction but is positively prevented from descending toward the end of the stroke, substantially as hereinbefore described.

6. In a bottle-wiring machine, means for delivering the bottle after wiring, comprising a bracket pivoted to the machine-frame and carrying gripping-levers which are adapted to open and allow the neck of the bottle to pass up between them when it is lifted to the wiring position, but which grip the bottle below the collar after it is wired and means for opening the levers and thereby releasing the bottle when the bracket is oscillated to the delivering position substantially as hereinbefore described and illustrated.

7. In a bottle-wiring machine means for temporarily holding the bottle consisting of a pair of levers geared together to insure simultaneous movement and forced together by a spring the outer ends of said levers being rounded or carved to facilitate the insertion of a bottle and the inner or gripping faces being formed at such angles that they grip the bottles centrally and so as to allow for variation in the size and shape of the bottle-neck substantially as hereinbefore described and illustrated.

8. In a bottle-wiring machine having gripping-levers for temporarily holding the bottle, means for opening said levers to allow the bottle to pass between them when being raised to the wiring position consisting of a cam-plate carried by the bottle-lifting bracket and adapted to engage with a roller or projection on one of the levers substantially as hereinbefore described and illustrated.

9. In a bottle-wiring machine the combination of a plunger provided with a spike or spikes in its face and slots in its extremity and a capsule-holder consisting of a pan carried by a bracket oscillated as required so as to bring a capsule directly under the plunger, which is caused to descend and secure a capsule upon its spike by a cam acting through a pair of levers the ends of which are connected to a cross-head transmitting motion to the plunger by a spring substantially as described.

10. In a bottle-wiring machine having a capsule-lifter and cork-compressor in the form of a plunger, an elastic connection and buffer-check between the said plunger and its operating means substantially as described and illustrated.

11. In bottle-wiring machines in combination a plunger mechanically actuated, self-centering gripping-levers for temporarily supporting the bottle by the collar while such plunger compresses the cork and means for allowing the plunger to adapt itself to varying lengths of bottle-necks and corks consisting of a spring interposed between the plunger and its actuating means, substantially as described.

12. In bottle-wiring machines the combination of a plunger mechanically actuated and self-centering gripping-levers for temporarily supporting the bottle by the collar while said plunger compresses the cork, a buffer-spring interposed between the plunger and its actuating means, for allowing of a variation in the lengths of the bottle-necks and corks for maintaining a pressure on the cork as the bottle is raised to the wiring position, and means for opening the gripping-levers to allow the bottle to rise to the wiring position consisting of a cam-plate carried by the lifting-bracket and adapted to engage with a roller or projection on one lever, the said levers being geared together and forced together by a spring, so that they close and grip the bottle as it descends substantially as hereinbefore described.

13. In a bottle-wiring machine in combination: means for lifting the bottle capable of automatic adjustment to varying lengths of bottles comprising a pan or table carried upon the end of a rack-bar sliding vertically in guides in the lifting-bracket and adapted to be supported thereby either through friction or through a pawl engaging the rack, either directly or through suitable gearing when actuated by a cam-plate, self-centering gripping-levers for temporarily supporting the bottle during the adjustment of the lifting-gear and means for compressing the cork when the bottle is held by the gripping-levers and for maintaining a pressure thereon as the bottle is raised to the wiring position, comprising a plunger actuated by a cam through levers linked to a sliding cross-head between which and said plunger a buffer-spring is interposed substantially as hereinbefore described.

14. In a bottle-wiring machine in combination: means for lifting the bottle capable of automatic adjustment to varying lengths of bottles comprising a pan or table carried upon the end of a piston-rod sliding in a cylinder carried by the lifting-bracket such cylinder containing oil or other liquid and communicating with a reservoir or jacket such communication being controlled by a valve operated by a cam-plate in such a manner that the piston-rod is only prevented from sliding down relatively to the lifting-bracket by friction when the valve is open but positively prevented when the valve is shut, self-centering gripping-levers for temporarily supporting the bottle during the adjustment of the lifting-gear, and means for compressing the cork when the bottle is held by the gripping-levers and for maintaining a pressure thereon as the bottle is raised to the wiring position comprising a plunger actuated by a cam through levers linked to a cross-head between which and said plunger a buffer-spring is interposed substantially as hereinbefore described.

15. In a bottle-wiring machine means for applying a tension to the wires consisting of a number of boxes corresponding to the number of wires employed and adapted to be moved on guide-rods against the action of springs said boxes being provided with gripping-levers which are forced by springs against the wires so as to grip them against faces formed on the boxes when a tension is to be applied, but which are released from the wires when no tension is required by parallel rods worked by rocking levers substantially as hereinbefore described and illustrated.

16. In a bottle-wiring machine means for applying a tension to the wires consisting of a number of boxes corresponding to the number of wires employed and provided with gripping-levers, which are adapted to grip the wires under the action of springs but which are adapted to release the wires when said springs are compressed by the movement of two parallel slides in combination with a sliding piece which forces the boxes forward against the action of a spring said sliding piece moving rearwardly, when the boxes and levers have gripped the wires, to allow the springs returning to tighten the wires and moving forward when the parallel slides force the levers to release the wires to obtain a new grip of the wires substantially as described.

17. In a bottle-wiring machine the combination with a twisting-spindle periodically rotated of a movable end piece or face-plate substantially as described.

18. In a bottle-wiring machine the combination of a twisting-spindle provided with a movable end piece or face-plate with a cutting-bar formed with a wedge-shaped extremity substantially as hereinbefore described and illustrated.

19. In a bottle-wiring machine wherein the looping-spindle is temporarily freed from its operating-cam so as to allow of self-adjustment, means for opening the looping-hooks while the spindle is free and then moving the spindle rearwardly with the hooks still open and guiding the operating-levers onto the cam, consisting of a wedge-shaped piece arranged so as to slide in guides on the cam at a part of the periphery where it is cut away in order to free the looping-spindle as aforesaid, said wedge-shaped piece being adapted to engage the operating-levers whatever their position, thereby opening the looping-hooks, and being provided with a contact-roller adapted to engage with a cam-plate on the machine-frame which causes the levers to move the spindle rearwardly with the hooks open and also guide the levers onto the cam substantially as described.

20. In a bottle-wiring machine a cam for operating the looping-spindle cut away at a portion of its periphery and provided at that part with a wedge-shaped piece free to slide laterally independent of the cam and adapted to be engaged by a fixed cam-plate substantially as and for the purposes described.

21. In a bottle-wiring machine wherein three or more wires are employed and the bottle-neck passes between two of them, means for drawing these latter wires apart consisting of side hooks pivoted on the forked extremities of bars in such a manner that they are capable of engaging the wires within the forked extremities and afterward releasing them substantially as described and illustrated.

22. In a bottle-wiring machine wherein three or more wires are employed and the bottle-neck passes between two of them means for drawing these latter wires apart consisting of hooks pivoted on the forked extremities of reciprocating bars said hooks being also attached to rods sliding on the bars and engaged by spring-operated catches whereby the hooks are temporarily locked in their open and closed positions substantially as described and as illustrated.

23. In a bottle-wiring machine wherein three or more wires are employed and the bottle-neck passes between two of them means for drawing these latter wires apart and afterward releasing them comprising in combination bars provided with forked extremities for engaging the wires and reciprocated by rocking levers worked from a cam and hooks pivoted upon the extremities of said bars and also attached to rods sliding on the bars and adapted to be engaged by spring-operated catches from which they are released by contact with fixed stops so as to open or close the hooks substantially as described and illustrated.

24. In a bottle-wiring machine, means for severing the twisted wire comprising a knife, a swinging arm carrying the same and loosely mounted upon its spindle so that it may move thereon, a spring acting against said arm and capable of yielding to accommodate said arm to different-sized bottles and a cam for operating said lever, substantially as described.

25. In a bottle-wiring machine means for cutting the twisted wires comprising in combination, a knife reciprocated by a cam-operated lever and carried by a swinging arm which is provided with a wedge-shaped extremity adapted to engage with the face-plate of the twisting-spindle, means for pressing said swinging arm close to the bending-down lever so that the wire is always cut the same distance from the bottle-neck whether such neck be large or small, consisting of a spring coiled about the spindle upon which the arm is loosely pivoted and means for bringing the swinging arm down to the wires as required consisting of a bell-crank lever one arm of which is attached to the swinging arm and the other carries a roller in gear with a cam substantially as hereinbefore described and illustrated.

26. In a bottle-wiring machine means for bending down the twisted ends of wire consisting of a pair of levers pivoted on a bush sliding on a vertical guide, said levers being geared together to insure simultaneous movement and being caused to descend and press the twisted ends of wire against the bottle-neck substantially as described.

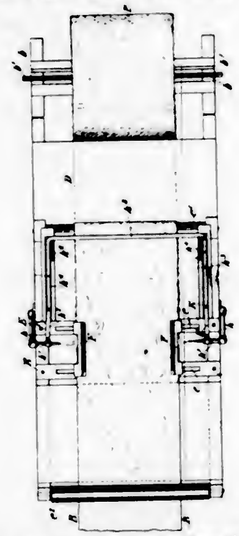
27. In a bottle-wiring machine means for bending down the twisted ends of wire comprising in combination a pair of bending-down levers geared together to insure equal and simultaneous movement, a bush to which said levers are pivoted and which slides on a vertical guide, and a rocking lever connected to the bush by a link and oscillated by a cam so as to lower and raise the bending-down levers substantially as described and illustrated.

28. In a bottle-wiring machine means for adjusting the distance of the looping-hooks from the bottle-neck previous to the twisting operation comprising a cam-plate adapted to engage with a pin or projection either on or in connection with the looping-spindle, and a rod carrying said cam-plate and adjusted longitudinally by one arm of a bell-crank lever the other arm of which is in contact with one of the bending-down levers substantially as described and illustrated in the drawings.

29. In a bottle-wiring machine means for gaging the size of the bottle-head comprising a pair of gaging-levers geared together and pivoted on a bush sliding on a vertical guide, in combination with means for correspondingly adjusting the position of the looping-hooks comprising a bell-crank lever one arm of which is in contact with one of the before-mentioned levers and the other arm of which is jointed to a rod carrying a cam-plate which limits the longitudinal movement of the looping-spindle, the relative lengths of the arms of the bell-crank lever being so arranged that the movement of the cam-plate is always equal to the movement of the points of the gaging-levers substantially as described.

30. In a bottle-wiring machine in combination, the cutting-off gear, twisting-spindle and looping-spindle, with the bending-down levers and means for automatically adjusting said parts according to the size of bottle-neck by such bending-down levers substantially as described.

642,207. SELVAGE-SINGEING MACHINE. JAMES E. COCHRANE, Malden, Mass. Filed Apr. 22, 1897. Serial No. 633,238. (No model.)



Claim.—1. In a selvage-singeing machine, the adjustable gas-brackets and selvage-protectors combined and operating substantially as described.

2. In a selvage-singeing machine, the adjustable gas-brackets and the selvage-protectors, F, F, with means, as the cord and weight, *f*, *f'*, automatically to adjust the protectors to varying widths of carpet, substantially as described.

3. In a selvage-singeing machine, the gas-brackets, *h'*, *h'*, the adjusting-levers, h^2, h^2 and frame h^3, in combination with the automatic adjusting selvage-protectors F, F, moving in the slots *e*, *e*, situate on the bars E, E, substantially as and for the purposes described.

4. In a selvage-singeing machine, the cross-bars E, E, with the slots, *e*, *e*, the selvage-protectors, F, F, and means, as the cord and weight, *f*, *f'*, automatically to adjust the protectors to varying widths of carpet.

642,208. FIREPROOF CONSTRUCTION. HOWARD CONSTABLE, New York, N. Y. Filed Aug. 21, 1897. Serial No. 649,015. (No model.)



Claim.—1. In combination in fireproof construction and with the supports thereof, the complete and self-sustaining load-supporting body consisting largely of set-up materials and carried by the said supports, ceiling beneath the said load-supporting body, and a layer of non-corrosive fire and water resisting material of relatively greater fire and water resistance than and secured to and supported by the said load-supporting body, and to which the said ceiling is applied, the said layer of fire and water resisting material being entirely distinct from, but detachably secured to the said load-supporting body at surfaces or points for fracture, whereby it may be readily detached and replaced without injury to or disturbance of the said load-supporting body, substantially as set forth.

2. In combination with the supports, a load-supporting body of set-up materials carried by said supports, a layer of tile or burnt material secured and supported by and beneath the said load-supporting body, distinct therefrom but detachably secured thereto at a surface for fracture, and the ceiling beneath the said layer, substantially as set forth.

3. In combination with a load-supporting body of relatively low fire and water resistance, a non-supporting layer of relatively high fire and water resisting material distinct from the said load-sustaining body and secured thereto at surfaces or points for fracture, and a ceiling secured beneath the said non-supporting fire and water resisting layer, substantially as set forth.

4. In combination with a load-supporting body comprising blocks or large masses of material, a fire and water resisting layer consisting of blocks or masses of relatively small horizontal dimensions compared with the said load-supporting body, the said layer being secured by means of and beneath the said load-supporting body and detachable therefrom without injury to the said load-supporting body, substantially as set forth.

5. In combination as a means for supporting and fitting floor-blocks to I-beams or flanged supports, a flange-block fitting the flange of said support, a floor-block cut away to partially inclose the said flange-block and rest upon it, and a fitting-piece interposed between the said floor-block and the said flange-block below the point where the said floor-block rests upon the said flange-block, substantially as set forth.

6. As an article of manufacture, a fitting-block for floor construction provided with one or more scored or recessed detachable projections, substantially as set forth.

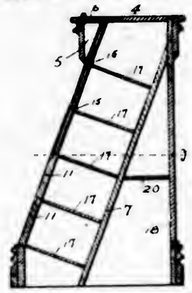
7. A flange-block provided with a scored or grooved detachable projection, substantially as set forth.

8. A wedge-shaped fitting-block scored or grooved to form detachable portions, substantially as set forth.

9. A floor-block, *r*, comprising an upper load-sustaining body of set-up materials and an under layer of burnt materials applied thereto and detachable therefrom at a plane or surface for fracture, substantially as set forth.

10. The floor-block having a transverse cross-section large at the upper part and at the base, but relatively small at the intermediate or web portion, and an iron bar embedded in the lower portion thereof, and extending upward and projecting from the said block at the end thereof, substantially as set forth.

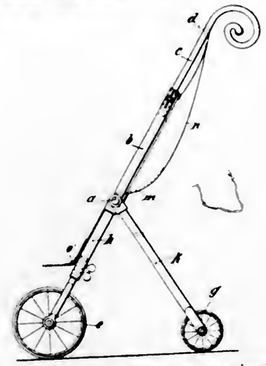
642,209. CABINET. DAVID CROCKER, Spooner, Wis. Filed Jan. 31, 1899. Serial No. 703,975. (No model.)



Claim.—1. A label-cabinet, comprising a base 2 having upright sides 3 and a top 4 the front of said cabinet being backwardly inclined, a partition 7 arranged within said cabinet and also backwardly inclined, the vertical partitions 8 and 16 arranged between said partition 7 and the inclined front of the cabinet, the backwardly-inclined partitions 17 dividing the compartments formed by said sides 3 and said partitions 7, 8 and 16 into pigeonholes having backwardly-inclined floors, the vertically-sliding doors 11 provided in the front of said cabinet and covering the openings leading to said pigeonholes, the door 6 provided in said top 4 and through which said sliding doors may be inserted or removed, and a compartment provided beneath said top 4 and accessible through said door 6, substantially as described.

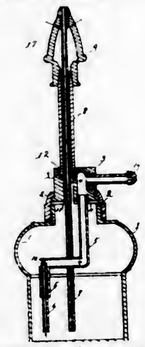
2. A label-cabinet, comprising a base 2, sides 3 and top 4, the vertical partitions 8 and 16, a partition 17 dividing the compartments formed by said sides and said vertical partitions into pigeonholes, the vertically-sliding doors 11 provided in the front of said cabinet and covering the openings leading to said pigeonholes and the front of said cabinet being backwardly inclined, the door 6 provided in said top 4 and through which said vertically-sliding doors may be inserted or removed, and a compartment provided beneath said top 4 and accessible through said door 6 and wherein a quantity of labels may be stored, substantially as described.

642,210. FOLDING CARRIAGE FOR INVALIDS OR INFANTS. FRIEDRICH DEUTSFELD, Hamburg, Germany. Filed May 9, 1899. Serial No. 716,120. (No model.)



Claim.—In combination, an axle, arms terminating in collars to receive the axle, extension-pieces for the arms, supports having collars mounted on the axle, means for attaching the collars to the axle, a canvas extended from the axle to the cross-bar of the extension-pieces, as and for the purpose described.

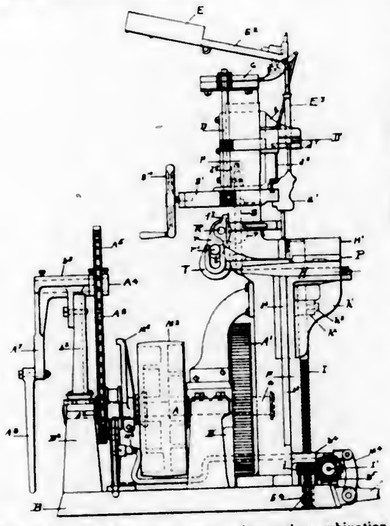
642,211. ATOMIZER. FRANK C. DORMENT, Kalamazoo, Mich., assignor of one-third to Howard G. Colman, same place. Filed Mar. 25, 1899. Serial No. 710,403. (No model.)



Claim.—The combination of a receptacle for holding liquids, an air-receiving tube through which air is forced into the receptacle, a vapor-eduction tube comprising the throat-tube and nasal piece, the delivery end of which is internally screw-threaded, and near said end being enlarged forming a compressed-air chamber, an atomixing-tube for detachable insertion in said vapor-eduction tube and of a size to leave a space between the atomizing-tube and the inner wall of the vapor-eduction tube, said atomizing-tube being externally screw-threaded at the upper end to fit into the screw-threaded hole of the vapor-eduction tube, and provided with the right-angled holes leading into it from the compressed-air chamber, and a construction and arrangement in the liquid-receptacle for vaporizing liquids therein, substantially as set forth.

642,212. BOX-NAILING MACHINE. WILLIAM S. DOIG, New York, N. Y. Filed July 16, 1896. Serial No. 599,406. (No model.)

Claim.—1. In a machine for making battened boxes employing a reciprocating nailing cross-head, and provided with an oscillating nail-supply pan, feeder and nail-boxes, the combination with the said cross-head of a movable nail-punch-carrier bar connected to and laterally adjustable on such cross-head, a sliding carriage comprising upper and lower sections each section having bearings on the main frame, the upper section carrying the nail pan and feeder, the lower section carrying nail-boxes, a nail-chute between the feeder and the nail-boxes, and the two sections united by rods fixed therein, brackets on the nail-punch-carrier bar engaging with such rods, and a screw for moving the carriage toward and away from the cross-head whereby to effect the simultaneous adjustment of the nail-supply pan, nail-punch holder and nail-boxes toward and away from the face of the machine, substantially as described.



2. In a machine for making battened boxes, the combination of a movable platform or work-support with means for moving the same into a position for battening, the said platform being comprised in part by a two-part clenching device, consisting of a fixed and a movable part with means for operating the movable part consisting of sliding cams with inclined surfaces operating to move the said movable portion of the clenching device, a crank for actuating the same carried by a shaft receiving motion from some moving part of the machine and an open connection adapted to be engaged by the crank when the platform is in the battening position and to be disengaged therefrom when the platform is moved.

3. The combination for operating the clenching device, of the rods S, S, carried by the cross-head and provided with adjustable lock-nuts *s*, *s*, *s'*, *s'*, acting on crank-arms r^3 affixed on a shaft R for turning the same, said shaft having crank-arms *r* which are mechanically connected to cam-bars T of the clenching device.

4. In a machine for making battened boxes, the disconnective clenching device provided with the cam-bars for working the same having open connections, in combination with mechanism on the machine for actuating the cam-bars consisting of a shaft having cranks engaging the cam-bars by the open connections therein.

5. In a machine for making battened boxes, the combination with the vertically-movable main platform carrying a two-part clenching device, one part stationary and the other movable, and operating mechanism thereon to operate the movable part, a shaft and cranks on the machine for actuating said operating mechanism, and detachable connections between such crank-shaft and cam mechanism adapted to be engaged and disengaged automatically by the vertical movement of the platform.

6. In a machine for making battened boxes, a vertically-movable platform sustaining a two-part clenching device and operating mechanism for operating the same, means on the machine for operating the clenching-device-operating mechanism and detachable therefrom in changing from battening to box-nailing in combination with power-actuated means for quickly raising the platform to the battening height and dropping such platform to its place for box-nailing, such clenching-device-operating mechanism and means for operating the same being adapted to be brought into cooperative engagement and to be disengaged, respectively, by such vertical movement of the platform.

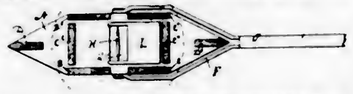
7. In a nailing-machine, the combination of a platform or work-support, a two-part nail-clenching device carried thereby one of whose members is movable, moving means for moving the said movable member, and means for actuating the said moving means, the said actuating means and the said moving means being connected for operation by a connection consisting of a recessed part constituting an open bearing, and another part resting in and bearing upon the said recessed part whereby the said connection is adapted for free mechanical disconnection.

8. In a nailing-machine, the combination of a movable platform or work-support, a two-part nail-clenching device carried thereby and having a movable part, means for moving the said movable part, operating means therefor operated by the machine, and an open connection intervening between the said operating means and the said moving means of such character that they are brought into or out of engagement by the movement of the platform or work-support.

9. In a nailing-machine, the combination of means for executing a normal nailing operation without clenching the nails, a nail-clenching device adapted for coöperation with the nailing mechanism to clench the nails and means for automatically putting the clenching device into operation in harmony with the nailing mechanism to effect the clenching of the nails and for automatically putting the clenching device out of operation when the normal nailing operation is to be resumed, substantially as described and for the purposes set forth.

10. In a nailing-machine, the combination of means for executing a normal nailing operation without clenching the nails, a nail-clenching device adapted for coöperation with the nailing mechanism to clench the nails and means for automatically putting the clenching device into operation in harmony with the nailing mechanism to effect the clenching of the nails and for automatically putting the clenching device out of operation when the normal nailing operation is to be resumed, the said means for putting the clenching device into and out of operation being governed by a change of position of the parts by which the nailing is effected.

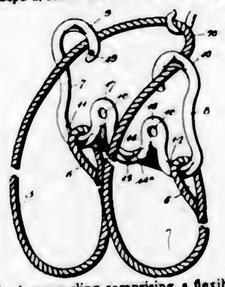
642,213. WASHING APPARATUS. LARS EGGEBRETSEN, Christiania, Norway. Filed Dec. 20, 1898. Serial No. 699,827. (No model.)



Claim.—1. An improved washing apparatus consisting of a board pointed at both ends and provided on both sides with brushes, and further provided with a forked handle pivotally secured to the middle of said board so as to allow the latter to turn freely in said fork, said board finally provided in the middle with an opening, a fixed jaw on one side of said opening and a spring-pressed jaw on the other, and a mop-cloth between said jaws with both ends knotted, substantially as shown.

2. In combination, the board having an opening therein which is wider in the middle than at its ends, a cloth arranged to be drawn through the said opening and having knotted ends and a spring-pressed jaw at the said opening, substantially as described.

642,214. CARGO-SLING. MICHAEL ENRIGHT, Lambert's Point, Va. Filed Sept. 2, 1899. Serial No. 729,388. (No model.)



Claim.—1. A cargo-sling comprising a flexible member having eyes in its ends and a hook member comprising two hooks adapted for engagement with the eyes, said hooks lying mutually adjacent and having a mutual connection having bearing-surfaces to receive the flexible member.

2. A cargo-sling comprising a flexible member and a hook member adapted for engagement with the flexible member and comprising two hooks lying mutually adjacent and having a mutual fixed connection having a bearing-surface to receive the flexible member in a direction transversely of the plane of the hooks.

3. A cargo-sling comprising a hook member including two inwardly-directed hooks adapted to receive the eyes of a flexible member and having a mutual connection provided with a bearing-surface adapted to receive the sides of the flexible member in a direction transversely of the common plane of the hooks, to form a loop.

4. A cargo-sling comprising a hook member including two double hooks having a mutual connection attached thereto exteriorly of the inclosure of the hooks, whereby said hooks may interchangeably receive a flexible member.

5. A cargo-sling comprising a hook member including two double hooks connected at one end exteriorly of the inclosure of the hooks, whereby said hooks may interchangeably receive a flexible member.

6. A cargo-sling comprising a hook member including two hooks arranged mutually adjacent in a common plane and having a connection provided with a transverse bearing-surface adapted to receive a sling when the latter is engaged with the hooks.

7. A cargo-sling comprising two double hooks arranged mutually adjacent and having a mutual connection provided with bearing-surfaces, said connection being attached to the hooks exteriorly of the inclosures thereof, whereby they may interchangeably receive a flexible member.

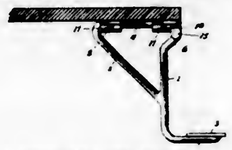
8. A cargo-sling comprising a hook member including two hooks having a mutual connection, and a recessed bearing-surface in one face of said connection adapted to receive a sling when the latter is engaged with the hooks.

9. A cargo-sling comprising a hook member including two hooks arranged mutually adjacent and having a mutual connection, said hooks being adapted to receive the eyes at the ends of the flexible member, and a bearing-surface upon the connection adapted to receive the side of said flexible connection passed transversely of the common plane of the hooks to form a loop, said bearing-surface being accessible from between the hooks.

10. A cargo-sling comprising two double hooks arranged mutually adjacent and having a mutual connection, said hooks being adapted to receive interchangeably at their opposite ends the eyes of a flexible member, and a bearing-recess in the connection between the hooks adapted to receive the sides of the flexible member in a direction transversely of the common plane of the hooks, said connection being fixed to the hook members exteriorly of the inclosures thereof.

11. A cargo-sling comprising a hook member including two double inwardly-directed hooks and having a fixed connection attached thereto exteriorly of the inclosures of the hooks, said hooks being adapted to interchangeably receive the eyes of the flexible member, and a bearing-recess in the connection adapted to receive the flexible member when passed in a direction transversely of the plane of the hooks.

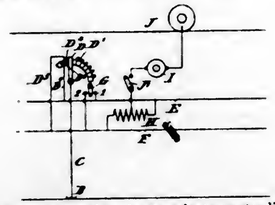
642,215. VEHICLE-STEP. EDUARD A. O. ERIKSON, Hillsborough, Tex. Filed June 2, 1899. Serial No. 719,105. (No model.)



Claim.—In a device of the class described, the combination with a step having an upright standard, a lateral bearing-arm extending from the upper end of the standard, and a downwardly-inclined brace connecting the outer end of the bearing-arm with the standard, of attaching-brackets loosely embracing the bearing-arm and adapted to connect the latter to a vehicle-body, one of the brackets being located at the rear end of the bearing-arm and in engagement with the inclined brace, and the other bracket being located at the opposite outer end of said arm and in engagement with the standard, whereby longitudinal movement of the bearing-arm is prevented, the outer bracket being provided with a pendent stop-shoulder located in advance of the bearing-arm and in normal engagement with the forward side of the standard, substantially as and for the purpose set forth.

642,216. UNIT MULTIPLE SYSTEM OF CONTROL FOR ELECTRIC RAILWAYS. FREDERICK C. RICHARD, New York, N. Y., assignor to the Richard Electric Traction and Signalling Company, of West Virginia. Filed Sept. 27, 1898. Serial No. 691,969. (No model.)

Claim.—1. The combination of a pair of conductors extending through a car, a motor carried by said car and having its field between said conductors and its armature tapped into the middle of the field, a controller connected with an electric-current supply, a reversing-switch connected with said controller and conductors whereby current may be sent through one-half the field in either direction substantially as described.



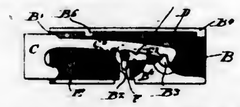
2. The combination of a pair of conductors extending through a car, a motor carried by said car and having one of its elements between said conductors and its other element connected to said first element, a controller having a connection with an electrical supply and with said conductors, through a reversing-switch, and a separate connection with each of said conductors from adjacent points whereby when the arm of the controller engages said points, current will be passed through the element between the conductors in both directions substantially as described.

3. The combination of a pair of conductors extending through a car, a motor carried by said car and having one of its elements between said conductors, a controller carried by said car having two adjacent points which have separate connections with said conductors, whereby when the arm of the controller engages said points current will be sent through the element between the conductors in opposite directions.

4. In a unit multiple system of electrical control, the combination of a number of cars forming a train, a pair of conductors extending through said train, a multiplicity of motors carried by said train and having the field of each motor between said conductors and the armature tapped into the middle of the field, a controller or controllers carried by said train and having connection with an electric-current supply, a reversing switch or switches connected with said controller or controllers and with said conductors.

5. The combination of a pair of conductors extending through a car, a motor carried by said car and having one of its elements between said conductors and its other element tapped into the middle of the first element, a controller connected with an electric-current supply, a reversing-switch connected with said controller, and conductors, whereby current may be sent through one-half of one of the elements in either direction.

642,217. LOCK. LEVIN FAUST, Rockford, Ill. Filed July 14, 1899. Serial No. 723,831. (No model.)



Claim.—In a lock, in combination, counterpart plates A B, having opposite recesses, A' B', in the inner faces thereof, and opposite recesses, A^2 B^2, in the bottoms of the recesses A' B', one of such plates being provided with a bolt-stopping lug, B^3, spring-supporting lugs, B^4 B^5, and a keyhole B^6, a bolt C, adapted to be contained and slid in the recesses, A' B', in the plates, A B, and provided with stopping-detents, C' C^2, and an actuating-lug C^3, and a spring D confined endwise between the supporting-lugs, B^4 B^5, on the plate B, and holding the bolt C into engagement with the bolt-stopping lug B^3, substantially as and for the purpose specified.

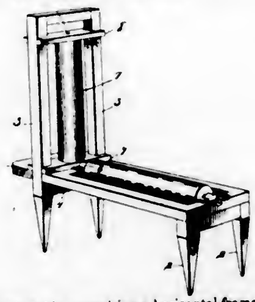
642,218. PROCESS OF MAKING SALOL. HENRY C. PERRIN, Milwaukee, Wis. Filed May 22, 1899. Serial No. 717,838. (No specimens.)

Claim.—1. The within-described process of producing salol from alcaline and earthy alcaline salts of acid-phenyl-carbonic ether, by the action of phosphorus oxychlorid.

2. The within-described process of producing salol from sodium-phenyl carbonate by subjecting the same to the action of phosphorus oxychlorid until satisfactory conversion of the sodium-phenyl carbonate into salol is effected, subsequently treating the product with

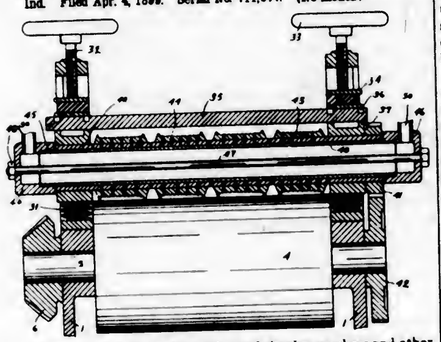
a solution of soda, and finally, distilling off the salol in a current of steam.

642,219. BELT-GUIDE. HENRY E. GERRING, Betdorf, Ohio. Filed Sept. 6, 1899. Serial No. 729,617. (No model.)



Claim.—A belt-guide comprising a horizontal frame provided at one end with depending prongs, and having opposite recesses adjacent to its opposite end; a vertical frame consisting of parallel standards fitting the recesses of the horizontal frame and sharpened at their lower ends to form prongs, and cross-bars connecting said standards, one of said bars supporting the end of the horizontal frame; a roller-mounted in said horizontal frame; a vertical roller; and means for supporting the latter consisting of cross-bars recessed at their ends to fit the standards of the vertical frame, and formed with central bearings for the roller-journals.

642,220. MACHINE FOR CUTTING AND SHAPING CRACKERS OR OTHER PLASTIC MATERIALS. THOMAS L. GREEN, Indianapolis, Ind. Filed Apr. 4, 1899. Serial No. 711,677. (No model.)



Claim.—1. A machine for cutting and shaping crackers and other plastic material including a conveyer, a hollow perforated rotary die, and means for forcing air through the perforations in the die to remove the material therefrom.

2. A machine for cutting and shaping crackers and other plastic material including a conveyer, a hollow rotary die miscellaneously perforated and with closed ends, and means for introducing compressed air into the hollow die.

3. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow die-cylinder closed at its ends and provided with perforations, one or more dies mounted thereon with perforations registering with those in the cylinder, and means for introducing compressed air into the cylinder.

4. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow die-cylinder closed at its ends, a plurality of dies mounted thereon, perforations being made through the cylinder and dies and through the cylinder between the dies, and means for introducing compressed air into the cylinder.

5. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow perforated die-cylinder, a stationary air-tube fitting snugly within the cylinder and with an outlet that can register with the perforations in the cylinders, and means for introducing compressed air into the air-tube.

6. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow perforated die-cylinder, a stationary air-tube fitting snugly within the cylinder with an outlet extending along a line longitudinal therewith, and means for introducing compressed air into the air-tube.

7. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow perforated die-cylinder, a stationary air-tube fitting snugly within the cylinder with a groove in the outside of the tube extending longitudinal therewith and perforations in the air-tube at said groove, and means for introducing compressed air into the air-tube.

8. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow perforated die-cylinder, a stationary air-tube fitting snugly within the cylinder with an outlet to the perforations in the die-cylinder and with its ends extending beyond the ends of the die-cylinder, caps for closing the ends of the air-tube held in place by a bolt extending through said tube, and a pipe or tube from some suitable source of compressed air extending into the cap at the end.

9. A machine for cutting and shaping crackers and other plastic material including a conveyer, a rotary hollow perforated die-cylinder, an air-tube fitting snugly within the cylinder with an outlet to the perforations in the cylinder extending in a line horizontally therewith, means for introducing compressed air into said air-tube, and means for adjusting the position of the outlet from the air-tube by turning said tube and for holding it stationary when adjusted.

10. A machine for cutting and shaping crackers and other plastic material including a conveyer, a perforated rotary cylindrical die, means for forcing air through said perforations for removing the dough therefrom, a brush so mounted as to engage the die behind the air-blast therethrough, and means for rotating the brush in the same direction as the die.

11. A machine for cutting and shaping crackers and other plastic material including a conveyer, a perforated rotary cylindrical die, means for forcing air through said perforations for receiving the dough therefrom, a brush so mounted as to engage the die behind the air-blast therethrough, means for rotating the brush in the same direction as the die, and a stiffening-shield mounted close behind the brush whereby the brush will be held throughout its length against the dies.

12. A machine for cutting and shaping crackers and other plastic material including a conveyer, a cylindrical rotary perforated die, means for forcing air through the perforations, and a roller so mounted as to hold the crackers, cakes, &c., by its gravity after they have left the die.

13. A machine for cutting and shaping crackers and other plastic material including a rotary die, a conveyer to transport the dough beneath said die that is inclined downward somewhat after it leaves the die, a rib or angle-bar at the end of the conveyer with a rounded edge over which the conveyer moves, an auxiliary conveyer, a small roller at each end of said auxiliary conveyer to hold it close to the end of the main conveyer and in line therewith, and means for actuating said conveyers.

642,221. METHOD OF STERILIZING RAW MEAT. FÉLIX GROSNET, Hanterre, France. Filed June 15, 1898. Serial No. 683,501. (No specimens.)

Claim.—The herein-described process of preparing an alimentary product which consists in first grating raw meat, then mixing it with a suitable flour, and then subjecting the meat and flour adhering thereto to the action of a sterilising bath composed essentially of vinegar, salt, ginger, spices and acetate of potash.

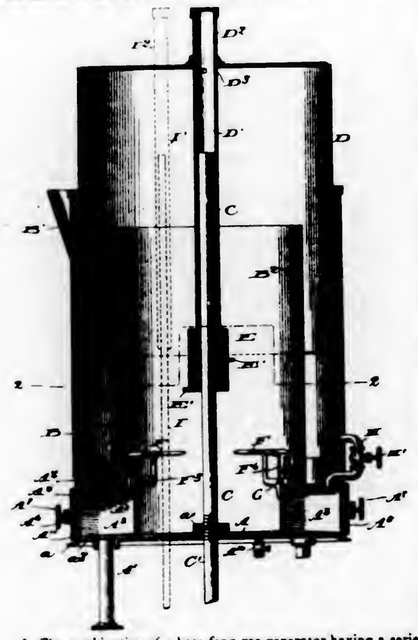
642,222. ACETYLENE-GAS GENERATOR. GEORGE E. GULICK, FRANK M. GALLOUP, and CHARLES H. GULICK, Lodi, N. Y. Filed Jan. 16, 1899. Serial No. 702,311. (No model.)

Claim.—1. In a gas-generator comprising a tank and movable dome, a carbid-cell located within and upon the base of the tank beneath the water-level thereof and provided with an aperture in its upper wall, a valve and operating connections for said aperture, and means carried by said dome for actuating said valve for admitting water and discharging the gas from said cell beneath the level of water in said tank; substantially as specified.

2. In a gas-generator comprising a tank and movable dome, a carbid-cell arranged within and upon the base of said tank beneath the water-level of the tank and having an aperture communicating with said tank, a valve for said aperture, a pivoted arm connected with said valve, an independent operating-lever adapted to engage said arm when moved in one direction, and means carried by the dome for engaging said lever; substantially as specified.

3. The combination with a tank-wall and movable dome within the same, of a base for said wall having a series of independent cells circumferentially arranged upon the upper face within said wall and provided with openings at their outer faces adapted to receive suitable closures; substantially as specified.

4. The combination with a tank-wall and movable dome within the same, of a base-plate for said tank having a series of independent cells arranged upon its upper surface within said wall and provided with ports in their upper faces disposed radially and adjacent to the center of said base; substantially as specified.



5. The combination of a base for a gas-generator having a series of cells circumferentially arranged upon said base-plate, said cells being open at their outer faces, and an annular flange above said cells with a tank-wall fitting said flange, and a movable dome within said wall; substantially as specified.

6. In a gas-generator comprising a tank and movable dome, a series of carbid-cells carried within and upon the face of the base of said tank each having a port radially disposed adjacent to the center of said tank, valves for said ports, and means disposed centrally of said tank for operating said valves to admit water into the separate cells of the series; substantially as specified.

7. In a gas-generator comprising a tank and movable dome, a series of carbid-cells carried within and upon the face of the base of said tank each having a port radially disposed adjacent to the center of said base, valves for said cells, and valve-actuating devices disposed centrally of said tank positioned opposite the several valves to automatically and successively actuate the same; substantially as specified.

8. In a gas-generator comprising a tank and movable dome, a series of carbid-cells carried within and upon the face of the base of said tank each having a port radially disposed adjacent to the center of the tank, valves for said cells each having an operating-lever projecting toward the center of said tank, and a series of tripping devices centrally suspended from said dome and positioned opposite said valve-levers to successively and automatically operate the same; substantially as specified.

9. In a gas-generator comprising a tank and movable dome, a series of valved cells circularly disposed, and a tripping device within said tank centrally carried by said dome and provided with a series of independent spirally-disposed contacts to successively and automatically open said valves; substantially as specified.

10. In a gas-generator, comprising a tank and movable dome, a series of cells, means within the dome for automatically and successively admitting water to said cells, and a series of indicating characters extending around the periphery of the dome and corresponding in position to the cell or compartment designated thereby; substantially as specified.

11. In a gas-generator comprising a tank and movable dome, a carbid-cell having an inlet-aperture, a valve controlling the same, located within and below the water-level of said tank, a pivoted arm for lifting said valve, an independently-pivoted lever for raising said arm, and a tripping device carried centrally within and by the dome and adapted to engage said lever; substantially as specified.

12. A gas-generator comprising a tank and movable dome, a carbid-cell located within and upon the base of said tank and having an inlet-apertare, a valve for said aperture, a pivoted arm flexibly connected with said valve, an independently-pivoted operating-lever adapted to engage said arm in its movement in one direction, and a tripping device carried by the dome to engage and actuate said lever, substantially as specified.

13. A gas-generator comprising a tank and movable dome, a carbid-cell having an inlet-aperture, a valve-seat provided with a beveled edge, a ball-valve and operating-lever, flexible connection between said lever and valve, a tripping device to actuate said lever; an arm lifted by said lever and to which said flexible connection extends, and guard-wings supported by said valve-seat; substantially as specified.

14. In a gas-generator comprising a tank and dome, a series of carbid-cells arranged within the tank, valves and operating-levers carried by said cells, a tripping device carried by the dome, and a series of contact-lugs spirally arranged around said tripping device to engage the lever successively in the descent of the dome; substantially as specified.

15. In a gas-generator comprising a tank and movable dome, a series of radially-arranged cells or compartments, valves thereon communicating with the tank, operating-levers for said valves extending inward toward a common center, and a tripping device carried by a central depending extension upon said dome and provided with a series of laterally-projecting contacting lugs; substantially as specified.

16. In a gas-generator, a tank composed of a base carrying carbid-cells or compartments having apertures communicating with said tank, a cylindrical skirt surrounding said apertures, and a movable dome covering the upper end of said skirt; substantially as specified.

17. In a gas-generator comprising a tank and movable dome, a carbid-cell carried by the base of said tank and provided with a gas-outlet below the water-level within said tank and a by-pass connection communicating with said tank and cell; substantially as specified.

18. In a gas-generator, a base carrying valved carbid-cells circumferentially arranged upon the upper face thereof and having a flange at its upper portion, a cylindrical tank-body secured to said flange, an upwardly-extending gas-pipe located in said base, a dome carrying tripping devices for said valved cells and provided with a sleeve surrounding said pipe, a vent or escape pipe extending upward from said base and above the top of said tank-cylinder, and a telescoping pipe carried by the dome and extending over the upper end of said vent-pipe; substantially as specified.

19. A gas-generator comprising a base having a series of radially-arranged carbid-cells having openings at an outer face, a tank located above said cells, valved connections between said tank and cell, operating-levers for said valves, a by-pass communicating with the tank and one of said cells, a gas-outlet pipe extending upward from said base, a movable dome provided with a downwardly-extending sleeve surrounding said pipe, and a tripping device at the lower end of said sleeve provided with spirally-arranged contact-lugs to successively operate said levers; substantially as specified.

20. A gas-generator comprising a base having a series of radially-arranged carbid-cells having openings at an outer face, a tank located above said cells, valved connections between said tank and cell, operating-levers for said valves, a by-pass communicating with the tank and one of said cells, a gas-outlet pipe extending upward from said base, a movable dome provided with a downwardly-extending sleeve, surrounding said pipe, a tripping device at the lower portion of said sleeve provided with contact-lugs to successively operate said levers, a series of movable covers for said cells, a cylindrical skirt surrounding said valves and extending upward therefrom, and indicating characters carried by said dome and located to correspond in position with the several cells or compartments; substantially as specified.

21. In a gas-generator, the combination with a tank and a series of carbid-chambers having ports disposed radially to the center of said tank, of a vertically-movable dome, a weight depended centrally of said dome and provided with valve-actuating devices, and a series of valves on said cells having operating-levers extending radially inward toward the center of said tank; substantially as specified.

642,228. PROCESS OF MANUFACTURING MOLDED OBJECTS. CARL GRÜNZWEIG, Ludwigshafen, Germany. Filed Nov. 7, 1898. Serial No. 695,781. (No specimens.)

Claim.—1. The process herein described which consists in coating particles of cork or similar substances with a non-heat-conducting binding material, forming the desired article from the coated particles, and then immersing said article in a waterproofing liquid, the latter being under pressure, until the pores of the binding material are completely filled by said liquid throughout the mass, substantially as set forth.

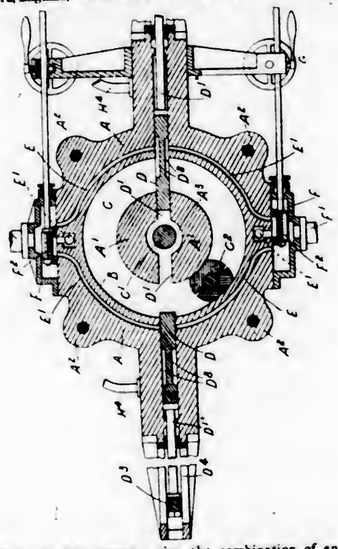
2. The process herein described, which consists in coating particles of cork or similar substances with a non-heat-conducting binding material, forming the desired article from the coated particles, then creating a vacuum about said article, and then applying a water-proofing liquid to the article and maintaining the liquid under pressure in contact with the article until the pores of the binding material are completely filled up throughout the mass, substantially as set forth.

642,224. GRAIN-DRILL. BENJAMIN F. HAVER, Oklahoma, Okla. Filed June 20, 1899. Serial No. 721,234. (No model.)



Claim.—In a grain-drill, the combination with the grain spouts or boots, a transverse supporting-bar, and pairs of arms provided with furrow-openers, of couplings composed of corresponding parts having front and rear ears formed with vertically-alining openings and having the inner or meeting face of each part formed with spaced parallel semicircular straight grooves of different diameters, which grooves unitedly form straight parallel transverse openings when the parts of the coupling are brought together, a bolt connecting the front ends of a pair of arms and fitted in the rear straight transverse opening of the coupling, and clamp-bolts connecting the terminal ears of the parts of the coupling, substantially as set forth.

642,225. ROTARY PRESSURE-ENGINE. SAMUEL A. B. HICKSON, Fulford, England. Filed Oct. 9, 1899. Serial No. 733,097. (No model.)



Claim.—1. In a rotary engine, the combination of an annular cylinder, a central core around which the cylinder is formed, a shaft passed through the core concentric with the cylinder, a piston within the cylinder, a member connecting the piston and shaft, oppositely-arranged partitions adapted to be reciprocated across the interior of the cylinder, and, in conjunction with the piston, to alternately divide the interior of the cylinder into two steam-tight chambers, means for simultaneously reciprocating the partitions, means for admitting steam to the cylinder on one side of the piston, means for exhausting on the opposite side of the same, means for regulating the pressure on the ends of the partitions, a valve to regulate the admission of steam to the cylinder and a valve to throttle or reverse the direction of the flow of steam to or from the cylinder, substantially as set forth.

2. In a rotary engine, the combination of an annular cylinder, a central core around which the cylinder is formed, a shaft passed through the core concentric with the cylinder, a piston within the cylinder, a member connecting the piston and shaft, oppositely-arranged partitions adapted to be reciprocated across the interior of the cylinder and, in conjunction with the piston, to alternately divide the interior of the cylinder into two steam-tight chambers, means for simultaneously reciprocating the partitions, means for admitting steam to the cylinder on one side of the piston, means for exhausting on the opposite side of the same, means for regulating the pressure on the ends of the partitions, and a valve to control the admission of steam to the cylinder substantially as set forth.

3. In a rotary engine the combination of an annular cylinder open on one side, a central core around which the cylinder is formed, a shaft passed through the core transversely to the cylinder and concentric with the bore of the same, a disk mounted on the shaft and so situated as to close the open side of the cylinder, a piston carried by the disk, a partition reciprocated across the cylinder, a tenon on one side of the partition and a corresponding groove in the wall of the cylinder, means for reciprocating the partition, a recess in the core to receive the end of the partition when advanced across the cylinder, a balance-chamber within the core communicating with the cylinder and the recess which receives the end of the partition a recess in the upper and lower faces of the reciprocating partition, ports and passages formed in the wall of the cylinder and communicating with these recesses when the partition is advanced, and a valve to throttle or reverse the direction of the flow of steam through the passages in the wall of the cylinder, substantially as set forth.

4. In a rotary engine the combination of an annular cylinder open on one side, a central core around which the cylinder is formed, a shaft passed through the core transversely to the cylinder and concentric with the bore of the same, a disk mounted on the shaft and so situated as to close the open side of the cylinder, a piston carried by the disk, a partition reciprocated across the cylinder, a tenon on one side of the partition and a corresponding groove in the wall of the cylinder, means for reciprocating the partition, a recess in the core to receive the end of the partition when advanced across the cylinder, a balance-chamber within the core and communicating with the cylinder, and the recess which receives the end of the partition, a recess in the upper and lower faces of the reciprocating partition, ports and passages formed in the wall of the cylinder and communicating with these recesses when the partition is advanced, and a valve to regulate the admission of steam to the cylinder substantially as set forth.

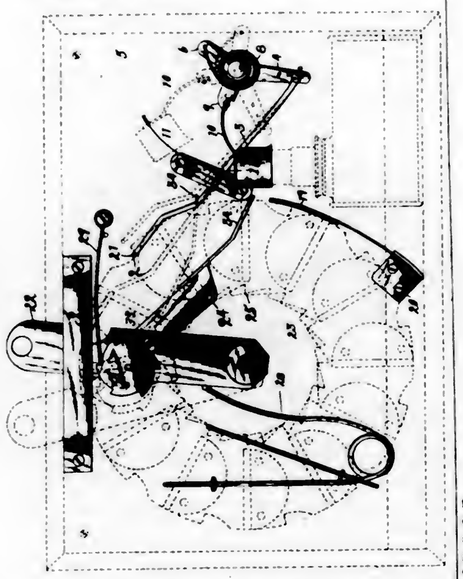
5. In a rotary engine the combination of an annular cylinder open on one side, a central core around which the cylinder is formed, a shaft passed through the core transversely to the cylinder and concentric with the bore of the same, a disk mounted on the shaft and so situated as to close the open side of the cylinder, a piston carried by the disk, a partition reciprocated across the cylinder, a tenon on one side of the partition and a corresponding groove in the wall of the cylinder, means for reciprocating the partition a recess in the core to receive the end of the partition when advanced across the cylinder, a balance-chamber within the core and communicating with the cylinder and the recess which receives the end of the partition, and a valve to regulate the admission of steam to the cylinder substantially as set forth.

6. In a rotary engine, the combination of a cylinder, a shaft arranged transversely of the cylinder and concentric with the bore of the same, a piston within the cylinder, a member connecting the piston and shaft, oppositely-arranged partitions adapted to be reciprocated across the interior of the cylinder, and, in conjunction with the piston to alternately divide the interior of the cylinder into two steam-tight chambers, means for simultaneously reciprocating the partitions, means for admitting steam to the cylinder on one side of the piston, means for exhausting on one side of the same, means for regulating the pressure on the ends of the partitions, a valve to control the admission of steam to the cylinder, and means for varying the position of the valve to vary the admission of the steam.

7. In a rotary engine, the combination of a cylinder divided into two chambers, a central core around which the cylinder is formed, a shaft extending transversely across the chambers, a crank-disk mounted upon the shaft intermediate the chambers, a crank-pin secured to each side of the crank-disk and fitting within the chambers and forming pistons, oppositely-arranged partitions for each chamber and adapted to be reciprocated across the interior of each chamber so as in conjunction with the pistons, to divide each of them into two steam-tight compartments, means for reciprocating the partitions, means for admitting steam to each of the chambers on one side of the pistons, means for exhausting on the opposite side of the same, means for regulating the pressure on the ends of the partitions, and valves to regulate the admission of steam to the chambers.

8. In a rotary engine, the combination of a cylinder divided into two chambers, and being provided with steam admission and exhaust passages E E', a central core around which the cylinder is formed, a shaft passed through the core concentric with the cylinder, a crank-disk arranged intermediate the chambers, pistons carried by the disk, opposite partitions adapted to be reciprocated across the cylinder and each being recessed at opposite sides, the recesses being adapted to communicate with the steam and exhaust passages of the cylinder at a certain point in the movement of the partitions, means for simultaneously reciprocating the partitions as set forth, means for regulating the pressure on opposite ends of the partitions, and valves to regulate the admission of steam to the steam-admission passages of the cylinder.

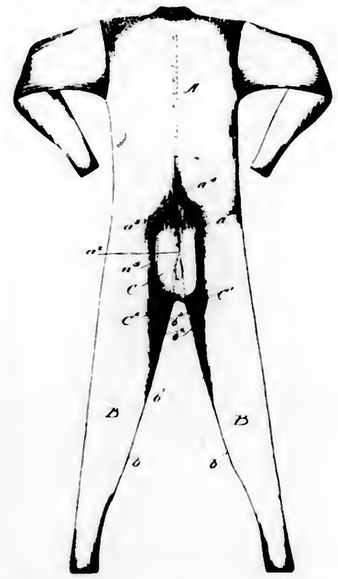
642,226. LAMPLIGHTER OR LIGHT-EXTINGUISHER. ZEBULON F. HIGHSMITH, Lumberton, N. C. Filed June 5, 1899. Serial No. 719,467. (No model.)



Claim.—1. A light lighter and extinguisher, consisting of a plate 5; a double wheel, consisting of the part 1, having in its periphery ratchet-notches 2, and a part 23, in its periphery having notches 24; match-holders 15, secured to the outer face and periphery of the wheel 1; levers 4, 6, and 9, integral with each other at their inner ends and pivoted to the plate 5; rod 3, one end pivoted to the outer end of lever 4, its other end adapted to catch in the notches 2; lever 9, carrying a spring 10, and a cap 11, on the extreme end of spring 10; spring 7, adapted to operate levers 4, and 9; scratch 19, secured to the plate 5, its roughened end impinging against the periphery of the wheel 1, and adapted to ignite a match; lever 22, pivoted through the center of the wheels 1, and 23, and to the plate 5; arm 33, pivoted to said lever 22; pin 24, extending from one side of the arm 23; trip 34, secured to the end of arm 33, and adapted to throw the free end of rod 3, out of notches 2, of the wheel 1; ratchet-wheel 30, pivoted to the lever 22; spring 29, adapted to turn wheel 30, backward to the left, when the lever 22, moves to the right; catch 32, rigidly secured to the pivot-pin of the wheel 30, its points 31, adapted alternately, to catch against the short end of the arm 33, and to hold the trip 34, up in position to strike the free end of the rod 3, substantially as shown and described and for the purposes set forth.

2. A light lighter and extinguisher, consisting of a plate 5; a double wheel, consisting of the part 1, having in its periphery ratchet-notches 2, and a part 23, having in its periphery ratchet-notches 24; match-holders 15, having slits 18 secured to the periphery of the wheel 1; rod 3, working in guide 14, and having one end adapted to catch in the notches 2, of the wheel 1, and its other end pivoted to the free end of the lever 4; said lever 4, connected to a device adapted to turn on or shut off the gas from a gas-jet; scratch 19, impinging against the periphery of the wheel 1, and adapted to ignite the match; lever 22, pivoted through the center of the wheels 1, and 23, to the plate 5; arm 33, pivoted to said lever 22, and carrying pin 24, and trip 34, adapted to throw rod 3, out of notches 2; ratchet-wheel 30, pivoted to the lever 22; spring 29, adapted to turn the wheel 30, to the left; catch 32, rigidly secured to the pivot-pin of the wheel 30, its points 31, adapted, alternately, to catch against the short end of the arm 33, and hold the trip 34, up in position to strike the free end of the rod 3, substantially as shown and described and for the purposes set forth.

642,227. UNDERGARMENT. ROMULUS E. HILL, Waseeka, Ill. Filed Mar. 16, 1898. Serial No. 674,051. (No model.)

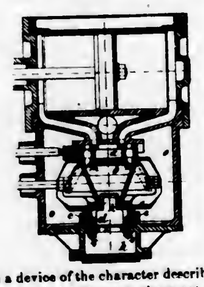


Claim.—1. A garment provided at its rear with two overlapping flaps, each of which is provided at its lower end with two extensions, one of which is pointed and is secured in the inner seam of the leg, and the other of which is extended forward between the upper margins of the leg portions of the garment, in overlapped relation to the corresponding extension upon the other flap, and is secured at both of its side margins to the said leg portions of the garment.

2. A garment comprising a main or body part and two pieces which are inserted in the rear of the garment; said inserted pieces being overlapped at both their upper and lower ends, and each of said pieces being provided at its lower end with two extensions, one of which is pointed and extends into the inner leg-seam of the garment, and the other of which extends forward between the edges of the main parts of the garment at the crotch, and is attached at both edges to said main parts, in overlapped relation to the corresponding extension upon the other inserted piece.

3. A garment for males, the leg portions of which are joined at the crotch and which is closed in front above the crotch, said garment being provided in its front portion with a vertical slit or opening, a band secured at one edge to the edges of said slit or opening and surrounding the same in the form of a collar, the free edges of said band being adapted to overlap each other to close said slit or opening and to be projected outwardly to open the same.

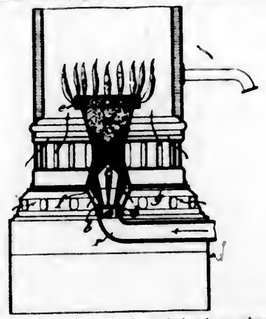
642,228. BALANCED CUT-OFF VALVE. OLOF M. HOFWOLT, Rostock, Germany. Filed May 16, 1899. Serial No. 716,976. (No model.)



Claim.—In a device of the character described, a slide-valve provided with the semicylindrical seat, a piston cut-off valve for the seat,

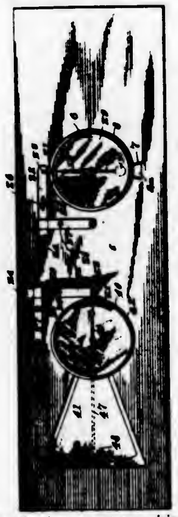
and a semicylindrical balance-plate having reciprocating motion with the cut-off valve, and the balance-plate having a vertical motion toward the cut-off valve.

642,229. **BURNER FOR GAS-STOVES OR THE LIKE.** FRANZ HOUBEN, Aachen, Germany, assignor of one-half to L. G. Houben Sohn Carl, same place. Filed Aug. 26, 1899. Serial No. 728,531. (No model.)



Claim.—In a gas-stove, a burner-nozzle having a plurality of outwardly inclined or diverging gas-orifices, an outwardly-flaring wall encircling the same having air-openings, a frusto-conical wall surmounting said flaring wall and located in position to be impinged against by the jets issuing from said openings and an enlarged mixing-chamber above said frusto-conical wall, substantially as described.

642,230. **PLUMB-LEVEL.** FRANCIS X. HURTUBIE, Oswego, N. Y. Filed Sept. 9, 1899. Serial No. 729,974. (No model.)

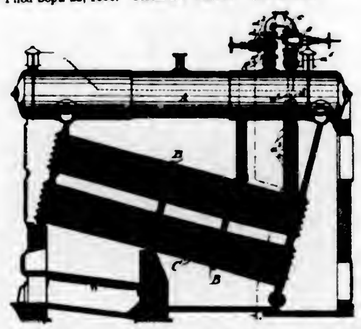


Claim.—1. A leveling instrument comprising a beam having transverse openings therein, cylindrical casings fitted in the openings and adapted for oscillation therein, means for limiting the degree of oscillation of the casings, dials carried by the casings, indexes pivotally mounted upon the casings and having plumb-weights connected therewith, fingers carried by the casing and adapted to register with the indexes, slidable plates pivoted to the fingers to oscillate the casings and a spring-finger mounted upon the beam and having a clamping-screw adapted to clamp it upon the plate to hold the casing in its adjusted positions.

2. A leveling instrument comprising a beam having a cylindrical opening therethrough and a communicating angular opening, of a cylindrical casing in the first-named opening and having an extension lying in the second opening, said casing being adapted for oscillatory movement, a dial upon the casing, an index pivotally connected with the casing and having a plumb-weight, a slidable plate pivoted to the casing and adapted to reciprocate, a spring-finger arranged transversely of the plate and means for clamping the finger against the plate to hold it against slidable movement.

3. A leveling instrument comprising a beam having a cylindrical opening therethrough and a communicating angular opening, of a cylindrical casing in the first-named opening and having a hollow extension lying in the second opening and corresponding therewith in form, said casing being adapted for oscillatory movement, dials carried by the casing, a spindle pivoted in the casing and having indexes adapted to travel over the dial, a plumb-weight in the extension of the casing and adapted to move therein, said weight being connected with the spindle, and means for oscillating the casing.

642,231. **SUPERHEATER.** AMUND U. JAASTAD, Boston, Mass. Filed Sept. 25, 1899. Serial No. 731,552. (No model.)



Claim.—1. A superheater for boilers comprising a system of tubes located in the boiler; inlet and outlet tubes connected with the said tube system and extending therefrom to a point outside the boiler; couplings for said tubes whereby they are adapted to be connected to the steam-passage at a point outside the steam-drum; and valves respectively controlling the said superheater and the said steam-passage, substantially as described.

2. The herein-described superheater which comprises a set of tubes extending transversely across the boiler and located above the boiler-tubes and beyond the last baffle-plate; and inlet and outlet passages connected with said tubes and adapted to be connected with the steam-outlet from the boiler at a point outside the steam-drum, as set forth.

3. A superheater comprising an inlet-passage provided with a valve adapted to be coupled directly with the steam-outlet from the boiler at a point outside of the steam-drum; a series of superheating-tubes leading from the said inlet-passage through the boiler; an outlet-passage connected with the steam-outlet at a point outside of the steam-drum; and a valve in the steam-outlet interposed between the inlet and outlet passages of the superheater, as set forth.

4. A superheater comprising an inlet-duct adapted to be connected with the end of the cross connection which connects the water-drums of the boiler with the main steam-outlet; steam-passages extending from said inlet-duct transversely across the heat-chamber in the boiler; an outlet-duct extending from the opposite ends of said steam-passages to a coupling connected with the boiler-outlet, said coupling having two branches each provided with a valve, one connected directly with said boiler-outlet and the other with the superheater-outlet; and valves controlling the superheater-inlets, substantially as described.

5. A superheater having its inlet and outlet ducts coupled with the boiler-outlet at a point outside of the steam-drum, and a main valve in said boiler-outlet between said ducts, whereby a direct outlet may be afforded from the boiler, as set forth.

6. A superheater having its inlet-ducts coupled to the cross connection outside of the steam-drum and its outlet-ducts coupled to the main steam-outlet beyond said cross connection; a main valve in said main steam-outlet between said ducts; and a by-pass valve controlling a by-pass around said main valve whereby saturated and superheated steam may be used at the same time and the proportions regulated, substantially as described.

7. A superheater comprising substantially vertical headers connected together by substantially horizontal tubes, said tubes extending transversely through the boiler above the water-tubes and below the drum; inlets coupled to the ends of the drum cross connection and extending to the outer headers of the superheater; outlets from the inner headers of the superheater extending between the steam-drums to one of the inlets of a branch connection having two inlets and one outlet, the other inlet thereof being connected to the main steam-outlet from the steam-drums; and a valve in said main steam-outlet, substantially as described.

8. A superheater having inlets a and outlets a^4; couplings for said inlets provided with valves b at the ends of the cross connection A^4; a branch connection c having one of its inlets communicating with the superheater-outlet a^4 and its other inlet communicating with the steam-outlet A^3; and the valves d and e controlling the inlets of said branch connection, as set forth.

642,232. **AUTOMATIC BLOCK FOR RAILROAD-SWITCHES.** WILLIAM R. KERSEY, Doon, Iowa, assignor of one-half to Samuel J. Beals, Sioux City, Iowa. Filed Apr. 24, 1899. Serial No. 714,287. (No model.)



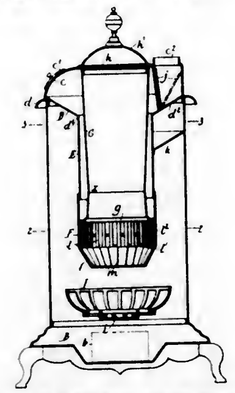
Claim.—1. In a foot-guard for a split switch in combination with the fixed rail and the switch-tongue a horizontally-movable bar longitudinally placed between the fixed rail and the switch-tongue and flexibly secured, said bar being adapted to occupy the recess in the side of the fixed rail when the switch-tongue is closed against it, and means for withdrawing the bar from the recess in the fixed rail when the switch-tongue is opened so that the bar will divide the open space between the fixed rail and the switch-tongue, substantially as described.

2. In a foot-guard for a split switch in combination with the fixed rail and the switch-tongue a horizontally-movable bar longitudinally placed between the fixed rail and the switch-tongue, having at one end a flexible connection which allows the bar to move laterally with the switch-tongue, said bar being adapted to occupy the recess in the side of the fixed rail when the switch-tongue is closed against it, and means for withdrawing the bar from the recess in the fixed rail when the switch-tongue is open so that the bar will divide the open space between the fixed rail and the switch-tongue, substantially as described.

3. In a foot-guard for a split switch in combination with the fixed rail and the switch-tongue, a horizontally-movable bar, longitudinally placed between the fixed rail and the switch-tongue, and flexibly secured at one end by a vertical hinge, which permits the bar to move laterally, said bar being adapted to occupy the recess in the side of the fixed rail when the switch-tongue is closed against it, and means for withdrawing the bar from the recess in the fixed rail when the switch-tongue is opened so that the bar will divide the open space between the fixed rail and the switch-tongue, substantially as described.

4. In a foot-guard for a split switch in combination with a fixed rail and the switch-tongue, a horizontally-movable bar a a longitudinally placed between the fixed rail B, and the switch-tongue A, and secured to the said movable rail or switch-tongue A by the hinge b, said bar being adapted to occupy the recess in the side of the fixed rail when the switch-tongue is closed against it, and to be drawn from said recess, and the hook D attached to the bar a a and adapted to engage the switch-tongue, and the shoe G attached to the bar a a and carrying the hook H, substantially for the purpose as hereinbefore set forth.

642,233. **MAGAZINE-STOVE.** JOHN A. KENDALL, Cameron, Mo. Filed Feb. 8, 1899. Serial No. 704,879. (No model.)



Claim.—1. In a magazine-stove, the combination of an outer casing having an outlet for the products of combustion, an inner casing having the draft opening or openings at its top, an open-ended combustion-chamber at the lower end of the inner casing in which chamber the fuel is supported and consumed, a magazine-casing within the inner casing providing a passage between it and the latter for the draft, and channels in the inner wall of the combustion-chamber for dividing and distributing the draft to the body of fuel, substantially as and for the purposes set forth.

2. In a magazine-stove, the combination with a magazine-casing and a casing surrounding it, of an open-ended fuel-supporting combustion-chamber at the lower end of said casings having in its wall draft-openings communicating with the space between the casings.

3. In a magazine-stove, the combination with a magazine-casing and a casing surrounding it providing a passage for the draft, of an open-ended fuel-supporting combustion-chamber at the lower end of the casings, said chamber having channels in its inner wall communicating with said passage, and having its lower end contracted, substantially as and for the purpose set forth.

4. In a magazine-stove, the combination with a magazine-casing and a casing surrounding it providing a passage for the draft, of an open-ended combustion-chamber at the lower end of the casings, said chamber having channels in its inner wall communicating with said passage, and deflectors at different planes in said channels.

5. In a stove of the class described, a combustion-chamber having in its inner wall a plurality of vertical channels for draft, and deflectors in said channels located at different planes.

6. In a stove of the class described, a fuel-supporting combustion-chamber having its lower end contracted and provided in its inner wall with a plurality of vertical channels for draft and deflectors in said channels located at different planes.

7. In a stove of the class described, a combustion-chamber having a lower contracted end grooved at its inner side, and having a plurality of inclined ribs at its inner wall providing vertical draft-channels, deflectors in the lower end of certain of the channels, and other deflectors at a different plane in other channels the last-named deflectors being separated from the chamber-wall.

8. In a magazine-stove, the combination with a magazine-casing and a casing surrounding it providing a passage for draft, an open-ended fuel-supporting combustion-chamber at the lower end of the casings having channels in its wall communicating with the passage, and a grate below and adjacent to the combustion-chamber, substantially as described.

9. In a magazine-stove the combination with an outer casing having at its base an ash-pit, and at its top a draft-opening and an outlet for the products of combustion, a plate in the upper end of the casing having an opening in line with the outlet and a damper at said opening, an inner casing depending from the plate, a magazine-casing within the inner casing, a combustion-chamber in which the fuel is supported and consumed at the lower end of the inner and magazine casings, a grate below and adjacent to the bottom of the combustion-chamber, and a plate interposed between the inner and outer casings below the opening in the aforesaid plate, substantially as described.

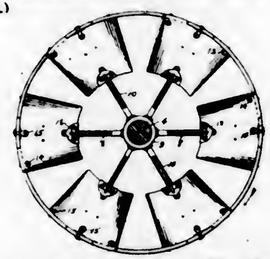
10. In a stove of the class described, a magazine-casing having its lower end flared and terminating in an offset providing an enlargement, and an open-ended fuel-supporting chamber depending from the offset portion of the casing, and channels in the wall of the chamber.

11. In a magazine-stove and in combination with a magazine-casing having its lower end expanded and terminating in an annular flaring offset or lip, a fuel-supporting open-ended combustion-chamber depending from said offset, having its lower end contracted and an open-walled part above its contraction to supply combustion.

12. In a magazine-stove and in combination with a magazine-casing its lower edge terminating in an annular flaring lip or offset, a fuel-supporting combustion-chamber, its upper edge joining and depending from said offset and terminating in a contracted open end, the walls of said chamber between the said casing-lip and the contracted end being open to supply combustion.

13. In a magazine-stove, and in combination with a magazine-casing and a casing surrounding it providing a passage for draft, of an open-ended fuel-supporting combustion-chamber, its inner wall joining and forming a prolongation of the outer casing, the open end of said chamber being contracted and having its walls above said contraction in communication with the draft-passage.

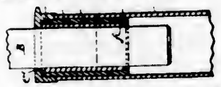
642,234. APPARATUS FOR VENTILATING MINES. CHARLES P. KENYON, Scranton, Pa. Filed Sept. 26, 1898. Serial No. 691,868. (No model.)



Claim.—1. A fan-wheel having fans or blades 7, provided with notches 12 at their outer ends, and ring 20 encircling said fans and extending through said notches, the said ring being adapted to hold the fans at their proper relative distances and also in their proper plane; in combination with bolts or rods 13 extending from said ring to the corners of the fans aforesaid, and the said bolts being curved and provided with long threads and adjusting-nuts for the purpose of drawing the blades into twisted positions substantially as specified.

2. The combination of a fan-wheel, having fans 7 and ring 20, encircling and engaging with the outer ends of said fans; with curved bolts 13, and the collar 16, provided with set-screw, the said collar adapted to engage with a radial arm of the fan-wheel, and in such relation as to give the fans or blades a twisted or varying slope when their outer corners are secured by the curved bolts aforesaid as specified.

642,285. SEAT-POST CLAMP. JOHN KNAPP, Grand Rapids, Mich., assignor to the Grand Rapids Cycle Company, same place. Filed May 5, 1899. Serial No. 715,655. (No model.)

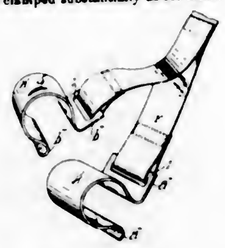


Claim.—In a seat-post binder, the combination of the slotted sleeve provided with a beveled diametrical flange extending from its inner wall at its lower end a tapered inner wall and an external thread at its upper end, a slotted bushing adapted to enter said sleeve, said bushing being tapered at its lower end and provided at its upper end with an outwardly-extending flange, a screw-cap having an aperture therethrough and adapted to screw onto the upper end of said sleeve, said cap being provided with a horizontal shoulder adapted to engage the upper end of said bushing.

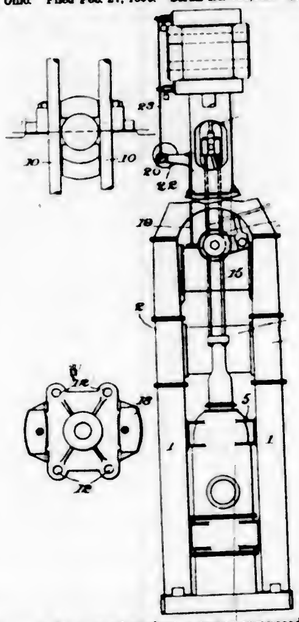
642,286. CLASP FOR FLEXIBLE FABRICS. FANNIE C. LARIMER, Los Angeles, Cal. Filed Mar. 26, 1897. Serial No. 629,422. (No model.)

Claim.—1. A clasp composed of two trough-shaped members, one of which has a curved cross-sectional contour contracted at the mouth of the trough, and having one limb provided at the mouth of the trough with a lateral attaching-flange; and the other of which members is a trough-shaped spring substantially fitting the first-mentioned member above said flange substantially as set forth.

2. A clasp for fabrics comprising two integral resilient trough-shaped members of curved cross-sectional contour contracted at the mouths of the trough and there provided with laterally-projecting attaching-flanges and being of such size relative to each other as to leave a sufficient space between the two members to accommodate the fabric to be clamped substantially as set forth.



642,287. STEAM PUMPING-ENGINE. HENRY M. LANE, Norwood, Ohio. Filed Feb. 27, 1899. Serial No. 706,911. (No model.)



Claim.—1. In a pumping plant, a tower composed of a number of vertical supporting-frames braced together side by side around a polygonal area; in combination with pumps within said frames and a driving-engine supported over each pump by its inclosing frame-work.

2. In a pumping plant, a number of vertical, self-contained pump and engine units each consisting of four corner-posts, engines supported thereby and uninclosed pump-cylinders between said posts and braced thereto, said units being braced together so as to inclose a polygonal area.

3. In a self-contained, vertical pumping plant, a framework consisting of four corner-posts, a number of steam-cylinders supported by the upper parts of said posts, vertical pump-cylinders located beneath said steam-engines and removably braced to said posts and to each other, and operative connections between said steam-cylinders and pumps.

4. In a pumping plant, corner-posts, pump-cylinders within the space limited by said posts, said cylinders being removably connected to said posts and to each other and being uninclosed by bracing between said posts.

5. In a pumping plant, a framework consisting of four corner-posts, horizontal girders, and an intermediate pair of supporting-posts supported by said girders; in combination with three engine-cylinders supported by said three pair of posts, and three corresponding pump-cylinders beneath said girders, the end pump-cylinders being attached to said corner-posts and the intermediate pump-cylinder being attached to the other two.

6. In a power plant, an engine, a system of four rods for transmitting the power thereof, a fly-wheel shaft and crank, said crank swinging within said group of four rods and a main bearing for said shaft cut away at its sides and extended above and below the main shaft, one pair of said transmitting-rods straddling the cut away portion of said main bearing.

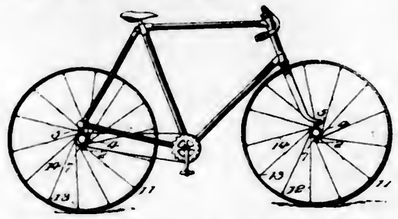
7. In a vertical expansion-engine, a substantially vertical transmission system geared to the main shaft, a horizontal shaft extending in front of the cylinders and geared to said vertical system, cams or their equivalents on said shaft, and a second substantially vertical system consisting of substantially parallel independent connections for the admission and exhaust valves of each cylinder, operated by corresponding cams or their equivalents on said horizontal shaft.

8. In a power plant, a main shaft and a compound engine driving the same provided with appropriate valves, said engine including cylinders of successively-greater diameters; in combination with a horizontal valve-shaft carrying operating-cams or their equivalents, connections between said cams or their equivalents and said valves, for operating the latter, said shaft being substantially parallel to a plane tangent to said engine-cylinders, and means whereby said shaft is driven from said main shaft.

9. In a vertical compound engine having successive cylinders side by side, a common shaft for operating the valves on the various cylinders, said shaft being arranged in a direction substantially parallel to the plane tangent to the surfaces of the smallest and largest of said cylinders.

10. In a vertical compound engine having successively-larger cylinders side by side, valves on the same sides of said cylinders, a main driving-shaft, a common shaft for operating the valves on the various cylinders driven from the main shaft, said shaft being arranged in a direction substantially parallel to the plane tangent to the surfaces of the smallest and largest of said cylinders, and direct link connections parallel to said cylinders between said shaft and said valves.

642,288. BICYCLE. JOHN MANNING, Agenda, Kans. Filed Mar. 11, 1899. Serial No. 708,709. (No model.)



Claim.—The combination with the frame having a pendent portion provided in opposite sides with longitudinal grooves, and an axle formed with opposite pockets at its ends and adapted to receive the pendent portion of the frame, upper and lower springs mounted upon the said pendent portion of the frame above and below the axle and confined between the latter and stops at the ends of the aforesaid pendent portion, and balls located in the aforementioned pockets and entering the grooves of said pendent portion, substantially as and for the purpose described.

642,289. SASH-BALANCE. JOHN MARX, New York, N. Y. Filed May 27, 1899. Serial No. 718,492. (No model.)

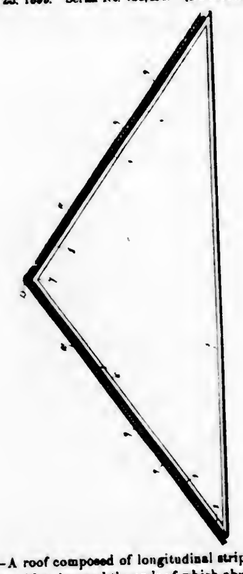


Claim.—1. In a window, the combination of a window-frame with a slotted and transversely-notched tube secured to the inner side thereof, a rod connected to the sash and embraced by the tube, and a transverse arm revoluble upon the rod and adapted to engage either of the transverse notches and lock the sash at different elevations, substantially as specified.

2. In a window, the combination of a sash with a rotatable spring-actuated shaft carried thereby, gear-wheels fast on the shaft, racks engaged by the gear-wheels, a slotted and transversely-notched tube, a rod within the tube, an arm revolubly secured to the rod and adapted to engage the notches, and a spring-finger that connects the rod to the sash, substantially as specified.

3. In a window, the combination of a sash with a rotatable shaft carried thereby, a grooved collar and gear-wheels fast on the shaft, racks engaged by the gear-wheels, a spring surrounding the shaft and adapted to be wound and unwound by its rotation, and a stud that is adapted to engage the grooved collar and lock the shaft, substantially as specified.

642,240. ROOF. GEORGE M. MARSHALL, Edinburgh, Scotland. Filed Aug. 25, 1899. Serial No. 728,430. (No model.)



Claim.—A roof composed of longitudinal strips, tilings laid longitudinally on said strips, and the ends of which abut, the top and bottom sides or edges of which being beveled to overlap, and cross-strips secured to said horizontal strips and overlapping the abutting ends of said tilings, substantially as shown and described.

642,241. INK-WELL HOLDER. BELA G. MERRILL, Oak Park, Ill. Filed Mar. 18, 1899. Serial No. 709,616. (No model.)



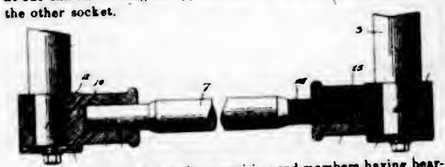
Claim.—1. A cylindrical holder or cup for receiving a well of ink or other liquid provided with a circumferential flange and having its meeting parts overlapping, one overlapping part having elongated holes and the over overlapping part having tongues passing through and narrower in width than the holes, whereby the holder or cup is made adjustable to fit varying diameters of holes of a given size, substantially as described.

2. A cylindrical holder or cup for receiving a well of ink or other liquid open at both ends and having its meeting parts overlapping with the end of the inner overlapping part bent to project into the cylinder and provided with an inwardly-extending lip at or near its lower edge, substantially as described.

3. A cylindrical ink-well holder or cup open at both ends and having the end of one of the meeting parts bent to project into the cylinder cutting off or forming a space of a desired size and shape and provided with an inwardly-extending lip at or near its lower edge, in combination with an ink-well of a corresponding size and shape adapted to be inserted into such space from below and when inserted to be held in place by the inwardly-projecting lip, substantially as described.

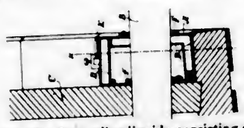
642,242. SIDE BRACE FOR SHAFTING. JOHN W. MILLER, Akron, Ohio. Filed Sept. 23, 1899. Serial No. 731,440. (No model.)

Claim.—1. A side brace for shafts comprising end members having bearings therein, and provided with sockets in the end members adapted for alinement, and a rod disposed loosely in one of the sockets at one end and having its opposite end in threaded engagement with the other socket.



2. A side brace for shafts comprising end members having bearings therein, and provided with sockets in the end members, one of said sockets having threads, a rod having a threaded end engaging the threads of one of the sockets and having a smooth end disposed loosely in the other socket, and set-screws carried by one of the end pieces and adapted for engagement with the rod to hold it against movement with respect thereto.

642,248. BEER-FAUCET COOLER. JAMES MORAN and ROBERT P. HOEY, San Francisco, Cal. Filed Sept. 7, 1899. Serial No. 729,678. (No model.)

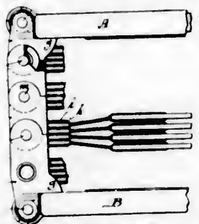


Claim.—1. A device for cooling liquids consisting of a segmental refrigerating-casing having double walls, and a double-walled cover, said casing having openings through its opposite ends adapted to receive a faucet whereby the latter passes through the casing interior to the double walls and in direct contact with the refrigerant so as to be surrounded by the latter on all sides, and means for securing the casing against the head of a cask or barrel.

2. A device for cooling beer and other liquids while being drawn, consisting of a segmental, double-walled refrigerating-casing having holes made therethrough at a point between upper and lower walls and in line with the hole into which the faucet is to be driven, whereby the faucet passes through the inclosed space of the chamber and in direct contact, on all sides, with the refrigerating material, swinging plates fitting over said holes and adapted to inclose the faucet after it has been inserted, and means for securing the device against the head of the cask.

3. A device for cooling beer and other liquids while they are being drawn, consisting of a casing with double-walled front sides and top, and a single back, containing non-heat-conducting material between its walls and adapted to contain ice or other refrigerating material, holes made through said casing at a point interior to upper and lower double walls and in the line of direction of the faucet and through which the latter is passed in direct contact with the ice, and driven into the keg, closures for the openings fitting around the faucet-body and means for securing the device against the head of the keg.

642,244. TEMPORARY BINDER. CYRUS B. MORRISSEY, Milwaukee, Wis. Filed Apr. 15, 1899. Serial No. 713,172. (No model.)



Claim.—1. A temporary binder having each cover thereof in detachable link connection with a leaf-section, the several leaf-sections in like connection with each other, and cover-opposing lugs extending inward from the outermost links.

2. A temporary binder having each cover thereof provided with a tube, a pintle-plug rigid with the tube, a spring contained in said tube, a loose pintle-plug in opposition to the spring, and leaf-section link-plates engageable with said plugs.

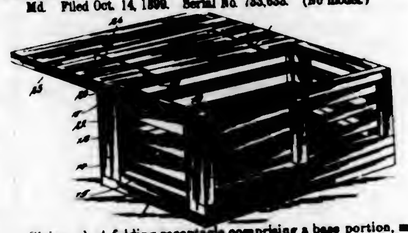
3. A temporary binder having each cover thereof provided with a tube, a pintle-plug rigid with the tube, a spring contained in said tube, a loose pintle-plug in opposition to the spring, leaf-sections link-plates engageable with said plugs, and cover-opposing lugs extending inward from said link-plates.

4. A temporary binder having each cover thereof provided with a tube, a pintle-plug rigid with the tube, a spring contained in said tube, a loose pintle-plug in opposition to the spring, leaf-sections comprising tubes, link-plates fast on the ends of each of these tubes and constructed to have movable lap-joint connection with like plates of another leaf-section, and rigid and spring-controlled loose pintle-plugs in each leaf-section tube engageable with said link-plates of another leaf-section, the pintle-plugs of the covers being engageable with the outermost link-plates.

5. A temporary binder having each cover thereof provided with a tube, a pintle-plug rigid with the tube, a spring contained in said tube, a loose pintle-plug in opposition to the spring, leaf-sections comprising tubes, link-plates fast on the ends of each of these tubes and constructed to have movable lap-joint connection with like plates of another leaf-section, rigid and spring-controlled loose pintle-plugs in each leaf-section tube engageable with said link-plates of another leaf-section, the pintle-plugs of the covers being engageable with the outermost link-plates, and cover-opposing lugs extending inward from said outermost link-plates.

6. A temporary binder comprising a stub opposite flexible stub-strips in lap-joint union formed into a loop back of and above and below the stub, and a pivotal back piece arranged between said stub and the two-ply loop.

642,245. FOLDING CRATE. EUGENE F. MONTEILLIOR, Baltimore, Md. Filed Oct. 14, 1899. Serial No. 733,633. (No model.)



Claim.—1. A folding receptacle comprising a base portion, members hinged to the base, pins carried by the hinged members, and links slidably mounted upon the pins and adapted to hold the hinged members against outward displacement, said links being also adapted to permit passing of the pins within the inclosure of the links.

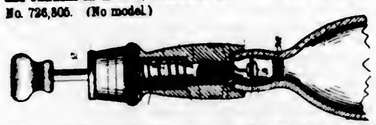
2. A folding receptacle comprising a base having sides hingedly connected therewith and adapted to lie above and parallel with the base, end pieces hinged to the base and adapted to lie thereagainst and to stand erect between the side pieces and hold them against inward movement, headed pins upon the side pieces, and links in slidable engagement with said pins, each of said links having a recess in one side adapted to receive a pin and permit the opposite pin to pass therebeyond.

3. In a folding receptacle, the combination with a base having side pieces hinged thereto and adapted to lie parallel with and above the base, end pieces hinged to the base between the side pieces and adapted to lie upon the base, and to stand erect between the side pieces to prevent their inward displacement, headed pins upon the outer ends of the side pieces, a link at each end of the receptacle in slidable engagement with the pins and adapted to hold the sides and end pieces against outward displacement, and each of the links having a recess adapted to receive a pin and permit the passage of the coöperating pin therebeyond, eyes carried by one of the side pieces, grooves leading to said eyes, and a cover having transverse rods connected therewith and slidably engaging the eyes and adapted for slidable and pivotal movement with respect thereto and to lie in the said slots at times.

4. A folding receptacle comprising a base, sides hingedly connected with the base, means for holding the sides against inward movement, headed pins carried by the sides, and links slidably mounted upon the pins and adapted to hold the ends against outward displacement, said links having broadened portions to permit passing of the pins within the inclosure of the links.

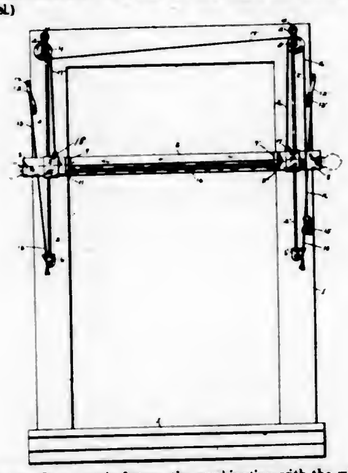
5. A folding receptacle comprising a base, sides hingedly connected with the base, means for holding the sides against inward movement, headed pins carried by the sides, and links slidably mounted upon the pins and adapted to hold the ends against outward displacement, said links being adapted to permit passing of the pins within the inclosure of the links.

642,246. DEVICE FOR CORKING BOTTLES. CORNELIUS MOOR and CHARLES H. MAYER, Hammond, Ind. Filed Aug. 10, 1899. Serial No. 726,805. (No model.)



Claim.—A device of the class described comprising a barrel having a longitudinal bore or opening flared at the lower end and constricted adjacent to the same, a plate provided with a slot and secured within the lower end of the bore or opening and having its slot registering with the constricted portion, a plunger provided with a flat lower portion arranged to extend through the slotted plate and provided at its lower end with a groove and having a recess at its upper end, said plunger being provided with a stop 17 at the upper end of the flat portion, a spring housed within the barrel and disposed on the lower flat portion of the plunger and engaging the recess at the upper end of the said flat portion, and a sleeve detachably secured within the upper end of the barrel, substantially as described.

642,247. CURTAIN-FIXTURE. CHARLES T. MORRIS and ADAM KUHLE, Monaca, Pa. Filed Oct. 20, 1898. Serial No. 694,098. (No model.)



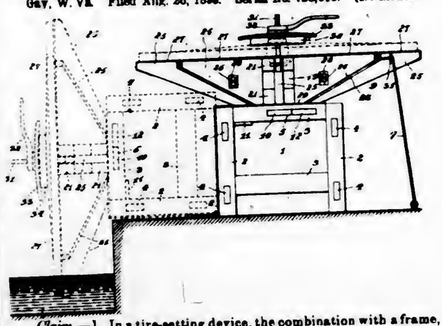
Claim.—In a curtain-fixture, the combination with the window-frame, of a pair of vertical guide-rods bent downwardly at their upper ends forming hangers, and eyes which are adapted to receive fastening means for securing the upper ends of the rods to the window-frame, a single pulley connected to one of the said hangers, a double pulley connected to the opposite hanger, a bracket 6, secured to each side of the window-frame for supporting the lower end of each of the guide-rods, a supporting-bar, means connected to the said bar for supporting a shade or curtain, a guide-clip secured to each end of the said bar and operating on said guide-rods, a spring-bracket connected to each side of the window-frame for normally supporting the said bar in an elevated position, operating-cords connected at one end to the said guide-clips and passing over the said pulleys for elevating and lowering the said bar, and a pair of cords connected to the said spring-brackets and operating through the brackets 6, for releasing the spring-brackets from their supporting position, substantially as described.

642,248. GARMENT-SUPPORTER. SARAH A. MOULTON and LOIS M. JONES, Grand Rapids, Mich. Filed Sept. 16, 1898. Serial No. 691,073. (No model.)



Claim.—In a garment supporter and holder, a belt, a metallic plate to which the belt is slidably attached, combined with pivoted hangers attached to said plate at their lower ends and provided at their upper ends with corset-attaching devices, the plate being also provided with a plurality of skirt-attaching means, substantially as shown and described.

642,249. WHEELWRIGHT-MACHINE. PHYLANDER A. MCCRAY, Gay, W. Va. Filed Aug. 26, 1899. Serial No. 728,619. (No model.)



Claim.—1. In a tire-setting device, the combination with a frame, the bottom of which is provided with hinges for securing it to a support, of a cross-frame fitted to the top of the hinged frame so as to be movable at right angles to the hinge, locking devices for firmly holding the cross-frame in variable positions relatively to the hinged frame and adapting the two frames to be adjusted simultaneously, and a wheel-support rotatably secured to the cross-frame for adjustment therewith on the hinged frame, said support being free to rotate in any adjusted position of the cross-frame or the hinged frame, substantially as described.

2. In a tire-setting device, the combination with a tiltable main frame, of a cross-frame movably secured to said main frame, the locking-keys for firmly holding said cross-frame at different positions on the main frame, whereby the cross-frame is capable of an adjustment on the main frame independently of the adjustment of said main frame on its hinge, and a wheel-support rotatably secured upon the cross-frame and adjustable therewith on the main frame, said support being also adjustable with said cross-frame and the main frame, substantially as described.

3. In a tire-setting device, the combination, with a tilting frame, the top of which is slotted horizontally upon opposite sides, of a cross-frame, the ends of the arms of which are each reduced to fit within the slots, keys for securing the arms of the cross-frame within the slots, an auxiliary support under one end of the center piece of the cross-frame adjacent to the cross-bar of the frame, and a wheel-support rotatably secured to the cross-frame.

4. In a tire-setting device, the combination with a tiltable main frame, of a cross-frame slidably confined on the main frame, the central portion of said cross-frame being perforated and provided with a perforated plate, a wear-plate adjacent to the perforated plate, and a wheel-support secured pivotally to the cross-frame, the lower end of said wheel-support being provided with a supporting-plate and adapted to bear upon the plate of the cross-frame, substantially as described.

5. In a tire-setting device, the combination with a tiltable frame, of a wheel-support rotatively secured to the top thereof, said support comprising a hub and a series of radial arms made fast with said hub, a spindle projecting from said hollow hub and having its outer end provided with a clamping-nut, a dish-band arranged to rest upon the wheel-spokes adjacent to the hub thereof, and a plate fitted on the spindle in engagement with the nut and with the dish-band, substantially as described.

6. In a tire-setting device, the combination, with a tilting frame, of a wheel-support rotatably secured to the top thereof, said support comprising a hollow cylindrical central portion, a band upon each end of the exterior thereof, a band upon the interior, said center piece being provided with slots between the end bands, radial arms secured within said slots, bolts through the central piece into the ends of the arms, a spindle projecting above the top of the central piece provided with a clamping-nut, a dish-band and a plate between the clamping-nut and the dish-band.

642,250. MILK-CAN VENTILATOR. MATHIAS H. NERBOVIG, Horseland, Minn. Filed Aug. 15, 1899. Serial No. 727,909. (No model.)

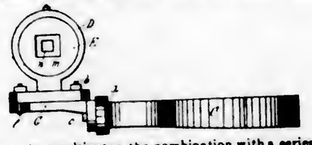
Claim.—1. The combination of a milk-can cover having an inwardly-projecting flange completely located within and inclosed by the cover surrounding a central opening, said flange having screen-covered openings therethrough at intervals, a supplemental cover

having a cylinder slidingly fitted in the said opening and provided with ventilating-openings and oppositely-disposed slots, a part of the openings in the said cylinder being adapted to register with the openings in the flange and spring-arms secured within the said cylinder and having intermediate portions extending outwardly through the slots for frictional engagement with the inner surface of the flange of the can-cover



2. The combination of a milk-can cover, having an inwardly-extending flange completely inclosed within the said cover and having openings therein at intervals, a supplemental cover having a cylinder with ventilating-openings therein adapted to register with the openings in the flange, and diametrically opposite slots and also provided with a cap-plate, with a portion extending beyond the upper extremity of the cylinder, yielding arms held within the said cylinder and provided with outwardly-directed intermediate bowed portions projecting through the slots for frictional contact with the flange surrounding the central opening of the can-cover, and means on the supplemental cover for raising and lowering the same.

642,251. DISK-CULTIVATOR ATTACHMENT. HENRY A. HOLTE, Elkhorn, Nebr. Filed June 5, 1899. Serial No. 719,438. (No model.)



Claim.—1. In a cultivator, the combination with a series of cutter-disks, of a hanger adjustably secured adjacent to one of said cutter-disks, a holder adjustably secured to said hanger, a bracket adjustably secured to said holder, and a knife adjustably secured to said bracket, adapted to operate substantially as and for the purpose set forth.

2. The combination with a cultivator-frame, of a holder adjustably secured to said frame, a bracket pivotally secured to said frame, and a dragging-knife pivotally secured to said bracket and adjustable in a horizontal plane, as and for the purpose set forth.

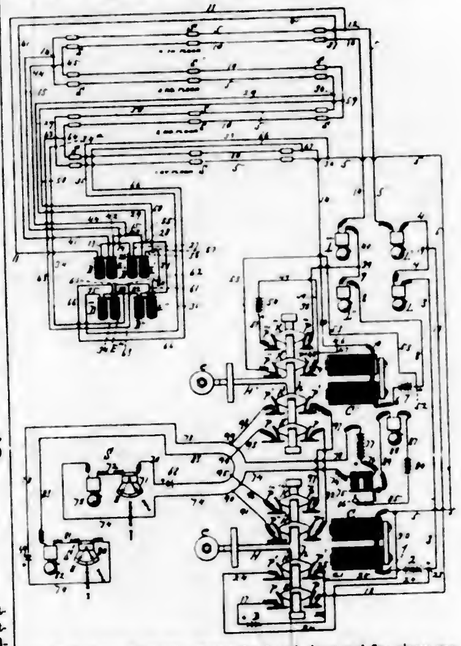
642,252. AUTOMATIC ELECTRIC HEAT AND FIRE-ALARM SYSTEM. RICHARD P. OSGOOD and JOHN D. OSGOOD, Methuen, Mass. Filed Sept. 29, 1899. Serial No. 732,039. (No model.)

Claim.—1. In a closed-circuit automatic electric heat and fire-alarm system, one or more loop-circuits or engine-house circuits, each including in series one or more reversible batteries and translating devices; a source of electrical energy; and a circuit-closing device between said source of electrical energy and the reversible batteries, whereby the energy of said batteries is released and said translating devices are brought into activity.

2. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; and one or more loop-circuits adapted to give an outside alarm, as at an engine-house, said loop-circuits being directly under the combined control of all said main circuits but not being affected by any of said main circuits less than the whole number thereof.

3. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; one or more loop-circuits adapted to give outside alarms, as at an engine-house, said loop-circuits being directly under the control of both said main circuits; independent short-circuiting wires connected with each of said loops; and mechanical means operated and controlled by the main circuits whereby the circuit is closed in each of said short-circuiting wires at a plurality of points, one of said points being under the direct control of one of the main circuits, and the other point being under the direct control of the other main circuit, and the said points being in series with each other.

4. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; and a plurality of high-resistance circuits extending to or including an annunciator on the outside of the building and floor-terminals of the main circuits, said high-resistance circuits being brought into activity by the breakage of one or more of said main circuits on any floor.



5. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; a plurality of high-resistance circuits extending to or including an indicator on the outside of the building and bridging the floor-terminals of the main circuits; and two sets of magnet-spools in said annunciators connected respectively with the two said main circuits in the different floors, the spools in each set being in separate series, substantially as set forth.

6. In a closed-circuit automatic electric heat and fire-alarm system, a main circuit extending to the different floors or sections of a building; a plurality of alarm-bells in series with said circuit; means whereby said circuit and bells are constantly furnished with a weak but uninterrupted electrical current insufficient in volume to sound the alarm on the bell; and means for adding to said volume of electricity when a breakage occurs in the main circuit sufficient to sound said alarm.

7. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; a plurality of circuits extending to or including an indicator on the outside of the building and bridging the floor-terminals on the main circuits, whereby the circuits, including the indicator, are brought into activity by the breaking of either of the main circuits.

8. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; a plurality of high-resistance circuits extending to or including an indicator on the outside of the building and bridging the floor-terminals on the main circuits; two sets of magnet-spools in said annunciators connected respectively with the two said main circuits in the different floors, the spools in each said set being in separate series, each of the intermediate wires in each of said high-resistance circuits, that is, the wires between the highest and the lowest wires, feeding between and tapping into two adjacent spools and serving as feed-wires or return-wires according to the floor in which the break occurs, substantially as described.

9. In a closed-circuit automatic electric heat and fire-alarm system, a main circuit extending from the different floors or sections of a building; a series of loop-circuits adapted to give outside alarms and be directly under the control of the main circuit; short-circuiting wires connected with said loops and provided with mechanical means operated or controlled by said main circuit whereby the circuit is closed in each said short-circuiting wire; and a main circuit provided with a suitable battery and relay in electrical connection with said loop-circuits, each of the loop-circuits being in series with a reversible battery-bell and galvanometer, the said loop-circuits and last-named main circuit normally operating as a single large series circuit, but in case of a breakage on one of the floors of the building being divided into a number of distinct circuits, substantially as set forth.

10. In a closed-circuit automatic electric heat and fire-alarm system, a plurality of independent main circuits each extending to the different floors or sections of a building; a series of loop-circuits adapted to give outside alarms and be directly under the control of the main circuits; short-circuiting wires connected with said loops and provided with mechanical means operated and controlled by said main circuits, whereby the circuit is closed in each said short-circuiting wire; and a main circuit provided with a suitable battery and relay in electrical connection with said loop-circuits, each said loop-circuit having in series a bell, galvanometer and reversible battery, the said battery being kept constantly charged by the battery in the last-named main circuit, whereby the wires, bells, and galvanometers are constantly under test, substantially as described.

11. In an automatic electric heat and fire-alarm system, a plurality of independent main circuits extending to the different floors or sections of a building, one or more loop-circuits, including in series, an alarm device and a source of electric energy and adapted to give an outside alarm, as at an engine-house, said loop-circuits being under the direct control of said plurality of circuits, independent circuit-closing wires connected with each of said loops, and means whereby the circuit is closed in each of said circuit-closing wires, at a plurality of points, one of said points being under the direct control of one main circuit, and the other point under the direct control of another main circuit, said points being in series with each other.

12. In a closed-circuit automatic electric heat and fire-alarm system, the relay comprising an electromagnet, a lever provided with an armature and hinged at its lower end to a suitable base, said lever being held in a nearly-vertical position by a slight expenditure of power on the part of the battery, a cross-piece rigid with said lever and supported in suitable boxes, insulated bridges rigid with said cross-piece and extending longitudinally with the lever, and metallic springs arranged on opposite sides of the bridges and making contact with the bridges when the lever swings down, said springs being in electrical connection with said system, substantially as described.

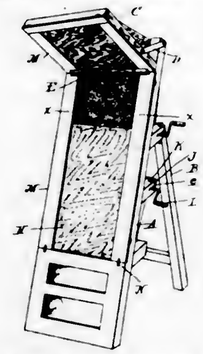
13. In a closed-circuit automatic electric heat and fire-alarm system, the relay comprising an electromagnet, a lever provided with an armature and hinged at its lower end to a suitable base, said lever being held in a nearly-vertical position by a slight expenditure of power on the part of the battery, a cross-piece rigid with said lever and supported in suitable boxes, insulated bridges having sharp edges and rigid with said cross-piece and extending longitudinally with the lever, and copper-faced metallic springs arranged on opposite sides of the bridges and making a digging contact with said bridges when the lever swings down, said springs being in electrical connection with said system, substantially as set forth.

14. In a closed-circuit automatic electric heat and fire-alarm system, the relay comprising an electromagnet, the lever H formed with the T-shaped cross-piece A journaled in suitable boxes and provided with an armature, said lever being adapted by means of a counterbalance to be held in a nearly-vertical position by a slight expenditure of energy on the part of the battery, the substantially elliptical bridges K rigid on the cross-piece but insulated therefrom and with their long axes parallel with the lever, and the metallic springs P on opposite sides of said bridges, whereby the swinging down of the lever brings the end edges of the bridges into contact with the springs, substantially as described.

642,253. WALL-PAPER-DISPLAY STAND. STEPHEN R. PARRISH, Tecumseh, Mich. Filed Dec. 21, 1898. Serial No. 699,909. (No model.)

Claim.—1. A wall-paper-display stand comprising an upright portion, a forwardly-extending overhanging portion bearing against said upright portion below the upper end thereof, and inclined supporting-links for said overhanging portion pivoted thereto and to said upright portion at a point above the bearing-point of said overhanging portion thereon, the length of said links being sufficient to permit said overhanging portion to be swung over in rear of said upright portion.

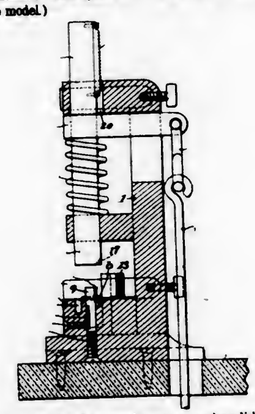
2. In a wall-paper-display stand, a frame having an upright portion and an overhanging portion, rolls journaled in said frame and a paper strip composed of alternate sections of side-wall and ceiling papers respectively of a length to be displayed on said upright and said overhanging portions, said strip being adapted to be drawn over said rolls to successively exhibit said sections.



3. In a wall-paper-display stand, a frame having an upright portion and an overhanging portion, rolls journaled in said frame, a paper strip composed of a series of sections of equal length each section comprising three subsections respectively of side-wall, border and ceiling papers, the side-wall and ceiling subsections being of greater length than the central-border subsection; said strip being adapted to be drawn over said rolls to exhibit said sections successively with the ceiling-paper subsection displayed in said overhanging portion, and the border and side-wall subsections displayed on said upright portion.

4. In a wall-paper-display stand, the combination of a frame having an upright and an overhanging portion, a roll extending along the meeting angle of said portions, and a paper strip extending along said upright portion over said roll, and along the under side of said overhanging portion for the purpose described.

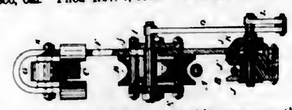
642,254. MACHINE FOR SECURING CLASPS TO BOX-LIDS. WILLIAM T. PARKER, Philadelphia, Pa. Filed June 16, 1899. Serial No. 720,634. (No model.)



Claim.—1. In a device for securing clasps to box-lids or the like, in combination, a vertically-moving plunger the lower end of which is furnished with an outwardly-beveled face, a standard in which said plunger is guided, means for lowering and means for lifting said plunger, a base or anvil, a yielding guide carried by and projecting above said base or anvil, a stop for engaging the front end of the box-lid and a gage for engaging the end of the lid.

2. In a device for securing clasps to box-lids or the like, in combination, a vertically-moving plunger the lower end of which is furnished with an outwardly-beveled face, a standard in which said plunger is guided, means for lowering and means for lifting said plunger, a base or anvil, a yielding guide carried by and projecting above said base or anvil the rear face of which is flattened, a hole or slot in the top of said base or anvil in front of said yielding guide and beneath said vertically-moving plunger, and stops or gages for the front and side of said lid.

642,255. TRAVELING-CABLE GRIP. EDWARD L. PARSONS, San Francisco, Cal. Filed Nov. 7, 1899. Serial No. 736,110. (No model.)



Claim.—1. In a suspended rope or cable tramway, the combination with the framework and the supporting-trolleys, of a slidable hanger guided by said framework, a fixed gripping-jaw carried by said hanger, a movable jaw carrying a screw-threaded nut, a screw journaled and turnable through said nut, a rocker-arm connected with the screw-shaft and connections between said rocker-arm and the sliding body, and a traction-cable adapted to be locked between said jaws.

2. In a suspended rope or cable tramway, trolleys journaled in a framework adapted to travel upon the cable, a sliding body guided by said framework, a stationary jaw fixed to said sliding body, a jaw guided and movable transversely with relation to the stationary jaw, a screw-shaft journaled and turnable through the stationary jaw having a screw-threaded portion fitting corresponding threads in the movable jaw, a rocker-arm fixed to the screw-shaft, a rod or link connecting said rocker-arm with the sliding body whereby the movement of said sliding body relative to the supporting-trolley acts to turn the screw, and close or separate the gripping-jaws.

3. The combination with a framework of the rolling mechanism of a carrier and a sliding body guided by said framework and supporting the trolley, of a transversely-movable and guided gripping-jaw having interior screw-threads, a correspondingly-threaded screw-shaft passing through said jaw and turnably journaled in suitable supports, a rocker-arm fixed to said screw-shaft and a link connecting said rocker-arm with the sliding body and a stationary gripping-jaw with relation to which the movable jaw is advanced or retracted and a traction-cable adapted to be locked between said jaws or released therefrom by the movement of the gripping-jaw.

4. The combination with the framework and supporting-trolleys and a cable upon which they travel, of a transversely-movable screw-actuated gripping mechanism, a traction-cable to which the apparatus is locked by said gripping mechanism, other wheels or trolleys fixed to the upper end of a body slidable with relation to the supporting-trolley framework, and a rail upon which said wheels are supported to remove the weight from the main cable and allow the grips to automatically unloose.

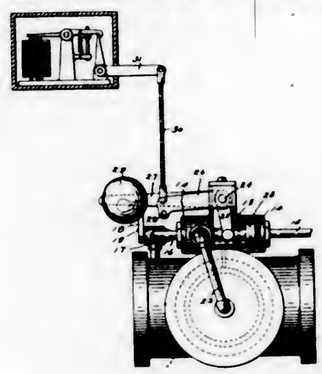
5. The combination in a suspended cable rope or railway, of a main stationary cable, trolleys journaled in a framework and adapted to travel thereon, rails intermittently fixed above said cable, a hanger slidable and guided with relation to the main trolley-carrying framework, said hanger having wheels journaled thereon and adapted to travel upon the fixed rails, and raise the load from the main cable, a traveling cable situated below the main cable, a stationary and transversely-movable gripping-jaw between which the traveling cable is gripped, a screw turnable through the movable jaw, to advance it toward or retract it from the stationary jaw, a rocker-arm upon the end of the screw-shaft and a rod connecting the said rocker-arm with the hanger, whereby the jaws are closed to grip the cable when the load is carried upon the trolleys of the main cable, and released and separate when the load is carried upon the fixed upper rails.

6. The combination in a suspended rope or cable tramway, of a traveling or traction cable, a main supporting-cable situated above the traveling cable, rails fixed intermittently at stopping-stations and above the main supporting-cable, a framework with trolley-wheels journaled therein adapted to travel upon the main cable, a hanger guided and slidable with relation to said framework having rollers journaled at the upper end adapted to be received upon the upper fixed rails and transfer the weight of the load thereto from the main supporting-cable, a stationary and movable gripping-jaw carried by the hanger, a screw-threaded shaft fitting corresponding threads in the movable jaw, a rocker-arm fixed to said screw-shaft and a connecting-rod between said rocker-arm and the hanger whereby the screw is actuated to close the jaws upon the traveling cable when the weight is carried upon the main supporting-cable and to separate the jaws and to release the gripped rope when the weight is transferred to the fixed rails.

642,256. BLUE SULFUR DYE. BERNHARD PRIEBS and OSKAR KALTWASSER, Berlin, Germany, assignors to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Aug. 18, 1899. Serial No. 727,698. (Specimens.)

Claim.—The blue dye which results by treating the sulfur dyes derived by means of sulfur and alkali sulfids from the herein-described dinitrooxydiphenylamin derivatives, with hot alcohol, removing afterward the alcohol by filtration and drying the residue—said dye forming in dry state a black-brown powder, readily dissolving in water with fine violet-blue color, which is not changed on addition of caustic-soda lye, an excess of caustic-soda lye producing a blue-black precipitate, an aqueous solution of the dye yielding on the addition of mineral acids a red-violet precipitate, said dye being readily soluble in concentrated sulfuric acid with fine violet-blue color, practically insoluble in alcohol, and producing on unmordanted cotton in an alkaline bath indigo-blue shades of great intensity and fastness.

642,257. EMERGENCY THROTTLE-VALVE. JOHN R. REYNOLDS, Hartford, Conn. Filed July 26, 1898. Serial No. 686,920. (No model.)



Claim.—1. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a passage from the shell to the outlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to be moved across the passage to the cylinder, a disk movable in the body toward and from the port, pistons of different area movable within the cylinder and connected with the disk, and an escape-vent from the cylinder between the pistons, substantially as specified.

2. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a passage from the shell to the outlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to move across the passage to the cylinder, a weighted lever connected with the plunger, a disk movable in the body toward and from the port, pistons of different area movable within the cylinder and connected with the disk, and an escape-vent from the cylinder between the pistons, substantially as specified.

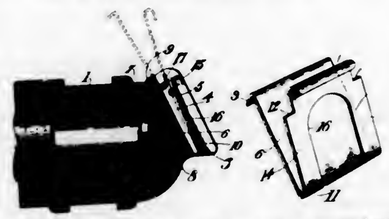
3. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a passage from the shell to the outlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to move across the passage to the cylinder, a weighted lever connected with the plunger, an electric trip for retaining the lever in operative position, a disk movable in the body toward and from the port, pistons of different area movable within the cylinder and connected with the disk, and an escape-vent from the cylinder between the pistons, substantially as specified.

4. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a cock located in the passage to the inlet side of the port, a passage from the shell to the outlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to move across the passage to the cylinder, a disk movable in the body toward and from the port, pistons of different area movable within the cylinder and connected with the disk, and an escape-vent from the cylinder between the pistons, substantially as specified.

5. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to move across the passage to the cylinder, a disk movable in the body toward and from the port on the outlet side, pistons of different area movable within the cylinder and connected with the disk, an escape-vent from the cylinder between the pistons, a disk movable toward and from the port on the inlet side, and a spindle extending through the body and connected in the interior with the disk on the inlet side of the port and having on the outside a handle, substantially as specified.

6. A throttle-valve having a body with a port in the interior, a cylinder connected with the body on the outlet side of the port, a shell mounted upon the cylinder, a passage from the shell to the inlet side of the port, a passage from the shell to the outlet side of the port, a passage from the shell to the cylinder, a plunger movable within the shell between the passages to the inlet and outlet sides of the port and adapted to move across the passage to the cylinder, a disk movable in the body toward and from the port on the outlet side, pistons of different area movable within the cylinder and connected with the disk, an escape-vent from the cylinder between the pistons, a disk movable toward and from the port on the inlet side, a perforation through the latter disk, and a spindle extending through the body and loosely connected in the interior with the latter disk and having on the outside a handle, an end of the spindle when screwed in stopping the perforation through the hand-disk and when unscrewed opening the perforation through the hand-disk, substantially as specified.

642,258. JOURNAL-BOX AND LID. CHARLES ROSKEN, Argenta, Ark. Filed Apr. 18, 1899. Serial No. 713,477. (No model.)



Claim.—1. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a shutter sliding in the grooves, and resilient shutter-closing member upon the shutter, substantially as set forth.

2. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a shutter sliding in said grooves, and resiliently-carried plate thereon, working in said grooves, substantially as set forth.

3. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a shutter and resiliently-carried plate working in the grooves, and means for limiting the movement in either direction of the shutter when closed, substantially as set forth.

4. The combination with a journal-box provided with flaringly-grooved ears upon opposite sides of its mouth, of a shutter and resiliently-carried plate working in the grooves, there being shoulders in the upper ends of the grooves, and notches on the plate adapted to engage therewith, substantially as set forth.

5. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a shutter provided with a flange at its upper end, and a resiliently-carried plate, the shutter and the plate working within the grooves in the ears, substantially as set forth.

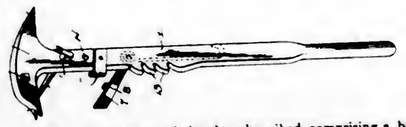
6. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a flanged shutter and resiliently-carried plate, provided with a handle working in the grooves of the ears, substantially as set forth.

7. The combination with a journal-box provided with grooved ears upon opposite sides of its mouth, of a shutter and resiliently-carried plate working within the grooves, and a pin connecting the ears between the shutter and plate, substantially as set forth.

8. A railway-journal-box lid consisting of a shutter and plate united thereto at an angle by a resilient bend, substantially as set forth.

9. A journal-box lid consisting of a flanged shutter, and a plate united thereto by a resilient bend, said plate being provided with a handle, substantially as set forth.

642,259. WIRE-STRETCHER. HEBRON F. RUBLE and JOHN W. GUILL, Fulton, Kans. Filed Aug. 25, 1899. Serial No. 728,514. (No model.)



Claim.—1. A device of the class described comprising a bar, a head rigid with and extending from the bar in opposite directions, one end of the head forming a fulcrum and the other end being provided with a claw, and a hook extending from the bar at the same side as the claw at a point adjacent to the same and provided with a transversely-disposed bill and adapted to engage a wire when the same is drawn over the head whereby the wire may be held without twisting it, substantially as described.

2. A device of the class described comprising a bar, a head arranged at one end of the bar and extending therefrom at right angles thereto and adapted to engage a fence-post at one side to form a fulcrum, an arm extending from the bar at a point between the ends thereof and arranged at right angles to the plane of the head, and a rod detachably hinged to the arm and adapted to be arranged at the opposite side of the post from the head and provided at its outer end with means for engaging a fence-wire, whereby the device is adapted to hold a fence-wire and is self-supporting, substantially as described.

3. A device of the class described comprising a bar provided with a head adapted to form a fulcrum, a hook projecting from the bar and located adjacent to the head, an arm extending from the bar and arranged between the ends thereof, and a rod detachably engaging the arm, substantially as described.

4. A device of the class described comprising a bar provided with a head extending from the bar in opposite directions, said bar having a perforation, a pin extending through the perforation, a hook projecting from the bar, an arm rigid with and carried by the bar, and a rod detachably engaging the arm and adapted to engage the fence-wire, substantially as described.

5. A device of the class described comprising a bar provided between its ends with a notch and adapted to be fulcrumed on a post at a point between the notch and its outer end, said notch being adapted to engage a fence-wire at one side of the post, and a head rigid with and projecting from the outer end of the bar and arranged to engage a fence-wire at the opposite side of the post, whereby the bar will be supported in such position and the wire will be held, substantially as described.

6. A device of the class described, comprising a lever or bar provided at one end with a head and having a notch or tooth located at a point between its ends, said bar or lever being adapted to be fulcrumed on a post between the notch or tooth and the head, and an arm extending from the bar or lever and located at a point between the notch or tooth and the head and adapted to engage the fence-wire to cause the same to slide freely across a post, substantially as described.

642,260. FURNACE. RUDOLPH RUETSCHI, Argentine, Kans. Filed Apr. 18, 1899. Serial No. 713,460. (No model.)

Claim.—1. A furnace provided with a fire-box, and an endless traveling grate having pivoted grate-bars arranged to form a continuous support for the fuel at the upper run of the traveling grate, and to form open spaces between adjacent grate-bars at the lower run of said grate for the passage of ashes and coal-dust, said grate being arranged in an inclined position, the grate-bars being arranged in step form on the upper run, substantially as shown and described.

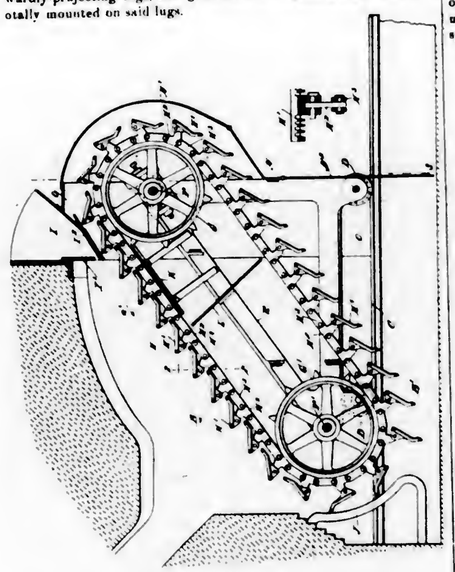
2. A furnace provided with a fire-box, an endless traveling grate having pivoted grate-bars arranged to form a continuous support for the fuel at the upper run of the traveling grate, and to form open spaces between adjacent grate-bars at the lower run of said grate for the passage of ashes and coal-dust, a table under part of the upper run at the front or fuel-receiving end thereof, and a deflecting-plate extending downwardly and forwardly between the upper and lower runs and below the lower end of said table, substantially as shown and described.

3. In a furnace, the combination of an inclined traveling grate mounted in the fire-box, and means mounted beneath the outer portion of said grate, such means receiving the coal-dust from the grate and carrying the same outwardly beyond the ashes.

4. A traveling grate, comprising pivotally-connected links, alternate links of which are formed with outwardly-projecting lugs, and grate-bars pivotally mounted on said lugs, whereby the bars are held away from the chain proper.

5. A traveling grate, comprising links pivotally connected with

each other to form a chain, alternate links being formed with outwardly-projecting lugs, and grate-bars of angular cross-section pivotally mounted on said lugs.

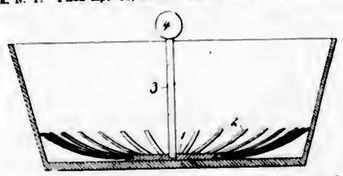


642,261. DOOR-HOLDER. FRANK W. RUPPMAN, Philadelphia, Pa. Filed Apr. 5, 1899. Serial No. 711,827. (No model.)



Claim.— In a door-holder, the combination of the plate having the vertically-arranged toothed bar provided with grooves, a plunger provided at its upper end with ribs to engage the grooves, the toothed jaw or latch pivoted in the plunger, and the toe-piece formed integral with the jaw, substantially as and for the purpose set forth.

642,262. LIFTER AND STRAINER. MORTIMER S. SARLES, New York, N. Y. Filed Apr 18, 1898. Serial No. 677,926. (No model.)

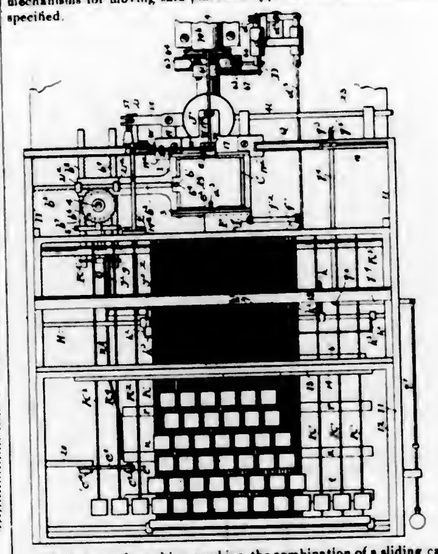


Claim.— The combination of a vat having flaring sides, with a lifter consisting of a disk having upwardly-bent flexible radial fingers projecting from its periphery, and adapted to spread under weight and fill any plane of the vat as it is lifted, substantially as and for the purpose set forth.

642,263. MATRIX-MAKING MACHINE. CHARLES SEARS, Cleveland, Ohio. Filed Mar. 8, 1899. Serial No. 708,165. (No model.)

Claim.—1. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of type-carriers mounted upon said plate and movable in said guide, and mechanisms for independently moving said plate and type-carriers, substantially as specified.

2. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of type-carriers mounted upon said plate and movable in said guide, mechanisms for independently moving said plate and type-carriers, a series of finger-keys and mechanism whereby the operation of each finger-key controls the movements of both of said mechanisms for moving said plate and type-carriers, substantially as specified.



3. In a matrix-making machine, the combination of a sliding carrier-plate having a plurality of guides at right angles to its path of movement, sliding type-carriers mounted upon said plate and movable in said guide, said type-carriers having horizontal dovetail notches in one end which notches are in line when the type-carriers are in their home positions, and an endwise-movable rod having in its end a dovetail tongue adapted to take into said notches, and mechanisms for independently moving said plate and rod, substantially as specified.

4. In a matrix-making machine, the combination of a sliding carrier-plate having a plurality of guides at right angles to its path of movement, sliding type-carriers mounted upon said plate and movable in said guide, said type-carriers having horizontal dovetail notches in one end which notches are in line when the type-carriers are in their home positions, and an endwise-movable rod having in its end a dovetail tongue adapted to take into said notches, and mechanisms for independently moving said plate and rod, and a series of finger-keys and mechanism whereby the operation of each finger-key controls the movements of both of such mechanisms for moving said plate and rod, substantially as specified.

5. In a matrix-making machine, a sliding type-carrier having a horizontal dovetail notch in one end and having projecting from one horizontal face a single row of cameo type arranged end to end, substantially as specified.

6. In a matrix-making machine, the sliding type carrier having, projecting from one of its horizontal faces, a row of cameo type arranged end to end and having in its other horizontal face an equal number of conical depressions, substantially as specified.

7. In a matrix-making machine, in combination, a horizontally-movable carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of sliding type-carriers mounted on said plate and movable in said guides, spring-actuated mechanisms for moving the plates and type-carriers from their home positions, a plurality of keys each adapted to limit the movements of said spring-actuated mechanisms from their home positions, and means for returning said mechanisms to their home positions, substantially as specified.

8. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of type-carriers mounted upon said plate and movable in said guide, each type-carrier having in its end a dovetail notch, which notches, when the carriers are in their home positions are in the same horizontal line, with a longitudinally-movable rod having a dovetail tongue adapted to take into said notches, and having a projection, a series of movable stops with which said projection is adapted to engage, mechanism for moving said plate definite distances, and spring-actuated mechanism for moving said rod to bring the projection thereon against said stop, substantially as specified.

9. In a matrix-making machine, the combination of a horizontally-movable carrier-plate, a plurality of type-carriers mounted on said plate and movable in paths at right angles to its movement, spring-actuated mechanisms for independently moving said plate and carriers from their home positions, a plurality of finger-keys, and mechanism whereby the depression of said finger-keys determines the extent of the spring-actuated movements of said mechanism for moving said plate and carriers, substantially as specified.

10. In a matrix-making machine, a sliding type-carrier having a plurality of cameo type projecting from its outer face and two intersecting dovetail notches in one end, substantially as specified.

11. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of type-carriers mounted upon said plate and movable in said guides, each type-carrier having in its end a dovetail notch, which notches, when the carriers are in their home positions are in the same horizontal line, with a longitudinally-movable rod having a dovetail tongue adapted to take into said notches, a stepped plate movable across the path of said rod, a projection on the rod for engagement with the steps on said plate, and mechanisms for independently moving the carrier-plate, the stepped plate, and the sliding rod, substantially as specified.

12. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of type-carriers mounted upon said plate and movable in said guide, each type-carrier having in its end a dovetail notch, which notches, when the carriers are in their home positions are in the same horizontal line, with a longitudinally-movable rod having a dovetail tongue adapted to take into said notches, and having a projection, a series of movable stops with which said projection is adapted to engage, mechanism for moving any stop into the path of said projection, mechanism for moving said plate definite distances, and spring-actuated mechanism for moving said rod to bring the projection thereon against said stop, and a series of finger-keys each adapted to control the movement of said carrier-plate and stepped plate from their home positions, substantially as specified.

13. In a matrix-making machine, in combination, a sliding carrier-plate having a plurality of guides at right angles to its path of movement, a plurality of sliding type-carriers mounted on each plate and movable in said guides, each of said carriers having in one end a horizontal dovetailed notch, which notches, when the carriers are in their home positions, are in line with each other, mechanism for moving said carrier-plate, a movable stepped plate, and mechanism for moving it various distances from its home position, a longitudinally-movable rod having a dovetail tongue adapted to take into the notches in the type-carriers, a spring-actuated device for moving said rod in one direction away from its home position, a projection on said rod adapted to engage with said stepped plate, and mechanisms for severally returning said carrier-plate, sliding rod, and stepped plate to their home positions, substantially as specified.

14. In a matrix-making machine, in combination, a vertically-movable box having horizontal guides, a plurality of sliding carrier-plates supported by said box and mounted in said guides one above the other, said carrier-plates having each a plurality of guides at right angles to its path of movement, a plurality of sliding type-carriers mounted on said plates and movable in said guides, and mechanisms for independently moving the box, carrier-plates, and slides, substantially as and for the purpose specified.

15. In a matrix-making machine, in combination, a vertically-movable box having horizontal guides, a plurality of sliding carrier-plates mounted on said guides, said plates having guides at right angles to the guides in which they move, a plurality of type-carriers mounted in the guides in said plates, said plates having in one end vertical dovetailed notches which, when the plates are in their home positions, are in the same vertical line, with a shift-key and intermediate mechanism for raising said box, a longitudinally-movable rod having a dovetailed tongue adapted to take into the notches in said plates, mechanism for moving said rod, each of said type-carriers also having in one end horizontal dovetailed notches, a longitudinally-movable rod having a dovetail tongue adapted to take into said notches, and mechanism for moving said rod, substantially as specified.

16. In a machine of the character stated, in combination, a spring-actuated swinging frame, mechanism operated thereby, a plurality of key-levers each having a stub which will be moved into the path of said frame when the lever is depressed, said stubs being placed different distances from the parts of the frame which will engage with them, whereby the spring-actuated movements of said frame which follows the depression of any key-lever will be stopped by the engagement of said frame with the stub on the depressed key-lever, substantially as specified.

17. In a machine of the stated character, in combination, a spring-actuated swinging frame, the escapement mechanism, mechanism connecting the same with the swinging frame, a plurality of key-levers each having a stub which will be moved into the path of said frame when the lever is depressed, said stubs being placed different distances from the parts of the frame which will engage with them, which distances are proportionate to the widths of the characters with which said key-levers are severally associated, whereby the spring-actuated movements of the frame which follows the depression of a key-lever will be stopped by the engagement of the frame with the stub of the depressed key-lever, and mechanism for returning the said frame and the parts connected with it to their home positions, substantially as specified.

18. In a matrix-making machine, in combination, a spring-actuated swinging frame, a rotatable shaft, a cam carried by said shaft, mechanism intermediate of said cam and frame whereby the cam may move the frame to and hold it in its home position in opposition to its spring, a plurality of key-levers, each having a stub which will be moved into the path of said frame when the lever is depressed, and mechanism whereby the shaft is caused to make one revolution whenever a key-lever is depressed, substantially as specified.

19. In a matrix-making machine, in combination, a spring-actuated swinging frame adapted to impart motion to the mechanism which assists in bringing the proper character to the impression-point, a plurality of key-levers each having a stub in its under side which will be moved into the path of said frame when the key is depressed and will act as a stop to limit the spring-actuated mechanism of said frame, said stubs on the several levers being variously placed with reference to the frame whereby they permit different movements of said frame, substantially as specified.

20. In a matrix-making machine, in combination, a spring-actuated swinging frame adapted for imparting motion to the mechanism which assists in bringing the proper character to the impression-point, a plurality of key-levers each having a stub in its under side which will be moved into the path of said frame, when the key is depressed and will act as a stop to limit the spring-actuated mechanism of said frame, said stubs on the several levers being variously placed with reference to the frame whereby they permit different movements of said frame, and mechanism whereby the depression of each key-lever causes the release of said frame to the action of its spring, substantially as specified.

21. In a matrix-making machine, in combination, a plurality of spring-actuated independently-moving swinging frames, each of which is adapted to move certain parts of the mechanism to the end that the proper character shall be brought to the impression-point, and the escapement mechanism shall be set, mechanisms for returning said frames to and holding them in their home positions, a plurality of key-levers each having stubs which are so placed that they will be moved into the paths of said frames when any lever is depressed, and thereby act as stops to limit the spring-actuated movements of said frames, said stubs being differently placed on different levers whereby they permit various movements of said frames, and mechanisms whereby the depression of any lever causes the release of said frames to the action of their spring, substantially as specified.

22. In a matrix-making machine, in combination, a plurality of spring-actuated independently-movable swinging frames, a constantly-driven shaft, a rotatable shaft, cams secured to said shaft, slides with which said cams engage, mechanisms intermediate of said slides and frames whereby the cams serve to return the frames to their home positions, a spring-actuated clutch for connecting said shafts which clutch has a releasing lever-arm, a movable stop for engaging said arm which stop is movable into and out of the path of said arm, key-levers having stubs which when the levers are depressed are moved into the paths of said frames and serve to limit their movement, and mechanisms intermediate of said key-levers and clutch-arm stop, whereby the latter is withdrawn whenever a lever is depressed, substantially as specified.

23. In a matrix-making machine, in combination, a spring-actuated swinging frame, a constantly-driven shaft, a rotatable shaft, a cam secured to the latter, slides with which said cam engages, a link connecting said slide and spring-actuated swinging frame, a plurality of finger-keys each having a stub which will be projected into the path of said frame when the lever is depressed, a spring-actuated clutch for connecting said two shafts, an operating-lever for said clutch, a movable pin for engagement with said lever, and means whereby the depression of each key-lever causes the withdrawal of said pin from its engagement with the clutch-operating lever, substantially as specified.

24. In a matrix-making machine, in combination, a sliding stepped plate, a bell-crank lever, a link connecting an arm thereof with the plate, a spring-actuated swinging frame, a link connecting the same with the other arm of the bell-crank lever, and a plurality of finger-keys each having a stub adapted to be moved into the path of said frame by the depression of the lever, substantially as specified.

25. In a matrix-making machine, in combination, a sliding stepped plate, a bell-crank lever, a link connecting one arm thereof with the plate, a spring-actuated swinging frame, a link connecting the same with the other arm of the bell-crank lever, and a plurality of finger-keys each having a stub adapted to be moved into the path of said frame by the depression of the lever, a spring-actuated sliding rod having a projection adapted to engage with the steps on said plate, and a sliding type-carrier adapted to be moved by said rod, substantially as specified.

26. In a matrix-making machine, in combination, a sliding carrier-plate, a sliding operating-rod having rack-teeth, a pinion engaging with said rack-teeth, a spring-actuated swinging frame, mechanism whereby the movement of said frame turns said pinion, a plurality of key-levers each having a stub which will be moved into the path of said frame, and mechanism for moving said frame against its spring back to its home position, substantially as specified.

27. In a matrix-making machine, in combination, a sliding carrier-plate, a rod having rack-teeth and adapted to move the plate in both directions, a pinion engaging with said rack-teeth, another pinion connected with the first-named pinion, two rack-bars engaging with the latter pinion on opposite sides of its center, a rack-bar operator and a latch for connecting either of said rack-bars with said operator, substantially as specified.

28. In a matrix-making machine, in combination, a sliding carrier-plate, a rod having rack-teeth and adapted to move the plate in both directions, a pinion engaging with said rack-teeth, another pinion connected with the first-named pinion, two rack-bars engaging with the latter pinion on opposite sides of its center, a rack-bar operator and latch for connecting either of said rack-bars with said operator, and mechanism operated by some of the finger-keys for moving the latch out of engagement with one rack-bar and into engagement with the other, substantially as specified.

29. In a matrix-making machine, in combination, a sliding carrier-plate, a rod having rack-teeth and adapted to move the plate in both directions, a pinion engaging with said rack-teeth, another pinion connected with the first-named pinion, two rack-bars engaging with the latter pinion on opposite sides of its center, a rack-bar operator and a latch for connecting either of said rack-bars with said operator, and mechanism operated by some of the finger-keys for moving the latch out of engagement with one rack-bar and into engagement with the other, a spring-actuated swinging frame, mechanism connecting it with the rack-bar operator, a plurality of key-levers, each having a stub which will be moved into the path of said frame when the key-lever is depressed, substantially as specified.

30. In a matrix-making machine, in combination, a constantly-driven shaft, a rotatable shaft, a clutch for connecting said shafts, a clutch-operating arm, a spring for moving said arm to close the clutch, a pin adapted to be projected into the path of said arm whereby the engagement of said arm with said pin releases the clutch, a plurality of key-levers, and mechanism whereby the depression of any key-lever causes the pin to be withdrawn from the path of said clutch-arm, substantially as specified.

31. In a matrix-making machine, in combination, a constantly-driven shaft, a rotatable shaft, an automatic clutch secured to the latter shaft and adapted to connect the two shafts, said clutch having a releasing-arm, a movable stop, a spring for moving the same out of the path of said arm, a plurality of key-levers and mechanism whereby the depression of each key-lever releases said stop to the action of its spring, substantially as specified.

32. In a matrix-making machine, in combination, a constantly-driven shaft, a rotatable shaft, an automatic clutch for connecting the shafts, and a clutch releasing the arm with a stop adapted to be moved into and out of the path of said arm whereby the clutch will be released when the arm engages with the stop, a slide, and mechanism connecting the slide and movable stop, a spring for moving said slide in the direction which causes the withdrawal of said stop, a second slide, an automatic latch for connecting the two slides, a plurality of key-levers, mechanism operated by each lever for tripping said latch, and mechanism which acts during each revolution of the rotatable shaft to move the second slide backward, whereby it is latched to the first-named slide and then forward to return the latter to its home position, substantially as specified.

33. In a matrix-making machine, in combination, a rotatable shaft, a constantly-driven shaft and an automatic clutch for connecting the said shafts, which clutch has a releasing-arm, a movable stop for engaging with said arm, a slide and mechanism connecting the same with said stop, with a spring for operating said mechanism, an automatic latch engaging with said slide and holding it against the pull of its spring, a latch-releasing lever adapted to engage with said latch, a swinging frame extending beneath and in contact with the key-levers, an arm secured to said frame and adapted to engage with the latch-releasing lever, and a plurality of key-levers, substantially as specified.

34. The combination of a rotatable shaft, a rotating shaft, a self-acting clutch for connecting said shafts, which clutch has a releasing-arm, a stop-pin adapted to be projected into the path of said arm, a spring for withdrawing it, a system of levers for moving the pin in the contrary direction, a slide connected with said levers, a second slide, an automatic latch for connecting the slides, a plurality of key-levers, latch-releasing mechanism operable by all of said key-levers, a rock-shaft, connections between the same and the last-named slide, a cam carried by the rotatable shaft, and mechanism operated by said cam for rocking said rock-shaft, substantially as specified.

35. In a matrix-making machine, in combination, the escapement-shaft, a ratchet secured thereto, a pawl-carrier adapted to oscillate upon the same axis, a spring-pawl mounted thereon, mechanism whereby the depression of each key-lever results in the oscillation of said pawl-carrier backward and forward a distance proportionate to the character which corresponds with said key-lever, substantially as specified.

36. In a matrix-making machine, in combination, the escapement-shaft, a ratchet secured thereto, a pawl-carrier adapted to oscillate upon the same axis, a spring-pawl mounted thereon, mechanism whereby the depression of each key-lever results in the oscillation of said pawl-carrier backward and forward a distance proportionate to the character which corresponds with said key-lever, a second shaft, removable and exchangeable gears connecting said shafts, a vertical shaft, bevel-gears connecting the second shaft with the vertical shaft and a toothed feed-wheel on the vertical shaft, substantially as specified.

37. In a matrix-making machine, in combination, the escapement-shaft, a ratchet secured thereto, a pawl-carrier adapted to oscillate upon the same axis, a spring-pawl mounted thereon, mechanism whereby the depression of each key-lever results in the oscillation of said pawl-carrier backward and forward a distance proportionate to the character which corresponds with said key-lever, and connected thereto by a tongue and groove which permits the feed-wheel to slide upon the vertical shaft, substantially as specified.

38. In a matrix-making machine, escapement mechanism consisting of the following parts in combination, a shaft, two reversely-placed ratchets secured thereto, a spring-pawl, an oscillating hub mounted axially with respect to the shaft, and having one arm in which said spring-pawl is mounted, and also a second arm, a spring-detent, a spring-actuated rock-shaft, a detent secured thereto and adapted to engage with the other ratchet, a stop-pin, and an arm secured to the rock-shaft and adapted to engage with the stop-pin and with the second arm on the oscillating hub, substantially as and for the purpose specified.

39. In a matrix-making machine, in combination, the escapement-shaft, reversely-cut ratchets secured thereto, an oscillating hub mounted axially with respect to said shaft, a plurality of finger-keys, and mechanism whereby said hub is, whenever a finger-key is depressed, oscillated back and forth through an arc whose length is proportionate to the width of the corresponding character, an operating spring-pawl mounted on an arm secured to said hub and engaging with one ratchet, a spring-actuated detent engaging with the other ratchet, a rock-shaft to which it is secured, a spring acting thereon to withdraw the detent from engagement with said ratchet, an arm secured to said rock-shaft, an arm secured to the oscillating hub and adapted to engage with the arm last referred to, and a fixed stop-pin also adapted to engage with said arm, substantially as specified.

40. In a matrix-making machine, in combination, a spring-actuated swinging frame, escapement mechanism suitably connected with said frame, a rotary shaft, a cam secured thereto, and mechanism whereby said cam moves the frame in opposition to its spring back to its home position, and a series of pivoted key-levers having stubs projecting from their under sides which stubs will be moved into the path of said swinging frame and serve to stop its spring-actuated movements, said stubs being variously placed on different levers, substantially as specified.

41. In a matrix-making machine, the combination of a rotatable toothed feed-wheel adapted to move the matrix-block, a vertical shaft with which said wheel has a sliding connection, a shaft at right angles to the feed-wheel shaft, a frame in which the feed-wheel shaft is mounted which frame is adapted to swing upon an axis coincident with the axis of the other shaft, beveled gears connecting said two shafts, escapement mechanism for rotating the second shaft, and mechanism for swinging said frame to carry the feed-wheel away from the matrix, substantially as and for the purpose specified.

42. In a matrix-making machine, in combination, escapement mechanism, a horizontal shaft connected thereto, a frame mounted upon said shaft, a vertical shaft mounted in said frame, beveled gears secured to said two shafts and meshing with each other, a toothed feed-wheel on the vertical shaft and having a sliding connection therewith, a fixed forked bracket-arm which embraces said vertical shaft, a lever which likewise engages with said shaft, mechanism for operating said lever to rock the shaft-frame and thereby move the toothed feed-wheel toward and from the matrix, a vertically-movable matrix-holder, its operating mechanism, and a forked arm secured to said holder and engaging in a circumferential groove in the hub of the feed-wheel, substantially as specified.

43. In a matrix-making machine, escapement mechanism, a horizontal shaft connected thereto, a frame mounted upon said shaft, a vertical shaft mounted in said frame, beveled gears secured to said two shafts and meshing with each other, a toothed feed-wheel on the vertical shaft and having a sliding connection therewith, a fixed forked bracket-arm which embraces said vertical shaft, a lever which likewise engages with said shaft, mechanism for operating said lever to rock the shaft-frame and thereby move the toothed feed-wheel toward and from the matrix, a vertically-movable matrix-holder, its operating mechanism, and a forked arm secured to said holder and engaging in a circumferental groove in the hub of the feed-wheel, a spring-actuated swinging frame adapted to move certain parts of that machine from its home position, a slide connected with said frame, a cam adapted to engage with said slide whereby the frame is returned to its home position, a rotatable shaft to which said cam is secured, and means for causing said shaft to make one revolution only when each key-lever is depressed, substantially as specified.

44. In a matrix-making machine, in combination, a vertically-movable matrix-holder, a vertical feed-shaft and its operating mechanism, a toothed feed-wheel movable vertically on said shaft and connected thereto by a tongue and groove, and mechanism connected with the matrix-holder for moving said feed-wheel up and down upon said shaft, substantially as specified.

45. In a matrix-making machine, in combination, a vertically-movable matrix-holder, a vertical shaft and its operating mechanism, a toothed feed-wheel which is movable vertically on said shaft and is connected thereto by a tongue and groove, the hub of said feed-wheel having a circumferential groove and a forked arm secured to said matrix-holder and engaging in said circumferential groove, substantially as specified.

46. In a matrix-making machine, in combination, a vertically-movable matrix-holder, and its operating mechanism, a plate secured over said holder having in its under side a dovetail groove, a sliding carrier-plate having a plurality of dovetail grooves on its under side, a plurality of type-carriers mounted on said grooves, means for moving the carrier-plate to bring any type-carrier into line with the groove in the plate above the matrix-holder, and means for moving said type-carrier into the groove in said plate and for withdrawing it therefrom, substantially as specified.

47. In a matrix-making machine, in combination, type-carriers, and mechanism for moving them to bring any character to the impression-point, a vertically-movable matrix-holder, and its operating mechanism whereby the matrix-block is moved against the character, substantially as specified.

48. In a matrix-making machine, in combination, a vertically-movable matrix-holder, a matrix-holding hopper, and a slide for moving the matrix-blocks out of the latter and onto the former, with a stop-pin adapted to be moved into and out of the path of said matrix-blocks whereby it serves to stop them all in the same position relative to the impression-point, substantially as specified.

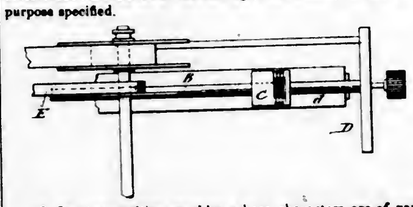
49. In a matrix-making machine, in combination, a vertically-movable matrix-holder, a matrix-holding hopper, and a slide for moving the matrix-blocks out of the latter and onto the former, with a stop-pin adapted to be moved into and out of the path of said matrix-blocks whereby it serves to stop them all in the same position relative to the impression-point, a lever pivoted between its ends and engaging with said stop-pin, one arm of said lever being formed of two relatively-movable parts, a spring for holding said parts in line with each other, and mechanism for operating said lever, substantially as specified.

50. In a matrix making machine, in combination, a stop-pin adapted to be moved into the path of the matrix, and the toothed wheel for feeding the matrix step by step which feed-wheel is adapted to be moved away from and into engagement with a matrix, a key-lever, and mechanism operated by said key-lever for simultaneously moving the stop-pin into the path of the matrix-block and the feed-wheel away from the matrix, substantially as specified.

51. The combination of a type-carrier having cameo characters on one face and having also an equal number of conical depressions with a pin having a conical end adapted to engage with said depressions, means for moving the type-carrier to bring any character approximately to the impression-point, and means for operating said pin to exactly position said slide, substantially as and for the purpose specified.

642,264. APPARATUS FOR PREPARING JUSTIFIED LINES OF TYPE OR MATRICES OR JUSTIFIED MATRIX-LINES. CHARLES SEARS, Cleveland, Ohio. Filed Sept. 23, 1898. Serial No. 691,644. (No model.)

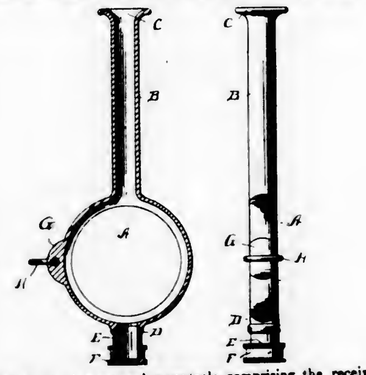
Claim.—1. In a type-writing machine whose characters are of various widths and are constructed on the "unit" system, and which moves its carriage differentially, a scale which is graduated in equal spaces, and is progressively marked with indicating-figures showing the number of spaces which each is from the zero-point, and a pointer which is associated with said scale, one of said parts being fixed, and the other movable relative to it, and operatively connected with the carriage of said type-writing machine, whereby it is moved by the carriage toward the zero-graduation as many spaces as there are units in each movement of the carriage, substantially as and for the purpose specified.



2. In a type-writing machine whose characters are of various widths and are constructed on the "unit" system, and which moves its carriage differentially, the combination of a pointer, and a scale which is graduated in units corresponding to the unit employed in forming the characters, and is progressively marked with figures showing the number of units which each is from the zero-point the zero of graduation being at the end of the scale which is farthest from the pointer when the printing of a line is begun, said pointer and scale being secured the one to the movable carriage and one to a fixed part of the machine.

3. In a type-writing machine whose characters are of various widths and are constructed on the "unit" system, and which moves its carriage differentially, the combination of a pointer, and a scale which is graduated in units corresponding to the unit employed in forming the characters, and is progressively marked with figures showing the number of units which each is from the zero-point the zero of graduation being at the end of the scale which is farthest from the pointer when the printing of a line is begun, said pointer and scale being secured the one to the movable carriage and one to a fixed part of the machine, and one of them being adjustable toward and from the other.

642,265. MENSTRUAL RECEPTACLE. BYRON B. SHEA, Kansas City, Mo. Filed Oct. 21, 1898. Serial No. 694,217. (No model.)



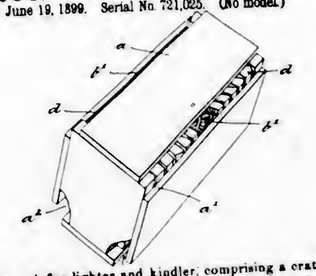
Claim.—1. A menstrual receptacle comprising the receiver A provided with the boss G having a transverse hole therethrough, the inlet-tube B having the flaring mouth C, the outlet-tube D, and the coupling E fitted to the tube D and provided with the cap F substantially as described.

2. As an article of manufacture, a menstrual receptacle comprising a receiver provided with an integral boss on the edge having a transverse opening therethrough, an integral tubular extension from the edge of the receiver and having a flaring mouth, an outlet-opening diametrically opposite the said extension and means for closing the said outlet-opening, substantially as described.

3. In a menstrual receptacle, the combination with a receiver of resilient material, provided with an outlet-opening, an integral, tubular extension having a flaring mouth disposed oppositely to the said outlet-opening, and an integral boss on the receiver provided with a

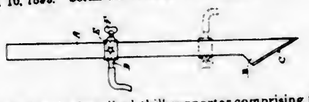
transverse opening therethrough, of a ring mounted in said transverse opening, and a cap covering the outlet opening, substantially as described.

642,266. FIRE-LIGHTER. MICHAEL SHELLEY, Philadelphia, Pa. Filed June 19, 1899. Serial No. 721,025. (No model.)



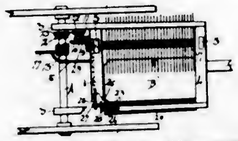
Claim.—A fire lighter and kindler, comprising a crate of wood or similar material and provided at its top and base with longitudinal crevices or openings, a layer of shavings or the like arranged along the base of the crate, a layer of similar material extending vertically from said base layer and arranged centrally in the crate, and blocks of wood or similar material arranged within the crate above the base layer and on either side of said vertical layer, substantially as and for the purpose described.

642,267. THILL-SUPPORT. SAMUEL SHREFFLER, Joliet, Ill. Filed Jan. 10, 1899. Serial No. 701,694. (No model.)



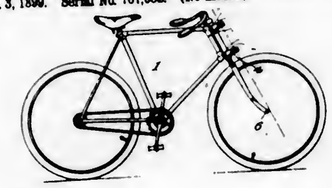
Claim.—The herein-described thill-supporter comprising the bar having the enlarged beveled end portion, and the slide arranged on said bar and adjustably held thereon by means of the set-screw, and provided with the side-reaching hook, substantially as and for the purpose set forth.

642,268. POTATO-BUG DESTROYER. HANS H. SIEH and CHRISTIAN HOLSTEIN, Millard, Nebr. Filed Aug. 11, 1898. Serial No. 688,386. (No model.)



Claim.—The combination with a suitable supporting-frame, of a wheel-rotated supporting-axle, a sliding clutch working upon said axle, a suitably-supported lever to operate said clutch, a rotating counterpart-clutch loosely mounted upon said axle, provided with a sprocket-wheel, a suitably-supported stub-shaft, a sprocket-wheel and bevel-gear upon said stub-shaft, a chain connecting said stub-shaft sprocket to said clutch-sprocket, a brush-shaft suitably supported, a bevel-gear secured to said brush-shaft and meshing with said stub-shaft gear, a plurality of reeds or brushes extending from said brush-shaft, a depending receptacle positioned below and adjacent to said reed-provided shaft, crushing-rolls within said receptacle, and belt connection between said crushing-rolls and said brush-shaft, all arranged substantially as and for the purpose set forth.

642,269. BICYCLE. STEPHEN G. SMITH, Hannibal, Mo. Filed Mar. 3, 1899. Serial No. 707,652. (No model.)



Claim.—In a bicycle, or like machine, the frame having, at its forward end, brackets, each, comprising an upper fixed section having forwardly-circling arms terminating in a half-bearing box, and a lower or pivoted swiveling section having a half-bearing box connecting with the aforesaid half-bearing box, and having its inner end adapted to occupy a position relatively central of said circling arms, said inner end of the pivoted section adapted to be fixed or connected with the steering post or fork and said circling arms adapted to permit the passage of said steering post or fork between them, substantially as set forth.

642,270. PROCESS OF MAKING TRANSPARENCY-SIGNS. HENRY A. SMITH, Coshocton, Ohio, assignor of one-half to the Standard Advertising Company, Incorporated, same place. Filed Mar. 10, 1899. Serial No. 708,563. (No specimens.)



Claim.—1. As an improvement in the manufacture of lithographic transparency-signs and the like, the process consisting of joining solely along a single line of contact, a transparent object-sheet and a backing-sheet, and subsequently passing the object-sheet, with the backing-sheet attached, through the press.

2. In the manufacture of lithographic transparency-signs and the like, the process consisting of joining solely along a single line of contact, a varnish-clarified object-sheet and a pliable backing-sheet, and subsequently passing the object-sheet, with the backing-sheet attached, through the press.

3. In the manufacture of lithographic transparency-signs and the like, the process which consists in adhesively joining solely along a single line of contact, a varnish-clarified object-sheet and a backing-sheet, and leaving said sheets free and disconnected at all other points, and subsequently passing the object-sheet, with the backing-sheet attached, through the press.

4. In the manufacture of lithographic transparency-signs and the like, the process which consists of joining by the adhesion of the surfaces, a varnish clarified object-sheet and a pliable backing-sheet, and subsequently passing the object-sheet, with the backing-sheet attached, through the press.

5. In the manufacture of lithographic transparency-signs and the like, the process which consists of joining solely along a single line of contact, a varnish-clarified object-sheet and a backing-sheet, stronger than the object-sheet and of softer texture than the same, and subsequently passing the object-sheet, with the backing-sheet attached, through the press.

6. In the manufacture of lithographic multicolor transparency-signs and the like, the process consisting of coating the object-sheet with clarifying-varnish, applying a backing-sheet to the varnish-coated surface of the object-sheet, causing the adhesion of the two sheets solely by compression along a single line of contact without extra adhesive material, and subsequently passing the object-sheet, with the backing-sheet attached, through the press, substantially as described.

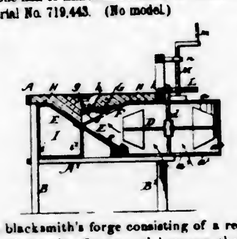
7. In the manufacture of lithographic multicolor transparency-signs and the like, the process consisting of coating the object-sheet at one side with a clarifying-varnish, then applying a backing-sheet to said varnish-coated surface of the object-sheet, and joining the same thereto along a single line of contact, then applying a coat of clarifying-varnish to the opposite surface of the object-sheet, and finally applying a printed character or design to a varnished surface of the object-sheet.

8. In the manufacture of transparency signs, labels, and other articles, the herein-described process consisting of coating the object-sheet with clarifying-varnish, partly drying said varnish, then applying a backing or reinforcing sheet to the varnish-coated surface of the object-sheet, then causing adherence of the object-sheet to the backing-sheet upon a line of forced contact, and subsequently applying a printed character or design to the object-sheet, substantially as specified.

9. In the manufacture of transparency signs, labels, and other articles, the herein-described process consisting of coating the object-sheet at one side with a clarifying-varnish, partly drying said varnish, then applying a backing or reinforcing sheet to the varnish-coated surface of the object-sheet, then causing an adherence of the object-sheet to the backing-sheet upon a line of forced contact, then applying a coating of clarifying-varnish to the exposed surface of the object-sheet, and finally ornamenting the exposed varnish-coated surface of the object-sheet, substantially as specified.

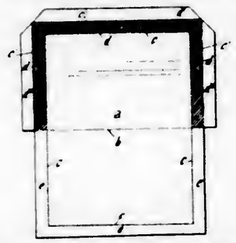
10. In the manufacture of transparency-signs and the like, the process consisting of joining solely along a single line of contact a varnish-clarified object-sheet and a backing-sheet, and subsequently applying a printed character or design to a varnished surface of the object-sheet.

642,271. BLACKSMITH'S FORGE. GEORGE SOUER, Rice's, Minn., assignor of one-half to Elmer M. Johnson, St. Cloud, Minn. Filed June 5, 1899. Serial No. 719,443. (No model.)



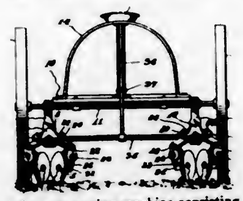
Claim.—A blacksmith's forge consisting of a rectangular upper frame a rectangular under frame, and between them a fan-case in one end, said fan-case having an upwardly-inclined air-passage consisting of two converging partitions, the upper partition having an air-passage, a tapering hood G over said passage and a grate upon said hood, a hearth consisting of clay packed within the upper frame and resting upon a portion of the fan-case and hood, a fan within said case, said fan having a vertical shaft, a pinion on the upper end of said shaft, a horizontally-mounted gear-wheel meshing with said pinion, and a vertically-retained crank-shaft secured to said gear-wheel, substantially as described.

642,272. LETTER-CARD AND TELEGRAPH-CARD. ERNEST TISSOT, Paris, France. Filed Mar. 14, 1899. Serial No. 709,042. (No model.)



Claim.—A letter-card comprising the sheet having the flaps or margins on one part extending beyond the margins or edges of the other part with the gummed surface extending around the inner edge of the flaps or margins, to be covered by the said flaps or margins while the letter is being press-copied, said flaps being detachable to be torn off when the letter is sealed substantially as described.

642,273. FURROW-OPENING MACHINE. DAVID R. WHITE, Winchester, Kans. Filed Feb. 7, 1899. Serial No. 704,831. (No model.)



Claim.—1. A furrow-opening machine consisting of a frame, inclined bars connected thereto and each provided with a forked head at its rear end, a pair of angular brackets adjustably fastened to each head, a pair of hangers angularly adjustable with relation to a vertical plane fastened to the brackets and carrying the axles, and inclined disks mounted on said axles, substantially as and for the purposes described.

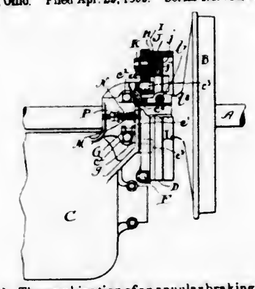
2. A furrow-opening machine consisting of a frame, inclined bars connected thereto and each provided with a forked head, a pair of angularly-adjustable hangers connected to each head and provided with the reversely-inclined longitudinally-adjustable axles, and a pair of oppositely-inclined disks mounted on the axles of each head, substantially as described.

3. In a furrow-opening machine, the combination with suitable supporting means provided with a head, of oppositely-projecting angular brackets clamped adjustably to said head, axle-carrying hangers supported by the brackets and angularly adjustable with respect to a horizontal plane, and reversely-inclined disks supported loosely by the axles, substantially as described.

4. In a furrow-opening machine, the combination with a supporting-head, of brackets fastened adjustably to said head, hangers adjustably fastened to the brackets and provided with the reversely-inclined axles, and revoluble disks mounted loosely on the axles, the hangers being adjustable on the brackets independently of any adjustment of the brackets upon the head, and the angles of the axles being thereby adjustable with relation both to a vertical and horizontal plane, substantially as described.

5. In a furrow-opening machine, the combination with a supporting-head, of angular brackets having pivotal and interlocking engagement with said head and fastened adjustably thereto for movement relatively to each other, hangers fastened adjustably to and having pivotal and interlocking engagement with the angular brackets, and inclined disks mounted loosely on the hangers for adjustment therewith, the pivotal connection between the head and brackets being at right angles to the pivotal connection between the brackets and hangers, substantially as described.

642,274. MAGNETIC BRAKE. THORSTEN VON ZWEIGBERGK, Cleveland, Ohio. Filed Apr. 29, 1899. Serial No. 714,949. (No model.)



Claim.—1. The combination of an annular braking member adapted to surround an axle and consisting of a horseshoe-shaped piece carrying magnets, and a removable block fitting in between the poles of the horseshoe and closing the same, means for clamping said poles and block together, diametrically-opposed shoulders on said block and horseshoe, and non-rotatable shoulders engaging with the shoulders first mentioned and holding the braking member against rotation, substantially as described.

2. The combination of a horseshoe-shaped member carrying magnets and adapted to extend around an axle, a block fitting in between the poles of the horseshoe, a bolt passing through said poles and block and clamping them together, diametrically-opposed shoulders on said block and member, and non-rotatable shoulders adapted to engage with the shoulders first mentioned and hold the member against rotation, substantially as described.

3. The combination, with an axle, of a horseshoe-shaped member D around the axle, a block E, tongues and grooves between said block and member whereby the block may slide into place to close the ends thereof, a bolt adapted to clamp said parts together, non-rotatable shoulders adapted to engage with shoulders on said block and member whereby the member is prevented from rotating, said member carrying magnet-cores and a magnet-winding, and a cooperating member revolving with the axle and serving as an armature for said magnets, substantially as described.

4. The combination, with an axle, of a motor-frame sleeved thereon, said sleeve including two plates $c\,c'$, said plates having at their junction-line abutting projections c^3, and an annular braking member consisting of a horseshoe-shaped piece and a removable block connecting the poles of the horseshoe, said members surrounding said projections and having notches into which the projections may take, one of said notches being in the removable block, whereby, when the block is removed, the rest of the member may be removed, substantially as described.

5. The combination, with an axle, of a motor-frame sleeved thereon, said sleeve including two plates $c\,c'$, said plates having at their

junction-line the L-shaped projections c^3, which projections when placed together become T-shaped, an annular braking member surrounding said projections and having notches into which the body of the T-shaped projections take, the heads of the T-shaped projections lying against the member on each side of the notches, substantially as described.

6. A magnetic brake-shoe consisting of a member D, a plurality of annularly-placed elongated projections d^3 on one face thereof, an electric coil H formed in a continuous loop and passing on both sides of each projection, the coil crossing itself between the projections, substantially as described.

7. A brake member having a series of elongated projections d^3 on one face, depressions d^5 between these projections, and an electric coil formed in one continuous loop and lying on opposite sides of each projection and crossing itself between them, the under branch lying in the depression d^5 at said crossing and the coil looping around the end projections d^3, substantially as described.

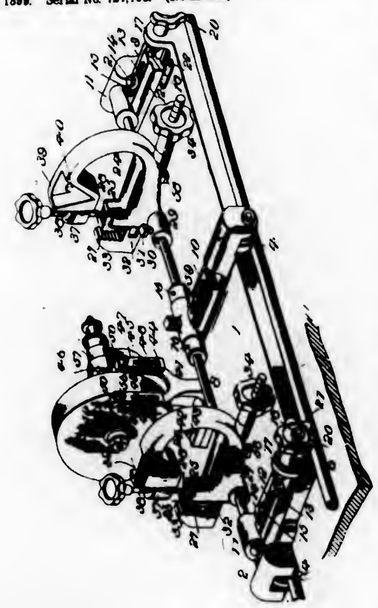
8. A multipolar magnet consisting of a body with a series of projections and a loop of coiled conducting material terminating with leading-in wires, said loop being drawn around one projection, then twisted on itself, then around the next, then twisted on itself, then around the next projection, and so on, whereby said projections become magnetic cores of opposite polarity, substantially as described.

9. A magnetic brake-shoe consisting of a member D having a series of projections d^3 on one face thereof, an electric coil H formed in one continuous loop and lying on opposite sides of each projection and crossing itself between the projections whereby the consecutive projections become cores of opposite polarity, a non-magnetic cover-plate for inclosing the coil and separated rubbing-plates secured to the projections, substantially as described.

10. The combination with an axle, a motor-frame sleeved thereto, said sleeve carrying the plates c c', said plates having the projections c^3 and the notches c^5, a braking member D having shoulders adapted to engage with the projections c^3, a pair of studs N extending from said member D and lying in the notches c^5, and springs M surrounding said studs and held between shoulders thereon at the rear side of the plates c c', substantially as described.

11. An insulated conductor A coiled into a loop H, the conductors constituting the loop being collectively surrounded by an insulating-covering, combined with a brake-shoe having a series of projections around which said loop takes, said loop crossing itself between the projections and thus lying on opposite sides of consecutive projections, substantially as described.

642,275. MACHINE FOR GRINDING BLADES OF LAWN-MOWERS. CHARLES R. ZACHARIAS, Asbury Park, N. J. Filed Aug. 14, 1899. Serial No. 727,198. (No model.)



Claim.—1. In a machine of the class set forth, the combination with the grinder and the work-holder, of slides bearing rests to engage with the work upon opposite sides of the plane of the grinder, and means for independently adjusting the slides to vary the position of the rests, substantially as set forth.

2. In a machine of the type specified and in combination with a work-holder and grinder, of a fork having its members extending upon opposite sides of the plane of the grinder, slides applied to the fork members and bearing rests, and means for independently connecting the slides with the fork members in an adjusted position, substantially as set forth.

3. In a machine of the type set forth, and in combination with the work-holder and grinder, a fork having its members extending upon opposite sides of the plane of the grinder, slides bearing rests and directed in their movements by the said fork members, and means positively and adjustably connecting said slides with the fork members, as and for the purpose set forth.

4. In a machine of the character specified, a work-holder and a grinder, in combination with a fork having its members extending upon opposite sides of the plane of the grinder and formed with vertically-threaded openings, slides bearing rests and having adjustable connection with the fork members, and adjusting-screws having swivel connection with the slides and screw-thread connection with the threaded openings of the fork members, substantially as and for the purpose set forth.

5. In a machine of the class set forth, and the combination with the work-holder and grinder, of a combined guide and rest comprising an angle-bracket adapted for adjustable connection with the bed or base and having a forked end, slides having adjustable connection with the forked members and provided with roller-rests, adjusting-screws swivelly connected with the slides and having screw-thread connection with the fork members, relatively-adjustable shoulders applied to the adjusting-screws and having portions of the slides embraced between them, and means for independently operating the adjusting-screws, as and for the purpose set forth.

6. In a machine of the class described, a carriage, slides transversely adjustable with reference to the carriage, a rod or shaft supported by said slides, and a work-holder adjustable upon the said shaft and capable of independent angular adjustment, substantially as set forth.

7. In a machine of the character set forth, a plate, slides adjustable transversely of the plate, a rod or shaft mounted in the slides and adapted to turn with reference thereto, and work-holders independently adjustable on the shaft, substantially as described.

8. In a machine of the class set forth, a plate, a rod or shaft, a slide intermediate of the ends of the plate and supporting said rod or shaft at a point between its ends, collars having adjustable connection with the shaft and located upon opposite sides of the said slide to prevent longitudinal movement thereof when adjusted, means applied to said slide for securing the shaft therein when turned in the required position, work-holders mounted upon the said shaft upon opposite sides of the aforesaid slide, and means for securing the work-holders in an adjusted position, substantially as set forth.

9. In a machine of the type set forth, a plate, end slides applied to the plate, means for adjusting said slides transversely of the plate, a rod or shaft supported by the slides, and work-holders adjustable on the said shaft, substantially as set forth.

10. In a machine of the character described, a plate, a medial and terminal slides applied to the plate and adjustable transversely thereof, a rod or shaft applied to the said slides, means cooperating with the medial slides and shaft to secure the latter against turning and longitudinal movement when adjusted, adjusting means between the terminal slides and plate, independent means for securing the several slides to the plate, and work-holders applied to the shaft and adjustable thereon, substantially as set forth

11. In a machine of the class described, the combination with the grinder, of supporting-arms provided in their inner sides with seats substantially as set forth, one of the arms having an opening intersecting with the seat, as and for the purpose specified.

12. In a machine of the type set forth, a work-holding arm of approximately C form having its lower member provided with a jaw having approximately vertical and horizontal faces, a clamping device cooperating with the arm to clamp the work against either face of the jaw, substantially as set forth.

13. In a machine of the variety specified, a work-holding arm of approximately C form having its lower member provided with a jaw having faces disposed relatively at an angle to each other, and independent means applied to the members of the arm to clamp the work against either face of said jaw, substantially as described.

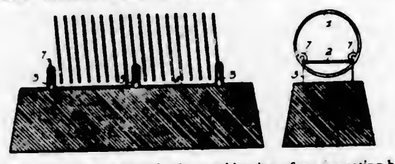
14. In a machine of the type set forth, an arm of approximately C form having its lower member formed with an opening and a double-faced jaw, a stem adjustable in said opening and provided with a jaw to cooperate with one of the faces of the fixed jaw, means cooperating with said stem to advance its jaw and grip the work between said jaw and the opposing face of the fixed jaw, and a clamp-screw applied to the terminal portion of the arm overhanging the fixed jaw and adapted to cooperate with the other face of said fixed jaw, substantially as and for the purpose set forth.

15. In a machine of the class set forth, the combination of a plate, a rod or shaft supported by said plate, work-holding arms applied to the shaft and adjustable thereon and provided with means for securing them in an adjusted position, and adjustable stops applied to said arms to come in contact with the plate to fix their position, substantially as set forth.

16. In a machine, substantially as described, a plate having an offstanding portion, a slide, an adjusting-screw having threaded connection with the slide and formed with a shoulder to engage with one face of the said offstanding portion, a shoulder or stop having screw-thread connection with said adjusting-screw and adapted to engage with the opposite face of the aforesaid offstanding portion, and a jam or binding nut for securing the adjustable shoulder or collar in the located position, substantially as set forth.

17. A machine of the character set forth comprising a combined guide and rest having portions extending upon opposite sides of the plane of the grinding-wheel and provided with independently-adjustable rests, a reciprocating carriage, medial and terminal slides applied to the carriage, independent means for securing the slides to the plate in an adjusted position, corresponding scale-graduations and pointers between the terminal slides and plate, means for adjusting the terminal slides transversely of the plate, a shaft supported by the several slides, work-holders adjustably mounted upon the shaft and consisting of approximately C-shaped arms having their lower members formed with openings and double-faced jaws, and means applied to the members of said arms to clamp the work against either face of the fixed jaw, substantially as set forth.

642,276. PEN-RACK. JAMES ADAIR, Leet, Pa. Filed June 13, 1899. Serial No. 720,375. (No model.)



Claim.—1. In a pen-rack the combination of a supporting-bar and a series of coils, two or more of the coils having portions on one side of the bar while the intermediate coils bear on the opposite side of the bar, substantially as set forth.

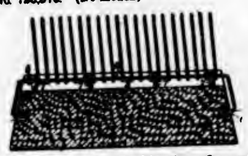
2. In a pen-rack, the combination of a supporting-bar provided on one side with two or more transverse grooves and a series of coils having two or more of its coils arranged in said grooves while the other coils bear on the opposite side of the bar at points intermediate of the grooves, substantially as set forth.

3. In a pen-rack, the combination of a supporting-bar provided on one side with a series of transverse grooves and on the opposite side with a series of seats alternating with the grooves, and a series of coils arranged alternately in said grooves and seats, substantially as set forth.

4. In a pen-rack, the combination of a supporting-bar provided on one side with a series of transverse grooves and on the opposite side with a series of seats alternating with the grooves, the walls of the grooves and seats being inclined and a series of coils arranged alternately in said grooves and seats, substantially as set forth.

5. In a pen-rack, the combination of a supporting-bar or carrier, and a series of coils arranged on said bar or carrier, the ends of the bar or carrier being provided with means for detachably securing the bar or carrier to a base, said means acting automatically to engage the base when the bar or carrier is placed in position thereon, substantially as set forth.

642,277. PEN-RACK. JAMES ADAIR, Leet, Pa. Filed June 13, 1899. Serial No. 720,376. (No model.)



Claim.—1. In a pen-rack, the combination of a series of coils, a base provided with one or more transverse ribs for limiting the lateral movement of the coils, and a clamping-bar extending through the coils and having its ends connected to the base, substantially as set forth.

2. In a pen-rack, the combination of a series of coils, a supporting-base, means for holding the coils spread or distributed along the base, and a clamping-bar passing through the coils and connected to the base, substantially as set forth.

3. In a pen-rack the combination of a series of coils, a supporting-base, and a clamping-bar extending through the fingers or coils and connected to the end coils and constructed to be secured to the base, substantially as set forth.

4. In a pen-rack, the combination of a series of coils, a base or support having transverse ribs intermediate of the ends, and a clamping-bar provided at its ends with hooks adapted to engage the supporting-base, substantially as set forth.

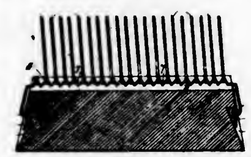
5. In a pen-rack, the combination of a series of coils, a base or support, and a clamping-bar extending through the coils and having its ends connected to the base, the ends of the coils being provided with knobs or enlargements adapted to engage the clamping-bar, substantially as set forth.

6. In a pen-rack, the combination of a base provided with recesses, a series of coils arranged on the base, a clamping-bar provided with hooks adapted to engage the recesses in the base, and a sleeve provided with a flap or handle surrounding the hook, substantially as set forth.

7. In a pen-rack, the combination of a base, a series of coils arranged on the base, and a resilient clamping-bar provided with hooks adapted to engage recesses in the base, substantially as set forth.

8. In a pen-rack, the combination of a base, a series of coils arranged on the base, a clamping-bar and hooks having resilient connection to the clamping-bar, and adapted to engage recesses in the base, substantially as set forth.

642,278. PEN-RACK. JAMES ADAIR, Leet, Pa. Filed June 13, 1899. Serial No. 720,377. (No model.)



Claim.—1. A block or base for pen-racks provided with a groove having inclined inwardly-converging walls whereby the base is adapted to support coils varying in diameter and having means whereby the coils may be attached to the block or base, substantially as set forth.

2. In a pen-rack, a base-block provided with a groove having inclined inwardly-converging walls, whereby the base is adapted to support coils varying in diameter in combination with a series of coils arranged in said groove and means whereby varying sizes of coils may be held in position in the groove, substantially as set forth.

3. In a pen-rack the combination of a base-block provided with a groove having inclined inwardly-converging walls, whereby the base is adapted to support coils varying in diameter, a clamping-bar passing through the coils and provided at its ends with hooks adjustable toward and from the body of the bar for engaging recesses in the ends of the block, substantially as set forth.

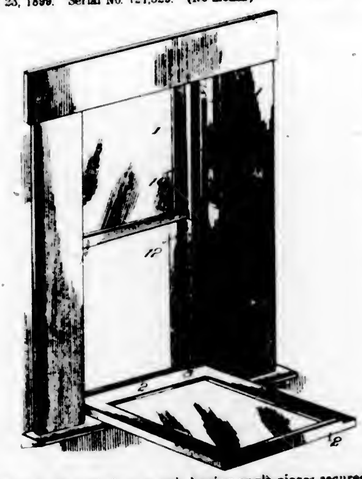
4. In a pen-rack, the combination of a base or block, a series of coils arranged on the block, and a clamping-bar separable from the coils and provided with projecting portions adapted to pass between adjacent fingers, and having its ends connected to the block, substantially as set forth.

5. In a pen-rack, the combination of a base or block, a series of coils arranged on the base or block, a clamping-bar separable from the coils and having its body portion bent to form projecting portions adapted to project between adjacent coils and having its ends connected to the base, substantially as set forth.

6. In a pen-rack, the combination of a base or block, a series of coils arranged in the base or block and a clamping-bar having a coiled body portion, portions of the coils thereof projecting between the fingers, the fingers and clamping-bar being locked together by portions of the fingers projecting into the coils of the clamping-bar, substantially as set forth.

7. In a pen-rack, the combination of a base or block, a series of coils arranged on the base or block, a clamping-bar provided with hooks adapted to engage recesses in the ends of the block, and disks or plates connected to the hooks, said plates or disks forming handles for the withdrawal of the hooks substantially as set forth.

642,279. WINDOW. SARAH F. ALBRIGHT, Sidney, Ohio. Filed June 23, 1899. Serial No. 721,529. (No model.)



Claim.—1. In a window, a sash having angle-pieces secured at its lower corners, pivots integral with the angle pieces and embracing the lower angles thereof, a casing having uninterrupted vertical grooves to receive the pivots, and sash-cords lying in the grooves and secured to said pivots.

2. In a window, a sash having angle-pieces embracing the lower corners thereof, tubular pivots integral with the angle-pieces and situated near the sash-corners, a casing having uninterrupted vertical grooves to receive the pivots, and sash-cords, lying in the grooves and secured internally of the tubular pivots.

642,280. LEDGER. CHARLES F. BACKUS, Detroit, Mich. Filed Oct. 9, 1899. Serial No. 733,059. (No model.)



Claim.—1. A binder comprising independent top and bottom covers, each having a hinged strip at its rear edge, a multiple of upright posts connected at their ends to the upper and lower strips, an independent clamping-plate intermediate the said covers, and means for locking the plate to, and at different distances from, one of the covers.

2. A binder comprising independent top and bottom covers each having a hinged strip at its rear edge, a multiple of upright posts connected at their ends to the upper and lower strips, an independent clamping-plate intermediate the said covers, and slidingly engaging the posts, and means for locking the plate to and at different distances from one of the covers.

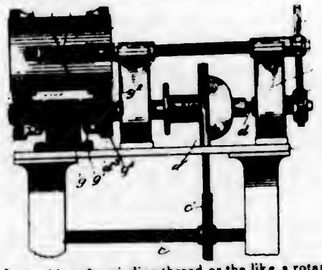
3. A binder comprising independent top and bottom covers each provided with a rigid hinged strip, a multiple of upright sectional posts connected at their ends to the upper and lower strips, the post ends being flush with the covers, an independent clamping-plate slidingly engaging the posts intermediate the strips, and means for locking the plate to, and at different distances from, one of the covers.

4. A binder comprising independent top and bottom covers each having a hinged rigid strip at its rear edge, a multiple of upright sectional posts connected at their ends to the strips, an independent clamping-plate intermediate the strips and slidingly engaging the posts, and a threaded bolt swiveled in one of the strips and having a threaded engagement with the clamping-plate, adapted when operated to move and lock the plate at different distances from one of the covers.

642,281. THREAD-WINDER. DICKERSON G. BAKER, Willimantic, Conn., assignor to The Willimantic Linen Company, same place. Filed June 13, 1898. Serial No. 683,249. (No model.)

Claim.—1. In machines for winding thread or the like, a traverse-drum with means for rotating it, a guide-slot extending through the wall of the drum, and a cop-holder located within the drum.

2. In a machine for winding thread or the like, a traverse-drum with means for rotating it, a guide-slot extending through the wall of the drum, a cop-holder located within the drum, and means for holding the inner surface of the drum adjacent to the cop holder



3. In machines for winding thread or the like, a rotary traverse-drum, means for rotating said drum, a guide-slot extending through the wall of the drum, and a winding-spindle located within the drum with means for rotating said spindle.

4. In machines for winding thread or the like, a rotary traverse-drum, a traverse-shaft operatively connected with the drum, means for rotating said shaft, a winding-spindle located within the drum and operatively connected with the traverse-shaft, and a guide-slot extending through the wall of the traverse-drum.

5. In machines for winding thread or the like, a winding-spindle, means for rotating the spindle, movable supports, a traverse-drum mounted on the supports and surrounding the spindle, means for rotating the drum, a guide-slot extending through the wall of the drum, and means for holding the supports in position with the inner wall of the drum adjacent to the winding-spindle.

6. In a machine for winding thread or the like, a winding-spindle, means for rotating the spindle, a traverse-drum surrounding the spindle, means for rotating the traverse-drum, a bridge located within the drum, and a guide-slot extending through the wall of the drum.

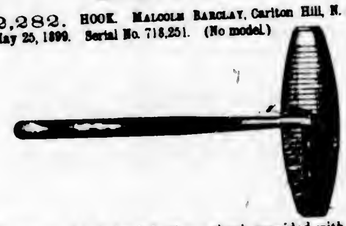
7. In machines for winding thread or the like, a winding-spindle, means for rotating the spindle, movable supports, a traverse-drum mounted on the supports, means for rotating the drum, a bridge located within the drum, a guide-slot extending through the wall of the drum, and means for holding the supports with the bridge in contact with the cop being formed.

8. In machines for winding thread or the like, a cop-holder, a traverse-drum surrounding the holder, a guide-slot extending through the wall of the drum, means for rotating the drum, and means interposed between the holder and drum and in engagement with the thread being wound.

9. In a machine for winding thread or the like, a traverse-shaft with means for rotating it, a winding-spindle operatively connected therewith, a sleeve surrounding the traverse-shaft and forming a bearing therefor, traverse-drum supports secured to said sleeve, a traverse-drum operatively connected with the traverse-shaft, and a guide-slot extending through the wall of the traverse-drum.

10. In a machine for winding thread or the like, a cop-holder, a traverse-drum surrounding the holder and mounted on a supporting-pivot, and a tension device exerting pressure to hold the drum at one side of a line passing through the axis of its pivot and the cop-holder.

642,282. HOOK. MALCOLM BARCLAY, Carlton Hill, N. J. Filed May 25, 1899. Serial No. 718,251. (No model.)



Claim.—1. A bale-hook having a shank provided with an integral transversely-extending member the parts thereof at each side of said shank extending in a plane throughout substantially at right angles to said shank; a grasping portion inclosing said transversely-extending member; and means for maintaining said grasping portion in position.

2. A bale-hook having a shank provided with a transversely-extending member integral therewith the parts at each side of said shank extending in a plane throughout substantially at right angles to said shank, and a grasping portion comprising a series of independent sections secured on said transversely-extending member.

3. A bale-hook having a shank provided with an integral member extending transversely thereof and having threads at its ends, and a grasping portion completely inclosing said transversely-extending member and maintained in position by nuts on said threaded ends.

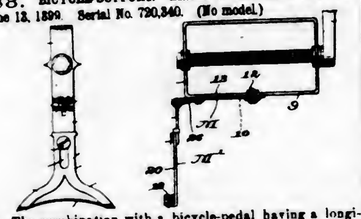
4. A bale-hook having a shank provided with a transversely-extending member integral therewith and having threaded ends; a grasping portion comprising a series of rings removable from said transversely-extending member; and nuts for securing said rings in position thereon.

5. A bale-hook having a shank and a transversely-extending member integral therewith provided with a pair of threaded ends; a grasping portion comprising a series of centrally-apertured leather rings fitting on said transverse member; and nuts carried by said threaded ends for maintaining said rings in position.

6. A bale-hook having a shank provided with a transversely-extending member integral therewith having threaded ends; a series of centrally-apertured ring-shaped sections fitting on said transversely-extending member, the two inner sections having recesses for the reception of said shank; and nuts for maintaining said sections in position.

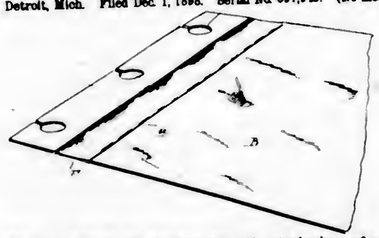
7. A bale-hook having a flat shank provided with a transversely-extending member integral therewith having threaded ends; a series of centrally-apertured ring-shaped leather sections fitting on said transversely-extending member, the two inner sections having recesses for the reception of said flat shank; and nuts carried by said threaded ends for maintaining said sections in position, said sections when assembled forming a handle curved from end to end and of greater diameter adjacent to its center portion than at its ends.

342,288. BICYCLE-SUPPORT. ERNEST C. BARKER, Keene, N. H. Filed June 13, 1899. Serial No. 720,340. (No model.)



Claim.—The combination with a bicycle-pedal having a longitudinally-slotted side bar, of a plate adapted to fit flatwise against said side bar and to slide thereon in the direction of its length, a connecting and clamping device uniting said side bar and plate and passing through the slot, a leg consisting of two sections one of which is slidable upon the other and is provided with a pair of lugs adapted to engage its companion, an adjusting and clamping device uniting the two parts of the leg, and a spring secured to the plate and its free end bearing against the leg.

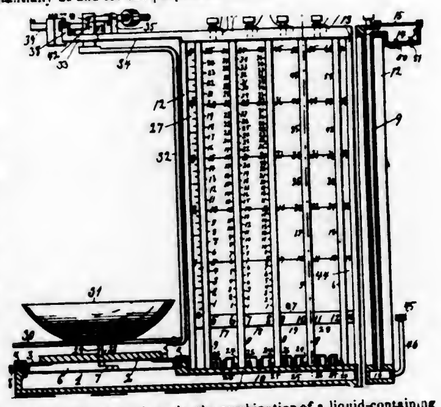
642,284. LEAF FOR LOOSE-LEAF LEDGERS. JAMES BARKER, Detroit, Mich. Filed Dec. 1, 1898. Serial No. 697,945. (No model.)



Claim.—A detachable ledger formed of a single sheet of material, comprising a body adapted to be written upon, a binding-strip adapted to be clamped within the ledger, and a thinned portion or strip intermediate the body and the binding-strip, constituting a hinge upon which the leaf is turned, said thinned strip being tapered in opposite directions from its center substantially as shown and described.

642,285. HYDROSTATIC COMPUTING-SCALE. SWAN BENGTSON, St. Paul, Minn. Filed Dec. 3, 1898. Serial No. 698,168. (No model.)

Claim.—1. In a hydrostatic scale, suitably framed, the combination of a vessel or box containing liquid, an up-and-down-vibrating cover or platform hermetically closing the top of the box, a series of upright glass tubes communicating at their lower ends with the liquid in the box; an upright weight-indicator near one of the tubes, and a series of upright strips or plates arranged with their edges against the sides of the tubes and having near both edges marked upon them numbers indicating various prices per pound and vertically above each of such price-indicating numbers a column of upwardly-increasing numbers, indicating the cost of the goods placed on the scale, substantially as and for the purpose set forth.



2. In a hydrostatic scale, the combination of a liquid-containing vessel or box, having a hermetically-closed, up-and-down-vibrating cover, a series of upright glass tubes communicating at their lower ends with the liquid in the box; an upright weight-indicator at the side of one of said tubes, and a series of upright strips, having price and cost indicating figures upon both edges of both sides, and being interposed between the tubes and arranged with their edges adjacent the sides of the tubes, substantially as and for the purpose set forth.

3. In a hydrostatic scale suitably framed, the combination of a liquid-containing box or vessel having a hermetically-closed, up-and-down-vibrating cover or platform, a series of upright glass tubes communicating at their lower ends with the liquid in the box; an upright weight-indicator at the side of one of the tubes, and a series of cost-indicators along the sides of the tubes; said cost-indicators being arranged upon or having the form of strips or plates adapted to be turned with either side to the operator, and having price and cost indicating marks upon both sides, and means for limiting the turning of the plate to only half a turn or circle, and means for returning and holding the plate in its normal position, substantially as and for the purpose set forth.

4. In a hydrostatic scale mounted in a suitable frame, the combination with the liquid-containing vessel or box 1, having the hermetically-closed vibrating platform 2, of the scale-platform 30, resting at a single, central point upon the platform 2, the guiding-rod 32, extending from the scale-platform to the upper part of the framework, two beams fulcrumed in the upper part of the frame, at about right angles to each other, and having, each of them, one end pivoted to the upper end of the said guiding-rod, and the other end provided with a poise, substantially as and for the purpose set forth.

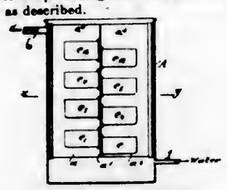
5. In a hydrostatic scale, the combination with a liquid-containing box or vessel of an upright weight-indicator and a transparent, upright tube at the side of the indicator and communicating with the liquid in the vessel, said vessel having a hermetically-closed, vertically-vibrating cover resting upon the liquid and being adapted to support the goods to be weighed on the scale, and means for reducing and increasing the area of said cover which comes in contact with the liquid, substantially as and for the purpose set forth.

642,286. ACETYLENE-GENERATOR. HANS R. BERGER, Berlin, Germany. Filed Aug. 18, 1898. Serial No. 688,867. (No model.)

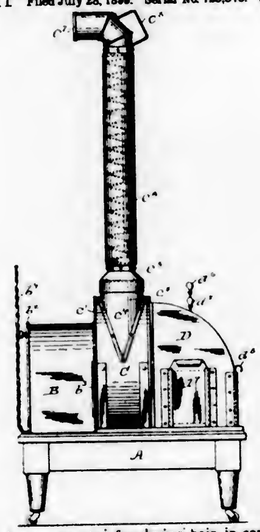
Claim.—1. An acetylene-gas generator having vertically-disposed partition-walls to divide it into a series of chambers said chambers being in open communication with each other below the lower edge of said partition-walls, and a series of carbid-holders mounted between said vertical walls said holders being staggered, the set of holders in one chamber being slightly higher, as regards its separate members than those of the preceding chamber in the manner and for the purpose substantially as described.

2. The combination of an acetylene-generator A having verti-

tically-disposed partition-walls a a' a^2 a^3 therein extending almost to the bottom of the same and a series of carbid-holders c c' c^2 c^3 to c^{13} mounted on the said partition-walls, each member of the set of one chamber being mounted at a slightly-higher level than the corresponding member of the preceding set in the manner and for the purpose substantially as described.



642,287. HAIR-DRYING APPARATUS. HERMANN C. BERNER, Providence, R. I. Filed July 28, 1899. Serial No. 726,373. (No model.)



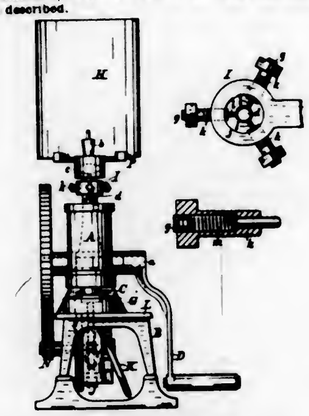
Claim.—1. In an apparatus for drying hair, in combination, a table forming the support of the apparatus, a heating-chamber, the arched top of the heating-chamber, a perforated door closing normally the end of the heating-chamber below the lowest point of the arched top of the chamber, a burner in the heating-chamber, a perforated deflector-plate, a fan-chamber, means for operating the fan, openings connecting the heating-chamber with the fan-chamber, a tangential outlet from the fan-chamber, a flexible tube connected with the tangential outlet, and a nozzle at the end of the flexible tube, whereby the heated air may be forced on and through the hair, as described.

2. In an apparatus for drying hair, the combination with the table A and the chambers B, C and D supported on the table, of the motor b', the fan b^4 connected with and driven by the motor, the hood c^4 inclosing the tangential outlet-opening in the peripheral wall of the chamber C, the flexible tube c^4, the nozzle c^7 provided with a handhold, the door b^2 in the chamber B, the door d^7 and the perforated door d^8 in the chamber D, the burner d' and means for controlling the same, and openings connecting the chamber C with the chamber D, whereby the air heated in the chamber D is discharged from the nozzle and may be directed by the operative, as described.

642,288. CENTRIFUGAL SEPARATOR. JOHN J. BERRIGAN, Avon, N. Y., assignor to the De Laval Separator Company, of New Jersey. Filed Oct. 16, 1895. Renewed Sept. 30, 1898. Serial No. 692,349. (No model.)

Claim.—1. The combination with the revolving bowl of a centrifugal separator, of a shaft connected with the lower portion thereof for driving the same, means to drive said shaft, an independent hollow shaft projecting from the top of the bowl, and yielding bearings for said last-mentioned shaft, said bearing being adapted to yield to lift the hollow shaft and bowl free from the operating-shaft.

2. The combination with the revolving bowl of a centrifugal separator, of a shaft connected with the lower portion thereof for driving the same, means to drive said shaft, an independent rigid hollow shaft projecting from the top of the bowl, and yielding bearings for said last-mentioned shaft, said bearing comprising three or more equidistant sliding bearing-rods, each provided with a spring which produces a limited upward movement of the rods, substantially for the purpose described.



642,289. METAL-WORKING MACHINE. FREDERIC C. BILLINGS, Hartford, Conn. Filed Oct. 25, 1899. Serial No. 734,705. (No model.)



Claim.—1. In a machine of the class specified, the combination, with a tool, of frames between which the tool is guided; a head fitted to and having a projecting member located between and the sides thereof bearing against said frames; means passing outside of the head for securing said head to the frames; and means carried by the head for actuating the tool.

2. In a machine of the class described, the combination, with a pair of side frames and a hammer, of a head having a depending member supported by and between and bearing against said side frames, and means passing on each side of but not through the head for securing said head and frames together.

3. In a machine of the class described, the combination, with a pair of side frames and a tool, of a head embodying a pair of side members and a central projecting member connected therewith and bearing at each side against the frames; means carried by said head for actuating the tool; and means passing transversely through the side frames at each side of the head for retaining said head in position on said side frames.

4. In a machine of the class described, the combination, with a pair of side frames and a hammer having a lifting-board, of a unitary roll-carrying head embodying a pair of side members and a central member integrally connected therewith and having an aperture to permit the passage of the lifting-board, and means passing at each side of but not through the head for retaining said head in position on the side frames.

5. In a machine of the class described, the combination, with a pair of side frames and a hammer having a lifting-board, of a unitary roll-carrying head embodying a pair of side members and a central member integrally connected therewith and forming a side abutment for said side frames, and means passing outside of but not through the head for securing said head in position.

6. In a machine of the class described, the combination, with a pair of side frames and a hammer having a lifting-board, of a unitary roll-carrying head embodying a pair of side members and a central member integrally connected therewith and having an aperture to permit the passage of the lifting-board; means for retaining said head in position on the side frames; and bolts passing on each side of but not through the head for clamping said head in position between said side frames.

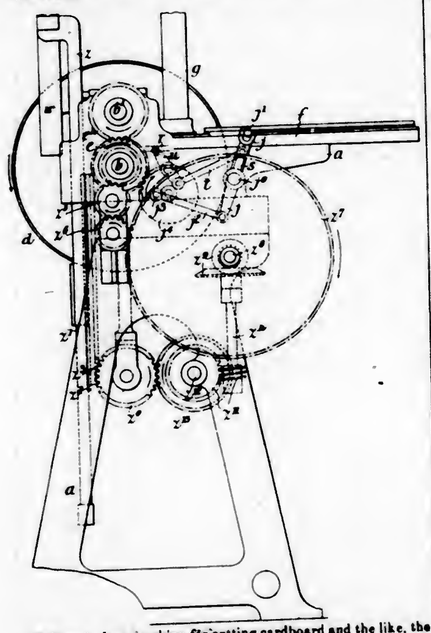
7. In a machine of the class described, the combination, with a pair of uprights having rabbeted top portions, of a head having a depending apertured member provided with side projections located between said uprights, said head also having recesses to receive and fit upon the uprights; a hammer; and means carried by said head for raising and releasing said hammer.

8. In a machine of the class described, the combination, with a pair of uprights having rabbeted top portions, of a head having a depending apertured member integral therewith provided with side projections located between and fitted against the shoulders formed by said rabbeted portions of the uprights; a hammer; and means carried by said head for raising and releasing said hammer.

9. In a machine of the class described, the combination, with a pair of vertical uprights having rabbeted top portions, of a head provided with an apertured depending member with side flanges fitted against the shoulders of the rabbeted portions of said uprights, said head also having ways or recesses to receive the top portions of the uprights; a pair of rolls mounted in bearings carried by said head, one of said rolls carrying an eccentric; a hammer; a lifting-board carried thereby; and means for actuating the roll carrying the eccentric, to release said hammer.

10. In a machine of the class described, the combination, with the usual lifting-board, of a head having bearings to receive said rolls; a pair of uprights having top portions fitted in recesses of the head; side flanges projecting from the head and bearing against the shoulders of the rabbets in the uprights; hinged caps connected to the head; and a hammer having a strap adapted to be engaged and lifted by said rolls, substantially as and for the purpose specified.

642,290. MACHINE FOR CUTTING CARDBOARD. JOHN M. BLACK, London, England. Filed July 21, 1899. Serial No. 724,645. (No model.)



Claim.—1. In a machine for cutting cardboard and the like, the combination with the rotary cutters of guides in different horizontal planes, located in rear of the cutters for receiving the severed pieces, substantially as described.

2. In a machine for cutting cardboard and the like, the combination with a hopper for holding a series of strips to be severed, provided at its bottom with an aperture or recess on two opposite sides, of substantially the same vertical width as the thickness of a single strip, a reciprocating horizontal plunger in line with said slits, adapted to enter the hopper therethrough and expel a single strip at each reciprocation, the rotary cutters, and the guides in rear of the cutters located in different horizontal planes, substantially as described.

3. In a rotary machine for cutting cardboard and the like, the combination with a series of pairs of cutting-shears and means for carrying the cardboard severed thereby in different horizontal planes, of a hopper for receiving the strips of cardboard to be severed, a sliding plunger for pushing out the strips successively from the bottom of the said hopper and delivering them to the shears, a gatherer adapted to engage with the tickets as they pass from between the shears and to convey them to a collecting-box and a series of plungers for pressing the tickets down into the collecting-box, substantially as described.

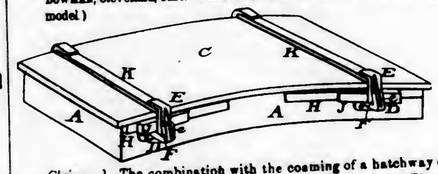
4. In a machine for cutting cardboard and the like, the combination with the rotary cutters, of two series of guides in rear of said cutters alternating with each other and located in different horizontal planes, and a reciprocating gatherer for feeding the severed strips along said guides, toward a collecting-box, substantially as described.

5. In a machine for cutting cardboard and the like, the combination with the rotary cutters, of guides in rear of the cutters located in different horizontal planes, a reciprocating gatherer provided with a series of hooks for engaging the severed cards on said guides, and means for raising and lowering said hooks into and out of operative position, substantially as described.

6. In a machine for cutting cardboard and the like, the combination with the rotary cutters, of guides in rear of the cutters located in different horizontal planes, a reciprocating gatherer, a collecting-box, a series of plungers for pressing the severed pieces down into said box and means for continually lowering said collecting-box, substantially as described.

7. In a machine for cutting cardboard and the like, the combination with the rotary cutters, of guides in rear of said cutters located in different horizontal planes, a gatherer for feeding the cards along said guides, a collecting-box provided with a series of inclined bottom surfaces and a vertical partition at one end of each of said inclined surfaces, adapted to engage one end of a card and a series of plungers for pressing the cards down into the collecting-box substantially as described.

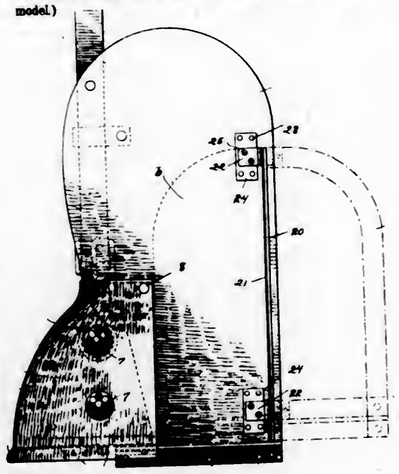
642,291. HATCH-FASTENER FOR VESSELS. BENJAMIN F. BOWMAN, Cleveland, Ohio. Filed May 9, 1899. Serial No. 716,110. (No model.)



Claim.—1. The combination with the coaming of a hatchway of brackets D having slotted arms F, hooks E having dovetails E' and leaves G, having slots g, slidingly attached to the arms F, substantially as shown and described.

2. The combination with the coaming of a hatchway and the cover and canvas therefor, of the brackets D, having slotted arms F, hooks E having dovetails E' and leaves G having slots g, the battens H, and the wedges J, constructed and adapted to operate substantially as and for the purpose set forth.

642,292. FENDER FOR EQUESTRIAN STIRRUPS. ROBERT C. BROOKES, Forest, Miss. Filed Oct. 6, 1898. Serial No. 692,810. (No model.)



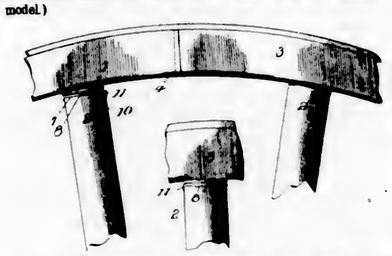
Claim.—1. The combination with a saddle-stirrup, of a fender comprising an inner section secured to the stirrup and extending upwardly along the rider's leg, and having an angular strip 15 attached to its lower edge, a bottom piece 11 detachably fastened to the under side of the stirrup at its front edge and to said angular strip along its inner edge, and means for detachably fastening the bottom piece to the strip.

2. The combination with a saddle-stirrup, of a fender comprising an inner section secured to the stirrup and extending upwardly along the rider's leg, a hood covering the front and sides of the stirrup, and a flat rear section hinged to the inner section near its rear edge and adapted to fold forwardly against the outer face of the inner section in rear of the stirrup and hood and means for holding said rear section in folded position.

3. The combination with a saddle-stirrup, of a fender comprising an inner section secured to the stirrup, and a rear section hinged to the inner section near its rear edge to fold rearwardly in line with said section to form a rear extension of the same or at right angles to said section as desired, and means to hold said rear section in either of said positions.

4. The combination with a saddle-stirrup of a fender comprising an inner section secured to the stirrup and extending upwardly along the rider's leg, a bottom piece 11 detachably fastened to the under side of the stirrup and extending rearwardly therefrom, a detachable connection between said bottom piece and the lower end of the inner section, a bottom piece 10 secured at its rear edge to the stirrup and extending forwardly therefrom, a hood covering the front and sides of the stirrup and secured to the edges of the bottom piece 10.

642,293. DEVICE FOR TIGHTENING WHEEL-RIMS. LEMUEL BUIS, Little Rock, Ark. Filed May 4, 1899. Serial No. 715,573. (No model.)



Claim.—1. In combination with a wheel-rim, a tightening-wedge provided with breaking-grooves, said wedge having a length greater than the thickness of the rim.

2. In combination with a wheel-rim, a tightening-wedge provided with key-grooves 6 and nails 6'.

3. In combination with a wheel-rim, a tightening-wedge, and a spoke, the U-shaped washers having the inclined proximate faces of their parallel members transversely grooved and a subsidiary key 10.

4. In combination with a wheel-rim, a tightening-wedge and a spoke, the U-shaped washers having the proximate faces of their parallel members transversely grooved and a subsidiary key 10.

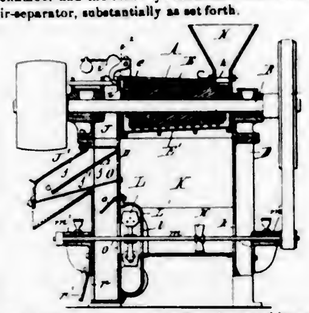
5. In combination with a wheel-rim, a tightening-wedge, and a spoke, the U-shaped washer having the inner edges of its members transversely serrated to bite the spoke-tenon.

6. In combination with a wheel-rim, a tightening-wedge, and a spoke, the U-shaped washer having the inner edges of its members transversely serrated to bite the spoke-tenon, one or more transverse grooves on the flat faces of the members and one or more keys.

7. In combination with a wheel-rim and spoke, an approximately U-shaped washer embracing the spoke-tenon and having flexible wedge termination 11, folded one upon a spoke one upon a felly.

642,294. COFFEE-HULLER. CHARLES A. CALVERT, Buffalo, N. Y., assignor to the George L. Squier Manufacturing Company, same place. Filed Nov. 20, 1897. Serial No. 659,245. (No model.)

Claim.—1. The combination with the hulling-drum and its perforated casing having a discharge-spout for the hulled grains, of an exhaust-chamber arranged underneath the casing and receiving the chaff therefrom, an air-separator arranged on one side of said exhaust-chamber and having an upper portion through which the air-current ascends and through which the grains pass from said discharge-spout and a lower portion through which the air-current descends, and a fan and fan-case arranged between the bottom portion of said exhaust-chamber and the lower portion of the air-separator and having one of its eyes connected with the bottom portion of said exhaust-chamber and the other eye connected with the lower portion of said air-separator, substantially as set forth.



2. The combination with the hulling-drum and its perforated casing, of an exhaust-chamber arranged underneath the casing and receiving the chaff therefrom, a fan-case and fan arranged at one side of the exhaust-chamber and having its eye connected with the same immediately above the bottom thereof, an air-inlet arranged in the opposite side of the exhaust-chamber, and an auxiliary fan-wheel arranged in the bottom portion of said exhaust-chamber near said inlet and constructed to propel the material toward the eye of the fan, whereby all the solid material which passes through the perforated casing of the hulling-drum is conducted to the eye of the fan, partly by gravity and partly by the air-currents set in motion by the fan and the fan-wheel, substantially as set forth.

3. The combination with the hulling-drum, of a concave inclosing the upper portion of the drum, a housing and stationary frame in which the drum is journaled and on which said concave is supported, a fixed receiving-chamber extending downwardly from said stationary frame and provided in its upper portion with doors, and a perforated, pivoted concave, movable within said fixed chamber and inclosing the lower portion of the hulling-drum, said perforated concave being pivoted at one side and supported at the opposite side by releasable fastenings, whereby said perforated concave can be swung down on its pivoted connections within said fixed chamber and access can be had through the doors of said fixed chamber to the hulling-drum and to the inner and outer sides of the perforated concave, substantially as set forth.

642,295. BRAKE-SHOE. JAMES R. CARDWELL, Chicago, Ill. Filed Mar. 20, 1899. Serial No. 709,774. (No model.)



Claim.—1. A cellular brake-shoe insert-plate having the walls of the cells thereof arranged obliquely with reference to the face of the shoe.

2. A cellular brake-shoe insert-plate having the walls of the cells thereof arranged obliquely with reference to the face of the shoe, the obliquity extending longitudinally.

3. A brake-shoe comprising a cast-metal body having embedded therein a cellular insert-plate, the openings whereof are arranged in a longitudinal oblique direction with reference to the face of the shoe.

4. A brake-shoe comprising a cast-metal body having embedded therein a cellular honeycomb-shaped insert-plate, the openings whereof are arranged in a longitudinal oblique direction with reference to the face of the shoe.

5. A brake-shoe comprising a cast-metal body having embedded therein a cellular elongated honeycomb-shaped insert-plate, the openings whereof are arranged in a longitudinal oblique direction with reference to the face of the shoe.

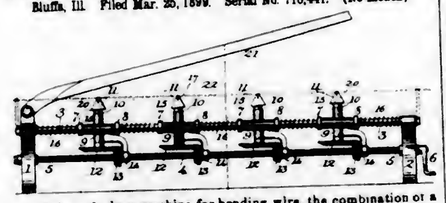
6. A brake-shoe containing two cellular insert-plates each of which extends at one side of the face of the shoe for some distance past the center.

7. A brake-shoe containing two cellular insert-plates each of which extends at one side of the face of the shoe for some distance past the center, and a strengthening-lug opposite the point of division between the two insert-plates.

8. A hard-metal insert-plate for brake-shoes having cells extending inwardly from its face, the end walls of the cells being oblique to the face of the plate.

9. A brake-shoe comprising a cast-metal body having embedded therein a hard-metal insert-plate having cells extending inwardly from its face, the end walls of the cells being oblique to the face of the plate.

642,296. WIRE-STAY-BENDING MACHINE. CURTIS C. CARTER, Bluffs, Ill. Filed Mar. 25, 1899. Serial No. 710,441. (No model.)



Claim.—1. In a machine for bending wire, the combination of a frame, a series of twister-carriers slidably mounted thereon, twister-heads journaled in the carriers, and means for rotating the twister-heads, substantially as set forth.

2. In a machine for bending wire, the combination of a frame, a series of twister-heads mounted therein and adapted to move toward and from each other, and means for rotating the twister-heads, substantially as set forth.

3. In a machine for bending wire, the combination of a frame, a series of twister-heads mounted therein and adapted to move toward each other while in operation, and means for moving them away from each other when the product is removed from the machine, substantially as set forth.

4. In a machine for bending wire, the combination of a frame, twister-heads mounted therein and adapted to move toward and from each other, and a lever adapted to coact with the twister-heads, substantially as set forth.

5. In a machine for bending wire, the combination of a frame, a series of twister-carriers slidably mounted thereon, twister-heads journaled in the carriers, spiral springs separating the twister-carriers from each other and from the end plates of the frame, and means for rotating the twister-heads, substantially as set forth.

6. In a machine for bending wire, the combination of a frame, a series of twister-carriers slidably mounted thereon, a twister-head fixed to a shaft journaled in each of the carriers, a bevel-gear on each shaft, a bevel-pinion in engagement with each bevel-gear, and a shaft common to all the pinions, substantially as set forth.

7. In a machine for bending wire, the combination of a frame, a series of twister-carriers slidably mounted thereon, a twister-head fixed to a shaft journaled in each of the carriers, a lever pivoted to the frame and adapted to coact simultaneously with the series of twister-heads, a bevel-gear on each of said shafts, a bevel-pinion in engagement with each bevel-gear, and a shaft common to all the pinions, substantially as set forth.

8. In a machine for bending wire, the combination of a frame, a series of twist-carriers slidably mounted thereon, spiral springs between adjacent carriers, and the end carriers and the frame, a twister-head fixed to a shaft journaled in each of the carriers, a lever pivoted to the frame and adapted to coact simultaneously with the series of twister-heads, a bevel-gear on each of said shafts, a bevel-pinion in engagement with each bevel-gear, and a shaft common to all the pinions, substantially as set forth.

9. A twister-head of pyramidal or conical form, having projections at its apex between which the material to be bent is placed, and an opening or hole extending from its base upwardly to or near the apex, substantially as set forth.

10. A twister-head of pyramidal or conical form, having projections at its apex between which the material to be bent is placed, an opening or hole extending from its base upwardly to or near its apex, and a knife secured to the base and extending outwardly, substantially as set forth.

11. A twister-head for wire-bending machines, having a guide for the wire to be bent, combined with means for carrying a wire crossing the twister-head and the first-named wire, substantially as set forth.

12. A twister-head for wire-bending machines, having projections at its top between which the wire to be bent is placed, combined with means for carrying a wire crossing the twister-head and the first-named wire, substantially as set forth.

13. A twister-head for a wire-bending machine, having a guide for the wire to be bent, means for supporting a wire crossing the twister-head and the first-named wire, and a knife on the twister-head for severing one of the wires, substantially as set forth.

14. A twister-head for a wire-bending machine, having projections at its top between which the material to be bent is placed, means for supporting a wire crossing the twister-head and the first-named wire, and a knife carried by the twister-head for severing one of the wires, substantially as set forth.

15. In a machine for bending wire, the combination of a series of twister-carriers, twister-heads journaled in the carriers, springs separating the twister-carriers from each other, and means for rotating the twister-heads, substantially as set forth.

16. In a machine for bending wire, the combination of a frame, a series of twister-heads movable thereon during rotation, and means for rotating the twister-heads, substantially as described.

17. In a machine for bending wire, the combination of a frame, a series of twister-heads relatively movable thereon during rotation, and means for rotating the twister-heads, substantially as described.

18. In a machine for bending wire, the combination of a frame, a series of twister-carriers thereon, twister-heads journaled in the carriers, and means for rotating the twister-heads, the said carriers being capable of relative movement during the rotation of the twister-heads, substantially as described.

19. In a machine for bending wire, the combination of a frame, twister-heads movable thereon independently of each other during rotation, and means for rotating the twister-heads, substantially as described.

20. In a machine for bending wire, the combination of a frame, twister-carriers thereon, twister-heads mounted in the carriers, and means for rotating the twister-heads, each of the said carriers being capable of independent movement during the rotation of the twister-heads, substantially as described.

21. In a machine for bending wire, the combination of a frame, a series of automatically-movable rotatable twister-heads thereon, and means for rotating the twister-heads, substantially as set forth.

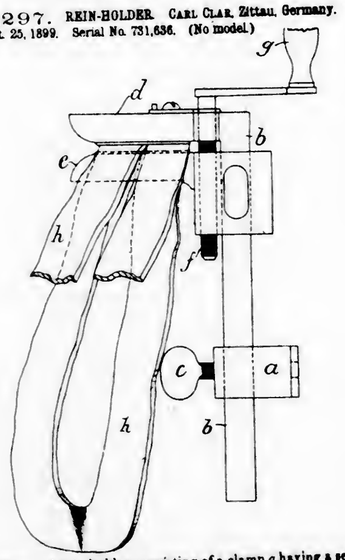
22. In a machine for bending wire, the combination of a frame, a series of twister-carriers capable of automatic relative movement thereon, twister-heads journaled in the carriers, and means for rotating the twister-heads, substantially as set forth.

23. In a machine for bending wire, the combination of a frame, a series of twister-heads capable of automatic relative movement thereon, and means for rotating the twister-heads, substantially as set forth.

24. In a machine for bending wire, the combination of a frame, twister-heads capable of automatic movement thereon independently of each other, and means for rotating the twister-heads, substantially as set forth.

25. In a machine for bending wire, the combination of a frame, twister-carriers capable of automatic movement thereon independently of each other, twister-heads mounted in the carriers, and means for rotating the twister-heads, substantially as set forth.

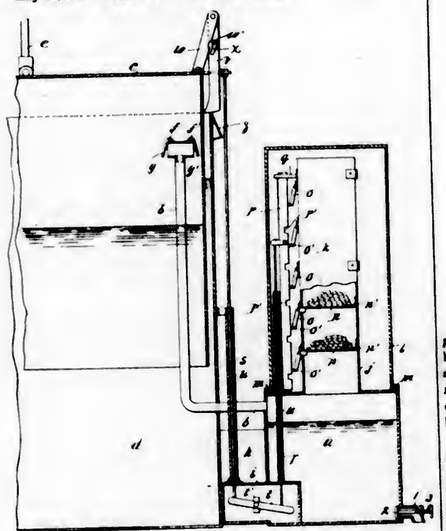
642,297. REIN-HOLDER. CARL CLAR, Zittau, Germany. Filed Sept. 25, 1899. Serial No. 731,636. (No model.)



Claim.—A rein-holder, consisting of a clamp *a* having a set-screw *c*, a shank *b* sliding in said clamp and adjustable lengthwise therein, a fixed jaw *d* integral with said shank and at an angle thereto, a jaw *e*

parallel with the jaw *d* and movable lengthwise on the shank, a screw *f* rotatable in the fixed jaw on an axis parallel with the shank, and engaging with a screw-threaded hole in the movable jaw, and a crank *g* attached to the upper end of the screw above the fixed jaw.

642,298. ACETYLENE-GENERATOR. HIPPOLYTE M. COOPER, Bath, N. Y., assignor of one-half to Joseph W. Borst, Erwin, N. Y. Filed May 16, 1899. Serial No. 716,803. (No model.)



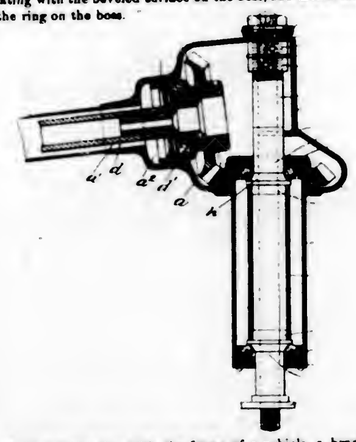
Claim.—1. In an acetylene-generator, the combination of a generator-tank, a chute opening into same, a plurality of platforms pivoted in such chute, a gasometer connected with the generator-tank and provided with a vertically-movable bell, latch devices for supporting the several platforms, a slide-bar having notches adapted to cause operation of the latch devices successively on successive movements thereof, and an operating connection between such slide-bar and the gasometer-bell, such operating connection comprising mechanically-connected rods extending down from the bell and slide-bar to a point below the water-level in the generator-tank, and a tubular extension of such tank forming a water seal at the place where the rod passes out from the generator-tank to connect to the gasometer-bell.

2. In an acetylene-generator, the combination of a generator-tank, a chute opening into same, a plurality of platforms pivoted in such chute, a gasometer connected with the generator-tank and provided with a vertically-movable bell, latch devices for supporting the several platforms, a slide-bar having notches adapted to cause operation of the latch devices, successively on successive movements thereof and an operating connection between such slide-bar and the gasometer-bell, such operating connection comprising a lever located below the water-lever, in the generating-tank, rods engaging with opposite ends of said lever and extending up from such tank to connect with the bell and slide-bar respectively, and a tubular extension of such tank forming a water seal at the place where the rod passes from the generator-tank to connect to the gasometer-bell.

642,299. VELOCIPEDE. JAMES S. COPELAND, Hartford, Conn., assignor, by mesne assignments, to the American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed May 26, 1898. Serial No. 681,753. (No model.)

Claim.—1. A bracket, rotating parts projecting into the bracket, gears located on the rotating parts and in mesh with each other, and a strut located on the inner wall of the bracket, partially encircling the support for one of the rotating parts and opposing the thrust of the gears on one of said parts.

2. In combination in a vehicle, a bracket composed of sections divided on a plane central of the axle of the driving-wheel, a beveled boss with complementary parts on each bracket-section adjacent to the axle-socket in the bracket, an axle extending through the bracket centrally of the boss, rotating parts including a cone-and-ball case supported by the axle, an adjusting-nut mounted on the axle inside of the case adjacent to the boss, a ring having a beveled surface cooperating with the beveled surface on the boss, and means for clamping the ring on the boss.



3. In combination with the frame of a vehicle, a bracket integral therewith, a shaft projecting into the bracket, a support, a wheel-hub projecting into the bracket and operatively connected with said shaft and mounted on the support, a cap secured to the bracket on a plane passing through the axis of the support, and a strut formed on the inner surface of the cap and partially supporting said wheel-hub.

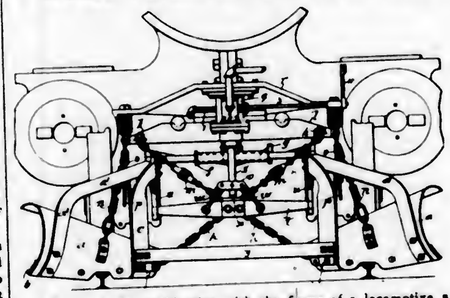
4. In combination with the frame of a vehicle, a bracket integral therewith, a cap secured to the bracket, complemental parts of a boss located on the bracket and cap, a collar fitting the boss and holding the bracket and cap in engagement, and means for securing the collar in position.

5. In combination with the frame of a vehicle, a bracket integral therewith, a cap secured to the bracket, complemental parts of a boss located on the bracket and cap, a collar fitting the boss and holding the bracket and cap in engagement, an axle held by said collar, and a strut on the inner surface of the cap forming a partial support for said axle.

6. In combination with the frame of a vehicle, a bracket integral therewith, a shaft projecting into the bracket, an axle projecting into the bracket, a wheel-hub mounted on the axle and operatively connected with the shaft, a cap removably secured to the bracket on a plane coincident with the axis of the wheel-hub, complemental parts of a boss located on the bracket and cap, a collar surrounding said boss, and means for holding the collar in place.

7. In combination with the frame of a vehicle, a bracket integral therewith, an axle projecting through the bracket, a wheel-hub mounted on the axle and means for driving the wheel-hub, a cap secured to the bracket on a plane coincident with the axis of the wheel-hub, complemental parts of a beveled boss located on the bracket and cap, a collar having a beveled surface fitting the beveled surface on the boss, and means for holding the collar in place.

642,300. LOCOMOTIVE-FLANGER. THOMAS CROCKETT, Montreal, Canada. Filed Mar. 11, 1899. Serial No. 708,723. (No model.)



Claim.—1. In combination with the frame of a locomotive, a flanger device comprising a pair of flanger-plates, a pair of arms rigidly connected at their rear ends to said flanger-plates and pivotally connected at their forward ends to the frame of the locomotive, and a pair of reinforcing-arms connected rigidly at their rear ends to the rear ends of said flanger-plates and at their forward ends rigidly to the first-mentioned arms.

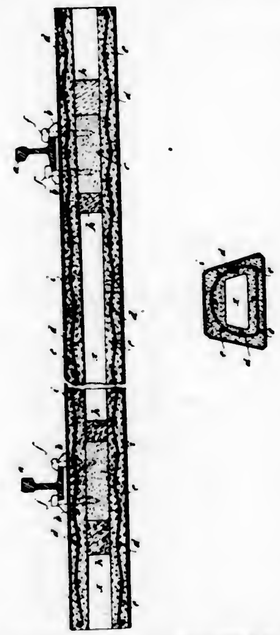
2. In combination with the frame of a locomotive, of a flanger device comprising a pair of flanger-plates, a pair of arms rigidly connected at their rear ends to said flanger-plates, and pivotally connected at their forward ends to the frame of the locomotive, a pair of reinforcing-arms connected rigidly at their rear ends to the rear ends of said flanger-plates, and at their forward ends rigidly to the first-mentioned arms; and means for raising and lowering said flanger device, substantially as and for the purpose set forth.

3. In combination with the frame of a locomotive, of a flanger device comprising a pair of flanger-plates, a pair of arms rigidly connected at their rear ends to the forward ends of said flanger-plates and pivotally connected at their forward ends to the frame of the locomotive, a pair of reinforcing-arms connected rigidly at their rear ends to the rear ends of said flanger-plates and at their forward ends rigidly to the first-mentioned arms; means for bracing said flanger-plates together; a lifting device; a chain connection between said flanger device and the piston-rod of said lifting device, substantially as described and for the purpose set forth.

4. The combination of flangers *a*, *a*, carrying-arms *c*, *c*, pivoted to the equalizing-levers of the locomotive-truck, lifter-bar *t*, hanger-bars *u*, carried above the lifter-bar and the operating-cylinder *q*, piston-rod *s* bearing directly upon and having a free connection with said bar, substantially as and for the purpose set forth.

5. The combination with piston-rod *s* and lifter-bar *t*, of cross-head *v* and links *w* with pivotal connections to cross-head and bar, substantially as and for the purpose set forth.

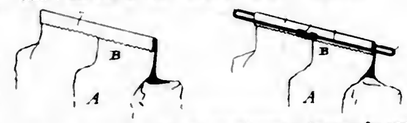
642,301. SLEEPER FOR RAILWAYS, &c. PAUL CZIGLER, Mura Kiraby, Austria-Hungary. Filed Nov. 28, 1898. Serial No. 697,581. (No model.)



Claim.—1. The combination with a railway-sleeper having a tubular longitudinal channel flaring toward an end of the sleeper, an elastic wedge-shaped supporting-body in the tubular flaring space, and plugs of comparatively stiff material on each side of said elastic supporting-body.

2. A hollow railway-sleeper comprising a metallic skeleton coated externally and internally with a composition containing cement and coarse coal, in combination with filling-pieces in said sleeper containing asphalt, tar, animal-hair and sand.

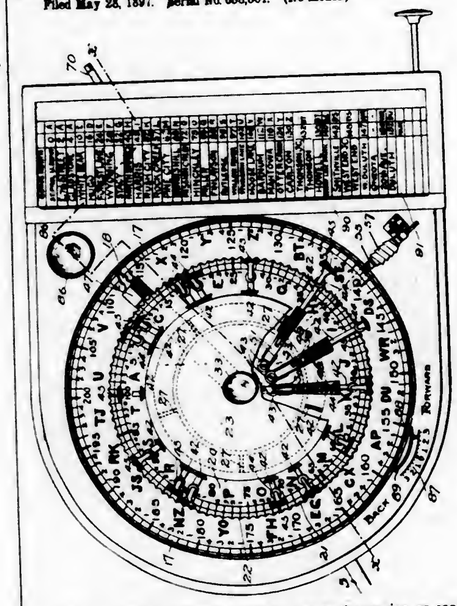
642,302. SACK-FASTENER. WILLARD H. DAVIS, Cleveland, Ohio. Filed Aug. 23, 1899. Serial No. 728,207. (No model.)



Claim.—1. As an article of manufacture, a fastener for sacks, bags, and similar articles, comprising a loop formed of smooth pliable metal, slightly longer than the width of the folded and flattened mouth of the sack or bag to which it is to be applied, and comparatively narrow, and adapted to be passed over said folded and flattened mouth of a sack or bag and then rolled down and secured thereon by bending over the ends of said loop to clamp the coils of the flap, in the manner and for the purpose described.

2. As an article of manufacture, a fastener for sacks, bags, and similar articles, comprising a single piece of smooth pliable wire bent back on itself and having its ends secured together, thus forming a narrow wire loop of a length slightly greater than the width of the folded and flattened mouth of the sack or bag to which it is to be applied, and adapted to be passed over said folded and flattened mouth of a sack or bag and then rolled down and secured thereon by bending over the ends of said loop to clamp the coils of the flap, in the manner and for the purpose described.

642,303. TRAIN-ALARM. HARRY DE WALLACE, St. Paul, Minn. Filed May 28, 1897. Serial No. 638,501. (No model.)



Claim.—1. The combination, with a locomotive-engine or car, and the running-gear thereof, of a signal device, its actuating mechanism, and an adjustable reduction-gear interposed between the running-gear of said car or engine and the signal-actuating mechanism.

2. The combination, with a locomotive-engine or car, and the running-gear thereof, of a signal device, its actuating mechanism, and a friction reduction-gear interposed between the running-gear of said car or engine and the signal-actuating mechanism.

3. The combination, with a locomotive-engine or car, and the running-gear thereof, of a signal device, its actuating mechanism, a friction-disk and an adjustable friction-pulley interposed between the running-gear of said car or engine and the signal-actuating mechanism.

4. The combination, with a suitable dial or scale, of a hand, a driving-shaft, and a shifting friction-gear arranged between said shaft and said hand, whereby the hand may be driven in either direction, substantially as described.

5. The combination, with a dial or scale, of a movable hand, a gear-wheel connected therewith, a worm to mesh with said gear, means for driving said worm, and means for moving said worm out of engagement with said gear, substantially as described.

6. The combination, with a dial or scale, and a hand, of a worm-wheel, a worm engaging the same, a driving-shaft, a friction-wheel, a friction-pulley arranged upon said driving-shaft to drive the friction-wheel, and means connecting said worm and said friction-wheel, substantially as described.

7. In a train-alarm, the combination with a dial or scale, of a movable hand, a driving-shaft, provided with a friction-wheel, a friction-disk to engage therewith, a pressure device provided in connection with said friction-disk, and suitable means connecting said friction-disk with said hand, substantially as described.

8. The combination, with the driving-shaft, of the friction-wheel arranged thereon, the yoke for shifting said friction-wheel, means for moving the same, an indicator provided in connection therewith, the friction-disk and the hand to be driven thereby, substantially as described.

9. In a train-alarm, the combination, with the dial and the hand, of a second dial, a central support therefor, means for driving said hand about said support, a shaft having its bearing in said central support, and a signal or like mechanism connected with said shaft, substantially as described.

10. The combination, with the driving-shaft, of the shaft 2, the means connecting said shafts, the bearing for the shaft 2, the dial secured to said bearing and the hand and hand-operating worm-wheel adapted to rotate about said bearing, substantially as described.

11. The combination, with a clutch-disk 38, and a mechanism rendered operative by the action thereof, of a trigger or dog, provided with a cam-lever adapted to swing into and out of contact with the face of said disk, and means for actuating said lever at a predetermined moment, substantially as described.

12. The combination, with the dial, of the oog or trigger comprising a spring-rod having at one end a pivoted lever and at the other a head or cross portion to be engaged with said dial, and a clutch plate or disk to be operated by said lever, substantially as described.

13. The combination, with the dial and the hand, of a series of dogs or triggers arranged upon said dial, each of said dogs comprising a spring-rod, a pivoted lever to which the inner end of said rod is pivoted, and a cross or T head on the outer end of said rod to be engaged with said dial and to be disengaged therefrom by said hand, and a clutch-disk to be actuated by either of said levers and freed therefrom by the final movement thereof, substantially as described.

14. The dog or trigger for actuating the clutch or like part of the train alarm or indicator, and comprising a pivoted or swiveled plate, a lever pivoted thereon, a spring-rod intermediately pivoted upon said lever, and means for drawing up and securing said rod, substantially as described.

15. The combination, with the dial, of the shaft 2, the bell, the gear upon said shaft to be engaged therewith, the hammers to be operated by said gear, the ring supporting said hammers, the narrow legs 27 supporting said ring, and the swivel-triggers arranged upon said dial, and whereby said gear is connected with said shaft, substantially as described.

16. In a train-alarm, the combination, with a signal to operate automatically at a given instant, of the air-brake valve and means for operating the same automatically, after the lapse of a given time from the operation of said signal, substantially as described.

17. In a train-alarm, the combination, with a part to be operated at a predetermined instant, of a mechanism then thrown into operation, means for stopping said operation, an air-brake device and means whereby the same is automatically operated, if the operation of said mechanism is not stopped within a certain time or space, substantially as described.

18. The combination, in a train alarm or indicator, of a series of triggers to be set and to be released at predetermined moments, with a signal device common to all of said triggers, and adapted to be operated upon the release of any one thereof, an air-brake device and means for automatically operating the same, in connection with the signal, substantially as described.

19. The combination, in a train alarm or indicator, of a series of triggers to be set and to be released at predetermined momeots, with a signal device common to all of said triggers, and adapted to be operated upon the release of any one thereof, and to operate continuously until stopped and an air-brake mechanism which will operate automatically unless said signal or alarm is stopped within a certain time or space, substantially as described.

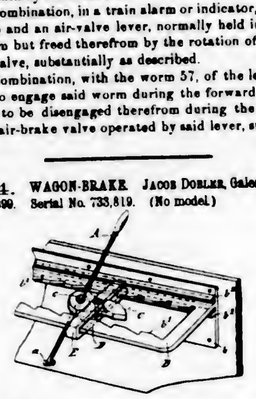
20. The combination, in a train alarm or indicator, of a continuously-rotating shaft, a part to be engaged therewith at a predetermined instant, and adapted to operate a signal and set the air-brakes, substantially as described.

21. In a train alarm or indicator, the combination with a part to be operated at a predetermined moment, of an air-brake device normally held by said part, but freed therefrom by the operation thereof, substantially as described.

22. The combination, in a train alarm or indicator, with a worm, of an air-valve and an air-valve lever, normally held in engagement with said worm but freed therefrom by the rotation of the worm, to operate said valve, substantially as described.

23. The combination, with the worm 57, of the lever provided with a pawl to engage said worm during the forward movement of the lever, but to be disengaged therefrom during the return of the lever, and an air-brake valve operated by said lever, substantially as described.

642,804. WAGON-BRAKE JACOB DOBLER, Galena, Kans. Filed Oct. 16, 1899. Serial No. 733,819. (No model.)

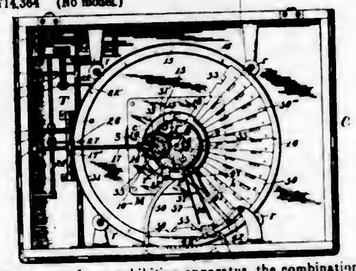


Claim.—1. In a wagon-brake mechanism, the combination of a pivoted brake-lever, an open rectangular ratchet-frame mounted horizontally on the side of the box, and provided with ratchet-teeth on its inner edges, a sliding cross-bar on said frame and a pawl pivoted on said bar in position to engage the teeth of the frame and operatively connected to said brake-lever, substantially as set forth.

2. In a wagon-brake mechanism, the combination of a pivoted brake-lever, an open frame mounted horizontally above the pivotal point of said lever and provided with ratchet-teeth on its inner edges, a sliding cross-bar on said frame with its inner end moving in slots in the vertical portion of said frame, a doubly-pointed pawl pivoted on said bar in position to engage the teeth of the ratchet-frame, with an opening in the end of said pawl through which said brake-lever passes, substantially as set forth.

3. In a wagon-brake mechanism, the combination of a pivoted brake-lever, an open frame mounted horizontally above the pivotal point of said lever and provided with ratchet-teeth on its inner edges, a sliding cross-bar on said frame, a doubly-pointed pawl pivoted between the upper and lower members of said bar, with shoulders on said pawl to engage the side edges of said bar, and operative connection between said pawl and brake-lever, substantially as set forth.

642,805. APPARATUS FOR EXHIBITING CARDS. PATRICK J. DOWLING, Waterbury, Conn., assignor of two-thirds to Charles J. Griggs and Thomas F. Lawlor, same place. Filed Apr. 25, 1899. Serial No. 714,364. (No model.)



Claim.—1. In an exhibiting apparatus, the combination, with a movable carrier, of separate card-holders supported by said carrier, and automatically-operative mechanism for actuating said carrier in one direction and for imparting independent shifting movements to said card-holders in another direction at predetermined intervals.

2. In an exhibiting apparatus, the combination, with a rotary carrier, of separate card-holders supported by said carrier, and automatically-operative mechanism for rotating said carrier in one direction and for imparting independent shifting movements to said card-holders in another direction at predetermined intervals.

3. In an exhibiting apparatus, the combination, with a rotary carrier, of radially-disposed card-holders supported by said carrier, and automatically-operative mechanism for rotating said carrier in one direction and for imparting independent shifting movements to said card-holders in another direction at predetermined intervals.

4. In an exhibiting apparatus, the combination, with a rotary carrier, of radially-disposed card-holders supported by and movable with said carrier and oscillatory about points near their outer ends, and automatically-operative mechanism for rotating said carrier and for oscillating said card-holders at predetermined intervals.

5. In an exhibiting apparatus, the combination, with a rotary carrier, of separate card-holders supported by said carrier and oscillatory about axes substantially parallel with the axis of said carrier; automatically-operative mechanism for actuating said carrier; and an automatic card-holder-shifting device for intermittently shifting successive card-holders out of and back to their normal positions.

6. In an exhibiting apparatus, the combination, with a rotary carrier, of separate removable card-holders resting on said carrier; automatically-operative mechanism for rotating said carrier to feed card-holders successively; and means for preventing movement of the remaining card-holders.

7. In an exhibiting apparatus, the combination, with a movable carrier, and with means for automatically actuating the same, of a plurality of separate removable card-holders resting on said carrier and movable therewith, and an intermittently-operative automatic card-holder-shifting device for shifting card-holders selectively away from such group and into position for exhibiting cards.

8. In an exhibiting apparatus, the combination, with a carrier movable in one direction, of a plurality of radially-disposed card-holders supported by said carrier and shiftable in another direction, an intermittently-operative automatic card-holder-shifting device for shifting card-holders successively away from one end of such group and into position for exhibiting cards, and automatically-operative means for returning said card-holders to the other end of such group.

9. In an exhibiting apparatus, the combination, with a carrier, and with a motor for intermittently operating the same in one direction, of separate card-holders supported by said carrier and shiftable in another direction, and an automatic card-holder-shifting device for shifting said card-holders successively away from the group and into position for exhibiting cards.

10. In an exhibiting apparatus, the combination, with an intermittently-rotative carrier movable in one direction, and with a time-train controlling the rotation thereof, of card-holders supported by said carrier and shiftable in another direction, and an automatic card-holder-shifting device for shifting card-holders successively away from their normal positions in the group and into position for exhibiting cards.

11. In an exhibiting apparatus, the combination, with an intermittently-rotative carrier movable in one direction, and with a time-train controlling the rotation thereof, of card-holders supported by said carrier and shiftable in another direction, and a card-holder-shifting device also controlled by said time-train and operative for shifting card-holders successively away from their normal positions in the group and into position for exhibiting cards.

12. In an exhibiting apparatus, the combination, with a carrier movable in one direction, and with separate card-holders supported thereby and shiftable in another direction, of a motor; a card-holder-shifting device controlled by said motor and operative for shifting cards selectively into position for exhibiting cards; a time-train; and an escapement controlled by said time-train and controlling the operation of said motor.

13. In an exhibiting apparatus, the combination, with a carrier, of a plurality of radially-disposed removable card-holders resting thereon and shiftable on said carrier in a horizontal plane into position for exhibiting cards.

14. In an exhibiting apparatus, the combination, with a carrier, of a plurality of radially-disposed card-holders carried thereby and oscillatory on said carrier in a horizontal plane into position for exhibiting cards.

15. In an exhibiting apparatus, the combination, with a carrier, of a plurality of radially-disposed card-holders carried thereby and oscillatory upon their free outer ends as pivots into position for exhibiting cards.

16. In an exhibiting apparatus, the combination, with a carrier, of a plurality of radially-disposed card-holders carried thereby and oscillatory upon their free outer ends as pivots into position for exhibiting cards, and a support in position to guide the inner ends of the card-holders during such oscillation.

17. In an exhibiting apparatus, the combination, with a carrier, of a plurality of radially-disposed card-holders carried thereby and oscillatory upon their free outer ends as pivots into position for exhibiting cards, and a guide-segment in position to support the inner ends of the card-holders during such oscillation.

18. In an exhibiting apparatus, the combination, with a pair of parallel movable carriers, of shiftable card-holders supported at their opposite ends by said carriers.

19. In an exhibiting apparatus, the combination, with a pair of concentric movable carriers, of radially-disposed shiftable card-holders supported at their opposite ends by said carriers.

20. In an exhibiting apparatus, the combination, with a pair of parallel movable carriers, and with means for actuating the same in unison, of shiftable card-holders supported at their opposite ends by said carriers.

21. In an exhibiting apparatus, the combination, with a pair of concentric movable carriers, and with means for rotating the same in unison, of radially-disposed shiftable card-holders supported at their opposite ends by said carriers

22. In an exhibiting apparatus, the combination, with a pair of concentric movable carriers, and with means for rotating the same in unison, of radially-disposed shiftable card-holders supported at their opposite ends by said carriers, and an automatic card-holder-shifting device for shifting said card-holders successively away from their normal positions in the group and into position for exhibiting cards.

23. In an exhibiting apparatus, the combination, with a pair of concentric carriers, of radially-disposed card-holders tapering toward the center of the carriers and supported at their opposite ends by said carriers.

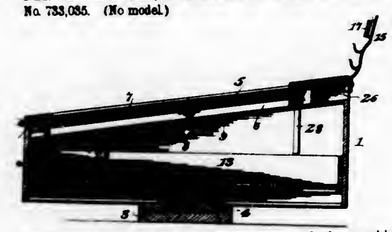
24. In an exhibiting apparatus, the combination, with a rotary carrier, and with means for rotating the same, of a plurality of card-holders supported by said carrier, and an automatically-operative escapement for releasing the card-holders successively and for holding back the remaining card-holders.

25. In an exhibiting apparatus, the combination, with a rotary carrier, and with means for rotating the same, of a plurality of card-holders supported by said carrier, and an automatically-operative escapement for releasing the card-holders successively and for holding back the remaining card-holders while the released card-holder is being advanced by the carrier.

26. In an exhibiting apparatus, the combination, with a rotary carrier, and with means for rotating the same, of a plurality of card-holders supported by said carrier, and an automatically-operative escapement embodying two separately-movable members one for releasing the card-holders successively and the other for holding back the remaining card-holders.

27. In an exhibiting apparatus, the combination, with a carrier, and with means for actuating the same, of a plurality of card-holders supported by said carrier and having spaces between their adjacent edges, and an automatically-operative escapement embodying two separately-operative members movable into and out of such spaces, and one operative for releasing the card-holders successively, and the other for holding back the remaining card-holders while the released card-holder is being advanced by the carrier.

642,806. HOTEL-REGISTER AND ADVERTISING-CARD CABINET. SELDEN DUNCAN, San Antonio, Tex. Filed Oct. 9, 1899. Serial No. 733,035. (No model.)



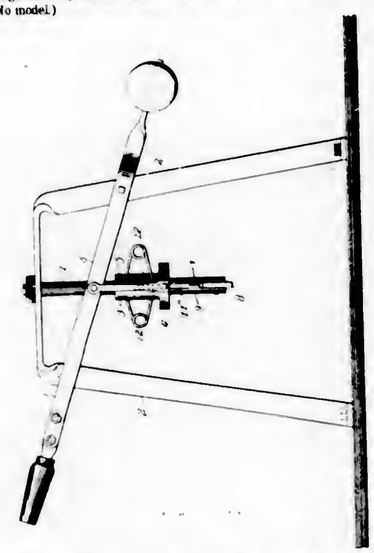
Claim.—1. In a device of the class described, the combination of a desk or cabinet rotatably mounted in a horizontal position and having its top inclined and provided with a recess or opening adapted to receive loose register-sheets, a vertically-adjustable support arranged within the recess or opening upon which the said register-sheets are placed, a removable strip or bar at the front end of the top of the desk or cabinet for controlling access to the recess or opening for the register-sheets, and means for raising and lowering the support for the register-sheets.

2. In a device of the class described, the combination of a desk or cabinet horizontally disposed and provided with an upper inclined top having a recess or opening for the reception of register-sheets for record purposes, and stepped tiers of pigeonholes projecting outwardly from opposite sides of the upper portion of the desk or cabinet and having the opening thereof in planes at right angles to the length of the desk or cabinet, the top covering of the pigeonholes forming means for holding cards or name-plates, and supplied with retention devices, whereby such cards or name-plates may be easily inspected by the user of the register-sheets between them.

3. A desk or cabinet adapted to receive register-sheets and provided at opposite sides with outwardly-projecting pigeonholes open at their outer ends, the top of the desk or cabinet and the pigeonholes being similarly inclined, and said pigeonholes being stepped in

a transverse direction to provide distant tiers on each side, the upper covering for the pigeonholes having opposite grooved retaining devices longitudinally disposed and opening out at their upper ends for the reception and removal of cards or name-plates for contiguous arrangement adjacent the register-sheets, and corresponding to the cards or name-plates in pigeonholes directly underneath.

642,307. MACHINE FOR APPLYING COLLARS TO LAMPS. PHILLIP EBELING, Findlay, Ohio, assignor to the Dalzell, Gilmore & Leighton Company, same place. Filed Nov. 21, 1899. Serial No. 737,758. (No model.)

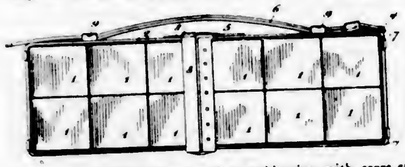


Claim.—1 In a machine for applying collars to lamps, the combination of an anvil or supporting-bar insertible through the neck of the lamp, and a pressing-head movable toward and from the anvil, substantially as set forth.

2. In a machine for applying collars to lamps, the combination of a mandrel, an anvil or supporting-bar carried by the mandrel and insertible through the neck of the lamp, and an annular pressing-head surrounding the mandrel and movable toward and from the anvil, substantially as set forth.

3. In a machine for applying collars to lamps, the combination of a mandrel, an anvil or supporting-bar having one end weighted, and pivotally mounted on the mandrel, a shifting pin and a sleeve having a pressing-head movably mounted on the mandrel, and a spring connection between the sleeve and shifting pin, substantially as set forth.

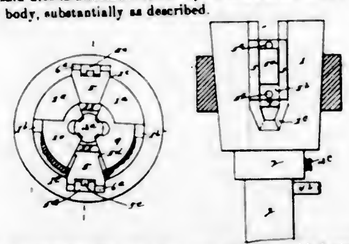
642,308. PACKAGE-CARRIER. JAMES A. R. ELLIOTT, Kansas City, Mo. Filed Dec. 23, 1898. Serial No. 700,111. (No model.)



Claim.—In a package-carrier, the combination, with cross supporting-straps 2 and 3 provided with fastening devices, a handle provided with loops 9, 9, of adjusting corner-pieces 7, 7, provided with outside loops 10, 10, and indentations 11, 11, movable along one of said straps, whereby the carrier may be adjusted to receive and hold one or several articles or boxes, substantially as described.

642,309. AUTOMATICALLY OPENING OR CLOSING DIE FOR CUTTING SCREW-THREADS, &c. FRANKLIN A. HARRINGTON, New York, N. Y. Filed July 24, 1897. Serial No. 645,787. (No model.)

Claim.—1. The combination with a supporting-body provided with internal thrust-faces, of a plurality of indepeadent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces and to each other and to the axis of said body, substantially as described.



2. The combination with a supporting-body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, each of said dies being provided with an indenture that registers with that of the other thereof, and a slip-piece meshing with said indentures to connect said dies to move in unison axially of said body, one of said dies being movable along said slip-piece laterally of said body, substantially as described.

3. The combination with a body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, said dies being provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, and a spring-cam adapted to yield outwardly laterally of said body and to move one of said dies laterally of said body, substantially as described.

4. The combination with a supporting-body provided with internal thrust-faces, a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation and said dies being movable axially of said body during operation independently of said internal thrust-faces, of a spring-cam adapted to yield outwardly laterally of said body and to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

5. The combination with a supporting-body provided with internal thrust-faces, a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation and said dies being movable axially of said body during operation independently of said internal thrust-faces, one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

6. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, the distance between the thrust-faces at the outer portion of said chamber being greater than at the inner portion thereof, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

7. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, the distance between the thrust-faces at the outer portion of said chamber being greater than at the inner portion thereof, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

8. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, the distance between the thrust-faces at the outer portion of said chamber being greater than at the inner portion thereof, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with a plurality of external thrust-faces that respectively bear simultaneously upon the internal thrust-faces of the inner and outer portions of said chamber during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

9. The combination with a body provided with inner and outer internal thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces, the plane of the inner of said die thrust-faces lying within the plane of its associate outer die thrust-face to enable said associate inner and outer die thrust-faces to respectively bear simultaneously upon the corresponding inner and outer body thrust-faces during operation, substantially as described.

10. The combination with a body provided with inner and outer external thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces and said planes being parallel with each other, of a plurality of dies provided at their ends opposite their cutting-faces with inner and outer external thrust-faces that bear against said internal thrust-faces during operation, said dies being connected with said body to rotate in unison therewith, and movable laterally thereof, substantially as described.

11. The combination with a supporting-body provided with inner and outer internal thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces, the plane of the inner of said die thrust-faces lying within the plane of its associate outer die thrust-face to enable said associate inner and outer die thrust-faces to respectively bear simultaneously upon the corresponding inner and outer body thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

12. The combination with a supporting-body provided with inner and outer internal thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces and said planes being parallel with each other, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with inner and outer external thrust-faces that respectively bear simultaneously upon the corresponding inner and outer body thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

13. The combination with a supporting-body provided with internal thrust-faces, of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a stop rigidly carried by said body and normally immovable relatively thereto to arrest the axial movement of work into said body during the automatic outward movement of said dies axially of said body, substantially as described.

14. The combination with a supporting-body provided with internal thrust-faces, of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and an adjustable stop rigidly secured to said body and normally immovable relatively thereto when adjusted substantially as described.

15. The combination with a supporting-body provided with internal thrust-faces, of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, a stop rigidly carried by said body and normally immovable relatively thereto, and one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

16. The combination with a body of dies connected with said body to rotate in unison therewith and movable laterally thereof, said body having an elongated slot, and an adjustable stop having a projection rigidly secured thereto and extending through and movable axially of said body in said slot to permit said stop to be externally adjusted axially of said body, and means to retain said stop in position when adjusted, substantially as described.

17. The combination with a supporting-body provided with internal thrust-faces, of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, said body having an elongated slot, an adjustable stop having a projection rigidly secured thereto and extending through and moving axially of said body in said slot to permit said stop to be externally adjusted axially of said body, and means to secure said stop rigidly to said body when adjusted, substantially as described.

18. The combination with a supporting-body provided with internal thrust-faces and means to adjust the distance between said internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and means to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

19. The combination with a supporting-body provided with internal thrust-faces and means to adjust said thrust-faces relatively to each other laterally of said body in unison, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

20. The combination with a supporting-body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, a plurality of adjusting-blocks, and an adjusting-ring movable along said body, substantially as described.

21. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, said body being also provided with slots opening into said chamber, adjusting-blocks situated in said slots, and an adjusting-ring, substantially as described.

22. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, said body being also provided with slots having sloping walls and opening into said chamber, adjusting-blocks situated in said slots and having sides that correspond with the walls thereof, an adjusting-ring, and a spring interposed between said adjusting-ring and each of said adjusting-blocks to move said adjusting-blocks inwardly laterally of said body, substantially as described.

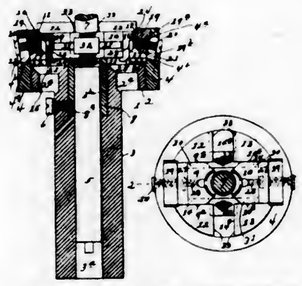
23. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a flange or flanges located at the outer end of said cham-

ber and adapted to hold said dies apart when in the open position, substantially as described.

24. The combination with a supporting-body provided with internal thrust-faces and having a die-chamber therebetween, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and an abutment rigidly carried by said body and projecting into said die-chamber beyond the back plate thereof to limit the inward movement of said dies axially of said body, substantially as described.

642,810. AUTOMATICALLY OPENING OR CLOSING DIE.

FRANKLIN A. ERRINGTON, New York, N. Y. Filed Nov. 17, 1898. Serial No. 696,743. (No model.)



Claim.—1. The combination with a supporting-body provided with adjusting-blocks having internal thrust-faces, means to adjust said blocks relatively to each other laterally of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

2. The combination with a supporting-body provided with adjusting-blocks having internal thrust-faces, means to adjust said blocks relatively to each other laterally of said body and means to hold said blocks from movement axially thereof, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

3. The combination with a supporting-body provided with adjusting-blocks having internal thrust-faces and being adjustable relatively to each other laterally of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a ring movable along said body and adapted to adjust said blocks laterally thereof, substantially as described.

4. The combination with a supporting-body provided with adjusting-blocks having internal thrust-faces and being adjustable relatively to each other laterally of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

5. The combination with a body provided with adjusting-blocks having inner and outer internal thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces, and means to adjust said blocks relatively to each other laterally of said body, of a plurality of dies provided at their ends opposite their cutting-faces with inner and outer external thrust-faces that respectively bear simultaneously upon said inner and outer internal thrust-faces during operation, said dies being connected with said body to rotate in unison therewith and movable laterally thereof independently of said blocks, substantially as described.

6. The combination with a body provided with adjusting-blocks having inner and outer internal thrust-faces, the planes of said inner thrust-faces lying within the planes of said outer thrust-faces, and said planes being parallel with each other and with the axis of said body, and means to adjust said blocks relatively to each other laterally of said body, of a plurality of dies provided at their ends opposite their cutting-faces with inner and outer external thrust-faces to respectively bear simultaneously upon said inner and outer internal thrust-faces during operation, said dies being connected with said body to rotate in unison therewith and movable laterally thereof independently of said blocks, substantially as described.

7. The combination with a supporting-body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and having die-blocks secured to their ends opposite their cutting-faces, said die-blocks being provided with external thrust-faces that bear against said internal thrust-faces during operation and being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

8. The combination with a supporting-body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and having their ends opposite their cutting-faces centrally secured to die-blocks, said blocks being provided with external thrust-faces that bear against said internal thrust-faces during operation and being movable axially of said body during operation independently of said internal thrust-faces, the abutting surfaces of said dies and blocks corresponding with each other on both sides of the center of their connection to render said dies reversible upon said blocks, substantially as described.

9. The combination with a supporting-body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and having their ends opposite their cutting-faces centrally secured to die-blocks, said blocks being provided with external thrust-faces that bear against said internal thrust-faces during operation, the abutting surfaces of said dies and blocks corresponding with each other on both sides of the center of their connection to render said dies reversible upon said blocks, each of said blocks and its associate die being held from independent movement with relation to each other by one having a projection to engage the other thereof, substantially as described.

10. The combination with a supporting-body provided with abutments having a chamber between them whose end walls provide internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable between said abutments axially of said chamber during operation independently of said internal thrust-faces, substantially as described.

11. The combination with a supporting-body provided with abutments having a chamber between them, adjusting-blocks provided with internal thrust-faces and connected with said abutments so as to permit said blocks to move laterally of said chamber and to hold said blocks from moving axially thereof, means to adjust said blocks laterally of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable between said abutments axially of said chamber during operation independently of said internal thrust-faces, substantially as described.

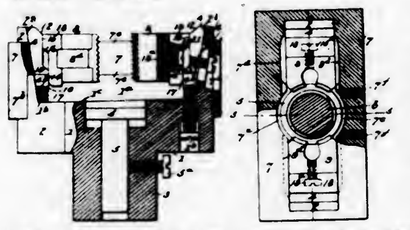
12. The combination with a supporting-body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and said dies being connected together to move axially of said body in unison and laterally thereof independently by a slip-piece, and means to aline said slip-piece with the axis of said body, substantially as described.

13. The combination with a supporting-body provided with internal thrust-faces and having abutments with intersecting ways therebetween, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and situated in one of said ways and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a slip-piece connecting said dies together to move in unison axially of said body and laterally thereof independently, said slip-piece being provided with an alining-piece situated in and movable along the other of said ways, substantially as described.

14. The combination with a supporting-body provided with internal thrust-faces, and having abutments with intersecting ways therebetween, a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and situated in one of said ways and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a slip-piece connecting said dies together to move in unison axially of said body and laterally thereof independently, said slip-piece being provided with an alining-piece situated in and movable along the other of said ways, one of said ways being provided with an overhanging flange to limit the outward movement of said dies axially of said body, substantially as described.

642,811. AUTOMATICALLY OPENING OR CLOSING DIE.

FRANKLIN A. ERRINGTON, New York, N. Y. Filed Apr. 10, 1899. Serial No. 712,554. (No model.)



Claim.—1. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of independent dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, substantially as described.

2. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of independent dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, and one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

3. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of independent dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, and means to aline said die-holder with the axis of said body, substantially as described.

4. The combination with a supporting-body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, each of said dies having a projection, and a die-holder movable axially of said body and provided with an indenture that meshes with said projections of said dies to connect said dies to move in unison with said die-holder axially of said body and independently of each other along said die-holder laterally of said body, substantially as described.

5. The combination with a supporting-body having abutments with an opening therebetween, said abutments having their opposed surfaces provided with internal thrust-faces, of a plurality of dies situated between said abutments and connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

6. The combination with a supporting-body having abutments with an opening therebetween, said abutments having their opposed surfaces provided with internal thrust-faces, a die-holder surrounding said body and movable axially thereof, and a plurality of dies situated between said abutments and movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, substantially as described.

7. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks adjustably connected therewith and having internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

8. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks adjustably connected therewith and having internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and one of said thrust-faces being provided with an associate cam-face to move one of said dies laterally of said body during the inward movement of said dies axially thereof, substantially as described.

9. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks having internal thrust-faces, means to adjust said blocks axially and laterally of said body in unison and means to hold said blocks in position when adjusted, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

10. The combination with a supporting-body provided with adjusting-blocks having internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, said die-holder and blocks having abutting members to adjust said blocks relatively to each other laterally of said body in unison, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, substantially as described.

11. The combination with a supporting-body provided with internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and an adjustable abutment rigidly carried by said body to limit the inward movement of said dies axially of said body, substantially as described.

12. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks having internal thrust-faces, said body being provided with set-screws adapted to engage the inner ends of said blocks to lock them from inward movement axially of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

13. The combination with a body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and means to limit the inward movement of said dies laterally of said body, substantially as described.

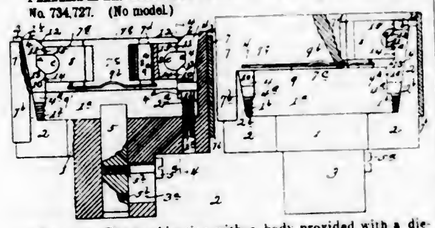
14. The combination with a body provided with internal thrust-faces of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of independent dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-

faces, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, said die-holder being provided with an abutment to limit the inward movement of said dies laterally of said body, substantially as described.

15. The combination with a body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of independent dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces said die-holder having a die-chamber provided at its mid-portion with an enlarged entrance, said dies being adapted to be inserted at said entrance and guided along the narrower side portions of said chamber, and means to retain said dies in said narrower side portions of said chamber, substantially as described.

642,812. AUTOMATICALLY OPENING OR CLOSING DIE.

FRANKLIN A. ERRINGTON, New York, N. Y. Filed Oct. 25, 1899. Serial No. 734,727. (No model.)



Claim.—1. The combination with a body provided with a die-chamber having a succession of inner and outer sections located in line, each of said inner sections being provided with internal thrust-faces and being separated from its associate inner section by an outer section, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with a plurality of external thrust-faces that are correspondingly separated from each other and bear simultaneously upon said internal thrust-faces during operation, and each of said outer sections extending outwardly beyond the internal thrust-faces of its respective inner section to provide clearance for the respective external thrust-faces of the dies when in the open position, substantially as described.

2. The combination with a body provided with a die-chamber having a succession of inner and outer sections located in line, each of said inner sections being provided with internal thrust-faces and being separated from its associate inner section by an outer section, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with a plurality of external thrust-faces that are correspondingly separated from each other and bear simultaneously upon said internal thrust-faces during operation, and each of said outer sections extending outwardly beyond the internal thrust-faces of its respective inner section to provide clearance for the respective external thrust-faces of the dies when in the open position, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

3. The combination with a body provided with inner and outer internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces that bear against said internal thrust-faces during operation, each of said inner internal thrust-faces being located farther within said body than its associate outer internal thrust-face to provide an intervening space to receive the inner external thrust-face of the associate die when in the open position, substantially as described.

4. The combination with a body provided with inner and outer internal thrust-faces, the planes of said thrust-faces being parallel with the axis of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces that bear against said internal thrust-faces during operation, each of said inner internal thrust-faces being located farther within said body than its associate outer internal thrust-face to provide an intervening space to receive the inner external thrust-face of the associate die when in the open position, substantially as described.

5. The combination with a supporting-body provided with inner and outer internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces that bear against said internal thrust-faces during operation, each of said inner internal thrust-faces being located farther within said body than its associate outer internal thrust-face to provide an intervening space to receive the inner external thrust-face of the associate die when in the open position, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

6. The combination with a supporting-body provided with inner and outer internal thrust-faces, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces that bear against said internal thrust-faces during operation, each of said inner internal thrust-faces being located farther within said body than its associate outer internal thrust-face to provide an intervening space to receive the inner external thrust-face of the associate die when in the open position, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a cam or cams, substantially as described.

7. The combination with a body provided with inner and outer internal thrust-faces having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces having a recess between them and being adapted to bear simultaneously upon the corresponding body thrust-faces during operation, substantially as described.

8. The combination with a supporting-body provided with inner and outer internal thrust-faces having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces having a recess between them and being adapted to bear simultaneously upon the corresponding body thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

9. The combination with a supporting-body provided with inner and outer internal thrust-faces having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces having a recess between them and being adapted to bear simultaneously against the corresponding body thrust-faces during operation, and a cam or cams, substantially as described.

10. The combination with a body provided with inner and outer internal thrust-faces located in line and having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces located in line and having a recess between them, said die thrust-faces being adapted to bear against said body thrust-faces during operation and said body-recess to receive the inner external thrust-face of the die while the recess of the die receives the outer internal thrust-face of the body when said dies are in the open position, substantially as described.

11. The combination with a supporting-body provided with inner and outer internal thrust-faces located in line and having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces located in line and having a recess between them, said die thrust-faces being adapted to bear against said body thrust-faces during operation, and said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

12. The combination with a body provided with inner and outer internal thrust-faces located in line and having a recess between them, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces located in line and having a recess between them extending centrally across the outer face of the die at right angles to the axis of said body to render the die reversible, said die thrust-faces being adapted to bear against said body thrust-faces during operation, substantially as described.

13. The combination with a supporting-body provided with adjusting-blocks, each of said adjusting-blocks having an internal thrust-face that is parallel with the axis of the body and means to adjust said blocks relatively to each other laterally of the body, of a die-holder connected with the body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, and a spring or springs to press said dies outwardly laterally of said body, substantially as described.

14. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks having internal thrust-faces, said body being provided with screws adapted to have engagement with said blocks to lock them from movement axially of the body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

15. The combination of a supporting-body provided with adjusting-blocks having internal thrust-faces, means to adjust said blocks axially and laterally of said body and means to hold said blocks from movement axially of said body while permitting them to have movement laterally thereof, with a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

16. The combination of a supporting-body provided with adjusting-blocks having internal thrust-faces, means to adjust said blocks relatively to each other laterally of said body and adjusting-screws adjustably connected with said body, each of said blocks having a slip-joint connection with its associate adjusting-screw to move in unison therewith axially of the body and independently thereof laterally of the body, with a plurality of dies connected with said body to rotate is unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

17. The combination of a body provided with internally-tapered abutments, each of said abutments having its tapered face indented by a groove extending therealong, adjusting-blocks having internal thrust-faces and provided with T-slots extending laterally of said body, flanged screws adjustably carried by said body and having their flanges in mesh with said T-slots and extending into said grooves, with a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, substantially as described.

18. The combination with a supporting-body provided with adjusting-blocks having internal thrust faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, said die-holder and blocks having abutting members to regulate the movement of said die-holder axially of said body, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, substantially as described.

19. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, said die-holder also having movement laterally of said body to permit said dies to center themselves with the axis of rigidly-held work, substantially as described.

20. The combination with a body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, and a spring or springs to press said dies outwardly laterally of said body, substantially as described.

21. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, and a spring or springs to press said dies outwardly laterally of said body, substantially as described.

22. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movably axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, and a bow-spring having its ends adapted to press said dies apart, substantially as described

23. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, and a spring to press said dies outwardly laterally of said body, said die-holder having a slot to guide said spring, substantially as described.

24. The combination with a supporting-body provided with internal thrust-faces, of a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body independently of said internal thrust-faces, and a bow-spring having its ends bent into engagement with said dies, said die-holder having a slot extending laterally of said body to guide said spring, and means to retain said spring in said slot, substantially as described.

25. The combination of a supporting-body provided with adjusting-blocks having internal thrust-faces, means to adjust said blocks relatively to each other laterally of said body and means to hold said blocks from movement axially of said body while permitting them to have movement laterally thereof, with a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body during operation independently of said internal thrust-faces, and a spring or springs to retain said adjusting-blocks in position, substantially as described.

26. The combination with an internally-tapered supporting-body provided with externally-tapered adjusting-blocks having internal thrust-faces and T-slots in their lower ends, flanged adjusting-screws adjustably carried by said body and having their flanges in mesh with said T-slots, said screws being rotatable independently of said blocks to adjust the latter axially of the body and said blocks being movable laterally of the body independently of said screws, a die-holder carried by said body to rotate in unison therewith, and a plurality of dies movable along said die-holder laterally of said body and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable with said die-holder axially of said body, of a spring or springs to retain said adjusting-blocks in mesh with said screws, substantially as described.

27. The combination with a supporting-body provided with inner and outer internal thrust-faces located in line and having a recess between them, a die-holder connected with said body to rotate in unison therewith and movable axially thereof, and a plurality of dies movable along said die-holder laterally of said body and with said die-holder axially of said body, each of said dies being provided at its end opposite its cutting-face with inner and outer external thrust-faces located in line and having a recess between them, of a spring or springs to press said dies apart to cause their inner external thrust-faces to mesh with the recesses between the inner and outer internal thrust-faces of the body to regulate the outward movement of the die-holder axially of the body, substantially as described.

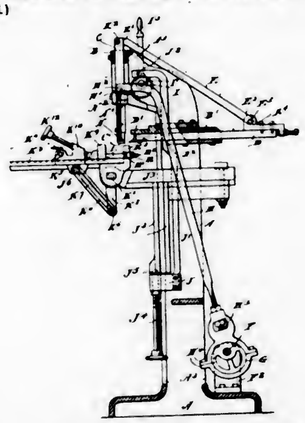
28. The combination with a supporting-body provided with internal thrust-faces, of a plurality of independent dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, and a slideway that meshes with said dies to connect said dies to move in unison with said die-holder

axially of said body and independently of each other along said die-holder laterally of said body, substantially as described.

29. The combination with a body, of dies connected with said body to rotate in unison therewith and movable laterally thereof, said body having an elongated slot, and an adjustable stop having a projection secured thereto and extending through and movable axially of said body in said slot to permit said stop to be externally adjusted axially of said body, and means to retain said stop in position when adjusted, substantially as described.

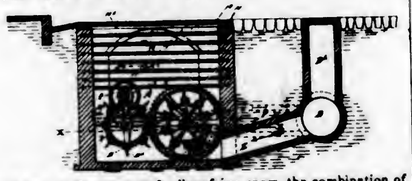
30. The combination with a supporting-body provided with internal thrust-faces and means to adjust said thrust-faces relatively to each other laterally of said body, of a plurality of dies connected with said body to rotate in unison therewith and movable laterally thereof and provided at their ends opposite their cutting-faces with external thrust-faces that bear against said internal thrust-faces during operation, said dies being movable axially of said body during operation independently of said internal thrust-faces, substantially as described.

642,313. **MORTISING-MACHINE.** LEVIN FAUNT and FRANK W. LINDGREN, Rockford, Ill. Filed Aug. 19, 1899. Serial No. 727,748. (No model.)



Claim.—In a mortising-machine, in combination, a frame, a vertically-reciprocating chisel-stock, with its chisel, mounted therein, a horizontally-reciprocating chisel-stock, with its chisel, mounted therein, a bar connection pivoted, by one end, to the vertically-reciprocating chisel-stock, and by the other end, to the horizontally-reciprocating chisel-stock, an eccentric and its driving-shaft, an eccentric-rod, pivoted, by one end, to the vertically-reciprocating chisel-stock, and connected, by the other end, with the eccentric, substantially as and for the purpose specified.

642,314. **SYSTEM FOR LIQUEFYING SNOW AND DISPOSING OF SAME.** THOMAS FINIGAN, Paterson, N. J., assignor of two-thirds to John Hinchliffe and Edward D. Cundell, same place. Filed Jan. 27, 1899. Serial No. 703,633. (No model.)



Claim.—1. In a system for liquefying snow, the combination of a receptacle, through which passes a body of water, and an agitator arranged and adapted to disintegrate the snow before it is delivered to said body of water.

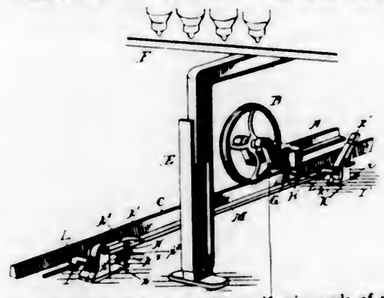
2. In a system for liquefying snow and disposing of the same, the combination of a catch-basin, a sewer and connections between said sewer and catch-basin, with a snow disintegrating, immersing and agitating machine, arranged and adapted to disintegrate, immerse and agitate the snow in said catch-basin, substantially as set forth.

3. In a system for liquefying snow, the combination of a catch-basin, provided with spikes projecting from the inner walls thereof, with transverse angle-bars forming a V-shaped cradle, adapted to be placed in said catch-basin through which passes a body of water, and a snow disintegrating and agitating machine, arranged and adapted to disintegrate and agitate the snow in said body of water, substantially as set forth.

4. In a system for liquefying snow a portable catch-basin or snow-receptacle, a sewer, and pipes connecting the said basin or receptacle with the sewer, in combination with a snow disintegrating and agitating machine mounted in said basin or receptacle, and adapted to disintegrate, immerse and agitate the snow, substantially as set forth.

5. In a system for liquefying snow and disposing of the same, the combination of a receptacle, through which passes a body of water, and a machine arranged and adapted to disintegrate, and then immerse and agitate the snow, in said receptacle, substantially as set forth.

642,315. **DEVICE FOR CHECKING AND HOLDING CARRIAGES IN SELF-ACTING MULES.** RICHARD H. FITTON and JAMES MITCHESON, Fall River, Mass. Filed May 11, 1899. Serial No. 716,416. (No model.)



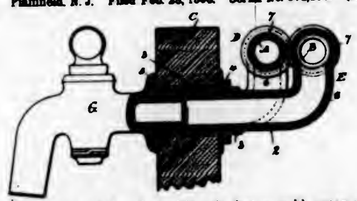
Claim.—1. The combination with a self-acting mule, of a stud fastened to the carriage, two notched levers lying in the path of said stud, a rod connecting the levers, and a spring arranged to be brought into play by the movement of either of said levers.

2. The combination with a self-acting mule, of a stud fastened to the carriage, two notched levers lying in the path of said stud, a rod connecting said levers, and a spring located under one of said levers and resisting its downward movements.

3. The combination with a self-acting mule, of a spring-buffer comprising a bed-plate having bearing-blocks, a perforated ear on said bed-plate, a lever fulcrumed in said bearing-blocks and having a notch in its upper side, a stem on the lever passing through said ear, and a spring encircling the stem between the ear and the lever.

4. The combination with a self-acting mule, of a stud fastened to the carriage, two buffers comprising bent levers having notches in the upper side of one leg, a lateral arm attached to the other leg, a screw-threaded rod passing through an eye in said arm, and adjusting-nuts on the rod on both sides of each arm.

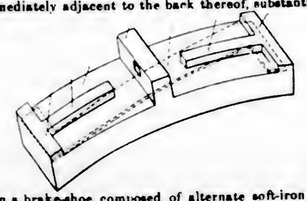
642,316. **PIPE CONNECTION FOR TUBS.** DENNIS J. GALBRAITH, Plainfield, N. J. Filed Feb. 23, 1898. Serial No. 671,896. (No model.)



Claim.—A coupling for uniting the hot or cold water pipe and the faucet at a washtub or similar article, such coupling having a cylindrical body portion into either end of which the pipe is screwed, an integral downward bend and horizontal pipe at right angles to the body portion and having a parallel cylindrical exterior surface to pass through the opening in the back of the tub or similar article, and a screw-thread around the exterior surface and a nut screwed upon the same and acting to apply pressure for holding the coupling and faucet in position upon the tub or similar article.

642,317. **BRAKE-SHOE.** JOSEPH D. GALLAGHER, Glen Ridge, N. J. Filed May 6, 1898. Serial No. 715,830. (No model.)

Claim.—1. In a brake-shoe composed of alternate soft-iron and deep-chilled-iron sections a binding-strip of tough metal of less width than the shoe except at its extreme ends and having its ends broadened to substantially the full width of the shoe and embedded in the shoe immediately adjacent to the back thereof, substantially as described.



2. In a brake-shoe composed of alternate soft-iron and deep-chilled-iron sections a Z-shaped binding-strip embedded in the shoe immediately adjacent to the back thereof, substantially as described.

3. In a brake-shoe, a binding-strip embedded in the back of the shoe in combination with a rib or ribs so cast on the back of the shoe as to cover said binding-strip for more than half its length, substantially as described.

642,318. **BRAKE-SHOE.** JOSEPH D. GALLAGHER, Glen Ridge, N. J. Filed Oct. 19, 1899. Serial No. 734,064. (No model.)



Claim.—1. A brake-shoe having a back of wire mesh in combination with a cast-iron body or wearing-face substantially as described.

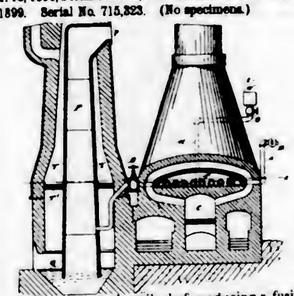
2. A brake-shoe having a back of wire mesh with lugs and fastening devices integral therewith in combination with a wearing-face or body of cast-iron, substantially as described.

3. A brake-shoe having a back of wire mesh with lugs and fastening devices integral therewith and reinforced by the cast-iron of the shoe and embedded in the body of cast-iron immediately adjacent to the back thereof, substantially as described.

642,319. **COMPOSITION FOR MAKING ARTIFICIAL LEATHER FABRIC.** FRANZ GATZSCHE, Freiberg, Germany, assignor to the "N. L." Syndicate, Limited, London, England. Filed Oct. 8, 1898. Serial No. 693,036. (No specimens.)

Claim.—A composition for making artificial leather fabric, consisting of a mixture of glue, one part; wax, one part; oil, one-half part; turpentine, one-fourth part, and alcohol, one-half part, as and for the purpose set forth.

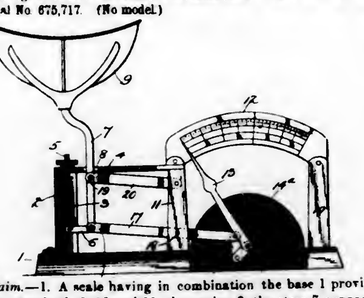
642,320. **PROCESS OF PRODUCING ALLOYS OF HYDROGEN AND IRON.** GEORGE W. GESNER, New York, N. Y. Original application filed Mar. 10, 1896, Serial No. 582,600. Divided and this application filed May 2, 1899. Serial No. 715,323. (No specimens.)



Claim.—1. The process described of producing a fusible alloy of iron and hydrogen by first puddling the iron, subsequently reducing it to a form presenting a greatly-extended surface, heating such iron in the presence of free hydrogen and allowing time for the latter to be absorbed, and subsequently detaching and melting the scale thus produced, substantially as herein specified.

2. The process described of producing a malleable alloy of iron and hydrogen by first puddling the iron, subsequently reducing it to a form presenting a greatly-extended surface, heating such iron in the presence of free hydrogen and allowing time for the iron to absorb the hydrogen, subsequently detaching and melting the scale thus produced and again mechanically working such alloy, substantially as specified.

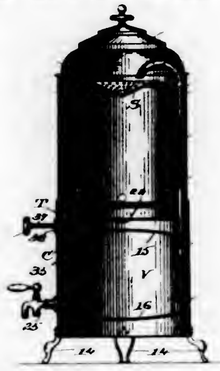
642,321. **WEIGHING-SCALE.** EMMETT N. GILFILLAN, Chicago, Ill., assignor to Edward E. McMoran, same place. Filed Mar. 30, 1898. Serial No. 675,717. (No model.)



Claim.—1. A scale having in combination the base 1 provided with the standards 2, 10 and 11, the spring 3, the stem 7 connected to said spring 3, the arm 20 connecting said stem to the standards 11, a lever 17 pivoted to said stem and projecting laterally beyond said standards 11, the scale-plate supported by said standards 10 11, the pointer pivoted under said plate between said standards 10 11 and having a crank and a link connecting said crank with the projecting end of said lever, substantially as set forth.

2. A scale having in combination the scale-plate, a base over which said plate is supported, the pair of shield-plates 14a, a pointer pivoted to said plates, a cushioned pan-support and a pivoted lever connected to said support and having crank connection with said pointer, substantially as set forth.

642,322. **URN.** FRED D. GODDARD, Everett, Mass., assignor to the Walker & Pratt Manufacturing Company, Boston, Mass. Filed Sept. 25, 1899. Serial No. 731,555. (No model.)



Claim.—1. An urn having a wall extending transversely across the interior thereof and separating the same into two compartments, and said wall having a vent affording communication between the compartments and the lower one having a hot-water chamber, a coffee vessel in which the coffee and boiling water are mixed to produce the liquid coffee, and from which said liquid coffee is drawn, in the upper compartment, and said vent being located below the upper edge of the coffee vessel, and a pipe for conveying boiling water from said hot-water compartment to the coffee vessel.

2. An urn having a wall extending transversely across the interior thereof and separating the same into two compartments, said wall having a vent affording communication between the compartments and the lower one having a hot-water chamber, a coffee vessel in which the coffee and boiling water are mixed to produce the liquid coffee, and from which said liquid coffee is drawn, in the upper compartment, and said vent being located below the upper edge of the coffee vessel, a pipe for conveying boiling water from said hot-water compartment to the coffee vessel, and a valve for controlling said vent.

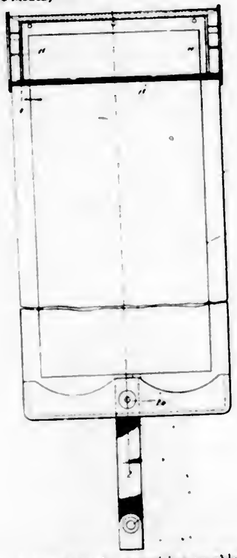
3. An urn having a wall extending transversely across the interior thereof and separating the same into two compartments, said wall having a vent affording communication between the compartments and the lower one having a hot-water chamber, a coffee vessel located in the upper compartment, a pipe for conveying boiling water from said hot water compartment to the coffee vessel, and a valve controlling said vent and having a port of less area than the vent.

4. An apparatus of the class specified including a coffee vessel, a water vessel having a vent, means for effecting the supply of boiling water to the coffee vessel from the water vessel, a valve-carrier provided with a port in communication with said vent, and a valve located to control said vent and having a port of less area than said vent.

5. An apparatus of the class specified including a coffee vessel, a water vessel having a vent, means for conducting boiling water from the water vessel to the coffee vessel and a valve controlling said vent and having a port of less area than the vent.

6. An urn including a coffee vessel, a water vessel having a vent, means for conducting boiling water from the water vessel to the coffee vessel, and a valve controlling said vent and having a port of less area than the vent, the valve being provided with a stem projecting through the wall of the urn and equipped with an actuating device.

642,823. **POCKET BOOK OR CASE.** HENRY W. GRENNELS and GEORGE SOMERVILLE, Denver, Colo. Filed June 29, 1899. Serial No. 722,232. (No model.)



Claim.—1. A pocket-book, comprising an oblong frame, an oblong spring-operated clamp having end arms pivoted in chambers in the ends of said frame, and a flexible strip secured to said frame and adapted to be wound thereon over said clamp, substantially as shown and described.

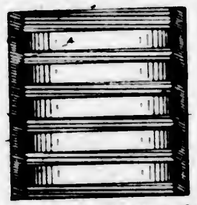
2. A pocket-book consisting of an oblong frame, comprising parallel side bars and end portions, said end portions being provided with chambers open at one side, a spring-operated clamp having arms pivoted in said chambers, and a bar operating in connection with one of the side bars of the frame to hold bills or other articles, and a flexible cover secured to the frame between the end portions and adapted to be wound around said frame and said clamp, substantially as shown and described.

3. A pocket-book, provided with end portions having chambers open at one side, a clamp comprising a bar having arms pivoted in said chambers and spring-operated, and a flexible cover or strip secured to the frame between the end portions and adapted to be wound around the same and around said clamp, substantially as shown and described.

4. A pocket-book, comprising a frame composed of parallel side bars, and end portions having chambers open at one side, a clamp comprising a horizontal bar provided with arms pivoted in said chambers, springs mounted in said chambers for operating said clamp, and a flexible cover or strip secured to the frame between the end portions and adapted to be rolled thereon and to inclose said clamp, substantially as shown and described.

5. A pocket-book consisting of an oblong frame, comprising parallel side bars, and end portions consisting of inner and outer plates, the outer plates being larger than the inner plates, said end portions being provided between said plates with chambers open at one side, and a clamp provided with arms pivoted in said chambers, and a bar adapted to operate in connection with one of the side bars of the frame, and a flexible cover or strip secured to the frame between the end portions and adapted to be wound on said frame and around said clamp, substantially as shown and described.

642,824. **PIPE-THREAD PROTECTOR.** GEORGE H. HARVEY, Pittsburg, Pa., assignor to the National Tube Company, of New Jersey. Filed Aug. 1, 1898. Serial No. 687,405. (No model.)



Claim.—1. A coupler or thread-protector formed with an annular body portion having a series of ribs on its inner face set at substantially equal distances, the faces of said ribs being tapped to form screw-threads, substantially as set forth.

2. A coupler or thread-protector formed with an annular body portion having a series of ribs on its inner face, said ribs having screw-threads formed thereon, substantially as set forth.

642,825. **EVAPORATING-PAN.** FLAVIUS R. HAYM, Wick, Ohio. Filed Mar. 1, 1899. Serial No. 707,300. (No model.)



Claim.—1. In an evaporator, the combination with a furnace, of primary and secondary pans, the latter having a corrugated bottom, hot-air flues lying in said corrugations and opening through the ends of the tank, a supply-pipe having its discharge end located to supply liquid to the primary pan, a tank communicating with the secondary pan, a float disposed in said tank, and a valve in the supply-pipe connected with and operated by said tank.

2. In an evaporator, the combination with a furnace, of primary and secondary pans having open communication and both supported by the furnace, to be heated thereby, the secondary pan having a longitudinally-corrugated bottom, hot-air flues lying in said corrugations and opening through the ends of the pan, a supply-pipe having its discharge end located to supply liquid to the primary pan, a tank communicating with the secondary pan, a float disposed in said tank, and a valve in the supply-pipe connected with and operated by said float, substantially as described.

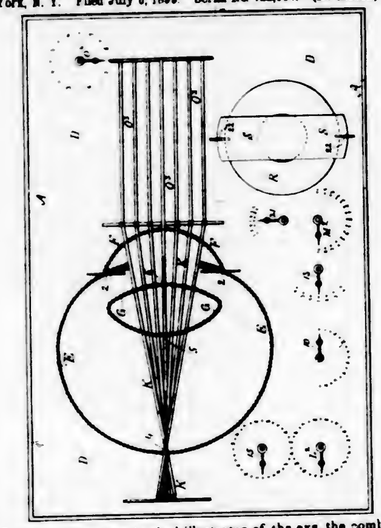
3. In an evaporator, the combination with a furnace, of a corrugated pan supported thereby and having a series of longitudinal hot-air flues lying in said corrugations, a smoke-pipe, a partition dividing the same into two different portions, one of said pipe portions communicating with the flues and the other portion communicating directly with the furnace, communication between the smoke-pipe portions, and a damper for said communication, substantially as described.

4. In an evaporator, the combination with a furnace, of a corrugated pan supported thereby and having a series of longitudinal air-flues lying in said corrugations, the upper surfaces of which are free of the corrugated bottom of the tank, a smoke-pipe, a partition dividing the smoke-pipe into two different portions and extending below the same and into the furnace and having a horizontal flange, one of said sections communicating with said flues and the other section communicating directly with the furnace, a damper located between said pan and smoke-pipe and means for shifting said damper into and out of engagement with said flange, to open and close communication between the sections of the pipe, substantially as described.

5. In an evaporator, the combination with a furnace, of a primary tank supported thereby and having a dome provided with a pipe opening into said dome, a finishing-pan having a corrugated bottom and having a series of steam-pipes lying within the corrugations, a supply-pipe connected with the pipe in said dome and communicating with the steam-pipes in said finishing-pan, a secondary pan having open communication with the first-named pan, a tank communicating with the secondary pan, and a float-valve in said tank connected with the supply-pipe to regulate the passage of liquid to the primary pan, substantially as described.

6. In an evaporator, the combination with a furnace, of a primary pan and a secondary pan supported thereon and having open communication, said secondary pan having a corrugated bottom, flues lying in said corrugations and opening through the ends of the secondary pan, a cut-away portion on the primary pan affording a passage to said flues, a supply-pipe for the primary pan, a tank communicating with the first-named pan, and a float-valve in said tank and having connections with the supply-pipe to regulate the flow therethrough, substantially as described.

642,826. **MECHANICAL ILLUSTRATOR OF THE EYE.** HENRY A. HEATH, Jersey City, N. J., assignor to Benjamin F. Stephens, New York, N. Y. Filed July 6, 1899. Serial No. 722,937. (No model.)



Claim.—1. In a mechanical illustrator of the eye, the combination with a background, of a flexible eyeball-outline, and means for moving the back portion of this flexible eyeball-outline to indicate the relative position of the retina to the lens, substantially as set forth.

2. In a mechanical illustrator of the eye, the combination with a background, of a flexible eyeball-outline, and means for moving the back portion of this flexible eyeball-outline to indicate the adjustment of the retina, a crystalline-lens illustration and means for varying the shape or convexity of the same, substantially as set forth.

3. In a mechanical illustrator of the eye, the combination with a background, of a flexible eyeball-outline, and means for moving the back portion of this flexible eyeball-outline to indicate the adjustment of the retina, a cornea illustration and means for varying the convexity of the same, substantially as set forth.

4. The combination with the flexible outline illustrating an eyeball, cornea and crystalline lens, of lazy-tongs connections for varying the position of the respective parts and cords therewith connected and means for moving such cords from the outside of the case holding the apparatus, substantially as set forth.

5. The combination with the flexible outline illustrating an eyeball, cornea and crystalline lens, of lazy-tongs connections for varying the position of the respective parts and cords therewith connected and means for moving such cords from the outside of the case holding the apparatus, dials and indicating-hands within the case for the respective parts, substantially as set forth.

6. The combination with a flexible outline to illustrate an eyeball, cornea and crystalline lens and means for adjusting the same, of devices illustrating rays of light and means for varying the position of such illustrative devices outside the illustration of the eyeball at the front thereof and also behind the same, substantially as set forth.

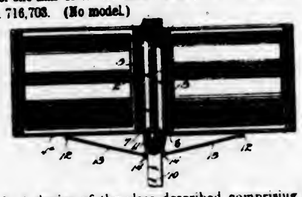
7. The combination with an illustration of an eye, of ray-bars to illustrate the lines of light, and lazy-tongs for moving the same in front of the representation of the eye, substantially as set forth.

8. The combination with an illustration of an eye, of ray-bars to illustrate the lines of light and lazy-tongs for moving the same behind the representation of the eye, substantially as set forth.

9. The combination with an illustration of an eye, of ray-bars to illustrate the lines of light, lazy-tongs for moving the same in front of the representation of the eye, cords or equivalents representing rays of light approaching the eye and lazy-tongs connections for the same illustrating the parallelism or divergence of the rays of light passing to the eye, substantially as set forth.

10. The combination with the illustration of an iris, of a transparent plate and mechanism for giving to the same greater or less convexity, and a dial for indicating the convexity of the cornea in front of the pupil, substantially as set forth.

642,827. **LAND-ROLLER.** JAMES B. HEFFNER, Bloomer, Ohio, assignor of one-half to W. W. Sando, same place. Filed May 13, 1899. Serial No. 716,703. (No model.)



Claim.—1. A device of the class described comprising a draft-beam provided with eyes, a pintle arranged in the eyes, the rectangular frames composed of front and rear sides and outer ends, the inner terminals of the sides being extended and perforated to form ears for the reception of the pintle, the inner end pieces having their terminals secured to the sides of the frames, the inner and outer bearing-bars mounted on the ends of the frames and supporting the same, and rollers journaled on the bearing-bars, substantially as described.

2. A device of the class described comprising a draft-beam provided at its lower face with depending eyes, a longitudinal pintle located beneath the beam and supported in the said eyes, the rectangular frames arranged at opposite sides of the rear portion of the draft-beam and provided with perforated ears receiving the said pintle, the inner and outer bearing-bars mounted on the rectangular frames, one of the bearing-bars of each frame being removable, and the rollers journaled in the bearings of said bars, substantially as described.

642,328. **FLOWER-HOLDER.** ALFRED HEYDRICH, New York, N. Y. Filed Apr. 22, 1899. Serial No. 714,012. (No model.)

Claim.—1. In a flower-holder, the combination of a base, a handle connected thereto, a main flower-support mounted upon said base, a containing-receptacle beneath said support and a removable cover for said receptacle.

2. In a flower holder, the combination of a main flower-support, a containing-receptacle beneath said support, a removable cover for said receptacle and a movable carrier adapted to be contained within said containing-receptacle.

3. In a flower-holder, the combination of a main flower-support, a containing-receptacle beneath said support, a removable cover and a movable spring-pressed carrier adapted to be contained within said containing-receptacle and to be ejected thereform.



4. In a flower-holder, the combination of a main flower-support, a containing-receptacle beneath said support, a movable spring-pressed carrier adapted to be contained within said receptacle and to be ejected therefrom, and a cover for said receptacle supported by said carrier.

5. In a flower-holder, the combination of a main flower-support, a spring-pressed carrier adapted to be received beneath said support and to be projected above the same by the spring thereof and means for retaining the carrier in its retracted position and for releasing it so that it may be projected from beneath the support.

6. In a flower-holder, the combination of a main flower-support, a spring-pressed carrier adapted to be received beneath said support and to be projected above the same by the spring thereof, a cover supported upon said carrier and adapted to cover the carrier from observation when the carrier is retracted and means for retaining the carrier in its retracted position and for releasing it, so that it may be projected from beneath the support.

7. In a flower-holder, the combination of a main flower-support, a spring-pressed carrier adapted to be received beneath said support and to be projected above the same by the spring thereof, a cover supported upon said carrier and adapted to cover the carrier from observation when the carrier is retracted, means for supporting flowers upon said cover so that when the carrier is retracted and flowers are in place, the device will have the appearance of an ordinary bouquet and means for retaining the carrier in its retracted position and for releasing it so that it may be projected from beneath the support.

8. In a flower-holder, the combination of a base, a handle connected thereto, a main flower-support mounted upon said base, a containing-receptacle between said base and flower-support, a spring-pressed cover adapted to cover said receptacle and to form a continuation of the main flower-support when the cover is in place and means for supporting flowers upon said cover.

9. In a flower-holder, the combination of a base, a handle depending therefrom, a main flower-support mounted upon said base, a containing-receptacle between the base and the flower-support, a spring-pressed cover adapted to cover said receptacle and to form a continuation of the main flower-support when the cover is in place, means for supporting the flowers upon said cover and a figure supported by said cover and exposed to view when the cover is projected outwardly to uncover the receptacle.

642,329. PROCESS OF MAKING ADHESIVE PASTE. CHARLES M. HIGGINS, New York, N. Y. Filed Dec. 31, 1898. Serial No. 700,837. (No specimens.)

Claim.—1. The novel process of making a dextrine paste consisting in mixing starch with water impregnated with an acid or digesting agent in the proportion of about five or more pounds of starch to eight pounds of water, applying a digesting heat to the mixture until the starch becomes converted into white dextrine, then arresting the digestion and retaining the solution in said state whereby it is adapted to form when cold a soft unctuous white paste, substantially as herein set forth.

2. The improved process of making a dextrine paste, consisting in mixing starch with water impregnated with a digesting agent in the proportion of about five or more pounds of starch to eight pounds of water, applying and continuing a digesting heat thereto until the starch becomes converted into white dextrine, then arresting the digestion at this point and finally cooling the solution into the form of a soft unctuous or pulpy paste, substantially as herein set forth.

3. The process of producing an improved adhesive paste consisting in mixing starch with acidulated water in the proportion of about five of more pounds of starch to eight pounds of water, applying and continuing a digesting heat thereto until the starch is converted into white dextrine, then adding an alkaline substance to neutralize the acid and then cooling the neutralized liquid into the form of a soft unctuous paste, substantially as herein set forth.

642,330. PROCESS OF DIGESTING STARCH. CHARLES M. HIGGINS, New York, N. Y. Original application filed Dec. 31, 1898, Serial No. 700,837. Divided and this application filed Apr. 13, 1899. Serial No. 712,879. (No specimens.)

Claim.—1. The process of converting starch herein set forth, viz., digesting the starch in water impregnated with a digesting acid or agent at a temperature below or near the jellifying-point of the starch and continuing the action until the starch becomes non-gelatinous or nearly so, substantially as and for the purpose set forth.

2. The novel process of converting starch herein set forth, viz., digesting the starch in a digesting fluid at a temperature below or near the jellifying-point of the starch until it becomes non-gelatinous or nearly so, then raising the temperature above the jellifying-point and liquefying the mixture, substantially as and for the purpose set forth.

3. The described process of converting starch, consisting in digesting the starch in a digesting fluid at a temperature below or near the jellifying-point of the starch until it becomes non-gelatinous or nearly so, then raising the temperature and liquefying the mixture, and then neutralizing the same, substantially as herein set forth.

4. The novel process of producing an adhesive paste or product of digested starch herein set forth, viz., digesting starch in a digesting fluid at a temperature below or near the jellifying-point until the starch becomes non-gelatinous or nearly so, then liquefying the mixture, and then cooling said mixture, substantially as herein set forth.

5. The novel process of producing an adhesive paste or product of digested starch herein described, viz., digesting starch in acidulated water at a temperature below or near the jellifying-point until it becomes non-gelatinous or nearly so, then liquefying the mixture, then neutralizing the acid and finally cooling the neutralized mixture, substantially as herein set forth.

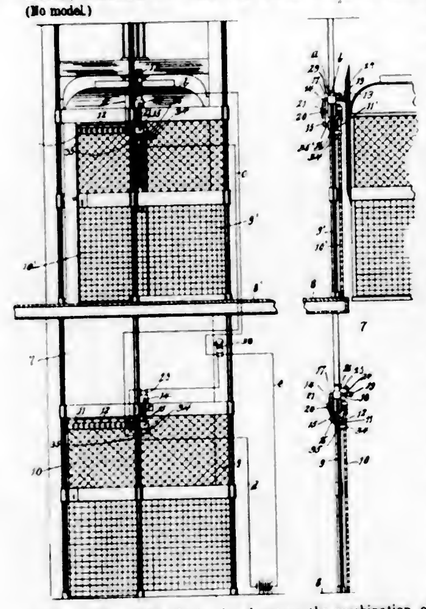
6. The novel process of converting starch herein described, viz., digesting the starch in hot water impregnated with a digesting agent at a temperature about 145° to 155° Fahrenheit until the starch becomes non-gelatinous or nearly so, then raising the temperature above that of the first or digesting stage and liquefying the mixture, substantially as and for the purpose set forth.

7. The specific process of making an improved dextrine paste herein described, viz., digesting starch in a digesting fluid at a temperature below or near the jellifying-point until the starch becomes non-gelatinous or nearly so, then liquefying the mixture and continuing the action until the starch becomes converted into dextrine, and then arresting the solution in said state, substantially as herein set forth.

642,331. ADHESIVE COMPOUND. CHARLES M. HIGGINS, New York, N. Y. Original application filed Dec. 31, 1898, Serial No. 700,837. Divided and this application filed Nov. 1, 1899. Serial No. 735,554. (No specimens.)

Claim.—The product of the process herein described, viz: an improved paste made from corn-starch, water and a digesting agent in the proportions of about five pounds of starch to eight pounds of water, and having the qualities set forth, viz., a pure white color, a dextrine reaction, soft, pulpy or unctuous consistency and great adhesiveness, substantially as set forth.

642,332. SAFETY DEVICE FOR ELEVATORS. MURRAY M. HUFFER, Milwaukee, Wis. Filed Aug. 16, 1899. Serial No. 727,375. (No model.)



Claim.—1. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism mounted in a fixed part so as to be capable of having an in-and-out sliding movement therein, said locking mechanism having inwardly-extending legs, one of said legs adapted to act as a locking dog or catch which normally engages the door for the purpose of holding said door in a closed or partially-closed position, and mechanism carried by the elevator-shaft and adapted to act on the other leg of the locking mechanism, when the cage approaches a landing, so as to disengage the locking mechanism and thereby permit of the opening of the door.

2. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said shaft, a rack-plate provided on the door, an elevator-cage, locking mechanism mounted in a fixed part so as to be capable of having an in-and-out sliding movement therein, said locking mechanism having inwardly-extending legs, one of said legs adapted to act as a locking dog or catch which normally engages the rack-plate of the door for the purpose of holding said door in a closed or a partially-closed position, and mechanism carried by the elevator-cage, and adapted to act on the other leg of the locking mechanism, when the cage approaches a landing so as to disengage the locking mechanism, and thereby permit of the opening of the door.

3. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism mounted in a fixed part so as to be capable of having an in-and-out sliding movement therein, said locking mechanism having inwardly-extending legs, one of said legs adapted to act as a locking dog or catch which normally engages the door for the purpose of holding said door in a closed or partially-closed position, mechanism carried by the elevator-cage and adapted to act on the locking mechanism, when the cage approaches a landing, so as to disengage the locking mechanism and thereby permit of the opening of the door, and a spring encircling the leg of the locking mechanism which is acted upon by the mechanism carried by the dog, said spring being confined between the fixed part and an enlargement on the leg, and adapted, after the mechanism carried by the cage has ceased to act on the leg which said spring surrounds, to slide the locking mechanism in a position to cause the locking dog or catch to be again brought to position to engage and lock the door.

4. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said shaft, an elevator-cage, locking mechanism mounted in a fixed part so as to be capable of having an in-and-out sliding movement therein, said locking mechanism consisting of sections pivoted together, each section having an inwardly-extending leg, the inwardly-extending leg of one section acting as a locking dog or catch which normally engages the door for the purpose of holding said door in a closed or a partially-closed position, and mechanism carried by the elevator-cage and adapted to act on the leg of the other pivoted section of the locking mechanism, when the cage approaches a landing, so as to disengage the locking mechanism and thereby permit of the opening of the door.

5. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism consisting of sections pivoted together, each section having an inwardly-extending leg, the inwardly-extending leg of one section acting as a dog or catch adapted, when the elevator-cage leaves the landing, and when the door is operated for the purpose of closing the same, to automatically lock said door in the position to which it has been adjusted, mechanism carried by the elevator-cage and adapted to act on the leg of the other section of the locking mechanism when the elevator-cage approaches a landing, so as to disengage the locking dog or catch and thereby to provide for the opening of the door, when the elevator-cage reaches the landing, and a spring secured to one of the sections of the locking mechanism and bearing with its free end against the section of the locking mechanism which carries the dog or catch.

6. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism consisting of sections pivoted together, each section having an inwardly-extending leg, the inwardly-extending leg of one section acting as a dog or catch adapted, when the elevator-cage leaves the landing and when the door is operated for the purpose of closing the same, to automatically lock said door in the position to which it has been adjusted, and each section of the locking mechanism provided with a shoulder, said shoulders abutting, in order to limit the inward swinging of the section carrying the dog or catch, and mechanism carried by the elevator-cage, and adapted to act on the locking mechanism when the cage approaches a landing, so as to disengage the locking mechanism and thereby provide for the opening of the door

7. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said shaft, an elevator-cage, contact mechanism carried by the elevator-cage, an alarm, and mechanism acted upon by the mechanism carried by the elevator-cage, when the cage is at a landing, said mechanism being separate from but adapted to operate the alarm mechanism and sound the alarm when a door is left in an open or a partially-open position, and when the elevator-cage leaves a landing and thereby brings the mechanism carried thereby out of contact with the mechanism which operates the alarm.

8. In safety devices for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism adapted when the elevator-cage leaves a landing and when the door is operated for the purpose of closing the same, to automatically lock said door in the position to which it has been adjusted, mechanism carried by the elevator-cage and adapted to act on the locking mechanism when the cage approaches a landing so as to disengage the locking mechanism and thereby provide for the opening of the door, and alarm mechanism also actuated by the mechanism carried by the elevator-cage, and adapted to be sounded when the cage leaves a landing and when the door is left in an open or in a partially-open position.

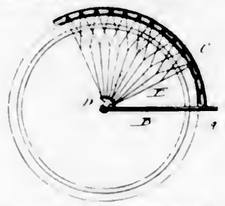
9. In safety devices for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said elevator-shaft, an elevator-cage, locking mechanism adapted when the cage leaves a landing and when the door is operated for the purpose of closing the same, to automatically lock said door in the position to which it has been adjusted, a contact carried by the locking mechanism, a normally-broken electrical circuit, make-and-break mechanisms within the circuit, an alarm within said circuit, mechanism carried by the elevator-cage and adapted to act on the locking mechanism and thereby provide for the opening of the door, the contact carried by the locking mechanism being at the same time brought into engagement with one of the make-and-breaks so as to break the circuit at that point, but said contact being brought out of engagement with said make-and-break when the mechanism carried by the elevator-cage is out of eugagement with the locking mechanism, and a contact carried by the door and adapted to engage the other make-and-break and close the same when the door is left open and the make-and-break operated by the locking mechanism is also closed by the disengagement of the mechanism carried by the elevator-cage with the locking mechanism, whereby the circuit is completed and the alarm sounded.

10. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said shaft, an elevator-cage, a normally-broken electrical circuit, mechanism carried by the elevator-cage, and adapted to be carried out of operating position, and thereby complete the circuit, when the elevator-cage leaves a landing, and when a door is left open or partially open, and

an alarm within the circuit, said alarm adapted to be sounded when the circuit is completed by reason of the elevator-cage leaving a landing, and a door being left open or partially open.

11. In a safety device for elevators, the combination, of an elevator-shaft, an opening and closing door at the landing of said shaft, an elevator-cage, a movable contact, a normally-broken electrical circuit, make and-break mechanisms within the circuit, an alarm within the circuit, mechanism carried by the elevator-cage and adapted to act on the movable contact when the cage approaches a landing so as to operate said contact and cause said contact to be brought into engagement with one of the make-and-breaks so as to break the circuit at that point, but said contact adapted to be brought out of engagement with said make-and-break when the mechanism carried by the elevator-cage is out of engagement with the movable contact, and a contact carried by the door and adapted to engage the other make-and-break and close the same when the door is left open and the make-and-break operated by the other contact is also closed by the disengagement of the mechanism carried by the elevator-cage with said other contact, whereby the circuit is completed and the alarm sounded.

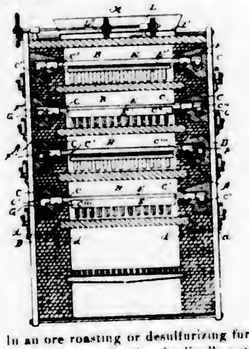
642,333. DRESS-GUARD. THOMAS R. JEFFERY, Chicago, Ill. Filed Jan. 7, 1898. Serial No. 665,892. (No model.)



Claim.—1. In a bicycle the combination with the guard-lacing of a guard-plate extending longitudinally over the wheel and curved to conform to the shape thereof, said plate provided with projections, and the lacing passed first over the outer edge of the plate around the projection and back over the outer edge, whereby a maximum space is left for the tire between the strands of lacing on the opposite edges of the plate, substantially as described.

2. A metal guard-plate for a bicycle provided along each edge with a series of orifices and a projection extending into each orifice but substantially flush with the face of the plate, substantially as described.

642,334. ORE ROASTING AND DESULFURIZING FURNACE. ALBERT C. JOHNSON, Baltimore, Md. Filed Apr. 29, 1898. Serial No. 679,168. (No model.)



Claim.—1. In an ore roasting or desulfurizing furnace, longitudinal side beams having intersecting longitudinally-extending lateral and vertical slots, in combination with a reciprocating rake, the latter comprising a head with right-angled ends, and a rake pivoted to said head, endless chains or cables connected with the angular ends of the rake-heads and supported in the slots or pockets and on exterior idlers, and means for reciprocating the chains or cables, substantially as described.

2. In an ore roasting or desulfurizing furnace, longitudinal side beams having intersecting longitudinally-extending lateral and vertical slots, in combination with a reciprocating rake, the latter comprising a head with right-angled ends and with triangular-shaped teeth in cross-section, and pivoted to the head, endless chains or cables connected with the angular ends of the rake-head and supported in the slot or pocket and on exterior idlers, and means for reciprocating the chains or cables, substantially as described.

3. In an ore roasting or desulfurizing furnace, longitudinal side beams having intersecting longitudinally-extending lateral and vertical slots, in combination with a reciprocating rake, the latter comprising a head with right-angled ends, and with teeth which are triangular in cross-section and arranged in staggered form, said rake pivoted to the head, endless chains or cables connected with the angular ends of the rake-head and supported in the slot or pocket and on idlers exterior of the heating-chambers, and means for reciprocating the chain or cable, substantially as and for the purpose described.

4. In an ore roasting and desulfurizing furnace, longitudinal side beams with slots or pockets formed in the body thereof and extending their entire length, and also provided with tracks or ways for the rake-head, in combination with a pivoted rake, having its head formed with angular ends, and with shoes to travel on the tracks or ways, endless chains or cables connected with the rake-head and concealed in the slot or pockets, and means for reciprocating the chain or cable, substantially as and for the purpose set forth.

5. In an ore roasting and desulfurizing furnace, longitudinal side beams with slots or pockets containing endless chains or cables, said chains or cables adapted to be reciprocated in said pockets and extending to and supported on the outside of the furnace, posts or buckstays ranged along the exterior sides of the furnace, idlers on the posts or buckstays, reciprocating rakes connected to the chains or cables, and the buckstays or posts at one end of the frame provided with slots or loops formed as a continuation of the slots or pockets in the beams, and means for reciprocating the chains, substantially as described.

642,335. TYPE-FOLLOWER FOR TYPE-CONTAINING CHANNELS. LOUIS K. JOHNSON, New York, N. Y., assignor to the Alden Type Machine Company, same place. Filed Dec. 3, 1897. Serial No. 660,590. (No model.)

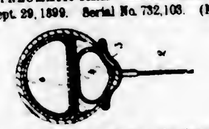


Claim.—1. A combined slug and type-follower for type-containing channels consisting of two side pieces pivotally connected, with an expanding-spring interposed between them and a bifurcated clamping-lever fulcrumed to one side piece substantially in the manner and for the purpose described.

2. In a combined locking-slug and type-follower, for type-containing channels, the combination of the pivotally-connected side pieces A A', the expanding-spring *s*, and the bifurcated catch-lever C, the whole constructed and operating substantially in the manner and for the purpose described.

3. In a combined locking-slug and type-follower for type-containing-channels the combination of the pivotally-connected side pieces A, A', formed with the recesses *a'*, *a²*, the expanding-spring *s*, interposed between said pieces A, A', and the catch-lever C, pivotally supported upon one side piece and formed with the bifurcations *c*, *c*, the whole arranged and operating substantially in the manner and for the purpose described.

642,336. PNEUMATIC TIRE. ALFRED JUNOD, Ste. Croix, Switzerland. Filed Sept. 29, 1899. Serial No. 732,103. (No model.)



Claim.—A pneumatic tire, consisting of a tire-cover, a membrane dividing said cover longitudinally into two compartments, one at the inner and the other at the outer side of the tire, inflated air-pockets in said outer compartment, a sheath surrounding said pockets, a protective band between said membrane and sheath, and an inner tube located in said inner compartment, substantially as set forth.

642,337. PRINTING OR MARKING APPARATUS. AUGUSTUS C. KLEY, Liverpool, England. Filed Sept. 29, 1899. Serial No. 732,092. (No model.)

Claim.—1. The herein described improved printing or marking apparatus, consisting of a frame having a type-holding bar retained by springs, and adapted to engage with type-blocks, and to hold them on the frame; the said bar pressing one face of the blocks against the frame, substantially as described.

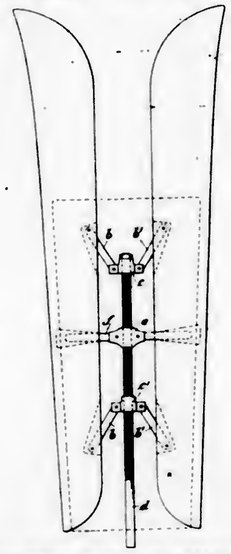


2. In a printing or marking apparatus, a frame or carrier *c*; the type-holding bar *i* retained and pressed toward the carrier by the springs *k*; and blocks *a* adapted to fit and slide over the said bar, and to be held thereby on the face of the carrier; substantially as set forth.

3. In combination, the frame, the bar extending parallel with the face thereof and having bent-up thinned end portions, and the type-blocks having notches adapted to pass over the thinned end portions of the bar, substantially as described.

4. In combination, the frame, the bar extending parallel with the face thereof, and having its ends bent and extending through the frame, the springs on said bent ends for pressing the bar toward the frame and the type-blocks having notches engaging the bar.

642,338. TROUSERS-STRETCHER. WOJCIECH KOSARSKI, Lodz, Russia. Filed July 24, 1899. Serial No. 724,937. (No model.)



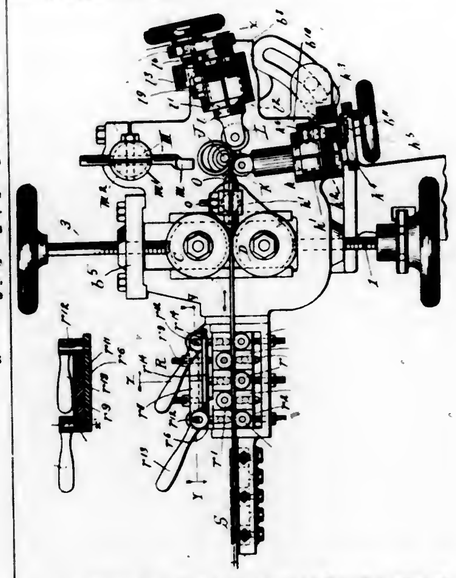
Claim.—In a trousers-stretcher, the combination of flat side pieces, with toggles pivoted to said pieces and to collars, a right and left hand threaded spindle working in said collars and a coupling perforated to receive the spindle and provided with lateral arms, said side pieces being recessed to receive said toggles and said lateral arms, substantially as set forth.

642,339. WIRE-COILING MACHINE. LOUIS C. KRUMMEL, Chicago, Ill., assignor to himself and Frank Rudolphi, same place. Filed Apr. 11, 1899. Serial No. 712,627. (No model.)

Claim.—1. In a wire-coiling machine, and in combination with a rotary mandrel, a supporting-roll arranged to press the wire against the said mandrel and rotating about an axis which is normally parallel with the axis of the mandrel, said supporting-roll being angularly adjustable so as to permit its axis to be swung obliquely or placed at an angle to the axis of the mandrel, substantially as and for the purpose set forth.

2. In a wire-working machine, the combination of a parallel movement, a plurality of independently-adjustable straightening-rolls having suitable connection with said parallel movement, and a hand-lever for operating said parallel movement and thereby shifting said rolls into engagement with the wire.

3. In a wire-working machine, the combination of a parallel movement, a plurality of straightening-rolls, which are slidably mounted and which have suitable connection with the said parallel movement, and a hand-lever for operating said parallel movement and thereby forcing the said rolls against the wire.



4. A machine for coiling both right and left handed coils, comprising feed and forming mechanisms which are adjustable relatively and transversely to the line of feed.

5. The combination of adjustable feed mechanism and means for driving the same; forming mechanism arranged in operative relation with the said feed mechanism and consisting of a rotary mandrel or spindle, a supporting-roll arranged to press the wire against the mandrel and which is adjustable along the wire between the mandrel and feed mechanism, and an adjustable forming-roll arranged to bend or deflect the wire about the mandrel in the form of a spiral coil; means for rotating the mandrel or spindle; and adjusting devices adapted and operative to adjust the rolls relatively to the mandrel, and also relatively to each other.

6. In a wire-coiling machine, the combination of feed-rolls having a plurality of feed-grooves, forming mechanism comprising rolls which are arranged in operative relation with the feed-rolls, and a guide-sleeve intermediate the feed-rolls and forming mechanism; the said rolls and guide-sleeve being adjustable horizontally and transversely to the line of feed for the purpose of bringing them into line with any particular set of grooves on the feed-rolls, so as to permit different gages of wire to be used.

7. In a wire-coiling machine, and in combination with suitable coiling mechanism, a spacing finger or tool adapted and arranged to be placed in the path of the wire for the purpose of deflecting the latter and thereby producing an open-wound coil, and the said spacing finger or tool being rotatably mounted, substantially as described, whereby the distance between the convolutions of the coil may be varied at will by twisting or turning the stem of the finger in its socket.

8. In a wire-coiling machine, the combination of feed-rolls having a plurality of feed-grooves, and forming mechanism comprising rolls which are arranged in operative relation with said feed-rolls and which are adjustable horizontally and transversely to the line of feed for the purpose of bringing them into line with any particular set of grooves on the feed-rolls.

9. In a wire-working machine, and in combination with suitable forming mechanism, a pair of feed-rolls mounted upon shafts which are inclosed in housings G and H, the latter being hinged together at their rear ends.

10. In a wire-coiling machine, the combination of power-driven feed mechanism, and forming mechanism arranged in operative relation with the feed mechanism and adjustable transversely to the line of feed for the purpose of winding both right and left handed coils.

11. A wire-coiling machine comprising adjustable feed mechanism and means for driving the same; adjustable forming mechanism arranged in operative relation with the said adjustable feed mechanism and a pivotally-supported guide-sleeve which is arranged inter-

mediate of the feed and forming mechanisms, and which is also adjustable horizontally and transversely to the line of feed, substantially as and for the purpose described.

12. A wire-coiling machine comprising feed mechanism consisting of a pair of suitably-driven feed-rolls, forming mechanism involving a rotary mandrel or spindle having the same circumferential speed as the feed-rolls, and means for rotating the mandrel and feed-rolls in the manner stated.

13. A wire-coiling machine comprising suitable feed mechanism, forming mechanism involving a rotary mandrel or spindle having a circumferential speed the same as the speed of the wire, and driving mechanism connected and arranged to impart to the said mandrel and wire the similarity of movement stated.

14. A wire-coiling machine comprising suitable coiling mechanism; and a spacing finger or tool M, removably and rotatably supported by a socket-piece *m'*, and having its lower end adapted, substantially in the manner shown and described, to be placed in the path of the wire for the purpose of deflecting the latter and thereby producing an open-wound coil.

15. A wire-coiling machine comprising suitable feed-rolls having a plurality of feed-grooves, a mandrel or spindle, a supporting-roll and forming-roll; the said supporting and forming rolls being adjustable horizontally and transversely to the line of feed so as to permit them to be brought into line with any particular set of grooves on the feed-rolls, substantially as and for the purpose set forth.

16. In a wire-working machine, a straightening device comprising a plurality of straightening-rolls, and a plurality of eccentric or crank pins suitably connected to form a parallel movement for adjusting the rolls.

17. In a wire-working machine, a straightening device comprising a plurality of independently-adjustable straightening-rolls, and a plurality of eccentrics or cranks which are suitably connected to form a parallel movement for shifting the rolls.

18. In a wire-working machine, a straightening device comprising a plurality of straightening-rolls, and a pair of eccentrics or cranks which are suitably connected and provided with a pair of connected levers, the same constituting a parallel movement for shifting the said rolls.

19. In a wire-working machine, a straightening device comprising two opposing or oppositely-arranged sets of straightening-rolls, the members of each set being independently adjustable; and a parallel movement for shifting one set of the rolls, substantially as and for the purpose set forth.

20. The combination of feed mechanism and means for driving the same; forming mechanism arranged in operative relation with the said feed mechanism and consisting of a mandrel, a supporting-roll, and a forming-roll; a guide-sleeve arranged intermediate the feed and forming mechanisms, and through which the wire is forced from the former to the latter; and adjusting devices adapted and operative to adjust the said rolls relatively to the said mandrel, and whereby the supporting-roll may be adjusted to any point along the wire between the mandrel and guide-sleeve.

21. In a machine for coiling wire, the combination of feed mechanism and means for driving the same; forming mechanism arranged in operative relation with said feed mechanism, and consisting of a mandrel or spindle, a forming-roll and a supporting-roll which is shiftable from one side of the mandrel to the other; and one or more adjusting devices adapted and operative to adjust the said rolls according to the diameter of coil desired.

22. In a wire-working machine, the combination of feed mechanism and means for driving the same; forming mechanism arranged in operative relation with said feed mechanism, and comprising a supporting-roll which is shiftable from one side of the wire to the other, so as to permit the coiling of either a right or left hand coil, and one or more adjusting devices adapted and operative to adjust the said forming mechanism according to the diameter of coil desired.

23. In a wire-coiling machine, the combination of feed mechanism and means for driving the same; forming mechanism arranged in operative relation with said feed mechanism, and consisting of a rotary mandrel, a supporting-roll which is shiftable from one side of the mandrel to the other, and a forming-roll; means for rotating the said mandrel or spindle, and adjusting devices adapted and operative to adjust the said rolls relatively to the said mandrel.

24. In a wire-coiling machine, the combination of the feed-rolls, the guide-sleeve, the mandrel or spindle, a forming-roll, and a supporting-roll arranged to bear upon the wire at a point between the said mandrel or spindle and the guide-sleeve, the said supporting-roll being shiftable from one side of the wire to the other for the purpose set forth.

25. In a wire-coiling machine, and in combination with power-driven feed mechanism, forming mechanism comprising a mandrel and supporting and forming rolls; the said rolls being adapted and arranged to cooperate in bending the wire about the mandrel in the form of a spiral coil; said rolls being non-power driven or simply mounted to rotate by reason of the movement of the wire, and the said supporting-roll being shiftable from one side of the wire to the other for the purpose set forth.

26. In a wire-coiling machine, and in combination with coiling mechanism, a spacing finger or tool adapted and arranged to be placed within the path of the wire for the purpose of deflecting the latter and thereby producing an open-wound coil, and the said finger being shiftable from one side of the wire to the other for the purpose of permitting the coiling of either a right or left hand coil.

27. In a wire-coiling machine, a straightening device consisting of a plurality of rolls arranged to bear at opposite sides upon the wire, means for adjusting the rolls according to the particular gage of wire in use, rotatable eccentric or crank pins for simultaneously causing the rolls to bear upon the wire, and one or more hand-levers for operating the said pins and thereby causing a quick opening and shutting of the rolls independently of the said adjusting means.

28. In a wire-coiling machine, a straightening device consisting of a plurality of rolls arranged to bear at opposite sides upon the wire and mounted upon adjustable blocks; adjusting-screws for adjusting the said blocks, and thereby the rolls, according to the particular gage of wire in use; rotatable eccentric or crank pins for simultaneously causing the rolls to bear against the wire, and one or more hand-levers for operating the said pins and thereby causing a quick opening and closing of the rolls independently of the said adjusting-screws.

29. In a wire-coiling machine, a straightening device consisting of a plurality of rolls arranged to bear at opposite sides upon the wire, and mounted upon independently-adjustable blocks; adjusting-screws for adjusting the said blocks, and thereby the rolls, according to the particular gage of wire in use; a bar or block carried by rotatable eccentric or crank pins journaled in the body portion of the machine, and through which extend two or more of the said adjusting-screws; one or more hand-levers for rotating said pins, and whereby the rolls may be simultaneously caused to bear against the wire.

30. In a wire-coiling machine, a straightening device consisting of a plurality of rolls arranged to bear against the wire at opposite sides of the latter and mounted upon adjustable blocks; adjusting-screws for adjusting said blocks, and thereby the rolls, according to the particular gage of wire in use; a block or bar mounted upon rotatable pins journaled in the body-casting, and through which said block or bar two or more of the said adjusting-screws are extended; each pin consisting of two portions which are eccentric to each other, and the pins thus formed serving and operating as cranks; a hand-lever secured to each pin, and means for connecting the said levers for the purpose of securing a simultaneous rotation of the pins; the device thus constructed being adapted to effect a quick opening and closing of the rolls, and the latter being locked in an operative condition, in the manner described, by the eccentricity of the pins.

31. In a wire-coiling machine, a straightening device consisting of a plurality of grooved rolls arranged to bear against the wire at opposite sides of the latter and mounted upon adjustable blocks; each of said blocks being provided with a bolt which extends through a slot in the body-casting, and each bolt being provided with a nut; adjustable screws for adjusting the said blocks in accordance with the particular gage of wire in use; a device for simultaneously causing the rolls to bear against the wire, and comprising a plurality of rotatable crank-pins; and hand-levers for rotating the said pins.

32. In a wire-coiling machine, the combination of feed mechanism, means for guiding the wire as it issues from the said feed mechanism and forming mechanism arranged in operative relation with the said feed mechanism and adapted to receive and deflect or bend the wire into a spiral coil, said forming mechanism comprising a plurality of rolls which are shiftable or adjustable transversely to the line of feed for the purpose of permitting the coiling of either a right or left hand coil.

33. In a wire-coiling machine, and in combination with suitable feed mechanism and means for guiding the wire, forming mechanism arranged in operative relation with the said feed mechanism and comprising a supporting-roll which is adjustable along the wire and shiftable from one side of the wire to the other, and a forming-roll, the said rolls being adapted and arranged to successively intercept and cooperate in deflecting or bending the wire into a spiral form.

34. In a wire-coiling machine, the combination of the feed-rolls, the guide-sleeve arranged to receive and guide the wire as it issues from between the said feed-rolls, forming mechanism arranged to receive the wire from the said guide-sleeve, the said forming mechanism comprising a plurality of rolls which cooperate in deflecting or bending the wire into a spiral form, and one or more of said rolls being shiftable or adjustable transversely to the line of feed for the purpose of permitting the coiling of either a right or left hand coil.

35. In a wire-coiling machine, and in combination with a pair of feed-rolls and forming mechanism comprising a plurality of rolls, a guide-sleeve for the wire arranged to extend from said feed-rolls to said forming mechanism and having its ends tapered or reduced to permit it to extend between the feed-rolls and close to the forming mechanism.

36. The combination of feed mechanism, and a supporting-roll and a spacer which are interchangeable for the purpose described.

37. In a wire-coiling machine, the combination of an adjustable feed mechanism and means for driving the same; an adjustable and removable guide-sleeve arranged to receive the wire from the feed mechanism; forming mechanism comprising a mandrel, a forming-roll, and a supporting-roll arranged to bear upon the wire at a point between the mandrel and guide-sleeve; means for adjusting the feed mechanism according to the gage of wire in use, and one or more adjusting devices adapted and operative to adjust the forming mechanism for a like purpose.

38. In a wire-coiling machine, the combination of feed mechanism comprising a pair of suitably-constructed feed-rolls, forming mechanism comprising a rotary mandrel or spindle, a supporting-roll arranged to press the wire against the periphery of said mandrel, and a forming-roll for bending or deflecting the wire about the mandrel in the form of a spiral coil; and means for rotating the said mandrel or spindle and feed-rolls with the same circumferential speed.

39. In a wire-coiling machine, a feed mechanism consisting of a pair of suitably-mounted feed-rolls; forming mechanism comprising a rotary mandrel, a supporting-roll arranged to keep the wire in contact with the said mandrel, and a forming-roll adapted and arranged to bend the wire about the mandrel in the form of a spiral coil; and power-transmitting connection between the feed-rolls and rotary mandrel or spindle, whereby the latter will have the same circumferential speed as the former.

40. In a wire-coiling machine, the combination of a pair of feed-roll shafts gear-connected at their rear ends and provided with a pair of feed-rolls at their forward ends; forming mechanism involving a rotary mandrel or spindle arranged parallel with the said feed-roll shafts, and having its rear end gear-connected with one of the latter, whereby the said mandrel and feed-rolls will have the same circumferential speed; and means for driving the said mandrel and feed-rolls for the purpose of coiling the wire about the former.

41. In a wire-coiling machine, and in combination with a mandrel and feed mechanism, a forming-roll adapted and arranged to bend the wire about the mandrel and journaled at the end of a shank or stock clamped within the bore of a split collar; the opposite end of said shank or stock being provided with a slotted flange, an adjusting-screw being arranged to extend through said slot and into the said split collar, and the latter being provided with a laterally-projecting stud which is clamped within the bore of a split supporting-socket; the said adjusting-screw being rotated for the purpose of adjusting the shank or stock longitudinally in the bore of the split collar, and the slot in the said flange being adapted to permit a rotary adjustment of the shank in the said collar.

42. In a wire-coiling machine, and in combination with the feed mechanism, mandrel and forming-roll, a supporting-roll adapted and arranged to press the wire against the mandrel and journaled at the end of a cylindric shank or stock; said shank or stock being held for both rotary and longitudinal adjustment in the bore of a split collar, and the latter having a stud which is clamped within the bore of a split supporting-socket; and an adjusting-screw being provided for adjusting the shank longitudinally.

43. In a wire-coiling machine, the combination of adjustable feed mechanism, and forming mechanism comprising a mandrel and supporting and forming rolls; the forming-roll being adjustable relatively to the mandrel, and the supporting-roll being shiftable from one side of the mandrel to the other, whereby a right or left handed coil may be formed at will.

44. In a wire-coiling machine, the combination of vertically-adjustable feed-rolls; a rotary horizontally-arranged mandrel or spindle; a supporting-roll adapted and arranged to press the wire against the mandrel; a forming-roll adapted and arranged to bend the wire about the mandrel in the form of a spiral coil; the said forming-roll being adjustable relatively to the mandrel, the supporting-roll being shiftable from one side of the mandrel to the other, and the mandrel or spindle being reversible, whereby either a right or left hand coil may be formed, as desired.

45. A wire-coiling machine comprising a pair of feed-roll shafts gear-connected at their rear ends, and provided at their forward ends with a pair of feed-rolls; one or more adjusting devices for vertically adjusting the feed-roll shafts; a rotary mandrel gear-connected at its rear end with one of the said feed-roll shafts, and adapted at its forward end to cooperate with supporting and forming rolls in bending the wire into a spiral form; a spacing finger or tool for producing an open-wound coil, the said spacing finger or tool and the supporting-roll being interchangeable, whereby the wire may be fed either over or under the mandrel; an adjustable gear-plate adapted to provide a support for one or more gears by which the mandrel and feed-rolls are connected, and whereby one or more of said gears may be removed for the purpose of permitting a reversal of the mandrel without reversing the feed-rolls; one or more adjusting devices for adjusting the forming-roll relatively to the mandrel, and means for driving the latter and the said feed-rolls; the machine thus constructed being adapted to form either right or left hand coils which may be either open or close wound

46. In a wire-coiling machine, and in combination with a rotary mandrel and adjustable feed mechanism, an adjustable gear-plate adapted to form a support for one or more gears by which the mandrel and feed mechanism are connected, and whereby one or more of said gears may be removed for the purpose of permitting a reversal of the said mandrel without reversing the feed mechanism.

47. In a wire-coiling machine, and in combination with forming mechanism involving a mandrel, a pair of feed-rolls for feeding the wire to said forming mechanism; and one or more adjusting devices adapted and operated to shift the feed-rolls so as to permit the latter to feed the wire to either side of said mandrel, whereby either a right or left hand coil may be formed.

48. In a wire-coiling machine, and in combination with forming mechanism, a pair of feed-roll shafts journaled in housings and provided with cooperating feed-rolls; the said housings being arranged in guideways, and one or more adjusting devices being provided for shifting the housings within said guideways; the shifting of the housings operating to adjust the feed-rolls relatively to the forming mechanism, and to thereby permit the latter to form either a right or left hand coil according to the position given the feed-rolls.

49. In a wire-coiling machine, and in combination with forming mechanism, a pair of horizontal feed-roll shafts journaled in housings and arranged one above the other; the said shafts being gear-connected at their rear ends, and provided with cooperating feed-rolls at their forward ends; the said housings being arranged to extend through vertical guideways, and adjusting-screws being provided for raising and lowering the housings in said guideways; the shifting of the housings serving to adjust the feed-rolls relatively to the forming mechanism, and to thereby permit the latter to form either a right or left hand coil according to the position of the feed-rolls.

50. In a wire-coiling machine, and in combination with suitable forming mechanism, a pair of horizontal feed-roll shafts arranged one above the other and journaled in housings; the said housings being adapted to fit and slide in vertical guideways, and the lower one of the housings being arranged to rest upon the upper ends of adjusting-screws; the said shafts being gear-connected at their ends, and provided with a pair of feed-rolls at their opposite ends; means for maintaining the upper feed-roll in operative relation with the lower roll, and means for rotating the feed-rolls for the purpose of feeding the wire to the forming mechanism.

51. In a wire-working machine, and in combination with forming mechanism, a pair of feed-roll shafts gear-connected and journaled in housings, and also provided with a pair of cooperating feed-rolls; the said housings having a hinge or pivotal connection with each other, whereby the feed-rolls may be separated without stopping their rotation; and means for keeping the feed-rolls together.

52. In a wire-coiling machine, and in combination with forming mechanism, a pair of horizontal feed-roll shafts arranged one above the other and journaled in housings; the rear ends of the said shafts being gear-connected, and their forward ends being provided with feed-rolls; the rear ends of the housings being connected by a hinge or like pivotal connection, and a spring being interposed between their forward ends; one or more adjusting devices for keeping the upper feed-roll down upon the wire, and means for rotating the feed-rolls for the purpose of feeding the wire to the forming mechanism.

53. In a wire-coiling machine, and in combination with coiling mechanism, a pair of horizontal feed-roll shafts arranged one above the other and journaled in housings; the said shafts being gear-connected at their rear ends, and provided at their forward ends with feed-rolls; the said housings being adapted to fit and slide in vertically-arranged guideways, and having their rear ends connected by a hinge or like pivotal connection; two or more adjusting-screws arranged to extend upwardly through the body-casting and upon which the housings are supported; one or more adjusting-screws for keeping the upper feed-roll down upon the wire, means for separating the rolls by swinging the upper housing about its pivotal connection with the lower housing, and means for rotating the feed-rolls and thereby forcing the wire from between the latter to the forming mechanism.

54. In a wire-coiling machine, and in combination with forming mechanism involving a rotary mandrel, a pair of horizontal feed-roll shafts arranged one above the other and journaled in housings; the rear ends of the said shafts having an adjustable gear connection with the rear end of the said rotary mandrel or spindle, and the forward ends of said shafts being provided with cooperating feed-rolls; the rear ends of said housings being connected by a hinge or similar pivotal connection, and the two housings being adapted to fit and slide

in vertical guideways supported from the body of the machine; one or more adjusting devices adapted and operative to shift the housings in said guideways for the purpose of permitting the wire to be fed either above or below the mandrel, and one or more adjusting devices for giving the housing a relative shift or adjustment for the purpose of separating the rolls and thereby stopping the feed movement of the wire; and the said adjustable gear connection between the rolls and mandrel permitting the reversal of the latter without reversing the former.

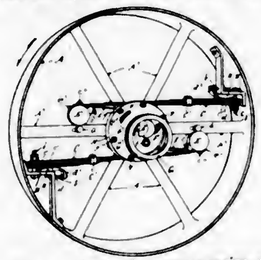
55. In a wire-coiling machine, the combination of feed-rolls having a plurality of feed-grooves, a mandrel, a supporting-roll, a forming-roll, and a spacing tool or finger; the said forming and supporting rolls, and also the spacing tool or finger, being adjustable into line with any particular set of grooves on the feed-rolls, whereby either an open or close wound spring may be formed of any gage of wire.

56. In a wire-coiling machine, the combination of feed-rolls, having a plurality of feed-grooves, a mandrel, a supporting-roll, a forming-roll, and a spacing tool or finger; the said forming and supporting rolls, and also the spacing-finger, being mounted upon studs having an adjustable connection with the body of the machine; and adjusting-screws adapted and applied for adjusting the said studs longitudinally in their sockets, and whereby the said forming and supporting rolls, and also the spacing-finger, may be brought into line with any particular set of grooves on the feed-rolls.

57. In a wire-coiling machine, and in combination with coiling mechanism, a horizontal and vertically-adjustable trough adapted and arranged to receive the coil and support the same during its formation.

58. In a wire-coiling machine, and in combination with coiling mechanism adapted to coil either right or left handed springs of different diameters, a horizontal trough arranged to receive and support the coil during its formation and having a downwardly-extending rod or stem, and a supporting-arm projecting from the body of the machine and by which the said rod is supported for vertical adjustment.

642,340. STEAM-ENGINE GOVERNOR. CHARLES W. LAWRIE, Erie, Pa. Filed Nov. 18, 1899. Serial No. 737,458. (No model.)



Claim.—1. The combination in a steam-engine governor, of a rotating member or wheel, centripetal springs secured thereto, at opposite sides thereof, and extending crosswise of the same at each side of the hub, weights secured to the free ends of said springs, a shifting eccentric at the hub of the wheel, and links secured to said weights extending backward to and connecting with said shifting eccentric so that the angular motion thereof is in the opposite direction to that of the weights, substantially as set forth.

2. The combination in a steam-engine governor, of a rotating member or wheel, centripetal springs secured to said wheel and extending in opposite directions crosswise of the same at each side of the hub thereof, substantially parallel with each other, weights secured to the free ends of said springs, a shifting eccentric at the hub of the wheel, and spring-links secured to said weights extending backward at a slight angle to said springs, to and connecting with the shifting eccentric, substantially as set forth.

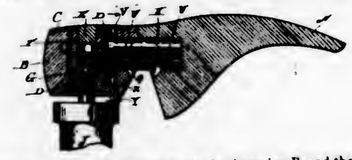
3. The combination in an inertia steam-engine governor, of a rotating member or wheel, centripetal springs secured thereto, at opposite sides thereof and extending approximately two-thirds of the distance across the face of the wheel in opposite directions, at each side of the wheel-hub, centrifugal weights secured to the free ends of the springs, a fixed eccentric on the wheel-hub or engine-shaft, a valve-driving eccentric adapted to rotate on said fixed eccentric, and spring-links secured to said weights extending backward, substantially in line with said springs, to and connecting with said valve-driving eccentric, substantially as set forth.

4. The combination in an inertia steam-engine governor, of a rotating member or wheel, centripetal springs secured to supports, at opposite sides of said wheel and extending crosswise thereof at each side of the wheel-hub, an adjustable fulcrum for said springs, centrifugal weights secured to the free ends of said springs, a shifting eccentric at the hub of the wheel, and links secured to said weights extending backward, substantially in line with said springs, to and connecting with said shifting eccentric so that the angular motion thereof is in the opposite direction to that of the weights, substantially as set forth.

5. The combination in a steam-engine governor, of a rotating member or wheel, spring-supports at opposite sides of said wheel, centripetal springs secured to said supports and extending crosswise of said wheel, at each side of the wheel-hub, longitudinally-adjustable shoes between said springs and said supports operating as fulcrums for said springs, centrifugal weights secured to the free ends of said springs, a shifting eccentric at the hub of said wheel, and flexible links secured to said weights extending backward, substantially parallel with said springs, to and connecting with studs on said shifting eccentric, substantially as set forth.

6. The combination in a steam-engine governor, of a rotating member or wheel A, spring-supports B secured thereto at opposite sides thereof, leaf-springs C secured to said supports and extending crosswise of said wheel, at each side of the hub thereof, centrifugal weights E secured to the free ends of said springs, a fixed eccentric F or the hub of said wheel, a rotatable valve-driving eccentric G mounted on said fixed eccentric, studs A secured to said valve-driving eccentric, and flexible links I pivoted to said studs, and extending forward at a slight angle to the springs C, to and secured to the weights E, substantially as and for the purpose set forth.

642,341. LAST. ARTHUR G. LEONARD and LEVI C. KENYON, De Kalb, Ill. Filed Feb. 28, 1898. Serial No. 671,935. (No model.)



Claim.—1. A last comprising the heel portion B, and the toe portion A, with the hinge K consisting of the two pivotally-connected leaves uniting said portions, the latch Q coöperating directly with the leaves of said hinge to hold said portions rigidly in their normal position, the spring S holding the latch in engagement with the hinge, and means for releasing the latch.

2. A last comprising two members, a hinge composed of two pivotally-connected leaves rigidly secured to their respective members, and a movable lock coöperating directly with and reacting between the leaves of said hinge in its normal position to hold said members firmly in their extended position.

3. A last comprising two members, a hinge having its leaves rigidly secured to the respective members, and a movable lock consisting of a latch mounted to coöperate with notches in said leaves which are in register in their normal position so as to hold said members firmly.

4. A last comprising two members, a hinge having its leaves rigidly secured to the respective members, and a latch pivotally mounted in one of said leaves and having the head thereof shaped and situated so as to engage with notches in said leaves which are in register in their normal position so as to hold the members in their extended position.

5. A last comprising two members, a hinge composed of two pivotally-connected leaves rigidly secured to their respective members, a movable lock coöperating directly with and reacting between the leaves of said hinge in its normal position to hold such members firmly in their extended position, a spring tending to hold such lock in its normal position, and means for moving the lock against the spring.

6. A last comprising two members, a hinge having its leaves rigidly secured to the respective members, a latch pivotally mounted in one of said leaves, and having the head shaped and situated so as to coöperate with notches in said leaves which are in register in their normal position so as to hold said members in their extended position, a spring mounted in the leaf and coöperating with the latch to hold it in its normal position, and means for moving the latch against the spring.

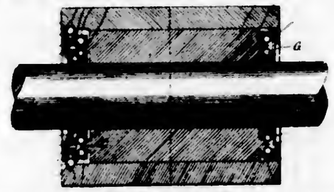
7. A last comprising the heel portion B and the toe portion A with the hinge K having its leaves projecting into said portions for the purposes described, said leaves and their coöperating sockets in said portions having the cross-section formed by two slightly-intercepting circles, substantially as described.

8. The combination of the stand having its pins H and Y, with the last having the two members pivotally connected for the purposes described, a lock operating to hold the two members rigidly in their normal position, and the apertures coöperating with the pins H and Y, the one to support the last, and the other to release the lock, substantially as described.

9. The combination of the stand having a pin projecting therefrom, with the lock having the two members pivotally connected for the purposes described, a lock operating to hold the two members rigidly in their normal position, and an aperture leading to said lock with which said pin is adapted to coöperate, substantially as described.

10. In a last, the combination of the two leaves of the hinge having coöperating notches formed therein, with the pivotal connection between said leaves, and the latch-lever pivotally mounted in one of said leaves and having a head fitting into said notches when the parts are in alinement, the lever and head being so shaped as to preserve the uniformity of outline of the hinge.

642,342. ROLLER-BEARING. AXEL LEVEDAHL, Aurora, Ill., assignor to the Aurora Automatic Machinery Company, same place. Filed Apr. 21, 1899. Serial No. 713,947. (No model.)



Claim.—1. A cage for roller-bearings comprising two semicylindric parts or sections divided longitudinally and provided with interlocking projections and recesses on their meeting edges holding said parts of the cage from both endwise and lateral movement.

2. A cage for roller-bearings comprising two parts or sections divided longitudinally; each part or section having end flanges and a longitudinal flange; said longitudinal flanges and the opposite edges of each section having interlocking apertures and projections.

3. A cage for roller-bearings comprising two parts or sections of sheet metal, each having integral connecting-bars and end flanges, and reinforcing half-rings secured to one of said end flanges, said half-ring and end flange to which it is attached being provided with apertures to receive bearing members.

4. A cage for roller-bearings comprising two parts or sections of sheet metal each having integral connecting-bars and end flanges, and half-rings attached to one of said end flanges, said half-rings and the flanges to which they are attached being provided with oblique marginal flanges forming one groove of a ball-race.

5. A roller-bearing comprising a divided shell or housing having longitudinal spiral tongue-and-grooved joints, a shaft or journal, and rollers interposed between the shell or housing and the said shaft or journal.

6. A roller-bearing comprising a divided shell or housing having longitudinal spiral joints having an interior cylindric surface, a shaft within said shell, a plurality of rollers interposed between said shell and the shaft, and a longitudinally-divided cage surrounding said shaft.

7. A roller-bearing comprising an outer shell or casing, a shaft or journal within said shell, rollers interposed between the shell and the shaft or journal, a longitudinally-divided cage and ball-bearings for the ends of the rollers comprising external bearing members or cups which at one end of the cage are closed at their outer ends and secured by rivets or the like to the inner face of the cage-head.

8. A roller-bearing comprising a longitudinally-divided outer shell, having a cylindric inner surface provided near one end thereof with an interior bearing-groove, a shaft within said shell, rollers interposed between the shell and the shaft, and a cage for the rollers having in one of its heads a circumferential bearing-groove arranged in opposition to that in the outer shell and bearing-balls inserted in said grooves.

9. A roller-bearing comprising an exterior shell or casing having an interior cylindric surface having near one end a bearing-groove, a shaft or journal within the shell or casing, rollers interposed between the shell or casing and the shaft or journal, and a cage for the said rollers; said cage being divided longitudinally into two parts or sections, each having at its ends flanges and having attached to the flange at one end thereof a half-ring, each half-ring and the flange to which it is attached being provided with inclined marginal flanges which together form a bearing-groove, opposite that in the shell or casing.

10. A roller-bearing comprising a plurality of rollers and a cage therefor, and ball-bearings for the ends of the rollers, said cage having at its ends flat radial heads, and the ball-bearings at one end of the cage having sheet-metal cups which are secured each by a central rivet or the like to the inner face of the cage-head and those at the opposite end of the cage being inserted in and having screw-threaded engagement with apertures in the cage-head.

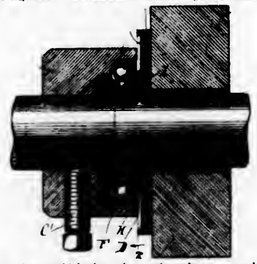
11. A roller-bearing comprising a plurality of rollers, a cage therefor and ball-bearings for the ends of the rollers, said cage consisting of a sheet-metal part embracing connecting-bars and heads formed by the flanges made integral with the bars, and reinforcing-rings secured to the flange at one end of the cage, the outer bearing members or cups at one end of the cage being inserted in apertures formed in the end flange and reinforcing-ring, and those at the opposite end of the cage having closed outer ends and being secured to the end flange by rivets.

12. A cage for roller-bearings comprising two parts or sections of sheet metal, each having integral peripheral connecting-bars and end flanges.

13. A cage for roller-bearings comprising two parts or sections divided longitudinally, each part or section having end flanges and peripheral longitudinal connecting-bars and a longitudinal flange integral with one of said connecting-bars and said end flanges and lying in the plane of the joint.

14. A cage for roller-bearings comprising two parts or sections divided longitudinally, each part or section having end flanges and longitudinal peripheral connecting-bars, and a longitudinal flange integral with said end flanges and one of said connecting-bars, said longitudinal flange and the opposite edge of each section having interlocking apertures and projections.

642,343. ANTIFRICTION-BEARING. AXEL LEVEDAHL, Aurora, Ill., assignor to the Aurora Automatic Machinery Company, same place. Filed Apr. 24, 1899. Serial No. 714,334. (No model.)



Claim.—1. An antifriction thrust-bearing comprising two annular bearing members and interposed bearing-balls, one of said members being attached to a shaft and the other having a flat extended bearing-face and being free to move laterally as well as to shift its angular position with respect to the other part attached to the shaft, and the engaging face of one of said members being spherical.

2. An antifriction thrust-bearing comprising two antifriction-bearing members and interposed bearing-balls, one of said members being attached to a shaft and the other having a flat extended bearing-face and being free to move laterally as well as to shift its angular position with respect to the member attached to the shaft.

3. An antifriction thrust-bearing comprising a cone, the engaging face of which is convexedly curved, a cup, and bearing-balls between said cup and cone, said cone being provided with a laterally-extended bearing-flange and being free to move laterally as well as to shift its angular position with reference to the cup.

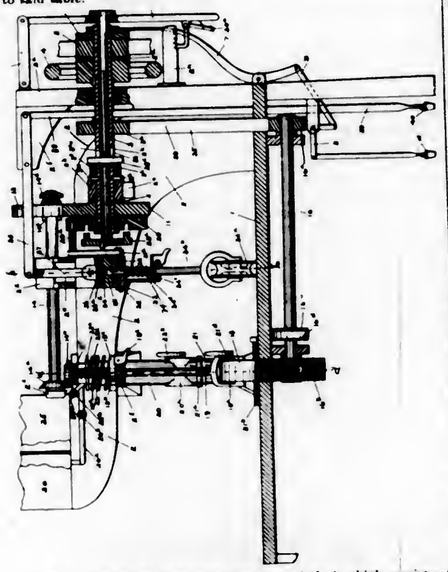
4. An antifriction-bearing comprising a cone, a cup bearing-balls interposed between the cup and cone, a flange on the cone, a plate attached to said flange and a tube attached to the plate and extending to the inner margin of the cup.

5. An antifriction-bearing comprising a cone, a cup bearing-balls interposed between said cup and cone, a dust-excluding tube attached to the cone and provided at its end adjacent to the cup with a flange having overlapping engagement with the inner margin of said cup.

6. An antifriction-bearing comprising a cone, a cup, bearing-balls interposed between said cup and cone, a flange on the cone, a plate attached to said flange, and a dust-excluding tube having screw-threaded engagement at one end with said plate and having overlapping engagement at its other end with the inner margin of said bearing-cup.

642,844. MACHINE FOR CEMENTING TOGETHER PARTS OF WATERPROOF GARMENTS. SAMUEL LIPSON, Boston, Mass., assignor of two-thirds to Jacob Rosenberg and Harry Rosenberg, same place. Filed Nov. 4, 1899. Serial No. 735,796. (No model.)

Claim.—1. A machine for the purpose described, consisting of a table, a main driving-shaft, a feed-roll which is driven thereby, an opening in said table in which said roll rotates, a tube which is adapted to conduct a liquid cement to the table in the rear of said feed-roll, and means for yieldingly holding the end of said tube in proximity to said table.



2. A machine for cementing the edge of cloth which consists of a table, a tube, means for yieldingly holding the end thereof in proximity to said table, means for discharging cement into said tube, and means for feeding cloth under said tube.

3. A machine for cementing the edges of cloth consisting of a table, a tube, means for yieldingly holding the end of said tube in proximity to the table, means for lifting said tube, means for conducting cement therethrough and means for feeding the cloth under said tube.

4. A machine for cementing the edges of cloth, consisting of a table, a tube which is adapted to conduct cement to the surface thereof, means for varying the position of the discharge end of said tube, means for varying the width of the surface on which said cement is discharged, and means for feeding the cloth under said discharge end.

5. A machine for cementing the edges of cloth consisting of a table, a fixed tube, a movable tube which telescopes therewith, a spring which acts to force said movable tube in proximity to said table, means for lifting said movable tube and holding the same away from said table, means carried by said movable tube for applying cement to said cloth and means for feeding said cloth.

6. A machine for cementing the edges of waterproof cloth consisting of a table, a fixed tube, a movable tube which telescopes therewith, means for pressing said movable tube in proximity to said table, a cement-tank which is connected to said fixed tube, means for forcing the cement through said tubes, means for feeding the cloth over the table, means carried by said movable tube for applying cement to said cloth as it is passed over the table and means for regulating the passage of cement through said tubes.

7. In a machine for cementing the edges of cloth, a table, a main shaft, a feed-roll which is journaled below said tube and driven by said shaft, an opening in said table in which said roll is located, a freely-rotating roll which is journaled above said table and is adapted to be yieldingly held in contact with said feed-roll and means for lifting and holding said freely-rotating roll out of engagement with said feed-roll.

8. In a machine for cementing the edges of cloth, a table, a cement-tube having one end arranged in proximity to said table, a foot-piece which is detachably secured to the end of said tube, a narrow discharge-passage in the bottom thereof, a plate secured to the bottom of said foot-piece at substantially right angles thereto, an aperture therein which registers with the opening in the end of said foot-piece, a slide for regulating the length of said aperture, and means for feeding the cloth under said foot-piece.

9. A device for removing cement from waterproof garments, consisting of a table, a freely-rotating cleaning-wheel, means for yieldingly forcing the same against said table, means for reciprocating said wheel over the surface of the table, and foot-operated means for lifting said wheel from the table.

10. A device for removing cement from waterproof garments consisting of a table, a freely-rotating cleaning-wheel, means for yieldingly forcing the same against said table, means for reciprocating said wheel over the surface of said table, foot-operated means for lifting said wheel from the table and hand-operated means for lifting said wheel which are adapted to hold the same away from the table.

11. A device for removing cement from waterproof garments consisting of a table, a freely-rotating cleaning-wheel, having a groove in its periphery, means for yieldingly forcing the same against said table and means for reciprocating said wheel over the surface thereof.

12. A machine for the purpose described consisting of a cement-tube for conducting cement to the work, a feed-roll located directly under the outlet of said tube, spring-actuated means for pressing said tube against said roll and means for rotating said feed-roll so that the cloth will be drawn between said roll and said tube.

13. In a machine of the class described means for guiding two pieces of cloth which are to be pressed together consisting of a base-piece, a projection carried thereby which is shaped so as to form two horizontal slots, the bottoms of which are so arranged that when the edges of the two pieces of cloth are placed therein, against the bottoms of the slots, they will be held in their proper positions with respect to each other.

642,845. TOOL-JOINT. FRANCIS LOFFI, Cleveland, Ohio. Filed Oct. 9, 1899. Serial No. 732,999. (No model.)



Claim.—1. The combination with two tool parts provided with circular bearing-faces having central mating recesses formed therein, of a washer in said recesses pivoted to one of the parts and rigidly secured to the other of said parts for holding said bearing-faces in rotatable contact with each other, said washer being held out of frictional contact with either part, substantially as described.

2. The combination of two tool parts provided with bearing-faces rotatable upon each other, an annular recess in one of said bearing-faces, a washer in said recess pivoted to one of the parts and rigidly secured to the other part for holding said bearing-faces in contact with each other, substantially as described.

3. In a tool-joint, the combination with the tool parts having annular bearing-faces provided with central recesses, of a washer pivoted to rotate in the recess of one part, and means for rigidly securing the same in the recess of the other part and for holding said washer out of frictional contact with either part, substantially as described.

4. In a tool-joint, a recess in one of the tool parts having an annular wall providing a bearing, a washer having a chamfered central perforation pivoted to rotate upon a countersunk screw passing through said perforation and secured in the bottom of the recess, a mating recess formed in the other tool part having a corresponding bearing-wall inclosing the washer, and screws passing through perforations arranged diametrically opposite each other in the top of said recess, engaging in the washer to rigidly secure said tool part to the washer and hold said washer out of frictional contact with either tool part, substantially as described.

642,346. WIPING ATTACHMENT FOR PAINT-PAILS. JOSEPH MADDEN, Providence, R. I. Filed Nov. 22, 1899. Serial No. 737,880. (No model.)



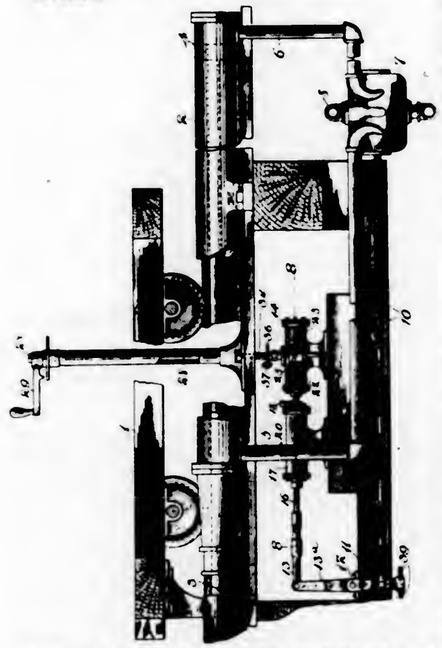
Claim.—1. In a pail, the combination with the open end of the pail, of the wiping-bar *b* having the horn *b'* projecting from the wiping-bar, whereby the wiping of the brush is facilitated, as described.

2. The combination with a sheet-metal pail, of the sockets b^2 b^3 on the inner surface of the pail, the wiping-bar *b* having the bent ends

secured in the sockets, and the horn *b'* projecting from the wiping-bar, as described.

3. In combination with a sheet-metal pail, a bail pivotally secured to ears on the pail, and the bent socket-strips of sheet metal *c c* secured to the inner surface of the pail, of the wiping-bar *b* and horn *b'* consisting of a piece of wire bent and twisted, as described.

642,847. FEED DEVICE FOR SAWMILL-CARRIAGES. JAMES F. MARKLE, Minneapolis, Minn. Filed Apr. 6, 1899. Serial No. 711,964. (No model.)



Claim.—1. In a sawmill-carriage feed device, the combination with the carriage, of a cylinder, a piston therein having a rod connected with the carriage, pressure-inlet pipes or passages communicating with either end of the cylinder, a main valve governing the flow of fluid-pressure through said pipes or passages, a rod for actuating said main valve, a second cylinder having a piston and a piston-rod and having pressure-inlet passages communicating with either end, a connection between said actuating-rod and the piston-rod of the second cylinder, a valve operated by the sawyer to govern fluid under pressure to and from said second cylinder, a third cylinder through which the piston-rod of the second cylinder extends longitudinally and having a piston connected to such rod and traveling in such third cylinder, such third cylinder being filled with a suitable liquid, and a by-pass connecting the ends of the third cylinder on either side of its piston, whereby such third cylinder acts to regulate the speed of the piston in such second cylinder and of the main valve controlled thereby.

2. In a sawmill-carriage feed device, the combination of a fluid-pressure-operated carriage, a valve device governing the fluid-pressure, fluid-pressure mechanism actuating said valve device, a valve for said fluid-pressure mechanism, an operating-rod for said valve and means capable of adjustment whereby the movement of the carriage may be reversed with the same movement of the rod.

3. In a sawmill-carriage feed device, the combination with the carriage, of a cylinder, a piston therein having a rod connected with the carriage, pressure-inlet pipes or passages communicating with either end of the cylinder, a valve device governing said pipes or passages and having an actuating rod or stem, a second cylinder, a piston traveling therein and having a piston-rod connected with said stem, a rotary-valve device for admitting fluid-pressure into one end or the other of said second cylinder and having a rotatable operating-rod extended within the reach of the sawyer, and a handle connected with such operating-rod to rotate it and operated by the sawyer.

4. In a sawmill-carriage feed device, the combination with the carriage, of a fluid-pressure-operated carriage, valve mechanism governing said fluid-pressure, a cylinder, a piston traveling therein and having a piston-rod, a valve device controlling fluid-pressure into either end of the cylinder, a rotatable rod for operating said valve device and extended within the reach of the sawyer, a second cylinder in axial alinement with the other cylinder and having said piston-rod passing through it, such second cylinder being closed and having a by-pass communicating with the ends of the cylinder, and a piston-head on said piston-rod within the second cylinder.

5. In a sawmill-carriage feed device, the combination with the carriage, of a fluid-pressure-operated carriage, valve mechanism governing said fluid-pressure, a fluid-pressure mechanism actuating said valve mechanism and comprising a cylinder having ports and passages communicating with the ends of the cylinder, a piston in the cylinder, a rotary valve having a recess normally registering with said ports and exhausting the cylinder and having a cut-away portion for admitting fluid-pressure alternately on either side of the piston-head, a rotatable rod for operating said rotary valve and an adjustable handle connected to such rotatable rod.

6. In a sawmill-carriage feed device, the combination of a fluid-pressure-operated carriage, a valve device governing the fluid-pressure, fluid-pressure mechanism actuating said valve device, a valve for said fluid-pressure mechanism, an operating-rod for said valve and an adjustable connection between said valve and rod for reversing the movement of the carriage with the same movement of the rod.

7. In a sawmill-carriage feed device, a rotatable operating-valve for fluid-pressure mechanism for actuating the carriage having a stem, transverse arms therefrom, an operating-rod having similar arms arranged parallel and a link connecting the similar ends of the arms and detachably secured thereto.

8. In a sawmill-carriage feed device, a rotatable operating-valve for fluid-pressure mechanism for actuating the carriage having a stem 34, a collar 35 having transverse arms 36 thereon, an operating-rod 28 having a similar collar 32 and arms 33, and a link 37 connecting one or the other set of the arms to determine the direction of movement of the valve according to the movement of the operating-rod.

9. In a sawmill carriage feed device, the combination of a fluid-pressure-actuated carriage, a valve device for governing the fluid-pressure and having an actuating-rod, a shifting rod, a pivoted lever connected at one end with such shifting rod and near the other end with such valve-actuating rod, such latter end being extended beyond the point of connection of the actuating-rod, and a device connected to such extended end and exerting a tension on either side of a fixed poiot.

10. In a sawmill-carriage feed device, the combination of a fluid-pressure-actuated carriage, a valve device for governing the fluid-pressure and having an actuating-rod, a shifting rod, a pivoted lever pivotally connected at one end to such shifting rod and near the other end to such valve-actuating rod, such latter end being extended beyond the point of connection of the actuating-rod, a pair of sheaves 38, a cable 39 passing over such sheaves and connected to such extended end of the lever and suspended weights attached to the ends of the cable.

11. In a sawmill-carriage feed device, the combination of a fluid-pressure-operated carriage, valve mechanism governing the fluid-pressure, fluid-pressure mechanism actuating said valve mechanism, an operating-valve for said fluid-pressure mechanism, an operating-rod for said operating-valve and having an angular head and a removable crank or handle having an angular hole to receive said head whereby the handle may be adjusted to operate in different directions with respect to the sawyer to accomplish the same movements of the carriage.

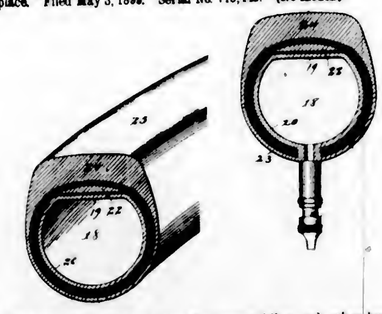
12. In a sawmill-carriage feed device, the combination of a fluid-pressure-operated carriage, fluid-pressure mechanism operating the carriage, an operating-rod under control of the sawyer, a connection between such fluid-pressure mechanism and the rod, such rod having an angular head, and a removable crank or handle having an angular hole to receive such head whereby the handle may be adjusted to operate in different directions with respect to the sawyer to accomplish the same movements of the carriage.

13. In a sawmill-carriage feed device, the combination of a fluid-pressure-operated carriage, valve mechanism governing the fluid-pressure, fluid-pressure mechanism actuating said valve mechanism, an operating-valve for said fluid-pressure mechanism, an operating-rod having a handle for such operating-valve and means whereby such handle may be adjusted with respect to the rod to operate in different directions with respect to the sawyer to accomplish the same movements of the carriage.

14. In a sawmill-carriage feed device, the combination with the carriage, of a cylinder 2 having a piston 3 connected to the carriage, a valve device 7 governing fluid-pressure to and from the cylinder, a rod 13, a pivoted lever 11 connected at one end to the rod 10 and at the other end to the rod

13, a cylinder 14 having a piston-rod 16 operating rod 13, a valve 26 governing fluid-pressure in cylinder 14 and having a stem 34, an operating-rod 28 and an adjustable reversing connection between the rod 28 and stem 34.

642,848. PNEUMATIC TIRE FOR VEHICLES. ARTHUR H. MARES, Akron, Ohio, assignor to the Diamond Rubber Company, same place. Filed May 3, 1899. Serial No. 715,445. (No model.)



Claim.—1. A pneumatic tire for automobiles and other heavy vehicles, consisting of an inner continuous tube of rubber, an intermediate continuous tubular strengthening-jacket of fabric, and an outer covering of rubber, the outer portion whereof is thickened and flattened on its tread-surface, the several elements being united by vulcanization to form a single unitary tube, the body whereof is cylindrical, continuous and of equal thickness and strength throughout, except as to its tread portion, said tread portion being broad and flat and the air-chamber having that portion of its walls adjacent to the tread correspondingly flattened, whereby a thickened tread is produced without an undue increase in the diameter of the tire, the maximum radial thickness of the tire being upon radial lines extending from the center of the tire to the lines of junction of the flat tread with the sides thereof, substantially as described.

2. A pneumatic tire for vehicles, having a broad flat tread portion, an air-chamber correspondingly flattened on its adjacent side to increase the thickness of the tread, and a tubular body of fabric embedded in the rubber and having its outer portion curved outward away from the air-chamber and toward the tread-surface of the tire, substantially as described.

3. A pneumatic tire for vehicles, having a broad flat portion, an air-chamber having its outer wall flattened to increase the thickness of the tread, and a tubular body of fabric embedded in the rubber and composed of a plurality of layers or plies, the innermost of which follow the contour of the air-chamber, while the outer plies are curved outward away from the flattened wall of the air-chamber, a strip or insert of rubber being located in the space thus formed between the two sets of plies, substantially as described.

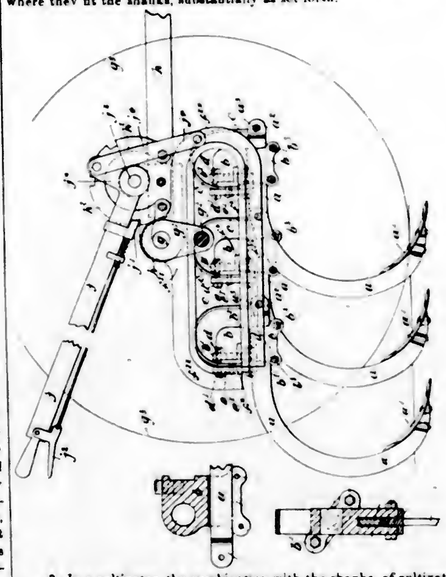
4. The hereinbefore-described improvement in the method of constructing a pneumatic tire, consisting in forming upon a cylindrical mandrel having a flattened side a similarly-flattened tube of rubber, partially wrapping said tube with fabric, building out the flattened portion with rubber and completing the fabric wrapping to form a substantially cylindrical body, and applying an external covering of rubber, substantially as described.

5. The hereinbefore-described improvement in the method of constructing a pneumatic tire, consisting of forming upon a cylindrical mandrel having a flattened side a similarly-flattened tube of rubber, partially wrapping said tube with fabric, building out the flattened portion with rubber and completing the fabric wrapping to form a substantially cylindrical body, and applying to the exterior of this body an outer covering of rubber having a thickened tread portion with a broad flat tread-surface on the same side of the tire as the flattened wall of the mandrel, substantially as described.

642,849. IMPLEMENT FOR CULTIVATING LAND. WILLIAM E. MARTIN, Abbotts Ripton, England. Filed June 12, 1899. Serial No. 720,146. (No model.)

Claim.—1. In a cultivator, the combination with the shanks, of cultivating-blades secured to the lower ends of the shanks, guide-blocks having slots therein and fitting the shanks, and springs attached directly to the shanks and acting upon the same in a horizontal direction, the shanks and their cultivating-blades being non-yielding when the springs are compressed until the ends of the shanks come into contact with the guide-blocks, substantially as set forth.

2. In a cultivator, the combination with the shanks, of cultivating-blades attached to the lower ends of the shanks and guide-blocks having slots therein deeper at their front ends than at their rear ends where they fit the shanks, substantially as set forth.



3. In a cultivator, the combination with the shanks, of cultivating-blades secured to the lower ends of the shanks, guide-blocks having slots therein deeper at their front ends than at their rear ends where they fit the shanks, and springs acting in a horizontal direction upon the shanks, substantially as set forth.

4. In a cultivator, the combination with the shanks, of cultivating-blades secured to the lower ends of the shanks, the cultivating-blades having their upper surfaces beveled at the ends and their points substantially perpendicular below the center from which the curve of the shank is struck, guide-blocks in which the shanks are capable of horizontal and slightly-angular motion, springs acting in a horizontal direction on the shanks, means for adjusting the working depths of the shanks and their cultivating-blades and keeping them at all depths in a horizontal plane, and means for tilting the shanks and their cultivating-blades entirely out of the ground when required, substantially as set forth.

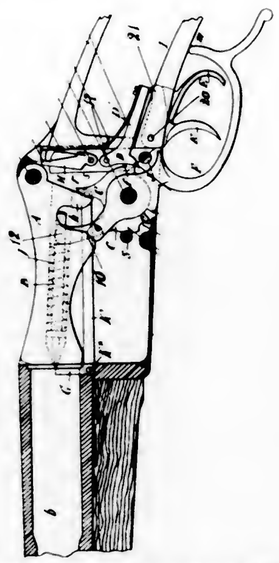
5. In a cultivator, the combination with the shanks, of cultivating-blades attached to the lower ends of the shanks, guide-blocks having slots deeper at their front ends than at their rear ends in which the shanks are mounted, springs acting upon said shanks, a bar or carrier carrying said guide-blocks and springs, a shaft carried by the machine-frame and from which such bar or carrier is supported, cranks fixed on the ends of the said shaft, pins on said cranks on which the carrying-wheels are mounted, a hand-lever fixed on said shaft to enable the angle of the cranks and consequently the working depth of the shanks and their cutting-blades to be adjusted, and a notched quadrant to receive the spring-pawl and thereby retain the parts in any required position, substantially as herein set forth.

642,850. BREECH-LOADING FIREARM. MARIE G. R. E. MATUSIS, Angers, France. Filed June 1, 1898. Serial No. 682,264. (No model.)

Claim.—1. The combination of a double barrel and drop-block chambers the front walls of which are made integral with said double barrel, the said barrels being formed integral with a dividing-partition, separate "drop-blocks" to each side of said dividing-partition and drop-block breech-closing mechanism substantially as shown and described.

2. In a firearm, the combination of a double barrel, a drop-block chamber, the front walls of which are integral with said double barrel, two separate and independent breech-closing drop-blocks, striker-pins carried by each of said blocks, of a single lever engaging with both of said blocks at the under side thereof and adapted to cooperate with suitable means to set the striker-pins when the lever is moved to operate the drop-blocks, as described.

3. In a firearm, the combination of a single extractor for the two barrels fitted to slide in a straight line and provided with a guide-stem and return-spring and having jointed thereto a rod disconnected from but adapted to be engaged by the breech-block-operating lever, breech-blocks operated by said lever, the parts being so arranged that there is sufficient lost motion between the said lever and its point of engagement with the extractor-rod that the extractor will only be operated when the breech-blocks have been lowered and by the drawing down of the lever beyond the loading position of the breech-blocks.



4. In a firearm, the combination of two separate breech-blocks, a single lever for moving said breech-blocks, striker-pins which are adapted to be set by the breech-lever, and a single extractor for both barrels controlled by said lever, the parts being so arranged that the extractor will be automatically permitted to return to the normal position before the breech-blocks are moved to the firing position.

5. In a firearm, the combination of two separate breech-blocks, striker-pins carried by the blocks, a single lever adapted to operate both of said blocks and to simultaneously set the striker-pins, a separate indicator adapted to be projected in rear of the breech-block chambers by spurs on the tumblers when the lever is moved to set the striker-pins and to be retracted by springs when the gun is fired, substantially as described.

642,851. TIRE. HENRY A. MIDDLETON, Erie, Pa. Filed Nov. 28, 1899. Serial No. 738,530. (No model.)



Claim.—1. The combination with a pneumatic tire, of a punctureless strip inserted in its wall, the said strip comprising a fabric impregnated and coated with a layer of comminuted fiber, rubber, a toughening material, such as litharge and a binder, such as sulfur or antimony.

2. A punctureless strip for tires comprising a fabric impregnated and coated with a mixture composed of comminuted fiber, rubber, a toughening material, such as litharge, and a binder, such as sulfur or antimony.

3. A punctureless strip for tires comprising a fabric impregnated and coated with a mixture composed of comminuted fiber, rubber, litharge, antimony and sulfur.

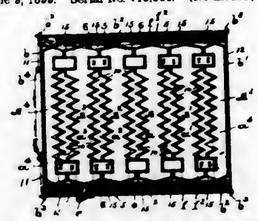
4. A punctureless strip for tires comprising a fabric impregnated and coated with a mixture composed of comminuted fiber, rubber, litharge, antimony, sulfur and lime.

5. A punctureless strip for tires comprising a fabric impregnated and coated with a comminuted fiber, rubber, a toughening material, such as litharge, a binder, such as sulfur or antimony, and a coloring material, such as vermilion.

6. In a pneumatic tire comprising a tubular sheath, an air-tube and one or more layers of fabric interposed between the sheath and air-tube, the said air-tube having its side walls materially thickened to strengthen the tire at those points, substantially as set forth.

7. A pneumatic tire comprising a tubular sheath, an air-tube and one or more layers of fabric interposed between the sheath and the air-tube, the said air-tube having, in cross-section, a circular inner wall and an elliptical outer wall for producing thickened portions at the sides of the air-tube, substantially as set forth.

642,852. GENERATOR. WARD T. MIXSELL, Jersey City, N. J. Filed June 9, 1899. Serial No. 719,900. (No model.)



Claim.—1. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, vertically-arranged flues or fire-passages between said heating-sections, extending laterally and directly across the fire-surface, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said heating-sections, communicating at the top with the ends of said horizontal flues, angular or similarly-arranged surfaces at the ends of each heating-section, and a shell or casing arranged against and contacting with the pointed ends of said angular surfaces of the heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

2. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, vertically-arranged flues or fire-passages between said heating-sections, extending laterally and directly across the fire-surface, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said heating-sections, communicating at the top with the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a perforated shell or casing against said ends of the heating-sections, a covering of asbestos cement, or the like, over said perforated shell or casing, all arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

3. A generator comprising upright heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, vertically-arranged flues or fire-passages between said heating-sections, extending laterally and directly across the fire-surface, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said heating-sections, communicating at the top with the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a shell or casing against the ends of said heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, and a shell or casing above said heating-sections, arranged to provide a chamber above said sections, substantially as and for the purposes set forth.

4. A generator comprising upright heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, vertically-arranged flues or fire-passages between said heating-sections, extending laterally and directly across the fire-surface, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said heating-sections, communicating at the top with the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a perforated shell or casing against the ends of said

heating-sections, a covering of asbestos cement, or the like, over said perforated shell or casing, arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, a perforated shell or casing above said heating-sections, and a covering of asbestos cement, or the like, over said shell or casing, arranged to provide a chamber above said sections substantially as and for the purposes set forth.

5. A generator comprising upright heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, vertically-disposed channels or angularly-formed sides to each heating-section, vertically-arranged flues or fire-passages between said heating-sections, formed by the said vertically-disposed channels in the sides of said heating-sections, said vertical flues or fire-passages extending laterally and directly across the fire-surface, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said heating-sections, communicating at the top with the ends of said horizontal flues, and vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

6. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, substantially as and for the purposes set forth.

7. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, and vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

8. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, and a shell or casing against said ends of the heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

9. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a perforated shell or casing against said ends of the heating sections, a covering of asbestos cement, or the like, over said perforated shell or casing, all arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

10. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the end of each heating-section, a shell or casing against the ends of said heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, and a shell or casing above said heating-sections, arranged to provide a chamber above said sections, substantially as and for the purposes set forth.

11. A generator comprising heating-sections arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, tapering vertically, to provide vertically-arranged flues or fire-passages, between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the end of each heating-section, a perforated shell or casing against the ends of said heating-sections, a covering of asbestos cement, or the like, over said perforated shell or casing, arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, a perforated shell or casing above said heating-sections, and a covering of asbestos cement, or the like, over said shell or casing, arranged to provide a chamber above said sections, substantially as and for the purposes set forth.

12. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, provided with vertically-disposed channels or angularly-formed surfaces, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, and vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

13. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, provided with vertically-disposed channels or angularly-formed surfaces, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, and a shell or casing against said ends of the heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

14. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, provided with vertically-disposed channels or angularly-formed surfaces, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a perforated shell or casing against the ends of said heating-sections, a covering of asbestos cement, or the like, over said perforated shell or casing, all arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, substantially as and for the purposes set forth.

15. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, provided with vertically-disposed channels or angularly-formed surfaces, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-section, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the ends of each heating-section, a shell or casing against the ends of said heating-sections, to provide vertically-arranged and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, and a shell or casing above said heating-sections, arranged to provide a chamber above said sections, substantially as and for the purposes set forth.

16. A generator comprising upright heating-sections, arranged one in advance of the other, each section being formed with a fluid-heating chamber, and having their sides which are arranged adjacent to one another, provided with vertically-disposed channels or angularly-formed surfaces, tapering vertically, to provide vertically-arranged flues or fire-passages between said heating-sections, said flues or passages having a larger cross-area at their lowest points than at their highest points, laterally-extending or horizontal flues or passage-ways near the top of said heating-sections, in communication with said vertical flues, downwardly-extending flues or ducts near the ends of said horizontal flues, angularly or similarly arranged surfaces at the end of each heating-section, a perforated shell or casing against the ends of said heating-sections, a covering of asbestos cement, or the like, over said perforated shell or casing, arranged to provide vertical and upwardly-extending flues or passage-ways at the ends of said assembled heating-sections, a perforated shell or casing above said heating-sections, and a covering of asbestos cement, or the like, over said shell or casing, arranged to provide a chamber above said sections, substantially as and for the purposes set forth.

642,858. SEAL-LOCK. JOHN F. MOORE, Chicago, Ill. Filed Mar. 3, 1899. Serial No. 707,851. (No model.)



Claim.—1. In a seal-lock, the combination of a frame, a shackle, a frangible seal or similar element secured in place on the frame, and a divided sealing-bolt, one part engaging and locking the shackle and frame together and the other part contacting the seal so that the lock cannot be opened after the frangible seal is in engagement without breaking or disruption of the seal, substantially as described.

2. In a seal-lock, the combination of a frame, a shackle movably secured thereto, a frangible seal held and retained in position on the frame, and a divided sealing-bolt, one part engaging and locking the shackle and frame together after the seal has been placed in position and the other part engaging the seal so that the parts cannot be disengaged without breaking the seal, substantially as described.

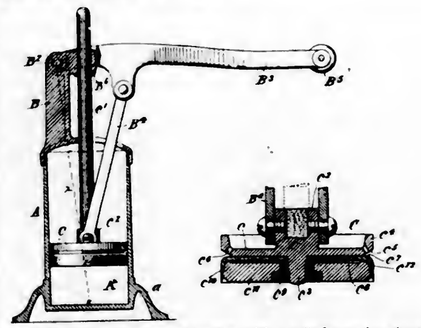
3. In a seal-lock, the combination of a frame portion provided with a flat plate or similar element adapted to receive and hold a frangible seal in position, a shackle pivotally secured to the frame portion, and a telescopic sealing-bolt arranged in the frame portion adjacent to the seal-holder and arranged to lock the shackle and frame portion together after a seal has been placed in position and prevent such parts from being unlocked until after the seal has been broken, substantially as described.

4. In a seal-lock, the combination of a frame portion provided with a flat plate or similar element having an upwardly and inwardly bent portion adapted to hold a frangible seal in position, a tubular extension secured to the plate, a shackle provided with a projecting lug adjacent to the plate and adapted when the parts are in their locked position to prevent the frangible seal from being withdrawn from such position, and a telescopic sealing-bolt made in two parts yieldingly secured together, one part arranged to lock the shackle and tubular extension of the frame together and the other to break the frangible seal and unlock the parts, substantially as described.

5. In a seal-lock, the combination of a frame portion provided with a flat plate or similar element having upwardly and inwardly bent lugs adapted to hold a frangible seal in position, a tubular extension secured to the plate, a shackle provided with a projecting lug adjacent to the table and adapted when the parts are in their locked position to prevent the frangible seal from being withdrawn from such position, a telescopic sealing-bolt in the tubular extension and made in two parts yieldingly secured together, one part arranged to lock the shackle and tubular extension of the frame together and the other to break the frangible seal and unlock the parts, and a projection on one portion of the telescopic sealing-bolt to operate the same, substantially as described.

642,354. AIR-PUMP. JOHN H. McLEAN, New York, N. Y. Filed Jan. 13, 1896. Serial No. 575,881. (No model.)

Claim.—1. A pump comprising a cylinder and a plunger adapted to reciprocate therein, a standard secured to the cylinder and supporting a fulcrum-bearing, an oscillating lever articulated to said fulcrum-bearing and a link connected to the plunger and articulated to said lever, the said point of articulation passing the axis-line of the cylinder on the downward movement of the lever, the said fulcrum-bearing being supported at a point above the cylinder on a plane parallel to and within a distance from its axis not exceeding one-fourth the cylinder's length, and distant from the bottom of the cylinder not greater than the measurement from the bottom of the plunger to the center of the pivot joining said link to the operating-lever and thence to the center of the fulcrum, and not less than the same measurement minus the thickness of the plunger.



2. In a pump, the combination with a cylinder and a plunger adapted to reciprocate therein, of a standard secured to said cylinder and supporting fulcrum-bearing, as B^3, a link, as B^4, forming one part and a lever, as B^2, forming another part of the means connecting the plunger to the fulcrum B^3, the said fulcrum B^3 located at a point above the cylinder on a plane parallel to and within a distance from its axis not exceeding one-fourth of the cylinder's length, and distant from the bottom of the cylinder not greater than the measurement from the bottom of the plunger to the center of the pivot for connecting rod or link B^4 to the operating-lever and thence to the center of the fulcrum, and not less than the same measurement minus the thickness of the plunger, substantially as set forth.

3. In a pump, in combination, a cylinder and a plunger adapted to reciprocate therein, a standard B firmly supporting in a fixed position a fulcrum B^3, an oscillating lever B^2 articulated to fulcrum B^3 and a link B^4 directly connected to the plunger within the cylinder and articulated to lever B^2, the said point of articulation passing the axis-line of the cylinder on the downward movement of the lever, the said fulcrum being supported at a point above the cylinder on a plane parallel to and within a distance from its axis not exceeding one-fourth the cylinder's length, and distant from the bottom of the cylinder not greater than the measurement from the bottom of the plunger to the center of the pivot joining link B^4 to the operating-lever and thence to the center of the fulcrum, and not less than the same measurement minus the thickness of the plunger, substantially as set forth.

4. In a pump, as an article of manufacture, a plunger consisting of the following members, in combination a top plate as c having the projections c^2 and c^3, the guiding-flange c^4 and the air-inlet holes c^5; a flexible cup-packing as c^6 secured to the top plate by suitable means as c^9 and having a peripheral wedge-shaped flange as c^{10} and a bottom plate having a conical periphery loosely fitted within said flange and adapted to have a short sliding movement therein as described; these parts cooperating together to make the flange c^{10} act as an inlet-valve, in the manner set forth.

5. A cylinder for air-pumps tapered from its top to the lower portion, both inwardly and outwardly, making the cylinder smaller at the lower portion than at the upper portion on the inside and thicker below than at the top, as set forth.

6. A cylinder for air-pumps tapered from its top to the lower portion both inwardly and outwardly making the cylinder smaller at the lower portion than at the upper portion on the inside and thicker below than at the top, and having an integral reinforcing-flange a above its bottom and a bottom or lower pocket below and beneath the horizontal line of said flange, as set forth.

7. A cylinder for air-pumps tapered from its top to the lower portion interiorly, thus making the cylinder smaller at the lower portion than at the upper portion on the inside, as set forth.

8. In a pump, in combination, a cylinder and a plunger adapted to reciprocate therein and provided with a stem to serve as a steadying-rod, a standard B firmly supporting in a fixed position a fulcrum B^3, an oscillating lever B^2 articulated to the fulcrum B^3 and a link B^4 connected to the plunger within the cylinder and articulated to lever B^2, the said point of articulation passing the axis-line of the cylinder on the downward movement of the lever, the said fulcrum being supported at a point above the cylinder on a plane parallel to and within a distance from its axis not exceeding one-fourth the cylinder's length, and distant from the bottom of the cylinder not greater than the measurement from the bottom of the plunger to the center

of the pivot joining link B⁴ to the operating-lever and thence to the center of the fulcrum, and not less than the same measurement minus the thickness of the plunger, substantially as set forth.

642,355. RUBBER FOR SURFACING STONE, MARBLE, &c. ALEXANDER M. I. MCLEOD, Quincy, Mass. Filed Feb. 11, 1899. Serial No. 705,340. (No model.)

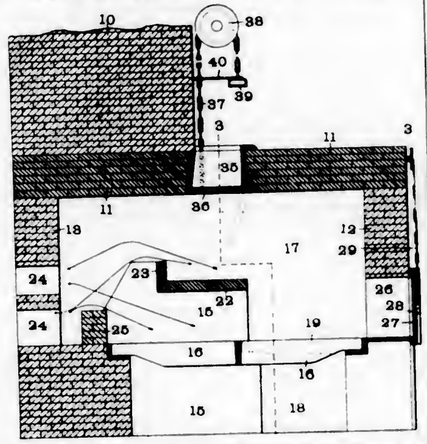


Claim.—1. A rubber composed of a back plate, and independent soft-metal angularly-arranged blades removably attached thereto, the said blades being braced at their ends, substantially as described.

2. A rubber composed of a metallic back plate, a series of softer metallic angularly-arranged blades detachably secured thereto by set-screws, and having their ends braced and supported against radial blades, substantially as described.

3. A rubber composed of a metallic back plate, a series of softer metallic blades secured thereto by set-screws and having their ends braced and supported against radial blades, the spaces between said blades being filled in with a substance which will wear away a little faster than the said metallic blades, substantially as described.

642,356. FURNACE FOR BRICK-KILNS. OTTO C. OEHLER, St. Louis, Mo. Filed Feb. 27, 1899. Serial No. 706,981. (No model.)

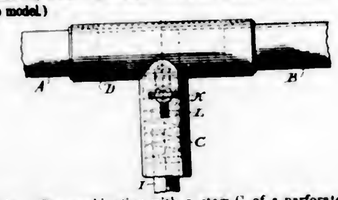


Claim.—1. In a furnace for brick-kilns or the like, a combustion-chamber provided with grate-bars, an outlet leading from said combustion-chamber to the kiln or other object to be heated, a coking-table situated in said combustion-chamber and above said grate-bars, an unobstructed space between said coking-table and outlet, and a fire-wall situated between said grate-bars and outlet and leaving an opening between said coking-table and fire-wall.

2. In a furnace for brick-kilns or the like, a combustion-chamber provided with grate-bars, an outlet leading from said combustion-chamber to the kiln or other object to be heated, a door to give access to said combustion-chamber, a coking-table situated in said combustion-chamber and above said grate-bars, an unobstructed space between said coking-table and outlet, and an unobstructed space between said coking-table and door forming a communication between the part of the combustion-chamber above the coking-table and that below it.

3. In a furnace for brick-kilns or the like, a combustion-chamber provided with grate-bars, a coking-table situated within said combustion-chamber and above said grate-bars, and a sliding door adapted to be lowered to give access to said coking-table and raised to give access to said grate-bars.

642,357. HANDLE-BAR FOR VELOCIPEDES. ANDERS G. F. ÖVERSTRÖM, Sundsvall, Sweden. Filed July 20, 1899. Serial No. 724,485. (No model.)

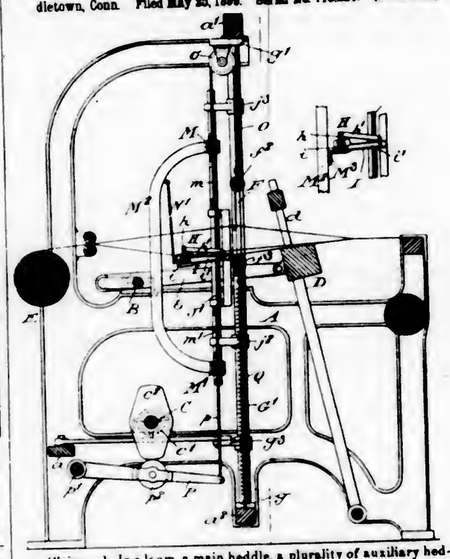


Claim.—The combination with a stem C, of a perforated piece E and an annulus G fixed therein, a cross-sleeve D secured thereto, a handle-bar A having a conical ring M, and a series of holes, an arm B having a conical ring M' and a tube N provided with holes, a bolt I in the stem, and a spring H engaging the said bolt.

642,358. PROCESS OF MAKING ALUMINIUM PAINT. LEONHARDT OTT and HANS RIFFELMACHER, Roth, Germany, assignors to the Bronzefarbenwerke Actien Gesellschaft, vormals Carl Schlenk, same place. Filed July 21, 1899. Serial No. 724,712. (No specimens.)

Claim.—The herein-described process of producing aluminium powder consisting in pouring fluid aluminium into water and then comminuting the thin irregular-shaped pieces so formed, substantially as described.

642,359. LOOM FOR CROSS-WEAVING. ISAAC E. PALMER, Middletown, Conn. Filed May 25, 1899. Serial No. 718,221. (No model.)



Claim.—1. In a loom, a main heddle, a plurality of auxiliary heddles arranged one above another at an angle to the main heddle, means for imparting vertical reciprocating movements to the main and auxiliary heddles and means for imparting independent lateral reciprocating movements to the auxiliary heddles, substantially as set forth.

2. In a loom, a main heddle, an auxiliary-heddle frame, a plurality of auxiliary heddles supported at their forward ends by the said frame, independent supports carried by the auxiliary frame for supporting the rear ends of the auxiliary heddles and means for imparting vertical reciprocating movements to the main and auxiliary heddles, substantially as set forth.

3. In a loom, a main heddle, an auxiliary-heddle frame, auxiliary heddles supported at their forward ends by the said frame, a flexible support leading from the said frame to the rear ends of the said auxiliary heddles and means for imparting to the main and auxiliary heddles their vertical reciprocating movements, substantially as set forth.

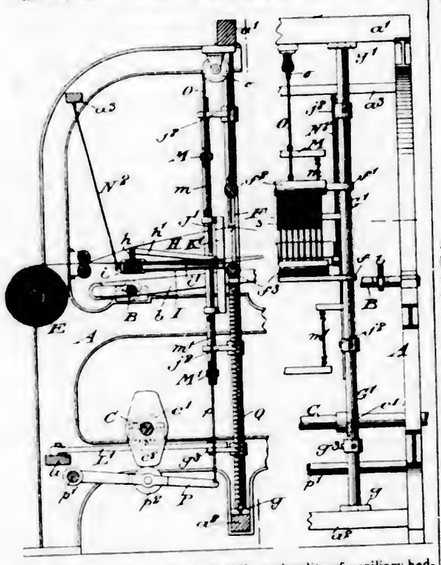
4. In a loom, a main heddle, an auxiliary-heddle frame, a pair of carriages flexibly supported by the said frame, a pair of auxiliary heddles, each being secured at its forward end to one of the said carriages, a support for the rear ends of the said auxiliary heddles, means for imparting vertical reciprocating movements to the main and auxiliary heddles and means for imparting independent lateral movements to the said carriages for moving the auxiliary heddles laterally independently of each other, substantially as set forth.

5. In a loom, a main heddle, an auxiliary heddle frame, a pair of carriages flexibly connected thereto, a pair of auxiliary heddles arranged one above the other comprising upper and lower needle-bars having forwardly-extending needles projecting therefrom into proximity to the main heddle each of the said needle-bars being provided at one end with a forwardly-extended arm secured to one of the said carriages and having a sliding connection with the other bar at its other end, means for imparting vertical reciprocating movements to the main and auxiliary heddles and means for imparting independent lateral reciprocating movements to the said carriages and thereby to their respective auxiliary heddles, substantially as set forth.

6. In a loom, a main heddle, a pair of auxiliary heddles arranged one above the other at an angle to the main heddle, the said auxiliary heddles comprising upper and lower needle-bars and banks of needles projecting forwardly therefrom, the said needle-bars being spaced apart to permit the passage therebetween of the auxiliary warp-threads, and means for imparting to the main and auxiliary heddles their vertical reciprocating movements, substantially as set forth.

7. In a loom, a pair of rocking guide-rods mounted in suitable bearings in the frame, a main heddle having a vertical reciprocating movement along the said rods, a pair of supplemental guide-rods carried by the said rocking guide-rods, a vertically-sliding carriage on each of the said supplemental guide-rods, a pair of auxiliary heddles one being connected with one of the carriages and the other with the other carriage and means for rocking the first-named guide-rods independently of each other and thereby imparting independent lateral reciprocating movements to the auxiliary heddles, substantially as forth.

642,360. LOOM FOR CROSS-WEAVING. ISAAC E. PALMER, Middletown, Conn. Filed May 31, 1899. Serial No. 718,926. (No model.)



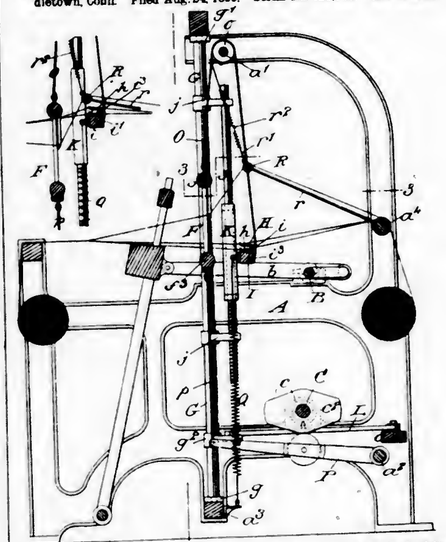
Claim.—1. In a loom, a main heddle, a plurality of auxiliary heddles arranged one above another at an angle to the main heddle, a support for the forward ends of the auxiliary heddles, means for flexibly supporting the rear end of the auxiliary heddles from the loom-frame and means for imparting to the main and auxiliary heddles their vertical reciprocating movements, substantially as set forth.

2. In a loom, a main heddle, a plurality of auxiliary heddles arranged one above another at an angle to the main heddle, a support for the forward ends of the auxiliary heddles, means for flexibly supporting the rear ends of the auxiliary heddles from the loom-frame, means for imparting to the main and auxiliary heddles their vertically-reciprocating movements and means for imparting to the auxiliary heddles independent lateral reciprocating movements, substantially as set forth.

3. In a loom, a main heddle, an auxiliary-heddle frame, a plurality of auxiliary heddles hinged at their forward ends to the said frame, flexible supports leading from the loom-frame to the rear ends of the auxiliary heddles, means for imparting to the main and auxiliary heddles their vertical reciprocating movements and means for imparting to the auxiliary heddles their independent lateral reciprocating movements, substantially as set forth.

4. In a loom, a main heddle, an auxiliary-heddle frame, a vertically-reciprocating carriage supported thereby, an auxiliary heddle hinged at its forward end to the said carriage, a flexible support leading from the loom-frame to the rear end of the said heddle, means for imparting to the heddles their vertical reciprocating movements and means for imparting to the auxiliary heddle its lateral reciprocating movement, substantially as set forth.

642,361. LOOM FOR CROSS-WEAVING. ISAAC E. PALMER, Middletown, Conn. Filed Aug. 24, 1899. Serial No. 728,329. (No model.)

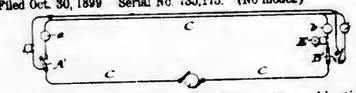


Claim.—1. In a loom, a vertically-reciprocating main heddle and a plurality of vertically and laterally reciprocating auxiliary heddles, the said auxiliary heddles comprising a plurality of superposed bars or plates, each bar or plate having a plurality of eyes therein arranged to receive certain of the auxiliary warp-threads, substantially as set forth.

2. In a loom, a main heddle, an auxiliary heddle comprising a bar or plate arranged at an angle to the main heddle, the said bar or plate having one of its edges bent at an angle to the body of the plate and provided with eyes for the passage therethrough of the auxiliary warp-threads and means for operating the heddles, substantially as set forth.

3. In a loom, a vertically-reciprocating main heddle, a pair of vertically-reciprocating carriages, a lower auxiliary heddle secured at one end to one of the carriages and an upper auxiliary heddle secured at the opposite end to the other carriage, the lower auxiliary heddle having a sliding engagement with the carriage to which the upper auxiliary heddle is secured and the upper auxiliary heddle having a sliding engagement with the lower auxiliary heddle and means for moving the carriages laterally independently of each other, substantially as set forth.

642,362. SIGNAL. MATHIAS PFATISCHER, Philadelphia, Pa. Filed Oct. 30, 1899. Serial No. 735,175. (No model.)



Claim.—1. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and re-

ceiving stations, of a lamp at the transmitting-station, a lamp at the receiving-station, means at the transmitting-station arranged to establish a current through both lamps, and manifest a signal at the receiving-station, by the illumination of the lamp thereat, a normally-open shunt-circuit arranged to bridge resistance, in the line-circuit, at the receiving-station, and means at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station, by the illumination of the lamp thereat, substantially as set forth.

2. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of two lamps located respectively at said stations and differing in voltage, means at the transmitting-station arranged to establish a current through both lamps, and manifest a signal at the receiving-station, by the illumination of the lamp thereat, a normally-open shunt-circuit arranged to bridge resistance, in the line-circuit, at the receiving-station, and means, at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station, by the illumination of the lamp thereat, substantially as set forth.

3. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of a lamp at the transmitting-station, a lamp at the receiving-station, means at the transmitting-station arranged to establish a current through both lamps, and manifest a signal at the receiving-station, by the illumination of the lamp thereat, a normally-open shunt-circuit arranged to bridge said lamp, in the line-circuit, at the receiving-station, and means, at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station, by the illumination of the lamp thereat, substantially as set forth.

4. In an electric signaling device, the combination with a line-circuit including a source of current, and transmitting and receiving stations, of a lamp in the line-circuit at the transmitting-station; a lamp in the line-circuit at the receiving-station, a normally-open shunt-circuit arranged to bridge resistance, in the line-circuit, at the receiving-station, a second lamp at the receiving-station, in said shunt-circuit, means, at the transmitting-station, arranged to establish a current through both lamps in the line-circuit and manifest a signal at the receiving-station, by the illumination of the lamp thereat, and means, at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, manifest a return signal at the transmitting-station by the illumination of the lamp thereat, and illuminate the lamp in said shunt-circuit at the receiving-station, substantially as set forth.

5. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of a lamp at the transmitting-station, a lamp at the receiving-station, a sounding device at the receiving-station, means, at the transmitting-station, arranged to establish a current through both lamps and manifest a signal at the receiving-station, by the illumination of the lamp and the operation of the sounding device thereat, a normally-open shunt-circuit arranged to bridge resistance, in the line-circuit, at the receiving-station, and means, at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station, by the illumination of the lamp thereat, substantially as set forth.

6. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of corresponding groups of lamps at the respective stations, means, at the transmitting-station, arranged to establish a current, selectively, through any one of the groups thereat and the corresponding lamp of the group at the receiving-station, a normally-open shunt-circuit, arranged to bridge the energized lamp, at the receiving-station, and means, at the receiving station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station, by the illumination of the selected lamp thereat, substantially as set forth.

7. In an electric signaling device, the combination with a line-circuit, including a source of current and transmitting and receiving stations, of corresponding groups of lamps at the respective stations, a sounding device at the receiving-station, means, at the transmitting-station, arranged to establish a current, selectively, through any lamp of the group thereat and the corresponding lamp of the group at the receiving-station, and operate said sounding device, a normally-open shunt-circuit arranged to bridge the energized lamp at the receiving station, and means, at the receiving-station, arranged to close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station by the illumination of a lamp thereat, substantially as set forth.

8. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of corresponding groups of lamps at the respective stations, a sounding device at the transmitting-station, means, at the transmitting-station, arranged to establish a current, selectively, through any lamp of the group thereat and the corresponding lamp of the group at the receiving-station, a normally-open shunt-circuit arranged to bridge the energized lamp at the receiving-station, and cooperative means, at the receiving-station, arranged to operate said sounding device, and close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station by the illumination of the selected lamp thereat, substantially as set forth.

9. In an electric signaling device, the combination with transmitting and receiving stations, of a line-circuit extending between said stations and comprising a series of conductors in parallel relation upon one side, and a common conductor upon the other side, a source of current in said circuit, corresponding groups of lamps at the respective stations, the corresponding lamps of the respective groups being connected in series relation by said respective parallel conductors, means at the transmitting-station to selectively establish a current through any one of said series of parallel conductors, and the corresponding lamps connected therewith, and means at the receiving-station to bridge-circuit the energized lamp thereat and thereby increase the illumination of the lamp energized at the transmitting-station, substantially as set forth.

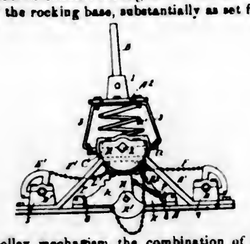
10. In an electric signaling device, the combination with transmitting and receiving stations, of a line-circuit extending between said stations and comprising a series of conductors in parallel relation upon one side, and a common conductor upon the other side, a source of current in said circuit, corresponding groups of lamps at the respective stations, the corresponding lamps of the respective groups being connected in series relation by said respective parallel conductors, a sounding device at the receiving-station, means at the transmitting-station to selectively establish a current through any one of said series of parallel conductors, the corresponding lamps connected therewith, and, the aforesaid sounding device, and means at the receiving-station to bridge-circuit the energized lamp thereat, thereby increase the illumination of the lamp energized at the transmitting-station, and simultaneously terminate the operation of the sounding device, substantially as set forth.

11. In an electric signaling device, the combination with a line-circuit including a source of current and transmitting and receiving stations, of corresponding groups of lamps at the respective stations, sounding devices at the respective stations, means, at the transmitting-station, arranged to establish a current, selectively, through corresponding lamps of the respective groups, and operate the sounding device at the receiving-station, a normally-open shunt-circuit arranged to bridge the energized lamp at the receiving-station, and cooperate means, at the receiving-station, arranged to operate the sounding device at the transmitting-station, and close said shunt-circuit; thereby modify the current established in the line-circuit, and manifest a return signal at the transmitting-station by the illumination of the selected lamp thereat, substantially as set forth.

12. In an electric signaling device, the combination with transmitting and receiving stations, of a line-circuit extending between said stations; comprising a series of conductors in parallel relation upon one side and a common conductor upon the other side, a source of current in said circuit, corresponding groups of lamps at the respective stations, corresponding lamps of the respective groups being connected in series relation by said respective parallel conductors, sounding devices as the respective stations, means, at the transmitting-station, arranged to establish a current, selectively, through one of the parallel conductors of said series, and the corresponding lamps connected therewith, and to operate the sounding device at the receiving-station, a normally-open shunt-circuit arranged to bridge the energized lamp at the receiving-station, a lamp in said shunt-circuit, and cooperate means, at the receiving-station, arranged to operate said sounding device at the transmitting-station, and to close said shunt-circuit; thereby modify the current established in the line-circuit and illuminate the lamp in the shunt-circuit at the receiving-station, and the selected lamp at the transmitting-station, substantially as set forth.

642,868. TROLLEY-POLE, FRANK PFENT, Grosnier, and LOUIS A. MORAN, Grosse Point, Mich. Filed May 1, 1899. Serial No. 715,100. (No model.)

Claim.—1. In a trolley mechanism, the combination of a supporting-frame, a rocking base journaled in the sides of said frame provided with segments at its extremities, rock-shafts toward opposite ends thereof provided with segments toward the extremities thereof, a spring carried by said base to flex in a direction transverse to the rocking of the base, a standard carried by said spring, and flexible connections to connect the segments of the rock-shafts with the segments of the rocking base, substantially as set forth.



2. In a trolley mechanism, the combination of a supporting-frame, rock-shafts, means to retract the rock-shafts, a rocking base upon said frame, a spring upon said base to flex in a direction transverse to the rocking of the base, a cap upon said spring, flexible connections uniting said rock-shafts with the base, means to connect said base with said cap, and a standard carried by said cap, substantially as set forth.

3. In a trolley mechanism, the combination of a rocking base, two sets of rock-shafts on each side of said base connected therewith, a single spring to retract the rock-shafts of each set, a spring carried by said base to flex in a direction opposite the rocking of the base, and a standard supported upon said spring, substantially as described.

4. In a trolley mechanism, the combination of a rocking base, two sets of rock-shafts on each side of said base connected therewith, a single spring engaged with each set of rock-shafts to retract said shafts, and a standard supported upon said base, the rock-shafts of each of said sets having an independent rocking movement, substantially as set forth.

5. In a trolley mechanism, the combination of a rocking base, two sets of rock-shafts on each side of said base connected therewith, springs to retract said rock-shafts, and a standard supported upon said base, the rock-shafts of each of said sets having an independent rocking movement, substantially as set forth.

6. In a trolley mechanism, the combination of a rocking base, a rock-shaft on each side of the base each made in two portions, a single spring upon both portions of the rock-shafts exerting its tension thereupon, a spring carried by said base to flex in a direction transverse to the rocking of the base, a standard carried by said spring, and means to connect the rock-shafts with the rocking base, substantially as set forth.

7. The combination of a rocking base, rock-shafts connected therewith, means to retract the rock-shafts, a trolley-standard supported upon said base, and mechanism actuated by the rocking base to automatically throw and hold the standard down when the trolley-wheel is off the wire, substantially as set forth.

8. In a trolley mechanism, the combination of an oscillatory trolley-standard, a shaft, a gear carried by the shaft, a locking-gear meshing with the first-named gear, a device to lock the locking-gear, and means to release said device from the locking-gear, substantially as set forth

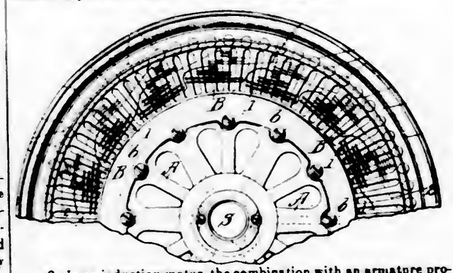
9. In a trolley mechanism, the combination of an oscillatory trolley-standard, a spring-actuated shaft, a gear carried by said shaft, a locking-gear meshing with the first-named gear, a device to lock the locking-gear, and means carried by said gears to release said device from the locking-gear, substantially as described.

10. In a trolley mechanism, the combination of an oscillatory trolley-standard, a spring-actuated shaft, a gear carried by said shaft, a locking-gear meshing with the first-named gear, a device to lock the locking-gear, a movable rod carried by the locking-gear, and a pawl carried by the first-named gear to actuate said rod to release said device from the locking-gear when the trolley-wheel is off the wire, substantially as set forth.

11. In a trolley mechanism, the combination of an oscillatory trolley-standard arranged to be inclined in either direction longitudinally of the car, shafts, gears carried by said shafts, locking-gears meshing with the corresponding first-named gears, devices to lock the locking-gears, and means to release said device from the locking-gears, whereby, should the trolley-wheel leave the wire, one of said locking-gears will be released to throw and hold the standard down, substantially as set forth.

642,864. ELECTRIC MOTOR. EDWIN S. PILLSBURY, St. Louis, Mo. Filed Aug. 23, 1898. Serial No. 728,723. (No model.)

Claim.—1. In an induction-motor, the combination with an armature, of a field-core provided with polar projections, main coils including a plurality of said polar projections to form the different poles, said coils being so arranged that the magnetic lines of force are most intense at about the center of each pole, and phase or starting coils which include a plurality of the polar projections of each pole, whereby, when said coils are energized, the phase or starting coils cause the center of magnetism to be laterally displaced to produce an asymmetric field; substantially as described.



2. In an induction-motor, the combination with an armature provided with short-circuited induced-current-conducting bars, of a field-core provided with polar projections, main coils arranged substantially in pyramidal form which are wound around a plurality of said polar projections in the formation of the different poles of the field-magnet, phase or starting coils which are laterally displaced relative to the centers of the different field-poles, which phase or starting coils include a plurality of polar projections; substantially as described.

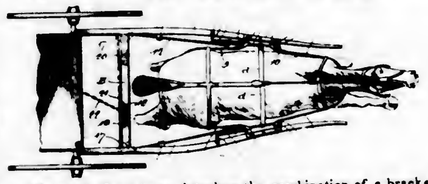
3. The combination with a field-magnet core provided with a plurality of polar projections, of main coils which include in their windings a number of said polar projections, said windings being so arranged that the central polar projection of each pole is surrouded by a greater number of turns than the polar projections of the same pole on each side thereof, alternate poles being wound with said main coils in opposite directions, and phase or starting coils which include a plurality of polar projections of each pole; substantially as described.

4. The combination with a field-magnet core provided with polar projections, of main coils which include a plurality of said polar projections in the formation of each pole, and high-resistance phase or starting coils laterally displaced relative to the center of each pole, said phase-coils including a plurality of polar projections in each pole; substantially as described.

5. The combination with a field-pole composed of a plurality of polar projections, of a main winding therein arranged substantially in pyramidal form, so as to make the magnetism of said pole most intense at about its middle, and a phase or starting coil arranged substantially in pyramidal form, and laterally displaced relative to the point of intense magnetism induced by the main winding; substantially as described.

6. In an induction-motor, the combination with an armature provided with short-circuited induced-current-conducting bars, of a field-core provided with polar projections, main coils including a plurality of said polar projections to form the different poles, said coils being so arranged that the magnetic lines of force are most intense at about the center of each pole, and phase or starting coils which are laterally displaced relative to the intense center of magnetism developed by the main coils; substantially as described.

642,865. HORSE-DETACHER. HOMER POWERS, Fort Stockton, Tex. Filed July 12, 1899. Serial No. 723,547. (No model.)



Claim.—1. In a horse-detacher, the combination of a bracket adapted to be fitted to a thill, a traveler supported by the bracket, a binged rod having its free end adjacent to the traveler, a link slidably embracing the traveler and hinged rod, and means for disengaging the link from the hinged rod, substantially as shown and described.

2. In a horse-detacher, the combination with a bracket adapted to be fitted to a thill, of a traveler carried at one end of the bracket, a rod hinged to the opposite end of the bracket, and having its free end located adjacent to the traveler, a link slidably embracing the

latter and the hinged rod, and means for disengaging the link from the hinged rod, substantially as shown and described.

3. In a horse-detacher, the combination with an attaching-bracket, of a traveler projecting longitudinally beyond one end of the bracket and offset laterally therefrom, an arm located at the opposite end of the bracket and projecting laterally therefrom in the same direction as the offset traveler, a rod hinged to the lateral arm, and having its free end located alongside of the traveler, a link slidably embracing the latter and the free end of the hinged rod, and means for disengaging the link from said rod, substantially as shown and described.

4. In a horse-detacher, the combination with an attaching-bracket, having an integral laterally-offset traveler extending longitudinally beyond one end thereof, an integral inwardly-extending arm provided at the outer end of the traveler, and having an attaching-eye at the outer end of said arm, an integral lateral arm projecting outwardly at the opposite end of the bracket, and provided with an eye having its opening disposed longitudinally of the bracket, a rod having a hook or eye which is loosely received in the eye of the forward lateral arm, and having its free end extending alongside of the traveler and terminating intermediate of the ends of the latter; a link slidably embracing the traveler and the free end of the rod, and means for disengaging the link from the rod, substantially as shown and described.

5. In a horse-detacher, the combination with a bracket adapted to be fitted to a thill, of a traveler, a hinged rod having its free end located alongside the traveler, of a link slidably embracing the traveler and the free end of the rod, a longitudinally-movable rod connected to the link, and an operating-lever operatively connected to the longitudinally-movable rod, substantially as shown and described.

6. In a horse-detacher, the combination with a bracket adapted to be fitted to a thill, of a traveler, a hinged rod having its free end located alongside the traveler, of a link slidably embracing the traveler and the free end of the hinged rod, a longitudinally-movable rod connected to the link, a bell-crank lever pivoted to the cross-bar of the thill, an operating-lever pivoted to said cross-bar, and a link connecting the bell-crank lever with the operating-lever, substantially as shown and described.

7. In a horse-detacher, the combination with opposite devices fitted to the respective thills of a vehicle, and detachably receiving the traces, the saddle-straps, and the boldback, of a pair of longitudinally-movable rods connected to the respective devices and capable of releasing the latter, a pair of bell-crank levers pivoted to opposite ends of the cross-bar of the thills, and connected to the respective longitudinally-movable rods, an operating-lever pivoted intermediate of its ends to said cross-bar, and links connected to the respective bell-crank levers, and at opposite sides of the pivot of the lever, substantially as shown and described.

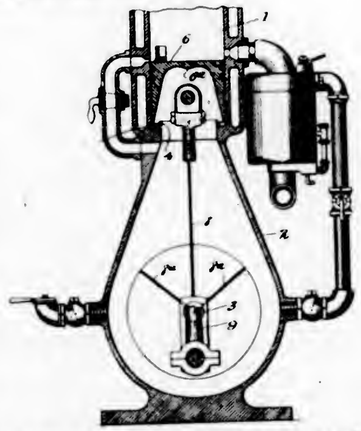
8. In a horse-detacher, the combination with means carried by the thills of a vehicle, and detachably receiving the traces, the saddle-straps, and the holdback, of a longitudinally-movable rod connected to the aforesaid means for receiving the traces, the saddle-straps, and the holdback, and capable of releasing the same, a bell-crank lever pivoted to the transverse bar of the thills, and connected to the longitudinally-movable rod, a lever pivoted to the rear side of said cross-bar, a link connecting the bell-crank lever to the operating-lever, and a catch carried by the cross-bar and normally holding the lever in the locked position of the device, substantially as shown and described.

642,366. LUBRICATOR FOR GAS-ENGINES. HUBERT F. PROBERT, Chicago, Ill., assignor to Charles H. Morse, same place. Filed May 20, 1899. Serial No. 717,672. (No model.)

Claim.—1. In a lubricator for gas-engines the combination of a cylinder provided with a lubricant-channel around its lower end, a piston arranged in said cylinder and having its lower edge attenuated or sharpened and dipping into said channel and its lower end formed in the shape of an inverted cup whose walls gradually converge toward the top of the cup which is unobstructed to permit the lubricant to work its way to the extreme crown or top of the cup, a crank-pin pivoted across said cup in said piston at a distance below the top of the cup, a crank pivoted on said pin and means for supplying said channel with lubricant, substantially as set forth.

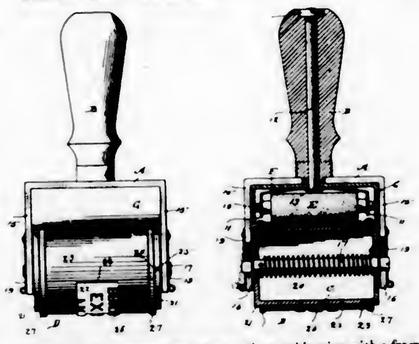
2. In a lubricator for gas-engines the combination of a cylinder provided with a lubricant-channel around its lower end, a closed cup-shaped piston located in said cylinder and having the protuberance 6ª in the upper end thereof and a sharpened or attenuated edge at its lower end adapted to dip into said channel and means for supplying said channel with lubricant, substantially as set forth.

3. In a lubricator for gas-engines the combination of a cylinder provided with a lubricant-channel around its lower end, a piston located in said cylinder and having an attenuated edge dipping into said channel, means for supplying said channel with lubricant, a crank-chamber, a crank journaled in said chamber and connected to said piston, the walls of said crank-chamber being provided with a groove extending downwardly from said lubricant-channel to the journals of said crank, substantially as set forth.



4. In a lubricator for gas-engines the combination of a cylinder provided with a lubricant-channel around its lower end, a piston located in said cylinder and having an attenuated edge dipping into said channel, means for supplying said channel with lubricant, a crank-chamber, and a crank journaled in said chamber, the walls of said crank-chamber having a groove extending downwardly from said oil-channel to the point of bearing of said crank and also having an inclined groove extending from the point of bearing of said crank upwardly, substantially as set forth.

642,367. MARKING-STAMP. HERBERT R. RAY, WALTER P. PHILLIPS, and WALTER R. PATCHIN, Bridgeport, Conn. Filed July 11, 1899. Serial No. 723,500. (No model.)



Claim.—1. In a rotary hand-stamp, the combination with a frame, of a removable type-cylinder and a removable type-sleeve carried by the type-cylinder, and comprising a yielding type-carrying member and a stiffening-sleeve therefor, said type-sleeve being permanently cylindrical in shape when removed from the cylinder whereby said sleeve may be readily detached from or applied to the cylinder endwise.

2. The type-sleeve D comprising an inner sleeve 21, a type-strip 22 outside of said sleeve and means for securing the type-strip in place, said type-sleeve being permanently cylindrical in shape whereby it is adapted to be readily moved endwise onto or from the cylinder of a rotary hand-stamp.

3. The type-sleeve D comprising an inner sleeve 21, outside of said sleeve a type-strip 22 having characters and outside of the type-strip an outer band or sleeve having an opening through which the characters project.

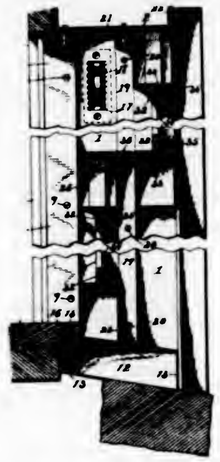
4. The type-sleeve D comprising an inner sleeve 21, outside of said sleeve a type-strip 22 having characters and outside of the type-strip a band having an opening through which the characters project, one of said parts being provided with guards of uniform height with the characters substantially as shown for the purpose specified.

5. In a rotary hand-stamp, the combination with a frame and inking-rollers, of a removable type-cylinder and a removable type-sleeve carried by the type-cylinder and provided with guards 27, said type-sleeve being permanently cylindrical in shape when removed from the cylinder whereby said sleeve may be readily detached from or applied to the cylinder endwise.

642,368. INSECTICIDE. EDWARD P. REISTER, Centreville, Iowa, assignor of one-half to George F. Severs, same place. Filed June 2, 1899. Serial No. 719,096. (No specimens.)

Claim.—The herein-described composition of matter consisting of hog's lard, boiled linseed-oil, powdered sulphur, pulverized lime, London purple, carbolic acid and fish-oil in about the proportions set forth.

642,369. WINDOW FRAME AND SASH. JAMES S. REYNOLDS, Minneapolis, Minn. Filed Apr. 27, 1899. Serial No. 714,710. (No model.)



Claim.—1. A window-frame comprising a pulley-stile or jamb of hollow construction and forming a weight-box, and a staff-bead or angle-iron on the outer side to provide an outside stop for the sash.

2. In a window-frame, the combination of sheet-metal box-like pulley-stiles, head-jambs and sill, a staff-bead or angle-iron surrounding the outer portions of the pulley-stiles and head-jambs and partially projecting inward to form an outside stop and a parting-stop also formed of metal and secured to the side stiles and head-jamb in proper relation to the inner projecting portion of the staff-bead, and an inside stop.

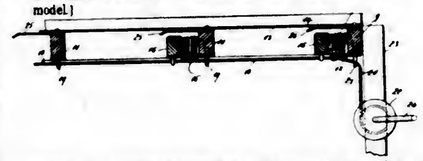
3. In a window-frame, the combination of pulley-stiles and a head-jamb composed of sheet metal bent into box-like form and connected, and a box-like parting-stop also of sheet metal secured in position by machine-screws inserted therethrough and through tapped openings in the said stiles and jamb.

4. In a window-frame, the combination with metallic pulley-stiles, and metal stops of box-like shape secured thereto by machine-screws received in tapped openings in said stiles.

5. In a window-frame, the combination of pulley-stiles of sheet metal bent into box-like form, a head-jamb and sill also of sheet metal and of box-like form, a connection between the opposite ends of the head-jamb and the pulley-stiles, and a sash of sheet metal in the form shown with side and meeting rails of box form, provided with sockets at the upper opposite corners and bendable metallic glass-securing devices embodying a rabbet, as set forth.

6. The combination with a metallic fireproof window-frame of a sash having a frame composed of sheet metal and provided with metallic means for holding the glass lights, the said sash being intermediately divided by mullions comprising opposite box-like sections with the edges formed into outwardly-projecting ridges or standing seams and holding soft sheet-metal strips to form rabbets for the reception of the glass lights and over which putty or other plastic material is to be applied.

642,370. PROTECTOR FOR FRUITS OR VEGETABLES. JOHN H. ROLLINS, Orlando, Fla. Filed Aug. 26, 1899. Serial No. 728,549. (No model.)



Claim.—1. A cover or protector for fruits and vegetables, comprising a main frame divided into transverse sections by transverse bars, flexible strips of covering material secured to one of the end bars of the frame and said transverse bars, transverse bars secured to the free edges of said flexible strips, and means connected with said last-named bars for moving them longitudinally of the main frame in both directions, substantially as shown and described.

2. A covering or protector for fruits and vegetables, comprising suitable posts, a main frame, connected with said posts and divided into transverse sections by transverse bars, flexible strips of covering material secured to one of the end bars of the frame, and to said transverse bars, transverse bars secured to the free edges of said flexible strips and longitudinally-movable rods secured to the last-named bars and means for moving said rods longitudinally of the main frame in both directions, substantially as shown and described.

3. A covering for fruits and vegetables, comprising suitable posts, a main frame connected with said posts and divided into transverse sections by transverse bars, flexible strips of covering material secured to one of the end bars of the frame, and to said transverse bars, transverse bars secured to the free edges of said flexible strips and longitudinally-movable rods secured to the bottoms of said last-named bars and means for moving said rods longitudinally of the main frame in both directions, consisting of ropes connected with the opposite end thereof and passed over drums mounted at the ends of the frame, substantially as shown and described.

4. A covering for protecting fruits and vegetables, comprising a frame divided by transverse bars into separate sections, flexible strips of covering material secured to the inner side of one of the end bars of the frame and to the corresponding side of each of the transverse bars, other transverse bars composed of separate sections hinged together and secured to the free edges of each of said transverse strips, and means for moving the said last-named bars longitudinally of the main frame in both directions, substantially as shown and described.

5. A cover or protector for fruits and vegetables, comprising a main frame divided by transverse bars into separate sections, flexible strips of covering material secured to the inner side of one of the end bars of the frame and to the corresponding side of each of the transverse bars, other transverse bars composed of separate sections hinged together and secured to the free edges of each of said flexible strips, and means for moving the said last-named bars longitudinally of the frame in both directions, said frame being also provided at the top and bottom thereof with longitudinal rods between which the said flexible covering-strips are adapted to move, substantially as shown and described.

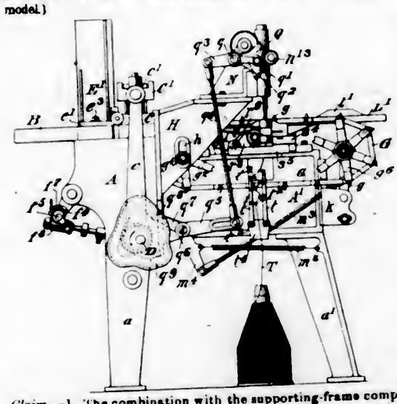
6. A cover for fruits and vegetables comprising a frame divided by transverse bars into separate sections, flexible strips of covering material secured to the inner side of one of the end bars of the frame and to the corresponding side of each of the transverse bars, other transverse bars composed of separate sections hinged together and secured to the free edges of each of said transverse strips, and means for moving the said last-named bars longitudinally of the frame in both directions, said frame being also provided at the top and bottom thereof with longitudinal rods between which the said flexible covering-strips are adapted to move, and with longitudinal bars which are secured to the top thereof, substantially as shown and described.

7. A cover or protector for fruits and vegetables, consisting of a frame composed of parallel side bars and parallel end bars, said frame being divided by transverse bars into equal sections, a flexible covering-strip secured to the inner side of one of the end bars and to the corresponding side of each of said transverse bars, longitudinal top and bottom rods secured to the end bars and the transverse bars, and means for moving said flexible covering-strips longitudinally of the main frame in both directions between said rods, substantially as shown and described.

8. A cover or protector for fruits and vegetables, consisting of a main frame composed of parallel side bars and parallel end bars, said frame being divided by transverse bars into equal sections, a flexible covering-strip secured to the inner side of one of the end bars and to the corresponding side of each of said transverse bars, longitudinal top and bottom rods secured to the end bars and the transverse bars, and means for moving said flexible covering-strips longitudinally of the frame in both directions between said rods, said transverse bars

being also provided with shields or protectors for said covering-strips, substantially as shown and described.

642,371. MACHINE FOR LACING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Filed Sept. 25, 1895. Serial No. 563,590. (No model.)



Claim.—1. The combination with the supporting-frame comprising a head-section and a backbone-section extending substantially at right angles to the head-section from a point intermediate of the ends of the head-section, of rearwardly-projecting brackets fixed to the head-section on opposite sides of the backbone-section, needle-supporting mechanisms carried by said brackets, needles, stitch-forming mechanism arranged to cooperate with the needles and means for operating the said needles and stitch-forming mechanism, substantially as set forth.

2. The combination with a suitable supporting-frame and needles and loopers for lacing a series of cards together, of a conveyer for presenting the cards to the needles, means for operating the needles and loopers, a needle-supporting bar and means for adjusting the needle-supporting bar and loopers in a direction corresponding to or opposed to the direction in which the cards are conveyed, substantially as set forth.

3. The combination with the feed mechanism for pushing the punched cards from beneath the punches and a lacing mechanism, of a conveyer-chain for advancing the punched cards from the said feed mechanism to the lacing mechanism, the said chain being composed of links provided with pins at their rear ends for entering the holes in the punched cards, said pins being rigidly secured to the links and extending at right angles to the planes of the links substantially as set forth.

4. The combination with the needles mounted to reciprocate vertically and provided with annular teeth on their stocks and loopers arranged to coact with the needles, of toothed wheels for engaging said annular teeth, means for actuating said toothed wheels to raise and lower the needles, means for actuating the loopers and means for rotating the needle-stocks, substantially as set forth.

5. The combination with the needle, mounted to reciprocate longitudinally and to rotate about its longitudinal axis and provided with annular teeth, and a looper arranged to coact with the needle, of a pinion in position to engage said annular teeth to impart to the needle its longitudinal reciprocating movement, toothed gear engaged with the needle for imparting to the needle its rotary movement and means for actuating the looper, substantially as set forth.

6. The combination with the needles mounted to reciprocate vertically and provided with annular teeth on their stocks and loopers arranged to coact with the needles, of gear-wheels for engaging said teeth, a pinion on the shaft on which the gear-wheels are fixed, a sector-bar in engagement with said pinion, means for actuating the sector-bar, means for rotating the needles and means for actuating the loopers substantially as set forth.

7. The combination with the needles, loopers arranged to coact therewith and the pinion for imparting the reciprocating movement to the needles, of the sector-bar and a rocking arm, means for adjustably securing the sector to the rocking arm, means for actuating the arm and means for actuating the loopers, substantially as set forth.

8. The combination with the needles, loopers arranged to coact therewith and the pinion for imparting the reciprocating movement to the needles, of the sector-bar in position to engage the pinion, means for actuating the sector-bar, means for adjusting the sector-bar relative to the pinion and means for actuating the loopers, substantially as set forth.

9. The combination with the supporting-frame comprising the head and backbone, the lacing mechanism and the punching mechanism, of conveyer-chains for moving the cards from the punching to the lacing mechanism, chain-wheels, a bracket secured at the rear end of the backbone and forming a support for certain of the chain-wheels, means for adjusting the bracket to suit different lengths of chain, and means for operating the several mechanisms, substantially as set forth.

10. The combination with the head of the supporting-frame and the rearwardly-projecting backbone, of a table extending forwardly from the head, card-feeding mechanism supported in said table, punching mechanism supported upon said table, a lacing mechanism and a carrier-chain supported upon said backbone for carrying the cards from the said feeding mechanism to the lacing mechanism, substantially as set forth.

11. The combination with the supporting-frame, the punching mechanism and the feeding mechanism, of standards provided with lips on their faces for embracing the ends of the cards and holding the stack of cards in position to be fed, the said lips being cut away at their lower ends adjacent to the punching mechanism and means for adjusting the standards toward and away from each other to suit different lengths of cards, substantially as set forth.

12. The combination with the several sets of lacing mechanisms, of tension devices one for each set of lacing mechanism, the said tension devices each comprising a rigid arm provided with eyes and a swinging arm provided with eyes, the several swinging arms being connected to move together and means for exerting more or less pressure upon the connected swinging arms to simultaneously vary the tension upon the several lacing mechanisms, substantially as set forth.

13. The combination with a supporting-frame, several loopers and needles arranged to coact with the loopers, of a bar forming a support for the several loopers, means for feeding cards to the needles and loopers, means for adjusting the looper-supporting bar in a direction corresponding to or opposed to the direction in which the cards are fed, means for adjusting the needles to correspond with the loopers and means for actuating the needles and loopers, substantially as set forth.

14. The combination with the head for supporting the punches and means for reciprocating the head, of a plate for retaining the punches in operative position, the said plate being perforated to permit the ready removal of the peg-hole punches at pleasure, substantially as set forth.

15. The combination with the head and different sets of punches supported therein, of a plate provided with perforations corresponding to the different sets of punches and means for adjusting the said plate relatively to the said punch-supporting head to bring the different sets of punches into or out of operative position, substantially as set forth.

16. The combination with the punching mechanism of a feed mechanism comprising a reciprocating push-plate, a rack-bar and sector for imparting reciprocating movement to the plate, a connecting-rod for operating the sector and an eccentric forming a connection between the said connecting-rod and rack-bar for varying the position of the reciprocating movement of the feed-plate, substantially as set forth.

17. The combination with the lacing mechanism the punching mechanism and the conveyer-chains for advancing the cards to the lacing mechanism, of chain-wheel supports, means for adjusting said supports vertically and means for adjusting one of said supports horizontally, substantially as set forth.

18. The combination with the supporting-frame, the lacing mechanism punching mechanism, the conveyer-chains for advancing the cards to the lacing mechanism and the chain-wheels for supporting said conveyer-chains, of a swinging support for one set of said chain-wheels and a bracket secured to the rear of the main frame in vertical adjustment and carrying the swinging chain-wheel support, substantially as set forth.

19. The combination with the lacing mechanism, the guides for holding the cards in the proper plane in relation to the lacing mechanism and the means for conveying the cards to and from the lacing mechanism, of inclines forming a continuation of said card-guides for lifting the laced series of cards from the conveyer, substantially as set forth.

642,372. HAND-STAMP. CHARLES L. SAFFORD and OSCAR H. PELTIER, Chicago, Ill. Filed Apr. 1, 1898. Serial No. 676,144. (No model.)

Claim.—1. A hand-stamp comprising a frame having parallel side plates, a type-base attached rigidly thereto, movable types engaging said base, a die-plate provided with flanges having sliding engagement with said side plates of the frame, and means for securing said die-plate rigidly to said frame.

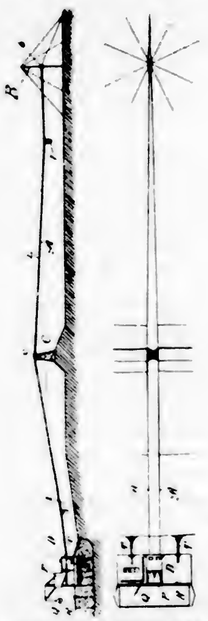
2. A hand-stamp consisting of a frame having parallel side plates, a type-base attached rigidly to said plates, movable types engaging said base, a die-plate having permanent types and provided with flanges which have sliding engagement with said side plates of the frame and provided also with slots engaged by clamping-screws which have screw-threaded connection with said side plates of the frame.



3. A hand-stamp comprising a frame having parallel side plates, a type-base attached rigidly thereto, a die-plate provided with flanges having sliding engagement with said side plates of the frame, interlocking recesses and projections on the contacting faces of the plates and flanges, and means for clamping the same together.

4. A hand-stamp comprising a frame having parallel side plates, a type-base attached rigidly thereto, a die-plate provided with flanges having sliding engagement with said side plates of the frame, interlocking recesses and projections on the contacting faces of the plates and flanges arranged longitudinally of the plates, and means for clamping said plates and flanges together.

642,378. COAL-CONVEYER. ROCKLEY D. SEYMOUR and HOWARD H. ELMER, Chicago, Ill. Filed Apr. 15, 1899. Serial No. 713,195. (No model.)



Claim.—1. In mechanisms of the class described, the combination of two cables arranged to be laid parallel with each other and detachably anchored at or near their outermost position, two winding-drums arranged to wind up, pay out and support the cable-tracks at one end, auxiliary mechanism between the drums and cables arranged and operating to take up the slack of the cable-tracks, a shippable mast arranged to support the outer end of the cable-track in a raised position, a trolley-car for each track provided with a conveying-bucket, a hauling-line secured to each trolley-car and passed around the mast, and a second set of winding and unwinding drums around which the ends of the hauling-line are passed for advancing one car and receding the other, substantially as described.

2. In mechanisms of the class described, the combination of two cable-tracks arranged to be laid parallel with each other and anchored at or near their outermost position, two winding-drums arranged to wind up, pay out and support the cable-tracks at one end, a supporting-mast, a sliding saddle on said mast to adjustably hold the cable-tracks and a hauling-line, means by which said saddle is raised or lowered, means for taking up the "slack" in the cable-tracks, a trolley-car and bucket on each track, a hauling-line secured to each trolley-car and passed through the saddle mechanism, and a second set of winding and unwinding drums to which the ends of the hauling-line are secured to move the trolleys back and forth, substantially as described.

3. In mechanisms of the class described, the combination of a cable-track detachably anchored at the free end thereof, a winding-drum for the attachment and support of the opposite ends of the cable-track and operating to pay out and pull in the track, a portable transporting means carrying and supporting the winding-drum and operating mechanism, a shippable mast, a saddle movable up and down on the mast and over which the cable-track is carried and supported, a trolley-car traveling on the cable-track, a conveying-bucket carried by the car, a winding and an unwinding drum, and a hauling cable or cord fastened to the winding and unwinding drums and the trolley-car, substantially as described.

4. In mechanisms of the class described, the combination of a cable-track detachably anchored at the free end thereof, a winding-drum for the attachment and support of the opposite end of the cable-track and operating to pay out and pull in the track, a portable transporting means carrying and supporting the winding-drum and operating mechanism, a shippable mast, a saddle movable up and down on the mast and over which the cable-track is carried and supported, a tower between the transporting means and the mast, a saddle on the tower over which the cable-track passes and is supported, a trolley-car traveling on the cable-track, a conveying-bucket carried by the car, a winding and an unwinding drum, and a hauling cable or cord fastened to the winding and unwinding drums and trolley-car, substantially as described.

5. In mechanisms of the class described, the combination of a cable-track detachably anchored at the free end thereof, a winding-drum for the attachment and support of the opposite end of the cable-track and operating to pay out and pull in such track, a portable transporting means carrying and supporting the winding-drum and operating mechanism, a shippable mast on which the cable-track is held and supported in a raised position at the free end, a tower arranged to support the cable-track intermediate of the mast and the transporting means, a clamp attached to the cable-track, a tightening cable or cord secured to the clamp, and a system of pulleys over which the tightening cable or cord passes for the draw of the cord to maintain the track taut, substantially as described.

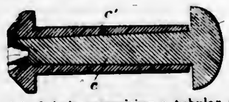
642,374. PUZZLE. RICHARD M. SHAFFER, Baltimore, Md., assignor to the Copenhagen Puzzle Company of Baltimore City, of Maryland. Filed Nov. 21, 1899. Serial No. 737,745. (No model.)



Claim.—1. A puzzle comprising a plate, A, having a long slot and two short slots connecting with said long slot by branch slots; a number of buttons movable in said slots and all the buttons excepting one having central shanks which are alike—said one having an eccentric shank, and each button having any desirable impress thereon.

2. A puzzle comprising a plate, A, having a long slot and two short slots connecting with said long slot by branch slots, one end of said long slot being compressed or tapered; a number of buttons movable in said slots and all the buttons excepting one having central shanks which are alike—said one having a notched shank to take over the said compressed or tapered end of the said slot.

642,375. LOCK-BOLT. EDWARD P. SIMPSON, Oxen Hill, Md., assignor of one-third to Julian C. Dowell, Silver Springs, Md. Filed Sept. 23, 1899. Serial No. 731,438. (No model.)



Claim.—1. A lock-bolt comprising a tubular portion having a head at one end, and a headed bolt adapted for insertion in said tube with the headless end of the latter abutting the head of the bolt and the headless end of the bolt protruding through the head of the tube, and provision for upsetting said protruding end against the head of the tube, substantially as and for the purpose set forth.

2. A lock-bolt comprising a tubular exteriorly-cylindrical portion composed of a plurality of longitudinally-divided parts having a shouldered head at one end thereof, and a headed bolt adapted

for insertion in and to extend through said tube with provision for upsetting the inserted protruding end of said bolt against the head of the tube, and thus locking the parts together, substantially as described.

3. A lock-bolt comprising a tubular portion composed of two longitudinally-divided semicylindrical parts, each having at one end an enlargement or boss, together forming a head, and a bolt adapted for insertion in and to extend through said tube with provision for upsetting the protruding end of the bolt against the head of the tube, and thus locking the three parts together, substantially as described.

4. A lock-bolt comprising a tubular portion composed of a plurality of longitudinally-divided parts or sections, each having at one end a boss or enlargement which together form a head having a depression or countersink therein, and a headed bolt adapted for insertion in said tube and having a depression or concavity in its inserted end to adapt said end to be readily upset against the countersunk head of the tube, and thus lock the parts together, substantially as described.

5. A lock-bolt comprising a tubular portion composed of a plurality of longitudinally-divided parts or sections, each having a boss or enlargement at one end to form a composite head with a depression or countersink therein, and a headed bolt having a tapered body portion adapted for insertion in the correspondingly-tapered bore of the tube, and having a cut-out or concavity in its inserted end to adapt the latter to be readily upset or spread out within the countersunk head of the tube, and thus lock the parts together, substantially as described.

642,876. CAR-AXLE BOX. JOHN W. SKILTON, Daytona, Fla. Filed Oct. 24, 1898. Renewed July 18, 1899. Serial No. 724,301. (No model.)



Claim.—1. The combination with an axle and a box therefor having a transverse partition to form packing and lubricating chambers, of oppositely-located reservoirs having portions concentric with the axle, and means for causing said reservoirs to move toward each other; substantially as specified.

2. The combination of an axle having a bearing portion and a shoulder at the rear thereof, a box therefor provided with a transverse partition extending beneath the bearing portion of the axle to form packing and lubricating chambers, oppositely-located reservoirs having portions concentric with the axle, and means for causing said reservoirs to move toward each other; substantially as specified.

3. The combination with an axle and boxing therefor, of oppositely-located reservoirs having portions concentric with the axle, and means causing said reservoirs to move toward each other; substantially as specified.

4. The combination with an axle and boxing therefor, of reservoirs upon opposite sides of said axle and provided with bases of less diameter than their upper portion, an absorbent material extending from one of said reservoirs to the other; substantially as specified.

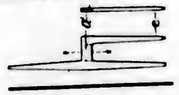
5. The combination with an axle and boxing therefor, of reservoirs upon opposite sides of said axle and provided with bases of less diameter than their upper portion, an absorbent material extending from one of said reservoirs to the other, and a tension-spring connecting said reservoirs; substantially as specified.

6. The combination with an axle and boxing therefor, of reservoirs upon opposite sides of said axle and provided with bases of less diameter than their upper portion, and a conducting-wick having a loosely woven or fringed surface next the surface of the axle; substantially as specified.

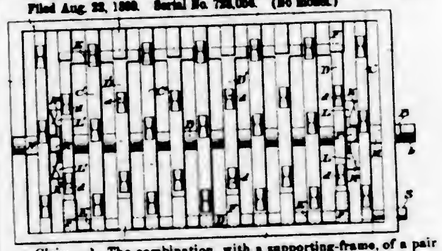
7. The combination with an axle and boxing therefor, of reservoirs upon opposite sides of said axle and provided with bases of less diameter than their upper portion, an absorbent material extending from one of said reservoirs to the other, a tension-spring connecting said reservoirs, said reservoirs having segmental faces concentric to the axle; substantially as specified.

642,877. DOWEL-NAIL. AMBROSE H. SMITH, Chicago, Ill. Filed Sept. 26, 1898. Serial No. 692,763. (No model.)

Claim.—A dowel-nail consisting of a transverse short flat body provided at one end with a pair of oppositely-projecting prongs from its opposite edges and a single prong at its other end from one of its edges, the edge between said two prongs being a cutting edge, said parts cut from sheet metal, and the cut edges of said prongs tapering toward their outer end, the single-pronged edge being adapted to receive hammer blows, substantially as specified.



642,878. GRATE FOR RANGES, &c. PERCIPHOR B. SHEATS, Philadelphia, Pa., assignor of one-half to Leonard Leiser, same place. Filed Aug. 22, 1899. Serial No. 728,054. (No model.)



Claim.—1. The combination, with a supporting-frame, of a pair of grate-frames adapted to reciprocate with relation to each other; a rock-shaft supporting said grate-frames and engaging in elongated slots therein; a lever mounted upon said rock-shaft; and lugs upon said grate-frames arranged in the described relation to said lever, whereby oscillation of the rock-shaft is permitted to effect the reciprocation of said frames relatively to each other, substantially as set forth.

2. The combination, with a supporting-frame, of a pair of grate-frames adapted to reciprocate with relation to each other; a rock-shaft supporting said grate-frames and engaging in elongated slots therein; a lever mounted upon said rock-shaft; lugs upon said grate-frames arranged in the described relation to said lever, whereby oscillation of the rock-shaft is permitted to effect the reciprocation of said frames relatively to each other; and a pin mounted in said inclosing frame and projecting beneath one of said grate-frames, substantially as set forth.

3. The combination, with a supporting-frame, of an inner grate-frame having slotted sides; an outer grate-frame inclosing said inner grate-frame, the grate-bars of said outer grate-frame being arranged to slide freely in the slots of the inner grate-frame; a rock-shaft extending longitudinally through said frame and arranged in elongated slots in the inner and outer grate-frames, said rock-shaft having a portion of its surface squared; a rocking-lever detachably mounted upon the squared portion of the rock-shaft and engaging said grate-frames; and a pin mounted in the outer frame and adapted to engage beneath one of said grate-frames, substantially as set forth.

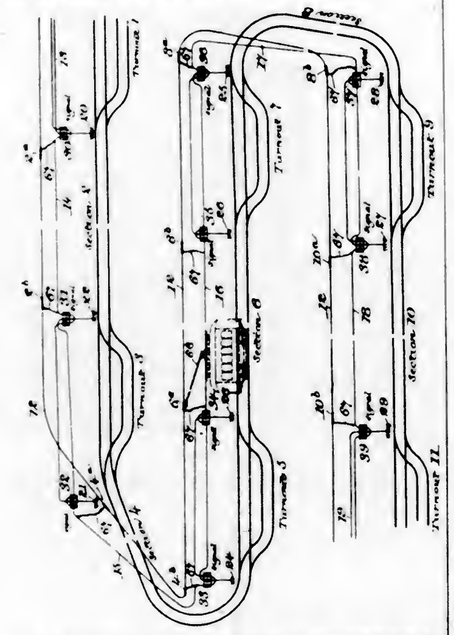
642,879. ELECTRIC SIGNALING APPARATUS. HOWELL W. SOUDER, Tamaqua, Pa. Filed Aug. 28, 1899. Serial No. 728,677. (No model.)

Claim.—1. In an electric railroad signaling system the combination of a plurality of track-sections, two automatic electrically-operated signals for each section of track located one near each end thereof, and means whereby the passage of a car onto or off of any particular section of track will shift the signals of said section and illuminate the signals of the adjacent ends of the neighboring track-sections.

2. In an electric railroad signaling system the combination of a plurality of track-sections, two automatic electrically-operated signals for each section of track located one near each end thereof, and each consisting of a shifting device and two illuminating devices, an electric circuit for each track-section including the shifting and an illuminating device in the signals for said section and an illuminating device only in the adjacent signals of the neighboring track-sections, and current-supplying devices for said circuit located at either end of that particular track-section and adapted to be operated by a passing car.

3. In an electric railroad signaling system, the combination of a plurality of track-sections, turnouts between said sections, automatically-shifting signals located one near the end of each track-section, and means whereby the passage of a car from section to turnout or from turnout to section will shift the signals near each end of that section and illuminate the signals near the adjacent ends of the neighboring sections.

4. In an electric railroad signaling system, the combination of a plurality of track-sections, turnouts between said sections, signals located one near the end of said section, consisting of a shifting device and two illuminating devices, an electric circuit for each section including the shifting and an illuminating device in the signals near the end of said section and an illuminating device only in the signal near the adjacent ends of the neighboring sections, and current-supplying devices for said circuit located at either end of that particular section and adapted to be operated by a passing car.

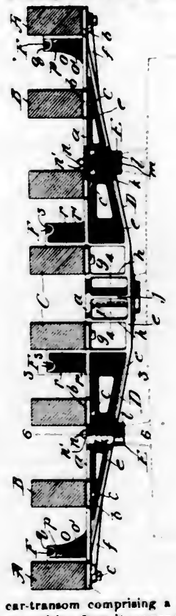


5. In an electric railroad signaling system, the combination of a plurality of track-sections, turnouts between said sections, signals located one near the end of each section consisting of a rotating drum of alternately-colored panes of glass, two electric lamps within said drum and electric means for partially rotating the drum in circuit with one of said lamps, an electric circuit for each section including the rotating means and lamp in circuit therewith in the signals near the ends of said section and the independent lamp in each of the signals near the adjacent ends of the neighboring sections, and current-supplying devices for said circuit located at either end of that particular track-section and adapted to be operated by a passing car.

6. In an electric railroad signaling system, the combination of a plurality of track-sections, turnouts between said sections, signals located one near the end of each section consisting of a rotating drum of alternately-colored panes of glass, two electric lamps within said drum and electric means for partially rotating the drum in circuit with one of said lamps, an electric circuit for each section including the rotating means and lamp in circuit therewith in the signals near the ends of said section and the independent lamp in each of the signals near the adjacent ends of the neighboring sections, and current-supplying devices for said circuit located at either end of that particular track-section and adapted to be operated by a passing car, said current-supplying devices consisting of contact-pieces normally insulated from the trolley-wire but adapted to be put in circuit therewith by a bridging action of the trolley of the passing car.

7. In an electric railroad signaling system, the combination of a plurality of track-sections, turnouts between said sections, signals located one near the end of each section consisting of a rotating drum of alternately-colored panes of glass, two electric lamps within said drum and electric means for partially rotating the drum in circuit with one of said lamps, an electric circuit for each section including the rotating means and lamp in circuit therewith in the signals near the ends of said sections and the independent lamp in each of the signals near the adjacent ends of the neighboring sections, and current-supplying devices for said circuit located at either end of that particular track-section and adapted to be operated by a passing car, said current-supplying devices consisting of contact-pieces normally insulated from the trolley-wire but adapted to be put in circuit therewith by a bridging action of the trolley of the passing car, both said contacts connecting with the signaling-circuit at a point between the signals corresponding to the ends of that track-section.

642,880. TRANSOM FOR RAILWAY-CARS. PETER SOUTHER, Pine Bluff, Ark. Filed Sept. 9, 1898. Serial No. 690,570. (No model.)



Claim.—1. A car-transom comprising a beam having integral abutments or buttresses rising from its upper face, to strengthen the side and draft sills of the car, said buttresses being formed with sockets in their upper faces to support the longitudinal truss-rods of the car, said upper face of the beam also provided with laterally-extending lugs or ears through which lag screws or bolts pass into the sills, substantially as described.

2. A car-transom comprising a beam formed with integral pockets for the side bearings, and having integral buttresses on its upper face to strengthen the side and draft sills of the car, certain of said buttresses constructed and adapted for attachment to the sills substantially as described.

3. A car-transom comprising a beam having buttresses formed integral therewith for strengthening the side and draft sills of the car, said beam being, also, provided with integral inverted pockets for the side bearings, in combination with yielding side bearings arranged in said pockets, substantially as described.

4. A car-transom comprising a cast-steel or malleable-iron beam having buttresses formed integral therewith, to strengthen the side and draft sills of the car, said beam also, having integral inverted pockets, in combination with side bearings slidingly mounted in said pockets, springs whose energy is exerted to depress said pockets, and means for adjusting the vertical position of said side bearings in said pockets, substantially as described.

5. A car-transom comprising a beam of substantially I shape in cross-section, said beam being deepest at its middle portion, buttresses formed integral therewith, for strengthening the side and draft sills of the car said sills secured in the angles formed between the beam and buttresses, a hollow socket for the king-bolt, and vertical walls spaced from, and arranged on each side of, said hollow socket, against which sills the draft-timbers may rest, substantially as described.

6. A car-transom comprising a base *a* formed with lugs or ears at intervals for attachment to the car-sills, vertical web *d*, flanges *e*, and strengthening-webs *f*, which are continuations of the vertical web *d*, and partially below the flanges *e* and on each end of the transom, integral brackets *o*, and *r*, having notched upper ends, said brackets having the combined function of abutments for sills and supports for truss-rods substantially as described.

7. A transom comprising a beam having depending pockets, side

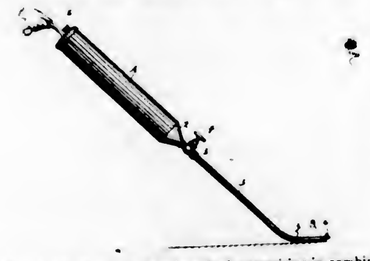
bearings having sliding connection therein, a spring interposed between the pocket and bearing, and a bolt connecting the pocket and bearing.

642,881. **TRUSS.** ALEXANDER SPEISS, Westbrook, Me. Filed Oct. 15, 1898. Serial No. 693,576. (No model.)



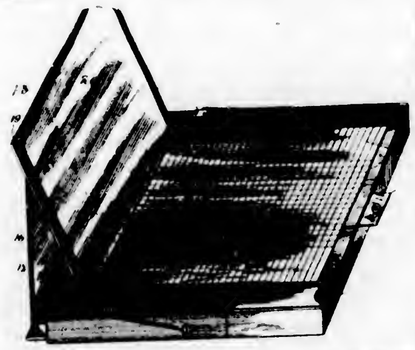
Claim.—In a truss, an elastic bow, pad-holders consisting of concave cups secured to the ends of said bows and pads having on one side a configuration adapted to enter and fit said cups and a circumferential flange adapted to extend over and engage the edge of the cup.

642,882. **GRASS-LIGHTING TORCH.** JAMES STALEY, Bismarck, N. D. Filed Feb. 26, 1898. Serial No. 671,723. (No model.)



Claim. A device of the class described, comprising in combination the reservoir, the wick-holding pipe detachably secured to said reservoir, and having its lower end deflected, with the end of said deflected portion rearwardly beveled, the controlling-valve in said pipe, and the handle for said device.

642,883. **PORTABLE WRITING OR DRAWING DESK.** TRUMAN E. STARK, Naperville, Ill. Filed Aug. 9, 1898. Serial No. 726,630. (No model.)



Claim.—1. In a portable drawing and writing desk, in combination, a base, a cover hinged to the base by links attached to the ends of said parts, an easel hinged to the inner face of the cover near one of its edges, and a leg for the easel hinged thereto and to the base.

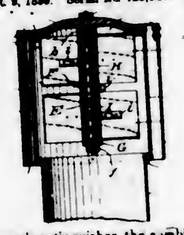
2. In a portable drawing and writing desk, in combination, a base in box form, one side of the box being hinged to the bottom, a cover hinged to the box by links attached to the ends of such parts, an easel hinged to the inner face of the cover, and a leg for the easel fixed to the hinged side of the box.

3. In a portable drawing and writing desk, in combination, a base, a cover hinged to the base by links attached to the ends of such parts, a lip secured to the inner face of the cover, a lip fixed to the base for engaging the lip of the cover, and means for securing the edge of the cover, remote from its lip, to the base.

4. In a portable drawing and writing desk, in combination, a base in box form, one side of the box being hinged to the bottom, a cover hinged to the box by links pivotally attached to the box ends midway of their length and to the edges of the cover near one of its side edges, an easel pivoted to one face of the cover, a leg fixed to the hinged side of the box and hinged to the easel.

5. In a portable drawing and writing desk, in combination, a base, a cover hinged to the base by links pivotally attached to the base ends midway of their length and to the ends of the cover near one of its side edges, an easel pivoted to one face of the cover, a leg for the easel and being hinged thereto and to the base.

642,884. **SPARK-EXTINGUISHER.** JOHN STINE, Mount Auburn, Ind. Filed Sept. 9, 1899. Serial No. 729,940. (No model.)



Claim.—In a spark-extinguisher, the combination of the smoke-stack, the base-band secured to the smoke-stack, the supporting-posts secured at their lower ends to the base-band and having their upper ends turned outward and downward, the top ring secured to the upper portions of said posts and having the arched cross-bar bored centrally, the axle secured at its upper end to said bored cross-bar and having the bearing-collar at its lower end and the intermediately-disposed collar, the wind-wheels on said axle, and the casing attached at its upper end to the downwardly-turned portions of said posts and inclosing said wheels and said posts, substantially as shown and described.

642,885. **LAMP-BURNER OR BURNER ATTACHMENT.** JOHN H. STONE, Toronto, Canada. Filed Mar. 28, 1897. Serial No. 629,434. (No model.)



Claim.—1. The combination with a lamp having a bowl, a wick-tube and wick, a copper and zinc plate arranged adjacent to said wick and projecting into the oil-space in the bowl, substantially as described.

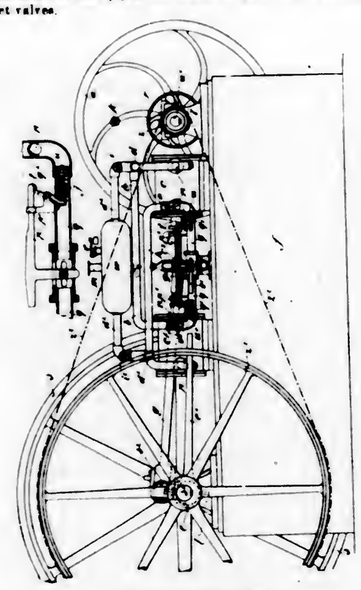
2. The combination with a lamp having a bowl, wick-tube and wick, a zinc and copper plate arranged on opposite sides of the wick and projecting into the oil-space in the bowl, substantially as described.

3. The combination with a lamp having a bowl, a burner and wick, copper and zinc plates depending from said burner into the bowl adjacent to the wick, substantially as described.

642,886. **MULTIPLE-CYLINDER AIR-COMPRESSING ENGINE.** GEORG SEIMAT, Buda-Pesth, Austria-Hungary. Filed Oct. 14, 1898. Serial No. 693,532. (No model.)

Claim.—1. In an air-compressing engine the combination of four cylinders arranged in pairs, the front ends of the pairs facing each other and the cylinders in one pair opposite to and in line with a cylinder in the other pair, pistons in the cylinders, two piston-rods connecting the pistons in the opposite cylinders, means for rigidly connecting the two piston-rods and for reciprocating the four pistons simultaneously, pipes placing one end of each cylinder in communication with an end of the cylinder opposite, valve-controlled air-inlets to admit air into said pipes, a pressure-reservoir, and valve-controlled communications between the reservoir and pipes, whereby air is admitted to the suction ends of the four cylinders and expelled from the pressure ends simultaneously.

2. In an air-compressing engine, the combination of four cylinders arranged in pairs, the front ends of the pairs facing each other and the cylinders in one pair opposite to and in line with a cylinder in the other pair, pistons in the cylinders rigidly connected and means for reciprocating the same, four pipes, each communicating with the rear end of one cylinder and extending toward the opposite cylinder, air-inlet valves in the free ends of said pipes, a check-valve in each of said pipes opening toward the cylinder with the rear end of which it communicates, communications between said opposite cylinder and the said pipes at a point in the latter between the valves above mentioned, a pressure-reservoir, valve-controlled connection between the reservoir and the said pipes and means for positively actuating the air-inlet valves.



642,887. **PROCESS OF PREPARING PEAT FOR SURGICAL USE.** THÉOPHILE TENPIED and GEORGES DUMARTIN, Paris, France. Filed Mar. 28, 1899. Serial No. 710,841. (Specimens.)

Claim.—The herein-described method of treating selected natural peat for the purpose of obtaining therefrom a fiber especially adapted for antiseptic and hygienic uses, which consists in first macerating the natural peat for several days in order to soften it and remove the grosser impurities, then beating and washing it in pure water in order to cleanse it thoroughly, then treating the fiber with an ammoniacal bath to restore its color, and then sterilizing it, substantially as set forth.

642,888. **LOOM-SHUTTLE.** HENRY TOMLINSON, Lawrence, Mass. Filed Oct. 27, 1899. Serial No. 734,933. (No model.)

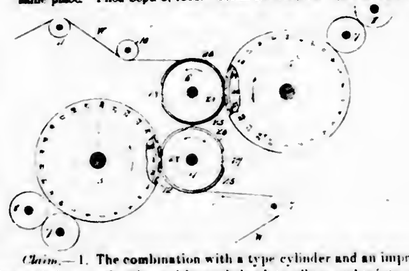


Claim.—1. A loom-shuttle having a spindle pivoted therein at one end, means for holding a bobbin from longitudinal movement on said spindle, consisting of a button, one dimension of which is less and the other greater than the diameter of the hole through the bobbin, a slot in the opposite end of the spindle from the pivoted end which extends diametrically across the same and in which said button is centrally pivoted, whereby said button may be turned in either direction in said slot to permit the passage of the bobbin onto or off the spindle, and a stop which is arranged to engage the base of the bobbin when the spindle is swung into the shuttle.

2. A shuttle having a spindle pivoted therein at one end, means for holding a bobbin thereon against longitudinal movement, consisting of a button which is pivoted in the end of said spindle opposite its pivoted end, said button being adapted to be turned so as to permit or prevent the passage of the bobbin onto and off the spindle, a fixed stop carried by the shuttle which is arranged to engage the base end of the bobbin when the spindle is swung into the shuttle and hold the opposite end of the bobbin against the button.

3. A loom-shuttle having a spindle pivoted therein at one end, a bobbin, a slot in the opposite end of said spindle, a button pivoted therein which is adapted to be turned so that the bobbin may be passed over the end of the spindle or be turned so that it will prevent the removal of the bobbin therefrom, a stop adjacent to said spindle which is located so as to engage the base end of the bobbin after the opposite end thereof has passed beyond the button, when the spindle is swung out of the shuttle, and a stop which is adapted to engage the base of the bobbin when the spindle is in the shuttle, whereby the bobbin may be held against longitudinal movement between said stop last mentioned and said button.

642,889. **NUMBERING-MACHINE.** FREDERICK M. TURCK, New York, N. Y., assignor, by mesne assignments, of one-half to Mabel Tracy, same place. Filed Sept. 5, 1899. Serial No. 729,415. (No model.)



Claim.—1. The combination with a type cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position so as to print from non-adjacent type, of means moving with one member for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

2. The combination with a type-cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position so as to print from non-adjacent type, of means moving with the other member for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

3. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means moving with one member for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

4. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means moving with the impression-cylinder for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

5. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means for effecting the lateral movement of the type-cylinder to non-printing position between impressions, substantially as described.

6. The combination with a type-cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position, so as to print from non-adjacent type, of means, including a cam moving with one member, for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

7. The combination with a type-cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position, so as to print from non-adjacent type, of means, including a cam moving with the other member, for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

8. The combination with a type-cylinder and an impression cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means, including a cam moving with one member, for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

9. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means, including a cam moving with the impression-cylinder, for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

10. The combination with a type-cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position so as to print from non-adjacent type, of means,

including a plurality of cams arranged one in advance of the other moving with one member, for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

11. The combination with a type-cylinder and an impression-cylinder coacting therewith, one being laterally movable into and out of printing position, so as to print from non-adjacent type, of means, including a plurality of cams arranged one in advance of the other moving with the other member, for effecting the movement of said laterally-movable member to non-printing position between impressions, substantially as described.

12. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally-movable into and out of printing position so as to print from non-adjacent type, of means, including a plurality of cams arranged one in advance of the other moving with one member, for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

13. The combination with a type-cylinder and an impression-cylinder coacting therewith, said type-cylinder being laterally movable into and out of printing position so as to print from non-adjacent type, of means, including a plurality of cams arranged one in advance of the other moving with the impression-cylinder, for effecting the movement of said type-cylinder to non-printing position between impressions, substantially as described.

14. The combination with a laterally-movable type-cylinder, and a coacting impression-cylinder, of cams 25, 26 interposed between the two, substantially as described.

15. The combination with a laterally-movable type-cylinder, and a coacting impression-cylinder, of cams 25, 26 interposed between the two and moving with the impression-cylinder, substantially as described.

16. The combination of type-cylinder 3, impression-cylinder 4 of less than half the diameter of the type-cylinder, gears 19 and 20, the latter having less than half the number of teeth of the former, and cams 25, 26 interposed between the two, substantially as described.

17. The combination of type-cylinder 3, impression-cylinder 4 of less than half the diameter of the type-cylinder, gears 19 and 20, the latter having less than half the number of teeth of the former, and cams 25, 26 interposed between the two and borne by the impression-cylinder, substantially as described.

18. The combination of two printing-couples adapted to print opposite sides of a web or sheet, the impression-cylinders thereof being geared together and each geared to its type-cylinder so as to drive the latter, the type-cylinder of each couple being laterally movable into and out of printing position so as to print from non-adjacent type, means for effecting its movement to non-printing position between impressions, and means for driving the shaft of one of the impression-cylinders, substantially as described.

19. The combination of type-cylinders 3, 5, impression-cylinders 4, 6, gears 19, 20, connecting the type and impression cylinders of each set, and cams 25, 26 interposed between each type and impression cylinder, whereby on two revolutions of each of said impression-cylinders four impressions are made, substantially as described.

20. The combination of type-cylinders 3, 5, impression-cylinders 4, 6, gears 19, 20, connecting the type and impression cylinders of each set, and cams 25, 26 interposed between each type and impression cylinder and borne by the latter, whereby on two revolutions of each of said impression-cylinders four impressions are made, substantially as described.

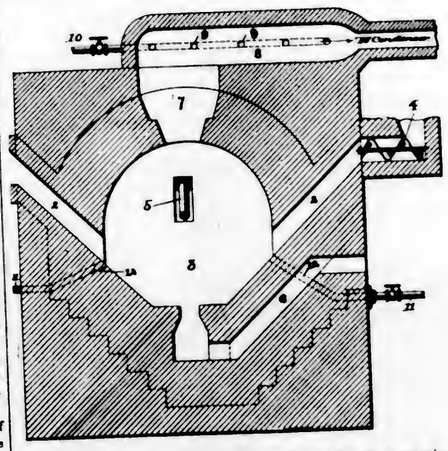
21. The combination of type-cylinders 3, 5 each provided with a consecutive row of type, impression-cylinders 4, 6, gears 19, 20 connecting the type and impression cylinders of each set, and cams 25, 26 interposed between each type and impression cylinder, whereby on two revolutions of each of said impression-cylinders four impressions are made, substantially as described.

22. The combination of type-cylinders 3, 5 each provided with a consecutive row of type, impression-cylinders 4, 6, gears 19, 20 connecting the type and impression cylinders of each set, and cams 25, 26 interposed between each type and impression cylinder and borne by the latter, whereby on two revolutions of each of said impression-cylinders four impressions are made, substantially as described.

642,890. PROCESS OF MAKING SULFURIC ACID. FRANK P. VAN DENBERGH, Buffalo, N. Y. Filed Apr. 11, 1896. Renewed June 16, 1899. Serial No. 720,709. (No specimens.)

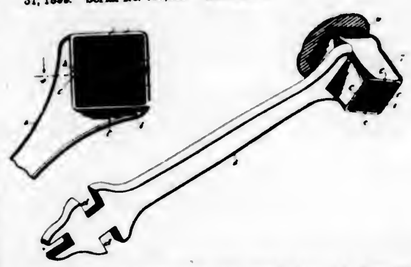
Claim.—1. In the art of manufacturing sulfuric acid, the herein-described process, which consists in subjecting a material containing sulfur to heat and electrolysis produced by an electric current within a furnace, and applied directly to the material while in a molten condition, in the presence of an excess of free oxygen, thereby forming sulfur oxids, and subsequently hydrating these, substantially as set forth.

2. In the art of manufacturing sulfuric acid, the herein-described process which consists in subjecting calcium sulfate or gypsum to heat and electrolysis both produced by an electric current within a furnace, and applied directly to the material while in a molten condition, and in the presence of an excess of oxygen, thereby forming sulfur oxids, and subsequently hydrating these oxids, substantially as set forth.



3. In the art of manufacturing sulfuric acid free from arsenic, nitrogen oxids, and other common impurities, the herein-described process which consists in subjecting calcium sulfate or gypsum and a flux to heat and electrolysis, both produced by an electric current within a furnace-chamber containing the materials, and applied directly to and through them while in a molten condition in the presence of an excess of oxygen, thereby forming sulfur oxids, and subsequently hydrating these oxids, substantially as set forth.

642,891. VEHICLE NUT-WRENCH. JACOB E. VARBOTE, Lakota, N. D., assignor of one-half to Hans Reyerson, same place. Filed July 31, 1899. Serial No. 725,615. (No model.)

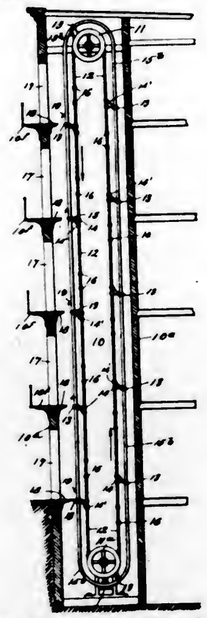


Claim.—1. The combination with a handle-bar, and a hollow head thereon angular in cross-section, of a socket-piece loosely fitting against the interior walls and angles of said head, and held to slide therein, said socket-piece having a cap-flange on one end for its manipulation, and an angular tapered socket-hole extending therein from the opposite end, the side walls of which are slitted to render them resilient.

2. The combination with a handle-bar, and a hollow head thereon angular in cross-section, of a mating socket-piece having opposite arms extended at one end, and held to slide in the hollow head by a cross-pin which loosely engages slots in the arms, and is secured at its ends in the hollow head.

3. The combination with a handle-bar, of a hollow head-piece on an end of said handle-bar rectangular in cross-section, a socket-piece loosely fitting in the hollow head and having a tapering socket-hole therein, the walls of which are slitted to render them resilient, two opposite arms having longitudinal slots and extending at one end of the socket-piece, a cap-flange joining outer ends of said arms, and a cross-pin passing through the slots of the arms and fixed by its ends in opposite walls of the hollow head.

642,892. FIRE-ESCAPE. FRANK VAUGHAN, Elizabeth City, N. C. Filed Nov. 11, 1899. Serial No. 736,665. (No model.)



Claim.—1. In a fire-escape apparatus, a well part of whose sides are formed by the main masonry walls of a building and its remaining sides are masonry walls solidly joined to the said main walls of the building, upper and lower drums mounted in said well, cables traveling around said drums, steps attached to said cables and having guide-rollers fitted in vertical guideways in the well, spring-arms in said guideways at each floor of the building and pressed back by the rollers of the steps when the steps approach a floor whereby to slacken the speed of the apparatus at the floors, and means for throwing any of said spring-arms into or out of the path of the guide-rollers, as set forth.

2. In a fire-escape apparatus, a well, vertically-movable cables in said well, and steps having brackets formed at their outer ends with clamps formed in hinged sections adapted to interlock whereby to detachably connect the steps to the cables, as set forth.

3. In a fire-escape apparatus, a well having vertical guideways in its sides, vertically-movable cables in said well, steps attached to said cables and having guide-rollers in said guideways, spring-arms extending into the guideways, and means for holding the spring-arms in or out of the path of the rollers, as and for the purpose set forth.

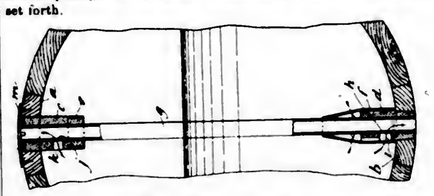
4. In a fire-escape apparatus, a well, vertically-movable cables in said well, steps attached to said cables, and spring step-supports attached to the cables below the steps and extending out from the cables to contact with the under side of the steps, as set forth.

5. In a fire-escape apparatus, a well, vertically-movable cables in said well, steps, handholds, and step-supports, and hinged clamps secured to the steps, handholds, and step-supports and arranged for interlocking engagement around the cables, as and the purpose set forth.

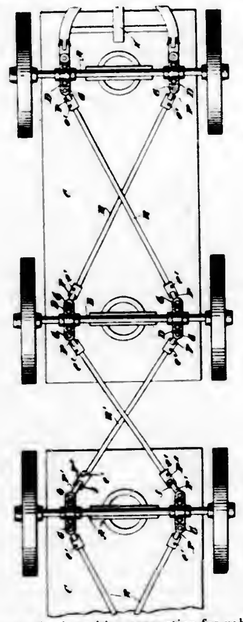
6. In a fire-escape apparatus, a well, vertically-movable cables in said well, steps on the cables and carrying rollers moving in vertical guideways in the sides of the well, and devices at each floor of the building arranged for frictional engagement with said rollers, as set forth.

642,898. APPLIANCE FOR DRAWING LIQUID FROM AND VENTING CASKS. JOHN WATKINS, Hereford, England. Filed Nov. 13, 1899. Serial No. 736,570. (No model.)

Claim.—An appliance for drawing liquid from and venting a cask, comprising a tube fitting in two sleeves projecting into the cask through holes on opposite sides the tube having near each end a lateral hole and each sleeve having also a lateral passage, a cover-plate with keyhole for the upper end of the tube, and a key adapted to turn the tube so as to bring its lateral holes into coincidence with the lateral passages of the sleeves substantially as and for the purpose set forth.



642,894. TRACKING CONNECTION FOR VEHICLES. LEIGH WATKINS, Cripple Creek, Colo. Filed June 5, 1899. Serial No. 719,444. (No model.)

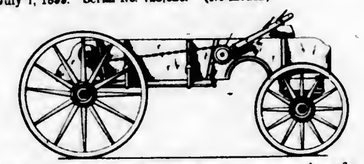


Claim.—1. A wheel-tracking connection for vehicle-axles, comprising two rods having clevises swiveled upon their ends and connected with opposite ends of adjacent axles, substantially as described.

2. A trailing or tracking attachment for vehicles, comprising two rods having clevises swiveled at each end and also provided with a hinged joint, and means for pivotally attaching the clevises to opposite ends of the axles of the vehicles so that the rods will cross, substantially as described.

3. A trailing or tracking attachment for vehicles, comprising two rods having clevises attached to their ends by a swivel-joint which is offset from the central line of the clevis, and means for connecting the clevises to opposite ends of adjacent vehicles, substantially as described.

642,895. DUMPING-WAGON. DAVID S. WATSON, Canastota, N. Y., assignor to the Watson Wagon Company, of New York. Filed July 7, 1899. Serial No. 723,026. (No model.)



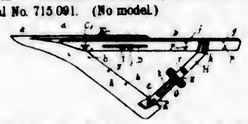
Claim.—1. The combination with a winding-ratchet of a pawl composed of a body pivotally mounted, a head, having a point and a flat face, pivoted upon said body, a spring engaging with said body,

and a lever adapted to engage therewith and swing said body in one direction, while the strain upon the ratchet will tilt said head in the opposite direction.

2. The combination with a winding-ratchet of a pawl composed of sections hinged together, and having a shoulder on one section, a spring engaging with one section to hold the point of engagement of the pawl out of alinement with the pivot connecting the sections and the pivot of the pawl, a lever engaging with said shoulder to swing that section whereby the strain on the ratchet will swing the other section and bring its flat face into engagement with the face of the ratchet.

3. The combination with a winding-ratchet, of a pawl composed of a body and a head hinged thereon having a flat face and a pawl-point whereby when said ratchet is revolved in one direction it will operate as a pawl, and when in the opposite direction said head will swing and bring its flat face against said ratchet as a brake, and means to retain said pawl in either position.

642,396. ADJUSTABLE BAR AND BRACE FOR HANDLING PLOWSHARES. MICHAEL WERNIMONT, Asbury, Iowa. Filed May 1, 1899. Serial No. 715,091. (No model.)



Claim.—1. In a device of the character described, a bar provided with means for adjustably securing it at one end to the rear of a plow-point and a brace for connecting the rear end of said bar with the outer end of a plowshare, consisting of two rods slotted at right angles to each other, for the purposes shown.

2. A device of the character described, consisting of a bar provided with means for adjustably attaching it to the under side of a plow-point, a plate adjustably attached to said bar and adapted to engage the rear of the plow-point, and a brace for adjustably connecting the rear of said bar, and the outer end of a plowshare, the plate and brace being slotted at right angles to each other, for the purposes shown.

3. A device of the character described, consisting of a bar B, adapted to be adjustably secured by bolt C, to the landside of a plow-point, and a brace formed of the two parts G and H, adjustably secured together and adapted to be adjustably secured to the rear of the bar B and the outer end of a plowshare, as and for the purposes shown.

4. An implement of the class described, comprising the plate E adapted to engage the under side of the plow-point, the plate E having one of its ends square and the other formed at an acute angle and pivoted to the plate B, and provided with slots whereby it may be adjusted to heels of plowshares having different angles, and so adjusted to the plate B that it shall not interfere with measurements or line of observation, and an adjustable brace connecting the rear of the plate B with the rear of the plowshare, for the purposes shown.

642,397. CULTIVATOR. EDMUND C. WESTERVELT and CHARLES W. CLAPP, South Bend, Ind. Filed June 21, 1899. Serial No. 721,396. (No model.)



Claim.—1. The combination of the frame, and a cultivator-beam, the casting D provided with eyes *d*, *d*, attached to one of said members and the opposite castings F, *f*, attached to the other member, and provided with lugs adapted to engage the eyes on the casting D, for the purpose and substantially as described.

2. In a cultivator, the combination of the frame, the draft-bar having a loop or eye *e* and the cultivator-beam; with the casting D provided with eyes *d*, *d*, the opposite castings F, *f*, provided with projections F^4, f^4, adapted to transfix the eyes *d* on castings D and to meet within a loop *e* on the draft-beam whereby the cultivator-beam is hinged to the frame and the draft-beam hinged to both, for the purpose and substantially as described.

3. The combination of the frame, and the slotted casting D secured thereto provided with upper and lower eyes *d*; with a cultivator-beam, the upper and lower angular castings F, *f*, attached to the forward extremity of said beam, by means of bolts B^3, the castings being provided with forward extensions and said extensions having lugs F^4 and f^4 adapted to engage the eyes *d*, substantially as described.

4. The combination of the frame, the slotted casting D secured thereto, provided with upper and lower eyes *d*, a cultivator-beam, upper and lower angular castings F, *f*, attached to the forward extremity of said beam, by means of bolt B^3, the castings being provided with forward extensions and said extensions having conical lugs F^4 and f^4 adapted to engage the eyes *d*; with the draft-beams having a loop *e*, said loop being adapted to be inserted between the eyes *d* and to be transfixed by the lugs F^4 and f^4, all for the purpose and substantially as described.

5. In a cultivator, the combination of the opposite shovel-carrying bars, a handle-attaching casting H attached to said bars at their point of divergence and the wedge-shaped casting *h* interposed between said bars, for the purpose and substantially as described.

6. In a cultivator, the combination of the cultivator-beam composed of the opposite bars B, a slotted casting H attached to said bars at their point of divergence and the adjustable wedge-shaped casting *h* interposed between said bars, below the casting H and adjustably secured in position by a bolt *h'*, engaging the slot in casting H, for the purpose and substantially as described.

7. In a shovel-adjusting device for cultivators, the combination of the opposite adjustable castings G, *g*, provided with coincident grooves for the reception of the shovel-supporting rod or tang with means for shifting said castings to adjust the rod to different inclinations, and means for locking said casting when desired.

8. The combination of the adjustable casting provided with a trunnion and a groove as g^3, and means for supporting said casting, with a coacting casting having a groove as G^3 registering with groove g^3, and means for adjusting and locking said castings relatively to each other and the shovel-supporting rod or tang held in the grooves G^3 and g^3, substantially as described.

9. In a shovel holding and adjusting device, the combination of a casting provided with a trunnion as *g'* by which it is mounted in a suitable support and with a substantially vertical groove g^3, with the opposite castings G provided with a groove G^3 registering with a groove g^3 and with opposite slots in its ends, for the passage of securing-bolts for the purpose and substantially as described.

10. In a shovel holding and adjusting device, the combination of the cultivator-bar, a casting as *b* secured to the end thereof provided with an eye *b'* the casting *g* having a trunnion *g'* engaging eye *b'*, and a vertical groove as g^3 and a casting G having a groove G^3 coinciding with the groove g^3, and the shovel-supporting rod or standard passing through and clamped in the grooves G^3 and g^3, for the purpose and substantially as described.

11. In a shovel holding and adjusting device, the combination of a rocking casting provided with a trunnion *g'* by which it is mounted in a suitable support; a slot g^3 transfixed by a locking-bolt and a substantially vertical groove g^3; with the opposite casting G provided with a groove G^3 registering with groove g^3 and having opposite slots in its ends for the passage of the securing-bolts, for the purpose and substantially as described.

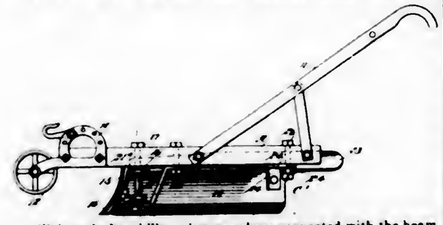
12. In a shovel holding and adjusting device, the combination of the cultivator-bar, a casting *b* secured to the end thereof provided with an eye *b'* and slot b^3; the casting *g* having a trunnion *g'* engaging eye *b'*, a slot g^3 coinciding with slot b^3, and a vertical groove as g^3; and a casting G having a slot G' for the engagement of a securing-bolt, a groove G^3 coinciding with the groove g^3 and a slot G^3 coincident with the slots b^3, g^3; a bolt passing through said coincident slots, and the shovel-supporting rod or standard passing through and clamped in the grooves G^3, and g^3, for the purpose and substantially as described.

13. In a cultivator, the combination of the T-headed frame, the cultivator-beams pivotally connected to the opposite ends of the head of said frame, the angular lever pivoted to the stem of said frame and carrying a wheel on its lower forwardly-projecting end, and the shoe-arms pivoted to the frame in rear of the said lever, and the links connecting the lower part of said lever to the upper ends of said shoes whereby the movement of said lever causes the simultaneous lifting or lowering of the wheels and shoes, for the purpose and substantially as described.

14. In a cultivator, the combination of the T-shaped frame, the cultivator-beams pivotally connected to the ends of the T-head of said frame, the handles and adjustable shovel-attaching devices connected to the said beams, the adjustable lever pivoted to the stem of said frame and carrying a wheel, the adjustable rearwardly-inclined shoes connected to the stem of said frame, and the connections between said shoe and lever for simultaneously raising and lowering the wheel and shoes, for the purposes and substantially as described.

15. In a cultivator, the combination of the frame, the cultivator-beams B, B, pivotally connected thereto, the shovels attached to the diverging ends of said beams and the handles for adjusting the beams; the angular lever I pivotally connected to the stem of said frame having a forward extension I^3 carrying a wheel, and a rearward extension I' forming an adjustable handle, and a ratchet-keeper for locking said handle in any position to which it is to be adjusted; with the shoes *i*, *i*, pivoted to the stem of the frame in rear of the pivot of the lever I, and the link *i'* connecting the ends of the shoes *i*, *i*, above their pivots to the lever I below its pivot, for the purpose and substantially as described.

642,398. CORN OR POTATO HILLER. VAN ALLEN WHITBECK, Aquetuck, N. Y. Filed Nov 1, 1899. Serial No. 735,508. (No model.)



Claim.—1. In a hiller, a beam, a share connected with the beam, and moldboards having their forward ends at the rear of the said share, the said moldboards each comprising an approximately straight central longitudinal section, an outwardly and upwardly inclined upper section, and an outwardly and downwardly inclined bottom section, substantially as described.

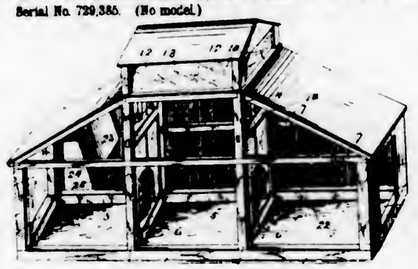
2. In a hiller, the combination with a beam, a bracket secured to the said beam at its under side, and a share carried at the forward portion of the said bracket, of a pivot-pin passed through the beam and through the bottom portion of said bracket at the rear of the share, moldboards each having projections upon their inner faces, the projections on one moldboard overlapping the corresponding projections on the other moldboard, the said projections having registering openings through which the said pivot-pin passes, the forward ends of the moldboards being in all positions of said boards within the line of the side edges of the share, and means for adjusting the said moldboards at their rear ends.

3. In a hiller, the combination, with a beam and a share supported by the said beam, of moldboards pivoted at their forward ends at the rear of the said share, each moldboard being provided with a perpendicular central section, an upwardly and outwardly extending upper section, an outwardly and downwardly extending rear section, and an adjusting device for said moldboards, as set forth.

4. A moldboard having a central substantially straight longitudinal section, an upper longitudinal section having upward and rearward inclination, and an extension at its rear end beyond the body-section, together with a bottom section having a downward and rearward inclination from the body-section, as described.

5. In a hiller, the combination with a beam provided with a draft device, handles and a colter wheel, of a bracket secured to the under face of the beam near its center, the said bracket having a horizontal bottom member and upwardly and rearwardly inclined rear and front members, a share secured to the front member of the bracket, moldboards pivoted at their forward ends at the rear of the said share, the pivot-pin of said moldboards extending through the beam and through the bottom member of the bracket, and adjusting devices for the rear portions of the said moldboards, substantially as described.

642,399. CATTLE FLY-TRAP HOUSE. BENJAMIN M. WHITE and WALTER L. COVINGTON, Montgomery City, Mo. Filed Sept. 2, 1899. Serial No. 729,385. (No model.)

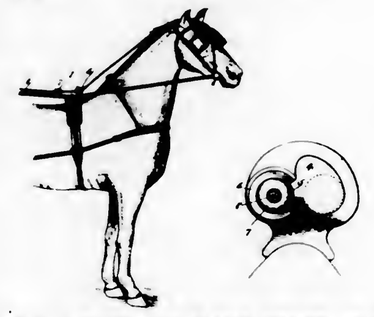


Claim.—1. A house for the removal of flies from cattle and the like, comprising a rectangular inclosed structure having a roof slanting in the direction of the length of the house, an entrance-door at one end of the roof, an exit-door at the other end of the roof in the side of the house, bristle swinging doors between the entrance and exit doors, and a glass-inclosed fly-catcher in communication with the interior of the house and secured upon the top of the latter between the roof portions, as set forth.

2. The combination, with the house having closed sides, one of which is provided with an exit-door, a closed end, an entrance-door in the other end, roof portions slanting in the direction of the length of the house, and swinging doors provided with fly-removing material, and located between the exit and entrance doors, of the shields depending from the roof outside of the swinging doors, a light house secured between the said roof portions, and a fly-catcher in the light house in communication with the latter and with the compartment between the swinging doors, as set forth.

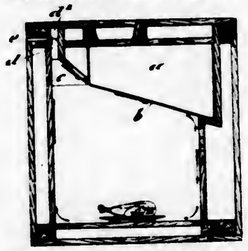
3. The combination, with the inclosed cattle-house having swinging doors provided with fly-removing material and located between the entrance and exit of the house, shields upon the outside of the swinging doors, roof portions slanting in the direction of the length of the house, and a light house secured between the roof portions, of a fly-catcher comprising a gauze wire having a raised central portion provided with an opening, the edges of the wire being secured at the juncture of the two houses, and a wire-gauze stack projecting upward from said opening, as set forth.

642,400. CHECKING OR UNCHECKING DEVICE. JOSEPH WHITE, New York, N. Y. Filed June 13, 1899. Serial No. 720,351. (No model.)



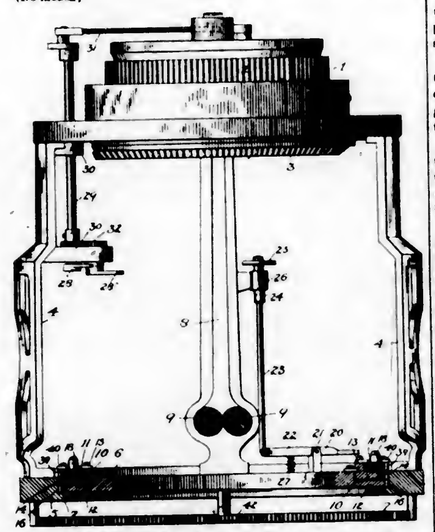
Claim.—A liberating-check for horses, comprising a checkrein, a longitudinally-tapered stop on the checkrein, a plate having an opening through which the stop may freely pass, and a sleeve or extension having communication with the opening, the interior of the sleeve being tapered to correspond to the stop and forming a long friction-bearing for the stop.

642,401. REFRIGERATOR. HEINRICH WIETSOK, Liegnitz, Germany. Filed Sept. 6, 1899. Serial No. 729,633. (No model.)



Claim.—A refrigerator, comprising an outer casing, an inner insulating-casing, an ice-box *a* contained within the latter having an inclined base *b*, a space *c* of inverted-funnel shape between the shallower part of said ice-box and said inner casing and insulated on all sides, an upwardly-conducting passage *d* leading from said space *c* and closed above, and a lateral passage *e* leading from the outside of the apparatus to the upper part of the said upwardly-extending passage *d*, all substantially as and for the purposes hereinbefore set forth.

642,402. **PATTERN MECHANISM.** FRANK B. WILDMAN, Norristown, Pa., assignor to the McMichael & Wildman Manufacturing Company, of Pennsylvania. Filed July 19, 1899. Serial No. 724,406. (No model.)



Claim.—1. In combination with a knitting-machine having a traveling part, pattern mechanism comprising a carrier with adjustable pattern pins or studs having traveling movement with said part, means whereby the traveling movement of the pattern mechanism will cause the same to be operated, and connections operated by the studs or pins in succession for changing the pattern, substantially as described.

2. In combination in a circular-knitting machine having a rotary part, means for adjusting the needle-cams to alter the pattern, connections leading to said means, and pattern mechanism arranged apart from the cam ring and cylinder and rotating with the traveling part of the machine and arranged also to operate the said connections, said pattern mechanism comprising adjustable parts to alter the pattern and means whereby the traveling movement of the pattern mechanism will cause the same to be operated, substantially as described.

3. In combination in a knitting-machine, a traveling part and pattern mechanism traveling in unison with the said part and having a series of pattern-studs, said pattern mechanism being provided with a portion having a slow movement in addition to said traveling movement whereby the pattern-studs are brought into position for operation and means for imparting said slow movement as the pattern mechanism travels, substantially as described.

4. In combination in a circular-knitting machine, a pattern mechanism having adjustable pattern pins or studs and arranged concentric with the machine operating means therefor, and connections to be operated by said studs in succession, substantially as described.

5. In combination with a circular-knitting machine, pattern mechanism rotating with the machine and arranged concentric in relation to the axis thereof with means for moving said pattern mechanism continuously as the machine rotates, substantially as described.

6. A circular-knitting machine having a rotating needle-bed, a take-up mechanism rotating in unison with the fabric and pattern means rotating with the take-up mechanism and fabric, substantially as described.

7. In combination in a circular-knitting machine, a rotary needle-bed, a take-up mechanism for the fabric rotating in unison with the rotary movement of the needle-bed and pattern mechanism rotating with the take-up, with means for causing the operation of the pattern mechanism from said rotary movement.

8. In combination in a knitting-machine, the rotary needle-bed the cam-ring, a rotary pattern mechanism comprising a carrier connected to the bed to rotate therewith and a pattern or stud ring thereon, connections from the pattern mechanism to the needle-controlling cams and means for causing the operation of the pattern mechanism during said rotation, substantially as described.

9. In combination, the rotary needle-bed or other traveling part, a rotary pattern-wheel in connection therewith to travel with the said part and having adjustable pattern-studs, connections between the pattern-wheel and the controlling-cams, carrier means for the pattern-wheel arranged independent of the cylinder and cam-ring and means for giving the pattern-wheel a movement on the carrier said carrier traveling with the traveling part of the machine.

10. A combined pattern and take-up mechanism for knitting-machines and the like comprising a traveling part and take-up and pattern means carried thereby with means for operating the same, substantially as described.

11. A combined pattern and take-up mechanism for knitting-machines and the like comprising a traveling part, take-up means carried thereby, pattern means also carried thereby, a fixed frame and gearing between the same and the take-up and pattern means respectively for operating the same, substantially as described.

12. In combination with a knitting or like machine, a combined take-up and pattern mechanism with operating means therefor said take-up and pattern mechanism traveling with a traveling part of the machine, said pattern mechanism being operated by the said traveling movement.

13. A pattern mechanism for knitting-machines and the like comprising a carrier means for causing said carrier to travel in unison with a traveling part of the machine, pattern-controlling means on said traveling carrier means for giving the same a slow movement in relation to and upon the traveling carrier and means for giving said pattern-controlling means a quick movement on said carrier, substantially as described.

14. In combination in a circular-knitting machine, a rotary needle-bed or other part, a rotary pattern-wheel, a rotary carrier therefor traveling in unison with the needle-bed or other part, means for giving the pattern-wheel a slow movement on the rotary carrier, means for giving the pattern-wheel a quick movement on the rotary carrier and connections between the pattern-wheel and parts to be controlled, substantially as described.

15. In combination in a circular-knitting machine, pattern mechanism concentric with the needle-circle comprising a pattern-wheel, a rotary carrier therefor, means for giving the pattern-wheel a slow movement on said carrier, means for giving the pattern-wheel a quick movement on said carrier and connections leading from the pattern mechanism to the parts to be controlled, substantially as described.

16. A pattern mechanism comprising a moving carrier, a pattern device thereon, means for giving the pattern device a slow movement on the carrier, and means for giving the pattern device a quick movement on the carrier, connections from the pattern device to the parts to be controlled and take-up mechanism supported on and controlled by the movement of the carrier.

17. In combination, the pattern device, the carrier therefor, the differential gearing for slowly moving the pattern device on the carrier and means for giving the pattern device a rapid movement on the carrier, substantially as described.

18. In combination, the pattern-wheel having ratchet-teeth, the carrier comprising the two sections having differential gear-teeth thereon, one section being movable on the other, a gear for operating the two sections, a pawl for engaging the ratchet-teeth to operate the pattern-wheel and means for operating the pawl.

19. In combination, the pattern-wheel having ratchet-teeth, a toothed ring having frictional engagement therewith to move the pattern-wheel, a carrier for the toothed ring, a pawl with operating means for moving the pattern-wheel and connections leading from the pattern-wheel to the parts to be controlled.

20. In combination, the pattern-wheel, a rotary carrier, having teeth, a toothed section carried thereby and having frictional engagement with the pattern-wheel, a pawl for engaging the teeth of the pattern-wheel, removable guard-plates for the said teeth, a pinion engaging the teeth of the section and carrier to give the toothed section a slow movement on the toothed carrier by reason of the teeth being differential and a lever on the movable carrier to be operated by the pattern-wheel and connections leading from the lever to the parts to be controlled, substantially as described.

21. In combination with the rotary cylinder, a take-up plate rotating in unison therewith, take-up means supported on said plate, a ring or section carried by the plate, with means for giving it a slow movement on the plate, a pattern-wheel carried by the section, means for giving the pattern-wheel a quick movement and connections leading from the pattern-wheel to the parts to be controlled.

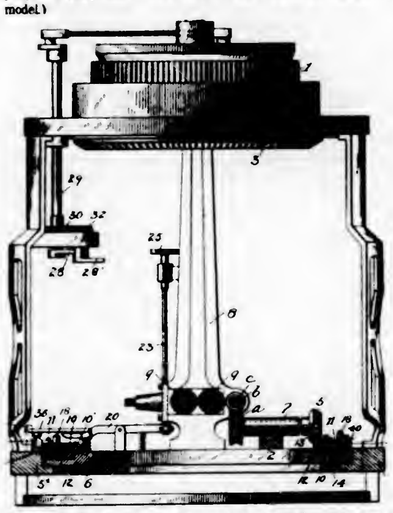
22. In combination, the rotary cylinder, the take-up plate, rotating with the cylinder, take-up means on the plate, a section carried by the take-up plate, differential teeth on take-up plate and section, a pinion relatively fixed and meshing with the teeth of the plate and section to give the section a movement over the plate, a pattern-wheel carried by friction on the section of the plate, said pattern-wheel having ratchet-teeth, a pawl supported on the take-up plate for engaging said teeth, removable guards for shielding the teeth from engagement with the pawl and means on the fixed frame for operating the pawl, and a lever carried by the take-up plate to be operated by the pattern-wheel with connections leading from said lever to the parts to be controlled, substantially as described.

23. A pattern mechanism comprising a movable part connected to travel continuously with a traveling part of the machine, means for giving the part an additional slow movement, means for giving it a rapid intermittent movement and connections controlled by said movable part, substantially as described.

24. In combination in a circular-knitting machine, with the cam ring and cylinder, a pattern mechanism rotating in a horizontal plane and out of the horizontal plane of the cam ring and cylinder with means for operating the said mechanism, pattern-studs carried adjustably by the pattern mechanism and connections operated by said studs substantially as described.

25. In combination, the cam ring and cylinder, a pattern mechanism concentric with the axis thereof, said pattern mechanism rotating in a different horizontal plane from that of the cam ring and cylinder and means for operating the pattern mechanism pattern-studs carried adjustably by the pattern mechanism and connections operated by said studs.

642,408. **PATTERN MECHANISM.** FRANK B. WILDMAN, Norristown, Pa., assignor to the McMichael & Wildman Manufacturing Company, of Pennsylvania. Filed Aug. 1, 1899. Serial No. 725,801. (No model.)



Claim.—1. In combination, pattern means, take-up means and means for driving the same, said pattern means being driven from the take-up means, substantially as described.

2. In combination, pattern means, take-up means, means for driving the same and driving connections between the pattern means and take-up means, substantially as described.

3. In combination, pattern means, a take-up roll and means for driving the same, said pattern means being driven from the take-up roll, substantially as described.

4. In combination, pattern means, a take-up roll and means for driving the same, driving connections between the pattern means and roll, substantially as described.

5. In combination, pattern mechanism, a roller rotating with the passage of the fabric, worm-gearing, a friction driving connection between the worm-gearing and pattern means and means for giving the pattern means a quick movement, substantially as described.

6. In combination in a circular-knitting machine a rotating take-up roll traveling with the cylinder and pattern means driven thereby, substantially as described.

7. In combination, take-up means having a take-up motion and traveling with the cylinder and pattern means driven from the take-up means, substantially as described.

8. In combination, take-up means having a take-up motion and traveling with the cylinder and pattern means traveling with the cylinder and being driven from the take-up means, substantially as described.

9. In combination, the take-up plate, the take-up rolls carried thereby, and the pattern means carried by the take-up plate and driven from the take-up rolls, substantially as described.

10. In combination, the take-up rolls, the rotating take-up plate, the pattern mechanism carried on said plate and gearing between the take-up rolls and pattern mechanism, substantially as described.

11. In combination, the take-up rolls, the take-up plate, the pattern-wheel, the geared section or ring carried on the take-up plate and having frictional engagement with the pattern-wheel, gearing between the take-up rolls and said geared section, and means for giving the pattern-wheel a quick movement, substantially as described.

12. In combination, the take-up rolls, the take-up plate carrying the same and arranged concentric with the axis of the machine, the pattern mechanism also arranged concentric to the axis of the machine, and a driving connection between the take-up rolls and pattern mechanism, substantially as described.

13. In combination, pattern means, a take-up roller rotating with the passage of the fabric, a friction driving connection between the take-up roll and pattern means and devices for giving the pattern means a quick movement, substantially as described.

14. In combination, take-up means, means for giving the same movement in a fixed relation to the length of fabric produced and pattern means driven from said take-up means, substantially as described.

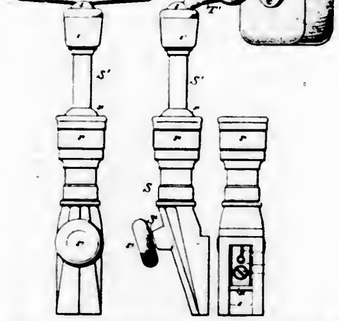
15. In combination, take-up means having movement in a fixed relation to the length of fabric produced, pattern means driven from said take-up means and devices operating through the rotation of the machine for giving the pattern means an additional movement, substantially as described.

16. In combination, the take-up rolls, pattern mechanism arranged concentric with the axis of the machine, and a driving connection between the take-up rolls and the pattern mechanism, substantially as described.

17. In combination, take-up means having movement in a fixed relation to the length of fabric produced, pattern means driven from said take-up means and devices for giving the pattern means an additional movement, substantially as described.

18. In combination, take-up means having a take-up motion and traveling with the cylinder, pattern means driven from the take-up means with a slow motion and devices for giving the pattern means an additional quick movement, substantially as described.

642,404. **HEAD-REST.** BASIL M. WILKERSON, Baltimore, Md., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Original application filed Nov. 25, 1898, Serial No. 697,344. Divided and this application filed April 29, 1899. Serial No. 714,962. (No model.)



Claim.—1. The combination of a head-rest-supporting stem or carrier composed of sections, universal joints between the sections of said stem, a handle located upon one of the sections, means controlled by said handle for locking all of said joints simultaneously and by one movement of the handle, and means for yieldingly supporting the stem when the joints have been unlocked by the handle, substantially as and for the purpose described.

2. In combination with a chair-back, a head-rest-supporting stem or carrier composed of sections, universal joints between the sections of said stem, a vertically-sliding connection between the lower section of said stem and said chair-back, means for simultaneously locking said universal joints and said vertically sliding-connection, and means for yieldingly clamping said joints and said connection, when said locking means are unlocked, substantially as and for the purpose described.

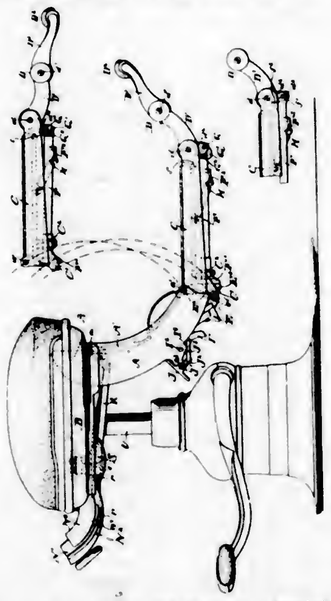
3. In combination with a chair-back, a head-rest-supporting stem composed of sections, universal joints between the sections of said

stem, a vertically-sliding connection between the lower section of said stem and a chair-back, a handle located upon said lower section, means under the control of said handle for simultaneously locking said universal joints and said vertically-sliding connection, means for yieldingly clamping said universal joints when said locking means are unlocked, and means, also under the control of said handle, for either yieldingly clamping said vertically-sliding connection or leaving the same free, substantially as and for the purpose described.

4. The combination with a chair-back, of a head-rest-supporting stem composed of sections, ball-and-socket joints between the sections of said stem, a vertically-sliding connection between the lower section of said stem and said chair-back, means carried by said lower section for rigidly clamping the same in its position of vertical adjustment on said chair-back, a push-piece mounted in the upper end of said lower section for clamping the ball-and-socket joint between said lower section and the section connected thereto, a slide-piece located between said push-piece and said means for clamping the stem to the chair-back for transmitting locking or clamping pressure from said clamping means to said ball-and-socket joint, and a spring acting with a tendency to force said push-piece and said slide-piece away from each other, substantially as and for the purpose described.

5. The combination in a head-rest, of an adjustable supporting stem or carrier, a supporting-bar adjustably connected midway its length to said supporting stem or carrier, studs projecting at right angles from the opposite ends of said supporting-bar, two clamp-links each of which is fitted at one end to swivel about the respective studs of the supporting-bar, whereby said links are capable of being rocked in a line with the plane of said supporting-bar or toward and away from each other, two head-rest pads each pivoted to the outer end of the respective clamp-links, whereby said pads are capable of being rocked in the line of movement of said clamp-links, and means for simultaneously clamping and unclamping the pivotal connections of each clamp-link and its respective head-rest pad and stud of the supporting-bar, the clamping means for one link being independent of the clamping means for the other link, substantially as described.

642,405. DENTAL CHAIR. BASIL M. WILKERSON, Baltimore, Md., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed July 21, 1899. Serial No. 724,662. (No model.)



Claim.—1. The combination with the seat of a dental chair, of the footboard-supporting frame hinged thereto, the footboard hinged to the lower end of said frame, means for maintaining the parallelism of said footboard relatively to said seat when the former is vertically adjusted, a foot-rest carried at the outer end of the footboard and normally occupying a position above the level of the plane of the same, and means for automatically moving the foot-rest into a position on a level with or below the upper surface of the footboard when said footboard is moved into a position on a level with said seat, substantially as and for the purpose described.

2. The combination with the seat of a dental chair, of the footboard-supporting frame hinged thereto, the footboard hinged to the lower end of said supporting-frame, a foot-rest hinged to the outer end of said footboard and normally occupying a position above the level of the same, a main controlling-rod pivoted to said seat and to said footboard, a secondary controlling-rod pivoted to the main controlling-rod and to the foot-rest, whereby when the footboard is raised to the level of the seat, the foot-rest is automatically moved into a position on a level with the footboard, and means for locking the footboard in any position to which it may be adjusted, substantially as and for the purpose described.

3. The combination with the seat of a dental chair, of the footboard-supporting frame hinged thereto, the vertically-adjustable footboard hinged to the lower end of said footboard-frame, mechanism for locking the footboard in its vertically-adjusted position, and a lever located substantially on a line with the plane of said footboard for controlling said locking mechanism and by means of which the footboard may be raised and lowered, substantially as and for the purpose described.

4. The combination with the seat of a dental chair, of a footboard-supporting frame hinged thereto, a vertically-adjustable footboard hinged to the lower end of said supporting-frame, a controlling-rod pivoted to said seat and to said footboard, a rack upon said controlling-rod, and a rocking pawl carried by said supporting-frame, substantially as and for the purpose described.

5. The combination with the footboard of a dental chair, of a foot-rest pivoted to the outer end thereof, means for sustaining said foot-rest in an upright operative position above the level of said footboard, and means whereby said foot-rest may be caused to drop into an inoperative position to or below the level of said footboard, substantially as and for the purpose described.

6. The combination with the footboard of a dental chair, of a foot-rest pivoted to the outer end thereof, and a toggle-lever connection between said footboard and said foot-rest, whereby when the toggle-lever is straightened out the foot-rest is sustained in an upright operative position above the level of the footboard and when the toggle-lever is opened the foot-rest is permitted to drop to or below the level of the footboard into an inoperative position, substantially as and for the purpose described.

7. The combination with the seat of a dental chair, of a footboard-supporting frame hinged thereto, a footboard hinged to the lower end of said supporting-frame, a foot-rest pivoted to the outer end of said footboard, a main controlling-rod pivoted to said chair-seat and to said supporting-frame, a secondary controlling-rod connected at one end with said main controlling-rod, and a toggle-lever connection between the opposite end of said secondary controlling-rod and said foot-rest, whereby when said toggle-lever connection is straightened out the foot-rest is normally sustained in an upright operative position above the level of said footboard and when said footboard is raised to its uppermost position on a level with said chair-seat the foot-rest is automatically moved to a position on a level with or below the surface of said footboard, and when said toggle-lever connection is opened or broken the said foot-rest drops to or below the level of the footboard independently of the movement of said footboard, substantially as described.

8. The combination, in a dental chair, of the footboard, the foot-rest pivoted to the outer end thereof and adapted to normally occupy an operative position above the level of said footboard, and a supplemental foot-rest pivoted to the outer end of said foot-rest, and adapted to be turned into two operative positions nearer to and farther away from the footboard, by rocking it about its pivotal connection with said foot-rest, substantially as and for the purpose described.

9. The combination, in a dental chair, of the metallic seat-frame, an upholstered seat fitted thereon, and provided with a wood base having slots or recesses in its opposite sides, a footboard and side arms forming the supporting-frame for said footboard and pivoted to said metallic seat-frame, said side arms extending a short distance above their pivotal connections with said metallic seat-frame, said extensions being adapted to enter the slots or recesses in the wood base of the upholstered seat when the footboard is in any of its low positions, substantially as and for the purpose described.

10. The combination, in a dental chair, of the seat, a back-supporting frame hinged thereto and adapted to be rocked vertically, means for locking said back-supporting frame in any position to which it may be rocked, and a controlling-handle pivoted to said back-supporting frame to rock transversely thereof, whereby said locking means may be controlled by moving said lever transversely of the back-supporting frame, substantially as and for the purpose described.

11. The combination, in a dental chair, of the seat, a back-supporting frame hinged thereto and adapted to be rocked vertically, an automatic lock for normally locking said back-supporting frame in any position to which it may be rocked, a controlling-lever for said lock pivoted to said back-supporting frame and having its handle projecting from the side thereof, whereby when the handle of said controlling-lever is pressed inward, the lock is released and the back-supporting frame is free to be rocked vertically, substantially as described.

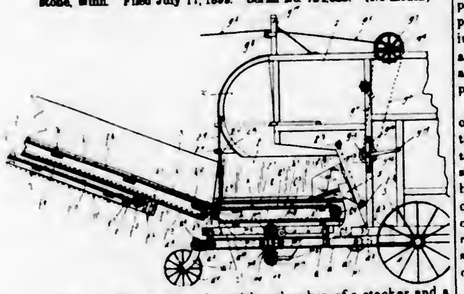
12. The combination, in a dental chair, of the seat provided with a fixed arc-shaped hinge member having detent-notches therein, a back-supporting frame provided with an arc-shaped hinge member having sliding connection with said fixed hinge member, a pawl pivoted to said back-supporting frame and normally in engagement with the detent-notches of said fixed hinge member, a controlling-lever pivoted to said back-supporting frame near its upper end and having its handle projecting from the side thereof, and a connection between said pawl and said controlling-lever, whereby when the handle of the latter is pressed inward the pawl is disengaged from the notches of the fixed hinge member, substantially as and for the purpose described.

13. The combination, in a dental chair, of the seat, a vertically-adjustable footboard hinged to the front thereof, a foot-rest carried at the outer end of said footboard and normally occupying a position above the level of the same, a back-rest hinged to the rear of said seat-frame, and connections between said back-rest and said footboard and between said footboard and said foot-rest, whereby the back-rest and the footboard may be independently adjusted to various operating positions within certain limits, but when the back-rest is lowered to a level with the seat, the footboard is automatically elevated to a level with said seat and said back-rest, and the foot-rest is automatically lowered to or below the level of said footboard, to bring the back-rest, the seat, the footboard and the foot-rest into alinement, substantially as and for the purpose described.

14. The combination, in a dental chair, of the seat, a vertically-adjustable footboard hinged to the front thereof, a back-rest hinged to the rear of said seat and adapted to rock vertically, both the back-rest and the footboard being capable of adjustment to a level with said seat, a link pivoted to the footboard and provided with a side lug, and having its rear end notched, a fixed guide-plate having a curved flange or ledge upon which the said side lug of the link rests and travels and a stud on the back-rest adapted to engage the notched end of said link, whereby when the back-rest is lowered to a level with the seat the foot-rest is thereby automatically elevated to a level with said seat, substantially as and for the purpose described.

15. The combination, in a dental chair, of the seat-frame, trunnes extending from front to rear thereof and substantially parallel with the sides of said frame, said trunnes also extending above the top of said frame, a chair-body-supporting plunger, and a yoke or cross-head connected to said plunger, the seat-frame being journaled to said cross-head by way of the trunnes, the journals being located at a point above the level of the seat-frame, substantially as and for the purpose described.

642,406. STRAW-STACKER. JAMES H. WILSON, Minneapolis, Minn., assignor of two-thirds to O. H. Leonard and R. S. Ashton, Pipestone, Minn. Filed July 17, 1899. Serial No. 724,035. (No model.)



Claim.—1. The combination with a thresher, of a stacker and a stacker-truck, said truck comprising a frame pivoted or hinged to the thresher-frame for vertical movements, a wheel-beam pivoted to the free or rear portion of said truck-frame, and a pair of supporting-wheels mounted on said wheel-beam, substantially as described.

2. The combination with a thresher, of a stacker and a stacker-truck, said truck comprising a frame pivoted or hinged to said thresher-frame for vertical movements, a wheel-beam pivoted at its intermediate portion to the free or rear portion of said truck-frame, and provided on opposite sides of its pivot with caster-wheels, substantially as described.

3. The combination with a stacker, of a stacker-truck upon which said stacker is mounted, said truck comprising a frame, a wheel beam or support pivoted to the rear portion of said frame and provided on the opposite sides of its pivot with supporting-wheels, and links or connections tying the free ends of said wheel-beam to said truck-frame, but permitting the free vertical oscillations of the same, substantially as described.

4. The combination with a stacker having an extensible section, of a rack on the body-section of said stacker, a pinion mounted on the extensible stacker-section and meshing with said rack, and a device for moving said pinion comprising a sprocket connected thereto, a sprocket-chain running over the said sprocket and over suitable guides, and a driving-sprocket on the body-section of said stacker engaging said sprocket-chain, substantially as described.

5. The combination with a stacker having an extensible stacker-section, of a rack on the body-section, a pinion carried by the extensible stacker-section and meshing with the said rack, and a device for rotating said pinion comprising a driven sprocket movable with said pinion, a pair of cooperating chain-guides one on each side of said sprocket, a sprocket-chain running over said driven sprocket and its cooperating chain-guides, and a driving-sprocket mounted on the body-section and engaging said sprocket-chain, the said parts operating substantially as described.

6. The combination with a stacker having an extensible section, of the racks f^3 on the body-section of said stacker, the transverse shaft f^4 carried by said extensible stacker-section and provided with the pair of pinions f^5 meshing one with each of the racks f^3, the driven sprocket r^7 on said shaft f^4, the lever or wheel-support r^9 mounted on said extensible stacker-section, and provided with the pair of guide wheels or sprockets r^8, the sprocket-chain r^6 running over said driven sprocket r^7 and guide-sprockets r^8 and over suitable guides on the body-section of the stacker, said latter guides comprising the sprocket r' provided with a hand-crank r^{10}, substantially as described.

7. A stacker constructed with an extensible section, provided with longitudinally and vertically extended wind-shields that are formed independent of the sides of said extensible stacker-section and overlap the sides of the body-section of the stacker and telescope therewith without interference with the driving mechanism, or other parts, substantially as described.

8. The combination with a stacker having an extensible stacker-section, of endless conveyers running over said stacker-sections, and means for driving the conveyer of said extensible section comprising a driven sprocket-chain running over suitable guides on the body-section of the stacker, a sprocket on the extensible stacker-section driven by said sprocket-chain and in turn driving the endless conveyer thereof, and a one-way clutch in the connection between said driven sprocket and the conveyer driven thereby, substantially as described.

9. The combination with a stacker having an extensible section, of endless conveyers mounted on the said stacker-sections, and a drive for the conveyer of the extensible stacker-section, comprising sprockets or wheels on the lower stacker-section, a driven sprocket or wheel on the lower end of the extensible stacker-section, a flexible endless driving connection running over the said wheels, a bracket or lever pivoted for movement on the axis of said driven wheel, a pair of guide projections one at each end of said pivoted bracket or lever engaging the said driving connection on opposite sides of said driven wheel, and a one-way clutch in the connection between said driven wheel and the conveyer driven thereby, substantially as and for the purposes set forth.

10. The combination with a stacker having an extensible section, of a rack on the body-section of the stacker, a pinion mounted on the extensible section and meshing with said rack, and means for rotating said pinion comprising a driven sprocket-wheel rotating with said pinion, a driving-sprocket and a guide sprocket or wheel on the body-section of the stacker, a lever or bracket pivoted on the axis of said pinion and said driven sprocket, a pair of guide projections one on each end of said pivoted bracket or lever, and a sprocket-chain running over said driving-sprocket and guide sprocket or wheel on the said body-section and over the said driven sprocket and chain-guides of the extensible stacker-section, substantially as described.

11. The combination with a stacker having an extensible section, of the racks f^3 on the body-section of the stacker, provided with the extended flanges f^4, the transverse shaft f^4 on the extensible section having the pinions f^5 meshing with said racks f^3, and the straps or brackets f^2 secured to said extensible stacker-section and engaging the said rack-flanges f^4 to secure said extensible stacker section for longitudinal movements on the said body-section, substantially as described

12. The combination with a thresher provided at the rear side portions of its case or framework with the clamping-rods f^2 with screw-threaded ends and nuts f^3, of the side curtains f secured at its upper edge and provided at its lower free edge with the strip or

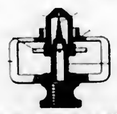
cleat *C*, and the adjusting-rods *C*⁴ working through supports *C*³ and subject to set-screws *C*⁶, said parts operating substantially as and for the purposes set forth.

13. The combination with a thresher, of side curtains pivotally supported at their outer ends from the rear side portions of the thresher-case and free for vertical movements at their inner ends, for affording ready access to the screens of the thresher, substantially as described.

14. The combination with a thresher, of a stacker-section or straw-delivery device receiving therefrom and mounted for lateral oscillations, and a hood projecting rearward from said thresher-case and provided with a segmental straw-delivery section, which delivery-section is hinged or adjustably secured to the body-section of said hood, substantially as and for the purposes set forth.

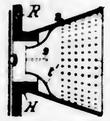
15. The combination with a thresher, of adjustable side curtains applied to the rear end thereof, which side curtains are pivotally connected at their outer portions for vertical adjustments at their inner portions, substantially as and for the purposes set forth.

642,407. INCANDESCENT GAS-BURNER. THOMAS WILSON, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed Oct. 4, 1899. Serial No. 732,460. (No model.)



Claim.—In a burner of the type specified the combination of a supply-pipe provided with a needle-valve and with apertures for the passage of gas past the needle-valve, a Bunsen tube provided with means for regulating the ingress of air, a valve-seat adjustably mounted on the shank of the valve and extending into the Bunsen tube and a yoke for supporting the Bunsen tube in fixed position, whereby the regulation of the supply of gas is independent of the regulation of the supply of air, substantially as described.

642,408. SANITARY ATTACHMENT FOR TELEPHONIC APPLIANCES. ARTHUR J. WOLFF, Hartford, Conn. Filed June 7, 1899. Serial No. 719,701. (No model.)

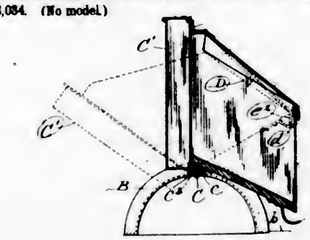


Claim.—1. A sanitary attachment for telephonic and similar appliances consisting of a holder; and a conical mouthpiece of paper open at both ends and so constructed and applied to the holder as to provide an air-space between the periphery of the inner end of said mouthpiece and the adjacent surrounding portion of said holder.

2. An attachment of the character specified comprising a holder; and a paper mouthpiece open at opposite ends and constructed to frictionally engage said holder and having the inner or exit end thereof of materially less external diameter than the adjacent internal diameter of said holder, as and for the purpose described.

3. An attachment of the character specified comprising a holder; and a flexible tube of paper or analogous material secured to said holder and having secured upon the interior thereof, intermediate its ends, a conical tube so constructed and disposed as to form an air-space between said inner and outer tubes.

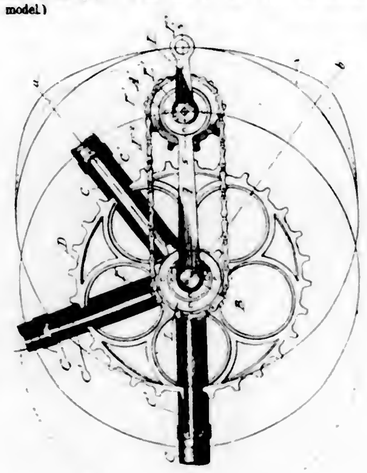
642,409. REFUSE-BOX. LEE YANCEY, Chicago, Ill., assignor of one-half to Helen Waters, same place. Filed Nov. 23, 1899. Serial No. 738,034. (No model.)



Claim.—1. The combination of the main or supporting frame, with a box pivotally mounted thereon at one of its lower corners, and having hooked legs near its other lower corner, and a lid hinged to the transverse portion of the frame, and having a downturned part to fit between the legs and lower corner of the box, substantially as described.

2. The combination with the main frame, made of angle-iron, of a box pivotally supported thereon at one of its lower corners, and having on its rear surface, a compartment and near its other lower corner, hooked legs, and a lid or cover hinged to the transverse portion of the frame and provided on its lower surface with inclined cleats and at its lower end with a downturned portion to engage the lower end of the box, substantially as described.

642,410. PROPELLING MECHANISM FOR VEHICLES. CARL YOUNG, Chicago, Ill. Filed Mar. 28, 1898. Serial No. 675,387. (No model.)



Claim.—1. In a propelling mechanism for a vehicle, the driving-shaft, the cup K surrounding the shaft, and the bracketed portions secured to the frame of the vehicle at their outer ends and having their inner ends provided with hubs or flanges which surround the cups, combined with the sprocket-wheel F placed upon the hub or flange, an intermediate spring having one end connected to the sprocket and the other to the hub or flange, and a crank mechanism which is operated from said sprocket, substantially as set forth.

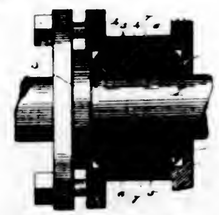
2. In a propelling mechanism for a vehicle, the main crank provided with a strap or band upon its outer end, a sprocket F' formed integral with its shaft, and the auxiliary crank rigidly connected to the outer end of the shaft, combined with a clutch-hub rigidly secured to the shaft and loose within the strap or band, suitable ball-bearings, and clutch-balls which engage with the strap or band, a chain which passes around the said sprocket, the sprocket-wheel F which is yieldably mounted on the frame and around which the chain passes, and the sprocket-wheel D which is mounted upon the driving-shaft and is keyed thereto, substantially as shown.

3. In a propelling mechanism for a vehicle, the bracketed portion C provided with the flange C³ upon its inner end, the cup placed inside of the flange C³, the balls H, H³, K', the cone L, and the sprocket-wheel D keyed to the shaft combined with the sprocket-wheel F yieldingly mounted upon the flange C³ the spring which unites the sprocket-wheel and the flange C³, and a mechanism mounted upon the crank, and which is operated by the sprocket F, substantially as described.

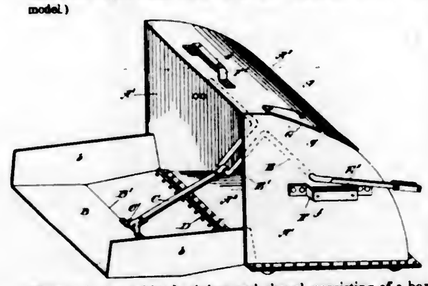
642,411. PISTON-ROD PACKING. GEORGE F. ALLEN, St. Louis, Mo., assignor to the Hoyt Metal Company, same place. Filed Mar. 20, 1899. Serial No. 709,734. (No model.)

Claim.—In a piston-rod packing, the combination with a box, of sectional metallic rings located therein, and elastic rings located between said metallic rings of V shape in transverse section, said elastic rings each comprising an elastic body having inwardly-converging sides and a narrow inner edge and a covering of asbestos inclosing

the said sides and the inner edge only of said elastic ring, substantially as described.



642,412. COMBINED ASH-BOX AND DUST-PAN. WILLIAM S. ANDERSON, Jasper, Tenn. Filed Oct. 4, 1899. Serial No. 732,542. (No model.)



Claim.—1. A combined ash-box and shovel, consisting of a box having one side hinged thereto to drop downward and adapted to act as a shovel or dust-pan, a shaft mounted in the box and having a crank within the box, and an operating-crank and a link connecting the first-named crank with the hinged section, substantially as described.

2. A combined ash-box and shovel, consisting of a box having one side hinged thereto to drop downward and adapted to act as a shovel, the side edges of the said side having integral inturned flanges, a shaft mounted in the box and having a crank within the box, and an operating-crank outside the box and a link connecting the first-named crank with the hinged section, substantially as described.

3. A combined ash-box and shovel, comprising a box in cross-section a quadrant, one of the flat sides being hinged at the center of the quadrant and adapted to swing outward and down to form a shovel, a crank-arm mounted upon the box, and operatively connected with the hinged side, substantially as described, and an operating-crank for turning said shaft.

4. An ash-box and shovel, comprising a box having one side hinged thereto to drop downward and adapted to act as a shovel, a shaft mounted in the box and having a crank, a link connecting said crank with the hinged side, a cranked operating-handle on said shaft, and a stop for said handle, the said stop engaging with said handle, when the link and crank to which it is connected are slightly out of longitudinal alinement and stand at obtuse angles to each other, whereby they will offer no resistance at their point of connection to the closing of the box when the power is applied to the side to close it, as and for the purpose set forth.

5. A combined ash-box and shovel, comprising a box having feet beneath it raising it a slight distance above the floor, one side of said box being hinged to swing downward and out to form a shovel, said side having inturned flanges upon its side edges and being bent intermediate its ends, whereby the outer section will rest flat upon the floor, a crank-arm mounted upon the box, a link connecting the crank with the hinged side, and a crank on the shaft for turning it, substantially as described.

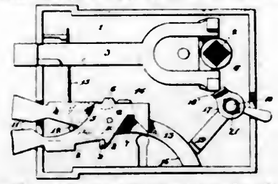
6. A combined ash-box and shovel, comprising a box having one side hinged thereto to drop downward, a shaft mounted upon the box and having two cranks, one within and the other outside the box, a link connecting the inner crank with the hinged side, and means for engaging the outer crank whereby to hold said side closed, as set forth.

7. A combined ash-box and shovel, comprising a box having feet beneath it to raise it a slight distance above the floor, one side of the said box being hinged to swing downward and outward to form a shovel, said side having inturned flanges upon its side edges and being bent intermediate its ends, whereby the outer section thereof will rest flat upon the floor, a shaft mounted in the box and having two cranks, a link connecting the hinged section with one crank, and a handle on the box adapted to engage the other or operating-crank to limit the downward swing of the said hinged section, substantially as described.

8. A combined ash-box and shovel, comprising a box having one side hinged thereto to drop downward and adapted to act as a shovel, a shaft mounted in the box and having two cranks, one within and the other outside the box, a link connecting the inner crank with the hinged section, a catch adapted to engage the outer crank to hold the hinged section or shovel in its closed position, and a handle on the box, adapted to act as a stop to engage the outer crank to limit the outward swing of the hinged section, substantially as described.

9. A combined ash-box and shovel, comprising a box having a hinged side arranged to drop downward, a shaft in said box and operatively connected with said hinged side to open and close the same, said shaft having a crank outside the box, and a notched plate on the box into which the crank is adapted to spring when the side is closed, as set forth.

642,413. DOOR-LOCK. ALEXANDER ARMSTRONG and ARCHIBALD F. PATTERSON, Moundsville, W. Va., assignors to Herman Moore, same place. Filed Jan. 26, 1899. Serial No. 703,518. (No model.)



Claim.—The combination with the casing, of a split key-bolt the parts of which are pivoted together and the adjacent edges of which are inclined, one of said parts being provided on its upper edge with a stud and on its lower edge with stop-shoulders and with a key-slot, a fixed pin located between the inclined faces and serving to spread the sections of the bolt apart while being shot, a fixed stop to be engaged by the stop-shoulders, a pivoted tumbler provided with a laterally-projecting lug to engage the stud aforesaid and provided with a rearwardly-extending arm, a knob-bolt, and a pivoted locking-tumbler arranged at the rear of the casing and having two arms, one to engage the rearwardly-projecting arm of the first-named tumbler and the other to engage the knob-bolt and to lock the split bolt and the knob-bolt in shot position, substantially as and for the purpose set forth.

642,414. MANUFACTURE OF ELECTRICAL RESISTANCES. JOSEF F. BACHMANN and ADOLF VOET, Vienna, Austria-Hungary, assignors of twenty-one twenty-fifths to Josef Kirchner, Albert König, Carl Camillo Weiner, and Alexander Jörg, same place. Filed Oct. 8, 1897. Serial No. 654,560. (No specimens.)

Claim.—1. The process of manufacturing electrical-resistance materials, which consists in forming a plastic mass from a mixture of a conductor and a non-conductor of electricity, molding or otherwise converting the compound into the shape desired, drying, and embedding the dried article in carbon and heating it to a high temperature, substantially as described.

2. The process of manufacturing resistance materials having an approximately invariable degree of conductivity at considerably great variations of temperature, which consists in forming a plastic mass from a mixture of a non-conductor of electricity, graphite and a metallic powder, molding or otherwise converting the compound into the desired shape, drying, and embedding the dried article in carbon and heating it to a high temperature, substantially as described.

3. The process of manufacturing electrical-resistance materials, which consists in forming a plastic mass from a mixture of a non-conductor of electricity and a carbonizable substance, molding or otherwise converting said mass into the desired shape, drying, and embedding the dried article in carbon and heating to a high temperature, for the purpose set forth.

4. The process of manufacturing resistance materials, which consists in forming a plastic mass from a mixture of a conductor and a non-conductor of electricity and of a metallic compound convertible into a conductive metal, forming or otherwise converting the mass into the desired shape, drying, and embedding the article in carbon and heating it to a high temperature, substantially as described.

5. The process of manufacturing resistance materials, which consists in intimately mixing a highly-refractory oxid or oxids of a metal, as those of the rarer earths, with metal or metals difficult of fusion, as silicium, or silicium and chromium, mixing the silicium in an amorphous state with the non-conductor or with the latter and the chro-

mium, forming a plastic compound therewith, converting the same into the desired shape, drying, embedding in carbon and heating the shaped article to a temperature sufficient to convert the amorphous silicium into crystalline silicium, for the purpose set forth.

6. The process of manufacturing resistance materials, which consists in mixing oxids or salts of conductive metals with a non-conductive material, forming a plastic compound therewith, shaping the same, drying, embedding in carbon and heating the article to a temperature sufficient to alloy the oxids or salts, for the purpose set forth.

642,415. **RIVETING DEVICE.** WARREN J. BALL, Salem, Ohio. Filed Apr. 20, 1899. Serial No. 713,722. (No model.)



Claim.—1. In a riveting-tool the combination with a frame, and a die supported thereby, of a plunger adapted to reciprocate toward and from said die, an operating-lever connected at one end of said plunger, a gear-segment on said lever, and a rack on the frame with which the gear-segment engages, substantially as described.

2. The combination of a frame or head provided with an integral handle, an opening located within the frame or head, an operating-lever provided with a rearwardly-extending gear-segment, and rack-teeth arranged to engage with the gear-segment, a plunger carried by the operating-lever and an arm formed integral with the frame or head and provided with an adjustable die located above the plunger, substantially as and for the purpose set forth.

642,416. **BRIDGE FOR MUSICAL INSTRUMENTS.** JOHN H. BEETEM, Mooredale, Pa. Filed Aug. 24, 1899. Serial No. 728,296. (No model.)

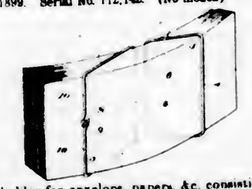


Claim.—1. A bridge for musical instruments, comprising a base or body, a series of string-supports extended upward therefrom, and a series of feet extended downward from the base or body, each directly in line with one of the string-supports.

2. A bridge for musical instruments, comprising a base or body provided with feet extending downward therefrom, individual string-supports extending upward from the base or body, and braces connecting said supports adjacent to their tops.

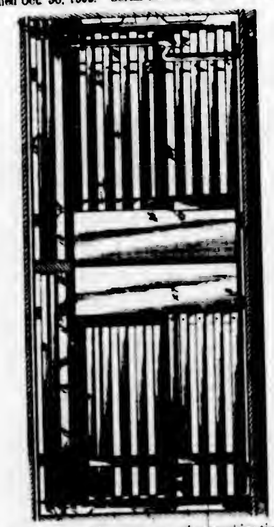
3. A bridge for musical instruments, comprising a base or body provided with feet extending downward therefrom, individual string-supports extending upward from the base or body, braces connecting said supports adjacent to their tops, and diagonal braces extending from the top of the outermost supports to the bottom of the adjacent inner supports.

642,417. **ENVELOP-CLIP.** SILAS W. BENNETT, McDonald, Pa. Filed Apr. 7, 1899. Serial No. 712,142. (No model.)



Claim.—A holder for envelops, papers, &c. consisting of a wire formed into a rectangular frame having parallel end members adapted to bear on one side of the package, parallel connecting side members joining the end members and disposed at right angles thereto, inwardly-projecting looped spring members formed integral with the side members and adapted to bear on the opposite side of the package, and an interlocking hook and eye forming connecting terminals of the wire formed in one of the end members.

642,418. **REFRIGERATOR-CAR.** GEORGE L. BENSON, St. Michael's, Md. Filed Oct. 30, 1899. Serial No. 735,249. (No model.)



Claim.—1. In a refrigerator-car, the combination with the car-body, of the inner side and end walls, spaced from the car-body and having openings, and the ice-receptacle supported by the said inner walls at the top of the car and provided with horizontal side and end flanges resting upon the said inner walls, the end flanges being extended across the spaces between the walls to close the same, and the side flanges terminating short of the sides of the car-body, whereby the cold air is forced to descend at the sides of the car, substantially as and for the purpose described.

2. In a refrigerator-car, the combination with the car-body, of the inner side and end walls spaced from the car-body and having openings, the ice-receptacle located at the top of the car and supported by the inner walls and provided with horizontal flanges resting upon the same, the side flanges terminating short of the car-body and the end flanges extending to the same, blocks mounted on the body of the car at the sides and ends thereof, above the ice-receptacle, and the side and end slats secured to the said blocks, substantially as described.

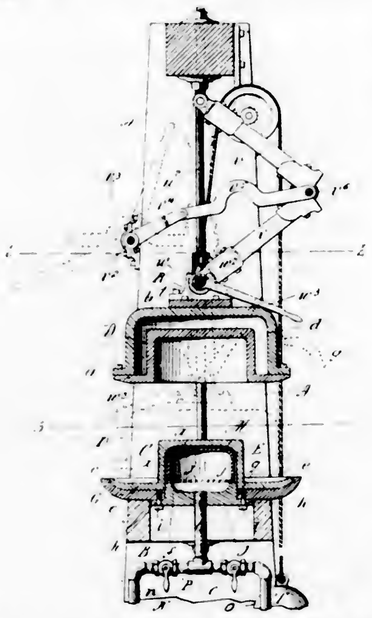
3. In a refrigerator-car, the combination with the car-body, of the inner side and end walls spaced from the car-body and having openings, the ice-receptacle arranged at the top of the car and supported by the said inner walls and provided with side and end flanges resting upon the same, the side flanges terminating short of, and the end flanges being extended to the car-body, blocks mounted on the car-body at the sides and ends of the same and located above the ice-receptacle, the side and end slats secured to the blocks, and the transverse partition extending across the car-body and depending into the ice-receptacle and dividing the same into separate compartments, substantially as described.

4. In a refrigerator-car, the combination of the horizontal shelves or partitions arranged in pairs and hinged at opposite sides of the car and adapted to swing upward to fold, a horizontal supporting-bar located beneath the shelves or partitions and hinged at one end and arranged to swing across the car and adapted to be arranged at one side thereof when the parts are folded, and blocks mounted at opposite sides of the car and provided with lugs and adapted to receive and support the free end of the said transverse bar in its folded and operative positions, substantially as described.

5. In a refrigerator-car, the combination with a car-body, of inner side and end walls spaced therefrom, a fixed horizontal bar mounted on the end wall, a folding horizontal bar hinged to one of the side walls and arranged to swing across the car, blocks mounted on the side walls and arranged to receive the free end of the folding bar, and the folding shelves or partitions hinged to the side walls above the said bars and arranged to swing downward upon the same, substantially as and for the purpose described.

642,419. **MACHINE FOR PRESSING HATS.** HERBERT S. BLAKE, Amherst, Mass. Filed Oct. 27, 1899. Serial No. 734,905. (No model.)

Claim.—1. In a hat pressing and finishing machine, the male die composed of the hat-shaped rubber part having tip-wall, crown-sides and brim-flange portions, a centrally-apertured metallic base G to which the brim-flange of the rubber is secured and thereby supported, base-plug J fitted in the aperture of the said metallic base G, the water-supply pipe upwardly entering through said base-plug into the chamber thereabove within said rubber appliance, and means for controlling the inflow and outflow of water, combined with the female die having the opening therein slightly larger than the normal bulk of the tip and crown-sides portions of the said rubber appliance and having the brim-pressing flange *a*, and means for imparting the movements of the female die relatively to the male die, substantially as described.



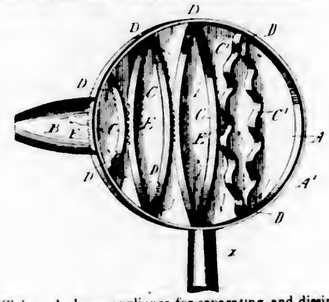
2. In a hat pressing and finishing machine, the male die comprising tip, surrounding side walls, and brim-flange, and composed of elastic expansible material, and having a base-wall and inclosing a fluid-chamber, means for introducing and exhausting the fluid thereinto and therefrom, and an inverted-cup-shaped shell M located within said fluid-chamber with a separating-space between it and the internal wall of said rubber die, and having apertures leading from the said fluid-chamber into said separating-space, combined with a metal female die having the opening therein slightly larger than the portion of the male die comprising the sides and tip and having the rim-pressing flange, and means for imparting, relatively, the movements of the one die toward and from the other, substantially as and for the purposes set forth.

3. In a hat pressing and finishing machine, the male die composed of the hat-shaped rubber part having tip-wall, crown-sides wall and brim-flange, a centrally-apertured metallic base G to which the brim-flange of the rubber is secured and thereby supported, base-plug *f* fitted in the aperture of the said metallic base G, having the surrounding flange *h*, underlying the part G adjacent its central aperture, and the bolts *i i*, the water-supply pipe upwardly entering through said base-plug into the chamber thereabove within said rubber appliance, and means for controlling the inflow and outflow of water, the inverted-cup-shaped shell M supported on the top of said base-plug, with a separating-space between it and the said rubber appliance, combined with the female die having the opening therein slightly larger than the normal bulk of the tip and crown-sides portions of the said rubber appliance and having the brim-pressing flange *a*, and means for imparting the movements of the female die relatively to the male die, substantially as described.

4. In a hat pressing and finishing machine herein described, in combination, the press having the bench or table B, the centrally-apertured base-casting G resting thereon and supporting the rubber appliance E comprising tip, crown-sides, and outwardly-extending flange portions, the latter being vulcanized to the base-casting, the base-plug J fitted in the aperture of said part G having the flange *h* and fastening screws or bolts *i*, the inverted-cup-shaped shell M with separating-space between it and the interior of the part E, and having the ports *j*, the pipe Q entering upwardly through the said base-plug, and means for insuring the inlet and egress of water therethrough, and the upper metallic female die D, shaped as described, and means for imparting raising and lowering motions thereto, all substantially as and for the purposes set forth.

5. The male die C for a hat pressing and finishing machine as herein described comprising the centrally-apertured base-casting G having the marginal ledge *e* and supporting the rubber appliance E comprising tip, crown-sides and outwardly-exteading flange portions, the latter being vulcanized to the base-casting, and interlocked with said ledge *e*, the base-plug J fitted in the aperture of said part G having the flange *h* and fastening screws or bolts *i*, the inverted-cup-shaped shell M with separating-space between it and the interior of the part E, and having the port *j*, and the water-inlet passage entering upwardly through the said base-plug combined with the upper metallic female die D, and means for imparting its motions thereto, relatively to the said male die, substantially as set forth.

642,420. **APPLIANCE FOR SEPARATING AND DISSIPATING FROTH FROM FLUIDS.** WILLIAM D. BOWETT, Winton, Queensland. Filed May 27, 1899. Serial No. 718,600. (No model.)

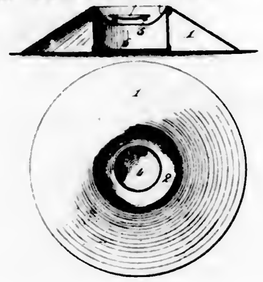


Claim.—1. In an appliance for separating and dissipatipg froth from liquids, the combination with the pan A having an inclined base and a wall A', of an outlet B, a foot G on the same side as the outlet, and partitions extending across the said pan, and having perforations therein, the whole so arranged as to allow liquid to drain down to the said outlet in a zigzag or sinuous path leaving the foam behind substantially as set forth.

2. In an appliance for separating and dissipating froth from liquids, the combination with a flat circular containing vessel, provided with means for supporting the same and also with perforations at one side with a spout around the same; of a series of curved partitions therein extending across said vessel, provided with perforations, for allowing the passage of fluid therethrough, substantially as described.

3. In an appliance for separating and dissipating froth from liquids, the combination with a flat circular containing vessel A provided with perforations F at one side with the spout B around the same, and a support G below said perforations; of a series of partitions extending crosswise therein provided with perforations D and E for the passage of liquid therethrough substantially as described.

642,421. **INSECT-TRAP.** GEORGE H. BOYD, Paris, Tex. Filed May 25, 1899. Serial No. 718,178. (No model.)



Claim.—1. An insect-trap, comprising a bottomless casing having an inclined side provided at its upper end with an integral, downwardly and inwardly curved flange, and a fixed bait-holder supported above the lower edge of said flange, the outer edge of said bait-holder overlapping the lower edge of the flange, the parts being arranged to provide a space between the flange and bait-holder, substantially as described.

2. An insect-trap, comprising a bottomless casing having an inclined side provided at its upper end with a downwardly and inwardly curved flange, a bait-holder supported above the lower end of the flange, and an independent receptacle disposed beneath the casing and unattached thereto, substantially as described.

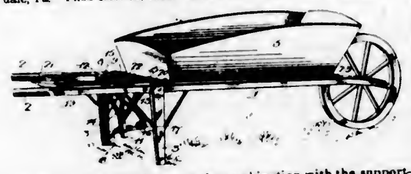
3. An insect-trap, comprising a frusto-conical sheet-metal casing provided at its upper end with an inwardly and downwardly curved flange, and a saucer-shaped bait-holder supported by said flange above the lower end thereof, and arranged to provide an annular space between the bait-holder and flange, substantially as described.

4. An insect-trap, comprising a frusto-conical sheet-metal casing provided at its upper end with an inwardly and downwardly curved flange, a saucer-shaped bait-holder supported above the lower end of said flange, and an independent receptacle disposed centrally beneath the casing and unattached thereto, substantially as described.

5. An insect-trap, comprising a frusto-conical sheet-metal casing provided at its upper end with an inwardly-turned and downwardly-curved annular flange, a bait-holder consisting of a disk disposed centrally within said annular flange intermediate the upper and lower ends of the latter and provided with radially-projecting arms attached at their outer ends to the said flange, and an independent receptacle movably disposed beneath the casing and fitting closely at its upper edge into the angle formed by the sides of the casing and annular flange, substantially as described.

6. An insect-trap, comprising a bottomless casing having inclined sides curved downwardly and inwardly at the upper end, a bait-holder arranged in the top of the casing, and an independent receptacle disposed beneath the casing and fitting closely at its upper edge, the angle formed by the inclined sides and the downwardly-turned upper ends thereof, substantially as described.

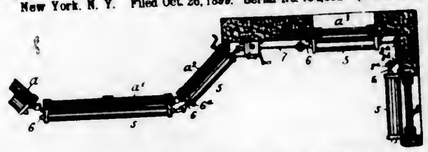
642,422. WHEELBARROW. EDWARD F. BRAUCHER, Meyersdale, Pa. Filed Nov. 16, 1899. Serial No. 737,190. (No model.)



Claim.—1. In a wheelbarrow, the combination with the supporting-frame and its hopper; of hinged bottom sections for said hopper, a spring-actuated rod connected to the supporting-frame, catches for locking the bottom sections of said hopper, levers connecting said spring-actuated rod to said catches, and means for elevating the bottom sections of said hopper from their lowered position to their closed position, substantially as and for the purpose set forth.

2. In a wheelbarrow, the combination with the supporting-frame and its hopper, of crank-shafts journaled in said supporting-frame, bottom sections for said hopper secured to said crank-shafts, and a bracket secured to said frame, a lever pivoted to said bracket, and links connecting said lever with the crank of said crank-shafts, substantially as and for the purpose set forth.

642,423. CURTAIN-ACTUATING SYSTEM. WILLIAM H. BRODIE, New York, N. Y. Filed Oct. 26, 1899. Serial No. 734,832. (No model.)



Claim.—1. In a curtain-actuating system, the combination of a curtain, a hollow curtain-roller, supporting-brackets, a spring contained in the roller one end of which is fastened to the roller and the other of which is fastened to one of the brackets, a shaft attached to the roller and journaled in the bracket to which the spring is fastened, and means for actuating the shaft, substantially as described.

2. In a curtain-actuating system, the combination of a curtain, a hollow curtain-roller, supporting-brackets, oppositely-wound spiral springs contained in the roller one end of each being fastened to the roller near its middle, and the other end of each being fastened to one of the brackets, a shaft attached to the roller near its middle, and journaled in the brackets, and means for actuating the shaft, substantially as described.

3. In a curtain-actuating system, comprising a plurality of curtains, the combination of a curtain, a hollow curtain-roller, supporting-brackets, a spring contained in the roller, one end of which is fastened to the roller and the other end of which is fastened to one of the brackets, a shaft attached to the roller which passes through the roller and is journaled in the brackets, means for operating the shaft from one side of the curtain and connections at the other side of the curtain between the shaft and other curtains of the system, substantially as described.

4. In a curtain-actuating system, the combination of a plurality of curtains and rollers therefor disposed on several levels, horizontal shafting for operating the rollers on each level, and a vertical actuating-shaft geared to the horizontal shafts at each level, substantially as described.

5. In a curtain-actuating system, the combination of a vertical actuating-shaft, horizontal shafting for operating the curtains, an auxiliary shaft, gearing between the vertical shaft and the auxiliary shaft, and gearing between the auxiliary shaft and the horizontal shafting, substantially as described.

6. In a curtain-actuating system, the combination of a plurality of curtains disposed on several levels, horizontal shafting for operating the curtains on each level, a vertical actuating-shaft geared to the horizontal shafts at each level, and a thrust-bearing with interposed balls for the vertical shaft, substantially as described.

7. In a curtain-actuating system, the combination with a vertical actuating-shaft, of a horizontal shaft geared thereto and a series of angularly-disposed curtain-rollers driven from the horizontal shaft by flexible connections, substantially as described.

8. In a curtain-actuating system, the combination with angularly-disposed curtain-rollers and driving-shafts, of a universal joint located between the angularly-disposed driving-shafts, substantially as described.

9. In a curtain-actuating system, the combination with angularly-disposed curtain-rollers, driving-shafts therefor connected together by flexible joints, and a vertical shaft actuating the driving-shafts, substantially as described.

10. In a curtain-actuating system, the combination with an actuating-shaft, of curtain-rollers geared thereto, and a clutch for disengaging at will one of the said rollers, substantially as described.

11. In a curtain-actuating system, the combination with an actuating-shaft of curtain-rollers geared thereto, and clutches for disengaging at will certain of the rollers, the clutches being connected to move together, substantially as described.

12. In a curtain-actuating system, the combination with curtain-rollers, each having a driving-shaft, a clutch for connecting the driving-shafts together, and an actuating-shaft connected with one of the driving-shafts, substantially as described.

13. The combination with spring curtain-rollers, each having a driving-shaft, angularly disposed to each other, of a universal joint, one member of which is rigidly secured to one driving-shaft, and a clutch for securing the other member of the joint to the other driving-shaft, substantially as described.

642,424. MAXIMUM-INDICATOR. CRAWFORD R. BROWN, Dedham, Mass. Filed Aug. 7, 1899. Serial No. 726,373. (No model.)

Claim.—1. A maximum-indicator, comprising an electric meter having a movable member, a retarder for said member, and a motor for said retarder controlled by said member.

2. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a motor for moving said retarder at a relatively slow speed, and a controller for said motor governed by said member.

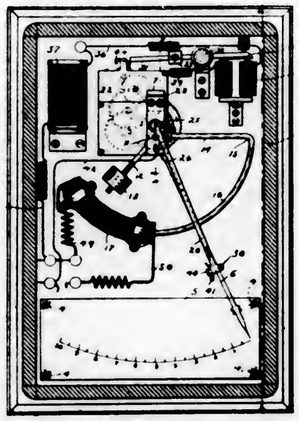
3. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a mechanical motor for running said retarder, and a trip for said motor governed by said member.

4. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a clock-movement for moving said retarder, a trip adapted to engage and release said clock-movement, and means for controlling or governing said trip.

5. A maximum-indicator comprising an electric meter, having a movable member, a retarder for said member, and electromagnetic devices for governing said member.

6. A maximum-indicator comprising an electric meter, having a movable member, a retarder for said member, a motor for moving said retarder, a trip for said motor, and electromagnetic devices for governing said trip.

7. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a motor for moving said retarder, a trip for said motor and electromagnetic devices controlled by said member for governing said trip.



8. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a mechanical motor for actuating said retarder, a trip-lever for arresting said motor, and an electromagnet adapted to actuate said trip.

9. A maximum-indicator comprising an electric meter having a movable member, a retarder for said member, a mechanical motor for actuating said retarder, a trip-lever for arresting said motor, an electromagnet adapted to actuate said trip, an electric circuit including said electromagnet, and contacts carried by said retarder and said member.

10. A maximum-indicator comprising an electric meter having a movable member, a retarder movable in substantially the path of movement of the member, contact devices carried by the member and retarder, a motor for the retarder, an electromagnetic trip mechanism for said motor, and an electric circuit including the said trip mechanism and the said contacts.

11. A maximum-indicator comprising an electric meter, and a motor, one of said parts having an index, in combination with means whereby said index is advanced progressively as current is increased, and is stopped when the current reaches or falls below its maximum.

12. A maximum-indicator comprising a meter having a movable member, a motor having an arm in the path of said member, and means whereby the arm advances progressively, so long as the member is moved forward by reason of current passing through said meter, and stops when the current falls below the maximum already reached.

13. A maximum-indicator comprising a meter having a movable member, a clock having a movable member, and means actuated by the meter for starting the clock whereby one of said members is advanced progressively so long as the current increases through the meter and is stopped when the current reaches or falls below its maximum.

14. The combination of an electric meter, a clock, a member moved by said clock, a circuit completed by a contact operated both by the clock and the meter, a magnet in the circuit, and a detent controlled by the magnet, whereby when the circuit is completed, the clock starts, and when the circuit is broken the clock stops.

15. The combination of an electric meter, a clock having an escapement and a circuit completed by the clock-hand and the meter member, said circuit including a magnet and a detent controlled by the magnet and acting upon the escapement.

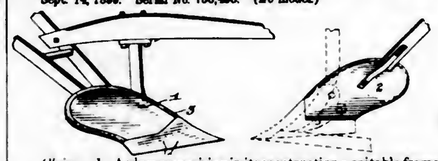
16. A maximum-indicator comprising an electric meter having a movable member, and an automatically-controlled motor for retarding the movement of said member.

17. A maximum-indicator comprising an electric meter, a motor, and means whereby said motor is started when the meter member is advanced, and is stopped when said member stops or moves in a reverse direction.

18. A maximum-indicator comprising a movable member, a motor for moving said member, an electric meter, and means controlled by said meter for governing the action of said motor.

19. A maximum-indicator comprising a meter having an index, a scale, and a motor having provisions for retarding the movement of said index along said scale.

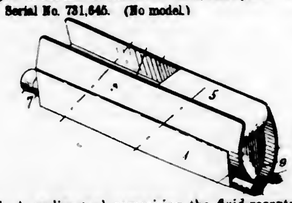
642,425. MOLDBOARD. JOHN BURRELL, Louisville, Ky. Filed Sept. 14, 1899. Serial No. 730,493. (No model.)



Claim.—1. A plow comprising in its construction a suitable framework and standards, a suitable metallic backing formed with an overhanging inclosing flange, a glass moldboard resting upon the said backing and extending partially under said flange so as to be held thereby against lateral movement, and a plow-point which abuts against the lower edge of the glass moldboard so as to prevent the latter from slipping longitudinally, the upper surface of the glass moldboard and that of the plow-point being practically flush, and fastening means for securing the metallic backing to the frame of the plow without passing through the glass moldboard, the construction and arrangement being such that the glass moldboard can be removed without taking off the standards of the plow, substantially as described.

2. A plow comprising in its construction a suitable framework and standards, a suitable metallic backing formed with a hardened overhanging inclosing flange, the inner surface of said flange being inclined, a glass moldboard having beveled edges around the greater portion of its periphery, said moldboard resting upon the said backing and extending partially under the said flange in a dovetailed manner, so as to be held thereby against lateral movement, and a removable plow-point which abuts against the lower edge of the glass moldboard so as to prevent the latter from slipping longitudinally, the upper surface of the glass moldboard and that of the plow-point being practically flush, and fastening means for securing the metallic backing to the frame of the plow without passing through the glass moldboard, the construction and arrangement being such that the glass moldboard can be removed without taking off the standards of the plow, substantially as described.

642,426. SEALING DEVICE. CYDNOR B. CAMPBELL, Glouster, Ohio, assignor of one-half to Charles M. Clark, same place. Filed Sept. 25, 1899. Serial No. 731,645. (No model.)

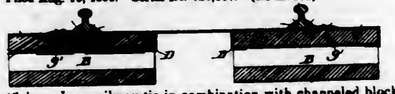


Claim.—1. A sealing-tool comprising the fluid-receptacle, the guideway above it formed with inclined flanges, the tongues at the front end of the receptacle forming a curved spout, and the burner-tubes, substantially as described.

2. In a sealing-tool, the combination, with the body, forming a fluid-receptacle, of the upwardly-extending inwardly-inclined sides, and the curved integral tongues forming a spout, and the burner-tubes located at opposite sides of said spout, substantially as described.

3. In a sealing-tool, the combination, with the body portion comprising the bottom and the sides, the upper ends of which sides are bent inwardly to form a guideway for the sealing-wax, of the curved tongues having their ends connected together, the top having its ends bent at right angles and one of said ends formed with a screw-threaded boss and the other end formed with a lug bent down to close the end of the liquid-receptacle, and the burner-tubes, substantially as described.

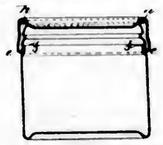
642,427. RAILWAY-TIE. ELSWORTH G. CARTER, Coal Bluff, Ind. Filed Aug. 19, 1899. Serial No. 727,817. (No model.)



Claim.—In a railway-tie in combination with channeled blocks, a metallic cross-tie or stringer supported on said blocks, said tie provided with central struck-in portions between the blocks clenched into the channels of the blocks, and end-fastening sections having their outer end bent in and clenched within the channels of said blocks, and raised overlapping portions at their ends extending over the end portions of the tie or stringer and over the flange of the rail and bent

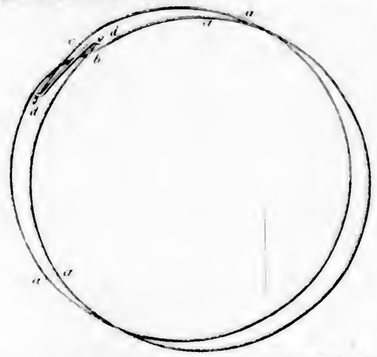
against said flange, and means of engagement between said end sections and the main stringer, substantially as described.

642,428. CLOSING OF TINS, BOXES, &c. EDOARDO CEVOLANI, Bologna, Italy. Filed July 2, 1898. Serial No. 684,997. (No model.)



Claim.—A metallic receptacle provided with an outwardly-projecting bead *f*, and with an inwardly-projecting upper portion *m* in combination with a cover or lid shaped to form a wire-receiving groove and having an inwardly-projecting portion *l*, and a locking edge at the lower end engaging with the bead *f* and a wire within the groove of the cover, and a bad-heat-conducting material arranged between the sides of the cover and receptacle above the bead *f*, all arranged for coöperation as and for the purposes specified.

642,429. MEANS FOR SECURING PNEUMATIC TIRES ON WHEEL-RIMS. ARTHUR T. COLLIER, St. Albans, England. Filed June 5, 1899. Serial No. 719,471. (No model.)



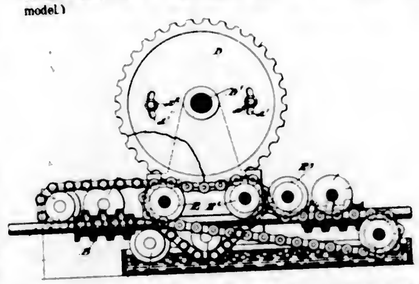
Claim.—1. As a means for securing a tire on a wheel-rim, a wire or cord having two turns or convolutions, crossing obliquely at a point midway between its ends from one to the other of said convolutions and having its ends overlapping each other, and a rod or strut connected at its ends with the ends of said wire or cord respectively and extending obliquely across the wheel-rim so as to inclose the part of the wire which crosses over from one edge of the sheath or cover to the other, between it and the overlapping piece or end of the wire at each side, substantially as hereinbefore described.

2. The combination, in a tire, of a sheath or cover having tubes or passages extending along its edges, a wire or cord which extends through the said tubes or passages, crosses from one edge of the tire to the other and has its ends overlapping each other, and a bent or curved rod or strut extending obliquely across the wheel-rim and over the crossed-over part of the said wire, and having the ends of the said wire or cord attached to its ends, substantially as, and for the purposes, hereinbefore described.

3. The combination, with the sheath or cover of a tire having tubes or passages along its edges, of flexible metal linings in said tubes or passages, capable of extension and contraction, a wire or cord extending through both of said tubes or passages within the metal linings thereof, crossing from one to the other and having its ends overlapping each other, and a rod or strut extending obliquely across the wheel-rim and having the ends of the said wire or cord attached to its ends, substantially as, and for the purposes, hereinbefore described.

4. The combination, in a tire, of a sheath or cover having tubes or passages extending along its edges, a metal lining in each of said tubes or passages, consisting of a wire coiled in such manner that it can be extended and contracted, a wire or cord extending through both of said tubes or passages within the metal linings thereof and crossing from one to the other and having its ends overlapping each other, and a rod or strut extending obliquely across the wheel-rim and having the ends of the said wire or cord attached to its ends, substantially as, and for the purposes above specified.

642,430. WORM-AND-CHAIN DRIVING-GEAR. DANIEL CORCORAN, Yonkers, N. Y. Filed June 15, 1899. Serial No. 720,680. (No model.)



Claim.—1. A chain driving-gear, comprising a worm, a chain having side projections extending from an edge thereof and adapted to enter the grooves in the worm, pulleys over which the chain passes, and a thrust-disk having its face engaging the edge of the chain opposite the worm and holding the chain up to the worm.

2. A chain driving-gear, comprising a worm, a chain having links and pivot-pins passing through the links, rollers secured to turn on the projecting head of the pivot-pin, and adapted to enter the worm-grooves in combination with a thrust-disk having its face engaging the edge of the chain opposite the worm.

3. A driving mechanism for drums, comprising a right and a left worm secured upon a common shaft, two endless chains each having side projections adapted to enter the grooves in the worms, guide-wheels for the chains, presenting them to opposite sides of opposite worms, and two notched disks secured to the drum and engaging each the outer side of its respective chain.

4. A driving mechanism for drums, comprising a right and a left worm secured upon a common shaft, two endless chains each having side projections adapted to enter the grooves in the worms, guide-wheels for the chains, presenting them to opposite sides of opposite worms, and two notched disks secured to the drum and engaging each the outer side of its respective chain between two of the guide-pulleys therefor, whereby the chain is held securely between the disk and the pulleys and slipping is prevented.

5. A driving mechanism for drums, comprising a right and a left worm secured upon a common shaft, two endless chains having side projections adapted to enter the grooves in the worms, guide-wheels for the chains, presenting them to opposite sides of opposite drums, thrust-disks engaging the outer edges of the chains opposite the worms, and two notched or sprocket disks secured to the drum and engaging each the outer side of its respective chain.

6. A driving-gear for drums, comprising a right and a left worm secured to a common shaft, chains having side projections adapted to engage the threads of the worms, guide-wheels properly presenting each chain to its respective worm, an oil-box receiving a portion of each chain as it passes about the guide-wheels, and sprocket-wheels or notched disks secured to the drum and engaging the chains.

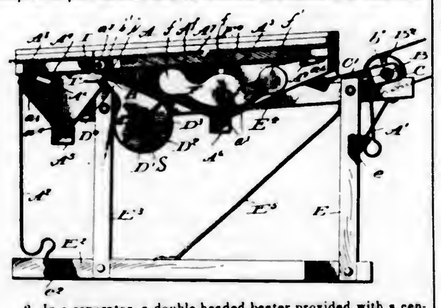
7. A driving-gear comprising a worm, a chain having edge projections adapted to enter the groove in the worm, pulleys over which the chain passes, certain of said pulleys being so disposed as to produce a depressed or lowered run of the chain, an oil-cup receiving said run, and a thrust-disk having its face engaging the outer edge of the chain opposite the worm and holding the chain up to the worm.

8. A drum-driving mechanism, comprising right and left worms secured to a common shaft, two chains, one engaging each worm, and two toothed disks secured to the drum and engaging each its respective chain, one of said disks being adjustable angularly relatively to the other.

9. A drum-driving mechanism, comprising a right and a left worm secured to a common shaft, two chains, one engaging each worm, two toothed disks secured to the drum and engaging each its respective chain, one of said disks having segmental slots, and clamping-bolts passing through said slots, whereby one disk may be adjusted relative to the other disk and secured in place.

642,431. CORNMEAL-SEPARATOR. CORNELIUS T. CUMMINGS, Walterborough, S. C., assignor of one-half to W. B. Gruber, same place. Filed May 3, 1899. Serial No. 715,439. (No model.)

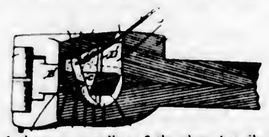
Claim.—1. In a separator, the combination with a vibratory frame containing a plurality of horizontally-adjacent hoppers and means for vibrating said frame; of a plurality of screens of different mesh pivoted end to end within said frame over said hoppers; means for varying the inclination of said screens; a rotary fan mounted upon a rigid support arranged to direct a blast of air to the under side of one of said screens; a double-headed beater within one of said hoppers provided with a central perforation, a bracket for supporting said beater adapted to be suspended from the frame of one of said screens, the legs of which are provided with a series of perforations, and a pin adapted to pass through said perforations, substantially as described.



2. In a separator, a double-headed beater provided with a central aperture, a bracket provided with means of support, perforations at opposite points in the legs of said bracket, and a pin adapted to fit said perforations and aperture, substantially as described.

3. In a separator, a double-headed beater F provided with a central perforation, a bracket F⁵ provided at its upper end with a rectangular portion adapted to be fastened upon the frame of said separator, the lower portion of said bracket comprising legs provided with a series of corresponding perforations f^6 and a pin f^x adapted to fit said apertures, substantially as described.

642,432. CAR-COUPLING. WILLIAM G. CURTIS, Huntington, W. Va., assignor of one-half to Frank D. Gilbert and Jesse E. Curtis, same place. Filed June 24, 1899. Serial No. 721,742. (No model.)



Claim.—1. In a car-coupling of the class described, the combination with the pivoted knuckle, of the pivoted and vertically-movable latch, the cam-surface upon the draw-head, a cam device secured to said latch and coacting said cam-surface to raise the latch and unlock the knuckle, means for operating said cam device, and means for opening the knuckle, substantially as specified.

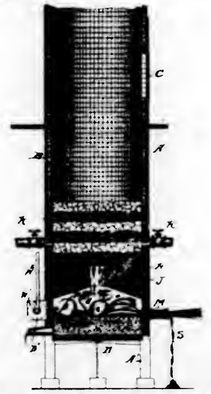
2. In a car-coupling of the class described, the combination with the pivoted knuckle, of the pivoted and vertically-movable latch, the cam-surface upon the draw-head, the lever pivoted to said latch and having the cam-arm engaging said cam-surface to lift the latch and unlock the knuckle, means for operating said lever, and means for turning said latch to open said knuckle, substantially as specified.

3. In a car-coupling of the class described, the combination of the pivoted knuckle having the inner end portion of its tongue substantially parallel with the coupling-arm of the knuckle, the pivoted vertically-movable latch having the forwardly-offset portion, the shoulder upon the draw-head forming a bearing for the forward wall of the forwardly-offset portion of said latch in the locked position of said knuckle, and the recess in the bottom wall of said latch fitting over the said inner end portion of the knuckle-tongue to lock the same, substantially as specified.

4. In a car-coupling of the class described, the combination with the draw-head having a chamber or cavity therein, and a pivoted knuckle, of a pivoted vertically-movable knuckle-latch having one of its arms recessed on its under side to engage the knuckle-tongue and its other arm seated to bear against the inner or rear portion of said tongue, the lever pivoted in the said latch, the inclined bearing-surfaces on the upper and lower walls of said cavity or chamber for the respective end portions of the said lever, the pull-rod connected to said lever, the coacting cam-surfaces on the latch and on the adjacent wall of said cavity or chamber, whereby the latch is caused to rotate as it is lifted, and the coacting inclined or cam surfaces on the tongue and latch, substantially as specified.

5. In a car-coupling of the class described, the combination with the chambered head, the pivoted knuckle, the pivoted vertically-movable latch, and the coacting cam-surfaces on the said latch and the adjacent wall of the head for rotating said latch when it is moved vertically, of the lever pivoted in a slot of the latch and having its upper end portion in contact with the upper wall of the chamber of the head, said head also having cam bearing-surfaces for the upper and lower end portions of said lever, and the pull or lift rod connected to said lever, substantially as specified.

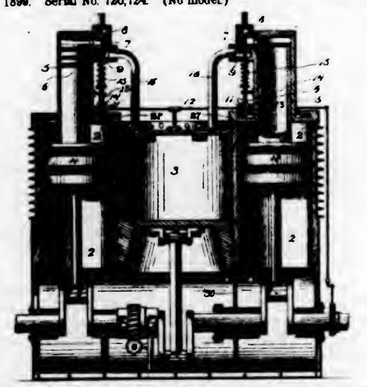
642,433. APPARATUS FOR MANUFACTURING IRON AND STEEL. THOMAS DOHERTY, Sarnia, Canada. Filed May 21, 1898. Serial No. 681,273. (No model.)



Claim.—1. The combination with a converter of rockable twyers situated at one side of and extending into the interior of said converter, means for rocking said twyers, and a slag-opening opposite the ends of said twyers when at their highest point, the said twyers being adapted to be rocked to direct a blast to the slag opening or at any point below said slag-opening, as set forth.

2. The combination, with a cupola and a converter in communication with each other, the former above the latter, of rockable twyers situated at one side of and extending down into the interior of said converter, means for rocking said twyers, and a slag-opening opposite said twyers, so arranged that the bottom thereof will be approximately on a level with the twyers at the highest point of their movement and above the level of the lowest point of their movement, whereby air-blasts may be directed over the surface of the molten metal to free it of slag, and through the body of the same to free it of carbon, as set forth.

642,434. AIR AND GAS ENGINE. JOHN W. EISENHUTH, New York, N. Y., assignor to Mamie G. Read, same place. Filed June 15, 1899. Serial No. 720,724. (No model.)

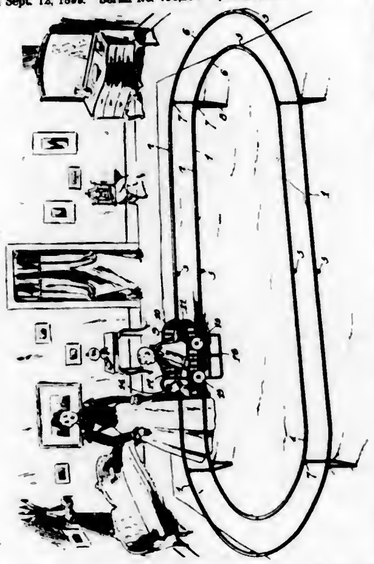


Claim.—1. In a gas-engine, the combination with a suitable casing, of high-pressure cylinders formed therein, a low-pressure cylinder formed in the said casing between the high-pressure cylinders, pistons moving in the said high-pressure cylinders, reduced cylindrical extensions formed upon the said pistons and extending into reduced extended portions of the cylinders, the said reduced cylindrical portions forming pistons in the said cylinder extensions, valves

for admitting compressed air into the cylinder extensions for operating small pistons, means for admitting an explosive mixture into the high-pressure cylinders, and means for introducing the exhaust from both high-pressure cylinders and the compressed-air cylinders into the low-pressure cylinder, substantially as described.

2. In an air and gas engine, the combination of two high-pressure gas-cylinders, a low-pressure cylinder mounted between them, two high-pressure air-cylinders, means for connecting the high-pressure gas-cylinders with the low-pressure cylinder and means for connecting the high-pressure air-cylinders with the said low-pressure cylinder, the construction being such that each of the high-pressure gas-cylinders and air-cylinders will exhaust into the said low-pressure cylinder, substantially as described.

642,435. BABY-WALKER. EDWARD FIRNHABER, Worms, Nebr. Filed Sept. 12, 1899. Serial No. 730,254. (No model.)



Claim.—1. In a baby-walker adapted to be suspended upon a track, a carriage having a depending frame with an opening therethrough and also provided with opposite pairs of rollers, the said rollers being circumferentially grooved and adapted for free movement on the track, and gaskets surrounding the rollers completely within the grooves and bearing upon the hub portions of the rollers.

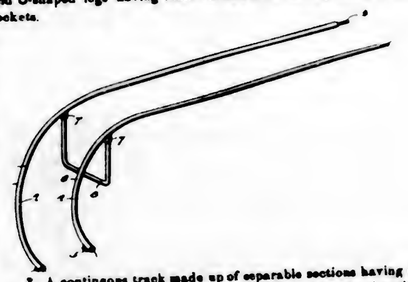
2. In a baby-walker, adapted to be suspended upon a track, a carriage comprising an upper surrounding railing, a depending frame and a rear seat, an opening being formed through the depending frame in advance of the seat, and rollers on the opposite sides of the carriage to engage the track.

3. In a baby-walker adapted to be suspended in an elevated position so that the lower extremity thereof will be free of an adjacent surface, a carriage having a depending frame with an opening therethrough, and pairs of rollers on opposite sides of the carriage at such an elevation as to permit the depending frame to be located between the suspending devices on which the rollers are adapted to freely and removably bear.

642,436. TRACK FOR BABY-WALKERS. EDWARD FIRNHABER, Worms, Nebr. Filed Nov. 13, 1899. Serial No. 736,814. (No model.)

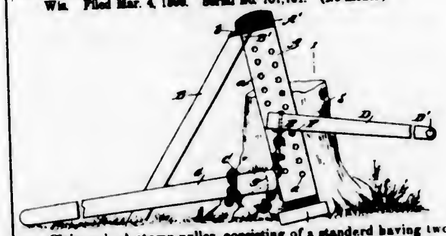
Claim.—1. A continuous track made up of separable rail-sections, one extremity of each rail-section being curved and the opposite extremities of all the sections in alternation being provided with sockets and stems, means for securing the joined ends of the rail-sections, depending sockets in transverse alinement at regular intervals on the rail-sections, and supports for the track having free ends removably fitted in the said transverse-alined sockets.

2. A continuous track made up of sections composed of parallel tubular rails of different lengths having depending sockets and each curved at one end in the same arc as the curve of the adjacent end of the other, means for joining the meeting ends of the several rails, and U-shaped legs having their terminals removably fitted in said sockets.



3. A continuous track made up of separable sections having depending sockets at regular intervals, and U-shaped legs having their terminals removably fitted in said socket.

642,437. STUMP-PULLER. SOLOMON J. FLETCHER, Cedar Falls, Wis. Filed Mar. 4, 1899. Serial No. 707,781. (No model.)



Claim.—1. A stump-puller, consisting of a standard having two separated members joined at their upper ends by a head-plate and at their lower ends by a base-plate, and provided with adjustable fulcrums or lever-supports extending between said members, a sole brace therefor lying in substantially the plane of the standard and operating-lever and having its upper end tenoned, the tenon entering between the standard members and engaging the head-plate, the shoulders at the side of the tenon engaging the edges of the standard at their upper end, an operating-lever engaging said fulcrums, and a chain secured by one end to the lever and adapted to be secured to the stump, substantially as described.

2. A stump-puller, consisting of a standard having two parallel and separated members joined at their upper ends by a head-plate and at their lower ends by a base-plate, movable fulcrum-pins adapted to be supported by the standard, a sole brace lying in substantially the same plane as the standard and having its upper end tenoned, the tenon entering between the side members of the standard and engaging the head-plate, the shoulders at the side of the tenon engaging the bars of the standard, an operating-lever engaging said fulcrum-pins, a lifting-chain secured by one end to the lever, and a bar adapted to receive the other end of the chain and provided with a notch at one end adapted to embrace the lifting-chain, substantially as described.

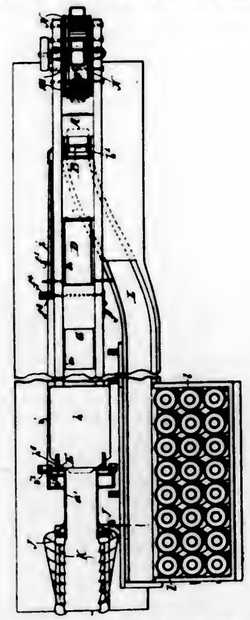
642,488. CAN-LABELING MACHINE. SAMUEL PYPE, Port Melbourne, Victoria, assignor of twenty-one fortieths to Walter Chamberlain Peacock, Melbourne, Victoria. Filed July 16, 1898. Serial No. 686,126. (No model.)

Claim.—1. In a labeling-machine the combination of a label-support having its upper face upon two inclines with the forward end rigid and means near the upper end of the forward incline for bending the end of a label backward or inward, as and for the purpose specified.

2. In a labeling-machine, a label-support provided at its forward end with an upward incline and means adjacent to the upper end of said incline for pressing upon and holding the end of a label and automatically bending the same backward at an angle as it is withdrawn from such means, substantially as described.

3. In a labeling-machine a label-support with its upper face upon two oppositely-disposed inclines and provided near the upper end of the forward incline with a device, extending transversely thereof and arranged at an angle to bend the end of the label at an angle of substantially ninety degrees as it is withdrawn from beneath such device, as and for the purpose set forth.

4. In a labeling-machine a label-support having its upper face upon two oppositely-disposed inclines and having near the upper end of its forward incline a wire extending transversely of the length of the support and arranged at an angle to bend the end of the label backward or inward at an angle of substantially ninety degrees as the label is withdrawn from under the wire, as set forth.



5. In a labeling-machine, the combination with an adjustable counterbalanced label-support with its upper face upon two oppositely-disposed inclines, of means near the upper end of the forward incline for holding the end of a label and bending the same at an angle as it is withdrawn from under such means, as set forth.

6. The combination with a support with guides for the can of a pivotally-supported roller mounted to be partially rotated and depressed by the passage of a can, a label-support having two inclines, and a pivotally-mounted paste-carrier disposed at the end of said support to be automatically actuated by the passage of a can, as set forth.

7. The combination of a label-support, a paste-carrier pivotally mounted at the end thereof to apply paste to the edge of the uppermost label on a pile, and means connected with the pivot of the carrier and extended parallel with the support to be engaged by a can to automatically actuate said carrier, as set forth.

8. The combination of a label-support, a wire disposed transversely thereof at its forward end and arranged above the labels, a spring-catch at the side of the said support, and an automatically-operated paste-applying device arranged to apply an adhesive substance to the label between said wire and the end of the support, as set forth.

9. The combination in a labeling-machine of means for applying a label, means for pressing the same against the can, means for applying a wrapper, means for folding the ends of the wrapper inward and devices for turning in the ends of the wrapper, as set forth.

10. The combination in a labeling-machine of means for applying a wrapper to a can, folding-wires for folding inward the ends of the wrapper and fingers for turning in the ends of the wrapper, as set forth.

11. The combination in a labeling-machine of folding-wires for determining the quantity in each fold of a wrapper, and fingers vertically disposed in a plane beneath said wires operating in conjunction therewith to turn in the folds determined by said wires, as set forth.

12. The combination in a labeling-machine with a label-support and the means for applying a label, of an oppositely-inclined runway for delivering the cans from the forward end to the opposite end of the machine, and an endless carrier disposed at substantially right angles to said runway for delivering the cans upon said support to be returned to the point from which they started, as set forth.

13. The combination in a labeling-machine with the guide-rails having depressions, of a pneumatic endless belt arranged to press upon cans as they move along said rails, and guide-rollers arranged to press upon said belt, as and for the purpose specified.

14. In a machine for labeling tins and other vessels, a pivotally-mounted roller for applying adhesive material, in combination with a series of small wires arranged parallel to and a short distance from the periphery of said roller, substantially as described.

15. In a machine for labeling tins and the like, a pair of pivotally-mounted arms, a roller mounted to revolve therein for applying adhesive material, and a series of small wires carried by the outer ends of said arms and arranged parallel to and a short distance from the periphery of said roller, substantially as and for the purpose specified.

16. In a labeling-machine, the combination with the guide-rails, of an endless pneumatic belt arranged to press upon the cans as they move along said guide-rails, as set forth.

17. In a labeling-machine, the combination with the guide-rails having depressions, of an endless pneumatic belt arranged to press upon the cans as they move along said rails, as and for the purpose specified.

642,489. CORD OR TWINE HOLDER. DE WITT P. GAYMON, Pueblo, Colo. Filed May 15, 1899. Serial No. 716,920. (No model.)

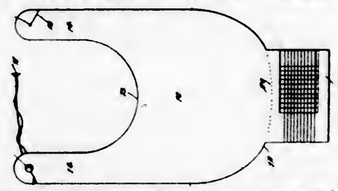


Claim.—1. A cord-holder comprising a hollow body, having a suspending device at its top and provided with a quadrantal entrance-opening at the upper side, an exit-opening arranged centrally of the bottom, and a slot extending from the entrance-opening to the exit-opening, and a quadrantal cover adapted to cover the entrance and close the upper end of said slot, the said cover being slotted to pass the suspending device, and being permanently and pivotally connected to the body of the cord-holder and adapted to swing in the arc of a circle to cover or uncover the entrance-opening, substantially as described.

2. In a cord-holder, the combination with a body having a suspending-eye, an entrance-opening, and an exit-opening, of a cover pivoted to the body and adapted to close the entrance-opening, said cover being provided with a slot adapted to receive the suspending-eye in the movement of the cover, and a stop carried by the cover extending across the slot thereof and adapted to engage the suspending-eye to limit the movement of the cover, substantially as shown and described.

3. In a cord-holder, the combination with a hollow spherical body having a quadrantal entrance-opening provided in the upper half thereof, a suspending-eye adjacent to the upper edge of the said opening, an exit-opening located diametrically opposite the suspending-eye, and a slot extending from the entrance-opening to the exit-opening, of a quadrantal cover pivoted or hinged at its opposite ends to the body and adapted to close the entrance-opening thereof, said cover being provided with a transverse slot opening out through the upper edge thereof, and an arcuate strap provided upon the upper edge of the cover extending across the outer end of the slot and adapted to engage the suspending-eye to limit the downward movement of the cover, substantially as shown and described.

642,440. SUNSHADE FOR HATS. JULES GERSTLE, New York, N. Y. Filed May 24, 1899. Serial No. 718,031. (No model.)

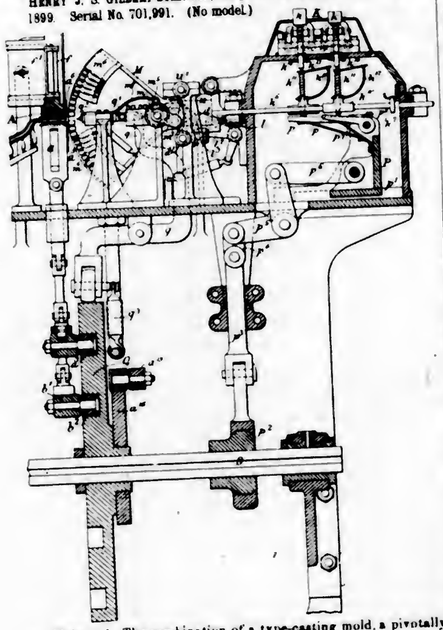


Claim.—1. As an improved article of manufacture, a hat-shade the body of which is provided with rearwardly-extending side flaps, each flap being provided with an aperture near its end, and inclined

cuts or slots connecting with said apertures, and a tie for connecting the flaps, said tie being adapted to enter said apertures, as described.

2. A hat-shade consisting of a body, flaps constituting rear extensions from the sides of the body, the space between the flaps being substantially U-shaped, and each flap being provided with an aperture near its rear end, and forwardly-inclined cuts or slots extending from said apertures to the outer edges of the flaps, and an elastic tie provided with attachments at its ends, said elastic tie being adapted to pass through said cuts or slots into the said apertures, for the purpose specified.

642,441. TYPE-CASTING AND COMPOSING APPARATUS. HENRY J. S. GILBERT-STRINGER, Brighton, England. Filed Jan. 12, 1899. Serial No. 701,991. (No model.)



Claim.—1. The combination of a type-casting mold, a pivotally-supported sector-shaped matrix-carrier having rows of matrices in its periphery, means for rocking said carrier to place any row of matrices level with the mold, and means for shifting the carrier longitudinally with relation to its axis to present any one of the matrices in a row to the mold, substantially as described.

2. The combination of a type-casting mold, a rocking and longitudinally-movable sector-shaped matrix-carrier having rows of matrices in its periphery, sets of finger-keys, devices operated by one set of fingers for turning the matrix-carrier on its axis to place any row of matrices level with the mold, and devices operated by another set of the finger-keys for shifting the matrix-carrier longitudinally to present any one of the matrices in a row to the mold, substantially as described.

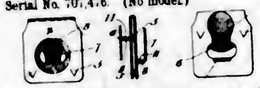
3. The combination with a rocking matrix-carrier movable longitudinally relative to its axis, of depressible finger-keys, means for locking the keys depressed, sliding rods having heads provided with stepped inclines, rods connected with the matrix-carrier and acted upon by the stepped inclines when advanced with the sliding rods, spring-plungers mounted on said rods and depressed by depression of the keys, a carriage having pushers arranged to engage said plungers when depressed, and means for reciprocating said carriage, substantially as described.

4. The combination with a rocking matrix-carrier movable longitudinally relative to its axis, of depressible finger-keys, means for locking the keys depressed, sliding rods having heads provided with stepped inclines, rods connected with the matrix-carrier and carrying-rollers acted upon by the stepped inclines when advanced with the sliding rods, spring-plungers carried by said rods and depressed by the depression of the keys, a reciprocating carriage having hinged pushers to engage the depressed plungers, a rotary driving-shaft having an eccentric, and connections between the eccentric and the carriage for reciprocating the latter, substantially as described.

5. The combination with the matrix and mold-frame having a mold-cavity, a pair of horizontal slides the one engaging on the upper edge of the matrix, the other sliding over the mold-cavity and a pair of vertical slides, the one meeting the lower edge of the matrix and forming the bottom of the mold-cavity, the other pushing up the cast type to form a column, and the cams and springs for operating these slides, substantially as described.

6. The combination with a mold-frame having a mold-cavity, of a horizontal slide to form the top of the mold-cavity, a primary vertical slide the upper end of which forms the bottom of said cavity, a second vertical slide onto which the cast type is pushed by the horizontal slide when said type is raised from the mold-cavity by the primary vertical slide, a space-column having a channel leading to said second vertical slide, means for actuating said slides, a spring-pressed space-pushing slide for pushing a space from the space-column onto the second vertical slide, a space-key, and devices operated by the space-key, whereby the space-pushing slide may move to push the space, substantially as described.

642,442. BUTTON. HOMER P. GOFF, Pittsburg, Pa. Filed Mar 2, 1899. Serial No. 707,476. (No model.)

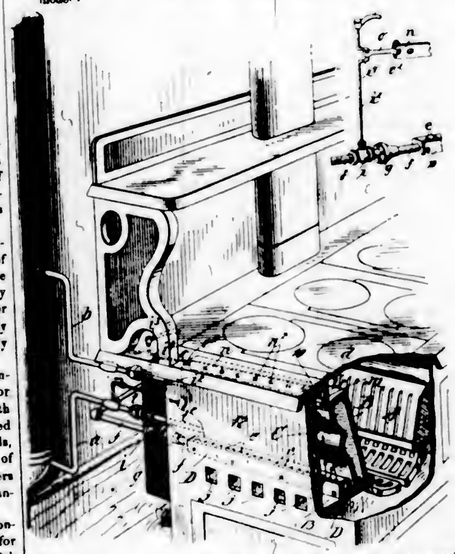


Claim.—1. A button consisting of a sheet-metal clip, having a button and its shank cut and bent out from the central portion of one of its legs, leaving a hole in the clip-leg having the button; substantially as described.

2. A sheet-metal clip having a button and its shank cut and bent out from the central portion of one of the legs of said clip, the shank having bent lips forming rounded edges for said shank; substantially as described.

3. A sheet-metal clip having a button and its shank cut and bent out from the central portion of one of the legs of the clip, and a drawer-supporting prong cut and bent out from the other leg of the clip; substantially as described.

642,443. WATER-HEATING APPARATUS. ARNEZO GRIFFITH, Springfield, Mass. Filed Aug. 14, 1899. Serial No. 727,204. (No model.)

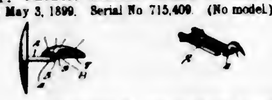


Claim.—1. A stove or range having a fire-box, and an independent chamber, a water-receptacle intermediate between and having the opposite sides thereof constitute walls of both the fire-box and the independent chamber, one or more flues or passages leading from the said chamber to communicate with the space in the fire-box, a gas-burner in said chamber, and means for supplying gas thereto, and means for closing said flues or passages.

2. A stove or range having a fire-box and the independent chamber C, the water-receptacle having an intermediate relation and arranged in common to said fire-box, and independent chamber, having the passage *d* above said receptacle, connecting said chamber with the space above the fire-box, the gas-burner in said chamber adjacent the lower portion of the receptacle having a gas-supply pipe with a shut-off cock, a device for opening and closing the aforesaid passage *d*, and means operated by said cock for opening and closing said device automatically by and in conjunction with the opening and closing of said device, substantially as and for the purposes set forth.

3. A stove or range having a fire-box and the independent chamber C, the water-receptacle having an intermediate relation and arranged in common to said fire-box and independent chamber, having the passage *d* above said receptacle, connecting said chamber with the space above the fire-box, a gas-burner in said chamber adjacent the lower portion of the receptacle having a gas-supply pipe with a cock or valve, the stem of which is provided with a cranked member, a damper-slide for opening and closing said passage, a rod connecting said crank member of the valve-stem of the damper, and a handle for turning the valve-stem, substantially as shown.

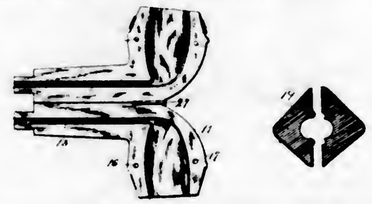
642,444. NECKTIE-HOLDER. JULIAN H. GRUBB, Hagerstown, Md. Filed May 3, 1899. Serial No. 715,409. (No model.)



Claim.—1. The combination of a collar-button having a base, a shank having its free end reduced and bent or offset to one side of the shank, pivot-lugs projecting from opposite sides of the offset portion and the free end of the latter being formed into a prong or tine extending longitudinally beyond the end of the shank, and a hollow head provided with alined longitudinal slots, and a longitudinal groove extending from the slot in the outer face of the head, and a spring-plate housed within the head and provided with a slot alined with the slots in the head, the pivot-pins of the shank being held between the bottom plate of the head and the spring-plate, whereby a hinged connection is provided for the head, and the prong or tine being adapted to project transversely through the outer slot in the head and also adapted to be received within the groove thereof in the folded position of the head, substantially as and for the purpose described.

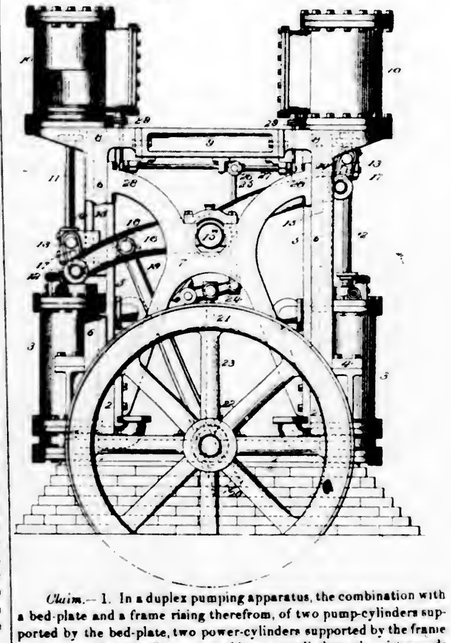
2. In a collar-button, the combination of a base, a shank having a lateral offset portion at its outer end, a prong provided upon the outer end of the offset portion, and a head hinged to the offset portion, intermediate of the prong and the shank, and foldable upon the prong side thereof, said head being provided with a slot receiving the prong, and a longitudinal groove in the outer face of the head, and extending longitudinally from one end of the slot thereof, and receiving the prong flush with the outer face of the head, in the folded position thereof, substantially as and for the purpose set forth.

642,445. TOBACCO-PIPE. FRANK A. HAUSH, Albia, Iowa. Filed July 22, 1897. Serial No. 645,633. (No model.)



Claim.—A sectional tobacco-pipe divided longitudinally along the line of the bore leading from the bowl through the stem, corresponding grooves formed in the meeting faces of the parts adjacent to and bordering upon the bowl-cavity and bore and unitedly forming seats which communicate at their inner longitudinal edges with the said bore and bowl-cavity, means for securing the sections when closed, an absorbent fireproof packing located in the said seats and overlapping the joint formed between the meeting faces of the said parts, and having their inner longitudinal edges flush with the sides of the said bowl-cavity and bore, said packing being secured at one edge in the groove of one part of the pipe and having its opposite edge free and adapted to be detachably fitted into the groove of the other part of the pipe, substantially as specified.

642,446. DUPLEX PUMPING APPARATUS. GEORGE B. HIETT, Atlanta, Ga., assignor of one-half to Samuel Louis Brewer, Tuskegee, Ala. Original application filed June 12, 1897, Serial No. 640,496. Divided and this application filed Apr. 2, 1898. Renewed Dec. 18, 1899. Serial No. 740,826. (No model.)



Claim.—1. In a duplex pumping apparatus, the combination with a bed-plate and a frame rising therefrom, of two pump-cylinders supported by the bed-plate, two power-cylinders supported by the frame and arranged vertically above said pump-cylinders, the piston-rods of said pump and power cylinders being connected at their adjacent ends to cross-heads, a walking-beam journaled intermediate its ends in said frames, links connecting the opposite ends of said walking-beam to the respective cross-heads, a crank-shaft, a connecting-rod attached to one end of the walking-beam and to the crank-shaft, a rocking arm actuated from the crank-shaft and pivoted to the frame a horizontal rock-shaft arranged below the power-cylinders and carrying two oppositely-extending crank-arms attached to the valve-stems thereof, and a connecting-rod attached at one end to the rock-shaft by a universal joint and at its other end directly to said rocking arm, substantially as described.

2. In a duplex pumping apparatus, the combination, with a suitable frame, of two pump-cylinders, two power cylinders arranged vertically above said pump-cylinders, the piston-rods of said pump and power cylinders being respectively connected at their adjacent ends to cross-heads, a walking-beam journaled intermediate its ends in said frame and comprising two parallel cross-beams, links connecting the opposite ends of said walking-beams to the respective cross-heads, a crank-shaft, a connecting-rod attached to one end of the walking-beam and to the crank-shaft, an eccentric arranged on the crank-shaft, an eccentric-rod actuated thereby and connected to an oscillating arm, a rock-shaft provided with two oppositely-extending crank-arms attached to the valve-stems of the power-cylinders, and a connecting-rod attached at one end to said oscillating arm and at its other end connected by a universal joint to said rock-shaft, substantially as described.

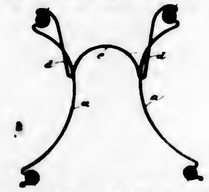
3. In a duplex pumping apparatus, the combination with a bed-plate, of semicircular pillars 2 rising therefrom, pump-cylinders 3 arranged within said pillars and provided with peripheral flanges 4 bolted to the tops thereof, upright frames supported on said pillars and provided at their upper ends with flanges 8, a stay-beam 9 attached to said flanges, four-armed braces 7 attached to said upright frames and pillars respectively, and power-cylinders resting on and secured to the said flanges, substantially as described.

4. In a duplex pumping apparatus, the combination with a bed-plate, of semicircular pillars 2 rising therefrom, upright frames supported on said pillars and provided at their upper ends with flanges 8, a stay-beam 9 attached to said flanges, four-armed braces 7 attached to said upright frames and pillars respectively, pump-cylinders ar-

ranged within said pillars and secured thereto, power-cylinders supported on said flanges, the piston-rods of said power and pump cylinders being respectively connected at their adjacent ends to cross-heads traversing guides on said upright frames, a walking-beam mounted on a shaft having bearing in the four-armed braces, and links connecting the ends of the walking-beam to the respective cross-heads, substantially as described.

5. In a duplex pumping apparatus, the combination of a frame, a pair of pump-cylinders, one arranged at each end of the frame, a pair of power-cylinders, one arranged vertically above each pump-cylinder, the piston-rods of said pump and power cylinders being respectively connected at their adjacent ends to cross-heads, a walking-beam journaled in the frame and having its opposite ends connected to said cross-heads to operate the piston-rods of the pump and power cylinders at one end of the frame in unison and the respective pairs of cylinders at opposite ends thereof alternately, a crank-shaft, a connecting-rod attached to one end of the walking-beam and to the crank-shaft, an eccentric arranged on the crank-shaft, an eccentric-rod actuated thereby and connected to an oscillating arm, a rock-shaft connected to the valve-stems of the power-cylinders to operate the same simultaneously in reverse directions, and a connecting-rod attached at one end to said oscillating arm and at its other end to said rock-shaft, substantially as described.

642,447. HAT-HOLDER. FREDERICK W. HODGES, New York, N. Y. Filed July 19, 1899. Serial No. 724,394. (No model.)



Claim.—1. A hat-holder, comprising open loops of resilient material, the loops forming spring-clamps to engage the legs of a chair, and means attached to and supported by the loops to engage and hold the hat.

2. A hat-holder, comprising spring-clamps serving to engage the legs of a chair to support the hat-holder beneath the seat thereof, and means carried by the clamps for engaging and supporting the hat.

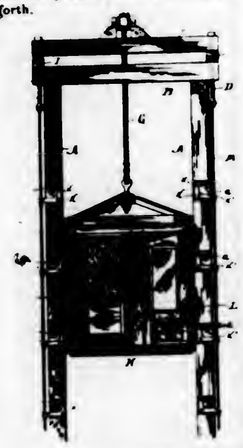
3. A hat-holder formed of an integral length of spring-wire bent to form two inwardly-bowed side portions each terminating in spring-clamps serving to engage the legs of a chair, the wire having its intermediate portion bent to form two forwardly-projecting arms joined by a curved cross-piece, the hat being held between the said portions and against the cross-piece.

4. A hat-holder formed of an integral length of spring-wire bent to form two side portions each terminating in a spring-clamp serving to engage the legs of a chair, the intermediate portion of the wire being extended forwardly, and a cross-piece between the side portions which hold the hat.

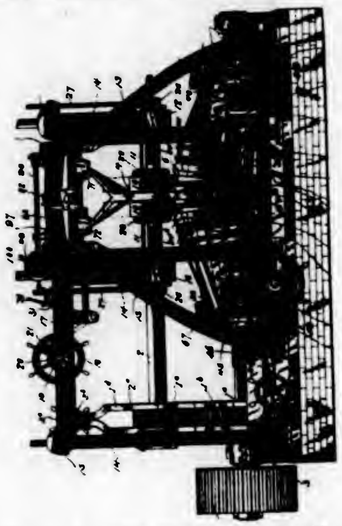
642,448. SAFETY DEVICE FOR ELEVATORS. JOSEPH W. HOLMES, Joplin, Mo. Filed July 3, 1899. Serial No. 723,187. (No model.)

Claim.—1. In a safety device for elevators, the combination with the elevator shaft and car, of a stationary beam, a vertically-movable beam mounted above said stationary beam, guide-bars secured to the end portions of the movable beam and depending through openings in the stationary beam, helical springs encircling the guide-bars and interposed between the stationary and movable beams, pivoted pawls arranged in vertical series in the elevator-shaft, rods connected to the pawls and to the guide-bars of the movable beam, and ratchet-plates secured to the sides of the car and adapted to be engaged by the pawls; the hoisting and lowering cables of the car passing over a pulley on the movable beam so that the weight of the car will hold said beam normally depressed against the action of the helical springs, substantially as shown and for the purpose set forth.

2. In a safety device for elevators, the combination with the elevator shaft and car, of a horizontal stationary beam at the upper end of the shaft and provided with vertical holes near each end, a beam mounted movably above the stationary beam, guide-bars secured to the ends of the movable beam and depending through the vertical holes of the stationary beam, helical springs encircling the guide-bars and interposed between the beams, pawls pivoted in recesses in the vertical posts of the shaft, said pawls being located or pivoted a slight distance above the base of the recesses and provided with a heavy member having a beveled end, and rods connected to the pawls and to the lower ends of the guide-bars carried by the movable beam; together with ratchet-plates secured to the sides of the car and adapted to be engaged by the pawls; the hoisting and lowering cables passing over the movable beam so that the weight of the car will hold the same normally depressed, substantially as shown and for the purposes set forth.



642,449. ROLLING-MILL. CHARLES M. HORTON, West Superior, Wis. Filed Mar. 14, 1899. Serial No. 708,993. (No model.)



Claim.—1. In a rolling-mill, the combination with a suitable frame, of upper and lower feed-rolls mounted therein, means for rolling the material inserted, and means for raising and lowering the upper feed-rolls, and mechanical means for moving the upper feed-rolls to different distances from each other, substantially as described.

2. In a rolling-mill, the combination with upper and lower feed-rolls, of means for raising and lowering the upper rolls to accommodate beams of different sizes, means for actuating the shaft of the lower roll and means for transmitting motion from the lower shaft to the upper one, said means comprising a frame pivoted on one shaft and swinging with respect to the other one, adjustable gears mounted in said frame adapted to mesh with the gearing upon the shaft of the upper adjustable rollers in its different positions, substantially as described.

3. In a rolling-mill, the combination with lower and upper feed-rolls, of means for adjusting the shaft of the upper feed-rolls vertically, gearing upon the shafts of the feed-rolls, a frame pivoted at one end to the lower shaft and carrying intermediate gearing for communicating motion from one to the other, no matter what the adjusted position of the movable shaft, and a screw-shaft for holding the other end of said frame rigidly in its adjusted position, substantially as described.

4. In a rolling-mill, the combination with lower and upper feed-rolls, of exterior rerolling-rolls adapted to turn over flanges of connecting-plates upon beams to form box structures, and means for adjusting the said rerolling-rolls at different distances from each other, substantially as described.

5. In a rolling-mill, the combination with a lower feed-roll, of upper adjustable feed-rolls, exterior rerolling rolls mounted in suitable frames, said frames being adjustable in the frame of the mill, and means for raising and lowering the inner adjustable ends of the said frames to vary the position of the rerolling-rolls with respect to the material to be acted upon, substantially as described.

6. In a rolling-mill, the combination with lower and upper feed-rolls, of exterior rerolling-rolls mounted upon shafts in pivoted frames, pivoted frames carrying said shafts and having trunnions engaging sliding journal-bearings, the inner end of the said frame also having projections which engage inclined slots formed in movable slides or frames, and means for adjusting the said movable slides or frames with respect to the trunnions of the pivoted frame, whereby the rolls may be raised or lowered in the machine, substantially as described.

7. In a rolling-mill, the combination with upper and lower feed-rolls of laterally-arranged exterior rerolling-rolls mounted upon suitable shafts, pivoted frames supporting the said shafts, and pivotally mounted in movable bearings upon the frame of the mill, the inner ends of the said pivoted frames having projections engaging diagonal slots in movable slides or frames, the said frames resting upon guides or rails formed upon the frame of the machine, screws connected with said slides, gearing engaging the said screws and connected with each other by means of suitable shafting and hand operating means connected with said shaft whereby the slides may be adjusted simultaneously to raise or lower the frames carrying the rerolling-rolls, substantially as described.

8. In a rolling-mill, the combination with lower and upper feed-rolls, of laterally-arranged rerolling-rolls mounted in suitable frames, screw-rods engaging swivel-nuts mounted in the said frames, gearing engaging the said screw-rods and connected with a suitable hand means whereby the frames may be adjusted at different distances to each other, substantially as described

9. In a rolling-mill, the combination with feed-rollers, of exterior rerolling-rolls mounted upon suitable shafts, frames carrying said shafts, means for adjusting them higher and lower in the frame, gearing upon the shafts of the said rerolling-rolls, and movable gears splined upon the lower feed-roller shaft for engaging the said gears upon the shafts of the rerolling-rolls for actuating the same, substantially as described.

10. In a rolling-mill, the combination with suitable upper and lower feed-rolls, and means for actuating the same, of interior rerolling-rolls adapted to work between the beams of the structure to be formed, said rerolling-rolls being supported by a suitable frame or yoke mounted in the frame of the mill, whereby the rerolling-rolls are supported between the upper and lower feed-rolls, substantially as described.

11. In a rolling-mill, the combination with upper and lower feed-rolls, of interior rerolling-rolls, a U-shaped yoke for supporting the said rerolling-rolls, said frame having flanges engaging horizontal tracks upon the frame of the machines, links pivotally connecting one arm of the said yoke to the frame, and a chain for operating the said yoke to remove it from between the feed-rolls or to replace it in position, substantially as described

12. In a rolling-mill, the combination with upper and lower feed-rolls, of rerolling-rolls adapted to turn over flanges between the beams of the structure to be formed, a yoke for supporting the said rerolling-rolls, said yoke sliding upon rails or tracks in the frame, pivoted links for connecting one arm of the said yoke to the frame, a chain for removing and replacing said yoke between the feed-rolls, and means for raising and lowering the yoke in the frame comprising vertical segments connected by suitable gearing with a hand-operated means, substantially as described.

13. In a rolling-mill, the combination with a lower feed-roll, of upper feed-rolls splined upon a suitable shaft, means for moving the said rolls to different positions upon the said shaft comprising casings or rings engaging annular projections on the said rolls, screw-threaded nuts engaging the said screw-rods, vertical shafts having worms for operating the said screw-nuts, splined gear-wheels secured to the said vertical shaft and gearing connecting the said gear-wheels with hand-operated means, whereby the said upper rolls may be adjusted at different distances from each other, substantially as described.

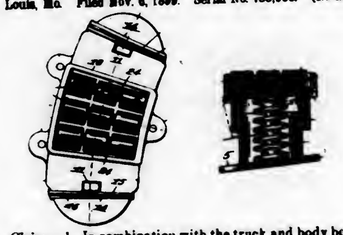
14. In a rolling-mill, the combination with upper and lower feed-rolls, of piston-rolls adapted to extend into the end of box structures to be rolled, said piston-rolls carrying rerolling-rolls for turning the flanges of connecting-plates over upon the flanges of beams, substantially as described.

15. In a rolling-mill, the combination with upper and lower rolls, and means for actuating the same, of piston-rolls mounted upon the piston-head, one set of the said rolls being mounted upon the body portion thereof while the other set is mounted upon the pivotal portion of the said pistos, whereby they may be adjusted to different positions with respect to each other by inserting wedges of different sizes between the parts of the piston-head, piston-rods secured to said head and engaging pivoted heads mounted upon suitable posts and means for turning said pivoted heads downwardly upon the said posts substantially as described.

16. In a rolling mill, the combination with lower and upper feed-rolls, of laterally-arranged rerolling-rolls mounted upon suitable shafts carried in adjustable frames, gearing upon the said shafts and splined gears upon the shaft of the lower feed-roll for actuating the said gears, each of the said splined gears comprising in its construction a central toothed portion and side flanges bolted or otherwise secured upon the sides thereof, whereby the gears upon the shafts of the rerolling-rolls will carry the said splined gears back and forth upon the main shaft when the said frames are adjusted, substantially as described.

17. In a rolling-mill, the combination with upper and lower feed-rolls, of interior rerolling-rolls, a yoke for supporting the same between the upper and lower feed-rolls, said yoke engaging guides or tracks upon the frame, bolts for preventing the said yoke from moving upon the said tracks and means for withdrawing the said bolts when it is desired to move the yoke comprising a rock-shaft connecting with the bolts by means of links and means for rocking said rock-shaft whereby the bolts may be moved back and forth, substantially as described.

642,450. ANTIFRICTION SIDE BEARING. CHARLES HOYLE, St. Louis, Mo. Filed Nov. 6, 1899. Serial No. 735,906. (No model.)



Claim.—1. In combination with the truck and body bolsters having a center bearing, side bearings carried by the truck-bolster and consisting each of a fixed base, a cap fitting over the base, antifriction-rollers carried by the cap, and springs located between the base and the cap for keeping the rollers in constant engagement with the body-bolster as the latter oscillates in a vertical plane on its center bearing, said cap being larger than the base so as to oscillate without coming in contact with the base, substantially as set forth.

2. In combination with the truck and body bolsters having a center bearing, side bearings carried by the truck-bolster and consisting each of a fixed base, a cap located over the base, antifriction-rollers journaled in a spacing-frame movably held to said cap, and springs located between the base and the cap, to retain the rollers in constant engagement with the body-bolster as the latter oscillates in a vertical plane upon its center bearing, substantially as set forth.

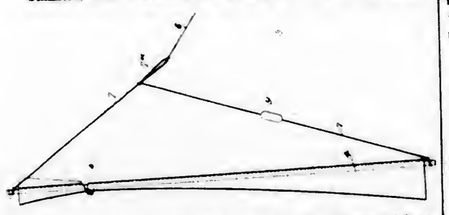
3. In combination with the truck and body bolsters having a center bearing, side bearings consisting each of a base secured to the truck-bolster, a cap fitting over and inclosing the upper part of the base, antifriction-rollers journaled in a spacing-frame movably held to the cap, and springs located between the base and cap for holding the antifriction-rollers in constant engagement with the body-bolster as the latter oscillates in a vertical plane upon its center bearing; said cap being larger than the base so as to oscillate without coming in contact with the base, substantially as set forth.

4. In combination with the truck and body bolsters having a center bearing, side bearings carried by the truck-bolster and consisting each of a base, a cap fitting over the base, a spacing-frame fitting over the cap and movably held thereto by means of lugs, antifriction-rollers journaled in said spacing-frame, and springs located between the base and the cap for holding the antifriction-rollers in constant engagement with the body-bolster as the latter oscillates in a vertical plane upon its center bearing, substantially as set forth.

5. In combination with the truck and body bolsters having a

center bearing, side bearings carried by the truck-bolster and consisting each of a base, a cap fitting over the base, a spacing-frame fitting over the cap and connected thereto by means of lugs, stops for limiting the movement of the spacing-frame, antifriction-rollers journaled in the spacing-frame, and springs located between the base and the cap for holding the antifriction-rollers in constant engagement with the body-bolster as the latter oscillates in a vertical plane upon its center bearing, substantially as set forth.

642,451. **KITE.** WILLIAM H. HOTT and CLAIBON S. WARDWELL, Stamford, Conn. Filed July 1, 1899. Serial No. 722,548. (No model.)



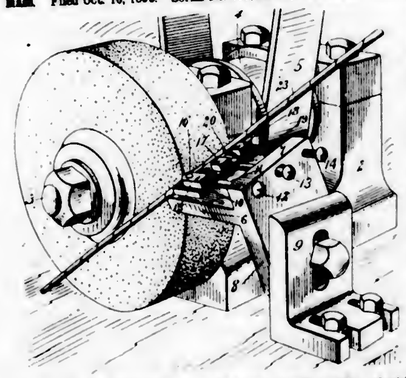
Claim.—1. A kite, comprising a body portion, a cross-stick secured to the back thereof, a web extended longitudinally of the kite at its front, a vertical stick supported by said web, a bridle attached to the upper and lower ends of the vertical stick, and a weight in the lower stretch of the bridle, substantially as specified.

2. A kite, comprising a body portion, having a longitudinal dihedral angle, a cross-stick secured to the back of the kite, a tubular fin extended longitudinally on the front of the kite, and a vertical stick removably placed in the fin, substantially as specified.

3. A kite, comprising a body portion, having a longitudinal dihedral angle, a cross-stick secured to the back of the kite, a tubular fin extended longitudinally on the front of the kite, and separated at a point opposite the cross-stick, and a vertical stick adapted to be passed through the tubular fin, substantially as specified.

4. A kite, comprising a body portion, having a longitudinal dihedral angle, a cross-stick secured to the back of the kite, a web extended longitudinally on the front of the kite, a vertical stick supported by said web, a bridle attached to the vertical stick and provided with a loop, and a weight on the bridle below the loop.

642,452. **MACHINE FOR GRINDING AND ROUNDING STRIPS OF RAWHIDE OR OTHER MATERIAL.** DAVID C. HULL, Westfield, Mass. Filed Oct. 16, 1899. Serial No. 733,743. (No model.)



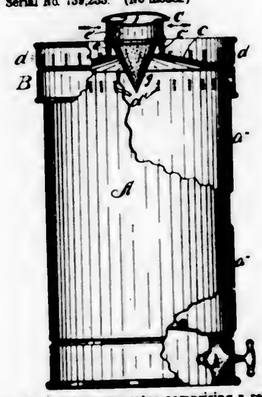
Claim.—1. A machine for rounding and grinding strips of whip and other material, comprising a grinding-wheel and means for driving the same, and means adapted to hold a strip against said wheel at varying angles of contact, whereby the movement of said strip across the face of the wheel may be accelerated or retarded, substantially as described.

2. A machine for rounding and grinding strips of whip and other material, comprising a grinding-wheel and driving means therefor, a work-holding bracket opposite the face of said wheel, a lever pivoted on said bracket between which and said wheel pieces are introduced to be ground, and means for swinging said lever toward said wheel with varying force, substantially as described.

3. A machine for rounding and grinding strips of whip and other material comprising a grinding-wheel and driving means therefor, a swinging work-holding bracket opposite the face of said wheel, a lever pivotally and adjustably connected to said bracket, and means for limiting the pivotal movement of said lever toward said wheel and for varying the force of said movement, substantially as described.

4. A machine for rounding and grinding strips of whip and other material comprising a grinding-wheel and driving means therefor, a swinging work-holding bracket opposite the face of said wheel, a work-holding lever pivotally and adjustably connected by one end to said bracket, and means for adjusting the latter toward and from said wheel, a spring moving the free end of said lever toward said wheel, and means for adjusting the degree of said last-named movement, substantially as described.

642,453. **CREAM-SEPARATOR.** WILLIAM F. HUNT, Newark, N. Y., assignor of one-half to Henry S. Hunt, same place. Filed Dec. 5, 1899. Serial No. 739,233. (No model.)



Claim.—1. A cream-separator comprising a receptacle having a perforated shelf in its upper end, and a top having an inclined bottom, a cap secured thereto, provided with a strainer and a deflecting-plate, for the purpose of aerating the milk, as it passes through the can.

2. In a cream-separator, a receptacle having a perforated shelf in its upper part inclined outwardly, a top having an inclined bottom terminating in a flange, a cap adapted to be secured to said flange, and having its walls perforated, and a strainer at one end, and a deflecting-plate in the other for the purpose of aerating the milk as it passes into the can, as set forth.

642,454. **PORTABLE ORDERING-MACHINE.** ALPHEUS V. HYSOR, Richmond, Va., assignor of two-thirds to S. P. Mayo and W. J. Whitehurst, same place. Filed Mar. 16, 1898. Serial No. 674,107. (No model.)

Claim.—1. The combination with a portable frame mounted on wheels, of an ordering-chamber on said portable frame, a carrier also mounted on said frame and passing through the ordering-chamber, a steam-engine also mounted on said frame and adapted to operate said carrier, and a pipe connected with said engine and discharging into the ordering-chamber, substantially as set forth.

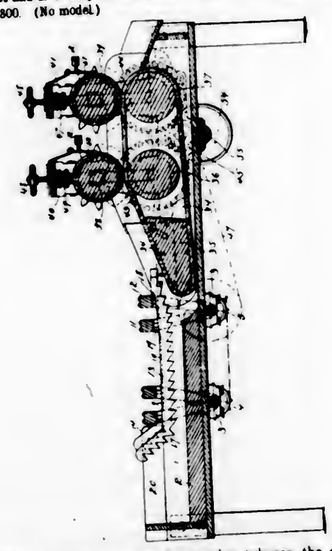
2. The combination with a portable frame, of an ordering-chamber thereon, a conveyer passing through said ordering-chamber, a steam-engine mounted on the portable frame and connected so as to operate said conveyer, a pipe discharging into the ordering-chamber and a connection between said pipe and the exhaust-port of the engine.

3. In an ordering-machine, the combination with an ordering-chamber having a ceiling sloping downwardly to the sides of said chamber, and an inclined floor in said chamber, of a conveyer over said floor, means for discharging steam into said chamber, a transversely-sloping pan adapted to receive water of condensation from the inclined floor, a discharge-pipe and a trap between said discharge-pipe and the pan.

4. In an ordering-machine, the combination with a frame, of an ordering-chamber, an endless carrier therein, rollers therefor, a rotary engine, a worm on the shaft of the engine, a worm-wheel, a pinion thereon, a large gear connected with one of the rollers and meshing with the pinion, and a pipe leading into the chamber for supplying steam thereto, all of said parts carried by the frame



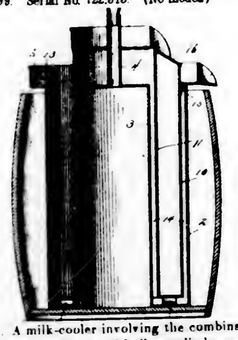
642,455. **APPARATUS FOR TREATING TOBACCO.** ALPHEUS V. HYSOR, Richmond, Va., assignor of two-thirds to William J. Whitehurst and S. P. Mayo, same place. Filed June 18, 1898. Serial No. 683,800. (No model.)



Claim.—1. In an apparatus for treating tobacco, the combination of a tank, bearing-blocks secured under the bottom of the tank, two parallel shafts disposed under the tank and mounted in said bearing-blocks, the ends of said shafts projecting laterally beyond the sides of the vat, and each provided near each end with two crank-arms, two pairs of transversely-disposed bars extending across the vat and each projecting laterally at both ends beyond the sides of the vat, bars having depending teeth, connecting the bars of the respective pairs, and pitmen connecting the cranks on the shafts under the vat with the respective ends of the respective transverse bars.

2. In an apparatus for treating tobacco, the combination with a frame, a vat thereon and presser-rollers, of rakes over the vat, operating mechanism mounted under the vat for operating said rakes, an elongated fixed idler secured to the frame and projecting under the forward ends of the rakes at the forward end of the vat and an endless conveyer passing between said presser-rollers and passing about the elongated fixed idler.

642,456. **LIQUID-COOLER.** LARS C. IBSEN, Irene, S. D. Filed June 29, 1899. Serial No. 722,313. (No model.)

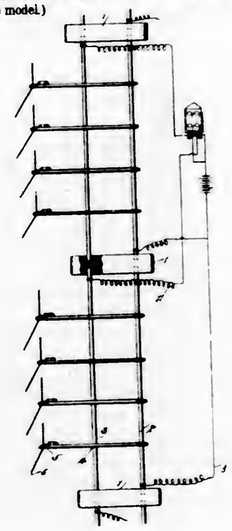


Claim.—1. A milk-cooler involving the combination of an outer metallic vessel having an internal hollow cylinder or drum, an annular enlargement at the upper end, a milk-overflow spout 7 leading from said enlargement, a pocket also formed in said enlargement, having a passage leading from its bottom, and an inner vessel having an interior concentric open-ended cylinder, a water-overflow spout leading from the vessel, and a foam-overflow spout leading from the concentric hollow cylinder, and means for introducing water, substantially as described.

2. A milk-cooler involving the combination of an outer metallic vessel having an internal hollow cylinder or drum, with water-supply pipe communicating with the drum and having an annular enlargement with a milk-overflow spout leading therefrom, and a pocket in the enlargement with a passage leading from the bottom thereof, and an inner vessel having an interior concentric cylinder with water-supply pipe leading to the bottom between the vessel and its concentric hollow cylinder, a water-overflow spout, and a foam-overflow spout, substantially as described.

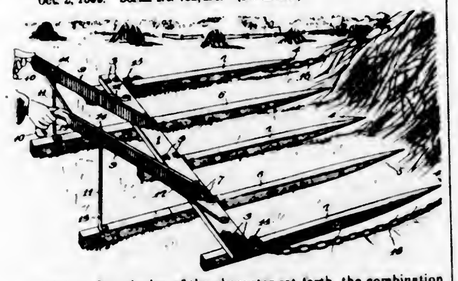
3. The combination of a barrel or incloding vessel, and a metallic vessel having an internal hollow cylinder or drum with water-supply pipe communicating with the drum and having an annular enlargement with a milk-overflow spout leading therefrom, and a pocket in the enlargement with a passage leading from the bottom thereof, and an inner vessel having an interior concentric cylinder with water-supply pipe leading to the chamber between the vessel and its concentric hollow cylinder, a water-overflow spout, and a foam-overflow spout, substantially as described.

642,457. **BREAK-INDICATOR FOR TWISTING-MACHINES.** GEORGE F. IVEY, Forest City, N. C. Filed Aug. 11, 1899. Serial No. 726,912. (No model.)



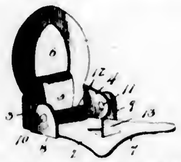
Claim.—A break-indicator for a twisting-machine, in which the strands or threads to be twisted into a single strand, are arranged in sections, a circuit-closer for each strand or thread and normally held open thereby, and an alarm device having an independent indicator for each section and in electrical connection therewith, whereby should a break occur in any section, the location of said section will be indicated, without causing a stopping of the machine, substantially as specified.

642,458. HAY-CARRIER. DAVID C. KENT, Dublin, Va. Filed Oct. 2, 1899. Serial No. 732,431. (No model.)



Claim.—In a device of the character set forth, the combination of a series of horizontal tines of comparatively short length, other horizontal tines located centrally in the space between the former tines and having a decided rear projection beyond the rear terminals of the first-named tines to form balancing projections, a bar extending transversely across the upper portion and rigidly connected to all the tines in advance of their rear terminals, a pair of parallel handle-bars arranged at a downward angle of inclination and having their front ends secured to the said bar and the upper rear terminals projected over the tines having a decided rear projection and connected near their upper rear terminals by a cross-tie rod, vertical braces attached to the outer sides of the handle-bars near the upper rear extremities of the latter and to the top edges of the tines having the decided rear projections and located under the said handle-bars, whereby the carrier may be elevated or depressed at the rear without breaking the connection of the handle-bars with the transverse bar fixed to the tines, and outwardly-extending angularly-disposed braces having their upper rear extremities attached to the handle-bars at the same points that the vertical braces are connected thereto, the lower ends of the said outwardly-extending braces being applied to the top surface of the bar connecting the tines whereby the handles may be used to swing the carrier to either side without weakening the securement of the said handle-bars.

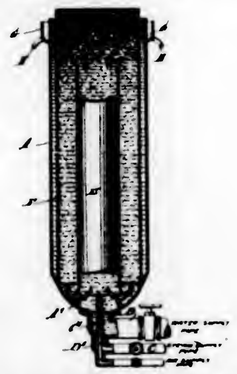
642,459. COMBINED COLLAR AND NECKTIE CLASP. FRANK KENYON, Washington, D. C. Filed June 24, 1899. Serial No. 721,765. (No model.)



Claim.—1. A clasp of the character described comprising a pair of hinged members, one of said members being provided with a spring-tongue cut from the member to form an elongated opening for the reception of a button-head and bent back over the face of the member, the other of said members being provided with a projection across its lower extremity and in operative contact with the extremity of the spring-tongue, substantially as specified.

2. In a clasp, the combination with a sheet-metal member provided with a pair of ears adjacent to one end, an elongated slot comparatively narrow at its upper end and with a spring-tongue formed from the metal of the member and bent back over the face of the member below the slot and between the ears, of a second member of less length and greater width than the first-named member and provided with parallel ears adjacent to one end pivotally connected with the ears of the other member, said second member being also provided at its lower end with a right-angular projection and with a prong extending from its inner face adjacent to its upper edge and inclined with respect to the face of the second member, substantially as specified.

642,460. APPARATUS FOR PRODUCING WORT, HOP-BEER, WASHING FILTER-PULP, &c. BAIL KERSTER, Richmond, Va. Filed July 21, 1897. Serial No. 645,330. (No model.)



Claim.—1. An apparatus for producing wort, hop-beer, washing filter-pulp &c., comprising a vessel connected with a water-supply, a circulating-pipe held in the said vessel and opening at both ends into the same, a sieve within the vessel, said sieve surrounding the circulating-pipe and arranged to engage the wall of the vessel, and air and steam nozzles connected with suitable supplies, the air and steam nozzles opening separately and independently of each other into the vessel at the bottom thereof at or below the lower end of the said pipe, substantially as shown and described.

2. An apparatus of the character described, comprising a vessel having a pipe opening into its bottom, and connected with a source of water-supply, an open-ended circulating-pipe held in the vessel above the bottom thereof, a sieve within the vessel, said sieve surrounding the circulating-pipe and arranged to engage the wall of the vessel, a steam-pipe provided with a nozzle leading up through the bottom of the vessel beneath the circulating-pipe, and an air-supply pipe provided with a nozzle within the steam-nozzle, substantially as herein shown and described.

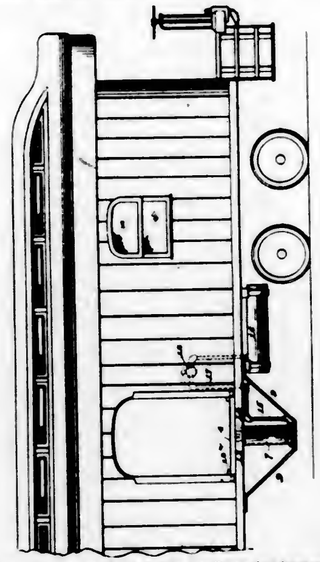
3. An apparatus of the character described, comprising a vessel connected with a water-supply, and having its upper and open, an open-ended circulating-pipe held within the vessel above the bottom thereof, a cylindrical screen having its lower end resting upon the bottom of the vessel and its upper end projecting above the top of the said vessel, a steam-nozzle projecting through the bottom of the vessel beneath the circulating-pipe, and an air-nozzle within the steam-nozzle, substantially as described.

4. An apparatus of the character described, comprising a vessel open at its top and having a contracted bottom, an annular trough at the upper end of the vessel, an open-ended circulating-pipe held in the vessel above the bottom of the same, a cylindrical screen having its lower end resting upon the contracted bottom of the vessel and its upper end projecting above the top of the said vessel, a water-supply pipe opening into the bottom of the vessel, a steam-pipe connected with the water-supply pipe and provided with a nozzle extending through the water-supply pipe into the vessel, and an air-pipe connected with the steam-pipe and provided with a nozzle projecting up within the steam-nozzle, substantially as described.

642,461. MAIL-BAG DELIVERER FOR FAST TRAINS. HARRY F. KILLEAN, Clinton, Iowa. Filed Oct. 26, 1899. Serial No. 734,867. (No model.)

Claim.—1. In an apparatus for delivering mail-pouches from trains, the combination with a gate or frame hinged at its outer edge to a fixed support opposite or adjacent to a doorway or opening in the side of the car and arranged to fold down against the floor of the car, of a cylinder and piston arranged beneath the car, the piston-rod being connected to said gate, and a pipe from the compressed-air reservoir of the air-brake system entering the lower end of the cylinder beneath the piston, substantially as described.

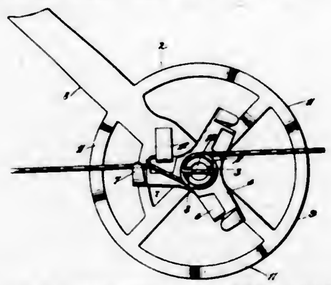
2. In an apparatus for delivering mail-pouches from trains in motion, the combination with a gate hinged to the floor of the car at or near one side, of a cylinder mounted on a pivoted axis beneath said gate and car-floor, a piston in said cylinder having a piston-rod connected to the gate, and a pipe to introduce air under pressure from the air-brake reservoir, substantially as described.



3. In an apparatus for delivering mail-pouches from cars in motion, the combination with a gate, or frame having one end hinged at or near one side of the car, of a cylinder for compressed air having its lower end on a pivotal axis beneath the gate, a piston in said cylinder, a piston-rod having its end pivotally connected to the gate, a pipe to lead compressed air from the air-brake reservoir, and a valve, or cut-off in said pipe, substantially as described.

4. In an apparatus for delivering mail-pouches from cars in motion, the combination with a gate or frame having one end hinged at or near the side of the car, of a cylinder having its lower end on a pivotal axis beneath the car and gate, a piston and piston-rod, the end of the latter pivotally connected to the gate, a pipe from the air-brake reservoir to said cylinder, said pipe having a return-bend brought into the car, and a valve or cock in the same, substantially as described.

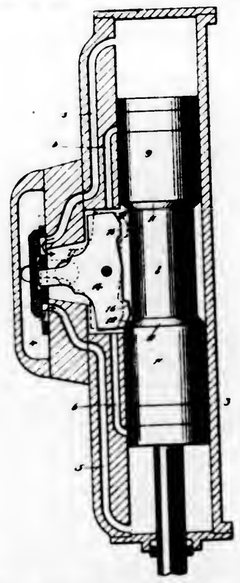
642,462. WIRE-STRETCHER. WILLIAM R. KIMMEL, Bermudian, Pa. Filed Sept. 13, 1899. Serial No. 730,378. (No model.)



Claim.—1. A wire-stretching device, comprising a capstan having a tubular portion provided with opposite openings, arms extended radially from said tubular portion and having hooks at the outer ends and recesses inward of said hooks, a lever having a ring-like head portion having depressions and provided with a hub to engage with the tubular portion of the capstan, and a lug for engaging in the recesses of the arms, substantially as specified.

2. In a wire-stretching device, the combination with a capstan substantially as described, of a turning device comprising a lever having a ring-like head provided with depressions, a hub in said head, and a lug on said head for engaging with the capstan, substantially as specified.

642,468. ROCK-DRILL. HENRY KOCH, North Tarrytown, N. Y. Filed July 29, 1899. Serial No. 725,515. (No model.)



Claim.—1. A rock-drill, having a cylinder, a steam-chest attached to the cylinder, the cylinder having a chamber formed therein, such chamber communicating with the atmosphere and with the interior of the cylinder, the chamber also communicating with the steam-chest, a slide-valve commanding communication between the steam-chest and the said chamber of the cylinder, and the cylinder also having feed-ports respectively leading from the steam-chest to the end portions of the cylinder, and exhaust-ports respectively leading from points intermediate the ends of the cylinder and the said chamber, the exhaust-ports communicating with said chamber, a piston working in the cylinder, and means for driving the valve in time with the piston, the said valve serving alternately to place the feed-ports in communication with the steam-chest and with the said chamber in the cylinder.

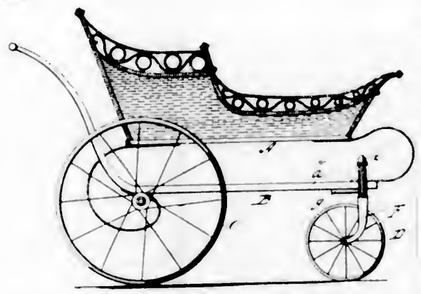
2. A rock-drill, having a cylinder formed with a chamber intermediate the ends thereof, the chamber communicating directly with the interior of the cylinder and the cylinder having feed-ports leading respectively to the ends of the cylinder, and exhaust-ports passing respectively from points intermediate the chamber and the ends of the cylinder and communicating with the chamber, such chamber being in communication with the atmosphere, a valve commanding the feed-ports, means situated within the chamber and connected with the valve, to drive the same, and a piston working within the cylinder and driving such means.

3. A rock-drill, having a cylinder formed with a chamber therein, the chamber communicating directly with the interior of the cylinder and with the atmosphere, a steam-chest attached to the cylinder and communicating with the chamber therein, the drill having feed-ports passing from the steam-chest respectively to the ends of the cylinder, and the drill also having exhaust-ports passing from the chamber in the cylinder respectively at points intermediate the ends of the cylinder and such chamber, a valve mounted in the steam-chest and serving alternately to open the feed-ports and to connect them with the chamber in the cylinder, means mounted in said chamber for transmitting movement to the valve, and a piston working in the cylinder and actuating said means.

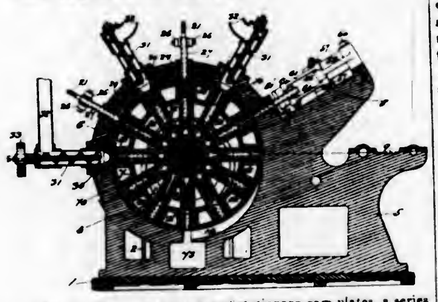
642,464. BABY-CARRIAGE. GEORGE A. LABCIAUX, Indian Orchard, and OLIVER F. SMITH, Springfield, Mass. Filed May 29, 1899. Serial No. 718,717. (No model.)

Claim.—In a baby-carriage, the combination with the carriage-

frame comprising the horizontal parallel longitudinal bars *a a*, and the uniting rear axle having the large rear wheels mounted thereon, of the castings or brackets G each of which comprises the flat longitudinal member *g*, which is secured under the forward end portion of one of said bars, the horizontal outwardly-extending member *h*, and the integrally-formed upstanding hollow hub-like member *f*, of the fork F, for each of the pair of smaller front wheels, provided with the upstanding stem *d* extending and journaled within the said hollow member *f*, and the retainer *i*, all substantially as described and shown.



642,465. MOLDING AND COMPRESSING MACHINE. GOTTHOLD LANGER, St. Louis, Mo., assignor to Joseph C. Miller, William Schwarz, Frank J. Dauscha, and Andreas Sendlein, same place. Filed Mar. 18, 1898. Serial No. 674,342. (No model.)



Claim.—1. In a press, a series of stationary cam-plates, a series of rotating mold-disks mounted adjacent to and between the said series of cam-plates, the latter having cam-tracks formed on each side or face of the plate, a series of radially-disposed pockets formed in the mold-disks, a die having a relatively stationary or male member and a movable or female member confined within each pocket, guide-arms carried by the movable member and operating within the cam-tracks formed in the cam-plates located adjacent to and on each side of the mold-disk, and suitable feeding devices for feeding the material to be compressed into the pockets of the mold-disks, substantially as set forth.

2. In a press, a suitable base, a series of standards, cam-plates mounted on said standards, a rotating shaft passing loosely through the center of each of said cam-plates, mold-disks keyed to said shaft and interposed between the cam-plates and in a position in proximity thereto, suitable radially-disposed pockets formed in the mold-disks, slots formed in the lateral walls of the pockets, a die composed of a male and female portion confined in each pocket, guide-arms carried by the female portion and projecting through said slots, beyond the outer faces of the walls in which the slots are formed the projecting ends of the arms being guided in the cam-tracks formed in the cam-plates, whereby the female members of the dies are constrained in their radial movement along the male members, a distance depending on the amount of eccentricity of the cam-tracks, suitable feeding devices for the pockets, and suitable plungers for compressing the material and operating in conjunction with the female portions of the dies, substantially as set forth.

3. In a press, a suitable mold-disk comprising a series of pockets disposed radially therethrough, one of the faces of the disk forming a permanent wall for the pockets, a detachable plate adapted to be secured to the opposite face of the disk and forming when secured thereto the opposite wall for said pockets, the two walls thus formed being provided with suitable radially-disposed alining slots, a nearly-cylindrical groove formed at the base of each pocket, the axis of the cylinder being disposed at right angles to the plane of rotation of the mold-disk, said cavity being adapted to receive the correspondingly-shaped fixed end of the stationary member of the die confined within the pocket, a movable or tubular portion embracing the male portion for a part of the length thereof, and having arms projecting through the radial slots referred to, the free end of the arms being adapted to travel along the cam-tracks formed in the cam-plates located adjacent to the mold-disks, substantially as set forth.

4. In a press, a series of supporting-standards, cam-plates carried thereby, a second series of standards, alternating with the first series, each standard of the second series having an opening formed therein for the reception of a revolving mold-disk, the walls of the opening embracing the major portion of the periphery of such disk, but being cut away near the base to permit the free discharge of the contents carried by the pockets of the disk, a basal receptacle communicating with the openings of the standards for the reception of the contents of the pockets of the several mold-disks, passages leading from the walls of the openings embracing the mold-disks, and being directed in lines radial with the circle of the disks and in substantial alinement with the axes of the pockets formed in the disk when such pockets are advanced to a position opposite the passages referred to, disks in said openings, pockets in said disks, suitable dies carried by the pockets of the disk, and suitable plungers cooperating with the dies and operating in the passages referred to whereby the material fed to the pockets is compressed, and subsequent to its compression is discharged and drops into the receptacle aforesaid, substantially as set forth.

5. In a press, one or more cam-plates, mold-disks operating in connection therewith, a series of radially-disposed pockets formed in each mold-disk, dies confined within the pockets, a series of plungers carried by the frame of the machine and operating in connection with the dies, means for intermittently advancing the series of pockets to the plungers, and simultaneously operating the dies, means for actuating the plungers after each advance of the mold-disk, the latter being held stationary during the action of the plungers, means for withdrawing the plungers and holding them stationary for the next succeeding advance of the mold-disks, the parts operating substantially as and for the purpose set forth.

6. In a press, a series of cam-plates, mold-disks rotating in proximity thereto and carrying dies controlled by the cam tracks of said plates, a series of radially-disposed pockets for the reception of the dies, the pockets opening outward along the periphery of the disk, a shaft on which the mold-disks are supported, said shaft passing loosely through the series of cam-plates, plungers operating in connection with the dies carried by the pockets, toggle-levers for actuating the plungers, connecting-bars connecting the joints of the several toggle-levers, a toggle-actuating cam plate or disk having a track or groove along which one end of the connecting-bar travels and whereby reciprocation is imparted to the said bar and whereby the movable members of the toggles and the plungers connected thereto are actuated, a shaft for imparting rotation to the toggle-actuating cam-plate, suitable driving mechanism for said shaft, a second shaft actuated by the first shaft and rotated one revolution for every revolution of the toggle-actuating cam-plate, a cam-disk carried by said second shaft, peripherally-notched heads or plates keyed to the shaft carrying the mold-disks, and intermediate connections between the notched heads and the cam-disk of the second shaft for advancing the mold-disk angularly the distance between two consecutive pockets, and holding the mold-disks stationary during the action of the plungers, substantially as set forth.

7. In a press, a suitable rotating mold-disk, pockets carried thereby, suitable feeding mechanism for forcing the material to be compressed into the pockets, suitable packing-plungers for packing said material within the pockets, and suitable compressing-plungers for compressing the material into blocks, substantially as set forth.

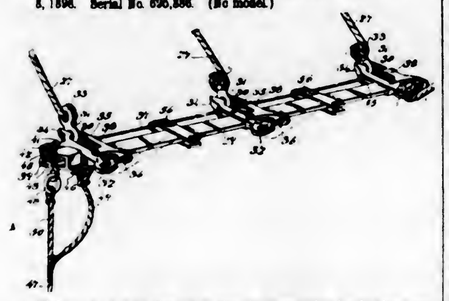
8. In a press, a suitable rotating mold-disk, radially-disposed pockets carried thereby, feed-screws for feeding the material to be compressed into the pockets, spring cushioned packing-plungers for packing the material thus fed, suitable compressing-plungers for compressing the material, and ejecting-dies for ejecting the blocks after compression, substantially as set forth.

9. In a press, a suitable frame, a series of mold-disks carried on a shaft mounted on the frame, a second shaft mounted in proximity to the first shaft, cam-disks carried thereby, intermediate connection between the cam-disks and the mold-disks for advancing the latter angularly, crank-arms secured at opposite ends of the shaft carrying the cam-disks, levers having hub portions loosely embracing the mold-carrying shaft, each lever having a long arm adapted to be struck and rocked by the crank-arm referred to, and one or more short arms, a link connected at one end to each short arm, the opposite end of each link being pivotally secured to one end of a spring-cushioned bar mounted upon the frame, beams pivotally suspended from the bar, springs for equalizing said beams, plungers suspended from the free ends of the beams, the said plungers being adapted to be forced into the pockets of the mold-disks with the rocking of the levers and consequent depression of the bars with each revolution of the crank-arms actuating and tilting the levers, substantially as set forth.

10. In a press, a suitable frame, a drive-shaft mounted on the same, pinions carried by said shaft, a second shaft mounted in proximity thereto and having gear-wheels meshing with the pinions, a bevel-pinion at one end of said second shaft, an inclined spindle having a bevel gear-wheel at one end meshing with said pinion, and at the opposite end a cam-disk, a pinion carried by the second shaft, a third shaft carrying a gear-wheel meshing with the pinion of the said second shaft, a cam-disk carried by the third shaft, a series of toggle-levers actuated by the rotation of the inclined cam-disks, a series of molds actuated upon the rotation of the cam-disk carried by the third shaft, the gearing being so proportioned that the two sets of cam-disks make one revolution in the same time and the cam-tracks being so defined and set that while the mold-disks are being advanced the toggle-levers are relatively at rest, and vice versa, and suitable plungers actuated by the toggle-levers, substantially as set forth.

11. In a press, a mold-disk having a nearly-cylindrical socket in each mold, a die comprising a male portion having a correspondingly-shaped securing end adapted to enter the socket of the mold-disk, and a female tubular portion embracing the same, an eccentric track, and arms carried by the female portion for traveling along said eccentric track during the rotation of the mold-disk, whereby the distance the female moves along the male is defined by the eccentricity of the track in which the arms travel, substantially as set forth.

642,466. HAY-SLING. JOHN LAW, Mankato, Minn. Filed Nov. 8, 1898. Serial No. 696,886. (No model.)



Claim.—1. A hay-sling of sectional construction having its members united upon an intermediate transverse line by fastening devices consisting of eyes, and movable-jawed clamps, of which the clamp-jaws are arranged in the planes of movement of the eyes when strained by the weight of the contents of the sling, and means for normally maintaining the clamps closed, in operative engagement with the eyes, substantially as specified.

2. A hay-sling of sectional construction having its members provided at their contiguous ends respectively with clamps and eyes, each clamp being arranged parallel with and in the plane of strain applied to the engaged eye by the weight of the contents of the sling, whereby said clamp may be opened, when released, by said strain, springs for yieldingly maintaining the jaws of the clamp in operative relation when relieved of the strain of the eyes, and locking devices for normally holding the clamps in engagement with the eyes, substantially as specified.

3. A sectional hay-sling having its members provided at their contiguous ends, respectively, with clamps, and eyes engaged by said clamps, the jaws of the clamps having convexed facing surfaces, arranged in the plane of strain of the eyes and one of them being movable and spring-actuated, and means for simultaneously releasing the eyes, substantially as specified.

4. A sectional hay-sling having its members provided at their contiguous ends, respectively, with clamps having movable jaws, and eyes for engagement by the clamps, and adapted to be withdrawn therefrom when the movable jaws of the clamps are released, and a common locking device for the movable jaws of the clamps, whereby they are normally held in engagement with the eyes, substantially as specified.

5. A sectional hay-sling having its members provided at their contiguous ends, respectively, with clamps having movable jaws, and eyes for engagement by the clamps, and adapted to be withdrawn therefrom when the movable jaws of the clamps are released, and a common locking device for the movable jaws of the clamps, the same having a locking-rod provided with stops for normal engagement with the movable jaws of the clamps, and means for securing said rod against longitudinal movement, substantially as specified.

6. A sectional hay-sling having its members provided at their contiguous ends, respectively, with clamps having movable jaws, and eyes for engagement by the clamps, and adapted to be withdrawn therefrom when the movable jaws of the clamps are released, and common locking means for the movable jaws of the clamps, the same having a locking-rod provided with stops for engaging said jaws, and a dead-center latch connected with the locking-rod for securing the latter against longitudinal movement, substantially as specified.

7. A sectional hay-sling having its members provided at their contiguous ends with the interlocking members of fastening devices, a locking-rod controlling said fastening devices and adapted, when released, to allow the disengagement of said interlocking members, a dead-center latch connected with the locking-rod for securing the latter against longitudinal movement, and a trip-rope connected with said latch whereby the latter may be drawn to release the locking-rod, substantially as specified.

8. A sectional hay-sling having its members provided at their contiguous ends with the interlocking members of fastening devices, a locking-rod controlling said fastening devices and adapted, when released, to allow the disengagement of said interlocking members, a dead-center latch connected with the locking-rod for securing the latter against longitudinal movement, and a trip-rope connected with the said latch for moving the latter from its locked position, and provided with a plurality of spaced stops or enlargements, in combination with a fixed clamp for successively engaging said stops or enlargements, substantially as specified.

9. A sectional hay-sling having its members provided at their contiguous ends with the interlocking members of fastening devices, a locking-rod controlling said fastening devices and adapted, when released, to allow the disengagement of said interlocking members, a dead-center latch connected with the locking-rod for securing the latter against longitudinal movement, and a key fitted in a seat in the path of said latch for securing the latter against accidental displacement, substantially as specified.

10. A sectional hay-sling having its members provided at their contiguous ends with the interlocking members of fastening devices, a locking-rod controlling said fastening devices and adapted, when released, to allow the disengagement of said interlocking members, a dead-center latch connected with the locking-rod for securing the latter against longitudinal movement, a key for securing the latch against accidental displacement, and a branched trip-rope having its members connected respectively with said key and latch, substantially as specified.

11. A sectional hay-sling having its members provided at their contiguous ends with the interlocking members of fastening devices, a locking-rod controlling said fastening devices and adapted, when released, to allow the disengagement of said interlocking members, a dead-center latch connected with the locking-rod for securing the latter against accidental displacement, and a branched trip-rope having long and short arms respectively connected with said latch and key, whereby when the trip-rope is strained said key and latch are operated successively, substantially as specified.

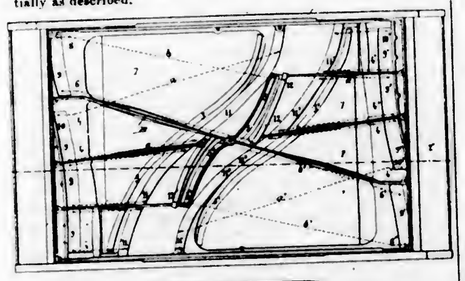
12. A hay-sling having terminal and intermediate transverse bars, and longitudinal flexible members or ropes connecting said bars, the portions of said flexible members at one side of the transverse plane of the intermediate cross-bar being detachably connected with said cross-bar, and means for simultaneously releasing said detachably-connected portions of the flexible members, substantially as specified.

13. A hay-sling having terminal and intermediate cross-bars connected by longitudinal flexible members, said terminal cross-bars being provided with split extremities having seats for the reception of the marginal flexible members, and also with intermediate guide-openings for the reception of the intermediate flexible members, rings to which the portions of the flexible members beyond said terminal cross-bars are attached, and means for adjusting the walls of said split terminals of the cross-bars, to clamp the marginal flexible members against movement with relation thereto, substantially as specified.

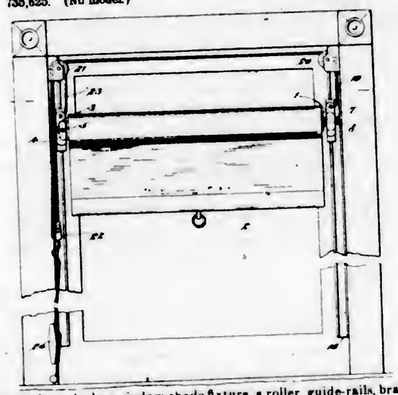
642,467. PIANOFORTE. GUSTAVE F. LYON, Paris, France. Filed Nov. 20, 1898. Serial No. 612,905. (No model.)

Claim.—1. A double piano comprising a single casing having two keyboards arranged at opposite sides thereof, and a single sounding-board spanning the space between said keyboards, in combination with bridges for the treble strings of both keyboards, a bass-string bridge located between the treble-string bridges and at the center of the sounding-board, and treble strings connected with the treble-string bridges and overstrung bass strings connected with the bass-string bridge, substantially as described.

2. A double piano comprising a single casing having two keyboards arranged at opposite sides thereof, and a single sounding-board spanning the space between said keyboards, in combination with bridges for the treble strings of both keyboards, a bass-string bridge located between the treble-string bridges and at the center of the sounding-board, treble strings connected with the treble-string bridges, overstrung bass strings connected with the bass-string bridge, and a diagonal brace extending longitudinally of the casing, substantially as described.



642,468. **WINDOW-SHADE FIXTURE.** MATTHEW A. MARR, New York, N. Y., assignor, by direct and mesne assignments, to the Avery-Marr Company, same place. Filed Nov. 2, 1899. Serial No. 735,625. (No model.)



Claim.—1. In a window-shade fixture, a roller, guide-rails, brackets mounted to slide on the guide-rails, a pin having longitudinal spring-yielding connection with the roller at one end, and a head on the pin adapted to engage the outer side of one of said brackets, the tendency of the spring being to draw the pin inward, substantially as specified.

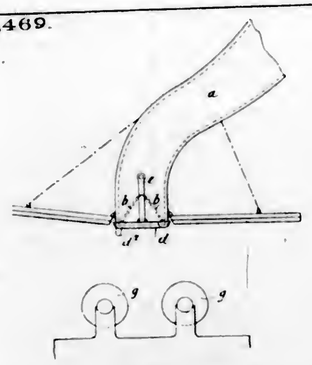
2. In a window-shade fixture, guide-rails, brackets mounted to slide on said guide-rails, a roller, a bearing-pin extended from said roller, a pin extended through the roller and through a longitudinal slot formed in the inner end of the bearing-pin, a spring arranged within the roller, and surrounding the bearing-pin, said spring having a tendency to cause an inward movement of the bearing-pin, and a head on the outer end of said pin for engaging with the outer surface of the bracket in which the pin is supported, substantially as specified.

642,469. **MEANS FOR CARRYING OFF IMPURE STEAM OR FUMES ARISING FROM YARN-SIZING APPARATUS, &c.** HENRY MARTIN and JOHN H. MARTIN, Burnley, England. Filed Apr. 25, 1899. Serial No. 714,449. (No model.)

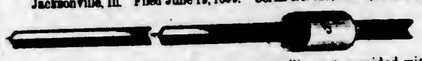
Claim.—1. As a means for carrying off impure steam or other moisture or fumes arising from materials under treatment in tape-sizing or like machines, the combination of a trunk having a trough, as at *d*, with an angular grid in the trunk and resting in the channel of the said trough, substantially as described.

2. As a means of carrying off impure steam or other moisture or fumes arising from materials under treatment in tape-sizing or like machines, the combination of a trunk with a trough removably secured to the trunk and a grid applied thereto, substantially as described.

642,469.



642,470. **ANCHOR FOR FENCE-POSTS.** ELISHA C. MATHEWS, Jacksonville, Ill. Filed June 19, 1899. Serial No. 721,124. (No model.)



Claim.—1. The combination with a metallic post provided with angular flanges, and a hollow anchor formed of a single piece, having its converging ends riveted to the flanges of the post, forming substantially a closed receptacle below the ground.

2. In a metallic post, the combination with the angular flanges thereof, a circular base or support made of a single piece and bent so as to have its ends riveted to two of the angular flanges of the post, and a third flange projecting from the two aforesaid flanges and out of the plane of the circumferential line of the base or support, substantially as set forth.

642,471. **WINDOW-SCREEN.** THEODORE J. P. MAUR, St. Louis, Mo. Filed Sept. 25, 1899. Serial No. 731,692. (No model.)

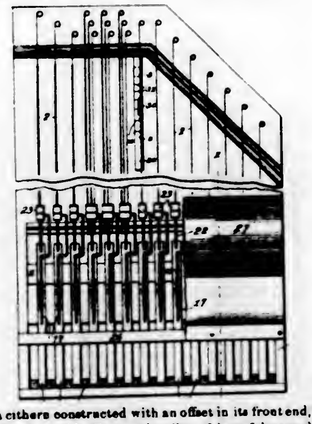


Claim.—1. In an adjustable window-screen, horizontal strips composed of two parts slidingly secured together and having a metallic strip attached to each of said parts, said metallic strips fitting closely around said parts, one above the other, substantially as specified.

2. An adjustable window-screen of two sections, having horizontal strips composed of two parts in each of which is a groove, a guide-block rigidly held in one of said grooves and adapted to slide within the groove in the other section, and a metallic strip attached to each of the parts forming said horizontal strips and fitting closely around said strips, one over the other, substantially as specified.

642,472. **CITHERN.** CHARLES T. MEYER, St. Louis, Mo. Filed Apr. 6, 1899. Serial No. 711,911. (No model.)

Claim.—1. A cithern constructed with an offset in its front end, a block removably located in said offset, a plurality of bars fulcrumed in said block, arms seated in said bars and extending upwardly over the strings of the cithern, hammers carried by said bars, a separate means carried by the block for actuating the bars to cause the hammers to strike downwardly upon the cithern-strings, and a means for arresting the vibrations of said strings connected with said actuating means, substantially as specified.



2. In a cithern constructed with an offset in its front end, a block removably fixed in said offset, a plurality of bars fulcrumed in said block, arms seated in said bars and extending upwardly over the cithern-strings, hammers carried by said arms, keys fulcrumed in the block, said keys engaging against the under sides of and actuating the bars, and an elastic connection between each bar and its corresponding key, substantially as specified.

3. In a cithern constructed with an offset in its front end, a block removably fixed in said offset, a plurality of bars fulcrumed in said block, arms seated in said bars and extending upwardly over the cithern-strings, hammers carried by said arms, keys fulcrumed in the block, said keys engaging against the under sides of and actuating the bars, an elastic connection between each bar and its corresponding key, arms carried by each key, which arms extend to points immediately over the cithern-strings, and vibration-arresters fixed upon the ends of said arms, substantially as specified.

642,473. **WRENCH.** JAMES A. MONTGOMERY, Brookwood, Ala., assignor to himself and Frederick M. Jackson same place. Filed Sept. 7, 1899. Serial No. 729,711. (No model.)



Claim.—1. The herein-described wrench, comprising a shank having a fixed jaw and threaded for a portion of its length, a sleeve-nut fitted on said shank and screwing on the threaded portion thereof, and a movable jaw constructed in sections, one of which is slidably fitted on the shank and completely incloses from its upper to its lower edge, the shank, and is in engagement with said sleeve-nut, the upper edge of said sleeve-nut fitting closely upon the lower edge of the section and the combined length of the section and nut being so much greater than the length of the threaded portion of the shank that such threaded portion will be always covered, and the other section of the movable jaw being pivoted upon the slidable section and spring-pressed, as and for the purpose set forth.

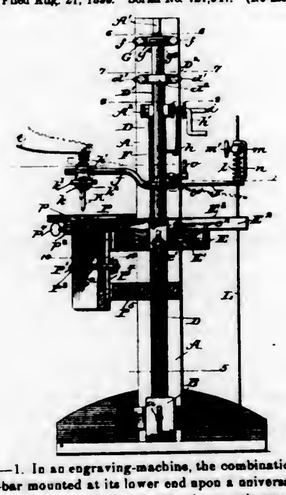
2. A wrench, consisting of a threaded shank having a fixed jaw, a sleeve-nut working on said shank, and a movable jaw constructed in sections, one of which is slidably fitted on the shank and secured to the sleeve-nut, said section being formed with a bearing on its rear face, the other section being formed with rearwardly-extending ears pivotally connected to said bearing, and a spring secured to the first-named section and bearing against the rear face of the pivoted section, as and for the purpose set forth.

642,474. **RUBBER OR OVERSHOE.** CONRAD MOSER, Fruitvale, Cal., assignor to Heinrich Mellmann, Oakland, Cal. Filed Nov. 28, 1898. Serial No. 697,593. (No model.)



Claim.—A rubber having the entire inner face of its upper or vamp formed with a series of separated short, protuberances, of lug-shaped formation, forming longitudinal and cross air-passages between, and a reinforcing-lining of fabric covering the inner face and secured to the protuberances and to the vamp between the same, substantially as described.

642,475. **ENGRAVING-MACHINE.** JOHN F. MURPHY, Bayard, Iowa. Filed Aug. 21, 1899. Serial No. 727,947. (No model.)



Claim.—1. In an engraving-machine, the combination of an upright sway-bar mounted at its lower end upon a universal joint held on a fixed support, an upright tracer-bar hung at its upper end upon a universal joint having a fixed support, and extending down past the upper end of the sway-bar; and a sliding connection between the sway-bar and tracer-bar for varying the leverage exerted by the tracer-bar on the sway-bar, and a graver carried by the sway-bar substantially as described.

2. In an engraving-machine, the combination of an upright sway-bar mounted at its lower end upon a universal joint held on a fixed support, and carrying a graver, an upright tracer-bar hung at its upper end upon a universal joint having a fixed support, and extending down past the upper end of the sway-bar, and a sliding connection between the sway-bar and the tracer-bar, said connection being formed through a movable universal joint substantially as described.

3. In an engraving-machine, the combination of a sway-bar mounted at its lower end upon a universal joint, and carrying a graver-tool, a tracer-bar hung at its upper end upon a universal joint, a tel-

escopic slide arranged on the upper end of the sway-bar and connected slidably to the tracer by a universal joint, a parallel lift-bar, a windlass and flexible connection for raising the telescopic slide, and means for locking it in position substantially as described.

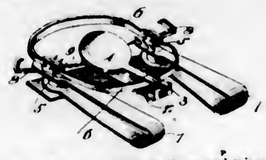
4. In an engraving-machine, the combination with the vertical sway-bar, and the transversely-arranged graver-holding bar; of the rod or wire L, spring *l*, collar and set-screw *m m'*, and stirrup *n* substantially as and for the purpose described.

5. In an engraving-machine, the combination of the vertical sway-bar, a transversely-arranged graver-holding bar, having a graver at one end, a spring for holding the graver up, and an adjusting device arranged to throw the graver-bar to a greater range of movement in the same direction as the spring for holding the graver away from the work-table to permit the insertion of the work substantially as described.

6. In an engraving-machine, the combination of a vertical standard having an open rectangular horizontal metal support E with lugs e^3 e^3 on its upper side, and a toe-clip *e* with clamp-screw *e'*, and a pattern-board having a strip along its edge, made thinner than the pattern-board and occupying a position above the lugs e^3 provided with clamp-screws to clamp the flange of a pattern substantially as described.

7. In an engraving-machine, the combination with the vertical standard A and the graver-tool; of a work-table consisting of an offsetting-arm P^6, vertical plate P^4, vertically-adjustable column P^5 having a yoke embracing said plate, and a surmounting table having slideways at right angles to each other, and clamp-screws for fixing them in position as described.

642,476. TRAP. WILLIAM MCCOY, Warren, Ark. Filed Sept. 21, 1899. Serial No. 731,242. (No model.)



Claim.— The combination with the jaws and trigger mechanism, of the springs 7 7 having their free ends formed with the prongs 7' 7', substantially as shown and described.

642,477. ROD-CLAMP. HARRISON MCDOWELL, Reno, Pa. Filed Oct. 23, 1899. Serial No. 735,111. (No model.)



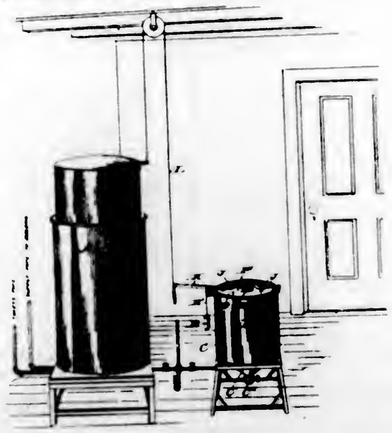
Claim.—1. The herein-described rod-clamp comprising a pair of semicylindrical sections provided in their meeting faces with opposing grooves forming a rod-receiving bore which is enlarged at an intermediate point to receive the terminal heads of the rod-sections, laterally-offset ears on the sections forming a stop-shoulder, a shoulder near one end of the clamp formed by notching the sections, and a sleeve surrounding the sections and abutting at one end against the laterally-offset ears, and having a portion of its opposite end pressed inward to engage the shoulder formed by notching the sections, substantially as and for the purpose specified.

2. The combination with rod-sections having enlarged conical ends, of a longitudinally-divided rod-clamp provided with a notch and having a rod-receiving bore enlarged at an intermediate point to form reversely-inclined surfaces coöperating with the enlarged ends of the rod-sections, and a sleeve adapted to be slid onto the clamp sections, and adapted to be bent into interlocked engagement with the notch in the clamp, substantially as described.

642,478. ACETYLENE-GAS GENERATOR. JOHN W. PAINE and CHARLES B. DOUDNA, Bayard, Iowa. Filed Feb. 2, 1899. Serial No. 704,294. (No model.)

Claim.—1. The combination of the revolving stand, having the projecting pins, the pivoted lever provided on opposite sides of its pivot with dogs moving alternately into the path of the pins, and pockets carried by said stand and arranged to discharge substantially as set forth.

2. The combination of the generator-casing, the stand revolving therein and provided with the series of pockets to discharge their contents, the stand-pipe in the generator and supporting the stand at its upper end, and means for operating the stand and for controlling its movements substantially as set forth.



642,479. GENERATING-TUBE. JOHN B. PENNINGTON, Russellville, Ark. Filed May 15, 1899. Serial No. 716,811. (No model.)



Claim.—1. In combination with a generating-tube, the fiber-holding device, consisting of the wire 10, bent into the shape of a U; the perforated disks 11, threaded on said wire and secured thereon; perforated and slotted disk 13 threaded in the free ends of said wire; the U-bearing 15 integral with the wire 10 and eye 16 turned on one end of said wire, substantially as shown and described and for the purposes set forth.

2. The combination of a gas-generating tube, a fiber-holding device, consisting of a wire having secured thereon a number of perforated disks adapted to fit the inside of the tube, and to hold between each disk and around the wire, fibrous material, substantially as shown and described and for the purposes set forth.

3. The combination of a gas-generating tube, a fiber-holding device inserted in said tube, consisting of a wire 10, bent into the shape of a U; the perforated disks 11, threaded on said wire; perforated and slotted disk 13, threaded on the free ends of said wire, lint-cotton packed between said disks, and the whole inserted into said tube substantially as shown and described.

642,480. TIE-FASTENER. FRANK E. PERKINS, Boston, Mass. Filed Nov. 15, 1899. Serial No. 737,022. (No model.)

Claim.—1. A necktie-holder consisting of a longitudinal shank constructed to be attached to an object, having a transverse substantially U-shaped foot, and a stationary pin secured between the branches of said foot, and the latter serving as a guard for the pin and also to guide the free portion of a necktie laterally onto said pin, said free portion being adapted to pass through the open end of the foot.



2. A tie-holder consisting of a longitudinal shank constructed of wire and having means to attach it to an object, and provided at its lower end with a transverse, substantially U-shaped foot, a part of the shank being continued downward and sidewise and extended through the closed end of the foot and projecting forward therefrom and having a sharpened end to constitute a pin, and said pin being adapted to receive the free portion of the neck band of a tie passing through the open end of the foot, and the latter serving to guide such free portion laterally onto the pin.

642,481. STENCIL-HOLDER. WALTER H. PERKINS, Boston, Mass. Filed Mar. 29, 1899. Serial No. 710,961. (No model.)

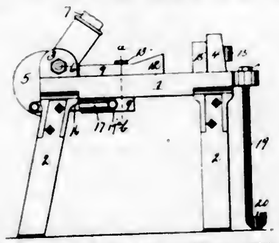


Claim.—1. A stencil-holder comprising a flexible open frame, a series of stencil-plates, means rigid with the frame engaging the plates along one edge and retaining them on the frame, a series of headless studs on the frame occupying holes in the other ends of the plates and preventing lateral displacement thereof, and a series of clips pivoted to the frame, one for each stencil-plate, and engaging said plates independently of the studs to hold them against the frame.

2. A stencil-holder comprising a flexible open frame, a series of headed studs projecting from the side of the frame along one edge thereof and adapted to hold a series of stencil-plates by one end to the frame, a series of headless studs projecting from the same side of the frame along the opposite edge thereof, and adapted to engage the other ends of said stencil-plates to prevent lateral displacement thereof, and a series of clips pivoted to the frame in proximity to the headless studs and adapted to hold the ends of the plates against the frame and in engagement with said headless studs.

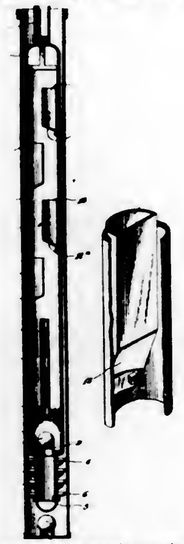
3. A stencil-holder comprising a flexible open frame, a series of stencil-plates laid along one side of the frame, means on the frame engaging the plates along one edge and retaining them on the frame, means engaging the other ends of the plates and preventing lateral displacement thereof, and a series of clips pivoted to the frame on the opposite side from the plates, and having lips turned over the edge of the frame and engaging the plates.

642,482. WELDING-MACHINE. ANDREW K. PETERSEN, Sleepy Eye, Minn. Filed Mar. 22, 1899. Serial No. 710,086. (No model.)



Claim.—In a welding-machine, the combination with a longitudinally-slotted table provided at one end with a removable anvil and at the opposite end with two fixed brackets, of a journal-pin journaled in said brackets, an eccentric fixed near its upper edge on said journal-pin, a block movable longitudinally on said table between the eccentric and anvil and having a depending portion extending through the slot in the table, a pin passed transversely through said depending portion beneath the table, screws fitted in the sides of the block, slotted straps fitted over said screws at one end and at their opposite ends attached to the eccentric at points opposite the pivotal point of the latter, and a lever for turning the eccentric, substantially as described and for the purpose specified.

642,483. OIL-WELL PUMP MECHANISM. MARQUIS T. PEW, Parker's Landing, Pa. Filed Apr. 30, 1898. Serial No. 679,366. (No model.)



Claim.—1. A pump mechanism having a valved piston carrying a tubular shell which is provided with a tortuous liquid-passage and spaced sand pockets or traps, substantially as specified.

2. A pump mechanism having a valved piston carrying a tubular shell which is provided with spaced oppositely-disposed deflectors, and receptacles for solid precipitates, substantially as specified.

3. A pump mechanism having a valved piston carrying a tubular shell which is provided with spaced oppositely-located deflectors disposed obliquely, and sand pockets or traps located contiguous to and below the planes of the deflectors to receive solid precipitates, substantially as specified.

4. A pump mechanism having a valved piston carrying a tubular shell which is provided with spaced contracted portions or throats and intermediate enlarged portions or chambers, and sand pockets or traps to receive solid precipitates, substantially as specified.

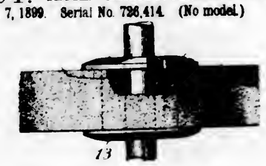
5. A pump mechanism having a valved piston carrying a tubular shell which is provided with a series of sand pockets or traps, disposed alternately at opposite sides of the bore of the shell, and having obliquely-disposed, inwardly and upwardly inclined, bottoms, forming deflectors, substantially as specified.

6. A pump mechanism having a valved piston carrying a tubular shell which is provided with a series of open-topped semicylindrical sand pockets or traps, located alternately at diametrically opposite sides of the bore of the shell, and having obliquely-disposed bottoms forming deflectors, the bottom of each pocket or trap being located above the plane of the open mouth of the next lower pocket or trap, substantially as specified.

7. An oil-well pump mechanism having the valve-piston provided with a head, a tubular shell connected with and extending upward from the head, a conveyer-tube projecting upwardly within the shell at the lower end of the latter, and of smaller diameter than the same to form an annular sand pocket or chamber having a closed bottom, said tube communicating at its lower end with the valve-passage of the head, and a plurality of spaced oppositely-disposed deflectors arranged inside of the shell above the plane of the upper discharge end of said conveyer-tube, substantially as set forth

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642,484. BRUSH. ARTHUR F. PHILLIPS, North Adams, Mass. Filed Aug. 7, 1899. Serial No. 726,414. (No model.)



Claim.—1. In the manufacture of brushes, a web of brush-stock having two strips of tape, or fabric, applied to the opposite sides of a layer of bristles and united by two or more lines of stitching, one on each side of the central longitudinal line of said strips, said layer and tapes being then folded along said central line and stitched to preserve said fold, substantially as described.

2. The combination with a circular bar having two projecting flanges, one of which is adjustable, of a continuous web of brush-stock consisting of a layer of bristles having tapes placed transversely on opposite sides along the middle of said layer and stitched through both tapes and bristles both the latter being folded along the middle line of the tapes and a line of stitching made to preserve the fold, said web being wound on the bar between the flanges, substantially as described.

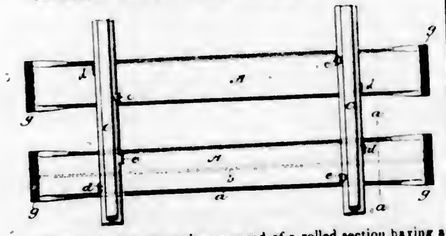
642,485. CUTTING APPARATUS. SAMUEL PIERSON, Hardesty, Okla. Filed May 31, 1898. Renewed Jan. 3, 1900. Serial No. 292. (No model.)



Claim.—1. The combination of a shoe, a sickle-bar mounted thereon, an oil-cup capable of carrying a lubricant for the shoe, and a casing mounted to swing on the shoe and having an opening receiving a portion of the oil-cup.

2. The combination of a finger-bar, and a finger attached thereto and comprising a main portion connected directly with the finger-bar, and also comprising a top section fastened to the main portion and extending longitudinally therewith and capable of adjustable connection with the finger-bar.

642,486. RAILWAY-TIE. JOHN L. POPE, Cleveland, Ohio. Filed Feb. 27, 1899. Serial No. 706,965. (No model.)



Claim.—1. A railway-tie composed of a rolled section having a top plate, side flanges, a vertical longitudinal web integral with the top plate and extending below the side flanges, and end plates also extending downwardly below the side flanges.

2. A railway-tie having a top plate, side flanges, a vertical longitudinal web beneath the top plate extending below the side flanges, and end plates constituted by bending the side flanges to the plane of the top plate, and bending the ends of plate downwardly.

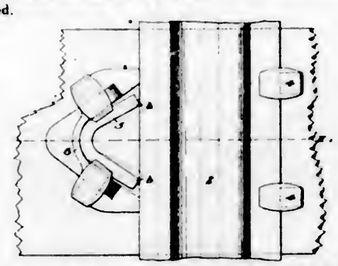
3. A railway-tie having at each end a clip adapted to fit over and to clasp one of the flanges of the rail, and an abutment adapted to bear against the extreme edge only of the other flange of the rail, each abutment being situated diagonally with relation to its companion clip, and the two abutments being near respectively opposite edges of the tie, whereby the tie can be swung horizontally to disengage it from the rails.

4. A series of railway-ties having clips adapted to engage the inner flanges of the rails, and abutments adapted to bear against the outermost edges only of the outer flanges of the rails, each clip and its corresponding abutment being near respectively opposite edges of the tie, said clips and abutments on some of the ties of the series being reversely situated relatively to the others, whereby constancy of gage is secured.

5. A railway-tie having a top plate, side flanges, a vertical longitudinal web beneath the top plate extending below the side flanges, and end plates also extending below the side flanges, said end plates being formed by bending down the top plate against the ends of the central longitudinal web.

642,487. DEVICE FOR PREVENTING CREEPING OF RAILWAY-RAILS. JOHN L. POPE, Cleveland, Ohio. Filed Aug. 3, 1899. Serial No. 726,009. (No model.)

Claim.—1. As a device for holding rails, a U-shaped spring having divergent legs, and having the ends of the legs shaped to present biting-corners adapted to bear against a rail; substantially as described.



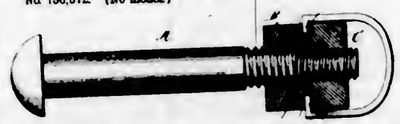
2. As a device for holding rails, the combination of an abutment on one side of the rail and a spring on the other side of the rail, with a biting tooth or dog which engages the rail and prevents creeping thereof; substantially as described.

3. As a device for holding rails, the combination of an abutment on one side of the rail, and a spring on the other side of the rail which engages the edge of the flange of the rail and prevents creeping thereof; substantially as described.

4. As a device for holding rails, the combination of an abutment on one side of the rail, and a spring having an arm bearing at an inclination against the edge of the flange of the rail on the other side; substantially as described.

5. As a device for holding rails, the combination of an abutment on one side of the rail, and a spring on the other side of the rail which engages the edge of the flange of the rail and prevents creeping thereof, and a retainer for holding the spring in position; substantially as described.

642,488. NUT-LOCK. EDWARD R. POST, Ottawa, Ohio, assignor of one-half to Edward S. Grise, same place. Filed Nov. 11, 1899. Serial No. 736,672. (No model.)

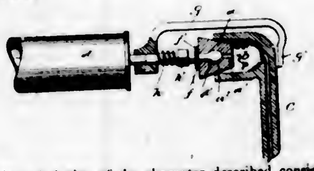


Claim.—1. The combination with a bolt with right and left threads, of nuts engaging the same, and a spring-fastener having its ends engaged in corresponding openings in the adjacent faces of diametrically opposite sides of said nuts to lock them against movement, as set forth.

2. The combination with a bolt with right and left threads, of nuts engaging the said threads and having corresponding openings upon their adjacent faces, and a spring-bow having projections on its ends engaging in the openings in the nuts upon diametrically opposite sides thereof without engagement with the threads of the bolt, as set forth.

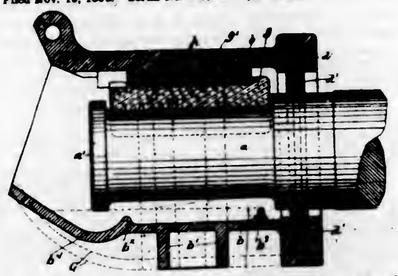
3. A bolt with right and left threads, nuts engaging said threads and having upon their adjacent faces corresponding openings extending toward the center, and a spring-bow having its ends bent at right angles to the length of its sides and sprung into diametrically opposite openings in the adjacent faces of the nuts, the bow being of a length to swing over the outer end of the bolt, substantially as shown and described.

642,489. DEVICE FOR CLEANING TOBACCO-PIPES. FREDERICK A. PYKE, Bolton, England. Filed Mar. 31, 1899. Serial No. 711,233. (No model.)



Claim.—A device of the character described consisting of an elastic plug or stopper adapted to fit the bowl of a tobacco-pipe and having an opening through it, an air-pipe connected with said plug and formed for the passage of air from an air-pump, the arm *g* fitted to slide on said pipe and having an end *g'* adapted to engage the exterior of the bottom of the bowl, and a spring for causing said arm *g* to yieldingly hold the pipe with the plug in the mouth of the bowl thereof.

642,490. JOURNAL-BOX. JAMES B. RESHIFF, Norwalk, Ohio. Filed Nov. 19, 1898. Serial No. 696,843. (No model.)

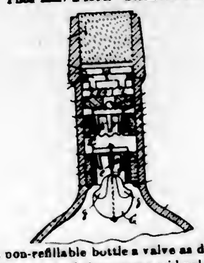


Claim.—1. In a journal-box of the character indicated, two internal ribs formed upon the bottom of the box below opposite ends, respectively, of the journal-space, and extending transversely of the bottom between and contiguous to the side walls of the box, and the rear rib being higher than the forward rib, substantially as and for the purpose set forth.

2. In a journal-box of the character indicated, two internal ribs formed upon the bottom of the box below opposite ends, respectively, of the journal-space and extending transversely of the bottom between and contiguous to the side walls of the box, the rear rib being higher than the forward rib, and a depression formed in the bottom next forward of the forward rib, substantially as and for the purpose set forth.

3. In a journal-box of the character indicated, two internal ribs formed upon the bottom of the box below opposite ends, respectively, of the journal-space and extending transversely of the bottom between and contiguous to the side walls of the box, the rear rib being higher than the forward rib, and a depression formed in the bottom forward of the forward rib, and the bottom of the said depression extending forwardly and upwardly substantially as and for the purpose set forth.

642,491. NON-REFILLABLE BOTTLE. CHARLES C. RICHMOND, Boston, Mass. Filed Mar. 4, 1898. Serial No. 672,496. (No model.)

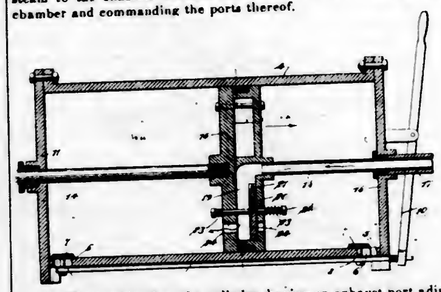


Claim.—In a non-refillable bottle a valve as described controlled by a weight, a valve arranged above same said valves being supported in seats held by washers in the bottle-neck a locking-piece arranged above the upper valve and a loose washer arranged between the upper valve and the locking-piece substantially as set forth.

642,492. STEAM-ENGINE. MOSES R. ROBBINS, Victoria, British Columbia, Canada, assignor of one-half to Arthur R. Mallett, same place. Filed May 24, 1899. Serial No. 718,042. (No model.)

Claim.—1. The combination of a cylinder having an exhaust-port in each end thereof, a slide-valve commanding each exhaust-port, a connection between the slide-valves to operate the same in unison, a piston working in the cylinder and having a chamber therein, a pipe communicating with the chamber of the piston and sliding in one head of the cylinder, the piston having a port in each face, the ports communicating with the chamber, a cut-off valve movable in the chamber of the piston to command the ports thereof, a pin attached to the valves and sliding in the face-walls of the piston, and springs engaging the pin to balance the cut-off valve.

2. The combination of a cylinder having an exhaust-port adjacent to each end thereof, valves commanding each exhaust-port, a connection between the valves to operate the same in unison, a piston working in the cylinder and having a chamber in each exhaust-port therein and wall of the piston, said ports communicating with the chamber, a steam-pipe moving with the piston and leading the steam to the chamber thereof, and a cut-off valve working in the chamber and commanding the ports thereof.

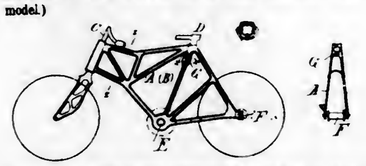


3. The combination of a cylinder, having an exhaust-port adjacent to each end thereof, valves controlling the exhaust-port, a piston working in the cylinder and actuating the valves, the piston having a chamber therein, a pipe moving with the piston and feeding the steam to the chamber thereof, the piston also having ports in its face-walls, the ports communicating with the chamber of the piston, and a cut-off valve working in the chamber and commanding the ports of the piston.

4. The combination of a cylinder having exhaust-ports, valves commanding the same, a piston working in the cylinder and actuating the valves, the piston having a steam-chamber and ports communicating therewith, means for leading the steam to the steam-chamber of the piston, and a cut-off valve working in the said chamber and commanding the ports of the piston.

5. The combination of a cylinder having an exhaust-port adjacent to each end thereof, valves commanding the exhaust-ports, a connection between the valves to work the same in unison, a piston working in the cylinder and having a chamber to which the steam is fed, the piston also having ports in each face thereof, the ports communicating with the chamber, and means commanding said ports to alternately open and close the same.

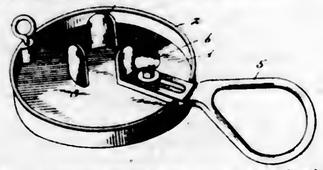
642,493. CYCLE-FRAME. FELIX ROSENBERG, Berlin, Germany. Filed Mar. 7, 1898. Renewed Dec. 29, 1899. Serial No. 741,997. (No model.)



Claim.—1. A cycle-frame composed of two parts or sections, the bars forming each section being of channeled iron having lugs extending across and connected with corresponding lugs on the opposite bar, substantially as described.

2. A cycle-frame composed of two parallel sections, each composed of bars having inwardly-turned flanges overlapping lugs extending from the edges of the flanges of adjacent portions of the frame, and rivets connecting the overlapping lugs, substantially as described.

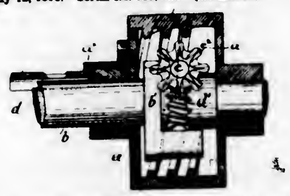
642,494. CANDLE-HOLDER. WILLIAM SCHOTT, New York, N. Y. Filed Oct. 5, 1899. Serial No. 732,714. (No model.)



Claim.—A portable candle-holder, comprising a plate having upwardly-projecting fixed wings, a combined carrying-handle and can-

dle-clamp adjustably mounted on the plate, and a thumb-nut for holding the movable handle and clamp in adjusted position, substantially as described.

642,495. DIFFERENTIAL GEARING. WILLIAM SENIOR, Manchester, England, assignor to George Alexander Kennedy, same place. Filed July 12, 1898. Serial No. 685,793. (No model.)

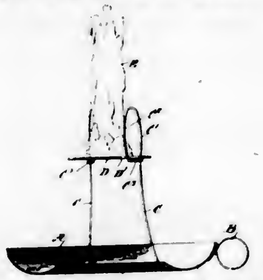


Claim.—1. The combination of a Horsfall grinder having a screw and a tube, with a casing placed on the grinder and provided with a worm suitably driven from the tube, and a worm-wheel in said casing fixed on the screw and adapted to be driven by the said worm, substantially as described.

2. The combination of a Horsfall grinder having a screw and a tube, with a casing placed on the grinder and provided with a fixed worm, a worm-wheel in said casing fixed on the screw, brackets fixed on the tube within the casing and carrying a worm adapted to drive the said worm-wheel on the screw, and a wheel adapted to be driven by the fixed worm and to drive the worm carried by the brackets, substantially as described.

3. The combination of a Horsfall grinder having a screw and a tube, the said screw and tube each being provided with a worm-wheel, and a worm carried in fixed brackets, adapted to be driven by the worm-wheel on the tube and to drive the worm-wheel on the screw, substantially as described.

642,496. CANDLESTICK. CHARLES R. SHERMAN, New York, N. Y. Filed June 17, 1899. Serial No. 720,976. (No model.)



Claim.—1. A candlestick, comprising a base, a plurality of arms extending upwardly from said base, each arm being formed into an inwardly-extending clamping member for engagement with the sides of a candle to be held in place, the terminal of the clamping member being provided with a rest and a supporting-plate for the bottom of the candle to rest on, said plate being provided with openings and supported by said rests, substantially as shown and described.

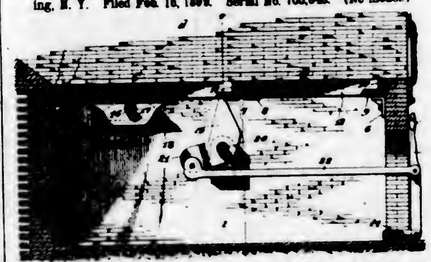
2. A candlestick, comprising a base, a plurality of arms extending upwardly from the base and each formed into an inwardly-extending clamping member for engagement with the sides of a candle, the terminal of the clamping member being loosely connected with the other member of the arm, said connection forming a rest and a supporting-plate for the bottom of the candle to rest on, said plate being apertured and removably held on said arms, substantially as shown and described.

3. A candlestick, comprising a base, arms extending upwardly from the base and having their upper ends bent inwardly and downwardly and terminating in eyes through which the body of the arm passes, and a supporting-plate provided with radial slots through which the upper bent ends of the arms project, substantially as described.

4. A candlestick, provided with upwardly-extending spring-wire arms terminating in downwardly-bent clamping members extending inside of the upper ends of the members of said arms to engage the sides of a candle, the clamping members being free to yield toward said arms, the lower ends of the members having a slight limiting connection with said arms, to allow the latter to yield outwardly and to limit their inward movement, substantially as shown and described.

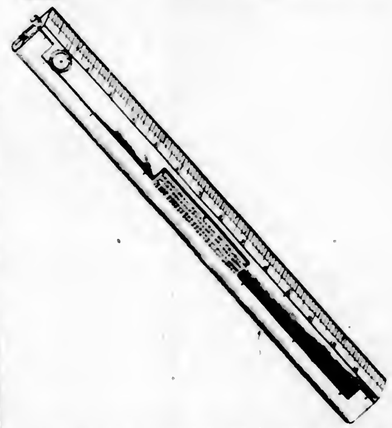
5. A candlestick, provided with upwardly-extending spring-wire arms terminating in downwardly-bent clamping members extending inside of the upper ends of the members of said arms, to engage the sides of a candle, the clamping members being free to yield toward said arms, the lower ends of the members having a slight limiting connection with said arms, to allow the latter to yield outwardly and to limit their inward movement, said slight limiting connection also forming a rest, and a supporting-plate having radial slots for the passage of the upper ends of said arms and said clamping members, the bottom of the plate being adapted to be seated on said rest, substantially as shown and described.

642,497. DUMPING-GRATE. ZACHEUS M. SLATER, Cornwall Landing, N. Y. Filed Feb. 16, 1899. Serial No. 705,643. (No model.)



Claim.—In a furnace-grate, the combination with a frame including sides and ends and a transverse bar, said bar and one end having horizontal flanges extending toward each other in a common plane, a fixed grate mounted upon said flanges, the sides of the frame having hangers depending therefrom, a shaft journaled in the hangers, a second grate provided with depending ears, perforations in said ears on a line at the rear of the center of gravity of the grate, through which perforations said shaft is passed whereby said grate will normally hang in a tilted position, a rock-shaft below the downwardly-tilting edge of the grate, cams mounted upon the rock-shaft adapted to engage and raise the grate to a horizontal position, said cams having adjacent flat sides adapted to receive and hold the grate at different elevations, the sides of the cams which support the grate in its uppermost and lowermost position lying, when in operation, above the center of gravity of the cams to hold the latter against displacement, means for rocking the rock-shaft, and means for holding said shaft at different points of its rocking movement.

642,498. STUDENT'S OR SCHOLAR'S COMPANION. ALBERT C. SMITH, Boulder, Colo. Filed Mar. 30, 1899. Serial No. 711,147. (No model.)

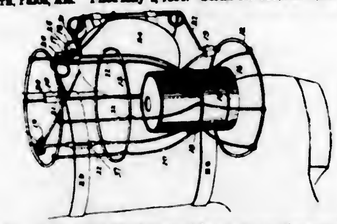


Claim.—1. The combination with a ruler, of a metallic casing partially inclosing the same and bent around the rear edge of the ruler to form a tubular receptacle for pens, pencils, &c., the casing being extended at its ends beyond the ends of the ruler and having its extreme edges bent in to form retaining lips or keepers, and shutters arranged to slide beneath said lips and to cover the ends of the receptacle, substantially as described.

2. The combination with a ruler, of a metallic casing partially inclosing the same and bent to form a tubular pen or pencil receptacle extending along the longitudinal edge of the ruler, the edges of the casing being also extended to form retaining-lips, a shutter at each end of the ruler arranged to slide beneath said lips and provided with an operating-lip and a longitudinal slot, and a headed pin or stud passing through said slot into the ruler, substantially as described.

3. The combination with a ruler, of a metallic casing partially inclosing the ruler and bent around the rear edge thereof to form a tubular receptacle for pens, pencils, &c., said casing being extended at one end beyond the body of the ruler and provided in said extension with a V-shaped notch, the opposing walls of which are disposed at an obtuse angle and sharpened or brought to a cutting edge for the purpose and substantially as described.

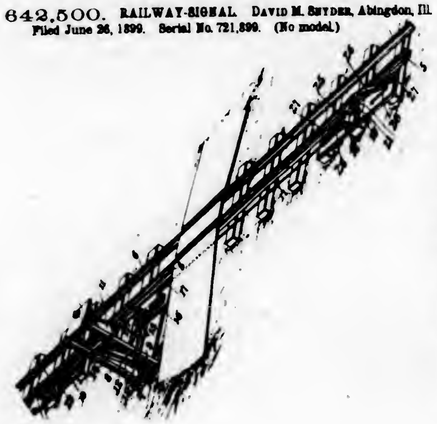
642,499. LANTERN-CARRYING ATTACHMENT. ROBERT L. SMITH, Palos, Ala. Filed May 4, 1899. Serial No. 715,544. (No model.)



Claim.—1. The herein-described lantern-carrying attachment consisting of a frame formed with vertical wires and an upper and a lower socket in each of two adjacent wires, two angular spring-arms each having oppositely and outwardly bent ends adapted to spring one into an upper and the other into a lower socket, a rectangular wire frame formed with a spring-tongue and a reflector having rearwardly-extending clips securing the sides of the frame and the spring-arms together, as and for the purpose set forth.

2. The herein-described lantern-carrying attachment, consisting of the lantern-holder formed of vertically-disposed wires connected at their ends by wire rings, four socket-pieces, two of which are rigidly attached to the upper ends of two adjacent wires and the other being rigidly attached to the lower ends thereof, two angular spring-arms having bent ends arranged to spring into the said socket-pieces, a rectangular frame formed with a locking-tongue, a reflector having rearwardly-extending clips fastening the sides of said frame and the spring-arms together, and two loops attached one to the upper end and the other to the lower end of a vertical wire, the said loops being adapted to receive straps whereby to attach the lantern-holder and reflector to a rider's leg, as and for the purpose set forth.

642,500. RAILWAY-SIGNAL. DAVID M. SNYDER, Abingdon, Ill. Filed June 26, 1899. Serial No. 721,899. (No model.)



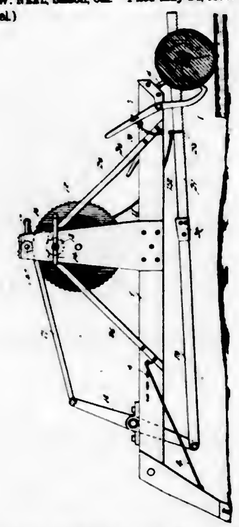
Claim.—The combination with a track way and a signal adjacent thereto, of a plate fixed adjacent the flange of a rail of the track way, two levers slidably connected with the plate and arranged end to end, the mutually-adjacent portions of the levers being bent laterally over the flange of the rail and then toward each other to lie in a common vertical plane above the flange and in contact with the side of the tread of the rail, a hinge connection between the adjacent ends of the levers, comprising a pintle extending outwardly and downwardly therefrom, a bell-crank lever connected directly with the downwardly extending portion of the pintle, and connections between the bell-crank lever and the signal for operating the latter.

642,501. BALL-BEARING. JOHN A. SNYDER, Leipsic, Ohio. Filed Sept. 28, 1899. Serial No. 731,924. (No model.)



Claim.—In a power-transmitting device, the combination of a screw-nut provided with female threads having inwardly-turned ends, said nut being provided with an inclined return-conduit connecting the inwardly-turned ends of the female threads and communicating with the space between the threads, the screw-spindle provided with male threads having one inclined face, and the bearing-balls interposed between the inclined face of the male threads and the female threads and retained in place by the former, said balls being adapted to pass through the return-conduit and being directed into the same by the inwardly-turned ends of the female threads, substantially as described.

642,502. WOOD-SAWING MACHINE. MILTON R. SPENCER and DANIEL W. NEAL, Sisson, Cal. Filed May 24, 1899. Serial No. 718,045. (No model.)

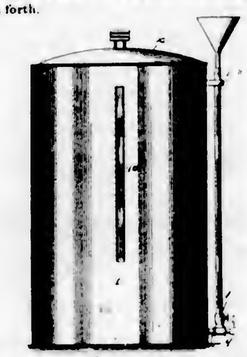


Claim.—A sawing-machine, comprising a base-beam, means for rigidly connecting one end of said base-beam with a log or timber, legs mounted to swing on the opposite end of said base-beam, hook-rods having connection with said legs, eyes on the base-beam for engaging with said hook-rods, a driving-gear supported on the base-beam, a rock-lever mounted on the base-beam and having connection with a crank of the driving-gear, a pitman connected to the lower end of the rock-lever, and a saw connected to the free end of the pitman substantially as specified.

642,503. CREAM-SEPARATOR. JOHN STEFFEN, Maryville, Mo. Filed May 29, 1899. Serial No. 718,713. (No model.)

Claim.—1. A cream-separator of the class described, comprising a can or receptacle having an opening provided through the bottom thereof and a pendent box or hollow extension communicating with

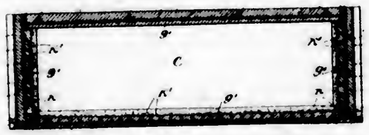
said opening and having a lateral transparent opening, a discharge-pipe communicating through the bottom of the box or hollow extension, and an inlet-pipe adapted to introduce water below the bottom of the milk contained within the receptacle, substantially as and for the purpose set forth.



2. In a cream-separator of the class described, the combination with a can or receptacle having an opening provided through the bottom thereof, and a pendent flange extending below the bottom of the receptacle and provided with a lateral opening, of a pendent box or hollow extension communicating with the opening in the bottom of the receptacle and provided with a lateral transparent opening alined with the opening in the flange, a discharge-pipe communicating through the bottom of the box or hollow extension, and an inlet-pipe adapted to introduce water through the bottom of the receptacle, substantially as and for the purpose set forth.

3. In a cream-separator of the class described, the combination with a can or receptacle having an opening formed through the bottom thereof, and a circumferential pendent flange extending below the bottom of the receptacle and provided with a transverse opening, of a pendent box or hollow extension communicating with the opening in the bottom of the receptacle and having a lateral transparent opening alined with the opening in the flange in the receptacle, a horizontal discharge-pipe communicating through the bottom of the box or hollow extension and extending upwardly beyond one side of the receptacle, a valve or faucet provided at the outer end of the discharge-pipe, and an upright inlet-pipe connected to the discharge-pipe between the valve thereof and the adjacent side of the receptacle, and provided with a valve adapted to control the inflow of water, substantially as and for the purpose set forth.

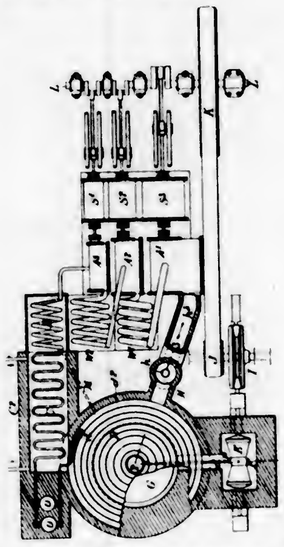
642,504. GRAVE-VAULT. RAYMOND G. SYKES, Niles, Ohio. Filed Dec. 4, 1897. Serial No. 660,739. (No model.)



Claim.—A vault having its body portion or vault proper composed of upright slabs and a bottom slab suitably assembled and made respectively, of metallic lathing covered with cement, and angle-irons arranged so as to form a seat for a cover for the vault internally of the vault proper, at the latter's upper end and inner side, which angle-irons are suitably secured to the lathing of the upright slabs, substantially as shown and described.

642,505. APPARATUS FOR REFRIGERATING AND LIQUEFYING AIR OR OTHER GASES. EDGAR C. TRUPP, Walton-upon-Thames, England. Filed Feb. 28, 1899. Serial No. 707,302. (No model.)

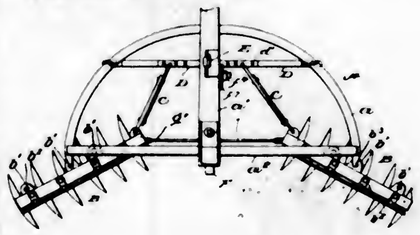
Claim.—1. In apparatus for refrigerating and liquefying air, the combination of a turbine inclosed in a non-conducting jacket or casing having annular spaces around the shaft where it passes through the said casing and all thrust or guide blocks and bearings situated outside the said jacket or casing to keep them at a distance from the motor parts of the said turbine, in which the air or gas or gases ie or are expanded and caused to do external mechanical work, means for compressing the air or gas or gases consisting of two or more compressing-cylinders operating step by step with intermediate cooling-coils and means for cooling the air or gas or gases while under high pressure down to a temperature below the freezing-point of water, a chamber, or chambers in duplicate, through which the air or gas or gases are passed and in which the moisture and other impurities are deposited mostly as snow, and separated, and a heat-interchanger for further cooling the air or gas or gases.



2. In apparatus for refrigerating and liquefying air or other gas or gases the combination of a turbine-motor in which the air or gas or gases, in, or are, expanded and caused to do external mechanical work, means for compressing the air or gas or gases, consisting of two or more compressing-cylinders, operating step by step with intermediate cooling-coils, and means for cooling the air or gas or gases while under high pressure down to a temperature below the freezing-point of water, a chamber or chambers through which the air or gas or gases are passed and in which the moisture and other impurities are deposited and separated, a heat-interchanger for further cooling the air or gas or gases and means for passing the said air or gas or gases into the turbine and a device through which the gaseous portion of the exhaust from the turbine is passed for separating moisture from the fresh-air supply to the compressor, substantially as hereinbefore described.

3. In combination with apparatus for liquefying air and other gases, a reservoir or receptacle for the liquid, consisting of a chamber with a closed top surrounded by an annular space and a thick inclosure or jacket of insulating material, the said chamber being provided with an inlet-pipe and an outlet-pipe for the liquid and an outlet-pipe for gas communicating with the lower part of the annular space, substantially as hereinbefore described.

642,506. HARROW. MARQUIS J. TODD, Buffalo, N. Y. Filed Apr. 6, 1899. Serial No. 711,937. (No model.)



Claim.—1. In a disk harrow, the combination with the frame, of disk gangs, each gang having a pivotal connection with the frame whereby it is capable of moving vertically at its ends, such pivotal connection being at one of a plurality of points intermediate of the ends of each gang, to allow the gangs to be set at different distances apart and means connected to the gangs for adjusting them relatively to the line of draft, substantially as set forth.

2. In a disk harrow, the combination with the frame, of the disk gangs, each gang having a pivotal connection with the frame whereby it is capable of moving vertically at its ends, such pivotal connection being at one of a plurality of points intermediate of the ends of each gang to allow the gangs to be set at different distances apart, adjusting-bars connected to such gangs, and operating mechanism to which the adjusting-bars may be connected at a plurality of points, such connection of each adjusting-bar being regulated by the point of connection of its gang to the frame, as set forth.

3. In a disk harrow, the combination with the frame, of disk gangs, each gang having a pivotal connection with the frame whereby it is capable of moving vertically at its ends, such pivotal connection being at one of a plurality of points intermediate of the ends of each gang to allow the gangs to be set at different distances apart, extensible and contractible adjusting-bars connected to such gangs, an operating-lever, and a connection between such lever and the adjusting-bars, the latter being capable of being secured to such connection at a plurality of points, as set forth.

4. In a disk harrow, the combination with the frame, of disk gangs pivotally connected to said frame, adjusting-bars attached to the inner ends of said gangs, levers fulcrumed at their outer ends on said frame and to which said adjusting-bars are secured, and an operating-lever to which both of said former levers are connected, substantially as set forth.

5. In a disk harrow, the combination with the frame, of the disk gangs having each a plurality of points intermediate of its ends at any one of which it may be pivotally connected to said frame, adjusting-bars secured to said gangs, an operating-lever, and swinging connections between said lever and said bars, said bars being capable of being secured to said swinging connections at a plurality of points, substantially as set forth.

6. In a disk harrow, the combination with the frame, of the disk gangs having each a plurality of points intermediate of its ends at any one of which it may be pivotally connected to said frame, adjusting-bars secured to said gangs, levers having a plurality of points for connection thereto of said adjusting-bars, and means for operating said levers, substantially as set forth.

7. In a disk harrow, the combination with the frame, of the disk gangs having each a plurality of points intermediate of its ends at any one of which it may be pivotally connected to said frame, adjusting-bars secured to said gangs, levers having a plurality of points for connection thereto of said adjusting-bars, and an operating-lever common to both of the former levers, substantially as set forth.

8. The combination with the frame, of the disk gangs having each a plurality of points intermediate of its ends at any one of which it may be pivotally connected to said frame, extensible and contractible adjusting-bars having hooked ends, levers fulcrumed at their outer ends on said frame and having each a plurality of securing-points for the forward ends of said adjusting-bars, the rear ends of said bars being secured to said gangs, and an operating-lever mounted on said frame and connected at its lower end to the inner ends of said levers, substantially as set forth.

9. The combination with the frame, of the disk gangs, means for adjusting the gangs relatively to the line of draft, a connection spanning the space between the gangs, a spring engaging said connection, and means for regulating the tension of said spring, substantially as set forth.

10. The combination with the frame, of the disk gangs, a cross-rod spanning the space between the gangs, and a spring-bar for exerting tension on said cross-rod, as set forth.

11. The combination with the frame, of the disk gangs, means for adjusting the gangs relatively to the line of draft, a connection spanning the space between the gangs, a spring-bar fulcrumed on said frame and engaging said connection, and a lever on said frame for acting on said spring-bar, substantially as set forth.

12. The combination with the frame, of the disk gangs, means for adjusting the gangs relatively to the line of draft, a cross-rod extending over the space between the gangs, a spring-bar fulcrumed on the frame and engaging said cross-rod, and a lever on said frame for acting on said spring-bar, substantially as set forth.

13. The combination with the frame, of the disk gangs, means for adjusting the latter relatively to the line of draft, a cross-rod spanning the space between the gangs, a spring-bar, having a sliding engagement with such cross-rod, and a lever on the frame for acting on the spring-bar, substantially as set forth.

14. The combination with the frame, of the disk gangs, means for adjusting the latter relatively to the line of draft, a cross-rod spanning the space between the gangs, a spring-bar, a loop forming a sliding connection between the cross-rod and spring-bar, and a lever on the frame for acting on the spring-bar, substantially as set forth.

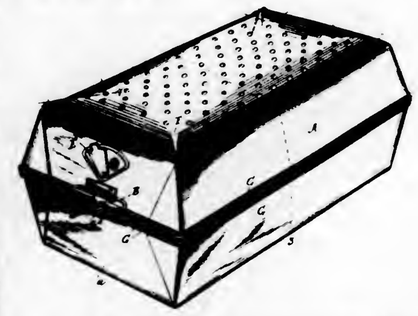
15. The combination with the frame, of the disk gangs, means for adjusting the latter relatively to the line of draft, a cross-rod spanning the space between the gangs, a spring-bar, a loop on the cross-rod through which the spring-bar is extended, and a lever on the frame for acting on the spring-bar, substantially as set forth.

16. The combination with the frame, of the disk gangs, means for adjusting the latter relatively to the line of draft, a cross-rod spanning the space between the gangs, a spring-bar, a loop forming a sliding connection between the cross-rod and spring-bar, a bell-crank lever fulcrumed on the frame, and a link connecting one end of such lever to the spring-bar, substantially as set forth.

17. The combination with the frame, of the disk gangs, means for adjusting said gangs relatively to the line of draft, a cross-rod extending over the space between and secured to the gangs, a spring-bar having a sliding connection with the cross-rod and also having a crimp therein, a clip secured to the frame having an opening to accommodate said crimp, and a lever fulcrumed on said frame for acting on said spring-bar, substantially as set forth.

18. The combination with the frame, of the disk gangs, means for adjusting the same relatively to the line of draft, a spring-bar fulcrumed on the frame, a cross-rod connected at its ends to the gangs, a loop for the spring-bar, mounted on the cross-rod, and a lever fulcrumed on the frame and designed to act on the spring-bar, substantially as set forth.

642,507. ROASTING-PAN. WILBUR TOPPING, Harvey, Ill. Filed Feb. 6, 1899. Serial No. 704,749. (No model.)



Claim.—1. A cooking utensil formed of sheet metal and composed of two parts, an upper and a lower pan, the upper pan having a dome-shaped top provided with vapor-gathering grooves F and protuberances D in the inner side thereof, substantially as and for the purpose described.

2. A cover for cooking utensils formed of sheet metal, the sides thereof provided with vertically-arranged seams at its corners and having a bulged dome-shaped top, the dome-shaped top having at its inner side vapor-gathering grooves beginning at the upper ends of said vertically-arranged seams and extending in a direction toward the center of the top, substantially as described.

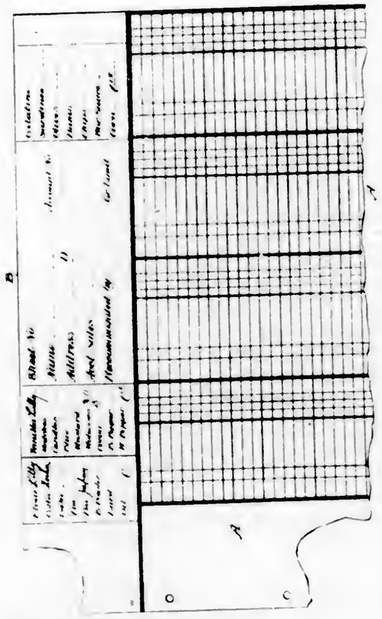
3. A rectangular cover for cooking utensils having at the inner side vapor-gathering grooves, the outer ends of said grooves beginning at the corners of the cover, and extending diagonally inward toward the center of the top and ending and vanishing at points intermediate the sides of said top, substantially as described.

642,508. LEDGER-LEAF. HOWARD TRIBBLE, Baltimore, Md. Filed Nov. 11, 1899. Serial No. 736,685. (No model.)

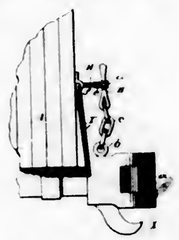
Claim.—1. A ledger-sheet having thereon a list or schedule of articles or material, located beyond the entry-spaces, and having spaces adjacent to the individual names on the list or schedule, in which a specific designation can be placed, substantially as described.

2. A ledger-sheet having a printed column of names of articles or material, and spaces adjacent said names in which specific designations can be placed, substantially as described.

642,508.



642,509. AUTOMATIC COUPLING FOR RAILWAY-CARS. CHAS. TROUP, Watseka, Ill., assignor of thirty-seven one-hundredths to Thos. J. Aurand, same place. Filed Nov. 21, 1898. Serial No. 697,121. (No model.)

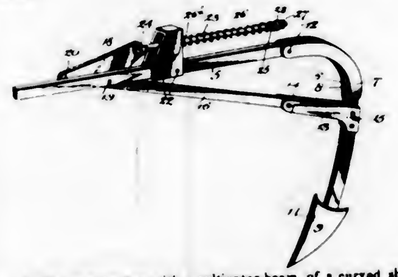


Claim.—1. The combination with a car, a coupling device, and a projection, on the former, having a reduced portion and head as specified, of a chain and a spring clip or clasp attached thereto, and adapted to be engaged with and disengaged from said projection, as specified.

2. The combination with the car, a coupling, and a lever-arm projecting from the car above the coupling, and having two reduced portions and a head, of a chain and pin, and a bifurcated spring clip, or clasp, attached to said chain and having the slot between its jaws made wider at the closed end than elsewhere, and of less diameter than the aforesaid head and one of the reduced portions of said arm, as shown and described.

642,510. SPRING CULTIVATOR-TOOTH. JOSIAH S. TUTTLE and JOHN M. WILSON, Kansas City, Kans. Filed Apr. 24, 1899. Serial No. 714,195. (No model.)

Claim.—1. The combination with a cultivator-beam, and a shank or carrier pivoted thereto, of a drag-bar or pitman connected pivotally with said carrier at a point intermediate its length, and a spring-controlled lever connected pivotally to the front end of the drag-bar, the lever being so related to the drag-bar that the pivots of the drag-bar will nearly aline with the fulcrum of the lever when the parts are in their normal positions, whereby the drag-bar and lever serve to lock the carrier or shank in its normal position, substantially as described.

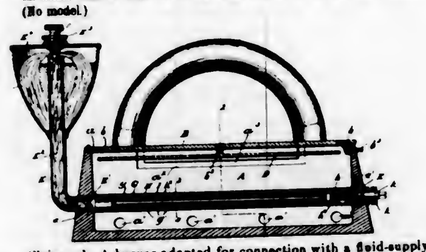


2. The combination with a cultivator-beam, of a curved shank or carrier pivoted at its upper end to said beam and equipped with a shovel at its lower end, arms fast with the carrier or shank at a point below the beam, a lever fulcrumed on said beam, a drag-bar or pitman having its ends jointed respectively to the arms and the lever, and a spring connected actively to the lever and normally holding the latter in a position where the drag-bar pivots are nearly alined with the fulcrum of the lever, substantially as described.

3. The combination with a cultivator-beam, and a pivoted shaft carrying a shovel, of a guide-clip fixed to said beam to extend upwardly therefrom and having a vertically-elongated eye or loop, an endwise-movable tension-rod fitted slidably in said clip and shiftable vertically in the elongated eye or loop thereof, a spring on said rod and seated against the clip and the rod to be shiftable vertically with said rod and to be compressed on movement of the rod in one direction, a lever fulcrumed on the beam and connected to the rod, and a drag-bar connecting the lever and the shank, substantially as described.

4. The combination of a cultivator-beam having a curved rear arm, a two-part shank or carrier provided with a shovel at one end and arranged to embrace the curved arm of said beam, a pivot-bolt connecting the carrier to the beam, a drag-bar jointed to the carrier at a point between its pivot and the shovel, and a spring-controlled lever jointed to the drag-bar, substantially as described.

642,511. BURNER FOR SELF-HEATING SAD-IRONS. GEORGE M. URIE, Kansas City, Mo. Filed May 27, 1899. Serial No. 718,501. (No model.)



Claim.—1. A burner adapted for connection with a fluid-supply pipe and comprising a closed tube provided with flame-orifices along its body leading to a chamber within the tube, a second chamber within said tube communicating at one end with the first-named chamber and at the other end with the fluid-supply pipe, foraminated material in each chamber through which the fluid percolates in its passage from one chamber to the other and a cut-off for said burner.

2. A burner adapted for connection with a fluid-supply pipe and comprising a closed tube provided along its body with flame-orifices leading to a chamber within the tube, a second chamber within the tube, concentric with the first-named chamber and in its interior, said interior chamber communicating at one end with the first-named or exterior chamber and at the other end communicating with the fluid-supply pipe, foraminated material in each chamber through which the fluid percolates in its passage from one chamber to the other and a cut-off for said burner.

3. The combination with a wick-containing fluid-supply pipe of a burner adapted for connection therewith and comprising a closed tube provided along its body with flame-orifices leading to a chamber within the tube, a second chamber within the tube, communicating at one end with the first-named chamber and at the other end with the fluid-supply pipe, foraminated material in each chamber through which the fluid percolates in its passage from one chamber to the other and a cut-off for said burner.

4. The combination with a wick-containing fluid-supply pipe, of a burner adapted for connection therewith and comprising a closed tube provided along its body with flame-orifices leading to a chamber within the tube, a second chamber located interiorly of the first-named chamber and concentric therewith, said interior chamber communicating at one end with the exterior chamber and at the other end with the fluid-supply pipe, foraminated material in each chamber through which the fluid percolates in its passage from one chamber to the other and a cut-off for said burner.

5. The combination with a wick-containing fluid-supply pipe of a burner adapted for connection therewith and comprising a closed tube provided along its body with flame-orifices leading to a chamber within the tube, a second chamber within the tube communicating at one end with the first-named chamber and at the other end with the fluid-supply pipe, foraminated material in each chamber through which the fluid percolates in its passage from one chamber to the other, a fluid cut-off, and a gas cut-off for said burner.

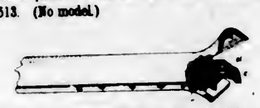
6. The herein-described burner for self-heating sad-irons, consisting of a series of telescoped tubes, jet-openings in the outer tube, annuli of foraminated material separating said tubes, and a valve for the end of the intermediate tube, the stem of which extends through a closure in the adjacent end of the outer tube.

642,512. DRAFT-EQUALIZER. THEODORE J. VANCE, Miles City, Mont. Filed June 12, 1899. Serial No. 720,251. (No model.)



Claim.—A draft-equalizer, consisting of a beam, bands carrying pulleys or rollers secured to said beam, a band or strap movably connected to said beam, and a trace-connecting device carried at each end of said band or strap, said trace-connecting device consisting of the plate or body provided with the beat edges, lips forming band-hinges cut out of the body of the plate, a spring cut out of the body of said plate, and a means for connecting the plate to the band or strap journaled in said hinges and being controlled by said hinge.

642,518. RUBBER TIRE FOR VEHICLE-WHEELS. FRANK H. BOLTE, Peoria, Ill., assignor to the Peoria Rubber and Manufacturing Company, same place. Filed Oct. 20, 1898. Renewed Jan. 5, 1900. Serial No. 513. (No model.)



Claim.—1. For a rubber vehicle-tire, a flexible, non-extensible base portion, a soft-rubber tread therefor and fabric held within such tread, extending therefrom and secured to such non-extensible base portion for preventing separation of the parts as set forth.

2. For a rubber vehicle-tire, a flexible non-extensible portion, a soft-rubber tread secured thereto, and fabric vulcanized within the tread and extending therefrom and attached to said base portion for preventing the separation of such base and tread as described.

3. A rubber tire, having a flexible non-extensible base and a soft-tread portion secured thereto, fabric held within the body of said tread portion and extending therefrom and attached to the base for preventing the separation of those parts as set forth.

4. In a rubber tire for vehicle-wheels, a hard-rubber base portion adapted to be secured to a wheel, a soft-rubber tread vulcanized to such base, fabric vulcanized within the tread near the sides thereof, projecting therefrom and vulcanized to said base portion in such manner as to prevent the separation of the said base and tread as set forth.

5. For a rubber tire, a flexible non-extensible base portion, a soft-rubber tread therefor and fabric attached to the tread and base portion for holding such portions securely against separation as set forth.

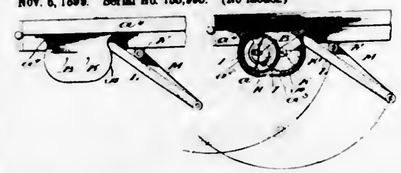
6. In a rubber tire for vehicle-wheels, a flexible non-extensible base having reinforced rib extending its entire length for preventing buckling of the tire or its withdrawal from the wheel-rim, a soft-rubber tread secured to such base, and fabric vulcanized to the base and tread for the purposes set forth.

7. In a rubber tire, a flexible non-extensible base portion having a reinforcing-rib at its middle, forming part thereof and extending its entire length for preventing lateral bending or buckling of such tire or its withdrawal from the wheel-rim, a soft-rubber tread vulcanized to the base and having the said rib extending into it and fabric extending around such base the edges extending into the interior of the tire thus constructed and vulcanized between the said base and tread portion, as set forth.

8. In a rubber tire a flexible non-extensible base portion having a tread portion vulcanized thereto, the surfaces of such base and tread portions where they join each other provided with corrugations to give stronger adhering surfaces, fabric surrounding the base transversely and vulcanized thereto; the edges thereof extending into the tire and vulcanized therein substantially as set forth and for the purposes described.

9. For a rubber vehicle-tire a flexible non-extensible base portion, a soft-rubber tread vulcanized thereto and fabric vulcanized to the base, the edges thereof entering the tread portion and vulcanized therein substantially as set forth and for the purposes described.

642,514. DOOR-CHECK. NATHAN O. BOND, Hyannis, Mass. Filed Nov. 6, 1899. Serial No. 735,995. (No model.)



Claim.—1. In a door-check, the combination of a part having an internal, annular surface, a shaft carrying a spring, parts mounted on said spring and adapted to be forced against such surface by the rotation of said shaft to produce friction, and means for rotating said shaft by the movement of a door, substantially as described.

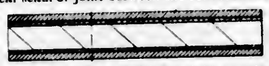
2. In a door-check the combination of a casing, a circular flange carried thereby, friction-plates adapted to rotate upon a spindle within said flange, a spring upon which said plates are mounted, a disk to which said spring is secured, a pawl carried by said disk by which it is caused to rotate with a ratchet underlying the disk, a pinion secured to said ratchet, a pivoted sector adapted to intermesh with said pinion, a lever by which said sector is moved, and a link by which said levar is attached to a door, substantially as described.

3. In a door-check the combination of a sector connected by a lever and a link to a door and moved thereby, a pinion with which said sector intermeshes, a ratchet connected to said pinion, a disk underlying said ratchet and concentric therewith, a pawl by which said ratchet and disk are connected, a spring carried by the disk, friction-plates carried by said spring and normally held thereby in positions toward the center of the disk, and a circular flange within which said plates are adapted to rotate and against which they are adapted to rub, substantially as described.

642,515. ARMORED CONDUIT. JACOB B. BOUTILLIER, Boston, Mass., assignor of one-half to W. B. Hunter, same place. Filed Nov. 1, 1899. Serial No. 735,469. (No model.)

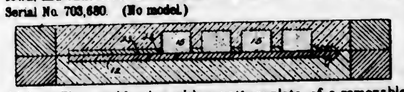
Claim.—1. An armored conduit comprising a rigid metal tube or pipe, and a tubular lining composed of a helically-wound strip of sheet-

asbestos expanded against the internal surface of the rigid pipe, to close the helical seam or joint between the convolutions of the strip.



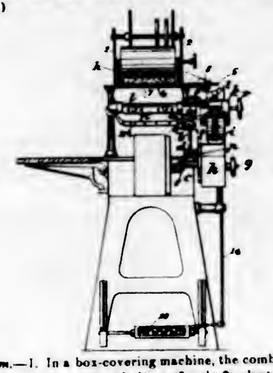
2. An armored conduit comprising a rigid metal tube or pipe, and a tubular lining composed of a helically-wound strip of sheet-asbestos expanded against the internal surface of the pipe to close the helical seam or joint between the convolutions, said lining being cemented to the interior of the pipe to preserve said closed seam or joint.

642,516. CORE-SETTING PLATE. CHARLES BRIGHAM, Watertown, and CHARLES B. EMERY, Somerville, Mass. Filed Jan. 23, 1899. Serial No. 703,680. (No model.)



Claim.—The combination with a pattern-plate, of a removable core setting and holding plate resting upon said pattern-plate and provided with a plurality of perforations, and cores loosely arranged in said perforations and supported by the pattern-plate, to prevent sinking of the cores into the sand and to provide for recesses of required depth in the article to be cast, substantially as described.

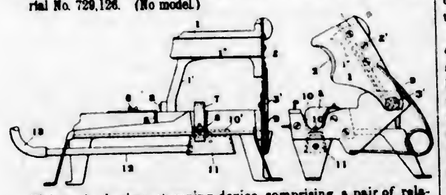
642,517. BOX-COVERING MACHINE. NATHANIEL B. CHADWICK, Stockport, England. Filed July 25, 1899. Serial No. 725,080. (No model.)



Claim.—1. In a box-covering machine, the combination with the form-shaft and strip-cutting knives, of a shaft adapted to be rotated by said form-shaft, and a member suitably carried on said shaft and held against rotary movement and adapted to operate said knives, substantially as described.

2. In a box-covering machine, the combination with the form-shaft *c* and strip-cutting knives *m*, *n* of a shaft *b* rotated from the form-shaft *c* and carrying a boss or cam *a* adapted to slide on the said shaft and to rotate therewith so as to actuate the cut-off knife *m* in any position, all substantially as set forth.

642,518. CIGAR STAMPING AND CUTTING DEVICE. HENRY J. COHN, Chicago, Ill. Filed Dec. 30, 1897. Renewed Aug. 31, 1899. Serial No. 729,126. (No model.)



Claim.—1. A cigar-stamping device comprising a pair of relatively-movable members adapted to approach and recede from each other, one of same being adapted to receive a cigar so as to present its side toward the other member; a stamp on one of said members adapted to have contact with the cigar; and an adjustable catch for engaging said members at the desired pressure upon the cigar; substantially as described.

2. A cigar-stamping device comprising a pair of relatively-movable members adapted to approach and recede from each other, one of same being adapted to receive a cigar so as to present its side toward the other member; a stamp on one side of said members adapted to have contact with the cigar; and an adjustable guide for fixing the position of the cigar longitudinally; and an adjustable catch for engaging said members at the desired pressure upon the cigar; substantially as described.

3. A cigar-stamping device comprising a pair of relatively-movable members adapted to approach and recede from each other, one of same being adapted to receive a cigar so as to present its side toward the other member; a stamp on one of said members adapted to have contact with the cigar; a spring normally urging said members apart; and an adjustable catch for engaging said members at the desired pressure upon the cigar; substantially as described.

4. A cigar-stamping device, comprising a frame having a bed therein for receiving a cigar; a stamp in said bed; a movable member attached to said frame, for compressing a cigar upon said stamp; and a vertically-adjustable catch for engaging said member at the desired pressure upon the cigar; substantially as described.

5. A cigar-stamping device, comprising a frame having a bed therein for receiving a cigar; a stamp in said bed; a movable member attached to said frame, for compressing a cigar upon said stamp; an adjustable guide for fixing the position of the cigar, longitudinally in said bed; and a vertically-adjustable catch for holding said member at the desired pressure upon the cigar; substantially as described.

6. A cigar stamping and cutting device comprising a pair of relatively-movable members adapted to approach and recede from each other, one of same being adapted to receive a cigar so as to present its side toward the other member; a cutter secured to said other member; a stamp on one of said members, adapted to have contact with the cigar; and an adjustable catch for engaging said members at the desired pressure upon the cigar; substantially as described.

7. A cigar-stamping device, comprising a frame having a bed therein for receiving a cigar; a stamp in said bed; a movable member attached to said frame, for compressing a cigar upon said stamp; a spring normally holding said member free from the cigar; and a vertically-adjustable catch for engaging said member at the desired pressure upon the cigar; substantially as described.

8. A cigar-stamping device, comprising a frame having a bed therein for receiving a cigar; a stamp in said bed; a movable member attached to said frame for compressing a cigar upon said stamp, a cutter secured to said member for cutting the end of the cigar; a spring normally holding said member and cutter free from the cigar; and a vertically-adjustable catch for engaging said member at the desired pressure upon the cigar; substantially as described.

642,519. PROCESS OF TREATING HIDES, SKINS, OR LEATHER. CHARLES S. DOLLEY and ALBERT F. CRANE, Philadelphia, Pa. Filed Nov. 9, 1898. Serial No. 695,967. (No specimens.)

Claim.—1. The process for the production of leather, which consists in the application of formicaldehyd to hides or skins which have previously been treated with tanning or tawing materials to such an extent that only a mechanical or loose chemical combination with the collagen has been effected.

2. The process for the production of leather, which consists in submitting to formicaldehyd, skins which have been tanned as far as possible by the ordinary tanning agents.

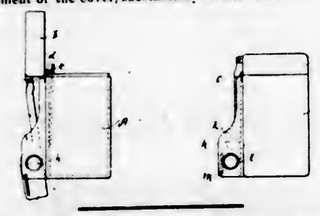
3. The process for the production of leather, which consists in treating hides or skins with tanning materials incapable of rendering the gelatigenous constituents of the skins insoluble, and then submitting the skins or hides to the action of formicaldehyd.

4. The process of producing leather, which consists in submitting to the action of formicaldehyd, skins or hides in which the fixation of the gelatigenous constituents has been imperfectly accomplished by the ordinary tanning processes.

5. The process of producing leather, consisting in subjecting hides or skins to tanning materials to such an extent that the hides or skins are converted into completely-tanned leather, the tanning material being of such a character that the leather so produced when immersed in water becomes hard by reason of a partial breaking up of the compounds between the tanning material and the collagenous mattar of the skins, and then subjecting the leather to formicaldehyd, whereby the leather is rendered waterproof, the compound of collagen and the tanning material being rendered incapable of being broken up by water and the leather remaining soft after soaking in water.

642,520. COMBINED SMOKER'S MATCH-BOX AND CIGAR-TIP CUTTER. FRANK FONTBEAU, Attleborough, Mass., assignor to P. J. Cummings & Co., same place. Filed Feb. 28, 1898. Serial No. 707,192. (No model.)

Claim.—The combination of the body of the match-box, with the parallel plates at the back of the box provided with the opposite perforations beveled at their upper edges, the sliding plate pivotally jointed to the cover and held between the said parallel plates and having a perforation beveled at its lower edge, and registering with the perforations of the parallel plates when the cover is in an opened condition, and adapted to cut off the tip of the cigar upon the closing movement of the cover, substantially as described.



642,521. JUNCTION-BOX FOR ELECTRICAL CONDUCTORS. EDWIN T. GREENFIELD, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,684. (No model.)



Claim.—1. A junction-box composed of two parts one of which is provided with openings and the other with corresponding disks adapted to close said openings, when the two parts of the box are put together, substantially as described.

2. A junction-box composed of two parts one of which is provided with openings and the other with corresponding disks integral with the walls thereof, said disks being of thinner material than the walls, the arrangement being such that certain of said disks may be broken down or out, so that when the parts are put together there is a definite number of openings for the admission of the ends of conduits into the box, the remaining disks closing corresponding openings, substantially as described.

3. A cast-metal junction-box composed of two parts, one of said parts having half-circular openings in its walls and the other corresponding disks integral therewith and adapted to close the openings of the first-named part when the two are secured together, substantially as described.

4. A junction-box having its walls so constructed that they may be broken down or out at definite points for the admission of the ends of the conduits or pipes, said junction-box being provided with upwardly-extending hollow necks and set-screws for securing the ends of inleading conduits or pipes, substantially as described.

5. A metallic junction-box composed of two parts, one of which is provided with means for securing it in a fixed position, and openings in its lateral walls; in combination with a cap or cover provided with disks integral therewith for closing said openings, said disks being adapted to be broken down or out at will for the admission of the ends of conduits or pipes, substantially as described.

6. A two-part junction-box for electrical conductors, one part of which is provided with hollow necks for receiving the incoming ends of a gas-pipe and one or more electrical conduits; in combination with set-screws adapted to secure the box to the gas-pipe and conduits, substantially as described.

642,522. ADJUSTABLE COUPLING-YOKE FOR MOWERS. ELI E. HARTER, Sac City, Iowa, assignor, by mesne assignments, to the Warder, Bushnell & Glessner Company, Springfield, Ohio, and Chicago, Ill. Filed Aug. 24, 1898. Serial No. 690,371. (No model.)



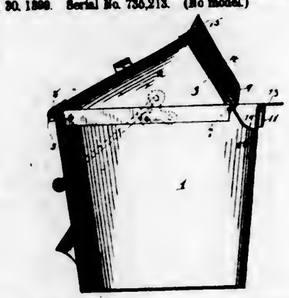
Claim.—1. In a mowing-machine, a coupling-arm, a yoke mounted thereon, a cutter-bar supported by said yoke, a pitman for actuating said cutter-bar, and means for adjusting said yoke relative to the axial line of said coupling-arm, whereby alinement between the cutter-bar and its actuating-pitman is maintained, substantially as and for the purpose specified.

2. The combination with a coupling-arm of a mowing-machine, a tapering adjusting-sleeve provided with a diagonal bore through which a portion of the coupling-arm is passed, and means for fastening the adjusting-sleeve to the coupling-arm, of a yoke having a chamber shaped to receive a portion of the exterior of the adjusting-sleeve, and means for connecting the finger-bar of the mower with said yoke, as and for the purpose specified.

3. The combination with the coupling-arm of a mowing-machine, a tapering adjusting-sleeve provided with a diagonal bore through which the coupling-arm is passed, the said tapering adjusting-sleeve being provided at its inner end with a polygonal exterior surface, with fastening devices adapted to secure said sleeve to the coupling-arm, of a yoke provided with a chamber having a taper corresponding to that of the adjusting-sleeve, the yoke being adapted to turn freely on the adjusting-sleeve, means for holding the yoke in position, and devices for attaching the finger-bar of the mower to the yoke, as described.

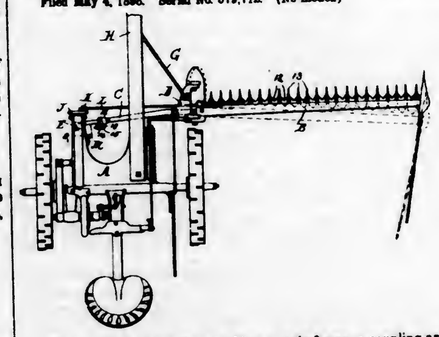
4. In a mowing-machine, a coupling-arm and a yoke, a cutter-bar supported upon said yoke, a pitman for actuating said cutter-bar, said yoke mounted upon said coupling-arm with its axis at an angle to the axis thereof, and means for varying the relative position of one of these parts, whereby through the eccentric relation of said arm and said yoke the latter is adjusted and the drag of the cutter-bar is compensated, as and for the purpose set forth.

642,523. MILK-PAIL. JAMES E. JOHNSTON, Oberlin, Ohio. Filed Oct. 30, 1899. Serial No. 735,213. (No model.)



Claim.—In a milk-pail, an elevated cover therefor provided with an inclined opening in front, flanges about three sides of the opening and flanges adapted to fit over the rim of the pail, in combination with a strainer-plate and strainer placed in said inclined opening, a pocket in the lower edge of the strainer-plate, a flange extending outwardly therefrom, and flanges extending downward on either side of the rim of the pail from the front edge of said plate, and catches for securing the cover to the pail and the strainer-plate to the cover, substantially as described.

642,524. MOWING-MACHINE. MAURICE KANE, Austin, Ill. Filed May 4, 1898. Serial No. 679,712. (No model.)



Claim.—1. In a mowing-machine, a main frame, a coupling-arm connected thereto, the end of said arm being deflected or bent into angular relation with respect to the axial line of said arm, a cutter-bar supported upon said angularly-bent end, a pitman for reciprocating said cutter-bar, and means for rotarily adjusting said arm axially, as and for the purpose set forth.

2. In a mowing-machine, a main frame, a coupling-arm made in sections, one of said sections connected to the framework, a cutter-bar supported upon the otner of said sections but out of axial alinement therewith, and means for rotarily adjusting said section relative to the first-mentioned section, as and for the purpose set forth.

3. In a mowing-machine, a main frame, a coupling-arm having an end piece connected to said framework, a flange formed on said end piece, a cutter-bar supported upon said coupling-arm but out of axial alinement therewith, and a flange carried by said coupling-arm, and means for connecting said flanges, whereby said coupling-arm may be rotarily adjusted, as and for the purpose set forth.

4. In a mowing-machine, a main frame, a coupling-arm having an end piece connected to said frame, a flange carried by said end piece, a collar mounted on said coupling-arm and provided with a coöperating flange, a bolt for connecting said flanges, whereby said coupling-arm may be rotarily adjusted relative to said end piece, and a cutter-bar supported upon said coupling-arm out of axial alinement therewith, as and for the purpose set forth.

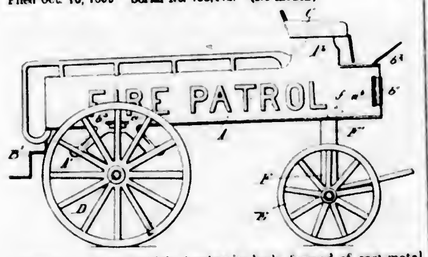
5. In a mowing-machine, a main frame, a coupling-arm having an end piece connected to said frame, a flange carried by said end piece, a collar mounted on the adjacent end of said coupling-arm for endwise movement thereon, said collar provided with a coöperating flange, one of said flanges provided with teeth or serrations and the other with an engaging lug, a bolt for coupling said flanges, one of said flanges being provided with an elongated slot through which said bolt passes, whereby said coupling-arm may be rotarily adjusted axially, and a cutter-bar supported upon said coupling-arm but out axial alinement therewith, as and for the purpose set forth.

6. In a mowing-machine, a coupling-arm, a cutter-bar supported upon said arm in eccentric relation to the axis thereof, a pitman for actuating said cutter-bar, and means for adjusting the position of the coupling-arm whereby through such eccentric relation alinement between the pitman and the cutter-bar is restored, as and for the purpose set forth.

7. In a mowing-machine, a cutter-bar, a coupling-arm upon which said bar is mounted, the line of movement of said cutter-bar being normally inclined relative to the axial line of said arm, a pitman for reciprocating said cutter-bar and means for axially adjusting said coupling-arm, whereby the backward sag of the outer end of the cutter-bar is compensated for, as and for the purpose set forth

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642,525. TOY VEHICLE. HARRY T. KINGSBURY, Keene, N. H. Filed Oct. 10, 1899. Serial No. 733,172. (No model.)



Claim.—1. A toy vehicle having its body formed of cast-metal sides, a sheet-metal body having an upturned end closing the front of the body and interlocking connections between the sides and the bottom; substantially as described.

2. A toy vehicle having its body formed of sides, provided with seat-standards terminating in securing-lugs, a sheet-metal bottom, interlocking devices securing the bottom and sides together, and a seat having end slots through which the said securing-lugs project; substantially as described.

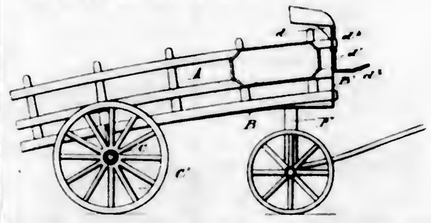
3. A toy vehicle having its body formed of cast-metal sides, a sheet-metal bottom having an upturned forward end closing the space between the forward ends of the sides, an integral step at its rear end, and interlocking devices for securing the sides and the bottom together; substantially as described.

4. A toy vehicle having its body formed of sides provided with front and rear slots and formed along their lower edges with inwardly-projecting upper and lower lugs, and a sheet-metal bottom between said upper and lower lugs and formed at its opposite sides with front and rear lugs, or ears passed through said slots and upset or bent over; substantially as described.

5. A toy vehicle having its body formed of sides, having front and rear securing-slots, integral rear-axle bearings and integral seat-standards terminating in securing-lugs and a sheet-metal bottom having an upturned forward end closing the forward end of the vehicle, opposite side lugs or ears passed through the said slots and upset or bent over, the rear end of the bottom terminating in a depending integral step, and a seat having end slots receiving the lugs on the seat-standards; substantially as described.

6. A toy-vehicle body comprising two sides having inwardly-projecting flanges a^3, at their front ends, upper and lower inwardly-projecting lugs a^2, a^4, at the lower edges of the sides, and integral depending axle-bearings, the sides being also provided with slots a, a^5, and the sheet-metal bottom with its side edges between the lugs a^2, a^4, and formed thereon with outwardly-projecting ears b passed through the slots a and upset and the front extension b behind the flanges a^3 and having ears b' projecting through slots a^5 and upset: substantially as described.

642,526. TOY WAGON. HARRY T. KINGSBURY, Keene, N. H. Filed Oct. 10, 1899. Serial No. 733,173. (No model.)



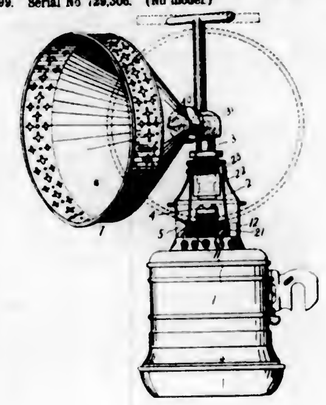
Claim.—1. A toy vehicle having its body formed of a sheet-metal bottom bent upwardly at its forward end to form the front of the body and provided in such upturned portion with apertures, said body being further provided in opposite sides of its rear portion with notches and the sides provided with rear-axle bearings extending through said notches, and provided therebelow with inwardly-projecting lugs engaging the bottom, and the forward ends of the sides projecting through said apertured front; substantially as described.

2. The combination with the two sides having depending axle-bearings, of a sheet-metal bottom underlying the lower edges of the sides, said sides being each provided with a projection engaged by the sheet-metal bottom and by which said bottom is deflected from its normal plane and caused to spring upward against the lower edges of the sides to hold the parts in position, and having also projections at the front, the said bottom having an upturned front end and having apertures through which said front projections of the sides extend, substantially as described.

3. A toy vehicle having its body formed of cast-metal sides, a sheet-metal bottom interlocked therewith and formed with an integral front extension having notches or recesses in its upper edge and a seat secured to said front and provided on its under side with webs entering said notches; substantially as described.

4. In a toy vehicle, a seat D, provided with a depending extension d' terminating in a foot rest d^2 and webs d connecting the lower side of the seat with said extension d'; substantially as described.

642,527. LAMP. FRANK REHD, Bridgeport, Conn., assignor of one-half to the Bridgeport Brass Company, same place. Filed Sept. 2, 1899. Serial No. 729,306. (No model.)



Claim.—1. In a lamp an integrally-revoluble horizontally-disposed burner and reflector, substantially as described.

2. In a lamp an integrally-revolubie burner and open concave reflector, substantially as described.

3. In a lamp an integrally-revoluble horizontally-disposed burner and open concave reflector, substantially as described.

4. In a gas-lamp in combination a body, a rotatable gas-conducting tube and a gas-burner and a reflector both mounted on said tube and revoluble therewith, substantially as described.

5. In a gas-lamp in combination a body, a gas-conducting tube, a reflector mounted on said tube and a burner axially disposed within said reflector, said reflector and burner being adapted to revolve with respect to said body, substantially as described.

6. In a lamp a horizontally-disposed gas-burner and a reflector having a horizontal axis surrounding said burner and adapted to protect the flame issuing therefrom, said burner and said reflector being adapted to revolve together around a common axis, substantially as described.

7. In a lamp in combination a body, a rotatable gas-conducting tube, a gas-burner and a reflector surrounding said burner and adapted to protect the flame issuing therefrom, said burner and said reflector being mounted on said tube and revoluble therewith, substantially as described.

8. In a lamp in combination an open reflector and a perforate wind-guard at the free end of said reflector, substantially as described.

9. In a lamp in combination an open reflector and an adjustable wind-guard at the free end of said reflector, substantially as described.

10. In a lamp in combination an open reflector, an adjustable perforate wind-guard and means for securing said wind-guard either in or out of operative position, substantially as described.

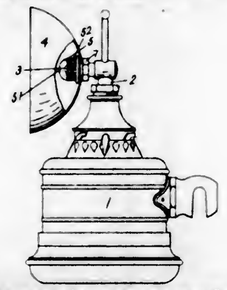
11. In a lamp in combination an open reflector, an adjustable perforate wind-guard and means for securing said wind-guard in any desired position, substantially as described.

12. A gas-generator-lamp body adapted to have alternatively secured thereto a plurality of different burner inclosing portions, substantially as described.

13. A gas-generator-lamp body provided with separate means for securing thereto a plurality of different burner-inclosing portions, substantially as described.

14. In combination a gas-generator-lamp body, means for securing a burner to said body, means for attaching to said body a burner-inclosing portion and separate means for securing to said body a gas-conveying portion, adapted to support a burner and a reflector, substantially as described.

642,528. LAMP. FRANK REHD, Bridgeport, Conn., assignor of one-half to the Bridgeport Brass Company, same place. Filed Sept. 2, 1899. Serial No. 729,307. (No model.)



Claim.—1. In combination an open concave reflector whose axis is substantially horizontal, a gas-burner tip at or near the rear end of said reflector the axis of said tip being also substantially horizontal and a wind-guard within said reflector and adapted to protect the root of the flame issuing from said burner-tip, the exit-aperture for the flame through said guard being of substantially less diameter than the body portion of said guard, substantially as described.

2. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and whose axis is substantially coincident with that of said reflector and a wind-guard within said reflector and adapted to protect the root of the flame issuing from said burner-tip, the exit-aperture for the flame through said guard being of substantially less diameter than the body portion of said guard, substantially as described.

3. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and adapted to project a flame substantially in the axis thereof and a wind-guard within said reflector and adapted to protect the root of such flame, the exit-aperture for the flame through said guard being of substantially less diameter than the body portion of said guard, substantially as described.

4. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and adapted to project a flame substantially in the axis thereof, and a wind-guard within said reflector surrounding and covering said burner-tip and reduced in diameter at its free end so that the exit-aperture for such flame is of substantially less diameter than the body of said wind-guard, substantially as described.

5. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and adapted to project a flame substantially in the axis thereof and a wind-guard within said reflector surrounding and covering said burner-tip perforated for the admission of air and having at its free end an exit-aperture for the flame of a diameter less than that of the body of said wind-guard, substantially as described.

6. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and adapted to project a flame substantially in the axis thereof and a dome-shaped wind-guard within said reflector surrounding said burner-tip and provided with a plurality of perforations through its side walls for the admission of air and an axial exit aperture in its free end for the flame, substantially as described.

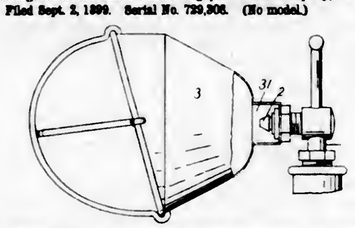
7. In combination an open concave reflector, a gas-burner tip at or near the rear end of said reflector and adapted to project a flame substantially in the axis thereof and a detachable wind-guard within said reflector and adapted to protect the root of such flame, the exit-aperture for the flame through said guard being of substantially less diameter than the body portion of said guard, substantially as described.

8. In combination an open concave reflector provided with a rearwardly-extending recess or portion of reduced diameter, a gas-burner tip within said recess the axis of said burner and of said recess being substantially coincident and a wind-guard within said reflector and adapted to protect the root of the flame issuing from said burner-tip, substantially as described.

9. In combination a lamp-body, a plurality of burner-tips operatively connected with said body and a plurality of reflector portions each inclosing one of said burner-tips, the axes of said reflectors being substantially parallel so as to throw the emitted light from both flames in substantially the same direction.

10. In combination a lamp-body, a plurality of gas-burner tips operatively connected with said body, a plurality of reflector portions each inclosing one of said burner-tips and means for cutting off the supply of gas from one of said tips, the axes of said reflectors being substantially parallel so as to throw the emitted light from both flames in substantially the same direction.

642,529. LAMP-REFLECTOR. FRANK REHD, Bridgeport, Conn., assignor of one-half to the Bridgeport Brass Company, same place. Filed Sept. 2, 1899. Serial No. 729,308. (No model.)



Claim.—1. In combination an open-front concave reflector having at its rear end a recess or portion of reduced diameter and a burner within said recess and adapted to project a flame substantially in an axial line with said reflector.

2. In combination an open-front reflector of substantially conical form having at its rear end a recess or portion of reduced diameter and a burner within said recess and adapted to project a flame substantially in an axial line with said reflector.

3. In combination an open-front concave reflector having at its open end a hood or extended portion of greater length at its upper than at its lower side and a burner at the rear end of said reflector and adapted to project a flame forwardly therefrom in a line substantially coincident with the axis of said reflector.

4. In combination an open-front reflector of substantially conical form having at its open end a hood or extended portion of greater length at its upper than at its lower side and a burner at the rear end of said reflector and adapted to project a flame forwardly therefrom in a line substantially coincident with the axis of said reflector.

5. In combination an open-front concave reflector having at its open end a hood or extended portion of greater length at its upper than at its lower side and at its rear end a recess or portion of reduced diameter and a burner within said recess and adapted to project a flame substantially in an axial line with said reflector.

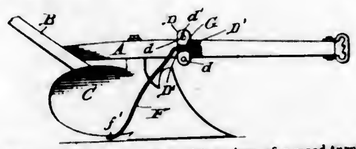
6. In combination an open-front reflector of substantially conical form having at its open end a hood or extended portion of greater length at its upper than at its lower side and at its rear end a recess or portion of reduced diameter and a burner within said recess and adapted to project a flame substantially in an axial line with said reflector.

642,530. CATCH-BASIN. GEORGE A. ROBERTSON, Westmount, Canada. Filed Sept. 20, 1898. Serial No. 691,474. (No model.)



Claim.—A catch-basin comprising a series of uniformly-tapered sections, each section being larger at the bottom than at the top, the lower section having a sewer-pipe connection and a closed bottom of greater diameter than any other portion of the catch-basin, the upper sections being entirely free from external projections and each of the upper sections being freely rotatable upon the section below it, each section except the lower one having an annular flange fitting within the upper edge of the section on which it rests, whereby the upper sections are solely and firmly held to their seats by the pressure of the earth against their tapering sides, and whereby the shape and external configuration of the catch-basin as a whole will prevent any portion thereof from being lifted by movement of the earth against the sides of any portion thereof, the upper end of the upper section having a non-circular opening, and a street or inlet section fitted to said opening, whereby said street or inlet section can be rotated only with the upper tapering section.

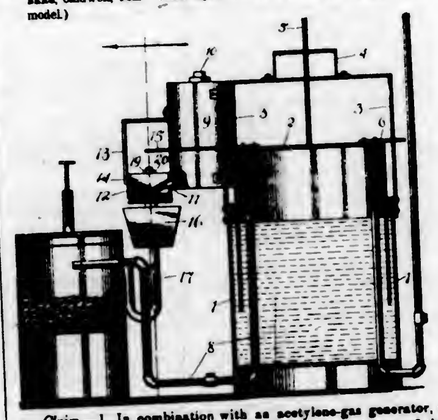
642,531. WEED-TURNER. BARNEY ROSS, Painesville, Ohio, assignor of one-half to C. H. Horton, same place. Filed Apr. 25, 1899. Serial No. 714,413. (No model.)



Claim.—1. The combination with a plow, of a weed-turning device or attachment therefor, consisting of a clamp secured to the plow-beam and having two lateral lugs or bearings, a single rod extending downwardly and rearwardly across the face of the moldboard of the plow, having a horizontally-bent journal portion at its upper extremity pivotally engaging said lugs, and an inwardly-bent hook at its lower extremity adapted to be turned under the lower edge of the moldboard when not in use, together with a spring for holding said rod toward the moldboard, substantially as specified.

2. The herein-described weed-turning attachment for plows, consisting of the clamp having the bolt-engaged elongated slots whereby it is adjustable along a tapered plow-beam, and having two lateral lugs or bearings, of the single rod extending downwardly and rearwardly across the face of the moldboard of the plow, said rod having a horizontally-bent journal portion at its upper extremity pivotally engaging said bearings, and a hooked lower extremity, together with the spring coiled around said journal portion and connected thereto and to said clamp, substantially as specified.

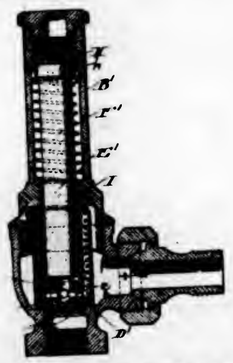
642,532. ACETYLENE-GAS GENERATOR. WILLIAM ROTHENBERG, Caldwell, Tex. Filed Apr. 19, 1899. Serial No. 713,656. (No model.)



Claim.—1. In combination with an acetylene-gas generator, a gas-holder comprising a tank and a dome, a frame on the top of the tank having apertures to receive the guide-rod of the dome, arms on the dome embracing one side of the frame, an air-tight reservoir attached to the other side of the frame having an inclined spout near its bottom, a bracket having a pintle attached thereto, extending from the side of the reservoir, a tip-cup supported by the said pintle and the spout of the reservoir, said cup adapted to be operated by a right-angular arm extending from the dome, a receptacle under the tip-cup, a supply-pipe leading from the receptacle to the generator, and a generator having a suitable discharge-pipe, substantially as described.

2. In combination with a gas-holder, its dome and connecting-pipes, a tip-cup, means on the dome for controlling the tip-cup, a reservoir, an inclined spout protruding from the bottom thereof on which the tip-cup is swingingly secured, said spout being in such position as to be sealed by the contents of the tip-cup when in its normal position and unsealed when the tip-cup is tilted, substantially as described.

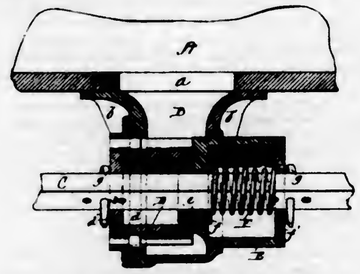
642,588. THERMOSTATIC-VALVE DEVICE. JOHN A. SERRELL, Bayonne, N. J., and MEREDITH LEITCH, Boston, Mass., assignors to the Warren Webster & Company, Camden, N. J. Filed Feb. 24, 1899. Serial No. 706,682. (No model.)



Claim.—1. In a thermostatic valve, the combination of the valve-body, a valve-seat carried thereby, the upwardly-extending elongated bonnet B', the adjustable plug H carried by the valve-bonnet, the solid elongated expanding piece extending upward into the bonnet and having its upper end provided with a shoulder h and supported by the plug H, and the spring F having a fixed support at one end within the valve body or bonnet and thrusting at its upper end against the shoulder at the upper end of the expanding piece, to maintain said expanding piece at all times in contact with its plug or support, but without affecting the expansion or contraction of the said expanding piece.

2. In a thermostatic-valve device, the combination of the valve-body, a fixed seat or support carried thereby, an elongated expanding piece for controlling the valve passage-way seated at its upper end upon said fixed seat or support, and a spring having a fixed bearing at one end and thrusting at its upper end against the upper end of the elongated expanding piece adjacent to the seat or support to maintain said upper end at all times in contact with its seat or support, but without affecting or controlling the movements of the expanding piece under contraction or expansion.

642,584. FORCE-FEED MECHANISM FOR GRAIN-DRILLS. CHARLES P. SNYDER, Peoria, Ill. Filed Aug. 26, 1899. Serial No. 728,642. (No model.)



Claim.—1. In a force-feed mechanism for grain-drills, the combination with the seed-cup and corrugated seed-wheel, a hollow cylinder carried adjacent to said seed-wheel and having a spline-and-groove connection with said seed-cup, of a coil-spring inclosed within said cylinder adapted to abut against the end thereof adjacent to the seed-wheel and retain the same in such bearing position and the disk *f* shiftable with shaft C, and adjustable within the cylinder, all substantially as described and shown.

2. In a force-feed mechanism for grain-drills, the combination with a seed-hopper and the two-part seed cups *b*, *b'*, carried thereby, a corrugated seed-wheel mounted upon and shiftable with shaft C, rotating in said seed-cup, of the cylinder E, provided with the reduced annular bearing *e*, fitting in one end of the seed-cup and having a bearing relation therewith and a spline-and-groove connection with the part *b'*, of the seed-cup, coil-spring F, carried around the shaft C, within the cylinder and abutting against the annular bearing *e*, and the disk *f'*, shiftable with the shaft and adjustable within the cylinder closing the same and forming a stop for spring F, all substantially as described and shown.

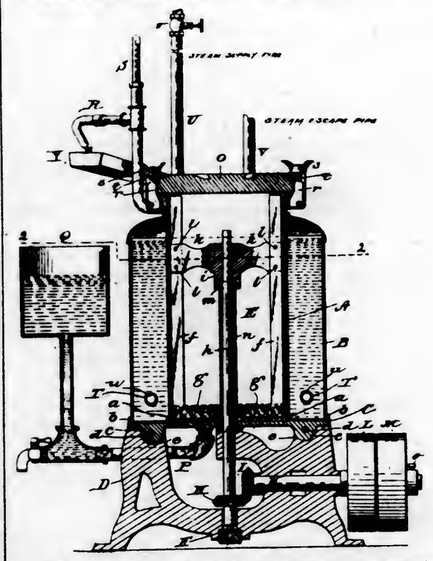
3. In combination with the shaft C, and fluted or corrugated seed-wheel D, a hollow cylinder having a bearing relation with said seed-wheel and shaft, and provided with a yielding or adjustable inclosing member, a coiled spring inclosed within said cylinder adapted to abut against the end thereof adjacent to the seed-wheel and retain the same in such bearing position, all substantially as specified.

4. The combination with the seed-wheel D, and the cylinder E, provided with the reduced annular bearing *e*, fitting in one end of the seed-wheel, and the shiftable disk *f'*, closing the outer end thereof, a pressure-spring inclosed within the cylinder E, as specified, the tension thereof adapted to be increased or decreased by the adjustment of the yielding disk *f'*, substantially as described and shown.

5. In combination with shaft C, and fluted or corrugated seed-wheel D, the hollow cylinder E, provided with the reduced annular neck *e*, having a bearing relation with the seed-wheel and shaft, the disk *f'*, shiftable with shaft and adjustable in the cylinder and a coiled spring inclosed within said cylinder and abutting against the end thereof adjacent to the seed-wheel compressed or relaxed through the movement of the disk, all substantially as described and shown.

6. The combination with the seed-wheel D, and the cylinder E, provided with the reduced annular bearing *e*, both mounted upon and shiftable with shaft C, fitting in one end of the seed-wheel, of the shiftable disk *f'*, carried at a fixed point on shaft C, closing the open end of and adjustable with cylinder E, and the coil-spring F, inclosed within the cylinder and abutting against the end thereof adjacent to the seed-wheel and against the disk and compressed or relaxed through the movement of the disk with the bar as the said bar presses the disk into the cylinder against the spring to move the cylinder and seed-wheel or relaxes to permit the opposite shifting of said seed-wheel and cylinder, all substantially as described and shown.

642,585. APPARATUS FOR PASTEURIZING LIQUIDS. DANIEL R. SNYDER, Stonerville, Pa., assignor of three-fourths to Howard R. Ahrens and James S. Ahrens, Reading, and Charles M. Richardson, Bernville, Pa. Filed Apr. 4, 1899. Serial No. 711,720. (No model.)



Claim.—1. Apparatus for pasteurizing milk or cream, consisting of a cream-receptacle, means for agitating or beating the cream and converting it into a thin sheet or stratum, a surrounding water-receptacle, means for heating the water, a base or bottom for said receptacles having annular flanges and depending lugs; in combination with a frame supporting the receptacles and to which said lugs are secured.

2. Apparatus for pasteurizing milk or cream, consisting of a cream-receptacle provided with a revoluble dasher approximating the diameter of said receptacle and having inwardly-extending arms at the lower end, a supply-pipe at the lower end of the receptacle, a discharge-pipe at the upper end thereof, a surrounding water-receptacle, a perforated distributing-pipe, and a steam-supply pipe; in combination with a base or bottom for said receptacles having annular flanges on the upper side to which the receptacles are secured, and depending lugs on the opposite side, a frame having recesses in the upper end thereof and in which said lugs are secured, a dasher-shaft and a driving-shaft supported by said frame.

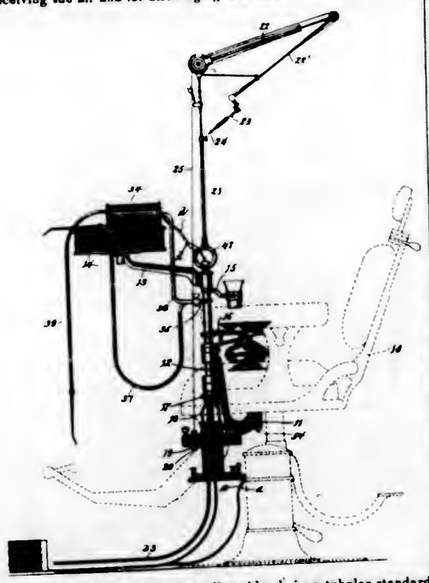
3. Apparatus for pasteurizing milk or cream, consisting of a cream-receptacle, a dasher for agitating or beating the cream and converting it into a thin sheet or stratum, a surrounding water-receptacle, means for heating said water, a base or bottom for said receptacles having annular and concentric flanges to which said receptacles are secured, and depending lugs; in combination with a frame supporting the receptacle and to which said lugs are secured, a shaft supporting the dasher and said shaft supported at its lower end on a step in said frame, and provided with a miter gear-wheel, and a driving-shaft connected to the dasher-shaft by a miter gear-wheel and supported by said frame.

642,586. COMBINED DENTAL ENGINE AND CHAIR. CHARLES C. SOUTHWELL, Milwaukee, Wis. Filed Sept. 14, 1898. Serial No. 690,968. (No model.)

Claim.—1. The combination, of an adjustable chair, a standard or support carried thereby, and adapted to follow the different adjustments of the chair, said standard or support provided with an upward extension, a dental-engine arm secured to said extension, a prime motor carried by the standard or support, and unconnected with any exterior fixed point, to thereby adapt said motor to freely follow the movements of the chair with the different adjustments of said chair, means for operating the motor, and a connection between the motor and the tool of the dental-engine arm, said connection adapted for transmitting the rotation of the motor-shaft to the dental tool.

2. The combination, of an adjustable chair, a tubular standard or support carried thereby, an air-conduit leading to or through the

tubular standard or support, and a suitably-connected tube for finally receiving the air and for discharging the same.



3. The combination, of an adjustable chair, a tubular standard or support carried by said chair, electrical conductors extending through the tubular standard or support, an electrical device with which the electrical conductors are connected, an air-conduit leading to or through the tubular standard or support, and a suitably-connected tube for finally receiving the air and for discharging the same.

4. The combination of an adjustable chair, a tubular standard or support carried thereby, said standard or support adapted to serve as a passage for air, tubings leading therefrom, a heater to which one of said tubes leads, means for causing the air to pass into either of the tubes, and means for permitting the flow of the air out of the heater.

5. The combination, of an adjustable dental chair, a tubular standard or support carried thereby, said standard or support serving as a conduit for electrical wiring, and formed or provided with an upward extension or continuation thereof, said extension being joined to the standard or support proper by an open connection, whereby free access to the wiring may be had, and an engine-arm connected to the upward extension of the standard or support.

6. The combination, of an adjustable dental-chair, a tubular standard or support carried thereby, said standard or support formed or provided with an upward extension, electrical conductors extending through the tubular standard or support, an electrical device with which the electrical conductors are connected, an air-conduit leading to or through the tubular standard or support, a suitably-connected tube for finally receiving the air and for discharging the same, a dental-engine arm connected to the upward extension, a motor carried by the standard or support, and a connection between the motor and the dental tool of the dental-engine arm, for transferring the rotation of the motor to said tool.

7. The combination, of an adjustable chair, a tubular standard or support carried thereby, said standard or support provided with a plurality of passages, electrical conductors extending through a passage of the tubular standard or support, and adapted to be connected to an electrical device, an air-conduit leading to or through one of the passages of the tubular standard or support, a suitably-connected tube for finally receiving the air and for discharging the same, a water-pipe connected with one of the separate passages of the standard or support, a spittoon carried by the tubular standard, means for conducting the water from the water-passage of the tubular standard or support into the spittoon, and means for discharging the water from the spittoon.

8. The combination, of an adjustable chair, a tubular standard or support carried thereby, an air-conduit leading to or through the tubular standard or support, a tube connected thereto, a heater carried by the standard or support, and to which heater said tube connects, and means for causing the air to leave the heater.

9. The combination with an adjustable chair, of a standard carried thereby and adjustable therewith and having suitable attachments connected thereto, said standard being pivotally secured so as to have an independent swinging movement.

642,587. METHOD OF APPLYING LINING MATERIAL TO CONDUITS, PIPES, OR THE LIKE. ANDREW THOMA, Cambridge, Mass., assignor to Amanda M. Lougee, Boston, Mass. Filed Nov. 20, 1899. Serial No. 697,533. (No model.)



Claim.—1. The improved step in methods of applying linings to the inner walls of pipes or conduits, which consists in directing into said lining, after its assemblage within said pipe, a blast to act progressively on said lining at successive points throughout its length and force it into intimate contact with the inner walls of said pipe at every point throughout the area of the adjacent surfaces of said lining and pipe.

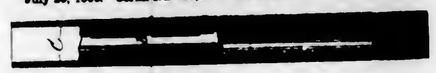
2. The improved method of applying linings to the inner walls of pipes or conduits, which consists in directing into said lining, after its assemblage within said pipe, a blast of air, live dry steam, or the like, said blast being free to move axially along said conduit and set up a wave of pressure acting progressively and continuously against successive portions of said lining to force the latter outwardly into intimate contact with the inner walls of said pipe at every point throughout the adjacent surfaces of said lining and pipe.

3. A blank of lining material for armored conduits comprising a ply of lining material having its longitudinal edges united in a seam adapted to start during the operation of application to the inner walls of the armor.

4. The improved step in method of applying linings to and within armor-tubes, which consists first in inserting said lining within its said armor-tube and thereafter projecting through said inclosed lining a free blast to act expansively progressively upon and within said lining throughout.

5. The improved step in methods of applying linings to and within armor-tubes, which consists first in inserting said lining within its said armor-tube with a deflecting member arranged axially within said lining, and thereafter projecting through said lining between the latter and said deflecting member a free blast to act expansively progressively upon and within said lining throughout.

642,588. ARMORED INSULATING-CONDUIT. ANDREW THOMA, Cambridge, Mass., assignor to Amanda M. Lougee, Boston, Mass. Filed July 29, 1899. Serial No. 726,537. (No model.)



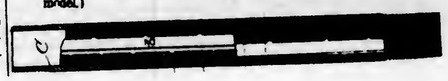
Claim.—1. An armored insulating-conduit consisting of an armor-tube, and an inner lining of an extensible, highly-flexible composition of matter in intimate contact with the inner walls of said tube at every point throughout the area of their adjacent surfaces.

2. An armored insulating-conduit; comprising an outer armor-tube of heavy iron pipe; a lining of an extensible, highly-flexible composition of matter, in intimate contact with the inner walls of said tube at every point throughout the area of the adjacent surfaces of said tube and lining; and means to secure adhesion of the former to the latter throughout said area, substantially as described.

3. An armored insulating-conduit consisting of an armor-tube and an inner ply of an extensible highly-flexible composition of matter conforming exactly to the contour of, and supported wholly by adhesive union with, the inner walls of said tube, said conduit being capable of flexure without disruption of said union.

4. An armored insulating-conduit comprising an armor-tube and an inner insulating member of an extensible highly-flexible composition of insulating material supported wholly by adhesive union with the inner walls of said armor-tube, said conduit being capable of flexure when cold, without impairment of said union or of the insulating qualities of said insulating member.

642,589. METHOD OF LINING CONDUITS, PIPES, OR THE LIKE. ANDREW THOMA, Cambridge, Mass., assignor to Amanda M. Lougee, Boston, Mass. Filed Aug. 24, 1899. Serial No. 728,291. (No model.)



Claim.—1. The novel step in methods of applying lining material to conduit, which consists in providing said material with a supporting-ply, presenting said material, thus supported, for assemblage with said conduit, and thereafter removing said supporting-ply.

2. The novel step in methods of applying highly-flexible lining material to conduits, which consists in introducing said lining material upon a supporting-ply within said conduit, dilating said ply to apply said lining material to the inner walls of said conduit, and removing said supporting-ply.

3. The novel method of lining armored insulating-conduits which consists in coating a supporting-ply with insulating material, introducing said supporting-ply within, and with said material presented toward the inner walls of, said armor, dilating said material against said walls, and removing said supporting-ply.

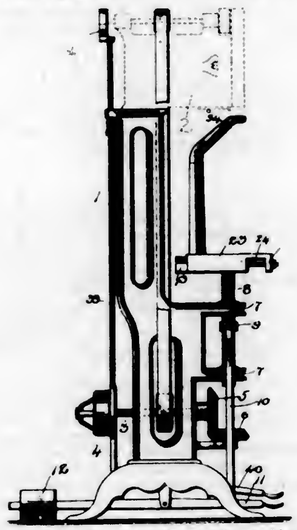
4. The novel method of lining conduit, which consists in introducing lining material within said conduit upon a supporting-ply, dilating said ply by a free blast acting progressively upon said ply to apply said lining material to the inner walls of said conduit, and thereafter removing said ply.

5. The novel method of lining armored insulating-conduit which consists in applying lining material to the inner walls of said conduit in the form of a coating upon a supporting-ply, applying thereafter a solvent to free said ply, and removing the latter, leaving said lining in place.

6. The novel method of lining armored insulating-conduits, which consists in coating a fabric with a flexible insulating compound; providing said material with a cementitious substance; applying said material, thus supported, to the inner walls of said armor; applying a suitable solvent to free said fabric; and removing the latter; leaving said lining material in adhesive union with said walls and free to flex with said armor, when bent, without impairment of said union or of the insulating properties of said lining.

7. The novel step in methods of applying lining material to conduits, which consists in providing said material with a supporting-ply, presenting said material, thus supported, for assemblage with said conduit, applying said material, attaching said ply to a stripping member, and by means of the latter withdrawing said ply, doubling it upon itself and stripping it from said material.

642,540. PEGGING-MACHINE. FRASER TOOMBSAIFT and PIERRE LARAMEE, St. Hyacinthe, Canada. Filed May 6, 1899. Serial No. 715,897. (No model.)



Claim.—1. The combination with a pegging-machine; of a vertically-moving horn-support, said support also having a pivotal movement; a member located on and having movement with said support; an upper member removably secured on said member, said upper member carrying the shoe-horn, said member and upper member being adjustable relatively to each other horizontally, whereby horn-tips of various sizes may be used interchangeably without varying the alinement of the mechanism contained within the end of the horn relatively to the pegging mechanism; means for retaining said member and upper member in their adjusted position relatively to each other; and peg-trimming mechanism carried by and operated within said horn.

2. The combination with a pegging-machine; of a vertically-moving horn-support, said support also having a pivotal movement; a member located on and having movement with said support; an upper member removably secured on said member said upper member carrying the shoe-horn, said member and upper member being movable longitudinally relatively to each other; an adjusting-screw carried by said members, adapted to adjust the position of said members relatively to each other, whereby horn-tips of various sizes may be used interchangeably without varying the alinement of the mechanism contained within the end of the horn relatively to the pegging mechanism, said adjusting-screw serving to retain said members in their adjusted position; and peg-trimming mechanism carried by said horn.

3. The combination with a pegging-machine; of a horn-support mounted to have a vertical and rotary movement; a horn, carrying a peg-trimmer, secured on said horn-support, said trimmer being mounted to move in the plane of its cutting edge; and means, mounted within said horn and support, for imparting an oscillatory movement to said peg-trimmer, said trimmer trimming the pegs during its movement in both directions.

4. A trimming attachment for pegging-machines, comprising a horn-support; a reciprocating rack-bar mounted therein; a horn secured to said support; a circular peg-trimmer mounted at the end of said horn; and gearing operatively connected to said rack-bar and said peg-trimmer, whereby the movement of said rack-bar in one direction will impart a rotary movement to said peg-trimmer, the complete movement of said rack-bar, imparting movement to said trimmer in opposite directions and causing the entire cutting-surface of said trimmer to come into active use.

5. A trimming attachment for pegging-machines, comprising a horn-support; a reciprocating rack-bar mounted therein; revolvable means for imparting movement to said rack-bar; a horn secured to said support; a circular peg-trimmer mounted at the end of said horn; and gearing operatively connected to said rack-bar and said peg-trimmer, whereby the movement of said rack-bar in one direction will impart a rotary movement to said peg-trimmer, the complete movement of said rack-bar imparting movement to said trimmer in opposite directions and causing the entire cutting-surface of said trimmer to come into active use.

6. A trimming attachment for pegging-machines, comprising a work-support; a trimmer carried thereby and mounted to move in the plane of its cutting edge; and means for imparting an oscillatory movement to said trimmer, said trimmer trimming the pegs during its movement in both directions.

7. A trimming attachment for pegging-machines, comprising a work-support; a trimmer removably secured in said support, said trimmer being mounted to move in the plane of its cutting edge; and means for imparting an oscillatory movement to said trimmer, said trimmer trimming the pegs during its movement in both directions.

8. A trimming attachment for pegging-machines, comprising a work-support; a trimmer carried thereby; and means for imparting an oscillatory movement to said trimmer, said trimmer trimming the pegs during its movement in both directions.

9. A trimming attachment for pegging-machines, comprising a revolvable spur-gear, having its upper face on a horizontal plane, said face being provided with radially-extending recesses; a trimmer having top and bottom parallel faces, and having radially-extending legs adapted to fit within said recesses, said trimmer having a thickness equal to the depth of said recesses, whereby said trimmer will be removably connected to said gear, and said gear will have a smooth upper surface; and a trimming edge formed concentrically within said trimmer, adjacent to the top edge thereof.

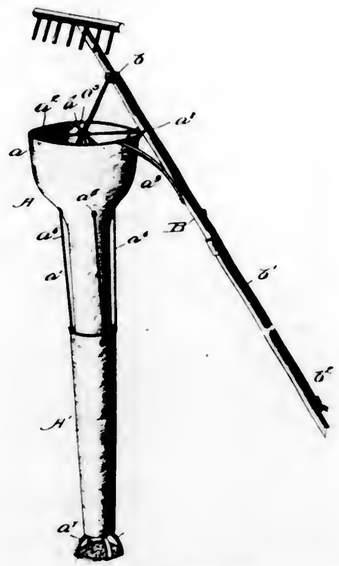
642,541. FRUIT-PICKER. GOTLEB VON ALSEA, Kilworthy, Canada, assignor of one-half to George Hughes and John R. Hughes, same place. Filed Aug. 14, 1899. Serial No. 727,119. (No model.)

Claim.—1. A fruit-picker, comprising a telescoping body portion, a supporting-handle therefor, adjusting-ropes secured to said body portion and attached to said handle, substantially as described.

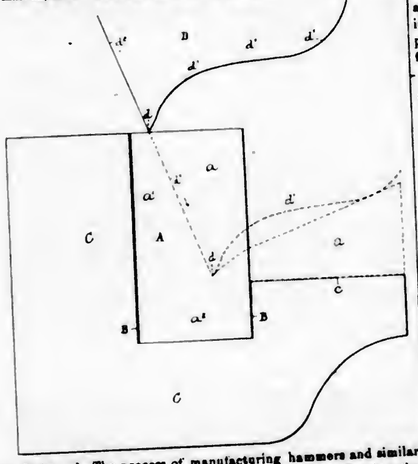
2. A fruit-picker, comprising an upper section, a lower section telescoping therewith, a supporting-handle secured to said upper section, and adjusting-ropes secured to said lower section and passing through the interior of the upper section and attached to the said handle, substantially as described.

3. A fruit-picker, comprising an upper section having an enlarged top and a funnel-shaped lower portion, ropes attached to the edges of said top and to a ring arranged in the center thereof, a lower telescoping section, a handle, adjusting-ropes secured to said lower section, leading into said upper section and through said ring and at-

tached to said handle, and a cushion secured to the bottom of said lower section, substantially as described.



642,542. PROCESS OF AND APPARATUS FOR MAKING HAMMERS, &c. EDWARD D. WOODS, Granville, N. Y., assignor, by mesne assignments, to the Woods Specialty Company, of New York. Filed Mar. 22, 1898. Serial No. 674,736. (No model.)



Claim.—1. The process of manufacturing hammers and similar articles from a block of steel or iron, which consists in heating the block, cutting downward into the block so as to divide its upper portion into two parts each separate from the other part but each connected to the lower portion of the block, bending one of the parts of the upper portion of the block downward until it is substantially at right angles to the length of the block, drawing out and forging the said part of the block into the finished helve, the other part of the upper portion into the claw, and the lower portion of the block into the face, of the finished hammer or other article, substantially as set forth.

2. The process of manufacturing hammers and similar articles from a block of steel or iron, which consists in heating the block, cutting downward into the block so as to divide its upper portion into two parts each separate from the other part but each connected with the lower portion of the block, bending one of the parts of the upper portion of the block downward until it is substantially at right angles to the length of the block, heating the block, drawing out and forging the said part of the block into the finished helve, the other part of the upper portion into the claw, and the lower portion of the block into the face, of the finished hammer or other article, substantially as set forth.

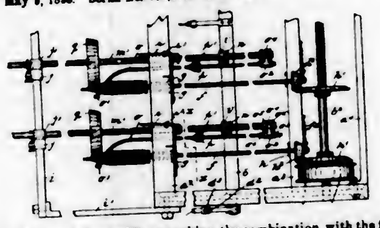
3. The process of manufacturing hammers and similar articles from a block of steel or iron, which consists in heating the upper part of the block, cutting downward into the block so as to divide its upper portion into two parts each separate from the other part but each connected to the lower portion of the block, bending one of the parts of the upper portion of the block downward until it is substantially at right angles to the length of the block, heating all of the block, drawing out and forging the said part of the block into the finished helve, the other part of the upper portion into the claw, and the lower portion of the block into the face, of the finished hammer or other article, substantially as set forth.

4. The process of manufacturing hammers and similar articles from a block of steel or iron, which consists in heating the upper part of the block, a little higher than red heat, cutting slantingly downward into the block from a point in its upper surface near one edge thereof so as to divide its upper portion into two parts each separate from the other part but each connected to the lower portion of the block, bending one of the parts of the upper portion of the block downward until it is substantially at right angles to the length of the block, heating the block a little higher than red heat, drawing out and forging the said part of the block into the finished helve, the other part of the upper portion into the claw, and the lower portion of the block into the face, of the finished hammer or other article, substantially as set forth.

5. In combination with an anvil-die for holding a block of steel or iron, a cutting-die having a cutting edge, a straight side and a side curved away from the straight side at substantially right angles, thereby forming a wedge for cutting into two parts the upper portion of the block and bending down one part substantially as right angles to the block, substantially as set forth.

6. In combination with an anvil-die having a recess for holding a block of steel or iron, one wall of which recess is substantially the height of the block and the other wall of which is considerably less in height than the block and having an anvil-surface forming the upper surface of said lower wall of the recess, a cutting-die having a cutting edge, a straight side and a wedge-shaped side for cutting into two parts the upper portion of the block and bending down one part upon the said anvil-surface of the anvil-die, substantially as set forth.

642,548. QUILLING-MACHINE. DWIGHT ASHLEY, Paterson, N. J., assignor to the Sipp Electric and Machine Company, same place. Filed May 9, 1899. Serial No. 716,096. (No model.)



Claim.—1. In a quilling-machine, the combination, with the frame and a bar carried by said frame, of a suitably-supported thread-guide, a revoluble shaft adapted to be controlled by the cop being formed and operatively connected to, and adapted to control the movements of, said thread-guide relatively to said cop, a block adjustably mounted on said bar and providing bearings for the shaft, another block also adjustably mounted on said bar, and adjusting means connecting said blocks, substantially as described.

2. In a quilling-machine, the combination, with the frame and with a spindle horizontally journaled therein, of a horizontal bar carried by said frame, a suitably-supported thread-guide, a revoluble shaft disposed parallel to said spindle and adapted to be controlled by the cop being formed thereon, said shaft being operatively connected to, and adapted to control the movements of, said thread-guide relatively to said cop, a block mounted on said bar and providing bearings for said shaft, another block also mounted on said bar, set-screws carried by said blocks and adapted to engage the bar, and an adjusting-screw connecting said blocks, substantially as described.

3. In a quilling-machine, the combination with the frame and with a spindle horizontally journaled therein, of a horizontal bar carried by said frame, a suitably-supported thread-guide, a revoluble shaft disposed parallel to said spindle and adapted to be controlled by the cop being formed thereon, said shaft being operatively connected to, and adapted to control the movements of, said thread-guide relatively to said cop, a block mounted on said bar and providing bearings for said shaft, another block also mounted on said bar, set-screws carried by said blocks and adapted to engage the bar, and an adjusting-screw connecting said blocks, substantially as described.

4. In a quilling-machine, the combination with the frame and with a spindle horizontally journaled therein, of a horizontal bar carried by said frame, a suitably-supported thread-guide, a revoluble shaft disposed parallel to said spindle and adapted to be controlled by the cop being formed thereon, said shaft being operatively connected to, and adapted to control the movements of, said thread-guide relatively to said cop, a block mounted on said bar and having an opening larger in diameter than, and providing bearings for, said shaft, another block also mounted on said bar, set-screws carried by said blocks and adapted to engage the bar, an adjusting-screw connecting said blocks, and a suitably-fulcrumed lifting-lever for said shaft, substantially as described.

5. In a quilling-machine, the combination of a suitably-supported thread-guide, a revoluble threaded shaft adapted to be controlled by the cop being formed and operatively connected to, and adapted to control the movements of, said thread-guide relatively to said cop, said shaft having a loose bearing, a fulcrumed fork having suitable actuating means and engaging the thread of said shaft, and a suitably-fulcrumed and hooked lifting-lever adapted to disengage said shaft from the fork, substantially as described.

642,544. BICYCLE. LOUIS S. BURBANK, Worcester, Mass., assignor to Henry D. Perky, same place. Filed Aug. 15, 1898. Serial No. 688,654. (No model.)



Claim.—1. The combination with a bicycle, having in its frame, adjacent vertically-alined parallel bars, and a seat mounted to slide upon the upper bar, said seat having a downward-bracing extension engaging and sliding upon the lower bar, of laterally-projecting outrigger-arms forward of said seat, levers pivoted to said arms, propelling mechanism operated by said levers, and means for steering the bicycle, substantially as specified.

2. The combination with a bicycle, having the laterally-projecting outrigger-arms, of the two-part operating-levers, the sections thereof being pivotally connected, and the outer of said sections being pivoted to the outrigger-arms, the threaded sleeve or nut-engaging threads of the inner of said sections, and adjustable thereon by pivotal movement of the inner section upon the outer section, straps connecting said nuts with driving-gear of the bicycle, and means for steering the bicycle, substantially as specified.

3. The combination with a bicycle, having adjacent parallel upper frame-bars, a seat mounted to slide on the said bars, and footrests adjacent to the bicycle-head, of the arms extended upwardly and laterally from the head, the braces therefor, the levers fulcrumed to said arms, connections between the said levers and the driving-gear of the machine whereby the latter is actuated by horizontal movement of said levers, and connections between the said levers and the steering-head of the bicycle, whereby said head is turned by vertical movement of said levers, substantially as specified.

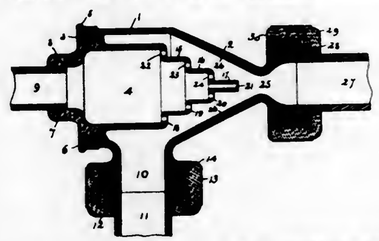
4. The combination with a vehicle, having a front steering-wheel and laterally-projecting outrigger-arms, of operating-levers swiveled to said arms, arms depending from said swivels, and rods connecting said arms with the steering-head, whereby upon upward and downward movement of said levers, the vehicle is steered, and driving connections between said levers and the driving-shaft of the vehicle, substantially as specified.

5. The combination with a vehicle, having a front steering-wheel, of swiveled operating-levers, connections between said levers and driving mechanism of the vehicle, operated upon forward and backward movement of the levers to propel the vehicle, and connections between said levers and the steering-wheel operated upon upward and downward movement of said levers to steer the vehicle, substantially as specified.

6. In a vehicle, the operating-levers, having pivots longitudinally alined therewith, the sleeves carried by said levers, means whereby said sleeves are adjusted by pivotal movement of said levers, and driving connections between said sleeves and the driving-shaft of the vehicle, substantially as specified.

7. The combination with a vehicle, having a front steering-wheel, of the swiveled operating-levers, formed in two pivotally-connected sections, the pivot of which is longitudinally alined therewith, arms depending from said swivels, rods connecting said arms with the steering-wheel, the sleeve carried by the outer section of each of said levers, means whereby said sleeves are adjusted by pivotal movement of said outer sections, and driving connections between said sleeves and the driving-shaft of the vehicle, substantially as specified.

642,545. EJECTOR. JOSEPH L. CHAPMAN, Haddonfield, N. J. Filed Nov. 7, 1899. Serial No. 736,100. (No model.)



Claim.—1. In an ejector, a case partly in cylindrical or parallel-sided form, partly in conical or tapered form; a feeding-inlet thereto, a delivery-outlet therefrom, and inserted and secured within the case a single pressure chamber and tube cylindrical or parallel-sided at its receiving end, having a pressure-inlet thereto at this end, and at the opposite or delivery end multiple different-diameter steps, each step having multiple pressure-delivery orifices, in concentric arrangement around a central orifice, each series of orifices being at a different distance back from the central orifice and formed to discharge in lines parallel to the central orifice and against the interior coned wall of the outer case, substantially as set forth.

2. In an ejector, an inclosing case partly cylindrical and partly coned in form, having inlet and outlet passages for fluid flowing, a central pressure chamber and tube within the case, a pressure-inlet thereto, the pressure chamber and tube being cylindrical at its pressure end and at its delivery end formed in multiple steps of different diameters, connected by end walls, and terminating in a central tube, and within the connecting end walls multiple pressure-orifices concentrically arranged around the central tube and formed to discharge in lines parallel to the central tube and against the inner coned wall of the outer case, substantially as shown and described.

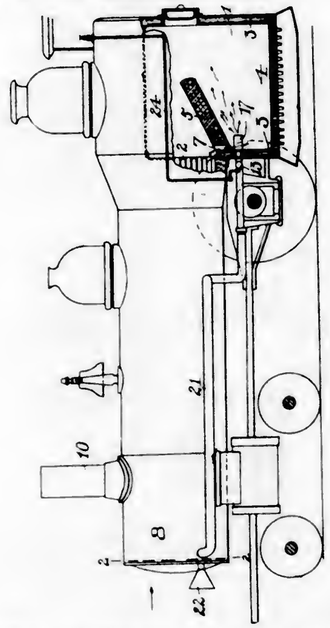
3. In an ejector, an inclosing case partly cylindrical and partly conical in form, an inlet to the cylindrical part, an outlet from the conical part, a pressure chamber and tube parallel-sided or cylindrical at its receiving end secured within the case, having a pressure-inlet thereto at its receiving end, and at its opposite or discharge end a central discharge-orifice and concentrically surrounding the same, in gradation, groups of multiple discharge-orifices, each group delivering its discharge within and against the inner conical wall of the inclosing case, at a different point from any other group, and in lines parallel to the central discharge, substantially as set forth.

4. In an ejector, a case partly cylindrical and partly cone-shaped, an inlet and an outlet therefor, a cylindrical pressure-chamber and tube therein, having a pressure-entrance thereto, and oppositely located, multiple bell-mouthed discharge-orifices, one being central and the others in graduated groups concentric to the center of the pressure chamber and tube, and discharging in lines parallel to the center of the ejector and against the coned part of the outer case, substantially as described.

5. In an ejector, an inclosing body part, partly cylindrical and partly conical in form, inlet and outlet passages therefor, a cylindrical or parallel-sided pressure-chamber and tube inserted and secured

therein, having at its cylindrical end a pressure-inlet, and its opposite end being coned, and placed within the coned body part and foraminated to discharge concentrically and in lines parallel to the center of the pressure chamber and tube, at different points, against the inner conical wall of the inclosing body, and also into its outlet-passage, substantially as described.

642,546. BOILER-FURNACE. WILLIAM R. COLE, Atlanta, Ga. Filed July 18, 1899. Serial No. 724,222. (No model.)



Claim.—1. In a boiler-furnace, the combination, with a fire-box having a fuel-door in one end and the flues communicating with the other end, and an arch of refractory material capable of being heated to incandescence, and having a vertical passage-way adjacent to the flue-sheet, said arch having its body closed against communication with the air exterior to the fire-box, of the water-tubes below and independent of said arch and extending to points beyond the vertical lines of said passage-way, and air tubes or nozzles extending through the said water-tubes, and having orifices in their ends which deliver air under the central part of the arch and direct it in jets forward toward the back sheet.

2. In a boiler-furnace, the combination, with a fire-box, having a fuel-door at one end and boiler-flues communicating with the other end, water-tubes extending forward from the flue-sheet into the fire-box and arranged to have vertical passage-ways between them, air tubes or nozzles situated within the water-tubes, and having their delivery-orifices forward of and remote from the flue-sheet, and an arch arranged and supported independently of the said water-tubes and air-tubes, and having a vertical passage-way above the passage-way between the said tubes, and near the flue-sheet.

3. In a boiler-furnace, the combination, with a fire-box, having a fuel-supply door at the front end and boiler-flues communicating with it at the rear end, of a gas-deflecting arch at the said rear end, water-tubes extending into the fire-box to points beyond the inner surface of the flue-sheet and situated below and independently of the arch, and air tubes or nozzles passing through the water-tubes, and each provided with an orifice in its inner end adapted to direct the air-jets directly toward the front end of the fire-box on lines below the arch.

4. In a boiler-furnace, the combination, with a fire-box having a fuel-door at one end, water-legs at the sides and ends, and a grate at the bottom on which a mass of coal extending from the door end to the inner end wall of the water-leg at the opposite end of the fire-box can be supported, whereby the outer part of the said coal mass can have the gaseous components driven off while the inner part of said mass is highly incandescent and freed from the said gaseous components, boiler-flues communicating with the fire-box at the rear end thereof, an arch at the rear end of the fire-box inclined upward from the fine-sheet and having its front edge over the region of evolution of the larger amount of gaseous products, one or more air-ducts extending beyond the inner surface of the rear water-leg of the fire-box and delivering jets of air from the end or ends thereof approximately near said region of evolution of gaseous products, said jets being directed toward the forward edge of the arch and the front of the fire-box.

5. In a boiler-furnace, the combination of a fire-box, having the fuel-door in the front end, the flues communicating with the rear end, water-legs at the ends and sides of said fire-box, an arch of refractory material capable of being heated to incandescence and having its body closed against communication with the air exterior to the fire-box, and a grate at the bottom of the fire-box and extending from the rear water-leg to points in front of the arch, said grate, fire-box, fuel-door, and arch being arranged to permit the retaining on the grate of a relatively shallow mass of incandescent fuel immediately below the rear end of the arch, and a gradually-deepening mass of fuel extending from the inner incandescent part to the outer end of the fire-box, one or more air-ducts passing through the rear water-leg and situated entirely above the fuel mass and having their delivery ends situated at points remote from and behind the front end of the arch and arranged to deliver jets of air in the direction of the front edge of the arch whereby said air initially mingles with the gases evolved from the coal near the back sheet and assists in directing said gases over the front edge of the arch and igniting them under the incandescence of the arch.

6. In a boiler-furnace, the combination, with the fire-box having water-legs at its sides and ends, an inwardly and downwardly inclined arch having a vertical passage-way at its rear edge and a relatively large passage-way over its front edge, and a series of water-jacketed air-tubes situated below and independently of the arch, each having an orifice at points in the fire-box remote from the rear water-leg and turned to direct the jet of air into the gaseous products of combustion on lines extending forward toward the back sheet whereby said jets of air are prevented from impinging on the fuel-bed and from rising upward immediately below the rear edge of the arch.

7. A smoke-consuming device, comprising a fire-box having an arch separated at its rear end from the flue-sheet of the boiler, and one or more twyers or nozzles through which air is introduced into the fire-box, said nozzles being located below the said rear end of the arch, and being sufficiently long to project beyond the same to cause the air admitted through them to be caught by the rising currents of the products of combustion and carried under and over the front end of the arch.

8. The combination of a fire-box, having an arch whose rear edge is separated from the flue-sheet, and one or more water-jacketed twyers or nozzles extending through the water-leg of the boiler for admitting air to the fire-box, said twyers or nozzles projecting forward beyond the said rear end of said arch to cause the air admitted therethrough to be caught by the rising currents of the products of combustion and carried therewith in front of and over said arch.

9. The combination of a fire-box, having an arch of refractory material adapted to be heated to incandescence, a plurality of air-tubes for delivering air into the fire-box under said arch, and an independent water-jacket for each of said tubes, whereby said arch is exposed on its under side for igniting the combustible gases.

10. The combination of a fire-box having an incandescible arch with a vertical passage-way adjacent to the flue-sheet, a plurality of air-tubes arranged under the arch and projecting from the flue-sheet in a direction toward the front end thereof, and an independent water-jacket for each tube, said water-jackets being separated so as not to obstruct said passage-way.

11. A smoke-consuming device, comprising a fire-box, an arch of refractory material capable of being heated to incandescence, water-jacketed twyers or nozzles below and independent of said arch for introducing air to the fire-box under said arch, and means for preheating said air to a high temperature before it is delivered to said twyers or nozzles, whereby said air is commingled in a heated condition in the fire-box with the products of combustion, and the admixture is ignited by the said arch and the flames resulting from the combustion of the coal.

12. The combination of a fire-box, having an arch adapted to be heated to incandescence by the fire, a plurality of water-jacketed twyers or nozzles located below and independent of said arch for admitting air into proximity thereto, a manifold located outside of said fire-box and with which said twyers or nozzles communicate, and means for heating and delivering air to said manifold.

13. The combination with a locomotive-boiler furnace having a fire-box, with an arch adapted to be heated to incandescence and a boiler with an extension front through which the products of combustion pass, of a plurality of independently water-jacketed twyers or nozzles projecting into the fire-box above the grate-bars and below said arch, a heater located in said extension front and communicating with the atmosphere, and a conduit located outside of said boiler for conducting the heated air from said heater to said nozzles.

14. The combination with a locomotive-boiler furnace, having a fire-box with an arch adapted to be heated to incandescence located in front of the water-leg and a boiler with an extension front, of a plurality of twyers or nozzles projecting through the water-leg and adapted to deliver air under the arch, an independent water-jacket for each of said twyers or nozzles, a manifold located outside of the fire-box and communicating with said twyers or nozzles, a heater located in the extension front of the boiler, and a conduit for carrying heated air from said heater to said manifold.

15. The combination with a locomotive-boiler furnace having a fire-box with an arch whose rear end is separated from the flue-sheet, of twyers extending through the water-leg below and forward beyond the said rear end of said arch, a manifold located outside the fire-box and communicating with said twyers, an air-heater located in the path of the products of combustion, and a conduit for delivering air from said heater to said manifold, said parts being constructed and arranged whereby air heated to a high temperature is delivered by the nozzles under and in proximity to the arch, and being caught by the products of combustion is carried upward therewith and around the front end of the arch.

16. The combination with a fire-box having an arch adapted to be heated to incandescence, and having its rear end in proximity to the flue-sheet, of a plurality of twyers located below and adjacent to said arch at the said rear end thereof, and an independent water-jacket surrounding each of said twyers and communicating with the water-leg of the boiler, and means for heating air and delivering it to the said twyers.

17. The combination with a fire-box having a water-leg, and an arch adapted to be heated to incandescence, of a plurality of twyers or nozzles below and independent of said arch projecting into the fire-box beyond the internal wall thereof to introduce air into the fire-box below the arch and mix it with the products of combustion, said nozzles being covered with independent water-jackets communicating with said water-leg, whereby they furnish a greater heating-surface for the water in the boiler and protect the twyers from intense heat.

18. The combination of a fire-box having an arch, and water-jacketed tubes independent of the arch projecting through the water-leg of the boiler and arranged to deliver air below said arch, said tubes being separated by a free space and having their internal annular water-chambers communicating with said water-leg.

19. The combination with a fire-box having a water-leg, of a nozzle or twyer projecting through the water-leg beyond the inner wall thereof, to introduce air into the fire-box and mix it with the products of combustion, said twyer or nozzle having its outer end secured in the outer wall of said water-leg, and a tubular water-jacket covering said twyer or nozzle and having its inner end secured to the inner end thereof, said water-jacket having its outer end secured to the inner wall of the water-leg, whereby water from the boiler is free to circulate through the annular space between the nozzle and the jacket.

20. The combination with a fire-box and a boiler having a water-leg, of a twyer projecting through said leg into the fire-box beyond the inner wall of said leg to introduce air into said box and mix it with the products of combustion, and a tubular water-jacket having a seamless inner end secured on the end of the twyer, and an outer end affixed to the inner wall of the water-leg, substantially as described whereby leaking of the water from said leg into the fire-box is prevented.

642,547. COPYING-BATH. GEORGE R. DOUGHTY, Cleveland, Ohio. Filed May 13, 1899. Serial No. 716,663. (No model.)



Claim.—1. In a copying-bath, the combination of a receptacle having a moistening-pad therein and a supplemental bottom, and a lid or cover removably fitting the said receptacle and also provided with a moistening-pad, whereby copying cloths or blotters may be moistened simultaneously from above and below.

2. In a copying-bath, the combination of a receptacle having a water or liquid feed at one end, a pad in the lower portion thereof, a supplemental bottom, a lid or cover provided with an upper opening and a perforated water-distributer, and a pad on the lower part of the lid or cover.

3. In a copying-bath, the combination of a receptacle having a supplemental bottom and an abutment adjacent to one end, and a lid or cover adapted to be held elevated by the said abutment and provided with a perforated water-distributer and a pad.

4. In a copying-bath, the combination of a receptacle having a water or liquid feed at one end, comprising a supplemental bottom and an abutment, and a lid or cover having a handle near one end and adapted to rest at the opposite end upon the said supplemental bottom between said abutment and end wall of the receptacle.

5. In a copying-bath, the combination of a receptacle having an absorbent pad therein, a supplemental bottom, and a lid or cover having an opening with a reticulated covering in the upper portion thereof, a perforated water-distributer, and an absorbent pad under the latter the two pads being arranged to receive blotters or cloths therebetween whereby they may be simultaneously moistened from above and below.

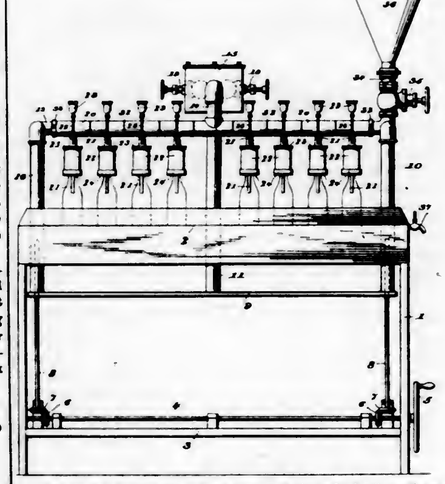
6. In a copying-bath, the combination of a receptacle having a supplemental bottom and an absorbent pad in the lower portion thereof, and a removable lid or cover also carrying an absorbent pad.

7. In a copying-bath, the combination of a receptacle having a perforated supplemental bottom near one end and a transverse ledge or abutment, an absorbent pad held against the bottom, and a lid or cover provided with a perforated water-distributer and an opening for the admission of water, and also provided with an absorbent pad next to the distributer.

8. In a copying-bath, the combination with a receptacle having a supplemental bottom, of a pad of absorbent material, a water-reservoir in said receptacle and a capillary feeding device leading from said receptacle to said absorbent pad and a cover having a water-distributer and a pad.

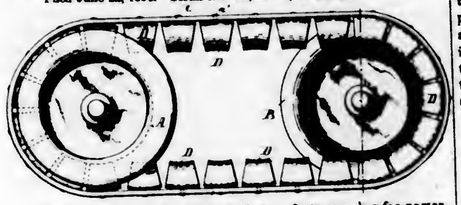
9. In a copying-bath, the combination with a receptacle provided with a water-reservoir, a perforated supplemental bottom and abutment, an absorbent pad and a capiliary feeding device, of a cover provided with an absorbent pad forming the bottom, and a water-distributing device.

642,548. BOTTLE-FILLING MACHINE. THOMAS HOWARD, Ashland, Ky., assignor of one-half to William S. Harrison, Louisville, Ky. Filed Aug. 5, 1898. Serial No. 687,833. (No model.)



Claim.—A bottle-filling machine, consisting of a horizontal supply-pipe provided with a series of orifices in its under side, a bottle-support below said pipe, a series of sleeves on said supply-pipe, filling-tubes carried by said sleeves and rotatable therewith to either side of a vertical position below said supply-pipe, said tubes registering with the orifices in the supply-pipe when vertically beneath said pipe but out of register therewith when rotated to either side of said vertical position, bottle-receiving casings fixed on said filling-tubes through which the latter pass, vertically-yielding closures in said casings adapted to automatically seal the mouths of the bottles when in the filling position and resting on the bottle-supports, vent-pipes located interiorly of said filling-tubes but terminating within and above the lower ends thereof, valve-chambers attached to the upper ends of said vent-pipes, and float-valves in said chambers adapted to close said vent-pipes when lifted by the fluid in said pipes, substantially as set forth.

642,549. DRIVING-BELT. PATRICK KENNEDY, New York, N. Y. Filed June 22, 1899. Serial No. 721,436. (No model.)



Claim.—1. As a new article of manufacture a lug for power-transmitting belts triangular or approximately so in cross-section made hollow and with resilient walls, substantially as herein set forth.

2. The combination with an endless strap of a series of hollow lugs triangular or approximately so in their cross-section having resilient walls and adapted to run on pulleys having circumferential channels of like section, substantially as herein set forth.

3. The combination with an endless strap of a series of curved hollow lugs having resilient walls and means for securing the lugs to the strap at or near the middles of their convex sides, substantially as herein set forth.

4. The combination with an endless strap of hollow lugs having resilient walls each composed of a sheet or strip of material folded upon itself to form the lug and to provide inwardly-turned end portions for attachment to the strap, substantially as herein set forth.

5. The combination with an endless strap of a series of hollow lugs having resilient walls and each composed of a sheet of material folded to form the lug with the end portions of said material lapped one upon the other, and rivets which secure said lapped portions to the strap, substantially as herein set forth.

642,550. BELT FOR TRANSMITTING POWER. PATRICK KENNEDY, New York, N. Y. Filed June 22, 1899. Serial No. 721,437. (No model.)



Claim.—1. As a new article of manufacture a lug for power-transmitting belts composed of a metal plate or back, a shell of the requisite shape having flanges which rest against the metal plate, and means for attaching said flanges to the plate, the whole combined substantially as herein set forth.

2. The combination in a lug for power transmitting belts of a shell composed of sheet material and having opposing flanges *f*, *f*, and a metallic back or plate having integral therewith clips which are passed through and clenched upon the flanges to secure the shell to the plate, substantially as herein set forth

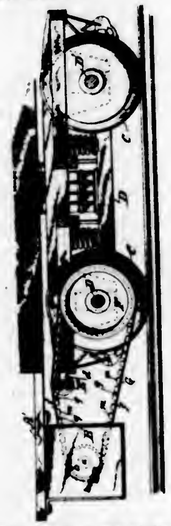
3. The combination with an endless strap, of a metal plate having integral therewith clips which are passed through and clenched upon the strap, a shell composed of sheet material provided with inwardly-turned flanges which rest against the plate, and means for attaching said flanges to the plate, substantially as herein set forth.

4. The combination with an endless strap and a shell composed of sheet material having inwardly-turned flanges *f*, *f*, of a metal plate having integral therewith clips for attaching the plate to the strap and clips for attaching the flanges to the plate, substantially as herein set forth.

5. The combination with an endless strap and a resiliant shell composed of sheet material having flanges *f*, *f*, of a metallic plate having integral therewith clips which attach said plate to said flanges, substantially herein set forth.

642,551. MECHANISM FOR DRIVING DYNAMOS FOR ELECTRIC LIGHTING ON RAILWAY-CARS, &c. PATRICK KENNEDY, New York, N. Y., assignor to the Columbian Electric Carlighting and Brake Company, of New Jersey. Filed July 8, 1899. Serial No. 723,160. (No model.)

Claim.—1. The combination with a car-body having suspended therefrom a dynamo, the shaft of which carries a pulley which has a circumferential V-shaped groove of a truck which supports and is pivotally connected with the car-body, and which has upon its axle a pulley which has a circumferential V-shaped groove corresponding to that of the pulley on the dynamo-shaft, a corresponding-grooved idler-pulley on the truck and movable laterally at the end of the truck nearest the dynamo, and a driving-band composed of a belt provided on its working face with cogs having spaces between them along the length of the belt and V-shaped in their cross-section to fit into and hug the surfaces of the grooves in the specified pulleys and to bear laterally against said surfaces to move the idler-pulley when the angle of the band with reference to the dynamo-shaft is changed, substantially as herein set forth.



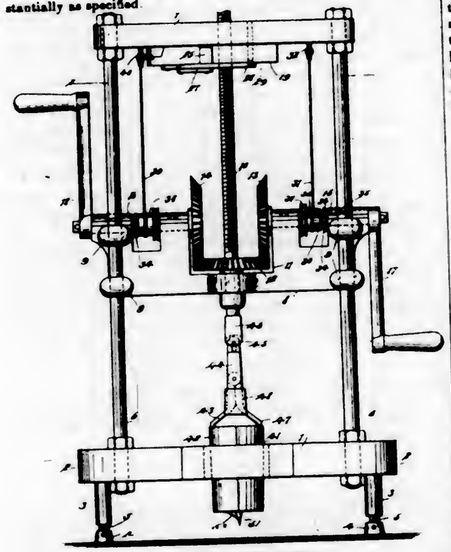
2. The combination with a car-body having a dynamo suspended therefrom and having on the dynamo-shaft a pulley provided with a circumferential V-shaped groove, of a truck supporting and pivotally connected with the car-body and having upon its axle a pulley which has a circumferential V-shaped groove corresponding to that of the pulley on the dynamo-shaft, a bracket provided to the end of the truck, a transverse shaft supported by the bracket, an idler-pulley arranged to move laterally along the said shaft and having a V-shaped circumferential groove corresponding to those of the pulleys on the dynamo-shaft and the axle, and a driving-band composed of a belt provided with cogs having spaces between them along the length of the belt and V-shaped in their cross-section to hug the surfaces of the grooves of the several pulleys and to bear laterally against said surfaces to move the idler-pulley along the shaft of the bracket when the angle of the band with reference to the dynamo-shaft is changed, substantially as herein set forth.

642,552. POST-HOLE BORER. HENRY LANDIS, Alger, Ohio. Filed June 15, 1899. Serial No. 720,663. (No model.)

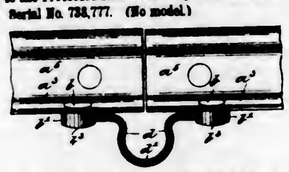
Claim.—1. In a boring-machine, a screw-rod, a boring-pod carried by the screw-rod, means for rotating the screw-rod, a feeding-nut for engagement with the screw-rod, the said feeding-nut consisting of two sections mounted to swing relatively to each other, each section having a threaded semicircular opening in its inner side, a clamping-plate, fingers on said clamping-plate for engaging the inclined outer surfaces of the nut-sections, a lever pivoted on the pivot of the nut-sections, and a link connecting the lever with said clamping-plate, substantially as specified.

2. In a boring-machine, a feeding-nut for a screw-rod consisting of two sections mounted to swing relatively to each other, one section having a rib on its inner edge for engaging in a channel in the other section, each section having a threaded semicircular opening in its inner side, a clamping-plate movable longitudinally on the nut-sections, fingers on said clamping-plate for engaging the longitudinally-inclined outer surfaces of the nut-sections, a lever pivoted on the pivot of the nut-sections, and a link connecting the lever with the clamping-plate, substantially as specified.

3. In a boring-machine, a base, standards on said base, a cross-head mounted to slide vertically on said standards, a screw-rod having rotative connection with the cross-head, a feeding-nut made in two sections and adapted for engagement with the screw-rod, two shafts having bearings in the cross-head, gear connections between said shafts and the screw-rod, drums mounted on said shafts, clutch connections between the shafts and drums, ropes extended from the drums to a cross-piece on the standards, a boring-pod consisting of two sections, one mounted to swing relatively to the other, said boring-pod having its shank pivotally connected to the screw-rod, and a sleeve movable on said shank for locking the sections together, substantially as specified.



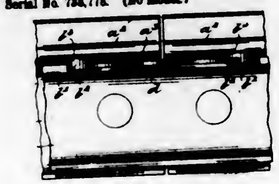
642,553. RAIL-BOND. CHARLES J. MAYER, Philadelphia, Pa., assignor to the Protected Rail Bond Company, same place. Filed Dec. 1, 1899. Serial No. 738,777. (No model.)



Claim.—1. In a rail-bond, in combination with a laterally-projecting rail member, having two faces, whereof one is in a plane inclined to the plane of the other face, a terminal stud comprising a pillar adapted to enter a suitable opening in the rail member, and a base, said base having two faces respectively arranged in planes parallel to the faces of the rail member, substantially as and for the purposes described.

2. In a rail-bond, in combination with a laterally-projecting rail member having a horizontal under face and an upper inclined face, a terminal stud comprising a pillar adapted to enter a suitable opening in the rail member and a base having an upper horizontal face adapted to lie adjacent to the under face of the rail member, the lower face of said base being inclined in a plane parallel to the plane of the upper inclined face of the rail member, substantially as and for the purposes described.

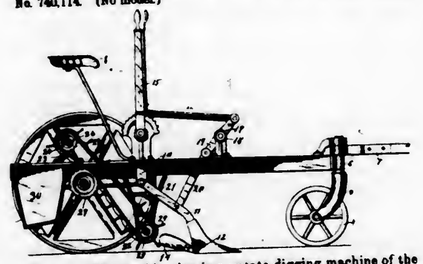
642,554. RAIL-BOND. CHARLES J. MAYER, Philadelphia, Pa., assignor to the Protected Rail Bond Company, same place. Filed Dec. 1, 1899. Serial No. 738,778. (No model.)



Claim.—1. In a rail-bond for girder-rails, a terminal stud comprising a pillar and a base, said pillar projecting from said base at right angles to its lower face and said base having an upper inclined face, a lower horizontal face and cut away or beveled at its inner periphery or outline, substantially as and for the purposes described.

2. In a rail-bond, in combination with a girder-rail having a laterally-projecting tram, the upper face of which tram is horizontal and the under face inclined, comprising a pillar adapted to enter the tram and a base of a terminal stud having an upper inclined face adjacent to and parallel with the under inclined face of the tram, and a lower horizontal face, said pillar projecting at right angles to the lower horizontal face of the base and said base being beveled at that part of its periphery adjacent to the web of the rail, substantially as and for the purposes described.

642,555. POTATO-DIGGING MACHINERY. GEORGE W. MURRAY, Sumter, S. C. Filed Feb. 14, 1898. Renewed Dec. 12, 1899. Serial No. 740,114. (No model.)

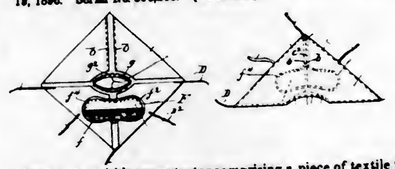


Claim.—1. The combination in a potato-digging machine of the frame 1, of rectangular form, mounted upon wheels 3, having a cross-bar 9, between the sides of the frame 1; the beam 11 hinged from beneath the cross-beam 9, carrying the plowshare 12 at its lower end, means for raising and lowering the plowshare by swinging the beam 11 in a forward direction, the plowshare 12 having the low inclined blades and a high center part, the prongs 13 and flange-plates 14 secured to the plowshare 12, and means for drawing and guiding the machine, all substantially as described.

2. The combination in a potato-digging machine of the frame 1 of rectangular form, mounted upon wheels 3, having a cross-bar 9 between the sides of the frame 1; the beam 11 hinged from beneath the cross-beam 9, carrying the plowshare 12 at its lower end, means for raising and lowering the plowshare by swinging the beam 11 in a forward direction, the plowshare 12 having the low inclined blades and a high center part, the prongs 13 and flange-plates 14 secured to the plowshare 12, the brackets 21 supporting the lower end of the conveyer 28, and a conveyer for elevating and carrying the potatoes to a receptacle, and means for drawing and guiding the machine, all substantially as described.

3. The combination in a potato-digging machine of a frame 1, mounted upon wheels 3, a plowshare 12, having low inclined flanges terminating in a steep inclined center shank, a plow-beam 11 hinged from the frame 1 and swinging in a forward direction connected to the plowshare 12, means for raising and lowering the beam 11, through a hand-lever 15, prongs 13 back of the plowshare 12, and flanges 14 for deflecting the earth thereon, a conveyer 28 for elevating the potatoes from the prongs 13, and a receptacle 30 to receive the potatoes after being elevated.

642,556. KIDNEY-PROTECTOR. DAVID M. NEWCOMER, Hanover, Pa., assignor to Harry Samuel Ehrhart, same place. Filed June 19, 1896. Serial No. 596,210. (No model.)



Claim.—1. A kidney-protector comprising a piece of textile fabric having its four corners folded upon themselves to form a square structure, the flaps thus folded being held by lines of stitches extending from one corner of the structure to the diametrically opposite corner, then folded again to form a triangular four-ply structure, the folds of which are held together by lines of stitches extending along

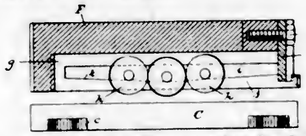
the three edges of the structure and by a central line of stitches lying between and parallel with the first-named lines of stitches, tapes secured at the corners of the base and midway of the sides of the structure, and a loop secured at the apex of the structure, substantially as described.

2. A kidney-protector comprising a piece of textile fabric having its four corners folded upon themselves to form a square structure, the flaps thus folded being held by lines of stitches extending from one corner of the structure to the diametrically opposite corner, then folded again to form a triangular four-ply structure, the folds of which are held together by lines of stitches extending along the three edges of the structure and by a central line of stitches lying between and parallel with the first-named lines of stitches, tapes secured at the corners of the base and midway of the sides of the structure, a loop secured at the apex of the structure, a supplemental pad secured to the structure above the base-line thereof, and a yoke below the pad, substantially as described.

3. A kidney-protector comprising a body portion triangular in shape with the edges secured together in such manner as to avoid the presentation of a selvage, a portion of the length of the center of the base of the protector being kerfed and turned inward to form a yoke, and a supplemental pad secured between the folds of the protector above the yoke, substantially as described.

4. A kidney-protector comprising a body portion triangular in shape with the edges secured together in such manner as to avoid the presentation of a selvage, a portion of the length of the center of the base of the protector being kerfed and turned inward to form a yoke, a supplemental pad secured between the folds of the protector above the yoke, an adjustable loop secured at the apex of the protector, and tapes secured at the outer ends of the base portion and at the sides, substantially as described.

642,557. ANTIFRICTION ROLLER-BEARING FOR RAILROAD-CARS. JOHN E. NORWOOD, Baltimore, Md., assignor to the Baltimore Ball Bearing Company of Baltimore City, of Maryland. Filed Apr. 22, 1899. Serial No. 714,011. (No model.)



Claim.—1. An antifriction roller-bearing for railroad-cars having in combination a bearing-plate, C, on the truck-bolster; a box, F, secured on the car-bolster above said bearing-plate—the box being closed at the top and forming an upper horizontal bearing-surface and provided with side supports extending lengthwise of the box—said side supports inclining from the end to the center; and rollers each having journals—said rollers occupying the chamber and the journals normally resting on the side supports whereby when the load is on the rollers the latter will contact both with the upper horizontal bearing-surface of the box and the lower bearing-plate on the truck.

2. An antifriction roller-bearing for railroad-cars having in combination a bearing-plate on the truck-bolster; a roller-box for the car-bolster which is closed at the top to form an upper bearing-surface but open at the bottom and an end, and provided at said open end with projecting lugs having notches, *m*; a plate closing the open end and having one edge resting in said notches; and rollers each having journals which latter take in the said grooves, said rollers when supporting the load bearing on the upper bearing-surface of the box and the lower bearing-plate on the truck, substantially as described.

642,558. PICTURE-FRAME. ERNEST OLDENBUSCH, Weehawken, N. J., assignor to Kronheimer, Oldenbusch & Co., New York, N. Y. Filed Aug. 12, 1899. Serial No. 726,977. (No model.)



Claim.—1. A sheet-metal frame for pictures and similar articles the four sides of which are tubular in cross-section and are provided with an interior longitudinal slot, upon one face of which the edges of the sheet metal meet on a line bisecting the angle of junction, and upon the reverse face of which the edges of the sheet metal overlap, both of such faces having one or more apertures, substantially as shown and described.

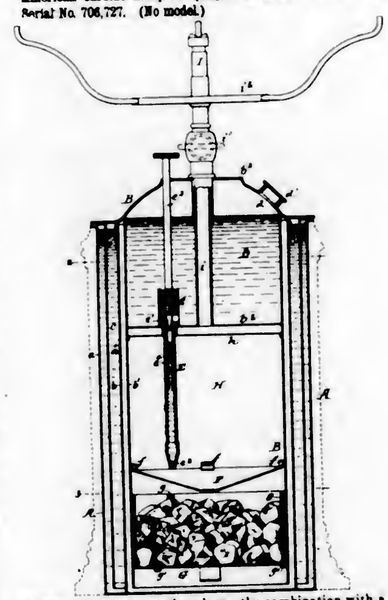
2. A sheet-metal frame for pictures and similar articles having a corner-fastening device consisting of a body portion and two or more projections extending from such body portion, at approximately right angles and passing through one or more faces of such frame, each of such projections being provided with a lug or barb substantially as shown and described.

3. A separable frame for pictures and similar articles, having two or more parts each of which is provided with one or more sockets in combination with a coupling device consisting of a body portion and two or more projecting springs provided with lugs substantially as shown and described.

4. In a separable frame for pictures and similar articles a coupler provided with a lug to which is pivotally connected a supporting-brace, substantially as shown and described.

5. A separable sheet-metal frame having three or more sides, at the corner of which at one side the edges of the sheet metal meet on a line bisecting the angle of junction, and at the other side of which the edges of the sheet metal overlap, in combination with a corner-fastener having one or more toothed lugs or barbs extending through the frame at the corner, and a coupler having projecting springs fitting into sockets in the frame, substantially as shown and described.

642,559. ACETYLENE-GAS LAMP. EMMONS M. PARKHURST, Philadelphia, Pa., assignor, by direct and mesne assignments, to the American Carbide Lamp Company, same place. Filed Feb. 24, 1899. Serial No. 706,727. (No model.)



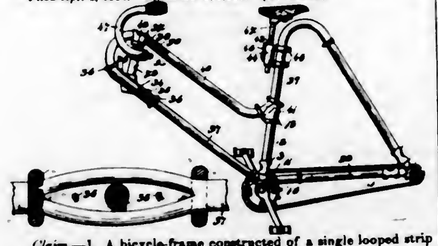
Claim.—1. In an acetylene-lamp, the combination with a casing having a circumferential sealing-chamber, of a removable section having a wall projecting into the sealing-chamber to form a gas-seal and adapted to be elevated by the internal pressure of the gas, a water-supply chamber in the upper portion of said removable section, a carbid-receptacle carried by the removable section below the water-chamber, and adapted to be removed through the bottom portion of said removable section, a valved duct for permitting water to flow to the carbid and a burner; substantially as described.

2. In an acetylene-lamp, the combination with a casing having a circumferential sealing-chamber, of a removable section having a wall projecting into the sealing-chamber to form a gas-seal and adapted to be elevated by the internal pressure of the gas, a water-supply chamber in the upper portion of said removable section, a carbid-receptacle removably mounted in the lower portion of the removable section, and adapted to be removed through the bottom of said removable section, a valved duct controlling the flow of water from the chamber to the carbid and a burner; substantially as described.

3. In an acetylene-lamp, the combination with an outer casing having concentric walls forming a seal-chamber between them, of a floating, removable casing having concentric walls, one entering the seal-chamber and the other extending down into the inner chamber formed by the concentric walls of the outer casing, a water-chamber formed in the upper portion of the inner chamber of the movable section, a carbid-receptacle removably mounted in the lower portion of said last-mentioned chamber and adapted to be removed through the bottom part thereof, a valved drip-tube depending from the bottom of the water-chamber and a gas-duct extending up through the water-chamber; substantially as described.

4. In an acetylene-lamp, the combination with the gas-holder, carbid-receptacle and water-reservoir located directly above the carbid-receptacle, of a drip-tube, for supplying water to the carbid, depending from the water-reservoir with a needle-valve at its entrance end and a free straight vertical passage extending from the upper to the lower end of the tube, a portion of said passage at the top being of small cross-sectional area and capacity, and below such portion being enlarged to form a water-chamber and at the lower end being constricted; substantially as described.

642,560. BICYCLE. JOHN W. PAYNE, Alexandria Bay, N. Y. Filed Apr. 1, 1897. Serial No. 630,289. (No model.)



Claim.—1. A bicycle-frame constructed of a single looped strip of wood, having its end portions brought together at the lower end of the frame and split longitudinally to form corresponding right and left terminal elements, constituting a rear fork and rear braces, and having its intermediate looped portion arranged to form a steering-head support, with the lower side of the loop split longitudinally, and the portions bordering upon the split spread laterally to form separated intermediate elements, in combination with a block secured in the split between said intermediate elements, and provided with a steering-head seat, means for securing said block in place, and means, forming axle-seats, for securing said terminal elements in operative relation, substantially as specified.

2. The herein-described bicycle-frame, consisting of a single looped length or strip of wood doubled upon itself to form a head-support and having the extremities of its upper and lower sides brought together at the lower rear end of the frame, and longitudinally split to form corresponding right and left terminal elements constituting a rear fork and braces, rear-wheel-axle supports attached to said terminal elements and connecting the same in pairs to maintain them in operative relation, a tubular brace transversely spanning the loop between the upper and lower sides thereof, and split longitudinally at its lower end to form separated elements, a crank-hanger secured to the lower side of the loop and provided with means for engaging said brace elements, a block secured in the angle between the right and left terminal elements of the upper side of the loop and provided with an opening through which the upper end of said brace extends, whereby the brace forms a seat-post tube, and a head mounted upon the looped strip adjacent to its front end, and between the sides of the loop, the lower side being split longitudinally to form intermediate elements which are spread or bowed laterally, and a block being secured in the space between said intermediate elements, and provided with an opening through which the lower end of the head extends, substantially as specified.

3. In a bicycle, a bent-wood frame-bar bent upon itself to form a loop having upper and lower connected sides which are split longitudinally and spread or separated laterally at their terminals and at an intermediate point, and head and seat post tubes transversely spanning the interval between the loop sides, and each extending through the interval formed by a split of one of said loop sides, a block being fitted in each of the splits through which one of said tubes extends and having an opening in which the tube is fitted, substantially as specified.

4. In a bicycle, a bent-wood frame-bar split longitudinally to form elements which are separated or spread laterally, an intersecting transverse frame member, a tapered block engaged with said intersecting frame member, and fitting snugly in the space between the separated elements, a plate parallel with and covering the block and exceeding the same in area, to overlap and engage the separated elements of the frame-bar, and means encircling the bar at the extremities of the block and engaging the ends of the plate to hold said parts in fixed relations, substantially as specified.

5. In a bicycle or like machine, a bent-wood frame-bar having a split portion comprising laterally spread elements, an intersecting transverse frame member, a tapered block engaged with the intersecting frame member, and fitted between said separated elements, upper and lower plates arranged parallel with and above and below the block, and exceeding the block in area to overlap and engage the separated elements of said frame-bar at the ends and sides of the block, and clamp-rings encircling the frame-bar at the ends of the block and engaging the extremities of the plates for securing said parts together, substantially as specified.

6. In a bicycle, a bent-wood frame, having a single looped strip, split longitudinally at its ends and spread laterally to form rear braces and a rear fork, with the elements of the former arranged respectively in common vertical planes with those of the latter and secured together, clamping-rings encircling the upper and lower sides of the looped strip at the points of divergence of said elements, a brace extending transversely of the looped strip and terminally arranged adjacent to the points of divergence of said elements, and means consisting respectively of a coupling and a crank-hanger engaged with the strip, at said points of divergence of its terminal elements, to secure the same against further splitting, and engaged with the extremities of said brace, substantially as specified.

7. In a bicycle or like machine, a frame-bar having a split portion comprising laterally-spread elements, a block fitted between said spread elements and constructed for engagement with an intersecting frame member, and fastening devices engaging the frame-bar to prevent further spreading of the elements and secure said block in place therebetween, substantially as specified.

8. In a bicycle or like machine, a frame-bar having a split portion forming laterally-spread elements, a block fitted between said elements and constructed for engagement with an intersecting frame member, plates arranged at opposite sides of said block and overlapping and engaging the spread elements of the frame-bar, fastening devices connecting the plate and block intermediate of their ends, and other fastening devices encircling the frame-bar adjacent to and engaging the extremities of said plates, substantially as specified.

9. In a bicycle or like machine, the combination with a wooden frame-bar, of a tapered plate having a shoulder to receive the end thrust of the bar, and integral projections on the same side to indent the surface of the bar, and a cuff or sleeve encircling and longitudinally movable independently of the plate and bar, for securing the same together, with the said projections in positive engagement with the frame-bar, said plate and cuff or sleeve having interlocking serrated faces to prevent accidental displacement of the latter, substantially as specified.

10. In a bicycle or like machine, the combination of a tapered plate provided with a shoulder and having its outer inclined face transversely toothed, a wooden frame-bar placed against said plate and shoulder, and a sleeve or cuff encircling the plate and frame-bar and having a transversely-toothed portion corresponding with the toothed portion of the plate and adapted to interlock therewith, substantially in the manner and for the purpose set forth.

11. In a bicycle or like machine, the combination of a plate having an outer inclined face which is toothed or roughened at a plurality of points in different planes, a wooden frame-bar in contact with said plate at the opposite side from its inclined face, and a sleeve or cuff having spaced portions of different diameters encircling the plate and frame-bar respectively in the planes of said toothed or roughened portions of the plate, and having roughened or toothed surfaces to interlock therewith, and secure the cuff or sleeve from longitudinal displacement, substantially as specified.

12. In a bicycle or like machine, the combination with the frame, of a brace split longitudinally at its lower end to form separated divergent elements, a crank-hanger comprising a bearing-sleeve, upwardly-convergent extensions, arranged in contact with the inner sides of the elements of the brace, a collar, disposed between the said extensions, in a higher plane than the bearing-sleeve and at right angles thereto and adapted to have the lower frame-bar passed therethrough, and means for securing said vertical extensions to the elements of the brace, substantially as specified.

13. The herein-described crank-hanger for a bicycle or like machine, the same having an axially-transverse bearing-sleeve, upwardly-convergent extensions integral with the bearing-sleeve and in contact with the inner sides of the brace-bar elements, means for securing the said extensions to the said brace-bar elements, a split collar ar-

ranged in a plane above, said bearing-sleeve, and between said vertical extensions of the bearing-sleeve to receive a lower frame-bar, one element of said collar being integral with the bearing-sleeve, and clamp-rings having serrated inner faces for engaging serrated portions of the exterior surface of said extensions, to maintain the movable member thereof in operative relation with the fixed member, and in engagement with the lower frame-bar, substantially as specified.

14. In a bicycle or like machine, the combination with the frame comprising one-piece upper and lower frame-bars, of a steering-head connecting the upper and the lower frame-bars a short distance in the rear of the front end of the frame and passing centrally through the lower frame-bar which is split and spread to receive it, and a handle-bar secured to the steering-head at a point between the said upper and lower frame-bars, substantially as set forth.

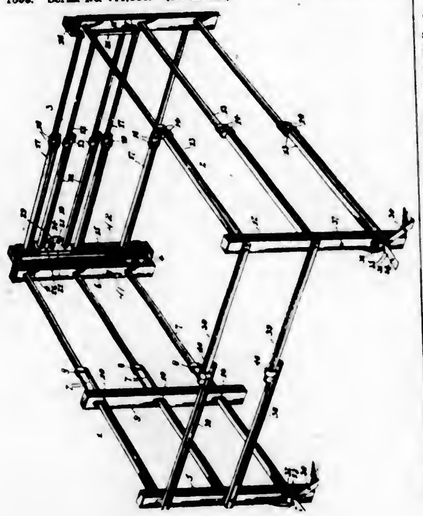
15. In a bicycle or like machine, a frame comprising one-piece upper and lower bars, a steering-head passing centrally through the lower frame-bar which is split and spread to receive it, a coupling connecting the upper end of the steering-head with the upper frame-bar, and a handle-bar having connection with the steering-head at a point intermediate of the upper and lower frame-bars, substantially as set forth.

16. In a bicycle or like machine, the combination of a steering-head having a cone at its upper end, a T-coupling applied to an upper frame-bar and having one of its branches or portions split, a ring fitting the split portions thereof for connecting the steering-head with the coupling and causing the latter to grip the frame-bar, and constructed to provide a race, and ball-bearings operating in the race formed between the cone and the cup of the clamp-ring, substantially as set forth.

17. In a bicycle or like machine, the combination with the frame, a coupling secured to the upper side of the frame, and a brace having its upper end secured within the said coupling, of a seat-post tube passing through an opening in the frame and entering a threaded bore formed in the upper end of the brace and secured therein and externally threaded, clamp-rings mounted upon the threaded portion of the seat-post tube above and below the frame, the lower ring engaging with and forming an abutment for the upper end of the brace and the upper ring serving to lock the seat-post tube in place, a seat-post, and means for securing the seat-post in its tube in an adjusted position, substantially as specified.

18. In a bicycle or like machine, a frame composed of a single strip or bar bent to provide an upright portion, upwardly and forwardly inclined reach-bars, and a bottom run, a separately-formed brace about in line with the upright portion of the frame, a substantially Y-shaped coupling located at the juncture of the upright and upper reach-bar portions of the frame and receiving the upper end of the brace, and a crank-hanger located at the juncture of the bottom run and reach-bar and receiving the lower end of the brace, substantially as set forth.

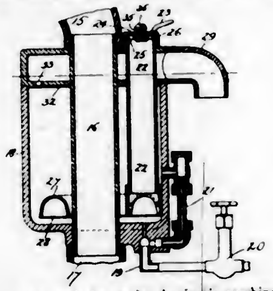
642,561. CLOTHES-DRIER. JOHN J. PHILLIPS, Grayson, Ky., assignor of one-third to William D. Malone, same place. Filed Mar. 29, 1899. Serial No. 711,000. (No model.)



Claim.—1. A clothes-drier comprising leaves or frames, the folding inclined braces arranged in pairs and permanently pivoted at their upper ends and overlapping and provided with inner and outer perforations, and a removable pin adapted to engage either the inner or outer perforations, whereby the braces are retained in their folded and operative positions, substantially as described.

2. A clothes-drier comprising hinged leaves or sections adapted to fold, and the folding clothes-supporting rods or bars pivoted at their outer ends to the free edges of the leaves or frames and having their inner ends slidingly connected and adapted to be separated to permit them to fold against the leaves or frames, substantially as and for the purpose described.

642,562. VAPORIZER FOR GAS-ENGINES. HUBERT F. PROBERT, Chicago, Ill. Filed Mar. 24, 1897. Serial No. 629,067. (No model.)



Claim.—1. An explosive-engine having in combination a cylinder, a piston, a generator for producing an explosive fluid having communication with said cylinder, an outwardly-yielding graduated air-valve for admitting air to said generator and means for heating said generator, substantially as set forth.

2. An explosive-gas engine having in combination an engine-cylinder having inlet and exhaust ports, a mixing-chamber in communication with the inlet-port, a two-part retort the divisions of which are separated by the perforated diaphragm 32, the pipe 16 passing through both parts of said retort and diaphragm and binding said parts together, the elbow 15 connecting said pipe 16 with the exhaust-port of the engine, the annular air-chamber 27 having a closed upper side and a perforated lower side arranged in close propinquity to the bottom of said retort, the air-pipe 22 passing downwardly through both divisions of said retort and having its lower end communicating with said air-chamber and its upper end with the external atmosphere and the pipe 29 leading from the upper compartment of said retort and communicating with said mixing-chamber, substantially as set forth.

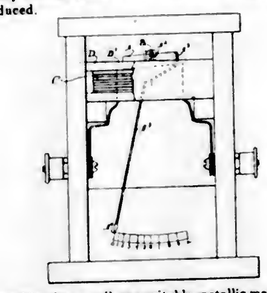
3. An explosive-gas engine having in combination a cylinder provided with an exhaust-port, a piston, an exhaust-pipe connected with said exhaust-port, a mixing-chamber connected with said cylinder and having an air-induction port, a retort-chamber arranged contiguous to and heated by said exhaust-pipe and having an outlet at its upper end connected with said mixing-chamber, an inverted air-spreading chamber located at the bottom of said retort and having an imperforate upper side arranged normally above the oil-level in said retort, but a perforated under side located normally below said oil-level, and a valved pipe extending from the external atmosphere to said air-chamber, and a gage on the retort extending from a point below to a point above said inverted air-chamber, whereby the level of the oil in the retort may be maintained below the top of the inverted air-chamber, substantially as set forth.

642,563. ELECTRICAL MEASURING INSTRUMENT. FREDERICK M. BENNETT, New York, N. Y. Filed Apr. 29, 1898. Renewed July 3, 1899. Serial No. 722,695. (No model.)

Claim.—1. In combination, a coil, an excitable metallic material set above the coil, and provided with bearings projecting downward and having eccentrically-located pivots so that the outer portions of the excitable material will work respectively in and out of said coil, the said excitable material being provided with an index-finger, whereby a rocking and eccentric motion of the excitable material is produced.

2. In combination, a coil, an excitable metallic material set above the coil, and provided with bearings projecting downward and having eccentrically-located pivots so that the outer portions of the excitable material will work respectively in and out of said coil, the said excitable material being provided with an obliquely-inclined index-

finger, whereby a rocking and eccentric motion of the excitable material is produced.



3. In combination, a coil, an excitable metallic material set above the coil, and provided with bearings projecting downward and having eccentrically-located pivots so that the outer portions of the excitable material will work respectively in and out of said coil, the said excitable material being provided with an index-finger, whereby a rocking and eccentric motion of the excitable material is produced, and a guard to prevent the said excitable material from being removed from the coil.

4. In combination, a coil, an excitable metallic material provided with inclined needle points or pivots, so that the outer portions of the excitable material will work respectively in and out of said coil, the said excitable material being provided with an index-finger.

5. In combination, a coil, an excitable metallic material provided with inclined needle points or pivots, so that the outer portions of the metallic material will work respectively in and out of said coil the said metallic material being provided with an obliquely-inclined index-finger.

6. In combination, a coil, an excitable metallic material provided with inclined needle points or pivots, so that the outer portions of the metallic material will work respectively in and out of said coil the said metallic material being provided with an inclined index-finger, the incline of the needle-points and index-finger being at practically the same angle.

7. A bobbin having a vitreous surface and provided with recesses also having vitreous faces, in combination with a pivoted metallic material provided with bearing-points to engage the said recesses.

8. A bobbin having a vitreous surface and provided with recesses also having vitreous faces.

9. In combination, means for setting up a magnetic field, an excitable metallic material provided with bearings projecting downward and having eccentrically-located pivots, supports for the same, the whole so constructed and arranged that the outer portions of the excitable material will work in and out of said magnetic field, whereby a rocking and eccentric motion of the excitable material is produced.

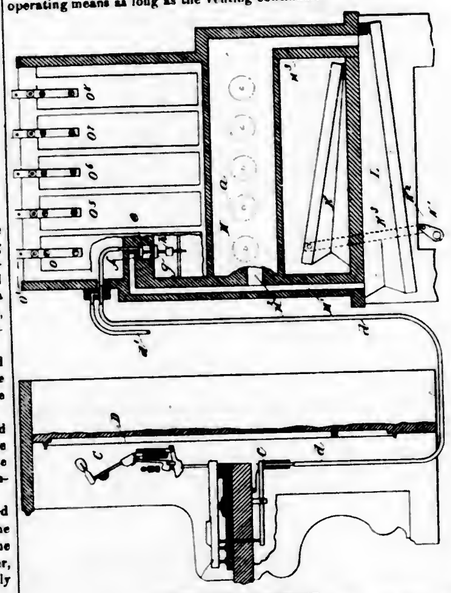
10. In combination, means for setting up a magnetic field, an excitable metallic material provided with bearings projecting downward and having eccentrically-located pivots, supports for the same, the said excitable material being provided with an index-finger, the whole so constructed and arranged that the outer portions of the excitable material will work in and out of said magnetic field, whereby a rocking and eccentric motion of the excitable material is produced.

11. In combination, means for setting up a magnetic field, an excitable metallic material provided with bearings projecting downward and having eccentrically-located pivots, supports for the same, the said excitable material being provided with an obliquely-inclined index-finger, the whole so constructed and arranged that the outer portions of the excitable material will work in and out of said magnetic field, whereby a rocking and eccentric motion of the excitable material is produced.

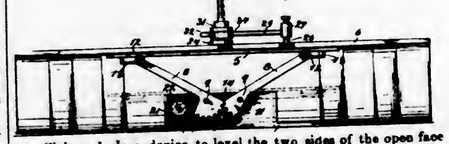
12. In combination, means for setting up a magnetic field, an excitable metallic material provided with bearings projecting downward and having eccentrically-located pivots, supports for the same, the said excitable material being provided with an index-finger, the whole so constructed and arranged that the outer portions of the excitable material will work in and out of said magnetic field, whereby a rocking and eccentric motion of the excitable material is produced, and a guard to prevent the said excitable material from being removed.

642,564. MUSIC-SHEET PERFORATOR. CHARLES A. KUNTZE, New York, N. Y., assignor to the Wellington Manufacturing Company, same place. Filed Sept. 12, 1896. Serial No. 562,231. (No model.)

Claim.—In an apparatus for punching music-sheets, the combination of the main chamber and means for exhausting air therefrom, with punches and pneumatic means for operating said punches, air-passages communicating with said chamber and pneumatic means, valves and diaphragms controlling the air-passages, and venting means, all arranged substantially as described whereby the valves and diaphragms automatically open and close to control the punch-operating means as long as the venting continues.



642,565. BOOK-LEVELER. GEORGE H. ROGERS, Birmingham, Ala. Filed Mar. 27, 1899. Serial No. 710,585. (No model.)



Claim.—1. In a device to level the two sides of the open face of a book, the combination of a shelf adapted to support that side which would be otherwise lower, a base for the device resting upon the means which support the other side of the book, levers which carry the shelf and connect the same to the base of the device, segmental racks at the inner ends of these levers, engaging each other and means engaging one of these racks for the purpose of oscillating the levers.

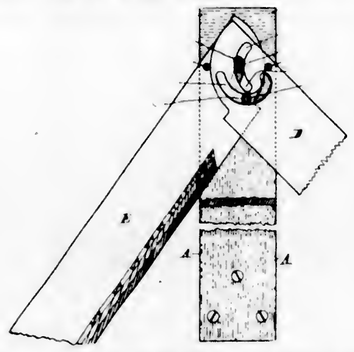
2. In a device to level the two sides of the open face of a book, the combination of a shelf adapted to support the lid of that side which would otherwise be lower, a base supporting the device in line with the lid of the other side, levers pivoted to this latter and supporting the shelf, their inner ends being provided with segmental racks, the teeth of which engage each other, a worm engaging one of these racks and means to rotate the worm.

3. In a device to level the two sides of the open face of a book, the combination of an adjustably-supported shelf adapted to support the otherwise lower side of such book, a post connected to and projecting upwardly therefrom having its lower portion screw-threaded, a flanged clamping-nut carried on this threaded portion serving to attach the device to the book-lid and a wrench pivotally carried on the upper part of said post above the clamping-nut thereon for the purpose of operating this latter.

4. In a device to level the two sides of the open face of a book, the combination of an adjustably-supported shelf adapted to support the otherwise lower side of such book, a post connected to and projecting upwardly therefrom having its lower portion screw-threaded, a flanged clamping-nut carried on this threaded portion whereby the device is temporarily attached to the book-lid, a wrench pivotally car-

ried on the upper part of said post and above the clamping-nut thereon and a leaf-holder supported at the end of the wrench-handle.

642,566. COMBINED SET-SQUARE AND BEVEL. ANDREW C. SMITH, Los Angeles, Cal., assignor to the Los Angeles Automatic Tool Company. Filed Aug. 10 1899. Serial No. 726,832. (No model.)



Claim.—1. The new or improved combined adjustable set-square or bevel in which there are two movable blades pivotally fastened into the stock of the instrument or device, one of these blades having in it an eccentric curved slot which operates upon a stud in the other blade so that when one of the blades is moved by the hand the other blade is operated relatively thereto into an altered position, dependent upon or corresponding with the eccentricity of the curved slot in the manner and for the purpose substantially as set forth.

2. The new or improved combined adjustable set-square or bevel in which there are two movable blades pivotally fastened into the stock of the instrument or device, one of these blades having in it an eccentric curved slot which operates upon a stud in the other blade so that when one of the blades is moved by the hands the other blade is operated relatively thereto into an altered position, dependent upon or corresponding with the eccentricity of the curved slot and provided with a pinching-screw passing through the stock and the regularly-curved slots, one in each blade, substantially as hereinbefore described and contained upon the annexed drawings.

3. The new or improved combined adjustable set-square or bevel consisting of the stock, the pivoted blades, one of the blades having an eccentric slot therein, the other blade having a stud projecting into the said eccentric slot, both blades having curved slots struck from the center of the pivots of said blades, the set-screw with pinching-nut passing through the stock and through the regularly-curved slots in each blade all operating in the manner and for the purposes substantially as set forth.

REISSUES.

11,806. COFFIN. DAVID GERWE, St. Louis, Mo. Filed Sept. 29, 1899. Serial No. 732,129. Original No. 621,407, dated Mar. 21, 1899.

Claim.—1. A coffin attachment comprising an upper bar and a lower bar, parallel links each pivotally fastened to one of said bars at one end and having its other end or a stud thereon to slide in a slot provided therefor in the other bar, parallel links pivotally fastened to said first-mentioned links and to the slotted bar, and a rod pivotally fastened to the parallel links of a set, substantially as described.

2. A coffin attachment comprising a couch, slotted pieces adapted to be secured to the coffin-bottom, four or more parallel links whose upper ends are pivotally connected to said couch and whose lower ends or studs thereon move horizontally in said slots, and links of one-half the length of said first-mentioned links pivotally connected respectively at one end to the middle point of said first-mentioned links and at the other end to the slotted pieces, substantially as described.

3. A coffin attachment comprising a couch, slotted angle-irons adapted to be secured to the bottom of the coffin, four or more parallel links whose upper ends are pivotally connected to said couch and whose lower ends or studs thereon move horizontally in said slots, and links of one-half the length of said first-mentioned links pivotally connected respectively at one end to the middle point of said first-mentioned links and at the other end to said angle-irons, substantially as described.



4. A coffin having a false bottom, four or more parallel links pivotally connected thereto and having their lower ends arranged to move horizontally, and links pivotally connected respectively to the middle point of the first-mentioned links and to the bottom of the coffin or a piece thereon at a distance from said middle point equal to one-half of the length of said first-mentioned links, substantially as and for the purpose set forth.

5. A coffin having a false bottom, four or more links pivotally connected thereto and having their lower ends engaged in horizontal slots, and parallel links pivotally connected at one end to the bottom of the coffin or a piece thereon, said last-mentioned links being one-half of the length of the first-mentioned links and being pivotally connected thereto respectively at their middle points, substantially as and for the purpose set forth.

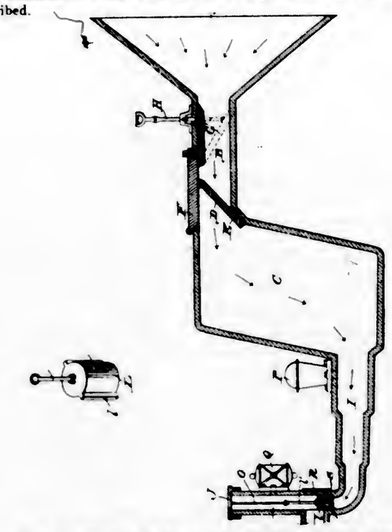
6. A coffin having a false bottom, four or more links pivotally connected thereto and having their lower ends engaged in horizontal slots, and parallel links pivotally connected at one end to the bottom of the coffin or a piece thereon, said last-mentioned links being of one-half the length of the first-mentioned links and being pivotally connected to them respectively at their middle points, and rods connecting the pairs of links for maintaining them parallel, substantially as and for the purpose set forth.

11,807. WAVE-POWER WATER-MOVING APPARATUS. JOHN ROGOWSKI, Little Rock, Ark. Filed Dec. 5, 1899. Serial No. 739,626. Original No. 630,006, dated Aug. 1, 1899.

Claim.—1. An apparatus for concentrating and conducting water consisting of a pipe having a funnel-mouth opening toward the sea, an automatic check-valve for preventing the return of the water through the pipe, a receiving reservoir or chamber having said pipe discharge into the upper portion thereof, and of larger dimensions than said pipe, a second pipe connecting with the lower portion of said reservoir or chamber and having an upstanding extension with guides, a delivery-pipe leading from said upstanding extension, and a vertically-reciprocating valve arranged to work within the said extension and arranged to prevent a return flow through said pipe, substantially as described.

2. In an apparatus for storing and conducting water, a wide-mouthed funnel opening toward the sea, a horizontal pipe connected with the contracted end of the funnel having a manually-operated gate, a chamber or reservoir of larger dimensions than the said pipe, and having the same discharging into the upper part thereof, a second pipe connecting with the bottom of said reservoir or chamber, an auxiliary compressed-air chamber connected with the outlet end of said second pipe and having guideways formed in its sides, a valve having wings movable in said guideways, and a delivery-pipe communicating with the auxiliary air-chamber contiguous to its connection of said second pipe, substantially as described.

3. In an apparatus for concentrating and conducting water, the combination of a receiving reservoir or chamber, a pipe leading into the upper portion of the reservoir or chamber, and having a funnel-shaped mouth opening toward the sea, a pipe leading from the lower portion of the reservoir or chamber, a check-valve in the first-named pipe, and a valve or gate in advance of said check-valve, a delivery-pipe connected with the second-named pipe, and a valve controlling the admission of water to the said delivery-pipe, substantially as described.



4. In an apparatus of the class described, a receiving reservoir or chamber having an inlet pipe or passage communicating at one side thereof, a discharge-pipe in communication with the opposite side of the reservoir or chamber, an auxiliary compressed-air chamber communicating with the outlet end of the discharge-pipe, a delivery-pipe in communication with an auxiliary compressed-air chamber contiguous to the outlet end of the discharge-pipe, and a piston-valve adapted to be seated at the outlet end of the discharge-pipe, and arranged to reciprocate within the auxiliary compressed-air chamber, substantially as described.

5. In an apparatus of the class described, the combination with the receiving reservoir or chamber having a discharge-pipe, an auxiliary compressed-air chamber in communication with said discharge-pipe, a delivery-pipe in communication with both the discharge-pipe and said auxiliary compressed-air chamber, and a piston-valve adapted to reciprocate within the auxiliary compressed-air chamber, and arranged to act as a cut-off for said discharge-pipe when the said chamber is in communication with the delivery-pipe, substantially as described.

6. In an apparatus of the class described, the combination of the receiving reservoir or chamber having a discharge-pipe, an auxiliary compressed-air chamber arising from the outlet end of the discharge-pipe, a delivery-pipe communicating with the auxiliary compressed-air chamber contiguous to the outlet end of the discharge-pipe, and a reciprocating piston-valve normally seated at the outlet end of the discharge-pipe, said valve when seated being adapted to open up communication between the auxiliary chamber and the delivery-pipe, and when forced upward into said auxiliary chamber, to open up communication between said delivery-pipe and the discharge-pipe of the receiving-reservoir, substantially as described.

7. In an apparatus of the class described, a receiving reservoir or chamber having an inlet pipe or passage communicating at one side thereof, and a discharge-pipe in communication with the opposite side of the reservoir-chamber, said discharge-pipe having a progressively-diminishing bore.

8. In an apparatus of the class described, a receiving reservoir or chamber having an inlet pipe or passage communicating at one side thereof, a discharge-pipe in communication with the opposite side of the reservoir or chamber and having a progressively-diminishing bore, an auxiliary compressed-air chamber communicating with the outlet end of the discharge-pipe, a delivery-pipe in communication with the auxiliary compressed-air chamber contiguous to the outlet end of the discharge-pipe, and a piston-valve adapted to be seated at the outlet end of the discharge-pipe, and arranged to reciprocate within the auxiliary compressed-air chamber, substantially as described.

9. In an apparatus of the class described, a receiving reservoir or chamber having an inlet-pipe communicating at one side thereof, said inlet-pipe being provided with a gate or door, a discharge-pipe in communication with the opposite side of the reservoir or chamber, an auxiliary compressed-air chamber communicating with the outlet end of the discharge-pipe and also provided with a gate or door, a delivery-pipe in communication with said air-chamber, and a valve, substantially as described.

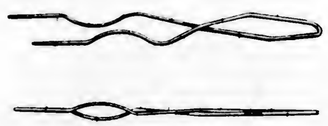
DESIGNS.

32,145. BROOCH. LUCIAN M. ZELL, Boston, Mass., assignor to the American Gem Company, of Maine. Filed Jan. 3, 1900. Serial No. 296. Term of patent 3½ years.



Claim.—The design for a brooch as herein shown and described.

32,146. HAIR-PIN. JOHN LEICK, Verona, N. J. Filed Dec. 8, 1899. Serial No. 739,722. Term of patent 14 years.



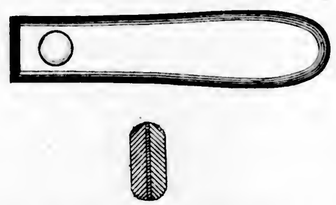
Claim.—The design for a hair-pin, herein shown and described.

32,147. EYELET. EMIL SALTZKORN and LUDWIG NICOLAI, Dresden, Germany, assignors to the American Metal Edge Box Company, Camden, N. J., and Philadelphia, Pa. Filed July 17, 1899. Serial No. 724,198. Term of patent 14 years.



Claim.—The design for an eyelet as herein described and as shown in the accompanying drawings.

32,148. KNIFE-HANDLE. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed Dec. 16, 1899. Serial No. 740,603. Term of patent 14 years.



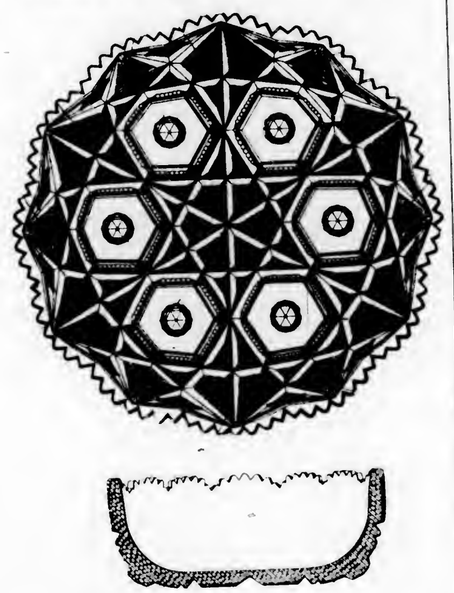
Claim.—The design for a knife-handle as herein shown and described.

32,149. LADLE OR SIMILAR ARTICLE. WILLIAM C. BURWELL, Providence, R. I. Filed Jan. 2, 1900. Serial No. 180. Term of patent 7 years.



Claim.—The design for a ladle or similar article herein shown and described.

32,150. CUT-GLASS VESSEL. THOMAS R. CLARK, Honesdale, Pa. Filed Dec. 30, 1899. Serial No. 742,175. Term of patent 3½ years.



Claim.—The design for a cut-glass vessel, as herein shown and described.

32,151. INHALER. ERNEST STEVENS, Philadelphia, Pa. Filed Oct. 13, 1899. Serial No. 733,544. Term of patent 7 years.



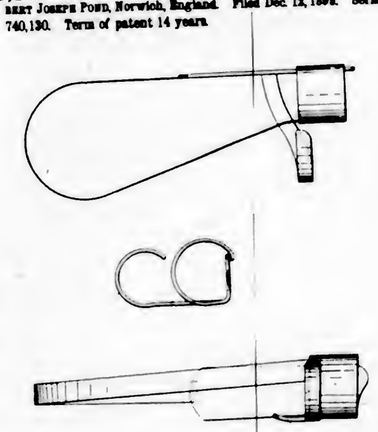
Claim.—The design for an inhaler as herein shown and described.

32,152. RECURRENT ATTACHMENT FOR SYRINGES OR DOUCHES. JOHN W. GIBBONS, Cleveland, Ohio. Filed Dec. 7, 1899. Serial No. 739,575. Term of patent 7 years.



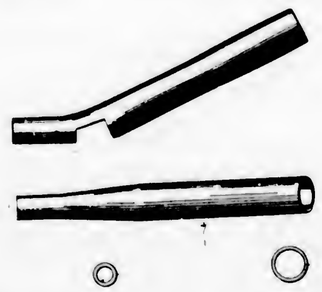
Claim.—The design for a recurrent attachment, for syringes and douches, substantially as herein shown and described.

32,153. TOE ATTACHMENT FOR SURGICAL PURPOSES. HERBERT JOSEPH POND, Norwich, England. Filed Dec. 12, 1899. Serial No. 740,130. Term of patent 14 years.



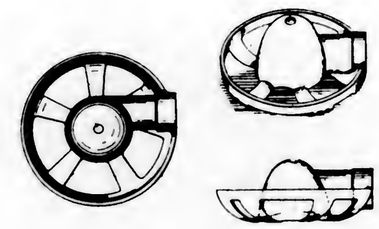
Claim.—The design for a toe attachment for surgical purposes, substantially as herein shown and described.

32,154. HANDLE FOR DENTAL INSTRUMENTS. WILLIAM R. HARPER, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,684. Term of patent 14 years.



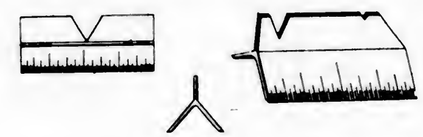
Claim.—The design for a handle for dental instruments, substantially as shown and described.

32,155. SPRAYING-NOZZLE. ELBERT R. TODD, Detroit, Mich. Filed Jan. 5, 1900. Serial No. 515. Term of patent 7 years.



Claim.—A design for a spraying-nozzle, substantially as herein shown and described.

32,156. GAGE. THOMAS F. JOHNSON, New Brighton, Pa. Filed Dec. 7, 1899. Serial No. 739,579. Term of patent 14 years.



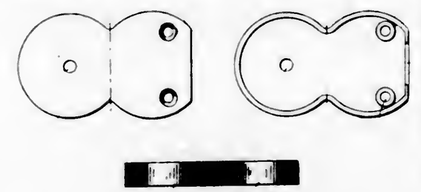
Claim.—The design for a gage, substantially as herein shown and described.

32,157. BASE FOR TOOL-SHARPENERS. JAMES M. HARPER, Chicago, Ill. Filed Aug. 21, 1899. Serial No. 728,015. Term of patent 7 years.



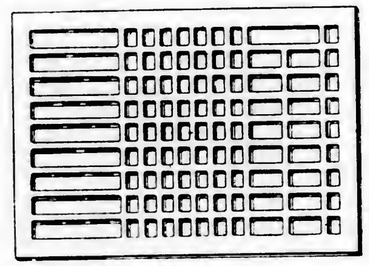
Claim.—The design for the base of a tool-sharpener as herein shown and described.

32,158. LOCK-CASE. EDWARD R. SARGENT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed July 26, 1899. Serial No. 725,198. Term of patent 14 years.



Claim.—The design for a lock-case, as herein shown and described.

32,159. GUIDE-PLATE FOR ACCOUNT-BOOKS. JENNIE L. NIBBET, Syracuse, N. Y., assignor of one-half to Ella M. Kinne and Herbert E. Wright, same place. Filed Jan. 2, 1900. Serial No. 179. Term of patent 7 years.



Claim.—The design for a guide-plate for an account-sheet, as herein shown and described.

32,160. BATTERY-PLATE. JOHN T. STOREY, Philadelphia, Pa. Filed Dec. 29, 1899. Serial No. 742,002. Term of patent 14 years.



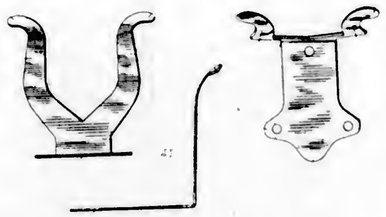
Claim.—The design for a battery-plate, substantially as shown and described.

32,161. ELECTRODE OR BATTERY-PLATE. WILLARD F. RICHARDS, Buffalo, N. Y. Filed Dec. 13, 1897. Serial No. 661,751. Term of patent 14 years.



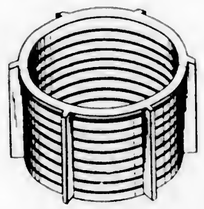
Claim.—The design for an electrode or battery-plate, substantially as herein shown and described.

32,162. TELEPHONE-RECEIVER HOLDER. CLARENCE D. WILSON, Columbus, Ohio. Filed Jan. 3, 1900. Serial No. 294. Term of patent 7 years.



Claim.—The design for a telephone-receiver holder as herein shown and described.

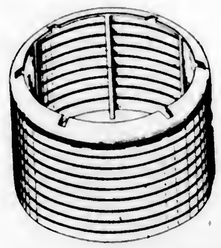
32,163. WALL FOR HYDROCARBON-BURNERS. EDWIN G. MUMMERY, Detroit, Mich. Filed Jan. 2, 1900. Serial No. 171. Term of patent 14 years.

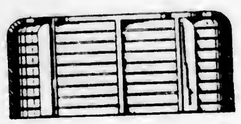




Claim.—The design for a wall of a hydrocarbon-burner herein shown and described.

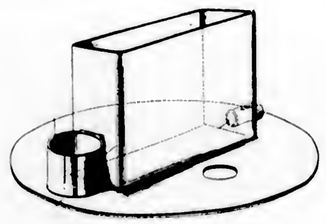
32,164. WALL FOR HYDROCARBON-BURNERS. EDWIN G. MUMMERY, Detroit, Mich. Filed Jan. 2, 1900. Serial No. 172. Term of patent 14 years.

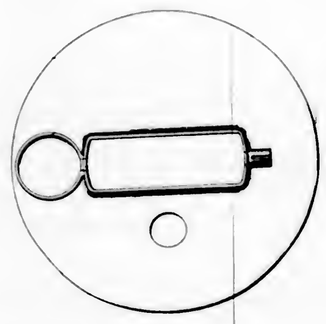




Claim.—The design for a wall of a hydrocarbon-burner herein shown and described.

32,165. LAMP-HOOD. DAVID S. WILLIAMS, Philadelphia, Pa. Filed Dec. 23, 1899. Serial No. 741,473. Term of patent 7 years.





Claim.—The design for a hood, substantially as herein shown and described.

32,166. MEMBER FOR LAMP-BRACKETS. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed July 3, 1899. Serial No. 722,766. Term of patent 7 years.





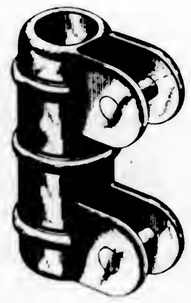
Claim.—The design for a member of a lamp-bracket as herein shown and described.

32,167. MEMBER FOR LAMP-BRACKETS. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed July 3, 1899. Serial No. 722,767. Term of patent 7 years.



Claim.—The design for a member of a lamp-bracket as herein shown and described.

32,168. CORNER-BRACKET FOR BEDSTEADS. SAMUEL L. HAINES, Philadelphia, Pa. Filed Jan. 6, 1900. Serial No. 627. Term of patent 7 years.



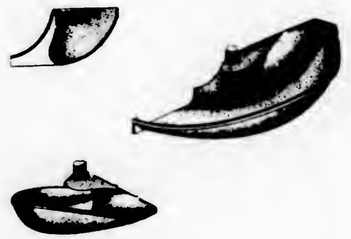
Claim.—The design for a corner-bracket for bedsteads, substantially as herein shown and described.

32,169. BEATER-TROUGH PLATE FOR PAPER MANUFACTURE. IRWIN P. DILLON, Lawrence, Mass., assignor of one-half to Henry C. King, same place. Filed Dec. 21, 1899. Serial No. 741,193. Term of patent 14 years.



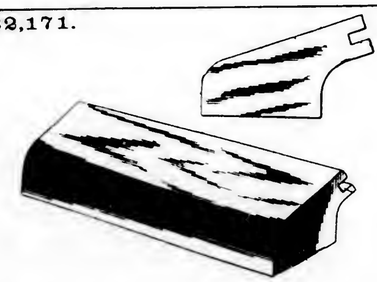
Claim.—The design for a beater-trough plate substantially as herein shown and described.

32,170. BEATER-TROUGH PLATE FOR PAPER MANUFACTURE. IRWIN P. DILLON, Lawrence, Mass., assignor of one-half to Henry C. King, same place. Filed Dec. 21, 1899. Serial No. 741,194. Term of patent 14 years.



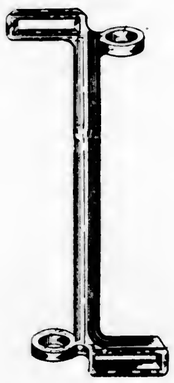
Claim.—The design for a beater-trough plate, substantially as herein shown and described.

32,171. BLOCK FOR SCRUBBING-BRUSHES AND DRIERS. PAUL RUSSELL CUMMINS, Chicago, Ill., assignor to the Handy Things Company, same place. Filed Oct. 27, 1899. Serial No. 734,904. Term of patent 7 years.



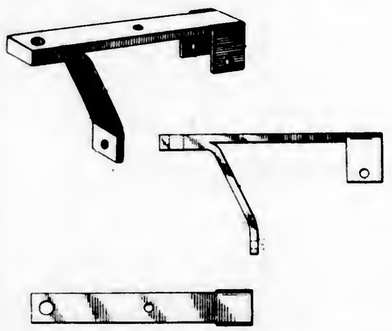
Claim.—The design for a block for a scrubbing-brush and drier, substantially as herein shown and described.

32,172. ROPE-BRAKE FOR FIRE-ESCAPES. ALBERT C. ARNBRUSTER, Los Angeles, Cal. Filed Oct. 24, 1899. Serial No. 734,690. Term of patent 7 years.



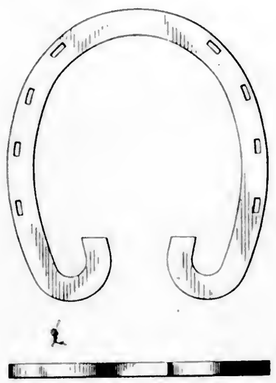
Claim.—The design for a rope-brake for fire-escapes as herein shown and described.

32,173. GATE-HINGE. WILLIAM RICHARD WHITE, Bloomington, Ill. Filed Dec. 16, 1899. Serial No. 740,605. Term of patent 14 years.



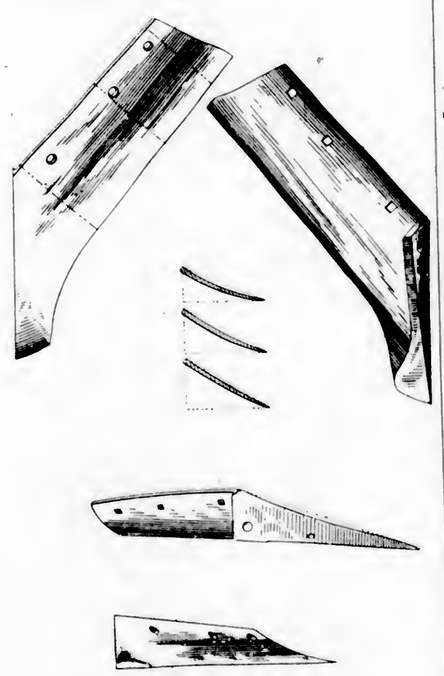
Claim.—The design for a gate-hinge, substantially as herein shown and described.

32,174. HORSESHOE-FRAME. HENRY PAAR, Canton, Ohio, assignor to John L. Arnold, same place. Filed Dec. 30, 1899. Serial No. 742,156. Term of patent 14 years.



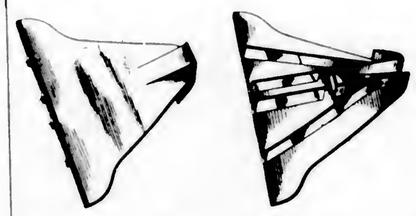
Claim.—The design for a horseshoe-frame as herein shown and described.

32,175. SHARE FOR PLOWS. GEORGE W. KEAN, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Dec. 2, 1899. Serial No. 739,047. Term of patent 14 years.



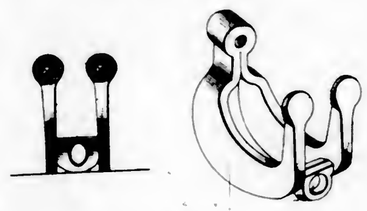
Claim.—The design for a plowshare as herein shown and described.

32,176. WAGON-HOUND. EDWIN ALEXANDER ROTHROCK, Lexington, N. C. Filed Dec. 28, 1899. Serial No. 741,570. Term of patent 3½ years.



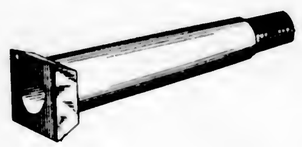
Claim.—The design for a wagon-hound as herein shown and described.

32,177. CLAMP-FRAME FOR VEHICLE-TONGUE SUPPORTS. MARTIN SCHICHTI, North Yakima, Wash. Filed Dec. 18, 1899. Serial No. 740,830. Term of patent 14 years.



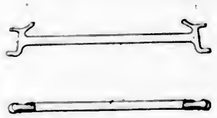
Claim.—The design for a clamp-frame, as herein shown and described.

32,178. AXLE-BOX. WILLIAM W. FLEWELLING, Selma, Cal. Filed Dec. 21, 1899. Serial No. 741,191. Term of patent 7 years.



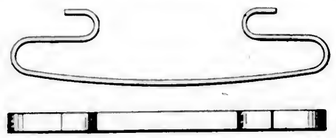
Claim.—The design for an axle-box, substantially as herein shown and described.

32,179. VEHICLE-AXLE. HIRAM PERCY MAXIM and HERBERT W. ALDEN, Hartford, Conn., assignors to the Columbia and Electric Vehicle Company, same place and Jersey City, N. J. Filed Nov. 17, 1899. Serial No. 737,375. Term of patent 14 years.



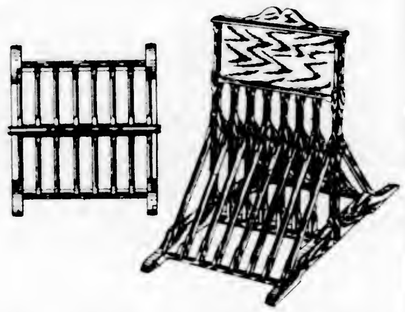
Claim.—The design for a vehicle-axle, substantially as shown and described.

32,180. VEHICLE-SPRING. WILLIAM W. HALL, Indianapolis, Ind. Filed Jan. 4, 1900. Serial No. 398. Term of patent 7 years.



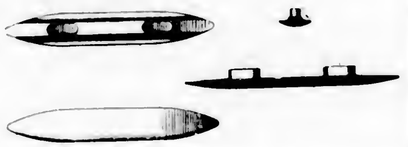
Claim.—The design for a vehicle-spring, as herein shown and described.

32,181. VELOCIPEDE-SUPPORT. FRANKLIN R. PEASE, Rochester, N. Y. Filed Dec. 18, 1899. Serial No. 740,827. Term of patent 14 years.



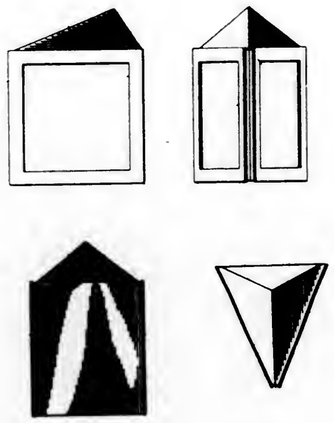
Claim.—The design for a velocipede-support, substantially as herein shown and described.

32,182. COUPLING-BAR FOR ENDS OF INTERIOR SECURING-BANDS FOR RUBBER TIRES. GEORGE MEYER, New York, N. Y. Filed Dec. 27, 1899. Serial No. 741,770. Term of patent 14 years.



Claim.—The design for a coupling-bar for the ends of interior securing-bands for rubber tires, substantially as shown and described.

32,188. SIGN. FRANK TUCHFARBER, Cincinnati, Ohio. Filed Dec. 7, 1899. Serial No. 739,576. Term of patent 7 years.



Claim.—The design for a sign, as herein shown and described.

32,184. KITCHEN-CABINET. WILLIAM H. HUET, Fayette, Mo., and JOHN R. CRAIG, Cleveland, Tenn. Filed Dec. 11, 1899. Serial No. 740,009. Term of patent 14 years.



Claim.—The design for a kitchen-cabinet substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 30, 1900.

34,082. COLLARS AND CUFFS. William Barker Company, Watervliet, N. Y. Filed Nov. 9, 1899.



Essential feature.—The representation of a dog's head holding in its mouth a shirt-collar. Used since October 10, 1899.

34,083. OVERALLS AND BLOUSE-SHIRTS. Scranton & Sheldon, Peoria, Ill. Filed Dec. 16, 1899.



Essential feature.—The representation of the head of a horse circumscribed by a circle. Used since November 29, 1899.

34,084. HOSIERY. Richmond Hosiery Mills, Rossville, Ga. Filed Jan. 2, 1900.



Essential feature.—The representation of a large outside circle with four segments coming to a tangent and the three letters "R. H. M." Used since May 1, 1899.

34,085. CERTAIN NAMED CARPETS AND RUGS. T. F. Firth & Sons, Limited, Brighouse, England. Filed June 12, 1899.



Essential feature.—The representation of a stag's head. Used since June, 1891.

34,086. CERTAIN NAMED RUGS, BLANKETS, AND HORSE-CLOTHING. T. F. Firth & Sons, Limited, Brighouse, England. Filed June 12, 1899.



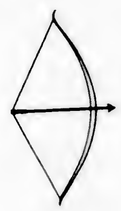
Essential feature.—The representation of a stag's head. Used since June, 1891.

34,087. NOSE-GUARDS FOR EYEGLASSES. C. L. Merry Optical Co., Kansas City, Mo. Filed Dec. 19, 1899.

ROYAL

Essential feature.—The word "Royal." Used since April 1, 1899.

34,088. SLIPPER BOWS AND BUCKLES. J. A. Dalrymple & Co., Haverhill, Mass. Filed Dec. 28, 1899.



Essential feature.—The representation of an archer's bow and arrow. Used since December 16, 1899.

34,089. CERTAIN NAMED GAME APPARATUS. Edgar L. Williams, Peoria, Ill. Filed Dec. 1, 1899.



Essential feature.—A picture of the head and shoulders of a man wearing a close cap, who holds in his hand a box containing rings and tenpins, which is pushed through a ring in which he is shown. Used since October 12, 1899.

34,090. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

PILGRIM

Essential feature.—The word "Pilgrim." Used since January 1, 1884.

34,091. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

PEARL

Essential feature.—The word "Pearl." Used since January 1, 1884.

34,092. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

PURITAN

Essential feature.—The word "Puritan." Used since January 1, 1891.

34,093. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

VULCAN

Essential feature.—The word "Vulcan." Used since January 1, 1894.

34,094. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

KRAKO

Essential feature.—The word "Krako." Used since January 1, 1884.

34,095. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

KAISER

Essential feature.—The word "Kaiser." Used since January 1, 1891.

34,096. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

HERCULES

Essential feature.—The word "Hercules." Used since January 1, 1894.

34,097. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

HARD PAN

Essential feature.—The words "Hard Pan." Used since January 1, 1887.

34,098. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

ACHILLES

Essential feature.—The word "Achilles." Used since January 1, 1894.

34,099. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

CONQUEROR

Essential feature.—The word "Conqueror." Used since January 1, 1891.

34,100. BRUSHES. John L. Whiting & Son Company, Boston, Mass. Filed Jan. 2, 1900.

DUDE

Essential feature.—The word "Dude." Used since January 1, 1884.

34,101. PAIN CURE. Corse & McCorkle, Lexington, Va. Filed Dec. 8 1899.

WACOMA

Essential feature.—The word "Wacoma." Used since March 1, 1899.

34,102. MEDICAL COMPOUND. Paul Conday, Pittsburg, Pa. Filed Dec. 26, 1899.

EINE KLEINE SCHWARTZE

Essential feature.—The words "Eine Kleine Schwartze." Used since October 8, 1888.

34,103. MEDICAL COMPOUND FOR CERTAIN NAMED DISEASES. J. Lee Cruce Company, Fort Smith, Ark. Filed Dec. 15, 1899.



Essential feature.—The representation of a shield and the letters "J L C" in monogram thereon. Used since November 14, 1899.

84,104. REMEDIES FOR CERTAIN NAMED DISEASES. FOLEY & COMPANY, Chicago, Ill. Filed Feb. 24, 1899.



Essential feature.—The pictorial representation of a beehive. Used since 1870.

84,105. GRANULES FOR CERTAIN NAMED DISEASES. MAURICE ROSEN, Paris, France. Filed Nov. 27, 1899.

GLYKOLAÏNE BINSCE

Essential feature.—The words "GLYKOLAÏNE BINSCE." Used since March 13, 1899.

84,106. DRUGS, CHEMICALS, MEDICINES, MEDICAL COMPOUNDS, AND PHARMACEUTICAL PREPARATIONS. THE SCHROEDER CHEMICAL COMPANY, Cincinnati, Ohio. Filed Jan. 4, 1900.

Peruvinol.

Essential feature.—The word "PERUVINOL." Used since December 23, 1899.

84,107. OINTMENT FOR CERTAIN NAMED DISEASES. CHARLES E. ABELL, South Haven, Mich. Filed Oct. 3, 1898.



Essential feature.—The word "FORMALB." Used since September 1, 1897.

84,108. LINIMENT. GEORGE W. WALLIS, Rockdale, Tex. Filed Oct. 28, 1899.

CHAMPION

Essential feature.—The word "CHAMPION." Used since June, 1898.

84,109. STERILIZED SURGICAL DRESSINGS. DARIUS SMITH, Syracuse, N. Y. Filed June 13, 1899.

STERILINE

Essential feature.—The word "STERILINE." Used since December 1, 1896.

84,110. CERTAIN NAMED TOILET PREPARATIONS. JAMES S. KIRK & Co., Chicago, Ill. Filed Dec. 26, 1899.

USONA

Essential feature.—The word "USONA." Used since July 1, 1899.

84,111. CHEESE. CROSBY & MEYERS, Chicago, Ill. Filed Oct. 21, 1899.



Essential feature.—Three parallel bands or stripes, red, white, and blue in color. Used since June 1, 1898.

84,112. WHEAT-FLOUR. J. L. CONNELL & Co., Scranton, Pa. Filed Jan. 4, 1900.

ARBUTUS

Essential feature.—The word "ARBUTUS." Used since December 20, 1899.

84,113. SAUCE. OSCAR & Co., INCORPORATED, New York, N. Y. Filed Jan. 8, 1900.



Essential feature.—A portrait of the originator of the sauce. Used since December 26, 1899.

84,114. GRANULATED SUGAR. THE FRANKLIN SUGAR REFINING COMPANY, Philadelphia, Pa. Filed Jan. 4, 1900.



Essential feature.—A picture of the head of a man having a smooth face and long hair, said picture being arranged above a rectangular figure having an ornamental top. Used since December 18, 1899.

84,115. GRANULATED SUGAR. THE FRANKLIN SUGAR REFINING COMPANY, Philadelphia, Pa. Filed Jan. 4, 1900.



Essential feature.—A picture of the head of a man having a smooth face and long hair. Used since December 18, 1899.

84,116. CHOCOLATES. CONSELLO CHOCOLATE COMPANY, Chicago, Ill. Filed Jan. 2, 1900.

Zenith

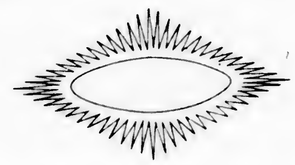
Essential feature.— The word "ZENITH." Used since January 1, 1891.

84,117. CERTAIN NAMED BREWERS' SUPPLIES AND MATERIALS. CHARLES ZOLLER, New York, N. Y. Filed Dec. 13, 1899.



Essential feature.—The representation of a divided shield, two respectant animals on its sides, with the inscription "FURCHTLOS UND TREW" below on a ribbon, which serves as a basis or support for the shield and animals. Used since 1879.

84,118. LAGER-BEER. EDWARD R. STEGE, Chicago, Ill. Filed July 6, 1899.



Essential feature.—The representation of an ellipse, which ellipse is surrounded by a serrated diamond-shaped figure. Used since May 1, 1899.

84,119. MALT TONIC. THE ARNHOLT & SCHAEFER BREWING COMPANY, Philadelphia, Pa. Filed Dec. 30, 1899.

GERMALT

Essential feature.—The word "GERMALT." Used since December 22, 1899.

84,120. BEER. THE ARNHOLT & SCHAEFER BREWING COMPANY, Philadelphia, Pa. Filed Dec. 30, 1899.

GERMALT

Essential feature.—The word "GERMALT." Used since December 22, 1899.

84,121. WINE. THE ARNHOLT & SCHAEFER BREWING COMPANY Philadelphia, Pa. Filed Dec. 30, 1899.

GERMALT

Essential feature.—The word "GERMALT." Used since December 22, 1899.

84,122. WHISKY. ELIAS & SAMUELS, New York, N. Y. Filed Dec. 20, 1899.

LANCER

Essential feature.—The word "LANCER." Used since December 13, 1899.

84,123. GUNPOWDER. THE HAZARD POWDER COMPANY, New York, N. Y. Filed Jan. 6, 1900.



Essential feature.—The representation of a hunter in the act of aiming at an animal. Used since September 20, 1899.

84,124. GUNPOWDER. THE HAZARD POWDER COMPANY, New York, N. Y. Filed Jan. 6, 1900.



Essential feature.—The representation of a mounted cow-boy in the act of repelling pursuing wolves. Used since September 20, 1899.

84,125. GUNPOWDER. THE HAZARD POWDER COMPANY, New York, N. Y. Filed Jan. 6, 1900.



Essential feature.—The representation of a sportsman in the act of aiming at large game. Used since September 20, 1899.

34,126. GUNPOWDER. THE HAZARD POWDER COMPANY, New York, N. Y. Filed Jan. 6, 1900.



Essential feature.—The representation of a squad of soldiers in firing position. Used since September 20, 1899.

34,127. PAINTS, VARNISHES, CEMENT-PAINTS, AND CEMENTS. HERTZOG CEMENT-PAINT CO., Philadelphia, Pa. Filed Sept. 16, 1899.



Essential feature.—The representation of a trowel and the facsimile-signature "GEO. W. HERTZOG." Used since September 1, 1898.

34,128. POWER-GENERATORS. FAIRBANKS, MORSE & COMPANY, Chicago, Ill. Filed Jan. 6, 1900.

JACK OF ALL TRADES

Essential feature.—The words "JACK OF ALL TRADES." Used since January 1, 1899.

34,129. AUTOMOBILE VEHICLES. WALTHAM MANUFACTURING COMPANY, Waltham, Mass. Filed Jan. 8, 1900.

VICTORIETTE

Essential feature.—The word "VICTORIETTE." Used since November 1, 1899.

THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE GASSMANN.

Decided December 18, 1899.

1. DIVISION—PRODUCT—GENUS AND SPECIES.

Where a set of claims can be based upon one specific product, there is no reason why they should not be permitted to remain in the same application. Claims so drawn are drawn in accordance with the doctrine of genus and species.

2. SAME—SAME—SAME.

Where an Examiner stated that he was willing to allow two claims of an application for a product for dyeing fabrics, but insisted that the other claims for a more specific product be canceled on the ground that to permit them to remain in the application would be contrary to *ex parte Eagle*, (C. D., 1870, 137,) the Examiner's requirement as to the limitation of the claims being based upon the assumption that a "dialkyl rhodamine" is not a species of "rhodamine," but that the two substances are different species of the genus "a phtaleine," *Held* that were the Examiner's assumption correct the requirement might have been well founded; but as dialkyl rhodamine is held to be a species of rhodamine his requirement was wrong.

ON petition.

FIXING ON FABRICS COLORING-MATTERS KNOWN AS PHTALEINES.

Application of Charles E. Gassmann filed December 24, 1897, No. 663,403.

Messrs. Arthur C. Fraser & Co. for the applicant.

DURELL, *Commissioner:*

This application contains six claims, which read as follows:

1. As a new product for use in printing or dyeing fabrics, a phtaleine dissolved in a volatile phenol.
2. As a new product for use in printing or dyeing fabrics, a phtaleine dissolved in cresyllic acid.
3. As a new product for use in printing or dyeing fabrics, a rhodamine dissolved in a volatile phenol.
4. As a new product for use in printing or dyeing fabrics, a dialkyl rhodamine dissolved in a volatile phenol.
5. As a new product for use in printing or dyeing fabrics, a rhodamine dissolved in cresyllic acid.
6. As a new product for use in printing or dyeing fabrics, a dialkyl rhodamine dissolved in cresyllic acid.

During the consideration of the application the Examiner objected to these claims as covering two species. He stated that he was willing to allow claims 1 and 2, but insisted that the other four claims should be canceled, for to permit them to remain in the case would be contrary to the practice laid down in the case of *ex parte Eagle*, (C. D., 1870, 137.)

It is from the action of the Examiner requiring such limitation of the claims that this petition is taken.

Applicant made the discovery that volatile phenols are solvents for the dyes or coloring-matters known as "phtaleines," some of which, particularly dialkyl rhodamine, are insoluble or only slightly soluble in aqueous liquids, and that the solutions obtained in this way when thickened and used as a dye and the solvent volatilized with steam may be fixed, like the solutions of soluble coloring-matters, with or without mordants.

Considering and analyzing the claims, the first claim is, broadly, for any phtaleine dissolved in the solvent—a volatile phenol of any kind. Of the other claims it may be stated that the solvent "cresyllic acid" is one species of "a volatile phenol," that "rhodamine" is one species of "a phtaleine," and that, as I understand the subject, "dialkyl rhodamine" is a species of "rhodamine."

In each of the claims the dye or coloring-matter is generically a phtaleine and specifically a rhodamine, and still more specifically a dialkyl rhodamine. In each claim the solvent of the dye is generically a volatile phenol and specifically cresyllic acid. Therefore while some of the claims are generic to others they are specific to a third set. All of the claims, however, are based upon the same specific product defined by claim 6—namely, a dialkyl rhodamine dissolved in cresyllic acid—and there is no claim to a modification or alternative form of applicant's product.

When a set of claims, as in this case, can be based upon one specific product, I can see no reason why they should not be permitted to remain in the same application. Claims so drawn are drawn in accordance with the doctrine of genus and species. It seems that the Examiner's requirement was based upon the assumption that "a dialkyl rhodamine" is not a species of "a rhodamine," but that these two substances are different species of the genus "a phtaleine." Were the Examiner's assumption correct, his requirement might have been well founded; but as I understand the subject his assumption was wrong, dialkyl rhodamine being a species of rhodamine.

The petition is granted.

HUMMEL *v.* TINGLEY.

Decided January 9, 1900.

1. REFERENCE, BURDEN UPON APPLICANT TO SHOW DATE OF.

Where the Primary Examiner cited a foreign patent as being a pertinent reference, as it appeared upon its face that it was issued at a date prior to the filing date of the application under consideration, and it was contended by applicant that

the foreign patent was not granted at the date shown on its face, *Held* that when the foreign patent was cited the burden was shifted to applicant to prove that the said patent was not entitled to a date which made it effective as an anticipatory publication.

2. SAME.

Held, further, that the question is analogous to that raised by the citation of a prior patent to negative patentability of an invention claimed by an applicant. In that case the burden is upon the applicant to show that such prior patent does not disclose his claimed invention. (*Durham* v. *Seymour, Commissioner of Patents*, 71 O. G., 601.)

APPEAL on motion.

PHASE REGULATION.

Application of Hummel filed November 18, 1897, Serial No. 658,959. Application of Tingley filed May 9, 1896, Serial No. 590,841.

Messrs. Briesen & Knauth for Hummel.

Mr. Wesley G. Carr for Tingley.

DUELL, *Commissioner:*

Hummel has appealed from the decision of the Examiners-in-Chief reversing the decision of the Primary Examiner dissolving the interference, the issue of which is:

The combination with two field-coils and means for lagging the phase of the magnetic field produced by one of them, of means in shunt to said last-named coil for causing a further lag of its magnetic field.

The Primary Examiner granted the motion upon the ground that this issue was anticipated by Hungarian Patent No. 4,911, French Patent No. 252,997, and Italian Patent No. 40,587. The Examiners-in-Chief reversed the decision upon the ground that it was based on evidence not entitled to be considered. It appeared that the Hungarian patent was the only one before the Examiner at the time of his decision. They held that—

the drawing of the Hungarian patent is identical with that of the French and British patent and is manifestly a drawing of the same device. But we are unable to determine from the copy of the Hungarian patent its effective date as an anticipatory publication.

It seems that a copy of the French patent had been received subsequent to the hearing before the Examiners-in-Chief and that they had considered the same. Their decision was coupled with the recommendation that Tingley's claim to the issue be rejected on the French patent, (and on the Italian patent should a copy thereof be received and the effective date be early enough,) but that an amended claim as indicated by them should be allowed. The copy of the Hungarian patent which was before the Examiner was a copy officially furnished by the Hungarian Patent Office to the United States Patent Office, and therefore was properly considered by the Examiner.

The question to be determined is whether the burden is on the Office to show conclusively that the Hungarian patent was issued prior to the filing date of Tingley's application. As I view it, the Examiner was correct in holding that the Hungarian patent was a pertinent reference, as it appears upon its face that it was issued at a date prior to the filing date of the Tingley application. When cited, the burden is shifted to Tingley to prove that the Hungarian patent is not entitled to a date which makes it effective as an anticipatory publication. The question is analogous to that raised by the citation of a prior patent by an Examiner to negative patentability of an invention claimed by an applicant. In that case the burden is upon applicant to show that such prior patent does not disclose his claimed invention. (*Durham* v. *Seymour, Commissioner of Patents*, 71 O. G., 601.)

However this may be, since the hearing of this appeal it has been brought to my attention that the Hungarian patent is apparently entitled to the date of December 15, 1895, as an anticipatory publication.

The decision of the Examiners-in-Chief is reversed and the case is remanded to the Primary Examiner, who in his further treatment will give to the Hungarian patent that date, provided upon examination he is convinced that that is the correct date to be given to it.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

WELSBACH LIGHT COMPANY *v.* THE AMERICAN INCANDESCENT LAMP COMPANY AND J. BERLINICKE.

Decided December 7, 1899.

1. RAWSON—INCANDESCENT MANTLES—VALIDITY.

Claim 1 of Letters Patent No. 470,963, granted to Frederick L. Rawson and William S. Rawson July 30, 1889, for an improvement in the production of incandescent mantles, *Held* to be valid.

2. PATENT—FOREIGN PATENT—INFRINGER DEFEATING UNITED STATES PATENT—EFFECTIVE DATE OF FOREIGN INVENTION.

An infringer cannot defeat Letters Patent of the United States to an original inventor in a foreign country by proof that before the date of a prior foreign patent to the same inventor, but not before the date of the application for such patent and less than two years before the date of the application for a United States patent, the invention was used in this country by a person who did not invent it.

3. SAME—SAME—SAME—"DATE OF INVENTION" IN SECTION 4886, REVISED STATUTES, CONSTRUED.

Section 4886, Revised Statutes, applies to all inventions irrespective of the place of their origin, and the term "date of invention" is used without discrimination between classes of inventions. The language of the section refers to the actual and not to the artificial date.

4. SAME—SAME—SAME.

As against an infringer a patentee in a United States patent for an invention previously made by him and patented in a foreign country may, to avoid alleged use in this country by an infringer before the date of the foreign patent, show the date of the application for the foreign patent for the purpose of showing the actual date of his invention in a foreign country.

5. SAME—SAME—SAME—CASE OF INTERFERENCE IN THE PATENT OFFICE DISTINGUISHED.

The case at bar distinguished from an interference in the Patent Office or a contest in the courts between original inventors for priority of invention.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

Before WALLACE and SHIPMAN, Judges.

Mr. John R. Bennett for the Welsbach Company.

Mr. R. D. Kenyon and *Mr. William H. Kenyon* for The American Company *et al.*

SHIPMAN, *J.:*

This is an appeal from an interlocutory order of the Circuit Court for the Southern District of New

York which granted an injunction *pendente lite* against the infringement of claim 1 of Letters Patent No. 470,963, applied for August 21, 1888, dated July 30, 1889, and issued to Frederick L. Rawson and William S. Rawson, for an improvement in the production of incandescent mantles. The patent had been sustained by Judge Townsend at final hearing in *Welsbach Light Company* v. *Sunlight Incandescent Gas Light Co.*, (87 Fed. Rep., 221,) and from his decree no appeal was taken. Upon the subsequent application of the complainant for an injunction against the *Rex Incandescent Light Co.* (94 Fed. Rep., 1006) Judge Lacombe went over the record in the *Sunlight Case* and the briefs of counsel therein, with the result of an absolute concurrence in Judge Townsend's conclusions. The Rawson invention was designed to give to the Welsbach mantle commercial utility and value and was of a remarkable and meritorious character. It is described by Judge Townsend as follows:

In 1885, Dr. Carl Auer von Welsbach discovered or invented the mantle of the incandescent light which bears his name. Prior to that date it was known that certain rare earths when heated to incandescence were possessed of great luminosity. Dr. Auer von Welsbach, or as he will hereinafter be called, Welsbach, was the first to discover that by immersing a textile fabric in a solution of the salts of said rare earths, and afterward applying heat and consuming the fabric the earthy salts would be left in a coherent condition exactly reproducing the fabric consumed, and capable of emitting the intense white Welsbach incandescent light. Great as was this scientific discovery, it was commercially valueless. The resultant product was so light and fragile that although, as stated by the inventor, "it would remain effective as an illuminant for hundreds of hours" it would crumble to ashes if handled, or even touched by a hard body.

In their specification the patentees, after speaking of the difficulty previously found in transporting these mantles without breakage, say:

"This difficulty our invention is designed to overcome by dipping the mantles, after they have been given their proper shape, into a liquid which will thoroughly penetrate the pores of the material and will afterward set to such a degree of hardness as to protect the material from danger of breakage in packing or handling, and which can afterward be removed without mechanical injury to the mantles or without leaving any objectionable residue."

The main defense rests upon the alleged facts that Welsbach and Ludwig Heitinger jointly, or one of them severally, invented the Rawson improvement in Vienna in 1886 and that Welsbach introduced it into this country in 1887 and made on March 3, 1888, a joint application for Letters Patent for it. They did make a joint application for two inventions, one of which was Welsbach's for a reinforcement of his mantle by reimmersion in the original Welsbach solution and the other for the Rawson invention. The Patent Office rejected the claims for the latter upon the Rawson English patent published July 23, 1887, the specification of which was filed September 1, 1886. Thereupon Welsbach and Heitinger filed an abandonment of their application and Welsbach filed a new application for the other invention and received a patent therefor. The position of the defendant, based upon the alleged invention by Welsbach or Heitinger of the Rawson improvement in Vienna in 1886, is that Rawson, who subsequently received Letters Patent of the United States, cannot place the date of his foreign invention prior to the date of his English patent—viz., prior to July 23, 1887—and consequently that Welsbach or Heitinger was, or both of them were, entitled to a patent when it was rejected.

The alleged fact of the invention by Welsbach or Heitinger is not supported by testimony in the record. The affidavit of A. Ernest Nienstadt proves nothing in regard to this invention. Welsbach filed on October 20, 1886, an application supplementary to an application of April 28, 1886, upon which his German patent, No. 41,945, was issued on December 17, 1887; but while in his supplementary application he stated an improvement of the Rawson character he did not claim it as his own. The Welsbach Light Company, established in 1887 or 1888, knew of the great commercial importance of this invention and of the importance of obtaining an exclusive right to use it: but, as appears by the testimony of Mr. Randal Morgan, its vice-president, it learned at the time of the abandonment of the application in this country that Welsbach made no claim that he either separately or jointly with Heitinger invented the improvement. No subsequent application was ever made by Heitinger. What foundation, if any, he had for an assertion of original invention does not appear in the record, which also fails to show how Welsbach's title to originality ever existed. The distinction between his inventions for the strengthening of his mantle, as shown in his French patent of 1886, No. 172,064, his English patent of April 24, 1886, No. 15,255, and his German patent, No. 41,945, mentioned *supra*, and the Rawson invention is pointed out by Judge Lacombe in *Welsbach Light Co.* v. *Rex Incandescent Light Co.*, *supra*.

This is not the case of an interference in the Patent Office or of a contest in the courts between two original inventors for priority of invention, in which it is the established rule under section 4923 that an original inventor who applies for Letters Patent of the United States cannot be deprived of his right to a patent by the fact that an inventor had made in a foreign country at a prior date the same original invention, but which had not been described at a prior date in a patent or in a printed publication. (*Ireson* v. *Pierce*, 39 Fed. Rep., 797; *Roemer* v. *Simon*, 12 O. G., 796; 95 U. S., 214; *Elizabeth* v. *Pavement Co.*, 97 U. S., 126.) The subject of the practice in the Patent Office upon two applications by two original inventors in a foreign country of the same invention is stated in *Lander* v. *Crowell*, (16 O. G., 405.) Neither the practice under nor the established construction of section 4923 has a bearing upon this case, because Welsbach is not shown to have been in any country an inventor of the Rawson improvement; but if it was used in this country either before or after the date of the Rawson United States patent by a person not claiming under the Rawsons it was used by an infringer. This question then arises: Can an infringer defeat Letters Patent of the United States to an original inventor in a foreign country by proof that a few days before the date of a prior foreign patent to the same inventor, but not before the date of the application for such patent and less than two years before the date of the application for a United States patent, the invention was used in this country by a person who did not invent it?

It is contended by the defendant that under sec-

tion 4886 of the Revised Statutes the Rawson patent was void on the ground that the improvement was known and used in this country before the invention thereof, because the actual inventor is not permitted to show that the date of his invention was prior to the date of his foreign patent. The section is as follows:

> Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof, not known and used by others in this country and not patented or described in any printed publication in this or any foreign country before the invention or discovery thereof, or not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor.

The section gives to an inventor, foreign or domestic, the right to a patent unless certain conditions existed, neither of which in fact existed in this case. The Rawson invention had not been patented or described in any country before the patentees invented it, had not been in public use or on sale for more than two years prior to their application, had not been abandoned, and had not been known or used in this country by any one before the date of the invention.

If no other disabilities prevent, an inventor may obtain a patent of the United States for an invention made and previously patented in a foreign country unless the same has been introduced into public use in the United States for more than two years prior to the application, (section 4887,) which is in substance the qualification which exists in section 4886 as applicable to any invention, and it is not necessary that the introduction shall have been made with the consent of the inventor. (*Andrews* v. *Hovey*, 41 O. G., 1162; 123 U. S., 267; 124 U. S., 694.) It is, however, said that the section requires that the invention must not have been known or used in this country before the date of the invention and that the date of the publication of the foreign Rawson patent is the date *de jure*. The section applies to all inventions irrespective of the place of their origin, and the term "date of invention" is used without discrimination between classes of inventions. The theory of the defendant is that as to the domestic inventor knowledge in this country must precede the actual date of the invention, but that as to a foreign inventor knowledge in this country need only precede the date of the publication of his foreign patent. We are of opinion that the language of the section refers to the actual and not an artificial date, and that were there no contest between inventors, if knowledge in this country did not precede the actual date of the invention, unless it had been used in this country for two years before the application, the inventor was entitled to a patent.

This question was before Judge Dallas in *Hanifen* v. *Godschalk Co.* (79 O. G., 513; 78 Fed Rep., 811,) and before Judge Townsend in *Hanifen* v. *Price*, (96 Fed Rep.,) whose opinions are in conformity with those herein expressed. Our conclusion is that as against an infringer the patentee in a United States patent for an invention previously made by him and patented in a foreign country may, to avoid alleged use in this country by an infringer, before the date of the foreign patent, show the date of the application for the foreign patent for the purpose of showing the actual date of his invention in a foreign country.

Upon the facts shown in the record it is not, in our opinion, certain that the Rawson improvement was introduced into this country before July 23, 1887. It is true that Welsbach came to New York on April 24, 1887, for the purpose of organizing a corporation and manufacturing mantles and opened an office at No. 10 Wall street and paid rent for the months of June and July of that year. A sufficient number of witnesses testify that they worked in the office for a part of the month of June and, after an intermission of three or four weeks, in Warren street in July and used a process like the Rawson process. There are a variety of circumstances which throw doubt upon the credibility of the fact of the use of the improvement at that early period, although undoubtedly it was subsequently used. It is, however, unnecessary to recite the circumstances of this part of the case or to make a finding thereon.

The defendants also make the point that the English Rawson patent was confined by its terms to a hot process and that a cold process was a new invention and therefore was known in this country before Rawson made it. The conclusion that a cold process was a new invention made after the date of the English patent does not seem to us to rest upon sufficient evidence.

The effort which was made to show that William S. Rawson was the sole inventor of the invention of the Rawsons patent fails to convince the mind and was not persuasive.

The order of the circuit court is affirmed with costs.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 6. TUESDAY, FEBRUARY 6, 1900 PRICE—$5 per year.

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 1, 1900.

Rule 41 of the Rules of Practice of the United States Patent Office, edition of July 18, 1899, is amended by canceling the second paragraph thereof and substituting the following:

Claims for a machine and its product must be presented in separate applications.

Claims for a machine and the process in the performance of which the machine is used must be presented in separate applications.

Claims for a process and its product may be presented in the same application.

C. H. DUELL,
Commissioner.

DEPARTMENT OF THE INTERIOR,
February 1, 1900.

Approved to take effect this day.

E. A. HITCHCOCK,
Secretary of the Interior.

Changes in Classification.

(ORDER NO. 1,827.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 30, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

DIVISION XII.—Class 186, Store-Service, is transferred to Division XXXIV.

DIVISION XXXIV.—In class 104, Railways, establish subclass 176, Pneumatic, and transfer thereto the patents heretofore classified in Division XXVIII, class 18, Pneumatics, subclass 35, Pneumatic railways, which subclass is hereby abolished.

In class 104, Railways, establish subclass 177, Pneumatic, motor-charging, and transfer thereto the patents heretofore classified in Division XXVIII, class 98, Railways, subclass 36, Pneumatic railways, motor-charging, which subclass is hereby abolished.

In class 186, Store-Service, establish subclass 13, Carriers, pneumatic, and transfer thereto the patents heretofore classified in Division XXVIII, class 98, Pneumatics, subclass 36, Pneumatic railways, despatch-carriers, which subclass is hereby abolished.

In class 186, Store-Service, establish subclass 14, Propulsion, pneumatic, and transfer thereto the patents heretofore classified in Division XXVIII, class 98, Pneumatics, subclass 37, Pneumatic railways, despatch-tubes, which subclass is hereby abolished.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED FEBRUARY 6, 1900.

Labels.

7,327.—Title: "BUFFALO MILLS CARPET CHAIN." (For Carpet-Chain.) *Walter H. Corkran*, Philadelphia, Pa. Application filed January 15, 1900.

7,328.—Title: "WILLIAM PENN CARPET WARP." (For Carpet Warp.) *Walter H. Corkran*, Philadelphia, Pa. Application filed January 15, 1900.

7,329.—Title: "NUT-CEREAL, A SATISFYING SUBSTITUTE FOR COFFEE." (For Coffee Substitute.) *Nut Cereal Co., Limited*, Battle Creek, Mich. Application filed January 15, 1900.

7,330.—Title: "STEWART'S MOTHERS BREAD." (For Bread.) *Stewart Bread Company*, Philadelphia, Pa. Application filed January 10, 1900.

7,331.—Title: "WILKINSON'S FEBRO-QUININE." (For Medicinal Tablets.) *Howard M. Wilkinson*, Dover, Del. Application filed January 15, 1900.

7,332.—Title: "DOYLES INFALLIBLE HAIR GROWER." (For a Hair-Grower.) *Robert L. Doyle*, Salt Lake City, Utah. Application filed January 10, 1900.

7,333.—Title: "MASON'S CHALLENGE JET LUSTRE." (For a Compound for Dressing Leather.) *Jas. S. Mason Company*, Philadelphia, Pa. Application filed January 9, 1900.

7,334.—Title: "GOLDEN LUSTRE METAL POLISH." (For Metal-Polish.) *D. H. McIlvain*, New York, N. Y. Application filed December 16, 1899.

Prints.

199.—Title: "TOWNSEND'S LITTLE BILLEE CIGARS." (For Cigars.) *Sheets Bros.*, Seattle, Wash. Application filed December 30, 1899.

200.—Title: "ORDER GENUINE MACHETES OF COLLINS & CO. THE BEST ARE THE CHEAPEST." (For Machetes.) *The Collins Company*, Collinsville, Conn. Application filed August 21, 1899.

201.—Title: "FLINT & WALLING MFG. CO." (For Windmills and Water-Supply Goods.) *Flint & Walling Manufacturing Company*, Kendallville, Ind. Application filed January 4, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 30, 1900

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
260	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 16	Jan. 22	134
88	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Jan. 15	Jan. 22	87
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Jan. 13	Jan. 17	34
106	II. Farm Stock, Products, etc.	Jan. 9	Jan. 18	209
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 9	Jan. 16	130
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 5	Jan. 18	109
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 4	Jan. 20	84
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Jan. 4	Jan. 17	172
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 3	Jan. 16	108
351	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 2	Jan. 26	140
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 2	Jan. 23	121
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Jan. 2	Jan. 18	71
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 2	Jan. 18	130
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 2	Jan. 18	125
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Jan. 2	Jan. 17	111
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Jan. 2	Jan. 17	134
98	XXI. Textiles, etc.	Jan. 2	Jan. 17	154
240	VII. Velocipedes, Games, and Toys.	Jan. 2	Jan. 17	216
346	I. Tillage and Fences.	Jan. 2	Jan. 16	142
311	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 2	Jan. 16	165
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Jan. 2	Jan. 16	189
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Jan. 2	Jan. 16	139
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 2	Jan. 16	119
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 2	Jan. 16	107
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 2	Jan. 16	178
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Jan. 2	Jan. 16	143
108	XIX. Stoves and Furnaces	Jan. 2	Jan. 16	182
190	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 2	Jan. 16	116
123	XXIV. Sewing-Machines, Apparel, and Toilet.	Jan. 2	Jan. 16	146
253	X. Carriages and Wagons.	Jan. 2	Jan. 15	130
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 2	Jan. 15	152
258	VI. Chemistry, Explosives, Medicines, Fertilisers, Sugar and Salt, Surgery.	Jan. 2	Jan. 15	315
248	XVIII. Steam-Engineering, etc.	Jan. 2	Jan. 11	160
	Between one and two months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 26	Jan. 11	210
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Dec. 18	Jan. 6	249
85	XXVIII. Pneumatics, Air and Gas Engines, etc.	Dec. 11	Dec. 30	265

Total number of applications awaiting action.....5,376

Applications Under Examination—Continued.

Under one month.			
*Designs	Jan. 26	Jan. 24	37
†Trade-Marks	Jan. 28	Jan. 29	24
‡Labels and Prints	Jan. 30	Jan. 30	1

ISSUE OF FEBRUARY 6, 1900.

Patents	530—No. 642,567 to No. 643,096,	inclusive.
Designs	24—No. 32,185 to No. 32,208,	inclusive.
Trade-Marks	44—No. 34,130 to No. 34,173,	inclusive.
Labels	8—No. 7,327 to No. 7,334,	inclusive.
Prints	3—No. 199 to No. 201,	inclusive.
Reissues	1—No. 11,808.	
Total issue	610	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2		Nevada		
Arizona Territory			New Hampshire	3	
Arkansas	1		New Jersey	27	2
California	16	3	New Mexico Territ'y		
Colorado	4		New York	70	14
Connecticut	16	2	North Carolina	1	
Delaware	1	2	North Dakota		
District of Columbia	5		Ohio	39	3
Florida	2		Oklahoma Territ'y	2	
Georgia			Oregon		
Hawaii	1		Pennsylvania	46	6
Idaho			Rhode Island	5	
Illinois	55	3	South Carolina		
Indian Territory			South Dakota	1	
Indiana	16	3	Tennessee	6	
Iowa	8	1	Texas	8	
Kansas	2	1	Utah	2	1
Kentucky	4		Vermont	3	
Louisiana	6		Virginia	6	
Maine	8		Washington	5	1
Maryland	5	1	West Virginia	4	
Massachusetts	41	5	Wisconsin	12	
Michigan	17	2	Wyoming	1	
Minnesota	12	1	U. S. Army		
Mississippi			U. S. Navy		
Missouri	11		Total to citizens of the United States	475	51
Montana	1				
Nebraska	5				

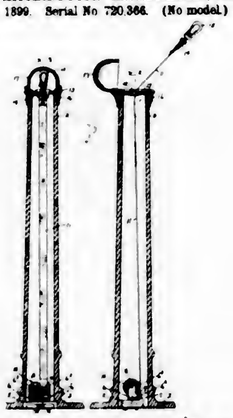
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Japan		
Austria-Hungary	2	1	Jamaica		
Barbadoes			Mexico		
Belgium	2		Netherlands	2	
Brazil			Newfoundland		
British West Indies			New South Wales	1	
Canada	6		New Zealand	2	
Cape Colony			Norway		
China			Queensland		
Colombia			Roumania		
Cuba			Russia	1	
Denmark	2		Scotland	1	
Dutch West Indies			South African Republic	2	
Egypt			Sweden		
England	26	1	Switzerland		
Finland			Victoria		
France	8		Western Australia		
Germany	22	2	Total to citizens of foreign countries	79	4
Guatemala					
India	1				
Ireland	1				

PATENTS

GRANTED FEBRUARY 6, 1900.

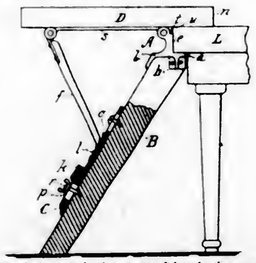
642,567. HITCHING-POST. HATTIE ARMBRAU, Minneapolis, Minn. Filed June 13, 1899. Serial No. 720,366. (No model.)



Claim.—1. The combination, in a device of the class described, of a pipe or frame 2 provided with a flaring base, a slotted cap-plate resting on the top thereof, a collar retaining said cap-plate loosely on said pipe, a pivoted cover, a hitching-strap, a snap or hitching device swivelly connected to said strap, the other end of said hitching-strap fixed on a shaft, a suitable frame wherein said shaft is mounted, said frame swivelly mounted in said pipe or frame 2, and a coiled spring having one end fixed to said shaft and the other fastened to a stationary fastening, substantially as described.

2. The combination, in a device of the class described, of a pipe or frame 2 provided with a base 3, a cap-plate 13, a threaded collar 16, a pivoted cap 17, a hitching-strap 11 provided at one end with a swiveled hitching device and attached at its other end to a shaft 8, a frame 6 wherein said shaft is mounted, a coiled spring 10 having one end fastened on said shaft 8 and the other end fastened to a stationary portion of said frame, the latter being swivelly mounted and a frame 5 mounted in the bottom of said pipe, substantially as described.

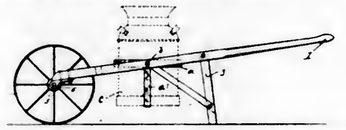
642,568. CLAMPING DEVICE. FREDERICK ARTÓS, Milwaukee, Wis., assignor to Christian Schultz, same place. Filed July 10, 1899. Serial No. 723,371. (No model.)



Claim.—1. A clamping device comprising in its construction, a clamping-jaw formed of a single piece of metal, a metallic strip connected to the said jaw, at one end, a brace-rod pivotally secured to the said metallic strip at its other end, a supporting-lever secured to the said jaw, an adjustable foot-rest mounted on the said lever, and means provided on the said lever for supporting the brace-rod, substantially as described.

2. A clamping device comprising in its construction, a clamping-jaw adapted to be rigidly braced against the end of a table, a supporting-lever secured to the said jaw, a foot-rest adjustably secured to the said lever, a rack-bar secured to the center of the said foot-rest and to the lever, a brace-rod adapted to engage the rack-bar said brace-rod being secured to a metallic strip connected at one end to the clamping-jaw, substantially as described.

642,569. CAN-CARRIER. GILBERT BAKLUND, Willmar, Minn. Filed July 17, 1899. Serial No. 724,040. (No model.)



Claim.—The combination with a wheelbarrow having laterally-spaced side bars, of the can-holder or stirrup comprising the ring *a* and yoke *a'*, pivoted to said side bars at *b* and adapted to swing into different vertical positions, substantially as described.

642,570. UNDERGROUND ELECTRIC RAILWAY. WILLIAM J. BAUMER and HENRY EMMEL, Johnstown, Pa. Filed Oct. 5, 1899. Serial No. 732,662. (No model.)



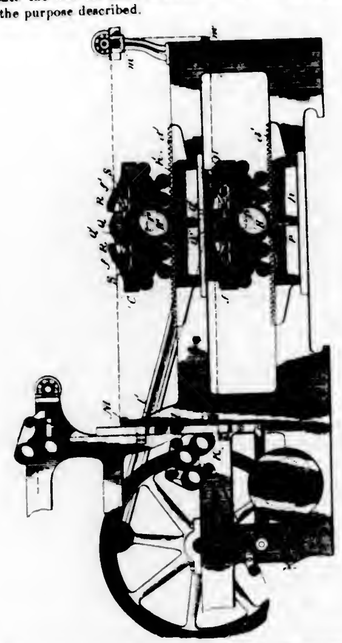
Claim.—1. In an electric railway, the combination with a perforated conduit, of a series of boxes, one for each perforation, the cover for which is turned down upon two of its edges, one of the walls of the box being provided with lugs and the opposite walls being provided with a stop, a switch provided with an arm pivotally secured between said lugs and being adapted to engage with the cover of the box when in use and to engage with the stop when at rest, and a main conductor in the conduit provided with a series of feed-wires one for each box leading to said switches.

2. In an electric railway, non-magnetic boxes, copper plates with two of their edges turned downwardly, said plates forming covers for said boxes, lugs projecting from one side of the boxes, an elongated switch having a depending arm pivoted between said lugs, a stop projecting from the side of each box immediately opposite the lugs, a conduit having openings at intervals through its top openings in the bottom of each box which register with the openings in the conduit, a main conductor in the conduit and feed-wires leading from same through the openings in the conduit and boxes to the elongated switch substantially as described.

642,571. PRINTING-PRESS. HENRY F. BROSHAM, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed Oct. 2, 1896. Serial No. 607,667. (No model.)

Claim.—1. The combination of a movable type-bed, an oppositely-movable cylinder, web-guides at each side of and moving with the cylinder; web-guides on the frame of the press, and means for feeding a web through the press after each impression; with means substantially as described whereby the web-guides beside the cylinder are shifted, during their travel with the cylinder, so as to wholly

compensate the web for the movement of the bed, substantially as and for the purpose described.



2. The combination of a reciprocating bed, an oppositely-reciprocating cylinder, stationary web-guides on the frame of the press beyond the range of travel of the cylinder, and means for intermittently shifting the web forward between the bed and cylinder; with web-guides beside and traveling with the cylinder, and mechanism substantially as described, for shifting said traveling web-guides during their travel so as to compensate for the movements of the beds, substantially as and for the purpose described.

3. The combination of a bed and cylinder, and a pair of web-guide rollers on opposite sides of the cylinder; vibratory arms supporting said guide-rollers, and a sliding rack-bar to which said arms are pivoted; with gearing, substantially as described, for operating the sliding rack-bar from the cylinder-shaft, for the purpose and substantially as described.

4. The combination of the sliding rack Q', the arms R pivoted thereto, the raceways S for guiding the outer ends of said arms; and the web-guides *f f'*, journaled on said arms and vibrated thereby; with the pinion Q meshing with the rack, and means for oscillating said pinion, for the purpose and substantially as described.

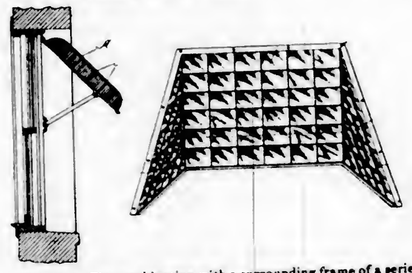
5. The combination of a reciprocating bed, an oppositely-reciprocating cylinder, stationary web-guides for conducting a web between the bed and cylinder, means for continuously feeding a web to the press and delivering it therefrom, and a pair of looping-rollers substantially as described, adapted to intermittently arrest the movement of that part of the web in the printing mechanism; with a pair of web-guides traveling with the cylinder, and means whereby they they are shifted so as to compensate the web for the movement of the bed during the printing, all substantially as and for the purpose specified.

6. The combination of a pair of reciprocating beds; an impression-cylinder coacting with each bed and means for reciprocating the cylinders oppositely to the beds; stationary web guide rollers for leading a web first between one bed and cylinder, reversing it, and then leading it between the other bed and cylinder, and means for intermittently drawing the web forward through the printing mechanisms, but arresting its motion during the printing; with a pair of web-guides on opposite sides of and traveling with each cylinder, and means for moving said guides during, but independent of, their travel so as to shift those parts of the web being printed as required by the movements of the beds, all substantially as and for the purpose described.

7. The combination of a reciprocating bed, and oppositely-reciprocating cylinder, with a pair of web-guides beside and moving with the cylinder; vibratory arms supporting said guides, a rack-bar for shifting said arms, and means for reciprocating said rack-bar as it travels with the cylinder, for the purpose and substantially as described.

8. The combination of a reciprocating bed and oppositely-reciprocating cylinder, a rock-shaft and gearing substantially as described, whereby said shaft is rocked by the movement of the cylinder; with a sliding rack-bar on the cylinder-carriage operated from said rock-shaft, a pair of arms pivoted to said rack, and having their outer ends guided in ways attached to the cylinder-carriage; and a pair of web-guide rollers mounted on said arms whereby as the cylinder is reciprocated the guides are reciprocated with it and simultaneously vibrated in opposite directions, for the purpose and substantially as described.

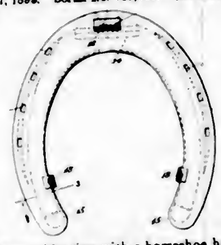
642,572. **PRISM-PLATE.** HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed June 20, 1898. Serial No. 683,929. (No model.)



Claim.—1. The combination with a surrounding frame of a series of tiles separated by intervening metallic strips connected with said frame, a portion of the tiles being inclined so as to be out of the plane of the remaining tiles, said frame extending entirely around the device, so as to form a unitary structure within a single holding-frame.

2. A prism-plate made up of a series of tiles placed in proximity to each other in substantially the same plane and separated by intervening strips, and an outer series of tiles inclined so as to be out of the plane of the remaining tiles, and a surrounding frame which holds the tiles in position, said frame extending entirely around the device so as to form a unitary structure within a single holding-frame.

642,573. **HORSESHOE.** DELOS C. BEMONT, Glastonbury, Conn. Filed Mar. 27, 1899. Serial No. 710,619. (No model.)



Claim.—The combination with a horseshoe having in its toe an aperture one wall of which is rabbeted, and having adjacent to each heel an inclined portion on its inner wall, of a resilient calk-plate provided with a hook the shank of which snugly fits the aperture, and the end of which fills the rabbet, in the toe of said horseshoe, said plate also having adjacent to each heel portion an ear or hook adapted to engage the inclined portions on the shoe when the plate is sprung into position, the construction being such that when the webs of said plates spread, the plate will be forced toward the shoe; substantially as and for the purpose specified.

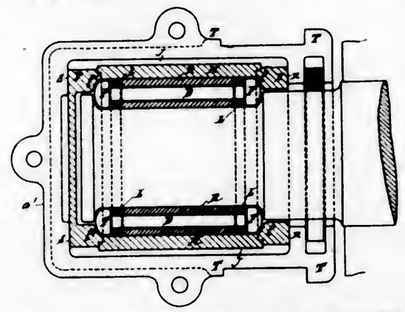
642,574. **NON-SLIPPING HORSESHOE.** WILLIAM H. BERWICK, Sydney, New South Wales. Filed Aug. 4, 1899. Serial No. 726,174. (No model.)

Claim.—A horseshoe having inner and outer beveled edges, a nail-groove centrally of and concentric with said edges, a dovetailed recess formed centrally of each side member of the shoe, and a similar dovetailed recess centrally of the front of the shoe, substantially as described.

642,574.



642,575. **ROLLER-BEARING.** GUSTAVE BOTT and LEON MORRAU, Brussels, Belgium. Filed July 13, 1898. Serial No. 685,846. (No model.)



Claim.—1. A journal-bearing comprising a series of spaced spindles, rollers loosely mounted thereon and arranged to form a circular bearing for a journal to revolve in, said spindles provided with a convex head at each end; in combination with a cylindrical housing in which said circular roller-bearing is fitted, and a confining device at each end of the housing provided with concave surfaces facing the heads of the aforesaid spindles, for the purpose set forth.

2. A journal-bearing comprising a series of rollers, spindles on which said rollers are loosely mounted, said spindles provided at each end with a convex head or less diameter than that of the rollers, and spacing devices for the spindles interposed between their heads and their rollers, said parts arranged to form a circular bearing for a journal to revolve in; in combination with a cylindrical housing in which said bearing is fitted and a confining device at each end of said housing having a concave surface facing the convex heads of the roller-spindles, for the purpose set forth.

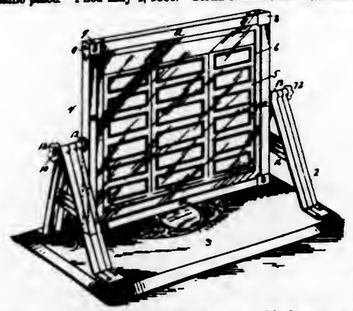
3. The combination with an axle-journal, a roller-bearing therefor, and a cylindrical housing in which said bearing is fitted and confined; of a box for said housing provided with a chamber, a portion of the inner face of which is eccentric to the longitudinal axis of the aforementioned housing, the remaining portion of said chamber-surface being concentric with said axis and seating on said housing, for the purpose set forth.

4. The combination with an axle-journal, a bearing therefor, comprising a series of spaced spindles and rollers loosely mounted thereon and arranged to form a circular bearing for the journal to revolve in, said spindles having a convex head at each end of less diameter than that of their rollers, a cylindrical housing in which said bearing is fitted and in which the spindles thereof have endwise play, and a confining device at each end of the housing provided with concave surfaces facing the spindle-heads; of a box for said housing provided with a chamber the greater portion of the inner surface of which is eccentric to the longitudinal axis of the aforesaid housing the remaining portion being concentric with said axis and seating on such housing, substantially as and for the purpose set forth.

5. The combination with an axle-journal, a roller-bearing for said journal, and a cylindrical housing in which said bearing is confined; of a box for said housing provided with a chamber, a portion of the inner surface of which is eccentric to and the remaining portion concentric with the longitudinal axis of said housing and seating thereon, and means for placing the interior of the housing in communication with said chamber, substantially as and for the purpose set forth.

6. The combination with an axle-journal, a roller-bearing for said journal and a housing in which said bearing is confined; of a box for said housing divided horizontally into separably-connected parts constructed to form an internal chamber, the greater portion of the inner surface of which is eccentric to and the remaining portion within the upper part concentric with the longitudinal axis of the aforesaid housing and seating thereon, substantially as and for the purpose set forth.

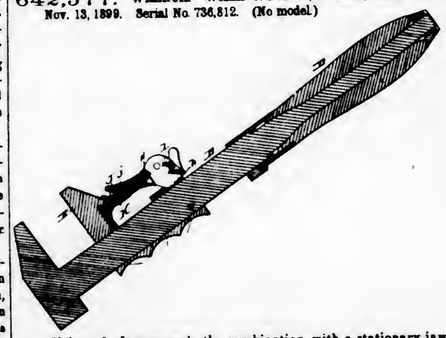
642,576. **DISPLAYING DEVICE.** WILLIAM BOYDELL, Detroit, Mich., assignor to the Boydell Bros. White Lead and Color Company, same place. Filed May 1, 1899. Serial No. 715,106. (No model.)



Claim.—1. In a displaying device, a rotatable frame constructed of disjointed channeled bottom, top, and side pieces U-shaped in cross-section, forming retaining inwardly-projecting flanges, separate removable corner-pieces U-shaped in cross-section overlapping and uniting corresponding extremities of the side pieces of the frame, removable cards having their edges, and the edges of their transparent coverings embraced by the flanges of the frame, and screws to unite the corner-pieces to the side pieces of the frame, said screws projecting between the cards and wedging the cards and coverings against the corresponding flanges of the frame, as set forth.

2. In a displaying device, a revoluble frame, journals secured to the upright portions of the frame each constructed with a shoulder, supporting-brackets to receive said journals, bosses upon the journals between the brackets and the upright portions of the frame abutting against said shoulders and against the sides of said upright portions, and heads on the outer ends of the journals, respectively, to hold the brackets snugly against the bosses, for the purpose set forth.

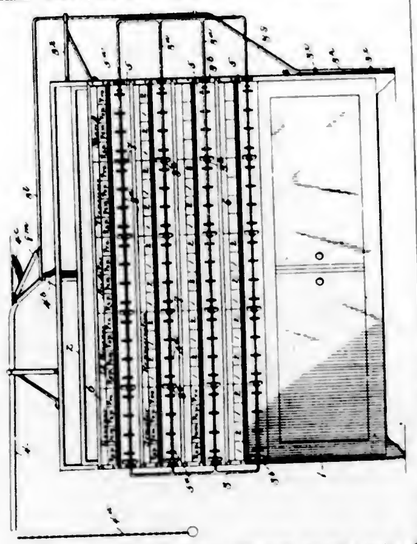
642,577. **WRENCH.** WILLIS O. BOYKIN, Jackson, Tenn. Filed Nov. 13, 1899. Serial No. 736,812. (No model.)



Claim.—1. In a wrench, the combination, with a stationary jaw and shank, of a sliding jaw and a rearwardly-extending portion thereto, both having a longitudinal passage therein for the reception of said shank, and a slot communicating with said passage, a dog pivoted within the slot, teeth therein for engagement with the surface of the shank, a T-shaped stem, a thumb-piece at opposite sides of the pivot of the dog, and a spring secured to the jaw within the slot and bearing upon the under surface of the stem, for the purpose and substantially as described.

2. In a wrench, the combination, with a stationary jaw and shank, of a sliding jaw and a rearwardly-extending portion thereto, both having a longitudinal passage therein for the reception of said shank, and a slot communicating with said passage, a dog pivoted within the slot, teeth therein for engagement with the surface of the shank, a T-shaped stem, a thumb-piece at opposite sides of the pivot of the dog, a spring secured to the jaw within the slot and bearing upon the under surface of the stem, and transversely-extending ridges upon the under surface of the sliding jaw forming finger-receiving concavities, substantially as described.

642,578. VOTING-MACHINE. CHARLES BROWN, Albert Lea, Minn. Filed Apr. 12, 1899. Serial No. 712,777. (No model.)



Claim.—1. A voting machine or apparatus having a series of ballot-receiving slots or apertures consisting of two or more subseries of slots or apertures, a ballot-receiving pocket or chute, and a support for the latter, said pocket or chute adapted to be freely moved along said support opposite to, and to pass the ballot into, any one of said series of slots or apertures, substantially as set forth.

2. In a voting machine or apparatus, the combination of a stationary frame or plate having across it a series of ballot-receiving slots or apertures, a vertically sliding or movable frame or plate having also across it a series of ballot-receiving slots or apertures, means to effect the manipulation of said sliding plate or frame and a ballot-receiving pocket or receptacle adapted to be moved along its support opposite to, and to pass the ballot into, any one of said series of apertures or slots, substantially as set forth.

3. In a voting machine or apparatus, the combination of a stationary frame or plate having across it a series of ballot-receiving slots or apertures, a vertically-sliding plate or frame having also across it a series of ballot-receiving slots or apertures, series of ballot-boxes with conduits or chutes adapted to communicate with the series of slots of said sliding plate or frame, means to effect the movement of said sliding frame or plate and a ballot-receiving pocket or receptacle adapted to be moved along its support opposite to, and to pass the ballot into, any one of said series of apertures or slots, substantially as set forth.

4. In a voting machine or apparatus, the combination of a stationary plate or frame having across it a series of ballot-receiving slots or apertures, a sliding or movable plate or frame having also across it a series of ballot-receiving slots or apertures, a ballot-receiving pocket adapted to be moved along its support opposite to, and to pass the ballot into, any one of said series of apertures or slots, and a lever mechanism adapted to actuate said sliding frame or plate and to give a signal when said sliding frame or plate is actuated, substantially as set forth.

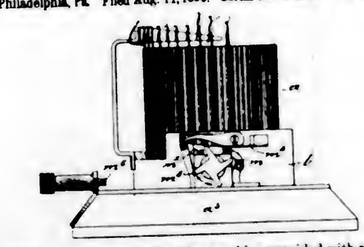
5. In a voting machine or apparatus, the combination of a stationary frame or plate having across it a series of ballot-receiving slots or apertures, a sliding frame or plate having also across it a series of ballot-receiving slots or apertures, a ballot-receiving pocket, adapted to be moved along its support opposite to, and to pass the ballot into, any one of said series of apertures or slots, and a lever mechanism adapted to actuate said sliding frame or plate, and connected to, and adapted to actuate, said pocket-supporting means, substantially as specified.

6. A voting machine or apparatus having a series of ballot-receiving slots or apertures consisting of two or more subseries of slots or apertures, and a ballot-receiving receptacle or pocket movable opposite to, and adapted to pass a ballot into, any one of said series of slots or apertures, substantially as set forth.

7. A voting machine or apparatus having a series of ballot-receiving slots or apertures, a ballot-receiving pocket and means adapted to support said pocket, said chute adapted to be moved opposite to, and to pass the ballot into, any one of said series of slots or apertures, substantially as described.

8. A voting machine or apparatus, having a series of ballot-receiving slots or apertures, a series of ballot-receiving pockets or receptacles and means of support for said pockets or receptacles upon which the latter are adapted to be moved opposite to, and pass the ballot into, any one of each subseries of said slots or apertures, substantially as set forth.

642,579. CIRCULAR-KNITTING MACHINE. HENRY BROWN, Philadelphia, Pa. Filed Aug. 11, 1899. Serial No. 726,856. (No model.)



Claim.—1. In a circular-knitting machine provided with a single yarn-feed, a set of short-latch needles, a set of long-latch needles, a cam-ring carrying the yarn-feed, a main cam carried by said cam-ring and arranged at the point where said yarn-feed is located, said main cam adapted to elevate both sets of needles at one revolution of the cam-ring so that the latches of the short-latch needles only are above the loops formed by said needles, and an auxiliary cam carried by the cam-ring and arranged in front of said main cam, said auxiliary cam adapted to be automatically raised at alternate revolutions of the cam-ring so as to raise both sets of needles so that their latches are above the loops formed by both sets of needles, substantially as and for the purposes described.

2. In a circular-knitting machine having a cam-cylinder, a single knitting-cam and a single yarn-feed carried by said cylinder, a series of short-latch needles adapted to be operated to cast off their loops at each revolution of the cam-cylinder, an auxiliary cam carried by said cylinder, means for raising and lowering said auxiliary cam at alternate revolutions of said cylinder, and a series of long-latch needles adapted to be elevated by said auxiliary cam to allow the loops on said needles to pass below the latches only when said cam is raised at alternate revolutions of the cam-cylinder, substantially as and for the purposes described.

642,580. APPARATUS FOR PRODUCING VACUUM. FREDERICK J. F. BRUGUIERE, New Orleans, La. Filed May 8, 1899. Serial No. 715,984. (No model.)

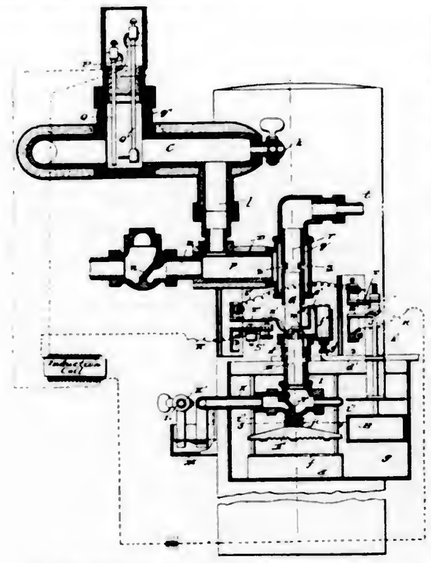
Claim.—1. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a source of explosive-supply connected with the interior of the vessel, electric sparking mechanism comprising a circuit maker and breaker movable in one direction by the discharge of liquid and gases from the closed vessel, and an adjustable governor for regulating the movement of the circuit maker and breaker in the opposite direction, substantially as specified.

2. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, electric sparking mechanism comprising a circuit maker and breaker connected and movable with the cut-off valve, and suitable means for regulating the movement of the cut-off valve in the opposite direction, substantially as specified.

3. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, electric sparking mechanism comprising a circuit maker and breaker movable in one direction by the discharge of liquid and gases from the closed vessel, a piston connected with the circuit maker and breaker, and a cylinder containing said piston and having a port and a regulating-valve controlling the same, substantially as specified.

4. In an apparatus for producing a vacuum or partial vacuum

by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, electric sparking mechanism comprising a circuit maker and breaker connected and movable with the cut-off valve, a piston connected with the cut-off valve, and a cylinder containing said piston and having a port and a regulating-valve controlling the same, substantially as specified.



5. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a valve controlling said outlet, a spring-backed follower arranged above said valve, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the vessel through the medium of the follower, electric sparking mechanism comprising a circuit maker and breaker connected and movable with the cut-off valve, a piston connected with the cut-off valve, and a cylinder containing said piston and having a port and a regulating-valve controlling the same, substantially as specified.

6. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a conduit for supplying explosive to the vessel, means for igniting the explosive, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, and means for regulating the movement of the cut-off valve in the opposite direction, substantially as specified.

7. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having an outlet for liquid, a receptacle arranged outside the vessel and communicating with the outlet, electric sparking mechanism comprising two circuit makers and breakers, one of which is movable in one direction by the discharge of liquid and gases from the closed vessel, suitable means for regulating the movement of the said circuit maker and breaker in the opposite direction, and a float arranged in the said receptacle and connected with the other circuit maker and breaker, substantially as specified.

8. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a receptacle outside the vessel and communicating with the outlet, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, suitable means for regulating the movement of the cut-off valve in the opposite direction, a float arranged in the receptacle, and an electric sparking mechanism comprising two circuit makers and breakers, one of which is connected with the cut-off valve and the other with the float, substantially as specified.

9. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a conduit for supplying explosive to the vessel, means for igniting the explosive, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, means for governing or regulating the movement of the cut-off valve in the opposite direction, a pump-cylinder, a piston therein operative by the cut-off valve, a carbureter, and a fuel-supply pipe connected with the pump-cylinder, and the carbureter, substantially as specified.

10. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit and movable in one direction by the discharge of liquid and gases from the closed vessel, means for governing or regulating the movement of the cut-off valve in the opposite direction, a pump-cylinder, a piston therein operative by the cut-off valve, a carbureter, a pipe between the fuel-supply pipe and the carbureter, and an electric sparking mechanism comprising a circuit maker and breaker movable with the cut-off valve, substantially as specified.

11. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having a valve-controlled inlet-port and also having an outlet for liquid, a carbureter connected by a conduit with the interior of the closed vessel, a pump-cylinder, a piston movable in said cylinder and operative by the discharge of liquid from the closed vessel, a fuel-supply pipe connected with the pump-cylinder and the carbureter and suitable means for igniting explosive in the closed vessel, substantially as specified.

12. In an apparatus for producing a vacuum or partial vacuum by explosions, a closed vessel in which the explosions are produced, the said vessel comprising a vacuum-chamber having a valve-controlled inlet-port and also having an outlet for liquid, and an explosion-chamber communicating with the vacuum-chamber and having an exhaust-port controlled by an outwardly-opening valve, a source of explosive-supply, a conduit between said source of supply and the vessel, a cut-off valve and a check-valve arranged in the conduit, said check-valve being adapted to open toward the vessel; and suitable means for igniting explosive in the explosion-chamber, substantially as specified.

13. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having a valve-controlled inlet-port and also having an outlet for liquid, an explosive-supply conduit, a cut-off valve controlling the same and movable in one direction by the discharge of liquid from the vessel, an electric sparking mechanism comprising a circuit maker and breaker connected with the cut-off valve, and governor mechanism for regulating the movement of the cut-off valve in the opposite direction; said mechanism comprising a piston, a cylinder receiving the same, a lubricant-receptacle, tubes connecting the cylinder and the lubricant-receptacle, a non-return valve interposed between the cylinder and one tube, and a regulating-valve controlling the other tube, substantially as specified.

14. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and an outlet for liquid, a conduit for supplying explosive to the vessel, a cut-off valve controlling said conduit, means for igniting the explosive, a cylinder, a gravitating piston arranged in said cylinder and movable in one direction by the discharge of liquid and gases from the vessel, a connection between the piston and cut-off valve, a lubricant-receptacle, tubes interposed between the cylinder and lubricant-receptacle, a non-return valve controlling communication between the cylinder and one tube, and a regulating-valve controlling the other tube, substantially as specified.

15. In an apparatus for producing a vacuum or partial vacuum by explosions, a closed vessel in which the explosions are produced, the said vessel comprising a vacuum-chamber having a valve-controlled inlet-port and also having an outlet for liquid, and an explosion-chamber communicating with the vacuum-chamber and having an exhaust-port controlled by an outwardly-opening valve, and also having a port for the admission of explosive, and suitable means for igniting explosive in the explosion-chambers, substantially as specified.

16. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel comprising a vacu-

um-chamber having a valve-controlled inlet and also having an outlet for liquid, and an explosion-chamber communicating with the vacuum-chamber and having an arm provided with a lateral conduit, conducting-rods secured in insulating material in said arm of the explosion-chamber, conducting-wires extending through the lateral conduit of the arm, and a removable bifurcated hood arranged over the arm and straddling the conduit, substantially as specified.

17. In an apparatus for producing a vacuum or partial vacuum by explosions, a closed vessel in which the explosions are produced, said vessel having an inlet and an outlet for liquid, an explosive-supply conduit connected with the interior of the vessel and comprising a casing, a cylinder secured in the casing and having ports connecting its interior with that of the casing, and a reciprocatory cut-off valve movable in the same cylinder, and means for igniting the explosive, substantially as specified.

18. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, means for igniting the explosive and a valve for controlling communication between the source of explosive-supply and the interior of the vessel, said valve being operative by the discharge from the vessel and subject to a variable resistance, substantially as specified.

19. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, means for igniting the explosive, a valve for controlling communication between the source of explosive-supply and the interior of the vessel, said valve being movable in one direction by the discharge from the vessel, and means for affording a variable resistance to the movement of the valve in the opposite direction, substantially as specified.

20. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, a conduit between the source of explosive-supply and the vessel, means for igniting the explosive, a cut-off valve for controlling the conduit, and a check-valve arranged between the vessel and the source of explosive-supply and adapted to open toward the former, substantially as specified.

21. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet for explosive and an inlet and an outlet for liquid, and electric sparking mechanism comprising a circuit maker and breaker movable in one direction by the discharge from the vessel and subject, in its movement in the opposite direction, to a variable resistance, substantially as specified.

22. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, a valve for controlling communication between the source of the explosive-supply and the interior of the vessel, and a sparking mechanism comprising a circuit maker and breaker; the said valve and circuit maker and breaker being movable in one direction by the discharge from the vessel and subject, in their movement in the opposite direction, to a variable resistance, substantially as specified.

23. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, a valve for controlling communication between the source of explosive-supply and the interior of the vessel, a sparking mechanism comprising two circuit makers and breakers, one of which is movable with the cut-off valve in one direction and subject to a variable resistance in its movements in the opposite direction, a receptacle arranged to receive liquid from the discharge of the vessel, and a float arranged in said receptacle and connected to the other circuit maker and breaker, substantially as specified.

24. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, means for supplying explosive to the vessel, and a sparking mechanism comprising a circuit which is opened incident to the discharge from the vessel following an explosion and is then closed and kept closed until another explosion ensues, substantially as specified.

25. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, means for supplying explosive to the vessel, and a sparking mechanism comprising a circuit maker and breaker arranged to be raised by the discharge following an explosion and adapted to gravitate and maintain a closure of the circuit until another explosion ensues, substantially as specified.

26. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a source of explosive-supply, a valve for controlling communication between the source of explosive-supply and the interior of the vessel, said valve being operated by the discharge from the vessel and subject to a variable resistance, and a sparking mechanism comprising a circuit maker and breaker movable with the valve and adapted on its down movement to effect and maintain a closure of the circuit until an explosion ensues, substantially as specified.

27. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel having an inlet and an outlet for liquid, a carbureter, a condnit between said carbureter and the vessel, a cut-off valve controlling said conduit, said valve being movable in one direction by the discharge from the vessel and subject to a variable resistance on its movement in the opposite direction, a cylinder, a gravitating piston arranged therein and movable in one direction with the cut-off valve, a fuel-supply conduit connected to the cylinder and having a check-valve, a conduit connected to the fnel-supply conduit, between the valve thereof and the cylinder, and also connected to the carbureter, and a sparking mechanism comprising a circuit maker and breaker movable with the cut-off valve, substantially as specified.

28. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, the said vessel having a valve-controlled inlet-port and an outlet for liquid, a carbureter connected with the interior of the vessel, means for igniting explosive, a cylinder, a fuel-supply conduit connected to the cylinder and equipped with a non-return valve, a conduit connected to said supply-conduit, between the valve thereof and the cylinder and also connected to the carbureter, a piston, in the cylinder, movable in one direction by the discharge of liquid and gases from the vessel, and an adjustable device for limiting the movement of the piston in the opposite direction, substantially as specified.

29. The combination of a carbureter, a combined pump and measure having a piston and means for limiting the movement thereof in one direction, a fuel-supply conduit connected to said pump and measure and having a check-valve, and a conduit connected to said supply-conduit, between the pump and measure and the check-valve thereof, and also connected to the carbureter, and means for moving said piston in one direction, substantially as specified.

30. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having an inlet and an outlet for water, an explosive-supply conduit, a cut-off valve therefor, means for igniting the explosive and a piston loosely connected with the cut-off valve; said piston being movable in one direction by the discharge from the vessel and subject on its movement in the opposite direction to a variable resistance, substantially as specified.

31. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having an inlet for explosive and an inlet and an outlet for water, means for igniting the explosive, a piston-cylinder having an enlargement at its upper and, a liquid-receptacle connected with the piston-cylinder, and a piston arranged in the cylinder and operative by the discharge from the closed vessel, substantially as specified.

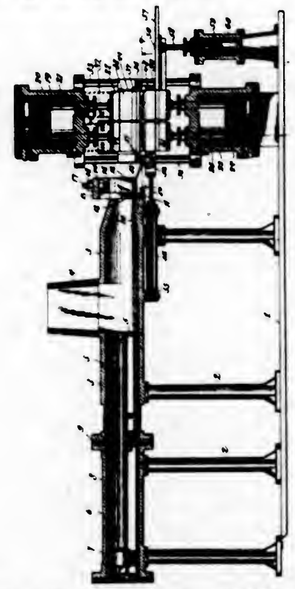
32. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having an inlet and also having an outlet for water, a valve controlling the outlet, a spring-backed follower arranged above the valve, an explosive-supply conduit connected to the vessel, a cut-off valve therein, a piston loosely connected to the cut-off valve and movable by the follower, and means for igniting the explosive, substantially as specified.

33. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of an explosion-chamber having an inlet for explosive and an outlet for products of combustion and also having a lateral branch provided with a downwardly-inclined conduit, electric conducting-rods secured in the said branch, circuit-wires connected to the conducting-rods and extending through the conduit, and a bifurcated cap arranged over the branch of the explosion-chamber and straddling the conduit, substantially as specified.

34. In an apparatus for producing a vacuum or partial vacuum by explosions, a closed vessel comprising a vacuum-chamber having an inlet and an outlet for liquid, and an explosion-chamber, an exhaust-conduit connected with the explosion-chamber and containing a non-return valve, an explosive-supply conduit connected with the explosion-chamber and comprising a casing and a cylinder secured in the casing and communicating with the interior of the same by ports that are exactly equal and opposite, and a cut-off valve arranged in the cylinder and movable in one direction by the discharge from the vessel and subject, on its movemeot in the opposite direction, to a variable resistance, substantially as specified.

35. In an apparatus for producing a vacuum or partial vacuum by explosions, the combination of a closed vessel in which the explosions are produced, said vessel having an inlet and an outlet for liquid, an explosive-supply conduit connected with the interior of the vessel and embracing a cylinder communicating with it at one end and at opposite points intermediate of its ends, and a gravitating cut-off valve arranged in said cylinder and movable in one direction by the discharge from the valve, and means for igniting the explosive, substantially as specified.

642,581. MOLDING-PRESS. EDWARD H. CALLAWAY, New York N. Y., assignor of one-half to George W. Copland, same place. Filed Aug. 15, 1898. Serial No. 688,575. (No model.)



Claim.—1. In a press for molding bricks or similar articles, the combination of a mold-box having the shape of the article to be formed, a reciprocating knife adapted to cut off a block of the material and to form one side of the mold-box and then to be drawn away from the other sides of the box, devices for compressing the block in the mold-box and a feeding device to feed a bar of material into the mold-box.

2. In a press for molding bricks or similar articles, the combination of a mold-box having the shape of the article to be formed, a reciprocating knife adapted to cut off a block of the material and to form one side of the mold-box and then to be drawn away from the other side of the box, reciprocating plungers for compressing between them the material in the mold-box, and a feeding device to feed a bar of material into the mold-box.

3. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of compartments each having the shape of the article to be formed, one or more reciprocating knives, adapted to cut off as many blocks of material as there are compartments in the mold-box and to form one side of each compartment, devices for compressing the blocks in the mold-box, and a feeding device to feed a bar of material into each compartment.

4. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of compartments each having the shape of the article to be formed, one or more reciprocating knives, adapted to cut off as many blocks of material as there are compartments in the mold-box and to form one side of each compartment, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, and a feeding device to feed a bar of material into each compartment.

5. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, and devices for compressing the blocks in the mold-box.

6. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, devices for compressing the blocks in the mold-box, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

7. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

8. In a press for molding bricks or similar articles, the combination of a mold-box having the shape of the article to be formed, a reciprocating knife adapted to cut off a block of the material and to form one side of the mold-box, reciprocating plungers for compressing between them the material in the mold-box, a finishing-die on the discharge side of the mold-box adapted to finish off the block as it is expelled from the mold-box, and a feeding device to feed a bar of material into the mold-box.

9. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a finishing-die on the discharge side of the mold-box, having as many openings as there are compartments in the mold-box, and adapted to finish off each block as it is expelled from the mold-box, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

10. In a press for making bricks or similar articles, the combination of the mold-box 38, consisting of the side pieces 39, the middle partition 40, and the end piece 41, the knives 42, adapted to slide in grooves in the side pieces and middle partition, means for operating the knives, and reciprocating plungers above and reciprocating plungers below the mold-box, adapted to compress between them the blocks in the several compartments of the mold, and means for operating the plungers, substantially as set forth.

11. In a press for making bricks or similar articles, the combination of the mold-box 38, consisting of the side pieces 39, the middle partition 40, and the end piece 41, the knives 42, adapted to slide in grooves in the side pieces and middle partition, means for operating the knives, and reciprocating plungers above and reciprocating plungers below the mold-box, adapted to compress between them the blocks in the several compartments, means for operating the plungers, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

12. In a press for making bricks or similar articles, the combination of the mold-box 38, consisting of the side pieces 39, the middle partition 40, and the end piece 41, the knives 42, adapted to slide in grooves in the side pieces and middle partition, means for operating the knives, and reciprocating plungers above and reciprocating plungers below the mold-box, adapted to compress between them the blocks in the several compartments of the mold, means for operating the plungers, the finishing-die, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

13. In a press for making bricks or similar articles, the combination of the mold-box 38, consisting of the side pieces 39, the middle partition 40, and the end piece 41, the knives 42, adapted to slide in grooves in the side pieces and middle partition, the bars 43 connecting and supporting the knives, the piston-rods 45, the pistons 46, the cylinders 47, and reciprocating plungers above and reciprocating plungers below the mold-box, adapted to compress between them the blocks in the several compartments of the mold, and means for operating the plungers, substantially as set forth.

14. In a press for molding bricks or similar articles, the combination of a suitable mold-box, and a plunger for compressing the material, provided with a die 26, having perforations 29, a filling-block 27, having a recess 30 into which the perforations open, and the flange-plate 28, substantially as set forth.

15. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, each plunger being provided with a recess in its middle portion and with perforations leading into the recess from the face of the plunger, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

16. In a press for making bricks or similar articles, the combination of the mold-box 38, consisting of the side pieces 39, the middle partition 40, and the end piece 41, the knives 42, adapted to slide in grooves in the side pieces and middle partition, means for operating the knives, the reciprocating plungers provided with the dies 26 hav-

ing perforations 29, the filling-blocks 27, each having a recess into which the perforations open, and the flange-plates 28, means for operating the plungers, the finishing-die 37, and a feeding device to feed a bar of material into each long compartment, substantially as set forth.

17. In a press for molding bricks or similar articles, the combination of a mold-box, reciprocating plungers on opposite sides of the mold-box for compressing between them the block in the mold-box, a delivery-frame on the discharge side of the mold-box through which the lower one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, and means for moving the delivery-frame so as to carry the block away from the mold-box to the point of discharge from the delivery-frame.

18. In a press for molding bricks or similar articles, the combination of a mold-box, reciprocating plungers for compressing between them the block in the mold-box, a delivery-frame on the discharge side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, and means for moving the delivery-frame so as to carry the block away from the mold-box to the point of discharge from the delivery-frame, and a finishing-die between the mold-box and the delivery-frame to finish off the block while it is passing from the mold-box to the delivery-frame.

19. In a press for molding bricks or similar articles, the combination of a mold-box, means for compressing the material in the mold-box, a delivery-frame on the under side of the mold-box into which the block passes from the mold-box, a receiving-table, and means for moving the delivery-frame so as to carry the block away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table.

20. In a press for molding bricks or similar articles, the combination of a mold-box, reciprocating plungers for compressing between them the block in the mold-box, a delivery-frame on the under side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the block away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table.

21. In a press for molding bricks or similar articles, the combination of a mold-box, reciprocating plungers for compressing between them the block in the mold-box, a delivery-frame on the under side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the block away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, and a finishing-die between the mold-box and the delivery-frame to finish off the block while it is passing from the mold-box to the delivery-frame.

22. In a press for molding bricks or similar articles, the combination of a mold-box, reciprocating plungers for compressing between them the block in the mold-box, a delivery-frame on the discharge side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, a lubricating-roller mounted in the delivery-frame and of a diameter substantially equal to the distance between the plungers when the delivery-frame is moved, and means for moving the delivery-frame so as to carry the block away from the mold-box to the point of discharge from the delivery-frame and at the same time to cause the lubricating-roller to lubricate the faces of the plungers, substantially as set forth.

23. In a press for molding bricks or similar articles, the combination of a mold-box having the shape of the article to be formed, a reciprocating knife adapted to cut off a block of the material and to form one side of the mold-box, reciprocating plungers for compressing between them the material in the mold-box, and a feeding device to feed a bar of material into the mold-box, a delivery-frame on the discharge side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, and means for moving the delivery-frame so as to carry the block away from the mold-box to the point of discharge from the delivery-frame.

24. In a press for molding bricks or similar articles, the combination of a mold-box having the shape of the article to be formed, a reciprocating knife adapted to cut off a block of the material and to form one side of the mold-box, reciprocating plungers for compressing between them the material in the mold-box, and a feeding device to feed a bar of material into the mold-box, a delivery-frame on the under side of the mold-box through which one of the plungers is adapted to pass and into which the block is pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the block away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table.

25. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table.

26. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, substantially as set forth.

27. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, a feeding device to feed a bar of material into each long compartment of the mold-box, substantially as set forth.

28. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a lubricating-roller mounted in the delivery-frame and of a diameter substantially equal to the distance between the plungers when the delivery-frame is moved, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and at the same time to cause the lubricating-roller to lubricate the faces of the plungers, and means for raising and lowering the receiving-table, and a feeding device to feed a bar of material into each long compartment of the mold-box, substantially as set forth.

29. In a press for molding bricks or similar articles, the combination of a feed-cylinder, a plunger in said cylinder, the forming-die 11, having a plurality of openings, the regulating-block 14, consisting of the cross-bar 15 and the depending portions 16, and means for adjusting the regulating-block, substantially as set forth.

30. In a press for molding bricks or similar articles, the combination of a feed-cylinder provided with a hopper and a plunger of such a length that when it is in its forward position it extends backward beyond the opening from the hopper into the cylinder so as to cut off that opening, the forming-die 11 having a plurality of openings, the regulating-block 14, consisting of the cross-bar 15 and the depending portion 16, and means for adjusting the regulating-block, substantially as set forth.

31. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of compartments each having the shape of the article to be formed, one or more reciprocating knives, adapted to cut off as many blocks of material as there are compartments in the mold-box and to form one side of each compartment, devices for compressing the blocks in the mold-box, a feed-cylinder, a plunger in said cylinder, and a forming-die connected with said cylinder having as many openings as there are compartments in the mold-box, in line with said compartments, substantially as set forth.

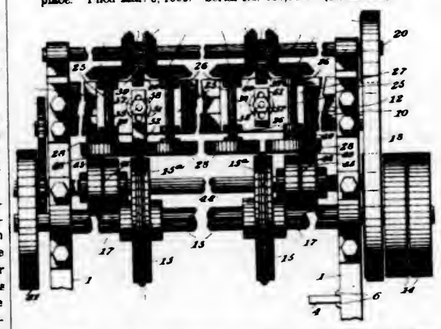
32. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of compartments each having the shape of the article to be formed, one or more reciprocating knives, adapted to cut off as many blocks of material as there are compartments in the mold-box and to form one side of each compartment, devices for compressing the blocks in the mold-box, a feed-cylinder, a plunger in said cylinder, and a forming-die connected with said cylinder having as many openings as there are compartments in the mold-box, in line with said compartments, and a regulating-block to regulate the size of said openings, and means for adjusting the regulating-block, substantially as set forth.

33. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartmeot into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, a feed-cylinder provided with a hopper and a plunger of such a length that when it is in its forward position it extends backward beyond the opening from the hopper into the cylinder so as to cut off that opening, a forming-die connected with the feed-cylinder and having as many openings as there are long compartments in the mold-box in line with said compartments, a regulating-block to regulate the size of the openings in the forming-die, and means for adjusting the regulating-block, substantially as set forth.

34. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a lubricating-roller mounted in the delivery-frame and of a diameter substantially equal to the distance between the plungers when the delivery-frame is moved, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, a feed-cylinder provided with a hopper and a plunger of such a length that when it is in its forward position it extends backward beyond the opening from the hopper into the cylinder so as to cut off that opening, a forming-die connected with the feed-cylinder and having as many openings as there are long compartments in the mold-box in line with said compartments, and a regulating-block to regulate the size of the openings in the forming-die, and means for adjusting the regulating-block, substantially as set forth.

35. In a press for molding bricks or similar articles, the combination of a mold-box having a plurality of long compartments, a plurality of reciprocating knives adapted to cut the bar of material in each long compartment into a plurality of blocks, and to form one side of each of the smaller compartments, reciprocating plungers for compressing between them the blocks in the several compartments of the mold-box, a delivery-frame under the mold-box having the same number of compartments as the mold-box and adapted to register therewith, through which the lower plungers are adapted to pass and into which the blocks are pushed from the mold-box by the action of the plungers, a lubricating-roller mounted in the delivery-frame and of a diameter substantially equal to the distance between the plungers when the delivery-frame is moved, a finishing-die between the mold-box and the delivery-frame adapted to finish off the blocks while they are passing from the mold-box to the delivery-frame, a receiving-table, and means for moving the delivery-frame so as to carry the blocks away from the mold-box and onto the receiving-table and means for raising and lowering the receiving-table, a feed-cylinder provided with a hopper and a plunger of such a length that when it is in its forward position it extends backward beyond the opening from the hopper into the cylinder so as to cut off that opening, a forming-die connected with the feed-cylinder and having as many openings as there are long compartments in the mold-box in line with said compartments, a regulating-block to regulate the size of the openings in the forming-die, and means for adjusting the regulating-block, substantially as set forth.

642,582. CREASING-MACHINE. WILLIAM W. CHEESEMAN, Cincinnati, Ohio, assignor to Wilber R. Elliott and Howard L. Melvin, same place. Filed Mar. 6, 1899. Serial No. 707,957. (No model.)



Claim.—1. In a creasing-machine, the combination of a frame, a creasing device formed with cylindrical end portions and a central projecting peripheral rib between said cylindrical end portions adapted for engagement with one face of the stock, means for driving said creasing device to draw the stock through the machine, and two creasing devices arranged for engagement with the other face of the stock at opposite sides of the peripheral rib of the first-mentioned device and adapted to bend the stock over the opposite sides of said rib, substantially as set forth.

2. In a creasing-machine, the combination of a frame, a rotative cylindrical creasing device having a rib to engage one face of the stock, two disk-like creasing devices mounted to turn on axes at right angles to the rotative axis of the first-mentioned creasing device and having their peripheries spaced apart and arranged to bear on the other face of the stock to bend said stock over the opposite sides of the rib of the first-mentioned device, and means for driving all of said creasing devices to draw the stock through the machine, substantially as set forth.

3. In a creasing-machine, the combination of a frame, two sets of creasing mechanisms adapted for movement toward or away from each other, each set comprising two connected devices to bear on one face of the stock and a single device to bear on the other face of the stock, said single device having a rib extending between the first-mentioned two devices whereby the devices of each set are caused to move together when the set is adjusted, and means to move the stock through the machine, substantially as set forth.

4. In a creasing-machine, the combination of a frame, a guide-bar extending transversely thereof, a shaft also extending transversely of the frame, cylindrical creasing devices adjustable along the shaft and each formed with a peripheral rib, slides adjustable along the guide-bar, two creasing devices carried by each of the slides and arranged to engage on opposite sides of the rib of one of said cylindrical creasing devices on the shaft, and means for driving said last-named creasing devices, substantially as set forth.

5. In a creasing-machine, the combination of a frame, a guide-bar extending across the same, a shaft also extending across the frame parallel with the guide-bar, creasing-disks adjustable along the shaft, slides adjustable lengthwise on the guide-bar, carriers adjustable on the slides at right angles to the length of the guide-bar, toward and away from the shaft and two rotative creasing devices carried by each of the carriers, substantially as set forth.

642,583. REGULATOR-DAMPER FOR STOVES OR FURNACES. CHARLES W. CHENEY, Athol, Mass., assignor of two-thirds to Charles A. Bacon and H. M. Slate, same place. Filed Nov. 30, 1898. Serial No. 697,873. (No model.)



Claim.—1. A regulator-damper, comprising a pair of relatively fixed and adjustable disk members formed with parallel transverse

angular corrugations and having alternate solid portions and slots, the corrugations of the two disk members having a matching fit and the solid portions and slots of the respective disk members being dis-alined, trunnion-supports for the relatively-fixed member, and an adjusting device for the relatively-adjustable member, substantially as described.

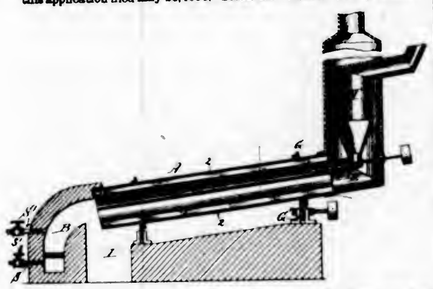
2. A two-part damper consisting of the corrugated slotted members arranged to fit one within the other and provided with inclined bars arranged for the slots of one member to be opposite the bars of the matching member, and means for slidably connecting said members to permit one member to have a lateral adjustment in a direct line with respect to the other member, combined with an operating mechanism to positively effect such lateral separation of one member with respect to the other member, substantially as described.

3. A two-part damper comprising a corrugated member having its slots disposed beyond the angles formed by the inclined faces thereof, another corrugated member with slots in the angle of its meeting faces and arranged to lie within the first-named member, a stem attached to one member and fitted slidably in the other member to maintain the two members in position for registration thereof, an adjusting device, and a locking contrivance for said adjusting device, substantially as described.

4. A damper comprising the matching members, one of which is provided with clamping and tubular trunnions for pivotally supporting the entire device in a stovepipe, a rack-stem slidably fitted to one member and attached to the other member to separate the same laterally, a ratchet-plate fast with the tubular trunnion for adjusting the damper on its axis, a shaft journaled on the pivotal damper member and geared to the rack-stem, and an operating-handle attached to the shaft and provided with a catch to engage with the ratchet-plate, substantially as described.

5. A damper comprising the matching members one of which is provided with clamping and tubular trunnions for pivotally suspending the entire device within a stovepipe, a rack-stem connected to one member and slidably fitted to the other member, a ratchet-plate fast with the tubular trunnion of the pivotal member, a shaft disposed obliquely on the pivotal member and through the tubular trunnion thereof, a ratchet-plate fixed to the tubular trunnion and having the extended arm, the operating-handle clamped to the protruding end of the adjusting-shaft, and a spring-actuated locking-piece pivoted to the handle and engaging with the ratchet-plate, substantially as described.

642,584. REDUCTION OF METALLIC ORES. CALEB G. COLLINS, Woodsmere, N. Y., assignor to Calvin Amory Stevens, New York, N. Y. Original application filed Feb. 21, 1898, Serial No. 671,062. Divided and this application filed May 20, 1899. Serial No. 717,540. (No specimens.)

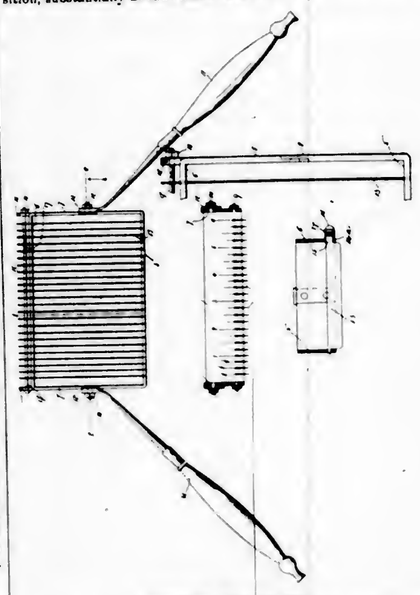


Claim.—The process of preparing ores for the extraction of metal which consists in mixing the powdered ore with a powdered fluorid and subjecting the mixture to a temperature below the fusion-point in the presence of water vapor substantially as and for the purpose specified.

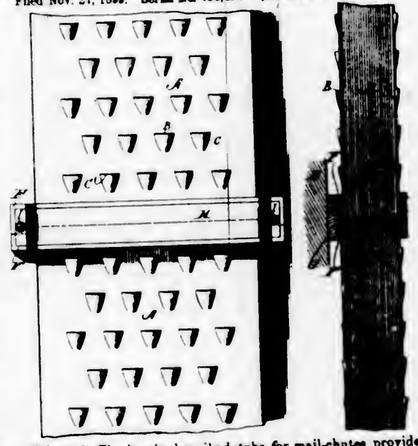
642,585. DEVICE FOR CUTTING ICE-CREAM. TIMOTHY F. CROWLEY, New York, N. Y. Filed Feb. 23, 1899. Serial No. 706,446. (No model.)

Claim.—1. A device of the class described, comprising an oblong rectangular frame composed of parallel sides and parallel ends, and a plurality of blades arranged in said frame, said blades being provided at one end with a pintle, and at the opposite end with a flat extension, and the sides of the frame being provided one with holes adapted to receive said pintle, and the other with slots adapted to receive said extensions, the ends of the frame being also provided with shoulders or projections at one side, and a rod which is passed therethrough and through said extensions of said blades, substantially as shown and described.

2. A device of the class described, comprising an oblong frame, provided at its ends with handles, one side of said frame being provided with holes, and the other side with slots, and transverse blades, one end of each of which is inserted in one of said holes, and the other end of each of which fits in one of the said slots, and adjustable devices connected with said frame for locking said blades in position, substantially as shown and described.



642,586. MAIL-CHUTE. JOSEPH W. CUTLER, Rochester, N. Y. Filed Nov. 27, 1899. Serial No. 738,430. (No model.)



Claim.—1. The herein-described tube for mail-chutes provided with a series of restricted openings having the lower edges inclined outward at an angle which prevents the lodging of the mail-matter while permitting inspection and ventilation.

2. The herein-described tube for mail-chutes, provided with perforations in the opposing walls of the tube, which permit vision across the chute.

3. The combination with the removable perforated mail-chute sections, having bands rigidly attached to their ends, of the clamp covering the joint between the bands of adjacent sections, and removably secured thereto.

4. The combination with a letter box or receptacle, of a chute

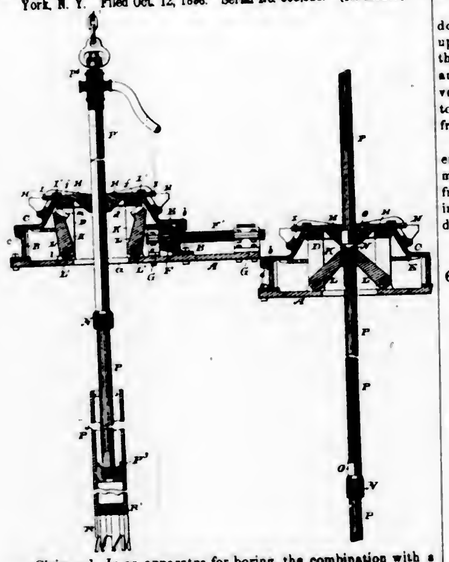
communicating therewith extending through the various stories of a building, and having letter-receiving apertures at various points in its length, said chute having a smooth unobstructed interior and being provided with small apertures in its face for admitting light and permitting the inspection of the interior thereof.

5. The combination with a letter box or receptacle, of a chute for mail-matter leading thereto, composed of separate sections, having a smooth unobstructed interior and provided with small apertures for admitting light and permitting inspection of the interior of the chute at all points.

6. The combination with a letter box or receptacle, of a chute for mail-matter leading thereto composed of opaque material and having small apertures in the front thereof for permitting the admission of light and the inspection of the interior, said apertures being small enough to prevent the entrance or exit of mail-matter and having the edges arranged to prevent the arrest of mail-matter descending in the chute.

7. The herein-described tubular mail-chute section composed of a single piece of sheet material folded up and connected at the edge, affording a smooth unobstructed interior and provided with apertures of such restricted dimensions as to prevent the insertion or removal of mail-matter, but permitting the admission of light and inspection of the interior thereof.

642,587. APPARATUS FOR BORING. FRANCIS H. DAVIS, New York, N. Y. Filed Oct. 12, 1896. Serial No. 608,323. (No model.)



Claim.—1. In an apparatus for boring, the combination with a drill-rod made up of sections and two connected couplings interposed between adjacent sections of the rod, of a clamp carried by a stationary support and adapted to engage the lower coupling of each pair and support the same, and a device adapted to be continuously rotated and to engage the upper coupling and permit a longitudinal movement thereof, whereby a rotary movement of the rotary device operates to connect or disconnect the two couplings.

2. In an apparatus for boring, the combination with a drill-rod made up of angular and round sections and a coupling connecting the angular rod with the adjacent round rod, of a clamp carried by a stationary support for engaging the lower part of the coupling so as to support the same and hold it against rotation and a device adapted to be continuously rotated and to engage the angular rod whereby a rotary movement of the rotary device operates to connect or disconnect the angular and round sections.

3. In an apparatus for boring, the combination with a stationary base and a rotary dome thereon, the base having pivoted clamping-arms and the rotary dome having an angular opening therein, of a drill-rod the upper section of which is angular in cross-section and a coupling connecting the sections of the rod, the said coupling having ribs adapted to rest in corresponding grooves in the arms.

4. In an apparatus for boring, the combination with a base and a rotary dome mounted thereon, of a sectional drill-rod, means carried by the dome for engaging the upper section of said drill-rod and turning it, a coupling connecting the sections of the rod, ribs on said coupling and a locking device disposed below the dome and adapted to engage the ribbed coupling.

5. In an apparatus for boring, the combination with a drill-rod made up of sections and two connected couplings intermediate and connecting adjacent sections of the rod, the upper of said couplings being angular in cross-section and the other having ribs and grooves on its outer face, of a clamp carried by a stationary support and provided with the ribs and grooves corresponding with the grooves and ribs on the coupling whereby when the coupling is grasped by the clamp it is sustained thereby and prevented from rotating, and a rotary device engaging the angular coupling whereby a rotary movement of the rotary device operates to connect or disconnect the two couplings.

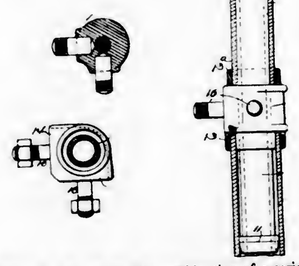
6. The combination with a stationary base and a dome mounted to rotate thereon, said dome having an axial opening, some part of the wall of which is eccentric to the axis of the dome, of a coupling having one section conforming in contour to said opening in the dome and having ribs on the other section, and arms pivoted on the base and adapted at their free ends to interlock with said ribs on the coupling-section and support the drill-rod depending therefrom.

7. The combination with a stationary base and arms pivoted thereto, said arms having their ends adapted to bear against each other and form a socket for a coupling, of a rotary dome mounted on the base and connected to and adapted to transmit rotary motion to a drill-rod.

8. The combination with a base having an opening therein, of a dome mounted on said base, means for connecting said dome with an upper section of a drill-rod for turning the same, shafts mounted on the base at respective sides of said opening, arms secured to said shafts and coöperating to support another section of the drill-rod and prevent it from turning and devices connecting said shafts to cause them to be turned simultaneously and to move said arms toward or away from the drill-rod.

9. The combination with a base, arms pivoted thereto and coöperating to support a lower section of a drill-rod and means also mounted on the base for causing the arms to move in unison to or from the drill-rod, of a rotary dome over said pivoted jaws, clamping-jaws hinged to said dome and adapted to connect the dome and drill-rod and means for locking said jaws down on the dome.

642,588. TOWER. FRANCIS H. DAVIS, New York, N. Y., assignor to the Davis Calyx Drill Company, same place. Filed May 19, 1899. Serial No. 717,442. (No model.)

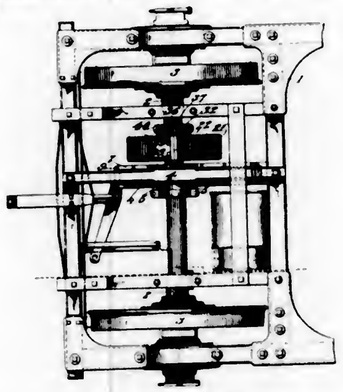


Claim.—1. In a tower, the combination of a series of uprights, each made in detachable tubular sections, a sleeve disposed between each two sections and having internal shoulders forming abutments for the ends of said sections, a bar passing through each sleeve and projecting a distance above and below the same into the tubular sections of the upright, pins projecting outwardly from each sleeve, horizontal cross-braces removably attached at their ends to said pins, and diagonal truss-rods detachably connected at their ends to the said pins.

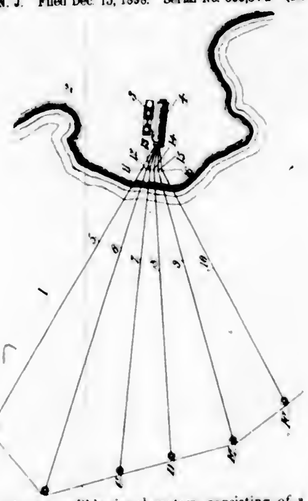
2. In a tower or derrick, the combination with a terminal, of bolts passing through said terminal and projecting upwardly in an inclined direction from said terminal, sleeves seated on said terminal, through which said bolts pass and tubular uprights inclosing said bolts and seated on said sleeves.

642,589. DYNAMO-DRIVING MECHANISM. ROBERT M. DIXON, East Orange, N. J. Filed Sept. 14, 1898. Serial No. 690,945. (No model.)

Claim.—The combination with a car-truck frame and its axle, of a gear-housing suspended from the truck-frame, a sleeve supported by the gear-housing around the axle, a gear mounted upon the sleeve within the housing, a pinion within the housing meshing with the gear, an armature-shaft secured to the pinion, a friction-rim secured to the gear outside of the housing, and centrifugally-actuated pressure mechanism secured to the axle within the rim, substantially as set forth.



642,590. AUDIBLE-SIGNAL SYSTEM. ROBERT M. DIXON, East Orange, N. J. Filed Dec. 15, 1898. Serial No. 699,374. (No model.)

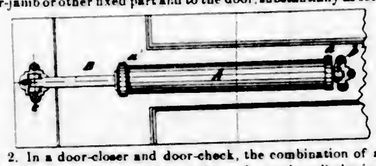


Claim.—1. An audible-signal system, consisting of a group of signal-stations, the several stations being located so as to constitute channel-markings, each station being provided with distinctive or distinguishable sound-emitting mechanism by which its individual location may be determined, and the entire group being audibly distinguishable by the succession of sounds emitted from the several stations in their order, substantially as set forth.

2. An audible-signal system, consisting of a group of distinctive or distinguishable sounds emitted, respectively, from a series of channel-indicating stations, said sounds being produced by the aid of sound-producing mechanism upon the respective stations, and by means for actuating said mechanisms at a distance from the several stations, substantially as set forth.

642,591. DOOR CHECK AND CLOSER. FRÉDÉRIC DOSOGNE, Antwerp, Belgium. Filed Feb. 17, 1897. Serial No. 623,902. (No model.)

Claim.—1. In an automatic door-check and door-closer, for doors opening both inwardly and outwardly, the combination of a longitudinally-fixed cylinder with a spring compressible from either end a supplemental cylinder movable endwise within the fixed cylinder, a piston sliding in the movable cylinder and arranged to engage the same for moving the latter endwise, a connection between the said movable cylinder and the said spring, an actuating-lever and pivotal connections from the latter to the said piston and directly to the other end of the said spring, in order that the latter may be compressed whether the door be opened outwardly or inwardly, the said lever and main cylinder being pivotally attached respectively to the door-jamb or other fixed part and to the door, substantially as set forth.



2. In a door-closer and door-check, the combination of a lever and a spring compressible from either end, a main cylinder inclosing the said spring, a rim within the cylinder directly connected to said lever and an end of the said spring, an endwise, movable, auxiliary cylinder arranged within the said main cylinder and provided with a collar which bears against the other end of the said spring and also with an additional interior collar, a piston sliding within the said auxiliary cylinder and engaging the said interior collar, and a rod having pivotal connection between the said piston and the said lever in order that the spring may be compressed by the opening of the door in either direction, the main cylinder and lever being pivotally attached respectively to the door and door-jamb, substantially as set forth.

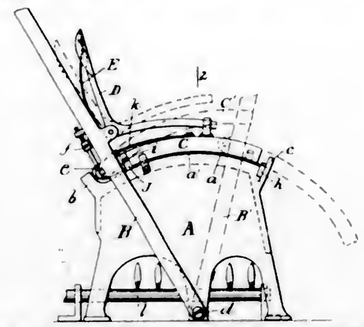
3. In a door-closer and door-check, the combination of a main cylinder and a spring, compressible from either end, inclosed therein, with an auxiliary cylinder movable endwise therein and having an attachment adapted to bear against one end of the said spring, a piston sliding in the said auxiliary cylinder but arranged and adapted to engage the latter at a certain point and move it endwise, a rod attached to said piston, a lever pivotally connected with the said rod and positively connected with the other end of the said spring, in order that it may compress the latter whichever way the door is opened, means for supplying liquid to a part of the said movable cylinder and obstructing the escape of the said liquid and thereby retarding the movement of the said cylinder, for the purpose of keeping the door steady when it has returned to its normal position, by resisting its tendency to oscillate under opposing forces of momentum and resilience, substantially as set forth.

4. In a door-closer and door-check, the combination of a main cylinder with an auxiliary cylinder movable endwise therein and having an attachment adapted to bear against one end of the said spring, and a piston sliding in the said auxiliary cylinder but arranged and adapted to engage the latter at a certain point and move it endwise a rod attached to said pistor, a lever pivotally connected with the said rod and positively connected with the other end of the said spring in order that it may compress the latter whichever way the door is opened, an additional cylinder arranged within the said movable cylinder and reciprocating therewith, a piston arranged within the said additional cylinder and adapted to permit the passage of liqoid slowly from one side of the said piston to the other, substantially as and for the purpose set forth.

5. In a door-closer and door-check, the combination of a main cylinder with an auxiliary cylinder movable therein and having an attachment adapted to bear against one end of the said spring, and a piston sliding in the said auxiliary cylinder but arranged and adapted to engage the latter at a certain point and move it endwise, a rod attached to said piston, a lever pivotally connected with the said rod and positively connected with the other end of the said spring in order that it may compress the latter whichever way the door is opened, an additional cylinder arranged within the said movable cylinder and reciprocating therewith, a piston arranged in deflected position within the said additional cylinder and also provided with a small hole to permit the passage of liquid through it, substantially as set forth.

6. In a door-closer and door-check, the combination of a main cylinder with an auxiliary cylinder movable endwise therein and having an attachment adapted to bear against one end of the said spring, and a piston sliding in the said auxiliary cylinder but arranged and adapted to engage the latter at a certain point and move it endwise, a rod attached to said piston, a lever pivotally connected with said rod and positively connected with the other end of the said spring in order that it may compress the latter whichever way the door is opened, a pair of additional cylinders arranged within the said movable cylinder and reciprocating therewith pistons respectively arranged within the said additional cylinders and adapted to permit the passage of liquid slowly from one side of the said pistons to the other, substantiully as and for the purpose set forth.

642,592. CRIMPING AND GOFFERING MACHINE. LUCIEN EBERT, New York, N. Y. Filed July 18, 1899. Serial No. 724,317. (No model.)



Claim.—1. A crimping and goffering machine, comprising a fixed member provided with an operative surface consisting of alternately-arranged grooves and ribs, a relatively-movable member which operates in connection therewith and which is provided with an operative surface formed to correspond with and fit said operative surface of said fixed member, each of said members being provided upon its operative surface with a continuous shoulder arranged transversely of the respective grooves and ribs and provided with an operative surface which fits the grooves and ribs of the operative surface of the other member, the relative construction and arrangement of parts being such that when a blank is interposed between said operative surfaces and said movable member is operated said shoulders will compress and crimp said blank directly between the same and further operate as stop devices to limit the movement of said movable member, substantially as shown and described.

2. In a crimping-machine the combination of a circular base having a top provided with grooves, a shoulder attached to said top, a clamping-disk sliding loosely on a post, said clamping-disk also having a shoulder, a spring attached to said disk and acting on said shoulder, a compression-lever pivoted to a post on base, a rotating handle attached to said disk and means for heating the top and disk, substantially as described.

3. A machine of the class described, comprising a concentrically-grooved base, a clamping-disk revolubly arranged concentrically thereof and similarly ribbed, said base and said disk being each provided with a continuous shoulder upon their adjacent faces, which shoulders coact to compress a blank imposed between said base and said disk, when said clamping-disk is operated, said clamping-disk being provided with a spring-retracted operating-handle, substantially as shown and described.

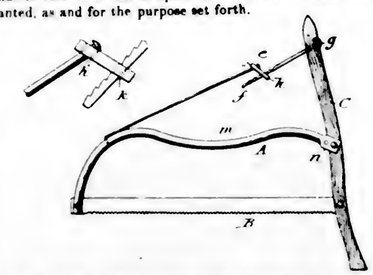
4. A machine of the class described, comprising a coocentrically-grooved base, a clamping-disk revolubly arranged concentrically thereof and similarly ribbed, said base and said disk being each provided with a shoulder upon their adjacent faces which shoulders coact to compress a blank imposed between said base and said disk when the latter is operated, said clamping-disk being provided with a spring-retracted operating-handle, and said clamping-disk with a compression-lever, substantially as shown and described.

5. In a machine of the class described, a grooved base and a similarly-ribbed clamping-disk which operates in connection therewith, said clamping-disk being provided with a slot and a movable spring-actuated shoulder therein, and arranged to operate in connection with the groove in said base substantially as shown and described.

6. In a machine of the class described, a grooved base, a correspondingly-ribbed clamping-disk, a pin connected with said base, and upon which said clampiog-disk is alidably and revolubly mounted, a spring interposed between said base and said clamping-disk, a lever pivoted to said base and slotted to receive said pin, and operating in connection with said clamping-disk to depress the same, and means for revolving said clamping-disk, substantially as shown and described.

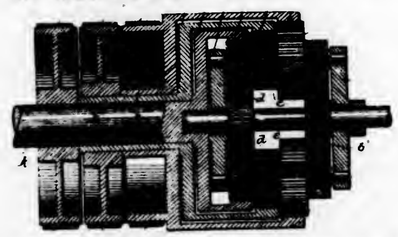
642,593. BUCKSAW-FRAME. LOUIS R. EICKELBERG, Waterloo, Iowa. Filed May 12, 1899. Serial No. 716,531. (No model.)

Claim.—1. A bucksaw-frame comprising a substantially upright handle, a beam connected at one end to about the center of the handle and having its other end turned down for attachment to the blade, a rod in two members whose outer ends are respectively connected with the upper end of the handle and with the beam where it is turned down, and a tie-bar having holes receiving the inner lapping ends of said rods and adapted to bind thereon when the tie-bar is canted, as and for the purpose set forth.



2. A bucksaw-frame comprising a substantially upright handle, a beam connected at one end to about the center of the handle and having its other end turned down for attachment to the blade, a rod in two members whose outer ends are respectively connected with the upper end of the handle and with the beam where it is turned down and whose inner ends are respectively provided with a head on one member and with notches in the inner edge of the other, and a tie-bar having holes near its ends respectively engaging said headed member and said notched member and adapted to enter one of the notches when the bar is canted, as and for the purpose set forth.

642,594. GEARING FOR TRANSFORMING SPEED. ROBERT H. F. FINLAY and ARCHIBALD H. FINLAY, Belfast, Ireland. Filed Dec. 9, 1897. Serial No. 661,293. (No model.)



Claim.—In a variable-speed gear, the combination with a high-speed shaft having a pinion fixed thereon, of one or more shafts supported to revolve around the high-speed shaft, gears of different diameters carried by said revoluble shaft or shafts and movable together, internally-toothed rings of different diameters meshing with said gears, and one of said gears meshing with the pinion on the high-speed shaft, pulleys rigidly connected with the respective rings, and means for holding any one of the pulleys agaiost rotation, substantially as set forth

642,595. FENCE-POST. WILLIAM L. FINLEY, Janesville, Wis. Filed July 19, 1899. Serial No. 724,340. (No model.)



Claim.—1. A fence-post consisting of two metal-bar members secured to each other surface to surface, one member having staple-grooves in pairs in its said surface extending inwardly from its front edge and curving upwardly or dowowardly, the staple-grooves being adapted to receive a wire staple therein and clench it by bending on being driven into the post in the grooves.

2. The combination of a fence-post comprising two metal-bar members secured to each other surface against surface, one member having curved staple-grooves in its said surface, a wire placed against the edge of the post, and a staple straddling the wire and extending into the post in the curved staple-sockets formed of said grooves and the complementary covering post member, whereby said wire is by the clenching of the staple in the post secured to the post.

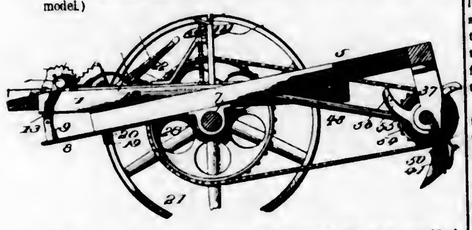
642,596. NUT-LOCK. JOHN A. FORSEY, Frackville, Pa. Filed Oct. 12, 1899. Serial No. 733,345. (No model.)

Claim.—The herein-described nut-lock device, comprising a bolt, a cup-shaped washer passed thereon, devices for preventing relative revolution of said bolt and washer, said cup-shaped washer being provided with an opening at one side, a dog loosely mounted in said opening and provided with a curved plate spring extension curved to fol-

low the contour of said cup-shaped washer which is chambered to receive the same, the inner end of said extension being connected with said washer, and a nut provided with an extension and which is screwed upon said bolt, said extension being provided with a plurality of wedge-shaped peripheral recesses forming shoulders in connection with which said dog operates to prevent rotation of said nut in one direction, substantially as shown and described.



642,597. COMBINED STALK-CUTTER AND RAKE. FRANK FOSNOT, Daleville, Ind. Filed July 5, 1899. Serial No. 722,868. (No model.)



Claim.—1. In an agricultural implement of the class specified, the combination with the rake comprising a beam and a series of teeth, the latter having cutting edges at their lower ends terminating a short distance from their points, of rotary cutters journaled to the rake-teeth and located wholly within the extremities thereof and adapted to coöperate with their cutting edges, substantially as described.

2. In an agricultural implement of the type described, the combination with the rake, and ledger-plates applied to the rake-teeth between their ends, of rotary cutters journaled to the rake-teeth and operating wholly within the ends thereof jointly with the ledger-plates, substantially as specified.

3. In an agricultural implement of the character described, the combination with the rake, and a shaft common to the rake-teeth and journaled thereto midway of their ends, of cutters secured to said shaft and rotatable therewith against the sides of the rake-teeth, as and for the purpose set forth.

4. In an agricultural implement of the nature set forth, the combination with the rake, and a shaft journaled to the rake-teeth about midway of their ends, of cutters secured to the shaft and rotatable therewith within the extent of the rake-teeth, and ledger-plates applied to the rake-teeth and adjustable laterally toward and from the plane of the respective rotary cutters, substantially as specified.

5. In combination, a rake provided with teeth having bearings, and a shaft journaled in said bearings, of cutters secured to the said shaft and rotatable therewith, ledger-plates seated upon the front sides of the rake-teeth with their ends abutting against projecting portions thereof, and means for laterally adjustably connecting the ledger-plates with the rake-teeth, substantially as set forth.

6. In combination, a rake having its teeth formed with bearings, seats adjacent to the bearings, and shoulders at the lower ends of the seats, a shaft journaled in the bearings of the rake-teeth, rotary cutters applied to the shaft, ledger-plates placed upon the seats of the rake-teeth with their ends abutting against the bearings and shoulders, and clamp-screws for adjustably connecting the ledger-plates to the teeth, substantially as set forth.

7. In an implement of the character described, a rake having its teeth provided with movable points, and a spring for normally holding said points in a predetermined position, in combination with ledger-plates applied to the teeth above the movable points, and rotary cutters journaled to the teeth and coöperating with the ledger-plates, substantially as set forth.

8. In an implement of the type set forth, a rake-tooth provided with a pivot-point having a rib upon its rear side, in combination with a spring formed of a single length of spring-wire doubled upon itself and secured to the rake-tooth and having its folded end deflected to form a seat for the rim of the pivot-point, substantially as set forth.

9. In an implement of the character set forth, the combination with a rake-tooth having a rearwardly-extending rib, and a point pivoted to the rake-tooth, of a spring comprising side members secured to the rake-tooth at the sides of the rib and having engagement with the pivot-point, and projections at the sides of the said rib confining the side members of the spring to the rake-tooth, substantially as set forth.

10. In an implement of the class described, the combination with a rake-tooth having a rearwardly-extending rib and a point pivoted to the rake-tooth, of a spring comprising side members secured to the rake-tooth at the sides of the rib and engaging with the pivot-point, and a pin passing through the rib of the rake and having its end portions engaging said side members of the spring, substantially as set forth.

11. In an implement of the character described, the combination with draft and wheel frames mounted to have relative adjustment, a shaft journaled upon one of the frames, arms secured to said shaft, links connecting the outer ends of the arms with the other frame, and means for rotating the shaft in its bearings and holding it in an adjusted position, substantially as set forth.

12. In an implement of the character described, the combination with the draft-frame, and a relatively movable wheel-frame, of a shaft mounted upon one of the frames and provided with offstanding arms, links connecting said arms with the other frame, a toothed segment secured to the shaft, a companion toothed segment intermeshing with the toothed segment of the shaft, an operating-lever secured to the toothed segment meshing with the segment of said shaft, and means for securing the operating-lever in an adjusted position, substantially as set forth.

13. In combination, a draft-frame, and a relatively adjustable frame, of flat springs secured to the adjustable frame and projecting therefrom, and adjustable connections between the projecting ends of the springs and the draft-frame, substantially as set forth.

14. In combination, a draft-frame, and a relatively adjustable wheel-frame, of flat springs secured at one end to the wheel-frame and having projecting end portions, and rigid connections adjustably interposed between the projecting ends of said springs and the draft-frame, substantially as set forth.

15. In combination, a draft-frame and a relatively adjustable wheel-frame, and means for adjustably connecting the wheel-frame with the draft-frame, of supplemental tension devices interposed between the wheel-frame and the aforesaid connections, substantially as set forth.

16. The combination with a draft-frame and a relatively adjustable wheel-frame, of springs secured to the wheel-frame and having projecting end portions, adjustable connections between the projecting end portions of the springs and the draft-frame, and tension devices between the wheel-frame and the said springs, substantially as described.

17. The combination with a draft-frame and a wheel-frame, of springs attached to the wheel-frame and having projecting end portions, adjustable connections between the projecting end portions of the springs and the draft-frame, and other springs between the wheel-frame and the flat springs, substantially as specified.

18. In combination, a draft-frame and a relatively adjustable wheel-frame, flat springs secured at one end to the wheel-frame and having their opposite end portions projecting, and adjustable connections between the draft-frame and the projecting end portions of the said springs, of set-screws applied to the wheel-frame, and springs interposed between said set-screws and flat springs, and having their tension regulable by means of the set-screws, substantially as set forth.

642,598. AUTOMATIC COUPLING FOR RAILWAY-VEHICLES. SIEGMUND FRAENKEL and JOHANN K. HELD, Fuerth, Germany. Filed Aug. 8, 1899. Serial No. 726,540. (No model.)

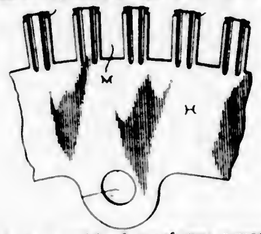


Claim.—1. In a car-coupling, a draw-bar pivoted upon a horizontal axis and having its rear end extended to the rear of said axis, a coupling-hook pivoted to the forward end of said draw-bar upon a vertical axis, a wedge-block moving transversely above the rear end of said draw-bar and adapted to depress the same, and means for reciprocating said wedge-block, substantially as described.

2. In a car-coupling, a draw-bar pivoted upon a horizontal axis and having its rear end extended to the rear of said axis, a coupling-hook pivoted to the forward end of said draw-bar upon a vertical axis, a wedge-block moving transversely above the rear end of said draw-bar and adapted to depress the same, a lever at the side of the car connected to said block, and a spring exerting pressure to hold said block normally pressed in one direction, substantially as described.

3. In a car-coupling, a draw-bar pivoted upon a horizontal axis and having its rear end extended to the rear of said axis, a coupling-hook pivoted to the forward end of said draw-bar upon a vertical axis, a wedge-block moving transversely above the rear end of said draw-bar and adapted to depress the same, a wedge-block arranged to slide transversely above the rear end of said draw-bar, a guide-piece having a sliding connection with said wedge-block, a link connecting said guide-piece with the rear end of the draw-bar, and means for operating said slide-block, substantially as described.

642,599. DYNAMO-ELECTRIC MACHINE. HENRY GERNDRÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 7, 1898. Serial No. 696,651. (No model.)



Claim.—1. As an article of manufacture, a punching for a dynamo-electric machine, consisting of a main body portion with a number of teeth or projections, each of the teeth or projections being provided, with a strengthening-rib.

2. In an electric machine, the combination of a body of laminæ, teeth formed in the laminæ, heads for clamping the laminæ, and punchings for the ends of the body of laminæ also provided with teeth, each tooth having a strengthening-rib.

3. As an article of manufacture a punching for a dynamo-electric machine, consisting of a main body portion having a plurality of teeth formed at its periphery, each tooth having a strengthening-rib formed integrally therewith.

4. In an electric machine, the combination of a laminated core having a plurality of teeth formed therein, the laminæ comprising the core being divided into groups, space-blocks between the groups, heads for holding the laminæ together, and punchings located between the laminæ and the heads, also provided with teeth, each tooth having a strengthening-rib formed integral therewith.

5. In an electric machine, the combination of a core, clamping-heads for the core, and special end punchings arranged to be interposed between the clamping-heads and the core, each provided with a plurality of radial teeth, each tooth having a strengthening-rib formed integral therewith and extending to a point below the root of said teeth.

6. A laminated structure for electric machines which consists of laminæ of uniform thickness of material, each one of a series of adjacent laminæ which do not have separate supports, having corresponding strengthening-ribs formed in it so that each lamination registers with the adjacent laminæ.

7. In an electric machine, the combination of a laminated core, a ribbed end punching for the core, and a head for clamping the core having grooves formed therein which coincide with the ribs on the end punchings.

8. In an electric machine, the combination of a laminated core, special end punchings for the core having a plurality of ribs formed integrally therewith, and clamping-heads for holding the punchings having a plurality of grooves which correspond in number and arrangement to the ribs on the end punchings.

9. A laminated core for electric machines in which the end laminæ are provided with strengthening-ribs.

10. A laminated core for electric machines in which the end laminæ are of the same thickness as the other, and provided with strengthening-ribs.

11. A laminated structure for electric machines which consists of laminæ of uniform thickness of material, the laminæ which do not have separate supports being reinforced without increasing the amount of magnetic material.

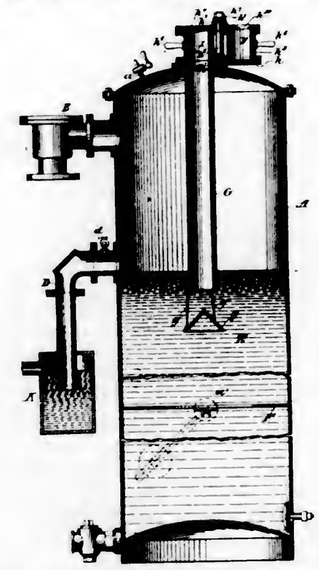
12. A laminated structure for electric machines having the laminæ which are not completely supported reinforced to prevent bending, in such a manner that eddy-currents are not increased.

13. A lamina for electric machines having peripheral teeth, each of which has one or more hollow integral lateral projections.

14. A lamina for electric machines having peripheral teeth which have one or more hollow displaced portions of the same thickness as the main body of the laminæ.

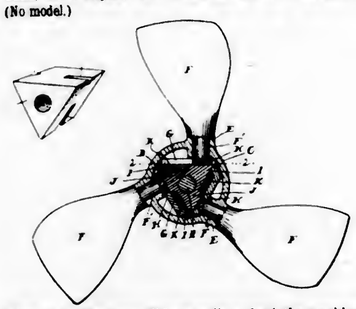
15. A structure for electric machines comprising a series of laminæ having peripheral teeth, those on some laminæ having plane surfaces and those on other laminæ having hollow projections which maintain a space between adjacent laminæ.

642,600. ACETYLENE-GENERATOR. HEINRICH GERDES, Berlin, Germany, assignor to the Safety Car Heating and Lighting Company, New York, N. Y. Filed Dec. 12, 1899. Serial No. 698,950. (No model.)



Claim.—In an acetylene-generator, the combination of a tank or water-receptacle, a grate or platform F for receiving and supporting the carbid-charge, a carbid-feed pipe or conduit G located within the tank and extending from the top of the said tank downward, a pipe D in open communication with the side of the tank A and adapted to maintain the water-level, a water seal K for the said pipe, a gas-draw-off pipe B, a platform h supported upon the tank A, an apertured top plate h^4, a bolt h^3 connecting the platform and top plate and a swinging carbid-receptacle having chambers x y extending entirely therethrough and adapted to be swung into the position of open communication with the pipe G or with the aperture in the plate h^4.

642,601. REVERSIBLE PROPELLER-WHEEL. GEORGE H. GEER, Grand Rapids, Mich. Filed Mar. 22, 1899. Serial No. 710,018. (No model.)



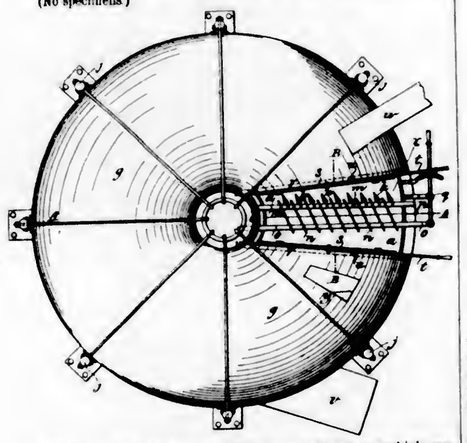
Claim.—1. In a reversible propeller-wheel, the combination of a hollow hub mounted on a sleeve, an angular block slidably engaging the hub, blades rotatively and tangentially mounted on said hub, cranks on said blades extending substantially across the entire face of said block, and connected to said block at their movable ends, substantially as described.

2. In a reversible propeller-wheel, a hollow hub mounted on a sleeve, a block mounted on a shaft and slidably engaging longitudinal grooves in the hub, blades rotatively and tangentially mounted on said hub, cranks on said blades extending substantially across the face of said block, pins in the movable ends of said cranks, and transverse grooves in the faces of said block engaged by said pins, substantially as described.

3. In a reversible propeller-wheel, a hollow hub mounted on a sleeve, and having longitudinal grooves, bosses on said hub arranged tangential to the axis of said hub blades journaled in said bosses, an angular block having its angles slidably engaging said grooves, and mounted on a shaft longitudinally movable in the sleeves, transverse grooves in said block, and cranks extending across the faces of said block, and attached at one end to the blades, and having pins at their other ends engaging the grooves in the block, substantially as described.

642,602. PROCESS OF CALCINING.

JOSEPH GODFREY and HENRY J. HAYES, Swansea, England, assignors to the Godfrey Calciner, Limited, London, England. Filed May 9, 1899. Serial No. 716,083. (No specimens.)

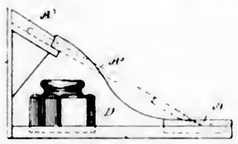


Claim.—1. The herein-described process of calcining which consists in alternately heating the material to be calcined in a closed furnace and exposing it to the open air, out of contact with the products of combustion.

2. The herein-described process of calcining which consists in alternately heating the material to be calcined in a closed furnace and exposing it while being stirred or rabbled to the oxidizing effects of the atmosphere in the open air, out of contact with the products of combustion.

642,603. COMBINED PEN-RACK AND INKSTAND.

THOMAS W. GOULD, Paterson, N. J. Filed June 24, 1898. Serial No. 684,333. (No model.)

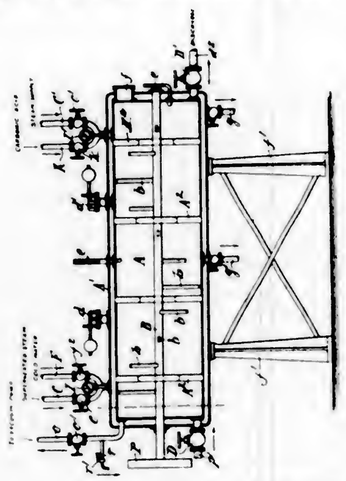


Claim.—1. The within-described combined pen-rack and inkstand, the same having the base A laterally extended to receive an ink-well said base supporting the broad and smooth bottomed rest A^1 at one end and having side and end ledges, and the lower sponge-cup at the other end, the parts being so disposed as to leave a clear space for the penholders at mid-width, the construction being adapted to freely retain the penholders in an inclined position by gravity so that the pens rest on the sponge in the lower cup, while the butts of the holders lie loosely and are guarded in the upper rest, the holders being capable of removal without necessity of endwise movement, all combined in the manner and for the purpose set forth.

2. The within-described combined rack and inkstand, the same having the base A, the broad and smooth bottomed rest A^1 at one end with side and end ledges permitting the removal of the holders without necessity of endwise movement, and the lower sponge-cup at the other end, the longitudinal vertical partition extending centrally along the base between the two to present lateral ink-well rests at both sides thereof, said partition being hollowed at its upper edge, the construction being adapted to freely retain the penholder in an inclined position under the conditions and in the manner substantially as and for the purpose set forth.

642,604. PRESERVATION OF BEER.

HUGO GROSWALD, Berlin, Germany, assignor to the Bier-Siphon-Action-Gesellschaft, Cassel, Germany. Filed Dec. 27, 1897. Serial No. 663,660. (No model.)



Claim.—1. In the art of preserving beer, the improvement which consists in deaerating the beer and at the same time removing therefrom those by-products of fermentation which, when the beer is pasteurized, alter its taste and smell, then pasteurizing and subsequently cooling the beer, and effecting both operations in a closed vessel and in the presence of an indifferent gas, for the purpose set forth.

2. In the art of preserving beer, the improvement which consists in deaerating and at the same time removing from the beer, heated to a temperature not exceeding 30° centigrade and while being agitated, those volatile by-products of fermentation which, when the beer is pasteurized, alter its taste and smell, then pasteurizing and subsequently cooling the beer, and effecting both operations in a closed vessel and in the presence of an indifferent gas, as carbonic-acid gas, for the purpose set forth.

3. In the art of preserving beer, the improvement which consists in mechanically deaerating and at the same time removing from the beer heated to a temperature not exceeding 30°, those volatile by-products of fermentation, which, when the beer is pasteurized, alter its taste and smell, by washing the beer with an indifferent gas, then pasteurizing and subsequently cooling the beer, and effecting both operations in a closed vessel and in the presence of an indifferent gas as carbonic-acid gas, for the purpose set forth.

4. In the art of preserving beer, the improvement which consists in deaerating and at the same time removing from the beer those volatile by-products of fermentation, which, when the beer is pasteurized, alter its taste and smell, by maintaining the beer under a partial vacuum and in the presence of an indifferent gas for a sufficient length of time, then pasteurizing and subsequently cooling the beer, and effecting both operations in a closed vessel and in the presence of an indifferent gas, as carbonic-acid gas, for the purpose set forth.

5. In the art of preserving beer, the improvement which consists in deaerating and at the same time removing from the beer those volatile by-products of fermentation which, when the beer is pasteurized, alter its taste and smell, by washing the beer, heated to a temperature not exceeding 30° centigrade, and while being agitated, with an indifferent gas, then pasteurizing and subsequently cooling the beer, effecting both of these operations in a closed vessel and in the presence of an indifferent gas, and finally enlivening the beer by charging it, while being agitated, with carbonic-acid gas, for the purpose set forth.

6. In the art of preserving beer, the improvement which consists in deaerating and at the same time removing from the beer those volatile by-products of fermentation which, when the beer is pasteurized, alter its taste and smell, by maintaining the beer under a partial vacuum for a sufficient length of time, then washing the beer at a temperature above normal but not above 30° centigrade, with an indifferent gas, pasteurizing and subsequently cooling, and finally enlivening the beer by charging it with carbonic-acid gas, and effecting the operations of washing, pasteurizing, cooling and charging under exclusion of atmospheric air, for the purpose set forth.

642,605. GAS BRAZING APPARATUS.

EDWARD HAHN, Buffalo, N. Y., assignor to George S. Pearse, L. Gertrude Angell, and Arthur M. Sumner, same place. Filed June 13, 1897. Serial No. 641,306. (No model.)



Claim.—1. A gas-burner comprising a hollow burner-body having connection with an air and gas supply, a nozzle, a longitudinally-adjustable mixing device contained within said body and between the air and gas connection and the nozzle and having means for partially retarding the passage of the air and gas and thereby throughly mixing the same before its ignition.

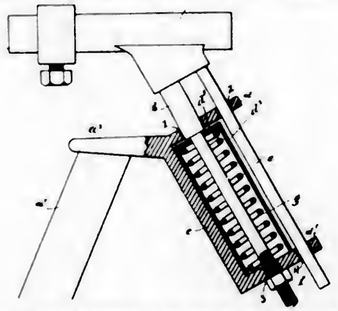
2. A gas-burner comprising a hollow tubular body portion provided with a nozzle at one end and a stuffing-box at the other, a mixing device having perforated end plates, supplementary wire-gauze portions and a perforated tubular portion, and a longitudinal shaft passing through the stuffing-box and longitudinally through the tubular burner-body portion and connected at one end to the mixing-chamber, and a handle at the opposite end of the shaft, as set forth.

3. A gas-burner comprising a hollow tubular body portion and a mixing device having a perforated tubular portion, and an end plate or screen provided with openings which converge toward the center of the axis of the perforated tubular portion, as set forth.

4. A gas-burner comprising a tubular body provided with a mixing device having perforated plates, and a shaft passing through the tubular burner-body and connected at one end to the mixing-chamber, and having an operating-handle at the opposite end for longitudinally adjusting the mixing device in the body, as set forth.

642,606. SPRING SADDLE-SUPPORT.

JOSEF HAIDER, Munich, Germany. Filed Apr. 20, 1899. Serial No. 713,741. (No model.)



Claim.—1. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of a machine, and a vertically-movable rod occupying a position rearwardly of and substantially at right angles to said rod or stem, and provided with means for the attachment of a saddle.

2. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of a machine, a vertically-movable rod occupying a position rearwardly of and substantially at right angles to said rod or stem, an elastic cushion for said movable rod, and means for the attachment of a saddle.

3. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of the machine, a vertically-movable rod occupying a position rearwardly of and substantially at right angles to said rod or stem, means for the direct attachment of a saddle, and an additional movable rod for preventing lateral turning of the support.

4. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of a machine, a box or frame supported by said rod or stem rearwardly of the same and substantially at right angles thereto, a movable rod supported and guided in said box or frame, and means for the attachment of a saddle.

5. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of a machine, a box or frame supported by said rod or stem rearwardly of the same and substantially at right angles thereto, a movable rod guided in said box or frame, an elastic cushion and adjusting devices therefor, and means for the attachment of a saddle.

6. A saddle-support for bicycles and similar vehicles, the same comprising a rod or stem supported at an upward inclination toward the rear of a machine, a box or frame supported by said rod or stem rearwardly of the same and substantially at right angles thereto, a movable rod working in said box or frame, a casing within the said box or frame, a spring within the casing surrounding the rod and serving as a cushioning resistance for a saddle, an additional guide-rod, and means for the attachment of a saddle.

642,607. PHOTOGRAPHER'S COMBINATION BABY-HOLDER AND LOUNGE.

WILLIAM A. HENNESSEY, Delavan, Wis., and WILLIAM W. MCLAIN, Paola, Kans.; said McLain assignor to Emelia F. McLain, Paola, Kans. Filed June 8, 1899. Serial No. 719,858. (No model.)



Claim.—1. A combination baby-holder and lounge, comprising a screen, a shelf hinged to the upper end of the screen and provided with a back and arm or head rests, and a brace to support the shelf, substantially as described.

2. A combination baby-holder and lounge, comprising a screen, a shelf hinged to the upper end of the screen and provided with a back and arm or head rests, an inverted-U-shaped brace clamped to the shelf and supporting the same, and an eyebolt projecting from said screen and embracing said brace, substantially as described.

3. A combination baby-holder and lounge, comprising a screen, a shelf hinged to the upper end of the screen, a brace connected to the screen and the shelf to support the latter, said shelf having a back and arm or head rests, the latter being adjustable toward or from each other upon the shelf, substantially as described.

4. A combination baby-holder and lounge, comprising a screen, a shelf hinged to the upper end of the screen, a brace connected to the screen and the shelf to support the latter, said shelf having a back and arm or head rests, the latter being adjustable toward or from each other upon the shelf, and a folding seat secured upon the shelf substantially as described.

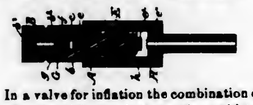
5. In a combination baby-holder and lounge, a screen, a shelf hinged to the upper end of the screen, a brace connected to the screen and to the shelf to support the latter, a back secured to the shelf and provided with an opening, and an arm-rest secured upon the shelf, substantially as described.

6. In a combination baby-holder and lounge, a screen, a shelf hinged to the front end of the screen, a brace connected to the screen and to the shelf to support the latter, a back secured to the shelf and provided with an opening, an arm-rest secured upon the shelf, a foldable seat upon the shelf, and a supplemental shelf secured upon the frame and provided with a head-rest at one end corresponding to the arm or head rest first mentioned, substantially as described.

7. A combination baby-holder and lounge, comprising a screen, a shelf supported at and projecting from the upper end of said screen and provided with a back and an arm or head rest, substantially as described.

642,608. VALVE FOR INFLATION.

ROLAND C. HILTON, New Bedford, Mass., assignor of one-half to Frederick L. Sowle, same place. Filed Nov. 27, 1899. Serial No. 738,333. (No model.)



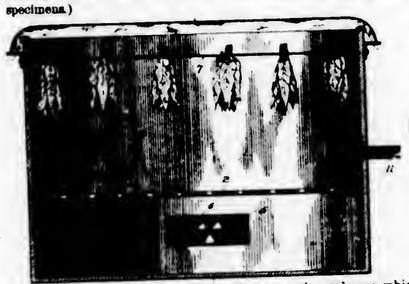
Claim.—1. In a valve for inflation the combination of a tube having a valve-seat therein with a casing engaging said tube, a screw-valve in said tube having an angular stem engaging in an angular perforation in said casing, a plug connected with the outer end of said casing, and a valve within said casing adapted to be seated on the inner end of said plug substantially as described.

2. The combination of the cylindrical casing A, internally screw-threaded, a plug B, having its upper end screw-tapped internally and secured to said casing and having a valve-seat within its lower end, said casing having centrally a perforation and a shoulder above said perforation, a coiled spring having one end resting upon said shoulder

and a valve resting upon said spring and bearing against the valve-seat of the upper plug B, substantially as described.

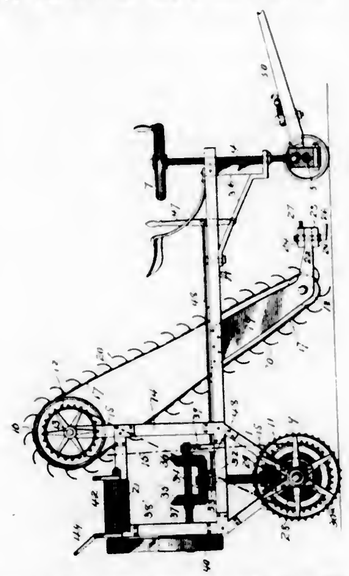
3. The combination of the tube H, having externally a screw-thread inclined in one direction, and internally a screw-thread inclined in the opposite direction, said tube having a valve-seat in its lower end, with a valve E, screw-threaded to fit the interior screw-thread and having a polygonal head, adapted to be received in and rotated by the casing A, substantially as described.

642,609. PROCESS OF TREATING TOBACCO. WILLIAM D. HOBSON, Sunny Side, Va. Filed May 2, 1899. Serial No. 715,384. (No specimens.)



Claim.—The improvemeot in the art of treating tobacco which consists, first, in curing leaf-tobacco; secondly, drying the same; and subsequently imparting a flavor thereto by simultaneously commingling smoke and steam in a closed receptacle and subjecting the cured and dried leaf, within such receptacle, to the combined and simultaneous action of the commingled agents, whereby the steam opens the pores of the dried and cured leaf and the smoke permeates the latter, as set forth.

642,610. DIGGING-MACHINE. ALPHENAS V. HYBORE, Philadelphia, Pa. Filed Oct. 5, 1899. Serial No. 732,670. (No model.)



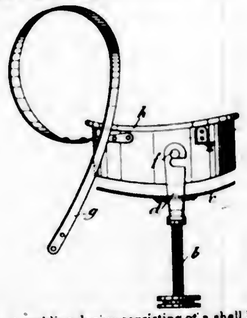
Claim.—1. In a digging-machine, the combination with a frame, a plow secured thereto and an endless bucket conveyer, of an endless apron conveyer onto which the bucket conveyer is adapted to discharge, a bevel-gear on one of the rear wheels of the machine, a vertical shaft swiveled at its lower end in a bracket loose on the rear axle, the frame having a longitudinal slot therein for the accommodation of the upper end of said vertical shaft, a block on said shaft disposed on the frame, a beveled gear on said vertical shaft meshing with the gear on the rear wheel, a horizontal shaft carrying a pulley, means for transmitting motion from said pulley to the endless apron, oppositely-disposed gears on said horizontal shaft, a gear-wheel on the upper end of the vertical shaft disposed between the oppositely-disposed gears, and means for moving said last-mentioned gear into mesh with one or the other of said oppositely-disposed gears.

2. In a digging-machine, the combination with a frame supported on wheels, of a shaft mounted on said frame, a drum on said shaft, a bracket projecting downward from the frame and carrying a roller, an endless bucket conveyer around said drum and roller, a sprocket-wheel on said shaft and rear axle, a sprocket-chain connecting said sprocket-wheels, an endless apron disposed transversely of the frame and located in proximity to the drum to receive the earth from the bucket-conveyer, means for operating said apron and means for reversing the movement thereof

3. In a digging-machine, the combination with a frame, of a bracket depending therefrom, arms projecting forwardly from the lower end of said bracket, a horizontal series of teeth connected with the forward ends of said arms and depending below the same, a transverse conveyer and an elevator extending from the lower end of said bracket to a point above the transverse conveyer.

4. In a digging-machine, the combination with a frame, and a bracket depending therefrom, of arms projecting forwardly from the lower end of said bracket, a transverse head secured to said arms and a series of depending teeth mounted in said head and means for adjusting said teeth.

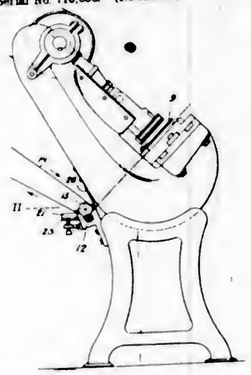
642,611. APPLIANCE FOR MOLDING TRUSS-HEADS. FRIEDRICH KAISER, St. Johann-upon-Saar, Germany. Filed June 23, 1899. Serial No. 721,649. (No model.)



Claim.—1. A molding device consisting of a shell having an edge conforming approximately to the surface of the body and having an open interior and open ends, and a pressing-plate with means for moving said plate in the shell, substantially as described.

2. A molding device comprising the shell having an edge to bear on the body, a pressing-plate movable in said shell, a screw for operating the plate and a hook *d* detachably secured to the shell, substantially as described.

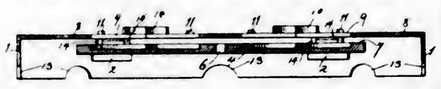
642,612. MACHINE FOR MAKING ARTICLES OF SHEET METAL. LOUIS P. KLEBER and FRANK J. KLEBER, Pittsburg, Pa. Filed May 5, 1899. Serial No. 715,658. (No model.)



Claim.—1. In combination with a stamping-press: an inclined guideway, upper and lower bending-rolls provided with beveled shoulders for receiving the blank from the guideway and forming it into a finished article, a deflecting-plate supported on arms journaled to the neck of the lower roll, and an adjusting-screw therefor adapted to set the deflecting-plate at varying angles with relation to the inclined guideway.

2. In combination with a stamping-press: an inclined guideway, upper and lower bending-rolls provided with beveled shoulders for receiving the blank from the guideway and forming it into a finished article, a deflecting-plate supported on arms journaled to the neck of the lower roll, an adjusting-screw therefor, and a fender-plate secured to the frame of the machine looped downwardly and projecting up over the upper roll, substantially as set forth.

642,613. SAD-IRON SUPPORT. EDWARD KLINGENBERG, Jr., Chicago, Ill. Filed June 26, 1899. Serial No. 721,855. (No model.)



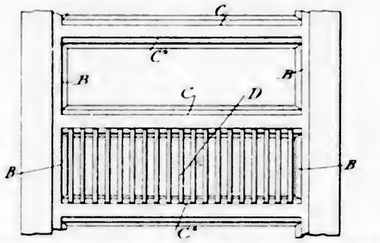
Claim.—1. A sad-iron support comprising an upper plate having an opening therein of slightly less diameter than the under surface of the sad-iron, a member provided with a depending flange or projection for supporting said plate, and a lower plate secured in a plane below said upper plate and shielding said opening, and having free passages at the sides and above said lower plate, communicating with said opening, substantially as described.

2. A sad-iron support comprising a ring having therein a series of seats for removably supporting an upper and a lower plate, the upper plate with the opening therein, of slightly less diameter than the under surface of the sad-iron, and the lower plate arranged to protect said opening, and having free passages around and over its sides, communicating with said opening, substantially as described.

3. A sad-iron support comprising the ring 1, having recesses 13, inner lugs 2, and shoulders 3, the lower plate 4 having the recesses 5, and the upper plate 8 having lugs 14, and openings 9, protected by said lower plate, substantially as described.

4. A sad-iron support comprising a supporting ring or rim, the plate 8 having an opening 9 therein, the plate 4 so located as to leave the free spaces between its sides and the rim, and shoulders on said rim for removably supporting said plates with a free space between same, substantially as described.

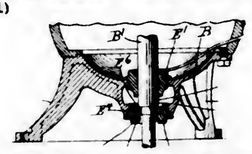
642,614. FIREPROOF FLOOR. GOTTFRIED KNOCHE, New York, N. Y. Filed June 9, 1899. Serial No. 719,914. (No model.)



Claim.—1. In a fireproof floor, the combination, with the beams, of abutments at both sides of the beams, a ceiling-layer extending below the beams and abutments, a layer of sand or other deadening material extending over the ceiling-layer between the abutments, transverse connecting portions connecting the abutments, spaced at suitable distances from each other, ribs extending transversely between said connecting portions, and a top layer of cement extending over the beams, abutments and ribs, substantially as set forth.

2. In a fireproof floor, the combination, with the beams, of a ceiling-layer extending below the beams, cement abutments extending at both sides of said beams, a deadening-layer of sand or other material placed over the ceiling-layer between the abutments, transverse connecting portions of cement, extending between said abutments at a suitable distance from each other, and having inclined side walls, and shoulders at the upper edges of the sides, ribs resting on the shoulders of the transverse connecting portions, and a layer of cement extending over the top of the beams, abutments and ribs, substantially as set forth.

642,615. DYNAMO-ELECTRIC MACHINE. CHRISTIAN W. KRAGH, Madison, Wis., assignor to the Northern Electrical Manufacturing Company, same place. Filed Sept. 11, 1899. Serial No. 730,058. (No model.)



Claim.—1. The combination with a motor having a vertical armature-shaft of a suitable frame inclosing the armature, an end piece connected with said frame, said end piece provided with a suitable bearing for the shaft and having connected therewith a projecting supporting device which extends beyond the bearing and upon which the motor is supported.

2. The combination with a motor of an end piece provided with a bearing for the motor-shaft, and having projecting legs suitably spaced around said bearing and projecting beyond the bearing, the motor being supported upon said legs.

3. An end piece for motors, comprising a bearing for the motor-shaft said shaft extending beyond the bearing and a series of projecting legs integral with the piece containing the bearing and projecting beyond the face of the bearing, so as to act as supports for the motor.

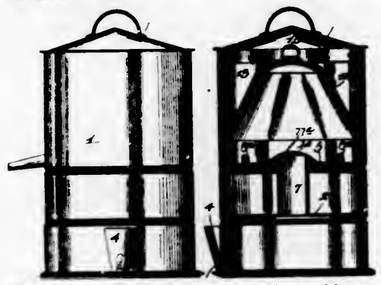
4. The combination with an electric motor of a frame surrounding the armature of the motor, an end piece carrying a bearing through which the motor-shaft projects, a portion of said end piece projecting past the face of the bearing, so as to act as a supporting part for the motor, said supporting part, end piece and bearing being formed in a single piece.

5. A bearing for vertical shafts, consisting of two parts, one part through which the shaft projects acting as the bearing proper to prevent lateral motion, the other part comprising a series of balls past which the shaft projects, the shaft being provided with a shoulder so as to be supported upon said balls.

6. The combination with a motor having a vertical shaft of an end piece connected with said motor and provided with downwardly-projecting parts which act as supports for the motor, said end piece provided with a bearing through which the shaft projects and consisting of two parts, one surrounding the bearing so as to prevent lateral motion, the other consisting of a series of balls which engage the shaft and take up the end thrust.

7. An electric motor, comprising an armature, a vertical shaft therefor, a frame extending around the armature and open at its lower end, an end piece removably attached to the open end of said frame and having a bearing integral therewith through which the armature-shaft projects, a portion of said end piece projecting downwardly past the bearing and acting as a support for the motor.

642,616. COMBINED DISTILLER AND COOKER. CHARLES O. LEE, South Tacoma, Wash. Filed Aug. 16, 1898. Serial No. 688,713. (No model.)

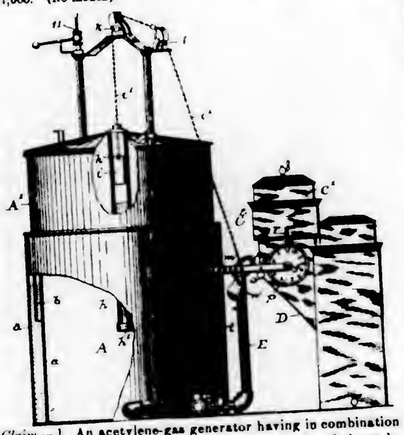


Claim.—1. A device of the class described comprising a casing, horizontal partitions 2 and 5 arranged within the casing and dividing the same into an upper steam-chamber, a lower reservoir, and an intermediate hot-air chamber, said hot-air chamber being provided with an air inlet, a tube extending through the partitions and projecting slightly above the upper one, short tubes rising from the upper partition, and a discharge-spout extending from the casing and arranged at the upper partition, substantially as described.

2. A device of the class described comprising a casing, upper and lower horizontal partitions dividing the casing into an upper steam-chamber, a lower reservoir and an intermediate hot-air cham-

ber, a tube extending from the reservoir to the steam-chamber, a spout leading from the latter, a removable inner section arranged on the casing and provided with an inner conical shell constituting a dome and forming a cold-water compartment, and a cover adapted to fit the upper section and the casing, substantially as described.

642,617. ACETYLENE-GAS-GENERATING APPARATUS. MAURICE LE MAY, Baltimore, Md., assignor to the Electric Gas Light Company of Baltimore City, of Maryland. Filed Aug. 3, 1898. Serial No. 687,606. (No model.)

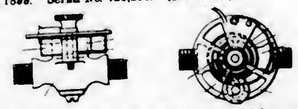


Claim.—1. An acetylene-gas generator having in combination a gasometer; a plural number of gas-generating chambers independent of each other; a series of carbid-receptacles for each generating-chamber; an independent discharge-pipe from each gas-generating chamber to the gasometer; valves in both of said pipes each valve cutting out communication from its gas-generating chamber to the gasometer; and a connection from the gasometer to both of said valves, whereby the lowering of the gasometer will close both valves.

2. In an acetylene-gas apparatus the combination of a gasometer; a series of carbid-receptacles and generating-chambers inclosed in a case; a duplicate series of such receptacles and chambers inclosed in another case; one mechanical device for opening the bottoms of all the carbid-receptacles of both cases to discharge the contents of said receptacles successively; a lever connected with said mechanical device—said lever making a movement when each receptacle-bottom opens; a chain, *i'*, connecting from the gasometer to the lever; a gas-pipe leading from each of the several generating-cases to the gasometer and a valve in each of said pipes whereby communication may be cut off between either one or the other of the generating-cases and the gasometer to allow the carbid-receptacles of the case cut-off to be refilled without disturbing the operation of the other generating-case; and a separate chain, *i*, or other connection from both of said cut-off valves to said lever whereby when the bottom of any carbid-receptacle opens to discharge carbid all the gas-pipes from the several generating-cases must be open, thus preventing dangerous pressure.

3. An acetylene-gas generator having in combination, a gasometer comprising a vertically-movable gas-bell; a vertical tube, *h*, attached to the gas-bell said tube being closed at its bottom and open at its top; a vertically-movable weight in said tube; a gas-generating case containing a plural number of carbid-receptacles each provided with a hinged bottom; a revoluble shaft which releases or opens one bottom after the other of said receptacles; a lever which by a vertical movement causes the said shaft to revolve intermittently; and a chain *i'* connecting between the said weight in the tube and the said lever, as and for the purpose set forth.

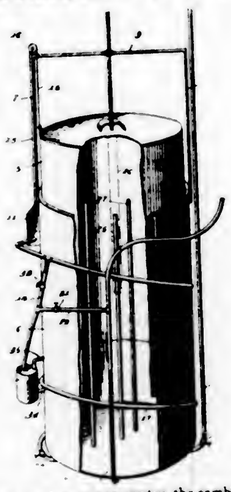
642,618. GAS-VALVE. SAMUEL N. LONG, Harwich, Mass. Filed June 12, 1899. Serial No. 720,260. (No model.)



Claim.—1. In a gas-valve, the combination, with a valve-casing, and a plug-valve journaled therein; of a plate secured to the plug-valve and provided with a slot, a spring connected to the said plate and casing and operating to close the valve, and a thumb-screw passing through the said slot and connected with the casing, substantially as set forth.

2. In a gas-valve, the combination, with a valve-casing provided with a boss on one side and a cylindrical extension at its top having a notch in one side of it, and a plug-valve journaled in the said casing; of a plate secured to the plug-valve and provided with a slot, a spring connected to the said plate and casing and operating to close the valve, and a thumb-screw passing through the said slot and engaging with the said boss on the casing, substantially as set forth.

642,619. ACETYLENE-GAS GENERATOR. WILLIAM T. LUKENBILL, Gosport, Ind. Filed May 13, 1899. Serial No. 716,704. (No model.)



Claim.—In an acetylene-gas generator, the combination with the gasometer, and carbid-can, of an open-top box secured to the gasometer, and communicating therewith below the water-line, a valve in said communication, a weighted rod thereon, connection between the rod and the movable shell of the gasometer to raise the rod and open the valve when the shell falls, and a pipe leading from the box to the carbid-can, substantially as described.

2. In an acetylene-gas generator, the combination with the water-supply box, the carbid-can and the gasometer, of an open-ended pipe leading from the water-box through the bottom of the gasometer and up therein to above the water-line, and a single branch pipe leading from said pipe to the carbid-can, substantially as described.

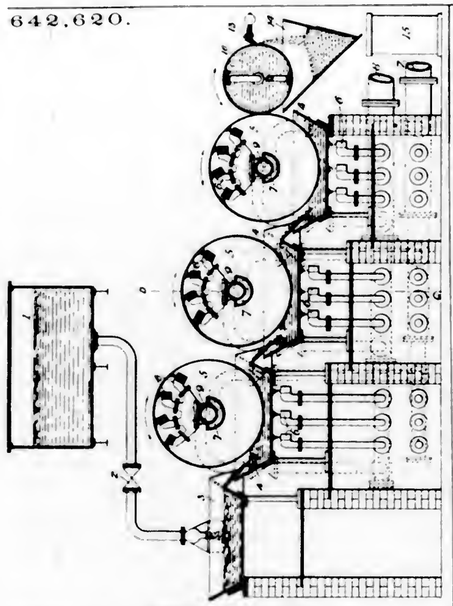
3. In an acetylene-gas generator, the combination with the water supply box, the gasometer and the carbid-can, of a safety-pipe leading from the interior of the gasometer gas-space to the open air, a pipe leading from the water-box through the bottom and up into the gas-space of the gasometer, a single branch pipe leading from the last-named pipe into the carbid-can, a connecting-pipe between the branch pipe and the safety-pipe, and valves in the branch and connecting pipes, substantially as described.

642,620. EVAPORATING APPARATUS. WILLIAM MATHER, Manchester, England. Filed July 3, 1899. Serial No. 722,669. (No model.)

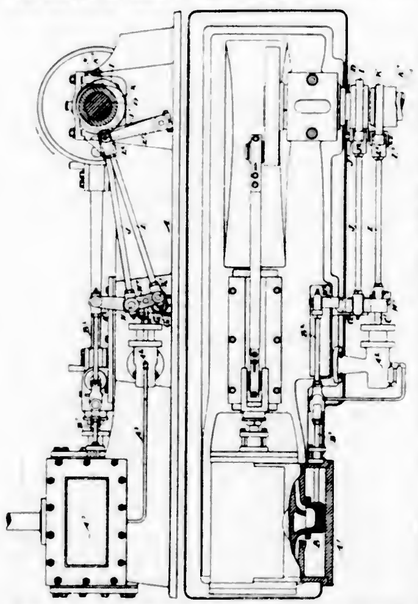
Claim.—1. The improved apparatus for evaporating and concentrating liquid solutions, consisting of a roll revolving in contact with the bath of liquid to be evaporated, means for heating both the roll and the bath, a further roll or chilling-cylinder adapted to take the film left by the evaporation of the solution from the heated roll, means for keeping such chilling-cylinder cold, and a doctor for removing such film from the cold cylinder.

2. The improved apparatus for evaporating and concentrating liquid solutions, consisting of a series of rolls revolving in contact with the liquid in a corresponding series of baths through which the liquid successively passes to the last bath, means for heating both the rolls and the baths, a further roll or chilling-cylinder adapted to take the film left by the evaporation of the solution from the last heated roll, means for keeping such chilling-cylinder cold, and a doctor for removing such film from the cold cylinder.

642,620.



642,621. VALVE-GEAR FOR ENGINES. MATTHEW R. MOORE, Indianapolis, Ind., assignor to the Atlas Engine Works, same place. Filed Mar. 3, 1899. Serial No. 707,571. (No model.)



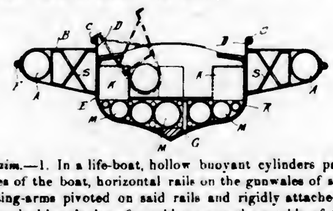
Claim.—1. In a steam engine, a single slide-valve adapted to effect the distribution and exhaust from both ends of the cylinder and to cut off by the lap, the two cams I and K, contributing through connections including a rocker to give two quick motions in each stroke separated by a period of rest, the cam I and its rod J connected to the rocker at a point nearer the center of motion than the valve connection, so that the arrangement multiplies the motion, all substantially as herein specified.

2. In a steam-engine, a single slide-valve adapted to effect the distribution and exhaust from both ends of the cylinder and to cut off by the lap, the two cams I and K, contributing through connections including a rocker and rider to give two quick motions in each stroke separated by a period of rest, the cam K and its rod L connected to an arm of the rocker of such length that while it is desired for the rider to be ineffective its end may coincide with the fixed center of the rocker, substantially as herein specified.

3. In a valve-gear for steam-engines, a single slide-valve and ports proportioned for cutting off by the lap, the rocker G and the rider H pivoted thereon, the latter having widely-divergent arms one of which is connected to the valve, in combination with the cam I fast on the shaft, shaped for imparting a two-step reciprocating motion to the connected rocker and the loose governor-controlled cam K shaped for imparting a single reciprocating motion to the connected rider and a fluid-pressure cylinder and piston connected with the rider near the mid-length of the proper arm thereof, arranged to maintain a reliable but yielding contact of each rod with its cam, all substantially as herein specified.

4. In valve-gear for steam-engines, the rocker, a rider pivoted thereon and having widely-divergent arms one of which is connected to the valve, in combination with rods connected to the rocker and to the other arm of the rider respectively, the cam I fast on the shaft, shaped for imparting a two-step reciprocating motion to the connected rocker and the loose governor-controlled cam K, shaped for imparting a single reciprocating motion to the connected rider and links J' and L' for supporting the rods J and L, contiguous to their contact with the cams, all arranged for joint operation substantially as herein specified.

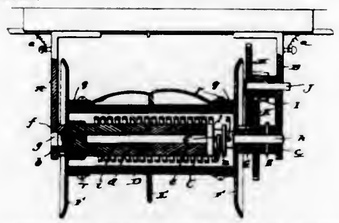
642,622. LIFE-BOAT. WILLEM P. MULIÉ, Leyden, Netherlands, and BENJAMIN HYMANS VAN DEN BERG, Antwerp, Belgium. Filed Dec. 5, 1898. Serial No. 698,350. (No model.)



Claim.—1. In a life-boat, hollow buoyant cylinders parallel to the sides of the boat, horizontal rails on the gunwales of said boat, supporting-arms pivoted on said rails and rigidly attached to said cylinders, locking devices for said arms on the outside of the boat, and a lever-handle operated from the interior of the boat for raising the said cylinders and bringing them into the interior of the boat.

2. In a life-boat, in combination adjustable floats A, supporting-bars D secured to the boat, horizontal rails C supported by said bars, duplex connecting-bars B attached to the said floats, and pivoted at their upper inward ends to the rail C, transverse supports S between the bars B, a handle N, and outer locking devices E engaging with the lower inward ends of the bars B.

642,623. HANGER FOR ELECTRIC LAMPS. WILLIAM F. MURPHY, Iowa City, Iowa. Filed May 15, 1899. Serial No. 716,940. (No model.)

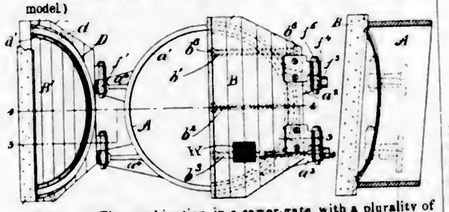


Claim.—1. In a hanger for electrical devices, the combination of two brackets, a shaft or rod comprising a section fixed in one bracket and a section journaled in the other bracket, a core-section mounted on the rotary section of the shaft or rod, a core-section fixed on the fixed section of the shaft or rod and having a socket in its inner end receiving the other section of said shaft, the spiral spring surrounding the core-sections and connected to one end to the rotary section of the shaft or rod and at its opposite end to the fixed core-section, the drum, means for transmitting motion from the rotary shaft section to the drum and vice versa, and means for locking the drum, substantially as specified.

2. In a hanger for electrical devices, the combination with two brackets; of the sectional shaft or rod each section of which bears at one end in one of the brackets and one section being adapted to rotate while the other remains fixed, the cheek-plates, the drum, the sectional core surrounding the sectional shaft or rod, the spiral spring secured at one end to one section of the shaft or rod and at its opposite end to one core-section, a train of gearing connecting one section of the rod with the drum, and a pawl and ratchet connecting the drum with one of the brackets, substantially as specified.

3. In a hanger for electrical devices, the rod or shaft comprising the sections *f* and *h*, the core-section *d*, and the core-section *e* carried by the rods or shafts; in combination with the spring secured at one end to the core-section *d* and secured at its opposite end to the shaft or rod *h*, a drum inclosing the whole, and a suitable means, (as a pawl and ratchet), for locking the drum against rotation, and a suspending-cable attached to the drum, substantially as specified.

642,624. **SEWER-GATE.** EDWARD MCLAUGHLIN and CHARLES H DODD, Boston, Mass. Filed Oct. 14, 1899. Serial No. 733,618. (No model.)



Claim.—1. The combination, in a sewer-gate, with a plurality of gate-forming pieces mounted one against another and formed with coincident transverse bolt-holes, of a plurality of transverse locking-bolts through said holes, the bolts being of a diameter less than the diameter of the holes.

2. The combination of a gate-frame; an eyebolt-socket therein; an eyebolt adjustable endwise in said socket; means for holding said eyebolt in said socket; a binge member operatively connected with said eyebolt; and a gate mounted and edgewise adjustable on said hinge member.

3. The combination of a gate-frame; an eyebolt-socket thereat; an eyebolt adjustable endwise in said socket; means for holding said eyebolt in said socket; a hinge member operatively connected with said eyebolt; and a gate mounted and edgewise adjustable on the hinge member; the gate comprising a plurality of pieces mounted one against another and formed with the coincident transverse bolt-holes and a plurality of transverse locking-bolts through said holes; the bolts being of a diameter less than that of the bolt-holes; and the contact of the hinge member with the gate being confined to the rear edge portion of the gate.

4. The combination of a sewer-gate frame having a reversely-beveled end and having lugs provided each with a socket and a screw-hole with half-gates made up of a plurality of timbers secured together by transverse bolts and provided with hinged members, each comprising an eyebolt adjustable in said socket.

5. The combination of a sewer-gate frame having lugs provided each with a socket and screw-hole with half-gates made up of a plurality of timbers secured together by transverse bolts and provided with hinged members, each comprising an eyebolt adjustable in said socket.

6. The combination of a sewer-gate frame with a pair of gates each made up of a plurality of timbers secured together by transverse bolts; hinged members mounted transversely on said gates; means for adjusting said gates on said hinged members, complementary hinged members, and supports therefor; the complementary hinged members being adjustable toward and from the mouth of said frame.

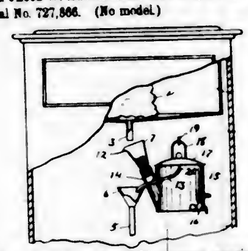
7. In a gate, the combination of a gate; a hinge; a hinge-pin; an eyebolt sliding in a socket at the gate-frame; the said gate-frame; and means to secure said eyebolt in position in said socket.

8. As a new article of manufacture, a tide-gate made up of two half-gates, the component parts of each half-gate being bound together by bolts extending transversely through the pieces from side to side of the half-gate; the inner ends of the said bolts being countersunk; and the inner faces of both of said half-gates being faced with waterproof packing, and the inner side of one of said half-gates being covered with waterproof packing, the inner edge of the opposed side of the other half-gate contacting with said packing when the gate is closed.

9. In a sewer-gate, the combination of an upwardly and rearwardly slanting gate-frame with a gate and means for hinging the gate in operative relation to the gate-frame; with the top of the gate inclined upwardly and rearwardly from the vertical according to the upward-and-rearward slant of the gate-frame; said gate being weighted at its lower part whereby the gate automatically closes when submerged.

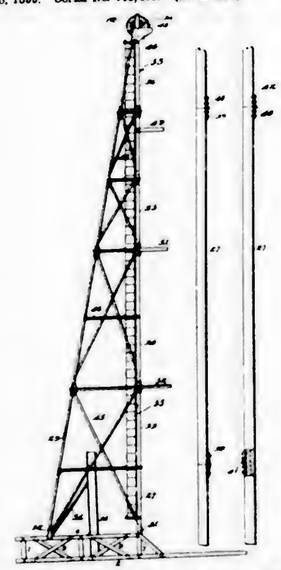
10. In a sewer-gate, the combination of a gate-frame and a gate hinged thereat with an obturating-strip which has a thick obturating portion and relatively thin margins, the strip being attached by its margins, to the inner surface of the gate with the thick part of the strip in position to engage the gate-frame when the gate is closed.

642,625. **REFRIGERATOR ATTACHMENT.** GEORGE D. NISWONGER and JACOB W. HAWERSTINE, Fort Wayne, Ind. Filed Aug. 21, 1899. Serial No. 727,866. (No model.)



Claim.—An attachment for refrigerators, consisting of a vessel having an upwardly-extending spout opening into said vessel at its bottom; a cock for drawing the contents of said vessel; an overflow-pipe connected with the outlet of the refrigerator; and a funnel, containing a filtering substance, removably mounted in said spout, and adapted to receive the water from the drain-pipe, substantially as shown and described.

642,626. **TOWER.** CHARLES D. PIERCE, Jersey City, N. J. Filed Apr. 18, 1899. Serial No. 713,465. (No model.)



Claim.—1. The combination with a supporting-bed or foundation, of a metal tower composed of front and rear elements and suitable cross-braces, the whole constituting a light, strong, skeleton frame, and the tower leaning over the perpendicular, and a U-shaped or open bracket carried by the tower on its front portion, substantially as set forth.

2. The combination with a metallic base or bed formed of parallel side foundation-beams 1 and 2 and supplemental foundation-beams 5 and 6 supported above the same and parallel therewith, whereby a box-like foundation will be obtained, of a samson-post composed of two channel-irons arranged in a general A shape supported at its bottom on the foundation-beams 1 and 2, and a cross-brace 11 carried by the foundation-beams 5 and 6 and secured to the legs of said samson-post, substantially as set forth.

3. The combination with a metallic base or bed, of a samson-post carried thereby and composed of two channel-irons arranged in a general A shape with parallel upper portions, substantially as set forth.

4. The combination with a metallic base or bed, of a samson-post carried thereby and composed of two channel-irons arranged in a general A shape with parallel upper portions, and two T-irons secured to said channels, with a plate connecting the abutting surfaces of the webs of said T's, substantially as set forth.

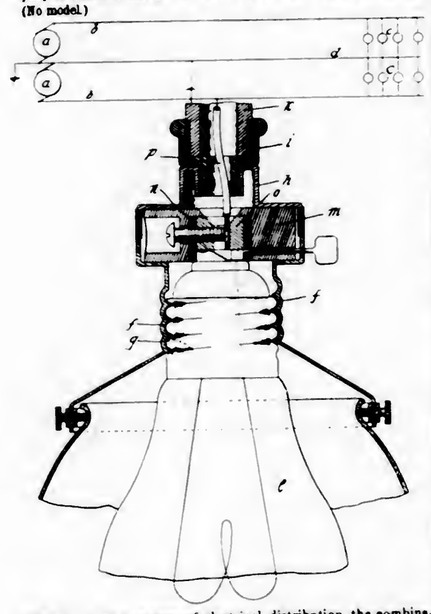
5. The combination with two bottom side beams formed of angle-irons, an inverted-T beam connecting said side beams, a samson-post formed of two channels fitting over said T-beam, and angles connecting the lower end of each channel-iron with said side beams, substantially as set forth.

6. The combination with two bottom side beams formed of angle-irons, an inverted-T beam connecting said side beams, a samson-post formed of two channels fitting over said T-beam, angles connecting the lower end of each channel-iron with said side beams, two upper side beams, connections between the same and the lower side beams, and a cross-angle connected to the upper side beams and riveted to said channel-irons, substantially as set forth.

7. The combination with a samson-post formed of two channel-irons, two castings carried by the upper ends of said channel-irons, bosses 23 mounted in said castings and formed integrally with plates 24, and a plate 25 riveted between the plates 24 and connected to the elements of a walking-beam, substantially as set forth.

8. A base or bed for a tower, comprising the two bottom side angles, the bottom front and back angles bolted or riveted to said side angles, the top side angles, vertical angles connecting the bottom side angles with the top side angles, cross-braces 9 and 10, an angle 11 rivited to the top side angles, a supporting-angle 12 riveted to the back bottom angle and an angle 13 riveted to the angle 12 and to the cross-angle 11, substantially as set forth.

642,627. **ELECTRIC-LIGHTING SYSTEM.** AMAND C. M. PRÜCKNER, Hanover, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Sept. 2, 1899. Serial No. 729,339. (No model.)



Claim.—1. In a system of electrical distribution, the combination with a source of current connected with main and compensating conductors, the compensating conductor being grounded, of a translating device, a conductor leading from a main and connected with one terminal of the translating device, a grounded metallic conduit through which said conductor is led, having connection with the other terminal of the translating device, and a switch in the last aforesaid conductor, substantially as described.

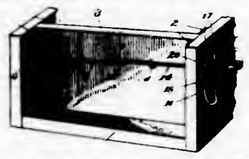
2. In a system of electrical distribution, the combination with a source of current connected with main and compensating conductors, the compensating conductor being grounded, of an incandescent electric lamp, a conductor leading from a main and connected with one terminal of the lamp, a second terminal inclosing the aforesaid terminal, a grounded metallic conduit inclosing the said conductor and having connection with the second terminal of the lamp, and a switch in the said conductor, substantially as described.

3. In a system of electrical distribution, the combination with a source of current connected with main and compensating conductors, the compensating conductor being grounded, of an incandescent electric lamp having one terminal connected, or adapted for connection, with a main conductor, a switch included between the said main conductor and the said terminal, the other terminal being grounded, substantially as described.

4. In a system of electrical distribution, the combination with a source of current connected with main and compensating conductors, the compensating conductor being grounded, of a metallic conduit, an incandescent electric lamp, one of whose terminals is adapted for connection with said conduit, the said conduit being grounded, a conductor inclosed by said conduit uniting the other terminal of the lamp with the main conductors of the system, and a switch included in the conductor uniting the latter terminal with a main conductor of the system, substantially as described.

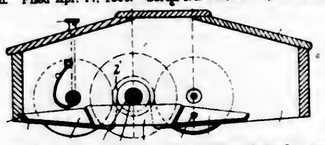
5. In a system of electrical distribution, the combination with a source of current connected with main and compensating conductors, the compensating conductor being grounded, of a translating device having one terminal connected, or adapted for connection, with a main conductor, a switch included between the said main conductor and the said terminal, the other terminal being grounded, substantially as described.

642,628. **END-GATE FASTENER.** JOSIAH A. RATCLIFF, Gilman, Ind., assignor of one-half to Thompson G. Neeley, same place. Filed July 22, 1899. Serial No. 724,859. (No model.)



Claim.—In an end-gate fastener, the combination with a rigid eyebolt, secured to one side of a wagon-body, a rod having a hooked end loosely connected to said eyebolt, of a slidable double eyebolt secured in the other side of the wagon-body, a rod having a hooked end loosely connected to the double eyebolt, hooks in the end-gate to support the rods horizontally and a clamp comprising a piece of wire bent upon itself, then bent backward at an angle less than a right angle and terminating in eyes and a rod connecting the free end of said clamp, said rod being secured to the outer end of the double eyebolt, and a grooved bearing-plate upon which the clamp works.

642,629. **CARPET-SWEEPER.** SYLVANUS J. REYNOLDS, Saginaw, Mich. Filed Apr. 17, 1899. Serial No. 713,267. (No model.)

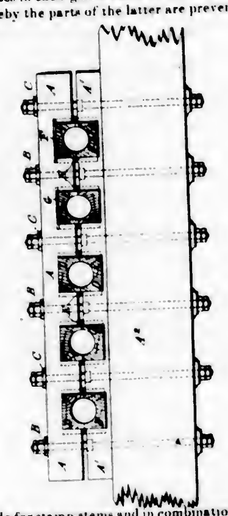


Claim.—In a carpet-sweeper, the combination of a casing having a groove in the inside of one of its sides, and projections upon the inside of its ends near the other side, a double dust-pan consisting of two pans connected at their ends by bars forming an opening for the brush, and said pans being detachably secured to the casing by one of its side edges entering the groove in the casing, and by its depressions engaging the projections in the ends of the casing, and a brush having its shaft supported upon the bars that connect the two parts of the pan substantially as shown and described.

642,630. **GUIDE FOR STEMS OF STAMP-MILLS, &c.** JOHN T. RICHARDS, Mysore, India, assignor to the Sandycroft Foundry and Engine Works Company, Limited, Hawarden, England. Filed Apr. 4, 1899. Serial No. 711,698. (No model.)

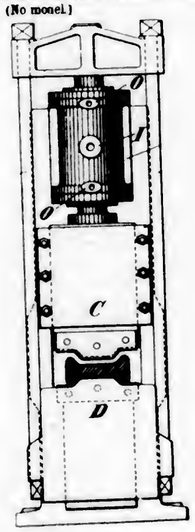
Claim.—1. In a guide for stamp-mills and in combination with

the frame, a continuous guide-beam, means for securing it to the frame, a similar continuous guide-beam and means for removably attaching it to the first beam, a series of recesses in the opposed faces of each beam, a bored guide-block formed in parts having projections outside of same, one of each parts being carried in each recess, and said recesses being of a depth to allow each part to project and abut against the other whereby the beams are held normally separated, and further recesses in each guide-beam to receive the projections of each block, whereby the parts of the latter are prevented from rising.



2. In a guide for stamp-stems and in combination, a pair of guide beams, a recess in each in the opposed faces of the same, a bored guide-block formed in parts having projections outside of the same, one of each parts being carried in each recess and said recesses being of a depth to allow each part to project and abut one against the other whereby the beams are held normally separated, further recesses in the guide-beams to receive the projections of the block so that the parts of the latter are prevented from rising, and means for holding the beams in position so that the parts of the guide-block are held together, substantially as described.

642,631. METAL-SHEARING MACHINE. MORITZ ROTHE, Cologne, Germany, assignor to the Kalker Werkzeugmaschinen-Fabrik L. W. Breuer, Schumacher & Co., Kalk, Germany. Filed July 17, 1899. Serial No. 724,175. (No model.)



Claim.—1. A shearing-machine having two movable shearing-blade carriers, combined with a pressure device operating first to move one blade for clamping the material, and then the other blade for effecting the cut.

2. A shearing-machine having two movable shearing-blades in combination with a fluid-pressure device operating first to move one blade for clamping the material and then the other blade to effect the cut.

3. A shearing-machine combined with a pressing device in form of a divided piston the parts of which being connected each to a blade-carrier so that the pressure fluid entering between the two piston parts moves the two blades for clamping and cutting the material.

4. A shearing-machine comprising vertically-reciprocating shearing-blade carriers, combined with a fluid-pressure cylinder provided with inlet and outlet openings for a fluid, a two-part piston working in said cylinder, connecting means between the lower part of said piston and the upper carrier, and a cross-head and connecting-rods between the lower part of the piston and the lower carrier, substantially as shown and described.

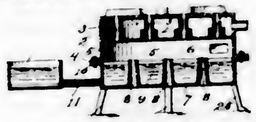
642,682. COLLAR-BUTTON. GEORGE A. ROWE, New York, N. Y. Filed July 6, 1899. Serial No. 722,966. (No model.)



Claim.—1. A collar-button comprising a base, a flat stem, a head, and a curved needle-pointed hook rigidly attached to the head and extending across the face of the head at a suitable distance therefrom in line with the greatest width of the stem and having its point curved toward or pointing to the base.

2. A collar-button comprising a base, a flat stem, an oblong head whose greatest length is in line with the greatest width of the shank and whose longer sides incline from the edge of the head inwardly, and a needle-pointed hook rigidly attached to one end of the oblong button and extending across the face thereof a suitable distance therefrom with its pointed end turned toward the base, the hook being substantially at the point of intersection of converging lines extending from the inclined longer sides of the head.

642,633. MEANS FOR GENERATING GAS AND WATER-VAPOR FOR HEATING, &c. JOHN P. B. SADTLER, Baltimore, Md. Filed May 18, 1899. Serial No. 717,329. (No model.)



Claim.—1. A heater having a body of water the surface of which is exposed to the jets or flames from the heater, so as to create a combustion of gas, air, and water-vapor over the water-surface.

2. A heater having an inclosed combustion-chamber below the gas-chamber and directing flames downwardly, and a body of water inclosed with the heater and acted upon by the said flames.

3. A heater adapted to discharge a flame downwardly, and having water the surface of which is exposed to the tip of the flame, so as to produce combustion of air, gas, and water-vapor at the surface of the water.

4. A heater having a gas-chamber provided with tubes to direct flames downwardly, and a body of water situated below said chamber, so that the water is acted upon by the said flames.

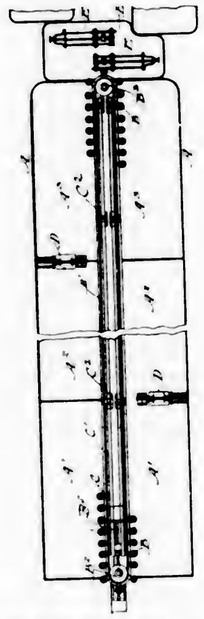
5. The combination, with a gas-burner adapted to discharge a flame downwardly, and having a gas-chamber, of a receptacle containing a body of water the surface of which is exposed to said flame, a combustion-chamber formed by and between the gas-chamber and the receptacle, and air-ducts through said receptacle into the combustion-chamber.

6. The combination, with a gas-burner adapted to discharge a flame or flames downwardly, and a flange depending from the burner, of a water-receptacle having air-ducts and secured to the burner so as to form a combustion-chamber within said flange.

7. The combination, with a gas-burner having overlapping tubes, certain of which discharge gas downwardly, and the others discharge products of combustion upwardly, of a receptacle having air-ducts and containing a body of water the surface of which is exposed to the combustion of air and gas to vaporize the water into the flame, and a chamber formed by coupling the burner and the receptacle.

8. The combination, with a gas-burner having top and bottom openings, and adapted to discharge a flame or flames downwardly, of a receptacle adapted to contain a body of water set as to be acted upon by the flame-jets, and having air-ducts through it positioned at points between said burner-openings.

642,634. BOTTLE SOAKING AND CONVEYING DEVICE. CHARLES C. SCHREIBER, Cincinnati, Ohio, assignor to the Link Belt Machinery Company, Chicago, Ill. Filed June 15, 1897. Serial No. 640,905. (No model.)



Claim.—1. A device for cleaning bottles or the like, comprising a tank in which the bottles are soaked, a conveyer for said bottles located above said tank and supported thereon, said conveyer comprising an endless flexible power-transmitting device disposed in a substantially horizontal plane, a series of carriers connected therewith and adapted to receive the bottles, said carriers being formed with vertical openings so as to engage said bottles and hold them in place during all their various positions, and a driving part connected with said power-transmitting device so as to impart motion thereto.

2. A device for cleaning bottles or the like, comprising a soaking-tank divided into a series of separate compartments in which the bottles are contained, so that a series of sets of bottles may be soaked while another set is being removed from the tank, thus allowing the washing process to be continuous, and a conveyer above said tank and located between the edges thereof, said conveyer being supported by the tank.

3. A conveyer for bottles or the like, comprising an endless flexible power-transmitting device disposed in a substantially horizontal plane, a series of carriers connected therewith and adapted to receive the bottles, said carriers formed with vertical openings so as to engage said bottles and hold them in place during all their various positions, and a driving part connected with said power-transmitting device so as to impart motion thereto.

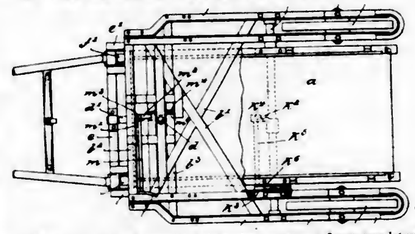
4. A conveyer for bottles, comprising an endless link belt formed into a loop and passing around suitable sprocket-wheels, a series of arms connected with said belt and engaging stationary guides and a series of carriers connected with said arms adapted to receive the bottles and hold them in position.

5. In a device for assisting in washing bottles, the combination of a link-belt conveyer placed on the edge with horizontally-placed sprocket-wheels to drive the same, arms projecting from said belt provided with suitable guides and adapted to travel therewith, and bottle-carriers associated, one with each of said arms, said bottle-carriers so positioned that the mouths of the bottles are downward when in the tank.

6. In a device for assisting in washing bottles, the combination of a link-belt conveyer placed on edge with horizontally-placed sprocket-wheels to drive the same, arms projecting from said belt and adapted to travel therewith, bottle-carriers associated, one with each of said arms, and a bottle-soaking tank associated with said conveyer, acting as a support for the same.

7. In a device for assisting in washing bottles, the combination of a link-belt conveyer placed on edge with horizontally-placed sprocket-wheels to drive the same, arms projecting from said belt and adapted to travel therewith, bottle-carriers associated, one with each of said arms, a supporting device for said conveyer comprising a bottle-soaking tank associated with said conveyer, said tank divided into compartments so that the bottles can be taken from one compartment while they are being soaked in another, said conveyer supported by the tank so as to pass over all of said compartments.

642,685. DUMPING-WAGON. JOHN S. SHRAWDER, Collegeville, Pa. Filed June 10, 1899. Serial No. 720,059. (No model.)



Claim.—1. In a four-wheel dumping-wagon, a front truck, comprising a substantially rectangular frame having double sides to form the bearings for the axles of the front wheels, substantially as and for the purposes described.

2. In a four-wheel dumping-wagon, a main truck upon which the body of the vehicle is swiveled and supported and comprising two double side frames arranged outside the wagon-body and extending downwardly and horizontally at the rear ends to constitute bearings for the axles of the rear wheels, substantially as and for the purposes described.

3. In a four-wheel dumping-wagon, a body, a main truck to which the body is swiveled and comprising two double side frames extending horizontally along the sides of the body and projecting downwardly to form bearings for the rear wheels, a front truck located below the front end of the main truck and forming bearings for the front wheels, and a substantially inverted-T-shaped king-bolt connecting the main truck and front truck together, the front truck and wheels being swiveled to the main truck with the king-bolt as a fulcrum so that said front truck may turn in a horizontal plane below the main truck and in a vertical plane toward or away from the main truck, substantially as and for the purposes described.

4. In a four-wheel dumping-wagon, a body, a main truck to which said body is swiveled, a transverse shaft adapted to be oscillated or rocked in bearings depending from the front end of said main truck, a catch secured on said shaft and having its hooked end normally elevated under the tension of a spring tending through a pin to depress the other end of said catch, a handle connected with said shaft and adapted to turn the same to throw the hooked end of said catch either up or down and the front end of said body being provided with a notch or recess into which the hooked end of said catch is adapted to enter to lock said body down upon said main truck, substantially as and for the purposes described.

5. In a four-wheel dumping-wagon, a wagon-body, a main truck upon which said body is supported and comprising two double side frames arranged outside of said wagon-body and forming the bearings for the axles of the rear wheels thereof, said frames connected together by means of a shaft, two diagonal braces and cross-bars and located below the front portion of said body, whereby is prevented torsional strain upon said truck in the action of the wagon, substantially as and for the purposes described.

642,686. CHAIN-POWER. WALTER W. SMALL, Cherryfield, Me. Filed May 4, 1898. Serial No. 679,743. (No model.)

Claim.—1. In a device for converting reciprocating movement into rotary motion, in combination, a flexible driver or reciprocating element having different portions thereof moving in opposite directions, a rotary driven member, oscillating members having a normally-loose engagement therewith, and clutch mechanism between the oscillating members having axial movement in a plane parallel to the axis of the rotary member for alternately and automatically engaging said oscillating members one at a time and permitting said oscillating members to move simultaneously in opposite directions, the arrangement being such that the rotary member is continuously driven in the same direction, substantially as described.

2. In a device for converting reciprocating movement into rotary motion, in combination, a flexible driver or reciprocating element having different portions thereof arranged to move simultaneously in opposite directions, a rotary member, oscillating members loose thereon and engaged by the different portions of the flexible driver, a clutch-carrier interposed between said oscillating members and fast on the rotary member, and an automatic clutch on said carrier comprising oppositely and independently movable clutch members having their axes at right angles to the axis of the rotary member arranged to alternately engage the oscillating members, whereby continuous rotary motion is imparted to the rotary member in the same direction, substantially as described.



3. In a device for converting reciprocating movement into rotary motion, in combination, a rotary member, oscillating members normally loose thereon, a clutch-carrier fast on said rotary member and interposed between the oscillating members, an automatic clutch on said carrier which alternately engages said oscillating members and which is common to both members, and a pair of flexible drivers or reciprocating elements each of which engages one of the oscillating members, and has its return portion connected to the other reciprocating element, substantially as described.

4. In a device for converting reciprocating movement into rotary motion, the combination with a rotary member, of a pair of oscillating members loosely mounted thereon, a clutch-carrier fast on said rotary member and interposed between the oscillating members, flexible reciprocating members arranged to actuate the oscillating members simultaneously in opposite directions, and clutch mechanism on the clutch-carrier comprising oppositely-movable dogs, and a spreader for urging and yieldingly holding said dogs apart, substantially as described.

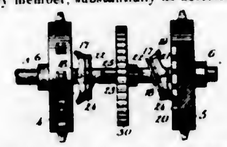
5. In a device for converting reciprocating movement into rotary motion, in combination, a rotary driven member, oscillating members loose thereon, a clutch-carrier fast on said rotary member between the oscillating members, reciprocating members arranged to actuate said oscillating members simultaneously in opposite directions, and clutch mechanism on the clutch-carrier comprising a pair of oppositely-movable dogs, a spreader for urging and yieldingly holding said dogs apart, and means for limiting the movements of said dogs in opposite directions, substantially as described.

6. In a device for converting reciprocating movement into rotary motion, in combination, a rotary member, oscillating members loosely mounted thereon, a clutch-carrier fast on said rotary member between the oscillating members, flexible driving devices for simultaneously actuating said oscillating members in opposite directions, clutch mechanism on said carrier comprising a pair of oppositely-movable dogs, a spreader for forcing and yieldingly holding said dogs apart, a stay for limiting the relative outward movement of said dogs, and means for reversing the disposition of said dogs for changing the direction of the rotation of the rotary member, substantially as described.

7. In a device for converting reciprocating movement into rotary motion, in combination, a rotary member, oscillating members loose thereon, a clutch-carrier fast on said rotary member between the oscillating members, reciprocating members for actuating the oscillating members simultaneously in opposite directions, and clutch mechanism on said carrier comprising a pair of oppositely-movable clutch-dogs, spreading means for yieldingly holding said dogs, limiting means for governing the relative movement of said dogs away from each other, and stop-shoulders on the carrier with which the dogs engage, substantially as described.

642,637. DEVICE FOR CONVERTING RECIPROCATING MOVEMENT INTO ROTARY MOTION. WALTER W. SMALL, Cherryfield, Me. Original application filed May 4, 1898, Serial No. 679,743. Divided and this application filed July 6, 1899. Serial No. 722,985. (No model.)

Claim.—1. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating member, a rotary member, oscillating members normally loose on the rotary member, and clutch mechanism comprising a pair of clutch-dogs arranged between the oscillating members, and a sliding shipper-rod in engagement with said dogs and alternately operated thereby, whereby the oscillating members are alternately engaged with and disengaged from the rotary member, substantially as described.



2. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members normally loose thereon, and clutch mechanism interposed between said oscillating members and comprising a pair of clutch-dogs, and a sliding shipper-rod having a yielding engagement with both clutch-dogs, substantially as described.

3. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members normally loose thereon, a pair of clutch-dogs carried by the rotary member, and a sliding shipper-rod having a yielding and detachable engagement with said dogs, substantially as described.

4. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members normally loose on said rotary member and actuated by the reciprocating element, double-ended clutch-dogs cooperating with the oscillating members and carried by the rotary member, and a shipper-rod forming a connection between said dogs and adapted to be thrown into engagement with either end of each dog for reversing the positions of the dogs, substantially as described.

5. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members, normally loose on the rotary member and actuated by the reciprocating member, double-ended clutch-dogs carried by the rotary member and cooperating with the oscillating members, a shipper-rod journaled on the rotary member, and having its end portions in engagement with said clutch-dogs, and means for rocking said shipper-rod to cause its end portions to pass from one side of the pivotal connection of the dogs to the opposite side, substantially as and for the purpose specified.

6. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members loose thereon and actuated by the reciprocating element, double-ended clutch-dogs pivotally mounted on the rotary member, a shipper-rod journaled on the rotary member and having spring end portions for engagement with the dogs, a projection on the shipper-rod intermediate its ends, and means cooperating therewith for rocking the shipper-rod, substantially as and for the purpose described.

7. In a device for converting reciprocating movement into rotary motion, in combination, a reciprocating element, a rotary member, oscillating members loose thereon and actuated by the reciprocating element, double-ended clutch-dogs carried by the rotary member and cooperating with the oscillating members, a shipper-rod journaled on the rotary member and operatively connected to said dogs, and a reversing-wheel journaled on the rotary member and cooperating with the shipper-rod for rocking the latter, substantially as and for the purpose specified.

642,638. CESTA OR HAND-BALL BASKET-BAT. ALPHONSO B. SMITH, Los Angeles, Cal. Filed July 25, 1899. Serial No. 725,065. (No model.)



Claim.—1. A cesta or hand-ball bat having a curved portion which is provided with a bulged receptacle.

2. In a cesta or hand-ball bat, the hand-retaining partitioned receptacle fastened thereto.

3. In a cesta, the combination of the hand-receiving glove fastened thereto; the wrist-protecting shields; and the lacing wound around the wrist and fastened to the cesta.

4. In a cesta, the combination of the glove having wrist-shield portions; the loop fastened to the slats and passing upward between the partitions of the glove; the lacing fastened to the end of the cross-bar of the cesta, thence through the loop, around the other end of the cross-bar and around the wrist of the player.

5. A cesta or hand-ball bat flat at the ends and curved intermediate the ends and provided with a ball-receiving bulge in the curved portion.

6. A cesta or hand-ball bat straight in cross-section at the nose, curved in the intermediate portion and provided at the curve with a bulge decreasing in depth toward the nose and heel of the bat.

7. A cesta or hand-ball bat straight in cross-section at the nose, curved in the intermediate portion and provided at the curve with a bulge decreasing in depth at the nose and heel of the bat; and inwardly-projecting side bars overhanging the cavity at the bulge.

8. A cesta or hand-ball bat provided with a bulge intermediate its ends and having side bars overhanging at the intermediate portion.

9. A cesta or hand-ball bat composed of a cross-bar at the heel; a bent member to form the edge bars of the cesta with ends fastened to the cross-bar; slats fastened at one end to the cross-bar and fastened at the other end to the bend of the bent member, the slats being tapered from the front end toward the middle and the slats increasing in length from the sides toward the mid-width of the bat and being bowed at their middles to form a bulge in the bat.

10. The combination with a cesta or hand-ball-bat body, of a flexible sheet fastened at three edges to the back of said body at the heel thereof and slitted longitudinally intermediate its ends; a plurality of flexible members, one for each slit, each of said members being fastened to the bat-body and fastened to the sheet at the edges of the slit to which said member pertains.

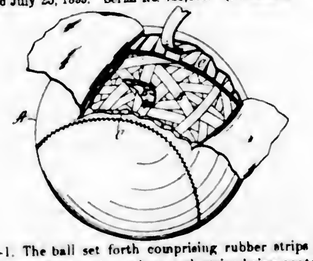
11. The combination with a cesta or hand-ball-bat body, of a flexible sheet fastened at three edges to the back of said body at the heel thereof and slitted longitudinally intermediate its ends; a plurality of flexible members, one for each slit, each of said members being folded longitudinally and fastened to the bat-body at the fold at spaces apart which are narrower than the spaces between the slits, and fastened at its edges to the sheet at the edges of the slit to which said member pertains, the spaces between the lines at which the folds are fastened to the bat-body being narrower than the spaces between the slits.

12. The combination of a cesta or hand-ball-bat body, provided with longitudinally-arranged slats; a flexible sheet fastened at three edges to the back of said body at the heel thereof and slitted longitudinally intermediate its ends with spaces between the slits greater than the width of the slats; a plurality of flexible members, one for each slit, each of said members being folded longitudinally and fastened at its edges to the sheet at the edges of the slit to which said member pertains; and stitches through the folds of said members respectively to fasten the folds to the ball-bat body.

13. A cesta or hand-ball bat provided on its back at the heel of the cesta with a glove fixed to the bat-body and a loop fastened to the bat-body and extending between the fingers of the glove.

14. A cesta or hand-ball bat provided on its back with a glove with wrist-shields projecting beyond the heel of the bat; a loop fastened to the bat-body and extending between fingers of the glove; a cord-retaining device provided at the heel of the bat-body; and a lacing-cord to be passed through the loop and around the retainers.

642,639. PLAYING-BALL. ALPHONSO B. SMITH, Los Angeles, Cal. Filed July 25, 1899. Serial No. 725,066. (No model.)

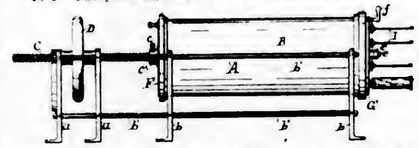


Claim.—1. The ball set forth comprising rubber strips tightly stretched and wound upon themselves, such strips being coated with linseed-oil.

2. The ball set forth comprising the strips of rubber wound tightly upon themselves while stretched to their full length, and the covering of intestine-tissues, as and for the purpose set forth.

3. A ball comprising rubber strips tightly stretched and wound upon each other and a binding material which slightly dissolves the rubber.

642,640. TUBE-FILLING APPARATUS. DARIUS SMITH, Syracuse, N. Y. Filed June 12, 1899. Serial No. 720,147. (No model.)



Claim.—1. In an apparatus for filling compressible tubes, the combination with a frame, a cylinder mounted on the frame and provided with a plunger, an end for the cylinder provided with a central orifice, a screw-threaded rod passing through said orifice and connected to the plunger, a wheel having an internally-threaded hub mounted on said rod between parts of the frame to operate the plunger, a perforated end plate for the opposite end of the cylinder, and a revoluble disk on said end having screw-threaded orifices adapted to receive the threaded ends of the compressible tubes and also adapted to register with the perforations in the said perforated end plate, as set forth.

2. In an apparatus for filling compressible tubes, the combination with a frame, a cylinder, removably mounted on the frame and provided with a plunger, an end for the cylinder provided with a central orifice, a screw-threaded rod passing through said orifice and connected to the plunger, a wheel having an internally-threaded hub mounted on said rod between parts of the frame to operate the plunger, a perforated end plate for the opposite end of the cylinder, and a revoluble disk on said end having screw-threaded orifices adapted to receive the threaded ends of the compressible tubes and also adapted to register with the perforations in the said perforated end plate, as set forth.

3. In an apparatus for filling compressible tubes, the combination with the frame having standards provided with cavities, a cylinder supported in a horizontal position in said cavities and having flanges at the opposite ends to bear upon the standards, a plunger within the cylinder, an end for the cylinder provided with a central orifice, a screw-threaded rod passing through said orifice, and connected to the plunger, a wheel having an internally-threaded hub mounted on said rod between parts of the frame to operate the plunger, a perforated end plate for the opposite end of the cylinder, and a revoluble disk on said end having screw-threaded orifices adapted to receive the threaded ends of the compressible tubes and also adapted to register with the perforations in the said perforated end plate, as set forth.

4. In an apparatus for filling compressible tubes, the combination with the frame comprising a pair of standards with cavities, and another pair of standards, said standards being rigidly connected together and suitably spaced apart by horizontal rods, a cylinder having flanges at opposite ends supported in a horizontal position in the said cavities, a plunger within the cylinder, an end for the cylinder provided with a central orifice, a threaded rod passing through said orifice and connected to said plunger, a wheel having an internally-threaded hub mounted on said rod between one pair of standards of the frame, a perforated end plate for the opposite end of the cylinder, and a revoluble disk on said end having screw-threaded orifices adapted to receive the threaded ends of the compressible tubes and also adapted to register with the perforations in the said perforated end plate, as set forth.

5. In an apparatus for filling compressible tubes, the combination with a frame, a cylinder mounted on the frame and provided with a plunger having a circular cavity in its front face, a disk of cork or analogous material having a circular projection extending within the cavity of the plunger, an end for the cylinder provided with a central orifice, a screw-threaded rod passing through said orifice, and connected to the plunger, a wheel having an internally-threaded hub mounted on said rod between parts of the frame to operate the plunger, a perforated end plate for the opposite end of the cylinder, and a revoluble disk on said end having screw-threaded orifices adapted to receive the threaded ends of the compressible tubes and also adapted to register with the perforations in the said perforated end plate, as set forth.

6. In an apparatus for filling compressible tubes, the combination with the cylinder, the end having a central orifice, of the plunger, the threaded rod removably connected to the plunger, and adapted to pass through the said central orifice, said threaded rod having a

longitudinal groove, the screw passing through a projection of the said end to enter the groove, a projection on the rear face of the plunger, to enter a recess in the inner face of the said end where the plunger is in contact with or in close proximity to the end, and means for securing the plunger to the end when the threaded rod is removed from the plunger, as set forth.

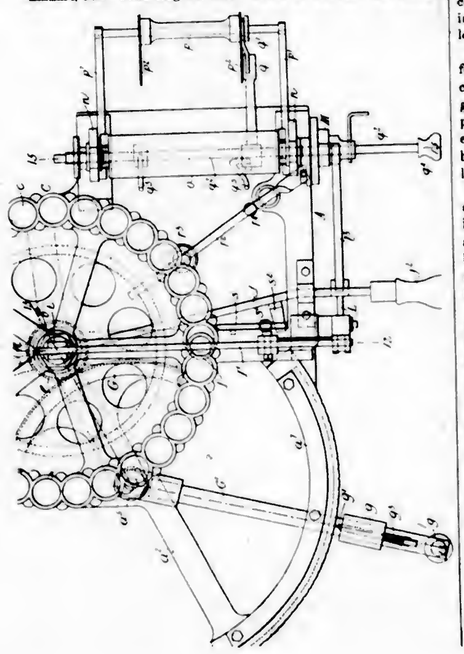
7. In an apparatus for filling compressible tubes, the combination with the cylinder, the plunger, and means for reciprocating the plunger, of a perforated end for the cylinder, a disk revoluble on the said end and provided with threaded orifices adapted to receive the ends of the compressible tubes, and to register with the perforations in said end, as set forth.

8. In an apparatus for filling compressible tubes, the combination with the cylinder, the plunger, and means for reciprocating the plunger, of a perforated end for the cylinder, a disk revoluble on the said end and provided with threaded orifices adapted to receive the ends of the compressible tubes, and to register with the perforations in said end, means to turn the said disk, and means to limit its movement, as set forth.

9. In an apparatus for filling compressible tubes, the combination with the cylinder, the plunger, and means for reciprocating the plunger, of a perforated end for the cylinder having a central projection on its outer face, a disk revoluble on the said projection and provided with threaded orifices adapted to receive the ends of a plurality of tubes, and to register with the perforations in said end, and means to turn said disk, as and for the purpose described.

10. In an apparatus for filling compressible tubes, the combination with the frame, having a pair of standards provided with cavities, of a cylinder supported in a horizontal position in said cavities, and having flanges at opposite ends to bear upon the outer sides of said standards, a plunger within the cylinder, an end for the cylinder provided with a central orifice, a screw-threaded rod passing through said orifice, and connected to the plunger, a wheel having an internally-threaded hub mounted on said rod between a second pair of standards of the said frame to operate the plunger, a removable perforated end plate in the opposite end of the cylinder, and having a stud projecting outward from its center, a disk revoluble on the said stud and secured thereon, said disk being provided with threaded orifices adapted to receive the ends of a plurality of tubes, and to register with the perforations in said end, means to revolve said disk, and suitable means to limit its movement, substantially as and for the purpose described.

642,641. STENCIL-MAKING MACHINE. HOWARD F. SMITH, Elkhart, Ind. Filed Aug. 20, 1898. Serial No. 689,126. (No model.)



Claim.—1. In a machine of the class described, the combination of a series of punches and dies, means for effecting the movement of a punch and die into operative position, means for intermittently feeding a strip of material to the punch and die, punch-operating mechanism, and mechanism operated as a punch and die positioned for governing the feed of the strip to produce properly-spaced characters.

2. In a machine of the class described, the combination of a series of punches and dies, means for effecting the movement of a punch and die into operative position, punch-operating mechanism, means for intermittently feeding a strip of material to the punch and die said means being actuated by the punch-operating mechanism, and mechanism for governing the feed of the strip according to the widths of the characters controlled by devices movable with the punches and dies as the latter are being positioned.

3. In a machine of the class described, the combination of a series of punches and dies, means for effecting the movement of a punch and die into operative position, means for intermittently feeding a strip of material to the punch, said feed being governed by the varying widths of the characters, means for operating the punch to produce the perforation in the strip, and means for shifting the strip transversely to present a new line to be perforated, substantially as set forth.

4. In a machine of the class described, the combination of a series of punches and dies, means for operating the punches, strip-feeding mechanism actuated by the punch-operating means, means controlled by devices movable with the punches for governing the feed of the strip according to the widths of the characters, and means for shifting the strip transversely.

5. In a stencil-machine, the combination of a wheel having in its rim a plurality of openings, punches vertically movable in said openings each having a tubular body provided in its lower end with a removable plug having a character, a bridge-pin passed through the wheel-rim and through slots in the punch-body, a spring interposed between the pin and a plug in the upper end of the body, and a spline on the body engaging a groove in the wall of the opening to guide the punch.

6. In stencil-making machine, the combination of a punch-wheel and die-wheel rotatably mounted on a tubular spindle, a punch-operating hammer, a lever carrying said hammer fulcrumed near one end adjacent to the wheels, a rod connected at the other end of the lever and vertically movable in the spindle, and an operating-lever connected with the lower end of the rod.

7. In a stencil-making machine, the combination of a punch-wheel and a die-wheel, a hollow spindle on which said wheels are mounted, a tubular anvil below the rim of the die-wheel, a hammer above the rim of the punch-wheel, a bar carrying said hammer fulcrumed near one end, a spring-controlled lever passed through slots in the spindle, and a rod movable in the spindle and connecting the lever and bar, substantially as set forth.

8. In a stencil-making machine, the combination with the strip-feeding rollers, of a ratchet-wheel carried by one of said rollers, a crank-arm loose on the shaft of said roller and carrying a pawl engaging said ratchet-wheel, a punch, a hammer for operating said punch, a bar carrying the hammer, said bar being pivoted near one end, a bell-crank lever having rod connection with said end of the bar and having rod connection with the crank-arm, and an actuating-lever operatively connected with the other end of the bar.

9. In a stencil-making machine, the combination with a die-wheel and punch-wheel rotatably mounted on a tubular spindle, strip-feeding rollers one of which is rotated by pawl-and-ratchet mechanism, a pivoted bar carrying a hammer for operating the punches, said bar being operatively connected at one end with the pawl-and-ratchet mechanism, a rod connected with the other end of the bar vertically movable in the spindle, and an actuating-lever connected with said rod.

10. In a stencil-making machine, the combination of strip-feeding rollers one of which is fixed to a shaft and is provided with means for its intermittent rotation, and the other of said rollers being journaled in spring-controlled movable bearings, and means for raising and lowering said other roller comprising a pivoted crank-arm and handle, and a curved rod connecting the outer end of the crank-arm and the roller-shaft, whereby the crank-arm may be moved beyond the dead-center to hold the roller in raised position.

11. In a stencil-making machine the combination with a wheel carrying punches in its rim, and a die-wheel therefor, of strip-feeding rollers, mechanism for intermittently actuating said rollers, and means for governing the feed of the strip to produce properly-spaced characters, consisting of depressions and elevations at the characters of varying widths, and a lever one end of which is in the path of the depressions and elevations, the other end being operatively connected with the roller-actuating mechanism.

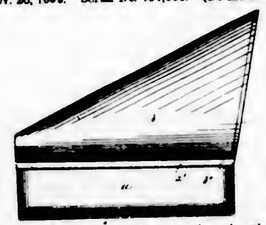
12. In a stencil-making machine, the combination with a punch-wheel and die-wheel, means for moving said wheels to position, a punch and die, a hammer, a spring-controlled lever operatively connected with said hammer a spring-controlled locking-lever normally held out of engagement with said wheels by engagement with the aforesaid lever but adapted to be carried into locking position when released by the movement of the said lever, substantially as set forth.

13. In a stencil-making machine, in combination with a wheel carrying punches in its rim, and a die-wheel having depressions and elevations at the characters of varying widths, strip-feeding rollers, pawl-and ratchet mechanism operatively connected with a movable part of the machine for intermittently rotating said rollers, and a spring-controlled lever, one end of which is in the path of the said depressions and elevations, and a cam operatively connected with the other end of the lever and adapted when moved to control the period of engagement of the pawl with the ratchet-wheel in the manner and for the purpose substantially as set forth.

14. In a stencil-making machine, the combination of the die-wheel having on its under side an annular series of depressions and projections in alinement with characters of unusual widths, strip-feeding rollers one of which carries a ratchet-wheel, a crank-arm loose on the shaft of said roller carrying a pawl in engagement with the ratchet-wheel, a cam movable to engage the pawl, a spring-controlled lever one end of which is in the path of the depressions and projections and the other end of which has rod connection with the cam, substantially as set forth.

15. In a stencil-making machine, the combination of the strip-feeding rollers, a strip-roll slidably mounted to the rear of said rollers, a slidable rod, an arm rigid with said rod and engaging said roll, and guide-fingers on said rod, substantially as described.

642,642. HARMONICA. FERDINAND STRAUSS, East Orange, N. J. Filed Nov. 20, 1899. Serial No. 737,601. (No model.)



Claim.—1. A flanged conical resonating-chamber, which has a slotted side and an open base, combined with a flanged harmonica-body adapted to be removably interlocked with the slotted side of said chamber, substantially as specified.

2. A flanged harmonica-body combined with a conical longitudinally slotted and flanged resonating-chamber, having a bridge that extends across the slot, all being so constructed that the flanges of the resonating-chamber are adapted to removably engage the flanges of the harmonica-body, substantially as specified.

642,643. IMPLEMENT FOR REMOVING PNEUMATIC TIRES. HUGH SWANTON, London, England. Filed July 16, 1898. Serial No. 686,190. (No model.)



Claim.—1. A tool for extracting the wired retaining edges of the outer casings of pneumatic tires from wheel-rims, comprising a lever having an engaging portion adapted to be placed in engagement with the wired edge of the casing, and a chain or cord connected at one end to said lever and carrying a hook at its opposite end adapted to be placed in engagement with a portion of the wheel for the purpose of holding said lever in its operative position, substantially as set forth.

2. The combination with the outer casing of a pneumatic tire having wired retaining edges, of a plurality of levers having engaging portions adapted to be placed successively in engagement with said wired edge and moved to disengage a portion of the latter from the wheel-rim, and a cord or chain connected to each of the levers intermediate its ends and having a hook designed to engage the rim of the wheel for retaining said levers in operative position with said wired edge removed from the rim, substantially as set forth.

642,644. ROTARY ENGINE. WILLIAM F. TEMPLE, Elsberry, Mo., assignor of one-fourth to O. E. Temple, same place. Filed June 21, 1897. Serial No. 641,703. (No model.)

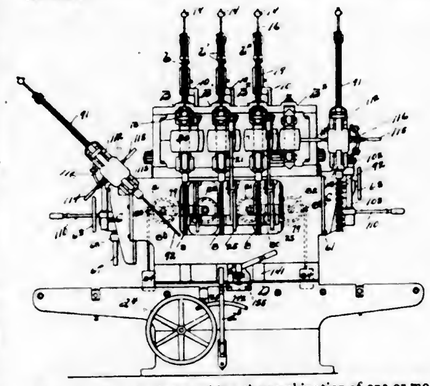
Claim.—1. In a rotary engine the combination with the driving-shaft, of a piston suitably mounted thereon provided with a series of tangential blades forming pockets between them, an outer casing provided with an interior annular projection adapted to fit against the periphery of said piston, a series of spaces or pockets provided in the said annular projection and communicating with the piston-pockets and alternately communicating with the inlet and outlet chambers respectively, substantially as described.



2. The combination with the driving-shaft provided with an annular flange, of a piston provided with an annular flange adapted to be secured to the said driving-shaft flange, a series of tangential blades formed in the said piston, a casing provided with an annular projection adapted to fit against the periphery of said piston, a series of spaces or pockets provided in said annular projection communicating with the piston-pockets and alternately communicating with the inlet and outlet chambers respectively, and a pair of circular disks provided on the sides of the piston-head extending beyond the circumference of said piston-head and bolted to the annular projection of the casing, substantially as described.

3. The combination with the driving-shaft of a rotary engine, of a casing anitably mounted thereon, an inlet and outlet chamber provided in said casing, a rotary piston detachably connected to said driving-shaft, a series of tangential blades provided in said piston, and a series of spaces or pockets provided in the said casing communicating with the piston-pockets and alternately communicating with the inlet and outlet chambers respectively, substantially as described.

642,645. BORING-MACHINE. JOHN R. THOMAS, Cincinnati, and HARRY S. SPENCER, Bond Hill, Ohio, assignors to the J. A. Fay & Egan Company, Cincinnati, Ohio. Filed Feb. 20, 1899. Serial No. 706,227. (No model.)



Claim.—1. In a boring-machine, the combination of one or more boring-spindles operating in a certain plane and sliding in their bearings in that plane, means for adjusting the bearings at substantially right angles to that plane, with an additional boring-spindle normally operating in the first plane and sliding in its bearing in that plane, and means for adjusting its bearing in that plane, and transversely at substantially right angles thereto and also angularly with relation to a plane parallel to the first, substantially as described.

2. In a boring-machine, the combination of a series of boring-spindles, bearings therefor, the boring-spindles constructed and arranged to slide within their bearings, slides for the bearings, means for adjusting the slides in a common direction, in combination with parts shifting one or more of the slides to a different plane, and parts adjusting the bearing or bearings thereon to an angle to the other bearing or bearings, substantially as and for the purpose specified.

3. In a boring-machine, the combination of two or more boring-spindles, constructed and arranged to slide within their bearings, one of the boring-spindles constructed and arranged for having vertical,

horizontal and angular adjustments independent of the movement of the same within its bearing, substantially as and for the purpose specified.

4. In a boring-machine, the combination of a frame, a work-support, one or more spindle-supporting slides in the frame adjustable independently transversely of the plane of the work-support, a bearing at the end of each slide overhanging the work-support with a boring-spindle slidably journaled therein transversely of the slide, a support on the frame, means for adjusting the support transversely to the movement of the slide or slides, a slide on the support, means for adjusting the slide transversely of the plane of the work-support in the direction in which the other slides are adjusted, a housing pivotally adjustable on the slide, a bearing thereon overhanging the work-support, with a boring-spindle slidably journaled therein transversely to the housing, substantially as described

5. The combination, in a boring-machine, of a frame, a table, a series of spindles vertically disposed, bearings therefor, slides for the bearings adjustable transversely of the table, a bracket on the frame, a screw-shaft or similar means for raising and lowering the bracket, a slide on the latter adjustable transversely of the table, a bearing mounted in the slide and adjustable pivotally to the movement of the slide, and a spindle in the bearing, substantially as and for the purpose specified.

6. The combination, in a boring-machine, of a frame a table, a series of spindles vertically disposed, bearings therefor, slides for the bearings adjustable transversely of the table, a bracket on the frame, a screw-shaft or similar means for raising and lowering the bracket, a slide on the latter adjustable transversely of the table, a housing adjustable pivotally therein, a shaft in the housing and a spindle journaled to the housing and operated by the shaft, substantially as and for the purpose specified.

7. In a boring-machine, the combination of a frame, a table, a support, means for adjusting the support on the frame, a slide on the support, means for adjusting the slide transversely of the table, a housing on the slide pivotally adjustable thereon, a bearing thereon extending transversely thereto and pivotally adjustable therewith and carried with the slide in its adjustments transversely of the table, a boring-spindle sliding therein transversely of the housing, and a spring for returning the sliding spindle to normal position, substantially as described.

8. In a boring-machine, the combination of a frame, a table, a support, means for adjusting the support on the frame, a slide on the support, means for adjusting the slide transversely of the table, an operating-shaft for a boring-spindle journaled in the slide, a housing on the slide pivotally adjustable thereabout, a bearing thereon extending transversely thereto and adjustable pivotally therewith and carried with the slide in its adjustments, a boring-spindle sliding therein transversely of the housing and rotated by the shaft, and a bearing on the support for the shaft, substantially as described.

9. In a boring-machine, a frame, a bracket thereon, means for adjusting the bracket vertically, horizontal ways on the bracket, a slide therein, bearings in the slide, a housing pivotally adjustable in the bearings, a bearing on the bracket, a shaft rotatably journaled in the bearings on the slide and sliding in the bearing on the bracket, and a spindle sliding in the housing, substantially as and for the purpose specified.

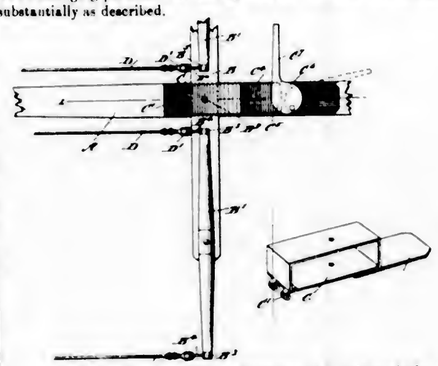
10. In a boring-machine, a frame, a table, a slide for the same, a bracket thereon, a plate, bolts slidingly connecting the plate and bracket, a spring or springs for yieldingly separating the plate and bracket, a rack in the slide, a pawl, a link, pivotal connections between the latter and the pawl and bracket, and a lever extending longitudinally of the table and connecting with the pivotal point of the link with the pawl, substantially as and for the purpose specified.

11. In a boring-machine, a frame, a table, a slide thereon, a rack on the slide, a pawl, a yielding plate, a link, a pivot between the plate and link, a second pivot between the link and pawl, and a lever extending longitudinally of the table, constructed and arranged for depressing the second pivot below a straight line from the first pivot to the contact-point of the pawl with the rack, substantially as and for the purpose specified.

12. In a boring-machine, a frame, a table, a slide, a rack, a pawl, a yielding plate, a link, a pivot between the link and plate, a second pivot between the link and pawl, a lever fulcrumed on the slide and pivoted to the link, and extending longitudinally of the table, substantially as and for the purpose specified.

642,646. HORSE-DETACHER. HENRY H. THOMSON and GEORGE P. THOMSON, Wakarusa, Kans. Filed Apr. 14, 1899. Serial No. 713,022. (No model.)

Claim.—1. In a horse-detacher, a carrier for a doubletree or singletree provided with a rearwardly-projecting tongue, said carrier being adapted to be hinged at its forward end to a pole or shafts, and a cam-lever adapted to be pivoted in rear of the carrier and having an overhanging portion for extending over the tongue of the carrier, substantially as described.



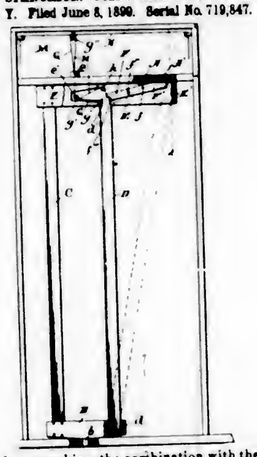
2. In a horse-detacher the combination with a pole or shafts, of a casing in which a doubletree or singletree is pivoted, said casing being hinged at its front end to the tongue or shafts and provided at its rear end with a tongue, and a pivoted cam-lever in rear of the casing and having an overhanging portion for extending over the tongue of the casing to lock the same in position, substantially as described.

3. In a horse-detacher, the combination with a singletree mounted to have a quarter-turn imparted to it, of pivoted and spring-pressed trace-pins on the rear side of the ends of the singletree and adapted to engage apertures in the traces, and fixed keepers at the ends of the singletree and with which the trace-pins are normally held in engagement, substantially as and for the purpose set forth.

4. In a horse-detacher, the combination with a singletree mounted to have a quarter-turn imparted to it, of trace-pins pivoted on the ends of the singletree on the rear side thereof, and adapted to engage apertures in the trace, keepers carried by the singletree, each for normally holding a pin in position and allowing said pin to swing out of the keeper to release the trace, upon giving a quarter-turn to the singletree, and a spring pressing on said pin, to hold the same normally in engagement with the keeper, substantially as shown and described.

5. In a horse-detacher of the character described, a singletree provided with trace-pins pivoted to the rear side thereof near the ends and projecting beyond the same, fixed forked keepers projecting from the ends of the singletree and in the forks of which the pins rest, and a spring having one end secured to the singletree and its other end bearing on the pins to hold them in position, substantially as described.

642,647. STANCHION. JOHN J. THURSTON and JOHN T. THURSTON, Friendship, N. Y. Filed June 8, 1899. Serial No. 719,847. (No model.)



Claim.—1. In a stanchion, the combination with the framework, and the stanchion proper consisting of top and bottom blocks mounted on alined vertical pivots in said framework of which the uppermost is tubular, one upright bar connecting said blocks and fixed thereto, and a second bar pivoted in the lower block and having its upper end movable in the upper block; of a catch pivoted within the upper block and having a notched inner end adapted to engage the upper end of the pivoted bar when the latter is vertical, a cord leading from said inner end of the catch out through said tubular pivot for the upper block, and pulleys therefor, as and for the purpose set forth.

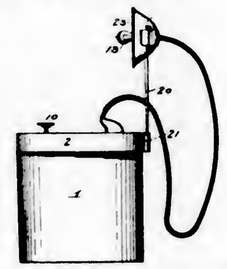
2. In a stanchion, the combination with the framework having a notch in its lower side, and the stanchion proper consisting of top and bottom blocks mounted on alined vertical pivots in said framework, one upright bar connecting said blocks and fixed thereto, and a second bar pivoted in the lower block and having its upper end movable in a slot in the upper block; of a catch pivoted within the upper block and having its inner end adapted to engage the upper end of the pivoted bar when the latter is vertical and its outer end adapted to engage said notch in the framework when the pivoted bar is released, and means for raising said inner end of the catch, as and for the purpose set forth.

3. In a stanchion, the combination with the framework, the top and bottom blocks pivoted in said framework on alined pivots of which the uppermost is tubular, said top block being in two spaced members, a rigid bar connecting said blocks, and a pivoted bar; of pulleys between the members of the upper block, and a cord leading from the upper free end of the pivoted bar, over said pulleys, out through the tubular upper pivot to the main cord, as and for the purpose set forth.

4. In a stanchion, the combination with the framework, the top and bottom blocks pivoted therein on alined pivots the uppermost of which is tubular and shouldered into the upper block, a fixed bar connecting the blocks, and a second bar pivoted in the lower block and moving between the members of the upper block; of a main cord passing over said stanchion, a branch cord leading down through said tubular upper pivot and connected with the upper end of the pivoted bar, a catch pivoted within the upper block and engaging the end of said pivoted bar when the latter is upright, a second main cord, and a cord branched from the second main cord and connected with the free end of this catch, as and for the purpose set forth.

5. In a stanchion, the combination with the framework, the top and bottom blocks pivoted therein on alined pivots, a fixed bar connecting the blocks, and a second bar having a reduced lower end pivotally and removably seated in a socket in the lower block and moving at its upper end between the members of the upper block; of means for operating the pivoted bar, a catch pivoted within the upper block and engaging the end of said pivoted bar when the latter is upright, a main cord, and a cord branched from the main cord and connected with the free end of this catch, as and for the purpose set forth.

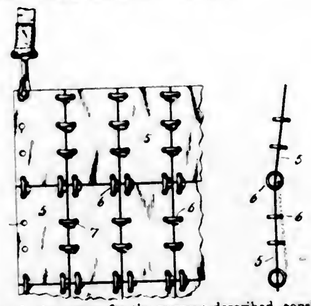
642,648. ELECTRIC-LIGHTING DEVICE. GEORGE W. VAN DUSER, Hackettstown, N. J., assignor of one-half to M. Munson Searing, Dover, N. J. Filed Apr. 27, 1899. Serial No. 714,727. (No model.)



Claim.—1. In an electric-lighting device of the character described, the combination with the portable casing, the batteries located therein, the removable top, the lug secured thereto, the conductors and the bracket secured to said top, of the lamp electrically connected with said batteries, and the pointed pin connected with said lamp and adapted to be connected with said lug, substantially as specified.

2. In an electric-lighting device of the character described, the combination with the portable casing, the batteries located therein, the conductors connected therewith, and the interchangeable insulating-plate adapted to be placed on either of said batteries, of the lamp electrically connected with said batteries, the reflector having a screw-threaded hole through which the plug of the lamp passes, and said reflector formed with peripheral screw-threads, the detachable concavo-convex plate connected therewith and the pointed pin connected with said lamp, substantially as specified.

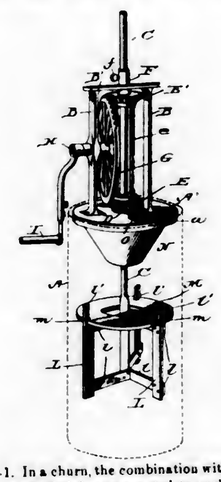
642,649. ARMOR. NORVAL C. VAUGHAN, Cincinnati, Ohio. Filed May 29, 1899. Serial No. 718,737. (No model.)



Claim.—1. An armor for the purpose described, consisting of a collection of metallic plates of equal size assembled edgewise, perforations near their edges to form rows, circular links connecting adjoining rows and plates by passing through their perforations to form a substantially rectangular sheet sufficiently pliable to permit folding up and means to hold this latter in position.

2. An armor for the purpose described, consisting of metallic plates of equal size which are assembled in parallel rows, circular links whereby they are all connected edgewise to form a pliable rectangular sheet which may be folded, straps whereby this latter is held in position and catch devices at the ends thereof, whereby the straps are detachably connected to the armor.

642,650. CHURN. GEORGE W. WALKER and JOHN C. PHELPS, Friendsville, Tenn. Filed June 15, 1899. Serial No. 720,698. (No model.)



Claim.—1. In a churn, the combination with the dashers and rod carrying the same, of pinions connected to each other, means for adjustably connecting the dasher-rod to one of said pinions, and a partial gear-wheel adapted to mesh with the pinions alternately to turn them in opposite directions, substantially as shown and described.

2. In a churn, the combination with the dashers and rod carrying the same, of pinions connected to each other by rods, means for adjustably connecting the dasher-rod to one of said pinions, a supporting-frame for the driving mechanism having an upper cross-piece preventing vertical movement of the pinions, an operating-shaft supported in the frame, and a partial gear-wheel attached to said shaft and adapted to mesh with the aforesaid pinions alternately and turn them in opposite directions, substantially as shown and described.

3. In a churn, the conibination with the dashers and rod carrying the same, of a supporting-frame for the driving mechanism provided with an upper cross-piece, a pinion mounted on the dasher-rod and having a sleeve passing through the aforesaid cross-piece, a set-screw carried by the sleeve and adapted to engage the dasher-rod, a pinion mounted upon a socket or casting on the cover of the churn, and rods connecting the pinions to each other; together with a par-

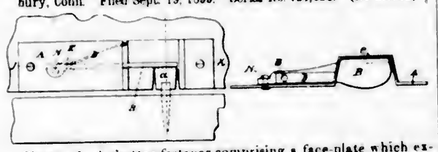
tial gear-wheel adapted to mesh with the pinions alternately to turn them in opposite directions, said gear-wheel being attached to a driving-shaft supported by the frame, substantially as shown and for the purpose set forth.

4. In a churn, the combination with the dashers and means for operating the same, of a float movably mounted upon the dashers, and a conical deflector depending from the cover of the churn, said cover having openings entering the deflector, substantially as shown and for the purpose set forth.

5. In a churn, the combination with the dasher-rod, of the vertical dashers connected to said rod and provided with extended upper ends, and a float having notches which receive the aforesaid extensions, together with a conical deflector depending from the cover of the churn, said cover having openings entering the deflector, substantially as shown and for the purpose set forth.

6. In a churn, the combination, of the pinions connected to each other, a partial gear-wheel adapted to mesh with said pinions alternately, a dasher-rod adjustably connected to one of the pinions, dashers attached to the rod and having upper extensions, and a float mounted on the dashers and provided with notches receiving said extensions; together with a conical deflector depending from the cover of the churn, said cover having openings entering the deflector, substantially as shown and for the purpose set forth.

642,651. SHUTTER-FASTENER. FRANK E. WALTERS, Waterbury, Conn. Filed Sept. 19, 1899. Serial No. 731,028. (No model.)



Claim.—1. A shutter-fastener comprising a face-plate which extends rearwardly to form a housing, the housing adapted to be mounted in a mortise of the shutter, and a latch pivoted to the rear surface of the plate and extending through a side wall of the housing, a downwardly-extending nosing and a handle formed on the latch and lying within the housing, the nosing of the latch being adapted to engage a keeper on the sill substantially as described

2. A shutter-fastener comprising a face-plate which extends rearwardly to form a housing, the housing adapted to be mounted in a mortise of the shutter, a latch pivoted to the rear surface of the plate and extending through a side wall of the housing, a downwardly-extending nosing and a handle formed on the latch and lying within the housing, the nosing of the latch being adapted to engage a keeper on the sill; and a spring situated behind the rear surface of the plate and arranged to exert a downward pressure upon the latch substantially as described.

642,652. TOY REIN. FRANK S. WEAVER, Mount Holly, N. J. Filed Sept. 13, 1899. Serial No. 730,331. (No model.)



Claim.—1. A device of the class described comprising a chain having links consisting of strips of flexible material folded and provided at their ends with registering openings, the bend of each link being linked into the openings of the adjacent link and a strip or ribbon rove through the openings, and a connecting breast portion provided with loops receiving the said chain, substantially as described.

2. A device of the class described comprising a chain having links consisting of strips of flexible material folded and provided at their ends with registering openings, the bend of each link being linked into the openings of the adjacent link, a strip or ribbon rove through its links, and a connecting breast portion consisting of short chains crossed and centrally secured together and provided at their terminals with loops receiving the said chain, substantially as described.

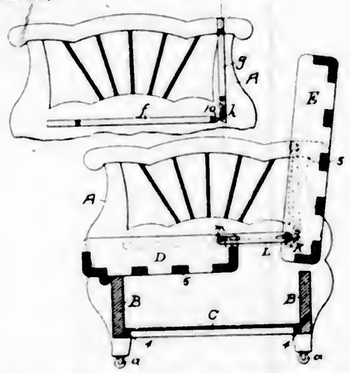
3. A device of the class described comprising a chain composed of interlaced links each consisting of a piece of flexible material centrally folded and having enlarged ends provided with registering openings, the bend of each link being linked into the registering openings of the adjacent link, and a flexible strip or ribbon rove through the openings of the links after the chain proper has been completed and being of a contrasting color and adapted to be removed and replaced without destroying the chain, and a connecting breast portion consisting of short crossed chains, loops arranged at the ends of the short chains and receiving the other chains, and the bells having shanks securing the loops to the ends of the short chains and centrally connecting the latter, substantially as described.

642,653. SLEEVE-ADJUSTER. CHARLES F. WEBBER, Boston, Mass. Filed Nov. 6, 1899. Serial No. 736,045. (No model.)



Claim.—The combination with the sleeve of a shirt or similar garment having eyelet-holes arranged lengthwise of the same, of a separate detachable cord or tape looped through said eyelet-holes without being otherwise connected to the sleeve and free to move independently of the same, and provided at one end with a fastening or clamping device to engage the free end, whereby the length of the loop may be varied to adjust or change the length of the sleeve, substantially as described.

642,654. BED-COUCH. RICHARD J. WELLER, New York, N. Y., assignor, by direct and mesne assignments, to the Welles Manufacturing Company, same place. Filed June 27, 1899. Serial No. 722,005. (No model.)



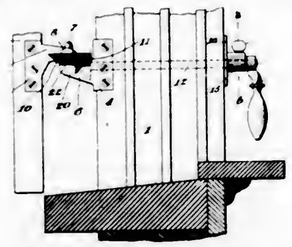
Claim.—1. A bed-couch, comprising end pieces having horizontal and vertical guides, a seat-section slidably engaging said horizontal guides, a back-section having pivotal lugs engaging said horizontal and vertical guides, said sections being adapted to permanently carry bedclothes in their adjustment into divers positions, an eccentric pin or stud upon the back-section, and a connecting-plate pivotally connected to the seat-section and having a slot provided with an eccentric enlargement adapted to be engaged by said eccentric stud, substantially as and for the purpose set forth.

2. A bed-couch, comprising end pieces, having horizontal and vertical guides, said horizontal guides having a beveled or inclined terminal edge, a seat-section slidably operating upon the horizontal guides, a back-section having pivotal lugs engaging said horizontal and vertical guides, one of said lugs being adapted to turn into a locking engagement with the beveled edge of the horizontal guide, and means pivotally connecting said sections, substantially as and for the purpose set forth.

3. A bed-couch, comprising end pieces having horizontal and vertical guides, said vertical guides respectively embodying a stationary and a pivoted section, the pivoted section adapted to be swung outwardly from the plane of the guide, a seat-section having lugs slidably engaging said horizontal guides, a back-section having pivotal lugs slidably engaging the horizontal and vertical guides, and means pivotally connecting said seat and back sections, substantially as and for the purpose set forth.

4. A bed-couch, comprising the end pieces having horizontal and vertical guides, said horizontal guides being provided with the beveled terminal edge, the seat-section slidably engaging said horizontal guides, the back-section having pivotal lugs slidably engaging the horizontal and vertical guides, said seat and back sections being adapted to permanently carry bedclothing in their divers adjustment into and from positive position, an eccentric pin or stud upon the back-section, and a connecting-plate pivotally secured to the seat-section and having a slot with an eccentric enlargement adapted to be engaged by said eccentric stud, substantially as and for the purpose set forth.

642,655. SHUTTER WORKER AND FASTENER. ALVIN WELLING, Covington, Ky. Filed June 19, 1899. Serial No. 721,110. (No model.)



Claim.—In a shutter-worker, the combination of two hinge members, one comprising a strap adapted for attachment to a shutter and formed with an enlarged socket portion having a segmental gear-surface, and the other comprising a strap adapted for attachment to the window-casing and provided with a perforated flange extended at right angles from it and also adapted to extend over the outer surface of the window-casing, said last-mentioned member being also formed with a head at the free end of said strap and a pintle extended upward from the center of said head and adapted for engagement with the eye or socket of the shutter member, said head and socket being formed in adjacent surfaces with corresponding annular ball-races, balls held in said races, a shaft, extended through the window-casing and also through the perforation in said flange and provided with a bevel-gear at its outer end adapted for engagement with the gear-surface of the socket portion, an escutcheon-plate secured to the inner surface of the window-casing and formed with a boss through which said shaft is passed, and a set-screw held by said boss with its tip arranged to engage the shaft to hold the same against turning movement, substantially as set forth.

642,656. APPARATUS FOR MAKING PAPER TUBES. JOHN H. WHITE and EDWARD L. WHITE, Washington, D. C. Filed Oct. 26, 1899. Serial No. 734,841. (No model.)

Claim.—1. The gumming apparatus herein described, comprising a holder with a conical mouth, a regulating-valve working therein, an arm swinging laterally around its support, a clamp-screw to hold it in place, and a screw-joint between the arm and holder to permit the holder to be adjusted both vertically and laterally relatively to the strip to be gummed and to the tube-forming devices.

2. The "former" herein described, supported solely by and adjustable upon the mandrel.

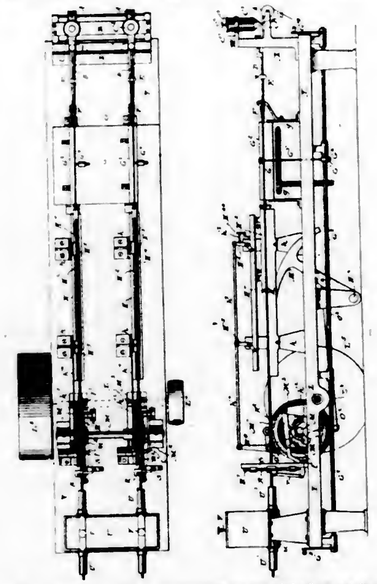
3. The "former" herein described comprising a block having a U-shaped perforation and supported solely by and adjustable upon a mandrel surrounded by the former.

4. The "former" herein described comprising a block having a U-shaped perforation having one arm or branch thereof enlarged for the unobstructed passage of the gummed paper strip.

5. The "former" herein described, comprising a block having a U-shaped perforation tapering from rear to front and having one of its arms or branches enlarged for the unobstructed passage of the gummed paper strip.

6. The combination of the mandrel, the "former" supported solely by and movable thereon, and the set-screw which clamps these parts together.

7. The combination of the roller over which the paper strip passes, the fixed guide, the gumming apparatus directly over the guide and adjustable relatively thereto, the mandrel, the "former" mounted on the mandrel, and the set-screw which locks the "former" on the mandrel in proper relation to the guide and gumming apparatus.



8. The combination, substantially as hereinbefore set forth, of a mandrel, and an encircling folder pivoted to a support, in turn pivoted on a bed-plate or frame, to render the folder adjustable in two directions.

9. The "former" herein described supported solely upon and adjustable on the mandrel, in combination with the folder encircling the mandrel, and the support to which the folder is pivoted, in turn pivoted on the frame, to secure the proper relation of the strip, mandrel, "former" and folder.

10. A heater comprising sections hinged together and provided with means for varying their pressure upon the paper tube passing between them.

11. A heater comprising a hinged weighted section, means for lifting it, and means for varying its pressure upon the paper tube traversing the heater.

12. A heater comprising a fixed section and a hinged section, in combination with an actuating-shaft and a link connecting the shaft and hinged section.

13. The paper-tube-feeding device herein described, comprising a stationary mandrel traversed by the finished tube, a vibratable segment, a clamp carried thereby encircling the lower part of the tube, an upper clamp carried by the lower one, devices which normally tend to separate the clamps, and means for closing the clamps upon the tube on their forward stroke.

14. The combination of the stationary mandrel, clamp-sections embracing it, springs which normally tend to separate these clamps, a vibratable segment which traverses the clamps relatively to the mandrel, and devices for closing the clamps upon the tube carried by the mandrel on their forward stroke.

15. The combination of a ledger-plate, a mandrel terminating in an opening therein, means for adjusting the mandrel longitudinally relatively thereto, and a cutter working across the face of the mandrel to sever the tube escaping therefrom.

16. The combination, substantially as hereinbefore set forth, of tube forming and feeding mechanism, a heater, a mandrel passing therethrough, a cutter working across the face of the mandrel, and means for adjusting the mandrel longitudinally to compensate for its variations in length.

17. The combination of the gumming mechanism, the former, the folder, the heater, the feed mechanism, the cutter, the mandrel passing through the former, folder, feed mechanism and heater, terminating at the cutter, and the coating mechanism through which the severed tubes pass.

18. The coating apparatus herein described, comprising a receptacle or reservoir, its regulating-valve, the socket beneath the receptacle, its longitudinally-perforated fibrous filling, and the perforated nozzles through which and the filling the tube passes to be coated.

19. The combination of the wheel and fixed guide over which the paper strip passes, the gluing device over the guide, the stationary mandrel, the former mounted solely upon and adjustable thereon, the stationary folder, the sectional heater, the feeding device, the cutter, and the coating-chamber, the organization being such that the mandrel extends through the former, folder, heater and feeding device and terminates at the cutter.

642,657. LAMPLIGHTING ATTACHMENT FOR LAMP-CHIMNEYS. JOHN M. WHITE, Anniston, Ala. Filed May 18, 1899. Serial No. 717,260. (No model.)



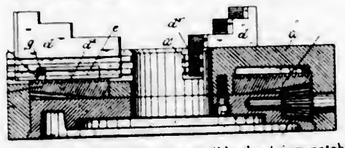
Claim.—1. As a lighting attachment for lamps, the combination with a lamp-chimney having a hole or opening leading therethrough, a cylinder engaging said opening, a collar mounted around said cylinder, and spring devices for maintaining the cylinder and collar in normal position with respect to said opening, substantially as shown and described.

2. As a lamplighting attachment, the combination with a lamp-chimney having a hole or opening leading through the side thereof, of a cylinder engaging said opening, and a collar surrounding the outer portion of said cylinder, spring devices for maintaining the cylinder and collar in normal position with respect to said opening, and a shutter carried by the collar, substantially as shown and described.

3. In a device of the class described, the combination with a lamp-chimney having a hole or opening leading through the side thereof, of a cylinder engaging said opening, an outer collar surrounding said cylinder, expansion devices for maintaining said cylinder in the opening and permitting a sliding movement therein, and a swinging shutter secured to and normally closing said collar, substantially as shown and described.

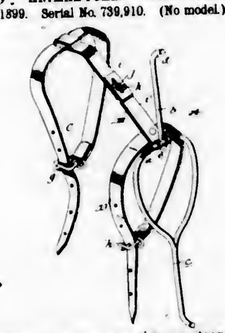
4. In a device of the class described, the combination with a lamp-chimney having a hole or opening, a flanged cylinder engaging said opening, a collar mounted around the outer end of said cylinder, a swinging shutter pivoted to said collar, a malleable washer surrounding the said cylinder and springs located between the said washer and the flange of the cylinder to clamp the device upon a lamp-chimney, substantially as shown and described.

642,658. LATHE-CHUCK. LUCIUS K. WHITON, New London, Conn. Filed Jan. 16, 1899. Serial No. 702,229. (No model.)



Claim.—In combination with a reversible chuck-jaw notched as set forth, an adjustable scroll-engaging slider located in said notch, and a screw operatively connected with the slider; said screw being confined between the end walls of the notch, and the chuck-jaw being reversibly mounted on the slider and screw.

642,659. ANIMAL-POKE. LOUIS WUEHLER, Goehner, Nebr. Filed Dec. 11, 1899. Serial No. 739,910. (No model.)



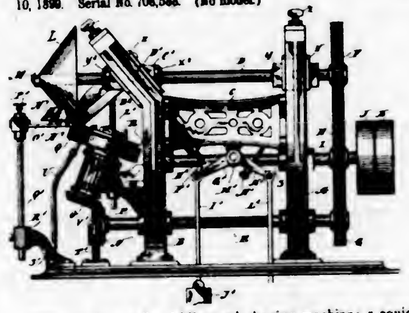
Claim.—1. An animal-poke comprising a strap adapted to rest on the forehead of an animal, means for fastening said strap in position on the head of the animal, and a body comprising a central open portion of a size to loosely receive the muzzle of the animal, and arms extending upwardly and downwardly from said central portion; the said body being loosely connected to the strap at the juncture of the central open portion and the upwardly-extending arm, substantially as specified.

2. An animal-poke comprising a stiff strap adapted to rest on the forehead of an animal, a fastening-strap connected to the upper end of said stiff strap and adapted to be secured around the neck of the animal, a retaining-loop connected to the stiff strap and adapted to surround the jaws of the animal, and a body comprising a central open portion of a size to loosely receive the muzzle of the animal, and arms extending upwardly and downwardly from said central portion; the said body being pivotally connected to the strap at the juncture of the central open portion and the upwardly-extending arm, substantially as specified.

3. An animal-poke comprising an extensible strap adapted to rest on the forehead of the animal, and a body comprising a central open portion of a size to loosely receive the muzzle of the animal, and arms extending upwardly and downwardly from said central portion; the said body being loosely connected to the extensible strap at the juncture of the central open portion and the upwardly-extending arm, substantially as specified.

4. An animal-poke comprising a strap adapted to rest on the forehead of an animal, means for fastening said strap in position on the head of the animal, and a body comprising a central open portion of a size to loosely receive the muzzle of the animal, and arms extending upwardly and downwardly from said central portion; the said body being loosely connected to the strap at the juncture of the central open portion and the upwardly-extending arm, and being carried rearwardly from said upwardly-extending arm, substantially as specified.

642,660. MACHINE FOR FOLDING AND SHAPING TURN-DOWN COLLARS. WILLIAM A. ZEIDLER, New York, N. Y., assignor of one-half to Gilbert A. Clark and Lewis W. Hoppe, same place. Filed Mar. 10, 1899. Serial No. 708,588. (No model.)



Claim.—1. In a collar folding and shaping machine; a conical disk, a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point, and means for rotating the disk and roller simultaneously and in the same direction.

2. In a collar folding and shaping machine; a conical disk; a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point; means for rotating the disk and roller simultaneously and in the same direction; and means for separating the disk and roller without stopping the rotation of either.

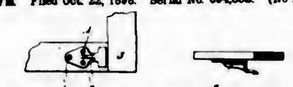
3. In a collar folding and shaping machine; a conical disk; a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point; means for rotating the disk and roller simultaneously and in the same direction; and means for positively varying the distance between the disk and roller.

4. In a collar folding and shaping machine; a conical disk, a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point; means for rotating the disk and roller simultaneously and in the same direction; and pressure-rollers for pressing the outer fold of the collar toward the conical disk.

5. In a collar folding and shaping machine; a conical disk, a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point; means for rotating the disk and roller simultaneously and in the same direction; intermeshing gearing for driving the rotating means, and mechanical connections for separating the disk and roller one from another without disconnecting the intermeshing gearing.

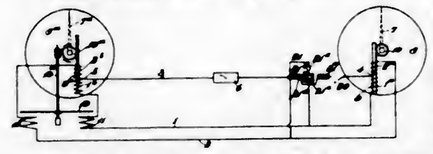
6. In a collar folding and shaping machine, a conical disk; a roller disposed at an angle with relation to said disk, and having an annular groove into which the edge of the disk fits without contact at any point; means for rotating the disk and roller simultaneously and in the same direction; and means for guiding the folded and shaped collar back to the operator, whereby the collar may be fed into and delivered from the same side of the machine.

642,661. SCREEN-DOOR OPENER. MATHIAS J. ADAMS, Lancaster, Wis. Filed Oct. 22, 1898. Serial No. 694,352. (No model.)



Claim.—In a door-opener for the foot, the combination of the base-plate 1 with right-angle bend; toe-piece 3 and strengthening-rib 2 for attachment to the lower corner of the door as and for the purposes described.

642,662. APPARATUS FOR ELECTRICALLY TRANSMITTING ORDERS OR SIGNALS. ALFRED U. ALCOCK, London, England. Filed Jan. 6, 1899. Serial No. 701,304. (No model.)



Claim.—1. Apparatus for electrically transmitting orders or signals comprising two normally-balanced electrical circuits, means adapted to set periodically-varying electrical currents in said circuits, a circuit-disturber located at the transmitting-station, an indicator adapted when moved, to operate said circuit-disturber and destroy the balance between said circuits, a circuit-balancer located at the receiving-station and adapted by movement to restore the balance between said circuits when the same has been disturbed, a receiver-indicator connected to said circuit-balancer, and an electromagnetic device comprising a rotary body adapted to operate said circuit-balancer and two similar inductors that are arranged at opposite sides of the center of motion of said body so as to be inoperative on said body when the circuits are balanced, but one or other of which when the circuits are unbalanced will act to turn said body in one direction or the other and operate the movable portion of said circuit-balancer in a direction to balance said circuits, substantially as described.

2. Apparatus for electrically transmitting orders or signals comprising two normally-balanced electrical circuits, means adapted to set periodically-varying electrical currents in said circuits, a circuit-disturber located at the transmitting-station, an indicator adapted when moved to operate said circuit-disturber and destroy the balance between said circuits, a circuit-balancer located at the receiving-station and adapted by movement to restore the balance between said circuits when the same has been disturbed, a receiver-indicator connected to said circuit-balancer, and an indicator device comprising two similar solenoids or sets of solenoids connected to said circuits and having iron cores, an iron plate fixed above said cores and having projections located a short distance from but a little out of line therewith, and a metal plate mounted to rotate between the adjacent ends of said cores and projections and connected to the movable portion of said circuit-balancer, substantially as described.

3. In apparatus for transmitting orders or signals, the combination with normally-balanced electrical circuits and order or signal indicating mechanism at the receiving end of said circuits, of means adapted to set up periodically-varying electric currents in said circuits, and a circuit-controller comprising a cell containing liquid and fixed and movable electrodes located in said liquid and connected to said circuits and means for moving the fixed and movable electrodes relatively to each other, substantially as described.

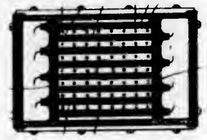
4. Apparatus for transmitting orders or signals comprising two normally-balanced electric circuits, means adapted to set up periodically-varying electric currents in said circuits, a circuit-disturber located at the transmitting end and comprising fixed and movable electrodes connected to the ends of the circuit-conductors an electrolyte-cell in which said electrodes are located, and an indicator connected to the movable electrode, means located at the receiving ends of said circuits and whereby the balance can be restored, and an indicator connected to the means for restoring the balance between said circuits substantially as described.

5. Apparatus for electrically transmitting orders or signals comprising two normally-balanced electrical circuits, means adapted to set up in said circuits periodically-varying electric currents, a circuit-disturber located at the transmitting-station and comprising a cell charged with liquid, fixed and movable electrodes connected to the circuit-conductors at the transmitting end, and located in the liquid in such cell, a circuit-balancer located at the receiving end of said circuits and adapted by movement to restore the balance between said circuits when the same has been disturbed, a receiver-indicator connected to said circuit-balancer, and an inductor device comprising a rotary body connected to said circuit-balancer and two normally-balanced inductors connected to said circuits and arranged to act inductively in said body and rotate it in one direction or the other when the balance between the circuits is destroyed and to be inoperative on said body when the balance is restored, substantially as described.

6. Apparatus for transmitting orders or signals comprising three conductors extending from one station to another, a cell charged with a high-resistance liquid located at each station, two fixed electrodes connected to the ends of two of the conductors at each station and located in the liquid in the cells at said stations a movable electrode connected to each end of the third conductor and located between the fixed electrode of the cell at the corresponding station, indicators in connection with said movable electrodes, and an alternating-current generator located in said third conductor substantially as described.

7. Apparatus for transmitting orders or signals comprising three conductors extending from one station to another, a cell charged with a high-resistance liquid located at each station, two fixed electrodes connected to the ends of two of the conductors at each station and located in the liquid in the cells at said stations, a movable electrode connected to each end of the third conductor and located between the fixed electrode of the cell at the correspoding station, indicators in connection with said movable electrodes, an alternating-current generator located in said third conductor, and an inductor device comprising a rotary body connected to the movable electrode at the receiving-station and two normally-balanced conductors adapted to act inductively on said body and rotate it in one direction or the other when the balance between the two circuits formed between said three conductors is destroyed and to be inoperative on said body when the balance is restored, substantially as described.

642,663. MEANS FOR GENERATING OZONE. CHARLES G. ARMSTRONG and WILLIAM D. NEEL, Chicago, Ill. Filed Mar. 12, 1898. Serial No. 673,609. (No model.)



Claim.—1. A device for forming what is commonly termed "ozone," comprising a series of electrodes adapted to be connected with a source of electric supply, each electrode surrounded by an insulating-tube, two supports in proximity to each other, between which said insulating-tubes extend and upon which they are supported, a box or casing inclosing said electrodes and tubes, the supports for the tubes engaging the inner walls of the box on the four sides thereof, so that there is a complete engagement around the entire outer edges of the supports so as to divide the box into three apartments, a central apartment containing the tubes and two outer apartments containing the connecting-wires leading thereto, an inlet and outlet for said casing or box opposite the central apartment, and a distributing-plate adapted to distribute the air equally over the total area of said tubes.

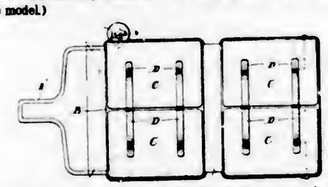
2. A device for forming what is commonly termed "ozone," comprising a series of electrodes contained within a suitable casing and adapted to be connected with sources of electric supply, an insulating-tube surrounding each of said electrodes, said insulating-tubes supported in proximity to one another, so as to be separated by air-spaces, supports for said tubes dividing said casing into three apartments, the two outer apartments containing the connecting-wires leading to the electrodes, the central apartment containing the electrodes and forming the ozone-chamber, an inlet and an outlet for said central apartment, and a distributing-plate attached to said supports and extending across said central chamber and adapted to distribute the entering material equally over the total area of said tubes.

3. A device for forming what is commonly termed "ozone," comprising a series of electrodes contained in a suitable casing, and adapted to be connected with sources of electric supply, an insulating-tube surrounding each of said electrodes, said insulating-tubes supported in proximity to one another so as to be separated by air-spaces, the supports for said tubes dividing the casing into three apartments, the two outer apartments containing the connecting-wires for the electrodes and the central apartment containing the electrodes used in generating the ozone, said electrodes and tubes divided into two sets of opposite polarity, one set of tubes passing entirely through one of said supports and extending only part way through the other support, the ends of said tubes being partly filled with some insulating material, so as to prevent the ozone from injuring the electrodes contained therein.

4. A device for forming what is commonly termed "ozone," comprising a series of electrodes contained in a suitable casing, and adapted to be connected with a source of electric supply, said electrodes provided with surrounding insulated tubes, two insulating-supports for said tubes and electrodes, said supports dividing the casing into three apartments, the electrodes and tubes being divided into two sets of opposite polarity, a series of connecting-wires for one set of electrodes contained within one of said apartments and a series of connecting-wires for the other set of electrodes contained in another of said apartments, the two apartments containing connecting-wires being separated from the central or ozone apartment, so as to prevent the destructive action of the ozone on said wires, the ends of the tubes of one set of electrodes extending only part way through the support farthest from the connecting-wires leading to said electrodes, so as to entirely separate the two sets of electrodes, the ends of said tubes being partially filled with insulating material, so as to prevent the destructive action of the ozone on the electrodes, an inlet and an outlet for said central ozone apartment, and a perforated plate extending across said apartment in proximity to said inlet and adapted to distribute the air equally over the total area of said tubes and electrodes, substantially as described.

5. A device for forming what is commonly termed "ozone," comprising a series of glass tubes inclosed within a casing, two supports extending across said casing so as to divide it into three apartments, two outer apartments and a central apartment, the tubes being supported thereby and contained in the central apartment, a series of wires contained within said tubes and extending out of the ends, the ends of the tubes being filled with insulating material, said wires being connected together within the outer apartments formed by said supports, so as to be electrically connected, an inlet and an outlet communicating with said central apartment, a distributing-plate connected with said supports and located between the inlet and said tubes, so as to distribute the air evenly over them, substantially as described.

642,664. CARD-CASE FOR DUPLICATE WHIST. FRANK A. BALDWIN, Grand Rapids, Mich. Filed Oct. 24, 1898. Serial No. 694,462. (No model.)



Claim.—1. In a card-case for duplicate whist, a pocket in said case, an indicator pivoted near its edge and exposed to view when turned outward and inclosed in said pocket and hidden from view when turned inward and a projection on said indicator, substantially as described.

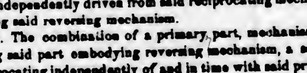
2. In a card-case for duplicate whist, a case composed of two stiff parts connected by a flexible portion at one side, and a tuck at the other side, means for securing the whist-hands to said parts, pockets in the edges of said parts, and indicators pivoted near their edges and exposed to view when turned outward and inclosed in said pockets when turned inward and a projection on said indicator, substantially as described.

3. In a card-case for duplicate whist, an outer flexible covering having a tuck at one end and a suitable fastening for the same near the other end, rectangular stiffening-boards attached to said covering and springs attached directly to said boards on the middle line thereof and extending oppositely outward, and bent twice at right angles to embrace the hands of cards, substantially as described.

4. In a card-case for duplicate whist, an outer flexible covering, rectangular stiffening-boards secured to the inner side thereof and at a distance from each other, pockets between said boards and covering indicators in said pockets, and springs secured to said boards on the middle line thereof and extending oppositely outward, substantially as described.

5. In a card-case for duplicate whist, an outer flexible covering having a tuck at one end and a slit near the other end, rectangular stiffening-boards secured to the inner surface of said covering and at a distance from each other, pockets between said covering and boards, indicators pivoted to turn into said pockets, projections on said indicators, springs bent twice at right angles and adapted to embrace the hands of cards and having one end engaging the upper surface of said hands, lateral projections on said springs at their opposite ends and extending through said boards and clenched on the under side of the same, substantially as described.

642,665. DIE FOR EMBOSSING-MACHINES. FRANK H. BANCROFT, Gardner, Mass., assignor of one-half to Henry M. Rich, same place. Filed Aug. 28, 1899. Serial No. 728,679. (No model.)



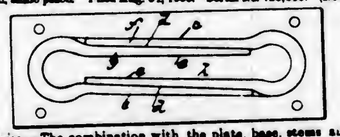
Claim.—1. The combination with the follower of an embossing-machine and a die held thereon, of a plate adjustably attached to one side of the follower and having a groove engaging the edge of the die, substantially as described.

2. The combination with the follower of an embossing-machine and a die supported thereon and provided with a beveled edge, of a strap extending across said follower and overlapping said beveled edge and tightening-screws held in the ends of said strap and pressing against the sides of said follower, whereby a tensile strain is imparted to said strap, substantially as described.

3. The combination with the follower of an embossing-machine and a die supported thereon and of a strap extending across the follower and overlapping the edge of said die, means for applying a tensile strain to said strap, and a removable plate bearing against the edge of said strap and held from lateral movement, substantially as described.

4. The combination with the follower of an embossing-machine, of a die supported thereon and having beveled edges, of a plate provided with a groove engaging one of said beveled edges and adjustably attached to said follower, a strap overlapping the other of said beveled edges, screws carried by the ends of said strap and bearing against the follower, and a plate bearing against the edge of said strap and means for holding said plate from lateral movement, substantially as described.

642,666. DIE FOR MANUFACTURING COMBS OR HAIR-PINS. RALPH H. BARNARD, Northborough, Mass., assignor to Walter M. Farwell, same place. Filed Aug. 31, 1899. Serial No. 728,019. (No model.)



Claim.—The combination with the plate, base, stems and plungers, of the cutters, formed integral with the base-plate and arranged reversely to one another whereby duplicate combs are cut at a single stroke, all as shown and described.

642,667. MECHANICAL MOVEMENT. OSCAR J. BEALS, Providence, R. I., assignor to the Brown & Sharpe Manufacturing Company, same place. Filed Aug. 23, 1897. Serial No. 649,170. (No model.)

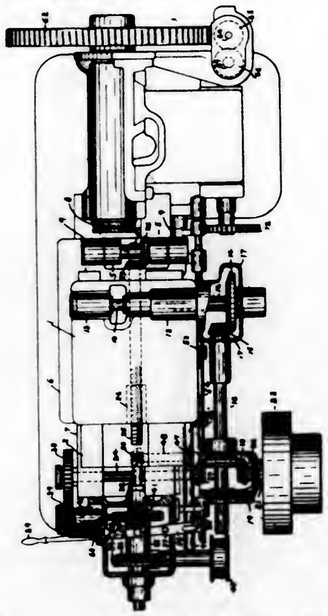
Claim.—1. The combination of a primary part, mechanism for reciprocating said part embodying reversing mechanism, and a secondary part reciprocating independently of and in time with said primary part for controlling said reversing mechanism.

2. The combination of a primary part, mechanism for reciprocating said part embodying reversing mechanism, and a secondary part independently driven from said reciprocating mechanism for controlling said reversing mechanism.

3. The combination of a primary part, mechanism for reciprocating said part embodying reversing mechanism, a secondary part reciprocating independently of and in time with said primary part for operating said reversing mechanism.

4. The combination of an adjustable bed, a primary part mounted to reciprocate on said bed, mechanism for reciprocating said part embodying reversing mechanism, and a secondary part mounted independent of said bed and reciprocating in time with said primary part for controlling said reversing mechanism.

5. The combination of a tilting bed, a primary part mounted to reciprocate on said bed, mechanism for reciprocating said part embodying reversing mechanism, a secondary part mounted independently of said bed and reciprocating in time with said primary part for controlling said reversing mechanism.



6. The combination of an adjustable bed, a carriage mounted to reciprocate upon said bed, mechanism for reciprocating said carriage embodying a reversing mechanism, a bar reciprocating independently of said carriage for operating said reversing mechanism.

7. The combination of an adjustable bed, a carriage mounted to reciprocate thereon, mechanism for reciprocating said carriage embodying a reversing mechanism, a bar mounted independently of said bed for controlling said reversing mechanism, means independent of the movement of said carriage for reciprocating said bar.

8. The combination of an adjustable bed, a carriage mounted to reciprocate thereon, mechanism for reciprocating said carriage embodying a reversing mechanism, and a bar mounted independently of said bed and driven from said reciprocating mechanism for controlling said reversing mechanism.

9. The combination of a shaft, mechanism for revolving said shaft in each direction, a primary reciprocating part driven from said shaft, a secondary reciprocating part driven from said shaft, and means for controlling the direction of rotation of said shaft from said secondary part.

10. The combination of an adjustable bed, a carriage mounted to reciprocate thereon, a shaft for operating said carriage mounted independently of said bed, and means mounted independently of said bed for controlling the direction of rotation of said shaft.

11. The combination of an adjustable bed, a carriage mounted on said bed, a shaft mounted independently of said bed, and connected to operate said carriage, two oppositely-moving drivers for said shaft, mechanism for connecting either of said drivers to the shaft, and a bar operated from said shaft for controlling said mechanism.

12. The combination of an adjustable bed, a carriage mounted on said bed, a shaft mounted independently of said bed and connected to operate said carriage, two oppositely-moving drivers for said shaft, mechanism for connecting either of said drivers to said shaft, and a bar mounted independently of said bed and operated from said shaft for controlling said mechanism.

13. The combination of an adjustable bed, a carriage mounted on said bed, a shaft mounted independently of said bed and connected to operate said carriage, two oppositely-moving drivers for said shaft, a clutch for connecting either of said drivers to said shaft a shipper for shifting said clutch from one driver to the other, a bar operated from said shaft for operating said shipper.

14. The combination of an adjustable bed, a carriage mounted on said bed, a shaft mounted independently of said bed and connected to operate said carriage, two oppositely-moving drivers for said shaft, a clutch for connecting either of said drivers to said shaft, a shipper for shifting said clutch from one driver to the other, and a bar mounted independently of said bed and operated from said shaft for operating said shipper.

15. The combination of an adjustable bed a carriage mounted to reciprocate on said bed, mechanism for reversing the direction of movement of said carriage embodying a shipper provided with adjustable dogs, and a reciprocating bar for engaging said dogs.

16. The combination of an adjustable bed, a carriage mounted to reciprocate thereon, mechanism for reversing the direction of movement of said carriage embodying a shipper provided with adjustable dogs, and a reciprocating bar mounted independently of said bed for engaging said dogs.

17. The combination of an adjustable bed, a carriage mounted to reciprocate on said bed, mechanism for reversing the direction of movement of said carriage, embodying adjustable dogs, a reciprocating part independent of said carriage and reciprocating in time therewith for engaging said dogs.

18. The combination of an adjustable bed, a carriage mounted to reciprocate thereon, mechanism for reversing the direction of movement of said carriage embodying adjustable dogs, and a reciprocating part mounted independently of said bed and reciprocating in time with said carriage for engaging said dogs.

19. The combination of a shaft, bed arranged at an angle to said shaft, a carriage mounted on said bed, mechanism for driving said carriage from said shaft, mechanism for reversing the direction of rotation of said shaft, a reciprocating part independent of said carriage for controlling said reversing mechanism.

20. The combination of a tilting bed, a carriage mounted to reciprocate thereon, mechanism for reversing the direction of movement of said carriage mounted independently of said bed, and mechanism for automatically operating said reversing mechanism.

21. The combination of a tilting bed, a carriage mounted to reciprocate thereon, a mechanism for reversing the direction of movement of said carriage mounted independently of said bed, and mechanism mounted independently of said bed for automatically operating said reversing mechanism.

22. The combination of a tilting bed, a shaft mounted in bearings independently of said bed, a carriage mounted on said bed, and operated from said shaft, and mechanism for automatically reversing the rotation of said shaft independently of the movement of said carriage.

23. The combination of an adjustable slide, a bed adjustably pivoted to said slide, a carriage on said bed, a shaft mounted in the stationary frame of the machine and connected to operate said carriage, mechanism for reversing the direction of rotation of said shaft, and mechanism for automatically operating said reversing mechanism.

24. The combination of an adjustable slide, a bed adjustably pivoted to said slide, a carriage on said bed, a shaft mounted in the stationary frame of the machine and connected to operate said carriage, mechanism for reversing the direction of rotation of said shaft, and mechanism independent of the movement of the carriage for automatically operating said reversing mechanism.

25. The combination of a tilting bed, a carriage mounted on said bed, a shaft mounted in stationary bearings connected to operate said carriage, two oppositely-rotating drivers for operating said shaft, a clutch for connecting either of said drivers to the shaft, and mechanism for automatically shifting said clutch from one driver to the other.

26. The combination of a tilting bed, a carriage mounted to reciprocate thereon, a cutter-shaft mounted on said carriage, mechanism for rotating said shaft, mechanism for reversing the direction of movement of said carriage mounted in the stationary frame of the machine, and mechanism for automatically operating said reversing mechanism.

27. The combination of a tilting bed, a carriage mounted to reciprocate thereon, a cutter-shaft mounted on said carriage, mechanism for rotating said shaft, mechanism for reversing the direction of movement of said carriage mounted in the stationary frame of the machine, and mechanism independent of the movement of the carriage for automatically operating said reversing mechanism.

28. The combination of a work-support, mechanism for indexing the same, a tilting bed, a cutter-carriage mounted to reciprocate thereon, mechanism for reversing the movement of the carriage mounted in the stationary frame of the machine, mechanism for automatically operating said reversing mechanism, and mechanism for controlling the indexing.

29. The combination of a work-support, mechanism for indexing the same, a tilting bed, a cutter-carriage mounted to reciprocate thereon, mechanism for reversing the movement of the carriage mounted in the stationary frame of the machine, mechanism inde-

pendent of said carriage for automatically operating said reversing mechanism and controlling the indexing.

30. The combination of a reciprocating carriage a shaft 32 connected to operate the same, mechanism for reversing the shaft 32 embodying a shipping-bar 54 provided with adjustable dogs, a bar 44 having a projection for engaging said dogs, and gearing between bar 44 and shaft 32.

31. The combination of a reciprocating carriage, a shaft 32 connected to operate the same, mechanism for reversing the shaft 32 embodying a shipping-bar 54 provided with adjustable dogs, a bar 44 having a projection for engaging said dogs, a rack on said bar 44, a pinion engaging said rack, a shaft 48 to which said pinion is secured, and gearing between shaft 48 and shaft 32.

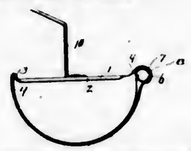
32. The combination with a tilting bed 3, a carriage 1 mounted thereon, a shaft 32 mounted in the stationary frame of the machine and connected to operate said carriage, mechanism for reversing the shaft 32 embodying a shipper-bar 54 mounted on the frame, and a bar 44 driven from shaft 32 for operating bar 54.

33. The combination of a work-support, mechanism for indexing the same, a cutter-carriage, mechanism for reciprocating said carriage, and a part independent of said carriage and reciprocating in time therewith for controlling the indexing mechanism.

34. The combination of a work-support, mechanism for indexing the same, a cutter-carriage, mechanism for reciprocating said carriage including reversing mechanism, and a part independent of said carriage and reciprocating in time therewith for controlling said reversing and said indexing mechanisms.

35. The combination of a work-support, mechanism for indexing the same, a tilting bed, a cutter-carriage mounted to reciprocate thereon, mechanism for reversing the movement of the carriage, and a part independent of said carriage, and reciprocating in time therewith for controlling said reversing mechanism and said indexing mechanism.

642,668. EAVES-TROUGH HANGER. FRANK L. BECKER, Plymouth, Ohio, assignor to Nimmons & Becker, same place. Filed Mar. 17, 1899. Serial No. 709,417. (No model.)



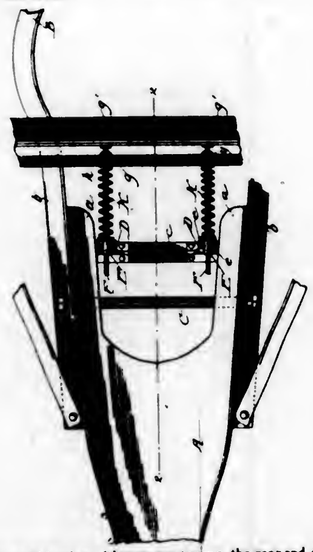
Claim.—As an improved article of manufacture, an eaves-trough hanger consisting of the bridge portion 1, having connected thereto a hanger, the edges of said bridge portion provided with the bent-down portions 2, the set-up portion or part 3 located at one end of the bridge, the opposite free end having the rounded part or portion 8, the catch 9 located upon the under side of the rounded part 8, the strap 5 continued from the bridge, and provided upon its free end with the open rolled portion 6, adapted to be sprung underneath the part 8 and held in position by the catch 9, substantially as and for the purpose set forth.

642,669. TONGUE-SUPPORT FOR WAGONS. JOSEPH W. BETTENDORF, Davenport, Iowa. Filed May 24, 1899. Serial No. 718,349. (No model.)

Claim.—1. In a wagon-tongue support, the combination of a hanger mounted on said tongue, a block removably secured to said hanger, a rod removably connected at one end to a fixed support, and having its other end extending through said block, and a spring bearing at one end against a fixed bearing, and at the other end against said block, substantially as set forth.

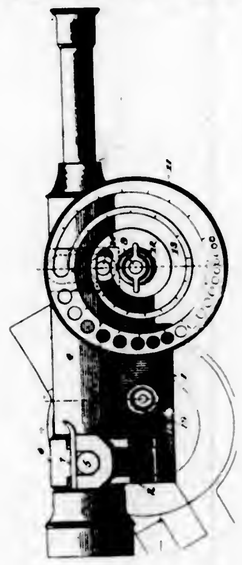
2. The combination with a wagon-tongue, of a depending hanger secured thereto, said hanger being bifurcated and provided with bearings in said bifurcated portions, a perforated block removably supported in said bearings, a rod extending through said block and free to slide therein having its end connected to a fixed support on the wagon, and a spring surrounding said rod and bearing at one end against a fixed bearing and at the other end against said block, substantially as set forth.

3. The combination with a wagon-tongue, the rear end of which is bifurcated and extends to the rear of the pivot thereof, a cross-bar connecting the rear portions of said bifurcations, and a hanger secured to and depending therefrom and having the lower end thereof provided with twin bearing-lugs having open bearings in their inner adjacent surfaces, a block having trunnions which are journaled in the said bearings, a rod moving freely through the same having its rear end pivoted to the bolster about on the same plane as the pivot of said tongue and a coil expansion-spring surrounding said rod between said bolster and block.



4. The combination with a wagon-tongue, the rear end of which is bifurcated and extends to the rear of the pivot of the same, a cross-bar connecting the rear portions of said bifurcations, and a hanger secured to and depending therefrom and having the lower end thereof provided with twin bearing-lugs having open bearings in their inner adjacent surfaces, a block having trunnions which are journaled in said bearing, a rod moving freely through the same the rear end of which is pivoted to the bolster on the same plane as the pivot of said tongue a collar on the rear portion of said rod, and a coil expansion-spring surrounding said rod between said collar and block.

642,670. SIGHT FOR ORDNANCE. WILLIAM H. BEVANS, Washington, D. C. Filed May 12, 1898. Serial No. 680,444. (No model.)



Claim.—1. In an adjustable sight for ordnance, the combination with an elevating member formed with a cam-surface and having a scale following the contour of said surface, of an elevating member engaging said surface and carrying an index coacting with said scale, substantially as described.

2. In an adjustable sight for ordnance, the combination with an elevating member formed with a spiral elevating-surface and having a scale following the contour of said surface, of an elevating member engaging said spiral surface and carrying an index coacting with said scale, substantially as described.

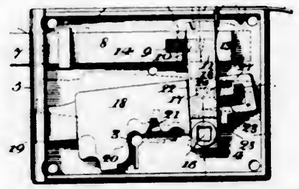
3. In an adjustable sight for ordnance, the combination with an elevating member formed with a cam-surface and having a scale placed along the edge thereof, of an elevating member engaging said cam-surface and carrying an index coacting with said scale, substantially as described.

4. In an adjustable sight for ordnance, the combination with an elevating-drum formed with a cam-elevating surface and having a scale following the contour of said surface, of an elevating member engaging said cam-surface and carrying an index coacting with said scale, substantially as described.

5. In an adjustable sight for ordnance, the combination with an elevating-drum formed with a cam-elevating surface and having a scale following the contour of said surface, of an elevating member carried by the sight engaging said surface and provided with an index coacting with the scale, substantially as described.

6. In an adjustable sight for ordnance, the combination with an elevating member formed with a cam-slot and having a scale arranged along the edge thereof, of an elevating member projecting into said slot and carrying an index coacting with said scale, substantially as described.

642,671. LOCK. JESSE S. BOLSINGER, Ebensburg, Pa. Filed Sept. 11, 1899. Serial No. 730,121. (No model.)



Claim.—1. In a lock, a latch-bar, a locking-bolt connected to said latch-bar and acting by gravity, when retracted, to maintain said latch-bar in operative position, and locking means for said latch-bar, thrown into operation by said bolt when the latter is projected, substantially as set forth.

2. In a lock, a latch-bar, an operating-lever therefor, a locking-bolt connected with said lever and acting by gravity therethrough, when retracted, to maintain said latch-bar in operative position, and means, thrown into operation by said bolt, when the latter is projected, for locking said lever and latch-bar, substantially as set forth.

3. In a lock, a longitudinally-movable latch-bar, an operating-lever therefor having a pin or projection thereon, and a locking-bolt having a slot in its rear end formed with upwardly-extending offsets in which said pin fits, the said bolt acting by gravity to maintain said latch-bar normally in its operative position.

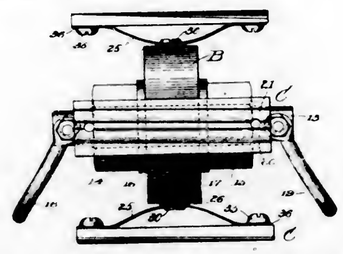
4. In a lock, a longitudinally-movable latch-bar, an operating-lever therefor having a pin or projection thereon, a locking-bolt having a slot in the rear end thereof provided with upwardly-extending offsets in which said pin lies, and a tooth or projection beneath said slot adapted to engage the pivot of said lever.

5. In a lock, a longitudinally-movable latch-bar having a recess at one end forming shoulders, an operating-lever therefor whose free end lies within said recess, a locking-bolt having a slot in its rear end formed with upwardly-extending offsets, and a tooth or projection beneath said slot adapted to engage the pivot of said lever, and a pin or projection on said lever lying within said slot.

6. In a lock, the combination with the casing thereof having a stud or projection on one of the sides thereof, and circular openings therein, of a latch-bar having an elongated slot therein which receives said stud, and a recess in one side forming shoulders, a lever whose free end lies within said recess and whose opposite end is trunnioned in said circular openings, a locking-bolt having a slot in its rear end formed with upwardly-extending offsets, and a tooth or projection beneath said slot adapted to engage the trunnions on said lever, and a pin or projection on said lever lying within the slot in said bolt.

7. In a lock, the combination with the casing thereof, having a slot therein, of a longitudinally-movable latch-bar in said casing, an operating-lever therefor, and a detent pivoted to said casing movable transversely thereof and provided with a flange projecting through said slot and adapted to engage said lever at two points for locking said latch-bar at both ends of its stroke.

642,672. GUN-CLEANER. WILLIAM L. BRENNAN, Boston, Mass. Filed Sept. 7, 1899. Serial No. 729,789. (No model.)



Claim.—1. A gun-cleaner having a body provided with a cleaning part, the working surface of which has projections that enter and move along the rifling-grooves of a gun as said cleaner is drawn back and forth therein.

2. A gun-cleaner having a body provided with a cleaning part, the working surface of which has projections that enter and move along the rifling-grooves of a gun as said cleaner is drawn back and forth therein, in combination with a spindle upon which said body is mounted to turn.

3. A gun-cleaner having a body portion, and a series of independently-movable cleaning members thereon, the working surfaces of which are provided with projections that enter and move along the grooves of the rifling of a gun, as said cleaner is drawn back and forth therein.

4. A gun-cleaner having a member provided with a working portion consisting of a segment of the rifling of the gun to be cleaned, the projecting portions of which enter and move along the grooves of the rifling of a gun as said cleaner is drawn through the same.

5. A gun-cleaner having a body portion provided with a series of independent longitudinal cleaning members, the working faces of which consist of segments of the rifling of the gun to be cleaned, and the projecting portions of which enter and move along the grooves of the rifling of a gun as said cleaner is drawn through the same.

6. A gun-cleaner having a body portion provided with a series of independent, yieldingly-mounted, longitudinal cleaning members, the working faces of which consist of segments of the rifling of the gun to be cleaned, and the projecting portions of which enter and move along the grooves of the rifling of a gun as said cleaner is drawn through the same.

7. A gun-cleaner including a spindle, a body portion rotative upon said spindle, a series of pivots mounted to turn upon the body portion, bowed springs connected to the pivots, and a series of cleaning members movable upon said pivots and secured to the opposite ends of the respective springs.

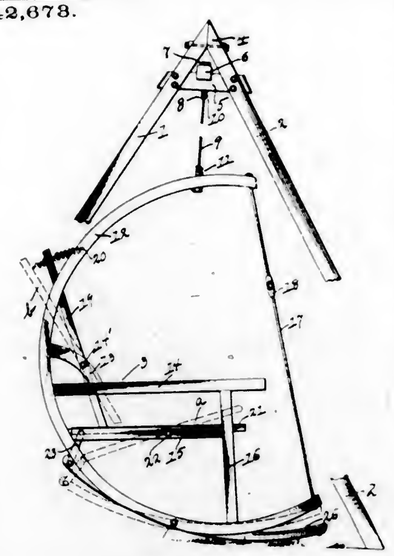
8. A gun-cleaner including a body portion provided with a series of independent metal plates constituting cleaning members and provided with projections extending entirely along the same that enter the grooves of the rifling of a gun and to move along the same.

642,673. SWING. JOHN G. BRENNER, Toledo, Ohio. Filed Aug. 17, 1899. Serial No. 727,551. (No model.)

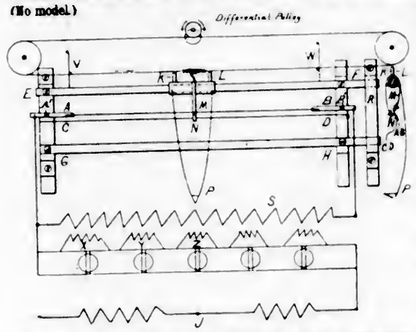
Claim.—1. In a swing, the trestle, the chair suspended therefrom, having the segmental circular side sections, the seat-frame supported thereby, the tilting seat movably secured in the seat-frame, the movable footboard pivotally attached to the side sections, and a link connection between the footboard and the seat, substantially as and for the purpose set forth.

2. In a swing, the trestle, having the cross-piece 6; the chair having segmental circular side sections 12, the adjustable back 19, the tilting seat 21, the movable footboard pivotally attached to the side sections, and a link connection between the footboard and the seat; bolts having bifurcated heads passing through the cross-piece 6, and the side sections 12, and straps for suspending the chair from the trestle, adapted to be secured in said bifurcations, substantially as described.

642,673.



642,674. ELECTRICAL RECORDING APPARATUS. HUGH L. CALLENDAR, Montreal, Canada. Filed Feb. 14, 1898. Serial No. 670,335. (No model.)



Claim.—1. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a galvanometer, means for connecting its poles to the bridge-wire and to the contact, and means actuated by the galvanometer for traversing the contact.

2. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the contact, and means actuated by the galvanometer for traversing the contact.

3. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a galvanometer, means for connecting its poles to the bridge-wire, and to the contact, a series of auxiliary resistances, means for connecting them to the bridge-wire or resistance, and means actuated by the galvanometer for traversing the contact.

4. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a shunt, means for connecting its ends to the ends of the bridge wire, a galvanometer, means for connecting its poles to the shunt and to the contact, a series of auxiliary resistances, means for connecting them to the bridge-wire, and means actuated by the galvanometer for traversing the contact.

5. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a galvanometer, means for connecting its poles to the bridge-wire and to the second wire, and means actuated by the galvanometer for traversing the contacts.

6. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the second wire, and means actuated by the galvanometer for traversing the contacts.

7. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a galvanometer, means for connecting its poles to the bridge-wire and to the second wire, a series of auxiliary resistances, means for connecting them to the bridge-wire, and means actuated by the galvanometer for traversing the contacts.

8. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the second wire, a series of auxiliary resistances, means for connecting them to the bridge-wire, and means actuated by the galvanometer for traversing the contacts.

9. In an electrical recording apparatus the combination of a galvanometer-arm, means whereby it is kept in a state of gentle oscillation, a pair of contact-surfaces carried by it and a second pair of contact-surfaces against which the first pair work.

10. In an electrical recording apparatus the combination of a galvanometer-arm, means whereby it is kept in a state of gentle oscillation, a pair of contact-surfaces carried by it, a second pair of contact-surfaces against which the first pair work, means for rotating the second pair of surfaces and scrapers acting on them.

11. In an electrical recording apparatus, the combination of a galvanometer-arm, a pair of contact-surfaces carried by it, a second pair of contact-surfaces against which the first pair work, means for rotating the second pair of surfaces and scrapers acting on them.

12. In an electrical recording apparatus, the combination of a galvanometer, a recording device, and a pair of motors controlled by the galvanometer and tending to move the recording device one in one direction and the other in the other.

13. In an electrical recording apparatus, the combination of a galvanometer, a recording device, a pair of clock-motors tending to move the recording device one in one direction and the other in the other, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

14. In an electrical recording apparatus, the combination of a galvanometer, a recording device, a pair of motors tending to move the recording device one in one direction and the other in the other, circuits closed by the galvanometer and controlling the motors, and switches in the circuits one at each end of the travel of the recording device and operated by it.

15. The combination of a bridge-wire movable longitudinally, means for clamping it in position, a contact movable along it, a recording device, a galvanometer, means for connecting its poles to the bridge-wire and to the contact, and means actuated by the galvanometer for traversing the contact.

16. The combination of an electrical recording apparatus, substantially as described, with a constant battery and a series of auxiliary resistances connected according to the potentiometer method, for recording variations of voltage or current on a direct-current circuit, or for recording variations of temperature by means of a thermocouple or thermopile.

17. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a galvanometer, means for connecting its poles to the bridge-wire and to the contact, a pair of clock-motors tending to move the contact in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

18. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the contact, a pair of clock-motors tending to move the contact in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

19. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a galvanometer, means for connecting its poles to the bridge-wire and to the contact, a series of auxiliary resistances, means for connecting them to the bridge-wire, a pair of clock-motors tending to move the contact in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

20. The combination of a bridge-wire, a contact movable along it, a recording device carried by the contact, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the contact, a series of auxiliary resistances, means for connecting them to the bridge-wire, a pair of clock-motors tending to move the contact in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

21. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a galvanometer, means for connecting its poles to the bridge-wire and to the second wire, a pair of clock-motors tending to move the contacts in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

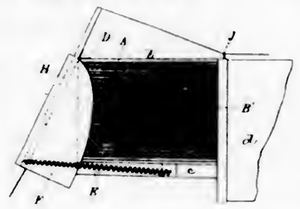
22. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the second wire, a pair of clock-motors tending to move the contacts in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

23. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a galvanometer, means for connecting its poles to the bridge-wire or resistance and to the second wire, a series of auxiliary resistances, means for connecting them to the bridge-wire, a pair of clock-motors tending to move the contacts in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

24. The combination of a bridge-wire, a second wire parallel to it, a pair of contacts connected together and movable along the bridge-wire and the second wire, a recording device carried by the contacts, a shunt, means for connecting its ends to the ends of the bridge-wire, a galvanometer, means for connecting its poles to the shunt and to the second wire, a series of auxiliary resistances, means for connecting them to the bridge-wire, a pair of clock-motors tending to move the contacts in opposite directions, brakes tending to stop the motors, and means operated by the galvanometer for taking off the brakes.

25. In an electrical recording apparatus, the combination of a galvanometer-arm, contacts limiting its travel, and means for keeping it in a state of gentle oscillation.

642,675. WIND-ESCAPE ATTACHMENT FOR THRESHING-MACHINE BLOWERS. ISAAC S. CAROLUS, Sterling, Ill. Filed Aug. 19, 1898. Serial No. 689,015. (No model.)

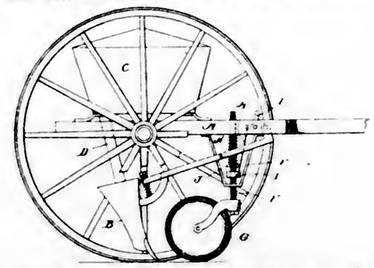


Claim.—1. A wind-escape attachment for threshing-machine blowers comprising a pneumatic tube and a cylindrically-formed sieve that is open at its bottom, combined with a segmental spring-actuated hood closing the end of the sieve, and provided with curved shields surrounding a portion of the sieve, and a head depending below the sieve, substantially as specified.

2. A wind-escape attachment for threshing-machine blowers comprising a frame, a sieve composed of longitudinally-parallel bars arranged in an arc-shaped series, a segmental hood closing the end of the sieve and provided with curved shields surrounding a portion of the sieve, and with a head depending below the sieve, substantially as specified.

3. A wind-escape attachment for threshing-machine blowers comprising a frame, a sieve composed of longitudinally-parallel bars arranged in an arc-shaped series, a segmental hood hinged to the frame at the top of the sieve, said hood being provided with curved shields surrounding portions of the sieve, an upright extending above the sieve and with a head extending below the sieve, springs connected to the frame and hood respectively and means for swinging the hood in opposition to the springs, substantially as specified.

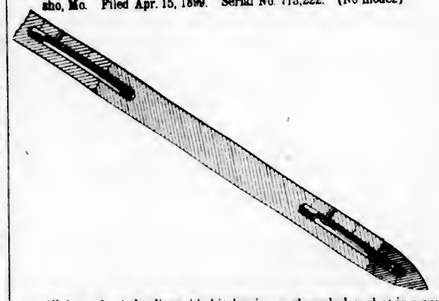
642,676. SEED-DRILL. WILLIAM W. CARPENTER, New Franklin, Mo. Filed Feb. 10, 1899. Serial No. 705,220. (No model.)



Claim.—1. In a device of the character described, a drill having suitable tubes, spring-pressed caster-spindles, colters on the lower ends of the caster-spindles, brackets forming guides for the spindles, pins transversely of the spindles and a lifting-bar through which the spindles operate, and means for elevating the lifting-bar whereby the pins of the shanks are engaged.

2. In a device of the character described, a drill-tube having teeth, colters traveling in front of the teeth, caster-spindles on which the colters are mounted, brackets for the spindles forming guides, a lifting-bar through which the spindles slide, pins transversely of the spindles and protruding therefrom abutted by the lifting-bar and springs on the spindles between the pins and the frame.

642,677. MINER'S DRILL AND PICK. WALLACE CHILDS, Neosho, Mo. Filed Apr. 15, 1899. Serial No. 713,222. (No model.)



Claim.—1. A duplicatable bit having a threaded socket in a surfaced shoulder as shown, adapted to screw onto a stem projecting from and detachably secured to a holder and against a like-surfaced shoulder of said holder in a miner's drill, and pick and in combination therewith substantially as and for the purpose specified.

2. In a miner's drill, and pick, the combination of a holder, a stem or shank, and a shankless bit, the three detachably secured together, substantially as shown and for the purpose specified.

3. In a miner's drill, and pick the combination of a bit having a surfaced shoulder and a socket therein, and a stem or shank secured detachably to one end thereof, with a holder having a like-surfaced shoulder and the other end of said stem locked detachably in a longitudinal socket in said holder substantially as and for the purpose specified.

4. A handle having a longitudinal socket therein and a transverse pin-hole socket, an adjustable stem with shoulder-locking depression therein, and a lock-pin adapted to be disengaged from the stem-piece by driving the stem-piece into said longitudinal socket and the incline or wedge of said depression on said stem, against said pin all in combination substantially as specified.

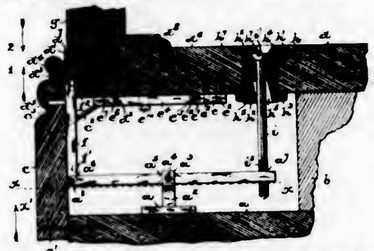
5. In a miner's drill, and pick the combination of a holder having a smooth-bore longitudinal socket and a stem therein detachably secured therein, with a bit having a surfaced shoulder and an internally-threaded socket in said surfaced shoulder adapted to detachably screw onto the threaded projecting part of said stem and against the surfaced shoulder of said holder substantially as and for the purpose specified.

6. The combination of a holder, having a longitudinal socket in one end, a stem entering said socket; a detachable bit formed with a threaded socket for engaging a projecting threaded end of said stem; and a locking-pin, said bit, when in position, operating to prevent the disengagement of the locking-pin.

7. The combination of a holder having at one end a surfaced shoulder, and a longitudinal socket therein; a stem having a threaded portion, and a shouldered portion entering said socket; a locking-pin engaging said shoulder; and a detachable bit formed with a surfaced shoulder and a threaded socket therein; and adapted to screw onto the threaded projecting portion of the stem, and, by the impingement of said shoulder against the shouldered end of the holder, to pull the stem outwardly and engage its shoulder with the locking-pin.

8. The combination of a holder having at one end a surfaced shoulder and a longitudinal socket therein; a stem detachably secured in said socket and having one end projecting therefrom; and a bit having a surfaced shoulder and a socket therein; whereby it may be detachably secured on said stem by bringing the surfaced shoulders firmly together.

642,678. ADJUSTABLE RABBET-STRIP. SAMUEL S. COLT, Orange, N. J. Filed Mar. 4, 1899. Serial No. 707,729. (No model.)



Claim.—1. The combination, with the stationary frame, door-casing and door-jamb, of a rabbet-strip slidably connected with said door-jamb, and mechanism connected with said stationary frame, door-jamb and strip, for adjusting the said strip, substantially as and for the purposes set forth.

2. The combination, with the stationary frame, door-casing and door-jamb, of a rabbet-strip slidably connected to said door-jamb, and mechanism connected with said stationary frame, door-jamb and strip, for adjusting the said strip, consisting, essentially, of a support secured to said stationary frame, a lever pivotally arranged in said support, an adjusting-screw rotatively arranged in a bushing in said door-jamb, and operatively connected at its one end with one end of said lever, and a connecting-rod between the other end of said lever and said rabbet-strip, substantially as and for the purposes set forth.

3. The combination, with the stationary frame, a door-casing c, having an edge c^2, and a door-jamb, of a rabbet-strip slidably connected with said door-jamb, and adjustable, a molding d^4, having an offset d^5 projecting over said edge c^2 and in slidable arrangement therewith, and mechanism connected with said stationary frame, door-jamb, and strip for adjusting the said strip, substantially as and for the purposes set forth.

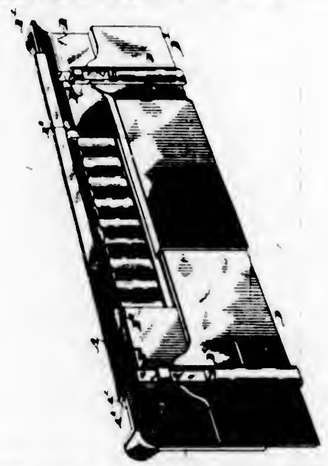
4. The combination, with the stationary frame, a door-casing c, having an edge c^2, and a door-jamb, of a rabbet-strip slidably connected with said door-jamb, and adjustable, a molding d^4, having an offset d^5 projecting over said edge c^2 and in slidable arrangement therewith, and mechanism connected with said stationary frame, door-jamb, and strip for adjusting the said strip, consisting, essentially, of a support secured to said stationary frame, a lever pivotally arranged in said support, an adjusting-screw rotatively arranged in a bushing in said door-jamb, and operatively connected at its one end with one end of said lever, and a connecting-rod between the other end of said lever and said rabbet-strip, substantially as and for the purposes set forth.

5. The combination, with the stationary frame, a door-casing c, and a door-jamb, of a rabbet-strip connected with said door-jamb, having a groove d^3, and nails c^3 in said casing, arranged and entering said groove in the rabbet-strip, substantially as and for the purposes set forth.

6. The combination, with the stationary frame, a door-casing c, and a door-jamb, of a rabbet-strip connected with said door-jamb having a groove d^3, nails c^3 in said casing, arranged and entering said groove in the rabbet-strip, and mechanism connected with said stationary frame, door-jamb, and strip for adjusting said strip, substantially as and for the purposes set forth.

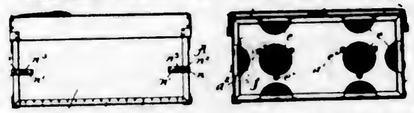
7. The combination, with the stationary frame, a door-casing c, and a door-jamb, of a rabbet-strip connected with said door-jamb, having a groove d^3, nails c^3 in said casing, arranged and entering said groove in the rabbet-strip, and mechanism connected with said stationary frame, door-jamb, and strip for adjusting said strip, consisting, essentially, of a support secured to said stationary frame, a lever pivotally arranged in said support, an adjusting-screw rotatively arranged in a bushing in said door-jamb, and operatively connected at its one end with one end of said lever, and a connecting-rod between the other end of said lever and said rabbet-strip, substantially as and for the purposes set forth.

642,679. FIREBACK. JAMES W. CONOMAR, Dubuque, Iowa. Filed May 26, 1897. Serial No. 637,997. (No model.)



Claim.—In a fireback the combination of a main plate having suitable longitudinal marginal flanges adapted to retain one or more end plates, a key-seat at each end and flanges adjacent thereto adapted to retain a winged key or wedge, end plates corresponding in cross-section to the main plate and adapted to slide between its marginal flanges, and retaining keys or wedges provided with forwardly-projecting gibs at the outer end, and lateral wings adapted to retain it in connection with the other parts when said parts are placed in engagement, substantially as described.

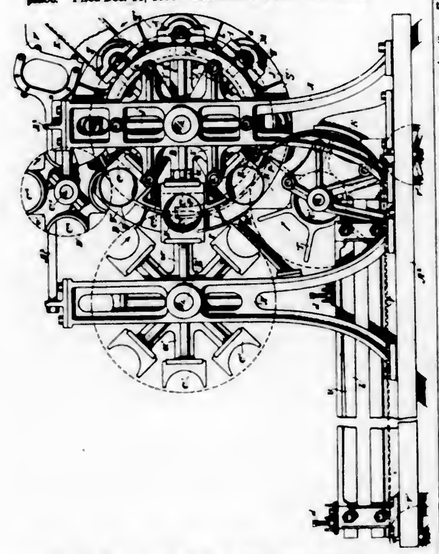
642,680. BONNET TRUNK OR CARRIER. JOSIAH CUMMINGS, Boston, Mass. Filed Dec. 8, 1898. Serial No. 698,596. (No model.)



Claim.—1. A device of the class specified, consisting of a bottom, side and end wings hinged thereto and arranged in pairs, the respective members of the pairs being of substantially duplicate form, and the end wings of each consisting of two hinged parts, and the innermost parts of said end wings being of substantially the same height as the side wings, while the outermost parts are adapted to lap over and close the upper side of the device, and both parts of the end wings having alined grooves, those grooves in the innermost parts being adapted to receive the opposite edges of the side wings, while the grooves in the outermost sections of said wings are adapted to receive the upper edges of the side wings when the box is in its closed condition.

2. A device of the class specified, consisting of a bottom, side and end wings hinged thereto and arranged in pairs, the respective members of the pairs being of substantially duplicate form, and the end wings of each consisting of two hinged parts, and the innermost parts of said end wings being of substantially the same height as the side wings, while the outermost parts are adapted to lap over and close the upper side of the device, and both parts of the end wings having alined grooves, those grooves in the innermost parts being adapted to receive the opposite edges of the side wings, while the grooves in the outermost sections of said wings are adapted to receive the upper edges of the side wings when the box is in its closed condition, means uniting the adjacent ends of the outermost sections of the two-part end wings when the device is in closed form, a cover, and means for rigidly securing the cover in place.

642,681. AUTOMATIC CAN-HEADING MACHINE. WARREN F. DAVIS, San Francisco, Cal., assignor of one-half to John Lee, Jr., same place. Filed Dec. 10, 1898. Serial No. 698,804. (No model.)



Claim.—1. In a can-heading machine, two series of segmental jaws, means for rotating said series to cause the jaws to coincide successively in pairs, means adapted to register with the jaws of one series whereby the loosely-placed bodies are properly positioned therein before the jaws of the two series coincide, and one or more independent series of head-carriers mounted axially in line, and revoluble in unison with one of said series of segmental jaws.

2. In a can-heading machine and in combination, two series of segmental jaws, means for rotating said series to cause the jaws to coincide successively in pairs, revoluble means adapted to register with the jaws of one series to position the loose bodies therein previous to the meeting of the jaws in pairs, an independent revolving series of head-carriers and means for moving said head-carriers toward and from the jaws.

3. In a can-heading machine, two series of segmental jaws, means for rotating said series to cause the jaws to coincide successively in pairs, revoluble segments adapted to register with the jaws of one series to position the loose can-bodies therein previous to the meeting of the jaws in pairs, an independent series of head-carriers mounted axially in line and revoluble in unison with one of said series of jaws, and means for moving said head-carriers toward and from the said jaws.

4. In a can-heading machine, two series of segmental jaws, means for rotating said series to cause the jaws to coincide successively in pairs, revoluble segments adapted to register with the jaws of one series to position the loose can-bodies therein previous to the meeting of the jaws in pairs, one or more series of head-carriers mounted and revoluble synchronously with one of said series of jaws, and fixed cams for forcing the head-carriers toward and from the said segmental jaws.

5. In a can-heading machine two series of rigid non-pivoted segmental jaws, means for rotating said series in opposite directions to cause the jaws to coincide successively in pairs, one or more series of head-carriers mounted and revoluble synchronously with one of said series of jaws, cams for forcing the head-carriers toward and from the said segmental jaws, plungers fitting the head-carriers, means whereby they are advanced toward the can in unison with the head-carriers, and means by which the head-carriers are retracted from the cans and the plungers retained in contact therewith after the retraction of the carriers.

6. In a can-heading machine two series of rigid non-pivoted segmental jaws, means for rotating said series in opposite directions to cause the jaws to coincide successively in pairs, one or more series of head-carriers mounted and revoluble in unison with one of said series of jaws, fixed cams for forcing the head-carriers toward and from the said segmental jaws, plungers fitting the head-carriers, means whereby they are advanced toward the can in unison with the head-carriers, means by which the head-carriers are retracted from the cans and the plungers retained in contact therewith after the retraction of the carriers, and means for removing the cans from between the plungers transversely to the axial line thereof.

7. In a can-heading machine, carriers mounted upon independent axes, mechanism by which they are rotated in unison, segmental jaws fixed upon each of the carriers adapted to meet and coincide successively in pairs, a supplemental disk with correspondingly-shaped segmental jaws, and mechanism by which it is rotated in such relation to one of said carriers that bodies received into the jaws of said carrier are positioned therein.

8. In a can-heading machine, spiders or carriers journaled and revoluble in pairs and having segmental jaws upon their peripheries, and mechanism by which said jaws are caused to meet and coincide successively, a chute by which bodies are delivered into the segmental jaws of one carrier to be carried thereby to the meeting-point of the two sets of jaws, and a supplemental disk or spider with correspondingly-shaped jaws coinciding with those which first receive the bodies, whereby the bodies are positioned therein previous to the meeting of the jaws of said carriers.

9. In a can-heading machine, disks or carriers revolving upon independent axes and having rigid non-pivoted segmental jaws mounted upon their peripheries adapted to coincide successively as the disks rotate, a chute by which can-bodies are delivered successively into one of the sets of segmental jaws and carried thereby to the meeting-point of the two, chutes through which can-heads are delivered and head-carriers standing axially in line with the jaws in which the bodies are received, cams by which said head-carriers are advanced until the can-heads are placed against the ends of the body, and supplemental plungers movable within the head-carriers and contacting with the can-heads so as to retain them in position against the bodies while the head-carriers are withdrawn to allow the assembled parts to be removed.

10. In a can-heading machine, carriers independently journaled having segmental jaws around their peripheries, mechanism by which they are moved in unison so that said jaws coincide successively in pairs, a chute by which the can-bodies are delivered into one set of the segmental jaws, other chutes by which can-heads are delivered into cylindrical chambers approximately in line with the can-bodies, integral tubular sleeves axial with the chambers, guides within which they are slidable, and cams by which the sleeves and chambers are moved, plungers independently movable within the chambers, with stems extending axially through the sleeves of the chambers, guides against which the ends of the stems travel whereby the plungers retain the heads in contact with the bodies while the cylindrical chambers are withdrawn outwardly by the action of their cams.

11. In a can-heading apparatus, carriers mounted and revoluble with their peripheries meeting, segments carried upon said peripheries and mechanism by which they are successively brought together in pairs at their meeting-points, a chute by which can-bodies are delivered into the segments of one of the carriers, chutes through which unfinished heads are brought, and cylindrical chambers into which said heads are delivered from the chutes, approximately in line with the can-bodies, a supplemental segment-carrying disk rotating in such relation as to meet the segments of the body-receiving disk whereby the bodies are positioned therein, tubular sleeves axial with the cylindrical chambers and integral therewith, and cams by which said chambers are advanced toward each other, plungers fitting within the cylindrical chambers contacting with the can-heads and having stems extending through the sleeves of the chambers, and guides against which the outer ends of the stems travel; whereby the plungers maintain the heads in contact with the bodies while the cams withdraw the outer cylinders clear of the assembled parts.

12. In a can-heading machine or the like, mechanism including opposing series of jaws and revoluble segments adjacent to one of said series of jaws for positioning the can-bodies and also incomplete heads with relation to the ends of the bodies, head-carriers movable toward and from each other and having slidable plungers for holding the heads in place when the head-carriers are retracted, cams by which the head-carriers are retracted, and guides against which the stems of the plungers travel, whereby they retain the heads in contact with the bodies, and a stationary extractor over which the can-bodies are caused to pass by the revolution of the body-carrier, whereby the assembled parts are removed from the carrier.

13. In a can-heading machine or the like, mechanism including opposing series of jaws and revoluble segments adjacent to one of said series of jaws for placing and positioning the can-bodies and the unfinished heads with relation to each other, an extractor by which the cans are removed from the carrier, plates against which the can-heads contact when the can is removed from the carrier whereby they are retained in position, a rotary transfer device into which the assembled parts are received and by which they are delivered into the crimping device.

14. In a can-heading machine or the like, jaws mounted upon horizontally-rotating axes and adapted to receive and position the can-bodies and devices whereby the unfinished heads with divergent flanges are simultaneously placed in contact with the opposite ends of the can-body, an extractor by which the cans are removed from the jaws after the heads are placed, plates forming guides between which the heads pass and are retained in contact with the ends of the body, a transfer-wheel mounted between said plates and into which the assembled parts are received from the jaws and by which they are carried to the crimper and a crimper and mechanism by which the cans are carried therethrough, and the heads completed and crimped upon the bodies.

15. An apparatus for heading cans consisting of devices mounted upon horizontally-rotating axes for receiving and positioning the bodies and incomplete heads with relation to each other, head-carriers movable toward and from each other and plungers mounted therein whereby unfinished heads with divergent flanges are simultaneously placed in contact with opposite ends of the can-body, an independent crimper to secure the heads to the bodies, and means for transferring the assembled parts from the assembling device to the crimper.

16. An apparatus for heading cans consisting of devices mounted upon horizontally-rotating axes for receiving and positioning the bodies and incomplete heads with relation to each other, head-carriers movable toward and from each other and plungers mounted therein whereby unfinished heads with divergent flanges are simultaneously placed in contact with opposite ends of the can-body, an independent crimper by which the heads are finished and secured to the bodies, mechanism to transmit the assembled parts from the assembling to the crimping devices, and means for retaining the heads and bodies in their relative position during the transfer.

17. In an apparatus for heading cans, devices mounted upon horizontally-rotating axes and adapted to receive the bodies and unfinished heads and position them with relation to each other, head-carriers movable toward and from each other and plungers mounted therein whereby unfinished heads with divergent flanges are simultaneously placed in contact with opposite ends of the can-body, mechanism to transfer the cans from the preliminary part of the apparatus, and an independent crimper into which the can-bodies are delivered and the heads fixed thereto in a single continuous operation.

18. In an apparatus for heading cans, devices by which the can-bodies and unfinished heads are positioned with relation to each other, means for retaining the heads in contact with the can-bodies, an extractor by which the cans are removed from the primary carriers, a crimper, and a supplemental carrier by which the cans are transferred thereto, and end guides by which the heads are retained in contact with the ends of the body while being crimped thereon.

19. In an apparatus for heading cans, devices mounted upon horizontal axes and by which the cans and unfinished heads are positioned with relation to each other, chambered head-carriers movable in line with each other and means for retaining the heads in contact with the ends of the bodies, an extractor by which the cans are removed from the primary carrier, and an exterior circumferential guide by which the cans are retained in said carrier until they arrive at the extractor.

20. In an apparatus for assembling can-bodies and heads in position with relation to each other, carriers movable toward and from each other and adapted to receive the heads and hold them in line with the can-bodies, segmental flanges, the peripheries of which form an approximately-continuous circle, channels formed in said flanges into which the can-heads are received, and slots through which the heads pass successively to the carriers.

21. In an apparatus for assembling can-bodies and heads in position with relation to each other, body and head carriers standing axially in line and revoluble in unison, and means for supplying the parts to be assembled thereto, segmental flanges having an approximately-continuous curvature exterior to the head-carriers, circumferential channels in said segments in the plane of delivery of the head-carrying chutes whereby the heads are delivered successively and continuously to said channels, and slots opening from the channels into the carriers.

22. In can-making machinery and in combination, a rotary mechanism mounted upon horizontal axes for assembling can-bodies and can-heads loosely, but in proper relative positions, an independent crimping mechanism, means for transferring the loosely-assembled parts to the crimping mechanism, and means for holding said parts in relative position during the transfer.

23. In an apparatus for heading cans and in combination, a rotary mechanism for assembling can-bodies and can-heads loosely put in proper relative positions, an independent crimping mechanism, means for transferring the loosely-assembled parts from the assembling to the crimping mechanism at right angles with their longitudinal axes and means for holding said parts in relative position during the transfer.

24. In a machine for assembling can bodies and heads, the combination of opposing series of rigid and immovable jaws between which the can-bodies are received, and means for rotating the series of jaws in opposite directions.

25. In a machine for assembling can-bodies, oppositely-rotatable disks each provided with rigid, non-pivoted jaws, head-carriers movable in line with each other and revoluble in unison with one of said disks, and plungers axially mounted in the head-carriers for placing the heads upon the can-bodies.

26. In a can-machine, means for holding can-bodies, in combination with means for applying heads to said bodies consisting of chambered head-carriers movable toward and from each other, plungers mounted within the carriers and means for operating the plungers independent of the carriers.

27. In a machine for assembling can bodies and heads, two oppositely-rotating structures, each having a series of rigidly-attached jaws, in combination with means for applying can-heads to the can-bodies when supported by said jaws at their meeting-point.

28. In a can-heading machine, opposing rotary can-body carriers, in combination with a separate revolving can-head carrier, adapted to receive and carry a can-head, and means for moving said can-head carrier toward and from the said can-body carriers parallel with the axis of rotation.

29. In a can-heading machine, rotary structures having jaws to receive and partly surround can-bodies, in combination with a separate rotary structure with the same axis of rotation, and supporting a series of revolving carriers adapted to receive and carry can-heads, and means for moving said can-head carriers independently toward and from the can-body carriers.

642,682. DUMPING-WAGON. LE GRAND DODGE, Syracuse, N. Y. Filed May 2, 1899. Serial No. 715,379. (No model.)



Claim.—1. In a dumping-wagon, the combination with a frame and dumping-box sections pivoted to be tilted thereon, of a swinging bail across under said frame, a swinging tail-board across the rear end of the rear box-section and engaging therewith to close and support it, a lever, and a rod connecting it to said bail and tail-board whereby both are simultaneously operated to support both of said sections, or to release both to be tilted for dumping.

2. In a dumping-wagon, the combination with tilting box-sections and a dumping-lever operating them, of a swinging pawl upon said lever, and a record-wheel with which said pawl engages to shift it a fixed distance whenever said lever is thrown forward, after said sections have been tilted and dumped, to close them.

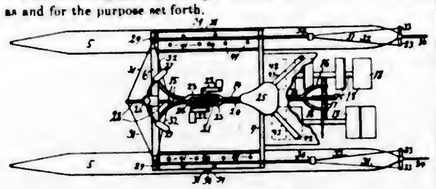
3. In a dumping-wagon, a rectangular frame, mounted upon wheels and provided with suitable hangers, and the two sections pivoted to said hangers and adapted to be tilted rearwardly, combined with a single rod 14, connected at its ends to the two sections, a connecting-rod 13, an operating-lever for both dumping and closing the sections, and means for locking the lever in position, substantially as set forth.

4. A rectangular frame provided with suitable hangers, the two box-sections journaled in said hangers, the connecting-rod 14 fastened at each of its ends to one of the box-sections, a dumping-rod, and a lever for dumping and returning the said box-sections to position, combined with a standard 9 mounted upon the rear end of the frame, a swinging tail-board which is adapted to engage with the rear end of the rear box-section, and a separate operating mechanism for opening and closing the tail-board, substantially as described.

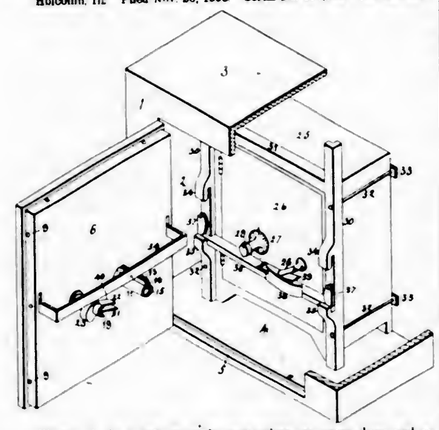
5. In a dumping-wagon, a rectangular frame provided with hangers, two box-sections journaled in said hangers, and adapted to be dumped backward, the connecting-rod 14 for connecting the box-sections together, a connecting rod and lever, and means for locking the lever in position, combined with a swinging bail, a swinging tail-board, and a rod 21 for connecting the bail and the tail-board, and a lever for operating the bail and tail-board simultaneously so that the two box-sections can be dumped, substantially as set forth.

642,688. WATER-BICYCLE. JOHN A. ERICKSON, Rush Point, Minn. Filed May 12, 1899. Serial No. 716,477. (No model.)

Claim.—In a device of the class described, the combination with the parallel elongated floats 5 and steering means for same, of the frames 6 and 9 securing the floats together and carrying the steering-handles and shaft and the seat 25, the braces 12 and hood 13 suspended from the frames 6 and 9, the longitudinal frame-bar 14, secured to the frames 6 and 9, and having the slot 24 and the forked rear end 16, extending rearwardly beyond the frame 9, the shaft 17 journaled in the said fork 16, and carrying inside the fork a chain-wheel secured to it, and at both ends paddle-wheels set with their paddles in alternate positions one to another; a pedal-shaft journaled in the framework and having at its middle secured on it the chain-wheel 21 in the slot 24, and an endless chain passing under and over the frame-bar 14, and connecting the two chain-wheels, substantially as and for the purpose set forth.



642,684. SAFE OR VAULT PROTECTION. CHARLES EYSTER, Holcomb, Ill. Filed Nov. 26, 1898. Serial No. 697,508. (No model.)



Claim.—1. In a safe or vault protection, an outer door and an inner door, each provided with a dial and knob, and a movable lever, the combination-lock of the inner door controlling the movements of both levers.

2. In a safe or vault protection, an outer door and a movable inner door each provided with a dial and knob and a movable lever, the combination-lock of the inner door controlling the movements of both levers.

3. In a safe or vault protection, an outer door and an inner door, each provided with a dial and knob, and a movable lever, the combination-lock of the inner door controlling the movements of both levers and the outer door having auxiliary locking means.

4. In a safe or vault protection, an outer door and an inner door, each provided with a dial and knob, the spindle of the knob of the outer door supporting a projection and the knob of the inner door having a peripheral lengthwise groove adapted to receive the projection.

5. In a safe or vault protection, an outer door and an inner door, each provided with a dial and knob, the spindle of the knob of the outer door supporting a pivoted projection and the knob of the inner door having a peripheral lengthwise groove adapted to receive the projection.

6. In a safe or vault protection, an outer door and an inner door, each provided with a dial and knob, the spindle of the knob of the outer door supporting a projection, and the knob of the inner door having a peripheral lengthwise groove adapted to receive the projection.

7. In a safe or vault protection, an outer door and an inner door, each provided with a lever, the lever of the door provided with a socket adapted to receive the lever of the door.

8. In a safe or vault protection, an outer door and an inner door, each provided with a bolt-throwing lever, the lever of the outer door provided with a socket adapted to receive the lever of the inner door, and a spring depressed by the locking movement of the lever of the inner door and adapted to limit the movement of the lever of the outer door when the lever of the inner door is withdrawn.

9. In a safe or vault protection, an outer door, and an inner door, each provided with a bolt-throwing lever and adapted to be operated in unison, and other securing means for the outer door operated by the movement of its bolt-throwing lever.

10. In a safe or vault protection, an outer door, and an inner door, each provided with bolt-throwing levers and adapted to be operated in unison, a bar extending across the face of the inner door, the lever of the outer door having an engagement with the bar.

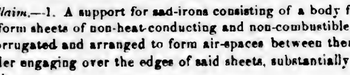
11. In a safe or vault protection, an outer door and an inner door, each provided with a bolt-throwing lever and adapted to be operated in unison, and a removable bar extending across the face of the inner door, the lever of the outer door having an engagement with the bar.

12. In a safe or vault protection, an outer door, a stationary support, a bail pivotally supported by the door and means for moving it into engagement with the stationary support by the locking movement of the outer door.

13. In a safe or vault protection, an outer door and an inner door, each having a bolt-throwing lever adapted to operate in unison, a bail pivotally supported by the outer door and movable into engagement with suitable catches by the movement of the lever of the outer door.

14. In a safe or vault protection, an outer door and an inner door, each provided with a dial-knob and a bolt-throwing lever, the combination mechanism of the inner door guarding the withdrawal of the bolts of both doors, a connection between the combination-knobs and a connection between the levers, said connections being made when the outer door is closed.

642,685. HOLDER FOR SAD-IRONS. JOHN W. FARLEY, Cleveland, Ohio. Filed Dec. 24, 1897. Renewed Nov. 29, 1899. Serial No. 738,727. (No model.)



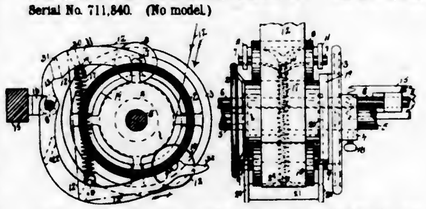
Claim.—1. A support for sad-irons consisting of a body formed of uniform sheets of non-heat-conducting and non-combustible material corrugated and arranged to form air-spaces between them, and a border engaging over the edges of said sheets, substantially as described.

2. The body of the holder consisting of non-combustible and non-heat-conducting material and having its sides formed with corrugations and a plain inside sheet connecting said sides, and a border-frame about said body, substantially as described.

3. A support for utensils and vessels having a body formed of two corrugated sheets arranged to form air-spaces between them, a plain sheet between said corrugated sheets, and a bottom covering of absorbent material outside said corrugated sheets, substantially as described.

4. A holder of the kind described, having a cellular body with corrugated surfaces on both sides, a flat absorbent outside cover over one side of said body, and a border-frame overlapped by said cover, substantially as described.

642,686. TAKE-UP FOR LOOMS. CHARLES FISCHER, WILLIAM E. FISCHER, and GEORGE F. KUETT, Paterson, N. J. Filed Apr. 5, 1899. Serial No. 711,840. (No model.)

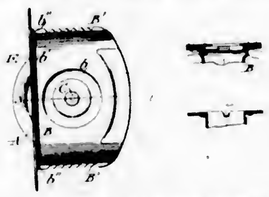


Claim.—1. In a yielding winding apparatus for looms, the combination of, the revolving shaft, a roller upon said shaft and hand-wheels attaching the roller to the shaft, the upper bracket, the lower bracket, the rollers 8 and 10, the cross-bars 30 and 21 on said brackets, which cooperate with the rollers in directing the course of the goods, the fulcrum-rod, and the spring connecting the brackets as and for the purpose set forth and described.

2. In a yielding winding apparatus, the combination of a shaft and roller thereon, with the upper and lower brackets each contain-

ing a roller in open bearings, the fulcrum-rod supporting the brackets, the spring, the rear projection 13 with the single open bearing, the cross-pieces 30 and 21 serving as a brace and a connection for the spring, and cooperating with the rollers in directing the course of the goods, the lower brackets having extensions serving as a handle, and as ways for the axle 9, and the hook 27 for securing the end of the goods as set forth and described in the annexed drawings and specification.

642,687. SASH-CORD GUIDE. WILLIAM R. FOX, Grand Rapids, Mich. Filed Feb. 23, 1898. Serial No. 671,325. (No model.)

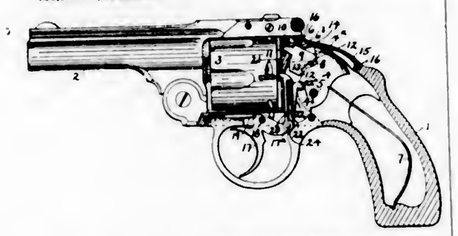


Claim.—1. In combination, the sections having inwardly-turned ends provided with abutting flanges, said flanges being cut away at the upper ends to form shoulders, beads carried by said sections in line with said shoulders, and a face-plate resting against said beads and shoulders, substantially as described.

2. In combination, the sections, beads near the upper edges thereof, the face-plate having an open center with a downwardly-struck edge resting against said beads, the upper edges of the sections being turned over against the downwardly-struck edge of the face-plate, and a second face-plate covering said first face-plate and overturned edge, substantially as described.

3. In combination the side sections having inwardly-turned edges provided with abutting flanges, said flanges being cut away near the top to provide shoulders, the face-plate encircling the upper edges of the sections and resting against said shoulders, and the pulley and axle, substantially as described.

642,688. SAFETY-LOCK MECHANISM FOR FIREARMS. ANDREW FYRBERG, Worcester, Mass. Filed Sept. 5, 1899. Serial No. 729,571. (No model.)



Claim.—1. In a firearm, in combination, a firing-pin confined in a recoil-block and having endwise motion and an up-and-down motion at the rear, a trigger-pawl unattached to said firing-pin and adapted to actuate the rear of the latter upward into the path of the stroke of the hammer at the instant it plunges forward, and resilient means for returning said firing-pin to its normal position within said recoil-block, substantially as set forth.

2. In a firearm, in combination, a firing-pin confined in a recoil-block and having endwise motion and an up-and-down motion at the rear, a stop arranged to limit the backward and downward movement of said firing-pin, a trigger-pawl unattached to said firing-pin and adapted to actuate the rear of the latter into the path of the stroke of the hammer at the instant it plunges forward, and resilient means for returning said firing-pin to its normal position against said stop, substantially as set forth.

3. In a firearm, in combination with an indented internal hammer having its striking-face normally bearing against the recoil-block, a spring-retracted firing-pin confined in said recoil-block and having endwise motion and an up-and-down motion at the rear, and a trigger-pawl unattached to said firing-pin and adapted to actuate the rear of the latter into the path of the stroke of said hammer at the instant it plunges forward, the firing-pin otherwise operating freely in the hammer indentation, substantially as set forth.

4. In a firearm, in combination with an indented internal hammer having its striking-face normally bearing against the recoil-block, a spring-retracted firing-pin confined in said recoil-block and having endwise motion and an up-and-down motion at the rear, a stop arranged to limit the backward-and-downward movement of said firing-pin, and a trigger-pawl unattached to said firing-pin and adapted to actuate the rear of the same into the path of the stroke of said hammer at the instant it plunges forward, the firing-pin otherwise operating freely in the hammer indentation, substantially as set forth.

5. In a firearm, the recoil-block portion of the frame provided with an opening small in front and vertically enlarged in the rear, having internal parallel sides; in combination with a firing-pin consisting of a flat body having a rounded forwardly-projecting nose supported in the small part of said opening, and rearwardly-extending ears, said flat body arranged to move up and down between said sides; a stop behind said body; a spring to retract and depress said firing-pin; and a trigger-pawl unattached to said firing-pin and adapted to rise beneath the rear end of the latter to elevate the same, substantially as described.

6. The combination, in a firearm, of an automatically retracting and oscillating firing-pin confined in a recoil-block, a stop behind the former, an indented internal hammer normally in contact with said recoil-block, a mainspring for the hammer, a pivoted trigger influenced by a trigger-spring, and a spring-actuated pawl adapted to operate said hammer and to actuate said firing-pin into the path of the stroke of said hammer at the instant the latter plunges forward, substantially as described.

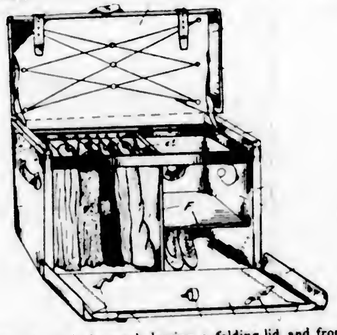
642,689. BAND-CUTTING KNIFE. BERRY GARLLUS, Westport, Wis. Filed Nov. 13, 1897. Serial No. 658,413. (No model.)



Claim.—In a band-cutting knife, the hook B, having grooves *b b*, and the hook D, the adjustable handle C, and the cutting-blade A, detachably engaging grooves *b b*, substantially as shown and described

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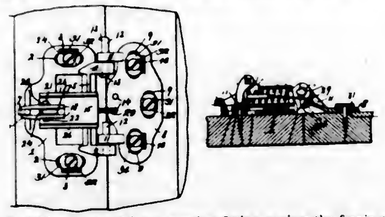
642,690. TRUNK OR CASE FOR WEARING-APPAREL. MARY GLOVER, Leicester, England. Filed July 30, 1898. Serial No. 687,313. (No model.)



Claim.—A wardrobe-trunk having a folding lid and front, the latter provided with flanges, the body formed of wicker-work covered on both sides with millboard and on the outside with leather and canvas, and on the inside with a suitable lining material, the back and ends riveted to a strengthening and carrying frame, and suspending devices fitted thereto, a removable tray fitting thereon, partition-wall and floor forming compartments; fastening-straps, substantially as described.

642,691. SPRING-HINGE. CHARLES W. HILLENBRAND, Kansas City, Kans., assignor to Nathaniel C. Barnes, same place. Filed Jan. 9, 1899. Serial No. 701,688. (No model.)

Claim.—1. A hinge, comprising a member provided at its upper and lower ends with horizontal slots, washers bearing against said member and engaging said slots, and screws extending through said washers and slots into the door-casing and clamping the washers firmly against said member, in combination with a second member provided with vertical slots, washers fitting in said slots and bearing against said member, clamping-screws extending through said washers and said slots into the door, and means for pivotally connecting or hinging said members together, substantially as described.

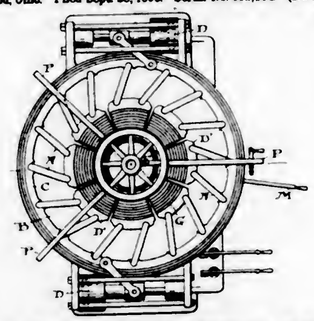


2. A hinge, comprising a member fitting against the frame of a door, provided with horizontal slots and with teeth or corrugations at their margins, washers projecting into said slots and provided with teeth or corrugations engaging those first named, screws extending through said washers and slots and clamping the former against said member, supporting-arms projecting from said member, and provided with vertically-alined passages or openings, and a second member secured to a door and provided with arms resting upon the supporting-arms, and with pins depending through the passages or openings of said supporting-arms, substantially as described.

3. In a hinge, the combination of a member secured to a door-casing, and a second member secured to a door and pivotally connected or hinged to the first member, with a casing hooked to the first member, an expansion-spring therein, a headed plunger therein and engaged by said spring, a hook connecting said plunger with the last-named member of the hinge, and a pin journaled in said casing, and provided with an arm bearing against the opposite side of said plunger, substantially as described.

4. In a hinge, the combination of a member secured to a door-casing, and a second member secured to a door and pivotally connected or hinged to the first member, with a casing hooked to the first-named member, an expansion-spring therein, a headed plunger therein and engaged by said spring, a hook connecting said plunger with the last-named member of the hinge, a pin journaled in said casing and provided with a squared head, and an arm rigidly mounted upon said pin and bearing against the head of said plunger in opposition to the pressure of said spring, substantially as described.

642,692. TIRE-SETTING MACHINE. EDWARD C. HOFFMAN, Cleveland, Ohio. Filed Sept. 23, 1898. Serial No. 692,104. (No model.)



Claim.—1. The tire-setting machine substantially as described having compressing mechanism, segments in concentric circles within said compressing mechanism and means to raise and lower some of said segments into and out of range of said compressing mechanism, substantially as described.

2. A tire-setting machine having compressing mechanism, and a series of concentric rings consisting each of segments to be interposed between said mechanism and the tire, and a support for said rings constructed and arranged to move them up and down into and out of range of said compressing mechanism, substantially as described.

3. A tire-setting machine having compressing mechanism, rings to directly engage the tire and means beneath the said rings to raise and lower the same into and out of range of said compressing mechanism, substantially as described.

4. The machine substantially as described, consisting of the series of movable parts arranged in concentric circles to engage the tire and mechanism beneath said movable parts constructed to raise the circular series one or more at a time, substantially as described.

5. A series of concentric segmental rings and means to raise one or more of said rings at a time, in combination with compressing mechanism to bear uniformly against the outside of said rings, substantially as described.

6. A series of rings consisting each of segments and arranged one within the other, means to raise one or more rings at a time and a series of shoes to press uniformly against said raised rings, substantially as described.

7. The series of sectional concentric rings arranged one behind the other and means to raise and lower the same comprising movable engaging plates constructed to lift one or more of said plates and leave the others, in combination with lift mechanism for said plates and rings, substantially as described.

8. The series of concentric rings formed of segments, and tongues and recesses in the ends of said segments and dowel-pins and springs above and below said tongues and recesses, in combination with tire-compressing mechanism to bear against said rings, substantially as described.

9. The series of segmental sectional rings, movable plates arranged to engage one or more rings at a time, and guideways on which said plates are adapted to slide, in combination with compression mechanism, substantially as described.

10. A series of segmental concentric rings, a fixed supporting-base for the rings, a movable spider and movable plates thereon to raise one or more of the rings at a time, substantially as described.

11. The ring-supporting base and the concentric rings thereon, in combination with an armed member constructed and arranged to raise said rings from their base, and interposed movable parts to directly engage one or more of said rings, substantially as described.

12. The concentric segmental rings and the movable parts to engage and raise them, in combination with an armed member in which said movable parts are adapted to slide, and means to move said parts back and forth in said arms, substantially as described.

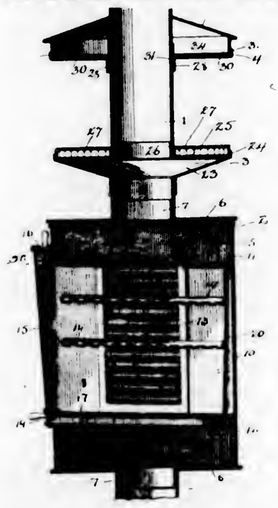
13. In a tire-setting machine, the combination of the vertically-movable concentric rings, lift mechanism to engage and raise one or more rings at a time, and means to center the wheel, substantially as described.

14. The spider for raising the rings having channels in its top, movable plates in said channels, means to move said plates simultaneously back and forth and springs behind said plates, substantially as described.

15. The concentric segmental rings loosely connected at their ends, means to determine the number of rings to be used at any time and means to raise said rings, substantially as described.

16. The concentric segmental rings and means to raise and lower the same, in combination with wheel-centering gage-arms and mechanism, substantially as described.

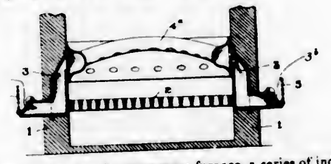
642,693. FRUIT-EVAPORATOR. JOSEPH H. HOLLAND, Centreton, Canada. Filed Feb. 23, 1899. Serial No. 706,551. (No model.)



Claim.—1. An evaporator comprising a casing; an evaporating-chamber located within said casing; flues formed on opposite sides of said evaporating-chamber, said flues having a casing common inlet and outlet to and from said casing; a sinuous passage-way formed at the bottom of said chamber and independent thereof, said passage-way having its front end connected to the outer air, and having its inner end connected to said chamber; a door from said chamber; a slide-door mounted in said door, in juxtaposition to said sinuous passage-way, said slide-door allowing of a regulating of the amount of air passed into said chamber; and a hinged door secured to the top of said door to allow of the escape of the steam formed in said chamber during evaporization, substantially as described

2. An evaporator comprising a casing, an evaporating-chamber located within said casing, said chamber being formed at an upward inclination toward the front of said casing; flues formed on opposite sides of said evaporating-chamber, said flues having a common inlet and outlet to and from said casing; a sinuous passage-way formed at the bottom of said chamber and independent thereof, said passage-way having its front end connected to the outer air and having its inner end connected to said chamber; a door for said chamber; a slide mounted in said door in juxtaposition to said sinuous passage-way, said slide-door allowing of a regulating of the amount of air passed into said chamber; and a hinged door secured to the top of said door to allow of the escape of the steam formed in said chamber during evaporization, substantially as described.

642,694. **FURNACE.** JAMES B HOWARD, Columbus, Ohio. Filed July 3, 1899. Serial No. 722,625. (No model.)



Claim.—1. In a smoke-consuming furnace, a series of independent air-heating ducts 3 and 3^a arranged alternately side by side on each side of the fire-chamber and forming a part of the inner vertical wall thereof at the fire-chamber, movable covers for the inlet ends of said ducts, the ducts 3 having air-heating chambers 4 that bulge or project inwardly over the fire-bed and have air outlets or openings at their under sides only, and tubular arches 4^a spanning the fire-bed and connecting the ducts 3^a and having air-openings at their under sides only, substantially as shown and described.

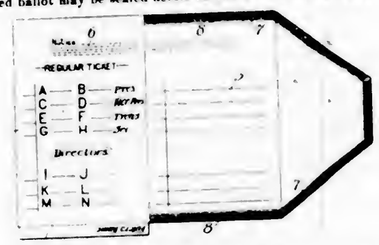
2. In a smoke-consuming furnace, a series of independent air-heating ducts 3 and 3^a arranged alternately side by side and forming a part of the inner vertical walls thereof at the fire-chamber, movable covers for the inlet ends of said ducts, the ducts 3 having air-heating chambers that bulge or project inwardly over the fire-bed and have air outlets or openings at their under sides only, and tubular arches spanning the fire-bed and connecting the ducts 3^a and having air-openings at their under sides only increasing in size from the ends of the arches to the middle thereof, substantially as shown and described

3. In a smoke-consuming furnace, a series of independent air-heating ducts 3 and 3^a arranged alternately side by side on each side of the fire-chamber and forming a part of the inner vertical walls thereof at the fire-chamber, movable covers for the inlet ends of said ducts 3, the ducts 3 having air-heating chambers that bulge or project inwardly over the fire-bed and have outlets or openings at their under sides only, and tubular arches 4^a spanning the fire-bed and connecting the ducts 3^a and having air-openings at their under sides only, and air-heating chambers substantially like the chambers 4 across the bridge-wall of the furnace having air-ducts also with movable covers at their inlet ends, substantially as shown and described.

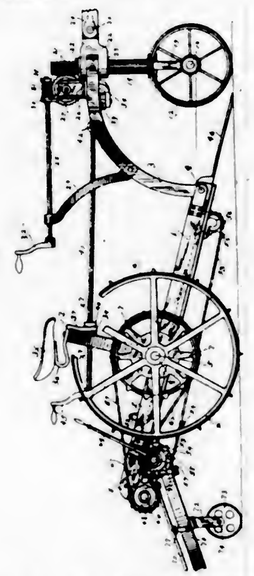
4. In a smoke-consuming furnace a series of independent air-heating ducts 3 and 3^a having contracted openings at their outlet ends arranged alternately side by side on each side of the fire-chamber and forming a part of the inner vertical walls thereof at the fire-chamber, movable covers for the inlet ends of said ducts, the ducts 5 having air-heating chambers 4 that bulge or project inwardly over the fire-bed and have air outlets or openings at their under sides only, and tubular arches 4^a spanning the fire-bed and connecting the ducts 3^a and having air-openings at their under sides only substantially as shown and described.

642,695. **SECRET BALLOT.** GABRIEL P. B. HOYT, New York, N. Y. Filed Aug. 28, 1899. Serial No. 728,669. (No model.)

Claim.—As an article of manufacture, a secret ballot consisting of a folder bearing on its inside the substance of the ballot and having a projecting stub for the voter's name, said folder being gummed at each end and having a flap gummed about its edge whereby the folded ballot may be sealed across its ends and at its free edge.



642,696. **POTATO-DIGGER.** JOHN R. HUMPHREY, Elk River, Minn., assignor of one-half to John A. Cranston, same place. Filed July 26, 1898. Serial No. 686,902. (No model.)



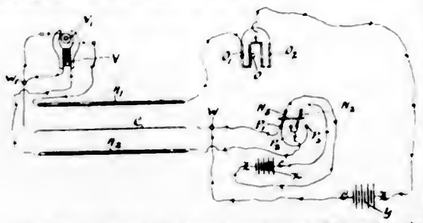
Claim.—1. In a potato-digger, the combination with a pair of frame-sections pivotally connected for a toggle-joint action, of truck-wheels supporting each of said sections, an unearthing-shovel fixed to one of said sections, and a tension-rod swiveled to one of said sections and having screw-threaded engagement with a part carried by the other section, substantially as and for the purposes set forth.

2. In a potato-digger, the combination with the parallel side bars 1, tied together by the yoke 2, of the pronged frame-section 3, pivoted to said bars 1, at 4, the nut-block 39 fixed against rotation, but otherwise loosely mounted in the upper portion of the yoke 2, and the tension-rod 41 swiveled to said section 3, having screw-threaded engagement with said nut-block 39 and provided with the hand-crank 45, by means of which it may be turned, substantially as described.

642,697. **ELECTRICAL TRACK FOR RECEPTACLES.** CHARLES HUTCHINSON, Arlington, N. J. Filed Nov. 14, 1898. Serial No. 696,381. (No model.)

Claim.—1. The combination in an electric conveyance of the motor, the wire conductor, the rails and contact-strip, current-reversing means operated at any desired point of the track for the purposes set forth substantially as it is described.

2. The combination in an electric conveyance of the motor, the wire conductor, the rails and contact-strip and the wheels of a mounted receptacle, current-reversing means attached to the rails, means for operating the receptacle and controlling the reversing means for the purposes set forth substantially as described.



3. The combination in an electric conveyance of the motor, the wire conductor, the rails and contact-strip and the wheels of a mounted receptacle, current starting and reversing means connecting the wire conductor with the rails and contact-strip and having a controller attached, safety-levers pivoted to the rails cooperating with the wheels mounting the receptacle as and for the purposes described.

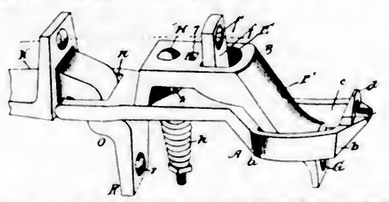
4. The combination in an electric conveyance of a receptacle mounted on wheels, a pair of rails and a contact-strip located intermediate said rails mounted on isolating-plates, current-reversing means furnished comprising an electric circuit having contact-springs and a pole-changing switch, batteries creating and circulating said electric current for the purposes set forth substantially as it is illustrated and described.

5. The combination of a body mounted on wheels with the rails supporting said wheels, an electric current created by means of a field and armature battery and transmitted by a wire conductor to a motor attached to the said body, gearing means operating intermediate the wheels and the motor, brushes secured to the body and contacting with the rails and an isolated strip, contact-springs and a pole-changing switch attached to the wire conductor substantially as it is described.

6. The combination of a receptacle mounted on wheels, rails and a contact-strip mounted on isolating-plates, brushes secured to the receptacle contacting with the rails and the contact-strip, a wire conductor having a pole-changing switch and contact-springs attached connected with a field and armature battery, manipulating means secured to the rails having said pole-changing switch attached thereto and operating the contact-springs for the purposes set forth substantially as described.

7. The combination in an electric conveyance of a cash receptacle mounted on wheels, a pair of rails having a groove on the under side, a metal contact-strip located intermediate the rails, insulators placed at adequate distances having the rails and strip attached thereto, a manipulating-rod pivoted to the rails, levers pivoted in the rails having the manipulating-rod pivotally secured to them, means attached to said levers for shutting off the electric current, an electric wire conductor having contact-springs and a pole-changing switch attached connecting an armature and a field-battery suitably with the motor on the cash-receptacle substantially as it is illustrated and described.

642,698. **CORD-TENSION DEVICE.** BENJAMIN F. IVERSON, Chicago, Ill. Filed Nov. 19, 1898. Serial No. 696,928. (No model.)



Claim.—1. In a cord-tension device two longitudinally-arranged jaws, one of which is pivotally connected to the other, has an elongated opening near its center of length, and has an eye in its free end beyond the point where it normally bears against the other jaw, which latter is provided with a lug that projects through said elongated opening which has an eye in the end thereof.

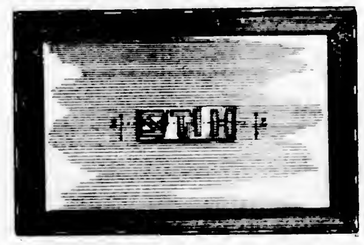
2. In a cord-tension device a jaw having an opening through its free end, and provided with a lug projecting therefrom at about its center of length that has an eye in its end, in combination with a companion jaw having a bent end that is pivoted to the other jaw, has an elongated opening therein through which said lug extends, and has its end extend through the opening in the end of the other jaw and provided with an eye beyond the adjacent point of contact of said jaws, as and for the purpose set forth.

3. In a cord-tension device a jaw A having an opening through its free end, and provided with a lug projecting at right angles therefrom at about its center of length that has an eye in its end, and also provided with bolt-holes back of said lug, in combination with a jaw B having its rear end bent toward and pivotally connected to the rear portion of jaw A; having an elongated opening therein through which said lug projects; having its free end extend through the opening in the free end of jaw A and provided with an eye therein, and also provided with bolt-holes alining with the bolt-holes in jaw A, a bolt, a coil-spring, and a suitable nut.

4. In a cord-tension device two longitudinally-arranged jaws one of which has an opening in its rear end, and the other of which is suitably pivoted thereto near said opening, in combination with a bracket consisting of a suitable supporting-plate and an arm projecting therefrom first in a direction at about forty-five degrees during the extent of which it describes a double reversed curve so as to provide a shoulder *x*, and then straight in a direction parallel to its support.

5. In a cord-tension device a jaw A, the rear half of which is straight, having a suitable socket H and bolt-holes *k* therethrough; having the central portion thereof inclined downward, and the free end portion *b* extending in a slight upwardly-inclined plane from the lower end of said inclined central portion and having the opening *c* therein; said jaw having a lug *f* projecting vertically therefrom, which has an eye *f'* in its upper end and having a gutter connecting the edge of said opening *c* and its extremity, in combination with a jaw B having its rear end downturned and provided with a pivotal pin which articulates in said socket, and being so bent that it arches over said jaw A from its pivotal point to the edge of the opening in the free and end portion of said jaw A through which its free end extends which latter is provided with a suitable eye beyond the adjacent point of contact; said jaw B being provided with bolt-holes 7 alining with those, *k*, in the other jaw, and provided with a longitudinally-elongated opening E up through which said lug *f* projects, a bolt H a coil-spring A through which said bolt extends, and a retaining-nut *m*, as and for the purpose set forth.

642,699. **SELF-LABELING BAKER.** CHRISTIAN KESSLER, Indianapolis, Ind. Filed Oct. 2, 1899. Serial No. 732,377. (No model.)



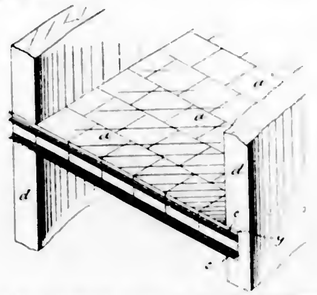
Claim.—A self-labeling baker embodying in its construction a means of producing labels upon the loaves baked therein, consisting of a plate having openings cut therein of the form of the letters or characters constituting the inscription, which plate thus forms a bordering around the letters and impresses itself into the loaves and constitutes an additional thickness for the pan at the point where applied, thereby protecting the adjacent portions of the bread being baked from heat to a degree, and causing the letters or characters constituting the inscription to be surrounded by a lighter-colored border when the loaf has been baked, substantially as set forth.

642,700. **FIREPROOF FLOOR AND CEILING.** GUSTAV LIEBAU, Maurer, N. J. Filed Nov. 3, 1898. Serial No. 695,366. (No model.)

Claim.—1. In a floor or ceiling the combination with suitable end supports, of bricks or tiles having formed in their adjoining faces coinciding grooves, forming channels substantially above and below the center thereof and in the same vertical plane, and within the boundary of the said tiles or bricks, and metallic rods or strips located within the channels formed by the said coinciding grooves, whereby the said tiles or bricks are locked together at a point both above and below their center, substantially as and for the purposes set forth.

2. In a floor or ceiling the combination with suitable end supports, of bricks or tiles, having formed in their adjoining faces coinciding grooves forming channels one above and one below the center thereof, and a metallic T-iron located within the upper channel, and an inverted-T iron located within the lower channel and in the same

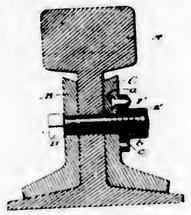
vertical plane as the upper T-iron, thereby forming in effect I-beams between the adjoining courses of bricks or tiles, substantially as and for the purposes set forth.



3. In a floor or ceiling, the combination with supporting or end walls, of bricks or tiles having a plurality of appropriately-shaped side grooves, coinciding with opposite grooves in the bricks or tiles of the next course, and T-iron strips, the lower of which are inverted, located within the channels thus formed in the same vertical plane, substantially as described.

4. In a floor or ceiling, the combination with supporting or end walls, of bricks or tiles having a plurality of appropriately-shaped side grooves in each side coinciding with the opposite grooves in the bricks or tiles of the next course, and a metal tie rod or strip located within each of said channels thus formed, substantially as described.

642,701. NUT-LOCK. DAVID E. LLEWELLYN, Beckley, W. Va. Filed June 16, 1899. Serial No. 720,833. (No model.)



Claim.—1. In a nut-lock, the combination of two or more elements to be connected, one of which is provided in its face with a depression having a contracted outer portion, a threaded bolt extending through apertures in the elements, a nut mounted on the bolt and having an aperture coincident with the contracted outer portion of the depression in the element, and a rivet passed through the aperture of the nut and into the depression of the element and having its inner end upset or enlarged in the latter, substantially as specified.

2. In a nut-lock, the combination of a railway-rail, angle-plates disposed at opposite sides of the web of the same; one of said plates having a longitudinal groove of dovetail form in cross-section in its outer side a threaded bolt passed through registered apertures of the rail and plates, a nut mounted on said bolt and having a peripheral flange provided with a plurality of transverse apertures adapted to register with the groove of the angle-plate, and a rivet passed through one of the apertures of the nut and into the groove of the angle-plate and having its inner end upset and enlarged in the latter, substantially as specified.

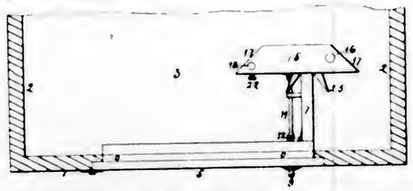
3. In a nut-lock, the combination of two or more elements to be connected, one of which is provided in its face with a longitudinal groove of dovetail form in cross-section, a threaded bolt extending through apertures in the elements, a nut mounted on the bolt and having an aperture coincident with the outer contracted portion of the groove in the element, and a rivet passed through the aperture of the nut and into the groove in the element and having its inner end upset or enlarged in the latter, substantially as specified

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642,702. VAULT. FRED I. LOSE, Sycamore, Ill. Filed Apr. 17, 1899. Serial No. 713,341. (No model.)

Claim.—1. In a vault, the combination of a door, a support independent of the door, a connection between the door and support and a combination-lock carried by the support controlling the movement of the connection.

2. In a vault, the combination of a door, a movable support independent of the door, a connection between the door and support and a combination-lock carried by the support controlling the movement of the connection.



3. In a vault, the combination of a door, a pivotal support independent of the door, means for locking the support against movement, and a linked connection between the door and support.

4. In a vault, the combination of a door, a support independent of the door, the door-supporting arms, and means for locking the arms in connection with the support.

5. In a vault, the combination of a door, a support independent of the door, arms connected with the door, means for locking the arms in connection with the support, and a combination-lock controlling the locking-arms.

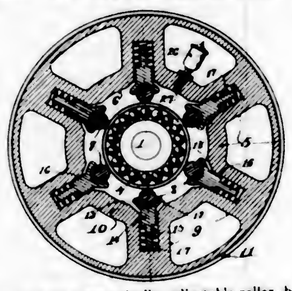
642,703. BOX FOR STAMPS, TICKETS, &c. BENJAMIN MATHIS, Chicago, Ill. Filed Apr. 22, 1899. Serial No. 714,127. (No model.)



Claim.—1. The combination with a box provided with a discharge-slit and with an open slot in its top for the finger to engage the stamps, of a guiding-lip situated opposite and extending across the open slot and less in width than the slot; whereby the lip serves the double function of a stop for the stamps and as a means for guiding the stamps through the slit.

2. The improved box comprising a top and bottom, two side walls and rear and front end walls with a discharge-slit between the top and front wall, the said top being formed with an open slot communicating with the discharge-slit and the said front wall being provided with a guiding-lip extending upward transversely across the discharge-slit and less in width than the open slot, substantially as described.

642,704. ROLLER-BEARING CAR-WHEEL. JOHN J. A. MILLER, Denver, Colo. Filed July 26, 1899. Serial No. 725,156. (No model.)



Claim.—1. In an automatically-adjustable roller-bearing car-wheel, the combination with the axle, of a disk mounted thereon, a ball-bearing at each side of said disk, a tread-rim surrounding said disk, a plurality of rollers arranged to run around the periphery of said disk and between it and said rim bearing-blocks adapted to form journals for said rollers, extending radially into said rim, a spring arranged between said bearing blocks and rim adapted to hold said rollers resiliently against said disk, and a plate secured to each side of said rim and arranged and adapted to form a part of the ball-bearing at each side of said disk, substantially as described.

2. In an automatically-adjustable roller-bearing car-wheel, the combination with the axle, of a disk secured thereto, a rim surrounding said disk, a plurality of holes radiating into said rim, bearing-blocks fitting slidably into said holes and arranged to stand axially

with said axle, rollers journaled in said bearing-blocks, an expansive spring in each of said holes arranged to exert a continuous pressure against said bearing-blocks and to hold said rollers resiliently against the periphery of said disk, and a plate secured to each side of said tread-rim and over the sides of said disk, substantially as described.

3. In an automatically-adjustable roller car-wheel the combination with the axle, of the disk and axle, with the tread-rim, the roller bearing on the periphery of said disk, the ball-bearings at the side of said disk, the side plates and the abutment-collars and dust-washers on said axle bearing against said side plates, substantially as described.

4. In an automatically-adjustable roller-bearing car-wheel, the combination with the axle and the disk, of the tread-rim concentrically surrounding said disk, the rollers journaled in said tread-rim and arranged and adapted to resiliently bear on and roll around the periphery of said disk, and a plate secured to each side of said tread-rim and extending over the side of said disk adapted to hold said disk and tread-rim in alinement and against independent lateral movement, substantially as described.

5. In an automatically-adjustable roller-bearing car-wheel, the combination with the axle and the disk, of the tread-rim concentrically surrounding said disk, the rollers journaled in said tread-rim and arranged and adapted to resiliently bear on and roll around the periphery of said disk, and a plate secured to each side of said tread-rim and extending over the side of said disk adapted to hold said disk and tread-rim in alinement and against independent lateral movement and a ball-bearing on each side of said disk formed partially between said disk and said plates, substantially as described.

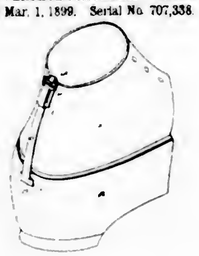
6. In an automatically-adjustable roller-bearing car-wheel, the combination with the axle and the disk, of the tread-rim concentrically surrounding said disk, the rollers journaled in said tread-rim and arranged and adapted to resiliently bear on and roll around the periphery of said disk, and a plate secured to each side of said tread-rim and extending over the side of said disk adapted to hold said disk and tread-rim in alinement and against independent lateral movement, with a ball-bearing formed on each side of said disk, formed partially in said disk and partially in said plates, and a collar on each side of said disk secured to said axle and arranged to bear against said plates, substantially as described.

7. In an automatically adjustable roller-bearing car-wheel, the combination with the axle and the disk, of the tread-rim concentrically surrounding said disk, the rollers journaled in said tread-rim and arranged and adapted to resiliently bear on and roll around the periphery of said disk, and a plate secured to each side of said tread-rim and extending over the side of said disk adapted to hold said disk and tread-rim in alinement and against independent lateral movement, with a ball-bearing formed on each side of said disk, formed partially in said disk and partially in said plates, a collar on each side of said disk secured to said axle and arranged to bear against said plates and a dust-washer between said collars and said plates, substantially as described.

8. In a roller-bearing car-wheel, the combination with the axle, of a disk secured thereto, a tread-rim containing spokes mounted on rollers arranged to bear resiliently on the periphery of said disk, a circular row of balls on each side of said disk, a raceway for said balls to run in, plates secured to each side of said tread-rim and covering said disk, a raceway in each plate adapted to fit over said balls, a collar on said axle on the outside of each plate, and a friction-washer or dust-guard between said collars and said plates, and means including an oil-cup secured to said tread-rim for oiling said roller and ball bearings, substantially as described.

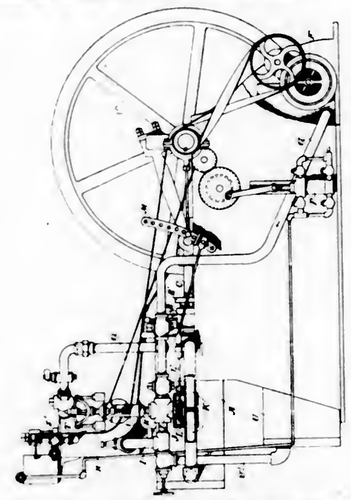
9. In a roller-bearing car-wheel, the combination of the axle and the disk with the tread-rim, the rollers between said disk and tread-rim, the side plates, the ball-bearings between said disk and side plates and the abutment-collars on said axle, substantially as described.

642,705. OVERSHOE-FASTENER. JOHN F. MCCARTHY, Saltsburg, Pa. Filed Mar. 1, 1899. Serial No. 707,338. (No model.)



Claim.—An overshoe-fastener consisting of an elastic cord or band, a fastening-plate provided with a pair of oblong slots one above the other adapted to receive the upper end of the said band, a barb formed integral with the lower edge of the said fastening-plate for securing the said cord or band in position, a hook suitably connected to the said fastening-plate adapted to engage the upper edge of a shoe for supporting the said plate and cord or band, means formed integral with the said plate at the top of one side thereof for retaining the free end of said band, and a connecting-plate connected to the lower end of the said cord or band and secured to an overshoe for securing the same in position, substantially as described.

642,706. GAS-ENGINE. ANTONIO L. NAVONE, Calistoga, Cal. Filed July 5, 1898. Serial No. 685,082. (No model.)



Claim.—1. In a gas-engine, a cylinder closed at both ends and having a piston, piston-rod and connections by which the piston is reciprocated from end to end of the cylinder, a centrally-located exhaust-port, gas-supply passages opening into each end of the cylinder with inwardly-opening spring-closed puppet-valves, pipes connecting said openings and valves with a centrally-disposed slide-valve, a carbureter with pipe connecting it with the slide-valve chamber, and means for reciprocating the valve so as to alternately admit the explosive gas to the opposite ends of the cylinder at the instant when the piston has passed the exhaust-port to allow the waste products of a former explosion to escape.

2. In a gas-engine, a cylinder closed at both ends, a piston reciprocable therein with piston-rod and crank connections, a centrally-disposed exhaust-port so located that the piston passes beyond it at the completion of each stroke to allow the exhaust of waste products of combustion, inlet-passages with controlling outwardly-closable puppet-valves at each end of the cylinder, a slide-valve and chamber with pipes connecting it with said passages, a generator for explosive gases and a pipe connecting said generator with the slide-valve chamber, and a second pipe connecting with the valve chamber and supplying air thereto, whereby the proportions of the explosive mixture may be varied.

3. In a gas-engine, a cylinder closed at both ends, a piston reciprocable therein with piston-rod and exterior crank connections, inlet-openings and inwardly-opening puppet-valves at each end of the cylinder, a slide-valve, passages controlled thereby connecting with said inlet-openings, a generator, with means for supplying a hydrocarbon liquid thereto, and means for vaporizing the same, and a pipe connecting the generator with the slide-valve chamber, an air-forcing mechanism, a pipe leading therefrom to the generator and a branch leading to the slide-valve chamber with cocks whereby the supply through either branch may be varied.

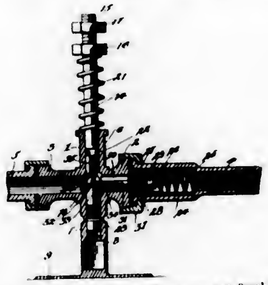
4. In a gas-engine, a cylinder closed at both ends, a piston reciprocable therein, valve-controlled inlet-passages near the ends of the cylinder and a central exhaust-passage beyond which the piston passes at the completion of each stroke to allow the escape of the products of combustion, a slide-valve movable in a valve-chamber, and passages controlled thereby connecting with the inlet-openings at the ends of the cylinder, a generator, means for supplying hydrocarbon liquid

thereto and vaporizing the same, a branch air pipe with controlling-valves, one portion connecting with the generator and the other directly with a slide-valve chamber, a blast apparatus by which air is forced through said pipes and alternately into opposite ends of the cylinder at the completion of each stroke, a valve-controlled supply from which hydrocarbon liquid is delivered to the generator, a governor actuated by the engine and connections by which the liquid-supply to the generator, and the gas-supply to the engine, are simultaneously controlled.

5. In a gas-engine, a cylinder closed at each end, a piston reciprocable therein, valve-controlled ports at each end of the cylinder, an intermediate valve-chamber and passages connecting it with said ports and a controlling slide-valve, a generator with means for supplying hydrocarbon liquid and vaporizing the same, a pipe having valve-controlled branches, one of which leads directly to the generator, and thence to the slide-valve chamber, and the other directly to the valve-chamber itself, and an air-forcing mechanism connecting with said pipe whereby the explosive vapor and air are forced through the valve-ports and connecting-passages when opened so as to charge the cylinder by direct pressure at the instant of the opening of the exhaust-passage.

6. In a gas-engine, a cylinder closed at both ends, a piston reciprocable therein, valve-controlled inlet-passages near the ends of the cylinder and a central open exhaust-passage, a slide-valve chamber with air and explosive-gas connections, pipes leading therefrom to the cylinder, inlet-passages, a reservoir adapted to contain a body of air under pressure, a pipe connecting it with the slide-valve chamber, controlling-cocks by which the gas-supply passage may be cut off and the air under pressure admitted to start the engine, and to cut off the air-supply and admit the gas after the engine has been started.

642,707. **SELF-CLOSING CLOSET-VALVE.** HORACE F. NEUMEYER, Macungie, Pa. Filed Nov. 9, 1899. Serial No. 736,388. (No model.)



Claim.—1. In a device of the character set forth, the combination of a body having supply, discharge and waste pipes, a plunger movable in the said body and having a valve to control the supply-pipe, a valve-stem having a groove directly formed therein and adapted to be arranged in communication with the discharge-pipe, said valve-stem operating the plunger, a washer on the stem at the upper extremity of the groove, and means for automatically returning the plunger to closed position and the valve-stem to normal elevated position and thereby set up a passage between the discharge-pipe and the waste-pipe, the plunger being in continual contact with the valve-stem and opened by the downward movement of the latter.

2. In a device of the character set forth, the combination of a body having inlet and outlet pipes, and a waste-pipe, a stem movably mounted in said body and having a groove to set up communication between the outlet-pipe and the waste-pipe, a valve operated by the movement of the said stem and disposed in a plane at right angles to the latter, and means for operating the said valve to close the inlet-pipe and restore the stem to normal position.

3. In a device of the character set forth, the combination of a body having inlet and outlet pipes, and a waste-pipe apart therefrom, a movable valve-stem adapted to establish communication between the outlet-pipe and the waste-pipe, means for adjusting said stem to vary its movement, a valve in connection with the inlet-pipe and adapted to be moved by the said stem in a plane at right angles to the latter, and means for restoring the said valve to closed position and the stem to normal position.

4. In a device of the character set forth, the combination of a body having an inlet, outlet, upper neck, and lower tubular standard, the upper neck having a waste-pipe communicating therewith and the standard having a chamber in the lower portion of the same, a plunger-valve movably mounted in relation to the inlet-pipe and having a normal horizontal position, a stem movably disposed in the neck and standard and adapted to shift in a plane at right angles to the movement of the said plunger-valve and to contact with and operate the latter, said stem having a groove therein to set up communication between the outlet-pipe and the waste-pipe and also provided with self-packing water-grooves, a cup-washer on the stem to cooperate with the waste-outlet, and means for returning the plunger-valve and stem to normal position.

5. In a device of the character set forth, the combination of a body having an inlet, an outlet and a waste connection, a valve for controlling the said inlet connection, a valve-stem movable in a plane at right angles to the valve and having a cam-groove to operate the latter to open the said valve, said stem also having an opposite groove for establishing communication between the outlet-pipe and the waste-pipe, a washer on the stem for cooperating with the outlet to the waste connection, and means for returning the valve and valve-stem to their normal positions.

642,708. **PROJECTILE.** GEORGE H. NEWELL, Grand Rapids, Mich. Filed Mar. 16, 1899. Serial No. 709,244. (No model.)



Claim.—1. In a projectile, a cylindrical body of soft metal having a reduced forward portion, a covering adapted to yield and fill the grooves of the gun-barrel, and an unyielding cap of hard metal covering said reduced forward end and adapted to engage and run freely on the inner bore or lands of the gun-barrel, substantially as described.

2. A projectile of soft metal having a cylindrical rear portion, a reduced, and rounded front portion, a yielding covering surrounding the rear portion and the reduced portion, and an unyielding cap covering the rounded front portion, the reduced portion, and the forward portion of the yielding covering, substantially as described.

3. In a projectile, the combination of a soft-metal body having a reduced forward end, a yielding patch of porous material surrounding said body, and an unyielding cap covering said reduced forward end and the forward end of the patch and adapted to engage and run freely on the inner bore or lands of the gun-barrel, substantially as described.

4. In a projectile, the combination of a soft-metal body having a reduced forward end, a yielding winding of wire or cord surrounding the said body, an unyielding cap covering the said reduced forward end of the projectile and the forward end of the winding and adapted to engage and run freely on the inner bore or lands of the gun-barrel, substantially as described.

5. In a projectile, the combination of a soft-metal body having a reduced and rounded forward end, a patch of porous material surrounding said body and the reduced portion thereof, a wire wound outside the patch, and a cap covering the forward rounded and reduced end thereof and extending over the forward end of the patch and winding, substantially as described.

6. In a projectile, the combination of a soft-metal body having a cylindrical rear portion, a tapered portion, a reduced cylindrical portion, and a rounded forward end, a patch of porous material surrounding the rear cylindrical portion, the tapered portion, and the reduced portion, a wire or cord wound spirally around the patch, and a cap of hard and unyielding material covering the rounded front end and the reduced cylindrical portion of the body, and the forward end of the patch and wire or cord, and securing the same in place, substantially as described.

642,709. **PIPE-WRENCH.** OTTO OTTESON and MARTIN OTTESON, Menomonee Falls, Wis. Filed Feb. 3, 1899. Serial No. 704,381. (No model.)



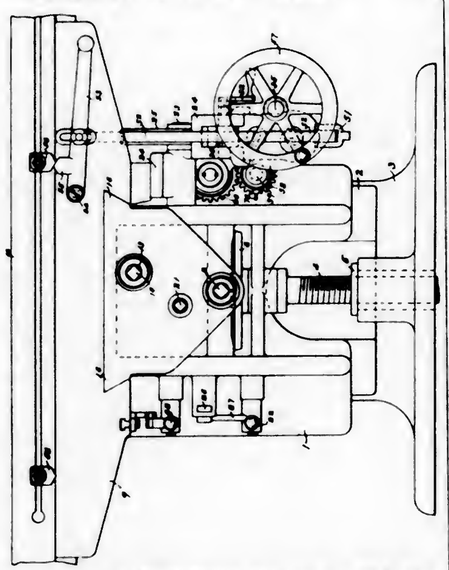
Claim.—The combination of the stock having a forward under side notch and a partly-depending rigid jaw adjacent to the notch provided with a rear recess, a slide on the stock provided with a pair of upper ears and a lower lug having a tapped aperture, a screw engaging the lug-aperture, a head on the screw engaging the stock-notch, a center stud on the screw-head engaging the jaw-recess, another jaw having a shank in pivotal connection with the slide-ears, the rear end of this shank being narrowed back of said ears, and a spiral spring under tension between said slide and narrow end of said shank.

642,710. **ADJUSTABLE CLIP FOR BICYCLES.** CHARLES J. PALMER, Cleveland, Ohio. Filed Oct. 5, 1898. Serial No. 692,678. (No model.)



Claim.—The combination with a bicycle-post, formed with a flattened head having a circular periphery provided with gear-teeth, and provided with circular bearings below said flattened portion, of an adjustable block adapted to be secured to a bicycle attachment, pivoted to rotate on said head, and provided with depending ears closely embracing said head and engaging with and rotatable in said bearings, a worm journaled in said block and engaging with said gear-teeth to rotate said block, and means for rigidly securing said block in its adjusted position, substantially as described.

642,711. **MILLING-MACHINE.** JOHN PARKER, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Dec. 24, 1898. Serial No. 700,281. (No model.)



Claim.—1. In a milling-machine, the combination with the table, of a feed therefor embodying a screw and nut of coarse lead, means for automatically throwing said feed out of operation, and means other than the screw and nut for preventing movement of the table when the feed is thrown out, substantially as described.

2. In a milling-machine, the combination with the table, of a feed therefor embodying a screw and nut of coarse lead, means for reversing the direction of the feed, means for automatically throwing said feed out of operation, and means other than the screw and nut for preventing movement of the table when the feed is thrown out, substantially as described.

3. In a milling-machine, the combination with the table, of a screw-threaded member of coarse lead thereon, a second screw-threaded member engaging the same, means for rotating one of said members, means for automatically throwing said rotating means out of operation, and means other than the screw-threaded members for preventing the movement of the table when said rotating means is thrown out, substantially as described.

4. In a milling-machine, the combination with the table, of a screw-threaded member thereon, a second screw-threaded member engaging the same, a worm-wheel connected to rotate one of said members, a worm engaging said worm-wheel, means for driving said worm, and means for automatically throwing said driving means out of operation, substantially as described.

5. In a milling-machine, the combination with the table, of a screw-threaded member carried thereby, a second screw-threaded member engaging the same, a worm-wheel connected to rotate one of said members, a worm engaging said worm-wheel, and means for driving said worm in either direction, substantially as described.

6. In a milling-machine, the combination with the table, of a screw-threaded member carried thereby, a second screw-threaded member engaging the same, a worm-wheel connected to rotate one of said members, a worm engaging said worm-wheel, means for driving said worm in either direction, and means for automatically throwing said driving means out of operation, substantially as described.

7. In a milling-machine, the combination with the table, of mechanism for feeding the same including a worm-wheel, a worm engaging the same, a gear connected with said worm, an intermediate gear engaging said gear, a gear arranged to engage either of said former gears, and means for driving said latter gear, substantially as described.

8. In a milling-machine, the combination with the table, of mechanism for feeding the same including a worm-wheel, a worm engaging the same, a movable bearing-block carrying said worm, and mechanism for driving said worm in either direction carried by said block, substantially as described.

9. In a milling-machine, the combination with the table, of mechanism for feeding the same including a worm-wheel, a worm engaging the same, a pivoted bearing-block carrying said worm, mechanism for driving said worm in either direction carried by said block, and an eccentric for operating said bearing-block, substantially as described.

10. In a milling-machine, the combination with the table; of mechanism for feeding the same including a worm-wheel, a worm engaging the same, a gear connected with said worm, an intermediate gear engaging said gear, a gear arranged to engage either of said gears, a rotary sleeve in which said gear is eccentrically mounted, and means for rotating said gear, substantially as described.

11. In a milling-machine, the combination with the table, of mechanism for automatically feeding said table comprising a shaft, gearing between said shaft and table, a gear on said shaft, an intermediate gear meshing therewith, a rotary shaft carrying a gear arranged to mesh with either of said former gears, and a rotary sleeve in which said rotary shaft is eccentrically mounted, substantially as described.

12. In a milling-machine, the combination with the table, of mechanism for feeding the same including, a shaft, a gear secured thereto, an intermediate gear engaging said gear, a gear arranged to engage either of said gears, a rotary sleeve in which said gear is eccentrically mounted, a clutch for driving said gear, and means for shifting said sleeve longitudinally to engage and disengage said clutch, substantially as described.

13. In a milling-machine, the combination with the table, of a driving-shaft, a hollow shaft surrounding the same and carrying a gear, a sleeve in which said hollow shaft is eccentrically mounted, a clutch for connecting said driving-shaft and hollow shaft, means for shifting said sleeve and hollow shaft longitudinally to operate said clutch, and gears connected to feed the table in opposite directions arranged to be engaged by the gear on the hollow shaft, substantially as described.

14. In a milling-machine, the combination with the table, of a driving-shaft, a hollow shaft surrounding the same and carrying a gear, a sleeve in which said hollow shaft is eccentrically mounted, a clutch for connecting said driving-shaft and hollow shaft, an annular rack on said sleeve, a segment engaging said rack, means carried by the table for operating said segment, and gears connected to feed said table in opposite directions and arranged to be engaged by the gear on the hollow shaft, substantially as described.

15. In a milling-machine, the combination with the table, of a vertical shaft connected to feed the table, a bevel-gear secured to said shaft, a horizontal shaft carrying a bevel-gear engaging said former gear, a worm-wheel on said shaft, a worm engaging said worm-wheel, and mechanism for driving said worm, substantially as described.

16. In a milling-machine, the combination with the table, of a vertical shaft connected to feed the table, a bevel-gear secured to said shaft, a horizontal shaft carrying a bevel-gear engaging said former gear, a worm-wheel on said shaft, a worm engaging said worm-wheel, and mechanism for driving said worm in either direction, substantially as described.

17. In a milling-machine, the combination with the table, of a vertical shaft connected to feed the same, a bevel-gear secured to said

shaft, a horizontal shaft carrying a bevel-gear engaging said former gear, a worm-wheel on said shaft, a worm engaging said worm-wheel, a bearing-block carrying said worm, means for moving said bearing-block to engage and disengage the worm and worm-wheel, and mechanism carried by said block for driving said worm in either direction, substantially as described.

18. In a milling-machine, the combination with the table, of a vertical shaft connected to feed the same, a bevel-gear secured to said shaft, a shaft provided with a bevel-gear engaging said former gear, a worm-wheel secured to said shaft, a worm engaging said worm-wheel, means for disengaging said worm and worm-wheel, and a manually-operated shaft geared to said vertical shaft, substantially as described

19. In a milling-machine, the combination with the table, of a screw-threaded member carried thereby, an engaging screw-threaded member, a vertical shaft connected to rotate one of said members, a bevel-gear secured to said shaft, a shaft having a bevel-gear engaging said gear, a worm-wheel secured to said shaft, means for disengaging said worm and worm-wheel, and a manually-operated shaft geared to said vertical shaft, substantially as described.

20. In a milling-machine, the combination with the table, of a shaft 18 connected to feed the same, gear 19 secured thereto, gear 20, shaft 21, gear 22, shaft 23, worm-wheel 25, worm 26, bearing-block 28 carrying said worm, and driving mechanism for said worm, substantially as described.

21. In a milling-machine, the combination with the table, of shaft 23 connected to feed the same, worm-wheel 25 secured thereto, worm 26, shaft 27, bearing-block 28, gears 23 and 24 carried thereby, shaft 36, having gear 37 secured thereto, sleeve 38 in which shaft 36 is eccentrically mounted, shaft 39, clutch-teeth on shaft 36 and shaft 39, and means for moving sleeve 38 longitudinally, substantially as described.

22. In a milling-machine, the combination with the table, of a screw-rod 16 carried thereby, a rotary nut 17, a gear 17' secured thereto, a gear 18', a shaft 18, a gear 19 secured thereto, a gear 22 engaging gear 19, shaft 23, worm-wheel 25, worm 26, and means for driving said worm, substantially as described.

23. In a milling-machine, the combination with the table, of a screw-rod 16 carried thereby, a rotary nut 17, carrying gear 17', a gear 18', engaging gear 17', shaft 18, gear 19, gear 22, shaft 23, worm-wheel 25, worm 26, means for driving said worm, and means for automatically throwing said driving means out of operation, substantially as described.

24. In a milling-machine, the combination with the table, of mechanism for feeding the same including a worm-wheel, a worm engaging said worm-wheel, a gear connected with said worm, an intermediate gear engaging said gear, a driving-gear, means for shifting said driving-gear to engage either of said gears, and means for manually operating said intermediate gear, substantially as described.

25. In a milling-machine, the combination with the table, of a screw-threaded member carried thereby, a second screw-threaded member engaging the same, mechanism for rotating one of said members to feed the table including a worm-wheel, a worm, means for automatically driving said worm, and means for manually operating said worm, substantially as described.

26. In a milling-machine, the combination with the table and the saddle on which said table is mounted, of a screw for operating said saddle, a driving-shaft, gearing between said shaft, and screw, and a clutch for connecting said screw with said gearing, substantially as described.

27. In a milling-machine, the combination with the table and the saddle on which said table is mounted, of a screw for operating said saddle, a driving-shaft provided with a gear, two gears connected to drive said screw in opposite directions, and means for shifting said driving-shaft gear into engagement with either of said gears, substantially as described.

28. In a milling-machine, the combination with the table and the saddle on which said table is mounted, of a screw for operating said saddle, a gear loosely mounted on said screw, a clutch for connecting said gear to said screw, a driving-shaft, gearing connecting said driving-shaft and loose gear, and means for automatically disengaging said clutch, substantially as described.

29. In a milling-machine, the combination with the table and the saddle on which said table in mounted, of a screw for operating said saddle, a gear loosely mounted thereon, a clutch for coupling said gear and shaft, driving-shaft, a gear thereon, two gears connected with said loose gear to rotate the same in opposite directions, means for shifting said driving-shaft gear into engagement with either of said gears, and means for automatically disengaging said clutch, substantially as described.

30. In a milling-machine, the combination with the table and the saddle on which said table is mounted, of a screw for operating said saddle, gearing for rotating said screw, a clutch for coupling said gearing to said screw, and means operated by the movement of the saddle for disengaging said clutch, substantially as described.

31. In a milling-machine, the combination with the saddle, of a screw for operating the same, a gear loosely mounted thereon, a gear connected with said loose gear, an intermediate gear, a driving-shaft carrying a gear arranged to engage either of said latter gears, a sleeve in which said driving-shaft is eccentrically mounted, and a clutch for coupling said screw to said loose gear, substantially as described.

32. In a milling-machine, the combination with a saddle, of a table mounted thereon, mechanism for feeding the table embodying a rotary shaft, means for reversing the direction of rotation of said shaft, mechanism geared to said shaft for operating the saddle, a clutch for throwing said mechanism into and out of operation, and means for disengaging said clutch by the movement of the saddle, substantially as described.

33. In a milling-machine, the combination with the table, saddle, and knee, of a screw for operating the knee, a driving-shaft, gearing between said shaft and screw embodying a clutch, and means for disengaging said clutch to stop the feed of the knee, substantially as described.

34. In a milling-machine the combination with the table, saddle, and knee, of a screw for operating said knee, a driving-shaft provided with a gear, two gears connected to drive said screw in opposite directions, and means for shifting said driving-shaft gear into engagement with either of said gears, substantially as described.

35. In a milling-machine, the combination with the table, saddle, and knee, of a screw for operating said knee, a shaft for operating said screw, a gear loosely mounted thereon, a clutch for coupling said gear to said shaft, a driving-shaft, gearing connecting said driving-shaft and loose gear, and means for automatically disengaging said clutch, substantially as described

36. In a milling-machine, the combination with the table, saddle, and knee, of a screw for operating said knee, a shaft geared thereto, a gear loosely mounted on said shaft, a clutch for coupling said gear to said shaft, a driving-shaft, a gear thereon, two gears connected with said loose gear to drive the same in opposite directions, means for shifting said driving-shaft gear into engagement with either of said gears, and means for automatically disengaging said clutch, substantially as described.

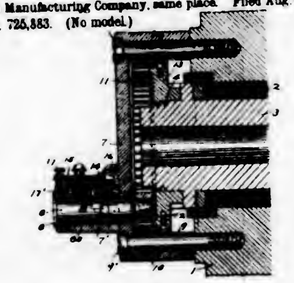
37. In a milling-machine, the combination with the table, saddle, and knee, of a screw for operating said knee, gearing for rotating said screw, embodying a clutch, and means operated by the movement of the knee for disengaging said clutch, substantially as described.

38. In a milling-machine, the combination with the knee, of a screw for operating the same, a shaft geared to said screw, a gear loosely mounted thereon, a gear connected with said loose gear, an intermediate gear, a driving-shaft carrying a gear arranged to engage either of said latter gears, a sleeve in which said driving-shaft is eccentrically mounted, and a clutch for coupling said loose gear to its shaft, substantially as described.

39. In a milling-machine, the combination with the table and the saddle on which said table is mounted, of a screw for operating said saddle, a gear loosely mounted thereon, mechanism for automatically driving said gear, a clutch for coupling said gear to said screw, a rock-shaft for operating said clutch, a lever connected therewith, and an adjustable dog on the saddle for operating said lever, substantially as described.

40. In a milling-machine, the combination with the knee, of a screw for operating the same, a shaft geared to said screw, a gear loosely mounted on said shaft, mechanism for automatically driving said gear, a clutch for coupling said gear to said shaft, a rock-shaft for operating said clutch, a lever connected therewith, and an adjustable dog on the frame for operating said lever, substantially as described.

642,712. HIGH-SPEED ATTACHMENT FOR MILLING-MACHINES. JOHN PARKER, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Aug. 2, 1899. Serial No. 725,883. (No model.)



Claim.—1. A high-speed attachment for a milling-machine consisting of a supplemental spindle, a support therefor and gearing for connecting said spindle and the main spindle of the milling-machine, substantially as described.

2. A high-speed attachment for a milling-machine consisting of an internal gear secured to the end of the main spindle, a removable support, a spindle mounted in said support and a pinion on the end of said spindle meshing with said internal gear, substantially as described.

3. A high-speed attachment for milling-machines consisting of a removable support, a spindle mounted therein, a gear provided with a screw-threaded hub for engaging the screw-thread on the spindle of a milling-machine, and gearing connecting said gear and said spindle.

4. A high-speed attachment for milling-machines consisting of a casing for inclosing the end of the main spindle, a spindle mounted in said casing, and means within said casing for driving said spindle from the main spindle, substantially as described.

5. A high-speed attachment for milling-machines consisting of a casing for inclosing the end of the main spindle, a spindle mounted in said casing, and gearing between said spindle and the end of the main spindle, substantially as described.

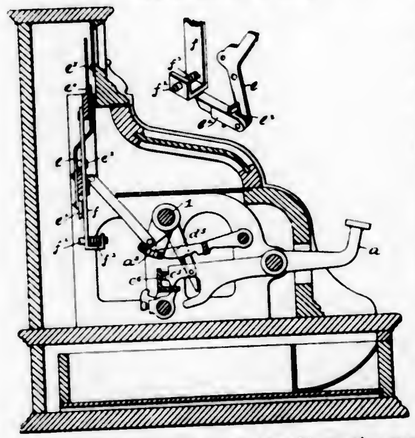
6. A high-speed attachment for milling-machines consisting of a casing for inclosing the end of the main spindle, a supplemental spindle mounted therein, an internal gear secured to the end of the main spindle, and a pinion on the end of the supplemental spindle engaging said internal gear, substantially as described.

7. A high-speed attachment for milling-machines, consisting of a casing having an annular rim for inclosing the end of the main spindle, bolts for securing said casing in place, a supplemental spindle mounted in said casing and gearing within said casing for driving the supplemental spindle from the main spindle, substantially as described.

8. A high-speed attachment for milling-machines consisting of a casing 7, a spindle 6 mounted therein, a pinion on the end of spindle 6, and internal gear 11 provided with a screw-threaded hub for engaging the screw-thread on the spindle of a milling-machine, substantially as described.

9. The combination with a spindle provided with a tapered bore and a transverse hole as 18 passing across said bore, a boss as 7' having a registering hole as 19, covers as 20 for the ends of hole 19, and a rod as 21 to which both of said covers are secured, substantially as described.

642,713. CASH REGISTER AND INDICATOR. JOHN PFEIFER, Springfield, Ohio, assignor to the Mast, Foos & Company, same place. Filed Nov. 29, 1898. Serial No. 697,806. (No model.)



Claim.—1. The combination with a series of keys and an operating-lever, an oscillating shaft connected to said lever, a graduated bar normally disconnected from said shaft, normally-inactive registering devices connected to said bar, said bar adapted to be released from its normal position by the operation of one of said keys and thrown thereby into connection with said operating-shaft, transferring mechanism connected to said bar, and means for causing the transfer to take place successively in proper order, substantially as specified.

2. The combination with a vertically-movable rack, of a laterally-movable pinion adapted when in operative position to engage with said rack but in normal position to be out of engagement therewith, and means for locking said pinion while in normal position against all movement except a predetermined movement equal to the movement of one tooth of the pinion, substantially as specified.

3. The combination with a rack of a registering device, of a movable pinion geared to said registering device which is adapted to mesh with said rack when out of normal position, and mechanism for locking said pinion when in normal position against all but a predetermined movement equal to the movement of one tooth of the pinion, and means for throwing said locking mechanism in or out of engagement with said pinion, substantially as specified.

4. The combination with a vertically-movable rack, of a laterally-movable lever, a pinion on said lever, adapted to engage said rack, a sliding plate connected to said pinion-lever, a lever with a spring-pressed extension adjacent to said plate, said extension being adapted to contact with said plate to move the same laterally, a movable bar for operating said lever and means for disengaging said extension upon the downward movement of said bar to permit the plate to return to its normal position.

5. The combination of a movable rack and registering devices with a sliding plate, of a movable bar adjacent to said plate, a spring-pressed lever adjacent to said bar and adapted to be oscillated by same to cause said plate to slide from its normal position and at the same time throw the registering devices into operative connection with the movable rack, and a pivoted lever connected to the other end of said plate, and means for oscillating said lever for returning said plate to its normal position.

6. The combination with laterally-movable pinions of registering-wheels geared to each pinion, and a vertically-movable rack adapted to move a registering-wheel when said movable pinion is thrown into engagement with said rack, angularly-rotating cams adjacent to one of said pinions, mechanism operated by said cams to cause a transfer from one registering-wheel to the other when said movable pinion is out of engagement with said rack, substantially as specified.

7. The combination with operating means, of a shaft adapted to be oscillated thereby, a vertically-movable rack connected to said shaft, a pinion adjacent to said rack and adapted to mesh therewith, rotating cams mounted near said pinion, a connection between said cams and the pinion in combination with registering devices, and transfer mechanism adapted to be operated by said cams, substantially as specified

8. The combination with a counting-wheel of a cam adjacent thereto and adapted to be moved therewith, an oscillating lever adjacent thereto and adapted to be moved by said cam, and a pivotal holding-bar having two notches, one of said notches engaging with said lever when in normal position and the other engaging with said lever when moved by said cams from its normal position, substantially as specified.

9. The combination with two counting-wheels adapted to be connected to an operating-shaft, of a lug on the shaft of one of said wheels, a pivoted lever adjacent to said shaft with a projection adapted to stand in the path of said lug, a bar pivoted to the lower end of said lever and contacting with the other of said wheels adapted to be moved backward to engage a new tooth on said wheel when the lug on said shaft strikes said projection and further adapted to move the said wheel one tooth upon the subsequent operation of said operating-shaft.

10. The combination of registering devices, a pinion with an extended sleeve angularly-rotating cams pivoted on said sleeve, a stop-pawl for said cams to prevent them moving forwardly but permitting a backward movement upon the return movement of said pinion, swinging bars connected to said registering devices adjacent to said cams and adapted to be swung thereby when out of normal position, and means for operating said cams with the movement of said pinion for the purpose of oscillating said swinging bars.

11. The combination with laterally-movable lever, of a pinion on said lever, a pawl-finger arranged adjacent thereto and adapted, when said pinion is in its normal position to prevent any movement of said pinion except the predetermined movement of one tooth, substantially as specified.

12. The combination with a laterally-movable rotating pinion of a movable bar adjacent to said pinion, a pivoted pawl-finger on said bar, said finger adapted when said pinion and said bar are in their normal positions to engage with said pinion, and means for moving either said pinion or said finger out of engagement with the other, substantially as specified.

13. The combination with two counting-wheels, of operating mechanism controlled by one of said wheels to cause the other to move forward, a pivoted stop-pawl adjacent to the last-mentioned wheel contacting therewith to prevent movement of said wheel except in one direction, and means connected to said pivoted stop-pawl for simultaneously throwing it and said operating mechanism out of engagement for the purpose of adjusting said operating mechanism, substantially as specified.

14. The combination with a laterally-movable lever, a pinion on said lever, of a pawl-finger adjacent thereto and adapted to normally engage the teeth of said pinion, and stops to limit the movement of said pawl-finger to prevent the pinion from moving more than one tooth when engaged by said pawl-finger, substantially as specified.

15. The combination with a laterally-movable lever, a pinion on said lever, of means for operating said pinion, a pawl-finger adapted to normally engage the teeth of said pinion, but adapted to be moved out of engagement therewith, mechanism for automatically moving said pawl-finger into normal position whenever said pinion is operated, substantially as specified.

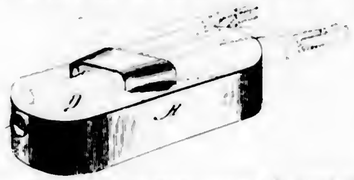
642,714. EXTENSION-FOOT. JOHN H. PHILBROOK, Chicago, Ill. Filed Apr. 8, 1899. Serial No. 712,268. (No model.)



Claim.—1. In an extension-foot, the combination with a block or filler of wood or similar material, of a foot-piece of rubber, or like elastic and resilient material, secured to the lower face of said block or filler and having the forward end extending beyond the filler to form a resilient toe, the upper face of said filler being shaped to conform to the foot of the wearer, and a foot-plate of fiber, or like material, conforming to the face of the filler and having the forward end extended beyond the filler to form a flexible extension adapted to rest upon the foot-piece, substantially as described.

2. In an extension-foot, the combination with a block or filler of wood, or similar material, of a foot-piece of rubber, or like elastic or resilient material, secured to the lower face of said block or filler and having the forward end extending beyond the filler to form a resilient toe, the upper face of said filler being shaped to conform to the foot of the wearer, a foot-plate of fiber, or like material, conforming to the face of the filler, and secured thereto, and the legging or upper leather portion having the edges thereof secured between the filler and the foot-plate, substantially as described.

642,715. CURLING-IRON HEATER. HATTIE POLOSUK, Sharon, Pa. Filed Nov. 3, 1899. Serial No. 735,715. (No model.)

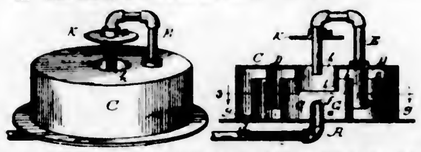


Claim.—1. A curling-iron heater consisting of a box having a horizontal partition therein, an absorbent material beneath said partition, said partition having an elongated opening and an opening for the end of the iron in the end of the box and in line with the opening in the partition, and a cover for said box having a flange adapted to overlap said end opening when the cover is in place, substantially as described.

2. A heater for curling-irons, comprising a box and partition therein having an elongated opening, an absorbent filling beneath the partition, a netting extending across the opening in the diaphragm, an opening in the wall of the box for the insertion of the iron, said opening being directly in line with the opening in the diaphragm, and a cover having a flange adapted to overlap said opening in the wall of the box, substantially as described.

3. A heater for curling-irons comprising a box with absorbent material adapted to be absorbed with an inflammable substance and ignited, a cover for said box having a strap with tapering walls and collapsible curling-irons held by said strap, substantially as described.

642,716. OIL-BURNER. THOMAS C. PURVES and OSMAN K. MITCHELL, La Grange, Ill., assignors to Joy L. Reichelt, Cook county, Ill. Filed Feb. 2, 1899. Serial No. 704,234. (No model.)



Claim.—1. The combination in a chambered heater provided with an overflow-oil burner, means for supplying oil to said heater, means for conducting air under atmospheric pressure through said heater whereby said air is heated, and a member depending into and discharging the air downwardly within the combustion zone of the burner.

2. The combination in a chambered heater provided with an overflow-oil burner, means for supplying oil to said heater, means for conducting air under atmospheric pressure through said heater whereby said air is heated, a member depending into and discharging part of the air from above downwardly into the combustion zone and means for supplying the residue of the air from below into the combustion zone.

3. In a heater the combination with a base-plate having suitable separated concentric walls arising therefrom, and suitable air-supply openings therein outside the circumference of the outer wall, and an oil-burner projecting centrally up through said base-plate into the central inclosed area thereof, of a cover resting on said base-plate so as to inclose the air-supply openings therein and having a central opening in its top the edges of which are flanged downward, and concentric walls between said flange and the circumferential sides thereof that depend between the walls of the base, as set forth.

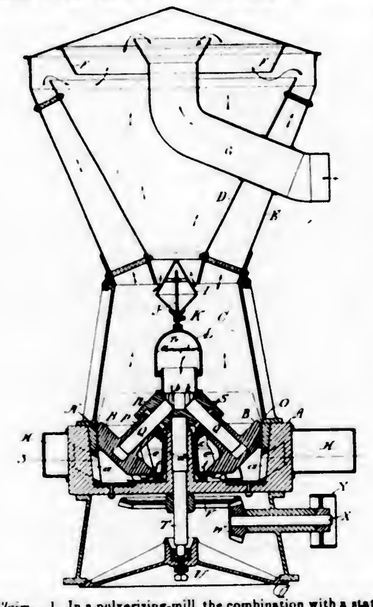
4. In a heater the combination with a base-plate having suitably separated concentric walls arising therefrom, and suitable air-supply openings therein outside the circumference of the outer of said walls, and an overflow-oil burner projecting centrally up through said base-plate into the central inclosed area thereof, of a cover resting on said base-plate and inclosing said air-supply openings therein, and having a central opening in its top the edges of which are flanged downward and having a concentric wall depending therefrom intermediate the walls of the base-plate, and an inverted-U-shaped pipe having its intake end tapped into said cover between its outer circumference and said central opening, and having its free leg depending down into the central opening of the cover above said burner, as set forth.

5. In a heater the combination with a base-plate having suitably separated concentric walls arising therefrom and suitable air-supply openings therein outside the circumference of said outer wall, an overflow-oil burner projecting up centrally through said base-plate into the central inclosed area thereof, and one or more drain-pipes tapped into and arising vertically from said base-plate a suitable distance in the central inclosure of the same, of a cover resting on said base-plate and inclosing the air-supply openings therein, and having a central opening in its top the edges of which are flanged downward, and a concentric wall depending therefrom intermediate the walls of the base, as set forth.

6. In a heater the combination with a base-plate having suitably-separated concentric walls arising therefrom, suitable air-supply openings therein outside the circumference of said outer wall, and an overflow-oil burner projecting centrally up through said base-plate into the central inclosed area thereof, of a cover resting on said base-plate so as to surround said air-supply openings therein, and provided with suitable inwardly-projecting lugs for partially closing said air-supply openings, having a central opening in its top the edges of which are flanged downward, and having a concentric wall depending between said flanges and the circumferential sides thereof intermediate the walls of the base, as set forth.

7. In a heater the combination with a base-plate provided with suitably-separated concentric walls arising therefrom and having air-supply openings therein outside the circumference of said outer wall, an overflow-oil burner projecting up through the center of said base-plate, and drain-pipes tapped into and arising vertically from the base-plate within the central inclosed area thereof, of a cover resting on said base-plate so as to surround the air-supply openings therein, having lugs projecting horizontally inward from said edges for partially closing said air-supply openings, and having a central opening in its top the edges of which are flanged downward a suitable distance, and a concentric wall that depends between said flange and the cylindrical sides of the cover intermediate the walls of the base-plate, and an inverted-U-shaped pipe the intake-leg of which is secured to the top of the cover between its outer sides and its central opening, and the free end of which depends down and discharges a current of hot air into said central opening above said burner, as and for the purpose set forth.

642,717. PULVERIZING-MILL. ALBERT RAYMOND, Chicago, Ill. Filed May 6, 1898. Serial No. 679,907. (No model.)



Claim.—1. In a pulverizing-mill, the combination with a stationary bowl provided with a crushing-face on its inner periphery, of one or more rollers capable of a free axial rotation upon fixed axes and a free bodily movement parallel with the axes thereof, but toward and away from the crushing-face of the bowl and means for imparting an orbital travel to said roller or rollers, each of said rollers having a single crushing-face oblique to its axis of rotation and parallel with the crushing-face of the bowl, substantially as described.

2. In a pulverizing-mill, the combination with a stationary bowl provided with a crushing-face on its inner periphery, of one or more rollers having axes of fixed inclination and capable of a free axial rotation and a free bodily movement parallel with the axes thereof, but toward and away from the crushing-face of the bowl and means for imparting an orbital travel to said roller or rollers, each of said rollers having a single crushing-face oblique to its axis of rotation and parallel with the crushing-face of the bowl, substantially as described.

3. In a pulverizing-mill, the combination with a stationary bowl provided with a crushing-face on its inner periphery, of one or more rollers having fixed axes downwardly and outwardly inclined with reference to the axis of the bowl and capable of a free axial rotation and a free bodily movement parallel with the axes thereof, but toward and away from the crushing-face of the bowl and means for imparting an orbital travel to said roller or rollers about the axis of the bowl, each of said rollers having a single crushing-face oblique to its axis of rotation and parallel with the crushing-face of the bowl, substantially as described.

4. In a pulverizing-mill, the combination with a stationary bowl, of one or more rollers having fixed axes oblique to the vertical and capable of a free axial rotation and a free bodily movement parallel with the axes thereof, but toward and away from the crushing-face of the bowl and means for imparting an orbital travel to said roller or rollers about a vertical axis, substantially as described.

5. In a pulverizing-mill, the combination with a stationary bowl provided with a crushing-face, of one or more rollers having fixed axes oblique to the vertical and capable of a free axial rotation and a free bodily movement parallel with the axes thereof, but toward and away from the crushing-face of the bowl and means for imparting an orbital travel to said roller or rollers about a vertical axis, said rollers each having a single crushing-face oblique to its axis of rotation and parallel with the crushing-face of the bowl, substantially as described.

6. In a pulverizing-mill, a driving-head rotating on a vertical axis, gravitating conical crushing-rollers carried by said head, their axes having a downward and outward inclination with reference to the axis of the head and an encircling ring or bowl against which said rollers act, substantially as described.

7. In a pulverizing-mill, downwardly and outwardly gravitating rollers having axes of fixed downward and outward inclination and arranged to travel orbitally around a vertical axis, in combination with a horizontal ring or bowl against the inner surface of which said rollers are arranged to act, whereby the rollers are permitted to recede from the inner surface of the ring or bowl, but urged constantly toward the same both by gravity and by centrifugal force, substantially as described.

8. In a pulverizing-mill, a horizontal ring or bowl having a vertical or substantially vertical inner surface, in combination with conical crushing-rollers arranged to travel around the inner surface of said ring, said rollers being each mounted on an axis of fixed inclination whereby it is permitted to slide axially downward and outward toward the ring or bowl and vice versa without destroying the parallelism between its surface and the surface of the ring or bowl, substantially as described.

9. In a pulverizing-mill, the combination of the following elements: a fixed ring or bowl having a vertical or substantially vertical inner surface, a central vertical driving-shaft, a head or carrier mounted on said shaft and a series of crushing-rollers carried by said head and arranged to travel around the interior of the ring, their axes having a downward and outward inclination and the rollers being free to gravitate in the direction of their axes, whereby they are caused to slide downward and outward toward the interior surface of the ring under the influence of gravity, substantially as described.

10. In a pulverizing-mill, the combination with a stationary bowl having an upright crushing-face, of one or more rollers loosely mounted upon the ends of fixed downwardly and outwardly extending oblique shafts, and means for imparting to said rollers a free axial rotation, a free bodily movement parallel with the axes thereof and a bodily revolution, each of said rollers having a single crushing-face oblique to its axis but parallel with the crushing-face of the bowl, substantially as described.

11. In a pulverizing mill, the combination with a stationary bowl having an upright crushing-face, of one or more rollers loosely mounted upon the ends of fixed downwardly and outwardly extending oblique shafts and capable of a free axial rotation and bodily movement parallel with the axes thereof, means for imparting an orbital travel to said roller or rollers, said rollers having oblique crushing-faces parallel with the crushing-face of the bowl, and means for admitting air to the bowl at a point below the contacting surfaces of the roller and bowl, substantially as described.

12. In a pulverizing-mill, the combination with a stationary bowl having an upright crushing-face and an exhaust-chamber above the bowl, of one or more rollers loosely mounted upon downwardly and outwardly extending oblique stud-shafts and capable of a free axial rotation and a free bodily movement parallel with the axes thereof, said rollers having oblique crushing-faces parallel with the crushing-faces of the bowl, means for imparting an orbital travel to said roller or rollers and means for admitting air to the bowl at a point below the contacting surfaces of the roller and bowl, substantially as described.

13. In a pulverizing-mill, the combination with a stationary bowl, an upright shaft extending axially through said bowl, the crusher-head secured to said shaft, and one or more fixed stud-shafts projecting downwardly and outwardly from said head, of a roller loosely mounted on each of said shafts and capable of free bodily movement parallel with the axes thereof, and means for rotating the upright shaft, substantially as described.

14. In a pulverizing-mill, the combination with a stationary bowl having an upright crushing-face, an upright shaft extending axially through said bowl, a crusher-head rigidly secured to said shaft, and one or more fixed stud-shafts extending downwardly and outwardly from said head, of a roller loosely mounted on each of said shafts and capable of a free bodily movement parallel with the axes thereof, each of said rollers having oblique crushing-faces parallel with the crushing-face of the bowl, substantially as described.

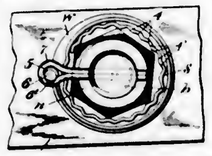
15. In a pulverizing-mill, the combination with a stationary bowl, an upright shaft extending axially through said bowl, a crusher-head rigidly secured to said shaft, and stud-shafts extending obliquely from said head, of a roller loosely journaled upon each of said shafts and capable of bodily movement parallel with the axes thereof, an apron depending from said head and opening into the bottom of the bowl, means for exhausting air from the bowl, means for admitting air to the bowl below the contacting surfaces of the rollers and bowl, ducts extending through the crusher-head and opening within said apron, the bearings of the rollers being open to said ducts and said ducts

being open to the atmosphere, and means for rotating the upright shaft, substantially as described.

16. In a pulverizing-mill, the combination with a stationary bowl, crushing-rollers and means for imparting to said rollers an orbital travel about the bowl, of a series of tangentially-arranged air-ducts opening into the bowl below the crushing-face thereof, substantially as described.

17. In a pulverizing-mill, the combination with a stationary bowl having an upright crushing-face, an upright shaft extending axially through said bowl, a crusher-head rigidly secured to said shaft and one or more conical rollers carried by said crusher-head, each of said rollers having oblique crushing-faces parallel with the crushing-face of the bowl, of a spiral air-duct surrounding the bowl and a series of tangential air-passages connecting said duct with the interior of the bowl in a plane below the crushing-face thereof, substantially as described.

642,718. NUT-LOCK. CONSTANT F. DE REDON, New York, N. Y., assignor to Marcus Stine, same place. Filed Nov. 3, 1899. Serial No. 735,661. (No model.)



Claim.—1. In a nut-lock, the combination, with a nut and a bolt, of a resilient locking member having a substantially circular recessed holding-face adapted to turn on, and receive a corner of, one of such coacting parts and in gripping contact with a plurality of corners of such part when in its operative position.

2. In a nut-lock, the combination, with a nut, of a resilient nut-engaging member having a substantially circular holding-face adapted to turn on said nut and embodying a plurality of recesses for receiving corners of the nut and in gripping contact with a plurality of corners of such nut when in its operative position.

3. In a nut-lock, the combination, with a nut, of a resilient nut-engaging member having a substantially circular holding-face adapted to turn on said nut and embodying a series of immediately-adjacent recesses for receiving corners of the nut and in gripping contact with a plurality of corners of such nut when in its operative position.

4. In a nut-lock, the combination, with a nut, of a resilient nut-encircling member having a substantially circular holding-face completely surrounding said nut and embodying a recess for receiving a corner of the nut and in gripping contact with a plurality of corners of such nut when in its operative position.

5. In a nut-lock, the combination, with a nut, of a resilient nut-encircling member having a substantially circular holding-face completely surrounding said nut and embodying a circuit of recesses for receiving corners of the nut and in gripping contact with a plurality of corners of such nut when in its operative position.

6. In a nut-lock, the combination, with a nut, of a split resilient nut-engaging member having a substantially circular holding-face completely surrounding said nut and embodying a recess for receiving a corner of the nut and in gripping contact with a plurality of corners of such nut when in its operative position.

7. In a nut-lock, the combination, with a nut, of a coiled nut-encircling locking-spring having in its inner convolution a nut-engaging recess for receiving a corner of the nut.

8. In a nut-lock, the combination, with a nut, of a coiled nut-encircling locking-spring having in its nut-engaging face a plurality of recesses for receiving corners of the nut.

9. In a nut-lock, the combination, with a nut, of a spiral nut-encircling locking spring having in its nut-engaging face a plurality of recesses for receiving corners of the nut.

10. In a nut-lock, the combination, with a nut, of a spiral nut-encircling band-spring having in its nut-engaging face a plurality of recesses for receiving corners of the nut.

11. In a nut-lock, the combination, with a nut, of a coiled nut-encircling spring having a nut-engaging face serrated to receive corners of the nut.

12. In a nut-lock, the combination, with a nut, of a coiled nut-encircling spring having a corrugated nut-engaging coil for engaging corners of the nut.

13. In a nut-lock, the combination, with a nut, of a wide spiral nut-encircling band-spring having a corrugated nut-engaging coil for engaging corners of the nut.

14. In a nut-lock, the combination, with a nut, of a coiled nut-encircling locking-spring having in its inner convolution a nut-engaging recess for receiving a corner of the nut, and means for holding the spring in position.

15. In a nut-lock, the combination, with a nut, of a coiled nut-encircling locking-spring having in its inner convolution a nut-engaging recess for receiving a corner of the nut, and means for engaging the free end of the spring.

16. In a nut-lock, the combination, with a nut, of a bolt carrying said nut, and a coiled nut-encircling locking-spring secured to said bolt and having in its inner convolution a recess for receiving a corner of the nut.

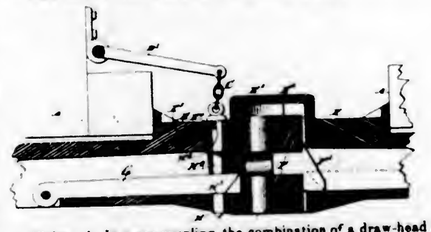
17. In a nut-lock, the combination, with a nut, of a bolt carrying said nut, and a coiled nut-encircling locking-spring having its free end engaged by a holding-face of said bolt and also having in its inner face a recess for receiving a corner of the nut.

18. In a nut-lock, the combination, with a nut, of a bolt carrying said nut, and a coiled nut-encircling locking-spring having its free end secured to said bolt and also having in its inner face a recess for receiving a corner of the bolt.

19. In a nut-lock, the combination, with a nut, of a transversely-recessed bolt carrying said nut, and a coiled nut-encircling locking-spring seated at its free end in the recess in the bolt and having in its inner face a recess for receiving a corner of the nut.

20. In a nut-lock, the combination, with a nut, of a transversely-notched bolt carrying said nut, and a coiled nut-encircling locking-spring seated at its free end in the notch in the bolt and having in its inner face a recess for receiving a corner of the nut.

642,719. CAR-COUPLING. MILTON H. RICE, Carnforth, Iowa. Filed June 22, 1899. Serial No. 721,499. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head having an elevated bridge connecting the deflecting and knuckle arms, a locking-bar adapted to rise and fall and engage the knuckle when in coupled position, a pin mounted to tilt a limited distance in the draw-head, engaging said locking-bar near the lower end and connecting with the uncoupling apparatus at the upper end, a notch in the back side of said pin, and a lip formed in the draw-head, with which said pin engages when the draw-head pulls loose from the car, as described.

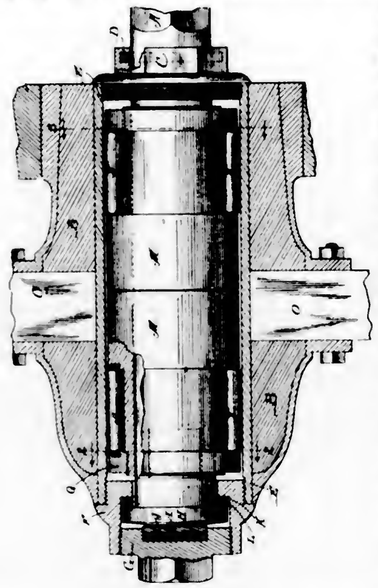
2. In a car-coupling, the combination with a draw-head of the Janney type having a raised bridge connecting the deflecting and knuckle arms thereof, a locking-bar to engage the knuckle, a pin to raise said bar to uncouple, and having a lateral recess long enough to allow the bar to rise independently of the pin, high enough to disengage the knuckle, a notch in the back side of said pin, a tapered hole in the draw-head to take said pin and allow it to tilt back and forth at the upper end, and a lip formed in the draw-head to engage said notch, and a connection of the upper end of the pin with the uncoupling-lever, substantially as shown.

642,720. AXLE AND BEARING FOR VEHICLES. ARCHIBALD J. ROBERTSON, Chicago, Ill. Filed June 2, 1899. Serial No. 719,136. (No model.)

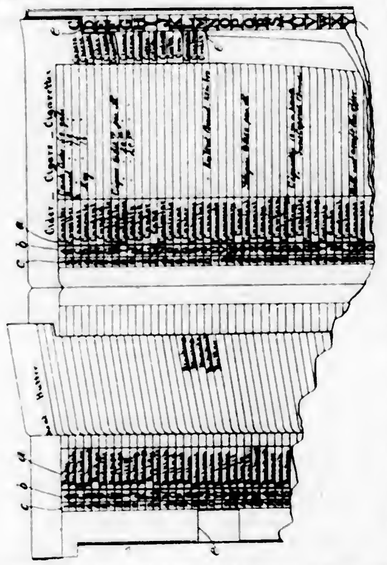
Claim.—1. In a vehicle-bearing the combinatioe of axle A, hub B, cap C, dust-guard D, sleeve E; cap F; nut G; nut H; cushion I; plate J; cushion K; ring L; sleeves M M; rollers N, all in combination and substantially as described.

2. A vehicle-bearing in the combination of an axle without a collar a two-part sleeve placed on said axle, said sleeve supplied with a receptacle surrounding the outer periphery thereof; roller-bearings placed in said receptacle and surrounding said sleeve; the circumference of said rollers combined being greater than the circumference of said sleeve; a hub provided with a sleeve, the inner periphery of said sleeve of a size to fit over said rollers; a rear cap encircling said axle and supplied with a dust-guard, said cap fastened to said sleeve in said hub, the front of said hub supplied with a cap, said cap fastened to said sleeve in said hub, said cap supplied with a member to engage the inner wall of a circular nut, said nut fastened to the end of said axle; a nut screwed into the end of said cap, said nut and

said member, supplied with cushions, one on each side of said circular nut; a plate between said cushions in said nut, and the outer wall of said circular nut; a ring between said cushion in said member, and the inner wall of said circular nut, substantially as described



642,721. CIPHER-CODE SYSTEM. WILLIS J. ROUSSEL, New Orleans, La. Filed May 16, 1899. Serial No. 717,086. (No model.)



Claim.—1. A cipher-code index having a column of cipher-words on each page, a parallel column of cipher-letters corresponding each respectively to a cipher-word, the information represented by said cipher-words inscribed on the same line with its corresponding cipher-word and the subjects contained on any page being inscribed on the right-hand margin of the folio, substantially as described.

2. A cipher-code index having a column of cipher-words on each page, a parallel column of cipher-symbols corresponding each respectively to a cipher-word, the information represented by said cipher-words inscribed on the same line with its corresponding cipher-word, the subjects contained on any page being inscribed on the right-hand margin of the folio, substantially as described.

3. A cipher-code index having a column of cipher-words on each page, a parallel column of cipher letters and numerals corresponding each respectively to a cipher-word, the information represented by said cipher-words inscribed on the same line with its corresponding cipher-word and the subjects contained on any page being inscribed on the right-hand margin of the folio, the said subjects being arranged in alphabetical order and the edges of said folios being cut away so that one page of any group of subjects will not hide from view another group of subjects of the same letter, substantially as described.

4. A cipher-code index having a column of cipher-words on each page, a parallel column of cipher-symbols corresponding each respectively to a cipher-word, the information represented by said cipher-words inscribed on the same line with its corresponding cipher-word, and the subjects contained on any page being inscribed on the right-hand margin of the folio, the said subjects being arranged in alphabetical order, and the edges of said folios being cut away so that one page of any group of subjects will not hide from view another group of subjects of the same letter, an alphabetical index along the right-hand margin of the code-index each letter of which represents its respective class of subjects and cipher-words, substantially as described

5. A cipher-code index having a column of cipher-words on each page, a parallel column of cipher letters and numerals corresponding each respectively to a cipher-word, the information represented by said cipher-words inscribed on the same line with its corresponding cipher-word and the subjects contained on any page being inscribed on the right-hand margin of the folio, the said subjects being arranged in alphabetical order and the edges of said folios being cut away so that one page of any group of subjects will not hide from view another group of the same letter, an alphabetical index along the right-hand margin of the code-index each letter of which represents its respective class of subjects and cipher-words, substantially as described.

6. In a cipher-code key, the combination with a plurality of circular toothed disks of uniform size, each having symbols inscribed upon the outer faces of the teeth, a cylinder inclosing said disks, a stationary cylindrical member located in axial alinement with said cylinder near said disks and having symbols inscribed upon its periphery the said symbols on the disks being brought into axial alinement with those of the second member by turning said disks around the longitudinal axis of said cylinder and thereby combined with those on the said stationary member in the translation of a cipher-word into or out of a communication, substantially as described.

7. In a cipher-code key, the combination with a plurality of circular toothed disks of a uniform diameter, each having symbols inscribed upon the outer face of the teeth and each of said disks having a central toothed opening, a cylinder inclosing said disks, and having a longitudinal slot displaying a row of the characters on said disks, a cylindrical member located near said disks, and in axial alinement therewith and having symbols inscribed upon its periphery, a core passing through the central openings in said disks and having a longitudinal rib which engages the teeth of the central openings of the said disks and prevents them from turning on said core, the said symbols on the disks being combined with those on the said stationary member in the translation of a cipher-word into or out of communication, by forcing one of said disks into the space between the two cylindrical members and by the angular adjustment of said disks relative to the symbols on one of the cylindrical members, substantially as described.

8. In a cipher-code key, the combination with a plurality of circular disks *k*, having teeth around their outer peripheries and having a symbol inscribed on the onter face and side of each tooth, each of said disks having a central toothed opening, a cylinder *l* inclosing said disks and having a longitudinal slot *m* displaying a row of the characters on said disks, a stationary cylindrical member *n* located near said disks and in axial alinement therewith and having symbols inscribed upon its outer periphery next to said cylinder, a core passing through the central openings of said disks and having a longitudinal rib which engages the teeth of the central openings of said disks and prevents them from turning on said core, lugs on the slotted cylindrical member fitting between the outer teeth of the said disks, the said symbols on the disks being combined with those on the said stationary member in the translation of a cipher-word into or out of communication by forcing one of said disks into the space between the two cylindrical members and by the angular adjustment of said disks relative to the symbols on the periphery of one of the said cylindrical members, substantially as described.

9. In a cipher-code key, the combination with a fixed member

provided with a series of symbols, a plurality of movable members each carrying a plurality of symbols and all movable in proximity to said fixed member, whereby a symbol on any of the movable members may be brought into alinement with a preselected symbol on the fixed member in the translation of a word into or out of cipher, substantially as described.

10. In a cipher-code key, the combination with a fixed member provided with a transverse slot and a series of characters arranged alongside the edge of said slot, and a longitudinal slot leading from said transverse slot, a series of movable members adapted to slide beneath said slots whereby a character on any of the movable members may be brought into alinement with a preselected character on the fixed member, in the translation of a word into or out of cipher, substantially as described.

642,722. RETORT. BENJAMIN SADTLER, Denver, Colo., assignor to Albert G. Clark, Cincinnati, Ohio. Filed July 13, 1899. Serial No. 723,699. (No model.)



Claim.—1. A retort for reducing ore and analogous purposes having a body of fire-clay, a lining or coating of basic material and a sintering material between said body and coating chemically united to each, substantially as described.

2. A retort for the purposes set forth having a body of fire-clay with its interior and upper outer surfaces coated with a basic material, and a coating of sintering material between the body of said retort and said basic material, chemically united to each, substantially as described.

3. A retort for reducing ores and analogous purposes having a body of fire-clay, a lining of basic material, and a coating of silicate of soda between said body and lining chemically united to each, substantially as described.

642,723. PROCESS OF PRODUCING RETORTS. BENJAMIN SADTLER, Denver, Colo., assignor to Albert G. Clark, Cincinnati, Ohio. Filed Oct. 6, 1899. Serial No. 732,827. (No specimens.)

Claim.—1. The herein-described process of manufacturing retorts, consisting of applying to the surface of the fire-clay body a sintering material capable of forming under heat a chemical bond with the adjacent fire-clay and also with a basic material, applying to such sintering material a coating or lining of basic material capable of forming under heat a chemical bond therewith, and thereupon subjecting the composite resultant to heat sufficient to effect a chemical union between such sintering material and adjacent portions of the clay body and between the sintering material and particles of the basic lining, respectively, substantially as and for the purpose described.

2. The herein-described process of manufacturing refractory articles consisting of applying to the surface of the fire-clay body a coating of sintering material, and then a coating of basic material and subjecting the whole to heat sufficient to fuse such sintering material into said body and into the basic lining whereby said body and lining are secured together by a chemical bond, substantially as described.

3. The herein-described process of manufacturing refractory articles consisting of applying to the surface of the fire-clay body a coating of silicate of soda, then a coating of basic material and subjecting the whole to a heat sufficient to fuse said silicate of soda into said body and into said basic lining, whereby body and lining are secured together, substantially as described.

642,724. END-GATE FOR PRESS-BOXES. DANIEL J. SALTSMAN, Memphis, Tenn. Filed July 11, 1899. Serial No. 723,444. (No model.)



Claim.—1. The combination, with press-boxes arranged to fit one within the other, and each open at one end for the reception of a charge of material to be pressed, of end-gates of elastic and compressible material adapted to fit into and close the said ends of the boxes, and to compress as said boxes are pressed together.

2. The combination, with press-boxes arranged to fit one within the other, and each open at one end for the reception of a charge of material to be pressed, of rubber end-gates adapted to fit into and close the said ends of the boxes and to compress as the boxes are pressed together.

3. The combination, with press-boxes arranged to fit one within the other, and each open at one end for the reception of a charge of material to be pressed, of end-gates of elastic and compressible material, adapted to fit into and close the said ends of the boxes, and to compress as said boxes are pressed together, and swinging supports for said end-gates.

4. The combination, with press-boxes arranged to fit one within the other, and each open at one end for the reception of a charge of material to be pressed, of end-gates of elastic and compressible material, adapted to fit into and close the said ends of the boxes, and to compress as said boxes are pressed together, and hinged supports for said end gates, secured to the boxes.

5. The combination, with press-boxes arranged to fit one within the other, and open at the ends for the reception of a charge of material to be pressed, of end-gates of elastic and compressible material adapted to fit into and close both front and rear openings in the boxes, and to compress as said boxes are pressed together.

6. An end-gate for closing openings in telescoping press-boxes, consisting of a block of rubber or other elastic and compressible material, adapted to fit into and close an opening in a press-box, and to compress as said boxes are pressed together, thereby permitting the application of pressure to the contents of the boxes.

642,725. MUSIC-BOOK HOLDER. SAMUEL A. SHELTON, Marshfield, Mo. Filed May 18, 1899. Serial No. 717,350. (No model.)



Claim.—1. A music-holder comprising a base provided with opposite lugs a shaft or pintle journaled thereon and provided between the same with a socket or opening, and having a ratchet-head at one end, a spring disposed on the shaft or pintle and having a loop or engaging portion, an arm receiving the loop or engaging portion and detachably secured in the socket or opening, and a pawl engaging the ratchet-head, substantially as described.

2. A music-holder comprising a base having opposite perforated lugs at its upper end, a fastening thumb-screw passing through the base, a shaft or pintle journaled on the lugs and having a ratchet-head at one end, a locking pawl or lever mounted on the base and arranged to engage the ratchet-head, a music-engaging arm having an adjustable transverse bar, mounted on the shaft or pintle between the lugs and a coiled spring disposed on the shaft or pintle, said spring having an intermediate loop which engages the music-engaging arm, substantially as described.

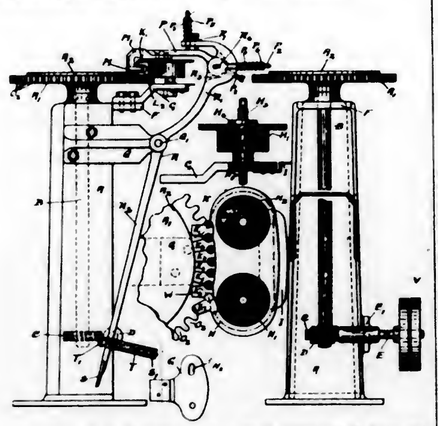
642,726. MACHINE FOR CURLING HAT-BRIMS. CHARLES H. SKINNER, Newark, N. J. Filed Apr. 1, 1898. Serial No. 676,097. (No model.)

Claim.—1. A chain consisting of grooved links, suitable drums having said chain revolving around them, means external to the chain closing the links together so as to form a continuous groove on a given part of the periphery.

2. A chain consisting of grooved links, the groove on each link furnished with catching means, suitable drums having the chain revolving around them, an inverted arc, formed on the periphery of the chain having its center outside of the said periphery, closing the links so as to form a continuous groove.

3. The combination of a chain, consisting of grooved links moving around suitable drums, with means external to the periphery of said chain forming an inverted arc on the periphery causing the links to close and form a continuous groove.

4. As a new mechanical device, a revolving grooved chain having an inverted arc formed on its periphery, means forming said arc having their center lying outside of the periphery of said chain, with cooperative gearing means connecting the said elements.



5. As a new mechanical device, a chain composed of male and female links alternating with each other, constructed, connected and revolved as described, each link having a groove furnished with catching means, an inverted arc formed in the periphery of said chain, a continuous groove formed in said arc by the links having full lateral contact with each other for the purposes set forth.

6. The combination of a chain having grooved links, suitable drums having the chain revolving around them forming an inverted arc on a part of the periphery having a continuous groove; with a revolving toothed wheel external to said periphery engaging said links so as to move the chain around the drums.

7. In a machine the combination of a chain having grooved links, drums having the chain revolving around them so as to form an inverted arc with a continuous groove formed in such arc, pins joining said links and acting as teeth, a horizontal disk having a guide-recess formed thereon, indents cut out in the rim of the said disk fitting the link-pins and gearing means giving motion to said disk and chain.

8. The combination in a machine of a chain having grooved links, pins joining said links together acting as teeth, a horizontal disk having a guide-recess formed thereon for guiding the grooved links, indents cut out in the rim of the disk fitting the link-pins, gearing means giving motion to said disk and chain substantially as described.

9. The combination in a brim-curling machine of the curling-iron with a grooved chain suitably supported, the said chain on a certain part of its periphery forming an inverted arc having a closed groove, a horizontal disk mounted on the top of the frame of the machine, having a guideway cooperating with the chain, indents cut in the rim of said disk meshing with means formed on the chain-links, gearing revolving the disk and chain substantially as described.

10. In a brim-curling machine the combination of the curling-iron adjustably secured in the upper arm of a pivoted treadle-lever, a horizontally-revolving disk supported on the top of the machine-frame furnished with teeth and having a guideway, a chain moved by and simultaneously with the said horizontal disk, each link of the said chain having a groove and a guide-flange, the said flanges by contact with the guideway on the horizontal disk forming an inverted arc in the said chain, the individual grooves of each link forming a curved closed groove for the purposes set forth, substantially as described.

11. In a brim-curling machine the combination of the curling-iron secured to a treadle-lever, a pivoted spring-controlled arm supporting said curling-iron, a horizontal disk furnished with teeth and having a guideway, a chain having grooved links forming an inverted arc by contact with the said disk, the link-pins of said chain gearing with the disk-teeth, two horizontally-adjustable drums pivotally attached to a bracket suitably secured to the frame guiding the said chain for the purposes set forth, substantially as illustrated and described.

12. In a brim-curling machine the combination of the curling-iron adjustably secured to a treadle-lever, a horizontal disk furnished with teeth and having a guideway formed thereon, a perpendicular shaft attached to said disk, a pinion secured to the lower end of said shaft, a worm, having motive power suitably transmitted to it, revolving said pinion, a chain composed of grooved links whose link-pins intermesh with the disk-teeth, revolved around two adjustably-pivoted drums, an arc formed in said chain by contact with the guide-way on the horizontal disk for the purposes specified substantially as illustrated and described.

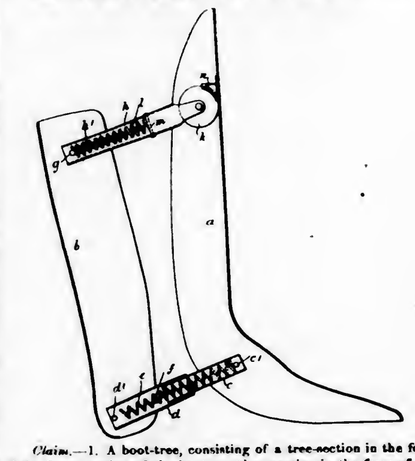
642,727. TAPE-LINE REEL. JOHN O. SMITH, Denver, Colo. Filed June 26, 1899. Serial No. 721,954. (No model.)



Claim.—1. The combination with a casing closed at one end and having a hinged cover or door at the other end, a removable partition disposed within said casing and dividing the same into two compartments, a shaft mounted at one end in the closed end of the casing and at the other end in said removable partition and a tape-line wound on said shaft and passing through the peripheral wall of the casing.

2. The combination with a casing closed at one end and provided at the other end with a hinged cover, of a removable partition within said casing, said partition having a peripheral flange to lie against the inner wall of the casing and constructed to receive a device to permit the ready removal of the partition, a shaft having its respective bearings in the closed end of the casing and said removable partition, and a tape wound on said shaft and passing through a slot in the casing.

642,728. BOOT-TREE. THOMAS G. STEVENS, Greenhithe, England. Filed Oct. 16, 1899. Serial No. 733,746. (No model.)



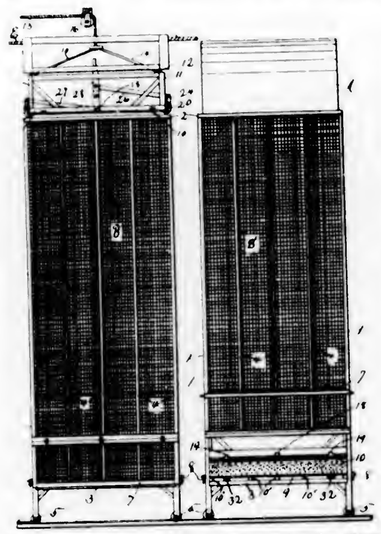
Claim.—1. A boot-tree, consisting of a tree-section in the form of the front portion of the boot, another portion in the form of the back portion thereof, two connecting-pieces each of which is pivoted at one end to the lower portion of one of the tree-sections, and which slide upon each other, a helical spring tending to force the connecting-pieces apart and to thus spread fore and aft the tree-sections, and means connected to the upper end of the tree-sections for forcing them apart fore and aft.

2. A boot-tree, consisting of a tree-section in the form of the front portion of the boot, another portion in the form of the back portion thereof, two connecting-pieces each of which is pivoted at one end to the lower portion of one of the tree-sections, and which slide upon each other, a helical spring tending to press the connecting-pieces apart and secured to one of them by a pin which passes between the convolutions of the spring, and means for forcing apart fore and aft the upper ends of the tree-sections.

642,729. MATTRESS-MAKING MACHINE. ISAAC N. STEWART, Fort Worth, Tex. Original application filed Mar. 8, 1898, Serial No. 673,133. Divided and this application filed Apr. 17, 1899. Serial No. 713,230. (No model.)

Claim.—1. An apparatus for making mattresses provided with means for cleaning and forming the mattress material, said means comprising a felter formed of an upright rectangular frame having its four sides provided with wire screens, a follower movable in the rectangular frame, and an opening in the lower part of the frame for the removal of the formed material or mattress.

2. An apparatus for making mattresses, comprising a plurality of felters, each consisting of a rectangular frame having its sides formed of wire screen, followers movable vertically in said felters, rollers on which said felters are mounted, tracks for said rollers, and provisions in the lower part of the frames for the removal of the mattress.



3. In apparatus for making mattresses, the combination of a felter comprising an upright frame having provisions in the side thereof for removal of the mattress, a follower for said felter, said follower consisting of a rectangular frame movable in the felter, a series of slats, and means for detachably connecting the slats to the follower.

4. In an apparatus for making mattresses; a felter and a follower for the felter, releasing means for holding and means for releasing a series of slats consisting of two holders having grooves for receiving the ends of the slats pivotally attached to the lower end edges of the follower and having arms projecting therefrom, a lever and link rods connecting said lever and said arms for operating said holders.

5. In an apparatus for making mattresses; the combination of a felter and a follower for the felter, said felter having a bed and slats placed on said bed and grooves formed in said bed, said follower having coacting grooves formed in the bottom part thereof and coacting slats and means for holding said slats against the bottom thereof and means for releasing said slats.

642,730. COOLER. WILLIAM A. STICKLEY and JOHN R. DWYER, St. Louis, Mo. Filed May 22, 1899. Serial No. 717,762. (No model.)

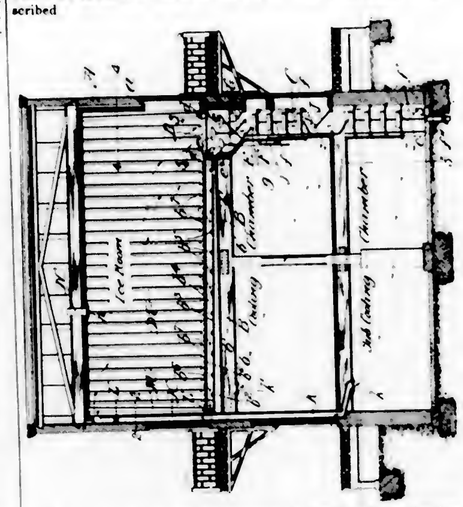
Claim.—1. In an apparatus of the character described, the combination with the walls of an ice-room, of a floor for said ice-room comprising joists B, flooring b', inclined strips b^3, flooring b^3, supporting-strips b^4, provided with notches b^5 in their lower edges, a perforated flooring b^6, and slats b^7 arranged on said perforated flooring, substantially as described.

2. In an apparatus of the character described, the combination with an ice-room, of a shaft leading from said room at one side thereof and terminating at its upper end on the plane of the floor of the room, a grated hatch-door covering said shaft, an inclined floor leading to said shaft, and drip-pans arranged in said shaft one above the other, and overflows at the alternate ends of said pans, substantially as described.

3. In an apparatus of the character described, the combination with an ice-room, of inclined slats or fenders arranged around the side walls thereof, substantially as described.

4. In an apparatus of the character described, the combination with an ice-room, of slats or fenders arranged around the side walls thereof away from engagement with said walls and at an inclination thereto, substantially as described.

5. In an apparatus of the character described, the combination with an ice-room, of a cooling-chamber separated therefrom, a cold-air flue leading from the ice-room into the cooling-chamber, a second flue leading from the upper portion of the cooling-chamber at a point distant from the cold-air flue into the upper portion of the ice-room, and an auxiliary or supplemental flue leading from the lower portion of the ice-room into the said second-mentioned flue at a point below the entrance of the same into the ice-room, substantially as described.



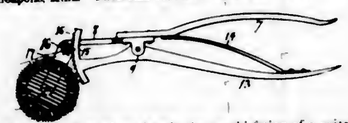
6. In an apparatus of the character described, the combination with an ice-room, of a cooling-chamber, a flue extending from the ice-room into the cooling-chamber at one end thereof, a flue leading from the upper portion of the cooling-chamber at the opposite end thereof into the upper portion of the ice-room, and an auxiliary or supplemental flue leading from the lower portion of the ice-room into the second-mentioned flue, at a point intermediate the ends of the same, substantially as described.

7. In an apparatus of the character described, the combination with an ice-room and a cooling-chamber and a cold-air flue connecting the same at one end thereof, of a flue K' leading from the upper portion of the cooling-chamber at a point opposite the cold-air flue into the upper portion of the ice-room, and a flue L leading from the lower portion of the ice-room and entering the flue K' at a point slightly short of its extreme upper end at an angle thereto so as to cause a circulation through the flue L to enter the flue K' by reason of the suction created by the circulation primarily in said flue K, substantially as described.

8. In an apparatus of the character described, the combination with an ice-room and a number of cooling-chambers, a shaft leading from said ice-room, doors in said shaft for directing cold air into one or all of said cooling-chambers, flues leading from the upper portions of all of said cooling-chambers into the upper portion of the ice-room, said flues conducting heated air from the cooling-chambers into the ice-room and flues leading from the lower portion of the ice-room into the heated-air flues at points below the entrance of said heated-air flues into the ice-room, substantially as described.

9. In an apparatus of the character described, the combination with an ice-room and a plurality of cooling-chambers, a shaft leading from said ice-room, doors in said shaft for directing cold air into one or all of said cooling-chambers, flues leading from the upper portions of all of said cooling-chambers into the upper portion of the ice-room conducting heated air into the ice-room, flues leading from the lower portion of the ice-room and connected with the heated-air flues from the cooling-chambers at points intermediate the ends of the same, and means for controlling the admission of heated air into said flues, substantially as described.

642,731. ROTARY BLACKING-BRUSH. OLOF A. SWANSON, Minneapolis, Minn. Filed Jan. 21, 1899. Serial No. 702,891. (No model.)



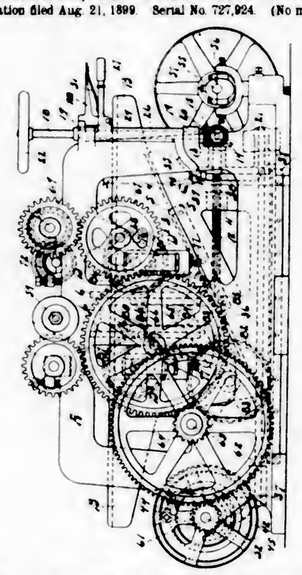
Claim.—In a blacking-brush, the combination of a suitable handle, a power-increasing operating-lever pivoted thereto and held away from the handle by a spring, a suitable frame extending on a slant forward of the handle, a rotary shaft journaled in the front part of the frame and carrying one or more brushes, speed-increasing cog-wheels mounted in the frame and adapted to rotate the brush-shaft; a toothed member secured to the short end or arm of the operating-lever and engaging the slowest pinion of the gear-wheels, substantially as and for the purpose set forth.

642,732. WAISTBAND. JESSIE THOM, Hetton-le-Hole, England. Filed Jan. 19, 1899. Serial No. 702,713. (No model.)



Claim.—A waistband consisting of an upper elastic portion, and a lower divided inelastic portion adapted to receive the dress-skirt or other garment substantially as set forth.

642,733. PLANING-MACHINE. JOHN R. THOMAS, Cincinnati, Ohio, assignor to the J. A. Fay & Egan Company, same place. Original application filed Apr. 24, 1899, Serial No. 714,274. Divided and this application filed Aug. 21, 1899. Serial No. 727,924. (No model.)



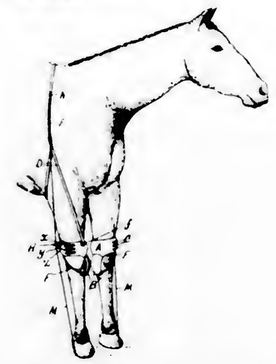
Claim.—1. In a planing-machine, the combination of an adjusting-shaft for the bed of the machine, with a sleeve taking thereabout and rocking thereon, a feed mechanism, and a connection between the sleeve and the feed mechanism, constructed and arranged for controlling the latter, substantially as described.

2. In a planing-machine, the combination of an adjusting-shaft for varying the distance between the bed of the machine with the feeding devices therein and the cutting-cylinder above the bed, with a sleeve taking about the adjusting-shaft and rocking thereon, a feed mechanism, a controlling device for the feed mechanism, and a connection between the sleeve and the controlling device, constructed and arranged for controlling the feed of the machine, substantially as described.

3. In a planing-machine, the combination of an adjusting-shaft for the bed of the machine, a sleeve taking thereabout, an adjusting-lever extending therefrom, a rock-shaft, connections between the sleeve and the rock-shaft for operating the latter, a revoluble shaft, a plurality of pulleys thereon, and a connection between the rock-shaft and the revoluble shaft for operatively engaging the pulleys with the latter, substantially as described.

4. In a planing-machine, the combination of an adjusting shaft for the bed of the machine, a sleeve taking thereabout, an adjusting-lever extending therefrom, a rock-shaft, connections between the sleeve and the rock-shaft for operating the latter, a revoluble shaft, a plurality of pulleys thereon, and a connection between the rock-shaft and the revoluble shaft for operatively engaging the pulleys and the latter, and a connection between the shifting-lever and the frame for normally holding the revoluble shaft and the pulleys thereon out of operative engagement, substantially as described.

642,734. KNEE-SPREADER. SIDNETTE Y. TRICE, Dallas, Tex., assignor to Agnes M. Trice, same place. Filed May 24, 1897. Serial No. 637,885. (No model.)



Claim.—1. Means for controlling knee action of horses consisting of spring or elastic cords and means for holding said cords in place, said means consisting of a neck-strap having brackets on each side thereof holding the upper ends of said cords, brackets supported on the legs above the knees for guiding said cords, and means for attaching said cords to the feet.

2. Knee spreaders and protectors consisting of padded cuffs provided with padded caps attached to said cuffs and adapted to shield the knees from strokes of the feet, elastic cords attached to the feet, means for supporting the upper ends of said cords, and guide-brackets for said cords attached to said cuffs.

3. Knee-spreaders and knee-action regulators consisting of elastic cords or springs, a neck-piece provided with bracket-clamps for supporting the upper ends of said cords, guide-brackets mounted on suitable supports attached to the legs of the animal, said supports being adapted to hold said neck-piece in place, and means for attaching said cords to the shoes or to the feet.

4. A knee-spreader having a neck-piece, elastic cords or springs adapted to control the motion of horses' feet, said cords or springs being attached to the feet and to said neck-piece, guide-brackets through which said cords or springs pass loosely, said brackets consisting of guide-pieces supported by pluralities of braces and being adapted to maintain the tension of said cords or springs when the feet are raised in motion, and means for mounting said brackets on the legs of the animal about the knees.

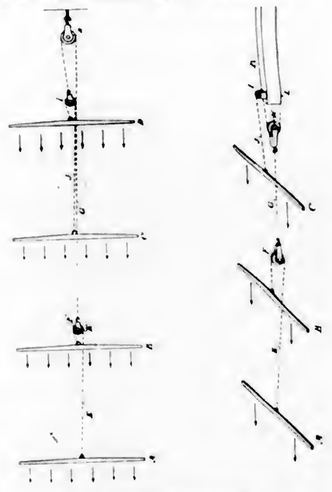
5. The combination of knee-caps adapted to protect the knees from strokes of the opposite feet and elastic cords or springs adapted to control the outward and upward motion of the feet, said cords or springs being attached to the outside of the animal's feet and supported from the neck of the animal and having means for holding same laterally away from the legs.

642,735. DRAFT-EQUALIZER. FLAVIOUS J. VESTAL, Pleasant Grove, Cal. Filed July 20, 1899. Serial No. 724,504. (No model.)

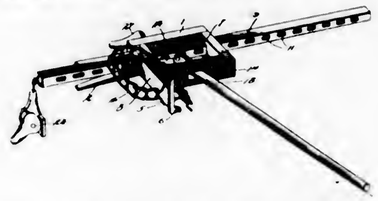
Claim.—1. In a draft-equalizing device, the draft-bars A and B, to which two teams are attached, a chain connecting the center of the first draft-bar with the center of the second, the bight of said chain passing around a pulley in the rear of the second draft-bar, a second chain connected with the support of said pulley and extending backward and around a pulley which is connected with the machine to be drawn, two other draft-bars C and D to which teams are attached, said draft-bars being connected by a chain, the bight of which passes around a pulley in the rear of the rearmost draft-bar, and connections between the support of said pulley and the chain which leads rearwardly from the two front draft-bars.

2. In a draft-equalizing device, a pulley connected with the machine to be drawn, a chain passing around said pulley, the two ends leading forward and connecting with the supports of two other pulleys, chains passing around each of these pulleys and connecting each with two draft-bars to which teams are attached whereby the pull of each two teams is counterbalanced by the ropes passing around the pulleys intermediate between their draft-bars, and each two teams

are equalized with each other by the first-named or main rope which passes around the pulley connecting with the machine.



642,736. WIRE-STRETCHER. HENRY W. WAGNER, Alma, Mo. Filed Apr. 24, 1899. Serial No. 714,199. (No model.)



Claim.—1. A device of the class described comprising a frame provided with arms arranged at an angle and adapted to receive a fence-post, a pair of lugs mounted on one of the arms and located above and below the frame, and a chain connected with the frame and adapted to engage either of the said lugs, substantially as described.

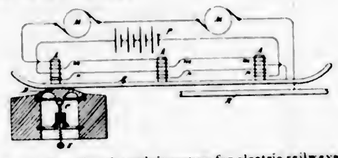
2. A device of the class described comprising an open horizontal frame provided at one end with arms arranged at an angle and adapted to receive a fence-post, a pair of lugs mounted on one of the arms and located at the top and bottom of the frame, a chain connected with the frame and adapted to engage either of the said lugs, a ratchet-bar slidingly mounted on the frame, a check-pawl operating between the lugs and engaging the ratchet-bar, and an operating-lever provided with means for actuating the ratchet-bar, substantially as described.

3. A device of the class described comprising an open horizontal frame provided at one end with arms arranged at an angle and adapted to receive a fence-post, a pair of lugs mounted at one side of the frame, a ratchet-bar slidingly mounted on the frame at the other side thereof, a check-pawl operating between the lugs and engaging the ratchet-bar, a chain connected with the frame and adapted to engage either of the lugs, an operating-lever fulcrumed on the frame and extending into the same, and a dog mounted on the inner end of the operating-lever and arranged to actuate the rachet-bar, substantially as described.

4. A device of the class described comprising an open rectangular frame arranged horizontally and provided at one end with arms adapted to receive a fence-post, one of the arms being provided with a lug located at one side of the frame, a ratchet-bar slidingly mounted on the frame at the opposite side thereof and located at the exterior of the adjacent arm, a chain for engaging the lug, a check-pawl for holding the ratchet-bar against backward movement, and an operating-lever fulcrumed on the frame at one side thereof, extending into the same and provided with a dog arranged to engage the ratchet-bar to actuate the same, substantially as described.

5. A device of the class described comprising a rectangular frame provided at one side with guide-openings, a ratchet-bar mounted therein, an operating-lever fulcrumed on the other side of the frame, a dog carried by the operating-lever, wire-engaging devices mounted on the frame and on the ratchet-bar, a transversely-disposed check pawl or dog engaging the ratchet-bar and supported by the frame, the arms arranged near one of the corners of the frame and adapted to receive a fence-post, and a chain adapted to secure the frame to the post, substantially as described.

642,737. ELECTRIC RAILWAY. EDOUARD BOBBY, JULES FAURIQUE, and GEORGES LIMIER, Lyons, France. Filed July 11, 1899. Serial No. 723,487. (No model.)



Claim.—1. In a closed-conduit system for electric railways, a car having a magnetized bar, and an energizing-coil for imparting additional magnetism to said bar, said coil being in series with the motor and receiving the full current passing to the motor, substantially as described.

2. In an electric tramway or railway the combination with the motor-conductors, of a straight magnet making contact with current-transmitting boxes flush with the surface of the ground and conducting but non-magnetic parts connected to the ends of the straight magnet, substantially as herein set forth and for the purpose stated.

3. In an electric tramway or railway the combination of main line or conductor movable contact-pin connected to such main conductor, a cast-iron ring provided with a guiding-socket to carry such pin, wings attached to said ring and rising to near the surface of the ground, a non-conducting box carrying said ring and contact-pin and having the said wings embedded therein, a conducting-plug closing the upper end of the box and a straight magnet carried by the vehicle and connected with the motor-conductors substantially as herein set forth and for the purpose stated.

642,738. ELECTRIC CABLE FOR HIGH-TENSION CURRENTS. CHAS BOREL, Lyons, France. Filed Dec. 13, 1898. Serial No. 699,144. (No model.)



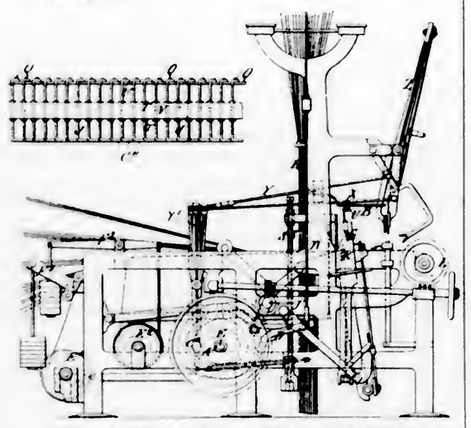
Claim.—An electrical conductor comprising a cylindrical central core or conductor composed of a plurality of wires bare and in contact with each other, a plurality of exterior wires encircling said core and slightly insulated therefrom, and a thin insulating-covering aroundd said outer wires, all of said wires conveying the same current, substantially as described.

642,739. BOTTLE-SEAL. ELMER E. DAUGHERTY, New York, N. Y. Filed Mar. 29, 1899. Serial No. 710,870. (No model.)



Claim.—The cap of strong sheet metal comprising the closed upper portion A' and open lower portion A² arranged at a distance apart and joined together by an annular strip B removably attached to the adjacent edges of the portions and having a free end serving to aid in its removal, the skirt A⁴ on said lower portion curled inwardly to form the flange A³, in combination with each other and with a bottle-neck having the shoulder M' thereon below the mouth, adapted to be engaged by said flange and to hold the cap against removal, all substantially as and for the purposes herein specified.

642,740. LOOM FOR WEAVING PILE FABRICS. ADRIEN DUQUESNE, Paris, France. Filed Dec. 16, 1897. Serial No. 662,231. (No model.)



Claim.—1. A loom for weaving pile fabrics, comprising the combination with means for carrying the warp-threads, and the batten, and means for inserting the pile-wires, of a rod movable into the shed to effect the separation of the threads, and mechanism for moving such rods at intervals.

2. A loom for weaving pile fabrics, comprising the combination with means for carrying the warp-threads, and the batten, and means for inserting the pile-wires, of a divided rod, the respective parts of which are movable into the shed to effect the separation of the threads, and mechanism for moving such rod at intervals.

3. A loom for weaving pile fabrics, comprising the combination with means for carrying the warp-threads, and the batten, and means for inserting the pile-wires, of two superposed rods movable simultaneously into the shed to effect the separation of the threads, and mechanism for moving such rods at intervals.

4. A loom for weaving pile fabrics, comprising the combination with means for carrying the warp-threads, and the batten, of a rod movable into the shed to effect the separation of the threads, and mechanism for moving such rod at intervals, and a rigid bar arranged to exert a pressure on the backing-warps in the contrary direction to the lifting motion of the pile-warp.

642,741. PROCESS OF REFINING FATTY OILS. MARTIN EKENBERG, Göteborg, Sweden, assignor to the Aktiebolaget Göteborgs Oljeraffineri, same place. Filed Jan. 18, 1899. Serial No. 702,553. (No specimens.)

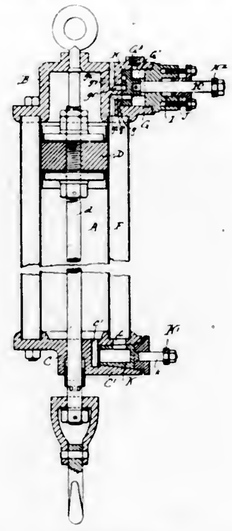
Claim.—1. The herein-described method of refining fatty oils, consisting in adding glycerin and hydrates of alkalies, heating the mixture, while being stirred, to 100° centigrade and then filtering, substantially as described.

2. The herein-described method of refining fatty oils consisting in mixing the oil with a hydrate of an alkali in sufficient quantity to neutralize the free fatty acids present and to secrete glycerin to an amount of at least five per cent. of the weight of the separated soaps, heating the mixture, while stirring, to 100° centigrade whereby glycerin and granular neutral soaps are formed and the oil purified, substantially as described.

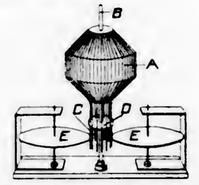
642,742. HYDROPNEUMATIC HOIST. HENRY O. EVANS, Pottstown, Pa. Filed Aug. 8, 1898. Serial No. 688,053. (No model.)

Claim.—1. The combination with the hoist-cylinder and piston and with the hydropneumatic reservoir having valve-controlled liquid communication with one end of said cylinder, of a compressed-fluid-valve mechanism between the opposite ends of said cylinder and reservoir, said mechanism comprising a reservoir-supply port, two cylinder-ports one of which is provided with a check-valve, and an exhaust-port to the atmosphere, and a valve in said chamber arranged to control the flow of compressed liquid to and from said chamber through said ports, substantially as set forth.

2. In a hydropneumatic hoist the combination with the hoist-cylinder and communication-reservoir, of a compressed-fluid-valve mechanism comprising a valve-chamber provided with a reservoir-supply port, a check-controlled cylinder-port, and an exhaust-port to the atmosphere, and a valve for controlling said ports having a contracted exhaust-passage, as *h*⁴, substantially as and for the purpose set forth.



642,743. COMMUTATOR FOR ELECTRIC MOTORS OR GENERATORS. SYDNEY EVERSHED, London, England, assignor to himself and the Evershed & Vignoles, Limited, same place. Filed Sept. 15, 1899. Serial No. 730,605. (No model.)



Claim.—1. In an electric motor or generator, a multisection-commutator, adapted for drum or Gramme windings, having conducting-strips, formed of resilient wires, fixed at one end in an insulating-collet, and free to bend at the other; in combination with rotating metallic-sheet brushes, adapted to make elastic rolling contact successively with all the said resilient-wire strips, substantially as described.

2. In an electric motor or generator, a multisection-commutator, adapted for drum or Gramme windings, having insulated conducting-sections, parellel to the axis of rotation of the armature, all passing successively over the same commutating-contacts, in combination with rotary metal-sheet brushes, having continuous resilient periphery of bowl form, forming elastic rolling contacts to the commutator, and rotated thereby, substantially as described.

642,744. EYEGLASSES. GEORGE A. GRIFFIN, New York, N. Y., assignor to the Julius King Optical Company, same place. Filed July 27, 1899. Serial No. 725,222. (No model.)

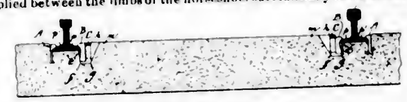


Claim.—As an improved article of manufacture, a bow-spring of uniform thickness for eyeglasses, having one or more ribs or corrugations along the center thereof, substantially as described.

642,745. MEANS FOR FIXING RAILS ON SLEEPERS OF RAILWAYS. FRANÇOIS HENNEBIQUE, Paris, France. Filed July 21, 1899. Serial No. 724,701. (No model.)

Claim.—In combination, the rail, the sleeper having a recess in its upper side, a clamp engaging the rail and fitting in the recess and

a piece of horseshoe shape fitting between the clamp and the wall of the recess, said piece being removable when upward pressure is applied between the limbs of the horseshoe, substantially as described.



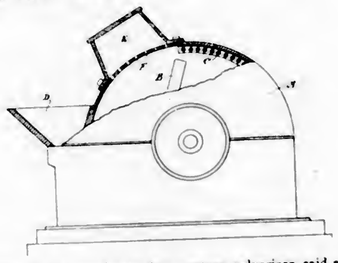
642,746. INKING-PAD. AUGUSTUS C. KLEY, Liverpool, England. Filed Sept. 29, 1899. Serial No. 732,091. (No model.)



Claim.—1. In combination, the frame or base having a raised lip, a pad held thereby, brackets *d* secured to the end edges of the frame, a pin held in one bracket, a roller held in the other bracket, a band on the pin and a pawl and ratchet for applying a tension to the band, substantially as described.

2. The inking-pad apparatus consisting of the carrier-base *a*; frame *b*; pad *c*; pin *f*, and roller *h*, with locking ratchet-wheels *i* and pawls *j*; and textile sheet *k* stretched between the pin *f* and roller *h*, said sheet being fixed to the pin *f*; particularly as shown and set forth.

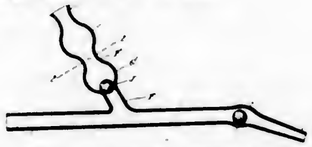
642,747. DUST-PREVENTER ATTACHMENT FOR ROTARY PULVERIZERS. JACOB KULLMAN, Benicia, Cal. Filed June 8, 1899. Serial No. 719,811. (No model.)



Claim.—1. An attachment for a rotary pulverizer, said attachment open at the bottom and formed with a curved bottom edge adapted to be fitted and secured to the curved top or cover of the pulverizer.

2. An attachment for a rotary pulverizer, said attachment formed with open bottom and imperforate top and sides and having a concave flanged bottom edge or base adapted to be bolted to the convex top or cover of the casing of the pulverizer.

642,748. INHALER. ARTHUR MANNERS, Hull, England. Filed Feb. 23, 1899. Serial No. 706,463. (No model.)

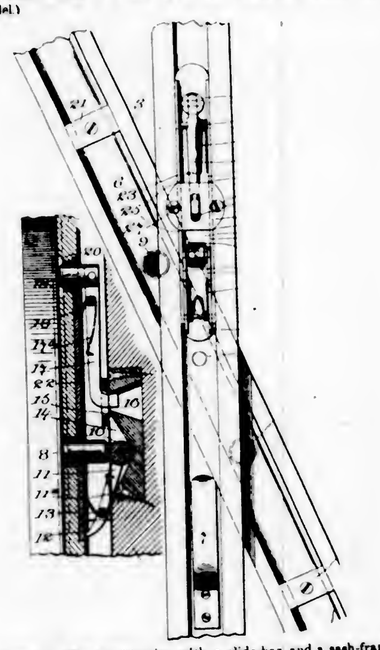


Claim.—1. An inhaler, comprising a main tube provided at one end with a mouthpiece, and at the other end with an inwardly-opening valve, a branch tube communicating therewith adjacent said mouthpiece, and projecting obliquely therefrom toward said mouthpiece and provided with a medicament-receptacle, an outwardly-opening valve mounted in said branch tube between said medicament-receptacle and said main tube, said branch tube being also provided with a bulbous portion in which said outwardly-opening valve operates, and is retained from said medicament-receptacle, substantially as shown and described.

2. An inhaler, comprising a main tube provided at one end with a mouthpiece and at the other end with a contracted portion, an inwardly-opening valve mounted in said main tube adjacent said contracted portion, a branch tube communicating with said main tube adjacent said mouthpiece and ranging upwardly at an angle thereto, and provided with an outwardly-opening valve, a medicament-receptacle, a bulbous portion between said medicament-receptacle and said main tube in which said outwardly-opening valve operates, and an end portion adapted to connect with the nose, substantially as shown and described.

3. In an inhaler, a tube elliptical in cross-section and provided with a bulbous enlargement, an internally-circular portion in which said bulbous enlargement terminates, and a ball-valve operating within said bulbous enlargement, substantially as shown and described.

642,749. REVOLVING WINDOW-SASH. GEORGE R. MCCHESNEY, New York, N. Y. Filed May 26, 1899. Serial No. 718,410. (No model.)



Claim.—1. The combination with a slide-bar and a sash-frame pivotally mounted on said slide-bar, of a latch carried by the slide-bar and adapted to engage the sash-frame and hold it locked to the slide-bar, means for causing the latch to automatically move out of engagement with the sash-frame when the latter and the slide-bar reach a certain point with reference to the window-casing, a lock on the slide-bar separate and distinct from said first-mentioned latch and means whereby it is automatically operated to engage the window-frame when the slide-bar and sash are at that point whenever the sash is swung from the perpendicular.

2. The combination with a slide-bar and a sash-frame pivotally mounted on said slide-bar, of a latch carried by the slide-bar and adapted to engage the sash-frame and hold it locked to the slide-bar, means for causing the latch to automatically move out of engagement with the sash-frame when the latter and the slide-bar reach a certain point with reference to the window-casing, a lock on the slide-bar and means whereby it is automatically operated to engage the window-frame when the slide-bar and sash are at that point, whenever the sash is swung from the perpendicular, said last-mentioned means consisting of two projections on the sash equidistant from the pivot thereof.

3. The combination with a slide-bar and a sash-frame pivotally mounted on said slide-bar, of a lock for said slide-bar, adapted to engage the window-casing, and means whereby the swinging of the sash automatically operates said lock, said means consisting of a projection on the sash adapted to engage the tail of the locking-lever.

4. The combination of a tongued slide-bar, a sash-frame pivotally mounted on said slide-bar and grooved to fit over the tongue, the pivotal joint between the two having sufficient endwise play, however, to permit of the disengagement of the tongue and groove, a pivoted locking-lever mounted in the sliding bar, having a projection from one end adapted to engage a recess in the window-frame, and a projection from its other end extending through the slide-bar into a recess formed by cutting out a section of the tongue thereon, together with a projection on the swinging sash adapted to enter the last-mentioned recess and engage the projection from the locking-lever, when the tongue-and-grooved connection is established.

5. The combination of a tongued slide-bar, a sash-frame pivotally mounted on said slide-bar, and grooved to fit over the tongue, the pivotal joint between the two having sufficient endwise play however, to permit of the disengagement of the tongue and groove, a pivoted locking-lever mounted in the sliding bar, having a projection from one end adapted to engage a recess in the window-frame, and a projection from its other end extending through the slide-bar into a recess formed by cutting out a section of the tongue thereon, together with a projection on the swinging sash adapted to enter the last-mentioned recess and engage the projection from the locking-lever when the tongue-and-grooved connection is established, and a spring normally tending to turn said locking-lever into its position of engagement with the recess in the window casing or frame.

6. The combination with a slide-bar and a sash-frame pivotally mounted thereon, of a latch carried by the slide-bar, adapted to engage the swinging sash, means for holding said latch normally retracted, a roller on the other end of the latch adapted to roll upon the window-frame, and a recess in said frame adapted to receive said roller and permit the withdrawal of the latch from the swinging sash.

7. The combination with a slide-bar and a sash-frame pivotally mounted thereon, of a latch carried by the slide-bar, adapted to engage the swinging sash, means for holding said latch normally retracted, a roller on the other end of the latch adapted to roll upon the window-frame, and a recess in said frame adapted to receive said roller, and permit the withdrawal of the latch from the swinging sash, together with a pivoted spring-controlled frame for withdrawing said latch.

8. The combination with a slide-bar and a sash-frame pivotally mounted thereon, of a latch carried by the slide-bar, adapted to engage the swinging sash, means for holding said latch normally retracted, a roller on the other end of the latch adapted to roll upon the window-frame, and a recess in said frame adapted to receive said roller, and permit the withdrawal of the latch from the swinging sash, together with a pivoted spring-controlled frame for withdrawing said latch, and projections on said frame for limiting the motion thereof.

9. The combination of a grooved slide-bar for a window-sash, a lock-case set in said groove and flush therewith, cross-scarfs cut in the edges of the case, and a retaining-plate fitting into said scarfs, having a central perforation for the lock-bolt, and perforated ends through which retaining-screws may be driven into the face of the slide-bar on either side of the groove therein.

642,750. COMBINATION MEASURING-TOOL. LAURITZ B. NIELSEN, Poughkeepsie, N. Y. Filed Nov. 29, 1898. Serial No. 697,739. (No model.)



Claim.—1. In a measuring-tool of the class described, a pair of indicator-points one of which has an eccentric adjustment about its approximately-fixed center, as and for the purpose set forth.

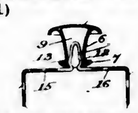
2. In a measuring-tool of the class described, a body portion such as the bar 3, a pair of legs such as 7 and 21 adjustably secured on said bar, the leg 7 being formed with a cylindrical shank, the adjustable sleeve encompassing said shank, and having its outer end formed with a longitudinal cylindrical orifice, arranged eccentric to the axis of said shank, and a center-point removably secured in said orifice, as and for the purpose set forth.

642,751. NECKTIE-HOLDER. WILLIAM F. NIES, Swampscott, Mass., assignor of one-half to Franklin F. Hodges, Boston, Mass. Filed July 8, 1899. Serial No. 723,196. (No model.)



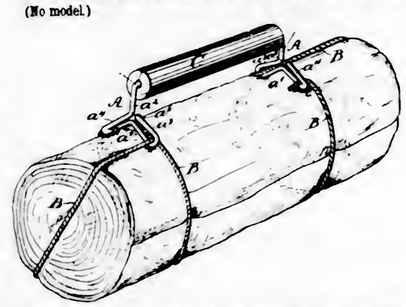
Claim.—A necktie-holder comprising a central portion having a shank lying in a single plane and provided with oppositely-disposed offsets at its lower end, the space within the shank and offsets being open and of approximately T shape, the shank being adapted to grip a collar-button, and having at its upper end oppositely-disposed arms terminating in U-shaped members adapted to receive between them the crossed ends of a tie to be made up, and the holder being formed from wire in one continuous piece.

642,752. COMBINED COLLAR-BUTTON AND NECKTIE-HOLDER. WILLIAM F. NIES, Swampscott, Mass., assignor of one-half to Franklin F. Hodges, Boston, Mass. Filed Aug. 11, 1899. Serial No. 726,877. (No model.)



Claim.—A device of the class specified comprising a collar-button having a recess in its shank, longitudinally thereof and a tie-holder of wire in one piece having two U-shaped members adapted to receive the crossed ends of a necktie and including a cross-piece uniting said members, said cross-piece being provided substantially at its middle, with a U-shaped spring-arm extending approximately at right angles therefrom and both branches of which are united to the cross-piece, and said spring-arm being adapted to be frictionally held within the recess and the collar-button.

642,758. SHAWL OR BUNDLE CARRIER. FILLMORE A. PEARSONS, Rutland, Vt., assignor of one-half to Harold S. Dana, Woodstock, Vt. Filed Dec. 6, 1897. Renewed July 13, 1899. Serial No. 723,716. (No model.)



Claim.—1. An improved shawl and bundle carrier, comprising a bent-wire body having a single longitudinal top bar or connecting-bridge provided at each end with two depending end portions forming an approximately U-shaped loop or guide and an approximately V-shaped clasp between the sides of which a cord or strand can be wedged, said loops or guides and clasps being arranged divergently and projecting in opposite directions, substantially as and for the purpose set forth.

2. An improved shawl and bundle carrier, comprising a body formed of a single piece of bent wire and embodying a longitudinal top bar or connecting-bridge having downturned end portions at each end thereof, and an approximately U-shaped loop or guide and approximately V-shaped clasp between the sides of which a cord or strand can be wedged, said loops or guides and clasps being carried upon each of said downturned end portions, and said loop or guide and clasp being at right angles to the top bar and relatively divergent so that they project downwardly and outwardly in opposite directions and conjointly form an approximately V-shaped end portion to said body, substantially as and for the purpose set forth.

3. The herein-described improved shawl and bundle carrier, comprising the body formed of a piece of wire bent to form the longitudinal top bar *a* and the depending end portions a' a' at each end thereof each embodying the approximately U-shaped loop or guide a^2 and the approximately V-shaped clasp a^4 between the sides of which a cord or strand can be wedged, said loops or guides and clasps being divergently arranged, and the end portions being of reversed construction so that at one end the loop or guide is next to the connecting top bar and the clasp forms the terminal or outer member while at the other end the clasp is next to the connecting top bar and the loop or guide forms the terminal or outer member, substantially as and for the purpose set forth.

4. An improved shawl and bundle carrier, comprising a body having a handle member carrying at each end a conjointly-arranged loop or guide through which a cord may be passed, and a clasp between the sides of which a cord or strand can be wedged and clamped, substantially as and for the purpose set forth.

5. An improved shawl or bundle carrier, comprising a body having a handle member carrying at each end a conjointly-arranged loop or guide and clasp between the sides of which a cord or strand can be wedged, the relative arrangement of the loop or guide and clasp being reversed at the respective ends, so that at one end the loop or guide is the inner member and the clasp the outer member and at the

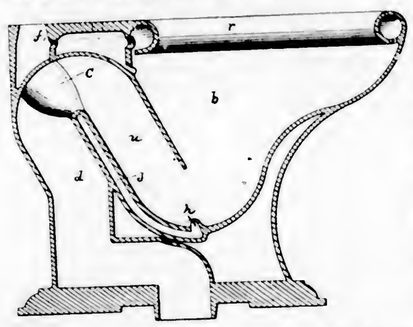
other end the clasp is the inner member and the loop or guide the outer member, substantially as and for the purpose set forth.

6. In an improved shawl and bundle carrier formed of bent wire, the end portions comprising the depending loop or guide a^3 and the approximately V-shaped clasp a^4 between the sides of which a cord or strand can be wedged, said loops or guides and clasps being arranged in the same transverse plane and divergently projecting oppositely and downwardly and outwardly, substantially as and for the purpose set forth

7. An improved shawl and bundle carrier formed of bent wire and comprising a handle member having downturned end portions, and the conjointly-arranged approximately U-shaped loop or guide and approximately V-shaped clasp between the sides of which a cord or strand can be wedged, said loops or guides and clasps extending from said end portions of the handle member and projecting therefrom in relatively opposite directions and transversely with relation thereto, substantially as set forth

8. In an improved shawl and bundle carrier formed of bent wire and comprising a handle member having downturned end portions and loops or guides and clasps between the sides of which a cord or strand can be wedged, said loops or guides and clasps extending from said end portions and projecting transversely with relation thereto, an extended terminal end to said loop or guide and clasp portion, said terminal end being turned upwardly with relation to the downturned end portion of the handle member and forming an entrance-guide for the cord, substantially as set forth.

642,754. SANITARY FIXTURE ARTHUR PLANTIER, Trenton, N. J., assignor to the Trenton Potteries Company, same place. Filed May 11, 1899. Serial No 716,408. (No model.)



Claim.—1. A sanitary fixture of the class described and having a siphon and a jet-opening, the uptake and downtake of the siphon being separated and forming in the interval between them a passage-way extending substantially parallel therewith and connected with the flushing-pipe opening and the jet-opening, substantially as set forth.

2. A sanitary fixture of the class described and having a siphon jet-opening, the uptake and downtake of the siphon being separated and forming in the interval between them a passage-way extending substantially parallel therewith and connecting with the jet-opening, and one or more ducts c laterally flattened against, and formed in part by, the siphon-wall, and connecting the said passage-way with the flushing-pipe opening, substantially as set forth

3. A sanitary fixture of the class described and having a siphon jet-opening, the uptake and downtake of the siphon being separated and forming in the interval between them a passage-way extending substantially parallel therewith and connecting with the jet-opening, and one or more ducts c therefor, laterally flattened and passing the siphon at a point or points where the siphon itself is flattened laterally to make room for such duct or ducts, substantially as set forth.

4. A sanitary fixture of the class described and having a siphon and a jet-opening, the uptake and downtake of the siphon being separated and forming in the interval between them a passage-way extending substantially parallel therewith and connecting with the jet-opening, and one or more ducts c connecting the said passage-way with the flushing-pipe opening and passing the siphon at a point where the siphon is flattened or depressed laterally to make room therefor, substantially as set forth.

5. A sanitary fixture of the class described provided with a siphon, a jet-opening, and a jet passage-way which crosses the dome of the siphon at a point where the siphon is flattened or depressed laterally to receive it, the wall of the siphon constituting in part also the inside wall of such passage-way, substantially as set forth.

6. A sanitary fixture of the class described provided with a siphon, a jet-opening, and a jet passage-way which crosses the dome of the siphon at a point where the outer wall of such passage-way lies flush with, and does not bulge or project laterally beyond, the side walls of the siphon, the said siphon being flattened laterally to compensate for the said passage-way, and the walls of the siphon and of the passage-way forming a smooth exterior, as shown and described

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642,755. MALL CHESTER PROUTY, Ridgway, Pa. Filed Mar. 13, 1899. Serial No 708,922. (No model.)



Claim.—1. In a mall, the combination of a circular tapered block having a tapered bore, a handle adapted to be received by said block, a metal band of uneven thickness compassing said block, and a wedge, pointed at opposite ends and secured within, and projecting from the end of, said handle, substantially as described

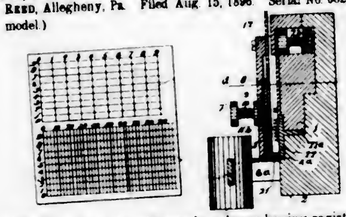
2. In a mall, the combination of a handle having a tapered end, a circular, tapered block adapted to receive said tapered end, a metal band having convexo-convex surfaces and compassing, and embedded in, said block and forming the pounding-surface thereof, and a wedge, pointed at opposite ends and secured within, and projecting from the handle, substantially as described.

3. In a mall, the combination of the handle, the tapered block detachably secured thereto, a metallic band having convexo-convex surfaces and compassing, and forming the pounding-surface of, said block, and a wedge, pointed at opposite ends and secured within, and projecting from, the end of said handle, substantially as described.

4. In a mall the combination of the handle, the block detachably secured thereto, and a metallic band embedded in and compassing said block, the ends of the band separated, whereby expansion or contraction thereof is permitted, substantially as described

5. In a mall the combination of the handle, the block detachably secured thereto, and a metallic band, having convexo-convex surfaces, embedded in and compassing said block, the ends of the band separated, whereby expansion or contraction thereof is permitted, substantially as described.

642,756. INDICATING AND RECORDING SCALE MATTHEW H. REED, Allegheny, Pa. Filed Aug. 15, 1898. Serial No. 602,891. (No model.)



Claim.—1. In a recording-scale, a beam having registering-pins thereon spaced at graduated horizontal and vertical distances.

2. In a recording-scale, a beam having registering-pins thereon spaced horizontally according to the graduations on the beam and vertically by a predetermined unit.

3. In a recording-scale, a beam; a counterpoise hung on said beam; a guide-bar carried by said counterpoise and registering-pins on said guide-bar spaced at graduated horizontal and vertical distances

4. In a recording-scale, a beam, a counterpoise hung on said beam, a guide-bar fixed to said counterpoise and registering-pins spaced thereon vertically corresponding to the weight- used on said counterpoise and horizontally by some predetermined unit.

5. In a recording-scale, a beam, a counterpoise hung on said beam, a guide-bar fixed to said counterpoise, registering-pins on said guide-bar, spaced at graduated horizontal and vertical distances; a card-holder sliding on said guide-bar; a card adapted to fit in said card-case and receive the imprint of said registering-pins, and means of advancing said card against said pins

6. In a recording-scale a beam; a counterpoise hung on said beam, a guide-bar fixed to said counterpoise; registering-pins spaced on said guide-bar vertically corresponding to the weights used on said counterpoise and horizontally by some predetermined unit, a card-holder sliding on said guide-bar, a card adapted to fit in said card-case and receive the imprint of said registering-pins, and means for advancing said card against said pins

7. In a recording-scale, a primary beam fitted with registering-pins, a primary poise mounted thereon; a secondary beam on said primary poise; a secondary poise mounted on said secondary beam, a punching-pin actuated by said secondary poise; a card so divided by horizontal and vertical lines as to receive the imprint of the pins on the primary beam and the pin or pins actuated by the secondary poise and a card-holder fitted to contain said card and advance it toward said beam

8. In a recording-scale, a beam having registering-pins at graduated horizontal and vertical distances and a card carried by the poise adapted to receive the registering-marks of said pins.

9. In a recording-scale, a beam, registering-pins spaced at graduated horizontal and vertical distances on said beam, a poise adapted to be used as a card-holder; a card adapted to fit in said poise and means for advancing said card against said pins.

10. In a recording-scale a beam, a counterpoise hung on said beam, a guide-bar mounted on said counterpoise, registering-pins spaced at horizontal and vertical distances on said guide-bar; a card fitted to receive the imprint of said pins and means of applying said card to said pins.

11. In a recording-scale, a beam, registering devices spaced on said beam at graduated horizontal and vertical distances.

12. In a recording-scale, a primary beam having pins graduated at horizontal and vertical distances thereon, a primary poise mounted on said primary beam, a secondary poise carried by said primary poise and a registering member actuated by said secondary poise and fitted with registering pin or pins.

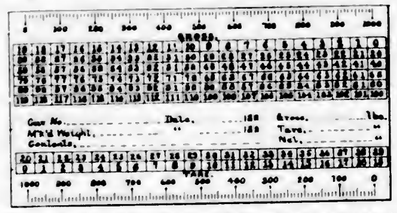
13. In a recording-scale, a primary beam having pins graduated at horizontal and vertical distances thereon; a primary poise mounted on said primary beam; a secondary poise carried by said primary poise and a puncturing-pointer actuated by said secondary poise.

14. In a recording-scale a beam having registering-pins spaced thereon and a card fitted to receive the impress of said pins and graduated with horizontal and vertical lines, one series of lines denoting multiples of the other series.

15. In a recording-scale, a primary beam having registering-pins thereon; a primary poise mounted on said primary beam; a secondary poise carried by said primary poise; a registering member actuated by said secondary poise and fitted with registering-pins, and a card fitted to receive the impress of said pins and divided into two sections, each section being graduated by horizontal and vertical lines, one series of said lines denoting multiples of the other series, and the graduations on one section of said card denoting multiples of the graduations on the other section.

16. In a recording-scale, a beam; a poise mounted on said beam; a bar actuated by said poise having on its face pins spaced vertically and horizontally at graduated distances.

642,757. RECORD-CARD FOR SCALES. MATTHEW H. REED, Allegheny, Pa. Filed Apr. 7, 1898. Serial No. 676,744. (No model.)



Claim.—1. A record-card for scales having one portion graduated for the main beam horizontally and vertically, the unit of increase indicated by the progressive vertical graduations being the multiple of the unit of increase indicated by the progressive horizontal graduations, and another portion graduated progressively for the secondary beam.

2. A record-card for scales having two divisions, the first division having one portion for the main beam graduated horizontally and vertically, the unit of increase indicated by the progressive vertical graduations being the multiple of the unit of increase indicated by the progressive horizontal graduations, said division having another portion also having a progressive graduation for the secondary beam, the whole being intended to indicate the gross weight and a second division on said card graduated like the first so far as specified above except reversely to indicate the tare weight.

3. A record-card for scales having one portion graduated both horizontally and vertically, and the other portion graduated progressively in a horizontal direction, both sets of graduations indicating weights, substantially as described.

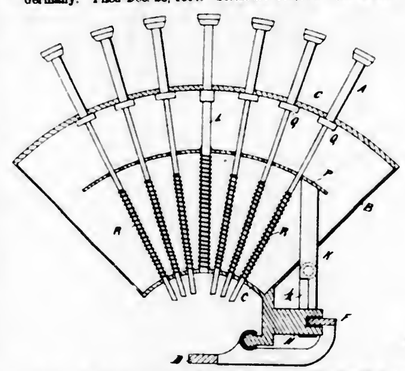
4. A record-card for scales having one portion graduated horizontally and vertically, to indicate the amount from the main beam, and another portion graduated progressively in a horizontal direction to indicate the amount from the secondary beam, substantially as described.

642,758. BICYCLE JULIUS F. A. RUNGE, Leipsic, Germany. Filed Feb. 18, 1898. Serial No. 670,777. (No model.)



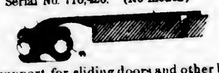
Claim.—In a bicycle a hollow stationary tube a, suitably secured to connections with the frame and provided with a slot b, to receive the bolt d and a seat-bar c, having a vertical movement in said tube, in combination with the spring e, for imparting an upward movement to the seat-bar, and a connecting-rod pivoted at its upper end to the bolt d, and at its lower end to connections for imparting rotating movement to the rear wheel of the bicycle.

642,759. TYPE-WRITING MACHINE RUDOLF SCHADE, Berlin, Germany. Filed Dec. 28, 1897. Serial No 663,814. (No model.)



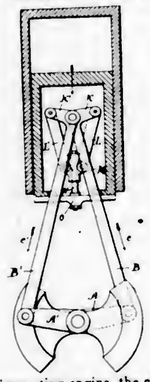
Claim.—In a type-writing machine the combination of a paper-carriage and a rack connected thereto with two concentric, perforated, curved plates, each forming a section of a sphere, a perforated intervening plate, a series of type-rods passing through all three of said plates, collars arranged upon the said rods within the outer section or plate for acting on the interval-plate, the guide-rod L moving with the said interval-plate, replacing-springs for the said type-rods and guide-rod, a rigid arm K carried by the said guide-rod and a flexible elastic pawl k attached to the said rigid arm and engaging the said rack, the said pawl being arranged and adapted to positively feed the said carriage by its engagement therewith under pressure of the operator's hand, substantially as and for the purpose set forth.

642,760. DOOR-HANGER. EPHRAIM L. SCHANCK, Delaware, Ohio, assignor to M. J. Breece and F. W. Chamberlain, same place. Filed Mar. 25, 1899. Serial No. 710,428. (No model.)



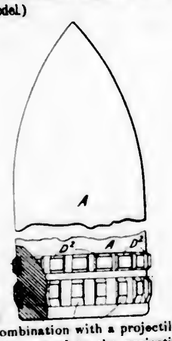
Claim.—In a support for sliding doors and other bodies, the combination with a horizontal guide-body having a substantially hook-shaped termination, of a hanger formed of a single piece of metal and adapted to be secured to a door or other similar body, said hanger having a head provided with a continuous substantially elliptical raceway and balls running in said raceway and adapted to bear in said guide, said balls being retained in said raceway by the partial closing of the lips thereof, substantially as specified.

642,761. RECIPROCATING ENGINE. MICHAEL H. SMITH, London, England. Filed June 29, 1897. Serial No. 642,890. (No model.)



Claim.—In a reciprocating engine, the cylinder, the piston, the two shafts, the two cranks connected therewith, two counterweights connected with the cranks, and two connecting-rods provided with bell-cranks at their upper ends, combined with suitable connecting-rods for each of the bell-cranks, a sleeve to which the lower ends of the connecting-rods are pivoted, a guide-pin, and a suitable support therefor, the bell-cranks being pivoted inside of the hollow piston, substantially as shown and described.

642,762. PROJECTILE FOR RIFLED GUNS. FREDERIC STUBBS and LYCURGUS BURROWS, Sheffield, England. Filed Nov. 7, 1899. Serial No. 736,157. (No model.)



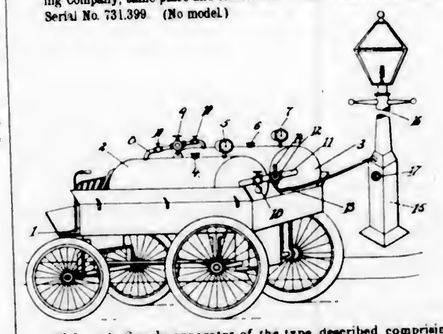
Claim.—1. The combination with a projectile for rifled guns, of a driving device fixedly secured to the projectile and a gas-check carried by the projectile and rotatable relatively to it during its discharge through the bore.

2. The combination with a projectile for rifled guns, of a driving device fixedly secured to the projectile and an annular rotatable gas-check which encircles the projectile and is free to rotate thereon, substantially as set forth.

3. The combination with a projectile for rifled guns, of a driving-band B, an annular rotatable gas-check D, and a groove in the projectile to contain the driving-band and the gas-check, substantially as set forth.

4. The combination with a projectile for rifled guns, of a driving band fixedly secured to the projectile, and a gas-check carried by the projectile and rotatable relatively to it during its discharge through the bore, said gas-check having an encircling cannelure for the purpose set forth.

642,763. SUPPLY-WAGON FOR INCANDESCENT OR OTHER HYDROCARBON BURNERS. RUSSELL THAYER, Philadelphia, Pa., assignor to the Kitson Hydro-Carbon Heating and Incandescent Lighting Company, same place and Charleston, W. Va. Filed Sept. 25, 1899. Serial No. 731,399. (No model.)



Claim.—1. Supply apparatus of the type described comprising a wagon, oil and compressed-air tanks carried thereby, a connection between said tanks for permitting air-pressure to reach the supply of oil, a reduction-valve in said connection, a discharge connection adapted for application to the tanks to be filled, and a valve for connecting said discharge connection with one or the other of said tanks to supply oil and air separately as required.

2. Supply apparatus of the type described comprising a wagon, intercommunicating tanks mounted thereon, a controlling-valve for maintaining different pressures in said tanks, a discharge-pipe, and means for connecting the discharge-pipe with one or the other of the tanks, substantially as described.

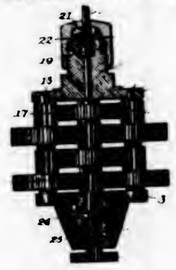
3. Supply apparatus of the type described comprising a wagon, tanks thereon and of which one is adapted to contain oil under pressure and the other to contain air under greater pressure, a discharge connection, and a three-way plug-valve for connecting the discharge connection with one or the other of the tanks, substantially as described.

4. Supply apparatus of the type described comprising a wagon, a tank mounted thereon for containing a supply of oil under pressure, a tank thereon for containing a supply of air under different pressure, a discharge-pipe as 13, and means for connecting said pipe with one or the other of the tanks, substantially as described.

642,764. PROCESS OF DEVULCANIZING CAOUTCHOUC, INDIA-RUBBER, &c. ALBERT E. J. V. J. THEILGAARD, Copenhagen, Denmark. Filed June 1, 1899. Serial No. 719,020. (No specimens.)

Claim.—The process of devulcanizing caoutchouc, india-rubber, gum-elastic, and similar materials, characterized by the said materials, after being divided into pieces of suitable size, being placed in a recipient and treated with a solution of a cyanid, eventually under a raised temperature, whereupon the materials, after a thorough devulcanizing, are removed from the solution, washed, and dried.

642,765. COMPOUND GEAR-TRAIN FOR WATER-METERS. JOHN THOMSON, New York, N. Y. Filed Sept. 15, 1899. Serial No. 730,627. (No model.)



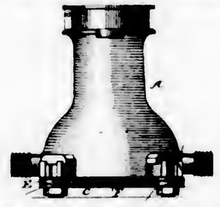
Claim.—1. In a spur-gear train, two gear-plates supporting the train, the adjacent faces of the plates being provided with integral pillars extending longitudinally beyond the plates to the medium line between the plates with their ends abutting, said pillars having central bores, and rods tightly fitting the bores of the opposing pillars, substantially as described.

2. In a spur-gear train, two gear-plates supporting the train, the adjacent faces of the plates being provided with integral pillars extending longitudinally beyond the plates to the medium line between the plates with their ends abutting, said pillars having central bores, rods tightly fitting the bores of the opposing pillars the plates also being provided on their adjacent faces with blind bearings, and rods loosely mounted in said blind bearings, substantially as described.

3. In a spur-gear train, the combination with the gear-plates and a stuffing-box supported thereon having a stuffing-box chamber in its end, of a stuffing-box spindle mounted therein and provided with a shoulder bearing on the under side of the gear-plate, and a collar having a bearing in the stuffing-box chamber, substantially as described.

4. In spur-gear train of a water-meter, the combination with the gear-plates the stuffing-box and the driving-pinion having formed integral therewith a hollow spindle and provided with a driving-arm, of a driven spindle having a bearing in said driving-spindle, the upper end of the driven spindle passing through the stuffing-box, substantially as described.

642,766. WATER-METER. JOHN THOMSON, New York, N. Y. Filed Sept. 18, 1899. Serial No. 730,929. (No model.)



Claim.—1. The combination with the casing and head therefor, of a resilient retainer for the head comprising strips of resilient metal stacked crosswise, substantially as described.

2. The combination with the casing and head therefor of a resilient retainer for the head comprising strips of resilient metal stacked crosswise and having spacing-washers, substantially as described.

3. The combination with the casing and head therefor, of a resilient retainer for the head comprising strips of resilient metal stacked crosswise, having spacing-washers and means for holding the strips together, substantially as described.

4. A resilient retainer comprising strips of resilient metal stacked crosswise and provided with holes, spacing-washers between the strips and tubing arranged in the holes of the strips for securing them together, substantially as described.

642,767. PROCESS OF SEPARATING PRECIOUS METALS FROM THEIR MIXTURES WITH ZINC. GUSTAV THURNAUER, Aurora, Ill. Filed June 7, 1899. Serial No. 719,738. (No specimens.)

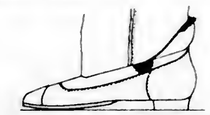
Claim.—1. The herein-described process of treating the mixture of zinc and precious metals resulting from the treatment of cyanid solutions of the precious metals by zinc, which consists in subjecting said mixture to the action of a solution containing lead, whereby the zinc is dissolved and the precious metals remain in admixture with metallic lead.

2. The herein-described process of treating the mixture of zinc and precious metals resulting from the treatment of cyanid solutions of the precious metals by zinc, which consists in subjecting said mixture to the action of a solution containing lead and then to the action of acid, whereby the zinc is dissolved and the precious metals remain in admixture with metallic lead.

3. The herein-described process of treating the mixture of zinc and precious metals resulting from the treatment of cyanid solutions of the precious metals by zinc, which consists in subjecting said mixture to the action of a solution of lead acetate whereby the zinc is dissolved and the precious metals remain in admixture with metallic lead.

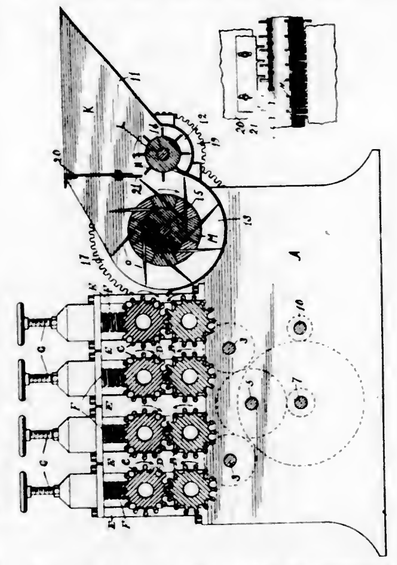
4. The herein-described process of treating the mixture of zinc and precious metals resulting from the treatment of cyanid solutions of the precious metals by zinc, which consists in subjecting said mixture to the action of a solution of lead acetate and then to the action of acetic acid, whereby the zinc is dissolved and the precious metals remain in admixture with metallic lead.

642,768. EDGE-PROTECTOR FOR TROUSERS. ALPHONS TIEDEWITZ, St. Petersburg, Russia. Filed July 17, 1899. Serial No. 724,170. (No model.)



Claim.—A device for protecting the lower edge of trousers-legs, comprising a chain composed of a number of round bodies and a cord or band to support said bodies, said bodies made of different sizes so that said chain tapers from its center toward its ends, and means for fastening said chain to the lower edge of the trousers-legs, substantially as and for the purposes set forth.

642,769. GRASS-CURLING MACHINE. KARL WESSEL, Chicago, Ill. Filed Oct. 30, 1899. Serial No. 735,192. (No model.)



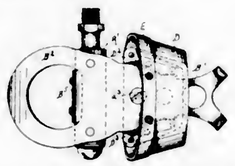
Claim.—1. In a grass-curling machine, the combination with curling or corrugating rollers, of carding devices adapted to card the grass, and feed same to said corrugating-rollers, said carding devices comprising a cylinder provided with teeth adapted to primarily engage the grass and draw same into the machine, and a cylinder provided with teeth adapted to pass between the teeth of said first-named cylinder and revolving in an opposite direction and at greater surface speed than said first-named cylinder, adapted to comb the grass held thereon and gradually withdraw the same therefrom and feed it toward said corrugating-rollers, said corrugating-rollers being adapted to revolve at greater speed than said last-named cylinder, whereby the grass, when caught between said corrugating-rollers, is drawn through the teeth on said last-named cylinder as through a comb, substantially as described.

2. In a grass-curling machine, the combination with curling or corrugating rollers, of carding devices adapted to card the grass, and feed same to said corrugating-rollers, said carding devices comprising a cylinder provided with teeth adapted to primarily engage the grass and draw same into the machine, a rigid comb projecting almost into the path of the teeth of said cylinder and adapted to limit the quantity of grass passing through said machine, a second cylinder having teeth adapted to pass between the teeth of said first-named cylinder and adapted to comb the material thereon and gradually withdraw it therefrom and feed it toward said corrugating-rollers, said last-named cylinder being adapted to revolve in the opposite direction

from said first-named cylinder and at a surface speed greater than same and less than said corrugating-rollers whereby the latter are adapted to draw the grass through the teeth on said last-named cylinder as through a comb, substantially as described.

3. In a grass-curling machine, the combination with curling or corrugating rollers, of carding and feeding devices comprising a receptacle to receive grass, a rigid comb extending transversely across the same, cylinders having teeth revolubly mounted in said casing on opposite sides of said comb, one of said cylinders being adapted to primarily engage said hay and draw it into said machine below said stationary comb which is adapted to limit the quantity passing through, and said other cylinder being so located that the teeth thereon pass between the teeth of said first cylinder and are adapted to comb the material thereon and gradually withdraw it therefrom and feed it toward said corrugating-rollers, said last-named cylinder having greater surface speed than said first cylinder and less than said corrugating-rollers, whereby the latter are adapted to draw the grass through the teeth on said last-named cylinder as through a comb, substantially as described.

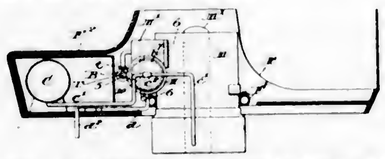
642,770. BICYCLE PEDAL-STIRRUP. CHARLES F. WHALEY and PAUL P. BARTHOL, St. Paul, Minn., assignors to the Whaley-Dwyer Company, same place. Filed Aug. 22, 1899. Serial No. 728,068. (No model.)



Claim.—1. In a bicycle pedal-stirrup, a metal base or foot plate, two correspondingly-curved plates overlapping and attached adjustably to the base-plate, a foot-guard of leather or similar yielding material secured to the outer edges of said curved plates, and a continuous band of metal extending over and around the leather foot-guard at its outer edge so as to retain the arc curvature or symmetrical line at any desired adjustment, and attached by its lower ends to the lower edge of said foot-guard and also to the outer edges of said curved plates, substantially as and for the purpose set forth.

2. In a bicycle pedal-stirrup, a foot-plate secured to the pedal and provided with projecting lugs, a toe-guard formed of leather or similar material, metal plates secured to the adjacent edges of said toe-guard and overlapping and provided with slots, and a series of graduated perforations adapted to engage with the lugs on said foot-plate, and a bolt passing through said foot-plate and said slots in said toe-guard plates and provided with a nut, whereby the said toe-guard may be adjusted laterally and "locked" at any desired point of adjustment, substantially as set forth.

642,771. MOTOR-VEHICLE. GEORGE E. WHITNEY, Boston, Mass., assignor to the Whitney Motor Wagon Company, Kittery, Me. Filed Feb. 4, 1899. Serial No. 704,462. (No model.)



Claim.—1. In a motor-vehicle, a receptacle for liquid fuel, means to subject the liquid fuel to feeding pressure by or through thermal action, and a controlling device to automatically govern the thermal action by or through variation of the feeding pressure.

2. In a motor-vehicle, an expansible-medium motor, a receptacle for liquid fuel therefor, means to subject the liquid fuel to feeding pressure by or through thermal action of the motor-exhaust, and a controlling device to automatically govern such thermal action by or through variation of the feeding pressure.

3. In a motor-vehicle, a receptacle for liquid fuel, and means to heat said receptacle, and thereby create pressure within it to effect feed of the fuel therefrom, combined with a controlling device to automatically govern the heating means by or through variation of the feeding pressure.

4. In a motor-vehicle, an expansible-medium motor, a liquid-fuel receptacle therefor, means to utilize heat from the motor to create feeding pressure upon the liquid fuel, and a controlling device governed by variation of such pressure to regulate the utilization of the heat from the motor.

5. In a motor-vehicle, a steam-motor, a feed-water tank, a liquid-fuel receptacle therein, means to utilize the motor-exhaust to heat the contents of the tank, the heating of the feed-water operating to create pressure within the receptacle to effect feed of the liquid fuel, and a controlling device to automatically govern the operation of said means by or through variation of the feeding pressure.

6. In a motor-vehicle, a steam-motor, a feed-water tank, a liquid-fuel receptacle, means to utilize the motor-exhaust to heat the feed-water and create pressure upon the liquid fuel to effect feed of the same, and a controlling device to govern the operation of said means by or through variation of the feeding pressure.

7. In a motor-vehicle, a steam-motor, a liquid-fuel receptacle, means to utilize the motor-exhaust to create feeding pressure upon the liquid fuel, and a controlling device governed by variation of such pressure to regulate the utilization of the motor-exhaust.

8. In a motor-vehicle, a steam-motor, a feed-water tank, means connected with the motor-exhaust to heat the contents of the tank, a liquid-fuel receptacle in said tank, a valve to govern the passage of the exhaust to said heating means, and a valve-actuator operated by or through variation of pressure in the liquid-fuel receptacle, to close the valve when a predetermined pressure is attained and to open the same when the pressure falls.

9. In a motor-vehicle, a steam-motor, a feed-water tank, means to heat the contents of the tank, a liquid-fuel receptacle within the tank, and means to govern the heating of the tank by or through variation of the pressure in the liquid-fuel receptacle.

10. In a motor-vehicle, a steam-motor having a stack, a feed-water tank, heating means therefor, connections between the motor-exhaust and said heating means and stack, a liquid-fuel receptacle in the tank, a controlling device to govern automatically the passage of the exhaust to the heating means and stack, and independent manually-operated means to deflect the exhaust wholly to the stack.

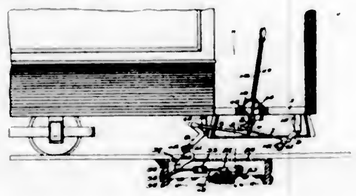
11. A steam-motor, a feed-water tank therefor, a liquid-fuel receptacle in the tank, the pressure in said receptacle varying according to the temperature of the feed-water, independent means to raise the pressure in the receptacle, a heater in the feed-water tank, connected with the exhaust of the motor, a controlling device operated by or through variation of pressure in the receptacle to automatically govern the operation of the heater, and means to cut out said controlling device and govern the operation of the heater manually.

12. In a motor-vehicle, a steam-motor having a stack, a feed-water tank, a condenser therein connected with the exhaust of the motor, a liquid-fuel receptacle in said tank, a valve to control the passage of the exhaust to the condenser or the stack, operated automatically by or through variation in pressure in the receptacle, a by-pass between the exhaust and the stack, and a manually-operated three-way cock to control the passage of the exhaust independently of the automatic controlling device.

13. In a motor-vehicle, a steam-motor having a stack, a feed-water tank, a heater therein, a liquid-fuel receptacle within the tank, a valve-case communicating with the exhaust of the motor, a valve dividing said case into two compartments, a connection between one compartment and the heater, and a connection between the other compartment and the stack, and an actuator for the valve, controlled by or through variation of pressure in the fuel-receptacle, to govern the passage of the exhaust into one or other compartment in the valve-case.

14. In a motor-vehicle, a steam-motor, a body, a feed-water tank carried thereby, a liquid-fuel receptacle in the tank, means connected with the exhaust of the motor to heat the contents of the tank, and a controlling device governed by the pressure in the liquid-fuel receptacle to regulate the passage of the exhaust to the tank-heating means.

642,772. AUTOMATIC SWITCH AND THROWING DEVICE. CLAYTON L. WILSON, Munhall, Pa. Filed May 4, 1899. Serial No. 715,615. (No model.)



Claim.—1. In a device of the character described, the combination with a frog and a pivoted switch-tongue arranged thereon, of a casing arranged at each side of the track, a removable cover for said casing, said cover being provided with an oblong slot in close proximity to the rails, a tripping-cam pivotally mounted to the inner wall of the casing and projecting through the slot in the cover, said tripping-cam having a shoulder adapted to engage the cover to limit the movement of the cam when operated, a pedestal-plate arranged within each casing and having a vertical journal-pin, a bell-crank journaled on said pin, a pair of rods pivotally connecting one arm of the bell-cranks, one of said rods being pivotally connected to the switch-tongue, rods pivotally connecting the other arm of each bell-crank to the tripping cam, and means suspended from the car-platform for operating the tripping-cams to actuate the switch-tongue, said means comprising a rock-shaft journaled in suitable hangers and having its ends bent at right angles thereto, a pair of levers pivotally connected to said ends, tripping-arms having their one end pivotally connected to said levers and being pivotally supported from hangers secured to the car-platform, a detachable operating-lever engaging said rock-shaft, and means secured to said lever and to the car-platform for holding the rock-shaft and tripping-arms in the inoperative position, substantially as described.

2. In a device of the character described, the combination with the main and side track, of a pivoted switch-tongue, a tripping-cam pivotally supported at the outside of each rail, a bell-crank journaled at each side of the track, connections between the tripping cam on each side of the track and the corresponding bell-crank, a casing arranged between the rails of the track, a pair of rods extending within said casing with their one ends connected to the bell-cranks and their other ends connected by a turnbuckle, a pin mounted on one of said rods and engaging the switch-tongue, and an operating device suspended from the car-platform and comprising a rock-shaft extending transversely of the car and journaled in hangers secured thereto, said rock-shaft carrying a pin adapted to receive a detachable operating-lever, levers 6 and 7 having their one ends pivotally connected to the ends of the rock-shaft, tripping-arms 8 and 9 pivotally supported from hangers secured to the car-platform, said tripping-arms having their one ends pivotally connected to the levers 7 and 6, and having rollers journaled in their free ends, and means connected to the operating-lever and to the car-platform for holding the tripping-arms normally suspended in the inoperative position, substantially as described.

642,773. TIRE FOR BICYCLES. JAMES C. ANDERSON, Highland Park, Ill. Filed June 14, 1899. Serial No. 720,515. (No model.)



Claim.—A tire for bicycles and other vehicles composed of a tube of resilient and air-tight material, reinforced interiorly by a deposit of asphalt attached to the surface of the resilient material, substantially as and for the purpose set forth.

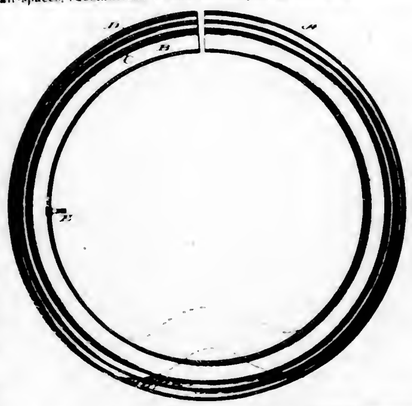
642,774. PNEUMATIC TIRE. JAMES C. ANDERSON, Highland Park, Ill. Filed July 21, 1899. Serial No. 724,681. (No model.)



Claim.—A pneumatic tire having a circumferential inner and main inflatable and deflatable air-chamber, and a series of continuous supplemental non-deflatable air chambers or cells, independent of each other and of the main air-chamber, and located between the main air-chamber and the exterior face of the tire, the supplemental independent air-chambers being permanently inflated and rendered non-collapsing by highly-expanded (previously compressed), air or equivalent, sealed within said chambers, substantially as hereinbefore set forth.

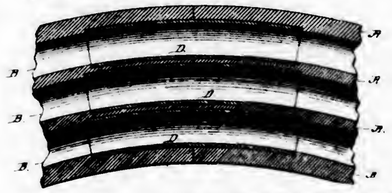
642,775. METHOD OF MAKING PNEUMATIC TIRES. JAMES C. ANDERSON, Highland Park, Ill. Filed July 21, 1899. Serial No. 724,682. (No specimens.)

Claim.—1. The method herein described, of constructing pneumatic tires consisting in forming a tube with a main air-space adapted to be inflated and deflated, and provided with an air-valve and a series of supplemental air-spaces, separated from each other and the main air-space, charging the supplemental air-spaces with an expansible body or agent, of the character described, then joining the ends of the tube to constitute a tire and to permanently confine the expansible body within the supplemental air-spaces, and finally causing the confined expansible body to expand and sustain the supplemental air-spaces, substantially as and for the purpose set forth.



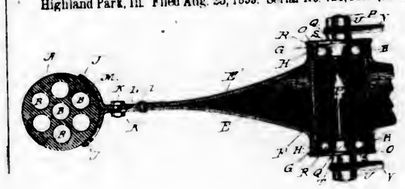
2. The method herein described, of manufacturing pneumatic tires which consists in making a tube with a main longitudinal air-space and a series of longitudinal supplemental air-spaces, providing the main air-space with an air-valve; charging the supplemental air-spaces with an inflatable agent of the character described in compressed form, then joining the ends of the tube to constitnte a tire and to permanently seal and confine the inflatable agent or body within the supplemental air-spaces and subsequently expanding the inflatable agent, as and for the purpose set forth.

642,776. TIRE. JAMES C. ANDERSON, Highland Park, Ill. Filed Aug. 11, 1899. Serial No. 726,887. (No model.)



Claim.—A non-deflatable tire composed of a body portion A, of rubber or equivalent materials, having a series of circumferential air-chambers B surrounded individually and as a group by the solid body portion and permanently inflated by a highly-expansive body, the ends of the body being secured together by resilient tubes D located within enlarged spaces within the ends of the air-chambers B, the walls of the air-chambers and the inserted connecting-tubes D, and also the ends of the body A, all cemented together substantially as and for the purpose hereinbefore set forth.

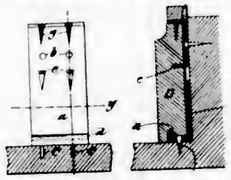
642,777. WHEEL FOR AUTOTRUCKS. JAMES C. ANDERSON, Highland Park, Ill. Filed Aug. 25, 1899. Serial No. 728,443. (No model.)



Claim.—1. A wheel adapted to carry a non-deflatable pneumatic tire and consisting of two sheet-metal disks E and E', secured together and surrounding and secured to a central hub, one of said disks E terminating peripherally in one half J of a tire-rim, and the other disk E', of less diameter and minus a rim portion, in combination with a rim portion J' corresponding with the rim portion J of the disk E and formed with a radial web secured in position by screw-bolts and nuts K and K' substantially as and for the purposes set forth.

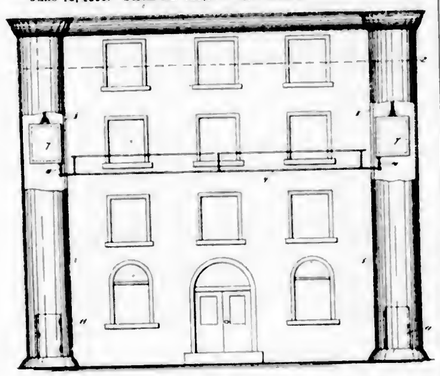
2. In a wheel adapted for use with a non-deflatable tire, metal disks E and E' constructed and secured together as described, and formed with hub-flanges G, G, in combination with a tubular hub F, radial rivets H, ball-cups O, axle P, cone-nuts Q, dust-plates S, balls R and nuts T and U, substantially as and for the purposes set forth.

642,778. **MEANS FOR SECURING PLINTHS.** CARL BAER, Elfeld, Germany. Filed June 12, 1899. Serial No. 720,237. (No model.)



Claim.—The improved means for securing plintha or the like, consisting of a metal plate having upper and lower horizontally-projecting flanges, an upwardly-projecting tongue at the bottom flange, punched-out and turned-down spurs at said bottom flange, horizontally-projecting and punched-out spurs at or about the middle of said metal plate, the whole adapted to be secured by means of nails, screws or equivalents, substantially as and for the purpose set forth.

642,779. **FIRE-ESCAPE.** JOHN F. BATES, Setauket, N. Y. Filed June 13, 1899. Serial No. 720,342. (No model.)



Claim.—1. A building, a wall of which is provided with a vertical column forming an elevator-shaft which is open at one side, an elevator-car mounted in said shaft, and a device connected with said car to enable parties in the building to pass from the windows thereof into said car, substantially as shown and described.

2. A building the wall of which is provided with a vertical column forming an elevator-shaft, an elevator-car therein, said shafts being open at one side, and said car being provided with a platform which is adapted to be held in a horizontal position and to be folded vertically within the column, said platform being adapted to be raised and lowered with said car, whereby parties may escape through a window or windows of the building onto said platform and into said car, substantially as shown and described.

3. A building, the walls of which are provided with vertical columns open at one side and forming elevator-shafts, elevator-cars mounted in said columns, and platforms connected with said cars and adapted to be raised and lowered therewith, said platforms being also adapted to be held in a horizontal position and to be raised into a vertical position within said shafts, whereby parties may escape from the windows of the building onto said platforms, and into said cars, substantially as shown and described.

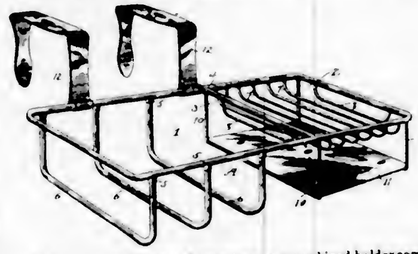
4. A building, the walls of which are provided with vertical columns forming elevator-shafts, elevator-cars therein, said shafts being open at one side, and said cars being provided with platforms which are adapted to be held in a horizontal position, and to be raised and lowered with said cars, whereby parties may escape through the windows of the building onto said platforms and into said cars, said platforms being adapted to be raised into a vertical position within said columns, substantially as shown and described.

5. A building, the walls of which are provided with vertical columns forming elevator-shafts, elevator-cars therein, said shafts being open at one side, and said cars being provided with platforms which are adapted to be held in a horizontal position, and to be raised and lowered with said cars, whereby parties may escape through the windows of the building onto said platforms and into said cars, said platforms being adapted to be raised into a vertical position within said columns, said building being also provided with a central column having an elevator-car, and with side openings forming access to said car, substantially as shown and described.

6. A building the wall of which is provided with a vertical column forming an elevator-shaft which is open at one side, and an elevator-car therein, said car being provided with a platform which is adapted to be held in a horizontal position, said platform being adapted to be raised and lowered with said car, whereby parties may escape through a window or windows of the building onto said platform and into said car, substantially as shown and described.

7. A building the walls of which are provided with a vertical column forming an elevator-shaft, said shaft being open at its side and being provided with an elevator-car, a platform connected with said car and adapted to be raised and lowered therewith, whereby parties may escape from the windows of the building to said platform and into said car and means whereby the platform may be supported in a horizontal position relatively to said car, substantially as shown and described.

642,780. **COMBINED HOLDER.** WILLIAM BERNARD, New York, N. Y. Filed Sept. 29, 1897. Serial No. 653,434. (No model.)



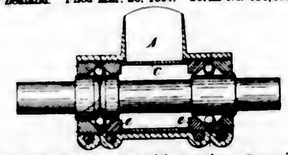
Claim.—1. As an article of manufacture, a combined holder comprising a rectangular top frame which constitutes the upper open portion of the holder, a cross-wire secured to this frame for dividing it into sections, receptacles of different depths depending from each of these sections, the back of the deeper section constituting an extended bearing to rest against a support, and hangers extending above the rectangular frame for supporting the holder and retaining the back in position against its support.

2. A new article of manufacture consisting of a rectangular frame divided into two sections, a sponge-holder in one section, a soap-holder in the other section, hangers depending from the frame and a tray supported by said hangers, a short distance below the soap-holder, substantially as set forth.

3. As a new article of manufacture, a combined holder consisting of a rectangular frame, a transverse bar secured to the longitudinal bars of said frame nearer one end than the other, whereby to form two sections, a series of bent wires or yokes secured to the longitudinal bars of the frame and spaced apart whereby to form a sponge-holder in the larger portion of the frame, a series of smaller bent wires secured to the longitudinal bars of the frame at the smaller section thereof to form a soap-receptacle and wires secured to the end bar of the frame and to said transverse bar to prevent the escape of the soap from the soap-receptacle, substantially as set forth.

4. A combined sponge and soap holder comprising an open horizontal oblong frame provided at its rear longitudinal edge with attaching or suspension devices, a series of wires having short upturned ends secured to one end of the frame and forming a shallow depressed soap-holder, and another series of wires having upturned ends of greater length than those of the first series and secured to the remaining larger portion of the said frame and forming a depressed sponge-holder of greater depth and width than the said soap-holder.

642,781. **BEARING FOR CYCLES.** THOMAS BOYD, Christchurch, New Zealand. Filed Mar. 20, 1897. Serial No. 628,476. (No model.)



Claim.—The combination with a casing, of a spindle provided with two separated bearings one of which is grooved and the other plain, two series of balls respectively engaging said bearings, adjustable bearing-pieces engaging the outer surfaces of said balls, and a sleeve engaging the inner surfaces of said balls and free to move longitudinally with respect to the spindle and casing, substantially as described.

642,782. **PROCESS OF MAKING HYDROCYANIC ACID.** JULIUS BUER, Dessau, Germany, assignor to the Roessler & Hasslacher Chemical Company, New York, N. Y. Filed Oct. 1, 1898. Serial No. 692,391. (No specimens.)

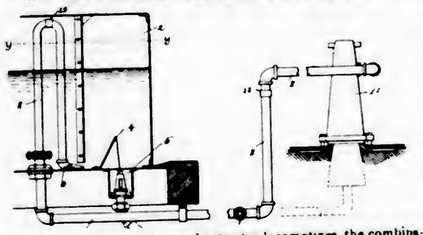
Claim.—1. The process for separating hydrocyanic acid directly from gases resulting from the destructive distillation of organic matters, which consists in subjecting such gases to contact with a current of alcohol passing in the opposite direction, substantially as described.

2. The process for separating hydrocyanic acid directly from gases resulting from the destructive distillation of organic matters, which consists in subjecting such gases to contact with a current of alcohol passing in the opposite direction, and subjecting the alcoholic solution of hydrocyanic acid thus formed to fractional distillation, substantially as described.

3. The process for separating hydrocyanic acid from gases resulting from the destructive distillation of organic matters, which consists in subjecting such gases to contact with alcohol, subjecting the alcoholic solution of hydrocyanic acid thus formed to fractional distillation, and reacting upon the hydrocyanic-acid gas with alcoholic caustic alkali, substantially as described.

4. The process of separating hydrocyanic acid from gases resulting from the destructive distillation of organic matters, which consists in subjecting such gases to contact with alcohol, subjecting the alcoholic solution of hydrocyanic acid thus formed to fractional distillation, separating the hydrocyanic-acid gas from the alcohol by reaction with alcoholic caustic alkali, straining off the alkali lye containing cyanogen alkali salt from the precipitate, reacting upon this mother-lye with the distillation-gases, and subjecting the hydrocyanic acid thus liberated, with the distillation-gases, to contact with alcohol, substantially as described.

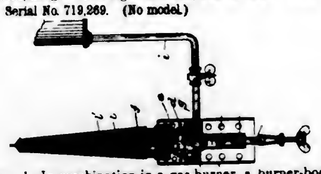
642,783. **FEED-WATER HEATER.** SAMUEL P. BUSH, Columbus, Ohio. Filed Jan. 16, 1899. Serial No. 702,210. (No model.)



Claim.—1. In a feed-water heater for locomotives, the combination with the water-tank, a supplemental water-compartment and a permanent communication between the main compartment and supplemental compartment in the lower portion of the tank and a water-outlet communicating with said supplemental compartment, of a steam-carrying pipe leading from a supply of exhaust-steam and discharging into said supplemental compartment through said partition-opening and at a point adjacent to said water-outlet, substantially as specified.

2. In a feed-water heater for locomotives, the combination with the water tank, a supplemental water-compartment permanently communicating in its lower portion with the main compartment at a point adjacent to the bottom of the tank and a water-outlet communicating with said supplemental compartment, of a steam-carrying pipe leading from a supply of exhaust-steam and having one end discharging into said supplemental compartment adjacent to the water-outlet thereof, a controlling-valve 14 and a check-valve 15 contained in said steam-pipe, substantially as specified.

642,784. **GASOLENE-LAMP BURNER.** FRANK A. CORTIS, Meriden, Conn., assignor to Dwight T. Cortis, Boston, Mass. Filed June 3, 1899. Serial No. 719,269. (No model.)



Claim.—1. In combination in a gas-burner, a burner-body with mixing-chamber, inlet and outlet passages, and a socket, a diaphragm located and inclosed within said socket and vaporizing-channels located on opposite sides of the diaphragm with inlet and outlet passages each extending through the diaphragm into said channels.

2. In combination in a gas-burner, the burner-body with mixing-chamber, inlet and outlet passages and a socket, a diaphragm inclosed within said socket, channels on the opposite faces of the diaphragm, inlet and outlet passages each extending through the diaphragm at opposite ends of the channels and registering with the respective inlet and outlet passages through the burner-body, and means for firmly holding the diaphragm in its socket.

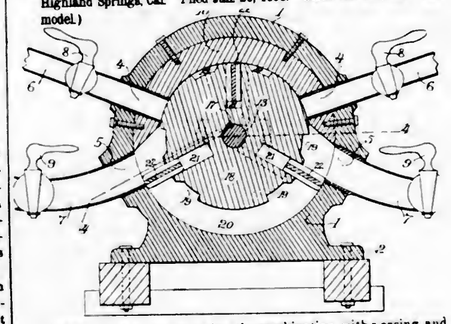
3. In combination in a gas-burner, the burner-body with mixing-chamber, inlet and outlet passages and a socket, a central tubular projection from the floor of said socket, a diaphragm located and fitting closely within said socket, a cover fitting the socket and having a central opening threaded to engage the threads on the projection, a burner having a threaded stem fitting the threaded socket in the projection, and channels between the adjacent walls of the diaphragm and socket and registering at opposite ends with the respective inlet and outlet passages in the burner-body for the passage of fluid through it.

4. In combination in a gas-burner, a burner-body having a socket and a tubular projection from the floor of said socket forming in part a mixing-chamber, a diaphragm surrounding the mixing-chamber and located within the socket and having vaporizing-channels on opposite sides, inlet and outlet passages each extending through said diaphragm into said channels, and inlet and outlet passages to said channels.

5. In combination in a gas-burner, a burner-body having a socket and a tubular projection from the bottom of the socket forming in part a mixing-chamber, a diaphragm having vaporizing-channels on opposite faces, said diaphragm surrounding the mixing-chamber and located within the socket, inlet and outlet passages to said channels, and a cap closely fitting within the socket and against said diaphragm.

6. In combination in a gas-burner, a burner-body having a socket and a tubular projection forming in part a mixing-chamber, a diaphragm having vaporizing-channels on its opposite faces, said diaphragm surrounding the mixing-chamber and located within the socket, inlet and outlet passages to said channels, and a cap also surrounding the mixing-chamber and closely fitting against the diaphragm within the socket.

642,785. **REVERSIBLE ROTARY ENGINE.** JOSEPH CRAIG, Highland Springs, Cal. Filed Jan. 26, 1898. Serial No. 668,069. (No model.)



Claim.—1. In a rotary engine, the combination, with a casing, and a rotary piston-carrier having channels, of sectional pistons carried therein, the sections of said pistons being extensible endwise from each other, means for intermittently admitting steam between said sec-

tions to extend the same, and means for guiding said sections in alinement with each other while preventing passage of the steam entirely between said sections to the outer edge of the piston, substantially as described.

2. In a rotary engine, the combination with a casing, and a rotary piston-carrier having channels, of sectional pistons reciprocable therein, means for admitting steam between said sections to spread the same, packing-blocks adjacent to the ends of said pistons, and means for admitting steam behind said blocks to press the same endwise against the casing, substantially as described.

642,786. QUILTING-FRAME. BENJAMINE M. DAVES, Mimosa, Tenn. Filed Sept. 13, 1899. Serial No. 730,346. (No model.)

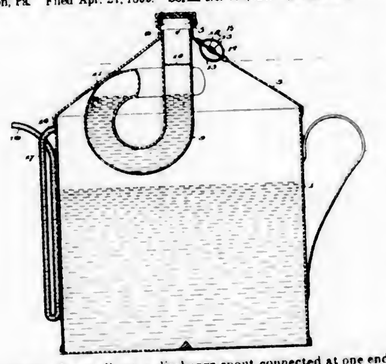


Claim.—1. In a device of the character set forth, the combination of a frame, rollers mounted therein, one of which is adapted to receive a quilt or fabric, a leader applied to the opposite roller, and a binding wire or rod in the edge of the leader, to which one edge of the quilt or fabric is adapted to be connected.

2. In a device of the character set forth, the combination of a frame comprising opposite end bars and a side bar, an intermediate bar rigidly fixed to and extending from one end bar to the other and obliquely arranged relatively to said end bars, rollers journaled in the end bars on opposite sides of the intermediate bar, the quilt or fabric being drawn against the one lower corner of the said obliquely-arranged intermediate bar, and means for suspending the said frame.

3. In a device of the character set forth, the combination of a frame containing rollers and comprising opposite end bars and a side bar rigidly connected, an intermediate bar obliquely arranged relatively to said end bars and fixed to and extending from one end bar to the other, the rollers being located on opposite sides of the intermediate bars, brackets rising vertically and fixedly from portions of the said side and intermediate bars and spanning the interval between the latter, a suspending-bar having rollers movable on a suspending device, a swinging bar pivotally connected to the suspending-bar and having vertical depending arms adjustably attached to portions of the brackets, and means on the suspending and swinging bars for holding the same together and preventing movement of the swinging bar.

642,787. NON-EXPLOSIVE OIL-CAN. ISAAC R. EAKIN, Emlenton, Pa. Filed Apr. 27, 1899. Serial No. 714,627. (No model.)



Claim.—In an oil-can a discharge-spout connected at one end to the periphery of the body portion of the can near the top thereof extending downwardly to near the bottom and then bent upon itself forming substantially an elongated loop, a filling-tube connected to the inlet-opening of the can extending into the same and bent upon itself forming a trap, a wire-gauze arranged in the said tube, and a vent arranged in the dome of the can a casing surrounding the vent provided with suitable openings and secured to the dome of the can, substantially as set forth.

642,788. SHOE-LACE CLASP. ANALDO M. ENGLISH, Boston, Mass., assignor to Adolf E. Johnson, Wakefield, Mass. Filed Mar. 13, 1899. Serial No. 708,832. (No model.)

Claim.—1. A clamp of the class described consisting essentially of a body presenting at its back a rim and a pivoted lever presenting a passage at its end for a spring or lacing, the free end of said lever being inturned to coöperate with said rim and pinch or clamp said string or lacing firmly between itself and said rim when the lacing is subjected to strain when in use.



2. A clamp of the class described, consisting essentially of a body presenting a depression at its back surrounded by a rim and a lever pivoted at one end at the rear side of said body, and having a hole at its other end for a lacing, the free end of said lever being inturned and extended substantially to said rim to coöperate therewith and pinch or clamp said string or lacing firmly between itself and said rim as the lacing is strained in use.

3. A clamp of the class described, it consisting of a body and a plurality of opposed pivoted levers, each lever having a passage for the reception of a string or lacing, said levers under the strain of the string or lacing acting to clamp or pinch the said string or lacing between itself and the rear side of the body of the clamp.

4. A lacing-clamp consisting of a body having at its rear side a backwardly-projecting rim and having an interior bridge or plate, a lever pivoted to said bridge or plate at the back of said body and provided with a passage for a lacing, said lever being extended substantially diametrically across said body, the end of the lever terminating substantially at said rim, strain on the string or lacing in use causing it to be pinched or clamped firmly between said rim and said lever.

5. A clamp of the class described, it presenting a body and a plurality of levers provided each with a hole at its free end and pivoted to the rear side of said body and when in operative position pointing oppositely from their point of connection with said body, strain on a lacing exerted from its central portion toward its end causing the lacing to be clamped between a lever and the body of the clamp.

6. A clamp of the class described, it presenting a body and a plurality of opposed pivoted levers carried by said body, each lever having an opening to receive a string or lacing, the pivotal points of the levers with the body being at one side of the line of draft of the string or lacing on or about the levers, whereby the harder the draft the more firmly the string or lacing may be pinched or clamped between said levers and said body.

7. In a shoe-lacing clamp, a body having mounted upon its back oppositely-extended levers, each provided with a passage for a lacing and adapted to be carried permanently by the lacing in the shoe, strain on the free ends of the lacing seating the clamp upon the part of the shoe to be held closed by the lacing.

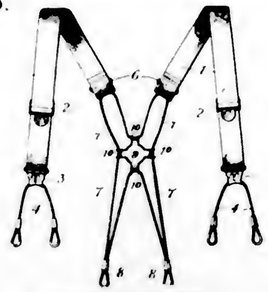
8. A lacing-clamp composed of a body and a hooked lever pivoted at the rear side thereof, said lever having its free end inclined toward said body and extended to substantially overlap the edge of the body, said body substantially concealing the lever at its point of junction with the body, said lever having its free end provided with an opening to receive a string or lacing, said lever and body acting to clamp firmly between them the lacing when strained and extended through said opening.

9. A lacing-clamp composed of a body and a plurality of levers oppositely pivoted at the back of said body, each lever having at its free end an opening, said body substantially concealing both said levers, the strain of a lacing extended through the openings of the levers and between said levers and the body causing said lacing to be firmly clamped between the back of the body and said levers at opposite points, said clamp being adapted to be readily freed from the lacing by engaging opposite points of the body and lifting the latter from its seat on the shoe.

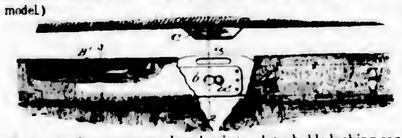
642,789. SUSPENDERS. WILLIAM FREEMAN, New York, N. Y. Filed Aug. 23, 1899. Serial No. 728,233. (No model.)

Claim.—A pair of suspenders comprising shoulder-straps, an open frame made of a single piece of wire, the wire composing said frame projecting outwardly at four points, each outwardly-projecting portion of the frame bent upon itself so as to form a pair of eyelets in line with each other, a cord passing freely through the upper pair of eyelets and then connected with the rear portions of the respective shoulder-straps, and then passing down freely through the lateral pairs of eyelets at respective sides of the frame, loops at the lower ends of said cord and a portion of the cord between said loops passing through the lower pair of eyelets of the wire frame.

642,789.



642,790. SKIRT AND WAIST FASTENER. WILLIS J. GALLUP, New Richmond, Wis. Filed July 12, 1899. Serial No. 723,532. (No model.)

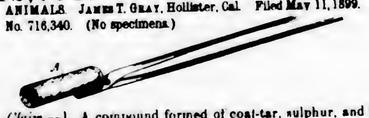


Claim.—1. In a two-part clasp having a detachable locking connection, an elongated keeper constructed in one piece with one of the sections by an extension of one of its edges, said extension being folded transversely across the body portion to form a flattened tube substantially as described.

2. In a two-part clasp having a detachable locking connection, an elongated keeper constructed in one piece with one of the sections by an extension of one of its edges, said extension being of greater width than the body portion of the said section, and being folded entirely across and around the other edge of the same to form a flattened tube substantially as described.

3. A combined skirt and waist fastener, consisting of a thin strip of metal with a projecting and slotted lip *a* on one edge about the middle, and a headed stud *a'*, another thin strip of metal having a keyhole-slot, and a keeper formed by an extension of one edge bent around as described, and a hook-clip C adapted to be attached to the waist and be hooked into the slotted lip substantially as described.

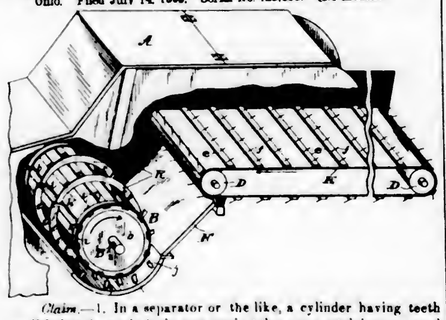
642,791. COMPOUND FOR EXTERMINATING BURROWING-ANIMALS. JAMES T. GRAY, Hollister, Cal. Filed May 11, 1899. Serial No. 716,340. (No specimens.)



Claim.—1. A compound formed of coal-tar, sulphur, and petroleum product mixed substantially as herein described.

2. A compound of sulphur, tar and petroleum product mixed and applied to fibrous inflammable material which is afterward formed into tubular rolls, substantially as described.

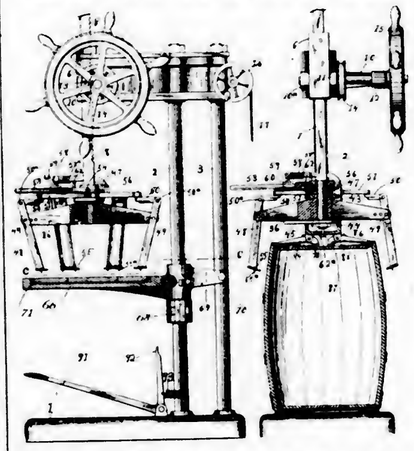
642,792. THRESHING-CYLINDER. JOHN T. HAY, Union City, Ohio. Filed July 14, 1899. Serial No. 723,833. (No model.)



Claim.—1. In a separator or the like, a cylinder having teeth to dislodge the grain by impact against the ears containing same and having a guard or guards with striking edges to saw the straw extending around the cylinder to keep the straw from packing between the teeth, substantially as described.

2. In a separator or the like, a toothed cylinder having one or more annular flanges with serrated edges extending out approximately to the ends of the teeth and intermediate the ends of the cylinder.

642,793. BARREL-HEAD INSERTING OR REMOVING MACHINE. EDWARD HOLMES, BRITAIN HOLMES, and EDWIN F. BEUGLER, Buffalo, N. Y., assignors to the E. & B. Holmes Machinery Company, same place. Filed Oct. 4, 1898. Serial No. 692,662. (No model.)



Claim.—1. In a barrel-head inserting and removing machine, the combination with the driver-head and its operating mechanism, of a series of expanding devices pivotally depending from the driver-head and adapted to extend into a barrel and to be expanded or contracted by the movement of said driver-head.

2. In a barrel-head inserting and removing machine, the combination with the driver-head and its operating mechanism for giving it its required movement up or down, of a series of radially-extending expanders pivotally supported from the driver-head and inclining downward from the center by gravity, their outer ends being adapted to fit in the chime of a barrel and force the same outward by a downward movement of the driver-head, substantially as described.

3. In a barrel-head inserting and removing machine, the combination with the driver-head and its operating mechanism, pivoted expanders kept in their normally-contracted position by gravity and provided at their rear ends with devices for forcing the head out or down after the mouth of the barrel has been expanded.

4. In a barrel-head inserting and removing machine, the combination with the driver-head and its operating mechanism for giving it its required vertical movements, of a series of centrally-located radially-pivoted expanders kept in their normally-contracted position by gravity and provided at their rear ends with downward-inclined arms for forcing the head out or down after the mouth of the barrel has been expanded.

5. In a barrel-head inserting and removing machine, the combination with the rotatable driver-head and its operating mechanism, of a vertically-movable pin mounted on the driver-head, means for moving it vertically, and a non-rotatable horizontal plate mounted at the bottom of the driver-head and having holes adapted to receive said pin, for the purpose described.

6. In a barrel-head inserting and removing machine, the combination with the rotatable driver-head and its operating mechanism, of a semicircular toothed bar pivoted to the driver-head and connected with a vertically-movable pin mounted on the driver-head, a non-rotatable perforated plate secured below the driver-head, a forked operating-arm pivoted to a rotatable collar at the top of the driver-head and provided with a tooth adapted to engage with teeth in the semicircular toothed bar, a series of driver-arms, and means for connecting said arms to the collar to contract or expand them by the rotation of said collar for the purpose of locking the cross-head so that it cannot be turned on its vertical axis, or releasing it so that it may be turned in either direction, as described.

7. The combination with the driver-head and the hoop-drivers, of means connected with the hoop-drivers for picking up the several

parts composing a barrel-head and depositing them in their proper positions in the mouth of the barrel.

8. In a barrel-head inserting and removing machine, the combination with the hoop-drivers and their raising and lowering mechanism, of pendent spurs extending from the hoop-driver foot-pins, for the purpose described.

9. In a barrel-head inserting and removing machine, the combination with the driver-head, its operating mechanism and the hoop-drivers provided with spurs, of a horizontally-swinging table pivoted to the machine and provided with a circular recess adapted to receive the several pieces composing a barrel-head.

10. In a barrel-head inserting and removing machine, the combination with the supporting-frame, of a horizontally-swinging and vertically-adjustable table pivoted to said frame and having a circular recess adapted to receive the parts composing a barrel-head, devices for limiting its movement at a point central over a barrel and means for keeping the barrel in a central position on the platform.

11. In a barrel-head inserting and removing machine, the combination with a fly-wheel having two pulley-rims concentrically arranged one within the other, of a friction-pulley mounted in suitable boxes between the two rims on a pivotal supporting-frame normally held from contact with either rim and capable of a rocking movement to permit its movement from one rim to the other and into contact with either, and a hand-lever for moving said friction-pulley from one rim to the other, for the purpose described.

12. In a barrel-head inserting and removing machine, the combination with a cord or cable in the form of a loop adapted to encircle a barrel, of a toggle-joint having its extreme ends pivoted to upright bars, the lower ends of which are pivoted to the supporting-base and their upper ends provided with clamps for rigidly securing the ends of the loop, a vertically-movable sleeve mounted on the machine-frame to which the inner ends of the toggle-bars are pivoted, a transverse bar pivotally connected with said sleeve and having one end pivotally connected by a link with the base and the opposite end pivotally connected with a hand-lever, for reducing the size of a barrel to permit the easy removal of the upper hoops.

642,794. FLEXIBLE SHAFT. CLARENCE F. HOTCHKISS, Binghamton, N. Y., assignor to the Stow Manufacturing Company, same place. Filed May 13, 1899. Serial No. 716,623. (No model.)



Claim.—In a flexible shaft the combination of a handpiece, a driven shaft through it, a collar thereon having a bearing against said handpiece, a ferrule removably receiving said handpiece and driven shaft, and a clamp suitably and adjustably holding said collar and shaft in proper freely-revolving relation to said handpiece and taking up the end thrust.

642,795. CULTIVATOR. GUSTAF JERNBERG, Rockford, Ill., assignor to the Emerson Manufacturing Company, same place. Filed Aug. 31, 1899. Serial No. 729,073. (No model.)

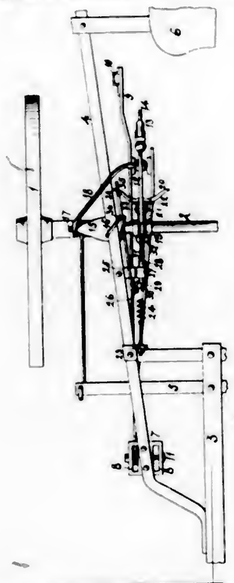
Claim.—1. In a cultivator, the combination of a main frame, a drag-bar, a rock-arm having a pivotal connection with a stationary support, an arm having a pivotal connection with the rock-arm and with the drag-bar, a yoke having a pivotal connection with the rock-arm its ends branching out, a spring connected with the yoke and a stationary support and a stop for the arm supported by the rock-arm.

2. In a cultivator, the combination of a main frame *a*, drag-bar, a rock-arm having a pivotal connection with a stationary support, an arm having a pivotal connection with the rock-arm and with the drag-bar, a brace connecting the rock-arm and having a pivotal connection with the stationary support, and a spring connected with the rock-arm and stationary support.

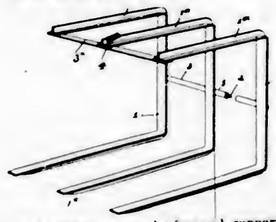
3. In a cultivator, the combination of a main frame, a drag-bar, a rock-arm having a connection with the drag-bar and a pivotal connection with a stationary support, a spring connecting the rock-arm and stationary support, the rock-arm having an extension, a spring interposed between the extension and main frame and means for adjusting the tension of the spring.

4. In a cultivator, the combination of a main frame, a drag-bar, a rock-arm having a connection with the drag-bar and a pivotal connection with a stationary support, a spring connecting the rock-arm and a stationary support, the rock-arm having an extension, a spring adapted to exert its force against the extension, an arm adjusting the tension of the spring and a lever for moving the arm.

5. In a cultivator, the combination of a main frame, a drag-bar, a rock-arm having a pivotal connection with the drag-bar and a pivotal connection with a stationary support, a spring connecting the rock-arm and a stationary support, the rock-arm having an extension, a spring adapted to exert its force against the extension, an arm adjusting the tension of the spring and a lever for moving the arm, the lever having a series of notches in its under face.



642,796. LIFT. ATHELSTAN O. JONES, Zanesville, Ohio, assignor of nineteen-twentieths to Edward J. Jones, Thurber, Tex. Filed Nov. 3, 1898. Serial No. 695,358. (No model.)



Claim.—A lift, consisting of yoke-frames 1, supported in parallel positions, said frames being composed of angle-irons rigidly connected at suitable intervals and spaced apart by rods with sleeves thereon, the said sleeves bearing against the ribs of the angle-irons and the upper horizontal arms being of less length than the lower arms and means on said upper arms for engaging a hoisting-rope, substantially as specified.

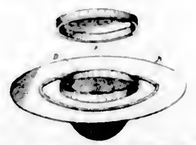
642,797. PIPE-WRENCH. JOHN O. LAWSON, Brockton, Mass. Filed Apr. 21, 1899. Renewed Jan. 8, 1900. Serial No. 781. (No model.)



Claim.—1. A device of the character indicated, comprising, in combination, the handle member A, provided with bearing-faces 7, recess 2, and pin-receiving notches 8, the handle member B, provided with tongue 3 and ratchet-toothed formation 16, the pin 4 pivotally connecting the said members and the chain 10 having on one end a pin for entering the notches 8, and on the other end a slide adapted for engaging the said ratchet-toothed formation 16, all substantially as described.

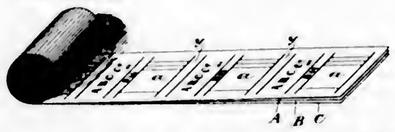
2. A device of the character indicated, comprising, in combination, the handle member A provided with the recess 2 and bearing-faces 7, the handle member B provided with tongue projection 3, the pin 4 pivotally connecting said members and the chain 10 having one end detachably connected with member A and the other end adjustably connected with member B, all substantially as described.

642,798. TEA-MAKING ATTACHMENT FOR CUPS. ALBERT E. MACDONALD, San Francisco, Cal. Filed June 5, 1899. Serial No. 719,360. (No model.)



Claim.—A device for making tea consisting of a cover having a central opening, an annular flange rising from its outer surface and surrounding said opening, a screen-basket fixed in the opening, and a cap having a flange adapted to fit the flange of the cover said cover capable of reversal and its flange and cap forming a chamber for the tea-leaves when the device is reversed.

642,799. PAPER-ROLL FOR MANIFOLDING SALES-PADS. HENRY W. MATHER, Roseville, N. J. Filed May 22, 1899. Serial No. 717,679. (No model.)



Claim.—1. A paper-roll for sales-pads, composed of a plurality of superposed, rolled, record-strips, comprising a main record-strip A, divided by transverse markings into sales-checks *a*, said checks being numbered and marked consecutively as described, and one or more unperforated, auxiliary record-strips, each of such auxiliary strips having printed on it consecutive numbers corresponding to those on the main strip A, said numbers on the auxiliary record-strip being spaced to correspond to the length of the sales-checks *a* and each situated, before rolling, so far below the inner end of the sales-check that the maximum amount of the strip taken up by creeping in forming the roll from the strips, will not shift said numbers off from that portion of the strip which goes to form the sales-check designed to bear that number, substantially as set forth.

2. A paper-roll for sales-pads, composed of a plurality of superposed, rolled, record-strips, comprising a main record-strip A, divided by transverse markings into sales-checks *a*, said checks being numbered and marked consecutively as described, and unperforated, auxiliary record-strips, B and C, of different colors, each of such colored strips having printed on it consecutive numbers corresponding to the numbers on the strip A and separated by spaces equal to the length of the sales-checks *a*, said numbers on the auxiliary strips being situated, before rolling, so far below the inner ends of the respective sales-checks that the maximum amount of the strips taken up by creeping in forming the roll from the same, will not shift said numbers off from those portions of the strips which go to form the sales-checks designed to bear those numbers, substantially as set forth.

642,800. TEMPORARY BINDER. FREDERICK M. MEEK, Chicago, Ill. Filed Sept. 5, 1899. Serial No. 729,459. (No model.)



Claim.—1. In a temporary binder, the combination of a back formed of longitudinal sections connected to adapt them to be spread apart and forced together, covers hinged to the outer edges of said back-sections, two rock-shafts, one journaled on each back-section near its outer edge, and filing-pins carried by said rock-shafts to cause each pin on one rock-shaft to coincide with another with which it telescopes on the other rock-shaft, whereby spreading apart said back-sections withdraws from each other the coincident filing-pins to enable them, by turning both rock-shafts, to be turned into upright position, and forcing together said back-sections causes the opposite coincident filing-pins to telescope one another, substantially as described.

2. In a temporary binder, the combination of a back formed of rigid longitudinal sections of rectangular cross-section, reinforced with metal lining-plates projecting and mutually overlapping beyond the adjacent edges of said sections, covers hinged to the outer edges of said back-sections, two rock-shafts, one journaled on each back-section near its outer edge, and filing-pins on said rock-shafts adapted to telescope one with the other by turning them into alinement across the back and forcing the back-sections together, and to be separated to assume upright positions by spreading apart said back-sections, substantially as described.

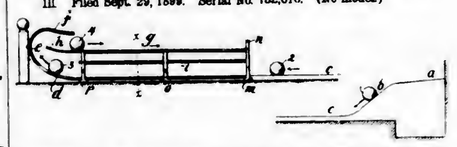
3. In a temporary binder, the combination of a back formed of connected longitudinal sections adapted to be spread apart and forced together, covers hinged to the outer edges of said back-sections, two rock-shafts, one journaled on each back-section near its outer edge, filing-pins on said rock-shafts adapted to telescope one with the other by turning them into alinement across the back and forcing the back-sections together, and to be separated to assume upright positions by spreading apart said back-sections, racks on opposite ends of one back-section and cog-wheels pivoted on the other back-section to engage said racks, substantially as described.

4. In a temporary binder, the combination of a back formed of connected longitudinal sections adapted to be spread apart and forced together, covers hinged to the outer edges of said back-sections, rock-shafts journaled near the outer edges of the back and carrying filing-pins adapted to telescope one with the other by turning them into alinement across the back and forcing the back-sections together, and to be separated to assume upright positions by spreading apart said back-sections, racks on opposite ends of one back-section, cog-wheels pivoted on the other back-section to engage said racks, and a link connecting said cog-wheels from opposite sides of their pivots, substantially as described.

5. In a temporary binder, the combination of a back formed of connected longitudinal sections adapted to be spread apart and forced together, covers hinged to the outer edges of said back-sections, two rock-shafts, one journaled on each back-section near its outer edge, filing-pins on said rock-shafts adapted to telescope one with the other by turning them into alinement across the back and forcing the back-sections together, and to be separated to assume upright positions by spreading apart said back-sections, racks on opposite ends of one back-section, connected cog-wheels pivoted on the other back-section to engage said racks, and a cam-controlled spring-pressed locking-finger supported to engage with one of said cog-wheels, substantially as described.

6. A temporary binder comprising, in combination, a back formed of rigid longitudinal sections of rectangular cross-section reinforced with metal lining-plates projecting and mutually overlapping beyond the adjacent edges of said sections, covers hinged to the outer edges of said back-sections, rock-shafts projecting and mutually overlapping beyond the adjacent edges of said sections, covers hinged to the outer edges of said back-sections and carrying filing-pins *e* and tubular filing-pins *e'* adapted to telescope by turning them into alinement across the back and forcing the back-sections together, and to be separated to assume upright positions by spreading apart said back-sections, guide-flanges at opposite ends of one of said plates to receive the corresponding ends of the other plate, racks in said guide-flanges, and connected cog-wheels pivoted on said other plate to engage said racks, substantially as described.

642,801. BOWLING-ALLEY. JACOB N. MCINTIRE, New York, N. Y., assignor to the Brunswick-Balke-Collender Company, Chicago, Ill. Filed Sept. 29, 1899. Serial No. 732,010. (No model.)

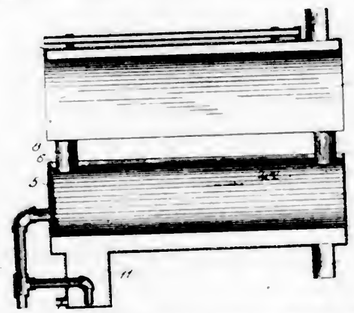


Claim.—1. In a ball-return way of the type referred to, a ball-track, the rearmost, upwardly-curved, portion of which is formed to present a scroll-like curve; that is, a curve, the sharpness of which increases, as it extends rearwardly upwardly and forwardly; all substantially as and for the purpose hereinbefore set forth.

2. In a ball-return way of the type referred to, the combination, with the rear, curved, end portion of the track on which the balls roll homewardly and from which they pass onto the terminal, or ball-rack, of a terminal, the rear ends of the ways of which are divergent, or flared apart; all substantially as and for the purpose hereinbefore set forth.

642,802. FEED-WATER HEATER. CHARLES A. NELSON, Alexandria, Minn. Filed Oct. 7, 1899. Serial No. 732,962. (No model.)

Claim.—1. In combination, a semicylindrical horizontally-arranged water-tank having an open top, and provided with double side walls with an intermediate chamber between the same, an exhaust-steam pipe leading to said chamber, a second steam-chamber arranged above the first and in communication therewith, a feed-water pipe above the second chamber, adapted to discharge the feed-water over said second chamber into said tank and connections leading from the tank and steam-chambers to the boiler, substantially as described



2. In combination, a semicylindrical tank horizontally arranged, having double side walls forming a narrow steam-space around the water-space in said tank, a narrow semicircular chamber located above said tank and having communication with the steam-chamber thereof, said second chamber being reversely arranged relatively to the first chamber and open at its ends inside its inner periphery to provide a free air-circulating space, a feed-water pipe discharging above the second chamber and a pipe connection between the water-space and steam-chamber in said tank and the boiler, substantially as described.

3. In combination, a semicylindrical tank having double side walls forming a steam-space, an exhaust-pipe leading thereto, a narrow semicircular steam-chamber arranged above said tank of substantially the same diameter as said tank and reversely arranged in relation thereto, said chamber forming a top to said tank open throughout to permit an unobstructed air-circulating space, a feed-water-discharge pipe located above said narrow steam-chamber, pipes opening communications between said steam-chamber and a pipe leading from the water-space and steam-chambec in said tank to the boiler, substantially as described.

4. In combination, the tank having doubled side walls forming a steam-chamber, a steam-exhaust pipe communicating therewith, flanges extending along the edges of said tank, a semicylindrical chamber supported above said tank in communication with the first chamber and having its longitudinal edges within the plane of said flanges, a perforated feed-pipe supported on said second chamber and a feed-pipe leading from said tank and steam-chambers to the boiler, substantially as described

5. In combination, a water-tank having double walls forming a steam-chamber, an exhaust-pipe communicating therewith, a trap opening into said chamber, a semicylindrical steam-chamber supported above said tank whereby an open space is left between the same pipes forming a communication between said steam-chamber, a perforated feed-pipe above said upper chamber, a pipe leading from the tank to the boiler and a branch pipe leading from the trap to said pipes, substantially as described

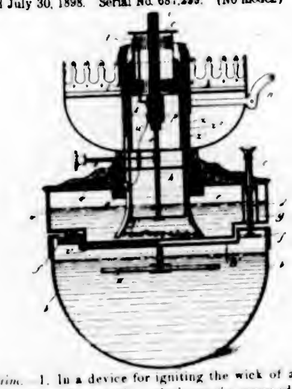
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642,803. NAME-PLATE. JAMES H. PAIGE, Manchester, N. H. Filed June 19, 1899. Serial No. 721,115. (No model.)



Claim.—In a name-plate, the combination of letter or type plates having at their ends right-angled clips, a holding-plate adapted to be engaged by said clips, an elastic packing, the clips embedded in, and held in place by, said packing, an open or slotted face-plate, a backing and fastenings passed through said face-plate or casing and the aforesaid parts, substantially as set forth.

642,804. ELECTRICALLY IGNITING LAMPS AND LIQUID-FUEL-BURNING DEVICES. ROBERT SCHREIBER, Berlin, Germany. Filed July 30, 1898. Serial No. 687,299. (No model.)



Claim.—1. In a device for igniting the wick of a liquid-burner, the combination of an igniting-spiral near the upper edge of the lamp-wick, means for raising and lowering the same together with the wick, an electrical generator, conductors connecting said spiral and generator, and means for sending a current therethrough, substantially as set forth.

2. In a device for igniting the wick of a liquid-burner, the combination of an igniting-spiral near the upper edge of the lamp-wick, a carrier for said spiral, a vertically-adjustable rack for raising and lowering the lamp-wick, means for connecting said carrier with said rack, an electrical generator, conductors connecting said spiral and generator, and means for sending a current therethrough, substantially as set forth.

3. In a device for igniting the wick of a liquid-burner, the combination of an igniting-spiral near the upper edge of the lamp-wick, a carrier for said spiral, a vertically-adjustable rack for raising and lowering the lamp-wick, a vertically-extending bar on the upper end of said rack, a tubular support in said carrier carried by and adjustably supported on said bar, an insulated jacket on the tubular support, conductors connecting the ends of said spiral with said carrier and jacket, an electrical generator, conductors connecting said carrier and jacket with the generator, and means for sending a current therethrough, substantially as set forth.

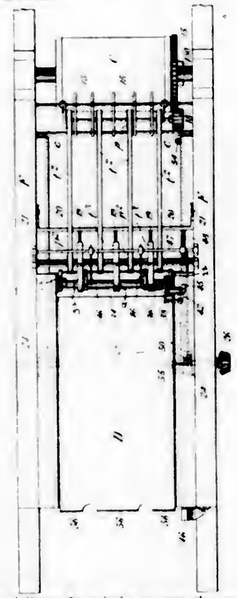
4. In a device for igniting the wick of a liquid-burner, the combination of an igniting-spiral near the upper edge of the lamp-wick, a carrier for said spiral, a vertically-adjustable rack for raising and lowering the lamp-wick, a vertically-extending bar on the upper end of said rack, a tubular support in said carrier carried by and adjustable on said bar, a flame-separator, an insulated jacket on said tubular support, conductors connecting the ends of said spiral with said carrier and jacket, an electrical generator, conductors connecting said carrier and jacket with the generator, and means for sending a current therethrough, substantially as set forth.

5. In a device for igniting the wick of a liquid-burner, the combination of an igniting-spiral near the upper edge of the lamp-wick, a carrier for said spiral, a vertically-adjustable rack for raising and lowering the lamp-wick, a vertically-extending bar on the upper end of said rack, a tubular support in said carrier carried by and adjustable on said bar, a flame-separator, an insulated jacket on said tubular support, a burner in metallic contact with said carrier, a spring connected with said burner and insulated therefrom and bearing on said jacket, an electrical generator, conductors connecting said generator with said burner and spring, and means for sending a current therethrough, substantially as set forth.

642,805. PRINTING-MACHINE AND DELIVERY APPARATUS THEREFOR. WALTER SCOTT, Plainfield, N. J. Filed Oct. 10, 1896. Serial No. 608,431. (No model.)

Claim.—1. In a sheet-delivery for printing-presses, the combination with a delivery for receiving the sheets, of a frame moving to and fro on the main framework, a gripper mechanism carried by said moving frame, an extensible collapsible sheet-support connected at one end to the main framework of the machine and to the said movable frame at the other end, and mechanism for delivering sheets to said gripper mechanism, substantially as described

2. In a sheet-delivery for printing-presses, the combination with a delivery for receiving the sheets, of a frame moving to and fro on the main framework, a gripper mechanism carried by said moving frame, discontinuous tapes or equivalent connected at one end to the fixed frame of the machine and at the other end to said moving frame, and mechanism for delivering sheets to said gripper mechanism, substantially as described



3. In a sheet-delivery for printing-presses, the combination with a delivery for receiving the sheets, of a frame moving to and fro on the main frame, a gripper mechanism carried by said moving frame, discontinuous tapes connected at one end to the main frame of the machine, a roller carried by said moving frame and to which the other ends of said tapes are fast, and mechanism for delivering sheets to said gripper mechanism, substantially as described.

4. In a sheet-delivery, the combination of a reciprocating frame, grippers carried by said frame for drawing out the sheets, a roller on said frame, a pinion on said roller, discontinuous tapes fast at one end to the said roller and secured at their other end to the fixed framework of the machine, a fixed rack on the frame of the machine meshing with the said pinion on the said roller, and a receiving-board to which the sheets are delivered by the said roller, substantially as described.

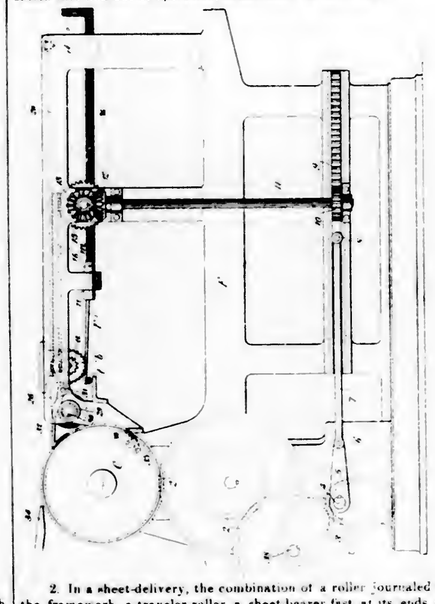
5. In a sheet-delivery, the combination of a to-and-fro-moving frame on the fixed framework of the machine, grippers borne by said movable frame to draw out the sheets, a roller journaled on said movable frame, a pinion on said roller, sheet-supports fast at one end to the said roller, and a spring or springs securing the other end of said sheet-supports to the fixed frame of the machine; a rack fixed on the framework of the machine meshing with the said pinion on said roller, and a receiving-bed to which the sheets are delivered by said roller, substantially as described.

6. In a sheet-delivery, a delivery-roller moving to and fro and revolved positively in opposite directions as it so moves, a sheet-support, as tapes, fast at one end to said roller, and a spring or springs connecting the other end of the said support with the fixed framework of the machine, all in combination, substantially as described.

7. In a printing-machine, the combination of the impression-cylinder C, the mutilated gear 13 thereon, a gear-segment 150 opposite the mutilated portion of said gear 13, the form-bed, a rack R on said form-bed for coaction with said gear 13, a rack-segment 151 on the bed for coaction with gear-segment 150, the teeth of said segments 150 and 151 being of less depth than the teeth of the rack R and gear 13, and mechanism for raising and lowering the impression-cylinder, substantially as described.

642,806. SHEET-DELIVERY APPARATUS FOR PRINTING-PRESSES. WALTER SCOTT, Plainfield, N. J. Filed Feb. 2, 1897. Serial No. 621,676. (No model.)

Claim.—1. In a sheet-delivery, the combination of a spring-roller journaled in the framework, the traveler-roller, a sheet-bearer fast at its ends to said rollers, mechanism for moving said traveler-roller to and fro, a clutch for connecting said traveler-roller and its said operating mechanism, and mechanism for periodically throwing said clutch into and out of operation, substantially as described.



2. In a sheet-delivery, the combination of a roller journaled in the framework, a traveler-roller, a sheet-bearer fast at its ends to said rollers, mechanism for moving said traveler-roller to and fro, a clutch for connecting said traveler-roller and its said operating mechanism, mechanism for periodically throwing said clutch into and out of operation, and means for operating said first-named roller to cause it to periodically wind up the said bearer, substantially as described.

3. In a sheet-delivery, the combination of a spring-roller journaled in the framework, a traveler-roller, a sheet-bearer fast at its ends to said rollers, mechanism for moving said traveler-roller to and fro, and mechanism for periodically connecting said traveler-roller with its said operating mechanism to be rotated thereby and disconnecting it therefrom, substantially as described.

4. In a sheet-delivery, the combination of a roller journaled in the framework, a traveler-roller, a sheet-bearer fast at its ends to said rollers, mechanism for moving said traveler-roller to and fro, mechanism for periodically connecting said traveler-roller with its said operating mechanism to be rotated thereby and disconnecting it therefrom, and means for operating said first-named roller to cause it to periodically wind up said sheet-bearer, substantially as described

5. The combination of an automatic roller journaled in the framework, a traveler-roller, a sheet-bearer connecting said rollers, the to-and-fro-movable rack 16, mechanism for operating said rack, the pinion *a* meshing with said rack, the fixed rack 20, the pinion *b* (larger than pinion *a*) meshing with rack 20, the shaft 17 to which said pinions *a b* are fast, a clutch for connecting said pinion *b* and said traveler-roller, and mechanism for periodically throwing said clutch into and out of operation, substantially as described.

6. The combination of an automatic roller journaled in the framework, the traveler-roller, the sheet-bearer connecting said rollers, the ratchet-wheel *c* on said traveler-roller, the shaft 17, mechanism for rotating said shaft 17 alternately in opposite directions, the pawl *f* operated or carried by said mechanism, the spring-catch, the tooth *k* on said pawl with which the catch coacts, the lug *d* on the frame for operating said catch, and the incline *m* on the framework, substantially as described.

7. The combination of an automatic roller journaled in the framework, a traveler-roller, the sheet-bearer connecting said rollers, the ratchet-wheel *c* on said traveler-roller, the shaft 17, the fixed rack 20, the pinion *b* meshing with rack 20, the pawl *f* carried by pinion *b*, the tooth *k* on said pawl, the spring-catch, the lug *d* on the framework for operating the catch, the incline *m* on the framework, the pinion *a* (smaller than pinion *b*) on the shaft 17, the to-and-fro-movable rack 16 meshing with pinion *a*, and mechanism for operating rack 16, substantially as described.

8. The combination of an automatic roller journaled in the framework, a traveler-roller, the sheet-bearer connected at its ends to said rollers, the slide-stop 21, the worm 23 closed at one end for operating said slide-stop, the shaft 17, the ratchet-wheel *e* fast on said traveler-roller, the pawl *f*, the spring-catch, the tooth *k* on said pawl, the lug *d* on the frame, the incline *m*, and mechanism for rotating said shaft 17 in opposite directions and operating said pawl, substantially as described.

9. The combination of an automatic roller journaled in the framework, a traveler-roller, the sheet-bearer connected at its ends to said rollers, the stop 21, the worm 23 closed at one end for operating said stop, mechanism for moving said traveler-roller to and fro, a clutch for connecting said traveler-roller and its said operating mechanism, and mechanism for periodically throwing said clutch into and out of operation, substantially as described.

10. The combination of an automatic roller in the framework, a traveler-roller, a discontinuous sheet-bearer connected to said rollers, the stop 21, the worm 23 closed at one end for operating said stop, mechanism for moving said traveler-roller to and fro, and mechanism for periodically connecting and disconnecting said traveler-roller and its said operating mechanism, substantially as described.

11. The combination of an automatic spring-roller in the framework, a traveler-roller, a discontinuous sheet-bearer connecting said rollers, and mechanism for moving said traveler-roller to and fro and winding said bearer on said rollers alternately, substantially as described.

12. The combination of an automatic roller in the frame, a traveler-roller, a discontinuous sheet-bearer connected to said rollers, and traveler-roller-operating mechanism provided with an automatically-operated clutch for periodically connecting said traveler-roller with its said operating mechanism to be rotated thereby and disconnecting it therefrom, substantially as described.

13. The combination of a roller in the framework, the traveler-roller, a sheet-bearer connected at its ends to said rollers, mechanism for moving said traveler-roller to and fro and winding said bearer alternately on said rollers, a brake for said traveler-roller, and an incline for operating said brake, substantially as described.

14. The combination of a roller in the frame, a traveler-roller, the sheet-bearer connecting said rollers, mechanism for moving said traveler-roller to and fro and winding said bearer on said rollers alternately, a brake for said traveler-roller, an incline for operating the brake, the worm closed at one end on said traveler, and the movable stop coacting with said worm, substantially as described.

15. The combination of a roller in the frame, a traveler-roller, a sheet-bearer connecting said rollers, mechanism for moving said traveler-roller to and fro and winding said bearer on said rollers alternately, a brake for the traveler-roller, a pivoted incline for operating said brake, and means for adjusting the position of the incline, substantially as described.

16. The combination of an automatic roller journaled in the frame, a traveler-roller, a sheet-bearer between said rollers, mechanism for moving said traveler-roller to and fro, an automatically-operated clutch for periodically connecting said traveler-roller with said mechanism to be rotated thereby and disconnecting it therefrom, a brake for said traveler-roller, and means for operating said brake, substantially as described.

17. The combination of an automatic roller in the frame, a traveler-roller, a sheet-bearer connecting said rollers, mechanism for moving said traveler-roller to and fro, an automatically-operated clutch for periodically connecting said traveler-roller with said mechanism to be rotated thereby and disconnecting it therefrom, a brake for said traveler-roller, and adjustable mechanism for operating said brake, substantially as described.

18. The combination of an automatic roller in the frame, a traveler-roller, a sheet-bearer connecting said rollers, mechanism for moving said traveler-roller to and fro, an automatically-operated clutch for periodically connecting said traveler-roller with said mechanism, to be rotated thereby and disconnecting it therefrom, brake mechanism for said traveler-roller periodically operated, the worm 23 closed at one end, and the stop operated by said worm, substantially as described.

19. The combination of a roller in the frame, a traveler-roller, a discontinuous sheet-bearer connected at its ends to said rollers, the worm closed at one end and carried by said traveler-roller, the slide-stop coacting with said worm, and mechanism for moving said traveler-roller to and fro and winding said bearer on said rollers alternately, substantially as described

20. The combination of an automatic roller in the frame, a traveler-roller, a discontinuous sheet-bearer connected at its ends to said rollers, the worm connected with said traveler-roller and closed at one end, the movable stop coacting with said worm, and mechanism provided with an automatically-operated clutch periodically connecting said traveler-roller with said mechanism to be rotated thereby and disconnecting it therefrom for moving said roller to and fro, substantially as described.

21. The combination of a roller journaled in the framework, a traveler-roller, a discontinuous sheet-bearer fast to said rollers, mechanism for winding the bearer on said rollers alternately, a worm on said traveler-roller, a stop engaging and operated by the worm, and a buffer for said stop, substantially as described.

22. The combination of an automatic roller in the framework, a traveler-roller, a discontinuous sheet-bearer fast to said rollers, the worm connected with said traveler-roller, a buffer in said worm at one end thereof, a movable stop coacting with said worm and buffer, and mechanism provided with an automatically-operated clutch periodically connecting said traveler-roller with said mechanism to be rotated thereby and disconnecting it therefrom for moving said roller to and fro, substantially as described.

23. The combination of a roller journaled in the framework, the hollow traveler-roller, a discontinuous sheet-bearer fast to said rollers, the shaft 17 within said hollow roller, the large and small pinions fast to said shaft 17, the fixed rack 20 meshing with the larger of said pinions, and mechanism for operating said roller in the framework and for rotating said smaller pinion alternately in opposite directions, with mechanism including an automatically-operated clutch for connecting and disconnecting the shaft 17 with the hollow roller, substantially as described.

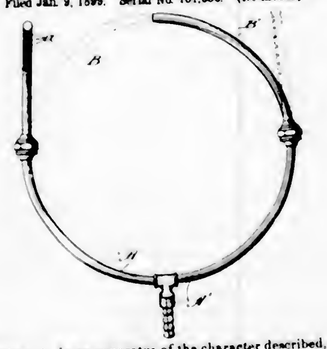
24. The combination of the hollow traveler-roller, the shaft 17 within said hollow roller, the fixed rack 20, the large and small pinions *b a* on the shaft 17 the larger pinion meshing with the rack 20, the movable rack meshing with the smaller pinion, and mechanism for moving the movable rack to and fro, with a clutch for connecting the shaft 17 and the hollow roller, mechanism for periodically opening and closing said clutch, a roller journaled in the framework, means for operating the last-named roller, and a discontinuous sheet-bearer fast to the two said rollers, substantially as described.

25. The combination of the automatic roller S journaled in the framework, the hollow traveling roller T, the bearer 25 fast to said rollers S T, the worm 23 on the roller T, the guided stop 21 operated by the worm, the buffer 21ª in said worm, the shaft 17 within the roller T, the ratchet-wheel *e* on the shaft 17, the pawl *f* connected with the shaft 17, the spring-catch *k* and pin *k*, the lug *d* on the framework, the incline *m* on the frame, and mechanism for moving the shaft 17 to and fro and rotating it alternately in opposite directions, substantially as described.

26. The combination of an automatic roller in the framework, the traveler-roller, the discontinuous sheet-bearer fast to the said rollers, mechanism provided with elliptical gears for moving said traveler-roller to and fro and rotating the same said mechanism containing a clutch, and mechanism for periodically throwing said clutch into and out of operation, substantially as described.

27. In an extensible collapsible sheet-delivery device, a to-and-fro-moving roller, the sheet-bearer fast to said roller, the fixed rack, the movable rack 16, the pinion connected with the said roller and meshing with the fixed rack, a second pinion smaller than and connected with the first-named pinion and meshing with the rack 16, and mechanism for moving said rack 16 to and fro, with a member on the framework to which the sheet-bearer is also fast, substantially as described.

642,807. SHOWER-BATH RING. EDWARD C. SMITH, Chicago, Ill. Filed Jan. 9, 1899. Serial No. 701,636. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a curved tubular perforated part provided with hose-attaching means, a curved perforated section closed at its free end and attached at its opposite end to an extremity of the first-named tubular part by a joint at a point removed from and independent of said hose-attaching means and permitting said section to be moved to break the contour of the annulus, and means at the joint for closing the admission to the last-named tubular section when the latter is moved a certain distance out of its normal operative position in use, whereby a portion of the annulus only may be used at will for spraying, substantially as and for the purpose set forth.

2. In an apparatus of the character described, the combination of a curved tubular part provided with a hose-attaching stem, and a perforated curved tubular section closed at its free end and attached at its opposite end to an extremity of said first-named tubular part by a joint permitting rotation about an axis parallel to a tangent to the curve at the point where the joint occurs, substantially as and for the purpose set forth.

3. In an apparatus of the character described, the combination of a tubular perforated section provided with a hose-attaching stem, a curved tubular perforated part closed at its free end and attached to an extremity of said first-named tubular part by a joint permitting rotation about an axis parallel to the curve at the point where the joint occurs, and means for closing communication between said tubular parts when the movable section is rotated a given distance out of the plane of the other section, substantially as and for the purpose set forth.

4. In an apparatus of the character described, the combination of a tubular part provided with a hose-attaching stem and at one extremity with a cap-piece provided at its end with an eccentrically-placed perforation, a curved tubular perforated section closed at its free extremity and provided at its opposite extremity with a cap-piece provided with an eccentrically-placed perforation registering with said first-named perforation when the movable section is in the operative position, and means for rotatably connecting said cap-pieces, substantially as and for the purpose set forth.

5. In an apparatus of the character described, the combination of a curved tubular part provided with hose-attaching means, a curved tubular part connected with an extremity of said first-named part by means of a joint permitting rotation about an axis parallel to a tangent to the curve at the joint, and means for limiting the rotation of the movable part when it reaches the plane of the other part in one direction or is rotated a predetermined distance out of the plane of the other part in the opposite direction, substantially as and for the purpose set forth.

6. In a shower-bath ring, the combination of a curved tubular perforated part A provided near its center with a hose-attaching stem A', curved tubular perforated sections B, B', cap-pieces C and D provided with eccentrically-placed perforations *b'* and *c*, respectively, pins *f* and curved slots *f'* for limiting the relative movement of the parts, and threaded coupling rings E for joining said cap-pieces rotatably together, substantially as and for the purpose set forth.

7. In a shower-bath ring, the combination of a half-circular tubular perforated part A provided with a rigid hose-attaching stem A', curved tubular perforated sections B, B', each forming a quadrant of a circle and closed at its free end and attached at its opposite end to an extremity of the section A by a joint permitting rotation about an axis substantially parallel to a diameter of the annulus passing through the point where the stem A' is attached, substantially as and for the purpose set forth.

8. In an apparatus of the character described, the combination of a curved tubular perforated part A provided between its extremities with a hose-attaching stem A', curved tubular perforated sections closed at their free ends and attached at their opposite ends to the extremities of said part A by joints permitting either one of them to be moved at will to break the annulus, and means at said joints for closing the admission to said sections when they are moved a given distance and the annulus thereby broken, substantially as and for the purpose set forth.

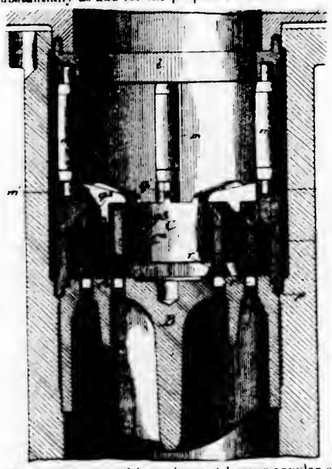
642,808. VALVE. JOHN STUMPF, Berlin, Germany. Filed June 20, 1899. Serial No. 721,195. (No model.)

Claim.—1. The combination with a valve-seat and lift-valve, of a rubber valve-closing spring projecting over the valve to pack the seat when the valve is closed, substantially as and for the purpose set forth.

2. The combination with a valve-seat and lift-valve, of a stationary valve spring holder adjacent to the valve, and a valve-closing rubber spring in said holder projecting over the valve to pack the seat when the valve is closed, substantially as and for the purpose set forth.

3. The combination with a valve-seat having an annular port, of a lifting ring valve seating upon said port, a valve-spring holder having a socket, and an annular valve-closing rubber spring in said socket engaging the valve and projecting over the same to pack the seat when the valve is closed, substantially as and for the purpose set forth.

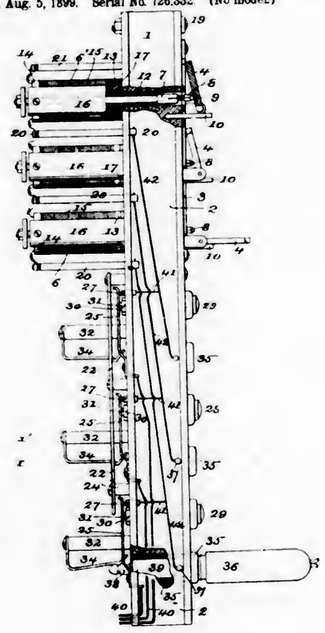
4. The combination with a valve-seat having annular concentric ports, of a lift-valve for said ports comprising concentric rings, a valve-spring holder provided with concentric socket-pieces, and annular valve-closing rubber springs in said socket-pieces engaging the rings, substantially as and for the purpose set forth.



5. The combination with a valve-seat having annular concentric ports, of a lift-valve for said ports comprising concentric rings, a valve-spring holder provided with concentric socket-pieces, and annular valve-closing rubber springs in said socket-pieces engaging the rings and projecting over the same to pack the seat when the rings are seated, substantially as and for the purpose set forth.

6. The combination with a valve-seat and lift-valve, of a stationary valve-spring-holding socket-piece, and a rubber spring in said socket-piece having a body portion and separable valve-engaging head, substantially as and for the purpose set forth.

642,809. TELEPHONE-SWITCHBOARD. ERNEST E. YAXLEY, Chicago, Ill., assignor to W. T. Blaine, same place. Filed July 26, 1898. Renewed Aug. 5, 1899. Serial No. 726,332. (No model.)



Claim.—1. A telephone-switchboard section comprising, in combination, a body of insulating material having a longitudinal channel in its side containing the wire connections of the operating parts, and electromagnets, annunciators, push-buttons and spring-jacks mounted on said body, substantially as described.

2. A telephone-switchboard section comprising, in combination, a body formed of a bar of insulating material having longitudinal channels in its opposite sides containing the wire connections of the operating parts, and electromagnets, annunciators, push-buttons and spring-jacks mounted on said body, substantially as described.

3. A telephone-switchboard section comprising, in combination, a body of insulating material having a longitudinal channel in its side, annunciator-magnets, push button contacts and spring-jack contacts on the back of said body and push-button plungers and spring-jack bushings extending through said body to the front thereof, annunciator-drops on the front of said body, and electrical connections between the parts contained in said channel, substantially as described.

4. In a telephone-switchboard section, the combination of a body of insulating material having a longitudinal channel in its side, an annunciator face-plate secured to said body, a series of annunciator-drops connected with said plate, insulated metal rests below said drops, an electrical conductor connecting said rests and contained in said channel, and an electric bell in circuit with said rests, substantially as described.

5. In a telephone-switchboard section, the combination of a body of insulating material having a longitudinal channel in its side, an annunciator face-plate secured to said body, a series of annunciator-drops connected with said plate, insulated metal rests below said drops, a terminal plate on the front of said body, an electrical conductor connecting said rests and the terminal plate and contained in said channel, and an electric bell in circuit with said rests, substantially as described.

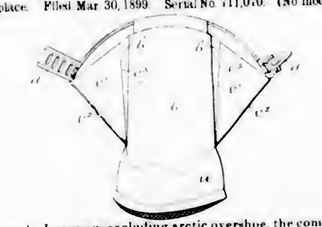
6. A telephone-switchboard comprising, in combination, a plurality of sections, each composing a switchboard complete in itself formed of a bar of insulating material having a longitudinal channel in its side containing the wire connections of the operating parts, and electromagnets, annunciators, push-buttons and jacks mounted on said bar, said sections being assembled together with the sides of said bars abutting and forming chambers of said channels containing said connections, substantially as described.

7. A telephone-switchboard comprising, in combination, a plurality of sections, each composing a switchboard complete in itself formed of a bar of insulating material having longitudinal channels in its sides containing the wire connections of the operating parts, and electromagnets, annunciators, push-buttons and jacks mounted on said bar, and a case it, which said sections are assembled with the sides of the bars abutting and forming, with each other and the sides of the case, said channels into chambers containing said connections, substantially as described.

8. In a telephone-switchboard, the combination with an annunciator-magnet having a drop-actuating plunger, of an annunciator-drop having insulating material on its surface where it is engaged by said plunger, substantially as described.

9. In a telephone-switchboard, the combination with an annunciator-magnet having a drop-actuating plunger, of an annunciator-drop having a strip of insulating material inserted in its rear side to be engaged by said plunger, substantially as described.

642,810. SNOW-EXCLUDING ARCTIC. WILLIAM N BUTTON, Providence, R. I., assignor to The Joseph Banigan Rubber Company, same place. Filed Mar 30, 1899. Serial No. 711,070. (No model.)



Claim.—1. In a snow-excluding arctic overshoe, the combination with the vamp of the shoe and extensions on the vamp forming parts of the gussets, of quarters and extensions formed integral with the quarters forming the other parts of the gussets; whereby the extensions of the vamp and quarters may be secured near the gutters of the gussets and a larger entrance for the shoe-clad foot secured, as described.

2. A snow-excluding arctic overshoe, having the quarters and parts of the gussets connecting the quarters with the vamp formed in one piece without joint or seam, whereby the hinge-lines of the gussets are located on the extreme forward ends of the quarters and the expansible opening is enlarged, as described.

3. A snow-excluding arctic overshoe in which the cloth forming the outer surface of the joint extends in one piece over the vamp and over parts of the gussets and the cloth forming the outer surface of the quarters extends in one piece over the quarters and the parts of the gussets connected with the quarters, as a new article of manufacture, whereby the vamp and the quarters may be jointed at the gutters of the gussets, as described.

642,811. VEHICLE-TIRE. ROBERT COWEN, Cambridge, Mass. Filed Aug. 16, 1897. Serial No. 648,383. (No model.)



Claim.—1. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links, provided with retaining-arches extending up into and permanently embedded in the tread member, substantially as described.

2. A tire, consisting of a yielding tread member, and a supporting member or carrier, permanently held together, said carrier comprising connected links having at each side upturned sides inclosing said tread member to guard and retain it, substantially as described.

3. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links having at each side upturned sides inclosing said tread member, the inner surfaces of said sides approaching each other to constitute a dovetail to hold the tread member, substantially as described.

4. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links having their sides looped upwardly to inclose the tread member, and the free ends of said sides extending downwardly to lap over the rim of the wheel, substantially as described.

5. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links having their sides looped upwardly to inclose the tread member, and the free ends of said sides extending downwardly to lap over the rim of the wheel, said links being separated from each other at their sides, and the yielding material of said tread member entering between said links and within said side loops, substantially as described.

6. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links provided with interiorly-threaded bosses or screw-holes to receive screws from the wheel-rim, substantially as described.

7. A tire, consisting of a yielding tread member, and a supporting member or carrier, said carrier comprising connected links, the yielding material of said tread member being formed integrally above and below said links, the former for the tread proper and the latter to cushion the tire between the links and the wheel-rim, substantially as described.

8. A flexible tire, having sides extending in planes parallel to that of the wheel, said sides consisting of inelastic sections or links joined in one smooth external surface therewith by elastic portions, substantially as described.

642,812. YIELDING VEHICLE-TIRE. ROBERT COWEN, Cambridge, Mass. Filed Feb 4, 1899. Serial No. 704,477. (No model.)



Claim.—1. A tire, consisting of a yielding tread member, and a flexible securing device including a carrier having retaining-arches extending into and permanently embedded in the tread member, substantially as described.

2. A tire, consisting of a yielding tread member, and a securing device therefor, said securing device comprising a carrier and a wire extending longitudinally of the tire, said carrier having a plurality of retaining portions at intervals permanently embedded in the tread member, and depressions in which said wire rests, and means for securing the ends of the wire together for holding the tire in place substantially as described.

3. A tire, consisting of a yielding tread member, and a securing device therefor, said device comprising a plurality of metal retaining portions projecting into and permanently embedded in the tread member, said retaining portions having depressions, and a holding-wire extending longitudinally of the tire and carried by said depressions, substantially as described.

4. A tire, consisting of a yielding tread member, and a carrier therefor, said carrier comprising side members, each having an inwardly-extending flange to embrace the rim of the wheel, and an outwardly-extending flange embracing the tread member, and retaining portions permanently embedded in the tread member, substantially as described.

5. A tire, consisting of a yielding tread member, and a carrier therefor, said carrier comprising side members, each having an inwardly-extending flange to embrace the rim of the wheel, and an outwardly-extending flange embracing the tread member, and retaining portions permanently embedded in the tread member, said carrier extending in one piece throughout the greater portion of the tire, substantially as described.

6. A tire, consisting of a yielding tread member, and a securing device therefor, comprising a carrier having a plurality of retaining portions embedded in the body of the tread member and having intermediate depressions, and a holding-wire resting in said depressions longitudinally of the tire, said holding-wire projecting at its ends beyond the ends of the tread member, substantially as described.

7. A tire, comprising a yielding tread member, a holding-wire for securing the same, said wire extending longitudinally thereof, and projecting at its ends beyond the ends of the tread member, means for securing said ends of the wire, and a removable section for inclosing and concealing said secured ends, said section comprising a yielding tread portion, and clamping means for clamping the same in place, substantially as described.

8. In a yielding vehicle-tire, the herein-described means for securing adjacent portions of the tire together, comprising holding devices carried by and projecting from said adjacent portions of tire and joining the same together in desired adjustment, and a removable section adapted to fit between said adjacent portions of tire and inclosing said holding devices, said section comprising a yielding tread portion, and means for securing it, substantially as described.

9. In a yielding vehicle-tire, the herein-described means for securing adjacent portions of the tire together, comprising holding devices carried by and projecting from said adjacent portions of tire and joining the same together in desired adjustment, and a removable section adapted to fit between said adjacent portions of tire and inclosing said holding devices, said section comprising a yielding tread portion, and having its ends flaring divergently downward, and means for securing it, substantially as described.

10. In a yielding vehicle-tire, the herein-described means for securing adjacent portions of the tire together, comprising holding devices carried by and projecting from said adjacent portions of tire and joining the same together in desired adjustment, and a removable section adapted to fit between said adjacent portions of tire and inclosing said holding devices, said section comprising a yielding tread portion, a carrier-plate permanently embedded in said tread portion, and a securing-bolt carried by said plate, substantially as described.

11. In a yielding vehicle-tire, the herein-described means for securing adjacent portions of the tire together, comprising threaded ends projecting from said adjacent portions of tire, a turnbuckle for joining said threaded ends, and a removable section for occupying the space between said ends of tire and inclosing said turnbuckle and threaded ends, said section comprising a flexible tread portion, and a carrier-plate embedded therein, said turnbuckle having an intermediate slot, and a bolt engaging said removable section and passing through said slot for locking the parts in position, substantially as described.

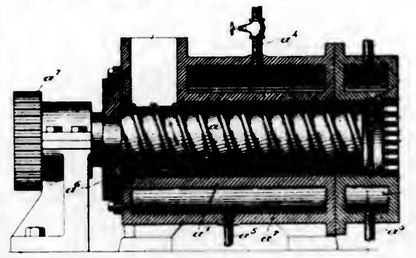
12. The combination with a tire carrying threaded wire ends, of a turnbuckle for engaging said threaded ends and tightening the wire, a removable section for inclosing said turnbuckle and wire ends, a carrier-plate permanently embedded in said removable section, and means engaging said carrier-plate for securing said section to a wheel-rim, said engaging means interlocking with said turnbuckle to prevent the latter from turning when said section is in place, substantially as described.

642,813. APPARATUS FOR CLEANING RUBBER. ROBERT COWEN, Cambridge, Mass. Filed Apr. 1, 1899. Serial No. 711,338. (No model.)

Claim.—1. An apparatus for cleaning rubber, comprising a foraminous strainer, a conveyer to feed the rubber thereto under pressure, and a heated jacket or cylinder inclosing said conveyer for heating the rubber to a plastic condition, substantially as described.

2. In a machine for cleaning rubber, a strainer comprising a holding-plate of considerable depth and strength suitably apertured, the apertures having ledges, and foraminous strainer-diaphragms seated on said ledges, and means for feeding the rubber thereto, substantially as described.

3. A strainer of the kind described, consisting of a strong metal holder having a hole through it, said hole having a small diameter on the back side and a larger diameter on the front side of the plate, and an intermediate ledge, combined with a removable, thin, foraminous diaphragm resting on said ledge, substantially as described.



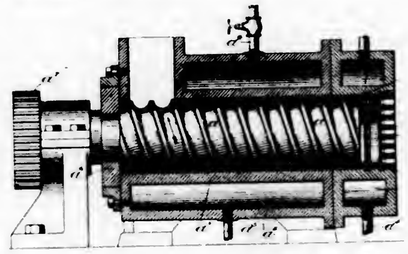
4. A strainer of the kind described, consisting of a strong metal holder having a hole through it, said hole having a small diameter on the back side and a larger diameter on the front side of the plate, and an intermediate ledge, combined with a removable, thin, foraminous diaphragm resting on said ledge, said holder affording a pocket or recess at the front of said diaphragm, substantially as described.

5. In a machine for cleaning rubber, a strainer, and means for feeding the rubber thereto under pressure, said strainer being movably mounted in the machine, and the walls of the machine having openings fitted to receive said strainer and through which the strainer may slide, substantially as described.

6. In a machine for cleaning rubber, a strainer in the form of an oblong plate having a plurality of sets of apertures provided with foraminous diaphragms, said plate being mounted in a slideway in the wall of the machine and capable of being slid back and forth to bring one or the other of said sets of apertures into operative position, substantially as described.

7. In a machine for cleaning rubber, a plurality of strainers, one behind the other, said strainers having successively-finer strainer-holes, and means to force the rubber through said strainers under pressure, substantially as described.

642,814. PROCESS OF CLEANING RUBBER. ROBERT COWEN, Cambridge, Mass. Filed Sept. 22, 1899. Serial No. 731,262. (No specimens.)



Claim.—1. The herein-described process of cleaning rubber which consists of reducing the rubber to a plastic condition, then straining it under pressure.

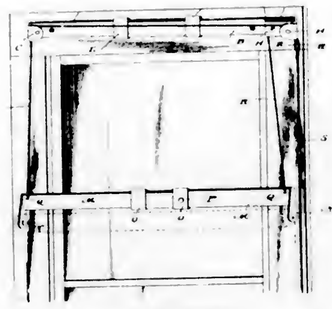
2. The herein-described process of cleaning rubber of foreign materials contained therein which consists in heating the rubber to reduce it to a plastic condition and then straining it under pressure.

3. The herein-described process of cleaning rubber of foreign materials contained therein which consists in macerating the mixture, then heating it to reduce the rubber to a plastic condition and straining it under pressure.

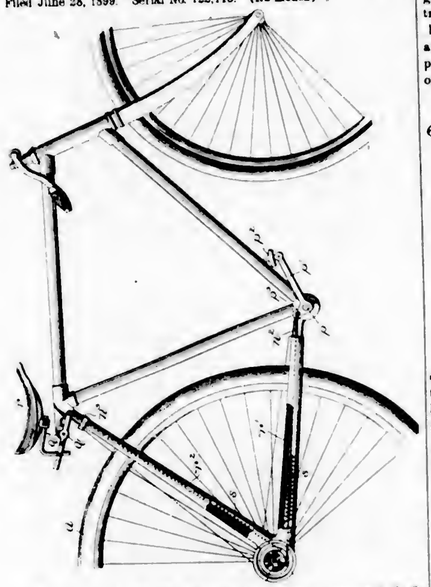
642,815. ADJUSTABLE WINDOW-SHADE HANGER. SAMUEL J. COX, Lima, Ohio. Filed July 7, 1899. Serial No. 723,112. (No model.)

Claim.—The herein-described window-shade hanger, comprising the upper member made in two sections and adjustably held together, pulley-casings formed by the bent ends of said sections, one end having a division-wall located between the bent end and body of the member, two pulleys journaled in the space between the body and wall and one pulley journaled in the space between the bent end and the wall, and a shade-carrying member adjustably supported by means of said pulleys and the upper member.

642,815.



642,816. BICYCLE-GEARING. WILLIAM H. CURTISS, Buffalo, N. Y. Filed June 28, 1899. Serial No. 722,115. (No model.)



Claim.—1. In a vehicle, the combination of a two-part shaft journaled in the frame; means for driving the parts of said shaft oppositely to each other; a driving-gear carried by one of said parts of the shaft; planetary gearing carried by the other of said parts with one member meshing into said driving gear; and a ground-wheel having a hub journaled on the two-part shaft and having a gear in mesh with a member of the planetary gearing.

2. In a vehicle, the combination of a ground-wheel having a hub with an internal gear, planetary gearing one member of which meshes with said internal gear, an internal gear meshing with another member of the planetary gearing, and means for driving the latter internal gear and the planetary gearing as a whole oppositely to each other, substantially as described.

3. In a vehicle, the combination of a two-part shaft journaled in the frame, means for driving the parts of said shaft oppositely to each other, an internal gear carried by one of said parts of the shaft, planetary gearing carried by the other of said parts with one member meshing into said internal gear, and a ground-wheel having a hub journaled on the two-part shaft and having an internal gear in mesh with a member of the planetary gearing.

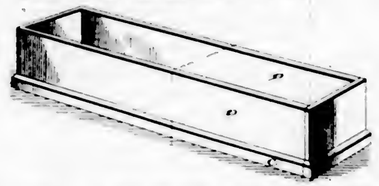
4. In a vehicle, the combination of a two-part shaft journaled in the frame and its members telescoping, an internal gear carried by one member of the shaft, a train of planetary gears carried by the the other member of the shaft with one of its gears in mesh with said internal gear, a ground-wheel journaled on said two-part shaft, its hub incasing the gearing, and having an internal gear in mesh with the last of the train of planetary gears, and means for oppositely driving the two members of the shaft.

5. In a vehicle, the combination of a ground-wheel having a hub with an internal gear, a two-part shaft or axle on which said hub journals, the members of said shaft telescoping and one having a pair of disks, a series of shafts extending between said disks, a train of gears carried by said shafts with one of their number in mesh with the internal gear of the hub, an internal gear fastened to the other axle member and meshing with another one of the train of gears, and means for driving the two axle members in opposite directions.

6. In a vehicle, the combination of a ground-wheel whose hub has an internal gear, a two-part axle, a train of gears carried by one axle member with one of the gears meshing into the hub-gear, an internal gear carried by the other axle member and in mesh with one of the train of gears, clutches on the axle members, a seat or saddle on a vertically-movable support, and suitable connections between said support and the clutch whereby weight superimposed on the saddle will effect opposite rotative movements of the axle members, substantially as described.

7. In a vehicle, the combination of a ground-wheel whose hub has an internal gear, a two-part axle, a train of gears carried by the axle member with one of the gears meshing into the hub-gear, an internal gear carried by the other axle member and in mesh with one of the train of gears, double sets of clutches on the axle members, a pedal-haft and pedal-equipped arms thereon, connections between the same and one clutch of each set, a vertically-movable seat or saddle support, and suitable connections between the same and the other clutch of each set, substantially as and for the purpose described.

642,817. COUCH-CASKET. JOHN N. DEAN, Wheeling, W. Va. Filed Nov. 19, 1898. Serial No. 696,934. (No model.)



Claim.—1. A burial case or casket having secured at the base of each side and on the outer side thereof a molding which is hinged to the bottom or base-board of the casket, and having each side, at its base and on the inner side thereof, hinged to a longitudinal movable rib; and two longitudinal stationary ribs secured to the bottom or base-board, substantially as and for the purposes set forth and described.

2. In a burial-casket of the class described, the base provided with two longitudinal stationary ribs secured thereon, the upper surface of each forming a compound curve; the movable longitudinal ribs hinged to the inner bases of the sides; and the movable sides and ends, substantially as and for the purposes set forth and described.

3. A burial case or casket, substantially as described, comprising a wide base-board supporting two stationary longitudinal ribs each of which forms with its upper surface a compound curve, the curve at the head of the casket being much more pronounced than that at the foot; the longitudinal movable ribs each hinged at its base to the inner base of the side; and the sides each secured at their outer base to a molding which is hinged to the lateral edge of the base-board, substantially as and for the purposes set forth and described.

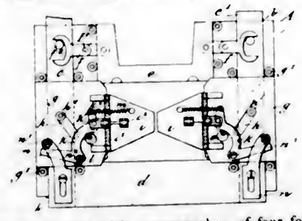
4. The combination of a base-board, stationary longitudinal ribs secured thereon, hinged ends and sides, movable longitudinal ribs, and a cover connected and arranged to form an improved burial case or casket, substantially as shown and described.

5. In a burial case or casket, substantially as described, the combination of a wide base-board having longitudinal stationary ribs secured thereon, movably-attached sides and ends, and movable longitudinal ribs movably attached to the sides and arranged so as to project upward when the casket is unfolded, forming an extension for a couch, and so as to fold against said side when the casket is folded, substantially as and for the purposes set forth and described.

6. A couch-casket, consisting of the bottom or base-board, hinged sides and ends connected with said base-board, and movable longitudinal ribs connected with the sides, substantially as and for the purpose set forth and described.

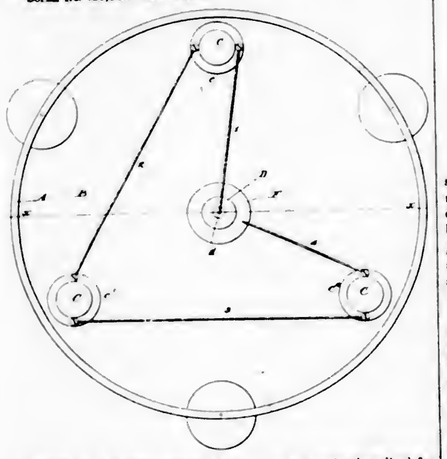
642,818. ENVELOP-MACHINE. ERNST FISCHER, Barmen, Germany. Filed Jan. 26, 1899. Serial No. 703,522. (No model.)

Claim.—1. The combination with a creasing-box, of four folding-rails, means whereby the rails are shifted, a folding-flap pivotally attached to each end rail, a lever also attached to each end rail and connected at one end to the folding-flaps, a spring connected to the lever and to the folding-flaps, and fingers adjustably attached to one of the other rails and arranged to operate said levers.



2. The combination with a creasing-box, of four folding-rails, means whereby the rails are shifted, a folding-flap pivotally attached to each end rail, a lever also attached to each end rail and connected at one end to the folding-flaps, a spring connected to the lever and to the folding-flaps, and fingers adjustably attached to one of the other rails and arranged to operate said levers and adjustable stops *o* secured to the end rails to limit the movement of the levers *k* of the flaps.

642,819. APPARATUS FOR PRODUCING SPECTACULAR EFFECTS. WILLIAM FERRIS, New York, N. Y. Filed July 26, 1899. Serial No. 725,143. (No model.)



Claim.—1. In apparatus of the character herein described for producing spectacular effects, the combination of a device adapted to be rotated by hand, electric lamps mounted thereon, two contacts carried thereby, one of said contacts constituting a pivot-center, a pivot-rod for said device making electrical contact with said pivot-center, and an insulated contact for making traveling contact with the other contact on the rotating device, substantially as set forth.

2. In apparatus of the character herein described for producing spectacular effects, the combination of a device adapted to be rotated by hand, electric lamps mounted thereon, a central contact-plate carried by said device and forming a pivot-center, a pivot-rod for said device making electrical contact with said plate, a flexible contact carried by said device, and an insulated contact-collar on said pivot-rod with which said flexible contact engages, substantially as set forth.

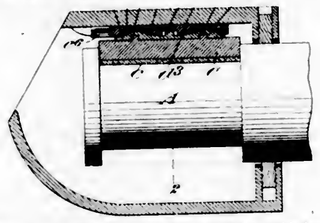
3. In apparatus of the character herein described for producing spectacular effects, the combination of a device adapted to be rotated by hand, electric lamps mounted thereon, a central contact-plate carried by said device and forming a pivot-center, a pivot-rod for said device making electrical contact with said plate, a flexible contact carried by said device, and an insulated magnetic contact-collar on said pivot-rod with which said flexible contact engages, substantially as set forth.

4. In apparatus of the character herein described for producing spectacular effects, the combination of a device adapted to be rotated by hand, electric lamps mounted thereon, a contact-plate carried by a ring of insulating material secured to said device, said plate having a depression to form a pivot-center, a contact-spring mounted upon the opposite side of said insulating-ring, a pivot-rod for said device making electrical contact with said plate, and an insulated contact-collar on said pivot-rod with which said contact-spring engages, substantially as set forth.

5. In apparatus of the character herein described for producing spectacular effects, the combination of a tambourine adapted to be rotated by hand, electric lamps mounted thereon, two contacts carried thereby, one of said contacts constituting a pivot-center, a pivot-rod for said tambourine making electrical contact with said pivot-center, and an insulated contact for making traveling contact with the other contact on the tambourine, substantially as set forth.

6. In apparatus of the character herein described for producing spectacular effects, the combination of a tambourine adapted to be rotated by hand, electric lamps mounted thereon, a contact-plate carried by a ring of insulating material secured to said tambourine, said plate having a depression to form a pivot-center, a contact-spring mounted upon the opposite side of said insulating-ring, a pivot-rod for said device making electrical contact with said plate, and an insulated contact-collar on said pivot-rod with which said contact-spring engages, substantially as set forth.

642,820. CAR-AXLE BEARING. JAMES W. HARRISON, Atlanta, Ga., assignor, by mesne assignments, to the Atlantic Brass Company, of New Jersey. Filed Sept. 28, 1898. Serial No. 692,052. (No model.)



Claim.—1. The combination with a wedge provided on its under side with a concave depression having a convex projection at the middle portion thereof, the said wedge being further provided with depending flanges on its opposite sides, of a "brass" provided on its back with a bearing-piece having a convex surface adapted to engage the concave depression on the under side of the wedge and with a concave depression centrally located on the convex surface and adapted to engage the convex projection on the under side of the wedge, substantially as set forth.

2. The combination with a wedge provided with a concave depression on its under side and with a convex depression at the middle portion of the said concave and with an elongated socket in the face of said convex projection, of a "brass" provided with a bearing-piece having a convex surface on its back adapted to receive the concave surface on the wedge, a concave depression adapted to receive the convex projection on the wedge and a stud uprising from the concave depression and adapted to enter the said elongated socket, substantially as set forth.

3. The combination with a wedge provided with a concave depression on its under side and with a convex depression at the middle portion of said concave, of a "brass" provided on its back with a bearing-piece having a convex surface in position to receive the concave surface on the wedge and with an oval concave depression in position to receive the convex projection on the wedge, substantially as set forth.

4. The combination with a "brass" and a wedge, of an intermediate bearing-piece fitted to the "brass" and means for fixedly securing the said intermediate piece to the "brass" at its corners, substantially as set forth.

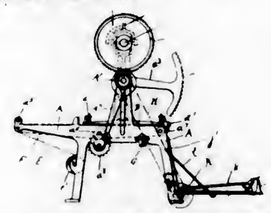
5. The combination with "brass" provided on its back with malleable metallic lips, of an intermediate bearing-piece arranged to seat between the lips on the back of the "brass" and a wedge adapted to bear upon the intermediate piece, substantially as set forth.

6. The combination with a "brass" having malleable metallic lips extending upwardly or outwardly from its back and an intermediate bearing-piece having beveled corners adapted to seat between the said lips and a wedge adapted to bear upon the intermediate piece, substantially as set forth.

7. The combination with a "brass" having malleable metallic lips and studs extending upwardly from its back, of an intermediate bearing-piece adapted to seat between the lips and provided with sockets for receiving the studs and a wedge fitted to bear upon the intermediate piece, substantially as set forth.

8. The herein-described wedge provided at its opposite sides with depending flanges having beveled edges and with a concave depression on its under side and a convex projection at the middle portion of the concave depression, whereby the said wedge may be used practically in connection with either the ordinary "brass" or a special "brass" at pleasure, substantially as set forth.

642,821. COPYING-PRESS. JOHN A. JOHES, New York, N. Y., assignor to the New Era Company, of New Jersey. Filed Oct. 4, 1898. Serial No. 692,661. (No model.)



Claim.—1. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to supply moisture to the belt, means to intermittently move the belt and concurrently feed the paper resting thereon between the table and the platen, and means to intermittently reciprocate the platen, for the purposes set forth.

2. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to supply moisture to the belt, rollers for the belt at one side of the platen, which are adapted also to press the paper upon the belt, means to intermittently and concurrently move the belt and the paper, and means to intermittently reciprocate the platen, for the purposes set forth.

3. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to moisten the belt, means to intermittently and concurrently move the belt and a web of paper resting thereon, means to intermittently reciprocate the platen, and devices located at the end of the machine for severing the terminal piece from the web of paper, for the purposes set forth.

4. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to intermittently and concurrently move the belt and a web of paper resting thereon, means to intermittently reciprocate the platen, cutting devices for severing the web, and automatic devices for receiving and piling the severed portions, for the purposes set forth.

5. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to intermittently and concurrently move the belt and a web of paper resting thereon, means to intermittently reciprocate the platen, cutting devices for severing the web of paper, and automatic devices for piling the paper and fastening the same in a file, for the purposes set forth.

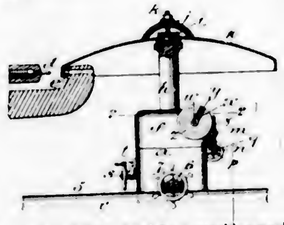
6. In a copying-press the coubination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to intermittently move the belt and concurrently feed paper resting thereon, means to intermittently reciprocate the platen, and devices for preventing the paper from adhering to the platen upon its upward movement, for the purposes set forth.

7. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, wringing devices for expelling the excess of moisture from the belt, means to intermittently move the belt, and, concurrently with such movement, to feed a web of paper, cutting devices for severing a web of paper, and means to intermittently reciprocate the platen, for the purposes set forth.

8. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to intermittently move the belt and concurrently therewith feed a web of paper, wringing devices to expel the excess of moisture from the belt, cutting devices to sever the web of paper, and devices to prevent the paper sticking to the platen upon its upward movement, for the purposes set forth.

9. In a copying-press the combination of a fixed table, a reciprocating platen, an endless belt adapted to be moistened extending between the table and the platen, means to intermittently move the belt, and, concurrently therewith feed, a web of paper, wringing devices to expel the excess of moisture from the belt, cutting devices to sever the web of paper, devices to prevent the paper sticking to the platen upon its upward movement, and means to receive, and pile the severed portion of the paper for the purposes set forth.

642,822. DIVIDING-HEAD FOR PUNCHING-MACHINES. PATRICK J. KELLY, Elizabeth, N. J. Filed Sept. 8, 1899. Serial No. 729,814. (No model.)



Claim.—1. In a dividing-head for a punching-machine having a horizontal punch, the combination of an upright shaft and a support therefor, means for attaching to said shaft an article to be punched, means for turning said shaft and means for moving said shaft vertically in relation to said punch while in engagement with the means for turning it, substantially as herein described.

2. In a dividing-head for a punching-machine having a horizontal punch, the combination of an upright shaft and a support therefor, means for attaching to said shaft an article to be punched, means for turning said shaft, means for moving said shaft vertically in relation to said punch while in engagement with the means for turning it, a dividing-plate affixed to said support, a second shaft geared with said upright shaft and a pin carried by said second shaft and adjustable at different distances from the center thereof engaging with said dividing-plate, substantially as herein described.

3. In a dividing-head for a punching-machine having a horizontal punch, the combination of an upright shaft and a stand therefor, a bed-plate in which said stand is supported, means for moving said stand on the bed-plate, means for securing to said shaft an article to be punched, means for turning said shaft, and means for moving said shaft vertically in relation to said punch while in engagement with the means for turning it, substantially as herein described.

4. In a dividing-head for a punching-machine, the combination of a shaft and a support therefor, means for securing to said shaft an article to be punched, a worm-gear fitted to said shaft to turn with it but confined in the direction of the length of the said shaft, an endless screw and means for turning the same in engagement with said worm-gear for turning the shaft, a rack encircling said shaft, and a pinion and means for turning the same in engagement with said rack for raising and lowering the shaft, all substantially as herein set forth.

5. In a dividing-head for a punching-machine, the combination of an upright shaft and a stand therefor, means for attaching to said shaft an article to be punched, a toothed rack encircling said shaft, a pinion and means for turning the same in engagement with said rack for raising and lowering said shaft, a sole-piece in said stand under said shaft, a wedge under said sole-piece and a screw for operating the said wedge for the adjustment of the sole-piece, all substantially as herein set forth

642,828. MEANS FOR ATTACHING PNEUMATIC TIRES TO WHEELS. JOHN K. LEARY, Chicago, Ill. Filed May 8, 1899. Serial No. 715,903. (No model.)



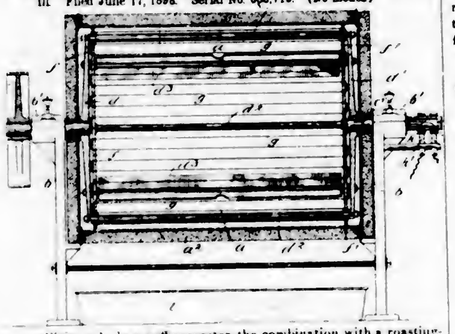
Claim.—1. The combination of a wheel-rim, a pneumatic tire comprising an inner tube and an outer cover, a ring on the margin of said cover, and a removable key projecting radially from the rim of said cover, and a removable key projecting radially from the rim adapted to engage said ring on the tire, the outer cover of the tire, when inflated, engaging the rim laterally outside of the key and radially inside the outer margin of said key.

2. The combination of a wheel-rim, a pneumatic tire comprising an inner tube and an outer cover, said cover being provided at its margin with a ring which is adapted to pass over the rim, and a removable key which has interfitting connection with the outer or tread surface of said rim and is adapted for engagement with the laterally outer face of said ring, said key being located a distance inside the side margin of the tread-surface of the rim, thereby providing a bearing-surface laterally outside of the key which is engaged by the outer cover when the tire is inflated.

3. The combination with a wheel-rim, a pneumatic tire comprising an inner tube and an outer cover, a ring made of a rigid non-extensible material which is removably secured to the margin of said cover and a removable, circumferential key which projects radially from and has interfitting engagement with the outer or tread surface of said rim and is adapted for engagement with the lateral outer face of said ring.

4. The combination of a wheel-rim, a pneumatic tire comprising an inner tube and an outer cover, a ring on the margin of said cover, comprising inner and outer layers between which the outer margin of the cover is clamped and a movable stop or stops projecting radially from the rim and adapted to engage the outer lateral face of said ring

642,824. COFFEE-ROASTER. JASPER A. MCCASKELL, Chicago, Ill. Filed June 17, 1898. Serial No. 683,719. (No model.)



Claim.—1. In a coffee-roaster, the combination with a roasting-chamber, of thin wires or conductors of small cross-sectional area distributed substantially evenly throughout the interior of the roasting-chamber, adapted to be heated to a high temperature by the passage of electric current therethrough, said wires or conductors being connected or adapted to be connected with a source of electric current for heating the same, a mounting within the roasting-chamber adapted to support the heating-conductors, and means for mechanically agitating the coffee while it is being roasted, substantially as set forth.

2. In a coffee-roaster, the combination with a roasting-chamber, of thin wires or conductors of small cross-sectional area disposed within the same and connected or adapted to be connected with a source of electric current, said wires or conductors being adapted to be heated to a high temperature by the passage of electric current therethrough, a mounting for said heating-conductors located within the roasting-chamber and movable relatively thereto, and means for causing such relative movement, to agitate the coffee contained in said chamber, substantially as set forth

3. A coffee-roaster having a chamber adapted to contain the coffee, bare wires or conductors of small cross-sectional area distributed substantially evenly throughout the interior of said chamber, said conductors being connected or adapted to be connected with a source of electric current, and being adapted to be heated to a high temperature by the passage of electric current therethrough, a frame within said chamber upon which said wires or conductors are mounted, and means for rotating the frame and wires or conductors mounted thereon, to agitate the coffee, substantially as set forth.

4. A coffee-roaster having a roasting-chamber adapted to contain the coffee, thin wires or conductors of small cross-sectional area, adapted to be heated to a high temperature by the passage of electric current therethrough, disposed in the interior of said chamber and adapted for connection with a source of electric current for heating the same, and means for agitating the coffee while it is being roasted, substantially as set forth.

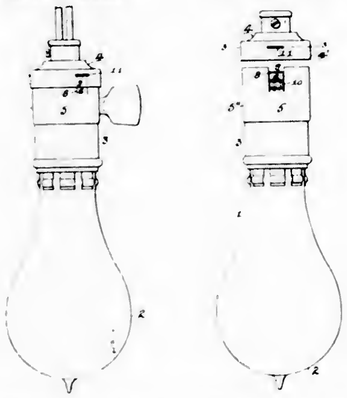
5. A coffee-roaster having a roasting-chamber adapted to contain the coffee, thin bare wires or conductors of small cross-sectional area disposed within said chamber and adapted for connection with a source of electric current, whereby said conductors may be heated to a high temperature, and means for moving said conductors through the mass of coffee contained within said chamber, substantially as set forth.

6. In a coffee-roaster, the combination with an inclosed chamber for containing the coffee, of a rotatable frame mounted within the chamber and means upon the outside for rotating the same, a plurality of bare electrical conductors mounted upon said frame and insulated from one another, and means for supplying electric current to said conductors for heating the same, whereby the mass of coffee may be agitated and uniformly subjected to a high temperature, substantially as described.

7. In a coffee-roaster, the combination with a closed chamber adapted to contain the coffee, of a rotatable frame mounted within said chamber and means upon the outside for rotating the frame, bare conducting-wires strung upon said frame and distributed substantially evenly throughout the interior of the chamber, slip-rings *h h* mounted upon a projecting portion of said rotating frame and forming the terminals of said wires, and brushes connected or adapted to be connected with a source of electric current, engaging said slip-rings, whereby the mass of coffee may be agitated and uniformly subjected to a high temperature, substantially as set forth.

8. In a coffee-roaster, the combination with a chamber adapted to contain the coffee, of thin wires or electrical heating-conductors of small cross-sectional area disposed within said chamber, means for agitating the coffee within the chamber, and a source of electric current connected with said wires or conductors, whereby said conductors may be heated to a high temperature and the mass of coffee uniformly subjected to such high temperature, substantially as set forth.

642,825. SOCKET FOR INCANDESCENT ELECTRIC LAMPS. WILLIAM E. A. M. OETTING, Pittsburg, Pa. Filed Sept. 16, 1899. Serial No. 730,672. (No model.)



Claim.—1. As a new article of manufacture, an incandescent-electric-lamp socket having its tubular body portion formed of sheet metal, spring-tongues formed within and as part of said tubular body portion, and flanges or lips on said tongues adapted to engage with openings or slots in the flange of the cap to hold the same in place on the socket.

2. As a new article of manufacture, an incandescent-electric-lamp socket having its tubular body portion formed of sheet metal, spring-tongues formed within and as part of said tubular body portion, said tongues having outwardly-extending bent portions thereon, and bent flanges or lips on said tongues adapted to engage with openings or slots in the flange of the cap to hold the same in place on the socket.

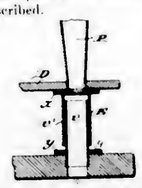
642,826. CARBON FOR ELECTRIC-ARC LIGHTS. JOHN T. ROBINSON, New York, N. Y., assignor of one-fourth to James H. Ferguson, same place. Filed Aug. 2, 1898. Serial No. 687,489. (No specimens.)

Claim.—The process of treating carbon electrodes for improving their quality which consists in soaking them bodily in a compound solution obtained by subjecting talcous asbestos to the dissolving action of a solution of caustic alkali, substantially as herein described

642,827. PNEUMATIC VALVE FOR PIPE-ORGANS. GOTTLIEB SOMMER, Williamsport, Pa. Filed July 28, 1899. Serial No. 725,403. (No model.)

Claim.—1. In a pneumatic pipe-organ valve, and in combination with the register-chambers, the wind-chest and the speaking-pipes, of pneumatic valves each composed of tubular telescoping parts having

thin sheet-metal walls, the fixed part seated in a bored supporting-board, and a closely-fitting slidable part having a flat cap forming a seating-face and the lifting-surface, the adjacent telescoping surfaces forming a seal against the passage therebetween of interiorly-confined air, as shown and described.



2. In a pneumatic pipe-organ valve and in combination with the register-chambers, the wind-chest and the speaking-pipes, of pneumatic valves each composed of tubular telescoping parts of sheet metal, the fixed part seated in a bored supporting part and having transverse corrugations forming convex bearing-rings for the purpose stated.

3. In a wind-pipe instrument of the class described and in combination with the register-chambers, the wind-chest and the speaking-pipes, of a pneumatic valve for each pipe consisting of tubular telescoping parts having thin walls, the adjacent telescoping surfaces forming a seal against the passage therebetween of interiorly-confined air, the fixed part seated in a counterbore in the bottom of the register-chamber and opening into it, and a closely-fitting slidable part having a flat cap and forming the sealing-face, a cushion for the sealing-cap and a cushion for the open end of said slidable valve part and means for controlling the air-pressure within said valve.

4. In a pneumatic pipe-organ valve and in combination with the register-chambers, the wind-chest, and the pipes, of a valve composed of two malleable sheet-metal tubular closely-fitting telescoping parts, the adjacent telescoping surfaces forming a seal against the passage therebetween of interiorly-confined air, the inner part being the longest and both parts having a length about three times greater than its diameter for the purpose stated.

5. A pneumatic valve for pipe-organs consisting of two separate tubular telescoping members, the inner part open at both ends and supporting the outer closely-fitting telescoping cap part, closed at one end, the closed end being flat and forming a seal for the port, the adjacent telescoping surfaces of said valve members forming a seal against the passage therebetween of interiorly-confined air.

6. In a pneumatic action for wind instruments, the combination, with the main wind-chest and register-chambers, of the pneumatic valves for the ports leading from the main wind-chest to the several register-chambers and the ports leading from the register chambers to the sound-producing devices, said valves consisting of a tubular fixed member open at both ends supported upon the bottom walls of and projecting into the main or register wind chests or chambers directly opposite the ports leading therefrom to the register-chambers or sound-producing devices, the fixed end in communication with the air-ducts from the stop-pallet box or key-pallet box and a tubular slidable member, closed at one end and telescoping with said fixed tubular member, the adjacent telescoping surfaces of said tubular members forming an air seal against the passage therebetween of air to and fro from the key or stop pallet box.

7. The pneumatic valve herein described consisting of a fixed tubular member open at both ends and a tubular slidable member closed at one end, and telescoping with said fixed tubular member the adjacent telescoping surfaces of said members forming an air seal against the passage therebetween of interiorly-confined air, said valve being arranged within the register-chamber or main wind-chest, as the case may be, and operated by the difference between the pressure of the interiorly-confined air and the air of main or register wind chambers or chests, substantially as set forth.

642,828. GRINDING OR POLISHING WHEEL. JOSEPH F. SPOHN, Scranton, Pa. Filed July 17, 1899. Serial No. 724,155. (No model.)



Claim.—1. A grinding or polishing wheel consisting of a mass of abrading and binding material and a metal ring, said ring being embedded in the mass and shrunk onto the center or hub during the process of forming the wheel.

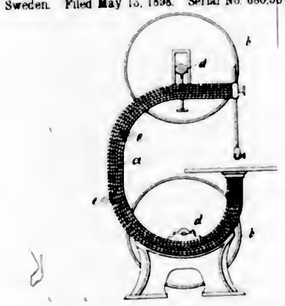
2. A grinding or polishing wheel consisting of a mass of abrading and binding material and a metal ring, said ring being embedded in the side of said mass and shrunk onto the center or hub during the process of forming the wheel, and having a cross-section tapering from the interior face of the ring to its periphery.

642,829. COMBINATION ADVERTISING-CALENDAR AND LEAD-PENCIL. NICHOLAS WETSUK, Ogden, Utah, assignor of one-half to Frank L. Scoville, same place. Filed Apr. 6, 1899. Serial No. 711,920. (No model.)



Claim.—In combination, the spindle 1, formed with the alined hubs 2 and 3, the sleeve 4, encompassing the hub 2, and provided with the annular rib 4', the sleeve 6, encompassing the hub 3 and provided with the annular rib 6', the cylindrical casing 9, formed with the longitudinal slit 10, and encompassing the spindle and having a bearing on the hubs 2 and 3 between the annular ribs 4' 6' and the flexible strip 8 having its inner end fixed to the spindle and its free end projecting through said slit in the casing, substantially as shown and described.

642,830. BAND-SAW. FRANS ZEINWOLDT, Bodafors, Sandsjo, Sweden. Filed May 15, 1898. Serial No. 680,587. (No model.)



Claim.—In a band-saw machine, an elastic frame or bow in the shape of a C built of parallel strips of wood carrying a band-saw wheel on each arm, substantially as set forth.

642,831. ANIMAL-SHEARS. SAMUEL F. ALLEN, Chicago, Ill. Filed Apr. 27, 1899. Serial No. 714,737. (No model.)



Claim.—1. In a shearing-machine, the combination with a frame comprising a hollow handle, of a sleeve within the handle, rotatory shaft carried in terminal bearings within the sleeve, a lubricant-chamber within the sleeve between said bearings, a screw-hole, and conical aperture through the handle and sleeve, respectively, and a conically-pointed screw working therein, substantially as and for the purpose specified.

2. In a shearing-machine, the combination with a frame, rotatory shaft, head upon the shaft, and eccentric stud upon the head, a vibrator movably secured to the frame, jaws thereon in proximity to the head, and a cylinder bored to fit the stud and provided with opposite funnel-shaped recesses communicating with the bore, substantially as and for the purpose specified.

3. In a shearing-machine, the combination with a frame, rotatory shaft, head upon the shaft and eccentric stud upon the head, a vibrator movably secured to the frame, jaws thereon in proximity to the head, and a cylinder bored at right angles to its axis to fit the stud, and provided with opposite coaxial funnel-shaped recesses communicating with the bore, substantially as set forth.

4. In a shearing-machine, the combination with a frame provided with side pieces and a cap-plate surmounting the side pieces, of a pin, rigidly and independently secured as to its opposite ends, in the frame and cap-plate respectively, a vibrator, movable upon said pin, and vibrator-actuating mechanism, substantially as set forth.

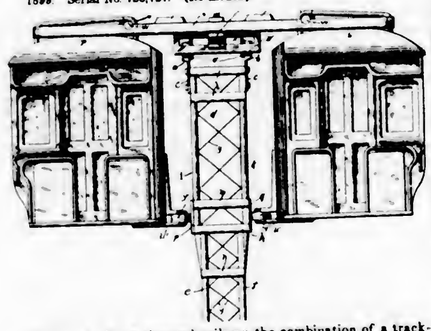
5. In a shearing-machine, the combination with a frame, a vibrator, and vibrator-actuating mechanism, and a tension-lever fixedly fulcrumed, near its middle part, to the forward end of the vibrator, and an abutment-screw threaded to the tension-lever and abutting against the vibrator, substantially as set forth.

6. In a shearing-machine, the combination with a frame, vibrator-pin, and vibrator provided with a sleeve upon said pin of a tension-lever pivoted to the forward end of the vibrator provided with a collar having an oblong aperture encircling the sleeve of the vibrator, and an abutment screw-threaded to the tension-lever between its pivotal connection with the vibrator and its collar, and abutting against the vibrator, substantially as set forth.

7. In a shearing-machine, the combination with a frame, vibrator and pair of lugs upon the forward end of the vibrator, of a tension-lever provided with a lug fitting between the lugs upon the vibrator, a pivot-screw uniting said lugs, an additional rearwardly-disposed connection between the tension-lever and the vibrator, and tension-regulating mechanism carried on the tension-lever, and cooperating against the vibrator, substantially as set forth.

8. In a shearing-machine, the combination with a frame, vibrator-pin, and vibrator comprising a sleeve working upon said pin, of a tension-lever pivoted to the vibrator, a collar provided with an oblong aperture encircling the sleeve of the vibrator, side pieces, and a cap-plate upon the frame surrounding the rearward end of the vibrator, a screw carried upon the tension-lever, abutting against the vibrator, and extended through an aperture in the cap-plate, a head upon said screw, teeth upon said head, and a spring-plate secured to the frame, and detachably engaging said teeth, substantially as and for the purpose specified.

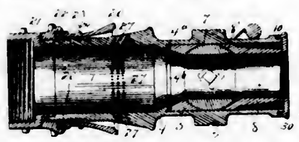
642,832. ELEVATED RAILWAY. LEE ANDERSON, Paris, Tex., assignor of one-third to Robert P. Mayo, same place. Filed June 15, 1899. Serial No. 720,727. (No model.)



Claim.—1. In an elevated railway, the combination of a trackway and supporting means, of trucks adapted to the trackway, cross-beams pivotally connected with the trucks, and cars suspended from the ends of the cross-beams through the medium of eyebolts, one of which bolts is passed through the end of its respective beam and downwardly through the car and with which the lower end is connected, the other eyebolt having its eye in alinement with that of the first-named bolt and being passed outwardly and downwardly from the end of the beam and through the car to connect with the lower portion thereof, and a rod passed through the alining eyes of the bolts of each car.

2. In an elevated railway, the combination of a trackway and supporting means, of trucks adapted to the trackway, cross-beams pivotally connected with the trucks, and cars suspended from the ends of the cross-beams through the medium of eyebolts, one of which bolts is passed through the end of its respective beam and downwardly through the car with which its lower end is connected, the other eyebolt having its eye in alinement with that of the first-named bolt and being passed outwardly and downwardly over the end of the beam and through the car to connect with the lower portion thereof, a rod passed through the alining eyes of the eyebolts of each car, supplemental rails carried by the track way-supporting means, and rolls carried by the cars and adapted to engage the supplemental rails.

642,833. NOZZLE. WILLIAM S AUKER, Alliance, Ohio. Filed Feb. 27, 1899. Serial No. 707,019. (No model.)



Claim.—1. A nozzle, comprising a body portion having perforations between its ends, a shell freely movable longitudinally and adapted to inclose said perforations and a ring threaded on said body portion and revolubly and loosely connected to said shell and adapted to move the same longitudinally to cover and uncover said perforations without rotating the shell.

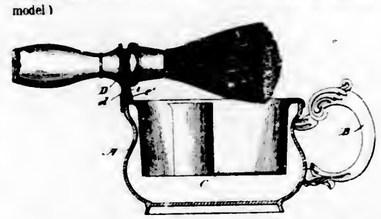
2. A nozzle, comprising a body portion having perforations between its ends, a shell adapted to inclose said perforations and provided with a groove near its inner end, a ring internally screw-threaded to engage external threads on the body, a flange on said ring disposed in the groove of the shell so that when said ring is turned it will move the sleeve or shell in one direction or the other.

3. A nozzle comprising a body portion having perforations between its ends, a valve in said body portion in advance of said perforations, a shell adapted to slide on said body portion and inclose the perforations therein, said shell adapted to be made to bear against the body portion in advance of said perforations, and a ring mounted on the body portion and revolubly connected with said shell for moving it longitudinally without turning it.

4. A nozzle comprising a body portion having pockets at diametrically opposite points between its ends, a ball-valve having an angular hole in each side, pins having angular inner ends disposed in the openings in said valve, enlargements or flanges on said pins disposed in said pockets, screw-threaded collars adapted to be screwed into said pockets and abut against the enlargements and hold the pins in place and a lever connected to the outer ends of said pins for turning the valve.

5. In a nozzle, the combination with a body portion and a revoluble valve therein, of a sleeve and a ring spaced apart within said body portion, said sleeve and ring each having a concave or hemispherical seat for the valve.

642,834. SHAVING-CUP AND BRUSH-HOLDER. SETH W. BABBITT, Meriden, Conn. Filed Nov. 11, 1898. Serial No. 696,119. (No model.)



Claim.—1. The combination with a shaving-mug, of a substantially U-shaped brush-holder, means for securing the holder to the mug and against tilting, and a brush having a portion of its handle shaped to engage directly with said holder and to embrace the same whereby the brush is held in a position against tilting.

2. The combination with a shaving-mug, of a substantially U-shaped brush-holder, means for pivotally securing the holder on the mug and securing the same against tilting, and a brush having a portion of its handle fashioned to embrace the holder whereby the brush is held against tilting.

3. The combination with a support such as a shaving-mug, of a substantially U-shaped rigid brush-support carried by the mug and located above the plane of the same, and a brush having a circum-

ferential groove formed in its handle fashioned to receive the support for the purposes specified.

4. The combination with a shaving-mug, of a substantially U-shaped rigid brush-support carried by the mug and located above the plane of the same, having a vertically-disposed pivotal connection therewith, and a brush having a circumferential groove formed in its handle and fashioned to receive the support for the purposes specified.

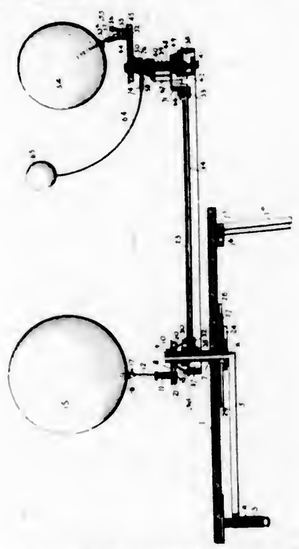
5. The combination with a shaving-mug, of a substantially U-shaped support having a vertical pivot-pin, a bearing on the mug in which the pin is placed and a brush having a circumferential groove in its handle portion formed with parallel side walls for engaging the sides of the support and maintaining the brush in a horizontal position, substantially as described.

6. The combination with a substantially U-shaped support, of a shaving-brush having a handle provided with circumferential shoulders spaced apart forming between a seat for the support and with which the sides of the support engage for retaining the handle in a substantially horizontal position.

7. The combination with a substantially U-shaped pivotal support, of a shaving-brush having a handle provided with circumferential shoulders spaced apart forming between a seat for the support and with which the sides of the support engage for retaining the handle in a substantially horizontal position

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642,835. TELLURIAN. ALBERT M. BAKER, Lexington, Ky. Filed Apr. 26, 1899. Serial No. 714,572. (No model.)



Claim.—1. A tellurian having a swinging orbital or earth-globe-carrying arm, swinging vibratory mechanism for shifting the axis of said arm in a direction transverse to the major diameter of the orbit described by the earth-globe and means for connecting said devices, substantially as specified.

2. A tellurian having a swinging orbital or earth-globe-carrying arm, a transversely-movable spindle therefor, a reciprocatory traveler, and a swinging connection between the spindle, orbital arm and the traveler for causing vibratory movement of said spindle, substantially as specified.

3. A tellurian having a base, a swinging orbital or earth-globe-carrying arm, a spindle mounted for vibratory movement in a path transverse to the major diameter of the earth's orbit and adapted to support the said arm, a fixed guide supported by the base, a traveler mounted in said guide, and an arm carried by the orbital arm and having a pivotal connection with said traveler, substantially as specified.

4. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, and means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, substantially as specified.

5. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted for swinging movement upon said spindle, a fixed guide parallel with the major diameter of the earth-globe orbit, a traveler mounted in said guide, and an arm connecting the said orbital arm with the traveler, for causing swinging movement of the supporting-arm, substantially as specified

6. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, and a sun-globe-carrying plate fixed to the spindle of the supporting-arm substantially as specified.

7. A tellurian having a swinging supporting-arm provided with a terminal spindle and also having a supporting-plate, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, and a sun-globe spindle mounted upon said plate eccentrically with relation to the spindle of the supporting-arm, substantially as specified

8. A tellurian having a swinging supporting-arm provided with a terminal spindle and also having a supporting-plate, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe spindle mounted upon said plate eccentrically with relation to the spindle of the supporting-arm, and means actuated by the orbital arm for communicating rotary motion to the sun-globe spindle, substantially as specified.

9. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe carrying plate fixed to the spindle of the supporting-arm, and a sun-globe spindle mounted upon said plate at an inclination to the plane of the ecliptic, substantially as specified.

10. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe carrying plate and an inclined sun-globe spindle mounted upon said plate and carrying a sun-globe, whereby when the earth-globe is in its summer solstice, the center of the sun-globe is vertically above the northern focus of the orbit of the earth-globe, substantially as specified.

11. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe-carrying plate fixed to said spindle of the supporting-arm and provided with a bearing which is positioned on a line bearing westward from that of the orbital arm, and a sun-globe spindle mounted in said bearing of the plate and inclined eastward toward its upper end, substantially as specified.

12. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe-carrying plate fixed to said spindle of the supporting-arm, a sun-globe spindle mounted in a bearing in said plate, pulleys carried respectively by the orbital arm and said sun-globe spindle, and a belt traversing the pulleys, substantially as specified.

13. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted upon said spindle of the supporting-arm, means for causing a vibratory movement of the supporting-arm during the swinging movement of the orbital arm about its axis, a sun-globe-carrying plate fixed to said spindle of the supporting-arm, a sun-globe spindle mounted in a bearing in said plate, earth-globe-operating mechanism including an operating-spindle mounted upon said orbital arm, a gear fixed to said spindle of the supporting-arm and meshing with a pinion on said operating-spindle, a dust-guard fixed to the orbital arm to cover said gears, pulleys carried respectively by the sun-globe spindle and said dust-guard, and a belt traversing the pulleys, substantially as specified.

14. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying spindle mounted upon the orbital arm and connected with said operating-spindle for rotation in one direction, a reciprocatory traveler, a swinging connection between the spindle of said orbital arm and the traveler, a second spindle concentric with the earth-globe-carrying spindle connected with the operating-spindle for rotation in the opposite direction, an earth-globe-carrying plate carried by said earth-globe-carrying spindle, and an earth-globe spindle mounted upon the earth-globe-carrying plate and operatively connected with said second spindle, substantially as specified.

15. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, concentric spindles respectively connected with said plate and the earth-globe spindle and connected with said operating-spindle for simultaneous rotation in opposite directions, a reciprocatory traveler, and a swinging connection between the spindle of the orbital arm and the traveler, substantially as specified.

16 A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, a reciprocatory traveler, and a swinging connection between the spindle of the orbital arm and the traveler, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, concentric spindles connected respectively with said plate and the earth-globe spindle and provided with gears, and a pinion carried by the operating-spindle and meshing at opposite sides with said gears, for communicating rotary motion in opposite directions to said concentric spindles, substantially as specified.

17 A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying member feathered upon said second spindle for movement parallel with the axis thereof, and means for imparting reciprocatory movement to said member, substantially as specified.

18. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar feathered upon said second spindle for movement parallel with the axis thereof, and means actuated by the operating-spindle for reciprocating said collar, substantially as specified.

19. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar feathered upon said second spindle for movement parallel with the axis thereof, and means, including a crank actuated by the operating-spindle, and a pitman between said crank and the collar, for reciprocating the collar upon said second spindle, substantially as specified.

20. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar feathered upon said second spindle for movement parallel with the axis thereof, a sleeve having a swivel connection with said collar and provided with a wrist-pin, a crank actuated by the operating-spindle, and a pitman connecting said crank with the wrist-pin, substantially as specified.

21. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintainiug a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar feathered upon said second spindle for movement parallel with the axis thereof, a sleeve having a swivel connection with said collar and provided with a wrist-pin, a crank actuated by the operating-spindle, a pitman connecting said crank with the wrist-pin, and a fixed guide carried by the orbital arm for maintaining said sleeve in a fixed position with relation to the orbital arm, substantially as specified

22 A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar feathered upon said second spindle for movement parallel with the axis thereof, a sleeve having a swivel connection with said collar and provided with a wrist-pin, a crank actuated by the operating-spindle, and a slotted guide carried by the orbital arm and having said wrist-pin arranged therein for reciprocatory movement parallel with the axis of said second spindle, substantially as specified.

23 A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar mounted upon said second spindle for movement parallel with the axis thereof, means actuated by said operating-spindle for reciprocating said collar, a moon-globe-supporting arm pivotally mounted upon said collar, and means for oscillating said supporting-arm, substantially as specified.

24. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar mounted upon said second spindle for movement parallel with the axis thereof, means actuated by said operating-spindle for reciprocating said collar, a rocker mounted upon said collar, means for tilting said rocker during the reciprocatory movement of said collar, and a moon-globe-supporting arm carried by the rocker, substantially as specified.

25. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar mounted upon said second spindle for movement parallel with the axis thereof, means actuated by said operating-spindle for reciprocating said collar, a rocker mounted upon said collar, a finger carried by the rocker and arranged in operative relation with a cam which occupies a fixed position with relation to the reciprocatory movement of the collar, and a moon-globe-supporting arm carried by the rocker, substantially as specified.

26. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar mounted upon said second spindle for movement parallel with the axis thereof, means actuated by said operating-spindle for reciprocating said collar, a rocker mounted upon said collar and having a finger, a cam on said second spindle traversed by the finger, for tilting the rocker during the reciprocatory movement of the collar, and a moon-globe-supporting arm carried by the rocker, substantially as specified

27. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, an earth-globe-carrying spindle to which said plate is fixed, and which is operatively connected with the operating-spindle for maintaining a uniform direction of inclination of the axis of the earth-globe, a second spindle also actuated by said operating-spindle, and operatively connected with the earth-globe spindle for communicating diurnal revolution to the latter, a moon-globe-carrying collar mounted upon said second spindle for movement parallel with the axis thereof, means actuated by said operating-spindle for reciprocating said collar, a rocker mounted upon said collar, means for tilting the rocker during the reciprocatory movement of the collar, a stud projecting radially from the rocker, and a moon-globe-supporting spindle having a socket engaged with said stud, substantially as specified.

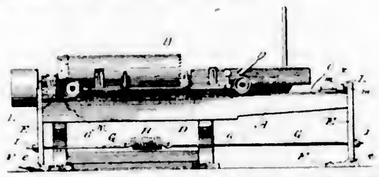
28. A tellurian having an orbital earth-globe-carrying arm, and means for causing a swinging movement of said arm at a varying rate of speed in different portions of its path, substantially as specified.

29. A tellurian having a swinging supporting-arm provided with a terminal spindle, an orbital or earth-globe-carrying arm mounted for swinging movement upon said spindle, a fixed guide parallel with the major diameter of the earth-globe orbit, a traveler mounted in said guide, and an arm connecting the said orbital arm with the traveler, for causing swinging movement of the orbital arm at a varying rate of speed, substantially as specified.

30. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, a reciprocatory traveler having swinging connection with the spindle of said orbital arm, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, and concentric spindles respectively connected with said plate and the earth-globe spindle and actuated by said operating-spindle for simultaneous rotation in opposite directions and with unequal speed to cause retrogression of the moon's nodes, substantially as specified.

31. A tellurian having a swinging orbital arm, an operating-spindle mounted upon said arm, means for communicating rotary motion to said spindle, a reciprocatory traveler having swinging connection with the spindle of said orbital arm, an earth-globe-carrying plate, an earth-globe spindle mounted upon said plate, concentric spindles respectively connected with said plate and the earth-globe spindle, a motion-imparting gear carried by the operating-spindle, and motion-receiving gears carried respectively by said concentric spindles and meshing with the motion-imparting gear at opposite sides, said motion-receiving gears having a differential number of teeth, substantially as specified.

642,836. STOP DEVICE OR BUMPER ATTACHMENT FOR SAWING-MACHINES. JOSEPH BRAUN and JOHN BRAUN, Athens, Wis. Filed Aug. 30, 1899. Serial No. 728,995. (No model.)



Claim.—1. In a stop device or bumper attachment for sawing-machines, the combination with the frame or track and reciprocating carriage, of blocks at the ends of the track, bolts or rods slidably mounted in said blocks, pivoted uprights with which the bolts are adapted to engage, rods connected to the uprights, and a helical spring to which the rods are connected at their inner ends, the sliding bolt having heads at their inner ends against which the carriage contacts, substantially as shown and for the purpose set forth.

2. In a stop device or bumper attachment for sawing-machines, the combination with the frame or track and reciprocating carriage, of blocks at the ends of the track, bolts slidably mounted in said blocks and provided with nuts at their outer ends, uprights pivoted at their lower ends in brackets and adapted to swing against the ends of the frame of the sawing-machine, threaded connecting-rods attached to the uprights by nuts, and a helical spring the opposite ends of which are bent into engagement with the hooked inner ends of the connecting-rods, substantially as herein shown, and for the purpose set forth.

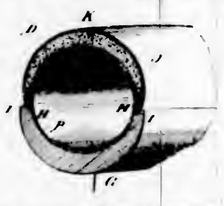
642,837. LOOM-SHUTTLE. DANIEL M. BURGESS, Ramseur, N. C. Filed Oct. 25, 1899. Serial No. 734,735. (No model.)

Claim.—1. The combination with a loom-shuttle, of a directing attachment for the thread having an outstanding lug cut away to form a longitudinally-disposed guiding-slot, a lateral projection having an arm extending forwardly therefrom at an upward angle of inclination, a transverse guiding-slot being formed between the rear portion of said arm and the lateral projection, and the upper surface of the arm adjacent said slot gradually curved downwardly into the latter, a guard on the free extremity of the arm of greater transverse extent than the latter and having an upper curved face and an outer groove, and a horn extending forwardly from the said projection and having a front reduced extremity terminating close to the guard and also provided with a laterally-projecting covering-web.



2. A directing attachment for the thread of a self-threading loom-shuttle, having an outstanding lug cut away to form a longitudinally-disposed guiding-slot, a lateral projection from which an arm extends forwardly, a transverse guiding-slot being formed between a portion of said arm and projection, a guard on the free extremity of the arm having an outer groove and a horn with a front reduced extremity and a laterally-projecting covering-web, all the parts of the attachment being of integral construction.

642,838. PNEUMATIC TIRE. ALBERT P COCHRANE, New York, N. Y. Filed Feb. 6, 1897. Renewed Mar. 31, 1899. Serial No. 711,320. (No model.)



Claim.—1. The combination, with a wheel-rim, of a pneumatic tire comprising an inner inflatable tube, and an outer shoe or tread consisting of a tube folded to crescent shape in cross-section and containing a filling of sponge-rubber, and means for securing the folded shoe to the rim.

2. The combination, with a wheel-rim provided with edge grooves, of a pneumatic tire comprising an inner tube and an outer tube or shoe having a filling of sponge-rubber, the folded edges of said outer tube or shoe resting in the grooves of the wheel-rim and provided with openings to receive securing-wires.

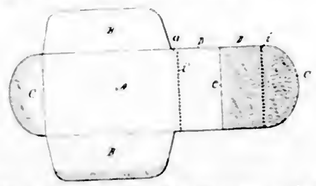
3. As an improvement in pneumatic tires for use in concaved wheel-rims, the combination, with an air-tube, of a tread-layer forming between said air-tube and said layer a cushion-receiving space of crescent-shaped cross-sectional form having the greatest width at the tread of the tire and gradually decreasing in width toward the edges of said space, said edges being located adjacent to the points where the tire joins the edges of said concaved wheel-rim; and an elastic cushioning material—such as sponge-rubber—filling said crescent-shaped space and terminating in thin edges at the sides of the tire contiguous to the point where the tire bears against the rim edges, whereby the effect of the cushioning material is gradually reduced from the center of the tread toward the sides of the rim and terminates adjacent to the edges of said rim, substantially as described.

4. The combination, with a wheel-rim concaved in cross-section, of a pneumatic tire comprising an inner inflatable tube the walls of which are of the same thickness throughout; a tread or shoe comprising a completely-formed tube the walls of which are likewise of the same thickness throughout and so disposed with relation to said inner tube that one part of said tread-tube is in engagement with a portion of said inner tube while another part thereof is free of engagement therewith and constitutes the tread of the tire and forms intermediate the same and said inner inflatable tube a cushion-receiving chamber of crescent shape cross-sectional form having the greatest width at the tread of the tire and gradually decreasing in width toward the edges of said chamber, said edges being located adjacent to the points where the tire joins the edges of such concaved wheel-rim and where the outer tube engages the inner tube; and a sponge-rubber cushioning material filling said crescent-shaped chamber and terminating in thin edges at the sides of the tire adjacent to the points where the tire bears against the rim edges, whereby the effect of the

cushioning material is gradually reduced from the center of the tread toward the sides of the rim and terminates adjacent to the edges of said rim, substantially as described.

5. A pneumatic tire comprising an inner inflatable tube; an outer shoe or tread comprising a tube folded to form a chamber crescent-shaped in cross-section; and a cushioning material in said chamber.

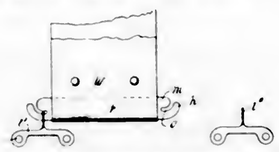
642,839. ENVELOP. FRANK P. D'ARCY, Kalamazoo, Mich. Filed Apr. 24, 1899. Serial No. 714,333. (No model.)



Claim.—1. In a combined envelop and coupon or check, an envelop consisting of a blank having a body portion A, side flaps B, B', suitably gummed and a little cut away at one end of the body-blank and extended portion D, D', C, gummed and folded upon the body portion of the blank and upon itself to form a coupon and a flap C, at the opposite end for closing the envelop in use, for the purpose specified.

2. In a combined envelop and coupon or check, the combination of the body portion A suitably gummed; side flaps B, B'; end flap C, and extended end flap C' suitably gummed; a space *a* formed by the cutting away of the side pieces B, B' so that when the extended end piece C' is folded upon itself and over the space *a* the envelop remains securely sealed after the coupon or check is severed from the envelop, as specified.

642,840. SKIRT-SUPPORTER AND WAIST-HOLDER. HENRY DAVIES, Chicago, Ill. Filed Sept. 24, 1898. Serial No. 691,817. (No model.)



Claim.—In a skirt-supporter, the combination of a plate *p*, provided with hooks *h*, upon its ends and shoulders *m*, adjacent to the hooks, the plate, hooks and shoulders being, approximately, in the same plane, notches *o*, located and shaped as described, and the loop-pieces *l'*, provided with the slot *l''*, and adapted to receive the hooks *h*, and to fit into the notches *o*.

642,841. STILT. HENRY C. FRESHOUR, Bridgeport, Conn. Filed Nov. 29, 1899. Serial No. 738,653. (No model.)

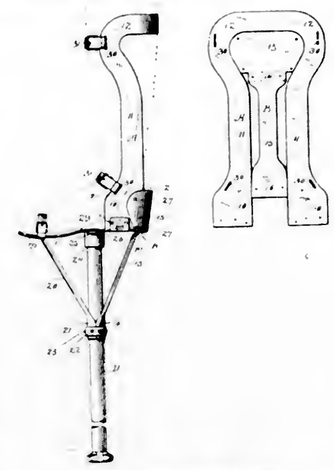
Claim.—1. In combination for the purpose specified sheet-metal parts A, B and C, said part A comprising ankle-supports, side pieces and a leg-support, said part B comprising a heel-support, heel plate and brace, and said part C comprising a heel-support, a foot-rest, a toe-plate and a brace.

2. The combination with a post, of a sheet-metal foot-rest having on its under side a socket to receive the end of the post, heel, ankle and leg supports also made of sheet metal, and braces between the foot-rest and the post.

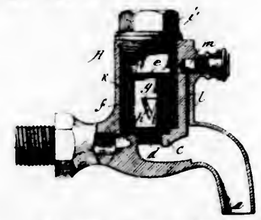
3. The combination with a post, of a sheet-metal foot-rest having a socket to receive the post, heel, ankle and leg supports also made of metal, braces made integral with other parts and having at their lower ends half-eyes to receive the post, and a ring rigidly secured to the half-eyes and post.

4. In combination for the purpose specified sheet-metal parts A, B and C, said part A comprising ankle-supports, side pieces and a leg-support, said part B comprising a heel-support, heel plate and brace, and said part C comprising a heel-support, a foot-rest, lugs 28, a toe-plate and a brace, said ankle-supports being placed between the heel-supports and riveted thereto and to lugs 28, and the heel-plate and toe-plate being bent under the foot-rest and riveted thereto.

5. The combination with a post, of a sheet-metal foot-rest having a socket to receive the post, heel, ankle, and leg supports also made of sheet metal and riveted together, heel and toe plates formed integral with other parts and riveted to the foot-rest, and braces formed integral with the heel and toe plates and rigidly secured to the post.



642,842. VALVE. CHARLES GULLAND, Pittsburg, Pa. Filed Jan. 6, 1899. Serial No. 701,390. (No model.)



Claim.—1. In a valve, a valve-chamber, inlet and outlet openings therefrom, a central piston or guide having graduated openings therethrough and a movable valve guided by said piston and covering said openings with means for controlling the movement of the valve, substantially as described.

2. In a valve, a chamber, inlet and outlet openings therefrom, a guide or piston, a discharge-opening from the pressure to the outlet side of the chamber, means for adjusting the size of said opening to regulate the normal flow of fluid and a valve covering said opening with means for controlling the movement of the valve, substantially as described.

3. In a valve, a chamber, inlet and outlet openings therefrom, a guide or piston, an opening therethrough, a shell having a like opening and fitted to the piston and capable of being adjusted to diminish the size of the opening through the piston, a valve covering the opening and means for controlling the movement of the valve, substantially as described.

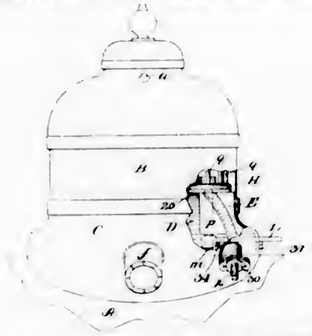
4. In a valve, a casing or chamber, inlet and outlet openings, a diaphragm within the casing having an opening, a piston or guide secured therein having openings through its walls and open at each end, a shell fitting the guide and having a like opening, said shell being adjustable to cut off more or less of the flow, a movable valve fitting the guide, and a removable cap for the casing, substantially as described.

5. In a valve, a casing or chamber, a piston or guide arranged therein, an automatically-operating main valve fitted thereto and held to its seat by the water-pressure, a passage for the water to the rear of the main valve, means for controlling the movement of the valve by draining the chamber above the same consisting of an independent escape duct or passage leading directly from said chamber through the casing to the main outlet and an independent valve for said escape-duct, substantially as described.

6. In a valve, a casing or chamber, inlet and outlet openings, a guide or piston, a valve fitted thereto and movable in relation thereto, and graduated openings in the wall of said guide arranged at differ-

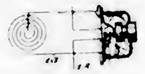
ent elevations so as to be uncovered in succession and thus make the action of the valve gradual without shock or strain, substantially as described.

642,843. TRACK-SANDING APPARATUS. JOHN H. HANLON, Boston, Mass. Filed Oct. 5, 1899. Serial No. 732,720. (No model.)



Claim.—In a track-sanding apparatus, the combination with a locomotive-boiler, of a sand-box base having a pair of sand-outlets located near its outer edge or periphery, and made reversible around its vertical axis on the boiler, whereby the track-sanding pipes connected with said base may be arranged to project either from its front or rear end, substantially as and for the purpose described.

642,844. PUSH-BUTTON FOR BATTERY-INDICATORS. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Jan. 28, 1899. Serial No. 703,688. (No model.)



Claim.—In combination with an electric cell, and a current-measuring instrument, the herein-described push-button having connections for controlling the working circuit from said cell and connections whereby the measuring instrument is introduced by the push-button into said working circuit, said push-button being axially movable for making electric connections and laterally movable, and having a locking projection with which it moves into engagement by its lateral movement for locking it against axial movement; substantially as herein explained.

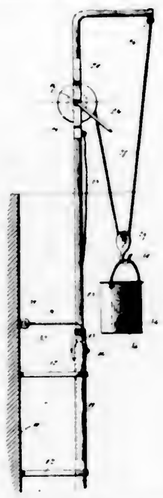
642,845. HOISTING APPARATUS. FREDRICK E. HERZOG and FRANK L. MARTIN, New York, N. Y. Filed Oct. 7, 1899. Serial No. 732,841. (No model.)

Claim.—1. In an apparatus of the class described, a support consisting of two telescoping members one of which is provided with a grooved portion and the other with a pivoted catch provided at one end with a bifurcated portion which engages said grooved portion, and at the other end with a weight and a cord connected with the weighted end of said catch and with the grooved member of said support.

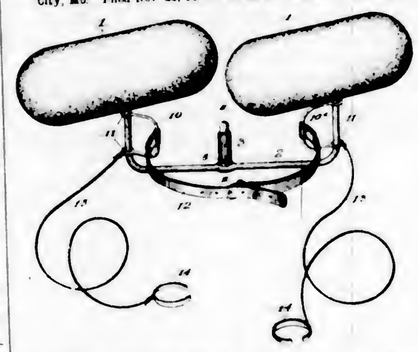
2. The herein-described hoisting apparatus, comprising an extensible support consisting of two members, one of which is provided at one side with a pulley, and with a projecting and horizontally-deflected end, a rope or cable connected with said deflected end and said pulley and with which the article to be hoisted is connected, the vertical plane of the axle of said pulley being at an acute angle to the vertical plane of said horizontal end of the member, means for preventing rotary relative movement of said support members, and means for operating said pulley, substantially as shown and described.

3. In an apparatus of the class described, a support provided with a projecting and horizontally deflected portion, a pulley connected with one side of said support, a rope or cable connected with said pulley and with said deflected portion, the relative construction and arrangement of parts being such that the vertical plane of the axle of said pulley is at an acute angle to the vertical plane of said horizontal end of the support, substantially as shown and described.

4. In an apparatus of the class described, a support consisting of two telescoping members, one of which is provided with a grooved portion, and the other with a pivoted weighted catch provided at one end with a bifurcated portion which engages said grooved portion, and connected with said grooved member by means of flexible operating means, substantially as shown and described.



642,846. LIFE-PRESERVER. HENRY C. HILDEBRANDT, Benton City, Mo. Filed Nov. 20, 1899. Serial No. 737,549. (No model.)



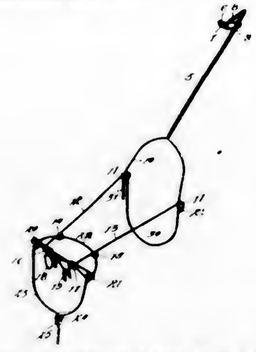
Claim.—1. In a life-preserver, the combination of a pair of inflatable air-receivers, a connecting-tube, a mouthpiece carried by said tube, arm-receiving loops applied to said tube, and an adjustable strap carried by said loops, substantially as described.

2. In a life-preserver, the combination of a pair of inflatable air-receivers, a connecting-tube, a mouthpiece carried by said tube, means for attaching the device to the wearer's body, a pair of cords attached to said tube, and a pair of spring-clasps secured to said cords, substantially as and for the purpose described.

642,847. POKE. DANIEL W. HUGHES, Moore, Okla., assignor of one-half to William C. Graves, Whiterock, Okla. Filed Oct. 19, 1899. Serial No. 734,038. (No model.)

Claim.—1. An animal-poke comprising a major portion adapted to receive the head of an animal and comprising a flexible guide, a hook formed integral with the major portion, fingers formed integral with the major portion and mounted upon the guide, said fingers being adapted to engage the nostril of the animal and a second hook pivotally connected with the guide adjacent the fingers and adapted to move the fingers toward each other when subjected to strain.

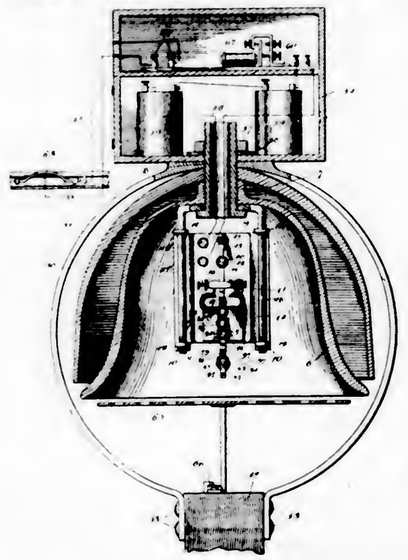
2. An animal-poke comprising a major portion adapted to receive the head of an animal, a hook carried by the major portion, movable fingers carried by the major portion and adapted to engage the nostrils of the animal, a bail pivoted to the major portion adjacent to and in operative relation with the fingers, and a hook connected with the bail and adapted to transmit strain to the bail to move the fingers toward each other.



3. An animal-poke comprising a major portion adapted to receive the head of an animal, a hook formed integral with the major portion, a resilient guide, spring-fingers upon the guide formed integral with the major portion and adapted to engage the nostrils of the animal and means connected with the guide for moving the fingers toward and away from each other.

4. An animal-poke comprising a major portion adapted to receive the head of an animal and having a throat-latch, a movable hook formed integral with the major portion and extending upwardly therefrom, inwardly-directed hook-fingers formed integral with the major portion, a bail pivotally connected with the major portion adjacent to and in operative relation with the hook-fingers, and a hook pivotally connected with the bail and adapted to transmit strain through the bail to the hook-fingers to move them toward each other.

642,848. RAILWAY SIGNAL MECHANISM. SAMUEL L. NEELY, Pierron, Ill. Filed May 10, 1899. Serial No. 716,271. (No model.)



Claim.—1. The combination with a bell and the bowl thereof, said bowl having a perforation, of a hollow-headed stem passed through said perforation with its head within the bell, electromechanical striking mechanism having a hanger clamped between said head and the adjacent inner surface of the bell, electrical connections for said mechanism passed loosely through the stem, a support disposed upon the stem, exteriorly of the bell, a nut upon the stem and holding the support against displacement, and a battery-box mounted upon the stem and communicating with the bell through the stem.

2. The combination with a vibratory body, of a hollow stem passed through the center of vibration of the body, electromechanical striking mechanism supported from said stem, an inclosure for the body impaled upon the stem, a support for the body engaging the stem adjacent the inclosure, a receptacle having an opening through which the stem is passed, a source of electricity within the receptacle, and electrical connections between said source and the striking mechanism and passing through the stem, substantially as described.

3. An electrically-operated striking mechanism comprising a vibratory lever, an electromagnet adapted to vibrate the lever, a striker comprising a head and a stem engaging the lever, a jam-nut upon the stem, and a U-shaped plate slidably arranged upon the lever and adapted to receive the nut, and means for holding the plate in a fixed position, substantially as described.

4. An electromagnetic striking mechanism comprising a base, a vibratory lever pivotally supported upon the base, a make-and-break comprising said lever, an electromagnet in the circuit of the make-and-break, an armature carried by the lever and in the field of the magnet, a standard having a lateral projection, a spring carried by the projection and having connection with the lever, an adjustable stop-screw carried by the lever and adapted to engage the standard, a U-shaped projection from the standard inclosing the lever, a stop-screw carried by said projection and adapted for engagement with the lever, and a striker carried by the lever, substantially as described.

5. An electromagnet striking mechanism comprising a base, a vibratory lever pivotally supported upon the base, a make-and-break including said lever, an electromagnet in the circuit of the make-and-break, an armature carried by the lever and in the field of the magnet, an adjustable and yieldable stop in the path of the lever, a fixed stop adapted to limit the movement of the lever against the adjacent stop, means for limiting the arc of vibration of the lever, and a striker adjustably connected with the lever, substantially as described.

6. An electromechanical striking mechanism comprising a base, a vibratory lever pivotally supported from the base, a make-and-break comprising said lever, an electromagnet in the circuit of said make-and-break, an armature for the magnet carried by the lever, a standard carried by the base, a spring carried by the standard and adapted to resist the movement of the lever under the influence of the electromagnet, an adjustable stop-screw carried by the lever and adapted to engage the standard to limit the movement of the lever and its armature in the direction of the electromagnet, an extension of the standard having a stop-screw adapted to limit the movement of the lever under the influence of the said resistance, a striker comprising a threaded stem engaging a perforation in the lever, a jam-nut upon the stem, a plate carried by the lever and engaging the nut to prevent its displacement, and means for holding the plate upon the lever, substantially as described.

7. The combination with a vibratory body having a hollow stem, of electromechanical striking mechanism within the body, a receptacle supported from said stem, a source of electricity within said receptacle, a relay also within the receptacle, and an electric circuit including said source, the relay and the striking mechanism and passed through the stem, substantially as described.

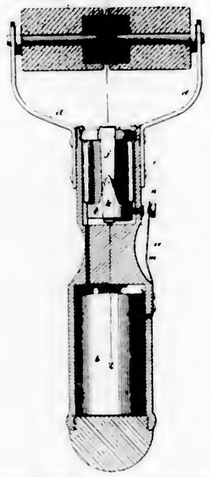
8. The combination with a bell and the bowl thereof having a central threaded perforation and a surrounding lug upon the outer surface of the bowl, of a threaded hollow stem having a head and passed upwardly through said perforation and in engagement with the threads thereof, a hanger within the bowl threaded upon the stem and clamped between the stem-head and the bowl of the bell, electromechanical striking mechanism supported from said hanger, an inclosure having a threaded perforation through which said stem is passed, a support for said bell and inclosure having a threaded perforation with which the stem is engaged, a receptacle having an opening through which the stem is entered, a clamping-nut upon the stem within the receptacle, a source of electricity within the receptacle, and electrical connections between said source and the striker mechanism passed through the stem, substantially as described.

9. The combination with a vibratory body and means for vibrating it, of a support for the body, a strap secured to the support, and an annular guard lying adjacent the mouth of the body and having a support passed beneath and then outwardly and over the strap, substantially as described.

642,849. ELECTRICAL MASSAGE INSTRUMENT. EDMUND T. OTTO, Jersey City, N. J., assignor to Whitall, Tatum & Co., New York, N. Y. Filed Nov. 27, 1899. Serial No. 738,271. (No model.)

Claim.—1. In an electromedical battery, the combination, of a casing, an induction-coil supported therein by a suitable support and

comprised in part by a U-shaped electromagnet constructed with substantially parallel arms one of which is elastic and extends alongside the induction-coil, and a contact carried by the support for the coil and removable from the casing therewith, the said contact cooperating with the elastic arm to constitute a rheotome or circuit-breaker, and circuit-terminals for applying the current.



2. In an electrical massage instrument, the combination of the handle having recesses in opposite ends opening in opposite directions with a solid portion intervening between the recesses, a circuit-terminal carried by the handle in each recess, a battery in one recess contacting with the circuit-terminal therein, an induction-coil in the other recess connected to the circuit-terminal therein, a pair of resilient arms rigidly secured to the handle and a pair of current-applying rollers journaled in the arms and electrically insulated from each other by insulating material, the said rollers being electrically connected to the winding of the induction-coil.

642,850. CAN-OPENER. FRANK N. RUSSELL, Elmira, N. Y. Filed May 18, 1899. Serial No. 717,358. (No model.)



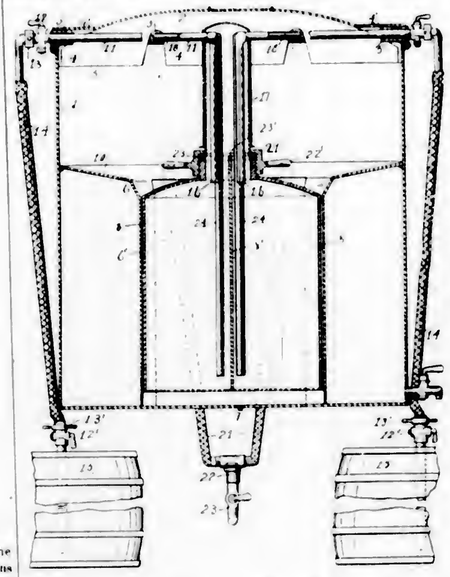
Claim.—1. As a new article of manufacture, a can-opener comprising a central section having a skeleton or open-work center, a depending flange in a plane outside of said open center and laterally-projecting integral handles, a cutter secured to the inner face of said depending flange and provided with a notched portion, and a centrally-located pin depending from the skeleton-work in the open center, the said pin projecting slightly below the lower edge of the cutter, substantially as shown.

2. As a new article of manufacture, a can-opener comprising a central open section having integral laterally-projecting handles and a depending circular flange, and cutter secured to said flange around the open central portion, substantially as shown.

642,851. BEVERAGE COOLER AND DISPENSING APPARATUS. ANTONIO SIDOTI, Dallas, Tex. Filed Sept. 21, 1898. Serial No. 691,546. (No model.)

Claim.—1. In an apparatus for cooling and dispensing liquids, a holder for a refrigerating agent, a removable cover therefor, a cooler situated within the holder, and inlet and draw-off pipes attached to the cooler-top and resting upon the upper edge of the side wall of the holder beneath the cover, said cover being slotted to receive the pipes and provided with supplemental covers for said slots, as and for the purposes stated.

2. In combination with admission and draw-off tubes and with a cooler, a tubular coupling holding said tubes and comprising telescoping sections, one carrying the tubes, and the other fixed to the cooler, and together constituting a removable cap for the cooler, and means for tightly connecting said tubular coupling with the cooler.



642,852. PROCESS OF MAKING ALKALI ALBUMINATE. OTTO SIEBOLD, Leipsic, Germany. Filed July 29, 1898. Serial No. 687,211. (Specimens.)

Claim.—1. The process of preparing alkali compounds of albumens which consists in mixing acid albumens in a putty-like and somewhat moist condition with a fixed alkali and concurrently permeating the entire mass with carbon dioxid.

2. The process which consists in mixing an albumen in a putty-like and somewhat moist condition with alkali and concurrently permeating the entire mass with carbon dioxid and then after the same has attained a spongy or porous condition drying in a carbon-dioxid atmosphere.

3. The process of preparing alkali compounds of albumen which consists in mixing acid albumens in a putty-like and somewhat moist condition with bicarbonates of fixed alkalies.

4. The process which consists in mixing acid albumens in a putty-like and somewhat moist condition with dry powdered bicarbonate of fixed alkali and then drying the resultant spongy mass.

5. The process which consists in mixing albumens in a putty-like and somewhat moist condition with dry powdered alkaline bicarbonates and then drying the resultant spongy mass in the presence of a carbon-dioxid atmosphere.

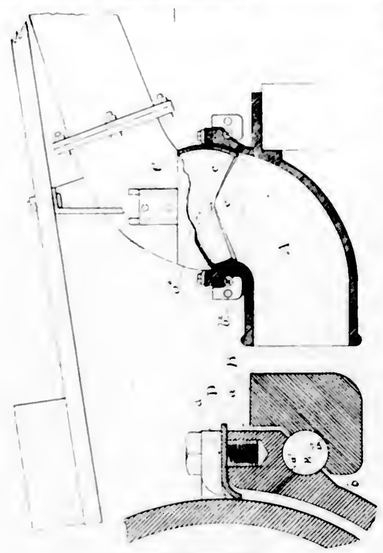
6. The process which consists in mixing an acid albumen in a putty-like and somewhat moist condition with bicarbonate of fixed alkali in the proportions of from three to four parts of the latter to one hundred parts of the former and kneading the whole together at a temperature of from 40° to 50° centigrade, and then after the mass has been thoroughly permeated with carbon dioxid, drying the mass.

7. The process which consists in adding to freshly-precipitated casein in a putty-like condition, fixed alkali bicarbonate, thoroughly mixing and thereupon drying the whole.

642,853. HYDRAULIC GIANT. JOHN P. SIMMONS, San Francisco, Cal. Filed Nov. 21, 1898. Serial No. 697,080. (No model.)

Claim.—1. A hydraulic giant comprising a stationary pipe having a socket, a curved movable section provided with a ball-joint adapted to engage with said socket to form a ball-and-socket joint therewith and an exterior ring or washer adapted to oppose the water-thrust.

2. A hydraulic giant comprising a stationary pipe having a socket, a curved movable section provided with a ball-joint adapted to engage with said socket to form a ball-and-socket joint therewith, a suitable water-tight packing between said ball and socket and a ring or washer adapted to oppose the water-thrust.



642,854. VELOCIPEDE SEAT-SUPPORT. NORMAN T. SLEE, Baltimore, Md., assignor to the Gormully & Jeffery Manufacturing Company, Chicago, Ill. Filed May 5, 1897. Serial No. 635,208. (No model.)



Claim.—1. In a velocipede, in combination with a seat-support having an eye toward one end, an inclined seat-post having its upper end adapted to enter such eye to effect junction between said parts, and suitable means for securing the two parts together at such junction, one of said parts having, for the purpose of making such junction with the other part, a terminal which is deflected away from the horizontal plane through the point of deflection to cause it to extend at an obtuse angle to the general direction of extent of the part to which it pertains, which is the supplement of the angle of inclination of the seat-post from vertical direction.

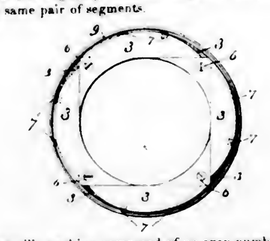
2. In combination with an inclined seat-post, a seat-support reversibly secured at the upper end of the post comprising a seat-supporting arm which makes an obtuse angle with the plane of rotation of the same about the seat-post, which is the supplement of the angle of inclination of the latter from vertical direction.

3. In a velocipede, in combination with an inclined seat-post which terminates at its upper end without change of direction, a seat-support reversibly secured at the upper end of the post, such arm being apertured transversely to its longitudinal extent to adapt it to be applied to said upper end of the inclined post; the axial direction of the aperture being at an angle to the general longitudinal extent of the arm equal to the angle which the seat-post makes with the horizontal direction.

4. The combination of the inclined seat-post, the plug B in its upper end having the threaded stem B' at the center, the seat-support having a horizontal arm C, and the oblique hub C' adapted to be lodged about the threaded stem upon the seat-post, and suitable means for clamping it thereon, the seat-supporting arm making an obtuse angle with the hub which is the supplement of the angle of inclination of the seat-post from vertical direction.

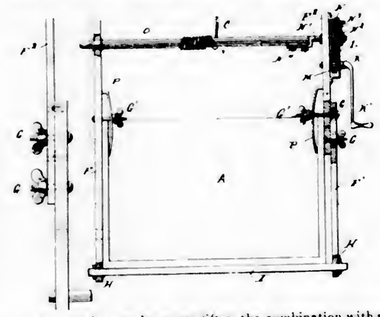
642,855. METALLIC PACKING FOR PISTON-RODS. FREDERICK E. SMALL, Boston, Mass. Filed July 7, 1899. Serial No. 723,068. (No model.)

Claim.—1. A metallic packing composed of an even number of independent packing-segments each having two plane flat parallel sides, and an outer and an inner tangential surface, said segments being pivoted together in pairs, the two pieces of each pair overlapping each other at their outer tangentially-surfaced ends, and each piece of said pair overlapping at its other end the inner tangentially-surfaced end of one piece of another pair of segments with its inner tangential surface engaging the outer tangential surface of another piece of the same pair of segments.



2. A metallic packing composed of an even number of separate segments, each having two plane parallel sides and an outer and an inner tangential surface, said segments being arranged in pairs occupying different planes and overlapping each other and pivoted together at their outer tangentially-surfaced ends, the outer end of each piece of said pair interlocking with another pair of segments, as set forth, in combination with an endless hoop or band surrounding said segments but removed from contact therewith; and a series of springs interposed between said hoop and segments in positions to press the inner tangential surface of each segment into close contact with the outer tangential surface of another segment.

642,856. WAGON-BODY HOIST. THOMAS H. TABOR, Ellijay, Ga. Filed Oct. 25, 1899. Serial No. 734,772. (No model.)



Claim.—1. In a wagon-body lifter, the combination with a supporting-rope and pulley, of an adjustable rectangular frame adapted to surround the wagon-body at one end, a windlass connected to one side of said adjustable frame, and clamps connected to the frame in position to attach the wagon-body, substantially as described.

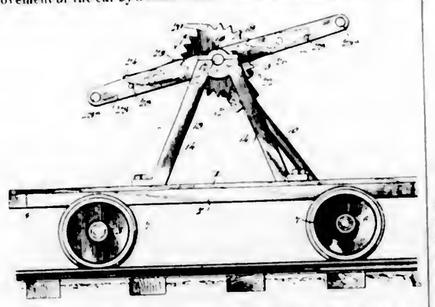
2. In a wagon-body lifter, the combination with the adjustable frame for inclosing the wagon-body, of the clamp-pieces secured to the side bars of said frame, and the adjusting-bolts passing through said clamp-bars and side pieces, substantially as described.

3. In a wagon-body lifter and in combination, a frame-section having a hole therein and a windlass-bar passing through the hole and provided with means for attaching a shaft thereto, said frame-section having means for attaching a further section to complete the frame-bar, a housing outside the frame-section, a pinion on the windlass-bar between the frame-section and housing, a crank and a driving pinion in mesh with said pinion on the windlass-bar, and a pawl connected to the housing and engaging one of said pinions to serve as a stop, whereby the frame-section and specified adjuncts are adapted for use as a stretcher, or for completion by the attachment of other parts, all substantially as specified.

642,857. RAILROAD HAND-CAR. BARNHART VAN TREESE, Crawford, Nebr. Filed July 26, 1899. Serial No. 725,168. (No model.)

Claim.—1. In a hand-car, the combination with one of the axles of a shaft geared thereto, upper oppositely-disposed independently-movable gears for operating the said shaft, and hand-bars having pawls

thereon adapted to be thrown in mesh with the said gears in diagonal pairs, a reversal of the pawls operating to change the direction of movement of the car by a similar oscillation of the hand-bars or levers.

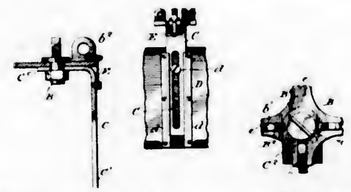


2. In a hand-car, the combination of an axle, upper gears connected thereto by intermediate driving devices, hand-bars or levers pivotally mounted adjacent said gears, and pairs of pawls or dogs pivotally attached to the inner portion of each hand-bar or lever and adapted to be thrown into engagement with the said gears in diagonal pairs in alternation to reverse the movement of the car, without changing the direction of oscillation of the said hand-bars or levers.

3. In a hand-car, the combination of a platform having axles, a gear on one of said axles, a shaft obliquely arranged and having connection with the said gear on the axle, and also provided with a motion-imparting device at its upper end, oppositely-disposed compound gears supported above the platform of the car and each comprising outer peripheral ratchet-teeth and inner gear-teeth in continual mesh with the motion-imparting device on the upper end of the said shaft, the said compound gears having independent movement, hand-bars or levers pivotally supported adjacent the said compound gears and each having a pair of pawls or dogs pivotally attached to the inner portion thereof, the said pawls or dogs being adapted to engage the ratchet-teeth of the compound gears in diagonal pairs, and means for supporting the said compound gears and hand-bars above the car platform or bed.

4. A hand-car having an axle with a gear thereon, gears supported above the bed or platform of the car and in operative connection with the said gear on the axle, hand-bars or levers movably mounted adjacent the said gears above the bed or platform, and means in connection with the said hand-bars or levers for operating the said gears and the axle, said means being adjustable alternatively in diagonal lines to change the plane of rotation of the said gears.

642,858. **SIGHT FOR FIREARMS.** ALFRED WEED, Anderson, Ind. Filed Apr. 23, 1898. Serial No. 678,606. (No model.)



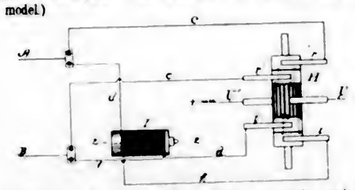
Claim.—1. A peep-sight for firearms comprising a horizontally-rotatable plate carrying a number of sight-pieces, and means for attaching it to the breech, substantially as described.

2. A peep-sight for firearms comprising a horizontally-rotatable plate having a series of sight-pieces, and a vertically-adjustable support for the plate, substantially as described.

3. A peep-sight for firearms comprising a horizontally-rotatable plate having a series of sight-pieces arranged thereon and adapted to be successively brought into the sight-line, an adjustable support for the plate, and means for holding the plate in position on the support, substantially as described.

4. A peep-sight for firearms comprising a horizontally-rotatable plate, a series of sight-pieces symmetrically arranged thereon and adapted to be brought successively into the sight-line, a vertically-adjustable support for the plate, and means for securing the plate in relation to the support, substantially as described.

642,859. **SYSTEM OF ELECTRICAL DISTRIBUTION.** HENRY P. WHITE, Kalamazoo, Mich., assignor of three-fourths to Charles D. Fuller, same place. Filed Sept. 26, 1898. Serial No. 691,964. (No model.)



Claim.—1. In a system of transmission, conversion and distribution of electrical energy the combination of a source of alternating current with conductors divided into branches to form a plurality of circuits, an adjustable phase-displacer suitably connected in each branch of one of two independent circuits of said source and a commutator for the purpose specified.

2. In a system of transmission, conversion and distribution of electrical energy the combination of a source of alternating current with conductors divided into branches to form a plurality of circuits, phase-displacers suitably connected in each branch of one of two independent circuits of said source and a commutator for the purpose specified.

3. In a system of transmission, conversion and distribution of electrical energy the combination of a source of alternating current with conductors divided into branches to form a plurality of circuits, means for phase displacement contained in each branch of one of two independent circuits of said source, and a commutator for the purpose specified.

4. In a system of transmission, conversion, and distribution of electrical energy, the combination of a source of alternating current with conductors therefor divided into branches to form two independent circuits, and a phase-displacer in one branch of each of the conductors that are paired to form a circuit to form circuits of different phase.

5. In a system of transmission, conversion and distribution of electrical energy, the combination of a source of alternating current with conductors therefor divided into branches, with means for phase displacement in one branch of each conductor, and a commutator, for the purpose specified.

6. A phase-displacer for use in an alternating current consisting of a plurality of parallel coils corresponding to the number of circuits to be acted upon; a suitable magnetic core with adjustable shield to vary the amount of resistance and induction simultaneously and equally in each.

7. A phase-displacer for use in an alternating-current circuit, consisting of a plurality of parallel coils corresponding to the number of circuits to be acted upon so that the amount of resistance and induction shall be equal, as specified.

642,860. **OIL-HOLE COVER OR CAP.** FRANK D. WINKLEY, Madison, Wis. Filed Apr. 12, 1899. Serial No. 712,785. (No model.)



Claim.—1. In an oil-hole cover or cap, the combination of a body portion; a sleeve or shell rotatably mounted thereon; a spring interposed between said parts; and means coacting with said spring, substantially as described, whereby the sleeve is held against endwise movement, is capable of being rotated a limited distance about the body portion, and is returned to a determinate position relative to the body portion when released by the operator.

2. In an oil-hole cover or cap, the combination of a hollow body portion provided with an opening; a sleeve or shell rotatably mounted on said body portion and likewise provided with an opening; a spring locking device interposed between said parts; and means coacting with said device, serving to hold the parts against separation and to rotate the sleeve a limited distance about the body portion, whereby the openings are normally held out of alinement, substantially as described.

3. In an oil-hole cover or cap, the combination of a hollow body portion provided with a lateral opening; a sleeve rotatably mounted thereon and also provided with an opening; a coiled spring interposed between the adjacent side walls of said parts and having its ends attached to the body and sleeve respectively; and means coacting with said spring whereby the openings are normally held out of alinement and endwise movement of the sleeve is prevented.

4. In an oil-hole cover or cap, the combination of a body portion; a sleeve rotatably mounted thereon; a groove formed around the body portion; a groove formed upon the inner face of the sleeve; and a coiled spring seated within said groove and having its ends attached to the body and sleeve respectively, whereby the sleeve is held against endwise movement and may be rotated a limited distance about the body portion, substantially as described.

5. In an oil-hole cover or cap, the combination of a body portion provided with an eccentric groove extending around the same; a sleeve rotatably mounted on said body portion; and a spring seated within said groove, and having its ends attached to the body and sleeve respectively.

6. In an oil-hole cover or cap, the combination of a body portion provided with an eccentric groove extending around the same; a sleeve rotatably mounted upon said body portion; a coiled spring mounted within said groove and having one end attached to the body portion at the shallow part of the groove, and its opposite end connected to the sleeve.

7. In an oil-hole cover or cap, the combination of a body portion provided with a lateral opening and also with an eccentric groove extending around the same above the opening; a sleeve rotatably mounted upon said body portion and likewise provided with an opening; a coiled spring K mounted in said groove and having one end L directly connected to the body portion at the shallow portion of the groove or channel formed therein, and its opposite end M connected to the sleeve, substantially as and for the purposes described.

8. In an oil-hole cover or cap, the combination of a hollow body portion provided with a lateral opening and an eccentric groove or channel formed around the same above said opening; a sleeve rotatably mounted upon said body portion and provided with a groove I and a slot J; and a coiled spring K seated within said groove and having one end L directly connected to the body at the shallow portion of the groove, and its opposite end M bearing against the side wall of the slot J.

9. In an oil-hole cover or cap, the combination of a hollow body portion A provided with a lateral opening B; an eccentric channel or groove D formed about said body portion above the lateral opening; an opening F formed in the body at the shallow portion of the groove or channel D; a sleeve G mounted upon the body portion; a groove I formed upon the inner face of said sleeve; a slot J extending through the sleeve into the groove I; and a coiled spring K mounted in said channel D and groove I, and having its ends L, M, respectively, seated in the opening F and slot J.

642,861. **PHOTOGRAPHIC SHUTTER.** ANDREW WOLLENSAK, Rochester, N. Y. Filed Aug. 14, 1899. Serial No. 727,179. (Model.)



Claim.—1. A photographic shutter adapted to make time, instantaneous and bulb exposures, having an annular setter adapted to occupy any one of three positions for controlling the mechanism to effect any of such exposures, with means for operating the exposure mechanism, substantially as shown and described.

2. A photographic shutter arranged to make exposures of different kinds as to duration, having an annular setter adapted to occupy different positions one for each of the different kinds of exposures, for controlling the exposure mechanism, with means for operating the mechanism, substantially as set forth.

3. A photographic shutter, having two oppositely-acting slotted closing blades formed with concave opposing edges, coacting carriers for the blades, and a common guide-pin for the blades, with means for operating the blade-carriers, substantially as specified.

4. A photographic shutter, having a pair of equal oppositely-acting closing blades, pivoted carriers for said blades, a master-lever with coacting mechanism for actuating the closing blades, a pivoted stop for controlling the master-lever, and means for controlling said stop, substantially as shown and described.

5. A photographic shutter having a pair of similar coacting closing blades, carriers for the blades, a master-lever, a trip-lever carried by the master-lever to operate the blade-carriers, an actuating-spring for the master-lever, and means for moving the master-lever against the action of the spring, substantially as described.

6. A photographic shutter having two similar closing blades, carriers for the blades, a master-lever, a trip-lever attached to the master-lever, having independent motion thereon, an actuating-spring for the trip-lever and the master-lever, and means for giving the master-lever positive motion against the spring, substantially as set forth.

7. A photographic shutter having closing blades, carriers for said blades, a master-lever with coacting mechanism to actuate said blades, a pair of oppositely-acting stops to control the master-lever, and means for actuating and controlling said stops, substantially as and for the purpose specified.

8. A photographic shutter having coacting closing blades, carriers for the blades, a two-part lever to actuate said carriers, an actuating-spring, a lever for controlling the spring, and means for controlling the lever, and for operating the parts, substantially as shown and for the purpose set forth.

9. In a photographic shutter constructed to make time, instantaneous and bulb exposures, an annular setter for controlling the exposure mechanism, and means acting in conjunction with said setter to hold such shutter and mechanism when set for either exposure, as set forth.

10. A photographic shutter comprising an inclosure, a diaphragm in said inclosure, a pair of oppositely-acting slotted closing blades and carriers therefor on one side of the diaphragm, a common guide-pin working in the slots of the shutters and actuating mechanism for said blades on the other side of the diaphragm, substantially as shown.

11. A photographic shutter having an operating-lever, a fork pivotally mounted on said lever and having a curved branch, and a controlling master-lever adapted to be moved by said fork, substantially as set forth.

12. A photographic shutter having a curved operating-lever, a fork held by said lever, a controlling or master lever adapted to be moved by said fork, a stud projecting laterally from the end of the master-lever to be engaged by said fork and a fixed stud for engaging the fork, substantially as and for the purpose set forth.

13. The operating-lever of a photographic shutter, having a fork pivoted at its end, a master-lever having a laterally-projecting stud engaged and operated by one branch of said fork, and a fixed stud for engaging the other branch of the fork, there being a spring for controlling the fork, substantially as specified.

14. The operating-lever of a photographic shutter, carrying a pivotal fork, a master-lever having a part to receive the lower branch of the fork, and a fixed stud for engaging the upper branch of the fork, said upper branch being curved whereby as it slides over said stud the lower branch will be drawn away from the master-lever, substantially as specified.

15. A photographic shutter having a curved operating-lever, and a curved fork movable thereon, a master-lever curved oppositely to the operating-lever and adapted to be encountered by the fork, a controlling-spring for the fork, and a rigid stud to guide the fork, substantially as described.

16. In a photographic shutter, an operating-lever, and a pair of coacting levers adapted to be actuated by said operating-lever, and a master-lever controlled by said pair of coacting levers, substantially as described.

17. A photographic shutter having an operating-lever provided with a stud, and a pair of coacting cross-levers adapted to be encountered by said stud, and a master-lever controlled by said cross-levers, said stud being between the cross-levers and adapted to move them in opposite directions, substantially as described and shown.

18. A photographic shutter having an operating-lever, a pair of coacting cross-levers adapted to be moved in opposite directions by the operating-lever, and a master-lever controlled by said cross-levers, and means for holding said cross-levers closed upon each other or together, substantially as shown and described.

19. A photographic shutter having an operating-lever, and a pair of copivotal cross-levers coacting with said operating-lever, and a master-lever controlled by said cross-levers, there being a spring upon the common pivot of said cross-levers bearing at its ends against said respective cross-levers, substantially as described.

20. In a photographic shutter, an operating-lever, and a pair of copivotal cross-levers actuated by said operating-lever, and formed with ledges, and a master-lever having a pin adapted to be engaged by one or the other of said ledges, substantially as set forth.

21. In a photographic shutter, an operating-lever, and a pair of copivotal cross-levers actuated by said operating-lever, and formed with ledges, and a master-lever having a pin adapted to be engaged by either of said ledges, the latter being at different distances from the common axis of the cross-levers, substantially as and for the purpose specified.

22. A photographic shutter having an operating-lever, and a pair of coacting cross-levers actuated by said operating-lever, said cross-levers being formed at one end of each with inwardly-projecting parts

adapted to meet, and a master-lever having a pin adapted to be engaged by either of said cross-levers and to pass between said inwardly-projecting parts, substantially as and for the purpose specified.

23. A photographic shutter having a master controlling-lever provided with a stud, in combination with a pair of coacting cross-levers formed with inwardly-projecting parts adapted to meet, said cross-levers each adapted to engage the stud of the master-lever, and means for causing said cross-levers to release said stud, substantially as described.

24. A photographic shutter having an operating-lever, and a pair of cross-levers actuated by said operating-lever, and a movable setter adapted to engage one of said cross-levers to hold it out of action, substantially as and for the purpose shown.

25. A photographic shutter having an operating-lever, and a master-lever, each provided with a stud, and a pair of cross-levers between said operating-lever and the master-lever, the cross-levers coacting at their opposite ends with said respective studs, substantially as and for the purpose specified.

26. A photographic shutter having an operating-lever, and a master-lever, each provided with a stud, and a pair of coaxial cross-levers between said operating-lever and the master-lever, the cross-levers forming openings between them on opposite sides of their common axis to receive said respective studs, substantially as shown.

27. A photographic shutter having a master controlling-lever, a spring to actuate said master-lever, a tension-lever to strain said spring, and a pair of cross-levers coacting with said master-lever, one of said cross-levers having a rest or projection to engage said tension-lever, and means to turn the latter on its axis against the action of the spring, substantially as set forth.

28. In a photographic shutter, a master-lever formed with a transverse slot, a trip-lever held movably upon said master-lever and having a pin extending through said slot, and an actuating-spring to engage said pin, with means for limiting the actions of said master-lever and the trip-lever, substantially as shown.

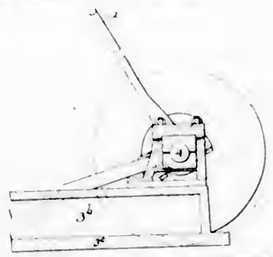
29. In a photographic shutter, coacting closing blades and carriers therefor, one carrier being provided with a pair of studs, a master-lever, and a trip-lever held movably by said master-lever, said trip-lever being adapted to be engaged alternately by said studs, and means to operate the parts, substantially as described.

30. A photographic shutter constructed to make time, instantaneous and bulb exposures, an annular setter adapted to occupy different positions, one for each of the different kinds of exposure, exposure mechanism and connections whereby the said exposure mechanism is caused to occupy the same position both after and before an exposure, substantially as specified.

31. A photographic shutter constructed to make time, instantaneous and bulb exposures and comprising a casing, exposure mechanism therein, an annular setter adapted to occupy different positions one for each kind of exposure, and a single lever or part projecting from the casing to actuate the exposure mechanism, as set forth.

32. In a photographic shutter constructed to make time, instantaneous and bulb exposures and having its exposure mechanism constructed so that in moving to terminate an exposure it will simultaneously and automatically move into a position for another exposure without subsequent changing of the parts, and an annular setter adapted to occupy different positions, one for each kind of exposure, substantially as described.

642,862. POWER-TRANSMITTING APPARATUS APPLICABLE TO FRICTION-DRUMS. HARRY N. COVELL, New York, N. Y. Filed Feb. 24, 1898. Serial No. 671,411. (No model.)



Claim.—1. In a friction rope-drum, in combination, the shaft, the rope-drum movable thereon, the power-wheel, the bearings for the shaft, two abutments secured against longitudinal movement on the shaft independent of the bearings and located at opposite ends of the drum, one of said abutments being removable, and the cam members 31 and 32 interposed between one of said abutments and the drum, all substantially as described; whereby the end thrust produced by said cam members is removed from said end bearings, substantially as described.

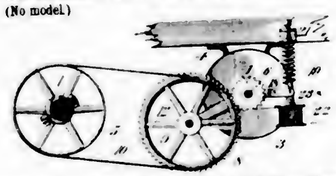
2. In a friction rope-drum, in combination, the shaft, a rope-drum movable thereon, a power-wheel, the bearings for the shaft, two abutments secured against longitudinal movement on the shaft independent of the bearings and located at opposite ends of the drum, one of said abutments being removable, the cam members 31 and 32 interposed between one of said abutments and the drum, and a means of adjustment whereby the normal distance between the drum and the last-named abutment may be varied to compensate for wear of the friction-surfaces, substantially as described.

3. In a friction rope-drum, in combination, the shaft, the drum movable thereon, the power-wheel, the cam members 31 and 32 whereby the end thrust is supplied necessary for applying the friction, ball-bearings through which said end thrust is transmitted, other ball-bearings whereon the reaction due to said thrust is sustained, and two abutments secured to the shaft against longitudinal movement thereon at opposite ends of said movable drum whereby the said end thrust is borne independently of the bearings of the shaft, substantially as described.

4. In a friction-drum apparatus, in combination, a constantly-rotating shaft, a friction member rotating with the shaft, a drum loose on the shaft, a second friction member fixed to the drum, a collar on the shaft in contact with the surface of the drum, a second collar on the shaft, a series of balls located between said two collars, a third collar on the shaft, a fourth collar on the shaft, mechanism whereby said third and fourth collars are spread apart and an abutment fixed against longitudinal movement on the shaft whereby the backward thrust of said spreading mechanisms is borne, substantially as described.

5. In a friction-drum apparatus, in combination, a constantly-rotating shaft, a friction member rotating with the shaft, a drum loose on the shaft, a second friction member fixed to the drum, a collar on the shaft in contact with the surface of the drum, a second collar on the shaft, a series of balls located between said two collars, a third collar on the shaft, a fourth collar on the shaft, mechanism whereby said third and fourth collars are spread apart, a fifth collar on the shaft, a sixth collar on the shaft, a series of balls located between said fifth and sixth collars and an abutment fixed against longitudinal movement on the shaft whereby the backward thrust of said spreading mechanism is borne, substantially as described.

642,863. DRIVING MECHANISM FOR DYNAMOS. JOHN L. CREVELING, New York, N. Y. Filed Jan. 24, 1899. Serial No. 703,245. (No model.)



Claim.—1. The combination with a car axle and frame as of its truck carried thereon, of a dynamo secured to the frame, a rocking frame upon the dynamo, a pulley geared to the armature-shaft of the dynamo, and belted to the axle, and electromagnetic means for actuating the rocking frame, substantially as set forth.

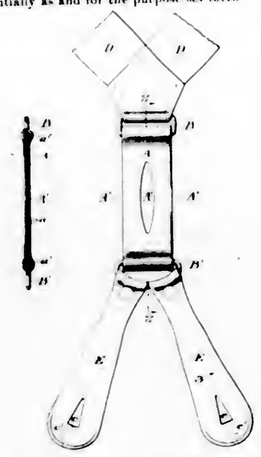
2. The combination with a car axle and frame, as of its truck, carried thereon, of a dynamo secured to the frame, a rocking frame upon the dynamo, a pulley geared to the armature shaft of the dynamo and belted to the axle, a spring for actuating the rocking frame in order to control the tension upon the belt, and a solenoid having its core counteracting the spring, the windings of the solenoid bearing electrical relation to those of the dynamo, substantially as and for the purpose specified.

642,864. GARMENT-SUPPORTER. LOUIS GONTIER, Gloucester City, N. J. Filed Jan. 31, 1899. Serial No. 703,996. (No model.)

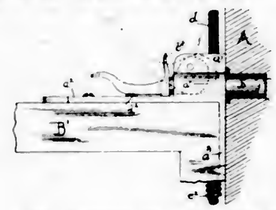
Claim.—1. An elastic web provided with terminal fittings and slotted intermediate of its length, so as to have less cross-sectional area at its central slotted portion, than at its extremities, substantially as and for the purpose set forth.

2. A web comprising distinct layers of elastic material formed with terminal bights, a layer of non-elastic material between the layers of elastic material in said terminal bights, terminal fittings in said bights, and a slot in said web intermediate of its length, substantially as and for the purpose set forth.

3. An elastic web slotted as described, and provided with terminal fittings comprising a flexible buttonhole-tab, and a buttonhole formed in said tab by a tongue-shaped cut therein, said buttonhole being reinforced by securing said tongue upon the body portion of said tab, substantially as and for the purpose set forth.



642,865. SASH-BALANCE. HENRY A. HANNUM, Cazenovia, N. Y. Filed Apr. 13, 1899. Serial No. 712,859. (No model.)



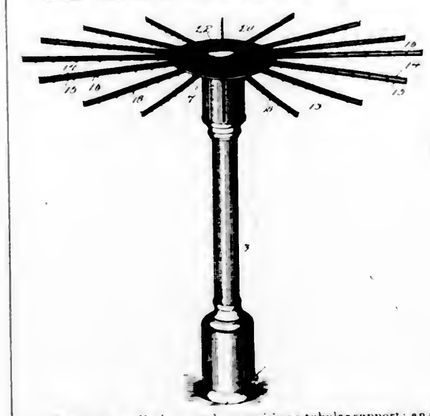
Claim.—1. The combination with a window-jamb having sockets therein, and the upper and lower sashes, of a sliding bolt carried by the lower sash and designed to engage the sockets in the jamb so as to lock the sash in adjusted position, said bolt and sockets being relatively formed to wedge the lower sash against the upper sash and the upper sash against the jamb, substantially as set forth.

2. The combination with the socketed window-jamb, the upper and lower sashes, a pulley sustained on the window-jamb, and a weighted sash-cord attached at one end to the upper sash and extending over said pulley, of an angular bracket secured to the corner of the lower sash and having its horizontal member constructed to provide a horizontal tubular guide and vertical clamp-supports arranged side by side on its base-plate, and its vertical member constructed to form a vertical eye for the sash-cord, communicating with the space between said clamp-supports, a clamping-lever pivoted between said clamping-supports, and opposed to a wall of said eye, and a sliding bolt extending through said tubular guide and designed to engage the sockets in the jamb, substantially as described.

3. The combination with a socketed window-jamb, and the window-sashes, of a bracket secured to one sash and having a tubular guide, a sliding bolt extending through said guide and formed with a thumb-piece having a horizontal lower end engaging the bracket and preventing the bolt from turning, the inner end of said bolt being designed to engage the sockets in the jamb and of such relative construction thereto as not only to lock the sash but also to wedge one sash against the other and said other against the jamb, substantially as described.

4. The combination with a socketed window-jamb, and the window-sashes, of a bracket secured to one sash and having a guide, a sliding bolt extending through said guide, and means for preventing axial movement of the bolt in its guide while permitting longitudinal movement thereof, the end of said bolt being constructed to have a wedging engagement with the socket in the jamb, whereby one sash will be forced against the other sash and said other sash will be forced against the jamb, substantially as described and for the purposes specified.

642,866. DISPLAY-STAND. WILLIAM MACDONALD, Halifax, Canada. Filed Dec. 22, 1898. Serial No. 700,050. (No model.)



Claim.—1. A display-stand, comprising a tubular support; an annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange.

2. A display-stand, comprising a support; an annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange, said racks having a pivotal movement on said flange.

3. A display-stand comprising a tubular support; an annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

4. A display stand, comprising a support; an annular flange secured thereon; and a series of racks removably and revolubly secured to said support, said racks embracing the upper and lower sides of said flange.

5. A display-stand, comprising a support; an annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange, each rack having an independent pivotal movement on said flange.

6. A display-stand, comprising a tubular support; an annular flange secured thereon; and a series of racks revolubly and removably secured to said support, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

7. A display-stand, comprising a support; a revolubly-mounted annular flange located thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange.

8. A display-stand, comprising a support; a revolubly-mounted annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange, said racks having a pivotal movement on said flange.

9. A display-stand, comprising a tubular support; a revolubly-mounted annular flange secured thereon; and a series of racks removably secured to said support, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

10. A display-stand, comprising a support; a revoluble annular flange secured thereon; a series of carriages rotatably mounted on said flange; and a series of racks removably secured to said carriages and said support, said racks embracing the upper and lower sides of said flange.

11. A display-stand, comprising a support; a revolubly-mounted annular flange secured thereon; a series of carriages rotatably mounted on said flange, each carriage having an independent path of movement; and a series of racks removably secured to said carriages and said support, said racks embracing the upper and lower sides of said flange.

12. A display-stand, comprising a support; a revoluble annular flange secured thereon; a series of carriages rotatably mounted on said flange; and a series of racks removably secured to said carriages and said support, each rack having an independent carriage, said racks embracing the upper and lower sides of said flange.

13. A display-stand, comprising a support; a revoluble annular flange secured thereon; a series of carriages rotatably mounted on said flange, each carriage having an independent path of movement;

and a series of racks removably secured to said carriages and support, each rack having an independent carriage, said racks embracing the upper and lower sides of said flange.

14. A display-stand comprising a tubular support; a revoluble annular flange located thereon; a series of carriages rotatably mounted on said flange; and a series of racks removably secured to said carriages and said support, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

15. A display-stand, comprising a tubular support; a revoluble annular flange located thereon; a series of carriages rotatably mounted on said flange, each carriage having an independent path of movement; and a series of racks removably secured to said carriages and said support, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

16. A display-stand, comprising a tubular support; a revoluble annular flange located thereon; a series of carriages rotatably mounted on said flange; and a series of racks removably secured to said carriages and said support, each rack having an independent carriage, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

17. A display-stand, comprising a tubular support; a revoluble annular flange located thereon; a series of carriages rotatably mounted on said flange, each carriage having an independent path of movement; and a series of racks removably secured to said carriages and said support, each rack having an independent carriage, said racks embracing the upper and lower sides of said flange, a portion of said racks extending into said support.

18. A display-stand, comprising a support; an annular flange secured thereon; a series of circular carriages removably and revolubly mounted thereon, each carriage having its independent path of movement; and racks removably secured to said carriages, each rack having an independent carriage.

19. A display-stand, comprising a support; an annular flange secured thereon; a series of circular carriages removably and revolubly mounted thereon, said carriages being of varied sizes diametrically; and a series of racks removably secured to said carriages.

20. A display-stand comprising a support; an annular flange revolubly mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically; and a series of racks removably secured to said carriages.

21. A display-stand, comprising a support; an annular flange located thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically, each carriage having an independent path of movement; and a series of racks removably secured to said carriages.

22. A display-stand, comprising a support; an annular flange revolubly mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically, each carriage having an independent path of movement; and a series of racks removably secured to said carriages.

23. A display-stand comprising a support; an annular flange revolubly mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically; and a series of racks removably secured to said carriages, each rack having an independent carriage.

24. A display-stand comprising a support; an annular flange mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically; and a series of racks removably secured to said carriages, each rack having an independent carriage.

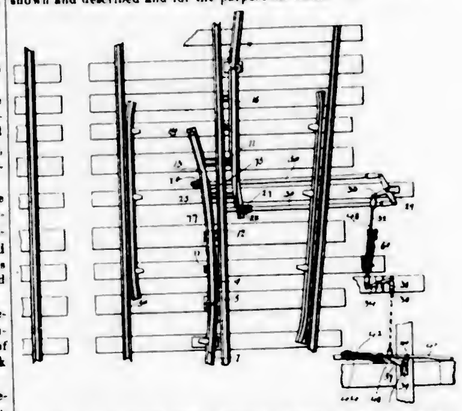
25. A display-stand, comprising a support; an annular flange mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically, each carriage having an independent path of movement; and a series of racks removably secured to said carriages, each rack having an independent carriage.

26. A display-stand, comprising a support; an annular flange revolubly mounted thereon; a series of circular carriages removably and revolubly mounted on said flange, said carriages being of varied sizes diametrically, each carriage having an independent path of movement; and a series of racks removably secured to said carriages, each rack having an independent carriage.

642,867. RAILWAY-FROG. DUNCAN MACPHERSON, Montreal, Canada. Filed June 10, 1898. Serial No. 683,144. (No model.)

Claim.—1. The short frog-rail for railway-switches having a horizontal bend and also bent vertically at two points, thus presenting two parallel portions on different levels with an inclined portion between, the head being planed off at an angle near its free end and recessed on one side of such end portion, for the purpose set forth.

2. In combination with an unbroken main rail and portions of a broken turnout-rail arranged upon opposite sides of the main rail, a frog comprising a short frog-rail having a horizontal bend and also bent vertically at two points thus presenting two parallel portions on different levels with an inclined portion between, the head being planed off at an angle near its free end and recessed on one side of such end portion, and a long frog-rail having two horizontal bends and a vertical bend having the effect of downwardly inclining both the upper and lower sides of the forward portion of the rail and the upper side being also planed to an oblique angle substantially as shown and described and for the purpose set forth.



3. In combination with a frog-rail adapted to overlap a main rail, detachable means carried by the frog-rail for preventing canting of the latter when in working position and borne upon, as set forth.

4. In combination with a frog-rail adapted to overlap a main rail; detachable means consisting of a projection carried by the frog-rail and adapted to rest upon the main rail to prevent canting of the frog-rail when in working position and borne upon as set forth.

5. In combination with a frog-rail adapted to overlap a main rail; means consisting of rivets projecting from the under side of the frog-rail and adapted to rest upon the main rail to prevent canting of such frog-rail when in working position and borne upon as set forth.

6. In combination with the stationary and movable portions of a frog-rail, hinge-plates located on one side of the rails and bracing-plates on the opposite side of the rails with suitable connecting-bolts; one of said bracing-plates being set with its inner end a short distance back from the hinge end of the stationary rail and the other bracing-plate projecting beyond the hinge end of the movable rail to overlap the stationary rail for the purpose set forth.

7. A connection easily changed from rigid to flexible for connecting together certain of the parts of switch-operating mechanism and consisting of a pair of bars each having an integral offset end, a sliding connection between the main portions of said bars, a yielding connection between the offset portions thereof, a frangible rigid connection between said offset portions, and said bars being connected respectively to the switch-stand and switch, for the purpose set forth.

8. A connection easily changed from rigid to flexible for connecting together certain of the parts of switch-operating mechanism and consisting of a pair of bars each having an integral offset end, a sliding connection between the main portions of said bars, a coiled spring connecting the offset portions thereof, means for varying the tension of said spring, a frangible rigid connection between said offset portions, and said bars being connected respectively to the switch-stand and switch, for the purpose set forth.

9. A connection easily changed from rigid to flexible for connecting together certain of the parts of switch-operating mechanism and consisting of a pair of offset bars a sliding connection between the main portions of said bars, a coiled spring connecting the offset portions thereof; a screw-threaded rod connected through intermediaries to the switch-stand and taking freely through perforations in said offset portions; a pair of nuts taking upon said rod and located one on each side of the offset portion of one of said bars; a nut taking upon said rod and located at one side of the offset portion of the other of said bars and a pin taking through said rod adjacent to the other side thereof; this last-mentioned bar being connected through intermediaries to the switch, substantially as and for the purpose set forth.

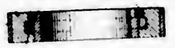
10. In combination with an unbroken main rail and portions of a broken turnout-rail arranged upon opposite sides of the main rail, a frog comprising a member connected in a hinged manner with the end of the inner turnout-rail portion, and bent so that when it is adjusted against said main rail and its free end rest away from same, detachable means carried by said member adapted to prevent the canting of same, and a second member connected in a hinged manner with the end of the outer turnout-rail portion and adapted to be adjusted against the opposite side of the main rail with respect to the first-mentioned member, said second member having the portion thereof that comes in contact with the main rail upwardly offset in an inclined plane and bent horizontally, and means for adjusting said members, substantially as and for the purpose set forth.

11. In combination with an unbroken main rail and portions of a broken turnout-rail arranged upon opposite sides of the main rail, a frog comprising a member connected in a hinged manner with the end of the inner turnout-rail portion, and bent so that when it is adjusted against said main rail, its central portion will set parallel to the main rail and its free end rest away from same, detachable means carried by said member adapted to prevent the canting of same, and a second member connected in a hinged manner with the end of the outer turnout-rail portion and adapted to be adjusted against the opposite side of the main rail with respect to the first-mentioned member, said second member having the portion thereof that comes in contact with the main rail upwardly offset in an inclined plane and bent horizontally, and means for adjusting said members, substantially as and for the purpose set forth.

12. In combination with an unbroken main rail and portions of a broken turnout-rail arranged upon opposite sides of the main rail, a frog comprising a member connected in a hinged manner with the end of the inner turnout-rail portion, and bent so that when it is adjusted against its main rail, its central portion will set parallel to the main rail and its free end rest away from said main rail, detachable means adapted to prevent the canting of same, consisting of a device carried rigidly by said member and adapted to rest upon the main rail; and a second member connected in a hinged manner with the end of the outer turnout-rail and adapted to be adjusted against the opposite side of the main rail with respect to the first-mentioned member, and means for adjusting said members, substantially as and for the purpose set forth.

13. In combination with an unbroken main rail and portions of a broken turnout-rail arranged upon opposite sides of the main rail, a frog comprising a member connected in a hinged manner with the end of the inner turnout-rail portion, and bent so that when it is adjusted against said main rail, its central portion will set parallel to the main rail and its free end rest away from said main rail, means adapted to prevent the canting of said member, and a second member connected in a hinged manner with the end of the outer turnout-rail portion and adapted to be adjusted against the opposite side of the main rail with respect to the first-mentioned member, said hinges consisting of hinge-plates 64 and 65 connected to the webs of the turnout-rails and frog-rails respectively having plates 69 and 70, 69 being secured to one of said webs and set with its end a short distance back from the end of said web and 70 being secured to the other of said webs and set with its end, 71, projecting beyond the web to overlap the adjacent end of said first-mentioned web; and means for adjusting said members, substantially as and for the purpose set forth.

642,868. TOP ROLL FOR SPINNING-MACHINES. JOHN R. MILLSON, Bristol, R. I. Filed Feb. 9, 1899. Serial No. 705,106. (No model.)



Claim.—1. A top-roll cover consisting of a ring of permeable material and an inclosed annular chamber within the body of the permeable material there being an opening communicating with the chamber whereby oil may be supplied to the chamber; as described.

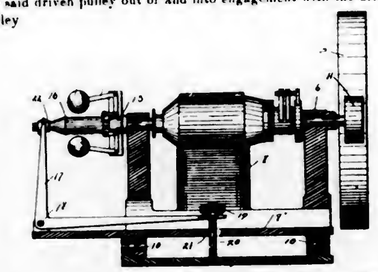
2. A top-roll cover consisting of wood impregnated with wax and an annular inclosed chamber within the body of the wood there being an opening extending through the wood inclosing the chamber for filling the chamber with unctuous material, as described.

3. A top-roll cover composed of two or more concentric rings of wood, impregnated with wax or similar unctuous material, having an inclosed annular chamber formed in one of the rings; whereby unctuous material may be supplied to the central portion of the wooden top-roll cover, as described.

642,869. CONTROLLING MEANS FOR SPARK-GENERATORS. HOMER H. MOTSINGER, Pendleton, Ind., assignor of one-half to Newell H. Motsinger, Shonis, Ind. Filed Apr. 21, 1899. Serial No. 713,896. (No model.)

Claim.—1. In a mechanical movement for maintaining a constant speed of a driven shaft, a driving-shaft, a driven shaft operated thereby, a speed-controlled means for intermittently causing a relative movement between the driven shaft and the driving-shaft and thereby throwing the driven shaft out of and into operative connection with the driving-shaft.

2. In a mechanical movement for maintaining a constant speed of a driven shaft, a driving-pulley, a driven shaft carrying a pulley adapted to engage peripherally the driving-pulley, and a speed-controlled governor carried by said driven shaft, and means for throwing said driven pulley out of and into engagement with the driving-pulley.



3. In a mechanical movement, a base, a pivotal support therefor, a driven shaft carried on said base, a speed-controlled generator mounted on said shaft, and connections operated by said governor for intermittently swinging said base about its pivot, for the purpose described.

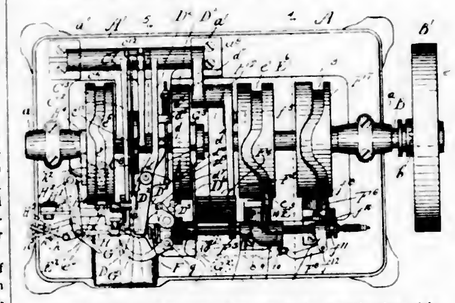
4. In a mechanical movement, a subbase, a base pivotally mounted on the subbase, a driven shaft carried on said base, a speed-controlled governor mounted on said shaft, a lever pivoted upon the base to one side of the axis thereof and adapted to be engaged by the governor, and connections between said lever and the subbase, for the purpose described.

5. A spark-generator consisting of a generator, a speed-controlled governor operated by the generator-shaft, and means operated by the governor for intermittently moving said shaft out of and into connection with a driving means.

6. A spark-generator, consisting of a generator, a pivotal support therefor, a speed-controlled governor operated by the generator-shaft, and means operated by the governor for swinging said generator about its pivot and thereby moving the shaft out of and into connection with a driving means.

7. A spark-generator consisting of a generator having a suitable base, a subbase, a pivotal connection between the generator and subbase, a speed-controlled governor carried by the generator-shaft, a lever pivoted on the base to one side of the axis thereof, connections between said lever and the subbase, and connections between said lever and the generator, as and for the purpose set forth.

642,870. TAG-MACHINE. WALTER S. MCKINNEY, Chicago, Ill. Filed Mar. 17, 1899. Serial No. 709,424. (No model.)



Claim.—1. In a tag-stringing machine, the combination with a vibrating needle for inserting the cord through the eye of the tag, of a clamp for grasping the inserted end of the cord, means for vibrating the clamp to draw out the cord and form the loop, a normally-retracted fork arranged to be projected into proximity to the strands of the loop, a normally-retracted knotter-head arranged to be projected between the projected fork-arms, clamping-fingers on the knotter-head for grasping the strands of the loop, and means for reciprocating and oscillating the knotter-head.

2. In a tag-stringing machine, the combination with a vibrating needle for inserting the cord through the eye of the tag, of a clamp for grasping the inserted end of the cord, means for vibrating the clamp to draw out the cord and form the loop, a looping-finger around which the cord is carried by the clamp, means for vibrating said fin-

ger to move the tag laterally out of the path of the clamp, a normally-retracted fork arranged to be projected into proximity to the strand of the loop, a normally-retracted knotter-head arranged to be projected between the projected fork-arms, clamping-fingers on the knotter-head for grasping the strands of the loop, means for reciprocating and oscillating the knotter-head to form the knot, and means for severing the cord above the knot.

3. A cord-knotter comprising means for guiding the cord, a knotter-head formed by two telescoping shafts, coacting fingers on the ends of the shafts, means for moving the inner shaft longitudinally within the outer shaft to open and close the fingers, comprising a bracket fixed to the outer shaft to rotate therewith, a bell-crank lever pivotally mounted in said bracket with one of its ends projecting through an aperture in the outer shaft to engage the inner shaft, and with its other end movably in contact with a cam-surface surrounding the shaft, means for giving rotary and longitudinal movement to the shafts together, and a spring resisting the separate endwise movement of the inner shaft by the bell-crank lever.

4. A cord-knotter comprising means for guiding the cord, a knotter-head formed by two telescoping shafts, coacting fingers on the ends of the shafts, means for moving the inner shaft longitudinally within the outer shaft to open and close the fingers comprising a bracket mounted on the outer shaft to rotate therewith, a bell-crank lever pivotally mounted in said bracket with one of its ends projecting through an aperture in the outer shaft to engage the inner shaft, and with its other end movably in contact with a stationary cam-surface, and means for giving rotary and longitudinal movement to the shafts.

5. A cord-knotter head formed by two telescoping shafts of which the inner shaft projects from the outer shaft at both ends, coacting fingers on the shafts at one end, a spring mounted on the inner shaft at the other end and operating against the outer shaft to normally close said fingers, a bracket fixed to the outer shaft to rotate therewith, a bell-crank lever pivotally mounted in said bracket with one end engaging the inner shaft and with its other end in contact with a cam-surface, and means for giving rotary and longitudinal movement to the shafts.

6. A shear mechanism, comprising blades mounted on an oscillatory lever, means for swinging said lever to project the blades, links pivotally connected to the rear ends of the blades, slots in said links, and a pin passing through the slots of both links and limiting their movements to close the blades as the latter are projected.

7. The combination with a rising-and-falling cord-supplying needle, of a cord-clamp arranged to rise and fall beneath the needle and adapted to grasp the end of the cord, a looping-finger having a rising-and-falling and lateral movement, means for closing the clamp upon the cord at the lower end of the needle movement, means for moving the clamp upward after the rising needle, means for moving the looping-finger laterally beneath the rising needle and above the clamp, means for lowering said looping-finger, a cord-knotter arranged to be projected to operate on the loop below the upper position of the needle and clamp, and means for severing the cord between the knot and needle.

8. In a cord-looping machine, the combination with a cord-supplying part, of a clamp for grasping the end of the cord, a looping-finger around which the cord is passed, a rising-and-falling slide upon which said finger is mounted, a laterally-movable guide-plate on which said slide is mounted, and a cord-knotter for knotting the loop.

9. In a loop-forming machine, the combination with a cord-supplying needle, a looping-finger around which the cord is passed, a clamp for grasping the end of the cord comprising a pivoted lever, a cam for imparting a rising-and-falling movement to said lever, a fixed jaw on said lever, a movable jaw pivoted to said lever, and means for moving said pivoted jaw independently of the movement of the lever, and means for knotting the loop.

10. In a looping-machine the combination with a cord-supplying needle, a looping-finger around which the cord is passed, a clamp for grasping the end of the cord comprising a rising-and-falling part carrying a fixed jaw, a movable jaw pivoted thereto, a spring normally pressing the pivoted jaw in one direction, and means for moving said jaw in the other direction against said spring comprising a bar arranged parallel to the plane of movement of the rising-and-falling part, movable supports for said bar, and means for moving the bar toward and away from the jaw.

11. In a looping-machine, the combination with a cord-supplying needle, a looping-finger around which the cord is passed, a clamp for grasping the end of the cord comprising a pivoted lever, means for imparting a rising-and-falling movement to said lever, a jaw pivoted on the lever, a spring normally pressing the jaw in one direction, a movable bar arranged parallel with said lever, and means for forcing the bar against the jaw.

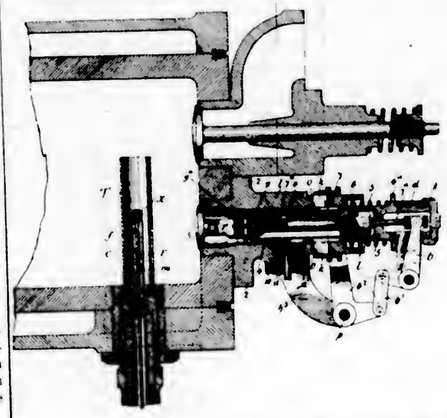
12. A tag-stringing machine, comprising a rising-and-falling needle for passing the cord through the tag, a clamp for grasping the end of the cord beneath the tag, a laterally-movable looping-finger for deflecting the cord between the tag and clamp to move the tag laterally out of the path of the clamp, means for raising the clamp to carry the end of the cord around the edge of the tag, and means for knotting the loop above the tag.

13. A tag-stringing machine, comprising a rising-and-falling needle for passing the cord through the tag, a clamp for grasping the end of the cord beneath the tag, a looping-finger having a lateral and rising-and-falling movement for deflecting the cord between the tag and clamp to move the tag laterally out of the path of the clamp and drawing out the cord to form a loop of desired length, means for raising the clamp to carry the end of the cord around the edge of the tag, and means for knotting the loop above the tag.

14. A looping-machine provided with a hollow needle through which the cord is passed, means for forming the loop beneath the needle including means for drawing out the cord through the needle, a bell-crank lever carried on the needle-arm, a spring applied to normally press a part on said lever down over the mouth of the lever to clamp the cord therein, a second bell-crank mounted on the needle-arm pivot and connected at one end with the first bell-crank, and means for oscillating said second bell-crank to uncover the mouth of the needle and permit the cord to be drawn out through the latter.

15. The combination with the needle-arm having a countersunk needle-receiving lug, of a needle comprising a split or slotted outer tube inserted through said lug, a slotted inner tube inserted through said lug and outer tube, a slot in the lug with which the slots in the tubes are adapted to be brought into register, said outer tube being arranged to rotate relatively to the inner tube and lug, and a circular washer inserted in the lug above the tubes.

642,871. HEAVY-OIL ENGINE. ANTHONY G. NEW, Woking, England. Filed Feb. 12, 1898. Serial No. 670,093. (No model.)



Claim. 1. In oil-motor engines an air and oil admission and mixing device composed of a valve with a valve-rod, a truncated cone mounted about the said valve-rod and a tube, inclosing the said cone and itself inclosed in an outer tube of increasing internal diameter toward the said valve and near about the said cone, arranged to allow air drawn or forced past the valve to pass through the tube, into which oil is delivered through an orifice provided through its side, whereby the air, before passing the said valve, injects the oil through the space between the said cone and the said tube thereby pulverizing the oil, mixing intimately with it and forming an explosive mixture or charge substantially as described and for the purpose set forth.

2. In oil-motor engines an air and oil admission and mixing device composed of a valve with a valve-rod, a truncated cone mounted about the said valve-rod and a tube, inclosing the said cone and itself inclosed in an outer tube of increasing internal diameter toward the said valve and near about the said cone, arranged so that the cone is adjustable from outside the tube as regards its longitudinal position within the tubes; the said valve, cone and tube being arranged to allow air drawn or forced past the valve to pass through the tube, into which oil is delivered through an orifice provided through its side, whereby the air, before passing the said valve, injects the oil through the variable space between the said cone and the said tube thereby pulverizing the oil, mixing intimately with it and forming an explosive mixture or charge substantially as described and for the purpose set forth.

642,872. SASH-HOLDER. WILL E. OWENS, Billings, Mont., assignor of one-half to Christian Yegen, same place. Filed May 23, 1899. Serial No. 717,940. (No model.)



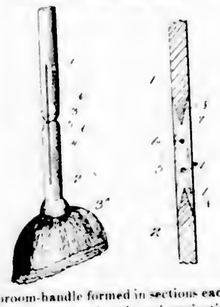
Claim. 1. In a sash holder of the class described, the combination with a casing, of a frame having opposite ears or lugs, springs arranged between the ears or lugs and respective sides of the casing, a friction-roller carried by the frame, and a brake-block in frictional engagement with the roller, substantially as shown and described.

2. In a sash-holder of the class described, the combination with a casing, of a substantially U-shaped frame located within the casing and provided with oppositely-extending ears or lugs, springs interposed between the ears and the casing, whereby the frame is yieldingly mounted therein and the ears are adapted to form guides for the frame, a friction-roller mounted within the frame, and a pivot-pin for the roller, said pivot-pin extending transversely through the opposite sides of the frame and slidably mounted in slots provided in opposite sides of the casing, substantially as shown and described.

3. In a sash-holder of the class described, the combination with a casing, of a substantially U-shaped frame yieldingly mounted within the casing, a friction-roller mounted within and at the open end of the frame, a brake-block located within the frame in frictional engagement with the roller, coiled springs interposed between the brake-block and the back of the frame, and a substantially U-shaped spacing-plate connected to the frame and located between the springs, substantially as shown and described.

4. In a sash-holder of the class described, the combination with a casing, of a yieldingly-mounted frame located within the casing and formed from a single sheet of flat metal bent intermediate of its ends into substantially U-shaped form, having the back or bend thereof provided with opposite flanges, a friction-roller mounted within the frame at the open end thereof, a brake-block located within the frame in frictional engagement with the roller and provided with pins extending toward the back of the frame, coiled springs interposed between the back of the frame and the brake-block and against the respective flanges of the frame, the pins of the block being received within the respective coiled springs, and a substantially U-shaped spacing-plate connected to the back of the frame and embracing the inner sides of the respective coiled springs, substantially as shown and described.

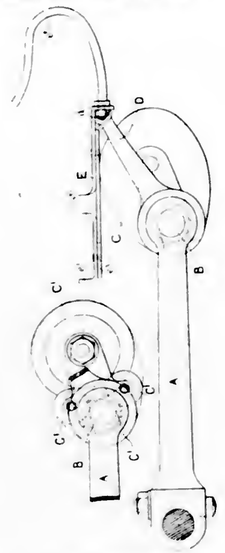
642,873. BROOM. WESLEY S. PALMER, Canton, Ohio. Filed June 2, 1899. Serial No. 719,088. (No model.)



Claim.—A broom-handle formed in sections each of which is provided with a slot having a wedge-shaped projection 8 therein, said sections being connected by a spring-plate secured within said slots and provided with recesses or notches 7 that engage the projections 8, all arranged substantially as specified.

642,874. PEDAL-CRANK DRIVING-GEAR FOR VELOCIPEDES. JOSEPH R. PARK, Norwich, England. Filed Aug. 8, 1899. Serial No. 726,607. (No model.)

Claim.—The combination, with a crank-arm provided with a laterally-projecting pin at its free end, of a cam secured to the crank-arm eccentric of the said pin, a link journaled on the said pin, and a pedal-plate pivoted to the free end portion of the said link and bearing on the said cam, substantially as set forth.



642,875. CLAMP FOR SHOW-CASES. LEONARD PAULLE, Minneapolis, Minn. Filed Mar. 6, 1899. Serial No. 707,847. (No model.)

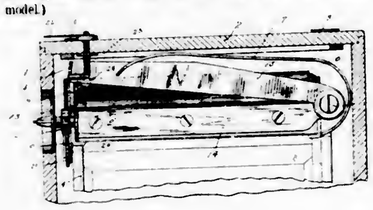


Claim.—1. As a new article of manufacture, a show-case clamp, comprising a shank to pass through a hole in the plate forming a wall of the case and having a head to rest upon the outer surface of said plate, a yoke or fork portion to clasp and clamp the edge of the abutting plate, said shank being connected to said yoke portion but terminating at the junction of its sides whereby a clear space is left between said sides for the edge of the glass, substantially as described.

2. As a new article of manufacture, a show-case clamp, comprising a shank to pass through a hole in the vertical or horizontal walls of the case and having a head at its outer end, a yoke or fork integrally formed with said shank at its inner end to embrace the edge of the abutting plate, the space or recess between the sides of the yoke being unobstructed to permit the edge of the glass to bear upon the end of the yoke, whereby the horizontal and vertical walls of the case will be held closely together, substantially as described.

3. In a show-case, the combination, with a plate forming a wall of the case and having a hole near its edge, of a molding having a groove or rabbet to receive the edge of said plate and a hole or recess to register with the hole in said plate, a plug fitting within the hole in said plate and said molding, and a screw having a head to conceal the end of said plug and a shank to extend into the same, substantially as described.

642,876. PHOTOGRAPHIC-ROLL HOLDER. ORLANDO H. PECK, Minneapolis, Minn. Filed Mar. 21, 1899. Serial No. 709,886. (No model.)



Claim.—1. The combination with a film feeding roller having a driven gear or pinion, of an intermediate segmental gear intermittently engageable with said driven gear, and provided with a laterally-offset supplemental segment, and a driving gear or pinion, mounted for engagement with the said segmental gear and its supplemental segment, substantially as described.

2. The combination with film-feeding mechanism and a film-sectioning device arranged to operate on the film, of a trip acting upon said sectioning device, said trip having a retaining-surface, a releasing notch or depression and a restoring-cam, substantially as described.

3. The combination with film-feeding mechanism and a knife or cutter under spring tension to cut, of a knife-trip operated by said feeding mechanism, said trip having a retaining-surface for holding said knife retracted, having further a releasing notch or depression for actuating said knife, and having also a restoring-cam extending from the bottom of said notch or depression outward to said retaining-surface, substantially as described.

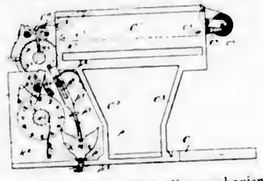
4. The combination with a film-sectioning device, of the retaining-disk 20 provided with the depression 21, and the cam-surface 22 having the jog or offset 22', the said parts operating substantially as and for the purposes set forth.

5. The combination with film-feeding rollers or devices, and a film-sectioning device operating on the film at intervals, of driving mechanism operating on said rollers and said sectioning device and arranged by a continuous movement to operate said sectioning device while said feed-rollers stand idle, substantially as described.

6. The combination with a knife or cutter under spring tension to cut, of a film-feeding roller having a driven pinion or gear, a segmental gear intermittently engaging with said driven gear, and a knife-trip moved by said segmental gear and operating to hold said knife inactive while said feed-roller is moving, and to trip the said knife while the said roller is idle, substantially as described.

7. The combination with film-feeding mechanism and a film-sectioning device, for operation on said film at intervals, of tripping and restoring mechanism for said sectioning device operated by said film-feeding mechanism, and a stop movable to intercept the movement of the sectioning device when released, substantially as described.

642,877. CAMERA. ORLANDO H. PECK and CHARLES L. ANDERSON, Minneapolis, Minn.; said Anderson assignor to said Peck. Filed June 9, 1898. Renewed Sept. 18, 1899. Serial No. 730,950. (No model.)



Claim.—1. The combination with feeding mechanism, of a cutter under spring tension to act and cut off the film, and a trip normally holding said cutter retracted and inactive against the strain of its spring device, which trip is arranged itself to be actuated by said feeding mechanism, and when actuated to release said cutter and permit the same to cut the film under the action of its spring device, substantially as described.

2. In a camera, the combination with a pair of rollers, between which the film is passed, of a knife or blade under spring tension to cut off said film, a notched or slotted disk for holding said knife inactive and releasing the same, and connections for operating said disk from one of said rollers, substantially as described.

3. In a camera, the combination with film-feeding mechanism, of a knife or film-cutter under spring tension to act, a finger-piece for setting said cutter in an inoperative position, and a trip operated by said feeding mechanism for releasing said cutter, when the proper section of film has been fed, substantially as described.

4. In a camera, the combination with the film feeding mechanism, the shutter and its actuating device, of the indicator-pendulum p p^1, a projection from the shutter-actuating device engageable with said part p^2, the longitudinally-movable restoring-plunger p^3 operating on said pendulum, and a rotary part p^5 provided with the projection p^4 operating on said plunger, substantially as described.

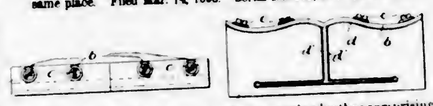
5. In a camera, the combination with film-feeding mechanism, of a knife or cutter under spring tension to act, and a trip for holding said cutter inoperative, itself actuated from said feeding mechanism and operating to lock the said feeding mechanism at intervals of movement which give the desired length to the film-sections, substantially as described.

6. In a camera, the combination with film-feeding mechanism, of a knife under spring tension to act, a finger-operated knife-setting device for setting said knife in position for action, and a trip actuated from said feed mechanism, and itself operating, first to release said setting device and retain said knife and later release said knife, substantially as described.

7. In a camera, the combination with film-feeding mechanism, of a film-cutter, and means actuated by said film-feeding mechanism at intervals of movement which give the desired length of film-section, which means operates primarily to lock said feeding mechanism, and, secondarily, to render said cutter operative, substantially as described.

8. In a camera, the combination with film-feeding mechanism, of a cutter under spring tension to act, a rotary and radially slotted part driven from said feeding mechanism and normally holding said knife inoperative, the arrangement being such that when said radial slot is brought into alinement with said cutter the said feeding mechanism will be locked and said knife released, substantially as and for the purposes set forth.

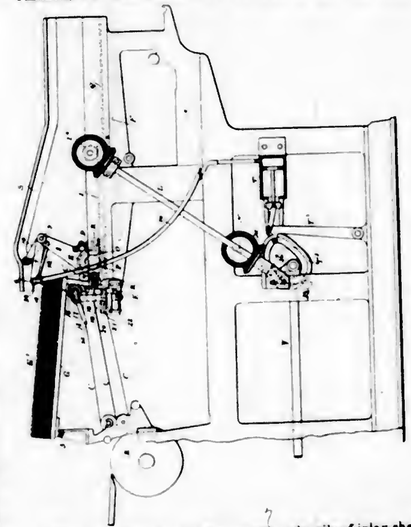
642,878. DIE FOR CUTTING AND ORNAMENTING LEATHER. JOHN G. SCHNEIDER, Boston, Mass., assignor of one-half to David Abrams, same place. Filed Mar. 14, 1898. Serial No. 673,723. (Model.)



Claim.—1. A die for cutting and ornamenting leather comprising a die-plate grooved or recessed on its face, one or more creasing-blades consisting of metal strips fixed in said grooves or recesses and having blunt lower edges projecting beyond the face of the die-plate and a cutting-blade or knife attached to the die in proximity to said creasing-blades, whereby the die acts to simultaneously cut and crease the leather.

2. An apparatus of the character described, comprising a plate formed with a guide adapted to receive a leather blank, and a second plate hinged to the first plate and carrying a die adapted to simultaneously cut and crease the leather blank, substantially as described.

642,879. INLAY-SHEET-SUPPLYING DEVICE. WALTER SCOTT, Plainfield, N. J. Filed June 27, 1899. Serial No. 721,996. (No model.)



Claim.—1. A pivoted table for receiving the pile of inlay-sheets, means for raising the ends of such table gradually as the sheets are taken off, in combination with suction-nipples, a carriage, a shaft and arms for supporting the suction-nipples, means for moving the carriage along gradually and for carrying the printed sheet therewith, and means for swinging the arms to lower the inlay-sheet and deliver the same simultaneously upon the top of the printed sheet, substantially as set forth.

2. The combination in a printing-press with the mechanism for delivering the printed sheet, of a carriage, means for moving the same longitudinally, grippers for receiving the sheet and by which the sheets are taken successively from the delivery mechanism and laid in a pile, a table for receiving the sheets and the inlay-sheets and a mechanism connected to and moving with the carriage for drawing the top sheet off the pile of inlay-sheets simultaneously with the movement of the mechanism that delivers the printed sheet, substantially as set forth.

3. The combination with the sheet-delivery mechanism in a press, of a carriage, gearing upon the carriage, a stationary rack and a moving rack engaging such gearing, mechanism for reciprocating the rack and grippers for seizing the printed sheet and drawing the same along, a table for holding a pile of inlay-sheets and mechanism connected to and moving with the carriage for seizing the top sheet in the pile of inlay-sheets and drawing the same off simultaneously with the movement of the carriage that delivers the printed sheets, substantially as set forth.

4. The combination in a printing-press with the means for delivering the printed sheet, of a carriage and grippers, mechanism for reciprocating the same, a table for carrying a pile of inlay-sheets, a rack and pinion for raising the table and pile of sheets at one end and adjustable mechanism for varying the action of the table-raising mechanism according to the thickness of the sheets and mechanism for grasping the top sheet of the pile and conveying the same away simultaneously with the movement of the printed sheet, substantially as set forth.

5. The combination in a printing-press with the reciprocating sheet-delivery mechanism for the printed sheets, and a receiving-table below the same, means for sustaining a pile of sheets and an automatic sheet-delivery mechanism for removing the upper inlay-sheet, lowering and laying it upon the printed sheet simultaneously with the delivery of said printed sheet, substantially as set forth.

6. The combination in a printing-machine, of a table to support inlay-sheets, a table to receive the inlay and printed sheets, a reciprocating carriage and means for delivering the printed sheet, and means for seizing, lowering and delivering the inlay-sheet simultaneously with the printed sheet, substantially as set forth.

7. In a printing-machine having an impression-cylinder and delivery-tapes to deliver the sheets from the impression cylinder, a reciprocating sheet-carrier, a table for receiving the inlay-sheet above the feeding-tapes with its front edge above the place where the sheets are fed to the carrier, a sheet-seizing device and means for moving the same to carry the sheet to the place of delivery, and means for seizing the inlay-sheet at the pile and delivering it on the receiving-table, substantially as set forth.

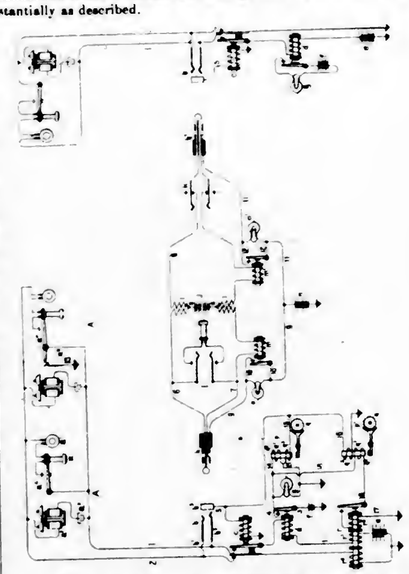
8. The combination in a sheet-delivery apparatus, of belts and grippers for seizing the printed sheet, means for moving the grippers and carrying the sheet to the place of delivery, a table for receiving and supporting the inlay-sheets, means for gripping and moving the top sheet in the pile of inlay-sheets and for delivering the same simultaneously and upon the printed sheet, substantially as set forth.

642,880. CONNECTION-REGISTER FOR TELEPHONE-LINES. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Feb. 14, 1898. Serial No. 670,273. (No model.)

Claim.—1. The combination with a telephone-line having two stations, with a telephone and telephone-switch at each station and a source of current in the line, of a magnet having two windings, said windings being located differentially in the two conductors of the line, an armature for the magnet and switch-contacts thereof, a connection-counter for the line, and a local circuit including an actuating-magnet of the counter controlled by said switch-contacts, and a switch-contact of the telephone-switch at one of the stations and circuit connections therefor adapted to render one of said differential windings inoperative; whereby said counter is actuated only in consequence of the use of one of the telephones, as described.

2. The combination with a telephone-line having two stations, each provided with a telephone and a telephone-switch, of a relay having two windings, said windings being placed differentially in the line-circuit, together with a source of current, a connection-counter for the line, and a local circuit including an actuating-magnet of the counter controlled by the switch-contacts of said relay, a winding of the relay connected with said local circuit, and a switch-contact for the telephone-switch at one of the stations and circuit connections thereof adapted to short-circuit one of said differential windings; whereby connections originated at one station only are recorded.

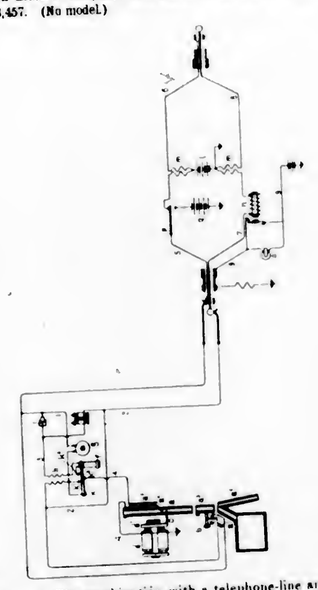
3. The combination with a telephone-line having two stations with a telephone and telephone-switch at each station, of a relay-magnet with differential windings, said windings being in the different line conductors of the line together with a source of current, a connection-counter for the line, a local circuit including an actuating-magnet of the counter controlled by the contacts of said relay, a winding of the said relay connected with said local circuit and a switch-contact for the telephone-switch at one of the stations adapted to make contact with the switch as the switch moves from one position to the other, and circuit connections therewith adapted to short-circuit one of said differential windings, means for making connection with the line, and a device made operative in making such connection to break the current through the said local circuit, substantially as described.



4. The combination with a telephone-line having two stations, each provided with a telephone and telephone-switch, of a relay having differentially-disposed windings included in the different line conductors, respectively, a connection-counter and a local circuit including an actuating-magnet of said counter controlled by the contacts of said differentially-wound relay, a winding of said relay included with a source of current in a circuit also controlled by the switch-contacts of the differentially-wound relay, and a switch-contact at one of the stations for the telephone-switch with circuit connections thereto adapted to short-circuit one of said differential windings; a second relay having a magnet disposed in one or both of the line conductors, a second connection-counter, and a local circuit including said last-mentioned connection-counter controlled by said second-mentioned relay; means for making connection with the line, and a device made operative in such act adapted to break both local circuits; whereby one connection-counter records all connections originated at either station, and the other counter records connections originated at one station only, as described.

5. The combination with a telephone-line, having two stations, with a telephone and telephone-switch at each station, a signal-relay having its magnet together with a source of current in the line, a local circuit controlled by said signal-relay, including a secondary signal; two connection-counters for the line, each having a magnet with two windings, one winding of each counter-controlling magnet being in a branch of the local signal-circuit; means for making connection with the line, a cut-off relay, a local circuit including the magnet of the cut-off relay, and means for closing the said circuit in making connection with the line, the remaining windings of said counter-controlling magnets being connected with said local circuit of the cut-off relay, to receive current when the said circuit is completed; a relay-magnet having differential windings, one included in each of the line conductors, the switch-contacts of the relay being interposed in the branch of the signal-circuit including a winding of one of the counters, a third winding of the relay, and a local circuit including the said winding controlled by the same switch-contacts; and a contact-piece of the telephone-switch at one station, with circuit connections thereto adapted to short-circuit one of said differential windings; whereby answered connections originated at both stations are recorded by one counter, and answered connections originated at one of the stations are recorded by one of said counters, as described.

642,881. TOLL-COLLECTING APPARATUS FOR TELEPHONE PAY-STATIONS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Jan. 26, 1899. Serial No. 703,457. (No model.)



Claim.—1. The combination with a telephone-line and the telephones at the station thereof, of a coin-chute leading to a cash-box, and a manually-operated deflector therein for diverting the deposited coin from the cash-box, a movable stop in the chute and an electro-magnet actuating the stop, and means for controlling the magnet from the central office, a signal-indicating appliance at the central office, a circuit thereof to the station, and a switch associated with the deflector and moved therewith controlling the said circuit; whereby the movement of the deflector is signaled to the supervising operator, as described.

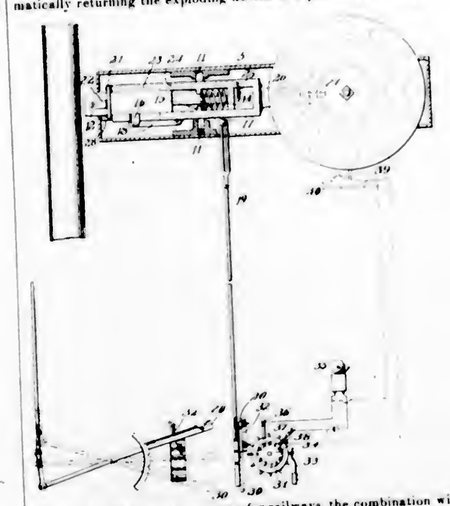
2. The combination with a telephone-line and the telephone instruments at the station thereof, a coin-chute at the substation, and a movable stop therein adapted to arrest the coin, a magnet controlling the stop, and means for exciting the magnet from the central office to release the coin, of a manually-movable deflector in the coin-chute adapted to effect the return of the coin to the user of the telephone, a switch associated with the deflector to be moved therewith, a supervisory signal in the central office, and a circuit including the said signal and controlled by the said switch, as described.

3. The combination with a telephone-line and the telephones at the stations thereof, a source of current and a supervisory signal associated with the line in the central office, and a telephone-switch at the station controlling the circuit of said supervisory signal, to display the signal when the telephone is not in use, of a coin-chute at the substation, and a movable stop therein, a magnet controlling the stop and means for exciting the magnet from the central office, the circuit of said magnet being controlled by the telephone-switch to be closed when the switch supports the telephone, a movable deflector in the coin-chute beneath the said stop adapted to permit the coin to fall into the cash-box or to divert it therefrom to return it to the user, and switch-contacts associated with the deflector to be closed when the said deflector is moved to divert the coin, said switch-contacts controlling a circuit of the line adapted to render the supervisory signal operative, as described.

642,882. DETONATING APPARATUS FOR RAILWAY-TRAINS. CHARLES SELDEN, Baltimore, Md. Filed Mar. 10, 1899. Serial No. 708,488. (No model.)

Claim.—1. In a detonating apparatus, the combination with a magazine or carrier for detonators, of means operated by a passing train for feeding the detonators into position for use and at the same time putting the actuating mechanism therefor out of engagement with the car-wheels.

2. In a detonating apparatus for railways, the combination with a magazine or carrier for detonators, of an exploding device actuated by a passing train, means operated thereby for feeding detonators into position for use and exploding them, and means for automatically returning the exploding device to a position of non-use.



3. In a detonating apparatus for railways, the combination with a detonator-holder, of a lever for exploding a detonator actuated by a car-wheel, and means operated through the actuation of said lever for throwing the latter into a position out of the path of the car-wheels after the detonator has been exploded.

4. In a detonating apparatus for railways, the combination with means for setting it ready for use, of means for resting or tripping the exploding device without firing a detonator.

5. In a detonating apparatus for railways, the combination with an actuating-rod for setting the exploding apparatus, of means operated on a reverse movement of said rod for resting or tripping the exploding device without firing a detonator.

6. In a detonating apparatus for railways, the combination with a magazine or carrier for detonators operated automatically by a passing train for feeding the detonators into position for use, of an actuating-rod for setting the exploder into position for use, and a tripping device also operated by said rod for throwing the exploder into position of non-use without affecting the position of the donator-carrier.

7. In a detonating apparatus for railways, the combination with a rotary detonator-magazine, of an exploding-lever, and a step-by-step mechanism actuated directly by said lever for rotating the magazine.

8. In a detonating apparatus for railways, the combination with a rotary detonator-magazine provided with a step-by-step gear, of a lever pivoted at the side of a track-rail and provided with a pawl for engaging with said gear, and means for putting said lever into position to be operated by a passing car-wheel.

9. In a detonating apparatus for railways, a telescoping exploding-lever so located by a track-rail that when extended it will be operated by a passing car-wheel.

10. In a detonating apparatus for railways, a telescoping exploding-lever, in combination with means for extending it into the path of a car-wheel, and means for automatically causing the extended portion of said lever to retract when depressed by the car-wheel.

11. In a detonating apparatus for railways, the combination with a detonator-magazine and the exploding device, of means for setting said device in position for use and for tripping it when desired, and an indicator actuated by said setting and tripping means to show the number of detonators in the magazine.

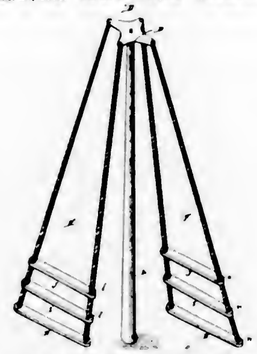
12. In a detonating apparatus for railways, the combination with a detonator magazine, of an exploding device actuated by a passing train, and adapted to automatically feed the detonators into position for use, and an indicator at the signal tower or station for showing when the magazine is empty.

13. In a detonating apparatus for railways, the combination with a detonator-magazine and a step-by-step mechanism actuated by the car-wheel for operating said magazine, of means for automatically withdrawing the said mechanism from position for action when depressed by the car-wheel.

14. In a detonating apparatus, the combination with a magazine or carrier for detonators of an exploding-lever actuated by a car-wheel and provided with means for positively feeding the detonator-carrier.

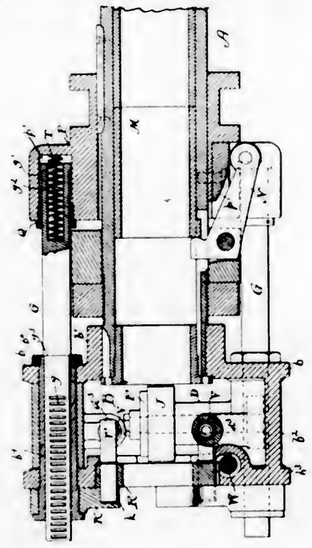
15. In a detonating apparatus, the combination with a detonator-carrier, of a lever operable by a passing train for feeding the detonators into position for use and for exploding them, and means for putting said lever out of the path of the train after each actuation thereof.

642,883. ROTARY SWING. CORNELIA SEOANE, Merrifield, Va. Filed Dec. 24, 1898. Serial No. 700,203. (No model.)



Claim.—In a revolving swing, the pole A supported in an upright position, and the cap B having the bolt C rising from the center thereof, said cap fitting onto the upper end of said pole and being provided with a ball-bearing seat *a* formed in the upper surface around said bolt; in combination with the supporting frame D provided with an aperture *b* adapted to fit over said bolt and having perforated arms *e*, *f* extending in opposite directions from the center, said plate being grooved at *g* to register with the ball-bearing seat *a*, the balls *h* arranged to fit within said seat and adapted to support said frame, the nut *m* on the upper end of said bolt above the frame, the ropes E, F secured at their upper ends to said arms *e* and *f*, and the cross-bars H, I, J of different lengths connecting the lower ends of said ropes at different heights and adapted to form seats, substantially as described.

642,884. ROLLER-FEED FOR SCREW-MACHINES. AMBROSE SWASEY and HENRY M. LUCAS, Cleveland, Ohio, assignors to Warner & Swasey, same place. Filed Aug. 18, 1899. Serial No. 727,629. (No model.)



Claim.—1. In a lathe in combination, the tubular live-spindle, a head thereon, two swinging frames hung in said head on axes which are parallel with the axis of the spindle, but are on opposite sides thereof, means for adjusting said frames about their axes, feed-roll shafts mounted in said swinging frames at right angles substantially to said axes, feed-rolls operatively connecting with the inner end of said shafts, a sliding sleeve upon the spindle, operative mechanism intermediate of the sliding sleeve and feed-roll shafts for transforming the rectilinear motion of the former into rotary movements of the latter, and ratchet devices which form parts of said intermediate mechanism whereby the feed-rolls are rotated only when the sleeve moves in one direction, substantially as and for the purpose specified.

2. In a lathe in combination, the tubular live-spindle, a head thereon, two swinging frames hung in said head on axes which are parallel with the axis of the spindle, but are on opposite sides thereof, means for adjusting said frames about their axes, feed-roll shafts mounted in said swinging frames at right angles substantially to said axes, feed-rolls operatively connecting with the inner end of said shafts, pinions secured to said shafts, and sliding sleeve, and rack-bars connecting with said sleeve and engaging with said pinions, substantially as and for the purpose specified.

3. In a lathe in combination, the tubular live-spindle, a head thereon, two swinging frames hung in said head on axes which are parallel with the axis of the spindle, but are on opposite sides thereof, means for adjusting said frames about their axes, feed-roll shafts mounted on said swinging frames at right angles substantially to said axes, feed-rolls operatively connecting with the inner end of said shafts, pinions secured to the outer end of said shafts, a sliding sleeve, rack-bars engaging with said pinions, and shoulders on the rack-bars and sleeve which are arranged to permit an independent movement of the sleeve in either direction and to then engage with each other to compel the rack-bars to move with the sleeve, substantially as and for the purpose specified.

4. In a lathe, in combination, the tubular live-spindle, a head thereon, two swinging frames hung in said head on axes which are parallel with the axis of the spindle but are on opposite sides thereof, means for adjusting said frames about their axes, feed-roll shafts mounted on said swinging frames at right angles substantially to said axes, feed-rolls operatively connecting with the inner end of said shafts, pinions secured to the outer ends of said shafts, a sliding sleeve having sockets parallel with the axis of the spindle, rack-bars which engage with said pinions and enter said sockets, springs in said sockets, and flanges at each of the rack-bars in the said sockets, and a sleeve which embraces each rack-bar and screws into its socket, substantially as and for the purpose specified.

5. In a lathe, the combination of a tubular live-spindle, a head thereon, tubular bolts secured in said head parallel with its axis, said bolts having each a longitudinal slot, swinging frames mounted upon said bolts, feed-roll shafts mounted in said swinging frames, pinions secured to the outer ends of said shafts and passing into the slot in said tubular bolts, feed-rolls operatively connected with the inner ends of said shafts, a sliding sleeve, and rack-bars which move through said tubular bolts in engagement with the pinions and are operatively connected in said sliding sleeve, substantially as and for the purpose specified.

6. In a lathe, in combination, a tubular live-spindle, a head thereon, swinging frames mounted in said head, feed-rolls mounted on said swinging frames, mechanism for turning said feed-rolls, and means for simultaneously moving said swinging frames upon their pivots whereby the feed-rolls are simultaneously moved toward or from the axis of the head, substantially as and for the purpose specified.

7. In a lathe, in combination, a tubular live-spindle, a head thereon, swinging frames mounted in said head on axes which are parallel with the axis of the spindle, feed-rolls mounted on said swinging frames, mechanism for turning said feed-rolls, centering-arms pivoted to said head on axes which are parallel with the axis of the spindle, and means for simultaneously adjusting all of said centering-arms and swinging frames upon their axes toward and from the axis of the spindle, substantially as and for the purpose specified.

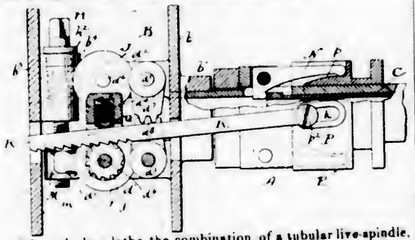
8. In a lathe, the combination, of the tubular live-spindle, a head thereon, two swinging frames hung in said head on axes which are parallel with the axis of the spindle which swinging frames are adapted to support the feed-roll shafts, a disk axially mounted on the head having forwardly-projecting pins, a shoulder on each of said swinging frames engaging with one side of one pin, and a spring buffer-block mounted in each of said swinging frames for engagemen. with the other side of its said pin, substantially as and for the purpose specified.

9. In a lathe, the combination of the tubular live-spindle, a head thereon, swinging frames hung in said head on axes which are parallel with the axis of the spindle, which frames have one arm in which is the bearing for the feed-roll shaft and another arm d^2 and have

between said arms a slotted web, a spring buffer-block mounted in last-named arm of said swinging frame, a disk axially mounted on the head and having pins which project forward in the slots in the webs of said swinging frames, and into engagement with said buffer-block, substantially as and for the purpose specified.

10. In a lathe, in combination, the tubular live-spindle, a head secured thereon, swinging frames hung in said head, means for adjusting said frames about their axes, feed-roll shafts mounted in said frames, means for rotating said shafts, feed-rolls loosely mounted on said shafts, a ratchet and pawl carried by each of said feed-rolls and feed-roll shafts respectively, substantially as and for the purpose specified.

642,885. ROLLER-FEED FOR SCREW-MACHINES. AMBROSE SWASEY, Cleveland, Ohio, assignor to Warner & Swasey, same place. Filed Aug. 18, 1899. Serial No. 727,659. (No model.)



Claim.—1. In a lathe, the combination, of a tubular live-spindle, a head thereon, and feed-rolls mounted in said head on opposite sides of its axis for engaging with the stock passing through the head and spindle, with pinions operatively connected with said feed-rolls, and rack-bars engaging with said pinions, substantially as and for the purpose specified.

2. In a lathe, the combination of the tubular live-spindle, a head thereon, swinging frames hung in said head on opposite sides of its axis, and means for adjusting said frames to move the feed-rolls toward or from the axis of the spindle, with feed-rolls mounted in said swinging frames, pinions operatively connected with said feed-rolls, and rack-bars engaging with said pinions, substantially as and for the purpose specified.

3. In a lathe, the combination of a tubular live-spindle having a head fast on its rear end, swinging frames hung in said head on opposite sides of the axis, feed-rolls mounted in said head, and pinions operatively connected with said feed-rolls, with a sliding sleeve on the spindle, and rack-bars connected therewith and engaging with said pinions, substantially as and for the purpose specified.

4. In a lathe, the combination of a tubular live-spindle having a head on its rear end, swinging frames hung in said head on opposite sides of the axis, feed-rolls mounted in said frames, and pinions operatively connected with said feed-rolls, with a sliding sleeve on the spindle, and rack-bars engaging with said pinions and having a sliding connection with the sleeve whereby said sleeve is permitted to move a short distance before it moves the rack-bars, substantially as and for the purpose specified.

5. In a lathe, the combination of a tubular live-spindle having a head on its rear end, swinging frames hung in said head on opposite sides of the axis, feed-rolls mounted in said frame, and pinions operatively connected with said feed-rolls, with a sliding sleeve on the spindle, and rack-bars connected therewith and engaging with said pinions, a ratchet device in the chain of mechanisms between the rack-bars and feed-rolls whereby the movement of the rack-bars in one direction causes the feed-rolls to rotate, but their movement in the opposite direction does not cause said feed-rolls to rotate, substantially as and for the purpose specified.

6. The combination of a tubular live-spindle, having a head on its rear end, and two swinging frames hung in said head on opposite sides of the axis thereof and on axes which are at right angles to its axis, feed-rolls mounted respectively in said swinging frames, and means for rotating said feed-rolls, and mechanism for moving said frames simultaneously and equally upon their pivots in opposite directions toward and from the axis of the spindle, substantially as and for the purpose specified.

7. The combination of a tubular live-spindle, having a head on its rear end, two swinging frames hung in said head on opposite sides of its axis, gear-segments secured respectively to said swinging frames and engaging with each other, means for swinging one of said frames upon its axis, whereby both frames are caused to move simultaneously in opposite directions toward and from the axis of the spindle, feed rolls mounted on said swinging frames, and means for rotating said feed-rolls, substantially as and for the purpose specified.

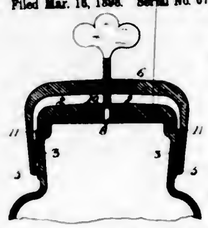
8. The combination of a live-spindle having a head on its rear end, two swinging frames hung in said head on opposite sides of the axis thereof, feed-rolls mounted in said swinging frames, gear-segments secured to said swinging frames respectively and engaging with each other, an arm secured to one of said swinging frames, an adjusting-screw mounted in the head, a screw-sleeve with which said adjusting-screw engages, and an arm on one of said swinging frames engaging with said screw-sleeve, substantially as and for the purpose specified.

9. The combination of a tubular live-spindle, having a head on its rear end, two swinging frames hung in said head on opposite sides of its axis, feed-rolls mounted in said swinging frames, gear-segments secured respectively to said swinging frames and meshing with each other, with an adjusting-screw passing through a spring-box, a spring acting to move the screw in one direction, stops limiting the movement thereof in said direction, a screw-collar through which said screw passes, and an arm on one of the swinging frames which engages with said screw-collar, substantially as and for the purpose specified.

10. The combination of the tubular live-spindle, a head thereon, two swinging frames mounted in said head on opposite sides of its axis, feed-rolls mounted in said swinging frames, ratchet-pinions operatively connected with said feed-rolls, a sliding sleeve, ratchet rack-bars connected with said sleeve, and springs for yieldingly holding said ratchet rack-bars in engagement with said ratchet-pinions, substantially as and for the purpose specified.

11. The tubular live-spindle, a head thereon, two swinging frames mounted in said head, each having two arms, feed-rolls mounted in said arms, ratchet-pinions connected with said feed-rolls, a sliding sleeve, ratchet rack-bars connected therewith and engaging with said ratchet-pinions, plungers movable in sockets in one arm of each engaging frame and engaging with the corresponding rack-bar, and springs operating said plungers, substantially as and for the purpose specified.

642,886. FRUIT-JAR-COVER FASTENING. LUCIAN G. THORP, Akron, Ohio. Filed Mar. 16, 1898. Serial No. 674,011. (No model.)



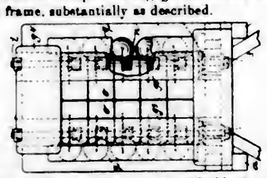
Claim.—1. The combination with a jar having a downwardly-tapering neck and of a cover, of a hoop adapted to inclose the smaller portion of said neck and to compress the larger portion; having short longitudinal cuts on opposite sides, and having the metal above the cuts pressed outward to form pockets for the clamp-hooks, and a clamp adapted to pass over the jar-top, having hooks to engage the side pockets of the hoop; and a central screw-threaded opening, and a screw to fit said opening and press down the jar-top, substantially as shown and described.

2. The combination with the jar having the downward-tapering neck; the hoop adapted to compress the larger portion of the neck and having side pockets; and the clamp having hooks to engage the pockets, and a screw-threaded central opening, and a screw fitted to turn in said opening, of a cover to fit said jar, having a central opening with a recess about it to receive a packing-disk to be compressed by said screw, substantially as shown and described.

3. The combination with the jar, the hoop adapted to encircle and compress the jar-neck and provided with detachable fastenings at its ends; and means for engaging the ends of a clamp; of a cover to fit said jar; an orifice in the cover; a recess about said orifice to receive a packing-disk; a packing-disk to fit said recess; and a clamp having its ends adapted to engage the hook, and having a central screw-threaded opening; and a screw fitted to turn in said opening and arranged to compress the packing-disk, substantially as shown and for the purpose specified.

642,887. TARGET. JOHN USTER, Paterson, N. J. Filed July 15, 1899. Serial No. 723,881. (No model.)

Claim.—1. In a target, the combination of a suitable frame including spaced horizontal and vertical plates together forming an opening, shafts supported in said frame back of said vertical plates, paddles pivotally mounted on said shafts, normally closing said opening and movable out of opposition thereto, levers fulcrumed on said shafts and having projections extending from their fulcrumed ends and adapted to bear against the backs of said paddles, indicating devices carried by said levers, and a resetting mechanism for said levers and the paddles consisting of a suitably-guided frame, standards carried by said frame and adapted to engage said levers, and means for actuating said frame, substantially as described.

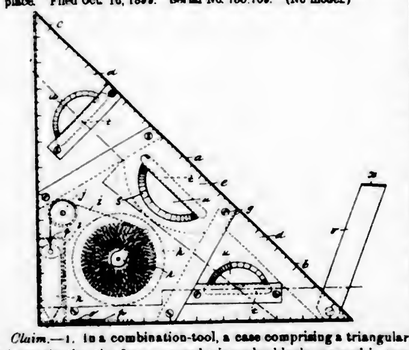


2. In a target, the combination of a suitable frame including spaced horizontal and vertical plates together forming an opening, shafts supported in said frame back of said vertical plates, paddles pivotally mounted on said shafts, normally closing said opening and movable out of opposition thereto, levers fulcrumed on said shafts and having projections extending from their fulcrumed ends and adapted to bear against the backs of said paddles, indicating devices carried by said levers, and a resetting mechanism for said levers and the paddles consisting of a suitably-guided spring-returned frame, standards carried by said frame and adapted to engage said levers, and a flexible operating device connected to said frame, substantially as described.

3. In a target, the combination, with a suitable frame including spaced horizontal and vertical plates together forming an opening, parallel rails supporting said plates and a base sustaining said rails, of vertical shafts removably mounted in said rails back of said plates, removable collars adjustably mounted on said shafts, paddles pivotally mounted on said shafts and having recesses receiving said collars, said paddles normally closing said opening and movable out of opposition thereto, levers fulcrumed on said shafts and having projections extending from their fulcrumed ends and adapted to bear against the backs of said paddles, said levers being fulcrumed within the recesses of the latter and each above a collar, indicating devices carried by said levers, a resetting mechanism for said levers and the paddles consisting of a suitably-guided spring-returned frame, standards carried by said frame and adapted to engage said levers, and a flexible operating device connected to said frame, a removable plate mounted on said rails back of said first-named plates and the opening formed thereby, hinges mounted upon the upper ends of said first-named plates and engaging said shafts, and padded bars pivotally connected to said last-named plate and also engaging said shafts at their upper ends, substantially as described.

4. In a target, the combination of a suitably-supported shaft, collars mounted on said shaft, paddles fulcrumed on said shafts and provided with recesses receiving said collars, a lever fulcrumed on said shaft in the recess of each paddle and above the corresponding collar, each lever carrying an indicating device, and a friction-washer disposed between each lever and the subjacent collar, substantially as described.

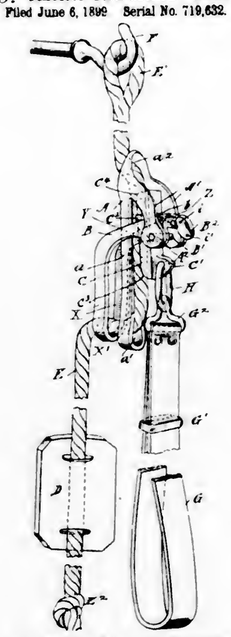
642,888. COMBINATION-TOOL. ARIE VAN VLIET, Paterson, N. J., assignor of one-half to Abraham Peters and John Peter Peters, same place. Filed Oct. 16, 1899. Serial No. 733,709. (No model.)



Claim.—1. In a combination-tool, a case comprising a triangular band constituting the frame, spaced triangular blocks secured in two of the angles of said frame, and a pair of plates spanning said blocks and forming therewith and with the frame a compartment, substantially as described.

2. In a combination-tool, a case comprising a triangular band constituting the frame, spaced triangular blocks secured in two of the angles of said said frame, and a pair of plates spanning said blocks and forming therewith and with the frame a compartment, and instruments of measurement and precision arranged in said case, substantially as described.

642,889. FRICTION FIRE-ESCAPE. HIRAM K. WHITNER, Chicago, Ill. Filed June 6, 1899. Serial No. 719,632. (No model.)



Claim.—1. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-lever having a rope-bearing free end X', and a spur adapted to engage with said rope, a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, substantially as and for the purpose set forth.

2. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-lever having a supplemental spur and a bent loog arm provided with a rope-bearing free end X' adapted to engage with said rope, a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, and a brake-shoe adapted to engage with said supplemented spur, substantially as and for the purpose set forth.

3. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-lever having a spur provided with a thumb-screw adapted to engage with a brake-shoe and having a long arm provided with a free end X' adapted to engage with said rope, and a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, a thumb-screw B^4, and a brake-shoe C, substantially as and for the purpose set forth.

4. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-shoe having stop c^4 adapted to engage with a brake-lever and means whereby a person may be suspended from said brake-shoe, a brake-lever adapted to engage with said brake-shoe and provided with a free end X' adapted to engage with said rope, and a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, substantially as and for the purpose set forth.

5. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of the building, of a brake-lever B having section Y adapted to engage with brake-shoe C, a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, and a brake-shoe provided with stop C^3 and means whereby a person may be sus-

pended from said brake-shoe C, substantially as and for the purpose set forth.

6. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-lever B having a spur Z adapted to engage with a thumb-screw B^2 and provided with a free end Y' adapted to engage with said rope, and a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, a thumb-screw B^2 having a shank *b* and a brake-shoe C, substantially as and for the purpose set forth.

7. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a brake-shoe C having a stop-c^2 adapted to engage with brake-lever B and provided with piercing C adapted to engage with sling G, a base-piece adapted to engage pivotally with said brake-lever and provided with piercings adapted to engage with said rope, a brake-lever B, and a sling G, and means whereby said sling may be secured to said brake-shoe C, substantially as and for the purpose set forth.

8. In a friction fire-escape, the combination, with a rope adapted to be placed pendent upon the outside of a building, of a base piece A having projections A' and provided with piercings a' and a^2 adapted to engage with said rope, and a brake-lever adapted to engage pivotally with said base-piece and provided with spur Z, and a brake-shoe C, substantially as and for the purpose set forth.

9. In a friction fire-escape, the combination, of a rope E having a dead-eye E' and enlargement E^2, a buffer D having piercings adapted to engage with said rope, a brake-lever having a free end X' adapted to engage with said buffer, and a base-piece adapted to engage, pivotally with said brake-lever and provided with piercings adapted to engage with said rope, substantially as and for the purpose set forth.

10. In a friction fire-escape, the combination, a rope E having dead-eye E' and enlargement E^2, a buffer D having piercings adapted to engage with said rope, a brake-lever having a free end X' adapted to engage with said buffer and provided with spur Z, a thumb-screw B^2 adapted to engage with said spur Z, and with brake-shoe C, a base-piece A having projections A' adapted to engage pivotally with said brake-lever and provided with piercings a' and a^2 adapted to engage with said rope, and a brake-shoe C having stop-c^2 adapted to engage with the horizontal section Y of said brake-lever and provided with piercing C, a sling G, adapted to engage with said piercing C, substantially as and for the purpose set forth.

642,890. LOCKING-QUOIN FOR PRINTERS' GALLEYS. GEO. ASSENHACHER, New York, N. Y. Filed Aug. 16, 1899. Serial No. 727,371. (No model.)



Claim.—1. The herein-described device, comprising two oblong blocks which are placed side by side, and the adjacent faces of which are inclined from end to end, and the opposite faces parallel, the inclined faces being provided with separate spaces parallel with the parallel sides, substantially as shown and described.

2. The herein-described device, comprising two oblong blocks which are placed side by side, and the adjacent faces of which are inclined from end to end, and the opposite faces parallel, the inclined faces being provided with separate spaces parallel with the parallel sides, and connected by sliding inclined shoulders, substantially as shown and described.

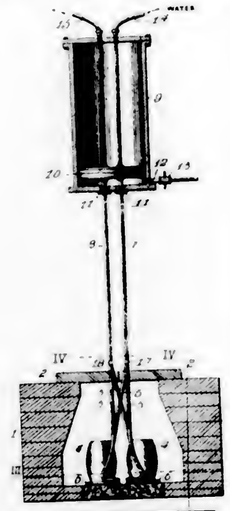
3. The herein-described device, comprising two oblong blocks which are placed side by side, and the adjacent faces of which are inclined from end to end, and the opposite faces parallel, the inclined faces being provided with separate spaces parallel with the parallel sides, and connected by inclined shoulders, and means for moving said blocks longitudinally, substantially as shown and described.

4. The herein-described device, comprising two oblong blocks which are placed side by side, and the adjacent faces of which are inclined from end to end, and the opposite faces parallel, the inclined faces being provided with separate spaces parallel with the parallel sides, and connected by inclined shoulders, and means for moving said blocks longitudinally, consisting of cavities or recesses formed in the top faces thereof and adapted to receive the prongs of a key, substantially as shown and described.

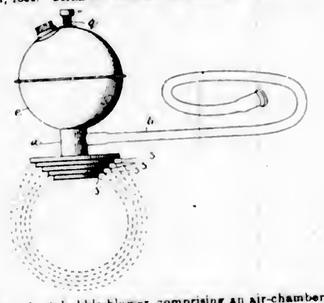
642,891. CRUCIBLE-CARRIER. JAMES P. BAILEY, Pittsburg, Pa. Filed Aug. 26, 1899. Serial No. 728,568. (No model.)

Claim.—1. A crucible-carrier having in combination a loop of pipe, its lower extremity being shaped to form a series of two or more coils which are adapted to receive and carry a crucible in upright position, and its upper extremities connected one with a liquid-supply and the other with a discharge, substantially as set forth.

2. A crucible-carrier formed of a loop of pipe, its lower extremity being shaped into a coil adapted to receive a carrier and crucible in upright position, and its upper extremities being connected one with a liquid-supply and the other with a discharge, substantially as set forth



642,892. SOAP-BUBBLE BLOWER. SAMUEL B. BLISS, Boston, Mass., assignor of one-half to Charles E. Woodruff, Joliet, Ill. Filed Aug. 17, 1899. Serial No. 727,515. (No model.)



Claim.—1. A bubble-blower comprising an air-chamber having a bubble-outlet and an air-supply tube, a liquid-reservoir having an outlet communicating with the air-chamber, and means for positively forcing liquid through said outlet into the air-chamber said means having provisions for forcing minute charges of liquid into the chamber, substantially as described.

2. A bubble-blower comprising an air-chamber having a bubble-outlet and an air-supply tube, a liquid-reservoir having a pump-barrel the outlet of which communicates with the air-chamber, and a liquid-forcing piston movable in said barrel and having a rod or operating device projecting outside of the reservoir, said piston and rod enabling minute charges of liquid to be supplied to the air-chamber, substantially as described.

3. A bubble-blower comprising an air-chamber having a bubble-outlet and an air-supply tube, and a liquid-reservoir having a force-pump discharging into the air-chamber, said-pump having provisions for forcing minute charges of liquid into the chamber, substantially as described.

4. A bubble-blower comprising an air-chamber having a bubble-outlet and an air-supply tube, a liquid-reservoir having a pump-barrel extending from the reservoir to the chamber and having a flexible diaphragm which is perforated to form an outlet adapted to be opened by pressure within the barrel, to permit the escape of liquid, said outlet being automatically closed by the contraction of the diaphragm after the removal of such pressure to prevent the entrance of air into the barrel, and a piston movable in said barrel and adapted to force liquid through said outlet.

5. A bubble-blower comprising an air-chamber having a bubble-outlet and an air-supply tube, a liquid-reservoir having an outlet communicating with the air-chamber, means for forcing liquid through said outlet into the air-chamber, and a liquid-deflector interposed between the liquid-outlet of the reservoir and the bubble-outlet of the air-chamber, whereby the liquid is distributed in the air-chamber.

6. A bubble-blower having a bubble-emitting outlet, an inner bubble-support surrounding said outlet, an outer bubble-support surrounding the inner support, and means for guiding a bubble from the inner to the outer support, whereby a bubble may be formed on the inner support and then transferred to the outer support, leaving the inner support free for the formation of an inner bubble thereon.

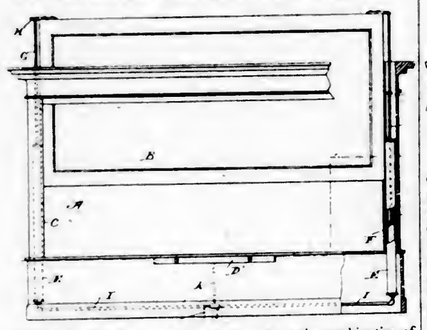
7. A bubble blower having a bubble-emitting outlet and a series of shoulders surrounding said outlet, said shoulders being connected by intermediate bubble-guiding surfaces, whereby a nested series of bubbles may be formed by blowing each bubble through the outlet and transferring all the bubbles excepting the one last formed.

8. A bubble-blower having a bubble-outlet, and a collar surrounding the bubble-outlet, and having provisions for supporting a nested series of bubbles, one of said parts being adjustable relatively to the other, whereby the collar and outlet may be either placed in operative relation to each other to form a nest of bubbles, or separated to prevent the transference of bubbles from the outlet to the collar.

642,893. ALKYLATED RHODAMIN SULFONIC ACID. HERMANN BORDEKER and CARL HOFFMANN, Hochst-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Dec. 29, 1897. Serial No. 664,435. (Specimens.)

Claim.—As new products, the sulfonic acids of the specified alkylated meta-amidophenolphthaleins obtained as herein described, the same being soluble with difficulty in water, more easily soluble in alcohol with a reddish color and strong fluorescence, insoluble in benzene, chloroform, ether and acetic ether, the coloring-matter being completely absorbed by wool in an acid-bath and dyeing with the tint of alkylated meta-amidophenolphthaleins with a vivid fluorescence, substantially as described.

642,894. DISPLAY-CABINET. MELVILLE BUBKER, Davenport, Iowa. Filed Nov. 9, 1898. Serial No. 695,916. (No model.)



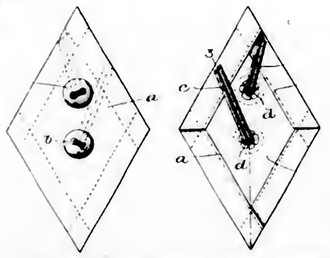
Claim.—1. In a display-cabinet or show-case, the combination of a vertically-slidable door or window, a horizontally-movable shelf, fluid-operated means for operating said door, a controlling-valve for the fluid, and operative connections between the same and said shelf, substantially as described.

2. In a display-cabinet or show-case, the combination of a vertically-sliding door or window, a horizontally-sliding shelf or slide, fluid-cylinders, pistons in said cylinders, and having piston-rods extending without the cylinder and adapted to engage parts carried by said door, fluid-supply pipes connecting with said cylinders, a waste-pipe, a valve controlling the admission of fluid to the cylinders and discharged therefrom through the discharge-pipe, and connections from said valve to said shelf or slide, substantially as described.

3. In a display-cabinet or show-case, the combination of a vertically-sliding door, a horizontally-sliding shelf, fluid-operating means for operating said door, a valve for controlling the supply and discharge of the fluid, and a connection from the slide or shelf to said valve, which is hidden in the cabinet or show-case, substantially as described.

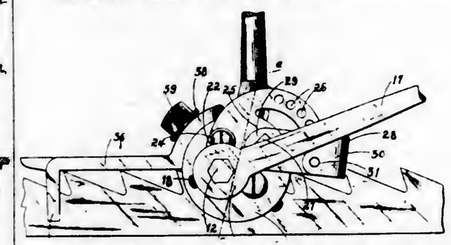
4. In a display-cabinet or show-case, the combination of a vertically-slidable door or window, a slide or shelf, fluid-operating means for opening or closing a door, controlling means for the fluid, and operative connections between said slide and said controlling means, all hidden within the display-cabinet or show-case, substantially as described.

642,895. ATTACHING BUTTONS TO GARMENTS. GEORGE J. BURNS, Ayer, Mass. Filed Dec. 31, 1897. Serial No. 665,074. (No model.)



Claim.—A button-piece for garments comprising the fabric formed with an opening or perforation, a looped cord or tape having its bight projecting through said opening and provided thereat with a button, said cord lying substantially entirely at the back of the fabric, so as to normally draw the button flat against the face thereof, and stitching, passing through the fabric and cord transversely across the ends of the latter, said stitching being applied at a substantial distance from the button, so as to leave a free neck of cord which may be drawn out by pressing back the fabric.

642,896. SAW-SWAGE. DAVID J. CROWELL, Dubois, Pa. Filed June 19, 1897. Serial No. 641,404. (No model.)



Claim.—1. A saw-swage consisting of an anvil-block, a cylindrical flat-ended anvil removably clamped therein, a cylindrical die having a longitudinally-recessed face and having rocking bearing in said anvil-block, an operative handle removably connected with said die, a segmental gage-plate mounted on said anvil-block and provided with an arc series of perforations, a die-operating lever back-stop having rocking bearing on said anvil-block and a spring-pin carried by said back-stop and adapted to engage the perforated gage-plate and lock said back-stop in adjusted position, substantially as and for the purpose set forth.

2. A saw-swage consisting of an anvil-block having a slotted under portion, a cylindrical flat-ended anvil removably clamped in a vertical slot in said block, a supporting-handle, or hand-grasp, mounted on a bearing extending from said block, a cylindrical die having a recessed face and having rocking bearing in said block, an operative lever removably clamped to said die, a back-stop having pivotal bearing on said block and adapted to receive the impact of said die-operating lever in its swaging operation, a spring-pin carried by said back-stop and a perforated gage-plate mounted on said block and adapted to receive said spring-pin for the purpose of locking said back-stop in adjusted position, substantially as set forth.

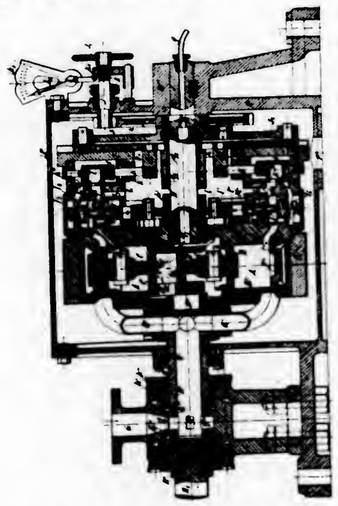
3. A saw-swage consisting of an anvil-block, an anvil seated therein, a die having rocking bearing in said block, a die-actuating lever and a hand-grasp for holding the swage in position, a perforated gage-plate mounted on said block, a back-stop having adjustable bearing on said block, and a spring-pin carried by said stop and adapted to engage with the perforated gage-plate, substantially as and for the purpose set forth.

4. A saw-swage consisting of an anvil-block, a flat-ended anvil removably fastened therein, a die having an eccentric swaging-face and having rocking bearing in said anvil-block, an operating-lever removably connected with said die, a segmental gage-plate mounted on said anvil-block and provided with a series of perforations, a de-

vice for limiting the movement of the die-operating lever and having rocking bearing on said anvil-block and a spring-pin carried by said device and adapted to engage the perforated gage-plate and lock said device in its adjusted position, substantially as and for the purpose set forth.

5. A saw-swage consisting of an anvil-block having a saw-receiving slot, an anvil removably fastened in an aperture in said block, a die having a swaging-face and having rocking bearing in said block, an operating-lever attached to said die, a device for limiting the movement of said lever having pivotal bearing on said block and adapted to receive the impact of said die-operating lever in its swaging operation, a spring-pin carried by said limiting device and a perforated gage-plate mounted on said block and adapted to receive said spring-pin for the purpose of locking said limiting device in adjusted position, substantially as set forth.

642,897. MOTOR. PAUL DANIEL and MAURICK MEUNIER, Paris, France. Filed June 6, 1899. Serial No. 719,537. (No model.)



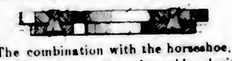
Claim.—1. In a motor, the combination of a plurality of cylinders, a stationary shaft provided with an eccentric, and around which the cylinders are adapted to rotate, pistons working in said cylinders and operated from said eccentric, an admission-chamber for each cylinder, an exhaust-chamber for each cylinder, a slide-valve in the admission-chamber, means for adjusting the position of the slide-valve, an admission-valve for controlling the passage of each cylinder, and a piston influencing the said admission-valve, and provided with suitable operating means, substantially as set forth.

2. In a motor, the combination of a plurality of cylinders, pistons working therein, means, whereby said cylinders are enabled to rotate, admission and exhaust chambers, slide-valves in the admission-chambers, a plate rotating with said cylinders and provided with suitable radial ways, a series of rods extending inwardly from said slide-valves, a suitably-supported adjustable eccentric, a loose collar on the eccentric, rods radiating from said collar, and rods guided in said ways and connecting the aforesaid rods on the valves and collar, substantially as set forth.

3. In a motor, the combination of a plurality of cylinders, pistons working therein, means, whereby said cylinders are enabled to rotate, admission and exhaust chambers, slide-valves in the admission-chambers, an adjustable eccentric, a plate in common with the admission-chambers and rotating with the said cylinders, said plate having radial ways, a series of radial connecting-rods, some of which are connected with said slide-valves, others being guided in said ways, and still others being in operative engagement with said eccentric, substantially as set forth.

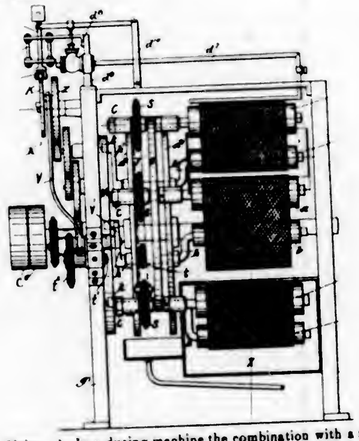
4. In a motor, the combination of a plurality of cylinders, pistons working therein, means, whereby said cylinders are enabled to rotate, admission and exhaust chambers, an exhaust piston and valve in each exhaust-chamber, said valve having frictional connection with said piston, a fixed cam, and devices operated by said cam for operating said exhaust-pistons and thereby said valves, substantially as set forth.

642,898. ELASTIC-TREAD HORSESHOE. WILLIAM H. DENHAM, Philadelphia, Pa. Filed June 3, 1899. Serial No. 719,270. (No model.)



Claim.—The combination with the horseshoe, of the elastic or yielding pad, the rivet having the enlarged head within a corresponding cavity or socket of the pad, and its shank extending through a suitable hole in the shoe and having its projecting end turned over and riveted, and means limiting the protrusion of the rivet toward the animal's hoof when the device is in use, substantially as and for the purpose described.

642,899. APPARATUS FOR MERCERIZING. JULES DOLDER, Grevenbroich, Germany. Filed Mar. 24, 1899. Serial No. 710,283. (No model.)



Claim.—1. In a dyeing-machine the combination with a revolvable frame, of roller-carrying shafts, journaled in said frame, a taut belt or band surrounding and bearing upon said shafts, pulleys carried by said shafts, a pulley journaled independently of said revolvable frame, a belt connecting all of said pulleys, means for operating the last-named pulley, and means for intermittently stopping the rotation of said frame, substantially as described.

2. In a dyeing-machine, the combination with a pair of uprights, of a revoluble frame, a shaft journaled in said uprights and providing a bearing for said frame, stub-shafts journaled in said frame, a taut band surrounding and bearing upon said stub-shafts, pulleys carried on said stub-shafts, a pulley mounted independently of said revoluble frame, a belt connecting all of said pulleys, an operative connection between the drive-shaft and said last-named pulley, bent oscillatory shafts having bearings in said revoluble frame, means for oscillating said bent shafts, an intermittently-acting detent adapted to engage said revoluble frame to stop the rotation thereof, and operative connecting means between the drive-shaft and said detent, substantially as described.

3. In a dyeing-machine, the combination with a pair of uprights, of a revoluble frame, a shaft journaled in said uprights and providing a bearing for said frame, stub-shafts journaled in said frame, a taut band surrounding and bearing upon said stub-shafts, pulleys carried on said stub-shafts, a pulley mounted independently of said revoluble frame, a belt connecting all of said pulleys, an operative connection between the drive-shaft and said last-named pulley, bent oscillatory shafts having bearings in said frame, means for oscillating said bent shafts, a lever fulcrumed in one of said uprights, an intermittently-acting detent carried by said lever and adapted to engage said frame to stop the rotation thereof, a cam-disk journaled in said upright, said lever being adapted to engage the cam on said disk, and an operative connection between said cam and said drive-shaft, substantially as described.

4. In a dyeing-machine, the combination, with a pair of uprights, of a revoluble frame, a drive-shaft journaled in said uprights and providing bearings for said frame, roller-carrying shafts journaled in said frame and adapted to receive the article to be dyed, a suitably-supported receptacle, hoods extending over said receptacle, operatively-connected levers fulcrumed in one of said uprights and carrying said hoods, means for rotating said frame and said roller-carrying shafts, a detent adapted to intermittently engage said frame to stop the rotation thereof, a lever fulcrumed in one of said uprights and carrying the detent, a revoluble disk, operatively connected to said first-named shaft and carrying cams, said disk being journaled in one of the uprights, and an arm projecting from one of said hood-carrying levers and adapted to be engaged by one of the cams, another of said cams being adapted to engage said detent-carrying lever, substantially as described.

5. In a dyeing-machine, the combination, with a pair of uprights, of a revoluble frame, a drive-shaft journaled in said uprights and providing bearings for said frame, roller-carrying shafts journaled in said frame and adapted to receive the article to be dyed, a suitably-supported receptacle, hoods extending over said receptacle, operatively-connected levers fulcrumed in one of said uprights and carrying said hoods, means for rotating said frame and said roller-carrying shafts, a detent adapted to intermittently engage said frame to stop the rotation thereof, a lever fulcrumed in one of said uprights and carrying the detent, a revoluble disk operatively connected to said first-named shaft and having a notch in its periphery and carrying cams, an arm projecting from one of said hood-carrying levers and adapted to be engaged by one of the cams, another of said cams being adapted to engage said detent-carrying lever, a water-supply, a feed-pipe communicating therewith and having its discharge disposed beneath said hoods, a valve controlling said pipe, and an actuating device for said valve operatively connected thereto and wiping on the periphery of said disk, substantially as described.

6. In a dyeing-machine, the combination with a pair of uprights, of a revoluble frame, a shaft journaled in said uprights and providing a bearing for said frame, devices carried by said revoluble frame for supporting the articles to be dyed, a receptacle suitably supported by said uprights, operatively-connected levers journaled in one of said uprights, hoods carried by said levers and disposed over said receptacle, an arm carried by one of said levers, a revoluble disk mounted in one of said uprights and having a cam adapted to engage said arm, and gearing connecting said revoluble disk and said shaft, substantially as described.

7. In a dyeing-machine, the combination with a pair of uprights, of a revoluble frame mounted in said uprights, revoluble shafts mounted in said frame and carrying rollers for the reception of the articles to be dyed, a taut band surrounding and bearing upon said shafts, pulleys carried by said shafts, a pulley mounted independently of said revoluble frame, a belt connecting all of said pulleys, means for actuating the last-named pulley, and a weighted lever fulcrumed in one of said uprights in proximity to said belt and provided with a roller bearing against the same at a point between two of said pulleys, substantially as described.

8. In a machine for dyeing yarn in skeins, the combination, with a pair of uprights, of a revoluble frame journaled in said uprights, spaced roller-carrying shafts mounted in said frame, each pair of said snafts being adapted to receive and maintain taut the skeins, a spring-actuated pair of levers fulcrumed in operative proximity to said frame, and a roller carried by said levers and adapted to bear upon the skeins as the frame revolves, substantially as described.

9. In a dyeing-machine, the combination with a revoluble frame, stub-shafts journaled in said frame, bent shafts also journaled in said frame, said shafts carrying rollers for receiving the articles to be dyed, of a disk supported independently of said revoluble frame and in proximity to one side of the latter, and having a circular slot or groove and also a deflected slot communicating at both ends with said circular slot, said bent shafts having eccentric engagement with said slots, and deflectors carried by said disk controlling the communication between said slots, substantially as described.

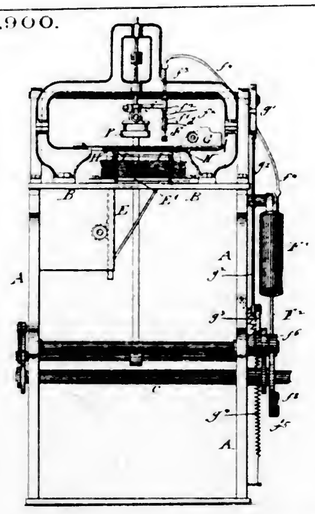
642,900. ENVELOP-MACHINE. EDWARD ERNOLD, New York, N. Y. Filed Apr. 29, 1899. Serial No. 714,963. (No model.)

Claim.—1. In an envelop-machine, the combination of an adhesion-picker, a suction-picker adapted to cooperate with the same in lifting a blank, and clearer-plate provided above the blank with a perforation adapted to permit the passage of the suction-picker through the plate, substantially as set forth.

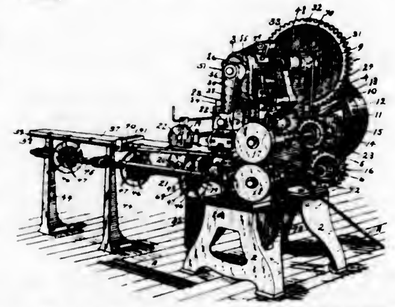
2. In an envelop-machine, the combination, with means for supporting the pile of blanks, of a clearer-plate located above the blanks and provided above the same with a perforation, an adhesion-picker adapted to pass beyond the plate, and a suction-nipple adapted to pass through the perforation of the plate into contact with the blank at the under side of the same, substantially as set forth.

3. In an envelop-machine, the combination, with means for supporting the blanks, of a clearer-plate partially covering the blanks and provided above the same with perforations, an adhesion-picker above the clearer-plate and adapted to pass beyond the edge of the same in its downward movement, and a suction-picker above the clearer-plate and provided with nipples adapted to pass through the perforations of the plate, substantially as set forth.

642,900.



642,901. HOOP CUTTING AND PUNCHING MACHINE. WILLIAM GLADER, Chicago, Ill. Filed Mar. 31, 1899. Serial No. 711,216. (No model.)



Claim.—1. A machine for cutting hoop-iron, or flat metal strips, into lengths suitable for hoops, and punching rivet-holes in the ends thereof, comprising continuously-driven feed-rolls controlled by mechanism intermittently moving one roll toward and from the fellow roll, to pinch the strip hard at the commencement of each feed, to relax said pinch during the latter portion of each feed, and release said pinch at the conclusion of each feed; a guide to receive the infeeding end of the strip; a punch, die, and cutting-off mechanism located between said feed-rolls and guide; continuously-operating friction-rolls arranged to receive between them the strip as it is entered into said guide; and intermittently-actuated fingers, or ejectors, arranged to take the cut and punched strips, or sections, from said guide and deliver them from the machine.

2. A machine for cutting, and punching holes in barrel-hoops, comprising a feeding device adapted to intermittently feed forward different lengths of the metal strips from which the hoops are formed; a guide arranged to receive the infeeding end of said strips; an adjustable stop arranged in said guide to determine the length of strips to be cut; a punch, die, and cutting-off mechanism located between said guide and the entrance of the hoop metal, and in the path of said metal, adapted to intermittently engage, cut off, and punch the holes in the then adjacent cut-off ends of the strip of metal, and an intermittently-actuated device for delivering the cut-off and punched sections of metal strips from the machine.

3. In the herein-described machine, in combination with the driving mechanism, and the strip-receiving guide and delivering fingers; the cam-actuated ratchet mechanism arranged to intermittently actuate said fingers, substantially as and for, the purpose specified.

4. In the herein-described machine in combination with the driving mechanism and the infeeding-rolls; the cam-actuated eccentric

and connecting mechanism, whereby one of said rolls is intermittently actuated toward and from its fellow roll, substantially as and for the purpose specified.

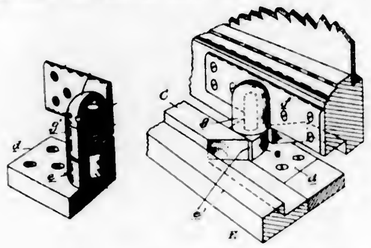
5. In the herein-described machine, in combination with the driving mechanism, and with the strip punching and cutting-off mechanism, and side gage, the holder adapted to engage against the metal strip at the side opposite said gage, and the mechanism whereby said holder is intermittently actuated to thus hold, and release the metal strip, substantially as set forth.

6. In the herein-described machine, in combination with the reciprocating head carrying the cutter, and punches at either side from said cutter, the die-table arranged below said head, the cutter set in a recess of said table, and the dies seated upon said table at either side from said cutter; wherein the dies at one side are at a lower plane than those at the opposite side, substantially as and for the purpose specified.

7. In the herein-described machine, in combination with the operative cutter and the punches, the die-table recessed and provided with the stationary cutter set therein, and offset and provided with the dies seated on said offset; the gage-plate arranged adjacent one side of said dies; the wedge arranged in rear of said gage; and the stripper-plate fixed down upon said gage and wedge, and arranged overreaching said dies, substantially as set forth.

8. In the herein-described machine, in combination with the feeding-rolls, the actuated eccentric and roll bearing supporting connection, wherein said eccentric is sleeved upon its support and recessed internally, and held into operative position by means of a pin fixed in its support and extending into said recess; and wherein said eccentric is, by means of said recess, adapted to be thrown reversely from the position maintained during operation, substantially as and for the purpose specified.

642,902. SASH-CENTER. GEORGE W. GOLDEN, Detroit, Mich. Filed Oct. 13, 1899. Serial No. 733,513. (No model.)



Claim.—1. A sash-center comprising sash and frame members each consisting of a flat plate and a central projecting lug, and a pin pivotally connecting said members to each other having its axis perpendicular to the securing-plate to said frame member and parallel to the plate of said sash member.

2. The combination with a swinging window sash and frame having an offset parting-line of a center for pivotally connecting said sash and frame comprising a sash member adapted to be secured to the side of the sash, a frame member consisting of a flat securing-plate secured to the side of the frame having its outer face flush with the inner parting-line and a lug projecting from said plate covering the transverse parting-line, and a pivotal connection between said lug and the sash member.

3. A sash-center comprising a frame member consisting of a flat securing-plate, a lug projecting from the face of said plate having a flat side flush with one edge of said plate, a sash member having a securing-plate arranged at right angles to the plate of said frame member, and a pivotal connection between said sash and frame members having its axis perpendicular to the securing-plate of said frame member and central of the projecting lug therefrom.

4. In a sash-center, the combination with a sash and a frame member of a pivot-pin engaging with a threaded socket in one member and a parallel socket in the opposite member, and means for locking said pin in different positions of adjustment in said threaded socket.

5. A sash-center comprising a sash member and a frame member one having a socket formed therein and the other provided with a lug having a threaded aperture in alinement with said socket, a pin having a threaded portion engaging with and passing through said threaded aperture and a projecting portion engaging said socket, and a cap having a threaded socket engaging with the threaded end of said pin and forming a lock-nut therefor.

642,903. GAME-BOARD. HENRY C. HACHMUTH, Mill Creek, Mich. Filed Mar. 8, 1899. Serial No. 708,275. (No model.)



Claim.—1. A game-board consisting of a series of fixed receptacles having inclined ends, a board covering said receptacles and removable therefrom and having openings above the respective inclined ends of said receptacles, substantially as described.

2. The combination of a board having a group of openings, raised rims extending entirely around said openings, and fixed receptacles terminating in inclined ends beneath said openings, said board being removable from over the fixed receptacles, substantially as described.

3. The combination of a circular table having a group of openings near the middle, raised rims extending entirely around said openings, fixed radial receptacles beneath said board the part of the table above the receptacles being removable, said receptacles also having inclined inner ends terminating beneath the respective openings, substantially as described.

4. The combination of a table having an annular outer portion having an outer ledge, and a detachable middle portion to said table having openings, and fixed receptacles having inclined ends beneath said openings, substantially as described.

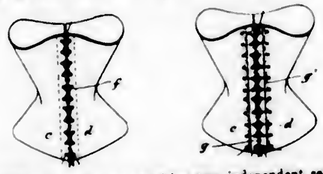
5. The combination of a table having an outer ledge and a middle portion detachably secured thereto and provided with openings having raised rims, channels below said middle portion having inclined ends beneath the respective openings, and a distance-ring supported above said board, substantially as described.

6. The combination of a game-board having a removable portion having openings, channels beneath said board and terminating beneath the respective openings, a ring having posts pivotally attached thereto and adapted to be inserted in openings in the board, to support the ring above the same, and to turn within the plane of the ring to pack between the board and channels, substantially as described.

7. The combination of a board having a removable portion having a group of openings, and a series of radial receptacles beneath the removable portion and terminating beneath the respective openings, a ring having posts pivoted thereto to turn to a vertical position and to turn within the plane of the ring, and a sheet of material to interpose between the channels and removable portion to close the openings in the same, substantially as described.

8. The combination of a circular board having an outer ledge and a circular removable portion having a group of openings having raised rims, guide pins and fastenings for the removable portion, radial receptacles beneath the same and having inclined ends terminating beneath the openings, a ring having posts pivoted thereto, and a sheet of material to close the openings in the board, substantially as described.

642,904. CORSET. JOSEPH HALSTEAD, Burnley, England. Filed Mar. 29, 1899. Serial No. 710,912. (No model.)

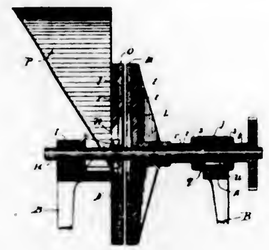


Claim.—1. A corset comprising two independent sections having foldable lacing edges each fold having lacing-eyelets arranged in series, said series being adapted to cooperate interchangeably with each other, whereby the size of the corset may be uniformly adjusted from top to bottom by the foldable edges, and variably adjusted by the lacing.

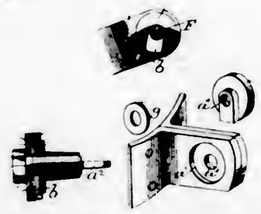
2. In an article of wearing-apparel, the combination of two independent and separate meeting edges each having a foldable part each part having eyelets arranged in series, and a lace adapted to be passed through said series of eyelets interchangeably, the said meeting edges being connected by said lace.

642,905. RICE-HULLER. ISAIAH L. HAUSER, Chicago, Ill. Filed Mar. 27, 1899. Serial No. 710,587. (No model.)

Claim.—The combination of a longitudinally and rotatably movable shaft, a grinding-disk immovably mounted on the frame on which the shaft is mounted, and having an axial aperture; means for rotating the shaft, and means for moving it longitudinally, the latter comprising a journal-bearing consisting of an immovable part secured to the frame, a longitudinally-movable and non-rotatable part in the immovable part and extending beyond the sides thereof, such movable part having external screw-threads and nuts on the screw-threads arranged to be turned against the sides of the immovable part, a disk rigidly secured on the rotatable shaft and means for depositing material between the disks through the axial aperture in the immovable disk; substantially as described.



642,906. BICYCLE-LAMP SUPPORT. FREDERICK W. HEDGELAND, Chicago, Ill. Filed July 31, 1899. Serial No. 725,647. (No model.)



Claim.—1. In a lamp-bracket, the combination with a lamp, of an angle-adjusting means, and a bolt or clamping device for effecting such adjustment, said bolt also mounting the lamp in position and permitting of its being removed and replaced without disturbing the angle at which it is supported, substantially as described.

2. In a lamp bracket, the combination with a supporting-lug, of angle-adjusting means embraced therein, said lug forming the lamp-support and permitting of the removal of the lamp therefrom without disturbing the angle adjustment, substantially as described.

3. In a lamp-bracket, the combination with a bracket-ring, provided with a lug, of a revoluble disk, provided with a guide-plate and loosely recessed in said lug, and a locking-bolt, inserted through the lug and having a threaded engagement with said disk, whereby the latter may be turned to bring the guide-plate into position to support an object at any desired angle and then locked in place, substantially as described.

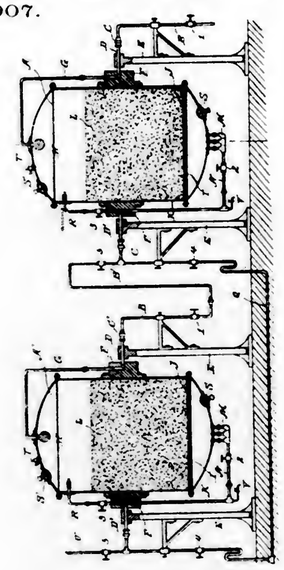
4. In a lamp-bracket, the combination with a bracket-ring provided with a lug, of a revoluble disk, provided with a guide-plate and loosely recessed in said lug, a locking-bolt, the lamp-arm, provided with a slot and adapted to straddle said bolt and guide-lug in supporting the lamp at the desired angle, and a nut for clamping said lamp-arm, substantially as described.

642,907. WATER-FILTER. OTIS B HOEY, Philadelphia, Pa., assignor of one-half to George J. Roesch, same place. Filed June 3, 1899. Serial No. 719,334. (No model.)

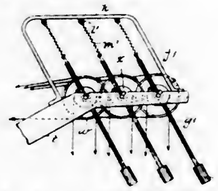
Claim.—1. In a filter, a cylinder, blocks thereon having passages, trunnion-pipes on which the blocks are mounted, run-around pipes leading from the upper portions of the cylinders to the passages of the blocks, and a pipe connecting a passage of the block with the lower end of the cylinder.

2. In combination, a cylinder, blocks thereon having passages, trunnion-pipes fitting in the horizontal portions of the passages, a pipe leading from the block to the top of the cylinder, a perforated plate, a screen on the plate, a filtering agent, a multiple exit at the bottom of the cylinder, a pipe leading therefrom to the block, a run-around pipe from the block to the top of the cylinder and supply and drain pipes suitably valved, as and for the purpose described.

642,907.



642,908. HARNESS-CONTROLLING MECHANISM FOR LOOMS. GUSTAV KREMER and EMIL MONHOF, New York, N. Y. Filed Oct. 21, 1899. Serial No. 734,347. (No model.)



Claim.—1. In a harness-controlling mechanism for looms, the combination, with the loom-frame and the harness, of brackets projecting from said frame, shafts journaled in said brackets, sheaves mounted on said shafts, bands extending over said sheaves, actuating means, operative connection between some of said bands and the actuating means and the others of said bands and the harness, rods adjustably mounted in said shafts transversely thereof, and regulating devices connected to said rods, substantially as described.

2. In a harness-controlling mechanism for looms, the combination, with the loom-frame and the harness, of brackets projecting from said frame, shafts journaled in said brackets, sheaves mounted on said shafts, bands extending over said sheaves, actuating means, operative connection between some of said bands and the actuating means and the others of said bands and the harness, and spring-actuated rods adjustably mounted in said shafts transversely thereof, substantially as described.

3. In a harness-controlling mechanism for looms, the combination, with the loom-frame and the harness, of brackets projecting from said frame, shafts journaled in said brackets, sheaves mounted on said shafts, bands extending over said sheaves, actuating means, operative connection between some of said bands and the actuating means and the others of said bands and the harness, a frame carried by each bracket, weighted rods adjustably mounted in said shafts transversely thereof, and springs connecting said rods and the frames, substantially as described.

4. In a harness-controlling mechanism for looms, the combination, with the loom-frame and the harness, of a series of revoluble cams, levers controlled by said cams, brackets projecting from said frame above said cams and levers, shafts journaled in said brackets, sheaves mounted on said shafts, bands extending over said sheaves, operative connecting means between some of said bands and the harness, weighted adjustable connections between the other of said bands

and the levers, and means, operatively connected to said sheaves for regulating the action of said harness-controlling mechanism, substantially as described.

642,909. COAL-MINER'S SAFETY CHECK-BOX. ALBERT H. LAWYER, Duncansville, Pa. Filed Sept. 2, 1899. Serial No. 729,328. (No model.)



Claim.—1. In a check-receiving box, the combination with a casing having an open end and means for securing said casing in position, of a check-holder provided with grooved sides and a recess for receiving a check and adapted to operate in said casing, a stem arranged in said casing and engaging in said check-holder, a spring secured to the said check-holder and adapted at its lower end to retain a check within the said recess, means adapted to engage the upper end of said spring for locking the said check-holder in the said casing, a spring arranged upon the said stem and engaging said check-holder for operating the latter through the end of the casing, and means arranged in the said casing for limiting the downward movement of the said check-holder, substantially as described.

2. In a check-receiving box, the combination of a casing having an open bottom and adapted to be secured to the body portion of a car or other object, a check-holder provided with a recess adapted to receive a check and held normally within the said casing, a spring secured to the said check-holder and adapted to have the lower end thereof retain the said check in position when the check-holder is extended through the open bottom of the casing, and means adapted to engage the said spring for normally retaining the said check-holder within the casing, substantially as described.

3. In a check-receiving box, the combination of a casing having an open end, a check-holder adapted to receive a check, means for securing said check in the check-holder when the same is in an extended and a closed position, a catch adapted to engage the said means for locking said check-holder within said casing, and a spring for forcing the holder through the open end of the said casing when the catch is released, substantially as described.

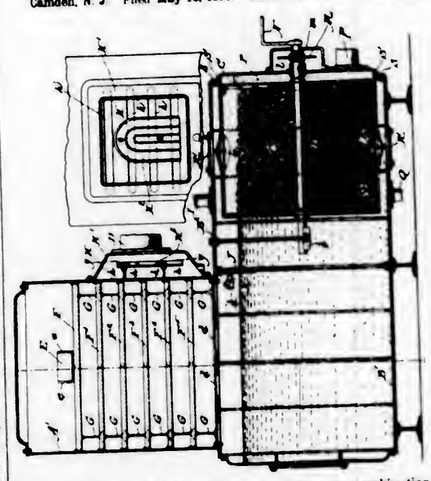
4. In a check-receiving box, the combination with a suitable casing having a spring-actuated check-holder arranged therein and means for securing the holder within the casing, of an elongated spring secured to the said check-holder for retaining a check within the check-holder when the same is in an extended and closed position and further adapted to be engaged by the said means for securing the holder within the casing, substantially as described.

5. In a check-receiving box, the combination with a casing provided with an open end and a keyway, of a check-holder having grooved sides arranged within the casing and adapted to operate through the open end of the casing, a spring-catch arranged within the casing opposite to the keyway and adapted to be depressed by a key, means connected to the check-holder and engaging said spring-catch for holding the check-holder normally within the casing and for retaining a check within the check-holder when the same is within the casing and extended therefrom, and means arranged within the casing for forcing the check-holder from the casing when the spring-catch is released, substantially as described.

6. In a check-receiving box, the combination with a casing having an open end, means for securing the same in position, a guide-stem, and a lug or stop formed integral therewith, of a spring-actuated check-holder provided with a recess opening at the top adapted to engage the said guide-stem, said holder further provided with a recess 6 to receive a check and having its sides grooved, said holder further provided with an elongated groove 22 having a shoulder 23 at the top thereof for engaging the said lug or stop to arrest the movement of the said holder, means secured to the said holder for retaining a check therein when in an extended and closed position, and a catch adapted to engage the said means for retaining the said check-holder within the casing, substantially as described.

7. In a check-receiving box, the combination with a suitable casing, of a check-holder arranged therein and adapted to be projected therefrom, means secured to tha said check-holder for securing a check thereto when in a projected or closed position, a catch adapted to engage the said means for securing said holder within the casing, means for projecting the said holder when the catch is operated, and means for limiting the projected movement of the said holder, substantially as described.

642,910. FEED-WATER HEATER AND FILTER. MEREDITH LEITON, Boston, Mass., assignor to the Warren Webster & Company, Camden, N. J. Filed May 10, 1899. Serial No. 716,261. (No model.)



Claim.—1. In a feed-water heater and filter, the combination of the water-heater having steam and water inlets, a subsiding-chamber receiving the hot water from the heater and formed with a lateral extension, a rotary shaft journaled longitudinally in said lateral extension, a filter carried by said rotary shaft within said lateral extension, having an inlet and an outlet located respectively on opposite sides of said rotary shaft, and a water-chamber in said lateral extension beyond the filter and communicating therewith through the outlet thereof.

2. In a feed-water heater and filter, the combination of the water-heater having steam and water inlets, a subsiding-chamber receiving the hot water from the heater and formed with a lateral extension, a rotary shaft journaled longitudinally in said lateral extension, and a filter carried by said rotary shaft within said lateral extension, having an inlet and an outlet located respectively on opposite sides of said rotary shaft.

3. In a feed-water heater and filter, the combination of a water-heater having steam and water inlets, a subsiding-chamber receiving the hot water from said heater and formed with a lateral extension provided with a water-outlet in its outer end, a filtering-chamber located in the lateral extension of said subsiding-chamber and provided at its lower part with a water-inlet and at its upper part with a water-outlet, and forming between its end and the end of the lateral extension of the subsiding-chamber in which the water-outlet is located a water-chamber P communicating with the filter-outlet.

4. In a feed-water heater and filter, the combination of a water-heater having steam and water inlets, a subsiding-chamber receiving the hot water from said heater and formed with a lateral extension provided with a water-outlet in its outer end, a rotary filtering-chamber located in the lateral extension of said subsiding-chamber and provided at its lower part with a water-inlet and at its upper part with a water-outlet, and forming between its end and the end of the lateral extension of the subsiding-chamber in which the water-outlet is located a water-chamber P communicating with the filter-outlet, means to move said filtering-chamber longitudinally with reference to the end of the subsiding-chamber, and means to rotate said filtering-chamber.

5. In a feed-water heater and filter, the combination of a water-heater having steam and water inlets and provided with a subsiding-chamber having an outlet at one end and formed with a flange or rim *s'*, a rotary filter located in the subsiding-chamber of the heater and adapted to make contact with said flange or rim *s'* and form a water-chamber P between the end of the filter and the subsiding-chamber of the heater, means to move the filter longitudinally to release it from contact with the flange *s'*, and means to rotate said filter.

6. In a feed-water heater and filter, the combination of a water-heater having steam and water inlets and formed with a subsiding-chamber having an outlet *p* at one end, a shaft L journaled in the subsiding-chamber of the heater, a filter carried by said shaft and provided with water inlets and outlets located respectively at its lower and upper portions, and means to move said filter in contact with the end of the subsiding-chamber adjacent to the outlet *p* to form a closed chamber P communicating with the filter-outlet.

7. In a feed-water heater, the combination of a multiplicity of independent parallel trough-shaped trays, and a feed-trough arranged transversely above said trays and adapted to supply water thereto.

8. In a feed-water heater, the combination of a feed-trough provided with a series of overflow-outlets, and a multiplicity of independent narrow parallel trough-shaped trays arranged transversely to said feed-trough and below the overflow-outlets thereof and provided in their sides with overflow-outlets.

9. In a feed-water heater, the combination of a feed-trough provided with a series of overflow-outlets, and a series of trough-shaped trays arranged transversely to said feed-trough and below the overflow-outlets thereof and provided in their sides with overflow-outlets, and a second series of trough-shaped trays located below the overflow-outlets of the first series of trays and adapted to receive the water falling therefrom.

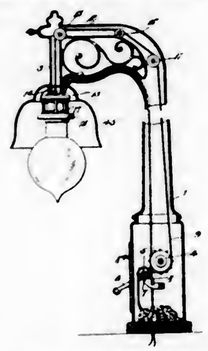
10. In a feed-water heater, the combination of a series of rows of parallel trough-shaped trays each row consisting of a multiplicity of trays, provided in their sides with overflow-outlets, the troughs of each lower series being arranged below the overflow-outlets of the next higher series and adapted to receive the water overflowing therefrom.

11. In a feed-water heater, the combination of a series of rows of parallel trough-shaped trays, each row consisting of a multiplicity of trays provided in their sides with serrated or notched edges, the troughs of each lower series being arranged below the serrated or notched edges of the next higher series and adapted to receive the water overflowing therefrom.

12. In a feed-water heater the combination of a series of rows of trays, each row consisting of a multiplicity of independent parallel trays, the trays in each lower series being arranged below the edges of the trays in the next higher series to receive the water flowing from the sides thereof, and means to supply water to the upper row of trays, and a support for the ends of each of said rows of trays.

13. In a feed-water heater, the combination of the series of supporting-frames G mounted one upon the other, the series of rows of independent parallel trays, each row consisting of a multiplicity of trays supported at their ends by one pair of said supports, and said trays being arranged with the trays in each lower row below the edges of the trays in the next higher row to receive the water flowing from the sides thereof.

642,911. ELECTRIC-LAMP SUPPORT. HARRY LONG, Greentown, Ind. Filed Oct. 5, 1899. Serial No. 732,654. (No model.)



Claim.—1. An electric-lamp support, comprising a suspended frame, latches mounted to swing on said frame, a lamp-carrying head with which a lamp is designed to be connected, the said lamp-carrying head being movable into and out of the frame, stop-blocks radially movable in said head, and means operated by vertical movements of the head for causing the movements of said blocks, substantially as specified.

2. In an electric-lamp support, a suspended frame or receiver, comprising a ring-shaped plate at its lower end, latches mounted to swing on the said ring-shaped plate, conducting-wires connecting with the plate, a lamp-carrying head comprising a ring-shaped lower plate and a ring-shaped upper plate, lamp-wires connecting with the upper portion of the head, and means carried by certain of the latches for closing the circuit between said lamp-wires and the main conductors when the latches are in supporting engagement with the head, substantially as specified.

3. In an electric-lamp support, a suspended frame or receiver, a head movable into and out of said frame or receiver, latches on the frame or receiver for engaging with the head to support a lamp, blocks mounted to move radially in the head and adapted when in their outer position to hold the latches in an upward position when the head carrying the lamp is moved downward, a spreader having sliding engagement with the inner portions of said blocks, and means for operating the spreader, substantially as specified.

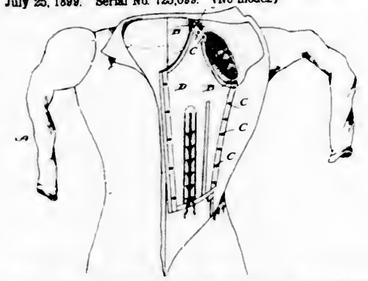
4. An electric-lamp support, comprising a suspended frame or receiver, a lamp-engaging head movable in the frame or receiver, stop-blocks movable radially in said head, latches for engaging with the head and also for engaging with the stop-blocks, the inner surfaces of said blocks being inclined downward and inward and provided with channels having undercut opposite walls, and a spreader having a conical portion provided with ribs for engaging in said channels, substantially as specified.

5. An electric-lamp support, comprising a head adapted to be secured to the lamp, a chain or the like extended from said head and connecting with a lifting-gearing, a frame for receiving said head and having a ring-shaped lower portion, latches mounted to swing on said lower portion, the inner ends of said latches overbalancing the outer ends, circuit-closing wires carried by certain of the latches, lamp-wires connecting with the head, and main conductors connecting with said ring-shaped lower end of the frame, the wires carried by the latches serving to place the conductors and lamp-wires in electrical connection, substantially as specified.

6. In a lamp-support, a frame or receiver for the head portion of a lamp, latches mounted to swing on the frame or receiver, the said latches being adapted to support the lamp, and circuit-closing wires extended through the latches, substantially as specified.

7. In an electric-lamp support, a suspended frame, a lamp-carrying head movable into and out of said frame, blocks mounted to move radially in said head, latches on the frame for engaging with said blocks when in their outer position, a spreader engaging with the inner ends of said movable blocks, and a clamping-ring for said spreader, supported by the outer portion of the frame but adapted to slide relatively thereto, substantially as specified.

642,912. GARMENT. ROBERT E. LOWE, New York, N. Y. Filed July 25, 1899. Serial No. 725,099. (No model.)



Claim.—1. As a new article of manufacture a garment having a welt at each of the side seams and projecting beyond said seam, and an adjustable lining detachably secured to said welts.

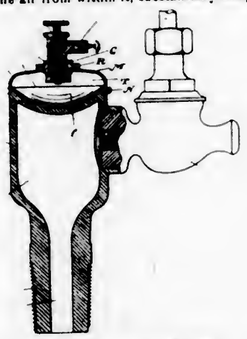
2. As a new article of manufacture, a garment having welts overlapping and secured to the edges of the side and shoulder seams, a corset-lining, and means for detachably securing the lining to the welts, said lining formed of two parts having suitable adjusting means and each cut out to form part of the neck and armholes of the garment, substantially as described.

642,913. ELECTRIC-ALARM TRY-COCK. STEPHEN M. MATHEWS, Toronto, Canada. Filed Apr. 14, 1899. Serial No. 713,071. (No model.)

Claim.—1. An electric-alarm try-cock consisting of an expansion-chamber communicating with the water-column or boiler, a concavo-convex end for the expansion-chamber, a diaphragm opposed to the concavo-convex end, adapted to form between itself and the said end of the chamber a hermetically-sealed air-chamber, a supplemental end for the expansion-chamber inclosing the diaphragm, an insulated post passing through the supplemental end, a contact-screw passing through the post, the point of which is adapted to be engaged by the diaphragm when actuated by the expansion of the air within the hermetically-sealed air-chamber to complete the circuit to the alarm, substantially as specified.

2. An electric-alarm try-cock consisting of an expansion-chamber communicating with the water-column or boiler, a concavo-convex

end for the expansion-chamber, a diaphragm opposed to the concavo-convex end, adapted to form between itself and the said end of the chamber a hermetically-sealed air-chamber, a supplemental end for the expansion-chamber inclosing the diaphragm, an insulated post passing through the supplemental end, a contact-screw in circuit with the alarm passing through the post, the point of which is adapted to be engaged by the diaphragm when actuated by the expansion of the air within the hermetically-sealed air-chamber, which is provided with an opening between the diaphragm and supplemental end to allow of the escape of the air from within it, substantially as specified.



642,914. **PENCIL-SHARPENER.** JOHN B. MITCHELL, Portland, Me., assignor of one-half to William H. Stevens, same place. Filed Oct. 5, 1899. Serial No. 732,595. (No model.)

Claim.—1. In a pencil-sharpener, a suitable holder and yielding spring-blades projecting from said holder at opposite sides thereof, said blades having longitudinally-extended slots with cutting edges tapering toward the free ends of the blades.

2. In a pencil-sharpener, a suitable holder, spring-blades projecting therefrom and having their free ends in yielding contact and slots in said blades extending from the point of contact rearwardly toward the holder.

3. In a pencil-sharpener, a suitable holder and spring-blades extending out from the end thereof, the free ends of the blades being in contact and provided with substantially elliptical slots having sharp cutting edges.

4. In a pencil-sharpener, a suitable holder and spring-blades projecting therefrom, the free ends of the blades being normally in yielding contact, said blades having slots tapering outwardly and terminating at the point where contact of the blades normally begins, said slots having one or more cutting edges.

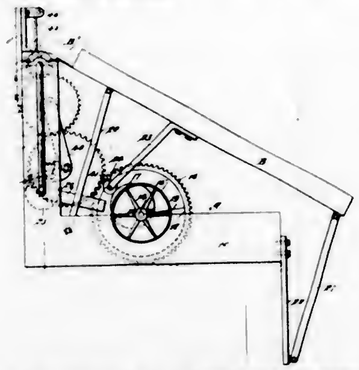
5. In a pencil-sharpener, a suitable holder adapted to receive and guide the pencil, said holder having a spring-blade projecting outwardly from the end thereof and inclined inwardly toward a line passing through the center of the holder, and a slot in the blade tapering outwardly toward the free end of the blade and terminating at a point coincident with said line passing through the center of the holder, both edges of the slot adapted to contact with the pencil during the process of sharpening.

642,915. **SHEET-FEEDING MACHINE.** LEWIS E. MORRISON, Kensington, Conn. Filed Apr. 26, 1899. Serial No. 714,551. (No model.)

Claim.—1. In an automatic sheet-separating attachment for paper-receiving machines, a separating suction-roller mounted to revolve, a stationary conductor arranged to guide the separated sheet, means for feeding paper to the separating suction-roller and a cushion for the upper end of the package of paper, substantially as described.

2. In an automatic sheet-separating attachment for paper-receiving machines, a reciprocating table adapted to carry a package of paper, a separating suction-roller mounted to revolve a stationary conductor at the rear of said roller to guide the separated sheet and spring-pressed arms serving as cushions for the upper end of the package of paper when the table is carried rearward, substantially as described.

3. In an automatic sheet-separating attachment for paper-receiving machines, a frame, a table adapted to carry paper and connected by links with the frame, an arm projecting downward from the table between its ends and carrying a roller, a drive-shaft, a cam carried by said drive-shaft and adapted for engagement with said roller, a separating suction-roller in the path of said table, a suction-pump connected with the said separating suction-roller, means for operating the plunger of the pump by the movement of the said drive shaft, and a stationary conductor located at the rear of the separating suction-roller, substantially as described.



4. In an automatic sheet-separating attachment for paper-receiving machines, a reciprocating table adapted to carry paper, a hollow roller provided with openings in its periphery, means for mounting said roller, said roller being in the path of the table at one of its ends, a conductor located adjacent to the rear of the suction-roller a pump connected with the inner chamber of the said roller, a piston for the pump, the operation whereof is spring-controlled in one direction, the piston-rod being provided with a projection, a drive-shaft, a disk carried by said drive-shaft and provided with an inclined plane adapted to be engaged by the projection from the piston-rod to move the piston in the opposite direction, and a reciprocating connection between the drive-shaft and said table, as set forth.

5. In an automatic sheet-separating attachment for paper-receiving machines, the combination, with a frame, a table or platform adapted to receive paper, having a link connection with the frame and provided with an arm between its ends, a drive-shaft, a cam carried by the drive-shaft and adapted for engagement with said arm carried by the table or platform, and a disk secured upon the said drive-shaft, having a portion of its space provided with an inclined plane, of a roller mounted to turn in the said frame, said roller being provided with a longitudinal bore and with peripheral apertures connecting with said bore, a pump, a tubular connection between the pump and the bore of the said roller, a piston-rod having guided movement in the frame and provided with a spring acting normally to draw the piston inward and create suction, and a projection from the said shaft, arranged for engagement with the inclined plane of said disk, such contact serving to force the piston of the pump in direction of the outlet of the pump, as described.

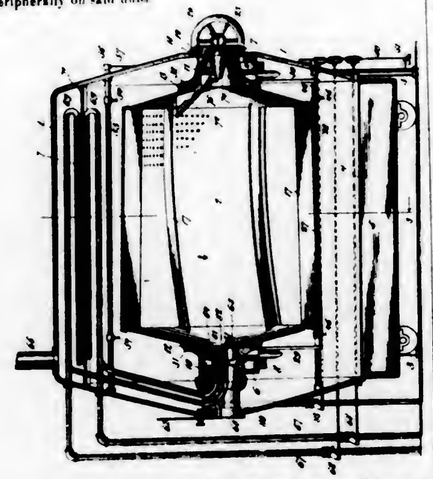
642,916. **COFFEE-ROASTING MACHINE.** JAMES A. MCCASKELL, Salt Lake City, Utah. Filed Feb. 3, 1899. Serial No. 704,336. (No model.)

Claim.—1. In a coffee-roasting machine, the combination of an outer case having an exhaust-pipe, a perforated roasting-drum mounted rotatably in the case and having a hollow trunnion, a baffle-plate in the case between the drum and the exhaust-pipe, and gas-pipes led into the case, formed into superheating-coils on opposite sides of the baffle-plate, and thence led into the drum as burner-tubes through the hollow trunnion.

2. In a coffee-roasting machine, a rotatable roasting-drum, tapering uniformly from end head to end head and having a series of blades fixed along its sides, each extending from end head to end head of the drum, and each inclined with respect to the axis of the drum in a direction contrary to the slope of the bottom of the drum as and for the purpose herein described.

3. In a coffee-roasting machine, the combination of a case having an air-tube leading inward from one end, a roasting-drum mounted rotatably therein and having a hollow trunnion jointed rotatably to said air-tube, a gas pipe leading through said trunnion as a burner-tube into the drum, and a rotatable plate journaled at one side of the air-tube and formed with a concentric graded series of air-openings adapted to register singly with the outer open end of the air-tube for varying the size of the exterior opening of said air-tube and thus regulating the supply of air to the burner.

4. In a coffee-roasting machine, the combination with the roasting-drum having a segmental opening and end hubs carrying trunnions, of a segmental cover movable peripherally over said drum-opening, and arms carrying the ends of said cover mounted to swing peripherally on said hubs.

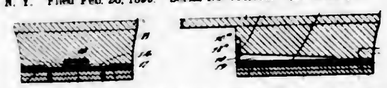


5. In a coffee-roasting machine, the combination of a case, a roasting-drum mounted rotatably in said case, and having an opening, a cover on the drum movable over said opening, a bolt to lock the cover to the drum, a finger to work said bolt and means for operating said finger.

6. In a coffee-roasting machine, the combination of a case, a roasting-drum mounted rotatably in said case and having an opening, a cover on the drum movable over said opening, a bolt to lock the cover to the drum, a lug on the cover adjacent to the bolt, a finger-catch to work said bolt, engage said lug and operate the cover, and means for operating said finger-catch.

7. The rotatable roasting-drum, having the hollow trunnion 11, whose bore flares toward the drum, the annular internal pocket or trough 80 fixed within the smaller open end of the trunnion and having an opening 81 leading into the flaring bore of the trunnion, the chamber or box 74 fixed within the trunnion, flaring toward the end thereof, and having an opening 79 in its outer end communicating with the trough 80 angularly apart from the opening 81, and a conveyer leading from the inside of the drum into the chamber 74.

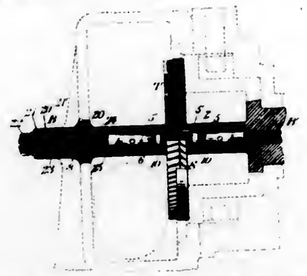
642,917. **BOOT OR SHOE HEEL.** JAMES J. NAUGHTON, New York, N. Y. Filed Feb. 20, 1899. Serial No. 706,138. (No model.)



Claim.—1. A tread-lift for boots and shoes, comprising a horseshoe-shaped plate having its inner wall recessed and provided with a recess in the upper face of the rear central portion, said plate being adapted to be secured to the heel proper, a plate carrying one or more lifts and provided with a marginal tongue fitting in the recess in the inner wall of the horseshoe-shaped plate and with an aperture at its front end, and a spring having its rear end secured in the recess in the upper face of the horseshoe-plate and extending forwardly over the lift-plate and provided near its free end with a downwardly-projecting pin entering the aperture of said lift-plate, the front end of the spring being bent upwardly and provided with an opening, substantially as described.

2. The combination with a boot or shoe heel provided at its central portion with a tapering horizontal recess leading out through the front thereof and with a vertical recess at the front connecting with the horizontal recess, of a plate substantially horseshoe-shaped and having its inner wall recessed or grooved, a plate carrying one or more lifts and provided with a marginal tongue fitting in the recess or groove of the horseshoe-shaped plate and provided with an opening near its front end, and a spring having its rear end secured to the upper face of the central portion of the horseshoe-shaped plate and extending forwardly over the lift-plate and provided with a pin near its free end engaging the opening in the lift-plate and with an upturned free end projecting into the vertical slot of the heel and provided with an opening, substantially as herein shown and described.

642,918. **MOUNTING ROTARY DRIVING AND DRIVEN MEMBERS.** NILS NILSSON, New York, N. Y., assignor to the Nilsson Power Company, of New York. Filed Sept. 29, 1898. Serial No. 692,174. (No model.)



Claim.—1. The combination, with a rotary driving member, of a plurality of separate springs carried by said driving member and disposed longitudinally of the axis thereof, and each separately movable independently of the others at every point that is in contact with the driven member, and a rotary driven member supported by said springs at a point relatively remote from corresponding ends of such springs.

2. The combination, with a rotary driving member, of a plurality of normally-parallel separate rod-springs carried by said driving member and disposed longitudinally of the axis thereof, and each separately movable independently of the others at a point that is in contact with the driven member, and a rotary driven member supported by said rod-springs at a point relatively remote from corresponding ends of such springs.

3. The combination, with a rotary driving member, of a plurality of rod-springs carried by said driving member and disposed longitudinally of the axis thereof and loosely supported at their ends for longitudinal movement relative to one another when tensioned near their centers, and a rotary driven member supported by said rod-springs at a point relatively remote from the corresponding ends of such springs.

4. The combination, with a rotary driving member having a bore tapering away from the driven member and disposed longitudinally of the axis of the driving member, of a spring loosely supported at one of its ends in such tapering bore and movable longitudinally therein when tensioned near its center and also supported at its other end, and a rotary driven member supported by said spring.

5. The combination, with a rotary driving member having alined separated bores tapering away from the driven member and disposed longitudinally of the axis of the driving member, of a spring loosely supported at its ends in such tapering bores and movable longitudinally therein when tensioned near its center, and a rotary driven member supported by said spring.

6. The combination, with a rotary driving member having a circuit of sets of alined separated bores tapering away from the driven member and disposed longitudinally of the axis of the driving member, of rod-springs supported at their ends in such tapering bores, and a rotary driven member supported by said rod-springs.

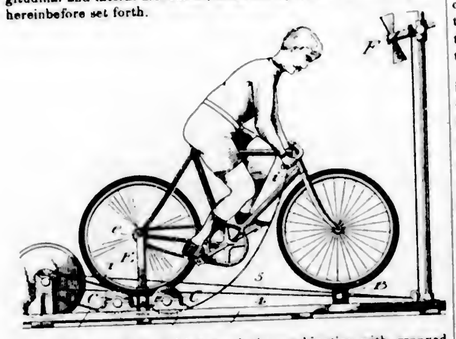
7. The combination, with a rotary driving member, of a rotary driven member having transverse bores, and a plurality of separate rod-springs carried by said driving member and disposed longitudinally of the axis thereof and passed through the bores in the driven member and supporting the latter at a point relatively remote from the corresponding ends of such springs, and each separately movable independently of the others at every point that is in contact with the driven member.

8. The combination, with a rotary driving member having guide-openings disposed at opposite sides of its axis, said guide-openings having parallel walls, of a pair of springs located at different sides of, and disposed longitudinally of, the axis of such driving member, and normally in contact, respectively, at their opposite sides with said respective guide-walls, and a rotary driven member supported by said springs.

642,919. **BICYCLE EXERCISING-STAND.** CHARLES C. NOTT, Washington, D. C. Filed July 29, 1899. Serial No. 725,526. (No model.)

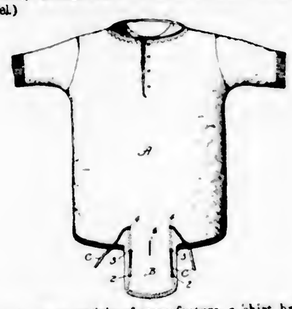
Claim.—1. In a bicycle exercising-stand, the combination of a stationary support for the front wheel of the bicycle, grooved rollers

adapted to support and be driven by the hind wheel thereof, a balance-wheel driven by said rollers and lateral supports provided with open slots or seats in their upper ends for reception of the ends of the axle of the rear wheel and adapted to restrain the bicycle from longitudinal and lateral movement, substantially as and for the purposes hereinbefore set forth.



2. In a bicycle exercising-stand, the combination with grooved rollers adapted to support and be driven by the hind wheel of the bicycle, of lateral spring-supports vertically yielding and provided in their upper ends with open slots or seats to receive the ends of the axle of said wheel and adapted to restrain the bicycle from longitudinal and lateral movement, substantially as and for the purposes hereinbefore set forth.

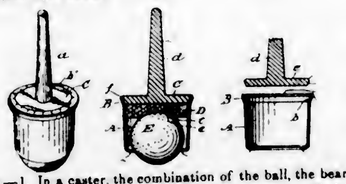
642,920. COMBINED SHIRT AND SUSPENSORY BANDAGE. STACY POTTS, Washington, D. C. Filed July 8, 1899. Serial No. 723,226. (No model.)



Claim.—1. As an article of manufacture, a shirt having a flap formed at its lower forward end, said flap having a hem at its lower edge and a draw-string having loose sliding connection through said hem and a portion of the shirt and adapted to be drawn and tied at its ends for the support and adjustment of the lower and side edges of the flap.

2. As an article of manufacture, a shirt having a flap at its lower forward end depending from the body portion of the shirt and having an orifice therein for the purpose specified, the lower edge of the flap rounded and folded over to form a hem, eyelets formed at the edges of the flap and in the body of the shirt, and a draw-string passed in and out through said eyelets and through the hem for adjusting the flap.

642,921. BALL-CASTER. HARRY D. REED, Indianapolis, Ind., assignor to William L. Elder, same place. Filed Mar. 31, 1899. Serial No. 711,214. (No model.)



Claim.—1. In a caster, the combination of the ball, the bearing of non-resonant yielding material, the case comprising the cylindrical body having the restricted lower end and enlarged top, the cap comprising the disk-formed plate locked in the top of said case and provided with the key-sockets and the central aperture, and the shank, substantially as set forth.

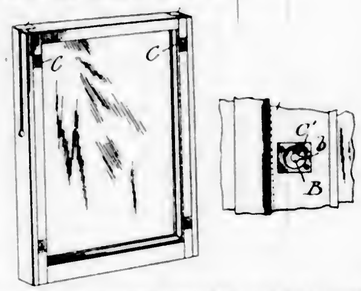
2. In a caster, the combination of the case provided with the recesses and lateral grooves, the cap provided with the radial projections adapted to enter the recesses and lock in the grooves, the shank, the ball, and the non-resonant or yielding bearing inserted between the ball and said cap, substantially as set forth.

3. In a caster, the combination of the ball, the case, the cap locked in the case and supporting the same, and the non-resonant bearing comprising the annular ring of yielding material bearing at its outer periphery against the case and at its inner periphery against the ball and the companion part also of yielding material bearing upon the ball between the annular ring and the cap and at its periphery against the case, substantially as set forth.

4. In a caster, the combination of the case provided with the recesses and lateral grooves, the cap provided with the radial projections adapted to enter the recesses and lock in the grooves, the ball, and the non-resonant or yielding bearing inserted between the ball and said cap, substantially as set forth.

5. In a caster, the combination of the ball, the case, the cap locked in the case, the shank, and the non-resonant bearing comprising the annular ring of yielding material bearing at its outer periphery against the case and at its inner periphery against the ball and the companion part also of yielding material bearing upon the ball between the annular ring and the cap and at its periphery against the case, substantially as set forth.

642,922. WINDOW-SASH. MARY E. REID, Buffalo, N. Y. Filed Feb. 11, 1899. Serial No. 705,252. (No model.)



Claim.—A window-sash comprising a main frame and removable side portions; said main frame and side portions having ribs which overlap when in said frame and portions are in proper assembled position; and each of said ribs having openings, plates arranged over the front of the openings on the ribs of the main frame, plates arranged over the rear of the openings on the ribs of the removable portions and each having an inclined or cam surface and keys having offsets or enlargements adapted to engage with said cam-surfaces and draw the removable side portions closely and snugly to the main frame, as set forth.

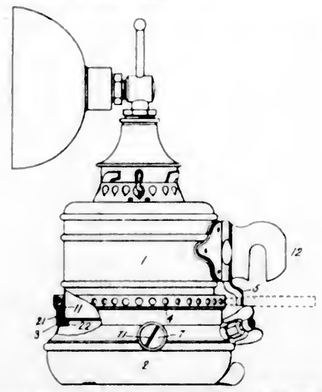
642,923. LAMP. FRANK REID, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Sept. 29, 1899. Serial No. 732,070. (No model.)

Claim.—1. In a lamp-coupling in combination two body portions, screw-threads on said portions adapted to engage each other, a lever-engaging device consisting of a substantially circumferential rack on one of said body portions and a second lever-engaging portion on the other of said body portions, substantially as described.

2. In a lamp-coupling in combination two body portions, screw-threads on said portions adapted to engage each other, a lever-engaging device consisting of a substantially circumferential perforate band on one of said body portions and a second lever-engaging portion on the other of said body portions, substantially as described.

3. In a lamp-coupling two body portions, screw-threads on said portions adapted to engage each other, a lever-engaging device consisting of a substantially circumferential rack on one of said body portions, a second lever-engaging portion on the other of said body portions in combination with a lever adapted to coöperate with said lever-engaging portions to rotate one of said body portions on the other, substantially as described.

4. In a lamp-coupling two body portions, screw-threads on said portions adapted to engage each other, a lever-engaging device consisting of a substantially circumferential perforate band on one of said body portions, a second lever-engaging portion on the other of said body portions in combination with a lever adapted to coöperate with said lever-engaging portions to rotate one of said body portions on the other, substantially as described.

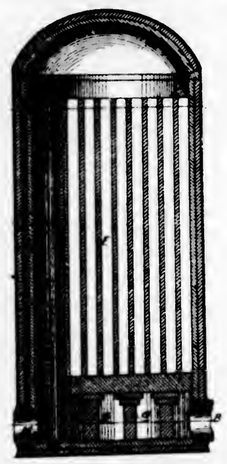


5. In a lamp-coupling in combination two body portions, screw-threads on said portions adapted to engage each other, a substantially circumferential rack on one of said body portions and a lug or pin on the other of said body portions and substantially in the same plane with said rack when said body portions are screwed together, substantially as described.

6. In a lamp-coupling in combination two body portions, screw-threads on said portions adapted to engage each other, a substantially circumferential perforate band on one of said body portions and a lug or pin on the other of said body portions and substantially in the same plane with said band when said body portions are screwed together, substantially as described.

7. A lever or tool of the class described provided with means for engaging simultaneously with coacting locking devices on a plurality of parts of a lamp-body and with other means for engaging with a feeder-cap or like closure, substantially as described.

642,924. HOT-BLAST STOVE. FRANK C. ROBERTS, Philadelphia, Pa. Filed Nov. 7, 1899. Serial No. 736,091. (No model.)



Claim.—In a hot-blast stove having its combustion-chamber located next the outer walls, the combination of a combustion-chamber, two walls between the combustion-chamber and the external metal shell, an air-space between said two walls, openings controlled by valves or other devices leading from the atmosphere into said air-space and openings from said air-space into the combustion-chamber.

642,925. MANUFACTURE OF GLASS SIGNS, PLATES, OR TABLETS. WILHELM SCHELL, Jr., Offenburg, Germany. Filed Oct. 18, 1898. Serial No. 693,923. (No specimens.)

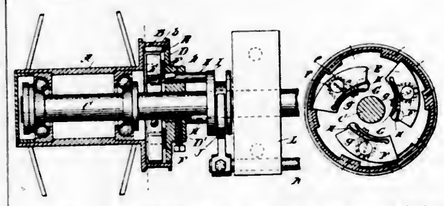
Claim.—A process for making glass signs consisting in making a transfer-picture on paper with the ground color and the sign thereon, but with letters left blank and free of color, applying to this transfer-picture a plate having letters corresponding to those of the transfer-picture and carrying transfer liquid and having the letters cut away, removing the latter plate, thereby leaving the transfer liquid on the transfer-picture, applying the transfer-picture to the glass and transferring it onto the same, so as to leave the letters in blank on the glass, while the design is visible from the front of the glass, and applying to the blank letter portions metal foil to cause the letters to appear in gold or silver.

642,926. PROCESS OF IMPROVING QUALITY OF STEEL ARMOR-PLATES. ALBERT SCHMITZ, Essen, Germany, assignor to The Firm of Fried. Krupp, same place. Filed Mar. 14, 1893. Serial No. 465,943. (No specimens.)

Claim.—1. The herein-described method for the improvement of armor-plates, consisting in first heating the plate to a temperature permitting molecular rearrangement and consequent conversion, upon hardening, to a fine, homogeneous grain; and then hardening the entire plate by suddenly cooling; then reheating to a maximum temperature below that permitting retroversion of the granular structure and allowing the plate to cool slowly; then reheating the same to a temperature equal to, or something lower than, the temperature of the second reheating, but not so low as to exclude hardening and then hardening (by suddenly cooling) one surface of the plate only.

2. The herein-described method for the improvement of armor-plates, consisting in first heating the plate to a temperature permitting molecular rearrangement and consequent conversion, upon hardening, to a fine, homogeneous grain; and then hardening the entire plate by suddenly cooling; then reheating the plate uniformly to a maximum temperature below that permitting retroversion of the granular structure, but not low enough to exclude hardening and then hardening (by suddenly cooling) one surface of the plate only.

642,927. REVERSIBLE CLUTCH MECHANISM. FRANZ SCHNEIDER, Lawrence, Mass. Filed Aug. 24, 1899. Serial No. 728,319. (No model.)



Claim.—1. A ratchet or clutch device, comprising two relatively-rotatable members, one having projections or teeth thereon and the other having pawls pivoted thereon by their centers and adapted to engage either end with the teeth on the other member, springs tending to hold one end of said pawls engaged with said teeth, and independent means for positively engaging the pawl to overcome the action of said spring and to shift the opposite end of said pawl into engagement with said teeth, substantially as described.

2. A ratchet device, comprising two relatively-rotatable members, one having projections or teeth thereon and the other having pawls pivoted thereon by their centers and adapted to engage either end with the teeth on the other member, springs tending to hold one end of said pawls engaged with said teeth, and bars mounted to slide lengthwise the axis of said clutch members and having inclines thereon adapted to engage said pawls to reverse their position and to engage their opposite ends with the teeth, substantially as described.

3. A ratchet device, comprising a casing, and a concentric disk within the same, one being mounted on a driving member and the other upon a driven member, the casing having projections or teeth and the disk having pawls centrally pivoted thereon, and adapted to engage either end with the teeth on the casing, springs normally holding one end of said pawls in engagement with the teeth, and independent means for shifting said pawls so as to clear both ends from the teeth or to engage the opposite ends with the teeth, and a spring of superior strength to the other spring interposed between said shifting means and the pawl, substantially as described.

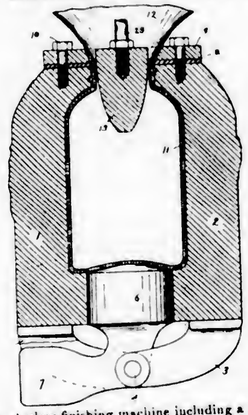
4. A ratchet device, comprising a casing and a concentric disk within the same, one being mounted on a driving member and the

other upon a driven member, the casing having projections or teeth and the disk having segment-shaped pawl-bars centrally pivoted thereon and adapted to engage either end with the teeth on the casing, springs normally holding one end of said pawls in engagement with the teeth, bar-springs secured by one end to the inner sides of the pawl-bars, and shifting bars or rods mounted to slide parallel with the axis of the clutch members, said shifting-bars having inclines adapted to engage the inner surfaces of the bar-springs to move the pawls respectively into inoperative and into reversed locking positions, substantially as described.

5. A ratchet device, comprising a casing and a concentric disk within the same, one being mounted on a driving member and the other upon the driven member, the casing having projections or teeth and the disk having segment-shaped pawl-bars centrally pivoted thereon and adapted to engage either end with the teeth on the casing, and springs normally holding one end of said pawls in engagement with the teeth, bar-springs secured by one end to the inner sides of the pawl-bars, adjusting-screws adapted to regulate the position of the bar-springs relatively to the pawls, and shifting bars or rods mounted to slide parallel with the axis of the clutch members, said shifting-bars having inclines adapted to engage the inner surfaces of the bar-springs to move the pawls respectively into inoperative and into reversed locking position, substantially as described.

6. A ratchet device, comprising a casing and a concentric disk within the same, one being mounted on a driving member and the other upon a driven member, the disk and casing having the one, projections or teeth and the other segment-shaped pawl-bars centrally pivoted thereon and adapted to engage either end with the teeth, springs normally holding one end of said pawls in engagement with the teeth, bar-springs secured by one end to the inner sides of the pawl-bars, shifting bars or rods mounted to slide parallel with the axis of the clutch members, said shifting-bars having inclines adapted to engage the inner surfaces of the bar-springs to move the pawls respectively into inoperative and into reversed locking positions, a grooved collar slidably mounted axially of the clutch members and supporting the pawl-shifting bars, a yoke entering the grooves in said collar, and means for shifting said yoke and collar, substantially as described.

642,928. GLASS-FINISHING MACHINE. ALVIN B SCOTT, Summitville, Ind. Filed Mar. 18, 1899. Serial No. 709,623. (No model.)



Claim.—1. A glass-finishing machine including a mold, an annular knife at the neck of the mold with its cutting edge extending into the mouth of the mold for the thickness of the article to be formed, and a plunger to coöperate with the knife for severing the glass.

2. A glass-finishing machine including a mold, a horizontally-extending annular knife secured to the neck of the mold whose internal diameter is substantially the same as the internal diameter of the neck of the article to be formed, and a plunger to coöperate with the knife for severing the glass.

3. A glass-finishing machine including a mold, an annular knife within the neck of the mold, and a plunger adapted to enter the mold after the article is blown and sever the overflow of glass by the cooperation of the side of the plunger with the knife.

4. A glass-finishing machine including a mold, an annular knife at the neck of the mold, and a plunger of less diameter than the internal diameter of the knife yet large enough to sever the overflow of the glass by its coöperation with the knife, whereby the plunger will not dull the edge of the knife.

5. A glass-finishing machine including a mold, an annular knife mounted in the neck of the mold so as to extend inward for the thickness of the article to be made, and a plunger whose diameter is sufficiently less than the internal diameter of the neck of the article to be formed to permit it to enter the same after the article is blown and by the cooperation of its side with the knife to sever the overflow of glass.

6. A glass-finishing machine including a mold, a horizontal inwardly-extending annular knife secured in the neck of the mold below its mouth, and a plunger of such diameter that it can pass through the knife and cooperate with it to sever the overflow of glass.

7. A glass-finishing machine including a series of molds in line, a knife mounted in the neck of each mold, a guideway beside the series of molds, a frame slidably mounted on said guideway, and a plunger mounted in said frame whereby the plunger may be moved from one mold to another as desired.

8. A glass-finishing machine including a series of molds in line, an annular knife in the neck of each mold, a guideway beside the series of molds, a stop in said guideway opposite each mold, a frame slidably mounted on the guideway, means in the frame for engaging said stop and holding the frame opposite a mold, and a plunger mounted in said frame for entering the mouth of the mold when operated.

9. A glass-finishing machine including a series of molds in line, an annular knife in the neck of each mold, a guideway beside said line of molds formed of two rods one above the other, the upper rod having a notch in its upper surface opposite each mold, a frame slidably mounted on said rods, a spring pawl or lock mounted therein to engage the notch in the upper guide-rod, an arm extending from said frame over the center of the molds, and a vertically-operative plunger mounted in said arm.

10. A glass-finishing machine including a series of molds in line, a guideway beside said molds with a notch on the upper side thereof opposite each mold, a frame slidably mounted on said guideway, a tube extending upward from said frame, an arm extending outward from the frame over the center of the molds, another arm mounted on the tube above so as to be vertically slidable, a plunger pivoted in said upper arm and guided by said lower arm, a spring for pressing said upper arm upward, means for depressing said upper arm and plunger, and a hand-operated pawl mechanism extending from the upper end of said tube down through it to engage the notches in the guideway and lock the mechanism in position opposite a mold.

642,929. INNER SOLE. AUGUSTUS SEAVER, Boston, Mass., assignor of one-fourth to Leroy E. Coolidge, Hopkinton, Mass. Filed Nov. 17, 1899. Serial No. 737,332. (No model.)



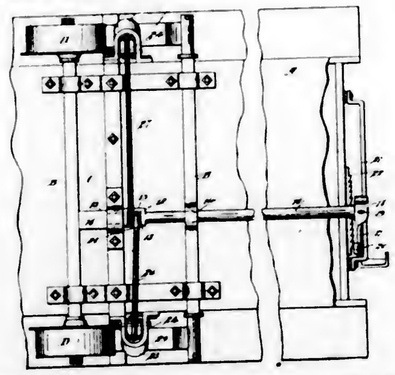
Claim.—1. An inner sole comprising a body or middle layer, an inner covering or layer of non-extensible material secured to the body and having a free edge turned up to leave an edge portion of the body exposed, and an outer covering or layer of leather folded over the exposed edge of the body and having its edge united with the upturned edge of the inner covering to form a wale, the outer layer or covering being secured to the body independently of the means which attach the inner layer or covering to the said body, whereby the said outer layer presents a smooth surface on the inside of the shoe.

2. An inner sole comprising a body or middle layer, an inner layer of non-extensible material secured to said body by stitches and having a free upturned edge exposing the edge of the said body, and an outer layer folded over the exposed part of the inner face of the said body, and having its edge united with the upturned edge of the inner layer to form a wale, said outer layer covering and concealing the stitches which secure the inner layer to the body.

3. An inner sole comprising a body or middle layer, an inner layer of non-extensible material secured to said body by stitches and having a free upturned edge exposing the edge of the said body, an outer layer folded over the exposed part of the inner face of the said body, and having its edge united with the upturned edge of the inner layer to form a wale, said outer layer covering and concealing the stitches which secure the inner layer to the body, and a gage extending along said wale to determine the location of the stitches which secure the welt and upper to said wale.

642,930. CAR-BRAKE. CHARLES E. SHARPLESS, Dubois, Pa. Filed May 19, 1899. Serial No. 717,459. (No model.)

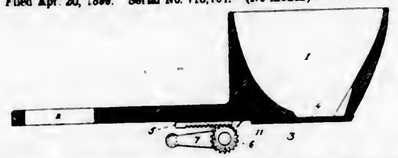
Claim.—1. In a brake for cars and other vehicles, a shifting bar provided with a double crank and mounted to rock and have end play, an operating-lever connected with the shifting bar, spring-controlled brake shoes or blocks arranged for engagement with the upper surfaces of the wheels, draft-rods connected at one end with the shoes or blocks and at their other ends with the cranks of the shifting bar, and guides for the draft-rods, as set forth.



2. In a brake for cars and vehicles, the combination, with a shifting bar, bearings for the said bar, permitting rotary and lateral movement of the bar, and opposing crank-pins carried by said shifting bar, of brake shoes or blocks arranged for engagement with the outer portions of the wheels of the car or vehicle, draft-rods connected with the crank portions of the shifting bar and with the said brake shoes or blocks, and a directing mechanism engaging with said draft-rods at a point below the brake shoes or blocks, for the purpose specified.

3. In a brake for vehicles or cars, the combination with a shifting bar mounted to rotate and having limited lateral movement, and cranks carried by said shifting bar, of brake shoes or blocks adapted for engagement with the wheels of the vehicle or car, springs normally holding the said shoes or blocks out of engagement with said wheels, draft-rods attached to the brake shoes or blocks and to the cranks of the shifting bar, guards through which the said rods or chains pass, and tongues pivoted in the said guards in engagement with the said draft-rods, said tongues being arranged to impart vertical movement to the portions of the rods connected with said shoes or blocks, for the purpose specified.

642,931. FLUX-FEEDING DEVICE. CHARLES W. SLEEPER, Lancaster, N. H., assignor to the Sleeper Machine Company, Boston, Mass. Filed Apr. 20, 1899. Serial No. 713,761. (No model.)



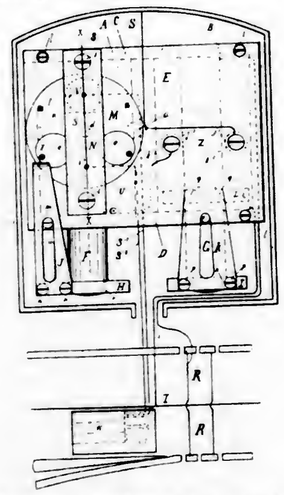
Claim.—1. The combination in a flux-feeding device of a box to hold the flux, a slide arranged to rest upon the bottom of the box and pass freely through a slot in the side of the box, and means for withdrawing the slide so that a portion of the flux resting upon the slide may fall down between the end of the slide and the side of the box, and means for pushing the slide forward through the slot in the side of the box, substantially as described and for the purpose set forth.

2. The combination in a flux-feeding device, of a box to hold the flux, of a slide arranged to rest upon the bottom of the box and pass freely through a slot in the side of the box, and means for imparting reciprocating motion to the slide: the side of the box being serrated with deep recesses to allow the flux to fall in front of the slide while the slide is held down by the points between the serrations, substantially as described and for the purpose set forth.

642,932. ELECTRIC-CURRENT-CONTROLLING MECHANISM. CHARLES W. SQUIRES and JAMES B. SQUIRES, Springfield, Mass. Filed Mar. 15, 1899. Serial No. 709,207. (No model.)

Claim.—1. In combination, a magnet and its armature, a circuit-changing switch, comprising a circuit-changing disk and contacts with which said disk coöperates, operated by said magnet and its armature, and circuit-conductors comprising said contacts and coils of said magnet and suitable feed and return wires, as described.

2. In combination, a magnet and its armature, an electric-circuit switch operated by said armature, circuit-conductors comprising an insulated section of car-track, the coils of said magnet and a ground or return wire, a circuit-changing switch, a circuit-conductor connecting said circuit-changing switch with feed-wire and comprising the first-named electric-circuit switch, two other circuit-conductors leading from and comprising said circuit-changing switch to ground-wire and also comprising coils in a car-switch-operating magnet, substantially as set forth.



3. In combination, a magnet and its armature, an electric-circuit making and breaking switch operated by said armature, an electric conductor comprising the coils of said magnet, a circuit-changing switch comprising an electric-circuit-changing disk of insulating material, metallic transfer-plates, set therein, and contacts with which said transfer-plates coöperate, circuit-conductors comprising said electric-circuit making and breaking switch, said electric-circuit-changing switch with feed and return wires, as set forth.

4. In combination, a magnet and its armature, an electric-circuit switch operated by said armature, circuit-conductors comprising an insulated section of track, the coils of said magnet, and the ground or return wire, a second and distinct circuit leading from trolley or feed wire and comprising the electric-circuit switch above mentioned, the coils of a car-switch-operating magnet, and a ground or return wire, substantially as described.

5. An electrically-operated, circuit-making switch, a magnet and its armature for operating the same, a circuit-conductor connecting an insulated section of car-track with the return-wire and comprising in its circuit the coils of the magnet above mentioned, another circuit-conductor separate and distinct from the first, said second conductor leading from a feed-wire to a return-wire and comprising in its circuit the aforesaid electrically-operated circuit-making switch, and the coils of a car-switch-operating magnet, substantially as described.

6. The combination of a current-controlling device, a box for supporting and protecting the same, circuit-conductors connecting insulated section of car-track with a return-wire, and comprising in its circuit the operating mechanism of said current-controlling device, a second and distinct circuit leading from feed-wire through and controlled by said current-controlling device, and a post for supporting said current-controlling device, substantially as described.

642,933. ELECTROLYTIC SEPARATION OF ZINC FROM ZINC OXID. OSCAR J. STEINHART, JULIUS L. F. VOGEL, and HENRY E. FRY, London, England; said Steinhart and Vogel assignors to said Fry. Filed Apr. 10, 1899. Serial No. 712,510. (No specimens.)



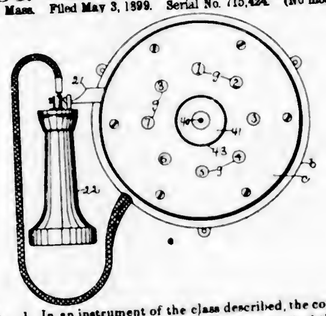
Claim.—1. The process herein described of separating zinc from zinc oxid, which consists in dissolving zinc oxid in molten zinc chlorid

heated to a temperature just above the melting-point of zinc, passing an electric current of low voltage through the molten mixture between a layer of molten zinc at the bottom, forming the cathode, and a conductor which dips into the molten mixture of chlorid and oxid, and forms the anode, and from time to time adding fresh zinc oxid to the vessel as oxid is decomposed by the current, to maintain at all times undissolved oxid resting on the molten zinc in close proximity to the lower end of the conductor forming the anode.

2. The process herein described of separating zinc from zinc oxid, which consists in dissolving zinc oxid in molten zinc chlorid mixed with sodium chlorid, heating the zinc chlorid to a temperature just above the melting-point of zinc, passing an electric current of low voltage through the molten mixture between a layer of molten zinc at the bottom, forming the cathode, and a conductor which dips into the molten mixture of zinc chlorid and oxid, and forms the anode, and adding from time to time fresh zinc oxid to the vessel as oxid is decomposed by the current.

3. The process herein described of separating zinc from zinc oxid, which consists in dissolving zinc oxid in molten zinc chlorid, heated to a temperature just above the melting-point of zinc, passing an electric current of low voltage through the molten mixture, and from time to time adding fresh oxid to the bath to maintain continuously a supply of undissolved oxid resting on the molten zinc forming the cathode and the end of the electric conductor forming the anode.

642,934. TELEPHONIC INSTRUMENT. FREDERICK A. SWAN, Boston, Mass. Filed May 3, 1899. Serial No. 715,424. (No model.)



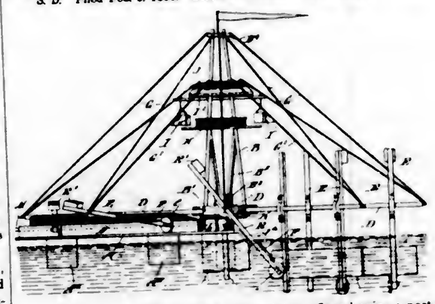
Claim.—1. In an instrument of the class described, the combination with a rotatable device having a contact-arm attached thereto, circuit-terminals coöperating with the opposite sides of said contact-arm, a series of circuit-controllers coöperating with said rotatable device and constructed to move said device in one direction to engage said contact-arm with one of said terminals, and to permit said device to move in the reverse direction to engage said contact-arm with the other of said terminals and yet leave the circuit-controller locked in engagement with the said device until positively released, substantially as described.

2. In an instrument of the class described, the combination with a rotatable disk or wheel, a circuit-controller operated by movement of said disk or wheel, a plurality of movable circuit-controllers coöperating with said disk or wheel and each constructed to move the said disk or wheel in one direction when pressure is applied to said circuit-controller, and to permit a partial movement of said rotatable disk or wheel in the reverse direction when the pressure is relieved from said circuit-controller and yet leave said circuit-controller locked in engagement with said wheel or disk, and means to move said disk or wheel to release said controller from its locked position, substantially as and for the purpose specified.

3. In an instrument of the class described, a rotatable device provided with a plurality of pins or projections, a contact-arm operated by movement of said device, and a plurality of push-rods coöperating with said device and constructed to pass by said pins or projections and move said rotatable device its full range of movement in one direction and to permit a partial return movement of said rotatable device and yet leave the push-rod locked in engagement with said rotatable device, and means to act on said rotatable device and release said locked push-rod, substantially as described.

4. In an instrument of the class described, a rotatable device provided with a plurality of pins or projections, a contact-arm operated by movement of said device, a plurality of push-rods coöperating with said device and adapted to pass by said pins and be locked by said pins after a partial return movement, a lever, a dog pivoted to said rotatable device, and a projection on said lever adapted to engage said dog to move said device and release the locked push-rod, substantially as described.

642,985. CURRENT-MOTOR. ROBERT S. TREALL, Fort Pierre, S. D. Filed Feb. 6, 1899. Serial No. 704,682. (No model.)



Claim.—1. A current-motor, comprising a float having a post at one edge, the mast mounted to turn upon said post, a series of sweeps or rotating arms extending from the mast over the float and water, stays extending from the upper part of the mast to the outer end of the sweeps, levers pivoted upon the sweeps, and carrying buckets or vanes adapted to drop into the water, said levers extending above the sweeps to engage the stays as stops limiting their swing in one direction to a vertical position, the upper ends of said levers having boxes thereon adapted to receive counterbalance-weights whereby the vanes may be balanced or permanently raised, and an incline extending downward from the float into the water and engaging the vanes to raise them out of the water, the lower edges of the vanes having rollers thereon engaging the platform and float and supporting the vanes during one-half of their revolution, substantially as specified.

2. A current-motor, comprising a float having a post at one edge, a mast mounted to turn upon said post, a bevel-gear secured to the lower part of the mast, a horizontal power-shaft journaled on top of the float and having a beveled pinion meshing with the bevel-gear, a series of sweeps or radiating arms extending from the bottom of the mast over the float and water, stays extending from the upper part of the mast to the outer ends of the sweeps, levers pivoted upon the sweeps and carrying buckets or vanes adapted to drop into the water, said levers extending above the sweeps to engage the stays as stops limiting their swinging in one direction to a vertical position, the upper ends of said levers having boxes thereon adapted to receive counterbalance-weights whereby the weight of the vanes may be balanced or permanently raised, and an incline extending downward from the float into the water and engaging the vanes to raise them out of the water, the float acting as a support to keep the vanes out of the water during one-half of their travel, substantially as specified.

642,986. POWER-TRANSMITTER FOR WINDMILLS. FRED C. THOMPSON, Burton, Wash. Filed Apr. 8, 1899. Serial No. 712,272. (No model.)

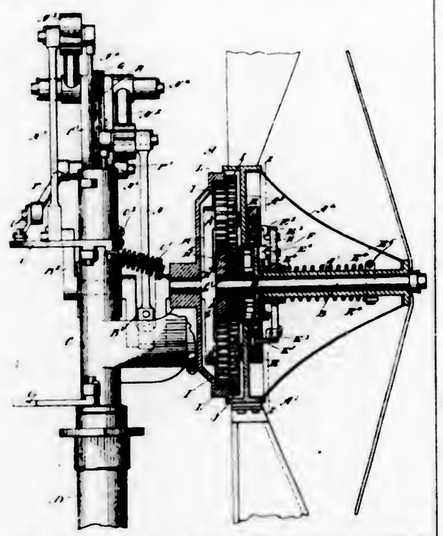
Claim.—1. A power-transmitter for windmills, comprising a revoluble wind-wheel, a main shaft, a centrifugal governor carried by said wind-wheel, and a differential gear connecting said main shaft with said wind-wheel, and connected with and controlled by the said governor, substantially as shown and described.

2. A power-transmitter for windmills, comprising a revoluble wind-wheel, a shaft on which the wheel is mounted to turn loosely, independent ratchet-wheels mounted to rotate loosely, a centrifugal governor on said wind-wheel, pawls controlled by said governor and adapted to engage either of said ratchet-wheels, and planetary gearing driven from said ratchet-wheels and connected with said shaft, substantially as shown and described.

3. A power-transmitter for windmills, comprising a wind wheel, a main shaft on which the said wind-wheel is mounted to rotate loosely, a governor actuated from the said wind-wheel, and a differential gear connecting the said main shaft with the said wind-wheel and connected with and controlled by the said governor, substantially as shown and described.

4. A power-transmitter for windmills, provided with a revoluble wind-wheel, a governor actuated from the said wind-wheel, pawls controlled by the said governor and carried by said wind-wheel, independent ratchet-wheels adapted to be engaged by said pawls to transmit the rotary motion of said wind-wheel to either of the said ratchet-wheels according to the speed of the wind-wheel, a main shaft, and an intermediate mechanism between the said ratchet-wheels and the said main shaft to rotate the latter from the ratchet-wheel rotated at the time, substantially as shown and described.

5. A power-transmitter for windmills, provided with a revoluble wind-wheel, a main shaft, centrifugal levers carried by said wind-wheel, a spring-pressed resistance-arm for said centrifugal levers, pawls connected with the said resistance-arm, independent ratchet-wheels adapted to be engaged by said pawls to transmit the rotary motion of the said wheel to either of the said ratchet-wheels according to the speed of the wind-wheel, and intermediate mechanism between the said ratchet-wheels and the said main shaft to rotate the latter from the ratchet-wheel rotated at the time, substantially as shown and described.



6. A power-transmitter for windmills, comprising a revoluble wind-wheel, a main shaft, a centrifugal governor carried by said wind-wheel, a differential gear connecting said main shaft with said wind-wheel, and connected with and controlled by said governor, the said differential gear comprising independent ratchet-wheels, gear-wheels secured to the ratchet-wheels, a pair of gear-wheels in mesh with the ratchet-wheel gear-wheels, an arm secured to the said main shaft, an annular rack with which one of the said pair of gear-wheels is in mesh, and pawls carried by the said wind-wheel and connected with the said governor and adapted to engage either of the said ratchet-wheels, substantially as shown and described.

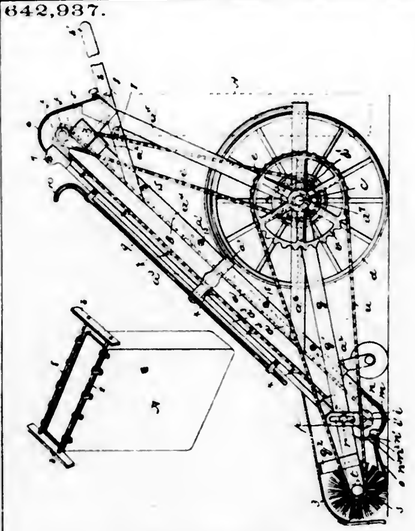
642,937. STREET-CLEANING DEVICE. GEORGE M. WARD, Newark, N. J., assignor of one-half to George W. Reeve, Jr., same place. Filed Apr. 5, 1899. Serial No. 711,791. (No model.)

Claim.—1. The improved street-sweeping apparatus, comprising an inclined frame having dirt-elevating means, a wheel and handle and a scraper, a brush and means for rotating the same, and a cap having rake-teeth at the front adapted to protect the brush from heavy stones, sticks and the like, substantially as set forth.

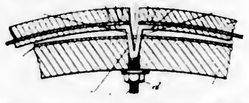
2. The improved street-cleaning apparatus, comprising an inclined wheeled frame having elevating means, a scraper, sweeping-brush, a handle, and means for transmitting power, and an inclined empty-bag-supporting frame arranged on and supported by said frame and holding said bags up and away from the elevating means, the said inclined empty-bag-supporting frame having at its upper end an upturned part to which a horizontal bar is secured over which last the empty bags may be folded and carried along as the device is pushed forward ready to be removed one after another as the suspended bags are filled substantially as set forth.

3. In a street-sweeping apparatus, the combination with a frame, comprising connected side frames having parts a^3, a^4, a^6, a^6, a^8, joined together, the parts a^3, a^4, connecting with one another at the main driving-shaft, and providing bearings therefor, of said chain and a sprocket-wheel for the dirt-elevating means and a wheel upon which the device is trundled, an inclined way B, over which the dirt may be raised, a chain belt j, having elevating-strips k, a scraper and a brush arranged in front of the scraper and adapted to sweep the dust thereon, and driving-chains, all arranged and adapted to operate, substantially as set forth.

642,937.



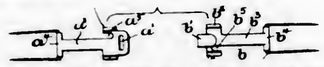
642,988. TIRE-FASTENER. AMOS W. WARNOCK, Boston, Mass., assignor of one-half to Frederick K. Daggett, Malden, Mass. Filed July 3, 1899. Serial No. 722,747. (No model.)



Claim.—1. The combination, with a wheel-felly provided with a socket, of a slidable tire-fastening bolt provided with diverging spring-arms engaging with the said socket and having circumferentially-projecting flanges or shoulders and hooks at their free ends, and a tire having its end portions detachably connected to the said hooks, substantially as set forth.

2. The combination, with a wheel-felly provided with a socket, of a tire-fastening bolt provided with diverging arms slidable in the said socket, said arms being provided at their free ends with shoulders and hooks of less width than the shoulders, and a tire provided with sockets at its end portions which rest on the said shoulders and engage with the said hooks, substantially as set forth.

642,939. HOOK AND EYE. MARY D. WATSON, Boston, Mass. Filed Apr. 13, 1899. Serial No. 712,853. (No model.)

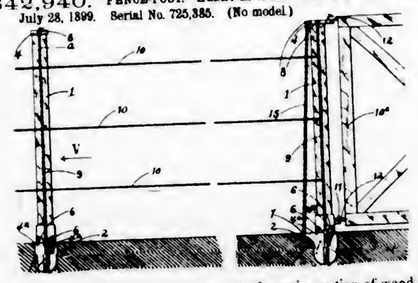


Claim.—1. A hook member of a fastening device consisting of a base provided with a hook and with guards all projecting upward from its face, said base having an aperture or slot b^3, and a U-shaped pin hinged in said base and in its obverse, and having its members adapted to be engaged by the said guards, without separating said members, substantially as described.

2. A hook or eye member of a fastening device consisting of a base provided with guards projecting above its face and with a tubular bearing projecting below its face, and a U-shaped pin hinged in said bearing and having its prongs movable laterally in the same direction to engage them with the guards, whereby said members are not spread apart when moved into engagement with the guards.

3. A hook or eye member of a fastening device, consisting of a base having a hook or eye on one end, a tubular bearing at the other end, guards bent over upon the face of the member, and a U-shaped pin pivoted in said bearing and adapted to have its prongs swung by said guards in the same direction laterally into engagement therewith, said base being provided with a slot or recess to permit the passage of one of the said prongs.

642,940. FENCE-POST. HENRY H. WELKER, Attica, N. Y. Filed July 28, 1899. Serial No. 725,385. (No model.)



Claim.—1. A fence-post composed of a main portion of wood, a metal base composed of wings having bottom notches and top depressions, a socket device detachably mounted in said top depressions in which the lower end of the main portion seats, a metal cap having lateral-extending ears and a depression in which the upper end of the post extends, and twisted-wire loops placed on the notches and ears to secure the portions of the post firmly together, as set forth.

2. The combination with a wire fence, of a post composed of a main portion of wood, a metal top cap fitting upon the top end of the main portion and having ears and an extension forming a hinge-pin, one of the sides being cut away to allow of the interposition of a top plate or board, a metal base having a socket for the lower end of the main portion, wings provided with notches and an extension forming a hinge-pin, twisted-wire loops placed over the ears and notches to rigidly secure the three parts of the post together and a gate hung upon the hinge-pins, as set forth.

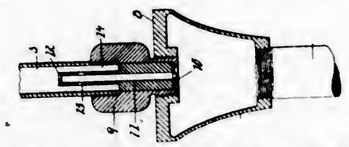
3. A fence comprising a post composed of a main portion of wood, a metal base composed of wings having an integrally-formed hinge-pin, bottom notches and top depressions, a socket device detachably mounted in said top depressions in which the lower end of the main portion seats, a metal cap having an integrally-formed hinge-pin, lateral-extending ears and a depression in which the upper end of the post extends, and twisted-wire loops supported on the notches and ears to secure the portions of the post firmly together, and a gate hung on said hinge-pins, as set forth.

642,941. SENSITIZED PHOTOGRAPHIC PAPER. REDFIELD B. WEST, Guilford, Conn. Filed Nov. 21, 1899. Serial No. 737,811. (No specimens.)

Claim.—1. A sensitized paper having its back or reverse side coated with a concentrated aqueous solution of a salt of copper, substantially as described.

2. A paper sensitized with ammonium nitro-ferricyanid and ammonium ferric citrate and having a concentrated aqueous solution of a salt of copper applied to its back or reverse side, substantially as described.

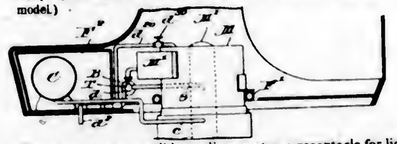
642,942. HYDROCARBON INCANDESCENT LAMP. CHARLES E. WHITE, Philadelphia, Pa., assignor to the Welsbach Light Company, Gloucester City, N. J. Filed Aug. 9, 1899. Serial No. 726,650. (No model.)



Claim.—1. A coupling for connecting the oil-pipe and mixing-tube of a hydrocarbon-lamp, which comprises the combination of a spider depending from a tubular nut having its internal chamber inwardly flanged at its lower end, a metal plate provided with a perforation and removably supported on said flange, and a tubular member located above said plate and in the chamber of the nut and provided at its upper end with a cap having its curved side walls perforated near its top, substantially as described.

2. The combination in a hydrocarbon-lamp of a coupling provided with a tubular chamber having inwardly-flanged walls, a removable gas-check supported by said walls and a tubular member mounted in said chamber and superposed on said check and provided with an upwardly-extending cap of which the side walls are perforated near its top, substantially as described.

642,948. MOTOR-VEHICLE. GEORGE R. WHITNEY, Boston, and HENRY HOWARD, Brookline, Mass.; said Whitney assignor and said Howard assignor of one-half his right to the Whitney Motor Wagon Company, Kittery, Me. Filed Feb. 4, 1899. Serial No. 704,464. (No model.)



Claim.—1. An expansible-medium motor, a receptacle for liquid fuel therefor, means to conduct said fuel to the point at which it is utilized, and means utilizing the exhaust of the motor to heat extraneously the said receptacle and by partial vaporization of its contents create pressure upon and to effect feed of such liquid-fuel contents through the conducting means therefor.

2. In a motor-vehicle, an expansible-medium motor, a receptacle for liquid fuel therefor, and means to subject the liquid fuel to feeding pressure by or through thermal action of the motor-exhaust extraneously applied to the said receptacle.

3. In a motor-vehicle, a steam-motor, a feed-water tank, a liquid-fuel receptacle, and means to heat the feed-water and thereby create pressure within the fuel-receptacle to effect feed of the fuel.

4. In a motor-vehicle, a steam-motor, a feed-water tank, a liquid-fuel receptacle, and means to utilize the exhaust from the motor to heat the feed-water and thereby create pressure within the fuel-receptacle to effect feed of the fuel.

5. In a motor-vehicle, a steam-motor, a feed-water tank, a liquid-fuel receptacle therein, and means to utilize the motor-exhaust to heat the contents of the tank, the heating of the feed-water operating to create pressure within the receptacle to effect feed of the liquid fuel.

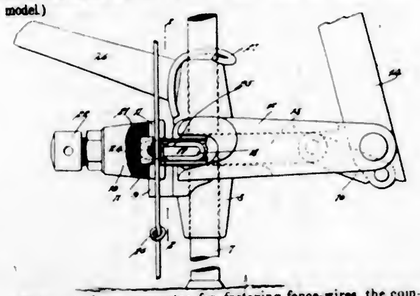
6. A steam-motor, a feed-water tank therefor, heating means for the feed-water, connected with the motor-exhaust, a liquid-fuel receptacle in the tank, to be heated by the contents of the latter, and a manually-actuated controlling device to govern the passage of the exhaust to the tank-heating means.

7. In a motor-vehicle, a steam-motor having a stack, a feed-water tank, a condenser therein, connections between the motor-exhaust and said condenser and stack, a liquid-fuel receptacle in the tank, and a manually-actuated controlling device to govern the passage of the exhaust to the condenser and stack.

8. In a motor-vehicle, a steam-motor, a liquid-fuel receptacle, means to generate feeding pressure on the liquid fuel by extraneously heating the receptacle by the motor-exhaust, and also extraneously by live steam from the motor, and independent controlling devices to utilize live or exhaust steam for such extraneous heating.

9. In a motor-vehicle, a steam-motor, a feed-water tank, a condenser therein, connected with the exhaust of the motor, a liquid-fuel receptacle in said tank, to be heated by the feed-water, whereby the pressure created in said receptacle will effect feed of the liquid fuel, and a controlling device to regulate the operation of the condenser.

642,944. FENCE-WIRE-FASTENING DEVICE. OSCAR D. WOODBURY, Rochester, N. Y. Filed Oct. 30, 1899. Serial No. 735,266. (No model.)



Claim.—1. In an apparatus for fastening fence-wires, the combination with a support, of a carriage, a holder mounted thereon a die carried in the holder, a sleeve also mounted on the carriage, a plunger working therein, means for driving the plunger, and a second die held by the carriage and alongside the plunger, the plunger and said second die opposing the die of the holder.

2. In an apparatus for fastening fence-wires, the combination with a support, of a carriage, a stationary die held thereon, a driven plunger mounted on the carriage, and a die mounted alongside the plunger and movable toward and from the first-named die.

3. In an apparatus for fastening fence-wires, the combination with a post or standard, of a carriage movable thereon, a stationary die mounted on the carriage, a movable die mounted on the carriage opposite the stationary die, and means for operating the movable die.

4. In an apparatus for fastening fence-wires, the combination of a carriage, a support formed with grooves to receive the fence-wires, the support being held by the carriage, a die carried in the support adjacent to the grooves, a sleeve mounted on the carriage, a plunger working in the sleeve, means for driving the plunger, and a second die held by the carriage alongside the plunger and movable toward and from the first-named die.

5. The combination with a carriage, of a stationary die mounted thereon, a movable die juxtaposed to the stationary die, and a plunger in the path of which the movable die is mounted, the plunger and said movable die working together against the stationary die.

6. The combination with a body portion or framing having a guideway therein of a stationary die fixed on the frame, a reciprocal die mounted in the guideway of the body portion or framing to move in a fixed path therein toward and from the stationary die, a plunger also mounted in the end of the guideway or frame of the body to engage the reciprocating die and force the same against the stationary die and means for driving the plunger.

642,945. LAST. KELLEY C. WRIGHT, Brockton, Mass. Filed June 29, 1899. Serial No. 722,277. (No model.)



Claim.—1. As an article of manufacture, a last having a transverse stay-bolt extending through the last from side to side, a supplemental metal bottom embedded in the material of the last beneath said bolt, and a spindle-thimble in alinement with said bottom above said bolt, substantially as described.

2. A last having a transverse stay-bolt extending through the last from side to side, a spindle-thimble resting vertically above said bolt, said thimble having one or more external ribs formed thereon and extending obliquely along a considerable portion of the length of the thimble, substantially as described.

3. A last having a transverse stay-bolt extending through the last from side to side, a spindle-thimble resting vertically above said bolt, said thimble having one or more external ribs formed thereon and extending obliquely along a considerable portion of the length of the thimble, the bottom of said thimble being flat and of considerable thickness, substantially as described.

4. As an article of manufacture, a last having a transverse stay-bolt extending through the last from side to side, and provided with retaining ends engaging the wood of the last, said bolt being bent downwardly to approximate a U shape, a spindle-thimble resting vertically above the middle part of said bolt and the wood beneath the bent portion of said bolt being compressed, substantially as described.

5. As an article of manufacture, a last having a transverse stay-bolt extending through the last from side to side, and provided with retaining ends engaging the wood of the last, said bolt being bent downwardly to approximate a U shape, a supplemental metal bottom embedded in the wood of the last beneath the middle of said bolt, the wood of the last beneath said supplemental bottom being rendered dense by compression, and a spindle-thimble resting on said bolt vertically above said supplemental bottom, substantially as described.

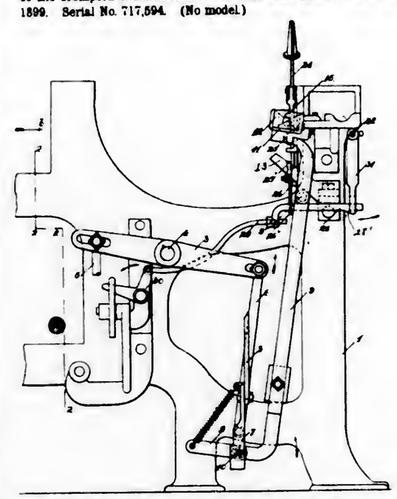
6. As an article of manufacture, a last having a transverse stay-bolt extending through the last from side to side, and provided with retaining ends engaging the wood of the last, said bolt being bent downwardly to approximate a U shape, a steel disk corresponding in size to the transverse section of the spindle-hole of the last and embedded in the wood of the last beneath the middle of said bolt, the wood of the last beneath said disk being compressed, and a spindle-thimble resting on said bolt vertically above said disk, substantially as described.

7. The herein-described spindle-thimble comprising a tubular body having a size to fit the usual spindle-hole of a last, said tubular body being closed at its bottom and provided with one or more external ribs formed thereon and extending obliquely to the length of the thimble, substantially as described.

8. The herein-described spindle-thimble for lasts, comprising a tubular body having a size to fit the usual spindle-hole of the last, said tubular body being closed at its bottom and provided with one or more external ribs formed thereon, substantially as described.

9. A last having at its heel end a spindle-hole, a spindle-thimble in said hole, and a supplemental bottom below said thimble, said supplemental bottom consisting of a disk having opposite substantially parallel plane sides, one of which serves as an abutment to rest upon an extended surface of the material of which the last is composed, and the other side of which serves to support and receive the downward pressure of the spindle-thimble, substantially as described.

642,946. LOOM. HORACE WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed May 20, 1899. Serial No. 717,594. (No model.)



Claim.—1. In a loom of the class described, the combination with the shuttle-bearing plate of the shuttle-feeder mechanism, for the extra shuttle, and the knock-off lever and shipper, of intermediate connections operated by the shuttle-bearing plate to operate the shipper and stop the loom when the shuttle is absent from the shuttle-bearing plate, substantially as shown and described.

2. In a loom of the class described, the combination with the shuttle-bearing plate of the shuttle-feeder mechanism, for the extra shuttle, and the knock-off lever and shipper, of intermediate connections, comprising an angle-lever, a lever connected with one arm thereof and engaged by the shuttle when the shuttle is on the plate of the shuttle-feeder mechanism, and in the absence of the shuttle engaged by the shuttle-plate of the shuttle-feeder mechanism, a connector attached to the other arm of said angle-lever, a second angle-lever, one arm connected with said connector, and the other arm adapted to engage the knock-off lever, to operate the same and move the shipper-lever to stop the loom, substantially as shown and described.

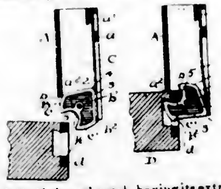
3. In a loom of the class described, the combination with the shuttle-bearing plate of the shuttle-feed mechanism for the extra shuttle, the knock-off lever and shipper, and intermediate connections, of a movable lever with a projecting part in the path of movement of the shuttle-bearing plate, said lever, through intermediate connections, being adapted to operate the shipper and stop the loom when the shuttle is absent from the shuttle-bearing plate, substantially as shown and described.

4. In a loom of the class described, the combination with the shuttle-feeding mechanism, and a movable lever with connections to the shipper-lever, adapted to stop the loom whenever the shuttle-bearing plate is moved forward without a shuttle thereon, and said shipper-lever and connections, of means to move said movable lever into an inoperative position, to make the shuttle-feeding mechanism inoperative, substantially as shown and described.

642,947. DOOR-CHECK. JOHN I. ZEISGER, Cleveland, Ohio. Filed Mar. 22, 1899. Serial No. 710,026. (No model.)

Claim.—1. The casing having a recess in its end with an overhanging edge, in combination with a double-armed catch pivoted in said recess and having one arm of a length to pass within the said overhanging edge of the casing and the other arm of a greater length

to engage therewith, thereby preventing the catch from making a false rotation, substantially as described.

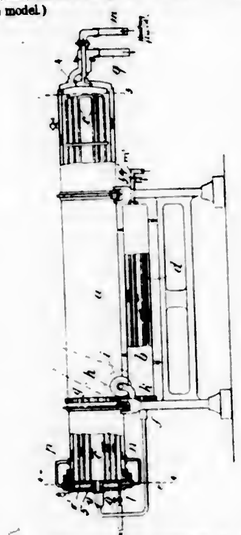


2. A substantially V-shaped catch having its extremities rounded exteriorly and of different lengths and a cavity between said extremities having a rounded bottom, the casing carrying said catch and a spring bearing against the catch, in combination with a member constructed to be engaged by said catch, substantially as described.

3. The casing and the rotative catch therein and a flat spring bearing on the catch, in combination with a dog adapted to swing in over the spring and lock it down upon the catch, substantially as described.

4. The casing and the catch and spring therein, and a dog pivotally connected with the casing and having a tapered end to swing in over the spring and prevent the catch from rotating, in combination with a keeper engaged by said catch, substantially as described.

642,948. APPARATUS FOR STERILIZING LIQUIDS. LUDWIG BACHRICH, Vienna, Austria-Hungary. Filed Nov. 7, 1899. Serial No. 736,138. (No model.)



Claim.—1. The combination, in apparatus for sterlizing, of the double-walled cylinder *a*, means for rotating it, an inlet *m* for a heating medium to the space between the walls of said cylinder at one end, an outlet *q* from said space, pipes *c* within the inner cylinder, pipe *n* between said space and one end of each of pipes *c*, pipe *p* between the other ends of said pipes *c* and said space, another cylinder, *b*, means for rotating cylinder *b*, a pipe *e* connecting the central part of cylinder *a* to cylinder *b*, and a pressure-valve *v* in pipe *e* adapted to open outward when pressure exceeds a predetermined limit in cylinder *a*.

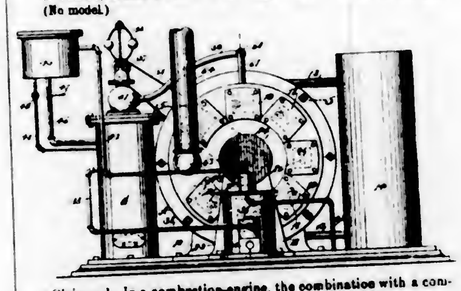
2. The combination, in apparatus for sterilizing, of cylinder *a* having an annular space for a heating medium, an inlet *m*, and outlet *q* for such medium, said cylinder having also space for material to be sterilized, a second cylinder *b*, a pipe *e*, communicating with cylinders *a*, *b*, through their axes so that the cylinders can rotate, means for rotating the cylinders, and a valve *v* in pipe *e*

3. The combination, in apparatus for sterilizing, of cylinder *a* having an annular space for a heating medium, an inlet *m* and outlet *q* for such medium said cylinder having also space for material to be sterilized, several pipes *c* also for heating medium and extending from one end to the other and back again of the space for the material to be sterilized, a second cylinder *b*, a pipe or passage *e* communicating with cylinders *a*, *b* through their axes, means for rotating the cylinders, and a valve *v* in pipe *e*.

4. The combination of the double-walled cylinder *a*, means for rotating it, an inlet *m* for a heating medium to the space between the walls of said cylinder at one end, an outlet *q* from said space, pipes *c* within the inner cylinder, pipe *n* between said space and one end of each of pipes *c*, pipe *p* between the other end of pipes *c* and said space, another cylinder *b*, means for rotating cylinder *b*, a pipe *e* connecting the central part of cylinder *a* to cylinder *b*, a pressure-valve *v* in pipe *e* adapted to open outward when pressure exceeds a predetermined limit in cylinder *a*, cylinder *b* serving also to hold compressed air or gas, the cylinders and other parts in contact with material being sterilized having a protected metal plating.

5. The combination of the double-walled cylinder *a*, means for rotating it, an inlet *m* for heating fluid, an outlet *q*, a partition dividing the space between the double walls of cylinder *a* between said inlet and outlet, pipes *c* within cylinder *a*, chambers *o*, *o'*, pipes *n* and *p* connecting with opposite ends of pipes *c* and with chambers *o*, *o'*, cylinder *b*, a connection therefrom to the interior of cylinder *a*, a pressure-valve in said connection adapted to open outward when pressure exceeds a predetermined limit in cylinder *a*, and means for rotating cylinder *b*.

642,949. COMBUSTION-ENGINE. JAMES L. BAILLIE and PERLEY R. VERITY, Shawnee, Ohio. Filed Aug. 5, 1898. Serial No. 687,855. (No model.)



Claim.—1. In a combustion-engine, the combination with a combustion-chamber, and oil and air supply pipes projecting into the same, of a pipe projecting into the chamber between the air and oil pipes, said pipe having a closed inner end and an open outer end, and an oil-pipe projecting into the said pipe, substantially as described.

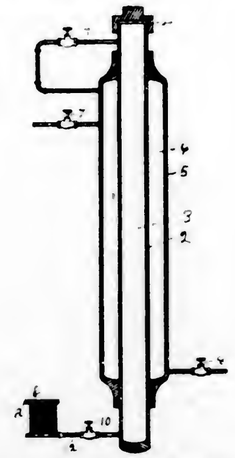
2. In a combustion-engine, the combination of a combustion-chamber, a horizontally-extending pipe in the chamber, the inner end of the pipe being closed and its outer end open, an air-pipe leading into the chamber below the horizontally-extending pipe, a gas or oil tank, a pipe leading from said tank into the chamber above the horizontally-extending pipe, and a second pipe leading from the tank into the said horizontally-extending pipe, substantially as described.

3. In a combustion-engine, the combination of a casing having chambers in its sides, a turbine driving-wheel mounted in the casing and provided with pockets in its sides, nozzles in the chambers of the casing and discharging into the pockets of the turbine wheel, a combustion-chamber, a governor-casing on the combustion-chamber and communicating therewith, a hollow partition in said casing and provided with valve-seats, a pipe leading from the hollow partition and connected with each chamber of the driving-wheel casing, valves adapted to be seated on the seats of said partition and a governor driven from the driving-wheel and having the said valves secured to its rod, substantially as described.

4. In a combustion-engine, the combination with a combustion-chamber, a casing, a connection between the casing and chamber and a wheel in the casing driven by the products of combustion from said chamber, of a disk on the shaft of the said wheel, two cranks eccentrically secured to the disks, an air-pump having its piston connected with one crank, an oil-pump on the upper part of the air-pump and having its piston connected with the other crank, and connections between the said pumps and combustion-chamber, substantially as described.

642,950. APPARATUS FOR CEMENTING DENTS IN REED-RIBS. LUTHER C. BALDWIN, Manchester, N. H. Filed Sept. 15, 1897. Serial No. 651,733. (No model.)

Claim.—1. An apparatus of the nature indicated, comprising a receptacle for the cementing agent and provided with a seat upon which the end of the reed-rib frame rests, an outlet from said receptacle opening through said seat and means for forcing the cementing agent from the receptacle through the seat into the tubes of the reed-rib frame; substantially as described.



2. An apparatus of the nature indicated, comprising a receptacle for the cementing agent and provided with a seat formed to support and close the ends of the reed-rib frame, an outlet from said receptacle opening through said seat, and means for forcing the cementing agent from the receptacle through the seat into the tubes of the reed-rib frame; substantially as described.

3. An apparatus of the nature indicated comprising a receptacle for a cementing agent, and provided with a seat upon which the end of the reed-rib frame rests, a casing in proximity to said receptacle whereby a chamber is formed between the wall of the casing and the wall of the receptacle, an outlet from said receptacle, an inlet for a fluid under pressure into the chamber, and a passage between the chamber and the receptacle; substantially as described.

4. An apparatus of the nature indicated comprising a receptacle for a cementing agent, a casing surrounding said receptacle whereby a chamber is formed between the wall of the casing and the wall of the receptacle, an outlet from said receptacle, an inlet for a fluid under pressure into the chamber, and a passage between the chamber and the receptacle, said receptacle having a seat as 12; substantially as described.

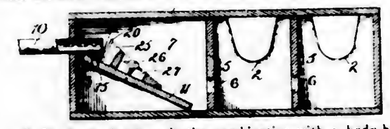
642,951. BOTTLE AND STOPPER THEREFOR. GIUSEPPE BERTIVENGA and ROXIE LEROY, Hartford, Conn.; said Leroy assignor of one-half his right to John R. Farrell, same place. Filed Sept. 15, 1899. Serial No. 730,548. (No model.)



Claim.—In combination with a bottle having a vent and a spout carried by the neck thereof, of a stopper provided with two pairs of different-sized depressions or recesses, each of said depressions having a channel or groove leading therefrom to the lower edge of the stopper, one of said depressions being adapted to register with the spout while its opposite depression registers with the vent.

642,952. WATERING-TROUGH. JEFFERSON M. BASS, Reynolds, Ind. Filed Nov. 1, 1899. Serial No. 735,451. (No model.)

Claim.—1. In a watering-trough, the combination with the body having openings at its sides for the heads of live stock, partitions between said openings pierced with holes near their lower edges and forming individual compartments within the body and a main compartment at one end thereof, and an inlet-pipe passing through the end of the body into said main compartment; of a float fitting loosely within said compartment, a pivotal support therefor, a bracket having a longitudinal slot, a screw passing through the same into the float, and a valve at the end of the bracket closing against the end of the pipe when the float rises, all as and for the purpose set forth.



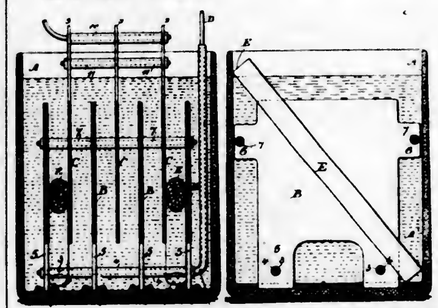
2. In a watering-trough, the combination with a body having several individual compartments and a main compartment, a feed-pipe entering the end of the body and extending into said main compartment, and a rod across this compartment and entering holes in the sides of the body and having a notch engaged by the inner end of said pipe; of a float beneath the rod and having staples loosely embracing it so as to form a pivotal support, a bracket adjustably mounted on the float, and a valve moved by the bracket into contact with the inner end of the pipe when the float rises, substantially as described.

3. In a watering-trough, the combination with a body whose upright sides are provided with opposite holes, a transverse rod extending across the same and partly into said holes, and plugs in the outer ends of the latter; of an inlet-pipe entering the body, a float pivoted thereon, and a valve pressed against the end of the pipe by the rise of the float, as and for the purpose set forth.

4. In a watering-trough, the combination with the body, an inlet-pipe extending thereinto, a flap-valve at the end of the pipe for closing the same, and a backing behind said valve and pivotally supported by the pipe; of a float pivotally mounted within the body, and a bracket adjustably mounted on the float and having a rounded projection engaging said backing as the float rises, as and for the purpose set forth.

5. In a watering-trough, the combination with a body, a feed-pipe entering the end of the body, a rod across within the latter and entering holes in the sides of the body and having a notch engaged by the inner end of said pipe and plugs in the outer ends of said holes; of a float beneath the rod and having staples loosely embracing it so as to form a pivotal support, a bracket on the float, and a valve moved by the bracket into contact with the inner end of the pipe when the float rises, as and for the purpose set forth.

642,953. ELECTRIC BATTERY. HENRY BLUMENBERG, Jr., and FREDERICK C. OVERBURY, New York, N. Y. Filed Mar. 27, 1899. Serial No. 710,573. (No model.)



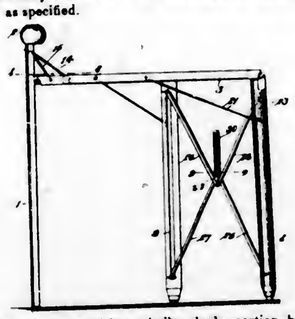
Claim.—1. A battery-cell adapted to receive mercury in the bottom, in combination with plates and metallic connections holding the plates parallel and in a group, such metallic connections being near the bottom edges of the plates so as to become amalgamated upon the exposed surfaces, the mercury also passing up upon the surfaces of the plates, substantially as set forth.

2. In a battery-cell, a range of parallel zinc plates having legs at their lower edges, metallic connections passing through the legs and means for holding the plates parallel and equidistant, arms extending out near the upper edge of the plate and connections passing through such arms to support the same and a conductor connected with the metallic connections and extending up to the top of the cell, substantially as set forth.

642,954. CANE SEAT. NATHANIEL BOIS, New York, N. Y. Filed June 29, 1899. Serial No. 722,262. (No model.)

Claim.—1. A cane seat, comprising a hollow body portion, side pieces pivotally connected to the body portion and mounted to swing

divergently, a seat material secured to said side pieces, and extension-pieces pivotally connected to the lower ends of the side pieces, substantially as specified.



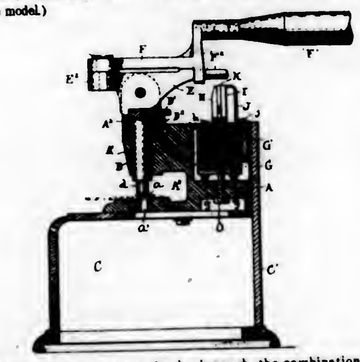
2. A cane seat, comprising a hollow body portion, hollow side pieces mounted to swing on the body portion so as to diverge from the body portion, a seat material secured to the side pieces and adapted to be folded into the space within the body portion of the side pieces, and extension-pieces having hinged connection with the lower ends of the side pieces, substantially as specified.

3. A cane seat, comprising a hollow body portion, hollow side pieces mounted to swing divergently relatively to the body portion, a seat material secured to said side pieces and adapted to be folded into the same when the device is closed, extension-pieces mounted to swing on the lower ends of the side pieces, braces for connecting the side pieces and said extension-pieces, and braces extended between the said side pieces and the body portion, all of said braces being adapted to be folded into the device, substantially as specified.

4. A cane seat, comprising a body portion, side pieces having hinged connection with the body portion so as to swing divergently therefrom, a seat material secured to the side pieces, extension-pieces having swinging connection with the side pieces, and folding braces connecting said extension-pieces, substantially as specified.

5. A cane seat, comprising a body portion, side pieces mounted to swing on the body portion, a seat material secured to the side pieces and adapted to fold within the same, extension-pieces having swinging connection with the lower ends of the side pieces, lower braces pivotally connected at the lower ends to the extension-pieces and pivoted together at their upper ends, upper braces pivotally connected at their upper ends to the extension-pieces and pivoted together at their lower ends, the said braces being adapted to fold within the extension-pieces, and brace-rods having pivotal connection with the side pieces and sliding connection with the extension-pieces, substantially as specified.

642,955. SELF-REGISTERING CHECK-PUNCH. GEORGE M. BRADY, Chattanooga, Tenn. Filed May 23, 1899. Serial No. 717,915. (No model.)

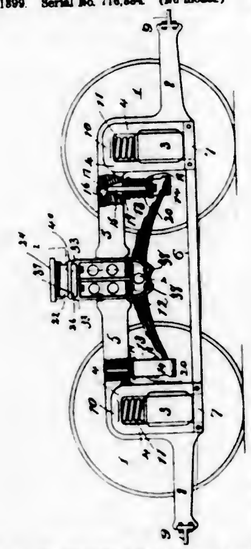


Claim.—1. In an automatic check-punch, the combination with a punching-die, of an actuating-cam provided with a movable handle, a slotted slide-plate, slotted guide-plates therefor, said plates being engageable by a pin on the handle, and registering mechanism actuated by the slide-plate, substantially as described.

2. In a check-punch, the combination with a spring-provided punching device, of an actuating-cam, a movable handle for said cam, a slotted slide-plate, slotted guide-plates therefor, a register operated by the slide-plate, and a pin on the movable handle that engages the slotted plates.

3. In a check-punch, the combination with a spring-provided punching device, of an actuating-cam, a movable handle pivoted thereto and having a forwardly-projecting pin, a slide-plate having diversely-inclined slots, slotted guide-plates for the slide-plate, a register, one of whose ratchet-wheels is engaged by a pivotal pawl on the slide-plate, and a spring-pin in the end of said slide-plate for returning the same to position, substantially as described.

642,956. CAR-TRUCK. JOHN A. BRILL, Philadelphia, Pa. Filed May 15, 1899. Serial No. 716,884. (No model.)



Claim.—1. In a car-truck, the combination with the truck-frame, of longitudinally-disposed equalizers, a bolster supported by the equalizers above and extending across and beyond the top bar of the truck-frame, side bearings at the outer ends of the bolster, and a center bearing on the bolster, substantially as described.

2. The combination with a truck having a truck-frame, of longitudinally-disposed equalizers, a bolster supported by the equalizers above and extending across and beyond the top bar of the truck-frame, a car-body having side sills and a body-bolster, a center bearing extending between the truck and body bolsters, and side bearings extending between the side sills and truck-bolster ends, substantially as described.

3. The combination of a car-truck having a frame, a bolster extending across and above said frame, means for movably supporting said bolster on said frame, a center bearing on said bolster, and side bearings secured to said bolster above the truck-frame and exterior thereto, substantially as described.

4. The combination of a car-truck having a frame, a bolster supported on said frame and lying above the same, a car-body having a bolster, a center bearing having complemental parts on the body and truck bolsters, side bearings secured to the truck outside of the truck-frame, and complemental side bearings on the body-bolster, substantially as described.

5. The combination with the side sills of a car-body, of a truck having a bolster supported by the frame of the truck above and extending across and beyond the side frames thereof, the car-body having a bolster, a center bearing having complemental parts on the truck and body bolsters, side bearings having complemental parts on the side sills, and truck-bolster, the side bearings taking the weight of the car-body, the center bearings being a mere drawing and pivotal point, substantially as described.

6. The combination of a car-body having side sills, and a car-truck, having a frame, of a bolster movably supported from said truck-frame and lying above the same, said bolster comprising a flat bar having its center portion arched upwardly and horizontal ends disposed below the plane of the central portion and under the side sills, a center bearing on the arched portion, and side bearings on the horizontal ends engaging rub-plates on the side sills, substantially as described.

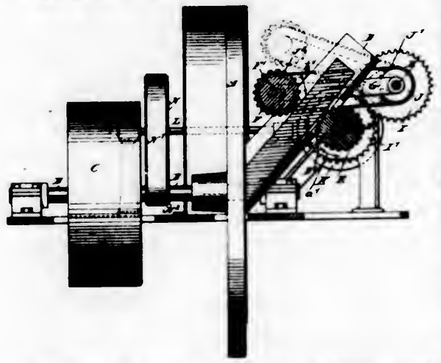
7. In a car-truck, the combination with the truck-frame, the paired brackets embracing the frame top bar and having the horizontal shelves, means for supporting the brackets from the truck-frame, and the bolster comprising the crown-piece 23, downwardly-deflected intermediate portions 22, and horizontally-disposed ends 26, the horizontal ends being secured to the shelves of the brackets, a center bearing on the crown-piece, and side bearings on the horizontal ends 26, substantially as described.

8. In a car-truck, the combination with the top bar 5 of the side frames, of the paired brackets having inwardly and outwardly extending shelves, the shelf of the outer bracket extending outwardly from the top bar, a bolster comprising the crown 23, downwardly-deflected intermediate portions 22, and horizontal portions 26, the said horizontal parts being secured to the shelves of the brackets, a center bearing secured to the crown, and side bearings secured to the horizontal parts of the bolster over the outwardly-extending shelf 28 of the bracket 27, and means for supporting the brackets from the bar 5, substantially as described.

9. In a car-truck, the combination with the paired brackets, each having a horizontal shelf extending inwardly and outwardly, respectively, from the top bar of the truck side frame, the brackets embracing said top bar, means for supporting said brackets from the top bar, and a bolster resting on and secured to the respective shelves of said brackets, substantially as described.

10. The bolster-bracket comprising the upright side web 27, and pendent web 35, the inwardly-extending lip 36 at the union of the vertical and pendent webs, the outwardly-extending shelf 28, and outwardly-extending webs 30, connecting said shelf and upright and pendent webs, substantially as described.

642,957. FEED ATTACHMENT FOR WOOD-PULP CHIPPERS. SAMUEL W. BUTTERFIELD, Three Rivers, Canada. Filed Sept. 12, 1899. Serial No. 730,202. (No model.)

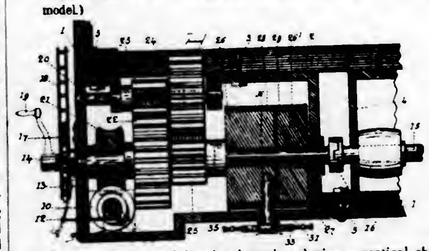


Claim.—1. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, an inclined feed-table having an opening in its bottom, a lower feed-roller below the table and operated from the cutter-shaft, said roller projecting into the opening of the feed-table, of a shaft in rear of the feed-roller shaft and geared therewith, arms mounted loosely on said shaft, an upper feed-roller mounted in the free ends of the arms and adapted to engage the upper surface of the timber, and means for operating said upper feed-roller from the shaft upon which its arms are mounted, substantially as described.

2. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, and an inclined table having an opening in its bottom, of a shaft below the table and provided with a gear-wheel, a feed-roller mounted on the shaft and projecting into the opening of the table, means for operating the feed-roller shaft from the cutter-shaft, a shaft in rear of the feed-roller shaft and provided with a gear-wheel meshing with the gear-wheel thereof, arms mounted loosely on the said shaft, an upper feed-roller mounted in the free ends of the said arms, and means for operating the upper roller from the said shaft, substantially as described.

3. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, an inclined feed-table having an opening in its bottom, a shaft below the feed-table and provided with a gear-wheel, a lower feed-wheel on the shaft and projecting into the opening of the feed-table, and means for operating the shaft of the feed-roller from the cutter-shaft, of a shaft in rear of the shaft of the said roller and provided with a gear-wheel meshing with the gear-wheel of the feed-roller shaft, arms loosely fulcrumed on the said shaft, an upper roller mounted in the free ends of the arms, a sprocket-wheel on the shaft of the said upper roller, a sprocket-wheel on the shaft upon which the arms are mounted, and a sprocket-chain passing around said wheels, substantially as described.

642,958. BURIAL-CASKET-LOWERING DEVICE. MITCHELL J. CAMERON, Auburn, N. Y. Filed Nov. 13, 1899. Serial No. 736,758. (No model.)



Claim.—1. In a burial-casket-lowering device a vertical shaft having a worm, and pivoted at its bottom end so said vertical shaft and worm may be moved outward or inward, and means for retaining the same in either position; providing means for turning said vertical shaft and the main shaft of the lowering mechanism on the outer side of the boxing; a brake-drum divided diametrically in two parts or divisions one of which said divisions is made fast to the gearing and loose on said main shaft, and the other division made fast to said main shaft; and a brake-band on the outer sides of both of said divisions of said brake-drum, and means for controlling the same on the outer side of the boxing substantially in the manner and for the purpose herein described and shown.

2. In a burial-casket-lowering device a boxing 2, attached to the framework 1, and having a corner-piece 5, provided with a slot 11, a cover 6, hinged on its top side and a spring 13, provided with a pivoted lock-pin 12, in combination with a vertical shaft 7, carrying a worm 10, pivoted at its bottom end in said boxing 2; the main shaft 14, adapted at one end to turn the shaft 15, having the lowering straps or cords of one side of the framework, attached thereto, and carrying the worm-gear 21, and the spur gear-wheel 22, fastened together thereon, the pinion 25, and the division 26, of the diametrically-divided brake-drum fastened together and loose thereon, and the division 26', of said diametrically-divided brake-drum fast thereon, said main shaft 14, being supported in bearings formed in said boxing 2; the shaft 20, carrying the pinion 23, and the spur gear-wheel 24, fastened together and loose thereon, said shaft 20, being supported in lugs formed on said boxing 2; and the screw-shaft 31, actuating the brake-band 28, and having the brake-wheel 33, provided with spokes 34, said screw-shaft 31, being carried in a bearing on said boxing 2, substantially in the manner and for the purpose herein shown and described.

3. In a burial-casket-lowering device the vertical shaft 7, having its bottom end pivoted in the bottom of the boxing 2, and its upper end adapted to receive a hand-crank and carrying a worm adapted to actuate the worm-gear 21, of the main shaft 14, connected with the shaft 15, to which the lowering straps or cords are attached at one side of the framework, in combination with a corner-piece 5, having a slot 11, in which said vertical shaft is adapted to move, and a lock-pin 12, pivoted to a flat spring 13, and adapted to retain said vertical shaft 7, in desired place in said slot 11, of said corner-piece 5, substantially in the manner and for the purpose herein shown and described.

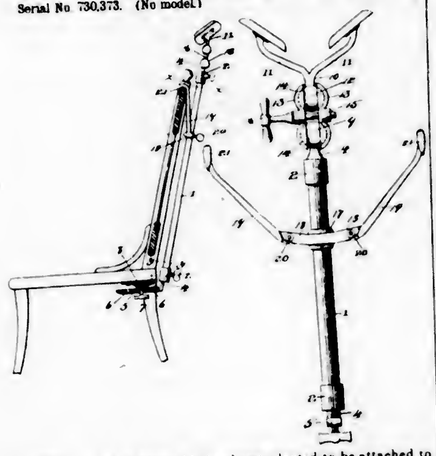
4. In a burial-casket-lowering device the vertical shaft 7, having its bottom end pivoted in the bottom of the boxing 2, and its upper end adapted to receive a hand-crank and carrying a worm between the said ends in combination with the main shaft 14, mounted in bearings of the boxing 2, having one end adapted to receive a hand-crank and the other end adapted to turn the shaft 15, to which the lowering straps or cords are attached on one side of the framework, and carrying a worm-gear 21, and the spur gear-wheel 22, fastened together on said main shaft 14, the pinion 25, and the division 26, of the diametrically-divided brake-drum fastened together but loose on said main shaft 14, and the division 26', of said diametrically-divided brake-drum fast on said main shaft 14; and a shaft 20, supported in lugs of the boxing 2, and carrying the pinion 23, and the spur gear-wheel 24, fastened together and loose on said shaft 20, substantially in the manner and for the purpose herein described and shown.

5. In a burial-casket-lowering device a diametrically-divided brake-drum one division of which is carried loose upon the main shaft

14, and connected with the pinion 25, and the other division of which is carried on and fastened to said main shaft 14, in combination with a brake-band 28, having an inner lining 29, and the screw-shaft 31, provided with a brake-wheel 33, having spokes 34, terminated with caps or pads 35, adapted to be actuated substantially in the manner and for the purpose herein described and shown.

6. In a burial-casket-lowering device the boxing 2, attached to the framework 1, having a corner-piece 5, provided with the slot 11; a spring 13, having a pivoted lock-pin 12; a pivot-point at the bottom for pivoting the vertical shaft 7, provided with a worm 10, adapted to operate the worm-gear 21, and extended above the surface of said boxing and adapted to receive a hand-crank; bearings for the main shaft 14, having one end extended beyond the end of said boxing and adapted to receive a hand-crank and having the worm-gear 21, and the spur gear-wheel 22, fastened together on said shaft, the pinion 25, and the division 26, of the diametrically-divided brake-drum fastened together and loose on said shaft, and the division 26', of said divided brake-drum fastened on said shaft, the other end of which is adapted to turn the shaft 15, to which the lowering straps or cords are attached on one side of the framework; lugs supporting the shaft 20, carrying the pinion 23, and the spur gear-wheel 24, fastened together and loose thereon; and a bearing supporting the screw-shaft 31, of the brake-band and having a brake-wheel 33, provided with spokes extending above the surface of said boxing and adapted to operate said brake-band, arranged and combined to operate substantially in the manner and for the purpose herein specified and shown.

642,959. HEAD-REST. ALEXIS E. CARON, Kankakee, Ill., assignor of one-half to Telesphore E. Caron, same place. Filed Sept. 13, 1899. Serial No. 730,373. (No model.)



Claim.—1. In an adjustable head-rest adapted to be attached to any chair and provided with arms adapted to hook over the back of such chair, a collar in two parts adapted to slide on the body of such head-rest, said parts provided with perforated ears, those on one part slotted to receive said arms, and set-screws passing through said perforations and the ends of said arms and adapted to clamp said collar on said body, substantially as shown and described.

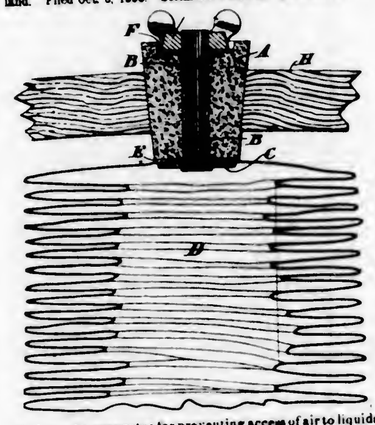
2. In an adjustable head-rest provided with a body adapted to be attached to the back of any chair, arms adapted to hook over the back of such chair, the lower ends of said arms pivotally mounted on the body of said rest and shouldered to allow only desired upward movement, substantially as shown and described.

3. In an adjustable head-rest adapted to be attached to any chair and provided with slidable rods carrying the head-rest and means of attachment to the bottom of said chair, a body consisting of a tube having the two ends half closed on opposite sides, substantially as shown and described.

4. In an adjustable head-rest adapted to be attached to any chair, a body consisting of a tube having the two ends half closed on opposite sides, half-round rods entering said tube from opposite ends and sliding alongside each other in said tube, and set-screws passing through the closed sides of said ends and adapted to secure said rods in position, substantially as shown and described.

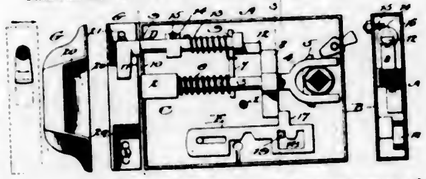
5. A head-rest consisting of a tube having each end half closed but on opposite sides, half-round rods slidably secured in such ends, one rod having on its outer end an arm provided with screw-threaded holes and adapted to be secured against the bottom of the chair-seat, the other rod provided at its outer end with a ball, a head-support secured on an arm having on its end a ball, two plates adapted to receive and clamp said balls between them, a collar in two parts adapted to slide on said tube, said parts provided with perforated ears, adapted to clamp said collar on said tube, the ears on one part being slotted, and arms adapted to hook over the back of said chair and pivotally mounted in said slotted ears with a limited upward movement, substantially as shown and described.

642,960. APPARATUS FOR PREVENTING ACCESS OF AIR TO LIQUIDS STORED IN VESSELS. DESMOND CLIBBORN, London, England. Filed Oct. 8, 1898. Serial No. 693,033. (No model.)



Claim.—An apparatus for preventing access of air to liquids stored in vessels when being drawn off, consisting of a bung or shive A containing an open-ended tube B having at one end an oval-shaped plate C and at the other or screw-threaded end a fly-nut G; washers E, F arranged at either end of bung or shive A; compressible bag D held by its mouth or opening between plates C and E at the lower end of bung or shive A, as set forth.

642,961. LOCK AND LATCH. CHARLES CLOSE, Marietta, Ohio. Filed Jan. 26, 1899. Serial No. 703,475. (No model.)



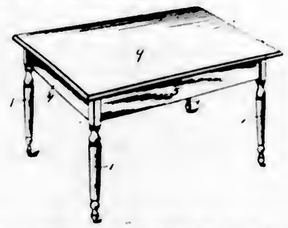
Claim.—1. The combination with a lock and latch casing, of a spring-actuated slide-bolt having a cross-bar 8 thereon, a spring-actuated rocking trip provided at one end with a laterally-projecting arm or lever adapted to be struck by the keeper to rock said trip, the rocking trip also provided with a lug 14 on its side and an angular lug 12 eccentrically placed on its inner end in position to engage the cross bar and a removable set-screw 15 capable of being inserted from either side of the lock-casing.

2. The combination with a lock and latch casing, of a spring-actuated slide bolt having a cross-bar 8 thereon, a spring-actuated rocking trip provided at one end with a laterally-projecting arm or lever adapted to be struck by the keeper to rock said trip, the rocking trip also provided with a lug 14 on its side and an angular lug 12 eccentrically placed on its inner end in position to engage the cross-bar, a removable set-screw 15 capable of being inserted from either side of the lock-casing and a tumbler adapted to be controlled by a key for engaging said cross-bar to hold the bolt securely in place.

3. The combination with a lock and latch casing, of a spring-actuated slide-bolt having a cross-bar 8 thereon, a spring-actuated rocking trip provided at one end with a laterally-projecting arm or lever, said rocking trip also provided with a lug 14 on its side and an angular lug 12 eccentrically placed on its inner end in position to engage the cross-bar, a removable set-screw 15 capable of being inserted

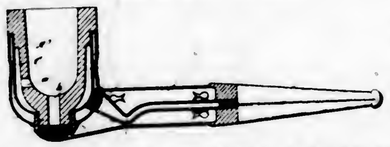
from either side of the lock casing and a reversible keeper having two external inclines 20 thereon, one of which is always in position to engage the arm 11 of the rocking trip when the door is closed, said keeper also having an opening or recess to receive the lock released by said trip when struck by the incline.

642,962. TABLE. JOHN DANNER, Canton, Ohio. Filed May 22, 1899. Serial No. 717,714. (No model.)



Claim.—The combination of table-legs, side rails or bars detachably connected thereto, a top provided with cleats pivoted catch-bars connected to the end bars or rails and provided with sockets, and spring bolts or buttons located upon the table-top to engage the sockets located in the pivoted catch-bars, substantially as specified.

642,963. TOBACCO-PIPE. EMIL P. DATOW, New Orleans, La. Filed Aug. 8, 1899. Serial No. 726,567. (No model.)



Claim.—1. A tobacco-pipe, comprising a bowl adapted to contain the tobacco, and a double-walled outer shell surrounding the bowl at a distance to form a chamber around the same, the inner wall of said shell being imperforate so that it is cut off entirely from connection with the tobacco-containing shell, while the outer wall of the surrounding chamber is apertured for the access and circulation of air.

2. A tobacco-pipe, comprising a bowl having a smoke-outlet in its side above the bottom of the bowl, a settling-chamber in communication with the bottom of the bowl, a cooling and draft chamber around said bowl and into which opens said smoke-outlet, the cooling-chamber being distinct and separate from the said settling-chamber, and an air-circulating chamber for the circulation of atmospheric air, and arranged around said cooling and draft chamber, substantially as shown and described.

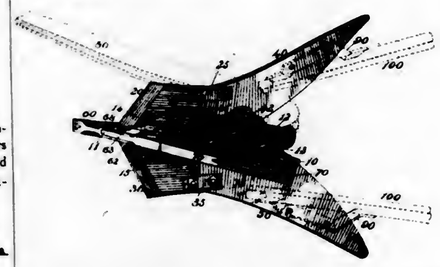
3. A tobacco-pipe, comprising a bowl having a smoke-outlet in its side above the bottom of the bowl, a settling-chamber in communication with the bottom of the bowl, a cooling and draft chamber around said bowl and into which opens said smoke-outlet, the cooling-chamber being distinct and separate from the said settling-chamber, a draft-pipe connected with said cooling and draft chamber, a mouthpiece connected with said draft-pipe, and a perforated stem for the air to circulate through and through which extends said draft-pipe from the cooling and draft chamber to the mouthpiece, substantially as shown and described.

4. A tobacco-pipe, comprising a bowl adapted to contain the tobacco and having a nicotine-outlet at its bottom, and a separate smoke-outlet above its bottom, a stem communicating with the smoke-outlet, and a nicotine-chamber located at the bottom of the pipe and communicating with the nicotine-outlet of the bowl, the lower wall of said nicotine-chamber being upon the outside of the pipe and thus exposed to contact with the atmosphere.

5. A tobacco-pipe, comprising a bowl having a smoke-outlet in its side above the bottom of the bowl, a settling-chamber in communication with the bottom of the bowl, a cooling and draft chamber around said bowl and into which opens said smoke-outlet, the said cooling-chamber being distinct and separate from the said settling-chamber, an air-circulating chamber surrounding said cooling and draft chamber, a draft-pipe having a downward bend, a saliva-detainer in the entrance end of the draft-pipe, said draft-pipe connecting with said cooling and draft chamber, a perforated stem for the circulation of air and through which extends said draft-pipe, and a mouthpiece on said stem and opening into said draft-pipe, substantially as shown and described.

6. A tobacco-pipe, comprising a bowl adapted to contain the tobacco and having a nicotine-outlet at its bottom, and a separate smoke-outlet above its bottom, an outer shell forming a smoke-chamber surrounding the bowl, a stem communicating with said smoke-chamber, a nipple leading downwardly from the nicotine-outlet of the bowl through the smoke-chamber, and a nicotine-chamber located at the bottom of the said nipple, the lower wall of said nicotine-chamber being upon the outside of the pipe and thus exposed to contact with the atmosphere.

642,964. PLOW. WILLIAM DAVIDSON, Evansville, Ind., assignor to Henry F. Blount, same place. Filed Nov. 6, 1899. Serial No. 736,001. (No model.)



Claim.—1. In a plow, the combination of a plow-body comprising a laterally-flanged vertical web beveled at its front end, a plow-point fitting said beveled front end and extended backward and locking under the flanged portion of said body, and means for securing said plow-point to said web.

2. In a plow, the combination of a plow body or frog comprising a vertical web adapted to serve as a keel and provided with a beveled toe at its front end and with lateral flanges on its opposite sides along its front edge, plowshares secured to said flanges, and a detachable plow-point adapted to fit said beveled toe and provided with tongues disposed side by side and embracing said toe and having their upper edges shaped to engage said flanges.

3. In a plow, the combination of a plow body or frog comprising a vertical web adapted to serve as a keel and provided with a beveled toe at its front end and with side flanges at its opposite sides along its front edge, plowshares secured to said flanges, and a detachable plow-point adapted to fit said beveled toe and provided with a lip overlapping said plowshares and with tongues disposed side by side and embracing said toe and having their upper edges shaped to engage said flanges.

4. In a plow, the combination of a plow body or frog comprising a vertical web provided with lateral flanges along its upper front portion and having a beveled toe, plowshares secured to said flanges and terminating substantially even with said toe, and a detachable plow-point having a beveled socket adapted to fit said beveled toe and to engage said flanges.

5. A detachable plow-point for a plow comprising a vertical web having an inclined upper edge provided with lateral flanges, and tongues connected to the rear end of said vertical web and extending backward side by side therefrom, and adapted to embrace the plow-frog, the rear ends of said flanges forming a lip adapted to overlap the tongues and form a socket for the plowshares.

6. A detachable plow-point for a plow having a lip adapted to overlap the plowshares, and tongues extending rearward side by side and adapted to embrace the toe of the plow-frog.

7. A detachable plow-point for a plow provided with tongues extending rearward side by side and forming a socket for the toe of the plow-frog, the front end of said socket being beveled and the upper edges of said toogues being inclined.

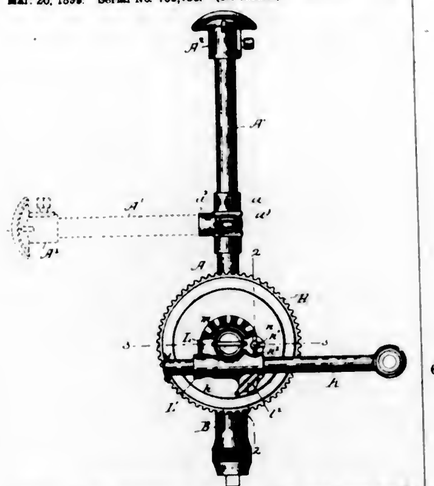
8. A detachable plow-point for a plow provided with wedge-shaped tongues disposed side by side and extending rearward from the body of the plow-point and forming a socket for the toe of the plow-frog.

9. A detachable plow-point for a plow provided with tongues disposed side by side and extending rearward from the body of the plow-point and forming a socket for the toe of the plow-frog, the front end of said socket being beveled.

10. In a plow, the combination of a plow body or frog provided with lateral projections, and a detachable plow-point having tongues disposed side by side and extending rearwardly from its body and engaging the lateral projection of the frog

11. In a plow, the combination of a plow body or frog beveled at its front end and provided with lateral projections, and a detachable plow-point having a socket adapted to fit said beveled toe and provided with tongues disposed side by side and extending rearwardly from the body of the plow-point, said tongues engaging said lateral projections of the plow-frog.

642,965. DRILLING-MACHINE. LEONARD M. DAVIS, Miller's Falls, Mass., assignor to the Miller's Falls Company, same place. Filed Mar. 20, 1899. Serial No. 709,730. (No model.)



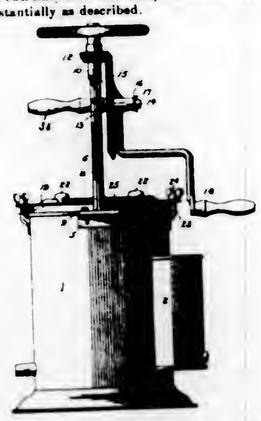
Claim.—1. The combination, in a breast-drill, of the main spindle A, provided with the socket a, having the projection a^1, and the thumb-screw a^2, with the detachable spindle A', adapted to fit into the socket a, either in prolongation of the main spindle or at right angles thereto, substantially as and for the purposes set forth.

2. The combination of the stationary drill-spindle A, the movable spindle B', provided with the beveled gear-wheel E; the slide D, movably secured to the said spindle A, and having the arbor N; the gear-wheel H, having the internal gear-teeth G, the bevel-gear-wheel attachment F, and the exterior teeth m, the said wheel H, loosely journaled on said arbor N; the crank and operating holder L, provided with suitable apertures for receiving the crank K, and the dog d, and also having suitable means for holding or securing the said crank and dog in said holder; the said holder loosely journaled on arbor N; the dog d adapted to be movable and reversible in connection with its operation with teeth m, and having the spring d^4; and the securing set-screw A, adapted to hold the said wheel H, and the holder L, together; and also, to hold the said wheel H, in operative connection with the gear-wheel E, and also to enable the said parts to be disconnected and readjusted, all substantially as and for the purposes set forth.

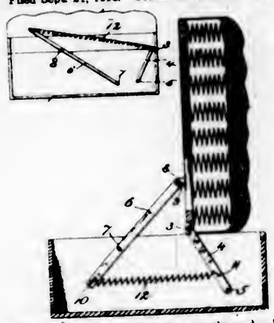
642,966. CHURN. GEORGE W. DISMAN, Lima, Ohio, assignor of one-half to William T Agerter, same place. Filed May 6, 1899. Serial No. 715,816. (No model.)

Claim.—1. The combination with a cylindrical churn-body, of angle-brackets secured to opposite sides of the top portion thereof, the dasher-shaft, the arched frame having a bearing at its apex supporting the dasher-shaft and comprising downwardly-diverging arms having feet at their lower ends detachably secured, respectively, to said angle-brackets, the lid fitting the upper end of the churn-body between the said diverging arms and composed of two semicircular sections susceptible of being separately removed and replaced while the arched frame remains in a fixed position on the angle-brackets, and a clamp-bar for securing said lid-sections in position, substantially as described.

2. The combination with a cylindrical churn-body, of angle-brackets secured to opposite sides of the top portion thereof, the dasher-shaft, the arched frame having a bearing at its apex supporting the dasher-shaft and constructed with downwardly-diverging arms having feet at their lower extremities detachably secured, respectively, to said angle-brackets, the lid having a rabbeted periphery fitting down into the churn-body and resting against the upper edge thereof, said lid being composed of two semicircular sections separately removable and replaceable while the arched frame remains fixed to said angle-brackets, the clamp-bar having a central slot to fit the churn-dasher and open end slots at its extremities, the tail-screws secured to the churn-body and adapted to engage said open end slots at the extremities of the clamp-bar, and clamp-nuts on the tail-screws, substantially as described.



642,967. OPENING MECHANISM FOR BOX-COUCHES. WILLIAM S. DUVALL, Washington, D. C., assignor to the Seng Company, Chicago, Ill. Filed Sept. 21, 1898. Serial No. 691,527. (No model.)



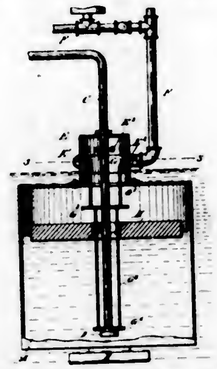
Claim.—1. The combination with a receptacle and a lid, of lifting-levers fulcrumed in the receptacle near its rear end and pivoted at their upper ends to the rear edge of the lid back of their fulcrum-points in the receptacle, rigid raising-levers fulcrumed in the receptacle and pivoted to the lid in advance of the lifting-levers, and springs for raising and for actuating said levers and normally occupying a partially-inactive position with relation to the same when the lid is closed and adapted to increase their tension on said levers after a partial raising of the lid.

2. In a box-couch, the combination with a receptacle and a lid, of means for moving the rear end of the lid forward and upward on the arc of a circle and so as to cause the said rear end to clear the upper edge of the receptacle during said movement, a pair of rigid raising-levers pivotally connected to the lid and receptacle and adapted to raise the front of said lid, and a pair of springs connected and adapted to actuate said raising-levers, said springs occupying a partially-inactive position with relation to said levers when the lid is closed and adapted to increase their tension on said levers subsequent to a partial raising of the lid.

3. The combination with a receptacle and independent lid for the same, of a pair of rear lifting-levers fulcrumed in the receptacle near its rear wall and pivotally connected at their upper ends to the rear portion of the lid, a pair of raising-levers pivotally connected to the lid and receptacle in advance of the lifting-levers and extended beyond one of their said pivotal points, and coiled springs for acting on said extended ends for the purpose of vibrating the levers, said coiled springs being arranged in substantially inactive positions with relation to said levers when the said lid is closed and so as to aid in vibrating the levers when said lid has been partially raised.

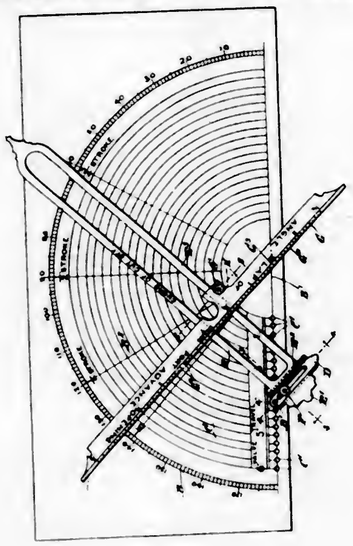
4. The combination with a receptacle and a lid for the same, of a pair of lifting-levers fulcrumed in the receptacle and in rear thereof pivoted to the lid near its rear wall, a pair of raising-levers longer than the lifting-levers pivotally connected to the lid and receptacle in advance of the lifting-levers and having their ends extended beyond their pivot-points in the said lid, and coiled springs connected to said extended ends of the raising-levers within the lid and connected to a point within the latter, said springs being arranged relative to the lifting-levers so that they are substantially inactive when the lid is closed and are capable of aiding in the vibration of said raising-levers after a partial raising of the lid.

642,968. APPARATUS FOR RAISING LIQUIDS. RALPH W. ELLIOTT, Oakley, Cal. Filed Sept. 20, 1899. Serial No. 731,092. (No model.)



Claim.—An apparatus for raising liquids, comprising a vessel having an inlet for the liquid to be raised and provided at the top with an air-inlet and an air-outlet, an apertured valve arranged to alternately close the air-inlet and the air-outlet, a liquid-outlet pipe arranged centrally or axially with respect to said valve and passing therethrough, rods extending downwardly from the valve and provided with collars having guided movement on the liquid-outlet pipe, and a float movable on said rods between the collars.

642,969. MACHINE FOR MEASURING OR LAYING OUT SLIDE-VALVES. PETER ELLIS and ARCHIBALD A. WHITELAW, Wellington, New Zealand. Filed May 5, 1899. Serial No. 715,688. (No model.)



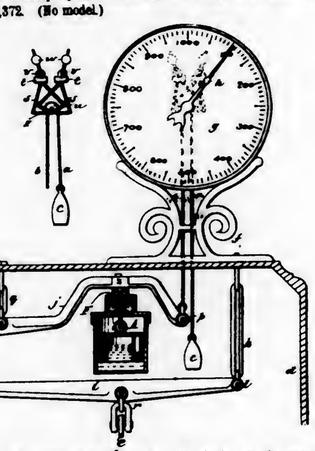
Claim.—1. A laying-out device for slide-valves, comprising a plate having curved lines representing orbits of various-sized cranks, and straight radiating lines representing degrees of cut-off, the orbit-lines terminating in a graduation representing the different travels of the valves, and a bar for application to the said plate to obtain the angle of cut-off, a slide transverse on the bar and arranged to swing on the plate, the slide having a graduation for indicating the lead, and a head transverse to the bar and fitted to slide longitudinally thereon, and formed with graduations representing the linear dimensions of ports and the lap, substantially as shown and described.

2. A laying-out device, comprising a plate, having a protractor and a series of apertures arranged in a straight radial line with respect thereto, a slide having a pin for engagement with one of the said apertures, to permit the slide to swing over the face of the plate, a bar on which the slide is mounted, and a graduated head transverse to the said bar and mounted to slide longitudinally thereon, substantially as shown and described.

3. A device of the class described, comprising a plate having a protractor and a series of apertures arranged radially with respect thereto, a slide adapted for pivotal engagement with any one of said apertures, a bar on which said slide is mounted to move transversely, and a graduated head extending transversely of the bar and mounted to slide thereon longitudinally.

4. A device of the class described, comprising a plate having a protractor with a series of radial lines, and a radial series of apertures with a graduation adjacent thereto, a slide adapted for pivotal engagement with any one of said apertures, a bar on which said slide is mounted to move transversely, and a graduated head extending transversely of the bar and mounted to slide thereon longitudinally.

642,970. WEIGHING-SCALE. ROBERT H. FAIRBANKS, New York, N. Y., and ORVILLE B. JOHNSON, St. Johnsbury, Vt., assignors to the E. & T. Fairbanks & Company, St. Johnsbury, Vt. Filed Feb. 28, 1896. Serial No. 540,372. (No model.)



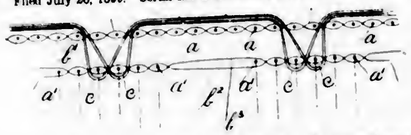
Claim.—1. In a scale, in combination with the beam, the suspending balancing-weight comprising the plunger secured to the beam, said plunger consisting of two concentric cylinders with a hollow space between, ballast in the lower part of said space for holding the plunger vertical, the inner cylinder being open at the bottom and provided with vent-openings at the top having lids, and a dash-pot within which said suspended weight or plunger is supported; substantially as described.

2. In combination with the liquid-containing vessel, the cover with the liquid-containing receptacle mounted thereon, and having a tubular opening through the same, a plunger having a stem passing through said tubular opening and provided with a downwardly-extending tubular portion of greater diameter than the tubular portion of the cover and extending below the surface of the liquid in the receptacle on the cover; substantially as described.

3. The liquid-containing vessel A, the plunger movable therein and having the upwardly-extending stem and provided with the tubular portion E, the cover C having the liquid-containing receptacle D, having a tubular opening through the center, and a cover for said liquid-containing receptacle provided with a central opening and a downwardly-extending rim, the lower end of this rim, as well as the lower end of the tube E, being below the surface of the liquid in the receptacle D; substantially as described.

4. In a scale a suspended plunger comprising a double-walled cylinder with a closed space between said walls and weighted at its lower end, said cylinder having an interior air-space with an open bottom connecting with the interior of the vessel in which it moves and having adjustable vent-openings at the top of said air-space; substantially as described.

642,971. WOVEN FABRIC. LEVI FISH, Preston, England. Filed July 20, 1899. Serial No. 724,558. (No specimens.)



Claim.—A compound woven fabric having weft-pile or floated weft portions in the one cloth, and provided with a plain woven or other non-piled cloth through which the pile of the other is caused to pass, thus forming the back of the floated portion of the compound fabric, and which later cloth, while serving the purpose of resisting the back of the fustian-cutting knife, is separated from the rest part of the compound fabric by the act of cutting the pile or floated weft of the cloth, for the purpose and in manner substantially as herein set forth.

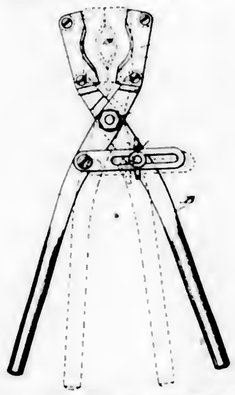
642,972. ARCH CENTER BRACE. CHARLES FROLICH, New York, N. Y. Filed Mar. 20, 1899. Serial No. 709,765. (No model.)



Claim.—1. In a device of the class described, a member provided at one end with a groove, and with an adjustable arm provided at its outer end with a yoke portion, substantially as shown and described.

2. An arch center brace consisting of two adjustably-connected members, each of which is provided with an upwardly-directed adjustable arm provided at its outer end with a yoke portion, substantially as shown and described.

642,973. TOOL FOR TRANSPLANTING BUDS. DUNCAN GALBREATH, New Orleans, La. Filed July 26, 1899. Serial No. 725,178. (No model.)



Claim.—1. A budding-tool, having two sets of opposed and movable knives supported from one end, the space between the sets being unobstructed, said knives being adapted to simultaneously engage the twig or limb above and below the bud to cut the bark peripherally, substantially as described.

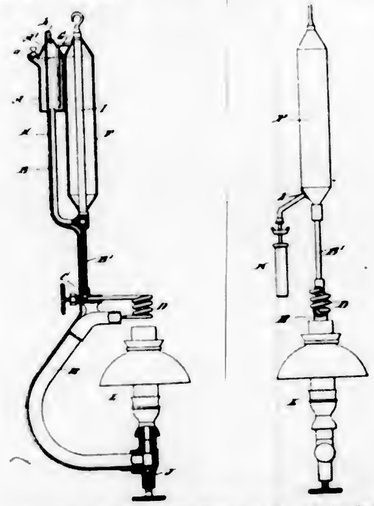
2. A budding-tool, having two sets of opposed and movable knives supported from one end, with the space between the sets unobstructed, the outer ends of corresponding knives in each set being connected by a cross bar or pin, said knives having their cutting edges inward and being adapted to simultaneously engage the twig or limb above and below the bud to cut the bark peripherally, substantially as described.

3. A budding-tool, having two sets of opposed and movable knives supported from one end, with the space between the sets unobstructed, the outer ends of corresponding knives in each set being connected by a cross bar or pin, said knives having their cutting edges inward and being adapted to simultaneously engage the twig or limb above and below the bud to cut the bark peripherally, and means for locking the knives in adjusted position, substantially as described.

4. A budding-tool, comprising two pivoted levers each having upon one end a cross-head, and knife-blades secured by one end to each end of said cross-head and projecting in the general direction of the levers, the space between the knives attached to each cross-head being open, said blades having their cutting edges facing inward, substantially as described.

5. A budding-tool, comprising two pivoted levers each having a cross-head upon one end, the ends of the cross-heads having recessed or shouldered knife-seats therein, a knife-blade secured by one end to each end of each cross-head in the seats thereof with the space between the knives attached to each cross-head unobstructed, said blades having their cutting edges facing inward, and cross bars or bolts connecting the outer ends of the two blades upon each cross-head, substantially as described.

642,974. AUXILIARY GENERATOR FOR OIL-GAS LAMPS. ALEXIS P. GILLET, Kearney, Nebr. Filed Jan. 28, 1899. Serial No. 703,699. (No model.)

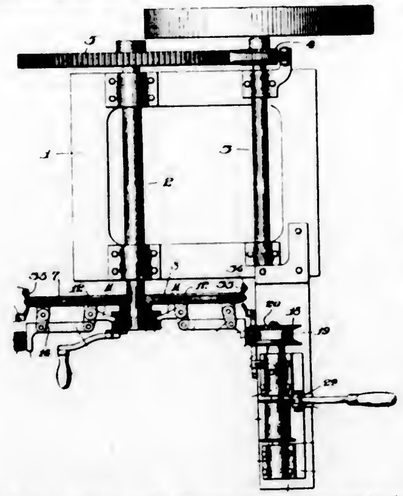


Claim.—1. An oil-gas lamp, having an elevated closed oil tank or reservoir, a gravity oil-feed pipe leading therefrom to the generator, means for supplying carbureted air to the burner without exerting a displacing pressure upon the oil in its reservoir, said means comprising a separate compressed-air reservoir, a pipe leading therefrom to and discharging within the oil-tank near its bottom, and a pipe leading from the top of the oil-tank and communicating with the burner, substantially as described.

2. An oil-gas lamp, having a generator heated by the flame of the lamp, a combined oil-reservoir and carburster elevated to supply the oil to the generator by gravity, an oil-supply pipe leading from the bottom of said reservoir to the generator and containing a valve, a burner, a mixing-tube connected therewith by one end and having the other open end receiving the discharge from the generator, an independent reservoir adapted to be charged with air under pressure, a discharge-pipe leading therefrom and discharging beneath the oil in the oil-reservoir, an auxiliary pipe leading from the top or air-space of the oil-reservoir to the burner, and a valve controlling the burner end of said auxiliary pipe, substantially as described.

642,975. APPARATUS FOR SHAPING TIRES, FELLIES, &c. THOMAS H. GRIGG, Philadelphia, Pa., assignor to the Grigg Suspension Tire Company, Camden, N. J. Filed Jan. 31, 1899. Serial No. 703,982. (No model.)

Claim.—1. In a machine of the character described, the combination with the shaft, of a wheel provided with a screw-threaded hub, a series of crank-levers adjacent to said hub, a nut fitted to said hub and engaged with the levers, radial arms provided at their outer ends with laterally-projecting jaws, and pivotally connected at their inner ends with the said levers, links pivotally connecting the outer ends of said arms with the wheel, the cutter-head, and means whereby it may be thrown into and out of action.



2. In a machine of the character described, the combination with a rotary clamping-head, including a circular series of radially-movable jaws adapted to receive and hold a ring or band to be turned, of a series of stops arranged at intervals apart around said head and adjacent the said jaws, and means whereby the said stops may be shifted laterally toward and from the jaws.

3. In a machine of the character described, the combination with a rotary clamping-head, including a wheel and a circular series of radially-movable jaws adapted to receive and hold a ring or band to be turned, of a series of transverse levers on the periphery of said wheel, the inner arms of which levers are provided with adjustable stops, and means connected with the outer arms of said levers for simultaneously moving the same, whereby the said stops may be shifted toward or from the opposing edge of the ring or band applied to said jaws.

4. In a machine of the character described, the combination with a rotary clamping-head, including a wheel, of a series of stop-levers mounted on the periphery of said wheel, at intervals apart and movable toward and from the inner face of said wheel, and a band pivotally connected with said levers.

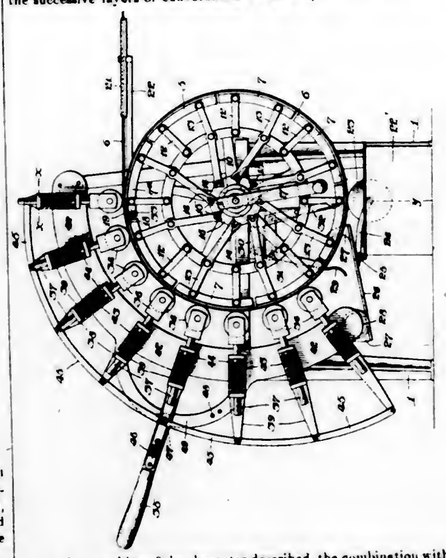
5. In a machine of the character described, the combination with a rotary clamping-head, a cutter-head adjacent thereto, its shaft, and means whereby the same may be swung toward and from the clamping-head, of a clearer extending into or adjacent to said cutter-head, and comprising an arm or blade and means whereby the same is caused to swing in concert with the cutter-head.

642,976. APPARATUS FOR FORMING RIMS OR THE LIKE. THOMAS H. GRIGG, Philadelphia, Pa., assignor to the Grigg Suspension Tire Company, Camden, N. J. Filed Jan. 31, 1899. Serial No. 703,983. (No model.)

Claim.—1. In a machine of the character described, the combination with a shaft, of a series of segments concentric therewith, an inner concentric ring affixed to the shaft, a pair of arms connecting each segment with the said ring, one of which arms constitutes a link while the other is extended inward to constitute a lever, and an independently-rotatable collar or sleeve to which the inner arms of the respective levers are pivotally connected.

2. In a machine of the character described, the combination with a shaft, of a series of segments concentric therewith, an inner concentric ring affixed to the shaft, a pair of arms connecting each segment with the said ring, one of which arms constitutes a link while the other is extended inward to constitute a lever, an independently-rotatable collar or sleeve to which the inner arms of the respective levers are pivotally connected, and a crank-lever fulcrumed on the end of the shaft and connected with said collar or sleeve.

3. In a machine of the character described, the combination with a shaft, of a series of segments concentric therewith, an inner concentric ring affixed to the shaft, a pair of arms connecting each segment with the said ring, one of which arms constitutes a link while the other is extended inward to constitute a lever, an independently-rotatable collar or sleeve to which the inner arms of the respective levers are pivotally connected, means for retaining the end of a strip on one of said segments, whereby the strip is wound upon the segments during their rotation, and means whereby cement is applied to the successive layers or convolutions of the strip.



4. In a machine of the character described, the combination with a shaft, of a series of segments concentric therewith, an inner concentric ring affixed to the shaft, a pair of arms connecting each segment with the said ring, one of which arms constitutes a link while the other is extended inward to constitute a lever, an independently-rotatable collar or sleeve to which the inner arms of the respective levers are pivotally connected, means for retaining the end of a strip on one of said segments, whereby the strip is wound upon the segments during their rotation, means whereby radially-acting pressure is applied at adjacent points upon the outer faces of the successive layers or convolutions, and means whereby cement is applied to the said layers or convolutions.

5. In a machine of the character described, the combination with a segmental former, and its supporting and operating parts, of a series of rollers arranged about and adjacent to the segments of said former, radial supports for said rollers, springs in said supports, a series of radial levers for said supports, the outer arms of which levers are gradually lengthened from the top to the bottom lever, links connecting the arms of the successive levers, a bar to which the levers are fulcrumed, and locking means for said levers.

6. In a machine of the character described, the combination with a circular former, and its supporting and operating parts, of a series of rollers arranged about and adjacent to the segments of said former, radial supports for said rollers, springs in said supports, a series of radial levers for said supports, the outer arms of which levers are gradually lengthened from the top to the bottom lever, links connecting the arms of the successive levers, a bar to which the levers are fulcrumed, a hand-lever forming a continuation of one of said levers, and locking means for said hand-lever.

7. In a machine of the character described, the combination with a former, and its supporting and operating parts, of a cement-pot adjacent to the path of said former, a feeder in said pot, and means whereby the said feeder is automatically moved into contact with the work on the former at or about the beginning of the winding operation and out of contact therefrom at or near the completion of the operation.

8. In a machine of the character described, the combination with a former, of a cement-pot adjacent to the path thereof, a rocking track way, cement-feeding means connected therewith, a weight on said track way, movable from end to end thereof, and adapted when at one end of the track way to incline the same and thereby maintain the

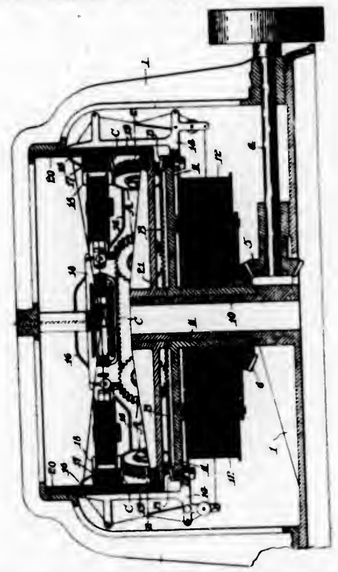
said cement-feeding means in contact with the work on the former, whereby during the progress of the work said roller and therewith the end of the trackway is depressed to permit the movement by gravity of the weight and the consequent further depression of the trackway.

9. In a machine of the character described, the combination with a former, of a cement-pot adjacent thereto, a rock-shaft, a trackway on said shaft provided with end stops, an arm on said shaft carrying a cement-feeding roller, a weight on said trackway, movable from end to end thereof, and adapted when at one end of the trackway to incline the same and thereby maintain the said roller in contact with the work on the former, whereby during the progress of the work said roller and therewith the end of the trackway are depressed to permit the movement by gravity of the weight and the consequent further depression of said trackway.

10. In a machine of the character described, the combination with a former, of a cement-pot adjacent thereto, a rock-shaft, a trackway thereon provided with end stops, an arm on said shaft carrying a cement-feeding roller, a weight on said trackway movable from end to end thereof and adapted when at one end of the trackway to incline the same and thereby maintain the said roller in contact with the work on the former, whereby during the progress of the work said roller and therewith the end of the trackway are depressed to permit the movement by gravity of the weight and the consequent further depression of said trackway, together with means whereby the said roller is automatically moved back on the trackway.

11. In a machine of the character described, the combination with a former, of a cement-pot adjacent thereto, a rock shaft, a trackway on said shaft provided with end stops, an arm on said shaft carrying a cement-feeding roller, a weight on said trackway, a depending striker-arm movable against said weight, a lever, connections between the same and said arm, and a stud or projection on the said former adapted in its rotation to abut against said lever.

642,977. BRAIDING-MACHINE. ANDREW V. GROUPE, Moore, Pa., assignor to the National Braider Company, Philadelphia, Pa. Filed Apr. 24, 1899. Serial No. 714,156. (No model.)



Claim.—1. In a braiding-machine, the combination with a sectional trackway, provided with threadways between adjacent sections and under and over alternate sections, carriers on said trackway, bobbins on said carriers, a second set of bobbins, a carrier therefor, actuating means for said carrier, a series of rotatable propelling means interposed between and directly engaged with the latter carrier and the carriers first named, and means whereby the threads from the last-named bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

2. In a braiding-machine, the combination of a sectional trackway provided with threadways between adjacent sections and under and over alternate sections, carriers on said trackway provided with gear-teeth, bobbins on said carriers, a second set of bobbins, a carrier therefor provided with gear-teeth, a series of pinions interposed between and geared with the latter carrier and the carriers first named, and means whereby the threads from the last-named bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

3. In a braiding-machine, the combination of a sectional trackway provided with threadways between adjacent sections and under and over alternate sections, carriers on said trackway provided with gear-teeth, bobbins on said carriers, a second set of bobbins, a series of pinions mounted at intervals apart adjacent to the trackway and adapted to gear with said carriers in continuous succession, means for rotating said pinions, and means for supporting and rotating said second set of bobbins, together with means whereby the threads from the latter bobbins are directed between, under and over sections of the trackway in prescribed order, substantially as described.

4. In a braiding-machine, the combination of stationary members constituting a thread-guiding course, a sectional trackway, a set of bobbin-carriers on said trackway, their bobbins, a series of propelling devices rotatable each about its own axis and adapted to coact with said carriers, a second set of bobbins, supporting and actuating means therefor, and means for actuating said devices, together with means whereby the threads from said second set of bobbins are directed to the said course, substantially as described.

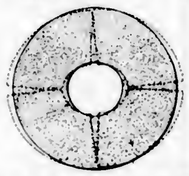
5. In a braiding-machine, the combination of two rings between which is formed a sinuous course, an annular trackway between the highest and lowest planes of, and intersected by, the course, thread-supplying devices on said trackway, other thread-supplying devices, mechanism for rotating the latter, a series of propelling devices rotatable each about its own axis and adapted to impel the first-named thread-supplying devices, and means for actuating said propelling devices, substantially as described.

6. In a braiding-machine, the combination of stationary members constituting a sinuous course, an annular trackway between the highest and lowest planes of, and intersected by, the course, thread-supplying devices on said trackway, pinions journaled on one of said members and engaged with said devices, a common gear coacting with said pinions, supporting and actuating means for said gear, bobbins connected with said gear, and thread-guiding means on said gear, substantially as described.

7. In a braiding-machine, the combination of two rings between which is formed a sinuous course, an annular trackway between the highest and lowest planes of, and intersected by, the course, thread-supplying devices on said trackway, other thread-supplying devices, mechanism for rotating the latter, pinions journaled on the lower ring at points adjacent to the respective inclines of said course, and operatively engaged with the first-named thread-supplying devices and with the mechanism for rotating the other thread-supplying devices, substantially as described.

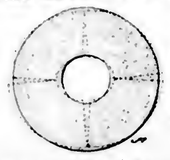
8. In a braiding-machine, the combination of two rings between which is formed a sinuous course, a supporting-frame for the upper ring, a plate or spider for the lower ring, a fixed central post for said plate or spider, an annular sectional trackway between the highest and lowest planes of, and intersected by, said course, a series of bobbin-carriers provided with gear-teeth, a lower-bobbin carrier provided also with gear-teeth, and arranged below the said plate or spider, a rotary support for said latter carrier, and pinions journaled on the lower ring adjacent to the respective inclines of said course and adapted to coact with the successive carriers of the series and with the lower carrier, the said pinions extending through openings in the plate or spider, substantially as described.

642,978. PROCESS OF TESTING CEMENT. LEO G. HAASE, Oak Park, Ill., assignor to the E. & T. Fairbanks & Company, St. Johnsbury, Vt. Filed Oct. 17, 1898. Serial No. 693,782. (No specimens.)



Claim.—The herein-described process of determining the comparative strength of different cements, which consists in first forming specimens thereof into ring briquets of some uniform standard section, size and opening, and then subjecting said briquets successively to accurately-measured crushing force in the direction of their diameters.

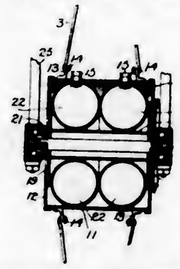
642,979. BRIQUET. LEO G. HAASE, Oak Park, Ill., assignor to the E. & T. Fairbanks & Company, St. Johnsbury, Vt. Original application filed Oct. 17, 1898, Serial No. 693,782. Divided and this application filed Nov. 29, 1899. Serial No. 738,675. (No model.)



Claim.—1. As a new article of manufacture, a cement-testing briquet, of annular shape, whose walls in width and thickness are of a definite unit of size: substantially as described.

2. As a new article of manufacture, a molded cement-testing briquet in shape, the cross-section of a tube or cylinder, the thickness and width of its walls, and the diameter of its central opening being of the same unit of size; substantially as described.

642,980. VEHICLE-WHEEL. HENRY P. HANDY, Sr., Nampa, Idaho, assignor of one-half to Lillie S. Van Doren, New York, N. Y. Filed May 10, 1899. Serial No. 716,239. (No model.)



Claim.—1. A vehicle-wheel provided with a casing, a sheath mounted therein, expansible devices between the casing and sheath, a shaft carried by said sheath journaled in antifriction-bearings in the vehicle-frame, and a rim connected with said casing.

2. A vehicle-wheel provided with a casing connected with a rim, a shaft journaled in antifriction-bearings in the vehicle-frame, a sheath secured to said shaft within said casing, expansible devices between said sheath and casing, constructed to rotate the latter when the former is revolved by said shaft.

3. A vehicle-wheel provided with a casing a rim, a sheath within said casing, a shaft connected with the latter and journaled in bearings in the vehicle-frame, inclined rings upon said casing connected with said rim and expansible devices between said casing and sheath.

4. A vehicle-wheel provided with a rim carrying spokes a casing constructed to be connected with said spokes and an annular sprocket-ring having an inwardly-directed attaching-flange constructed to be secured to the ends of said casing, and means for revolubly supporting the wheel.

5. A vehicle-wheel provided with a rim carrying spokes, a casing constructed to be connected with said spokes and having end caps, a sprocket-ring having an inwardly-directed annular flange constructed to be secured to said caps and means for revolubly supporting said casing.

6. A vehicle-wheel provided with a rim carrying spokes, a casing connected with the latter, a sprocket-ring connected with said casing constructed to receive a sprocket-chain, a sheath carrying a shaft, expansible devices between the sheath and casing and antifriction-bearings in the vehicle-frame for said shaft.

7. A vehicle-wheel provided with a rim carrying spokes, a cylindrical casing connected with the latter, caps inclosing the ends of said casing, a sheath having end plates mounted within said casing and bearing upon said caps, a shaft secured to said sheath having bearings in the vehicle-frame, air-cushions between said sheath and casing and a sprocket-ring secured to said caps.

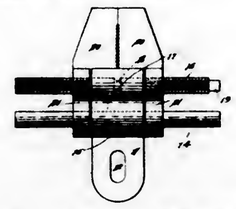
8. A vehicle-wheel provided with a hub, a shaft having screw-threaded connections therewith and having screw-threaded engagement with a portion of antifriction-bearings mounted in the vehicle-frame.

9. A vehicle provided with a frame having a yoke to receive a retaining-plate, antifriction-bearings retained within said yoke by said plate, and a wheel carrying an axle journaled in said bearings.

10. A vehicle provided with a frame having a yoke constructed to receive antifriction-bearings, a wheel having screw-threaded connection with a shaft mounted in said bearings, said shaft having screw-threaded engagement with a portion of said bearings and means for retaining said bearings in position within said fork.

11. A vehicle provided with a forked frame, bearing-plates within said fork having a collar or rib to prevent the passage thereof through said fork, a wheel carrying a shaft connected with bearing-plates constructed to enter the first bearing-plates antifriction devices between said plates and a cap engaging the first-mentioned plate and bearing against said fork to retain the former in position.

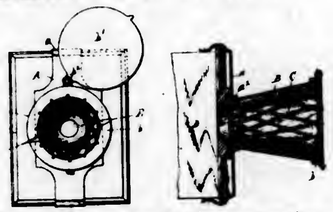
642,981. LATHE-DOG. WILLIAM B. HANKINS, Mount Vernon, Ohio, assignor of one-half to Frank L. Osgood, same place. Filed May 24, 1899. Serial No. 718,034. (No model.)



Claim.—1. A lathe-dog, having a shank or stock formed with a main portion having two transverse passages, and a tail with a longitudinal slot therein, a feed-screw mounted to turn in one of the passages of the stock and having right and left hand threads, a guide-bar fastened in the other passage of the stock, and two jaws each having a jaw proper, and a flange formed with openings respectively receiving the feed-screw and guide-bar, certain of said openings being threaded to work with the feed-screw, and the jaws having portions extended toward each other at one side of the stock, the lugs of the jaws lying respectively at the edges of the stock.

2. A lathe-dog having a stock formed with two transverse passages therein, a feed-screw mounted to turn in one of the passages and having right and left hand threads at the end portions thereof, a guide-bar secured in the other passage of the shank and projecting beyond each side edge thereof, and jaws each comprising a jaw proper and a lug, the lugs receiving the feed-screw and guide-bar and being threaded to work with the feed-screw, the jaws proper extending toward each other at one side of the stock and the stock being received between the lugs.

642,982. MOUTHPIECE FOR TELEPHONE-TRANSMITTERS, &c. GEORGE B. HART and FRANCIS W. MILLIGAN, Rochester, N. Y. Filed Mar. 7, 1899. Serial No. 708,063. (No model.)



Claim.—1. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall, a tubular support for a disinfectant arranged within the tubular wall, and a perforated frame inserted within the tubular support and movable lengthwise independently of the support, substantially as and for the purpose specified.

2. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall, a tubular support for a disinfectant removably arranged within the tubular wall, and a perforated frame inserted within the tubular support and movable lengthwise independently of the support, said frame having its outer end engaged with the outer end of the tubular wall, substantially as and for the purpose described.

3. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a detachable cap, and a perforated frame arranged within the tubular wall for supporting a disinfectant, and having its outer end supported by the cap, substantially as and for the purpose specified.

4. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a cap movable lengthwise of the contiguous portion of the wall, and a perforated frame arranged within the tubular wall for supporting a disinfectant and having its outer end fixed to the cap, substantially as and for the purpose set forth.

5. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a cap movable lengthwise of the contiguous portion of the wall, a tubular support for a disinfectant removably arranged within the tubular wall, and a perforated frame loserted within the tubular support and movable lengthwise independently of the support, said frame having its outer end fixed to the cap, substantially as and for the purpose specified.

6. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall, a removable support for a disinfectant arranged within the tubular wall, and a closure for the outer end of the tubular wall said closure being removable with the support, substantially as and for the purpose set forth.

7. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a detachable cap having an opening, a closure for the opening supported by the cap, and a frame arranged within the tubular wall for supporting a disinfectant and having its outer end supported by the cap, substantially as and for the purpose specified.

8. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a cap movable lengthwise of the contiguous portion of the wall and having an opening, a closure for the opening, and a perforated frame arranged within the tubular wall for supporting a disinfectant and having its outer end fixed to the cap, substantially as and for the purpose described.

9. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a tubular wall having its outer end provided with a cap movable lengthwise of the contiguous portion of the wall and having an opening, a closure for the opening, a tubular support for a disinfectant removably arranged within the tubular wall, and a perforated frame inserted within the tubular support and movable lengthwise independently of the support, said frame having its outer end fixed to the cap, substantially as and for the purpose set forth.

10. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a base provided with means for securing the same in position, a tubular wall having its inner end removably secured to the base and its outer end provided with a detachable cap, and a perforated frame arranged within the tubular wall for supporting a disinfectant and having its outer end supported by the cap, substantially as and for the purpose specified.

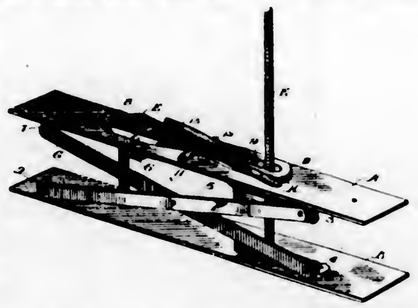
11. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a base provided with means for securing the same in position, a tubular wall having its inner end secured to the base, a tubular support for a disinfectant removably arranged within the tubular wall, a perforated frame removably arranged within the tubular support and having its outer end detachably supported by the outer end of the tubular wall, and a closure for the outer end of the tubular wall said closure being connected to the perforated frame, substantially as and for the purpose set forth.

12. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a base provided with means for securing the same in position, a tubular wall having its inner end secured to the base and its outer end provided with a detachable cap having an opening, a closure for the opening supported by the cap, and a frame arranged within the tubular wall for supporting a disinfectant and having its outer end supported by the cap, substantially as and for the purpose set forth.

13. A mouthpiece for telephone-transmitters, speaking-tubes and similar articles, the same consisting of a base provided with spring-arms for securing the same in position, a substantially central opening, and a flange projecting from its outer face and formed of greater diameter than the opening, a tubular wall having its inner end removably secured to the flange and its outer end provided with a detachable cap having an opening, a closure for the opening supported by the cap, a tubular support for a disinfectant removably arranged within the tubular wall, and a perforated frame removably arranged within the tubular support and having its outer end supported by the cap, substantially as and for the purpose specified.

642,988. BINDER. HERMANN H. HOFFMANN, Chicago, Ill. Filed Jan. 3, 1899. Serial No. 700,897. (No model.)

Claim.—1. A binder having relatively-movable base and top members, flexible leaf-engaging posts attached to one of said members, and means carried by the other member for disposing of the free ends of the posts, said leaf-engaging posts being of sufficient rigidity to assume a normal vertical position; substantially as described.



2. A binder having relatively-movable base and top members, normally vertical flexible leaf-engaging posts extending between the same, one of said members being provided with means whereby the free ends of the posts or those portions not in use may be disposed of; substantially as described.

3. A binder having relatively-movable base and top members, normally vertical flexible leaf-engaging posts extending between the same, one of said members being provided with means for guiding and storing the free or unused portions of the posts; substantially as described.

4. A binder having relatively-movable top and bottom members, normally vertical flexible leaf-engaging posts secured at one end to one of said members, and passing through the other, and a casing secured to said other member said casing being provided with means for tumbling, guiding and storing the free or unused portions of the flexible posts; substantially as described.

5. A binder comprising relatively-movable rigid back pieces, normally vertical flexible spring-posts adapted to engage the leaves firmly connected to one of said back pieces and operatively engaged by the other to be deflected from vertical position as the backs are brought together; substantially as described.

6. A binder comprising relatively-movable rigid back pieces, normally vertical flexible spring-posts for engagement with the leaves firmly attached to one of said back pieces and so engaging the other as to be deflected and guided thereby as the back pieces are brought together; substantially as described.

7. A binder having relatively-movable back pieces, flexible leaf-engaging posts extending between the same, one of said back pieces being provided with a wall or surface for deflecting the posts toward a horizontal position as the pieces move together, said posts being of sufficient rigidity to assume a normally vertical position; substantially as described.

8. A binder having relatively-movable back pieces flexible leaf-engaging posts extending between the same, one of said back pieces being provided with a wall or surface for deflecting the posts toward a horizontal position as the pieces move together, and having also a surface or wall for deflecting the ends past each other; substantially as described.

9. A binder having relatively-movable top and bottom members, one of said members forming a hollow casing, flexible posts passing through the lower wall of said casing and being guided and deflected by the upper wall thereof as the members are pressed together; substantially as described.

10. A binder having relatively-movable back pieces, normally vertical spring leaf-engaging posts extending between the same, and means carried by one of said pieces for automatically disposing of the free or unused portions of the posts, as the back pieces approach each other, and a locking-bar for engaging with the flexible posts; substantially as described.

11. A binder having relatively-movable back pieces, normally vertical spring leaf-engaging posts extending between the same, one of said back pieces being provided with a wall or surface for deflecting the posts toward a horizontal position as the pieces move together, and a locking-bar for engagement with the flexible posts; substantially as described.

12. A binder having relatively-movable back pieces, flexible leaf-engaging posts extending between the same, one of said back pieces being provided with a wall or surface for deflecting the posts toward a horizoutal position as the pieces move together, and a locking-bar for engagement with the flexible posts, said locking-bar having a deflecting-surface to guide the ends of the flexible posts past each other substantially as described.

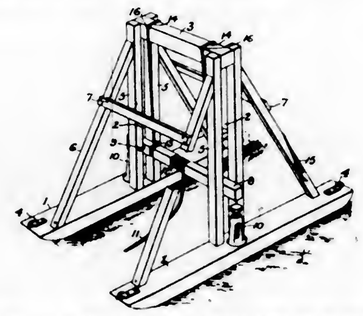
13. A binder having relatively-movable back pieces, flexible leaf-engaging posts extending between the same, one of said back pieces being provided with a wall or surface for deflecting the posts toward a horizontal position as the pieces move together, and a locking-bar for engagement with the flexible posts, said locking-bar having an inclined rib to deflect past each other the ends of the flexible posts; substantially as described.

14. A binder having relatively-movable top and bottom members, one of said members being a hollow casing, flexible vertical spring-posts passing into said casing and guided and deflected by the upper wall thereof as the members are pressed together; substantially as described.

15. A binder having relatively-movable back pieces, and normally vertical independent flexible leaf-engaging posts extending between the members and adapted in the movement of the top and bottom pieces toward and from each other, to be automatically raised to vertical position or bent down toward a horizontal position.

16. A binder having relatively-movable base and top members, independent flexible leaf-engaging posts attached to one of said members, said leaf-engaging posts being of sufficient rigidity to retain a vertical position and means whereby the movement of the members toward each other causes the posts to assume a horizontal position; substantially as described.

642,984. STUMP-PULLER. THOMAS R. HOLT, Arlington, Ky. Filed Mar. 21, 1899. Serial No. 709,992. (No model.)



Claim.—1. A stump-puller, comprising a frame having upright guides, a lifting-beam movable in said guides and projecting laterally beyond the same, lifting-jacks mounted upon the frame and below the projecting end portions of said lifting-beam, independent means for holding said lifting-beam in an elevated position, and means for securing a stump thereto.

2. A stump-puller, comprising a frame having upright guides, r lifting-beam movable in said guides, means for raising said lifting-beam, cables connected with said lifting-beam and passing upwardly and over a portion of the frame, means for securing the free ends of said cables, and means for securing a stump to said lifting-beam.

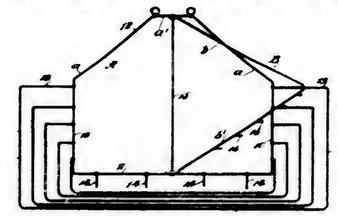
3. A stump-puller, comprising a frame having upright guides, a lifting-beam movable in said guides, lifting-jacks mounted upon said frame and engaging said lifting-beam, cables connected with said lifting-beam and passing upwardly and over a portion of the frame, means for securing the free ends of said cables, and means for securing a stump to said lifting-beam.

4. A stump-puller, comprising a frame having sills or runners and upright guides, a lifting-beam movable in said guides and provided with guide means to hold the same against longitudinal movement, lifting-jacks mounted upon said sills and engaging said lifting-beam, cables connected with said lifting-beam and passing upwardly and over a portion of the frame, means for securing the free ends of said cables, and means for securing a stump to said lifting-beam.

5. A stump-puller, comprising a portable frame mounted upon sills or runners and embodying upright guides, a lifting-beam movable in said guides, lifting-jacks operating upon the ends of the said beam to raise the same, and means for securing a stump to said beam.

6. A stump-puller, comprising a frame embodying a base portion from which projects a top portion having upright guides, a lifting-beam projecting between said guides and retained and guided thereby in its vertical movement, said beam being provided with means for securing a stump thereto, means carried by said base portion of the frame and operating upon the beam to raise the same between the vertical guides, and means independent of said raising-beam and carried upon the top portion of the frame and engaging the beam to retain the same in elevated position.

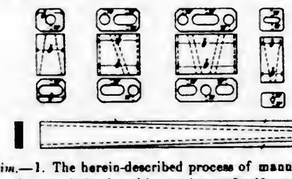
642,985. HANGING CLOTHES-RACK. LOUIS G. HORTON, Blossburg, Pa. Filed July 22, 1899. Serial No. 724,808. (No model.)



Claim.—1. The combination of the frame, arms pivoted thereto about horizontal axes, and a rigid support pivoted to the center of the frame about a vertical axis, and provided with a series of devices for engaging said arms.

2. A hanging clothes-rack, comprising a frame, clothes-supporting rods or bars arranged in a graduated series and extending beyond the sides of the frame, having return rear members pivotally connected with the frame, hangers located at the lower portion of the frame, and an angular supporting-arm pivoted to the central portion of said frame, the lower member of said supporting-arm having outwardly-extending lips adapted to support the series of clothes-carrying rods or bars at points between their ends, as specified.

642,986. PROCESS OF MANUFACTURING CONICAL TUBES OR MASTS. ADOLPH HÜSENER, Duisburg, Germany, assignor to FRANZ Josef Seyfried, Mulheim-on-the Rhine, Germany. Filed Sept. 10, 1896. Serial No. 605,390. (No specimens.)



Claim.—1. The herein-described process of manufacturing conical tubes, &c., consisting in taking an ingot of uniform exterior cross-section and forming therein an interiorly-tapered bore; then rolling out said ingot into a long flat double strip having a uniform exterior diameter or width, and a tapered interior; then cutting off the surplus metal from the sides of the strip so as to make its exterior contour conform to its interior; and then expanding said strip thereby forming a hollow conical tube, substantially as and for the purpose set forth.

2. The herein-described process of manufacturing conical tubes and masts from hollow bricks rolled out to double strips, which consists in forming the ingots with one or more conical openings, leaving the ingots, however, of the same exterior cross-section, rolling such ingots out into flat double strips, then cutting or separating these double strips so that the exterior thereof shall conform in contour to their interior bore, and subsequently expanding the double strips into conical tubes, substantially as described.

642,987. APPARATUS FOR GENERATING ACETYLENE GAS. LAURITZ P. HVIID, Copenhagen, Denmark. Filed Mar. 25, 1898. Serial No. 675,078. (No model.)

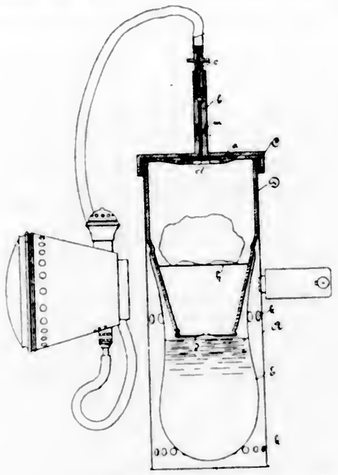
Claim.—1. In an apparatus for the production of gas, the combination of a generating-chamber, an elastic membrane having a contracted opening and located at the lower part of said chamber, and an elastic liquid-holder communicating with said generator through said contracted opening.

2. In an apparatus for the production of gas, the combination of a generating-chamber having an elastic bottom provided with a contracted opening, a grid in the generating-chamber above said elastic bottom, and an elastic liquid-holder communicating with said generating-chamber through said opening.

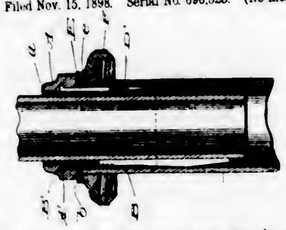
3. In an apparatus for the production of acetylene gas, the combination of a generating-chamber having a gas-escape pipe, an elastic diaphragm in the lower part of the chamber having a fissure therein, a grid above said diaphragm, and an elastic bag secured to said generating-chamber and communicating therewith through said fissure.

4. In an apparatus for the production of acetylene gas, the combination of a perforated casing, a funnel therein, a grid in said funnel, an elastic diaphragm closing the lower edge of said funnel and having a fissure therein, an elastic bag within said casing having its

mouth secured around the lower end of said funnel, and a gas-escape pipe.



642,988. CLAMPING MEMBER. GEORGE W. KORTRIGHT, Sioux City, Iowa. Filed Nov. 15, 1898. Serial No. 696,525. (No model.)



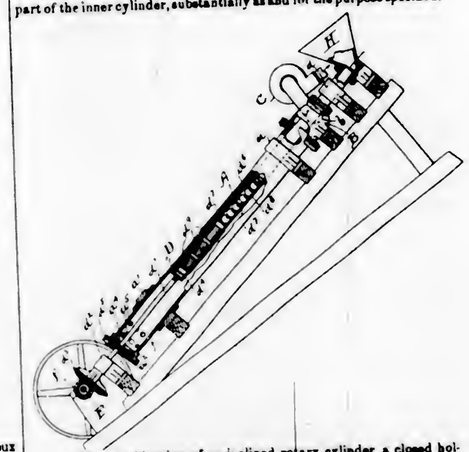
Claim.—In a clamping device for saddle-posts, &c., the combination of the threaded nut having an inverted-L-shaped recess in cross-section below its threaded portion, a split cylinder B having a right-angled flange designed to be sprung into the recess of the nut, a lug *b* on said cylinder, the ring E having a recess in which said lug is seated, the inner split shell having a tapering circumference, its upper portion having threads which engage with said nut, the threaded bearing-ring with recess in its upper face, and lug integral with said ring engaging therein, as set forth.

642,989. SEPARATOR. CHARLES H. LANE, Cleveland, Ohio. Filed Apr. 27, 1899. Serial No. 714,674. (No model.)

Claim.—1. In a separator for separating flake metal and pulverized rock from mixtures of the same, the combination of an inclined rotary cylinder, and means for forcing an air-blast through the same, and out of its upper end, with a rotary cylinder inside of the first, internal rings in said cylinder near its upper end whereby it is divided into pockets, balls in said pockets, and screens which form a part of the wall of said cylinder below said pockets, substantially as and for the purpose specified.

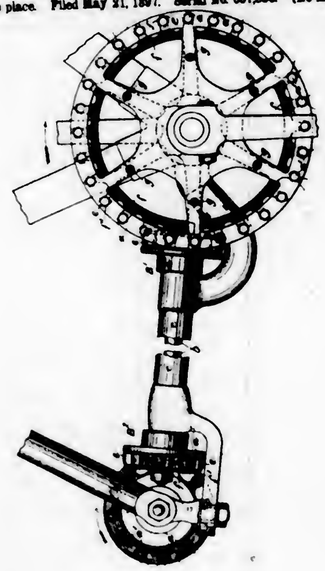
2. In a separator for separating flake metal and pulverized rock from mixtures of the same, the combination of an inclined rotary cylinder, and means for forcing an air-blast through the same, and out of its upper end, with an inclosed rotary cylinder inside of the first, internal rings in said cylinder near its upper end whereby it is divided into pockets, annular sections of screen materials secured upon and forming a part of the walls of said cylinder below said pockets, each screen-section being coarser than the section above, substantially as and for the purpose specified.

3. In an air-separator for separating flake metal from admixtures thereof with pulverized rock, the combination of an inclined rotary cylinder, a closed hollow bearing for the open upper end thereof, a suitable bearing for the lower part of said cylinder, a pipe connected with the hollow bearing and a fan in said pipe whereby an air-blast may be drawn through said cylinder and out of its upper end, with an inclined rotary cylinder within the first cylinder, and projecting through said hollow bearing, a shaft secured to the lower end of the inner cylinder as an axial extension thereof, bearings for said shaft and for the upper end of said cylinder, a hopper into which the upper end of said inner cylinder projects, a spiral feeding device on said end and screens which cover and form a part of the wall of the lower part of the inner cylinder, substantially as and for the purpose specified.



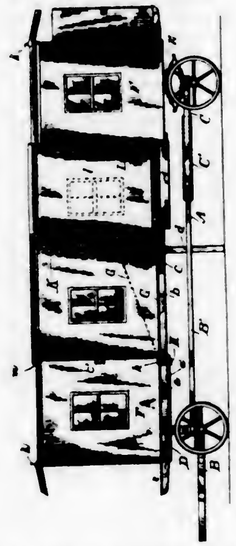
4. The combination of an inclined rotary cylinder, a closed hollow bearing for the upper end thereof, a suitable bearing for the lower part of said cylinder, a pipe connected with the hollow bearing, and a fan in said pipe whereby an air-blast is drawn through said cylinder and out of its upper end, with an inclined rotary cylinder within the first cylinder, and projecting out through said hollow bearing, suitable bearings for said inner cylinder, internal rings dividing the same into pockets, balls in said pockets, screens covering and forming a part of the wall of said cylinder below said pockets, a hopper containing material to be acted upon in which the upper end of the inner cylinder projects, and means for feeding material from said hopper into the upper end of said cylinder, substantially as and for the purpose specified.

642,990. DRIVING MECHANISM FOR BICYCLES. WALTER J. LLOYD, Birmingham, England, assignor of one-half to William Priest, same place. Filed May 21, 1897. Serial No. 637,558. (No model.)



Claim.—In driving mechanism of cycles and motor-vehicles, the herein-described roller toothed wheel in which the axes of the rollers are parallel to the axis of the wheel and project at right angles from one side of the disk, ring or plate of the wheel, the said rollers being partly cylindrical and partly curved or conoidal and having their smaller curved or conoidal ends most distant from the disk, ring or plate by which the rollers are carried and being supported by a series of radial arms projecting from the periphery of a second disk, ring or plate, the ends of the arms in which the axes of the rollers take being nearly circular and of a diameter somewhat less than that of the smaller ends of the rollers, substantially as and for the purpose set forth and shown.

642,991. VEHICLE. EDWARD D. MAGNER, Jr., Rolling Hill, Va. Filed Oct. 2, 1899. Serial No. 732,362. (No model.)



Claim.—1. In a vehicle, the separable body-sections, in combination with the extensible running-gear, and a covering-shell for the interval between said body portions when separated, substantially as specified.

2. In a vehicle, the combination with the extensible running-gear, of the separable body portions, the sliding sill-bars, and the adjustable partitions between said body portions, substantially as specified.

3. In a vehicle, the combination with the extensible running-gear and the separable body portion of the sliding sill-bars, the adjustable partitions and the covering-shell for the interval between said body portions when separated, substantially as specified.

4. In a vehicle, the combination with the extensible running-gear, and the separable body portions, of the sliding sill-bars, the adjustable partitions, the covering-shell, and the outer fly-covering, substantially as specified.

5. In a vehicle, the combination of the separable normally-abutting body portions, extended sills, and hinged falling partitions, substantially as specified.

6. In a vehicle, the combination of the end abutting separable body portions, their extended sills, and movable flooring adapted to be placed between said body portions on the sills, substantially as specified.

7. In a vehicle, the combination with end abutting separable body portions, of extension-sills, movable flooring, and movable shell, substantially as specified.

8. In a vehicle, the combination with the extensible running-gear and the separable body portions, of the sliding sill-bars, the boxings of the body portions, the central cross-bar connecting the sill-bars, and the center props, substantially as specified.

9. In a vehicle, the combination with the extensible running-gear, and the separable body-sections, of the sliding sill-bars, their cross-bar and center props, the under boxings of the body-sections for said sill-bars, and the hinged partitions provided with doors, substantially as specified.

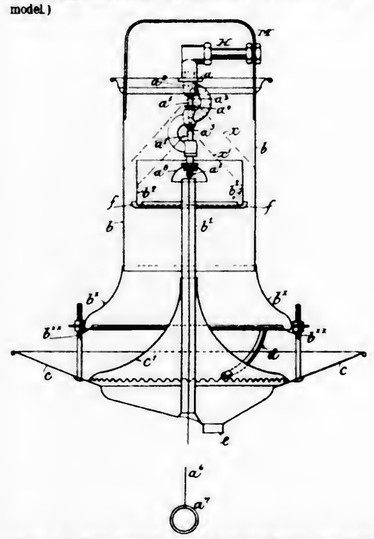
10. A vehicle having separable body portions, extension-sills, and hinged falling partitions, substantially as specified.

11. A vehicle having separable body portions, extension-sills, and movable flooring adapted to be placed between said body portions on the sills, in combination with the extensible running-gear and its elongated pole or reach.

12. A vehicle having separable body portions, extension-sills, movable flooring adapted to be placed between said body portions when separated on the sills and a movable shell adapted to cover in the interval between said body portions, substantially as specified.

13. The combination with the separable body portions of a vehicle respectively attached to the front and rear hounds of the extension-supports therefor, the elongated pole or reach, the movable flooring, the movable shell, and its waterproof covering having pendent sides, substantially as specified.

642,992. APPARATUS FOR HUMIDIFYING AIR. JOHN J. MANN, Paris, France. Filed Apr. 23, 1898. Serial No. 678,596. (No model.)



Claim.—1. The combination of a humidifying apparatus comprising an outer casing and an inner casing and two spraying devices for throwing conical sprays one against the inner surface of one cylinder, and the other against the inner surface of the other cylinder without mingling of the said sprays, substantially as described.

2. A spraying device consisting of 1 chamber, an opening in the end of said chamber, a spindle passing through said opening and provided with a head a^2 within said chamber and a shoulder a^3 outside said chamber, a spring to press the spindle upward, an adjustable stop for normally holding said shoulder a^3 at the desired distance from the said opening and means connected to the lower end of said spindle for moving it against the action of the spring whereby the head a^2 may be caused to close said opening, substantially as and for the purpose described.

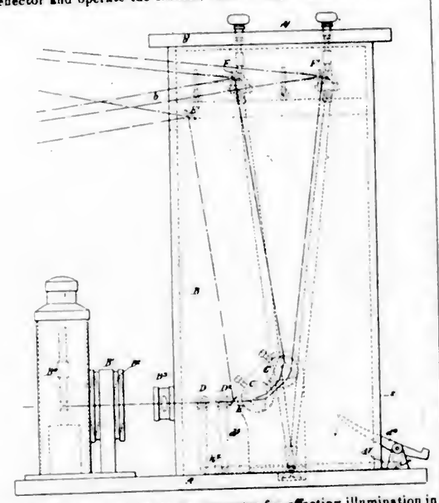
3. A humidifying apparatus comprising a casing, a water-nozzle with a spring-pressed spindle having a head a^2 within the nozzle and a spraying-shoulder a^3 outside the said nozzle, a cord or chain for pulling the said spindle downward against the action of the spring and a tube *b'* covering and protecting the said cord, substantially as described.

642,993. OPTICAL PROJECTING APPARATUS. BALTZAR R. L. DE MARÉ, Philadelphia, Pa. Filed May 7, 1894. Serial No. 510,322. (No model.)

Claim.—1. The combination with a lamp or other source of light, of a collimating lens, the lenses for transforming the rays of light into a thin ribbon, a regulating-shutter, a prism and a reflector, substantially as described.

2. The combination of the collimating lens, the cylindrical lenses for transforming the rays into a broad thin ribbon of light, the shutters D, D', D^3 arranged substantially as described, with a reflector E and prisms C C', and reflectors E', F and F', substantially as described.

3. The combination of the lens, a regulating-shutter, a prism, a reflector, a slide carrying said reflector and a rod adapted to turn the reflector and operate the shutter, substantially as described.



4. The combination in an apparatus for effecting illumination in colors, of the slide G carrying a rod H, a shaft, a reflector carried thereby and an arm on said shaft acted upon by the rod H so that on moving the slide the reflector will be adjusted, substantially as described.

5. The combination of the slide, the shaft carried thereby, a reflector on said shaft, an arm on the shaft, a rod mounted in the slide and acting upon the arm, a spring, a yoke adapted to run with the rod, a shutter and connections between the shutter and the yoke by which the shutter is operated by the rod, substantially as described.

6. The combination of the slide carrying the reflector, a rod as H, a yoke connected to and adapted to turn with said rod, a rod K connected to said yoke and open at its lower end, an arm k' on said rod, and a shutter having an arm as d^a connected to said arm k', substantially as described.

7. The combination of the lens, a shutter, an arm on said shutter, a connecting-rod and a foot-lever, substantially as described.

8. The combination of the slide, a bracket thereon, a shaft mounted in said bracket, a reflector carried by said shaft, a frame, a lens therein, a rail for supporting the outer end of said frame, and a rod connected to the shaft so as to adjust the reflector, substantially as described.

642,994. SICKLE-BAR. THOMAS J. MAYBERRY, Mount Grove, Mo. Filed June 22, 1899. Serial No. 721,481. (No model.)



Claim.—1. A cutter-bar having an uninterrupted slot extending its length and having a socket at one end of the slot; a series of knives having pendent portions adapted to fit the slot and provided with interlocking members; the end knife at one side having a tongue to engage the socket in the adjacent end of the cutter-bar, the end knife at the other side having a socket; the combined transverse width of the entire series of knives being less than the length of the cutter-bar slot, the entire series of knives having a lateral movement in the cutter-bar slot; a key-block for filling the space intervening the end of the cutter-bar and the knives, and means for forcing the key-block tightly against the knives, as set forth.

2. A cutter-bar having an uninterrupted slot, the end wall at one side having a socket, an adjustable screw passing through the end wall of the other side; a series of knives having pendent portions adapted to snugly fit the slot, the combined width of the series of knives being less than that of the length of the slot, whereby said series are adapted for lateral movement in the slot, the end knife at one side having a tongue to engage the slot of the adjacent end of the cutter-bar, the end knife at the other side having an end groove, and a key-block adapted to fit in the space between the knives and the adjustable screw-holding end of the cutter-bar, said key-block having a tongue adapted to enter the groove of the adjacent knife, said tongue-and-grooved connection being of a greater width than the free lateral play of the key-block in the space intervening the screw-carrying end of the cutter-bar and the adjustable knife, all being arranged substantially as shown and for the purposes described.

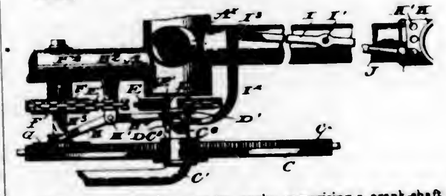
642,995. ELECTRIC CONNECTING DEVICE FOR LAMP-HOLDER WALL-PLUGS, &c. CHARLES L. R. R. MEISSER, The Hague, Netherlands. Filed Mar. 14, 1898. Serial No. 673,850. (No model.)



Claim.—1. The combination with a plug provided with rigid and contact-pieces and laterally-projecting pins, of the herein-described holder composed of a socket portion and base portion and rigid end contact-pieces and provided with helical surfaces for engagement of said laterally-projecting pins of the plug, said socket being movable in the direction of the axis of the holder but retained by spring action, so that when said plug is turned into said socket, with the said pins and helical surfaces in engagement, the said socket will be pushed back against the spring action, thereby pressing together the contact-pieces of the plug and holder, substantially as described.

2. A double-pole safety-fuse consisting of a plug provided with contact-pieces and laterally-projecting pins, a socket or holder provided with contact-pieces and having helical surfaces for engagement with said lateral pins of the plug, and fuse-wires having their ends connected respectively to the said lateral pins and to the contact-pieces of the plug, substantially as described.

642,996. VARIABLE-SPEED GEAR. LOUIS J. MERCIER and EUCLID J. MERCIER, Pittsfield, Mass., assignors of one-third to Hiram H. Durgin, same place. Filed June 24, 1899. Serial No. 721,703. (No model.)



Claim.—1. A driving-gear for cycles comprising a crank-shaft, independent sprockets rotatably mounted thereon, a sliding clutch between said sprockets and adapted to engage either of the same, a series of gear-teeth upon one of said sprocket-wheels, an auxiliary shaft supporting a sprocket-wheel in line with one of said sprockets upon the crank-shaft, a driving-chain from the sprocket-wheel on the auxiliary shaft, a pinion on said auxiliary shaft adapted to engage said gear-teeth on said sprocket, and means for shifting said clutch; substantially as specified.

2. A driving-gear for cycles comprising a crank-shaft, independent sprockets rotatably mounted thereon, a sliding clutch between said sprockets and adapted to engage either of the same, a series of gear-teeth upon one of said sprocket-wheels, an auxiliary shaft supporting a sprocket-wheel in line with one of said sprockets upon the crank-shaft, a driving-chain from the sprocket-wheel on the auxiliary shaft, a pinion on said auxiliary shaft adapted to engage said gear-teeth on said sprocket, and a lever engaging said pinion and clutch to simultaneously shift the same in opposite directions; substantially as specified.

3. A driving-gear for cycles comprising a crank-shaft, independent sprockets rotatably mounted thereon, a sliding clutch between said sprockets and adapted to engage either of the same, a series of gear-teeth upon one of said sprocket-wheels, an auxiliary shaft supporting a sprocket-wheel in line with one of said sprockets upon the crank-shaft, a driving-chain from the sprocket-wheel on the auxiliary shaft, a pinion on said auxiliary shaft adapted to engage said gear-teeth on said sprocket, a lever engaging said pinion and clutch to simultaneously shift the same in opposite directions, and a main shifting lever pivoted to the frame of the wheel and connected to said clutch; substantially as specified.

4. A driving-gear for cycles comprising a crank-shaft, independent sprockets rotatably mounted thereon, a sliding clutch between said sprockets and adapted to engage either of the same, a series of gear-teeth upon one of said sprocket-wheels, an auxiliary shaft supporting a sprocket-wheel in line with one of said sprockets upon the crank-shaft, a driving-chain from the sprocket-wheel on the auxiliary shaft, a pinion on said auxiliary shaft adapted to engage said gear-teeth on said sprocket, and means for shifting said clutch; substantially as specified.

5. In a cycle driving-gear, the combination with a crank-axle, of a main sprocket-wheel rotatably mounted upon said shaft and having gear and sprocket teeth thereon, a secondary sprocket rotatably mounted upon said shaft, a clutch slidably mounted on said shaft and rotatable therewith, a driving-sprocket mounted upon a shaft supported in the frame and connected to said secondary sprocket by a driving-chain, a pinion slidingly mounted upon the shaft of said sprocket and rotatable therewith, a lever pivoted between said pinion and clutch upon a support from the frame, a main shifting lever pivoted upon the frame, and a link connecting said lever and clutch; substantially as specified.

6. In a cycle driving-gear, the combination with a crank-axle having round portions and an intermediate angle portion, of sprocket-wheels mounted upon said round portions, one of which is provided with an internal gear, a sliding clutch mounted upon the angle portion between said sprocket-wheels, an angular stub-shaft mounted in the frame and having secured thereto a driving-sprocket connected by a chain to one of the sprockets on said crank-axle, a driving-pinion slidably mounted upon the angular portion of said stub-axle to engage said internal gear, and means for shifting said pinion and clutch; substantially as specified.

7. In a cycle driving-gear, the combination with a shifting clutch and cooperating mechanism, of a shifting lever pivoted to the frame of the wheel and connected to said clutch, a latch slidingly mounted upon a vertical portion of said lever, a guide-plate carried by the head of a cycle having a slot through which said lever extends, and a series of sockets adapted to be engaged by said latch; substantially as specified.

8. In a cycle driving-gear, the combination with a shifting clutch and cooperating mechanism, of a shifting lever pivoted upon the frame of a cycle and having a vertical portion parallel with the head-post of the machine, a vertically-movable latch mounted upon said lever, a spring acting upon the upper portion of said latch, and a locking-plate secured to the head of the wheel by a clamping-band and provided with a guiding-slot for the vertical end of the shifting lever, and a series of sockets to be engaged by said latch; substantially as specified.

642,997. PICTURE-HANGER. OLOF NELSON, Dubois, Pa. Filed Nov. 21, 1899. Serial No. 737,794. (No model.)

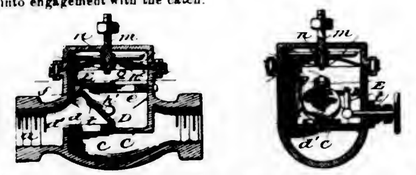


Claim.—1. Means for suspending pictures comprising a hanger-frame having offstanding supports at its lower end and a shank at its upper end surmounted by a suspending device, a hook fitted to the shank portion of the hanger-frame, and a connection having adjustable attachment with the said hook and adapted to be made fast to the picture to be hung, substantially as described.

2. The herein-described hanger constructed of a single length of wire doubled upon itself and bent to provide a suspending eye or loop, contiguous shank members and divergent legs terminating at their lower ends in offstanding supports, a hook having side wings bent about the members of the shank to prevent their spreading, and a chain or analogous connection adjustably interposed between the suspending means of the picture or like article and the hook of the hanger, substantially as and for the purpose set forth.

642,998. AUTOMATIC GAS CUT-OFF. HARRY C. O'BLENESS and JOHN C. MCKALLIP, Athens, Ohio. Filed June 20, 1899. Serial No. 721,241. (No model.)

Claim.—1. An automatic gas cut-off, comprising a casing having inlet and discharge ends separated by a partition provided with a port, a pivoted valve controlling said port, a catch adapted to directly or positively engage the valve to hold it open, a pressure-operated device for retracting said catch, and a rotary or oscillatory member having a part to engage and swing the valve open on its pivot and into engagement with the catch.



2. An automatic gas cut-off, comprising a casing having a partition separating its inlet and outlet ends and a diaphragm-chamber above said partition, a valve controlling a port in said partition, a supporting-arm, a pivoted catch having a slot and stop connection with said arm to limit its movement and adapted to directly engage the valve to hold it open, and a diaphragm having a stem to abut against the catch for retracting it and releasing the valve.

3. An automatic gas cut-off, comprising a casing having inlet and outlet ends separated by a partition provided with a port, a cap closing the upper end of the casing and forming therewith a diaphragm-chamber located wholly above said partition, a single, automatically-closing valve controlling said port, a catch for engaging the valve to hold it open, a diaphragm located in said diaphragm-chamber and adapted to retract the catch, a stem carried by the diaphragm and projecting through the cap, and means for opening the valve and moving it into engagement with said catch.

4. An automatic gas cut-off, comprising a casing having inlet and outlet ends separated by a partition provided with a port, a cap closing the top of the casing and forming therewith a diaphragm-chamber located wholly above said partition, an arm projecting from the casing above the valve-seat, a pivoted, gravity-closing valve controlling the port, a gravity-catch pivoted to said arm and adapted to directly engage and hold the valve open, and a diaphragm in the diaphragm-chamber, a stem projecting exteriorly through the cap and attached to the diaphragm and adapted when the latter is depressed by a reduction of the gas-pressure to retract said catch, and a rotary or oscillatory shaft or stem projecting through the body of the casing and adapted to be turned to unseat the valve and move into engagement with the catch.

5. An automatic gas cut-off, comprising a casing having a gravity-valve for controlling the flow of gas therethrough, a gravity-catch to engage the valve and hold it open, a movable diaphragm, an exteriorly-projecting stem carried by the diaphragm and adapted to retract said catch and release the valve, and means for opening the valve and moving it into engagement with said catch.

6. An automatic gas cut-off, comprising a casing, a valve therein provided with a lug or boss, a catch to hold the valve open, a pressure-controlled device for retracting said catch to allow the valve to close, and a revoluble shaft or spindle projecting through the wall of the casing and provided at its inner end with an arm to engage the lug or boss on the valve and at its outer end with an operating device whereby it may be turned to unseat the valve and move it into engagement with said catch.

642,999. NUT-LOCK. CHARLES D. O'NEIL, Charleston, W. Va. Filed Dec. 7, 1899. Serial No. 739,520. (No model.)

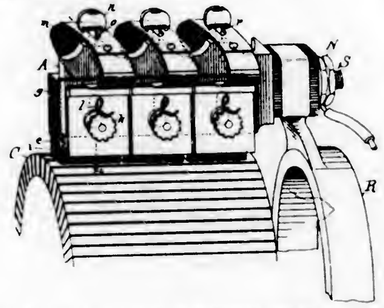


Claim.—The combination with a flanged plate, the flanges of which converge from the upper to the lower edge, said plate being provided with an aperture and with two lips, one struck from the body of the plate within its marginal edges, and the other formed on one of the edges of the plate; of a locking-wedge having a recess formed in one of its edges and extending up a distance toward its opposite edge, the walls of said recess being formed with marginal flanges, substantially as and for the purpose set forth.

643,000. BRUSH-HOLDER. PATRICK O'SHAUGHNESSY, New York, N. Y. Filed Mar. 14, 1899. Serial No. 708,998. (No model.)

Claim.—1. The combination of a bracket, one or more brush-clamps mounted thereon, there being a sliding contact between the clamp and the bracket, and a lock-nut for graduated adjustment of the contact between the bracket and the clamp, substantially as described.

2. The combination of a bracket, a brush-clamp supported thereby and provided with flat jaws, a flat reversible brush slotted midway between the two ends and engaged by the jaws, and a bolt through the slot in the brush for clamping the brush between the jaws, substantially as described.



3. The combination of a bracket provided with flat contact-faces, and one or more brush-clamps mounted to slide upon the bracket, each brush-clamp being provided with two pairs of flat jaws, one pair for a sliding fit with the bracket and the other pair for clamping the brush, substantially as described.

4. The combination of a bracket provided with flat contact-faces, and one or more brush-clamps mounted to slide upon the bracket, each brush-clamp being provided with two pairs of flat jaws, one pair for a sliding fit with the bracket and the other pair for clamping the brush, there being a contact-plate common to the two pairs of jaws, substantially as described.

5. The combination of a bracket provided with flat contact-faces, and one or more brush-clamps mounted to slide upon the bracket, each brush-clamp being provided with two pairs of flat jaws, one pair for a sliding fit with the bracket and the other pair for clamping the brush, and a spring supported from the bracket and bearing upon each brush-clamp, substantially as described.

6. The combination of a bracket provided with two flat contact-faces, one or more brush-clamps, each consisting of two pairs of jaws one for clamping a brush and one for providing a sliding fit with the bracket, the brush-clamp being attached by a bolt passing through a slot in the bracket, and a spring of adjustable tension bearing upon the brush-clamp, substantially as described.

7. The combination of a bracket, one or more brush-clamps mounted to slide upon the bracket, a bowed spring for each brush-clamp, an adjusting-screw for regulating the tension of each sprieg, the spring being slotted for the passage of the head of the screw, and a lock between the screw and spring, substantially as described.

643,001. PRESS FOR FERTILIZING MATERIAL. WILLIS E. OVERTON, Riprap, Va. Filed May 23, 1899. Serial No. 717,938. (No model.)



Claim.—1. In a press, the combination with an outer cylindrical non-rotary shell, provided with a conical discharging extension, of an inner rotary screw-flanged drum or shell having perforated or slotted walls, and of increasing diameter from the receiving end of the press to a point near its discharging end, said inner drum or shell also having a conical extension of less pitch than the conical extension of the outer shell, and a straight portion intermediate the conical extension, and the screw-flanged portion, substantially as specified.

2. In a press, the combination with an outer non-rotary cylinder drum or shell, of an inner rotary drum or shell of increasing diameter from the receiving end of the press to a point near its discharge end, and having a screw-flange surrounding such portion thereof, and a straight portion beyond the end of said flange, substantially as specified.

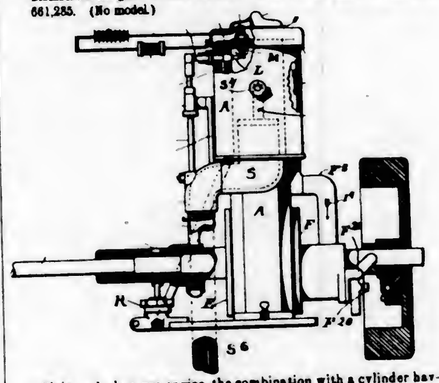
3. In a press, the combination with an outer non-rotary cylinder drum or shell, of an inner rotary drum or shell of increasing diameter from the receiving end of the press to a point near its discharge end, and having a screw-flange surrounding such portion thereof, and a straight portion beyond the end of said flange, said straight portion having an opening therein, and the outer shell having a corresponding opening, and a fence surrounding said opening, substantially as specified.

4. In a press, the combination with the outer fixed cylindrical shell, and the inner rotary shell, having a surrounding screw-flange, of a continuous series of edgewise-disposed cleaner or clearing disks loose with relation to each other adapted to engage the said flange, together with a runway and bearings for said disks, substantially as specified.

5. A feeding attachment, consisting of a fixed outer shell having a longitudinal slot, an inner rotating drum or cylinder having a screw-flange, and a continuous series of edgewise-disposed rolling clearing-disks adapted to extend through said slot into engagement with said flange, together with a runway for said disks, substantially as specified.

6. In a press, the combination of the outer fixed cylindrical shell having an extension at its receiving end, the shaft extending centrally through said cylinder and extension, the press-drum on said shaft of gradually-increasing diameter toward the discharge end of the press, and having a screw-flange, the feed drum or cylinder on said shaft within said extension, and also having a screw-flange, and a continuous series of edgewise-disposed rolling clearing or cleaning disks arranged to engage the flange of said feed-drum, together with a raceway for said disks, substantially as specified.

643,002. ELECTRIC IGNITER FOR EXPLOSIVE-ENGINES. WILLIS J. PERKINS and CARL H. BLOMSTROM, Grand Rapids, Mich.; said Blomstrom assignor to said Perkins. Filed Dec. 9, 1897. Serial No. 661,235. (No model.)



Claim.—1. In a gas-engine, the combination with a cylinder having an inner and an outer wall with a water-space therebetween, of a movable electrode, a bearing therefor exposed to the water in said space, and means closing the opening into the jacket through which the said bearing passes, substantially as specified.

2. The combination with a cylinder having an inner and an outer wall with water-space therebetween, of a movable electrode, a sleeve in which it has a bearing, and which is exposed to the water in said space, and a nut engaged with a screw-thread in the outer wall and closing the opening into the jacket through which the said sleeve passes, substantially as specified

3. In a gas-engine, the combination of a cylinder having an inner and outer wall with water-space, therebetween the stationary and movable electrode adapted to have contact with each other in the ignition-chamber, a sleeve encircling the movable electrode and passed through said water-space, an opening through the cylinder-head, an oil-duct adapted to convey oil to the movable-electrode journal, and a puppet-valve adapted to close said passage, substantially as described.

4. The combination in a gas-engine, of a movable and a stationary electrode, said movable electrode suitably journaled and extending from the outside to the inside of the cylinder and passed through a water-space, an opening extending through the cylinder-head adapted to convey oil to the movable-electrode journal, and a valve adapted to be depressed for the purpose of admitting oil to the journal of said electrode, substantially as described.

5. The combination in a gas-engine, of a movable electrode, a reciprocating rod to actuate the movable electrode, a sleeve encircling said reciprocating rod at some point between its two ends, two actuating-tappets carried by the upper end of the rod, a pivotal journal-box supporting said sleeve, and a key for holding the said sleeve and rod in relative rotary adjustment, but permitting of longitudinal movement of said rod with reference to said sleeve, substantially as described.

6. In a gas-engine, the combination of a movable electrode, a reciprocating bar or rod eccentrically attached to the crank-shaft at one end and free at the other end and supported between its ends in a pivoted bearing in which it slides, its free end adapted to intermittently engage with and move the electrode, substantially as described.

7. In a gas-engine, the combination of a movable electrode, a reciprocating actuating-rod, a sleeve encircling the said reciprocating rod, a pivotal journal-box supporting the said sleeve, a key for holding said sleeve in relative position, two actuating-tappets carried by the upper end of the rod and suitable means for mechanically revolving the rod within the pivotal sleeve, substantially as described.

8. The combination in a gas-engine with a movable and a stationary electrode, of a reciprocating rod for actuating the electrodes eccentrically attached to the crank-shaft, a pivoted central support for the said rod in which it slides and adapted to give to the upper end or contact-point of said rod an elliptical path, substantially as described.

9. The combination in a gas-engine with a movable and stationary electrode, said movable electrode journaled in a sleeve situated in the cylinder-walls, a cylinder-head covering one end of said cylinder and surrounded by a water-space, a puppet-valve closing the oil-duct to the movable electrode, and a valve-seat adapted to be depressed for admitting the oil to the journal of said electrode, substantially as described.

10. The combination in an explosive-engine having a movable and a stationary electrode, a contact dog or lug on the movable electrode, of a reciprocating rod having a plurality of tappets adapted to engage the said tappets on the movable electrode, said reciprocating rod being eccentrically attached to the crank-shaft, a central support for the said rod adapted to give to the upper end or contact-point of said rod a substantially oval path.

11. The combination with an explosive-engine, having a movable and a stationary electrode, of dogs or contact-points on said movable electrode, and a reciprocating rod having a plurality of adjustable tappets adapted to engage at predetermined times with said dogs or lugs on the movable electrode, said reciprocating rod being eccentrically connected to the crank-shaft, substantially as described.

643,003. FUNIS-CLAMP. MILTON DE WITT POLLOCK, Decatur, Ill. Filed Dec. 5, 1898. Serial No. 698,360. (No model.)



Claim.—1. A funis-clamp having pivotal jaws, and a guard surrounding the jaws in a common plane therewith, and consisting of spring members carried respectively by the jaws and provided at their free ends with means for maintaining said members under tension to hold the jaws in yielding contact with the opposite sides of an interposed object, substantially as specified.

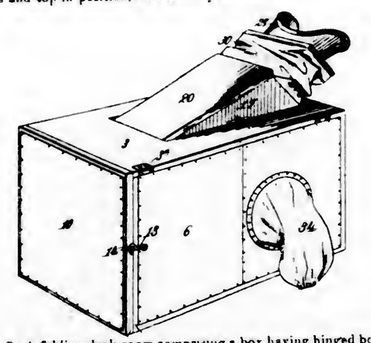
2. A funis-clamp having pivotally-connected jaws for engaging and transversely compressing an arterial canal, the same being provided at their free extremities with interlocking elements consisting of a spur on one jaw fitting in a kerf or seat in the other jaw, and resilient members for securing the jaws in an adjusted position, substantially as specified.

3. A funis-clamp having pivotally-connected jaws, provided at their free extremities with interlocking elements consisting of a tapered spur on one jaw fitting in a tapered kerf or seat in the other jaw, and resilient members for yieldingly holding the jaws in an adjusted position, substantially as specified.

643,004. PORTABLE PHOTOGRAPHIC DARK ROOM. BENJAMIN W. REA and EDWARD S. GREGORY, Gallatin, Mo. Filed Aug. 3, 1899. Serial No. 726,037. (No model.)

Claim.—1. A dark room, comprising a box having an aperture therein, shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the outer end of the bellows, means for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

2. A folding dark room comprising a box having a top and bottom, sides each hinged at its upper edge to one of the side edges of the top, one of said sides being hinged at its lower edge to one edge of the bottom, means for detachably connecting the lower edge of the other side to the opposite edge of the bottom, whereby said sides and top are adapted to fold down flat alternately upon one another and upon the bottom, and rigid end pieces constructed to be removably fitted in the open ends of the box and thereby hold the hinged sides and top in position, substantially as described.



3. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the outer end of the bellows, means for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

4. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and connections between the eyepiece and shutters operating when the eyepiece is depressed to open the shutters, substantially as described.

5. A folding dark room comprising a box having hinged bottom, sides and top arranged to be folded flat upon one another when not in use, removable end pieces detachably fitted in the open ends of the box, said top having an aperture therein, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and rods pivotally connected at their respective ends to the shutters and eyepiece and operating to open the shutters when the eyepiece is depressed, substantially as described.

6. A portable dark room comprising a box, a trunk or casing fitted in the top of the box and provided with an aperture at one end, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

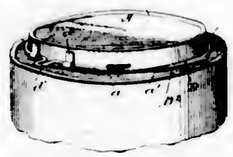
7. A portable dark room comprising a box, a trunk or casing fitted in the top of the box and provided with an aperture at one end, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and rods connected to the eyepiece and to said shutters and operating to open the latter when the eyepiece is depressed, substantially as described.

8. A portable dark room comprising a box having an aperture in its front end covered with translucent non-actinic material, a rearwardly-inclined trunk or casing removably fitted in the top of the box and provided with an aperture in its rear end, hinged shutters operating to normally close said aperture, a bellows fitted at one end over the aperture, an eyepiece fitted to the other end of the bellows, a coiled spring for extending the bellows, and means operating when the bellows is collapsed to close the shutters, substantially as described.

643,005. FASTENING FOR CAPS OF CANS OR OTHER VESSELS. GEORGE J. RECORD, Conneaut, Ohio. Filed Nov. 6, 1899. Serial No. 735,976. (No model.)

Claim.—1. In combination with a cap or cover, having an annular sealing-groove in its under side, a receptacle having a neck provided at its top with a bead and with an inwardly and downwardly inclining resilient flange which bears against the inner wall of the said groove, the said bead and flange accurately fitting the interior of the said sealing-groove at all points, making a liquid-tight joint, substantially as set forth.

2. In combination with a cap or cover, having an annular sealing-groove on its under side, a receptacle having a neck provided at its top with a bead which fits into the said groove and with an inwardly and downwardly inclining resilient flange which bears against the inner wall of the said groove making a liquid-tight joint while the cover is in its normal shape, the said shape being also retained after the removal of the cover, substantially as set forth.



3. In combination with a cap or cover, having an annular sealing groove in its under side, a receptacle having an upwardly-extending neck provided with a head adapted to fit into said groove and an annular resilient flange inclining inwardly and downwardly from the said head, adapted to fit against the inner wall of the said groove, making a liquid-tight joint, the said cap and neck being provided with devices which interlock by resiliency, thereby detachably fastening the said cap in place and holding the said flange and bead securely in the said sealing-groove, substantially as and for the purpose set forth.

4. In combination with a cap having a sealing-groove in its under side, a receptacle having a neck provided with a bead adapted to fit into the said groove and a resilient annular flange inclining inwardly and downwardly from the said bead and adapted to fit against the inner wall of the said groove making a liquid-tight joint, the said cap and neck being provided with interlocking devices exterior to the said neck and engaging by resiliency when the said cap is pressed down over and outside of the same, so as to hold the said cap in place and the said bead and flange in the said sealing-groove, substantially as and for the purpose set forth.

5. In combination with a cap having an annular sealing-groove in its under side and projections extending inwardly from its side wall, a receptacle having a neck which is provided with an annular groove to receive such projections and also with a bead and flange adapted to fit accurately at all points into the sealing-groove of the cap, the said flange and also the side wall of the said cap being resilient in order that the projections of the said cap snapping into the said groove may hold the bead in the sealing-groove and the flange against the inner wall of the latter groove, thereby making a secure liquid-tight joint at the top of the can, free from all risk of displacement while allowing convenient removal of the said cover when needed and the free outpouring of the entire contents of the can, substantially as set forth.

6. In combination with a cap or cover having the central part of its top depressed to form an annular sealing-groove around the same at the top of the side wall, and the said wall inclined downwardly and outwardly and provided with inward projections, a receptacle provided with a neck having an annular external groove to receive the said projections, a vertical wall above the said groove and a bead at the top of the said wall adapted to fit into the said groove to seal the can when the said projections are thus in engagement while the cover is in its normal shape, substantially as set forth.

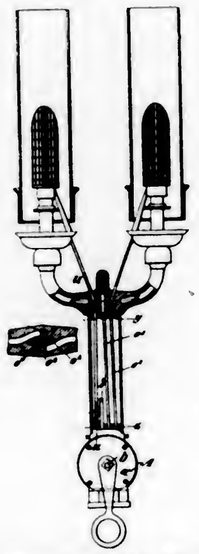
7. In combination with a cap having an inclined surface forming a part of its under side and a receptacle having a neck provided at the top with an inclined flange which is adapted to fit against the said surface and make a liquid-tight joint, the said neck and cap being provided with interlocking devices exterior to the said neck which are adapted to engage by resiliency when the said cap is forced down over and outside of the said neck, thereby locking the said inclined resilient flange against the said inclined surface, substantially as and for the purpose set forth.

8. In combination with a cap having a resilient side wall and inwardly-extending projections, a receptacle having a neck adapted to receive the said cap and to make a liquid-tight seal therewith, the said neck being further provided with an annular external groove adapted to receive the said projections when they snap into the same by resiliency and the top of the said receptacle being provided with a flat annular groove or depression surrounding the said neck and cap, the outer wall of said groove or depression being adapted to serve at any point as a fulcrum for a lever or tool used in prying up the said cap, substantially as set forth.

9. In combination with a receptacle having a raised neck and an annular groove or depression surrounding the same, a cap adapted to fit on the said neck and make a liquid-tight seal therewith and a lifting-lever pivotally secured to the said cap and adapted to fold down into the said groove or depression, the said cap and neck being further provided with resilient interlocking devices which are adapted to be disengaged by the said lever, substantially as set forth.

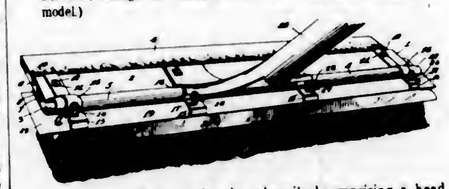
10. In combination with a receptacle and its detachable cap, a lever of curved form pivoted to the said cap and provided with an offset at its middle which is adapted to act as a fulcrum against the top of the said receptacle, the said lever having also one or two bent arms which extend around the neck and cap for a part at least of their circumference when out of action and in such circumstances lie flat upon the top of the can, substantially as and for the purpose set forth.

643,006. BURNER FOR GAS-LAMPS. RUDOLF J. W. REINHARD, Hamburg, Germany. Filed May 11, 1899. Serial No. 716,458. (No model.)



Claim.—The combination of the main jets, the igniter-jets, the separate passages leading to the main and igniting jets each communicating with one of a series of annular gas-chambers separated from the main gas-supply by a partition but each communicating with the main gas-supply by an aperture in said partition; with a rotary valve in said main gas-chamber provided with a segmental slot whereby the supply to the main jets may be cut off when the igniter-jets are burning and vice versa, and the main jets may be made to burn singly or together.

643,007. FLOOR OR WINDOW CLEANER. FREDERICK W. RICHTER, Chicago, Ill. Filed Nov. 23, 1898. Serial No. 697,241. (No model.)



Claim.—1. A device of the class described comprising a head constructed of sheet metal folded longitudinally and forming resilient clamping-jaws and a connecting resilient roll, the longitudinal edges being folded upon themselves to form engaging portions, a squeegee or rubber arranged between the engaging portions of the jaws, and means for connecting the jaws, substantially as described.

2. A device of the class described comprising a head composed of two jaws, one of the jaws being folded on itself and having the longitudinal edge of the metal bent inward to provide an inner flange, and means for holding the jaws in engagement with a rubber or squeegee, substantially as described.

3. A device of the class described comprising a head composed of jaws 2 and 3, the jaw 2 being provided with an outer longitudinal flange and the jaw 3 folded on itself and having the longitudinal edge of the metal bent inward to provide an inner flange, and means for holding the jaws in engagement with a rubber or squeegee, substantially as described.

4. A device of the class described comprising a head composed of two jaws, and a connecting spring-bend, one of the jaws having its longitudinal edge bent inward and folded on itself to provide a reinforced flange, and the other jaw being bent inward to reinforce its outer portion and having the longitudinal edge of the metal bent at right angles to form an inner flange, a rubber or squeegee arranged between the jaws, and means for holding the latter in engagement with the same, substantially as described.

5. A device of the class described comprising a head composed of two jaws, a rubber or squeegee arranged between the jaws, fastening devices connecting the jaws and holding the same in engagement with the rubber or squeegee, brush-supporting plates provided with slots and secured to the head by the said fastening devices, and a brush having headed fastening devices passing through said slots and detachably engaging the plates, substantially as described.

6. A device of the class described comprising a head provided with jaws, a rubber or squeegee arranged between the jaws, fastening devices holding the jaws in engagement with the rubber or squeegee, brush-supporting plates secured to the head by the said fastening devices and provided with outer L-shaped portions, and a brush secured to the L-shaped portions of said plate, substantially as described.

7. A device of the class described comprising a head provided with jaws, a rubber or squeegee arranged between the jaws, fastening devices holding the jaws in engagement with the rubber or squeegee, plates secured to the head by the fastening devices and provided with projecting L-shaped portions having slots, and a brush having headed fastening devices engaging said slots, substantially as described.

8. A device of the class described comprising a head provided with jaws and having a cylindrical spring-bend connecting the same, fastening devices for holding the jaws in engagement with a rubber or squeegee, plates secured to the head by said fastening devices, provided with outer slotted portions and having intermediate curved portions conforming to the configuration of the bend of the head, and a brush provided with fastening devices engaging the outer slotted portions of the plates, substantially as described.

9. A device of the class described comprising a head having jaws, fastening devices for holding the jaws in engagement with a rubber or squeegee, plates secured to the head by said fastening devices, and a brush having fastening means interlocked with said plates, substantially as described.

10. A device of the class described comprising a head provided with jaws, fastening devices connecting the jaws and adapted to hold the same in engagement with a rubber or squeegee, plates secured to the head by the said fastening devices, a brush interlocked with the plates, and a handle also secured to the head by the said fastening devices, substantially as described.

11. A device of the class described comprising a head having jaws, a rubber or squeegee arranged between the jaws, brush-supporting plates disposed on the head, a handle, and fastening devices passing through the jaws and securing the plates and the handle to the head and retaining the said jaws in engagement with the rubber or squeegee, substantially as described.

643,008. BOUQUET-HOLDER. GEORGE T. ROHN, Herkman, Ill. Filed June 29, 1899. Serial No. 722,300. (No model.)

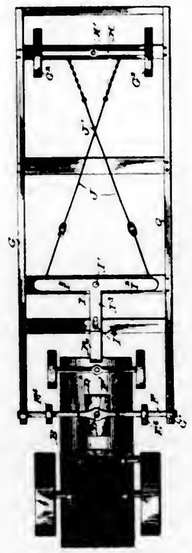


Claim.—A bouquet-holder involving the combination of a vase, a shield, a stem for coupling the vase and shield, a spring-clasp pivotally connected with the stem for attaching the holder to the clothing, and a clamping device coupled with the shield for securing a bouquet in the holder, substantially as described.

643,009. TRACTION-ENGINE. AMBROSE M. SEARLE, Geneseo, Ill. Filed June 30, 1899. Serial No. 722,418. (No model.)

Claim.—1. A traction-engine having front and rear wheels, combined with the two-wheel base pivotally connected to said engine between its front and rear wheels, and steering devices between the engine and the wheels of the base substantially as set forth.

2. In a traction-engine the combination of the boiler, the plates secured to the upper and lower sides thereof and provided with the vertical tenons or studs, the harness pivoted on said studs and provided with lateral journals, the base supported at one end on said lateral journals and at its other end on its wheels, and steering devices connecting said wheels with the boiler substantially as set forth.



3. The combination with a traction-engine and a two-wheel base, of a harness, vertical pivots for connecting or attaching such base to the engine and steering connections between the engine and the wheels of the base substantially as set forth.

4. In a traction-engine, the combination with the engine and the base having the wheels and the pivoted axle at one end and supported at its other end on the engine, the pivoted T-shaped lever, crossed connections between the arms of said lever and the pivoted axle, and operating connections between the said lever and the engine substantially as set forth.

5. The combination with the engine-boiler and vertical studs projecting from the upper and lower sides thereof, of the base, wheels supporting one end of the base, a harness pivoted on the said vertical studs and supporting the other end of the base, and steering connections between the boiler and the wheels of the base substantially as set forth.

6. In an apparatus substantially as described the combination of the upper and lower pivot-studs, the yoke pivoted on one of said studs, the grooved saddle pivoted on the other stud, the rods or bars fitting in the grooves of the saddle and connected at their ends with the yoke, and the base supported on said yoke substantially as set forth.

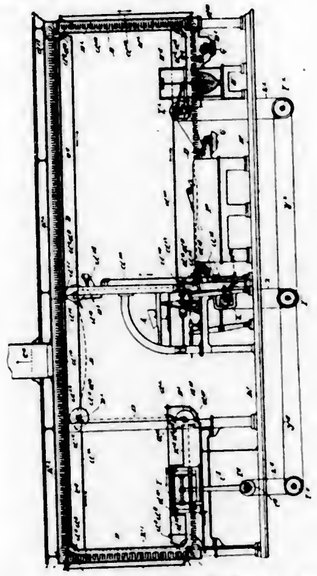
7. In a traction-engine the combination with the boiler and the two-wheel base, of the harness embracing and pivoted vertically to the boiler and supporting one end of the two-wheel base, and devices whereby the movement of the boiler effects the steering of the two-wheel base, substantially as set forth.

643,010. MACHINE FOR MANUFACTURING AND BOXING MATCHES. HENRI SEVÈNE and EMILE D. CAHEN, Paris, France. Filed Aug. 21, 1897. Serial No. 649,036. (No model.)

Claim.—1. In a machine for the continuous manufacture of matches, the combination of an endless carrier having perforations to receive the match-splints, with a grooved carriage, a cross-bar adapted to form with the grooved carriage tubes for the splints, a rear bar and means for bringing said rear bar against the rear end of the said tubes to force the splints into the said endless carrier as the carriage moves forward, substantially as described.

2. In a machine for the continuous manufacture of matches, the combination of an endless carrier, with a grooved carriage, a cross-bar adapted to form with the grooved carriage tubes for the match-splints at the end of the forward movement of said carriage, a rear bar and means for bringing said bar against the rear end of said tubes to close the ends of said tubes when the splints are to be forced into said carrier, a comb and means for moving the comb so that it will

penetrate the grooves in said carriage during the return movement of the carriage, substantially as described.



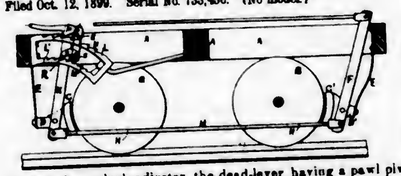
3. In a machine for the continuous manufacture of matches, the combination of a shaking-magazine, a grooved table below the magazine, a grooved carriage having a to-and-fro motion, a set of needles adapted to push the splints from the grooved table into the grooves in said carriage, with an endless carrier, a fixed cross-bar in proximity thereto, a sliding comb carried at the rear of said cross-bar, the said carriage being provided with a rear bar sliding into position at the rear of the grooves, all substantially as and for the purposes described.

4. In a machine for the continuous manufacture of matches, the combination of an endless carrier comprising plates having holes to receive the match-splints and orifices at the ends of said plates with a fixed cross-bar, a grooved carriage adapted to move under said cross-bar, the said carriage being provided with a rear bar sliding into position at the rear of the grooves and the said carriage being also provided with conical teeth adapted to enter the said orifices in the plates of the endless carrier, substantially as and for the purposes described.

5. In a machine for the manufacture of matches, a vat to contain the material for treating the match-splints, a metallic mass at each end of the said vat, in combination with steam-pipes passing through the said vat, the joints of which are embedded in the said metallic masses, substantially as and for the purposes set forth.

6. In a machine for the manufacture of matches, the combination of a vat to contain the material for treating the match-splints, a metallic mass at each end of said vat, and a series of steam-pipes passing through said vat, the joints of said pipes being embedded in said metallic masses, with an auxiliary reservoir separated from the vat by a weir, and containing an Archimedean screw, all substantially as and for the purposes described.

643,011. SLACK-ADJUSTER. HENRY F. SHAW, Boston, Mass. Filed Oct. 12, 1899. Serial No. 733,436. (No model.)



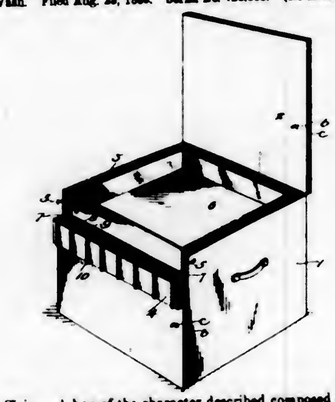
Claim.—In a slack-adjuster, the dead-lever having a pawl pivoted to the upper end thereof, and another pawl to the dead-lever on the same side below said pawl and two stationary double segmental rack-bars rigidly secured to the truck-frame, one above the other, the upper one having coarser teeth, whereby the movement of the dead-lever within the said rack-bars serves to carry the pawls over the teeth thereof, substantially as described.

643,012. PROCESS OF PRODUCING MATERIAL SUITABLE FOR ELECTRIC INSULATION OR OTHER PURPOSES. ARTHUR SMITH, London, England. Filed Aug. 17, 1899. Serial No. 727,567. (No specimens.)

Claim.—1. The herein-described process for producing a material suitable for electric insulation and other purposes, the said process consisting in mixing acetic paraldehyde with methylated spirit, carbolic acid and methylated spirit which had been saturated with hydrochloric-acid gas, molding and saturating with paraffin.

2. The herein-described process for producing a material suitable for electric insulation and other purposes, the said process consisting in mixing acetic paraldehyde with methylated spirit, carbolic acid and methylated spirit which has been saturated with hydrochloric-acid gas, and molding.

643,013. REFRIGERATOR-BOX. CHARLES J. STUART, Puyallup, Wash. Filed Aug. 29, 1899. Serial No. 728,853. (No model.)



Claim.—A box of the character described composed of the end pieces, the side pieces and the base, fixed together, and provided with a cover, one of the side pieces being of less height than the other side piece and the end pieces, a strip having its lower edge hinged to the upper edge of the shorter side piece, and when folded up in place has its upper edge flush with the upper edges of the ends and the other side piece, the interior walls of the box being provided with vertical cleats to form air-ducts, and the interior wall of the hinged strip being provided with cleats to form air-ducts and continuations of the cleats on the shorter side of the box, an ice pan or receptacle arranged and supported immediately beneath the cover of the box and capable of being withdrawn through the opening in the front of the box formed by swinging the hinged strip downwardly, and a drain-pipe for said pan or receptacle, substantially as and for the purpose set forth.

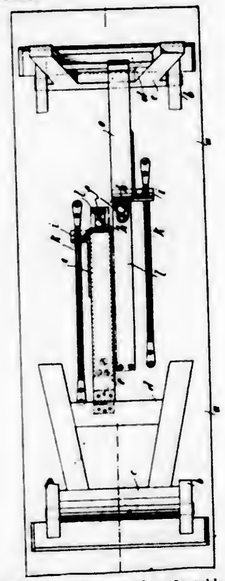
643,014. ATOMIZER. CHARLES A. TATUM, New York, N. Y., assignor to Whitall, Tatum & Co., same place. Filed Sept. 21, 1899. Serial No. 731,159. (No model.)



Claim.—1. In an atomizer, the combination of a containing-receptacle, an atomizer-mounting removably secured to said receptacle and constituting the means for supporting the atomizing parts and an atomizing-chamber independent of the containing-receptacle, said chamber being carried by and removably secured to said mounting, and the only opening therein being the one which communicates with the mounting there being open communication through the mounting between said atomizing-chamber and the receptacle, whereby the atomized products will pass from the chamber through the atomizer-outlet and the liquefied products will pass back into the receptacle.

2. In an atomizer, the combination of a containing-receptacle, an atomizer-mounting removably secured to said receptacle and carrying centrally-located atomizing supply and outlet tubes, said last-named tube being substantially U-shaped for a portion of its length and a closed atomizing-chamber carried by and removably secured to said mounting and into which the said atomizing supply and outlet tubes are adapted to project, there being open communication through the mounting between said atomizing-chamber and the receptacle, whereby the atomized products will pass from the chamber through the outlet-tube and the liquefied products will pass back into the receptacle.

648,015. TABLE, SEAT, &c., HAVING FOLDING LEGS. KASPAR D. H. THIELMANN, Kiel, Germany. Filed Aug. 7, 1899. Serial No. 726,456. (No model.)



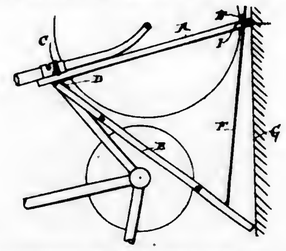
Claim.—1. A folding table, consisting of a table-top having pin-holes at its under side, supporting-legs hinged to the table-top, offsetting, parallel guide-rods secured to the under side of the table-top, struts hinged at one end respectively to the legs and provided at the other end with spring-tongues constructed to spring into engagement with the said pin-holes at the under side of the table-top, and perforated guide-lugs extending laterally from the said struts and through which said offsetting guide-rods pass, substantially as described.

2. A folding table, consisting of the table-top, the parallel, metal plates secured to the under side of the table-top and having pin-holes, the offset, parallel guide-rods on the under side of the table-top, the legs hinged to the table-top, the struts hinged at one end, respectively, to the legs and having at the other end the spring-tongues constructed with pins to engage and disengage said pin-holes, and the perforated guide-lugs extending from the struts and through which the said offset guide-rods pass, substantially as described.

648,016. BICYCLE-RACK. WILLIAM THUM, Pasadena, Cal. Filed Oct. 23, 1899. Serial No. 734,594. (No model.)

Claim.—1. A bicycle-rack, consisting of a shelf having hinges at its inner end for attaching it to a wall and a longitudinal opening extended through its outer end for receiving part of a bicycle, said shelf adjustable to different angles of inclination, and supporting means for securing the shelf at the angle of inclination to which adjusted, substantially as described.

2. A bicycle-rack, consisting of a shelf having means at its inner end for attaching it to a wall and a longitudinal opening extended through its outer end for receiving the wheel of a bicycle therethrough, said shelf being susceptible of adjustment to different angles of inclination, a brace pivotally connected with the outer end of said shelf, and a connection between the inner end portion of the brace and the shelf for adjusting and holding said shelf at different angles of inclination, substantially as described.



3. The combination of a shelf constructed with a longitudinal opening extended through its outer end to receive the wheel of a bicycle, a suitable hinge secured to the shelf and attaching the same to a vertical wall, a brace or support adapted to retain the shelf at any required angle with reference to the wall, and in position for supporting the bicycle, and suitable means for adjusting the shelf to the required angle.

4. The combination with a shelf adapted to receive the front wheel of a bicycle, a brace hinged to said shelf, a pivotal connection between the shelf and a vertical wall, suitable means for adjusting the brace and shelf to place the shelf at the required angle for receiving a bicycle, a suitable catch adapted to retain the shelf and brace in its folded position against the wall, substantially as described.

5. The combination with a shelf having a pivotal connection to a vertical wall, an opening in the shelf extended through the outer end thereof to receive the front wheel of a bicycle, a brace pivoted or hinged to the shelf, an abutment or lifting-bar adapted to assist in placing the bicycle in the rack.

6. The combination with a supporting-shelf adapted to receive and support the front wheel of a bicycle, a detachable pivotal connection between said shelf and a vertical wall, a brace hinged to the outer end portion of the shelf and constructed to bear against a wall to support the shelf at the required position to receive a bicycle when unfolded, and to fold up with the shelf when said rack is not in use, substantially as described.

7. The combination of a suitable supporting-shelf adapted to receive the front wheel and fork of a bicycle, a pivotal connection for attaching the shelf to a vertical wall, a brace hinged or pivoted to the shelf and adapted to support the shelf at any required angle to receive the bicycle, an adjusting device adapted to adjust and retain the brace in a required position, and a catch adapted to secure the shelf and brace in a folded position in close proximity to the vertical wall, substantially as described.

8. The combination in a bicycle-rack of a supporting-shelf adapted to receive the wheel of a bicycle, and a lifting-bar pivotally mounted on said shelf and constructed to support and guide the bicycle-wheel as the bicycle is raised into the rack substantially as described.

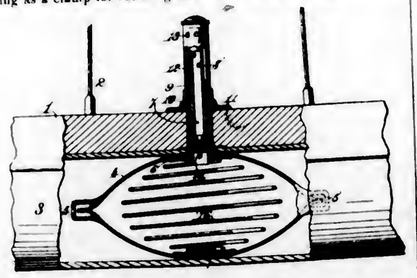
9. The combination of a shelf adapted to receive the wheel of a bicycle, a suitable connection between said shelf and a vertical wall, suitable mechanism for retaining said shelf in position to receive the bicycle and a suitable lifting device mounted upon the outer end of said shelf and constructed to receive and support the wheel of the bicycle as the same is lifted into the rack.

10. A rack for a bicycle comprising a divided shelf forming a support for the front forks of the bicycle and between which the front wheel of the cycle is situated when the latter is supported by the rack, the carrying portion of said shelf extending along either side of the front wheel but out of contact with the tire thereof, and means for supporting the shelf.

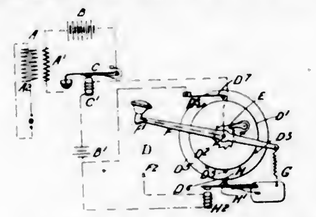
11. A rack for bicycles comprising in its construction a divided shelf, open in front and adapted to provide a support for the front forks of the cycle, and a lifting-bar or lifting incline having a connection with the shelf, so arranged as not to carry any of the weight of the front wheel when the bicycle is in position.

648,017. TIRE-INFLATING MECHANISM. JUNIUS E. TUCKER, Memphis, Tenn., assignor of one-half to George W. Person, same place. Filed Apr. 8, 1899. Serial No. 712,297. (No model.)

Claim.—The combination with a pneumatic tire, of a flexible bulb located on the inside thereof, valved inlet and discharge openings for said bulb, a coil-spring on the inside of said bulb, for the purpose described, and plates secured to the inner surface of said bulb on opposite sides thereof, both of said plates being engaged by said spring and serving to protect the bulb from abrasion from said spring, one of said plates serving to protect said bulb against puncture from without, and the other of said plates having a nipple thereon with a valved opening therein through which air is admitted to said bulb and also serving as a clamp for securing the bulb to the wheel-rim.



643,018. UTILIZATION OF HERTZIAN OR SIMILAR RADIATIONS AND APPARATUS THEREFOR. LOUIS H. WALTER, London, England. Filed Mar. 6, 1899. Serial No. 708,052. (No model.)



Claim.—1. In apparatus for the utilization of Hertzian or similar radiations the combination with apparatus for transmitting and receiving radiations in the form of a codal signal, of a safety device comprising a movable member, a fixed member, a local circuit between such members, means actuated by the receiving apparatus for bringing the movable member into contact with the fixed member when a codal signal is received and for releasing it when a false signal is given, and means for returning the movable member to its original position when released.

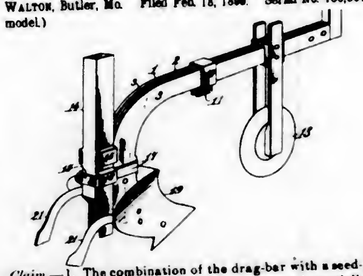
2. In apparatus for the utilization of Hertzian or similar radiations the combination with an oscillator, a coherer, and codal transmitting and receiving apparatus of a safety device comprising a movable member, a fixed member, a local circuit between such members, means actuated by the receiving apparatus for bringing the movable member into contact with the fixed member when a codal signal is received, and for releasing it when a false signal is given, and means for returning the movable member to its original position when released.

3. In apparatus for the utilization of Hertzian or similar radiations the combination of an oscillator, a rotary transmitting-disk having contacts at intervals upon its periphery, a coherer, a rotary receiving-disk with contacts upon its periphery spaced similarly to those on the transmitting-disk, means for synchronously rotating the transmitting and receiving disks, and a safety device comprising a spring-controlled shaft carrying a contact-arm, a fixed contact-arm, a local circuit between the contact-arms, and two ratchet-wheels with electrically-controlled pawls; substantially as set forth.

4. In apparatus for the utilization of Hertzian or similar radiations, a codal transmitting device comprising an oscillator, a codal disk D' carrying contacts D^3 upon its periphery, a contact-arm D^7, a spring to rotate the disk, a lever F operating to make the starting-signal and wind the spring and an electromagnet H^4; substantially as described.

5. In apparatus for the utilization of Hertzian or similar radiations a codal receiving device comprising a coherer, a codal disk M' carrying contacts M^2, M^3, a contact M^8, brushes M^{15}, M^{16} to convey the current to the contacts M^2, M^3 respectively, a spring operating to rotate the disk, an automatic winding device P, and a lever M^4 having a catch M^3 which also acts as a contact-point; substantially as described.

643,019. ATTACHMENT FOR SEED-PLANTERS. HERBERT G. WALTON, Butler, Mo. Filed Feb. 18, 1899. Serial No. 706,001. (No model.)



Claim.—1. The combination of the drag-bar with a seed-planter, means for attaching an ordinary plow thereto, substantially as described.

2. A seed-planter having a drag-bar provided with means for the attachment thereto of an interchangeable runner and plow, substantially as described.

3. A seed-planter having a drag-bar constructed at its rear pendent end with a tenon to receive a socket in an interchangeable runner and plow, and means for detachably securing the runner and plow to the tenon of the drag-bar, substantially as described.

4. A seed-planter having a drag-bar carrying at its rear end a removable and replaceable plow and constructed also to engage and hold a runner, substantially as described.

5. In a seed-planter, the combination with the drag-bar thereof, of a seed tube or conduit, and means for adjusting the position of said tube or said bar.

6. In a seed-planter, the combination with the drag-bar thereof, of a seed tube or coednit provided with a plurality of guide and supporting loops, and a clip embracing said drag-bar and adapted to be inserted through one or the other of said loops, as and for the purposes set forth.

7. The combination with the drag-bar of a planter of a plow adapted to be attached thereto, and means for adjusting the height of said plow thereon.

8. The combination with the drag-bar of a planter, of a plow having a socket therein, and an adjustable and removable tenon on said bar adapted to be received in said socket.

643,020. WHIFFLETREE-HOOK. WILLIAM WEBBER, Chicago Ill. Filed June 19, 1899. Serial No. 721,071. (No model.)



Claim.—1. In a whiffletree-hook, the combination with the ring or ferrule, of a separate wedge, and a seat in the ferrule adapted to receive the wedge preliminarily to applying the ferrule to the tree, whereby the wedge is forced into the wood by driving the ferrule onto the tree end.

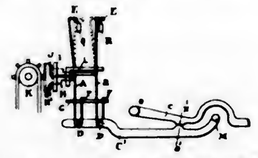
2. In a whiffletree-hook, the combination with a ring or ferrule having a strengthening-bar extending diametrically across its outer end, of a wedge separate from the hook, and a seat on the bar within the ferrule adapted to receive the wedge, whereby the latter is forced into the wood when the hook is driven onto the tree end.

3. In a whiffletree-hook, the combination of the ring or ferrule F, the strengthening cross-bar B, and the separate wedge A, the ends of the latter being adapted to engage the ferrule so as to aline the wedge with the cross-bar.

4. In a whiffletree-hook, the combination with the ring or ferrule F, the strengthening cross-bar B, and the separate wedge A, the ferrule having grooves or recesses in line with the ends of the bar, and the wedge having its ends adapted to said grooves or recesses.

643,021. DOBBY FOR LOOMS. WILLIAM B. WHITE, Jr., Colne, England. Filed Mar. 18, 1899. Serial No. 709,670. (No model.)

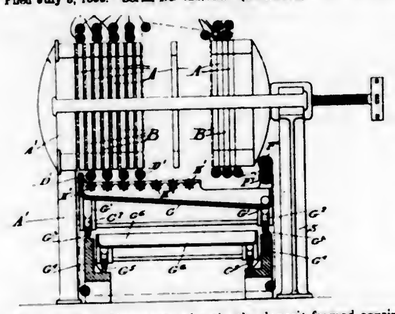
Claim.—1. The combination, in a loom-dobby mechanism, of the jack-lever having lateral studs, the vertical spring-catches each formed with a long and a short leg having hooks at their upper ends and joined at their lower ends by a bend engaged with one of said studs on the jack-lever to raise the latter, a second jack-lever engaged with and raised by the aforesaid jack-lever, the fixed grating on which the hooked ends of the short legs of the spring-catches normally rest, the lifting-knives, the horizontal T shaped needles having their inner ends bearing against the long legs of the spring-catches to push them into the paths of the lifting-knives, and the pattern-cylinder for advancing said needles, the spring-catches by their resiliency springing back and restoring the needles to normal position when the needles are relieved from the action of the pattern-cylinder, substantially as described.



2. The combination in a loom-dobby mechanism, of the vertically-reciprocating knives Q and R, lever devices for operating the knives, the upright spring-catches A and B, having arms of different lengths, the longest arms constructed to be engaged with and raised by said knives, the horizontal reciprocating needles H and J, acting on the long arms of the catches to throw them into the paths of the knives, a pattern-cylinder K, for operating the needles, the jack-lever C, connected with and raised by said spring-catches and the jack-lever C, engaged with and raised by the aforesaid jack-lever, substantially as described.

3. The combination in a loom-dobby mechanism, of the spring-catches Q and R, having arms of different length, the horizontally-reciprocating needles H and J, acting on the long arms of the catches, the vertically-reciprocating knives Q and R, for engaging and raising said catches, the rocking knife-operating lever V, having brackets or guides Y, and the arms X, connected with said knives, bearing against said rocking lever and passing loosely through said brackets or guides.

643,022. FILTER-PRESS. JOHN WILSON, Glasgow, Scotland. Filed July 3, 1899. Serial No. 722,732. (No model.)



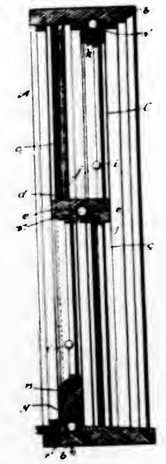
Claim.—1. In a filter-press wherein the deposit formed consists of a cake the combination of two rollers to the top and one at the bottom of each plate for carrying the filtering-cloth, the detachable nipping-rollers whereby the filtering-cloth can be taken out of the press, means for keeping the plates or plates and frames the requisite distance apart while the filtering-cloth is drawn through the press and the means of throwing the cleansing-brushes in and out of contact with the filtering-cloth substantially as described and shown on the accompanying drawings.

2. In a filter press or presses wherein the deposit formed consists of a cake the combination of a movable bed-plate provided with pulleys which run upon rails, means employed for carrying the cleansing-brushes which are arranged to be brought into operation in either a single or multiple press, and a bogie mounted on wheels which run upon rails placed beneath the said bed-plate for receiving the cake as it is discharged from the press or presses substantially as described and shown on the accompanying drawings.

3. In a filter-press wherein the deposit formed consists of a cake, the combination with the frames; of plates each carrying a pair of rollers at its top and a single roller at its bottom, over which rollers passes the filter-cloth, said rollers being in different vertical planes, substantially as described.

4. In a filter-press wherein the deposit formed consists of a cake, the combination with the frames; of plates each carrying at its upper end a pair of rollers in different vertical and horizontal planes and carrying at its bottom a single roller, over which rollers passes the filtering-cloth, substantially as described.

643,023. WINDOW FRAME AND SASH. ALPHEUS H. WOOD and JOHN D. TUNNELL, Amarillo, Tex. Filed Oct. 21, 1899. Serial No. 734,387. (No model.)



Claim.—1. The combination of a window frame or casing having parallel grooves in the inner sides of its side stiles, and also having grooves in the inner sides of its lower and upper cross-bars, sashes arranged and adapted to slide in ways in the frame or casing and having grooves in their outer cross-bars and side bars, and also having the meeting faces of their inner cross-bars correspondingly beveled and provided with grooves, tubes of yielding material secured in the grooves in the outer cross-bars of the sashes, a yielding tube secured in the groove of the inner cross-bar of one sash, and adapted, when the sashes are closed, to seat in the groove in the inner cross-bar of the other sash, and inflatable tubes secured in the grooves of the vertical bars of the sashes, and having ends *j* of increased thickness extended beyond the ends of the sashes so as to form cushions, and also having inflation-tubes extending transversely through said vertical bars; the said inflatable tubes being arranged and adapted to move in the grooves in the side stiles of the casing, substantially as specified.

2. The combination of a window frame or casing, sashes arranged and adapted to slide in ways in the frame or casing and having grooves in the outer sides of their vertical bars, and inflatable tubes secured in the grooves of the sashes and having ends *j* of increased thickness extended beyond the ends of the sashes so as to form cushions, substantially as specified.

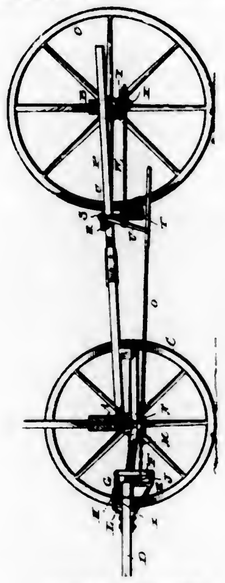
3. The combination of a window frame or casing having parallel grooves in the inner sides of its side stiles extending throughout the length thereof, sashes arranged and adapted to slide in ways in the frame or casing and having grooves in the outer sides of their vertical bars, and inflatable tubes secured in the grooves of the sashes and having ends *j* of increased thickness extended beyond the ends of the sashes, and also having inflation-tubes extending transversely through the vertical bars of the sashes; the said inflatable tubes being arranged and adapted to move in the grooves of the frame or casing, substantially as and for the purpose set forth.

643,024. AUTOMATIC WAGON-BRAKE. WILLIAM I. WOOD and WILLIAM M. BARNES, Circleville, Ohio. Filed Mar. 5, 1898. Renewed July 24, 1899. Serial No. 725,012. (No model.)

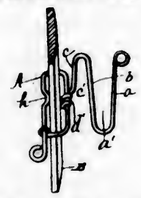
Claim.—1. In an automatic brake mechanism, a spring-actuated lever attached to the tongue, and which is guided by the doubletree in one direction, and by the spring in the other, and suitable connections extending backward from this lever to operate the brake-arm, combined with a spring-actuated rod also connected to the brake-arm, for automatically applying the brakes, substantially as set forth.

2. In an automatic brake mechanism, a spring-actuated lever pivoted upon a suitable support at its lower end, a sliding plate connected to its upper end, a doubletree, and bolt which passes through the plate and the doubletree, and a sliding clevis combined with suit-

able connections between the lever and the brake-arm, a partially-rotating shaft carrying the brake-blocks, an arm, and a spring-actuated rod connected to the arm for automatically applying the brake-blocks, substantially as specified.



648,025. HOOK FOR WAGON-COVERS. ROBERT G. WRIGHT, Fort Worth, Tex. Filed Jan. 8, 1898. Serial No. 665,765. (No model.)



Claim.—The combination of a hook for wagon-covers and a clamp for attaching the same to a wagon-bow, said clamp consisting of a single piece of wire bent to conform to the contour of the wagon-bow and having the bent portion for pressing against said bow and said hook having two bights for holding the wagon-cover, substantially as described and illustrated.

643,026. TOP-SPINNING DEVICE. CHARLES P. YOUSE, York, Pa. Filed Sept. 30, 1899. Serial No. 732,207. (No model.)



Claim.—1. In a top-spinning device, the combination of a stationary flanged spinning-table, a socket or tube projecting up through the same and provided with an inward-projecting pin, means for rotating said tube or socket, and a spinning-top having its plug spirally grooved and adapted to be inserted in said tube, as and for the purposes set forth.

2. The combination of a table or platform provided with means for supporting it stationarily, a rotatable tube projecting up through said platform and having its upper end open, a pin for supporting said tube in the opening, said pins projecting into the tube, a ratchet-wheel attached to said tube at a point below the platform, a tripping rod or pawl engaging the ratchet-wheel and adapted to be operated from the edge of the table, a spring device connected to the ratchet-wheel, and a spinning-top adapted to be inserted in the upper end of said tube and serve as the winding-key, the plug of said top being spirally grooved to engage the inner end of said pin, substantially as and for the purpose set forth.

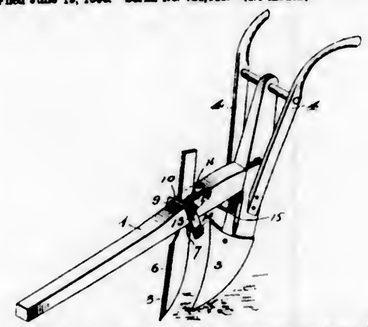
3. The combination of a stationary platform having a supporting-flange depending from its edge and a guard-flange extending upward from the edge of the table, a central tube projecting up through the table, a ratchet-wheel connected thereto, a spring-actuated pawl or rod extending from one edge of the table in under the same and normally engaging the ratchet-wheel, a spring for actuating the ratchet-wheel and tube, and a spinning-top adapted to be inserted in the central tube and serve as a winding-key and be ejected from the tube at each spinning operation.

4. The combination of a stationary table or platform provided with a guard-flange at its edge, a bushing *d* inserted in an opening in the center of said table and provided with a flange at its upper end, said flange resting upon the upper surface of the table and beveled downward and outward, an open-ended tube inserted up through said bushing and supported therein by a pin the inner end of which enters the tube, a spinning-top having a plug being adapted to be inserted in said tube and provided with a spiral groove adapted to engage said pin, and means for spinning said tube from below the table.

5. In an apparatus for spinning tops, the combination of a table, a ratchet-wheel carrying a tube extending up through the table and adapted to receive the plug of a top, a drum or flange carried by said ratchet-wheel and provided with a pin *l*, an endless rubber band and a pair of separated pins secured to the under side of the table at a distance from the ratchet-wheel and drum, the band being engaged at its ends over the pins and having its respective intermediate doubled portion looped over said pin, substantially as set forth.

6. In a top-spinning device, the combination of a tube open at its end to receive a top-plug, a pin projecting into the tube, means for rotating the tube and arresting its movement, and a top having its plug provided with an exterior spiral groove, as and for the purposes set forth.

648,027. COLTER. JOHN P. ABERNATHY, Jonesborough, Ark. Filed June 19, 1899. Serial No. 721,118. (No model.)



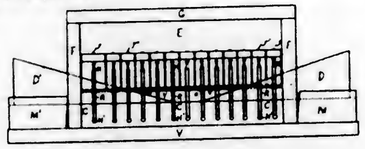
Claim.—1. In a plow, the combination with the beam formed with an inclined slot, and the colter passing therethrough provided with a series of holes, of the clip comprising the metal rods having their ends bent at right angles and screw-threaded and one of said ends engaging with one of the edges of the colter while the other passes through one of the holes in the colter, and the inclined plate through which said ends pass, and the securing-nuts, substantially as described.

2. In a plow, the combination with the beam provided with an inclined slot, the colter passing therethrough formed with a series of holes, and the clip comprising the rod having its ends bent at right angles embracing the beam, the plate and the nuts, of the standard, the brace-bar connected therewith, and the head formed with a slot engaging with the rear edge of the colter, substantially as described.

648,028. PIANO-TOUCH INSTRUCTOR. ALOIS ALLBUTH, New York, N. Y. Filed Mar. 21, 1899. Serial No. 709,993. (No model.)

Claim.—1. In a finger-exercising apparatus the combination with a keyboard, a series of piano-keys, key-bottom T, and bed-piece V—of sliding wedges B and B', side compartments N and N', adjusting-scale L, rod A, moving vertically within openings Q and Q', whereby the dip of the keyboard is divided into twelve equal degrees, substantially as and for the purpose specified.

2. In a finger-exercising apparatus the combination with a keyboard, a series of piano-keys, key-bottom T, bed-piece V, wedges B and B', compartments N and N', rod A, openings Q and Q' and adjusting-scale L—of rod C, rubbers R (connected by hooks H and H') sliding wedges D and D' for operating rod C by depression and elevation, thereby controlling the different tensions of the rubbers, being guided by adjusting-scale L', marked upon D and D', substantially as and for the purpose specified.



648,029. COLLAPSIBLE POULTRY-COOP. DAVID W. ANDERSON, Richmond, Va., assignor of one-half to Thomas H. Betty, Manchester, Va. Filed Oct. 19, 1899. Serial No. 734,103. (No model.)



Claim.—1. A collapsible coop, comprising a base; a top or cover; loosely-secured collapsible connections between said base and top; braces pivotally secured to said base, and detachably secured to said top and adapted to be folded in radial position upon the cover; and means for securing said braces after they have been turned down over the top.

2. A collapsible coop, comprising a base; a top or cover; loosely-secured collapsible connections between said base and top; braces pivotally secured to said base and adapted to be folded in radial position upon the cover; projections on said top or cover adapted to engage said braces; and means secured centrally upon the upper surface of the top for securing the ends of the braces when the coop is collapsed.

3. A collapsible coop comprising a base; a circular top; rods or wires loosely secured at their ends to said base and top; braces secured pivotally to said base and detachably connected to said top and adapted to be folded radially upon the cover; and means for securing said braces after they have been turned down over the top.

4. A collapsible coop, comprising a base; a top; loosely-secured collapsible connections between said base and top; equidistant braces pivotally secured to said base, and detachably connected to the top; and adapted when the coop is collapsed to be turned over said top; and a rotatable catch device pivotally supported centrally upon the top to engage the ends of the braces.

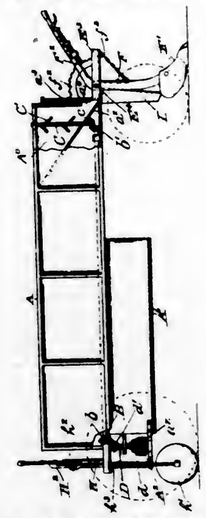
5. A collapsible coop, comprising a base; a circular top; loops or eyes projecting from said base and cover; rods or wires loosely secured to said loops or eyes; equidistant bails pivotally secured to said base; means for detachably connecting said bails to the top; and a catch device centrally pivoted to the top, and formed with equidistant diverging arms each of which is adapted to engage one of said braces.

6. A collapsible coop, comprising a base; a top; loosely-secured collapsible connections between the top and base; bracing-bails pivotally secured at their ends to the base; lugs or brackets projecting from the top to engage said bails; and spring-catches to engage said bails.

7. A collapsible coop, comprising a base; a top, provided with a door; loosely-secured collapsible connections between said base and top; equidistant bracing-bails pivotally secured at their lower ends to the base, and bent centrally to form seats; lugs projecting from the top to engage said seats or bends in the bail; spring-catches adjacent to said lugs for engaging the bails; and means for detachably securing the bails over the cover when the coop is folded.

8. A collapsible coop, comprising a base or floor of polygonal form, a circular top; loosely-secured rods connecting the base and top; braces pivotally secured at their lower ends to said base at equidistant points and adapted to be folded radially upon the cover; means for detachably securing the upper ends of said braces to the top; and means for detachably securing the ends of the braces after the latter are turned over the top of the coop.

648,030. CANE-PLANTING MACHINE. JOHN A. ANIELLO, New Orleans, La., assignor of one-half to John A. Muir and Joseph Frombers, same place. Filed May 29, 1899. Serial No. 718,726. (No model.)



Claim.—1. In a machine for planting cane, the combination with a wheeled vehicle having a longitudinal opening for the passage of stalks in a horizontal position; compartments for carrying cane, and a compartment for carrying fertilizer; and guides beneath said opening for keeping the stalks parallel to the line of movement of the vehicle; of a rotary shaft journaled longitudinally of said opening, and carrying blades arranged to turn in said opening; a stirrer in the fertilizer-compartment; intermeshing gears on the said shaft and stirrer, and gearing for rotating said shaft from one set of wheels of the vehicle, substantially as described.

2. In a machine for planting cane, the combination with a wheeled vehicle, having a longitudinal opening for the passage of stalks in a horizontal position; compartments upon the sides of said opening for containing cane to be planted; a compartment in front of said opening for fertilizer; of a rotary shaft journaled longitudinally of said opening; blades rigidly mounted upon said shaft, a stirrer in the fertilizer-compartment geared to said shaft; a plow carried by the vehicle in advance of said longitudinal opening for making a furrow; plows carried by said vehicle in rear of said opening for closing the furrow; and gearing between said shaft and an axle of the vehicle for rotating said shaft, substantially as described.

3. In a machine for planting cane, the combination with a wheeled vehicle having a longitudinal opening for the passage of stalks in a horizontal position; compartments for carrying cane and a compartment for carrying fertilizer; and guides beneath said opening for keeping the stalks parallel to the line of movement of the vehicle; of a rotary shaft journaled longitudinally of said opening, and carrying blades arranged to turn in said opening; a stirrer in the fertilizer-compartment; intermeshing gears on the said shaft and stirrer, a plow carried by the vehicle in advance of said longitudinal opening for making a furrow; plows carried by said vehicle in rear of said opening for closing the furrow; and gearing for rotating said shaft from one set of wheels of the vehicle, substantially as described.

648,031. SPRING-TIRE. JOHN ARN, Columbus, Ohio. Filed May 27, 1899. Serial No. 718,573. (No model.)



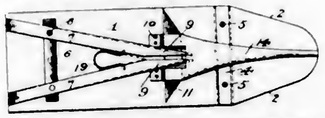
Claim.—1. A spring-tire comprising concentric inner and outer bands, elliptic or oval springs situated between the said bands, oppositely-extending securing-rivets passing through said bands and springs and projecting therein, and sleeves surrounding the inner projecting ends of the rivets and situated between the springs and the inner ends of the rivets, and attachable and detachable spiral springs having their ends surrounding respectively the said sleeves, substantially as described.

2. A spring-tire comprising inner and outer concentric bands, oval or elliptical springs situated between and engaging the said bands, securing-rivets passing through both of said bands and springs, the inner ends of the rivets projecting in opposite directions within said springs forming short oppositely-projecting studs, and detachable spiral springs having their ends surrounding said studs, whereby the studs serve as a means for uniting the oval or elliptical springs to the bands and for holding the spiral springs in position, substantially as described.

643,032. PROCESS OF CONDENSING MILK. JOHN BABILLION, Detroit, Mich. Filed Oct. 29, 1895. Renewed Aug. 24, 1899. Serial No. 728,372. (No specimens.)

Claim.—The process of condensing milk involving the steps of heating raw milk, then forcing the milk through a filtering medium to remove coagulum and then evaporating the liquid elements.

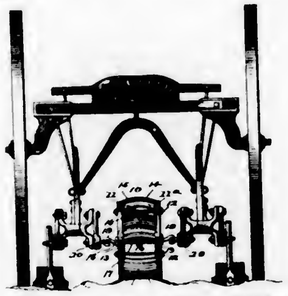
643,033. IRONING-BOARD. GILBERT BACON, Antigo, Wis. Filed Mar. 18, 1899. Serial No. 709,641. (No model.)



Claim.—1. In ironing-boards, the combination of the table proper, having a supporting-leg hinged to its under side provided with a depressor, said leg having a beveled slotted opening near its upper end, a pair of clamping members hinged to the under side of said table and having their inner ends beveled and adapted to pass through said beveled opening underneath the depressor, all arranged as set forth.

2. In ironing-boards, the combination of a board proper having a bifurcated supporting-leg pivoted thereto on its under side, separable clamping members pivoted to said under side having their separable ends extending through said bifurcation and a spring located between the clamping members whereby the separable ends will snugly contact against the sides of said bifurcation, as set forth.

643,034. COTTON-CHOPPER. HENRY BARTELS and LOUIS BERNHARD, New Braunfels, Tex. Filed June 28, 1899. Serial No. 722,211. (No model.)



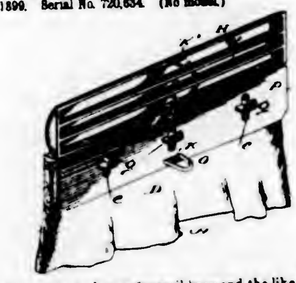
Claim.—1. A cotton-chopper comprising a wheel formed of connected disks, said disks being formed in their adjacent and inner faces with series of recesses undercut toward their opposite and outer faces, and chopping-knives having their ends fitted in said recesses, as set forth.

2. A cotton-chopper, comprising a wheel formed of two opposing disks whose inner faces are provided with series of undercut peripheral recesses deeper and wider at their bottoms and tapering toward the peripheries of the disks, cutting-knives corresponding in cross-section to the recesses and having upwardly-beveled ends adapted to be received in said recesses, tie-bolts connecting said disks, and a spindle on which said wheel is mounted to turn, said spindle having its ends arranged for attachment to a cultivator-frame, as set forth.

3. A cotton-chopper, comprising a wheel formed with peripheral undercut recesses and chopping-knives detachably held in said recesses, said knives being formed with convex cutting edges, as set forth.

4. A cotton-chopper, comprising a wheel carrying chopping-knives, and a spindle on which said wheel is mounted to turn, said spindle being provided with hooks at its ends whereby it may be hung in a cultivator-frame, as set forth.

643,035. MAIL-BAG CLOSURE. WILLIAM BENNETT, Corinth, Vt., assignor of one-half to C. H. Barrett, Sharon, Vt. Filed June 15, 1899. Serial No. 720,634. (No model.)



Claim.—In a closure for mail-bags and the like, the combination of a bag having a folding flap provided with a series of slots and similar slots in its front side adjacent to the mouth thereof, said slots being arranged with their longest axes in a vertical line or transversely of the flap and longitudinally of the bag, turn-buttons on the rear side of the bag adapted to be passed through said slots and turned at right angles thereto to hold the flap and upper end of the front side of the bag closed, a keeper hinged or pivoted at one side to the flap and provided upon its inner side with one or more longitudinal channels to receive the turn-buttons, whereby said turn-buttons and slots will be inclosed and shielded, and means for securing the free side of the keeper to the flap, substantially as described.

643,036. FIRE-KINDLER. EUGENE L. BLANCHARD, Jamestown, N. Y. Filed Nov. 8, 1899. Serial No. 736,354. (No model.)



Claim.—1. The combination in a kindling device of the upper and lower sections, the latter having an outwardly-flaring or V-shaped groove on its under side, and a series of flaring holes for the purpose of inducing currents of air through them, a central longitudinal partition on the inner side, said holes and partition having air-tubes coinciding with the outer holes in the bottom, and apertures in the top section, substantially as described.

2. A kindling device comprising the upper and lower sections, the latter having an outwardly-flaring groove, an upwardly-projecting partition, carrying air-tubes, the holes or apertures in the groove registering with the tubes on the partition for the inflow of air, the upper section having outlet-apertures, the tubes and partition serving to prevent the absorbent from packing in the chamber, substantially as described.

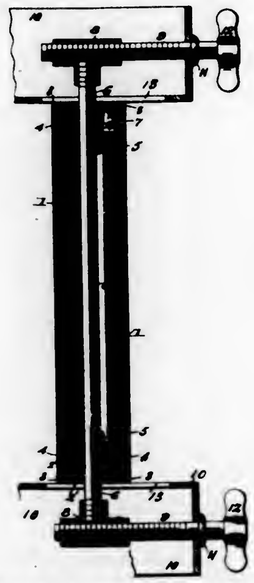
3. In a device for kindling fires consisting of the upper and the lower section, the lower section having air-inlets, the upper having air-outlets, larger in diameter than the under set, each section having a grooved projection for clamping the handle and securing the two sections together in the manner and for the purpose set forth.

4. In a device for kindling fires, the combination of the upper and lower sections, each having apertures and constructed as described, the partition air-tubes in the lower section, projecting above the lower section and into the upper section at various heights to distribute the air equally to the absorbent material, as set forth.

5. The combination of a kindling device comprising two sections each having grooved lateral projections and apertures, of the handle bent upon itself, the free ends *n*, *n*, turned at right angles to fit said apertures, and the handle fitted in said grooves, the parts being secured and clamped in the manner and for the purpose specified.

643,037. CUT-GRAIN CARRIER FOR HARVESTERS. HENRY BRYAN, Modesto, Cal. Filed June 26, 1899. Serial No. 721,818. (No model.)

Claim.—1. In a harvester, the combination with the endless apron, slotted side bars, transverse shaft, and means for adjusting the latter, of the rotatable roller for said apron, comprising the hollow cylindrical body 1, circular heads having the central interior hub 5 and concentric interior flange 4 fitted within said body, and a shoulder 3 abutting the end of the latter, coincident oil-holes being provided in the body and one of the heads, substantially as shown and described.



2. In a harvester the combination with the apron, slotted side bars, and the apron-roller proper, of the non-rotary roller-shaft 6, having threaded ends, T-sleeves 8 having threaded lateral sockets for reception of the shaft ends, the screw-rods 9, working in the body of said sleeves, and provided exteriorly with fixed collars that abut the ends of said bars, and with hand-wheels for rotating them, as and for the purpose specified.

648,088. DENTAL ARTICULATOR. JAMES W. BRYAN, Russellville, Ky. Filed June 8, 1899. Serial No. 719,784. (No model.)



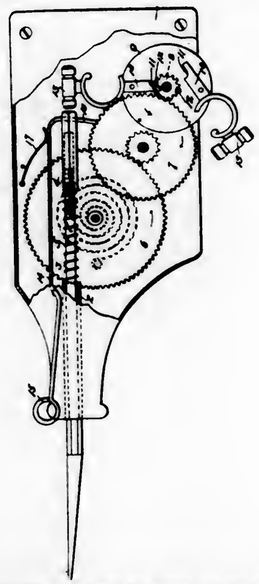
Claim.—1. An articulator comprising a jaw having projections provided with alining perforations, one of said perforations having screw-threads therein a second jaw, ears carried by the second jaw and having perforations adapted to aline with the first-named perforations and a hinge-pin provided with a head and having threads adjacent said head adapted to engage the threads of said threaded perforation.

2. An articulator comprising jaws pivotally connected and clamping means carried by each of said jaws, said clamping means consisting of a shoulder and a clamping-plate having flanges engaging kerfs in the jaw, said plate having a clamping end disposed at an angle thereto, and means for moving said plate with respect to the shoulder.

3. An articulator comprising a jaw having perforated projections, a hinge-plate having perforations adapted to aline with the first-named perforations, a hinge-pin passed through the alining perforations and having threads engaging the threads of the threaded perforation, a second jaw adjustably connected with said hinge-plate, a shoulder on each jaw, a clamping-plate slidably connected with each jaw and having a perforated end, and a screw passed through said end and engaging the threads of a longitudinal perforation in the jaw to move said plate with respect to its clamping-shoulder.

4. An articulator comprising two jaws each provided with projections having perforations adapted to mutually aline, legs upon the projections of one of the jaws and concentric with the perforations thereof, annular recesses in the faces of the projections of the second jaw and concentric with the perforations thereof, and slots formed in the last-named projections and entering the recesses thereof and adapted for the passage of said legs to enable mutual alinement of the perforations of the projections.

648,089. DENTAL PLUGGER. CECIL I. CALVERT and EDWARD ANDERSON, Sundance, Wyo. Filed May 4, 1899. Serial No. 715,585. (No model.)



Claim.—1. In combination with the casing and the spring-actuated train of gearing, the spring-actuated plunger, the anvil adjustably secured to said plunger, the disk wheel operated by said train and a hammer pivoted to said disk wheel and having its free end projecting into the path of, and adapted to impart a longitudinal movement to said plunger, substantially as and for the purpose set forth.

2. In combination with the reciprocating spring-actuated plunger, the train of gearing, the disk operated by said train and the hammer-arms pivoted to said disk and provided with hammers and projecting into the path of said plunger, substantially as and for the purpose set forth.

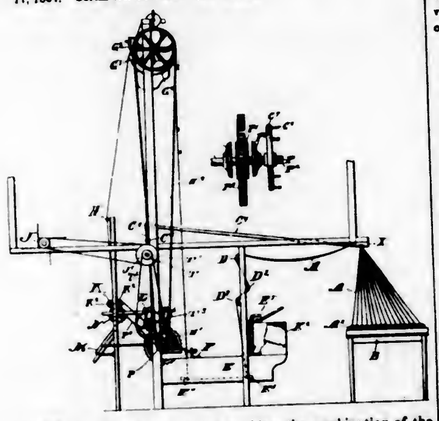
643,040. HOLDER AND GUIDE FOR SCREWS. EDWARD O. CARVIN and LEMUEL C. BOURLAND, Valley Springs, Cal. Filed Sept. 23, 1898. Serial No. 691,727. (No model.)



Claim.—In a holder and guide for screws, &c., the combination of a non-rotatable holder and guide member serving as a handpiece adapted to be held to steady the tool during the entire operation of driving the screw, and consisting, essentially, of an upper guide-head, lower jaws adapted to receive and clamp the head and unthreaded portion of the shank of the screw and hold and guide said screw during the entire operation of driving the same, and outwardly-bowed comparatively-free resilient arms connecting the head and jaws, said arms being gradually reduced in thickness from said head and jaws toward their centers to increase their spring action and adapt the lower ends thereof to readily spread apart and the jaws to open under the pressure applied directly against the inner ends of said jaws, a stem slidably and rotatably mounted in the upper guide-head of the holder and having a lower screw-driver end adapted to force open the jaws and follow the screw therethrough, an impelling-spring surrounding the stem and bearing at its upper end against the guide-head of the holder, and a fixed shoulder on the stem adapted to con-

fine the spring and also to abut against the inner ends of the jaws to limit the movement of the stem therethrough, substantially as shown and described.

643,041. MACHINE FOR MANUFACTURING WAXED OR COATED STRINGS. GEORGE W. CODDINGTON, Reno, Ohio. Filed June 17, 1897. Serial No. 641,164. (No model.)



Claim.—1. In a string-coating machine, the combination of the laterally-moving guide C, having openings C^3, and bearings for enabling the guide to move laterally, and the rod C^4, lever C^5, a hook C^7 on its lower end, and the wheel C^9 having pins C^8 for engagement with hook C^7, power-wheel P^2, having friction sides, friction-plates P^3 and P^4, one on each side of the wheel P^2, shaft P on which said wheels C^9 and P^2 and the friction-plates are located, the plate P^4 being fixed to the shaft, and plate P^3 being loose thereon, the shaft P being in part screw-threaded and engaging a screw-thread in the hub of wheel C^9, substantially as and for the purposes specified.

2. In machinery for coating strings, the tank, a stripper, for the strings as they come from the tank, comprising the elastically-pushed plate F^2, flange F^3 thereof, spring F^4, stationary abutment, screw-rod F^5 operated therefrom and bearing against the stripper-flange in opposition to the spring F^4, substantially as and for the purposes specified.

3. In machinery for coating strings, the combination of the table Y, stripper-plates F^6, F^6, having two slots, two boltdowns F^8 thereof, two springs F^9 for pressing the stripper-plate toward the strings, and the opposing set-screws F^{10}, bearing on the stripper, and the supports F^7, in relation to which the screws are adjustable, substantially as and for the purposes specified.

4. In machinery for coating strings, the combination of the roller G^2, spraying device above, and blanket strip G^{13} lying on the roller at rear of the spraying device, substantially as and for the purposes specified.

5. In machinery for coating strings, the combination of the roller G^2, spraying device above, blanket strip G^{13} dragging on the roller at rear of the spraying device, and blanket strip G^{14} dragging on the roller, in front of the spraying device, substantially as and for the purposes specified.

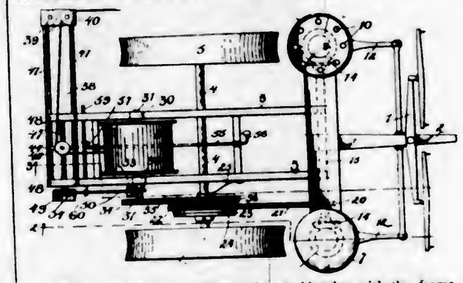
6. In machinery for coating strings, the combination of the roller G^2, spraying device above, blanket strip G^{13} dragging on the roller at rear of the spraying device, and blanket strip G^{14} dragging on the roller in front of the spraying device, and the rod G^{15}, for depressing the last-named blanket, substantially as and for the purposes specified.

7. In machinery for coating strings, the combination of the rod G^{15}, blanket strip suspended therefrom, the roller G^2 related to the tank and on which this blanket strip can drag, and the tank G^4, and the conduit G^5 for heating the water, substantially as and for the purposes specified.

8. A device for regulating the temperature of the coating of the strings, and consisting of the felted grooved roller G^2, spraying device above, blanket strip G^{13}, and blanket strip G^{14}, and roller G^{15}, in contact with the latter, and tank G^4, receiving the lower part of the roller, conduit G^5 entering the tank, and roller G^2 for keeping the strings from the roller, substantially as and for the purposes specified.

643,042. CHECK-ROW ATTACHMENT. HENRY W. CRUMBAUGH, Pittsburg, Ill. Filed Nov. 11, 1899. Serial No. 736,633. (No model.)

Claim.—1. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum supported by the framework and connected with the seed-droppers for actuating the latter, and a smooth wire secured to some fixed device and led over pulleys to the drum; of a gear-wheel mounted loosely on the main axle and connected with the drum, and a friction-clutch between said gear-wheel and axle, the parts being arranged and proportioned so as to wind the wire on the drum as the machine approaches said fixed device and to permit the drum to rotate oppositely as the machine recedes from this device, as and for the purpose described.



2. In a checking attachment, the combination with the framework mounted on main supporting-wheels connected by a rotating axle, a pair of seed-droppers operated in unison by a cross-shaft, a drum carried by the framework, and connections between the shaft of the drum and said cross-shaft for operating the seed-droppers; of a sprocket-wheel loose on the axle and belted to another sprocket on the shaft of the drum, a disk fast on the axle adjacent the hub of said loose sprocket, a spring pressing against the other end of said hub to throw the latter normally into contact with the disk and a smooth check-wire led from a fixed device over suitable pulleys to the drum, all as and for the purpose set forth.

3. In a checking attachment, the combination with the main framework and wheels, a pair of seed-droppers connected by a cross-shaft, a drum mounted on the framework and having a crank near one extremity of its shaft, and connections between said shaft and the main axle for frictionally rotating the drum; of a lever having one end slotted and engaging said crank, a ratchet-wheel on the cross-shaft, a rod connected with the other end of said lever and having teeth engaging the ratchet-wheel so as to actuate the seed-droppers when the drum rotates in either direction, and a smooth check-wire led from a fixed device over suitable pulleys to the drum, all as and for the purpose set forth.

4. In a checking attachment, the combination with a drum journaled in supports on the main framework, seed-droppers on the latter actuated by the rotation of the drum, and connections between the shaft of the drum and the main drive-wheels for rotating the former from the latter by frictional force; of a wire attached to a fixed device at one side of the field and led over suitable pulleys to the drum so as to be wound thereon as the machine approaches said device and unwound therefrom as the machine recedes, and a spreader for feeding the wire in convolutions side by side onto the drum, substantially as described.

5. In a checking attachment, the combination with a drum journaled in supports on the main framework, seed-droppers on the latter actuated by the rotation of the drum, and connections between the shaft of the drum and the main drive-wheels for rotating the former from the latter by frictional force; of a wire attached to a fixed device at one side of the field and led over suitable pulleys to the drum so as to be wound thereon as the machine approaches said device and unwound therefrom as the machine recedes, and a spreader for feeding the wire in convolutions side by side onto the drum, the same consisting of a pulley pivotally supported upon a disk, guides in which the latter moves transversely of the machine, a screw threaded through the disk, and means for rotating this screw alternately in opposite directions, all substantially as described.

6. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and carrying two guide-pulleys, bearings on the pulley-frame, a screw journaled therein, a disk threaded on the screw and having a feed-wheel, and means for rotating the screw alternately in opposite directions, as and for the purpose set forth.

7. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and carrying two guide-pulleys, bearings on the pulley-frame, a screw journaled therein, a disk threaded on the screw and having a feed-wheel, a pivoted lever having a slot at one end, a crank in the shaft of the drum engaging this slot, a rod pivoted to the other end of the lever, oppositely-facing ratchet-wheels on one end of said screw, teeth on the rod adapted to engage either of said wheels, and means for shifting such engagement, as and for the purpose set forth.

8. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and carrying two guide-pulleys, bearings on the pulley-frame, a screw journaled therein, a disk threaded on the screw and having a feed-wheel, a pivoted lever having a slot at one end, a crank in the shaft of the drum engaging this slot, a rod pivoted to the other end of the lever, oppositely-facing ratchet-wheels on one end of said screw, teeth on the rod adapted to engage either of said wheels, and means for shifting such engagement, said means consisting of a rock-shaft journaled in supports on the main framework and having an upturned foot-piece and a crank, and a rod connected with the crank and having a fork engaging said toothed rod, as and for the purpose set forth.

9. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of the pulley-frame projecting laterally from the main framework and carrying two guide-pulleys, said frame consisting of parallel rods, a disk having two pairs of opposite notches and a radial spindle, a feed-wheel on the latter arranged to feed to the bottom of the drum when one pair of notches engages said rods and to the top of the drum when the other pair of notches is in such engagement, a screw mounted in bearings on the pulley-frame and threaded through the disk, and means for rotating the screw alternately in opposite directions, as and for the purpose set forth.

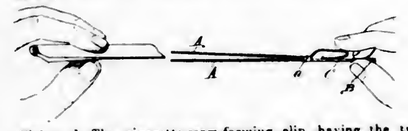
10. In a checking attachment, the combination with the framework carrying two seed-droppers connected by a cross-shaft, a ratchet-wheel thereon, a drum whose shaft is journaled in a support on the framework and is cranked; frictional connections between said shaft and the main axle, and a check-wire leading from a fixed device over suitable pulleys to the drum; of a centrally pivoted lever having a slot at one end engaging said crank, a spreader for feeding the incoming wire evenly upon the drum, two rods pivoted to the opposite end of said lever and each having teeth, a ratchet-wheel on said cross-shaft with which one set of teeth engages, and ratchet-wheels on the spreader with which the other set of teeth engages, as and for the purpose set forth.

11. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and having bearings, a screw journaled therein and having oppositely-facing ratchet-wheels fast on its body, a spreader threaded on the screw, a reciprocating rod having teeth adapted to engage either of said ratchet-wheels, a rock-shaft journaled in supports in the main framework and having an upturned foot-piece and a crank, and a rod connected with the crank and having a fork engaging said toothed rod, as and for the purpose set forth.

12. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and having bearings, a screw journaled therein and having oppositely-facing ratchet-wheels fast on its body, a spreader threaded on the screw, a reciprocating rod having teeth adapted to engage either of said ratchet-wheels, a rock-shaft journaled in supports in the main framework and having an upturned weighted foot-piece and a crank, a rod connected with the crank and having a fork engaging said toothed rod, and stops on the rod adapted to be engaged by the spreader near the end of its movement along the screw in either direction, as and for the purpose set forth.

13. In a checking attachment, the combination with the framework carrying the seed-droppers, a drum connected with said droppers, a friction-clutch between the main axle and the shaft of the drum, and a wire leading from a fixed device to the drum; of a pulley-frame projecting laterally from the main framework and having bearings, a screw journaled therein and having oppositely-facing ratchet-wheels fast on its body, a spreader threaded on the screw, a reciprocating rod having teeth adapted to engage either of said ratchet-wheels a rod connected with the crank and having a fork engaging said toothed rod, and stops on the rod sliding on the pulley-frame and adapted to be engaged by the spreader near the end of its movement along the screw in either direction, as and for the purpose set forth.

643,043. CIGARETTE-SEAM-FORMING CLIP. DAVID N. DAVIDSON, Winchester, Va. Filed June 23, 1899. Serial No. 721,568. (No model.)

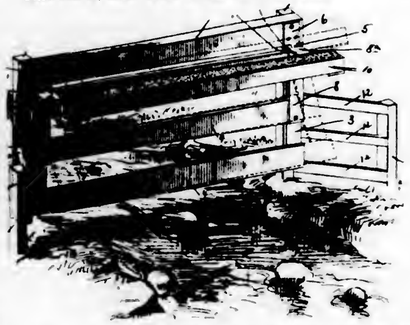


Claim.—1. The cigarette-seam-forming clip, having the two straight slender and relatively long jaw portions of about the length of a cigarette and normally contacting to form a rod of diminutive cross-section compared with the cross-section of an ordinary cigarette of about one-fourth inch in diameter, substantially as specified.

2. The cigarette-seam-forming clip, having the two straight slender and relatively long twin jaws of about the length of a cigarette and normally contacting to form a rod of diminutive cross-section compared with the cross-section of an ordinary cigarette of about one-fourth inch in diameter, and adapted to first clasp and then roll thereabout the abutting end portions of a cigarette-wrapper into a tight seam to form a cigarette, substantially as specified.

3. The cigarette-seam-forming clip, comprising the two straight slender and relatively long jaws of semicylindrical form, having the flat meeting faces non-angular throughout their extent, and normally contacting to form an attenuated cylindrical rod of minute cross-section compared with the cross-section of an ordinary cigarette of about one-fourth inch in diameter, the handle extension in the same straight line with one of said jaws, and the spring for maintaining the contact of the jaws, substantially as specified.

643,044. FLOOD-GATE. THOMAS L. DAVIDSON, Bard, Iowa. Filed Dec. 19, 1898. Serial No. 699,784. (No model.)

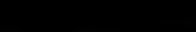


Claim.—1. In a flood-gate, the combination of two upright posts surmounted by a cross-bar, a gate hinged to said cross-bar, and hinges formed by the combination of a one-armed strap, attached to said cross-bar, and a two-armed strap pivoted thereto on a pintle, said arms forming an approximate right angle with each other, one of said arms being attached to said gate and the other forming a bracket to support closing-weight, a closing-weight supported on the brackets formed by the hinge-pieces, substantially as described.

2. In a flood-gate, the combination of two upright posts surmounted by a cross-bar, a gate hinged to said cross-bar, and hinges formed by the combination of a one-armed strap, attached to said cross-bar, and a two-armed strap pivoted thereto on a pintle, said arms forming an approximate right angle with each other, one of said arms provided with a shoulder formed by bending it at an angle, this arm being attached to said gate and the other arm forming a bracket to support a closing-weight, a closing-weight supported on the brackets formed by said hinge-pieces, substantially as described.

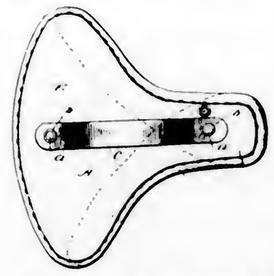
3. In a flood-gate, the combination of two upright posts surmounted by a cross-bar, a gate hinged to said cross-bar, and hinges formed by the combination of a one-armed strap and a two-armed strap, one arm of said two-armed strap serving as a bracket, a closing-weight supported on said brackets, two wing-fences built at an angle to the gate at the side thereof, substantially as described.

643,045. FASTENING FOR PAPER OR OTHER ARTICLES. HENRY DENIS, New Orleans, La. Filed June 24, 1899. Serial No. 721,779. (No model.)



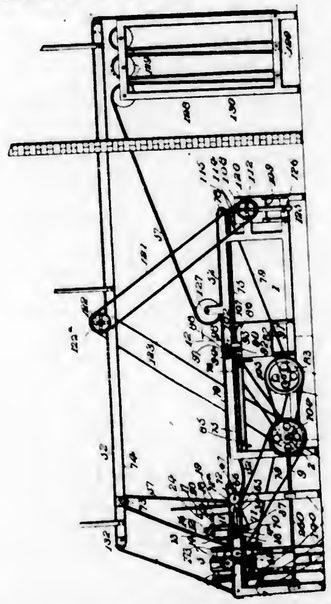
Claim.—In a device of the character described, the combination with a disk, a shank extending therefrom having downwardly-presented shoulders provided with frusto-conical portions, of the bur comprising a central perforation surrounded by lips 5 projecting radially inward and slightly deflected from the plane of the bur.

643,046. BICYCLE-SADDLE. ALFRED C. DRURY and GEORGE E. SIMS, Canton, N. Y.; Frances P. Drury administratrix of said Alfred C. Drury, deceased; said Frances P. Drury assignor to said Sims. Filed Mar. 24, 1898. Serial No. 675,001. (No model.)



Claim.—In a bicycle-saddle, the combination with a suitable base extending from front to rear of the saddle and formed with a narrowed pommel portion, and a widened or seat portion, a soft cushion having a forward chamber superposed on the pommel portion of the base, and having rearwardly-extending tubular sections arranged along the front edge of the widened or seat portion; substantially as described.

643,047. CONTINUOUS MATCH MAKING AND BOXING MACHINE. EDWARD H. EISENHART, New York, N. Y., assignor of one-half to G. M. Tustin, trustee, Bloomsburg, Pa. Filed Apr. 26, 1898. Serial No. 678,819. (No model.)



Claim.—1. In an organized continuous match making and boxing machine, the combination with mechanism for making the matches and discharging them in successive rows, of mechanism for cutting and folding the boxes from a single integral piece of material and feeding the partially-made boxes successively in a continuous line across the range of discharge of and parallel to said rows, and means for folding the integral box-blanks about the matches, substantially as described.

2. In an organized continuous match making and boxing machine, the combination with mechanism for making the matches and discharging them in successive rows, of mechanism for successively cutting integral blanks from a single piece of material and for partially folding said blanks into boxes, mechanism for feeding the partially-made boxes successively in a continuous line across the range of discharge of and parallel to said rows, and means for folding the integral blanks about the matches to completely inclose the latter, substantially as described.

3. In an organized continuous match making and boxing machine, the combination with mechanism for making the matches and discharging them in successive rows, of mechanism for successively cutting integral blanks from a single piece of material and for partially folding said blanks into boxes, mechanism for feeding the partially-made boxes successively in a continuous line across the range of discharge of and parallel to said rows, means for folding the integral blanks about the matches to completely inclose the latter, and means for cementing the folded box together, substantially as described.

4. In an organized continuous match making and boxing machine, the combination with mechanism for making the matches and discharging them in successive rows, of mechanism for successively cutting integral blanks from a single piece of material and for partially folding said blanks into boxes, mechanism for feeding the partially-made boxes successively in a continuous line across the range of discharge of and parallel to said rows, means for laying the discharged matches in horizontal rows in the boxes, and means for folding the integral blanks about the matches to completely inclose the latter, substantially as described.

5. In a match-making machine, the combination with a rotary cylinder provided on its periphery with a plurality of longitudinal, radially-projecting knives, means for rotatably supporting a cylindrical block of wood upon the top of the knife-cylinder, a stationary cutter arranged tangentially to the knife-cylinder to sever the splints from the cylindrical block, means for adjusting the cutter toward and from the knives, driving mechanism for positively rotating the knife-cylinder, and means for automatically feeding the cylindrical block downward by gravity upon the knife-cylinder as the splints are cut off by the cutter, substantially as described.

6. In a match-making machine, the combination with a rotary cylinder provided upon its periphery with a plurality of longitudinal knives, and driving mechanism for positively rotating the knife-cylinder, of a vertical slide arranged to move freely in guides fixed above the knife-cylinder, a fixed spindle carried by the slide parallel with and in approximately the same vertical plane as the knife-cylinder, said spindle forming the axis of a cylindrical block of wood in the periphery of which the knives operate to cut longitudinal incisions, and a stationary cutter arranged to plane off the block at the base of said incisions, substantially as described.

7. In a match-making machine, the combination with a rotary cylinder provided on its periphery with a plurality of radial knives, and driving mechanism for positively rotating the knife-cylinder, of means for feeding a cylindrical block of wood by gravity onto, and into rotatable contact with, the knife-cylinder, and a flat, horizontal knife adjustably arranged with its cutting edge tangential to the circular plane described by the cutting edges of the rotary knives, substantially as described.

8. In a match-making machine, the combination with a carrier having transverse, perforated carrier-bars, and mechanism for inserting the splints endwise in the carrier-bars, of a feeder arranged horizontally above the splint-inserting mechanism, said feeder consisting of a plurality of parallel flat plates mounted on fixed supports and distance-pieces arranged between the opposite ends of the plates and operating to hold the plates at such distance apart that but a single match is permitted to pass at a time between two adjacent plates to the splint-inserting mechanism, a hopper supported above the feeder, and means for discharging the splints from the hopper horizontally between said plates, substantially as described.

9. In a match-making machine, the combination with a carrier having transverse, perforated carrier-bars, and mechanism for inserting the splints endwise in the carrier-bars, of a feeder arranged horizontally above the splint-inserting mechanism, said feeder consisting of a plurality of parallel flat plates perforated near their opposite ends and mounted on two rods passed through said perforations, distance-pieces arranged on the rods between the plates and operating to hold the latter at such distances apart that but a single match is permitted to pass at a time between two adjacent plates to the splint-inserting mechanism, nuts threaded onto the rods to hold the plates and distance-pieces in place thereon, a hopper supported above the feeder, and means for discharging the splints from the hopper horizontally between said plates, substantially as described.

10. In a match-making machine, the combination with a shaft, a sprocket-wheel fixed on the shaft, and an endless carrier passed about the sprocket-wheel and having transverse, perforated carrier-bars, of a table arranged to reciprocate toward and from the carrier and at a right angle thereto, means carried by the table for inserting the splints in the carrier-bars, a driven shaft, a cam fixed on the driven shaft and engaging the table to force it forward to insert the splints, a ratchet-wheel on the sprocket-wheel shaft, a pivoted lever, a pawl on one end of said lever in engagement with the ratchet-wheel, and mechanism actuated by the driven shaft for oscillating the lever to impart a step-by-step rotary movement to the sprocket-wheel and intermittingly move forward the carrier, substantially as described.

11. In a match-making machine, the combination with a shaft, a sprocket-wheel fixed on the shaft, and an endless carrier passed about the sprocket-wheel and having transverse, perforated carrier-bars, of a table arranged to reciprocate toward and from the carrier, means carried by the table for inserting the splints in the carrier-bars, a driven shaft, a cam fixed on the driven shaft and engaging the table to force it forward to insert the splints in the carrier-bars, a spring for retracting the table, a ratchet-wheel on the sprocket-wheel shaft, a pivoted lever, a pawl on one end of said lever in engagement with the ratchet-wheel, an eccentric fixed on the driven shaft, and a connecting-rod connected to the lever at the end opposite the pawl and acteated by the eccentric, the cam and eccentric being set on the driven shaft as shown, whereby the carrier is fed forward while the table is stationary, and the table is fed forward when the carrier is stationary, substantially as described.

12. In a match-making machine, the combination with the carrier, the paraffin dipping-tank, of a reservoir-tank, a frame suspended from a shaft, a pump-barrel supported on said frame and projecting at its lower end into said reservoir-tank, a sprocket-wheel fixed on the said shaft, an endless chain passing about said sprocket-wheel and through the pump-barrel, a plurality of buckets arranged on the chain, a spout leading from the pump-barrel to the dipping-tank, and an overflow-pipe and a valved discharge-pipe leading from the dipping-tank to the reservoir-tank, substantially as described.

13. In a match-making machine, the combination with the carrier constructed to hold the match-splints, of a composition-tank supported beneath the carrier, a stirrer arranged in the tank, a swinging frame arranged on the opposite sides of the tank, a composition-roller journaled in the upper ends of said frame so as to turn in the composition and arranged to be swung by said frame into and out of operative position, means for locking said frame against movement, and means for driving the composition-roller and stirrer independently of each other, substantially as described.

14. In a match-making machine, the combination with a sprocket-wheel fixed on a driven shaft and the endless carrier passing about the same, of the composition-tank supported beneath the sprocket-wheel and carrier, a stirrer-shaft journaled in the sides of the tank, a stirrer fixed thereon, a sprocket-wheel loosely journaled on the end of the stirrer-shaft, a shaft journaled above the tank, a composition-roller fixed on said shaft and operating to turn in the tank, a sprocket-wheel fixed on the end of the driven shaft, a sprocket-chain passed around the said sprocket-wheel and the loose sprocket-wheel on the stirrer-shaft and over one side of the sprocket-wheel on the composition-roller shaft, and independent means for rotating the stirrer, substantially as described.

15. In a match-making machine, the combination with a driven shaft, a sprocket-wheel fixed thereon and the endless carrier passed about the sprocket-wheel, of the composition-tank supported beneath the sprocket-wheel and carrier, a stirrer-shaft journaled in the sides of the tank, a stirrer fixed thereon, a sprocket-wheel loosely journaled on the end of the stirrer-shaft, a swinging frame, a shaft journaled in said frame above the tank, a composition-roller fixed on said shaft and operating to turn in the tank, a sprocket-wheel fixed on the end of the driven shaft, a sprocket-chain passed around the said sprocket-wheel and the loose sprocket-wheel on the stirrer-shaft and over one side of the sprocket-wheel on the composition-roller shaft, independent means for rotating the stirrer, and means for holding the swinging frame against movement, substantially as described.

16. In a match-making machine, the combination with the endless carrier having transverse, perforated bars for holding the matches, of means for intermittingly feeding forward the carrier horizontally, means for ejecting the matches from each of the carrier-bars successively, an oscillating spreading device arranged to oscillate longitudinally beneath the carrier, mechanism for swinging said spreading device forward to strike the matches as they drop from the carrier and lay them out flat and parallel in a receptacle, and means for swinging the spreading device rearward out of the path of the matches as they are ejected, substantially as described.

17. In a match-making machine, the combination with the endless carrier having transverse, perforated bars for holding the matches, of means for intermittingly feeding forward the carrier horizontally, means for ejecting the matches from each of the carrier-bars successively, an oscillating spreading device provided with a comb-plate having parallel teeth, and means for swinging said plate forward to engage the matches as they drop from the carrier and lay them out flat and parallel in a receptacle, substantially as described.

18. In a match-making machine, the combination with the endless carrier having transverse, perforated bars for holding the matches, of means for intermittingly feeding forward the carrier horizontally, means for ejecting the matches from each of the carrier-bars, successively, an oscillating frame provided at its lower end with a spreading device arranged to swing longitudinally beneath the carrier to engage the matches as they drop from the carrier and lay them flat and parallel in a receptacle, a cam rotating in engagement with the end of the frame and operating to swing the spreader into engagement with the matches, and a spring for retracting the spreader, substantially as described.

19. In a match-making machine, the combination with the endless carrier having transverse, perforated carrier-bars for holding the matches, of means for intermittingly feeding forward the carrier horizontally, a vertically-reciprocating frame arranged above the carrier, push-rods carried by the frame and arranged to register with the perforations of each of the carrier-bars successively, an oscillating frame provided at its lower end with a spreading device, a rotary cam engaging the upper ends of said reciprocating and oscillating frames and operating to alternately force the push-rods down to eject the matches and swing forward the spreader to engage the matches and lay them parallel in a receptacle, and means for retracting the said frames, substantially as described.

20. In a match-making machine, the combination with the endless carrier having transverse, perforated bars for holding the matches, of means for intermittingly feeding forward the carrier horizontally, means for simultaneously ejecting the matches from each of the carrier-bars successively, a box-carrier arranged transversely beneath the match-carrier, means for intermittingly feeding forward the box-carrier to periodically place a box beneath the ejecting mechanism, a spreader arranged to engage the matches as they drop from the match-carrier and lay them parallel and horizontally in the boxes, and folding mechanism arranged to close the boxes, substantially as described.

21. In an organized continuous match making and boxing machine, the combination with mechanism for making the matches and discharging them in successive rows, of mechanism for successively cutting from a continuous web of paper integral blanks and for turning up the ends of the blanks to partially form boxes, an endless carrier for feeding the partially-made boxes successively in a continuous line across the range of discharge of and parallel to said rows, and formers and folders constructed and arranged to fold the sides and ends of the integral blanks about the matches to completely inclose the latter, substantially as described.

22. In an organized machine, the combination with match-making mechanism, an endless carrier arranged to hold and convey the match-splints, and match-ejecting mechanism, of box-blank-forming mechanism, means for gluing the ends of the blanks, a folder arranged to turn up the ends of the blanks, a carrier arranged to successively and intermittingly feed the turned-up blanks to the ejecting mechanism to receive the matches, formers and folders arranged to fold the side and top flaps of the boxes, and a folder for pressing down the glued ends of the boxes, substantially as described.

23. In an organized machine, the combination with match-making mechanism, an endless carrier arranged to hold and convey the match-splints, and match-ejecting mechanism, of box-blank-forming mechanism, means for gluing the end flaps and one of the top flaps of each blank, a sanding device for applying sand to the glued top flap, a folder arranged to turn up the ends of the blanks, a carrier arranged to successively and intermittingly feed the turned-up blanks to the ejecting mechanism to receive the matches, formers and folders arranged to fold the side and top flaps of the boxes, and a folder for pressing down the glued ends of the boxes, substantially as described.

24. In an organized machine, the combination with match-making mechanism, an endless carrier arranged to hold and convey the match-splints, and match-ejecting mechanism, of mechanism arranged to cut and score a continuous web to successively form box-blanks, a cutter for separating the blanks, a folder for turning up the ends of the blanks, a carrier arranged to successively and intermittingly feed the turned-up blanks to the ejecting mechanism to receive the matches, formers and folders arranged to fold the side and top flaps of the boxes, and a folder for pressing in the ends of the boxes, substantially as described.

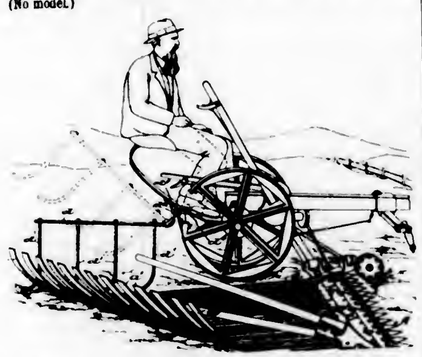
25. In an organized machine, the combination with match-making mechanism, an endless carrier arranged to hold and convey the

match-splints, and match-ejecting mechanism, of mechanism arranged to cut and score a continuous web to successively form box-blanks, printing mechanism for printing the blanks, a cutter arranged to separate the cut, scored and printed blanks, a folder arranged to turn up the ends of the blanks, a carrier arranged to successively and intermittingly feed the turned-up blanks to the ejecting mechanism to receive the matches, formers and folders arranged to fold the top and side flaps of the boxes, and a folder for pressing in the ends of the boxes, substantially as described.

26. In a match-making machine, the combination with a rotary cylinder provided upon its periphery with a plurality of longitudinal knives, of means for supporting a cylindrical block of wood in rotatable contact with the knife-cylinder whereby the knives operate to form a series of longitudinal incisions in said block, a cutter arranged to shear off the outer portion of the cylindrical block at the base of said incisions, and a printing-cylinder arranged to rotate in contact with the said cylindrical block at a point between the knives and cutter, whereby the printing-cylinder operates to print the splints after they have been divided longitudinally and before they are severed from the wooden cylinder, substantially as described.

27. In a match-making machine, the combination with a rotary cylinder provided on its periphery with a plurality of radial knives and driving mechanism for positively rotating the knife-cylinder, of means for feeding a cylindrical block of wood by gravity onto and into rotatable contact with the knife-cylinder, and a flat horizontal knife adjustably arranged with its cutting edge tangential to the circular plane described by the edges of the rotary knives, the axis of the knife-cylinder being disposed to one side of a vertical line passing through the axial center of the cylindrical block of wood, substantially as described and for the purpose specified.

643,048. MOWING-MACHINE ATTACHMENT. THOMAS B. FAGAN, Van Wert, Ohio. Filed Sept. 27, 1899. Serial No. 731,785. (No model.)



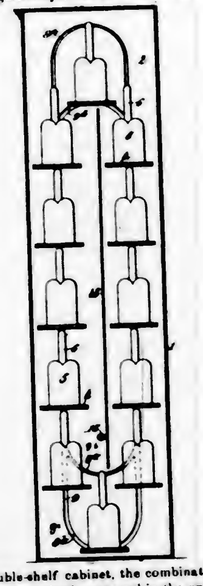
Claim.—1. In a mower, the combination with a gatherer arranged behind the cutter-bar and composed of parallel slats turned up at their rear ends on a diagonal line; of a gate composed of an arm having pendent teeth or tines arranged along the line of draft parallel with the delivery-side of the gatherer, said arm being made adjustable to be lifted from the gatherer to discharge the bunch of grass substantially as described.

2. The combination with a mower having a gatherer with a side delivery; of a vertically-working gate having swiveling pendent prongs or teeth curved at their lower ends substantially as and for the purpose described.

643,049. REVOLUBLE-SHELF CABINET. CHARLES A. FERBER, Paw Paw, W. Va. Filed June 1, 1899. Serial No. 719,051. (No model.)

Claim.—1. In a revoluble-shelf cabinet provided with vertical partitions arranged at its opposite sides and provided with endless slots, the combination with a pair of endless chains and sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, of a plurality of shelves each provided at its opposite ends with rigid upright hangers arranged adjacent to the inner sides of the vertical partitions and pivotally connected at their upper ends to said chains, and projections on the opposite ends of the shelves arranged to travel in said guideways, substantially as described.

2. In a revoluble-shelf cabinet, the combination with a pair of endless chains, sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, and laterally-projecting pins carried by the chains, of a plurality of shelves each provided at its opposite ends with upright hangers journaled at their upper ends on said pins, endless guideways in which said pins travel, projections on the opposite ends of the shelves, endless guideways in which said projections travel, and means actuated by the sprocket mechanism for positively moving the said projections around the curved ends of the guideways, substantially as described.



3. In a revoluble-shelf cabinet, the combination with a pair of endless chains, sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, and laterally-projecting pins carried by the chains, of a plurality of shelves each provided at its opposite ends with upright hangers journaled at their upper ends on said pins, projections extending centrally from the opposite ends of the shelves, and endless guideways arranged adjacent to the ends of the shelves and having curved ends, the said pins and projections extending into and traveling in the said guideways, substantially as described.

4. In a revoluble-shelf cabinet, the combination with a pair of endless chains, sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, and laterally-projecting pins carried by the chains, of a plurality of shelves each provided at its opposite ends with upright hangers journaled at their upper ends on said pins, projections extending centrally from the opposite ends of the shelves, endless guideways arranged adjacent to the ends of the shelves and having curved ends, the said pins and projections extending into and traveling in the said guideways, and mechanism for rotating the sprocket-wheels to drive the chains, substantially as described.

5. In a revoluble-shelf cabinet, the combination with a pair of endless chains and sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, of laterally-projecting pins carried by the chains, projections extending centrally from the opposite ends of the shelves, and vertical partitions fixed in the cabinet adjacent to the opposite ends of the shelves and each provided with two vertical slots in which the said pins and projections are arranged to ascend and descend, two curved slots uniting the vertical slots and in which the said pins are adapted to travel, and two corresponding curved slots also uniting the vertical slots and in which the projections are adapted to travel, substantially as described.

6. In a revoluble-shelf cabinet, the combination with a pair of endless chains and sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, of laterally-projecting pins carried by the chains, projections extending centrally from the opposite ends of the shelves, vertical partitions fixed in the cabinet adjacent to the opposite ends of the shelves and each provided with two vertical slots in which the said pins are arranged to ascend and descend, two curved slots uniting the vertical slots and in which the said pins are arranged to travel, and two corresponding curved slots also uniting the vertical slots and in which the projections are arranged to travel, and means actuated by the said sprocket mechanism for positively moving the said projections around their curved slots, substantially as described.

7. In a revoluble-shelf cabinet, the combination with a pair of endless chains carrying laterally-projecting pins and sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, of a plurality of shelves each provided at its opposite ends with upright hangers journaled at their upper ends on said pins, vertical partitions fixed in the cabinet adjacent the opposite ends of the shelves and each provided with an endless slot, projections extending centrally from the ends of the shelves into said slots, the projections on one end of the shelves extending through one of said slots beyond the partition, and spur-wheels arranged to engage said extended projections and geared to rotate in unison with the sprocket-wheels on which the endless chains are mounted, substantially as described.

8. In a revoluble-shelf cabinet, the combination with a pair of endless chains and sprocket-wheels arranged in the upper and lower portions of the cabinet about which said chains pass, of a plurality of shelves each provided at its opposite ends with upright hangers pivotally connected at their upper ends to said chains, endless guideways arranged adjacent to the ends of the shelves, projections extending centrally from the ends of the shelves into said slots, the projections on one end of the shelves extending through one of said slots beyond the partition, spur-wheels arranged to engage said extended projections, bevel-gears fixed to said spur-wheels and to one of the drive sprocket-wheels, a vertical shaft, and bevel-pinions fixed on said shaft and gearing with the said bevel-gears, substantially as described and for the purpose specified.

643,050. SEED-DRILL. ALEXANDER T. FISCHER and EDWIN C. LEWIS, Detroit, Mich. Filed May 16, 1899. Serial No. 717,073. (No model.)



Claim.—1. In a seed-drill, the combination of a frame, hoppers, boots and regulating-caps in separable parts and fitted in said frame, agitating and distributing devices for said hoppers, rollers connected to the frame in rear of the boots, and coverers between the boots and rollers and having bends disposed at an inward angle as and for the purpose specified.

2. In a seed-drill, the combination of a frame, a drive-shaft extending thereover and having distributing-cylinders thereon at regular intervals, each provided with pockets of varying dimensions, caps with varying apertures corresponding with the size of the pockets in the cylinders, and slides operatively connected therewith means for regulating the supply of seed or grain to the said cylinders, hoppers and boots in intimate relation to the cylinders, and means for rotating said cylinders.

3. In a seed-drill, the combination of a frame, a drive-shaft extending thereover, a series of distributing-cylinders on the said drive-shaft, each having pockets therein of varying dimensions, apertured caps and slides operatively connected therewith and means for supplying the grain or seed to the said cylinders and conveying it away therefrom.

4. In a seed drill, the combination of a series of hoppers, a drive-shaft extending therethrough and having distributing cylinders thereon with pockets therein of varying dimensions, regulating-caps fitted over the said cylinders and having apertures in the top thereof corresponding in size to the pockets in the cylinders, slides operatively connected with said caps for uncovering or covering the said apertures in the pockets, and means for conveying the seed or grain away from the cylinders.

5. In a seed-drill, the combination of a frame, a drive-shaft extending thereover having distributing-cylinders thereon provided with pockets of varying dimensions, hoppers and boots fitted in the frame above said cylinders, caps mounted over the cylinders and located within a part of the hoppers, said caps being provided with apertures in the upper portions thereof, corresponding in size to the pockets in said cylinders, an agitating-shaft extending through the lower portion of the hoppers and having agitators thereon above the caps, and slides for regulating the apertures in the caps.

6. In a drill, the combination with seed or grain distributing devices, of rollers in rear thereof, and adjustable coverers in advance of the rollers and having a lateral extension greater than the width of said rollers and arms attached to said coverers and adjustably connected with the arms supporting the rollers.

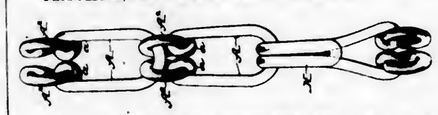
7. In a grain-drill, the combination of a frame, having a series of hoppers therein, and boots extending from said hoppers, distributing devices within the hoppers, rollers in rear of the boots, shovels adjustably attached to the lower front portion of the boots, and coverers in advance of the rollers, adjustably connected to the supports for said rollers and to the boots, and having bends disposed at an inward angle, substantially as and for the purpose specified.

8. In a drill, the combination of a frame having end and intermediate journal-bearings, a drive-shaft fitted in a part of said frame and said bearings, an agitator-shaft in the upper part of the bearings hoppers through which the agitator-shaft extends and fitted over the drive-shaft, distributing-cylinders on the drive-shaft having pockets therein of varying dimensions, regulating-caps within the lower portion of the hoppers and over the distributing-cylinders and provided with top apertures corresponding in size to the pockets in the cylinders, agitators on the agitator-shaft and within the hopper above the caps, slides for regulating the apertures in the caps, boots depending from the hoppers and having shovels adjustably connected to the lower portions thereof, and covering devices in rear of the boots.

9. In a drill, the combination with a frame, hoppers and boots, of bracket-arms extending rearwardly from the frame, rollers mounted in said arms and coverers adjustably connected to the boots and bracket-arms for the rollers and projecting laterally a distance greater than the length of the rollers and having inclined-bends as and for the purposes specified.

10. In a seed-drill, the combination with hoppers and boots, of a shaft having distributing-cylinders thereon provided with pockets varying in dimensions, and caps mounted over said rollers, having regulable apertures in the top thereof, which aline with the pockets in the cylinders and slides operatively mounted on said caps.

643,051. CHAIN-LINK. WILLIAM H. GRIFFITH, Baltimore, Md. Filed June 12, 1899. Serial No. 720,277. (No model.)



Claim.—1. A link, or its described equivalent, formed of a section of material bent about the middle and having its two shank portions extended in the same direction and coiled each into a complete convolution, then bent into terminal eyes, and having the ends of the same extended through and tightly gripped by the said convolutions, substantially as and for the purpose described.

2. A link or its described equivalent, formed of a section of material bent in the middle somewhat in the form of the letter U, the legs or shank portions being extended and coiled each into a complete convolution then bent into terminal eyes and having the ends of the same extended through and tightly gripped by said convolutions substantially as and for the purpose described.

3. A link, or its described equivalent, formed of a section of wire bent in the middle and having its two shank portions extended and coiled each into a complete convolution, then bent into terminal eyes, and having the ends of the same extended through and tightly gripped by said convolutions, and then bent around in hook shape to embrace also the wire forming the convolutions, substantially as described.

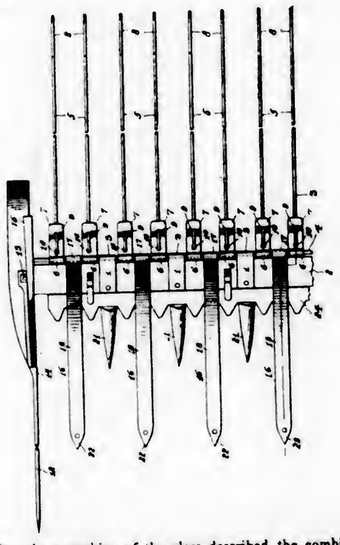
4. A link, or its described equivalent, formed of a section of wire bent about the middle and having its two legs or shank portions extended in the same direction and then twisted into two coils or convolutions, the ends of each coil or convolution being twisted again into loops or terminal eyes, and the extreme ends of each eye or loop being extended through one or both of said coils or convolutions formed by said legs or shanks, so that the greater the tensile strain

applied to the link the tighter the ends of the wire are gripped within the folds of said convolutions.

5. A link, or its described equivalent, formed of a section of wire bent in the middle, and having its two shank portions extended and coiled each into a complete convolution, then bent into terminal eyes, and having the ends of the terminal eyes both extended in opposite directions to each other through both the convolutions and turned as described to lock the two convolutions and terminal eyes together substantially as described.

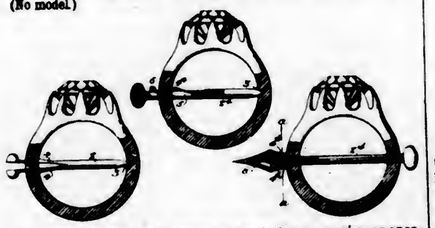
6. A link, or its described equivalent, formed of a section of wire bent in the middle, and having its two shank portions extended and first bent into complete convolutions and then coiled into terminal eyes, each shank having its terminal eye formed with two coils side by side substantially as described.

648,052. PEA-HARVESTER. WILLIAM L. HAINES and WILLIAM C. GRAHAM, Dice, Mich. Filed Oct. 9, 1899. Serial No. 733,045. (No model.)



Claim.—In a machine of the class described, the combination with a cutting apparatus, of leaves or plates secured to the top of the cutting apparatus and extending rearward therefrom and provided with eyes, a pintle-rod arranged in said eyes and located at the back of the cutting apparatus, the lifting devices having eyes receiving the pintle-rod, the leaves or plates 7 of thin metal extending rearward from the pintle-rod and provided with eyes receiving the same, said leaves or plates 7 being angularly bent adjacent to their ends to form a depressed intermediate portion and provided at the bends with longitudinally-alined openings, and the bunching-rods passing through the longitudinally-alined openings of the leaves or plates 7, substantially as described.

648,058. FINGER-RING AND ATTACHMENT THEREFOR. MARY R. HALFMANN, Philadelphia, Pa. Filed Nov. 6, 1899. Serial No. 736,007. (No model.)



Claim.—1. A finger-ring having in its circlet an opening or openings for the reception of a securing-pin or pin attachment, substantially as specified.

2. The combination of a finger-ring having in its circlet an opening or openings, with a securing-pin or attachment adapted to said opening or openings, and provided with means whereby its accidental removal is prevented, substantially as specified.

3. A finger-ring having in its circlet an opening or openings, and a securing-pin or attachment adapted to said opening or openings, and having a spring-catch for preventing its accidental removal, substantially as specified.

4. A finger-ring having in its circlet an opening in one side, and a socket in the other side, substantially as specified.

5. A finger-ring having in its circlet an opening in one side, and a socket in the other side, in combination with a securing-pin passing through said opening and seated in said socket, said pin having a spring-catch for engaging with the ring and preventing accidental removal of the pin therefrom, substantially as specified.

648,054. SHUTTLE-THREADER. ADOLF HARDMEYER, Goerz, Austria-Hungary. Filed Feb. 8, 1899. Serial No. 705,565. (No model.)

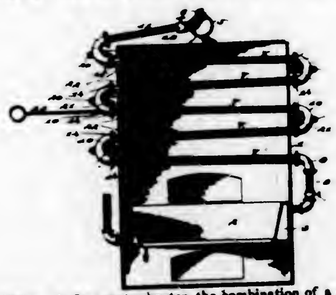


Claim.—1. In a pneumatic loom-shuttle threader, the combination of a straight pipe length, a branch pipe leading therefrom, and a reduced nozzle on the free extremity of the branch pipe said nozzle adapted to enter the eye of a loom-shuttle, said branch pipe having its nozzle extremity parallel with said straight pipe length and disposed at such a distance from said pipe length to cause said nozzle to register with the eye of a loom-shuttle when resting on said straight pipe length, substantially as set forth.

2. In a pneumatic loom-shuttle threader, the combination of a straight pipe length, a branch pipe leading therefrom, and a reduced nozzle on the free extremity of said branch pipe, said nozzle adapted to enter the eye of the loom-shuttle, said branch pipe having its nozzle extremity parallel with said straight pipe length and disposed at such a distance from said pipe length to cause said nozzle to register with the eye of a loom-shuttle when resting on said straight pipe length, and a base on said straight pipe length integral therewith for supporting the loom-shuttle with its eye engaging said nozzle, substantially as set forth.

3. In a pneumatic loom-shuttle threader, the combination of a straight pipe length, a branch pipe leading therefrom, and a reduced nozzle on the free extremity of said branch pipe, said nozzle adapted to enter the eye of a loom-shuttle, said branch pipe having its nozzle extremity parallel with said straight pipe length and disposed at such a distance from said pipe length to cause said nozzle to register with the eye of a loom-shuttle when resting on said straight pipe length, a base on said straight pipe length integral therewith for supporting the loom-shuttle with its eye engaging said nozzle, and a stop device located at the side of said straight pipe length and opposite said integral support, for positioning the loom-shuttle to engage said nozzle, substantially as set forth.

648,055. WATER-HEATER. CHARLES H. HARKINS, Edwardsville, Ill. Filed July 14, 1899. Serial No. 723,851. (No model.)



Claim.—1. In a water-heater, the combination of a casing, water-pipes arranged within the casing and connected together in pairs in vertical series by means of elbows and packing-rings and nuts providing packed expansion and contraction joints, said pipes being straight pieces of tubing, substantially as set forth.

2. In a water-heater, the combination of a casing, water-pipes arranged within the casing and connected together in pairs by means of elbows and packing-rings and nuts providing packed expansion and contraction joints, said pipes being straight pieces of tubing, substantially as set forth.

3. In a water-heater, the combination of a casing, water-pipes arranged within the casing and connected together in pairs by means of elbows and packing rings and nuts providing packed expansion and contraction joints, and means for holding said elbows from moving in a direction away from said pipes, substantially as set forth.

4. In a water-heater, the combination of a casing, water-pipes arranged within the casing and connected together in pairs by means of elbows and packing rings and nuts providing packed expansion and contraction joints, and rods passing through perforated ears on the elbows and through projections on the casing to hold said elbows from moving in a direction away from said pipes, substantially as set forth.

5. In a water-heater, the combination of a casing, water-pipes arranged within the casing and removably connected together in pairs in series with packed expansion and contraction joints, a supply-pipe, a distributing-pipe, a valve located between the supply-pipe and the lower one of the series of pipes, and a valve located between the distributing-pipe and the upper one of the series of pipes, substantially as set forth.

6. In a water-heater, the combination of a casing, a fire-box provided with a water-chamber with which a supply-pipe communicates, water-pipes arranged within the casing and removably connected together in pairs in series with packed expansion and contraction joints, a manifold with which the series of pipes connect, a valve located between the lowest pipe of the series and said water-chamber, and a valve located between the upper pipe of the series and said manifold, substantially as set forth.

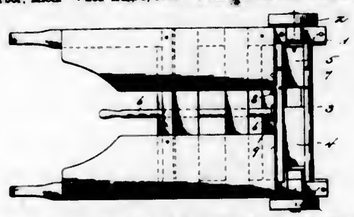
7. In a water-heater, the combination of a casing, and water-pipes located within the casing and connected together in pairs; said pipes being plain pieces of tubing with which a water-tight expansion and contraction joint is made by the use of packing-rings and nuts, substantially as set forth.

8. In a water-heater, the combination of a casing, and water-pipes located within the casing and connected together in pairs by means of packed expansion and contraction joints through which the pipes move as they expand and contract, substantially as set forth.

9. In a water-heater the combination of a casing, and pipes arranged within the casing, and connected together in pairs by means of elbows joined to the pipes by means of expansion and contraction joints that come in direct contact with the pipes; substantially as described.

10. A water-heater comprising a casing, pipes arranged within the casing, elbows, and expansion and contraction joints which come in direct contact with the pipes and connect the elbows in pairs with the pipes; substantially as described.

648,056. WAREHOUSE-TRUCK. WILLIAM F. HEFFNER, Benton Harbor, Mich. Filed Aug. 3, 1899. Serial No. 726,624. (No model.)



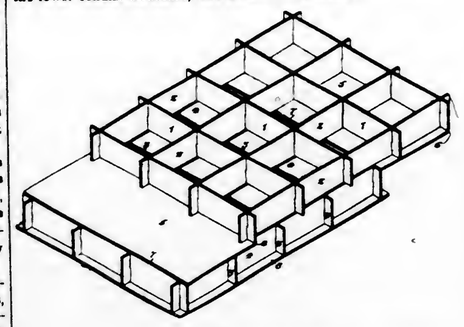
Claim.—1. A warehouse-truck involving the combination of a frame mounted on trucks, a clamp-jaw support consisting of a track or way attached to the frame, clamp-jaws arranged to slide in the supports, a lever for operating the jaws, and a lock or catch for holding the jaws in closed or clamped position.

2. A warehouse-truck involving the combination of a frame mounted on trucks, a clamp-jaw support attached to the front end of the frame, an adjustable clamp-jaw arranged at one side of the frame, a movable clamp-jaw arranged at the other side of the frame, a lever for operating the movable jaw, and a lock or catch for holding the jaws in closed position.

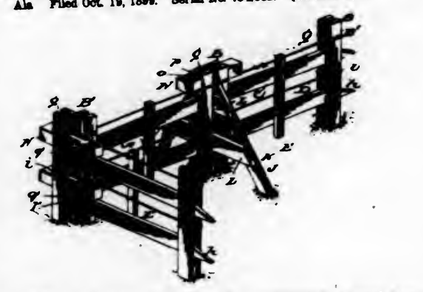
648,057. BOTTLE-PACKAGE. HOWARD H. HIGHAM, Philadelphia, Pa. Filed Feb. 7, 1899. Serial No. 704,852. (No model.)

Claim.—1. A bottle-package consisting of upper and lower cellular structures and connecting-webs provided with hinge-joints whereby said upper and lower cellular structures may be maintained one above the other or may be folded down one onto the other, substantially as specified.

2. A bottle-package consisting of upper and lower cellular structures located apart from each other, webs for connecting the same provided with hinge-joints, whereby the upper cellular structure can be folded down upon the lower one, and a bottom sheet connected to the lower cellular structure, substantially as specified.



648,058. PORTABLE FENCE. WILLIAM M. HILL, Suspension, Ala. Filed Oct. 19, 1899. Serial No. 734,062. (No model.)



Claim.—1. In a portable fence, the combination of panels having end posts provided with vertical slots, horizontal bars or rails extending through said slots and having projections, and line-wires having bracing-loops surrounding the parts of the posts, a transverse brace extending between the posts and having notches or recesses to receive said projections, and a coupling-bar fitted in the slots of the posts and holding the parts detachably connected.

2. In a portable fence, panels arranged at right angles and having horizontal rails and bifurcated or vertically-slotted end posts, one of said panels being provided with T projections and the rails of the other with slots to receive the same, and coupling-bars fitted in the post of the latter panel and engaging said T projections and forming a corner-coupling to hold the panels connected, substantially as described.

648,059. LINE-TIGHTENER. LEWIS S. HITE, Millersport, Ohio. Filed June 22, 1899. Serial No. 721,496. (No model.)

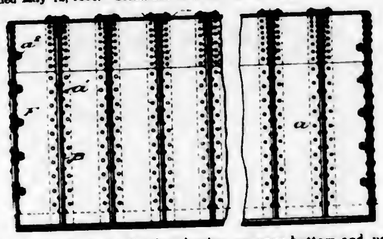


Claim.—1. A mid-wire line-tightener, comprising oppositely-disposed longitudinal arms transversely spaced with their inner end portions overlapping and connected at one side by a transverse tie, the arms tapering and curving inward toward their ends and terminating in engaging hooks, a drum having its end portions reduced to form journals which are mounted in transversely-alined openings formed in the spaced inner overlapping ends of the arms, one of the journals having an angular terminal portion to receive a wrench, and an intermediate toothed portion, and a pawl to engage with the toothed portion of the drum, as and for the purpose described.

2. A mid-wire line-tightener, consisting of oppositely-disposed longitudinal arms transversely spaced with their inner ends overlapping and connected at one side by an integral transverse tie, the outer ends of the arms tapering and curving inward in opposite directions and terminating in engaging hooks, a drum having its end portions reduced, forming journals which are mounted in transversely-alined

openings formed in the inner ends of the arms, one of the journals being extended and having an angular end portion and an intermediate toothed portion, said drum having a transverse opening about midway of its ends and an oblique passage leading from said opening through a side of the drum, and a pawl for engaging with the toothed portion of the drum, as and for the purpose described.

643,060. ANNEALING-BOX. ALFRED R. HUGHES, Warren, Ohio. Filed May 12, 1899. Serial No. 716,549. (No model.)

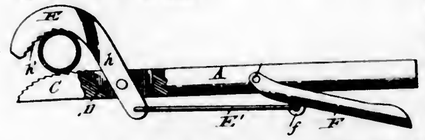


Claim.—1. An annealing-box having an open bottom and parallel sides and ends and a top connecting said sides and ends, said sides, top and ends being composed of channel-bars, the parallel flanges of which are turned inward and rigidly secured together, and butt-plates on the exterior of the box secured thereto adjacent to the seams between the flanges, substantially as set forth.

2. An annealing-box having an open bottom and parallel sides and ends and a top connecting said sides and ends, said sides, ends, and top being composed of channel-bars arranged transversely of the box, the parallel flanges of the several bars being turned inward and rigidly secured together, and butt-plates on the exterior of the box located over the seams between such flanges, riveted to the adjacent channel-bars, substantially as set forth.

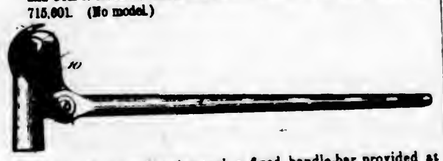
3. An annealing-box having its sides and top composed of channel-bars, the parallel flanges of which are turned inward, flat bars located between such flanges, said flat bars and flanges being rigidly secured together, and butt-plates on the exterior of the box extending over the edges of the flat bars and riveted to the adjacent channel-bars, substantially as set forth.

643,061. WRENCH. HENRY HUKRIDE, Eden Valley, Minn., assignor of one-half to John H. Reeves, same place. Filed May 8, 1899. Serial No. 716,013. (No model.)



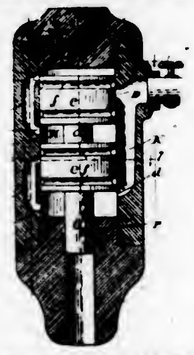
Claim.—The herein-described pipe-wrench, consisting of the integral bar having a rounded handle portion, a central slot, and at one end a convex jaw-face provided with uninterrupted teeth; the movable jaw having its shank pivoted and working in said slot; the thin sheet-metal handle-piece convexo-concave throughout its length, and contacting throughout its length with said handle portion, said handle-piece having bifurcations pivoted to said bar; and the link connecting said movable jaw and handle-piece, and having a low angular relation with a line passing through the connection of said handle-piece and bar, and the connection of said link and handle-piece, substantially as specified.

643,062. COMBINATION-TOOL. HARRY B. HUSTON, Omaha, Nebr., and OTIS J. MOORES, Centerville, Iowa. Filed May 4, 1899. Serial No. 715,601. (No model.)



Claim.—In a combination-tool, a fixed handle-bar provided at one end with a hammer-head having one side in the plane of the corresponding side of the handle-bar and comprising a pole and a nail-extracting claw, a rear extension at the inner side of the claw member in the plane of the handle-bar having a lateral projection, said rear extension being cut away at its outer end to expose the terminal of the claw member which constitutes a staple-puller claw, a second handle-bar located at one side of the fixed handle-bar and pivoted thereto in the rear of the hammer-head and having an offstanding arm whose terminal is curved to form a staple-puller member and deflected to bring the staple-puller members in the same plane, said arm having a flat portion to come in contact with the lateral projection of the hammer-head and limit the relative movement of the handle-bars when in transverse alinement, substantially as described.

643,068. PNEUMATIC HAMMER. JOHN W. JOHNSON, Burlington, Vt. Filed June 2, 1899. Serial No. 719,108. (No model.)



Claim.—1. A tool of the character described comprising a cylinder, a double-headed piston therein, the cylinder having a supply-port in communication with the space between the head of the piston, feed passage-ways having communication respectively with the opposite ends of the cylinder and with the space between the heads of the piston, said passage-ways having storage-chambers at points intermediate their ends, substantially as described.

2. A tool of the character described, comprising a cylinder, a double-headed piston therein, the cylinder having a supply-port in communication with the space between the heads of the piston, feed passage-ways having communication respectively with opposite ends of the cylinder and with the space between the heads of the piston, the said passage-ways being enlarged between their ends to furnish storage spaces or chambers, substantially as and for the purpose described.

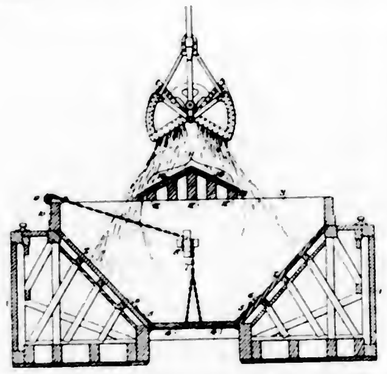
3. A tool of the character described comprising a cylinder, a double-headed piston therein, the cylinder having an inlet-port in communication with the space between the heads of the piston, the cylinder having also elongated feed passage-ways in communication respectively with opposite ends of the cylinder and with the space between the heads of the piston, said passage-ways being enlarged between their ends to constitute storage spaces or chambers, and the upper passage-way having its inlet and outlet ports of greater area than the corresponding ports of the lower passage-way, substantially as described.

4. A tool of the character described comprising a cylinder, a double-headed piston therein, the cylinder having a supply-port in communication with the space between the heads of the piston, feed passage-ways having communication respectively with opposite ends of the cylinder and with the passage between the heads of the piston, the inlet and outlet ports of the passage-ways being elongated in a direction transverse the cylinder and the said passage-ways being enlarged at points between their ports to constitute storage spaces or chambers, substantially as described.

643,064. DUMPING-SCOW. EDWIN KERSHAW, Wilmington, Del., assignor of one-half to the Jackson & Sharp Company, same place. Filed Nov. 7, 1898. Serial No. 736,125. (No model.)

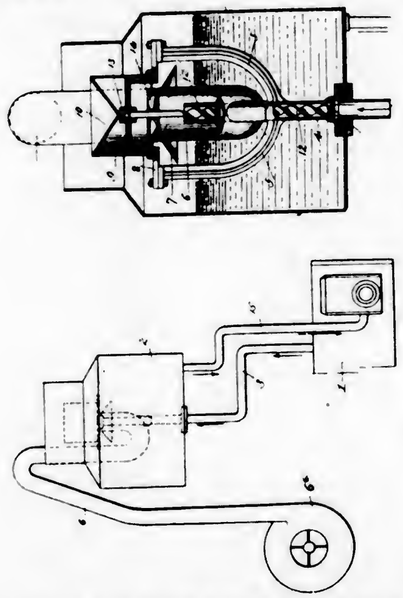
Claim.—1. A dumping-scow having dumping-gates at the bottom, and a guard or shield located above the said gates and extending longitudinally throughout the scow, said shield receiving the initial impact of the load of spoil discharged from the dredging-bucket or other loading device, substantially as specified.

2. A dumping-scow having dumping-gates at the bottom, and having, above the same, a shield or guard which extends longitudinally throughout the scow, receives the initial impact of the spoil discharged from the dredge-bucket or other loading device, and is inclined downwardly from the center toward each side so as to divide the load and deflect it to opposite sides of the scow, substantially as specified.



3. A dumping-scow divided by transverse partitions into a series of compartments or hoppers, each having dumping-gates at the bottom, said partitions serving to support a longitudinal shield or guard located above the dumping-gates and serving to receive the initial impact of the load of spoil discharged from the dredging-bucket or other loading device, substantially as specified.

643,065. APPARATUS FOR COOLING ENGINE-CYLINDERS. JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed Apr. 20, 1899. Serial No. 713,807. (No model.)



Claim.—1. In an apparatus for cooling engine-cylinders, or the like, the combination of a water tank, a cool-water pipe leading from the tank to the device to be cooled, a hot-water pipe leading from said device to the tank and extending up into the tank to near the water-level therein, a blast-pipe entering the tank and terminating adjacent the upper end of the hot-water pipe, so that the blast will strike the water as it overflows from the hot-water pipe, a blower, an air-motor supported above the hot-water pipe and blast-pipe, in the path of the blast, and a water-lifting device supported in the hot-water pipe and attached to and operated by the air-motor, whereby the blast will take up the water as it overflows from the hot-water pipe and spray it against the air-motor, for the purposes set forth.

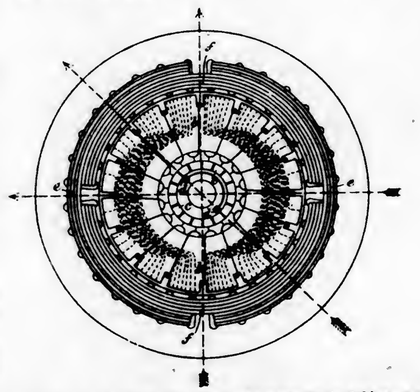
2. In a cylinder-cooling apparatus the combination of a cylinder and water-jacket therefor, a water-tank, a hot-water conduit connecting the jacket to the tank, said conduit extending near to the water-level in the tank, a water-elevating device with the hot-water conduit, a blast-pipe surrounding the end of the hot-water conduit, means for causing a blast therethrough, and means whereby the air-blast will operate the water-elevating device to lift water from the hot-water conduit into the blast-pipe and the air-blast will spray and cool the water, said means for operating the water-elevating device being supported in the path of the blast at the upper end of the blast-pipe, above the upper end of the hot-water conduit, so as to receive and break up the spray and commingle it with the blast.

3. In a cylinder-cooling apparatus the combination of a cylinder and water-jacket therefor, a water-tank, a cool-water pipe leading from the tank to the jacket, a hot-water conduit leading from the jacket to the tank, said conduit extending near to the water-level in the tank, a blast-pipe surrounding the said conduit, a rotary water-elevator within the hot-water conduit, means operated by the air-blast to rotate said elevator to lift water into the blast-pipe, said means consisting of an open air-motor to receive the impact of the blast and lifted water and intimately commingle the same.

4. In a cylinder-cooling apparatus the combination of a cylinder and water-jacket therefor, a water-tank, a cool-water pipe leading from the tank to the jacket, a hot-water conduit leading from the jacket to the tank, said conduit extending near to the level of the water in the tank, a blast-pipe surrounding the hot-water conduit, a rotary water-elevator within the hot-water conduit, a fan or similar air-motor secured to the elevator and operated by the air-blast, said fan being journaled or supported above the hot-water conduit and in the path of the blast, whereby the lifted water will be thrown against the fan-blades and break up the spray and commingle it with the blast.

5. In a water-cooling apparatus, the combination of the device to be cooled, such as a gas-engine cylinder, a water-tank, a cold-water pipe and a hot-water pipe connecting said tank with said device to be cooled, said hot-water pipe extending to a point above the normal water-level of the tank, a blast-pipe surrounding the upper end of the hot-water pipe and extending above the same, a water-elevating screw journaled in the upper end of the hot-water pipe, an air-motor carried by the shaft of said screw at a point above the hot-water pipe, in the path of the blast of air and hot water, means for supporting the screw-shaft, and means for returning the sprayed water to the tank, substantially as set forth.

643,066. ALTERNATING-CURRENT MOTOR. WALTER LANGDON-DAVIES, London, England, assignor to the Langdon-Davies Electric Motor Company, Limited, same place. Filed May 22, 1899. Serial No. 717,810. (No model.)



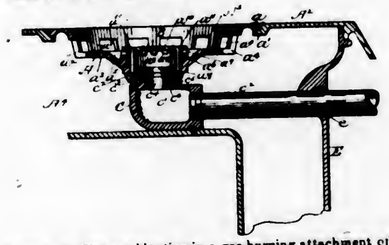
Claim.—1. An alternating-current motor having its field-magnets formed in a drum-wound slotted continuous ring with no projecting pole-pieces and their windings so distributed as to make the magnetic density strongest at the center of each pole-face and having its armature wound with a continuous winding coupled at intervals to commutator-bars and also having brushes bearing against the commutator on a line inclined to the magnetic axis of the field-magnets and in which the circuit through the field-magnet windings and the cir-

cuit through the armature-windings and brushes are the one supplied with current and the other short-circuited.

2. An alternating-current motor having its field-magnets formed in a drum-wound continuous ring with no projecting pole-pieces and having the central portion only not exceeding or much exceeding one-half of each pole-face embraced by the field-windings and having its armature-windings coupled at intervals to the bars of a commutator and brushes bearing against the commutator on a line inclined to the magnetic axis of the field-magnets and in which the circuit through field-magnet windings and the circuit through the armature-windings and brushes are the one supplied with current and the other short-circuited.

3. An alternating-current motor having armature-windings coupled at intervals to commutator-bars and brushes bearing on the commutator and having its field-magnets formed in a drum-wound slotted continuous ring having no projecting pole-pieces and provided with two sets of windings one to be used when the motor is to run in one direction and the other when it is to run in the opposite direction.

643,067. **GAS-BURNING ATTACHMENT FOR COAL COOKING STOVES OR RANGES.** FRANK A. MAGEE, Wenham, Mass., assignor to the Magee Furnace Company, Boston, Mass. Filed Aug. 18, 1899. Serial No. 27,697. (No model.)



Claim.—1. The combination in a gas-burning attachment of the character specified, of a plate A having depending arms, a burner-plate connecting the lower ends of said arms and a gas-burner contained in the cavity formed by the arms, its gas-openings being in substantially the plane of said burner-plate openings between the arms connecting the cavity with the flue-space of the stove and means for detachably connecting said attachment with a source of gas-supply, as and for the purposes described.

2. The gas-burner attachment having the rim a, the depending arms a^3, the plate a^2 at the lower ends of the arms having an annular recess a^5 about a wall a^4, said wall having radial recesses or grooves a^7, a chamber a^8 surrounded by said wall, a plate a^{10} attached to said wall to cover said recesses, and a section of a coupling comprising a collar and a packing fastened to the under surface of the attachment about the inlet to the chamber.

3. The coal or wood range or stove having the gas-supply pipe c^3 entering a flue-space thereof, a coupling C in said flue-space below a pot-hole connected with said pipe and having an upwardly-extending nipple surrounded by a shoulder, with a gas-burner attachment having a rim a to rest upon the top of the stove, a depressed section having a gas-burner and a section of a coupling to connect the burner with the nipple, the said attachment also having lateral openings between the combustion-chamber of the burner and the flue-space of the stove, as and for the purposes set forth.

4. The combination of a coal or wood stove or range having a gas-supply c^3 entering a flue-cavity thereof, and a coupling C in said flue-space below a pot-hole, said coupling being connected with said gas-supply pipe and having an upwardly-extending nipple and a shoulder surrounding the same, whereby it is adapted to receive a burner or a closing-cover, as and for the purposes set forth.

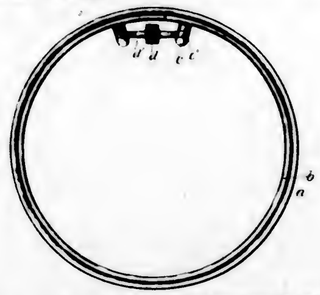
643,068. **ORTHOPÆDIC APPLIANCE.** HERBERT J. POND, Norwich, England. Filed Dec. 12, 1899. Serial No. 740,051. (No model.)



Claim.—1. A device for attachment to the toes of the human foot, comprising a body-plate adapted to extend in parallel position with relation to the normal position of the great toe and carrying a main loop adapted to encircle the great toe and a supplementary loop projecting to a plane beyond said main loop and adapted to encircle the second toe, substantially as and for the purpose set forth.

2. A device for attachment to the toes of the human foot, comprising a body-plate adapted to extend in parallel position with relation to the normal position of the great toe and carrying a main loop projecting from its bottom edge and curving toward the body-plate and adapted to encircle the great toe and a supplementary loop projecting from the bottom edge of said body-plate and extending outwardly to a point beyond the main loop and adapted to encircle the second toe, substantially as and for the purpose set forth.

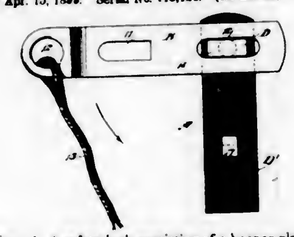
643,069. **EMBROIDERY-HOOP.** BETTIE D. POST, Hartford, Conn., assignor to Halsey R. Philbrick, same place. Filed Oct. 9, 1899. Serial No. 732,993. (No model.)



Claim.—1. In an embroidery-hoop, in combination, an outer non-expansible member, an inner expansible member with ends overlapping depthwise of the hoop, threaded sockets located on opposite sides of the opening between the ends of the inner member and having respectively right and left hand threads, and an expanding-screw having a right-hand thread on one end and a left-hand thread on the other, each fitting the like threaded openings in the respective sockets.

2. An embroidery-hoop consisting of an outer non-expansible member and an inner expansible member with an opening extending therethrough, screw-threaded sockets located at or near each end of the expansible member with threads of varying pitch, and a screw having its opposite ends threaded to fit the screw-threads in said sockets.

643,070. **SAFETY-LOCK.** JOSEPH M. ROBINSON, New York, N. Y. Filed Apr. 15, 1899. Serial No. 713,128. (No model.)



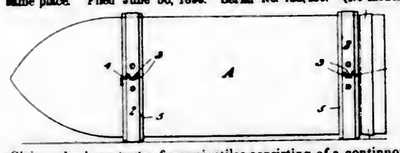
Claim.—1. A safety-lock consisting of a keeper-plate having two locking-points at angles to each other, and a latch-plate removable from the keeper-plate and provided with openings extending in the same direction, each opening being arranged to receive a locking-point, as described.

2. A safety-lock comprising a keeper-plate provided with a T projection, the head whereof extends transversely of the plate, and an angle-lug one member of which extends longitudinally of the plate toward the T projection, and a latch-plate independent of the keeper-plate and provided with longitudinal openings, one opening being adapted to receive the said T projection, and the other opening being adapted to receive the shank of the said lug, as described.

3. In a safety-lock, the combination, with a keeper-plate provided with an angle-lug projected from its outer face, and a shouldered T-headed screw-bolt arranged to be passed through the keeper-plate and the head of said bolt to extend transversely across the plate, the shoulder of the said T-bolt having a roughened surface adapted for engagement with the outer face of the keeper-plate, the head member of the said lug extending in direction of the screw-bolt, of a latch-plate independent of the keeper-plate, the said latch-plate having longitudinal openings made therein, so arranged that one opening is capable of receiving the T-head of the screw-bolt and the other opening the said lug, for the purpose specified.

4. A lock, having a latch-plate and a keeper-plate, the keeper-plate having two headed projections, the heads being elongated in directions at angles to each other, and the latch-plate having two openings elongated in like directions and capable respectively of receiving the projections, the latch-plate being held in position by the heads of the projections.

643,071. **RING FOR PROTECTING PROJECTILES.** JULIUS SCHIRRA, Pittsburg, Pa., assignor of one-fourth to Edmund F. Barnhart, same place. Filed June 30, 1899. Serial No. 722,406. (No model.)



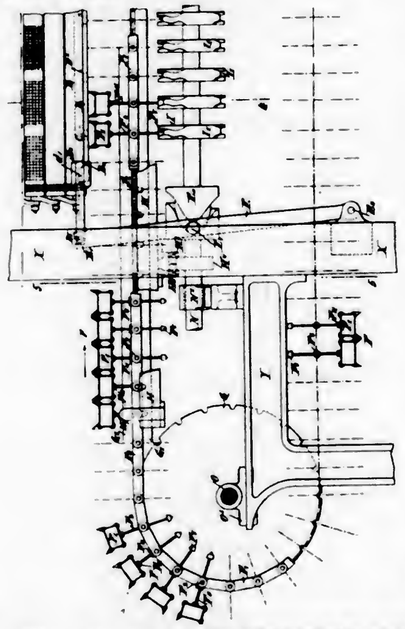
Claim.—1. A protector for projectiles consisting of a continuous circular band of elastic material, a protecting-covering therefor on the inner side, and interfitting ends adapted to be coupled together.

2. A protector for projectiles consisting of a continuous circular band of elastic material, interfitting ends adapted to be coupled together and a lining of protecting material on the inner side adapted to overlap at the joint of the ring.

3. A protector for projectiles consisting of a continuous circular metallic band formed into an annulus with interfitting ends having loops adapted to be secured together by a pin, adapted to spring open by elasticity of the ring when released, and provided with a covering of protecting material adapted to make contact with the projectile.

4. A protector for projectiles consisting of a continuous circular metallic band formed into an annulus with interfitting ends adapted to be secured together adjustably and adapted to spring open by elasticity of the ring when released, and provided with a covering of protecting material adapted to make contact with the projectile.

643,072. **MACHINE FOR BOXING MATCHES.** HENRI SÉVÈNE and EMILE D. CAHEN, Paris, France. Filed Aug. 2, 1898. Serial No. 687,562. (No model.)



Claim.—1. An apparatus for boxing matches, comprising an endless chain consisting of cells constructed and adapted to receive the slides and drawers and capable of oscillation individually, with means for producing the oscillation of each cell, and means for introducing the drawers into the slides, and to expel the finished boxes.

2. In apparatus for boxing matches an endless chain F composed of cells F', provided with four carrying-springs F^8 forming funnels on which the slides may be placed as sleeves substantially as and for the purposes described.

3. In apparatus for boxiug matches, a chain composed of cells capable of individual oscillation, each of said cells being provided with a stem, in combination with a rotating shaft having grooved cams mounted thereon in which the said stems engage, substantially as described.

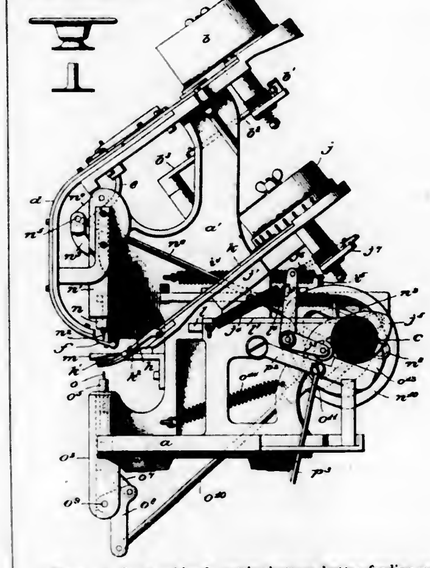
4. In apparatus for boxing matches, a chain composed of cells capable of individual oscillation, each of said cells being provided with a stem and with a spur cut with a double incline plane, in combination with a rotating shaft having grooved cams mounted thereon in which the said stems engage, and bars provided with peaks to enter the said double incline planes, substantially as and for the purposes set forth.

5. In apparatus for boxing matches, the combination of a chain of cells F' with grooves F^{10} with a piston J having ribs J', substantially as described.

6. In apparatus for boxing matches, the combination of an endless chain provided with cells, each adapted to carry the slide and drawer of a box, and a piston to close the box and expel it from the cell, with a passage for the outlet of the closed boxes, and a movable door for said passage, adapted to form a stop opposed to the said piston while closing the box, and then to open the said passage for the outlet of the box, substantially as set forth.

7. In apparatus for boxing matches, the combination of a chain of cells each provided with a grooved chamber to receive the boxes, and a piston having ribs extending beyond the boxes and into the grooves of the chamber, with a passage provided with a movable door adapted to form a stop while the piston is closing the box, substantially as set forth.

643,078. **BUTTON-SETTING MACHINE.** ALFRED J. SHIPLEY and FREDERICK R. STANLEY, Waterbury, Conn., assignors to The Scovill Manufacturing Company, same place. Filed July 24, 1899. Serial No. 724,921. (No model.)



Claim.—1. In a machine for setting buttons, button-feeding mechanism, fastener-feeding mechanism, and setting-tools, combined with a button-receiver, having a vertically-yielding motion and also an independent vibratory motion, means to move said receiver into position to receive the button from the button-feed and to deliver it to the setting-tools and thereafter to withdraw the said receiver from the path of movement of the said setting-tools and hold it in that position until the button is set and the button-setting tools retracted, substantially as described.

2. In an automatic button-setting machine, button-feeding mechanism, fastener-feeding mechanism, and setting-tools, combined with a button-receiver, a main shaft, a cam thereon, a reciprocating rod

connecting the receiver with the cam and adapted to withdraw the receiver from the setting mechanism in the act of attaching the button to a garment, and means to return the said button-receiver to position to receive the next button, substantially as described.

3. In an automatic button-setting machine, a button-receiver having a forked plate, a horizontal slide on which it is mounted, a guideway for said slide, a cam and cam-shaft, a sliding rod connecting the horizontal slide with the cam to move the same positively in one direction and a spring for moving the said slide in the opposite direction, substantially as described.

4. In a machine for setting buttons, a button-feed, a fastener-feed, and setting-tools, combined with a button-receiver having a forked plate, a spindle upon which it is mounted, a spring-slide in which said spindle is supported, a horizontal sliding box containing said slide, a cam and a connection between the said box and cam, substantially as described.

5. In a button-setting machine, a button-receiver, comprising a forked plate having a spindle, a hanger in which said spindle is mounted, means to permit a limited vibratory movement of said plate in said hanger, and means to move the said button-receiver toward and from the button-chute of the machine, substantially as described.

6. In a button-setting machine, a button-feed, a fastener-feed, and setting-tools having a rectilinear motion in a single plane, a button-receiver comprising a forked plate, a spindle to which it is affixed, a hanger in which said spindle is mounted, means to permit a limited rocking motion of the plate in said hanger, a slide supporting the hanger, a box in which said slide has a longitudinal vertical motion, a spring for supporting said slide and adapted to yield to permit the descent of the receiver-plate under the action of the setting-tools and to restore the said plate to normal position when released from the setting-tools, and means to move the said button-receiver toward and away from the button-feed, substantially as described.

7. In a button-setting machine, a button-receiver, comprising a forked plate having an abutment *f*² arranged transversely at the base of its notch and projecting downwardly therefrom, substantially as and for the purpose described.

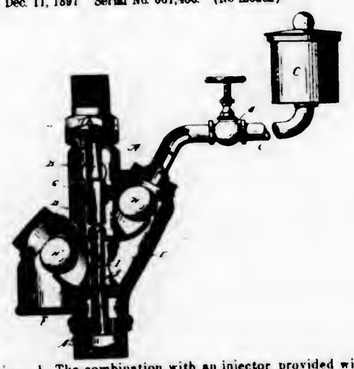
8. In a button-setting machine, a button-feed comprising a chute, a vibratory gate to control the passage of buttons through the said chute, a button-receiver, means to impart thereto a movement toward and from the said chute, and a lever pivoted to the frame of the machine, with one end engaged by the button-receiver-operating device and its other end in operative connection with the said gate, to actuate the said gate, substantially as described.

9. In a button-setting machine, a button-feed comprising a chute, a vibrating gate for discharging the buttons one by one from said chute, a button-receiver, means to move said receiver horizontally, a lever pivoted to the frame of the machine and having its opposite ends in contact with the said gate and the button-receiver to actuate said gate, substantially as described.

10. In a button-setting machine, button-setting tools, fastener-feeding means, and a plurality of button-turrets, combined with a single button-delivering chute, independent button-chutes leading from said turrets into the delivering-chute, and a switch-plate arranged to slide transversely in the chute and having two grooves for opening one of the individual button-chutes to the delivering-chute and simultaneously closing the other, substantially as described

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643,074. APPARATUS FOR FEEDING ANTI-INCRUSTATION COMPOUNDS TO BOILERS. THOMAS J. SWEENEY, Detroit, Mich. Filed Dec. 11, 1897. Serial No. 661,486. (No model.)



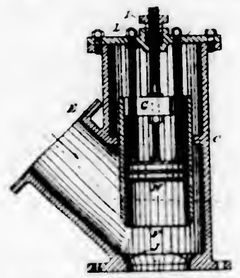
Claim 1. The combination with an injector provided with an overflow-chamber communicating with the combining-tube thereof so as to permit the return of the water from the overflow-chamber to the combining-tube, of a feed-pipe for an anti-incrustation compound arranged to deliver the compound into said overflow-chamber, and a check-valve in said pipe arranged to be operated to cut off the flow of the compound by an overflow of the feed-water into said overflow-chamber, substantially as described.

2. In combination with an injector comprising a combining-tube and a chamber surrounding the same, a feed-pipe for an anti-incrustation liquid leading to the chamber which surrounds the combining-tube and arranged to deliver the liquid in the combining-tube, a storage-tank for the liquid and an inwardly-closing check-valve adapted to close a passage from the storage-tank into the feed-pipe by the injector-suction, substantially as described.

3. In combination with an injector provided with an overflow-chamber, of a feed-pipe for an anti-incrustation compound arranged to deliver the same into said overflow-chamber, and a valve arranged to be operated to shut off the flow of the compound by an overflow of feed-water into said overflow-chamber.

4. In combination with an injector provided with a combining-tube, and an overflow-chamber surrounding said combining-tube and communicating therewith at the lower part of the overflow-chamber, of a feed-pipe for an anti-incrustation compound arranged to deliver the same into said overflow-chamber, and a valve in said feed-pipe arranged to be operated to shut off the flow of the compound by an overflow of feed-water into said overflow-chamber.

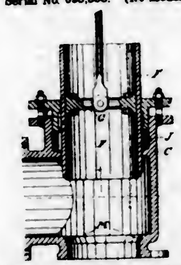
643,075. WATER, STEAM, OR AIR VALVE. JOHN W. VAN BROCKLIN, Seattle, Wash., assignor of one-sixteenth to Russell I. Dunn, San Francisco, Cal. Filed Nov. 2, 1898. Serial No. 695,334. (No model.)



Claim.—1. In combination with a cylindrical valve, a casing having an inlet and outlet and a valve-seat surrounding the latter, a valve-chest forming part of said casing and provided with an internally-presented annular guide rib or flange in contact with the said valve, and a fixed piston within the said valve, cooperating with the said rib in guiding the same, substantially as and for the purpose set forth.

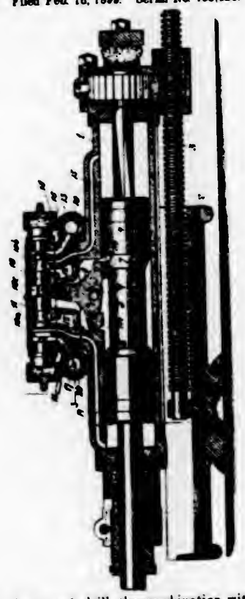
2. A valve-casing provided with a fixed and closed top, a lateral inlet and an outlet and valve-seat below the same, in combination with a fixed piston fastened by bolts to the said top, a cylindrical valve working up and down over the said piston and adapted to engage the said seat, and means for actuating the said valve, the said casing being provided with a fluid-space surrounding the said valve, substantially as and for the purpose set forth.

643,076. WATER-VALVE. JOHN W. VAN BROCKLIN, Seattle, Wash., assignor of one-sixteenth to Russell I. Dunn, San Francisco, Cal. Filed Nov. 2, 1898. Serial No. 696,335. (No model.)



Claim.—In combination with the cylindrical valve F and a concentric stuffing-box provided with clamping-screws and an internal groove L for packing, a casing provided with an outlet and valve-seat at its bottom, a lateral inlet, a raised upper part adapted to receive the said stuffing-box and an inwardly-presented annular rib for guiding the said valve, the latter fitting at the bottom into the said seat and being of less diameter than the bore of the said casing in which it works, in order that there may be a space for fluid around said valve to the level of the said stuffing-box, substantially as and for the purpose set forth.

648,077. ENGINE FOR ROCK-DRILLS. ROBERT L. AMBROSE, North Tarrytown, N. Y., assignor to the Rand Drill Company, New York, N. Y. Filed Feb. 16, 1899. Serial No. 705,620. (No model.)



Claim.—1. In a rock-drill, the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of mechanism for reversing the position of the valve at or near the end of each stroke of the piston, and an independent short-stroke contrivance forming a cushioning device by means of which the position of the valve may be reversed at a point in the stroke intermediate of the points at which reversal of the valve by the main-valve-operating means is produced, substantially as specified.

2. In a rock-drill, the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of means operated by the piston to move the valve at or near the end of a full stroke of said piston, and an elastic-pressure controller, by the manipulation of which, pressure is applied to move the valve intermediate of the full stroke of the piston, substantially as specified.

3. In a rock-drill the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of a rocker or tappet operated by the piston to move the valve at or near the end of a full stroke of the piston, and an elastic-pressure controller, by the manipulation of which, pressure may be applied to the valve to move same intermediate of a full stroke of the piston, substantially as specified.

4. In a rock-drill the combination with a cylinder, a piston and a valve for controlling the admission and exhaust of the motive fluid thereto, of a rocker or tappet operated by contact with the piston to move the valve at or near the end of a full stroke of the piston, and an elastic-pressure controller by the manipulation of which, pressure, applied by the movement of the piston, may be applied independently of the action of the said piston on the rocker to the valve to move same intermediate of the full stroke of the piston, substantially as specified.

5. In a rock-drill, the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of means operated by the piston at the end of its stroke to move the valve in one direction, and means whereby an elastic pressure may be applied to move the valve in the opposite direction prior to its completion of a full stroke and immediately upon its release from the action of the piston-operated means, substantially as specified.

6. In a rock-drill, the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of a rocker or tappet operated by the piston at the end of its stroke to move the valve in one direction, and means whereby an elastic pressure may be applied to move the valve in the opposite direction, prior to its completion of a full stroke and immediately upon its release from the action of the tappet, substantially as specified.

7. In a reciprocating engine the combination with a cylinder, a piston and a distributing-valve, of ports for the admission and exhaust of the motive fluid to and from the cylinder and means for closing the exhaust at one end of the cylinder independently of the distributing-valve, whereby the compression of the motive fluid will move the said distributing-valve, substantially as specified.

8. In a reciprocating engine the combination with a cylinder, a piston, and a reciprocating valve, of ports, for the admission and exhaust of the motive fluid to and from the cylinder, controlled by said valve and an independent valve arranged in the exhaust-port whereby the said exhaust-port may be closed independent of the reciprocating valve to shorten the stroke of the engine, substantially as specified.

9. In a reciprocating engine the combination with a cylinder and a piston of an inlet for the motive fluid, two admission-ports for admitting the motive fluid to the front or rear of the said piston in the cylinder as the said ports are alternately connected with the said inlet, two exhaust-ports for exhausting the said motive fluid as the said exhaust-ports are alternately connected with the respective admission-ports, a reciprocating valve for alternately connecting the said admission-ports with the inlet, and with the exhaust, and an independent valve provided in one of said exhaust-ports, whereby the compression of the motive fluid will move the said reciprocating valve substantially as specified.

10. In a reciprocating engine the combination with a cylinder, a piston and a reciprocating valve, of ports, for the admission and exhaust of the motive fluid to and from the cylinder controlled by said valve, an independent valve arranged in the exhaust-port, whereby the compression of the motive fluid will move the said reciprocating valve and stops for limiting the movement of the valve whereby sufficient opening is left when the valve is in closed position to permit the escape of superfluous motive fluid, substantially as specified.

11. In a reciprocating engine the combination with a cylinder, a piston, a valve-chamber having a cylindrical bore, a cylindrical piston-valve adapted to reciprocate therein and admission and exhaust ports, of an independent valve arranged in one of said exhaust-ports and a communication between the said exhaust-port and the valve-chamber in front of the cylindrical piston-valve whereby the compression of the motive fluid will move said cylindrical valve substantially as specified.

12. In a reciprocating engine the combination with a cylinder, a piston, a valve-chamber having a cylindrical bore, a cylindrical piston-valve adapted to reciprocate therein, and admission and exhaust ports, of a rocker operated by the said piston, to move the valve at or near the end of a full stroke of the piston, and an independent valve arranged in one of said exhaust-ports, whereby the compression of the motive fluid will move the said cylindrical piston-valve independently of said rocker, substantially as specified.

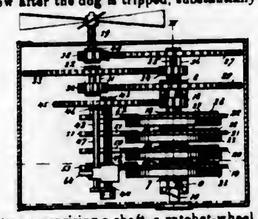
13. In a rock-drill the combination with a cylinder, a piston, a valve chamber having a cylindrical bore, a cylindrical piston-valve adapted to reciprocate therein, and admission and exhaust ports of a rocker operated by the said piston to move the valve at or near the end of a full stroke of the piston, and an independent valve, arranged in one of the exhaust-ports, said valve being spring-actuated in one direction whereby same is normally held open, but adapted to be closed against the tension of said spring when desired to close the said port independently of the said rocker substantially as specified.

14. In a rock-drill, the combination with a cylinder, a piston, and a valve for controlling the admission and exhaust of the motive fluid thereto, of means operated by the piston to move the valve at or near the end of a full stroke of said piston, an elastic-pressure controller, by the manipulation of which, pressure is applied to move the valve intermediate of the full stroke of the piston, and means for automatically returning the elastic-pressure controller to its normal "out-of-operation" position.

15. The combination in a rock-drill with a cylinder, a piston, a distributing-valve and valve-gear for same, of a short-stroke-controlling device having means for automatically throwing it to its "out-of-operation" position when released.

648,078. MOTOR. FREDERICK F. ARDERSON, New York, N. Y., assignor of fifty-one one-hundredths to Emanuel Bloch, Chicago, Ill. Filed Apr. 17, 1899. Serial No. 713,423. (No model.)

Claim.—1. A motor, comprising a shaft, a wheel thereon, a feed-screw geared to said wheel, a guide-rod, a dog engaging said wheel, a release mounted upon said feed-screw and said rod and adapted to be moved by the former to trip the said dog, said release comprising a lower member having a trip-arm to engage the dog, an upper member pivoted to the lower member, means to clamp said members upon said feed-screw and rod, and means to rotate said wheel and thereby said feed-screw after the dog is tripped, substantially as described.

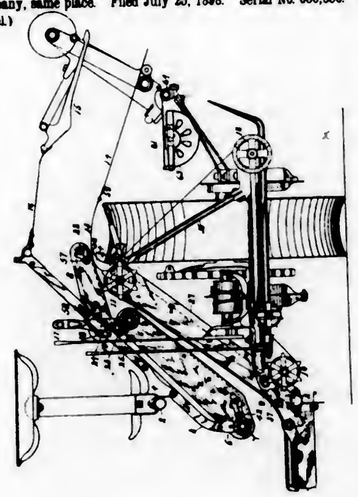


2. A motor, comprising a shaft, a ratchet-wheel rigid thereon, a spring-rotated wheel journaled on the shaft and provided with a dog engaging the ratchet-wheel, a pivoted dog engaging the journaled wheel to restrain the spring, a rotatable screw geared to said shaft, a guide-rod parallel with the screw, and a traveling release mounted on the screw and guide-rod, and consisting of two sections clamped together and against opposite sides of the screw and rod, one of the sections having a beveled end to engage and trip the spring-restraining dog, substantially as described.

3. A motor comprising a shaft, a wheel thereon, a feed-screw geared to said wheel, a guide-rod, a dog engaging said wheel, a release mounted upon said feed-screw and said rod and adapted to be moved by the former to trip said dog, said release consisting of a lower member having a trip-arm to engage the dog and a pivoted bolt carrying a clamping-nut, and an upper member hinged to the lower member and provided with a notch in its free end to receive said clamping-bolt and be secured by the nut to the lower member, and means to rotate said wheel and thereby said feed-screw after the dog is tripped, substantially as described.

4. A motor, comprising a suitable casing, having a shutter-closed opening, a series of standards having pins, a shaft journaled in said standards and provided with a squared end adjacent to said opening, a series of ratchet-wheels rigid on said shaft, a series of toothed wheels journaled on the shaft and provided with spring-actuated dogs engaging said ratchet-wheels, and with a series of pins, a series of coiled springs secured at their opposite ends to the pins of the wheels and standards, a pivoted dog engaging each journaled wheel, a screw geared to the shaft, a guide-rod parallel with the screw, and a traveling release mounted upon the screw and rod and provided with a pendent trip-arm 59, to successively trip said pivoted dogs, substantially as described.

643,079. GRAIN-HARVESTER. EDWARD J. BIRKETT and HENRY F. CRANDALL, Milwaukee, Wis., assignors to The Milwaukee Harvester Company, same place. Filed July 25, 1898. Serial No. 686,886. (No model.)



Claim.—1. In a harvester, a platform, and a platform-carrier adapted to convey the grain to the receiving end of the elevator, a driving-roller for the platform-carrier having its outer or rear journal supported by a bracket secured to said platform, a chain-wheel upon the outer end of said journal, a counter-shaft parallel with said carrier-roller and located outside of the rear edge of the said platform-carrier, a chain-wheel upon said counter-shaft, means for driving said counter-shaft, and flexible connection between said chain-wheels.

2. In a harvester, a platform and a platform-carrier adapted to convey the grain to the receiving end of the elevator, a driving-roller for the platform-carrier having its outer or rear journal supported by a bracket secured to said platform, a chain-wheel upon the outer end of said journal, the lower roller of the elevator-carrier having its outer or rear end journal supported also in said bracket, a chain-wheel upon the outer end of said journal of said elevator-roller, a counter-shaft parallel with said carrier and elevator rollers and located outside of the rear edge of said carriers, a chain-wheel upon said counter-shaft, means for revolving said counter-shaft, and a flexible connection between said chain-wheels.

3. In a harvester, a driving mechanism for the platform and elevator carriers comprising the following instrumentalities in combination, the platform-carrier roller at the stubbleward side of the platform, the lower and upper rollers of the lower elevator-carrier, the counter-shaft located outside of the rear and outer edge of said carriers, the supporting-bracket 9 adjustably secured to the rear sill 1, and in which the said counter-shaft is journaled, the step-piece 26 supporting the journals at the outer rear ends of the said platform-carrier roller and said lower elevator-roller, the chain-wheels 28 and 29 upon the outer ends of said journals, the chain-wheel 30 upon the inner forward end of said counter-shaft, and a flexible connection between said chain-wheels, a chain-wheel upon the outer end of the counter-shaft, a chain-wheel upon the outer end of the outer or rear journal of the upper roller of the lower elevator-carrier, a chain-wheel upon the outer end of the harvester crank-shaft, means for driving said shaft, and flexible connection between said chain-wheels substantially as described.

4. In a harvester, the combination of the step part 26, the parts 31 and 31', the parts 32 and 34, brace-rod 37, and brace-piece 35, angle-iron 27, metal sheet 36, part 38 and removable journal-box 33, substantially as and for the purpose described.

5. In a harvester-elevator designed to receive the grain from a platform-carrier and elevate it to a plane above the drive-wheel between two moving carriers, the combination of an upper carrier comprising two primary members, the lower member being supported at its lower end upon pivotal supports located above the delivery end of the platform-carrier and having its upper end extended upward, the upper member jointed at its lower end to the upper end of the lower member.

6. In a harvester-elevator designed to receive the grain from a platform-carrier and elevate it to a plane above the drive-wheel between two moving carriers, the combination of an upper carrier comprising two primary members, the lower member being supported at its lower end upon pivotal supports located above the delivery end of the platform-carrier, and having its upper end extended upward; the upper member being connected to the lower member by means of links pivoted around the axis of the rear and forward journals of the upper roller of the said lower member and the grainward roller of said upper member, said links being secured to opposite ends of a rock-shaft, substantially as shown and described.

7. In a harvester-elevator adapted to receive the grain from a platform-carrier and elevate it to a plane above the drive-wheel between two moving carriers, the combination of an upper carrier comprising two primary members, the lower member being supported at its lower end upon pivoted supports located above the delivery end of the platform-carrier and having its upper end extended upward, the upper member being connected to the lower member by means of links pivoted around the axis of the rear and forward journals of the upper roller of said lower member and the grainward roller of said upper member, said links being secured to opposite ends of a rock-shaft and supported at their upper ends in the segmental guide-slots substantially as shown and for the purpose described.

8. In a harvester-elevator of the class described, a jointed two-part upper elevator hinged at its lower end to portions of the harvester-frame and adapted to float upon the stream of grain at its upper end substantially as described.

9. In a harvester-elevator of the class described, a jointed two-part upper elevator hinged at its lower end to portions of the harvester-frame and adapted to float upon the stream of grain at its upper end, in combination with a radius-bar connecting the axis of the forward journal of the upper roller of the lower elevator-carrier to the axis of the forward journal of the grainward roller of the upper member of said jointed two-part upper elevator, the pinions upon the outer ends of said journals with the intermediate pinions carried by said radius-bar substantially as and for the purpose described.

10. In a harvester-elevator adapted to receive the grain from the delivery end of a platform-carrier and elevate it between two moving surfaces to a plane above the drive-wheel, an upper elevator-carrier comprising two primary members that have the axes of their driving-rollers connected by links secured to opposite ends of a rock-shaft and having portions of the upper member of said upper elevator-carrier frame adapted to rest against the rock-shaft and limit the downward movement of the stubbleward end of said upper member, substantially as shown and described.

11. In a harvester, an upper elevator-carrier frame comprising two sections having a hinged connection, said compound frame consisting of the metal side sheets 6, 8, 40 and 47, the journal-box plates 7 and 39, secured to the lower ends of the side sheets 6 and 40 and connected by the tension-rod 42; the journal-box plates 21 and 43 secured to the upper ends of the side pieces 6 and 40 and connected by the tension-rod 44; the journal-box plates 20 and 46 secured to the grainward ends of sheets 8 and 47 and connected by the tension-rod 58; the journal-box plates 22 and 56 secured to the stubbleward end of said sheets and connected by the tension-rod 57, the rock-shaft 19 with parts 18 and 45 adapted to receive the extended ends of the journal-boxes forming parts of journal-box plates 21, 43, 20 and 46; the whole arranged and constructed substantially as and for the purpose set forth.

12. In a harvester, an elevator adapted to receive the grain from the platform-carrier and elevate it to a plane above the drive-wheel between two moving carriers, an upper elevator-carrier comprising two primary parts hinged together and adapted to float upon the stream of grain, said upper elevator-carrier supported at its rearward side by the depending bracket-piece 5, in which the lower end of the rear side of the lower member is pivoted, said bracket-piece being secured to the bar 3, said bar being secured to the bracket-piece 4, which is secured to the seat-supporting pipe 2, the portion 18^3, of the part 18, the part 17 secured to the bar 3 and the part 18 supported and guided by the part 17 substantially as shown and described.

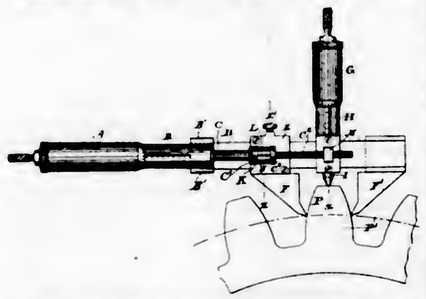
13. In a harvesting-machine, an elevator adapted to receive the grain from the platform-carrier and elevate it to a plane above the drive-wheel between two moving carriers, an upper elevator-carrier composed of two primary parts hinged together, in combination with a supporting-frame having guideways secured thereto and adapted to guide said floating elevator in a manner substantially as and for the purpose described.

14. In a harvester-elevator the frame-piece 48, the journal of the elevator-roller in combination with the journal-box 50, the thimble 51, and the radius-bar 52, pivoted upon the journal-box 50 substantially as described.

15. In a harvester, a moving butt-adjuster in combination with a fixed or stationary bridge or deck extending from a point near the delivery end of the elevator to a point stubbleward of the drive-wheel in a curved form, and having the depressed portion substantially as and for the purpose described.

16. In a harvester in combination with a moving butt-adjuster adapted to swing toward or from the tying mechanism at its delivery end, a curved bridge or deck extending across and bridging the space between the delivery end of the elevators and the movable binder-deck, said curved bridge being provided with a depressed portion approximately in the same plane as the lower surface of said butt-adjuster.

643,080. GEAR-TOOTH CALIPERS. JOSEPH BOGLET, Beverly, Mass. Filed Oct. 30, 1899. Serial No. 735,166. (No model.)



Claim.—1. A caliper, embodying the combination of a supporting frame or bar; a micrometer-attached to the bar; a jaw the movements whereof upon the bar are regulated and measured by said micrometer attachment; a cooperating jaw immovably attached to the bar; a locating-gage mouted upon the bar midway between the jaws and extending at right angles to, and movable laterally upon, the bar; and a micrometer attachment to the locating-gage for regulating and measuring its longitudinal movements; all substantially as set forth.

2. A caliper embodying the combination of a pair jaws, one fixed and the other movable; means for micrometrically adjusting and measuring the movement of the movable jaw; a locating-gage midway between the jaws adjustable at right angles to the movement of the jaw, and also movable in the same direction therewith; means for micrometrically effecting such adjustment of the gage; and means for simultaneously moving the gage with the jaw and in the same direction, but differentially so as to maintain it in a constant central position between the jaws; all substantially as and for the purposes specified.

3. In combination, bar D; jaws F and F', thereon, one fixed and the other movable; locating-gage I, placed centrally between the jaws upon the bar, and being adjustable at right angles to, and arranged to also slide upon, the bar; the threaded spindle C, C^9 constructed and arranged to impart differential movements to jaw F, and gage I, upon the bar, simultaneously and in the same direction; and micrometer devices for measuring and indicating the movements of the jaw and gage; all substantially as specified.

648,081. COUPLING FOR SHAFTS. MILAN C. BULLOCK, Chicago, Ill.; Mary A. Bullock, executrix of said Milan C. Bullock, deceased, assignor to Mary Ann Bullock. Filed Apr. 29, 1898. Serial No. 679,162. (No model.)



Claim.—1. The combination with two shafts arranged end to end and provided with parallel pins or projections, of a flexible belt or band trained over or around said projections and means for adjusting the tension of said belt or band.

2. The combination with two shafts arranged end to end and provided on their adjacent ends with parallel pins or projections, of a flexible belt or band trained over or around said projections, one or more of said pins being adjustable in position with respect to the other for varying the tension upon the said belt or band.

3. The combination with two shafts arranged in alinement with each other and provided at their adjacent ends with parallel projections or pins, of a flexible belt trained over or around said projections, the projections on one shaft being arranged radially within those on the other shaft and one or more of said projections being made radially adjustable to vary the tension on the belt or band.

4. The combination with two shafts arranged end to end and provided on their adjacent ends with parallel pins, of a flexible belt trained over or around said projections, one or more of said pins being connected with its supporting-shaft by means of a rotative cylindric part which is eccentric to that part of the pin which engages the said belt or band.

5. The combination with two shafts arranged end to end and provided with a plurality of pins arranged parallel with the axes of the shafts and on circular lines concentric with the center of the shafts, the pins on one of said shafts being arranged in pairs and the other shaft being provided with single pins located at points circumferentially intermediate to and equidistant from the pins of each of said pairs of pins and an endless flexible belt or band trained over or around said pins.

6. The combination with two shafts arranged end to end, of disks on the adjacent ends of said shafts, driving-pins mounted on said disks, an endless flexible belt or band trained about or over said pins, one or more of the pins of one of the disks being provided with eccentric parts which are mounted in the disk and are adapted to turn therein for adjusting the pin or pins.

7. The combination with two shafts arranged end to end of disks on the adjacent ends of said shafts, pins mounted on each of said disks and an endless flexible belt or band trained around or over said pins, one or more of the pins having an eccentric part which engages the disk and means for locking said eccentric part from rotation in the disk.

648,082. CORE BREAKER AND LIFTER FOR ROCK-DRILLS. MILAN C. BULLOCK, Chicago, Ill.; Mary A. Bullock, executrix of said Milan C. Bullock, deceased, assignor to Mary Ann Bullock. Filed Sept. 22, 1898. Serial No. 691,604. (No model.)

Claim.—1. The combination with a drill-rod of an annular cutting-head which slides endwise with respect to the drill-rod, an expansible core-gripper and means actuated through the endwise movement of the cutting-head acting to hold the core-gripper extended during the operation of drilling



2. The combination with a drill-rod of an annular cutting-head which is movable endwise with respect to the drill-rod, an expansible core-gripper comprising endwise and radially movable gripping-jaws and means actuating said jaws, comprising an inclined surface of the interior of the drill-rod, and connecting means between the cutting-head and said jaws by which the latter are moved with respect to the inclined surface in the endwise movement of said cutting-head.

3. The combination with a drill-rod of an annular cutting-head which is movable endwise with respect to the drill-rod, a spring applied to extend the cutting-head, an expansible core-gripper and actuating means for the core-gripper embracing operative connections with the cutting-head, whereby the core-gripper id contracted when the cutting-head is thrown outwardly by said spring, and extended when said cutting-head is forced inward by pressure against the rock in drilling.

4. The combination with a drill-rod of an annular cutting-head which is movable endwise with respect to the drill-rod, a spring applied to extend the cutting-head, an expansible core-gripper and means for actuating said core-gripper, embracing an inclined surface on the drill-rod and a connection between the moving parts of the gripper and the cutting-head by which the said moving parts are actuated through the endwise movement of the cutting-head.

5. The combination with a drill-rod provided with an inclined interior surface, of an annular cutting-head which is movable endwise with respect to the drill-rod, an expansible core-gripper, embracing jaws which engage and slide endwise upon said inclined surface of the core-barrel and an operative connection between said cutting-head and said jaws, acting to move the said jaws within the drill-rod when the cutting-head is moved with respect to said drill-rod.

6. The combination with a drill-rod provided with an interior inclined surface, of an annular cutting-head which is movable endwise with respect to said drill-rod, an expansible core-gripper, embracing jaws which engage said inclined surface of the drill-rod, connecting means between the cutting-head and jaws acting to move said jaws endwise with the cutting-head and a spring applied between the cutting-head and the drill rod to extend the cutting-head.

7. The combination with a drill-rod provided with an interior inclined surface, of an annular cutting-head which is movable endwise with respect to the drill-rod, a core-gripper, embracing jaws which engage and slide endwise upon said inclined surface, and a sliding sleeve connecting said jaws with the said cutting-head.

8. The combination with a drill-rod provided with an interior inclined surface, of an annular cutting-head which is movable endwise with respect to the drill-rod, a core-gripper, embracing jaws which engage and slide endwise upon said inclined surface, a sliding sleeve connecting said jaws with the said cutting-head, and an actuating-spring applied between the said sleeve and the drill-rod.

9. The combination with the drill-rod of an annular cutting-head provided with a longitudinally-grooved sleeve which has sliding engagement with a notched flange on the drill-rod, a core-gripper and actuating means for operating the core-gripper through the endwise movement of the cutting-head with respect to the drill-rod.

10. The combination of a tubular drill-rod provided with an interior tapered surface and with a notched flange at its lower end, of an annular cutting-head provided with a longitudinally-grooved sleeve which has sliding engagement with said notched flange, a gripping device, embracing jaws which slide upon said inclined surface, and connecting means between the jaws and said cutting-head for actuating the former from the latter.

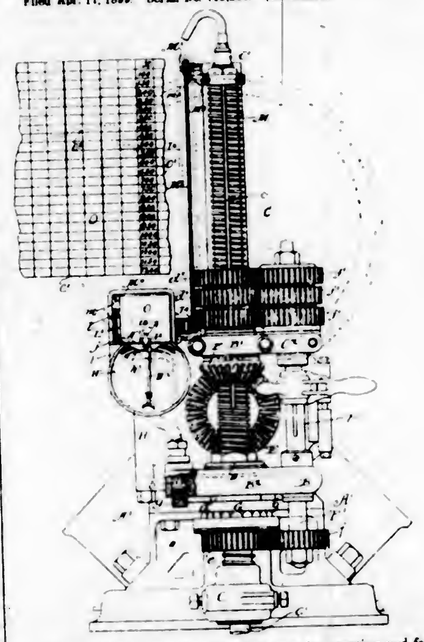
11. The combination of a tubular drilling-rod provided with an interior tapered surface, an annular cutting-head which has endwise-sliding engagement with the drill-rod, a sliding sleeve within the drill-rod engaging with said cutting-head and provided with openings for gripper-jaws, and gripper-jaws engaging with said openings and bearing against the inclined surface of the drill-rod.

12. The combination with a drill-rod provided with an interior conical surface, an annular cutting-head having endwise-sliding engagement with the drill-rod, a sliding sleeve engaging with the cutting-head and provided with an opening for gripping-jaws, gripping-jaws which engage said openings and bear against the said inclined surface, and a coiled spring surrounding said sleeve and bearing at one end against a shoulder on the drill-rod and at its opposite end against a shoulder on said sleeve.

13. The combination with a drill-rod provided with an interior tapered surface, a drill-head having endwise-sliding engagement with said drill-rod, a sliding sleeve connected with said drill-head and provided with openings to engage clamping-jaws, clamping-jaws to bear against the said inclined surface and engage said openings, said clamping-jaws being provided with inclined surfaces adapted for engagement with said sliding sleeve and acting to throw outwardly the clamping-jaws when the cutting-head and sleeve are thrust inwardly

648,083. THRUST-REGISTER FOR DRILLING-MACHINES.

MARY A. BULLOCK, Chicago, Ill., executrix of Milan C. Bullock, deceased. Filed Apr. 17, 1899. Serial No. 713,261. (No model.)



Claim.—1. The combination with means for rotating and feeding forward a drill-rod, of a thrust-recording mechanism comprising a record-strip-actuating device operated by the drill-feeding mechanism, and a pencil-actuating device, which has operative connection with a movable part subject to the end thrust of the drill-rod, substantially as described.

2. The combination with means for rotating and feeding forward a drill-rod, of a thrust-recording mechanism comprising a record-strip-actuating device operated by the drill-feeding mechanism, and a pencil-actuating mechanism embracing an inclosure for liquid provided

with a movable part or wall subject to the end thrust of the drill-rod, and a pressure-gage connected with said inclosure, substantially as described.

3. The combination with means for rotating and feeding forward a drill-rod, of a thrust-recording mechanism, comprising a record-strip-actuating device operated by the drill-feeding mechanism, and a pencil-actuating mechanism embracing a cylinder, a piston therein which is subject to the end thrust of the drill-rod, and a pressure-gage connected with the said cylinder, substantially as described.

4. The combination with means for rotating and feeding forward a drill-rod, of a thrust-recording mechanism, comprising a record-strip-actuating device operated by the drill-feeding mechanism, and a pencil-actuating mechanism embracing an inclosure for liquid provided with a movable part subject to the end thrust of the drill-rod, a pressure-gage, a movable carriage for the pencil, and a connection between the movable part of the pressure-gage and said carriage, substantially as described.

5. The combination, with means for rotating and feeding forward a drill-rod, embracing a reciprocating part which is detachably engaged with the drill-rod to carry the same forward, of a thrust-recording mechanism comprising a record-strip-actuating device, connected with and operated by the said reciprocating part, and a pencil-actuating mechanism which has operative connection with a part subject to the end thrust of the drill-rod, substantially as described.

6. The combination, with means for rotating and feeding forward a drill-rod, embracing a reciprocating part, which is detachably engaged with the drill-rod to advance the same, of a record-strip-actuating device, connections between the same and a part which moves endwise with the said reciprocating part embracing two pulleys and a belt passing over the same, and pencil-actuating mechanism which has operative connection with a part subject to the end thrust of the drill-rod, substantially as described.

7. The combination with means for rotating and feeding forward a drill-rod embracing a reciprocating part, which is detachably engaged with the drill-rod to advance the same, of a record-strip-actuating device, comprising an actuating-cylinder over which the record-strip passes, and gearing connecting the said cylinder with said reciprocating part, and pencil-actuating mechanism which has operative connection with a part subject to the end thrust of the drill-rod, substantially as described.

8. The combination, with means for rotating and feeding forward a drill-rod, embracing a reciprocating part, which is detachably engaged with the drill-rod to advance the same, of a record-strip-actuating device operated by said reciprocating part, and embracing a ratchet connection by which the record-strip is moved in the advance of said reciprocating part only, and a pencil-actuating mechanism which has operative connection with a part subject to the end thrust of the drill-rod, substantially as described.

9. The combination with means for rotating and feeding forward a drill-rod embracing a reciprocating part, which is detachably engaged with the drill-rod to advance the same, of a record-strip-actuating device, embracing two pulleys, and a belt which passes over the same and is connected with said reciprocating part by a ratchet connection and pencil-actuating mechanism which has operative connection with a part subject to the end thrust of the drill-rod, substantially as described.

10. The combination with means for rotating and feeding forward a drill-rod embracing a reciprocating part which is detachably engaged with the drill-rod to advance the same, of a record-strip-actuating device embracing an actuating-cylinder, a shaft connected by toothed gears with the cylinder, a pulley on the shaft connected therewith by a ratchet, operative connections between said pulley and said reciprocating part, and pencil-actuating devices having operative connection with a part which is subject to the end thrust of the drill-rod, substantially as described.

11. The combination with means for rotating and feeding forward a drill-rod embracing a reciprocating part, which is detachably engaged with the drill-rod to advance the same, of record-strip-actuating mechanism which is connected with and actuated by said reciprocating part, and pencil-actuating mechanism embracing an inclosure for liquid provided with a movable part subject to the end thrust of the drill-rod and a pressure-gage connected with said inclosure, substantially as described.

12. The combination with means for rotating and feeding forward a drill-rod embracing a reciprocating part which is detachably engaged with the drill-rod to advance the same, of record-strip-actuating mechanism which is connected with said reciprocating part through the medium of a pawl-and-ratchet connection, and pencil-actuating mechanism embracing an inclosure for liquid provided with a movable part subject to the end thrust of the drill-rod and a pressure-gage connected with said inclosure, substantially as described.

13. The combination with means for rotating and feeding forward a drill-rod, embracing a reciprocating part which is detachably engaged with the drill-rod to advance the same, of record-strip-actuating mechanism connected with said reciprocating part through the medium of a pawl-and-ratchet connection and pencil-actuating mechanism embracing an inclosure for liquid provided with a movable part subject to the end thrust of the drill-rod, a pressure-gage, a movable support for the pencil, and connections between the moving part of the gage and the pencil-support, substantially as described.

14. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with a movable part subject to the end thrust of the drill-rod, and a counterbalance for the drill-rod, substantially as described.

15. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with a movable part subject to the end thrust of the drill-rod, a counterbalancing-weight, a rope connecting the same with a drill-rod or casing-tube, and a swivel-joint between the rope and the drill-rod or casing-tube, substantially as described.

16. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with a movable part subject to the end thrust of the drill-rod, a counterbalancing-weight, a rope, and means connecting the same with the drill-rod comprising a swivel-joint and a gimbal or universal joint, substantially as described.

17. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with a movable part subject to the end thrust of the drill-rod, a counterbalancing-weight, a rope connecting the same with the drill-rod, a swivel-joint connecting the rope with the drill-rod, and stationary guides engaging the non-rotating part of the swivel-joint, to hold the same from turning, substantially as described.

18. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with a movable part subject to the end thrust of the drill-rod, a counterbalance-rope, a swivel-joint, connecting the rope with the drill-rod said swivel-joint being provided with antifriction rollers or balls, between the opposing surfaces of its relatively-movable parts, substantially as described.

19. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with the movable part, subject to the end thrust of the drill-rod, a counterbalance-weight, a rope connecting the same with the drill-rod, a swivel-joint connecting the rope with the drill-rod and a water hose or pipe communicating with the drill-rod through the swivel-joint, substantially as described.

20. The combination with means for rotating and feeding forward a drill-rod, of a record-strip-actuating device operated by the feeding mechanism, a pencil-actuating mechanism which has operative connection with the movable part subject to the end thrust of the drill-rod, a counterbalance-weight, a rope attached to the weight, a swivel-joint connected with the rope and having an interior revolving part or sleeve attached to the drill-rod, a non-rotating tube having a water-tight joint with the said sleeve and a water pipe or hose connected with the said tube, substantially as described.

21. The combination with a drill-rod, a drilling-machine for actuating the same and a counterbalance-rope, of a sleeve attached to the drill-rod, a shell surrounding the same provided with trunnions, a second external shell engaged with the said trunnions, and also provided with trunnions, and a bail or stirrup attached to the rope and engaged with the trunnions of the outer shell, substantially as described.

22. A combined swivel, water and gimbal joint for drill-rods, comprising a sleeve attached to the drill-rod, a shell surrounding the sleeve and provided with trunnions, a second external shell having bearing-recess for said trunnions, and also provided with trunnions, a bail engaged at its ends with the trunnions of the outer shell, a water-tube inserted within the said sleeve, and a gland or packing to make a tight joint between the sleeve and water-tube, substantially as described.

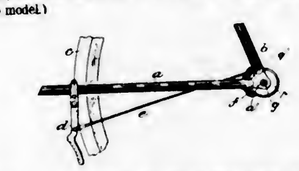
23. A combined swivel and gimbal joint for a drill-rod, comprising a sleeve attached to the drill-rod, a shell surrounding said sleeve provided with a shoulder above the said shell, antifriction-rollers between said shoulder and an opposing surface of the shell, an exterior shell provided with bearing-recesses to receive the trunnions of the inner shell, said exterior shell being also provided with trunnions, and a bail or stirrup engaging the trunnions of said outer shell, substantially as described.

24. A combined swivel, gimbal and water joint for a drill-rod, comprising a sleeve attached to the drill-rod, a shell surrounding said sleeve, a shoulder on the sleeve above the said shell, antifriction-rollers located between the said shoulder and an opposing surface of the shell, an exterior shell provided with bearing-recesses to receive the trunnions of the inner shell, said exterior shell being also provided with trunnions, a bail or stirrup engaging the trunnions of said outer shell, and a non-rotating water-tube located inside of said sleeve and projecting from the top of the same, said sleeve being provided with a gland or packing, making a tight joint between said sleeve and the water-tube, substantially as described.

643,084. PAPER-MAKING. WILLIAM S. COLGROVE, Dowling, Ohio, assignor of one-fourth to Frederick H. Schroder, Pemberville, Ohio. Filed Sept. 3, 1898. Serial No. 690,502. (No specimens.)

Claim.—As a new manufacture, safety-paper adapted both to printing and writing, sensitized as to acids by immersion in a weak and cold solution of commercial lye and soluble indigo, without further bleaching or dyeing of the paper, and then cold-dried, all substantially as and for the purposes hereinbefore fully described.

643,085. BACK-PEDALING BRAKE. JAMES S. COPELAND, Hartford, Conn., assignor to the American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed July 21, 1899. Serial No. 724,652. (No model.)



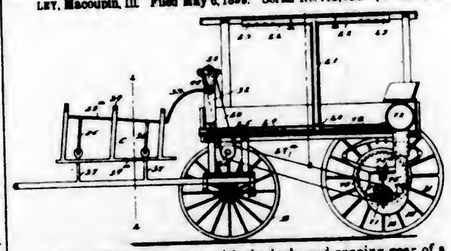
Claim.—1. In a driving and brake mechanism, in combination, a fixed axle, a carrier-sleeve mounted to turn on the axle, a gear-wheel secured to one end of the carrier-sleeve, a carrier mounted at the other end of the sleeve with ratchet-sockets extending therethrough, a clutch member with ratchet recesses on one side of the carrier and fastened to the hub of the driving-wheel, a second clutch member with ratchet-recesses and connected to a brake-operating lever, a brake connected to said brake-lever, and free-moving pawls borne in the sockets in said carrier and adapted to engage the ratchet-recesses in each of the driven clutch members.

2. In a driving and brake mechanism, in combination, a fixed axle, a carrier-sleeve mounted to turn on the axle and extending lengthwise thereof, a gear-wheel secured to one end of the carrier-sleeve, a carrier mounted at the other end of the sleeve with pawl-sockets extending therethrough, a clutch member with ratchet-recesses on one side of the carrier and fast to the driving-wheel hub, a second clutch member with ratchet-recesses and connected to a brake-operating lever, a tire-brake supported on the vehicle-frame, means connecting said tire-brake and the brake-operating lever, and free-moving gravity-operated pawls borne in the sockets in the carrier and adapted to engage the ratchet-recesses in each of the driven clutch members.

3. In a driving and brake mechanism, in combination, a vehicle-frame, a fixed axle, a sectional cone-sleeve borne on the axle, cones located near opposite ends of said sleeve, a carrier-sleeve rotatably mounted on the sectional sleeve, a bevel-gear secured to one end of the carrier-sleeve, a carrier mounted on the other end of the sleeve with pawl-sockets extending therethrough, a clutch member located concentric with the carrier, having clutch-recesses and secured to the driving-wheel hub, a second clutch member with ratchet-recesses and located concentric with the carrier, a brake-operating lever, a brake mechanism, means connecting the brake mechanism and the operating-lever, and free-moving pawls located in the sockets in the carrier and adapted to engage the ratchet-recesses in each of the respective driven clutch members.

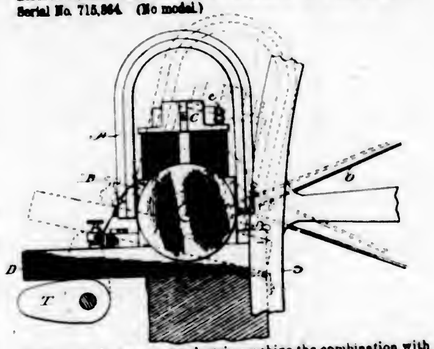
4. In a driving and brake mechanism, in combination, a fixed axle, a sectional cone-sleeve borne on the axle and means for adjusting the two sections on each other, cones located near opposite ends of said cone-sleeve, a carrier-sleeve rotatably mounted on the sectional sleeve, a bevel-gear secured to one end of the carrier-sleeve, a carrier mounted at the other end of the sleeve with pawl-sockets extending therethrough, driven clutch members located on opposite sides of the carrier and each having clutch-recesses registering with opposite ends of the sockets through the carrier, one of said driven clutch members secured to the driving-wheel hub, the other of said driven clutch members operatively connected to a brake mechanism, the brake, and free-moving gravity-operated pawls located in the sockets in the carrier and adapted to engage the ratchet-recesses in each of the respective driven clutch members.

643,086. APPARATUS FOR DISTRIBUTING AIR. JAMES CURLEY, Macoupin, Ill. Filed May 6, 1899. Serial No. 715,784. (No model.)



Claim.—The combination, with the body and running-gear of a vehicle, a gear secured to a supporting-wheel of the running-gear, a shaft driven from the said gear, a fan-casing in which a portion of the shaft is journaled, and a fan located on said shaft within the casing, of a reservoir on the body of the vehicle, a supply-pipe extending from the reservoir and having a sliding connection with the fan-casing, pipes connected with the reservoir and extending along the bottom of the vehicle-body out through the dashboard, the outer ends of the pipes being open, whereby a current of air is secured to the team, upright pipes likewise connected with the reservoir, and lateral branches at the upper portion of the upright pipes, which lateral branches are closed at their ends and provided with valves and with apertures in their inner faces, as and for the purpose specified.

643,087. ELECTRIC GENERATOR FOR SPARKING APPARATUS OF GAS-ENGINES. DANIEL DRAWBAUGH, Eberly's Mills, Pa., assignor of three-fourths to David B. Hoffer, Lebanon, Jacob R. Shettle, Shepherdstown, and Henry B. Eberly, Shiremanstown, Pa. Filed May 6, 1898. Serial No. 715,864. (No model.)



Claim.—1. In a magneto-electric machine the combination with the pole-pieces, electromagnets for exciting the same and permanent magnets embracing the said pole-pieces, of an armature formed with magnetic cores arranged end to end longitudinally of the axis of rotation, said cores having pole-pieces arranged at right angles to each other; substantially as described.

2. An armature for magneto-electric machines formed of separate magnetic cores open at the ends for the reception of the coil-wire, and a non-magnetic connecting-piece uniting said cores end to end and with the poles in different angular positions; substantially as described.

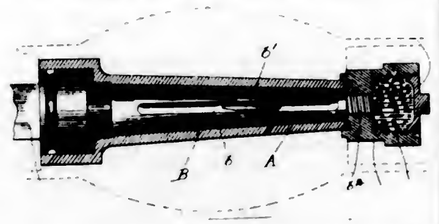
3. In a magneto-electric machine, the combination with the field-magnets, of an armature formed with independent magnetic cores open at the ends and secured together end to end with their poles at right angles to each other, by an intermediate section, and end sections secured to the outer ends of the cores; substantially as described.

4. In a magneto-electric machine, the combination with the pole-pieces and the electromagnets for exciting the same, of permanent magnets extending over and inclosing the electromagnets and an armature between the pole-pieces; substantially as described.

5. In a magneto-electric machine, the combination with the pole-pieces and the armature located between such pole-pieces, of field-electromagnets extending upwardly from the top of said pole-pieces, and field permanent magnets extending upwardly from the outer faces of the said pole-pieces and inclosing the field-electromagnets; substantially as described.

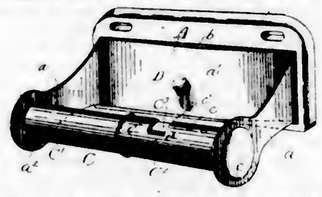
6. In a sparking magneto-electric machine for gas-engines, the combination with the field-magnets, of an armature of independent high and low speed drive-gear for said armature and means for establishing the connection with the motive power through either, whereby in starting the armature may be speeded up to generate a spark before the engine attains normal speed; substantially as described.

643,088. LUBRICATING DEVICE. GEORGE T. GLOVER, Chicago, Ill. Filed June 4, 1897. Serial No. 639,442. (No model.)



Claim.—The combination of a wheel-axle having a longitudinal groove formed upon its upper surface, and having also a straight and oblique duct *b'* which leads upwardly from its end and which opens into the said groove at a point between the latter's ends; and a hollow retaining-nut screwed upon the end of said axle, and provided with an adjustable plug whereby the oil in the nut may be forced through the said straight and oblique duct *b'* and from the latter into the aforesaid longitudinal groove.

643,089. PAPER-FIXTURE. HINKLEY R. GURNEY, Chicago, Ill. Filed Dec. 12, 1898. Serial No. 699,018. (No model.)



Claim.—1. A fixture of the class described, comprising a sheet-metal plate having its end portions bent forward from its middle portion to form the side arms of the fixture, a roll-support carried by said side arms adapted to permit the approach of the latter toward each other to engage rolls of varying length, whereby said arms act as brakes upon the end surface of the roll, and means for adjustably varying the tension of the side arms on the ends of the inserted roll.

2. The combination with a base, of a sheet-metal plate secured to the base with its ends bent forwardly therefrom to form side arms projecting rigidly from the base, a roll-support carried by said side arms, and means mounted upon the base for adjustably distorting said plate to vary the normal distance between said side arms to vary their tension on the ends of the inserted roll.

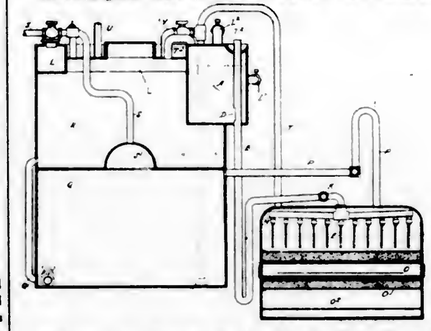
3. The combination with a base, of a sheet-metal plate having its ends bent forward away from the base to form the side arms of the fixture, said plate engaging the base at two points and being separated therefrom between said points, an adjusting-screw applied between the plate and base between said points of contact, and a roll-support carried by said side arms.

4. The combination with a base, of a sheet-metal plate having its end portions bent forward from said base, the plate bearing against the base at points adjacent to its angles, an adjustable clamping-screw applied between the plate and base between said bearing-points, and roll-supports carried by said side arms.

5. In a fixture of the class described, the combination with a base having side arms projecting therefrom, apertures in the ends of said side arms, a roll-support made in two sections separable at a point between the arms each mounted to slide endwise through the aperture of one of said side arms, and each provided at its outer end with a stop positively limiting its movement through the arm, and means for detachably interlocking said sections, said interlocking mechanism being constructed to positively limit the extension of the roll-support, substantially as described.

6. The combination with a base provided with forwardly-projecting side arms, and a roll-supporting shaft comprising telescoping tubular parts loosely mounted in said side arms to slide endwise therein, a catch inside of one of said parts adapted to detachably engage the other part, and an aperture in the wall of the part containing said catch through which the latter may be pressed to release the other part.

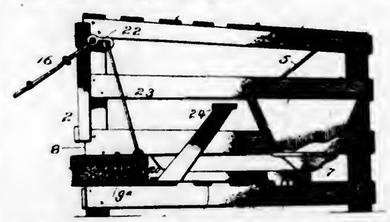
643,090. ACETYLENE-GAS GENERATOR. HENRY HAWKINS, London, England. Filed Sept. 12, 1899. Serial No. 730,277. (No model.)



Claim.—1. In a device of the character described, a closed water-chamber, a feed-pipe passing therethrough with an opening forming an outlet for the water-chamber, said feed-pipe being open to the atmosphere at its upper end and having a gooseneck formed at its lower end, a generator into which the feed-pipe discharges, a receiver connected with the generator, a compartment above the receiver and connected therewith, a water-sealed safety-pipe leading from the generator to the compartment and a vent-pipe to the compartment, substantially as described.

2. In a device of the character described, a water-chamber, an auxiliary water-tank communicating therewith, a feed-pipe passing through the water-chamber and provided with an opening forming an outlet for said water-chamber, said feed-pipe being open to the atmosphere at its upper end and having a gooseneck formed at its lower end, a generator into which the feed-pipe discharges, a receiver communicating with the generator, a compartment located above the receiver and communicating therewith, said receiver and compartment containing water, a dome formed in the upper part of the receiver, a service-pipe leading from the dome, a safety-pipe connected to the generator at one end, a vertical tube containing water in which the other end of the safety-pipe is submerged, a box formed at the upper end of the tube, a pipe connecting the box with the compartment, a valved pipe connecting the safety-pipe with the compartment, and a suitable vent to the compartment, substantially as described.

643,091. NEST FOR POULTRY. JOHN W. HAYS, Oklahoma, Okla., assignor of one-half to J. H. Markwell, same place. Filed Sept. 20, 1899. Serial No. 731,094. (No model.)

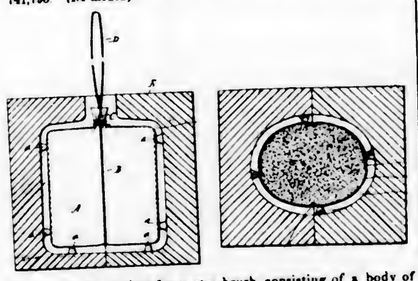


Claim.—1. In a nest, the combination of a casing or inclosing framework, a tilting platform arranged therein and pivoted between its ends and provided with journals at its rear end, supporting-rods connected to the casing, and a nest arranged above the platform and jointed at its top to said rods and provided on its under side with notched bearings engaging said journals, substantially as described.

2. In a nest, the combination of a casing or inclosing framework having a door-opening, a tilting platform arranged therein and pivoted between its ends and provided at its front end with a closed box

for the reception of weights and at its rear end with lower journals having bearing in the casing and also with upper journals, a hinged door controlling said door-opening and comprising a frame having crank-arms, connecting-rods jointed at their upper ends to said crank-arms and at their lower ends to said box, pendent supporting-rods connected to the casing at the rear thereof, and a rest arranged above the platform and jointed at its top to said rods and provided on its under side with notched bearings engaging said journals, substantially as described.

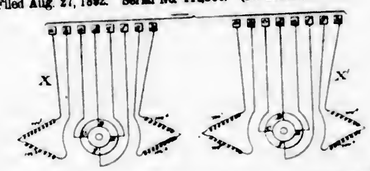
643,092. ANCHOR FOR OYSTER-BRUSH. ANDREW B. HENDRYX, New Haven, Conn., assignor to the New Haven Oyster Company, same place and Jersey City, N. J. Filed Dec. 28, 1899. Serial No. 741,793. (No model.)



Claim.—1. An anchor for oyster-brush consisting of a body of sand inclosed in a casing of cement, substantially as described.

2. An anchor for oyster-brush comprising a body of sand temporarily inclosed, wires secured to said closure and extending upward above the same, and a casing of cement surrounding said body of sand, substantially as described.

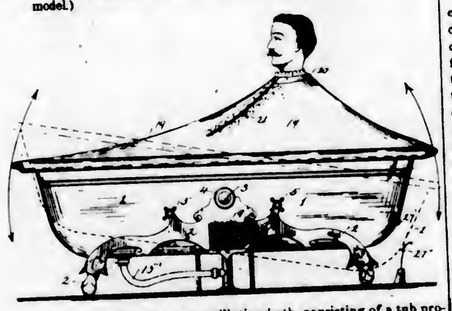
643,098. ELECTRIC MOTOR. JOHN C. HENRY, Westfield, N. J. Filed Aug. 27, 1892. Serial No. 444,306. (No model.)



Claim.—1. The combination with two electric motors each having pairs of pole-pieces of a switch arranged to connect said motors in series or in parallel and to alter them from bipolar to four-poled, or vice versa, substantially as described.

2. The combination with two electric motors each having four pole-pieces and four commutator-brushes of a switch arranged to connect said motors in series or in parallel and to alter them from bipolar to four-poled, or vice versa, substantially as described.

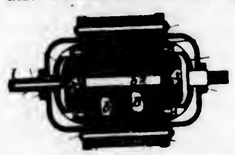
648,094. ROCKING OR OSCILLATING BATH-TUB. OTTO A. HENSEL, Pittsburg, Pa. Filed Jan. 6, 1899. Serial No. 701,377. (No model.)



Claim.—1. A rocking or oscillating bath, consisting of a tub provided with trunnions cast integral therewith, one of which is formed with a central bore whereby connection may be formed with a water-supply pipe, a frame for supporting the said tub, a flexible drain-pipe leading from the bottom of the tub, a lock or catch arranged in the frame for the purpose of engaging with the tub to hold the same stationary in its bearings, and a detachable cover arranged about the periphery of the tub to confine the water therein, and a means for holding the said cover in position, substantially as described.

2. A cover or apron for a rocking or oscillating bath-tub such as described, consisting of the flexible waterproof fabric 19 having an elastic band about its periphery, the opening 20 formed therein, the vent leading from the said opening 20, a folding tongue fitted to the said vent, suitable lacing 21, for closing the vent, the elastic band 26 about the periphery of the cover, and the inner webs 19' attached to the inside of the apron and provided with springs 25 to press the said webs against the inner walls of the tub, all arranged and combined for service substantially as and for the purpose described.

643,095. MAGNETO-ELECTRIC LIGHTING APPARATUS FOR BICYCLES. SIDNEY L. HOLDERER, Boston, Mass., assignor, by mesne assignments, to the Dowd Electrical Company, New York, N. Y. Filed June 30, 1898. Renewed Jan. 15, 1900. Serial No. 1,423. (No model.)

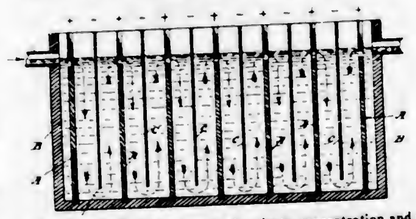


Claim.—1. The field-magnet above described made up of a magnetic cylinder secured between two caps of non-magnetic material each having an axial bore, and an inner concave surface, substantially as described.

2. In combination a cylindrical compound magnet; a cylindrical case holding the magnet; and two concavo-convex caps of non-magnetic material each with an axial bore, and each secured to the cored magnet with its concave surface next to the magnet, substantially as described.

3. In combination a magneto-generator; the springs G; means for connecting one arm of each spring with the frame of the generator; and means for connecting the other arm of each spring to a vehicle, all substantially as described.

643,096. PROCESS OF RECOVERING GOLD AND SILVER FROM CYANID SOLUTIONS BY ELECTROLYSIS. SAMUEL B. CHRISTY, Berkeley, Cal. Filed Feb. 9, 1898. Serial No. 669,615. (No specimens.)

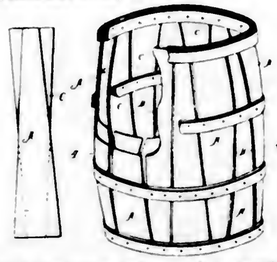


Claim.—The process of progressive electroconcentration and recovery of gold and silver contained in the large volumes of dilute cyanid solutions containing free alkali resulting from the extraction of gold and silver ores, tailings and concentrates, which consists—first, in depositing the gold and silver electrolytically from said solution upon removable cathodes sufficiently numerous and large in area to secure efficient deposition, and second, in making said removable original cathodes successively anodes in a smaller volume of cyanid solution and transferring and depositing electrolytically the thin film of gold and silver, already distributed over a large number of said original cathodes, upon a smaller number of secondary cathodes, also contained in said smaller volume of cyanid solution.

REISSUES.

11,808. BARREL. ROBERT T. HARGROVES, Churchland, Va. Filed Nov. 23, 1899. Serial No. 738,116. Original No. 619,686, dated Feb. 14, 1899.

Claim.—1. A barrel comprising wedge-shaped staves arranged in pairs face to face alongside each other and reversed end to end whereby the narrow end of each stave lies next to the wide end of the adjacent stave substantially as set forth.



2. A barrel having a circular series of stave-sections arranged edgewise alongside each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave next to the narrow ends of the adjacent staves the series extending throughout the circle of the barrel whereby there are provided at the ends of the barrel, circles of alternating wide and narrow stave ends substantially as set forth.

3. A barrel composed of inner and outer circular series of stave-sections, the stave-sections of one series arranged edgewise alongside of each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave-section next to the narrow ends of adjacent stave-sections, substantially as set forth.

4. A barrel composed of inner and outer circular series of stave-sections arranged for the stave-sections of one series to have engagement laterally with the stave-sections of the other series, the outer series of stave-sections arranged edgewise alongside of each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave-section next to the narrow ends of adjacent stave-sections, substantially as described.

5. A barrel composed of inner and outer circular series of stave-sections, the stave-sections of the inner series arranged alongside of each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave section next to the narrow ends of the adjacent stave-sections, substantially as described.

6. A barrel composed of inner and outer circular series of stave-sections arranged with the stave-sections of one series in lateral engagement with the stave-sections of the other series, the stave-sections of one series being arranged alongside of each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave-section next to the narrow ends of the adjacent stave-sections, both series extending throughout the circle of the barrel, whereby there are provided at the ends of the barrel circles of alternating wide and narrow stave ends, substantially as set forth.

7. In a barrel substantially as described a composite stave composed of stave-sections fitted face to face and gradually decreasing in width from one end to the other, the narrow end of one stave lying next to the wide end of the other stave of said composite stave substantially as set forth.

8. A barrel composed of inner and outer series of stave-sections made wedge shape and arranged with the staves of each layer having the wide end of one stave next to the narrow end of the adjacent staves and the staves of the outer layer reversed end to end with respect to the staves of the inner layer which said outer staves overlie substantially as set forth.

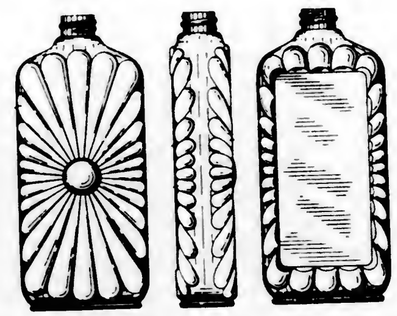
9. The improved barrel herein described composed of inner and outer layers of stave-sections, each section being made wider at one end and decreasing in width toward its opposite end and the stave-sections of each layer being arranged edgewise with the wide end of one next to the narrow end of the adjacent sections and the stave-sections of the outer layer being reversed end to end with respect to the section of the inner layer which it overlies, and the end and quarter hoops all substantially as and for the purposes set forth.

10. A barrel having one series of wedge-shaped staves, arranged in reverse relation to each other, with the broad end of one stave next to the narrow end of the next in series, in combination with a series of staves, the end portions of which overlap the end portions of such wedge shaped staves, substantially as described.

11. A barrel composed of two concentric series of staves, one of said circular series comprising wedge-shaped sections arranged edgewise alongside each other and gradually decreasing in width from one end toward the other and arranged with the wide end of one stave of one series next to the narrow ends of the adjacent staves in the same series whereby there are provided at the ends of the barrel circles of alternating wide and narrow stave ends, substantially as described.

DESIGNS.

32,185. BOTTLE. FRANK SCHILLING, Muncie, Ind. Filed Jan. 11, 1900. Serial No. 1,149. Term of patent 7 years.



Claim.—The design for a bottle, substantially as shown and described.

32,186. BOTTLE-CASE. HOMER WORDEN, New York, N. Y. Filed Dec. 30, 1899. Serial No. 742,172. Term of patent 7 years.



Claim.—The design for a bottle-case substantially as herein described and shown.

32,187. NECK-BAND FOR VESSEL-CARRYING DEVICES. JOSEPH RITTENHOUSE, Philadelphia, Pa. Filed Oct. 25, 1899. Serial No. 734,782. Term of patent 14 years.



Claim.—The design for a neck-band for vessel-carrying devices as herein shown and described.

32,188. FILE-CLEANER. CALVIN JACKSON, Philadelphia, Pa. Filed May 26, 1899. Serial No. 718,447. Term of patent 7 years.



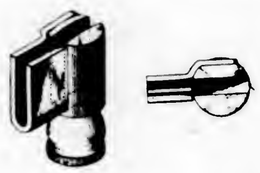
Claim.—The design for a file-cleaning tool substantially as shown and described.

32,189. WASTE-PIPE CLEANER. EMMA E. MYERS, Pittsburg, Pa. Filed Dec. 7, 1899. Serial No. 739,583. Term of patent 7 years.



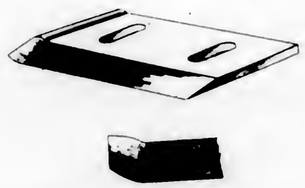
Claim.—The design for a waste-pipe cleaner, substantially as herein shown and described.

32,190. BINDING AND CONTACT POST FOR KNIFE-SWITCHES. HARRY T. JOHNSON, Jersey City, N. J. Filed Jan. 3, 1900. Serial No. 735. Term of patent 14 years.



Claim.—The design for a contact and binding post for a knife-switch herein shown and described.

32,191. CUTTING-BLADE. JOHN W. FULLER, Dalton, Mass., assignor of three-fourths to Hugh F. Ward and Henry A. Barton, same place, and Jacob R. Ackerman, Boston, Mass. Filed Jan. 5, 1900. Serial No. 517. Term of patent 14 years.



Claim.—The design for a cutting-blade, substantially as shown and described.

32,192. MEMBER FOR REPAIR-LINKS. WILLIAM W. STEGALL, Dickens, Tex. Filed Jan. 11, 1900. Serial No. 1,152. Term of patent 14 years.



Claim.—The design for a member of a repair-link, substantially as herein shown and described.

32,193. SNAP-HOOK MEMBER. JAMES C. COVERT, Watervliet, N. Y. Filed Dec. 19, 1899. Serial No. 740,948. Term of patent 14 years.



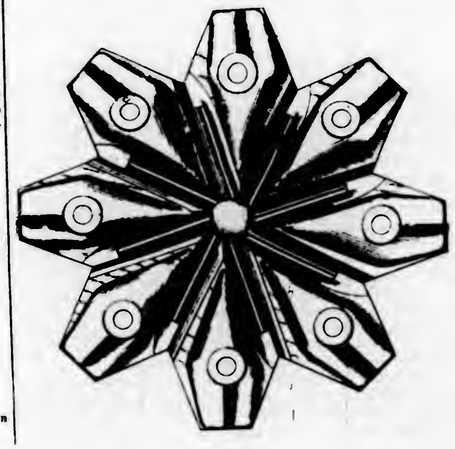
Claim.—The design for a snap-hook member, substantially as shown and described.

32,194. ROPE-FASTENER. CHARLES A. CONGER, Oakland, Cal. Filed Dec. 23, 1899. Serial No. 741,475. Term of patent 7 years.

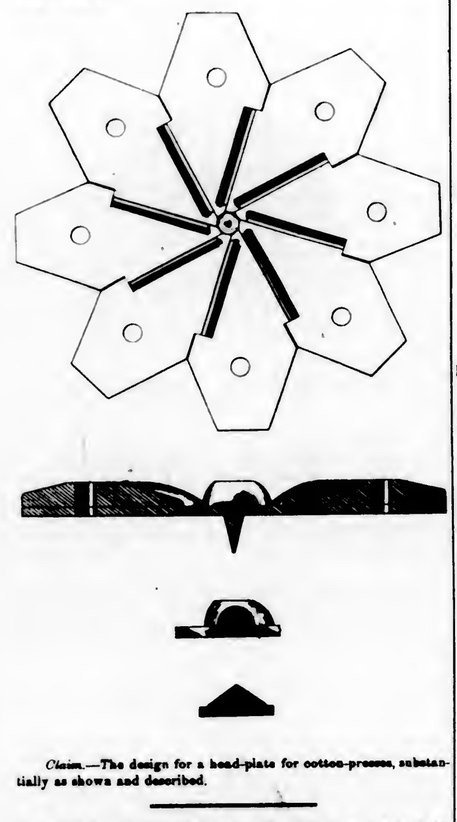


Claim.—The design for a rope-fastener, as herein shown and described.

32,195. HEAD-PLATE FOR COTTON-PRESSES. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed Oct. 2, 1899. Serial No. 732,411. Term of patent 14 years.

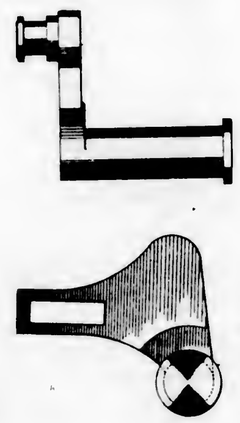


32,195.



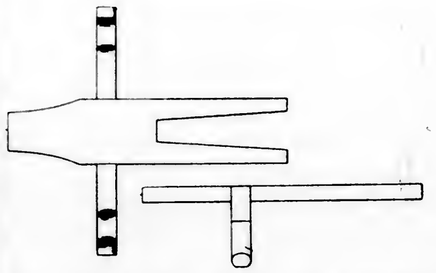
Claim.—The design for a head-plate for cotton-presses, substantially as shown and described.

32,196. CRANK. HORACE SEE, New York, N. Y. Filed Dec. 29, 1899. Serial No. 742,000. Term of patent 14 years.



Claim.—The design for a crank substantially as shown and described.

32,197. FIFTH-WHEEL SUPPORT. MARTIN L. SENDERLING, Jersey City, N. J. Filed Oct. 26, 1899. Serial No. 735,120. Term of patent 14 years.



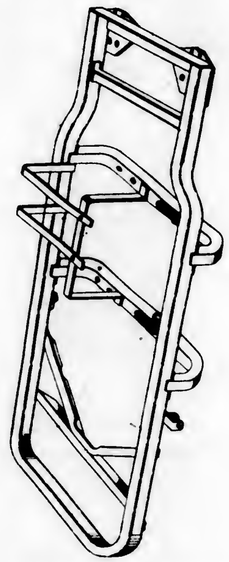
Claim.—The design for a fifth-wheel support, substantially as herein shown and described.

32,198. BODY FOR AUTOMOBILES. CHARLES R. HARRIS, Williamsport, Pa. Filed Jan. 3, 1900. Serial No. 395. Term of patent 14 years.



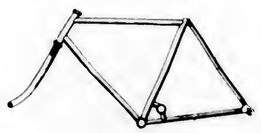
Claim.—The design for a body for an automobile shown and described.

32,199. FRAME FOR MOTOR-VEHICLES. WILLIAM O. WORTH, Chicago, Ill., assignor of two-thirds to William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battle Creek, Mich. Filed Aug. 19, 1899. Serial No. 727,860. Term of patent 14 years.



Claim.—The design for a frame for motor-vehicles, as herein shown and described.

32,200. BICYCLE-FRAME. JOSEPH GOTTLIEB, New York, N. Y. Filed Oct. 23, 1899. Serial No. 734,596. Term of patent 3½ years.



Claim.—The design for a bicycle-frame as shown and described.

32,201. BICYCLE-BELL CLAMP. ALBERT FENIMORE ROCKWELL, New Britain, Conn., assignor to the New Departure Bell Company, Bristol, Conn. Filed Oct. 28, 1899. Serial No. 735,132. Term of patent 7 years.



Claim.—The design for a bicycle-bell clamp, substantially as shown and described.

32,202. CYCLE-LAMP. JAMES H. LANCASTER, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,931. Term of patent 7 years.



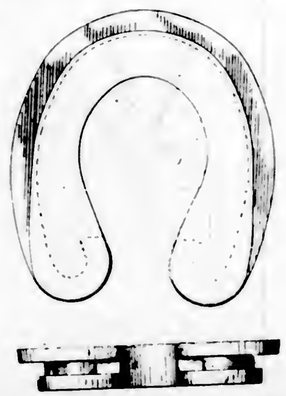
Claim.—The design for a cycle-lamp, substantially as shown and described.

32,203. ELECTRIC-LAMP SHADE. GEORGE WILLIAM DE TUNZELMANN, London, England. Filed June 19, 1899. Serial No. 721,177. Term of patent 7 years.



Claim.—The design for a lamp-shade as herein shown and described.

32,204. HORSESHOE-PAD. HENRY PAAR, Canton, Ohio, assignor to John L. Arnold, same place. Filed Dec. 30, 1899. Serial No. 742,157. Term of patent 14 years.



Claim.—The design for a horseshoe-pad as herein shown and described.

32,205. HORN FOR SADDLETREE-FORKS. MOSE MARKS, Omaha, Nebr., assignor to the Omaha Saddletree Company, Douglas county, Nebr. Filed Jan. 6, 1900. Serial No. 628. Term of patent 14 years.



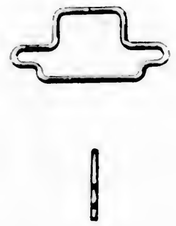
Claim.—The design for a horn for a saddletree-fork, as herein shown and described.

32,206. SAFETY-PIN. GEORGE HUNT, Bloomfield, N. J., assignor to the Consolidated Safety Pin Company, same place. Filed Jan. 11, 1900. Serial No. 1,150. Term of patent 14 years.



Claim.—The design for a safety-pin, substantially as shown and described.

32,207. BODY PORTION OF GARMENT-SUPPORTER LOOPS. GEORGE R. ADAMS, New Britain, Conn. Filed Dec. 23, 1899. Serial No. 741,478. Term of patent 7 years.



Claim.—The design for the body portion of a garment-supporter loop as herein shown and described.

32,208. NOSE-PROTECTOR. HENRY J. MAER, Huntley, Ill. Filed Jan. 12, 1900. Serial No. 1,946. Term of patent 3½ years.



Claim.—The design for a nose-protector, substantially as herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 6, 1900.

84,180. WOMEN'S SHOES. G. W. HERRICK & Co., Lynn, Mass. Filed Dec. 15, 1899.



Essential feature.—The representation of the bust and head of a female figure. Used since October 1, 1899.

84,181. LEATHER AND SHOES. JOHN LINDNER, Carlisle, Pa. Filed Jan. 11, 1900.



Essential feature.—The representation of two unicorns rampant against a scroll which surrounds a shield and supports a helmet. Used since April 1, 1899.

84,182. CERTAIN NAMED PHOTOGRAPHIC MATERIALS. DR. LILIENFELD & Co., Vienna, Austria-Hungary. Filed Nov. 4, 1899.

Protalbin.

Essential feature.—The word "PROTALBIN." Used since January 15, 1898.

84,183. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.



Essential feature.—The word "STELLA" and the figure of a star. Used since December 1, 1884.

84,184. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.

JUNO

Essential feature.—The word "JUNO." Used since December 1, 1874.

84,185. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.



Essential feature.—The letter "L," surrounded by a square. Used since December 1, 1874.

84,186. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.

JUPITER

Essential feature.—The word "JUPITER." Used since November 1, 1874.

84,187. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.



Essential feature.—The word "DIANA" and a representation of the goddess Diana apparently about to throw her spear. Used since September 21, 1868.

84,188. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.

DOLPHIN

Essential feature.—The word "DOLPHIN." Used since February 24, 1893.

84,189. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.

COMET

Essential feature.—The word "COMET." Used since January 19, 1893.

84,140. WRITING-PAPER. HENRY LINDENMEYR & SONS, New York, N. Y. Filed Jan. 3, 1900.

MINERVA

Essential feature.—The word "MINERVA." Used since November 1, 1874.

84,141. SOUNDING TOYS. STRAUSS MANUFACTURING COMPANY, Jersey City, N. J. Filed Jan. 9, 1900.

Zoso

Essential feature.—The word "Zoso." Used since January, 1895.

84,142. TOBACCO-PIPES AND CIGAR AND CIGARETTE TUBES AND HOLDERS. ADOLPH FRANKAU & COMPANY, LIMITED, London, England. Filed Dec. 7, 1899.

BBB

Essential feature.—The letters "B B B." Used since January, 1870.

84,143. BITTERS. H. UNDERBERG-ALBRECHT, Rheinberg, Germany. Filed Oct. 12, 1899.

Essential feature.—The words "SEMPER IDEM." Used since June 17, 1898.

84,144. WINES. RUDOLF & WILHELM MAUCHER, Neustadt, Germany. Filed Jan. 9, 1900.



Essential feature.—The monogram "R W M." Used since October 12, 1898.

84,145. CHEWING-GUM. THE RALSTON YEAST COMPANY, Topeka, Kans. Filed Nov. 4, 1899.

EAGLE

Essential feature.—The word "EAGLE." Used since August 1, 1899.

84,146. BAKING-POWDER. FIDELITY MANUFACTURING COMPANY, Wilmington, Del., and New York, N. Y. Filed Jan. 10, 1900.

SOLAR

Essential feature.—The word "SOLAR." Used since November 1, 1899.

84,147. BAKING-POWDER AND CEREAL FOODS. M. A. NEWMARK & Co., Los Angeles, Cal. Filed Feb. 13, 1899.



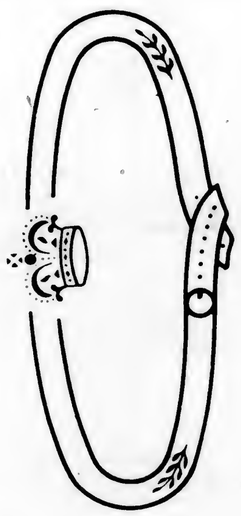
Essential feature.—The pictorial representation of two draped flags, their staffs having a V-shaped space between them and a man standing in the V-shaped space. Used since December, 1895.

84,148. BUTTER. THE FOX RIVER BUTTER COMPANY, Aurora and Oswego, Ill. Filed Apr. 10, 1899.



Essential feature.—A circle and a plaque extending thereacross. Used since February 10, 1899.

34,149. CHEESE. JOHN H. HODGSON, New York, N. Y. Filed Dec. 11, 1899.



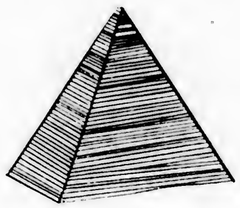
Essential feature.—The representation of a crown and of a strap or garter. Used since August, 1877

34,150. WHEAT-FLOUR. PHŒNIX FLOUR MILL, Evansville, Ind. Filed Oct. 20, 1899.

PANSY.

Essential feature.—The word "PANSY." Used since January 1, 1893.

34,151. WHEAT-FLOUR. PILLSBURY-WASHBURN FLOUR MILLS COMPANY, LIMITED, Minneapolis, Minn. Filed Jan. 10, 1900



Essential feature.—The representation of a pyramid. Used since December 1, 1899

34,152. CERTAIN NAMED TOILET PREPARATIONS. THE HENRY ROEVER COMPANY, Cincinnati, Ohio. Filed Dec. 6, 1899.

SOROSIS

Essential feature.—The word "SOROSIS." Used since August 15, 1899.

34,153. CERTAIN NAMED TOILET PREPARATIONS. MORDECAI H. FLETCHER, Cincinnati, Ohio. Filed Nov. 9, 1899.

Vegetol

Essential feature.—The word "VEGETOL." Used since May 12, 1899.

34,154. CERTAIN NAMED LAUNDRY ARTICLES. GUSTAV A. BERGHOFF, Fort Wayne, Ind. Filed Jan. 12, 1900.

RUB-NO-MORE

Essential feature.—The hyphenated word "RUB-NO-MORE." Used since May 1, 1895.

34,155. LAUNDRY STARCH. GEORGE P. SMITH, New Haven, Conn. Filed Mar. 17, 1899.



Essential feature.—The representation of a pond-lily. Used since January 15, 1899.

34,156. GRASS, CLOVER, AND FIELD SEEDS, AND SEED-GRAINS. THE ALBERT DICKINSON COMPANY, Chicago, Ill. Filed Dec. 26, 1899.

GLOBE



Essential feature.—The word "GLOBE" and the representation of a globe inclosing the letter "D." Used since October 1, 1897.

34,157. LIQUID COMPOUND FOR FIXING COLORS OF DYED FIBERS AND FABRICS. LOUIS R. FORTNER, Philadelphia, Pa. Filed Jan. 15, 1900.

DIAZOL

Essential feature.—The word "DIAZOL." Used since July 15, 1899.

34,158. VARNISH STAINS, VARNISHES, AND PAINTS. CARPENTER-MORTON COMPANY, Boston, Mass. Filed Dec. 26, 1899.



Essential feature.—The representation of a bow or arch above a group of bedroom furniture. Used since August, 1888.

34,159. COMPOUND TO PREVENT THE INCRUSTATION OF BOILERS. THOMSEN CHEMICAL COMPANY, Baltimore, Md. Filed Jan. 5, 1900.

BOSALT

Essential feature.—The word "BOSALT." Used since December 8, 1899.

34,160. AXLE-GREASE. WHITTIER COBURN COMPANY, San Francisco, Cal. Filed Jan. 15, 1900

G&S

Essential feature.—The letters and character "G & S." Used since January 15, 1887

34,161. IRON COMPOUND IN THE FORM OF DRY POWDER. SMOOTH-ON MANUFACTURING COMPANY, Jersey City, N. J. Filed Nov. 23, 1899

SMOOTH-ON

Essential feature.—The hyphenated word "SMOOTH-ON." Used since November 1, 1895.

34,162. CERTAIN NAMED MEDICAL PREPARATIONS. RUFUS CROWELL & Co., Salem, Mass. Filed Jan. 13, 1900.

HEMAPEPTOS

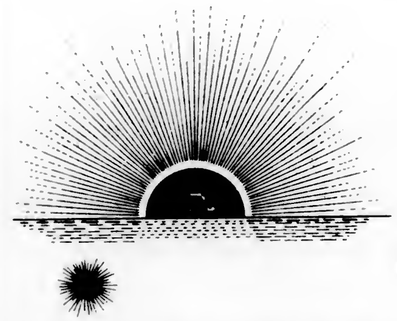
Essential feature.—The word "HEMAPEPTOS." Used since April 20, 1899

34,163. MEDICAL COMPOUNDS. PRIME BROS., New York, N. Y. Filed July 11, 1899.

RHEUMACILATE

Essential feature.—The word "RHEUMACILATE." Used since February 25, 1898.

34,164. REMEDIES FOR CERTAIN NAMED DISEASES. THE RAY CHEMICAL COMPANY, Detroit, Mich. Filed May 20, 1899.



Essential feature.—A double representation of the sun with its divergent rays, one of such representations being in the form of a half-segment of a circle with the letter "R" thereon and with the rays diverging upward therefrom and this accompanied by the full circular disks with the letter "R" on the disk and the rays entirely surrounding it, diverging in all directions. Used since April 1, 1899.

34,165. TOPICAL REMEDIES IN POWDERED FORM FOR CERTAIN NAMED DISEASES. DORMAN & BARKWALD, Buffalo, Iowa. Filed June 12, 1899.

I-O-Do

Essential feature.—The hyphenated word "I-O-DO." Used since March 15, 1899

34,166. HAIR REMEDIES. JAMES W. WALKER, San Francisco, Cal. Filed Oct. 4, 1899.



Essential feature.—The representation of a bank of clouds, the word "STAR," and the representation of a star with lines radiating therefrom. Used since September 7, 1897

34,167. EMBALMING FLUID. THE MAX HUNCKE CHEMICAL COMPANY, New York, N. Y. Filed Jan. 9, 1900.

G

Essential feature.—The letter "G." Used since February 1, 1897.

84,168. EMBALMING FLUID. THE MAX HUBGEN CHEMICAL COMPANY, New York, N. Y. Filed Jan. 9, 1900.

D

Essential feature.—The letter "D." Used since February 1, 1897.

84,169. BRUSHES. JOHN L. WHITING & SON COMPANY, Boston, Mass. Filed Jan. 2, 1900.

AXE



Essential feature.—The word "AXE" and the representation of an ax. Used since January 1, 1891.

84,170. BRUSHES. JOHN L. WHITING & SON COMPANY, Boston, Mass. Filed Jan. 3, 1900.

OWL



Essential feature.—The word "OWL" and the representation of an owl. Used since January 1, 1889.

84,171. THERMOMETERS. CHARLES J. TAGLIABUE, New York, N. Y. Filed Jan. 4, 1900.

THE ADMIRAL

Essential feature.—The words "THE ADMIRAL." Used since October, 1899.

84,172. PIANOS. BOHR & GERTZ PIANO COMPANY, Chicago, Ill. Filed Jan. 13, 1900.

Victor

Essential feature.—The word "VICTOR." Used since January 1, 1896.

84,178. WATER-FILTERS. THE PLUMBERS BRASS AND IRON MANUFACTURING COMPANY, Cleveland, Ohio. Filed Jan. 13, 1900.

RECORD

Essential feature.—The word "RECORD." Used since December 1, 1899.

PHOTO-LITH. WASHINGTON D.C. THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WICKERT.

Decided December 22, 1899.

LABEL—USE OR PUBLICATION PRIOR TO APPLICATION—ADDING INCONSPICUOUS WORD—REGISTRATION REFUSED.

After a label producing a certain artistic effect has become non-registrable because of the use or publication before application for registration was filed, it cannot be rendered registrable by adding thereto an inconspicuous word which involves nothing more than the work of a type-setter and which does not change in any material respect the appearance of the label.

ON petition.

LABEL.

Application of William P. Wickert for registration filed November 2, 1899, No. 59,821.

Mr. W. P. Wickert pro se.

GREELEY, *Acting Commissioner:*

This is a petition from the action of the Primary Examiner refusing to register as a label for cigars the figure of an elk's head and of a clock-face with certain scroll designs and words thereon. The ground of refusal is that the label was used or published before the application for registration was filed.

In the application reference is made to the label as—

a label which has been used by him exclusively for two years and which has never been registered in the Patent Office and is to be used on cigar-boxes.

In his present petition the applicant says:

The label as used before application for registration was made did not contain the word *cigars* at the lower right-hand corner.

It is apparent, therefore, according to the applicant's own admission, that the label in all its essential features was used prior to filing this application. The word *cigars* which was afterward added is in small type in one corner of the label and forms no essential part of it in so far as the artistic features are concerned. After a label producing a certain artistic effect has become public property by use it cannot be rendered registrable by adding thereto an inconspicuous word which involves nothing more than the work of a type-setter and which does not change in any material respect the appearance of the label.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

FAY *v.* DUELL, COMMISSIONER OF PATENTS.

Decided December 6, 1899.

1. SECOND APPLICATION AFTER ADJUDICATION OF THE FIRST APPLICATION—RES ADJUDICATA.

Where an application for patent was rejected by each tribunal of the Patent Office and the applicant filed a new application without substantial change, *Held* that the subordinate tribunals were right in declaring the question of patentability *res adjudicata*. (*Barratt* v. *Duell, Commissioner of Patents*, 87 O. G., 1075, cited.)

2. SAME—SAME.

While a liberal right of filing a new application in place of one rejected has been recognized by the Supreme Court in the cases where the Commissioner of Patents has reconsidered his former grounds of rejection and issued a patent, yet it does not follow that the doctrine of *res adjudicata* may not be applied to such new application in the discretion of the Commissioner. It is as much to the public interest that there should be an end of litigation in the tribunals of the Patent Office as in others.

3. PATENTABILITY—NOVELTY—GARMENTS.

A novelty involving a state of art so universal and common as the making and adjustment of clothing must be of a radical character to overcome the presumption against its patentability. (*Dalby* v. *Lynes*, 71 O. G., 1317; *Way* v. *McClarin*, 96 Fed. Rep., 416, cited.)

4. SAME—PRESUMPTION AGAINST PATENTABILITY—FORCE OF PATENT OFFICE DECISIONS.

The presumption against the patentability of any claim is made very strong by the concurrent denial of all the tribunals of the Patent Office to whom in turn it has been presented. (*Smith* v. *Duell, Commissioner of Patents*, 87 O. G., 898, cited.)

Messrs. Baldwin, Davidson & Wight for the appellant.

Mr. W. A. Megrath for the Commissioner of Patents.

SHEPARD, *J.:*

This is an appeal from the decision of the Commissioner of Patents refusing a patent to Ophelia L. Fay for an improvement in nether garments with the following claims:

1. A nether garment, comprising a covering for the foot and leg, and an extension from the leg for covering and protecting a portion of the abdomen, and terminating at the thigh portion, so as to leave the buttocks or posterior region uncovered.

2. A nether garment comprising a tubular covering for the foot and leg, and a flap formed by opening out the tubular leg portion centrally at the rear from its upper edge downwardly; thus producing two wings of equal extent on opposite sides of the longitudinal axis of the leg for covering a portion of the abdomen b ut terminating at the thigh portion in order to leave the posterior region uncovered.

3. A nether garment made in two separate parts similar in shape and interchangeable in use, each comprising a tubular covering for the foot and leg and a flap formed by opening out

the tubular leg portion centrally at the rear from its upper edge downwardly, thus producing two wings of substantially equal extent on opposite sides of the longitudinal axis of the leg for covering a portion of the abdomen but terminating at the thigh portion in order to leave the posterior region uncovered, in combination with fastening devices for attaching the flaps to an upper garment of the wearer, so that they shall meet or overlap in front of the abdomen.

4. A stocking of elastic knitted fabric, comprising a foot portion and a tubular leg portion, said leg portion being extended and opened out centrally at the rear from its upper edge downwardly whereby the front upper portion of the stocking forms an abdominal flap.

The rejection of these claims was made upon reference to several existing patents for improvements in underwear, among them No. 364,650, to Holmes, June 14, 1887, and No. 455,757, to Lorentz, July 14, 1891.

The first application for patent was rejected by each tribunal of the Patent Office in order, and applicant renewed it without substantial change. Each tribunal again rejected the claims, the Primary Examiner and the Examiners-in-Chief putting their decisions on the ground that the right claimed under the renewed application had been settled by the former decision of the Commissioner.

The latter held that the subordinate tribunals were right in declaring the question *res adjudicata* under the decision of this court made in an analogous case. (*In re Barratt*, 87 O. G., 1075; 14 App. D. C., 255, 261.) In that case the application had been renewed after final rejection and the affirmance thereof in this court. (79 O. G., 2020; 11 App. D. C., 177.) In affirming the decision on the second appeal it was said:

> We do not desire it to be understood that the Patent Office may not, if it thinks proper so to do, entertain and adjudicate a second application for a patent after the first application had been rejected. What we decide is, that it is not incumbent upon the Office as a duty to entertain such applications, and that, if it refuses to entertain them, it has a perfect legal right so to do. An applicant is not legally aggrieved by such refusal.

A very liberal right of renewal of rejected applications has been recognized by the Supreme Court in cases where the Patent Commissioner has reconsidered his former grounds of rejection and issued the patent. (*Godfrey* v. *Eames*, 1 Wall., 317; *Smith* v. *Goodyear Dental Vulcanite Company*, 11 O. G., 246; 93 U. S., 486.) But it does not follow that the doctrine of *res adjudicata* may not be applied to such renewed applications in the discretion of the Commissioner, as stated in *Barratt's Case*, *supra*. It is as much to the public interest that there shall be an end of litigation in the tribunals of the Patent Office as in others.

This case is different from that of Barratt in the single fact that there was no appeal to this court from the first decision refusing the patent.

Whether the failure to take our judgment upon the refusal of the first application entitles the applicant to demand that we consider the grounds of the first decision as involved in this appeal raises a question that we prefer not to decide without the assistance of the chief justice, who was absent by reason of illness when this case was argued and submitted to the remaining members of the court by stipulation. Its determination is not necessary to the disposition of the case, because the Commissioner did in fact reconsider the application on its merits. His decision is stated in the following words:

Considering the question of patentability *de novo*, however, as it is stated on behalf of appellant that appeal is to be taken to the Court of Appeals should the decision be adverse, I find no reason for changing my decision in the former appeal. Appellant has made the leg of a stocking of such length that it will reach to the waist of the wearer. The top portion of the stocking is slit at the rear, so that in use this portion is spread out in front of the abdomen, and when this portion is fastened to a waistband or supporting-garment the inner edges of the said portion of a pair of stockings overlapping, the abdomen of the wearer is covered.

One of the advantages claimed by appellant is that a pair of these stockings are interchangeable—that is, there are no rights and lefts. This, however, is found in every ordinary pair of stockings and cannot confer patentability. Another advantage is that the rear portion of the stocking is open, so as to leave the posterior region uncovered, so that this part of the body will not become unduly heated, and there will be no strain on the rear portion of the waistband. It seems to me that if in using the Holmes stocking these objections should arise, any housewife would understand that they could be overcome by dispensing with the rear part of that stocking. Furthermore, this part is cut away in the Lorentz stocking.

The Holmes stockings have the legs extended so that they will reach to the waistband, and when brought together in front will cover the abdomen. They have all the advantages claimed for the stocking of the appellant, so far as relates to covering the abdomen.

I do not think the appellant has made anything which reaches to the dignity of invention, and all the advantages claimed for her stocking are substantially found in the prior art.

As has been well said by Judge Putnam:

> A novelty involving a state of art so universal and common as the making and adjustment of clothing must be of a radical character to overcome the presumption against its patentability. (*Dalby* v. *Lynes*, 71 O. G., 1317.)

See also *Way* v. *McClarin*, 96 Fed. Rep., 416; *In re Draper*, 10 App. D. C., 545; *In re Smith's* appeal, 87 O. G., 893; 14 App. D. C., 181.

And the presumption against the patentability of any claim is made very strong by the concurrent denial of all the tribunals of the Patent Office to whom in turn it has been presented. (*In re Smith's* appeal, 87 O. G., 893; 14 App. D. C., 181, 185.)

Approving the decision of the Commissioner and deeming it unnecessary to add anything else thereto, it will be affirmed. It is so ordered, and the clerk of this court will certify the proceedings herein to the Commissioner of Patents.

Revision of Classification.

(ORDER No. 1,326.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 24, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

Division V, class 41, Fine Arts, establish subclass 22, Surface ornamentation, with the following definition:

SURFACE ORNAMENTATION. Methods of producing ornamental surfaces upon various materials, in which the invention is independent of the structure of the article in which the material is embodied and which consist of something more than single operations classified under general arts. The methods in this class may and often do involve operations classified elsewhere, but forming only a part of the method claimed.

Division XXIX, class 144, Woodworking-Machines, abolish the subclasses 68, Routing, and 4, Routing, pattern, the patents composing the same being transferred to class 41, Fine Arts, subclass 8, Engraving-machines.

Division XXXI, class 91, Painting, abolish subclass 30, Apparatus, indenting and filling machines, the patents composing the same being transferred to class 144, Woodworking.

Division XXIX, class 145, Woodworking-Tools, abolish subclasses—

61. Work-benches and tool-chests, combined.
62. Work-benches—
63. Adjustable stock-rest.
64. Work-holding stands.
65. Clamps, door-supporting—
66. Portable, ship-planking,
67. Frame,
68. Miter,
69. Bench,
70. Portable—
71. Pivoted-lever,
72. Parallel-screw,
73. Parallel-screw, quick-action,
74. Extensible-beam,
75. Straight-beam, adjustable-jaw,
76. U-beam,
77. U-beam, quick-action.
78. Bench-dogs—
79. Clamping,
80. Removable.

these subclasses having been transferred to class 144, Woodworking.

Division XXIX, abolish class 144, Woodworking-Machines, and all subclasses thereof, and establish in lieu of the same class 144, Woodworking, with the following sublasses and definitions:

CLASS 144.—WOODWORKING.

306. Bench-dogs—
307. Clamping,
308. Removable.
92. Boring—
Brush—
94. Multiple-bit,
95. Rotating work-holder,
96. Tilting work-holder,
113. Hollow-auger,
Long-work—
107. Automatic step-feed,
108. Hand-operated step-feed,
109. Traveling-tool,
110. Multiple—
111. Double-ended bit-stock,
112. Relative lateral adjustment,
Portable—
104. Hand—
106. Angularly-adjustable,
105. Overhead-work,
98. Special-work,
103. Swinging,
102. Wheel-felly,
97. Wheel-hub—
Axial—
98. Stationary bit-stock,
99. Stationary-work—
100. Inclined bit-stock,
101. Opposite rotary bit-stocks.
289. Clamps—
290. Bench,
294. Box-joint,
296. Door-supporting,
295. End and partition,
Miter—
292. Multiple-joint,
293. Single-joint,
297. Portable—
299. Extensible-beam,
300. Parallel-screw—
301. Quick-action,
302. Pivoted-lever,
298. Ship-planking,
303. Straight-beam adjustable-jaw,
304. U-beam—
305. Quick-action,
291. Rectangular-frame-work.
1. Combined machines—
35. Boring and sawing,
36. Planing and matching,
37. Planing, matching, and dividing,
38. Planing and polishing,
39. Planing and sawing,
40. Riving and shaving,
41. Shaping and dividing,
42. Slicing and scoring,
43. Slicing and shaving—
44. Converging knives,
45. Tenoning and boring,
46. Turning and boring,
47. Turning and polishing,
48. Turning and sawing.
284. Cork and bung presses.
251. Cutter-guards.
252. Cutter-hoods and dust-conveyers.
Cutters—
Rotary—
241. Bits,
Cylindrical—
230. Slotted-bit seat,
221. Spiral-bit,
Disk—
234. Eccentric segmental-bit,
237. Gang,
Multiple—
236. Pattern,
Multiple clamping-disks—
232. Pivoted-bit,
233. Shank-bit,
231. Tangential-bit,
Side-attached bit—
235. Edge-cutting,
219. End-thrust,
220. Frusto-conical,
218. Miscellaneous,
Polygonal—
237. Concave bit-seat,
Cutters—
Rotary—
Polygonal—
226. Convex bit-seat,
225. Plane bit-seat,
224. T-slot bit-clamp,
Radial arms—
228. Plane bit-seat,
229. Slotted bit-seat,
Saw—
239. Distorted,
Double—
222. Intermediate-cutter,
Single—
223. Side-cutter,
238. Wabble,
240. Solid,
85. Dovetailing—
86. Consecutive cutters,
87. Frusto-conical bit,
88. Inclined-chisel,
89. Inclined rotary-disk.
Feed and presser mechanisms—
245. Blank-feeders,
242. Miscellaneous,
243. Presser-bars and chip-breakers—
244. Sectional,
Rolls—
Feed—
246. Miscellaneous,
247. Spring-pressed,
248. Weighted,
249. Presser,
250. Sectional.
133. Gaining.
280. Glue-applying apparatus.
279. Glue applying and pressing apparatus.
278. Machine-work clamps.
90. Matching—
91. End.
50. Match-making—
61. Box-filling,
59. Coiling,
57. Cutting and coiling,
54. Cutting and framing—
55. Die-punches—
56. Fixed,
62. Cutting, framing, and dipping—
53. Die-punches,
60. Dipping,
65. Dipping-frames—
62. Emptying,
63. Filling—
64. Hopper-feed,
58. Framing and dipping,
66. Splint-feed mechanism,
51. Wax and paper.
49. Miscellaneous single-operation machines.
216. Miter-cutters—
217. Angle-knife.
Mortising—
69. Auger-cutter—
71. Automatic step-feed,
70. Portable,
72. Chain cutter—
73. Portable,
75. Chisel—
74. Boring and mortising,
76. Portable,
77. Chisel-reversers,
78. Hollow-chisel and bit—
79. Portable,
67. Multiple-chisel—
68. Portable,
80. Oscillating-chisel—
81. Portable,
82. Rotary-cutter—
83. Portable,
84. Work-supports.
207. Osier-peelers.
Planers—
129. Bed adjustments,
Beveling—
134. Lateral,
Longitudinal—
135. Inclined work-pocket,
126. Shifting-cutter,
127. Shifting work-support,
130. Cutter adjustments,
128. Endless-bed,
Planers—
123. Endless-cutter carrier,
114. Miscellaneous,
121. Reciprocating-cutter—
122. Lateral,
Rotary-cutter—
117. Cylinder—
131. Bearings,
116. Double surfacers,
118. Disk—
119. Traveling,
115. Scrapers,
120. Stationary-cutter—
132. Bit adjustments.
209. Processes.
196. Punching-cutters—
197. Fixed-die.
182. Riving—
183. Beveling,
184. Fixed-knife.
208. Rossing bark.
Shaping—
185. Box-trimming,
153. Curved-bar work-support,
152. Curved-work guide,
136. Grooving,
134. Miscellaneous,
146. Oscillating-knife,
Pattern—
Cam—
142. Cutter-guiding,
143. Work-guiding,
141. Crank-guided cutter,
140. Gear-guided cutter,
137. Miscellaneous,
138. Polygonal forms, indexed-work,
139. Rotating-table, shifting-cutter,
Templet—
144. Cutter-guiding,
145. Work-guiding,
149. Pattern-knife, swinging-frame,
147. Reciprocating-knife,
148. Reversible-cutter,
150. Rotary-cutter, end-thrust,
154. Rotary work-carrier,
151. Universally-jointed cutter-shaft.
Shaving—
155. Fixed-knife—
156. Circular knife-block,
157. Drum-feed,
158. Roller-feed.
159. Knife pair—
160. Gripper,
161. Roller-feed.
162. Slicers—
167. Arc-cut,
Beveling—
168. Alternate end-feed,
169. Shifting knife-guide,
170. Tilting-gage,
171. Tilting-table,
172. Cylinder—
173. Grooving,
174. Radial-knife.
175. Fixed-knife,
180. Hopper-feed,
163. Reallcers,
181. Roller-feed,
176. Rotary-disk,
Stay-log—
177. Oscillating,
178. Reciprocating,
179. Screw-feed,
Strip-cutting—
164. Converging knives—
165. Lathe-feed,
166. Lathe-feed.
185. Slivering—
189. Gang-saw,
190. Plunger and fixed-knife,
191. Receiving and handling devices,
186. Scoring-plane—
187. Endless-belt,
188. Rotary.
2. Special-work machines—
3. Combined—
4. Circular-section,
5. Blind and sash cutting—
6. Relishing,
7. Box-blank,
Special-work machines—
Combined—
8. Chair-round tenoning and sawing,
9. Clothes-pin,
10. Conveyer-flight,
11. Handle,
12. Pin,
13. Shingle,
14. Spool,
17. Wheel-felly boring and sawing,
16. Wheel-hub,
18. Wheel-spoke tenoning and sawing,
15. Wheel tenoning and boring,
19. Window-stile-pocket cutting,
Single or combined—
25. Box-hooping,
26. Comb-teeth cutting,
21. Disk-cutting—
22. Blank sawing, feeding, and punching,
23. Rotary tubular-cutter,
24. Sweep-cutter,
20. Disk cutting and boring,
27. Hinge-seat cutting,
28. Pencil-wood making,
29. Piano-hammer felting,
30. Pin-pointing,
31. Pin-setting,
32. Screw-driving,
33. Tray-making,
34. Tree-felling.
193. Splitting—
194. Self-feeding—
195. Roller-and-belt.
192. Splitting and bundling.
198. Tenoning—
199. Blind-slat—
200. Rotary cutters,
201. Rotary gaining-cutters,
202. Chisel pair,
203. Rotary gaining-cutters—
204. Multiple-tenon.
205. Tenon-turning—
206. Wheel-spoke.
209. Veneer-lathes—
210. Convertible,
211. Inclined knives,
212. Knives and knife-blocks,
213. Presser bars and rolls,
214. Stay-logs,
215. Strip-cutting attachments.
281. Veneer-presses—
282. Roller,
283. Molding.
Wood-bending—
254. Bending and drying,
255. Bending-rollers,
270. Bends,
269. Clamps,
Former—
259. Fixed—
260. Collapsible,
261. End-thrust,
262. Radial arm and roller,
266. Strap,
264. Strap-and-lever,
263. Strap-and-windlass,
265. Strap-and-screw,
267. Pivotal—
268. Coiling,
258. Hoop-gaging,
256. Presses—
257. End compressors,
271. Steaming.
Wood-ornamenting—
276. Articles,
272. Embossing—
273. Die-rollers,
274. Heat-applying,
275. Graining,
277. Processes.
286. Work-benches—
287. Adjustable stock-rest.
285. Work-benches and tool-chests combined.
253. Work-guides.
288. Work-holding stands.

C. H. DUELL,
Commissioner.

CLASS 144.—WOODWORKING.

DEFINITIONS.

Class 144.

144. WOODWORKING. This class includes all machines and processes for working in wood not classified elsewhere under more specific titles, and also some structural materials of wood embossed with ornamental designs.

Subclasses.

306. BENCH-DOGS. Stops set in work-benches to oppose the endwise movement in one direction of the board or other article which is being operated upon.

307. BENCH-DOGS, CLAMPING. The work which rests upon a workbench is held between two opposing clamping-jaws, one of which is usually an ordinary bench-stop.

308. BENCH-DOGS, REMOVABLE. The bench-dog is a removable device provided with sharp spurs. It is set in the desired position and secured by driving the spurs into the bench.

92. BORING. Miscellaneous features not otherwise classified.
Note.—Boring hubs, felloes, and tenoning spokes and boring and mortising are in this class under their various subclass titles.)

94. BORING, BRUSH, MULTIPLE-BIT. Machines in which a series of bits are adapted to simultaneously bore holes in a brush-block at various angles with the surface in order that the bristles when inserted will have the proper flare.

95. BORING, BRUSH, ROTATING WORK-HOLDER. Machines for boring blocks for round brushes. The block is rotated to position for boring the next hole after each hole is bored.

96. BORING, BRUSH, TILTING WORK-HOLDER. Machines in which a more or less flat brush-block is successively tilted to the various angles desired for the holes to be bored, so that the bristles when inserted will have the proper flare.

113. BORING, HOLLOW-AUGER. Machines adapted for hollow-auger work. Arrangements for operating the augers, for forcing the chips through the center of the auger, for operating two augers, one within the other, etc.

107. BORING, LONG-WORK, AUTOMATIC STEP-FEED. Machines in which the work-carriage is adapted to be automatically fed along step by step to successive positions for boring a hole or a series of holes.

108. BORING, LONG-WORK, HAND-OPERATED STEP-FEED. Machines in which the work-carriage is adapted to be moved, from one position for boring to the next, by manually operating some catch or other holding device. The carriage usually has notches or other gage upon it to indicate how far it is to be moved, and the catch falls successively into the notches.

109. BORING, LONG-WORK, TRAVELING-TOOL. Machines in which the work is fed along continuously and the bit, while boring the hole, travels along with the work.

110. BORING, MULTIPLE. Machines for general boring having a plurality of bits and bit-stocks. In some, all the bits bore simultaneously, in others successively, while in still others any particular bit may be brought into operation.

111. BORING, MULTIPLE, DOUBLE-ENDED BIT-STOCK. Machines in which the bit-stock or arbor is adapted to receive a bit at each end, whereby both bits may bore simultaneously by the work being moved to the bits, or the latter may operate alternately by reciprocating the stock to and fro between the work.

112. BORING, MULTIPLE, RELATIVE LATERAL ADJUSTMENT. Machines in which the bit-stocks or arbors are relatively adjustable to vary the distance between them and, therefore, the holes bored.

104. BORING, PORTABLE, HAND. Hand-machines for general use adapted to be carried from place to place by the operator.

106. BORING, PORTABLE, HAND, ANGULARLY-ADJUSTABLE. Machines which can be adjusted to bore at any desired angle with respect to the surface of the work.

105. BORING, PORTABLE, HAND, OVERHEAD-WORK. Small hand-machines adapted for boring in joists or other overhead work for the passage of electric-light wires or for other purposes.

98. BORING, SPECIAL-WORK. Machines, not otherwise classified, designed to work on some special article, as to bore chair-seats, spools, shoe-lasts, etc., and not adapted, without modification, for general boring purposes.

103. BORING, SWINGING. Machines pivoted, usually overhead, and adapted to be freely swung to any operative position within their radius. The bit-stock is usually also free to be moved to any angle.

102. BORING, WHEEL-FELLY. Machines adapted to bore spoke and end holes in wheel-felloes.

97. BORING, WHEEL-HUB. Those adapted to bore spoke-holes in the hub.

98. BORING, WHEEL-HUB, AXIAL, STATIONARY BIT-STOCK. Those machines in which the work is rotated while the bit-stock remains stationary.

99. BORING, WHEEL-HUB, AXIAL, STATIONARY-WORK. Those machines in which the work is stationary and the bit is made to rotate.

100. BORING, WHEEL-HUB, AXIAL, STATIONARY-WORK, INCLINED BIT-STOCK. Those in which the bit-stock is adapted to work, in reaming out the hub, at an angle to the hub-axis.

101. BORING, WHEEL-HUB, AXIAL, STATIONARY-WORK, OPPOSITE ROTARY BIT-STOCKS. Those machines in which an upper and a lower bit are adapted to bore simultaneously at opposite ends of the hub.

269. CLAMPS. Various clamps and clamping apparatus, not otherwise specifically classified, used in woodworking operations.

290. CLAMPS, BENCH. Devices for holding work against a workbench while being operated upon. Some devices for holding type-writers and the like to a table.

294. CLAMPS, BOX-JOINT. Clamping apparatus for assembling or forcing together box-joints.

296. CLAMPS, DOOR-SUPPORTING. Clamps for holding a door or window-sash in an upright position, the door resting wholly or in part on the ground or other support independent of the clamps. Principally for the use of door-hangers.

295. CLAMPS, END AND PARTITION. Clamping apparatus adapted to hold the end or partition blanks of a box and similar structure to position while the receptacle is being completed.

292. CLAMPS, MITER, MULTIPLE-JOINT. The apparatus is adapted to simultaneously set up and hold two or more miter-joints.

293. CLAMPS, MITER, SINGLE-JOINT. Apparatus adapted to clamp a single miter-joint. Many of these clamps are portable.

297. CLAMPS, PORTABLE. Portable devices, not otherwise classified, having opposing jaws between which the work, usually in two or more parts, is clamped and held.

299. CLAMPS, PORTABLE, EXTENSIBLE-BEAM. Each jaw of the clamp has a shank at right angles to itself which combines with the other shank to form the clamp-beam. By sliding these shanks past each other to a greater or less degree the length of the beam is adjusted.

300. CLAMPS, PORTABLE, PARALLEL-SCREW. The clamping-jaws are mounted on a pair of parallel-screw rods, each rod being journaled in one jaw and engaging a nut in the other.

301. CLAMPS, PORTABLE, PARALLEL-SCREW, QUICK-ACTION. Parallel-screw clamps which by means of a screw-releasing mechanism can be approximately adjusted without rotation of the threaded rods.

308. CLAMPS, PORTABLE, PIVOTED-LEVER. The clamping-jaws are pivoted to each other or one or both are pivoted to the common beam.

298. CLAMPS, PORTABLE, SHIP-PLANKING. Clamps to be used in bending and holding planking against the ribs of a ship.

306. CLAMPS, PORTABLE, STRAIGHT-BEAM, ADJUSTABLE-JAW. The clamp-beam is a straight bar along which one or both of the clamping-jaws can be adjusted.

304. CLAMPS, PORTABLE, U-BEAM. The clamp-beam is a U-shaped metallic yoke. The clamping is done between the prongs of the U-beam.

305. CLAMPS, PORTABLE, U-BEAM, QUICK-ACTION. U-beam clamps provided with two adjustments of the clamping-jaws, one more rapid than the other.

291. CLAMPS, RECTANGULAR-FRAMEWORK. Clamping apparatus, not otherwise specifically classified, adapted for setting up and holding framework of a rectangular form.

1. COMBINED MACHINES. Machines of general utility, not otherwise specifically classified, which are adapted to either simultaneously or independently perform two or more operations upon the material.
(Note.—Machines having combined operations for making particular articles and not capable of general use are to be found under Special-work machines in this class.)

85. COMBINED MACHINES, BORING AND SAWING. Those adapted to bore and saw.

86. COMBINED MACHINES, PLANING AND MATCHING. Machines for surfacing lumber, tonguing one edge and grooving the other.

87. COMBINED MACHINES, PLANING, MATCHING, AND DIVIDING. Machines for surfacing wide boards, dividing them longitudinally into two or more strips, and tonguing and grooving each strip.

88. COMBINED MACHINES, PLANING AND POLISHING. Machines adapted to plane lumber and then further smooth it by means of a polisher.

89. COMBINED MACHINES, PLANING AND SAWING. Machines adapted to plane and saw up lumber.

40. COMBINED MACHINES, RIVING AND SHAVING. Machines for riving and shaving ratan, hoop-poles, or the like at one operation.

41. COMBINED MACHINES, SHAPING AND DIVIDING. Machines for giving some predetermined contour to several parallel pieces of work and simultaneously dividing them from a common piece of stock and from each other.

42. COMBINED MACHINES, SLICING AND SCORING. Slicing-machines which have devices for scoring the face of the bolt from which the slices are cut.

43. COMBINED MACHINES, SLICING AND SHAVING. Machines which cut slices from a block of wood and then shave the surfaces smooth.

44. COMBINED MACHINES, SLICING AND SHAVING, CONVERGING KNIVES. Combined slicing and shaving machines in which the severed slice is simultaneously shaved and beveled by a pair of converging knives.

45. COMBINED MACHINES, TENONING AND BORING. Machines adapted to bore and, sometimes simultaneously, also turn a tenon.

46. COMBINED MACHINES, TURNING AND BORING. Combined lathe and boring machines.

47. COMBINED MACHINES, TURNING AND POLISHING. Combined lathe and polishing machines.

48. COMBINED MACHINES, TURNING AND SAWING. Combined lathe and sawing machines.

284. CORK AND BUNG PRESSES. Apparatus for compressing the ends of corks or bungs to make them tapered, so as to be more readily inserted.

251. CUTTER-GUARDS. Guards for preventing injury to the workman from contact with the cutter of a machine.

252. CUTTER-HOODS AND DUST-CONVEYERS. Devices for catching and confining the flying shavings and dust from a cutting-machine and for conveying them away from the machine.

241. CUTTERS, ROTARY, BITS. Bits or blades to be secured to a rotary head.
Note.—Rotary bits for cutting excelsior are found in class 144, WOODWORKING, Slivering, Scoring-Plane, Rotary.

290. CUTTERS, ROTARY, CYLINDRICAL, SLOTTED-BIT SEAT. A built-up cutter formed by inserting blades into longitudinal slots in the periphery of a cylindrical head.

221. CUTTERS, ROTARY, CYLINDRICAL, SPIRAL-BIT. A cutter formed by twisting a long blade spirally, with or without a core-piece.

234. CUTTERS, ROTARY, DISK, ECCENTRIC SEGMENTAL-BIT. A built-up cutter in which an annular segmental bit is clamped between two disks, near the periphery thereof, or bolted in the same location on the side of a single disk.

257. CUTTERS, ROTARY, DISK, GANG. A gang of cutter-disks clamped on a shaft. Some are beveled and used to cut out beveled slats from a plank by operating first on one side and then on the other. Others are mere grooving-cutters.

256. CUTTERS, ROTARY, DISK, MULTIPLE, PATTERN. A gang of toothed disks of various diameter strung on a shaft in close proximity to each other, so that their teeth will present an irregular longitudinal contour corresponding to a predetermined pattern.

232. CUTTERS, ROTARY, DISK, MULTIPLE CLAMPING-DISKS, PIVOTED-BIT. A bit clamped between two disks in such a manner that it may be moved about an axis eccentric to that of the cutter-shaft for the purpose of adjusting its edge toward and from the cutter-axis.

233. CUTTERS, ROTARY, DISK, MULTIPLE CLAMPING-DISKS, SHANK-BIT. A built-up cutter-head in which bits have shanks formed thereon and are clamped between disks which are strung on an arbor.

231. CUTTERS, ROTARY, DISK, MULTIPLE CLAMPING-DISKS, TANGENTIAL-BIT. A built-up cutter in which the bits are clamped edgewise between two or more disks carried on a shaft and are placed in a tangential or chordal relation to the cylinder of rotation.

235. CUTTERS, ROTARY, DISK, SIDE-ATTACHED BIT, EDGE-CUTTING. A built-up cutter in which bits having shanks are bolted on the side of a disk, extend beyond the periphery, and cut with their projecting ends.

219. CUTTERS, ROTARY, END-THRUST. Cutters to which pressure is applied in the direction of their axis of rotation and having cutting parts for their face. They frequently have also side-cutting edges, so that after boring their way in by end pressure they can then be moved sidewise to enlarge the cut. This class includes principally carving and routing cutters.

220. CUTTERS, ROTARY, FRUSTO-CONICAL. Cutter-heads in the form of cones generally used for cutting a dovetail in the edge of a board.

218. CUTTERS, ROTARY, MISCELLANEOUS. All cutter-heads containing matter partly or wholly unclassified elsewhere.

227. CUTTERS, ROTARY, POLYGONAL, CONCAVE BIT-SEAT. A built-up cutter in which the bits are curved in transverse section and are secured in concave recesses formed in a head of polygonal cross-section.

226. CUTTERS, ROTARY, POLYGONAL, CONVEX BIT-SEAT. A built-up cutter in which the bits are curved and are secured on a convex face of a head having a polygonal cross-section.

225. CUTTERS, ROTARY, POLYGONAL, PLANE BIT-SEAT. A built-up cutter in which bits are clamped upon plane faces of a head of polygonal cross-section.

224. CUTTERS, ROTARY, POLYGONAL, T-SLOT BIT-CLAMP. A built-up cutter in which the bits are secured by clamps sliding in T-slots formed in the faces of a head of polygonal cross-section. A number of bits are frequently used to produce a pattern.

228. CUTTERS, ROTARY, RADIAL ARMS, PLANE BIT-SEAT. A built-up cutter to which the bits are secured upon plane faces formed on radial arms of a head which is secured to an arbor.

229. CUTTERS, ROTARY, RADIAL ARMS, SLOTTED BIT-SEAT. A built-up cutter in which the bits are secured in slots cut in radial arms of a head which is secured to an arbor.

239. CUTTERS, ROTARY, SAW, DISTORTED. Saws in which a portion of the periphery is twisted out of its original plane so that it stands at an angle thereto and in rotating cuts a groove of a width greater than the thickness of the saw-plate.

222. CUTTERS, ROTARY, SAW, DOUBLE, INTERMEDIATE-CUTTER. Two or more saws spaced apart on their arbor and having the intermediate space filled by a cutter which removes the material between the saw-kerfs. In this class a disk with a saw-section secured at its edge is considered a saw.

223. CUTTERS, ROTARY, SAW, SINGLE, SIDE-CUTTER. A saw having at one or both sides a cutter which removes the material to make a wider cut than the thickness of the saw-blade. In this class a disk with a saw-section secured at its edge is considered a saw.

238. CUTTERS, ROTARY, SAW, WABBLE. One or more saws secured on a shaft in such a manner that they lie in a plane which cuts the axis of the shaft at an angle other than a right angle. They are used for cutting grooves wider than the thickness of the saw-blade, and also for cutting dovetail notches.

240. CUTTERS, ROTARY, SOLID. Single integral cutters, not including saws which are intended merely for severing. It does include saws for cutting beveled grooves.

85. DOVETAILING. All machines for forming undercut grooves, not otherwise classifiable.

86. DOVETAILING, CONSECUTIVE CUTTERS. Machines in which the dovetailed groove is formed by the successive action of two or more dissimilar cutters.

87. DOVETAILING, FRUSTO-CONICAL BIT. Machines in which the undercut groove is formed by the relative lateral movement of a bit broader at the point than at the shank.

88. DOVETAILING, INCLINED-CHISEL. Machines having pairs or sets of chisels reciprocating at an angle to each other and the work to produce undercut recesses.

89. DOVETAILING, INCLINED ROTARY-DISK. Machines producing undercut-grooves by means of toothed disks having an inclination to each other or to the work-support, which is less than a right angle.

FEED AND PRESSER MECHANISMS. Devices for moving work to cutters and for holding it against spring and vibration.

245. FEED AND PRESSER MECHANISMS, BLANK-FEEDERS. Devices for successively feeding small similar detached work-pieces to woodworking-machines.

242. FEED AND PRESSER MECHANISMS, MISCELLANEOUS. All mechanisms for moving the work to the cutting-tools and for holding it to the machine-bed and not otherwise classifiable.

243. FEED AND PRESSER MECHANISMS, PRESSER-BARS AND CHIP-BREAKERS. Fixed bars which, like presser-rolls, hold down work while being acted on by the cutter. They also often are formed to extend under the cutter to prevent the wood from slivering into the uncut portion. For this reason this combined form cannot be separated from those devices which break chips only.

244. FEED AND PRESSER MECHANISMS, PRESSER-BARS AND CHIP-BREAKERS, SECTIONAL. Those which are divided transversely into several parts to allow lumber of irregular thickness or several pieces of varying thickness to pass under them.

246. FEED AND PRESSER MECHANISMS, ROLLS, FEED, MISCELLANEOUS. Devices showing structure, arrangement, gear connections, etc., of positively-driven work-moving rolls.

247. FEED AND PRESSER MECHANISMS, ROLLS, FEED, SPRING-PRESSED. Feed-rolls held to their work by means of springs.

248. FEED AND PRESSER MECHANISMS, ROLLS, FEED, WEIGHTED. Feed-rolls pressed upon the work by weighted levers.

249. FEED AND PRESSER MECHANISMS, ROLLS, PRESSER. Rolls which serve only to hold the work from springing, lifting, or vibrating and which have no feeding action.

250. FEED AND PRESSER MECHANISMS, ROLLS, SECTIONAL. Feed or presser rolls made up of independently-yielding parts to accommodate work irregular in cross-section.

133. GAINING. Machines for cutting grooves in lumber at substantially right angles to the grain and usually by means of rotary cutters.
(Note.—See also, this class, the subclasses under Tenoning.

280. GLUE-APPLYING APPARATUS. Apparatus for applying glue to wood surfaces for veneering, etc.

279. GLUE-APPLYING AND PRESSING APPARATUS. Means for applying glue to various wood surfaces and for pressing such surfaces together.

278. MACHINE-WORK CLAMPS. Devices for securing work upon a moving bed or while operated upon by a traveling cutter.

90. MATCHING. Machines for producing a tongue on one edge and a groove on the other edge of a piece of lumber.

91. MATCHING, END. Machines for cutting matching tongues and grooves across the ends of flooring material, etc.

50. MATCH-MAKING. Machines which sever splints and then carry them through one or more of the processes necessary to the production of matches or which take the splints already severed and pass them through one or more of the operations involved in the conversion of the splints into matches. Machines for boxing the finished matches are included under this head also.

61. MATCH-MAKING, BOX-FILLING. Machines for boxing matches or other small splints and not including mechanism for performing any of the operations involved in the manufacture of the matches.

59. MATCH-MAKING, COILING. The match-splints are fed from a hopper or some other holding means to devices which coil the splints into bunches by means of tapes or cords.

57. MATCH-MAKING, CUTTING AND COILING. Machines which sever the splints from blocks or veneers and wind them into coils for dipping.

54. MATCH-MAKING, CUTTING AND FRAMING. Machines which cut the match-splints from veneers or blocks and mount the splints in frames or conveyers for dipping.

55. MATCH-MAKING, CUTTING AND FRAMING, DIE-PUNCHES. Cutting and framing machines which sever the splints from the block by means of reciprocating die-punches which carry the splints to the frames and insert them therein.

56. MATCH-MAKING, CUTTING AND FRAMING, DIE-PUNCHES, FIXED. The punches are fixed in position and the block is fed to them, the splints being severed at each movement, forcing out of the punches those cut at the preceding stroke.

52. MATCH-MAKING, CUTTING, FRAMING, AND DIPPING. Machines which sever splints from blocks or veneers and carry them through all the operations necessary to the production of the finished matches.

53. MATCH-MAKING, CUTTING, FRAMING, AND DIPPING, DIE-PUNCHES. Cutting, framing, and dipping machines in which the cutting of the splints is done by reciprocating die-punches which carry the severed splints to and insert them into the dipping-frames.

60. MATCH-MAKING, DIPPING. Machines which form the head upon the framed or coiled match-splints, but which do not insert the splints into frames or conveyers. Features of conveyer construction are sometimes shown.

65. MATCH-MAKING, DIPPING-FRAMES. Frames for holding match-splints during the operation of dipping and methods of interweaving match-splints with cords, wires, or tapes to serve in lieu of frames.

62. MATCH-MAKING, DIPPING-FRAMES, EMPTYING. Machines which expel the matches from the dipping-frames or conveyers after the completion of the dipping process.

63. MATCH-MAKING, DIPPING-FRAMES, FILLING. Machines for inserting match-splints into dipping-frames or conveyers or interweaving them with cords, wires, or tapes which serve in lieu of frames.

64. MATCH-MAKING, DIPPING-FRAMES, FILLING, HOPPER-FEED. Machines for filling dipping-frames, in which the splints are fed from a hopper to the inserting devices.

58. MATCH-MAKING, FRAMING, AND DIPPING. Machines which insert the severed splints or splint-blocks into dipping-frames or conveyers and dip the splints into the baths necessary to form the heads. In most of these machines the splints are fed from a hopper to some form of conveyer.

66. MATCH-MAKING, SPLINT-FEED MECHANISM. Devices for feeding the match-splints to the machines which convert them into finished matches, including hoppers, conveyer-belts, and means for communicating motion to the belts.

51. MATCH-MAKING, WAX AND PAPER. Machines for the manufacture of matches from paper-board or waxed cord instead of wooden splints.

49. MISCELLANEOUS SINGLE-OPERATION MACHINES. Machines performing only one operation, as distinguished from the combined machines, and not otherwise specifically classified.

216. MITER-CUTTERS. Machines for cutting miters by means of a knife.
(Note.—Mitering-machines in which the cut is made with a saw are classified under class 143, WOOD-SAWING, as Mitering-machines and Miter-boxes.

217. MITER-CUTTERS, ANGLE-KNIFE. Machines for cutting miters by means of an angular knife which is forced against the material.

69. MORTISING, AUGER-CUTTER. Mortising by augers which have side and end cutting edges. They first bore into the wood and then by a side movement cut any width of mortise desired.

71. MORTISING, AUGER-CUTTER, AUTOMATIC STEP-FEED. Auger-cutter mortisers having a step-feed and also a diagonal feed, by which a succession of inclined mortises are formed in blind-stiles to take the ends of the slats.

70. MORTISING, AUGER-CUTTER, PORTABLE. Auger-cutter mortisers which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

72. MORTISING, CHAIN CUTTER. Machines which cut mortises by means of a series of chisel-cutters carried by a moving endless chain supported on a frame by pulleys, which is presented to the work at the pulley end.

73. MORTISING, CHAIN CUTTER, PORTABLE. Chain mortising-machines which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

75. MORTISING, CHISEL. Mortising-machines which cut a mortise by means of a reciprocating chisel.

74. MORTISING, CHISEL, BORING AND MORTISING. Includes mortising-machines which are provided with boring attachments, not including those in which the bit is placed inside a hollow chisel.

76. MORTISING, CHISEL, PORTABLE. Chisel mortising-machines which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

77. MORTISING, CHISEL-REVERSERS. Constructions for reversing the chisel in order to square the mortise at each end.

78. MORTISING, HOLLOW-CHISEL AND BIT. Mortising-machines having a hollow square chisel with a boring-bit operating inside thereof.

79. MORTISING, HOLLOW-CHISEL AND BIT, PORTABLE. Hollow-chisel and bit machines which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

67. MORTISING, MULTIPLE-CHISEL. Chisel mortising-machines in which there are several chisels with means for operating them.

68. MORTISING, MULTIPLE-CHISEL, PORTABLE. Multiple-chisel mortisers which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

80. MORTISING, OSCILLATING-CHISEL. Machines which have a bar upon the end of which is a pivoted chisel having its edge at right angles to the bar and which is oscillated and cuts its way into the wood to form a mortise.

81. MORTISING, OSCILLATING-CHISEL, PORTABLE. Oscillating-chisel mortisers which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

82. MORTISING, ROTARY-CUTTER. Machines for cutting a mortise by means of a rotating cutter carrying knives upon its periphery.

83. MORTISING, ROTARY-CUTTER, PORTABLE. Rotary-cutter mortisers which are adapted to be moved about and placed upon the work, generally clamped thereto, and driven by hand-cranks. The cutter-carriage is usually fed along instead of feeding the work, as in stationary machines.

84. MORTISING, WORK-SUPPORTS. Includes clamps for holding the work, devices for elevating and feeding the carriage, and stops and gages for locating the mortise where they form part of the machine structure. Gages which are mere tools are classified as measuring instruments.

207. OSIER-PEELERS. Machines for removing the bark from withes or osiers by scraping or rubbing.

PLANERS. Machines for producing plane surfaces on rough lumber and such other machines as can be made to produce plane surfaces by the mere substitution of a straight knife for one of irregular outline.

129. PLANERS, BED ADJUSTMENTS. All devices for varying the position of the work-supporting bed with reference to the machine-frame and cutter.

124. PLANERS, BEVELING, LATERAL. Machines for surfacing work one side of which is thicker than the other—*i. e.*, for beveling work in a plane at right-angles to the direction of feed.

125. PLANERS, BEVELING, LONGITUDINAL, INCLINED WORK-POCKET. Machines which bevel in the direction of the grain or feed, the work meanwhile resting in a recess deeper at one end than at the other.

126. PLANERS, BEVELING, LONGITUDINAL, SHIFTING-CUTTER. Machines surfacing work thicker at one end than at the other by moving the cutter in a path substantially at right angles to that of the travel of the work.

127. PLANERS, BEVELING, LONGITUDINAL, SHIFTING WORK-SUPPORT. Those machines surfacing work thicker at one end than at the other by moving the work holder or guide with reference to the cutter at substantially a right angle to the path of travel of the work.

130. PLANERS, CUTTER ADJUSTMENTS. Means for varying the position of the cutter with reference to the path of the work or to the machine-frame.

128. PLANERS, ENDLESS-BED. Machines in which the work is carried past the cutter by chain-feed or by connected or disconnected sections continually returned to the front of the machine-frame.

123. PLANERS, ENDLESS-CUTTER CARRIER. Machines in which a series of connected cutters pass the work always in one direction and return out of contact with the work.

114. PLANERS, MISCELLANEOUS. All machines for surfacing lumber not classifiable in the other named subclasses.

121. PLANERS, RECIPROCATING-CUTTER. Machines in which the work is held stationary or slowly fed while the cutters reciprocate in the direction of the feed.

122. PLANERS, RECIPROCATING-CUTTER, LATERAL. Machines in which the cutters reciprocate at right angles to the line of feed.

117. PLANERS, ROTARY-CUTTER, CYLINDER. Machines in which the knife-edges describe a cylindrical surface in contact with the rectilinearly-moving work.

131. PLANERS, ROTARY-CUTTER, CYLINDER, BEARINGS. Journal-bearings particularly designed to support the cylindrical cutters of wood-planers.

116. PLANERS, ROTARY-CUTTER, CYLINDER, DOUBLE SURFACERS. Machines of the rotary-cylinder type adapted to plane both sides of the work simultaneously.

118. PLANERS, ROTARY-CUTTER, DISK. Machines in which the knives are set in the face of a disk and describe a circular path in contact with the work.

119. PLANERS, ROTARY-CUTTER, DISK, TRAVELING. Disk machines in which the cutter-carrier has motions of both rotation and translation with respect to the work.

115. PLANERS, SCRAPERS. Machines and devices in which the face of the knife is nearly at right angles to the work while acting, so that there is no true cutting action.

120. PLANERS, STATIONARY-CUTTER. Machines in which a knife of the general bench-plane type is fixed and the work forced past it.

132. PLANERS, STATIONARY-CUTTER, BIT ADJUSTMENTS. Means for varying the position of the knife of stationary cutters with reference to the holding-stock or to the work.

309. PROCESSES. Processes or methods of working wood.

196. PUNCHING-CUTTERS. Machines for cutting out pieces or simply cutting holes by mere punching action.

197. PUNCHING-CUTTERS, FIXED-DIE. Punching-cutters in which the wood is forced down upon a fixed die.

182. RIVING. Machines which divide lumber into approximately equal pieces by means of knives which cut with the grain.
(Note.—The machines differ from splitting-machines in that they actually cut the material instead of rending it by wedge action, as is done in splitting.

183. RIVING, BEVELING. Riving-machines in which the knife may be shifted with relation to the work-guide, so as to divide the stock into tapered pieces.

184. RIVING, FIXED-KNIFE. Machines for dividing ratan, hoop-poles, whalebone, and the like by forcing the work against a fixed knife.

208. ROSSING BARK. Machines for cutting the bark from logs or slabs wholly or in part. Some leave the bark in sheets and others cut it up into small bits.

SHAPING. All machines and devices for producing work of a predetermined shape or pattern, usually of irregular outline or section, in which the depth of cut is not limited and in which structural modifications other than a mere change of cutter outline are necessary to adapt the device for finishing plane surfaces.

135. SHAPING, BOX-TRIMMING. Machines for planing the sides and trimming the covers of boxes.

153. SHAPING, CURVED-BAR WORK-SUPPORT. Machines, usually of the vertical-spindle type, having curve-topped bars instead of tables, permitting work to be swung in more than one plane.

152. SHAPING, CURVED-WORK GUIDE. Machines having such arrangement of guide-rolls or outline of guides as permits the shaping of circular and similar curves.

136. SHAPING GROOVING. Machines for longitudinally scoring and corrugating surfaces.

134. SHAPING, MISCELLANEOUS. Machines for producing work of irregular outline or section not otherwise classifiable.

146. SHAPING, OSCILLATING-KNIFE. Devices for shaping work by means of a pivoted knife-arm.

142. SHAPING, PATTERN, CAM, CUTTER-GUIDING. Machines for producing definitely-recurring figures by the combined motion of the work and cutter, the latter being given its motion of translation by a cam.

143. SHAPING, PATTERN, CAM, WORK-GUIDING. Machines similar to the last preceding except that the cam shifts the work transversely with reference to the cutter.

141. SHAPING, PATTERN, CRANK-GUIDED CUTTER. Machines for producing recurring figures, in which the transverse cutter motion is controlled by a crank.

140. SHAPING, PATTERN, GEAR-GUIDED CUTTER. Machines similar to the last preceding in which the transverse cutter motion is controlled by a gear-train or system of change-gears.

137. SHAPING, PATTERN, MISCELLANEOUS. Machines for working to pattern or for producing predetermined figures and not otherwise classifiable.

138. SHAPING, PATTERN, POLYGONAL FORMS, INDEXED-WORK. Machines for forming balusters and other work of regular polygonal cross-section by cutters acting successively on the sides of the work, the work being turned through equal angles by the supporting mechanism to present each side in turn to the cutters and then held stationary during the action of the cutter.

139. SHAPING, PATTERN, ROTATING-TABLE, SHIFTING-CUTTER. Machines in which definitely-recurring figures are produced by the combined movements of a rotating work-table and a guided cutter.

144. SHAPING, PATTERN, TEMPLET, CUTTER-GUIDING. Machines for producing definitely-recurring figures by the combined motion of the work and cutter, the latter being controlled by a templet.

145. SHAPING, PATTERN, TEMPLET, WORK-GUIDING. Machines similar to the last preceding except in that the work is controlled in its transverse motion by a templet.

149. SHAPING, PATTERN-KNIFE, SWINGING-FRAME. Machines in which an outlined or pattern knife is mounted after the manner of a swinging saw.

147. SHAPING, RECIPROCATING-KNIFE. Machines in which straight or pattern knives are reciprocated in right lines.

148. SHAPING, REVERSIBLE-CUTTER. Machines having double cutters, one idle while the other is cutting, and means for reversing both the position of the cutters and their direction of rotation with reference to the feed as may be required by the character of the work.

150. SHAPING, ROTARY-CUTTER, END-THRUST. Machines having rotary cutters of the disk type, usually with pattern-knives, and arranged to give relative movement between cutter and work in the direction of the axis of the cutter.

154. SHAPING, ROTARY WORK-CARRIER. Machines having a work-support capable of carrying work-pieces in a circular path past one or more cutting-tools.

151. SHAPING, UNIVERSALLY-JOINTED CUTTER-SHAFT. Machines in which the cutter-shaft is so mounted as to allow the rotary cutter to have movement of translation in more than one plane.

155. SHAVING, FIXED-KNIFE. Machines for producing a smooth surface on wood, cane, or ratan and at the same time gaging the thickness of the dressed piece by forcing the material under a fixed knife.
(Note.—Somewhat similar machines may be found under class 144, WOODWORKING, Planers, Stationary-Cutter, in which class are classified machines otherwise resembling shaving-machines, but having several plane bits mounted in blocks in order to remove the surface material by several successive shallow cuts.)

156. SHAVING, FIXED-KNIFE, CIRCULAR KNIFE-BLOCK. Machines for shaving ratan which have knives set radially in a circular knife-block, through which the ratan is forced.

157. SHAVING, FIXED-KNIFE, DRUM-FEED. Shaving-machines in which the work is caught by a gripping device on the surface of a drum and drawn under one or more fixed knives.

158. SHAVING, FIXED-KNIFE, ROLLER-FEED. Shaving-machines in which feed-rolls are employed as means to convey the work to the knives.

159. SHAVING, KNIFE PAIR. Shaving-machines provided with a pair of fixed knives, between which the work is fed by various means.

160. SHAVING, KNIFE PAIR, GRIPPER. Machines in which the end of the work is clamped by gripping mechanism and drawn between the shaving-knives.

161. SHAVING, KNIFE PAIR, ROLLER-FEED. Shaving-machines in which feed-rolls force the work between the pair of fixed knives.

162. SLICERS. Machines for cutting up lumber by knife action which without following the direction of the grain divide the lumber into boards, blocks, or strips.

167. SLICERS, ARC-CUT. The work rests upon a fixed table and is sliced by an oscillating knife, or the work rests upon an oscillating table which forces the work against a fixed knife.

168. SLICERS, BEVELING, ALTERNATE END-FEED. The block to be sliced is fed to a reciprocating knife by mechanism which causes each end to be alternately advanced farther than the other, so that the slices severed by the knife shall be thicker at one end than the other.

169. SLICERS, BEVELING, SHIFTING KNIFE-GUIDE. The inclination of the knife-guide to the work-supporting table is changed at each stroke of the knife in order to impart a bevel to the slice cut off.

170. SLICERS, BEVELING, TILTING-GAGE. The thickness of the slice severed is determined by a tilting gage against which the block is pressed before each cut.

171. SLICERS, BEVELING, TILTING-TABLE. The bevel is imparted to the slice by tilting the work-table at each stroke of the knife to change the inclination of the table to the plane of the knife.

172. SLICERS, CYLINDER. The slicing-knives are mounted upon the curved surface of a rotating cylinder and the work is fed to the knife in any way desired.

173. SLICERS, CYLINDER, GROOVING. Machines having cutting mechanism consisting of one or more cylinders provided with circumferential ribs which divide a sheet of veneer passed under or between them.

174. SLICERS, CYLINDER, RADIAL-KNIFE. A rotating cylinder having radial knives divides a veneer into strips, or scores the surface of a log preparatory to the action of a veneer-shaving knife.

175. SLICERS, FIXED-KNIFE. The bolt is cut into slices by being forced by hand or otherwise against a fixed knife. This does not include machines in which the work is clamped upon a reciprocating carriage which carries it over the knife, such machines being found under class 178, SLICERS, stay-log, reciprocating.

180. SLICERS, HOPPER-FEED. A slicing-knife reciprocating beneath a hopper in which the block to be sliced is placed. The block may be fed downward by its own weight or pressure may be employed to force it down.

163. SLICERS, RESLICERS. Machines which sever a slice from a block and then divide the slice into smaller pieces.

181. SLICERS, ROLLER-FEED. The work is fed to the cutting mechanism by rollers which also gage the thickness of the slice.

176. SLICERS, ROTARY-DISK. The cutting-knives are set in an approximately radial position upon a rotary disk and cut in a plane parallel with that of the disk.

177. SLICERS, STAY-LOG, OSCILLATING. The work is clamped by a stay-log which oscillates over or in front of a fixed knife. Either knife block, or stay-log may be fed forward by any desired means.

178. SLICERS, STAY-LOG, RECIPROCATING. The stay-log is caused to reciprocate above or in front of a fixed knife. Either knife block, or stay-log may be fed forward by any desired means.

179. SLICERS, STAY-LOG, SCREW-FEED. A reciprocating knife severs the slices from a block held by a stay-log which is fed forward by screw mechanism.

164. SLICERS, STRIP-CUTTING, CONVERGING KNIVES. Strips are severed from a log by knives whose edges are set approximately at right angles. No special form of knife is used and no special kind of feed.

165. SLICERS, STRIP-CUTTING, CONVERGING KNIVES, LATHE-FEED. The log is centered between chucks and rotated. One knife cuts tangentially and another radially, the former cutting continuously during the rotation of the log and the latter cutting only at intervals to divide the veneer severed from the log by the former.

166. SLICERS, STRIP-CUTTING, LATHE-FEED. The log is mounted between a pair of chucks and rotated step by step by ratchet mechanism, the strips being cut by knives mounted in a block which reciprocates longitudinally of the log.

185. SLIVERING. Machines for cutting excelsior, match-splints, or toothpicks and some devices for receiving and handling the product. They differ from match-making machines in not performing any of the operations involved in forming the match-heads. The generic subclass of slivering-machines includes machines of types different from those of the specific subclasses and also attachments for slivering-machines.

189. SLIVERING, GANG-SAW. Machines for dividing match-cards, cutting wooden pins, etc., by means of a gang of saws, circular or reciprocating.

190. SLIVERING, PLUNGER AND FIXED-KNIFE. The cutting mechanism consists of a fixed knife or pair of knives over which a sheet of veneer is fed and a reciprocating plunger which severs the slivers by driving the veneer down upon the knives.

191. SLIVERING, RECEIVING AND HANDLING DEVICES. Chutes and other devices for attachment to slivering-machines to receive and in some instances to straighten and assemble the splints for packing.

186. SLIVERING, SCORING-PLANE. The cutting mechanism consists of a block provided with two sets of cutters, one for scoring the surface and one for severing the slivers from the block.

187. SLIVERING, SCORING-PLANE, ENDLESS-BELT. The scoring-plane is attached to an endless belt or chain which carries it forward, the block being held stationary.

188. SLIVERING, SCORING-PLANE, ROTARY. The scoring-planes are fixed upon a rotating disk or platform, the block being held stationary.

2. SPECIAL-WORK MACHINES. Those not otherwise specifically classified, which are adapted to perform some special work or make some special article and which, unless modified to a considerable degree, would not be useful for general woodworking operations.
(Note.—Machines performing single operations even when designed for special work are usually not very different from general single-operation machines, and when this is so are classified with those machines of general utility.

3. SPECIAL-WORK MACHINES, COMBINED. Special-work machines adapted to perform two or more operations.

4. SPECIAL-WORK MACHINES, COMBINED, CIRCULAR-SECTION. Those adapted to work on spindles, balusters, and similar work which is circular in cross-section.

5. SPECIAL-WORK MACHINES, COMBINED, BLIND AND SASH CUTTING. Those adapted to perform two or more operations in the making of blinds or sashes. Machines for performing the single operations—such as planing, tenoning, shaping, etc.—are classified under these various headings with general operation machines.

6. SPECIAL-WORK MACHINES, COMBINED, BLIND AND SASH CUTTING, RELISHING. Those adapted to relish the frames of sashes or blinds by more than a single operation.

7. SPECIAL-WORK MACHINES, COMBINED, BOX-BLANK. Those adapted by more than one operation to cut box-blanks.
(Note.—Machines for performing single operations in the production of box-blanks are classified with the general machines performing such respective operations.)

8. SPECIAL-WORK MACHINES, COMBINED, CHAIR-ROUND TENONING AND SAWING. Those adapted to trim off and tenon chair-rounds.

9. SPECIAL-WORK MACHINES, COMBINED, CLOTHES-PIN. Machines adapted to perform two or more operations in the manufacture of clothes-pins.

10. SPECIAL-WORK MACHINES, COMBINED, CONVEYER-FLIGHT. Machines adapted to perform two or more operations in the manufacture of conveyer-flights.

11. SPECIAL-WORK MACHINES, COMBINED, HANDLE. Those adapted to perform two or more operations in the manufacture of handles for various implements.

12. SPECIAL-WORK MACHINES, COMBINED, PIN. Those adapted to perform two or more operations in the manufacture of wooden pins.

13. SPECIAL-WORK MACHINES, COMBINED, SHINGLE. Those adapted to perform two or more operations in the manufacture of shingles.

14. SPECIAL-WORK MACHINES, COMBINED, SPOOL. Those adapted to perform two or more operations in the manufacture of spools or bobbins.

17. SPECIAL-WORK MACHINES, COMBINED, WHEEL-FELLY BORING AND SAWING. Machines adapted to saw the ends of the felly and also bore the spoke-holes.

16. SPECIAL-WORK MACHINES, COMBINED, WHEEL-HUB. Those adapted to perform two or more operations in making wheel-hubs.

18. SPECIAL-WORK MACHINES, COMBINED, WHEEL-SPOKE TENONING AND SAWING. Machines adapted to saw the spoke ends to uniform length and turn the tenons.

15. SPECIAL-WORK MACHINES, COMBINED, WHEEL TENONING AND BORING. Machines adapted to bore holes in the hub or the felly and turn tenons upon the spokes.

19. SPECIAL-WORK MACHINES, COMBINED, WINDOW-STILE-POCKET CUTTING. Those adapted to cut the pocket by means of two or more operations.

25. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, BOX-HOOPING. Machines adapted to perform the operation of hooping small boxes, usually by wire.

26. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, COMB-TEETH CUTTING. Those adapted to cut comb-teeth in the manufacture of combs.

21. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, DISK-CUTTING. Those adapted to cut out or cut out and otherwise shape disks, usually for corks, bungs, etc.

22. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, DISK-CUTTING, BLANK SAWING, FEEDING, AND PUNCHING. Machines which sever blanks from pieces of wood by means of a saw, feed the blanks to a cutter, and finally cut out the disks from the blanks.

23. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, DISK-CUTTING, ROTARY TUBULAR-CUTTER. Machines for cutting disks, usually of cork, by means of a tubular cutter, which is rotated as it is brought into contact with the work in order to obtain a shearing cut.

24. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, DISK-CUTTING, SWEEP-CUTTER. Cork and bung cutting machines having one or more cutting-blades mounted in a rotating block, most of them having means for setting the blades at varying distances from the center and for setting them at at angle in order to cut tapering corks or bungs.

20. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, DISK CUTTING AND BORING. Machines which cut out cylindrical blanks and bore them longitudinally by means of a bit which passes down through the center of the hollow cutter.

27. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, HINGE-SEAT CUTTING. Those adapted to cut the mortise or bed in the wood in which a hinge is to be placed.

28. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, PENCIL-WOOD MAKING. Those adapted to perform such operations in the manufacture of pencil-wood as are not elsewhere specifically classified.
(Note.—Machines for performing one of such operations as splitting, slicing, sawing, planing, turning, etc., are placed in the respective classes with machines of general utility.

29. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, PIANO-HAMMER FELTING. Those adapted to fold glue-covered felt about and secure it by pressure to piano-hammers.

30. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, PIN-POINTING. Those adapted to point pins of various kinds, as fence-pickets, skewers, shoe-pegs, hop-poles, dowel-pins, etc.

31. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, PIN-SETTING. Machines for setting or inserting wooden pins for various purposes.

32. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, SCREW-DRIVING. Machines adapted to set or drive screws.

33. SPECIAL-WORK MACHINES, SINGLE OR COMBINED, TRAY-MAKING. Machines for cutting out veneer dishes or wooden bowls and trays of greater thickness than veneer.

34. SPECIAL WORK-MACHINES, SINGLE OR COMBINED, TREE-FELLING. Various apparatus for cutting down trees.

193. SPLITTING. Machines for splitting blocks of wood whether operated by hand or other power.

194. SPLITTING, SELF-FEEDING. Splitting-machines provided with various types of mechanism for feeding the blocks to the blades.

195. SPLITTING, SELF-FEEDING, ROLLER-AND-BELT. Splitting-machines having rollers and endless belts to feed the blocks to the splitting-blades.

192. SPLITTING AND BUNDLING. Machines which split blocks and also bind the split pieces into bundles.

198. TENONING. Machines for making tenons at the end of a piece of wood.

199. TENONING, BLIND-SLAT. Machines adapted to tenon blind-slats.

200. TENONING, BLIND-SLAT, ROTARY CUTTERS. Machines adapted to form tenons by some sort of rotary cutter.

201. TENONING, BLIND-SLAT, ROTARY GAINING-CUTTERS. Machines for forming tenons by a rotary gaining-cutter.

202. TENONING, CHISEL PAIR. Machines with oppositely-placed chisel-cutters which simultaneously cut both shoulders of the tenon.

203. TENONING, ROTARY GAINING-CUTTERS. Machines which are adapted to cut tenons by gaining.

204. TENONING, ROTARY GAINING-CUTTERS, MULTIPLE-TENON. Machines adapted to simultaneously gain two or more tenons.

205. TENON-TURNING. Machines adapted to make tenons by turning.

206. TENON-TURNING, WHEEL-SPOKE. Machines for turning spoke-tenons.

209. VENEER-LATHES. Machines for shaving veneers from the surface of a log which is centered between chucks and rotated against a knife.

210. VENEER-LATHES, CONVERTIBLE. Veneer-lathes whose stay-logs may be given a reciprocating or oscillatory instead of a rotary motion.

211. VENEER-LATHES, INCLINED KNIVES. Lathes in which the cutting-knives are set at an angle to the axis of the rotating log.

212. VENEER-LATHES, KNIVES AND KNIFE-BLOCKS. Knives of peculiar form and mechanism for supporting and shifting the knives while cutting the veneers.

213. VENEER-LATHES, PRESSER BARS AND ROLLS. Devices for gaging the thickness of the veneer cut from the log and for preventing the checking or splintering of the veneer under the action of the knife.

214. VENEER-LATHES, STAY-LOGS. Means for supporting the log in the lathe.

215. VENEER-LATHES, STRIP-CUTTING ATTACHMENTS. Devices to be attached to the lathe for dividing the sheet of veneer into strips as it is severed from the log.
(Note.—This does not include rollers with radial knives which score the log before the veneer is cut off. Such devices are classified as SLICERS, cylinder, radial-knife.

281. VENEER-PRESSES. Machines for pressing and retaining veneers to position while drying.

282. VENEER-PRESSES, ROLLER. Veneer-presses in which rollers are run over the work.

283. VENEER-PRESSES, MOLDING. Those presses adapted to veneering molding.

254. WOOD-BENDING, BENDING AND DRYING. Wood-bending machines which include heating devices for drying the wood in its bent form.

255. WOOD-BENDING, BENDING-ROLLERS. Includes machines wherein a rotating roller forces the wood against a yielding or an unyielding roller, a belt, or a shoe to crimp the wood without securing it to a former.

270. WOOD-BENDING, BENDS. Includes portions of structural material where the invention lies in the methods of forming the bend and the construction of the same.

269. WOOD-BENDING, CLAMPS. Devices for securing wood in its bent form until it is dried and set.

259. WOOD-BENDING, FORMER, FIXED. Includes fixed formers about which the wood is bent and secured until set. The wood is usually bent around the former by hand.

260. WOOD-BENDING, FORMER, FIXED, COLLAPSIBLE. Includes collapsible or knockdown formers about which the wood is bent and secured until set.

261. WOOD-BENDING, FORMER, FIXED, END-THRUST. Includes machines in which sticks of wood are thrust by endwise pressure into a former of the desired conformation and kept there until the wood has taken a permanent set.

262. WOOD-BENDING, FORMER, FIXED, RADIAL ARM AND ROLLER. Includes machines having a fixed former and concentrically-arranged lever carrying a roller which forces the wood into engagement with the former.

266. WOOD-BENDING, FORMER, FIXED, STRAP. The wood is held to the former by means of a strap which prevents the wood from splintering opposite the convexed portions of the former.

264. WOOD-BENDING, FORMER, FIXED, STRAP-AND-LEVER. Machines for bending wood about a fixed former. The wood is drawn to the former by a lever secured to a strap which passes over the wood and compresses it against the former.

263. WOOD-BENDING, FORMER, FIXED, STRAP-AND-WINDLASS. Machines for bending wood about a fixed former. The machines comprise a windlass or equivalent device connected with the ends of a strap which is drawn against the wood and forces it against the former.

265. WOOD-BENDING, FORMER, FIXED, STRAP-AND-SCREW. The wood is drawn to the former by means of a screw connected with the strap which compresses the wood against the former.

267. WOOD-BENDING, FORMER, PIVOTAL. The wood is secured at one end to a pivotal former which when rotated draws the wood therearound. This subclass also includes devices for bending wood which comprise a lever provided at one end with a former, to which one end of the wood to be bent is secured, and in which the former rests upon the wood and acts as the fulcrum as the lever is turned to draw the wood closely against the former.

268. WOOD-BENDING, FORMER, PIVOTAL, COILING. Machines for bending wood which comprise a revolving former, to which one end of the wood to be bent is secured and which, as the former is rotated, draws the wood closely therearound. In some of these machines a flexible apron presses the wood firmly against the cylinder or former.

258. WOOD-BENDING, HOOP-GAGING. Includes machines for stretching previously-formed hoops to a desired size by means of an expansible former.

256. WOOD-BENDING, PRESSES. Machines for bending wood to a desired form by compressing it between formers or dies. In the simpler machines one of the dies or formers is stationary and the other is carried by a plunger or a pivoted arm. In some instances the machine embodies an integral former and a cooperating sectional former. The parts of the sectional former are carried by pivoted arms and are moved by suitable mechanism for forcing the wood against the integral former. In other instances the machine embodies an integral convex former and a flexible former. This latter comprises a strap having its ends supported by pivoted arms or sliding blocks guided by mechanism to compress the wood between the flexible former and the convex former.
(Note.—Flexible formers may be found in WOOD-BENDING, former, fixed, strap, and the subclasses following which comprise a strap; also, in WOOD-BENDING, former, pivotal, coiling.)

257. WOOD-BENDING, PRESSES, END COMPRESSORS. Machines for compressing strips of wood endwise to buckle or bend it to the desired shape. Usually the wood to be bent is supported in a flexible holder.

271. WOOD-BENDING, STEAMING. Steam chambers or retorts especially designed for steaming wood to soften it preparatory to bending.

276. WOOD-ORNAMENTING, ARTICLES. Wood having its surface ornamented by embossing and impressing in various ways.

272. WOOD-ORNAMENTING, EMBOSSING. Machines for embossing designs upon wooden surfaces, usually by a die-roller and the application of heat. Coloring fluids are also frequently used.

273. WOOD-ORNAMENTING, EMBOSSING, DIE-ROLLERS. Those patents in which the invention lies in the construction of the die-roller.

274. WOOD-ORNAMENTING, EMBOSSING, HEAT-APPLYING. Those wood-embossing machines which present novelty in the arrangements for applying heat in the operation of embossing.

275. WOOD-ORNAMENTING, GRAINING. Machines adapted to indent, cut, or otherwise mutilate the surface of the wood to imitate graining. Sometimes the indentations are filled with some colored substance.

277. WOOD-ORNAMENTING, PROCESSES. Processes or methods of ornamenting wood by embossing, etc.
(Note.—Processes for ornamenting paper are under class 92, PAPER-MAKING.)

296. WORK-BENCHES. Work-benches for carpenters' use.
(Note.—Adjustable supports for holding heavy structures are found in WORK-HOLDING stands in this class.)

287. WORK-BENCHES, ADJUSTABLE STOCK-REST. Adjustable devices applied to the side of work-benches to support one end of a piece of stock, the other end of which is generally held in the ordinary bench-vise.

285. WORK-BENCHES AND TOOL-CHESTS COMBINED. Tool-chests modified to form work-benches; also, covers for school-desks adapted to be used as work-benches. The desk-covers are provided with receptacles for tools.

253. WORK-GUIDES. Devices for defining the path of work moving with relation to such device and the shaping-cutter.

288. WORK-HOLDING STANDS. Devices for holding structures of some magnitude, as doors, blinds, wagon-wheels, caskets, etc., in position to be operated on. These devices are usually adjustable.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 7. TUESDAY, FEBRUARY 13, 1900. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 20, 1900.

SIR: The Secretary of the Interior has ordered that Harry S. Kellogg, of Sandusky, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 23, 1900.

SIR: The Secretary of the Interior has ordered that John B. Williams, of Catlettsburg, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 24, 1900.

SIR: The Secretary of the Interior has ordered that Greene F. Anderson, of Nashville, Tenn., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 24, 1900.

SIR: The Secretary of the Interior has ordered that A. A. Tinsley, of Lawrenceburg, Ky., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED FEBRUARY 13, 1900.

Labels.

7,335.—Title: "TRI-WEAR." (For Shoes.) *William Hahn*, Washington, D. C. Application filed January 20, 1900.

7,336.—Title: "PINK CHECKER BOARD NATURAL STRINGLESS BEANS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 20, 1900.

7,337.—Title: "NATURAL SLICED BEETS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 20, 1900.

7,338.—Title: "NATURAL CLAMS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 20, 1900.

7,339.—Title: "BLUE MOIRE ANTIQUE NATURAL EARLY JUNE PEAS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 20, 1900.

7,340.—Title: "SMELL SWEET." (For a Perfumed Tablet.) *Bay State Drug and Chemical Company*, Boston, Mass. Application filed November 29, 1899.

7,341.—Title: "SIR KNIGHT'S DELIGHT." (For Cigars.) *Thomas J. Turner*, Savannah, Ga. Application filed January 17, 1900.

7,342.—Title: "ROYAL ARCH WHISKEY." (For Whisky.) *Thomas J. Turner*, Savannah, Ga. Application filed January 17, 1900.

7,343.—Title: "'FLECHA' BEER." (For Bottled Beer.) *Joseph Fallert Brewing Company*, New York, N. Y. Application filed January 19, 1900.

7,344.—Title: "AMARGO SULFUROSO DEL DR. KAUFMANN." (For Bitters.) *A. P. Ordway & Co.*, New York, N. Y. Application filed November 27, 1899.

7,345.—Title: "LOWNEY'S CHOCOLATES." (For Confectionery in Boxes.) *The Walter M. Lowney Company*, Boston, Mass. Application filed December 16, 1899.

7,346.—Title: "CHOCOLATE CATHARTICS." (For a Candy Cathartic.) *Thomas H. Mitchell*, Washington, Ind. Application filed January 17, 1900.

7,347.—Title: "RED CROSS PILE CURE." (For a Medicine.) *W. D. Rea*, Louisville, Ky. Application filed January 18, 1900.

7,348.—Title: "GOODWIN'S CREAM PASTE." (For a Cream-Paste.) *Goodwin, Allan & Co.*, Pittsburg, Pa. Application filed January 5, 1900.

7,349.—Title: "RODENTINE." (For an Animal-Poison.) *Hugo Gellner*, Cleveland, Ohio. Application filed December 19, 1899.

7,350.—Title: "ISIT SILK." (For Dry Goods.) *William Simpson Sons & Co.*, Philadelphia, Pa. Application filed January 18, 1900.

Print.

902.—Title: "MAGNET WAIST." (For Ladies' Waists.) *Morris I. Nathan*, New York, N. Y. Application filed January 20, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 6, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Jan. 24	Jan. 24	27
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 23	Jan. 29	145
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Jan. 23	Jan. 26	92
108	II. Farm Stock, Products, etc.	Jan. 16	Jan. 26	220
240	VII. Velocipedes, Games, and Toys.	Jan. 15	Jan. 24	208
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 12	Jan. 23	154
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Jan. 11	Jan. 24	73
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Jan. 9	Jan. 24	148
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Jan. 9	Jan. 24	145
190	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 9	Jan. 24	131
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 9	Jan. 23	118
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 9	Jan. 23	98
13	XXI. Textiles, etc.	Jan. 9	Jan. 23	170
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 8	Jan. 26	109
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 8	Jan. 26	120
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 8	Jan. 25	117
246	I. Tillage and Fences.	Jan. 8	Jan. 25	121
90	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Jan. 8	Jan. 24	161
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Jan. 8	Jan. 24	120
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 8	Jan. 24	126
248	XVIII. Steam-Engineering, etc.	Jan. 8	Jan. 24	174
39	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 8	Jan. 23	133
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 8	Jan. 23	157
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Jan. 8	Jan. 23	125
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 8	Jan. 23	174
102	XIX. Stoves and Furnaces.	Jan. 8	Jan. 23	213
253	X. Carriages and Wagons.	Jan. 8	Jan. 23	128
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 8	Jan. 23	167
268	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Jan. 8	Jan. 23	274
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 8	Jan. 23	211
120	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 8	Jan. 22	119
	Between one and two months.			
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Jan. 6	Jan. 26	139
111	XXIII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Jan. 5	Jan. 19	261
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 2	Jan. 6	256
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 31	Jan. 13	151
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Dec. 18	Jan. 8	327
	Total number of applications awaiting action			5,621

Applications Under Examination—Continued.

Under one month.			
*Designs	Feb. 1	Feb. 3	29
†Trade-Marks	Feb. 1	Feb. 3	21
‡Labels and Prints	Feb. 6	Feb. 6	1

ISSUE OF FEBRUARY 13, 1900.

Patents	519—No. 643,097 to No. 643,615,	inclusive.
Designs	36—No. 32,209 to No. 32,244,	inclusive.
Trade-Marks	35—No. 34,174 to No. 34,208,	inclusive.
Labels	16—No. 7,335 to No. 7,350,	inclusive.
Prints	1—No. 202.	
Reissues	None.	
Total issue	607	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	....	Nevada	....	....
Arizona Territory	1	....	New Hampshire	1	....
Arkansas	1	....	New Jersey	22	....
California	12	1	New Mexico Territ'y	....	....
Colorado	4	....	New York	65	10
Connecticut	22	....	North Carolina	4	....
Delaware	3	....	North Dakota	1	....
District of Columbia	7	1	Ohio	41	6
Florida	1	....	Oklahoma Territ'y	1	....
Georgia	6	2	Oregon	4	....
Hawaii	....	....	Pennsylvania	46	9
Idaho	....	....	Rhode Island	4	....
Illinois	59	2	South Carolina	1	1
Indian Territory	....	....	South Dakota	4	....
Indiana	11	1	Tennessee	2	....
Iowa	14	....	Texas	8	....
Kansas	8	....	Utah	....	....
Kentucky	4	1	Vermont	5	2
Louisiana	2	1	Virginia	8	....
Maine	3	....	Washington	5	....
Maryland	4	....	West Virginia	3	....
Massachusetts	36	6	Wisconsin	6	....
Michigan	18	1	Wyoming	....	....
Minnesota	11	1	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	18	3	Total to citizens of the United States	487	48
Montana	2	....			
Nebraska	6	....			

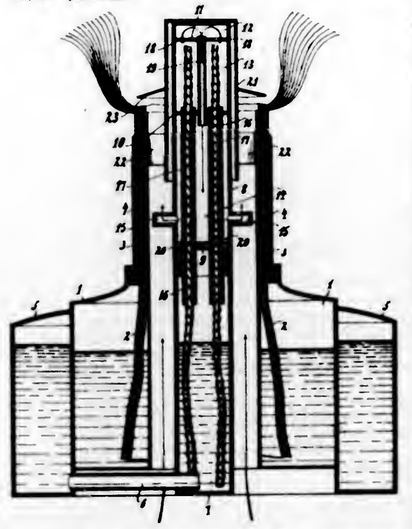
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Italy	....	....
Australia	....	....	Japan	....	....
Austria-Hungary	2	....	Jamaica	....	....
Barbadoes	....	....	Mexico	....	....
Belgium	....	....	Netherlands	1	....
Brazil	....	....	Newfoundland	....	....
British West Indies	....	....	New South Wales	1	....
Canada	9	....	New Zealand	....	....
Cape Colony	....	....	Norway	1	....
China	....	....	Queensland	....	....
Colombia	....	....	Roumania	....	....
Cuba	1	....	Russia	....	....
Denmark	....	....	Scotland	....	....
Dutch West Indies	....	....	South African Republic	....	....
Egypt	....	....	Sweden	1	....
England	15	3	Switzerland	3	....
Finland	....	....	Victoria	1	....
France	6	1	Western Australia	....	....
Germany	27	....	Total to citizens of foreign countries	68	4
Guatemala	....	....			
India	....	....			
Ireland	....	....			

PATENTS

GRANTED FEBRUARY 13, 1900.

643,097. BUNSEN BURNER FOR LIQUID HYDROCARBONS. RICHARD ADAM, Friedenau, Germany. Filed May 1, 1899. Serial No. 715,190. (No model.)



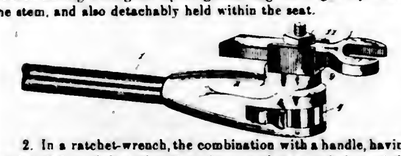
Claim.—1. In a Bunsen burner for liquid fuel, the combination with a receptacle for the fuel, a wick, an inner and an outer wick-tube, the latter passing right through the center of the receptacle, of a water-tube, arranged in the middle of the inner wick-tube, an evaporator-tube being fixed to the same, consisting of three compartments, the middle one of which may serve for generating, the upper one for superheating and the lower one for collecting the steam, nozzles for directing the steam into the inner wick-tube, thereby producing a strong upwardly-directed current of air, and a flame-spreader for conducting the heat of the flame to the evaporator-tube, substantially as and for the purpose described.

2. In a Bunsen burner of the kind indicated, the combination with a receptacle for the fuel, a wick, an inner and an outer wick-tube, a water-tube arranged in the middle of the inner wick-tube, an evaporator-tube cooperating with the water-tube and consisting of three compartments, nozzles for directing the steam from said evaporator-tube and a flame-spreader, of a central water-reservoir, a water wick-tube in the middle of the evaporator-tube and passing through the two lower compartment-partitions and bearing perforations near the lowest partition of the evaporator-tube, substantially as and for the purpose described.

3. In a Bunsen burner of the kind indicated the combination with a receptacle for the fuel and a water-reservoir, a wick-tube, a water-tube and an evaporator-tube cooperating with said water-tube and consisting of three compartments and bearing exit steam-nozzles, and a central water wick-tube bearing perforations, of a tube fitting exactly over the evaporator-tube and carrying a flame-spreader, substantially as shown and described.

643,098. RATCHET-WRENCH. WILLIAM M. ARTHUR, Leadville, Co'o. Filed Nov. 29, 1899. Serial No. 738,706. (No model.)

Claim.—1. In a ratchet-wrench, the combination of a handle, having a ratchet-disk, and dogs therefor, a central stem or hub carried by and movable with the disk, projecting at one side of the handle, and having an angular portion, a seat having an angular opening detachably fitting the angular portion of the stem, and a wrench having an angular opening receiving the angular portion of the stem, and also detachably held within the seat.



2. In a ratchet-wrench, the combination with a handle, having a ratchet-disk, and dogs therefor, of a central stem or hub carried by and movable with the disk, projecting at one side of the handle, and provided with a shoulder, a seat detachably fitted to the stem and supported upon the shoulder, and a wrench detachably held within the seat.

3. In a ratchet-wrench, the combination of a handle, having a ratchet-disk, and dogs therefor, a central stem or hub carried by and movable with the disk, and projecting at one side of the handle, a seat fitted to the stem, and having opposite jaws or flanges, and a wrench detachably held between the jaws or flanges of the seat.

4. In a ratchet-wrench, the combination of a handle having a ratchet-disk, and dogs therefor, a central stem or hub carried by and movable with the disk, projecting at one side of the handle, and provided with an angular portion and a screw-threaded portion, a wrench, having an angular opening detachably fitting the angular portion of the stem, and a nut fitted to the threaded portion of the stem and bearing against the wrench.

5. In a ratchet-wrench, the combination of a handle, having a ratchet-disk, and dogs therefor, a central hub or stem carried by and movable with the disk, projecting at one side of the handle, and having a shoulder an angular portion, and a screw-threaded portion, a seat having an angular opening detachably fitting the angular portion of the stem, and opposite jaws or flanges, a wrench detachably fitted between the jaws or flanges of the seat, and having an angular opening receiving the angular portion of the stem, and a nut fitted to the threaded portion of the stem and bearing against the wrench.

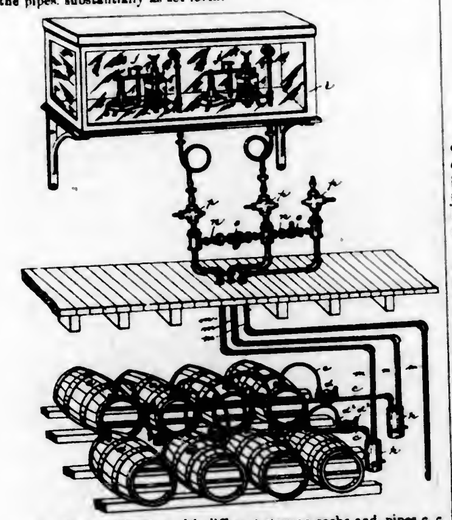
643,099. PRESSURE-REGULATING DEVICE. JOHN H. AYARS, Newark, N. J. Filed July 27, 1899. Serial No. 725,259. (No model.)

Claim.—1. The combination with a pipe or ducts having independent passages and connections thereof with the casks, of a transverse pipe leading from one pipe or duct to the other and provided with controlling-cocks and means for regulating the pressure within said pipes, substantially as set forth.

2. The combination with two parallel series of casks having a way or passage *b*, therebetween, of two parallel pipes *c*, *c*, disposed at said way and connected with different pressure-regulating devices, said pipes each having a series of connections *d*, and flexible branch pipes separable from said connections and adapted to extend from the connections of either of the said pipes *c*, to the casks, and valves stationed at the cask connections and at the pipe connections *d*, substantially as set forth.

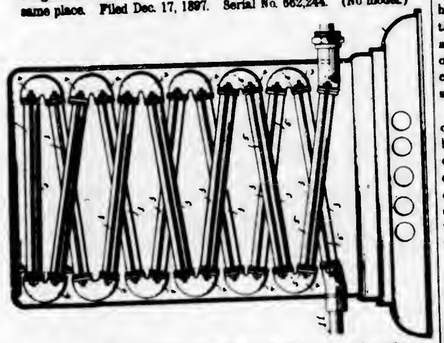
3. The combination with two series of casks having a way, a passage *b*, therebetween, of two pipes *c*, *c*, connecting with different pressure-regulating devices, said pipes *c*, each having a series of connections *d*, with oppositely-disposed members d^2, to receive the interchangeable branch pipes, said members d^2, each having a valve or cock d^3, and flexible branch pipes separable from the connections *d*, and adapted to extend from the connections of either of the pipes *c*, to the casks, and valves for closing out-passage of gas from the casks when the branch pipes are being changed, substantially as set forth.

4. The combination with two series of casks having a way or passage *b*, therebetween, of two pipes *c*, *c*, connecting with different pressure-regulating devices, said pipes *c*, each having a series of connections to receive branch pipes, said connections being provided with valves or cocks closing outflow of gas therefrom, a series of interchangeable flexible pipes adapted to extend from the cask to either of the said pipes *c*, whereby the pressure of the casks can be raised or lowered to accord with the pressure of either one or the other of the pipes, substantially as set forth.



5. The combination with different storage casks and pipes *c*, *c*, connecting with different pressure-regulating devices adapted to be set to automatically maintain the casks in open connection therewith at desired pressures, interchangeable branch pipes, a transverse pipe *n*, connecting the pipes *c*, *c*, and having a valve or cock *o*, and valves *p*, disposed between the connection of said pipes *c*, *n*, and the regulating devices, substantially as and for the purposes set forth.

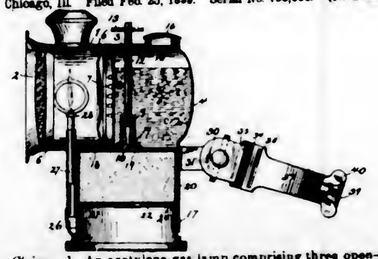
648,100. WATER-HEATER. JAMES E. BANCROFT, Toledo, Ohio, assignor to the National Cement and Rubber Manufacturing Company, same place. Filed Dec. 17, 1897. Serial No. 662,244. (No model.)



Claim.—1. In a water-heater in which the inlet and outlet are located at the bottom of the heater, the combination of two vertical sets of zigzag conduits which comprise a series of tubes connected by elbows, the elbows of one side being arranged oppositely to the elbows of the other side, a water-inlet pipe communicating with the lower portion of one of the conduits, and an exit-pipe communicating with the lower portion of the other conduit, the two conduits being in communication at the top of the heater, substantially as described.

2. In a water-heater, the combination of a vertical series of tubes, elbows for connecting the ends of the tubes, the elbows being provided with flanges and binding-rods passing through said flanges, and adapted to hold the elbows in operative position to said tubes, substantially as described.

643,101. ACETYLENE-GAS LAMP. WALTER A. BARROWS, Chicago, Ill. Filed Feb. 25, 1899. Serial No. 706,800. (No model.)



Claim.—1. An acetylene-gas lamp comprising three open-ended cups, forming respectively the burner-chamber, water-chamber and carbid-chamber, the burner-chamber cup and water-chamber cup being arranged end to end, and the carbid-chamber cup arranged adjacent to the water-chamber cup, valve-controlled communication between the water-chamber and carbid-chamber, a closure for said carbid-chamber and a gas-outlet from the latter chamber.

2. An acetylene-gas lamp comprising two open-ended cups arranged end to end to form an open-ended burner-chamber and a closed water-chamber, the end or bottom of the burner-chamber cup forming a partition between said chambers and thereby closing the water-chamber, a carbid-chamber arranged adjacent to the water-chamber, means of communication between the water-chamber and carbid-chamber and a gas-outlet from the latter chamber.

3. An acetylene-gas lamp comprising an open-ended cup forming a burner-chamber and being reduced in diameter at its closed end, a second open-ended cup of substantially the same diameter forming a water-chamber with its open end engaging the reduced end of the first cup and secured thereto in axial alinement, the end of bottom of the first cup forming a partition between the chambers and a third open-ended cup arranged with its open end downward and forming a generating-chamber secured at its other end to the other cups with its longitudinal axis at right angles to the longitudinal axis of the other cups, means of communication between the water-chamber and generating-chamber and a gas-outlet from the generating-chamber.

4. An acetylene-gas lamp comprising an open-ended cup forming a burner-chamber, a second open-ended cup secured to the burner-chamber and forming a water-chamber, a third open-ended cup forming a generating-chamber, a removable closure for said third cup, a screw-plug connection between said second and third cups having a valve-governed passage for the flow of water from the water-chamber into the generating-chamber and a gas-outlet from the generating-chamber.

5. An acetylene-gas lamp comprising a casing forming a water-chamber, a plug secured in the bottom of the water-chamber and having a valve-governed bore, said plug having one end extending through the water-chamber casing and provided with screw-threads, a cup, one of whose ends is open and the other closed except for an opening engaging the plug whereby the cup is secured to the water-chamber, a closure for the open end of the cup and a gas-outlet from such cup.

6. An acetylene-gas lamp comprising a casing forming a water-chamber, a plug secured in the bottom of the water-chamber and having a bore provided with a valve-seat and communicating through openings with the water-chamber, a valve operating in the bore to govern said openings, a generating chamber or cup, one of whose ends is open and the other closed, means for securing the cup at its closed end to the plug and simultaneously provide communication between the water-chamber and the generating-chamber and a gas-outlet from the generating-chamber.

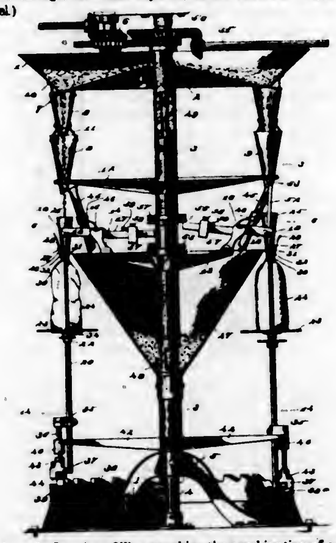
7. An acetylene-gas lamp comprising a water-chamber having in its bottom a plug 9 provided with a bore 11 and an extraneous screw-threaded portion 10, and openings 14 communicating between the water-chamber and said bore, a valve 12 operating in the bore to govern said openings, a cup forming a generating-chamber and having one end open and the other closed except for a screw-threaded opening 19 which receives the screw-plug, and a gas-outlet from the generating-chamber.

8. An acetylene-gas lamp comprising an open-ended cup forming a burner-chamber, a second open-ended cup arranged end to end with the first cup and forming a water-chamber, a third open-ended cup forming a generating-chamber, means of communication between said chambers, a carbid-cup arranged within the generating-chamber, a friction-ring located below the carbid-cup and independent of such cup, and a gas-outlet from the generating-chamber.

9. An acetylene-gas lamp comprising an open-ended cup forming a burner-chamber, a second open-ended cup arranged end to end with the first cup and forming a water-chamber, a third open ended cup forming a generating-chamber, means of communication between said chambers, a carbid-cup arranged within the generating-chamber, a friction-ring located below the carbid-cup and independent of such cup, and a gas-outlet from the generating-chamber.

10. An acetylene-gas lamp comprising a water-chamber, a generating-chamber, means of communication between said chambers, a carbid-cup arranged within the generating-chamber and having a gas-passage through its bottom, a withdrawing-ring secured to the bottom of the cup, a friction-ring below the cup and independent of such cup, and a gas-outlet leading from the generating-chamber below the cup.

643,102. SACKING AND WEIGHING MACHINE. ADELBERT M. BATES, Chicago, Ill. Filed Sept. 20, 1899. Serial No. 731,037. (No model.)



Claim.—1. In a bag-filling machine the combination of a revolving hopper, a plurality of chutes leading downwardly therefrom, a plurality of weighing devices supported under said chutes and revolving with said hopper, a diverting-chute supported upon each of said weighing devices for diverting the material from the bag, a hopper for receiving the diverted material, a hollow shaft extending between the two said hoppers and having openings communicating therewith and a screw conveyer in said shaft for conveying the material from the lower to the upper hopper, substantially as set forth.

2. In a bag-filling machine the combination of a vertical revolving tube, a hopper supported thereon and revolving therewith, a second hopper supported upon said tube below said first hopper and having communication with the interior of said tube, chutes leading downwardly from said first hopper, bag weighing and supporting devices supported upon and revolving with said tube, diverting-chutes for diverting the material from the bags into said second hopper and a screw conveyer in said tube for elevating the material from the lower hopper to the upper hopper, substantially as set forth.

3. In a bag-filling machine the combination of a plurality of revolving weighing devices, a vertically-movable platform or bag-support suspended from each of said weighing devices, a toothed or corrugated way, a plurality of trolleys running on said way and plungers operatively connected with said trolleys for agitating said bag-supports, substantially as set forth.

4. In a bag-filling machine the combination of a plurality of revolving weighing devices, a vertically-movable bag-support suspended from each of said weighing devices, a jigging-plunger arranged under each of said supports, a trolley connected with each of said plungers, a toothed way arranged under said trolleys, means for traveling said trolleys along said way and means for varying the degree of downward movement of said trolleys, substantially as set forth.

5. In a bag-filling machine the combination of a chute for conveying the material to the bag, a weighing device for weighing the bag, a cut-off actuated by said weighing device for preventing the material from entering the bag after the weight has been attained and a pivoted lag-bar having a surface normally lagging against a surface moving in unison with the weighing device adapted to engage therewith when the weighing device weighs down for holding said cut-off in its operative position, one of said surfaces being inclined so that the lag-bar will engage and hold the weighing device at various degrees of depression of the weighing device, substantially as set forth.

6. In a bag-filling machine the combination of a chute for conveying the material to the bag, a scale for weighing the bag, a cut-off for preventing the material from entering the bag after the weight has been attained and a toothed lag-bar normally tending to engage over a part of the weighing device and holding the chute closed after the bag has been removed, substantially as set forth.

7. In a bag-filling machine the combination of a chute for conveying the material to the bag, a scale having a beam, a bag-support on said scale for supporting and weighing the bag, a bag-filling funnel removably supported on said beam and having means for attachment to the bag, substantially as set forth.

8. In a bag-filling machine the combination of a chute for conveying the material to the bag, a scale for weighing and supporting the bag having the knife-edge bar 19, a cut-off for said chute, a lag-bar resting normally against said knife-edge bar 19 and having an inclined notched end for engaging thereover as the bar 19 descends, substantially as set forth.

9. In a bag-filling machine the combination of a scale, a bag-filling funnel having means for gripping the bag and means in connection with said funnel and scale whereby the funnel may be removably supported upon the scale and means for directing the material into said funnel, substantially as set forth.

10. In a bag-filling machine the combination of a scale, a bag-support suspended therefrom and a bag-filling funnel having means for gripping the bag and adapted to be supported independently of said bag-support, substantially as set forth.

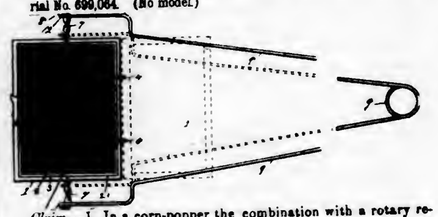
11. In a bag-filling machine the combination of a scale, a bag-support suspended from said scale, means for jigging said support independently of the scale, and a bag-filling funnel having means for gripping the bag, supported on the scale independently of said bag-support, substantially as set forth.

12. In a bag-filling machine the combination of a bag-support, a traveling trolley, a track upon which said trolley travels having teeth or serrations of different lengths, means for imparting the jigging movement of said trolley to the bag resting on said support and means for filling the bag, substantially as set forth.

13. In a bag-filling machine the combination of a traveling bag-support, a trolley traveling with said support, a track upon which said trolley runs having teeth of different lengths, means for imparting the jigging movement of said trolley to the bag on said support and means for filling the bag, substantially as set forth.

14. In a bag-filling machine the combination of a series of traveling gravitating trolleys, a track upon which said trolleys travel having teeth or serrations of different size, a series of bag-holding devices traveling with said trolleys and means for imparting the jigging movement of said trolleys to the bags held by said holding devices respectively, substantially as set forth.

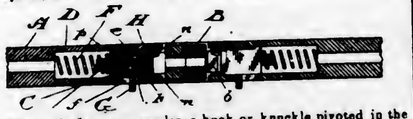
648,103. CORN-POPPER. FRANK J. BROOKER, Hamilton, Ohio, assignor to Thaddeus A. Neely, Muncie, Ind. Filed Dec. 12, 1898. Serial No. 699,064. (No model.)



Claim.—1. In a corn-popper the combination with a rotary receptacle, of oppositely-twisted flat arms projecting beyond the opposite ends of the receptacle and axially with respect thereto, and a handle comprising a spring-coil and terminating in flat loops engaging the twisted arms beyond the ends of the receptacle, whereby the complete rotation of the receptacle may be effected by the relative compression or expansion of the arms.

2. A corn-popper receptacle comprising a sheet-metal frame formed by bending a single strip of sheet metal into flat rectangular form by overlapping the strip on an oblique line at the corners of the frame, doubling the four sides of the frame longitudinally, forming correlative longitudinal corrugations in each of the frame sides and finally bending the terminals of the frame obliquely to form interlocking lips designed to connect the ends of the strip and a wire receptacle having its edges clamped between the doubled edges of the frame, substantially as specified.

643,104. AUTOMATIC CAR-COUPLING. EDWARD BEST, London, Canada, assignor of one-half to Albert R. Pingel, George Taylor, William S. Barkwell, George Burness, and Homer Pingel, same place. Filed Apr. 15, 1899. Serial No. 713,136. (No model.)



Claim.—1. In a car-coupler, a hook or knuckle pivoted in the draw-head, and provided with a suitable tail, in combination with a sliding lock longitudinally and vertically movable in a suitable guide-way in the draw-head, and normally held by spring-pressure in the path of the said tail; means for drawing back the said lock to release the tail; and a locking-bolt sliding in a suitable hole in the lock and adapted to project a short distance below the bottom thereof, and to engage a hole in the bottom of the draw-head when the lock is drawn back, the tail of the knuckle and the end of the lock being so shaped that the swinging outward of the tail to the uncoupled position raises the forward end of the lock and releases the said bolt from the said hole and that, in swinging outward to the coupled position, the tail al des by the lock, substantially as and or the purpose specified.

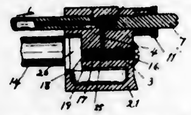
2. In a car-coupler, the hook or knuckle B, pivoted in the draw-head A, and provided with the tail *b* in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f;* the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* on the front end of the lock; and the curved projection *o* on the tail of the knuckle, substantially as and for the purpose specified.

3. In a car-coupler, the hook or knuckle B pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f;* the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* on the front end of the lock; the curved projection *o* on the tail of the knuckle; and the rib or flange P, on the lock C', substantially as and for the purpose specified.

4. In a car-coupler, the hook or knuckle B pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f;* the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* and flange *m* on the front end of the lock; and the curved projection *o* on the tail of the knuckle, substantially as and for the purpose specified.

5. In a car-coupler, the hook or knuckle B, pivoted in the draw-head A, and provided with the tail *b*, in combination with the sliding lock C, longitudinally and vertically movable in the guideway D, in the draw-head; the spring F, bearing against the inner end of the lock and against the draw-head; the bolt G, connected to the lock and extending out through the slot *f;* the locking-bolt H, provided with a head and movable in the counterbored hole *h* so that it may enter the hole *i* in the draw-head when the lock is drawn back; the cam *n* and flange *m* on the front end of the lock, the curved projection *o* on the tail of the knuckle and the rib or flange P, on the lock C', substantially as and for the purpose specified.

643,105. BURNER. NATHANIEL H. BLEDSOE, Fort Wayne, Ind. Filed Mar. 11, 1899. Serial No. 708,619. (No model.)



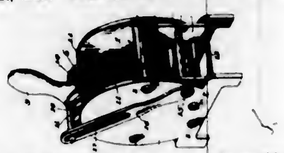
Claim.—1. The combination of a burner-casting having a fluid-receptacle and connecting chambers as shown, a fuel-supply pipe 6 and an inlet-valve 7, mounted in longitudinal alinement in the upper chamber, the inlet-valve 7 being adapted to close the inlet-port of the supply-pipe, and having an asbestos chamber in its inner end as described; and the lower chamber provided with a removable screw-plug having an outlet-port leading to the combustion-chamber, and removable means for closing the outer end of said lower chamber.

2. In a burner of the class specified, the combination of a chambered casting having a fuel-supply pipe fixed therein, and provided with a fluid-receptacle as described; the upper valve-chamber in alinement with the said supply-pipe, and a lower chamber communicating with both the valve-chamber and the combustion-chamber as shown; a valve mounted in said upper valve-chamber, and provided upon its inner end with an asbestos-chamber for the purpose described; and removable means for closing said lower chamber for the purpose of affording access thereto.

3. In a chamber of a burner of the class specified, an inlet-valve 7 adapted to regulate the fuel pressure or supply at the inlet-port, and provided with an asbestos-chamber in longitudinal alinement with the inlet-port of the pipe 6 for the purpose described.

4. In a burner of the class specified, the burner-casting provided with the chamber 15, and the screw-plug 17 placed in said chamber and provided with the longitudinal outlet-port 19, which communicates with the chamber 15 at one end, and the combustion-chamber at the other, combined with removable means for closing the outer end of the chamber, a passage-way 4 through the casting communicating with the chamber, and a valve for controlling said passage at its upper end, substantially as described.

643,106. FRUIT OR VEGETABLE CUTTER. JOSEPH BLONDE, Lenox Dale, Mass. Filed Apr. 20, 1899. Serial No. 713,749. (No model.)

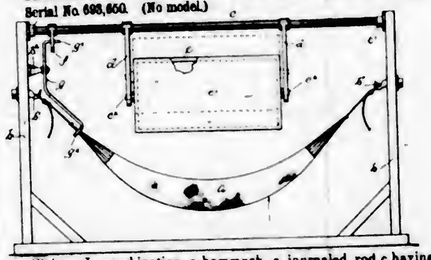


Claim.—1. In a fruit and vegetable cutter, the combination with a frame consisting of parallel sides; of a series of fixed curved knives secured within the frame, and arranged to present a convex cutting-surface; a pivoted presser-bar having a concave face cooperating with the knives; and a semicircular frame carrying knives and mounted upon a shaft in rear of the said fixed knives, and a connection between the presser-bar and said semicircular frame whereby the latter is operated by the movement of the presser-bar.

2. In a fruit or vegetable cutter, the combination with the supporting-frame consisting of parallel sides connected by transverse bolts; a fixed convex cutting-frame consisting of curved knives connected by transverse knives; a presser-bar having a concave face and a handle; a supplemental cutting-frame pivotally supported in rear of the fixed cutting-frame; and a connection between said supplemental frame, and the presser-bar.

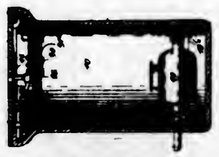
3. In a fruit and vegetable cutter, the combination with the supporting-frame, and fixed cutting-knives; of the concaved presser-bar having a handle for operating the same; an oscillating frame carrying knives, supported in the rear of the fixed knives; a lever for operating said oscillating frame; and a pin or projection carried by the presser-bar and operative within a slot in said lever, whereby said lever is reciprocated by the presser-bar and the oscillating frame automatically operated.

643,107. FAN MECHANISM FOR HAMMOCKS. ENOCH B. BROWN and CARLTON W. BROWN, Mystic, Conn. Filed Oct. 15, 1898. Serial No. 693,650. (No model.)



Claim.—In combination, a hammock, a journaled rod *c* having pendent arms provided with notches d^2, a fan hung in said notches and adapted to swing independently of the said rod *c*, and mechanism connecting the hammock and rod *c* whereby the swinging of the hammock will impart a rocking movement to the said rod.

643,108. STREET-BOX FOR UNDERGROUND MAINS. CHARLES E. CAMPBELL, Charlotte, N. C. Filed May 25, 1899. Serial No. 718,144. (No model.)



Claim.—1. A street-box for underground mains comprising complemental box-sections fitted telescopically together, the lower section of said box provided at its upper open end with an enlarged mouth, and the upper box-section having at its lower end the alined recesses, and a filling adapted to occupy the enlarged portion of the lower box-section, substantially as described.

2. A street-box for service-mains provided with a flange at its upper end, a cover provided with guides, a locking-bolt slidably fitted to said guides, an operating-spindle journaled in said cover, and a curved arm fast with said spindle and engaging with the slidable bolt for retracting or projecting the latter into or from engagement with the flange of the street-box, substantially as described.

3. In a street-box for underground mains, a cover provided with bolt-guides, a spindle journaled in the cover, a curved arm fast with the spindle to turn therewith, and a slidable bolt supported at its outer end by guides and at its inner end by engagement with the curved arm, substantially as described.

4. In a street-box for underground mains, a cover provided with bolt-guides, an operating-spindle journaled on the cover and carrying a curved arm, stops fast with the cover lying in the path of the curved arm to limit the travel thereof, and a bolt fitted to the guides and connected to the arm, substantially as described.

5. In a street box for underground mains, a cover provided with bolt-guides, a spindle mounted in the cover to turn therein, a slidable bolt confined in the guides and connected operatively with the spindle, and stops for limiting the turning movement of the spindle in the cover, substantially as described.

6. The combination of a street-box, a metallic clamp secured thereto, and a cover fitted to said clamp and provided with a locking device which is adapted to engage with the clamp, substantially as described.

7. The combination of an earthenware box, a two-part metallic clamp embracing said box and having its members separably joined together, a cover fitted to said clamp, and a locking contrivance supported by the cover and arranged to engage with the clamp, substantially as described.

8. The combination of a street-box, a two-part clamp having its members fitted together at their contiguous ends by overlapping joints and sealed by a suitable filling, means for separately connecting the members of said clamp together and to the street-box, a cover, and a locking contrivance carried by the cover and engaging with the flange afforded by the clamp, substantially as described.

9. A terra-cotta street-box of uniform width or diameter throughout its length and provided at its upper end with the exterior lugs arranged in series on the outside of said box, for the purpose described, substantially as set forth.

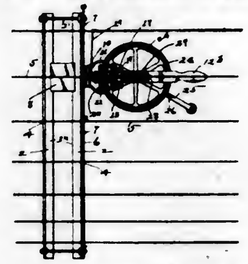
10. The combination of a street-box, a metallic clamp fitted to the upper end thereof, means for fastening said clamp removably to said box, and a cover seated on the clamp and having a bolt adapted to be projected into engagement therewith, substantially as described.

11. The combination with a street-box provided with a series of lugs, one of which is slotted, a clamp seated on the box and having lugs which engage with the lugs of the box, one of the lugs on the clamp adapted to register with the slotted lug of the box, and the bolt passing through said lug of the cover and the slotted lug to removably confine the clamp in place, substantially as described.

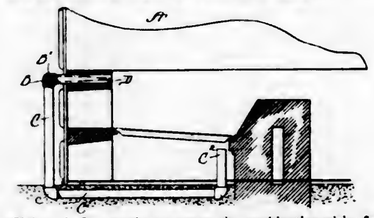
12. The combination of a street-box, a clamp fitted thereto, lugs on one of said parts, fastenings engaging with the other part and with said lugs, and a cover seated on the clamp and provided with a locking device adapted to engage with said clamp, substantially as described.

643,109. MACHINE FOR WEAVING CROSS-WIRES IN FENCES. THOMAS F. CARPENTER, Derby, Ohio. Filed June 14, 1899. Serial No. 720,456. (No model.)

Claim.—In a machine for weaving cross-wires in fences, the combination with a shifting frame consisting of united parallel standards 2 having slotted recesses for the reception of the longitudinal fence-wires, a weaver-frame, a slotted tube boxing or casing, and a handle portion formed therewith, of a slotted weaver-tube journaled in said casing, a wire-carrying pin projecting as described from said tube-flange, a slotted pinion on said tube, a bevel gear-wheel journaled on said weaver-frame and gearing with said pinion, said gear-wheel having a handle projection, yoke-arms 11 having corresponding ends connected with said weaver-frame and extending on opposite sides of said pinion, a block 8 having a sliding support between the standards of said shifting frame and an arm 9 jointedly connected at one end with the block 8 and having its remaining end jointedly connected with said yoke-arms 11, substantially as described.



643,110. SMOKE-CONSUMER. JOSEPH P. CODY, Peoria, Ill. Filed Sept. 20, 1899. Serial No. 731,077. (No model.)



Claim.—1. In a smoke-consumer, the combination with a furnace or fire-pot of a cold-air duct open at both ends, a series of discharge-pipes as D D', opening out of the same and communicating with the fire-pot, steam-pipe E carried within said cold-air duct, fan-jet tubes as e' and e^2, carried through the discharge-pipes and communicating with the fire-pot and draft duct or ducts as D^2 communicating with said cold-air duct and also communicating with said fire-pot, all substantially as described and shown.

2. In a smoke-consumer, the combination with a combustion-chamber or fire-pot of a series of discharge-pipes communicating with said fire-pot, a cold-air duct open at both ends communicating with the discharge-pipes, a steam-pipes carried within said cold-air duct and a series of fan-jet tubes opening out of the steam-pipe and carried through the discharge-pipes, and an exhaust tube or tubes communicating with the combustion-chamber and the cold-air duct and arranged in close proximity to the discharge-pipes, all substantially as described and shown.

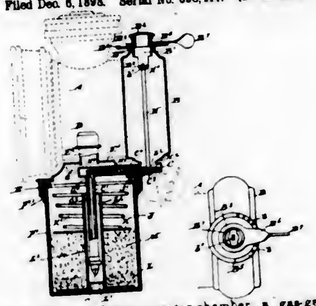
3. In a smoke-consumer, the combination with a combustion-chamber or fire-pot, of a series of discharge-pipes opening into the fire-pot at the top portion thereof, a cold-air duct communicating with the discharge-pipes and open at both ends, a series of fan-jet tubes carried through the discharge-pipes and a steam-pipe communicating therewith and supplying steam thereto under pressure, and exhaust-ducts one communicating with the cold-air duct from a point below the grate and one or more exhaust-ducts communicating with the cold-air duct from the top portion of the combustion-chamber, all substantially as described and shown.

4. In a smoke-consumer, the combination with a combustion-chamber or fire-pot of the discharge-pipes D D', the cold-air duct B, open at both ends, the exhaust-duct D^2 opening into the fire-pot above the grate and communicating with the cold-air duct, an exhaust-duct extending from a point below the grate and communicating with the cold-air duct formed of the pipes C, C', and C^2 properly coupled together, the fan-jet tubes e', e^2 flattened at their respective ends and communicating with a steam-supply pipe and means for forcing steam through said steam-pipes under pressure, all substantially as described and shown.

5. In a smoke-consumer, a cold-air-supply duct, a series of discharge-pipes opening out of said cold-air duct and opening into the combustion-chamber, a steam-pipe extending into the cold-air duct, and a series of tubes with flattened nozzles extending from the steam-pipe and into the series of discharge-pipes and a series of exhaust-tubes communicating with the combustion-chamber and the cold-air

duct and arranged each one of the series alongside and in close proximity to the discharge-pipes.

648,111. ACETYLENE-LAMP. WILLIAM P. CRARY, New York, N. Y., assignor of one-half to the Edward Miller & Company, Meriden, Conn. Filed Dec. 6, 1898. Serial No. 698,411. (No model.)



Claim.—1. In a gas-lamp, a water-chamber, a gas-generating chamber, a water-supply pipe, an elongated valve therein, a space around said valve, an adjustable valve-seat carried by said pipe, an opening in said seat in line with said valve, and adapted to be closed thereby, and a water-distributing pipe around said valve and seat and within said gas-generating chamber.

2. In a gas-lamp, a water-chamber, a gas-generating chamber, a water-supply pipe, an elongated valve therein, means to move said valve longitudinally, a space around said valve, an adjustable valve-seat carried by said pipe, an opening in said seat in line with said valve and adapted to be closed thereby and a water-distributing pipe around said valve and seat and within said gas-generating chamber.

3. In a gas-lamp, a water-chamber, a gas-generating chamber, a water-supply pipe, an elongated valve therein, means to move said valve longitudinally, a water-space around said valve, a valve-seat carried by said pipe and means to move said valve-seat longitudinally thereon, an opening in said seat in line with said valve and adapted to be closed thereby, and a water-distributing pipe around said valve and seat and within said gas-generating chamber.

4. In a gas-lamp, a water-chamber, a gas-generating chamber, a water-supply pipe, an elongated tapered valve therein, means to move said valve longitudinally, a water-space around said valve, a valve-seat carried by said pipe, means to move said seat longitudinally thereon, an opening in said seat in line with said valve, said opening being of less diameter than the greatest diameter of said valve and a water-distributing pipe around said valve and seat and within said gas-generating chamber.

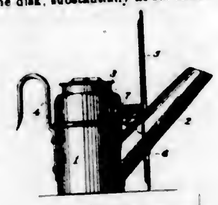
5. The lamp-body A, reservoir B forming part thereof, receptacle F below said body, casing C communicating between said reservoir and receptacle, the downwardly-extending tube C' from said casing, a screw-valve G' at the lower end of said water-tube, a valve-stem G^2 inclosed in the latter and reaching into said casing, a rod H extending downwardly in said reservoir into said casing, and a train of gears H^3, H^3, H^4 inclosed in the casing and communicating motion from said rod to said stem to raise and lower said valve, all combined and arranged to serve substantially as herein specified.

6. In a lamp of the character set forth, the receptacle F, cup J therein having the inwardly-curled upper edge J', a disk L having an upwardly-extending central foraminated tube L^3 secured thereto and lying in said cup, a water-tube inclosed in said foraminated tube, an annular follower inclosing the latter, and a coiled spring attached to said follower and abutting against said curled edge, all combined and arranged to serve substantially as and for the purposes herein specified.

7. The lamp-body A, reservoir B, revoluble filling-tube B' and bridge B^3 having the rectangular aperture b', the casing C, receptacle F and water-tube C' extending to a low point in the receptacle from said casing and out of line with said filling-tube, a screw-valve G' near the lower end of said water-tube, a valve-stem G^2 inclosed therein, the gear H^4 engaging the upper squared end G^4 of the valve-stem, a gear H^3 meshing therewith and with the gear H^3, the rod H secured to the latter and having its upper squared end H' engaged with the lower end of said filling-tube, the spring C^4 for holding the gears, the said casing inclosing said gears and spring and forming an open connection between said reservoir and water-tube, all combined and arranged to serve substantially as and for the purposes herein specified.

643,112. MINER'S LAMP. WILLIAM A. DUNLAP, Pittsburg, Pa. Filed Sept. 13, 1898. Serial No. 690,835. (No model.)

Claim.—A miner's lamp in combination with a disk or shield having an opening for the reception of the spout and provided with oppositely-projecting bearing-pieces or flanges, and a brace secured to the lamp and the disk, substantially as set forth.



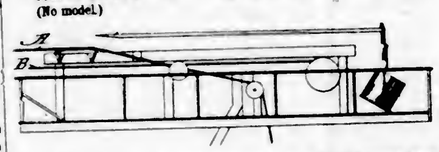
643,113. APPAREL WAIST. ANNIE S. EVELETH, Little Falls, N. Y. Filed Oct. 28, 1899. Serial No. 735,020. (No model.)



Claim.—1. An underwaist comprising the back A, the low front portion B, the shoulder-straps C, the divided supporting-straps D, E, extending from the shoulder-straps in opposite directions from each other, the supplemental supporting-strap J, connecting the inner supporting-straps D with the upper central front portion of the waist, the outer supporting-straps E connecting with the upper side portions of the waist means for adjusting the supporting-straps in both lateral and vertical directions, substantially as described.

2. An underwaist comprising the body portion, the two shoulder-straps C, the divided supporting-straps D, E, radiating therefrom, and the central strap J depending from the inner connected ends of the straps B, and supporting at its inner ends the front portion of the waist, substantially as shown and described.

643,114. ELEVATED TRAMWAY. SAMUEL FLORY, Bangor, and JOHN M. YOUNG, Easton, Pa. Filed May 27, 1899. Serial No. 718,598. (No model.)



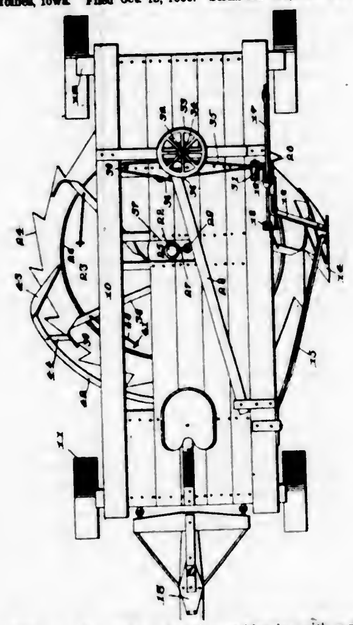
Claim.—1. In an elevated-tramway system, the combination with the main way and supplemental ways, of a wheeled carriage designed to run upon said main way, stationary and movable gripping-shoes carried thereby, a bar vertically movable of said frame, a wheel carried by said bar designed to coact with said supplemental rail, cams operatively connected with said movable bar and bearing on said movable shoe, and means for suspending the bucket from said movable bar, substantially as described.

2. In combination with the supplemental and main ways, the wheeled carriage, the stationary and movable shoes carried thereby, the vertically-movable bar guided by said frame and carrying a supplemental wheel, cams pivoted to said frame and bearing against said movable shoe, links connecting said cams with the movable bar, and means for connecting the bucket to said movable bar, substantially as described.

3. In combination, the carriage-frame, the stationary lower jaw, the upper jaw vertically guided thereon and having inclined side faces, the vertically-movable bar guided in said frame, the cams pivoted to the frame and bearing against said inclined sides, and links connecting said bar and cams, substantially as described.

4. In combination, the main way and terminal supplemental way, the carriage-frame, the main supporting-wheels carried thereby normally engaging said main way, the sliding bar carrying the load, means carried thereby adapted to engage the supplemental way, a stationary gripping-jaw secured to said frame, a movable gripping-jaw and means for clamping said jaws when the sliding bar is held depressed and said bar is out of engagement with said way, substantially as described.

648,115. ROAD-GRADING MACHINE. ERNEST C. FREAD, Des Moines, Iowa. Filed Oct. 13, 1899. Serial No. 733,543. (No model.)



Claim.—1. In a road-grader, the combination with a plow and means for carrying it, of a rotatable disk adjacent to the moldboard of the plow and inclined from the horizontal toward the plow and having the teeth 24 formed on its periphery for the purposes stated.

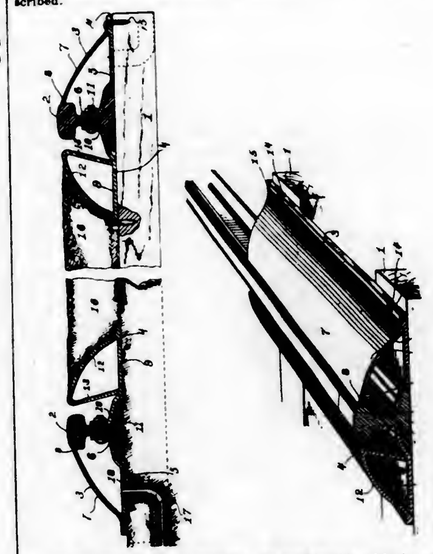
2. In a road-grader, the combination with a plow and a frame for carrying it, of a beam extending longitudinally of the said frame and pivoted thereto at the ends to swing in a vertical plane, of a shaft in said beam rotatably mounted, a disk on the lower end of said shaft and means for tilting said beam, substantially as and for the purposes stated.

3. In a road-grader, the combination with a plow, and means for carrying it, of a bar to extend parallel with the line of advance of the plow and pivotally mounted to move in a plane at right angles to the line of advance, a disk rotatably mounted upon the bar, means for tilting the disk so that its edge adjacent to the plow may be raised or lowered with the plow, a flange on the top surface of the disk, a series of rods pivoted to the hub of the disk and extended tangentially outwardly therefrom, shovels on the ends of these rods to engage the top surface of the disk, a rod fixed to the said bar, and a scraper and guide on its end to rest upon the top surface of the disk at the side opposite from the plow, substantially as and for the purposes stated.

4. In a road-grader, the combination with a platform mounted on wheels, and a vertically-adjustable plow thereon, of a disk rotatably mounted beneath the platform and tilted downwardly toward the plow, means for scraping the ground from the disk, a shaft passed through the disk and capable of tilting in a plane at right angles to the line of advance, a shaft on top of the platform, a hand-wheel and a drum on said shaft, a lever pivoted to the machine-frame and connected with the said shaft which supports the disk, and a rope or cable having its ends fixed to the opposite sides of the said lever, its central portion wound upon said drum, and pulleys at the opposite sides of the platform over which the said rope or cable is passed, substantially as set forth.

648,116. RAILROAD-TRACK CROSSING. SAMUEL A. FRIEDMAN, Leander, Tex. Filed Nov. 17, 1899. Serial No. 737,358. (No model.)

Claim.—1. In a railroad-track crossing, the combination with the opposite rails of the track, of outer and inner members for each rail, each member comprising a base and an upwardly and inwardly inclined flange, the upper edge of which is in substantially the same plane as the tread of the adjacent rail, substantially as shown and described.



2. In a railroad-track crossing, the combination with the opposite rails of the track, of outer and inner members for each rail, each member comprising a base, and an upwardly and inwardly inclined flange, the upper edge of which is in substantially the same plane as the tread of the adjacent rail, the flange of the outer member resting against the tread of the rail, and the flange of the inner member terminating short of the rail, substantially as shown and described.

3. In a railroad-track crossing, the combination with the opposite rails of the track, of outer and inner members for each rail, each member comprising a base, an inner upstanding longitudinal flange fitting against the adjacent sides of the flange and web of the adjacent rail, and an outer upwardly and inwardly inclined flange, the upper edge of which is in substantially the same plane as the tread of the adjacent rail, the outer flange of the outer member resting against the rail, and the outer flange of the inner member terminating short of the rail, and fastening devices passing through the web of the rail and the opposite inner upstanding flanges, substantially as shown and described.

4. In a railroad-track crossing, the combination with opposite rails of the track, of outer and inner members for each rail, each member comprising a base, and an upwardly and inwardly inclined flange, the upper edge of which is in substantially the same plane as the tread of the adjacent rail, the upper edge of the flange of the inner member terminating short of the rail, and having a pendent flange, the lower edge of the latter resting upon the base, substantially as shown and described.

5. As an article of manufacture, a member of a railroad-track crossing, comprising a single casting, having a base-plate, an upstanding inner longitudinal flange, and an upwardly-inclined flange, extending from the outer longitudinal edge of the base-plate, and transversely inward across the latter.

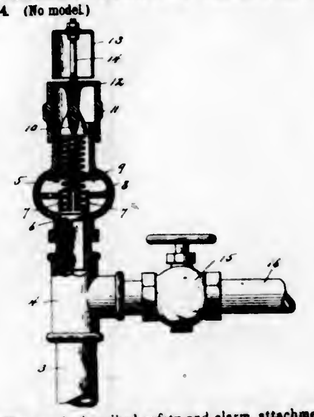
6. As an article of manufacture, a member of a railroad-track crossing, comprising a single casting, having a base-plate, an upstanding inner longitudinal flange, an upwardly-inclined flange extending from the outer longitudinal edge of the base-plate, and transversely inward across the latter, and an upright brace-flange, pendent from the upper edge of the upwardly-inclined flange, and having its lower edge resting upon the base-plate.

7. In a railroad-track crossing, the combination with the opposite rails of the track, of outer and inner members for each rail, each member comprising a base, and an upwardly and inwardly inclined flange, the upper edge of which is in substantially the same plane as the tread of the adjacent rail, the outer member forming an inclosed gutter, which is open at opposite ends, and a drain-pipe in communication with the gutter, substantially as shown and described.

8. In a railroad-track crossing, the combination with the opposite rails of the track, of outer and inner members for each rail, each member comprising a base, and an upwardly and inwardly inclined

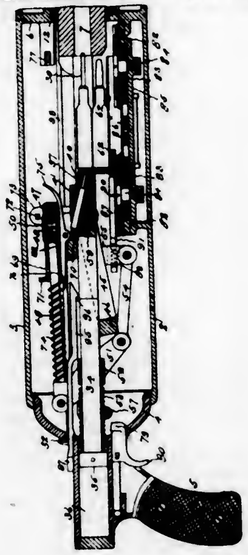
flange, the upper edge of the latter being in substantially the same plane as the tread of the adjacent rail, the flange of the inner member terminating short of the rail, and the flange of the outer member resting against the rail, said outer member forming an inclosed gutter, which is open at opposite ends, and a drain-pipe, communicating with the inclosed gutter, and through an opening formed in the base of the outer member, substantially as shown and described.

648,117. SAFETY AND ALARM ATTACHMENT FOR TANKS. HENRY B. FROMBERGER, Daytona, Fla., assignor of one-half to Vivian Phillips and William L. Smith, Baltimore, Md. Filed May 3, 1899. Serial No. 715,434. (No model.)



Claim.—The herein-described safety and alarm attachment for tanks designed to contain volatile material, consisting of a coupling to be connected with said tank, a valve-casing mounted on said coupling, a downwardly-seating valve in said casing, a spring to normally seat said valve in a direction toward the tank, a cap adjustably screwed onto the valve-casing and provided internally with a bearing for one end of the valve-spring and having apertures in the cap-top, a whistle surmounting the cap above the apertures therein, and an auxiliary relief-valve connected with said coupling, substantially as described.

648,118. AUTOMATIC MACHINE-GUN. FRANK M. GARLAND, New Haven, Conn., assignor of two-thirds to Ebenezer B. Beecher, Westville, Conn. Filed Jan. 27, 1899. Serial No. 703,810. (No model.)



Claim.—1. An automatic machine-gun having a longitudinally-movable barrel, a casing encircling the barrel, a fluid-chamber in the casing and surrounding a part of the barrel, a cylinder surrounded by the fluid-chamber and surrounding a part of the barrel, said cylinder being open at both ends to the chamber in the case surrounding the barrel, a piston mounted upon and attached to the barrel and movable in the cylinder, a valve concentric with the barrel located at one end of the cylinder, and adjustable means for restricting the movement of the valve in one direction, substantially as specified.

2. An automatic machine-gun having a longitudinally-movable barrel, a spring surrounding the barrel, a cylinder surrounding a part of the barrel, a piston mounted upon and attached to the barrel and movable in the cylinder, a passage for fluid around the cylinder from one end of the cylinder to the other, and a valve loosely mounted upon the barrel adjacent to the front end of the cylinder, which valve is movable along the barrel toward and from an opening to the front end of the cylinder so as to permit a free flow of fluid in one direction through the passage but restrict the flow of fluid in the opposite direction, substantially as specified.

3. An automatic machine-gun having a longitudinally-movable barrel, a spring surrounding the barrel, a cylinder surrounding the barrel, a piston mounted upon the barrel and movable in the cylinder, a passage for fluid from one end of the cylinder to the other, a valve which permits the flow of fluid in one direction through the passage but restricts the flow of fluid in the opposite direction, and means extending from the interior to the exterior for adjusting the area of the opening around the valve, substantially as specified.

4. An automatic machine-gun having a longitudinally-movable barrel, a spring surrounding the barrel, a cylinder concentric with the barrel, a piston mounted upon the barrel and movable in the cylinder, a fluid-chamber surrounding the cylinder, a valve located concentrically with the barrel in the passage to one end of the cylinder, a sleeve movable longitudinally of the barrel for limiting the movement of the valve in one direction, and means for rotating the sleeve and causing it to move longitudinally, substantially as specified.

5. An automatic machine-gun having a longitudinally-movable barrel, a spring surrounding the barrel, a cylinder concentric with the barrel, a piston mounted upon the barrel and movable in the cylinder, a fluid-chamber surrounding the cylinder, a valve located concentrically with the barrel in the passage to the front end of the cylinder, a sleeve adapted to limit the forward movement of the valve supported by a threaded part and bearing a gear, a pinion meshing with the gear, and means for rotating the pinion and gear and causing the valve-support to move longitudinally of the barrel, substantially as specified.

6. In an automatic machine-gun having a longitudinally-movable barrel, an inclosing casing, a rotary sleeve surrounding the barrel near the muzzle and extending in the interior of the casing and through the end to the exterior, a longitudinally-movable sleeve connected by a thread with the rotary sleeve, a spring thrusting between a part of the barrel and a part of the inner sleeve, a cylinder surrounding the barrel, a piston mounted upon the barrel and movable in the cylinder, and a fluid-chamber surrounding the cylinder, substantially as specified.

7. An automatic machine-gun having a longitudinally-movable barrel, a frame secured to and movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable backward when the barrel and frame are forced back and movable still farther back when the barrel and frame are drawn forward, and levers connected with the breech-block and with the frame, said levers being pivoted to a block that is movable along a portion of the frame whereby the levers are oscillated and the breech-block caused to move backward when the frame and barrel move forward, substantially as specified.

8. An automatic machine-gun having a longitudinally-movable barrel, a frame secured to and movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block and a recoil-block that is connected by levers with the breech-block moving backwardly with the barrel, levers connected with the breech-block and with the frame, said levers being pivoted to a block that is movable along a portion of the frame, a catch for engaging and retaining the pivot-block supporting the breech-block levers at the backward limit of its movement while the barrel and frame are drawn forward, a trip for releasing the catch from the pivot-block, and a spring for throwing the pivot-block forward when released whereby the breech-block may be forced forward and the recoil-block oscillated to lock the breech-block home, substantially as specified.

9. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block and a recoil-block movable backward with the barrel, a catch for retaining the breech-block at the backward limit of movement while the barrel and frame are drawn forward, a lifter for elevating cartridges into line with the breech-block and releasing the catch retaining the breech-block, and a spring for throwing the breech-block and recoil-block forward when released, substantially as specified.

10. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block and a recoil-block movable backward with the barrel, a catch for retaining the breech-block at the backward limit of movement while the barrel and frame are drawn forward, a lifter for elevating cartridges into line with the breech-block and releasing the catch retaining the breech-block, a spring for throwing forward the breech-block and the recoil-block, and an ejecter for thrusting sidewise the exploded shells, released by the upward movement of the lifter, substantially as specified.

11. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block and a recoil-block movable backward with the barrel, a catch for retaining the breech-block at the backward limit of movement while the barrel and frame are drawn forward, a lifter for elevating cartridges into line with the breech-block and releasing the catch retaining the breech-block, a spring for throwing forward the breech-block and the recoil-block, an ejector for thrusting sidewise the exploded shells, released by the upward movement of the ejector, and a feed mechanism operated by the forward movement of the frame, substantially as specified.

12. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable backward when the barrel and frame are drawn forward, levers connected with and movable backward with the breech-block, catches for engaging and holding the levers at the backward limit of their movement, a trip for releasing the catches, a spring for thrusting forward the breech-block levers, a shell-discharge arm rigidly secured to and movable longitudinally of the gun with the breech-block, substantially as specified.

13. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable backward when the barrel and frame are drawn forward, a spring for thrusting forward the breech-block, a discharge-arm attached to the breech-block, and an ejecter for thrusting the exploded shells into the path of the discharge-arm, substantially as specified.

14. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a block bearing levers loosely mounted upon the frame, a breech-block movable along the frame and connected with the levers, connections between the levers and the movable frame a catch for holding back the lever-block when the frame moves forward, a spring for thrusting forward the lever-block, a cartridge-lifter and a tripping device connected with the cartridge-lifter and arranged for releasing the block-holding catch when the cartridge-lifter is in its highest position, substantially as specified.

15. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a block bearing levers loosely mounted upon the frame, a breech-block movable along the frame and connected with the levers, a link connecting the levers with the frame, a catch for holding back the lever-bearing block when the frame moves forward, a spring for thrusting forward the lever-block compressed by the movement of the frame, and a tripping device for releasing the block-holding catch, substantially as specified.

16. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable along the frame, feed-wheels for advancing the cartridges transversely of the gun, said wheels moved by the forward motion of the frame, and an elevating device for lifting the cartridges from the feed mechanism after the backward movement of the breech-block, substantially as specified.

17. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable along the frame, feed-wheels for advancing the cartridges transversely of the gun, and a lifter for elevating the cartridges from the feed mechanism, said lifter being depressed by the forward movement of the breech-block, substantially as specified.

18. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable along the frame, a lever-block movable along the frame, a pair of levers mounted upon the lever-block, a pair of levers connected with the breech-block, an elastic connection between the levers borne by the lever-block and the levers connected with the breech-block, and a connection between the block-levers and the frame, substantially as specified.

19. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable along the frame, a lever-block movable along the frame, a pair of levers mounted upon the lever-block, a pair of levers connected with the breech-block, an elastic connection between the levers borne by the lever-block and the levers connected with the breech-block, a connection between the block-levers and the frame, a hammer supported by the connection between the levers, and a sear carried by a part connected with the breech-block, substantially as specified.

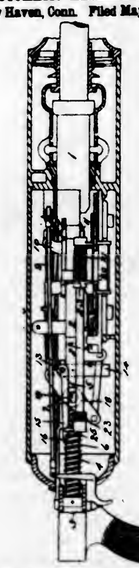
20. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable backward when the barrel and frame are drawn forward, a feed moved by the movement of the frame, a lifter released by the backward movement of the breech-block, and an ejector set by the forward movement of the breech-block and released by the upward movement of the lifter, substantially as specified.

21. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a breech-block movable backward along the frame, a recoil-block secured to levers that are pivotally connected with the breech-block, levers pivoted upon a block that is movable along a portion of the frame, a connection between the latter levers and the frame, a connection between these levers and the levers that are connected with the recoil-block and the breech-block, catches for retaining the pivot-block in its backward position, and a trip operated by the lifting of a cartridge for releasing the catches from the pivot-block, substantially as specified.

22. An automatic machine-gun having a longitudinally-movable barrel, a frame movable with the barrel, a spring for drawing forward the barrel and frame, a feed mechanism operated by the forward movement of the frame, a breech-block drawn back by the forward movement of the frame, a lifter released by the backward movement of the breech-block, an extractor set in operation by the upward movement of the lifter, a loading-spring set in operation by the upward movement of the lifter, a hammer cocked by the forward movement of the breech-block, and a sear tripped from the hammer after forward movement of the breech-block, substantially as specified.

23. In an automatic gun in combination with the movable barrel, the frame attached to the barrel and the breech-block movable along the frame, a pivot-block movable backwardly and forwardly along the barrel-frame, breech-block levers mounted upon the pivot-block and connected by links with the frame and also with the breech-block, catch-levers pivotally supported by the immovable casing and adapted to engage with and temporarily hold against forward movement the pivot-block with the breech-block levers, and mechanisms for releasing the catch-levers from the pivot-block, substantially as specified.

648,119. AUTOMATIC MACHINE-GUN MECHANISM. FRANK M. GARLAND, New Haven, Conn. Filed May 1, 1899. Serial No. 715,122. (No model.)



Claim.—1. In an automatic machine-gun in combination with the movable barrel, the frame attached to the barrel, and the breech-

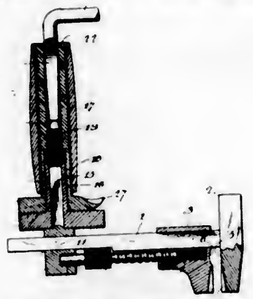
block movable along the frame, a pivot-block movable backwardly and forwardly along the barrel-frame, breech-block levers mounted upon the pivot-block and connected by links with the frame and also with the breech-block, rearwardly-extending catch-levers pivotally supported by the immovable casing, with catch-shoulders near their rear ends adapted to engage with and temporarily hold against movement the pivot-block with the breech-block levers, and mechanisms for releasing the catch-levers from the pivot-block, substantially as specified.

2. In an automatic machine-gun in combination with the movable barrel, the frame attached to the barrel, and the breech-block movable along the frame, a pivot-block movable backwardly and forwardly along the barrel-frame, levers mounted upon the pivot-block and connected by links with the frame and also with the breech-block, rearwardly-extending catch-levers pivotally supported by the immovable casing so as to move vertically, with catch-shoulders near their rear ends adapted to engage with and temporarily hold against movement the pivot-block levers, and mechanisms for releasing the catch-levers from the pivot-block, substantially as specified.

3. In an automatic machine-gun in combination with the movable barrel, the frame attached to the barrel, and the breech-block movable along the frame, a pivot-block movable backwardly and forwardly along the barrel-frame, levers connected by links with the frame and with the breech-block and supported by arbors projecting from the pivot-block, rearwardly-extending catch-levers pivotally supported by the immovable casing, with catch-shoulders near their rear ends adapted to engage with and temporarily hold against movement the arbors of the breech-block levers, and mechanisms for releasing the catch-levers from the arbors, substantially as specified.

4. In an automatic machine-gun in combination with the movable barrel, the frame attached to the barrel, and the breech-block movable along the frame, a pivot-block movable backwardly and forwardly along the frame that is attached to the barrel, levers connected with the breech-block and with the frame and supported by arbors projecting from the pivot-block, rearwardly-extending catch-levers pivotally supported by the casing, with catch-shoulders near their rear ends adapted to engage with and temporarily hold against movement the arbors, a cartridge-lifter, and a connection between the lifter and catch-levers whereby the upward movement of the lifter causes the catch-levers to release the breech-block-lever arbors, substantially as specified.

643,120. COMBINATION-TOOL. JOHN H. GARNER, Kingwood, W. Va. Filed Nov. 24, 1899. Serial No. 738,192. (No model.)



Claim.—1. A combination-tool comprising a shank or stock provided at its outer end with a stationary jaw, a sliding jaw mounted on the shank or stock, an adjusting-screw engaging the movable jaw, a detachable bearing-block secured to the shank or stock and supporting the inner end of the adjusting-screw, and provided with a stem extending rearward from the shank or stock at right angles thereto, a socket-piece adapted to engage either the stem or the shank or stock, a sleeve carrying a handle or grip and having one end secured to the socket-piece, and a brace-arm connected with the other end of the sleeve, substantially as described.

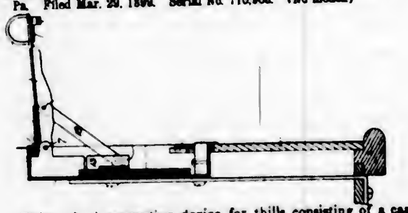
2. A combination-tool comprising a wrench-stock provided with a stationary jaw, a sliding jaw, a screw engaging the sliding jaw, a removable bearing-block detachably secured to the wrench-stock and supporting the inner end of the screw, said bearing-block being provided with a rearwardly-extending stem arranged at right angles to the wrench-stock, and a handle or grip provided with a socket-piece adapted to engage either the wrench-stock or the stem, substantially as described.

3. A combination-tool comprising a wrench-stock, stationary and movable jaws, an adjusting-screw connected with the movable jaw, a bearing-block supporting the adjusting-screw and having a stem arranged at right angles to the wrench-stock, a socket-piece adapted to be arranged on either the stem or the stock and provided with exterior screw-threads, a sleeve having one end threaded to receive the socket-piece and provided at its other end with a polygonal bore, and a brace-arm engaging the bore, substantially as described.

4. In a combination-tool, the combination of a wrench-stock, a bearing-block provided with a stem arranged at right angles to the stock, a socket-piece adapted to engage either the stem or the stock and having exterior screw-threads, and an interiorly-threaded sleeve engaging the socket-piece at one end and provided at its other end with a polygonal bore adapted to receive a brace-arm, substantially as described.

5. A combination-tool comprising a wrench-stock, stationary and movable jaws, a stem arranged at right angles to the stock, a socket-piece adapted to fit on either the stem or the stock, and a sleeve provided with a head and connected with the socket-piece, substantially as described.

648,121. THILL-SUPPORT. ROBERT T. GILLESPIE, Uniontown, Pa. Filed Mar. 29, 1899. Serial No. 710,908. (No model.)



Claim.—1. A supporting device for thills consisting of a case, supports therefor by which the case is incorporated with the dashboard of the vehicle, slideways in the case between its body portion and the cover-plate, a vertically-movable shoe mounted in the slideways, a thill-supporting arm pivoted in the upper portion of the case, a brace pivotally secured to the shoe and arm, a dog adapted to engage the shoe, a locking device on the arm and a spring-actuated holding device adapted to receive such locking device.

2. A supporting device for thills consisting of a case, supports therefor by which the case is incorporated with the dashboard of the vehicle, slideways in the case between its body portion and the cover-plate, a vertically-movable shoe mounted in the slideways, a thill-supporting arm pivoted in the upper portion of the case, a brace pivotally secured to the shoe and arm, a pivoted dog adapted to engage the shoe provided with a pressure-spring and a retracting-button, and cushioning devices secured to the arm and to the case.

3. A supporting device for thills consisting of a case, slideways therein, a vertically-movable shoe mounted in the slideways, a pivoted arm, a brace pivotally secured to the shoe and arm, a dog adapted to engage the shoe, a locking device on the arm adapted to engage a holding device on the case, and a protecting-shield mounted adjacent to the pivotal support of the arm and adapted to slidingly embrace and move with the arm.

4. A supporting device for thills consisting of a case, slideways therein, a vertically-movable shoe mounted in the slideways, a pivoted arm, a brace pivotally secured to the shoe and arm, a dog adapted to engage the shoe provided with a releasing-button, a locking device on the arm adapted to engage a holding device on the case, a protecting-shield pivotally mounted adjacent to the pivotal support of the arm adapted to slidingly embrace and move with the arm, and a cover-plate for the case provided with openings for the pivoted arm and releasing-button.

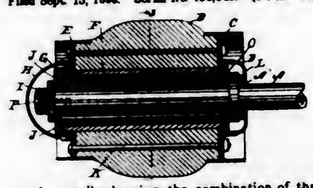
5. A supporting device for thills consisting of a case and means for supporting the case upon the vehicle-body back of the leather of the dashboard, slideways in the case, a vertically-movable shoe mounted in the slideways, a pivoted arm, a brace pivotally secured to the shoe and arm, a dog adapted to engage the shoe provided with a releasing-button, a locking device on the arm adapted to engage a holding device on the case, a protecting-shield pivotally mounted adjacent to the pivotal support of the arm adapted to slidingly embrace and move with the arm, a cover-plate for the case provided with openings for the pivoted arm and releasing-button, and retaining-plates provided with openings for the pivoted arm and releasing-button and adapted to clamp the dashboard-leather against the cover-plate around such openings.

6. In a supporting device for thills comprising a case provided with vertical slideways, a movable shoe mounted therein, an arm pivoted to the case, a brace pivotally connecting the shoe and arm, a dog adapted to engage the shoe provided with a releasing-button and a cover-plate provided with openings for the pivoted arm and releasing-button; retaining-plates provided with openings for the pivoted arm and releasing-button secured to the cover-plate and adapted to clamp the dashboard-leather against the cover-plate around such openings.

7. A supporting device for thills consisting of a case having on its exterior a roughened surface for striking matches, slideways in the case, a vertically-movable shoe mounted in the slideways, a pivoted arm, a brace pivotally secured to the shoe and arm, a dog adapted to engage the shoe provided with a releasing-button, a locking device on the arm adapted to engage a holding device on the case, a protecting-shield pivotally mounted adjacent to the pivotal support of the arm adapted to slidingly embrace and move with the arm, and a cover-plate for the case provided with openings for the pivoted arm and releasing-button.

8. In a thill-support provided with a pivoted arm: a protecting-shield pivotally mounted adjacent to the pivotal support of the arm and adapted to slidingly embrace and move with the arm, substantially as set forth.

648,122. ROLLER-BEARING. HERBERT R. GILLETTE, Benton Harbor, Mich., assignor to the Gillette Roller Bearing Company, same place. Filed Sept. 15, 1899. Serial No. 730,645. (No model.)



Claim.—1. In a roller-bearing, the combination of the hub B the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box, and having an inwardly-projecting flange O; an outer flange-plate E screw-threaded to fit the outer end of the tube; bolts K extending through the hub B; a plate to retain the same in position; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle, the nut and outer end of the axle being provided with a perforation P to admit oil; a dust-band D screw-threaded to engage suitable threads upon the flange-plate C; a felt pad L between the dust-band and the collar A'; and a dust-cap H screw-threaded to engage the plate E and incase the outer end of the bearing, all coacting for the purpose specified.

2. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box and having an inwardly-projecting flange O; an outer flange-plate E screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle, the nut and outer end of the axle being provided with a perforation P to admit oil; a dust-band D screw-threaded to engage suitable threads upon the flange-plate C; a felt pad L between the dust-band and the collar A'; and a dust-cap H screw-threaded to engage the plate E and incase the outer end of the bearing, all coacting for the purpose specified.

3. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box and having an inwardly-projecting flange O; an outer flange-plate E screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle; a dust-band D screw-threaded to engage suitable threads upon the flange-plate C; a felt pad L between the dust-band and the collar A'; and a dust-cap H screw-threaded to engage the plate E and incase the outer end of the bearing, all coacting for the purpose specified.

4. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box, and having an inwardly-projecting flange O; an outer flange-plate E screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle; a dust-band D screw-threaded to engage suitable threads upon the flange-plate C; a felt pad L between the dust-band and the collar A'; and a dust-cap H screw-threaded to engage the plate E and incase the outer end of the bearing, all coacting for the purpose specified.

5. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box and having an inwardly-projecting flange O; an outer flange-plate E screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle; a dust-band D supported upon the flanged plate C; and a dust-cap H carried by the plate E to incase the outer end of the bearing, all coacting for the purpose specified.

6. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box, and having an inwardly-projecting flange O; an outer flange-plate screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle; and a dust-cap H carried by the plate E to incase the outer end of the bearing, all coacting for the purpose specified.

7. In a roller-bearing, the combination of the box F; the flange-plate C at the inner end thereof, screw-threaded to fit the said box, and having an inwardly-projecting flange O; an outer flange-plate screw-threaded to fit the outer end of the tube; an additional flanged plate G secured to the outer end of the box F by suitable means; rollers chambered within said boxing; an axle A with a collar A' thereon outside of the flange O; a nut I on the outer end of the axle, all coacting for the purpose specified.

8. In a roller-bearing, the combination of an axle or shaft; a boxing; means of retaining said boxing in position in a hub or wheel; an inwardly-projecting flange at the inner end of said boxing, adapted to fit the said shaft or axle; an inwardly-projecting removable flange at the outer end of said boxing; a collar on said axle at the inside of the inner flange of said bearing; suitable means outside of the removable flange to retain the boxing in place on the axle or shaft; antifriction-rollers of even size from end to end chambered between the boxing and the shaft, the said rollers being of such size as to closely fit or impinge against the axle, the boxing, and against each other, coacting for the purpose specified.

9. In a roller-bearing, the combination of an axle or shaft; a boxing; means of retaining said boxing in position in a hub or wheel; an inwardly-projecting flange or shoulder at the inner end of said boxing, adapted to fit the said shaft or axle; an inwardly-projecting flange or shoulder at the outer end of said boxing; a collar or stop on said axle at the inside of the inner flange of said boxing; suitable means outside of the outer flange to retain the boxing in place on the axle or shaft; antifriction-rollers of even size from end to end chambered between the boxing and the shaft, the said rollers being of such size as to closely fit or impinge against the axle, the boxing, and against each other, coacting for the purpose specified.

10. In a roller-bearing, the combination of an axle or shaft; a boxing; an inwardly-projecting flange or shoulder at the inner end of said boxing, adapted to fit the said shaft or axle; an inwardly-projecting flange or shoulder at the outer end of said boxing; a collar or stop on said axle at the inside of the inner flange of said boxing; suitable means outside of the outer flange to retain the boxing in place on the axle or shaft; antifriction-rollers of even size from end to end chambered between the boxing and the shaft, the said rollers being of such size as to closely fit or impinge against the axle, the boxing, and against each other, coacting for the purpose specified.

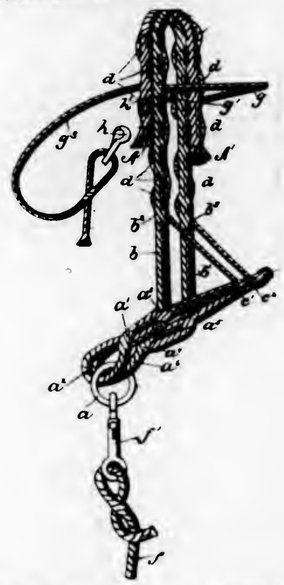
11. In a roller-bearing, the combination of an axle or shaft; a boxing; means of retaining said boxing in position in a hub or wheel; an inwardly-projecting flange or shoulder at the inner end of said boxing; an inwardly-projecting flange or shoulder at the outer end of said boxing; suitable means at each end and outside of the flanges to retain the boxing in position on the shaft; antifriction-rollers of even size from end to end chambered between the boxing and the shaft, the said rollers being of such size as to closely fit or impinge against the axle, the boxing, and against each other; a passage for oil formed through the shaft and leading to the outside, and opening within the bearing, all coacting for the purpose specified.

12. In a roller-bearing, the combination of an axle or shaft; a boxing; an inwardly-projecting flange or shoulder at the inner end of said boxing; an inwardly-projecting flange or shoulder at the outer end of said boxing; suitable means at each end and outside of the flanges to retain the boxing in position on the shaft; antifriction-rollers of even size from end to end chambered between the boxing and the shaft, the said rollers being of such size as to closely fit or impinge against the axle, the boxing, and against each other; a passage for oil formed through the shaft and leading to the outside, and opening within the bearing, all coacting for the purpose specified.

648,128. HALTER. HENRY L. GREEN and CASSIUS M. GREEN, Urbana, Ohio. Filed July 10, 1899. Serial No. 723,259. (No model.)

Claim.—1. A halter, such as described, in which the head and nose bands are formed from a single piece of rope by threading the

respective ends of the rope through the main body thereof a short distance from the center thereof so as to form retaining-loops, the respective ends being lapped and fastened together laterally to form a head-band of double section, the loops being connected together to form a hitch, substantially as described.



2. In a halter in which the main body is formed of a single piece of rope, the ends of which are doubled back upon the main portion a short distance from the center thereof so as to form hitch-loops, the said ends being lapped and fastened together laterally to form a head-band and cheek-pieces, the head-band being flattened, substantially as specified.

3. A halter, the main body of which is formed of a single piece of rope which is bent back upon itself at points slightly removed from the center, the ends being threaded through to form hitch-loops and lapped past each other and threaded laterally together to form a head-band of double section, the central portion of the rope being adapted to form a nose-band which is further supported by braces formed by a rope of smaller section which also is threaded back and forth through the head-band to connect the said rope ends together, substantially as specified.

4. In a halter, a main body formed from a single piece of rope, the ends of which rope are doubled back upon itself and threaded through the main body of the rope on each side of the center thereof, the ends being extended upwardly so as to form cheek-pieces substantially midway between the central portion of the rope which forms the nose-band and the hitch-loops as described, the ends of the rope being overlapped and joined together laterally by a connecting-rope threaded through said ends, cheek-pieces and nose-band so as to form braces for the nose-band as well as connections for the head-pieces, substantially as specified.

5. The combination with the halter having a flattened head-band formed from the overlapped ends of the main body, as described, which overlapped ends are fastened together by a rope threaded laterally through the same into a nose-band to form supports therefor, in connection with a brow-band and throat-latch also formed from said rope and threaded laterally through the double-sectioned flattened head-piece, substantially as specified.

6. In a halter, a main body consisting of a nose-band, cheek-pieces and double-sectioned head-piece formed from a single piece of rope, as described, and having the hitch-loops on the opposite sides of the cheek-pieces from said nose-band, a ring in said hitch-loops, and a detachable hitch connection for said ring, substantially as specified.

648,124. SIGN. EDWIN P. GRESH, Norristown, Pa. Filed Aug. 16, 1899. Serial No. 727,252. (No model.)

Claim.—1. A device of the character specified comprising a hollow shell or casing, projections or ledges formed thereon adapted to receive and having a stamp label or print mounted thereon, the same being arranged to give the appearance of a multiplicity of packages piled together, substantially as and for the purpose specified.



2. A device of the character specified, comprising a body of the shape of a number of like articles piled together, and suitable stamps or labels attached thereto representing those articles.

648,125. STRINGED MUSICAL INSTRUMENT. ADOLF GUNKEL, Blasewitz, Germany. Filed Sept. 20, 1898. Serial No. 692,264. (No model.)



Claim.—1. A key-mask for attachment to the finger-board of a stringed musical instrument each string of which is capable of producing a variety of tones, said mask being provided with openings through which finger-pressure may be applied to the strings, and with means for preventing such finger-pressure on the strings at other points longitudinally of the finger-board, substantially as described.

2. The combination of a carrier adapted to be attached to the finger-board of a stringed musical instrument each string of which is capable of producing a variety of tones, a mask provided with openings through which finger-pressure may be applied to the strings, and with means for preventing such finger-pressure on the strings at other points longitudinally of the finger-board, and means for fastening the mask to the carrier, substantially as described.

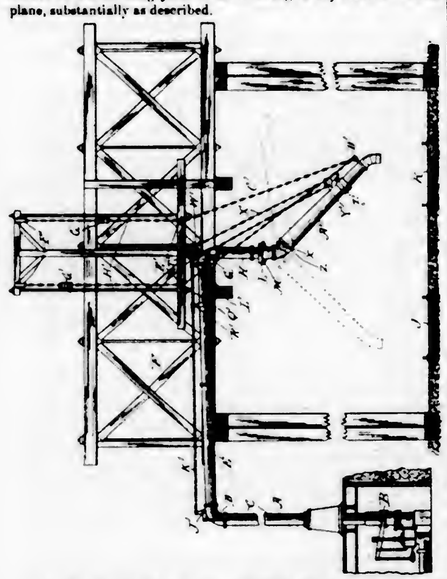
3. The combination of a key-mask for attachment to the finger-board of a stringed musical instrument each string of which is capable of producing a variety of tones, said mask being provided with openings through which finger-pressure may be applied to the strings, and with means for preventing such finger-pressure on the strings at other points longitudinally of the finger-board, and a thumb-piece for attachment to the finger-board at or near the opening in the key-mask, substantially as described.

4. The combination of a carrier adapted to be attached to the finger-board of a stringed musical instrument each string of which is capable of producing a variety of tones, a plurality of interchangeable key-masks each corresponding to a particular key and adapted to be removably attached to the mask-carrier, each of said key-masks being provided with openings through which finger-pressure may be applied to the strings, and with means for preventing such finger-pressure at other points longitudinally of the finger-board, and a thumb-piece fastened to the mask-carrier at or near the opening in the key-mask, substantially as described.

643,126. WATER-CRANE. GEORGE G. GUY and ALBERT J. ANDERSON, Batavia, Ill., assignors to the United States Wind Engine and Pump Company, same place. Filed May 12, 1899. Serial No. 716,807. (No model.)

Claim.—1. A water-column comprising a vertical portion as A, connected to a supply of water, a valve B connected with said column for controlling the admission of water thereto, a substantially horizontal portion as E, a depending portion as H, with the spout A', connections between said spout and depending portion whereby the spout can be swung vertically and horizontally without breaking the joint, and connections between said spout and valve to operate the valve, substantially as and for the purpose described.

2. In a device of the class described, the combination of the stationary depending portion H, with the rotating joint N connected thereto rotating in a horizontal plane, and the spout A' pivotally connected to the rotating joint so as to swing in any desired vertical plane, substantially as described.



3. In a device of the class described, the combination of the column A having the valve B connected therewith and terminating in the depending portion H, with the spout A' connected thereto so as to swing in any desired vertical and horizontal plane without breaking the joint, and connections between said spout and the valve B whereby said valve can be operated when desired, said connections comprising the link K' and the chain X', and connections between the link and the chain whereby the longitudinal movement of the chain will reciprocate the link.

4. In a device of the class described, the combination of the column A having the valve B connected therewith and terminating in the depending portion H, with the spout A' connected thereto so as to swing in any desired vertical and horizontal plane, and connections between said spout and the valve B whereby said valve can be operated when desired, said connections comprising the link K' having the cross-head L', the screw M' cooperating with said cross-head, and means for rotating said screw.

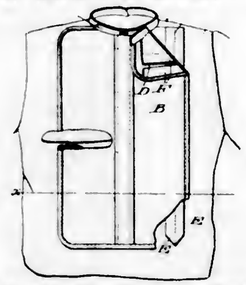
5. In a device of the class described, the combination of the column A having the valve B connected therewith and terminating in the depending portion H, with the spout A' connected thereto so as to swing in any desired vertical and horizontal plane, and connections between said spout and the valve B whereby said valve can be operated when desired, said connections comprising the link K' having the cross-head L', the screw-shaft M' terminating in the bevel-gear S', the shaft T' having the bevel-gear V' and the pulley-wheel W', and means for rotating said pulley-wheel.

6. In a device of the class described, the combination of the column A having the valve B connected therewith and terminating in the depending portion H, with the spout A' connected thereto so as to swing in any desired vertical and horizontal plane, and connections between said spout and the valve B whereby said valve can be operated when desired, said connections comprising the link K' having the cross-head L', the screw-shaft M' terminating in the bevel-gear S', the shaft T' having the bevel-gear V' and the pulley-wheel W', and a continuous chain X' passing over the pulley-wheel W' and a sheave Y' fastened near the lower end of the spout A'.

7. A water-column comprising the depending portion H, the rotating joint N connected therewith, and the sleeve R secured on the inside of the depending portion H and projecting downward some distance below the joint, substantially as and for the purpose described.

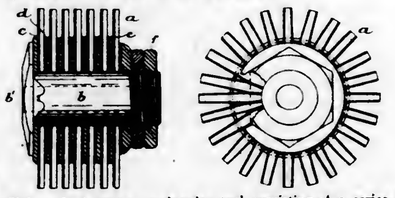
8. In a device of the class described, the combination of two conduit members, one stationary and the other rotary, such as the depending portion H, and the rotating joint N, with rotatable connections between said members comprising the channel on one member and a flange on the other, and two sets of ball or roller bearings located between the flange and the channel, one set above the flange and the other set below it, and the spout A' pivoted to said joint N at one side thereof, substantially as and for the purpose described.

643,127. SHIRT. JOHN J. HAGEDORN, Philadelphia, Pa. Filed Nov. 20, 1899. Serial No. 737,546. (No model.)



Claim.—A shirt, a separable bosom therefor and a concealed fastening for said parts, said fastening consisting of a longitudinally-extending pocket member on one part the same having a longitudinally-extending slit therein, and a longitudinally-extending tongue member on the other part adapted for entrance into said pocket within said slit, whereby said bosom may be withdrawn from the shirt by longitudinal sliding movements.

643,128. ROLLER FOR ROUND-PICKING GRINDSTONES, EMERY-WHEELS, &c. CARL A. V. HALLGREN, Stockholm, Sweden. Filed Apr. 22, 1898. Serial No. 714,075. (No model.)



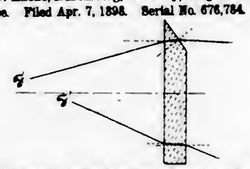
Claim.—1. A cutter or dressing-tool consisting of a series of rings each comprising a plurality of radially-arranged rods with means for holding said rods together with their outer ends spaced apart, the said rods being of channel cross-section form, said radial rods being independent of each other, substantially as described.

2. A cutter or dressing-tool consisting of a shaft, a series of rings each comprising a plurality of independent channeled rods, means for holding the rods of each ring together, and means for clamping the several rings to each other and upon said shaft, substantially as described.

3. In combination, the series of rods radially arranged with spaces between them, wires intertwined with said rods for holding them together, the shaft *b* for holding the rods and means for holding the rods on said shaft, substantially as described.

4. In combination, the shaft, the series of rods radially arranged with spaces between them and wires intertwined with said rods for holding them together, said wires and rods being soldered together and means for clamping the rods on said shaft, substantially as described.

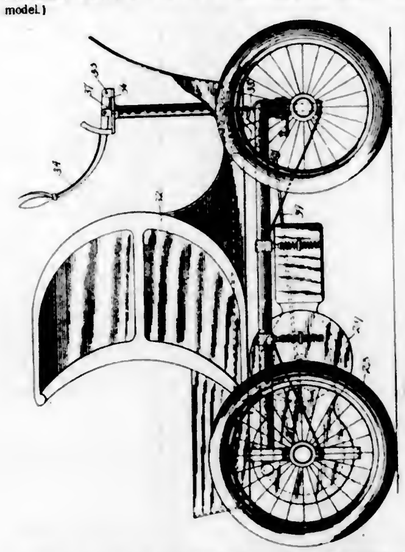
643,129. REFRACTING ATTACHMENT FOR BICYCLE-LAMPS. ADOLPH W. HECHT, Nuremberg, Germany, assignor to Eduard Grumme, same place. Filed Apr. 7, 1898. Serial No. 676,784. (No model.)



Claim.—In lamps such as hereinbefore described, the combination with the source of light of a glass L having faceted or beveled edges except at the lower edge or the deepest point through which beveled edges the diverging rays of light directed to the sides and

upward are diverted inwardly, while the rays which fall downward pass through in the original direction and parallel thereto, substantially as hereinbefore described.

643,130. POWER-TRANSMITTING DEVICE. THADDEUS W. HEERMANS, Chicago, Ill. Filed May 29, 1899. Serial No. 718,652. (No model.)



Claim.—1. In a power-transmitting device, the combination with the shaft to be driven, of oppositely-faced bevel-gears loosely sleeved thereon, an intermediate idler bevel-gear meshing with both of said gears, and connected to said shaft, means for rotating said gears in opposite directions, one of said gears operating at a uniform speed, and friction driving-disks for varying the speed of the other gear, whereby the direction and speed of rotation of the shaft to be driven may be regulated and controlled, as and for the purpose set forth.

2. The combination with the shaft to be driven, of oppositely-faced bevel-gears mounted to rotate freely, an intermediate idler, meshing on opposite sides with said gears and connected to said shaft, a driving means for each of said gears, said driving means arranged to rotate said gears in opposite directions, and movable friction-plates for varying the speed of rotation of one of said gears, whereby the direction and speed of rotation of said shaft are varied and controlled, as and for the purpose set forth.

3. The combination with the shaft to be driven, of oppositely-arranged bevel-gears sleeved upon said shaft to rotate independently thereof, an intermediate idler connected to said shaft and arranged to intermesh on opposite sides with said gears, a main power-shaft, a gear thereon for rotating one of said bevel-gears at a constant speed, and a friction-disk on said power-shaft, and intermediate devices between said disk and the other of said bevel-gears for varying the speed of rotation of said gears, as and for the purpose set forth.

4. The combination with the shaft to be driven, of a stud or pin connected thereto, an idler carried by said stud, oppositely-arranged bevel-gears sleeved upon said shaft on opposite sides of said stud and arranged to intermesh with said idler, a power-shaft, gearing intermediate said power-shaft and said gears for rotating the latter in opposite directions, and including a drive-gear for one of said bevel-gears, and a friction-disk for the other of said bevel-gears for varying the speed of rotation of said gear with reference to that of the other, as and for the purpose set forth.

5. The combination with a sectional shaft to be driven, of a stud loosely mounted and carrying an idler bevel-gear, a bevel gear-wheel mounted on each section of said shaft to rotate therewith, and intermeshing on opposite sides with said idler, a second idler bevel-gear carried by said stud, oppositely-arranged driving bevel-gears meshing on opposite sides with said second idler, means for rotating said driving-gears in opposite directions, and means for varying the relative speed of rotation of said driving-gears, as and for the purpose set forth.

6. The combination of a shaft formed in sections, a block in which the abutting ends of said sections are stepped, a pin carried by said block and arranged at right angles to the shaft, an idler loosely sleeved upon said pin, a gear mounted on the end of each section of the shaft to rotate therewith, said gears meshing on opposite sides of said pin with said idler, a second idler mounted on said pin, oppositely-arranged drive-gears meshing with said second idler on opposite sides thereof, means for rotating said drive-gears in opposite directions, and means for varying the relative speed of rotation of said gears, as and for the purpose set forth.

7. The combination with the shaft to be driven, of a stud or pin connected thereto, an idler sleeved upon said stud or pin, oppositely-arranged gears meshing with said idler on opposite sides thereof, a main power-shaft, gearing arranged at each end thereof and respectively engaging and driving said gears in opposite directions, and means for varying the relative speed of said gears, as and for the purpose set forth.

8. The combination with the shaft to be driven, a stud or pin mounted to revolve about the axis of said shaft, said stud connected to rotate with the shaft, an idler loosely mounted on said stud or pin, a gear arranged on each side of said idler and meshing therewith, a main or power shaft, means for rotating one of said gears from said main or power shaft at a uniform speed, gearing for driving the other of said gears from said main or power shaft in the opposite direction, including friction-disks and intermediate movable friction-plates for varying said gearing, whereby the speed of said oppositely-rotating gear may be varied, as and for the purpose set forth.

9. The combination with the shaft to be driven, a stud or pin mounted to revolve about the axis of said shaft but connected to rotate with said shaft, an idler mounted on said stud or pin, oppositely-rotating gears arranged on opposite sides of said idler and meshing therewith, a main power-shaft, a gear-wheel and a friction-disk mounted thereon at the respective ends thereof, said gear-wheel arranged to drive one of said oppositely-rotating gears, a friction-disk connected to rotate the other of said oppositely-rotating gears, and friction-plates interposed between said friction-disks, and means for moving said plates with reference to said disks, as and for the purpose set forth.

10. The combination with the shaft to be driven, of a variable-ratio gearing for driving the same, including oppositely-rotating gears, a friction-disk connected to one of said gears, and a drive-gear connected to the other, a main power-shaft carrying a gear arranged to engage and operate said drive-gear, a friction-disk, also carried by said power-shaft, and friction-plates arranged to engage said disks on opposite sides, as and for the purpose set forth.

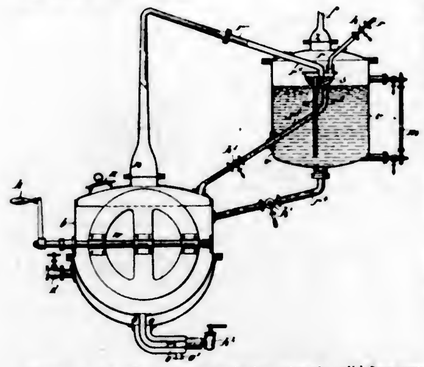
11. In an apparatus of the class described, a variable-ratio gearing including a main power-shaft and a shaft to be driven, friction-disks carried by said shafts, a stud or pin arranged parallel with and intermediate the axes of said disks, friction-plates carried by said stud or pin, and engaging said friction-disks, and means for moving said stud or pin laterally toward and away from one or the other of said disks, as and for the purpose set forth.

12. The combination with the shaft to be driven, of a variable-ratio gearing for driving the same, including oppositely-rotating gears, a friction-disk connected to one of said gears, and a drive-gear connected to the other, a main power-shaft carrying a gear arranged to engage and operate said drive-gear, a friction-disk, also carried by said power-shaft, friction-plates arranged to engage said disks on opposite sides, said friction-plates being movably mounted, and an inclosing casing for said disks and plates, said casing journaled respectively upon said shafts, whereby the proper engagement thereof is maintained, as and for the purpose set forth.

13. The combination with the shaft to be driven, of a variable-ratio gearing for driving the same, including oppositely-rotating gears, a friction-disk connected to one of said gears, and a drive-gear connected to the other, a main power-shaft carrying a gear arranged to engage and operate said drive-gear, a friction-disk, also carried by said power-shaft, friction-plates arranged to engage said disks on opposite sides, a steering-lever, and connections between said lever and said friction-plates whereby said plates may be moved with respect to the said disks to vary the relative speeds of the latter, thereby controlling the direction and speed of rotation of the shaft to be driven, as and for the purpose set forth.

14. In an autotruck or motor-carriage, a constantly-rotating power-shaft, an axle, oppositely-rotating gears loosely mounted on said axle, and an intermediate idler connected to said axle and engaged by said gears, a drive-gear mounted on said shaft and engaging one of said gears, disks respectively mounted on said axle and shaft, the axle-disk being connected to the other of said gears, friction-plates intermediate said disks and engaging on opposite sides thereof with said disks, respectively, a control-bar, and connections between said bar and plates for moving the latter with reference to said disks, as and for the purpose set forth.

648,131. APPARATUS FOR PRODUCING SPIRITS IN SOLID FORM. HEINRICH HERPEL, Berlin, Germany. Filed Feb. 27, 1899. Serial No. 707,051. (No model.)

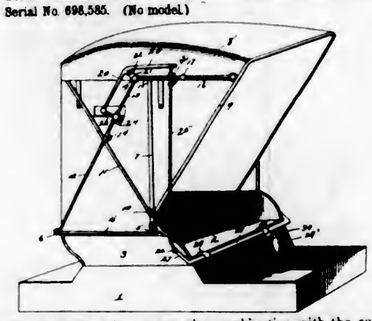


Claim.—1. An apparatus for producing spirits in solid form consisting of the combination of a still having stirrer mechanism and steam-jacket, a fore-warming receptacle having mounted therein a condensing vessel, an overflow-pipe from the condensing vessel to the interior of the fore-warming receptacle, an outlet from the condensing vessel to the still and a vapor-conduit from the still to the said condensing vessel, the latter opening into the condensing vessel at a point below the level of the overflow-pipe, a spirit-feed pipe to the fore-warming receptacle and a spirit-outlet from the latter to the still and means for closing all the pipes according to requirement substantially as described.

2. The combination of a still as specified, having stirrer mechanism and steam-jacket, an outlet at the bottom of said still incased in the steam-jacket, a fore-warming receptacle having a condensing vessel mounted therein means for conducting the vapors from the still to the condensing vessel below the level of the contents of the same and for keeping said contents at a constant level during the operation of the apparatus, conduits from the receptacle to the still and from the condensing vessel to the still as also spirit feed and outlet pipes to the said receptacle substantially as described.

3. The combination of a still having outlet as specified, a fore-warming receptacle mounted at a higher level than the still and having mounted thereio a condensing vessel as specified, means for conducting the vapors generated in the still to the condensing vessel below the level of the liquid therein, means for retaining the liquid therein at a constant level during operation, and for returning the condensed liquid to the still in part and in part to the receptacle through the overflow, a spirit-feed to the said receptacle and spirit-outlet from the latter to the still and a stirrer mechanism in said still substantially as described.

648,132. MECHANISM FOR RAISING OR LOWERING BUGGY-TOPS. CHARLES R. HESSELTINE, Creston, Wash. Filed Dec. 7, 1898. Serial No. 698,585. (No model.)

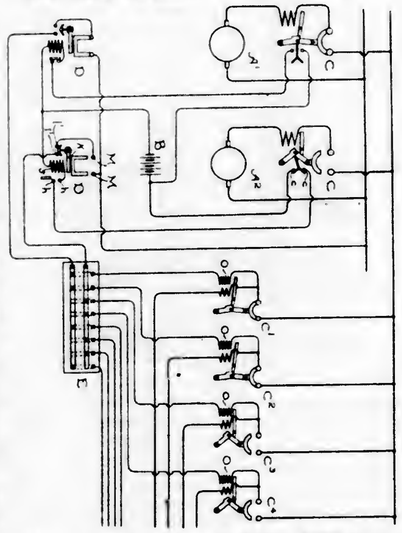


Claim.—1. In a buggy-top, the combination with the supporting toggle-levers, of a pivoted rock-lever having connections with one element of a toggle-lever, a rod having connections with the rock-lever for operating it, a bell-crank lever having connections with the said rod and means for holding said bell-crank lever normally in a predetermined position.

2. In a buggy-top a combination with the supporting toggle-levers at one side of the top, one element of each of the said levers having a common pivot, of a pivoted rock-lever having connections at its ends, with the commonly-pivoted toggle elements, a rod connected with the rock-lever and means for holding said rod in a predetermined position.

3. In a buggy-top a combination with the supporting toggle-levers, of a pivoted rock-lever having connections at each end with an element of a toggle-lever, a rod having connections with the rock-lever for operating it, a bell-crank lever having connections with the said rod, and means of holding said bell-crank lever in a predetermined position.

643,133. SAFETY DEVICE FOR ELECTRIC-DISTRIBUTION SYSTEMS. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 3, 1899. Serial No. 700,884. (No model.)



Claim.—1. In a system of distribution, a generator, a circuit-breaker, the controlling connection of said generator with the system, and means actuated by the circuit-breaker for cutting off a desired part of the station load when the circuit-breaker opens.

2. In a system of electric distribution, generators connected in multiple to bus-bars, circuit-breakers for the generators, and means actuated by the opening of any circuit-breaker for relieving the station of a desired part of the load.

3. A generator, a circuit-breaker in the generator-lead, feeders in multiple connected to the generator and each provided with its own circuit-breaker, and means automatically actuated by the opening of the generator circuit-breaker for opening one or more of the feeder circuit-breakers.

4. A generator, a circuit-breaker in the generator-lead, feeders in multiple connected to the generator and each provided with its own circuit-breaker, auxiliary coils upon the feeder circuit-breakers, and means actuated by the opening of the generator circuit-breaker for closing a circuit through any desired coil or coils.

5. A generator, a circuit-breaker in the generator-lead, a number of feeders extending from the generator, each provided with its own circuit-breaker, shunt-coils upon the feeder circuit-breakers, means actuated by the opening of the generator circuit-breaker for closing a shunt-circuit through any desired coil or coils of the feeder circuit-breakers, and means for opening the shunt-circuit after the impulse of current has traversed it.

6. The combination of a generator with a circuit-breaker in its lead, and one or more feeders provided with circuit-breakers having auxiliary shunt-coils, with a switching mechanism by which any one or more of the feeder circuit-breakers may be connected to the generator circuit-breaker, contacts upon the latter for closing the circuit, and an intermediate mechanism operated by the contacts on the generator circuit-breaker for closing a shunt-circuit through any desired feeder circuit-breaker and subsequently opening the shunt-circuit and the circuit of the contacts on the generator circuit-breaker.

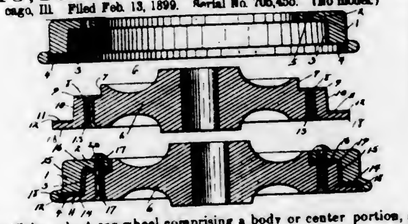
7. The combination, with a generator circuit-breaker, of an auxiliary circuit-breaker in a feeder-circuit supplied by said generator, electromagnetic devices controlling the latter, and contacts operated by the generator circuit-breaker to first actuate said electromagnetic devices and then open the circuit.

8. An automatic switch comprising an operating-magnet including in its circuit a circuit-closer, a plurality of independent circuits controlled by the magnet's armature, and connections for operating the circuits in sequence when the maguet is energized.

9. An automatic switch comprising an operating-magnet, a switch-arm controlled thereby carrying an elastically-yielding snap-contact, a rigid projection on the switch-arm adapted to engage the contact and force it into locking relation with the cooperating contact in one direction of movement, and to move free therefrom in the opposite direction of movement.

10. The combination with a generator circuit-breaker and a number of feeder circuit-breakers to be operated therefrom, of a switch mechanism for connecting any one or more of the feeder circuit-breakers and the generator circuit-breaker, and a switch comprising a magnetizing-coil and an armature with contacts upon the feeder circuit-breaker for completing the circuit of the magnetizing-coil through a source of current, and contacts upon the switch for closing a shunt-circuit through the feeder circuit-breakers and subsequently opening the circuit of the magnetizing-coil and the shunt-circuit.

643,134. **NOISELESS CAR-WHEEL.** ISRAEL HOGELAND, Chicago, Ill. Filed Feb. 13, 1899. Serial No. 705,455. (No model.)



Claim.—1. A car-wheel comprising a body or center portion, a tire, means for securing the two parts together, and cushions between the parts, the engaging surface of one of the parts having a depression formed by an outer rib, and the cushion being thick enough to extend beyond the rib that forms the depression.

2. A car-wheel comprising a body or center portion with recesses forming the peripheral annular surface into three sections with two radial surfaces between them, said radial surfaces having depressions in them, three cushions to fit on the central section of the peripheral surface and on the said two radial surfaces, respectively, a tire formed to fit on the peripheral surfaces of the body or center portion, and means for securing these parts together.

3. A car-wheel comprising a body or center portion with the peripheral surfaces 7 and 10 and the flange 18 and the radial surfaces provided with the ribs 9 and 12 forming depressions 8 and 11 therein, the surface 10 being tapered as shown, cushions 14 and 16 fitting in the depressions 8 and 11, the cushion 15 on the surface 10, a tire with the internal flange 2, the inner tapering surface 3 and recess 4 to fit snugly on the body or center portion of the wheel, said two portions of the wheel having the bolt-holes 5 and 13, and rivets or bolts for securing said parts together.

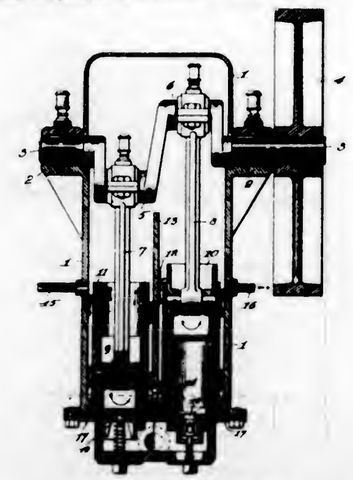
4. A car-wheel comprising a body or center portion, a tire, means for securing them together, a main cushion 15 between the parts and a cushion on each side of the main cushion and clamped between radial faces on the tire and body, respectively and protecting the main cushion from moisture.

643,135. **AIR-COMPRESSOR.** WILLIAM D. HOOKER, St. Louis, Mo. Filed May 29, 1899. Serial No. 718,661. (No model.)

Claim.—1. In an air-compressor, the combination with a series of compression-cylinders of an outer surrounding shell for containing a cooling medium having a dividing-partition separating the shell into chambers, each containing a cylinder, substantially as described.

2. In an air-compressor, the combination with a series of compression-cylinders of an outer surrounding shell for containing a cooling medium having a dividing-partition separating the shell into chambers, each containing a cylinder, said dividing-partition being provided with an opening in its lower portion, substantially as described

3. In an air-compressor, the combination with a series of compression-cylinders of an outer surrounding shell for containing a cooling medium having a dividing-partition separating the shell into chambers, and an open-top inserted cylinder and plunger adapted to permit the circulation of the cooling medium outside and inside the said cylinder and plungers, substantially as described.

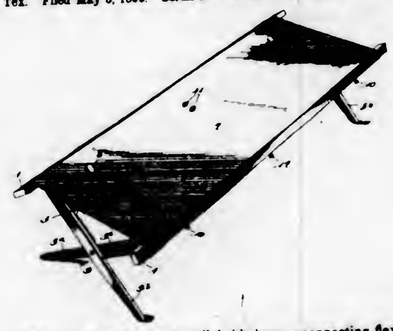


643,136. **WATER-RESERVOIR FOR STOVES.** ROBERT L. HORSLEY and JAMES H. ROUSTREE, Whitney, Tex. Filed Apr. 17, 1899. Serial No. 713,425. (No model.)



Claim.—A water-reservoir consisting of a vessel or receptacle, the lower portion of which is a parallelogram, two of the sides of which extend upwardly and parallel to the top of the vessel, the remaining sides of the upper portion of the vessel being flared outwardly and upwardly, and an upwardly-tapering and vertical tubular passage passing through said receptacle and having its entire wall separated from the walls of said receptacle by an interspace.

643,137. **FOLDING COT.** SEARCY T. HUTCHISSON, San Antonio, Tex. Filed May 3, 1899. Serial No. 715,416. (No model.)



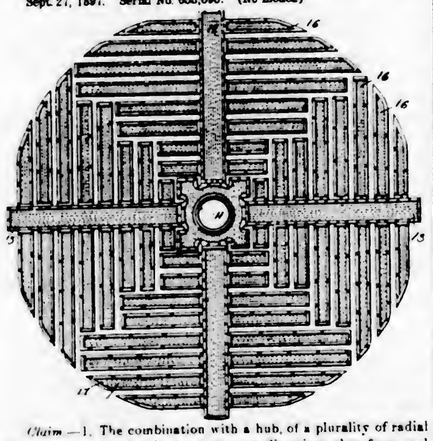
Claim.—1. A cot having parallel side bars, a connecting flexible webbing secured at its side edges to said side bars, folding legs comprising tapering members pivotally connected at intermediate points and having their opposite sides cut away from the pivot downward on diagonal lines, whereby the said members are adapted to lie and operate in the same plane, and said members hingedly mounted at their upper extremities respectively upon said side bars, the side bars being adapted for arrangement in contact at their adjacent sides, and the legs being adapted to fold inward and lie laterally within the contour of the folded side bars, and the transversely-alined webbing being adapted to be wrapped around said side bars and folded legs, and means for securing the webbing in its wrapped condition, the same consisting of headed pins upon one side of the bars, and eyelets arranged near the looped portion of the webbing to engage said pins, substantially as specified.

2. A cot having parallel side bars, a connecting flexible webbing secured at its side edges to said side bars, folding legs each comprising members pivotally connected at intermediate points and hingedly mounted at their upper extremities upon said side bars, and the transversely-looped webbing being adapted to be wrapped around said side bars and folded legs, headed pins projected from one of said side bars, and transversely-arranged grip-loops attached to the upper surface of the webbing and extended to form tongues provided with eyelets for engaging said pins, substantially as specified.

3. A cot having parallel side bars, a connecting flexible webbing secured at its side edges to said side bars, folding legs, each comprising members pivotally connected at intermediate points, and hingedly mounted at their upper extremities respectively upon said side bars, the side bars being adapted for arrangement in contact at their adjacent sides, and the legs being adapted to fold inward and lie laterally within the contour of the folded side bars, and the transversely-looped webbing being adapted to be wrapped around said side bars and folded legs, transversely-disposed grip-loops attached to the upper surface of the webbing at spaced points, and extended to form tongues having eyelets, and means carried by one of the side bars for engaging said tongues when the webbing is wrapped around the folded frame members of the cot, substantially as specified

4. The herein-described cot having parallel side bars, a connecting flexible webbing secured at its side edges to said side bars, terminal legs or supports for the side bars each consisting of members pivotally connected at intermediate points to fold in parallel planes, and having their upper ends hinged respectively to said side bars, jointed braces between one member of each leg or support and the adjacent side bars, said braces being provided with stops to limit their extension, and the side bars having their inner edges adjacent to the legs recessed, the said recesses unitedly forming seats when the side bars are brought together to receive the jointed braces when folded, and means for securing the webbing when wrapped about the side bars and folded legs or supports, substantially as specified.

643,138. **STRAINER FOR FILTERS.** OMAR H. JEWELL, Chicago, Ill., assignor to the O. H. Jewell Filter Company, same place. Filed Sept. 27, 1897. Serial No. 653,095. (No model.)

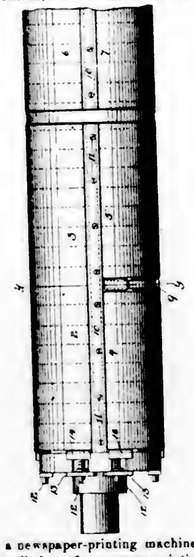


Claim—1. The combination with a hub, of a plurality of radial strainer-pipes extending in three or more directions therefrom, and branch pipes communicating with said radial pipes, the area of each strainer-pipe with its branches being equal to that of each of the others, substantially as described

2. The combination with a central discharge-pipe, of a plurality of radial strainer-pipes extending in four directions therefrom, and branch pipes communicating with said radial pipes, said branch pipes being arranged perpendicularly to the radial pipe to which they are respectively attached, substantially as described.

3. In a filter, the combination with a filter-tank, and a discharge-pipe, of a series of strainers arranged in said tank and communicating with said discharge-pipe, said strainers having perforations or slits the combined area of which is substantially equal to the area of the discharge-pipe, substantially as described.

643,139. **PRINTING-MACHINE.** BENJAMIN H. JORDAN, Sharpsburg, Pa. Filed Dec. 20, 1898. Serial No. 699,876. (No model.)



Claim.—1. In a newspaper-printing machine, the combination, with the printing-cylinder, of stereotype printing-plates arranged thereon to print across two pages of a newspaper without forming a space between the pages, said plates having square abutting edges and a recess in the adjacent edge of each plate extending inwardly from the edge and under the printing-surface thereof, the recess on one plate adapted to register with the recess on the other plate when the plates are applied to the cylinder, slots in the cylinder, and clamps in said slots, said clamps adapted to engage with the recesses, substantially as set forth.

2. In a newspaper-printing machine, the combination, with the printing-cylinder, of printing-plates 2 and 3, each having a square edge and a cut-out portion as 16, and each plate having its square edge in contact with the other, a slot in the cylinder and a clamp in said slot engaging with the cut-out portion in each plate, substantially as set forth.

3. In a newspaper-printing machine, the combination, with the printing-cylinder, of stereotype printing-plates, as 2 and 3, arranged to print across two pages of a newspaper without forming a space between the pages, each of said plates having a square edge and a cut-out portion, as 16, means for engaging the cut-out portion of each plate and clamping the plates to, the cylinder; printing-plates, as 4 and 5, arranged to print two pages of a newspaper with a space between the pages, and means for clamping said latter plates to the cylinder, substantially as set forth

4. In a newspaper-printing machine, the combination, with the printing-cylinder, of stereotype printing-plates mounted on the cylinder having a square edge and forming a continuous printing-surface for printing across two pages of a newspaper, stereotype-plates mounted on the cylinder but separated from each other for printing two pages of a newspaper with a spece between the pages, and means for securely locking the plates to the cylinder, comprising, clamping-blocks located in slots in the cyliuder and engaging the plates and bars longitudinally disposed on the cylinder, substantially as set forth.

5. In a newspaper-printiog machine, the combination, with the printing-cylinder, of printing-plates mounted thereon arranged to print the pages of a newspaper so that two pages may be printed without forming a blank space between the pages and the other pages printed with the usual space between the pages, said plates, for printing the pages without the intervening space, having a square edge and beveled edges and cut-out portions in the square edge, said plates, for printing the pages with the usual space between the pages, having beveled edges only; and means for securely locking the plates to the cylinder

comprising, clamping-blocks engaging the said cut-out portions, clamping-blocks engaging the beveled edges and bars longitudinally disposed on the cylinder, substantially as set forth.

6. In combination with a printing-cylinder, a set of printing-plates edge to edge and forming a continuous printing-surface, a second set of plates separated to form a marginal space between two pages, clamping-blocks for said plates, and a plate-holding bar engaging all of said plates and secured to the cylinder, substantially as described.

643,140. WRENCH. JOHN H. KING and CHARLES C. KING, Montpelier, Ind. Filed Dec. 8, 1899. Serial No. 739,703. (No model.)



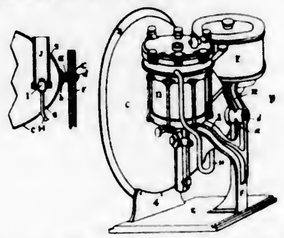
Claim.—1. In a wrench of the character set forth, the combination of a handle having a head provided with a nut-socket and a transversely-extending recess, a pair of jaws having shanks movably mounted in the said recess and provided with openings, and a disk applied to the head over the recess and shanks and having a cam on its inner face engaging the openings in the shanks.

2. In a wrench of the character set forth, the combination of a handle having a head, concavo-convex jaws provided with shanks movably mounted in the said head and having elliptical openings therein, and a disk secured to the head and having a cam on its inner face fitted within the openings of the jaws, the said disk being rotatable and operating to extend or withdraw the jaws.

3. In a wrench of the character set forth, the combination of a handle having a head, oppositely-disposed jaws having shanks slidingly mounted in the said head, and a rotatable disk applied over a portion of the head and the shanks and having a fixed cam movable in portions of the said shanks.

4. In a wrench of the character set forth, the combination of a handle having a head, oppositely-disposed jaws having shanks in planes at right angles thereto and slidingly mounted in the said head, the said shanks having elliptical openings therein, a rotatable disk applied over a portion of the head and the shanks and having a fixed cam with opposite extensions engaging the openings in the shanks, and a pivot-pin inserted through the center of the disk and secured in the head.

643,141. HEADLIGHT. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Jan. 31, 1898. Serial No. 668,593. (No model.)



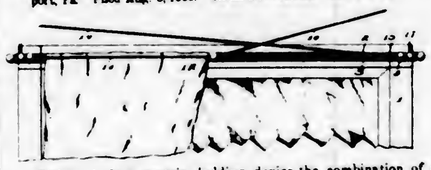
Claim.—1. In a headlight, a case having a door and a glass-covered opening, in combination with an interior equipment consisting of a reflector, a gas-generator, a gas-holder located at one side of the center line of the reflector, a liquid-reservoir in open communication with said generator and located at the opposite side of the center line of said reflector, a gas-burner located in proper relation to the focal point of the reflector and centrally of said gas-holder and said liquid-reservoir, and a removable base, the whole forming a single structure adapted to be inserted in and withdrawn bodily from the case, and whereby gas is produced and consumed within the case and the light utilized to illuminate the roadway in advance of the headlight, substantially as shown and described.

2. In a headlight, a case having a door and a glass-covered opening, in combination with an interior equipment consisting of a reflector, a gas-generator located at one side of the center line thereof, a liquid-reservoir in open communication with said generator and located at the opposite side of the center line of the reflector, a gas-burner located in proper relation to the focal point of the reflector and centrally of said generator and said reservoir, and a removable base, the whole forming a single structure adapted to be inserted in and withdrawn from the case, substantially as shown and described.

3. In a headlight, a case having a door and a glass-covered opening, in combination with an interior equipment consisting of a removable base; a reflector; a standard projecting upwardly from said base; a gas-generator and a liquid-reservoir carried by said standard on opposite sides of the center line of the reflector; the said liquid-reservoir being in open communication with said generator, and a burner located in proper relation to the focal point of the reflector and centrally of said generator and reservoir, the whole forming a single structure adapted to be inserted in and withdrawn from the case, substantially as shown and described.

4. In a headlight, a case having a door and a glass-covered opening, in combination with an interior equipment consisting of a removable base; a reflector; a standard projecting upwardly from said base and supporting the rear end of the reflector; a gas-generator and a liquid-reservoir carried by said standard on opposite sides of the center line of the reflector, the said liquid-reservoir being in open communication with said generator, and a burner located in proper relation to the focal point of the reflector and centrally of said generator and reservoir, the whole forming a single structure adapted to be inserted in and withdrawn from the case, substantially as shown and described.

643,142. WINDOW-CURTAIN POLE. JOSEPHINE LAGY, Freeport, Pa. Filed Aug. 8, 1899. Serial No. 726,528. (No model.)

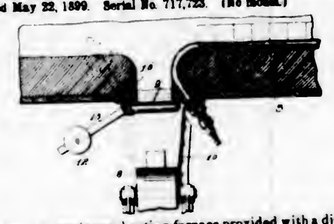


Claim.—1. In a curtain-holding device the combination of a fluted or corrugated curtain-pole, a central plate having pivotally secured thereto rods, hooks arranged on said pole adapted to retain said rods, a rear rod pivotally secured at its one end, and a hook arranged to the rear face of the pole adapted to retain said rod, substantially as described.

2. In a curtain-holding device, the combination of a curtain-pole, rods pivotally secured thereto, hooks secured to the said pole and adapted to retain the said rods, a rear rod pivotally secured at one end to the said pole, a hook secured to the said pole and adapted to retain the said rod, and a spring-hook mounted upon each end of the said pole, substantially as set forth.

3. In a curtain-holding device, the combination of a pair of supporting-brackets, a curtain-pole adapted to be supported thereby, a central plate secured to the said pole, a pair of rods pivotally secured to the said plate, hooks secured to the said pole adapted to retain the said rods, a rear rod pivotally secured at one end to the said pole, a hook secured to the pole for retaining the said rod, and a spring-hook mounted upon each end of the said pole, substantially as described.

643,148. HEATING-FURNACE. ALEX LAUGHLIN, Sewickley, Pa. Filed May 22, 1899. Serial No. 717,723. (No model.)

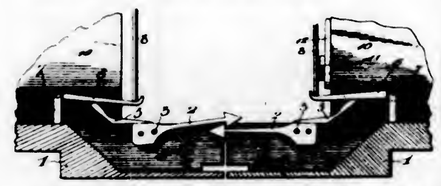


Claim.—A continuous heating-furnace provided with a discharge-opening formed through its bottom, in combination with a door hinged to one side of the discharge-opening, automatic means for normally closing the door, a conveyer arranged to receive the billets and a stationary guide-plate arranged parallel to the conveyer and adapted to direct the billets into the conveyer as they pass through said opening, substantially as set forth.

643,144. PROCESS OF PREPARING HALOID DERIVATIVES OF ACETONE. LEONHARD LEDERER, Munich, Germany. Filed Aug. 10, 1897. Serial No. 647,759. (No specimens.)

Claim.—A process of preparing a halogen derivative of acetone by causing a halogen to react with acetone dicarbonic acid in the presence of a substance adapted to act on the corresponding halogen hydrogen acid, substantially as set forth.

643,145. CAR-COUPLING. ANTHONY S. MARTIN, Malden, N. C. Filed Apr. 17, 1899. Serial No. 713,406. (No model.)

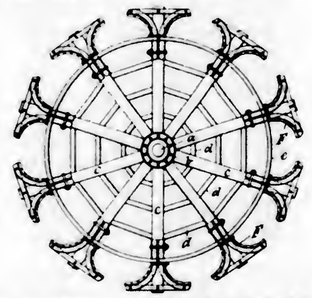


Claim.—1. In a car-coupling, the combination of a draw-head, a link pivoted within the draw-head and arranged to swing vertically, an arm extending rearward from the link beyond the pivotal point thereof and projecting above the draw-head, a post or support carried by the draw-head, a horizontal lever 6 fulcrumed at its rear end on the post or support and engaging the arm of the link and extending forward beyond the car, and operating mechanism mounted on the car and arranged to engage the lever 6, substantially as described.

2. In a car-coupling, the combination with a car, of a draw-head, a horizontal link pivotally mounted within the draw-head and arranged to swing vertically, and provided with a rearwardly-extending arm projecting above the draw-head, a horizontal lever 6 fulcrumed at its inner end and engaging the arm of the link and extending beyond the car, a vertically-movable rod mounted in suitable guides of the car and having its lower end arranged to engage the lever 6, said rod having its upper end arranged at the top of the car in position to be depressed by the foot, and means for depressing the lever 6 from the side of the car, substantially as described.

3. In a car-coupling, the combination with a car, of a draw-head, a link pivotally mounted in the draw-head, arranged to swing vertically and provided with an arm extending above the draw-head, a depressible lever 6 fulcrumed on the draw-head and engaging the arm of the link and projecting beyond the car, the inner lever 11 fulcrumed on the car and having one arm arranged to engage the depressible lever and having its other arm weighted, and the outer lever 12 fulcrumed between its ends and extending to the side of the car, its inner end being arranged beneath the weighted end of the lever 11, substantially as described.

643,146. STEAMBOAT-WHEEL. JOHN C. MEDERER, Allegheny, and PATRICK F. SLATTERY and GEORGE C. FUHS, Pittsburg, Pa. Filed Apr. 14, 1899. Serial No. 713,004. (No model.)



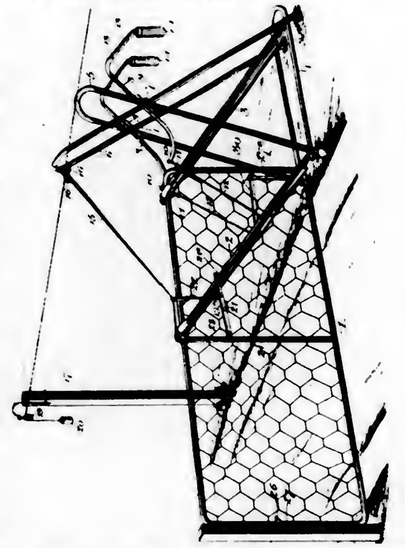
Claim.—1. A steamboat-wheel comprising a suitable frame provided with outwardly-extending arms and curved buckets supported thereon, said buckets extending from the arms on a curve outwardly toward the largest diameter of the wheel, substantially as set forth.

2. A steamboat-wheel comprising a suitable frame provided with outwardly-extending arms, each of said arms supporting a pair of curved buckets and the buckets being curved in opposite directions the one to the other, said buckets extending from the arms on a curve outwardly toward the largest diameter of the wheel, substantially as set forth.

3. A steamboat-wheel comprising a suitable frame, radial arms, channel-irons secured to opposite sides of said arms, said channel-irons being curved, and strips secured to said channel-irons, substantially as set forth.

4. A steamboat-wheel comprising a suitable frame, radial arms, channel-irons engaging opposite sides of said arms, U-bolts securing said channel-irons to said arms, said channel-irons being curved outwardly, and strips secured to said channel-irons, substantially as set forth.

643,147. GATE. DAVID MILLER, Garden City, Mo. Filed Mar. 1, 1899. Serial No. 707,267. (No model.)



Claim.—1. The combination of a gate, oscillating bars supporting the same, a supporting-frame comprising a horizontal or base piece, and the oppositely-inclined standards or members crossed at their upper portions, counterbalancing-levers disposed longitudinally of the gate and fulcrumed on the supporting-frame, and operating mechanism connected with the gate, substantially as described.

2. The combination of a gate, oscillating bars supporting the same, a frame comprising the oppositely-inclined standards 5 and 6 having their upper portions crossed, and a horizontal base connecting the lower ends of the standards, longitudinal counterbalancing-levers fulcrumed on the standards at their point of crossing, and connected at their front ends with the oscillating bars, pulleys arranged at the top of the standard 6, and operating-ropes passing over the pulleys and connected with the gate, substantially as described.

3. The combination of a jump-gate, oscillating bars supporting the gate, a latch pivoted to the gate and interlocking with one of the oscillating bars, and operating mechanism connected with the gate and with the latch, substantially as described.

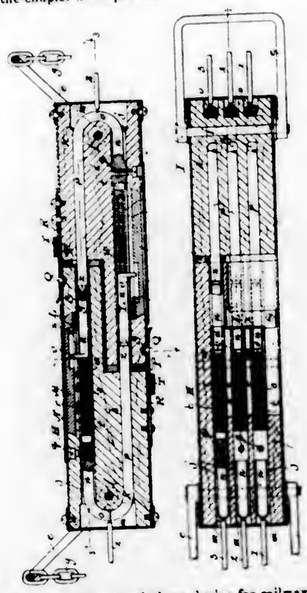
4. The combination of a jump-gate, an oscillating bar, a latch pivoted to one of the parts and engaging the other, and means for releasing the latch and for actuating the gate, substantially as described.

5. The combination with a longitudinally-movable gate, of a keeper comprising arms located at opposite sides of the gate in position to engage the front bar thereof when the gate is subjected to a lateral strain, said arms being provided with hooks which project toward each other in position to embrace the end bar of the gate, substantially as specified.

643,148. ELECTRIC SIGNAL AND AUTOMATIC ALARM FOR RAILWAY-TRAINS. JAMES K. MILLER, JULIUS W. WITT, and DANIEL A. JONES, Oshkosh, Wis. Filed July 13, 1899. Serial No. 723,660. (No model.)

Claim.—1. In an electric signal and alarm device, the combination of two separable electric coupler members, each containing a transverse contact-plate, a series of double pins, connected with the signal-wires, and having arms of unequal length, and a spring-controlled slide connected to the longer arm of each double pin and provided with a contact-lug, whereby when the two coupler members are brought together, the shorter arm of each double pin in one member will push back the slide connected to the longer arm of the adjacent double pin in the other member, and carry the contact-lug in

said slide away from engagement with the adjacent contact-plate, against the force of the slide-spring, and whereby the said lugs and plates are forced into contact by the said springs, whenever the two members of the coupler are separated.



2. In an electric signal and alarm device for railway-trains, the combination of two separable electric coupler members, each comprising a block of insulating material and inclosing casing with catches for holding said two members together, said members being shouldered or offset at their meeting edges, and provided with upper and lower series of holes extending longitudinally therethrough; series of double pins, connected with the signal-wires, and having arms of unequal length fitting in said holes, the longer arm of each pin comprising a slotted tube; spring-controlled sliding rods in each tube, the inner ends of said rods having contact-lugs projecting therefrom through said slots; transverse metallic contact-plates arranged above said tubes; and the shorter arm of each double pin engaging with the outer ends of said sliding rods, whereby, when the two members are brought together, the said sliding rods are pushed back, against the force of the springs, and the contact-lugs carried away from engagement with the said transverse contact-plates, and whereby the said lugs and plates are forced into contact by the said springs, whenever the two members of the coupler are separated.

643,149. DRIER. JAMES MCCUSKER, Ryan, Iowa. Filed Aug. 28, 1899. Serial No. 728,731. (No model.)

Claim.—1. In a device of the class described, the combination of a supporting frame or casing, and the vertically-disposed shelf-frames composed of horizontal members slidingly connected at their ends with the supporting-frame and adapted to be moved inward and outward and arranged in vertical series, and means for connecting the members of each series, whereby the same will move in unison, substantially as described.

2. A device of the class described comprising a supporting frame or casing, horizontal end rails arranged within the same, and the vertical shelf-frames each composed of a series of horizontal members slidingly mounted on the end rails, and vertical connecting members, whereby the horizontal members of each frame are caused to move inward and outward in unison, substantially as described.

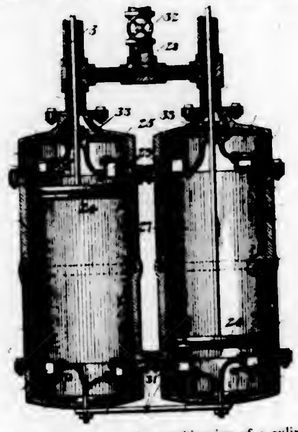
3. A drier having its walls formed by wire-netting, vertical series of horizontal end rails within the drier, and a plurality of shelf-frames composed of intersecting connected wires, certain of which are formed with eyelets surrounding and movable upon the end rails, substantially as specified.

4. The combination with a drier, of shelf-frames therein comprising vertically-alined series of horizontal wires connected by vertical stays, and means for adjustably supporting the opposite ends of the shelf wires and stays, substantially as specified.

5. A wire supporting-frame for driers comprising two vertical series of horizontal end rails provided with inturned terminal prongs, a horizontal series of shelf-frames each of which is composed of a vertical series of horizontal shelf-wires having terminal eyelets passing around the end rails, a pair of vertical stays provided respectively with oppositely-disposed eyelets for the reception of the shelf-wires with an eyelet at its lower extremity and a hook at its upper extremity, and horizontal bottom rails for the reception of the terminal eyelets of the stays, substantially as specified.



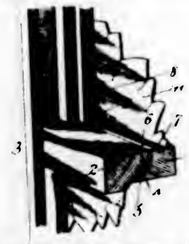
648,150. PUMPING MECHANISM. GEORGE W. MCGILL, Kearney, Nebr. Filed May 1, 1899. Serial No. 715,186. (No model.)



Claim.—1. In a pump, the combination of a cylinder, horizontal partitions subdividing the ends of the cylinder into non-communicating inlet and discharge chambers, said partitions being disposed at different relative elevations and having vertical openings, the inlet-chambers having supply-ports, a passage connecting the discharge-chambers at opposite ends of the cylinder, a distributing-pipe in communication with one of said discharge-chambers, and inlet and outlet valves located upon opposite sides of the horizontal partitions in about the same horizontal plane and controlling the vertical openings formed in the respective partitions, substantially as specified.

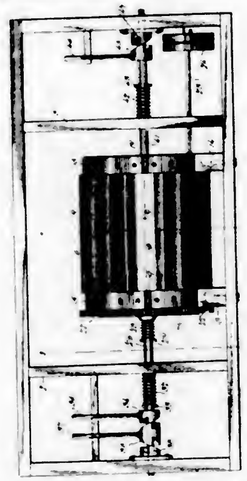
2. The combination with a cylinder having a centrally-disposed discharge-opening in one head, horizontal partitions subdividing the discharge end of the cylinder into inlet and discharge chambers, the latter having communication with the discharge-opening of the cylinder-head, and the former having an inlet-port, said partitions being in different relative planes and formed with vertical openings, valves in the same horizontal plane and arranged upon opposite sides of the respective horizontal partitions, a stuffing-box located within the cylinder and supported by the inner ends of said partitions, and a piston having its rod passing through the stuffing-box and the discharge-opening in the head of the cylinder, substantially as described.

643,151. WINDOW-SASH. ISAAC N. OWENS, Jr., Hannibal, Mo., assignor of one-half to William A. Owens, same place. Filed May 19, 1899. Serial No. 717,498. (No model.)



Claim.—A window-sash, having an open longitudinal groove provided in the upper face of the lower rail thereof, and inclined downwardly in opposite directions from an intermediate point, transverse slots formed through the respective side rails of the sash, communicating with the adjacent ends of the longitudinal groove, and alined longitudinally therewith, and downwardly-extending grooves formed in the outer edges of the side rails, communicating at their upper ends with the outer ends of the transverse slots, and having their lower ends opening downward through the lower ends of the respective rails, substantially as and for the purpose set forth.

643,152. COTTON-PRESS. HARTWELL M. PARKER, Fty, N. C. Filed Aug. 30, 1899. Serial No. 728,993. (No model.)



Claim.—1. A cotton-press comprising a compression-cylinder having peripheral compression-rolls and divided on a vertical line into complemental sections, one of which cylinder-sections occupies a fixed relation to the other, and said sections being hinged together at their upper ends and confined normally in closed relation by a locking device on the under side of the cylinder, building-up heads supported in laterally-movable relation to each other within the compression-cylinder, retracting-springs tending to move the heads normally in opposite outward directions, and cam-formed pressure devices to move the heads independently of each other and inwardly against the tension of their retracting-springs, substantially as described.

2. A cotton-press comprising a divided compression-cylinder provided with peripheral rolls, internal building-up heads, means for normally moving the said heads in outward directions, and a master-gear for actuating said compression-rolls and movable in a direction away from the roll-gears simultaneously with the outward movement of one of said heads, for the purpose described, substantially as set forth.

3. A cotton-press comprising a compression-cylinder having peripheral compression-rolls provided with gears, movable building-up heads having means for normally moving the same in opposite directions, a master-gear in operative relation to the several pinions, and means for throwing said gear out of mesh with said pinions, said master-gear being movable into gear with the pinions at the period of inward movement of one of said heads, substantially as described.

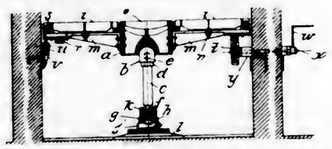
4. In a cotton-press, the combination with a compression-cylinder provided with peripheral compression-rolls and actuating-pinions, of reciprocatory building-up heads, within the cylinder, a shaft connected with one of said heads and capable of moving in a direction to retract the head, a master-gear loosely mounted upon said shaft and means for actuating the said shaft to retract said connected compression-head and to thereby throw the master-gear out of mesh with the pinions, substantially as specified.

5. In a cotton-press, the combination of a compression-cylinder having the socketed divided heads hinged one to the other and a series of peripheral compression-rolls, the movable building-up heads within the socketed cylinder-heads, means for retracting the compression-heads normally in outward directions, and independent sets of operating-cams for positively moving said heads against the action of their retracting devices, substantially as described.

6. In a cotton-press, the combination of a compression-cylinder having a series of compression-rolls each provided with an actuating-pinion, the oppositely-movable heads, spring-actuated slidable shafts connected fast with said heads and tending to normally retract the latter in opposite outward directions, a master-gear mounted on one of said shafts and movable in an outward direction with the head thereon, and independent sets of cam-collars for individually controlling the movements of said shafts against the action of the retracting-springs, substantially as described.

7. In a cotton-press, the combination with a compression-cylinder comprising peripheral compression-rolls and pinions, compression-heads within the cage, a shaft extending from one of said heads and capable of moving in a direction to retract the compression-head, a master-gear carried by said shaft and meshing with the pinions, a spring carried by the shaft and urging the master-gear toward the pinions, a second spring carried by said shaft and bearing against a fixed part to urge the shaft in the direction to retract the compression-head and a plurality of cam-collars carried by said shaft, and designed to permit the successive actuation of the shaft under the impulse of the last-named spring to effect the successive retraction of the compression-head and the disengagement of the master-gear from its pinions, substantially as specified.

643,153. REVOLUBLE GRATE FOR BAGASSE-FURNACES. WALTER R. PAYNE and FREDERIC L. JOUBERT, New Orleans, La. Filed Oct. 14, 1896. Serial No. 608,842. (No model.)



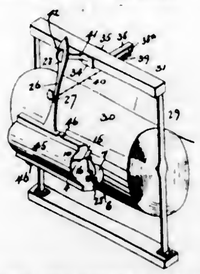
Claim.—The combination in a revoluble circular grate, of a bottom step-piece *k*, having a flange at its lower end, said flange being bolted to a suitable base-plate; step being bored to receive a vertical spindle *c*; the wedge-shaped bar *j* resting in a horizontal slot for adjusting the height of said spindle, the saddle *h* resting on said bar, and the disk *g* situated between the saddle and the spindle, substantially as described.

643,154. COMBINATION ROLLER PRINTING ATTACHMENT. WILLIAM M. PEARSE, Jr., Zanesville, Ohio. Filed Jan. 26, 1899. Serial No. 703,466. (No model.)

Claim.—1. In a printing-machine of the character described, the combination with the frame and the spring-actuated inking-rollers, of the printing-roll journaled in said frame, having a recess in one end, the disk having a circular groove in its inner face, the partition separating the ends of the same, the pin engaging therewith, the convolute spring secured to said disk and the journals of the printing-roll, the lugs on said disk and the set-screw passing through the said frame, and engaging with said lugs, substantially as described.

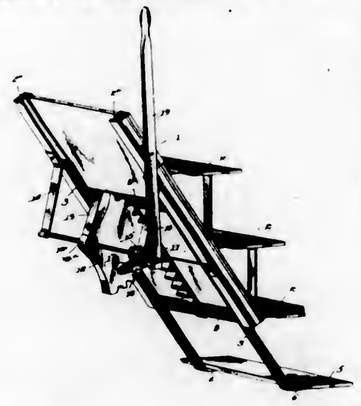
2. The combination with a printing-machine, and the bar thereof formed with a hole and a slot or opening, of the paper-roll frame, the clamp having jaws and a set-screw, and the arm provided with

a disk passing through the opening in said bar and formed with shoulders, a coiled spring connected with said clamp, the chain connected therewith passing through the hole in said bar and the pin on the end of said chain, substantially as described.



3. The combination with a printing-machine provided with a bar having an opening near one end and a hole intermediate the ends, of the paper-roll frame, a clamp secured thereto having jaws, one of which is provided with a rib, and the other with a set-screw, said clamp carrying an arm having a disk and shoulders, also an extension provided with a lug, the spring connected therewith, the chain, and the pin on the free end of said chain, substantially as described.

648,155. EXTENSION CAR-STEP. BURKE R. PIERS, Newport, Pa. Filed Nov. 27, 1899. Serial No. 738,417. (No model.)

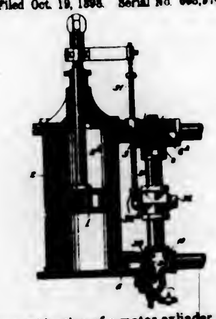


Claim.—1. In a device of the class described, the combination of a supporting-frame having permanent steps and provided at opposite sides with ways located at its rear face, a sliding frame mounted in the said ways, an extension-step carried by the sliding frame, a rack-bar mounted on the sliding frame and having its teeth disposed rearward or outward, brackets mounted on the main frame and projecting rearward beyond the rack, a shaft journaled on the brackets, a weighted gear-wheel located in rear of the rack and meshing with the same and arranged to support the sliding frame in an elevated position, and means for operating the shaft, substantially as described.

2. In a device of the class described comprising a supporting-frame having permanent steps and provided at opposite sides with ways located at its rear face, a sliding frame composed of side bars and transverse connecting-bars, the side bars being arranged in the said ways, a rack-bar mounted on the connecting-bars, brackets mounted on the supporting-frame, a shaft journaled in bearings of the brackets, a weighted gear mounted on the shaft, meshing with the rack-bar and arranged to support the sliding frame in an elevated position, an extension-step carried by the sliding frame, and a lever connected with and operating the shaft, substantially as described.

3. In a device of the class described comprising a supporting-frame having permanent steps and provided at opposite sides with ways located at its rear face, a sliding frame composed of side bars and transverse connecting-bars, the side bars being arranged in the said ways, a rack-bar mounted on the connecting-bars, brackets mounted on the supporting-frame, a shaft journaled in bearings of the brackets, a weighted gear mounted on the shaft, meshing with the rack-bar and arranged to support the sliding frame in an elevated position, an extension-step carried by the sliding frame, a lever connected with and operating the shaft, a link connecting the arm and the lever, substantially as described.

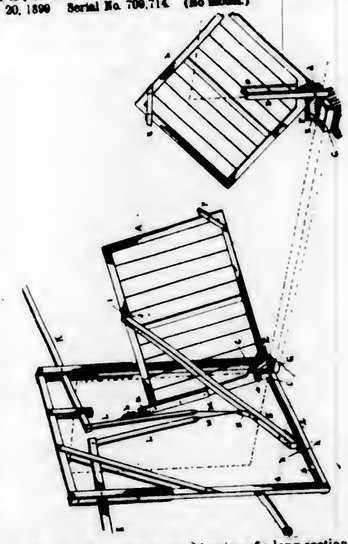
648,156. PLANT FOR OPERATING MOTORS. MILES W. QUIGG, Titusville, Pa. Filed Oct. 19, 1898. Serial No. 693,974. (No model.)



Claim.—1. The combination of a motor-cylinder, a piston therein connected to a pump, a motive-fluid supply to one side of the piston, a valve controlling the admission and exhaust of said fluid, a controlling-fluid supply to the other side of the piston, and means controlled by the movement of the pump-piston for varying said supply, substantially as set forth.

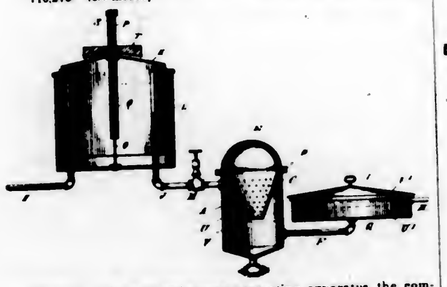
2. The combination of a motor-cylinder, a piston therein connected to a pump, a motive-fluid supply to one side of the piston, a valve controlled by the piston for controlling admission and exhaust of said fluid, a controlling-fluid supply to the other side of the piston, and a valve adapted to be shifted by fluid-pressure for controlling the flow of fluid into the opposite end of the cylinder, substantially as set forth.

648,157. GATE. ROLAND RAKESTRAW, Wyoming, Ill. Filed Mar. 20, 1899. Serial No. 709,714. (No model.)



Claim.—In a gate the combination of a long section A, a shorter section B, the former pivoted between the uprights C, the latter between the uprights D, a pivotal swinging beam H pivoted at its lower end near the ground and at one side of the gate and at the other to the top of the section A, suitable operating-levers connected therewith, as shown, an adjustable weight at the top of the said section A for the purposes explained, a rod E pivoted to the said section A near its pivotal support and extending beneath the roadway to near the opposite section B, a link F pivoted to the latter section, a series of apertures in such link for adjustment on the said rod E and pivotal connection between the rod and link all substantially as and for the purposes specified.

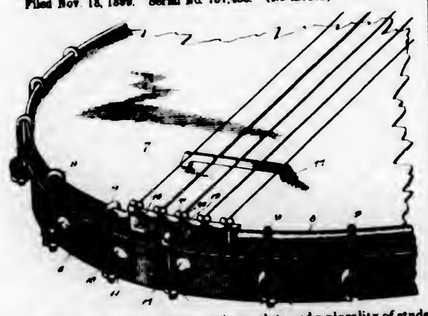
648,158. ACETYLENE-GAS-GENERATING APPARATUS. FERNANDO L. RAND, North Adams, Mass. Filed Mar. 23, 1899. Serial No. 710,270. (No model.)



Claim.—1. In an acetylene-gas-generating apparatus, the combination with the generator proper, comprising a water chamber or space a gas-chamber and a carbid-cell therein, of an expansion-chamber communicating freely with the water-chamber, a weighted gasometer connected to the generator, whereby the pressure thereon will depress the water-level in the generator below the carbid-cell and increase the level of the water in the expansion-chamber and means for returning the water to the generator, substantially as described.

2. In an acetylene-gas-generating apparatus, the combination with the generator comprising a cylinder having an annular flange on its interior wall, of a carbid cage of inverted conical form supported by said flange and extending about half the distance of the cylinder, a gasometer and an expansion-chamber in operative connection with said generator, whereby the pressure from the gasometer will force the water from contact with the carbid and into expansion-chamber, substantially as described.

648,159. BANJO-TAILPIECE. GUSTAV A. RAPP, Hudson, N. Y. Filed Nov. 18, 1899. Serial No. 737,488. (No model.)



Claim.—1. A tailpiece comprising a plate and a plurality of studs upon the plate, each of the studs having a head projecting beyond the sides of the stud and having a groove in its upper edge tapering to a point, whereby a string may be wedged into the groove.

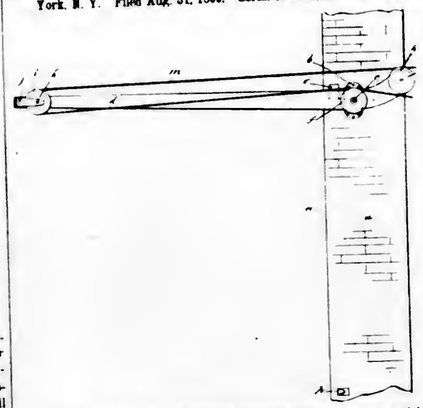
2. A tailpiece comprising a plate and a plurality of studs mounted upon the plate, each of the studs having a head comprising spheres in mutual contact and projecting beyond the sides of the stud.

3. A tailpiece comprising a plate and a plurality of studs mounted upon the plate, each of the studs having a head comprising two spheres in mutual contact and projecting beyond the sides of the stud.

4. A tailpiece comprising a plate having a plurality of studs mounted thereon, each of the studs having a head consisting of two spheres in mutual contact and projecting beyond the sides of the studs, whereby a central downwardly-tapered groove is formed in the upper face of the head, the common tangent of the spheres coinciding with the axis of the studs.

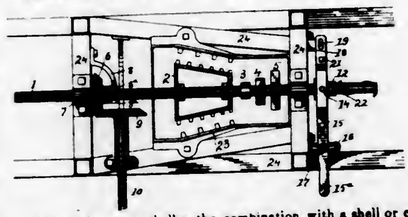
5. A tailpiece comprising a plate and a plurality of studs, each of the studs having a head which projects beyond the opposite sides of the studs, said head having its projecting portions rounded and having a groove in its upper portion intermediate its ends, said groove having convex walls in mutual contact, whereby the groove is tapered to a point.

643,160. CLOTHES-LINE SUPPORT. WILLIAM B. ROBINSON, New York, N. Y. Filed Aug. 31, 1899. Serial No. 729,051. (No model.)



Claim.—The herein-described clothes-line support, comprising a single arm which is pivotally mounted adjacent one end, which end is curved upwardly and provided with a pulley, said arm being also provided at its outer end with a pulley and intermediate of said ends with a pulley, the relative construction and arrangement being such that a line passed above said pulley connected with said curved end about said pulley connected with the other end, and thence above said intermediate pulley will form when tautened an upper and a lower strand, the upper of which may readily be manipulated to operate the lower of which, substantially as shown and described.

643,161. CORN-SHELLER. WILLARD C. ROWE, Decatur, Ill., assignor to the Union Iron Works, Incorporated, same place. Filed Feb. 9, 1898. Serial No. 669,640. (No model.)

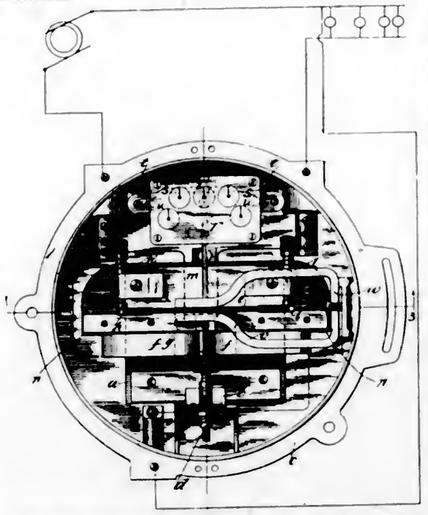


Claim.—In a corn-sheller the combination with a shell or concave provided interiorly with projections for stripping the corn from the cob, of a revoluble cone mounted within the shell or concave and provided with shelling projections adapted to cooperate with the projections on the shell or concave and mechanism for imparting rapid longitudinal movements to the cone while the latter is rotating, sufficiently to relieve the said cone when clogged, whereby the cone may be started while the sheller is filled, substantially as described.

648,162. ALTERNATING-CURRENT METER. GUSTAVE A. SCHREYER, Peoria, Ill., assignor to the Diamond Meter Company, same place. Filed May 11, 1899. Serial No. 716,380. (No model.)

Claim.—1. In an alternating-current meter, the combination with a rotating disk, of a shaft upon which the same is adapted to rotate; a measuring-train; a laminated magnetic core of U shape, lying in a plane transverse to the disk, the pole of said core being adjacent to one face of the disk; a mass of laminated iron placed in juxtaposition with said core on the opposite side of said disk and adapted to complete the magnetic circuit of said core; two shunt-coils of fine wire disposed about the core; a series coil located between the fine-wire coils and between the disk and the said fine-wire coils, all of said coils being located transversely to the axis of rotation of the disk; means for adjusting said U-shaped core toward or from the axis of rotation of the disk to bring more or less of said disk into inductive relation to the said core, and a damping-magnet arranged

in proximity to the disk, said core and series coil being located upon one side of the shaft, and the said damping-magnet being located opposite to said coils upon the other side of the shaft, substantially as described.



2. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic core for said shunt-winding adjacent to one face of the disk, and a mass of magnetic material disposed adjacent to the opposite face of the disk and adapted to complete the magnetic circuit of said core, said windings, core and mass of magnetic material being directly mechanically united, substantially as described.

3. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic core for said shunt-winding adjacent to one face of the disk and lying in a plane transverse thereto, a shunt coil being about each polar extension of said core, the series coil being located between said coils and between the disk and the shunt-coils, and a magnetic body upon the other side of the disk to complete the magnetic circuit for the lines of force threading the said core, substantially as described.

4. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic core for said shunt-winding adjacent to one face of the disk and lying in a plane transverse thereto, a shunt-coil being about each polar extension of said core, the series coil being located between said coils and between the disk and the shunt-coils, and a magnetic body upon the other side of the disk to complete the magnetic circuit for the lines of force threading the said core, the said coils, core and magnetic body being directly mechanically united, substantially as described.

5. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic core for said shunt-winding adjacent to one face of the disk and lying in a plane transverse thereto, a shunt-coil being about each polar extension of said core, the series coil being located between said coils and between the disk and shunt-coils, and a magnetic body upon the other side of the disk, forming a magnetic shunt adapted to complete a magnetic circuit for the lines of force threading the disk and to divert lines of force into shunt-paths from the disk, substantially as described.

6. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic core for said shunt-windings adjacent to one face of the disk and lying in a plane transverse thereto, a shunt-coil being about each polar extension of said core, the series coil being located between said coils and between the disk and the shunt-coils, and a magnetic body upon the other side of the disk, forming a magnetic shunt adapted to complete a magnetic circuit for the lines of force threading the disk and to divert lines of force into shunt-paths from the disk, the said coils, core and magnetic body being directly mechanically united, substantially as described.

7. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings in inductive relation to said disk; a magnetic U-shaped core for said shunt-winding adjacent to one face of the disk and lying in a plane transverse thereto, a shunt-coil being about each polar extension of said core, and a magnetic U-shaped body upon the other side of the disk forming a magnetic shunt adapted to complete a magnetic circuit for the lines of force threading the disk and to divert lines of force into shunt-paths from the disk, substantially as described.

8. In an alternating-current wattmeter, the combination with series and shunt coils, of an element or armature for actuating the recorder in inductive relation to the said coils, and two adjustable torque devices *h i*, each adapted to exert a turning effort upon the armature, tending to rotate the same in a direction opposite to that in which the other device tends to rotate the armature, whereby errors due to electrical and mechanical defects may be readily corrected, substantially as described.

9. In a recording, measuring instrument, the combination with a rotating shaft, of a measuring-train geared therewith; a supporting-plate *s* for the said bearing and measuring-train, slotted bosses *t t*, the slots in the bosses receiving the said plate, and fastening-screws *u u* to secure the plate and the bearing and measuring-train carried thereby in the position to which they may be adjusted, substantially as described.

10. In an alternating-current meter, the combination with series and shunt windings, of a rotating disk disposed perpendicularly with respect to the axes of magnetization due to said windings, said disk being located in position to have lines of force set up by the said windings thread the same, and means for shunting a portion of the lines of force that would otherwise go through the disk, substantially as described.

11. In an alternating-current meter, the combination with series and shunt windings, of a rotating disk disposed perpendicularly with respect to the axes of magnetization due to said windings, said disk being located in position to have lines of force set up by the said windings thread the same, and a derived magnetic circuit adapted to direct lines of force from the main magnetic circuit passing through the said disk, substantially as described.

12. In an alternating-current meter, the combination with a rotating disk, of series and shunt windings; a main magnetic circuit therefor for directing lines of force through the disk, and a derived magnetic circuit for shunting lines of force from the said disk, the axes of magnetization due to the said windings being perpendicular to the said disk, substantially as described.

13. In an alternating-current meter, the combination with a rotating disk, of a magnetic core placed perpendicularly thereto; a shunt-winding; a series coil, and an additional magnetic body affording a derived circuit to direct lines of force from the disk, substantially as described.

14. The combination with a rotating disk, of a magnetic core disposed perpendicularly thereto; a shunt-winding upon the said core; a series coil, and an additional magnetic body affording a path for the lines of force threading the disk and a shunt-path for diverting other lines of force from the disk, substantially as described.

15. In an alternating-current meter, the combination with a rotating disk, of a U-shaped magnetic core disposed perpendicularly thereto; a shunt-winding upon the said core; a series winding, and a second U-shaped magnetic body affording a path for the lines of force threading the disk and a shunt-path for diverting lines of force from the said disk, said magnetic bodies being located in proximity with each other, substantially as described.

16. In an alternating-current meter, the combination with a rotating disk, of a measuring-train driven thereby; shunt and series windings disposed in inductive relation thereto and upon the same side thereof; a magnetic core for said shunt-winding, the pole faces of said magnetic core being at the periphery of and in proximity to the face of the disk, and means for adjusting said core together with the shunt-winding thereon in a plane transverse to the axis of the disk to bring more or less of the surface of the disk within the influence of said core, substantially as described.

17. In an alternating-current meter, the combination with a rotating disk, of a measuring-train adapted to be driven thereby; shunt and series windings disposed inductively to said disk; a magnetic core for said shunt-winding adjacent to one face of the disk and at the periphery thereof; means for adjusting said core in a plane transverse to the axis of the disk to bring more or less of the disk within the influence of said core, and a mass of magnetic material upon the opposite side of the disk adapted to complete the magnetic circuit thereof, substantially as described.

18. In an alternating-current meter, the combination with a rotating disk, of a shaft upon which the same is adapted to rotate; a measuring-train; a laminated magnetic core of U shape, lying in a plane substantially perpendicular to the disk, the poles whereof are adjacent to one face of the disk; a mass of laminated iron placed in juxtaposition with said core on the opposite side of said disk and adapted to complete the magnetic circuit of said core; a shunt-winding of fine wire on said core; a series coil of coarse wire, the latter coil being placed substantially parallel with the disk, and means for adjusting said laminated core in a plane transverse to the axis of rotation of the disk, substantially as described.

19. In an alternating-current meter, the combination with a rotating armature, of a measuring-train driven thereby; shunt and series windings disposed inductively to said core and a support for said windings, permitting the same to be adjusted toward or away from the axis of rotation of said armature in a plane transverse to said axis, thereby to bring more or less of the armature into inductive relation to said windings, substantially as described.

20. In an alternating-current meter, the combination with an armature, of a series coil of coarse wire; a shunt-winding of fine wire; a magnetic core about which said shunt-winding is disposed, and a mass of magnetic material disposed in juxtaposition with said core and adapted to complete the magnetic circuit thereof, said armature being subjected to the action of the fields created by said winding, the shunt-coil being placed transversely to the axis of rotation of the armature, and means for adjusting the core together with the shunt-winding about the same toward or away from the axis of rotation, substantially as described.

21. In an alternating-current meter, the combination with a rotating disk, of a magnetic core placed substantially perpendicularly to the plane of rotation thereof; a shunt-winding of fine wire disposed about the core, whereby a polar region is produced having an axis perpendicular to the plane of rotation of the armature; a mass of laminated iron placed in juxtaposition with said core on the opposite side of said disk and adapted to complete the magnetic circuit thereof; means for adjusting said core together with the shunt-winding about the same in a plane transverse to the axis of rotation of the disk; a series coil of coarse wire also arranged in a plane transverse to the axis of rotation of the disk to produce a polar region having an axis practically at right angles to the plane of rotation, and a magnetic body near the face of said disk and in inductive relation to said core to produce an initial torque, substantially as described.

22. In an alternating-current meter, the combination with a rotating disk, of a measuring-train operated thereby, shunt and series windings in inductive relation to said disk, and located upon the same side thereof, the series winding being coreless, a magnetic core for said shunt-winding adjacent to one face of the disk, and a mass of magnetic material disposed adjacent to the opposite face of the disk and adapted to complete the magnetic circuit of said core, substantially as described.

648,168. BANANA-SHIPPING CASE. FRANK SCHMITZ, Chicago, Ill. Filed Feb 10, 1899. Serial No. 705,159. (No model.)



Claim.—1. The combination with a suitable crate, of a bag suspended within and of contact with the crate by laterally-extending cords connecting its end portions with the corresponding end portions of the crate, and means for forcibly extending the crate longitudinally; whereby tension is put upon the bag and its suspending-cords.

2. The combination with a crate consisting of end hoops connected by separated slats bending outward at the middle, of a bag suspended in the crate and out of contact with its sides by cords extending laterally outward from its end portions, and means for forcing the middle portions of the slat inward and fixing them in the new position, whereby the bag and cords are subjected to permanent tension.

3. The combination with a crate consisting of separated longitudinal slats bulging outward at the middle, of hoops connecting corresponding ends of the slats, a bag suspended within the crate and out of contact therewith by cords connecting corresponding end portions of the bag and crate, and a hoop sliding upon the crate and having an inner diameter less than the normal outer diameter of the middle portion of the crate.

4. The combination with the open crate having spaced longitudinal members connected by transverse hoop members, of a bunch-inclosing bag shorter and of less diameter than the interior of the crate, and bag-suspending cords each looped about one of the inner members of the crate alongside an outer crossing member, having its loop branches sewed into the adjacent walls of the bag, and again looped around the same inner member upon the opposite side of said crossing outer member; whereby the bag is suspended at some distance within the lateral walls and end planes of the crate by cords protected from abrasion.

643,164. READING OR WRITING DESK FOR HANGING OVER THE SHOULDERS. HEINRICH SCHNELL, Cologne, Germany. Filed May 10, 1899. Serial No. 716,283. (No model.)



Claim.—1. A reading or writing desk consisting of a slab provided with a supporting device adapted to go around the neck of the wearer, and diagonally-disposed extensions hinged to the outer corners of the slab at the end adjacent to the body of the wearer to form supports for the arms, substantially as and for the purpose specified.

2. A reading and writing desk consisting of a supporting-slab in foldable sections with folding diagonal extensions hinged to the corners of the slab to form supports for the arms, and a neck-strap, as set forth.

3. A reading and writing desk consisting of a foldable slab with hinged side pieces and hinged extensions extending from the inner ends of the side pieces to form supports for the arms, means for holding the same in its distended position, and a neck-strap, substantially as described.

4. A reading and writing desk consisting of a support in hinged sections, diagonal lateral extensions hinged to the slab, means for holding the parts rigid in their extended position, pivoted bars for bridging the joint between the slab and the extensions for supporting the latter in their extended position, and a neck-strap secured to the slab, substantially as and for the purpose specified.

643,165. WEEDING IMPLEMENT. JOHN H. SCHUMACHER, Saugatuck, Mich. Filed June 14, 1899. Serial No. 720,529. (No model.)

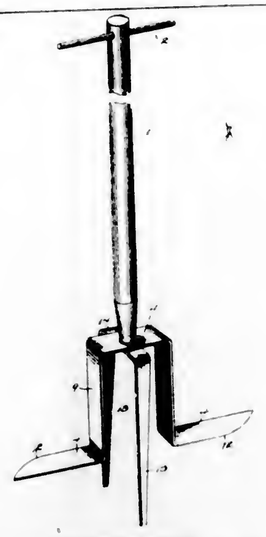
Claim.—1. A weeding implement, comprising an operating-handle, a holder adapted to straddle the plant, and radial cutting-blades located and operating exteriorly of the holder, substantially as shown and described.

2. A weeding implement, comprising an operating-handle, a holder swiveled to the handle and having arms adapted to enter the ground and straddle the plant, and radial cutting-blades carried by the handle and located exteriorly of the holder, substantially as shown and described.

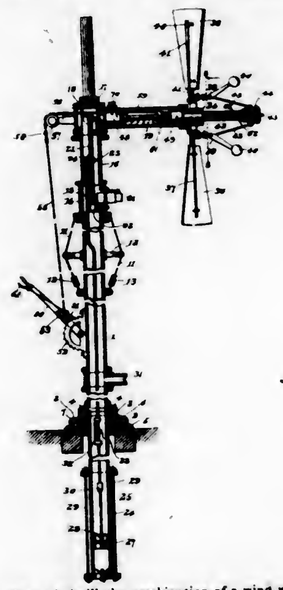
3. A weeding implement, comprising an operating-handle, a substantially U-shaped holder swiveled intermediate of its ends to the handle, and cutting means, comprising a substantially U-shaped body fixed to the handle and receiving the holder between the opposite sides of the body, and provided with outwardly-extending radial cutting-blades located above the lower end of the holder, substantially as shown and described.

4. A weeding implement, comprising an operating-handle, a substantially U-shaped holder having a round opening provided through the transverse head thereof, radial cutting-blades having a connecting-body provided with an intermediate angular opening, and a connecting-shank having an annular flange or shoulder, an angular portion immediately above said shoulder and fitting in the angular opening of the body of the cutting-blades, a rounded portion immediately below the shoulder or flange and fitting loosely in the opening of the holder, and a nut fitted to the shank and supporting the holder in place, substantially as shown and described.

648,165.



648,166. WINDMILL. CHARLES T. SEARS and CHARLES P. CURREY, Topeka, Kans. Filed Nov. 10, 1897. Serial No. 658,087. (No model.)



Claim.—1. In a windmill, the combination of a wind-wheel provided with journaled blades adapted to turn into and out of the wind, the torsion-springs extending longitudinally of the blades and rigidly connected with them near the outer ends, and holding the same normally in their closed position and forming braces for supporting them, and preventing any end thrust of the blade-shafts, and means for operating the blades, substantially as described.

2. In a windmill, the combination of a wind-wheel provided with hinged or journaled blades and torsion-springs extending longitudinally of the blades, rigidly connected at their inner ends to the hub of the wind-wheel, and similarly secured at their outer ends to the blades, substantially as described.

3. In a windmill, the combination of a wind-wheel shaft, a wind-wheel mounted thereon and provided with hinged or journaled blades, a sliding collar, the angle arms or levers extending outward from the wind-wheel, connected rigidly with the journals of the blades and having their outer portions or extensions disposed at an inclination and provided with weights, links extending from the sliding collar and connected to the angle arms or levers at the angles thereof, and means for operating the sliding collar by hand, substantially as described.

4. In a windmill, the combination of a wind-wheel shaft, a wind-wheel mounted thereon and provided with hinged or journaled blades, a sliding collar, the angle arms or levers extending outward from the wind-wheel, connected rigidly with the journals of the blades and having their outer portions or extensions disposed at an inclination and provided with weights, links extending from the sliding collar and connected to the angle arms or levers at the angles thereof, a spiral spring engaging the sliding collar, parallel rods connected to the same, a coupling composed of sections slidingly mounted on the shaft and secured to the rods, and operating mechanism connected with the coupling, substantially as described.

5. In a windmill, the combination with a rotating pump, of a tubular standard forming a continuation of and constituting a discharge-pipe for the pump and provided between its ends with an exterior bearing or turn-table located above the pump, said turn-table constituting the sole support for the pump and the windmill and suspending the former within a well or cistern from the top thereof and out of contact with the bottom, whereby the pump is adapted to operate in a well or cistern of any depth, and gearing connected with the windmill for operating the pump, substantially as described.

6. In a windmill, the combination with a rotary pump, a pump rod, a wind-wheel, and gearing connecting the pump-rod and the wind-wheel, of a tubular standard extending from the pump to the wind-wheel to provide a complete housing or casing for the operating mechanism, and forming a continuation of and constituting a discharge-pipe for the pump, said standard being provided between its ends with an exterior bearing or turn-table located above the pump and constituting the sole support for both the pump and the windmill, and suspending the former within a well or cistern from the top of the same and out of contact with the bottom thereof, whereby the pump is adapted to operate in a well or cistern of any depth, substantially as described.

7. In a windmill, the combination of a standard provided with a tubular arm, a horizontal wind-wheel shaft mounted within the tubular arm, roller-bearings arranged within the tubular arm and supporting the wind-wheel shaft and located near the ends of said arm, a wind-wheel mounted on the shaft and provided with hinged blades, a coupling arranged within the tubular arm in the space between the bearings and connected with the hinged blades, and operating mechanism connected with the coupling, substantially as described.

8. In a windmill, the combination of a horizontal tubular arm, a wind-wheel shaft, an inner bearing or bushing arranged within the arm and rigid with the same and having the wind-wheel shaft turning within it, and the outer rotary sleeve or bearing fixed to the shaft and turning within the tubular arm, substantially as described.

9. In a windmill, the combination of a horizontal tubular arm, a wind-wheel shaft, an inner bearing or bushing arranged within the arm and rigid with the same and receiving the shaft, rolls interposed between the shaft and the bearing or bushing an outer rotary sleeve or bearing fixed to the shaft, rolls interposed between the rotary sleeve or bearing and the inner face of the tubular arm, a wind-wheel having hinged blades, rods connected with the hinged blades and extending through the rotary sleeve or bearing, and operating mechanism connected with the rods, substantially as described.

10. In a windmill, the combination of a horizontal tubular arm, a wind-wheel shaft arranged within the arm, a wind-wheel mounted thereon and having hinged blades, a sliding collar connected with the hinged blades, a coupling arranged on the shaft and comprising the inner and outer overlapping sections provided with oppositely-disposed annular flanges, antifriction-balls interposed between the flanges, a collar or flange engaging the outer end of the inner section, rods extending from the collar or flange to the sliding collar, and operating mechanism connected with the outer section of the coupling substantially as described.

11. In a windmill, the combination of a hub provided at its periphery with an annular series of angle-arms having bearing-openings at their inner and outer terminals, the bearing-openings at the outer end of each one of the angle-arms being tangentially alined with the inner bearing-opening of an adjacent arm, an annular series of sockets arranged at the periphery of the hub and located adjacent to the inner bearings, and the tangentially-arranged shafts carrying blades and journaled in said bearings with their inner ends stepped in the said sockets, substantially as described.

12. In a windmill, the combination of a horizontal tubular arm, a wind-wheel shaft extending through the arm, a sliding two-part coupling arranged within the arm and guided on the shaft and having one of its parts or members swiveled to the other and capable of rotation, rods extending from the rotary part or member of the coupling and designed to be connected with a wind-wheel, and a sliding rod connected with the other part or member of the coupling and adapted to move the latter positively inward and outward, substantially as described.

13. In a windmill, the combination of a hub provided with inner and outer tangentially-alined bearing-openings arranged in annular series, stops spaced from the inner bearing-openings, the tangentially-arranged shafts carrying blades and journaled in the said bearing-openings, the inner ends of the shafts being arranged against the stops, and weighted levers secured to the inner ends of the shafts and arranged between the stops and the inner bearings and retaining the shafts in position, substantially as described.

14. In a windmill, the combination of a hub provided with inner and outer tangentially-alined bearing-openings, the tangentially-arranged shafts carrying blades and journaled in the bearing-openings, and stops located adjacent to the inner bearing and having the inner ends of the shafts abutting against them, substantially as and for the purpose described.

648,167. COMBINED PUNCHING, SHEARING, AND FLOW-WELDING MACHINE. GEORGE SEARS, Onslow, Iowa. Filed Sept. 6, 1898. Serial No. 690,816. (No model.)



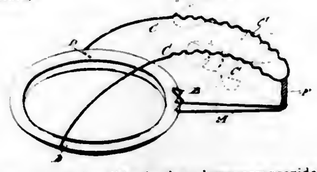
Claim.—1. A combined punching, shearing and welding machine comprising stationary and movable jaws provided with cutters located at one side of the movable jaw, a punch and die arranged at the other side of the movable jaw, the upper and lower welding-jaws located at the same side of the machine as the punch and arranged in advance of the same and mounted respectively on the movable and stationary jaws, and means for operating the movable jaw, whereby the punch, the cutters and the welding-jaws will be simultaneously operated, substantially as described.

2. A combined punching, shearing and welding machine comprising stationary and movable jaws having cutters, a hook arranged at one side of the machine and having an extended bill located above the stationary jaw and arranged adjacent to the cutters, a punch located at the other side of the machine and connected with the movable jaw, and the upper and lower welding-jaws located at the same side of the machine as the punch and mounted on the movable and stationary jaws, substantially as described.

3. A combined punching, shearing and welding machine comprising stationary and movable jaws having cutters, a hook arranged at one side of the machine and having an extended bill located above the stationary jaws adjacent to the cutters, a block arranged at the other side of the machine and detachably interlocked with the movable jaw, a punch arranged at the same side of the machine and detachably secured to the said block, a transverse rod passing through the stationary jaw and securing the hook to the same and provided with an eye receiving the punch and forming a guide for the same, whereby the rod is adapted to retain the punch in engagement with the block and the block in engagement with the movable jaw, and the welding-jaws arranged at the same side of the machine as the punch and connected with the stationary and movable jaws, substantially as described.

4. A combined punching, shearing and welding machine comprising stationary and movable jaws having cutters arranged at one side of the movable jaw, a punch located at the other side of the movable jaw, the supporting-plate arranged at the same side of the machine as the punch and mounted on the stationary jaw and provided at its inner end with an arm having oppositely-disposed lugs, said supporting-plate being provided at its back with a flange having a recess, a lower welding-jaw fitted between the lugs and provided at its back with a lug engaging the said recess, and an upper welding-jaw mounted on the movable jaw, substantially as described.

648,168. DEVICE FOR LIFTING PLATES. FREDERICK S. SNYDER, Whitehall, N. Y. Filed May 24, 1899. Serial No. 718,041. (No model.)



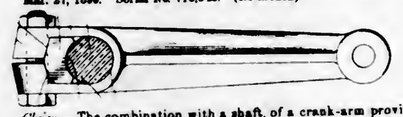
Claim.—1. A plate-lifter having a lower arm provided at one end with a hook adapted to engage one edge of the plate, and at the other end with a vertical standard, the parts of which are fixedly secured together, and spring-arms extending from the upper end of the standard over the plate and flaring outwardly, said arms having hooks upon their outer ends adapted to engage the outer side edges of the plate, substantially as described.

2. A plate-lifter having a horizontal lower arm adapted to rest upon the plate-supporting surface and provided with an upwardly-extending hook upon one end adapted to engage the edge of a plate, and spring-arms attached to the opposite end of the lower arm and extending over said arm and the plate, and having hooks at their outer ends adapted to engage the edges of the plate beyond the lower arm and at each side of its center line, substantially as shown and described.

3. A plate-lifter having a horizontal lower arm adapted to rest upon the plate-supporting surface and provided with an upwardly-extending hook upon one end adapted to engage the edge of a plate, a standard rising from the other end of said arm, and spring-arms extending from the upper end of said standard over the lower arm and the plate, and having hooks at their outer ends adapted to engage the farther edges of the plate, substantially as shown and described.

4. A plate-lifter composed of a single wire which is bent upon itself at its middle and has the end of the loop thus formed bent to form a side or upwardly-extending hook facing outwardly or in the direction of its end, the wires extending from said hook alongside each other to form a base-section, and then bending upwardly and being secured to each other to form a short standard, from the upper end of which wires extend upwardly and divergently over the base-section with their ends curving downwardly, and each provided at its end with an inwardly-extending hook adapted to engage the farther side edge of a plate, substantially as described.

648,169. SHAFT-CLAMP. HENRY C. SWAN, Oshkosh, Wis. Filed Mar. 27, 1899. Serial No. 710,548. (No model.)

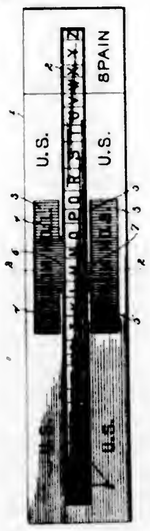


Claim.—The combination with a shaft, of a crank-arm provided with a recess formed with parallel side walls, and having its inner end curved to provide a bearing for the shaft, said side walls being slightly resilient and extending a suitable distance beyond the shaft and provided at their outer ends with projections, having their inner faces oppositely beveled, arranged above and partly inclosing the shaft, a cotter between the shaft and the projections, said cotter being provided on one side with oppositely-inclined bevels corresponding to and engaging with the bevels on said projections and on its other side with edges or ridges formed by grooving the cotter eccentrically to the shaft, and means arranged above the cotter for drawing the projections toward each other to force the edges or ridges on said cotter into engagement with the shaft and hold the crank-arm against rotation thereon, substantially as described.

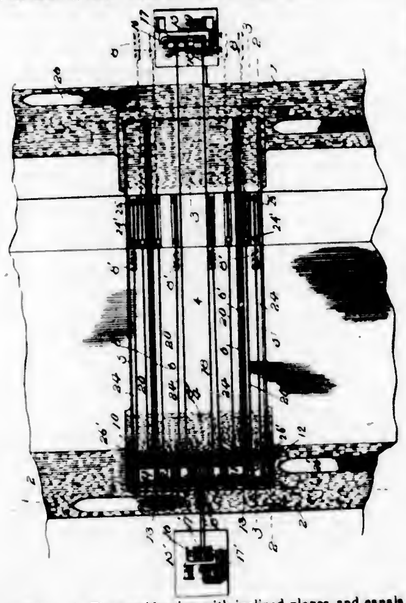
648,170. GAME OR PUZZLE. JAMES C. TELLER, McCook, S. D. Filed June 1, 1899. Serial No. 719,027. (No model.)

Claim.—A game or puzzle comprising a board having a field arranged to form a longitudinal alley and lateral rooms on opposite sides of the center, said rooms being partially separated from the alley by

partitions having openings therethrough, the openings differing in width, and movable pieces adapted to be shifted in the alley and said rooms or compartments.



643,171. MEANS FOR ELEVATING OR LOWERING SHIPS. FLORIÁN TENTSCHERT and LUDWIG CHISCHEK, Vienna, Austria-Hungary. Filed Mar. 18, 1899. Serial No. 709,598. (No model.)



Claim.—1. The combination with inclined planes, and canals on different levels between which the inclined planes extend, of a rolling water and boat holding drum, and means for rolling said drum over said inclined planes from one canal to the other.

2. The combination with an upper and a lower channel, of an inclined plane extending from the lower channel to a plane above the upper channel, a second inclined plane extending from the upper channel to about the same height as the first inclined plane, the inclined planes being connected at the top, a drum adapted to roll up and down said inclined planes, ropes wound on the drum, means for pulling such ropes to unwind the same thereby rolling the drum up one incline, and means for retarding the rolling of the drum down the second incline.

3. The combination with an upper and a lower channel, of an inclined plane extending from the lower channel to a plane above the upper channel, a second inclined plane extending from the upper channel to about the same height as the first inclined plane, the inclined planes being connected at the top by an approximately horizontal plane, a drum adapted to roll up and down said inclined planes and across said horizontal plane, ropes wound on the drum, means for pulling such ropes to unwind the same thereby rolling the drum up one incline, and means for retarding the rolling of the drum down the second incline.

4. The combination with an upper and a lower channel, of an inclined plane extending from the lower channel to a plane above the upper channel, a second inclined plane extending from the upper channel to about the same height as the first inclined plane, the inclined planes being connected at the top, a drum adapted to roll up and down said inclined planes, tracks on said planes on which the drum rolls, ropes wound on the drum, means for pulling such ropes to unwind the same thereby rolling the drum up one incline, and means for retarding the rolling of the drum down the second incline.

5. The combination with an upper and a lower channel, of an inclined plane extending from the lower channel to a plane above the upper channel, a second inclined plane extending from the upper channel to about the same height as the first inclined plane, the inclined planes being connected at the top, a drum adapted to roll up and down said inclined planes, racks lengthwise of said planes, circumferential gears on the drum to engage said racks, ropes wound on the drum, means for pulling such ropes to unwind the same thereby rolling the drum up one incline, and means for retarding the rolling of the drum down the second incline.

6. The combination with upper and lower channels, and the oppositely-inclined connected planes between the channels, and extending above the channels, of a rolling drum adapted to travel on said planes from one channel to the other and to carry a load, ropes wound on the drum, a motor or motors for operating said ropes to roll the drum up and down the inclines, other ropes on said drum, and weights connected thereto and coöperating with the motor or motors to raise and lower the drum on the inclined planes.

7. The combination with upper and lower channels, and the oppositely-inclined connected planes between the channels, and extending above the channels, of a rolling drum adapted to travel on said planes from one channel to the other and to carry a load, ropes wound on the drum, a motor or motors for operating said ropes to roll the drum up and down the inclines, a set of ropes wound on the drum, weights at the top of their course to which the last-mentioned ropes are connected, weights at the lower part of their course, a set of ropes connected with the drum but onwound connected to the last-mentioned weights, whereby the weights assist in rolling the drum up one plane and in retarding its descent down the other plane.

8. The combination with upper and lower channels, inclined tracks for a rolling drum between and extending above the channels, a rolling drum, and one or more motors therefor, of inclined passages or ways, weights in said passages, ropes connected to the drums and to said weights so that said weights coöperate with the motor or motors in raising and lowering the drum.

9. The combination with upper and lower channels, oppositely-inclined planes between and extending above said channels, said planes being adapted to support a rolling drum, of oppositely-inclined weight passages or ways.

10. The combination with upper and lower channels, oppositely-inclined planes between and extending above said channels, said planes being adapted to support a rolling drum, ropes wound on the drum, and motor devices for rolling the drum up and down said planes, of oppositely-inclined weight passages or ways, rolling weights therein, and ropes connecting the rolling weights to the drum and coöperating with the motor devices in raising and lowering the drum.

11. The combination with upper and lower water-channels 1, 2, inclined planes 3, 4, a drum having ends closed except at the center for a space sufficient to admit a boat or other float 26', means for rolling the drum up one incline, whereby boat 26' sinks below the central openings 11, the boat, however, remaining afloat, and means for retarding the rolling of the drum down the opposite incline, whereby the drum moves gently into the water of the second channel, and boat 26' floats so that it can pass out through an open end of drum 10.

12. The combination with upper and lower water-channels 1, 2, inclined planes 3, 4, guiding and supporting tracks on said inclined planes, a drum having ends closed except at the center for a space sufficient to admit a boat or other float 26', surfaces on the drum adapted to roll on said tracks, means for rolling the drum up one incline, whereby boat 26' sinks below the central openings 11, the boat, however, remaining afloat, and means for retarding the rolling of the drum down the opposite incline, whereby the drum moves gently into the water of the second channel, and boat 26' floats so that it can pass out through an open end of drum 10.

13. The combination with upper and lower water-channels 1, 2, inclined planes 3, 4, guiding and supporting tracks and racks on said inclined planes, a drum having ends closed except at the center for a space sufficient to admit a boat or other float 26', surfaces on the drum adapted to roll on said tracks, and gears on the drum engaging the racks, means for rolling the drum up one incline, whereby boat 26' sinks below the central openings 11, the boat, however, remaining afloat, and means for retarding the rolling of the drum down the opposite incline, whereby the drum moves gently into the water of the second channel, and boat 26' floats so that it can pass out through an open end of drum 10.

14. A drum for raising and lowering ships in combination with racks, toothed rims engaging with such racks and working ropes wound at one end around the drum and at the other on motor-drums.

15. In a device for raising and lowering ships, a ship-carrying drum, a motor-drum, a drawing or working rope, a pulley over which the rope passes, an underground passage for the rope.

16. In a device for raising and lowering ships a drum in combination with supporting-rings, and intermediate springs.

17. A drum for moving canal-boats and the like from one level to another, consisting of a cylindrical body, with partially-closed ends, the ends having central openings adapted to admit the boat to be moved.

18. A drum for moving canal-boats and the like from one level to another, consisting of a cylindrical body, with partially-closed ends the ends having central openings adapted to admit the boat to be moved, said drum having circumferential gears.

19. A drum for moving canal-boats and the like from one level to another, consisting of a cylindrical body, with partially-closed ends, the ends having central openings adapted to admit the boat to be moved, said drum having circumferential gears and track-flanges.

20. A drum for moving canal-boats and the like from one level to another, consisting of a cylindrical body, with partially-closed ends, the ends having central openings adapted to admit the boat to be moved, said drum having spiral grooves adapted to guide ropes as they are wound thereon.

21. A drum for moving canal-boats and the like from one level to another, consisting of a cylindrical body, with partially-closed ends, the ends having central openings adapted to admit the boat to be moved, supporting-rings around the cylinder, and intermediate springs.

22. The combination with inclined planes, and a rolling boat-moving body, of motor devices and coöperating weights for raising the drum on one plane and for retarding its descent on the other plane.

643,172. CRANK-PIN OR ECCENTRIC TURNING LATHE. ADAM TIEDEL and OTTO ALBRECHT, Philadelphia, Pa. Filed Apr. 25, 1898. Renewed July 13, 1899. Serial No. 723,717. (No model.)

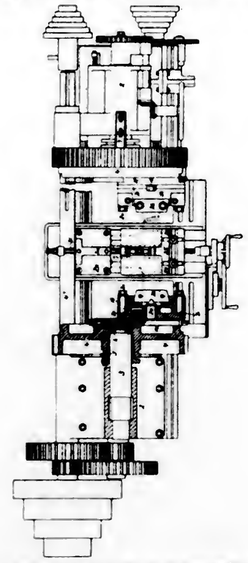
Claim.—1. The combination in a lathe for turning crank-pins or eccentrics, of a rotating main face-plate, a cross-head mounted so as to move transversely thereon, means for securing the cross-head to said face-plate after adjustment, and a supplementary face-plate mounted so as to rotate on said cross-head and having means for engaging and holding the shaft, substantially as specified.

2. The combination in a crank-pin or eccentric turning lathe, of a rotating main face-plate, a cross-head mounted so as to move transversely thereon, means for securing the cross-head to said face-plate after adjustment, a supplementary face-plate mounted so as to rotate on said cross-head, clamping-jaws carried by said supplementary face-plate, and provision for opening and closing said clamping-jaws, substantially as specified.

3. The combination in a crank-pin or eccentric turning lathe, of a rotating main face-plate, a cross-head mounted so as to move transversely thereon, means for securing the cross-head to said face-plate after adjustment, a supplementary face-plate mounted so as to rotate on said cross-head, provision on said supplementary face-plate for engaging and holding the shaft, and a center pin carried by the cross-head and concentric with the axis of rotation of the supplementary face-plate, substantially as specified.

4. The combination in a crank-pin or eccentric turning lathe, of a rotating main face-plate, a cross-head mounted so as to move transversely thereon, a supplementary face-plate mounted so as to rotate on said cross-head, a fixed stud on which the main face-plate rotates, and bearing-washers interposed between the end of said stud and the face-plate, one of said washers being secured to the stud and the other to the face-plate, substantially as specified.

5. The combination in a crank-pin-turning lathe, of mechanism for holding and rotating the crank-shaft, with a multiple tool-holder slide having a projecting portion carrying a tool for acting on the crank-pin, and one or more laterally-projecting portions with tool for acting on the end of the crank-arm, substantially as specified.



6. The combination in a crank-pin or eccentric turning lathe, of a pair of rotating main face-plates geared together so as to rotate in unison, and each having a cross-head mounted thereon so as to move transversely, means for securing the cross-head to the face-plate after adjustment, and each of said cross-heads having a supplementary face-plate rotatably mounted thereon, and each of said supplementary face-plates being provided with means for engaging and holding the crank-shaft, substantially as specified.

7. The combination in a crank-pin or eccentric turning lathe of a rotating main face-plate, a cross-head mounted so as to slide transversely thereon, and a supplementary face-plate rotatably mounted on said cross-head, and provided with means for clamping the shaft, said supplementary face-plate being composed of separable sections, whereby it can be removed to permit turning of the end portion of the shaft, substantially as specified.

643,173. TARGET AND AUTOMATIC INDICATING APPARATUS. JACOB H. VAN VIERSEN, MATHIEU P. T. D. MOLIÈRE, and CAREL E. TER MEULEN, Amsterdam, Netherlands. Filed Jan. 20, 1899. Serial No. 702,843. (No model.)

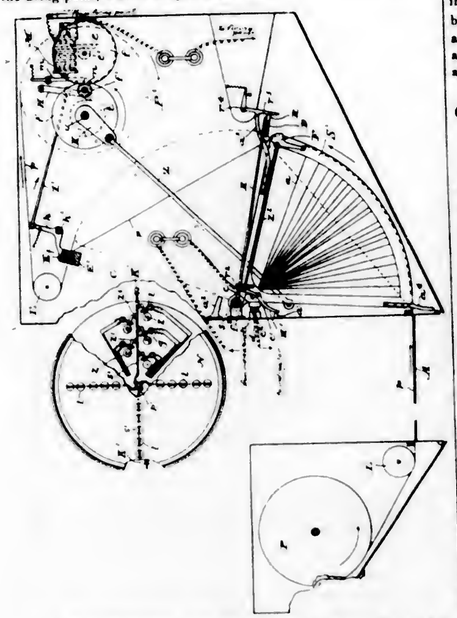
Claim.—1. An indicator for use in conjunction with a target, comprising a band or strip of material of a character to be perforated by bullets passing through the target, an intermittently-rotated roller at one side on which said strip is wound, another roller at the other side from which said strip is unwound to the same extent, and means to indicate which section of said band or strip is perforated by the bullet, substantially as hereinbefore described.

2. The combination, with a target made of easily-perforated material, of a band or strip of easily-perforated material arranged behind said target, means for supporting and intermittently feeding said band or strip behind said target, a series of electric circuits, indicating devices connected with said circuits, and means for completing one or more of said circuits through one or more perforations in said band or strip, substantially as described.

3. The combination, with an easily-perforated target, and a band or strip of easily-perforated material arranged behind said target, of a rotary sector moving behind said band or strip at one side of said target, a clamping device on said sector, ring-sections on the surface of the said sector corresponding to the annular parts of the target, an indicating apparatus at the firing-points, wires connecting said ring-sections with conductors leading to said indicating apparatus and means for completing the circuits, substantially as, and for the purposes, hereinbefore described.

4. The combination, with a band or strip of easily-perforated material, and a rotary sector having a plurality of ring-sections corresponding with the sections of the target, of a metallic brush, a frame bearing said brush and turning about the axis of the sector, means

for causing brush as soon as the sector has returned to its original position, to move over its surface and, then makes contact, through the perforation in said band or strip, with the ring-section on the surface of the sector which corresponds to that of the target, an indicating apparatus at the firing-point, and electrical connections whereby said contact through the perforation indicates the same at the firing-point, substantially as described.



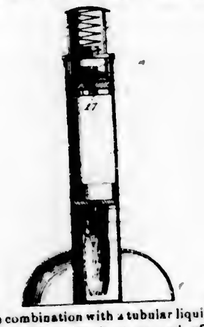
5. The combination, with the target and the movable band or strip behind the same, of a sector, a clockwork for oscillating the same, clamping-bars for holding said band or strip during the return movement of said sector, and means for actuating said clamping-bars from said clockwork, substantially as described.

6. The combination, with the target and the movable band or strip behind the same, of a sector, crank-shaft connected with said sector, a disk on said shaft, a clockwork for oscillating said sector, and an electromagnet having an armature engaging said disk on the crank-shaft, substantially as, and for the purposes, above specified.

7. The combination, with the target and the movable band or strip behind the same, of an intermittently-rotated roller on which said band or strip is wound after being perforated, a clockwork for actuating said roller, and an electromagnet having an armature which controls the motion of said clockwork, substantially as described

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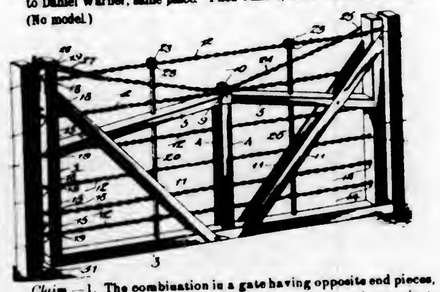
643,174. FOUNTAIN MUCILAGE OR PASTE BRUSH. JAMES F. WALKER, McKeesport, Pa. Filed June 17, 1899. Serial No. 720,964. (No model.)



Claim.—1 The combination with a tubular liquid-receptacle having an outlet surrounded by a brush at one end, of a spring-pressed plunger provided with a packing-disk at the other end of the receptacle, a washer at the lower end thereof, and a securing-screw projecting through the end of the plunger to hold the washer in place, and provided with a central air-vent, substantially as described.

2. The combination of the fountain, the plunger therein provided with a packing-disk, the securing-screw provided with a passage for air, a slotted tube to which the plunger is secured slidably mounted in the fountain, a ring secured on one end of said fountain, a cross-bar secured to the ring and passing through the slots of the tube, and a spring in the tube having its inner bearing against the cross-bar and its outer bearing against the closed end of the tube, substantially as described.

643,175. GATE. BENJAMIN F. WARNER, Bronson, Mich., assignor to Daniel Warner, same place. Filed June 8, 1899. Serial No. 719,807. (No model.)



Claim.—1. The combination in a gate having opposite end pieces, and a lower rail connecting the same, of an intermediate bar projecting upwardly from the rail and between the end pieces, opposite truss-braces fitted to the upper end of the intermediate bar and extending to the respective end pieces of the gate, and a bolt extending from the lower rail to the contiguous ends of the truss-braces and adapted to hold the latter to the upper end of the intermediate bar, substantially in the manner shown and described.

2. The combination in a gate comprising opposite end pieces, and a lower rail connecting the same, of a pair of intermediate upright bars projecting upwardly from the lower rail and having their respective upper ends beveled in opposite directions toward the respective end pieces of the gate, opposite inclined truss-braces fitted flush across the respective beveled portions of the upright bars and connected to the respective end pieces of the gate, a substantially U-shaped cap-plate embracing the contiguous ends of the truss-braces, and a bolt having its head seated in a recess provided in the under face of the lower rail and projecting upwardly through the same between the intermediate upright bars and the contiguous ends of the braces, and provided with a nut adapted to clamp against the clamping-plate, substantially as and for the purpose set forth

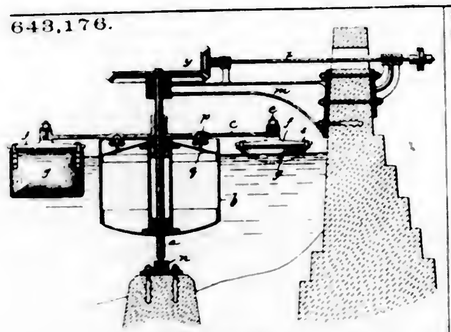
3. The combination in a gate composed of opposite end-pieces and a lower rail connecting the same, of longitudinal braces formed of twisted wires and connected at opposite ends to the respective end pieces of the gate, and vertical bolts carried by the lower rail and projecting upwardly between the strands of the wire braces so as to prevent untwisting thereof, each bolt being provided at its upper end with a pair of clamping-nuts adapted to clamp upon the upper brace to hold the same in position, substantially as shown and described.

4. The combination in a gate comprising opposite end pieces and a lower rail connecting the same, of an intermediate upright bar projecting upwardly from the lower rail and between the end pieces, truss-braces fitted to the upper end of the intermediate upright bar and extending in opposite directions therefrom to the respective end pieces, a bolt having a nut adapted to hold the contiguous ends of the truss-braces to the intermediate upright bar, and a wire truss-brace connected at opposite ends to the upper ends of the respective end pieces of the gate, the intermediate portion of the wire truss-brace being held in place by means of the nut carried by the bolt, substantially as shown and described.

643,176. WATER-WHEEL. CARL H. J. WIESE, Hamburg, Germany. Filed Mar. 5, 1898. Serial No. 672,772. (No model.)

Claim.—A wheel for utilizing the power of flowing water without the use of natural or artificial dams, comprising a series of radial arms in a horizontal plane, each arm provided, at its outer extremity, with a bucket or blade, the same being hinged to the arm by means of a horizontal shaft *f*, the said shaft being provided with a vertical pin *e*, entering and turning freely in the end of the arm, whereby the bucket may swing in the two directions described.

643,176.



643,177. SLATE-FRAME. MARY A. WILLIAMS, Denver, Colo. Filed June 30, 1899. Serial No. 723,494. (No model.)



Claim.—1. The combination with a pair of slate-frames hinged together to fold one upon the other, each frame having a recess in one of its sides and said recesses registering when the frames are folded and forming a pencil-receiving pocket, of a resilient sheet-metal clip bent to semicircular form and secured in the recess of one of the frames, with its sides projecting outwardly beyond the sides of the recess to be engaged by the sides of the recess in the other frame, when the frames are folded together, substantially as and for the purpose specified.

2. The combination with a pair of slate-frames hinged together to fold one upon the other, each frame having a recess in one of its sides and said recesses registering when the frames are folded and forming a pencil-receiving pocket, of a resilient sheet-metal clip bent to semicircular form and secured in the recess of one of the frames to receive the pencil, the sides of said clip extending outwardly beyond the sides of the recess in which it is secured and being bent inwardly toward each other, whereby when the frames are folded together the sides of the registering recess will engage the bent-in ends of the clip and press them upon the pencil in the clip, substantially as and for the purpose specified.

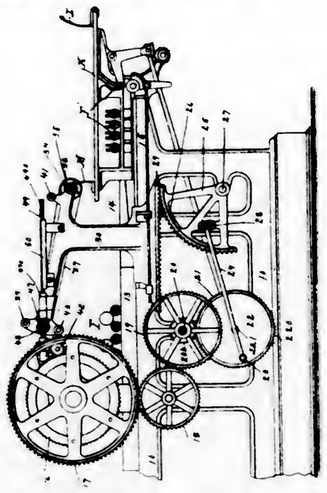
3. The combination with a slate and the frame thereof, of a groove in the frame adapted to receive a pencil and having a depth less than the diameter of the latter, and a clip within the groove consisting of a sheet of resilient metal bent into semicircular form the sides of the clip being bent inwardly toward each other and projecting from the groove, and adapted to hold a pencil partly within the groove and partly projecting therefrom.

643,178. DELIVERY MECHANISM FOR PRINTING-PRESSES. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed May 15, 1893. Renewed June 30, 1898. Serial No. 684,798. (No model.)

Claim.—1. The combination of the impression-cylinder and reciprocating form-bed, a set of tapes onto which the sheet passes from the impression-cylinder, means for continuously driving the tapes, and means for reciprocating the set of tapes bodily forward and backward relatively to the impression-cylinder and parallel to the bed to deliver the sheet, substantially as described.

2. The combination in a printing-press of the impression-cylinder, a carriage fitted to slide in ways on the printing-press frame, a set of tapes mounted in said carriage, means for continuously driving said tapes, means for reciprocating said carriage to deliver the sheet, and means for directing the sheet from the impression-cylinder onto the tapes, substantially as described.

3. In a delivery apparatus, the combination of a set of strippers, a series of tapes adapted in one position to intermesh with said set of strippers, means for reciprocating said series of tapes bodily to and from said strippers, and means for actuating said tapes so that the same will deliver the sheet, substantially as described.



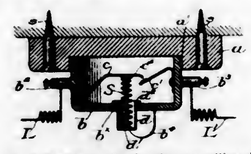
4. The combination of the impression-cylinder, a reciprocating carriage carrying two sets of tape-pulleys, a set of tapes carried around said pulleys, means for driving said tapes continuously in one direction, means for directing the sheet from the impression-cylinder onto the tapes, and a mechanism for reciprocating the carriage so that the tapes will be bodily moved forward and backward relatively to the impression-cylinder to deliver the sheet, substantially as described.

5. The combination of the impression-cylinder, stripper-fingers coacting therewith to strip the printed sheet therefrom, a reciprocating carriage, a set of continuously-driven tapes arranged entirely within said carriage, and a crank mechanism for reciprocating said carriage, substantially as described.

6. The combination of the impression-cylinder, a reciprocating carriage having a set of continuously-driven tapes arranged therein, means for directing a sheet from the impression-cylinder onto these tapes, and means for continuously driving these tapes, consisting of a keyed shaft mounted parallel with the movement of the reciprocating carriage, gearing for rotating this shaft, a bevel-gear carried by the carriage engaging this shaft by means of a suitable key, and connections whereby this bevel-gear will continuously drive the tapes, substantially as described.

7. In a delivery mechanism for cylinder printing-presses, the combination of a reciprocating carriage, a set of continuously-driven tapes mounted completely within said carriage, and guides for directing the sheet from the impression-cylinder onto the set of running tapes, the set of tapes being inclined downward relatively to the forward movement of the sheet, substantially as described.

643,179. THERMOSTATIC APPARATUS. EDWARD F. WOODMAN, Boston, Mass. Filed Mar. 28, 1899. Serial No. 710,753. (No model.)



Claim.—1 A thermostatic circuit-controlling device comprising circuit-changing means adapted to be included in an electric circuit, and a cellular controller for said means, said controller being composed of homogeneous fusible material and subjected to tensile strain.

2. A thermostatic circuit-controlling device comprising a base, circuit-changing means mounted upon it, and a tube-like controller for said means, composed of homogeneous fusible material and projecting out beyond the base, the controller loosely resting upon the latter and non-adherent thereto and provided with means whereby it may be subjected to tensile strain.

3. A thermostatic circuit-controlling device comprising circuit-changing means adapted to be included in an electric circuit, and a detachable controller therefor of fusible material, said controller being tubular and subjected to tensile strain, and non-adherently mounted upon its support to expose its outer end.

4. A thermostatic circuit-controlling device comprising an insulating-base, cooperating circuit-terminals mounted thereupon, a detent to maintain said terminals in normal position, and a cellular controller of homogeneous fusible material, subjected to tensile strain and detachably mounted on and loosely supported by the base and in engagement at its outer end with the detent, disintegration or fusion of said controller by a predetermined rise in temperature releasing the detent to thereby permit a change in the position of the circuit-terminals.

5. A thermostatic circuit-controlling device comprising a chambered base of insulating material, circuit-changing means contained within the chamber of the base, and a fusible, tube-like controller for said means closed at its outer end and projecting through a hole in the base, said controller loosely resting upon the base, and non-adherent thereto.

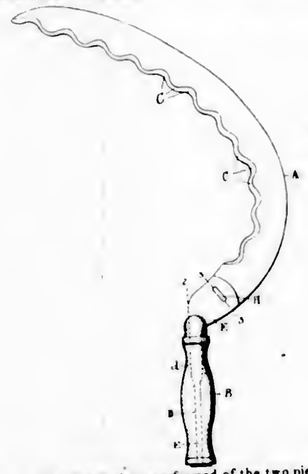
6. As a new article of manufacture, a tubular controller of homogeneous fusible material provided with a supporting flange at one end, and at its other end provided with means whereby it may be subjected to tensile strain.

7. A thermostatic circuit-controlling device comprising circuit-changing means adapted to be included in an electric circuit, a tube-like fusible controller therefor closed at its outer end and non-adherently mounted on its support, and a guard for the outer exposed end of the controller.

8. A thermostatic circuit-controlling device comprising circuit-changing means adapted to be included in an electric circuit, and a thin-walled cellular controller for said means, composed of homogeneous fusible material, the inner tubular surface thereof being out of contact with any metallic part or member of the circuit-controlling device.

9. A thermostatic circuit-controlling device, comprising a base, circuit-changing means adapted to be included in an electric circuit, and a tubular controller for said means, composed of homogeneous fusible material and freely supported by the base, subjected to strain between its ends by the normal condition of the circuit-changing means, the major part of said controller being free from contact with any member or part of the circuit-controlling device.

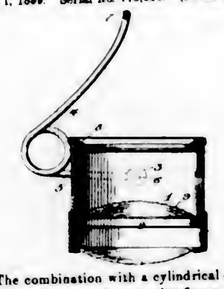
643,180. SICKLE. EDWARD D. WOODS, Granville, N. Y., assignor to the Woods Specialty Company, of New York. Filed Mar. 22, 1898. Serial No. 674,784. (No model.)



Claim.—1. In a sickle, the tang formed of the two pieces E and F keyed and welded to the blade and inserted and secured in a slot in the handle, one piece E passing entirely through the handle and upset at the farther end, and the other piece passing part way only through the handle to the end of an enlarged portion of the slot, substantially as set forth.

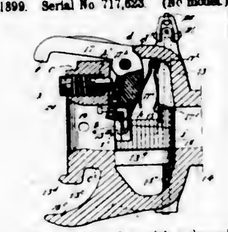
2. In a sickle a tang formed of two pieces secured to the blade and inserted and secured in a slot in the handle, one piece passing entirely through the handle and the other piece passing part way through the handle, substantially as set forth.

643,181. FILTER. GEORGE W. WOODWORTH, Monmouth, Ill. Filed June 1, 1899. Serial No. 718,986. (No model.)



Claim.—The combination with a cylindrical casing having at its upper end an inwardly-projecting annular flange, of a gasket seated on said flange, socket-lugs secured at diametrically opposite points to the outside of the casing, strainers of different mesh secured to the casing one above the other, and a clasp consisting of arms, the outer ends of which are bent inwardly to form trunnions to engage the socket-lugs and the inner ends of which are formed with spring-coils which terminate in a forwardly and upwardly projecting bail designed to engage the pump-spout and hold the gasket in water-tight engagement with the mouth thereof, substantially as and for the purpose set forth.

643,182. CAR-COUPLING. ODAVILLE YATES, Dallas, Oreg. Filed May 20, 1899. Serial No. 717,623. (No model.)



Claim.—1. The combination with a draw-head having a chamber, a gravity-block rockable therein, and a rock-shaft extending through the sides of the draw-head and fixed in the gravity-block at its rear end, of an L-shaped knuckle pivoted at its angle to rock its tailpiece in the chamber of the draw-head, a filling-plate rockable on the front side of the tailpiece, and a spring-pressed pusher-rod loosely held to reciprocate in the draw-head front wall and adapted to close the knuckle only when it presses upon the filling-plate.

2. The combination with a draw-head having a chamber, a guide-horn on one side thereof, a locking-recess in a wing-wall spaced from the guide-horn, a gravity block in the draw-head, and a rock-shaft extending through the sides of the draw-head and fixed in the gravity-block at the rear end thereof, of an L-shaped knuckle having its angular corner pivoted within the chamber of the draw-head, a hook member formed on the front end of the outer limb of the knuckle being adapted to latch into the recessed wing-wall of a similar draw-head when guided thereto by the horn, and means for rocking the gravity-block to lock or release the knuckle.

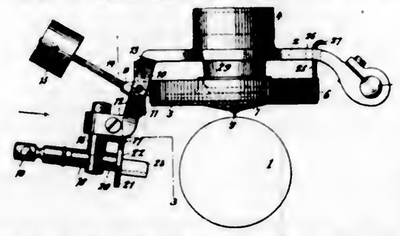
3. The combination with a draw-head having a chamber, a gravity-block rockable therein, a rock-shaft extending through the sides of the draw-head and fixed in the rear end of the gravity-block, and means to rock the rockable shaft for the elevation or depression of the gravity-block, of an L-shaped knuckle pivoted in the chamber of the draw-head, a filling-plate pivoted to rock upward on the front side of the tailpiece of the knuckle within the draw-head, a link in substantially U shape loosely engaging its limbs respectively with a flange on the gravity-block and a slot in the filling-plate, and a spring-pressed pusher-rod loosely held to reciprocate in the front wall of the draw-head, and adapted to close the knuckle only when it impinges upon the filling-plate.

4. In a car-coupling of the described construction, the combination with the upwardly-rockable gravity-block, which is adapted respectively to lock or release a laterally-swinging knuckle when said block is in depressed or elevated adjustment, of a tripping-rod having one end shackled upon a rock-shaft that forms the pivot of the gravity-block, and a bracket-plate depending from the end of a car-frame whereon the draw-head is held and having an opening with two notches, respectively adapted to hold the outer end of the tripping-rod free to rock, and to lock said rod from rocking movement.

5. The combination with a chambered draw-head, an L-shaped knuckle pivoted therein so that the tailpiece thereof may swing forwardly, and a spring adapted to press the tailpiece against a transverse shoulder in the bottom wall of the chamber, of a gravity-block pivoted to rock toward and from said shoulder in the chamber, a toe on the tailpiece having a sloped front edge, the gravity-block having an elongated recess in its lower face terminating at the forward end in a sloped wall, against which the sloped side of the toe will bear when the gravity-block is adjusted to receive the toe within the recess of said gravity-block.

6. The combination with a draw-head, and a draw-bar thereon, having two angular slots extended across said draw-bar cutting into the top and bottom sides thereof adjacent to overhanging lugs integral with the draw-bar, of an elongated yoke having two parallel limbs, and hook members on free ends thereof adapted to slide laterally into the hook-shaped slots below the overhanging lugs, two headed keeper-pins passing into alined perforations in the lugs and ends of the yoke, and a vertical bolt extended through perforations of the headed pins and also through the draw-bar to hold the yoke in place on the draw-bar.

643,183. PHONOGRAPH. GIANNI BETTINI, New York, N. Y. Filed May 1, 1897. Serial No. 634,672. (No model.)

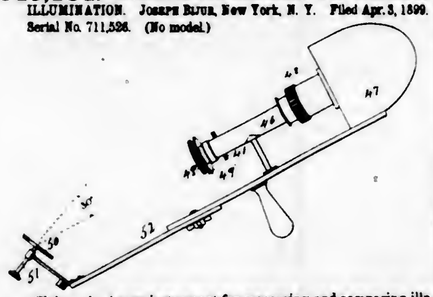


Claim.—1. The combination of a frame, a diaphragm supported thereon so as to permit of automatic vertical and lateral motion of said diaphragm, a disk provided with stops, a pin against which said stops abut, a lug eccentrically carried on said disk and contacting with a fixed portion of the frame and means for moving said lug to raise and lower said frame, substantially as specified.

2. The combination of a frame, a diaphragm supported thereon so as to permit of automatic vertical and lateral motion of said diaphragm, a disk provided with stops, a pin against which said stops abut, a lug eccentrically carried on said disk, means for moving said lug to raise and lower said frame, and means for guiding the diaphragm in its movement into and out of operating position, substantially as specified.

3. The combination of a frame, a diaphragm supported thereon so as to permit of vertical and lateral motion, a support for said diaphragm and a guide-stem projecting through an opening in said frame, a V-shaped portion of said stem, and a correspondingly-shaped portion formed in the wall of the opening through which said stem projects and in which the V-shaped portion of the stem is adapted to be seated, substantially as specified.

643,184. APPARATUS FOR MEASURING AND COMPARING ILLUMINATION. JOSEPH BIJUR, New York, N. Y. Filed Apr. 3, 1899. Serial No. 711,526. (No model.)



Claim.—1. A new instrument for measuring and comparing illuminations, combining a test object, means for observing such test object from a definite position on the illumined side thereof, means for varying the proportion of light reflected from such object toward the eye, and means for cutting off determinate fractions of the reflected light transmitted from the object toward the eye, substantially as set forth.

2. In an instrument for measuring and comparing illumination, the combination of a receiving-surface or test object for the illumination, having predetermined light-reflecting character or quality, which varies in a known manner at different portions of its extent, and means for observing such surface or object at a constant angle thereto and means for adjusting the surface or test object to present different portions to view, substantially as set forth.

3. A new instrument for comparing and measuring illuminations, combining a receiving-surface or test object of determined light-reflecting character, means for observing such surface or object at a determinate angle, and means for reducing the reflected light transmitted from such surface or object toward the observer's eye without affecting the actual illumination which surface or test object receives, substantially as set forth.

4. A new instrument for comparing and measuring illuminations, combining a receiving-surface or test object of determined light-reflecting character, which varies to a known extent at different portions, and means for adjusting the said receiving-surface or test object to present different portions for observation, substantially as set forth.

5. In an instrument for measuring or comparing illuminations, a test object, a regulating device interposed between such test object and the eye for diminishing the light transmitted therefrom to the observer's eye, and means for supporting the said object and the regulating device in fixed relations to each other.

6. In an instrument for measuring or comparing illuminations, an adjustable test object, means for observing the said test object from a relatively-fixed angle and means for determinately adjusting the angular position of the said test object to the maximum illumination or ray.

7. In an instrument for measuring or comparing illuminations, a receiving-surface or test object, and means interposed between such surface or test object and the eye for diaphragming the light reflected from such receiving-surface or test object, for the purposes set forth.

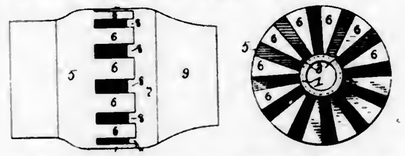
8. In an instrument for measuring or comparing illuminations, a reflecting test object for the illumination to be measured, an eyepiece, and means interposed between the object and the eyepiece for determinately cutting off some of the transmitted light without modifying that which is not cut off, substantially as set forth.

9. In an instrument for measuring or comparing illuminations, a test object of different light-affecting qualities at different portions of its extent, and means for adjusting such test object across the field of view to present different portions for observation, substantially as set forth.

10. In an instrument for measuring or comparing illuminations by a barely-discernible receiving-surface or test object, means for adjusting or moving such receiving-surface or test object to vary its position in the field of view, whereby it may be observed at a previously-unknown position, substantially as set forth.

11. An instrument for measuring or comparing illuminations, provided with a receiving-surface or test object, set to receive the illumination unmodified in quality or direction, and means for measurably varying the amount of light reflected from such surface or object to the eye without varying the actual illumination falling on such surface or object, substantially as and for the purposes set forth.

643,185. HUB. JOHN A. CRIPE, Macon County, Ill. Filed Dec. 16, 1899. Serial No. 740,500. (No model.)



Claim.—A hub comprising a box, threaded on one end and enlarged at the other end, a body on the enlarged end of the box having endwise-extended radial ribs defining the spaces between spokes, a clamp-collar fitting on the box and having endwise-extended radial ribs normally fitting between the ribs of the body, and a binding-nut screwed onto the threaded end of the box and against the clamp-collar, substantially as described.

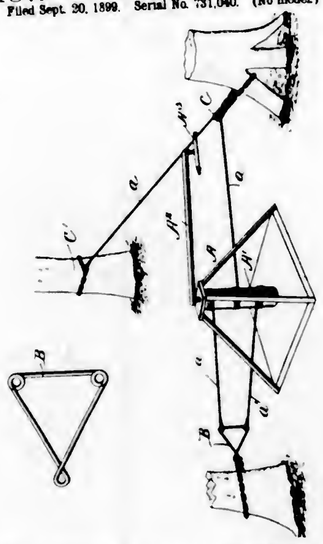
643,186. FLAIL. SILAS R. DIVINE, Loch Sheldrake, N. Y. Filed July 28, 1899. Serial No. 725,432. (No model.)

Claim.—In a flail the combination with the staff or swingle, of a socket-piece to receive and fit upon an end of the same with a rivet bolt, or bolts, passed transversely through the socket-walls and the body of said staff or swingle, and an eyepiece provided with a rigid radial shank which reaches through and has play in the head of said

socket-piece and has a flange on its free end playing within said head: substantially as and for the purpose specified.

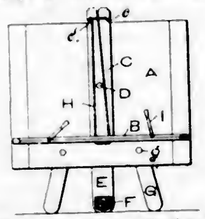


643,187. STUMP-PULLER. JOSHUA FLETCHER, Vancouver, Canada. Filed Sept. 20, 1899. Serial No. 731,040. (No model.)



Claim.—A stump-puller, comprising a suitable frame; a winding-drum mounted therein; a cable centrally wrapped about said drum and secured at its outer end to a suitable fixed support; means for rotating said drum; a triangular coupler adapted to be secured to the stump to be pulled; and a cable attached to each of the angles at the base of said coupler and wound respectively about the upper and lower ends of said drum, substantially as described.

643,188. BOOK-REST. ERNEST H. B. HUGHES, Egremont, England. Filed Oct. 4, 1899. Serial No. 732,500. (No model.)

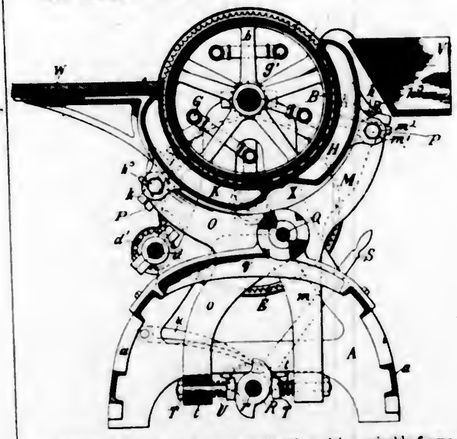


Claim.—1. In a book-rest the combination with the backing A of an arm or stay C provided at its upper end with a cleat or fastening device c, supporting-ledge B carried by said stay and book-holding cord H having one end fixed to stay C and extending thence downward adjacent to ledge B thence upward for attachment to said cleat or fastening device, substantially as described.

2. In a book-rest the combination with the backing of a central hinged leg pivoted thereto and adapted to swing laterally in the plane of the backing and also back and forth at right angles thereto, and side legs also pivoted to said backing and stop devices for said side legs, substantially as described.

3. In a book-rest the combination with the backing of an arm or stay pivoted thereto, a supporting-ledge carried by said stay, a central hinged leg or prop pivoted to the rear of said backing and supplemental side legs also pivoted to said backing, whereby various adjustments of the rest as a whole for holding the book in any desired position to accommodate it to the eyes of the reader, are possible, substantially as described.

648,189. MANGLE. ADAM KREUTER, Chicago, Ill. Filed Mar. 4, 1899. Serial No. 707,768. (No model.)



Claim.—1. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a segmental steam-chest carried directly by the frame and having its inner face concentric with the cylinder, brackets carried by the frame for supporting the chest, brackets fixed to the chest and adapted to slide upon the supporting-brackets and to hold the chest against pivotal movement, and means for moving the chest upon its supports to and from the cylinder.

2. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a pair of segmental steam-chests having their inner faces concentric with the cylinder, brackets carried by the frame for supporting the chests, brackets secured to the chests and adapted to slide upon the supporting-brackets, and means for moving the chests upon their supports to and from the cylinder.

3. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a segmental steam-chest having its inner face concentric with the cylinder, brackets carried by the frame for supporting the chest, brackets secured to the chest and adapted to slide upon the supporting-brackets, a lever-arm pivotally carried by the frame and engaging the chest to move it on its supports, a cam for actuating the lever-arm, and means for controlling the cam.

4. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a pair of segmental steam-chests having their inner faces concentric with the cylinder, brackets carried by the frame for supporting the chests, brackets secured to the chests and adapted to slide upon the supporting-brackets, means for moving the chests upon their supports to and from the cylinder, a lever-arm pivotally carried by the frame and engaging the chests to move them on their supports, a cam for actuating the lever-arm, and means for controlling the cam.

5. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a segmental steam-chest having its inner face concentric with the cylinder, brackets carried by the frame for supporting the chest, brackets secured to the chest and adapted to slide upon the supporting-brackets, shoes for each chest-brackets and loosely secured thereto, adjusting-screws setting through the chest-brackets and bearing upon the shoes, and means for moving the chest upon its supports to and from the cylinder.

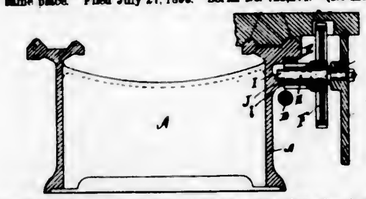
6. In a mangle, the combination with a suitable frame, and a revolving cylinder journaled thereon, of a segmental steam-chest having its inner face concentric with the cylinder, brackets carried by the frame for supporting the chest, brackets secured to the chest and adapted to slide upon the supporting-brackets, a shoe interposed between each pair of cooperating frame and chest brackets and loosely secured to one of such members, adjusting-screws bearing upon the backs of such shoes for adjusting the chests relatively as to the cylinder, and means for moving the chest upon its supports to and from the cylinder.

7. In a mangle, in combination, frame; a cylinder journaled on the frame; a pair of segmental steam-chests concentric with the cylinder; sliding bearings for the chests, radial as to the cylinder; a pair of lever-arms, one at each end of the frame, for advancing each chest to the cylinder, the power ends of the levers projecting downwardly; a cam for spreading the lower ends of the lever-arms at each end of the frame; a rock-shaft for carrying both cams; a ratchet and pawl for holding the shaft; and a hand-lever for rocking the shaft.

8. In a mangle, the combination with a revolving perforated cylinder having its ends open for the free admission of air and being covered with textile or felt fabric, a system of steam-pipes within the cylinder, connections whereby the pipes may be served with steam, and segmental steam-chests having polished ironing-faces for cooperating with the surface of the cylinder.

9. In a mangle, in combination, a frame; a shaft journaled on the frame, and being tubular at its ends; a perforated cylinder carried by the shaft and having its ends open for the free admission of air and a textile or felt covering; a plurality of pipes located within the cylinder and arranged longitudinally thereto, two of such pipes being connected respectively with the opposite tubular ends of the shaft, and the several pipes being connected to form a continuous circulating system; steam-pipes connected with the shaft ends, and being rotatable relatively thereto; and segmental steam-chests having polished ironing-surfaces for cooperating with the surface of the cylinder.

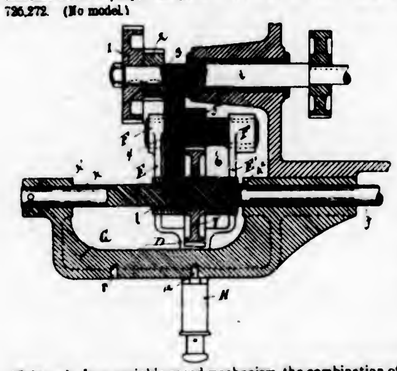
643,190. LATHE BED AND APRON. WILLIAM LODGE, Cincinnati, Ohio, assignor to the Lodge & Shipley Machine Tool Company, same place. Filed July 27, 1899. Serial No. 725,271. (No model.)



Claim.—1. In an engine-lathe, the combination of a lathe-bed provided with a rack, a sliding apron mounted on said bed, apron-driving devices supported thereon engaging the rack, a longitudinal rail supported on said lathe bed in the line of apron travel, and a stud-shaft supporting one of said apron-driving devices inwardly projected to and resting upon said rail substantially as described.

2. In an engine-lathe the combination of a lathe-bed provided with a rack, a sliding apron mounted on said bed, apron-driving devices supported thereon engaging the rack, a stud-shaft supporting the pinion engaging the rack inwardly projected from said apron, a longitudinal rail supported on said lathe bed in the line of apron travel, and a bearing device on the end of said stud-shaft engaging said rail, substantially as described.

643,191. SPEED-CHANGING GEAR FOR ENGINE-LATHES. WILLIAM LODGE, Cincinnati, Ohio, assignor to the Lodge & Shipley Machine Tool Company, same place. Filed July 27, 1899. Serial No. 726,272. (No model.)



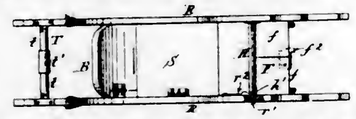
Claim.—1. In a variable-speed mechanism, the combination of a driving-shaft, a series of different-sized driving-gears mounted on the end of said shaft, a driven shaft, a quadrant mounted on said driven shaft and adapted to be rocked and slid thereon, a driven gear-wheel movable by said quadrant and splined on the driven shaft, a compound transmitting-gear train mounted on said quadrant in mesh with said driven gear, the said compound gears being adapted to selectively engage with the cluster of gears on the driving-shaft, and means for securing said quadrant in its adjusted position, substantially as specified.

2. In a variable-speed mechanism, the combination of a driving-shaft, a series of driving gear-wheels splined upon the end of said shaft, a driven shaft, a quadrant movably mounted on said driven shaft, a stud carried by said quadrant, a driven gear-wheel movable by the quadrant splined on the driven shaft, compound transmitting-gears mounted on said stud and meshing with said driven gear, the said compound gears being adapted to selectively engage with the series of gears on the counter-shaft, and means for securing said quadrant in its adjusted position, substantially as specified.

3. In a variable-speed mechanism, the combination of a driving counter-shaft, a series of different-sized gears splined thereon, a driven shaft, a quadrant movably mounted thereon, a stud-shaft carried by said quadrant, a driven gear movable by the quadrant splined upon the driven shaft, compound transmitting-gears mounted on the stud-shaft in mesh with the driven gear, and adapted to selectively engage the series of driving-gears, and means for adjusting said quadrant and locking the same in position, substantially as specified.

4. In a variable-speed mechanism, the combination of a driving counter-shaft, a series of different-sized gears splined thereon, a driven shaft, a quadrant movably mounted thereon, a stud-shaft carried by said quadrant, a driven gear movable by the quadrant splined upon the driven shaft, compound transmitting-gears mounted on the stud-shaft in mesh with the driven gear and adapted to selectively engage with the series of driving-gears, a housing extended over the end of said driven shaft, the outer end of the quadrant being upturned and adapted to engage over said housing, said housing having locking-holes opposite the several respective positions of quadrant adjustment and a detent-pin carried by said quadrant adapted to engage in any one of said holes, substantially as specified.

643,192. ROCKING-CHAIR. ALBERT LOMMATZSCH, Jersey City, N. J. Filed Sept. 25, 1899. Serial No. 731,583. (No model.)



Claim.—1. In a collapsible rocking-chair, the combination of two rocker-frames, a plurality of toggle-jointed cross-braces coupling said rocker-frames together permanently, means for holding the said toggle-braces extended, a seat hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, and said seat-supporting shoulder, substantially as herein described.

2. In a collapsible rocking-chair, the combination of two rocker-frames, a plurality of toggle-jointed cross-braces coupling said rocker-frames together permanently, means for holding said toggle-braces extended, a seat hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, said seat-supporting shoulder, and a hand-rail hinged to one of the rocker-frames and engaging positively with the other rocker-frame, substantially as herein set forth.

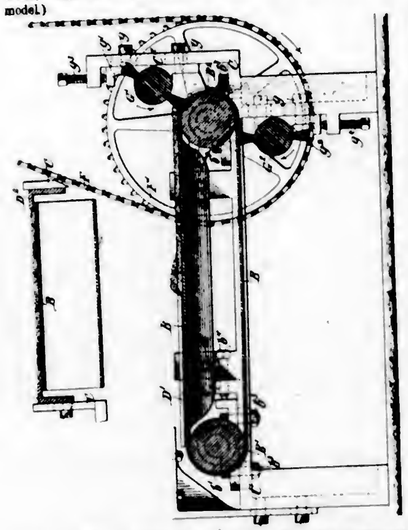
3. In a collapsible rocking-chair, the combination of two rocker-frames, a plurality of toggle-jointed cross-braces coupling said rocker-frames together permanently, means for holding the said toggle-braces extended, a seat hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, said seat-supporting shoulder, a back-rest hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, and said back-rest-supporting shoulder, substantially as herein described.

4. In a collapsible rocking-chair, the combination of two rocker-frames, a plurality of toggle-jointed cross-braces coupling said rocker-frames together permanently, means for holding the said toggle-braces extended, a seat hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, said seat-supporting shoulder, a folding foot-rest consisting of two leaves hinged respectively to the two rocker-frames and to each other, and means for holding said folding foot-rest in an extended position, substantially as herein set forth.

5. In a collapsible rocking-chair, the combination of two rocker-frames, a plurality of folding cross-braces coupling said rocker-frames together permanently, means for holding the said cross-braces extended, a seat hinged to one rocker-frame and engaging with a supporting-shoulder upon the other rocker-frame, said seat-supporting shoulder, the rear toggle-brace T, and the sleeve *t*, for holding said rear brace extended, substantially as herein described.

6. In a collapsible rocking-chair, the combination of two rocker-frames R, R, the hinged seat S, the supporting-shoulder *s*, the hinged back-rest B, the supporting-shoulder *b*, the folding foot-rest F, the hand-rail H, and the toggle-brace T, the whole arranged and operating substantially in the manner and for the purpose described.

643,193. MACHINE FOR DISTRIBUTING FLAVORING MATTER UPON TOBACCO. PIERRE LORILLARD, Jr., Tuxedo, and EDWARD G. TREMAINE, New York, N. Y., assignors to the P. Lorillard Company, Jersey City, N. J. Filed Dec. 22, 1896. Serial No. 616,609. (No model.)



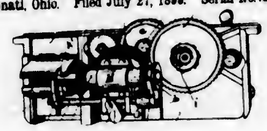
Claim.—1. In a machine for distributing flavoring matter upon tobacco, the combination with a continuous belt adapted to carry the flavoring material, and distribute it upon the tobacco carried by a traveling support beneath, of a device for removing the flavoring material from said belt to the tobacco carried by the traveling support beneath; said device consisting in combination, of two rotary brushes, the first of said brushes being adapted to remove by its rotation the greater portion of the flavoring material from said belt, and the second thereof by its rotation to complete the removal, by brushing the belt, the material removed in both cases falling upon the tobacco, substantially as specified.

2. In a machine for distributing flavoring matter upon tobacco, the combination with a continuous belt adapted to carry the flavoring material, and distribute it upon the tobacco carried by a traveling support beneath, of a gage in connection with said belt for regulating the quantity of flavoring material spread thereon; said gage consisting of two ledges, one upon either side of said belt, and extending over it in order to retain the material thereon, said ledges being adjustable in respect to their height above said belt, so that by the use of a straight-edge, a uniform layer of any desired thickness may be obtained, substantially as specified.

3. In a machine for distributing flavoring matter upon tobacco, the combination with a traveling support upon which the tobacco to be flavored is spread, of a traveling belt located adjacent said support and adapted to carry the flavoring matter, a rotatable brush located in proximity to said belt for removing some of the flavoring matter therefrom, a second rotatable brush for removing the remaining portion of flavoring matter, and means for producing the travel of said belt and support and rotation of the brushes.

4. In a machine for distributing flavoring matter upon tobacco, the combination with a traveling support upon which the tobacco to be flavored is spread, of a traveling belt located adjacent to said traveling support, and adapted to carry the flavoring material, a gage for regulating the quantity of flavoring matter spread on said belt, rotatable brushes for removing the flavoring matter therefrom, and means for producing the travel of said belt and support and rotation of the brushes.

643,194. APRON FOR ENGINE-LATHES. WILLIAM R. MOFFATT, Charlotte, N. C., assignor to The Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Filed July 27, 1899. Serial No. 725,278. (No model.)



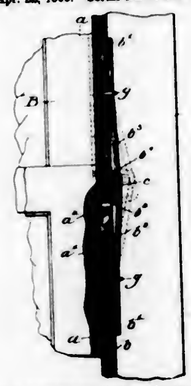
Claim.—1. In an engine-lathe, in combination with the apron employing half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack, a sleeve movably mounted in a journal-bracket, means for revolving said sleeve, a gear mounted on said sleeve adapted to be brought into engagement with the rack gear-wheels, a tripping-rod connected to said sleeve, a lever for said rod, a lug carried by said rod interposed between said half-nuts, means for automatically interposing said lug between said half-nuts when the rack mechanisms are engaged releasing the same when they are disengaged, substantially as described.

2. In an engine-lathe, in combination with the apron employing the half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack, a sleeve movably keyed upon the lead-screw, a gear-wheel mounted on the sleeve adapted to engage one of the said apron-driving gears, a tripping-rod mounted in journal-brackets parallel to said sleeve, a lever for said rod, connections between said sleeve and rod adapted to move them in unison, a lug carried by said rod, one end of which is interposed between the half-nuts, means for automatically interposing said lug between said half-nuts when the rack mechanisms are engaged releasing the same when they are disengaged, substantially as described.

3. In an engine-lathe, in combination with the apron employing half-nuts, adapted to engage the lead-screw, and driving-gears adapted to engage the rack on the lathe-bed, a sleeve movably mounted in a journal-bracket and keyed upon the lead-screw, a gear-wheel mounted on said sleeve, a tripping-rod movably supported by the apron, parallel to said sleeve and connected to said sleeve, a lever for said tripping-rod, a lug carried by said rod interposed between said half-nuts and notches formed in said half-nuts adapted to pass over the interposed end of said lug when the lug is brought opposite to them, substantially as described.

4. In an engine-lathe in combination with the apron employing half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack on the lathe-bed, a sleeve movably mounted in a journal-bracket keyed upon the lead-screw, a gear carried by said sleeve, a tripping-rod movably supported by said apron parallel with said sleeve, and connected thereto, a lever for shifting said rod, a lug carried by said rod having one end interposed between said half-nuts, notches formed in said half-nuts adapted to pass over said interposed end of the lug, the notches being so located on the half-nuts that the lug will be brought opposite to them only when the gear-wheel carried by the sleeve is out of engagement, substantially as described.

643,195. SASH-FASTENER. HENRY MCGARRY, Cambridge, Mass. Filed Apr. 22, 1899. Serial No. 714,013. (No model.)



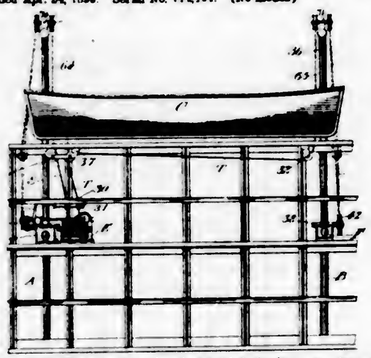
Claim.—A sash-fastener consisting of two plates each having vertical openings and adapted to be secured to the upper and lower sashes, two spring-fingers secured at remote points to the window-frame in the runway or weight-box thereof and having inturned prongs at their free ends adapted to pass through openings in the window-frame and to engage in the openings in said plates, and the prongs having oppositely-beveled ends, and a shaft mounted upon the window-frame and provided with two cranks for engaging and operating the spring-fingers in unison to move the prongs out of the holes in said plates.

643,196. ADJUSTABLE SKIRT. WILLIAM F. MCGEE, Jackson, Mich. Filed Oct. 10, 1898. Serial No. 693,099. (No model.)

Claim.—In a skirt having a placket, the detachable extension-flaps D, D', composed of the parts E, E', and F, F', substantially corresponding in construction with the adjoining parts of the skirt, said flaps provided with serially-arranged fastenings I, I, I which engage the fastenings H, H, H, of the skirt to connect them and form the desired length of yoke, substantially as and for the purposes described and set forth.



648,197. SHIP'S DAVIT. JAMES W. MCKINNON, New York, N. Y. Filed Apr. 24, 1899. Serial No. 714,191. (No model.)



Claim.—1. The combination in a ship's-davit apparatus, of a davit, worm-gearing for turning the davit, a drum for operating the boat-tackles, a wheel adapted to be operated from the life-boat, and clutches adapted to put either said worm-gearing or said drum in operative connection with said wheel, substantially as described.

2. The combination in a ship's-davit apparatus, of a davit, a shaft carrying a sprocket adapted to be operated by a chain from the life-boat, and also a sprocket adapted to drive a chain leading to the ship, a sprocket driven by said last-named chain, worm-gearing for turning the davit, a drum for the boat-tackles, worm-gearing for driving the drum, and clutches for placing the worm-gearing for the davit or the worm-gearing for drum in operative connection with said last-named sprocket, substantially as described.

3. In ship's-davit apparatus, the combination at one davit of means operated from the boat for turning that davit and operating the drum which actuates the boat-tackles, and independent means at the other davit also operated from the boat for turning the said other davit, substantially as and for the purpose described.

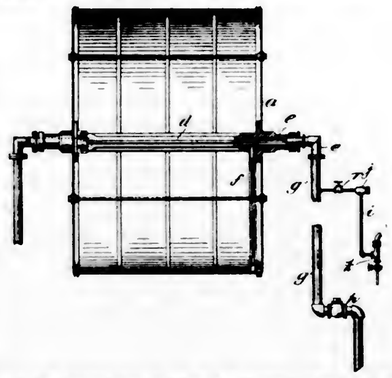
4. The combination in ship's-davit apparatus, of a sprocket adapted to be driven by chains from the boat, a sprocket adapted to drive a chain for actuating davit-turning and boat-raising devices, and a shaft on which said sprockets are fixed arranged to oscillate about a point between said sprockets, substantially as and for the purpose described.

648,198. APPARATUS FOR DISCHARGING WATER AND AIR FROM CYLINDER-DRIERS. ANDREW G. PAUL, Boston, Mass. Filed Apr. 13, 1896. Renewed July 18, 1899. Serial No. 724,300. (No model.)

Claim.—1. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, substantially as set forth.

2. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

3. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage, substantially as set forth.



4. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

5. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end of said outlet-pipe, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, substantially as set forth.

6. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end of said outlet-pipe, an escape-pipe connected with the said outlet-pipe above the outer end thereof, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

7. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end of said outlet-pipe, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage, substantially as set forth.

8. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end of said outlet pipe, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

9. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a scoop connected with said inner leg, a trap at the outer end of said outlet-pipe, and an escape pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

10. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage consisting of a thermostatic valve, substantially as set forth.

11. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage consisting of a thermostatic valve, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

12. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end

of said outlet-pipe, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage consisting of a thermostatic valve, substantially as set forth.

13. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof provided with an inner leg adapted to revolve with the cylinder, a trap at the outer end of said outlet-pipe, and an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage consisting of a thermostatic valve, and an exhausting device with which said escape-pipe is connected, substantially as set forth.

14. The combination of a drying or heating cylinder, an outlet-pipe connected with one of the journals thereof, an escape-pipe connected with the said outlet-pipe above the outer end thereof, the said escape-pipe being provided with a restricted passage consisting of a thermostatic valve, substantially as set forth.

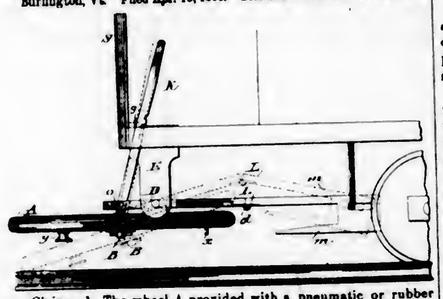
15. The combination of two or more drying or heating cylinders, separate outlet-pipes one connected with each cylinder, a common discharge pipe or frame, a trap at the outer end of the common discharge-pipe, an escape-pipe connected with each of the separate outlet-pipes from the cylinders, and provided with a restricted passage, and an exhausting device or devices connected with the escape-pipes, substantially as set forth.

16. The combination of two or more drying or heating cylinders, separate outlet-pipes, one connected with each cylinder, each outlet-pipe having an inner leg adapted to revolve with the cylinder, a common discharge-pipe, a trap at the outer end of the common discharge-pipe, an escape-pipe connected with each of the separate outlet-pipes from the cylinders, and an exhausting device or devices connected with the escape-pipes, substantially as set forth.

17. The combination of two or more drying or heating cylinders, separate outlet-pipes, one connected with each cylinder, each outlet-pipe having an inner leg adapted to revolve with the cylinder, a common discharge-pipe, a trap at the outer end of the common discharge-pipe, an escape-pipe connected with each of the separate outlet-pipes from the cylinders and provided with a restricted passage, and an exhausting device or devices connected with the escape-pipes, substantially as set forth.

18. The combination of the drying or heating cylinders *a*, *a*, the supply-pipe *c*, the outlet-pipes each provided with an inner leg adapted to revolve with the cylinder, the hollow frame provided with the common outlet-pipe or discharge *n*, the trap *p*, the escape-pipes *i*, *i*, provided with the restricted passages *j j*, and the exhausting device *k*, substantially as set forth.

643,199. CAR-FENDER. EDWARD N. PORTER and JUNIUS BARNES, Burlington, Vt. Filed Apr. 13, 1899. Serial No. 712,963. (No model.)



Claim.—1. The wheel A provided with a pneumatic or rubber tire having knobs or cogs to engage any obstruction upon the track with greater friction and a covering of perforated chair-seating or other flexible material in combination with the draw-bar L provided with the pin B upon which the wheel revolves, and the cross-bar D fastened to the end of the car by the cleats E E as herein described and set forth.

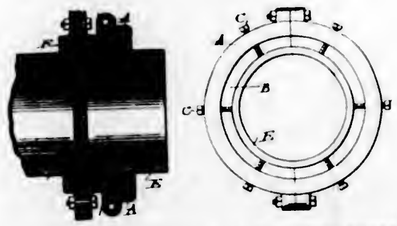
2. The combination of the wheel fastened to the end of a car, vehicle, or engine and provided with a tire of flexible material and with flexible material upon the top of the same, with the screen S, the pin B upon which it revolves and the draw-bar L, and the cross-bar D by which it is held to the car and tilted up and down as herein described and set forth.

3. The combination of the wheel A provided with the slot C, the latch F provided with the slot C and the spring *a* for sliding the wheel back under the car as herein set forth.

4. The combination of the draw-bar L provided with the hinge *d*, the cross-bar D provided with the arm *o*, the lever K provided with the notches to engage the iron plate in the car-platform held in place by the spring *g*, and the wheel A substantially as described.

5. The wheel A provided with pins *x x* in combination with the cleat *m* to guide the wheel A and hold it firmly in its back-and-forth movement, substantially as described.

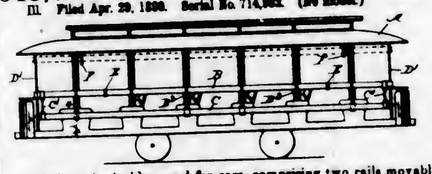
643,200. CLAMP FOR REPAIRING LEAKS IN PIPE-JOINTS. CHARLES M. RANKERT, Chicago, Ill. Filed July 31, 1899. Serial No. 726,708. (No model.)



Claim.—1. The combination of a metallic retaining-ring consisting of sections bolted together, and of an interior diameter larger than the exterior diameter of the pipe, means for securing the same rigidly upon the pipe, and a flexible or soft metal ring retained between the pipe and said retaining-ring and adapted to be calked against the fitting upon the end of said pipe.

2. The combination of a sectional retaining-ring adapted to be rigidly secured upon the pipe leaving an annular space between it and said pipe and a flexible or soft metal ring engaged in said space and by rib and groove with said vertical ring and adapted to be calked upon the fitting upon the pipe.

643,201. SIDE GUARD FOR CARS. CHARLES J. REILLY, Chicago, Ill. Filed Apr. 29, 1899. Serial No. 714,982. (No model.)



Claim.—1. A side guard for cars, comprising two rails movably attached to the car at a distance from each other by independent connecting devices, said rails adapted to be moved to an inoperative position, and supporting devices on the car and on the upper rail respectively for supporting them in their inoperative position.

2. A side guard for cars, comprising two rails movably attached to the car, means of attaching one rail when disengaged from the car to the other rail so as to be supported thereby, and a supporting device at the top of the car adapted to support said rails in an inoperative position.

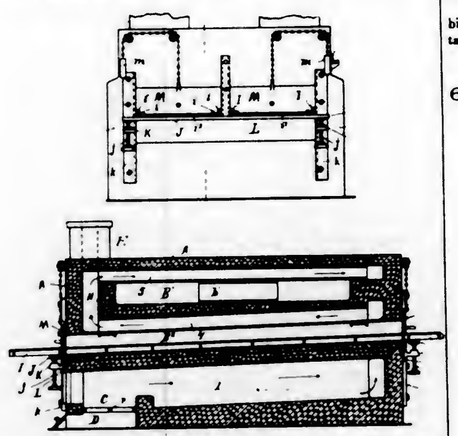
3. A side guard for cars, comprising an upper and a lower rail, the upper rail supported between the grab-rails and the roof-supports of the car, the lower rail provided with engaging devices independent of the upper rail, a series of supports on the body of the car engaged by said independent engaging devices, so as to support the lower rail in an operative position independent of the upper rail.

4. A side guard for cars, comprising an upper and a lower rail, the upper rail supported between the grab-rails and the roof-supports of the car, the lower rail provided with engaging devices, a series of supports on the body of the car engaged by said engaging devices, so as to support the lower rail in an operative position, a movable part associated with one or more of said engaging devices and adapted to prevent the rail from being disengaged from its supports.

5. A side guard for cars, comprising two rails movably attached to the car so as to prevent passengers from entering or leaving at that side, a series of hooks on one rail adapted to support the other rail when the rails are to be moved to an inoperative position, and movable supports at the top of the car adapted to engage the rails and hold them in an inoperative position.

6. A side guard for cars, comprising two rails adapted to be movably attached to the car in an operative position, one or more engaging devices connected with one rail and adapted to engage the other rail and hold the two rails side by side when in their inoperative position, and a supporting device at the top of the car adapted to support both of said rails in an inoperative position.

643,202. BAKING-OVEN. CHARLES RINCK, Cincinnati, Ohio. Filed Feb. 23, 1899. Serial No. 706,477. (No model.)



Claim.—1. In a bake-oven in combination with an oven-compartment open at both ends, rails adapted to guide and support a series of baking-trays, consisting of the outer raised guide-rails, the inner supporting-rails, tie-rods and means substantially as shown for holding the several rails the requisite distance apart, substantially as specified.

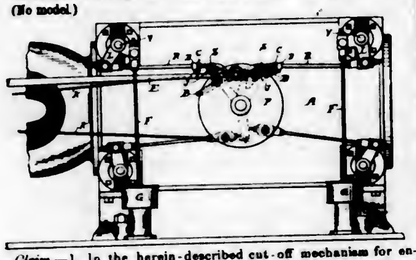
2. In a bake-oven and oven-compartment open at both ends, having inclined top and bottom walls, inclined guide-rails traversing said oven-compartment, means substantially as shown for independently adjusting the height of the rails at their opposite ends, and trays adapted to slide along said rails, whereby the operator is enabled to change the angle of inclination of the rails and to push the several trays down the incline by pressing on the end tray substantially as specified.

3. In a bake-oven and oven-compartment open at both ends, heating-flues above and below said compartment, inclined rails traversing the oven-compartment, means substantially as specified for independently adjusting the opposite ends of the rails to elevate or change the angle of inclination thereof, and a series of trays adapted to be fed through said oven by pressing upon the end trays at the upper end of said inclined rails, substantially as specified.

4. In a bake-oven and oven-compartment open at both ends, inclined rails traversing said compartment, vertically-adjustable cross-bars supporting said rails, aprons secured and traveling with said cross-bars to close the lower portion of said oven-openings and counterweighted doors sliding in guides and adapted to close the upper portion of the oven-openings, substantially as specified.

5. In a bake-oven, an oven-compartment open at both ends and having its top and bottom walls inclined, inclined rails traversing said compartment, vertically-adjustable cross-bars supporting said rails, aprons secured to and traveling with said cross-bars to close the lower portion of said oven-openings, and counterweighted doors sliding in guides, and adapted to close the upper portion of the oven-openings, substantially as specified.

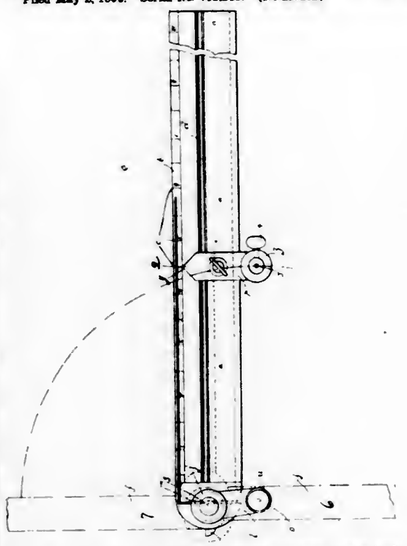
643,203. CUT-OFF VALVE-GEAR FOR ENGINES. FRANK K. RITTENHOUSE, Chicago, Ill. Filed June 12, 1899. Serial No. 720,164. (No model.)



Claim.—1. In the herein-described cut-off mechanism for engines, the combination with the steam-inlet valve-actuating rods, and the trip-arms connected therewith, of the springs attached to said rods and adapted to form a cushion at the place of contact of said rods against the hubs of said trip-arms.

2. In the herein-described cut-off mechanism for engines, in combination with the rods R and arms B the springs S and the clamp-attaching collars C substantially as and for the purpose specified.

648,204. CARPENTER'S RULE. JOSEPH F. ROSE, Tiverton, R. I. Filed May 2, 1899. Serial No. 715,285. (No model.)



Claim.—1. In a device of the class described, a rule-body provided with a longitudinal face groove, and a longitudinal edge groove, and with a scale upon the edge portion opposite said edge groove, an arm pivoted to the end of said rule and provided with a pointer adapted to operate in connection with said scale, a hole being formed in the outer end of said arm, and adapted to receive a pin, a slide mounted upon said rule-body and provided with lugs which fit said grooves, and provided with a thumb-screw adapted to operate in connection with said rule-body, and with a pointer adapted to operate in connection with said scale, substantially as shown and described.

2. In a device of the class described, a rule-body provided with a scale, a device pivoted to said rule and adapted to operate in connection with said scale, and to form an arc-describing center, and an adjustable device mounted in connection with said rule-body, and adapted to operate in connection with said scale and to hold a marking device, the relative construction and arrangement of parts being such that an arc may be described by said describing-center, and marking device with a radius accurately proportionable to a measurement laid off upon said scale, substantially as shown and described.

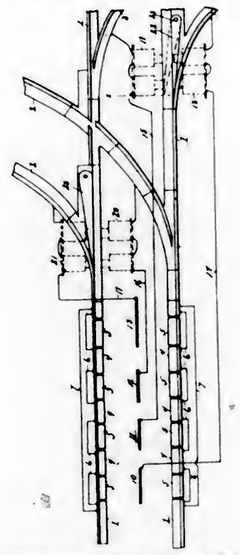
3. The herein-described device, comprising a rule-body, a scale formed upon the surface thereof, devices pivoted to one end of and projecting laterally from the side of said rule-body and adapted to operate in connection with said scale, and to act as a center bearing for describing an arc, and an adjustable device mounted upon the surface of said rule-body and operating in connection with said scale to hold a marking device, substantially as shown and described.

643,205. SWITCH. ALBERT W. RUMSEY, Detroit, Mich., assignor of one-half to Phillip Bingman, same place. Filed Nov. 16, 1899. Serial No. 737,181. (No model.)

Claim.—1. In an electric switch, the combination with the overhead conductor, of the rails of the track, said rails having insulated sections, a central rail-section between said insulated sections of the track, said central section in circuit with the main-track rails and an electromagnet included in said circuit, a pivoted tongue located in the track adjacent to said magnet, a car having a motor in circuit with said overhead conductor, a contact carried by the car, in circuit with said motor and adapted to be placed in contact with said central rail-section, to place said magnet in the motor-circuit.

2. In an electric railway-switch, the combination with the over-

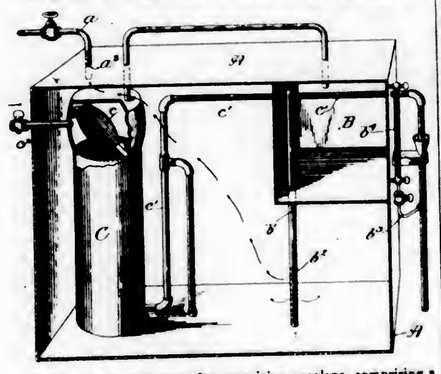
head conductor and the rails of the track in circuit with a source of electricity, said track-rails having insulated sections, independent sections located in the track between said insulated rail-sections, separate lines leading from said independent sections to the main rails of the track, an electromagnet located in each of the said lines, a pivoted tongue in the track-rails adjacent to the poles of said electromagnets, a car carrying a motor which is in circuit with the overhead conductor and with the rails of the track, a movable contact on the car also in circuit with the motor, said contact being adapted to be caused to engage said central sections whereby the motor-current may be diverted through said electromagnets to the rails of the track.



3. In an electrical switch, the combination of the track and overhead conductor in circuit with a source of electricity, a movable tongue in said track, an electromagnet adjacent to said tongue and adapted to actuate it, and a car having a motor in circuit with said overhead conductor and said electric magnet.

4. In an electric switch, the combination with a track, having a movable tongue therein, an electromagnet, said magnet having a core upon which the coil is mounted, said core having an upwardly-projecting tapered end provided with a right-angled portion standing adjacent to said tongue and means for passing an electric current through said magnet.

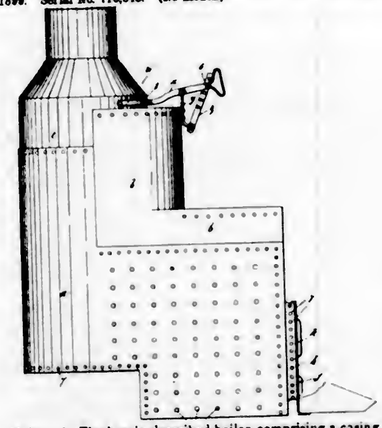
643,206. CARBURETER. WATERMAN S. C. RUSSELL, Manchester, Mass. Filed May 31, 1899. Serial No. 718,809. (No model.)



Claim.—1. An apparatus for vaporizing gasolene, comprising a reservoir for the gasolene, having an outlet for carbureted air; a receiver located in said reservoir for receiving intermixed air and water under pressure, and for separating said elements; an outlet for the water; and an air-chamber communicating with said receiver, said chamber being located within said reservoir, and having an outlet adapted to supply air to the oil in the reservoir; substantially as, and for the purpose, above described.

2. In an apparatus for vaporizing gasolene, a vessel to contain the gasolene, an air and water receiver adapted to be combined with an aspirator and placed inside the reservoir containing gasolene, water-pipe c' connected with the said receiver whereby the temperature of the gasolene is retained at substantially the temperature of the water in the receiver, and means substantially as described for introducing air into the gasolene; in combination, substantially as and for the purpose above described.

643,207. BOILER. HERBERT J. SABIN, Colusa, Cal. Filed May 15, 1899. Serial No. 716,515. (No model.)

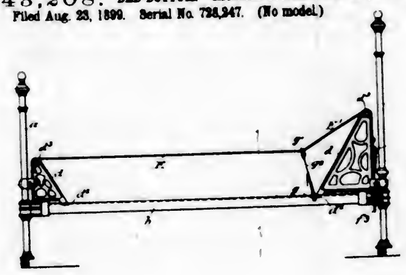


Claim.—1. The herein-described boiler, comprising a casing provided with a fire-pit, and a flue, two sets of boiler-tubes mounted therein, and communicating with said fire-pit and arranged to communicate with said flue, and means for entirely cutting off the communication of one of said sets of tubes with said flue, substantially as shown and described.

2. The herein-described boiler, comprising a casing provided with a fire-pit and flue, two sets of boiler-tubes mounted therein and communicating with said pit and arranged to communicate with said flue, and an adjustable damper by means of which the communication of one of said sets of boiler-tubes with said flue may be determined and regulated, substantially as shown and described.

3. A boiler, comprising a casing provided with a fire-pit and a flue, two sets of boiler-tubes mounted therein, one of which is shorter than and arranged laterally of the other, said sets of boiler-tubes both communicating with said fire-pit, and the higher set of said boiler-tubes communicating directly with said flue, a supplemental flue-chamber with which the shorter set of boiler-tubes communicate directly, said supplemental flue-chamber being arranged to communicate with said flue, and means for regulating and determining the communication of said supplemental flue-chamber with said flue, substantially as shown and described.

643,208. BED-BOTTOM. RICHARD SCHMIDT, Philadelphia, Pa. Filed Aug. 23, 1899. Serial No. 728,947. (No model.)



Claim.—1. A bed-bottom composed of a number of straps laced together, a rod on the foot end of the bedstead and a rod at a higher elevation at the head end of the same, and on which the bed-bottom is supported, a cross-bar near the head end of the bedstead and a buckle-strap connecting each of said bottom straps with said cross-bar to form a head-rest on said bottom, substantially as and for the purposes set forth.

2. A bed-bottom composed of a number of straps laced together, a rod secured at the foot end of the bedstead and on which one end of the said straps are attached, another rod having flanged rollers mounted at the head end of said bedstead and over which the other ends of the straps are passed, a cross-piece thereat, a spring for each of the said straps, straight and threaded extremities on said springs, apertures in said cross-piece through which the said extremities of the springs are passed and hand-nuts threaded onto the said extremities by which the tension of each strap may be adjusted, substantially as and for the purposes set forth.

3. A bed-bottom composed of a number of straps laced together, a rod secured at the foot end of a bedstead on which one end of the said straps are attached, another rod having flanged rollers mounted at the head end at a higher elevation than the rod at the foot end of said bedstead, a cross-piece thereat, a spring for each of the said straps, which latter lead over the said rollers, straight and threaded extremities on said springs, apertures in said cross-piece through which the said extremities are passed and hand-nuts for adjusting the tension of the said straps, a cross-bar near the head end of the said bedstead and buckle-straps attached to said bed-bottom straps and said cross-bar for forming a head-rest on said bed-bottom, substantially as and for the purposes set forth.

643,209. THILL-COUPLING. JAMES F. TAIT, Evanston, Ill. Filed June 26, 1899. Serial No. 721,870. (No model.)

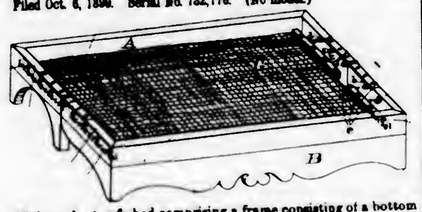


Claim.—1. In a thill-coupling, in combination, a pivot-pin, a bracket secured to the pivot-pin, a crank-shaft journaled in the bracket, a spring for reacting between the crank of the shaft and a fixed part, and means for limiting the movement of the shaft.

2. In a thill-coupling, in combination, a pivot-pin, a bracket-arm fixed to one end of the pin, a bar projecting from the bracket-arm adjacent to and parallel with the pivot-pin, an arm adapted to engage the outer end of the bar, a rock-shaft journaled in the arm and the bracket remote from their engagement with the bar and being bowed intermediate of its bearings, an expanding spring adapted to react between the bowed portion of the rock-shaft and the pivot-pin, and a stop-arm to limit the movement of the shaft.

3. In a thill-coupling, in combination, a pivot-pin, a bracket-arm fixed to one end of the pin, a bar projecting from the bracket-arm adjacent to and parallel with the pivot-pin, an arm adapted to engage the outer end of the bar, a rock-shaft journaled in the arm and the bracket remote from their engagement with the bar and being bowed intermediate of its bearings, a bowed leaf-spring pivotally attached to the bowed portion of the rock-shaft, its free end being adapted for engagement with a thill-eye when the pivot-pin is passed through the same, and a crank-arm fixed to the shaft and adapted to contact with a fixed part to limit its movement.

643,210. SOFA-BED. ALBERT D. TOMLINSON, Boston, Mass. Filed Oct. 6, 1899. Serial No. 732,776. (No model.)



Claim.—1. A sofa-bed comprising a frame consisting of a bottom section and a top section foldable upon said bottom section, and only one of which has a center rail and said center rail being secured to the end pieces of the bottom section and serving to brace the same longitudinally and being adjacent to the inner open side of the top section to also brace the latter longitudinally, and a continuous flexible mattress-supporting structure secured to the end pieces of said two sections relatively remote from the upper edges thereof when the bed is open, and located above and out of contact with said center rail, and said means which secure the ends of the mattress to the end sections being superposed and at remote distances from each other when the sofa-bed is closed, and being separated laterally at opposite sides of a longitudinal median line of the mattress when the bed is open, whereby when said structure is folded, it will present a rounded surface at the forward side thereof and whereby it constitutes a receptacle for bedclothing.

2. A sofa-bed comprising a frame consisting of a bottom section and a top section foldable upon said bottom section, and only one of which has a center rail, and said center rail being secured to the end piece of the bottom section and serving to brace the same longitudinally and being adjacent to the inner open side of the top section, to brace the same longitudinally, clamps arranged in pairs and secured to the end pieces of the two sections, two of said clamps at one end of the bed being adjustably connected thereto and being disposed relatively remote from the upper edges of the two sections when the bed is open, and a continuous flexible mattress-supporting structure secured between the jaws of the clamps and the portions of the clamps at the opposite ends of the bed being superposed and at remote distances from each other when the bed is closed, and being separated laterally at opposite sides of a longitudinal median line of the mattress when the bed is open, whereby when the latter is folded it will present a rounded surface at the forward side thereof and whereby it constitutes a relatively-deep receptacle for bedclothing.

643,211. HAY-RACK. EDWARD TROY, Lacey, Iowa. Filed Dec. 14, 1899. Serial No. 740,341. (No model.)



Claim.—1. In a hay-rack, the combination with front and rear bolsters provided with standards, a supplemental front bolster arranged on the said front bolster and provided with brackets having recesses for the reception of the standards of the front bolster, longitudinal sills arranged between the brackets of the supplemental bolster and provided with depending stops located in advance of the rear bolster, and means for connecting the sills, substantially as described.

2. In a hay-rack, the combination of the longitudinal sills provided at their inner faces with loops, cross-pieces having tongues for engaging the loops, a platform provided at its lower face with bars located in advance of the cross-pieces, transverse bars supported upon the sills, and the side portions arranged on the transverse bars, substantially as described.

3. In a hay-rack, the combination of the sills, perforated lugs mounted on one of the sills, transverse bars, inner blocks provided with laterally-projecting pins for engaging the perforated lugs, outer

blocks located below the pins and arranged normally in position for engaging the said lugs, and adapted to be carried out of such position by partially perforating the transverse bars, and means for connecting the transverse bars with the other sill, substantially as described.

4. In a hay-rack, the combination of a support, a holder or socket pivotally mounted on the support and provided with upper and lower loops, and a standard arranged in the loops, substantially as described.

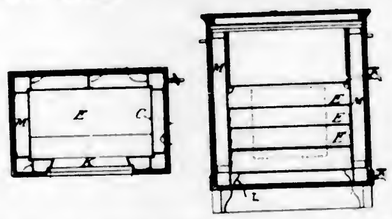
5. In a hay-rack, the combination of a longitudinal sill, a holder or socket consisting of a plate pivoted to the inner face of the sill and having an inclined upper portion, and loops arranged at the top and bottom of the plate, and a standard fitting in the loop, substantially as described.

6. In a hay-rack, the combination of a support, a pivoted plate mounted on the support, loops extending from the plate, a standard fitting in the loops, and a hook mounted on the standard and engaging the upper loop, substantially as described.

7. In a hay-rack, the combination with the front and rear transverse bars, of the side portion interlocked with the said transverse bars and composed of a pair of longitudinal bars, plates connecting the longitudinal bars and provided with depending bends, an intermediate bar supported by the plates and terminating short of the rear ends of the longitudinal bars, and a wheel-guard mounted on the rear portions of the longitudinal bars, substantially as described.

8. In a hay-rack, the combination of the front and rear transverse bars provided with perforated lugs, the side portion provided at its rear portion with an opening and having a plate connecting the opening and slotted to receive the adjacent lug, a projection mounted on the front end of the side portion and engaging the front lug, a wheel-guard arranged over the said opening, and means for securing the rear end of the side portion to the rear lug, substantially as described.

648,212. COMBINED WARMING AND COOLING UTENSIL. CHARLES F. WARREN, Portland, Me. Filed Sept. 6, 1899. Serial No. 729,607. (No model.)



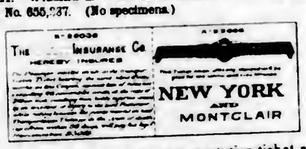
Claim.—In a combined warming and cooling utensil, in combination, an outer casing, a hinged cover on said casing, a middle casing within said outer casing and kept at a distance away from the sides of said outer casing by means of lugs extending from the sides thereof and kept distant from the bottom of said casing by means of movable legs, a vertical partition extending from the middle of the back side of the middle casing to the inner side of the back wall of the outer casing, the space between the middle and outer casing adapted to be filled with a liquid, outlet and inlet ports in the outer casing and an inner casing mounted within the middle casing leaving an air-space between its outer wall and the inner wall of the middle casing and openings in the side of the outer casing extending into the middle casing and means for preventing the liquid from entering the middle casing, substantially as and for the purposes set forth.

648,213. SHOEMAKER'S TELESCOPIC REPAIR OUTFIT. HENRY WATERS, Bisbee, Ariz. Filed June 9, 1899. Serial No. 719,872. (No model.)



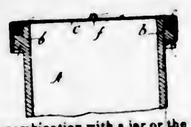
Claim.—In a telescopic shoe-repairing jack, the combination with the tubular standard 2 formed with the ribs 3 3 and transverse orifices 14, of the pins 15, the stud-shaft 6, the sleeve 5 formed with the longitudinal recesses 4, the rod-section 9 pivoted to said shaft, and the rod 12 pivoted to said section 9 and formed with the flange 13, substantially as shown and described.

648,214. ACCIDENT-INSURANCE AND TRANSPORTATION TICKET. WILLIAM E. WATKINS, Montclair, N. J. Filed Oct. 15, 1897. Serial No. 655,237. (No specimens.)



Claim.—In combination with a transportation-ticket, an accident-insurance ticket, said tickets identified with each other by corresponding numbers or marks, substantially as and for the purpose set forth.

648,215. CLOSURE FOR JARS, BOTTLES, &c. ALFRED L. WEISSENBANNER, New York, N. Y. Filed Sept. 28, 1899. Serial No. 731,943. (No model.)

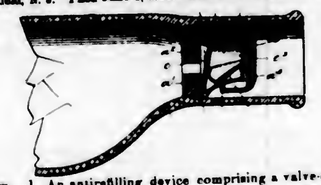


Claim.—1. The combination with a jar or the like having an outwardly-projecting flange about the same just below the mouth thereof, of a pliable metallic cover having a depending part around its edge and an outwardly-projecting flange around the lower edge of said depending part, said flange resting against the upper edge of the flange on the jar, a compressible packing-ring engaging about the depending part of the cover and on top of the flange thereon, and means for securing the packing-ring in place under pressure.

2. The combination with a jar or the like having an outwardly-projecting flange about the same just below the mouth thereof, of a pliable metallic cover having a depending part around its edge, and an outwardly-projecting flange around the lower edge of said depending part, said flange resting against the upper edge of the flange on the jar, a compressible packing-ring engaging about the depending part of the cover and on top of the flange thereon, and a securing-band having an inwardly-projecting flange around its upper edge overhanging the packing-ring and adapted at its lower edge to be bent under the flange on the jar for securing the packing-band in place under pressure.

3. The combination with a jar or the like, having an outwardly-projecting flange about the same just below the mouth thereof, the exterior wall of the jar above said flange being undercut, of a pliable metallic cover having a depending part around its edge and an outwardly-projecting flange around the lower edge of said depending part, said flange resting against the upper edge of the flange on the jar, a compressible packing-ring engaging about the depending part of the cover and above the flange thereon, and means for securing the packing-ring in place under pressure.

648,216. ANTIREFILLING DEVICE FOR BOTTLES. CHARLES H. WHITAKER, Boston, Mass., assignor of one-half to George J. Tobin, Plainfield, N. J. Filed June 3, 1899. Serial No. 719,231. (No model.)



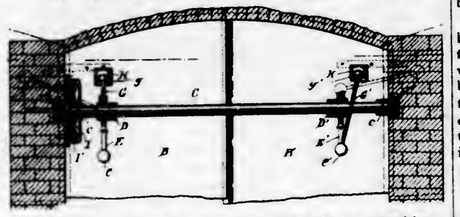
Claim.—1. An antirefilling device comprising a valve-chamber the bottom of which constitutes a valve-seat surrounding a contracted passage, while the surface of the chamber above the valve-seat is tapered or dome-shaped and cooperates with the valve-seat in forming an annular hinge member, a loose valve formed to fit the valve-seat and having a diameter slightly less than that of said annular hinge member, so that the valve slips edgewise on its seat, permitting the automatic engagement of the lower edge of the valve with the lower portion of the said hinge member to form a hinge when the bottle is tipped, and a float cooperating with the valve in said chamber, whereby the valve is closed upon its seat when liquid accumulates in the chamber, the surface of the chamber above the valve-seat being formed to permit a limited opening of the valve and to prevent the displacement of the float and valve to an inoperative position.

2. An antirefilling device comprising a head having an orifice and a valve-seat surrounding the orifice, a tube or tubular flange surmounting said head and having a tapering surface the lower portion of which cooperates with the valve-seat in forming an annular hinge member surrounding the valve-seat, the said tube having an outlet at its upper end above the valve-seat, a valve formed to fit the valve-seat and having a diameter slightly less than that of the valve-seat, so that the lower edge of the valve automatically engages the lower portion of the recess to form a hinge when the bottle is tipped, a float located in the valve-chamber, and a dome attached to the exterior of the tube, said dome extending across and below the outlet of the tube.

3. An antirefilling device comprising a head having an orifice and a valve-seat surrounding the orifice, a tube or tubular flange surmounting said head and having a tapering surface the lower portion of which cooperates with the valve-seat in forming an annular hinge member surrounding the valve-seat, the said tube having an outlet at its upper end and above the valve-seat, a valve formed to fit the valve-seat and having a diameter slightly less than that of the valve-seat, so that the lower edge of the valve automatically engages the lower portion of the recess to form a hinge when the bottle is tipped, a dome attached to the exterior of the tube and extending across and below the outlet of the tube, said dome having a seat on its under side, and a loose float interposed between the seat and valve, one end of the float being formed to engage the seat.

4. An antirefilling device comprising a head having an orifice and a valve-seat surrounding the orifice, a tube or tubular flange surmounting said head and having a tapering surface the lower portion of which cooperates with the valve-seat in forming an annular hinge member surrounding the valve-seat, the said tube having an outlet at its upper end above the valve-seat and a series of notches in said upper end, a valve formed to fit the valve-seat and having a diameter slightly less than that of the valve-seat, so that the lower edge of the valve automatically engages the lower portion of the recess to form a hinge when the bottle is tipped, a float located in the valve-chamber, and a dome attached to the exterior of the tube and having a series of notches at its lower end.

648,217. MEANS FOR CLOSING OR OPENING SHUTTERS. WILLIAM J. WOODCOCK, New York, N. Y., assignor to Reuben B. Ayres, same place. Filed Mar. 17, 1899. Serial No. 709,539. (No model.)



Claim.—1. A shutter opening and closing device comprising a rotating shaft suitably supported, pivotal connections between said shaft and the shutters and an electrical motor secured upon said shaft to turn it.

2 The combination with a window-embrasure and a swinging shutter therefor, of a shaft rotatably fitted in said embrasure, a pivotal connection between said shaft and shutter a motor upon said shaft to turn it, whereby the shutter is moved; a distant electrical power apparatus, and electrical connectors between said motor and power apparatus.

3. The combination with a plurality of window-embrasures each provided with shutters, of a moving body common to the same and supported adjacent thereto, and pivotal connectors between said moving body and each of said shutters, together with a single electrical motor upon said moving body to actuate it; a distant source of electrical power, and connectors therebetween.

4. The combination with a window-embrasure fitted with shutters, of a turnable body bearing an armature in an electrical field to actuate said shutters.

648,218. CENTRIFUGAL CREAMER. OSCAR ANDERSON, Newark, N. J., assignor to the National Dairy Machine Company, of New Jersey. Filed Aug. 29, 1895. Serial No. 560,890. (No model.)

Claim.—1. In a centrifugal creamer, the combination with the bowl adapted to be rotated, of a frame comprising vertical plates the opposite sides of which are bent inwardly, as at g, g, and spiral partitions arranged on the outsides of said plates, substantially as set forth.

2. In a centrifugal creamer, the combination with the bowl adapted to be rotated, of a frame comprising a series of vertical plates separate and apart from one another and having passages between leading to the central part of the bowl, and spiral partitions supplemented by partitions g^4, extending into said passages, substantially as set forth.



3. In a centrifugal creamer, the combination with the bowl adapted to be rotated, of a frame consisting of a series of bent plates having backs lying closely adjacent to the inner wall of said bowl and sides extending toward the center of the bowl and forming chambers A, and partitions j, j, lying in the space formed between said inner wall and said backs and allowing a movement of the fluid around the outer side of said frame as said fluid gradually moves upward, substantially as set forth.

4. In a centrifugal creamer, the combination with the bowl adapted to be rotated, of a frame consisting of a series of bent plates having a continuous spiral partition and intermediate short partitions at the backs thereof, substantially as set forth.

5. In a centrifugal creamer the combination with the bowl, of a fixed tube arranged near the center of said bowl at the cream outlet or exit and having a transverse lateral opening with an inclined lower side, and a cream-regulating screw within said tube and adapted to cooperate with said inclined lower side of the lateral opening to vary the outer limit of said opening with reference to the center of the bowl, substantially as set forth.

6. In a centrifugal creamer, the combination with the rotary bowl, of an annular series of vertically-disposed partitions joined and forming a frame, each of said partitions being bent to form, interiorly, vertical chambers A, A, for new milk and passages between said chambers for the cream, means at one end of said chambers for supplying the same with new milk, and for conducting the liquid partly devoid of the lighter particles, from said chambers A, to the space between the said partitions and inner wall of the bowl, and partitions arranged in said space and giving to the said liquid partly devoid of lighter particles a movement across the passage formed between the partitions, as said liquid moves upward, substantially as set forth.

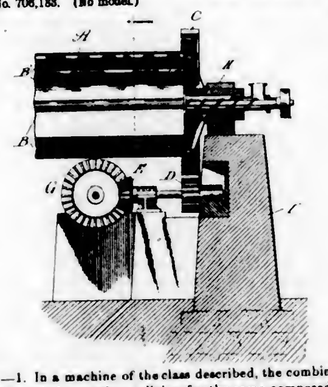
7. In a centrifugal creamer, the combination with the rotary bowl, of a frame cylindrical in general outline and having numerous passages therethrough for the cream to enter to the cream-wall from the outer space, and projecting protuberances formed on the outer side of said frame in spiral series, the continuity of which protuberances is broken or interrupted to allow an upflow of fluid between, substantially as set forth.

643,219. SIGN-BOARD. ARTHUR BLOCK, Berlin, Germany. Filed Jan. 26, 1898. Serial No. 668,061. (No model.)



Claim.—A sign-board having corrugated faces, the ribs of which are perforated, rods passing transversely through said perforations in the ribs, and letters having perforated stems adapted to be detachably secured to said rods, substantially as set forth.

643,220. TUBE OR PEBBLE MILL. CHARLES L. CARMAN, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Feb. 20, 1899. Serial No. 706,183. (No model.)



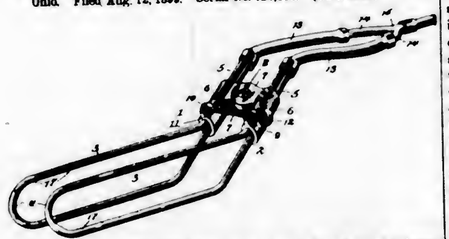
Claim.—1. In a machine of the class described, the combination of a rotatable tubular portion, a lining for the same composed of a plurality of movable sections arranged longitudinally with the barrel to form alternate elevations and depressions and provided with beveled laterel abutting edges, and means for removably holding such sections in position, substantially as described.

2. In a machine of the class described, the combination of a rotatable tubular portion, a removable lining for the same composed of a plurality of alternate thick and thin sections with abutting beveled lateral edges arranged longitudinally with the barrel to form alternate elevations and depressions, and means for removably holding each alternate section in position, substantially as described.

3. In a machine of the class described, the combination of a rotatable tubular portion, a removable lining for the same composed of a plurality of alternately thick and thin narrow and wide sections with abutting beveled edges arranged longitudinally with the barrel to form alternate elevations and depressions, and means for removably holding such sections in position, substantially as described.

4. In a machine of the class described, the combination of a rotatable tubular portion, a removable lining for the same composed of a plurality of alternately thick sections having convex upper surfaces and thin sections having concave upper surfaces, each section having beveled abutting lateral edges arranged longitudinally with the barrel to form alternate elevations and depressions, and bolt-and-nut mechanism for holding the thick sections and thereby all the sections in position, substantially as described.

643,221. DOUCHING-SPECULUM. LEE J. CHAPMAN, Columbus, Ohio. Filed Aug. 12, 1899. Serial No. 727,068. (No model.)



Claim.—1. A speculum comprising a pair of perforated tubular blades having upper and lower straight parallel members continuous with regularly-curved entrance ends, the rear portion of the lower members being bent upwardly toward the upper members and both members at their rear ends inclined upwardly, pivotally-connected sleeves on the rear upwardly-inclined members, an adjusting-screw carried by one sleeve and adapted to bear against the other, for holding the blades apart, and means for simultaneously feeding both members of the blades.

3. A speculum comprising a pair of perforated tubular blades having rear closely-arranged upwardly-inclined parallel extremities, pivotally-connected sleeves on the said extremities, an adjusting-screw carried by one sleeve and adapted to bear against the other for holding the jaws apart, the sleeves and adjusting-screw being above the level of the blades, a feeder applied over each pair of the rear open ends of the extremities of the blades, and means for connecting and supplying the feeders.

643,222. ACETYLENE-GAS-GENERATING STREET-LAMP. WILLIAM C. CLARKE, New York, N. Y., assignor to the Acetylene Apparatus Manufacturing Company, of West Virginia. Filed Apr. 10, 1896. Serial No. 586,932. (No model.)



Claim.—1. As a means of operating street-lamps the combination with a hollow lamp-support forming a gas-chamber and having a gas-pipe leading from near the bottom of such chamber to the lamp-burner, of a cylindrical gas-generating chamber located outside of said gas-chamber and having its longer axis vertical, a pipe connecting the upper part of said generating-chamber with the lower part of said gas-chamber, removable caps for the upper and lower ends of said generating-chamber, a cartridge, adapted to closely fit the interior of said generating-chamber and containing material adapted upon contact with water to generate illuminating-gas and means for opening the upper end of such cartridge when contained in said chamber after the latter is closed, substantially as and for the purposes set forth.

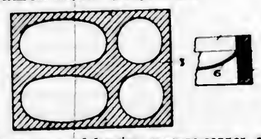
2. In a street-lamp the combination of a hollow lamp-support forming a vertically-elongated gas-chamber, a gas-supply pipe extending from near the bottom of said chamber to the lamp-burner, and a generating-chamber exterior to said gas-chamber and consisting of a tube provided at the ends with removable caps and presenting when such caps are removed an open passage, substantially as and for the purposes set forth.

3. In a street-lamp the combination of a hollow lamp-support forming a vertically-elongated gas-chamber, a gas-supply pipe within said chamber and extending from a point near the bottom thereof to the burner of the lamp and a gas-generating chamber located exterior to said gas-chamber and operatively connected therewith, substantially as and for the purposes set forth.

4. In a street-lamp the combination of a hollow lamp-support forming a vertically-elongated gas-chamber and a gas-generating chamber operatively connected therewith and consisting of a cylinder having removable caps at the ends thereof and presenting when such caps are removed an open passage, substantially as and for the purposes set forth.

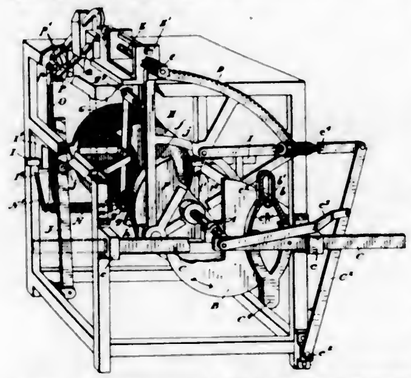
5. In a street-lamp the combination of a gas-chamber, a burner supplied therefrom, and a gas-generating chamber operatively connected with such gas-chamber and consisting of a cylinder having removable end caps and presenting, when such caps are removed an open tubular passage, substantially as and for the purposes set forth.

643,223. PROCESS OF MAKING CONCAVO-CONVEX GLASS PLATES. CHARLES DEE and LUC HOUER, Hartford City, Ind. Filed Apr. 17, 1899. Serial No. 713,240. (No specimens.)



Claim.—The process of forming concavo-convex glass plates, which consists in first supporting a glass plate around the margins of the desired formation, subjecting the same to heat, thereby softening the glass and causing the same to curl up at the marginal edges of the formation, continuing the heat, thereby causing the said edges to become again flat, then holding the said marginal edges in position by heated pressure thereon, continuing the heat, until the glass within the margin falls to the desired curvature, then cooling the same so supported, thereby arresting further descent of the glass, and fixing it in the form desired.

643,224. MACHINE FOR MAKING WIRE CLOTHES-PIN SPRINGS. JOHN DRUMMOND, Danville, Canada. Filed Nov. 11, 1898. Serial No. 696,156. (No model.)



Claim.—1. In a machine of the class described, the combination with the coiling-spindle journaled in a suitable carriage as specified and provided with an end pinion, of a segmental gear suitably supported, the main shaft and disk secured thereto, provided with a suitable roller on its face, the sliding bar supported in suitable ways, the double cam secured thereto and provided with vertical ends, a lever suitably pivoted in the frame, the link connecting it to the sliding bar and the link connecting it to the segmental wheel, all arranged and operating as shown and for the purpose specified.

2. In a machine of the class described, the combination with the coiling-spindle journaled in a suitable carriage as specified, and provided with an end pinion, of the segmental gear suitably supported, the main shaft and disk secured thereto provided with a suitable roller on its face, the sliding bar supported in suitable ways, the double cam secured thereto and provided with vertical ends, a lever suitably pivoted in the frame, the link connecting it to the sliding bar and the link connecting it to the segmental wheel, and a double elastic cushion located intermediate of the length of the latter link, the parts being arranged and constructed as shown and for the purpose specified.

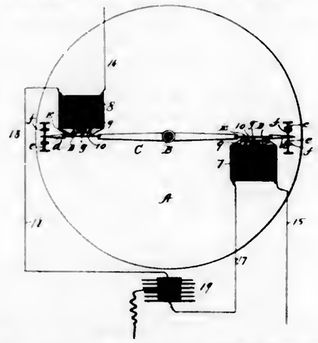
3. In a machine of the class described, the combination with a spring-coiling spindle and carriage thereof, of the main shaft, the disk-wheel secured thereto provided with a face-cam, a lever pivoted in the frame, a link connecting such lever to the bottom of the spring-winding-spindle carriage, a roller suitably journaled on a pin at the bottom of the lever designed to coact with a face-cam on the disk-wheel, and a spring holding such roller against the cam, as and for the purpose specified.

4. In a machine of the class described, the combination with the die mechanism and operating-lever, of the main shaft, the disk secured thereto provided with a peripheral cam, the sliding bar suitably supported on the frame, a link connecting such bar to the lever J, the spring connected at one end to the sliding bar and the other to the frame, and the roller journaled on a pin on the sliding bar designed to coact with the peripheral cam on the disk, as and for the purpose specified.

5. The combination with the die mechanism, of the rod O, the disk M secured to the shaft and provided with a peripheral cam *m*, and the lever N pivotally connected to the rod O and provided with a roller designed to coact with the cam, as specified.

6. The combination with the die mechanism, of the rod O, the disk M secured on the shaft and provided with a peripheral cam *m*, the lever N pivotally connected to the rod and provided with a roller designed to coact with the cam M, and a spring for holding the roller on the peripheral face of the disk, as and for the purpose specified.

643,225. TELEPHONIC REPEATER. JAMES HOULEHAN, Toledo, Ohio. Filed Sept. 14, 1899. Serial No. 730,429. (No model.)



Claim.—1. In a telephonic repeater, consisting of a vibratory needle or armature, having diaphragms on opposite ends thereof, electromagnets opposite said diaphragms, said electromagnets also bearing diaphragms, mechanical connections between said diaphragms for the purpose as shown and described.

2. In a telephonic repeater consisting of a vibratory needle having diaphragms on opposite ends thereof, rubber connections secured to said diaphragms, electromagnets opposite said diaphragms, diaphragms secured to the frames of said electromagnets, and said rubber connections also secured to said diaphragms for the purpose as specified.

3. In a telephonic repeater, of a vibratory armature or needle having diaphragms thereon, magnets bearing diaphragms opposite said vibratory armature-diaphragms, mechanical connections between said diaphragms, points secured to the vibratory armature-diaphragm in alinement with said armature and provided with stop-screws for the purpose as specified.

643,226. COIN-CONTROLLED BEAM-SCALE. WILLIS H. JORDAN, Boston, Mass., assignor of one-half to Otis M. Shaw, same place. Filed Jan. 16, 1899. Serial No. 702,211. (No model.)

Claim.—1. A beam-scale in combination with coin-controlled mechanism for automatically moving the slide-weight on said beam and locking said slide-weight when the beam balances.

2. A beam-scale in combination with coin-controlled mechanism for automatically moving the slide-weight on said beam and locking said slide-weight when the beam balances and releasing said slide-weight when the load is removed from said scale.

3. In a beam-scale a coin-released rack; a pulley actuated by the movement of said rack; the beam and its slide-weight and a connection between said pulley and weight.

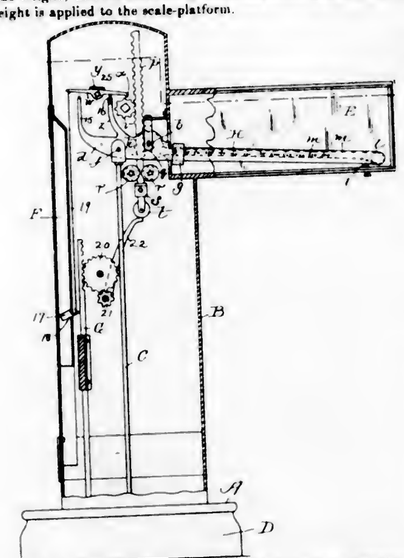
4. In a beam-scale the beam and its slide-weight in combination with coin-released mechanism for automatically operating said weight; and a lock for said mechanism normally held released by said beam.

5. In a beam-scale a coin-controlled mechanism for operating the slide-weight thereof when the scale-arm of said beam is above the balance-level.

6. In a beam-scale the beam and its slide-weight in combination with coin-controlled mechanism for automatically operating said weight; and a lock for said mechanism normally held released by said beam.

7. In a beam-scale the beam and its slide-weight in combination

with a rack and mechanism actuated by said rack for moving said slide-weight; and coin-controlled mechanism locking said rack when weight is applied to the scale-platform.



8. In a beam-scale the beam and its slide-weight in combination with a rack, mechanism actuated by said rack for moving said slide-weight; coin-controlled mechanism locking said rack when weight is applied to the scale-platform and releasing said rack through the action of a coin whereby the slide-weight may be automatically adjusted to balance the platform-weight.

9. In a beam-scale the beam and its slide-weight in combination with a rack and coin-released mechanism actuated by said rack for moving said slide-weight; and coin-controlled mechanism locking said rack when weight is applied to the scale-platform and releasing said mechanism when the weight is removed from said platform.

10. In a beam-scale the beam and its slide-weight in combination with a rack; coin-released mechanism actuated by said rack for moving said slide-weight; and mechanism actuated by a movement of the scale-platform for returning said rack.

11. In a beam-scale a mechanism for automatically moving the slide-weight of the scale-beam in combination with a coin-controlled locking device for said mechanism normally held released by said beam.

12. In a beam-scale a mechanism for automatically moving the slide-weight of the scale-beam in combination with a coin-controlled locking device for said mechanism actuated positively by a movement of said beam.

13. In a beam-scale a mechanism for automatically moving the slide-weight of the scale-beam in combination with a coin-controlled locking device for said mechanism normally held released by said beam and actuated positively by a movement of said beam to lock said mechanism.

14. In a beam-scale a locking mechanism comprising the coin-controlled dog and its shifting weight in combination with mechanism for operating the beam slide-weight.

15. In a beam-scale the coin-controlled dog in combination with the beam and its slide-weight; and mechanism controlled by said dog for automatically moving said slide-weight.

16. In a beam-scale the coin-controlled dog in combination with the beam and its slide-weight; mechanism controlled by said dog for automatically moving said slide-weight and two projections on said beam respectively actuating said dog at determined points in the movement of said beam.

17. In a beam-scale a coin-controlled slide-weight-actuating mechanism and beam-operated devices for releasing said mechanism when the beam-scale arm is below the horizontal and locking it during the upward movement of said arm.

18. In a beam-scale a coin-controlled slide-weight-actuating mechanism and beam-operated devices for releasing said mechanism when the beam-scale arm is below the horizontal, locking it during the upward movement of said arm and unlocking it as said arm attains the horizontal.

19. In a beam-scale a coin-controlled mechanism for automatically moving the slide-weight on said beam and a platform-actuated mechanism for holding said first mechanism until weight is applied to said platform and returning it when said weight is removed from the platform.

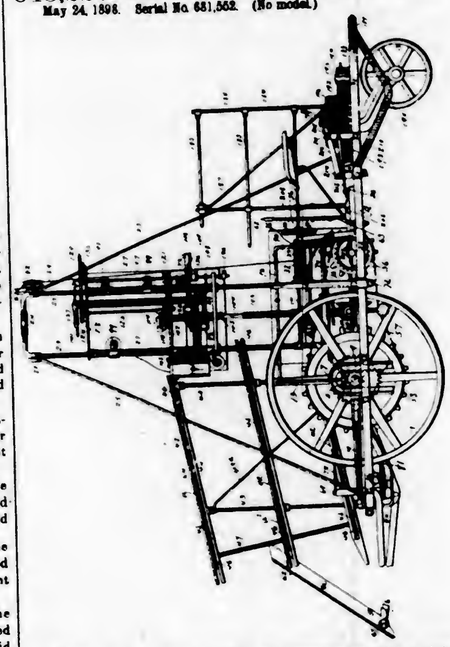
20. In a beam-scale, the beam and its slide-weight in combination with the coin-controlled rack and mechanism connecting it with said slide; and the platform-actuated arm engaging said rack, all being arranged to operate substantially as specified.

21. In a machine of the class specified the dog and its shifting weight in combination with the coin-chute; the lever projecting into said chute and a connection between said lever and an arm of said dog.

22. In a device of the class described, the beam and its slide-weight in combination with the pulley on said beam; the pulley concentric with the beam-fulcrum; the cord connecting said pulleys and weight and coin-released devices for actuating said fulcrum-pulley.

23. In a device of the class described the coin-controlled pulley-actuating rack in combination with the platform-actuated rack operating to return said pulley-rack when weight is removed from said platform.

643,227. HARVESTER. JAMES J. KENNEDY, Hanover, Ill. Filed May 24, 1898. Serial No. 681,552. (No model.)



Claim.—1. In a corn-harvester, the combination with a rigid framework, of a vertically-movable frame, means on the rigid framework for raising and lowering said vertically-movable frame, knotter and binding devices carried by the vertically-movable frame, a telescopic shaft mounted on the rigid frame and connected with the knotter devices on the movable frame, and ejector-arms secured to the lower part of said telescopic shaft and adapted to press against the butt-ends of the cornstalks when ejecting a bundle.

2. In a harvester, the combination with a base-frame, of a shaft mounted therein at one side, a traction-wheel mounted on said shaft, pinions secured to the respective ends of said shaft, yokes secured to the frame and having rack-teeth to receive said pinions, a lever mounted loosely on said shaft, a toothed wheel secured to the shaft, a locking-bar carried by said lever and engaging the toothed wheel, a vertically-movable dog disposed in one of said yokes so as to be guided thereby, said dog adapted to engage the pinion in said yoke, a rod projecting from said dog and passing through the top of the yoke, and a grain-wheel mounted at the other side from the frame.

3. In a harvester, the combination with a base-frame and feeders supported over the base-frame, of vertically-adjustable guard-fingers attached to the base-frame, guides attached to two of the feeders, grain-boards movably supported at their upper ends by said guides, and ball-and-socket connections between the lower ends of said grain-boards and the free ends of the guard-fingers, substantially as set forth.

4. In a harvester, the combination with a frame and a series of feeders above the same, of a rotary toothed cutter below the mouth of the feeders, a blade extending over said cutter, said blade beveled at its forward end and provided with a knife-edge adapted to cooperate with said rotary cutter, the forward extremity of the blade being provided with a finger projecting downwardly below the rotary toothed cutter, substantially as set forth.

5. In a harvester, the combination with a vertically-movable binder-frame, of an upper crank-shaft mounted in the movable binder-frame, packers connected with said crank-shaft, a lower crank-shaft below the movable binder-frame, packers connected with said lower crank-shaft, telescopic connections between the upper and lower crank-shafts, gearing between the upper crank-shaft and the binder appliances, trip devices for said gearing and including trip-arms, and connections between said trip devices and binder-gearing, substantially as set forth.

6. In a harvester, the combination with a crank-shaft, packers connected thereto and a loose pinion on said crank-shaft, trip devices connected with said crank-shaft and loose pinion, a trip-lever, a shaft connected with said trip-lever and carrying trip-arms, tying mechanism, a wheel secured to the shaft of said tying mechanism, gearing between said wheel and the said loose pinion, a needle, a shaft secured thereto, a slotted arm secured to the needle-shaft and a slotted pitman connected with said slotted arm and the wheel on the shaft of the tying mechanism, substantially as set forth.

7. In a harvester, the combination with a base-frame, an upright frame and a binder-frame vertically movable on the upright frame, of a telescopic shaft mounted on the base-frame and the movable binder-frame, and ejector-arms carried by the respective sections of said telescopic shaft, substantially as set forth.

8. The combination with a binder-frame and a shaft, of an L-shaped arm secured to the binder-frame and having a boss at the free end of its horizontal arm loosely mounted on said shaft, arms diverging from said boss, a knotter mounted in one diverging arm, a cord-holder mounted in the other diverging arm, a disk mounted on the shaft to rotate therewith, two sets of gear-teeth on said disk whereby to transmit motion to the knotter and cord-holder respectively and a knife on the portion of the L-shaped arm disposed between the diverging arms, substantially as set forth.

9. The combination with a shaft and a notched disk secured thereto, of a blade and an arm disposed in proximity to the periphery of said disk and between the same and said blade, depending arms carried by said disk and adapted to travel between said arm and blade, substantially as set forth.

10. The combination in a harvester, of a needle, a cord-holder having a part adapted to rotate in a plane parallel to the plane of the needle, guides for the cord attached to a fixed part of the cord-holder, said guides consisting of a wire bent to form hooks terminating under the rotary part of the holder.

11. In a harvester, the combination with the binder-table, of a swinging shock-carrier adapted to abut against said table, and a roller adjacent to said table to receive the platform of the shock-carrier, substantially as set forth.

12. The combination with a framework, of a shock-carrier, a turn-table, a crank-shaft secured to the shock carrier and mounted on the turn-table, and means for permitting the shaft to turn and discharge the shock from the carrier, substantially as set forth.

13. In a harvester, the combination with framework, of a trackway secured thereto and having a cam portion, a shock-carrier, a turn-table, a crank-shaft secured to the shock-carrier and mounted on the turn-table, and a wheel carried by the shock-carrier and adapted to run on said trackway, substantially as set forth.

14. The combination with a framework, of a shock-carrier, a turn-table, a shaft connecting said shock-carrier and turn-table, a series of arms secured to the framework, two rollers carried by each arm and adapted to receive the periphery of the turn-table between them and means for rotating said turn-table, substantially as set forth.

15. The combination with a framework, of a shock-carrier, a turn-table, a shaft secured to the shock-carrier and mounted on the turn-table, gearing for transmitting motion to said turn-table and means for shifting said gearing to control the direction of rotation of the turn-table, substantially as set forth.

16. The combination with framework, of a turn-table, a crank-shaft mounted on the turn-table and projecting laterally therefrom, a shock-carrier attached to the projecting end of said crank-shaft, gear-teeth on said turn-table, a shaft carrying a pinion at one end meshing with said gear-teeth, a pinion at the other end of said shaft, a driving-shaft, a sleeve mounted to slide on but rotate with said driving-shaft, gears on said sleeve at each side of said last-mentioned pinion, and means for shifting said sleeve whereby to cause motion to be transmitted in one direction or the other to the turn-table, substantially as set forth.

17. The combination with framework, of a turn-table mounted thereon, a shock-carrier disposed at one side of said turn-table and connected therewith so as to be swung thereby, gearing for driving said turn-table, and devices operating to automatically throw said gearing out of mesh when the carrier reaches the ends of its movements, substantially as set forth.

18. The combination with framework, of a turn-table mounted thereon, a shock-carrier disposed at one side of said turn-table and connected therewith so as to be swung thereby, gearing for driving the turn-table, a pivoted arm to be engaged by a part movable with the turn-table, and connections between said arm and the gearing whereby to throw the gearing out of gear when said pivoted arm is moved in one direction, substantially as set forth.

19. The combination with framework, of a turn-table mounted thereon, a shock-carrier connected with said turn-table at one side thereof, gearing for rotating the turn-table to swing the shock-carrier, means for tilting the shock-carrier to discharge the shock and a caster-wheel in the framework under the turn-table, substantially as set forth.

20. The combination with framework, of a turn-table, a shock-carrier connected with the turn-table, gearing for rotating the turn-table, a pivoted arm, a latch for said arm, a pitman connected with said pivoted arm, a bell-crank lever connected to said pitman and connections between said bell-crank lever and the gearing whereby to throw the latter out of gear when the shock-carrier engages and moves the latch and pivoted arm, substantially as set forth.

21. The combination with framework, of a turn-table, a shock-carrier connected to said turn-table, gearing for driving the turn-table, a sliding bar adapted to be struck and moved by the shock-carrier when the latter returns to its normal position, and connections between said sliding bar and the gearing whereby to throw the latter out of gear when the shock-carrier reaches its normal position, substantially as set forth.

22. The combination with framework, of a turn-table mounted thereon, a shock-carrier connected to said turn-table, gearing for driving said turn-table, a sliding bar adapted to be engaged and moved by the shock-carrier when it moves to its normal position, a latch for engaging said sliding bar and adapted to be released by the shock-carrier when it moves to its normal position, and a connection between said sliding bar and gearing whereby to throw the latter out of gear when said sliding bar is moved, substantially as set forth.

23. The combination with framework, of a turn-table, a shock-carrier connected to said turn-table, gearing for driving the turn-table, a sliding bar, a connection between said sliding bar and gearing whereby to throw the latter out of gear when the bar is moved, and means for causing the shock-carrier to move said sliding bar at the respective ends of the movements of said shock-carrier, substantially as set forth.

24. The combination with framework, of a turn-table, a shock-carrier connected thereto, gear-teeth on the turn-table, a shaft having a pinion on each end, one of said pinions meshing with the gear-teeth on the turn-table, two gears between which the other pinion is disposed, a sleeve to which said gears are secured, a driving-shaft on which said sleeve is mounted to slide and with which it rotates, a sliding bar, a pivoted lever connected with said sleeve and sliding bar, and means for sliding the bar to shift said sleeve and the gears thereon, substantially as set forth.

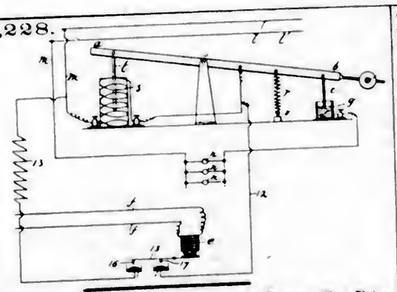
25. The combination with framework, of a turn-table mounted thereon, shock-carrier connected to said turn-table, gearing for driving said turn-table, a sliding bar adapted to be actuated by the shock-carrier, a connection between said sliding bar and gearing whereby the latter is thrown out of gear when the bar is slid by the shock-carrier, and an operating-lever connected to said sliding bar whereby to shift the gearing and change the rotation of the turn-table, substantially as set forth.

643,228. MEANS FOR CONTROLLING AND INDICATING THE SUPPLY OF ELECTRIC ENERGY. CÉSAR R. LOUBERY, Paris, France, assignor to himself, Emanuel Francois, and Henry Kunkelmann, same place. Filed May 23, 1899. Serial No. 717,936. (No model.)

Claim.—1. In a system for the distribution of electrical energy, a local circuit, a coil included in said circuit, means adapted to be actuated by said coil to control or indicate the consumption of electrical energy by the local consumer, an auxiliary or controlling circuit, and means adapted to be actuated thereby to vary the resistance to the passage of the current through the local circuit.

2. In a system for the distribution of electrical energy, a local circuit, a coil included in said circuit, means adapted to be actuated by said coil to control or indicate the consumption of electrical energy by the local consumer, a shunt about said coil, an auxiliary or controlling circuit, and means adapted to be actuated thereby to close the shunt-circuit.

643,228.



643,229. TWINE-HOLDER. WILLIAM P. MICHAEL, West Plains, Mo., assignor of one-half to Herman Schott, Batesville, Ark. Filed Nov. 3, 1899. Serial No. 735,691. (No model.)



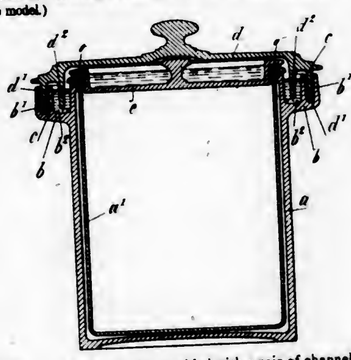
Claim.—1. As an improved article of manufacture, a twine-holder having a body with a lower reduced extremity and formed of continuous bends of wire terminating in an upper hanger.

2. As an improved article of manufacture, a twine-holder having a series of spirally-arranged coils gradually diverging from a reduced bottom toward the top and terminating in an upper hanger.

3. As an improved article of manufacture, a twine-holder having a body made up of a series of spiral coils with openings between them, said coils gradually increasing in dimension from a reduced bottom coil toward the upper portion of the holder and terminating in a hanger.

4. The combination with a twine-holder, of a depending guard loosely mounted thereover and adapted to retain a ball of twine in place in the holder, the said guard being movably attached at its upper portion.

643,230. HYDRAULIC SEAL OR TRAP FOR JARS, &c. JÖRGEN J. MÖLLER, Flensburg, Germany. Filed Dec. 12, 1899. Serial No. 740,090. (No model.)



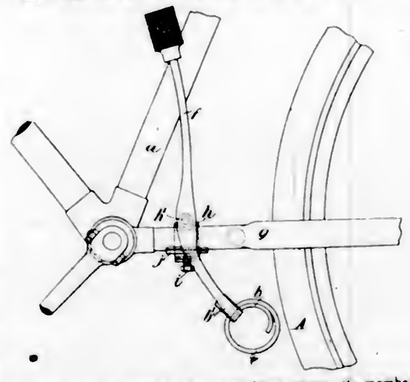
Claim.—1. In a jar, a rim provided with a pair of channels, a lid, a pair of depending flanges thereon the outer longer than the inner, adapted to take into said channels, an internal receiver suspended in said jar from a peripheral flange, a lid for said internal receiver, spacing-lugs thereon and a depression in said lid for the reception of an antiseptic, substantially as set forth.

2. In a jar or similar receptacle the combination of two chambers or troughs b' b^3 attached to the jar and surrounding each other, the inner trough being filled with a vaporizing antiseptic means and the outer trough with an indifferent liquid, and of a cover provided with two flanges or rims d' d^3 corresponding to the troughs b' b^3 and adapted to enter the latter, a free passage being left between the cover and jar, substantially as and for the purpose specified.

3. In a jar, a rim provided with channels for containing vaporizable chemical preservatives and a liquid seal, a lid provided with depending flanges, the outer one of which supports the lid and rests on the bottom of its channel, an internal receiver adapted to hang from the interior wall of said jar, and an auxiliary lid for covering the internal receiver, as set forth.

4. In a jar, a rim provided with channels, a lid having depending flanges adapted to take into said channels and be liquid-sealed, an internal receiver provided with a flange and hung therefrom in said jar, a lid for said receiver, a closing-rim having spacing-ribs, and a depression in said lid for the reception of a vaporizable preservative, substantially as set forth.

643,231. BICYCLE-BRAKE. PHILIP J. FARMITER, Ansty, England. Filed May 29, 1899. Serial No. 718,763. (No model.)



Claim.—1. A wheel-brake comprising among its members a curved spoon, having a short convex band-engaging surface, an endless band of greater length than said band-engaging surface of the spoon, and having only a portion of its inner surface engaging said spoon, the remaining portion being entirely out of contact with said spoon, lateral guides on said spoon to prevent the accidental displacement of said band, a vertically-disposed lever having one end rigidly secured to said spoon at one side of the same and its other end provided with a foot-engaging portion, and a stop for engaging said lever when the latter is moved in a direction to move the spoon and band away from the wheel, whereby said lever may be used as a step and foot-rest and whereby the band can be removed from the spoon and replaced without moving said lever, substantially as described.

2. A wheel-brake comprising among its members an endless friction-band, a curved spoon of less extent than the said band, engaging a portion of the inner surface of said band, and provided with lateral guides for said band, the portion of said band not in contact with said spoon being entirely free, a vertically-disposed lever secured at its lower end to said spoon, a clip pivotally connected to said lever and an adjustable plate adapted to be inserted in said clip, provided with a stop for limiting the movement of said lever in a direction to move said spoon away from the wheel, substantially as described.

643,232. STIRRUP. CLARENCE W. PERCIFIELD, Moran, Tex., assignor of one-half to James M. Senter, same place. Filed Feb. 21, 1898. Serial No. 671,160. (No model.)



Claim.—A stirrup-iron composed of sides and a connecting bottom portion, the sides having split loops struck outwardly from the material thereof, with right-angular inturned ends having an intervening space between them, the loops being in alinement and as an entirety spaced apart equally, the upper extremities of the sides also having slots and connected by spaced parallel cross-bars with another cross-bar below the same supplied with a roller, the connecting bottom portion also having front and rear edges recessed to provide opposite projections, combined with a fender transversely slitted at opposite sides at points over the spaces between the loops on the sides of the stirrup-iron, the portions of the fender between the slits in alternation bearing against the said loops of the iron, and a strap passed through the slots in the upper extremities of the sides of the stirrup-iron between the parallel cross-bars and having the opposite ends threaded alternately through the loops on the side of the stirrup-iron and through the slits in the fender and connected below the bottom portion of the stirrup-iron.

643,233. GOLD-WASHING MACHINE. FRANK C. PINNELL, Lodge, Cal. Filed Aug. 22, 1898. Serial No. 689,269. (No model.)



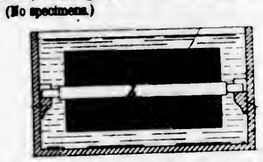
Claim.—1. The herein-described riffle consisting of a base-plate, transverse strips secured thereto, sheet-metal caps secured to the strips, forming pockets, longitudinal rails secured to the transverse strips, a screen supported by said rails, and U-shaped clamps each having one end provided with a cam-lever, said levers operating against the bottom of the riffle-box, drawing the opposite end downward against the screen, as and for the purpose described.

2. In combination, a riffle-box, a riffle consisting of a plate, transverse strips secured thereto, a metal cap secured to each of said strips and projecting beyond the sides thereof forming pockets, longitudinal rails provided on the top of the strips, a screen having a series of concavities with perforations formed therein, U-shaped clamps each having a cam-lever journaled in one end thereof, said clamps being arranged to have their cam-levers operate against the bottom of the box drawing the opposite ends downward to clamp the screen and riffle-plate, substantially as described.

3. In combination with a machine of the character described, a riffle-box, screens and riffles therein, a clamp having one end bent over the edge of the side of the riffle-box and bearing against the screen, with its opposite end lying against the side of the box, and a cam-lever pivoted to the end and bearing against the bottom of the riffle-box, substantially as described.

4. In combination with a machine of the character described a riffle-box, a screen having concavities at the openings, riffles in the box clamps embracing the sides of the box and having one end bearing against the screen and means whereby the clamp may be adjusted to admit screens and riffles of varying sizes, substantially as described.

643,234. METHOD OF MOISTENING COPYING-PAPER. FRIEDRICH G. J. POST, Hamburg, Germany. Filed Mar. 21, 1899. Serial No. 709,943. (No specimens.)



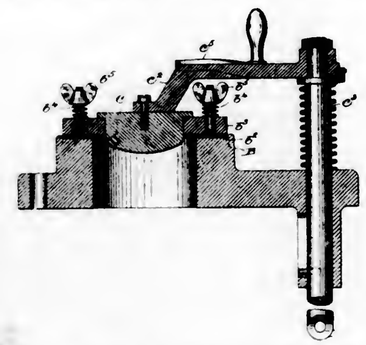
Claim.—1. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a web of such into a roll, placing the latter in contact with water until a given quantity thereof has been absorbed, removing the roll from contact with the water and allowing the inner convolutions of tissue-paper to absorb the excess of water in the outer convolutions, for the purpose set forth.

2. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a plurality of webs of such simultaneously into a roll, placing the latter in contact with water until a given quantity thereof has been absorbed, removing the roll from the water and allowing the inner convolutions of tissue to absorb the excess of water in the outer convolutions, for the purpose set forth.

3. The mode of preparing tissue-paper for copying purposes, which consists in winding a web of such into a compact roll, enveloping the latter in an absorbent fabric and placing the roll in contact with water until a suitable quantity thereof has been absorbed by said fabric and tissue, for the purpose set forth.

4. The mode of preparing tissue-paper for copying purposes, which consists in compactly winding a web of such into a roll, placing the same into a body of water so that when a given quantity thereof has been absorbed its level will be so changed as no longer to be in contact with the roll, and allowing the inner convolutions of tissue-paper to absorb the excess of water in the outer convolutions, for the purpose set forth.

643,285. APPARATUS FOR MAKING ABRASIVE COVERS FOR BUFFING-MACHINES. ANDREW W. ROGERS and SIDNEY W. WINSLOW, Beverly, Mass., assignors to Sidney W. Winslow, trustee, same place. Filed June 14, 1897. Serial No. 640,616. (No model.)



Claim.—1. The herein-described apparatus for making abrasive covers for buffing-machine pads comprising a holding device for yieldingly holding the flat blank around the marginal portion thereof, and means for stretching the middle portion of said blank and expanding the same outward beneath the marginal part while still retained in said holding device, substantially as described.

2. An apparatus for making abrasive pad-covers for buffing-machine pads, comprising a clamp for yieldingly holding the marginal portion of a flat blank, a die or plunger adapted to be pressed against the middle portion of said blank to stretch the same and contract the yieldingly-held marginal portion, and means for radially expanding the stretched portion of the blank beneath said clamp while the marginal part of the blank remains held therein, substantially as described.

3. An apparatus for making abrasive pad-covers for buffing-machine pads comprising a detachable clamp for yieldingly holding the marginal portion of a flat blank; and a detachable expanding former adapted to expand the middle portion of said blank beneath the clamp while the marginal portion of the blank is yieldingly held therein, said clamp and former with the blank formed and held thereby being removable from the apparatus, substantially as and for the purpose described.

4. In an apparatus for making abrasive pad-covers for buffing-machine pads, an expanding former comprising a number of radially-movable segments; means for moving the same radially inward or outward simultaneously; and a latch for locking the same in outward or expanded position, substantially as and for the purpose described.

643,286. MACHINE FOR MAKING ABRASIVE COVERS FOR BUFFING-MACHINES. ANDREW W. ROGERS and SIDNEY W. WINSLOW, Beverly, Mass., assignors to Sidney W. Winslow, trustee, same place. Filed June 14, 1897. Serial No. 640,617. (No model.)

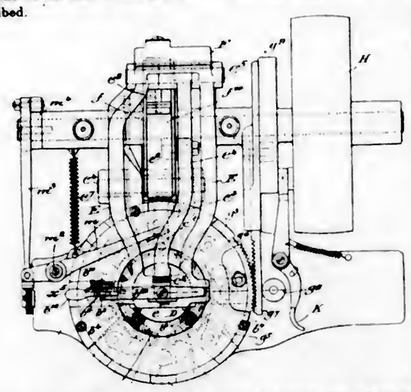
Claim.—1. In a machine for making abrasive pad-covers for buffing-machines from flat blanks of abrasive material, a former and a series of folding-blades surrounding said former, and means for moving said blades inward over the periphery of said former, substantially as described.

2. In a machine for making abrasive pad-covers for buffing-machines from flat blanks, a support for the marginal portion of the blank and a former and means for pressing the same laterally against the middle portion of the blank, and means for molding the marginal portion of the blank inward over the periphery of the former, substantially as described.

3. In a machine for making abrasive pad-covers for buffing-machines from flat blanks, a former and holder adapted to be yieldingly pressed against said former, and means for molding the marginal portion of the blank over the periphery of the former and inserting the same between the former and holder, substantially as described.

4. The combination of means for yieldingly holding the marginal portion of a flat blank, with means for pressing a former against the

middle portion of the blank, and molding devices, and means for pressing the same against the portion of the blank between the periphery of the former and the marginal holding devices, substantially as described.

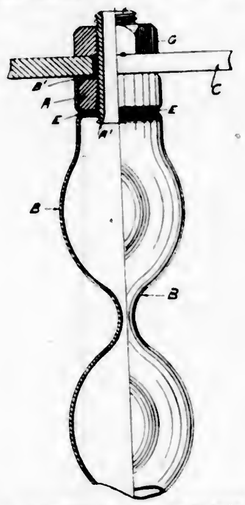


5. In a machine for making abrasive pad-covers for buffing-machines from flat blanks, a former and holder adapted to be yieldingly pressed against said former, and means for molding the marginal portion of the blank over the periphery of the former and inserting the same between the former and holder, and means for ejecting the said former and holder with the cover molded thereon, substantially as described.

6. The combination of the former, with the holder and the spring whereby said holder and former are yieldingly pressed together, substantially as described.

7. The former composed of a disk having a detachable peripheral band, combined with a holder yieldingly connected with said former, substantially as described.

643,237. CONNECTING TUBES TO TUBE-PLATES. OLIVER M. ROW, Manchester, England. Filed Jan. 18, 1899. Serial No. 702,564. (No model.)



Claim.—In combination, a tube-plate with holes, a tube with inwardly-flanged end, a bush within the tube and immediately behind the flange, a nipple connected with the bush, a nut screwing onto the nipple above the tube-plate, and with the inwardly-flanged end of the tube lying between the tube-plate and bush, as and for the purposes set forth.

643,238. TAB FOR GARMENTS. SALLIE A. SAEGER, Allentown, Pa. Filed Mar. 8, 1898. Serial No. 673,062. (No model.)

Claim.—1. In a loop-tab, the combination with the loop, of a folded clamp arranged lengthwise of the ends of the loop and holding said ends between its folds by being squeezed upon them, an attaching safety-pin arranged lengthwise of the clamp, and having one of its arms held by and within the clamp and with its fastening ends at one end of such clamp, all as and for the purposes set forth.

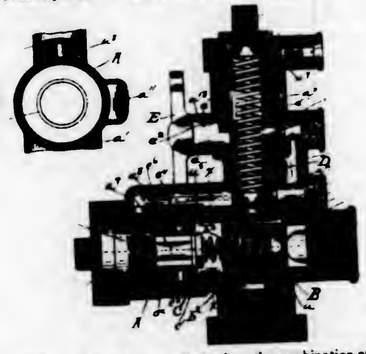


2. In a loop-tab, the combination with the loop, of a folded clamp arranged lengthwise of the ends of the loop and holding said ends between its folds by having a portion of the clamp forced into said ends and by being squeezed upon them, an attaching safety-pin arranged lengthwise of the clamp, and having one of its arms held by and within the clamp and with its fastening ends at one end of such clamp, all as and for the purposes set forth.

3. In a loop-tab, the combination with the loop, a folded clamp arranged lengthwise of the ends of the loop, and holding said ends between its folds by being squeezed upon them, an attaching safety-pin arranged lengthwise of the clamp, and having one of its arms held by and within the clamp, and with its fastening ends at the inner end of such clamp, all as and for the purposes set forth.

4. In a loop-tab, the combination with the loop-holding clamp, of a safety-pin held within and by such clamp and parallel therewith, the clamp having a longitudinal depression or indentation parallel with the body of the pin, all as and for the purposes set forth.

648,239. SAFETY-VALVE. FRANK SCHERIDY, Mansfield, Ohio. Filed July 10, 1899. Serial No. 723,371. (No model.)



Claim.—1. In safety and relief valves the combination of a case, a main valve seated therein so that steam from the boiler or cylinder surrounds it, an auxiliary valve to be unseated by the fluid when its pressure exceeds a certain limit, a chamber between the valves the pressure of steam within which holds the main valve to its seat until the opening of the chamber by the unseating of the auxiliary valve, substantially as shown and described.

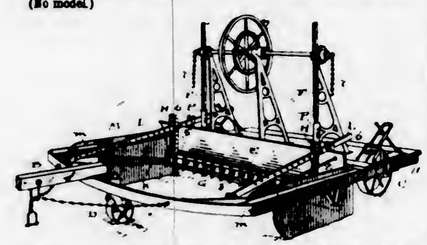
2. In safety and relief valves the combination of a case having an extension to be secured to a boiler or an engine-cylinder and a second extension to be secured to an exhaust, a main valve within the case seating outward against the exhaust-opening consisting of a cup having a rim around its edge to fit snugly against the inside walls of the case, the cup or cylinder screwed into the case leaving a chamber between it and the main valve, the auxiliary valve seated against the end or bottom of said cup or cylinder to be unseated by the steam when it exceeds certain pressure, and the by-pass connecting said chamber with the exhaust when the auxiliary valve is unseated by the steam, substantially as shown and described.

3. In a safety-valve the combination of a case having an inlet extension to be secured to a boiler and one to be secured to an exhaust, a main cup-valve within the case seating outwardly against the exhaust-opening and having a rim around its edge to fit against the inside walls of the case, a cup screwed into the case leaving a chamber between it and the main valve, an auxiliary valve seated against the perforated bottom of said cup and having a stem extending into the cup and terminating in a piston, a trigger-valve seated against a perforation in the case above the inlet, an adjustable spring for holding said valve to its seat, a by-pass for conveying the steam in upon top of said piston to unseat the auxiliary valve when the trigger-valve is raised, and a by-pass for conveying the steam from said chamber to the exhaust when the auxiliary valve is unseated, substantially as shown and described.

4. In a safety-valve the combination of a case having a lower inlet extension for connection to a boiler, a lateral extension for connection to an exhaust and an upper extension to contain a trigger-valve, a main valve and an auxiliary valve seated in the case having a chamber between them, a trigger-valve seated against a perforation in the case above the inlet extension, a spring for holding the trigger-valve to its seat, a by-pass for conveying the steam in upon the auxiliary valve to unseat it when the trigger-valve is raised, a by-pass for conveying the steam from said chamber when the auxiliary valve is unseated, perforations in the side of the upper extension of the case to seat screws, and said screws by which the time of blow-off of the valve is regulated, substantially as shown and described.

5. In a safety-valve the combination of a case having a lower inlet extension for connection to a boiler, a lateral extension for connection to an exhaust and an upper extension to contain a trigger-valve, a main valve and an auxiliary valve seated in the case having a chamber between them, a trigger-valve seated against a perforation in the case above the inlet extension, a spring for holding the trigger-valve to its seat, a by-pass for conveying the steam in upon the auxiliary valve to unseat it when the trigger-valve is raised, a by-pass for conveying the steam from said chamber when the auxiliary valve is unseated, and a hand-lever for unseating the trigger-valve, substantially as shown and described.

648,240. COMBINED EARTH DIGGER AND SCRAPER. BENJAMIN F. STUART, Oberlin, Ohio. Filed Nov. 2, 1898. Serial No. 695,311. (No model.)



Claim.—1. The main frame and the digger therein, pivotally-connected standards at the ends of the digger, levers on which the standards are adjustable, and draft-chains connecting the ends of the digger with the main frame, substantially as described.

2. The machine having a transverse scraper and fenders at the front and ends of the scraper having forwardly-extending arms on their front and top pivoted at their extremity on the frame of the machine and supporting the fenders, substantially as described.

3. The scraper and the vertically-adjustable supporting-bars pivoted thereto, and a spring-pressed connection between said bars and scraper, substantially as described.

4. The scraper and the supporting-bars at its ends, and a sliding joint between said parts and a spring in said joint to bear upon and depress the scraper, substantially as described.

5. The machine having a scraper, the rack-bars to support the scraper, a connecting member between scraper and bars having a sleeved engagement with the rack-bar and pivotally connected with the scraper, and a spring between the rack-bar and the said connecting member to cushion the scraper, substantially as described.

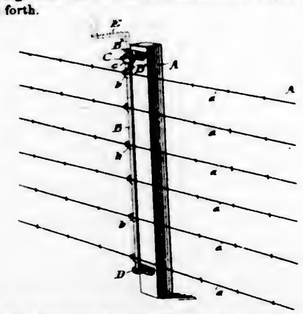
6. The digger-bar having a series of teeth and the supports for the digger-bar constructed and arranged to tilt the bar and incline the teeth, said supports comprising a standard pivoted at each end on the digger and levers on which the standards are adjustable in two directions, substantially as described.

7. The machine having a scraper-blade and a digger in front thereof, levers on which the digger is vertically adjustable and links connecting the scraper with said levers, substantially as described.

648,241. WIRE-STRETCHER. CHARLES H. SHIVELY, Sunbury, Pa. Filed Oct. 29, 1898. Serial No. 694,940. (No model.)

Claim.—1. In a fence-stretcher, the combination with a rotary shaft provided with means to detachably engage the respective longitudinal strands of the fence, of a ratchet-wheel secured upon said shaft, a bracket provided with a journal for one extremity of said shaft, and a downwardly-depending annular flange inclosing said ratchet-wheel, a pawl pivoted in said inclosing flange for engagement with said ratchet, a spring to normally thrust said pawl into engagement with said ratchet, and an arm upon said pawl extending through said flange, substantially as and for the purpose set forth.

2. In a fence-stretcher, the combination with a rotary shaft provided with means to engage the strands of a fence, of two brackets provided with bearings for the respective ends of said shaft, a ratchet-wheel detachably secured upon one extremity of said shaft, an annular flange upon one of said brackets inclosing said ratchet, a pawl provided with an arm exterior to said flange, whereby it may be manipulated, and extending within said flange for engagement with the ratchet inclosed thereby, and a pawl-spring inclosed by said annular flange and secured thereto, substantially as and for the purpose set forth.



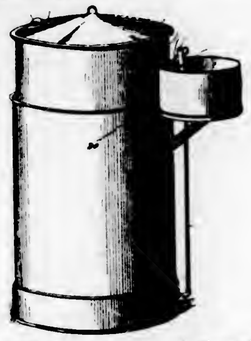
3. In a fence-stretcher, the combination with a fence-post, of the rotary shaft B, reduced at its lower extremity, provided with the integral hook *b*, the wrench-hold B', the spline *f*, and the wrench-hold B³, the bracket D, secured to said post, and provided with a bearing for the reduced lower extremity of said shaft, the ratchet-wheel F, detachably engaged with said shaft B, and spline *f*, the bracket C, provided with a bearing for the upper extremity of said shaft B, the downwardly-depending annular flange *c*, upon the bracket C, inclosing the ratchet F, the pawl-seat C', in said flange, and the pawl G, seated in said flange, and provided with the spring *g'*, secured within said flange, substantially as and for the purpose set forth.

643,242. BUTTON. CHRISTIAN S. E. SPOERL, Scranton, Pa., assignor of one-half to John Kaschenbach, Wilkes-Barré, Pa. Filed Jan. 24, 1899. Serial No. 703,272. (No model.)



Claim.—An improved tufting-button for upholstery, comprising the flanged shell *a* formed with a struck-up transverse groove *i*, the flanged back *b* formed with the orifices *j j* coincident with the opposite ends of the groove in said shell, the filling *c* packed between said shell and back, the inverted-U-shaped shank 2 having its cross-piece seated in the groove in the shell, and its parallel legs extending through said orifices in the back, and an encompassing fabric inclosing said shell and having its free edge secured between the flanges of said shell and back, substantially as shown and described.

648,243. ACETYLENE GENERATOR. RODEN I. BECK, Melvern, Kans., assignor to William J. Arb, same place. Filed Mar. 17, 1899. Serial No. 709,474. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with a gasometer having a floatable bell, and a carbid vessel, of an inde-

pendent water-tank, a trap-shaped pipe having its receiving end adjacent to said tank and its discharge end overhanging the carbid vessel, a pliable tube coupled to said receiving end of the pipe and arranged in said tank for its intake free end to be normally disposed above the water-level therein, a double-armed lever having one end thereof connected to said tube to move the latter above or below the water-line in said tank, and a rod connected operatively to the gas-omster-bell and slidably fitted to one arm of said lever to shift the position of the latter and the tube, substantially as described.

2. In an acetylene-gas apparatus, the combination with a carbid vessel, and a water-reservoir, of a water-supply pipe having a valve, a pliable tube situated in the reservoir and communicating with the water-pipe, a lever fulcrumed on the stem of the valve and connected with the pliable tube, and an arm movable with the gas-bell and connected with said lever, substantially as described.

3. In an acetylene-gas apparatus, the combination with a carbid vessel, and a floatable gas-bell, of a water-reservoir, a water-pipe, a valve in said pipe, a pliable tube connected with the pipe and arranged in the reservoir, an angular lever having one arm fulcrumed on the stem of the valve, its other arm connected to the pliable tube, and provided with guide-eyes, and an operating-arm pivoted to the bell and slidably fitted in the guide-eyes of the angular lever, substantially as described.

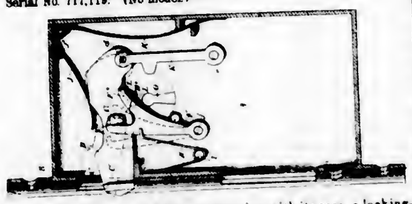
648,244. REFRIGERATOR-WAGON. EDWARD W. BEYER, Washingtonville, Pa. Filed Apr. 10, 1897. Serial No. 631,628. (No model.)



Claim.—1. The combination with the refrigerator-box having a hinged door at each end thereof, of two supporting jointed arms, one section of each arm being pivoted to the side of the box and the other pivoted to the lid forming a part of the door, a spring secured to the side of the box and engaging a section of each of the arms, and a rope secured at one end to one end of the sections of one arm and passed through guides and extended transversely of the box and having its end secured to the corresponding section of the arm at that side of the same, all substantially as and for the purpose specified.

2. The combination with the refrigerator-box having a hinged door, of a supporting jointed arm one section being pivoted to the side of the box and the other pivoted to the lid forming a part of the said door, a spring secured to the side of the box and engaging one of the sections of the arm, and a rope secured at one end to one end of one of the sections of the arm and passed through guides and extended transversely of the box and having its end secured there.

648,245. SLIDING-DOOR LOCK. JOEL A. EASTMAN, Fruitvale, Cal., assignor to Charles R. Eastman, same place. Filed May 17, 1899. Serial No. 717,119. (No model.)



Claim.—1. In a lock and in combination with its case, a locking-bolt and means whereby it has a combined longitudinal and vertical movement, means acting on the bolt for holding the latter in position within the case, and a keeper having an opening into which the end of the bolt is projected in one movement, said opening having a reduced extension into which the end of the bolt is moved in its other movement, and said bolt having a head wider than its shank whereby it is prevented from being withdrawn endwise from said extension.

2. In a lock, a bolt, a swinging link to which the rear end is connected, a lug or projection upon the bolt adapted to be engaged by the bits of the key from either side, a lug projecting from the side of the bolt, and a pivoted swinging latch-bar adapted to engage with the lug and lock the bolt.

3. In a lock, a bolt, a link having one end pivoted within the case, the other connecting with the bolt, a projection on the edge of the bolt which is engaged by the key to move the bolt forward or back, a spring pressing upon the opposite side of the bolt, normally holding it down, a forked lever pivoted in the case having a latch at its movable end, a lug on the side of the bolt with which said latch engages after the bolt has been moved forward and downward whereby the bolt is locked in place.

4. In a lock, a bolt, a swinging pivoted link to which the rear end of the bolt is connected, a spring pressing upon the top of the bolt to normally force it down, a projection upon the lower side of the bolt with which the key engages from one side to force the bolt forward, the spring acting to press it down after it has reached its farthest forward position and has been released from the bits of the key, a forked lever pivoted within the case having a latch upon the upper end, a lug upon the bolt with which said latch engages after the bolt has been depressed and a spring pressing upon said lever to retract the bolt.

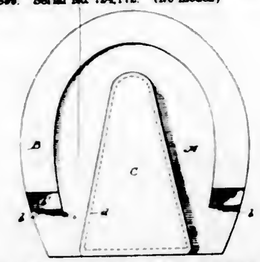
5. In a lock, a casing upon one of the parts to be locked and a keeper upon the other, each having opposing contiguous openings with narrow extensions at the bottom, a bolt, the shank of which is of less thickness than said slotted extensions and having a head adapted to move through the upper and larger portions of the slots and to lock against the lower and narrower portion of the keeper-slot, a link pivoted in the case, with the movable end of which the rear end of the bolt is loosely connected, a spring pressing upon the top of the bolt to normally force it down, a lug projecting from the bottom of the bolt adapted to be engaged by the bits of a key when the latter is turned to force the bolt forward, whereby the head of the bolt is projected into the upper portion of the keeper-slot, said spring acting to depress the head of the bolt into line with the lower and narrower portion of the slot after it has been relieved of the pressure of the key, a forked lever, the lower end of which is pivoted in the lock-case and the upper end provided with a latch upon one member of the fork, a lug upon the side of the bolt with which said latch engages after the head of the bolt has been depressed whereby the bolt is prevented from being again lifted, and a spring pressing against the side of the forked lever to retract the head of the bolt against the inner face of the keeper-slot when the parts are relieved of the pressure of the key.

6. A lock-case fixed to one of the parts to be secured, a slotted keeper fixed to the other part, a bolt movable in the lock-case, a link to which the rear end of the bolt is pivoted, said bolt having a head upon the outer end which is projected through the upper and wider portion of the slot in the keeper when the bolt is moved forward, a spring pressing upon the top of the bolt by which the head is depressed into line with the narrower portion of the slot after the key has been removed, a forked lever, one end of which is pivoted in the lock-case, a latch upon the other end of one of the forks adapted to engage a lug upon the side of the bolt to lock it in its depressed position, a spring pressing against the side of the forked lever to normally press the head of the bolt against the inner face of the keeper-slot, said lever being so disposed with relation to the keyhole that when the key is introduced and turned to unlock the door, it first forces the lever against the tension of the spring, and moves the bolt forward to release it and the keeper a lug upon the bottom of the bolt which is engaged by the further turning of the key to raise the bolt into line with the wider opening of the keeper whereby a further movement of the key retracts the bolt from the keeper into the lock-case, a spring against which the rear end of the bolt contacts when retracted into the lock-case, said spring acting to slightly advance the bolt after the lug has been released from the key whereby the lug is positioned to be again engaged by the key from the opposite side to advance the bolt

7. In a lock, a bolt, a pivoted swinging link with the free end of which the rear end of the bolt is connected and mechanism connected with the bolt and actuated by the turning of the key whereby the bolt is advanced into the opposing keeper, then depressed to engage the slot therein and finally retracted against the inner face of the keeper and locked in position.

8. In a lock, a freely-movable bolt, a swinging pivoted link with the free end of which the rear end of the bolt is connected, an enlarged head formed upon the outer end of the bolt, a keeper having a slot, the upper portion of which admits the passage of the bolt-head, the lower portion being made narrower to admit the shank of the bolt and engage the head thereof when the bolt has been projected and engaged with the keeper, a mechanism actuated by the key whereby the bolt is first disengaged from the locking-latch and moved away from the inner face of the keeper, then raised into line with the upper portion of the keeper-slot, then retracted into the lock-case, and finally positioned to be acted upon by the key from the opposite side when it is to be again advanced to lock the parts.

643,246. HOOF-PROTECTOR. HENRY GALE, Chicago, Ill. Filed July 17, 1899. Serial No. 724,172. (No model.)

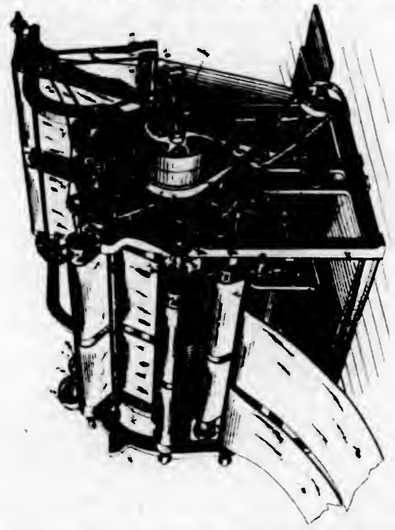


Claim.—1. A protector for horses' feet, comprising a plate adapted to be secured between the shoe and hoof, means for holding the heel of the hoof away from said plate, a frog or support on the under side of said plate, and a yielding cushion on the upper side of said plate beneath the heel of the hoof, substantially as described.

2. A protector for horses' feet, comprising a plate adapted to be secured between the shoe and hoof, a horseshoe-shaped strip B on the upper side of said plate and adapted to support the sheil of the hoof at the toe and sides and terminating at the rear short of the heel of said plate, a frog or support secured on the under side of said plate, and a yielding cushion secured on the upper side of said plate intermediate the sides of said strip, substantially as described.

3. A protector for horses' feet, comprising a plate A adapted to be secured between the shoe and hoof, a horseshoe-shaped strip B on the upper side of said plate terminating at the rear at the points *b* and provided with the tapered portions *b'*, a frog or support D secured to the under side of the plate A, and a yielding cushion C secured to the upper side of the plate, substantially as described.

643,247. NAPPING-MACHINE. DAVID GESSNER, Worcester, Mass. Filed Oct. 8, 1891. Serial No. 408,196. (No model.)



Claim.—1. In a cloth-napping machine, in combination, a series of napping-rollers, a series of devices for spreading the cloth and mechanism whereby said two series are moved around a common center, substantially as described.

2. In a cloth-napping machine, in combination, a series of napping-rollers, a series of stretching-rollers, mechanism whereby said two series are moved around a common center and mechanism whereby the individual rolls of said two series are driven upon their own axes, substantially as described.

3. In a cloth-napping machine, in combination, a series of napping-rollers, a series of devices for spreading the cloth, mechanism whereby said two series are moved around a common center; the members of the series of devices for spreading the cloth being distributed in the series of nappers, substantially as described.

4. In a cloth-napping machine, in combination, a series of napping-rollers, a series of pulleys connecting therewith, a belt whereby the same are driven, the head upon which said napping-rollers are journaled, the shaft, an arm centered upon said shaft and projections rigidly fixed to said arm in contact with which the ends of the belt are held, substantially as described.

5. In a cloth-napping machine, in combination, a series of napping-rollers, a series of pulleys connecting therewith, a belt whereby the same are driven, the head upon which said napping-rollers are journaled, the shaft, an arm centered upon said shaft, projections rigidly fixed to said arm around which the ends of the belt are drawn and means whereby the extremity of each end is adjustably held, substantially as described.

6. In a cloth-napping machine, in combination, a series of napping-rollers, a series of pulleys connecting therewith, a belt whereby the same are driven, the head upon which said napping-rollers are journaled, the shaft, an arm centered upon said shaft, two pins rigidly affixed to said arm and overhanging the pulleys in contact with which the ends of the belt are held, substantially as described.

7. In a cloth-napping machine, in combination, a series of napping-rollers, a series of pulleys connecting therewith, a belt whereby the same are driven, the head upon which said napping-rollers are journaled, the shaft, an arm centered upon said shaft, a projection rigidly affixed to said arm in contact with which the end of the belt is drawn, a T-piece to which the extremity of the belt is secured, a projection fixed to said arm with which said T-piece engages and means whereby the position of said T-piece on said last-named projection may be adjusted, substantially as described.

8. In a cloth-napping machine, in combination, a napping-roller, the heads upon which the same is journaled and a brush fixed upon said heads coöperating with the said roller, substantially as described.

9. In a cloth-napping machine, in combination, a napping-roller, the heads upon which the same is journaled and a brush located upon said heads at a greater distance from the center than the journal of the napping-roller, substantially as described.

10. In a cloth-napping machine, in combination, a series of napping-rollers, the heads carrying the same and a series of spreaders mounted upon the heads carrying the napping-rollers, substantially as described.

11. In a cloth-napping machine, in combination, a series of napping-rollers, the heads upon which they are journaled and a series of rotary stretchers also journaled upon said heads, substantially as described.

12. In a cloth-napping machine, in combination, a member over which the cloth passes and a spring which projects beyond the surface of said member whereby slackness in the listings is taken up, substantially as described.

13. In a cloth-napping machine, in combination, a roll over which the cloth passes and a spring which projects beyond the surface of said roll whereby slackness in the listings is taken up, substantially as described.

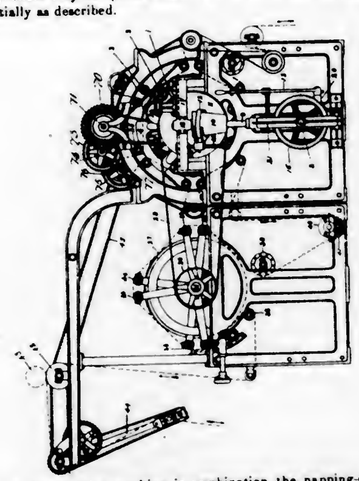
14. In a cloth-napping machine, in combination, a napping-roller, a spring and a support whereby the pressure of said spring is applied at the listing of the cloth being treated, substantially as described.

648,248. NAPPING-MACHINE. DAVID GESSNER, Worcester, Mass. Filed Dec. 11, 1894. Serial No. 531,444. (No model.)

Claim.—1. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a rotating member for driving the same, the cloth-feeding rollers, mechanism whereby said cylinder, feeding-rollers and rotating member are all driven forward; said mechanism being proportioned and arranged substantially as described, so that the speed of forward motion of said rotating member is intermediate the forward speed of the cloth and cylinder; the mechanism for driving said rotating member being provided with mechanism whereby the speed of said rotating member may be adjusted and separate mechanism whereby the forward movement of said rotating member may be arrested, substantially as described.

2. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, connections whereby the napping-rollers are driven; said connections containing two mechanisms whereby the motions of said napping-rollers are controlled, viz: mechanism whereby the speed of the napping-rollers may be adjusted for different degrees of napping and an independent mechanism whereby said nap-

ping-rollers may be speeded backward to arrest the napping, substantially as described.



3. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby the napping-rollers are driven upon their axes, connections whereby said member is driven by the rotation of the cylinder, means of adjustment in said connections whereby the speed of said member may be controlled and other means independent of said adjustment whereby the movement of said member in its normal direction may be arrested, substantially as described.

4. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby the napping-rollers are driven upon their axes, connections whereby said member is driven by the rotation of the cylinder, means of adjustment in said connections whereby the speed of said member may be controlled and other means independent of said adjustment whereby the movement of said member in its normal direction may be arrested and reversed, substantially as described.

5. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby the napping-rollers are driven upon their axes, connections whereby said member is driven by the rotation of the napping-cylinder; said connections containing a driving member and a driven member, and means whereby said driving and driven members may be disconnected from each other, and means whereby said driven member is arrested, substantially as described.

6. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby the napping-rollers are driven upon their axes, connections whereby said member is driven by the rotation of the napping-cylinder; said connections containing a driving member and a driven member and a clutch whereby the momentum of said driven member is arrested, substantially as described.

7. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby said napping-rollers are driven upon their axes, connections whereby said member is driven by the movement of the napping-cylinder; said connections containing mechanism whereby the degree of the napping action may be adjusted and independent mechanism whereby said napping operation may be arrested without substantially varying the said adjustment, substantially as described.

8. In a napping-machine, in combination, the napping-cylinder, the napping-rollers, a member whereby the napping-rollers are driven upon their axes, connections whereby said member is driven by the rotation of the napping-cylinder; said connections containing a driving member and a driven member, means whereby said driving and driven members may be disconnected from each other and mechanism whereby the degree of napping may be adjusted, substantially as described.

9. In a napping-machine, a cylinder having the napping-rollers and brushes arranged intermediate the same, substantially as described.

10. In a napping-machine in combination with the napping-cylinder, the following mechanism whereby the napping-rollers are controlled, viz: the disk 11, the conical roller 10, the belt 12, the shafts 8 and 9, the disconnecting mechanism interposed between the two and mechanism whereby the motion of said shaft 8 is communicated to said napping-rollers, substantially as described.

11. In a napping-machine in combination with the napping-cylinder, the following mechanism whereby the napping-rollers are controlled, viz: the disk 11, a rotating device cooperating with the same, means for shifting said rotating device to and from the center of said disk, the shaft 9 upon which said rotating device is mounted, the shaft 8, a disconnecting mechanism interposed between said shafts and mechanism whereby the motion of said shaft 8 is communicated to said napping-rollers, substantially as described.

12. In a napping-machine, in combination the napping-cylinder shaft, a disk 11 mounted thereon, a rotating device cooperating with said disk, means for moving said rotating device to and from the center of the disk, the shaft upon which said rotating device is mounted, a cap 18 secured to the outside of the frame by the removal of which the shaft bearing said rotating device may be removed independently of the other operative parts, substantially as described.

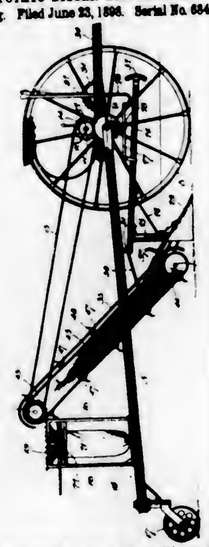
13. In a napping-machine, in combination, the shaft 9, means whereby motion is communicated to said shaft from the napping-cylinder shaft, the shaft 8, means whereby motion is communicated therefrom to the napping-rollers, the beveled gears 14 and 15, the clutch interposed between the same and the yoke 21 removably attached to the frame on which yoke 21 the outer bearings of the shaft 8 are mounted, substantially as described.

14. In a cloth-napping machine, in combination, the disk 11, the conical roller 10, the belt 12 interposed between the face of said disk and the periphery of said conical roller, the belt-supporter 23, the yoke 17 and the guide bar 22 depending from said yoke and upon which bar said belt-supporter 23 is longitudinally adjustable to support said belt in contact with any desired part of said conical roller, substantially as described.

15. In a napping-machine, a napping-machine cylinder, containing in combination, the napping-rolls, the brushes, and means whereby the relative position of said rolls and said brushes may be adjusted to nap and brush simultaneously or separately, substantially as described.

16. In a napping-machine, a napping-machine cylinder containing in combination, napping-rolls, radial guides, brush-lags mounted in said radial guides, and means whereby the same may be adjusted radially, substantially as described.

648,249. POTATO DIGGER AND SACKER. WALTER KRETZER, Baker City, Oreg. Filed June 23, 1898. Serial No. 684,837. (No model.)

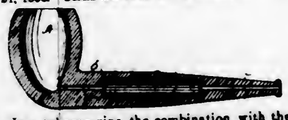


Claim.—1. A potato-harvester comprising a frame having supporting-wheels, a hopper mounted upon the frame, a conveyer adapted to discharge to the hopper, a rock-lever pivoted to the frame, a clevis-bar pivoted to the lever, a link pivoted to the clevis-bar and to the conveyer, a lister fixed to the clevis-bar and adapted to discharge to the conveyer, and means for rocking the lever to simultaneously adjust the lister and the conveyer.

2. A potato-harvester comprising a frame, a conveyer mounted upon the frame, a hopper adapted to receive from the conveyer, said conveyer comprising a plurality of slats separated by interspaces, a lister adapted to discharge to the conveyer and comprising bars passing between the slats of the conveyer, and conveyer-chains located below the slats, said chains having cross-slats fixed thereto provided with fingers arranged in pairs and adapted to project between and above the slats of the conveyer and upon opposite sides of the bars in their respective interspaces.

3. In a potato-harvester, a conveyer comprising a plurality of spaced slats, a lister adapted to discharge to the conveyer and comprising bars entering the spaces between the slats, and fingers projecting in pairs upwardly between and above the slats and adapted for movement longitudinally thereof upon opposite sides of the bars in their respective spaces between the slats.

643,250. TOBACCO-PIPE. ALLSTON C. LADD, Allegheny, Pa. Filed July 21, 1898. Serial No. 686,537. (No model.)



Claim.—1. In a tobacco-pipe, the combination, with the mouthpiece, and an absorbent-holding tube detachably connected at one end to the mouthpiece, of the stummel having a bore from the outer end and terminating in a contracted neck to hold the other end of the tube and leave a chamber between the stummel and the tube, as set forth.

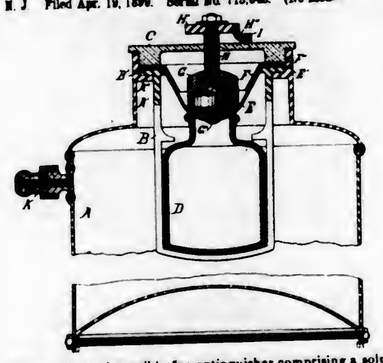
2. In a tobacco-pipe, the combination with the stummel having a smooth bore from its outer end and terminating in a contracted neck, of the mouthpiece having a like bore and neck, and an absorbent-holding tube the ends of which are held by the said necks, so as to couple the stummel and mouthpiece and leave an annular chamber around the tube, as set forth.

643,251. COMPOSITION OF MATTER FOR SEALING PURPOSES. GEORGE MCKAY, Smyrna, Del. Filed Sept. 7, 1899. Serial No. 729,762. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of sulfur, brick-dust, tin, lead, bismuth, plaster-of-paris and borax, in substantially the proportions described.

2. The herein-described composition of matter consisting of forty-five per cent. of sulfur, twenty-five per cent. of brick-dust, ten per cent. of foundry-sand, two per cent. of tin, two per cent. of lead, two per cent. of bismuth, four per cent. of plaster-of-paris, five per cent. of iron-filings, five per cent. of borax, substantially as and for the purpose set forth.

643,252. FIRE-EXTINGUISHER. MARCELLA R. OGDEN, Newark, N. J. Filed Apr. 19, 1899. Serial No. 713,643. (No model.)

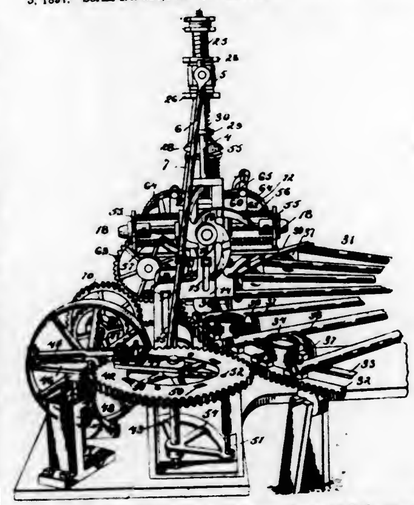


Claim.—1. An invertible fire-extinguisher comprising a solution vessel, an acid-receiver suitably supported in a vertical position within the solution vessel, a funnel-shaped yielding diaphragm arranged within the solution vessel with its apex normally in close proximity to the mouth of the acid-receiver, means for retaining said diaphragm in position within the solution vessel, and a weight situated wholly within and fixed to the diaphragm at the apex thereof, the said weight being capable under normal conditions of seating the apex of the diaphragm upon the mouth of the acid-receiver to close and seal the same, and of unseating the apex of said diaphragm from the mouth of the acid-receiver upon the extinguisher being inverted or upset, as herein specified.

2. In an invertible fire-extinguisher, the combination of a solution vessel, a funnel-shaped diaphragm of yielding material within the solution vessel, a cap for the solution vessel, the said cap being provided with a catch, as l, and a central orifice, and adapted to hold said diaphragm in place within the solution vessel, a weight situated wholly within the diaphragm and secured to the apex thereof, a rod rigidly secured to and projecting upward from said weight through the central orifice of the cap, and a button rotatably mounted on the outer end of said rod, the said button having a member adapted to engage said catch upon said button being suitably rotated, substantially as herein specified.

3. In an invertible fire-extinguisher, the combination of a solution vessel having a neck provided with an interior annular ledge, a funnel-shaped yielding diaphragm having a flange at its upper edge adapted to engage said ledge, a detached guard let into said diaphragm and having an annular flange adapted to engage the flange of the diaphragm, the said guard being suitably shaped to admit of inward and outward folding of the apex portion of the diaphragm and outward folding only of the upper portion of said diaphragm, a weight situated wholly within and fixed to the apex of the diaphragm, and means for retaining said diaphragm and said guard relatively in place within the solution vessel, substantially as herein specified.

643,253. MACHINE FOR MANUFACTURING GLASSWARE. FRANK O'NEILL, Cicero, Ind., assignor, by mesne assignments, to Christian Arduser, same place, and Marion O'Neill, Upland, Ind. Filed Oct. 5, 1897. Serial No. 654,149. (No model.)



Claim.—1. In a machine for the manufacture of glassware, a mold, a movable mold-carrier, a movable cut-off mechanism above the carrier, a plunger, means for moving the plunger and cut-off mechanism, and means for alternately moving the carrier with the movement of the cut-off mechanism and plunger.

2. In a machine for the manufacture of glassware, a mold, a movable mold-carrier, a movable cut-off mechanism above the carrier, a plunger, and means for intermittently moving the carrier, and simultaneously actuating the cut-off mechanism and plunger, the movement of the carrier alternating with that of the cut-off and plunger.

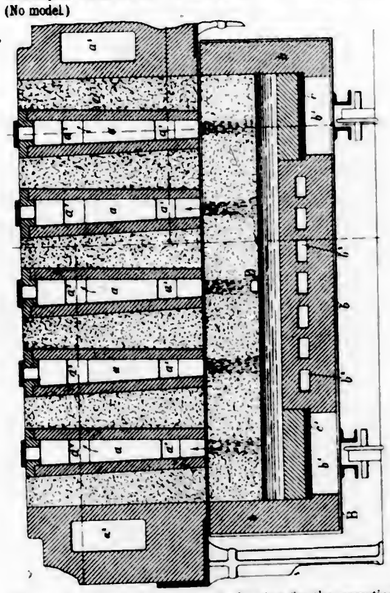
3. In a machine for the manufacture of glassware, a mold, a movable mold-carrier, a movable cut-off mechanism above the carrier, a plunger, a power-shaft operatively connected to the carrier and to the cut-off mechanism and to the plunger, whereby the carrier will be intermittently moved alternately with the cut-off mechanism and plunger.

4. In a machine for the manufacture of glassware, a mold, a movable mold-carrier, a movable cut-off mechanism above the carrier, a plunger, actuating mechanism common to the carrier the cut-off and the plunger, the movement of the carrier alternating with the movement of the cut-off and plunger, and a lock for holding the carrier fixed when the cut-off and plunger are operating.

5. In a machine for the manufacture of glassware, a mold, a movable mold carrier, movable means for separating a quantity of molten glass from the supply thereof, a plunger, and means for al-

ternating the movement of the carrier with that of the separating means and plunger.

643,254. ELECTRIC FURNACE. ALBERT J. PETERSSON, Notre Dame de Briançon, France, assignor to the Société des Carbures Métalliques, Paris, France. Filed Apr. 5, 1898. Serial No. 676,530. (No model.)



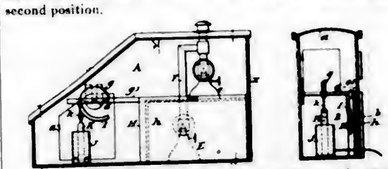
Claim.—1. In an electric oven, a chamber for the reception of the material to be reduced, an oven arranged below said chamber and having a flat hearth adapted to receive the reduced material, and two electrodes arranged in and having their upper surfaces level with the hearth of said oven, the upper flat surfaces of said electrodes adapted to be covered by and in contact with the reduced material and out of contact with the unreduced material, all arranged so that the reduced material on and between the electrodes is heated by the resistance it opposes to the passage of the current between the electrodes, the circuit of which is completed by said reduced material and the unreduced material is heated and reduced by contact solely with the heated reduced material, substantially as and for the purposes described.

2. In an electric oven, two superposed chambers of which the lowermost is movable and the uppermost fixed, said fixed chamber adapted to receive and feed the material to be reduced and said movable chamber having a hearth adapted to receive the reduced material, in combination with two electrodes of relatively large area and arranged in substantially a flat or horizontal position in said hearth, the upper surfaces of the electrodes being level with said hearth, substantially as and for the purposes described.

3. In an electric furnace, two chambers arranged as described, the upper chamber being adapted to receive and feed the material to be reduced and the lower chamber having a hearth adapted to receive the reduced material, two electrodes of relatively large area and arranged horizontally in the hearth of the lower chamber, flues traversing the upper chamber and adapted to receive and burn the gases arising from the other chamber, said flues leading vertically from the lower portion of the upper chamber and opening directly into the lower chamber, and auxiliary air-flues adapted to conduct air into the gas-flues at or near their lower end, substantially as and for the purposes described.

643,255. ELECTRICALLY-OPERATED DAY AND NIGHT SIGNAL FOR RAILWAYS. JOHN J. SAVILLE and JAMES H. WINSPEAR, Omaha, Nebr., assignors to the Standard Railway Signal and Switch Company, same place. Filed Aug. 13, 1898. Serial No. 688,542. (No model.)

Claim.—1. The combination with a colored light in a field of like color, of a light of a different color located above that field, a shutter corresponding in color to the second light and normally hiding the first light and its field, electric devices for moving the shutter to position for hiding the second light and exposing the first light and its field, and devices for substantially hiding the shutter while in its second position.

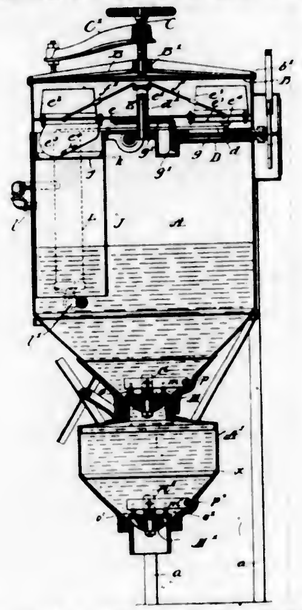


2. The combination with a wall having a large and a small opening, of a fixed target or surface behind the larger opening, a shutter of different color mounted behind the wall to swing alternately over each opening, and two lights arranged to project through the openings, respectively, light-beams corresponding in color to the colors of said surface and said shutter, respectively.

3. In signaling apparatus, the combination with a fixed wall having a large and a small signal-opening, of a colored target or surface behind the larger opening, a like-colored light visible through the same opening, a light not of that color projected through the smaller opening, a shaft having a rigid arm, a shutter corresponding in color to the second light mounted upon said arm behind the wall and normally closing the larger opening, an electromagnet arranged to actuate the shaft and swing the shutter from the larger opening and behind the smaller one, and a normally-open electric circuit arranged to energize said magnet when closed.

4. The combination with the box having within it the smaller closed chamber with one colored side wall, a shutter arranged to swing between that wall and the corresponding side of the box, a like-colored lens in that side of the chamber, a window in the corresponding side of the box, an uncolored lens in the side of the box alongside said window, the rock-shaft having the rigid arm pivoted to the shutter, the pulley upon the shaft, a battery-circuit provided with make-and-break devices and a solenoid-coil, a cord connecting the pulley to the solenoid-core, and devices offering gradually-increasing resistance as the shaft rocks from normal position.

648,256. ACETYLENE-GAS GENERATOR. GEORGE F. SIMPSON, New York, N. Y., assignor to the Solar Gas and Machine Company, of Virginia. Filed Feb. 7, 1899. Serial No. 704,704. (No model.)



Claim.—1. In an acetylene-gas apparatus the combination of a cylinder, a removable lid therefor, an inner dividing-plate formed with an opening, a chute leading from said opening to below the water-line in the generating-chamber, a shutter hinged and weighted to swing within the chute and close the same, a hood or cover attached to the chute, said shutter and weight being entirely inclosed within the chute and hood, a circular carbid-holder provided with segmental pockets having swinging bottoms and arranged within said cylinder and above said dividing-plate and means for rotating said carbid-holder substantially as and for the purposes set forth.

2. In an acetylene-gas apparatus the combination of a cylinder, a removable lid therefor, an inner dividing-plate formed with an opening, a chute leading from said opening to below the water-line in the generating-chamber, a shutter hinged and weighted to swing within said chute and close the same, a separator provided with an escape-pipe, a pipe leading to the generating-chamber below the water-line and a pipe leading from the chute above the water-line therein, a circular carbid-holder provided with segmental pockets and swinging bottom and arranged within said cylinder and above said dividing-plate and means for rotating said carbid-holder substantially as and for the purposes set forth.

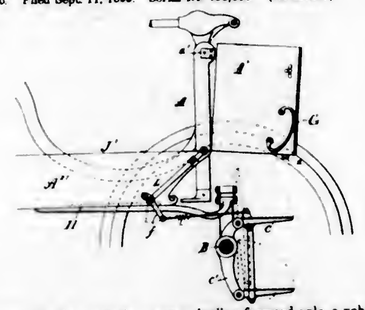
3. In an acetylene-gas apparatus the combination of a cylinder, a removable lid therefor, a circular clamp formed with a rim and radiating ribs, a screw adapted to raise and lower said clamp and permit the removal of said lid, an inner dividing-plate provided with an opening, a chute leading from said opening to below the water-line in the generating-chamber, an inner sleeve or lining arranged within the upper end of said chute, a shutter hinged within the same and adapted to bear against the lower edges of said lining, a circular carbid-holder provided with segmental pockets having swinging bottoms and arranged within said cylinder and above said dividing-plate and means for rotating said carbid-holder substantially as and for the purposes set forth.

4. In an acetylene-gas apparatus the combination of a generating-cylinder, a lower refuse-receptacle with drainage-outlet, said cylinder being formed with a conical base and opening leading to said receptacle, a valve adapted to close said opening, means for raising said valve and preventing the removal of the operating-handle until lowered and a similarly-operated valve arranged to close the drainage-outlet of the refuse-receptacle substantially as described.

5. In an acetylene-gas apparatus the combination of a generating-cylinder, a lower refuse-receptacle with drainage-outlet, said cylinder being formed with a conical base and opening leading to said receptacle, a shaft extending within said cylinder, a valve mounted on said shaft and adapted to close said opening, the outer end of said shaft being surrounded with a sleeve having a circular recess and opening thereto substantially as and for the purpose set forth.

6. In an acetylene-gas apparatus the combination of a generating-cylinder provided with a lower opening, a valve adapted to close said opening, a shaft extending within said cylinder, a lever-arm mounted on the inner end of said shaft, a bolt and adjusting-screws connecting said valve with said arm, and a sleeve surrounding the outer end of said shaft formed with a circular recess and opening thereto substantially as and for the purpose set forth.

643,257. MOTOR-CARRIAGE. ELMER A. SPERRY, Cleveland, Ohio. Filed Sept. 11, 1899. Serial No. 730,118. (No model.)



Claim.—1. In a vehicle, a non-swiveling forward axle, a vehicle-step on such axle, a body for such vehicle, and a swinging door or gate in the front panel or body part near the step.

2. In a carriage, a swinging dasher for the carriage, folding steps for the carriage, and a connection between the dasher and the steps for folding the same when the dasher is in a predetermined position.

3. In a carriage, folding steps for the carriage, mounted upon the running-gear or axle, an actuating device for actuating the step or steps mounted upon the body, and resilient connection from the actuator to the steps.

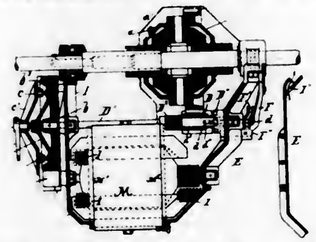
4. In a vehicle, a non-swiveling forward axle, a body for the vehicle, a vehicle-step connected with such axle, protruding forwardly and located forward of the body proper of the vehicle.

5. In a vehicle, a vehicle step or steps protruding forwardly from the vehicle, a swinging forward panel or body part and a grasping-handle upon the inside of the said part, adapted to swing out to the side of the steps.

6. In a vehicle, folding steps for the vehicle, a moving panel for the vehicle-body, an actuating device extending to the panel for operating the step or steps and a resilient connection from the actuator to the step.

7. In a carriage, a body and running-gear, folding steps for the carriage, mounted upon the gear, an actuating device for operating the step or steps extending to the body and a swiveling connection from the actuator to the step.

643,258. MOTOR-VEHICLE. ELMER A. SPERRY, Cleveland, Ohio. Original application filed Aug. 25, 1898, Serial No. 689,462. Divided and this application filed Oct. 30, 1899. Serial No. 735,167. (No model.)



Claim.—1. In a motor-gearing for vehicles, a vehicle-body, a running-gear including an axle, vehicle-springs between the running-gear and body, a change-gear mechanism mounted on one side of the said springs, an operating means extending from the body to the mechanism, a locking device for locking the mechanism in a predetermined position, located on the other side of springs a lost-motion-operating connection extending between the lock, upon one side of the springs and the mechanism upon the other side of the springs and means for holding the lock in engagement.

2. In a vehicle, a vehicle-body, a running-gear for the vehicle, including an axle, springs between the running-gear and the body, a change-gear mechanism connected with the axle, an operating means extending from the body to the mechanism, a locking device for locking the mechanism in a predetermined position, located upon the mechanism, upon one side of the springs, a lost-motion-operating connection between the means and the lock, means for holding the lock in engagement, located upon the other side of the springs and a compressible resilient member in said operating means.

3. In a vehicle-motor gearing and gear-operating mechanism, mounted on an axle, a motor-car body, springs between the motor-car body and the axle, operating means located in the car-body, an operating connection extending from the means to the gear-changing mechanism, a lock for the gearing on the axle, and a resilient or compressible member in such connection.

4. In a motor-gearing, a change-gear for increasing the power of the motor over the load, a load-limiting power cut-off for the motor, operating means extending to the mechanism for manipulating the change-gear and a device for operating the cut-off, reëstablishing the power connection to the motor when thus throwing the gear into operation, the device operated by the means.

5. In a vehicle-motor gearing and gear-operating mechanism, mounted on an axle, a motor-car body, springs between the motor-car body and the axle, operating means located in the car-body, an operating connection extending from the means to the gear-changing mechanism, a lock for the gearing on the axle, a resilient or compressible member in such connection and a lock for the means located in the car-body whereby the said means is retained in its various positions.

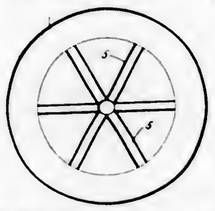
6. In a motor-gearing, a rotating axle, a circular journal-case for such axle, a power-gearing, a recessed journal-frame therefor, a journal-case provided with two machined angular recesses, for receiving the journal-frame, and clamping-bolts near the recesses, substantially for the purpose specified.

7. In a motor-gearing for vehicles, an electric motor, bearings for the armature-shaft of such motor, in combination with a casing for the ends of the motors, supporting such bearings, provided with ventilating-passages, low on the motor-casing on one end of the armature-shaft and high on the casing upon the opposite end.

8. In a motor-gearing for vehicles, an electric motor, bearings

for the armature-shaft of such motor, a casing for the ends of the motor, supporting such bearings, provided with ventilating-passages low on the motor-casing on one end of the armature-shaft and high on the casing upon the opposite end, in combination with a hood, as 1", for the passage of the last-named end.

643,259. GAS-BURNING APPARATUS. STEPHEN W. STOTT, Buffalo, N. Y., assignor to himself and Philip Gerst, same place. Filed June 21, 1892. Serial No. 721,288. (No model.)



Claim.—1. An improved apparatus for burning gas, comprising a burner having a gas orifice or orifices and a water vessel mounted upon said burner and adapted to be heated by the flame thereof to generate steam, and having a steam-chamber provided with an opening or openings through which the steam passes to mingle with the gas as it issues from the orifice or orifices and means for maintaining the water in said vessel at substantially the same level.

2. An improved apparatus for burning gas, comprising a circular burner having a plurality of gas-orifices and a circular water vessel mounted upon said burner and having a circular interior partition concentric with the circular side wall thereof and forming a water-tank, the space between the circular partition and the side wall forming an annular steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber that register with the gas-orifices in the burner and serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

3. An apparatus for burning gas, comprising a circular burner device connected to a gas-pipe at its center and having a series of gas-conducting passages radiating from said center, and a series of notches in its surrounding top edge forming gas-orifices, a circular water vessel mounted upon said burner and having a circular interior partition concentric with the circular side wall thereof and forming a water-tank, the space between the circular partition and the side wall forming an annular steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber that register with the gas-orifices in the burner and serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

4. An improved apparatus for burning gas, comprising a circular burner device connected to a gas-pipe at its center and having a series of gas-conducting passages radiating from said center, a curved top over said passages, and a series of notches in its surrounding top edge forming gas-orifices, a circular water vessel mounted upon said burner and having a circular interior partition concentric with the circular side wall thereof and forming a water-tank, the space between the circular partition and the side wall forming an annular steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber that register with the gas-orifices in the burner and serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

5. An improved apparatus for burning gas, comprising a burner having gas-orifices and a water vessel mounted upon said burner and having a partition forming a water-tank, the space between the partition and the wall of the water vessel forming a steam-chamber; said water vessel having a series of openings at the bottom of said steam-chamber which serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

6. An apparatus for burning gas, comprising a burner device connected to a gas-pipe and having a series of gas-radiating conducting-passages, and a series of notches in its surrounding top edge forming gas-orifices, a water vessel mounted upon said burner and having a curved partition forming the side walls of a water-tank, the space between the partition and the side of the water vessel forming a steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber which serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

7. An improved apparatus for burning gas, comprising a burner device connected to a gas-pipe and having a series of gas-conducting passages, a top over said passages, and a series of notches in its surrounding top edge forming gas-orifices, a water vessel mounted upon said burner and having an interior partition forming a water-tank, the space between the partition and the side wall forming a steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber that register with the gas-orifices in the burner and serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, as set forth.

8. An improved apparatus for burning gas, comprising a burner having a gas orifice or orifices and a water vessel mounted upon said burner and adapted to be heated by the flame thereof to generate steam and having a steam-chamber provided with an opening or openings through which the steam passes to mingle with the gas as it issues from the orifice or orifices.

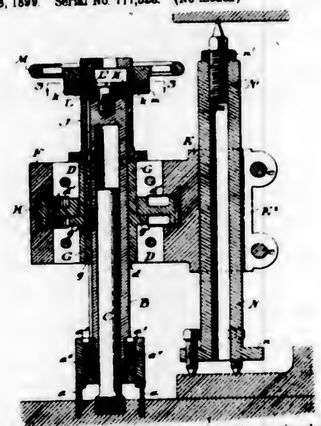
9. An improved apparatus for burning gas, comprising a burner having a gas orifice or orifices, a water vessel mounted in proximity to said burner and adapted to be heated by the flame thereof to generate steam, and divided by a partition into a water-tank and a steam-chamber having an opening or openings through which the steam passes to mingle with the gas as it issues from the orifice or orifices and means for maintaining the water at substantially the same level in said water vessel during the burning of the gas.

10. An improved apparatus for burning gas, comprising a burner having a gas orifice or orifices, a water vessel mounted in proximity to said burner and adapted to be heated by the flame thereof to generate steam and divided by an interior partition into an inner water-tank and an outer steam-chamber having an opening or openings through which the steam passes to mingle with the gas as it issues from the orifice or orifices and means for maintaining the water at substantially the same level in said water vessel during the burning of the gas.

11. An improved apparatus for burning gas, in which steam is generated and mingles with the flame by the heat thereof, comprising a water vessel having a water-tank and a steam-chamber provided with openings, a gas-burning device arranged in proximity to said water vessel and adapted to heat the water in said vessel, to generate steam which passes through the openings to mingle with the gas as it issues from the gas-burning device.

12. An improved apparatus for burning gas, comprising a burner having gas-orifices, a water vessel mounted upon said burner and having a partition forming an interior water-tank, the space between the partition and the side wall forming a steam-chamber, said water vessel having a series of openings at the bottom of said steam-chamber which serve as passages to conduct and mingle the steam with the gas as it issues from the gas-orifices, and means for maintaining substantially the same level of water in the water vessel.

643,260. BORING INSTRUMENT. JOSEPH J. TYRAN, Philadelphia, Pa., assignor of one-half to Edwin S. Cramp, same place. Filed May 18, 1899. Serial No. 717,328. (No model.)



Claim.—1. In a boring apparatus for cutting a circular hole or recess in a solid body, a cutter head mounted on a shaft and formed with a series of recesses in parallelism with its axis, each of which recesses has an inwardly extending or overhanging lip, parallel tapped openings formed in said head and opening through the end of the same, and also opening laterally into said recesses, screws mounted in said tapped openings, cutter blades mounted in said recesses and controlled by said screws, and holding blocks mounted in said recesses and extending in parallelism with the cutter blades and provided each as to its inner edge with an overhanging lip which overlies the adjacent edge of a cutter blade to secure it in position, the outer edges of the several cutter blades extending beneath the overhanging lips of the recesses, substantially as set forth.

2. In a boring tool, in combination, a main frame, a cutter shaft provided with a cutter head, means for occasioning the rotation of the cutter shaft, a fixed externally threaded cage or shell connected with or forming part of the main frame and inclosing the outer portion of the cutter shaft, a manually rotated device mounted upon and in threaded engagement with said cage or shell and adapted to be advanced along the same, and a connection between said manually rotated device and the cutter shaft through which the advance movement of the manually rotated device is communicated to the cutter shaft, substantially as set forth.

3. In a boring tool, in combination, a main frame, a cutter shaft provided with a cutter head, means for occasioning the rotation of the cutter shaft, a fixed externally threaded cage or shell connected with or forming part of the main frame and inclosing the outer portion of the cutter shaft, a manually rotated device mounted upon and in threaded engagement with said cage or shell and adapted to be advanced along the same, a swivel connection between said manually rotated device and the cutter shaft through which the advance movement of the manually rotated device is communicated to the cutter shaft, and balls disposed between the rotating and non-rotating parts of said swivel connection, substantially as set forth.

4. A main frame, a cutter shaft mounted in said frame, means for occasioning the rotation of said shaft, a threaded cage, embodying a longitudinal slot, secured to said main frame and inclosing the rear end of said shaft, a follower on the end of the shaft and having an arm projecting through the slot of the cage, a hand wheel in threaded engagement with the cage and embodying a channel or recess in which the arm of the follower is entered, substantially as set forth.

5. A main frame, a cutter shaft mounted in said frame, means for occasioning the rotation of said shaft, a threaded cage, embodying longitudinal slots, secured to said main frame and inclosing the rear end of said shaft, a follower mounted on the end of the shaft and swiveled to the same and having arms which project through the slots of the cage, a hand wheel in threaded engagement with the cage, and embodying a channel or recess in which the arms of the follower are entered, substantially as set forth.

6. A main frame, a cutter shaft mounted on said frame, means for occasioning the rotation of said shaft, a threaded cage, embodying longitudinal slots, secured to said main frame and inclosing the rear end of said shaft, a follower mounted in the end of the shaft, and connected thereto by a screw or pivot passing centrally through the follower and into the end of the shaft, balls disposed between the follower and shaft end, arms connected to the follower which project through the slots of the cage, and a hand wheel in threaded engagement with the cage and embodying a channel or recess in which the arms of the follower are entered, substantially as set forth.

7. A cutter head for cutting a circular hole or recess in a solid body, formed with a lateral recess in parallelism with its axis, a cutter blade of breadth inferior to that of the recess, mounted in said recess, a holding block mounted in said recess in parallelism with the blade and overlying the lateral edge of said blade, means for securing said block in said recess, and a screw mounted in a tapped opening in said head and adapted to bear against the end portion of the cutter blade to adjust the set of the latter, substantially as set forth.

643,261. SAFETY-PIN. GEORGE BODEN, Watertown, Conn., assignor to the Oakville Company, Waterbury, Conn. Filed Feb. 21, 1898. Serial No. 670,996. (No model.)



Claim.—In a safety-pin formed of wire, a guard secured to the guard end of the wire, said guard having sides *e* and *f* with their edges out of line transversely, and side *e* extending below side *f* and sides *e* and *d* bent inward out of the planes of sides *e* and *f*, the edges of the sides *d* and *f* being substantially in line transversely, substantially as described.

643,262. SAFETY-PIN. GEORGE BODEN, Watertown, Conn., assignor to the Oakville Company, Waterbury, Conn. Filed Mar. 25, 1898. Serial No. 675,061. (No model.)



Claim.—1. A coil-guard for a safety-pin having a crown, a hole in the crown for the pointed leg of the pin, and a lateral passage connecting with said hole and thereby forming two lips on one side of said guard, substantially as described.

2. A safety-pin having a coiled portion, a guard applied to said coiled portion, and having a lip embracing the pointed leg of the pin, and a second lip embracing the coil inside the pointed leg, substantially as described.

643,263. WHEELED SCRAPER. WALTER C. BRADFORD, Arbuckle, Cal. Filed May 11, 1899. Serial No. 716,346. (No model.)



Claim.—1. A scraper comprising a two-part pan, a framework mounted upon wheels, a shaft extending from the side between the wheels having crank-arms and links, the upper ends of which connect with said crank-arms, bars extending across the meeting ends of the pan-sections, to which the lower ends of the links are centrally connected, yoke-shaped bars extending across the bottom of the pan-sections with their ends upturned and connected with the suspending-bars, substantially as described.

2. A scraper comprising a two-part pan, bars upon which the ends of the pan-sections are suspended and links connected with crank-arms upon a shaft journaled in the framework of a machine whereby the sections may be raised or depressed with relation thereto.

3. In a wheeled scraper, the two-part-pan sections with supporting-yokes beneath, bars extending across the meeting ends of the sections, to which bars the yokes are connected, and a link connecting one of the yokes above its center of motion with the other below said center, whereby the pans are opened or closed with relation to each other.

4. In a wheeled scraper, the two-part pans meeting centrally and having supporting-yokes beneath each and transverse bars across the meeting ends of the pan-sections to which the yokes are connected, diagonal links connecting one of the yokes above the center of oscillation, with the other below said center, a latch mechanism by which the rear ends of the bars are engaged when the sections are closed and a shaft having crank-arms and links connecting said arms with the transverse bars whereby the pan-sections may be raised or depressed by the turning of the shaft.

5. In a wheeled scraper, the sectional pan with supporting-framework and suspending-links as shown, a turnable shaft having crank-arms to which the upper ends of the suspending-links are connected, a lever and a fulcrum-shaft about which it is turnable, a chain having the ends connecting with said lever at points above and below the fulcrum, a pulley upon the crank-shaft about which the chain passes whereby the movement of the lever serves to turn the shaft and depress the pans.

6. In a wheeled scraper, the two-part sectional pans with connecting and suspending arms, a shaft having cranks to which the upper ends of the suspended arms are connected, a lever and intermediate chain connection whereby the shaft is turned to depress the pans without separation, rocker-arms fixed to the lever fulcrum-shaft and links connecting said arms with the front section of the scraper whereby the latter may be depressed for loading.

7. In a wheeled scraper, the two-part sectional pan, a supporting-framework, suspending-links and a shaft with rocker-arms to which the upper ends of the links are connected whereby the two parts of the scraper may be suspended above the ground or lowered with relation thereto, mechanism by which the pan may be tilted with the front edge engaging the ground so as to automatically load itself, a mechanism for raising the loaded scraper consisting of sprocket-wheels driven by the bearing-wheels of the machine, other sprockets and intermediate chain by which they are rotated, disks secured to the rocker-shafts turnable with relation to the sprockets, and pawl-and-ratchet mechanism whereby the two may be connected so that the rocker-shaft will be turned by power derived from the main bearing-wheels, and the crank and rocker arms turned to raise the pan and its load.

8. A mechanism for connecting and disconnecting the driving-sprocket and the driven disk consisting of ratchet-teeth formed in the interior of the sprocket-rim, disks fixed upon the shaft which carries the rocker-arms, by which the pan is raised and lowered, pawls carried by said disks and mechanism by which said pawls are thrown into engagement with the ratchet-teeth whereby the shaft is turned and the load is raised and mechanism by which the pawls are disengaged from the ratchet-teeth when the load has been raised.

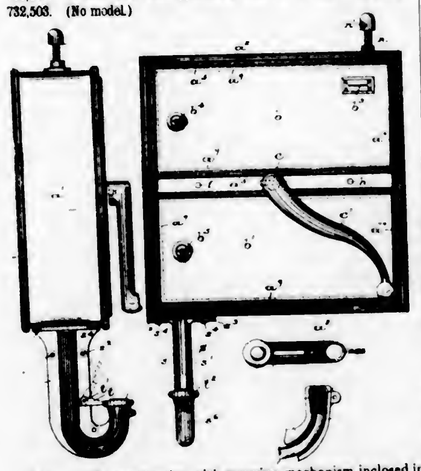
9. The continuously-turning sprocket-rim having interior ratchet-teeth, disks fixed upon the shaft which carries the rocker-arms by which the pan is raised or lowered, a pawl mounted upon a shaft, said shaft having an end movement, a pin projecting from the side of the pawl and a hole in the side of the disk or casing with which the pin engages to hold the pawl normally out of engagement with the ratchet.

10. Continuously-turning sprocket and ratchet rims, the interior disks or flanges about which they are turnable, said disks being fixed to the rocker-shaft by which the pan is raised or depressed, a pawl mounted upon a shaft which has an end movement, a spring by which said pawl is thrown into engagement with the ratchet-teeth on the interior of the rim, a pin upon the side of the pawl, a hole in the disk with which said pin engages when the pawl is out of engagement with the ratchet, a latch having a beveled end and an arm connecting it with the pawl fulcrum-shaft and a contact-pin movable by a hand-lever, said contact-pin striking the latch when turned and disengaging the pawl-holding pin whereby the pawl is released and thrown into contact with the ratchet.

11. In a wheeled scraper, the continuously-turning sprocket-rims having interior ratchet-teeth, interior disks fixed upon the rocker-arm shaft by which the pan is raised or depressed, a pawl carried by the disk, a pin by which it is normally held out of contact with the ratchet-teeth of the rim, a disengaging-latch and a contact-pin by which the pawl is released and a spring by which it is thrown into contact with the ratchet, a swinging arm depending from the pawl-shaft, a stop against which said arm contacts after the shaft has been revolved and the rocker-arms turned to a position above it, and a pin carried by the swinging arm and engaging the pawl so as to automatically throw it out of engagement with the ratchet and stop the shaft while the ratchet continues to revolve.

12. In a wheeled scraper, a two-part pan with rocker-arms suspending-links, transverse bars extending across the ends of the pan-sections, and by which said sections are supported, latches by which the rear ends of said arms are supported when the pan is closed, a foot-lever, intermediate links and bent levers connected with each other and with the foot-lever whereby the supporting-bars of the pans are disengaged and the pans allowed to tilt and discharge the load.

643,264. AIR-PUMP FOR TIRE INFLATION. CLEMENT C. CLAWSON, Newark, N. J. Original application filed Mar. 31, 1899, Serial No. 711,193. Divided and this application filed Oct. 4, 1899. Serial No. 732,503. (No model.)



Claim.—1. In combination with pumping mechanism inclosed in a casing, a rigid wheel-support on the outer side of said casing, said support having a gooseneck and an opening therein, and a pipe connecting the pump mechanism with said wheel-support, substantially as and for the purposes set forth.

2. In combination with pumping mechanism inclosed in a casing, a rigid wheel-support on the outer side of said casing, consisting, essentially, of a pair of grooved plates s and s', means for securing them together, a gooseneck s^2, and a pipe p^3 arranged between said grooved plates, substantially as and for the purposes set forth.

3. In an air-pump-operating mechanism, the combination, with a casing and its mechanism therein, of a wheel-support on the outer side of said casing, having a gooseneck provided with an air-inlet, and a cap removably arranged over said outlet, substantially as and for the purposes set forth.

4. In combination with pumping mechanism inclosed in a casing, a rigid wheel-support on the outer side of said casing, comprising a pair of grooved sections, a tube connected with the pump mechanism and arranged in said grooved sections, and means for securing said sections together, substantially as and for the purposes set forth.

5. In combination with pumping mechanism inclosed in a casing, a rigid wheel-support comprising a pair of separable sections on the outer side of said casing, said support having a gooseneck and an opening therein, and means connected with said support and pumping mechanism for conveying air from said pumping mechanism into and through said support to the tire of a wheel on said support, substantially as and for the purposes set forth.

643,265. SOLUTION OF PHTHALEIN IN PHENOL. CHARLES R. GASSMANN, Mulhouse, Germany, assignor to La Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Filed Dec. 24, 1897. Serial No. 663,408. (No specimens.)

Claim.—1. As a new product for use in printing or dyeing fabrics, a phtalein dissolved in a volatile phenol.

2. As a new product for use in printing or dyeing fabrics, a phtalein dissolved in cresylic acid.

3. As a new product for use in printing or dyeing fabrics, a rhodamin dissolved in a volatile phenol.

4. As a new product for use in printing or dyeing fabrics a dialkyl rhodamin dissolved in a volatile phenol.

5. As a new product for use in printing or dyeing fabrics a rhodamin dissolved in cresylic acid.

6. As a new product for use in printing or dyeing fabrics, a dialkyl rhodamin dissolved in cresylic acid.

643,266. DISPLAY-HOLDER FOR HATS. SARAH R. GRIGGS, Woodland, Cal. Filed July 14, 1899. Serial No. 723,861. (No model.)



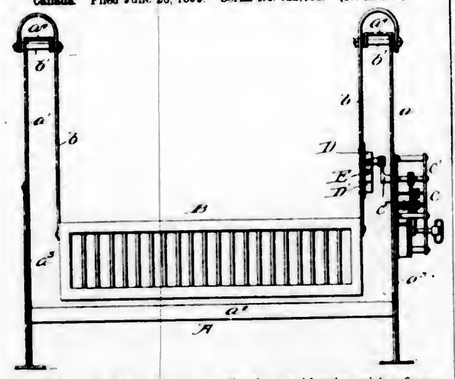
Claim.—1. A hat holding and display device consisting of arms having their lower ends provided with a vertical socket, and curving outwardly and upwardly therefrom, with transverse concavo-convex spreaders formed upon the upper ends, said arms having the open finger-loops intermediate between the top and bottom.

2. A hat holding and display device consisting of segmentally-curved arms united at the base and provided with a vertical socket-piece said arms having transversely-curved concavo-convex spreaders upon the upper ends, and elastic coils and finger-loops formed in the arms intermediate between the upper and lower ends thereof.

3. A hat holding and display device consisting of segmentally-curved arms uniting and forming a vertical socket-piece at their junction, transverse spreaders and supports formed at the upper end, and elastic coils formed by turns of the wire at their meeting-points and above their junction with the socket-piece.

4. A hat holding and display device consisting of segmentally-curved wires having transversely-curved concavo-convex spreaders and holders at the upper end, finger-loops formed by giving the wires a single turn intermediate between the upper and lower ends, one or more coils formed at the lower ends of the wires and axially in line with each other, said wires being continued downwardly from the coils and provided with a vertical socket-piece.

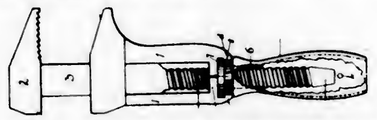
643,267. SWINGING CRADLE. JOHN F. GRIMMETT, Boissevain, Canada. Filed June 28, 1899. Serial No. 722,168. (No model.)



Claim.—1. In a swinging cradle, the combination with a frame, of a cradle pivoted to swing in said frame, a clock mechanism mounted on said frame, a crank-lever fixed on the end of the main spindle of said clock mechanism, a plate fixed upon said frame and segments adjustably secured to said plate and adapted to be engaged by said lever, whereby the cradle is operated, substantially as described.

2. In a swinging cradle, the combination with a frame, of a cradle pivoted to swing in said frame, a clock mechanism mounted on said frame a crank-lever fixed on said frame, a plate secured to said frame, and horizontally-arranged segments adjustably mounted upon said plate, each of said segments having a hook end adapted to be engaged by said crank-lever, and a plane working surface terminating in a curve upon which the end of the said lever is adapted to travel, substantially as described.

643,268. WRENCH. JOHN HALLNER, Mead, Nebr. Filed Apr. 11, 1899. Serial No. 712,598. (No model.)

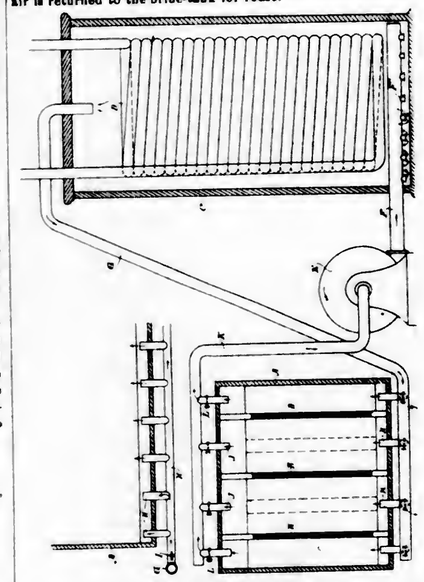


Claim.—In a wrench the combination of the following instrumentalities, to wit, an approximately T-shaped member, the stem of which is threaded approximately half its length, the remaining portion being square, the head of said stem projecting farther outward upon one side to form a clamping-jaw, a hollow open-ended handle threading upon said stem, said handle being provided with capstan-pin openings and a grooved neck, a sliding jaw working upon the square portion of said T-shaped member, said jaw being provided with projecting ears, said ears being adapted to work into the grooved collar of said handle so that said ears are locked within said collar while said handle is upon said T-shaped member, and a spring held by said sliding jaw to bind upon said handle, all arranged substantially as and for the purpose set forth.

643,269. PLATE-ICE MACHINE. JOHN C. KITTON, San Francisco, Cal., assignor of one-half to C. C. Hutchinson, Oakland, Cal. Filed Apr. 6, 1899. Serial No. 711,962. (No model.)

Claim.—1. The combination of a tank adapted to contain fresh water and having freezing-plates extending transversely across it, a brine-tank having a coil through which is circulated a refrigerating fluid, a rotary blower or pump between the fresh-water and brine tanks, having a discharge-pipe entering the brine-tank and discharging downwardly therein whereby the air is permitted to rise through the brine, an air-conducting pipe connecting the upper portion of the brine-tank with the lower portion of the water-tank and having independent branches discharging air into the latter at points between adjacent freezing-plates, and a return-pipe having branches corresponding with the branches of the conducting-pipe and connecting the upper portion of the water-tank with the blower whereby the air passing the plates is returned to the blower for reuse in the brine-tank.

2. The combination of a brine-tank provided with means for circulating a refrigerating fluid therethrough, a fresh-water tank having freezing-plates, and air forcing and circulating mechanism including a rotary blower having a pipe leading from its discharge and entering the lower portion of the brine-tank, said pipe having a plurality of flaring nozzles fitted to its under side and discharging air in fine subdivisions into the lower portion of the brine, a pipe entering the upper end of the brine-tank and thence extending downwardly below and along the water-tank, and having vertical branches entering the bottom of the water-tank at points between adjacent freezing-plates, and having controlling-valves, a return-pipe having depending branches entering the upper portion of the water-tank at points between said plates and valves controlling said branches, said return-pipe connecting with the suction end of the blower whereby the spent air is returned to the brine-tank for reuse.



643,270. AUTOMATIC SAFETY DEVICE FOR ELEVATORS. GEORGE A. NEWELL, Buffalo, N. Y., assignor of two-thirds to Philip Gerst and George A. Stricker, same place. Filed July 24, 1899. Serial No. 724,903. (No model.)



Claim.—1. An automatic safety device for elevators, comprising a weight connected to the controller of the elevator and normally

maintained in a raised position, and a device operated by an object protruding from the car edge adapted to drop the weight and automatically move the controller to stop the car, said weight being restored to its normally-raised position by the movement of the controller to again start the car.

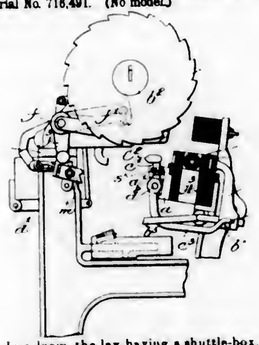
2. An automatic safety device for elevators, comprising a weight connected to the controller rope or cable, a trigger device for maintaining said weight in a normally-raised position, a rope or cable connected to the trigger device and having portions arranged across the openings in the elevator-shaft adapted to be struck by an object protruding from the car edge to move the rope or cable and trigger device and drop the weight, said weight being restored to its normally-raised position by the movement of the controller-rope to again start the car.

3. In an automatic safety device for elevators, the combination with the elevator-shaft, the controller rope or cable of the elevator and the elevator-car, of a slideway device mounted in the shaft, a weight supported in the slideway and having operative connection with the controller rope or cable, a trigger mounted in a horizontal opening in the slideway and adapted to normally maintain the weight in its elevated position, rollers journaled in the trigger, and a rope or cable attached to the trigger and having portions arranged on pulleys across the openings in the elevator-shaft, as set forth.

4. In an automatic safety device for elevators, the combination with the elevator-shaft, the controller rope or cable of the elevator and the elevator-car, of a double slideway mounted in the shaft, two weights mounted in said slideway and normally held in a raised position, a supplementary rope or cable connected to one of said weights, and having a trigger device normally maintaining the other weight in its raised position, a main rope or cable having a trigger device normally maintaining the first-mentioned weight in its raised position and parts arranged across the openings in the shaft and a rope or cable connecting the first-mentioned weight to the controller rope or cable, substantially as and for the purpose set forth.

5. An automatic safety device for elevators, comprising a weight connected to the controller of the elevator and normally maintained in a raised position and a device operated by an object protruding from the car edge adapted to drop the weight and automatically move the controller to stop the car, a second weight normally maintained in a raised position, a device connected to the first-mentioned weight and operated by the dropping of said first-mentioned weight a certain distance to automatically release the second weight and means for returning the weights to their normally-raised position, as set forth.

643,271. LOOM. JAMES H. NORTHROP, Tustin, Cal., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed May 12, 1899. Serial No. 716,491. (No model.)



Claim.—1. In a loom, the lay having a shuttle-box, its binder, a self-threading shuttle, mechanism to insert fresh supplies of filling in the shuttle, and means controlled by the operation of said mechanism to reduce the pressure of the binder upon the shuttle when a fresh supply of filling is transferred to the shuttle.

2. In a loom, the lay having a shuttle-box, its binder, a spring-actuated binder-finger, a self-threading shuttle, filling-supplying mechanism, to insert fresh supplies of filling in the shuttle, and means controlled by the operation of said mechanism to retract the binder-finger and reduce the pressure on the binder as a fresh supply of filling is transferred to the shuttle.

3. In a loom, the lay having a shuttle-box, its binder, a shuttle, a filling-carrier feeder, a transferrer to transfer a filling-carrier therefrom to the shuttle, actuating means for the transferrer, and means to reduce the pressure of the binder, governed by said actuating means, to relieve the shuttle from pressure when a filling-carrier is transferred.

4. In a loom, the lay having a shuttle-box, its binder, a shuttle, filling-supplying mechanism, an actuating-dog therefor movable into operative position upon failure of the filling, a cooperating bunter, and means actuated by or through cooperation of the bunter and dog to reduce the binder-pressure as a supply of filling is transferred to the shuttle, whereby the shuttle may position itself to receive the supply of filling.

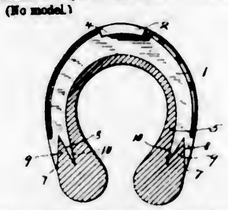
5. In a loom, the lay having a shuttle-box, its binder, filling-supplying mechanism, an actuating-dog therefor movable into operative position upon failure of the filling, a cooperating bunter pivotally mounted on the lay and having a limited movement when engaged by the dog, a controlling-spring for the bunter, and connections between the latter and the binder, to reduce the binder-pressure when the bunter is engaged by the dog.

6. In a loom, the lay having a shuttle-box, its binder, a spring-actuated binder-finger, filling-supplying mechanism, an actuating-dog therefor, and a cooperating bunter pivotally mounted on the lay and having a rearwardly-extended tail connected with the binder-finger, initial engagement of the dog and bunter rocking the latter and thereby retracting the binder-finger when a fresh supply of filling is transferred.

7. In a loom, the lay having a shuttle-box, means to hold the shuttle therein, a self-threading shuttle, filling-supplying mechanism, to insert fresh supplies of filling in the shuttle, and means controlled by or through said mechanism to release the shuttle when a fresh supply of filling is transferred to the shuttle.

8. In a loom, the lay having a shuttle-box, its binder, a self-threading shuttle, mechanism to insert fresh supplies of filling in the shuttle, and means controlled by or through said mechanism to neutralize the binder-pressure when a fresh supply of filling is transferred to the shuttle.

643,272. CUSHION-HORSESHOE. HENRY PAAR, Canton, Ohio, assignor to Thomas C. Snyder, same place. Filed Nov. 6, 1899. Serial No. 735,880. (No model.)



Claim.—1. The combination of the metal portion 1 provided with the calk 2 having a flange and groove, a tread provided with the flanges 9 at the heel ends thereof, and an open groove located upon a portion of its sides and toe end, and the metal portion 1 extended beyond the edge of the cushion and provided with recesses at its heel ends, substantially as and for the purpose specified.

2. The combination of a metal shoe provided with a flanged toe-calk, and a recessed heel end, a tread or cushion provided with a groove upon its sides and toe end, a recess formed in the toe end thereof, and the metal portion of the shoe extended beyond the edge of the cushion portion, substantially as and for the purpose specified.

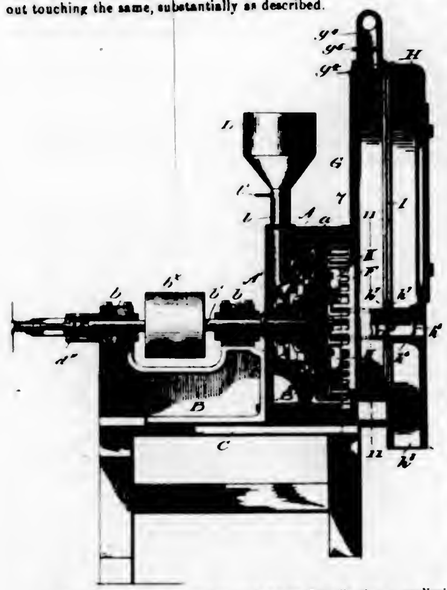
3. The combination of a metal shoe provided with a toe-calk with a tread or cushion provided with a groove upon its sides and toe end, and said metal portion provided with recesses upon its heel ends and flanges seated into said recesses of the metal portion, substantially as and for the purpose specified.

643,273. MILL. JOHN A. PEER, Washington, D. C. Filed Mar. 24, 1899. Serial No. 710,345. (No model.)

Claim.—1. In a mill, the combination with means for effecting a preliminary reduction of the material, of a curved feeding-plate having its inner face provided with a series of projections, and recesses between said projections, and a rotary knife traveling in a path concentric with said feeding-plate and provided with a straight shearing edge adapted to pass close to but without touching said projections of the feeding-plate, substantially as described.

2. In a mill, the combination with means for effecting a preliminary reduction of the material, of a curved feeding-plate having its inner face provided with a series of transversely-extending projections provided with feeding-faces, and transversely-extending recesses between said projections, and a rotary knife traveling in a path concentric with said feeding-plate and having a straight shearing edge adapted to pass close to but without touching the projections of said feeding-plate, whereby the material is fed along the feeding-faces of said projections toward the path of said knife, substantially as described.

3. In a mill, the combination with means for effecting a preliminary reduction of the material, of a curved feeding-plate provided with a series of projections extending transversely thereof, a series of stationary knives arranged concentric with and parallel to the inner face of the said feeding-plate, and a revolving knife, adapted to pass between said feeding-plate and said stationary knives without touching the same, substantially as described.



4. In a mill, the combination with means for effecting a preliminary reduction of the material, of a curved feeding-plate, provided with a series of transversely-extending projections, a rotary knife traveling in a path concentric with said feeding-plate and adapted to pass close to, but without touching the projections thereof, and a series of stationary knives arranged in a curved line concentric with the path of the rotary knife, and between said knife and its axis of rotation, the said rotary knife having projections passing close to but without touching the edges of said stationary knives, substantially as described.

5. In a mill, the combination with the stationary and revoluble cutting-disks, of the circular feeding-plate adjacent the periphery of the rotating disk and concentric therewith, provided on its inner face with projections having inclined surfaces and recesses between said projections, a circular series of stationary knives concentric with the inner face of said feeding-plate, and having their cutting portions extending in a direction opposite to the inclined portions of the said projections and a rotary knife adapted to pass between the said projections of the feeding-plate and said stationary knives, substantially as described.

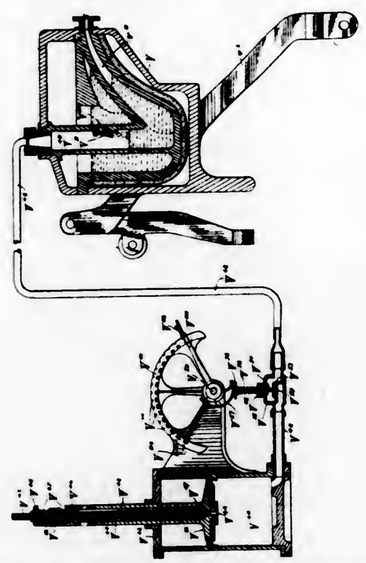
6. In a mill, the combination with the cutting-disks one of which is revoluble with respect to the other, said disks being each provided with circular rows of knives having cutting edges and adapted to lie between adjacent rows of knives on the other disk, of the serrated feeding-plate, a series of stationary knives arranged concentric with the serrated face of said plate and a revolving knife carried by the revoluble disk and adapted to pass between said stationary knives and the serrated face of said feeding-plate, substantially as described.

7. In a mill, the combination with means for effecting a preliminary cutting of the material, of a curved feeding-plate provided with inwardly-extending projections provided with inclined faces, and recesses between said projections, a curved series of stationary knives arranged concentric with said projections, said knives having cutting edges and inclined guiding-surfaces extending inwardly therefrom and a rotary knife adapted to pass between said projections and said stationary knives, provided with a cutting edge and an inclined guiding-face extending from said edge inwardly for guiding the material to the cutting edges of the stationary knives, substantially as described.

8. In a mill, the combination with the main casing and the knife-carrying cutting-disks one of which is revoluble with respect to the other, of the serrated feeding-plate concentric with the revoluble disk, a series of stationary knives arranged concentric with the serrated plate, a revoluble knife carried by said revoluble disk adapted to pass between said serrated feeding-plate and the stationary knives, a screening-chamber communicating with said casing, and provided with a vertical screen having its lower end adjacent to the lower portions of said feeding-plate and stationary knives, said screening-chamber being provided with a discharge-aperture, an air-inlet for the screening-chamber discharging at a point adjacent to the revoluble disk and fan-blades carried by said revoluble disk, substantially as described.

9. In a mill, the combination with the main casing and the knife-carrying cutting-disks, one of which is revoluble with respect to the other, of the serrated feeding-plate concentric with the revoluble disk, a series of stationary knives arranged concentric with the serrated plate, a revoluble knife carried by said revoluble disk adapted to pass between said serrated feeding-plate and the stationary knives, a screening-chamber communicating with said casing, and provided with a vertical screen having its lower end adjacent to the lower portions of said feeding-plate, and stationary knives, said screening-chamber being provided with a discharge-aperture in the top thereof on the side of the screen nearest the revoluble disk, and a discharge-aperture on the other side of the screen, adjacent to the bottom of the chamber, a valve for regulating or closing the upper discharge-aperture, an air-inlet for said chamber discharging adjacent to the revoluble disk and fan-blades carried by said revoluble disk, substantially as described.

643,274. CASTING MECHANISM FOR LINOTYPE-MACHINES. JOHN PLACE, Broadheath, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Nov. 28, 1898. Serial No. 697,629. (No model.)



Claim.—1. In a linotype-machine, the combination of an air-pump, a closed metal-pot with delivery-mouth, an air-conducting pipe leading from the pump to the pot, a yielding valve to resist the flow of air through said pipe, and adjustable means for limiting the opening movement of the valve.

2. In a linotype-machine and as a means of supplying molten metal to its mold of variable size, an air-pump, adapted to deliver a given volume of air at each stroke, a closed melting-pot provided with a delivery-mouth, an air-conducting pipe leading from the pump to the pot, a valve opening in the direction of the air-delivery, a spring tending to close said valve, and an adjustable device to limit the opening movement of the valve, substantially as described and shown.

3. In a linotype-machine, the combination of a closed melting-pot, having a delivery-mouth for the metal, an air-conducting pipe leading thereto, a pump delivering air to said pipe, and an automatically-yielding valve controlling the passage of air through said pipe and opening toward the pot.

4. The hereinbefore-described combination of force-pump; inclosed metal-pot; air-delivery pipe from the said pump to the surface

of the metal in the metal-pot; weighted valve in the delivery-pipe; and means for adjusting the lift of the said valve according to the capacity of the mold.

5. The hereinbefore-described combination of force-pump; metal-pot; delivery-pipe from the force-pump to the said pot and making air-tight connection with both: valve in the delivery-pipe controlled by a cam or an equivalent device adjustable according to the capacity of the mold; means for adjusting the said cam or the equivalent weighting device; and a scale indicating the proper adjustment.

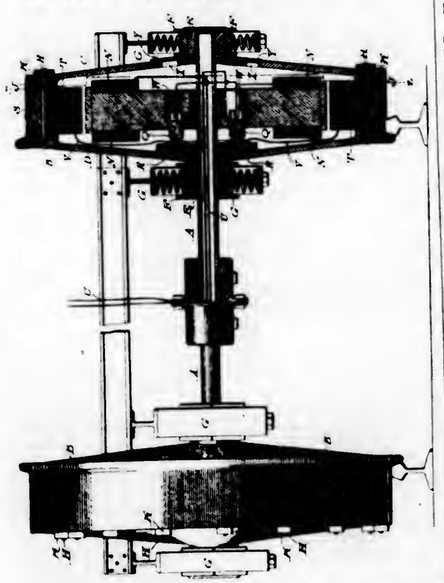
6. The hereinbefore-described combination of force-pump; metal-pot having throat and vertical cylinder; delivery-pipe from the force-pump to the said cylinder and making air-tight connection with both; valve in the delivery-pipe controlled by a cam or an equivalent device adjustable according to the capacity of the mold; means for adjusting the said cam or equivalent weighting device; and a scale indicating the proper adjustment.

643,275. PICTURE. ANDREW N. POLYMATH, Los Angeles, Cal. Filed Jan. 27, 1899. Serial No. 703,603. (No model.)



Claim.—As a new article of manufacture, a picture comprising a transparent photograph, engraving or the like, a layer of colored paints upon the back of said photograph, a coating of opaque waterproof material upon the paints, a suitable backing and a layer of adhesive material interposed between the waterproof material and the backing, substantially as described.

643,276. ELECTRIC TRACTION-MOTOR. CHARLES RICHTER and RICHARD T. ESCHLER, Camden, N. J., assignors to the Security Trust and Safe Deposit Company, trustee, of New Jersey. Filed May 19, 1899. Serial No. 717,451. (No model.)



Claim.—1. The combination of a hollow car-wheel having a web provided with a manhole, an axle carrying a field-magnet with an opening in the core thereof, and a brush seated in said opening, said manhole being opposite to said opening.

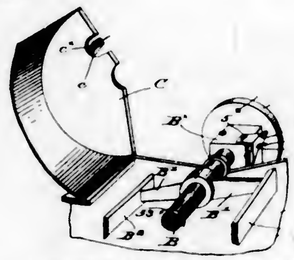
2. The combination of an axle, a field-magnet and a brush thereon, and a wheel mounted on said axle revolving in suitable bearings, said wheel being composed of sections, one of which carries an armature and a commutator, and the other section is provided with a manhole.

3. In an electric motor, the combination of an axle, a hollow car-wheel rotatably mounted thereupon and made in sections, said sections consisting of webs having recesses therein, bolts passed through said webs, nuts inclosed in said recesses and exterior jam-nuts on the ends of said bolts and electrical means for rotating said wheel.

4. In a device of the character named, an axle, a wheel composed of sections which are provided with hubs rotating in suitable bearings, a fastening for said sections, a commutator on the interior of one of the sections, a field-magnet which is secured to said axle, a brush carried by said magnet, an armature connected with the inner periphery of one of the sections, and an electric conductor leading to the interior of said wheel

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648,277. LOCKING DEVICE FOR COTTON-BEATERS. CYRUS B. SMITH, Fall River, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Nov. 22, 1899. Serial No. 737,861. (No model.)



Claim.—1. In a cotton-beater or analogous machine, the cap, a rotatable shaft, having a keeper movable therewith, mechanism, including a bolt to engage the keeper and hold the shaft from forward rotation, said bolt being constructed and arranged to permit backward ratation of the shaft while said bolt is in operative condition, and means controlled by closure of the cap to lock the latter in closed position and to simultaneously release the keeper on the said shaft.

2. In a cotton-beater or analogous machine, its cap, a rotatable shaft having a keeper rotatable therewith, coöperating mechanism, including a bolt to engage the keeper and hold the shaft from forward rotation when the cover is open, said bolt having its rear face beveled, to permit backward rotation of the shaft, and means carried by the cap to simultaneously release the said keeper and lock the cap in closed position.

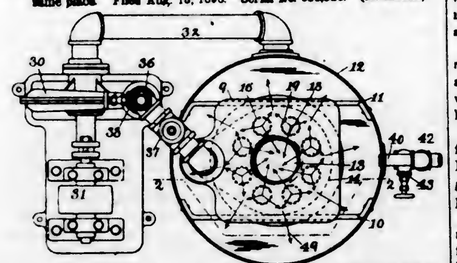
3. In a cotton-beater or analogous machine, the cap, a keeper thereon, a rotatable shaft having a keeper movable therewith, and locking mechanism, including a two-part bolt, the members thereof being adapted to coöperate respectively with the cap and shaft keepers, a manual actuator to release the cap when the shaft is at rest, and a detent to retain the cap-bolt member retracted while the cap is open, temporary retractive movement of the bolt member engaging the shaft-keeper being permitted at such time.

4. In a cotton-beater or analogous machine, the cap, a keeper thereon, a rotatable shaft having a keeper movable therewith, and locking mechanism, including a two-part bolt, the members thereof being adapted to coöperate respectively with the cap and shaft keepers, a manual actuator to release the cap when the shaft is at rest, a detent to retain the cap-bolt member retracted while the cap is open, temporary retractive movement of the bolt member engaging the shaft-keeper being effected by retrograde rotation of the shaft, and a trip operatively connected with the detent and actuated by closure of the cap, to release the bolt and lock the cap while the shaft-keeper is freed.

5. In a cotton-beater or analogous machine, the cap, a keeper thereon, a rotatable shaft having an apertured disk movable therewith, a two-part locking-bolt, the relatively-movable and yieldingly-connected members of which are adapted to cooperate respectively with the cap-keeper and the disk, a bolt-controlling spring, a manual actuator to unlock the cap when the shaft is at rest, a detent to retain the cap-bolt member retracted when the cap is open, the shaft-bolt member having a beveled rear face to permit retrograde movement of the shaft while the cap is open, and means to effect withdrawal of the detent by closure of the cap, to lock the latter and at the same time release the shaft.

6. In a cotton-beater or analogous machine, the cap, a keeper thereon having a projection, a rotatable shaft having an apertured disk fast thereon, a two-part locking-bolt, the members of which, relatively movable and yieldingly connected, are adapted to coöperate respectively with said keeper and disk, a bolt-controlling spring, means to unlock the cap when the shaft is at rest, the shaft-bolt member at such time engaging and preventing forward rotation of the shaft, the said member having a beveled rear face to permit backward rotation of the shaft while the cap is open, a detent to retain the cap-bolt member retracted at such time, and a trip connected with the detent and in the path of the projection on the cap-keeper, engagement of the trip by such projection withdrawing the detent and releasing the bolt to lock the cap and free the shaft.

643,278. APPARATUS FOR HARDENING METALS. CHARLES W. SPOHNER, Hartford, Conn., assignor of one-half to William A. Lorenz, same place. Filed Aug. 13, 1898. Serial No. 688,596. (No model.)

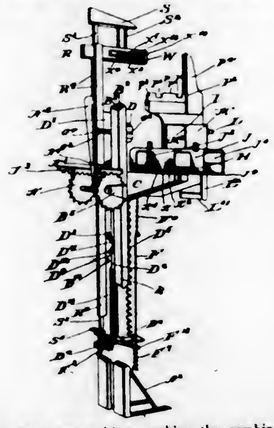


Claim.—1. In a hardening apparatus, in combination with means for forcing a supply of liquid, a distributing-head connected with the liquid-forcing means, a series of current-emitting chambers connected with the head, provided with longitudinal current-emitting outlets, and having intervals between the chambers for the exit of the liquid, with means for closing the ends of the space encompassed by the chambers, so as to deflect the discharging liquid to the intervals between the chambers.

2. In a hardening apparatus, a series of current-emitting chambers, arranged to encompass a space for receiving the articles to be hardened, and having intervals between them for the discharge of the cooling liquid, with deflecting means for closing the ends of the space encompassed by the chambers, whereby the liquid is discharged only at the intervals between the chambers.

3. In a hardening apparatus, a series of current-emitting chambers, arranged to encompass a space for receiving the articles to be hardened, and having intervals between them for the discharge of the cooling liquid, a deflector-plate for closing the lower end of the space encompassed by the chambers, and provided with a conical recess for centering the articles to be hardened with the current-emitting chambers.

643,279. BOX-MACHINE. GEORGE TAGGART, Nichols Junction, Md. Filed Aug. 19, 1898. Serial No. 689,061. (No model.)



Claim.—1. In a box-making machine the combination, female die C; male die D; rod with treadle D^4, clamps D^3, D^5, and recoil-springs D^2, with folding slide-pieces E, E^3, for folding down the sides of the box all substantially as shown and described for the purpose specified.

2. In combination with a stationary die C; of the sliding die D, a rod D^3 clamps D^5, D^3, sliding folders E, E^3, operated by means of rods connected with the foot-piece on rod D^3, and recoil-springs all substantially as shown and described.

3. In a box-forming device a stationary die C, and a sliding die, D, having a disconnecting-rod D^3, said disconnecting-rod, D^3, having clamps D^4 D^5 for catching a head D^7, on rod D^4 opened by means of cams D^{10} and folding-slides E, E^3, connected with the foot-piece D^4, on rod D^6 said slides having recoil-springs G, G^3, all constructed and combined for the purpose specified.

4. In a box M, for holding bottom pieces of boxes to be formed the combination of end springs M^3, M^2 with a follower L, having a lever and ratchets for operating the said follower and brads on the male die D, for taking out one bottom at a time as the reciprocating movable box M, is moved forward and back all substantially as shown and described.

5. In combination with a box-forming device consisting of two reciprocating boxes J, M, holding the side pieces H, and bottoms I, a stationary die, C, and a movable die, D, with a staple-forming device consisting of a frame R, having sleeve V, and former, P, and levers R^3, and hammers, S, all substantially as shown and described.

6. In combination with a staple-forming device consisting of a frame R, having a sleeve V, lever R^3, and a reciprocating male former, P, of a wire-feeding mechanism consisting of milled, tongue-and-grooved wheels X^2 X^4, one having spring-bearings X^5, the other propelled by a spring-pawl X^7 all substantially as shown and described.

7. In a box-making machine the combination of a staple-forming mechanism consisting of wheels X^2, X^4, provided with a pawl X^7, for feeding the wire, and a frame R, provided with a sleeve V, and levers R^3, and a reciprocating male former P; with a staple-driving device consisting of a hammer S, with spring-rod S^4, all substantially as shown and described.

8. The combination in a box-making machine of a box-former consisting of a stationary female die, C, and a movable male die, D, and reciprocating boxes J, M, containing the sides H, bottoms I, with a staple forming and driving mechanism above it substantially as shown and described.

9. A box-forming mechanism operated by means of a lever N^3, for recipirocating the boxes J and M, combined with a separable treadle-rod D^3, for operating the male dies, D, and rods F, F^3, for operating the folding-slides E, E^3, and a rod R^4, for operating the staple-former and a rod S^4, for operating the hammer for driving the staples, all substantially as shown and described.

10. In combination with a wire-feeding mechanism as described; of a staple-forming device consisting of a frame W, having a sliding sleeve, V, operated by cog-wheels as specified and a male former P, all constructed and operated substantially as set forth.

643,280. SALICYLATES OF THE YTTRIUM GROUP. ALBERT WEILER, Frankfort-on-the-Main, Germany, assignor to Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung, same place. Filed July 19, 1898. Serial No. 686,367. (No specimens.)

Claim.—1. The hereinbefore-described antiseptic powder consisting of a salicylate of a metal of the yttrium group, substantially as described.

2. The herein-described didymium salicylate obtained from the double-earth didymium in the form of a pale pink powder possessing excellent antiseptic properties, being non-poisonous, insoluble in water and having the formula $Di_2(C_6H_4(OH)COO)_3$.

643,281. PIT OR MINING LAMP. RICHARD C. WEST, Rostraver, Pa. Filed Feb. 3, 1899. Serial No. 704,441. (No model.)

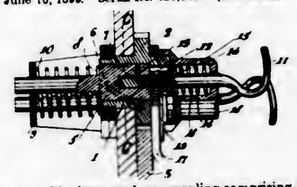


Claim.—A miner's lamp provided with a protector which consists of a strip of spring metal secured to the bottom of the lamp

passed around the rim at the front thereof and secured to the lower portion of the spout, substantially as described.

643,282. CAR-COUPLING. GEORG AREND, Berlin, Germany.

Filed June 16, 1899. Serial No. 720,842. (No model.)



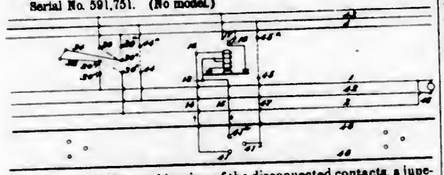
Claim.—1. The improved car-coupling comprising a gear-wheel 2, a hub or hollow axle 1 on said wheel journaled in the buffer cross-bar of the car, a cylindrical block 5 inserted into said hub and pressed toward the front by a strong spring 10, said block being hollowed out to receive the shank of a coupling-hook 11, means for preventing said hook from being rotated in the block 5, an adjustable gear-wheel on said shank, means for adjusting said gear-wheel, a suitable socket casing the various parts, and a spring within said socket and held to bear against said gear-wheel to press it against the block 5, substantially as and for the purpose set forth.

2. The improved car-coupling comprising a hook 11, the shank of which engages a hollow block 5 within which it may be moved lengthwise, means for preventing said shank from being rotated within said hollow block, a suitable screw-thread on the latter, and projections or fingers engaging the screw-thread so that the hollow block and the coupling are rotated when said hook is pressed inward, substantially as and for the purpose set forth.

3. The improved car-coupling comprising two coupling-hooks arranged the one above the other at right angles with each other, means for rotating said hooks in opposite directions when the hooks are pressed inward, and means for actuating both hooks at once, substantially as and for the purpose set forth.

643,283. SYSTEM OF DISTRIBUTION FOR ELECTRIC RAILWAYS. WILLIAM CHAPMAN, Washington, D. C., assignor to the Electro-Magnetic Traction Company, of West Virginia. Filed May 16, 1899.

Serial No. 591,751. (No model.)



Claim.—1. The combination of the disconnected contacts, a junction-box opposite each disconnected contact, a subfeeder normally continuous throughout its length, but composed of a plurality of sections connected together within said junction-boxes, and a contact-feeder connected in each junction-box to the subfeeder and terminating at its other end at the corresponding disconnected contact.

2. In an electric-railway system the combination of the main feeders and the sectional subfeeders, the main junction-boxes and the subsidiary junction-boxes, the disconnected contact-sections, the contact-feeders feeding the said contact-sections, connections within the subsidiary junction-boxes between the contact-feeders and the subfeeders and between sections of the latter, and connections within the main junction-box between the main and sub feeders.

3. The combination with the disconnected contact-sections of an electric railway of the subsidiary junction-boxes, one beside each disconnected contact, feeders passing through said subsidiary junction-boxes, and a short contact-feeder connected thereto and leading from within the said box to the disconnected contact beside the same.

4. An electric-railway system comprising the combination with the main source of supply and the return-circuit connected therewith, of a plurality of main feeders also connected therewith, a plurality of subfeeders, main junction-boxes dividing the system into a plurality of divisions, connections within each main junction-box between the main feeder and the subfeeder for the particular division, subsidiary junction-boxes between the main junction-boxes and a disconnected contact beside each of the same, and a connection within each subsidiary junction-box between sections of the subfeeder and between the same and a contact-feeder leading to a disconnected contact.

5. The combination of main feeders, subfeeders normally continuous throughout their length but composed of a plurality of sections connected together, said subfeeders being connected to the main feeders, contact-feeders connected to the subfeeder, and a disconnected contact connected to each contact-feeder.

6. The combination of disconnected contacts, subsidiary junction-boxes, a contact-feeder extending from each subsidiary junction-box to a disconnected contact, a subfeeder passing through a plurality of said subsidiary junction-boxes and connected therein to the contact-feeder leading from the same, main junction-boxes and a main feeder connected within said main junction-boxes to the said subfeeder.

7. A system of distribution for electric railways comprising a plurality of underground supply-mains or main feeders, a corresponding number of underground subfeeders, junction-boxes located at intervals along the line and provided with means for connecting and disconnecting the individual supply-mains and the corresponding subfeeders at will, roadway-contacts and contact-feeders connecting the same with the subfeeders.

8. A system of distribution for electric railways comprising two underground supply-mains or main feeders and two underground subfeeders, junction-boxes located at intervals along the line and provided with devices for connecting either or both of said supply-mains with the corresponding subfeeders, roadway-contacts and contact-feeders, and automatic switches for making connection between the live subfeeder and the corresponding contact-feeder.

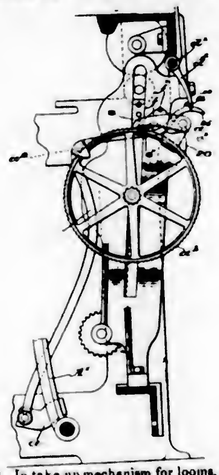
9. A system of distribution for electric railways comprising two underground main feeders, corresponding underground subfeeders, roadway-contacts, contact-feeders, switches for connecting either of said subfeeders with a corresponding contact-feeder, junction-boxes, and flexible couplings in said junction-boxes for connecting either of said subfeeders with the main feeder or feeders.

10. In a system of distribution for electric railways, a plurality of underground supply-mains or main feeders and a plurality of subfeeders in sections the ends of which are provided with split-pin terminals, in combination with a pair of socket-pieces for engagement with any two of said split-pin terminals, said socket-pieces being provided with insulating-coverings and connected by an insulated flexible conductor.

11. In a system of distribution for electric railways, the combination with underground supply-mains or main feeders and subfeeders, of junction-boxes provided with terminal pins, and flexible coupling devices, for electrically connecting said terminal pins, roadway-contacts, contact-feeders and subsidiary junction-boxes containing means for connecting said subfeeders with said contact-feeders.

12. A system of distribution for electric railways comprising two underground supply-mains or main feeders, two underground subfeeders, main junction-boxes, means located therein for connecting either of said main feeders with either of said subfeeders, roadway-contacts, contact-feeders and subsidiary junction-boxes containing means for connecting said contact-feeders with said subfeeders.

643,284. TAKE-UP MECHANISM FOR LOOMS. ALVAN W. CLEMENT, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Oct. 2, 1899. Serial No. 732,374. (No model.)



Claim.—1. In take-up mechanism for looms, a ratchet-wheel, actuating and let-back pawls therefor, a carrier for the actuating-pawl, and means controlled by manual movement of the pawl-carrier to disengage said pawls and the ratchet-wheel and to lock them in inoperative position, thereby liberating the ratchet-wheel.

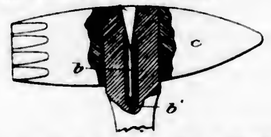
2. In a take-up mechanism for looms, a ratchet-wheel, an actuating-pawl therefor, a carrier for said pawl, a plurality of successively-operative let-back pawls to engage the ratchet-wheel, and means controlled by manual movement of the pawl-carrier to disengage said actuating and let-back pawls from the ratchet-wheel and to lock them in inoperative position.

3. In take-up mechanism for looms, a ratchet-wheel, actuating and let-back pawls therefor, a carrier for the actuating-pawl having a locking-shoulder and a projection on the let-back pawl, manual movement of the carrier to disengage the actuating-pawl effecting cooperation of said projection and locking-shoulder, to thereby maintain the pawls in inoperative position.

4. In take-up mechanism for looms, a ratchet-wheel, actuating and let-back pawls therefor, a carrier for the actuating-pawl having a locking-shoulder, and a handpiece and a projection on the let-back pawl, manual movement of the carrier to disengage the actuating-pawl effecting cooperation of the projection and locking-shoulder, to thereby withdraw the let-back pawl from the ratchet-wheel to lock it and the pawl-carrier in inoperative position.

5. In take-up mechanism for looms, a ratchet-wheel, an actuating-pawl therefor, a carrier for said pawl, having a locking-shoulder, and a plurality of successively-operative let-back pawls to engage the ratchet-wheel, one of said pawls having a projection and at times controlling the other pawl, manual movement of the pawl-carrier to disengage the actuating-pawl effecting engagement of the locking-shoulder and the said projection, to thereby disengage the let-back pawls from the ratchet-wheel and to also lock the pawl-carrier in inoperative position.

643,285. TOOL-FASTENING. ROBERT DOUGLAS, New Bedford, Mass., assignor of one-half to Ernest A. Jennings, same place. Filed Nov. 11, 1899. Serial No. 736,717. (No model.)



Claim.—A tool-handle wedge, consisting of the metallic wedge *a*, provided with a nail-like projection *b*, extending from the edge of said wedge, in a line with the direction in which the wedge is to be driven, and having the laterally-projecting shoulders *c*, substantially as shown, and for the purpose described.

643,286. FIRE-ESCAPE DEVICE. EDWARD P. FRIKER, Northampton, Mass. Filed July 31, 1899. Serial No. 725,587. (No model.)

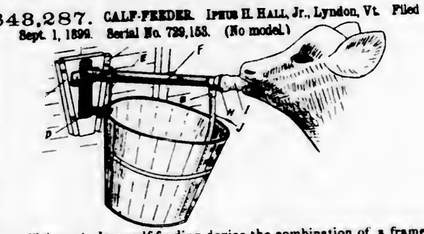


Claim.—1. Fire-escape devices adapted to be attached to a building at a window or door opening thereof, comprising a suitable base-plate, having weight-indicating numerals, and a pivoted pointer thereon, fixed on one border of said opening, a revoluble rope-support attached to, and extending from said base-plate in a direction across said opening, combined with a corrugated speed-governing wheel, gear-connected with said rope-support, a brake-lever having an engagement with the corrugated border of said wheel, a spring acting against said brake-lever, and means connected with said spring and pointer for forcing said brake-lever against said wheel and simultaneously, automatically indicating the weight which may be safely suspended on, and lowered by means of said devices, substantially as set forth.

2. Fire-escape devices to be attached to a building at a window or door opening thereof, comprising a suitable base-plate, having weight-indicating numerals, and a pivoted pointer thereon, fixed on one border of said opening, a revoluble rope-support attached to, and extending from said base-plate in a direction across said opening, combined with a corrugated speed-governing wheel, gear-connected with said rope-support, a brake-lever having an engagement with the corrugated border of said wheel, a spring acting against said brake-lever, and a screw engaging the foot of said base-plate and forming a support for said spring, and providing means for compressing the same against said brake-lever, and for swinging said pointer, substantially as set forth.

3. In fire-escape devices adapted to be attached to a building on the border of a window or door opening therein, comprising a suitable base-plate fixed on said border, a shaft, 7, projecting from said base, a corrugated, speed-governing wheel revoluble on said base, a rope-carrying spool revoluble on said shaft, and gear-connected with said governing-wheel, a brake-lever pivoted on said base, having a projection, 15, engaging said corrugated wheel, a screw, 17, on said base opposite the side of said brake-operating lever, and a spring intermediate of said lever and screw, combined and operating, substantially as set forth.

648,287. CALF-FEEDER. IPHUS H. HALL, Jr., Lyndon, Vt. Filed Sept. 1, 1899. Serial No. 729,153. (No model.)



Claim.—1. In a calf-feeding device the combination of a frame adapted at one end to be attached to a wall, a nipple attached to the other end of said frame, a branch tube attached to said frame and connecting with said nipple, a flexible tube attached to said branch tube, and means for attaching a receptacle to said frame, substantially as set forth.

2. In a calf-feeding device the combination of a dovetail block, a metal plate attached to said block, two arms projecting from said plate at right angles thereto, a flexible tube and nipple adapted to be attached to the end of the longer of said arms, the shorter arm being adapted to support a receptacle, and slides in which said dovetail block fits, adapted to be attached to a wall, substantially as set forth.

3. In a calf-feeding device, the combination of a frame adapted to be attached to a wall, consisting of a flat block provided with two arms projecting at right angles from said block, one above the other, the upper arm being the longer and provided with a nipple and flexible tube attached to its outer end, and a movable pin passing through said upper arm and resting on said lower arm, so as to securely hold any receptacle supported by said lower arm, substantially as set forth.

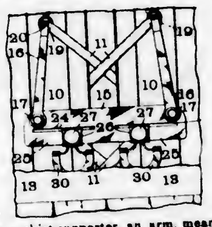
4. In a calf-feeding device the combination of a frame adapted to be attached to a wall at one end and provided with a terminal, hemispherical knob at the other end, a nipple adapted to fit over said knob, a branch tube attached to said frame and connecting with said nipple, a flexible tube adapted to be attached to said branch tube, and means for attaching a receptacle to said frame, substantially as set forth.

5. In a calf-feeding device the combination of a frame adapted to be attached to a wall at one end, a nipple adapted to be attached to the other end of said frame, consisting of an outer, flexible, tubular casing and a rigid, inner tubular reinforcement and provided with cross-slits in the end of said outer casing so as to form a valve, a branch tube attached to said frame and connecting with said nipple, a flexible tube adapted to be attached to said branch tube, and means for attaching a receptacle to said frame, substantially as set forth.

6. In a calf-feeding device the combination of a frame adapted to be attached to a wall at one end, a nipple and flexible tube attached to the other end of said frame, and means attached to said

frame for securely and detachably holding a receptacle, substantially as set forth.

643,288. SKIRT-SUPPORTER. HARRY A. HEINEMAN, St. Louis, Mo., assignor of two-thirds to Charles J. Roberts, Albert A. Miller, and Walter Eichinger, same place. Filed July 15, 1899. Serial No. 723,886. (No model.)



Claim.—1. In a skirt-supporter, an arm, means for securing a skirt to said arm, a hook carried by said arm and adapted to removably engage with the eyelet of a corset, means adapted to be thrown into position after the insertion of the hook for preventing its accidental withdrawal from the eyelet, and means for preventing said arm from entering said eyelet.

2. In a skirt-supporter, an arm, means for securing a skirt to said arm, a rigid hook carried by said arm and adapted to enter the eyelet of a corset, and a flexible hook adapted to enter said eyelet and to be bent into position to prevent the withdrawal of said rigid hook.

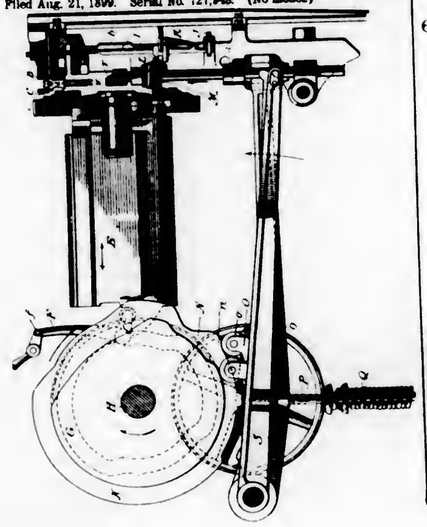
3. In a skirt-supporter, a guard-plate, means for securing said guard plate to a corset, a sliding member carried by said guard-plate, and means for detachably securing a skirt to said sliding member.

4. In a skirt-supporter, a guard-plate, means for securing said plate to a corset, a button carried by said guard-plate, a member adapted to be secured to a skirt and provided with an opening for the passage of said button, and a spring-loop pivotally mounted on said member and adapted to be sprung over the shank of said button.

5. In a skirt-supporter, a guard-plate adapted to be secured to a corset, a button carried by said guard-plate, a U-shaped member, a spring-loop carried by said U-shaped member and adapted to be sprung over said button, and a pin carried by said U-shaped portion and adapted to engage with a skirt or similar garment.

6. In a skirt-supporter, a guard-plate, arms pivotally mounted on said guard-plate for suspending the same from the eyelets of a corset, two sliding members carried by said guard-plate, and devices for detachably securing a skirt to said sliding member.

643,289. LINOTYPE-MACHINE. DAVID A. HERSLEY, Vicksburg, Miss., assignor to the Mergenthaler Linotype Company, of New York. Filed Aug. 21, 1899. Serial No. 727,948. (No model.)

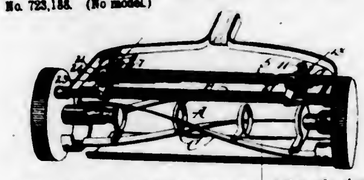


Claim.—1. In a linotype-machine such as herein described, a yielding resistant, substantially as described, to arrest the motion of the parts and hold the mold away from the matrix-line when the driving mechanism is thrown out of action.

2. In a linotype-machine, the combination of the justifying-lever and its roller, its actuating-spring, and the cam, acting on the roller in opposition to the spring and provided with the special shoulder *n*, whereby the customary spring is given the additional function of arresting the motion of the parts in a definite position.

3. In a Mergenthaler linotype-machine, the cam N, having the peripheral surfaces as usual to actuate the justifying-lever, and having also a shoulder *n*, substantially as and for the purpose described.

643,290. LAWN-MOWER SHARPENER. THOMAS F. HERBERT, Leominster, Mass., assignor of two-thirds to Martin H. Thersey, same place, and Daniel R. Dwyer, Pepperell, Mass. Filed July 8, 1899. Serial No. 723,188. (No model.)



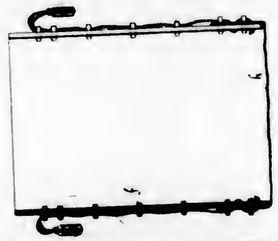
Claim.—1. A lawn-mower sharpener, consisting of a sharpener-board, means for attaching said sharpener-board to a lawn-mower and means for adjusting said board tangentially with relation to the rotary knives of said lawn-mower, in combination with means for forcing said sharpener-board against the cutting edges of the rotary knives of said lawn-mower with a yielding pressure.

2. A lawn-mower sharpener, consisting of a sharpener-board, means for attaching said sharpener-board to a lawn-mower, and means for adjusting said board radially and tangentially with relation to the rotary knives of said lawn-mower in combination with means for forcing said sharpener-board against the cutting edges of said lawn-mower with a yielding pressure.

3. In a lawn-mower sharpener, a sharpener-board 5, pivotally connected to an eyebolt 8, said eyebolt adjustable longitudinally upon an angle-iron 13, said angle-iron being adjustable vertically upon a clamp-holder 21, in combination with means for forcing said sharpener-board against the cutting edges of said lawn-mower with a yielding pressure.

4. In a lawn-mower sharpener, a sharpener-board 5 pivotally connected to an angle-iron 13 by an adjustable eyebolt 8, said angle-iron adjustably fastened to a clamp-holder 21, adapted to be secured to a lawn-mower, and having a sliding block 16 and screw 17 thereon, said screw 17 arranged to bear against a spring 18, attached to said sharpener-board, substantially as described for the purpose specified.

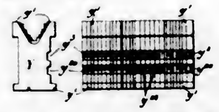
643,291. SAMPLE OR CONVEYING BAG. OSCAR HOFFMANN, Nuremberg, Germany. Filed July 18, 1899. Serial No. 724,273. (No model.)



Claim.—As an article of manufacture, a sample or conveying bag comprising a single sheet of material folded upon itself with inwardly-turned overlapping side edges and bottom folds or flaps turned upwardly against said overlapping edges, fastening means securing said flaps and overlapping portions, and carrying-bands held by said fastening means, substantially as described.

643,292. LINOTYPE-MACHINE. CHARLES HOLLIWELL and RICHARD C. ELLIOTT, Broadheath, England, assignors to the Mergenthaler Linotype Company, New York, N. Y. Filed Sept. 9, 1899. Serial No. 729,985. (No model.)

Claim.—1. In a linotype-machine, and in combination with the head or carrier for presenting the matrix-line to the mold, an adjustable stop to vary the movement of said carrier, in order that the line may be presented in different relations to the mold, and means for automatically changing the position of the stop after the matrix-line has served its purpose at the mold.



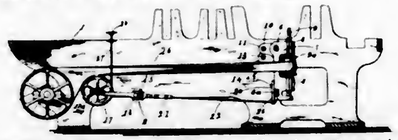
2. In a linotype-machine, and in combination with the matrix-line carrier N', a movable stop y^{30}, to limit the movement of the carrier, and a tripping device y^{36}, to change the position of the stop.

3. The improved font of matrices for a linotype-machine, having the letter characters in duplicate, and the remainder of the font having each two variant characters, substantially as described and shown, whereby the font is adapted for the production of body matter containing the variant or sorts characters of either series at will.

4. In a linotype-machine, a font of matrices, the regular letter-matrices having each two duplicate letters, and the remaining matrices having each two variant characters, in combination with means for presenting the composed lines of matrices to the mold in different positions, the upper or the lower characters in operative relation thereto, as demanded.

5. The combination in a linotype-machine of a font of matrices or dies, part of them having duplicate letter characters, y^4 and y^{29}, and the remainder containing each two variant characters, in combination with a mold and means for presenting a composed line of matrices to the mold in different positions, substantially as described and shown.

643,293. PLANING-MACHINE. EDWARD HOLMES, BRITAIN HOLMES, and EDWIN F. BEUGLER, Buffalo, N. Y., assignors to the E. & B. Holmes Machinery Company, same place. Filed Sept. 29, 1897. Renewed Sept. 7, 1899. Serial No. 729,782. (No model.)



Claim.—1. In a planing-machine, the combination with a matcher-head and matcher-head belt, of a tightening-pulley located on a substantially horizontal support and capable of a lateral swinging movement thereon, means connecting said tightening-pulley frame with the matcher-head frame and means for moving the matcher-head back and forth across the machine, whereby a movement of the matcher-head to one side or the other will adjust the tightening-pulley and driving-belt and keep it in operative position on the driving-pulley at any point to which said matcher-head may be adjusted.

2. In a planing-machine, the combination with a matcher-head and matcher-head belt, of a vertically-adjustable and laterally-movable frame carrying a tightening-pulley and mounted on a support on the machine, a screw-bar and means for operating it, for adjusting said frame and tightening-pulley vertically, means connecting said frame with the matcher-head frame, and means for moving the matcher-head across the machine and thereby operatively adjusting the tightening-pulley and driving-belt to any position the matcher-head may be moved.

3. In a planing-machine, the combination with a matcher-head and matcher-head belt, of a vertically-adjustable and laterally-movable supporting frame, a tightening-pulley mounted in suitable bearings thereon, means for adjusting said frame and tightening-pulley vertically, a cross-bar for supporting said frame and upon which it is capable of a horizontal swinging movement, a longitudinal bar extending from a pivotal connection at the front end of the tightening-pulley frame so as to be capable of a swinging up or down movement, and having its opposite end in engagement with the matcher-head frame, and means for moving the matcher-head back and forth across the machine, thereby operating the tightening-pulley and keeping the matcher-head belt in operative position at any point to which the matcher-head may be adjusted.

4. In a planing-machine, the combination with the driving pulley and belt, of two downwardly-extending arms connected together by a cross-bar and mounted so as to swing on a short shaft extending from the side of the machine, an arm extending from one of said arms in a substantially horizontal direction, means for adjusting the end of said arm upward or downward and thereby moving the outer ends of the depending arms forward or back in a substantially horizontal direction, two arms connected together by a cross-bar and pivoted between the two depending arms, a tightening-pulley mounted thereon, and means for adjusting the said arms and tightening-pulley vertically, for the purpose described.

5. In a planing-machine, the combination with the machine-frame, the matcher-head adjustably mounted therein, the driving-pulley and the matcher-head belt, of an adjustable tightening-pulley and mechanism controlled by the matcher-head for adjusting the tightening-pulley to correspond to the adjustment of the matcher-head and thereby aline the pulley with the belt.

6. In a planing-machine, the combination with the machine-frame, the matcher-head adjustably mounted therein, the driving-pulley and the matcher-head belt, of a tightening-pulley and means for adjusting the tightening-pulley to correspond with the adjustment of the matcher-head.

7. In a planing-machine, the combination with the machine-frame, the matcher-head adjustably mounted therein, the driving-pulley and the matcher-head belt, of a tightening-pulley and means for adjusting the tightening-pulley simultaneously with the corresponding adjustment of the matcher-head.

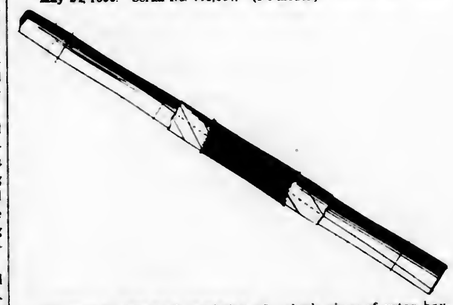
8. In a planing-machine, the combination with the machine-frame, the matcher-head adjustably mounted therein, the driving-pulley and the matcher-head belt, of a tightening-pulley, means for adjusting the tightening-pulley to vary the tension of the belt and means for adjusting the tightening-pulley to correspond with the adjustment of the matcher-head.

9. In a planing-machine, the combination with the machine-frame, the matcher-head adjustably mounted therein, the driving-pulley and the matcher-head belt, of a tightening-pulley, adjusting mechanism for moving the tightening-pulley to correspond with the adjustment of the matcher-head and independent adjustment for adjusting the tightening-pulley to vary the tension of the belt.

10. In a planing-machine, the combination with the machine-frame, a substantially vertical shaft and a substantially horizontal shaft journaled in said frame, a matcher-head adjustably mounted on the substantially vertical shaft, a driving-pulley mounted on the substantially horizontal shaft, and a matcher-head belt, of a tightening-pulley and means for adjusting the tightening-pulley to correspond with the adjustment of the matcher-head.

11. In a planing-machine, the combination with a matcher-head and matcher-head belt, of a tightening-pulley mounted on a support and capable of a lateral swinging movement thereon, an operative connection between said tightening-pulley frame and the matcher-head frame and means for moving the matcher-head back and forth across the machine.

643,294. WHIP-STOCK. DAVID C. HULL, Westfield, Mass. Filed May 24, 1899. Serial No. 718,007. (No model.)

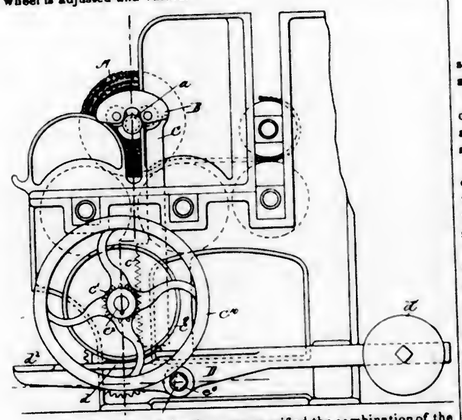


Claim.—A whip-stock consisting of a single piece of ratan having a lower or butt end construction extending through the hand-grasped portion thereof in which one side of said portion is removed, thereby giving to said hand-grasped part of the stock the form of the segment of a circle in cross-section, a combined load and strengthening piece of metal applied to said stock in place of said removed portion of the ratan-piece, said united stock and metallic parts forming, jointly, a butt-end of the stock of cylindrical form in cross-section, substantially as described.

643,295. LAP-ROLL TENSION FOR COTTON-OPENING MACHINES. FREDERICK H. L. JAMES, Pawtucket, R. I., assignor to the Saco & Pettee Machine Shops, Newton, Mass. Filed Dec. 18, 1899. Serial No. 740,775. (No model.)

Claim.—1. In combination with a lap-roll and as a means for varying the tension upon the lap being wound thereon, a tension-

wheel connected with the lap-roll, a tension-lever having a curved bearing-surface and means for varying the relation of said surface to the tension-wheel, comprising a fulcrum attached to the machine-frame to be turned therein and to be locked in any desired position and having an eccentric bearing upon which the lever is mounted and by which the position of its tension-surface with respect to the tension-wheel is adjusted and varied.



2. In a machine of the character specified the combination of the lap-roll, a tension-wheel, an overbalanced lever having a tension-surface and an eccentric fulcrum adapted to be turned to move the lever and its overbalance, both vertically and longitudinally, and vary the relation of its tension-surface to the tension-wheel and without changing the operative stress of said overbalance upon the lever.

648,296. BOX-FASTENER. ANTON JAROLIMEK, Sedlets, Austria-Hungary. Filed Oct. 21, 1899. Serial No. 734,390. (No model.)



Claim.—1. The combination with a box having a cover with a socket therein, a spring secured at one end to the box and having its opposite end extending through the cover and normally held in the socket, a nut engaging said end and also normally confined within the socket, the end of the spring with the nut thereon being adapted to be withdrawn from the socket so that access may be had to the nut to unscrew the same.

2. The combination with a box having a cover with a socket therein, a spring secured at one end to the box having a portion thereof normally distended to nearly its full limit of elasticity and its opposite end formed of a series of coils not distended normally held in the socket, a nut engaging the end comprising a spiral coil, said end with the nut thereon being adapted to be withdrawn from the socket to give access to the nut.

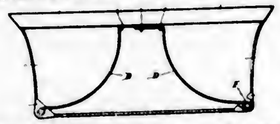
3. The combination with a box having a cover with a socket therein, a spring secured at one end to the box having its intermediate portion distended to nearly the limit of its elasticity and its opposite end formed of a series of coils not distended normally held in the socket, a nut adapted to engage said end, said end being adapted to receive a tool whereby it may be withdrawn with the nut thereon from the socket to give access to the nut, substantially as described.

4. The combination with a box having sockets in opposite sides thereof, of a spring having an intermediate part distended to near the limit of its elasticity, and its ends formed of coils not distended and extending through said sides into said sockets and nuts engaging the ends, said ends with the nuts thereon being adapted to be withdrawn from the sockets to give access to the nuts, substantially as described.

648,297. STRETCHER FOR CUSHION-FALLS. JESSE R. LA DOW, Jackson, Mich. Filed July 18, 1899. Serial No. 724,214. (No model.)

Claim.—1. A cushion-fall having flexible wires secured thereto and adapted to stretch and hold the same in shape.

2 A cushion-fall having flexible wires secured thereto and engaging the lower corners thereof and exerting an outward and downward force to stretch said fall and hold the same in shape.



3. A cushion-fall supported at its upper edge, wires pivoted to said support and engaging said fall at its lower corners, substantially as described.

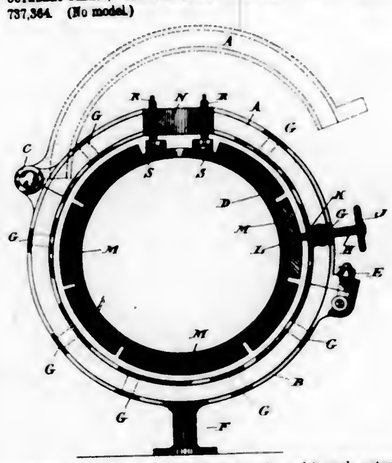
4. In combination with a cushion-fall and its support, a wire pivotally secured to said support near its middle and extending outward and downward to near the corners of said fall and secured thereto, substantially as described.

5. In combination with a cushion-fall and its support, a wire pivotally secured to said support near its middle and extended in downward and outward curves to the lower corners of said fall and formed with eyes at its ends and secured to said corners, substantially as described.

6. In combination with a supporting-strip and a cushion-fall secured thereto, pockets at the lower corners of said fall, wires pivotally secured to said strip at one end and having eyes engaging said pockets at the opposite end, substantially as described.

7. In combination with a supporting-strip and a cushion-fall secured thereto, pockets at the lower corners of said fall, wires overlapped at their inner ends and secured to said strip by a staple, staples at each side of said staple and at a short distance therefrom and engaging said wires, said wires being bent at right angles and downwardly and outwardly curved, and eyes on the outer ends of said wires engaging said pockets, substantially as described.

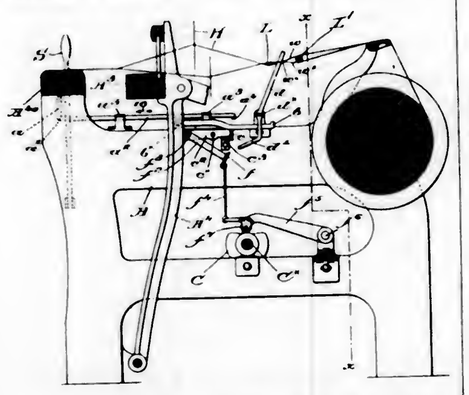
643,298. APPARATUS FOR SUPPORTING CASKS OR BARRELS. CHARLES LAMPITT, London, ARTHUR J. CARLILL, Burton-on-Trent, and CUTHBERT SIMKIN, London, England. Filed Nov. 17, 1899. Serial No. 737,364. (No model.)



Claim.—As a means for supporting casks and barrels externally when exposed to internal pressure, the combination of a circular frame composed of two parts A and B hinged together at C, and bolted together at E, and having any number of holes G, each provided with a hollow rod H, in connection with a threaded bolt L, attached to a shaped block M, the said holes G being adapted to be rotated by wheels or handles J for placing the blocks M in close abutment with the outer surface of a cask or barrel D substantially as herein described and shown by the drawings annexed.

643,299. WARP STOP-MOTION FOR LOOMS. CHARLES A. LITTLEFIELD, Lowell, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Nov. 3, 1899. Serial No. 735,855. (No model.)

Claim.—1. In warp-stop-motion mechanism, leasing members, a series of detectors maintained inoperative by engagement with pairs of warps at their crossing-point between the leasing members, said detectors resting against the threads at the crossings thereof, and stopping means operated by or through abnormal positioning of a detector due to failure of one or both of its controlling-warps.



2. In warp-stop-motion mechanism, leasing members, a series of angularly-movable detectors maintained inoperative by engagement with pairs of warps at their crossing between the leasing members, a fixed pivotal support for the detectors and stopping means, operated by or through abnormal positioning of a detector due to failure of one of its controlling-warps.

3. In warp-stop-motion mechanism, leasing members, a series of angularly-movable detectors having each an offset lower end and maintained inoperative by engagement with pairs of warps at their crossing between the leasing members, a normally-moving, cooperating feeler, and stopping means actuated by or through engagement of the feeler and the offset end of an abnormally-positioned detector due to failure of one of its controlling-warps.

4. In warp-stop-motion mechanism, parallel and separated leasing members to divide the warps into groups, a series of movable detectors each adapted to engage a warp in each group at the crossing-point of such warps between the leasing members and be maintained inoperative, and stopping means, actuated by or through a detector operatively positioned by failure of one of its controlling-warps.

5. In warp-stop-motion mechanism, a series of detectors maintained inoperative by intact warps, each detector having an offset finger, a two-part feeler comprising a pivotally-mounted member and a member normally movable relatively thereto, and stopping means, including a bunter controlled by the pivoted member of the feeler, movement of a detector into operative position interposing its finger between the members of the feeler, to effect their simultaneous movement, to thereby move the bunter into operative position.

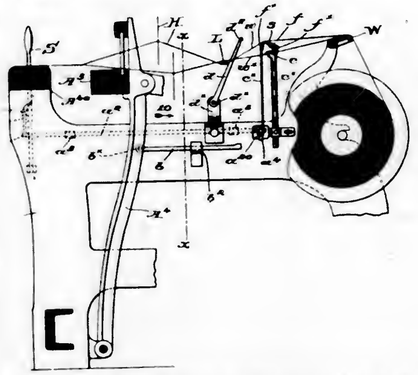
6. In warp-stop-motion mechanism, a series of detectors maintained inoperative by intact warps, eachdetector having an offset finger, a cooperating vibrating member, stopping means including a bunter, and a pivoted support therefor, to which the vibrating member is fulcrumed, movement of a detector into operative position interposing its finger between the support and vibrating member, whereby movement of the latter operatively positions the bunter.

7. In warp-stop-motion mechanism leasing members to divide the warps into groups, a series of detectors pivotally mounted below the warps and upturned to respectively engage and rest against a warp in each group at their crossing between the leasing members, a fixed fulcrum for said detectors, a vibrating feeler, and stopping means actuated by or through engagement of the feeler with the lower end of a detector operatively positioned by failure of one of its controlling-warps.

8. In a loom, the lay, a bunter pivotally connected therewith, stopping means for the loom, including a link normally out of range of the bunter, a movable support for the bunter, a series of detectors maintained inoperative by intact warps, each detector having an offset finger, and a vibrating feeler, movement of a detector into operative position interposing its finger between the feeler and bunter-support, to thereby effect movement of the bunter-support to operatively position the bunter.

9. In a loom, the lay, a normally-inoperative bunter pivotally connected therewith, stopping means, actuated by the bunter, a rocking support for the bunter, a stop to limit movement of the support in one direction, a series of detectors maintained inoperative by intact warps, and a cooperating feeler fulcrumed on the bunter-support, movement of a detector into operative position effecting movement of the bunter-support by the feeler, to operatively position the bunter.

648,800. WARP STOP-MOTION FOR LOOMS. CHARLES A. LITTLEFIELD, Lowell, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Nov. 3, 1899. Serial No. 735,856. (No model.)



Claim.—1. In a warp-stop-motion mechanism, a feeler moved in one direction by warp tension, a spring to move it oppositely, a series of detectors maintained inoperative by intact warps, a released detector engaging and arresting spring-impelled movement of the feeler, and stopping means actuated by or through such arrest of the feeler.

2. In a warp-stop-motion mechanism, a feeler moved in one direction by warp tension, a spring to move it oppositely, a series of rocking, shouldered detectors maintained inoperative by intact warps, the shoulder of a released detector engaging and arresting the feeler, while the detector is subjected to tensile strain, and stopping means actuated by or through such arrest of the feeler.

3. In a warp-stop-motion mechanism, a movable feeler extended beneath and transversely to the warps and intermittingly depressed by warp tension, a spring to lift it, a series of angularly-movable detectors maintained inoperative by intact warps, a released detector engaging and arresting spring-impelled movement of the feeler, and stopping means actuated by or through such arrest of the feeler.

4. In a warp-stop-motion mechanism, a movable feeler extended beneath and transversely to the warps, and intermittingly depressed by warp tension, a spring to lift it, a series of angularly-movable detectors maintained inoperative by intact warps, a released detector engaging and arresting spring-impelled movement of the feeler, and stopping means, including a knock off rod provided with a dog controlled by the feeler, and a bunter arrest of the feeler positioning the dog in the path of the bunter, to operate the knock-off rod

5. In a warp-stop-motion mechanism, a lease-rod, a movable feeler parallel thereto to lease the warps and intermittingly moved in one direction by warp tension, a spring to move it oppositely, a series of detectors maintained inoperative by the engagement of each with a pair of warps at their crossing between the lease-rod and feeler, a detector released by failure of one of the pair of its controlling-warps engaging and arresting movement of the feeler, and stopping means actuated by or through such arrest of the feeler.

6. In a warp-stop-motion mechanism, a lease-rod and a leasing-feeler moved in one direction by warp tension, a spring to move it oppositely, a series of pivotally-mounted detectors each maintained inoperative by engagement with a pair of warps at their crossing between the leasing members, a released detector engaging and arresting the spring-impelled movement of the feeler, the detector being subjected to tensile strain, and stopping means actuated by or through such arrest of the feeler.

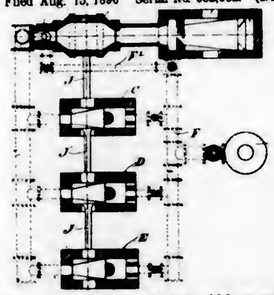
7. In a warp-stop-motion mechanism, leasing members to separate the warps into groups, one of said members including a feeler spring-actuated in one direction and moved oppositely by warp strain in beating up, a series of detectors maintained inoperative by engagement with a warp of each group at their crossing between the leasing members, a released detector engaging and arresting spring-actuated movement of the feeler, and stopping means, actuated by or through such arrest of the feeler.

8. In a warp-stop-motion mechanism, leasing devices to separate the warps into groups, one of said devices including a spring-controlled member, a series of detectors maintained inoperative by engagement with a warp of each group at their crossing between the leasing devices, a detector when released engaging and arresting normal movement of the spring-controlled member, and stopping means, actuated by or through such arrest of the said member.

9. In a warp-stop-motion mechanism, leasing members to separate the warps into groups, one of said members having a part mounted to rock, a series of detectors maintained inoperative by engagement with a warp of each group at their crossing between the leasing members, a detector in abnormal position engaging and arresting the normal movement of the rocking part, and stopping means actuated by or through such arrest of the rocking part.

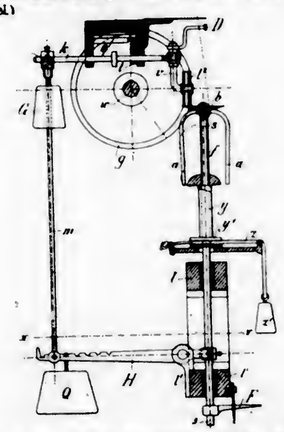
10. In a warp-stop-motion mechanism, a lease-rod, a rocking feeler parallel thereto to lease the warps and intermittingly moved in one direction by warp tension, a spring to move it oppositely, an upturned lip on the free edge of the feeler, a series of pivotally-mounted hooked detectors each upturned to engage a warp in each group at their crossing between the rod and feeler, failure of a warp of a pair releasing its detector, the hook of the latter engaging the lip of and arresting the feeler, and stopping means actuated by or through such arrest of the feeler.

643,801. **PROCESS OF SMELTING AURIFEROUS ANTIMONY ORES.** CECIL C. LONGRIDGE, Leigh, and GEORGE T. HOLLOWAY, London, England. Filed Aug. 15, 1896. Serial No. 602,902. (No specimens.)



Claim.—A process for the extraction of gold from auriferous antimony sulfid ores consisting in the fusion of metallic antimony with ore and in the addition of sufficient metallic iron to the fused ore to convert enough antimony sulfid to metallic antimony to make good the loss of metallic antimony due to the solvent action of the sulfid ore, and in the intimate admixture of the metallic antimony and sulfid of antimony by mechanical means, so as to effect the extraction of the gold by virtue of the greater affinity of the metallic antimony than the antimony sulfid for gold and by the greater density of the antimony gold alloy produced, substantially as hereinbefore described.

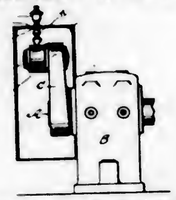
643,802. **SPINNING AND TWISTING MACHINE.** WILHELM NEUBAUER, Bischweiler, Germany. Filed July 6, 1899. Serial No. 722,977. (No model.)



Claim.—1. In a spinning and twisting machine, a non-rotary vertically movable spindle with means for keeping it pressed normally upward and carrying the spool, the flier mounted thereon and having a depending tubular stem entering and serving as a guide for the spool, a friction-disk carried by the flier, a second friction-disk in driving contact with said first-named disk and means for driving said second disk, substantially as described.

2. In a spinning and twisting machine, a non-rotary vertically-movable spindle with means for keeping it pressed normally upward and carrying the spool, the flier mounted thereon and having a depending tubular stem entering and serving as a guide for the spool, a friction-disk carried by the flier and having two oppositely-arranged holes with slots leading thereto for the entrance of the yarn, a second friction-disk in driving contact with said first-named disk and means for driving said second disk, substantially as described.

643,803. **AUTOMATIC LUBRICATOR.** ROOM S. O'BRIEN, Providence, R. I. Filed Nov. 20, 1899. Serial No. 737,613. (No model.)



Claim.—1. In an intermittent lubricating apparatus, the combination of a stationary oil-receptacle having an opening in its bottom, a ball held in said receptacle to close the opening and having a portion of its lower surface exposed outside below said opening, an oil-cup attached to a moving part of the machine, a device held in said cup to raise and turn the ball when said oil-cup is carried past, substantially as described.

2. In a lubricating apparatus of the character described a stationary oil-receptacle having an opening in its under side, a ball held in said receptacle to close the opening and having a portion exposed outside under said opening, in combination with an open oil-cup carried by a moving part of the machine, a ball held free to turn in said open cup and having its upper side exposed above said cup, substantially as described.

3. In a lubricating apparatus of the character described, a stationary oil-cup in combination with a separate oil-receptacle adjustably attached to the stationary oil-cup by a screw on its upper end and a check-nut to retain said screw when set, a ball held in an opening in said separate oil-receptacle, an oil-cup attached to a moving part of the machine, with devices for raising and turning said ball, in passing, substantially as described.

643,804. **OIL-GAS BURNER.** GEORGE T. PHELPS, Cambridge, Mass. Filed Mar. 11, 1896. Serial No. 582,738. (No model.)



Claim.—1. The combination with the burner comprising a chamber for the gaseous fuel having openings for the escape thereof, of longitudinally-movable superheating-tubes supported upon the upper edges of said chamber, and a downward extension from said tubes provided with an outlet-opening, the said burner being provided with an inlet opposite the said outlet-opening, substantially as described.

2. The combination with the burner comprising a chamber for the gaseous fuel having openings for the escape thereof, of longitudinally-movable superheating-tubes supported upon the upper edges of said chamber, a downward extension from said tubes provided with an outlet-opening, the said burner being provided with an inlet opposite the said outlet-opening, and independent means for heating said tubes, substantially as described.

3. The combination with the superheating-tubes and outlet therefrom, of the burner situated below the said tubes and having an inlet opposite the said outlet; and a wall of the said burner comprising a number of bars or slats separated from each other to form burner-openings, there being one or more depressions in the outer surface of said wall adapted to hold oil substantially as described.

4. The combination with the superheating-tubes, of the burner below said tubes comprising a chamber open at the top and having its opposite inner walls provided with shoulders or projections,

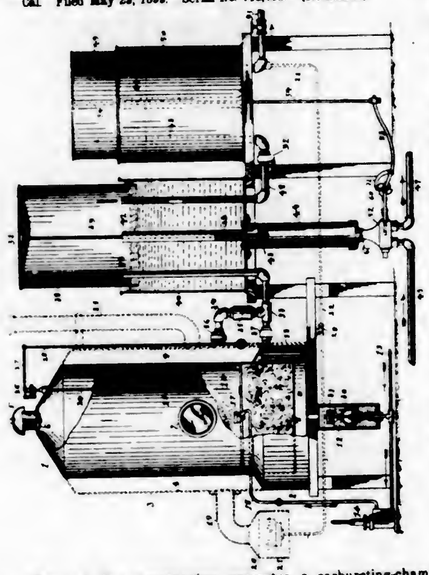
and a cover or upper wall for said chamber comprising a series of parallel bars connected together by transverse rods and separated from each other by washers on said rods interposed between said bars to form burner-openings, said bars being supported at their ends upon said shoulders or projections, and the length of said bars being less than the distance between such walls above the said shoulders, substantially as described.

5. In an oil-gas-generating burner, the combination with the superheating-tubes and outlet therefrom, of the burner below said tubes comprising a chamber having an inlet opposite said outlet, a series of independent bars supported upon but not connected to the walls of said chamber, and parallel to each other, and means for separating or spacing said bars to provide burner-openings, substantially as described.

6. The combination with the burner, of superheating-tubes extending over said burner and having an inlet and a dome at the end farthest removed from said inlet, a downwardly-extending passage from said dome, and an outlet from said passage, an inlet-opening in the wall of the burner opposite said outlet, and separated therefrom by an intervening space and a chamber extending to the burner which forms one wall thereof, and inclosing said downward extension, said chamber being provided with an air-inlet, substantially as described.

643,805. WITHDRAWN.

643,806. **CARBURETER.** VALENTINE J. A. REY, San Francisco, Cal. Filed May 29, 1899. Serial No. 718,762. (No model.)



Claim.—1. In gas-generating apparatus, a carbureting-chamber, a spraying device therein for the introduction of hydrocarbon fluid, a valved air-inlet way at the top, filtering material at the base, a perforated bottom below said filtering material, an inclosure outside said perforated bottom, and means for drawing off the aerated vapor from said inclosure, substantially as specified.

2. In gas-generating apparatus, a carbureting-chamber, a spraying device therein, a valved inlet for air, porous filtering material at the base, a perforated bottom, an annular chamber around and below said bottom, an outlet for the aerated vapor from said chamber, and a removable casing adapted to fit upon said annular chamber, substantially as specified.

3. In gas-generating apparatus, a cylindrical carbureting-chamber, a base-chamber integral therewith, of larger diameter than said carbureting-chamber into which the latter projects, a casing supported upon said base-chamber surrounding said cylindrical chamber, and forming an annular space between them, an inlet for hot air into said annular space, and an outlet-flue for hot air therefrom, substantially as specified.

4. In gas-generating apparatus, a cylindrical carbureting-chamber, inlets for air and oil respectively, a surrounding base-chamber larger than the carbureting-chamber, a jacket-casing supported upon the said base-chamber, a hot-air inlet and flue outlet to and from said jacket, an outlet for aerated vapor from said base-chamber, an air-inlet to said outlet, and means for varying and regulating said air-inlet controlled by the temperature of the vapor within the carbureter, substantially as specified.

5. In gas-generating apparatus, a carbureting-chamber, a jacket-casing surrounding the same, a gas-burner to heat the interior of the casing and the carbureting-chamber inclosed therein, and a thermostat in the carbureting-chamber connecting to and regulating the supply of gas to a burner by which the carbureting-chamber is heated, substantially as specified.

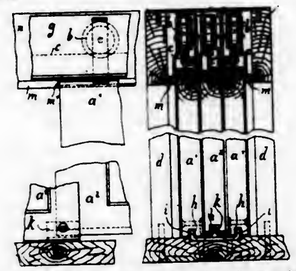
6. In gas-generating apparatus, a carbureting-chamber, a jacket-casing surrounding this chamber and means to heat the same, a thermostat to regulate the heat, also connecting to an air-inlet valve that opens into the gas-conveying pipe and introduces pure air into the gas after the latter leaves the carbureting-chamber, substantially as specified.

7. In gas-generating apparatus, a carbureting-chamber, means to introduce and spray hydrocarbon oil therein, an inlet for air at the top of this chamber and an outlet for gas at the base thereof, a pump or exhausting vessel to draw air into the carbureter and exhaust the gas therefrom, an inlet-valve to admit pure air to the gas and dilute the same after it is drawn from the carbureter and a thermostat in the carbureting-chamber connected to and controlling this air-inlet valve, substantially as specified.

8. In gas-generating apparatus, a carbureting-chamber, a jacket-casing inclosing the same, means to supply heat within this casing and heat the carbureting-chamber, a perforated bottom 8, a collecting-chamber beneath and around the base of the carbureting vessel, a drainway in the bottom of this subchamber, a drain-chamber, and a float and valve by means of which surplus oil is returned to the oil-supply pipe, substantially as specified.

9. In gas-generating apparatus a main carbureting-chamber, means to supply hydrocarbon oil and air thereto and means to heat the carbureting-chamber, a gas-outlet pipe from said chamber, an air-inlet pipe to said outlet-pipe having a register-valve therein, a thermostat in said carbureting-chamber, a lever operated thereby and connection from the lever to the said oscillating register-valve to admit pure air to the gas after it is drawn from the carbureting-chamber substantially as specified.

643,807. **SLIDING DOOR.** EBERARD SCHMITT and ANDREAS SCHMITT, Nuremberg, Germany. Filed Oct. 27, 1899. Serial No. 734,976. (No model.)



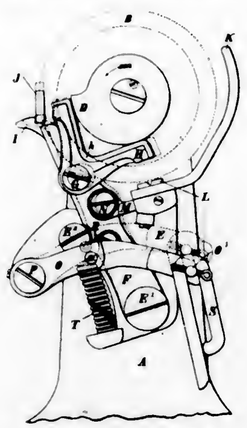
Claim.—1. The combination with the door-frame, of the sliding double wings arranged adjacent to each side of the frame, a central wing carried between each double wing, two tracks supporting the double wings and a single central track supporting both single wings.

2. In a folding door, the combination with a sliding double wing arranged adjacent to each side frame and a single sliding wing arranged centrally of each double wing, of a frame having a narrow central way adapted to guide the central wings, and enlarged guiding-ways at each end of the central way, adapted to confine the double wings, and the shoulders formed at the forward end of the enlarged way forming limiting-stops for the double wings.

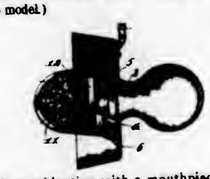
3. The combination with the telescoping doors comprising double wings and a central wing arranged between the same, of a plate secured to the floor having parts engaging each of the double wings to guide the same, and a plate carried between said double wings to guide the central wing, substantially as described.

643,808. **STOP-MOTION FOR SEWING-MACHINES.** AURELIUS STEWARD, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed May 16, 1899. Serial No. 717,013. (No model.)

Claim.—In a stop-motion for machinery, the combination of the brake-cam, the supporting-bracket E, the brake-lever pivoted thereon, the brake-shoe eccentrically pivoted on said brake-lever whereby said shoe may be adjusted to or from the brake-cam with which it is adapted to engage, the operating-lever O, and operative connections between said operating-lever and said brake-lever, substantially as set forth.



643,309. DEVICE FOR DISINFECTING TELEPHONES, &c. WARREN H. TAYLOR, Stamford, Conn. Filed Mar. 9, 1899. Serial No. 708,344 (No model.)



Claim.—1. In combination with a mouthpiece of a speaking instrument, a removable cap applied to the end thereof, a disinfectant secured in said cap and means for expressing the disinfectant from the cap in the act of removing the cap.

2. In combination with a mouthpiece of a speaking instrument, a cap to cover the same, a perforated receptacle in the cap for holding a disinfectant, a hollow resilient handle secured to the cap and communicating with said receptacle.

3. In combination with a mouthpiece of a speaking instrument, a cover for the same, a holder connected to and removable with the cover and projecting inside of the mouthpiece and containing an antiseptic material or disinfectant and means for forcing said material into the mouthpiece when the cover is removed.

4. In combination with a mouthpiece of a speaking instrument, the removable cover, a disinfectant-holder or nose-piece, removably attached to the cover, and extending into said mouthpiece.

5. In combination with a mouthpiece of a speaking instrument, a removable cover for the same, a nose-piece or holder removably secured to the cover, a lozenge or tablet, containing disinfectant ingredients secured in said nose-piece or holder and means for admitting air to be forced through or around said tablet into the said mouthpiece.

6. In combination with a mouthpiece of a speaking instrument, a cover for the same, a nose-piece or holder removably secured to the cover, an antiseptic material secured in said nose-piece and means for forcing air through or around said antiseptic material into the mouthpiece.

7. A mouthpiece of tubular form for speaking instruments containing a disinfecting or deodorizing tablet or lozenge, so located with reference to the mouthpiece that the tablet when in place is forward of the front edge or inside of the opening to the said mouthpiece.

8. The combination, with the cover of a telephone or other speaking instrument; of a hollow flexible handle, and deodorizing material contiguous to the mouthpiece and cover, for the purpose of deodorizing or keeping the mouthpiece fumigated.

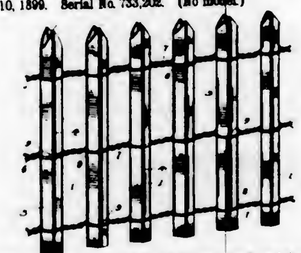
9. The combination, with the cover and mouthpiece of a telephone or other speaking instrument; of a hollow flexible handle, and deodorizing material located between the cover and mouthpiece, for the purpose of deodorizing or keeping the mouthpiece fumigated.

10. The combination, with the cover and mouthpiece of telephones or other speaking instruments, of a tablet, or evanescent material, or deodorizing ingredients, and a hollow flexible part carried by the cover, and arranged so that air, gas or fumes, from the tablet, or evanescent material, or deodorizing ingredients may escape or be forced through the cover into the mouthpiece.

11. The combination, with the mouthpiece of a telephone or other speaking instrument, of a disinfecting or deodorizing tablet, or lozenge formed of such material that it slakes or forms gases by the action of the air and so arranged within the mouthpiece as to permit air to circulate through, over and around said tablet or lozenge.

12. The combination, with the cover for a mouthpiece of a telephone or other speaking instrument; of a disinfecting or deodorizing tablet or lozenge formed of such material that it slakes or forms gases by the action of the air, and so arranged in connection with the cover as to permit the gases or ingredients from the tablet or lozenge to escape into the mouthpiece.

643,310. PICKET FENCE. LUTHER TRABUE, Girard, Ill. Filed Oct. 10, 1899. Serial No. 733,202. (No model.)



Claim.—1. In a device of the class described, a picket constructed of a single piece of sheet metal folded longitudinally to form two sides, said sides being bowed outwardly and having their longitudinal edges in contact with each other and provided with opposite notches adapted to receive loops of fence-wires, whereby the said longitudinal edges of the picket are maintained in contact with each other and the form of the picket preserved, substantially as described.

2. In a device of the class described, the combination of the pickets each constructed of a single piece of sheet metal folded longitudinally to form two sides and having the latter bowed outward and provided with openings forming upper and lower shoulders, and the fence-wires arranged in pairs, twisted together between the pickets and provided with loops embracing the same and fitting between the shoulders of the openings and holding the longitudinal edges of the picket in contact with each other, whereby the form of the picket is preserved, substantially as described.

643,311. SPINNING-TOP. CLAUDIUS VERMIAUD, Quincy, Ill. Filed Mar. 29, 1899. Serial No. 710,918. (No model.)

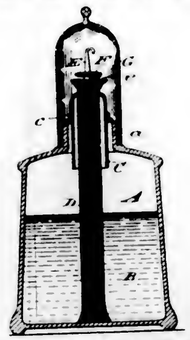


Claim.—1. As a new article of manufacture, a spinning-top comprising two cones separated by a peripheral groove, each cone adapted to receive a spinning-cord and each cone provided at the apex with a spinning end.

2. As a new article of manufacture, a spinning-top having its body made of a single piece in the form of two truncated cones, separated by a centrally-located annular groove, a pointed plug secured to the end of one cone and a rounded or blunt plug secured to the end of the other cone.

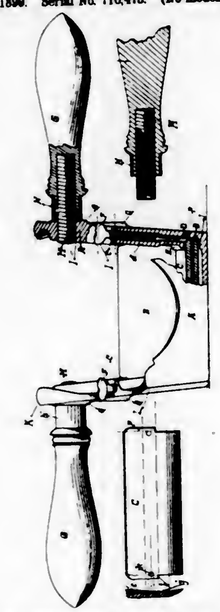
3. As a new article of manufacture, a spinning-top made in the form of two cones and having humming-slots, a peripheral groove and recesses at the juncture of the two cones and a plug in the apex of each cone, one of said plugs being pointed and the other being rounded.

643,312. FUMIGATING-LAMP. ROBERT S. WEST, Cleveland, Ohio, assignor, by mesne assignments, to the West Disinfecting Company, of New York. Filed Nov. 29, 1898. Serial No. 697,762. (No model.)



Claim.—The combination with the wick of a fluid fumigating-lamp, of a mantle consisting of a disk of braided platinized asbestos, and means for supporting the said mantle at the desired distance above the top of the wick, substantially as set forth.

643,313. HAND-PLANER. FRANCIS WITEMANN, New York, N. Y., assignor of one-half to Alexander Monaghan, New Orleans, La. Filed Mar. 20, 1899. Serial No. 710,475. (No model.)

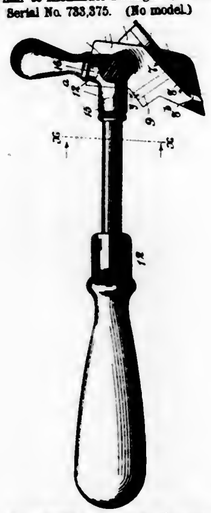


Claim.—1. In a hand-planer, a frame having an opening in its lower face for a blade and grooves in its side walls parallel to the plane of the blade-seat, combined with a clamp having projecting portions to engage said grooves, the ends of the grooves forming abutments to limit the downward movement of the clamp-plate, and screws carried in threaded apertures in the frame adapted to bear upon said clamp to press the same upon the blade, substantially as described.

2. In a hand-planer, a frame having an opening in its lower face for a blade and grooves in its side walls parallel to the plane of the blade-seat, combined with a clamp having projecting portions to engage said grooves, and provided with recesses on its upper face, the ends of the grooves forming abutments to limit the downward movement of the clamp-plate, and screws carried in threaded apertures in the frame adapted to enter the recesses in the clamp to retain the same in position in the frame and to press the clamp upon a blade, substantially as described.

3. In a hand-planer, a frame having a bottom wall and opposed side walls rising from the same, and means for retaining a blade in said frame, combined with a pair of handles each attached to and projecting laterally from the outer surface of one of said side walls at the top portion of said walls, substantially as described.

643,314. SCRAPER. FRANCIS WITEMANN, New York, N. Y., assignor of one-half to Alexander Monaghan, New Orleans, La. Filed Oct. 12, 1899. Serial No. 733,375. (No model.)



Claim.—1. In a planer or scraper, the combination of a frame having a bottom wall provided with an opening, and sides projecting above the same, a blade, means for holding the blade in the frame, a handle-support located between said sides and having threaded portions situated at an angle to each other, and handles for connection with said support, substantially as described.

2. In a planer or scraper, the combination of a frame having a bottom wall provided with an opening and sides projecting above the same, a blade, means for holding the blade in the frame, a bar supported between said sides, said bar having a pair of projections extending at an angle to each other, and handles for connection with said projections, substantially as described.

3. In a planer or scraper, the combination of a frame having a pair of opposed sides, means for holding a blade in the frame, a handle-support movably connected with said sides, a bar extending across the frame in connection with said sides, and means for securing said handle-support to said bar, substantially as described.

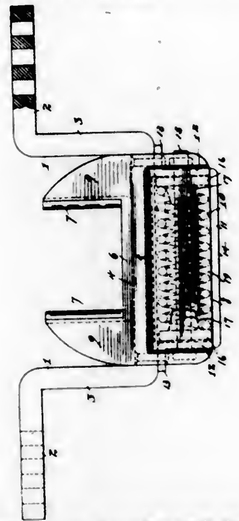
4. In a planer or scraper, the combination of a frame having a pair of opposed sides, means for holding a blade in the frame, a handle-support movably carried by said frame, said support having means for attaching a handle thereto, a cross-bar to be connected with said sides, and means for securing the handle-support to said cross-bar, substantially as described.

5. In a planer or scraper, the combination of a frame having a pair of opposed sides, means for holding a blade in the frame, a handle-support, a bar secured to said sides upon which said handle-support is mounted to rotate, a cross-bar, means for connecting it with said sides, said handle-support having means for attaching a handle thereto, and means for attaching a handle to the support through the medium of said cross-bar, substantially as described.

6. In a planer or scraper, the combination of a frame having a pair of opposed sides, means for holding a blade in the frame, a handle-support, means for rotatively supporting the same in the frame, said handle-support having means for attaching a handle thereto and also having opposed threaded portions, a cross-bar, means for securing the same to the sides, and a handle having means for connecting it to the handle-support through said cross-bar, substantially as described.

643,315. DRAW-BAR-SUPPORTING MECHANISM. JOHN A. YERK, Chicago, Ill., assignor to the Pullman's Palace Car Company, same place. Filed Aug. 8, 1899. Serial No. 726,519. (No model.)

Claim.—1. The combination, with a laterally-movable draw-bar and a carry-iron, of a saddle interposed between the draw-bar and carry-iron, longitudinally movable on the latter and adapted to engage and move with the draw-bar to prevent wear of the draw-bar on the carry-iron, substantially as described.



2. The combination, with a laterally-movable draw-bar and a carry-iron, of a movable saddle on which the draw-bar rests, said saddle being adapted to slide on and be guided by the carry-iron and being provided with a seat to receive and engage the draw-bar, whereby said saddle moves with the draw-bar and prevents wear between it and the carry-iron, substantially as described.

3. The combination, with a laterally-movable draw-bar and a carry-iron, of a saddle longitudinally movable on the carry-iron, comprising a bed-plate, downwardly-extending flanges between which the carry-iron fits, and upwardly-extending flanges between which the draw-bar fits, whereby the saddle moves with the draw-bar between it and the carry-iron and prevents wear of the draw-bar, substantially as described.

4. The combination, with a laterally-movable draw-bar and a carry-iron, of a spring-controlled saddle interposed between the draw-bar and the carry-iron and adapted to slide longitudinally with the carry-iron and to engage and move with the draw-bar, whereby the draw-bar is held in and returned to its normal position and wear of the draw-bar on the carry-iron is prevented, substantially as described.

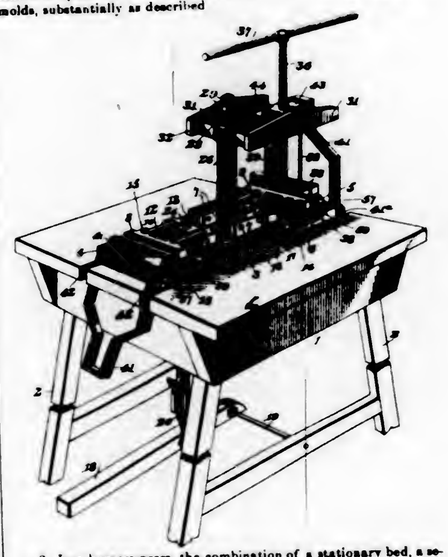
5 The combination, with a carry-iron provided with a depending stirrup, of a saddle mounted and longitudinally movable on said carry-iron, adapted to engage the draw-bar and provided with depending flanges, and spring-controlling mechanism mounted in the depending stirrup and connected with the depending flanges of the saddle to hold this latter in and return it to its normal position, substantially as described.

6. The combination, with a carry-iron, of a saddle longitudinally movable thereon, a centering-block with which the saddle may be adjustably connected to vary its normal position relatively to the central line of the device, and springs for holding the centering-block normally in a central position and for returning the same to said position when displaced, substantially as described.

7. The combination, with a carry-iron having a depending stirrup, a guide-pin, a centering-block movable thereon, and springs for normally centering said block, said block being provided with a keyway or aperture, of a saddle longitudinally movable on the carry-iron, adapted to engage the draw-bar, and provided with a plurality of transverse apertures, and a key passing through the apertures of the saddle and centering-block to adjustably connect the same, substantially as described.

648,816. LEATHER-LOOP-PRESSING MACHINE. SYLVESTER B. BRADSHER, Grand Rapids, Mich., assignor of one-half to Frank E. Brown and John Schler, same place. Filed July 22, 1899. Serial No. 724,830. (No model.)

Claim.—1. In a harness-press, the combination of a stationary bed, a series of formers or molds arranged in the same plane on said bed, each having its members arranged to exert pressure horizontally on the work, and said members spaced to expose the upper side of the work, a shiftable carrier arranged above the bed, and a pressure mechanism supported by the carrier and having a vertically-movable pressure-head which conforms to the open space between the members of each former or mold, said pressure-head adapted to be presented in operative relation to the work in either of the formers or molds, substantially as described.



2. In a harness-press, the combination of a stationary bed, a series of formers supported by said bed in the same horizontal plane thereon and each former having its members arranged to exert pressure horizontally on the work, and said parts spaced to expose the upper side of the work therebetween, a horizontally-adjustable carrier supported over the bed and shiftable over either of the formers, a vertically-movable pressure-head slidably connected with the carrier and shiftable therewith over the formers, said pressure-head conforming to the space between the members of the former and a pressure-screw having a threaded engagement with said carrier and connected with the pressure-head to actuate the latter, said pressure-head and the screw being supported wholly by the carrier, substantially as described.

3. In a harness-press, the combination of a stationary bed, a series of formers supported on the bed and each having a fixed jaw and a slidable pressure-head, each former having its members arranged to exert pressure horizontally on the interposed work, and said members spaced to expose the upper side of the work, a shiftable carrier supported above the bed and adjustable over either former, a vertically-adjustable pressure-head connected slidably with and supported wholly by said carrier, said pressure-head conforming to the space between the members of the former, and a pressure-screw having threaded engagement with the carrier and connected operatively with the pressure-head, substantially as described.

4. In a harness-press, the combination of a stationary bed, a series of formers supported thereon, each former having its members spaced to expose the upper side of the work, a carrier pivotally supported at a point equidistant from said formers and arranged to swing in a horizontal plane over the bed and the formers thereon, a vertically-acting pressure-head conforming to the space between the members of each former and mounted on the carrier for presentation thereby to either of said formers, and locking-yokes pivoted to the bed for adjustment into engagement with the carrier, substantially as described.

5. In a harness-press, the combination of a stationary bed-plate, a series of formers having fixed and movable members on said bed-plate, each former having its members arranged to exert pressure horizontally on the work and spaced to expose the upper side thereof, means for applying pressure horizontally to the movable members of said formers, a fixed column or post situated equidistant from the formers, a horizontally-swinging carrier pivoted on said post and adapted to be adjusted over either of the formers, and a vertically-actuated pressure-head supported by the carrier and shiftable therewith for presentation to either of the formers, said pressure-head coconforming to the opening or space between the members of the former and actuated independently of the movable member of either former, substantially as described.

6. In a harness-press, the combination of a stationary bed, a series of formers supported thereby for exerting pressure horizontally on the work and each having its members arranged to expose the upper side thereof, a carrier adjustable over either former, a vertically-movable pressure-head corresponding to the space between the former members and provided with the guide pins or stems, said head being supported wholly by the carrier to lie parallel with the former to which said pressure-head may be presented by the carrier, and a pressure-screw mounted in the carrier and connected with the pressure-head, substantially as described.

7. In a harness-press, the combination of a bed-plate, a former thereon having spaced members, a carrier having a pressure device, and a clamping-yoke pivoted on the bed-plate and arranged to engage with the carrier to confine the latter firmly in place whereby the carrier is held by the yoke to present the pressure device in the vertical plane of the space between the members of the former and is shiftable with the carrier out of operative relation to the former, substantially as described.

8. In a harness-press, the combination of a bed, a series of spaced formers thereon each having jaws forming an intermediate upwardly-opening mold-cavity, a carrier shiftable over the formers, a vertically-shiftable pressure mechanism supported by said carrier and having a pressure-head which is presentable to the mold-cavity of either of said formers by shiftable adjustment of the carrier, and means for locking the carrier in the adjusted position thereof over either of said formers, substantially as described.

9. In a harness-press, the combination of a bed, a series of spaced formers thereon each having jaws forming an intermediate upwardly-opening mold-cavity, a carrier shiftable over the formers, a vertically-shiftable pressure mechanism supported by said carrier and having a pressure-head which is presentable to the mold-cavity of either of said formers by shiftable adjustment of the carrier, a series of yokes pivoted to the bed at points adjacent to the formers thereon and movable individually on horizontal axes upward toward the carrier, and a toe-piece fast with said carrier in position for engagement by either of the yokes, substantially as described.

10. In a harness-press, the combination of a bed, a series of spaced formers thereon each having jaws forming an intermediate upwardly-opening mold-cavity, a column or post, a shaft extending therethrough, a shiftable carrier mounted on the post and capable of turning thereon to occupy a position over either of said formers, a vertically-acting pressure mechanism supported by the carrier and having a pressure-head presentable to the mold-cavity of either former, a screw engaging with said pressure-head, and another shaft journaled on the carrier to be shiftable therewith and geared to the first-named shaft and the screw, substantially as described.

11. In a harness-press, the combination of a bed, a series of spaced formers thereon each having jaws forming an intermediate upwardly-opening mold-cavity, a carrier shiftable over the formers, a vertically-shiftable pressure mechanism supported by said carrier and having a pressure-head which is presentable to the mold-cavity of either of said formers by shiftable adjustment of the carrier, a screw connected to the pressure-head, a shaft geared to said screw and capable of moving the latter and actuating the pressure-head in either of the adjusted positions of the carrier, and means for locking the carrier in either of its adjusted positions over said formers, substantially as described.

12. In a harness-press, the combination of a stationary bed, a series of formers, a hollow column or post, a horizontally-adjustable carrier pivotally mounted on the column or post and adapted to be moved over either of said formers, a pressure-head connected with said carrier, a vertical screw mounted in the carrier and a driving-shaft journaled on said carrier and having gear connections with said screw, substantially as described.

13. In a harness-press, the combination of a stationary bed, a series of formers, a tubular column, a driving-shaft passing through said column, a carrier mounted loosely on the column and movable in a horizontal plane over either of said formers, a vertical pressure-screw mounted in the carrier, a horizontal shaft journaled on the carrier and geared to the driving-shaft and the screw, and a vertically-movable pressure-head connected operatively with said screw and supported wholly by the carrier, substantially as described.

648,817. GARMENT-SUPPORTER. CHARLES M. BIGGER and GUSTAV P. LEONARD, Chicago, Ill., assignors of one-third to Charles H. Curtis, same place. Filed Dec. 12, 1899. Serial No. 740,033. (No model.)

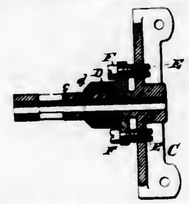
Claim.—1. In a garment-supporting clasp, the combination of a hook member A having a clamping-jaw, tongue *a* and slot *g*, and lever member B, fulcrumed thereon, and having a jaw to cooperate with the jaw of the member A and an arm *l* extending, when the jaws are opened in the slot *g*, across the plane of the hook, to operate as and for the purpose set forth.



2. The combination of the hook member A having the tongue *a*, slot *g* and jaw-opening *h*, and lever member B, having the arm *l*, movable in the slot *g*, and clamping-jaw *m*, substantially as and for the purpose set forth.

3. The combination of the hook member A, having the clamping-jaw slot *h*, tongue *a*, slot *g* and bearing-ears *i*, pin *k* in the said bearing-ears, lever member B, pivotally mounted upon the pin *k*, having the arm *l* movable in the slot *g* across the plane of the hook, and clamping-jaw *m*, and spring *p* on the pin operating normally to hold the clamping-jaws open, substantially as and for the purpose set forth.

643,318. ADJUSTABLE BALL-BEARING FOR LAWN-MOWERS. JOHN BRAUN, Philadelphia, Pa., assignor to John Braun & Sons. Filed Aug. 14, 1899. Serial No. 727,099. (No model.)



Claim.—1. In a lawn-mower, the combination of the main frame having two inwardly-directed bearings, antifriction-balls in said bearings, a rotatable cutter having heads and sleeves at its ends adapted to be received by the antifriction-balls, and means wholly carried by the head of the revolving cutter for adjusting one of the sleeves to compensate for wear in the bearings.

2. In a lawn-mower, the combination of the main frame having two inwardly-directed bearings, antifriction-balls in said bearings, a rotatable cutter having sleeves at its ends adapted to be received by the antifriction-balls, and means wholly carried by the revolving cutter for adjusting one of the sleeves to compensate for wear in the bearings the said means comprising adjustable supports or abutments carried in the head of the revolving cutter, and means for clamping the adjustable sleeve against said supports or abutments so as to change its position longitudinally upon the axis of the revolving cutter when necessary.

3. In a lawn-mower, the combination of the main frame having two inwardly-directed bearings, a revolving cutter provided at each end with suitable bearings adapted to be received by the bearings of the main frame, and screws arranged parallel to the axis of rotation of the revolving cutter and carried by the head thereof for adjusting the bearings thereof relatively to each other to compensate for wear.

4. In a lawn-mower, the combination of the main frame having two inwardly-directed bearings, a revolving cutter provided at each end with suitable bearings adapted to be received by the bearings of the main frame, and means carried by the revolving cutter for adjusting the bearings thereof relatively to each other to compensate for wear said means comprising adjustable supports or abutments carried in the head of the revolving cutter, and means for clamping the adjustable sleeve against said supports or abutments so as to change its position longitudinally upon the axis of the revolving cutter when necessary.

5. In a lawn-mower, a main frame having ball-bearings, combined with a revolving cutter having a head C provided with a driven shaft *c*, a sleeve D encircling the shaft *c* and having its end adapted to operate in connection with the ball-bearings, and means extending through the head of the cutter and adjustable parallel to the axis of rotation of the cutter and acting on the sleeve D at more than one point about its axis of rotation for adjusting the said sleeve D longitudinally upon the shaft *c* and relatively to the head C.

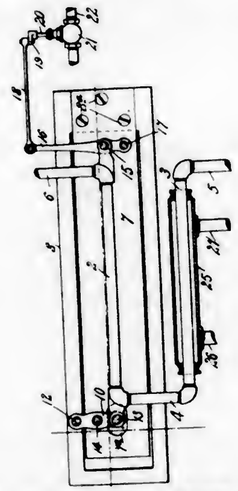
6. In a lawn-mower, a main frame having ball-bearings combined with a revolving cutter having a head C provided with a driven shaft *c*, a sleeve D encircling the shaft *c* and having its end adapted to operate in connection with the ball-bearings, and means for adjusting the sleeve D longitudinally upon the shaft *c* and relatively to the

head C said means comprising adjusting abutment-screws E carried by the head C and means for holding the sleeve D against said abutment-screws.

7. In a lawn-mower, a main frame having ball-bearings, combined with a revolving cutter having a head C provided with a driven shaft c, a sleeve D encircling the shaft c and having its end adapted to operate in connection with the ball-bearings, and means for adjusting the sleeve D longitudinally upon the shaft c and relatively to the head C said means comprising adjusting abutment-screws E carried by the head C and screws F passing through a portion of the sleeve and screwing into the end of the abutment-screws.

8. In a lawn-mower, the combination of the main frame having two inwardly-directed bearings, a rotatable cutter consisting of two cast heads provided with outwardly-extending shafts of short length, sleeves encircling the short shafts of the heads and operating in connection with the inwardly-extending bearings, and means carried by one of the cutter-heads independent of the shaft for adjusting one of the sleeves longitudinally.

643,819. THERMALLY-ACTUATED MECHANISM. JAMES H. BULLARD, Springfield, Mass. Filed May 3, 1899. Serial No. 715,471. (No model.)



Claim.—1. In a thermally-actuated mechanism, an expansible member and a base therefor consisting of two metals having different degrees of expansion at the same temperature, means of support for one end of said expansible member on said base whereby an immovable abutment for said expanding member is provided independent of the expansive movements of said base, a device operated by said expansible member, as a valve, and means of connection between the free end of said member and said device, substantially as described.

2. In a thermally-actuated mechanism comprising an expansible member, and a device, as a valve, operated thereby, a base for said expansible member comprising two parts having different degrees of expansion at the same temperature, means for supporting one end of each of said parts immovably; a support for one end of said expansible member pivotally connected at one of its extremities with one end of said expansible member, the opposite extremity of said support being pivotally connected to the free end of one part of said base, and a pivotal connection between the ends of said support to the free end of the other part of said base, substantially as described.

3. In a thermally-actuated mechanism, a base therefor composed of two materials separately movable by expansion and having different degrees of expansion at the same temperature, an expansible member, a link uniting said two materials and supporting one end of said expansible member whereby the expansible movement of one of said materials constituting said base will be neutralized by the expansion in a different degree of the other of said materials, and the point of support on said link for said expansible member thus caused to remain stationary under changes of temperature to which the said base may be subjected, substantially as described.

4. In a thermally-actuated mechanism, a suitable base, a tubular expansible member supported on said base and having a tubular extension located in a lower plane, said member being adapted to receive fluids having different temperatures; a jacket surrounding the tubular extension of said member, and means for forcing water through said jacket, whereby the temperature of one of said fluids will be reduced, substantially as described.

5. In a thermally-actuated mechanism, a water-supply pipe, a valve in said pipe, a compensating base, a tubular expansible member supported by one end on said base and provided with a tubular extension in a lower plane, a connection between the opposite end of said member and said valve, a jacket surrounding said extension having an outlet therein, and a pipe connecting said jacket with said supply-pipe, whereby the actuation of said valve by said expansible member will cause water to pass through said jacket and in contact with said extension, substantially as described.

6. In combination with a boiler, mechanism for feeding water thereto, a steam-pipe from said boiler to said mechanism, a valve in said pipe, a tubular expansible member having a tubular extension in a lower plane and adapted to operate by the alternate contact of steam and water from the boiler, a jacket surrounding said extension, and pipes leading therefrom to said water-feeding mechanism and said boiler, whereby water supplied to said boiler must pass through said jacket for reducing the temperature of a part of said expansible member, substantially as described.

7. A compensating base for supporting the expansible member of a thermally-actuated mechanism, which base consists of two metal plates having different degrees of expansion at the same temperature; means for supporting said plates immovably whereby one end of each will be free to expand independently, a link, one end of which pivotally engages one of said plates and the opposite end of which forms a pivotal support for said expansible member; a point of connection between said link and the other of said plates and having the same relation to the distance between the ends of said link as that which exists in the ratio of the expansive quality of one of said plates relative to the other, substantially as described.

8. In combination, a boiler, a water-feeding device therefor, a thermally-actuated mechanism for controlling said water-feeding device, comprising a tubular expansible member having a tubular extension in the lower plane, a jacket inclosing said tubular extension and a pipe connection from said water-feeding device to said jacket, and from the latter to the boiler, whereby water passing from said feeding device to said boiler will come in contact during said passage with a part of said thermally-actuated mechanism to lower the temperature of the latter, substantially as described.

9. In a thermally-actuated device comprising a tubular expansible member having a tubular extension in the lower plane and operated by the alternate contact of steam and water, a jacket surrounding a part of said device and means for circulating a cooling medium through said jacket for reducing the temperature of that part of the thermally-actuated device therein, substantially as described.

648,320. GAS-BURNER. FRANCIS J. BYRNE, New York, N. Y., assignor of one-half to James C Hutchinson and Isabella P. Hutchinson, same place. Filed Nov. 15, 1899. Serial No. 737,008. (No model.)



Claim.—1. The gas-burner, and the igniting substance arranged to meet and ignite the gas as the latter issues from the tip of said burner, combined with the regulator for controlling the amount of gas flowing through said burner to said tip and forming a permanent passage for the gas to said tip, and means for automatically operating the said regulator to permit a more free flow of the gas to said tip after ignition has taken place, said regulator normally only permitting a restricted flow of gas to said tip until ignition has taken place and then permitting a free flow of gas to said tip; substantially as and for the purposes set forth.

2. The gas-burner, and the movable arm carrying the igniting substance, combined with means for moving said arm to carry the said substance from the flame, the regulator to control the flow of gas, and means connecting said regulator with said arm whereby after ignition has taken place and said arm is moved, the said regulator will be thereby actuated to permit a free flow of the gas; substantially as set forth.

3. The gas-burner, and the movable arm carrying the igniting substance, combined with means for moving said arm to carry the said substance from the flame, the regulator 20 within the burner and normally only permitting a restricted flow of the gas, and the wire extending through an aperture in the burner and connecting said regulator with said arm, whereby after ignition has taken place and said arm is moved, the said regulator will be thereby actuated to permit a free flow of the gas; substantially as set forth.

4. The gas burner, the supporting-bracket connected therewith, the lever 14 carrying the igniting substance 15 and pivoted on said bracket, the lever 16 also pivoted on said bracket and at one end engaging a socket in said lever 14, and the expansible bar 17 at one end secured to said bracket and at the other end pivoted to the short arm of said lever 16, combined with the regulator 20 within the burner and normally only permitting a restricted flow of the gas, and means connecting said regulator with said lever 14, whereby after ignition has taken place and said lever is moved, the said regulator will be thereby actuated to permit a free flow of the gas; substantially as set forth.

5. The gas-burner, and the movable arm carrying the igniting substance, combined with means for moving said arm to carry said substance from the flame, the regulator 20 within the burner and normally only permitting a restricted flow of the gas, and means for automatically operating said regulator to permit a free flow of the gas after ignition has taken place, said regulator comprising the hollow stem having the apertures and the head, and the gas-fixture being equipped with the guiding-aperture for said stem; substantially as set forth.

643,821. PRODUCING ON PAPER IMITATIONS OF TAPESTRY OR EMBROIDERY. EUGÈNE COURMET, Paris, France. Filed Aug. 4, 1897. Serial No. 647,034. (Specimens.)

Claim.—The improvement in the art of producing printed imitations of tapestry and embroidery consisting in first preparing what is known as "flocked paper" by applying to its flocked surface a mixture of linseed-oil varnish and a drier and afterward printing upon the so-prepared flocked surface with colored fatty inks by means of the usual lithographic process, substantially as herein described.

643,822. PORTABLE PHOTOGRAPHIC DARK ROOM. LORES C. COX, Quincy, Ill., assignor of two-fifths to Henry L. Whipple, same place. Filed Apr. 13, 1899. Serial No. 712,874. (No model.)



Claim.—1. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame having terminal spiders consisting of pivotal radial arms, and grooved connecting-bars between the corresponding arms of the spiders and pivotally connected thereto, said bars being adapted to receive their respective spider-arms, substantially as specified.

2. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame consisting of terminal spiders having radial arms, winged centers upon which the inner ends of said arms are pivotally mounted, and grooved connecting-bars between the corresponding arms of the spiders and pivotally connected thereto, said arms being adapted to lie at times in the grooves of their respective bars, substantially as specified.

3. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame comprising terminal pivotally-armed spiders, and channeled connecting-bars between the corresponding arms of the spiders, substantially as specified.

4. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame comprising terminal spiders having radial arms, winged centers to which the inner ends of said arms are pivoted, the arms having abrupt terminal faces for limiting the pivotal movement thereof in one direction, and connecting-bars between the corresponding arms of said spiders and pivotally mounted thereon, substantially as specified.

5. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame comprising terminal spiders having radial arms, winged centers to which the inner ends of said arms are pivoted, the arms having abrupt terminal faces for limiting the pivotal movement thereof in one direction, means for securing said arms against pivotal movement in the other direction, and connecting-bars between the corresponding arms of said spiders and pivotally mounted thereon, substantially as specified.

6. A portable dark room having a collapsible skeleton frame and a flexible blanket or covering held in place thereby, said frame comprising terminal spiders having radial arms, winged centers to which the inner ends of said arms are pivoted, the arms having abrupt terminal faces for limiting the pivotal movement thereof in one direction, and a clasp-spring fitted to slide upon one of said arms and adapted to engage the adjacent wings of the center, to secure said arms against pivotal movement in the other direction, and connecting-bars between the corresponding arms of said spiders and pivotally mounted thereon, substantially as specified.

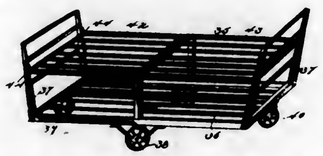
7. In a portable dark room, the combination with a supporting-frame, of a blanket or flexible covering inclosing said frame and having main and side folds, and end flaps, the side folds being provided with means for connecting their free edges, and the end flaps being provided with upturned edges for inclosing the adjacent edges of the side folds, the adjacent ends of the upturned edges of each end flap having elastic connections, substantially as specified.

8. In a portable dark room, the combination with a supporting-frame, of a blanket or flexible covering inclosing said frame and having main and side folds, and end flaps, the side folds being provided with means for connecting their free edges, and the end flaps being provided with upturned contractile edges or flanges for embracing the adjacent edges of the side folds, the adjacent ends of the upturned edges of each end flap having elastic connections, substantially as specified.

643,823. PROCESS OF TREATING STARCH. CHESTER B. DURYEA, New York, N. Y. Filed Aug. 16, 1899. Serial No. 727,423. (No specimens.)

Claim.—The process of manufacturing starch consisting in separating the starch mass into independent bodies, one of the bodies being composed of granules of one dimension and another of the bodies being composed of granules of a different dimension, substantially as set forth.

648,824. TOBACCO-TRUCK. WILLIAM S. DYCUS and WILLIAM R. PRAY, Kuttawa, Ky. Filed Mar. 1, 1899. Serial No. 707,310. (No model.)



Claim.—1. A truck for casing or ordering tobacco, comprising a slatted wheeled bed, upright frames fast with said bed at the ends thereof, and the slatted open-work hurdles hinged at their outer ends to said upright frames at points intermediate the height thereof, said hurdles arranged to be lowered into alined relation and parallel to the bed and forming with the latter a series of supports for the circulation of steam through layers of tobacco loaded on the truck, substantially as described.

2. A truck for casing or ordering tobacco, comprising a slatted wheeled bed, upright frames fast with the bed, at the ends thereof, and inclined to the plane of the same, a central frame fixed to the bed at a point intermediate its length and having a cross-rail on a plane below the upper ends of said fixed end frames, and slatted hurdles hinged individually to the upright end frames at points intermediate the length thereof and substantially on the plane of the cross-rail in the central frame, said hurdles adapted to rest upon the central frame in alined relation one to the other and parallel to the slatted bed to support tobacco in layers for circulation of steam through the tobacco, substantially as described.

3. A truck for ordering or casing tobacco, comprising a slatted bed, the carrying-wheels arranged in line with each other across the central part of the bed and journaled in hangers which are fast with the sides of the bed, caster-wheels of smaller diameter than the carrying-wheels and connected with respective end portions of the bed, the upright frames fixed to the end and central portions of the bed, and the slatted hurdles hinged to the end frames and arranged to rest on the central frame, substantially as described.

643,325. GATE. UNION A. GREGG, Paris, Ill. Filed Mar. 30, 1899. Serial No. 711,065. (No model.)



Claim.—1. In a device of the class described, the combination of a swinging gate having a tubular end bar, a shaft journaled therein, a latch connected with the lower portion of the shaft, and operating mechanism connected with the upper portion of the shaft and adapted to rotate the same, whereby the latch is operated and the gate is opened and closed, substantially as described.

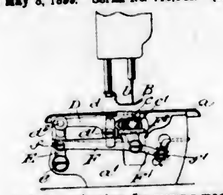
2. In a device of the class described, the combination of a swinging gate having a tubular end bar provided with a slot, a spring-actuated latch mounted on the gate, a shaft journaled in the tubular end bar, a pair of arms connected with the shaft through the said slot and also connected with the latch, and operating mechanism for rotating the shaft, substantially as described.

3. The combination of a gate having a tubular end bar, a support provided with an upper eye and having a lower ball-cup receiving the gate, balls arranged within the cup, a bearing-cone mounted within the end bar and arranged upon the balls, and a pintle fixed to the cup and extending through the bearing-cone, substantially as described.

4. The combination of a support having a ball-cup, balls arranged therein, a gate having a tubular end bar receiving the cup and provided with a bearing-cone arranged upon the balls, a shaft journaled within the upper portion of the tubular end bar and provided with a cap covering the same, a latch connected with the shaft, and operating mechanism for rotating the latter, substantially as described.

5. The combination of a gate having a tubular end bar, a shaft journaled therein and provided with upper and lower arms, a latch connected with the lower arms, a pair of operating levers fulcrumed on suitable supports at points between their ends, and the upper and lower connections between the levers, the upper connection being provided with coiled springs and the lower connection being attached to the upper arm of the shaft, substantially as described.

643,326. SEWING-MACHINE. SELLNAR M. JACOBY, New York, N. Y. Filed May 8, 1899. Serial No. 716,041. (No model.)



Claim.—1. A feed mechanism for sewing-machines comprising a suitable support, a rotary actuating-shaft having two eccentrics thereon, a rocking arm hinged to said support, a feed-bar hinged to said arm and engaged with one of the said eccentrics, a toggle-lever having one of its arms hinged to the support and its other arm hinged to the said rocking arm, and an eccentric-arm embracing the other eccentric on the rotary actuating-shaft and connected with the toggle-lever at the junction of its arms, substantially as set forth.

2. A feed mechanism for sewing-machines comprising a suitable support, a rotary actuating-shaft having two eccentrics thereon, a rocking arm hinged to said support, a feed-bar hinged to said rocking arm and engaged with one of the said eccentrics, a toggle-lever having one of its arms hinged to the said rocking arm and its other arm hinged to the support, an eccentric-arm embracing the other eccentric on the rotary actuating-shaft and connected at the junction of the arms of the toggle-lever and means for securing the hinged end of the arm of the toggle-lever which is connected with the support in different positions on the support, substantially as set forth.

643,327. MINE TROLLEY-HANGER. GEORGE E. JANNS, Jr., Pittsburg, Pa. Filed June 17, 1899. Serial No. 720,897. (No model.)

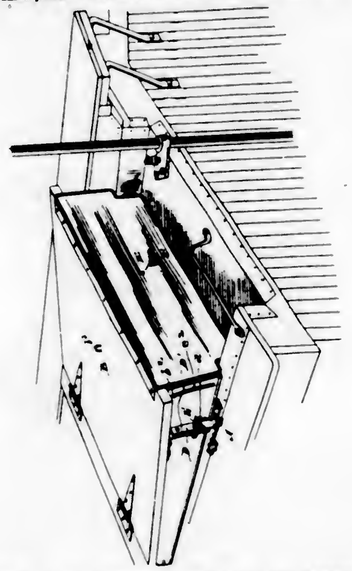
Claim.—1. A trolley-hanger for mines, comprising, in combination, a tube having a split upper end, a plug carried by said tube inserted in said upper end and operating to expand the same automatically and secure the hanger to the roof of the mine when introduced into the latter with said tube, and an insulator secured to the lower end of said tube, substantially as described.



2. The herein-described trolley-hanger for mines, comprising, in combination, a tube having a split upper end, a tapered plug expanding said tube and securing it in place, a shell attached to the lower end of said tube, an insulating material secured in said shell, and a means embedded in said insulating material for attaching thereto the clip which suspends the trolley-wire, substantially as described.

3. The herein-described trolley-hanger for mines, consisting of a tube having a split upper end and a threaded lower end, a tapered wooden plug inserted in said split end of the tube and expanding the same, a shell threaded upon said lower end of the tube, an insulating material in said shell, a screw embedded in said insulating material and securing the same in place, and a screw embedded in said insulating material for connecting to the clip which suspends the trolley-wire, substantially as described.

643,328. VENTILATOR FOR REFRIGERATOR-CARS. THOMAS B. KIRBY and JACOB E. NOELLER, Chicago, Ill., assignors to Armour & Co., same place. Filed June 28, 1897. Serial No. 642,668. (No model.)



Claim.—1. In a ventilator for refrigerator-cars, a car-roof having an opening, a door or cover hinged to the roof adjacent to said opening, a fixed or stationary casing or boxing surrounding said opening and projecting above the roof of the car, the sides of said casing being rearwardly inclined and the front portion thereof reticulated and adapted to form with said door or cover, a ventilator having closed sides and top and an open front, substantially as described.

2. In a refrigerator-car, a car-roof having an opening therein and with a stationary boxing or casing surrounding said opening and projecting above the car-roof, the front of said casing or boxing being reticulated, and a door or cover hinged at one edge of the opening and provided with a flap or plate hinged to its free margin substantially as and for the purpose described.

3. In a ventilator for refrigerator-cars, a car-roof having an opening, a stationary boxing or casing surrounding said opening and extending above the car-roof, said casing or boxing having rearwardly-inclined closed sides, and an open or screen front, a door or cover hinged at the edge of said opening and an intermediate movable or adjustable frame having closed sides and a screen front and means for adjustably supporting said intermediate frame, substantially as described.

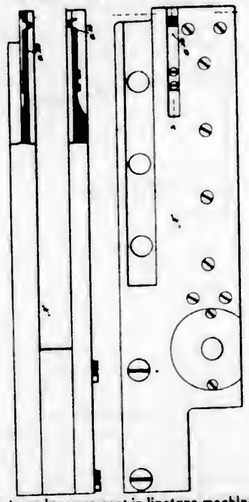
4. In a ventilator for refrigerator-cars, a car-roof having an opening, a stationary boxing or casing surrounding said opening and extending above the car-roof, said casing or boxing having closed sides, and an open or screen front, a door or cover hinged at the edge of said opening and an intermediate movable or adjustable frame having closed sides and a screen front and means for detachably suspending said frame from the lid or cover, substantially as described.

5. The combination with a refrigerator-car having a roof-opening, of a stationary boxing or casing around said opening and having rearwardly-inclined closed sides projecting above the car-roof, a door or cover hinged at one edge of the opening, an intermediate adjustable frame adapted to telescope with said stationary boxing or casing and means for supporting the door or cover and said intermediate frame at various angular positions with reference to the roof, substantially as described.

6. In a refrigerator-car having an opening in the roof thereof, the combination with a stationary boxing or casing surrounding said opening and having an open front, a door or cover hinged at one edge of said opening and overlapping perforated plates or projections on the roof and on the hinged door respectively, and affording locking-apertures for the door when placed in various angular positions, substantially as described.

7. A refrigerator-car having an ice-hole therein, the car-roof being recessed or cut away in front of the ice-hole, of a ventilator having a screen section and a hinged flap or cover adapted to project downwardly into said recessed portion, substantially as described.

643,329. LINOTYPE-MACHINE. JAMES MACKIROY, New York, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Mar. 21, 1898. Serial No. 674,608. (No model.)



Claim.—1 As an improvement in linotype-machines, and in combination with the elevator, matrix-retaining dogs or pawls, beveled in both directions, in order that they may yield before the incoming and the outgoing matrices.

2. As an improvement in the Mergenthaler linotype, the elevator grooved in its side walls, in combination with the externally-applied spring-pawls, having their ends projected through to the interior and beveled in both directions, substantially as described.

3. In a linotype-machine, pawls to retain a composed line of matrices, adapted to yield under the action of the line when forced to the right and to the left.

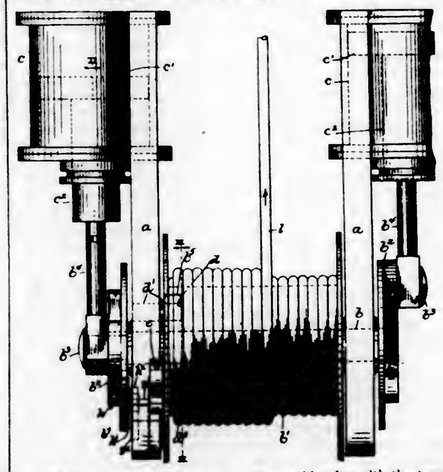
643,330. TIE-HOLDER. JAMES A. MEARS, Elizabeth, N. J. Filed Oct. 26, 1898. Serial No. 694,511. (No model.)

Claim.—1. A tie-holder comprising a base, a shank secured thereto, a head hinged to the end of said shank having a slot therein extending from a point adjacent to the center of said head to a point adjacent to its periphery, and a straight pin arranged parallel to said shank, having one end secured thereto, the free end of said pin being adapted to lie within the circular outline of the head when the latter is turned to a position parallel with its shank, and to project beyond said head at right angles thereto when the head is parallel with the base.



2. A tie-holder comprising a base, a shank secured thereto, a head hinged to the end of said shank having a slot therein extending from a point adjacent to the center of said head to a point adjacent to its periphery, and a straight pin arranged parallel to said shank and clamped thereto at its lower end, the free end of said pin being adapted to lie within the circular outline of the head when the latter is turned to a position parallel with its shank, and to project beyond said head at right angles thereto when the head is parallel with the base.

643,331. TOWING-MACHINE. FREDERICK METCALF, Cleveland, Ohio, assignor to the Chase Machine Company, same place. Filed July 5, 1899. Serial No. 722,871. (No model.)



Claim.—1. In a towing-machine, the combination with the tow-line-engaging winding-drum; of mechanism for arresting or interrupting the rotation of the drum in the direction required to wind up tow-line, and means operatively connected with the drum, for operating the said mechanism, which means and the parts of the aforesaid mechanism are so relatively proportioned, arranged and timed as to arrest the rotation of the drum upon the latter's winding up a predetermined length of tow-line, substantially as and for the purpose set forth.

2. In a towing-machine, the combination with the tow-line-engaging winding-drum; of a brake for arresting and interrupting the rotation of the drum in the direction required to wind up tow-line, and mechanism whereby the brake is rendered operative upon the drum's winding up a predetermined amount of tow-line, which brake is self-releasing upon turning the drum in the direction opposite to which the drum was rotated in rendering the brake operative.

3. In a towing-machine, the combination with the tow-line-engaging winding-drum; of mechanism for arresting or interrupting the rotation of the drum in either direction, and means for operating the said mechanism and operatively connected with the drum, which means and the parts of the aforesaid mechanism are so relatively proportioned, arranged and timed as to arrest the rotation of the drum upon the latter's winding up or paying out a predetermined length of tow-line, substantially as set forth.

4. In a towing-machine, the combination with the tow-line-engaging winding-drum; of a brake for arresting or interrupting the rotation of the drum in either direction, and mechanism whereby the said brake is rendered operative upon the drum's winding up or paying out a predetermined amount of tow-line, substantially as and for the purpose set forth.

5. In a towing-machine, the combination with the tow-line-engaging winding-drum; of a brake for arresting or interrupting the

rotation of the drum in either direction, and mechanism whereby the brake is rendered operative upon the drum's winding up or paying out a predetermined amount of tow-line, which brake is self-releasing upon turning the drum in the direction opposite to the direction in which the drum was rotated in rendering the brake operative, substantially as and for the purpose set forth.

6. In a towing-machine, the combination with an engine and its shaft, and the tow-line-engaging winding-drum operatively connected with the engine-shaft; of mechanism capable of preventing further motion of the engine upon winding up or paying out a predetermined amount of tow-line, and means operatively connected with the aforesaid shaft for operating the said mechanism.

7. In a towing-machine, the combination with an engine and its shaft, and the tow-line-engaging winding-drum operatively connected with the shaft; of a brake for arresting the rotation of the drum in either direction, mechanism whereby the said brake is rendered operative upon winding up or paying out a predetermined amount of tow-line, and means operatively connected with the shaft for operating the said mechanism.

8. In a towing-machine, the combination with an engine and its shaft, and the tow-line-engaging winding-drum operatively connected with the shaft; of a friction-brake comprising an annular member operatively connected and rotatable with the engine-shaft and a tilting or swinging member supported from a stationary object, mechanism for tilting the said tiltable member into frictional engagement with the annular member, and means that is operatively connected with the shaft and arranged to operate the said mechanism during the rotation of the shaft, substantially as set forth.

9. In a towing-machine, the combination with an engine and its shaft, and the winding-drum operatively connected with the shaft; of an annular member operatively connected and rotatable with the shaft and provided with an internal annular friction-surface, a swinging or tilting member pivoted to a stationary object at one side of the shaft and extending to the opposite side of the shaft and there terminating in a friction-head capable of frictionally engaging the aforesaid annular friction member upon swinging the said head in the one direction or the other, and means or mechanism whereby the said friction-head is rendered operative upon a limited rotation of the drum in either direction, substantially as and for the purpose set forth.

10. In a towing-machine, the combination with an engine and its shaft, and the winding-drum operatively connected with the shaft; of an annular member operatively connected and rotatable with the shaft and provided with an internal annular friction-surface; a swinging or tilting member pivoted to a stationary object at one side of the shaft and extending to the opposite side of the shaft and there terminating in a friction-head capable of frictionally engaging the aforesaid annular friction member upon swinging the said head in the one direction or the other, which head is provided upon one side with a pin; a bar having a slot that engages the said pin and that is arranged longitudinally of the bar, and means or mechanism whereby the said bar is shifted endwise in the one direction or the other simultaneously with the rotation of the drum in the one or the other direction, substantially as and for the purpose set forth.

11. In a towing-machine, the combination with the engine and its shaft, and the winding-drum operatively connected with the shaft; of an annular member operatively connected and rotatable with the shaft and provided with an internal annular friction-surface; a swinging or tilting member pivoted to a stationary object at one side of the shaft and extending to the shaft's opposite side where it terminates in a friction-head capable of frictionally engaging the aforesaid annular friction member upon swinging the said head in the one dition or the other, which head is provided upon one side with a pin; a bar having a slot that engages the said pin and is arranged longitudinally of the bar; an eccentric operatively engaging the said bar; a peripherally-notched wheel intergeared with the said eccentric, and a revolving member operatively connected with the engine and arranged to engage and actuate the said notched wheel once during each revolution of the said revolving member, and the parts being arranged substantially as and for the purpose set forth.

12. In a towing-machine, the combination with the winding-drum operatively connected and having one end thereof provided internally with an annular friction-surface arranged concentrically of the drum's axis, and a stationary frame or object; of a swinging brake supported from the stationary object, and mechanism whereby the said brake is actuated into frictional engagement with the drum's friction-surface upon a limited rotation of the drum in either direction, substantially as and for the purpose set forth.

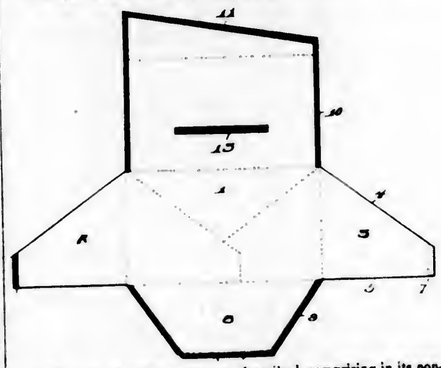
13. A towing-machine comprising a tow-line-engaging winding-drum; a fluid-pressure engine comprising two cylinders having trunk-pistons operatively connected with the drum, and having its pistons arranged so that the small area of one of the pistons shall sustain the normal strain upon the tow-line, and while the said piston is sustaining the load the other piston shall be in its dead-center or inoperative position; a brake for arresting and interrupting rotation of the drum in the direction required to wind up tow-line, and mechanism whereby the brake is rendered operative upon the drum winding up a predetermined amount of tow-line.

643,332. FENCE. LINCOLN S. MORGAN, Kendall, Kans. Filed July 11, 1899. Serial No. 723,485. (No model.)



Claim.—A wire fence, comprising runner-wires formed of strands placed in longitudinal engagement, and having their contiguous faces flattened, each strand having bends or loops formed thereon, and said loops or bends of the contiguous strands extending outwardly in opposite directions and grouped in pairs, the members of each of the latter extending in opposite directions, and stays embracing the runner-wires at points between the members of the respective pairs of loops, substantially as and for the purpose set forth.

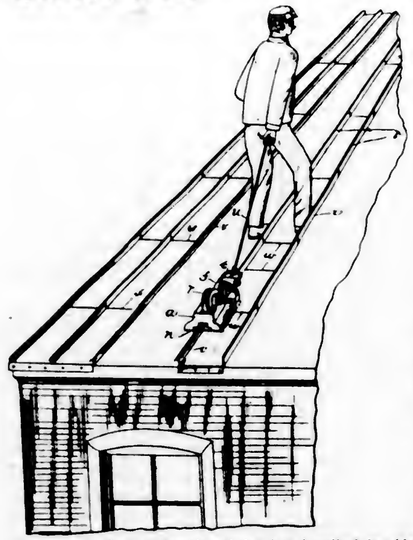
643,333. ENVELOP. EMMA E. MYERS, Pittsburg, Pa. Filed Oct. 10, 1899. Serial No. 733,190. (No model.)



Claim.—1. A safety-envelop as described, comprising in its construction the body portion having side wings 2, 3, formed integral with its ends and adapted to overlap when folded with each wing provided with a gummed edge for adhesion with the opposite wing, a lower flap 8 formed integral with one edge of the body portion 1 and provided with gummed edges for adhesion with the side wings, and a securing-flap formed integral with the opposite edge of the body portion, with its free edge at an angle to the edges of the completed envelop, said securing-flap being provided with gummed edges and a gummed portion 13 for adhesion respectively with the body portion and the lower flap 8, as and for the purpose set forth.

2. The herein-described envelop having a blank comprising a body portion 1, integral side wings 2, 3, of equal length and adapted to overlap when folded upon the body portion 1, said side wings 2, 3, being gummed respectively upon opposite edges as at 6, 7, whereby when overlapped they may be secured to each other by means of the said gummed edges, a lower flap 8 adapted to fold upon said side flaps after the latter are folded, said lower flap 8 being gummed on opposite edges as at 9, 12, and an integral securing-flap adapted to fold upon the lower flap 8 and the side wings 2, 3 with an overlapping portion adapted to engage the opposite side of the body portion 1, the said securing-flap having the gummed edges 10 for engagement with the side wings 2, 3, the angularly-extending gummed edge 11 for engagement with the face of the body portion 1, and the gummed surface 13 for engagement with the gummed edge 12 of the lower flap, substantially as specified.

643,334. MACHINE FOR FLANGING METAL ROOFING-SHEETS. FRANK E. SAGENDORPH, Chicago, Ill. Filed Nov. 10, 1899. Serial No. 736,523. (No model.)



Claim.—1. A flanging-machine of the class described, in which are combined means for supporting the lower portion of a vertical flange against lateral movement, an initial flanging-roller for initiating a lateral bend of the upper portion of said vertical flange, a die having an inclined lateral face for supporting said flange when turned laterally, and a final flanging-roller fitted to act in conjunction with said die, substantially as described.

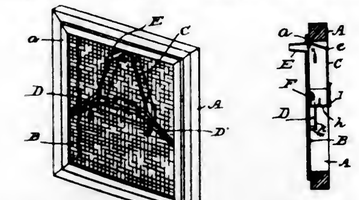
2. A flanging-machine of the class described, in which are combined means for supporting the lower portion of a vertical flange against lateral movement, an initial flanging-roller for initiating a lateral bend of the upper portion of said vertical flange in either direction, parallel dies having oppositely-inclined lateral faces, said dies being located in the rear of and in a plane below said initial roller, the same being separated to permit said vertical flange to pass between them, and a flanging-roller located above said dies for compressing the metal upon one or the other of the dies according to the direction in which it is primarily bent by said initial roller, substantially as described.

3. A flanging-machine of the class described, in which are combined means for supporting the lower portion of a vertical flange against lateral movement, an initial flanging-roller for initiating a lateral bend of the upper portion of said vertical flange in either direction, parallel dies having oppositely-inclined lateral faces for supporting said flange when turned in one or another direction laterally, a final flanging-roller arranged to act in conjunction with said dies, and a horizontal bottom plate adapted to pass beneath the horizontal body of the roofing-plate; whereby the vertical flange of said plate may be held and guided uniformly to the work, substantially as described.

4. A device for forming lateral flanges for standing seams of metal roofing-sheets, consisting of a frame having two rollers mounted at the front upon vertical axes, the faces of said rollers being slightly separated, a horizontal plate attached to the bottom of said frame and having a space between the two, an initial flanging-roller above and midway between said first-named rollers mounted upon a horizontal axis, a secondary flanging-roller in the rear of said last-named roller, the former being provided with a V-shaped peripheral groove, and longitudinal dies provided with laterally-inclined faces, said dies having a space between them for the admission of the vertical flange of a metal plate to be acted upon, substantially as described.

5. A device of the class described in which are combined flange-supporting rollers placed side by side, having vertical axes, an initial forming-roller mounted above and in a plane between the opposing faces of the former, dies having faces inclined in opposite directions downwardly and laterally, said dies extending lengthwise of said machine and having a vertical space between them in alinement with the space between said supporting-rollers, and a flange-forming roller above said dies and adapted to operate in conjunction therewith, whereby a portion of a vertical roof-flange may be turned laterally and downwardly in the same direction upon one edge of the sheet that it is upon the other, whether said machine be moved in one direction or its opposite, substantially as described.

643,335. FLY-EXIT FOR SCREENS. HIRAM N. SHEEK, Greenwood, Ind. Filed May 29, 1899. Serial No. 718,665. (No model.)



Claim.—1. A fly-exit device provided with an inclosure comprising a close bottom, a front and sides, all formed up so as to provide a compartment wherein the flies may be at ease, ingress-openings formed at the sides above the bottom and ingress-channels having their walls projecting into the interior of the inclosure, a leadway at each of the ingress-channels, and an exit from the inclosure.

2. A fly-exit device comprising an inclosure struck up from sheet material so as to provide a bottom, a front and short vertical sides above which are continuing sides converging at the top, an ingress-channel having the walls thereof projecting inwardly from each of the vertical sides above the bottom, leadways extending from the ingress-channels, and an exit from the inclosure.

3. A fly-exit device comprising an inclosure, an exit from the inclosure, an ingress-opening at each side of the inclosure above the bottom thereof and provided with a channel having the walls thereof projecting inwardly from the ingress-opening, and leadways connected above the ingress-openings.

4. A fly-exit device comprising an inclosure, an exit from the inclosure, an ingress to the inclosure at each side and above the bottom thereof and provided with a channel having the walls thereof projecting inwardly from the ingress-opening, leadways connected above the ingress-openings, an ingress in the front at the bottom of the inclosure, and a slide-door partially covering the ingress at the front of the inclosure.

5. In a fly-exit, the combination of the screen, the inclosure secured to the screen and consisting of a bottom, a front and short vertical sides continuing and converging to the top; a partition rising from the bottom; an ingress at the front of the partition in the front of the inclosure; an ingress in each of the vertical sides above the bottom of the inclosure; an ingress-channel having the walls thereof projecting inwardly from each ingress-opening at the sides, a leadway connected to each of the vertical sides above the ingress-openings, and an exit from the inclosure.

6. In a fly-exit, the combination of the screen, the inclosure comprising an imperforate front and bottom and sides and top and secured to the screen, an ingress-aperture in the front of the inclosure at the bottom thereof, a partition within the inclosure extending above the ingress to provide a trap against return through the ingress-aperture, an ingress-channel at each side of the inclosure and extending inwardly therefrom, leadways extending from the ingress-channels at the sides of the inclosure, and an exit at the top of the inclosure, substantially as set forth.

7. In a fly-exit device, the combination of the screen, the inclosure secured thereto and provided with an ingress-aperture, a slide-door partially covering such aperture normally, and a partition within the inclosure extending above such aperture to provide a receptacle for sugar or the like and a trap against return through such aperture, substantially as set forth.

8. In a fly-exit device, the combination of the screen, the inclosure secured thereto and provided with an ingress-aperture, a slide-door partially covering such ingress-aperture normally, a partition within the inclosure extending above such aperture, an ingress at each side of such inclosure above such partition and provided with a channel having the walls thereof extending inwardly therefrom, a leadway extending outwardly from each of the ingress-openings at the sides of the inclosure, and an exit at the top of such inclosure, substantially as set forth.

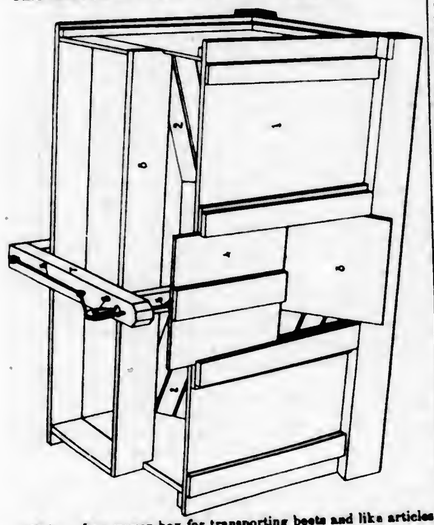
9. In a fly-exit device, the combination of the screen, the inclosure comprising the closed bottom and front and sides and secured to the screen and provided with the ingress-openings at the sides thereof and channels having the walls thereof extending inwardly therefrom, the leadways to such ingress-openings, the exit at the top of such inclosure, and the slide-door and aperture whereby access

may be had to insert bait and to remove debris from such inclosure, substantially as set forth.

10. In a fly-exit device, the combination of the screen, the inclosure having the exit at the top and the ingress-openings at the bottom thereof, and leadways connected at the ingress-openings and provided with sliding end extensions whereby the leadways are adjusted to extend to the edges of screens of differing widths, substantially as set forth.

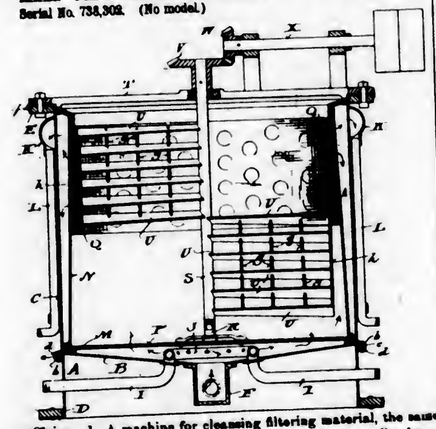
11. In a fly-exit device, the combination of the screen, the inclosure C provided with the partition H and ingress I and door G, the ingress-channels F F at the sides of the inclosure, the leadways D D' connecting with said ingress-channels, and the exit E, substantially as shown and described.

643,336. WAGON-BOX. RICHARD A. SMITH, Bay City, Mich. Filed June 24, 1899. Serial No. 721,728. (No model.)



Claim.—In a wagon-box for transporting beets and like articles the combination with the box sides, of a slatted bottom sloping downwardly from the ends of the box toward the middle of one side of the box, a movable discharge-gate, and an upper box portion arranged over the raised portion of the slatted bottom, all arranged substantially as and for the purpose set forth.

648,337. WASHING APPARATUS FOR FILTERING MATERIALS. FRANK SOCHUREK, Sr., Milwaukee, Wis. Filed Nov. 27, 1899. Serial No. 738,302. (No model.)



Claim.—1. A machine for cleansing filtering material, the same consisting of a tank, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, a stirrer rotative in the receptacle, and means for the discharge of steam and water in said tank under said receptacle.

2. A machine for cleansing filtering material, the same consisting of a tank provided with lower steam and water inlets as well as upper overflows, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, and a stirrer rotative in the receptacle.

3. A machine for cleansing filtering material, the same consisting of a cylindrical sheet-metal tank comprising a lower section, a bottom and an upper section seamed together, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, a stirrer rotative in the receptacle, and means for the discharge of steam and water in said tank under said receptacle.

4. A machine for cleansing filtering material, the same consisting of a cylindrical sheet-metal tank having upper and lower horizontal outer flanges, stay-rings secured to the flanges against the tank-wall, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, a stirrer rotative in the receptacle, and means for the discharge of steam and water in said tank under said receptacle.

5. A machine for cleansing filtering material, the same consisting of a tank, a perforated tubular ring central in the tank next its bottom, steam-pipes in connection with the ring, an open-top chamber depending from the tank-bottom central of the same, water-pipes in connection with the chamber, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, and a stirrer rotative in the receptacle.

6. A machine for cleansing filtering material, the same consisting of a tank, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, means for the discharge of steam and water into said tank under the receptacle, and a stirrer in said receptacle comprising a rotative shaft, inclined taper blades extending in series from the shaft in opposite directions at different elevations of the same the blades being widest at their outer ends, a series of brace-rods connecting the blades in each series, and a stay-piece joined to the outer ends of said blades.

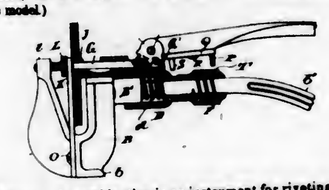
7. A machine for cleansing filtering material, the same consisting of a tank, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, a bearing on the bottom of the receptacle central of same, a stirrer that consists in part of a shaft supported by said bearing, a cross-bar on the tank provided with a separable bearing for said shaft, and means for driving the shaft.

8. A machine for cleansing filtering material, the same consisting of a tank, a receptacle in the tank having a sieve-lined perforated bottom and upper wall portion, a bearing on the bottom of the receptacle central of same, a stirrer that consists in part of a shaft supported by said bearing, a cross-bar supported on the tank made to receive a flanged slide constituting part of the upper bearing for the shaft, keys for locking the slide-flanges in guide-grooves provided in the cross-bar, and means for driving said shaft.

648,338. BLUE DYE FROM GALLOCYANIN. ARNOLD STEINER, Basle, Switzerland, assignor to Chemical Works, formerly Sandoz, same place. Filed Dec. 19, 1898. Serial No. 740,914. (No specimens.)

Claim.—The blue coloring-matter obtained by esterification of a hydroxylic group in the gallocyanin by an alphylsulfoe radical, which dye represents a green crystalline powder, easily soluble in water with pure-blue color, insoluble in benzene, dissolving in strong sulfuric acid with violet-blue color, which on addition of water turns into blue red, its solution in spirit showing a characteristic red fluorescence, dyeing wool from an acid-bath and also wool and cotton mordanted with chromium salts in beautiful blue shades fast to light and milling.

648,339. RIVET-SETTING IMPLEMENT. JOSEPH W. THOMPSON and LORIN T. FREDON, Salem, Ohio, assignors to Henry W. Hartman, trustee, Elwood City, Pa. Filed Mar. 21, 1899. Serial No. 709,957. (No model.)



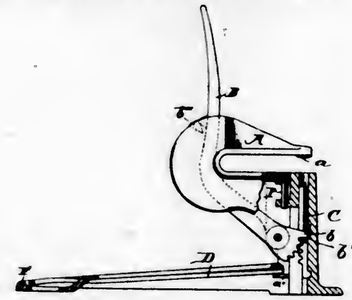
Claim.—1. In combination in an instrument for riveting, a frame, a plunger, an adjustable carrier D therefor, a lever pivoted in the adjustable carrier D for actuating the plunger, an abutment toward which the said plunger acts, means for adjusting the carrier toward and from the abutment, and an intermediate riveting-bar carrying the riveting head or surface and supported independently of the adjustable carrier, substantially as set forth.

2. A riveting instrument provided with a movable plunger, and a riveting-bar carrying at or near its end a riveting head or surface in alinement with the plunger, and an abutment behind and adjustable relatively to the said riveting head or surface, substantially as set forth.

3. In combination in an instrument and with the frame or stationary parts thereof, a plunger, an operating-lever, an abutment, and a riveting-bar, the fulcrum of said lever and the bar being relatively adjustable, said fulcrum and said abutment being also relatively adjustable, and said bar and abutment being relatively adjustable, substantially as set forth.

4. A riveting instrument provided with a frame, a riveting-bar mounted on the frame, an abutment behind the riveting-bar, a plunger, a lever pivotally mounted to operate the plunger, means for adjusting the bar and abutment relatively to each other, and independent means for relatively adjusting the pivot of the lever toward and from the bar, substantially as set forth.

648,340. RIVETING IMPLEMENT. JOSEPH W. THOMPSON, Salem, Ohio. Filed May 27, 1899. Serial No. 718,504. (No model.)



Claim.—1. In a riveting instrument, a frame or stationary member, a riveting-head movable in guides on the said frame, a riveting-plunger movable in guides on the said frame, an operating-lever pivoted to one and acting on the other of said head and plunger, means for limiting the movement of the plunger and causing the lever to react on the frame to raise the riveting-head, and a spring tending to draw down the riveting-head, substantially as set forth.

2. In a riveting instrument, a frame or stationary member, a riveting-head movable in guides on the said frame, a riveting-plunger movable in guides on the said frame, an operating-lever pivoted to one and acting on the other of said head or plunger, means for limiting the movement of the plunger and causing the lever to react on the frame to raise the riveting-head, and a catch for holding the said lever when the head is raised, substantially as set forth.

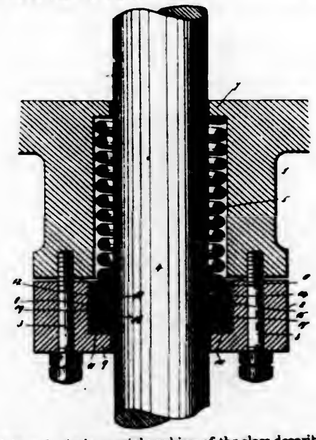
3. In a riveting instrument, a frame or stationary member, a riveting-head movable in guides on the said frame, a riveting-plunger movable in guides on the said frame, an operating-lever pivoted to one and acting on the other of said head and plunger, means for limiting the movement of the plunger and causing the lever to react on the frame and raise the riveting-head, a spring tending to draw down the riveting-head and a catch for holding the head in raised position against the action of said spring, substantially as set forth.

4. In combination in and with a riveting instrument, a plurality of spring-actuated centering devices for the rivets, embodying the following elements: a plurality of eccentrically-shaped rotary bodies set around the axial line of the plunger, and spring means for rotating the said eccentrically-shaped bodies, substantially as set forth.

5. In combination in and with a riveting instrument, a plurality of spring-actuated centering devices for the rivets, embodying the following elements: a plurality of eccentrically-shaped rotary bodies set around the axial line of the plunger, and a concentric sleeve or collar connected to turn the said eccentrically-shaped bodies, substantially as set forth.

6. In combination in and with a riveting instrument, a plurality of spring-actuated centering devices for the rivets, embodying the following elements: a plurality of eccentrically-shaped rotary bodies set around the axial line of the plunger, and a concentric sleeve or collar connected to turn the said eccentrically-shaped bodies, and spring means for turning the said sleeve or collar, substantially as set forth.

648,341. PACKING. ROBERT C. WHITE, MILLARD HARLUP, and JOHN G. SCHWERDFURTH, Birmingham, Ala. Filed Sept. 20, 1899. Serial No. 731,069. (No model.)



Claim.—1. An improved packing of the class described, comprising the ring 14 having the flat face 12 and the opposite face 15 formed with an approximately V-shaped annular recess or groove and also having the bearing-face 16, the packing-ring 17 corresponding in its body contour to said groove 15 and arranged at an angle or incline with respect to the ring 14 and having the relatively beveled or inclined bearing-face 18, in combination with the box 10 having the inclined face forming a bearing-surface for the ring 17, and the spring-actuated follower 6 bearing against the face 12 of the ring 14, substantially as and for the purpose set forth.

2. The combination, with the rod 4, of two interlocked packing-rings, one of which is provided with a flat face bearing against the rod and with another face having an approximately V-shaped annular groove occupying a plane transverse to said rod, while the other ring corresponds in its body portion to said groove and fits therein and has the relatively inclined or beveled face bearing against the rod, the relative construction and arrangement being such that said rings jointly move in an inclined manner toward said rod and in the direction of its length whereby equal or uniform wear of both rings is secured, and means for forcing said packing-rings in said movement, substantially as and for the purpose set forth.

648,342. SPINNING AND TWISTING MACHINE SPINDLE. HENRY F. WOODMANCY, Whitinsville, Mass.; CYRUS A. TAFT executor of said Woodmancy, deceased. Filed Oct. 13, 1898. Serial No. 693,449. (No model.)

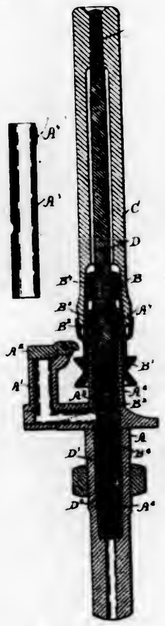
Claim.—1. In a device of the nature described for supporting and rotating the bobbins of spinning and twisting machines, in combination, a bolster-case containing an oil-chamber, an upwardly-extending tube on the bolster-case, a sleeve-whirl surrounding the upwardly-extending tube on the bolster-case, a tube secured to the sleeve-whirl and extending into the bolster below the whirl and the bolster, whereby the sleeve-whirl is supported against the lateral strain of the driving-band, as described.

2. In a bobbin-support for spinning or similar machines, in combination, a bolster-case, an upwardly-extending tube on the bolster-case, a bolster-tube in the bolster-case of less external diameter than the bore of the bolster-case, a sleeve-whirl surrounding the tubular upper part of the bolster-case, and a tube secured to the sleeve-whirl and extending into the bolster-tube to a point below the whirl, as described.

3. In a bobbin-support for spinning or twisting machines, a sleeve-whirl having a central tube extending from the sleeve above the whirl to a point below the whirl and the bolster; whereby the sleeve-whirl may be supported against the pull of the driving-band above and below the whirl, as described.

4. In a bobbin-support for spinning or twisting machines, in combination, a spindle supported on a step-bearing below the bobbin, the step-bearing, the blade of the spindle forming the upper support of the bobbin, a whirl loose on the spindle, a support for the lower end of the bobbin on the whirl, and a bolster-case containing an oil-chamber, forming the support of the steps of the spindle end of the whirl; whereby the whirl may rotate independent of the spindle when the bobbin is removed, as described.

5. In a bobbin-support, in combination, a bolster-case having an oil-chamber, a spindle supported on a step-bearing on the lower part of the bolster-case, the step-bearing, the blade of the spindle extending to and forming the upper support of the bobbin, the bolster, a tube surrounding the spindle below the bobbin, said tube fitting the bolster with a loose fit, a whirl secured to the tube surrounding the spindle, and a bobbin-support on the whirl for the lower end of the bobbin, whereby the bobbin may adjust itself to variations in the yarn-load, as described.



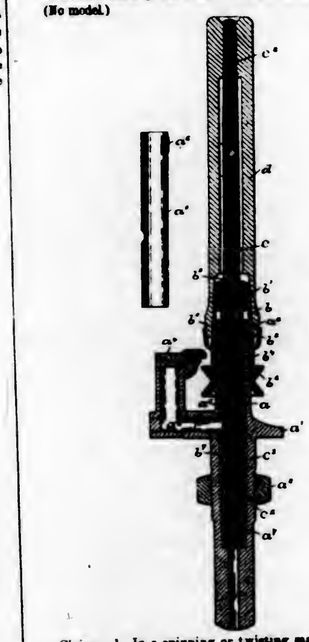
6. In a bobbin-support, the combination with the bolster-case, an oil-chamber in the bolster-case, a step-bearing, and a bolster-tube loose in the bolster-case, of a sleeve-whirl surrounding the tubular end of the bolster-tube, a tube loosely fitting the bolster and secured to the whirl, a spindle supported on the step-bearing, extending through the tube secured to the sleeve-whirl with a loose fit, a shoulder on the spindle forming the vertical support for the sleeve-whirl, and a blade on the spindle extending to the upper part of the bobbin, whereby the bobbin-supports on the sleeve-whirl and on the spindle may adjust themselves laterally to the revolving varying yarn-load on the bobbins, as described.

7. In a bobbin-support, in combination with the bolster-case, the tubular upward extension of the bolster-case, the oil-chamber in the bolster-case, and the flat step-bearing, of a spindle having an enlarged head, forming a shoulder, at its junction with the spindle, said head tapering to a small point resting on the flat top of the step-bearing, a tube surrounding the lower part of the spindle with a loose fit and supported on the shoulder formed by the enlarged head, a sleeve-whirl secured to the tube inclosing the spindle but disconnected from the spindle, and a bolster-tube fitting the bore of the bolster-case with a loose fit and held against rotation, whereby the bearing-surfaces of the spindle forming the support for the upper end of the bobbin and the tube supporting the sleeve-whirl may be supplied with lubricant from the oil-chamber and the upper and lower supports for the bobbin may adjust themselves laterally and independent of each other to a varying yarn-load, as described.

8. The combination in a spinning or twisting machine spindle with the bolster-case A, the bolster A^2 and the step A^3 in the bolster-case, of the spindle D having the enlarged conical foot D′ and the blade D^4, the sleeve-whirl B, the tube B^2 secured to and rotating with the sleeve-whirl and a bobbin the upper end of which embraces the blade of the spindle and the lower end engages with the sleeve-whirl, the spindle and the sleeve-whirl having capacity for lateral adjustment produced by the looseness of the fit of their bearings; whereby the sleeve-whirl and the spindle may yield each independent of the other to any unbalanced load on the bobbin, as described.

648,848. SPINNING AND TWISTING MACHINE SPINDLE.

HENRY F. WOODMANCY, Whittinsville, Mass.; Cyrus A. Taft executor of said Woodmancy, deceased. Filed Oct. 13, 1898. Serial No. 693,450. (No model.)



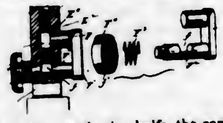
Claim.—1. In a spinning or twisting machine spindle, the combination with a sleeve-whirl having a supporting-tube inclosing the spindle but loose on the same and the live-spindle, of the series of balls c^4 forming the vertical support of the sleeve-whirl and the series of balls c^5 forming the vertical support of the spindle, as described.

2. In a spinning or twisting machine spindle, the combination with the bolster-case a, the bolster a^3 secured in the bolster-case against rotation and the step a^7, of the live-spindle c having the cylindrical enlargement c', the groove c^3 and the conical foot c^4, the sleeve-whirl b having the tube b^2 secured thereto, and the series of balls c^5 and c^4 forming the vertical support of the sleeve-whirl and of the spindle; whereby the sleeve-whirl may rotate independent of or with the spindle supported on the ball-bearing, as described.

3. In a bobbin-support, in combination, a bolster-case, a live-spindle rotatably supported in the bolster-case, an annular groove in the spindle adapted to form the race for a ball-bearing, a sleeve-whirl having a supporting-tube inclosing the spindle but loose on the same and a series of balls in the annular groove of the spindle; whereby the sleeve-whirl is vertically supported on the balls and may turn on the spindle, as described.

648,844. DRAW-KNIFE.

ISRAEL S. BAILEY, Southington, Conn. Filed June 9, 1899. Serial No. 719,966. (No model.)



Claim.—1. In a draw or shaving knife, the combination with a blade formed at each end with a disk having a central pivot-hole and one or more peripheral locking-notches; of two detachable handles, each having a head composed of two ears, and formed with a push-pin hole intersecting the space between the said ears, one of which is formed with a centrally-arranged pivot-hole; and two movable couplers respectively mounted in the said handle-heads, and each comprising a pivot-pin, and a slotted push-pin, the said pivot-pins entering the pivot-holes of the disks and the pivot-holes of the ears, and the said push-pins entering the push-pin holes of the heads, and the peripheral locking-notches of the disks from which latter the handles are disengaged by moving the couplers so as to clear the pivot-pins from the pivot-holes of the disks, and so as to register the slots of the push-pins with the peripheral locking-notches of the disks.

2. In a draw or shaving knife, the combination with a blade formed at each end with a disk having a central pivot-hole, and one or more peripheral locking-notches; of two detachable handles, each having a head composed of two ears and formed with a push-pin hole intersecting the space between the said ears, one of which is formed with a centrally-arranged pivot-hole; and two movable couplers respectively mounted in the said heads, and each comprising a pivot-pin, a slotted push-pin, a cross-bar uniting the two pins, a spring mounted upon the push-pin, and a cap applied to the push-pin for securing the spring thereto and constituting a push-button, the said pivot-pins entering the pivot-holes of the disks and the pivot-holes of the ears, and the said push-pins entering the push-pin holes of the heads and the peripheral locking-notches of the disks from which latter the handles are disengaged by moving the couplers so as to clear the pivot-pins from the pivot-holes of the disks and so as to register the slots of the push-pins with the peripheral locking-notches of the disks.

648,845. CAR-SEAL.

FRANKLIN W. BROOKS, Washington, D. C. Filed May 13, 1899. Serial No. 716,661. (No model.)

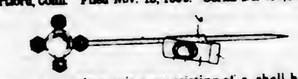


Claim.—1. A seal composed of two unbroken sheet-metal parts secured together at their edges, either or both of said portions provided with entrances for the shackle-wire, and adapted to receive impressions on their flat exposed surfaces, an interposed confined and concealed anchor or anvil having the characteristic of yielding resistance, and smaller in cross-section than the space between the interior faces of the sheet-metal parts, and a shackle-wire having its ends reversed or bent and embedded in the face of the anchor or anvil and confined between the interior faces of the sheet-metal parts, substantially as hereinbefore set forth.

2. A seal embodying in its organization two hat-shaped sheet-metal portions A B joined by overlapping flanges and formed with shackle-entrances and having continuous exterior surfaces adapted to receive impressions, an interiorly confined and concealed anchor or anvil, smaller in cross-section than the space between the interior faces of the sheet-metal parts and having inherent yielding resistance properties, and a shackle-wire having its ends bent and embedded in the face of the anchor or anvil and confined between the interior faces of the sheet-metal parts A, B, substantially as hereinbefore set forth.

648,846. STICK-PIN RETAINER.

GEORGE J. CAPEWELL, Jr., Hartford, Conn. Filed Nov. 15, 1899. Serial No. 737,109. (No model.)



Claim.—1. A pin-retainer consisting of a shell having tubular chambers extending at an angle and communicating with each other, one of said chambers opening at both ends, a ball loosely located in one chamber, and a spring arranged to thrust the ball toward the point of convergence of the chambers, substantially as specified.

2. A pin-retainer consisting of a shell having tubular chambers extending at an angle and communicating with each other, one of said chambers opening at both ends; a ball located in one chamber, and a spring arranged to thrust the ball toward the point of convergence of the chambers, substantially as specified.

3. A pin-retainer consisting of a shell having tubular chambers extending at an angle and communicating with each other, one of said chambers being smaller than the other and open at both ends, a ball located in the larger chamber, and a spring arranged to thrust the ball toward the point of convergence of the chambers, substantially as specified.

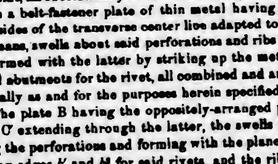
4. A pin-retainer consisting of a shell having tubular chambers extending at an angle and communicating with each other, one of said chambers being smaller than the other and opening at both ends, a ball located in the larger chamber, a plunger placed beneath the ball, and a spring arranged to thrust the ball toward the point of convergence of the chambers, substantially as specified.

5. A pin-retainer consisting of a shell having a chamber that is larger at one end than the other, openings through the ends of the shell near the edge, an opening through the side of the shell, a ball located within the shell, a plunger placed below the ball, and a spring adapted to thrust the plunger and ball toward the smaller end of the chamber in the shell, substantially as specified.

6. A pin-retainer consisting of a shell having tubular chambers extending at an angle and communicating with each other, one of said chambers having an opening for the insertion of the pin, a ball free to roll in the other chamber, and a spring arranged to thrust the ball toward the point of convergence of the chambers, substantially as specified.

648,847. WINDOW OR TRANSOM CORNER-POST AND BAR.

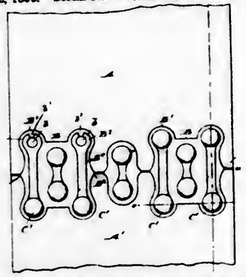
JOHN W. COULSON, Columbus, Ohio. Filed Nov. 13, 1899. Serial No. 736,729. (No model.)



Claim.—In a window-post or transom-bar, the combination with a post or bar of wood having recessed sides, of a metallic T-bar having its web or tongue portion inserted within a corresponding recess of said post or bar and having its head portion abutting against the inner side of said post or bar and filling-strips adapted to be secured in said angular recesses, substantially as set forth.

648,848. BELT-FASTENER.

ANDREW L. EATON, New York, N. Y. Filed Apr. 12, 1899. Serial No. 712,712. (No model.)



Claim.—1. The belt-fastener plate B in a single piece having perforations at opposite sides of the transverse center line adapted to receive the fastening means, struck-up ribs connecting the perforations upon opposite sides of said transverse center line and projections on each side of said plate in the plane thereof at right angles to the longitudinal center line and serving the double function of strengthening the plate at its longitudinal center and indicating the proper location of the transverse center line relatively to the belt ends with which it is used, whereby the plate is evenly spaced as to the meeting ends of the belt-sections, substantially as specified.

2. In a belt-fastener plate of thin metal having perforations adapted to receive rivets or analogous fastening means, a swell partially surrounding each perforation and formed by striking up the metal at those points, the supporting edge b' formed by said swell serving as an abutment to the upper portion of the body of the rivet, in combination with an unelevated portion of the plate at a lower level forming the edge b^2 and serving to support the body on the opposite side at that point, all substantially as and for the purposes herein specified.

3. In a belt-fastener plate of thin metal having perforations on opposite sides of the transverse center line adapted to receive the fastening means, swells about said perforations and ribs connecting said swells, formed with the latter by striking up the metal of those portions, and abutments for the rivet, all combined and arranged to serve substantially as and for the purposes herein specified.

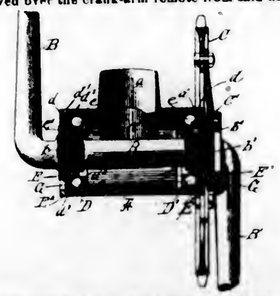
4. The plate B having the oppositely-arranged perforations b b, rivets C, C′ extending through the latter, the swells B^2 partially surrounding the perforations and forming with the plane of the plate the supporting edges b' and b^2 for said rivets, and the ribs B^3 connecting opposing pairs of swells, all combined and arranged to serve substantially as herein specified.

648,849. BICYCLE CRANK-SHAFT.

WILLIAM H. FAUBEL, Chicago, Ill. Filed Nov. 13, 1895. Serial No. 569,216. (No model.)

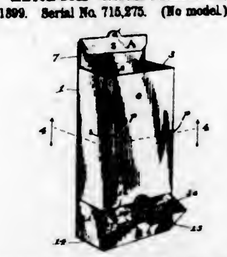
Claim.—1. The combination with a machine-frame and a transverse hanger, of a crank-shaft provided with crank-arms at its ends said shaft and crank-arms being made integral with each other, said crank-shaft being provided at one end with an integral flange for the

attachment of a sprocket-wheel, and bearings for the shaft comprising bearing rings or cones which are secured to the shaft said shaft having enlarged portions to receive said bearing-cones of which the enlarged portion remote from the flange is made smaller in diameter than that nearest the flange to allow the passage over it of the bearing-ring located nearest the flange whereby the parts of both bearings may be removed over the crank-arm remote from said flange.



2. The combination, with a machine-frame and a transverse tubular hanger attached to the frame, of a crank-shaft and crank-arm made integral with each other, said crank-shaft being provided at one end with an integral flange for the attachment of a sprocket-wheel, and ball-bearings for the shaft comprising inner rings or cones having screw-threaded engagement with the shaft, said shaft having screw-threaded portions to receive said bearing-cones, of which the one nearest the flange is larger in diameter than and screw-threaded oppositely to the one remote from the flange, and those parts of the shaft and crank-arms exterior to the smaller screw-threaded portion being made in all parts smaller in size than the diameter of said smaller screw-threaded part, whereby all members of both bearings may be removed over one crank-arm, substantially as described.

648,850. MATCH-BOX. ALBERT FEARHADNEY, Indianapolis, Ind. Filed May 2, 1899. Serial No. 715,275. (No model.)



Claim.—1. As a new article of manufacture, a combined match-box and match-safe in which the match-holding receptacle is provided with a folding tray and means for supporting said tray in position to retain its contents after the match-box is opened, substantially as set forth.

2. The combination, of an inner sliding box having a tray adapted to be folded out and the box thus converted into a match-safe, and an outer box adapted to slide over the same and form a cover therefor and also a support for the corners of the ends of the tray when in position for use, substantially as set forth.

3. The combination of an inner sliding box having projections *p* on its edges, and an outer box having corresponding slits in its corners, said projections being adapted to enter said slits and limit the movement of the inner box within the outer box or cover, substantially as set forth.

4. The combination, in a match-box, of an inner sliding box having a tray on its end, means for supporting said tray when open and an outer sliding box or cover adapted to be moved telescopically over the same, the latter being provided with a folding end from which the device may be suspended when in use as a safe, substantially as set forth.

5. A match-box composed of a sheet of suitable material cut and scored into a bottom division, 10, side pieces, 11 and 12, end divisions, 13 and 14, suitable corner-pieces for attaching the sides and ends, and a tray portion, 15, 16 and 17, the inner corners of portion 17 being arranged to impinge against the lower end of the outer sliding box when in position for use, and said outer sliding box, substantially as shown and described.

6. A box-cover formed of a sheet of suitable material composed of the sides 2 and 4, the edges 3 and 1 to 5, and end folds 7 and 8, said fold 8 having an ear *c* thereon which is cut from the fold 7, substantially as set forth.

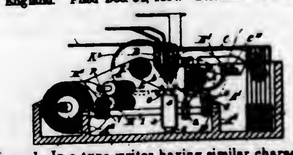
7. The combination, with the body of a match-box, of a folding tray portion at one end thereof, and means for supporting it when open whereby the box is adapted also to use as a match-safe, substantially as set forth.

648,851. CREAM-SEPARATOR. WILLIAM J. GOULD, Lawrence, Kans. Filed Sept. 14, 1899. Serial No. 730,499. (No model.)



Claim.—In a device of the character described, the combination with an outer can, of a bracket formed of one continuous piece, its intermediary portion engaging with one edge thereof and its free ends engaging the opposite edge, and an inner can having downwardly-turned hooks secured thereto, adapted, when the can is raised, to engage with said bracket and retain the can in elevated position, within the outer can, substantially as described.

648,852. SHORTHAND TYPE-WRITER. JOHN F. HARDY, London, England. Filed Dec. 31, 1897. Serial No. 664,865. (No model.)



Claim.—1. In a type-writer having similar characters arranged in one or more rows obliquely to the path of the paper when it passes through the machine, an endless belt bearing platens, substantially as specified.

2. In a type-writer having similar characters arranged in one or more rows, an endless belt bearing platens that are moved transversely of the machine after each movement of the characters, substantially as specified.

3. In a type-writer, a feeding mechanism with the printing characters arranged transversely of the machine, an endless belt bearing platens arranged transversely of the machine, and a paper-feeding mechanism arranged to advance the paper through the machine by a continuous step-by-step longitudinal movement of the paper imparted by the movement of the keys, substantially as specified.

4. In a type-writer having similar characters arranged in one or more rows, an endless belt bearing platens, both rows of characters and the belt being arranged obliquely to the path of the paper when it passes through the machine, substantially as specified.

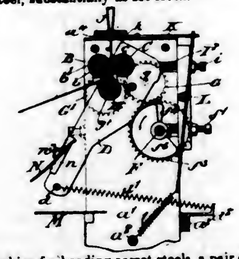
5. In a type-writer, the combination with a row of similar printing characters of an endless belt bearing platens that are movable in relation to the printing characters, substantially as specified.

6. In a type-writer, in combination, bails bearing printing characters, a pawl and ratchet-wheel mechanism operated by the movement of either of the bails, an endless belt bearing platens and moved by the pawl and ratchet-wheel mechanism, and a paper-feed operated by the pawl and ratchet-wheel mechanism, substantially as specified.

7. In a type-writer, in combination, bails bearing printing characters, a pawl and ratchet-wheel mechanism operated by the movement of either of the bails, an endless belt bearing platens and moved by the pawl and ratchet-wheel mechanism, a paper-feed operated by the movement of the pawl and ratchet-wheel mechanism, and an inking-ribbon mechanism operated by the pawl and ratchet-wheel mechanism, substantially as specified.

648,853. METAL-BENDING MACHINE. MAX W. HENIUS and JOHN HERROLD, New York, N. Y.; said Herrold assignor to said Henius. Filed Apr. 10, 1899. Serial No. 712,873. (No model.)

Claim.—1. In a machine for bending corset-steels, bending-rolls, an adjustable stop, means for feeding the steel between the rolls into engagement with the stop and means for operating the rolls to form a bend in the steel, substantially as set forth.



2. In a machine for bending corset-steels, a pair of bending-rolls, a swinging frame hinged on one of the bending-roll shafts, a third bending-roll mounted in said frame, means for feeding the steels between the bending-rolls and means for swinging the frame for forming bends in the steels, substantially as set forth.

3. In a machine for bending corset-steels, a pair of bending-rolls, a swinging frame hinged on the shaft of one of the bending-rolls, a third bending-roll mounted in the said swinging frame, means for feeding the steels between the bending-rolls and a rotary cam arranged to swing the frame to form bends in the steels, substantially as set forth.

4. In a machine for bending corset-steels, bending-rolls, a stop carried by the machine, means for feeding the steels between the rolls into engagement with the stop, a swinging frame, means for operating it for forming bends in the steels and a discharge-plate carried by the swinging frame in position to engage the advance ends of the steels adjacent to the stop for swinging them outwardly away from the machine, substantially as set forth.

5. In a machine for bending corset-steels, a pair of bending-rolls, a swinging frame hinged on one of the bending-roll shafts, a third bending-roll mounted in the said frame, a rotary cam-shaft, a cam thereon for operating the frame, a hopper for containing a steel, means for opening and closing the mouth of the hopper comprising a sliding gate and a rocking lever having one arm engaged with the gate and the other with a cam on the cam-shaft, substantially as set forth.

6. In a machine for bending corset-steels, means for feeding steels into the machine, a bending-roll mounted in stationary bearings in the frame, a second bending-roll mounted in sliding bearings in the frame, a swinging frame, hinged on the shaft of the second-named bending-roll, a third bending-roll mounted in the frame, a rotary shaft for swinging the frame and means for moving the second-named roll toward and away from the first-named roll at predetermined intervals for causing the said rolls to alternately permit the free passage of the steel therethrough and to engage the said steel, substantially as set forth.

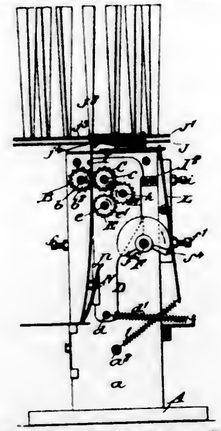
7. In a machine for bending corset-steels, a bending-roll mounted in stationary bearings in the frame, a second bending-roll mounted in sliding bearings in the frame, a swinging frame hinged on the shaft of the second-named bending-roll, means for swinging the frame and means for sliding the second-named roll toward and away from the first-named roll comprising stops arranged to engage the front and rear of the swinging frame fitted to act in conjunction with the means for swinging the said frame, substantially as set forth.

8. In a machine for bending corset-steels, a bending-roll mounted in stationary bearings in the frame, a second bending-roll mounted in sliding bearings in the frame, a spring-actuated swinging frame hinged on the shaft of the second-named bending-roll, means for swinging the frame and means for sliding the second-named roll toward and away from the first-named roll comprising a stationary stop engaging the front of the swinging frame, and an adjustable stop engaging the rear of the said frame, the said stops being fitted to coact with the means for swinging the frame, substantially as set forth.

9. In a machine for bending corset-steels, a bending-roll mounted in stationary bearings in the frame, a second roll mounted in sliding bearings in the frame, a swinging frame hinged on the shaft of the second-named bending-roll, a third bending-roll mounted in the said swinging frame, a rotary cam for swinging the said frame and means for adjusting the said shaft toward and away from the swinging frame to regulate the amount of bend in the steels, substantially as set forth.

648,854. METAL-BENDING MACHINE. MAX W. HENIUS and JOHN HERROLD, New York, N. Y.; said Herrold assignor to said Henius. Filed Apr. 10, 1899. Serial No. 712,874. (No model.)

Claim.—1. In a metal-bending machine, a movable device for containing a plurality of strips of metal, bending-rolls arranged to receive the strips between them, means for operating the bending-rolls and means under the control of the bending-roll-operating means for moving the strip-containing device into position to permit successive strips to fall into position to be engaged by the bending-rolls at predetermined intervals, substantially as set forth.



2. In a metal-bending machine, bending-rolls, means for operating them, a movable table having a plurality of hoppers adapted to receive the strips to be bent and means for successively bringing the several hoppers into position to permit their respective strips to fall into position to be engaged by the bending-rolls at predetermined intervals, substantially as set forth.

3. In a metal-bending machine, bending-rolls, means for operating them, a rotary table, an annular series of strip receiving hoppers carried thereby and means under the control of the bending-roll-operating means for bringing the hoppers successively into position to feed their respective strips to the bending-rolls at predetermined intervals, substantially as set forth.

4. A strip-feeding device for metal-bending machines comprising a stationary table, a rotary table mounted thereon a plurality of strip-receiving hoppers opening through the rotary table for permitting the lower ends of the strips to rest upon the stationary table and means for imparting a step-by-step movement to the rotary table for bringing the strips successively to a point on the stationary table where they will be permitted to be fed to the strip-bending mechanism, substantially as set forth.

5. In a metal-bending machine, metal-bending rolls, a rotary cam-shaft for operating the rolls, a rotary feed-table having a plurality of hoppers for the strips to be bent and means for imparting a step-by-step movement to the table for feeding the strips successively to the bending-rolls comprising a pawl arranged to engage successive abutments on the movable table, a cam carried by the cam-shaft and a spring-actuated rocking lever having one arm engaged with the pawl and the other arm with the said cam, substantially as set forth.

6. A strip-feeding device for metal-bending machines comprising a stationary table having a downwardly-extended guide, a rotary table mounted on the stationary table, an annular series of strip-receiving hoppers opening through the rotary table for permitting the strips contained in the hoppers to rest upon the stationary table and means for bringing the hoppers successively into position to cause the strips to pass down the guide on the stationary table into position to be fed into the machine, substantially as set forth.

648,855. AUTOMATIC CUT-OFF AND FILTER. MARCELLUS M. HITT, Luray, Va., assignor of one-third to John A. Broaddus, same place. Filed Apr. 15, 1899. Serial No. 713,125. (No model.)

Claim.—1. In an automatic cut-off and filter apparatus, the combination, with the tank, having its top inclined and cut out at the upper and lower sides, of the cut-off and filter attachment, which fits and is held in such cut-out portions, as shown and described.

2. The combination, with a tank, of a cut-off and filter attachment which is fitted in the top of said tank and supported thereby, and a hinge-bail and drop-pin for securing said attachment removably, as shown and described.

3. The combination, with a water receptacle or tank, of a cut-off and filter attachment including as part of the same, a filter-com-

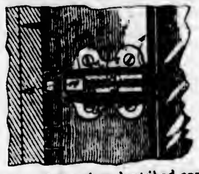
partment, arranged at one end of said section, and consisting of reticulated partitions and filtering material placed in the space between them, substantially as shown and described.



4. The combination, with the water tank or receptacle, and a pivoted cut-off arranged upon the same, of a lateral discharge-spout forming an attachment of said tank, and composed of a fixed section and a movable section having a lengthwise slot which is exposed more or less according to the adjustment of the movable section, and a water-counterbalance arranged to receive the water discharged through said slot, substantially as shown and described.

5. The combination, with a water-tank, or receptacle for the first wash of a roof, the same having a lateral discharge-pipe, of an automatic cut-off and filter attachment comprising alined, fixed, and inclined conductors 2, the intermediate, pivoted filter-section B, having a discharge-slot in the bottom thereof, a water-receptacle hung from the filter-section, and constituting a counterbalance for the same, and having a discharge-slot in the bottom, as shown and described.

648,856. SASH-FASTENER. WILL S. JAMES, Tehuacana, Tex. Filed July 29, 1899. Serial No. 726,537. (No model.)



Claim.—1. A device of the class described comprising a casing open at the back to form a recess and having openings at its ends communicating with the recess, one end of the casing being provided with an entrance-slot, and a bolt having an engaging portion at one end and a knob or handle at the other and provided between its ends with a reduced or narrow portion of a size to pass through the entrance-slot, substantially as described.

2. A device of the class described comprising a casing, open at its back to form a recess and provided at its ends with openings, said casing having an entrance-slot at one end communicating with the adjacent opening, a reciprocating bolt provided at one end with an engaging portion having a knob at the other and provided between its ends with a reduced portion of a size to pass through the said entrance-slot, and a spring arranged on the bolt and adapted to be introduced on the same at the narrow portion thereof, substantially as and for the purpose described.

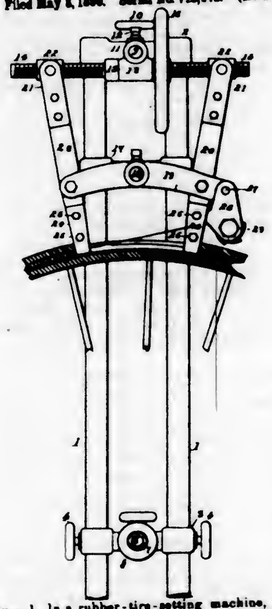
3. A device of the class described comprising a casing open at its back to form a recess and provided at its ends with openings, and having an entrance-slot, said casing being provided at its inner end with a guiding portion and being enlarged in rear of the same, and a bolt having a narrow portion to pass through the entrance-slot and provided with an enlargement fitting in the guiding portion of the casing and adapted to be drawn backward opposite the enlarged portion of the casing, whereby it may be partially rotated, substantially as described.

4. A device of the class described comprising a casing open at the back and provided at its ends with openings and having an entrance-slot, a bolt provided with a narrow portion of a size to pass through the entrance-slot and having its engaging portion guided on the casing and adapted when drawn inward to be rotated, a lug carried by the bolt and arranged to engage the walls of the casing to limit the rotation, and a spring for actuating the bolt, substantially as described.

5. A device of the class described comprising a casing open at the back and provided at its front with a rectangular opening and having an entrance-slot at the back, a bolt having a narrow or reduced portion to pass through the entrance-slot and provided with a polygonal portion guided in the said opening, said bolt being adapted to be retracted to withdraw its polygonal portion from the rectangular opening, and a leg carried by the bolt to limit its rotation, substantially as described.

6. A device of the class described comprising a casing open at the back and provided at its ends with openings, and having an entrance-slot, a bolt sliding in the casing and having a reduced portion to pass through the slot, a spring arranged on the bolt, and a stop arranged on the casing and adapted to be engaged by the bolt to prevent the spring from being compressed too far, substantially as described.

648,857. APPARATUS FOR SETTING RUBBER TIRES. GEORGE W. KELLER, Akron, Ohio, assignor of one-half to Grant U. Kirk, same place. Filed May 8, 1899. Serial No. 715,972. (No model.)

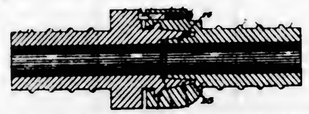


Claim.—1. In a rubber-tire-setting machine, the combination with parallel guide-rods having a yoke to connect their upper ends; a sliding yoke bearing a wrist to support the wheel-hub, and means for retaining said sliding yoke of oppositely-disposed rocking levers pivotally mounted on a bar also pivotally mounted on a wrist projecting from an intermediate yoke, said levers having clamps in their lower ends to grasp the tire-wires, and nuts pivotally mounted in their upper ends, a right and left handed screw centrally supported in a sleeve mounted on a wrist extending from said upper yoke, and means for retaining said sleeve, all constructed and arranged substantially as shown and described.

2. In a rubber-tire-setting machine, the combination with parallel guide-rods having a sliding yoke bearing means for sustaining the wheel-hub; an upper yoke bearing a sleeve; a right and left handed screw centrally supported in said sleeve, a wheel to turn said screw; nuts running on said screw pivotally supported in the upper ends of levers, said levers being centrally pivoted in the ends of a bar, pivotally mounted in a wrist extending from an intermediate yoke, and having clamps at their lower ends to grasp the tire-wire, of a windlass mounted on one end of said bar and a ratchet and pawl to retain said windlass, substantially as shown and described.

3. An improved device for bringing the rubber from each direction to the point of union in the channeled tire and along the embedded wires, in tire-setting machines of the kind designated, consisting of a frame having end rollers adapted to run on the metal and rubber tires, and having means for anchoring it against moving with the wheel, and provided with means for securing pairs of blades with curved ends to rub under the rubber tire between said rollers, substantially as shown and described.

648,858. HOSE-COUPLING. MATTHEW J. KOSOLD, Evergreen, Allegheny county, Pa. Filed June 9, 1899. Serial No. 719,904. (No model.)



Claim.—1. A coupling of the character described comprising a male and female member, a boss arranged on said male member carrying ratchet-teeth, a cone-shaped nipple formed on said boss, inclined ridges arranged on said cone-shaped nipple, said female member carrying a sleeve having a V-shaped annular recess, a cone arranged in said sleeve, lugs secured to the exterior of said sleeve, guides arranged in said lugs and a spring-actuated pawl suitably secured in one of said lugs, substantially as described.

2. A coupling of the character described, comprising a male and female member, a boss arranged on said male member, a set of ratchet-teeth arranged on said boss, a cone-shaped nipple formed on said boss, inclined ridges arranged on said cone-shaped nipple, said female member carrying a sleeve having formed therein a V-shaped recess, a cone arranged in said sleeve, lugs secured to the exterior of said sleeve, guides arranged in said lugs, a spring-actuated pawl arranged in one of said lugs, a split ring secured to the end of said pawl, and a series of annular flanges arranged on the said male and female members, all parts being arranged and operating substantially as herein shown and described.

3. A coupling of the character described, comprising a male and female member, a boss arranged on said male member, a cone-shaped nipple arranged on said boss, said female member carrying a sleeve having a V-shaped annular recess, a cone arranged in said sleeve, annular flanges arranged on said male and female members, and suitable locking means, substantially as described.

4. A coupling of the character described, comprising a male and female member, a boss arranged on said male member, a double series of ratchet-teeth arranged on the inner face of said boss, one series of teeth opposite the other, a cone-shaped nipple formed integral with the said boss, a sleeve mounted on the said female member, a cone arranged in said sleeve and surrounded by a V-shaped recess to receive the said nipple, guides formed integral with the said sleeve, means connected to the said nipple adapted to be engaged by the said guides for securing the said members together, peripheral flanges formed integral with the said members for securing a hose-section thereto, and means adapted to engage the said ratchet-teeth for preventing the turning of the said members, substantially as set forth.

648,859. PROCESS OF COATING FOODS. WILHELM LAHWER and ERNST KÜPER, Bremerhaven, Germany. Filed Aug. 11, 1899. Serial No. 726,937. (No specimens.)

Claim.—1. The process for preserving perishable articles which consists in sterilizing the object, then dipping it into an alcoholic solution of resin and permitting the alcohol to evaporate, then dipping it into a solution of gelatine, glue and dextrine, then dipping it into a solution of formaline and finally placing it in a drying-room at a temperature of between 30° to 40° centigrade.

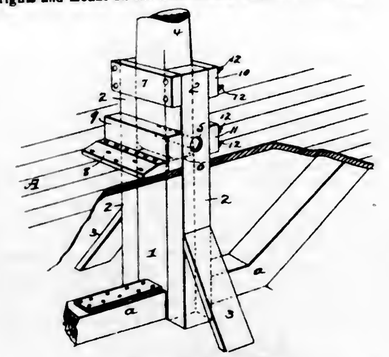
2. The process of preserving perishable articles which consists in sterilizing the object, then dipping it in fat, then dipping it into an alcoholic solution of resin and permitting the alcohol to evaporate, then dipping it into a solution of gelatine, glue and dextrine, then dipping it into a solution of formaline and finally placing it in a drying-room at a temperature of between 30° to 40° centigrade.

648,860. PORTABLE DERRICK. JOHN B. LORD, Washington, D. C. Filed Dec. 1, 1899. Serial No. 738,577. (No model.)

Claim.—1. In a derrick, the combination with a float and parallel upright supports carried by said float, of a mast disposed between said uprights and pivoted thereto, and blocks on the front and rear faces of said uprights for holding the mast in an upright position.

2. In a portable derrick, the combination with a float, of a stump secured to said float, parallel uprights secured to said stump and projecting above the same, a mast pivoted between said uprights, blocks removably secured to the front and rear faces of the uprights to secure the mast in an upright position, a movable jib connected to said mast, and means on said jib for loading and unloading.

3. In a derrick, the combination with a float and a stump secured thereto, of parallel uprights secured to the respective sides of the stump, a mast pivoted between said uprights, removable blocks secured to the uprights in front and rear of the uprights, a block secured in proximity to the rear face of the uprights and mast, a block adapted to be driven between said last-mentioned block and uprights and means on the mast for loading and unloading.



648,861. BLIND-SLAT ADJUSTER. JOHN R. MORGAN, St. Louis, Mo. Filed Dec. 14, 1899. Serial No. 740,337. (No model.)



Claim.—1. The combination with a blind, having pivoted slats, and a slat-rod, of a guide for the rod, a laterally-projecting pin or lug carried by the slat-rod, and slidably engaging the guide, and a manually-operable locking device carried by the guide and having a plurality of adjustable engagements with the pin or lug.

2. The combination with a blind, having pivoted slats, and a slat-rod, of a guide having a slot, a lateral guide projection carried by the slat-rod, slidably received within the slot of the guide, and projecting at one side thereof, and a hinged locking device carried by the guide, and provided with a plurality of perforations for adjustably receiving the pin or lug.

3. The combination with a blind, having pivoted slats, and a slat-rod, of opposite guide members receiving the slat-rod therebetween, and having corresponding arcuate slots, opposite laterally-projecting guide-lugs provided upon the slat-rod and slidably received within the respective arcuate slots, and a hinged locking device carried by one of the guide members, and adjustably engaging one of the pins or lugs.

4. The combination with a blind, having pivoted slats, and a slat-rod, of a pair of opposite substantially L-shaped guide members receiving the slat-rod therebetween, having attaching wings or ears for application to the blind, and also provided with corresponding arcuate slots, opposite laterally-projecting guide-lugs carried by the slat-rod, and slidably received in the respective arcuate slots, and a substantially L-shaped locking device hinged to one of the guide members, and having an arcuate series of perforations adjustably receiving the adjacent pin or lug.

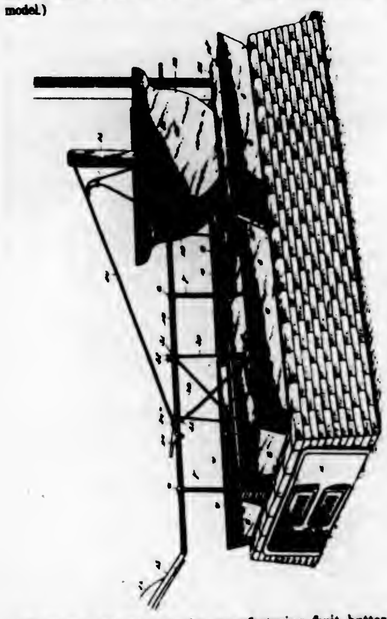
5. The combination with a blind having pivoted slats, and a slat-rod, of a pair of opposite substantially L-shaped guide members, receiving the slat-rod therebetween, the vertical inner side of each member being fitted against the lower rail of the blind, the horizontal portion extending transversely across the upper side of said rail, and each member also having an arcuate slot extending into both portions thereof, guide-lugs projecting at opposite sides of the slat-rod, and slidably received in the respective arcuate slots, one of the lugs projecting outwardly beyond the adjacent guide member, and a substantially L-shaped locking-plate hinged to said adjacent guide member, foldable against the outer side of the latter, and provided with an arcuate series of perforations corresponding to the arcuate slots of the members, and adjustably receiving the adjacent guide-lug.

6. The combination with a blind, having pivoted slats, and a slat-rod, of a pin, having an intermediate notched portion angly receiving the lower end of the slat-rod, and the opposite ends of the pin projecting at opposite sides of the rod, a socket embracing the lower end of the slat-rod and holding the pin in place, opposite guide members receiving the slat-rod therebetween, and provided with corresponding slots receiving the respective ends of the pin, and a locking device hinged to one of the guide members and adjustably engaging the adjacent end of the pin.

7. The combination with a blind, having pivoted slats, and a slat-rod, of a pin projecting at opposite sides of the slat-rod, a socket embracing the lower end of the slat-rod and holding the pin in place, and also provided with an outwardly-directed thumb-piece, opposite guide members provided with corresponding slots receiving the respective ends of the pin, and a locking device hinged to one of the guide members, and adjustably engaging the adjacent end of the pin.

8. A blind attachment, comprising opposite substantially L-shaped members, having outwardly-directed attaching wings or ears located at the inner sides of the vertical portions thereof, and also provided with corresponding arcuate slots, a pin for application to the slat-rod of the blind, and having its opposite ends slidably received within the respective arcuate slots, one end of the pin projecting outwardly beyond one of the members, and a substantially L-shaped locking-plate hinged to the outer edge of the latter member, having an arcuate series of perforations for adjustable engagement with the adjacent projecting end of the pin, and also provided with an operating thumb-piece.

648,862. APPARATUS FOR MAKING FRUIT BUTTER. FLAVIUS MOSS, Russellville, Ind. Filed May 9, 1898. Serial No. 680,173. (No model.)



Claim.—1. An apparatus for manufacturing fruit butter comprising a series of pans, a series of scraper devices, one for each pan, a strainer provided with a movable element adapted to traverse its foraminous surface, said strainer also having means for holding the same in position on either of the series of pans, a motor common to the series of scrapers, and a detachable connection between said motor and the movable element of the scraper, as and for the purposes described.

2. In an apparatus for manufacturing fruit butter, a series of pans, a scraper mechanism for each pan, a motor for operating said scrapers simultaneously, a strainer provided with means for securing it in either of said pans and with a movable element, and means for adjustably connecting the movable element with the motor when the strainer is in either pan.

3. In an apparatus for manufacturing fruit butter, a series of pans, a removable scraper mechanism for each pan, a motor common to all of said scrapers, a strainer provided with means for securing it in either of said pans, an agitator in the strainer provided with bars adjacent to and movable over the foraminous surface of the strainer, and means for detachably connecting said agitator with said motor when the strainer is in either one of said pans.

4. In an apparatus for the manufacture of fruit butter, the combination of two series of pans, a reciprocating bar mounted between said series of pans for endwise movement longitudinally thereof, the scrapers fitted within the pans to traverse the bottoms thereof, and arms extending from the reciprocating bar and attached to the scrapers, substantially as described.

5. In an apparatus for the manufacture of fruit butter, the combination of a series of pans, a reciprocating bar contiguous thereto, a series of scrapers in said pans, and arms attached to said scrapers and each provided with a clamping device for making the same fast with the reciprocating bar, each arm and scraper being adjustable on the bar independently of the other arms and adapted to be thrown out of operative relation to the pan, substantially as described.

6. In an apparatus for the manufacture of fruit butter, the combination of a series of pans, a reciprocating bar contiguous thereto, a series of carrying-arms each having a clamp for adjustably and detachably connecting the same to the reciprocating bar, and a series of scrapers fastened detachably to the arms and adjustable therewith into or out of operative relation to the pans, substantially as described.

7. In an apparatus for the manufacture of fruit butter, the combination of a pan, a driving device contiguous thereto, a scraper fitted to the bottom of the pan, a yielding arm between the driving device and the scraper, means for varying the tension of said arm, substantially as described.

8. In an apparatus for the manufacture of fruit butter, the combination with a pan, of a scraper, an endwise-movable bar contiguous to the pan, and an adjustable connection between the reciprocating bar and the scraper to regulate pressure of the scraper upon the pan-bottom, substantially as described.

9. In an apparatus for the manufacture of fruit butter, the combination with a pan and a driving device, of a scraper fitted to said pan to travel therein, an arm for connecting the scraper with the driving device, said arm being rigid in a line with the movement of the scraper but yielding in a line at right angles thereto, and means for adjusting the tension of the arm relatively to the scraper to vary the pressure of the latter upon the pan-bottom, substantially as described.

10. In an apparatus for the manufacture of fruit butter, the combination with a pan and a driving device, of a scraper fitted upon the bottom of the pan and adapted to traverse the same, and a flexible carrying-arm detachably connected to the scraper and adjustably clamped to the driving device, and means for varying the tension of the arm or releasing it from the driving device, substantially as described.

11. In an apparatus for the manufacture of fruit butter, the combination with a pan and a driving-bar, of a scraper having a head-block, a carrying-arm fitted to the driving-bar and looped on the head-block of the scraper, a retainer for detachably fastening the looped end of the carrying-arm to the scraper head-block, and means for clamping the carrying-arm rigidly to the driving-bar, substantially as described.

12. In an apparatus for the manufacture of fruit butter, the combination of a series of pans, a single driving-bar, a series of yielding scrapers fitted in said pans to travel therein, and a series of carrying-arms clamped to the driving-bar and attached to the scrapers, each carrying-arm being adjustable on the driving-bar to regulate the pressure of its scraper or to throw the latter out of service independently of every other scraper of the series, substantially as described.

13. An apparatus for manufacturing fruit butter comprising a series of pans, a driving-bar, a series of yielding scrapers fitted in the pans to traverse the same, a series of arms operatively connected with the scrapers and also actuating the common driving-bar to actuate the scrapers, regulate the pressure thereof or throw the same out of service, a strainer device adapted to be fitted interchangeably on either pan of the series, and means between the common driving-bar and a movable element of the strainer device to actuate the latter, substantially as described.

14. An apparatus for manufacturing fruit butter comprising a series of pans, a series of scrapers therein, a common driving-bar operatively connected with said scrapers, a strainer-receptacle having a carrying-frame adapted to be fitted to either of the series of pans, a strainer-agitator hung within the strainer-receptacle to vibrate therein, and a pitman between the common driving-bar and the strainer-agitator, substantially as described.

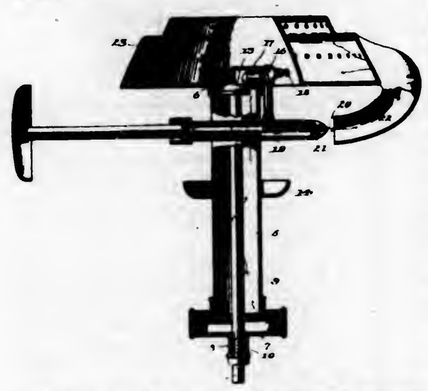
15. An apparatus for manufacturing fruit butter comprising a series of pans, a series of scrapers therein, a common driving-bar operatively connected with the scrapers and provided with a series of arms, 14, a strainer device adapted to be seated removably upon either of the series of pans and provided with a vibrating agitator, and a pitman connected to the agitator and adapted to be loosely attached to one or the other of the arms, 14, on the driving-bar according to the position of the strainer mechanism in relation to the trays or pans, substantially as described.

16. In an apparatus for the manufacture of fruit butter, a yielding scraper provided with a series of leaf-springs and two series of shoes on the free ends of said leaf-springs, substantially as described.

17. In an apparatus for the manufacture of fruit butter, a yielding scraper comprising a head-block, a series of springs attached centrally thereto, and scraper-shoes secured to the extremities of the springs, substantially as described.

18. In an apparatus for the manufacture of fruit butter, a yielding scraper comprising a head-block, a series of bowed springs fixed to the head-block, and two series of scraper-shoes carried at the terminals of the springs and presenting substantially continuous working edges at both ends of the scraper, substantially as described.

648,863. AUTOMATIC GAS-BURNER CUT-OFF. FREDERICK H. OESLER, Lorain, Ohio. Filed Nov. 21, 1898. Serial No. 697,046. (No model.)



Claim.—A burner for oil and vapor stoves comprising a single vertical thermostatic tube provided at its upper end with an internal valve-seat, a coupling at the lower end of said tube, an elbow vapor connection at the upper end of said tube, a valve-stem fixedly supported in the coupling and having a valve-head adapted to the seat of said tube, an external cup surrounding the tube at a point intermediate of its length, a burner supply-tube having an open mouth for free admission of atmospheric air at a point adjacent to the tube, and a valved casing coupled to the vapor connection and having a needle-like orifice disposed adjacent to and in axial alinement with the air-admission mouth of the burner-tube; said valved casing, the vapor connection and the upper part of the tube being within the zone of the flame emitted from the external cup, substantially as described.

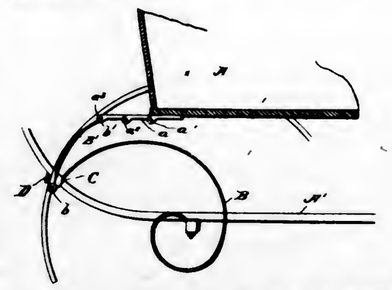
643,864. NUT-LOCK. DANIEL RHODES, Washington, D. C. Filed May 13, 1899. Serial No. 716,712. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt, of a nut having a threadless tapered bore and a frusto-conical resilient locking-bushing having a slidable interlocking engagement with the nut, said bushing being formed of a metal strip of the same thickness throughout, and provided in the inner inclined bore thereof with threads of varying depth whose bases lie in a common cylindrical plane.

2. In a nut-lock, the combination with a bolt, of a nut provided with a threadless tapered bore having in the wall thereof a transverse groove, and a frusto-conical resilient split locking-bushing provided at one terminal with an integral outturned tongue slidably interlocked with the groove, said bushing being formed of a metal strip of the same thickness throughout, and further provided within the inner inclined bore with threads of varying depth whose bases lie in a common cylindrical plane, substantially as described.

648,865. ADJUSTABLE SPRING FOR BABY-CARRIAGES. GEO. A. SARTY, Alberni, Canada. Filed May 4, 1899. Renewed Jan. 18, 1900. Serial No. 1,931. (No model.)



Claim.—1. A convertible spring and baby-jumper, comprising two springs hinged together, and means for attaching an end of either spring to its operative position, substantially as described.

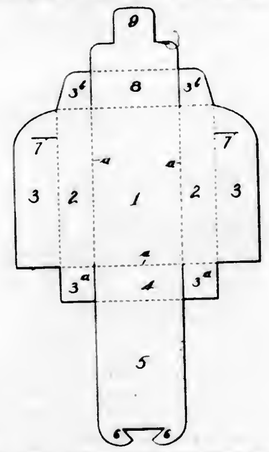
2. A convertible spring and baby-jumper, comprising two springs hinged together, and means for detachably securing an end of either spring to its operative position, substantially as described.

3. A convertible spring and baby-jumper, comprising an inner and an outer spring hinged together, and means for attaching an end of either spring to its operative position, the outer spring being adapted to be swung back over the inner spring, substantially as described.

4. A convertible spring and baby-jumper, comprising an inner and an outer spring, a hinged connection between said springs, means for attaching the outer end of either spring to its operative position, the outer spring being adapted to be swung back over the inner spring and a spring-buffer interposed between said inner and outer spring, substantially as described.

5. The combination with a perambulator, having a duplex hinge upon its under side, of a convertible spring and jumper comprising an inner and an outer spring, a hinge connection between said springs, means for securing the inner end of the inner spring to the frame of the perambulator, means for detachably securing the outer end of the inner spring and the outer end of the outer spring to either section of the said duplex hinge, and a spring-buffer interposed between the inner and the outer springs, substantially as described.

648,866. PAPER BOX. FRANK A. STECHER, Rochester, N. Y. Filed Oct. 27, 1897. Serial No. 656,570. (No model.)



Claim.—1. In a folding box, the combination with the side panels, the flaps thereon folding at right angles to the panels and having the horizontal slits, of the panel extending over the flaps provided with the inwardly and upwardly inclined tongues or projections at the sides coöperating with the slits in the flaps, substantially as described.

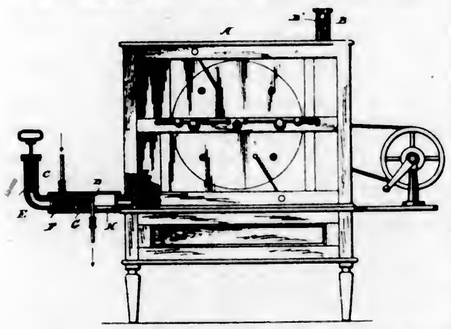
2. In a folding box, the combination with the back panel, the cover having the tacking-flap, the side panels and the flaps on the

latter extending over the back panel, of the bottom panel flexibly connected to the back panel, the front panel flexibly connected thereto extending over the flaps on the sides, the interlocking tongues and recesses between the sides of the upper end of said front panel and the upper ends of the side flaps for preventing lateral separation of the latter and leaving a space between front of the side flaps and the front panel for the reception of the tucking-flap on the cover.

3. The herein-described blank for a folding box, consisting of a single sheet of material cut and creased to form the central panel 1, side panels 2, flaps 3, panels 4 and 5, and interlocking projections and recesses substantially as described formed on the panel 5 and the flaps 3, and the cover 8 on the panel 1 provided with tucking-flap 9, adapted to extend between the panels 3 and 5 when the box is set up.

4. The herein-described blank for a folding box cut and creased to form the central panel 1, side panels 2 having the flaps 3 provided with slits 7, and the flaps 3^a and 3^b, the panels 4 and 5, the latter having the locking projections 6, and the cover 8 having the tucking-flap 9.

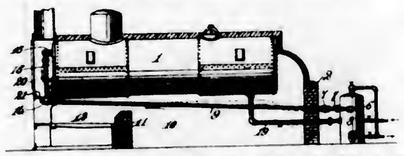
643,367. INFLUENCE-MACHINE. HENRY R. WAITE, New York, N. Y. Filed Aug. 2, 1898. Serial No. 687,533. (No model.)



Claim.—1. In an influence-machine, the combination with an air-tight inclosing case having an inlet and an outlet opening, means for forcing air or gas under pressure into the case through the inlet-opening, and means for extracting the moisture from or drying the air previous to its being introduced into the case, substantially as described.

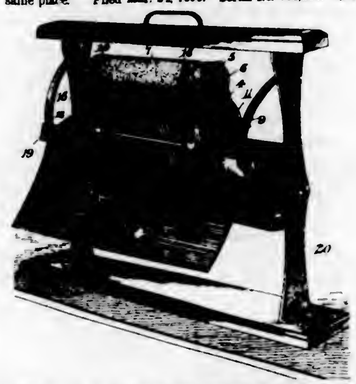
2. In an influence-machine, the combination with an air-tight casing, having an inlet and an outlet opening, means for forcing air or gas under pressure into the case through the inlet-opening, means for drying the air, and means for varying the temperature of the air before it is introduced into the casing, substantially as described.

643,368. STEAM-GENERATOR. GEORGE H. WATSON, Chicago, Ill., assignor of one-half to Edwin J. Noble, same place. Filed Mar. 9, 1898. Renewed Jan. 17, 1900. Serial No. 1,797. (No model.)



Claim.—The combination with a steam-boiler, the furnace, and a number of heating and circulating pipes or tubes arranged in the combustion-chamber directly beneath the boiler and extended through the rear furnace-wall, of a forward header or headers into which the forward ends of said pipes or tubes are expanded, pipes or tubes connecting said header or headers with an upper forward portion of the boiler, a sediment-collector located outside the rear furnace-wall, a rear header or headers between said sediment-collector and the rear furnace-wall and into which the rear ends of said heating and circulating pipes or tubes are expanded, pipes or tubes connecting said rear header or headers with an upper part of the sediment-collector, the said forward headers and rear headers being each provided with opposite openings in line with said circulating pipes or tubes, caps or plugs closing said openings, and a pipe connecting the rear lower part of the boiler with a lower portion of the sediment-collector, substantially as described.

643,369. PRINTING DEVICE FOR PAPER-ROLL HOLDERS. JOSEPH L. BAWDEN, Norfolk, Va., assignor of one-half to Harry Smith, same place. Filed Mar. 24, 1899. Serial No. 710,317. (No model.)



Claim.—1. A device of the class described comprising a supporting-frame, inking and printing rolls, and a pair of clamps arranged to engage the knife of a paper-roll holder and provided with arms detachably secured to the supporting-frame and capable of adjustment thereon, substantially as and for the purpose described.

2. A device of the class described comprising a supporting-frame, printing and inking rolls, clamps arranged to engage the blade or knife of a paper-roll holder and provided with pliable arms having longitudinal slots and adapted to be deflected by bending, and fastening devices passing through the slots and securing the clamps to the supporting-frame, substantially as described.

3. A device of the class described comprising a frame provided with arms having slots, a printing-roll journaled in the frame, an inking-roll having journals loosely arranged in the slots, whereby the said inking-roll is adapted to rest upon the printing-roll, a pair of clamps arranged to engage the blade or knife of a paper-roll holder and provided with arms, and means for adjustably securing the arms to the supporting-frame, substantially as described.

4. The combination with a paper-roll holder, of a supporting-frame provided at the front with a depending clamp, adjustably engaging the knife of the paper-roll holder, said supporting-frame extending inward from the said knife over the roll of paper, and the printing and inking rolls mounted in the supporting-frame, the printing-roll being in contact with the paper, substantially as and for the purpose described.

643,370. FENDER FOR AUTOMOBILES. CASSIUS E. BELCHER, Linden, Pa., assignor of one-half to J. Henry Bower, Jersey Shore, Pa. Filed Sept. 13, 1899. Serial No. 730,352. (No model.)



Claim.—1. The combination with a wheeled vehicle, having a pivotally-mounted axle, of a fender, embracing the opposite wheels of the axle, and carried by the vehicle, substantially as set forth.

2. The combination with a wheeled vehicle, having a pivotally-mounted axle, of a fender embracing opposite wheels of the axle, detachably connected directly to the opposite extremities of the latter, and movable therewith, substantially as set forth.

3. The combination with an automobile, of a fender embracing opposite wheels of the vehicle, and having a connection with the opposite ends of the axle, and braces extending from the axle to the body of the fender, substantially as shown and described.

4. The combination with an automobile, of a fender embracing opposite wheels of the vehicle, and connected to opposite ends of the axle, and braces fixedly connected to the body of the fender, and loosely connected to the vehicle, to permit of lateral movement of the fender, substantially as shown and described.

5. The combination with an automobile, of a fender embracing opposite side wheels of the vehicle, and connected to opposite ends of the axle thereof, braces extending rearwardly from the fender, a yoke-shaped guide connecting the rear ends of the braces, and having a lateral movement upon the vehicle, substantially as and for the purpose set forth.

6. The combination with an automobile, of a fender embracing opposite wheels of the vehicle, and connected to opposite ends of the axle thereof, a brace extending forwardly from the axle to the body of the fender, other braces extending rearwardly from the upper portion of the fender, a substantially yoke-shaped guide connecting the rear ends of the latter braces, and a stirrup mounted upon the vehicle, and loosely supporting the guide, substantially as and for the purpose set forth.

7. The combination with an automobile, of a wheel-fender, and a wind-guard located above the fender and projecting above the heads of the occupants of the vehicle, substantially as and for the purpose set forth.

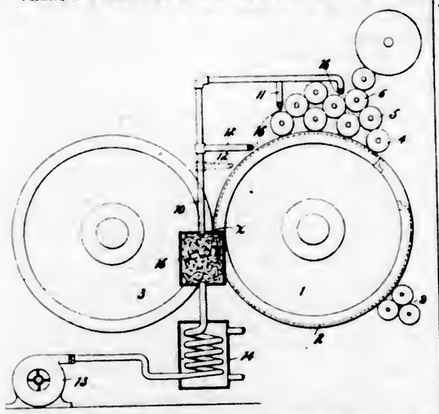
8. The combination with an automobile, of a fender, and a wind-guard supported upon the upper end of the fender, and projecting above the heads of the occupants of the vehicle, substantially as and for the purpose set forth.

9. The combination with an automobile, of a fender, and a wind-guard located above the fender, and provided with an opening having a transparent covering, substantially as and for the purpose set forth.

643,371. RED RHODAMIN DYE. JOHANN J. BRACK, Basle, Switzerland, assignor to Basle Chemical Works, same place. Filed Nov. 23, 1899. Serial No. 738,566. (Specimens.)

Claim.—A new article of manufacture, the herein-described rhodamin dye derived from formic aldehyde and the ethyl ether of the unsymmetrical dimethyl-methylrhodamin resulting from the condensation of dimethylamidooxybenzoylbenzoic acid with metaamidoparacresol ($CH_3:NH_2:OH = 1:2:4$), the said rhodamin dye dyeing tannin-mordanted cotton in fiery-red tints bluer than those obtained with the said ether and constituting in the form of its hydrochloric salt and in dry state a red-brown powder, which is soluble in hot water with a crimson-red tint showing no fluorescence and dissolves in concentrated sulfuric acid with an orange tint, which turns to crimson red by addition of water, while by adding hydrochloric acid to its aqueous solution, this latter becomes bluer and deposes gradually a flocky precipitate.

643,372. PRINTING-MACHINE. GEORGE R. CORNWALL, Mount Vernon, N. Y. Filed Dec. 30, 1898. Serial No. 700,744. (No model.)



Claim.—1. In a printing-machine, the combination with the printing-surface-carrying means, the inking devices and the water-applying devices, of means for removing water from the inking devices.

2. In a printing-machine, the combination with the means for carrying the printing-surface, of the inking-rollers and means for applying currents of drying air to the inking-rollers.

3. In a printing-machine the combination with the means for carrying the printing-surface, of the inking-rollers and means for applying currents of drying air to said printing-surface and inking-rollers.

4. In a printing-machine, the combination with the inking devices, of means for supplying a current of drying air to such devices.

5. In a printing-machine, the combination with the printing-surface-carrying means, of means for applying water to such printing-surface, devices for applying ink to such printing-surface, and means for applying a current of drying air to such ink-applying devices, to dry the same, substantially as and for the purpose set forth.

6. In a printing-machine, the combination with the means for carrying the printing-surface, the inking-rollers, and the water-rollers, of a pipe having an opening in proximity to the inking-rollers and means for establishing a current of air through such pipe.

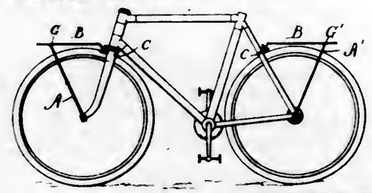
7. In a printing-machine, the combination with the printing-surface-carrying device and the inking devices, of a blower-and-pipe connection for applying a current of air to the inking devices, and a heater interposed in such pipe connection.

8. In a printing-machine, the combination with the printing-surface-carrying device and the inking devices, a blower-and-pipe connection for applying a current of air to the inking devices, and a chamber containing a desiccating agent interposed in such pipe connection.

9. In a printing-machine, the combination with the means for carrying the printing-surface, of the inking means, blower-and-pipe connections for applying drying air to the inking means and the printing-surface, and heating means interposed in such pipe connections.

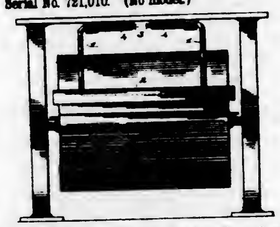
10. In a printing-machine, the combination with the means for carrying the printing-surface, of the inking means, blower-and-pipe connections for applying drying air to the inking means and the printing-surface and a chamber containing a desiccating agent interposed in such pipe connections.

643,378. PARCEL-REST AND SEAT-ANNEX FOR BICYCLES. ALBERT A. GABRIEL and EDWARD M. ATKINSON, Portland, Oreg. Filed Mar. 30, 1899. Serial No. 711,158. (No model.)



Claim.—In a device of the character described, the combination with a plate or platform, of forked and hinged rods extending from the same and adapted to embrace the axle of the machine, a rod extending from the opposite side of the same and having short rods adjustable thereon, hooked bolts penetrating said short rods, a hooked washer interposed between the short rod and the hook of the bolt, and a thumb-screw for adjusting and securing said rod or bolt, substantially as described.

643,374. PAPER-CUTTER. JOHN R. HILL, St. Louis, Mo., assignor to the American Roll Paper Company, same place. Filed June 19 1899. Serial No. 721,010. (No model.)

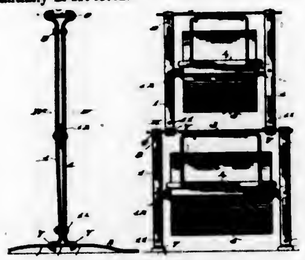


Claim.—In a paper-cutter, the combination of supporting-arms having a connecting portion, and a blade perforated to receive the arms and having its upper portion bent around the connecting portion of the arms, substantially as set forth.

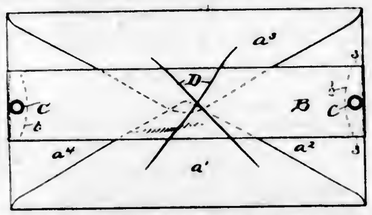
643,375. ROLL-PAPER HOLDER. JOHN R. HILL, St. Louis, Mo., assignor to the American Roll Paper Company, same place. Filed June 19, 1899. Serial No. 721,011. (No model.)

Claim.—A roll-paper holder and cutter consisting of side members each composed of a pair of bars having jaws at their upper and lower ends, a cross-piece adapted to be engaged by the jaws at the upper ends of the side members, and feet adapted to be engaged by

the jaws at the lower ends of the side members, and bolts connecting the members together to clamp the jaws against the feet and the cross-piece, substantially as set forth.

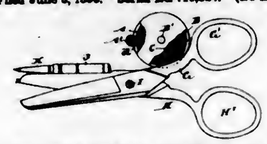


648,876. METHOD OF AND MEANS FOR PROTECTING ENVELOPS AGAINST SURREPTITIOUS OPENING. WILLIAM P. HORTON, Jr., Cleveland, Ohio, assignor of one-fourth to William P. Horton, same place. Filed June 17, 1899. Serial No. 683,763. (No specimens.)



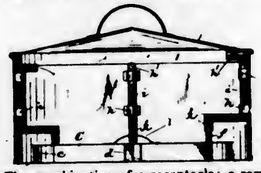
Claim.—An envelop, having a flap secured to its rear side after the closing-flap has been sealed, and which strip has its ends to merely overlap the front edges of the envelop, combined with suitable fastenings which are passed through the ends of the envelop and through the doubled portion of the strip, substantially as shown and described.

648,877. MEASURING DEVICE. AMJAH JAMMEY, Marshalltown, Iowa. Filed June 6, 1899. Serial No. 719,537. (No model.)



Claim.—The within-described pair of scissors, one member of which has a tape-measure on the edge side contiguous to the handle, while the other member carries a pencil or marker located longitudinally on the back of its blade to bring it in alinement with the mid-width of the opening in the case of the tape-measure, all arranged for joint operation, substantially as set forth.

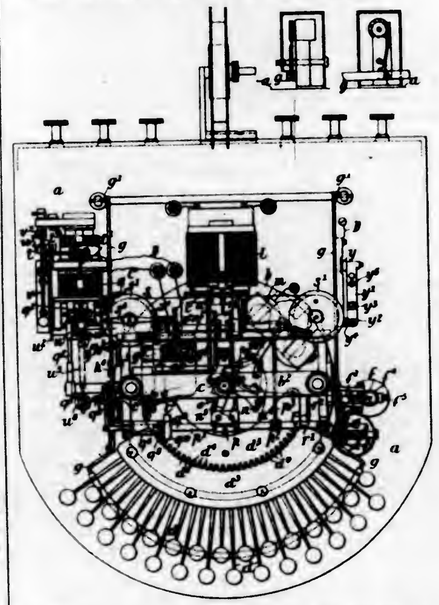
648,878. WASHBOILER. CHARLES C. JORDAN, Baltimore, Md. Filed Oct. 30, 1899. Serial No. 735,149. (No model.)



Claim.—1. The combination of a receptacle; a removable bottom in said receptacle—said bottom provided with a plural number of compartments each in communication with the receptacle and having a pipe opening into each compartment and projecting upward; and upward-projecting discharge-pipes loosely attached to the walls of the receptacle and having double elbows for connection with the pipes opening into the compartments and adapted to be swung around against the sides of the boiler when not in use.

2. The combination of a receptacle; a removable bottom in said receptacle and provided with compartments in communication with the receptacle; keepers on the wall of the receptacle; a pipe loosely supported by said keepers and having a double elbow, said pipe and elbow capable of both a horizontal and vertical movement, as set forth.

648,879. PRINTING-TELEGRAPH. LEO KANN, London, England. Filed Nov. 21, 1898. Serial No. 697,019. (No model.)



Claim.—1. In a printing-telegraph the combination with a trailing arm and a printing-sector moving with the said arm and mounted on a spindle, of a hook or catch for retaining the said arm in its zero position, a lever carrying the said catch on one end and having the other end adapted for completing an electrical circuit, a frame operated by the depression of the key-levers and means for connecting the said frame with the said lever so arranged that when one of the key-levers is depressed the said lever will be operated to release the trailing arm and to complete the electrical circuit, substantially as described.

2. In a printing-telegraph, the combination with a trailing arm, of a series of longitudinally-movable pins for arresting said arm, a guiding-plate provided with slotted portions to receive and guide said pins, securing devices on said pins engaging said guiding-plate and springs holding said securing devices in engagement with said plate, whereby any one of said pins may be removed by disengaging its securing device from the guiding-plate, a series of key-levers for operating said pins, and devices operated by said key-levers for setting said trailing arm in motion, substantially as described.

3. In a printing-telegraph, the combination with a trailing arm, of a series of longitudinally-movable pins for arresting said arm, a guiding-plate provided with slotted portions engaging said pins, and recesses adjacent to said slotted portions, collars on said pins, engaging said recesses, springs on said pins, holding said collars in said recesses, a series of key-levers operatively connected with said pins, and devices operated by said key-levers for setting said arm in motion, substantially as described.

4. In a printing-telegraph the combination with the trailing arm, of a series of longitudinally-movable stop-pins for arresting said arm, a lower guiding-plate provided with guiding-apertures for said pins, an upper guiding-plate provided with open guiding-slots engaging said pins, and a series of recesses on its under side adjacent to said slots, a collar on each pin engaging one of said recesses, and springs surrounding said pins extending from said collar to a part connected with the pin for holding said collars in said recesses and holding said pins in their lowest positions, a series of key-levers for operating said pins, and devices operated by said key-levers for setting said arm in motion, substantially as described.

5. In a printing-telegraph, the combination with the trailing arm and means for setting the same in motion, of a series of stop-pins for arresting said arm, and a pair of spring contact-arms carried by said trailing arm and adapted to embrace said stop-pins, substantially as described.

6. In a printing-telegraph, the combination with the trailing arm, means for setting the same in motion and a printing-sector operatively connected with said arm, of a series of stop-pins for arresting said arm, a pair of spring contact-arms carried by said trailing arm adapted to embrace one of said pins, and a horn, carried by said trailing arm and movable with respect thereto, provided with a horizontally-tapered portion adapted to be projected between two adjacent pins to determine the position of said arm and sector, substantially as described.

7. In a printing-telegraph the combination with a vertically-disposed spindle provided at its lower end with a reduced bearing portion, a support for said bearing portion, a mercury-cup surrounding said bearing portion and means for adjusting said cup vertically, whereby said cup can be adjusted up against the bottom of the spindle to lock the same and prevent the spilling of the mercury, substantially as described.

8. In a printing-telegraph the combination with the vertically-disposed spindle, a printing-sector and trailing arm mounted thereon, operating devices for said spindle and key-levers for controlling the operation of said trailing arm and sector, said spindle having at its lower end a reduced bearing portion, of an externally-threaded support for said bearing portion and a mercury-cup surrounding said bearing portion and having a threaded aperture engaging said support whereby said mercury-cup can be rotated to move it into contact with the bottom of the spindle to lock said spindle and prevent the spilling of the mercury, substantially as described.

9. In a printing-telegraph the combination with a spindle, a trailing arm and printing-sector mounted thereon and means for operating and controlling said spindle, arm and sector, of a governor loosely mounted on said spindle, a friction device for connecting said governor and spindle and an adjusting device for said friction device for varying the friction between said governor and spindle, substantially as described.

10. In a printing-telegraph the combination with a spindle, a trailing arm and printing-sector mounted thereon, means for operating said spindle and means for controlling said spindle, arm and sector, said spindle having a friction-flange, of a governor loosely mounted on said spindle adjacent to said friction-flange, a spring for holding said governor in frictional contact with said flange and means for adjusting the tension of said spring, substantially as described.

11. In a printing-telegraph the combination with a spindle, of a trailing arm mounted thereon and means for setting said trailing arm in motion, of a series of stop-pins for arresting said arm, a horn mounted on said trailing arm and movable with respect thereto, said horn being adapted to be projected between two adjacent stop-pins, an operating-magnet for said horn, an armature therefor and a flexible connection between said armature and said horn having a portion passing longitudinally through the axis of said spindle, substantially as described.

12. In a printing-telegraph, the combination with a spindle having a portion provided with a pair of annular grooves, a trailing arm secured to said spindle, means for operating said arm, a printing-sector mounted on said spindle and movable longitudinally thereon, provided with two rows of type, a spring-arm secured to said sector and provided with a part engaging one or the other of said annular grooves of the spindle, a series of longitudinally-movable stop-pins for arresting the trailing arm, a series of key-levers controlling said stop-pins, a roller secured to the printing-sector, and a slide movable toward and from said spindle, provided with oppositely-inclined devices for engaging the roller carried by the said sector, substantially as described.

13. In a printing-telegraph the combination with a printing-sector, a series of spring-arms carried thereby and types secured to said spring-arms, of a printing-plunger mounted in guides and operating devices for forcing said plunger into engagement with said type-arms, said plunger being connected with its operating devices so as to be free to move by inertia with respect to said operating devices, substantially as described.

14. In a printing-telegraph, the combination with the trailing arm, means for operating the same, a type-sector operatively connected with said arm, a series of stop-pins for arresting said trailing arm, a series of key-levers for operating said stop mechanism, a paper-support, rollers for carrying an inking-tape, driving mechanism for one of said rollers, including a friction-wheel engaging said roller, on one face thereof and a spring engaging the roller on the opposite face and holding it in frictional engagement with said friction-wheel, substantially as described.

15. In a printing-telegraph the combination with a spindle, of a trailing arm mounted thereon, a catch normally retaining the said trailing arm in its zero position, key-levers operatively connected with said catch for releasing the trailing arm, a series of stop-pins for arresting said trailing-arm, a horn mounted on the trailing arm adapted to be projected between two adjacent stop-pins, a magnet for operating said horn, an armature for said magnet, a flexible connection between said armature and said horn having a portion passing through the axis of said spindle a second magnet for returning said trailing arm to its zero position, an armature for said magnet mounted upon a rotary axis and connections between said armature and said trailing arm, a third magnet, two armatures therefor, a movable arm adapted to be moved by one of the said armatures, connections between said printing mechanism and one of said armatures for operating the same, a movable contact for closing the line-circuit, connections between said movable contact and the other of said two armatures, a second movable contact device for switching out the said third magnet from the battery-circuit and introducing the second magnet having the rotating armature and connections between said second contact and said movable arm, substantially as described.

16. In a printing-telegraph the combination with a spindle, of a trailing arm mounted thereon, means for operating said arm, a catch normally holding the trailing arm in its zero position, key-levers operatively connected with said catch for releasing the same, a pivoted frame extending beneath all the key-levers and adapted to be moved when any one of them is depressed, and a switching device carried by said pivoted frame having two pairs of contacts the said contacts being so arranged that when the said frame is in its normal position a magnet in a shunt-circuit of the main line is in the circuit while when the said frame is in its other position the said magnet is cut out of the main-line circuit, substantially as described.

648,880. TEMPORARY BINDER. BENJAMIN F. KENDIG, Elizabeth, N. J., and EDWARD COLEMAN, New York, N. Y. Filed May 9, 1899. Serial No. 716,068. (No model.)



Claim.—1. In a temporary binder two or more curved holding-fingers, a central rod or bar to which the inner ends of said fingers are hinged or knuckled, a back for the binder having upturned edges, keepers or guide-pieces secured to the back and provided with slots for holding the said rod or bar and for permitting it to be moved to and from the back a distance sufficient to cause the rod to carry the inner ends of the holding-fingers outward above and downward below the edges of the back, and fastening devices for locking the rod or bar in its lowermost position, substantially as and for the purposes described.

2. In a temporary binder, curved holding-fingers, devices located between the ends of the fingers for loosely holding them in place in the binder, and knuckles at the inner ends of said fingers at the center of the binding whereby the points of the fingers may be opened and closed by moving the opposite knuckled ends thereof to and from the back of the binder, substantially as described.

3. In a temporary binder, the combination with upturned edges of the back of the binder of a central movable rod or bar having a range of movement past the edges of the back, and curved holding-fingers whose inner ends are hinged or knuckled to said rod or bar, and whose central portions fulcrum upon and between the edges of the back, substantially as described.

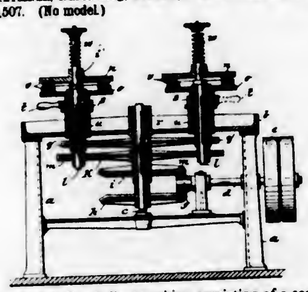
4. In a temporary binder, the combination with the back, the covers and intermediate sections connecting the covers with the edges of the back, of end pieces secured to the back, a rod or bar held to move in slots in said end pieces, and opposite curved fingers attached to said rod or bar, and also attached to said intermediate sections of the cover, substantially as described.

5. In a temporary binder the combination with the back, of keepers secured to the concaved surface of said back by rivets or screws entering bracing pieces applied to the back, substantially as described.

6. In a temporary binder, a pair of curved holding-fingers, each finger having a knuckle or loop at the base thereof, a rod or bar for holding the said fingers by said knuckles or loops and a rigid rod or bar reaching from knuckle to knuckle for bracing the holding-fingers, substantially as described.

7. A temporary binder, comprising a curved back, covers hinged to the edges of said back, slotted end pieces secured to the inner concaved surface of said back, a rod or bar held in said slotted end pieces and adapted to be moved to and from the center of said curved back, opposite curved holding-fingers knuckled at their inner ends to said rod or bar and fastening devices in the said covers for connecting them to the holding-fingers and devices for locking the said rod or bar adjacent to the inner surface of the back, substantially as described.

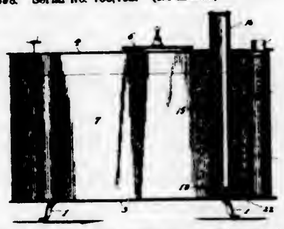
643,881. CUTTING-MACHINE FOR MAKING BALL-BEARINGS. KARL KEYSSNER, Nuremberg, Germany. Filed June 26, 1897. Serial No. 642,507. (No model.)



Claim.—1. A ball-grinding machine consisting of a series of cutting-stands mounted eccentrically to their drive-shaft, cutting-plates having annular cutting-faces, mechanism for rotating said stands, and means for throwing said mechanism in and out of gear with said stands, substantially as set forth.

2. In a ball-grinding machine, the combination of a main driving-shaft, a vertical shaft carrying a series of spur-wheels some of which are loosely, and others tightly mounted on said shaft, a plurality of cutting-stands composed of eccentric axles mounted in eccentric bushings and carrying spur-wheels adapted to mesh with the spur-wheels on the vertical shaft, cutting-wheels mounted on said stands and having annular cutting-faces, means for throwing said spur-wheels in and out of gear, substantially as described.

643,882. STOVE. JAMES H. KLIPSTEIN, Marshall, Va. Filed Dec. 31, 1898. Serial No. 700,792. (No model.)



Claim.—1. In a stove, the combination with a body, of a hot-air drum located within said body and consisting of inner and outer walls joined at their ends and spaced apart, a plate extending across the space between said closed ends, an outlet-opening at the base of said plate, a second outlet-opening at the top of the plate and having a damper, a smoke-pipe communicating with the space formed by the inner wall of the drum and by the plate, and means for admitting air into said space, substantially as described.

2. In a stove, the combination with the fire-box, of a vent-pipe passing into the fire-box and having its lower end formed with a series of slits and having the parts between the slits bent outwardly forming guards, substantially as and for the purpose set forth.

3. In a stove, the combination with a fire-box, of a vent-pipe passing into the fire-box and having its upper or outer end portion projecting beyond the stove and having a side portion cut away and having its lower ends formed with a series of spaced projections constituting guards, and a cap rotatably fitted upon the upper projecting end of the vent-pipe and having an opening in its side, substantially as described.

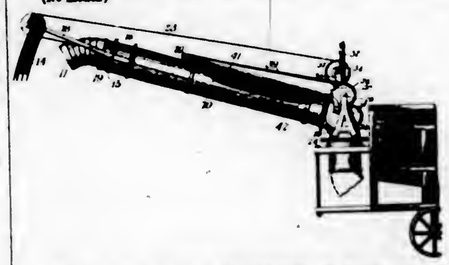
4. In a stove, the combination with a body, of a hot-air drum consisting of inner and outer spaced walls or shelves joined at their ends, said ends being spaced apart, a plate extending across the space between the separated ends of the drum and provided with openings in its upper and lower portions, and a damper controlling the upper opening, the said drum and plate being located wholly within and separated from the outer wall or body of the stove and entirely inclosing the fire-pot, substantially as described.

5. In a stove, the combination with a body having openings in its top and bottom, of a hot-air drum entirely inclosed within and separated from the body and consisting of inner and outer shells joined at their ends and having said ends spaced apart, the hot-air space between said shells communicating with the openings in the top and bottom of the body, a plate closing the open end of the drum and provided with a damper, and means for admitting air to the combustion-chamber independently of said damper, the drum and plate being located wholly within and separated from the body of the stove and completely surrounding and inclosing the fire-pot, substantially as described.

6. In a stove, the combination of a hot-air drum located within the body and forming a fire-box and a smoke-space and having upper and lower openings, a damper for controlling the upper opening, a series of flanges strips or plates subdividing the smoke-space and intercepted at opposite ends of the stove forming escape-openings, and lateral passages extending across the smoke-space for admitting cold air into the hot-air drum at points between its upper and lower ends, substantially as described.

7. In a stove, the combination with a body, of a hot-air drum located within said body and consisting of inner and outer walls joined at their ends and spaced apart, a plate extending across the space between said closed ends and having a damper, a smoke-pipe communicating with the space formed by the inner wall of the drum and by the plate, means for admitting air into said space, and a partition between the walls of the drum agreeing substantially with the outline thereof and serving to subdivide it into two communicating spaces, substantially as described.

643,883. ATTACHMENT FOR PNEUMATIC STRAW-STACKERS. JOHN F. LEWIS, Oxford, Ind. Filed Mar. 13, 1899. Serial No. 708,971. (No model.)



Claim.—1. In a pneumatic straw-stacker, the combination with the stacker-tube, of fixed supporting-straps attached to the tube and extending upwardly and forwardly from the hood thereon, a baffle or arrester consisting of an arched bar and a plurality of spaced fingers pendent from said bar, the bar being journaled at its ends to said straps, a pulley fast with the arched bar, and an operating-cable having suitable connection with the pulley to provide for oscillating the bar to change the inclination of the baffle, substantially as described.

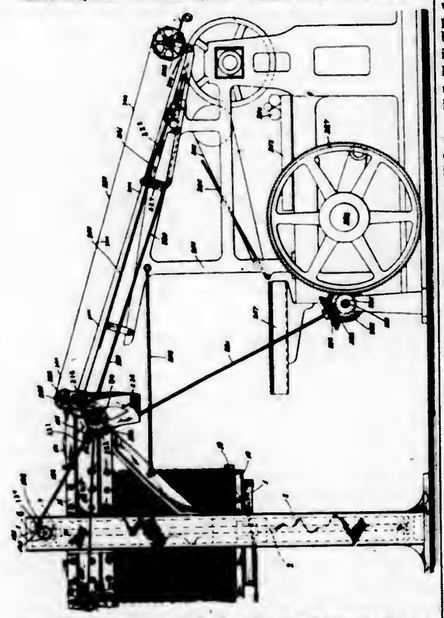
2. In a pneumatic straw-stacker, the combination with the stacker-tube, of spaced bands fitted to the tube, fixed supporting-straps attached to the spaced bands and extending beyond the hood of the stacker-tube, a baffle or arrester consisting of a bar journaled in said straps, and a plurality of spaced fingers arranged on the arc of a circle and pendent from the bar, and an adjusting device having an operative connection with the baffle-bar to provide for adjusting the inclination of the latter, substantially as described.

3. In a pneumatic straw-stacker, the combination with the telescopic tube, of a support attached to and extended beyond the outer end of the slidable member of the tube, an adjustable straw baffle or arrester extended from said support, a tiltable frame, take-up spools mounted in said frame, an operating-cable connected with the baffle or deflector and having its strands respectively coiled on the separate take-up spools, and means for simultaneously adjusting the slidable member of the tube and rotating said take-up spools, substantially as described.

4. The combination with a stacker-tube, and a deflector pivotally supported beyond the delivery end of said tube, of an operating-shaft supported at the base of the stacker-tube, a frame mounted idly on said shaft and provided with means for holding the same in a fixed position, take-up spools journaled in said frame on opposite sides of the shaft and geared to the latter to be rotated simultaneously thereby, and an operating-cable connected to the pivoted deflector and having its respective strands coiled on the take-up spools, substantially as described.

5. The combination with a stacker-tube provided with a hood, a pivoted deflector, and means for supporting said deflector beyond the delivery end of said hood, of a frame supporting an operating-shaft, a spool-frame mounted idly on the operating-shaft, a locking device between the first-named frame and the spool-frame, take-up spools journaled in the spool-frame on opposite sides of the operating-shaft and geared to the latter to be rotated thereby, and a cable connected to the pivoted deflector and having its strands coiled on the respective take-up spools, substantially as described.

643,884. FEEDER FOR PRINTING-PRESSES. CHARLES D. MATTESON, Hasbrouck Heights, N. J., assignor to Robert M. Donaldson, Greenwich, Conn. Filed Jan. 16, 1898. Serial No. 666,796. (No model.)



Claim.—1. In a sheet-feeding machine, the combination of a flexible traveling support, with a rigid sheet-gripping plate or finger attached at one end to said flexible support means for deflecting the flexible support for causing the free end of said plate or finger to slightly separate or be deflected from the flexible support, and a stop limiting the entry of sheets into the bite of the sheet-gripping plate or finger, substantially as set forth.

2. In a sheet-feeding machine, the combination of a traveling flexible support or carrier, with a rigid sheet-gripping plate or finger attached at one end to said flexible support, a stop mounted upon the carrier limiting the entry of sheets into the bite of the sheet-gripping plate or finger, and means deflecting the flexible support or carrier at one or more points for causing the free end of said plate to be slightly deflected or separated from its flexible support to receive or release sheets, substantially as set forth.

3. In a sheet-feeding machine, the combination of a traveling flexible support or carrier having a rigid sheet-gripping plate or finger attached at its end thereto, with means for deflecting the free end of the gripping plate or finger at one or more points, and a stop formed on or attached to the gripping plate or finger and limiting the entry of sheets into the bite of the gripping-plates, substantially as set forth.

4. In a sheet-feeding machine, the combination of an endless flexible band, suitable supporting wheels or pulleys upon which said band is supported, and a rigid sheet-gripping plate or finger formed with registering ears or lugs, said rigid plate or finger being securely attached at one end to the flexible band, substantially as set forth.

5. In a sheet-feeding machine, the combination of a plurality of endless flexible bands, suitable supporting wheels or pulleys for supporting said endless bands, a series of rigid plates or fingers attached at intervals to said endless flexible bands, each rigid plate or finger having two registering ears or lugs which extend at right angles from the plate or finger transversely to its supporting-band, and means for feeding sheets of paper to said gripping plates or fingers, substantially as set forth.

6. In a sheet-feeding machine, the combination of a plurality of flexible traveling bands or supports, with a plurality of rigid plates or fingers attached to said flexible bands or supports at corresponding intervals, each of said rigid plates or fingers being formed with a pair of registering ears or lugs which extend transversely of the supporting-band, means for deflecting the flexible band or support at proper points, and means for feeding sheets of paper to the grips formed by said rigid plates upon the flexible supports, substantially as set forth.

7. In a sheet-feeding machine, the combination of a plurality of endless flexible bands, suitable supporting wheels or pulleys for supporting said endless bands, rigid sheet-gripping plates or fingers formed with approximately right-angular sheet-registering ears or lugs, said plates or fingers being rigidly secured at their ends to the endless bands, means for driving said wheels or pulleys, suitable sheet-feeding means arranged to deliver sheets to the grippers upon the endless bands, and means for driving said sheet-feeding means at a faster rate than the endless bands, whereby sheets will be accurately placed in the grippers, substantially as set forth.

8. In a sheet-feeding machine, the combination of a plurality of flexible traveling bands or supports, with a plurality of rigid plates or fingers attached to said flexible bands or supports at corresponding intervals, means for deflecting the flexible band or support at proper points, a stop limiting the entry of sheets into the bite of the gripe formed by said rigid plates upon the flexible supports, and means for feeding sheets of paper to the gripe, substantially as set forth.

9. In a sheet-feeding machine, the combination of a flexible traveling support, with a rigid sheet-gripping plate or finger, such as 300, having an undercut 300^a, and attached at one end to the flexible support, and means for deflecting the flexible support for causing the free end of said plate or finger to slightly separate or be deflected from the flexible support to receive or release sheets, substantially as set forth.

10. In a sheet-feeding machine, the combination of a flexible traveling support, with a rigid sheet-gripping plate or finger, such as 300, having an undercut 300^a and attached at one end to said flexible support, means for deflecting the flexible support for causing the free end of said plate or finger to slightly separate or be deflected from the flexible support, and a stop limiting the entry of sheets into the bite of the sheet-gripping plate or finger, substantially as set forth.

11. In a sheet-feeding machine, the combination of a traveling flexible support or carrier having a rigid sheet-gripping plate or finger attached at its end thereto, said plate or finger having an undercut such as 300^a for the purpose specified, with means for deflecting the free end of the gripping plate or finger at one or more points, and a stop formed on or attached to the gripping plate or finger and limiting the entry of sheets into the bite of the gripping-plates, substantially as set forth.

12. In a sheet-feeding machine, the combination of a sheet-separating device, with a traveling sheet-support receiving the sheets from the separating device, a traveling flexible band or support having rigid sheet-gripping plates or fingers secured to it, and means for lowering or dropping the traveling sheet-support at the point of transfer therefrom to the sheet-gripping plates, substantially as and for the purpose set forth.

13. In a sheet-feeding machine, the combination of a sheet-separating device, with a traveling sheet-support adapted to receive the sheets from the separating device and supported at the point of deposit upon a suitable roll, rock-arms in which said roll is journaled, a cam adapted to elevate and lower the roll, and traveling sheet-grippers adapted to receive the sheet from said traveling support, substantially as set forth.

14. In a sheet-feeding machine, the combination of a traveling sheet-separating device, with a winding-roll journaled in suitable bars, a guide-roll journaled upon the carriage of the separating device, an apron or blanket attached at one end to the winding-roll and extending over said guide-roll and attached at its other end to a stationary point, and suitable means connecting the traveling carriage of the separator with the winding-roll to cause the sheet-supporting apron or blanket to travel at the same speed as the separating device, substantially as set forth.

15. In a sheet-feeding machine, the combination of a traveling sheet-separating device, with a traveling sheet-support comprising a

winding-roll having a pulley at one end, a blanket or apron attached at one end to the winding-roll and at its other end to a stationary bar, a freely-journaled guide-roll journaled in the carriage of the traveling separating device over which guide-roll the apron or blanket extends, a cord or cable wound upon the pulley of the driving-roll and extending around suitable guide-pulleys and attached at its other end to a stationary point, and a freely-journaled guide-palley journaled to the carriage of the separating device and engaging a cord or cable between the stationary point and one of the guide-rolls, substantially as set forth.

16. In a sheet-feeding machine, the combination of a transversely-movable registering-platform, means for moving said platform, a suitable sheet-guide against which the sheet is registered, means for causing the sheet to momentarily adhere to the registering-platform, and means for feeding sheets thereto, substantially as set forth.

17. In a sheet-feeding machine, the combination of a sheet-receiving platform, a suitable sheet-registering guide, means for feeding a sheet to said platform, means for moving the platform transversely, suction-openings in the platform, and means for exhausting the air from said suction-openings to cause the sheet to momentarily adhere to the platform, substantially as set forth.

18. In a sheet-feeding machine, the combination of a sheet-receiving platform, a sheet-registering guide, means for feeding the sheet to said platform, means for moving the platform transversely, a suction-chamber communicating with openings extending through the platform, means for exhausting the air from said suction-chamber, and a valve controlling the exhaust of air therefrom, substantially as and for the purpose set forth.

19. In a sheet-feeding machine, the combination of a sheet-receiving platform, a sheet-registering guide, means for feeding the sheet to said platform, means for moving the platform transversely, a suction-chamber communicating with openings extending through the platform, means for exhausting the air from said suction-chamber, and a valve operated by the means which move the platform transversely, said valve controlling the exhaust of air from said chamber, substantially as set forth.

20. In a sheet-feeding machine, the combination of a sheet-receiving platform, a suitable sheet-registering guide, means for feeding a sheet to said platform, operating mechanism for laterally moving the platform, a suction-chamber beneath the platform communicating through openings which extend through the platform, means for exhausting the air from said suction-chamber, and a valve controlling the exhaust of air from said chamber, said valve being operated by the platform-operating mechanism, substantially as set forth.

21. In a sheet-feeding machine, the combination of a sheet-receiving platform, a sheet-registering guide, means for feeding a sheet to said platform, operating mechanism for laterally moving the platform, a suction-chamber beneath the platform communicating with the surface thereof through suitable openings, means for exhausting air from said suction-chamber, a rotary valve controlling the exhaust of air, a disk upon the valve-stem and an intermittently-operating dog adapted to engage the disk, substantially as set forth.

22. In combination with a sheet-feeding machine, a gripper-carrying band, a sprocket-wheel formed with radial openings *x* in which are adjustably mounted the headed sprocket-pins *y* having contracted central portions engaged by set-screws *x*, substantially as set forth.

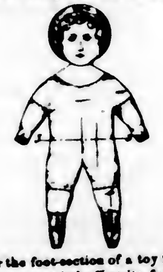
23. In a sheet-feeding machine, the combination of a sheet receiving and registering platform comprising plates 310, 311 united by yokes 312, a sheet-registering guide adjustably supported between the plates 310 and 311, means for operating the registering plate or platform, means for feeding sheets thereto, substantially as set forth.

24. In a sheet-feeding machine, the combination of a platform over which the sheets are fed, said platform having a forward portion which is pivotally mounted upon the rear portion, traveling flexible bands mounted upon sprocket-wheels or pulleys, supports for the rear sprocket-wheels rigid with relation to the rear portion of the platform, supports for the forward sprocket-wheels or pulleys extending up from the forward pivotally-mounted portion of said table, and grippers carried by said flexible bands, substantially as set forth.

25. In a sheet-feeding machine, the combination of a support for a pile of sheets, and a device for raising the edge of the top sheet and separating and removing said sheet from the pile, with one or more flexible pile-retaining fingers projecting over the top of the pile at one edge and held in constant engagement with the edge of the pile, said retaining-fingers being constructed to yield laterally when the top sheet is separated and subject the under sheets to frictional resistance at their edges, whereby the under sheets will be held back when the top sheet is removed, substantially as set forth.

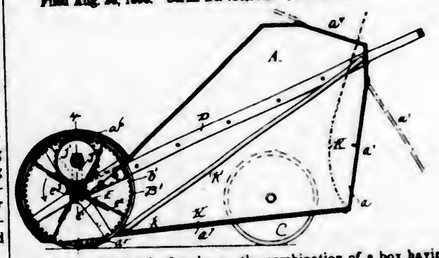
648,885. TOY FIGURE. EDGAR G. NEWELL, Glen Ridge, N. J. Filed Oct. 14, 1899. Serial No. 733,608. (No model.)

Claim.—1. A toy figure, composed of printed front and rear sections, the front section being provided with recessed lower ends, and the rear section with straight lower ends, and tapering foot-sections consisting of tapering middle portions stitched to the recessed lower ends of the front section, and sole-flaps forming the soles of the feet and stitched at their rear ends to the straight ends of the rear section so as to form the heels, the whole receptacle thus formed being stuffed with a suitable filling material, substantially as set forth.



2. A blank for the foot-section of a toy figure, composed of a tapering middle portion rounded off at its front end, and sole-flaps at each side of said middle portion, said sole-flaps having straight sides and curved front and rear ends, substantially as set forth.

648,886. LEAF-GATHERER. ROSS SMITH, Cleveland, Ohio. Filed Aug. 26, 1899. Serial No. 728,554. (No model.)



Claim.—1. In a leaf-gatherer, the combination of a box having its rear end mounted on wheels, an axle extending across the box near its front end over an opening in the bottom of the box, said axle being made fast to the sides of the box, wheels loosely mounted on said axle, one of said wheels having an internal gear, a sleeve loosely mounted on said axle, a pinion secured to the sleeve, an arm fast to the axle, a gear mounted thereon and adapted to engage with the internal gear and pinion referred to, arms secured to said sleeve, and fan-blades extending crosswise of the machine and secured to said arms, substantially as and for the purpose specified.

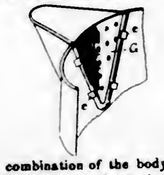
2. In a leaf-gatherer, the combination of a box having its rear end mounted on wheels, an axle extending across the box near its front end over an opening in the bottom of the box, said axle being made fast to the sides of the box, wheels loosely mounted on said axle one of said wheels having an internal gear, a longitudinally-movable sleeve rotatably mounted on the axle, a pinion secured to the sleeve, an arm fast to the axle, a gear mounted thereon and engaging with the internal gear referred to, means for moving said sleeve endwise to cause the pinion thereon to engage with said gear, arms secured to the sleeve, and fan-blades extending crosswise of the machine secured to said arms, substantially as and for the purpose specified.

3. In a leaf-gatherer, the combination of a box having its rear end mounted on wheels, an axle extending across the box near its front end over an opening in the bottom of the box, said axle being made fast to the sides of the box, wheels loosely mounted on said axle, one of said wheels having an internal gear, a longitudinally-movable sleeve rotatably mounted on the axle, a pinion secured to the sleeve, an arm fast to the axle, a gear mounted thereon and engaging with the internal gear referred to, arms secured to the sleeve, and fan-blades extending crosswise of the machine secured to said arms, a lever having a fork-shaped end adapted to embrace and rest upon the axle between the end of the sleeve and the adjacent wheel, and wires extending between the fan-arms with which said lever may engage, substantially as and for the purpose specified.

4. In a leaf-gatherer, the combination of the box mounted on wheels and having an opening in its rear end, a door for closing said opening, an apron adapted to cover the bottom of the box and secured at its rear end to the box, means for holding the apron in an extended condition, means for lifting the front end of the apron and drawing it upward and rearward, a transverse fan mounted in the front end of the box over an opening in the bottom thereof, and mechanism connecting said fan with one of the wheels, substantially as and for the purpose specified.

5. In a leaf-gatherer, the combination of the box mounted on wheels and having an opening in its rear end, a door for closing said opening, an apron covering the bottom of the box and secured at its rear end to the box, a cross-bar secured to the front end of said apron, a brace-bar secured to the cross-bar, the box having an opening in its top through which the brace-bar may be drawn, a transverse fan mounted on the front end of the box over an opening in the bottom thereof, mechanism connecting said fan with one of the wheels, substantially as and for the purpose specified.

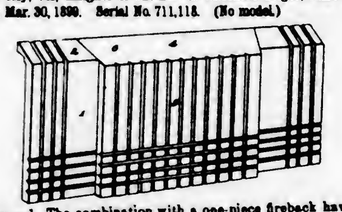
648,887. ATTACHING STRAINERS TO SPOUTS OF SHEET-METAL VESSELS. CHARLES L. WAGANDT, Baltimore, Md. Filed Nov. 23, 1898. Serial No. 697,237. (No model.)



Claim.—1. The combination of the body of a vessel; a spout seamed to said body independently of a strainer; tangs projecting inwardly from the seam formed by the union of the spout and vessel; and a strainer having a surrounding rim-flange provided with slits—said flange covering the seam of the spout and vessel and the slits in the strainer having the said tangs project through them.

2. The combination of the body of a vessel having a spout-hole and an interned flange, *b*; a spout having at its base a coiled flange, *d*, and tangs projecting independent of the said flange; and a strainer having slits through which the said tangs on the spout project, the said spout being secured to the body by a double seam independently of the strainer.

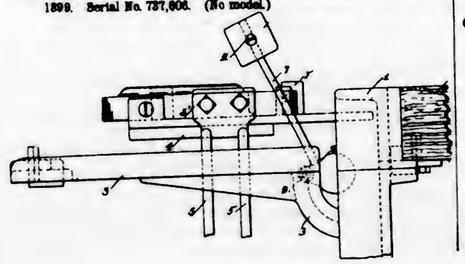
648,888. FIREBACK FOR STOVES. JOHN L. WILLIAMSON, Pulaski City, Va., assignor of one-half to Theodore Dilger, same place. Filed Mar. 30, 1899. Serial No. 711,118. (No model.)



Claim.—1. The combination with a one-piece fireback having a receding top flange, of a shield adapted to cover the central portion of said fireback and bear flatwise against the front side thereof, and also having a receding flange which is formed to interlock with the flange of the fireback, the said interlocking flanges forming the only connection between the fireback and shield.

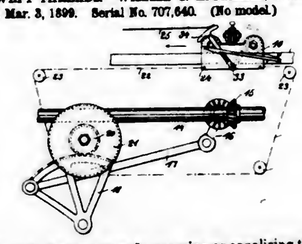
2. The combination with a fireback having a receding top flange provided with a dovetail recess, of a protecting-shield having a receding top flange of dovetail shape adapted to fit within said recess, and interlock with the flange of the fireback.

648,889. LOOM. HORACE WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Nov. 20, 1899. Serial No. 737,606. (No model.)



Claim.—In a loom of the class described, the combination with the spare-shuttle holder-plate, of a pivoted signal-arm normally held in its lowered position, and provided with a weight or its equivalent to hold it in its raised position, substantially as shown and described.

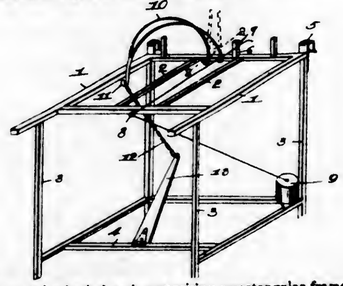
643,890. APPARATUS FOR SCOURING OR EQUALIZING WARP OR WEFT THREADS. WILHELM G. ANDRIESSEN, Crefeld, Germany. Filed Mar. 3, 1899. Serial No. 707,640. (No model.)



Claim.—1. An apparatus for scouring or equalizing the warp and weft threads of woven fabrics such as silk and half-silk fabrics comprising a guide-bar, a carriage mounted on the guide-bar, and a knife having its edge arranged obliquely to the length of the fabric, and means whereby the carriage is moved to and fro; substantially as described.

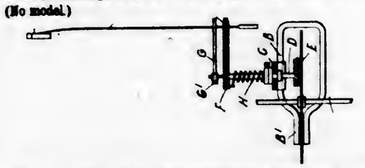
2. The combination of the guide-bar having hooks pivoted thereto near its ends, a carriage mounted on the guide-bar, means for reciprocating the carriage, a knife fixed to the carriage, and a quadrant for lifting the edge of the fabric, having an arc and a shoulder at the side thereof, and pivoted to the carriage; the hooks being positioned to engage the shoulder of the quadrant for reversing the latter as the carriage returns; substantially as described.

643,891. FODDER-BINDER. JAMES T. ATKIN, Olean, Mo. Filed May 22, 1899. Serial No. 717,759. (No model.)



Claim.—A husker's bench, comprising a rectangular frame 1, of which the cross-pieces 4 at the front of said frame are equal distances from the upright pieces 3, a foot-lever 13 pivotally connected to the lower of the cross-pieces 4 at the front of the frame, a chain 12 attached to the free end of said lever, an eye 8 secured to the front side of the upper of the forward cross pieces 4, a double spring 10 having loops 14 secured to the rear one of the upper cross-pieces 4, said spring being provided with a hook 11 on its forward end which is adapted to be engaged by the said chain 12, a receptacle 9 secured upon the rear one of the lower cross-pieces 4, and a block 6 to which is attached a spring 7 for the purpose of engaging the free end of the twine when the machine is in use, substantially as specified.

648,892. ELECTRIC METER. JOHN H. BARKER and JAMES A. EWING, Cambridge, England. Filed Aug. 14, 1899. Serial No. 727,188. (No model.)



Claim.—1. The combination in an electric meter of a revolving conductor, a pivoted or suspended magnetic brake and means to pre-

vent excessive angular movement of the brake, substantially as and for the purpose set forth.

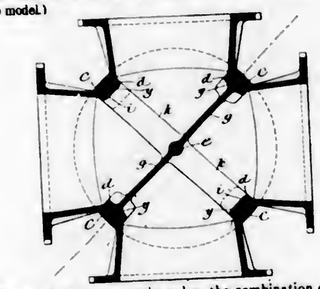
2. In an electric meter the combination of a pivoted or suspended magnetic brake comprising one or more magnets, a conductor moving in the magnetic field of the brake, means for controlling the motion of the brake, and an indicator for multiplying and exhibiting the amount of such motion, substantially as set forth.

3. In an electric meter the combination of a revolving conductor with a magnetic brake pivoted or suspended about an axis parallel to the axis of rotation of the conductor means for controlling the motion of the brake, and an indicator for multiplying and exhibiting the amount of such motion, substantially as set forth.

4. In an electric meter the combination of a pivoted magnetic system comprising a plurality of magnets connected by a bridge-piece, a conducting-disk revolving between the poles of the magnets about an axis parallel to the axis about which the magnetic system is pivoted, a spring controlling the motion of the magnets, a pointer for exhibiting in a multiplied form the amount of such motion, an adjustable arm secured to the axle bearing the magnets and operatively connecting such axle with the pointer, a pivoted pawl, and a fixed rack with which the pawl engages, substantially as and for the purpose set forth.

5. In an electric meter the combination with a pivoted magnetic brake of fixed supports, and means for clamping the magnetic brake to the supports for the purpose set forth.

643,893. GAS-WORKS VALVE. THADDEUS R. BEAL, New York, N. Y. Filed Oct. 26, 1897. Renewed Nov. 9, 1899. Serial No. 736,436. (No model.)



Claim.—1. In a gas-works valve, the combination of a stationary seat, a movable valve adapted to coöperate therewith, a source of oil-supply, and grooves or depressions in the face of the movable valve, said grooves or depressions communicating with the oil-supply when the valve is on the seat and the communication being cut off when the valve leaves the seat.

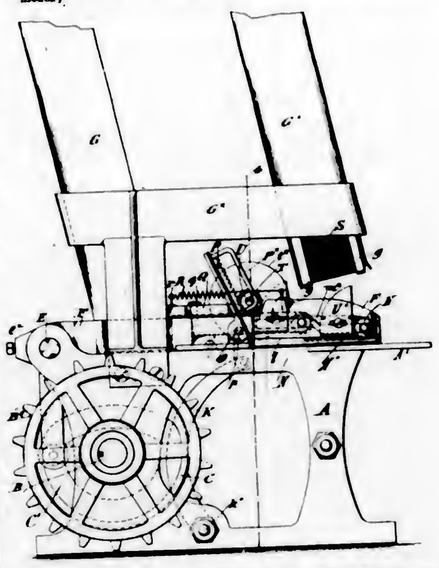
2. In a gas-works valve, the combination of a plurality of stationary seats, a movable valve adapted to coöperate with either of said seats, a source of oil-supply communicating with grooves or depressions in the face of one of the parts, and means for closing said communication while the valve is moving from one seat to another.

3. In a gas-works valve, the combination with the casing, of a plurality of stationary seats, a movable valve adapted to coöperate with either of said seats, an oil-chamber in the casing, and grooves or depressions in the valve and seat, those in the seat being in open communication with the oil-chamber, and being adapted to communicate with that in the valve when the latter closes on the seat.

4. In a gas-works valve, the combination with the casing, of a plurality of seats annularly arranged at intervals therein, a rotary plug-valve having a face adapted to coöperate with any of said seats, a gear-wheel rigid with the valve and housed in said casing, a power-pinion meshing with said wheel and housed and journaled in said casing with its shaft projecting therethrough, a disk on the shaft of the valve outside the casing, notches in said disk corresponding to the number of valve-seats within the casing, and a latch adapted to engage said notches.

5. In a gas-works valve, the combination with the casing and pipes leading into and from the same, of a plurality of stationary vertical valve-seats arranged within the casing, a sliding valve consisting of horizontal plates coöperating with bearing-faces in the casing above and below the pipe-openings, and a vertically-arranged valve extending between the plates and having a face adapted to coöperate with any of the seats, chambers in the casing above and below the horizontal plates of the valve and their bearing-faces, grooves or depressions in the valve-seats in open communication with said chambers, and a similar groove or depression in the face of the movable valve, the groove in the face of the valve being adapted to register with those in the seats when the valve is seated thereon so as to establish communication between the upper and lower chambers when the valve is closed in any position.

643,894. ENVELOP OR WRAPPER ADDRESSING MACHINE. CHARLES A. BELKNAP, New York, N. Y., assignor of one-half to Charles R. Parsons, same place. Filed Apr. 21, 1899. Serial No. 714,142. (No model.)



Claim.—1. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of an oscillatory stencil-carrier, a stationary receiving-box, means for oscillating said stencil-carrier toward the latter, means for feeding the stencil-cards from said box, along said carrier, and means coöperating with the stencil-cards for producing an impression upon the article placed upon the impression bed or table, substantially as set forth.

2. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of an oscillatory stencil-carrier, stationary receiving and collecting boxes above the stencil-carrier, means for oscillating said stencil-carrier toward the said boxes, means for feeding the stencil-cards from the receiving-box, along said carrier, and means coöperating with the stencil-cards for producing an impression upon the article placed upon the impression bed or table, substantially as set forth.

3. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of a movable stencil-carrier provided with ways along which the stencil-cards are fed, a pusher, means for positively actuating said pusher so as to feed the cards along the carrier, a spring for automatically returning the pusher to normal position, and means coöperating with the stencil-cards for producing an impression upon an envelop or wrapper, substantially as set forth.

4. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of a movable stencil-carrier provided with ways along which the stencil-cards are fed, a card-pusher, a rotary shaft, a tappet mounted on said shaft, said tappet striking said pusher, a spring for automatically returning the pusher to normal position, and means, coöperating with the stencil-cards, for producing an impression upon an envelop or wrapper, substantially as set forth.

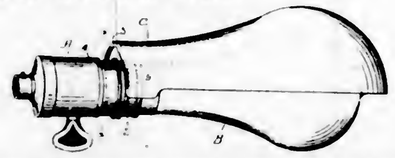
5. In a machine for addressing envelops and wrappers, the combination with an impression bed or table, of a removable stencil-carrier, an ink-reservoir supported on the carrier, an inking-roller, means for guiding the latter from and in contact with the ink-reservoir to printing position, over the said bed or table, and means for feeding the stencil-cards along said carrier, substantially as set forth.

6. In a machine for addressing envelops and wrappers, the combination with an impression bed or table, of an oscillating stencil-carrier, a rotary ink reservoir and distributer, means for rotating the latter during the oscillation of the stencil-carrier, an inking-roll adapted to turn in contact with the said reservoir and distributer, and means for moving the inking-roll along the stencil-carrier to make an imprint through the stencil-cards, substantially as set forth.

7. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of a movable stencil-carrier, a rotary ink-reservoir having a pad-like circumference for distributing the ink, means for rotating the ink-reservoir during the oscillation of the stencil-carrier, an inking-roller, means for guiding the inking-roller in position for printing and in a higher position for taking ink, and means for moving the inking-roller along the stencil-carrier for performing the two said functions, substantially as set forth.

8. In a machine for addressing envelops or wrappers, the combination with an impression bed or table, of a movable stencil-carrier, a rotary ink reservoir and distributer, gearing connected with the carrier and the shaft of the ink-reservoir, an inking-roller, means for moving the same along the stencil-carrier and in contact with said reservoir, and gearing for turning said inking-roller so as to cause it to coöperate with the stencil-cards for producing the impression upon the envelops or wrappers, substantially as set forth.

643,895. LAMP-SHADE. EMIL T. BERGGREN, St. Paul, Minn., assignor of one-half to Frederick G. Bradbury, same place. Filed Apr. 26, 1897. Serial No. 634,050. (No model.)

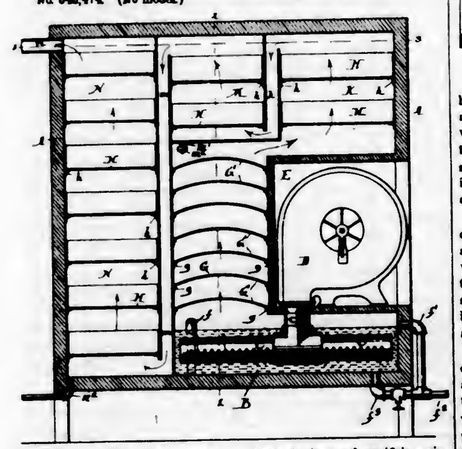


Claim.—1. A shade having a laterally-extending spring-wire loop which is adapted to encircle the socket and tightly grip the same; said loop having its ends bent to conform to the shape of and fastened to the shade, substantially as described.

2. In a device of the class described, a shade formed with flanges to which are fastened the ends of a spring-wire loop; said loop being formed laterally adjacent the shade and adapted to encircle the socket and sustain the shade upon the socket-support, substantially as described.

3. In a device of the class described, a shade provided with a laterally-extending supporting device consisting of a spring-wire loop formed closely adjacent the shade and having its ends extending toward the shade from the loop upon which ends the shade is substantially fastened as described.

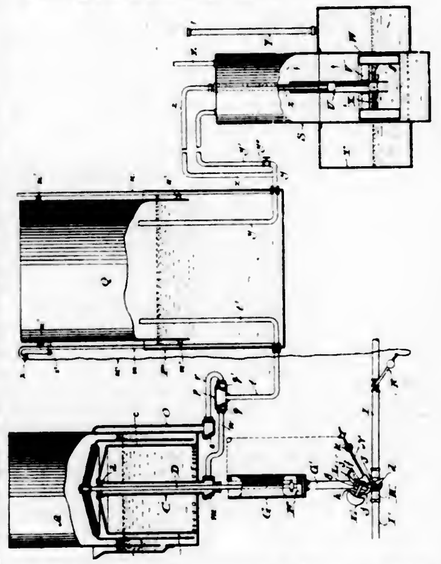
643,896. APPARATUS FOR PURIFYING AND DRYING AIR. RICHARD M. BIRDSALL and CHARLES L. KRUM, Chicago, Ill.; said Krum assignor to Rockwell King, same place. Filed July 30, 1897. Serial No. 646,474. (No model.)



Claim.—1. An apparatus for washing, drying and purifying air, comprising an inclosing casing having therein a tank for containing water whereby the air will be washed, a submerged pipe for delivering air beneath the surface of the water within said tank, a drying-chamber containing trays of chlorid of lime through which the washed air will be passed, said chamber being in communication with the water-tank and a condenser-chamber provided with condenser-plates and arranged intermediate the water-tank and the chlorid-of-lime chamber, said condenser-plates serving to remove a large part of the moisture from the air after it leaves the water-tank and before it passes through the chlorid-of-lime trays whereby the wasteful deliquescence of the chlorid of lime is checked.

2. An apparatus of the character described comprising a tank B for containing water and provided with a perforated air-delivery pipe, a condensing-chamber G arranged above said tank B and provided with a series of condenser-plates G', a compartment K connected with the upper end of said condensing-chamber G and containing trays, and tray-compartments M and N, the bottom of the compartment M being connected to the top of the compartment K, and the bottom of the compartment N being connected by a suitable channel with the top of the compartment M whereby the supply of air after leaving the tank B may be forced up through the condensing-chamber and thence through the several compartments containing chlorid-of-lime trays, substantially as described.

643,897. CARBURETER. STEPHAN BROICHGANS, Milwaukee, Wis. Filed Mar. 23, 1899. Serial No. 710,184. (No model.)



Claim.—1. A carbureting apparatus comprising a tank for liquid hydrocarbon, an apertured cylinder partly within the tank, a float movable in the cylinder, a float-supported air-tube in telescopic union with a stationary air-conveyer and provided with apertures below the level of the liquid hydrocarbon, a float-encompassed reticulated screen surrounding the tube above its apertures to have submergence in said liquid hydrocarbon, a service-pipe leading from said cylinder, and an automatic air-supply mechanism.

2. A carbureting apparatus comprising a tank for liquid hydrocarbon, an apertured cylinder partly within the tank, a float movable in the cylinder, a float-supported air-tube in telescopic union with a stationary air-conveyer and provided with apertures below the level of the liquid hydrocarbon, a float-encompassed reticulated screen surrounding the tube above its apertures to have submergence in said liquid hydrocarbon, a service-pipe leading from said cylinder, and an automatic air-supply and storage mechanism.

3. A carbureting apparatus comprising a tank for liquid hydrocarbon, an apertured cylinder partly within the tank, a float movable in the cylinder, a float-supported air-tube provided with apertures below the level of the liquid hydrocarbon, a stationary air-conveyer with which said tube has telescopic connection, a float-encompassed reticulated screen surrounding the aforesaid tube above its apertures to have submergence in said liquid hydrocarbon, a double-acting air-forcing apparatus in communication with said conveyer, and a service-pipe leading from said cylinder.

4. A carbureting apparatus comprising a tank for liquid hydrocarbon, an apertured cylinder partly within the tank, a float mov-

able in the cylinder, a float-supported air-tube provided with apertures below the level of the liquid hydrocarbon, a stationary air-conveyer with which said tube has telescopic connection, a float-encompassed reticulated screen surrounding the aforesaid tube above its apertures to have submergence in said liquid hydrocarbon, a reciprocative air-holder in communication with said conveyer, a double-acting air-forcing mechanism in communication with the air-holder, motor-control mechanism operative in conjunction with said holder, and a service-pipe leading from said cylinder.

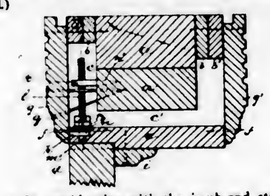
5. A carbureting apparatus comprising a tank for liquid hydrocarbon, an apertured cylinder partly within the tank, a float movable in the cylinder, a float-supported air-tube provided with apertures below the level of the liquid hydrocarbon, a stationary air-conveyer with which said tube has telescopic connection, a float-encompassed reticulated screen surrounding the aforesaid tube above its apertures to have submergence in said liquid hydrocarbon, an automatic air-forcing mechanism in communication with said conveyer, a valve-controlled conveyer branch having discharge into the upper portion of the cylinder, and a service-pipe leading from said cylinder.

643,398. SELF-THREADING NEEDLE. LOUISA P. BUNNELL and WILLIAM NICHOLS, Toledo, Ohio. Filed Jan. 10, 1899. Serial No. 701,711. (No model.)



Claim.—The needle herein described, the same having a cut at a right angle to the axis thereof and coinciding with the bottom of the eye, said cut having a flaring mouth with upper and lower rounded corners, substantially as and for the purpose specified.

643,399. DOOR-FRAME AND ADJUSTABLE JAMB THEREFOR. SAMUEL S. COLT, Orange, N. J. Filed June 14, 1899. Serial No. 720,464. (No model.)



Claim.—1. In combination with the jamb and stud, the screw held to said jamb by the head *m*, and nut and lock-nut, a nut *k*, arranged on said screw and having an extension driven into said stud, substantially as set forth.

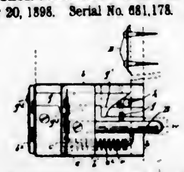
2. In combination with the jamb and stud, the screw held to said jamb and a nut *k*, having the extention *k'*, substantially as set forth.

3. The combination with the stud and casings *g*, *g'*, of a jamb nailed to one of said casings and adjustable with relation to the other of said casings, and adjusting means, substantially as set forth.

4. The combination with the stud and casings *g*, *g'*, of a jamb nailed to one of said casings and adjustable with relation to the other, said jamb being apertured, as at *h*, and nailed to the other casing at the aperture, and adjusting means, all arranged and operating, substantially as set forth.

5. In a door-frame, the combination with the adjustable jamb, of a screw passing through said jamb and having an outer head and a threaded shank, an inner clamping-nut holding said jamb against said head, and a threaded socket or nut having a pointed extension driven into the frame and in which the adjusting-screw works longitudinally, substantially as set forth.

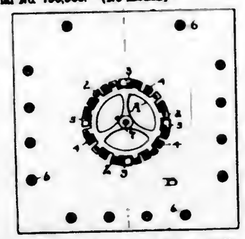
648,400. SASH-FASTENER. EDGAR M. COMSTOCK, Ypsilanti, Mich. Filed May 20, 1898. Serial No. 681,178. (No model.)



Claim.—1. In a sash-fastener, the combination of a locking-bolt provided with a spur, means for actuating the bolt, a lever provided with a hook arranged to engage the spur on the bolt said lever being provided with an actuating-handle that projects to the outside of the casing, a part arranged to engage the hooked lever and swing the same, and provided with an end which protrudes to the outside of the case, and a piece, D, adapted to actuate said last-mentioned lever, substantially as described.

2. In a sash-fastener the combination of a bolt, B, adapted to be actuated longitudinally, a spring acting to protrude said bolt, a spar, *f*, on said bolt, a lever, *g*, approximately parallel to the bolt, B, and extending from the end of the casing as at, g^2, said lever being provided with a hook, *g'*, adapted to engage said spar and hold said bolt in its retracted position, a part, A, lying against said beveled surface, and adapted to move in the direction of the length of the lever, *g*, the part, A, protruding from the front of the casing, and a piece, D, adapted to actuate the part, A, by striking against its protruding portion, substantially as described.

648,401. ELECTRIC FLASHING-SWITCH. ANDREW I. COTTER, Cleveland, Ohio, assignor to H. L. Browne, same place. Filed Sept. 15, 1899. Serial No. 730,569. (No model.)



Claim.—1. An electric switch and the main-line circuit, in combination with an electromagnet and connecting mechanism to throw said switch when the magnet is energized, a separate circuit for said magnet, contact members in said circuit, means to keep said members in contact while the magnet is energized and until the switch has been thrown, and means to keep said contact members separated for an interval, substantially as described.

2. A rotating electric switch and the main-line circuit, an electromagnet having connecting mechanism to operate said switch when said magnet is energized, a separate circuit for said magnet, metallic contacts in the magnet-circuit, a contact-controlling lever operated by said magnet, and a dash-pot connected to said lever to keep said contact-lever in and also out of engagement with said contacts, substantially as described.

3. A rotating electric switch having a ratchet-wheel, pawl, and actuating-lever, an electromagnet to operate said lever when said magnet is energized, and an electrical circuit for said switch, in combination with a separate circuit for said magnet, metallic contacts in said magnet-circuit, controlling mechanism for said contacts having means to keep said magnet-circuit closed until the switch has been operated, means to separate said contacts and break said magnet-circuit and means to keep said magnet-circuit open for an interval of time, substantially as described.

4. A rotating electric switch and an electromagnet mounted on opposite sides of an insulated base, connecting mechanism for said switch operated by said magnet, separate circuits for said switch and magnet, contacts in the magnet-circuit, a contact-lever pivoted to the magnet-armature core, and a dash-pot connected between the pivot and contact end of said lever, substantially as described.

5. The combined electric flashing-switch and electromagnet mounted on opposite sides of an insulated base and operative mechanism connecting said switch and magnet, separate circuits for said switch and magnet, contacts and contact mechanism in the magnet-circuit operated by said magnet, and a dash-pot connected to said contact mechanism to control the length of time the magnet is in and out of circuit, substantially as described.

6. An electric flashing-switch and a controlling-electromagnet mounted on opposite sides of an insulated base, an operative mechanism connecting said switch and magnet, separate electrical circuits for said switch and magnet, contacts in the magnet-circuit, a contact-controlling lever operated by said magnet, and a dash-pot to keep the lever in contact and also out of contact at intervals, substantially as described.

7. The combined electric flashing-switch and electromagnet having connecting operating mechanism, separate electrical circuits for said switch and magnet, contacts in the magnet-circuit, a controlling contact-lever connected to the magnet-armature core, a dash-pot connected to said lever to hold the contacts in engagement until the switch is operated and to time and control the descent of the lever before contact is again established, and means to break the lever-contact after the switch has been operated, substantially as described.

8. An electric flashing-switch and a circuit therefor, in combination with an electromagnet having a separate circuit, operating mechanism for said switch actuated by said magnet, contact members in the magnet-circuit, means to keep said members in contact while the magnet-armature core is being attracted, means to separate said contact members after the switch mechanism has been actuated, and means to keep said contact members apart for a predetermined length of time, substantially as described.

9. The combined electric flashing-switch and electromagnet, mechanism to operate said switch, separate electrical circuits for said switch and magnet, electrical contacts in the magnet-circuit, a lever pivoted to the core of said magnet to make and break said contacts, a dash-pot connected to said lever to keep said contacts in engagement for a limited period, means to actuate the lever to break the contact when the core is near the limit of its upward movement, and a valve in said pot to time and control the descent of the dash-pot and contact-lever, substantially as described.

10. An electric flashing-switch, an electromagnet and mechanism to operate said switch, separate electrical circuits for said switch and magnet, electrical contacts in the magnet-circuit, a contact-lever operated by the core or armature of the magnet to open and close the magnet-circuit, and a dash-pot to control said lever having a post and a piston supported to slide on said post and an air-inlet valve controlled by said movement, in combination with an air-outlet screw-valve having a tapered end and tapered seat and an opening running from the outer end to the tapered end of the screw, substantially as described.

11. An electric flashing-switch and an electromagnet and mechanism to operate said switch, separate circuits for said switch and magnet, an electrical contact-lever actuated by the core or armature of said magnet, contacts in said magnet-circuit controlled by said lever, and a dash-pot having a valved piston and an adjustable air-outlet valve connected to said lever to control the time that the magnet is in and out of circuit, substantially as described.

12. A rotating electric switch having a series of brush-holder arms about its periphery, a series of removable and interchangeable contact-brushes for said arms, and a circular series of contact-segments mounted on an insulated base, in combination with means to rotate said switch at intermittent intervals, substantially as described.

13. An electric flashing-switch and an electromagnet mounted on opposite sides of an insulated base, separate circuits for said switch and magnet, operating mechanism connecting said switch and magnet, contacts in the magnet-circuit, a contact-controlling lever operated by said magnet, a dash-pot and a connection to said lever which keeps the contacts in circuit while the switch is operated, a stop for said lever to throw said contacts out of circuit, and means to detain the descent of said pot and lever for a predetermined time, substantially as described.

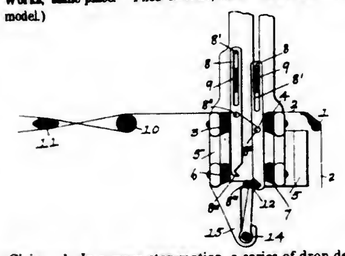
14. An electric flashing-switch mounted on the face of an insulated base, in combination with an electromagnet having ratchet-wheel, pawl-and-lever mechanism mounted on the back of said base to operate said switch, separate circuits for said switch and magnet, contacts in the magnet-circuit, a contact-controlling lever pivoted to the magnet-armature core, a dash-pot and a link connected to said lever at a point between the pivot and contact end, a stop to engage the lever and separate the contacts, and air inlet and outlet valves for said dash-pot, substantially as described.

15. A rotating switch having a series of brush-holder arms about its periphery, a series of removable and interchangeable contact-brushes for said arms, and a circular series of contact-segments mounted on the face of an insulated base, a ratchet-wheel, pawl and lever for said switch, and an electromagnet to operate said lever, separate circuits for said switch and magnet, contacts in the magnet-circuit, contact-controlling mechanism operated by said magnet, and means to detain and control said contact mechanism, substantially as described.

16. An insulated base, a rotating switch on the front face and an electromagnet on the back face of said base, a switch-shaft and bushing therefor passing through said base, a ratchet-wheel for said shaft and a pawl and lever connected to the magnet-core to operate said ratchet-wheel, separate circuits for said switch and magnet, contacts in the magnet-circuit, a controlling contact-lever pivoted to the magnet-core, and a dash-pot having air inlet and outlet valves connected to said contact-lever, substantially as described.

17. A rotating switch mounted on the front face of an insulated base and contacts for said switch, in combination with an electromagnet, ratchet-wheel, pawl and lever to rotate said switch, separate circuits for said switch and magnet, contacts 17 and 17' in the magnet-circuits, a controlling contact-lever 16 operated by said magnet, a stop 16' for said lever, and a dash-pot 18 having a lever-connecting link 25, a piston 19 and supporting-post 20, and an adjustable air-outlet screw-valve 27, substantially as described.

648,402. WARP STOP-MOTION FOR LOOMS. RANDOLPH CROMPTON, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Nov. 27, 1899. Serial No. 738,292. (No model.)



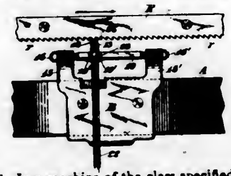
Claim.—1. In a warp stop-motion, a series of drop devices supported in normal position by the warp-threads, and each device having a recess or notch in one edge at its lower end, to receive a projection of substantially the same shape and size as said recess, when the drop device is in its lowered position, to bind and hold the drop device in the direction of its width, and prevent its turning or twisting, substantially as shown and described.

2. In a warp stop-motion, the combination with a series of drop devices supported in normal position by the warp-threads, and each device having a recess or notch in one edge at its lower end, of a vibrating feeler-plate having its engaging edge of substantially the same shape and size as the recess, to enter said recess when the drop device is in its lowered position, and crowd it against a transverse bar, and prevent it from turning or twisting, substantially as shown and described.

3. In a warp stop-motion, the combination with a series of drop devices supported in normal position by the wrap-threads, and each device having an angular recess or notch in one edge at its lower end, of a vibrating feeler-plate having its engaging edge of angular shape, the angle being more obtuse than the angle of the recess in the drop device, to enter said recess when the drop device is in its lowered position, and force said device against a transverse bar, and hold it without turning or twisting it, substantially as shown and described.

4. In a warp stop-motion for looms, a series of drop devices independent of the shedding mechanism, each device provided with an elongated slot and a warp-eye at one end, and a recess in one edge at the other end, in combination with a flat transverse guiding-bar passing through the elongated slot, and a vibrating feeler-plate having an edge of angular shape to extend into the angular recess in the drop device when it is in its lowered position, substantially as shown and described.

648,408. ESCAPEMENT-FEED MECHANISM FOR TYPE-WRITERS OR ANALOGOUS MACHINES. EDWIN H. DODGE, Hartford, Conn., assignor to the Hartford Type-Writer Company, same place. Filed Dec. 4, 1897. Serial No. 660,816. (No model.)



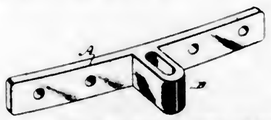
Claim.—1. In a machine of the class specified, the combination, with a feed-rack the teeth of which are straight on one side and oblique on the other, of a feed-pawl oscillatory transversely to the feed-rack about an axis adjacent to said rack, said pawl embodying a pair of feed-dogs rigid therewith and each having a straight face cooperative with the straight faces of the rack-teeth, and each also having an oblique face cooperative with the oblique faces of said rack-teeth, and each also having a working face defined by an arc struck from the axis of oscillation of the pawl, said dogs being separated transversely by a space sufficient to feed the rack a distance substantially equal to half a tooth-space at each movement of the pawl.

2. In a machine of the class specified, the combination, with a feed-rack the teeth of which are straight on one side and oblique on the other, of a feed-pawl oscillatory transversely to the feed-rack about an axis adjacent to said rack and also yieldingly mounted to oscillate in the plane of the feed-rack, said pawl embodying a pair of feed-dogs rigid therewith and each having a straight face cooperative with the straight faces of the rack-teeth, and each also hav-

ing an oblique face cooperative with the oblique faces of said rack-teeth, and each also having a working face defined by an arc struck from the axis of oscillation of the pawl, said dogs being separated transversely by a space sufficient to feed the rack a distance equal to half a tooth-space at each movement of the pawl.

3. In a machine of the class specified, the combination, with a feed-rack, of a rocker having an opening therein, and a feed-pawl oscillatory transversely to the feed-rack about an axis adjacent to said rack and yieldingly mounted within said opening to oscillate in the plane of the feed-rack, said pawl embodying a pair of feed-dogs rigid therewith and separated transversely by a space sufficient to feed the rack a distance equal to half a tooth-space at each movement of the pawl.

648,404. TWO-HORSE DRAFT-EQUALIZER. GEORGE L. EASON, Des Moines, Iowa. Filed July 31, 1899. Serial No. 724,620. (No model.)

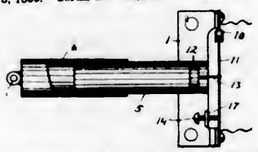


Claim.—1. As a new article of manufacture, an evener device, adapted for supporting and operating a doubletree on the pole of a vehicle, consisting of a frame in the form of a clevis having coinciding bolt-holes in its top and bottom portions, an integral cross-bar at its front end having a double-inclined inside face and a projection at its front and bottom provided with a bolt-hole.

2. A two-horse draft-equalizer comprising a frame in the form of a clevis having coinciding bolt-holes and an integral cross-bar at its front end that has a double incline on its inside face and a projection at its front and bottom provided with a bolt-hole, a doubletree having an elongated bolt-hole at its rear edge and center and a pole having bolt-holes for the passage of bolts through the said clevis or frame, arranged and combined to operate in the manner set forth for the purposes stated.

3. An evener device consisting of the clevis or frame C having bolt-holes, and a cross-bar D at its front end provided with a double-inclined inside face, and a wooden doubletree H having a metal reinforcing-strap A fixed to its rear edge and center and an integral projection B having an elongated bolt-hole, in combination with the pole of a vehicle, as shown and described to operate in the manner set forth.

648,405. BURGLAR-ALARM. JOHN T. FRIEND, Fort Wayne, Ind. Filed Aug. 3, 1899. Serial No. 725,944. (No model.)

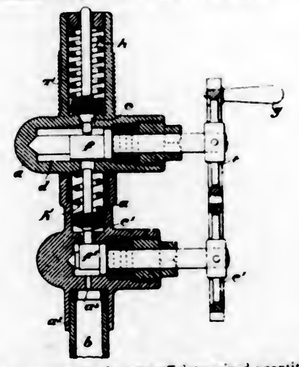


Claim.—An electric-circuit closer, consisting of a plate having a tube mounted thereon; a shell having a closed end, adapted to reciprocate upon said tube; a piston-head loosely fitting in said tube, and having a connection with a contact-spring; a bifurcated plate having contact-points ranging upon either side of said contact-spring; and means in connection with said shell for actuating the same, substantially as and for the purpose specified.

648,406. MEASURING-FAUCET FOR LIQUEFIED GAS. WILHELM F. FREIS, Zurich, Switzerland, assignor of one-half to Henry Achilles Alioth, Basle, Switzerland. Filed Sept. 26, 1899. Serial No. 731,718. (No model.)

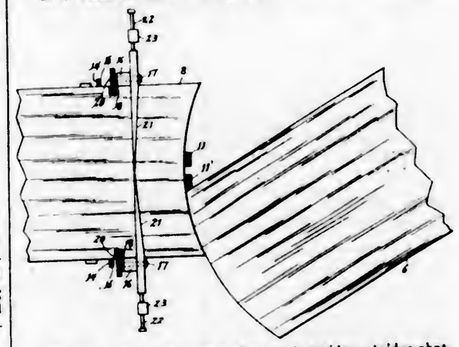
Claim.—1. An apparatus for drawing off determined quantities of liquid carbonic acid, compressed gases, and vapors, comprising a casing having an inlet and an outlet, an inlet-valve opening outwardly, an outlet-valve opening inwardly, springs tending to close the respective valves, a chamber of fixed capacity in the casing between said valves, two rotatably-mounted eccentrics for opening the respective valves, said eccentrics being so set as to open the valves alternately and to permit one to close before the other is opened, means for operating both eccentrics simultaneously and means at the outlet for diminishing the pressure of the liquid gas or vapor delivered.

2. An apparatus for drawing off determined quantities of liquid carbonic acid, compressed gases, and vapors, comprising a casing having an inlet and an outlet, an inlet-valve opening outwardly, an outlet-valve opening inwardly, springs tending to close the respective valves, a chamber of fixed capacity in the casing between said valves, two rotatably-mounted eccentrics for opening the respective valves, said eccentrics being so set as to open the valves alternately and to permit one to close before the other is opened, means for operating both eccentrics simultaneously and a contracted passage a^3 at the outlet to diminish the pressure of the fluid delivered.



3. An apparatus for drawing off determined quantities of fluids, comprising a casing a having an inlet, a contracted outlet a^3, means for connecting said casing hermetically to the source of supply at the inlet and to the receiver at the outlet, and a chamber d, of fixed capacity, an inlet-valve c between the inlet and the chamber d and opening outwardly, an outlet-valve c', between the outlet and the chamber d and opening inwardly, springs tending to close the respective valves, two rotatably-mounted eccentrics f and f', for operating the respective valves c and c', and manually-operative gearing connecting said eccentrics and adapted to rotate the same simultaneously.

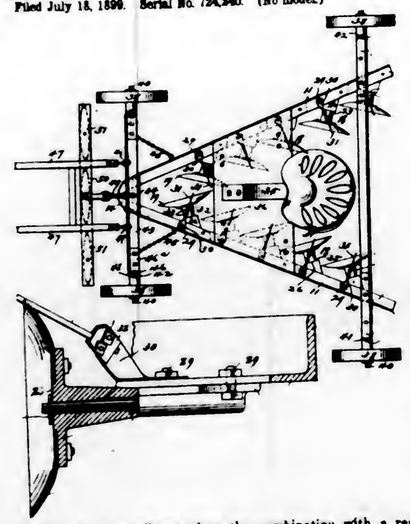
648,407. BRIDGE-GATE. PAUL GFROERER, Evanston, Ill., assignor of one-half to Nickolas P. Hoffmann, same place. Filed Apr. 5, 1899. Serial No. 711,781. (No model.)



Claim.—1. The combination, of a swinging bridge, a bridge-abutment, longitudinal shafts journaled in the bridge-abutment and parallel and in close proximity to each other, said shafts being geared together, pinions carried by the longitudinal shafts and arranged close to each other but not in meshing engagement, a short rack carried by the swinging bridge and adapted to rotate one or the other of the pinions, in accordance with the direction in which the bridge is swung, outer shafts journaled in the bridge-abutment, means for transferring the rotation of the first-mentioned shafts to the outer shafts, uprights or standards, shafts journaled therein, gate-arms carried by said shafts, and means for transferring the rotation of the outer shafts to the bridge-arm shafts.

2. The combination, of a swinging bridge provided with an end rack, a bridge-abutment, longitudinal shafts journaled in said bridge-abutment, said shafts being geared together, and provided on their outer ends with non-meshing pinions, and near their inner ends with sprocket-wheels, outer shafts having sprocket-wheels mounted thereon, sprocket-chains connecting said sprocket-wheels with the sprocket-wheels of the longitudinal shafts, uprights or standards, shafts journaled therein, and having sprocket-wheels mounted thereon, sprocket-chains connecting said sprocket-wheels with sprocket-wheels of the outer shafts, and gate-arms carried by the shafts of the uprights or standards.

648,408. SOIL-PULVERIZER. JOSEPH F. GLIDDEN, De Kalb, Ill. Filed July 18, 1899. Serial No. 724,340. (No model.)



Claim.—1. In a soil-pulverizer, the combination, with a rearwardly-diverging frame provided with two correspondingly-diverging series of disks, of vertically-adjustable supporting-wheels for the rear of said frame, a swiveling cross-bar connected to the front of said frame, and vertically-adjustable wheels connected with the ends of said cross-bar, substantially as described.

2. In a soil-pulverizer, a frame comprising two diverging angle-bars, a front cross-plate resting on the horizontal flanges of said bars and having vertical flanges at its ends to bear against the vertical flanges of the side bars, and a cross-bar connecting the side bars at the rear, substantially as described.

3. In a soil-pulverizer, the combination, with a frame comprising diverging angle-bars connected at their rear ends, of a front cross-plate having terminal flanges whereby it abuts against and is secured to the front ends of the side bars, a swiveling cross-bar provided with carrying-wheels and resting on the side bars, said cross-bar being adapted to have the guiding tongue or thills connected thereto, a king-bolt connecting said swiveling cross-bar with the front cross-plate, and a clevis or other means whereby the draft-rigging may be connected to said front cross-plate, substantially as described.

4. In a soil-pulverizer, the combination, with a frame having pulverizing-disks and a swiveling cross-bar at its forward end, said cross-bar and the rear end of the frame being provided with vertical perforated arms, of carrying-wheels, the axes whereof are provided with correspondingly-perforated vertical arms, and pairs of bolts adjustably connecting the pairs of vertical arms, substantially as described.

5. In a soil-pulverizer, the combination, with a frame and a shouldered bracket connected therewith and having a shaft or axis extending therefrom, of a sleeve-like hub mounted on said shaft or axis, bearing against the shoulder of the bracket at one end and provided at its other end with a clamping-disk, and a pulverizing-disk proper consisting of a concaved body secured to said clamping-disk on the opposite side from the sleeve-like hub, substantially as described.

6. In a soil-pulverizer, the combination, with a shouldered bracket having a projecting shaft or axis, of a sleeve-like hub mounted on said shaft or axis, abutting against the shoulder of the bracket at one end and provided at its other end with a clamping-disk having a central boss, and a pulverizing-disk having a central aperture to fit said boss and secured to the outer face of the clamping-disk, substantially as described.

7. In a soil-pulverizer, a frame-bar consisting of an angle-bar having a horizontal and a vertical flange, in combination with a rotating disk, a bracket secured to the under side of the horizontal flange of the bar and provided with a shaft or axis on which the disk may rotate, substantially as described.

8. In a soil-pulverizer, a frame-bar consisting of an angle-bar having a horizontal and a vertical flange, in combination with a pulverizing-disk, a bracket carrying said disk and having clamping-bolts, whereby it is secured to the under side of the horizontal flange of the bar, a scraper, and an arm carrying said scraper and secured to the upper side of said horizontal flange by one of the bolts which secures the bracket, substantially as described.

9. In a soil-pulverizer, the combination, with a pulverizing-disk, of a sharpening and scraping bar, a frame carrying the disk and provided with an arm for said bar, and means whereby said bar may be adjusted both longitudinally and angularly relatively to said arm, substantially as described.

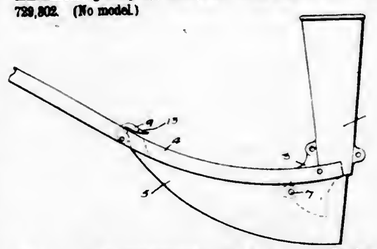
648,409. BUTTON. ALBERT HALL, New York, N. Y., assignor of one-third to David H. Moore, same place. Filed Mar. 17, 1899. Serial No. 709,479. (No model.)



Claim.—1. In a button, the combination with a tubular shank having prongs, made integral therewith and extending from its bottom edge in line with the said shank, and which shank is provided at its top with radial wings, made integral therewith and projecting outward at right angles, of a button-head resting on said wings and abutting against the upper end of the shank, which wings rest flat on the under side of the head, said head having its circular edge part turned over on the under side to clamp and hold the outer ends of the radial wings on the shank, substantially as herein shown and described.

2. In a button, the combination with a tubular shank having prongs made integral therewith and extending from its bottom edge part, in line therewith and which shank is provided at its top with a radially-extending wing, at right angles with the axis of the shank, above each prong, the inner corners of each wing abutting against the corners of the adjacent wings and which wings are made integral with the shank, of a head resting flat on the said wings and abutting against the upper end of the shank and having its circular edge turned downward to the under side of said head to clamp the ends of the said wings, substantially as herein shown and described.

643,410. DETACHABLE GRAIN-DRILL SHOE. THOMAS J. HOWE and HENRY H. LARABEE, Owatonna, Minn., assignors to the Owatonna Manufacturing Company, same place. Filed Sept. 8, 1899. Serial No. 729,802. (No model.)



Claim.—1. The combination, with the grain-drill shoe-shank and the drag-bar secured thereto, of the removable shoe, means for securing the rear end of the shoe to the shoe-shank, and a cam-lever engaging the forward portion of said shoe and locking the same to said drag-bar.

2. The combination, with a grain-drill shoe-shank and a drag-bar connected thereto, of a detachable shoe, means for securing the rear end of said shoe to said shank, a cam-lever pivotally supported upon said drag-bar and adapted to engage and lock the forward end of said shoe, for the purpose specified.

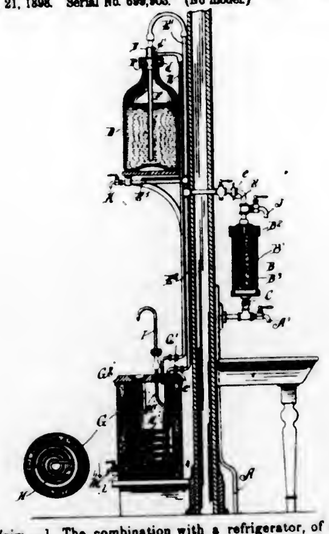
3. The combination, with a grain-drill shoe-shank, and a drag-bar secured thereto and consisting of two members, suitably separated, of a detachable shoe, means for securing the rear end of said shoe to said shank, a cam-lever pivotally supported between the two members of the drag-bar and adapted to engage the inclined forward end of said shoe, for the purpose set forth.

4. The combination, with the shoe-shank and drag-bar, of the detachable shoe, means for securing the rear end of said shoe to said shank, said shoe being provided with an inclined forward end adapted to pass into the space between the parts of the drag-bar, and a cam-lever arranged to engage the inclined forward end of said shoe, for the purpose set forth.

5. A grain-drill shoe, having means thereon for engaging a shoe-shank and having an inclined forward end adapted to be engaged by a cam-lever, for the purpose set forth.

6. A detachable grain-shoe having means thereon for engaging a shoe-shank by a rearward movement, and having its forward end adapted to be engaged by a cam-lever, for the purpose set forth.

643,411. FILTER. FRANK G. KAMMERER, Chicago, Ill. Filed Dec. 21, 1898. Serial No. 699,903. (No model.)



Claim.—1. The combination with a refrigerator, of a storage vessel located above the refrigerator and having an opening in its top only, a water inlet and exit pipe connected with the storage vessel by a siphon, a water-supply pipe connected with said inlet and exit pipe, a discharge-pipe also connected with said inlet and exit pipe and leading downwardly from said storage vessel, an overflow-pipe connected with the top of the storage vessel, and a cooling-pipe within the refrigerator connected with the lower end of the discharge-pipe and terminating in a discharge-faucet.

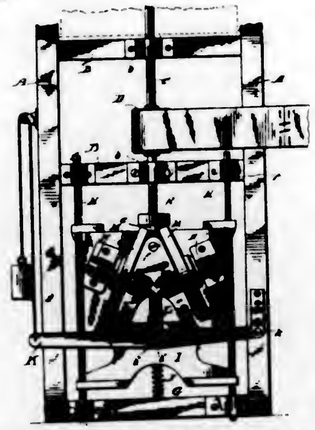
2. The combination of a refrigerator, a storage vessel located above the level of the refrigerator and having an opening in its top only, a water-filter, a pipe supplying water to said filter under pressure, said filter being provided with a discharge-passage through which water is discharged into said storage vessel through the pressure in the discharge-pipe, a supply-pipe connected with the storage vessel by a siphon and leading to a refrigerator, an overflow-pipe leading from the top of the storage vessel and a cooling-pipe in said refrigerator connected with said discharge-pipe and terminating in a faucet.

3. The combination of a refrigerator, a storage vessel located above the level of the said refrigerator and provided with an opening in its top only, a water filter, a pipe supplying water to said filter under pressure, a discharge-pipe connected with the storage vessel by a siphon and leading to the refrigerator, a pipe leading from the discharge-opening of the filter to the said discharge-pipe and through which water is delivered to said pipe and to the storage vessel through the pressure of the water in the supply-pipe, and a cooling-pipe in the refrigerator connected with the said discharge-pipe and terminating in a faucet.

4. The combination of a water-filter, a pipe supplying water thereto under pressure, a storage vessel, an inlet and exit pipe connected with said storage vessel, a pipe leading from the filter to said inlet and exit pipe through which water is delivered to the storage vessel through the pressure in the supply-pipe, a discharge-pipe connected with said inlet and exit pipe and through which water from a storage vessel is discharged by gravity, said discharge-pipe being provided with a faucet, and an overflow-pipe leading from the top of said storage vessel.

5. The combination of a refrigerator, a storage vessel located above the level of said refrigerator and provided with an opening in its top only, a water-filter, a pipe supplying water to said filter under pressure, a distilling apparatus into which water is discharged from the filter by pressure within the supply-pipe, the said distilling apparatus being located above the storage vessel and discharging into the same by gravity, a discharge-pipe connected with the storage vessel by a siphon and leading to the refrigerator, a cooling-pipe in the refrigerator connected with the discharge-pipe from the storage vessel and terminating in a faucet, and an overflow-pipe connected with the top of the storage vessel.

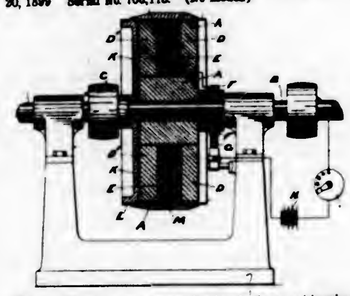
643,412. GRINDING-MILL. JOHN A. KELLEY and STEPHEN W. ROOME, Fremont, Minn. Filed June 28, 1899. Serial No. 722,167. (No model.)



Claim.—1. The combination with a supporting-frame, and a slidable millstone-shaft journaled in bearings on the same, of a sliding frame, a spring acting to move said sliding frame in one direction, a lever fulcrumed to said supporting-frame and having a cushioned engagement with said sliding frame, means for moving said lever to move said sliding frame against the tension of said spring, and rotatable disks journaled on said sliding frame at an incline to each other and bearing against a part carried by said millstone shaft, substantially as described.

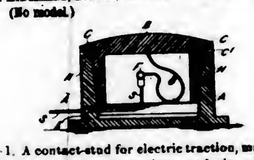
2. The combination with a supporting-frame having cross-pieces B, G, and a millstone-shaft journaled in bearings on said cross-pieces, of a sliding frame having bars H sliding in bearings on said cross-pieces, a spring for moving said sliding frame in one direction, a lever fulcrumed to said supporting-frame and engaging said sliding frame, means acting on said lever for moving said sliding frame against the action of said spring, and rotatable disks journaled on said sliding frame and bearing against a part carried by said millstone-shaft, substantially as described.

643,413. ELECTROMAGNETIC VARIABLE-SPEED AND CLUTCH GEARING. RANKIN KENNEDY, Leeds, England. Filed Feb. 20, 1899. Serial No. 706,115. (No model.)



Claim.—In an electromagnetic clutch the combination with the driving-shaft and a multipolar field-maguet secured to the same, said field-magnet having but one coil only and filling the space between the pole-pieces, said pole-pieces being all of one polarity at one side of said coil and all of opposite polarity on the other side of said coil, of a second shaft and a ring-armature of copper and iron and a support for connecting said armature to said shaft, said armature closely surrounding the ends of the poles of the field-magnet, substantially as and for the purposes set forth.

643,414. SURFACE-CONTACT STUD FOR ELECTRIC TRACTION. WILLIAM KINGSLAND, London, England. Filed Oct. 4, 1899. Serial No. 732,456. (No model.)



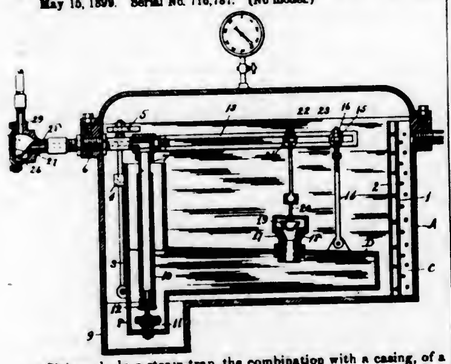
Claim.—1. A contact-stud for electric traction, made in two main parts, one the conducting contact-plate, and the other forming a body part, to receive the contact-plate, one part fitting within the other part wedge fashion, in such manner that the contact-plate can be removed from the body part, when required, substantially as set forth.

2. In a contact-stud for electric traction made in two main parts; the combination with a conducting contact-plate, forming one part of the stud, and having downwardly-extending tapered sides; of a "body" forming the second part of the stud, and adapted to be fixed to the road-bed or track, a downwardly-tapered cavity in the said body to receive the tapered sides of the contact-plate, wedge fashion, a passage into the body for the introduction of the electrical conductor, and means for electrically connecting same to the contact-plate before its introduction into the tapered recess of the body part, substantially as set forth.

3. In a contact-stud for electric traction made in two main parts, the combination with a conducting contact-plate forming one part of the stud and downwardly-inclined sides thereto inclosing a central cavity open at the base; of a "body" forming the second part of the stud and adapted to be fixed to the road-bed or track, a downwardly-tapered recess in the said body to receive and hold the tapered sides of the contact-plate, wedge fashion, a passage into the body for the introduction of the electric conductor into the cavity of the said body, a flexible conductor electrically connected within the cavity of the contact-plate, and means for connecting the electric conductor in the cavity of the body to the flexible conductor in the cavity of the contact-plate, before the latter is placed into position, the electrical connections being inclosed in the said internal cavity, when the two parts composing the contact-stud are brought together as set forth.

4. In a contact-stud for electric traction, made in two main parts, the combination with a body adapted to be fixed to the road-bed or track, and forming one part of the stud, and a tapered recess in the said body to receive a tapered conducting contact-plate the latter forming the second part of the stud, the two parts fitting together wedge fashion; of a flange on the upper part of the contact-plate, adapted to fit over or into the upper edges of the body, and recesses in the flange to receive the claws of any known mechanical lifting device, when it is required to separate the two parts of the contact-stud substantially as set forth.

643,415. STEAM-TRAP. FRITZ KNACKSTEDT, Chicago, Ill. Filed May 15, 1899. Serial No. 716,787. (No model.)

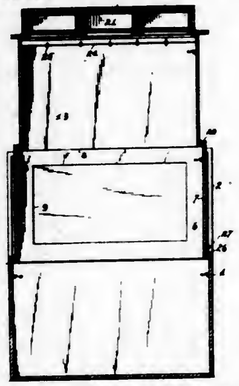


Claim.—1. In a steam-trap, the combination with a casing, of a float mounted therein, rods pivotally connected with said float at their lower ends and with lugs on said casing at their upper ends and provided with movable joints between their ends, devices for limiting the movements of said float, an overflow-valve and an outlet-valve on said float adapted to be controlled by the movements thereof, said float being open at its upper end to admit water.

2. In a steam-trap, a casing, a float pivotally mounted within said casing and consisting of a flat box-like receptacle tapered toward its free end and provided at its other end with a downward extension and with an upward extension open at its upper end, a water-outlet pipe extending into said casing and carrying a downward extension extending into said extensions of said float, a tube pivotally mounted in said downward extension of said float and adapted to fit telescopically over said downward extension of said outlet-pipe, perforations in the lower end of said tube, a nipple adapted to close said downward extension of said outlet-pipe when said float is raised, an overflow-valve mounted upon the free end of said float, connection between the valve of said steam-trap and a slotted arm for supporting said valve to admit water when said float is at the lower limit of its movement, and connection between said float and said slotted arm for limiting the upward movement of said float, substantially as described.

3. In a steam-trap, a casing having an inlet, an outlet-pipe projecting into said casing and provided with a ground tapered end, a screw-threaded projection at the end of said pipe, a T-coupling having a tapered opening adapted to receive said tapered end of said outlet-pipe, a downwardly-extending pipe carried by said coupling, a slotted arm having a perforated projection adapted to receive said screw-threaded projection, a nut on said projection adapted to secure said arm and simultaneously force said T-coupling tight upon said tapered end of said outlet-pipe, a float pivotally mounted in said casing valve-controlled connection between said downward extension of said outlet-pipe and said float to drain the latter, connection between said float and said slotted arm to limit the movement of said float, a valve-casing on said float, and a valve to control the same mounted upon the lower end of a rod hung from said slotted end, substantially as described.

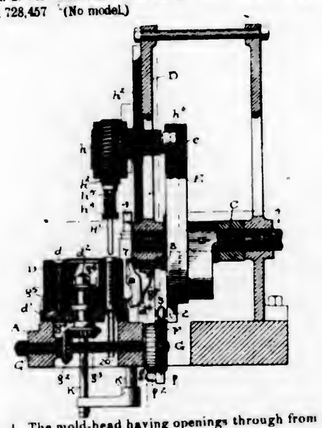
643,416. COMBINED TRUNK AND WARDROBE. ALOIS KOHOUT and VÁCLAV ROUS, St. Louis, Mo. Filed Sept. 5, 1899. Serial No. 729,502. (No model.)



Claim.—1. In a combined trunk and wardrobe, composed of a trunk, sections arranged to telescope within said trunk, a tray provided with a plurality of drawers arranged upon the top of said sections within said trunk, and a lid or cover arranged to fit over said sections and forming the top of the trunk, said sections and tray so arranged that the same may be transformed into a wardrobe by removing said sections and reversing the same, placing one upon top of the other, said sections supported by angular strips, said sections provided with suitable doors, and a bar extending across the top of said upper section provided with coat-hooks, said tray forming the top of said wardrobe and provided with drawers, substantially as specified.

2. In a combined trunk and wardrobe, the combination of a trunk-body, sections arranged to telescope within said trunk-body, metal-coated angular strips formed on the corners of said sections for the purpose of preventing said sections from becoming mutilated when inserted one within the other, said sections provided on one end with angular strips, said sections so arranged as to be withdrawn from said trunk-body and placed upon said trunk-body by reversing the same, placing one on top of the other, and a tray provided with drawers also reversed and placed upon the top of the upper section, a bar extending the entire length of the upper section and provided with coat-hooks, said sections held upon each other by means of said angular strips, substantially as specified.

643,417. MACHINE FOR MOLDING IN CLAY, PORCELAIN, &c. JOHANN H. B. VON KÖNIGSLOW, Cleveland, Ohio. Filed Aug. 25, 1899. Serial No. 728,457. (No model.)



Claim.—1. The mold-head having openings through from top to bottom and means to rotate said head, in combination with a stationary base-plate having a discharge-opening for the surplus product received from the mold-openings, a forming-plunger above said discharge-opening, a receptacle below said discharge-opening to receive the cast-off stock and means within said receptacle to prevent the stock from following the plunger back, substantially as described.

2. A rotatable head having a series of molds in a circle, a plunger to enter each mold successively, and means to operate said head and plunger, in combination with a stationary base-plate provided with a single discharge-opening for the waste product, and a tube having a roughened interior to receive said waste product and prevent its following the plunger back, substantially as described.

3. A rotatable head having mold-openings from top to bottom, a forming-plunger for said mold-openings, and means to operate said head and plunger, in combination with a stationary base-plate having an opening of less size than the mold-openings for the discharge of the cast-off product, a gripping-tube below said discharge-opening to receive and temporarily retain said cast-off product, and vent-openings in said plate arranged about the bottom of the vertical sides of said mold-openings, substantially as described.

4. The rotatable mold-head having a series of molds in a circle, in combination with a reciprocating frame, a set of plungers adjustably held upon said frame and comprising a roughing-plunger and a finishing-plunger, a sliding spring-pressed cap on said finishing-plunger for forming the top of the product, and means to operate said mold-head and reciprocating frame, substantially as described.

5. The combination of an adjustable base-plate d', a removable and interchangeable mold-head D, a vertical power-transmitting shaft g^4 having interlocking and fastening means for said mold-head, a locking-dog d^4 for said head and means to unlock and rotate said head at intermittent intervals, and a reciprocating plunger H having a spring-pressed cap A^4 above said mold-head, substantially as described.

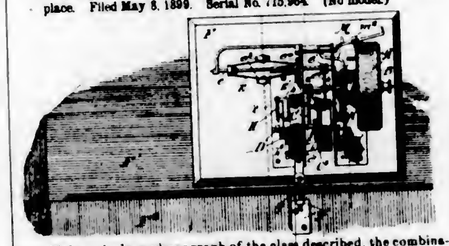
6. The combination of the rotatable mold-head D, and reciprocating plunger H' held in the head A, and an oscillatory oil-supply pipe n having a supply-can n^2 at its top and a wick-finger N at its bottom, and means on said pipe and head A to throw said wick-arm into and out of engagement with said plunger, substantially as described.

7. An adjustable base-plate d' and a rotatable mold-head D mounted thereon, power-transmitting shafts for said head, pawl-and-ratchet mechanism for said shafts, and a locking-dog d^4 for said mold-head, in combination with a reciprocating frame A^3, forming-plungers adjustably held on said frame, an ejector K, an ejector-actuating rod having a shouldered head 4, catches 5 on the reciprocating frame, releasing-socket 6, and a rotating cam E to operate said frame, dog, and ratchet mechanism, substantially as described.

8. A rotatable mold-head having a series of through-openings, a forming-plunger for said openings, an ejector for the finished product, and means to operate said head, plunger and ejector, in combination with a stationary base-plate below said rotatable head, discharge-openings for the cast-off product in said base-plate, and a gripping device for said discharge-openings to receive and prevent the cast-off product from following the plunger back substantially as described.

9. The rotatable mold-head having a series of mold-openings, in combination with a reciprocating frame, forming-plungers adjustably held upon said frame, an ejector below said mold-openings, a rod k having a shouldered head 4 connected to said ejector, pivoted spring-pressed catches 5 on said reciprocating frame in line with said head, a fixed rounded socket 6 to open said catches, and means to operate said head and frame, substantially as described.

643,418. PHONOGRAPH. THOMAS B. LAMBERT, Chicago, Ill., assignor, by direct and mesne assignments, to Brian F. Philpot, Henry J. Cosgrove, Orson C. Wells, Robert Pringle, and Albert D. Philpot, same place. Filed May 8, 1899. Serial No. 715,964. (No model.)



Claim.—1. In a phonograph of the class described, the combination of a rotatable carrier supporting a record-cylinder, a train of gear for transmitting power and motion to such carrier, a main or driving shaft having a power-spring for rotating such shaft, a vibratable or oscillating pulley loosely mounted around the main shaft, a lever-arm connected with the main shaft and a make-and-break connection between the lever-arm and the pulley whereby the forward advance of the pulley connects the arm and pulley and drives the shaft to wind the power-spring and the limit of winding disconnects the lever-arm and pulley and permits them to rotate independently, substantially as described.

2. In a phonograph of the class described, the combination of a drum supporting a record-cylinder, a train of gearing for transmitting power and motion to the supporting drum, a main shaft provided with a gear engaging the train of gear and with a power-spring for rotating such main shaft, a vibratable or oscillating pulley loosely mounted around the main shaft and having a cord extending to and connected with a movable object, a lever rigidly secured to the main shaft so as to rotate such shaft and a spring-and-dog mechanism mounted upon the lever and adapted to be engaged by the pulley as it is advanced in a forward direction and wind the spring and to be disengaged from the pulley as the spring reaches the limit of winding for the pulley to return independently of the arm to its initial position, substantially as described.

3. In a phonograph of the class described, the combination of a drum supporting a record-cylinder, a train of gear for rotating the drum, a main shaft provided with a gear engaging the train of gear and with a power-spring for driving such shaft, a vibratable or oscillating pulley loosely mounted around the main shaft and provided with a projecting lug, a lever-arm rigidly connected with the main shaft, a dog pivotally mounted on the lever-arm and arranged to be engaged by the lug on the pulley as it rotates in one direction, a stop on the lever arm to limit the movement of the dog in one direction and spring mechanism for throwing the dog into and out of engagement with the lug on the pulley, substantially as described.

4. In a phonograph of the class described, the combination of a drum supporting a record-cylinder, a train of gears and pinions for rotating the drum, a mainspring-shaft provided with a gear engaging with the train of gears and pinions and with a mainspring secured to some fixed or rigid portion of the machine, a pulley loosely and independently mounted around the mainspring-shaft and provided with a projecting lug, a lever-arm rigidly connected with the mainspring-shaft, a dog pivotally mounted on the lever-arm and arranged to be engaged by the lug on the sheave-pulley as it rotates in one direction, a stop on the lever-arm to limit the movements of the dog in one direction, spring mechanism for throwing the dog into and out of engagement with the lug on the sheave-pulley and a stop secured to some fixed portion of the machine and in the path of the dog so that the dog may contact the same when the spring is wound up and be disengaged from the sheave-pulley, substantially as described.

5. In a phonograph of the class described, the combination of a drum supporting a record, a train of gear for transmitting power and motion to the drum, a main shaft engaging with the train of gear and provided with a power-spring for imparting rotation to the shaft, a releasable and self-returnable vibratable or oscillating pulley loosely mounted on the main shaft, a cord secured to the pulley and to some movable body, a coiled spring for the pulley operating to rewind the cord when the pulley is released and a make-and-break connection between the main shaft and pulley operating to connect the two when the pulley is moved in a forward direction and to disconnect them

and permit each to rotate independent of the other when the limit of the forward movement is reached, substantially as described.

6. In a phonograph of the class described, the combination of means for supporting a record, a train of gear for transmitting power and motion to the record-supporting means, a main shaft connected with the train of gear, a power-spring for rotating such shaft, a diaphragm provided with a stylus arranged to engage the record and cause sound-vibrations of the diaphragm and means operated by the forward rotation of the main or power shaft in winding the power-spring at the completion of the winding to raise the stylus clear of the record and cause it to return to its initial position for reengagement with the record, substantially as described.

7. In a phonograph of the class described, the combination of means for supporting and rotating a record, a mainspring-shaft provided with a mainspring for transmitting power and motion to the record-supporting means, a diaphragm and stylus arranged to engage with the record and cause sound-vibrations of the atmosphere, a rod having an inclined upper portion adapted to contact the diaphragm and be raised and lowered by the movements of the mainspring-shaft so as to raise the diaphragm and permit it to slide down to its initial position where it can reengage the record then drop out of the way and permit the record to operate the stylus, substantially as described.

8. In a phonograph of the class described, the combination of a drum supporting a record-cylinder, a mainspring-shaft provided with a mainspring for transmitting power and motion to the record drum, a diaphragm and stylus arranged to be engaged by the record and cause sound-vibrations of the diaphragm, a vibratable lever arranged to be operated by the movements of the mainspring-shaft, a rod connected with such vibratable lever and having an inclined upper portion adapted to contact the diaphragm lift it out of the record and permit it to slide down to its initial position, substantially as described.

9. In a phonograph of the class described, the combination of a drum supporting a record, a mainspring shaft for transmitting power and motion to the record-drum, a diaphragm and horn connected in one continuous piece and provided with a stylus adapted to engage with the record and cause sound-vibrations, a projection on the diaphragm, a vibratable lever pivotally secured to a fixed portion of the machine and arranged to be vibrated by the movements of the mainspring-shaft, a rod secured to the vibratable lever and having an inclined upper portion adapted to contact the projection on the diaphragm raise it out of connection with the record permit it to slide down to its initial position where it can reengage the record, then drop out of the way and permit the record to operate the diaphragm, and an adjustable stop on the rod to regulate the reëngagement of the stylus and record, substantially as described.

10. In a phonograph of the class described, the combination of a drum supporting a record, a mainspring-shaft for transmitting power and motion to the record-drum, a diaphragm and horn connected in one continuous piece and provided with a stylus adapted to engage with the record and cause sound-vibrations, a projection on the diaphragm, a vibratable lever pivotally secured to a fixed portion of the machine and arranged to be vibrated by the movements of the mainspring-shaft, a rod secured to the vibratable lever and having an inclined upper portion adapted to contact the projection on the diaphragm, raise it out of connection with the record, permit it to slide down to its initial position where it can reëngage the record, then drop out of the way and permit the record to vibrate the diaphragm, an adjustable stop on the rod to regulate the position or reëngagement of the stylus and record, and a rod extending out over the large end of the horn to which the large end of the horn is loosely secured, substantially as described.

643,419. PHONOGRAPH. THOMAS B. LAMBERT, Chicago, Ill., assignor to Orson C. Wells, Robert Pringle, Albert D. Philpot, Brian F. Philpot, and Henry J. Cosgrove, same place. Filed Oct. 5, 1899. Serial No. 732,609. (No model.)



Claim.—1. A cigar-cutter having a phonograph connected therewith, and provided with a spring-motor and winding-lever so arranged that the pressing and releasing of the lever operates the mechanism of the phonograph to reproduce a record, substantially as described.

2. A cigar-cutter and a phonograph mounted on a common base and having the casing of the cutter inclosing the operating parts of the phonograph and mechanism for operating the phonograph through the movements of the cutting-blade, such mechanism comprising a spring-motor inside the casing and a winding-lever having its handle end extending outside the casing, substantially as described.

3. In a phonograph, the combination of a main or power spring, a main shaft, a drum on the main shaft and a winding-strap for winding the spring and adapted to be released from engagement at the limit of winding by the removal of pressure and returned into position for rewinding, substantially as described.

4. In a phonograph, the combination of a main or power spring, a main shaft, a drum on the main shaft, a winding-strap, and an arm or head engaging the strap for winding the spring and disengaging the strap by the removal of pressure from the handle of the head to permit the strap to automatically return into position for a rewinding engagement, substantially as described.

5. In a phonograph, the combination of a main or power spring, a main shaft, a drum on the main shaft, a winding-strap, a movable arm or head engaging the strap for winding the spring and permitting the strap to automatically disengage itself on the release of pressure for moving the head, and an arm on the main shaft for limiting the recoil of the spring, substantially as described.

6. In a phonograph, the combination of a main or power spring, a main shaft, a drum on the main shaft, a winding-strap for the drum, a movable head or arm engaging the strap for winding the spring, a loose gear on the main shaft, a clutch engagement between the gear and the main shaft, and a train of gear actuated from the main gear for operating the record, substantially as described.

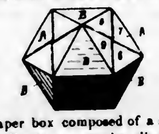
7. In a phonograph, the combination of a main or power spring, a main shaft, a drum on the main shaft, a winding-strap, a movable head or arm for the winding-strap, a record actuated by a train of gear from the main or power spring, a guide-arm, a lever for the guide-arm, and an arm on the main shaft for moving the guide-arm lever and shifting the stylus at the completion of the winding movement of the strap, substantially as described.

8. In a phonograph, the combination of a main shaft, a strap for revolving the main shaft to wind a main or power spring, an arm on the main shaft, a lever engaged by the arm, and an arm actuated by the lever to return a stylus to normal position for engagement with its record, substantially as described.

9. In a phonograph, the combination of a record, a stylus coacting with the record, an arm having an inner and outer limit portion with an inclined face between the limit-points, and a lever for actuating the arm through the movement for winding a main or power spring, substantially as described.

10. In a phonograph, the combination of a main or power spring, a main shaft, a winding-strap, and an arm or head engaging the winding-strap and movable to wind the power-spring, substantially as described.

643,420. PAPER BOX. FRANK T. MIYAJI, Hamilton, Ohio. Filed Nov. 20, 1899. Serial No. 737,552. (No model.)



Claim.—1. A paper box composed of a series of blanks joined together in substantially the manner described to form a box having a series of rectangular faces, and a series of triangular faces symmetrically arranged to form a nearly-spherical box, substantially as specified.

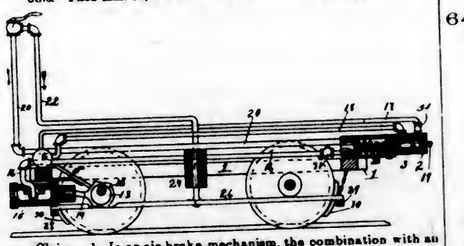
2. A paper box composed of a series of blanks joined together to form a nearly-spherical box having a series of rectangular faces, and a series of triangular faces symmetrically arranged with relation to each other, substantially as specified.

3. A paper box composed of a series of blanks joined together to form a nearly-spherical box having a series of rectangular faces and a series of triangular faces symmetrically arranged with relation to each other, the said box being adapted to be opened at any one of the rectangular faces, substantially as specified.

4. A blank for paper boxes having its center cut and adapted to be folded over so as to form a series of tongues in the center of the blank adapted to be attached to similar tongues on adjacent blanks to form the skeleton of a many-sided box, and with corners or flaps on said blank adapted to be bent over and interlocked to close the opening left by forming the tongues, substantially as specified.

5. A paper box having its opening formed through the center of one of the blanks by cutting attachment-tongues therefrom, and subsequently folding in the corners and sides of the blank substantially as shown and described to close the opening formed by bending out the attachment-tongues, substantially as specified.

643,421. AIR-BRAKE. CLEMENT L. V. MUNDHENK, Gordon, Ohio. Filed Mar. 10, 1898. Serial No. 673,333. (No model.)



Claim.—1. In an air-brake mechanism, the combination with an air-reservoir, and a pump to supply the same with air, of a clutch mechanism geared to the piston of said pump, air-cylinders 5 and 6 with pistons moving therein the said pistons being connected to the shifting lever of said clutch mechanism, and which are adapted to throw said clutch mechanism in and out of gear, an auxiliary spring-controlled slide-valve communicating with the air-reservoir and controlling the passage from the said air-reservoir to the cylinder 6, a blow-off valve controlling the passage to the cylinder 5 from the air-reservoir, two piston-cylinders 25 and 26 supplied with air from said air-reservoir, parallel bars supporting the brake-beams and to which the pistons of cylinders 25 and 26 are connected, and a hand-valve controlling the passage of air from the air-reservoir to said cylinders 25 and 26 all arranged substantially as shown and described.

2. An air-brake mechanism, comprising in combination, a main air-reservoir 2, an auxiliary cylinder 3 supplied with air therefrom, a slide-valve in said auxiliary cylinder, a spring controlling the movement of said valve when the pressure in the reservoir 2 is less than the pressure of said spring, a pump to supply the air-reservoir with air, clutch mechanism geared to said pump and adapted to be actuated from one of the axles of the truck, piston-cylinders 5 and 6 with pistons therein connected to said clutch mechanism and adapted to throw the same in and out of gear, pipes 17 and 18 leading from the air-reservoir 2 and the cylinder 3 and through which said cylinders 5 and 6 are supplied with air, the former when the pressure in the reservoir is normal, and the latter when the pressure in said reservoir is less than normal, two side cylinders 25 and 26, a cross-pipe connecting said cylinders, valve-controlled pipes between said air-reservoir and the cross-pipe, and parallel bars connecting the brake-beams and to which the pistons of the cylinders 25 and 26 are connected, all arranged and operating substantially as and for the purposes specified.

643,422. APPARATUS FOR MAKING PAPER OR PULP VEHICLE-TOPS. THOMAS W. MCFARLAND, Chicago, Ill. Filed Aug. 18, 1893. Serial No. 483,583. (No model.)



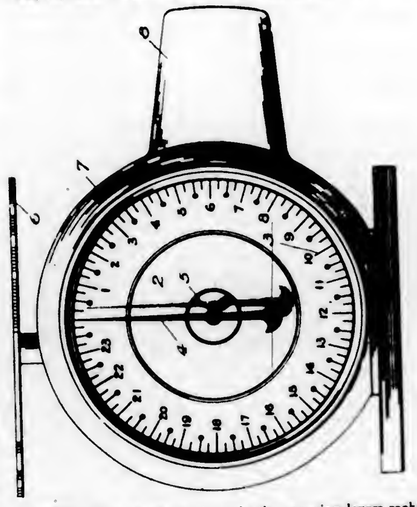
Claim.—1. In an apparatus for producing vehicle-tops, the combination of a form having the contour of the top to be produced, upon which the green board or blanket may be placed, and a rim or holding-flange adapted to be forced down over the edges of said board or blanket and crowd the same against the edges of said form, and said rim or flange being provided with auxiliary means for impinging the edge of the board or blanket, substantially as set forth.

2. The herein-described mold for producing vehicle-tops, having a number of independent sections adapted to clamp the edge of a plastic or pliable board, said sections being movable at an angle to one another so as to compress the edge of the board into the form of a flange, substantially as set forth.

3. An apparatus for molding vehicle-tops of paper pulp or board, having in combination a perforated bed or block having a marginal groove therein, a skeleton frame adapted to fit over said block and engaging in said groove, means for clamping said frame and block together, and independently-adjustable clamping-strips movable to and from the sides of said clamping-frame, substantially as set forth.

4. An apparatus for molding vehicle-tops of paper pulp or board, having in combination a perforated block or bed provided with a marginal groove, a skeleton clamping-frame fitting upon said block and engaging in said groove and having the shoulders 34, means for pulling said frame downward against said block and into said groove, and independently-adjustable strips 31 arranged opposite said shoulders 34 and adapted to impinge the edge of the article being molded, substantially as set forth.

643,428. AUTOMATIC WEIGHING-SCALE. NILS NILSON, Minneapolis, Minn. Filed Nov. 8, 1897. Serial No. 657,727. (No model.)



Claim.—1. In an automatic scale, the engaging levers rocking one upon the other and having relatively-movable fulcrums or pivots, substantially as described.

2. In an automatic scale, the rolling contact-levers rocking one upon the other, in combination with relatively-movable fulcrums therefor, and means controlling the relative longitudinal movement of said levers, substantially as described.

3. In an automatic scale, the combination, of the levers rocking one upon the other, with weight and platform connections therefor, and relatively-movable fulcrums for said levers, substantially as described.

4. The combination, in an automatic scale, of the rolling contact levers or bars rocking one upon the other having relatively-movable fulcrums, and means connecting said levers or bars and preventing relative longitudinal movement thereof, substantially as described.

5. The combination, in an automatic scale, of engaging rocking bars or levers rocking one upon the other, said levers having relatively-movable fulcrums and one thereof adapted to longitudinal movement, and means connecting said bars or levers and controlling the relative longitudinal movement thereof, substantially as described.

6. The combination, with rolling contact-levers rocking one upon the other and having relatively-movable fulcrums, of engaging parts upon said levers to control their relative longitudinal movement, substantially as described.

7. The combination, with the rolling contact-levers rocking one upon the other and having relatively-movable fulcrums, of the racks arranged thereon and engaged to control the relations of said levers, substantially as described.

8. The combination, in an automatic scale, of the rolling contact-levers rocking one upon the other, and one adapted to longitudinal movement, with pivotal supports for said levers or bars, and means for controlling the relative longitudinal movement of said bars or levers, substantially as described.

9. The combination, with the rolling contact-levers rocking one upon the other and having relatively-movable fulcrums, of means supporting the same, and a V or edge upon one of said levers and wherewith the other lever engages, substantially as described.

10. The combination, of the rocking or rolling contact levers or bars rocking one upon the other and having relatively-movable fulcrums, one having a plane surface and the other having a V rib or

edge, with means controlling the relative longitudinal positions of said levers or bars, substantially as described.

11. The combination, with a curved rocker-beam, of a second lever or beam and rocking thereon, and a pivotal link whereby one of said levers is fulcrumed, substantially as described.

12. The combination, with the rocker-beam, of the other beam and rocking thereon, said parts being pivotally supported or held, one by a stationary pivot and the other by a pivotal link, and means to control the relative longitudinal movement of said beams, substantially as described.

13. The combination, with the platform, of the curved rocker-beam, through which the force of the object to be weighed is exerted, a second lever or beam resting upon said rocker-beam and having its free end weighted, a link whereby the second lever is fulcrumed, and means to prevent the slipping of said second lever upon the first lever, substantially as described.

14. The combination, of a weighted rocking lever, of a link whereby the same is fulcrumed and is permitted free longitudinal movement, with a second lever in rolling contact with the first lever and supporting the same, engaging racks upon said levers, and means for exerting upon the second lever the weight of the object to be measured or weighed, substantially as described.

15. The combination, of the levers in rolling contact, rocking one edge upon the other, with a link having a fixed pivot and also having the fulcrum of one of said levers, substantially as described.

16. The combination, with a suitable frame, of the rolling contact-levers rocking one upon the other and having relatively-movable fulcrums in or upon said frame, means for exerting force upon one of said levers to move or lift the other, a dial, a pointer, a pinion, connected with said pointer, and a rack carried by the lever which is lifted or moved and adapted to actuate said pinion, and pointer, substantially as described.

17. The combination, with a suitable frame, of a rocker-lever intermediately fulcrumed in said frame, a second lever having a fulcrum in said frame whereby it is permitted longitudinal movement in the frame, a weight upon the second lever, a platform connected with the first lever, and an auxiliary scale-beam connected with said platform, substantially as described.

18. The combination, in an automatic scale, of the rolling contact-levers, rocking one upon the other and having relatively-movable fulcrums, with the racks provided upon said levers and controlling the relative longitudinal positions thereof, one of said levers having a V edge in engagement therewith, and suitable indicator and platform connections, substantially as described.

19. The combination, in an automatic scale, of the rolling contact-levers, rocking one upon the other and having relatively-movable fulcrums, with a scale or platform in connection with one of said levers, a stationary frame, and the double link connection between the free lever and said frame, comprising the spreading link 36 and the vertical link or yoke 37, substantially as described.

643,424. DISH-CLEANER. FRANK J. PARISH, New York, N. Y., assignor to James R. Floyd & Sons, same place. Filed Apr. 7, 1896. Renewed Nov. 9, 1899. Serial No. 736,437. (No model.)

Claim.—1. In a dish-washing machine, the combination with a plurality of cylinders open at top and bottom, of a bottom plate common to said cylinders and provided with ring-flanges projecting above the surface of the bottom plate and registering with flanges on the cylinders, and false bottoms or diaphragms interposed between the flanges of the cylinders and bottom plate to form steam-spaces; substantially as described.

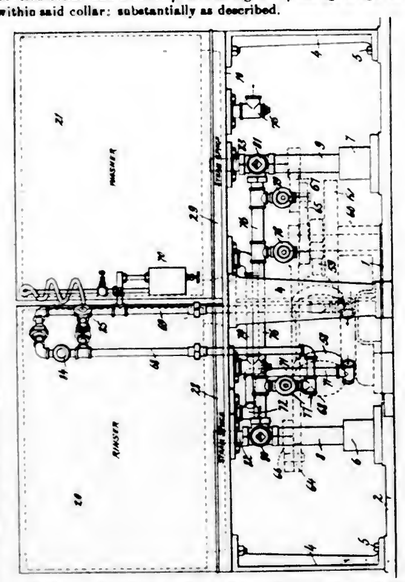
2. In a dish-washing machine, the combination with the washing and rinsing cylinders, open at top and bottom, of a bottom plate common to both cylinders and provided with ring-flanges, and central annular flanges concentric with said ring-flanges, diaphragms interposed between the cylinders and bottom plate, steam inlet and discharge pipes, and agitating devices within the cylinders; substantially as described.

3. In a dish-washing machine, the combination with the tanks comprising cylinders open at top and bottom, and a bottom plate common to both cylinders, of false bottoms arranged above the bottom plate to form a steam-space below each of said cylinders, steam supply and discharge pipes, and a vertical partition between one of said false bottoms and the bottom plate; substantially as described.

4. In a dish-washing machine, the combination with a tank, of an oscillating shaft projecting therein, an annular oscillating agitator fixed on said shaft, and a protecting-guard arranged within the agitator and loosely supported upon the upper end of said shaft; substantially as described.

5. In a dish-washing machine, the combination with a tank of an oscillating shaft projecting therein, agitating blades or dashers secured to said shaft, and a cage-guard loosely supported upon the shaft concentric with the agitating-blades; substantially as described.

6. In a dish-washing machine, the combination with a tank and its agitating-blades, of a protecting-cage provided with a flaring or beveled collar and a cover-plate having a depending flange fitting within said collar; substantially as described.



7. In a dish-washing machine, the combination with a tank and a revolving shaft provided with agitating-blades, of a protecting-cage comprising a hub loosely supported upon said shaft, a series of angular rods secured to said hub, and a collar or annulus securing the upper edges of the rods; substantially as described.

8. In a dish-washing machine, the combination with two tanks, of cover-plates therefor, said plates having depending circular flanges, upwardly-extending edge flanges, and an overlapped joint between them; substantially as described.

9. In a dish-washing machine, the combination with a tank, and an annular oscillating agitator, of removable horizontal dash-plates comprising segmental overlapping sections supported from the wall of the tank and projecting over the upper ends of said blades; substantially as described.

10. In a dish-washing machine, the combination with the water-tanks, of oscillating shafts carrying vertical agitating-blades, and provided with rocker-arms arranged at different angles, of an oscillating engine, a crank-shaft, pitman connections between the crank-shaft and rocker-arms and a connection between the crank-shaft and the engine; substantially as described.

11. In a dish-washing machine, the combination with the water-tanks provided with steam-spaces at the bottom, of oscillating shafts carrying agitating-blades, and provided with rocker-arms arranged at different angles, an oscillating engine-cylinder and piston-rod, connections between the piston-rod and rocker-arms, and pipe connections for supplying said steam-spaces with exhaust-steam from the engine; substantially as described.

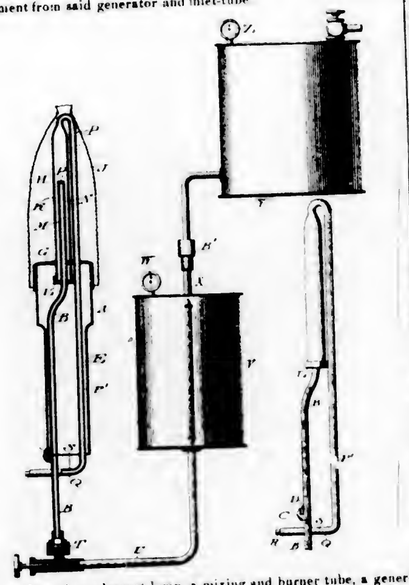
12. In a dish-washing machine, the combination with a base-plate, of legs or supports rising therefrom, a tank bottom plate secured upon said legs, independent cylinders supported on said bottom plate, oscillating shafts having bearings on the base-plate, and extending into said tanks, and provided with agitating-blades, and motor mechanism arranged between the base and bottom plate for oscillating said shafts, substantially as described.

643,425. INCANDESCENT LAMP. WATSON B. RULOS and JOSEPH S. KERR, Jr., Philadelphia, Pa. Filed July 29, 1899. Serial No. 725,492. (No model.)

Claim.—1. In an incandescent lamp, an inlet-tube for conveying hydrocarbon to the generator, a mixing and burner tube having an open lower end, a device on said inlet-tube for sustaining the burner-tube, a generator into which the upper portion of said inlet-tube extends, a superheater connected with said generator formed of a tube leading downwardly and an outlet for said tube.

2. In an incandescent lamp, a mixing and burner tube, a gener-

ator, an inlet-tube extending into said generator and a device on said inlet-tube for sustaining said burner-tube, the latter being detachable from its support, and adapted to be withdrawn by a longitudinal movement from said generator and inlet-tube.



3. In an incandescent lamp, a mixing and burner tube, a generator, an inlet-tube extending into said generator and having perforations in the sides thereof, a device on said inlet-tube for sustaining said burner-tube, a closure for the lower end of said generator and a superheater leading from said generator and adapted to conduct hydrocarbon vapor therefrom.

4. In an incandescent lamp, a mixing and burner tube, an inlet-tube passing within said burner-tube for conveying hydrocarbon to the generator, means on said inlet-tube for sustaining said mixing and burner tube, a generator into which a portion of said inlet-tube projects, a closure for said generator and a superheater leading from said generator downwardly within said mixing and burner tube.

5. In an incandescent lamp, a mixing and burner tube, a generator, an inlet-tube having one end extending into said generator and provided with perforations and a closed end, a closure for the lower end of said generator, a superheater leading from said generator downwardly, said mixing and burner tube being adapted to contain a major portion of said inlet-tube and said superheater, and means for holding said generator and superheater in position.

6. In an incandescent lamp, an inlet-tube for hydrocarbon, a mixing and burner tube, a supporting device on said inlet-tube and carrying said mixing-tube, a generator supported on said inlet-tube, the latter discharging into said generator and having a closed top and perforated sides, an outlet-tube serving as a superheater leading downwardly from the top of said generator and extending within said mixing and burner tube, said outlet-tube discharging into the lower extremity of the latter.

7. The combination of a burner-tube, a generator, an inlet-tube projecting into said generator having perforations, a superheater leading downwardly from said generator, a device on said inlet-tube for sustaining said burner-tube and a gauze on said burner-tube which is adapted to hold said generator and said superheater in position.

8. In an incandescent lamp, a high-pressure tank, a reservoir, a connection therebetween, an inlet-tube leading from said reservoir, a generator into which a portion of said inlet-tube extends and is provided with perforations, a superheater leading from said generator downwardly, and a mixing and burner tube which is adapted to contain a major portion of said inlet-tube and said superheater, a gauze for said mixing and burner tube, a cap on said mixing and burner tube adapted to hold said gauze, the latter being adapted to hold in position said generator and superheater.

9. In an incandescent lamp, a high-pressure air-tank, a kerosene-reservoir, a reducing-valve between said tank and said reservoir, an inlet-tube connected with said reservoir, a valve controlling said inlet-tube, a generator communicating with said inlet-tube, a portion of the latter extending thereinto and provided with perforations and a closed end, a closure for the lower end of said generator connected with said inlet-tube, a superheater leading from said generator downwardly, an outlet therefor, a mixing and burner tube which is adapted to contain a major portion of said inlet-tube and said superheater, a gauze for said mixing and burner tube, a cap on said mixing and burner tube adapted to hold the latter, the said gauze being adapted to hold, in position, said generator and superheater.

10. In an incandescent lamp, an open-ended mixing and burner tube, a generator supported in the upper portion thereof and extending above the same, an inlet-tube within said mixing and burner tube and a tube serving as a superheater leading from said generator downwardly within said mixing and burner tube, and having an opening for discharging at a point below the open end, said mixing and burner tube being detachable from its support and adapted to be withdrawn from said generator and superheater in a longitudinal direction.

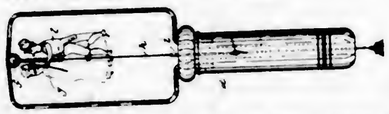
11. In an incandescent lamp, an open-ended mixing and burner tube, an inlet-tube entering the lower portion of the latter, a generator located at the upper portion of said inlet-tube, a superheater leading downwardly from said generator, extending within said mixing-tube and discharging into the lower portion thereof, and a support for said mixing and burner tube, the latter being detachable from its support, and adapted to be withdrawn by a longitudinal movement from said generator and superheater.

12. In an incandescent lamp, a mixing and burner tube, an inlet-tube, a generator communicating therewith, a superheater connected with said generator, said mixing and burner tube being detachable from a support and adapted to be withdrawn by a longitudinal movement from said generator and superheater.

13. In an incandescent lamp, a mixing and burner tube, an inlet-tube, a generator communicating therewith, a superheater communicating with said generator, a support for said mixing and burner tube, and means for supporting said generator and superheater, said mixing-tube being detachable from its support and adapted to be withdrawn by a longitudinal movement from said generator and superheater.

14. In an incandescent lamp, a mixing and burner tube, an inlet-tube, a generator communicating therewith, a superheater connected with said generator, said mixing and burner tube being detachable from a support and adapted to be withdrawn by a longitudinal movement from said generator and superheater, in combination with a fluid-supply tank, a high-pressure air-tank and a reducing-valve between said tanks.

643,426. TOY. HOVHANNES TAMLARIAN, Paterson, N. J. Filed Aug. 9, 1899. Serial No. 726,647. (No model.)



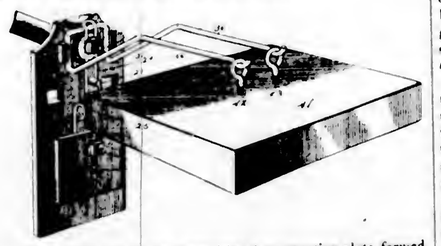
Claim.—1. A toy consisting of a suitable frame, a torsionally and longitudinally elastic device secured thereto, a twisted endless cord, a pin secured to the frame and penetrating the twisted cord, and another cord connecting said first-named cord and the elastic device and adapted to carry a selected figure, substantially as described.

—2. A toy consisting of a cylindrical handle, a rectangular frame secured thereto, a twisted elastic band secured to said frame in alinement with said handle, a twisted endless cord, a pin projecting transversely across the opening in said handle and penetrating the cord, another cord connecting said first-named cord and the elastic band, a slitted block carried by said last-named cord and adapted to receive a selected figure, and means for longitudinally actuating said twisted cord, substantially as described.

643,427. AUTOMATIC VALVE FOR WATERING-TROUGHS. STEPHEN S. TEMPLETON, Dunreath, Iowa. Filed Sept. 9, 1899. Serial No. 730,048. (No model.)

Claim.—1. The combination of a trough, a supply-pipe communicating therewith, a supporting-plate mounted in the trough and formed with a port communicating with the discharge end of the supply-pipe, a resilient frame made of spring-wire and provided with a coil in each of its parallel end portions and adjustably mounted on said supporting-plate, a valve carried by said resilient frame and arranged to be held thereby over the port in the supporting-plate, a lever-frame mounted on the supporting-plate and engaging the resilient frame and a float suspended on said lever-frame.

2. The valve mechanism comprising a supporting-plate formed with a supply-port therein, a resilient frame mounted for longitudinal adjustment on said supporting-plate, a valve mounted on the free end portion of the resilient frame, a lever whereby said frame may be oscillated in one direction and a float on said lever.



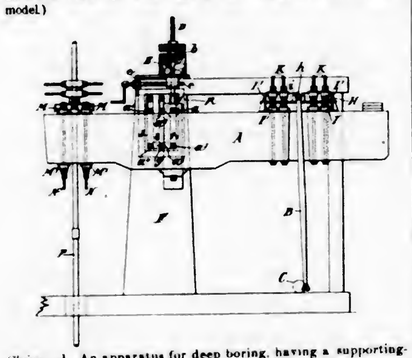
3. The valve mechanism comprising the supporting-plate, formed with a supply-port therein, the resilient frame mounted longitudinally of the supporting-plate, a clamping-plate mounted on the supporting-plate and adjustable longitudinally of the resilient frame, one end of the frame being confined between the supporting and clamping plates, a valve on the resilient frame and arranged to close the supply-port, and a lever connected with the resilient frame and arranged for gravity operation in one direction and float operation in the other direction to open and close the valve respectively.

4. In a mechanism of the character described, the forked resilient frame formed with coils in the arms thereof, the clamp holding one end of said frame, the valve on said frame and means for oscillating said frame.

5. In a mechanism of the character described, the supporting-plate, formed with a supply-port therein, the resilient frame clamped to said plate and extended longitudinally thereof, the stud on the supporting-plate projecting through the frame, the lever engaging said frame, the studs on the supporting-plate embracing the lever and the float suspended on said lever.

6. In a device of the class described, the forked resilient frame, means for supporting said frame, a bolt extended through the closed end portion of said frame, the gasket mounted on said bolt, means for clamping said gasket to the frame and means for oscillating said frame, in combination with a trough having a supply-port arranged to be closed by said gasket.

643,428. APPARATUS FOR DEEP BORING. JOSEPH VOGT, Niederbruck, Germany. Filed Mar. 4, 1899. Serial No. 707,748. (No model.)



Claim.—1 An apparatus for deep boring, having a supporting-frame provided with horizontal grooves, a rocking beam supported in said frame, a boring-rod suspended from one arm of said beam to receive a boring-tool, and operating means coupled to the opposite end of said beam, of two trunnions for the beam, movable along the same in the horizontal grooves in the frame, and a screw for shifting the said trunnions along the frame, whereby the fulcrum of the beam is adapted to be shifted without moving the beam either longitudinally or vertically, substantially as set forth.

2. In an apparatus for deep boring, the combination with the supporting-frame, and the rocking beam mounted thereon, of the connected trunnions of the beam, and screws for raising and lowering the trunnions and for shifting them along the supporting-frame, said frame having, at each side of the beam, a plurality of vertically-arranged keeper-grooves to receive the trunnions, said grooves being connected by a horizontal groove, substantially as and for the purposes set forth.

3. In an apparatus for deep boring, the combination with the supporting-frame the rocking beam A, and the sliding support E, of the connected trunnions *a* of said beam, the two upright suspension-screws D D, coupled to the trunnions and having on them wheel-nuts *b*, the grooved plates on the frame to receive the trunnions, the adjusting-screw *c*, and the worm *f*, between and gearing with the wheel-nuts *b*, substantially as set forth.

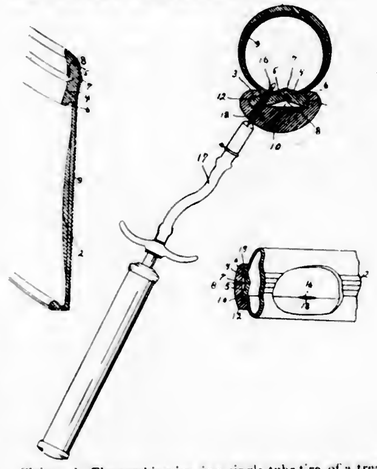
4. In a deep-boring apparatus, the combination with the frame, the rocking beam, the connecting-rod coupled to one arm of the beam, the means for operating said rod, and the rigid boring-rod carried freely by the other arm of said beam, of the springs M, interposed between the boring-rod on the upper side of the beam, the counter-springs M', at the lower side of the beam, to prevent the transmission of shocks from the boring-rod to the beam and from the latter to the rod, and screw-bolts N, which extend through the beam and the oppositely-arranged springs, for simultaneously and uniformly varying the tension of the springs, substantially as set forth.

5. In a deep-boring apparatus, the combination with the frame, the rocking beam, the rigid boring-rod supported freely on one arm of the beam, the connecting-rod B, and means for operating said rod, of the plate H, to which the upper end of the rod B is coupled, the springs I, under said plate and between it and the beam, the counter-springs I' resting on the plate H and opposite, respectively to the springs I, the screw-bolts extending through the beam and the respective springs, and the nuts thereon for regulating the tension of the springs, substantially as set forth.

6. In a deep-boring apparatus, the combination with the frame, the rocking beam mounted therein, the boring-rod coupled to one arm of the beam, the connecting-rod coupled to the other arm of the beam, and means for operating the connecting-rod, of the plate to which the connecting-rod is coupled, the springs between said plate and the beam, the counter-springs on the opposite side of said plate, means for coupling said springs and plate to the beam, and for regulating the tension of the springs, the cushion-springs M, of the boring-rod, the counter-springs M', of said rod, and means for coupling said springs to the beam and for regulating the tension of the springs, substantially as set forth.

7. In a deep-boring apparatus, the combination with the frame, the rocking beam mounted therein, the rigid boring-rod resting freely upon one arm of the beam, the connecting-rod coupled to the other arm of the beam and means for operating the connecting-rod, of the plate H to which the connecting-rod is coupled, the springs I between said plate and the beam, the counter-springs I' on the opposite side of said plate, means for coupling said springs I, I' and plate H to the beam and for regulating the tension of the springs I, I', the cushion-springs M of the boring-rod, the counter-springs M' of said rod, and means for coupling said springs M, M' to the beam and for regulating the tension thereof, substantially as set forth.

643,429. PNEUMATIC TIRE. ALBERT A. WADE, Monticello, Minn. Filed Oct. 4, 1897. Serial No. 654,079. (No model.)



Claim.—1. The combination, in a single-tube tire, of a tread portion provided with the rib or bead on one edge and having a rib or head and a two-part toggle portion upon its other edge, said toggle portion comprising connected and comparatively-rigid straight parts,

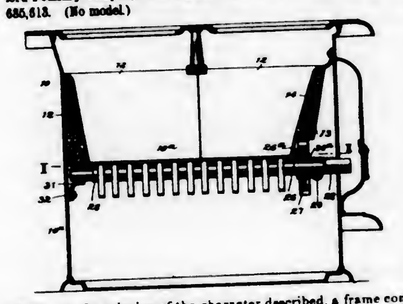
and the wheel-rim provided with grooves for the beads of the tire and for the toggle portion thereof, the free edge of the toggle portion being engaged with the opposite edge portion of the tire, and the joint between said parts being closed by the action of said toggle portion under pressure, substantially as described.

2. The bicycle-tire, comprising the tread portion 2, provided upon one edge with the rib or bead 3 and upon the other edge with the rib or bead 6 and the connected toggle portions 4 and 5, said portions 4 and 5 being partially separated by the groove or cut 8 in the under or outer side, substantially as described.

3. The combination, with the wheel-rim provided with the grooves 12 and 13 and with one or more holes 14, of the tire comprising the tread portion having on one edge a rib or bead 3 to enter said groove 12 in the rim, and having upon the other edge a bead or rib 6 to enter the opposite groove in the rim, and the toggle portions 4 and 5 connected in their upper or inner parts and partially separated by the groove or cut 8, and the thin and flat injector or nozzle adapted to be inserted in the hole 14 in the rim and between the abutting edges of the tire, substantially as described.

4. The tire, comprising the tread portion 2, the ribbed edge 3, the ribbed edge 6, the toggle parts 4 and 5 separated by the V-groove 8 in the outer side, and the lining 9 of thin, soft rubber, substantially as described.

648,430. FIRE-BOX FOR STOVES, RANGES, &c. HENRY J. WARREN and CARL NORDELL, Stamford, Conn., assignors to the Stamford Foundry Company, same place. Filed July 11, 1898. Serial No. 685,613. (No model.)



Claim.—1. In a device of the character described, a frame comprising interlocking end and side sections adapted to engage the lower edges of the fire-bricks to retain the same in position, and a removable hanger and spacing-bar connecting one end of the side sections and holding the same in fixed relative positions, substantially as described.

2. A frame for fire-boxes, comprising an end bar or section provided with rabbeted ends, side sections fitting the rabbeted ends of the end section, a bracket forming a support for one end of the side sections, and means for spacing the side sections apart and locking them to the bracket, substantially as described.

3. A frame for fire-boxes, comprising an end section, interlocking side sections or bars removably engaging the end section, a bracket forming a support for one end of the side sections, and a hanger forming a locking-bar to rigidly lock the sections together and to the bracket, substantially as described.

4. A frame for fire-boxes, comprising an end section or bar provided with rabbeted ends, side sections or bars fitting the rabbeted ends of the end section, the said sections having flanges adapted to engage the lower edges of the fire-bricks to retain the same in position and prevent injury thereto, a bracket forming a support for one end of the side sections, and a hanger forming a locking-bar to removably lock the sections together and to the bracket, substantially as described.

5. In a device of the character described, the combination with a fire-box casing having lugs thereon to support the fire-bricks, and an end plate having a pendent flange and forming a support for the brick or bricks at one end of the fire-box, of a sectional frame adapted to retain the bricks on the lugs and prevent injury to the lower edges thereof, one member of said frame having a guard-bar abutting against the pendent flange of the plate, and means for removably locking the sections of the frame together, substantially as described.

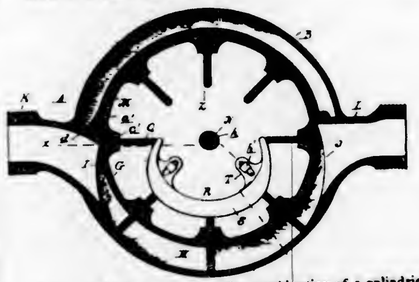
6. In a device of the character described, the combination with a fire-box casing having means for supporting the fire-bricks therein, of an interlocking sectional frame adapted to retain the bricks on their supports and prevent injury to the lower edges thereof, and a removable hanger serving as a locking-bar and forming a portion of the frame, substantially as described.

648,431. CLASP FOR CONNECTING STRAPS. JAMES V. WASHBURNE, Waterbury, Conn. Filed Feb. 9, 1899. Serial No. 705,089. (No model.)



Claim.—A clasp composed of two parts, one part having a tongue at the end of it and the other part a flange with a mortise through it for the passage of the tongue, a lug on one part and a mortise on the other part for interlocking the two parts and a spring attached to one part and acting upon the tongue of the other part for pressing the two parts together, substantially as set forth.

648,432. LIQUID-METER. WILLIAM D'H. WASHINGTON and FREDERICK C. GOODWIN, New York, N. Y., assignors to the Washington-Goodwin Meter Company, of West Virginia. Filed May 29, 1899. Serial No. 718,766. (No model.)



Claim.—1. In a rotary meter, the combination of a cylindrical meter-casing having an inlet and an outlet port, a rotary piston of less diameter than the casing concentrically arranged within the latter forming an annular passage around the piston, a detachable backing within the annular passage extending from the inlet to the outlet port, a series of radially-arranged gates or wings carried by the piston, and a cam within the piston for operating said gates.

2. In a rotary meter, the combination of a cylindrical meter-casing, having an inlet and an outlet port, the upper and lower walls of said casing being centrally recessed, a rotary piston of less diameter than the casing, concentrically arranged within the latter and fitting and working in said recesses and forming an annular passage around the piston, the ends of said piston of less width than the piston fitting within the said recesses, a detachable backing within the annular passage extending from the inlet to the outlet port, a series of radially-arranged gates slidingly engaging the piston and working in said annular passage, and means for operating the gates.

3. In a rotary meter, the combination of a cylindrical meter-casing provided with an inlet and an outlet port, a rotary piston of less diameter than the casing arranged within the latter forming a passage around one side of the piston, leading from the inlet to the outlet port, a series of radially-arranged gates within the piston and a cam, adjustably secured to said casing within said piston, for projecting the gates outwardly from the piston.

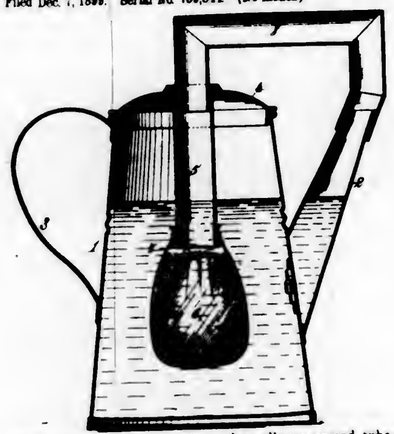
4. In a rotary meter the combination of a cylindrical meter-casing provided with an inlet and an outlet port, a rotary piston of less diameter than the casing arranged within the latter and forming a passage around the piston leading from the inlet to the outlet port, a series of radially-arranged gates within the piston, standards adjustably secured to the casing and extending within the piston and a cam mounted upon the standards and adapted to bear against the inner ends of the gates, substantially as described.

5. In a rotary meter, the combination of a cylindrical outer casing, provided with a central widened chamber and having an inlet and an outlet port, a rotary piston of less diameter than the casing concentrically arranged within the latter and fitting and working in said central enlarged chamber forming an annular passage around the piston of less width than the piston, a detachable backing in the form of a ring fitting within the annular passage, said ring having inclines formed thereon, arranged opposite the inlet and outlet ports, and a reduced portion connecting the inclines, a series of radially-arranged gates or wings within the piston, and means for operating said gates.

6. In a rotary meter the combination of a cylindrical casing provided with an inlet and an outlet port, said casing comprising an upper and lower section, each centrally apertured an adjustable post carried by the lower section, said post comprising an enlarged threaded portion terminating in a reduced portion or pin, the threaded portion of the post engaging the aperture formed in said lower section and the pin projecting within the casing, an adjustable bushing fitting within the aperture in the upper section, the piston-shaft comprising a socket-piece engaging over the pin, and a stem extending through the bushing, a piston fixedly secured to the shaft and a series of radially-arranged gates or wings within the piston, substantially as described.

7. In a rotary meter, the combination of a cylindrical meter-casing having an inlet and outlet port, a rotary piston of less diameter than the casing arranged within the latter to form a passage around the piston, a detachable backing within the passage extending from the inlet to the outlet port, a series of radially-arranged gates or wings carried by the piston, and a cam within the piston for operating the gates.

648,433. COFFEE-POT. GEORGE W. WHITE, Chattanooga, Tenn. Filed Dec. 7, 1899. Serial No. 739,544. (No model.)

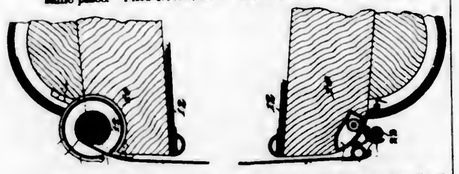


Claim.—1. A coffee-pot, having a depending open-end tube secured to the lid thereof, and a coupling-tube for connecting the spout of the pot with said depending tube, as and for the purpose set forth.

2. A coffee-pot, having a depending open-end tube secured to the lid thereof and provided with means at its lower end for the attachment of a receptacle for ground coffee, and a coupling-tube for connecting the spout of the pot with said depending tube, as and for the purpose set forth.

3. A coffee-pot, having a depending open-end tube secured to the lid thereof and provided with flanges at its lower end for the attachment of a bag containing ground coffee, and a coupling-tube for connecting the spout of said pot with said depending tube, as and for the purpose set forth.

648,434. CURTAIN FOR VESTIBULE-CARS. THOMAS H. WICKES, Chicago, Ill., assignor to the Pullman's Palace Car Company, same place. Filed Nov. 4, 1897. Serial No. 657,336. (No model.)

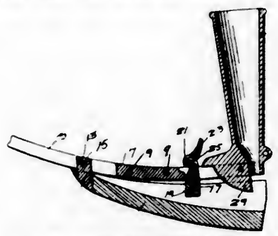


Claim.—1. The combination, with the vestibuled ends of each of two adjacent cars, provided with extensions comprising contacting face-plates and bellows or other extensible connections forming side walls of the passage, of vertical spring-actuated rollers mounted on each of said cars adjacent to the end doorway of the vestibule thereof, curtains or flexible screens connected to said rollers and adapted to be laterally extended to cover and protect the inner edges of the face-plate and the side walls of the passage between the vestibules, and means for fastening the free ends of said curtains or screens, substantially as described.

2. The combination, with the vestibuled ends of each of two adjacent cars, provided with extensions comprising contacting face-plates and bellows or other extensible connections forming side walls of the passage, of vertical spring-actuated rollers mounted on each of said cars adjacent to the end doorway of the vestibule thereof, curtains or flexible screens connected to said rollers and adapted to be laterally extended to cover and protect the inner edges of the face-plates and the side walls of the passage between the vestibules, and yielding catches for securing the free ends of said curtains or screens, substantially as described.

3. The combination, with the vestibuled ends of each of two adjacent cars, of vertical spring-actuated rollers mounted on each of said cars adjacent to the end doorway of the vestibule thereof, curtains or flexible screens connected to said rollers and adapted to be laterally extended to cover and protect the side walls of the passage between the vestibules, and pivoted catches provided with springs of greater strength than the springs of the cooperating rollers, with which catches said curtains or screens are adapted to engage, substantially as described.

643,435. DETACHABLE GRAIN-DRILL SHOE. NILS M. WIG, Alexandria, Minn., assignor to the Owatonna Manufacturing Company, Owatonna, Minn. Filed Aug. 23, 1899. Serial No. 728,250. (No model.)



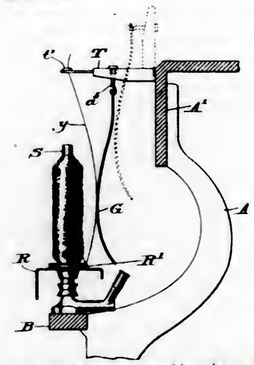
Claim.—1. The combination, with a grain-drill-shoe shank and drag-bar, of a removable shoe and means for detachably securing said shoe to said shank and drag-bar, for the purpose set forth.

2. The combination, with a hollow grain-drill-shoe shank, of a shoe and means for detachably securing said shoe to the lower end of said shank, for the purpose set forth.

3. The combination, with the hollow shoe-shank and the drag-bar having its rear end connected to said shoe-shank, of the removable shoe and means for detachably securing said shoe to said shank and drag-bar.

4. The combination, with the hollow shoe-shank 2, of the drag-bar consisting of two members suitably separated and having its rear end connected to the lower end of said hollow shank, the removable shoe 5 provided with projections adapted to extend between the members of said drag-bar and means for detachably securing said shoe to said drag-bar, for the purpose set forth.

648,436. RING-SPINNING MACHINE. EUGENE F. WILLEY and HENRY CONNACHER, Manville, R. I., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed June 90, 1898. Serial No. 683,999. (No model.)



Claim.—1. In a ring-spinning machine, the reciprocating ring-rail, a support located above it, and a thin, substantially inflexible guard having a roughened surface, pivotally connected with and suspended from said support and extending continuously therefrom be-

low the ring-rail, said guard being engaged by the latter and swung back by the ring-rail in its ascent, impact of the yarn upon the guard preventing excessive ballooning.

2. In a ring-spinning machine, a series of spindles, a reciprocating ring-rail, and a guard located at the rear of the spindles and curved backwardly at its upper and lower edges to present a convex surface to the impact of the yarn.

3. In a ring-spinning machine, a series of spindles, and a guard having a roughened surface and extended longitudinally behiud the spindle, and curved backwardly at its upper and lower edges to present a convex surface to and to prevent excessive ballooning of the yarn.

4. In a ring-spinning machine, a series of spindles, a reciprocating ring-rail, the thread-board above the latter, and a substantially inflexible guard curved backwardly at its upper and lower edges and mounted back of the spindles and extending continuously between the thread-board and ring-rail and unconnected with the latter, to prevent excessive ballooning of the yarn between the ring-rail and thread-board.

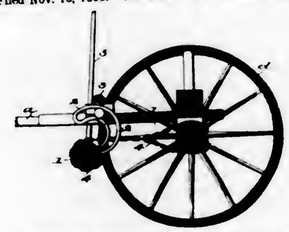
5. In a ring-spinning machine, a reciprocating ring-rail, a support above it, a guard curved backwardly at its upper and lower edges and pivotally suspended from said support and having its convex face behind and adjacent the spindles, the rear edge of the ring-rail in its traverse engaging and swinging the guard.

6. In a ring-spinning frame, the reciprocating ring-rail, the hinged thread-board, and a guard consisting of a thin sheet of substantially inflexible material suspended therefrom and depending below the rear edge of the ring-rail, the latter in its traverse passing along the front of the guard.

7. In a ring-spinning machine, a guard of thin sheet metal longitudinally extended back of the spindles and curved backwardly at its upper and lower edges, with its convex surface turned outward.

8. In a ring-spinning machine, a vertically-reciprocating ring-rail, means for reciprocating the rail, the front beam, and suitable supports secured thereto, combined with a freely-swinging guard which has its upper and lower edges turned backwardly, substantially as set forth.

643,437. **WAGON-BRAKE.** SEPTIMUS T. WILLIAMS, Dyersburg, Tenn. Filed Nov. 16, 1899. Serial No. 737,207. (No model.)



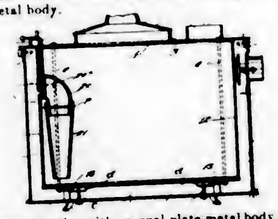
Claim.—1. In a wagon-brake of the class specified, the combination, with the reach and wheels, of a rotatable brake-bar, a chain, or equivalent, attached thereto and to the wagon-frame, a lever attached to the brake-bar, for use in rotating it, and adapted, when thrown down, to rotate it in the direction required for rewinding the chain, and rigid devices attached to the brake-bar and coacting with fixed parts on the frame, to automatically throw the brake-bar away from the wheels when the lever is lowered, substantially as shown and described.

2. In a wagon-brake of the class specified, the combination, with the reach and wheels, of a rotatable brake-bar, a chain or equivalent connecting the same with the rear axle, curved or arc-shaped, rigid guide-loops attached to the brake-bar, fixed lateral projections on the frame upon which the said loops are supported and guided, and a brake-lever attached to the bar for rotating it, substantially as shown and described.

3. In a wagon-brake of the class specified, the combination, with the reach, rear wheels, and a bar secured upon the said reach and extending laterally as shown, of the rotatable brake-bar having arc-shaped loops attached thereto and curving upward and rearward therefrom, for sliding engagement with the ends of the fixed bar, a chain, and an operating-lever arranged and connected with the brake-bar, as shown and described.

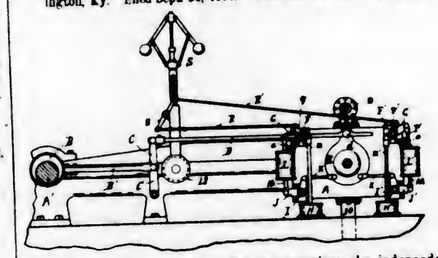
643,438. **HEATING STOVE OR FURNACE.** JOSEPH E. WORMALD and JOSEPH WORMALD, Spokane, Wash. Filed May 10, 1899. Serial No. 716,263. (No model.)

Claim.—1. The combination with a plate-metal body, a smaller fire-pot held concentrically therein and spaced from the bottom of the body, and a top plate for said body, of legs passing through the plate-metal body and their inserted end portions engaging with sockets formed on the bottom of the fire-pot, thus taking load strain off of the plate-metal body.



2. The combination with an oval plate-metal body, and a smaller oval fire-pot held concentrically in the body and spaced from the bottom of the body, thereby providing an air-space around the fire-pot, of an outlet-thimble on the body near its upper edge and over an aperture in said body, and a controlling-gate of plate metal curved to conform to the curvature of the body, a handle-bar pivoted to the center of the gate and passing through the thimble whereon it is also pivoted, and a supporting-bar for the gate, extending across the heat-space between the body and fire-pot and loosely entering a notch cut in the gate.

643,439. **STEAM-ENGINE VALVE-GEAR.** JOHN L. ZEIGLER, Covington, Ky. Filed Sept. 30, 1899. Serial No. 732,153. (No model.)



Claim.—1. In a valve-gear for steam-engines, the indepeadent inlet and exhaust valves located respectively at opposite ends of the engine-cylinder; intermediate mechanism reciprocating said exhaust-valves in regular time movements with the main crank-shaft; plungers reciprocating in open cylinders in unison with said respective exhaust-valves; plungers connected respectively to the crank-arms of and adapted to rotate the inlet-valves; said plungers seating respectively in the same cylinders with the exhaust-valve plungers; dash-pot pistons connected to the opposite ends of said crank-arms and adapted to normally hold the inlet-valves closed and valve mechanism adapted to be automatically tripped to admit air between said plungers, substantially as specified.

2. In a valve-gear for steam-engines, independent inlet and exhaust valves located respectively in pairs at opposite ends of the steam-cylinder; crank-arms on the exhaust-valve stems reciprocated in appropriate time movements from the main crank-shaft; plungers connected respectively to the crank-arms of the exhaust-valves and reciprocating in unison therewith in open cylinders; plungers connected respectively to crank-arms on the stems of the inlet-valves and seating respectively in the opposite end of said open cylinders; dash-pot pistons connected to the opposite end of the crank-arms on the inlet-valves; valves controlling the admission and exit of air from between the plungers in said open cylinder; and a governor-controlled trip for admitting air between said plungers, substantially as specified.

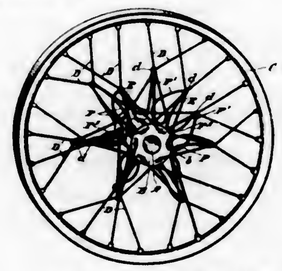
3. In a valve-gear for steam-engines, independent inlet and exhaust valves located respectively in pairs at opposite ends of the steam-cylinder; crank-arms on the exhaust-valve stems reciprocated in appropriate time movements from the main crank-shaft; plungers connected respectively to the crank-arms of the exhaust-valves and reciprocating in unison therewith in open cylinders; plungers connected respectively to crank-arms on the stems of the inlet-valves and seating respectively in the opposite end of said open cylinders; dash-pot pistons connected to the opposite end of the crank-arms on the inlet-valves; valves controlling the admission and exit of air from between the plungers in said open cylinder, substantially as specified.

4. In a valve-gear for steam-engines, the combination of an exhaust-valve driven in regular time movements with the piston of the engine, a plunger reciprocated in unison with said exhaust-valve in an open cylinder, a second plunger also seated in said open cylinder and connected to a crank-arm on the inlet-valve; a dash-pot plunger connected to said inlet-valve and adapted to hold the same normally closed; a valve carried by said second plunger; an arm controlled by the governor adapted to trip said valve and admit air to said open cylinder between the plungers; a catch to hold said valve open during the return stroke of said second plunger; and a stationary trip to release said catch and return the valve to its seat, substantially as specified.

5. In a valve-gear for steam-engines, the combination of an exhaust-valve driven in regular time movements with the piston of the engine, a plunger reciprocated in unison with said exhaust-valve in an open cylinder, a second plunger also seated in said open cylinder and connected to a crank-arm on the inlet-valve; a dash-pot plunger connected to said inlet-valve and adapted to hold the same normally closed; a valve carried by said second plunger; an arm controlled by the governor adapted to trip said valve and admit air to said open cylinder between the plungers; a catch to hold said valve open during the return stroke of said second plunger; and a stationary trip to release said catch and return the valve to its seat; and one or more petcock-tapping the wall of said cylinder, substantially as specified.

6. In an engine valve-gear, an exhaust-valve regularly opened and closed with each revolution of the main crank-shaft; a piston reciprocating in an open cylinder in unison with said exhaust-valve; an inlet-valve normally held closed by means of a dash-pot or its equivalent; a piston also connected to said inlet-valve and seating in said open cylinder and means substantially as described for alternately admitting and voiding air from said open cylinder between said pistons, substantially as specified.

643,440. **VEHICLE-WHEEL.** LYMAN H. ZEIGLER, Millbank, S. D. Filed May 23, 1899. Serial No. 717,905. (No model.)



Claim.—1. A wheel having spokes formed in hub and rim sections hinged to each other, and a spring connected with the spokes and exerting a sidewise strain thereon, substantially as described.

2. A wheel having spokes formed in plural sections hinged together, and springs exerting a side strain on said spokes to normally deflect them from a straight line, substantially as described.

3. A wheel having tension-spokes, and springs exerting a side strain upon the spokes to normally deflect them from a straight line, substantially as described.

4. A wheel, comprising hub and rim having connecting tension-spokes composed of hub and rim sections, each section being formed of a V-shaped rod having its ends secured to either rim or hub, as the case may be, the complementary sections being interlocked, and a spring surrounding the hub and having a series of coils connected by radiating loops or arms which are connected by their outer ends with the joints in the spokes, said springs exerting a sidewise strain upon the spokes, substantially as described.

5. A wheel, comprising hub and rim having connecting tension-spokes composed of hub and rim sections, each section being formed of a V-shaped rod having its ends secured to either rim or hub, as the case may be, the complementary sections being interlocked and springs exerting a sidewise strain upon the spokes, substantially as described.

6. A wheel-hub, comprising a cylinder having its ends slitted and turned outward forming radial lugs, said lugs also having two radial slits extending inward from their ends, and a flange for each end of the hub, consisting of a ring or annular plate having U-shaped slits formed therein with the top of the U outward, and each adapted to receive one section of one of the slitted lugs, substantially as described.

7. A wheel-hub, comprising a cylinder having its ends slitted and turned outward forming radial lugs, said lugs also having two radial slits extending inward from their ends, and a flange for each end of the hub consisting of a ring or annular plate having U-shaped slits formed therein with the top of the U outward, and each adapted to receive one section of one of the slitted lugs and also having spoke-head-receiving slots alternating with the U-slots, substantially as described.

8. A wheel-hub, comprising a cylinder having its ends slitted and turned outward to form radial lugs, and end flanges formed of a ring or annular plate, the lugs and flanges being slitted forming interlocking members, substantially as described.

9. A wheel having a hub, comprising a cylinder having its ends slitted and turned outward to form radial lugs, and end flanges formed of a ring or annular plate, the lugs and flanges being slitted forming interlocking members, and also having spoke-head-receiving slots alternating with the U-slits, a rim, and tension-spokes connecting rim and hub and each composed of hub and rim sections, each section being formed of a V-shaped rod having its ends secured to either rim or hub, as the case may be, the complementary sections being interlocked, and springs exerting a sidewise strain upon the spokes, substantially as described.

643,441. **BRUSH.** HARRIS ZIAS, Philadelphia, Pa. Filed Oct. 16, 1899. Serial No. 733,721. (No model.)



Claim.—1. A brush consisting of a back, brush material and a U-shaped binder, one limb of the latter engaging said material on the inner face of said back and the other limb being seated on the outer face of said back, said limbs being connected with each other by means of stringers on said back, the same extending from one limb of the binder to the other and being secured to each of the same.

2. In a brush, a back with grooves therein on opposite faces thereof, a U-shaped binder having its limbs occupying said grooves, brush material connected with said back by the inner limb of the binder, and stringers passing through said back and secured to the opposite limbs of the binder.

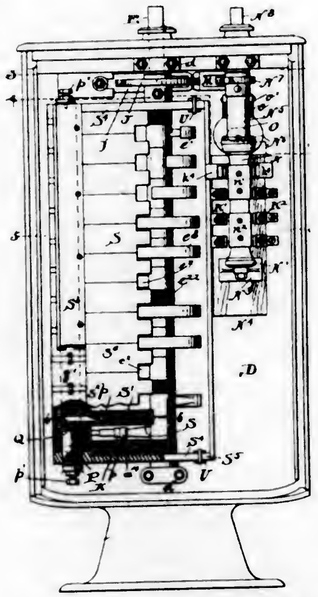
3. In a brush, a backing having grooves in the inner and outer faces thereof, a U-shaped binder having its limbs respectively seated in said inner and outer grooves, brush material secured to the inner limb of the binder in the inner groove of the back and stringers on said back secured to the inner limb of the binder and extending to and being connected with the outer limb thereof.

643,442. **CONTROLLER.** THORSTEN VON ZWIEGBERGK, Cleveland, Ohio, assignor to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Mar. 31, 1899. Serial No. 711,249. (No model.)

Claim.—1. A governing-controller adapted to govern a motor and having a position where the source of supply is disconnected, means whereby such controller, when it comes into such position, directly closes upon itself a circuit in series through the armature and field of the motor, combined with a reversing-switch adapted to reverse the motor when the controller is at such position, substantially as described.

2. A governing-controller adapted to perform the two operations of governing a motor and of closing upon itself a circuit through its

armature and field in series when the source of supply is disconnected, and a single operating handle or lever adapted to move the controller for these two operations, combined with a reversing-switch adapted to be moved when the controller has the circuit thus closed through the motor and thereby apply an electric brake, substantially as described.



3. The combination, with a series-wound motor, of a controller having a contact-plate which, at a position of the controller where the source of supply is cut off, closes the motor as a whole upon itself, a reversing-switch, means for locking the reversing-switch when the current is on but allowing it to reverse the motor when said contact-plate is in engagement, substantially as described.

4. The combination, with a pair of motors, of a reversing-switch and a series-parallel controller which has contact-segments which come into action at the usual off position of the controller and close the motors upon themselves, said closure being normally inoperative but allowing the brake to be applied by a reversal of the motors by the reversing-switch, substantially as described.

5. A governing-controller having an off position and a plurality of running positions on one side only thereof, means for preventing movement of the controller from the off position in the other direction, a contact-plate carried by the controller which is out of engagement at any running position but is in engagement at said off position, said contact-plate when in engagement operating to close upon itself a series circuit through the armature and field of the motor, combined with such motor and a reversing-switch, substantially as described.

6. The combination, with a controller, a reversing-switch and a motor, of a line leading from a contact-finger at the controller to the reversing-switch, lines leading from the reversing-switch to the armature and field of the motor, a line leading from the motor to another contact-finger on the controller, and a contact-plate on the controller which comes into action at the off position and connects together said two contact-fingers and thus closes the motor upon itself, substantially as described.

7. The combination, with a controller, a reversing-switch and a motor, of a line leading from a contact-finger at the controller to the reversing-switch, lines leading from the reversing-switch to the armature and field of the motor, a line leading from the motor back to the controller, a branch line leading from the first line mentioned to a contact-finger on the controller, a contact-plate on the controller which comes into action at the off position and connects together said two contact-fingers, and thus closes the motor upon itself, and a magnetic lock in said branch line adapted to lock the reversing-switch, substantially as described.

8. The combination with a motor, and means for closing it on itself and for reversing it, whereby a braking-current is generated, of a lock which automatically comes into action when said braking-current is flowing, and prevents the subsequent reversal of the motor until the braking-current dies down, substantially as described.

9. The combination with a motor, and means for closing it on itself and a reversing-switch, of a magnetic lock in the circuit of the motor when it is thus closed upon itself, said lock being adapted to prevent the subsequent movement of the reversing-switch to open the circuit while sufficient braking-current is flowing, substantially as described.

10. A motor, a switch for reversing it, a governing-controller, a branch line leading from one side of the motor to the controller and adapted to be connected at the controller with a line from the other side of the motor, thus closing it upon itself, in combination with a magnetic lock in said branch line adapted to lock the reversing-switch, substantially as described.

11. The combination, with an electric switch having a notched detent-wheel, of a lever carrying a roller adapted to stand in the notches thereof, a magnet, a pivoted lever adapted to be moved by said magnet into the path of the detent-lever and thereby prevent the operation of the switch, substantially as described.

12. The combination, with a series-wound motor and a resistance, of a controller which at the off position closes a series circuit through the resistance, the armature and the field of the motor, with a reversing-switch adapted to reverse the motor when the controller is in such off position, substantially as described.

13. A motor having an armature and field connected in series, a switch for reversing said armature or field, a governing-controller, a branch line leading from one side of the motor to the controller and adapted to be connected at the controller with the line from the other side of the motor, thus closing the motor as a whole upon itself, in combination with resistance in said branch line, substantially as described.

14. The combination of a governing-controller adapted to close a motor upon itself, a reversing-switch adapted to reverse said motor, said reversing-switch having a detent-plate, a detent-lever cooperating therewith, and preventing its movement unless the detent-lever is moved, a magnetic lock in circuit with the motor when it is closed upon itself, said lock operating to move a stop into the path of said detent-lever and prevent the operation of the reversing-switch when a sufficient braking current is flowing, substantially as described.

15. The combination with a reversing-switch, a notched detent-plate carried thereby, a detent-lever having a roller engaging with said plate, a magnet-core O carried by the frame of the controller, a pole-piece *o* carried by said core, coils around the core, a pivoted armature-lever O′, one end of which is adapted to be attracted by the pole-piece, the other end being thereby brought into the path of the detent-lever, substantially as described.

16. The combination with a series-parallel controller, a reversing-switch and a pair of motors, of a magnetic lock adapted to prevent the operation of the reversing-switch, said lock having two independent windings, which are a part of branch lines leading to the two motors, and means operated by the controller for connecting such branch lines with the other side of the motors, thus closing the two motors upon themselves through the magnetic lock, substantially as described.

17. In an electric switch, in combination, an insulating-body which is a multilated cylinder having two cylindrical surfaces and two flattened surfaces, contact-segments secured to said cylindrical surfaces, one of said sets of segments extending alternately onto said two flattened surfaces and longitudinal strips on the flattened surfaces connecting said alternate extended segments together, substantially as described.

18. An electric switch having an insulated body, an operating-shaft and a sleeve surrounding said shaft and extending over said body, and means for securing said sleeve to the body, substantially as described.

19. An electric switch having an insulated body, an operating-shaft N^6 axially in line with the body, a sleeve surrounding said shaft and extending over said body, and screws securing said sleeve to the body, substantially as described.

20. An electric switch having a body composed of a solid block of wood, an operating-shaft axially in line with said body, a sleeve surrounding said shaft and having a socket in which said body extends, and means for securing said body in said socket, substantially as described.

21. In an electric switch, in combination, a body of insulating material, contact-segments secured thereto, a sleeve N^3 carrying on its end a socket which takes over said body, said socket having the laterally-extended wall N^{10}, screws N^8 passing diagonally through said wall into said body, and means for turning said sleeve on its axis, substantially as described.

22. In a reversing-switch, in combination, an insulating-body N carrying contact-segments, a socket-plate N′ into which said body extends in the lower end and to which it is secured, a pivot-pin extending into said socket-plate, a sleeve N^3 above the body and carrying at its lower end a socket into which the upper end of the body extends, means for securing said socket to the body, and an operating-shaft extending into and secured to said sleeve, substantially as described.

23. In an electric switch, an operating-shaft, a switch-body in axial alinement with the shaft, a sleeve surrounding said shaft and secured to it, said sleeve having at its lower end an integral socket into which the switch-body takes and at its upper end an integral detent-wheel, combined with a detent-lever carrying a roller adapted to engage said detent-wheel, substantially as described.

24. The combination with a movable switch of a contact-finger adapted to stand in the path of said switch, an eccentric bar between said finger and a rigid member, and an arm secured to said bar and adapted to turn it axially to force the finger away from the switch, substantially as described.

25. In an electric switch, in combination, a movable body carrying contact-plates, a contact-finger adapted to engage therewith, a rigid block on that side of the finger toward the body, said block having groove in it facing said finger, a flattened bar occupying said groove, an arm secured to said bar and adapted to turn it on its axis and cause it to force the finger out of the path of the switch-body, substantially as described.

26. A cut-out finger for an electric switch consisting of a contact-finger, a rigid block k^2 having a groove k' therein facing the finger, a flattened bar *k* occupying said groove, a forked arm k^4 secured to the ends of said bar and having the contact-finger extending through it, said contact-finger contacting with said flattened bar and holding it and the forked arm in place, and said arm being adapted to be turned on its axis, to withdraw the finger from its normal position, substantially as described.

27. The combination, with a set of contact-fingers, of a pivoted bar P′, a series of plates *p* rigid with said bar and extending between the contact-fingers, coils around said bar between the plates, insulating-sleeves S^2 surrounding said coils, insulating-boxes surrounding the edge of the plates and covering their upper and under sides and substantially contacting with said insulating-sleeves, substantially as described.

28. The combination, with a set of contact-fingers, of a pivoted bar P, a series of plates *p* rigid with said bar and extending between the contact-fingers, coils around said bar between the plates, insulating sleeves S^2 surrounding said coils, insulation surrounding the edges of the plates, said sleeves being flattened on their front sides, a protecting-strip S^3 secured to said flattened sides, the consecutive coils being connected together between the insulation around the edge of the plates and the protecting-strip, substantially as described.

29. The combination, with a controller having a series of contact-segments, and contact-fingers adapted to engage therewith, of insulating-blocks S^7 supported close to the contact-segments and near the contact-fingers, said block having its corner extending into the arc caused by the separating contact plates and fingers and thus preventing the arc traveling back on the segment, substantially as described.

30. The combination, with a controller having a series of contact-segments, and contact-fingers adapted to engage therewith, of a blowout having insulating-boxes extending between the fingers, and insulating-blocks S^7 carried by said boxes close to the contact-segments and in front of the contact-fingers, said block operating to prevent the arc traveling back on the segment as it leaves the contact-fingers, substantially as described.

643,443. DENTAL TOOL FOR EXPRESSING MERCURY FROM AMALGAM. DAVID AIKEN, Winnsborough, S. C. Filed Oct. 19, 1899. Serial No. 734,115. (No model.)



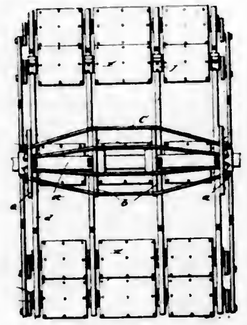
Claim.—1. In a dental tool, a receptacle for the material, means for compressing the same, a base-piece, and openings at the lower end of the receptacle to permit the mercury to escape.

2. In a dental tool, a receptacle for the material, a plunger operating in the same, means to actuate the plunger, and a movable base-piece to retain the material in the receptacle but permit the mercury to escape.

3. In a dental tool, a receptacle for amalgam or the like, a hinged plunger operating in the same, pivoted levers for operating the plunger, and a movable base-piece adapted to retain the amalgam but permit the escape of the mercury.

4. In a dental tool, a receptacle for amalgam or the like, a plunger operating in the same, an opening to permit escape of mercury means for operating the plunger, a base-piece to retain the amalgam, and a pivot upon which said base-piece may be swung away from the receptacle.

643,444. PADDLE-WHEEL. JOSEPH S. ALLISON, Portland, Oreg. Filed Aug. 22, 1899. Serial No. 728,067. (No model.)



Claim.—1. A paddle-wheel comprising end and intermediate hubs, parallel rims, spokes interposed between and connected to the hubs and rims, paddles fixed on shafts mounted in bearings on the spokes, transverse truss-rods bearing on the peripbery of the intermediate hub and having inwardly-inclined end portions extending through apertures in the end hubs and provided with threads, and nuts mounted on the threaded ends of the truss-rods and bearing against the outer faces of the end hubs, substantially as specified.

2. In a paddle-wheel, the combination of a rock-shaft journaled in suitable bearings and provided with a portion of angular form in cross-section, and a paddle comprising sheet-metal plates disposed at opposite sides of and fixedly connected to the angular portion of the rock-shaft, and metallic strips interposed between and connected to said plates at the longitudinal edges thereof, substantially as specified.

3. The herein-described paddle-wheel consisting of the hubs, the parallel rims, spokes interposed between and connected to the hubs and rims, the bearing-blocks arranged on the spokes at points adjacent to the rims, bolts and nuts detachably connecting the said blocks to the spokes, the transverse rock-shafts journaled in the bearing-blocks and having their ends extended beyond the same, paddles interposed between the rims and fixed on the shafts, cranks keyed on the extended ends of the shafts so as to turn therewith and yet be removable therefrom, and gravitating rings disposed at opposite sides of the wheel and loosely connected to the cranks, substantially as specified.

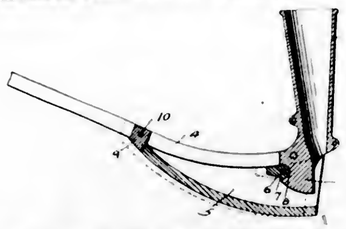
4. The herein-described paddle-wheel consisting of the end and intermediate hubs, parallel rims corresponding in number to the hubs, spokes interposed between and connected to the hubs and rims, transverse, threaded truss-rods bearing on the periphery of the intermediate hub and extending through apertures in the end hubs and equipped with nuts, bearing-blocks detachably connected to the spokes, rock-shafts journaled in said blocks and having cranks at their ends and also having intermediate portions of angular form in cross-section, paddles comprising sheet-metal plates disposed at opposite sides of and connected to the angular portions of the shafts, and gravitating rings arranged at opposite sides of the wheel and connected to the cranks of the rock-shafts, substantially as specified.

643,445. DETACHABLE GRAIN-DRILL SHOE. DAVID J. AMES, Owatonna, Minn., assignor to the Owatonna Manufacturing Company, same place. Filed Sept. 7, 1899. Serial No. 729,703. (No model.)

Claim.—1. The combination, with the grain-drill-shoe shank, having a projection or extension at its lower end, of a drag-bar secured to said shank, a shoe having a recess to receive said projection, a part carried by said shoe to engage said projection and whereby the rear portion of said shoe is supported, and means for detachably securing the forward portion of said shoe to said drag-bar, substantially as described.

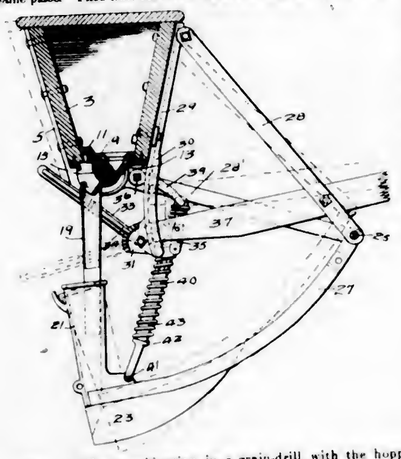
2. The combination, with a grain-drill-shoe shank, and the drag-bar connected thereto, of a shoe having an open end to receive the lower end of said shank, a block or part provided on said shoe to fit within a recess in said shank and to be disengaged therefrom by the

forward movement only of said shoe, and means for locking said shoe against forward movement, substantially as described.



3. The combination, with a grain-drill-shoe shank and the drag-bar secured thereto, of a shoe 5 having a recess to receive the lower end of said shank, a block 6 provided on said shoe and adapted to enter a recess or socket in the lower end of said shank whereby said shoe will be locked except against forward movement, a lug 9 provided near the forward end of said shoe, and means for securing said lug to said drag-bar, substantially as described.

643,446. GRAIN-DRILL. DAVID J. AHES and HENRY N. LABARR, Owatonna, Minn., assignors to the Owatonna Manufacturing Company, same place. Filed Nov. 13, 1899. Serial No. 736,721. (No model.)



Claim.—1. The combination, in a grain-drill, with the hopper provided with the cast-metal end plates and the hollow axles formed integrally with said end plates, for the purpose set forth.

2. The combination, in a grain-drill, with the hopper and feed mechanism, of the hopper-bottom consisting of longitudinally-overlapping plates 9 and 11, substantially as described.

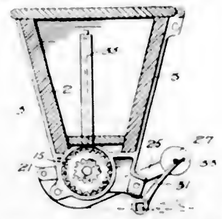
3. The combination, in a grain-drill, with the hopper, the pivoted shoes and the feed mechanism, of the casting or hanger extending downward from said hopper, a lever pivoted to said casting or hanger and extending below and back of said hopper, the pole or tongue 37 and a link connecting said lever with said pole, for the purpose set forth.

4. The combination, in a grain-drill, with the hopper and the pivoted shoes, of the casting 29 extending downward from said hopper and provided with the flanges 30, the tongue 37 having its rear end extending between said flanges and the lever 34 pivoted to said casting 29 and connected by a link 35 to said tongue 37, for the purpose set forth.

5. The combination, in a grain-drill, with the pole or tongue pivoted at a point forward of its rear end, means for raising or lowering the rear end of the tongue, and the pivoted drill-shoes.

643,447. GRAIN-DRILL GEAR. DAVID J. AHES and HENRY N. LABARR, Owatonna, Minn., assignors to the Owatonna Manufacturing Company, same place. Filed Nov. 13, 1899. Serial No. 736,722. (No model.)

Claim.—1. The combination, with the hollow axle 5, of a suitable shaft arranged in said hollow axle and connected to the driving-wheel, a pinion supported upon said shaft, a gear for moving the pinion-carrying shaft so as to bring said pinion into or out of engagement with said gear-wheel, for the purpose set forth.

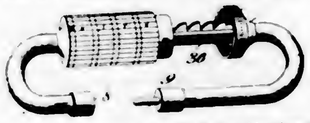


2. The combination, with the gear for driving the cup-wheel-operating rod, of the laterally-movable shaft 17 carrying a suitable pinion adapted to mesh with said gear, means connecting said shaft with the driving-wheel and means for laterally moving said shaft, for the purpose set forth.

3. The combination with the hollow axle 5, of a laterally-movable shaft 17 extending therethrough, means connecting the outer end of said shaft with the hub of the driving-wheel, a pinion 23 mounted upon the inner end of said shaft and adapted to engage a gear-wheel upon the cup-wheel-operating rod, an adjustable box supporting the inner end of the shaft 17 and a lever connected to said box whereby the inner end of said shaft may be moved laterally to bring the pinion carried thereby into or out of engagement with said gear, for the purpose set forth.

4. The combination, in a grain-drill, with the grain hopper or receptacle 2 having a cast-metal end 3, a hollow stub-axle 5 formed integrally with said cast end 3, a driving-wheel 7 mounted upon said axle, a shaft 17 arranged in said hollow axle and laterally movable therein, means connecting the outer end of said shaft to the hub of said wheel, a pinion carried by the inner end of said shaft, a gear-wheel mounted upon the cup-wheel-operating rod, and means for laterally moving the inner end of the shaft that is arranged in said hollow axle, for the purpose of moving its pinion into or out of mesh with said gear, for the purpose set forth.

643,448. PERMUTATION-PADLOCK. AGRIPPA AHLEN, Frazee, Minn. Filed July 11, 1899. Serial No. 723,431. (No model.)



Claim.—1. In a permutation-padlock, the combination of the two locking-bars engaging each other, each of said bars terminating in a head, a hollow shaft or spindle secured to one of said heads and provided throughout its length with a longitudinal slot and around its periphery with circumferential grooves, a spline secured to the other of said heads and provided with a longitudinal groove or slot, a locking-bar arranged within said groove or slot, a series of tumblers revolubly mounted on said hollow shaft or spindle, said tumblers being provided in their sides with a series of openings, a frictional washer mounted on said hollow shaft or spindle between each of said tumblers, a sectional washer mounted within the circumferential grooves of the hollow shaft or spindle, the one section of said washers having a lug for engagement with the tumblers and the other section having a notch adapted to register with the longitudinal groove in the hollow shaft or spindle, and a separate washer and nut engaging the end of the hollow shaft or spindle for locking the washers and tumblers in position, substantially as described.

2. In a permutation-padlock, the combination of the two curved locking-bars each of which terminate at their one end in a head, a hollow shaft or spindle formed integral with one of said heads and provided with a longitudinal groove, a spline formed integral with the other of said heads and adapted to enter said hollow shaft or spindle, a spring-actuated locking-bar arranged within said spline, a series of tumblers revolubly mounted on said hollow shaft or spindle, sectional washers mounted upon the hollow shaft or spindle and engaging said tumblers, and a frictional washer mounted on the hollow shaft or spindle between the tumblers and inclosing said sectional washers, substantially as described.

3. In a permutation-padlock, the combination of the two locking-bars engaging each other, each of said bars terminating in a head, a hollow shaft or spindle secured to one of said heads, said shaft or spindle being provided with circumferential grooves and a longitudinal groove, a series of tumblers revolubly mounted on said shaft or spindle, said tumblers being substantially angular in cross-section and provided in the side with a series of openings, a spline adapted to enter said hollow shaft or spindle, said spline being provided with a longitudinal groove or slot, a spring-actuated locking-bar arranged in said groove or slot, a sectional washer mounted within each of said circumferential grooves of the hollow shaft or spindle and carrying a lug to engage the openings in the tumblers, frictional washers mounted on the hollow shaft or spindle between the tumblers, and means secured to the end of the hollow shaft or spindle for locking the tumblers, the sectional, and the frictional washers in position, substantially as described.

4. In a permutation-padlock, the combination of the two curved locking-bars forming the hasp, a hollow shaft or spindle formed integral with one of said bars and a spline formed integral with the other bar, said hollow shaft or spindle having a series of circumferential grooves arranged equidistant and being further provided with a longitudinal slot and groove, said spline having a longitudinal slot, a spring-actuated locking-bar arranged within said slot, a series of graduated tumblers which are angular in cross-section mounted upon said hollow shaft or spindle, a sectional washer mounted within each of the circumferential grooves of the hollow shaft or spindle, means for securing said sectional washers to the tumblers, frictional washers mounted on the hollow shaft or spindle between the tumblers, means for holding said frictional washers stationary on the hollow shaft or spindle during the rotation of the tumblers and sectional washers, and means for securing the tumblers, the sectional washers, and the frictional washers in position upon the hollow shaft or spindle, substantially as described.

5. In a permutation-padlock, the combination of the two locking-bars forming the hasp, a hollow shaft or spindle secured to one of said bars, a spline secured to the other bar, said spline being provided with a longitudinal slot, said hollow shaft or spindle being provided with a longitudinal slot and groove and with circumferentially-arranged grooves, a spring-actuated locking-bar arranged within the slot of the spline, a series of tumblers revolubly mounted upon the hollow shaft or spindle, a sectional washer mounted within the circumferential grooves of the hollow shaft or spindle and secured to each of said tumblers, frictional washers interposed between the tumblers, and means for securing said tumblers, the sectional washers, and the frictional washers in position upon the hollow shaft or spindle, substantially as described.

6. In a permutation-padlock, the combination of the two locking-bars forming the hasp, a hollow shaft or spindle secured to one of said bars and a spline secured to the other bar, said shaft or spindle being provided with a longitudinal slot and with circumferentially-arranged grooves, a series of tumblers revolubly mounted on said shaft or spindle, a sectional washer mounted in each of the circumferential grooves and engaging said tumblers, frictional washers interposed between the tumblers and inclosing said sectional washers, means for holding said frictional washers stationary during the rotation of the tumblers and sectional washers, means carried by the hollow shaft or spindle to engage the spline and prevent disconnection of the two members, and means engaging the end of the hollow shaft or spindle for locking the tumblers, the sectional washers, and the frictional washers in position, substantially as described.

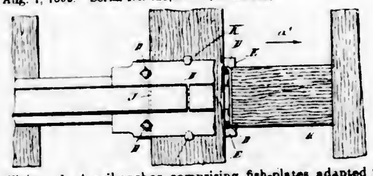
7. In a permutation-padlock, the combination of the two locking-bars forming the hasp, a hollow shaft or spindle secured to one of said bars and a spline secured to the other bar, said shaft or spindle being provided with a longitudinal slot and with circumferential grooves arranged equidistant apart, a series of tumblers revolubly mounted on said hollow shaft or spindle, a sectional washer mounted in each of the circumferential grooves and engaging said tumblers, frictional washers interposed between the tumblers and inclosing said sectional washers, a spring-actuated locking-bar arranged within the spline, means engaging the spline and the locking-bar for holding the latter within the spline when the lock is opened, means carried by the hollow shaft or spindle and engaging the spline to prevent the disconnection of the two members, and means for securing the tumblers, the sectional washers and the frictional washers in position upon the hollow shaft or spindle, substantially as described.

8. In a permutation-padlock the combination of the two locking-bars forming the hasp, a hollow shaft or spindle secured to one of said bars and a spline secured to the other bar, said shaft or spindle being provided with a longitudinal slot and with circumferentially-arranged grooves, a series of tumblers revolubly mounted on said hollow shaft or spindle and provided on their one side with an annular groove and a series of circumferentially-arranged openings, a sectional washer mounted within each of the circumferential grooves of the hollow shaft or spindle and engaging said tumblers, a frictional washer mounted upon the hollow shaft or spindle between the tumblers and provided with an annular groove on its one face, said frictional washers inclosing the sectional washers and having their one face engaging the annular groove of the tumbler with the engaging face of the adjacent tumbler engaging the annular groove of the frictional washer, means for holding said frictional washers stationary during the rotation of the tumblers and sectional washers, a spring-actuated locking-bar arranged within the spline, and means secured to the hollow shaft or spindle for locking the tumblers, the sectional washers, and the frictional washers in position, substantially as described.

9. In a permutation-padlock, the combination of the two locking-bars forming the hasp, of a hollow shaft or spindle secured to one of said bars and a spline secured to the other bar, said shaft or spindle being provided with a longitudinal slot and with circumferential grooves arranged equidistant apart, a series of tumblers revolubly mounted on said hollow shaft or spindle, said tumblers being substantially angular in cross-section and provided on one side with a series of circumferentially-arranged openings and an annular groove, a sectional washer mounted with the circumferential grooves of the shaft or spindle and provided with a lug to engage said openings in the tumbler and a notch adapted to register with the longitudinal slot, a spring-actuated locking-bar arranged within the spline, means for holding said bar in position, a frictional washer interposed between the tumblers with its one face engaging the adjacent tumbler and inclosing said sectional washers, means for holding said frictional washers stationary during the rotation of the tumblers and sectional washers, and means for securing the tumblers, the sectional washers and the frictional washers in position upon the hollow shaft or spindle, substantially as described.

10. In a permutation-padlock, the combination of the two locking-bars forming the hasp, of a hollow shaft or spindle secured to one of said bars and a spline secured to the other bar, said spline being provided with a longitudinal slot, a spring-actuated locking-bar arranged within said slot and provided on its upper face with a series of teeth having one of their faces rounded and the other vertical, a series of tumblers revolubly mounted on the hollow shaft or spindle, a sectional washer mounted upon the shaft or spindle between each pair of tumblers and adjustably connected thereto, frictional washers secured to the shaft or spindle between the tumblers and inclosing said sectional washers, means secured to the hollow shaft or spindle and engaging the spline to prevent the disconnection of the members when the lock is opened, and means for securing the tumblers, the sectional washers and the frictional washers in position, substantially as described.

643,449. RAIL-ANCHOR. SEVERIN B. ANDERSON, Hartford, Wash., assignor of one-third to Gustav Johnson, same place. Filed Aug. 1, 1899. Serial No. 725,757. (No model.)



Claim.—1. A rail-anchor comprising fish-plates adapted to engage the rails, a bottom anchor-plate below the railroad-tie, connecting devices secured to said fish-plates and anchor-plate and located on the outside of the tie, and a wear-plate interposed between that side of the tie which is the rear side with respect to the creeping tendency of the rails and the adjacent connecting devices, as and for the purpose set forth.

2. A rail-anchor comprising fish-plates adapted to be secured to the rails, a bottom anchor-plate on the under side of the railroad-tie, bolts connecting said bottom anchor-plate with said fish-plates on each side of the tie, a brace-block between adjacent ties and a brace-plate secured to said brace-block and engaging the set of bolts at this side of the tie, the ends of said brace-plate partly encircling the said bolts, as set forth.

3. A rail-anchor, comprising fish-plates projecting beyond the side edges of the base of the rails, a bottom anchor-plate on the under side of the railroad-tie, bolts connecting the said anchor-plate with the fish-plates at the projecting portions thereof, and a face-plate on the side of the tie for a set of bolts to rest against instead of resting against the side of the tie, substantially as shown and described.

4. A rail-anchor, comprising fish-plates projecting beyond the side edges of the base of the rails, a bottom anchor-plate on the under side of the railroad-tie, bolts connecting the said anchor-plate with the fish-plates at the projecting portions thereof, and a brace-block between adjacent ties and having a brace-plate for engaging the set of bolts at this side of the tie, substantially as shown and described.

5. A rail-anchor, comprising fish-plates projecting beyond the side edges of the base of the rails, a bottom anchor-plate on the under

side of the railroad-tie, bolts connecting the said anchor-plate with the fish-plates at the projecting portions thereof, and means for adjusting the said anchor-plate lengthwise of the tie, as set forth.

6. A rail-anchor comprising fish-plates adapted for engagement with the rails, a bottom anchor-plate on the under side of the railroad-tie and connected to said fish-plates, the said bottom plate being formed with an elongated slot, and a bolt extending through the tie and into said slot, as and for the purpose set forth.

643,450. BACK-PEDALING BRAKE. HOUSTON S. BAKER, Hollandale, Miss. Filed Oct. 20, 1899. Serial No. 734,256. (No model.)



Claim.—1. In a vehicle, the combination with a crank-axle and a drive-wheel, of a sprocket mounted loosely upon the crank-axle and having pawls mounted therein and projecting at right angles to the face thereof, a crank upon the crank-axle adapted to engage with said pawls in one direction and to pass over them in the opposite direction, connections between the crank-sprocket and the drive-wheel, a brake-disk mounted loosely upon the crank-axle and having a pawl projecting at right angles to the face thereof adapted for engagement by the adjacent crank when moved in one direction and to permit free movement of said crank in the opposite direction, and a brake having connections with the brake-disk for operation thereby.

2. In a vehicle, the combination with a crank-axle and a drive-wheel carrying a brake-drum, of a sprocket upon the crank-axle and having openings therethrough, pawls disposed in the openings and projecting from the face of the sprocket at right angles thereto, a crank fixed to the crank-axle and adapted for engagement with the pawls to rotate the sprocket in one direction and to move freely over the pawls in the opposite direction, a sprocket upon the drive-wheel connected with the crank-sprocket, a brake-operating disk mounted loosely upon the crank-shaft, an opening in the disk, a pawl disposed in said opening, a crank fixed to the crank-shaft and adapted for engagement with the pawl of the disk when moved in a direction to cause free movement of the opposite crank over the crank-sprocket and to slide freely over the pawl in the opposite direction, a brake encircling the brake-drum, and connections between the brake and the disk for operating the brake.

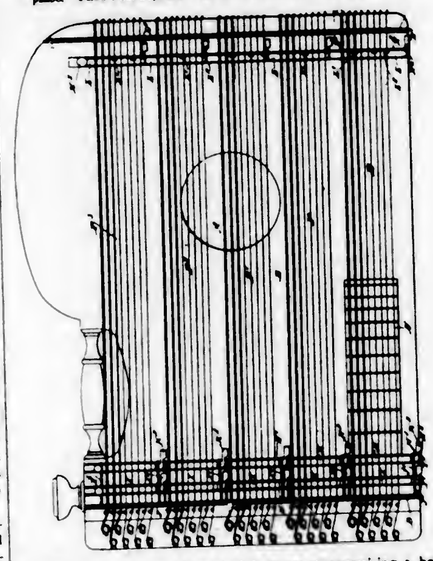
3. In a vehicle, the combination with a crank-axle and a drive-wheel, of a crank-sprocket loose upon the axle and having openings therein, spring-pressed pawls mounted loosely in the openings, and adapted to project outwardly therethrough, a crank fixed to the crank-axle and adapted for engagement with the pawl when moved forwardly and to move freely over the pawl when moved rearwardly, a sprocket upon the drive-wheel having connections with the crank-sprocket, a disk mounted upon the crank-axle, an opening in said disk having a spring-pressed pawl disposed loosely therein, a crank fixed to the crank-axle and adapted to engage the pawl when moved rearwardly and to pass freely over the pawl when moved forwardly, a brake-drum upon the rear wheel, a brake disposed upon the drum, and connections between the brake and the disk for operating the brake.

648,451. NITROAMIDOANTHRAQUINONE SULFO-ACID. OSCAR BAILLY, Mannheim, Germany, assignor to the Badische Anilin and Soda Fabrik, Ludwighafen, Germany. Filed Nov. 15, 1899. Serial No. 737,073. (No specimens.)

Claim.—1. The new coloring-matters which can be obtained by treating diamido-anthraquinone sulfo-acids with nitric acid and which are characterized by the following properties: they are chemically nitration products of amidoanthraquinone sulfo-acids, soluble in water, soluble in carbonate-of-soda solution, and in caustic-soda lye, and which dye chrome-mordanted wool giving from bluish-violet to brown-violet shades, all substantially as described.

2. The new coloring-matter which can be obtained by treating sulfo-acids of 1.4'-diamido-anthraquinone with nitric acid, and which is chemically a nitration product of 1.4'-diamido-anthraquinone, which is soluble in water, giving a red-violet solution, and in carbonate-of-soda and caustic-soda solution, giving dirty-blue violet solution, soluble in concentrated sulfuric acid giving a violet color, all substantially as hereinbefore described.

643,452. STRINGED MUSICAL INSTRUMENT. ANDREW R. BARR, Kalispell, Mont., assignor of one-half to Robert Nordtome, same place. Filed Feb. 28, 1899. Serial No. 707,167. (No model.)



Claim.—1. A stringed musical instrument, comprising a body having a sounding-board, fixed bridges, one at each end of the sounding-board, strings arranged in groups and extending over the bridges, a rocking bridge for each group of strings arranged adjacent to one of the fixed bridges and serving to increase the pitch of all the strings of the group, and a rocking bridge for each group of strings arranged adjacent to the other fixed bridge and serving to decrease the pitch of some of the strings of the group, substantially as described

2. A stringed musical instrument, comprising a body having a sounding-board, fixed bridges, groups of strings extending over the bridges, three rocking bridges for each group of strings, two of the bridges being arranged adjacent to one another and to one of the fixed bridges, and each serving to increase the pitch of all the strings of the group, the other rocking bridge being adjacent to the other fixed bridge and serving to decrease the pitch of some of the strings of the group and thereby change the chord represented by the said group of strings, substantially as described.

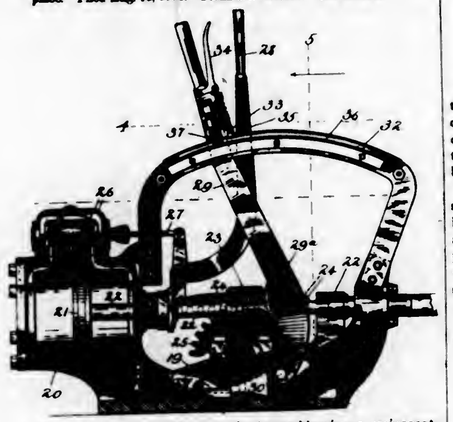
3. A stringed musical instrument, comprising a body having a sounding-board, fixed bridges, groups of melody and accompaniment strings extending over the said bridges, two transverse bearings adjacent to one bridge, a third bearing adjacent to the other bridge, and a series of movable bridges, one for each group of strings, mounted to rock in each of the bearings, each of the movable bridges at one end serving to change the pitch of all the strings in the group, and the movable bridges at the other end serving to decrease the pitch of some of the strings of the group and thereby change the chord represented by said group, substantially as herein shown and described.

4. In a stringed musical instrument, the combination with the sounding-board, and a transverse bearing extending across the same and formed with a semicircular groove in its top, of a plurality of movable bridges arranged end to end in the groove of the bearing and mounted to turn therein, each bridge consisting of a notched bar provided with a handle at one end, substantially as described.

5. In a stringed musical instrument, the combination with a sounding-board, of a transverse bearing extending across the same and formed with a semicircular groove in its top, a plurality of bridges in the groove of the bearing and each consisting of a notched bar provided with a handle at one end, and springs extending across the ends of the bridges and holding them in the groove of the bearing, substantially as described.

6. In a musical instrument, a bearing having a semicircular groove in its top, and a bridge formed of a round bar having its middle portion cut away, and provided with a handle at one end, and springs engaging the ends of the bridge to hold it in the groove of the bearing, substantially as described.

648,453. STEAM SET-WORKS FOR SAWMILLS. RUBEN F. BARKER, Marinette, Wis., assignor of one-half to Michael Corry, same place. Filed Aug. 14, 1899. Serial No. 727,407. (No model.)



Claim.—1. In a sawmill set-works, in combination, a reciprocating head, a lever-like stop-arm crossing the path of the head and being pivoted at one side thereof, and means for adjustably securing the swinging end of the stop.

2. In a sawmill set-works, in combination, a reciprocating head, a lever-like stop-arm crossing the path of the head and being pivoted at one side thereof, a segmental ratchet or quadrant for cooperating with the swinging end of the stop-arm, and a pawl carried by such arm for engaging the ratchet or quadrant.

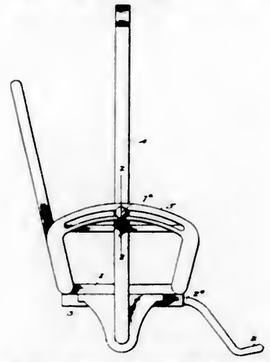
3. In a sawmill set-works, in combination, a reciprocating part, an adjustable lever-like stop for determining the range of movement of such part, a removable notched plate for determining the positions to which the stop-arm may be adjusted, and a pawl carried by such stop-arm for cooperating with the notched plate.

4. In a sawmill set-works, in combination, a reciprocating head, a lever-like stop-arm crossing the path of the head and being pivoted at one side thereof, a segmental frame cooperating with the arm, a plate adapted to be removably secured to the frame and having notches so disposed as to determine the adjustment of the stop-arm, and a pawl carried by such arm for engaging the notches of the plate.

5. In a sawmill set-works, in combination, a steam-cylinder, a piston reciprocating therein, a piston-rod leading from the piston, a cross-head fixed to the piston and having longitudinally-disposed gear-racks, a rocker-shaft having segmental gears intermeshing with the racks, a lever-like stop-arm crossing the path of the cross-head and pivoted at one side thereof, a segmental ratchet cooperating with the stop-arm, a pawl carried by such arm for engaging the ratchet, a removable templet for closing the teeth of the ratchet not desired for service against the entry thereinto of the pawl.

6. In a sawmill set-works, in combination, a reciprocating part for actuating the setting mechanism, an adjustable lever-like stop-arm for limiting the range of movement of the reciprocating part, a segmental ratchet, a pawl carried by the stop-arm for cooperating with the ratchet and a removable notched templet adapted to be secured to the ratchet to prevent the engagement of the pawl with any of the teeth thereof except such as correspond with the notches of the templet.

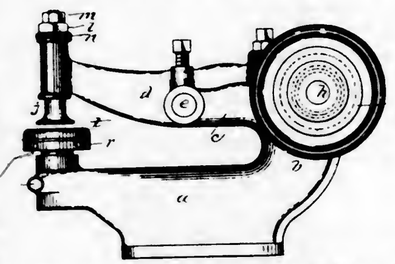
648,454. SWINGING CHAIR. CHARLES H. BARROWS, Hiendale, Del., assignor of one-fourth to S. F. Gardiner, Milford, Del. Filed Sept. 14, 1899. Serial No. 730,496. (No model.)



Claim.—1. In a chair of the character described, the combination of a seat or chair, and parallel suspending-bars suitably braced or connected together, with their lower ends secured to a cross-rod or pivot bearing in the under side of said seat or chair and means for the relative adjustment and clamping together of said suspending-bars and chair or seat, substantially as set forth.

2. In a chair of the character described, the combination of a seat or chair and parallel suspending-bars with their lower connecting cross-rod bearing in the under side of said chair or seat, a set or adjusting screw working in a screw-threaded aperture of a block or piece in each of said suspending-bars, and having one end provided with a hand-wheel and its other end terminating in a disk or plate, substantially as set forth.

648,455. STEAM-PRESSING MACHINE. CHARLES H. BAYLEY, Boston, Mass. Filed May 13, 1899. Serial No. 716,647. (No model.)



Claim.—In a machine of the character described, the combination of a lever having a tubular head; a hammer having a stem extending through said head: a spring surrounding the stem within the head between shoulders of the latter and the stem; a stop-nut on the stem above the head; and sound-deadening or cushioning material interposed between said nut and the head.

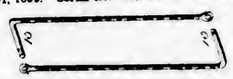
648,456. MUSIC-HOLDER. PATRICK BENHAM, Jackson, Mich. Filed Aug. 29, 1899. Serial No. 728,907. (No model.)

Claim.—1. A music-holder consisting of a support, a shaft mounted to rock upon said support and provided with retaining-arms at its ends, a tension device for the said shaft, a finger projected from the shaft at a point between its ends, a spring-controlled bolt normally located below said finger and arranged for locking engagement with the upper surface of said finger, and means for operating said bolt, as set forth.

2. A music-holder consisting of a support, a shaft provided with retaining-arms at its ends, the retaining-arms and shaft being constructed in one piece, bearings in which the shaft is mounted to turn, a finger projected from the said shaft at a point between its ends, a spring coiled around the shaft, having one of its ends attached to the finger and the other end to the support for the shaft, and a spring-controlled bolt normally extending below the said finger and being arranged for locking engagement with the upper surface of said finger, for the purpose set forth.



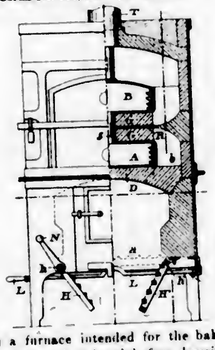
643,457. STUMP-PULLER. WILLIAM BENNETT, Brockport, Pa. Filed Aug. 31, 1899. Serial No. 729,098. (No model.)



Claim.—1. In elevating apparatus of the character specified, a frame composed of a series of bars, a lever, companion rods having their opposite ends provided with respectively bent portions and eyes and oppositely disposed with their bent ends engaging with the said lever and bars and having the projecting portions of the bent ends receiving the corresponding eyes at the other end of the rod, substantially as set forth.

2. The herein-described apparatus consisting of upwardly-inclined bars having their lower ends reduced and formed with shoulders and pointed terminals, base-timbers applied to the lower ends of the bars with the pointed extremities of the lever projecting to penetrate the surface of the ground, a floating lever, companion rods having their ends provided with respectively eyes and bent terminal portions, said rods being inversely disposed and having their bent terminal portions engaging with, respectively, the lever and converging ends of the frame-bars and serving as connecting means for the latter, the eye of one rod being engaged with the projecting portion of the bent terminal of the other rod and held thereon from accidental displacement, a block and tackle connecting the free end of the lever with the upper end of one of the frame-bars and adapted to have the power applied thereto, a direction-pulley applied to one of the base-timbers for the rope of the block and tackle, and a draft-rope applied to the floating lever and adapted to be connected with the stump or object to be moved, substantially as set forth.

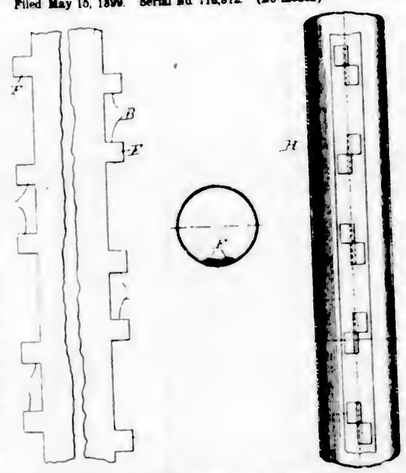
643,458. FURNACE FOR BAKING ENAMELS, GLASSWARE, AND PORCELAIN. ALPHONSE J. A. BERTHELIER, Lyons, France. Filed July 23, 1898. Serial No. 686,694. (No model.)



Claim.—1. In a furnace intended for the baking of enamels, glassware and porcelain such as hereinbefore described having muffles superposed or connected, the arrangement between the muffles of a separating-plate having central apertures and a longitudinal partition adapted to force the hot gases intended to heat the muffles to travel around the muffles over all their external surface before escaping by the chimney, substantially as hereinbefore described.

2. In a furnace such as hereinbefore described, the combination with a separating-plate having central apertures and a longitudinal partition substantially as described, of vertical flues arranged at all the corners or angles of the furnace and intended to accelerate the draft and while maintaining the temperature in the interior of the furnace to also convey a portion of the heated gases directly to the top of the upper muffle substantially as and for the purpose hereinbefore set forth.

643,459. TUBING. FREDERICK F. BISCHOFF, Chicago, Ill., assignor to Robert K. Hill, Louise Statler, and Anna Maier, same place. Filed May 15, 1899. Serial No. 716,812. (No model.)



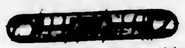
Claim.—1. A tube formed of a bent strip of sheet metal having lugs on its meeting edges, and a reinforcing-strip extending along the line of junction of said edges, said lugs being passed through slots in said reinforcing-strip, and clenched, substantially as described.

2. A tube formed of a bent strip of sheet metal having lugs on its meeting edges, and a reinforcing-strip extending along the line of junction of said edges, said lugs being passed through slots in said reinforcing-strip, and clenched, said lugs being arranged in alternate pairs, substantially as described.

3. A tube formed of a bent strip of sheet metal having lugs on its meeting edges, and a reinforcing-strip extending along the line of junction of said edges, said lugs being passed through slots in said reinforcing-strip, and clenched, said lugs being arranged in alternate pairs, said slots in said strip being each of sufficient length to receive two of said lugs, substantially as described.

4. A tube formed of a bent strip of sheet metal having lugs on its meeting edges, and a reinforcing-strip extending along the line of junction of said edges, said lugs being passed through slots in said reinforcing-strip, and clenched, said slots being of sufficient length to receive two of said lugs, and said lugs being bent over in opposite directions, substantially as described.

643,460. HAND-WHEEL FOR VALVES. FREDERICK F. BISCHOFF, Chicago, Ill. Filed Aug. 24, 1899. Serial No. 728,385. (No model.)

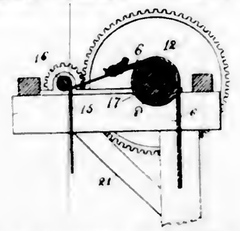


Claim.—1. A hand-wheel for valves, comprising two plates each provided with a polygonal central depression adapted to receive a heavy plate, and an encircling hollow felly provided with openings for permitting the free circulation of air therethrough, whereby the same is kept cool.

2. A hand-wheel for valves, comprising two plates each provided with a polygonal central depression adapted to receive a heavy plate, one of said plates being of greater diameter than the other and having its outer edge turned over to form a hollow felly in which the edge of said smaller plate is secured, and slots in said felly for ventilating the latter to keep same cool, and form a gripping-surface thereon.

3. A hand-wheel for valves, comprising two plates each provided with a polygonal central depression adapted to receive a heavy plate, one of said plates being of greater diameter than the other and having its outer edge turned over to form a hollow felly in which the edge of said smaller plate is secured, and slots in said felly for ventilating the latter to keep same cool, and form a gripping-surface thereon, and a central opening through said central depressions in said plates and through the plate therein to enable said wheel to be rigidly mounted on a valve-stem, substantially as described.

643,461. DROP-HAMMER. FREDERICK F. BISCHOFF, Chicago, Ill. Filed Oct. 28, 1899. Serial No. 735,018. (No model.)



Claim.—1. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a cord connected with said hammer at one end, a drum revolubly mounted upon a shaft carried by said frame and around which said cord is adapted to be wound, said drum being provided with devices adapted to be actuated by pulling on the free end of said cord for clutching same fast with said shaft to raise said hammer.

2. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a cord connected with said hammer at one end, a drum revolubly mounted upon a shaft carried by said frame and around which said cord is adapted to be wound, a drum mounted rigidly on said shaft within said first-named drum, said first-named drum being provided with a plurality of radially-movable members adapted to be actuated by pulling on the free end of said cord and moved radially inwardly to engage said inner drum to clutch said first-named drum rigid with said shaft, to raise said hammer.

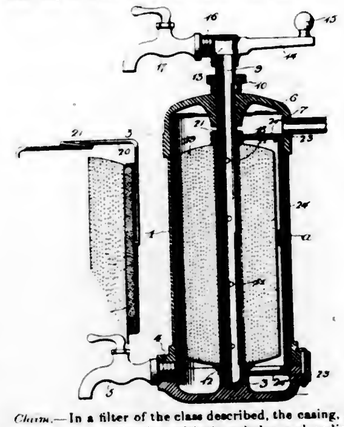
3. In a drop-hammer, the combination with a frame and a hammer vertically movable in said frame, of a shaft journaled in bearings on said frame, a drum loosely mounted on said shaft, a rope wound around said drum and connected at one end with said hammer, a shaft geared to said first-named shaft, a cord wound around said counter-shaft and connected at one end with said rope and having its other end depending loosely, and devices actuated by the tension of said rope for clutching said drum fast with said shaft to turn said drum whereby said hammer is raised, substantially as described.

4. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, and a rope wound around said segmental drum and connected at one end with said hammer, whereby when said rope is drawn taut said segmental drum is clutched fast with said shaft and said hammer is raised, substantially as described.

5. In a drop hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, a cord wound around said segmental drum and connected at one end with said hammer, and devices connected with the other end of said cord to aid the operator to draw same taut to move said segments inwardly to clutch said segmental drum fast with said shaft, whereby said hammer is raised, substantially as described.

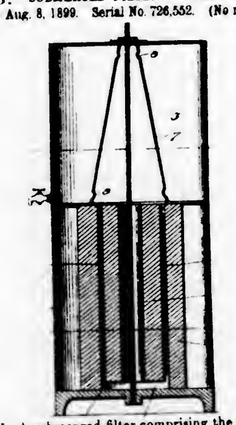
6. In a drop-hammer, the combination with a frame and a hammer vertically movable therein, of a shaft, a drum loosely mounted thereon and comprising two parallel disks and a plurality of radially-movable segments mounted therein, and springs for normally holding said segments at the outer limits of their movement, a collar or drum rigidly mounted on said shaft between said disks upon which said segments are adapted to bear when moved radially inwardly, to clutch the same, a shaft geared to said first-named shaft, a cord wound around said drum and connected at one end with said hammer, and a cord connected with the free end of said first named cord and wound around said last-named shaft, the other end of said last-named cord depending loosely from said last-named shaft, substantially as described.

643,462. WATER-FILTER. DWIGHT J. BLISS, Carthage, Mo. Filed July 15, 1899. Serial No. 723,938. (No model.)



Claim.—In a filter of the class described, the casing, a bracket *a* fixed therein, in combination with the tubular and radially-orificed shaft 9, the porous filtering-cylinder mounted on said shaft, the frame 24 engaging said bracket, and formed with the parallel arms 24' 24' encompassing said shaft above and below said cylinder, the spring-wire frame 20 encompassing said shaft, the cleaner-shoes 25 fixed to the outer ends of said spring-wire frame, the cleaner-stones 26 mounted in said shoes and the wire rods 23 23 connecting the said shoes and frame 24, substantially as shown and described.

643,463. SUBMERGED FILTER. DWIGHT J. BLISS, Carthage, Mo. Filed Aug. 8, 1899. Serial No. 726,552. (No model.)

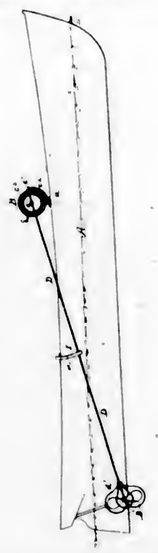


Claim.—1. A submerged filter comprising the filtering-cylinder, the superimposed tank, the cone-shaped brace and the tubular rod adapted to secure the stone, tank and brace together, substantially as and for the purpose set forth.

2. In combination, the cylindrical filter-stone, the superimposed tank, and the cleaner-shield encompassing said stone, substantially as and for the purpose set forth.

643,464. HAND PROPELLING MECHANISM FOR BOATS. FRANK BURNS, Philadelphia, Pa. Filed Sept. 21, 1898. Serial No. 691,493. (No model.)

Claim.—1. The combination of a boat having sockets at the gunwale, with a detachable propelling mechanism having pins adapted to the sockets at one side of the boat, said propelling mechanism consisting of a driving-head, a shaft and a propeller, substantially as set forth.



2. The combination of a boat having sockets at the gunwales on each side thereof, with two independent propelling mechanisms, each mechanism consisting of a driving-head, a shaft, a propeller and a rear guide, said driving-heads and guides having pins adapted to the sockets on the gunwales, substantially as set forth.

3. The combination in propelling mechanism for boats, of a frame adapted to be secured to the gunwale of the boat, a shaft in said frame, a crank on said shaft, a bevel-wheel also on the shaft, a propeller-shaft having at one end a bevel-wheel meshing with the bevel-wheel on the crank-shaft and having at the other end a propeller, said shaft having a pivot-bearing and a spring-supported bearing, substantially as described.

4. The combination of a boat having sockets in the gunwale thereof, a driving-head adapted to the forward socket, said driving-head consisting of a frame having a crank-shaft, a propeller-shaft adapted to bearings on the frame and having a bevel-pinion meshing with the bevel-wheel, a slotted guide adapted to a socket and through which the propeller-shaft extends, substantially as described.

5. The combination in driving mechanism for a boat, of an inclined propeller-shaft, a propeller at the lower end of the shaft, a cage inclosing said propeller, and a bevel-pinion on the opposite end of the shaft, a frame adapted to be secured to the gunwale of the boat, a crank-shaft on said frame, a bevel-wheel on the crank-shaft meshing with the bevel-wheel on the propeller-shaft, a slotted guide for the propeller-shaft, and a spring-supported bearing for the upper end of the propeller-shaft, substantially as described.

648,465. HARROW-TOOTH FASTENING. JAMES J. CALLENDER, Galesburg, Ill. Filed May 16, 1899. Serial No. 717,072. (No model.)



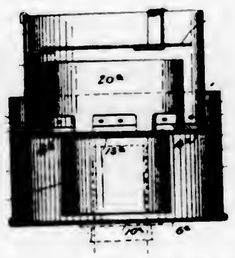
Claim.—1. The combination with a tooth-bar concave on its upper side, of a tooth-holding block having a convex lower side and a flattened upper side formed with an upwardly-projecting perforated lug, a harrow-tooth resting against the flattened upper side of the block and against said lug, a bolt passing through the tooth and the lug, and a bolt passing through the block and the tooth-bar at one side of the lug, substantially as described.

2. The combination with a draw-bar, and an oscillatory tooth-bar journaled in the draw-bar and concave on its upper side, of a tooth-holding block having a convex under side fitting the concave of the tooth-bar, an upwardly-projecting perforated lug on its upper side and a bolt-hole at one side of the lug, a harrow-tooth bearing against the block and against the lug thereon, and bolts securing the tooth to the lug and the block to the tooth-bar, substantially as described.

3. The combination with a tooth-bar having a concave upper side, of a tooth-holding block having a convex lower side fitting the concave of the tooth-bar, an offset flange at one end bearing against one edge of the tooth-bar, and a flattened upper side formed with an upwardly-projecting perforated lug, a harrow-tooth resting against the said flattened side of the block and against said lug, and bolts passing through the block and tooth-bar and the tooth and lug, substantially as described.

4. The combination of a draw-bar, an oscillatory tooth-bar journaled in the draw-bar, a tooth-holding block formed with an upwardly-projecting lug and secured to the tooth-bar at one side of said lug, a harrow-tooth resting against the upper side of the block and against the lug, and a fastening device passing through the harrow-tooth and the lug, substantially as described.

648,466. SUPERHEATING GAS-BURNER. JAMES L. CAMPBELL, West Elizabeth, Pa. Filed Oct. 24, 1899. Serial No. 734,670. (No model.)



Claim.—1. In a superheating gas-burner, combined superheating and gas and air mixing chambers, formed by a casing having a supplemental inner wall forming the superheating-chamber, said wall forming a partition between the superheating and mixing chambers, and closed at the top and open at the bottom, the casing having an imperforate top for the superheating-chamber and perforations in the top of the mixing-chamber and an asbestos and a metal ring resting on top of said mixing-chamber, out of alinement with the perforations, substantially as described.

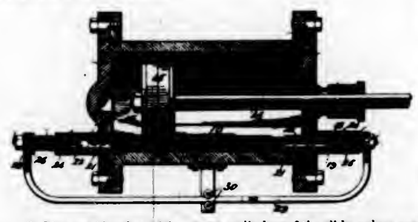
2. In a superheating gas-burner, the superheating and mixing chambers having an upper wall provided with an imperforate portion forming a top for the superheating-chamber and a perforated portion forming a top for the mixing-chamber, and an asbestos ring resting on top of said mixing-chamber, out of alinement with the perforations substantially as described.

3. In a superheating gas-burner, the combination of the superheating and mixing chambers having an upper wall provided with an imperforate portion forming a top for the superheating-chamber and a perforated portion forming a top for the mixing-chamber, and an asbestos and a metal ring resting on top of the mixing-chamber between two rows of perforations, substantially as described.

4. In a superheating gas-burner, the combination of the superheating and mixing chambers having an upper wall provided with an imperforate portion forming a top for the superheating-chamber and a perforated portion forming a top for the mixing-chamber, an asbestos ring resting on top of said mixing-chamber out of line with the perforations, and a flat radiator-ring and support for cooking utensils resting upon brackets, substantially as described.

648,467. SLIDE-VALVE. GEORGE W. CARPENTER and ROBERT WATSON, Nanaimo, Canada. Filed June 20, 1899. Serial No. 721,240. (No model.)

Claim.—1. The combination with a steam-cylinder, of the slide-valves, consisting of the oppositely-arranged open-ended valve-cylinders fitted in the cylinder-covers and provided with inlet and exhaust ports, the hollow valve-pistons slidable in such cylinders and formed with inlet and exhaust ports arranged to alternately register with the ports in the cylinders, the said pistons being formed with annular flanges at their outer ends engaging with the outer ends of the valve-cylinders when the pistons are moved inward which latter are considerably larger than such cylinders whereby to project inside the main cylinder when slid inward, and means for reciprocating said pistons, as and for the purpose set forth.



2. The combination with a steam-cylinder, of the slide-valves consisting of the open-ended valve-cylinders fitted in the main cylinder-covers and formed with diametrically opposite inlet and exhaust ports, the valve-pistons slidable in said valve-cylinders and provided with the alternately-registering inlet and exhaust ports, the said pistons being provided with flanges at their rear ends whereby to stop their inward movement, and projecting within the main cylinder at the limit of such movement, an extension on the rear end of each valve-piston, and a connecting-rod having its ends held on said extensions whereby to reciprocate the pistons, as set forth.

3. The herein-described slide-valve, comprising the open-ended cylinder, formed with inlet and exhaust ports and surrounding nipples and the hollow piston of greater length than said cylinder, being slidable therein and provided with alternately-registering ports, a flange on its rear end adapted to engage with the outer edge of the cylinder and a threaded extension on such rear end and formed with a non-circular base, as and for the purpose set forth.

648,468. CASTER-SOCKET. GEORGE D. CLARK, Plainville, Conn. Filed Nov. 16, 1899. Serial No. 737,163. (No model.)



Claim.—1. A caster-socket comprising a lower non-yielding portion of substantially cylindrical form, an upper portion integral therewith but contracted to a less diameter, the lower part of said upper portion being substantially non-yielding, the upper part of said upper portion being substantially yielding and arranged to grasp and detachably hold a caster-pintle.

2. In a caster-socket, a tubular portion having a plurality of circular non-yielding bearings, the uppermost of said bearings being of the smallest diameter, and yielding arms integral with said socket but above said uppermost bearing and arranged to grasp and detachably hold a caster-pintle.

3. A caster-socket comprising a lower non-yielding portion of substantially cylindrical form, an upper portion integral therewith but contracted to a less diameter, the lower part of said upper portion being substantially non-yielding, the upper part of said upper portion being substantially yielding, and inturned jaws carried by said yielding portion for grasping a caster-pintle.

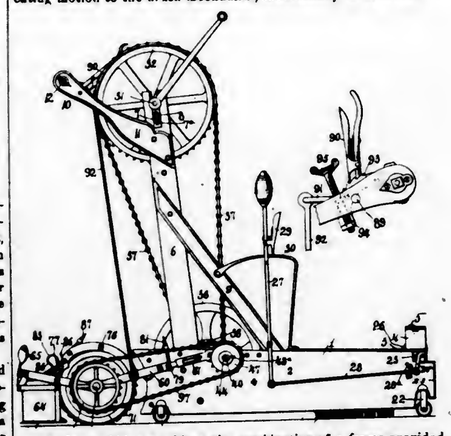
648,469. SCRUBBING-MACHINE. SAMUEL J. CLEE, Midland, Md. Filed May 28, 1897. Serial No. 638,611. (No model.)

Claim.—1. In scrubbing-machines, the combination of a frame provided with slide-rods, brush-carrying mechanism sliding on said rods, means for effecting the vertical adjustment of the brush-carrying mechanism, and further means for imparting reciprocatory motion thereto, substantially as described.

2. In scrubbing-machines, the combination of a frame, brush-carrier mechanism reciprocating on slides therein, means for effecting the vertical adjustment of the brush mechanism relatively to the said slides, a crank-shaft, and a connecting-rod for imparting reciprocating motion to the brush-carrying mechanism from the crank-shaft, substantially as described.

3. In scrubbing-machines, the combination of a frame, a brush-board carrying brushes, slide-rods on the said frame, a spider-bearing reciprocating on said slide-rods and connected with the brush-board, and means for imparting reciprocating motion to the said brush-carrier mechanism, substantially as described.

4. In a scrubbing-machine, the combination of a frame provided with slide-rods, a brush-board carrying brushes, a plate secured to said brush-board and provided with pins projecting upwardly therefrom, a spider-bearing provided with openings for the reception of said pins and bearing projections operating on said slide-rods, means connected with said spider for effecting the adjustment of the brush-board relatively to the slide-rods, and means for imparting reciprocating motion to the brush mechanism, substantially as described.



5. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board provided with brushes and projecting laterally beyond the frame at one side thereof, a plate secured to said brush-board and provided with pins projecting upwardly therefrom, a bearing-spider having a central body portion and a series of radial arms provided with openings for the reception of said pins, and bearing projections engaging said slide-rods, an adjusting-screw projecting through the said body portion of the bearing-spider and engaging the said brush-board plate, and means for imparting reciprocating motion to the said brush mechanism, substantially as described.

6. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board provided with bearings engaging said slide-rods, a crank-shaft, mechanism for driving the same, and a connecting-rod pivoted at one end to the brush-board and provided at the other end with a hook to engage the said crank-shaft, and a latch to confine it thereon, substantially as described.

7. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board, a bearing-spider adjustably connected therewith and provided with bearings engaging said slide-rods, a crank-shaft, means for driving the same, a connecting-rod pivoted at one end to the said spider and formed at its other end with a hook to engage the crank-shaft and with a groove or slot, and a sliding latch on said board provided with a tongue to engage said groove and a thumb-screw to engage the shaft and secure the rod thereon, substantially as described.

8. In scrubbing-machines, the combination of a frame provided with slide-rods and at the front with a handhold, a scrubbing-board provided with bearing projections to engage said slide-rods, means for effecting the vertical adjustment of the scrubbing-board relative to said rods, a crank-shaft, means for driving the same, a connecting-rod pivoted to the brush-board at one end and provided at the opposite end with a hook to engage the shaft, and a latch to retain it thereon, said rod being adapted to be disengaged with the crank-shaft and engaged with the said handhold when the machine is out of use, substantially as described.

9. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board provided with bearing projections engaging said slide-rods, means for effecting the vertical adjustment of the brush-board independently of the frame, further means for adjusting the front end of the frame independently of the brush-board, and means for imparting reciprocating motion to the brush-board, substantially as described.

10. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board provided with bearing projections engaging said slide-rods, roller-bearing brackets at the front end of the frame movable in vertical slots therein, a bar connecting the upper end of said brackets, and a shaft provided with cam-disks adapted to bear upon said bar to adjust the front end of the frame independently of said brush-board, substantially as described.

11. In scrubbing-machines, the combination of a frame, roller-brackets at each end of the frame vertically movable in slots therein, a cross-bar connecting the upper ends of said brackets, a reciprocat-

ing brush-board, a shaft extending across the front of the frame and provided with cam-disks to engage said cross-bar to lift the front end of the frame on said roller-brackets, an adjusting-lever, a connection between the said adjusting-lever and the cam-disk lever, and means for holding the adjusting-lever immovable, substantially as described.

12. In scrubbing-machines, the combination of a frame, roller-brackets at the front end of the frame movable in vertical slots therein, a bar extending across the front of the frame and connecting the two side boards thereof, said bar provided with two vertical lips or offset portions and a handhold, a reciprocating brush-board, an oscillatory shaft provided with cam-disks adapted to bear on the front end of the bar connecting the roller-brackets to lift the front end of the frame, a rock-shaft, and a connecting-rod pivoted at one end to the brush-board and having its other end adapted to engage either the crank-shaft or the said handhold, substantially as described.

13. In a scrubbing-brush, the combination of a frame provided with slide-bars, a brush-board reciprocating on said slide-rods, a crank-shaft provided with a sprocket, a connecting-rod connecting between the brush-board and crank shaft, a drive-shaft provided with a sprocket and a crank-handle, and a chain communicating between the said sprockets, substantially as described.

14. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board provided with brushes and bearing projections engaging said slide-rods, a crank-shaft, a drive-shaft, connections between said two shafts, a drying-roller in rear of the frame, and connections between the said drying-roller and the crank-shaft for revolving the former, substantially as described.

15. In a scrubbing-machine, the combination of a frame provided with slide-rods, a brush-board carrying brushes, a spider-bearing adjustably secured to said brush-board and provided with radial arms having bearing projections engaging the said slide-rods, a crank-shaft, a connecting-rod pivoted to said spider-bearing and having its other end detachably connected with the crank-shaft, roller-brackets operating in vertical openings in the side bars at the front of the frame, a bar connecting the said roller-brackets at the top, an oscillatory shaft provided with cam-disks adapted to bear on said connecting bar to adjust the front end of the frame, a lever pivoted to the frame and provided with a pawl adapted to engage a rack-bar thereon, and a rod connecting the adjusting and oscillatory levers, substantially as described.

16. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-board reciprocating thereon, a drive-shaft, a crank-shaft connected with the said brush-board and provided with a pinion, a connection between the drive and crank shafts, an auxiliary drive-shaft provided with a pinion meshing with the pinion on the crank-shaft, said crank-shaft being provided with a squared head and a threaded extremity, a sprocket-wheel mounted on said auxiliary shaft and provided with a locking-bolt, a clutch-disk fitted on the squared head of the shaft provided with an opening to receive the bolt to rigidly mount the sprocket on said shaft, a nut on the threaded end of the auxiliary shaft confining the clutch-disk thereon, a bearing-roller mounted on the shaft at the rear of the brush-frame, said shaft being provided with a sprocket, and a chain connecting the said sprocket and the sprocket on the auxiliary shaft, substantially as described.

17. In scrubbing-machines, the combination with a frame, brush mechanism, and means for driving the same, of a drying-roller in rear of the said frame and driven by said mechanism, said drying-roller having an outer layer of fabric folded or lapped upon itself to form a series of longitudinally-extending, tangentially-arranged flaps forming pockets or recesses between them to receive the dirt and water from the floor, substantially as described.

18. In scrubbing-machines, the combination with a frame, scrubbing-brushes, and means for driving the same, of a roller in rear of said frame driven by said mechanism, said roller having a cover or sheathing of waterproof material, a layer of absorbent material inclosing said waterproof material, and an outer layer of fabric folded or lapped upon itself to form a series of tangentially-arranged, longitudinally-extending flaps forming pockets or recesses, substantially as described.

19. In scrubbing-machines, the combination of a frame, scrubbing mechanism, means for driving said scrubbing mechanism, a drier-frame in rear of said scrubbing-frame and provided with a receptacle, a roller revolubly mounted in said frame and provided around the circumference thereof with retaining-flaps, and a clearance bar or blade adjustably connected with the roller and adapted to bear against the same and express the water therefrom and cause it to enter the receptacle, substantially as described.

20. In scrubbing-machines, the combination of a frame, brush mechanism, means for imparting reciprocatory motion thereto, a roller-frame pivotally mounted upon said scrubbing-frame, a drying-roller mounted therein and driven by the same mechanism that imparts motion to the scrubbing mechanism, an adjusting-shaft provided with a pawl, and arms projecting therefrom, rods connecting the drier-frame and said arms, a rack with which the said pawl is adapted to engage pivoted at one end and provided at the other end with a lateral projection, and an adjusting-screw engaging said lateral projection, whereby said rack may be adjusted as desired to regulate the vertical adjustment of the roller-frame, substantially as described.

21. In scrubbing-machines, the combination of a frame provided with slide-rods, a brush-frame sliding thereon, said brush-frame having one end projecting laterally beyond the frame at one side thereof, means for imparting reciprocatory motion to said brush mechanism, a roller-frame in rear of the brush-frame, a drying-roller revolubly mounted therein, and having one end projecting beyond the line of the frame at one side in line with the said projecting portion of the brush-frame, and a receptacle to receive the water and dirt taken up by the roller, substantially as described.

22. In scrubbing-machines, the combination of a frame provided with slide-rods, a scrubbing-board provided with brushes mounted on said slide-rods, means for reciprocating the said brush-board, a roller-frame pivoted to said brush-frame, a drying-roller mounted therein and provided around the periphery thereof with flaps forming pockets, a support in rear of said roller, a receptacle sliding in said support, and a clearing bar or blade extending transversely of the roller to press the water and dirt therefrom and allow the same to fall into the said receptacle, substantially as described.

23. In scrubbing-machines, the combination of a frame, brush mechanism mounted therein, means for reciprocating said brush mechanism, a roller-bearing frame pivotally mounted upon said brush-frame, a receptacle carried thereby, a roller mounted on a shaft journaled in said frame and provided with pockets, two segment-shaped arms pivoted to the side bars of the roller-frame and carrying a transverse bar or blade adapted to bear on the periphery of the roller, rods connecting said segment-arms, and means for adjusting said segment-rods, substantially as described.

24. In scrubbing-machines, the combination of a brush-frame, a brush-board carried thereby, means for reciprocating said brush-board, a roller-carrying frame pivoted to the said brush-frame, and provided at the rear thereof with a support, a receptacle sliding in said support, a roller mounted on a shaft having bearings in said roller-frame, two segment-shaped arms pivoted to the side bars of said roller-frame and provided at their pivoted ends with lips, adjusting mechanism acting on the said lips, rods connecting the two segment-arms, a transverse bar or blade carried by said bars and adapted to act upon the periphery of the roller, and means for adjusting said bar or blade independent of the segment-shaped arms, substantially as described.

25. In scrubbing-machines, the combination of a three-sided scrubbing-frame having one of its side boards provided with a recess or cut-away portion at the lower end thereof, a bar connecting the front ends of the two side bars and provided with lips or offset portions, slide-rods on the inner sides of said bars, a brush-board carrying brushes and having one side thereof provided with a lateral projection extending through the recess in the side bar of the frame, a spider-bearing adjustably connected with said brush-board and provided with bearing projections sliding on said rods, a crank-shaft carrying a sprocket-wheel, a drive-shaft provided with a sprocket in connection with said crank-sprocket by a chain, a rod connecting between the said spider-bearing and crank-shaft, roller-bearing brackets at the front of the frame operating in openings therein, a cross-bar connecting the upper ends of said roller-brackets, an oscillatory shaft provided with disks operating in the said offsets on the front connecting-bar and adapted to bear against said cross-bars to lift the front end of the frame on said brackets, an adjusting-lever pivoted to the frame and provided with a pawl engaging a rack thereon, and a rod connecting said lever with the oscillatory lever, substantially as described.

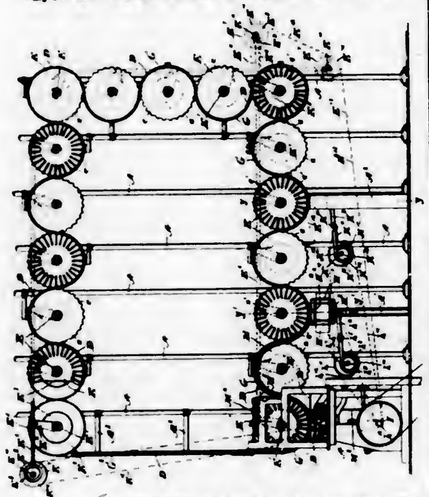
26. In scrubbing-machines, the combination of a frame, brush mechanism, a drying-roller provided around its circumference with flaps forming pockets or recesses, means for adjusting the roller-frame, a removable receptacle, a pair of segment shaped arms adjustably connected with the roller-frame, and a bar or blade carried by said arms and bearing against the periphery of said roller, said bar or blade being provided with independent adjusting means, substantially as described.

27. In scrubbing-machines, the combination of a frame, a scrubbing-board mounted therein and having one end projecting laterally beyond the frame, a crank-shaft, a rod connecting said crank-shaft and scrubbing-board, means for driving the crank-shaft, an auxiliary shaft in gear with said crank-shaft and provided with a sprocket, a drying-roller at the rear of the frame having one end projecting beyond the frame in line with the projecting end of the brush-board, said roller being mounted on a shaft carrying a sprocket-wheel, and a chain connecting the sprockets on said roller and auxiliary shafts, substantially as described.

28. In scrubbing-machines, the combination of a frame, a scrubbing brush having one end projecting laterally beyond said frame, a

crank-shaft, a drive-shaft imparting motion to said crank-shaft, a connecting-rod pivoted to the brush-board and detachably connected with the crank-shaft, an auxiliary shaft in gear with and driven by said crank-shaft, said auxiliary shaft being provided with a sprocket having suitable clutch connections, a roller-frame pivoted to the brush-frame in rear thereof, a drying-roller mounted on a shaft having bearings in said frame, and provided around its circumference with retaining-pockets, said roller-shaft being provided with a sprocket, a chain connecting between the said sprockets of the roller and auxiliary shafts, a pan or receptacle supported by the roller-frame in rear of the roller, two segment-shaped arms pivoted to the side arms of the roller-frame, a clearing bar or blade adjustably connected with the said arms to bear against the periphery of the roller, a shaft on the handle of the machine and provided with arms, rods connecting between said arms and the side bars of the roller-frame, a segment-rack pivoted at one end to the handle-frame and provided with rack-teeth and a lateral extremity at the other end, a pawl on a shaft adapted to engage with said rack-teeth, and an adjusting-screw adapted to bear against the said lateral extremity of the segment-rack and adjust the same vertically to regulate the vertical adjustment of the roller-frame, substantially as described.

648,470. MATCH-MAKING MACHINE. FRED M. CLOUGH, Athol, Mass., assignor to the Diamond Match Company, Chicago, Ill. Filed July 19, 1897. Renewed Oct. 19, 1899. Serial No. 734,134. (No model.)



Claim.—1. In a match-making machine, in combination with a series of separate splint-carrying devices, each having means for holding one or more rows of splints, two traveling carriers for the splint-carrying devices, having notches to engage portions of such devices and move them along, and latches on the carriers to engage portions of the splint-carrying devices and support the same adapted to be moved to disengage such portions, substantially as described.

2. In a match-making machine in combination with a series of separate splint-carrying devices, each provided with means for holding a row of splints, a pair of rotating wheels provided with notches to receive portions of such devices, and movable devices to engage and hold the splint-carrying devices with their portions in the notches of the wheels adapted to be moved to release the splint-carrying devices, substantially as described.

3. In a match-making machine, in combination with a series of separate splint-carrying devices, each provided with means for holding a row of splints, a pair of rotating wheels provided with notches to receive portions of such devices, latches on the wheels to engage and support portions of the splint-carrying devices, and means for tripping such latches, substantially as described.

4. In a match-making machine, in combination with a series of separate splint-carrying devices, each provided with means for holding a row of splints, a pair of rotating wheels having notches to receive portions of the splint-carrying devices, and spring-latches carried by the wheels to engage and support portions of the splint-carrying devices, substantially as described.

5. In a machine for making matches, in combination with a series of separate splint-carrying devices, each provided with means for holding a row of splints, a pair of rotating wheels having notches to receive portions of the splint-carrying devices, and spring-latches carried by the wheels to engage and support portions of the splint-carrying devices, and means for tripping the latches, substantially as described.

6. In a match-making machine, in combination with a series of separate splint-carrying devices, each provided with means for holding one or more rows of splints, a series of pairs of rotating wheels having notches to engage portions of the splint-carrying devices, the pairs of wheels being placed with their notched peripheries close together and having their notches so arranged, that the splint-carrying devices can pass from the notches of one pair of wheels directly into those of the succeeding pair, and means for shifting the splint-carrying devices from one pair of wheels to another, substantially as and for the purpose described.

7. In a match-making machine in combination with a series of separate splint-carrying devices, a series of pairs of rotating wheels placed close together and having notches to engage portions of the splint-carrying devices, the notches in each pair of wheels being adapted to come opposite those of the next pair in the series, and inclined guides to engage and shift the splint-carrying devices from the notches of one pair of wheels into those of the succeeding pair, substantially as and for the purpose described.

8. In a match-making machine, a series of separate splint-carrying devices, each provided with means for holding one or more rows of splints, a series of pairs of rotating wheels having notches to engage portions of the splint-carrying devices, and inclined guides to engage and shift the splint-carrying devices from one pair of wheels to another, as the wheels rotate, substantially as described.

9. In a match-making machine, in combination with a series of splint-carrying devices, each having means for holding one or more rows of splints, a pair of rotating wheels having notches to engage portions of the splint-carrying devices, latches on the wheels to engage portions of such devices, means for tripping such latches, transfer-guides to move the splint-carrying devices, to take their notch-engaged portions out of engagement with the notches of the wheels, and a second pair of rotating wheels having notches to receive portions of the splint-carrying devices, when the latter are shifted away from the first wheels, substantially as described.

10. In a match-making machine in combination with a series of splint-carrying devices, each having means for holding one or more rows of splints, a series of pairs of rotating wheels in which adjoining pairs rotate in opposite directions, the wheels of each pair being provided with corresponding notches to engage portions of the splint-carrying devices, guides for shifting the latter from one pair of wheels to the next succeeding pair, latches on the pairs of wheels under which the splint-carrying devices pass, to engage and support portions of such devices, and means for tripping such latches at the points where the splint-carrying devices are transferred to and from the latch-carrying wheels, substantially as described.

11. In a match-making machine, in combination with a series of splint-carrying devices, each having means for holding one or more rows of splints, a series of pairs of rotating wheels, in which adjoining pairs of wheels rotate in opposite directions, each wheel having notches to engage portions of the splint-carrying devices, guides to shift such devices from each pair of wheels to the next succeeding pair, latches on alternate pairs of wheels to engage and support portions of those splint-carrying devices which are engaged by the notches of such wheels, and cams to trip and hold back the latches for awhile, at the points where the shifting-guides shift the splint-carrying devices to and from the latch-carrying-wheels, substantially as described.

12. In a match-making machine, in combination with a series of splint-carrying devices, each having means for holding one or more rows of splints, a series of rotating wheels upon or from which the splint-carrying devices are supported, such pairs of wheels being placed close together, so that the splint-carrying devices can be transferred directly from one to another, and inclined guides to engage and shift such devices from one of the wheels to another, as the wheels revolve, and means for giving the wheels a simultaneous step-by-step motion, substantially as described.

13. In a match-making machine, in combination with a series of splint-carrying devices, each having means for holding one or more rows of splints, a pair of rotating wheels having notches to engage portions of the splint-carrying devices, guides to guide such devices to cause their notch-engaging portions to move into and out of the wheel-notches, the spring-latches in the wheels and cams to force back such latches out of the way of the splint-carrying devices, where the notch-engaging portions of the latter are moved into and out of the wheel-notches, substantially as described.

14. In a match-making machine in combination with a source of supply of splints adapted to move them endwise in a row, a series of splint-carrying devices, each having means to hold one or more rows of splints, a pair of rotating wheels having notches to engage por-

tions of the splint-carrying devices, latches to engage and support portions of the splint-carrying devices, and means for rotating the wheels to bring the means for holding rows of splints on the splint-carrying devices successively over the source of supply of splints, in position to receive a row of splints therefrom, substantially as described.

15. In a match-making machine, in combination with a source of supply of splints, adapted to move them endwise in a row, a series of splint-carrying devices, each having means for holding two or more rows of splints, a pair of rotating wheels having notches to engage portions of the splint-carrying devices, latches on the wheels to engage and support portions of such devices, means for rotating the wheels with a step-by-step rotation, to bring the means for holding separate rows of splints on the splint-carrying devices successively up to a position in line with the travel of the splints in the source of supply of the latter, and guides engaging the splint-carrying devices and causing them to move in a straight line, while they are over and are passing the source of supply of splints, substantially as described.

16. In a match-making machine in combination with a series of splint-carrying devices having means for receiving and holding one or more rows of splints, means for inserting rows of splints in such carrying devices, a pair of rotary wheels supporting and moving the splint-carrying devices past the splint-inserting means, and guides to engage the splint-carrying devices and cause them to rock, with reference to the wheels, when passing over the splint-inserting means, so that their splint-receiving devices will be presented properly in line with the splint-inserting means, substantially as and for the purpose described.

17. In a match-making machine, in combination with a series of splint-carrying devices, each having lugs and means for holding one or more rows of splints, a pair of rotating wheels having notches to engage such lugs, and latches on the wheels to support such lugs and hold them in the wheel-notches, substantially as described.

18. In a match-making machine, in combination with a series of splint-carrying devices, each having lugs and means for holding one or more rows of match-splints, a pair of rotating wheels having notches to engage the lugs on the splint-carrying devices, latches on the wheels to support such lugs and hold them in the wheel-notches, and cams to force such latches away from the lugs, substantially as described.

19. In a match-making machine, in combination with a series of splint-carrying devices, each having lugs and means for holding one or more rows of splints, rotating wheels having notches with convex bottoms to engage the lugs on the splint-carrying devices, means for supplying the splints in rows, and guides to cause the splint-carrying devices to travel in a straight line, when opposite the splint-supplying means, substantially as described.

20. In a match-making machine, in combination with a series of splint-carrying devices, each having lugs and means for holding one or more rows of splints, wheels having notches with convex bottoms to engage the lugs on the splint-carrying devices, latches carried by the wheels to support such lugs and hold them in the wheel-notches, guides to engage the splint-carrying devices and cause them to travel in a straight line, during a portion of their movement with the notched wheels, means for rotating the wheels with a step-by-step movement, and means for thrusting match-splints in rows into the splint-holders on the carrying devices, substantially as described.

21. In a match-making machine, in combination with a series of splint-carrying plates, each having lugs on its opposite ends and one or more rows of splint-receiving perforations, a pair of wheels having notches to receive the lugs on the plates, latches on the wheels to engage and support the lugs in the wheel-notches, means for giving the wheels a step-by-step rotation, and splint-supplying mechanism arranged to thrust rows of splints into the rows of perforations in the plates, as such rows of perforations are brought opposite it by the movement of the notched wheels, substantially as described.

22. In a match-making machine, in combination with a series of splint-carrying plates, each having end lugs and several rows of splint-receiving perforations, a pair of wheels provided with notches with convex bottoms to engage the plate-lugs, latches on the wheels to engage such lugs and support them in the wheel-notches, guides between which the plates are passed by the rotation of the wheels, adapted to cause such plates to travel in a straight line, while at and passing a given point, a splint-supplying mechanism to thrust the splints in rows into the rows of perforations in the carrier-plates, as such rows are successively brought up to such given point by the rotation of the wheels, and means for rotating the latter, substantially as described.

23. In a match-making machine, in combination with a series of match-splint carriers provided with means for receiving and holding match-splints, a series of pairs of wheels having notches to engage portions of the carriers, the pairs of wheels being placed close together so that the splint-carriers can be transferred directly from one pair to the next succeeding one, means for transferring such carriers from each pair of wheels to the next succeeding pair, gearing connecting the pairs of wheels, and means for rotating the wheels with a step-by-step rotation, substantially as described.

24. In a machine for making matches, in combination with a series of splint-carriers provided with means to receive and hold match-splints, a series of pairs of wheels with notches to engage portions of the carriers, the pairs of wheels being placed close together in the series and having their notches arranged so that those in one pair of wheels come opposite those in the next pair, means for guiding the carriers from the notches of one pair of wheels to those of the next pair, gearing connecting the pairs of wheels, ratchet-wheels connected with the notched wheels, movable arms carrying pawls to engage and actuate the ratchet-wheels, and means for moving such arms simultaneously, substantially as described.

25. In combination with a series of pairs of notched wheels, and a series of splint-carrying devices adapted to be engaged by the notches in the wheels, intermeshing gearing rotating with the pairs of wheels, and gearing the latter together, a ratchet-wheel connected with each pair of notched wheels, a swinging arm for each ratchet-wheel provided with a pawl to engage the latter, a reciprocating bar connected with the several ratchet-arms, so as to actuate the same, as the bar reciprocates, and means for reciprocating the bar, substantially as described.

26. In a match-making machine, in combination with a series of match-splint carriers provided with means for receiving and holding the splints, a series of pairs of wheels provided with notches to engage portions of the carriers, such pairs of wheels being placed close together in the series, so as to bring the notches in one pair close to those of the next succeeding pair, means for shifting the carriers from one pair of wheels to the next succeeding pair, gearing rotating with the pairs of wheels and meshing together, so as to gear adjoining pairs of wheels together, ratchet-wheels connected with the pairs of notched wheels, swinging arms carrying pawls to engage and actuate the ratchet-wheels, a moving bar connected with the pawl-carrying arms, so as to cause them to swing simultaneously, and means for actuating the bars, substantially as described.

27. In a composition-applying mechanism for match-making machines, in combination with a vat containing the composition, a rising and falling frame, carrying a pan to take a layer of composition from the vat, means for raising and lowering such frame, a movable scraper, to remove excess of composition from the pan, situated and moving always above the vat contents, and means for causing such scraper to move across the pan, as the latter is raised from the vat, substantially as described.

28. In a composition-applying mechanism for match-making machines, in combination with a vat for the composition, a rising and falling frame carrying a pan to take a layer of composition from the vat, means for raising and lowering such frame, a scraper-bar moved upward by the raising of the pan, and inclined slots in stationary pieces, to engage portions of the bar and cause the latter to move across the pan, as it rises, substantially as described.

29. In combination with the vat for the composition, a rising and falling frame, a pan on the latter to take composition from the vat, means for raising and lowering the frame, the scraper-bar, a support for the bar, when the pan is down in the composition, and stationary pieces having inclined guides to engage portions of the bar and guide the latter across the pan, as the latter rises, substantially as described.

30. In combination with the vat for the composition, the pan for taking a layer of composition therefrom, means for moving such pan to submerge it in and raise it above the composition in the vat; the scraper-bar, and supports carrying inclined slots engaging bearing projections on bar ends to cause the bar to travel to and fro across the pan, as the bar rises and falls, substantially as described.

31. In combination with the vat for the composition, the pan for taking a layer of composition therefrom, means for moving such pan to submerge it in and raise it above the composition in the vat, the scraper-bar, supports carrying inclined slots engaging portions of the bar, to cause it to move across over the pan as it rises and falls, and the sliding plates having horizontal slots engaging portions of the bar, substantially as described.

32. In combination with a vat for the composition, the pan for taking a layer of composition therefrom, means for moving such pan to submerge it in and raise it above the composition in the vat, the scraper-bar, supports provided with inclined slots to engage portions of the bar at or near the opposite ends thereof, and upright slots at the upper ends of the inclined slots, and vertically-sliding plates, having horizontal slots also engaging portions of the scraper-bar, substantially as described.

33. In combination with a vat for the composition, the pan for taking a layer of composition therefrom, means for lowering and raising the pan to submerge it in and raise it above the vat contents, the scraper-bar, supports having inclined slots engaging portions of the bar, and vertically-sliding plates, guided in suitable ways on such supports, and having transverse slots engaging squared portions of the scraper-bar, substantially as described.

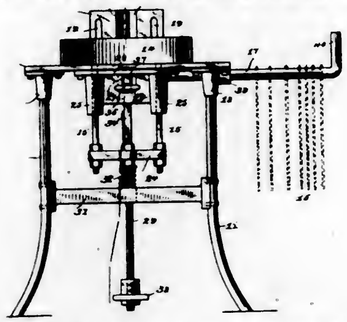
34. In combination with a vat for composition, the pan for taking a layer of composition therefrom, a reciprocating frame carrying the pan, means for lowering and raising such frame, the scraper-bar, vertically-reciprocating plates having transverse slots through which the bar passes, near its opposite ends, and the stationary supports having slots engaging portions of the bar at or near its ends, such slots having corresponding inclined portions with short vertical portions at the upper ends of the inclines, substantially as described.

35. In a match-making machine, in combination with a carrier for the splints, having a series of holders to receive and hold the splints and means for moving the same, with a step-by-step movement, so as to bring the series of splint-holders successively up to and past a given point, a composition-containing vat, a pan for taking a layer of composition therefrom and raising it to and around the splint ends, such pan being of sufficient extent to include within it the ends of the splints in several of the holders at a time, means for lowering and raising the pan adapted to move it slowly to immerse it in the vat contents, then raising it to a point just below the splint ends during the period required to give the splint-carrier several of its step-by-step movements and then giving it a quick up-and-down movement, to cause immersion of the splint ends in the layer of composition and lower the pan below the splint ends, while the carrier is at rest, after one of its step-by-step forward movements, substantially as described.

36. In a match-making machine, in combination with splint-carriers having means for receiving and holding the splints in rows, and means for moving such carriers with a step-by-step movement to bring the rows of splints successively up to a given point, a composition-containing vat, a pan to take a layer of composition therefrom and raise it, so that the lower ends of splints in the carrier will be immersed therein, such pan being of sufficient extent to cause the ends of several rows of splints to be immersed at a time, means for moving such pan adapted to move it slowly to immerse it in the vat contents and raise it again to a point just below the ends of the splints carried by the carrier, while the carrier is moving through several of its step-by-step movements, and the intervening period or periods of rest, and then to move it quickly up and down, during one of the periods of rest of the carrier, substantially as described.

37. In a match-making machine in combination with a series of splint-carrying devices, each having means for receiving and holding several rows of splints, means for moving such carrying devices, with a step-by-step movement, a composition-containing vat, a pan adapted to take a layer of composition therefrom of sufficient extent to dip the ends of all of the splints held in any one of the splint-carrying devices, means for moving the pan, adapted to move it to immerse it in the contents of the vat and then raise it to a point just below the path of the lower ends of the splints, while a splint-carrying device is being moved through several of its step-by-step movements to bring it directly over the pan, and then to give such pan a quick up-and-down movement, to cause immersion of all the splints of such carrying device in the layer of composition and return of the pan to a position below the splint ends, while the splint-carrying device is at rest, after one of its step-by-step movements.

648,472. TABLE FOR HOOPING COILED METAL. William A. Cowles, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company, same place. Filed Dec. 6, 1899. Serial No. 739,378. (No model.)



Claim.—1. In a device of the character described the combination with a table and a curved holding-plate, of vertically-movable holding-pins which when in the raised position coact with the holding-plate to prevent a coil of metal from uncoiling.

2. In a device of the character described the combination with a table and a curved holding-plate, of vertically-movable holding-pins whose upper ends lie flush with the table at the lowered position and extend above the table at the raised position, for the purpose set forth, a cross-head by which they are carried, a spring for normally holding said cross-head at the raised position, and a footpiece whereby said cross-head may be lowered against the power of the spring.

3. In a device of the character described the combination with a table and a curved holding-plate, of vertically-movable holding-pins, a cross-head by which they are carried, a spring for raising the cross-head and holding-pins, means for lowering the cross-head against the power of the spring and means for locking the cross-head at the lowered position.

4. In a device of the character described the combination with a table and a curved holding-plate, of vertically-movable holding-pins, a cross-head by which they are carried, a spring for raising the cross-head and holding-pins, means for lowering the cross-head against the power of the spring, a locking-lever one arm of which is provided with a handpiece for convenience in operation and the other with a leg adapted to engage the cross-head at the lowered position, and a spring acting to retain said locking-lever in the engaging position.

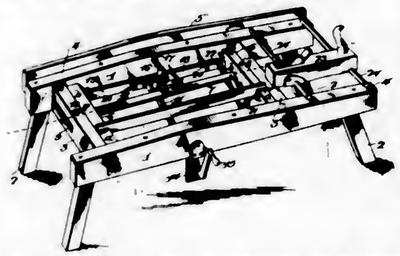
5. In a device of the character described the combination with a table and curved holding-plate, of vertically-movable holding-pins, guides therefor secured to the table, a cross-head by which the holding-pins are carried, a rod 29 by which the cross-head is carried and which is provided with a footpiece, a guide for said rod, and a spring bearing against said guide and the cross-head whereby the latter is normally held at the raised position.

6. In a device of the character described the combination with a table and a curved holding-plate, of a retaining-plate rigidly secured to the table on which the holding-plate is vertically adjustable, and vertically-movable holding-pins which coact with the holding-plate, substantially as and for the purpose set forth.

7. In a device of the character described the combination with a table and a retaining-plate rigidly secured thereto and provided with vertical slots and a vertical recess, of a curved holding-plate having a projection to engage the vertical recess, bolts which pass through the slots and engage the holding-plate, a guide-pin passing through the holding-plate, and vertically-movable holding-pins, substantially as shown, for the purpose specified.

8. In a device of the character described the combination with a table, a curved holding-plate and vertically-movable holding-pins, of an oscillatory and laterally-movable holder for hoops, bearings therefor under the table, spring locking-plates, and lugs upon the cross-pieces being provided with longitudinal slots; of two sets of clamping-jaws, each set comprising the fixed jaw and the movable jaw, a bar connecting the movable clamping-jaws and having its ends extending through the slots in the cross-pieces, an operating-lever pivoted to one of the side pieces of the frame and provided with a crank-arm, a link connecting the crank-arm with the bar, a spring connecting one of the side pieces of the frame with the crank of the operating-lever to retract the movable jaws, means for holding the operating-lever in adjusted position, and a spring-actuated gage adapted to support the stave while being inserted between the movable and fixed jaw of each set, substantially as and for the purpose set forth.

648,471. STAVE-JOINTER. John F. R. Connell, Calvary, Ga. Filed Oct. 28, 1899. Serial No. 735,083. (No model.)

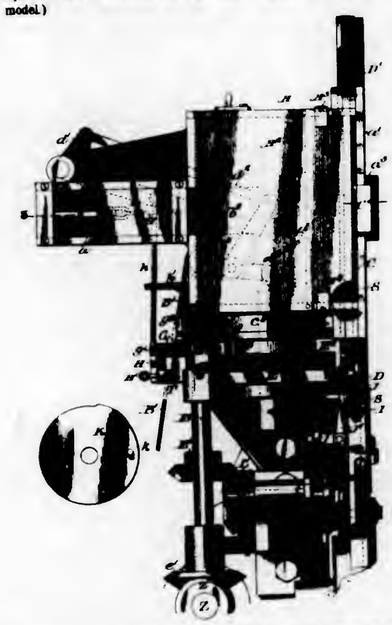


Claim.—1. In a stave-jointer, the combination with the longitudinal side pieces connected by cross-bars and having formers secured thereto; of two sets of clamping-jaws, each set of which is composed of a fixed jaw and a movable jaw, and means for forcing the movable jaw of each set toward the fixed jaw of each set, said means comprising a pivoted spring-actuated crank-lever, and a bar to which the crank-lever is pivoted, the ends of said bar being pivoted to the movable jaws, substantially as and for the purpose set forth.

2. In a stave-jointer, the combination with the longitudinal side pieces of the frame and the cross-pieces connecting the same, said

holder, one of which engages one of the locking-plates to retain the holder in operative position, the other lug being adapted to engage the other locking-plate to retain the holder out of operative position.

648,473. TYPE-SETTING MACHINE. PAUL F. COX, Chicago, Ill., assignor to the Cox Type Setting Machine Company, same place. Filed Apr. 20, 1898. Renewed July 26, 1899. Serial No. 725,196. (No model.)



Claim.—1. In a type-setting machine, the combination of the space-channel, a space-reservoir, and a plunger adapted to transfer lines of spaces from said reservoir to said channel, and a rock-shaft and levers for operating said plunger; with a shaft carrying a cam for operating said rock-shaft, a continuously-rotating gear on said shaft beside said cam, a pawl carried by said cam adapted to engage a lug on the gear, and a trip adapted to cause said pawl to disengage said lug, and means for causing said trip to release the pawl, substantially as and for the purpose described.

2. In a type-setting machine, the combination of the space-channel, the presser therein and levers for lifting said presser; a space-reservoir and a plunger adapted to transfer lines of spaces from said reservoir to said channel, and a rock-shaft and arms for operating said plunger; with a shaft carrying a cam for operating said levers and a cam for operating said rock-shaft, a continuously-rotating gear on said shaft beside one of the cams, a pawl carried by such cam adapted to engage a lug on the gear, a pivoted trip, adapted to cause said pawl to disengage said lug, a catch for said trip, and means for disengaging said catch, controlled by the descent of said presser, substantially as and for the purpose described.

3. In a type-setting machine, the combination of the space-holding channel, the space-ejector therein, a continuously-rotating shaft, a cam frictionally mounted thereon, and a rock-lever for operating said ejector adapted to be actuated by said cam; with the pivoted trip for locking said cam, the catch for locking the trip, and means substantially as described for releasing the catch when the space key or bar is depressed, substantially as and for the purpose described.

4. The combination of a rotatable shaft, a cam fixed thereon, a gear loosely mounted on said shaft, and means for continuously rotating said gear, a device on said cam adapted to engage said gear and lock the cam thereto, and a trip for disengaging the pawl from the lug, and means for controlling the trip, substantially as described.

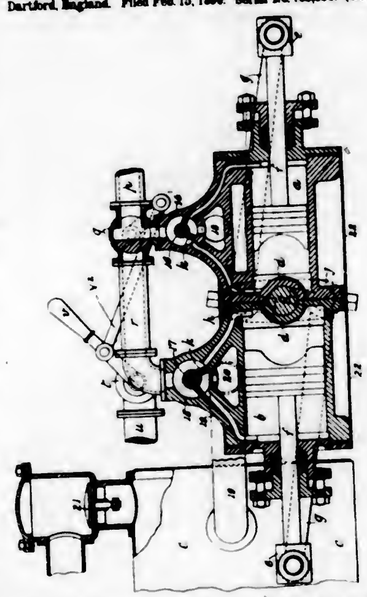
5. The combination of a rotatable shaft, a cam fixed thereon, and a gear loosely mounted on said shaft, beside the cam, and means for continuously rotating said gear, a device on said cam adapted to engage said gear and lock the cam thereto, a pivoted trip for disengaging the device from the gear, whereby when said trip is released, the cam is locked to the gear, and a pin on the trip adapted to engage a cam-notch in the periphery of the cam; whereby the trip is thrown into position to cause the device to release the gear when the cam has made a complete revolution, substantially as described.

6. In a type-setting machine, the combination of a space-channel, a space-ejector, a rocking spring-retracted lever for operating said ejector, a continuously-rotated shaft, a cam for operating said lever loosely mounted on said shaft, friction-clutches for causing said cam to rotate with the shaft, an oscillating trip for locking said cam, and a catch for locking said trip, and a rod for disengaging said catch connected to the space-bar, all substantially as described.

7. In a type-setting machine, the combination of the space-channel, the presser therein, the space-reservoir beside the channel communicating therewith, a plunger for moving the line of spaces from the reservoir into the channel, and a rocking shaft and levers for operating said plunger from a race-cam, with a stub-shaft carrying said cam, a loose gear on said shaft, means for continually driving said gear, a pawl carried by said cam adapted to engage a lug on said gear and lock the cam thereto, a trip for disengaging the pawl from said gear, and the catch for locking said trip and means for causing the catch to release said trip, when the presser descends to a certain point, substantially as described.

8. In a type-setting machine, the combination of the vertically-disposed space-channel, the presser therein, the levers for raising said presser, the space-reservoir beside the channel communicating therewith, a plunger for moving the line of spaces from the reservoir into the channel, a rock-shaft and levers for operating said plunger, and means forwarding the spaces in the reservoir; with a vertically-disposed stub-shaft, a loose gear thereon, means for continually driving said gear, a cam on said shaft for operating said presser-levers, a race-cam on said shaft for operating said rock-shaft, a pawl carried by said race-cam adapted to engage a stop on the said gear and lock the race-cam thereto, a trip for disengaging the pawl from said gear, and a catch for locking said trip, and a trip-rod connected to said levers adapted to disengage the catch from said trip when the presser descends to a certain point, substantially as described.

648,474. FLUID-PRESSURE ENGINE. ALFRED H. CROCKFORD, Dartford, England. Filed Feb. 15, 1899. Serial No. 705,550. (No model.)



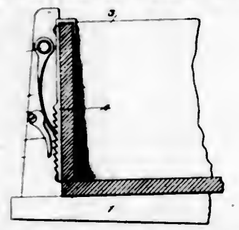
Claim.—1. In a double-acting multiple-expansion engine, the combination, with a rotary crank-shaft having cranks set at an angle of one hundred and eighty degrees, of cylinders located in axial alinement with each other on opposite sides of said shaft, a high-pressure cylinder being located on one side and a low-pressure cylinder on the other side thereof, two of said cylinders being joined end to end with said shaft extending transversely and centrally between them, the pistons of said high and low pressure cylinders being coupled respectively to said cranks, substantially as hereinbefore described.

2. A double-acting multiple expansion engine comprising cylinders whose axes are in the same straight line and two of which are joined end to end, a rotary crank-shaft extending transversely and centrally between the joined ends of said two cylinders and having cranks set at an angle of one hundred and eighty degrees, a high-pressure cylinder being located on one side and a low-pressure cylinder on the other side of said shaft, pistons in said cylinders, and means to couple the pistons of said high and low pressure cylinders respectively to said cranks, said cylinders being of such relative proportions that approximately equal forces will at all times be exerted in inverse directions upon said cranks, substantially as hereinbefore described.

3. A multiple-expansion engine comprising a rotary crank-shaft having cranks set at an angle of one hundred and eighty degrees, journal-bearings supporting said shaft on opposite sides of said cranks, cylinders in axial alinement with each other and distributing-valves therefor supported by and capable of being rocked through a small angle about said shaft, at least one high-pressure cylinder being located on one side of said shaft and at least one low-pressure cylinder on the opposite side thereof and two of the cylinders being joined end to end about said shaft so that said shaft extends transversely and centrally between them, and pistons in said cylinders, the pistons of said high-pressure and low-pressure cylinders being coupled respectively to said cranks, substantially as hereinbefore described.

4. A double-acting multiple-expansion engine comprising a rotary crank-shaft having cranks set at an angle of one hundred and eighty degrees, a high-pressure cylinder and a low-pressure cylinder situated on opposite sides of said rotary crank-shaft in axial alinement with each other and joined end to end with the crank-shaft extending transversely and centrally between them and having their adjacent ends closed and their pistons coupled respectively to said cranks, substantially as hereinbefore described.

643,475. WAGON-BOX HOLDER. WILLIAM A. CROTTS, Partridge, Kans. Filed Oct. 31, 1899. Serial No. 735,400. (No model.)



Claim.—1. A wagon-box holder, comprising a rack-bar adapted to be secured to the side of the box, a dog mounted to swing on the wagon-standard and adapted for engagement with the teeth of the rack-bar, and a lever pivoted to the standard and having a cam-head engaging with the dog, substantially as specified.

2. A wagon-box holder, comprising a rack-bar secured to the wagon-box, a spring-yielding dog mounted to swing on a standard of the wagon and adapted for engagement with a tooth of the rack-bar, and a cam-lever for holding the dog in engagement with the rack-bar, substantially as specified.

3. A wagon-box holder, comprising a rack-bar attached to the wagon-box, and a part supported on a standard of the wagon and adapted for engagement with said rack-bar, substantially as specified.

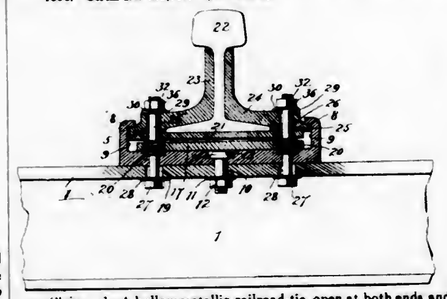
643,476. STRAIGHTWAY VALVE. DAVID J. CROMER, New York, N. Y. Filed Apr. 11, 1899. Serial No. 712,604. (No model.)

Claim.—1. The combination with a valve-body having a straightway passage longitudinally therethrough which is contracted near the longitudinal center, and also provided with a coniform valve-seat that crosses the passage at right angles thereto, of a cylindrical extension-chamber screwed upon a projection on the valve-body and directly above the valve-seat, opposite vertical guides in the extension-chamber, a valve-stem having a collar seated in a recess formed in the upper wall of the extension-chamber, said stem being threaded below the collar, a keeper-disk notched in the edge to pass over the guides and adapted to loosely hold the collar of the stem in its seat, a neck formation on the extension-chamber, having a packing-box thereon through which the valve-stem passes, a hand-wheel or its equivalent on the upper end of the valve-stem, and a coniform valve-gate having threaded engagement with the threaded portion of the valve-stem and adapted to close or open the passage in the valve-body.

2. The combination with a valve-body having a longitudinal straightway passage therethrough, and also provided with a coniform valve-seat at right angles with said passage, of an extension-chamber on the valve-body above the larger end of the coniform valve-seat, two opposite vertical guides in the extension-chamber, a valve-stem threaded in its lower portion that occupies the hollow valve-seat, an adjustable and securable collar on the valve-stem at or near the upper end of the thread thereon, a keeper-disk notched in the edge to pass upon the guides and adapted to loosely hold the collar in a recessed seat formed for it in the top wall of the extension-chamber, a packing-box on the upper portion of said extension-chamber, and a hand-wheel on the valve-stem above the packing-box.



643,477. RAILROAD-TIE AND RAIL-FASTENING. WILLIAM T. DARBY and CHARLES A. HOOGE, Martinsburg, W. Va. Filed Oct. 18 1899. Serial No. 733,966. (No model.)



Claim.—1. A hollow metallic railroad-tie, open at both ends and constructed with a solid flattened top containing bolt-holes, a flattened bottom wall composed of two inwardly-projecting horizontal flanges having the inner edge of one separated from the inner edge of the other by a continuous longitudinally-extended slot for diminishing the sound of a passing train, and folded outward-extended portions or flanges at the top and bottom of the tie, on each side thereof, substantially as described.

2. A railroad-tie, consisting of a single piece of rolled metal constructed with a flattened top wall containing bolt-holes, a flattened bottom wall composed of inwardly-projecting horizontal flanges having the inner edge of one separated from the inner edge of the other by a continuous longitudinal slot for diminishing the sound of a passing train, and formed with folded portions at the opposite sides of its top and bottom portions, substantially as described.

3. A hollow, rolled metallic railroad-tie open at both ends, and formed integral with a flat top wall, opposite side walls, top and bottom folds at its opposite sides, and inwardly-projecting, horizontal flanges having the inner edge of one separated from the inner edge of the other by a continuous slot for diminishing the sound of a passing train, substantially as described.

4. A hollow, rolled metallic railroad-tie open at both ends, and formed integral with a flat top wall, opposite side walls, top and bottom folds at its opposite sides, inwardly-projecting, horizontal flanges having the inner edge of one separated from the inner edge of the other by a continuous longitudinal slot for diminishing the sound of a passing train, and constructed with depending lugs to engage longitudinal beams or stringers and prevent lengthwise displacement of said cross-tie, substantially as described.

5. A hollow and open-ended metallic railroad-tie having bolt-holes in its top and provided at the bottom with a longitudinally-

extended slot or opening, in combination with flanged tie-caps adjustable on said tie, an elastic sound-deadening plate supported by each tie-cap and provided with perforations, coiled springs arranged in said perforations and supported by the tie-caps, a rail-chair supported on said springs and having a fixed jaw to bear against one side of the rail-web and a detachable jaw for the other side of the rail-web, and bolts for securing the tie-caps and rail-chairs, substantially as described.

6. The combination with a hollow open-ended metallic railroad-tie provided with top flanges, of tie-caps having depending longitudinally-grooved flanges to fit said top flanges of the tie and provided with upward-extended and longitudinally-grooved flanges at right angles to said depending flanges and with bolt-holes intermediate the upward-extended flanges, an elastic sound-deadening plate supported by each tie-cap and provided with perforations, coiled springs arranged in said perforations and supported by the tie-caps, a rail-chair supported on said springs and having a fixed jaw to bear against one side of the rail-web and a detachable jaw for the other side of the rail-web, and bolts for securing the tie-caps and rail-chairs, substantially as described.

7. The combination with a hollow metallic railroad-tie, of tie-caps provided with depending flanges to fit the tie and with upward-extended and longitudinally-grooved flanges at right angles to said depending flanges, each tie-cap being provided also with transversely-arranged series of bolt-holes between its upward extended flanges and with a diagonally-arranged series of bolt-holes intermediate the transversely-arranged bolt-holes to facilitate adjustment of said tie-caps, an elastic sound-deadening plate supported by each tie-cap and provided with perforations, coiled springs arranged in said perforations and supported by the tie-caps, rail-chairs and rails supported on said springs, and bolts for securing the tie-caps and rail-chairs, substantially as described.

8. The combination of a hollow metallic railroad-tie, the tie-caps adjustable on said tie, elastic sound-deadening plates supported by the tie-caps and provided with perforations, concentrically-arranged coiled springs placed in said perforations and supported by the tie-caps, rail-chairs and rails supported on said springs, and bolts passed through said springs and through the rail-chairs, tie-caps and top of the hollow tie, substantially as described.

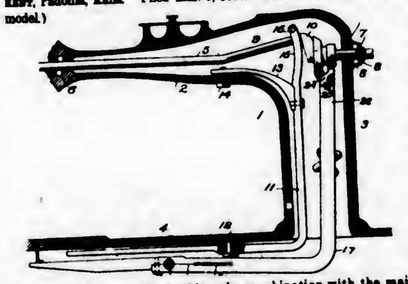
9. The combination with a hollow and open-ended metallic railroad-tie having bolt-holes in its top near each end and a longitudinally-extended slot or opening in its under side, of flanged tie-caps each provided with transversely-arranged bolt-holes and with a series of diagonally-arranged bolt-holes to facilitate adjustment of said caps on the tie, rail-chairs having yielding support in said tie-caps, and rails secured by said chairs, substantially as described.

10. The combination with a hollow metallic railroad-tie, and tie-caps, of elastic sound-deadening plates supported by said tie-caps, rail-chairs and rails, and spiral springs to support the rail-chairs, substantially as described.

11. The combination with a hollow metallic railroad-tie, and tie-caps, of elastic sound-deadening plates supported by the tie-caps and provided with perforations, concentric spiral springs arranged in said perforations and normally projecting above the said elastic plates rail-chairs supported on said springs, and rails secured by said chairs, substantially as described.

12. The combination with hollow metallic railroad-ties open at both ends and at the bottom, of flanged tie-caps adjustable on said ties, rail-chairs extended from the caps of one tie to the caps of an adjacent tie and adapted to serve as fish-plates for the ends of abutting rails, and yielding supports for said chairs, substantially as described.

643,478. SEWING-MACHINE MECHANISM. MURNEY DRUDGEFF, Padonia, Kans. Filed Mar. 6, 1897. Serial No. 626,226. (No model.)



Claim.—1. In a sewing-machine, the combination with the main shaft, and a cam thereon having two independent working surfaces, one of which is beveled or oblique, of an oscillating elbow-shaped lever directly engaging the feed-plate and having two independent working surfaces one of which is beveled corresponding to the beveled portion of the cam, whereby a compound movement is imparted to said lever, substantially as described.

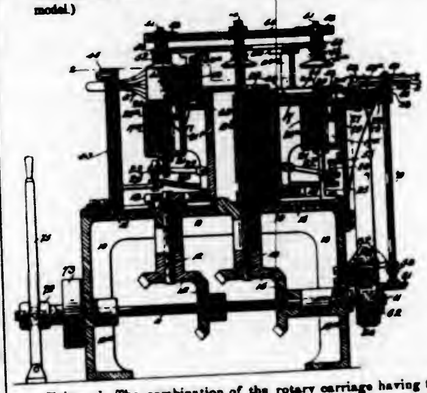
2. In a sewing-machine, the combination with an oscillating feed-lever, of a spring located within the machine-arm and arranged in the path of said lever, and an adjusting-screw connected with the machine-arm and bearing against said spring for varying the position thereof, thereby regulating the length of stitch, substantially as described.

3. In a sewing-machine, the combination with the main shaft, of an oscillating feed-lever actuated directly thereby, and a lug within the machine-arm, against which the said lever bears and upon which it fulcrums and slides substantially as described.

4. In a sewing-machine, the combination with the main shaft, of an oscillating lever fulcrumed under the bed-plate and extending up within the machine-arm and actuated directly by said shaft, and a stationary lug within the machine-arm serving as a bearing and fulcrum against which the lever rests and upon which it rocks and slides, substantially as described.

5. In a sewing-machine, the combination with the main shaft, of an oscillating feed-lever fulcrumed under the bed-plate, an obliquely-disposed leg upon the inside of the sewing-machine arm, forming a rest and fulcrum for said lever, and an obliquely-disposed strip of soft material such as felt, secured to said lever and extending substantially at a right angle to the leg, substantially as and for the purpose described.

648,479. CAN-WASHING MACHINE. JAMES DUN BERRAY, New Westminster, Canada. Filed Oct. 3, 1899. Serial No. 732,012. (No model.)



Claim.—1. The combination of the rotary carriage having the annular series of upwardly-movable supports for cans, a ring 50 rigidly fixed to and at a suitable distance above the carriage, an annular series of spindles having disks 51ª journaled therein, pinions on the upper ends of said spindles, a gear 54 secured to a vertical shaft 13, which meshes with the pinions and travels in an opposite direction to the pinions and the rotary carriage, whereby the said spindles and disks will be revolved rapidly as they pass around.

2. In a machine for washing cans, the combination with a rotary can-carriage 17 having the annular series of upwardly-movable can-supports 20, and means for elevating and depressing the same and for rotating the cans; of a brush-supporting frame 38 adjustably fixed above the axis of the rotary carriage, and having inner brushes on its outer side presented in an arc form to the inner path of the passing cans; of a water-box 41 having the flat or blade-like outlet suspended in proximity to the outer path described by the cans, and means for ejecting water or steam therefrom, and the whisk-brushes 47 arranged in a frame 48 so that as the cans are carried around they will be brushed, as specified.

3. In a can-washing machine the combination with the frame 10, having the upwardly-projecting column 10ᵇ, and the rotary carriage arranged to turn thereon, and upwardly-movable can-supports in said carriage; of a ring 50 rigidly connected to and supported above the rotary carriage, spindles arranged to turn and to have slight vertical movement in bearings directly over the can-supports in the table, can-engaging covers on the depending ends of said spindles, and pinions secured to the upper ends of same; of a shaft 13 passing vertically through the column 10ᵇ, a gear-wheel 54 secured to the top end thereof and the same meshing with the pinions on the spindles, and means for imparting an opposite movement to the shaft 13 to that of the carriage 17 and ring 50 whereby the spindles will be revolved rapidly on their planetary movement around the wheel 54.

4. The combination of the frame and the rotary carriage for passing the can through a hot-water-spray bath and between brushes arranged in its path and having the annular series of vertically-movable can-supports therein, and means for raising and depressing the same, as specified; a ring 50 fixed to and supported above the table, the annular series of vertically-movable spindles in said ring, can-closing members on such spindles, springs interposed between the ring and the can-closing members, whereby they will be pressed downward, means for rotating the spindles at a comparatively high speed, and for introducing a can between the upwardly-movable can-supports and the revolving disks or closures, as specified.

5. In combination with the frame 10 and the rotary carriage mounted thereon, having the annular series of can-supports 20 arranged to turn on stems 21; of a ring secured to and at some distance above the rotary carriage, the annular series of rotatable can-closures 51ª journaled in said ring at intervals over the can-supports, and means for introducing cans between the supports 20 and the closures 51ª, and for moving the cans upward and thus compacting them with the closures and supports and for passing the cans against a hot-water-spray bath and brushes, as specified.

6. In combination with the frame 10 with the upwardly-projecting column 10ᵇ, a rotary can-table thereon, means for passing cans thereround and for rotating them thereon; of the inner brushes 39 adjustably fixed and projecting into the inner side of the path of the cans, a hot-water supply arranged on the outer side of the can-track and whisk-brushes 47 fixed in a vertical adjustable frame 46 for the purposes as specified.

7. In a machine for the purposes described in combination with the rotary carriage having the annular series of vertically-movable can-supports therein and the can-closures above the said supports, a shaft 11 and transmitting-gears 14, 19 and 18, imparting a slow movement to the table 17, a shaft 13 having movements imparted thereto by the gears 15, which is twice as fast as the movements of the table 17 and in the opposite direction, and means of imparting comparatively fast movement to the can-closures from the shaft 13, as set forth.

8. A can-washing machine having the frame 10, a rotatable can-carrier, and an annular series of vertically-movable and rotatable can-supports therein, means for passing cans around a common center on the supports in the carrier, and for moving said cans upward and compacting them with an annular series of rapidly-revolving closure members above, whereby the cans will be closed and revolved by such closure members, and brushes arranged on each side of the can-path, as specified.

9. In a can-washing machine having a frame 10, a rotatable can-carrier mounted thereon, and means for passing cans thereround and for rotating them thereon, a rigidly-fixed brush extending into the can-track, in combination with a water-box 41 supported on standards 42 and 43, and a brush-frame 46, supported by the standard 43, and a similar one 45, a water-box and the said brush-frame forming an arc around the outer path described by the cans, and slots 43ª in the said standards for raising or lowering the water box or the brush-frame, as specified.

10. In a machine of the class described having the frame 10 with the column 10ᵇ, the rotary can-carrier mounted thereon, and guide-brackets 33 and 34 passing horizontally over a feed-belt 29 and connecting with the outer side of the machine's frame, in combination with a trigger mechanism 56 having the fingers 56ª for spacing the cans, as specified.

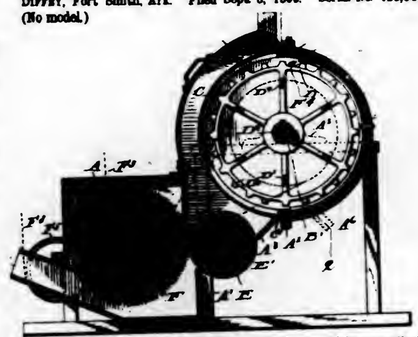
11. In a machine for washing cans having the rotary can-carriage with a crescent-shaped frame 28 on one side thereof, and an endless feed and delivery belt passing thereover, and means for passing cans from and to said belt; a slot 28ª in the outer side of said crescent frame, a pin 57 secured therein, a trigger pivoted on said pin, having fingers thereon projecting laterally over the said belt; a slot 28ª in the frame 28 parallel with the slot 28ª, a pin 64 in the said slot, a lever 65 fulcrumed on said pin, a slot 56ᵇ in the rear end of the trigger, a slidable pin 58 in said slot, means for holding the pin 58 normally to the inner side of the slot 56ᵇ, and means for oscillating the lever 65 whereby the fingers of the trigger will be thrust into the path of the cans.

12. A can-feed mechanism comprising an endless feed-belt for feeding cans to a rotary carriage, and for delivering the same therefrom, a trigger mechanism having laterally-disposed movable fingers 56ª, which engage and retard the cans, and a rotatable elliptical-cam mechanism 63, having resilient arms 68 projecting from its major axis, which feeds four cans to the carriage for each revolution thereof.

13. A feed mechanism for cans, comprising an endless belt for supplying cans to and delivering same from a rotary carriage, in combination with a crescent frame 28 for the said belt to pass over on a plane with the top of said carriage; a trigger 56 pivoted to frame 28, a cam 63 arranged to turn on a shaft 60 at a speed of two to one of the carriage; a lever 65 fulcrumed on the frame 28, one end of which connects with an elliptical groove in the cam 63, and the other end lies against a slidable pin 58 in the trigger 56, which pin is normally a fixed point in the trigger, whereby the same will be oscillated on its pivot as and for the purposes set forth.

14. The combination of a can-washing machine having the frame 10, the rotary can-carriage mounted thereon, the inner and outer guides having corresponding concave guiding edges at each side for passing cans to and from the carriage, and the endless feed-belt 29 for supplying the cans to the carriage and delivering them therefrom, as specified.

648,480. MACHINE FOR CLEANING SEED. ALEXANDER A. DUFFEY, Fort Smith, Ark. Filed Sept. 8, 1899. Serial No. 729,847. (No model.)



Claim.—1. A machine for cleaning seed comprising a cylinder having a longitudinal vertically-disposed side segment provided with an abrading-surface and an opposite vertically-disposed side segment provided with a reticulated face, a casing spaced from said reticulated face and communicating with a discharge at its lower portion, and a rubbing device adapted to rub the seed over the abrading-surface and afterward to agitate the seed over the reticulated surface to permit the free escape of liberated matter from the seed through the reticulated face into the space between said face and casing; substantially as specified.

2. A machine for cleaning seed comprising a cylinder having a longitudinal vertically-disposed side segment provided with an abrading-surface and an opposite vertically-disposed side segment provided with a reticulated face, a casing spaced from said reticulated face and communicating with a discharge at its lower portion, and a sectional rubbing-drum provided with separated peripheral lugs adapted to rub the seed in its contact with the abrading-surface and to agitate the seed to permit the escape of lint from the seed as it is carried from the reticulated face; substantially as specified.

3. A machine for cleaning seed comprising a cylinder having a longitudinal side segment of its inner face provided with abrading-plates and an opposite side segment provided with a reticulated face, a rubbing-drum rotatable within said cylinder, a casing spaced from said reticulated face and provided with a discharge at its lower portion, a lint-roll beneath said discharge, and a linting-brush adapted to contact with said roll; substantially as specified.

4. A machine for cleaning seed comprising a cylinder having a segment of its inner face provided with abrading-plates and another segment provided with a reticulated face, a sectional rubbing-drum adapted to rotate within said cylinder, and fan-blades rotatable with the sections of said drum; substantially as specified.

5. A machine for cleaning seed comprising a cylinder having a segment of its inner face provided with abrading-plates and another segment provided with a reticulated face, a sectional rubbing-drum adapted to rotate within said cylinder, fan-blades rotatable with the sections of said drum, and flange-plates at the opposite ends of said drum; substantially as specified.

6. In a machine for cleaning seed, the combination with a casing provided with sockets, of segmental abrading-plates fitting said sockets and clamped by a block at their meeting ends and provided with corrugations, a reticulated face forming a segment of said cylinder, and a rubbing-drum adapted to coöperate with said plate; substantially as specified.

7. In a machine for cleaning seed, the combination with a casing, of an abrading-plate carried by a segment thereof and provided with spirally-disposed corrugations, a reticulated face forming a segment of said cylinder, a rubbing-drum adapted to coöperate with said plates and a fan device rotatable with the drum to produce a current of air therein; substantially as specified.

8. In a machine for cleaning seed, the combination with a cas-

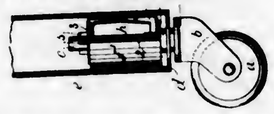
ing, of an abrading-plate carried by a segment thereof and provided with spirally-disposed corrugations, a reticulated face forming a longitudinal side segment of said cylinder, a rubbing-drum adapted to cooperate with said plates, and a pivoted casing covering said reticulated side section and communicating with a discharge at its lower portion; substantially as specified.

9. In a machine for cleaning seed, a casing provided with a recessed portion having beveled sockets at opposite ends, abrading-plates beveled at opposite ends and adapted to seat in said sockets, and a clamping-strip having beveled faces to engage the adjacent beveled faces upon the plates and clamp the same in contact with the casing, and a rubbing-drum composed of separated members cooperating with said plates and carrying fan-blades therein; substantially as specified.

10. In a machine for cleaning seed, a cylindrical casing bearing abrading-plates and having a reticulated portion, a sectional abrading-drum composed of independent disks having upon their periphery rubbing-lugs, the lugs upon one of said disks alternating with those upon another, a fan-blade carried by the spokes of said disk, and means for rotating said disks comprising the drum within said cylinder; substantially as specified.

11. In a machine for cleaning seed, a cylinder carrying abrading-plates and having a reticulated section, a rubbing-drum composed of separated members within said cylinder and provided with fan-blades therein, a lint-roll extending longitudinally beneath said reticulated portion and provided with a roughened surface, a lint-brush adapted to remove the lint from said roll, and a discharge-chute communicating with said brush to receive the lint therefrom; substantially as specified.

648,481. CASTER. ALBERT R. DIBB, New York, N. Y. Filed May 25, 1899. Serial No. 718,131. (No model.)



Claim.—1. The combination with the caster-wheel, the jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of guide-frames secured to the pintle and having edges parallel to the pintle and bearing against the inner surface of the tubular leg to hold the caster frictionally in place and center the pintle, and means for pressing the parallel edges against the tubular leg, substantially as set forth.

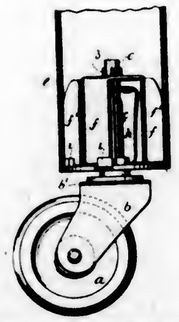
2. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of guides having edges parallel to the pintle and to each other and bearing against the inner surface of the tubular leg and a spring between said parallel edges acting outwardly to press them against the inner surface of the tubular leg, substantially as set forth.

3. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of guide-frames having portions parallel to each other and to the pintle and having edges parallel to each other and to the pintle and elongated openings in the respective ends to receive the pintle, and an internal spring acting outwardly to press the said parallel edges against the inner surface of the tubular leg to center the pintle and to frictionally hold the caster in place, substantially as set forth.

4. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of guide-frames having portions parallel to each other and ends at right angles to said main parallel portions with elongated holes in the said ends to receive the pintle, the said guide-frames being similar to each other with the ends lapping, and said guide-frames having edges that are parallel to each other and to the pintle and an internal spring spanning the pintle and adapted to press the guide-frames outward and cause the parallel edges thereof to bear against the inner surface of the tubular leg to center the pintle and to hold the caster frictionally in place, substantially as set forth.

648,482. CASTER. ALBERT R. DIBB, New York, N. Y. Filed May 26, 1899. Serial No. 718,132. (No model.)

Claim.—1. The combination with the caster-wheel, jaws and pintle, and a disk surrounding the pintle and upon which the tubular leg rests, of an inverted-U frame spanning the pintle with its free ends adjacent to the disk, said frame consisting of two main approximately parallel portions with vertical bearing edges, the edges being approximately parallel to each other and to the pintle and a spring acting outwardly to press the said edges against the tubular leg to center the pintle and hold the caster frictionally in place, substantially as set forth.

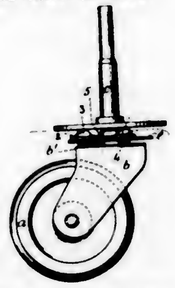


2. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of an inverted-U frame spanning the pintle with its free ends adjacent to the disk, said frame consisting of two main approximately parallel portions with edges bent to form radial wings, the edges of the wings being approximately parallel to each other and to the pintle, a spring between the frame to press the free ends outward and stops to limit the movement of the frame outward and crosswise of the disk, substantially as set forth.

3. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of an inverted-U frame spanning the pintle with its free ends adjacent to the disk, said frame consisting of two main approximately parallel portions with edges bent to form radial wings, the edges of the wings being approximately parallel to each other and to the pintle, a spring between the frame to press the free ends outward, and stops formed as lugs integral with the disk and turned upward from the edge thereof and coming within the spread of each pair of radial wings to limit the movement of the frame outward and crosswise of the disk, substantially as set forth.

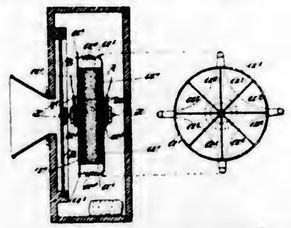
4. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of an inverted-U frame spanning the pintle with its free ends adjacent to the disk, said frame consisting of two main approximately parallel portions with edges bent to form radial wings, the edges of the wings being approximately parallel to each other and to the pintle, and stops formed as lugs integral with the disk and turned upward from the edge thereof and coming within the spread of each pair of radial wings and within the tubular leg to limit the movement of the frame outward and crosswise of the disk and to center the disk and pintle, substantially as set forth.

648,483. CASTER. ALBERT R. DIBB, New York, N. Y. Filed May 26, 1899. Serial No. 718,134. (No model.)



Claim.—The combination with the wheel, the jaws, the vertical pintle connected therewith and the disk surrounding the pintle and upon which the caster-leg rests, of a ball-platform between the top of the jaws and the disk and having cupped-up walls 2 with opposite notches formed in said walls, balls having axes or shafts, the notches being made so as to cause the axes or shafts to set radial to the caster-pintle and to be received in said notches, the openings in said ball-platform being larger than the balls so that the balls will turn freely therein on their axes or shafts as the ball-platform turns with the movement of the parts in use, substantially as set forth.

648,484. MICROPHONIC TRANSMITTER. GEORGES, F. DUPONT, Paris, France, assignor to Pierre Germain, Fontenay-aux-Roses, France. Filed Apr. 1, 1898. Serial No. 676,108. (No model.)



Claim.—1. A microphone consisting of carbon disks, a plurality of cells between them, granulated carbon in said cells and springs adapted to hold the disks together, in combination with a vibrating member, to which said disks are attached and by which they are solely carried, substantially as described.

2. A microphone consisting of a pair of carbon disks, elastic tubing of less length than the diameter of the disks connecting said disks and granulated carbon between them, in combination with springs to hold the disks together and a vibrating membrane to which said disks are attached and by which they are solely supported, substantially as described.

3. A microphone consisting of a pair of carbon disks, elastic tubing connecting them, granulated carbon between them, openings in said tubing, and wire around said tubing partially closing the openings to prevent the granulate from escaping, substantially as described.

648,485. NUT-LOCK WASHER. EDWIN L. EDMONDSON, Staunton, Va. Filed May 9, 1899. Serial No. 716,114. (No model.)



Claim.—1. A nut-lock consisting of a washer-plate having two slits substantially in line with each other upon the same side of the bolt-aperture, and entering the body of the washer from opposite points with an integral portion of metal between them, whereby, by a turn of a wrench or similar tool, the points may be turned in opposite directions to engage the nut and the object beneath the nut, substantially as described.

2. A nut-lock consisting of a washer-plate having two slits cut in substantially the same direction upon the same side of the bolt-aperture, and entering the body of the washer from opposite points, with an integral portion of metal between them, whereby, by a turn of a wrench or similar tool the points may be turned in opposite directions, to engage the nut and the object beneath it, substantially as set forth.

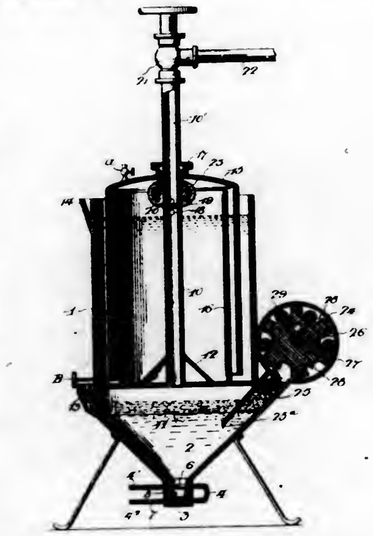
3. A nut-lock consisting of a concave washer having projections downwardly punched from the upper surface thereof, and having slits substantially in line with each other upon the same side of the bolt-aperture, and entering the body of the washer from opposite points, with an integral portion of the metal between the slits whereby, by a turn of a wrench or similar tool, the points may be turned in opposite directions, to engage the nut and the object beneath the nut, substantially as shown and described.

648,486. ACETYLENE-GAS GENERATOR. HENRY J. REHN, Washington, D. C., assignor to George McGovern, Richmond, Va. Filed Aug. 3, 1899. Serial No. 726,059. (No model.)

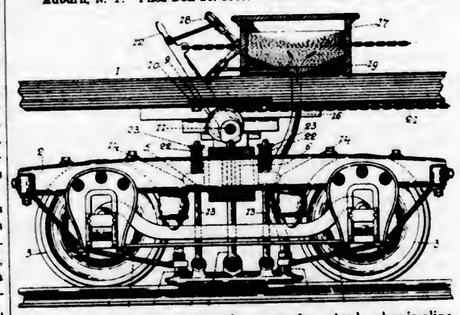
Claim.—1. In combination, the stationary tank formed with the conical bottom and discharge-pipe, the duplex valve mounted in the discharge-pipe, the horizontal diaphragm, the tubular standard 10, arising from said standard and formed with the orifices 18 and 20, the partition 19 intermediate said orifices and the holder 15 having a sliding engagement with said standard, substantially as and for the purpose set forth.

2. In combination, the stationary tank, formed with the conical bottom, the diaphragm 9, the tubular standard fixed in said diaphragm, and provided with the orifices 18 and 20, the partition 19 fixed intermediate said orifices, the wire cage surrounding the orifice 20 and a suitable absorbent material packed within said cage, and the holder having a sliding engagement with said standard, substantially as and for the purpose set forth.

3. In combination, the stationary tank formed with the conical bottom terminating in the valved discharge-pipe, the diaphragm 9, the magazine communicating with the tank beneath the diaphragm, the tubular standard fixed in the diaphragm and opening into the space beneath the diaphragm and provided with the orifices 18 and 20, the partition 19 fixed in the tubular standard between said orifices, the holder having a sliding engagement with the standard, the pocketed drum 27 mounted in the magazine and means for rotating said drum through the medium of said holder, substantially as and for the purpose set forth.



648,487. BRAKE FOR RAILWAY-CARS. GORDON S. FANNING, Auburn, N. Y. Filed Dec. 26, 1899. Serial No. 741,549. (No model.)

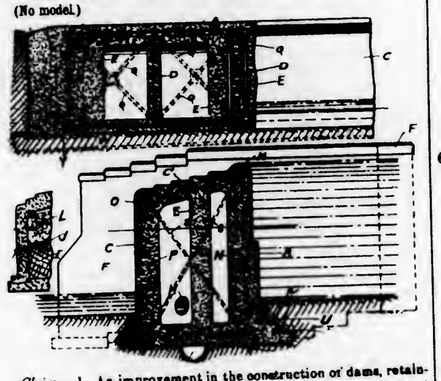


Claim.—1. In a brake for railway-cars &c., a brake-shoe in alinement with the rail or rails of the road-bed on or near the tread-surface of said rail or rails; a vertical bolt midway of said brake-shoe and a cam at the top end thereof; vertical bolts near the ends of said brake-shoe having springs on the upper ends thereof; holes at either end of said brake-shoe extending through the same with sand-box connections, and brace-rods at either end of said brake-shoe substantially in the manner and for the purpose herein described and shown.

2. In a brake for railway-cars &c., a brake-shoe carried in alinement with the rail of the road-bed at or near the tread-surface of the same having a vertical bolt pivoted midway thereon provided with a cam at its top end adapted to depress said brake-shoe on said rail, and vertical bolts near the ends thereof provided with springs at their top ends adapted to lift said brake-shoe from said rail, and holes formed through said brake-shoe near either end thereof combined with flexible sand-box connections adapted to admit a flow of sand through said holes and brace-rods at either end having forked ends to admit of the vertical action of said brake-shoe substantially constructed in the manner and for the purpose herein described and shown.

3. In a brake for railway-cars &c., a brake-shoe carried in alinement with the rail of the road-bed at or near the tread-surface of the same, having a vertical bolt pivoted midway thereon provided with a cam at its top end adapted to depress said brake-shoe on said rail, and vertical bolts near the ends thereof provided with springs at their top ends arranged to lift said brake-shoe from said rail, and holes formed through said brake-shoe near either end thereof and flexible sand-box connections adapted to admit a flow of sand through said holes; combined with brace-rods at either end having forked ends to admit of the vertical movement of said brake-shoe, and means for supplying the sand to said flexible sand-box connections when said brake-shoe is depressed on the tread of the rail of the road-bed and to shut the same off therefrom when said brake-shoe is released from said depression on said rail substantially constructed in the manner and for the purpose herein described and shown.

643,488. DAM, RETAINING-WALL, BREAKWATER, &c. JOHN S. FIELDING, Pittsburg, Pa. Filed Apr. 13, 1899. Serial No. 712,873. (No model.)



Claim.—1. An improvement in the construction of dams, retaining-walls and other like structures, comprising vertical longitudinal cement walls, transverse cement walls uniting the longitudinal walls, and a top wall, substantially as shown and described.

2. An improvement of the character described, comprising an abutment, an anchorage therein, vertical longitudinal walls integral with the abutment and parallel with each other, vertical transverse walls uniting the longitudinal walls, trusses in each longitudinal wall secured to the abutment-anchorage, and truss-uniting struts in the transverse walls, substantially as shown and described.

3. In the construction of dams, retaining-walls and other similar structures, parallel longitudinal walls and connecting transverse walls, weep holes or perforations in the downstream wall, and filling in the cavities between the walls, substantially as shown and described.

4. In the construction of dams, retaining-walls, and other similar structures, the combination of the dam or wall, longitudinal drains at the base thereof, and outlets for the drains, substantially as shown and described.

5. In the construction of dams, retaining-walls and other similar structures, the combination of the dam or wall, a longitudinal drain beneath the foundation thereof and porous on its upstream side, and an outlet for the drain, substantially as shown and described.

6. In the construction of dams, retaining-walls, and other similar structures, the combination of the dam or wall, longitudinal drains at the base thereof, and wells into which the drains discharge, substantially as shown and described.

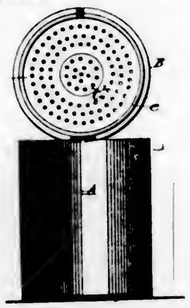
7. In a dam, an abutment, vertical drains at the inner or bank side of the abutment, and outlets for said drains, substantially as shown and described.

8. In the construction of dams, retaining-walls and other like structures, the combination of separated longitudinal walls, trusses embedded in the walls, transverse members connecting the walls, an abutment, and an anchorage therein for the trusses.

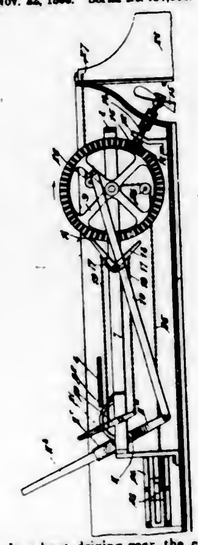
643,489. COVER FOR GARBAGE-CANS. MORIS FISCHER, New York, N. Y. Filed Oct. 10, 1898. Serial No. 693,194. (No model.)

Claim.—1. A cover for garbage-cans, constructed of an outer closed wall and an inner wall, said inner wall being provided with a number of perforations, and a disinfectant-receptacle screwed into one of said perforations and provided with a detachable cover at the outside of the inner wall, the bottom of said disinfectant-receptacle being also provided with perforations, substantially as set forth.

2. A cover for garbage-cans, constructed of an outer closed wall and an inner wall, said inner wall being provided with a number of perforations, and a disinfectant-receptacle attached to said inner wall and provided with perforations communicating with the interior space of the cover between the two walls, and a cover for said disinfectant-receptacle located at the outside of the inner wall and provided with perforations communicating with the air outside of the cover, substantially as set forth.



643,490. BOAT DRIVING-GEAR. JOHN A. FREUND, New York, N. Y. Filed Nov. 22, 1899. Serial No. 737,910. (No model.)



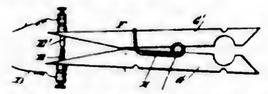
Claim.—1. In a boat driving-gear, the combination of a gear-wheel, means for imparting movement thereto, an elbow-lever forming a double pawl, pivoted adjacent to the wheel and movable to alternately engage its arms therewith, for the purpose specified, means for operating the elbow-lever, and devices driven by the gear-wheel and having connection with the propeller, to drive the same.

2. In a boat driving-gear, the combination of a wheel forming part of the gear and provided with two oppositely-disposed ratchet-like lugs, a double pawl mounted adjacent to the wheel and movable to alternately engage its arms therewith, the pawl working with the said lugs of the wheel, and means for shifting the double pawl.

3. In a boat driving-gear, the combination of a wheel forming part of the gear, and an elbow-lever forming a double pawl, pivoted adjacent to the wheel and capable of having its arms alternately engaged therewith to control the movement of the wheel.

4. In a boat driving-gear, the combination of a gear for imparting movement to the propeller-shaft, a connecting-rod attached to the gear to drive the same, and two hand-levers fulcrumed respectively on the sides of the boat and projecting upward above the same, each lever having its lower arm bent transversely and extended inward and downward to the end of the connecting-rod, to which rod such arms of the levers are pivotally attached.

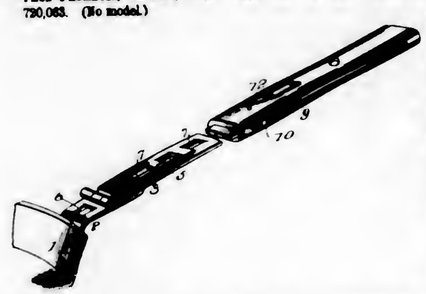
643,491. PYROXYLIN AUTOMATIC ELECTRIC FIRE-ALARM. JEHAN DE FROMENT, Notre Dame de Lourdes, Canada. Filed July 26, 1899. Serial No. 725,173. (No model.)



Claim.—1. A thermostatic apparatus comprising an actuated device, an operating device therefor, said operating device comprising spring-pressed members, a continuous locking-cord engaging both members and having an unbroken stretch between them, and a charge of highly-inflammable material independent of the locking-cord, said charge being held between the said members and engaging the cord.

2. An electric fire-alarm provided with a circuit-closer having spring-pressed members, a cord for locking the members in an open position, a charge of pyroxylin held on said members, with the cord in contact with the charge, and threads of pyroxylin leading from said charge in different directions, as set forth.

643,492. EXTENSION-HANDLE FOR CULINARY ARTICLES. PAUL FROMHOLZ, Calumet, Mich. Filed June 10, 1899. Serial No. 720,063. (No model.)



Claim.—1. In an extensible handle for culinary articles, relatively-slidable sections, one of the sections being tubular and having longitudinal slots in its opposite sides and having an end closed, and the other section slidable through an opening in the said closed end and having lateral extensions to operate in the said longitudinal slots, substantially as described.

2. In a handle of the character described, a fixed section having upper and lower projections at its outer end, and a tubular section slidable upon the fixed section and having its inner end provided with a plate apertured to receive the fixed section and having its outer end open and its upper and lower walls in engagement with the said extensions, substantially as set forth.

3. The combination with a frying-pan or the like, a catch applied to one side of the pan, a foldable handle secured at one end to the diametrically opposite side of the pan, a catch member pivoted to the free end of the handle and adapted to be turned down and interlock with the catch of the pan, and a tubular section slidable upon the handle and adapted when extended to house the pivoted catch member, substantially as set forth.

643,493. THEATER APPLIANCE. IDA M. FULLER, Forest City, Iowa. Filed Nov. 10, 1899. Serial No. 736,558. (No model.)



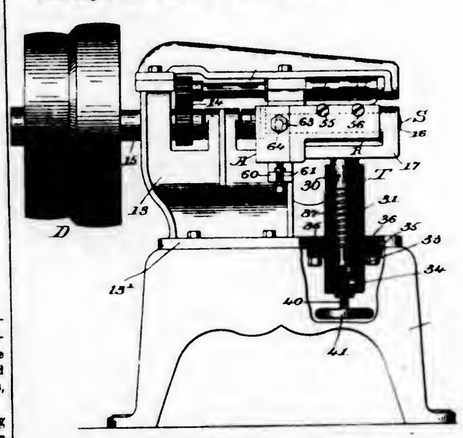
Claim.—1. In stage appliances, an open-work base, streamers attached to said base, and means for directing currents of air to the base and for illuminating streamers through the base.

2. In stage appliances, a foraminated structure, streamers connected thereto, fans beneath the foraminated structure, arranged to concentrate air-currents thereon, and an illuminating device the delivery whereof is directed to the aforesaid foraminated structure.

3. In stage appliances, a foraminated structure, streamers connected at one end to the said structure, fans grouped beneath the foraminated structure, having their axes inclined in direction of each other and the center of said structure, supports on which the fans are adjustably mounted, a reflector inclined in direction of the central portion of the foraminated structure, and a light within the said reflector.

4. In stage appliances, a foraminated structure, streamers connected at one end to the said structure, fans grouped beneath the foraminated structure, said fans being in circular arrangement and having their axes inclined in direction of each other and the center of said structure, supports upon which the fans are adjustably mounted, a reflector inclined in direction of the central portion of the foraminated structure, a light within the said reflector, and colored screens adapted to be passed over the said reflector, enabling the light directed to the streamers to be changed in color or shade at the will of the operator.

643,494. SKIVING-MACHINE. JOHN W. FULLER, Dalton, Mass. Filed Aug. 4, 1899. Serial No. 726,114. (No model.)



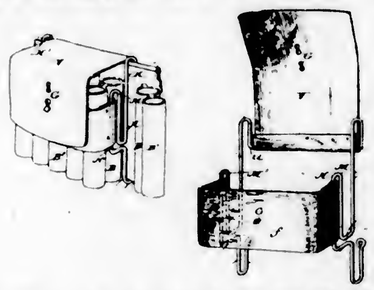
Claim.—1. In a machine of the class described, a skiving-knife, two cooperative feeding-rolls located to present the blank to said knife, a supporting member for one of the rolls provided with a stem, a thimble adapted to receive said stem, a spring bearing respectively against the stem and the thimble, a casing upon the framework in which said thimble is slidingly mounted, and an adjusting member for said thimble.

2. In a machine of the class described, a skiving-knife, two superposed feeding-rolls located in adjacence and adapted to present the blank to the knife, a yoke supporting one of the rolls and provided with a stem of two diameters, a casing adapted to receive the stem, an adjustably-mounted device for receiving one end of the stem, and a spring surrounding the reduced portion of the stem and bearing against the enlarged portion thereof and also against said adjustably-mounted device.

3. In a machine of the class specified, a skiving-knife, two superposed feeding-rolls located in adjacence and adapted to present the blank to the knife, a yoke supporting one of the rolls and provided with a stem of two diameters, a casing adapted to receive the stem, a thimble located to receive one end of the stem, a casing inclosing said thimble, an adjusting-screw adapted to bear against the thimble and provided with a hand-wheel, and a spring surrounding the stem and acting against the same and also against said thimble.

4. In a machine of the class specified, a skiving-knife, a substantially L-shaped carrier for said skiving-knife, the knife resting upon the horizontal portion of the carrier and having two elongated slots, clamping-screws passing through said slots and in threaded engagement with said horizontal portion, two adjusting-screws in alinement respectively with the first-mentioned screws and serving to directly engage the knife to adjust the same, a screw extending through a vertical longitudinal slot in the vertical portion of the carrier, and an adjusting-screw bearing against said vertical portion and in alinement with said last-mentioned screw.

648,495. CARTRIDGE-BELT. EDWARD T. GIBSON, Fort Yates, N. D. Filed June 22, 1899. Serial No. 721,510. (No model.)



Claim.—1. A belt provided on its outer side with cartridge-tubes and with bands extending in the direction of length of the belt and held at their ends in such relation to the belt as to divide the cartridge-tubes into groups, and a cover or flap for each group substantially as set forth.

2. A cartridge-retaining device for cartridge-belts consisting of a frame provided at its upper and lower edges with hooks for engaging the corresponding edges of the belt-band, having means for holding a series of the cartridge-tubes in a group, and a cover for the tubes of such group substantially as set forth.

3. A cartridge-holder for cartridge-belts having a frame composed of side portions each having hooks for engagement with the belt-band and seats for the connection of the band for holding a short series of cartridge-tubes in a group, the band connecting the side portions of the frame, the rod connecting said side portions at or near their upper ends and the flap-cover carried by said rod substantially as set forth.

4. In a cartridge-holder for cartridge-belts a holder-frame composed of a length of wire bent forming the side portions and the connecting-rod, and each side portion to form the hooks for engaging the upper and lower edges of the belt-band and between said hooks to furnish the rods for supporting the ends of the tube-securing bands substantially as set forth.

5. A cartridge-holder for cartridge-belts having side frames provided each with upright portions and with short forwardly-projecting branches supporting a short upright rod and the connecting-band having its ends rolled on said short upright rods substantially as set forth.

6. A woven cartridge-belt having upon its outer side the directly-attached cartridge-tubes, combined with means by which comparatively small numbers of such tubes are segregated into groups and the tubes of such groups are held together and prevented from departing at the ends of the groups by the flexing of the belt, in use, and covers for the groups of tubes, substantially as set forth.

7. A cartridge-belt having upon its outer side cartridge-tubes connected directly with the belt, means embracing comparatively small numbers of said tubes, for segregating such tubes into groups and for holding the tubes of each group together and preventing them from departing at the ends of the groups by the flexing of the belt substantially as set forth.

8. A woven belt having upon its outer side integral woven cartridge-tubes combined with means by which to segregate the said tubes into groups and for holding the tubes of the groups together substantially as set forth.

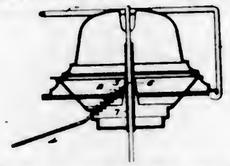
9. An improvement in cartridge-belts having the cartridge-tubes on its outer side, comprising holders fitted detachably to said belt and provided each with means for securing a series of the cartridge-tubes in a group and with flaps or covers to extend over the said group of tubes substantially as set forth.

10. A cartridge-belt provided with cartridge-tubes connected directly with the belt and with a series of comparatively short flaps or covers adapted to each cover a short series of tubes and with means for positively retaining the tubes of each series in position to be covered by the flap or cover corresponding to such series substantially as set forth.

11. The combination with a cartridge-belt of devices whereby sections of the same may be held comparatively straight and rigid, devices whereby the groups of cartridge-tubes on the outer side of such sections of the belt may be prevented from departing at their ends beyond their normal positions when the belt is flexed as when it is applied in use, and a cover for the cartridge-tubes upon the sections formed by said straight and rigid portions of the belt substantially as set forth.

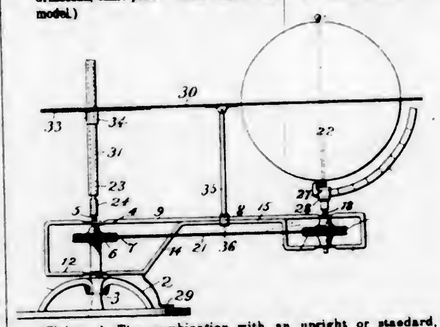
12. A cartridge-retaining device for cartridge-belts consisting of a frame adapted for detachable connection with the belt, having means for holding a series of the cartridge-tubes in a group, and a cover for the tubes of such group substantially as set forth.

648,496. LAMP-BURNER. HARRY GREENWOOD, Barnesborough, Pa. Filed June 21, 1899. Serial No. 721,336. (No model.)



Claim.—The combination with a lamp-burner, the vertical wall of which is provided with an opening and the wick-tube is slotted longitudinally, the upper end of the slot being at a distance above the opening in the wall, of a claw-bar through said opening, the outer end of which is bent upward and the inner end is provided with a shouldered head, said head being provided with teeth in position to engage with the wick through the slot in the tube; and a coiled spring around the bar, one end of which engages with the wall of the burner and the other end engages with the shoulders of the head, the bar and the spring being inclined to the wick-tube, and the length of the spring being greater than the distance between the shoulders and the wall of the burner when the head is in engagement with the upper wall of the slot in the wick-tube, whereby the head is normally held in engagement with said wall, substantially as and for the purpose set forth.

648,497. CONVERTIBLE TELLURIAN AND LUNARIAN. ROBERT E. GRINSTEAD, Lexington, Ky., assignor of one-half to Phillip W. Grinstead, same place. Filed July 22, 1899. Serial No. 724,849. (No model.)



Claim.—1. The combination with an upright or standard, a bracket rotatable thereon and a globe representing the earth carried by said bracket, of a plane representing the earth's ecliptic surrounding said globe, a friction-sleeve on said plane embracing said upright and serving to support said plane at one end, and means engaging said bracket for supporting said plane intermediate its ends.

2. The combination with a rotatable bracket and a globe representing the earth mounted thereon, of a plane representing the earth's ecliptic surrounding said globe, having a longitudinal and time chart thereon, and mounted to turn on the axis of said bracket, and a support for said plane intermediate its ends, the said support engaging said bracket.

3. The combination with a vertical rod or upright, a bracket extending outwardly therefrom and a globe representing the earth mounted on said bracket at a distance from said upright, of a plane representing the earth's ecliptic having an opening therein through which said globe passes, the said plane being frictionally secured at one point to said upright and having a leg pivoted thereto at a point intermediate its ends and adapted to engage said bracket to support said plane.

4. The combination with a vertical rod or upright, a bracket extending outwardly therefrom and a globe representing the earth mounted on said bracket at a distance from said upright, of a plane representing the earth's ecliptic having an opening therein through which said globe passes, a sleeve secured to said plane for frictionally supporting the same at one point on said upright, and a leg pivoted to said plane having a bifurcated lower end which straddles said bracket for supporting said plane at another point.

5. In a device of the character described, the combination with the base and a rod or standard thereon, of a bracket pivotally connected to said rod or standard for supporting a globe at its outer end, said bracket being made in the form of a continuous, endless, open frame, and comprising upper and lower bars through both of which said rod or standard passes, and a diagonally arranged bracing-bar extending from the lower to the upper of said bars intermediate their ends, whereby weight is economized, strength is secured and friction is reduced.

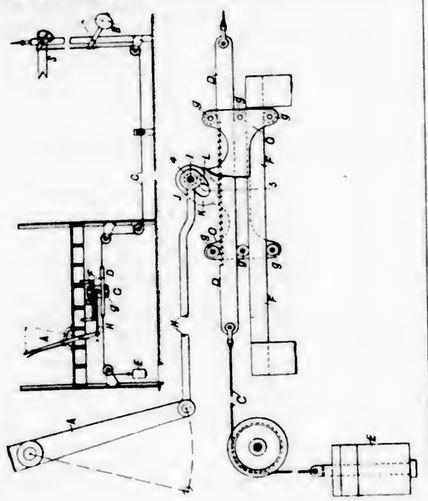
6. In a device of the character described, the combination with the base and a rod or standard thereon, of a bracket pivotally connected to said rod or standard for supporting a globe at its outer end, said bracket being made in the form of an open frame, and constructed of a rod or wire bent to form a horizontal upper bar, vertical end bars, horizontal bottom bars leading inwardly and outwardly from said vertical bars, respectively, through one of which and said upper bar said standard passes, a horizontal lower bar lying in contact with the under side of said upper bar and a diagonally-arranged bracing-bar leading from the lower bar through which said rod or standard passes to the horizontal bar which lies in contact with said upper bar, as and for the purpose set forth.

7. In a convertible tellurian and lunarian, the combination with the base, of a rod or standard thereon having screw-threads upon its upper end, a bracket pivotally mounted on said rod or standard, a rotatable shaft in the outer end of said bracket parallel to said standard and provided with screw-threads upon its upper end of the same mesh as the screw-threads on said standard, drums or spools secured, respectively, to said shaft and to said rod or standard, a cord or belt connecting said drums, a cap carrying a terrestrial globe having a threaded socket therein adapted to screw upon the upper end of said shaft or said standard, and a rod carrying a lunarian-globe having a screw-threaded sleeve upon its lower end adapted to screw upon the upper end of said standard or said shaft, as and for the purpose set forth.

8. The combination with a globe representing the earth, or another planet, and a rod extending therethrough representing the axis of the earth, of a segmental arm secured to the lower end of said rod and a slotted support through which said arm passes, whereby the inclination of the axis may be varied, as and for the purpose set forth.

9. The combination with a vertical supporting rod or upright having a screw-threaded upper end, of a globe representing the earth or another planet, a rod extending through the center of said globe representing the axis of the planet and on which said globe is rotatable, a segmental arm provided with graduations secured to the lower end of said rod, and a cap having a transverse slot and a threaded opening intersecting said slot, the said segmental arm extending through said slot, the cap screwing upon said rod or upright for supporting the globe, and the upper end of said upright adapted to engage said segmental arm for locking the latter in adjusted position.

648,498. RAILWAY SIGNAL APPARATUS. CHARLES R. GURR and HERBERT TOMLINS, London, England. Filed Sept. 21, 1899. Serial No. 731,174. (No model.)

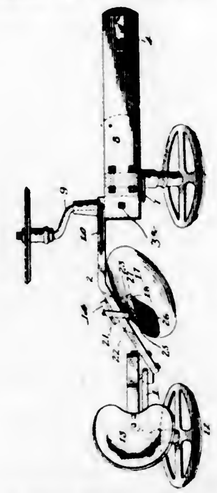


Claim.—1. The combination with a signal-operating wire under tension and a rack connected to the wire, of a carriage supporting said rack and through which said rack is slidable, said carriage being formed with an inclined slot, a link fitted in said slot and formed with a spur adapted to engage the teeth of the rack when the link moves down in said slot, and means for moving said link, as specified.

2. The herein-described means of allowing and compensating for variations of length of a signal-operating wire, which consists in the combination with a signal-wire, normally disconnected from its operating hand-lever and under a constant tension, of an automatic connecting and disconnecting device interposed between the hand-lever and the wire, and consisting of two normally-disconnected members adapted to be thrown into connection by the action of cams at the initial movement of the operating hand-lever, the one member being a rack connected to the wire and the other a spur connected to the hand-lever rod and combined with cam-slots in a sliding carriage which have for effect to throw the spur into or out of engagement with the rack and to maintain such condition of engagement and disengagement, substantially as specified.

3. The combination with a signal-operating wire held under tension and a rack connected to said wire, of a guide-frame, a carriage having rollers by which it is mounted to move in said frame, and other rollers on which the rack is movable, said carriage being further provided with inclined slots, a link whose head is provided with rollers movable in said slots, and a spur adapted to engage with the rack, and means for moving said link, as specified.

648,499. ROTARY-DISK PLOW. MILTON T. HANCOCK, Shreveport, La. Filed Dec. 5, 1899. Serial No. 739,284. (No model.)



Claim.—1. In a rotary-disk plow, a frame consisting of three sections pivotally connected by their correlative ends so as to have movement in a horizontal plane, a wheel mounted on each section and a plowing-disk mounted on the intermediate section.

2. In a rotary-disk plow, a beam consisting of three pivotally-connected sections, a wheel mounted on the front section near its back end, a wheel mounted on the intermediate section near its front end in apposition to the first-named wheel, a wheel mounted on the free end of the back section, and a plowing-disk mounted on the intermediate section.

3. In a rotary-disk plow, a frame consisting of three sections, the front section being of resilient material, and provided at its front end with means for attaching the draft-animals, said sections being pivotally connected by the correlative ends so as to have movement in a horizontal plane, a wheel mounted on each section and a plowing-disk mounted on the intermediate section.

4. In a rotary-disk plow, a plow disk having a perforated conical projection upon its back side at its center and means for mounting the said plowing-disk consisting of a backing-disk axially perforated and adapted to be mounted rotatably and provided with a conical recess in its center adapted to receive the aforesaid conical projection upon the plowing-disk and a bolt adapted to pass through said disks and clamp them together.

5. In a rotary-disk plow, a plowing-disk having a hollow lug pro-

jecting from its back side and correlatively conical as to its interior and exterior sides, and means for mounting the said plowing-disk consisting of a backing-disk concave on its face, axially perforated, and provided with a conical recess in its center adapted to fit the said conical lug and a bolt having a conical head and adapted to pass through said plowing and backing disks and clamp them together.

6. In a rotary-disk plow, a plowing-disk having the metal at its center pressed backwardly to form a hollow lug perforated at its apex and correlatively conical as to its interior and exterior sides, and means for mounting the said plowing-disk consisting of a backing-disk concave on its face, axially perforated, provided with a conical recess in its center adapted to fit the said conical lug and a bolt having a conical head and adapted to pass through said plowing and backing disks and clamp them together.

7. As a new article of manufacture a disk for rotary-disk plows, formed from a single sheet of metal cut in circular form, bent concaving and having the metal in its center pressed beyond its convex side so as to form a hollow cone perforated at its apex.

8. In a rotary-disk plow, a plowing-disk and a scraper supported in operative relation to the concaved face of said disk and consisting of a plate of metal bent in the approximate form of a segment of a cylinder, its lower edge being curved to conform to the concave disk.

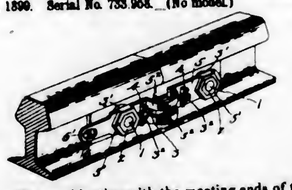
9. In a rotary-disk plow, a plowing-disk and a scraper supported in operative relation to the concaved face of said disk and consisting of a plate of metal bent in the approximate form of a segment of a cylinder, its lower edge being curved to conform to the concave disk, and its upper edge being curved at the inner corner said curved edges converging in a point opposite the center of the disk.

10. In a rotary-disk plow, a rotatably-mounted plow-disk, a scraper mounted in operative relation to the concaved face of said disk and having its lower edge curved to conform thereto, an arm secured to said scraper and provided with a foot on its upper end, a bracket also provided with a foot on its upper end, said last-named foot being dentated on its upper face and slotted, a perforated block correlatively dentated on its lower side, and a bolt adapted to pass through said block and feet and clamp the same rigidly together.

11. In a rotary-disk plow, a rotatably-mounted plowing-disk of concave form and provided at the center with an axially-perforated cone projecting beyond the convex side of said disk, means for mounting the plowing-disk through said hollow cone, and a scraper consisting of a plate of metal bent in the approximate form of a segment of a cylinder and having its lower edge curved to conform to the concaved face of said plow-disk.

12. In a rotary-disk plow, a rotatably-mounted plowing-disk having a concave face, a scraper consisting of a plate of metal bent to the approximate form of a segment of a cylinder and having its lower edge curved to conform to the concaved face of the plowing-disk and the upper edge curved at its inner corner, said curved edges of the scraper being converged in a point opposite the center of the plowing-disk, and means for mounting said plowing-disk and scraper in operative relation.

643,500. NUT-LOCK. SAMPSON HARRELL, Whigham, Ga. Filed Oct. 18, 1899. Serial No. 733,958. (No model.)

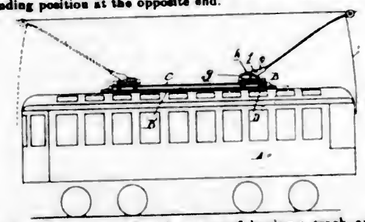


Claim.—The combination with the meeting ends of the rails and the headed and threaded bolts seated therein; of the tie-bar 3 provided with the eyes 3′ 3′ resting against the webs of said meeting rail ends and formed with the lateral studs 3^2 3^2 provided with slots 3^3 3^3, the keeper 5 formed with the sockets 5′ 5′ and the tailpiece 6 having an orifice 6′, the central portion of said keeper 5 being bent out of place to form the slotted bow 5^2 5^2, and the taper-keys 4 4 fitted to the slots 3^3 3^3, substantially as specified.

643,501. TROLLEY. WILLIAM G. HOLMES, Roseville, and HENRY HOLLAND, Detroit, Mich. Filed Mar. 31, 1899. Serial No. 711,340. (No model.)

Claim.—1. The combination with a car-roof, of a trolley-stand secured to, and mounted for longitudinal travel upon said roof between two positions on opposite sides of the longitudinal center thereof, and a trolley-arm rotatably mounted upon said stand.

2. The combination of a trolley-stand and a track extending longitudinally of the car, to which said stand is secured and over which it is adapted to travel from a position at one end thereof to a corresponding position at the opposite end.



3. The combination with a car-roof, having a track extending longitudinally thereof, of a carriage secured for travel along said track and a trolley-stand rotatively mounted on said carriage.

4. The combination with a car-roof having a track extending longitudinally thereof, of a carriage secured for travel along said track, a pivotal plate secured to said carriage and a trolley-stand, mounted upon said pivotal plate and adapted to be rotatively adjusted into two positions thereon.

5. A trolley-support comprising a base-plate, a plate, having the trolley-stand mounted thereon, said plate being pivoted to said base and having antifriction-rolls at its forward and rear ends, and segmental tracks upon said base respectively below and above said forward and rear antifriction-rolls for the purpose described.

6. A trolley-support comprising a base, a pivotal plate having a limited rotative movement upon said base, a trolley-stand swiveled upon said plate having a laterally-extending arm and the spring-latches *k* upon opposite sides of said plate having the lateral arms provided with the opposite inclines *l* and *m* for the purpose described.

7. A trolley-support comprising a base, a plate centrally pivoted to said base provided with roller-bearings at its outer ends adapted to have a limited travel on said base, a head carrying the trolley-arm socket, and springs pivoted to said plate and means for locking said head to said pivotal plate in two opposite positions thereon.

643,502. PROCESS OF MANUFACTURING INDIGO-LEUCO COMPOUNDS. ARTHUR H. S. HOLT, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Jan. 26, 1899. Serial No. 703,501. (No specimens.)

Claim.—1. The process for the production of indigo-leuco compounds, which consists in melting together a hereinbefore-defined polyhydroxy compound of the fatty series with an anthranilic-acid body, substantially as described.

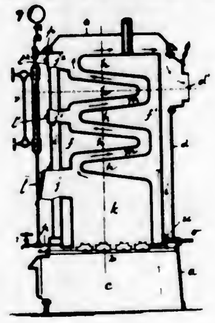
2. The process for the production of indigo-leuco compounds, which consists in melting together a hereinbefore-defined polyhydroxy compound of the fatty series with an anthranilic-acid body, and an alkali, substantially as described.

3. Process for the production of indigo-leuco compounds by melting together an anthranilic-acid body, glycerin, and caustic potash, substantially as herein described.

4. Process for the production of indigo-leuco compounds by melting together potassium salt of anthranilic acid and potassium glycerate, substantially as described.

5. Process for the production of indigo-leuco compounds by melting together the potassium salt of anthranilic acid, potassium glycerate, and a mixture of caustic potash and lime, all substantially as described.

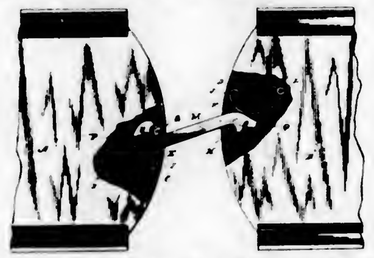
643,503. HOT-WATER HEATER. WILLIAM K. HOFLER, Bartley, N. J. Filed May 13, 1898. Serial No. 680,540. (No model.)



Claim.—1. In a boiler, the combination of opposite front and rear hollow sections *f*, *f*″, adapted to be fastened together with their interiors in communication, the adjacent faces of said sections having alternate hollow tongues extending between one another and forming a tortuous flue bending in direction from front to back of the boiler and both starting and ending at the front of the boiler, the highest and lowest tongues being on the rear section *f*″ and equal in length to the intermediate tongues, an outer casing *d*, surrounding said boiler-section and providing a draft-space between, and a draft-outlet or chimney connection through said casing at the rear of the boiler whereby the draft is caused to pass over the top of the rear section before escaping, substantially as set forth.

2. In a boiler, the combination of opposite hollow sections each having a back and parallel sides projecting at right angles to said back, said sections being placed together with the front edges of their sides abutting, the walls at said edges having perforations adapted to register with each other when the sections are placed together, push-nipples inserted in said registering perforations and connecting the interiors of the sections and providing a direct communication therebetween, means for bolting the two sections firmly together, hollow tongues projecting from the facing sections, those of one section alternating in vertical height with those on the other and being adapted to pass therebetween, the uppermost of said tongues being perforated vertically downward through its top wall to provide an outlet and the opposite section of the boiler being perforated near its bottom to provide an inlet, substantially as set forth.

643,504. CAR-COUPLING FOR MINES. HOWARD HUGHES, Brazil, Ind. Filed Apr. 5, 1899. Serial No. 711,804. (No model.)



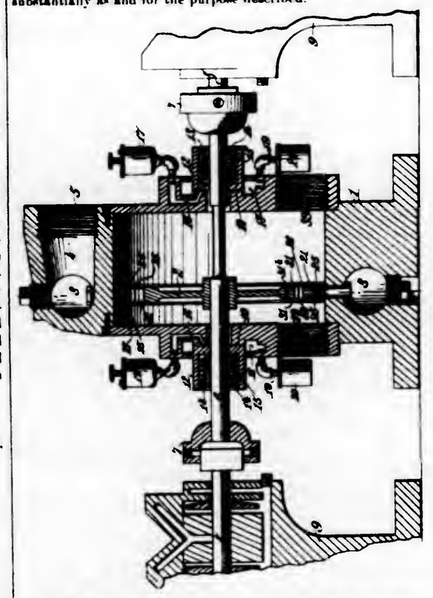
Claim.—The combination with the hollow bumper of the mine-car provided with curved outer end having a central opening therein at the extreme outer part of the curve, of a fixed coupling-pin inside the bumper and close to one side of the opening, a substantially-semi-circular curved spring secured only at its inner end inside the bumper, the main curved body of the spring projecting across the opening, and the backwardly-curved outer end normally resting at the edge of the opening opposite to the fixed pin, and a link consisting of the main body, the oppositely-turned hooks to engage the pins, and the wedge-shaped cam ends, with sides curved on substantially the curvature of the spring, substantially as described.

643,505. ROTARY ENGINE. LAMBERT ISELBORST, Quincy, Ill. Filed Sept. 22, 1898. Renewed July 25, 1899. Serial No. 725,094. (No model.)

Claim.—1. The combination, in a rotary engine, of a rotary piston constructed with peripheral fingers each having one side straight and the other beveled, and rectangular pockets between said fingers, and nozzles for delivering the working fluid to said fingers and pockets, each nozzle having a delivery-slot uniformly widening from its inner end to its outer end or delivery-mouth, and the beveled portions of said fingers extending at an angle to the adjacent extremities of said nozzles so that the sharpened portions only of the ends of said fingers are nearest to said nozzles, substantially as and for the purposes described.

2. The combination, in a rotary engine, of a rotary piston constructed with the peripheral fingers each having one side straight and the other beveled, and rectangular pockets between said fingers, and nozzles for delivering the working fluid to said fingers and pockets, each nozzle having the uniformly-curved internal surfaces 35 and 36, and a delivery-slot 37 uniformly widening from its inner end to its outer end or delivery-mouth, and the beveled portions of said fingers extending at an angle to the adjacent extremities of said nozzles so that the sharpened portions only of the ends of said fingers are nearest to said nozzles, substantially as and for the purposes described.

3. The combination, in a rotary engine, of a rotary piston having pockets therein, side plates secured to said piston and having beveled portions which close the ends of said pockets and confine the working fluid, and nozzles for delivering working fluid to said pockets, substantially as and for the purpose described.



4. The combination, in a rotary engine, of the rotary piston constructed with the peripheral fingers having beveled extremities, and rectangular pockets between said fingers, the side plates or flanges secured to opposite sides of the peripheral portion of the piston and having the inner surfaces of their outer circular portions inwardly beveled and closing the ends of the pockets in the piston, and the nozzles for delivering the working fluid to said fingers and pockets, each nozzle having a delivery-slot which uniformly widens from its inner end to its outer end or delivery-mouth, substantially as and for the purposes described.

5. The combination, in a rotary engine, of the rotary piston constructed with the peripheral fingers having beveled extremities, and rectangular pockets between said fingers, the side plates or flanges secured to opposite sides of the said piston and constructed with inwardly-beveled portions which close the ends of the pockets in the piston and serve to confine the working fluid, and the nozzles for delivering the working fluid to said fingers and pockets, each nozzle having a delivery-slot uniformly widened from its inner end to its outer end or delivery-month, substantially as and for the purposes described.

6. The combination, in a rotary engine, of the rotary piston constructed with the peripheral fingers having beveled extremities, and rectangular pockets between said fingers, the side plates or flanges secured to opposite sides of the piston and constructed with the inwardly-beveled surfaces which close the opposite ends of the pockets in the piston and serve to confine the working fluid as set forth, and nozzles for delivering the working fluid to said fingers and pockets, between the beveled portions of the said plates or flanges, substantially as and for the purposes described.

7. The combination, in a rotary engine, of a rotary piston constructed with the peripheral fingers each having one side straight and the other beveled and pockets between said fingers, and nozzles for delivering the working fluid to the beveled portions of the fingers and into said pockets, the beveled portions of said fingers extending at an angle to the adjacent extremities of said nozzles so that the sharpened portions only of the ends of said fingers are nearest to said nozzles, substantially as and for the purposes described.

8. In a rotary engine, a rotary piston having pockets therein, a surrounding ring or casing also having pockets therein adjoining the pockets in said piston, nozzles extending through said ring for delivering working fluid to said pockets, and side plates or flanges secured to said ring, provided with beveled portions, which close the ends of the pockets in said ring and confine the working fluid, substantially as described.

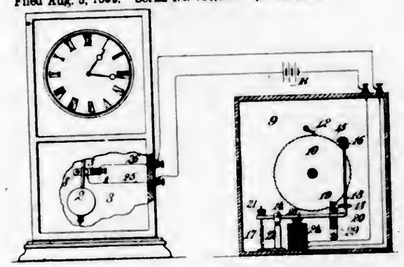
9. The combination in a rotary engine, of a casing having at its opposite sides ground seats and constructed with an annular passage

for the working fluid, a rotary piston in the casing, a shaft extending through the sides of the casing and on which the piston is mounted, nozzles leading from the annular passage for directing the working fluid onto the piston, cup-shaped cases bearing against the said ground seats, sleeves arranged in said cases and secured to the piston-shaft, and springs which press the cup-shaped cases against the ground seats, substantially as described.

10. The combination, in a rotary engine, of a casing having at its opposite sides ground seats and constructed with an annular passage for the working fluid, a rotary piston in the casing, a shaft extending through the sides of the casing and on which the piston is mounted, nozzles leading from the annular passage for directing the working fluid onto the piston, cup-shaped cases bearing against the said ground seats, sleeves arranged in said cases and secured to the piston-shaft, and springs which press the cup-shaped cases against the ground seats, said casing having its side walls constructed with oil delivery and escape passages, oil-cups connected with the oil-delivery passages, and oil-receptacles connected with the oil-escape passages, substantially as described.

11. The combination, in a rotary engine, of a casing having its opposite sides constructed with the ground seats and orifices, a rotary piston-shaft passing through said orifices and carrying a piston, cup-shaped cases bearing against said ground seats and adapted to turn thereupon, sleeves arranged in said cases and secured to the shaft to turn therewith, and springs housed in the cases and acting to press the same against the ground seats to prevent the escape of working fluid at these points, substantially as described.

643,506. ELECTRIC CLOCK. HENRY IVERSEN, Corsicana, Tex. Filed Aug. 3, 1899. Serial No. 726,023. (No model.)

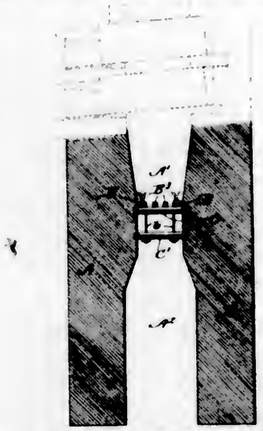


Claim.—1. The combination of a controlling-clock having a pendulum to swing in a vertical plane, a base or bracket arranged on a part of the frame of said clock and having an adjustable contact-screw, an elastic contact-strip insulated on said base or bracket, normally in contact with said screw and moved therefrom by the direct action of the pendulum, a clock to be controlled, having a ratchet-wheel on the shaft of one of the gears of its train, an elbow-lever having one arm provided with a pawl engaging said ratchet-wheel and the other arm pivoted near its extremity to a part of the controlled-clock casing, an armature attached to the pivoted arm of said lever, an electromagnet in operative connection with said armature, and an electric circuit including the said contacts and the magnet, substantially as described.

2. The combination of a controlling-clock having a pendulum to swing in a vertical plane, a base or bracket having an adjustable contact-screw, an inherently-elastic contact-strip insulated from said base or bracket, normally pressing against said contact-screw and moved therefrom by the pendulum, a clock to be controlled, having a ratchet-wheel in its train of gearing, a pivoted elbow-lever having one arm provided with a pawl engaging said ratchet-wheel and the other arm provided with an armature, an electromagnet in operative connection with the armature, a spring for swinging the lever on its pivot to raise said pawl, means for adjusting the tension of said spring, an adjustable device for limiting the upward movement of the lever to insure the correct engagement of said pawl with said ratchet-wheel, and an electric circuit including the said contacts and the magnet, substantially as described.

3. The combination with a controlling-clock having a pendulum which swings in a vertical plane, and a circuit-breaker operated by the pendulum, of a clock to be controlled, having a ratchet wheel on the shaft of one of the gears of its train, a lever comprising a vertical and a horizontal lever-arm, the latter pivoted near one extremity below the ratchet-wheel, a pawl on the vertical lever-arm for engaging said ratchet-wheel, an armature on the horizontal lever-arm, a set-screw in the extremity of the horizontal lever-arm, a spring engaged with and having its tension regulated by said screw and serving to turn the lever and raise its pawl, an adjustable set-screw arranged in relation to the horizontal lever-arm to arrest its upward movement at the required point, an electromagnet arranged under said armature, and an electric circuit including said circuit-breaker and magnet, substantially as described.

643,507. GRATE FOR ZINC-FURNACES. JOHN D. JAMES, Pulaski, Va. Filed Sept. 11, 1899. Serial No. 730,146. (No model.)



Claim.—1. A grate for a furnace having a portion of its bars formed of hollow water-pipes and provided with perforations on their upper sides discharging upwardly into the fire-box, and valves regulating the flow of water into and discharge from said pipe, substantially as and for the purpose described.

2. A grate for a furnace having hollow grate-bars with perforations on the upper surfaces discharging into the fire-box, and means for passing water through the same to form a constantly-suffused or superficially-overflowing film of water on the surfaces of the grate-bars to reduce their temperature by dissipating the heat units in surface evaporation substantially as and for the purpose described.

3. The combination with the zinc-furnace having a long and narrow fire-box and a deep ash-pit; of a grate interposed between the fire-box and ash-pit and consisting of cross-bars supported at their ends by the walls of the furnace, and grate-bars arranged longitudinally on said cross-bars, part of said grate-bars being constructed in the form of hollow perforated water-pipes, and valves for controlling the flow of water therethrough substantially as and for the purpose described.

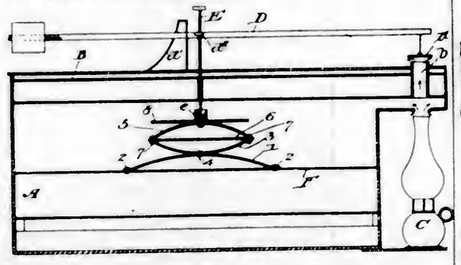
4. The combination with a zinc-furnace having a long and narrow fire-box, and a deep ash-pit; of a grate consisting of two sets of cross-bars supported by walls of the furnace at their ends, a set of grate-bars arranged upon the upper set of cross-bars, part of which grate-bars are made of hollow perforated water-pipes and provided with valves for regulating the flow of water therethrough, and the lower set of cross-bars serving to support the cleaning-tools substantially as and for the purpose described.

5. The combination with a zinc-furnace having a long narrow fire-box and a deep ash-pit; of a grate consisting of two sets of cross-bars supported by the walls of the furnace at their ends, a set of grate-bars arranged upon the upper set of cross-bars, hollow perforated water-pipes arranged in the plane of the grate-bars, and hooked bolts hooking over said water-pipes, and anchored to the lower cross-bars substantially as and for the purpose described.

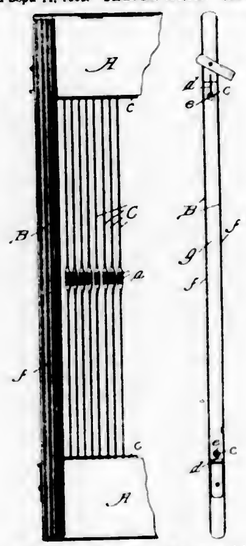
6. The combination with a furnace-grate; of water-pipes arranged in the plane of the grate-bars between the grate-bars and side walls of the fire-box, said water-pipes having perforations on their upper sides to discharge upwardly into the fire-box to reduce the clinkers, and valves for controlling the flow of water through said pipes substantially as and for the purpose described.

643,508. THERMOSTATIC GOVERNOR FOR INCUBATORS. MAHANDEN M. JOHNSON, Clay Centre, Nebr. Filed Feb. 21, 1899. Serial No. 706,372. (No model.)

Claim.—The herein-described thermostatic governor for incubators, comprising the convex rubber strip 1, in combination with the superimposed and oppositely-bowed rubber strips 3 and 5 and the interposed wooden strip 6 having their contiguous ends fixed together; the deflector-plate 8 and the step-socket e fixed to the bowed strip 5; the lever D provided with the flue-damper *d* and lateral arm d^3 and fulcrumed in the bracket *d'* on the incubator-top, and the damper-regulating screw E mounted in a threaded orifice in said lateral arm d^3 of lever D; substantially as specified.



643,509. LOOM-HARNESS. WILLIAM S. LACKEY, Haddonfield, N. J. Filed Sept. 11, 1899. Serial No. 730,185. (No model.)



Claim.—1. An improved loom-harness comprising a frame, oppositely-arranged bars each supported at one edge to leave its entire opposite edge free and a series of heddles having open-slotted ends adapted to engage and be supported by said bars, substantially as described.

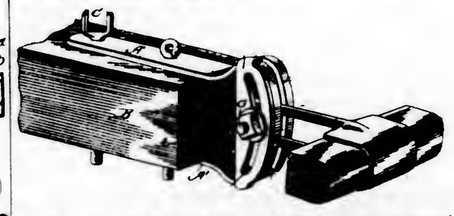
2. An improved loom-harness, comprising a frame, a pair of bars each wholly supported by one edge and having its ends and opposite edge free, and a series of heddles engaging said bars and supported thereby, substantially as described.

3. An improved loom-harness comprising a frame, with parallel side bars or strips with a space between and supporting-bars for the heddles projecting into said space, each of said bars being supported wholly by one edge leaving the opposite edge free, and a removable strip between the side walls filling the space normally and adapted to be removed to allow the heddles to be threaded upon the supporting-bars, substantially as described.

4. An improved loom-harness comprising a frame, supporting bars or rails each fastened at one edge and having its opposite edge free and substantially in line with the rectangular opening formed by the walls of the frame and a series of heddles supported by the free edges of the bars or rails, substantially as described.

643,510. PLOW-CLEVIS. WILLIAM G. LANDERS, Bostwick, Ga. Filed July 14, 1899. Serial No. 723,791. (No model.)

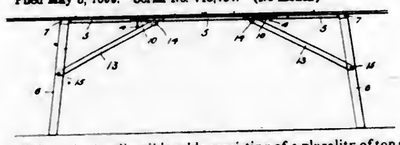
Claim.—1. An improved clevis having an end bar provided with a vertical slot leading from front to rear and having a vertically-slotted keeper-plate fitted to one side of the end bar, the slot in such side plate opening laterally, and the cross-bolt extending through such lateral slot and connected with the opposite side of the clevis and adapted to secure a link passed through the slot in the end bar of the clevis substantially as set forth.



2. A clevis having its end bar provided with a vertical slot adapted for the insertion of the thill-iron and having a vertical keeper-slot at one side in rear of said end bar, and the cross-bolt passed through the keeper-slot and connected with the opposite side of the clevis and adapted to secure the link passed through the slot in the end bar of the clevis substantially as set forth.

3. A clevis comprising the body portion having its end bar slotted vertically, the keeper-bar slotted vertically, fitted alongside said end bar and having at its ends lugs or portions lapping alongside the body of the clevis, and the cross-bolt passed through the slot in the keeper-plate substantially as set forth.

643,511. FOLDING TABLE. DAVID W. LLOYD, Pittsburg, Pa. Filed May 5, 1899. Serial No. 715,737. (No model.)



Claim.—1. A collapsible table consisting of a plurality of top sections, downwardly-projecting hinges connecting the sections, alining guides secured to the sections, sliding braces mounted in the guides, and a framework constituting supporting-legs hinged to the sliding braces at each outer end and adapted to be drawn out with the braces and folded down to collapse the table.

2. A collapsible table consisting of a plurality of top sections, downwardly-projecting hinges connecting the sections, alining guides secured to the sections, sliding braces mounted in the guides, a framework constituting supporting-legs hinged to the sliding braces at each outer end adapted to be drawn out with the braces, and stiffening-braces adapted to be adjusted to the legs when erected to maintain them in position.

3. In a collapsible table, in combination with a plurality of top sections hinged together, provided with alining guides on their under sides; sliding braces mounted in the guides of the outer sections, adapted to engage the guides of the inner section to maintain the table in an extended position, folding leg structures hinged to the braces, and stiffening-braces adapted to be adjusted to the legs when erected to maintain them in position.

4. A collapsible table consisting of three top sections, downwardly-projecting hinges connecting the sections, a series of alining guides secured to the sections, sliding braces mounted in the guides, supporting-legs hinged to the sliding braces, and stiffening-braces pivotally attached to the under side of the middle top section and provided with means for attachment to the legs, substantially as set forth.

643,512. NAIL-PULLER. WILLIAM L. LUBBOCK, Rusk, Tex. Filed Nov. 24, 1899. Serial No. 738,210. (No model.)

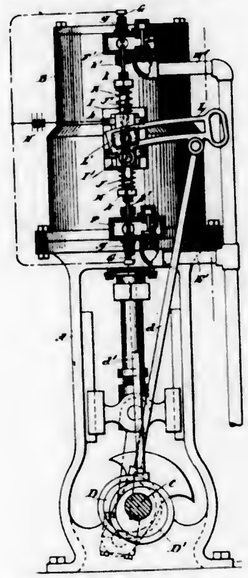


Claim.—1. An implement for the purposes described, comprising a claw-lever; a bail slidably mounted upon the lever and a disk or wheel eccentrically journaled on the bail and disposed adjacent the rear edge of the lever.

2. The combination with the claw-lever; of the bail open at the lower end, said end being projected beyond the rear edge of the lever, and a disk or wheel eccentrically journaled in the projected end of the bail, said disk or wheel being disposed in a vertical plane with the lever.

3. A nail-puller, comprising a lever having a claw at the lower end; a U-shaped bail slidably hung on the lever, said bail having its side members projected beyond the rear edge of the lever; a pivot-pin supported in the said ends of the bail at a point beyond the rear edge of the lever; and a disk or wheel eccentrically journaled upon the said pin, all being arranged substantially as shown and for the purposes described.

648,518. IGNITER FOR EXPLOSIVE-ENGINES. FRED J. MACEY, Ontonagon, Mich. Filed Aug. 26, 1898. Serial No. 689,591. (No model.)



Claim.—1. An electric firing or exploding device for gas-engines, comprising a movable block actuated from the engine, a bar mounted therein and having a spiral grooved connection therewith, a spring connected with the bar and block, and a firing-pin carried by the bar and entering the firing-chamber.

2. An electric firing or exploding device for gas-engines, comprising a block mounted to reciprocate in guides, means for moving the block, a rod mounted in the block and extending in the direction of its reciprocations, springs interposed between the rod and block to normally hold them in certain relative positions, firing-pins, one carried by said rod and entering the firing-chamber, and means for causing a rotation of one of the firing-pins upon contact with the other firing-pin.

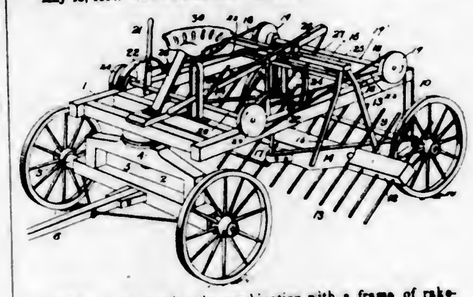
3. An electric firing or exploding device for gas-engines, comprising a block mounted to reciprocate in guides, means for moving the block, comprising a link having two eccentrics connected thereto and adjustable in order to reverse the engine, a block within said link and pivoted to the reciprocating block, a rod mounted in the reciprocating block and extending in the direction of its reciprocations, springs interposed between the rod and block to normally hold them in a certain position, firing-pins one carried by said rod and entering the firing-chamber, and means for causing a rotation of one of the firing-pins upon contact with the other firing-pin.

4. An electric firing device for gas-engines, comprising two firing-pins having relative movement toward and from each other, and means by which they are given a relative rotary movement while in contact.

5. An electric firing device for gas-engines, comprising two firing-pins, one being movable toward the other, means for moving said pin, a spring connection between the pin and its actuating means, and means for turning one of the pins while the pins are in contact with each other.

6. An electric firing device for gas-engines, comprising two firing-pins, one being movable toward the other, a rod carrying the movable pin and having a spiral groove therein, a movable support for said rod, having a pin or projection engaging the spiral groove in the rod, a spring between said support and the rod, and means for moving said support, whereby the movable firing-pin will be turned upon its axis after contact with the other firing-pin.

648,514. RAKE. JOSEPH L. MACKEY, Walnut Grove, Ill. Filed May 15, 1897. Serial No. 636,723. (No model.)



Claim.—1. In a rake, the combination with a frame, of rake-head carriers at each side thereof and having their front ends movable on vertical guideways or rails, a rake-head carrying two sets of teeth projecting from opposite sides thereof and said head journaled in the said carriers, and means connected with the rear end of the carriers to effect the adjustment of the rake, substantially as described.

2. In a rake, the combination with a frame, of hangers pendent therefrom, rake-carriers at each side of the frame and having one end thereof movable on guideways or rails, a revoluble rake-head connected with said carriers and provided with rake-teeth, pulleys at the front and rear on the said frame, a lever also on the frame, and cords or ropes connected with the rear end of said carriers, passed around the rear pulleys and connected through the front pulleys and their shaft with the lever, whereby the rake-head may be raised and lowered, substantially as described.

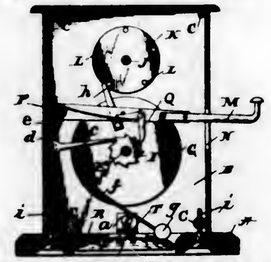
3. In a rake, the combination with a frame, of pulleys at the front and rear ends thereof, adjusting-levers also on said frame, a vertically-adjustable bar extending transversely of the frame and provided with pendent hangers, rake-carriers suspended by said hangers and having their front ends movable on guideways or rails, a rake-head revolubly mounted in said carriers and provided with rake-teeth, and cords or ropes connected with the rear ends of said carriers, passed around the rear pulleys and connected through the front pulleys with the adjusting-levers, substantially as described.

4. In a rake, the combination with a frame, of pulleys at the front and rear of said frame, adjusting-levers also on said frame, an adjustable bar projecting crosswise, a second cross-bar also projecting transversely of the frame and connected with the said first cross-bar, pendent hangers projecting from the first cross-bar, a lever pivoted to said first cross-bar and connected with the second cross-bar, rake-carriers pendent from said hangers and having their front ends connected with, and vertically movable on, guideways or rails, a rake head revolubly mounted in the carriers and provided with rake-teeth, and cords or ropes connected with the rear ends of said carriers, passed over the rear pulleys on the frame and connected through the front pulleys with the adjusting-levers, substantially as described.

648,515. MACHINE FOR KEEPING COUNT OF GAMES OF DOMINOES. JACK W. MABLER, Verdon, Tex. Filed Apr. 3, 1899. Serial No. 711,563. (No model.)

Claim.—1. A counter comprising a supporting-frame, a shaft journaled therebetween and carrying counting-disks at each end adjacent the frame, a second shaft carrying similar disks operated by the first disks, a ratchet-wheel on the first-named shaft, an operating-lever pivoted at one side of the ratchet-wheel and having a stop intermediate its length, an L-shaped pawl adjacent said stop, a spring attached to the pivot of the lever and engaging the end of the pawl, a bell below said ratchet and a spring-pressed lever having the free end resting on the ratchet and having intermediate its length a clapper-arm carrying a clapper, substantially as described.

2. A counter for the purpose described comprising counting-disks cup-shaped in cross-section and outwardly disposed, plates between which the disks are supported, the edges of the disks engaging frictionally the inner walls of the plates and the centers of the disks carrying numerals in a plane inside of the edges thereof, and an operating mechanism therefor, substantially as described.

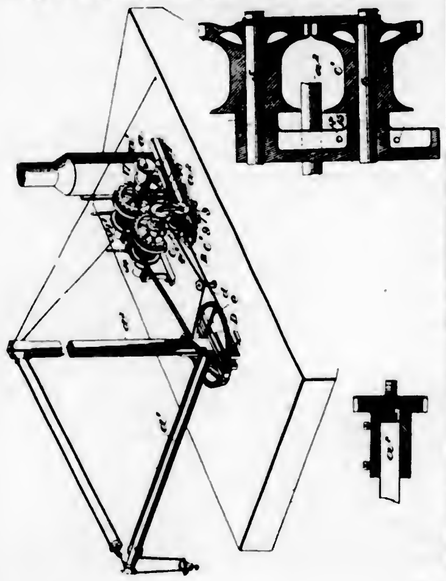


3. A counter comprising two shafts carrying numeral-disks at each end, a frame having openings in each side to register with the numerals on the disks, a ratchet on one of said shafts, a lever pivoted to the frame at one side of the shaft carrying the ratchet, a spring-pressed pawl intermediate its length resting on the ratchet, a bell below said shaft, a lever pivoted below and on the same side of the frame as the operating-lever and having its free end resting on the opposite side of the ratchet-wheel from the pawl and a clapper-arm attached thereto carrying a clapper to engage the bell, substantially as described.

4. In a counter, the combination with counting-disks, a ratchet-wheel on the shaft of one of said disks, an operating-lever carrying a pawl intermediate its length and a bell, of a lever pivoted at one side of said ratchet and having its free end resting thereon, a spring attached to the pivot of said lever and the free end engaging a stop, and an arm carrying a clapper intermediately attached to said lever, substantially as described.

5. In a counter, the combination with counting-disks, a ratchet-wheel on the shaft of said disks, of a lever pivoted at one side of the ratchet-wheel, and having a stop intermediate its length, an L-shaped pawl adjacent said stop, a spring attached to the pivot of the lever and engaging one end of the pawl, a bell below said ratchet, a spring-pressed lever pivoted at one side of the ratchet and having its free end resting on the ratchet and an arm carrying a clapper intermediately attached to the said lever, substantially as described.

648,516. HOISTING-MACHINE. SAMUEL MATTSON, New York, N. Y. Filed June 30, 1898. Serial No. 684,676. (No model.)



Claim.—1. In a hoisting-engine, a drum, a gear-pinion rotatable therewith, two drums, gear-wheels for the latter meshing with said pinion, and means for binding said last-mentioned drums to and releasing them from said gear-wheels.

2. In a hoisting-engine, a drum and shaft therefor, a gear-pinion on said shaft, a non-rotary shaft, a gear-wheel on the non-rotary shaft in mesh with said pinion, a drum on said non-rotary shaft, and means for binding said drum to said gear-wheel, substantially as set forth.

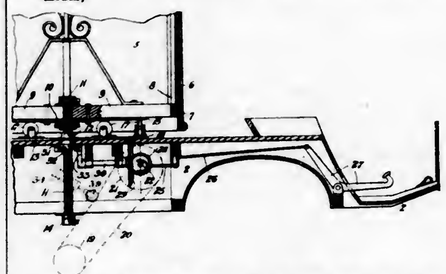
3. In a hoisting-engine, a drum and shaft therefor, a gear-pinion on said shaft, two non-rotary shafts paralleling the first-mentioned shaft, gear-wheels loosely mounted thereon meshing with said pinion, drums also loosely mounted on said non-rotary shafts, and means for binding said drums to, and releasing them from, said gear-wheels, substantially as set forth.

4. The combination with a hoisting-engine, of two non-rotary shafts, gear-wheels loose on such non-rotary shafts, means for rotating said gear-wheels, drums also loose on said shafts, and means for binding said drums to, and releasing them from, said gear-wheels, substantially as set forth.

5. The combination with a hoisting-engine, a drum and shaft therefor, and a gear-pinion fast on said shaft, of two non-rotary shafts, gear-wheels loose thereon, meshing with said pinion, drums also loose on said shafts, cams for binding said drums against said gear-wheels, and connections between said cams, whereby as one drum is bound to its gear-wheel the other drum will be released, substantially as set forth.

6. The combination with a hoisting-engine, a drum and shaft therefor, and a gear-pinion on said shaft, of a supplemental frame having non-rotary shafts projecting therefrom paralleling the first-mentioned shaft, gear-wheels loose on said non-rotary shafts, meshing with said gear-pinion, drums also loose on said non-rotary shafts capable of frictional contact with said gear-wheels, cams on said non-rotary shafts for binding said drums against said gear-wheels, and connections between said cams, substantially as set forth.

643,517. ADVERTISING-COACH. MOSES A. MICHALES, Pittsburg, Pa.; Fidelity Title and Trust Company, administrator of said Moses A. Michales, deceased, assignor to J. B. Corey, Braddock, Pa. Filed Apr. 24, 1896. Renewed Apr. 13, 1899. Serial No. 712,916. (No model.)



Claim.—1. The combination, with a wheeled vehicle, of a revoluble frame mounted thereon, a rotatory shaft connecting the vehicle and frame, a toothed disk secured to said shaft, a counter-shaft provided with mechanism for intermittently engaging said toothed disk and having a bevel-wheel mounted thereon, a secondary counter-shaft provided with a bevel-wheel meshing with the bevel-wheel on the counter-shaft, a sprocket-wheel mounted on said secondary counter-shaft, a sprocket-wheel secured to an inwardly-projecting sleeve attached to one of the hubs of the vehicle, and a connecting sprocket-chain; substantially as described.

2. The combination, with a wheeled vehicle, of a revoluble frame mounted thereon, a rotatory shaft connecting the vehicle and frame, a toothed disk secured to said shaft, a counter-shaft provided with a crank-finger for intermittently engaging said toothed disk and having a bevel-wheel mounted thereon, a secondary counter-shaft provided with a bevel-wheel meshing with the bevel-wheel on the counter-shaft, a sprocket-wheel mounted on said secondary counter-shaft, a sprocket-wheel secured to an inwardly-projecting sleeve attached to one of the hubs of the vehicle, and a connecting sprocket-chain; substantially as described.

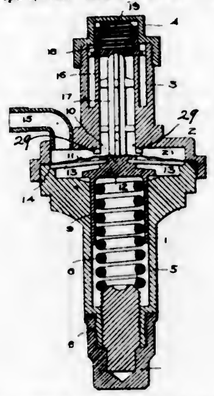
3. The combination with a wheeled vehicle, of a revoluble frame mounted thereon, a rotatory shaft connecting the vehicle and frame, a toothed disk secured to said shaft, a counter-shaft provided with mechanism for intermittently engaging said toothed disk and having a bevel-wheel mounted thereon, a secondary counter-shaft provided with a bevel-wheel meshing with the bevel-wheel on the counter-shaft, a sprocket-wheel loosely mounted on said secondary shaft, a

sprocket-wheel secured to an inwardly-projecting sleeve attached to one of the hubs of the vehicle, a connecting sprocket-chain, and clutch mechanism also mounted on said secondary counter-shaft for engaging with said loose sprocket-wheel; substantially as described.

643,518. COMPOSITION OF MATTER FOR REPAIRING TIRES. OLIVER P. MICHAEL, Marion, Ind., assignor to himself, James H. Bireley, and Levi S. Bireley, same place. Filed June 21, 1899. Serial No. 721,300. (No specimens.)

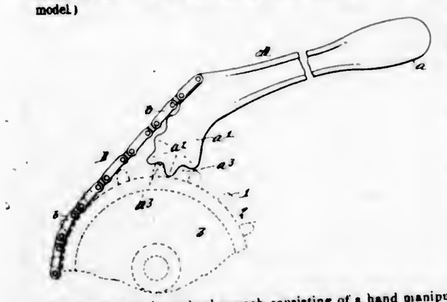
Claim.—The herein-described composition of matter to be used for repairing bicycle-tires, consisting of Spanish whiting, Swedish black, glue and oil of cinnamon, combined in about the proportions stated.

643,519. PRESSURE-REDUCING VALVE. WILLIAM C. MILLER, Lincoln, Nebr., assignor of one-half to Sydney C. Wheeler, Wymore, Nebr. Filed Sept. 6, 1899. Serial No. 729,599. (No model.)



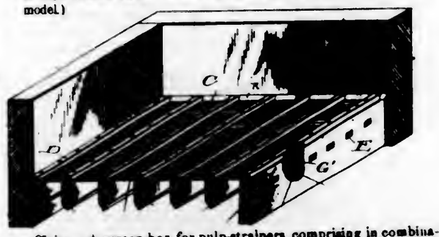
Claim.—In a pressure-reducing valve, the combination of the valve-casing terminating in a sleeve 5 both externally and internally threaded at its lower end and exteriorly threaded at its upper end; the stud-post 10 formed with a circumferential groove; the socket 9 seated in said valve-casing; the pressure-spring 8 located within the socket 9 and sleeve 5; the corrugated diaphragm 11 and the sectional diaphragm formed of the sectors 13 13; the adjusting-plug 6; the protecting-cap 7; the tubular extension 3 provided with a removable screw-cap 4; the outlet 15 leading from said extension 3; the sleeve 16 located within said extension; and the movable post or stem 17 mounted within the sleeve 16 and having its lower end resting on the diaphragm 11, and its upper end resting against the spring-pressed feed-valve 18, substantially as and for the purpose set forth.

643,520. SPROCKET-WHEEL WRENCH. CHARLES H. MONROE, Searsport, Me., assignor to William R. Grinnell, same place, and Henry R. Black, Everett, Mass. Filed Dec. 26, 1899. Serial No. 741,872. (No model.)



Claim.—A sprocket-wheel wrench consisting of a hand manipulating-lever having its fulcrum end slightly angular to the arm portion of the lever, teeth provided on said fulcrum end designed to engage the teeth on a sprocket-wheel, a sufficient length of a sprocket-chain having one end pivotally connected to the heel portion of the lever at a point a little distance from the end of said heel portion, and the other end of the sprocket-wheel chain free to swing and be positioned, substantially as described.

643,521. SCREEN-PLATE FOR PAPER MANUFACTURE. WILLIAM H. MCCARROLL, Watertown, N. Y., assignor of one-half to John B. Taylor, same place. Filed May 23, 1899. Serial No. 717,958. (No model.)



Claim.—A screen-box for pulp-strainers, comprising in combination with the outer walls, a series of girders mounted in parallel rows in the ends thereof and provided with recesses, said girders being disposed a slight distance above the bottom of the open box, a series of thin reversible strainer-plates resting on the upper edges of the girders, metallic clamping-bars having beveled edges and ends, and bearing on the edges of said plates, a beveled cleat secured to the inner wall of the box and bearing against the beveled ends of the clamping-bars, bolts passing through the clamping-bars, and between the longitudinal edges of the screen-plates, and the tightening-nuts seated in said recesses in the girders, all substantially as shown and described.

643,522. WRENCH. GEORGE MCKERCHER, Jackson, Mich. Filed June 24, 1899. Serial No. 721,745. (No model.)

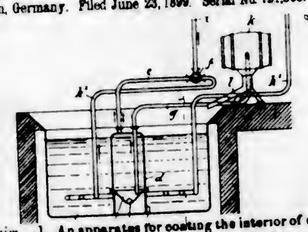


Claim.—1. In a wrench, the combination of the slotted, stationary jaw, the adjustable jaw having a notched arm projecting through the slot, and a pin in said slot normally engaging with one of said notches and a curved spring rigidly secured within the stationary jaw and normally bearing upon said arm, substantially as described.

2. In a wrench, the combination of the slotted, stationary jaw, the adjustable jaw having an arm mounted in the slot in said stationary jaw, a dog pivoted to the stationary jaw within said slot and bearing upon the arm, and a recurved spring secured within the stationary jaw and normally bearing upon said dog, substantially as described.

3. In a wrench, the combination of the slotted, stationary jaw, the adjustable jaw having an arm projecting through the slot, notches on said arm, a pin in said slot adapted to engage with one of said notches, a dog pivoted to the stationary jaw within said slot and bearing upon said arm, and a recurved spring secured within the stationary jaw and normally bearing upon said dog, substantially as described.

643,523. APPARATUS FOR PITCHING INTERNAL SURFACES OF CASKS OR BARRELS. CARL A. NEUBECKER, Offenbach-on-the-Main, Germany. Filed June 23, 1899. Serial No. 721,563. (No model.)



Claim.—1. An apparatus for coating the interior of casks, the apparatus comprising a pan, a cylinder situated in the pan and having a closed upper end, the lower portion of the cylinder being perforate,

a conical partition situated in the cylinder above the perforate portion thereof, a valve commanding the orifice in the apex of said partition, a pipe leading from the cylinder above the partition to conduct the material to the cask, a second pipe in communication with the upper portion of the cylinder, a cock commanding said pipe and capable of throwing it into communication with the atmosphere, a third pipe connecting with a compressed-fluid source, the third pipe communicating with said cock and the cock being capable of throwing it into communication with the second pipe.

2. An apparatus for coating the interior of casks, the apparatus comprising a pan, a cylinder situated in the pan and having a closed upper end, the lower portion of the cylinder having an orifice, a partition situated in the cylinder above the orifice thereof, a valve commanding an orifice in the partition, a pipe leading from the cylinder above the partition to conduct the material to the cask, a second pipe communicating with the cylinder above the partition, a cock commanding said second pipe and capable of throwing it into communication with the atmosphere and a third pipe connected with a source of fluid under pressure, said third pipe communicating with said cock and the cock being capable of throwing the third pipe into communication with the second-named pipe.

643,524. HAND-PLANTER. CHARLES NEWMAN, Springfield, Mo. Filed Nov. 28, 1899. Serial No. 738,547. (No model.)



Claim.—1. A hand seed-planter having a wedge-shaped point which is open on the rear side, a spring-jaw for closing the opening, a spring-foot attached to the point, and rods connected therewith at the front end and with the spring-jaw between its ends, as shown and described.

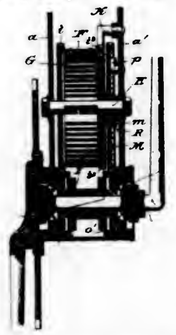
2. A hand seed-planter having a metallic point, provided with a discharge-opening, a spring-plate which constitutes a depth-gage, the same being attached to the point and adapted for vertical adjustment, means for detachably and adjustably securing the said gage in place, a spring-jaw applied to normally cover the discharge-opening, rods attached to the free front end of said gage, and having a detachable connection with the spring-jaw, as shown and described.

3. A hand seed-planter having a metallic point provided with a series of transverse rows of holes, a combined spring-foot and depth-gage and means for securing it to said point adjustably, substantially as specified.

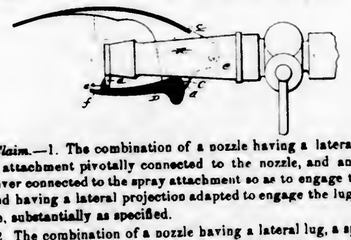
4. A hand seed-planter having a tubular sheet-metal body, provided with a swaged collar, or rib, and an enlarged or funnel-shaped top, and a handle having an eye arranged between said rib and top, as shown and described.

643,525. MOTOR FOR VEHICLES. ABRAHAM OLSON, Minneapolis, Minn. Filed June 3, 1899. Serial No. 719,266. (No model.)

Claim.—In a spring-motor for vehicles, the combination with the driving-axle, of a shaft mounted in suitable bearings parallel with said axle, a casing rotatably mounted on the shaft, a spring connected to shaft and casing, gear-wheels on the shaft and casing, respectively, gear-wheels on the axle adapted to mesh with the gear-wheels on the shaft and casing and provided with clutch-faces, clutch-sections slidably mounted on the axle and adapted to engage the gear-wheels on the axle, and means for operating said clutch-sections; together with a lever and pawl, the latter engaging ratchet-wheel on the shaft, a rod connecting the lever to the seat of the vehicle, a dog engaging a ratchet-wheel of the casing, and a pawl engaging the ratchet-wheel on the shaft, substantially as shown and for the purpose set forth.



643,526. SPRAY ATTACHMENT. RICHARD ORFORD, St. Joseph, Mich. Filed Oct. 19, 1899. Serial No. 734,099. (No model.)



Claim.—1. The combination of a nozzle having a lateral lug, a spray attachment pivotally connected to the nozzle, and an eccentric-lever connected to the spray attachment so as to engage the nozzle and having a lateral projection adapted to engage the lug of the nozzle, substantially as specified.

2. The combination of a nozzle having a lateral lug, a spray attachment pivotally connected to the nozzle and having ears disposed at opposite sides of the same, and an eccentric-lever arranged between and connected with the ears and adapted to bear against the nozzle, and having a lateral projection at its forward end adapted to engage the lug of the nozzle, substantially as specified.

643,527. ROTARY BALANCED VALVE. WILLIAM R. ORR and CHARLES K. BOOTH, Macon, Ga. Filed May 10, 1899. Serial No. 716,243. (No model.)



Claim.—1. A rotary balance-valve comprising a steam-chest having a base-plate a casing and a cover, the said parts being fastened together, a valve-seat secured on the base-plate within the steam-chest, the said valve-seat having inlet-ports and an exhaust-port in its bottom registering with similar ports in the base-plate, and side ports opening into the interior of the steam-chest, a segmental top or cap for the said valve-seat and a valve mounted to turn in the said seat and having an exhaust-cavity, side cavities and a top cavity, the top cavity being closed by the segmental cap, the said top and exhaust cavities being in communication with each other, substantially as shown and described.

2. A rotary balance-valve comprising a steam-chest, a segmental valve-seat in the said chest and having side ports opening into the steam-chest, an exhaust-port and cylinder-ports, a segmental top or cap for the said valve-seat, and a valve mounted to turn in the said seat and having an exhaust-cavity, side cavities and a top cavity, and transverse spring-pressed packing-plates in the said valve and in contact with the under side of the said cap, the plates being arranged between the side cavities and the top cavity, substantially as shown and described.

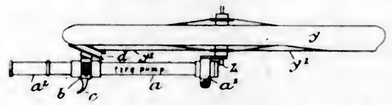
3. A rotary valve, provided in its periphery with longitudinal and transverse recesses, springs in said recesses, and packing-plates in said recesses, substantially as shown and described.

4. A rotary valve, provided with a shaft, a collar secured thereon, a stuffing-box for said shaft and said collar, and a ring loosely on said

shaft and pressed by said collar in the stuffing-box, substantially as shown and described.

5. In a rotary balance-valve a steam-chest, a casing for the same, a valve-seat for the steam-chest, a rotary valve mounted to turn in said seat and provided with a shaft extending through one side of the casing, a collar secured on said shaft, outside of the steam-chest, a stuffing-box for said shaft and collar and a ring mounted loosely on said shaft within the stuffing-box and engaged by said collar, the said ring having its outer face rounded off to fit the correspondingly-rounded inner wall of the stuffing-box, substantially as shown and described.

643,528. TIRE REMOVER AND SETTER. ALBERT C. PALMER, Esquimalt, Victoria. Filed Oct. 27, 1899. Serial No. 734,966. (No model.)



Claim.—1. In an appliance for manipulating pneumatic tires of wheels, the combination with the part *a* adapted to be attached to the axle of the wheel, of the adjustable sleeve or attachment *b* having the plate or arm *c* on one side, and the obliquely-set grooved wheel *d* on the other side, substantially as and for the purposes set forth.

2. In an appliance for manipulating pneumatic tires of wheels, the combination with (and near one end of) the stem of an inflater, of an attachment or part adapted to be attached or pivoted to or on the axle of the wheel, and (at an adjustable distance therefrom on the said stem) a sleeve or attachment having on one side a projection consisting of any suitably bent or hooked plate, and on the side opposite said projection, a flanged or grooved wheel, all as and for the purposes set forth.

3. The combination with the inflater-stem *a*, of the adjustable sleeve or attachment *b*, having the plate or arm *c* on one side, and the obliquely-set grooved wheel *d* on the other side substantially as and for the purposes set forth.

4. The combination with a rod or inflater-stem *a*, of an attachment *a'* having an eye or eyes *c* (adapted to fit over the spindle *z* of a wheel) and a sleeve or attachment *b*, having the plate *c* at one side and the grooved wheel *d* at the other, the distance of the sleeve or attachment *b* from the eye or eyes *c* being adjustable the said rod or stem having also a part or end a^3, (to be grasped by the operator) more distant from the eye or eyes *c* than the said attachment *b*, so as to enable an external tire or cover to be removed and replaced substantially as set forth.

643,529. DEVICE FOR GRIPPING AND DELIVERING MAIL-BAGS. SIMON R. PATTEN, Omaha, Nebr., assignor of one-half to Alfred Millard, same place. Filed May 24, 1899. Serial No. 718,043. (No model.)

Claim.—1. A bag-gripping device for attachment to a mail-car consisting of a hinged frame and a cross-bar, a spring for throwing the frame inward toward the bar, a detent for holding the frame away from the bar, and cheek-pieces adapted for attachment to the jambs of an opening in the car, substantially as set forth.

2. The combination with a car having a side opening, of a bag-gripping device comprising a hinged frame, a cross-bar, a spring arranged to throw the frame inward toward the bar, and a detent for holding the frame outward, arranged to be struck by the pouch passing along the inner face of the frame, substantially as set forth.

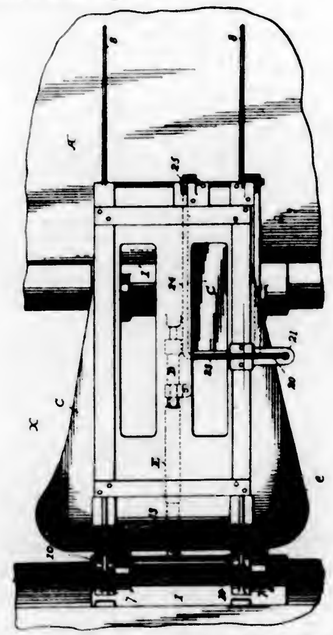
3. The combination with the cross-bar D of the frame C for engaging a pouch supported by a crane, a support to which the frame is pivoted, and a flange 9 at the pivoted end of the frame, substantially as set forth.

4. The combination of a car having an opening, a bar extending across said opening and a pouch-engaging frame pivoted at one side of said opening, and provided near its pivoted point with a bearing-face for receiving the impact of the pouch, substantially as set forth.

5. The combination of a car having an opening, a bar extending across said opening and a pouch-engaging frame pivoted at one side of said opening, and provided near its pivoted point with a bearing-face extending inward from the pivot, substantially as set forth.

6. The combination with a car having a side opening, of a bag-gripping device comprising a hinged frame, means for limiting the outward movement of the frame, a cross-bar, a spring arranged to swing the frame inward toward the bar, and a detent for holding the frame in proper position, substantially as set forth.

7. The combination with a car having a side opening, a hinged frame C, and actuating-spring, of a cross-bar, and means on the car, on opposite sides of the opening, for supporting the bar movably in its position, substantially as set forth.



8. The combination with a car provided with a side opening, of a gripping-bar pivoted at one side of the opening to swing horizontally across it, a gripping-frame pivoted to the car on one side of the opening to cooperate with the bar, a detent to hold the frame in its open position, and a spring to swing the frame inward, substantially as set forth.

9. The combination with a car having a side opening, of a frame pivoted at one side of said opening and provided with projecting arms 8, 8, a bar extending across said opening, a spring normally tending to close the frame against the bar, and a detent for holding the frame open and adapted to be released by the impact of the incoming bag, substantially as set forth.

10. The combination with a car having a side opening, of a bolt or detent arranged to engage a link attached to a pouch to be delivered at the station, a trigger arranged to make contact with a pouch supported in position to be delivered to the car, and connections between said trigger and said detent, substantially as set forth.

11. The combination with a pouch-engaging frame and means for delivering the pouch to a car, of a detent carried by the frame and arranged to engage a link connected to a pouch, and a trigger, also carried by the frame in position to be operated by a pouch engaged by the frame and connected to operate said detent, substantially as set forth.

12. The combination with the pivoted frame C, of a bar pivoted to said frame and consisting of two sections, one tubular to receive the other and a spring arranged within the tube and bearing upon the section sliding therein, substantially as set forth.

13. The combination with the frame C, of a bar D pivoted thereto and provided with a sliding section 16 having an end adapted to a socket upon the frame of the door, a spring bearing on the sliding section, and means for drawing back the latter, substantially as set forth.

14. The combination with the crane and its supporting-arms, of pivots 44 on the ends of the arms, that on the upper arm inclining outwardly and upwardly, and that on the lower arm inclining downwardly and outwardly, a block mounted on each pivot to turn freely thereon, the preponderance of weight in each block being below its pivot, and a slightly-curved and unobstructed hook 32 rigidly secured in each block, substantially as and for the purpose set forth.

15. The combination with a crane arranged adjacent to the track, of a receiving-trough having the rear portion inclined in respect to the receiving end, substantially as described.

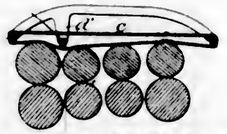
16. The pouch-receiving trough having a bottom substantially V-shaped in cross-section, and its rear portion inclined in respect to the receiving end, substantially as set forth.

17. The combination with the crane, of a receiving-trough having a cover the forward section of which is hinged, and a trigger or detent arranged to support the hinged end at an elevated position and to be struck by the incoming pouch substantially as described.

18. The combination of frame C, a spring normally tending to force it inwardly, a releasable device to hold the frame outward, and a releasable catch for retaining it in the inner position, substantially as set forth.

19. The combination with the spring-actuated frame C provided with an incline *c*, of a releasable device to hold the frame against the force of its actuating-spring, substantially as set forth.

643,530. ROLL-CLEARER FOR TEXTILE MACHINERY. LOREN W. PERSEY, Newton, Mass., assignor to the Saco & Pettee Machine Shops, same place. Filed May 4, 1899. Serial No. 715,536. (No model.)

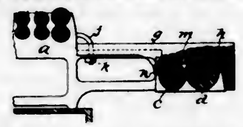


Claim.—1. As a new article of manufacture, a roll-clearer frame comprising parallel side bars, connecting and supporting end bars offset from the side bars, arms springing from the under sides of the end bars intermediate the ends thereof, and one or more bars extending between said arms parallel with the side bars in a plane beyond that of the latter.

2. As a new article of manufacture, a roll-clearer holder composed of a frame for each delivery or set of rolls, each frame comprising a pair of parallel side bars and connecting end bars offset therefrom; and integral heads or necks connecting adjacent end bars of different frames, substantially as and for the purpose described.

3. As a new article of manufacture, a roll-clearer holder composed of a frame for each delivery or set of rolls, each frame comprising a pair of parallel side bars, connecting end bars offset therefrom, and one or more intermediate bars parallel with the side bars and offset from the end bars into a plane beyond that of the side bars; and integral heads or necks connecting adjacent end bars of different frames, substantially as and for the purpose described.

643,531. GEAR-COVER FOR RAILWAY-HEADS. LOREN W. PERSEY, Newton, Mass., assignor to the Saco & Pettee Machine Shops, same place. Filed May 4, 1899. Serial No. 715,537. (No model.)



Claim.—1. The calender-rolls, one of which is provided with movable journal-bearings to permit the surface of one roll to be pressed upon the other, combined with the gear-cover constructed to rest or bear upon the said movable journal-bearings, substantially as described.

2. The calender-rolls, one of which is provided with movable journal-bearings to permit the surface of one roll to be pressed upon the other, combined with the weighted gear-cover substantially as set forth, constructed to rest or bear upon the said movable journal-bearings, substantially as described.

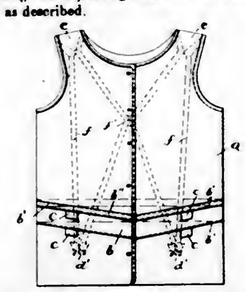
3. The calender-rolls, one of which is provided with movable journal-bearings to permit the surface of one roll to be pressed upon the other, combined with the gear-cover provided with the bosses *l*, constructed to bear upon the said movable journal-bearings, substantially as described.

4. The roll and its journal-box, combined with the gear-covers united by the bar A, the covers being adapted to bear upon the journal-boxes.

5. The roller stand or frame, combined with the gear-covers hingedly connected with the roller stand or frame, as described, and the bar A connecting the covers.

643,532. APPAREL SUSPENDER ATTACHMENT. MARY J. POST, Hoboken, N. J. Filed Aug. 19, 1897. Serial No. 648,809. (No model.)

Claim.—1. An undergarment having the band or belt secured around the same, the upper longitudinal edge thereof turned out and hemmed down on the band by the stitching securing the band to the waist, the depending loops having their ends beneath said hem and secured by said stitching, the lower longitudinal edge secured by stitching to the body of the waist, and another series of depending loops having their ends between the waist body and band and secured by said stitching and depending from the lower edge of said band substantially as described.



2. An undergarment having the front tapes *f*, *f*, the back tapes *f'*, *f'*, loosely crossing at the rear, said tapes having loops at their lower ends, along the line of the hip portion of the garment.

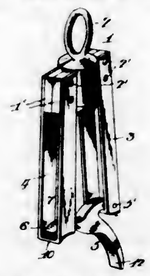
643,533. CLOTHES-PIN. CHARLES L. PRIME, Jersey City, N. J. Filed June 29, 1899. Serial No. 722,299. (No model.)



Claim.—1. A clothes-pin formed of sections or pieces, and having a cap at one end of the sections and a ring or compressor intermediate the ends substantially as described.

2. A clothes-pin formed of sections, and having an end seat and an intermediate seat or shoulders, a cap at the end seat, and a ring or compressor between the shoulders substantially as described.

643,534. LOCKING-HOOK FOR MINERS' BUCKETS. EDWARD J. RICHMOND, Carthage, Mo., assignor to Dwight J. Bliss, same place. Filed Aug. 18, 1899. Serial No. 727,736. (No model.)



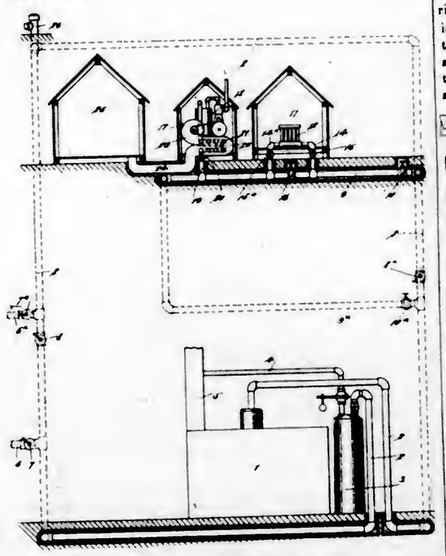
Claim.—1. In a safety bail-hook, a swiveled socket formed with diverging arms, a latch fulcrumed in one arm and having its free end adapted to engage the opposite arm to lock it with reference to the latch-arm substantially as and for the purpose set forth.

2. In a safety bucket-bail hook, a swiveled socket formed with the bifurcated arm 3, and slotted arm 4; in combination with the right-angular latch 5, the outer end of the tongue 6 of which is recessed to engage slotted arm, substantially as and for the purpose set forth.

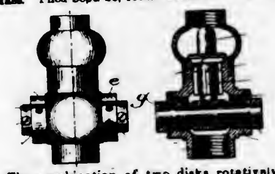
643,535. STEAM-HEATING PLANT. JAMES D. ROBERTSON, La Salle, Ill. Filed Apr. 12, 1899. Serial No. 712,742. (No model.)

Claim.—A steam plant having a generator, a main leading from the generator throughout the system and returning to a point near the generator, a receiver situated near the boiler and having the main returned thereinto, and a valved blow-off pipe passing from the receiver, for the purpose specified.

643,585.



643,586. MECHANICAL MOVEMENT. ANDREW J. ROBINSON, Boston, Mass. Filed Sept. 20, 1897. Serial No. 652,214. (No model.)



Claim.—The combination of two disks rotatively mounted in fixed bearings, said disks having sockets or bearings eccentrically formed therein, a stud loosely mounted in said sockets, means for simultaneously turning the disks in their bearings to impart a lateral movement to the stud, and a slide having a rectilinear movement in a suitable guide and arranged to be moved by the said movement of the stud.

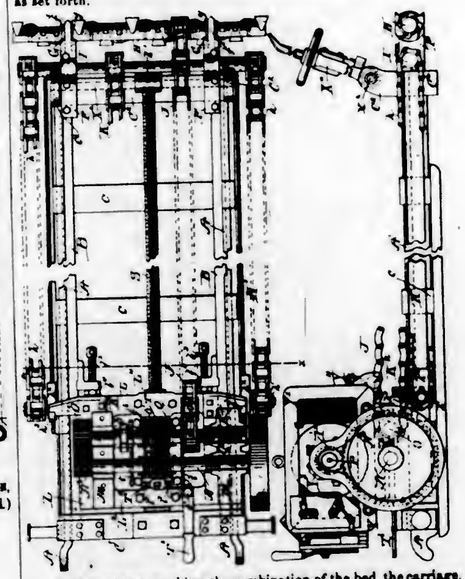
643,537. MINING-MACHINE. CYRUS ROBINSON, Columbus, Ohio. Filed July 17, 1894. Renewed July 17, 1899. Serial No. 724,138. (No model.)

Claim.—1. In a mining-machine, the combination of a stationary bed, the carriage mounted on the bed, the motor mounted on the carriage, the cutting apparatus on the carriage, a carriage-moving mechanism having two intermittently-rotary members, one mounted in bearings on and moving with the carriage and the other mounted in bearings on the bed, and means actuated by the motor simultaneously with the cutting apparatus and mounted on the carriage for driving either of said rotary members of the carriage-moving mechanism; substantially as set forth.

2. In a mining-machine, the combination of the bed, the carriage on the bed, the motor on and traveling with the carriage, the cutting apparatus on the carriage, the carriage-moving mechanism, consisting of a nut mounted on the carriage and a threaded shaft on the bed, two differently-speeded trains of gears mounted on the carriage and actuated by the said motor and adapted to be connected respectively with the said nut and the said threaded shaft; substantially as set forth.

3. In a mining-machine, the combination with the bed, the carriage mounted on the bed, the cutting apparatus on the carriage, the motor on the carriage, the carriage-moving mechanism consisting of a rotary nut and a threaded shaft, one mounted on the carriage and the other on the bed, and two differently-speeded trains of gearing, both actuated by the motor simultaneously with the cutters for alternately rotating said nut and shaft in the same direction; substantially as set forth.

4. In a mining-machine, the combination with the bed, the carriage, the cutting apparatus on the carriage and the motor on the carriage, of a carriage-moving mechanism having two alternately-rotating mutually-engaging members, one mounted on the carriage and the other mounted on the bed, and two continuously-rotating wheels actuated by the motor simultaneously with the cutters for driving the said members of the carriage-moving mechanism; substantially as set forth.



5. In a mining-machine, the combination of the bed, the carriage, the cutting apparatus, the carriage-moving mechanism and two loosely-mounted wheels rotating continuously in the same direction about the axis of the carriage-moving mechanism, and means for connecting said wheels alternately with the carriage-moving mechanism; substantially as set forth.

6. In a mining-machine, the combination with the bed, the carriage, the cutting apparatus, and the engine or motor, of the carriage-moving mechanism, the two loosely-mounted wheels rotating continuously in the same direction for actuating the carriage-moving mechanism, and the two driving-shafts, each geared to one of said wheels and moving continuously in opposite directions; substantially as set forth.

7. The combination with the carriage-moving mechanism, having the alternately-rotating nut and screw-shaft, the two wheels mounted loosely on the nut, and means for alternately imparting rotation from said wheels to said nut and said screw-shaft; substantially as set forth.

8. The combination with the bed, the carriage mounted on the bed and carrying the cutting apparatus, and the carriage-moving mechanism, consisting of a nut and screw, of the two wheels loosely mounted on the nut, continuously-revolving power devices geared to said wheels, a clutch for connecting one of the said loose wheels with the screw, another clutch splined to the nut and adapted to engage with the other loose wheel, and means on the carriage for preventing rotation of the nut and clutch thereon in one direction; substantially as set forth.

9. In a mining-machine, the combination with the bed, the carriage, the cutting apparatus and the carriage-moving mechanism, consisting of a nut and threaded shaft, of two wheels loosely mounted on the nut and geared to constantly-revolving power devices on the carriage, a clutch splined to the nut and adapted to engage with one of said loosely-mounted wheels, a clutch splined to the threaded shaft and adapted to engage with the other loose wheel, and means for preventing the last-said clutch from rotating in one direction; substantially as set forth.

10. In a mining-machine, the combination with the bed, the carriage on the bed, the cutting apparatus, and the carriage-moving mechanism, consisting of a nut and a threaded shaft, of two loosely-mounted wheels geared to constantly-acting power devices, a clutch splined to the nut and adapted to engage one of the said loosely-mounted wheels, means for preventing the rotation of said clutch in one direction, another clutch connected with the threaded shaft and adapted to engage with the other of said loosely-mounted wheels, means for preventing rotation of the last-said clutch in one direction, and means for simultaneously connecting one of said clutches with its coacting wheel and disconnecting the other from its wheel; substantially as set forth.

11. The combination with the carriage-moving mechanism, having a nut and screw, and constantly-acting power devices, of a clutch splined to the nut and having on one face means for engaging one of said wheels and a series of teeth on its other face, a stationary disk provided with fingers or projections adapted to engage with the teeth on the clutch and prevent rotation thereof and of the nut in one direction, another clutch secured on the screw and adapted to engage with the other loose wheel, and means for simultaneously moving one clutch into engagement with its coacting wheel, and the other clutch out of engagement with its wheel; substantially as set forth.

12. In a mining-machine, the combination of the bed, a carriage on the bed, cutting apparatus on the carriage, a motor on the carriage, carriage-moving mechanism, consisting of two intermittently-acting rotary members, continuously-acting power devices driven by the motor and connected to the cutting apparatus, and means for alternately connecting the members of the carriage-moving mechanism with the cutter-driving power devices; substantially as set forth.

13. In a mining-machine, the combination of a bed, a carriage on the bed, cutting apparatus on the carriage, an engine or motor, mechanism for moving the carriage on the bed consisting of two rotary members, one mounted on the bed and one mounted on the carriage, continuously-acting power devices on the carriage, two loose wheels geared to said power devices and rotating in the same direction, means for connecting one of said wheels with the member of the carriage-moving mechanism on the carriage, and means for connecting the other wheel with the member of the carriage-moving mechanism on the bed when the other wheel is disengaged from such mechanism; substantially as set forth.

14. In a mining-machine, the combination of a bed, a carriage on the bed, cutting apparatus on the carriage, a motor or engine, a prime power-shaft, a shaft extending parallel to the prime shaft and geared to the cutting apparatus, carriage-moving mechanism, comprising a member extending longitudinally of the bed, and a member on the carriage adapted to engage with and move longitudinally of the member on the bed, two loose wheels mounted on an axis transverse to the axis of said parallel shafts and connected with the power devices on the carriage to rotate continuously in the same direction and means for alternately connecting said wheels with the carriage-moving mechanism for moving the carriage forward and back on the bed; substantially as set forth.

15. The combination with the bed, the carriage, the nut, and the feed-screw of the yielding support on the bed for the front end of the feed-screw; substantially as set forth.

16. The combination of the bed, the carriage, the cutting apparatus, and the cleaner-chains, *k*, of the sprocket-wheels which support the chains and the guides for said wheels outside of the bed; substantially as set forth.

17. The combination of the bed, the carriage, the cutting apparatus, the outside cleaner-chains, the sliding support of the cleaner-chains, the guides outside of the bed for said support and the overhanging arms for moving the said supports on the guides, substantially as set forth.

648,538. FISHING-ROD REEL. TAYLOR ROSS, Sodom, N. Y. Filed Sept. 14, 1899. Serial No. 730,485. (No model.)

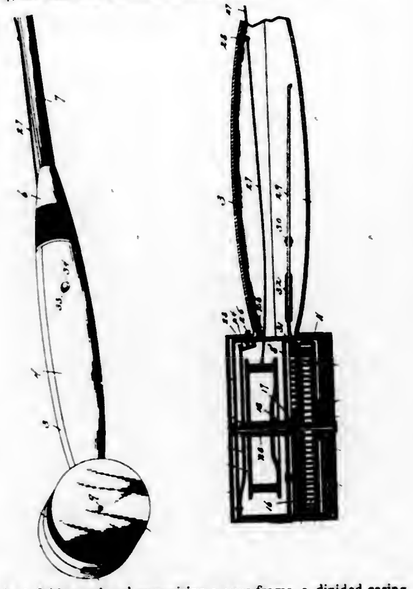
Claim.—1. A hand-grip with a reel-casing at its rear end divided lengthwise, the parts being hinged at said end and provided at the forward or outer end with means for securing the casing and hand-grip in a closed position and for engaging the rod.

2. A divided hand-grip for a fishing-rod carrying at one end a divided reel-casing and adapted at the other end to receive a fishing-rod, the casing being arranged to counterbalance the weight of the rod, substantially as described.

3. A fishing-rod reel comprising a divided casing, the parts of which are hinged at one side and provided at the opposite side with a divided hand-grip adapted at its outer end to receive the inner end of a fishing-rod, a gear-frame within said casing, a shaft journaled in said frame, a spring secured to said shaft, a reel journaled on said shaft, gearing connecting said shaft and reel, and means for throwing said reel into and out engagement with its actuating mechanism.

4. A divided fishing-rod hand-grip and reel-casing, in combination with a gear-frame secured within said casing, a through-shaft journaled in said frame, a spring secured at one end to said shaft and at the opposite end to a disk having a pawl-and-ratchet connection with the shaft, a reel loose on said shaft, an internally-toothed rim or gear-wheel fast on said shaft, geared to said rim and carrying a clutch adapted to engage a corresponding clutch on the sleeve of the reel, substantially as described.

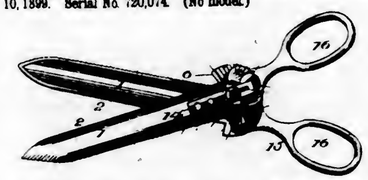
5. In a fishing-rod reel, the divided casing therefor, having its parts hinged and provided with a divided hand-grip arranged on the opposite side of the casing from the hinge, a gear-frame within said casing, a through-shaft journaled in said frame, a coiled spring secured at one end to said shaft, a flanged disk having a pawl-and-ratchet connection with the shaft and to which the outer end of the spring is secured, an internally-toothed rim fast on the shaft, a reel geared to said rim, a brake for engaging said rim for preventing backward movement, means for releasing said brake, and means for releasing the reel from its actuating mechanism



6. A fishing-rod reel comprising a gear-frame, a divided casing therefor, a through-shaft journaled in said frame, a flanged disk having a pawl-and-ratchet connection with the shaft, a coiled spring secured at its inner end to the shaft and at its outer end to said disk, an internally-toothed rim or gear-wheel fast on the shaft, means for operating the shaft to wind up the spring, a reel loose on the shaft geared to said rim, and means for throwing said reel out of engagement with its actuating-gearing.

7. The combination with a fishing-rod reel and its spring-actuated mechanism, of a divided casing therefor, a divided, hollow hand-grip to one end of which said casing is attached and through which the line passes from the reel to the rod at the opposite end of said hand-grip, a supporting-frame within said casing, a gear-shaft journaled in said frame and geared to said reel, and means fast on said shaft outside the casing for rotating the shaft for winding up the spring, substantially as described.

643,539. SHEARS. GEORGE R. ROWE, Moore, Okla. Filed June 10, 1899. Serial No. 720,074. (No model.)



Claim.—1. Scissors or shears comprising a shear-blade having double cutting edges, one being smooth, the other roughened or toothed, substantially as set forth.

2. Shears or scissors composed of shear-blades, each comprising double cutting edges, the one smooth, the other roughened or toothed, and adapted to have either the smooth or the toothed cutting edges brought into position for active operation.

3. Shears or scissors composed of blades each having one edge smooth and its opposite edge toothed, a multiplicity of grooves in its

outer side along one edge forming the said teeth, substantially as set forth.

4. Shears or scissors composed of blades having double cutting edges and of concavo-convex form in transverse section, one of the edges being smooth and the opposite edge toothed and formed by rearwardly-inclined grooves in the outer face of each of the blades along an edge portion thereof, substantially as described.

5. In shears or scissors having the butt or pivotal ends of the blades expanded and approximately of segmental form, with the projecting terminals of the expanded portions forming lateral cutting edges, handles adjustably connected with the expanded ends of the blades to bring either set of lateral cutters into active operation, substantially as described.

6. In shears or scissors having the butt or pivotal ends of the blades expanded and approximately of segmental form, with the projecting terminals of the expanded portions forming lateral cutting edges, one set of cutting edges being smooth and the other set toothed, handles having adjustable connection with the segmental ends of the blades to bring either the smooth or the toothed cutting edges of the said segment-formed ends into position for active operation, substantially as set forth.

7. Shears or scissors having oppositely-disposed offstanding portions adjacent to the pivot of the blades forming outwardly-extending cutters, one of which is smooth and the other toothed or roughened, substantially as set forth.

8. Shears or scissors having their butt-ends expanded to form approximately segment heads, handles having pivotal connection with the shear-blades, one of the parts having an arcuate slot and a fastening adapted to enter the said slot and secure the handle in an adjusted position, substantially as set forth.

9. In shears or scissors, a blade having its butt-end expanded forming a segment head, a handle having pivot connection with the expanded portion of the blade and provided with an arcuate slot concentric with said pivot-fastening, and means for securing the handle to the expanded portion of the blade and operating in the arcuate slot of the handle, substantially as set forth.

10. In shears or scissors having adjustable handles, a pivot-fastening connecting the blades, a locking-wedge for securing said pivot-fastening, and a fastening for the locking-wedge and adjacent adjustable handle for fixing the position of both, substantially as described.

11. In shears or scissors, the combination with the blades, a pivot-fastening connecting the blades and having an end portion formed with opposite notches in its sides, an adjustable handle applied to one of the blades, a fastening for securing said handle to the blade in an adjusted position, a spring locking-wedge adapted to cooperate with the pivot-fastening of the blades and receiving a reduced portion of the fastening between the handle and blade in its slot, whereby said fastening is maintained in a normal position when being tightened or loosened, substantially as specified.

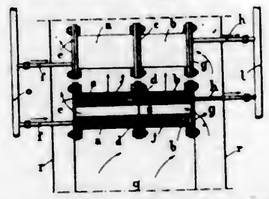
648,540. WRENCH. JOHN RUMERY, Cleveland, Ohio. Filed Jan. 28, 1898. Serial No. 668,302. (No model.)



Claim.—1. The head having a conical opening made therethrough, the plates sleeved over the head, the handle secured in the plates, the two curved jaws provided with teeth, the toothed ring for engaging with the jaws, and the ratchet-ring, combined with the two pivoted pawls, provided with arms, a spring for operating each pawl, and two cams for operating the springs so as to cause the pawls to alternately engage with the ratchet-ring, and a handle for causing the cams to revolve, substantially as shown.

2. In a wrench, the circular head having a conical recess in its outer face and provided with slotted openings, the curved jaws which pass through the slotted openings and have their outer ends bearing against the sides of the conical recess in the head, a toothed ring which engages with the outer toothed edges of the jaws, and a ratchet ring which is placed upon the head, combined with plates which are sleeved over the head upon opposite sides of the ratchet-ring, the two pawls provided with arms, the springs for operating the pawls, the two slotted cams, and an operating-handle upon which they are pivoted; the central portion of the head being provided with an opening to receive a screw, substantially as set forth.

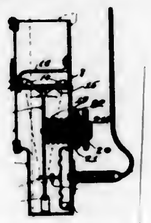
648,541. STEAM-GENERATOR. GEORGES DE ROUSSY DE SALES, Lyons, France, assignor to M. Louis Girard, same place. Filed Feb. 14, 1899. Serial No. 705,508. (No model.)



Claim.—1. A steam-generator, comprising a heating-chamber, a feed-water pipe connected with the latter and by which the feed-water may be continuously forced thereinto, and a mat filling said heating-chamber and composed of compressed asbestos interlaced and held by wire, the asbestos mat, when heated, absorbing the feed-water, separating it into small molecules or particles and converting the same into vapor within said heating-chamber, substantially as described.

2. In a steam-generator, the combination of two metal tubes *a*, *b* secured end to end and each completely filled with asbestos, a pipe *f* connected with the end of one tube and by which the feed-water may be continuously forced thereinto, and a pipe A leading from the end of the other tube to connect with a superheater, substantially as and for the purpose described.

643,542. PNEUMATIC THERMOMETER. WILLIAM H. SANFORD and HENRY BRICKHAM, Denver, Colo. Filed Feb. 8, 1899. Serial No. 704,941. (No model.)



Claim.—In a pneumatic thermometer, the combination of a temperature-indicating register comprising a casing, a graduated dial on said casing, an indicating-hand on said dial, a pivotal shaft supporting said hand, means for supporting said shaft, a spiral blade arranged to make substantially a full revolution of said shaft, and projecting from said shaft, a lever arranged to straddle said blade at one end, a pivotal support for the opposite end of said lever, an air-tight flexible undulating diaphragm in said casing, a stem projecting centrally from the center of the top of said diaphragm, means including a pivotal attachment between said stem and lever for oscillating said lever along said spiral blade by the movements of said diaphragm, a contraction coiled spring secured at one end to said lever between said diaphragm and said spiral blade, a base-disk secured to the opposite end of said spring and pivotally attached to a thumb-screw plug, a threaded aperture in said casing to which said screw-plug is threaded and means for securing said screw-plug in adjusted position against accidental displacement, and with a pipe or tube connected to said diaphragm and an air-imprisoning tank secured to the end of said tube, substantially as described.

648,543. GARMENT-FORM. ELLA M. SCHRADER, Seattle, Wash. Filed Aug. 17, 1899. Serial No. 727,574. (No model.)

Claim.—The herein-described dress-former, comprising a stand, a bottom supported on said stand and an inflatable body, having its lower edge secured to said bottom, the said body having an elastic reinforce-belt around the waist portion thereof and an elastic reinforce-strip across the shoulder portion thereof, whereby to prevent such portion from unduly stretching when the body is inflated, as and for the purpose set forth.

643,548.



648,544. SPOOL. BERT G. SIMMONS, New Brunswick, N. J. Filed June 2, 1899. Serial No. 719,115. (No model.)



Claim.—1. A spool consisting of two disks, each disk having its central portion *a* in contact with the central portion of the other, and its peripheral portion a^2 bulging out, with a rivet centrally uniting the disks, one of said disks having a lip *c* integral therewith projecting from the depressed portion of its side substantially as described.

2. A spool consisting of two disks, each disk having its central portion in contact with the central portion of the other, and its peripheral portion a^2 bulging out, with a rivet centrally uniting the disks, one of said disks having a lip *c*, integral therewith projecting from its side and overarched by the peripheral bulging-out portion a^2, substantially as described.

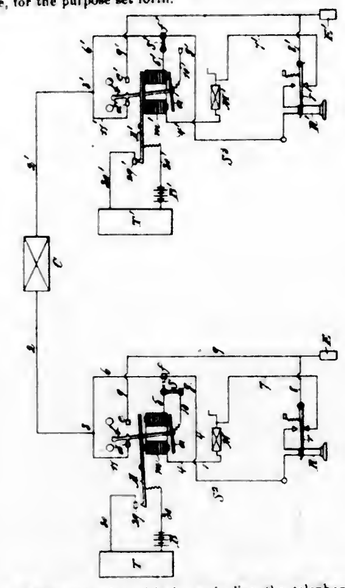
648,545. TELEPHONE-TELEGRAPH. ALF SINDING-LARSEN, Fredriksvaern, Norway. Filed Aug. 22, 1899. Serial No. 728,064. (No model.)

Claim.—1. In a telephone system, the combination with the main line, of a local receiver branch and a grounded signaling branch, an electromagnet in the latter branch, two armatures therefor, one actuating the signal and the other closing an independent circuit, a source of alternating current, and means for directing either alternating or unidirected currents to line from an alternating-current source, and to receive either alternating or unidirected currents to operate the signal or the circuit-closer, substantially as set forth.

2. In a telephone system, the combination with the main line, local receiver, and signal branches; of mechanism for closing an independent circuit, a grounded and a line-connected contact, a vibrating conductor, an armature and its magnet, said conductor and armature adapted to direct unidirected currents from an alternating source to line to operate the circuit-closing mechanism at the receiving-station, and a hand phone-carrying lever adapted to ground either of the aforesaid branches, substantially as set forth.

3. The combination with the main line, the telephone-receiver and call-circuits and a local battery-circuit at a subscriber's station, the call-bell magnet, and means for transmitting or receiving through said magnet either alternating or direct current impulses; of a telegraphic-receiver circuit an armature-lever operated by said magnet when energized by direct-current impulses to close the telegraphic-receiver circuit, for the purpose set forth.

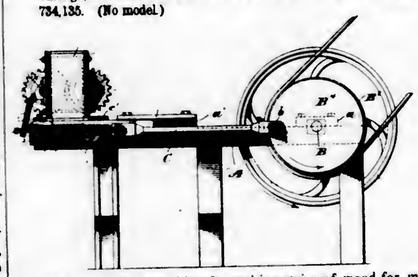
4. The combination with the main line, the call-circuit at a subscriber's station, the call-bell magnet, its armature, the bell-hammer actuated thereby, and the alternating-current generator in said call-circuit; of a branch from the main line, having a contact-terminal, a ground connection having a like terminal between which terminals the bell-hammer is arranged to vibrate, whereby currents of one direction may be grounded, and currents of an opposite direction sent to line, for the purpose set forth.



5. The combination with the main line, the telephone-receiver and call-circuits and a local battery-circuit including a telegraphic receiver at a subscriber's station, the call-bell electromagnet, a branch from the main line having a contact-terminal, a ground-line having a like terminal, the bell-hammer arranged to vibrate between said contacts and the alternating-current generator in the call-circuit; of an armature-lever controlled by the call-bell magnet and operating to close the telegraphic circuit, whereby alternating currents, or currents of one direction may be caused to flow through said magnet, for the purposes set forth.

6. In a telephone system, a local signal branch, signal-operating magnets included therein, an auxiliary armature therefor, in combination with a local circuit adapted to be closed by said armature, a magnet operating a spring-retracted stylus, in series in said circuit with a second magnet, a platen, a train of gearing operating a feed mechanism, said second magnet adapted to impart a step-by-step movement to the gearing, substantially as described.

648,546. MACHINE FOR MAKING MATCH-SPLINTS. WILLIAM H. H. SIBUM, Belleville, N. J., assignor to the Diamond Match Company, Chicago, Ill. Filed Feb. 25, 1895. Renewed Oct. 19, 1899. Serial No. 734,135. (No model.)



Claim.—1. In a machine for making strips of wood for match-splints, &c., the combination of means for scoring the face of a block, a sliding knife for severing the scored face, having a cutting edge that is at a right angle to the line of travel of the knife, and parallel with the scored lines of the block, a toggle connected at one end with said knife, and at the other end to a relatively-fixed point, substan-

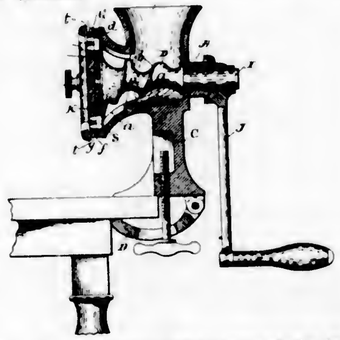
tially in line with the line of travel of the knife, a slide reciprocating in a direction that intersects the line of travel of the knife, and a part between the ends of the toggle that engages a cam-slot in the slide, substantially as and for the purpose described.

2. In a machine for making strips of wood for match-splints, &c., the combination of means for scoring the face of a block, a sliding knife for severing the scored face having a cutting edge that is at a right angle to the line of travel of the knife and parallel with the scored lines of the block, a toggle connected at one end with said knife, and at the other end to a relatively-fixed point substantially in line with the line of travel of the knife, a slide reciprocating in a direction that intersects the line of travel of the head, having a cam-slot, and an extension from the pivot of the toggle-links, into said slot, substantially as and for the purpose described.

3. In a machine for making strips of wood for match-splints, toothpicks, and the like, in combination with a holder for block of wood, the reciprocating head carrying the scoring-knives, the second reciprocating head carrying the slicing-knife, a toggle pivotally connected at one end with this head, and, at the other, to a support beyond the head, a stationary piece having a curved slot engaged by a pin connected with the inner ends of the links of the toggle, the reciprocating plate having the slot also engaged by the pin, such slot having one portion longitudinal with reference to the travel of the plate, and another portion at an angle to the other, and means for reciprocating the scorer-carrying head and the slotted plate, substantially as and for the purpose shown.

4. In a machine for making strips of wood for match-splints, toothpicks, and the like, in combination with means for holding a block of wood, the reciprocating-head carrying the scoring-knives, the second reciprocating head carrying the slicing knife, the toggle having its opposite ends pivotally connected, respectively, with the latter head and a support outside of the same, a stationary piece having a curved slot through which the pin connecting the links of the toggle passes, the reciprocating plate having the pin-engaging slot, with one portion longitudinal, with reference to the travel of the plate, and another portion extending at an angle thereto, toward the head to which the toggle is connected, and means for reciprocating the plate and the head carrying the scoring-knives, substantially as and for the purposes shown and described.

643,547. MEAT-CUTTER. EDWARD F. SMITH, Rochester, N. Y., assignor to Josiah Anstice, same place. Filed Jan. 3, 1899. Serial No. 701,078. (No model.)



Claim.—1. A meat-cutter comprising a cylinder having feeding-ribs upon its inner surface, a feed-shaft coacting with said ribs and carrying a cutting-flange projecting circumferentially across the ends of said feeding-ribs, a non-cutting separating element situated between the cutting-flange and the outer ends of said ribs and at a point circumferentially outside of the ends of said ribs and thereby out of the line of feed and against which the said cutting-flange rests, a cutter-disk held against rotation and loosely placed at the end of said cylinder and against the outer side of said cutter-flange, and a clamping member for said cutter-disk.

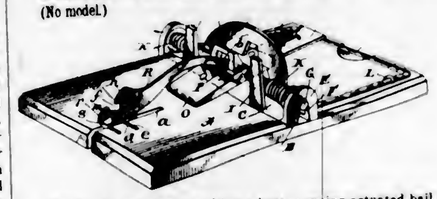
2. A meat-cutter comprising a cylinder having feeding-ribs upon its inner surface, a feed-shaft carrying a cutting-flange projecting circumferentially at right angles to said shaft and beyond said feeding-ribs, and an annular bead situated outside of and beyond the ends of said ribs and serving as a bearing for said cutting-flange and to separate the flange from the end of said ribs, and out of the line of feed, and a cutter-disk situated outside of, parallel to and coacting with said cutting-flange.

3. A meat-cutter comprising a cylinder, a forcing-shaft therein having at its exit end an outwardly-projecting annular cutting-flange provided with openings in a line with the spaces between the ends of the ribs, a perforated plate situated outside of the cutting-flange, a clamping-ring pivoted at one side to one side of the exit end of the cylinder and out of lateral contact with the side thereof to permit it to swing, and provided with a hook at the opposite side, and an adjustable screw receiving the said hook and adapted to hold the perforated plate adjustably against the outer cutting-face of the cutting-flange, substantially as described.

4. A meat-cutter comprising a cylinder, a forcer therein carrying at its outer end a cutting member, a perforated plate situated outside of and against the outer surface of the cutting member, and a clamping member having at its inner side two radially-arranged bearing-points *l* engaging directly said perforated plate, substantially as described.

5. A meat-cutter comprising a cylinder, a forcer within the cylinder carrying a cutting member at its outer end, a perforated plate situated against the outer side of the cutting member and coacting therewith, and a clamping-ring situated outside of the perforated plate and carrying two bearing-points *l* situated at diametrically opposite points and engaging the outer surface of the perforated plate, substantially as and for the purpose described.

643,548. TRAP. EDWARD F. SMITH, Rochester, N. Y., assignor to Josiah Anstice, same place. Filed Mar. 22, 1899. Serial No. 710,080. (No model.)



Claim.—1. A trap comprising a base, a spring-actuated bail or jaw, a pivoted bait-platform, a trigger pivoted at its outer end and having its inner free end adapted to engage the bait-platform, the pivoted end of the trigger having a locking-opening with a horizontal holding-shoulder, and an upwardly-inclined surface above the said shoulder for the purpose described.

2. A trap comprising a base, a spring-actuated bail, a bait-platform, a trigger pivoted at its outer end and having its inner free end adapted to engage the bait-platform, the pivoted end of the trigger having a holding-opening provided with a locking-shoulder, the lower wall of the opening having an intermediate projection for the purpose described.

3. A trap comprising a base, a spring-actuated bail, a bait-platform, a trigger pivoted at its rear end and having its forward free end adapted to engage the bait-platform, the pivoted end of the trigger having a holding-opening provided with a locking-shoulder, the upper edge of the trigger having an inwardly-extending incline over the locking-opening, and the lower wall of the opening provided with an intermediate projection whereby the trap is adapted to operate as described.

4. A trap comprising a base, a spring-actuated bail, a bait-platform, a trigger having an elongated pivotal opening and a holding-opening thereabove constructed to be engaged by the bail when the trigger is tilted and moved backward by the engagement of the bail therewith, substantially as described.

5. A trap comprising a base, a spring-actuated bail, a trigger having its outer end provided with an elongated pivotal opening having the lower wall thereof provided with an intermediate projection, and above the said pivotal opening having a holding-opening with a locking-shoulder, the holding-opening constructed to move the trigger endwise, substantially as described.

6. A trap comprising a base, a spring-actuated bail, a pivoted platform having its pivotal end weighted and provided with an upwardly-extending projection, a trigger pivoted at its outer end and having its inner free end adapted to rest below and under the said projection of the bait-platform, the pivoted end of the trigger having a bail-holding opening, the parts adapted to operate as described.

7. A trap consisting of the following members, a flat base, a casting attached intermediate the base and extending transverse thereof, the casting carrying a pivotal shaft, a spring-actuated bail upon the shaft, and a bait-platform pivoted upon the shaft, a trigger pivoted to the rear end of the base and having its forward free end adapted to engage the bait-platform and its pivotal end provided with a holding-opening, substantially as described.

8. A trap comprising a base, a bail, a trigger, and a pivoted bait-platform consisting of a flat bar and a casting attached to the upper side thereof having a pivotal-rod passage, a pivotal rod passing therethrough, and a rearwardly-extending weighted portion secured to the bait-platform, substantially as described.

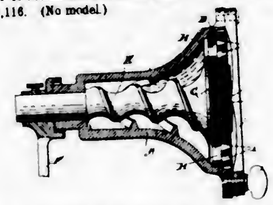
9. A trap comprising a base, a bail, a trigger, a bait-platform comprising a flat bar, a casting attached to the upper side thereof having an intermediate shaft-passage, and an upwardly-extending locking-shoulder, and a pivotal rod passing through the said shaft-passage, substantially as described.

10. A trap comprising a spring-actuated bail, a bait-platform having an upwardly-projecting U-shaped locking-shoulder in combination with an endwise-moving trigger pivoted at its outer end and having its inner free end adapted to engage the said U-shaped projection, the upper edge of the inner end of the latch being curved or inclined and its pivotal end provided with a bail-holding opening, substantially as described.

11. A trap comprising a flat base, having an intermediate transverse slot, a casting secured within the slot and carrying a spring-actuated bail and a pivoted platform, the rear end of the base having an intermediate longitudinal slot, and a trigger pivoted and supported within the slot, substantially as described.

12. A trap comprising a base, a spring-actuated bait, a bail-platform, and an endwise-movable pivoted trigger having a bail-locking shoulder and adapted to have its free end engage the bait-platform for locking it and holding the spring-actuated bail, substantially as described.

643,549. MEAT-CUTTER. EDWARD F. SMITH, Rochester, N. Y., assignor to Josiah Anstice, same place. Filed June 19, 1899. Serial No. 721,116. (No model.)



Claim.—1. A cutter of the character described comprising a cylinder, a forcing-shaft therein, a knife connected with said shaft, a cutter-plate loosely supported at the outer end of said cylinder and engaging the outer face of said cutter, one of said cutting members being rotatable, and a clamping member carried by the cylinder and engaging the said cutting-plate at its center, substantially as described.

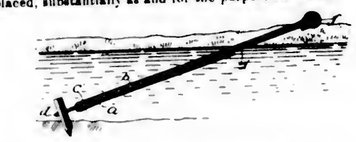
2. A cutter of the character described comprising a cylinder, a rotatable forcing-shaft therein, a knife carried by said shaft at the outer end thereof, a cutter-plate loosely supported outside of said cutter and engaging the outer face thereof, one of said cutting members being stationary and the other relatively rotatable, and a clamping member carried by said cylinder and having an inwardly-extending central projection engaging the center of said cutter-plate, substantially as described.

3. A cutter of the character described comprising a cylinder, a rotatable forcing-shaft therein carrying at its outer end a knife, a stationary cutter-plate movably supported outside of said cutter and engaging the outer face thereof, and a clamping member loosely supported at one side of the end of the cylinder, having a central inwardly-extending projection engaging the center of said cutting-plate, the cylinder carrying a clamping member, and the free end of this clamping member having an open-ended slot adapted to engage the said clamping member, substantially as described.

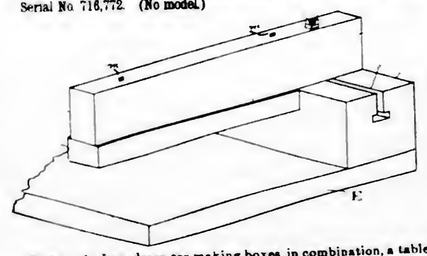
4. A cutter comprising a cylinder, a rotatable forcing-shaft therein carrying at its outer end a knife, the outer end of the cylinder constructed to receive a cutting-plate, a relatively-stationary cutting-plate loosely seated therein and engaging the outer face of the knife, the end of the cylinder having oppositely-disposed projections, a clamping member pivoted at one end to one of said projections, said clamping member having an inwardly-extending central projection engaging the center of the cutting-plate, and a clamping-screw passing through the opposite end of said clamping-bar and into the other oppositely-disposed projection of the cylinder, substantially as described.

643,550. IRRIGATION OF ARID LAND. LUTHER L. SMITH, Augusta, Mont. Filed Dec. 7, 1899. Serial No. 739,522. (No model.)

Claim.—A dam consisting of a piece of flexible waterproof material having a hem at one end and having its side edges converging, a reinforcing-strip extending centrally of the piece of fabric and formed with a loop, a ring engaging said loop and adapted to be staked to the stream-bed, and a pole located within said hem and adapted to extend from bank to bank of the stream in which the dam is placed, substantially as and for the purpose set forth.



643,551. CLAMP FOR MAKING BOXES. WALTER L. SMITH, Chicago, Ill., assignor to Henry Date, Austin, Ill. Filed May 13, 1899. Serial No. 716,772. (No model.)



Claim.—1. In a clamp for making boxes, in combination, a table, a rail secured to the table, a jaw fixed to the rail and extending over the table, a clamping-jaw below the fixed jaw and having a transverse rib across its under face, and a wedge adapted to enter between such rib and the table.

2. In a clamp for making boxes, in combination, a table, a rail secured to the table and having a longitudinal T-groove in its upper face, a jaw projecting from the rail over the table, a T-bolt adapted to adjustably enter the T-groove and engage the jaw, a clamping-jaw for cooperating with the first-mentioned jaw and having a transverse rib across its lower face, and a wedge adapted to enter between such rib and the table.

3. In a box-maker's clamp, in combination, a fixed jaw, and a clamping-jaw having a transverse rib across its rearward face, a table or other fixed abutment back of such clamping-jaw, and a wedge adapted to enter between such fixed member and the clamping-jaw and having its bearing upon the latter through the medium of the rib.

4. In a box-maker's clamp, in combination, a table, a rail fixed to the table, a jaw adjustably fixed to the rail and projecting laterally therefrom over the table, a clamping-jaw between the table and the first-mentioned jaw and comprising a die, cheek-plates inclosing such die and extending above and below the same and a transverse rib across the back of the die substantially midway between its ends; and a wedge adapted to enter between the rib and the table.

643,552. FRAMING-JOINT. EDWARD E. SQUIRES, Seattle, Wash., assignor of one-half to Charles E. Haydon, same place. Filed Apr. 27, 1899. Serial No. 714,764. (No model.)

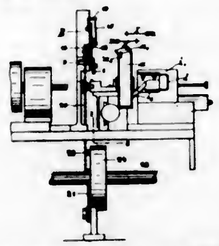


Claim.—1. A framing-joint having one member formed with a tenon and with copings, the said tenon being reduced at the base, the other member being formed with a longitudinal groove shaped to correspond to said tenon, and provided with clamping-jaws at the outer sides of the groove, the said jaws being adapted to lock over the said tenon and the copings being arranged to engage the said clamping-jaws, substantially as shown and described.

2. A framing-joint having its stile formed with a longitudinal groove, stickings or moldings having clamping-jaws at the outer sides of the groove, the opening between the jaws being contracted, a rail having a tenon fitting said groove, the said tenon being reduced at the base, and copings to engage said clamping-jaws and press the latter against the sides of the tenon at the base thereof, the said copings terminating in shoulders adapted to engage and be seated on corresponding shoulders at the bases of the clamping-jaws, substantially as shown and described.

643,553. ATTACHMENT FOR SCREW-CUTTING MACHINES. OTTO SROKA, Berlin, Germany, assignor to Albrecht Bohwartzkopff, same place. Filed Jan. 24, 1899. Serial No. 703,267. (No model.)

Claim.—1. In combination for a screw-machine, a movable chute for delivering the screws, suitably-timed means for moving the said chute into and out of position to receive the screws, and a holding device for the screws which is released by the movement of the said chute, substantially as set forth



2. In combination for a screw-machine, a movable chute for delivering the screws, means for actuating the said chute, and means controlled by the said chute for releasing and dropping the screws into said chute, substantially as set forth.

3. In combination for a screw-machine, a movable chute for delivering the screws, means for actuating the said chute, and a spring-pressed jaw or clamp for holding the screws, which is engaged and opened by the said chute, substantially as set forth.

4. In combination for a screw-machine, a movable chute for delivering the screws, suitably-timed means for bringing the said chute into position to receive the screws after the cutting or other operation has ceased, and a holder for holding the screws independently of the rotary parts of the machine, and means for releasing the screws from the holder, substantially as set forth.

5. In combination for a screw-machine, a movable chute for delivering the screws, a holding device for the screws, movable transversely to the said screws, and suitably-timed means for moving the said holding device to and fro transversely to the screws, to receive and hold the successive screws, substantially as set forth.

6. In combination in a screw-lathe and with the tools for operating on the screws or screw-blanks, a movable holding device for the screws, supports for the said holding device upon which it is free to slide to and fro, means for so sliding the said device to and fro transversely to the axial line of said screws or blanks, and means for opening and closing the holding device, substantially as set forth.

7. In combination in a screw-lathe and with the tools for operating on the screws or screw-blanks, a holding device for the screws having one or more spring-pressed jaws with inclined surfaces shaped to be opened by, and slipped transversely over, the rounded surfaces of the screws or screw-blanks, supports upon which the said holding device slides and is guided, and mechanism for advancing the said holding device transversely to the said screws or screw-blanks to engage and hold successive screws and for retracting the said holding device, substantially as set forth.

8. In combination in a screw-lathe and with the tools for operating on the screws or screw-blanks, a delivering-chute pivotally mounted, and means for rocking or oscillating the said chute both horizontally and vertically, to receive and deliver successive screws, substantially as set forth.

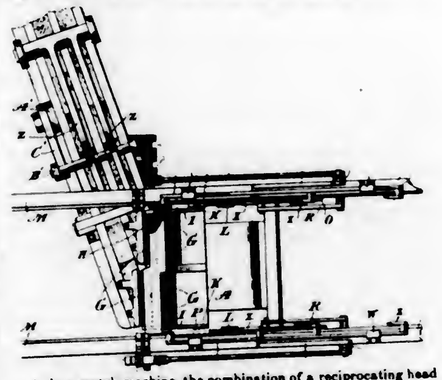
9. In combination in a screw-lathe and with the tools for operating on the screws or screw-blanks, a delivering-chute pivotally mounted, and means for rocking or oscillating the said chute both horizontally and vertically, to receive and deliver successive screws, and means for supporting the successive screws independently of the rotary parts of the said machine, substantially as set forth.

643,554. MATCH-MACHINE. CHARLES W. STEELE, Detroit, Mich., assignor to the Diamond Match Company, Chicago, Ill. Filed Sept. 27, 1898. Renewed Oct. 19, 1899. Serial No. 734,134. (No model.)

Claim.—1. In a match-machine, the combination of splint-cutters, a plate movable to and from position to support splints held by the cutters, and means for moving said plate into and out of splint-supporting position comprising a part having a fork and a part to cooperate with the fork, one of which is movable relative to the other to cause engagement of the cooperating part with, and disengagement thereof from the fork, substantially as and for the purpose specified.

2. In a match-machine, the combination of a reciprocating head carrying splint-cutters, a plate movable to and from position to support splints held by the cutters, and a reciprocating bar for moving said plate having a fork, into and out of engagement with which a part connected with the plate is movable, substantially as and for the purpose set forth.

3. In a match-machine, the combination of a reciprocating head carrying splint-cutters, a plate movable to and from position to support splints, bars to which said plate is connected, having projections, reciprocating bars having forks to engage the projections and supports for said reciprocating bars that are fixed relative to the cutter-carrying head, substantially as and for the purpose shown.



4. In a match-machine, the combination of a reciprocating head carrying splint-cutters, a plate movable to and from position to support splints, bars to which said plate is connected, having projections, reciprocating bars having forks to engage the projections, levers to which said bars are connected, and eccentrics connected to said levers, substantially as and for the purpose specified.

5. In a match-machine, the combination of a head carrying splint-cutters, a plate movable to and from position to support splints held by the cutters, means for moving said plate, a dipping-plate, means for moving the same step by step, a lever, and connections between the same, and the means for moving each of said plates, substantially as and for the purpose described.

6. In a match-machine, the combination of a reciprocating head carrying splint-cutters, a plate movable to and from position to support splints held by the cutters, means for moving said plate, comprising a part attached to the plate, and a reciprocating bar adapted for engagement with and disengagement from said part, a dipping-plate, means for moving the same step by step, a lever, and connections between the lever and the reciprocating bar and between the lever and the dipping-plate-moving means, substantially as and for the purpose set forth.

7. In a match-machine, the combination of a splint cutting mechanism, a driving-shaft for operating the same, and block-feeding mechanism comprising a block-engaging bar, a lever connected with said bar moving in a direction that is oblique to the direction in which the axis of the driving-shaft extends, a cam on the driving-shaft, and a reciprocating bar engaging the cam, and connected with the lever, substantially as and for the purpose shown.

8. In a match-machine, the combination of splint-cutting mechanism, a driving-shaft, for operating the same, and block-feeding mechanism comprising a block-engaging bar, two levers connected with said bar moving in a direction that is oblique to the direction in which the axis of the driving-shaft extends, two cams on the driving-shaft and reciprocating bars engaging the cams and connected with the levers, substantially as and for the purpose specified.

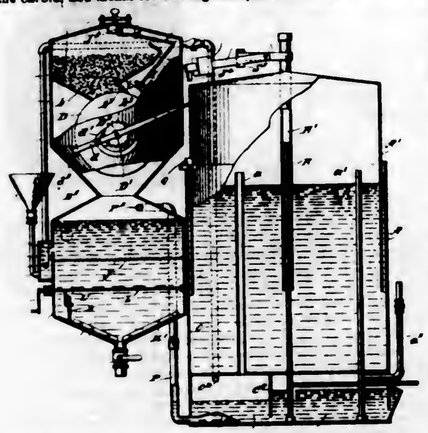
648,555. ACETYLENE-GAS GENERATOR. CHARLES C. STEWART and GEORGE C. UPDEGRAFF, Hutchinson, Kans. Filed May 4, 1899. Serial No. 715,553. (No model.)

Claim.—1. A card-feeding device, comprising a hopper, a chute hinged at one end, and a feed-wheel upon which the chute rests and by which the open end of the chute is closed, substantially as described.

2. A carbid-feeding device for acetylene-generators, comprising a feed wheel or drum, a hopper, a chute hinged at one end and having the other end open and resting upon the feed wheel or drum, and a hinged gate closing said open end of the chute and swinging outwardly.

3. A carbid-feeding mechanism, comprising a hopper, a movable plate adapted to check the flow from the hopper, a movable cover for the hopper, a lever adapted to be engaged and depressed by the cover when put in place, and connections therefrom to said plate whereby it is lifted to free the flow of carbid when the hopper-cover is put in place.

4. A carbid-feeding device for acetylene-generators, comprising a hopper, a feed wheel or drum placed to normally check the flow from the hopper, means for turning said wheel to feed the carbid, a plate hinged to swing down upon the wheel and prevent the feed of the carbid, and means for holding said plate elevated.



5. A carbid-feeding device for acetylene-generators, comprising a hopper, a feed wheel or drum placed to check the flow from the hopper, means for turning said wheel to feed the carbid, a plate hinged to swing downward upon the wheel and prevent feeding of the carbid, a removable cover for the hopper, a lever adapted to be engaged and depressed by the cover when put in place, and connections from said lever to the plate, whereby it is lifted to permit the feeding of carbid when the hopper-cover is put in place.

6. A carbid-feeding device for acetylene-generators, comprising a hopper having a chute leading therefrom, hinged at its upper end, the other end of the chute having its bottom removed and with its edges resting upon a feed-wheel, a feed-wheel closing said bottom opening in the chute, and means for turning the wheel.

7. A carbid-feeding device for acetylene-generators, comprising a hopper, a chute leading therefrom and having its bottom removed at its lower end, a movable member closing said bottom opening and adapted to be actuated to feed the carbid, and a series of swinging gates placed in line across the chute and swinging independently.

8. A carbid-feeding device for acetylene-generators, comprising a hopper, a chute leading therefrom and pivoted at its upper end, said chute having its bottom removed at its lower end, a movable member closing said bottom opening and adapted to be actuated to feed the carbid, and a series of swinging gates placed in line across the chute and swinging independently.

9. A carbid-feeding device for acetylene-generators, comprising a hopper, a chute leading therefrom and pivoted at its upper end, said chute having its bottom removed at its lower end, a feed-drum closing said opening, means for turning the drum, and a series of swinging gates placed in line across the chute and over the drum and swinging independently.

10. An acetylene-generator, having a valve-controlled discharge-opening, a conical false bottom adapted to receive the lime and having an aperture at its apex leading to said discharge-opening, and means by which said false bottom may be given an oscillating movement about its center.

11. An acetylene-generator, having a valve-controlled discharge-opening, a conical false bottom adapted to receive the lime and having an aperture at its apex leading to said discharge-opening, a central vertical pivot for the false bottom, radial ribs on the upper side of said false bottom, and means for oscillating the bottom on its pivot.

12. An acetylene-generator, having a valve-controlled discharge-opening, a conical false bottom adapted to receive the lime and having an aperture at its apex leading to said discharge-opening, a pivot for said false bottom, radial ribs on the upper side of this bottom, a shaft extending through the side of the generator and having an external operating-crank, and an internal crank engaging the false bottom to oscillate it.

13. An acetylene-generating device, comprising a gasometer having a rising and falling bell, a generator having a carbid-feeding device provided with a feed-operating arm, an arm pivoted to the gasometer-bell and engaging the feed-operating arm to actuate it as the bell falls, stops limiting its drop relative to the bell, and a fixed stop engaging said arm to check its fall, and freeing the arm as it is moved horizontally by the continued fall of the bell.

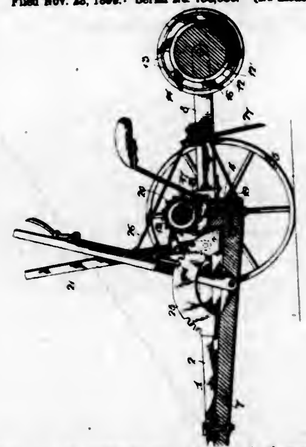
14. A carbid-feed for acetylene-generators, comprising a generating-chamber having a feeding mechanism operated by a lever, a rising and falling gasometer-bell, an arm pivoted thereon and engaging the feed-operating lever to operate it, and a fixed stop engaging and temporarily retracting the arm, said lever and arm being connected by the horizontal movement of the arm due to the continued fall of the bell, whereby the feed mechanism is given a sudden movement.

15. A feeding mechanism for acetylene-generators, comprising a generating-chamber, a feeding device therein having an internally-operating lever, a rising and falling gasometer-bell, an arm pivoted thereon and engaging the feed-operating lever to actuate it, and means for checking and temporarily holding said lever while the bell is falling through a short space near the bottom, and for releasing it again when it passes a certain point in its continued fall.

16. A water-supply device for acetylene-generators, comprising an auxiliary chamber alongside of the generator and communicating therewith near its top and below the normal water-level in the generator, a filling-pipe connected with the auxiliary filling-chamber near its bottom, a pipe connecting the middle portion of the auxiliary chamber with the gas-spaces of the gasometer and having intermediate its ends an upwardly-extending loop, and a check-valve in said pipe opening toward the generator.

17. A water-supply device for acetylene-generators, comprising an auxiliary chamber alongside of the generator and communicating therewith near its top and below the normal water-level in a generator, a filling-pipe connected with the auxiliary filling-chamber near its bottom, and a pipe connecting the middle portion of the auxiliary chamber with the gas-spaces of the gasometer and having intermediate its ends an upwardly-extending loop.

648,556. STALK-CUTTER. SOLOMON A. SUMMERLIN, Kirkland, Ga. Filed Nov. 22, 1899. Serial No. 738,096. (No model.)

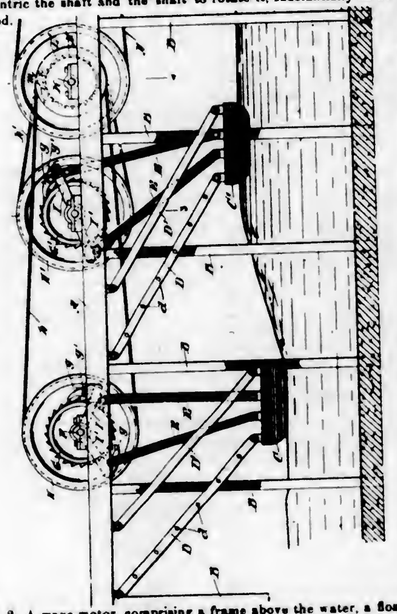


Claim.—1. The combination with the wheel-supported main frame; of a frame hinged to the rear end thereof, a drum journaled in the said hinged frame and provided with traction-rims, two annular shoulders, one shoulder of which is of less diameter than the other, the shoulder possessing the greater diameter being provided with equidistant recesses or seats, annular bands arranged upon the shoulders of the greater diameter, knives secured to said annular bands and seated in the recesses of said shoulders, substantially as and for the purpose set forth.

2. The combination with the wheel-supported main frame; of a frame hinged to the rear end thereof and provided with a drum, chopping-knives carried by said drum, a lever pivoted to the main frame and provided with a pawl, a segmentally-slotted rack to be engaged by the said pawl, a rope connecting said lever to the hinged frame, a windlass journaled in the main frame and provided with ratchets at its ends, a lever having a spring-actuated pawl to engage one of said ratchets, a spring-actuated dog to engage the other ratchet, and ropes extending from said windlass to and connected with the hinged frame, substantially as and for the purpose set forth.

648,557. WAVE-MOTOR. SAMUEL P. SWEARINGEN, Pasadena, Cal. Filed Aug. 15, 1899. Serial No. 727,208. (No model.)

Claim.—1. A wave-motor, comprising a frame above the water, a float, a set of arms pivoted to float and frame, and permitting the float to swing in the direction of movement of the waves, a shaft journaled on the frame, a lever pivoted concentric with said shaft and a bar or link pivoted to the outer end of said lever and to the float, and a clutch connection between the lever which is journaled concentric the shaft and the shaft to rotate it, substantially as described.



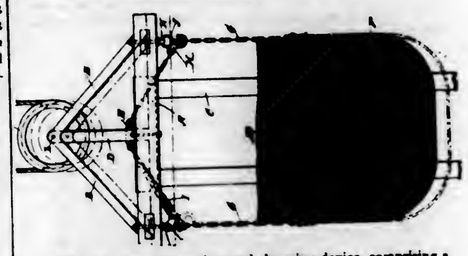
2. A wave-motor, comprising a frame above the water, a float, a set of arms pivoted to float and frame and permitting the float to swing in the direction of movement of the waves, a shaft journaled on the frame, a ratchet-wheel secured to the shaft, two levers pivoted concentric with said shaft and extending in opposite directions therefrom, a pawl on each lever engaging opposite sides of the ratchet-wheel, and links or bars connected to the outer ends of said levers and to the float, substantially as described.

3. A wave motor, comprising a frame above the water, a float, a set of arms pivoted to float and frame, and permitting the float to swing in the direction of movement of the waves, a shaft journaled on the frame, a ratchet-wheel and a belt-wheel secured to said shaft, two levers pivoted concentric to said shaft, pawls on said levers engaging the ratchet-wheel, links or bars pivoted to the outer ends of said levers and to the floats, a second shaft journaled on the frame and having a fly-wheel, and a ratchet-wheel secured thereon, a belt-wheel loosely mounted on the same shaft and carrying a pawl adapted to engage the teeth of the ratchet-wheel, and a belt connecting the belt-wheels upon the two shafts, substantially as described.

4. A wave-motor, comprising a frame above the water, a float, a set of arms pivoted to float and frame and permitting the float to swing in the direction of movement of the waves, a shaft journaled in the frame, a ratchet-wheel and belt-wheel secured to said shaft, sleeves secured to the frame and surrounding the shafts, two levers pivoted upon said sleeves and extending in opposite directions from the shaft, pawls on said levers engaging the ratchet-wheel, and links or bars pivoted to the outer ends of said levers and to the floats, substantially as described.

5. A wave-motor, comprising a frame above the water, a float, a set of arms pivoted to float and frame and permitting the float to swing in the direction of movement of the waves, a shaft journaled in the frame, a ratchet-wheel and belt-wheel secured to said shaft, sleeves secured to the frame and surrounding the shafts, two levers pivoted upon said sleeves and extending in opposite directions from the shaft, pawls on said levers engaging the ratchet-wheel, links or bars pivoted to the outer ends of said levers and to the floats, a second shaft journaled on the frame and having a fly-wheel, and a ratchet-wheel secured thereon, a belt-wheel loosely mounted on the same shaft and carrying a pawl adapted to engage the teeth of the ratchet-wheel, and a belt connecting the belt-wheels upon the two shafts, substantially as described.

648,558. SUGAR-CANE CARRIER. José R. Tallet, Matanzas, Cuba. Filed June 7, 1899. Serial No. 719,668. (No model.)



Claim.—1. A cane carrying and dumping device, comprising a series of slings or cables adapted to pass beneath the cane, a supporting-frame therefor, having detachable connection with one end of each sling, and a fixed connection with the other, a tripping device connected with said detachable connections, and a fixed object adapted to engage and operate the tripping device when the frame is lowered, substantially as described.

2. A cane carrying and dumping device, comprising a frame having a movable tripping member, a series of chains or cables supported by their ends from said frame, the connection of one end of each of said chains or cables with the frame containing a releasing device, connections from said releasing device to the tripping member, and a fixed support adapted to engage said tripping member, substantially as described.

3. A cane carrying and dumping device, comprising a series of slings, a releasing member adapted to engage and support one end of each sling, a trip-actuating member, and a trip operatively connected with the releasing member and adapted to be actuated by engagement with said trip-actuating member when the device is lowered, substantially as described.

4. A cane carrying and dumping device, comprising a frame, a series of slings and means for securing said slings to the frame, the part of said means connecting with one end of each sling containing a releasing member, a bar mounted to have vertical movement upon the frame and having its ends projecting beyond the frame, a fixed trip-actuating member adapted to engage the ends of the said vertically-movable bar when the frame is lowered, and operative connections from said bar to the releasing members, substantially as described.

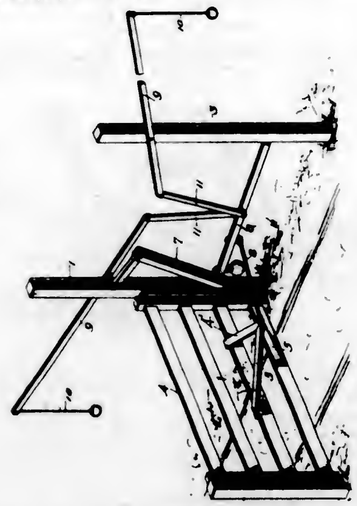
5. A cane carrying and dumping device comprising a frame having vertical guides, a bar slidable vertically on said guides and projecting at its ends beyond the frame, a fixed object adapted to be engaged by said projecting ends when the frame is lowered, a series of slings, means for attaching one end of said slings to the sides of the frame, hooks secured to the frame and adapted to receive the other ends of the slings, and connections between the vertically-sliding bar and said hooks, whereby the hooks will be swung to release the slings when the device is lowered to engage the ends of the sliding bar with said fixed object, substantially as described.

6. A cane carrying and dumping device, comprising a frame having vertical guides, a bar slidable in said guides and projecting at its ends beyond the frame, a fixed object adapted to be engaged by said projecting ends when the frame is lowered, a series of slings, means for attaching one end of said slings to the side of the frame, hooks secured to the frame and adapted to receive the other ends of the slings, and chains or similar means connecting the hooks and the sliding bar, whereby the hooks will be swung to release the slings when the device is lowered to engage the ends of the sliding bar upon the fixed object, substantially as described.

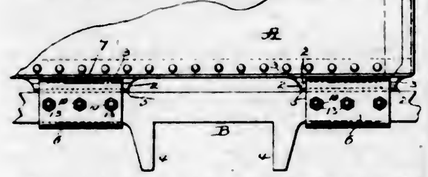
7. A cane carrying and dumping device having a sling and means for supporting its ends, the means at one end having detachable engagement with the sling, and a vertically-sliding releasing device having connections controlling the said engagement, and a fixed member adapted to engage said releasing device to actuate it when the load is lowered.

648,559. GATE. John P. Tarr, Augusta, Ill. Filed Nov. 23, 1899. Serial No. 738,062. (No model.)

Claim.—The combination with a hinge-post and a lever-post, of a gate hinged to the posts and provided with a laterally-extending braced arm, a weighted lever pivoted to the lever-post at one end, and having its other end working between guide-bars secured to the hinge-post, a link loosely pivoted to the laterally-projecting arm of the gate and to the weighted lever, operating-levers pivoted between their ends to the said posts, links pivoted to the inner ends of the operating-levers and to the weighted lever between its ends, and cords secured to the outer ends of said operating-levers, substantially as and for the purpose set forth.



648,560. LOCOMOTIVE. John R. Tate, Altoona, Pa. Filed Aug. 8, 1899. Serial No. 726,565. (No model.)



Claim.—1. In a boiler-mounting, the combination with the mud-ring of the boiler and a frame, of a block depending from said mud-ring and a clamp secured to said frame and detachably connected with said depending block.

2. In a device for securing a locomotive-boiler on its frame, the combination with a mud-ring, of a block secured to the mud-ring having a groove therein, a clamp secured to the frame and a flange or lip on the clamp to enter the groove and secure the block and frame together.

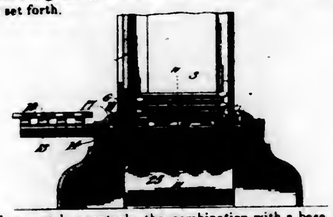
3. In a device for securing a locomotive-boiler on its frame, the combination with a mud-ring, of blocks secured to the mud-ring and having grooves therein, clamping-plates disposed on the outer faces of the frame, flanges or lips on said plates to enter the grooves in the blocks, strips or plates disposed on the inner faces of the frame, bolts securing said first and last mentioned plates together and to the frame and a strip disposed between said blocks and frame.

4. In a device for securing a locomotive-boiler on the frame, the combination with a mud-ring, of a block integral with the mud-ring and having a groove therein, a clamping-plate having a lip to enter said groove, another plate disposed on the opposite face of the frame-section and a bolt passing through the frame and plates and having a head between its ends seated in the frame and nuts adapted to be screwed on the ends of the bolts to secure the parts together.

648,561. MATCH-RECEPTACLE. Isaiah H. Taylor, Richmond, Va., assignor of one-half to Albert G. Dalton, same place. Filed Oct. 6, 1898. Serial No. 693,864. (No model.)

Claim.—1. In a match-receptacle the combination with a frame, provided with a narrow kerf-like recess, constituting a compartment adapted to accommodate a single row of matches and open at one end and at the top, whereby matches may be introduced into the compartment from above, and, being held at their ends, may be adjusted to required position within the compartment, substantially as set forth.

2. In a match-receptacle the combination with a frame, provided with a narrow kerf-like recess, constituting a compartment adapted to accommodate a single row of matches, said compartment being open at the top and at one end, and closed at the opposite end, said closed end being enlarged for the reception of match-heads, substantially as set forth.

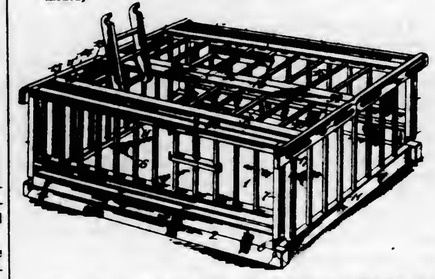


3. In a match-receptacle, the combination with a base and upright provided with a plurality of compartments, of individual-match-ejecting mechanism for each compartment, and a common discharge-chute for the several ejecting mechanisms, substantially as set forth.

4. In a match-receptacle, the combination with a base and upright provided with a plurality of compartments, of an oppositely-inclined chute terminating in trays at opposite ends of the base, and individual-match-ejecting mechanism for each of the compartments above the chute, substantially as set forth.

5. In a match-receptacle, the combination with a frame provided with a compartment adapted to hold matches in vertical alinement, and to guide them in their downward descent, of a grooved roller movably carried in the base out of contact with the walls thereof, the roller being provided with a clear space for the reception of match-heads, means for guiding the match-heads from the compartment to said clear space, and means for actuating the roller, substantially as set forth.

648,562. FOLDING CRATE. Lane B. Taylor and Orlando W. Moore, Orbisonia, Pa. Filed Aug. 17, 1899. Serial No. 727,594. (No model.)



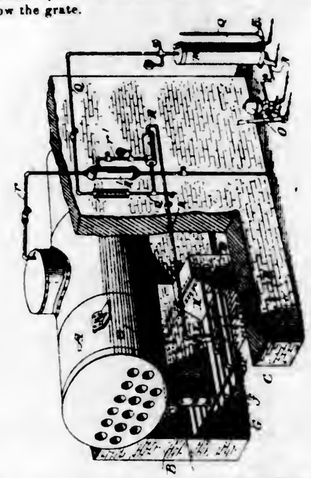
Claim.—1. In a folding crate, the combination with the body having longitudinal pieces along its edges, side sections hinged to the ends of said pieces, end sections hinged to the ends of said pins, top sections having their end pieces hinged to the upper ends of said side sections, the longitudinal rails of said top sections having a sliding engagement in the end pieces of said top sections, and means for locking the parts together, substantially as and for the purpose set forth.

2. In a folding crate, the combination with the body having longitudinal side pieces, end sections hinged to the side pieces, side sections hinged to the side pieces at a point above the connection of the end sections with the side pieces, studs carried by the ends of the upper rails of the end pieces and projecting through sockets or apertures formed in the end pieces of the side sections, studs projecting from the upper rail of the end pieces, top sections consisting of end pieces pivoted to the side sections, and a grated frame having a sliding engagement with the end pieces of the top sections and adapted to engage with their inner rails the studs on the upper edge of the upper rails of the end sections, and a spring-actuated bolt carried by one of the top sections and adapted to engage the hole or keeper in the opposite top section, substantially as and for the purpose set forth.

648,563. SMOKE-CONSUMING AND FUEL-ECONOMIZING FURNACE. William I. Teter, Philadelphia, Pa. Filed Jan. 19, 1899. Serial No. 702,627. (No model.)

Claim.—1. In a smoke-consuming and fuel-economizing furnace, the combination of the grate, the bridge-wall located at the rear of the grate, a retort extending along the bridge-wall and along the

side walls of the furnace above the grate, means to supply steam and oil to said retort, a smoke-consumer communicating with said retort to receive the steam and oil therefrom in a more or less gaseous condition, extending along the side walls of the furnace above the grate and provided with openings for the escape of said gaseous fuel, and a series of burners located below the grate and communicating with said fuel-consumer, whereby the oil and steam supplied to said retort are converted into a more or less gaseous fuel therein, and a part of said gaseous fuel is introduced into the furnace from the sides above the grate and a part is introduced in the body of incandescent fuel from below the grate.

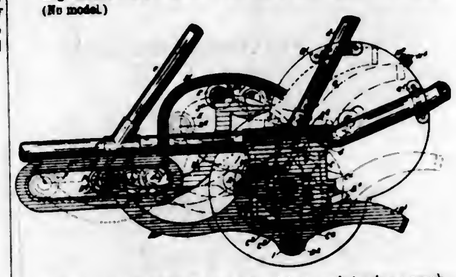


2. In a smoke-consuming and fuel-economizing furnace, the combination of the grate, the bridge-wall located at the rear of the grate, a retort extending along the bridge-wall and along the side walls of the furnace above the grate, means to supply steam and oil to said retort, a smoke-consumer communicating with said retort to receive the steam and oil therefrom in a more or less gaseous condition, extending along and within the side walls of the furnace above the grate and provided with nozzles for the escape of said gaseous fuel projecting through openings in the side walls, protecting-caps of refractory material arranged over the projecting ends of said nozzles, and a series of burners located below the grate and communicating with said fuel-consumer, whereby the oil and steam supplied to said retorts are converted into a more or less gaseous fuel therein, and a part of said gaseous fuel is introduced into the furnace from the sides above the grate and a part is introduced in the body of incandescent fuel from below the grate.

3. In a smoke-consuming and fuel-economizing furnace, the combination of the grate, the bridge-wall located at the rear of the grate, a retort extending along the bridge-wall and along the side walls of the furnace above the grate, means to supply steam and oil to said retort, a smoke-consumer communicating with said retort to receive the steam and oil therefrom in a more or less gaseous condition, extending along the side walls of the furnace above the grate and provided with openings for the escape of said gaseous fuel, a series of burners located below the grate and communicating with said fuel-consumer, whereby the oil and steam supplied to said retort are converted into a more or less gaseous fuel therein, and a part of said gaseous fuel is introduced into the furnace from the sides above the grate and a part is introduced in the body of incandescent fuel from below the grate, and a dividing-partition E extending longitudinally within the furnace from the front to the bridge-wall.

4. In a smoke-consuming and fuel-economizing furnace, the combination of the grate, the bridge-wall located at the rear of the grate, a retort extending along the bridge-wall and along the side walls of the furnace above the grate, means to supply steam and oil to said retort, a smoke-consumer communicating with said retort to receive the steam and oil therefrom in a more or less gaseous condition, extending along the side walls of the furnace above the grate and provided with openings for the escape of said gaseous fuel, a series of burners located below the grate and communicating with said smoke-consumer, whereby the oil and steam supplied to said retort are converted into a more or less gaseous fuel therein, and a part of said gaseous fuel is introduced into the furnace from the sides above the grate and a part is introduced in the body of incandescent fuel from below the grate, a dividing-partition E extending longitudinally within the furnace from the front to the bridge-wall, and a lining of refractory and yielding material, such as asbestos, between the upper edge of said partition and the boiler.

643,564. DRIVING MECHANISM. WILLIAM J. THOMPSON, West Kogarah, New South Wales. Filed Dec. 8, 1898. Serial No. 698,675. (No model.)



Claim.—1. The combination with a driving-axle having a crank, and a driving-wheel on the axle, of a plurality of fulcra-guides of different configuration, and a pedal-lever pivotally connected with the axle-crank and having a plurality of fulcra to bear, respectively, against the fulcra-guides and each of said fulcra at certain parts of its travel leaving or passing from engagement with its guide and at other parts of its travel bearing against its guides, substantially as and for the purposes described.

2. The combination with a driving-axle having a crank, and a driving-wheel on the axle, of a plurality of fulcra-guides of different configuration arranged in operative relation and one having an extremity terminating at the extremity of another, and a pedal-lever pivotally connected with the axle-crank and carrying a plurality of fulcra to bear, respectively, against the fulcra-guides and each of said fulcra at certain parts of its travel leaving or passing from engagement with its guide, and one of said fulcra at certain parts of its travel moving from one of the fulcra-guides onto another, substantially as and for the purposes described.

3. The combination with a driving-axle having a crank, a driving-wheel loose on the crank, and multiplying-gearing operated by the axle to turn the driving-wheel, of a plurality of fulcra-guides of different configuration arranged above the level of the crank-axle, and a pedal-lever pivotally connected with the axle-crank and having a plurality of fulcra in rear of the axle to bear, respectively, on the fulcra-guides and each of which at certain parts, of its travel leaves or passes from engagement with its guide and at other parts of its travel bears against its guide, substantially as and for the purposes described.

4. The combination with an axle having a crank, a driving-wheel loose on the axle, and gearing for driving the wheel from the axle, of fulcra-guides located in rear of the axle, one being curved and the other substantially rectilinear and having one extremity terminating at one extremity of the curved guide to form practically a continuation thereof, and a pedal-lever pivotally connected with the axle-crank and carrying a plurality of fulcra rollers or wheels to travel, respectively, against the fulcra-guides and each leaving or passing from engagement with its guide at certain parts of its travel, one of said fulcra rollers or wheels arranged to move from the rectilinear to the said curved guide, substantially as and for the purposes described.

643,565. BLIND-SLAT RETAINER. EDWIN A. TERRELL, Torrington, Conn. Filed Dec. 6, 1899. Serial No. 739,379. (No model.)



Claim.—1. A blind-slat retainer comprising spring-arms each provided with a bow, the bow upon one arm being higher than the bow upon the other arm, substantially as shown, for the purpose specified.

2. A blind-slat retainer comprising spring-arms each of which is provided with a bow adapted to engage the slats, one of said arms being longer than the other arm, thereby causing one bow to engage the slats at a higher point than the other bow.

3. The combination with slat-retainer E comprising spring-arms each provided with a bow, the bow upon one arm being higher than the bow upon the other arm, of an attaching-plate having in its under side grooves adapted to receive the arms.

643,566. BICYCLE-SUPPORT. EDWARD J. TIERNEY, Rochester, N. Y., assignor of two-thirds to August P. Weltz and Charles Englert, Jr., same place. Filed Sept. 26, 1898. Serial No. 691,890. (No model.)



Claim.—1. In a support for bicycles, the combination with the clip adapted to be secured to a bicycle-frame and having upper and lower guide-eyes for each support, of the supporting-legs vertically movable through the eyes and formed of a single piece of spring metal with the loop at the upper portion, and shoulders at the ends of the loop adapted when the supports are in an operative position to engage with the upper guide-eyes on each support.

2. In a support for bicycles, the combination with the clip adapted to be secured to a bicycle-frame and having pivoted guides thereon, and the stationary hooks, of the laterally-extensible supporting-legs connected at their upper ends and provided with shoulders adapted to engage with the eyes and hold the supports extended when in operative position.

3. In a support for bicycles, the combination with the clip adapted to be secured to a bicycle-frame and having the pivoted guides thereon, and the stationary hooks, of the laterally-extensible supporting-legs connected at their upper ends and movable longitudinally through said guides and hooks and adapted to be swung into and out of engagement with the hooks.

4. In a support for bicycles, the combination with the two-part clip adapted to be clamped to a bicycle-frame, having the hooks thereon, and the bolt swiveled to said clip, having the eyes in its ends, of the laterally-movable supporting-legs connected at their upper ends and extending through said eyes and adapted to be swung into and out of engagement with the hooks.

5. In a support for bicycles, the combination with the two-part clip adapted to be attached to a bicycle-frame, and the rotatable bolt having the eyes at the end, and the central collar arranged between the parts of the clip, of the supporting-legs connected at their upper ends and vertically movable through the guide-eyes on the bolt.

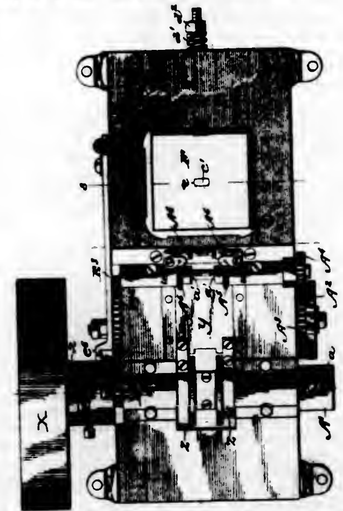
643,567. PROCESS OF MAKING MEAT FOODS. ILLIUS A. TIBBLS, London, England. Filed Nov. 25, 1898. Serial No. 697,448. (No specimens.)

Claim.—1. In the preparation of food products, the process of extracting and separating the edible constituents from beast, bird or fish, which consists in grinding a portion of a carcass containing albumenoids and soluble salts, and including the bone and sinew to a finely-divided condition, mixing the same with water and heating the mixture to a temperature of about 50° centigrade, and maintaining it at such heat until the coagulating bodies are extracted, without coagulating, then drawing off or straining the liquid containing such bodies from the solid mass, then remixing the ground material with water and subjecting it to a heat of about 100° centigrade and extracting the soluble salts, and then separating the liquid so obtained from the solid mass and mixing or combining it with the liquor first extracted and separated.

2. In the preparation of food products, the process of extracting, separating and preparing for use, the edible constituents of beast bird or fish, which consists in grinding a portion of the carcass, containing the bones and sinews to a finely-divided condition, mixing the same with water, heating the mixture to about 50° centigrade and under such heat extracting the coagulable bodies, separating the liquid containing such bodies from the mass, remixing the latter with water and subjecting it to a temperature of about 100° centigrade to extract the phosphates and soluble salts, separating the liquid containing such salts from the mass, mixing the two liquids together, and evaporating to a jelly-like consistency and then combining the jellied product with meat.

3. The method of preparing meat food, which consists in separating the meat from the bone and sinew grinding the bone and sinew to a fine condition, mixing them with water extracting the coagulable bodies at a temperature of about 50°, centigrade, separating the liquid from the mass, adding water to the latter, extracting the soluble salts at a temperature of about 100°, centigrade, separating the liquid from the mass, combining the two liquids, evaporating the same to a jelly-like consistency and then mixing the jelly with the meat previously separated from the bone and sinew.

643,568. BASKET-STAPLING MACHINE. JOHN C. TITUS, Norfolk, Va., assignor to the Farmer's Manufacturing Company, same place. Filed Oct. 18, 1899. Serial No. 733,977. (No model.)



Claim.—1. In a basket or box nailing machine, the combination with the driving devices, of a former for the basket having both an intermittently-rotating, and intermittently-reciprocating motion, and gearing connecting the same to the actuating-wheel arranged to continue in automatic action for said rotary and rectilinear movements of the former until the sides of the basket are all secured, and automatic clutch and disconnecting mechanism arranged to act but once in the complete revolution of the basket-former as described.

2. In a basket or box nailing machine, the combination with the driving devices having abutment-bar B with openings in its abutting face for the staples or nails; of a table located at the lower edge of the abutment-bar, a former mounted upon a rotary spindle above said table and having both an intermittently-rotating and intermittently-reciprocating motion to successively present the several sides to the abutment-bar, one or more clenching-blocks arranged beneath the former and having a reciprocating motion to advance to the inner side of the basket and compress the edge of the latter between them and the abutment-bar and means for automatically continuing the action until all sides of the former have been so presented substantially as and for the purpose described.

3. In a basket or box nailing machine, the combination with the staple or nail driving mechanism, the former and its intermittently-rotating devices; of means for reciprocating the former to and from the staple or nail driving mechanism and a clutch with uncoupling devices arranged to be set into action at the complete revolution of the former as described.

4. In a basket or box nailing machine, the combination with the staple or nail driving mechanism, and the former and its intermittently-rotating devices and means for reciprocating the former bodily; of a small gear-wheel on the main shaft, an intermeshing larger gear whose teeth represent a number of multiples of the small gear dependent upon the number of nailing actions, said large gear having a cam-groove, a trip-bar having a pin working in said cam-groove, a clutch on the main shaft operated by the trip-bar, and means interposed between the reciprocating devices carrying the former and the trip for starting the machine by pushing the former bodily substantially as described.

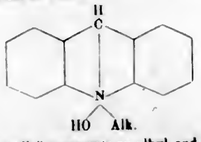
5. In a basket or box nailing machine, the combination with the staple or nail driving mechanism having an abutment bar with openings in its abutting face for the staple, a table T arranged at the lower edge of the abutment-bar, a vertical spindle bearing a former above the table, a sliding plate D with clutch-blocks E' E^2, horizontal spring-cushioned arm D' for reciprocating it, a spindle-carrying plate D^3 sliding in the plate D, ratchet mechanism for turning the spindle with a step-by-step movement, a clutch-coupling lever H acted upon by the movement of the spindle-carrying plate, and automatic uncoupling devices for the clutch arranged to act at every revolution of the former as and for the purpose described.

6. In a basket or box nailing machine, the combination with the basket-nailing, and former-adjusting devices; of a loose pulley with

a hub having a locking-lug in its side, a main shaft having a rigid boss E and gear-wheel E', a spring-seated locking-bolt *c* sliding in the boss parallel to its axis to engage the lug of the pulley and having an outturned end, the sliding clutch-trip bar E^3 having a cam-head adapted to engage the end of the locking-bolt and a transverse pin e^4, the larger gear E^2 with cam-groove in its side having a recess toward the center, a spring for advancing the trip-bar, and means for connecting the latter to the basket-former substantially as and for the purpose described.

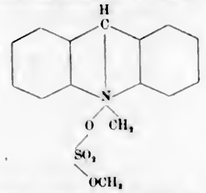
648,569. YELLOW ACRIDINIUM DYE. FRITZ ULLMANN, Fürth, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Sept. 7, 1899. Serial No. 729,769. (Specimens.)

Claim.—1. A new dye derived from the acridin series, which can be obtained as a methyl-sulfuric salt by treating an acridin dyestuff with dymethyl sulfate, this new dye being the salt of an amido derivative of the typical acridinium:



in which formula "Alk" represents an alkyl and in which the two benzene nuclei may one or both be replaced by homologous groups or by the naphthalene nucleus, the salt of the new acridinium color-base being not decomposed by sodium carbonate or ammonia, the free base only being precipitated by means of caustic alkalies the salt forming a yellow or red powder readily soluble in water with yellow color and bitter taste, the new dyestuff dyeing tannin-mordanted cotton orange-yellow shades.

2. As a specific dye the dyestuff obtained as a methyl-sulfuric salt by treating amidotolunapthacridin with dimethyl sulfate, the methyl-sulfuric salt formed being represented by the formula:



forming a brown-red powder easily soluble in water with yellow color, the solution being not altered by sodim carbonate or ammonia, but being precipitated by means of caustic alkalies, the free color bases thus separating in form of a red precipitate soluble in ether with red color and green fluorescence, the new dyestuff dyeing tannin-mordanted cotton clear orange-yallow shades.

648,570. DISPLAY AND SAMPLE CASE. FRANK K. UNDERWOOD and LILLIE R. HAWKINS, Oskaloosa, Iowa. Filed Sept. 14, 1899. Serial No. 730,513. (No model.)

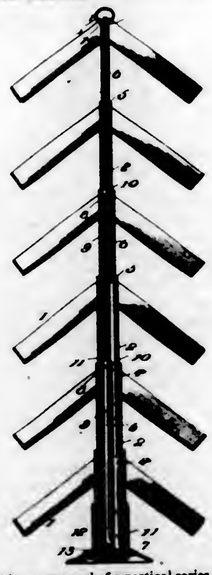
Claim.—1. In an exhibitor, a series of trays arranged one above the other in vertical relation, a corresponding series of tubes telescopically related, each bearing a tray, and an extensible support for holding the tubes extended and the trays vertically spaced, substantially as described.

2. In an exhibitor, a series of trays arranged the one above the other in vertical relation, a corresponding series of tubes telescopically related, each bearing a tray, an extensible support composed of telescoping sections, and interlocking means between the sections of the support, substantially as set forth.

3. In an exhibitor, a series of trays arranged the one above the other in vertical relation, a corresponding series of tubes telescopically related, each bearing a tray, an extensible support arranged within the tubes bearing the trays and provided with interlocking means and composed of telescoping sections, the extreme sections of the extensible support and the end tray-tubes being connected, substantially as described.

4. In an exhibitor, a series of trays arranged the one above the other in vertical relation, a corresponding series of tubes telescopically related, each bearing a tray, an extensible support composed of telescoping sections of greater length than the tray-tubes and in less number, and interlocking means between the sections of the extensible support, substantially as described.

5. In an exhibitor, a series of trays arranged the one above the other in vertical relation, a corresponding series of tubes telescopically related, each bearing a tray, an extensible support composed of telescoping tubes, certain of the tubes having longitudinal slots formed with lateral notches, and projections applied to certain others of the tubes to cooperate with the longitudinal slots and notches thereof, as and for the purpose described.

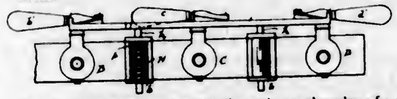


6. An exhibitor composed of a vertical series of superposed trays, telescopically-related tubes of polygonal cross-section applied to the respective trays, and an extensible support composed of telescoping tubes of circular cross-sections and formed with cooperating slots and projections, the slots having lateral notches, substantially as specified.

7. In an exhibitor, a base having upwardly-projecting concentric extensions, telescoping tubes fitted to the outer extension of the base and bearing trays, and an extensible support fitted to the inner extension of the base and provided with interlocking means between its telescoping elements, substantially as described.

8. An exhibitor comprising a base, telescoping tubes provided with corresponding stops to limit their extension, trays applied to the upper ends of the tubes, an extensible support having interlocking means, a ring loosely applied to the topmost tray-tube, and a finger-grip applied to the ring and connecting it with the top section of the extensible support, substantially as described.

648,571. SAFETY ATTACHMENT FOR VALVES. PETER G. VAN WIE, Detroit, Mich. Filed Nov. 27, 1899. Serial No. 738,280. (No model.)



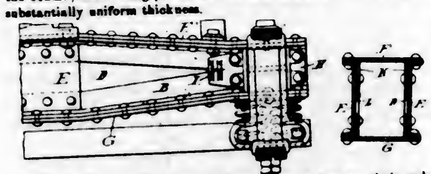
Claim.—1. In combination with the main supply-valve of a gas-burner, a valve for pilot-light, a lock for the main valve, arranged to be unlocked by opening the valve of the pilot-light, substantially as described.

2. In combination with a plug-valve, an arm extending from the lever of the valve, a spring locking-bar provided with an inclined bearing engaging said arm, whereby the locking-bar is actuated by the valve-lever, substantially as described.

648,572. BOLSTER. WILLIAM F. VOSS, Wilmington, Del. Filed Sept. 1, 1899. Serial No. 728,178. (No model.)

Claim.—1. A composite bolster made of beams having webs of substantially uniform thickness arranged in parallel perpendicular planes and flanges of uniform dimensions; said bolster having a central opening, and being provided with means for uniting the beams, and a king-post.

2. A bolster comprising two flanged beams having their webs split and the flanges separated to form openings; means for uniting the beams; and a king-post; the webs of the said beams being of substantially uniform thickness.



3. A bolster comprising two flanged beams having their webs split and the lower flanges bent to form openings; means for uniting the beams; and a king-post; the webs of the beams being of substantially uniform thickness.

4. A bolster comprising two flanged beams having their webs split and flanges separated; top and bottom plates which unite the beams; and a king-post

5. A composite metallic bolster comprising two flanged beams having central openings, D D; king-posts, E E; a top plate; and a bottom plate.

6. A metallic bolster comprising two channel-beams provided with webs of substantially uniform thickness located in parallel perpendicular planes, and having a central opening; means for uniting the beams; and a king-post.

7. A metallic bolster made of rolled flanged beams having their webs of substantially uniform thickness and flanges of uniform dimensions; means for uniting the beams; and a king-post; the said beams having their webs split intermediate the ends so as to preserve each beam integral, and having their flanges separated to form openings, so that the greatest depth of the bolster will be at the center and gradually diminish in depth toward the ends.

643,578. ARTIFICIAL BAIT. MORRIS W. VOTAW, Bowling Green, and MARTIN R. THOMAS, Cromwell, Ky.; said Thomas assignor to said Votaw. Filed Mar. 13, 1899. Serial No. 708,586. (No model.)



Claim.—1. An artificial bait comprising a flexible body; a line-attaching eye projected therefrom; and hook members connected with the said eye adapted to be clamped against the flexible body.

2. An artificial bait, comprising a flexible body; a line-attaching eye projected from the back thereof; and hooks detachably hung in the said eye—said hooks being formed to straddle the flexible body and be held clamped thereon by spring-pressure, substantially as shown and described.

3. An artificial bait, comprising a body having barbs, a trolling spoon or blade projected longitudinally therefrom; a line-attaching member pivotally secured to the back of the bait-body, and adapted to swing down and to project forwardly of the bait; and means for holding said member to its down position, whereby a pull on the line will cause the bait to act as spinning-troll, as set forth.

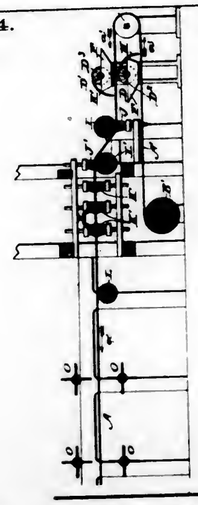
4. The combination with the bait-body and the barb secured thereto, of the rod 4, the spoon or blade 5, the clamp device 6, the eye 2^b, and the swinging rod 7, all being arranged substantially as shown and described.

5. An improved bait or lure, comprising a minnow-shaped body formed of a flexible material, a line-attaching rod member pivotally secured to the back of the minnow-body, a series of U-shaped spring-hook members held to straddle the minnow and hold spring-pressed thereon, the rod 4, having a tailpiece 4^a, and a loop 4^b, the spoon or blade 5, and the device 6, having the loop 6^a, and the spring-clamp members 6^c, all being arranged substantially as shown and described.

648,574. PAPER-COATING MACHINE. WILLIAM H. WALDRON, New Brunswick, N. J. Filed Sept. 16, 1899. Serial No. 730,709. (No model.)

Claim.—In a paper-coating machine, a delivery device consisting of a trough under which the paper passes, a roller in said trough, and an apron in peripheral contact with said roller and extending outside the trough into close proximity to the upper surface of the paper, a transverse roller in horizontal alinement with said delivery device, the paper being passed around the roller and returned horizontally over the delivery device, and a second delivery device similar to the first named and located immediately above the same, but reversed in position, the paper being passed underneath said second delivery device, as and for the purpose set forth.

648,574.



643,575. FIRE-ESCAPE. STUART W. WALKER and EDWARD B. HORNER, Martinsburg, W. Va. Filed Aug. 3, 1899. Serial No. 726,050. (No model.)



Claim.—1. In a fire-escape, the combination with a frame or casing and a cable extending therethrough, of a friction-brake comprising two arms pivotally connected together and constructed and arranged to be spread at their upper ends by said casing.

2. In a fire-escape, the combination with the frame or casing rounded at its lower end and the cable passed therethrough, of the friction-brake comprising two arms pivotally connected near their lower ends and having diverging upper ends adapted to engage the rounded end of the frame or casing, substantially as described.

3. In a fire-escape, the combination with the frame or casing rounded at its lower end and having laterally-projecting staples secured in the opposite sides of said end, of a friction-brake comprising two arms pivotally connected near their lower ends and having divergent hook-shaped upper ends suspended on said staples, said arms having their faces constructed to embrace a cable passed through the frame or casing, substantially as described.

4. In a fire-escape, the combination with the frame or casing rounded at its lower end and having laterally-projecting staples secured in the opposite sides of said end, of a friction-brake comprising two arms pivotally connected near their lower ends and having

divergent upper ends suspended on said staples, said arms having their adjacent faces constructed to embrace a rope passed through the frame or casing, and a hook and pin arranged respectively on said arms and operating to hold the latter parallel, substantially as described and for the purpose specified.

5. In a fire-escape, the combination with a frame or casing, of an endless cable passing therethrough, means carried by the casing for frictionally gripping one portion of the cable to retard the descent of the casing, means operating to grip the other portion of the cable during the descent of the casing and hold the two immovable relatively to one another, but permitting the casing to freely travel thereon in an upward direction, and a friction-brake comprising two pivotally-connected arms adapted to be spread at their upper ends by said casing, substantially as described.

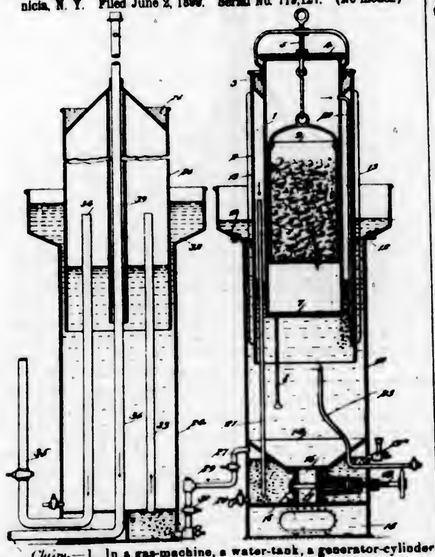
6. In a fire-escape, the combination with a frame or casing, of an endless cable passing therethrough, means carried by the casing for frictionally gripping one portion of the cable to retard the descent of the casing, a pivoted cam arranged to grip the other portion of the cable between its face and the side of the casing during the descent of the latter and hold the two immovable relatively to one another, but permitting the casing to freely travel thereon in an upward direction, and a friction-brake comprising two pivotally-connected arms adapted to be spread at their upper ends by said casing, substantially as described.

7. In a fire-escape, the combination with a frame or casing, of an endless cable passing therethrough, means carried by the casing for frictionally gripping one portion of the cable to retard the descent of the casing, a pivoted cam, a spring for causing said cam to grip the other portion of the cable between its face and the side of the casing during the descent of the latter, but yielding to permit the casing to freely ascend, substantially as described.

8. In a fire-escape, the combination with a frame or casing, of an endless cable passing therethrough, means carried by the casing for frictionally gripping one portion of the cable to retard the descent of the casing, a wear-block of non-abrading material seated in a recess in one side of the casing, and a pivoted cam arranged opposite said wear-block and operating to grip the other portion of the cable during the descent of the casing but permitting the latter to freely ascend thereon, substantially as described.

9. In a fire-escape, the combination with the frame or casing rounded at its lower end and the rope or cable passed therethrough, of the friction-brake comprising two arms pivotally connected near their lower ends and having diverging upper ends adapted to engage the rounded end of the frame or casing, and wear-strips of non-abrading material fixed to the inner adjacent faces of said arms and grooved longitudinally, substantially as described.

648,576. ACETYLENE-GAS MACHINE. JAMES WALTON, Phœnicia, N. Y. Filed June 2, 1899. Serial No. 719,127. (No model.)



Claim.—1. In a gas-machine, a water-tank, a generator-cylinder movable vertically in the water-tank, a jacket surrounding and carried by said cylinder, a carbid-holder supported in the cylinder and having a perforated lower end, a swinging closure for the generator-cylinder, means for opening the closure when the cylinder is in its lower position and a gasometer having connection with the generator, substantially as specified.

2. In a gas-machine, a water-tank, a generator-cylinder movable vertically in the water-tank, a jacket carried by and surrounding said cylinder, and having a water-receptacle at its upper end, means for supporting a carbid-holder in the cylinder, an upwardly-swinging bottom for said cylinder, means for opening said bottom when the cylinder is in its lower position and pipes for conducting gas discharged from the cylinder, substantially as specified.

3. In a gas-machine, a water-tank enlarged at its upper end, a generator-cylinder movable vertically in the tank, a jacket carried by and surrounding the cylinder, a discharge-pipe leading from the upper portion of the cylinder to a point near the lower end of the cylinder, another discharge-pipe for receiving gas discharged from the first-named pipe, and a water-chamber in the lower portion of the water-tank and into which the last-named pipe discharges, substantially as specified.

4. In a gas-machine, a water-tank having a funnel-shaped lower portion or bottom, an ash-chamber having valve-controlled communication with said funnel-shaped bottom, a water-chamber between said funnel-shaped bottom and the ash-chamber, a generator-cylinder movable in the water-tank, and means for directing gas from said generator-cylinder into the water-chamber below the funnel-shaped bottom, substantially as specified.

5. In a gas-machine, a water-tank, a generator-cylinder movable vertically in the water-tank, a jacket carried by and surrounding the said cylinder, an upwardly-swinging bottom for the generator, a rod extended from said swinging bottom and adapted for engagement with the bottom of the water-tank, and a receiver for receiving gas generated in the generator-cylinder, substantially as specified.

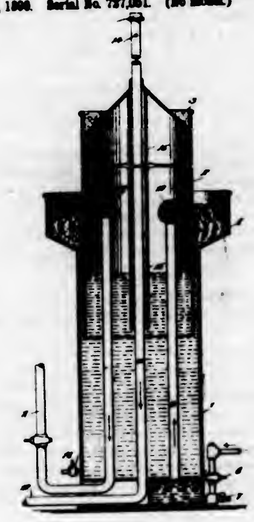
6. The combination with a water-tank, of a generator movable therein and provided with a movable bottom which is held open until an excess of gas is generated when it automatically closes, as and for the purpose set forth.

7. The combination with a water-tank, a generator movable therein, a self-closing bottom for said generator, and means for holding said bottom open when the generator is in its lowermost position, substantially as described.

8. The combination of the water-tank, the generator movable therein, a hinged bottom for said generator, adapted to be closed by gas-pressure, and a rod projecting from the bottom and adapted to collide with the bottom of the tank to open the said bottom.

9. The combination of a water-tank, a generator movable therein, a movable bottom for said generator, means for holding the bottom open when the generator is in its lowermost position, and a stationary drain-pipe having its inlet adjacent to the said bottom, substantially as described.

648,577. GASOMETER. JAMES WALTON, Phœnicia, N. Y. Filed Aug. 13, 1898. Serial No. 727,051. (No model.)



Claim.—1. A gasometer comprising a fixed part and a movable bell, a pipe leading upward through the top of the bell and having a port below its upper closed end, and a sleeve supported and carried by the gasometer-bell and surrounding the said pipe, substantially as described.

2. A gasometer comprising a fixed part and a movable bell, and a stationary pipe leading upward through the top of the bell and having a port below its upper closed end, said port being arranged to communicate with the interior of the bell when the latter rises abnormally high, substantially as described.

3. A gasometer comprising a fixed part and a movable bell, and a stationary pipe extending through the top of the bell and provided with a port below its closed upper end, and with a cap or stop above said port to arrest the upward movement of the bell when the said port is in the interior of the bell, substantially as described.

648,578. PROCESS OF PURIFYING SLUDGE ACIDS. WILSON WARING, Swarton, and JOHN E. BRECKENRIDGE, Woodbridge, N. J. Filed Apr. 26, 1899. Serial No. 714,676. (No specimens.)

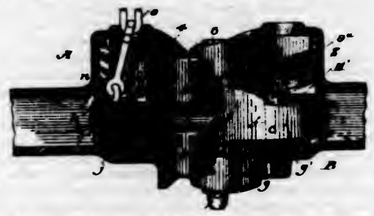
Claim.—The process herein described of purifying sludge acids which have been used in the treatment of mineral oils, consisting of mixing with such acids, at the low temperature described, nitrate of soda in quantity only sufficient to purify the acid, and thereby recovering the acid for further use, substantially as set forth.

648,579. SEPARABLE COLLAR-BUTTON. WILLIAM H. H. WERTZ, Jr., Toledo, Ohio. Filed Mar. 27, 1899. Serial No. 710,704. (No model.)



Claim.—In a separable button the combination of a conical spiral spring L, a hollow head I, a plate J which forms the back of the head, a washer K inclosed in the head, a shank C secured to the head, and passing through the conical spring L, and through circular holes in the washer K, and in the back-plate J, and having a locking-pin G near its lower end, a hollow post and back A, a slotted tube B having an inclined end, and also having a locking pocket or receptacle D, extending into said tube, for the reception of the locking-pin G, all substantially as described and for the purpose specified.

648,580. CAR-COUPLING. JOHN WILLISON, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Sept. 16, 1899. Serial No. 730,744. (No model.)



Claim.—1. A car-coupler having a movable opening device with a single elongated fulcrum in the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler-head; substantially as described.

2. A car-coupler having a movable opening device with a single elongated fulcrum in the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler-head, and a stop at the end of the fulcrum; substantially as described.

3. A car-coupler having a movable opening device with a single elongated fulcrum on the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler-head and said opening device having an inclined notch which is wider and deeper at the front than at the rear end; substantially as described.

4. A car-coupler having a movable opening device with an elongated fulcrum in the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler-head and said opening device having a notch also inclined downwardly, but at a greater angle than the shoulder; substantially as described.

5. In a car-coupler, a locking-piece having a member fitting in a hole, a lifting device adapted to exert thereon, after it is raised from the hole, a rearward-tipping action in the direction of the length of the coupler, whereby when the said member is raised from the hole it is tipped so as to rest on and be supported in unlocked position at a point back of the hole; substantially as described.

6. A car-coupler having an angled locking and opening piece having a head adapted to fit over the tail of the knuckle and to lock the same, and a depending arm adapted to engage the back of the knuckle and to move it open, means arranged to lift said piece and to tip it slightly backward in the direction of length of the draw-bar, whereby when the depending arm is raised out of its hole and dropped, it will be supported on a seat in the draw-bar adjacent to the hole, and its head extending downwardly sufficiently when so raised to project into the path of a portion of the knuckle, whereby when the knuckle is next moved outwardly, it will unseat the depending arm and bring it into the path leading from its said hole; substantially as described.

7. A car-coupler having an angled locking and opening piece, having a depending arm adapted to engage the knuckle and to move it open, means arranged to lift said angled piece and to tip it slightly in a direction lengthwise of the coupler and transverse to the direction of knuckle-opening motion of the angled piece, whereby when the depending arm is raised out of its hole and dropped it will be supported on a seat in the draw-bar adjacent to the hole, with its head extending downwardly sufficiently to project into the path of a portion of the knuckle, whereby when the knuckle is next moved outwardly it will unseat the depending arm and bring it into the path leading from its said hole; substantially as described.

8. A coupler-knuckle having at the end of its tail a hook, and on its surface a beak 11 extending to the rear extremity of the hook and having a beveled surface at the inner end, substantially as described.

9. A coupler-knuckle having at the end of its tail an upwardly-projecting beak 11 which extends to the rear extremity of the tail, and on the beak a raised friction-stop 11', substantially as described.

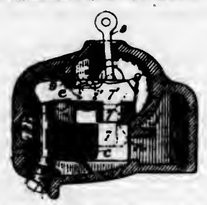
10. A car-coupler having a knuckle, and an angled locking and opening piece adapted to fit over the knuckle's tail and to hold the same, said knuckle having at the end of its tail an upwardly-projecting beak; substantially as described.

11. A car-coupler having a knuckle with a hook at the end of the knuckle's tail, an upwardly-projecting portion or beak thereon, and an angled piece having members which extend over and back of the knuckle's tail respectively, the depending arm of said angled piece fitting in said hook and having a bearing-surface adapted to engage the same; substantially as described.

12. A car-coupler having a knuckle, a lock which is movable vertically to effect the locking and unlocking of the knuckle, an inclined guiding-surface along which the lock moves, and which is adapted to prevent jumping of the lock, and an abrupt bearing on the coupler-head below the inclined guiding-surface at the lowest position of the lock against which it bears when under abnormal forward draft; substantially as described.

13. A car-coupler having a locking device and a friction-stop projecting upwardly from the surface of the knuckle behind which the locking-piece drops when the knuckle is open to oppose some resistance to accidental closing of the knuckle; substantially as described.

648,581. CAR-COUPLING. JOHN WILLISON, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Sept. 16, 1899. Serial No. 730,745. (No model.)



Claim.—1. A car-coupler having a movable opening device and an elongated fulcrum in the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler whereby a forward tendency is given to the motion of the opening device; substantially as described.

2. A car-coupler having a movable opening device and an elongated fulcrum in the coupler-head on which it turns, said fulcrum be-

ing inclined to the longitudinal axis of the coupler, and inclined also to the horizontal plane of the coupler; substantially as described.

3. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, whereby the direction of motion is changed during movement of the opening device; substantially as described.

4. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, said fulcra being inclined to each other; substantially as described.

5. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, said fulcra being inclined to each other and converging; substantially as described.

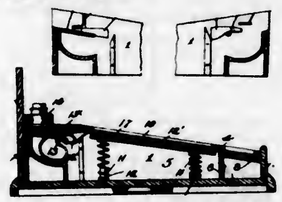
6. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, and the said opening device having seats or grooves of unequal depth adapted to engage the fulcra successively; substantially as described.

7. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, said fulcra being inclined to each other and consisting of elongated ribs or bars; substantially as described.

8. A car-coupler having a movable knuckle-opening device and more than one fulcrum with which the same is adapted successively to engage, said fulcra being inclined to each other and also inclined both to the horizontal and vertical planes of the coupler; substantially as described.

9. A car-coupler having a movable opening device and an elongated fulcrum in the coupler-head on which it turns, said fulcrum being inclined obliquely to the longitudinal axis of the coupler, whereby a forward tendency is given to the motion of the opening device, said opening device being shaped, substantially as described, to avoid frictional contact with the recess in the coupler-head on which it moves.

648,582. REGISTER AND ADVERTISING DESK. FRANK H. ADAMS, Wall Lake, Iowa, and GEORGE P. KANE, Warren, Ill.; said Kane assignor, by mesne assignments, to said Adams. Filed Aug. 11, 1899. Serial No. 726,888. (No model.)



Claim.—1. In combination, in a register, the casing, a spring-pressed base-board, a pocket in said casing in advance of said board having upper and lower confining-walls adapted to hold a tablet, a removable rod extending across said pocket adapted to have the upper edge of the tablet secured thereto, the sheets of said tablet adapted to be successively supported on said board from the lowermost sheet upward and means for retaining the sheets on said board coacting with the spring-pressed board, substantially as described.

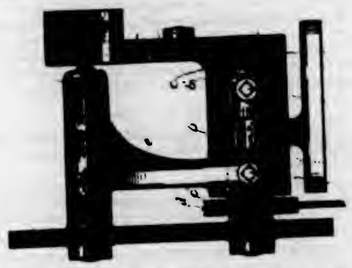
2. In combination, the casing having an opening therein, a spring-pressed base-plate, a tablet-rod arranged in advance of said board, a tablet-pocket in advance of said board having a confining-wall above and below said rod, and means for engaging the side and lower edges of the tablet-sheets to hold the same on said board, substantially as described.

3. In combination, in a register, a casing, partitions therein, an open central space in said casing, panels supported between said partitions and the sides of the casing, advertising-cards adapted to rest thereon, removable frames for holding the same in place, a spring base-board located in said central space, a rod removably supported in advance thereof, said rod being adapted to carry a tablet, said tablet being adapted to have a part of the sheets thereof lie on said board and a part folded over, a frame adapted to retain said sheets in place on said board, a removable panel fitted between said partitions adapted to rest above and cover the folded-over part of said tablet and the space occupied thereby, and a hinged head-piece to said casing adapted to permit access to said advertising-cards, substantially as described.

4. In combination in a register, a casing having the means for holding the writing-pad, a head and side panels, advertising-cards held in said panels and a hinged head-piece to permit the advertising-cards to be removed.

5. In combination, in a register, a casing having the yielding board 10, and a foot-panel having advertising means which is removable when the board is displaced, substantially as described.

648,588. THREAD-WINDER. DEXTER G. BAKER, Willimantic, Conn., assignor, by mesne assignments, to the American Thread Company, Jersey City, N. J., and New York, N. Y. Filed June 15, 1898. Serial No. 683,490. (No model.)



Claim.—1. In a machine for winding thread or the like, a standard, a main shaft mounted in the standard, means for driving the main shaft, a projection extending from each side of the standard, a swinging bracket located on one of said projections, a thread-guide shaft and thread-guide mounted on said bracket, a gear on the thread-guide shaft operatively connected with a gear on the driving-shaft, a spindle-support rotatively mounted on the projection from the other side of said standard, a spindle mounted in the support and having a gear operatively connected with a gear on the driving-shaft, and means for maintaining one of said brackets in a position once attained in its swinging movement.

2. In a machine for winding thread or the like, a standard, a main shaft mounted in the standard, means for driving the main shaft, a projection extending from each side of the standard and each located opposite the other, a swinging bracket located on one of said projections, a thread-guide shaft and thread-guide mounted on said bracket, operative connections between the thread-guide shaft and driving-shaft, a spindle-support rotatively mounted on the projection from the other side of the standard, a spindle mounted in the support, operative connections between the spindle-support and driving-shaft, and means for maintaining one of said brackets in a position once attained in its swinging movement.

3. In a machine for winding thread or the like, a standard, a main shaft mounted in the standard, means for driving the main shaft, a projection extending from each side of the standard and each located opposite the other, a swinging bracket located on one of said projections, a thread-guide shaft and thread-guide mounted on said bracket, operative connections between the thread-guide shaft and driving-shaft, means for controlling the swinging movement of the thread-guide bracket in either direction, a spindle-support rotatively mounted on the projection from the other side of the standard, and operative connections between the spindle and driving-shaft.

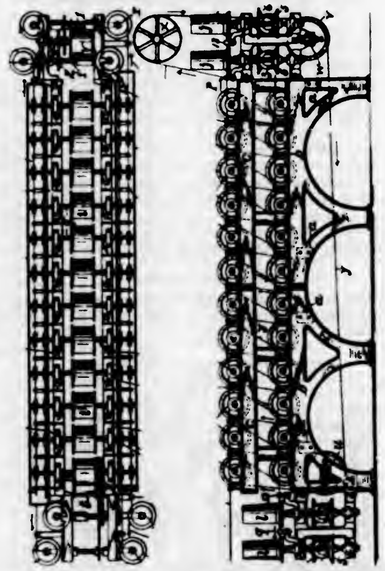
4. In a machine for winding thread or the like, a standard, a main shaft mounted in the standard, means for driving the main shaft, a projection extending from each side of the standard, a swinging bracket located on one of said projections, a thread-guide shaft and thread-guide mounted on said bracket, operative connections between the thread-guide shaft and driving-shaft, a spindle-support rotatively mounted on the projection from the other side of the standard, a spindle mounted in the support, operative connections between the spindle and driving-shaft, and means for maintaining the spindle-support in a position once attained in its swinging movement.

648,584. WIRE-DRAWING MACHINE. CRAMMENT C. BALDWIN, Elizabeth, N. J. Filed July 6, 1899. Serial No. 722,993. (No model.)

Claim.—1. A continuous wire-drawing machine having drawing-roll spindles arranged in two tiers and provided with belt-pulleys having a common alinement, a driving-pulley adjacent to one end of the machine, and an endless belt looped over each driving-pulley and having one side of the loop extended back and forth over all of the spindle-pulleys to drive the two tiers of spindles in opposite directions.

2. A continuous wire-drawing machine having drawing-roll spindles arranged in two tiers and provided with belt-pulleys having a common alinement, a return-pulley at one end of the machine, a guide-pulley at the opposite end, and an endless belt extended over all of the said pulleys to drive the two tiers of spindles in opposite directions.

3. A continuous wire-drawing machine having two tiers of spindles with drawing-rolls upon their opposite ends and provided with belt-pulleys having a common alinement, a driving-belt extended back and forth over all of the said pulleys to drive the two tiers of spindles in opposite directions, winding-drums at one end of the machine for the lower tier of drawing-rolls, drums at the opposite end of the machine for the upper tiers of drawing-rolls, and a separate clutch for stopping each of such winding-drums independently.



4. In a continuous wire-drawing machine, a double frame provided upon each side with two rails one above the other, rows of bearings upon each rails one above the other upon both sides of the machine, spindles fitted to such bearings across the frame with drawing-rolls upon their opposite ends, and provided with belt-pulleys having a common alinement, and a belt extended back and forth over all of such pulleys to drive the spindles in the two tiers in opposite directions, substantially as herein set forth.

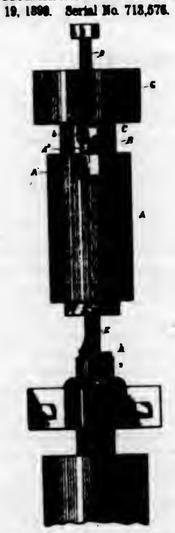
5. In a continuous wire-drawing machine, the double frame having upon each side the main piece provided with rail carrying a lower series of bearings, an upper rail with feet supported upon each lower rail and carrying an upper series of bearings, spindles fitted to such bearings across the frame with drawing-roll upon their opposite ends, and provided with belt-pulleys having a common alinement, a belt extended back and forth over all of such pulleys, winding-drums at one end of the machine a little above the level of the bottom rail and winding-drums at the opposite end of the machine a little above the level of the upper rail, and suitable gearing to rotate such drums, substantially as herein set forth.

6. A continuous wire-drawing machine having drawing-roll spindles arranged in two tiers and provided with belt-pulleys having a common alinement, the return-pulley *f* arranged below the lower tier at one end of the machine and having an adjustable axle, and a guide-pulley at the opposite end of the machine with vertically-adjustable axle, and an endless belt applied to all of such pulleys to rotate the two tiers of spindles in opposite directions.

7. A continuous wire-drawing machine having a double frame with spindles extended across the frame and drawing-rolls upon their opposite ends, vertical shafts and winding-drums supported upon the opposite sides of the frame at one end, a clutch-shaft extended across the frame between each drum-shafts, friction bevel-pinions upon the opposite ends of each clutch-shaft, and friction bevel-wheels arranged respectively above and below such friction-pinions upon the winding-drum shafts at the opposite sides of the machine whereby the said drums are all rotated in the same direction.

8. A continuous wire-drawing machine having a double frame with spindles extended across the frame and drawing-rolls upon their opposite ends, vertical shafts and winding-drums supported upon the opposite sides of the frame at one end, a clutch-shaft extended across the frame between each drum-shafts, friction bevel-pinions with clutch-collars movable upon the opposite ends of such clutch-shaft, friction bevel-wheels upon the winding-drum shafts at the opposite sides of the machine, forks for the clutch-collars and weighted levers movably connected with each forks, to fall upon opposite sides of the center when shifting the friction-pinions into and out of gear with the bevel-wheels, substantially as herein set forth.

648,585. BUTTON-MACHINE. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Apr. 19, 1899. Serial No. 713,576. (No model.)



Claim.—1. The combination of a rotatable chuck, a vertically-movable non-rotatable tool-holder operating by gravity, and removable weights detachably secured to said holder and adjustable means for arresting the descent of the holder.

2. In a button-making machine, the combination of the vertically-movable tool-holder, a set-screw for regulating the descent of said holder and a pin for preventing rotation of the holder.

3. In a button-making machine, the combination of the sleeve, the vertically-movable tool-holder therein, the set-screw for regulating the descent of said holder and the pin for preventing rotation of the holder in the sleeve, and the weights for depressing said holder.

4. In a tool-holder, the combination of the vertical sleeve, the holder guided therein and provided with a lateral projection, an adjustable set-screw on said sleeve adapted to engage said projection and limit the descent of the holder, and the weights for assisting the descent of the holder.

5. In a button-making machine, the combination of a tool-holder, the adjustable tool-clamping jaws thereof, the quartering-screws for adjusting said jaws, and the adjustable screw and the follower in the holder for projecting the tool from the holder.

6. In a button-making machine, the combination of the holder, the tool-clamping jaws F, *f*, in the lower end of said holder, quartering-screws F', *f'*, for adjusting said jaws, the follower *d* in said holder, and the screw D for adjusting said follower.

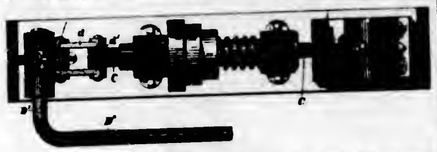
7. In a button-making machine, the combination of the sleeve, the non-rotatable holder therein, the tool-clamping jaws F, *f*, in the lower end of said holder, screws for adjusting said jaws, the follower *d* in said holder, and the screw D for adjusting said follower; with the removable weights G, substantially as and for the purpose described.

8. In a button-making machine, the combination of the sleeve, the non-rotatable holder therein, the tool-clamping jaws F, *f*, in the lower end of said holder, screws for adjusting said jaws, the follower *d* in said holder, and the screw D for adjusting said follower, the adjustable screw A^3 adapted to engage the projection on the holder to limit the descent thereof and the removable weights on said holder to increase the ponderosity thereof.

648,586. BUTTON-MAKING MACHINE. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed May 1, 1899. Serial No. 715,199. (No model.)

Claim.—1. In a button-facing machine, the combination of a rotatable and longitudinally-movable sleeve or variator, and a rotata-

ble and longitudinally-movable chuck within the sleeve, and means for moving said chuck a uniform distance, said sleeve being adapted to rotate the chuck and to cause the closure thereof as it is moved forward therein, for the purpose and substantially as described.



2. In a button-making machine, the combination of a rotatable and longitudinally-movable sleeve, having its bore contracted near its front end; with a chuck supported in and projecting through said sleeve, having a contracted portion adapted to engage the contracted bore of the sleeve so as to cause the closure of the chuck as it is projected through the sleeve, means for rotating said sleeve and thereby rotating the chuck and means for moving the chuck a uniform distance.

3. In a button-making machine, the combination of a rotatable and longitudinally-movable sleeve, having its bore contracted near its front end, a chuck within the sleeve having a longitudinal movement independent of, and projecting through said sleeve, and having a contracted portion adapted to engage the contracted bore of the sleeve, so as to cause the closure of the chuck thereby as it is projected through the sleeve, means for positively rotating the sleeve and thereby rotating the chuck and means for moving the chuck a uniform distance, the sleeve being also movable with and by the chuck after it has caused the latter to grip the button.

4. The combination of the rotatable and longitudinally-movable sleeve, the chuck supported within and rotatable with said sleeve, means for positively rotating the sleeve and thereby rotating the chuck and means for reciprocating said chuck within the sleeve, the sleeve being movable with the chuck after it has caused the latter to grip the blank, substantially as described.

5. The combination of the rotatable and longitudinally-movable sleeve, the chuck supported within and rotatable with and by said sleeve, and means for reciprocating said chuck within the sleeve, the sleeve being movable with the chuck after it has caused the latter to grip the blank, means for positively rotating the sleeve and thereby rotating the chuck and means for returning the sleeve to normal position when the chuck is retracted, substantially as described.

6. The combination of a rotatable and longitudinally-movable sleeve provided with a conical or contracted portion near its front end, a longitudinally-movable chuck supported within and projecting through said sleeve and rotatable therewith, means for positively rotating the sleeve and thereby rotating the chuck and means for reciprocating said chuck a positive distance, said chuck having a tapered portion adapted to engage the contracted portion of the sleeve, which causes the chuck to grip the blank and the sleeve to move forward with the chuck, substantially as described.

7. The combination of a rotatable and longitudinally-movable sleeve provided with a conical or contracted portion near its front end, a longitudinally-movable chuck independent of, within and projecting through said sleeve and rotatable therewith, means for positively rotating the sleeve and thereby rotating the chuck and means for reciprocating said chuck a positive distance, said chuck having a tapered portion adapted to engage the contracted portion of the sleeve, which causes the chuck to grip the blank and the sleeve to move forward with the chuck; with means for causing the sleeve to return to normal position when the chuck is retracted whereupon when the sleeve is arrested the further movement of the chuck causes it to disengage the contracted portion of the sleeve, allowing the chuck to expand and release the blank, and means for rotating the chuck and the sleeve, for the purpose and substantially as described.

8. The combination of a rotatable and longitudinally-movable chuck, a rock-shaft, arm and links for reciprocating said chuck during certain distances; with an adjustable bolt tapped through said arm and adapted to engage a stop whereby the forward movement of the chuck can be regulated.

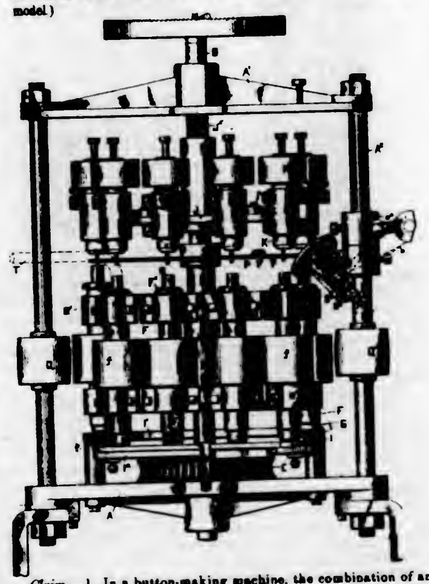
9. The combination of a rotatable and longitudinally-movable sleeve, and a rotatable and longitudinally-movable chuck therein; and rotated thereby, and means for positively rotating said sleeve with a rock-shaft, arm and links for reciprocating said chuck during certain distances, said sleeve being partially movable with the chuck and causing the chuck to hold and release the blanks, substantially as described.

10. The combination of a rotatable and longitudinally-movable sleeve, a chuck rotatable with and movable longitudinally in said sleeve adapted to receive and hold a blank when projected, a rock-shaft, arm and links for reciprocating said chuck during certain distances; with means for limiting the movement of said arm whereby the forward movement of the chuck can be regulated.

11. The combination of the rotatable and longitudinally-movable sleeve, and a pulley for rotating the sleeve, the longitudinally-movable chuck within and rotatable with the sleeve and projecting therethrough, the forward end of said chuck being tapered and adapted to engage an internal taper of the sleeve whereby the chuck is closed upon the blank as it is moved forward and also causes the sleeve to move with the blank; and means for positively rotating the chuck and thereby rotating the blank with means for imparting a positive extent of linear movement to the chuck, and means for returning the sleeve to normal position as the chuck is retracted, for the purpose and substantially as described.

12. The combination of the rotatable and longitudinally-movable sleeve, and a pulley for rotating the sleeve, and means for returning it to normal position after displacement, the longitudinally-movable chuck within and rotatable with the sleeve and projecting therethrough, the forward end of said chuck being tapered and adapted to engage the internal taper of the sleeve whereby the chuck is closed upon the blank as it is moved forward and also causes the sleeve to move with the blank; with the rock-shaft, its arm and links for imparting a positive extent of linear movement to the chuck, and the adjustable bolt and stop for regulating the extent of movement of the chuck all substantially as and for the purpose set forth.

643,587. BUTTON-MAKING MACHINE. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed May 11, 1899. Serial No. 716,412. (No model.)



Claim.—1. In a button-making machine, the combination of an annular series of rotary blank-holders and an annular series of radially-adjustable tool-holder supports fixed relatively to the blank-holders, and vertically-movable tool-holders in said supports said holders dropping by gravity, and means for traveling the same together; with means for rotating said holders during their travel whereby the blank is operated upon without stopping the travel of the parts.

2. In a button-making machine the combination of a continuously-traveling rotatable blank-holder, a non-rotatable gravital tool-holder cooperating and traveling with said blank-holder, and adapted to present the tool to the blanks by gravity during part of the orbital travel of the blank and tool holders substantially as described.

3. In a button-dressing machine, the combination of a series of rotatable blank-holders, and means for orbitally traveling the same, a non-rotatable tool-holder for each blank-holder cooperating and traveling therewith, and means for rotating the blank-holders during that part of their travel in which the blanks are subjected to the action of the tools, substantially as described.

4. In a button-making machine the combination of a rotatable chuck-carrier, a chuck removably mounted therein, a rotatable tool-carrier, a non-rotatable tool-holder mounted thereon relatively to and traveling with the chuck, and means for bringing the blank into contact with the tool during part of the travel of the chuck and tool.

5. In a button-making machine, the combination of a rotatable chuck-carrier, a rotatable chuck mounted thereon, a rotatable tool-carrier, a non-rotatable tool mounted thereon relatively to and traveling with the chuck, means for rotating said chuck during a part of its travel, and means for bringing the blank into contact with the tool to finish the blank during such part of the travel of the chuck.

6. The combination of a rotatable chuck-carrier a series of removable and rotatable chucks journaled thereon, a tool-carrier opposite and movable with the chuck-carrier, and a series of gravital tool-holders thereon, one for and opposite each chuck; with means for rotating the chucks during a part of their orbital movement and means for causing the chuck to present the blank to the tool during such part of the orbital movement of the chuck.

7. The combination of the rotary disk, the series of tool-holders carried thereby, and a sharpening device fixedly mounted on the frame of the machine in the path of the tools, and adapted to successively sharpen each tool during its travel therepast without stopping the machine, and means whereby the relative positions of the tools and sharpeners are altered for each rotation of the disk, substantially as described.

8. The combination of the rotary disk, the series of adjustable tool-holders carried thereby, an inclined rotary sharpening-disk fixedly mounted on the frame of the machine in the path of the tool adapted to successively sharpen the tools during their orbital movement therepast without stopping the machine, means for rotating said disk, substantially as described, and means whereby the relative positions of the tools and sharpeners are altered for each rotation of the disk, substantially as described.

9. The combination of a rotatable chuck-carrier, a rotatable chuck journaled in said holder, a tool-carrier opposite and moving with the chuck, means for rotating the chuck during part of its orbital movement, and means for lifting the chuck during its rotation so as to present the blank to the action of the tool.

10. The combination of the rotary chuck-carrier, a series of rotatable chucks thereon, a tool-carrier above and rotatable with the chuck-holder, the tools mounted thereon, one for and opposite each chuck, means for rotating the chucks during part of their orbital movement, and means for lifting the chuck during its rotation so as to present the blank to the action of the tool, for the purpose and substantially as described.

11. In a button-making machine, the combination of the vertical shaft, the disks thereon, the vertically-movable and rotatable sleeves journaled in said disks and provided with pulleys, the chucks guided in said sleeves, and a cam-plate below the disk by which the chucks are supported and guided, substantially as described.

12. In a button-making machine, the combination of the rotatable vertical shaft, the disks thereon, the vertically-movable and rotatable sleeves journaled in said disks and provided with pulleys, and the chucks guided in said sleeves, with a fixed cam-plate below the disk upon which the chucks are supported and guided as they are traveled thereover, and means for rotating said chucks during part of their orbital movement.

13. In a button-making machine, the combination of the vertical shaft, the disks thereon, the vertically-movable chucks on said disks, a cam-plate below the disks upon which the chucks are supported and guided, and means for rotating said chucks, a tool-holding disk above the chucks, and the adjustable tool-holders on said disk, one for and opposite each chuck, substantially as described.

14. In a button-making machine, the combination of the vertical shaft, the disks thereon, the vertically-movable sleeves journaled in said disks and provided with pulleys, the chucks guided in said sleeves, a fixed cam-plate below the disk upon which the chucks are supported and guided, and means for rotating said chucks during part of their orbital movement, a tool-carrier above the chucks and rotatable therewith, and the adjustable tool-holders on said carrier, one for and opposite each chuck, substantially as described.

15. The combination of the tool-carrying disk, the adjustable tool-holders attached to said disk and the tool-setting plate below the disk whereby said tool-holders can be set, substantially as described.

16. The combination of the rotatable tool-carrier the adjustable tool-holders attached thereto and the adjustable tool-setting plate below and rotatable with the carrier, whereby said tool-holders can be set for the purpose and substantially as described.

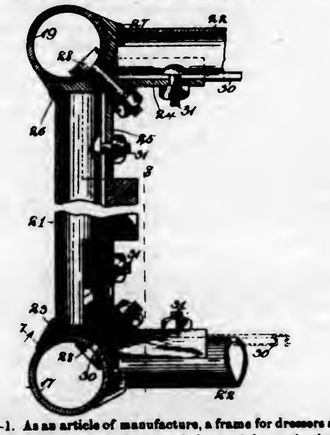
17. The combination of the rotatable disk, an annular series of tool-holders mounted thereon, the rotatable shaft carrying said disk, a shaft for rotating said disk, a shaft telescoping within the rotatable shaft and supporting the disk, a ratchet-wheel supported on the upper end of said outer shaft and having an interiorly-threaded hub engaging the threaded upper end of said inner shaft, and devices adapted to engage said ratchet and impart a slight rotary movement to the wheel relatively to the outer shaft, whereby the tool-holder is gradually moved longitudinally of the outer shaft, substantially as described.

18. The combination of the rotatable disk, an annular series of tool-holders mounted thereon, provided with tools, the rotatable shaft carrying said disk, a shaft for rotating said disk, a shaft telescoping within the rotatable shaft and connections between said inner shaft and the disk; with a ratchet-wheel threaded on the upper end of said inner shaft, and devices adapted to engage said ratchet and impart a slight rotary movement to said wheel relatively to the outer shaft, and a sharpening device projecting into the path of the tools and adapted to sharpen each tool once during the orbital movement thereof, for the purpose and substantially as described.

19. The combination of a rotary shaft, a pair of disks on said shaft, sleeves journaled in said disks, and provided with pulleys, a drive-belt on the frame of the machine adapted to engage said pulleys during part of the orbital movement thereof and rotate the sleeves, the chucks rotatable with said sleeves but longitudinally movable therein, the fixed cam-plate below the chucks adapted to support the latter in the sleeves, the tool-holding disk above the chucks, the series of tool-holders thereon, one opposite each chuck and maintaining a fixed relation thereto, and means for moving said tool-holding disk vertically, and a sharpener on the frame of the machine adapted to sharpen the tools after each operation thereof.

20. The combination of the frame, a vertical shaft therein, a worm-gear for operating said shaft, a pair of disks on said shaft, the sleeves journaled in said disk, provided with pulleys, the drive-belt on the frame of the machine adapted to engage said pulleys during part of the orbital movement thereof and rotate the sleeves; the chucks rotatable with said sleeves but longitudinally movable therein, the fixed cam-plate below the chucks adapted to support the latter in the sleeves, the tool-holding disk above the chucks, and the series of adjustable tool-holders thereon, one opposite each chuck and maintaining a fixed relation thereto; with an inner shaft within the outer shaft, a pin connected to said inner shaft and passing through slots in the outer shaft engaging said tool-holding disk, a ratchet-wheel threaded to the upper end of said inner shaft, the oscillating lever, and connections substantially as described whereby said wheel is rotated slightly relatively to the outer shaft at each rotation thereof, so as to slightly lower the tool-holder after each rotation, and a sharpener on the frame of the machine adapted to sharpen the tools after each operation thereof, substantially as described.

648,588. FURNITURE. BYRON R. BLANNELL, Chicago, Ill., assignor of one-half to David Davies and Samuel K. Dennis, same place. Filed Nov. 13, 1899. Serial No. 696,235. (No model.)



Claim.—1. As an article of manufacture, a frame for dressers and like articles of furniture, consisting of tubular uprights and tubular cross-bars, and having means engaging the interiors of such members for detachably uniting them.

2. As an article of manufacture, a frame for dressers and like articles of furniture, comprising longitudinally-slotted tubular uprights and cross-bars, and clips engaging such uprights and cross-bars through their slots, to rigidly but detachably secure the several members of the frame together.

3. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, and screw-bolts for se-

curing the uprights and cross-bars to the clips or brackets and engaging them through the slots.

4. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, and guide-bars secured to the end cross-bars, forming ways for drawers or the like.

5. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, guide-bars secured to the end cross-bars, forming ways for drawers or the like, and screw-bolts for securing the guide-bars to the cross-bars by engaging the latter through their slots.

6. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, guide-bars secured to the end cross-bars, forming ways for drawers or the like, and rollers mounted upon the last-named screw-bolts for carrying the drawers.

7. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, and filling-strips for the slots of the uprights intermediate of the clips or brackets.

8. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, and laterally-expansible filling-strips for the slots for the uprights intermediate of the clips or brackets.

9. In a tubular frame for dressers and like articles of furniture, the combination with tubular uprights, as 19, of a frame, such as 35, having tubular uprights adapted to telescopically engage the uprights, 19, a sleeve for covering the telescopic joint, and a screw-bolt for uniting such three members, the uprights of the frame 35 being longitudinally slotted to receive the bolt.

10. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, and filling-strips for the slots of the uprights and cross-bars intermediate of the clips or brackets.

11. In a frame for dressers and like articles of furniture, the combination with longitudinally-slotted tubular uprights and cross-bars, of clips or brackets adapted to fit against the uprights and having arms for receiving the ends of the cross-bars, screw-bolts for securing the uprights and cross-bars to the clips or brackets and engaging them through the slots, and laterally-expansible filling-strips for the slots of the uprights and cross-bars intermediate of the clips or brackets.

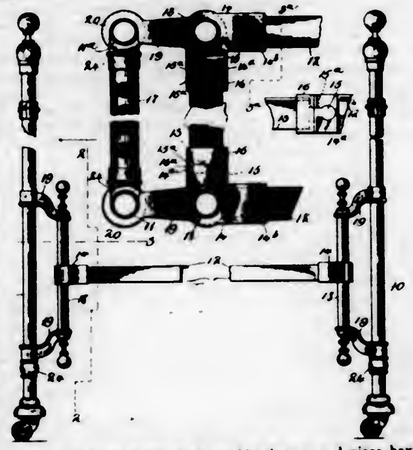
648,589. BEDSTEAD. BYRON R. BLANDELL, Chicago, Ill. Filed June 13, 1899. Serial No. 720,179. (No model.)

Claim.—1. In a bedstead, in combination, an end frame having vertical standards, side rails having at their ends hooks for engaging the said standards, and a cross-rail for connecting the side rails and being provided with means for clamping the hooks to the standards.

2. In a bedstead, in combination, an end frame having vertical standards, side rails having at their ends hooks for engaging the said standards, a cross-rail, a mortise-and-tenon joint between each side rail and the cross-rail, each joint having a wedge action longitudinal as to the cross-rail whereby the hooks are forced into engagement with the standards.

3. In a metal bedstead, in combination, the corner-uprights, the side rails, the corner-blocks attached thereto, a vertical rod fixed to each block, hooks fixed to the rod above and below the block for engaging one of the uprights, a cross-rail, a mortise-and-tenon joint between each side rail and the cross-rail, each joint having a wedge action longitudinal as to the cross-rail whereby the hooks are forced into engagement with the standards.

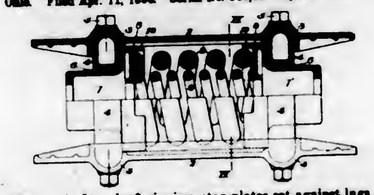
4. In a metal bedstead, in combination, the corner-uprights, the side rails, the corner-blocks attached thereto, each block being provided with a rigidly-attached hook for engaging the uprights, a cross-rail, a mortise-and-tenon joint between each side rail and the cross-rail, each joint having a wedge action longitudinal as to the cross-rail whereby the hooks are forced into engagement with the standards.



5. In a metal bedstead, in combination, an end piece having standards, interchangeable side rails each provided with a hook for clamping the standards, a cross-rail, a mortise-and-tenon joint between each side rail and the cross-rail, each joint having a wedge action longitudinal as to the cross-rail whereby the hooks are forced into engagement with the standards.

6. In a metal bedstead, in combination, an end piece having standards, side rails, and angle-blocks each attached to a side rail by one end, and having its outer end transversely socketed, a cross-rail having at its ends wedge-shaped key-pieces adapted to enter such sockets, and hooks secured to the blocks for engaging the standards.

648,590. DRAFT-RIGGING FOR CARS. WILLIAM CARR, Chicago, Ill., assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed Apr. 11, 1898. Serial No. 677,114. (No model.)



Claim.—1. In a draft-rigging, stop-plates set against lugs or recesses on the draft-irons and removable vertically therefrom, said stop-plates being adapted to contain between them the followers and spring, and means whereby the stop-plates are secured to the draft-irons.

2. In a draft-rigging, stop-plates set against lugs or recesses on the draft-irons and removable vertically therefrom, said stop-plates being adapted to contain between them the followers and spring, and horizontal bolts, whereby the stop-plates are secured to the draft-irons.

648,591. TUBE-JOINT. DANIEL W. CASWELL, Chicago, Ill. Filed Dec. 7, 1897. Serial No. 661,085. (No model.)



Claim.—1. In combination in a bicycle-frame joint, a main tube and a secondary tube, said main tube having an aperture formed to receive the end of the secondary tube, and said secondary tube having its end, which is inserted within said main tube, split and forced outwardly into close contact with and around substantially the whole circumference of the inner surface of said main tube, substantially as described and shown.

2. A metal-tube joint, consisting of a tube perforated through its side wall, in combination with a second tube having a slotted end, the said slotted end being inserted through the perforation formed in the first-named tube and spun against its inside circumference and brazed thereto, substantially as set forth.

3. A metal-tube joint, consisting of a tube perforated through its side wall, in combination with a second tube having a slotted end, the said slotted end being inserted through the perforation formed in the first-named tube and spun around its inner surface in the form of an eye and brazed thereto, substantially as set forth.

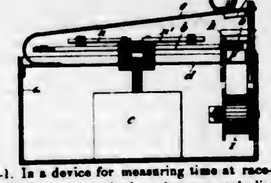
4. A metal-tube joint, consisting of a tube perforated through its side wall, in combination with a second tube having a cylindrically-reinforced end, the said reinforced end being slotted and inserted through the perforation formed in the first-named tube, then spun or pressed against its inside circumference and finally brazed thereto, substantially as set forth.

5. A metal-tube joint, consisting of a tube perforated through its side wall, in combination with a second tube having a hollow cylindrical reinforcing-piece placed in one end, the said reinforced end being slotted and inserted through the perforation formed in the first-named tube, the free ends of the slotted tube and reinforce being spun or pressed around the inner surface of the perforated tube in the form of an eye and the parts brazed, substantially as set forth.

6. In a metal-tube joint, the combination of two tubes, the end of one tube being slotted and inserted at an angle through a perforation formed in the wall of the second tube, the said perforation being of the size and shape of the line of intersection of the two tubes, the slotted end of the inserted tube being folded or spun against the inside wall of the perforated tube and brazed thereto, substantially as set forth.

7. A tube having a perforation in its side wall, combined with a slotted tube inserted through the said perforation, and having each of the two parts of its slotted inserted end folded or spun in an opposite direction around the inner circumference of the perforated tube, the said two parts of the slotted end being brazed together and to the inner circumference of the perforated tube, substantially as set forth.

643,592. TIME-STAMP. CHARLES A. DE CHAPEAUROUGE, Hamburg, Germany. Filed Aug. 9, 1899. Serial No. 726,668. (No model.)



Claim.—1. In a device for measuring time at race-courses, the combination of a disk having raised numbers at certain distances apart, a spring *c* above the disk carrying an impression-pad *c'*, a guide-rod for said spring, means for leading a strip of paper between said impression-pad and the disk, clockwork for rotating said disk at a uniform speed, and spring-arms for connecting said clockwork to said disk so that the clockwork is not interfered with or impeded by the taking of an impression, substantially as described.

2. A device for measuring time at races consisting of a box *a* containing the apparatus consisting in combination of a disk *b* having raised numbers at certain distances apart, so that at the rotation of the disk *b* for a second, it is moved a distance, corresponding exactly to the distance between the numbers; one or more striking-springs *c* effecting the registering of the time by its or their disengagement and which by its or their descent press a paper strip *h* onto the disk *b* and thus print the time; a clockwork *c* driving the disk which is adapted to continue uniformly the time-measuring operation, even if the disk *b*, be momentarily stopped, by the spring *c*, by reason of springs *a a'*, which, connecting the disk to its axle, can yield, and the disk when liberated can come up with the axle; a fixed striking-pin *p* allowing fractions of seconds to be read; and means for the relifting of the spring *c* after striking and for the advance of the paper strip *h* either by hand or automatically, substantially as described.

643,593. RECEPTACLE FOR BURNING REFUSE. ALBERT W. COX, Chicago, Ill., assignor of one-half to Davis M. Leland, same place. Filed Feb. 25, 1899. Serial No. 706,634. (No model.)

Claim.—1. A portable refuse-burner consisting of a corrugated or fluted cylinder, having a bottom arranged therein at its base, said cylinder adapted to form a series of draft-passages at the edge of said bottom and having an additional series of lateral draft-openings therein, arranged a suitable distance above said bottom, and a jacket or casing inclosing said cylinder or fire-pot and having a series of air-inlets in its bottom edge, substantially as specified.

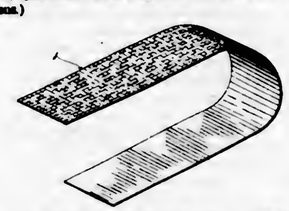


2. A portable refuse-burner, comprising a corrugated or fluted cylinder or fire-pot, and an imperforate bottom arranged therein, near the base, with its edges touching, or in contact with, the inner, or reëntrant, angles of said fluted or corrugated cylinder, substantially as set forth.

3. A portable refuse-burner, comprising a corrugated or fluted cylinder or fire-pot, an imperforate bottom arranged therein a short distance above the base, said cylinder having a series of lateral draft-openings arranged a short distance above said bottom, and in communication with the combustion-chamber, substantially as set forth.

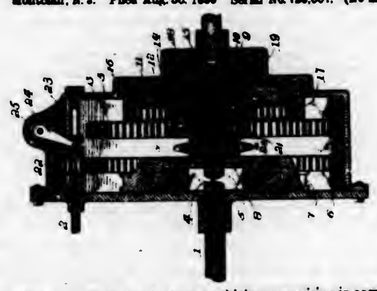
4. A portable refuse-burner, comprising a corrugated or fluted cylinder, an imperforate bottom arranged therein a short distance above the base, and a jacket inclosing said cylinder, substantially as set forth.

648,594. GUMMED CLOTH FOR BOOKBINDING. CHARLES H. CROWELL, Lynn, Mass. Filed Aug. 10, 1899. Serial No. 726,735. (No specimens.)



Claim.—As a new article of manufacture, a gummed cloth for binding tablets, &c., consisting of an open-meshed, loose-textured fabric coated on one side with a suitable adhesive; said adhesive being lightly laid upon the surface of the fabric so as not to saturate the threads composing said fabric or fill the interstices or meshes thereof when dry; but said adhesive, when softened by wetting said fabric, entering said meshes and impregnating said threads, substantially as described.

648,595. GEARING FOR AUTOMOBILE VEHICLES. LEONARD H. DYER, Washington, D. C., assignor of one-fourth to Frank L. Dyer, Montclair, N. J. Filed Aug. 30, 1899. Serial No. 728,007. (No model.)



Claim.—1. A gearing for motor-vehicles, comprising in combination two parallel shafts, two gears of equal diameter on one of said

shafts, intermediate gearing interposed between one of the gears and the shaft, and means carried by the second shaft, for rotating either of said gears.

2. A gearing for motor-vehicles, comprising in combination two parallel shafts, two gears of equal diameter on one of said shafts, intermediate gearing interposed between one of the gears and the shaft, and a single pinion carried by the second shaft, and capable of engaging with either of said gears.

3. A gearing for motor-vehicles, comprising in combination two parallel shafts, two gears of equal diameter on one of the said shafts, intermediate epicyclic gearing interposed between one of the gears and the said shaft, a brake forming the fulcrum of said epicyclic train, and means carried by the second shaft for rotating either of said gears.

4. A gearing for motor-vehicles, comprising in combination two parallel shafts, two gears of equal diameter on one of said shafts, intermediate epicyclic gearing interposed between one of the gears and the said shaft, a brake forming the fulcrum of said epicyclic train, and a single pinion carried by the second shaft, and capable of engaging with either of said gears.

5. A gearing for motor-vehicles, comprising in combination a driven axle, an engine-shaft parallel thereto, two gears of equal diameter on said driven axle, intermediate gearing interposed between one of the gears and the axle, a starting-gear secured to the said gear, and a single pinion carried by the engine-shaft, and capable of engaging with either of said gears.

6. A gearing for motor-vehicles, comprising in combination a driven axle, an engine-shaft parallel thereto, two gears of equal diameter on said driven axle, intermediate epicyclic gearing interposed between one of the gears and the said axle, a brake forming the fulcrum of said epicyclic train, a starting-gear secured to the said gear and means carried by the engine-shaft for rotating either of said gears.

7. A gearing for motor-vehicles, comprising in combination a driven axle, an engine-shaft parallel thereto, two gears of equal diameter on said driven axle, intermediate epicyclic gearing interposed between one of the gears and the said axle, a brake forming the fulcrum of said epicyclic train, a starting-gear secured to the said gear, and a single pinion carried by the engine-shaft, and capable of engaging with either of said gears.

8. A gearing for motor-vehicles, comprising in combination the supporting-axle, 1, the engine-shaft 2, parallel thereto, the two gears 6 and 13 of equal diameters, the gear 6 having a sleeve 8, the collar 9, thereon, said sleeve supporting the gear 13, the pinions 12, mounted upon said collar and engaging with the hub of the gear 13, the gear 17 concentrically mounted in relation to the shaft 1, and engaging with the gears 12 and a brake or stop 19, for arresting the gear 17, and a single pinion 22 carried by the shaft 2 and capable of engaging with either the gears 6 or 13, substantially as described.

9. A gearing for motor-vehicles, comprising in combination the supporting-axle 1, the engine-shaft 2 parallel thereto, the two gears 6 and 13 of equal diameters, the gear 6 having a sleeve 8, the collar 9 thereon, said sleeve supporting the gear 13, the pinions 12, mounted upon said collar and engaging with the hub of the gear 13, the gear 17, concentrically mounted in relation to the shaft 1, and engaging with the gears 12, a starting-gear 20 connecting with the gear 13, and a brake or stop 19, for arresting the gear 17, and a single pinion 22 carried by the shaft 2 and capable of engaging with either the gears 6 or 13, substantially as described.

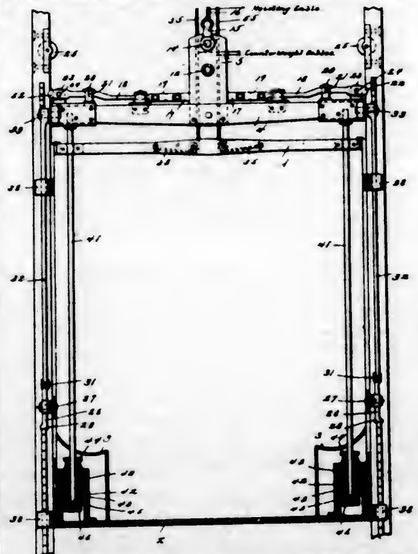
10. A gearing for motor-vehicles, comprising in combination the supporting-axle 1, the engine-shaft 2, parallel thereto, the two gears 6 and 13, of equal diameters, the gear 6 having a sleeve 8, the collar 9 thereon, said sleeve supporting the gear 13, the pinions 12, mounted upon said collar and engaging with the hub of the gear 13, the gear 17, concentrically mounted in relation to the shaft 1 and engaging with the gears 12, a starting-gear 20, the clutch 21, connecting the gears 20 and 13, and a brake or stop 19 for arresting the gear 17, and a single pinion 22, carried by the shaft 2 and capable of engaging with either the gears 6 or 13, substantially as described.

11. In a gearing for motor-vehicles, the combination of a driven axle, an engine-shaft, a high-speed and a low-speed gear each of the same diameter, between said axle and shaft, interposed gearing between the low-speed gear and the axle, means for bringing either gear into operation, and auxiliary means whereby the low-speed gear may be operated, substantially as described.

648,596. ELEVATOR. JOHN FLETCHER, Philadelphia, Pa., assignor of three-eighths to Harry W. Sproson, same place. Filed Sept. 14, 1899. Serial No. 730,427. (No model.)

Claim.—1. The combination with an elevator-car, of a shackle comprising pivoted jaws, jaw-actuating rods connected thereto and carried by the car, and means within the elevator-shaft for actuating said rods and releasing the jaws of the shackle from the hoisting-cable, substantially as described.

2. The combination with an elevator-car, and guides on which the same moves, of a shackle connected with the car and comprising relatively-movable jaws, jaw-actuating rods extending in opposite directions from the jaws toward the guides, and cooperating devices on the rods and guides, substantially as and for the purpose specified.



3. The combination with an elevator-car, of a shackle connected therewith and comprising pivoted and relatively-movable jaws for engaging the hoisting-cable, oppositely-extending rods pivotally connected to said jaws, and rollers for moving said rods inward to operate the jaws when the car reaches a predetermined point.

4. The combination with an elevator-car, of a shackle connected therewith and comprising relatively-movable jaws for gripping the hoisting-cable, jaw-actuating rods connected to the jaws and extending therefrom in opposite directions toward the elevator-guides, rollers journaled in the outer ends of said rods, and other rollers cooperating therewith and mounted on the guides, substantially as described.

5. The combination with an elevator-car, of a shackle connected therewith and comprising pivoted and relatively-movable jaws, housing-plates at opposite sides of said jaws provided with slots, laterally-projecting pins on the jaws working in said slots, and springs engaging said pins for holding the jaws normally in gripping engagement with the hoisting-cable.

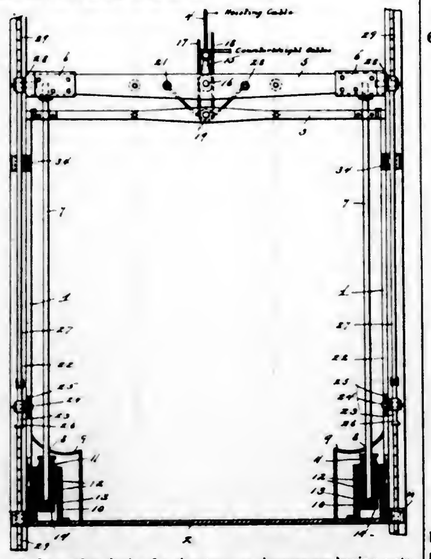
6. The combination with an elevator-car, of a shackle connected therewith and comprising pivoted jaws, frame-plates at opposite sides of the jaws and provided with slots, laterally-projecting pins on the jaws passing through and working in said slots, spring-housings arranged exteriorly of said plates, and springs within said housings operating upon the pins of the jaws, substantially in the manner and for the purpose specified.

7. The combination with an elevator-car, of guides therefor, each of said guides being of sectional construction and comprising inner and outer plates or sections, and an intermediate section consisting of a double-faced rack-bar having teeth at its opposite sides which are included and housed between and protected by the inner and outer plates or sections, the several sections being securely united by through fastening devices, which prevent relative movement of the sections, substantially as described.

8. The combination with an elevator-car, of a shackle connected therewith and comprising jaws for gripping the hoisting-cable, jaw-actuating rods connected to the jaws, means for actuating said rods, guides for the rods, and a break-pin connected with one of the guides and engaging an opening in the adjacent rod, substantially as and for the purpose specified.

648,597. SAFETY DEVICE FOR ELEVATORS. JOHN FLETCHER, Philadelphia, Pa., assignor of three-eighths to Harry W. Sproson, same place. Filed Sept. 14, 1899. Serial No. 730,428. (No model.)

Claim.—1. In a safety device for elevator-cars, the combination with the upper stationary cross-head of a car, of a superimposed cross-head movable toward and away from the stationary cross-head, a pair of dogs at the side of the car arranged upon opposite sides of one of the guides for cooperation therewith, rods connecting said dogs with the movable cross-head, a counterweight-cable connecting the two cross-heads and auxiliary means cooperating with and independently of said counterweight-cable for actuating the movable cross-head toward the stationary cross-head upon breakage of the hoisting-cable, substantially as described.



2. In a safety device for elevators, an elevator-car having a stationary cross-head, a superimposed cross-head movable toward and away from the stationary cross-head, a pair of dogs located on opposite sides of one of the guides for cooperation therewith, rods connecting said dogs with the movable cross-head, a counterweight-cable connecting the movable cross-head with the stationary cross-head, a rod connected to the movable cross-head and extending downward into the car, and a spring located within the car connected to said rod and exerting its tension to cooperate with the counterweight-cable draw the rod downward and move the upper cross-head toward the stationary cross-head upon breakage of the cable, substantially as described.

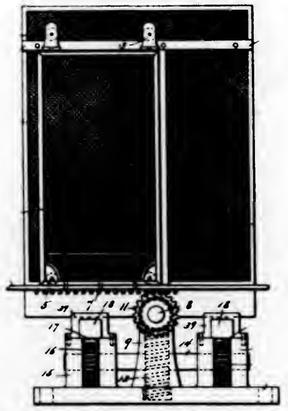
3. In a safety device for elevators, an elevator-car having a stationary cross-head, a superimposed cross-head movable toward and away from the stationary cross-head, clutch-dogs for engaging the guides at opposite sides of the elevator, rods connecting said dogs with the movable cross-head, counterweight-cables connecting said cross-heads, rods connected to the movable cross-head and extending downward into the car, spring-housings arranged under the car-seats and concealed thereby and springs arranged therein and engaging the lower ends of said rods and acting to draw the rods downward and depress the movable cross-head upon breakage of the cable, substantially as described.

4. In a safety device for elevators, an elevator-car having a stationary cross-head, a superimposed cross-head by which the car is suspended, movable toward and away from the stationary cross-head, clutch-dogs on the car for engagement with the guides at opposite sides of the car, rods connecting said dogs with the movable cross-head, a main cable connected with the movable cross-head, one or more counterbalance-cables extending downward past the movable cross-head, under a pulley on the stationary cross-head, and thence upward and attached to the movable cross-head, whereby upon breakage of the cable the counterbalance-cable serves to actuate the movable cross-head toward the stationary cross-head, and auxiliary means cooperating with said counterweight-cables, substantially as and for the purpose specified.

5. In a safety device for elevators, the combination with an elevator-car, and guides therefor having teeth along their opposite sides, of shoes secured to the car and embracing said guides, each of the shoes being provided with oppositely-located grooves in which the teeth are received, substantially as described.

6. In a safety device for elevators, the combination with an elevator-car, of guides at the opposite sides thereof, each guide comprising a double-faced rack-bar and strips or sections of less width arranged upon the inner and outer surfaces of the rack-bar and bolted or otherwise secured thereto, and shoes secured to the car and embracing the combined guide and double rack-bar, each of said shoes being grooved to receive the teeth of the rack-bar and to provide oppositely-located shoulders for engagement with the opposite side faces of the teeth of the rack-bar, substantially as described.

648,598. GATE-OPERATED LOCK FOR ELEVATORS. JOHN FLETCHER, Philadelphia, Pa., assignor of three-eighths to Harry W. Sproson, same place. Filed Nov. 2, 1899. Serial No. 735,616. (No model.)



Claim.—1. The combination with an elevator-door and a rack-bar carried thereby, of a sliding bolt made in rack-bar form and adapted to be projected beneath the car, and gearing interposed between and connecting the rack-bar on the door with said bolt for actuating the latter as the door is opened and closed, substantially as described.

2. The combination with an elevator-door, of a rack-bar secured to the bottom thereof, bolts adjacent to the elevator-shaft and adapted to be moved into the path of the car, and a bolt-actuating shaft operatively connected with and actuated by the rack-bar on the door, substantially as described.

3. The combination with an elevator-door, of a rack-bar secured thereto, a bolt adjacent to the elevator-shaft and adapted to be projected into the path of the car, a bolt-actuating shaft geared to said bolt, and gearing interposed between said shaft and the rack-bar on the door, substantially as and for the purpose specified.

4. The combination with an elevator-door provided with a toothed rack, of a bolt adjacent to the elevator-shaft and adapted to be projected into the path of the car and movable at right angles to the plane in which the door moves, a bolt-actuating shaft parallel to the line of movement of the door and geared to said bolt, a second shaft arranged at right angles to the path of movement of the door and actuated by the toothed rack thereon, and gearing interposed between said shafts and adapted to operate substantially in the manner and for the purpose specified.

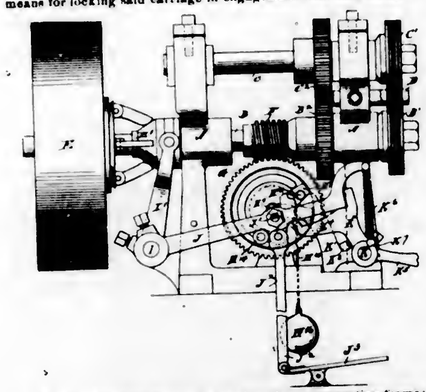
5. The combination with a slidable elevator-door, of a reciprocatory bolt adapted to be slid into and out of the path of movement of the car, and means controlled by the sliding movement of the car-door for reciprocating said bolt, substantially as specified.

648,599. FEED STOP MECHANISM. HOWARD E. HARRADEN, Kenosha, Wis. Filed June 17, 1899. Serial No. 720,933. (No model.)

Claim.—1. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a lever for stopping the movement of said shaft; a wheel having a rotatable engagement with said shaft; and a rotatable releasing-carriage for causing said lever to be moved to stop the rotary motion of said shaft, which carriage is concentric with said wheel, and is capable of being locked in engagement therewith.

2. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting a rotary motion to said shaft; a lever for stopping the movement of said shaft; a detent for

said lever; a wheel having a rotatable engagement with said shaft; a rotatable releasing-carriage for causing said lever to be moved to stop the rotary motion of said shaft, which carriage is concentric with said wheel, and is capable of an independent rotation; and means for locking said carriage in engagement with said wheel.



3. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting a rotary motion to said shaft; a lever for stopping the movement of said shaft; a detent for the lever; a wheel having a rotatable engagement with said shaft; a rotatable releasing-carriage for moving said detent to stop the rotary motion of said shaft, which releasing-carriage is concentric with said wheel, and is capable of an independent rotation; and means for locking said carriage in engagement with said wheel.

4. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; a rotatable releasing-carriage concentric with said wheel, capable of an independent rotation; means for causing said releasing-carriage and said worm-wheel to rotate together; and means actuated by said releasing-carriage for stopping the rotation of said shaft.

5. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; a rotatable releasing-carriage; means for causing the worm-wheel and the releasing-carriage to rotate together; a lever for stopping the rotary motion of said shaft; and means comprising said releasing-carriage to actuate said lever.

6. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; and means for stopping the rotary motion of said shaft, which stopping means comprises a rotatable releasing-carriage.

7. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; a lever for stopping the rotary motion of said shaft; a detent for said lever; a trigger for engaging said detent; and a rotatable releasing-carriage for moving said trigger.

8. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; a rotatable releasing-carriage concentric with and capable of rotating with said worm-wheel; a stop-pin on said carriage; a lever for stopping the rotary motion of said shaft; a spring and a detent for said lever; a trigger for engaging said detent; and a stud on the releasing-carriage for engaging said trigger.

9. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a recessed worm-wheel for said worm; a rotatable releasing-carriage adapted to lie within said recess; a lever for stopping the rotary motion of said shaft; means for moving said lever in one direction; a spring for moving said lever in the opposite direction; a detent for holding said lever against the action of said spring; a trigger for engaging said detent; and a stud on the releasing-carriage for engaging said trigger.

10. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a recessed worm-wheel for said worm, which worm-wheel is provided with serrations; a rotatable releasing-carriage for said recess; a pawl on said carriage for engaging the serrations on said worm-wheel; a lever for stopping the rotary motion of said shaft; a stud on said lever for causing the pawl on the releasing-carriage to engage the serrations on the worm-wheel; means for moving said lever in one direction; a spring for moving said lever in the opposite direction; a detent for holding said lever against the action of said spring; a trigger for engaging said detent; and a stud on the rotatable releasing-carriage for moving said trigger.

11. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a recessed worm-wheel for said worm, which worm-wheel is provided with serrations in its recess; a rotatable releasing-carriage for said recess; a sliding pawl on said carriage for engaging the serrations of the worm-wheel; a wedging-stud for moving said pawl; a lever for stopping the rotary motion of said shaft; a stud on said lever for engaging the wedging-stud on the releasing-carriage; a lever for moving said stopping-lever in one direction; a spring for moving said stopping-lever in the opposite direction; a detent for holding said stopping lever against the action of said spring; a trigger for engaging said detent; and an adjustable stud on said rotatable releasing-carriage for moving said trigger.

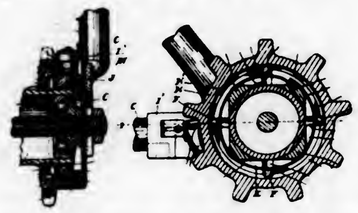
12. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a recessed worm-wheel for said worm, which worm-wheel is provided with a series of serrations within said recess; a rotatable releasing-carriage for said recess, which releasing-carriage has a rotatable movement independent of said worm-wheel, and is provided with an elongated concentric opening for receiving a setting-stud; a sliding pawl on said releasing-carriage for engaging the serrations of said worm-wheel; a wedging stud for moving said pawl; a lever for stopping the rotary motion of said shaft; a stud on said lever for engaging the wedging-stud of said rotatable carriage; a foot-lever for moving said stopping-lever in one direction; a spring for moving the stopping-lever in the opposite direction; a detent for holding the said lever against the action of said spring; a trigger for engaging said detent; and an adjustable stud in said concentric opening of the releasing-carriage for engaging said trigger.

13. In a feed stop motion, in combination, a supporting-frame; a shaft journaled thereon; means for imparting rotary motion to said shaft; a worm on said shaft; a worm-wheel for said worm; which worm-wheel is provided with a recess in its face having serrations therein; a tubular bearing-sleeve for the worm-wheel; a rotatable releasing-carriage for said recess, which carriage has a bearing-stem for extending within said sleeve, and is provided in its face with an elongated concentric opening for receiving an adjustable setting-stud; a collar fixed on said bearing-stem; a strap on the periphery of said collar; a weight at the free end of said strap; a sliding pawl on said releasing-carriage, which pawl is adapted to engage the serrations in said worm-wheel; a wedging-stud for moving said pawl; a spring for said stud; a lever for stopping the rotary motion of said shaft; a stud on said lever for engaging the wedging-stud of said releasing-carriage; a foot-lever and a connecting-rod for moving said stopping-lever in one direction; a spring for moving said stopping-lever in the opposite direction; a detent for holding said stopping-lever against the action of said spring; a raising-arm on said detent; a hand-lever for moving said detent and said raising-arm; a trigger for engaging said detent; and an adjustable setting-stud for moving said trigger.

14. In a feed stop-motion, in combination, a supporting-frame; a shaft journaled thereon; a pulley mounted on said shaft; a friction-clutch for engaging said pulley with said shaft; an arm for operating said friction-clutch; a worm on said shaft; a worm-wheel for said worm, which worm-wheel is provided with a circular recess in its face, and a series of serrations in the peripheral walls of said recess; a tubular bearing-sleeve for said worm-wheel; a rotatable releasing-carriage adapted to lie within said circular recess, which carriage is provided with an elongated concentric opening for receiving an adjustable setting-stud; a stem for said releasing-carriage adapted to lie within the bearing-sleeve of said worm-wheel; a collar fixed on said stem; a strap on the periphery of said collar; a weight attached to the free end of said strap; a sliding pawl on said releasing-carriage adapted to engage the serrations within the recess of said worm-wheel; a wedging-stud for moving said pawl in one direction; a spring for moving said pawl in the opposite direction; a stopping-lever for moving the before-mentioned arm; a foot-lever and a connecting-rod for moving said lever in one direction; a spring for moving said lever in the opposite direction; a detent for holding said lever against the action of said spring; a raising-arm on said detent; a hand-lever for moving said detent and said raising-arm; a trigger; a lug on said trigger, for engaging said detent; and an adjustable setting-stud for the elongated concentric opening in the releasing-carriage for moving said trigger.

15. In a feed stop-motion, in combination, a supporting-frame; a drive-shaft journaled thereon; a pulley on said shaft; a friction-clutch for engaging said pulley with said shaft; a rock-shaft on said frame; an arm for actuating said friction-clutch, fixed on said rock-shaft; a driven shaft journaled on the supporting-frame; intermeshing gears fixed on said drive and said driven shafts, respectively; a feed-roll on each of said last-mentioned shafts; a worm on said drive-shaft; a worm-wheel for said worm, which worm-wheel has a circular recess in its face, and is provided with a series of serrations about the periphery of said recess; a tubular bearing-sleeve for rotatably supporting said worm-wheel in said frame; a rotatable releasing-carriage having an elongated concentric opening for receiving an adjustable setting-stud; a bearing-stem for said releasing-carriage adapted to lie within the tubular bearing-sleeve of the worm-wheel, which carriage and bearing-stem are provided with an axial opening; a collar fixed on said stem; a strap on the periphery of said collar; a weight attached to the free end of said strap; a stop-pin on the face of said releasing-carriage; a sliding pawl adapted to engage the serrations in the recess of the worm-wheel; a wedging-stud in the axial opening of said carriage and stem, for moving said sliding pawl into engagement with said serrations; a spring for said stud; a spring for withdrawing said pawl from engagement with said serrations; a stopping-lever fixed on said rock-shaft; a stud on said lever for engaging the wedging-stud of said releasing-carriage; a foot-lever and connecting-rod for raising said stopping-lever; a spring for moving said stopping-lever in a downward direction; a detent for holding said stopping-lever against the action of said spring; a raising-arm on said detent; a hand-lever for moving said detent and said raising-arm; a trigger having a lug adapted to engage said detent; and a setting-stud in said elongated concentric opening of the releasing-carriage, for moving said trigger.

643,600. **RACK-PEDALING BRAKE.** FREDERICK P. HINCKLEY, Jackson, Mich., assignor of one-half to John McDevitt, same place. Filed Nov. 14, 1898. Serial No. 696,402. (No model.)



Claim.—1. The combination of an outer ring having a continuous internal groove, an inner ring adapted to turn freely within the outer ring, and in the same plane, inclined channels at intervals in the periphery of the inner ring, and radial openings, extending from the inclined channels, to the opening of the inner ring, whereby the balls are inserted and removed by passing the same radially through said openings for the purpose of assembling and disassembling the device, balls adapted to pass through said radial openings and engage the said groove and channels, and means for retaining the balls in operative position, substantially as described.

2. In a sprocket-wheel, an inner ring adapted to be attached to the hub of a bicycle and having radial openings to permit the passage of the balls therethrough and inclined channels, an outer ring having an internal groove, said channels and groove being semicircular in cross-section, balls having the same radius as said channels and groove and engaging the same, and a spring-support for said balls, said support being removable to permit the balls to pass through the radial openings in the inner ring, substantially as described.

3. In a bicycle, the combination of an inner ring attached to the driving-hub and having radial openings adapted to permit the passage of the balls therethrough and inclined channels extending one way from the radial openings, and a circumferential groove deeper opposite said openings, and an inclined opening from said groove to the central opening of the inner ring; an outer ring rotative on the inner ring and having radial sprocket-teeth and an internal groove, balls connecting said rings, and an integral spring-wire in the groove of the inner ring and engaging each of said balls, substantially as described.

4. In a bicycle, a driving-wheel and a sprocket-wheel independently rotative, a clutch connecting the sprocket-wheel with the driving-wheel to turn the latter forward and to allow the same to run forward freely, a friction-surface attached to the driving-wheel, a band engaging said friction-surface and having one end fixed and its free end, adapted to yield laterally, and provided with a projection to engage the teeth of the sprocket-wheel whenever the said wheel is turned backward, substantially as described.

5. In a bicycle, a driving-wheel and a sprocket-wheel independently rotative, a clutch connecting the same, a friction-surface attached to the driving-wheel, a band engaging the friction-surface having one end attached to a fixed support, a pawl pivoted to the free end of the band and temporarily engaging the teeth of the sprocket-wheel and carrying the free end of the band backward with the sprocket-wheel whenever the latter is turned backward, and means for limiting the movement of the pawl on its pivot, substantially as described.

6. In a bicycle, a driving-wheel and a sprocket-wheel independently rotative, a clutch connecting the same, a friction-surface rotating with the driving-wheel, a band engaging the friction-surface and having one end attached to a fixed support and the other end movable, a pawl pivoted to the movable end of the band and engaging the teeth of the sprocket-wheel, means for limiting the movement of the pawl on its pivot, and a lug on said pawl engaging the side of the sprocket-wheel to turn the pawl on its pivot, substantially as described.

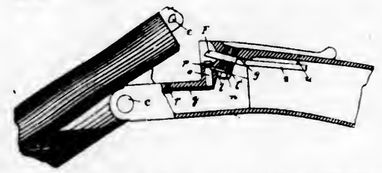
7. In a bicycle, a driving-wheel and a sprocket-wheel independently rotative, a clutch connecting the same, a friction-surface rotating with the driving-wheel, a band engaging the friction-surface and having one end attached to a fixed support and the other end movable, a pawl pivoted to the movable end of the band and engaging the teeth of the sprocket-wheel, a lug on the said pawl engaging the side of the sprocket-wheel to turn the pawl on its pivot, an extension of the pawl at the side of the pivot opposite the part engaging the sprocket-wheel, and a fixed support engaged by said extension, whereby the pawl operates as a lever to tighten the band, substantially as described.

8. In a bicycle, in combination with a sprocket-wheel adapted to freely turn backward on the driving-wheel, a friction-surface attached to the driving-wheel and rotative therewith, a case inclosing the same and attached to the frame, a band engaging said friction-surface and having one end attached to the case, a pawl pivoted to the other end of said band and having oppositely-extended portions, one of which portions engages an opening in the case and the other engages a tooth on the sprocket-wheel, and a lug on the pawl in frictional contact with the side of the sprocket-wheel, and an extension on the case having a hook to engage the lower bar of the frame, substantially as described.

9. In a bicycle, in combination with the driving-wheel, a sprocket-wheel adapted to turn freely backward on the same, a friction-surface attached to the driving-wheel and rotating therewith, a band engaging the friction-surface and fixed at one end, a pawl pivoted to the other end of said band and adapted to engage the sprocket-wheel when the latter turns backward, and a slide engaging said pawl to a clutch connecting said wheels to prevent such engagement, substantially as described.

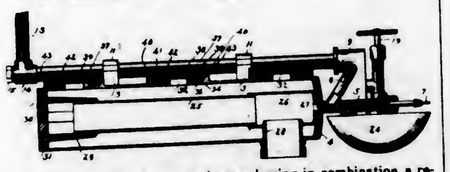
10. In combination with the rear hub of a bicycle, an inner ring having an internal right-hand thread and radial openings and inclined channels; an outer ring having an internal groove and external sprocket-teeth, balls connecting said rings, a spring engaging each ball and pressing the same outward into the groove in the outer ring, a ring having an internal thread and serving as a jam-nut for the first-named ring and also having an external friction-surface, a case inclosing the same, a band engaging said friction-surface and attached at one end to the case, a pawl pivoted to the other end of the band and oppositely extended to operate as a lever by engaging the teeth on the sprocket-wheel at one end and an opening in the case at the other end, and an extension on the case having a hook adjustably engaging the lower bar of the frame, substantially as described.

648,601. **BARREL-LOCKING MECHANISM.** FRANK A. HOLLENBECK, Baltimore, Md. Filed June 1, 1899. Serial No. 718,999. (No model.)



Claim.—In a breech-loading breakdown gun the combination of a lug projecting beyond the end of the gun-barrels; an inclined pivot-bolt; a swinging locking-bolt carried by said pivot-bolt and having an inclined position with respect to and engaging the gun-barrels when the latter are locked; an inclined bearing-surface at each side of said locking-bolt which supports the latter when turning and relieves the pivot-bolt of strain during the firing operation; and means to prevent the said locking-bolt from turning when the barrels are in the broken position.

648,602. HYDROCARBON-BURNER. JONATHAN JOHNSTON, Morgan Park, Ill., assignor to Sarah Johnston, same place. Filed Jan. 13, 1899. Serial No. 702,090. (No model.)



Claim.—1. A hydrocarbon-burner having in combination a retort, a plug removably screwed in the end of said retort and a core consisting of a plurality of wire-like strands secured to said plug and extending into said retort, substantially as set forth.

2. A device for the purpose described having in combination a retort, a mixing-chamber having a burner, an ejector discharging into said mixing-chamber and connected with said retort, a starting-valve also communicating with said retort and a spreader for atomizing the oil discharging from said valve, substantially as set forth.

3. A device for the purpose described having in combination a retort, a mixing-chamber, an ejector connected with said retort and discharging into said mixing-chamber, a starting-valve connected with said retort, and an adjustable spreader arranged opposite the discharge-opening of said valve, substantially as set forth.

4. A device for the purpose described having in combination a retort, a valve-housing communicating with said retort and having the starting-valve therein, the boss 21 suspended under said valve-housing and the threaded pin 20 screwed into said boss and having a point arranged opposite said valve, substantially as set forth.

5. A device for the purpose described having in combination an elongated chamber having an aperture in one end thereof and a plurality of apertures arranged at intervals throughout its length, an injector discharging into said end aperture, the fitting 26 for receiving the discharge of said injector, the collar 28 passing through the bottom of said chamber and entering said fitting, the pipe 25 secured at one end in said fitting and discharging at the other end into said chamber, and burners arranged over said plurality of apertures in the chamber, substantially as set forth.

6. A device for the purpose described having in combination an elongated chamber having an aperture in one end thereof and a plurality of apertures throughout its length, an internal pipe supported in said chamber, an injector discharging through said end aperture into said pipe, a collar passing through said chamber and entering said internal pipe and having communication with the external atmosphere, at a point adjacent to said injector, and burners arranged over said plurality of apertures, substantially as set forth.

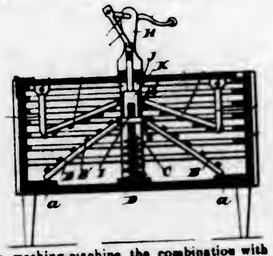
7. A device for the purpose described having in combination an elongated chamber having an aperture in one end thereof, a fitting having a nipple entering said end aperture, an injector also entering said end aperture, a tube supported at one end by said fitting, a removable cap arranged in the opposite end of said chamber and having fingers embracing said pipe, means for admitting air to said pipe from the external atmosphere, and burners arranged over said plurality of apertures, substantially as set forth.

8. A device for the purpose described having in combination a mixing-chamber provided with an aperture leading therefrom, a boss surrounding said aperture, a plate arranged over said boss and having an aperture therein coinciding with said first aperture and a cap arranged over said plate, said cap, plate and boss being held at a slight distance from each other by corrugations formed on them, substantially as set forth.

9. A device for the purpose described having in combination a mixing-chamber provided with an aperture leading therefrom, a boss surrounding said aperture and having a groove surrounding said aperture, a plate arranged over said boss and having a rib on its under side dipping into said groove and a groove in its upper side, said plate having a central aperture, and a cap arranged over said plate and having a rib dipping into the groove therein, said cap, plate and boss being held at a slight distance apart, substantially as set forth.

648,603. WASHING-MACHINE. JACOB KNEEL, Sioux Falls, S. D., assignor of one-half to John M. Zeller, same place. Filed Sept. 11, 1899. Serial No. 730,096. (No model.)

Claim.—1. In a washing-machine, the combination with the body having fixed slides at the ends of its bottom, and a flexible bottom consisting of two members whose inner ends are yieldingly supported so as to permit of vertical movement and whose outer ends rest upon said slides: of a beater above said flexible bottom and also in two members, links supporting their outer ends so as to permit them to swing in a substantially horizontal plane, and means for moving their inner ends vertically, as and for the purpose set forth.

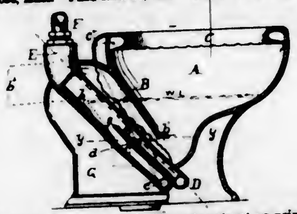


2. In a washing-machine, the combination with an interiorly-slatted body having upright pairs of guides at the centers of its sides, and a yieldingly-supported flexible bottom in two members whose inner ends are connected with a cross-head having its extremities standing between said guides; of a cover having an opening, a rod moving therethrough, mechanism for reciprocating the rod, a flexible beater in two members whose inner ends are pivotally connected to a cross-head whose extremities stand between the guides when the cover is closed, connections between the cross-head and rod, and means for supporting the outer ends of the members, all as and for the purpose set forth.

3. In a washing-machine, the combination with the body having fixed slides at the ends of its bottom and guides at the centers of its sides, a spring rising from the center of its bottom, and a flexible bottom consisting of a cross-head resting on the spring with its ends moving in said guides, straps fixed to the cross-head, bars pivoted at their inner ends to the straps and resting at their outer ends upon said slides, and slats secured across the bars in pairs; of a beater supported by the cover and consisting of two members and an inner interposed cross-head whose extremities stand between the guides, means for supporting the outer ends of the members and means for reciprocating said cross-head vertically, as and for the purpose set forth.

4. In a washing-machine, the combination with the body having upright pairs of guides at the centers of its sides, and a yieldingly-supported flexible bottom within said body; of a cover hinged to the body, links pivoted beneath the cover, a beater consisting of a cross-head whose extremities are adapted to enter between the guides when the cover is lowered, bars pivotally connecting said cross-heads and links and constituting members of the beater, and slats connecting the bars in pairs; and means for reciprocating the cross-head vertically, as and for the purpose set forth.

648,604. RECEPTACLE FOR WATER-CLOSETS, URINALS, &c. SAMUEL W. LEWIS, New York, N. Y., assignor to George H. Gilchrist, Melrose, Mass. Filed Mar. 16, 1899. Serial No. 709,375. (No model.)



Claim.—1. In a receptacle for water-closet or urinal or similar purposes, provided with a receiving hopper or bowl a trapped outlet therefrom a rim-flushing means and a jet-flushing means, the main conduit leading from the source of supply to the rim-flushing means forming a loop or trap beneath the normal surface level of the water in the bowl and the conduit leading to the jet-flushing means branching from said main or rim conduit at a point below said normal water-level and leading first to a relief-jet outlet for discharge of air into the trap and thence to the main jet-flushing means in the lower wall of the outlet-passage, substantially as and for the purpose specified.

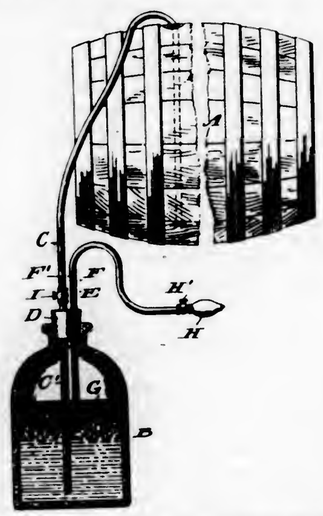
2. In a receptacle for water-closet or urinal or similar purposes, provided with a receiving hopper or bowl a trapped outlet therefrom a rim-flushing means and a jet-flushing means, the main supply-conduit made integral with the hopper or bowl and divided above the level of seal into two branches one leading by a loop beneath said hopper and up to the rim-flushing means and the other leading first to a relief-jet outlet and thence to the main jet-flushing means discharging upward into the trap, whereby the air can escape through the relief-jet outlet and the action of the closet be quickened, substantially as and for the purpose specified.

3. In a receptacle for water-closet or urinal or similar purposes, composed of a receiving hopper or bowl in which the normal level of water is retained by a trapped outlet-passage therefrom and provided with a rim-flushing means and a jet-flushing means, the main supply-conduit leading from the source of supply to the rim-flushing means by a trapped loop below said normal water-level and the conduit leading to the jet-flushing means branching from said main or rim conduit at a point below said normal water-level and above the level of the seal of the hopper and leading first to a relief-jet outlet located at or below said level of seal and thence to the main jet-flushing means discharging from the hopper-outlet upward into the trap, substantially as and for the purpose described.

4. In a receptacle for water-closet or urinal or similar purposes, the combination of, the hopper or bowl A provided with a suitable rim-wash and a trapped outlet-passage B, the main supply-conduit E c c^1 leading to the rim by a trap beneath the hopper, the jet-conduit c branching from the main conduit at f below the normal water-level and leading to the relief-jet outlet located at or below the level of the seal of the hopper, and thence to the main jet outlet at D discharging upward into the trap, all substantially as and for the purpose described.

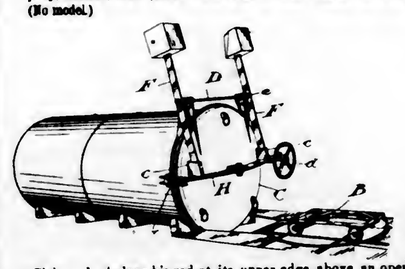
5. In a receptacle for water-closet or similar purposes provided with a receiving hopper or bowl an upper flushing means therefor a trapped outlet therefrom to maintain a normal water-level in said receptacle and a jet-flushing means discharging into and through said trapped outlet, the combination of a flushing supply-conduit for said receptacle divided below said normal water-level and before reaching the jet-flushing means into two subconduits or branches, the shortest of which leads from the point of division to the jet-flushing means and the longest branch leads from said point of division to the rim-flushing means, the normal surface level of water in said conduits being the same as in the bowl, whereby owing to equal pressure at the point of division and greater length of rim-pipe from said point of division the overflow action at the rim follows the jet action and is rendered more gentle and scientific.

648,605. SIPHON APPARATUS. ISAAC L. PENDERGRAFT, Deadwood, S. D., assignor of one-half to John H. Ross, Galena, Kans. Filed Apr. 21, 1899. Serial No. 713,962. (No model.)



Claim.—The combination with the stopper having internal upward and downward extensions, of the siphon-tube having its channel extended through said extensions and stopper, a cut-off for this tube above the stopper, a normally-open tube passing through the stopper, fitting and sliding therein and having scale-marks to indicate at the surface of the stopper the capacity of a given flask when filled to the lower end of said tube, and means for exhausting air from such flask through the tube last mentioned.

648,606. DOOR FOR CANNERY STEAM-BOXES. JAMES K. RENNOX, Victoria, Canada, assignor to the Albion Iron Works Company, Limited, same place. Filed Aug. 10, 1899. Serial No. 726,894. (No model.)



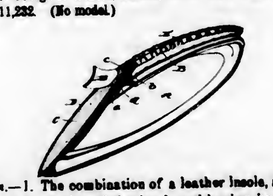
Claim.—1. A door hinged at its upper edge above an opening in a steam box or retort, in combination with two levers projecting upwardly above said door, one on each side thereof, and weights connected to the upper ends of said levers and counterbalancing the said door, the weights and levers being arranged to free the sides of the retort or steam-box when the door is opened, substantially as described.

2. A door hinged at its upper edge above an opening in a steam box or retort, in combination with one or more levers of the first order journaled upon the steam-box, connected with the door at their lower ends and provided at their upper ends with counterbalancing-weights, the center of gravity being so adjusted that the system balances, when the door is at or slightly above the horizontal, substantially as and for the purpose specified.

3. A door hinged at its upper edge above an opening in a steam box or retort, in combination with one or more levers of the first order journaled upon the steam-box, connected with the door at their lower ends and provided at their upper ends with counterbalancing-weights, a cross-bar loosely secured at its center to the center of the door; a pivoted clip-shackle adapted to engage one end of the cross-bar and a pivoted screw-clamp adapted to engage the other, substantially as and for the purpose specified.

4. A door hinged at its upper edge above an opening in a steam box or retort, in combination with one or more levers of the first order journaled upon the steam-box, connected with the door at their lower ends and provided at their upper ends with counterbalancing-weights, the center of gravity being so adjusted that the system balances, when the door is at or slightly above the horizontal, and detachable clamping mechanism for securing the door to close the aforesaid opening, substantially as and for the purpose specified.

648,607. SHOE. ADAM REED, St. Joseph, Mo., assignor of one-half to George J. Winter, Buffalo, N. Y. Filed Mar. 31, 1899. Serial No. 711,232. (No model.)

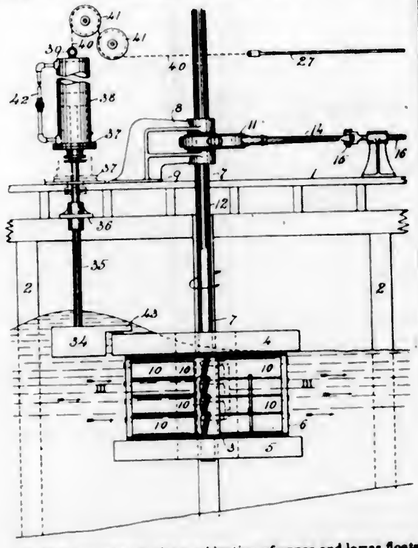


Claim.—1. The combination of a leather insole, a tape disposed below the outer portion of the insole and having its outer edge arranged at the edge of said insole, a cushion arranged upon the insole, a covering disposed above the cushion and having its edge abutting against the outer edge of the tape, and a single set of stitches extending through and connecting the tape, the insole and the covering, and also extending over the abutting edges of the tape and covering, substantially as specified.

2. The combination of a leather insole, a tape secured below the outer portion of the insole and having its outer edge arranged at the edge of said insole, a cushion arranged upon the insole, a covering disposed above the cushion and having its edge abutting against the outer edge of the tape, and the single set of zigzag stitches E extending through and connecting the tape, the insole and the covering and also extending over the abutting edges of the tape and covering, substantially as specified.

648,608. WAVE-MOTOR. CORNELIS F. A. RÖELL, Los Angeles, Cal., assignor of one-half to John G. Orth, same place. Filed Aug. 31, 1898. Serial No. 689,949. (No model.)

Claim.—1. In a wave-motor, the combination of upper and lower floats, a rotatable wheel interposed between the floats, and movable slats pivoted to said wheel, substantially as set forth.



2. In a wave-motor, the combination of upper and lower floats, a rotatable power-wheel interposed between the floats and having pivoted slats and a vertically-movable shaft for supporting the floats and power-wheel, substantially as set forth.

3. In a wave-motor, the combination of a suitable platform, upper and lower floats, a power-wheel interposed between the floats, a shaft extending vertically, an eccentric connected with said shaft, and means for connecting said eccentric with a pump, substantially as set forth.

4. In a wave-motor, the combination of a suitable platform, adjustable upper and lower floats, power-wheel supported by the floats, a shaft connected with the power-wheel and floats, a pump and means for connecting said shaft with the pump, substantially as set forth.

5. In a wave-motor, the combination of upper and lower floats, a power-wheel connected with the floats and moving in a horizontal plane, pivoted slats connected with the power-wheel, and means for transmitting power from the power-wheel to a power-transmitting mechanism, substantially as set forth.

6. In a wave-motor, the combination of a power-wheel, a series of pumps and automatic means in connection with the power-wheel for throwing one or more of said pumps out of action, substantially as set forth.

7. In a wave-motor, the combination of a suitable power device, a series of pumps, short-circuit pipes connected with said pumps, a valve in said short-circuit pipes, and means in connection with the motor for opening and closing said valve, substantially as set forth.

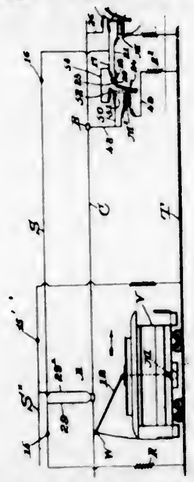
8. In a wave-motor, the combination of a suitable power device, an auxiliary float, a lip on the auxiliary float adapted to extend over the power device, a series of pumps and means in connection with said auxiliary float for throwing said pumps in and out of action, substantially as set forth.

9. In a wave-motor, the combination of a suitable power device, an auxiliary float, a piston connected with said float, a cylinder on said piston, one or more pumps, a short-circuit pipe connected with said pumps, a valve in the short-circuit pipe, a stem on said valve, a stirrup connected with said stem, and a bar having cam-shaped faces operating in said stirrup and connected with a cylinder on the auxiliary float whereby the pumps are thrown in and out of operation, substantially as set forth.

10. In a wave-motor, the combination of a suitable power device, a series of pumps, a short-circuit pipe connected with said pump, a valve in said pipe, a stirrup connected with said valve, a roller at the upper end of said stirrup, a horizontal bar having cam-shaped faces, a weight connected with one end of said horizontal bar, an auxiliary float, and means for connecting the auxiliary float with the opposite end of said bar, substantially as set forth.

11. In a wave-motor, the combination of a suitable power device, a series of pumps, a short-circuit pipe connected with the pumps, a valve in said short-circuit pipe, a stirrup connected with said valve, a roller journaled to said stirrup, a horizontal bar having cam-shaped faces, brackets connected with said pumps, and rollers supported by said brackets on which the horizontal bar travels and means for moving said horizontal bar to the right or left, substantially as set forth.

648,609. SIGNALING SYSTEM. JOHN J. RUDDICK, Newton, Mass., assignor to the United States Electric Signal Company, same place and Portland, Me. Filed Aug. 16, 1899. Serial No. 727,367. (No model.)



Claim.—1. In a block-signaling system for railways, a main circuit, a signal, a single signaling-circuit and a plurality of mechanically-operative circuit-controllers, two electromagnets and their armatures, said armatures being always in the fields of their respective magnets, said magnets being adapted to be electrically connected with the main circuit by means of said mechanically-operative circuit-controllers to thereby successively energize said magnets; and means coöperating with said armatures of said magnets and independent of said mechanically-operative circuit-controllers, whereby said signal may be kept operative, and said magnets be kept energized.

2. In a block-signaling system for electric railways, a main circuit, a single independent signaling-wire, a plurality of mechanically-operative circuit-controllers, electromagnets and their armatures located at substantially one end of the block and adapted to be electrically connected with the main circuit by means of said mechanically-operative circuit-controllers to thereby momentarily energize said magnets and means independent of said mechanically-operative circuit-controllers with which means said armatures of said magnets form coöperative parts whereby both of said electromagnets may be successively energized.

3. In a block-signaling system for railways, a main or working circuit, two branch circuits, two or more mechanically-operative circuit-controlling devices adapted to coöperate with a device upon a vehicle to electrically connect said branch circuits with the main circuit, a signal-retaining electromagnet and its armature, said magnet being included in one of said branch circuits, a signal-suppressing electromagnet and its armature, said magnet being included in the other branch circuit, a third branch circuit connected with the main or working circuit and including either of said electromagnets and controlled by the armatures of said electromagnets, the position of said armatures determining which of said electromagnets is in said branch circuit, and signals included in one of said branch circuits.

4. In a block-signaling system for railways, a signaling-circuit, a momentarily-operative circuit-controlling device, a circuit-controller, an electromagnet energized in response to said momentarily-operative circuit-controlling device, and serving to actuate said circuit-controller, said electrically-operative circuit-controller serving to close the circuit through said magnet thereby maintaining said magnet energized, means for subsequently breaking the circuit momentarily through said magnet, and independent means for maintaining said circuit broken until the circuit-controller operated by the electromagnet has returned to its normal position.

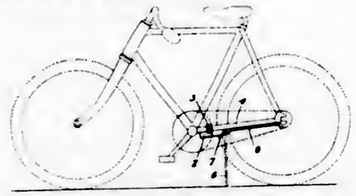
5. In a block-signaling system for railways, a main circuit, a signaling-circuit, and means for momentarily closing the same, an electromagnet adapted to be energized by such closure, a circuit-controller operated by said magnet adapted to close the signal-circuit and maintain it closed until said magnet is deënergized, a supplemental circuit containing a second electromagnet, means for momentarily closing said supplemental circuit, and a circuit-controller operated by the magnet in said supplemental circuit adapted to open the circuit in which the first magnet is included, and to close the circuit through its own magnet, the said circuit including the circuit-controller operated by the first magnet.

6. In a block-signaling system, a main circuit, a signal, an electromagnet, a single signaling-circuit normally including said magnet, a momentarily-operative circuit-controller adapted to energize said magnet, a circuit-controller operated by said magnet to thereby maintain said signal operative and said electromagnet energized, a second electromagnet, a second momentarily-operative circuit-controller adapted to energize said second magnet, a second circuit-controller operated by said second magnet and adapted when said second magnet is deënergized to include the first magnet in said signaling-circuit and when said second magnet is energized to exclude said first magnet from said signaling-circuit and include the second magnet in said circuit until the circuit-controller operated by said first magnet returns to its normal position.

7. In a block-signaling system for railways, a main circuit, a single independent signaling-circuit, a signal at each end of the block, a plurality of mechanically-operative circuit-controllers for setting the signal, arranged at desired points along the signaling-circuit and adapted when operated to momentarily switch a part of the current from said main circuit into said signaling-circuit at such point, a ground connection at each end of said signaling-circuit so arranged that when the current is switched into the signaling-circuit said current will be divided to traverse the entire signaling-circuit.

8. In a block-signaling system for railways, a main circuit, a single independent signaling-wire running the length of the block, two distinguishing-signals located at opposite ends of a block and connected in series in said signaling-wire, two electromagnets and their armatures located at substantially the same end of the block, a mechanically-operative circuit-controller adapted when operated to set said signals and energize one of said magnets, a second mechanically-operative circuit-controller adapted to energize the other magnet, and means independent of said mechanically-operative circuit-controller whereby said magnets may be energized, the position of the armature of one magnet determining if either of said magnets shall be so energized and the position of the armature of the other magnet determining which of said magnets shall be thus energized.

648,610. BICYCLE-SUPPORT. JULIUS SCHIRRA, Pittsburg, Pa., assignor, by direct and mesne assignments, of five-eighths to Wesley G. Cronkright and Ida S. Faller, same place. Filed Feb. 21, 1899. Serial No. 706,328. (No model.)



Claim.—1. In a supporting device for bicycles the combination of a separable clamp adapted to be secured to the bicycle-frame, an arm swivelly attached to the clamp so as to permit lateral swinging motion, an extension of the arm at one side of the swivel-joint adapted to be thrown into contact with the wheel of the bicycle, a supporting-bar pivotally mounted in the opposite end of the arm provided with flat spring bearing-surfaces on the end and side and a spring adapted to bear on such surfaces and to retain the bar in a closed or extended position respectively.

2. In a supporting device for bicycles the combination of a separable clamp adapted to be secured to the bicycle-frame, an arm swivelly attached to the clamp so as to permit lateral swinging motion, an extension of the arm at one side of the swivel-joint adapted to be thrown into contact with the wheel of the bicycle, a supporting-bar pivotally mounted in the opposite end of the arm provided with flat spring bearing-surfaces on the end and side, a spring adapted to bear on such surfaces and to retain the bar in a closed or extended position respectively, and a spring-clip adapted to secure the free end of the arm to the bicycle-frame.

648,611. DEVICE FOR STOPPING RAILWAY-TRAINS. CONRAD SCHÜTTE, Halle-on-the-Saale, Germany. Filed Mar. 1, 1899. Serial No. 707,381. (No model.)

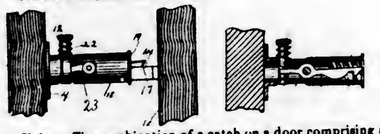


Claim.—1. In an automatic signaling and braking device for railway-trains and similar vehicles, the combination of the signal and braking devices on the train, and the lever thereon located above one of the track-rails, and suitable intermediate connections between said lever and the signaling and braking devices; with a loop adapted to be attached to the track-rail and to stand up in position to catch and operate said lever by pulling it downward when the train moves therepast, for the purpose and substantially as described.

2. The combination of the braking or signaling devices on the locomotive and the pivoted lever for operating said devices; with a lever-catching loop adapted to be attached to the rail in a position to engage the lever and band for supporting and distending the loop, for the purpose and substantially as described.

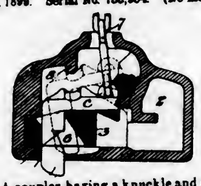
3. The combination in a railway signaling device, of the pivoted lever attached to the locomotive above the rail, having its lower end depending near to the rail; the braking and signaling device and intermediate connections between said device and said lever; with a loop and loop-distending band adapted to be attached to the rail in position to engage and operate the lever, for the purpose and substantially as described.

648,612. DOOR-CATCH. MORTHEN J. THUESTAD, San Francisco, Cal., assignor to Endre Matias Lind, same place. Filed Aug. 16, 1899. Serial No. 727,441. (No model.)



Claim.—The combination of a catch on a door comprising a tube 5, a hook having a horizontal pivot in said tube, and having a tail, a spring-actuated vertically-reciprocating pin engaging said tail, a cylindrical sleeve sliding upon the tube, closed at its outer end except for a vertical slot through which the hook passes, a compressed spiral spring, surrounding the shank of the hook, interposed between the end of the tube and the inner surface of the end of the sleeve, said sleeve being slotted as at 23, and the pivot-bolt of the hook passing through said slots to limit the movement of the sleeve, and a horizontal U-shaped loop on the opposite wall which said hook engages, substantially as described.

648,618. CAR-COUPLING. CLINTON A. TOWER, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Oct. 18, 1899. Serial No. 733,954. (No model.)



Claim.—1. A coupler having a knuckle and a locking-arm which passes through the knuckle and is adapted when locked to engage the coupler-head, and means adapted to raise said locking-arm and to tip the same to throw the knuckle when it has been disengaged from locking engagement with the coupler-head; substantially as described.

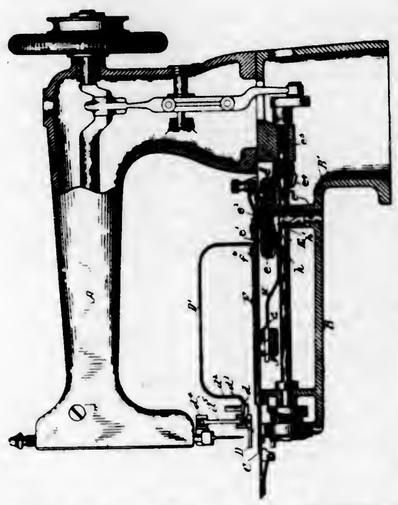
2. A coupler having a knuckle and a locking-arm which passes through the knuckle and is adapted when locked to engage a hole in the floor of the coupler-head, and means adapted to raise said locking-arm and to tip the same to throw the knuckle when it has been

disengaged from locking engagement with the coupler-head; substantially as described.

3. A coupler having a knuckle, and an angled piece having no bearing on the front side of the knuckle-tail but having a locking-arm making locking engagement with the knuckle-tail to the rear of said front side, means for lifting the angled piece, and a shoulder or surface which it engages when lifted, whereby the locking-arm is caused to tip to throw the knuckle; substantially as described.

4. A coupler having a knuckle, a locking-arm extending downwardly in locking engagement with the knuckle and adapted when locked to engage the coupler-head, and a fulcrum on the draw-head against which the arm is adapted to tip and to move the knuckle forwardly, means for so tipping the locking-arm, and a supporting-shoulder on an intermediate portion of the length of the locking-arm adapted, when the locking-arm is raised, to engage the knuckle and to support the locking-arm in unlocked position; substantially as described.

643,614. MACHINE FOR SEWING ON BUTTONS. ALBERT O. TOWNS, Hudson, N. H., and FRANK W. LYNDE, Melrose, Mass., assignors, by mesne assignments, to W. Pierrepont White, Hugh White, and Clarence R. Crouse, Utica, N. Y. Filed Nov. 6, 1895. Serial No. 568,152. (No model.)



Claim.—1. In a machine for sewing on buttons, the combination with a stitch-forming mechanism, a movable work-support and a movable button-holder connected with said support and between which work-support and button-holder the work to which the buttons are to be attached is to be held, of a normally-stationary, pivoted or swiveling device or disk, as G, provided with a guideway, a pin or slide working in and longitudinally of said guideway at each reciprocation of the needle and connected with said work-support and button-holder to impart horizontal movements to the latter in one direction, mechanism for reciprocating said button-holder in a plane transverse to that induced by said guideway, and automatic mechanism for periodically turning said pivoted device or disk to cause the direction of movement of said work-support and button-holder to be changed.

2. In a machine for sewing on buttons, the combination with a stitch-forming mechanism, a movable work-support and a movable button-holder connected with said support and between which work-support and button-holder the work to which the buttons are to be attached is to be held, of a normally-stationary, pivoted or swiveling device or disk, as G, provided with a guideway, a pin or slide working in and longitudinally of said guideway at each reciprocation of the needle and connected with said work-support and button-holder, and two cams, one of which is connected with said work-support and button-holder to reciprocate the same, and the other of which is connected with said swiveling device or disk and which acts to automatically turn the latter to cause the direction of movement of the said work-support and button-holder, induced by said guideway, to be changed.

3. In a button-sewing machine, the combination with a stitch-forming mechanism, a work-plate and a button-holder, of a presser-bar connected to said button-holder by a device which serves to communicate the pressure of said presser-bar to said button-holder, said connecting device having a positive and universal-joint connection with said presser-bar so that said button-holder may be moved vertically thereby, or in any desired horizontal direction independently thereof, and automatic mechanism for shifting said button-holder beneath the needle for the purpose of forming stitches in the different holes of a button to be stitched to a garment.

4. In a machine for sewing on buttons, the combination with a stitch-forming mechanism, of a button-holder, as D, a normally-stationary, swiveling device or disk, as G, provided with a guideway and with which guideway said button-holder is connected, a rotating cam, as *e*, a sliding bar H connecting said cam with said swiveling device or disk and thereby serving to automatically shift the position thereof after a predetermined number of stitches have been made, and a cam, as *e'*, also connected with said button-holder and serving to reciprocate the latter beneath the needle at each stitch and in a plane different from the plane of the movements induced by said guideway.

5. In a button-sewing machine, the combination with a button-holder, as D, of a swiveling device or disk, as G, provided with a guideway and with which guideway said button-holder is connected, a cam, as *e*, a slide-bar, as H, connecting said cam with said swiveling device or disk, said slide-bar being provided with a short recess or pocket h^4 and the long recess or pocket h^5, and the said swiveling device or disk being provided with a block h^3, which may be placed in either of said recesses or pockets according as it may be decided to oscillate said swiveling device or disk, or to permit the latter to remain stationary, and a cam, as *e'*, connected with said button-holder for imparting reciprocating movements thereto.

6. In a button-sewing machine, the combination with a stitch-forming mechanism, of the work-support C, the button-holder D arranged above but connected with said work-support, the normally-stationary, swiveling device or disk G provided with the guideway *g'*, the bar F having a pin or slide working in said guideway, the arm D' connecting said button-holder with said arm F, a rotating cam, as *e'*, connected with said bar and operating to reciprocate the latter and the work-support and button-holder in one plane, at each stitch, and a cam, as *e*, connected with said swiveling device or disk and serving to automatically shift the latter, after a predetermined number of stitches have been made, to change the direction of movement induced by said guideway.

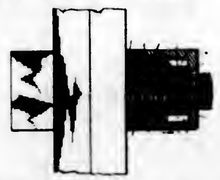
7. In a button-sewing machine, the combination with a stitch-forming mechanism, of the work-support C, the button-holder D connected with said work-support, a presser-bar, a rigid rod or bar, as d^3, having a positive, universal-joint connection with said presser-bar and button-holder so that the latter may be lifted by the former or may be moved horizontally in any direction independent thereof, and so that the pressure of said bar may be communicated to said button-holder through said rigid rod or bar, and automatic mechanism for shifting said work-support and button-holder in any desired direction to cause the needle to penetrate the different holes of a button held by said button-holder.

8. In a button-sewing machine, the combination with the stitch-forming mechanism, of the work-support C, a button-holder D, a presser-bar provided with a bracket d^4, the connecting rod or bar d^3 having a universal-joint connection with said bracket and said button-holder, mechanism for automatically shifting said button-holder beneath the needle, said universal-joint connection permitting of free movement of the latter relative to the presser-bar when moved by said automatic mechanism and said connecting rod or bar d^3 connecting said button-holder and bracket so that said button-holder will be lifted from the work when said presser-bar is raised, and said rod or bar also affording means whereby the pressure of said presser-bar will be communicated to said button-holder when the latter rests upon the work, to hold a button in sewing position.

9. In a button-sewing machine, the combination with the stitch-forming mechanism, of the work-support C, the button-holder D connected therewith, the normally-stationary, swiveling device or disk G provided with a guideway operatively connected with said work-support and button-holder, a cam *e* connected with said swiveling device to automatically shift the same periodically or when a predetermined number of stitches have been made, the cam *e'*, the slide-bar f^3 connected with said work-support and button-holder, and the lever *f* provided with a cam-pin or roller-stud engaged by said cam *e'*, said lever being operatively connected with said slide-bar, and said cam being constructed and rotated to reciprocate said work-support and button-holder once at each two reciprocations of the needle.

10. In a button-sewing machine, the combination with the stitch-forming mechanism, of the work-support C, the button-holder D connected therewith, the normally-stationary swiveling device or disk G provided with a guideway operatively connected with said work-support and button-holder, a cam *e* connected with said swiveling device to automatically shift the same when a predetermined number of stitches have been made, the cam *e'*, the slide-bar f^3 connected with said work-support and button-holder and provided with the slot f^4, the lever *f* provided with a cam-pin or roller-stud engaged by said cam *e'* and having the slot f^5, and the pin f^2 forming an adjustable connection between the slotted portion of said slide-bar f^3 and said lever *f*.

643,615. NUT-LOCK. JOSEPH A. HICKERSON, Boston, Mass. Filed Dec. 19, 1899. Serial No. 740,920. (No model.)



Claim.—The combination of a bolt having right and left crossing threads on its stem, a nut having right-hand threads to engage corresponding threads on the bolt-stem, and having right-hand threads on its outer surface to engage a cap-nut, a check-nut having left-hand threads to engage corresponding threads on the bolt-stem, a cap-nut having threads to engage the external threads on the right-hand-threaded nut, and having a shoulder to engage the outer vertical side of the check-nut, and an opening therethrough in diameter greater than the diameter of the bolt-stem, and being designed to not contact the check-nut other than the vertical wall of said check-nut before mentioned, substantially as described.

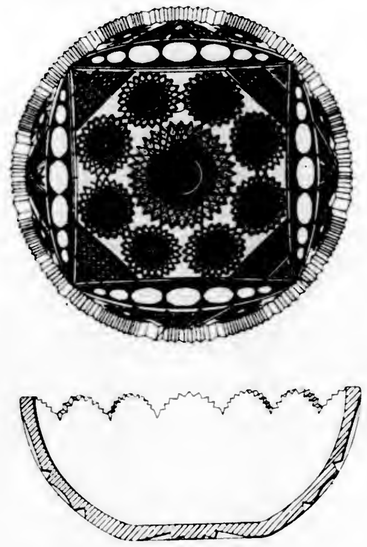
DESIGNS.

82,209. BACK FOR BRUSHES, &c. HENRIK HILLBOM, Wallingford, Conn., assignor to the R. Wallace & Sons Manufacturing Company, same place. Filed Jan. 15, 1900. Serial No. 1,571. Term of patent 7 years.



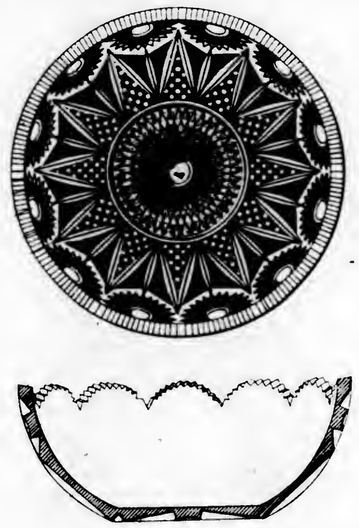
Claim.—The design for a back for brushes, mirrors and similar articles, as herein shown and described.

82,210. GLASS RECEPTACLE. WILLIAM R. ELIOT, Meriden, Conn., assignor to the International Silver Company, same place. Filed Jan. 15, 1900. Serial No. 1,559. Term of patent 7 years.



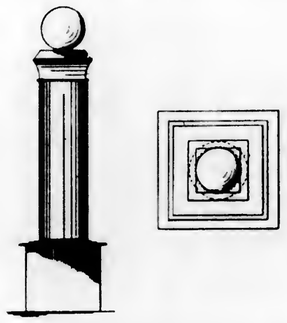
Claim.—The design for a glass receptacle substantially as shown and described.

82,211. GLASS RECEPTACLE. WILLIAM R. ELIOT, Meriden, Conn., assignor to the International Silver Company, same place. Filed Jan. 15, 1900. Serial No. 1,560. Term of patent 7 years.



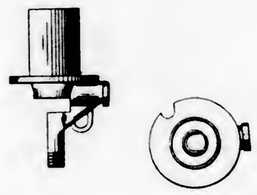
Claim.—The design for a glass receptacle substantially as shown and described.

82,212. CANDY-BOX. MOSES MICHAELIS, New York, N. Y. Filed Jan. 16, 1900. Serial No. 1,699. Term of patent 3½ years.



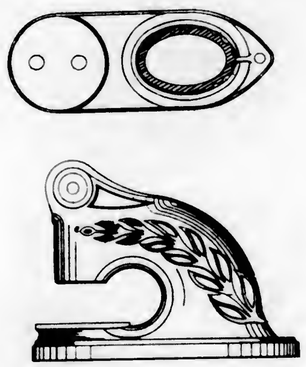
Claim.—The design for a candy-box, as described and substantially as shown.

82,213. VAPOR-BURNER. ISAAC N. MARQUIS, Kansas City, Mo., assignor to the Standard Light Company, same place. Filed Jan. 13, 1900. Serial No. 1,392. Term of patent 14 years.



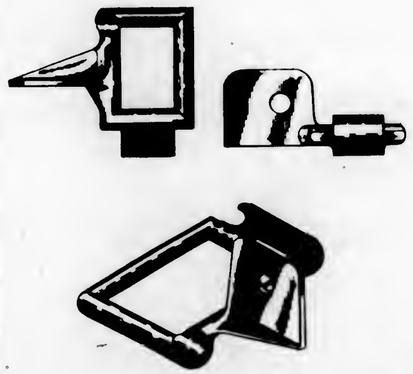
Claim.—The design for a vapor-burner as herein shown and described.

82,214. HAND SEAL-PRESS BODY. JOHN SIGWALT and ARTHUR M. WILLARD, Chicago, Ill. Filed Nov. 13, 1899. Serial No. 736,899. Term of patent 7 years.



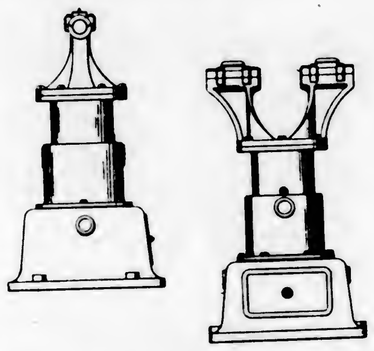
Claim.—The design for a hand seal-press body, as herein shown and described.

82,215. LINK. JOHN QUINCY ADAMS, Marseilles, Ill. Filed Dec. 18, 1899. Serial No. 740,838. Term of patent 14 years.



Claim.—The design for a link, substantially as herein shown and described.

82,216. FRAME FOR BELTED COMPRESSORS. EDWARD B. GALLAHER, New York, N. Y., assignor, by mesne assignments, to the Pneumatic Supply and Equipment Company, of New York. Filed Nov. 11, 1899. Serial No. 736,700. Term of patent 3½ years.



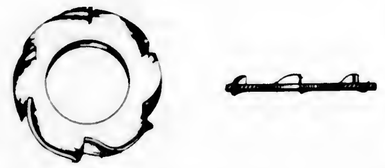
Claim.—The design for a frame for a belted compressor as herein shown and described.

82,217. NUT-LOCK WASHER. ANDREW W. REYNOLDS, Fitzgerald, Ga. Filed Jan. 18, 1900. Serial No. 1,943. Term of patent 14 years.



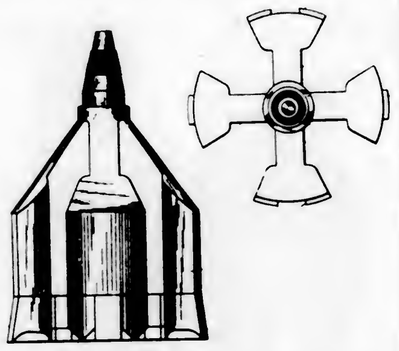
Claim.—The design for a nut-lock washer, substantially as herein shown and described.

82,218. METALLIC FASTENING-WASHER. EDWARD D. DOUGHERTY, Bellevue, Pa. Filed Dec. 19, 1899. Serial No. 740,943. Term of patent 14 years.



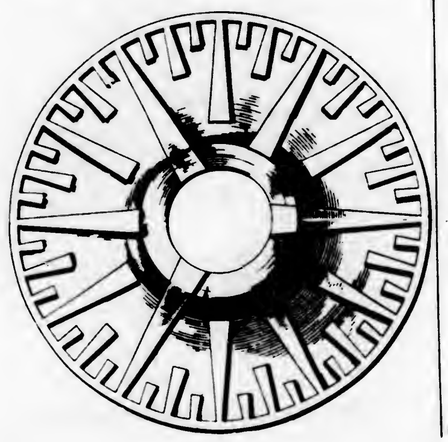
Claim.—The design for a metallic fastening-washer, substantially as shown and described.

82,219. DRILL-HEAD. JACOB FLOURNOY BARKER, Carthage, Mo. Filed Jan. 15, 1900. Serial No. 1,572. Term of patent 14 years.



Claim.—The design for a drill-head, substantially as herein shown and described.

82,220. GRINDING-DISK FOR MILLS. ALBERT F. DAVIS, Rutland, Vt. Filed Dec. 27, 1899. Serial No. 741,768. Term of patent 14 years.

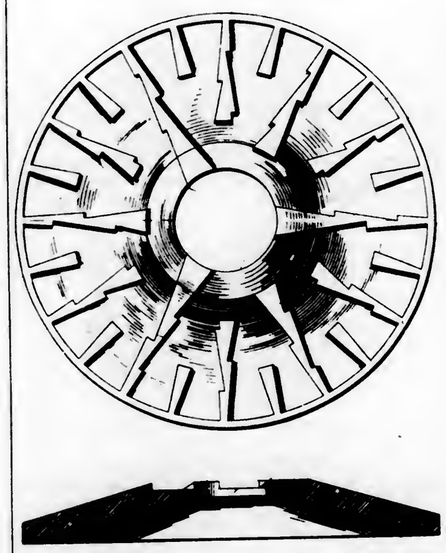


82,220.



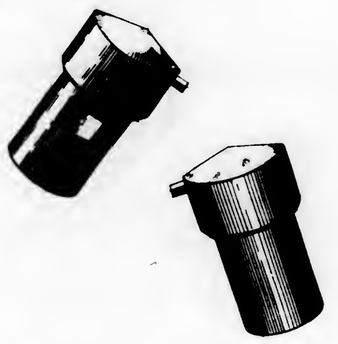
Claim.—The design for a grinding-disk for mills, substantially as shown and described.

82,221. GRINDING-DISK. ALBERT F. DAVIS, Rutland, Vt. Filed Dec. 27, 1899. Serial No. 741,769. Term of patent 14 years.



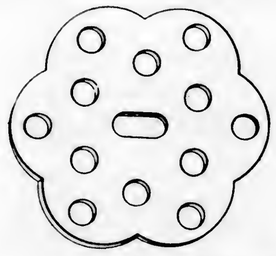
Claim.—The design for a grinding-disk, substantially as herein shown and described.

82,222. FIRE AND COMBUSTION CHAMBER FOR HOT-AIR FURNACES. EDWARD A. KLAUSS, Pittsburg, Pa. Filed Dec. 19, 1899. Serial No. 740,945. Term of patent 7 years.



Claim.—The design for a fire and combustion chamber, as herein shown and described.

82,223. SLIDE FOR TONGS-HANDLES. CHARLES A. SUTTON, Pitkin, Colo. Filed Jan. 13, 1900. Serial No. 1,396. Term of patent 7 years.



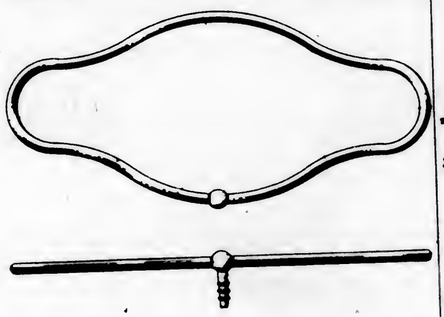
Claim.—The design for a slide for tongs-handles as herein shown and described.

82,224. CASTER-FRAME. GEORGE D. CLARK and DWIGHT G. CLARK, Plainville, Conn. Filed Dec. 30, 1899. Serial No. 742,173. Term of patent 7 years.



Claim.—The design for a caster-frame substantially as herein shown and described.

82,225. SHOWER-BATH YOKE. EDWARD MELCHERS, Toledo, Ohio. Filed Jan. 19, 1900. Serial No. 2,072. Term of patent 7 years.



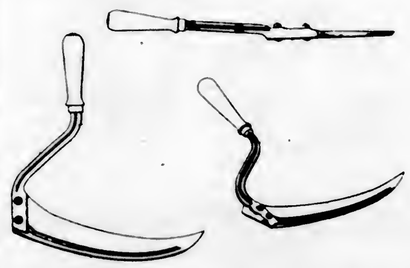
Claim.—The design for a shower-bath yoke substantially as shown and described.

82,226. LAWN-HOSE SUPPORT. ISAAC R. DOTSON, Dayton, Ohio. Filed Dec. 22, 1899. Serial No. 741,346. Term of patent 7 years.



Claim.—The design for a lawn-hose support, substantially as shown and described.

82,227. GRASS-HOOK. CHARLES K. TILDEN, Hallowell, Me., and HORATIO S. EARLE, Detroit, Mich. Filed Jan. 2, 1900. Serial No. 182. Term of patent 14 years.



Claim.—The design for a grass-hook, substantially, as herein shown and described.

82,228. GARDEN-HOE. WILLIAM H. MCDONALD, Titusville, Pa. Filed Dec. 15, 1899. Serial No. 740,475. Term of patent 7 years.



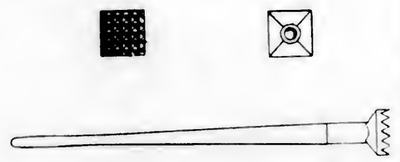
Claim.—The design for a garden-hoe, substantially as herein shown and described.

82,229. PUTTY-KNIFE. JASON KEYS JONES, Topeka, Kans. Filed Dec. 11, 1899. Serial No. 740,011. Term of patent 7 years.



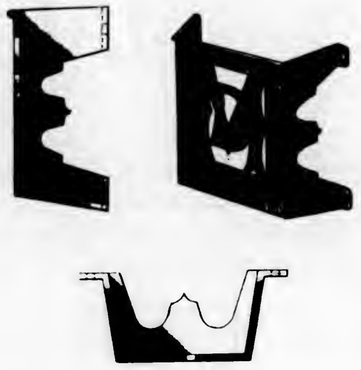
Claim.—The design for a putty-knife, substantially as herein shown and described.

82,230. ICE-CRUSHER. FLETCHER K. BOSHER, Marco, Ill. Filed Jan. 20, 1900. Serial No. 2,213. Term of patent 7 years.



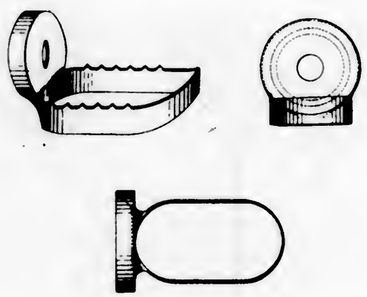
Claim.—The design for an ice-crusher as herein shown and described.

82,231. BLACKBOARD-ERASER POCKET. BENJAMIN FRANKLIN DURHAM, Muscatine, Iowa, assignor of one-half to Orville M. Morris, Davenport, Iowa. Filed Jan. 13, 1900. Serial No. 1,389. Term of patent 7 years.



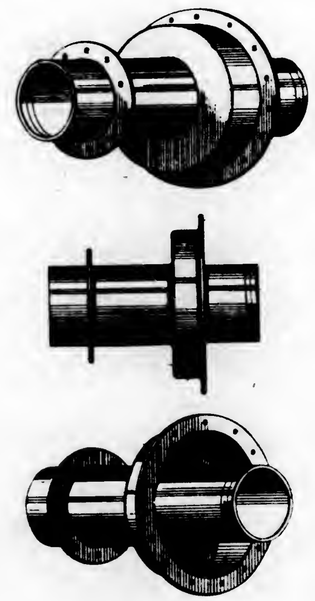
Claim.—The design for a blackboard-eraser pocket as herein shown and described.

82,232. PEDAL. WILLIAM DIESEL, Philadelphia, Pa. Filed Dec. 8, 1899. Serial No. 739,720. Term of patent 7 years.



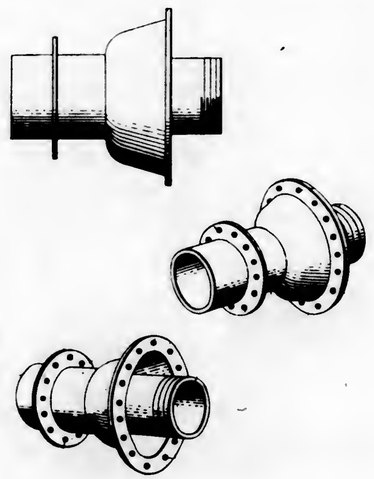
Claim.—The design for a pedal substantially as shown and described.

82,233. BICYCLE-HUB. ALEXANDER P. MORROW, Elmira, N. Y. Filed Jan. 13, 1900. Serial No. 1,393. Term of patent 14 years.



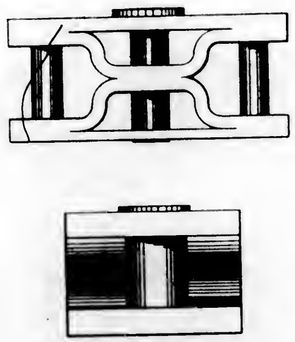
Claim.—The design for a bicycle-hub herein shown and described.

82,234. BICYCLE-HUB. ALEXANDER P. MORROW, Elmira, N. Y. Filed Jan. 13, 1900. Serial No. 1,394. Term of patent 14 years.



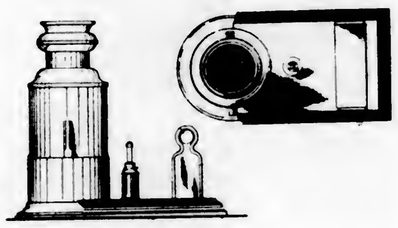
Claim.—The design for a bicycle-hub herein shown and described.

32,235. FORK-CROWN FOR BICYCLES. HOWARD J. PIERCE, Londonderry, Vt. Filed Dec. 6, 1899. Serial No. 739,440. Term of patent 7 years.



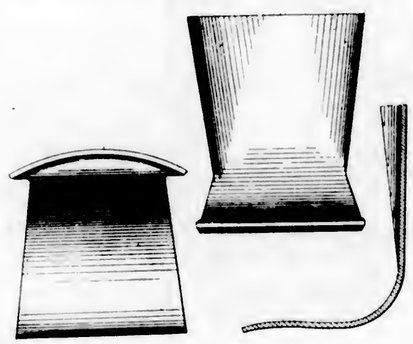
Claim.—The design for a fork-crown for bicycles, as herein shown and described.

32,236. FRAME FOR TOY ENGINES. REINHOLD GLIERA, New York, N. Y. Filed Jan. 16, 1900. Serial No. 1,696. Term of patent 3½ years.



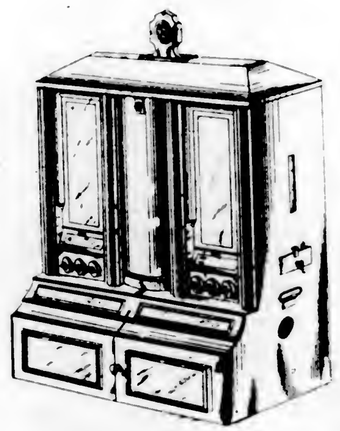
Claim.—The design for a frame for toy engines, as described and showo.

32,237. CHAIR BACK AND SEAT. JAMES H. COFFMAN, Columbus, Ohio, assignor to the Wisconsin Chair Company, Port Washington, Wis. Filed Jan. 4, 1900. Serial No. 399. Term of patent 7 years.



Claim.—The design for a chair back and seat substantially as shown and described.

32,238. KITCHEN-CABINET. FRANK J. DELL, Cincinnati, Ohio. Filed Jan. 5, 1900. Serial No. 516. Term of patent 7 years.



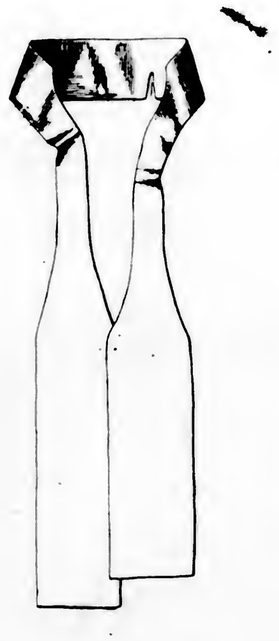
Claim.—The design for a kitchen-cabinet, substantially as shown and herein described.

32,239. PILLOW-TOP. RAFFAELLO ANTARITA, New York, N. Y., assignor to Sondheim & Magnus, same place. Filed Jan. 15, 1900. Serial No. 1,570. Term of patent 3½ years.



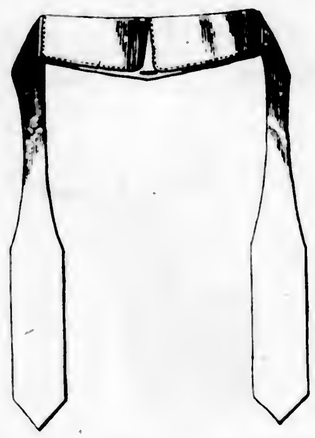
Claim.—The design for a pillow-top, as herein shown and described.

32,240. NECKSCARF. WILLIAM O. HORN, New York, N. Y. Filed Dec. 19, 1899. Serial No. 740,944. Term of patent 3½ years.



Claim.—The design for a neckscarf substantially as shown and described.

32,241. COLLAR AND NECKTIE. WILLIAM O. HORN, New York, N. Y. Filed Dec. 23, 1899. Serial No. 741,451. Term of patent 3½ years.



Claim.—The design for a collar and necktie substantially as shown and described.

32,242. TRIMMING. HENRY A. SCHARPER, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Jan. 2, 1900. Serial No. 175. Term of patent 7 years.



Claim.—The design for a trimming, substantially as herein shown and described.

32,243. TRIMMING. HENRY A. SCHARPER, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Jan. 2, 1900. Serial No. 176. Term of patent 7 years.



Claim.—The design for a trimming, substantially as herein shown and described.

32,244. CARPET-BORDER. ARTHUR MIDDLETON ROSE, Fairview, Westchester county, N. Y., assignor to Matthew J. Whittall, Worcester, Mass. Filed Dec. 20, 1899. Serial No. 741,033. Term of patent 3½ years.



Claim.—The design for carpet-border substantially as shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 13, 1900.

84,174. HATS AND CAPS. JOHN B. STETSON COMPANY, Philadelphia, Pa. Filed Jan. 19, 1900.



Essential feature.—The letters, character, and abbreviation "J. B. S. & Co." Used since 1876.

84,175. HATS AND CAPS. JOHN B. STETSON COMPANY, Philadelphia, Pa. Filed Jan. 19, 1900.



Essential feature.—The letters "J. B. S." Used since 1866.

84,176. COTTON CLOTH. BELTON MILLS, Belton, S. C. Filed Dec. 5, 1899.



Essential feature.—The representation of a giraffe. Used since November 1, 1899.

84,177. COTTON GOODS, INCLUDING MERCERIZED COTTON. H. ERLANGER, BLUMGART & Co., New York, N. Y. Filed Jan. 19, 1900.

SURATINE

Essential feature.—The word "SURATINE." Used since September 20, 1899.

84,178. HOSIERY, UNDERWEAR, AND RIBBONS. SALLISON SCHEYER, San Francisco, Cal. Filed Jan. 17, 1900.

REGINA

Essential feature.—The word "REGINA." Used since September 1, 1899.

84,179. BOOTS AND SHOES. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed Jan. 6, 1900.



Essential feature.—A series of parallel wavy or undulating lines. Used since December 20, 1899.

84,180. BOOTS AND SHOES. RICE & HUTCHINS, INCORPORATED Boston, Mass. Filed Jan. 17, 1900.



Essential feature.—The representation of two sea-horses facing each other and supporting a shield or escutcheon. Used since December 1, 1899.

84,181. HORSE-COVERS. PITTSBURGH WATERPROOF CO., Pittsburg, Pa. Filed Nov. 21, 1899.

STAG

Essential feature.—The word "STAG." Used since December 1, 1899.

84,182. HORSE-COVERS. PITTSBURGH WATERPROOF CO., Pittsburg, Pa. Filed Nov. 21, 1899.



Essential feature.—The figure of a deer. Used since December 1, 1899.

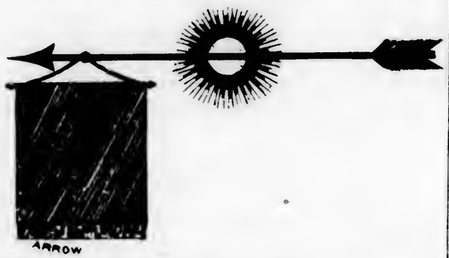
84,183. CERTAIN NAMED BOOKS. CONCORDIA PUBLISHING HOUSE, St. Louis, Mo. Filed Nov. 1, 1899.

84,188.



Essential feature.—A circular center, a monogram, an inscribed band extending partially around the same, laterally-extending triangles resting on said band, and a pendant below the center. Used since 1866.

84,184. PHOTOGRAPHIC DRY-PLATES, FILMS, AND DEVELOPERS. M. A. SEED DRY PLATE COMPANY, St. Louis, Mo. Filed Dec. 14, 1899.



ARROW

Essential feature.—The representation of an arrow passing through the center of a disk, with a banner attached to the pointed end of the arrow, and the word "ARROW." Used since March 14, 1885.

84,185. HAND-STEREOSCOPES. H. C. WHITE COMPANY, Bennington, Vt. Filed Dec. 28, 1899.

SATURN

Essential feature.—The word "SATURN." Used since April 1, 1895.

84,186. HAND-STEREOSCOPES. H. C. WHITE COMPANY, Bennington, Vt. Filed Dec. 28, 1899.

PERFECSCOPE

Essential feature.—The word "PERFECSCOPE." Used since May 1, 1895.

84,187. PUZZLES. NEW YORK PUZZLE COMPANY, New York, N. Y. Filed Jan. 16, 1900.

SLIPPERY-QUICK

Essential feature.—The compound word "SLIPPERY-QUICK." Used since December 1, 1899.

84,188. PUZZLES. NEW YORK PUZZLE COMPANY, New York, N. Y. Filed Jan. 16, 1900.

GOLFITE

Essential feature.—The word "GOLFITE." Used since December 1, 1899.

84,189. STICKY FLY-PAPER. FREDERICK A. MARSH, Kansas City, Mo. Filed Jan. 18, 1900.

FLYNET

Essential feature.—The word "FLYNET." Used since November 7, 1899.

84,190. EXTRACT AS A BEVERAGE INGREDIENT. HERMAN CURIEL, New York, N. Y. Filed Dec. 28, 1899.

BETA

Essential feature.—The word "BETA." Used since December 15, 1899.

84,191. PRODUCT FOR PRESERVING AND IMPROVING WINES AND OTHER BEVERAGES. ALFRED CHEVALLIER APPERT, Paris, France. Filed Aug. 28, 1899.

APPERTOL

Essential feature.—The word "APPERTOL." Used since June 1, 1898.

84,192. CIGARS, CIGARETTES, CHEROOTS, AND SMOKING-TOBACCO. C. M. CLINE & BRO., Terre Hill, Pa. Filed Jan. 4, 1900.

OLD HICKORY.

Essential feature.—The words "OLD HICKORY." Used since 1882.

84,193. EDIBLE FATS. CHRISTR. THOMAS & BROS., LIMITED, Bristol, England. Filed Jan. 19, 1900.

COCONEA

Essential feature.—The word "COCONEA." Used since November, 1899.

84,194. EDIBLE FATS. CHRISTR. THOMAS & BROS., LIMITED, Bristol, England. Filed Jan. 19, 1900.

CHRISTHOLINE

Essential feature.—The word "CHRISTHOLINE." Used since November, 1899.

84,195. EDIBLE FATS. CHRISTR. THOMAS & BROS., LIMITED, Bristol, England. Filed Jan. 19, 1900.



Essential feature.—The representation of an Assyrian bull. Used since 1873.

84,196. CERTAIN NAMED GROCERIES. THE CUDAHY PACKING COMPANY, Chicago, Ill., and South Omaha, Nebr. Filed Dec. 13, 1899

C

Essential feature.—The letter "C." Used since June, 1889.

84,197. CERTAIN NAMED GROCERS' SPECIALTIES. THE CHAS. W. HUFF COMPANY, Pittsburg, Pa. Filed Jan. 8, 1900.



Essential feature.—The representation of two women grinding at a mill. Used since May, 1895.

84,198. CANNED VEGETABLES AND FRUITS IN CANS, JARS, OR BOTTLES. STURTEVANT, MERRICK & Co., Springfield, Mass. Filed Nov. 20, 1899.

OLD CLORY

Essential feature.—The words "OLD GLORY." Used since September 10, 1894.

84,199. FLOUR. JOHN BOYD, Jr., & Co., New York, N. Y. Filed Jan. 11, 1900.

SAN-LINO

Essential feature.—The words "SAN LINO." Used since November 30, 1893.

84,200. SOAP. J. H. KELLER'S SOAP WORKS, New Orleans, La. Filed Nov. 9, 1899.



Essential feature.—The pictorial representation of a girl holding a pipe to her mouth and blowing soap-bubbles. Used since 1866.

84,201. PREPARATION FOR THE STOMACH AND DIGESTIVE ORGANS. JOHN MORROW & Co., Springfield, Ohio. Filed Jan. 15, 1900.

Stum-ac-oids

Essential feature.—The hyphenated word "STUM-AC-OIDS." Used since May 30, 1899.

84,202. REMEDY FOR HAY-FEVER. ELIZA M. NICHOLS, Chicago, Ill. Filed Dec. 18, 1899.



Essential feature.—The representation of the bust of a woman with a hat upon the head and holding a rake over the shoulder. Used since November 1, 1899.

84,203. LINIMENT. McCONNON & Co., Winona, Minn. Filed May 29, 1899.

CAUCASIAN

Essential feature.—The word "CAUCASIAN." Used since February 1, 1890.

84,204. SHELLAC VARNISH. BERRY BROS., LIMITED, Detroit, Mich. Filed Jan. 18, 1900.



Essential feature.—The letters "S. D. C." and a triangle. Used since March 1, 1891.

84,205. FLOOR-DRESSING. MASURY, YOUNG & Co., Boston, Mass. Filed Jan. 20, 1900.

NODUSTO

Essential feature.—The word "NODUSTO." Used since December 19, 1895.

84,206. CERTAIN NAMED CEMENT. ROLLINS CEMENT AND BLACKING COMPANY, Philadelphia, Pa. Filed Nov. 14, 1899.



Essential feature.—The representation of an annulus and of the head of a tiger accompanying the same. Used since September, 1884.

84,207. HINGES. BOMMER BROTHERS, New York, N. Y. Filed Oct. 13, 1899.



Essential feature.—The representation of a shield. Used since February 2, 1893.

84,208. SEWING-MACHINES AND ATTACHMENTS. THE NEW HOME SEWING MACHINE COMPANY, Orange, Mass., and New York, N. Y. Filed Jan. 4, 1900.

Mascotte

Essential feature.—The word "MASCOTTE." Used since January 1, 1896.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE TUTTLE.

Decided February 7, 1900.

DRAWING—EXPLANATION OF OBJECTIONS BY EXAMINER.

Where the drawing is unsatisfactory because it shows only detached portions of details and does not show the parts together so that their coöperation can be understood, *Held* that it is not practicable for the Examiner to point out in detail just what changes would make it clearly illustrate the invention, so long as he has not before him some complete representation of the invention, such as a model. General objections are sufficient to enable a skilled draftsman to cure the defects.

ON petition.

VOTING-MACHINES.

Application of Franklin J. Tuttle filed April 23, 1897, No. 633,554.

Mr. Franklin J. Tuttle pro se.

GREELEY, *Assistant Commissioner:*

This is a petition asking that the Primary Examiner be directed to explain specifically what parts of the device should be shown together in order to make the drawing clearly illustrate the invention.

This request is based upon the Examiner's statement in his letter of January 20, 1900, that—

the drawings in the case are objected to by the Examiner because they do not show together as many of the parts as should be shown to illustrate the coöperation of such parts.

In his previous letter of December 8, 1899, the Examiner more particularly referred to the defects in the illustration, as follows:

The Examiner in all his actions in this case has called the applicant's attention to the fact that the drawings were unsatisfactory. It is difficult to specify all the deficiencies unless the Examiner had a machine or model before him. The main difficulty the Examiner has experienced is in understanding the coöperation of the different parts of applicant's device. the views as a rule showing only detached portions of details. In Figure 1, for instance, none of the individual voting-keys, interlocking mechanism for the keys, nor straight-ticket keys, nor the interlocking mechanisms between the straight and individual keys, nor any of the irregular keys and not much of the resetting mechanism is shown and the connection of that part of the resetting mechanism that is shown, is not shown coöperating with any of the voting-keys. A skilled draftsman with a model or machine before him could clearly bring out all these and many other points not now brought out.

As pointed out in that letter and as stated in the answer to this petition, it does not seem possible to point out in detail just what changes in the drawing would make it clearly illustrate the invention so long as the Examiner has not before him some complete representation of the invention, such as a model. The question as to how the illustration can be made clear seems to be a matter which can be best determined by a skilled draftsman having a full knowledge of the invention and of the Examiner's objections to the present illustration. The Examiner's objections to the drawings have been stated as fully and specifically as seems to be practicable under the circumstances.

The petition is denied.

EX PARTE THE NEW ENGLAND GAS AND COKE COMPANY.

Decided December 29, 1899.

1. LABEL DEFINED.

It is not necessary that a label be composed exclusively of words in ordinary use, used with their ordinary significance, or that it be in all respects such a placard as might be written by any one. Such construction would be inconsistent with the definition given by the standard dictionaries. (*Ex parte Moodie*, 28 O. G., 1271, construed.)

2. SAME—REGISTRABLE LABELS.

All labels which bear a name, title, address, or the like to indicate the nature, contents, ownership, destination, or other particulars of the thing to which they are to be applied, are proper subjects-matter for registration in the Patent Office under the law.

3. SAME—SAME.

Those which are mere labels, simply designating or describing the article, its nature, contents, or other characteristics in words which would naturally be used by any one who wished to designate or describe the qualities or characteristics of the article which he wished to sell, arranged as they might be expected to be arranged by an experienced type-setter, involving in the choice of words or other arrangement nothing of originality, are clearly not intended to be the subject of an exclusive right. (*Higgins* v. *Keuffel*, 55 O. G., 1139, cited.)

4. SAME—SAME.

A label in order that its owner may be entitled to be protected in an exclusive right thereto must under the authorities involve something of originality, some exercise of the creative power of the mind.

5. SAME—SAME.

A label of artistic merit, indicating pictorially or otherwise the article or the contents of the article to which it is intended to be applied, is entitled to protection; but it is not necessary to restrict registration to those labels which are artistic in a strict sense of the word.

6. SAME—SAME—TRADE-MARK MATTER.

It is only necessary that labels which are not trade-marks in order to be registrable be other than such as would naturally be produced by an experienced type-setter using the expected skill of his calling in putting into an attractive form the statement furnished him of the characteristics of the article on which the label is to be used. whether such label be in a strict sense artistic or not.

7. LABEL—PARTICULAR LABEL REGISTRABLE.

Where an applicant presents for registration a label which consists of a monogram composed of the letters forming the word "Coke" of which the initial "C" is the conspicuous and surrounding feature. On the initial letter "C" is printed the name of the registrant; above the letter "C" are the words

"Otto Coke" and below it the words "Mystic Brand." Surrounding the aforesaid features of the label is a diamond or lozenge. Disposed in a circle around the diamond are the words "Smokeless Fuel" above and "Crushed Otto Coke" below the diamond. Opposite the left corner of the diamond is the word "Lights" and opposite the right corner the word "Quick." Below all, in a horizontal line, are the words "Takes the place of coal." *Held* that this label may be registered in the Patent Office.

8. SAME—LABEL CONSIDERED AS A WHOLE.

A label must be considered as a whole, and the originality exercised in the creation of the part which forms its central portion gives originality to the whole.

9. SAME—SAME—TRADE-MARK MATTER.

That a label as a whole is not a trade-mark, in the sense that it has not become by adoption and use the subject of an exclusive property right, may be accepted in the absence of any showing that it has ever been used as a trade-mark.

10. SAME—DISTINCTION BETWEEN A LABEL AND A TRADE MARK.

The distinction between a label and a mark which may by adoption and use become a trade-mark is that the one is essentially and obviously descriptive of the article to which it is applied, while the other is essentially arbitrary or fanciful, is at least not obviously descriptive, is distinctly different from a mark which would naturally be used by others to indicate the contents, nature, or quality, origin, destination, or purpose of the article to which it is applied.

11. SAME—REFUSING REGISTRATION OF PRINT OR LABEL.

Registration of a print or label should not be refused, provided it is a print or label within the meaning of the law and is not a trade-mark, unless it is beyond question that it is absolutely without artistic or intellectual merit, is not original, and is not founded in the creative powers of the mind.

ON petition.

LABEL.

Application for registration filed October 14, 1899.

Mr. O. B. Roberts and *Mr. W. H. Finckel* for the applicant.

GREELEY, *Assistant Commissioner:*

The applicant presents for registration an alleged label for use on parcels of smokeless fuel, of which he gives the following description:

In the center of this label is a monogram composed of the letters forming the word "Coke" of which the initial "C" is the conspicuous and surrounding feature. On the initial letter "C" is printed the name of the registrant; above the letter "C" are the words "Otto Coke" and below it the words "Mystic Brand." Surrounding the aforesaid features of the label is a diamond or lozenge. Disposed in a circle around the diamond are the words "Smokeless Fuel" above and "Crushed Otto Coke" below the diamond. Opposite the left corner of the diamond is the word "Lights" and opposite the right corner the word "Quick." Below all, in a horizontal line, are the words "Takes the place of coal."

In Office letter of October 18, 1899, the Examiner refused registration of this alleged label "upon the ground that it is neither an artistic representation nor an intellectual production, and accordingly is not such a label as is held to be registrable in *ex parte Mahn* (58 O. G., 1210) and *Higgins* v. *Keuffel*, (55 O. G., 1139,)" and he states that "the monogram shown in the central portion of the label submitted is purely of trade-mark character."

On reconsideration the Examiner finally refused registration, and from his refusal this petition is taken. In his statement in answer to the petition the Examiner sets forth his reasons somewhat more fully:

The grounds of refusal are that the label is neither an artistic representation nor an intellectual production, and involves in its creation nothing beyond the expected skill of an experienced type-setter.

In *ex parte Mahn* (52 O. G., 1210) it was held as follows:

"A label which is merely descriptive in words of the article or the contents of the article to which it is applied and involves in its creation nothing beyond the expected skill of an experienced type-setter is not registrable under the law."

This ruling is based upon the decision of the Supreme Court in *Higgins* v. *Keuffel*, (55 O. G., 1139,) wherein it was held, with reference to the clause of the statute under which Congress is authorized to legislate for the protection of authors and inventors, that:

"This registration has reference only to such writings and discoveries as are the result of intellectual labor. * * * It does not have any reference to labels which simply designate or describe the articles to which they are attached, or which have no value separated from the article, and no possible influence upon science or the useful arts."

The label for which registration is sought is believed to be merely a descriptive label, containing no artistic or intellectual feature. The monogram and the surrounding diamond-shaped figure are purely trade-mark matter, and moreover, are not such an artistic representation as can be protected under the copyright act, the production thereof being within the skill of the ordinary type-setter.

It is believed that the ruling in *ex parte Moodie*, (28 O. G., 1271,) taken in connection with *ex parte Mahn*, *supra*, is sufficient warrant for the refusal to register the matter claimed as a label, and under these decisions it is believed that even if the monogram and diamond were held to be artistic features, the label would not be registrable inasmuch as matter which is purely of trade-mark character cannot constitute the "artistic representation or intellectual production" of a label and thereby lend registrable character to the same. In other words, it is thought that a label, in order to be registrable under the copyright act, must contain artistic or intellectual features, outside of the features which are merely subject-matter for a trade-mark.

The alleged label here presented comprises words which are descriptive of the character or nature of the contents of the parcel to which it is to be applied—to wit, the words "Smokeless Fuel" and "Crushed Coke"—words which assert a quality of such contents—to wit, the words "Lights Quick"—and words which are both descriptive of the quality of such contents and of their intended purpose—to wit, the words "Takes the place of coal." It is therefore, taken as a whole, a label within the definition of the term given by *Worcester* and quoted in *ex parte Moodie*, above referred to, except possibly in the matter of size. In that decision Commissioner Butterworth says:

But what is a label? *Worcester* defines it as follows: "A small piece of paper or other material containing a name, title, or description, and affixed to anything to indicate its nature or contents."

And the Commissioner goes on to say:

The distinctive feature of a label is that it is descriptive. It tells one the contents of the package to which it is affixed. It is composed of words in ordinary use, used with their ordinary significance. It is such a placard as might be written by any one who had such goods to sell irrespective of their origin.

I do not construe this language to mean that a label must be composed *exclusively* of "words in ordinary use, used with their ordinary significance," or that it must be in all respects "such a placard as might be written by any one." Such construction would be inconsistent with the definition given by *Worcester* and would be inconsistent with the definition given by *Webster's*, the *Century*, and the *Standard* dictionaries, none of which defines a label as *composed* of words indicating contents, though they all agree substantially with the definition given by *Worcester*, in that they define a label as a slip or tag "bearing a name, title, address, or the like affixed to something to indicate its nature, contents, ownership, destination, or other particulars," (*Century;*) "indicating, usually by an inscription, the contents, ownership, destination, etc.," (*Webster;*) "affixed to something and bearing an inscription to indicate its character, ownership, or destination," (*Standard.*)

There can be no question that the alleged label here presented fully satisfies the conditions of these definitions and is clearly a label whether registrable as such under the law or not. In order to be registrable as a label, it must, however, satisfy certain other conditions.

Not all labels which bear a name, title, address, or the like to indicate the nature, contents, ownership, destination, or other particulars of the thing to which it is to be applied, accepting the definition of a label given by the *Century Dictionary*, are proper subject-matter for protection under the law. Those which are mere labels, simply designating or describing the article, its nature, contents, or other characteristics in words which would naturally be used by any one who wished to designate or describe the qualities or characteristics of the articles which he wished to sell, arranged as they might be expected to be arranged by an experienced type-setter, involving in the choice of words or their arrangement nothing of originality, are clearly not intended to be the subject of any exclusive right, and this is held in the decision of the Supreme Court in *Higgins* v. *Keuffel*, above referred to. A label in order that its owners may be entitled to be protected in an exclusive right thereto must under this decision involve something of originality, some exercise of the creative powers of the mind. In the decision in *ex parte Mahn*, above referred to, I held that a label of artistic merit indicating pictorially or otherwise the article or the contents of the article to which it is intended to be applied was entitled to protection and was therefore registrable, and while in the case then before me it was not necessary to go further than this I am satisfied that it is not necessary to restrict registration to those labels which are artistic in a strict sense of the word. It is, in my opinion, necessary only that labels which are not trade-marks in order to be registrable be other than such as would naturally be produced by an experienced type-setter using the expected skill of his calling in putting into attractive form the statement furnished him of the characteristics of the article on which the label is to be used, whether such labels be in a strict sense artistic or not.

In the label here presented, so far as the arrangement of the words which surround the central diamond are concerned, if that is to be separately considered, it may be doubted whether there is anything of originality or anything beyond the exercise of the expected skill of an experienced type-setter in so choosing the type and so placing them as to attractively display the words of description, though I am not prepared to hold positively that there is nothing of originality in this arrangement. But this is not all of the label. The matter inclosed within the central diamond comprising the letters of the word "Coke" arranged in a monogram and other matter is clearly something out of the ordinary, something which involved in its creation originality, the creative power of the designer, not merely the expected skill of the type-setter. This central diamond, with the matter contained in it, cannot, in my opinion, be segregated from the rest of the label here presented. It cannot be regarded as a non-essential part of the label. It is neither more nor less essential than the words of description. The label must be considered as a whole, and the originality exercised in the creation of the part which forms its central portion gives originality to the whole. The label presented, taken as a whole, must be regarded as a production which, but for the fact that it is plainly "designed to be used with other articles of manufacture," would be registrable as an "engraving, cut or print" under section 4952 of the Revised Statutes. It is therefore registrable under section 3 of the act of June 18, 1874, provided it is "not a trade-mark" within the meaning of that act.

That the label as a whole is not a trade-mark in the sense that it has not become by adoption and use the subject of an exclusive property right may be accepted in the absence of any showing that it has ever been used as a trade-mark. Such use, which would necessarily mean that the label had been published, would, if prior to compliance by the applicant with the conditions prescribed by the copyright act as prerequisites to obtaining copyright protection, invalidate the registration. Under the decision of the Commissioner in *ex parte Moodie*, above referred to, it is necessary that the label not only be not in use as a trade-mark, but that it be not merely subject-matter for a trade mark.

That I agree with this holding I have already stated in the decision in *ex parte Mahn*, above referred to. At the time the act of 1874, providing for the registration in the Patent Office of prints and labels, was enacted the law then in force respecting the registration of trade-marks expressly permitted the registration of trade-marks *intended* to be used as well as those actually in use. (Revised Statutes, Section 4937.) In view of this trade-mark law of 1870 the words "not a trade-mark" in the act of 1874 must be construed to mean "not actually used as a trade-mark or from its nature plainly intended to be used as such." An alleged label consisting of an arbitrary device or a coined word capable of use as a trade-mark is clearly within the prohibition of the law.

But even if the words "not a trade-mark" be so construed the label here presented, taken as a whole, is registrable as such, for the reason that so taken it is manifestly so far descriptive of the nature and quality, origin and purpose of the contents of the package to which it is to be applied that it could not be held to be a valid trade-mark in the technical sense, whatever protection might be given by the courts on the ground of unfair competition against any one who copied or imitated it with fraudulent intent.

Briefly stated, the distinction between a label and a mark which may by adoption and use as such become a trade-mark is that the one is essentially and obviously descriptive of the article to which it is applied, while the other is essentially arbitrary or fanciful, is at least not obviously descriptive, is distinctly different from a mark which would naturally be used by others to indicate the contents, nature or quality, origin, destination, or

purpose of the article to which it is applied. As was said by the Supreme Court in *Canal Co.* v. *Clark*, (13 Wall., 311,) quoting from the decision of Judge Duer in the case of *Amoskeag Mfg. Co.* v. *Spear:*

(One) has no right to appropriate (as a trade-mark) a sign or symbol which, from the nature of the fact which it is used to signify, others may employ with equal truth, and therefore have an equal right to employ for the same purpose.

This well-settled principle is thus stated by the Supreme Court of the State of Wisconsin in *Marshall* v. *Pinkham*, (52 Wis., 512:)

A trade-mark performs a distinctive office. As such its use may be protected by the courts. But this does not authorize a monopoly upon fragments of the language, nor the exclusive appropriation of words in common use descriptive of common objects and qualities. It has often been decided that words which are merely descriptive of the kind, nature, style, character or quality of the goods or articles sold, cannot be exclusively appropriated and protected as a trade-mark.

The label here presented undoubtedly comprises matter which is capable of sequestration as a trade-mark. This matter, as pointed out by the Examiner, is the diamond which occupies the center of the label and the monogram and perhaps the other matter included within it. That the applicant intends to use this as a trade-mark is apparent from the fact that it bears the words "Trade-Mark." If label registration were asked for this matter alone, registration might properly be refused under *ex parte Moodie*, above referred to, but such is not the case. Registration is asked for the label as a whole, and such registration protects the arrangement and dress of the subject-matter taken as a whole, the relative arrangement of the words and devices of which the composition as a whole is made up, not the subject-matter itself or the words and devices of which it is made up separately considered. It is copyright protection and is not the equivalent of trade-mark protection.

The question whether or not an "engraving, cut or print" which is clearly a pictorial illustration or work connected with the fine arts comprises matter which may be capable of use as a trade-mark is not a question which the Librarian of Congress is directed by the law or authorized by the law to consider in determining whether or not such "engraving, cut or print" is entitled to be recorded by him under the copyright law. As a matter of fact it is not uncommon for portions of works of art clearly subject-matter for copyright protection to be adopted and used as trade-marks. The essential portion of a famous painting is today used as a trade-mark for shoes and is unquestionably a valid trade-mark. Instances of such use of a portion or even the whole of other famous works of art as trade-marks could easily be multiplied. So long as the copyright is in force such use of a work of art or any essential portion of it is no doubt subject to the copyright; but subject to the copyright, if copyrighted, it is clear that there is nothing to prevent a work of art becoming by adoption and use a trade-mark.

Under the special act by which the Commissioner of Patents is charged with the supervision and control of the entry or registry of prints and labels (act of June 18, 1874, before referred to) it is undoubtedly intended that, as pointed out above, it should be determined on the one hand whether the alleged label presented for registration is in fact a label and on the other hand whether it is a trade-mark. But the question whether the label presented for registration comprises matter which is capable of use or even intended to be used as a trade-mark is not a question which is by the law directed to be or authorized to be considered.

That no question affecting the validity of the registration of labels except such as are directed or plainly intended by the law to be inquired into in advance of the actual registration need be or should be inquired into is evident from the fact that the copyright law, unlike the patent law and the trade-mark law, makes the obtaining of a copyright prior to publication absolutely essential to protection. At the same time the copyright law does not require that after the conditions of the law with respect to filing the printed copy of the title and the copies of the complete book, map, chart, etc., publication should be delayed until the Librarian of Congress makes an examination to determine novelty or artistic or literary merit or any other like question and furnishes a certificate of registration. To require that publication be suspended until the question of the right of the applicant to copyright could be determined would seriously embarrass the great publishing interests of this country and would practically defeat the purpose of the law.

While under the patent law publication or public use or sale of the invention for not exceeding two years prior to application for patent is without effect on the validity of the patent granted on such application, even though not granted for many months or even years after its filing, and while a trade-mark not only may have been used for an indefinite period before application for registration, and must have been actually used prior to application for registration or it cannot be registered, and neither in the case of an invention nor a trade-mark does the law require that any formal public notice of claim of right thereto be given, the notice of claim to an exclusive right to a label must under the law be made before publication. If this notice is not given in strict compliance with the law, and the law is precise, even prescribing the form of the notice which after registration must be placed on the thing for which copyright is claimed, the right to a copyright is absolutely and irretrievably lost.

In view of the importance which the copyright law gives to the registration of books, maps, etc., and the special act which provides for the registration of prints and labels in the Patent Office is a part of the copyright law, it is clear that registration of a print or label should not be refused, provided it is a print or label within the meaning of the law and is not a trade-mark, unless it is beyond question that it is absolutely without artistic or intellectual merit, is not original, and is not founded in the creative powers of the mind. It should be borne in mind that while the courts may hold, as was done in the case of *Higgins* v. *Keuffel*, above referred to, that a label registered in the Patent Office may not be entitled to protection they are powerless to give copyright protection to a label, however artistic it may be, if it has not been registered in accordance with the law.

The decision of the Examiner refusing registration for the label here presented is reversed.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 26, 1900.

SIR: The Secretary of the Interior has ordered that L. J. N. English, surviving partner of firm of L. J. N. English & Co., of Wapakoneta, Ohio, and Washington, D. C., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.'

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 26, 1900.

SIR: The Secretary of the Interior has ordered that Edith English, of Wapakoneta, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 27, 1900.

SIR: The Secretary of the Interior has ordered that George Abbott, of Hamburg, N. Y., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 29, 1900.

SIR: The Secretary of the Interior has ordered that Nathan W. Fitzgerald, of Washington, D. C., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED FEBRUARY 20, 1900.

Labels.

7,351.—Title: "VINCO." (For Photographic Paper.) *John Carbutt*, Philadelphia, Pa. Application filed January 24, 1900.

7,352.—Title: "THE BLACK CROW STOCKEN." (For Black Stockings.) *D. J. Carpenter*, Newton, N. C. Application filed January 24, 1900.

7,353.—Title: "THE REX." (For Shoes.) *B. Rosenberg & Sons*, New Orleans, La. Application filed January 26, 1900.

7,354.—Title: "MINNISKA." (For Ginger-Ale.) *Minniska Mineral Spring Company*, Waukesha, Wis. Application filed January 29, 1900.

7,355.—Title: "905." (For Wines and Liquors.) *W. Schneider Wholesale Wine and Liquor Company*, St. Louis, Mo. Application filed December 21, 1899.

7,356.—Title: "COFFEE." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 24, 1900.

7,357.—Title: "CAPE COD CRANBERRIES." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 26, 1900.

7,358.—Title: "BLUE TARTAN NATURAL WAX BEANS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 30, 1900.

7,359.—Title: "VINE NATURAL SUCCOTASH." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 30, 1900.

7,360.—Title: "NATURAL WHOLE BEETS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed January 24, 1900.

7,361.—Title: "PHOS-SALINE." (For a Medicine.) *David Corwin Bice and Hugh B. Harrod*, Des Moines, Iowa. Application filed January 25, 1900.

7,362.—Title: "KA-NO." (For a Tonic.) *John Carroll*, St. Louis, Mo. Application filed January 25, 1900.

7,363.—Title: "THE SAUVEUR DU PEUPLE." (For a Medicine.) *Antoine Chrétien*, Lowell, Mass. Application filed July 31, 1899.

7,364.—Title: "MCGEE'S BABY ELIXIR." (For a Medicine.) *The Mayfield Medicine Manufacturing Company*, Mayfield, Ky. Application filed January 30, 1900.

Prints.

203.—Title: "ALASKA SOUVENIR PLAYING CARDS." (For Playing-Cards.) *Edward H. Mitchell*, San Francisco, Cal. Application filed January 30, 1900.

204.—Title: "TRUST." (For Tobacco, Snuff, and Cigars.) *Charles J. Corbin & Sons*, Fairmount, W. Va. Application filed January 30, 1900.

205.—Title: "SMITH'S ANTI KINK." (For a Hair Preparation.) *John R. Smith*, Mount Olive, N. C. Application filed December 22, 1899.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 15, 1900

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Feb. 3	Feb. 1	30
250	VIII. Furniture, Beds, Store Furniture, etc.	Jan. 31	Feb. 5	143
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Jan. 29	Feb. 2	107
240	VII. Velocipedes, Games, and Toys.	Jan. 24	Feb. 1	183
105	II. Farm Stock, Products, etc.	Jan. 22	Feb. 5	190
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 19	Feb. 1	151
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 19	Jan. 30	172
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Jan. 18	Jan. 30	180
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 17	Jan. 30	122
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Jan. 16	Feb. 2	77
253	X. Carriages and Wagons.	Jan. 16	Feb. 2	133
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 16	Feb. 1	108
93	XXI. Textiles, etc.	Jan. 16	Jan. 31	147
120	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 16	Jan. 30	133
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 15	Feb. 3	99
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Jan. 15	Feb. 1	179
246	I. Tillage and Fences	Jan. 15	Feb. 1	142
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Jan. 15	Feb. 1	120
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 15	Feb. 1	153
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 15	Jan. 31	111
153	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 15	Jan. 31	96
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 15	Jan. 30	92
218	XVIII. Steam-Engineering, etc.	Jan. 15	Jan. 30	161
39	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 15	Jan. 30	161
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Jan. 15	Jan. 30	129
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 15	Jan. 30	207
102	XIX. Stoves and Furnaces	Jan. 15	Jan. 30	195
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 15	Jan. 30	168
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Jan. 15	Jan. 30	285
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 15	Jan. 30	214
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Jan. 15	Jan. 30	119
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Jan. 15	Jan. 30	270
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 15	Jan. 29	118
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 15	Jan. 16	190
	Between one and two months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Jan. 14	Jan. 30	141
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Dec. 28	Jan. 10	295

Total number of applications awaiting action.....5,580

Applications Under Examination—Continued.

Under one month.			
*Designs	Feb. 8	Feb. 12	26
†Trade-Marks	Feb. 8	Feb. 12	16
‡Labels and Prints	Feb. 13	Feb. 13	----

ISSUE OF FEBRUARY 20, 1900.

Patents	429	No. 643,616 to No. 644,044, inclusive.
Designs	25	No. 32,245 to No. 32,269, inclusive.
Trade-Marks	22	No. 34,209 to No. 34,230, inclusive.
Labels	14	No. 7,351 to No. 7,364, inclusive.
Prints	3	No. 203 to No. 205, inclusive.
Reissues	1	No. 11,809.
Total issue	494	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	6	----	Nevada	----	----
Arizona Territory	1	----	New Hampshire	----	1
Arkansas	5	----	New Jersey	22	2
California	18	1	New Mexico Territ'y	----	----
Colorado	10	----	New York	50	6
Connecticut	14	----	North Carolina	2	2
Delaware	----	----	North Dakota	1	----
District of Columbia	4	----	Ohio	32	7
Florida	1	----	Oklahoma Territ'y	1	----
Georgia	1	----	Oregon	2	----
Hawaii	----	----	Pennsylvania	36	1
Idaho	----	----	Rhode Island	3	----
Illinois	32	----	South Carolina	3	----
Indian Territory	----	----	South Dakota	2	----
Indiana	11	----	Tennessee	5	----
Iowa	10	2	Texas	8	2
Kansas	5	----	Utah	----	----
Kentucky	5	1	Vermont	2	----
Louisiana	----	1	Virginia	2	----
Maine	2	----	Washington	2	----
Maryland	6	----	West Virginia	5	1
Massachusetts	26	3	Wisconsin	4	4
Michigan	18	----	Wyoming	1	----
Minnesota	5	----	U. S. Army	1	----
Mississippi	----	----	U. S. Navy	----	----
Missouri	19	2	Total to citizens of the United States	388	36
Montana	----	----			
Nebraska	4	----			

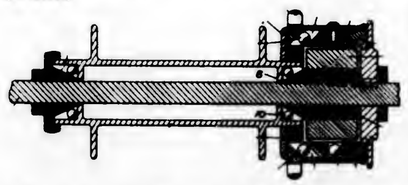
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	----	----
Australia	----	----	Jamaica	----	----
Austria-Hungary	3	----	Mexico	----	----
Barbadoes	----	----	Netherlands	----	----
Belgium	----	----	Newfoundland	----	----
Bermuda	----	----	New South Wales	----	----
Brazil	----	----	New Zealand	1	----
Canada	13	1	Norway	----	----
Chili	1	----	Queensland	1	----
China	----	----	Russia	----	----
Colombia	----	----	Scotland	6	----
Cuba	----	----	South African Republic	----	----
Denmark	1	----	South Australia	----	----
Ecuador	----	----	Spain	----	----
England	14	1	Sweden	----	----
Finland	----	----	Switzerland	----	----
France	12	----	Victoria	1	----
Germany	16	----	Western Australia	----	----
Guatemala	----	----			
Haiti	1	----	Total to citizens of foreign countries	71	3
India	1	----			
Ireland	----	1			

PATENTS

GRANTED FEBRUARY 20, 1900.

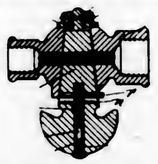
643,616. BACK-PEDALING BRAKE. JAMES ALLAN and FRANK MOORE, London, England. Filed Nov. 29, 1898. Serial No. 697,779. (No model.)



Claim.—1. In a propelling and brake mechanism for vehicles of the class described, the combination with the shaft or axle of the drive-wheel of the vehicle, of a screw-threaded brake-hub mounted thereon, a screw-threaded brake-sleeve mounted on said hub, a collar connected with the end of the hub of the drive-wheel of the vehicle and a gear-wheel provided with a hub, said gear-wheel being mounted on said collar and the hub thereof inclosing said brake-sleeve, said gear-wheel being provided in its inner perimeter with chambers or recesses in which are placed locking-balls and said collar being provided with corresponding backwardly-directed teeth, the brake-sleeve being also provided with cavities or recesses forming forwardly-directed teeth and the hub of the gear-wheel being provided with corresponding chambers or recesses in which locking-balls are placed, and a band mounted on the hub of the drive-wheel for retaining said balls in place, substantially as shown and described.

2. The combination with the shaft or axle of the drive-wheel of a bicycle or similar vehicle, of a screw-threaded brake-hub mounted on one end thereof, a screw-threaded brake-sleeve mounted on said hub, a collar secured to the hub of the drive-wheel adjacent to said sleeve, a driving-gear mounted on said collar and provided with a hub which incloses said sleeve, means for locking said gear and said collar together when said gear is turned in the forward direction, and means for locking the hub of the driving-gear to the brake-sleeve when said gear is turned in the backward direction, substantially as shown and described.

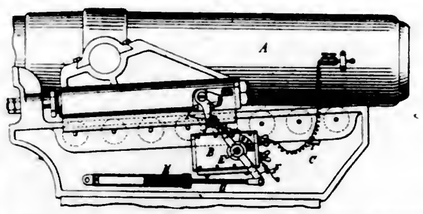
643,617. SAFETY GAS-COCK. CHARLES D. ANDERSON, Providence, R. I. Filed June 15, 1899. Serial No. 720,840. (No model.)



Claim.—1. In a gas-cock the combination with a plug, and a shell having two notches in the edge of the opening the plug enters, a vertical pin fitted to slide easily in a hole in the center of the plug, a cross-pin held in the upper end of the vertical pin, with means for moving said pins up and down, substantially as described.

2. In a gas-cock the combination with a plug and a shell having two notches in the edge of the opening the plug enters a vertical pin fitted to slide easily in a hole in the center of the plug, a cross-pin held in the upper end of the vertical pin, a vertical spring attached at its upper end to the plug and having its lower part bent at an angle to enter mortises in the plug and vertical pin to draw said pin down when pressed, a spring under the vertical pin to press it up, substantially as described.

643,618. FIRING APPARATUS. EDWIN R. BARRITT, U. S. Army. Filed July 19, 1899. Serial No. 724,368. (No model.)



Claim.—1. The combination with a gun, of a magneto-generator for discharging the same, and a mechanical connection between the gun and the generator for operating the latter by the discharge movement of the gun.

2. The combination with a gun-carriage, and a gun movable thereon, of a magneto-generator for firing the gun, and a driving mechanism for the generator operated by the movement of the gun with relation to the carriage.

3. The combination with a gun, of a magneto-generator for firing the same, an operating-spring for the generator, and mechanism for putting the spring under tension by the discharge movement of the gun.

4. The combination with a gun, of a magneto-generator for firing the same, an operating-spring for the generator, a latch for holding the spring under tension, and a mechanical connection for setting the spring by the discharge movement of the gun.

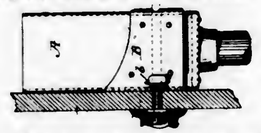
5. The combination with a gun, of a magneto-generator for firing the same, an operating-spring for the generator, and a mechanical connection for putting the spring under tension by the counter-recoil movement of the gun.

6. The combination with a gun, of a magneto-generator for firing the same, electrical connections between the gun and the generator, power-storing mechanism for driving the generator operated by the discharge movement of the gun, a latch for holding said mechanism when set, and a releasing-trigger for said latch under the control of the operator.

7. The combination with a gun-carriage, of a gun movable thereon, a magneto-generator mounted upon one of the said elements, and an operating connection for the generator engaging with the other element, whereby the generator may be operated by the movement of the gun with relation to the carriage.

8. The combination with a gun, of a magneto-generator for firing the same, electrical connections between the generator and the gun, an operating-spring for the generator set by the movement of the gun on its carriage, a latch for holding the said mechanism when set, and a trigger having a latch engagement with the releasing-latch and placed under the control of the operator.

643,619. PUMP-CURB RESERVOIR. CHARLES A. BARTLIFF, St. Louis, Mo., assignor to the Star Bucket Pump Company, same place. Filed June 6, 1898. Serial No. 682,636. (No model.)

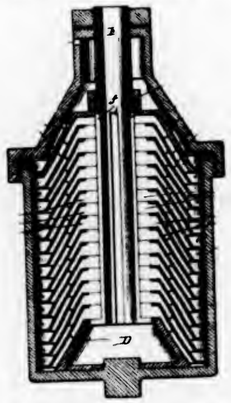


Claim.—1. The combination with a pump-curb, of a reservoir, a strengthening-sleeve therefor, having perforated side lugs, a pipe ex-

tending downward from said reservoir, and attaching means for securing the reservoir to the curb passing through said perforated lugs, substantially as described.

2. The combination with a pump-curb, of a reservoir, a rigid brace or stiffening member embracing the reservoir adapted to protect and retain the form of the reservoir, and securing means for said reservoir, comprising a yoke embracing and bearing on said brace, substantially as described.

643,620. CENTRIFUGAL CREAM-SEPARATOR. ERNEST E. BELL, Newark, N. J., assignor to The De Laval Separator Company, of New Jersey. Filed Dec. 23, 1898 Serial No. 700,091. (No model.)



Claim.—1. In a centrifugal cream-separator, in combination with the bowl and superposed inclined disks, of a plurality of frames secured to and extending inward from the disks, there being passages formed between adjacent frames and passages formed by superposed frames.

2. In a centrifugal cream-separator, in combination with the bowl and superposed inclined disks, of a plurality of frames secured to and extending inward from the disks, there being passages formed between adjacent frames and passages formed by superposed frames, the frames of the superposed disks overlying each other, and means to force the frames of the superposed disks into close contact.

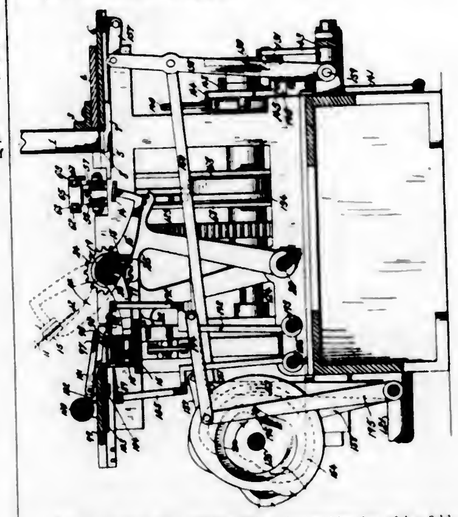
3. In a centrifugal cream-separator, in combination with the bowl and superposed inclined disks, of a plurality of frames secured to and extending inward from the disks, there being passages formed between adjacent frames and passages formed by superposed frames, the frames of the superposed disks overlying each other, a hollow bolt extending through said bowl secured to the lower disk, said bolt being provided with vertical slots corresponding to the passages between adjacent frames, the upper end of said bolt being threaded and a nut working in said threaded end.

4. In a centrifugal cream-separator, in combination with the bowl and superposed inclined disks, of a plurality of frames secured to and extending inward from the disks, there being passages formed between adjacent frames and passages formed by superposed frames, a tube in connection with the milk-supply, extending through said bowl, said tube being provided with vertical slots corresponding to the passages between adjacent frames.

5. In a centrifugal cream-separator, in combination with the bowl and superposed inclined disks provided with spacing projections, of a tubular shaft extending through said bowl secured to the lower disk, the upper end of said bolt being threaded and a nut working on said threaded end and resting upon the top disk whereby said disks are compressed together.

643,621. PACKAGE-WRAPPING MACHINE. RICHARD A. BERGER, New York, N. Y., assignor of one-half to Wesley S. Block, same place. Filed June 8, 1899. Serial No. 719,783. (No model.)

Claim.—1 In a package-wrapping machine, the combination with a magazine, means for discharging an article therefrom, and a folding mechanism, of means for carrying wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article to be wrapped, and oscillatory gripping-jaws swinging in an arc of a circle from a point near the magazine to the folding mechanism for holding the article and wrapping material in fixed relation to each other and while so held transferring them from near the magazine to the folding mechanism, and devices for operating said jaws, substantially as described.



2. In a package-wrapping machine, the combination with a folding mechanism, of means for carrying wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article to be wrapped, and opening and closing swinging jaws mounted on a common axis and constructed to seize and transfer the article and the wrapping material in fixed relation to each other to the folding mechanism, and devices for opening, closing and swinging the jaws, substantially as described.

3. In a package-wrapping machine, the combination with a folding mechanism, of means for carrying wrapping material, longitudinally reciprocating nipper mechanism for drawing the wrapping material longitudinally into a position above the article to be wrapped, and mechanism for gripping the article and the wrapping material, holding them in fixed relation to each other, and transferring them to the folding mechanism with the article uppermost, substantially as described.

4. In a package-wrapping machine, the combination with mechanism for folding a wrapper about an article of merchandise, a magazine for containing articles to be wrapped, and means for successively discharging the articles from the magazine, of means for carrying the wrapping material, mechanism for moving the wrapping material longitudinally over the article which is to be wrapped, a cutter for severing a wrapper-section from the wrapping material, swinging and coöperating gripping-jaws mounted on a common axis and constructed to seize the article and the wrapper-section, hold them in fixed relation to each other and transfer them from a point near the magazine to the folding mechanism, and devices for operating said jaws, substantially as described.

5. In a package-wrapping machine, the combination of mechanism for holding a wrapper about an article of merchandise, a magazine for containing the articles, means for supporting a web of wrapping material, reciprocatory mechanism for drawing the wrapping material longitudinally into a position above the article which is to be wrapped, mechanism for moving an article from the magazine under the wrapping material as the latter is drawn longitudinally over the article, a cutter for severing a wrapper-section from the wrapping material, two swinging and coöperating gripping-jaws for transferring the article and the wrapping material in an arc of a circle and in fixed relation to each other from a point near the magazine to the folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described

6. In a package-wrapping machine, the combination of a magazine, a folding mechanism arranged some distance from said magazine, means for supporting wrapping material, horizontally-reciprocating nippers for moving the wrapping material horizontally, means for horizontally reciprocating the nippers, devices for successively discharging articles from the magazine and inserting them under the wrapping material as the latter is moved horizontally by the nippers, and mechanism for transferring an article and its wrapper from near the magazine to the folding mechanism, substantially as described.

7. In a package-wrapping machine, the combination with a magazine, a folding mechanism, and means for supporting wrapping material, of mechanism for moving the wrapping material longitudinally, devices for inserting the articles to be wrapped beneath the wrapping material, a cutter for severing a wrapper-section from the wrapping material, two swinging and coöperating gripping-jaws for transferring the article and the wrapper-section in an arc of a circle from near the magazine to the said folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described.

8. In a package-wrapping machine, the combination of a folding mechanism for folding a wrapper about an article of merchandise, means for carrying the wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article which is to be wrapped, a cutter for severing a wrapper-section from the wrapping material, two swinging and coöperating gripping-jaws for transferring the article and the wrapper-section in an arc of a circle to the folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described.

9. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for successively discharging the articles from the magazine, a reel for carrying a web of wrapping material, reciprocatory nipper mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, and a transferring mechanism composed of two swinging and coöperating gripping-jaws turning vertically in an arc of a circle between the magazine and the folding mechanism for transferring the article and wrapper-section from near said magazine to said folding mechanism, substantially as described.

10. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and coöperating gripping-jaws for transferring the article and wrapper-section in an arc of a circle from near the magazine to said folding mechanism, and devices for opening, closing and swinging said jaws, one of said gripping-jaws being adapted to lift the wrapped article to a point from whence it may be removed, substantially as described.

11. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and coöperating gripping-jaws for transferring the article and wrapper in an arc of a circle from near the magazine to said folding mechanism, one of said gripping-jaws being adapted to lift the wrapped article from the folding mechanism, and a sweeper for removing the wrapped article from above the folding mechanism, substantially as described.

12. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, two swinging and coöperating gripping-jaws, means for supplying a wrapping-web and a binder, two pairs of reciprocatory nippers to seize the wrapping-web and the binder, respectively, and draw them longitudinally over the article, cutting mechanism for severing the wrapping-web, means for moving one pair of the nippers a greater distance than the other to shift and position the binder relatively to the wrapping-web, a folding mechanism to which the article and its wrapper and binder are transferred by the gripping jaws, and means for removing the wrapped article, substantially as described.

13. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for supporting wrapping material, means for moving the wrapping material in front of said magazine, cutting mechanism, means for discharging an article from the magazine into a position beneath the wrapping material, a folding-box, end-folders and front and rear longitudinal folders, mechanism for gripping and transferring the article and wrapping material in fixed relation to each other from in front of the magazine to the folding mechanism, and mechanism for removing the wrapped article, substantially as described.

14. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, and means for supporting wrapping material, of means for moving the wrapping material longitudinally, cutting mechanism for severing the wrapping material into a wrapper, means for supporting separately-cut binders, means for feeding said binders, mechanism for discharging an article from the magazine into proper relation to the wrapper and binder, a folding-box, mechanism for end-folding the wrapper and for longitudinally folding the wrapper and binder conjointly upon the article, mechanism for transferring the article and wrapping material in fixed relation to each other from in front of the magazine to the folding mechanism, and mechanism for removing the wrapped article from the folding mechanism, substantially as described.

15. In a package-wrapping machine, the combination of a table, a reel for carrying a web of wrapping material, means for supporting a supply of ready-cut binders or labels, reciprocating nippers for gripping the leading end of said web of wrapping material and one of said binders and drawing them longitudinally, mechanism for placing the article to be wrapped in proper relation to the wrapping material and binder, cutting mechanism for severing the web of wrapping material, folding mechanism, and gripping and transferring jaws for transferring the article and its wrapper and binder to the folding mechanism, substantially as described.

16. In a package-wrapping machine, the combination of a magazine for containing the articles to be wrapped, reels for carrying webs of wrapping material, means for supporting a supply of ready-cut binders or labels, reciprocating nippers to grasp the webs of wrapping material and the binders and draw them longitudinally in front of the magazine, mechanism for placing the article to be wrapped beneath the wrapping material, cutting mechanism, folding mechanism, and gripping and transferring mechanism for transferring the article, wrapper and binder from in front of the magazine to the folding mechanism, substantially as described.

17. In a package-wrapping machine, the combination with a magazine, and a folding mechanism, of two gripping-jaws normally separated, means for discharging an article from the magazine and placing it over one of the jaws, means for shifting wrapping material above said article, means for actuating the other jaw and causing the two jaws to grip the wrapping material and the article, and means for operating both jaws simultaneously to transfer the article and the wrapping material to the folding mechanism, substantially as described.

18. In a package-wrapping machine, the combination with a magazine, and a folding mechanism, of two oscillating gripping-jaws normally separated, means for discharging an article from the magazine and placing it over one of the jaws, means for moving wrapping material above said article, means for actuating the other jaw and causing the two jaws to grip the wrapping material and the article, and means for simultaneously swinging both jaws for transferring the article and the wrapping material to the folding mechanism, one of the jaws remaining in the folding mechanism during the folding operation while the other jaw is shifted away from the folding mechanism toward the magazine, substantially as described.

19. In a package-wrapping machine, the combination with a magazine, and a folding mechanism, of two gripping-jaws normally separated, means for discharging an article from the magazine over one of the jaws, means for shifting wrapping material above said article, and rack-and-pinion mechanism for independently operating the jaws and causing them to seize and grip the article and the wrapping material and transfer them to the folding mechanism, substantially as described.

20. In a package-wrapping machine, the combination with means for supporting a web of wrapping material, cutting mechanism for severing wrappers from said web at regular intervals, and means for supporting a supply of ready-cut binders or labels, of two pairs of horizontally-reciprocating nippers for seizing and drawing said web and binder horizontally, means for closing the nippers upon the web and binder, mechanism for opening the nippers after they have shifted a wrapper in relation to an article to be wrapped, means for reciprocating the nippers, and folding mechanism, substantially as described.

21. In a package-wrapping machine, the combination with means for supporting webs of wrapping material and a supply of ready-cut binders or labels, and cutting mechanism for severing wrappers from said webs at regular intervals, of two pairs of longitudinally-reciprocating nippers for seizing and drawing the webs and a binder longitudinally over the article to be wrapped, means for closing the nippers upon the leading ends of the webs and binder, mechanism for opening the nippers after they have shifted the wrapper and binder in proper relation to the article to be wrapped, means for reciprocating the two pairs of nippers at a proper relative speed, and folding mechanism, substantially as described.

22. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, a magazine, means for discharging an article from the magazine, folding mechanism, cutting mechanism for severing a wrapper from said web of wrapping material, and means for supporting a supply of ready-cut binders or labels, of reciprocatory nippers for pulling the web of wrapping material and a binder longitudinally in front of the magazine, and nipper-operating mechanism through which one pair of nippers is moved faster than the other and by which a pair of nippers is moved slightly after the other pair has ceased moving, for the purpose of shifting and adjusting the binder in proper relation to the wrapper and article to be wrapped, after the web of wrapping material is severed, substantially as described.

23. In a package-wrapping machine, the combination with a

magazine for containing articles of merchandise, of a feed-slide having separated projecting arms at one end, located below the level of the top surface of the slide, means for moving the slide back and forth at regular intervals, mechanism for placing a wrapper over an article supported by the separated arms, a folding mechanism, and gripping and transferring devices constructed to pass between the arms of the slide for transferring the article and the wrapper from said arms to the folding mechanism, substantially as described.

24. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, of a feed-slide having separated projecting arms at one end arranged below the level of the top surface of the slide, means for moving the slide back and forth, means for drawing wrapping material longitudinally over an article supported by the said arms, cutting mechanism for severing a web to form a wrapper, folding mechanism, and gripping and transferring devices constructed to pass between the arms of the slide for transferring the article and the wrapper from said arms to the folding mechanism, substantially as described.

25. In a package-wrapping machine, the combination with reels for holding webs of wrapping material, means for supporting a supply of ready-cut binders, a magazine for containing articles of merchandise, and means for discharging the articles successively from the magazine, of longitudinally-moving slides having fixed nipper-jaws, movable nipper-jaws mounted on the slides, mechanisms for moving the slides back and forth and operating the movable jaws at regular intervals, a folding mechanism, and means for transferring an article and a wrapper to the folding mechanism, substantially as described.

26. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, mechanism for discharging the articles successively from the magazine, and means for supplying wrapping material, of longitudinally-movable slides having fixed nipper-jaws and movable nipper-jaws, mechanisms for moving the slides back and forth and operating the movable nipper-jaws at regular intervals, cutting mechanism, folding mechanism, and means for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

27. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, and means for drawing or pulling the web longitudinally, of shear-blades for severing the web into wrappers, a vibratory lever-arm carrying a latch, connections between the lever-arm and the two shear-blades, a catch with which the latch on the lever engages, a cam acting on the vibratory lever-arm and provided with a pin to trip the latch and disengage it from the catch, and a spring actuating the lever-arm for closing the shear-blades to sever the webs, substantially as described.

28. In a package-wrapping machine, the combination of a magazine for holding articles of merchandise, means for discharging the articles successively from the magazine, means for holding wrapping material, means for drawing or pulling the wrapping material longitudinally in front of the magazine, a folding mechanism, a cutter for severing the wrapping material into wrappers, pivoted yoke-frames having gripping-jaws, and rack-and-pinion mechanism for independently moving the yoke-frames at a certain time and subsequently moving them in unison at another time for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

29. In a package wrapping machine, the combination with a magazine for containing articles of merchandise, and means for successively discharging the articles from said magazine, of a reel for carrying a web of wrapping material, cutting mechaniam to sever a wrapper from said web, means for supporting a stack of ready-cut binders or labels, a tank to contain an adhesive or moistening fluid, a rotary disk for applying adhesive to a marginal portion of an uudermost binder or for moistening previously-applied adhesive, means for conveying fluid or adhesive material from said tank to said rotary disk, nippers for pulling the web of wrapping material and a binder in front of the magazine, folding mechanism, and devices for transferring an article and a wrapper and binder from a point adjacent to the magazine to the folding mechanism, substantially as described.

30. In a package-wrapping machine, the combination of a table, a reel for carrying a web of wrapping material, mechanism for drawing or pulling the web of wrapping material over the table, cutting mechanism for severing the web, a rocking pressure-finger for holding the web down upon the table after a wrapper has been severed from the web, folding mechanism, and means for transferring an article and a wrapper to the folding mechanism, substantially as described.

31. In a package-wrapping machine, the combination with a magazine, means for discharging articles successively therefrom, means for moving wrapping material over each article discharged, and a folding mechanism, of two swinging, gripping and transferring jaws pivoted between the magazine and the folding mechanism, pinions connected, respectively, with the frames of the gripping-jaws, movable racks respectively engaging the said pinions, and means for independently operating the racks and subsequently moving them in unison for transferring an article and a wrapper from a point adjacent to the magazine to the said folding mechanism, substantially as described.

32. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism swinging in an arc of a circle to carry an article and a superimposed wrapper in fixed relation to each other and to deposit them in reversed position in said folding-box, end-folders movable toward and from each other for first folding the ends of the wrapper upon the article, and longitudinal folders movable toward and from each other for subsequently folding the sides of the wrapper longitudinally upon the said folded end portions to cover and seal the same, substantially as described.

33. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism for carrying an article and a superimposed wrapper-body and binder and depositing them in reversed position in said folding-box, end-folders and longitudinal folders movable in substantially the same horizontal plane, and mechanism for operating said folders to first fold the end portions of the wrapper-body down upon the upper side of the article and to subsequently fold the wrapper and binder down upon the folded end portions of the wrapper-body to cover the same, one of said longitudinal folders being provided with means for pressing upon and securing an adhesive margin of the binder, substantially as described.

34. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism to carry an article and a superimposed wrapper in fixed relation to each other and to deposit them in reversed position in said folding-box, pivoted vibratory arms having attached thereto folders movable in substantially the same horizontal plane, and cam mechanism for actuating said arms and attached folders to first fold the ends of the wrapper down onto the article and to subsequently fold the sides of the wrapper upon and over the folded ends of said wrapper, substantially as described.

35. In a package-wrapping machine, the combination of a folding-box having its corners constructed with finger-like extensions which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, and folders for first folding end portions of the wrapper-section upon the ends of the article and subsequently folding the longitudinal edges upon the said folded and buckled or crimped parts at the ends of the wrapper, substantially as described.

36. In a package-wrapping machine, the combination of a folding-box having front, rear and end walls constructed at the four corners with finger-like vertical extensions, blunt at their upper ends, which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, and folders for first folding end portions of the wrapper-section, with parts overlapping, upon the ends of the article, and subsequently folding the longitudinal edges upon the said folded and overlapped end parts, substantially as described.

37. In a package-wrapping machine, a folding-box having its corners constructed with finger-like vertical extensions which intercept the flattened wrapper as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, substantially as described.

38. In a package-wrapping machine, a folding-box having its corners constructed with finger-like vertical extensions each provided with a substantially rectangular inner surface, and which intercept the flattened wrapper as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, substantially as described.

39. In a package-wrapping machine, the combination of a folding-box having front, rear and end walls, the front and end walls containing slots near their upper edges for the entrance of folder-blades, and constructed at the four corners with finger-like vertical extensions which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, reciprocating folder-blades working through the slots in the front and end walls of the box, and a folder working over the rear wall of the box, substantially as described.

40. In a package-wrapping machine, a rectangular folding-box having vertical front, rear and end walls with slots therein for passage of folding devices, the rear wall being vertically slotted for passage of the frame of a gripping-jaw, substantially as described.

41. In a package-wrapping machine, a folding-box having slotted vertical front, rear and end walls, the rear wall being of less height than the others and the end walls having inclined upper edges, with vertical fingers at the four corners of said box, substantially as described.

42. In a package-wrapping machine, the combination with a folding-box having its four corners provided with vertical fingers, of diverging wings extended diagonally from the corners of said box and provided with inclined upper edges, substantially as described.

43. In a package-wrapping machine, the combination of a folding-box having slotted vertical walls and provided with diverging wings at its upper corners, gripping and transferring mechanism swinging in an arc of a circle to carry an article and superimposed wrapping material in fixed relation and deposit the same in reversed position in said folding-box, end-folders to first enter said box and fold inward and downward the end portions of said wrapping material, a front longitudinal folder to next enter the box and fold over one longitudinal edge portion of the wrapping material onto the article and over the folded-in end portions of the wrapper, and a rear longitudinal folder for subsequently folding inward and downward the other longitudinal edge portion of the wrapping material and to cause the sealing of adhesive on said last-named longitudinal edge portion of the wrapper, said end-folders and longitudinal folders being movable in approximately the same horizontal plane, substantially as described

44. In a package-wrapping machine, the combination of a folding-box having its corners provided with diverging wings, gripping and transferring mechanism swinging in the arc of a circle to carry an article and a superimposed wrapper in fixed relation and deposit the same in reversed position in said folding-box with portions of the wrapper turned upward therein, end-folders and longitudinal folders movable in approximately the same horizontal plane, vibratory supports for said folders, and cam-actuated connections through which said folders are operated to first fold inward and downward the end portions of said wrapper onto the article, next fold over one longitudinal edge portion of the wrapper onto the article and over the folded-in end portions of the wrapper and subsequently fold inward and downward the other longitudinal edge portion of the wrapper and cause the sealing of adhesive thereon, substantially as described.

45. In a package-wrapping machine, the combination of a folding-box, gripping and transferring jaws for depositing an article and its wrapping material in said box, end-folders for folding in the end portions of the wrapping material, front and rear longitudinal folders for consecutivaly folding longitudinal portions of the wrapper and sealing an adhesive portion thereof, operating mechanism for the gripping and transferring jaws whereby one of said jaws is returned to normal position after depositing the article and wrapper in the folding-box and the other jaw remains in said box and is subsequently actuated to lift the wrapped package, and a sweep for removing the lifted package, substantially as described.

46. In a package-wrapping machine, the combination with a table and a reel for carrying a web of wrapping material, and mechanism for drawing the web of wrapping material longitudinally over an article to be wrapped, of cutting mechanism for severing the web, a pressure-finger to hold said web down upon the table after the web is severed, and drawing-off rollers mounted in a tilting frame intermediate the said reel and pressure-finger and with which the web of wrapping material is engaged, and cam-actuated mechanism for tilting said drawing-off rollers to cause them to draw off the web from the reel and provide a slack in said web between the reel and the pressure-finger, substantially as described.

47. In a package-wrapping machine, the combination of a magazine to contain articles of merchandise, mechanism for discharging articles from said magazine, a reel carrying a web of wrapping material, nipper mechanism to draw the wrapping material in front of the magazine and over the article to be wrapped, cutting mechanism to sever said web of wrapping material, a pressure-finger to hold down the web of wrapping material after a wrapper has been severed therefrom, drawing-off rollers intermediate the reel and the pressure-finger and engaging said web, a tilting frame in which said drawing-off rollers are mounted, and cam-actuated lever mechanism for tilting said drawing-off rollers to draw the web of wrapping material from the reel and to provide a slack in said web intermediate the reel and the pressure-finger, substantially as described.

48. In a package-wrapping machine, the combination of a reel for carrying a web of wrapping material, cutting mechanism for severing a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, and nipper mechanism to seize the leading edge of the wrapper-web and the leading edge of the binder or label and draw them longitudinally over an article to be wrapped, substantially as described.

49. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material and a table from which said web is to be drawn, of a hopper or receptacle to contain a stack of ready-cut binders or labels, a hollow downwardly-swinging leaf forming a part of the bottom of said hopper or receptacle and provided with air-inlets whereby it is adapted to serve as a suction-nozzle, a suction-pump in communication with said suction-nozzle, mechanism for operating said pump, and means for swinging downward the said leaf or suction-nozzle when the pump is operated, whereby the leading edge of the lowermost binder in the stack of binders is sucked or turned downward, and nipper mechanism to seize the said downward-turned edge of the binder and the leading edge of the wrapper web and draw the same over an article to be wrapped, substantially as described.

50. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, and a table over which the said web is to be drawn, of a hopper or receptacle supported above one edge of said table to contain a stack of ready-cut binders or labels, a hollow downwardly-swinging hinged leaf forming one edge of the bottom of said hopper and having air-inlets whereby it is adapted to serve as a suction-nozzle, a suction-pump in communication with said suction-nozzle, cutting mechanism to sever the wrapper from the web of wrapping material, and reciprocatory nipper mechanism to seize the leading edge of the web of wrapping material and the leading edge of the lowermost binder in the stack of binders and draw them longitudinally over the article to be wrapped, substantially as described.

51. In a package-wrapping machine, the combination with mechanism for supporting and carrying a web of wrapping material, and a cutter to sever a wrapper from said web, of a hopper or receptacle to contain a stack of ready-cut binders or labels, a hollow hinged leaf forming a portion of the bottom of said hopper or receptacle and provided with notches in one edge and with air-inlets whereby it is adapted to serve as a suction-nozzle, a suctioo-pump in communication with said hinged leaf or suction-nozzle, mechanism for operating said pump and for simultaneously swinging downward the said hinged leaf whereby the leading edge of a lowermost binder or label in the stack is turned downward, and nipper mechanism to seize the leading edge of the wrapper and of the binder or label and draw them longitudinally over an article to be wrapped, substantially as described.

52. In a package-wrapping machine, the combination with means for supporting and carrying a web of wrapping material, and cutting mechanism for severing a wrapper from said web, of a hopper or receptacle to contain a stack of binders or labels, nipper mechanism to seize the leading edge of the wrapper-web and the leading edge of the binder and draw them longitudinally over an article to be wrapped and mechanism for applying adhesive to one marginal edge of the binder as it is drawn forward, substantially as described.

53. In a package-wrapping machine, the combination with means for carrying a web of wrapping material, mechanism for severing a wrapper from said web, a hopper to contain a stack of ready-cut binders, and mechanism for drawing a wrapper and a binder over and upon an article to be wrapped, of a tank containing adhesive or a moistening fluid, and a rotary disk for applying adhesive or moistening fluid from said tank to the projecting marginal edge of the binder, substantially as described.

54. In a package-wrapping machine, the combination with a reel for carrying a web of waxed paper, or similar wrapping material, and a reel for carrying a web of tin-foil, of a table over which said webs are to be drawn, cutting mechanism to sever a wrapper from said webs, a rocking pressure-finger to hold the main body of the web down onto the table after a wrapper has been severed, drawing-off rollers intermediate said reels and finger and engaged with the webs of wrapping material, a tilting frame in which said drawing-off rollers are mounted, cam-actuated lever mechanism for operating said tilting frame to draw off the webs and leave a slack therein between the reels and the pressure-finger, and reciprocatory nipper mechanism to seize the leading edge of the combined webs and draw the same forward over the article to be wrapped, substantially as described.

55. In a package-wrapping machine, the combination with means for carrying and supporting a web of wrapping material, and cutting mechanism to sever a wrapper from said web, of a hopper or receptacle to contain a stack of ready-cut binders or labels; a suction-nozzle having the form of a hinged downwardly-swinging leaf and constituting a part of the bottom of the said hopper or receptacle, a suction-pump communicating with said hinged suction-nozzle or leaf, means for simultaneously operating said pump and swinging downward said suction-nozzle or hinged leaf to suck downward the leading edge of the lowermost binder or label in the stack, nipper mechanism to seize the leading edge of the web of wrapping material and the leading edge of said lowermost binder or label and draw them longitudinally over the article to be wrapped, and a gumming or moistening disk over which the projecting marginal portion of the binder or label is drawn, substantially as described.

56. In a package-wrapping machine, the combination of a magazine to contain articles of merchandise to be wrapped, a feed-slide movable beneath said magazine and having a series of arms and upturned flanges to receive and discharge an article from said magazine, means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or

receptacle to contain a stack of ready-cut binders or labels, suction mechanism to draw downward the leading edge of the lowermost binder or label in said stack, and nipper mechanism to seize the leading edge of the wrapper and binder and draw them longitudinally over the article to be wrapped, substantially as described.

57. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web a hopper or receptacle to contain a stack of ready-cut binders or labels, suction devices to draw down the leading edge of the lowermost binder or label in the stack, mechanism for applying adhesive to a projecting marginal portion of the lowermost binder or label, and nipper mechanism to seize the leading edges of the wrapper-web and the binder and draw them longitudinally over the article to be wrapped, substantially as described.

58. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction mechanism for turning downwardly the leading edge of the lowermost binder or label in the stack, nipper mechanism to seize the leading edges of the wrapper-web and the binder and draw them longitudinally over the article to be wrapped, a folding-box, two swinging gripping and transferring jaws, one of which is adapted to receive the article to be wrapped as it is moved into position beneath the wrapper and binder, and mechanism for operating said gripping and transferring jaws to grip the article and the wrapper and binder and deposit them in the folding-box, substantially as described.

59. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, a hopper or receptacle constructed to support, in staggered position, a stack of ready-cut binders or labels, suction devices for drawing downward the leading edge of the lowermost binder or label in the stack, shear cutter-blades to sever a wrapper from the web of wrapping material, one of said blades being provided with a finger to support the leading edge of the web from which the wrapper has been severed and prevent the same from turning downward, and nipper mechanism to draw the wrapper and binder longitudinally over the article to be wrapped, substantially as described.

60. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction mechanism to draw down the leading edge of the lowermost binder or label in the stack, a rotary disk over which a projecting marginal portion of the lowermost binder or label is drawn, and whereby adhesive or moistening fluid is applied thereto, the said hopper or receptacle for the binders or labels being provided with an everted lip adjacent to said rotary disk to direct the marginal portion of the binder or label onto the disk, and nipper mechanism to draw the wrapper and binder longitudinally and adjust them relatively to the article to be wrapped, substantially as described.

61. In a package wrapping machine, the combination with means for carrying and supporting a web of wrapping material, and cutting mechanism for severing therefrom a wrapper at regular intervals, of a receptacle to support a supply of ready-cut binders or labels, nipper mechanism to seize the leading edges of the wrapper and binder and draw them longitudinally over the article to be wrapped, and devices for operating said nipper mechanism to cause one pair of nippers to move faster than the other pair to adjust the wrapper and binder relatively to the article to be wrapped and to release the same after the wrapper and binder are in adjusted position, substantially as described.

62. In a package-wrapping machine, the combination with a magazine to contain articles of merchandise, and mechanism for discharging an article from said magazine, of two pairs of nippers to draw a wrapper and a binder longitudinally over the article to be wrapped, two gripping and transferring jaws, one of which is adapted to receive the article discharged from the magazine, folding mechanism, operating mechanism for reciprocating the two pairs of nipper-jaws and to cause one pair to move slightly faster than the other to adjust the binder and wrapper relatively to the article to be wrapped, and mechanism for actuating the gripping and transferring jaws to grip the article and its wrapper and binder and transfer them to the folding mechanism, substantially as described.

63. In a package-wrapping machine, the combination with devices for supporting a wrapper and a binder, of two pairs of nipper-jaws to seize the leading edges of the wrapper and binder, respectively, and draw them over and upon the article to be wrapped, mechanism for operating said nipper-jaws to cause one pair to move slightly faster than the other pair to adjust the wrapper and binder relatively to the article to be wrapped, a folding-box, gripping and transferring jaws to transfer the article and the wrapper and binder in fixed relation into the folding-box, and folders to fold the wrapper and binder upon the article in the folding-box, substantially as described.

64. In a package-wrapping machine, the combination with a magazine to contain articles of merchandise, mechanism for discharging articles successively from said magazine, and devices for supporting a wrapper and a binder, of two pairs of nipper-jaws to seize the leading edges of said wrapper and binder and draw them longitudinally over the article to be wrapped, mechanism for operating said nipper-jaws in such manner as to cause one pair of jaws to move slightly faster than the other pair to adjust the wrapper and binder relatively to the article, a folding-box, gripping and transferring jaws, mechanism for operating said gripping and transferring jaws independently to cause one jaw to assume a position for receiving the article to be wrapped and for operating said jaws in unison to transfer the article and its wrapper and binder into the folding-box, and folders for first folding end portions of the wrapper inward and downward upon the article and subsequently folding and sealing the longitudinal portions of said wrapper and binder, substantially as described.

65. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism for severing a wrapper from said web at regular intervals, a pressure-finger to hold down the web of wrapping material after a wrapper has been severed therefrom, devices for supporting a stack of ready-cut binders or labels, suction mechanism for drawing downward the leading edge of the lowermost binder or label, means for applying or moistening adhesive on a projecting marginal portion of the binder or label, two pairs of nipper-jaws to seize the leading end of the wrapper-web and the leading end of the binder, respectively, and draw them longitudinally over the article to be wrapped, folding mechanism, and gripping and transferring jaws to grip the article and its wrapper and binder and transfer the same to the folding mechanism, substantially as described.

66. In a package-wrapping machine, the combination of a folding-box, diverging wings extended diagonally from the corners of said folding-box and provided with inclined upper edges, mechanism for depositing the article and a wrapper and a binder therefor into said folding-box, end-folders for folding inward the end portions of the wrapper upon the article in the folding-box, a front longitudinal folder to fold over a longitudinal portion of the wrapper and binder upon the article, and a rear longitudinal folder comprising an elastic roller and adapted to fold in the other longitudinal portion of the wrapper and binder upon the article and to seal the package, substantially as described.

67. In a package-wrapping machine, the combination with mechanism for drawing a wrapper and a binder longitudinally over an article to be wrapped, of a folding-box having its corners provided with vertical fingers, diverging wings extended diagonally from the corners of said box and each provided with an inclined upper edge, gripping and transferring jaws to convey the article and its wrapper and binder to the folding-box and deposit them therein in an inverted position with the article on top, end-folders to fold in the end portions of the wrapper upon the article, vibratory supports for said end-folders, a front longitudinal folder to fold inward one longitudinal side portion of the wrapper and binder, a longitudinal rear folder to fold in the other longitudinal side portion of the wrapper and binder upon the article, said rear longitudinal folder comprising an elastic roller to seal an adhesive edge of the binder, vibratory supports for the front and rear longitudinal folders, and cam-actuated mechanism for operating the vibratory supports of all of said folders, substantially as described.

68. In a package-wrapping machine, the combination with mechanism for drawing a wrapper and a binder over and upon an article to be wrapped, a folding-box and gripping and transferring jaws to deposit the article and its wrapper and binder in an inverted position into the folding-box, with the article on top, of folders for first folding inward the end portions of the wrapper upon the article and subsequently folding in the longitudinal side portions of the wrapper and binder, one upon the other, and sealing the same, substantially as described.

69. In a package-wrapping machine, the combination with a folding-box having slotted vertical walls, and gripping and transferring jaws to deposit an article and its wrapper and binder in said box, of end-folders for first folding in the end portions of the wrapper upon the article, a front longitudinal folder, a rear longitudinal folder comprising an elastic roller, vibratory supports for the several folders, cam-actuated mechanism for operating said folders, and a reciprocating sweeper-bar to remove the completed package from the folding mechanism, substantially as described.

70. In a package-wrapping machine, the combination of a folding-box, gripping and transferring jaws to deposit an article and its wrapper and binder in said box, with the article on top, mechanism for operating said gripping and transferring jaws to return one of said jaws to normal position after depositing the article and its wrapper in said box and to operate the other jaw for lifting the completed package after the wrapper has been folded thereon, end-folders for first folding in the end portions of the wrapper upon the article, a front longitudinal folder, a rear longitudinal folder, and a sweeper for removing the completed package after it is lifted by the gripping-jaw in the folding-box, substantially as described.

71. In a package-wrapping machine, the combination with folding mechanism comprising a folding-box and end-folders and longitudinal folders, of gripping and transferring jaws to deposit an article and its wrapper and binder in said folding-box, mechanism for operating one of said gripping-jaws to return it to normal position and for causing the other jaw to lift the completed package in the folding-box, a sweeper for removing the completed package from above the folding-box, and an elastic roller to which the completed package is carried by the sweeper, substantially as described.

72. In a package-wrapping machine, the combination of a folding-box, mechanism for depositing an article and its wrapper and binder in said box, end-folders and longitudinal folders for folding the wrapper and binder upon the article and for sealing the binder, means for lifting the completed package, a table adjacent to the folding-box, a sweeper to remove the completed package from above the folding-box to said table, an elastic roller mounted above said table and under which the completed packages are carried in succession, and carrier mechanism to receive the completed packages, substantially as described.

73. In a package-wrapping machine, the combination with folding mechanism, and a table, of an elastic roller mounted above said table, a pivotally-supported pressure-bar beyond said elastic roller, a reciprocating sweeper-bar to remove the completed packages from above the folding mechanism and to carry the same over said table to and beneath the elastic roller in succession, and rotary carrier mechanism to receive the completed packages from under the elastic roller and pivoted pressure-bar, substantially as described.

74. In a package-wrapping machine, the combination with folding mechanism, a table, an elastic roller mounted above said table, a pivotally-supported bar beyond said roller, and a reciprocatory sweeper-bar to carry the completed packages from above the folding mechanism to and beneath the said roller in succession, of rotary carriers provided with a series of hooked projections to receive the completed packages in succession from beneath the elastic roller and pivoted pressure-bar, and a trough or tray on which said completed packages are deposited edgewise from the rotary carriers, substantially as described.

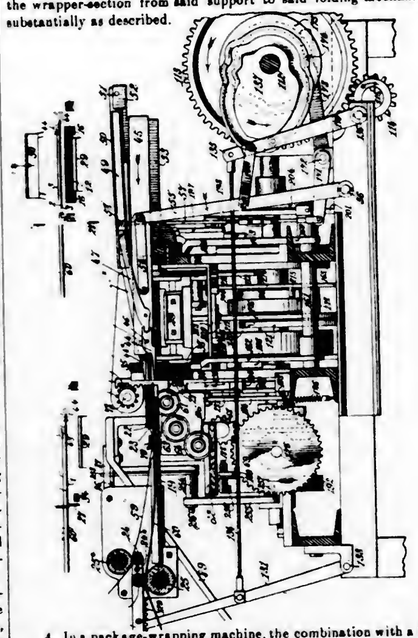
75. In a package-wrapping machine, the combination with mechanism for folding a wrapper and binder around and upon an article to completely inclose the same and to seal the binder, of a table, pressure devices mounted above said table, a sweeper to convey the completed packages from above the folding mechanism to said pressure devices in succession, rotary carriers for receiving the completed packages in succession from beneath said pressure devices, a tray or trough into which said completed packages are deposited edgewise from the rotary carriers, and a movable support for one end of the series of packages deposited in said tray or trough, substantially as described.

643,622. PACKAGE-WRAPPING MACHINE. RICHARD A. BERGER, New York, N. Y., assignor of one-half to Wesley S. Block, same place. Filed Jan. 5, 1898. Renewed June 28, 1899. Serial No. 722,187. (No model.)

Claim.—1. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and cooperating gripping-jaws for transferring the article and wrapper-section in a circular path from near the magazine to said folding mechanism, devices for opening, closing and swinging said jaws, a part of the folding mechanism consisting of an arm which lifts the wrapped article and deposits it at a point from whence it may be removed, substantially as described.

2. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and cooperating gripping-jaws for transferring the article and wrapper-section in a circular path from near the magazine to said folding mechanism, a part of the folding mechanism consisting of a swinging arm which lifts the wrapped article and places it at a point from which it may be removed, and mechanisms for swinging said arm and operating said gripping-jaws, substantially as described.

3. In a package-wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a support for the articles discharged from the magazine, a reel for carrying a binder-web, means for carrying webs of foil and paper, two pair of reciprocatory nippers which seize the binder-web and the webs of foil and paper, respectively, and draw them longitudinally, a cutter for severing the webs to form a wrapper-section of which one part is a binder, means for moving one pair of the nippers a greater distance than the other to shift and position the binder relatively to the foil and paper parts of the wrapper-section, a folding mechanism, and means for transferring the article and the wrapper-section from said support to said folding mechanism, substantially as described.



4. In a package-wrapping machine, the combination with a folding-box having devices for folding parts of the ends of a wrapper inclosing an article of merchandise, of a hollow arm having folding-wings which enter the box or chamber and serve to fold parts of the wrapper and to seize and remove the wrapped article from the box, devices located in said arm and connected with the folding-wings thereof to actuate the same from within the arm, and means for operating the wing-actuating devices within said arm and operating the latter to remove the wrapped article from said box, substantially as described.

5. In a package-wrapping machine, the combination of longitudinal folders, a folding-box having oscillatory tuckers, or side-angle folders at its corner portions, and opening and closing folding-wings at its ends, a swinging arm having opposing opening and closing folding-wings, and mechanisms for swinging the arm, operating the tuckers or side-angle folders, the end-folding wings of the folding-box and the folding-wings of said arm, substantially as described.

6. In a package-wrapping machine, the combination of a magazine, means for supporting wrapping material, means for moving the wrapping material longitudinally, a cutter for severing the wrapping material into a wrapper, means for discharging an article from the magazine into proper relation to the wrapper, a folding-box having devices for folding parts of the ends of the wrapper, means for longitudinally folding the wrapper, mechanism for transferring the article and the wrapper in fixed relation to each other to the folding-box, an arm having devices which serve to fold parts of the wrapper and to seize and remove the wrapped article from the folding-box, and means for operating the arm to remove the wrapped article from said box or chamber, substantially as described.

7. In a package-wrapping machine, the combination with means for longitudinally folding a wrapper, and a folding-box having folding devices for folding parts of the ends of the wrapper inclosing the article of merchandise, of an arm having pivoted folder-wings at its end portions, devices arranged in said arms for operating the wings to fold parts of the wrapper and to subsequently seize and remove the wrapped article from the folding-box, and mechanism for swinging said arm and actuating the devices therein contained which operate the pivoted wings, substantially as described.

8. In a package-wrapping machine, the combination with means for longitudinally folding a wrapper, and a folding-box having folding devices for folding parts of the ends of the wrapper to inclose the article of merchandise, of an arm having pivoted folder-wings at its end portions, devices arranged in said arm for operating the wings to fold parts of the wrapper and to subsequently seize and remove the wrapped article from the folding-box, and mechanism for swinging said arm and actuating the devices therein contained which operate the pivoted wings, said arm constructed between the wings to press upon the wrapped article in the folding-box to secure an adhesive part of the wrapper, substantially as described.

9. In a package-wrapping machine, the combination with a magazine, and means for supporting wrapping material, of means for moving the wrapping material longitudinally, a cutter for severing the wrapping material into a wrapper, means for discharging an article from the magazine into proper relation to the wrapper, means for longitudinally folding the wrapper, a folding-box having devices for folding parts of the ends of the wrapper, mechanism for transferring the article and the wrapper in fixed relation to each other to the folding-box, an arm having folder devices which serve to fold parts of the wrapper and to seize and remove the wrapped articles from the folding-box, and a rack-and-pinion mechanism for operating the arm and its folder devices, substantially as described.

10. In a package-wrapping machine, the combination with longitudinal folders, and a folding-box having folding devices for folding parts of the ends of a wrapper to inclose an article of merchandise, of an arm having pivoted folder-wings at its end portions, devices arranged in said arm for operating the wings to fold parts of the wrapper and to subsequently seize and remove the wrapped article from the folding-box, and racks and pinions for swinging said arm and actuating the devices therein contained which operate the pivoted wings, said arm constructed between the wings to press upon the wrapped article in the folding box or chamber to secure an adhesive part of the wrapper, substantially as described.

11. In a package-wrapping machine, the combination of a folding box or chamber, means for placing the wrapping material and the article to be wrapped in the folding box or chamber, a swinging arm constructed to press upon an adhesive part of the wrapping material to secure the same and having folder-wings to fold parts of the wrapper and to subsequently remove the wrapped article from the folding-box, and means for swinging said arm and operating its folder-wings, substantially as described.

12. In a package-wrapping machine, the combination of longitudinal folders, a folding-box, means for placing the wrapping material and the article to be wrapped in the folding-box, a swinging arm constructed to press upon an adhesive part of the wrapping material to secure the same and having folder-wings to fold parts of the wrapper and to subsequently remove the wrapped article from the folding-box, means for swinging said arm and operating its folding-wings, and a receiving-table upon which the swinging arm deposits the wrapped article, substantially as described.

13. In a package-wrapping machine, the combination of longitudinal folders, a folding-box, means for placing a wrapper and an article to be wrapped in the folding-box, a swinging arm constructed to press upon an adhesive part of the wrapper to secure the same and having folder-wings to fold parts of the wrapper and to subsequently remove the wrapped article from the folding-box, and means for swinging said arm and opening and closing its folder-wings, a receiving-table upon which the swinging arm deposits the wrapped article, and a pusher for pushing the wrapped article from said arm, substantially as described.

14. In a package-wrapping machine, the combination of longitudinal folders, a folding-box, means for placing a wrapper and an article to be wrapped in the folding-box, a swinging arm constructed to press upon an adhesive part of the wrapper to secure the same and having folder-wings to fold parts of the wrapper and to subsequently remove the wrapped article from the folding-box, means for swinging said arm and opening and closing its folder-wings, a receiving-table having a slot through which the arm passes, and a pusher sliding on the receiving-table for pushing the wrapped article from said arm, substantially as described.

15. In a package-wrapping machine, the combination of a table, reels for carrying webs of wrapping material, guide-plates between which the webs pass from said table, reciprocating nippers for gripping the leading ends of the respective webs and drawing them longitudinally, means for placing the article to be wrapped in proper relation to the webs, a cutter for severing a wrapper from the superimposed webs, a folding mechanism, and a transferring mechanism for transferring the article and the wrapper to the folding mechanism, substantially as described.

16. In a package-wrapping machine, the combination of a table, reels for carrying webs of wrapping material, guide-plates having notches in their leading edges and between which the webs pass from said table, reciprocating nippers constructed to enter the notches and grip the leading ends of the webs to draw them longitudinally, means for placing the article to be wrapped in proper relation to the webs, a cutter for severing a wrapper from the superimposed webs, a folding mechanism, and a transferring mechanism for transferring the article and the wrapper in fixed relation to each other to the folding mechanism, substantially as described.

17. In a package-wrapping machine, the combination with a folding-box containing folders for folding parts of a wrapper, of a movable clamp forming part of the folding-box, and means for inserting a wrapper and an article into the folding-box and acting on a part of said movable clamp, whereby the latter is caused to firmly grip and hold the wrapper and article in fixed relation during the folding operation, substantially as described.

18. In a package wrapping machine, the combination with a folding-box containing folders for folding parts of a wrapper, of a pivoted clamp-jaw having a tailpiece and forming part of the folding-box, and means for inserting a wrapper and an article into the folding-box and acting on the tailpiece of the clamp-jaw, whereby the latter is caused to firmly grip and hold the wrapper and article in fixed relation during the folding operation, substantially as described.

19. In a package-wrapping machine, the combination with means for supporting webs of wrapping material, and a cutter for severing wrappers therefrom at regular intervals, of two pairs of horizontally-reciprocating nippers for seizing and drawing the respective webs horizontally, means for closing the nippers upon the leading ends of the webs, means for opening the nippers after they have shifted a wrapper in relation to an article to be wrapped, means for reciprocating the nippers, and means for folding the wrapper, substantially as described.

20. In a package-wrapping machine, the combination with means for supporting webs of wrapping material, and a cutter for severing wrappers therefrom at regular intervals, of two pairs of longitudinally-reciprocating nippers for seizing and drawing the respective webs longitudinally, means for closing the nippers upon the leading ends of the webs, means for opening the nippers after they have shifted a severed wrapper in relation to an article to be wrapped, mechanisms for reciprocating the two pairs of nippers, and means for folding the wrapper, substantially as described.

21. In a package-wrapping machine, the combination of reels for carrying webs of wrapping-material, of which one web is a binder-web, a magazine, means for discharging an article from the magazine, reciprocatory mechanism for seizing the leading ends of the webs and pulling them longitudinally over the said article, a cutter for severing a wrapper from the webs, and means for operating a part of said reciprocating mechanism to adjust the binder relatively to the other portions of the wrapper severed from the webs, substantially as described.

22. In a package-wrapping machine, the combination of reels for carrying webs of wrapping material, of which one web is a binder-web, a magazine, means for discharging an article from the magazine, a pair of reciprocating nippers for seizing the leading ends of the webs and pulling them longitudinally, a cutter for severing a wrapper from the webs, one pair of said nippers moving independently of the other pair to adjust the binder relatively to the other portions of the wrapper severed from the webs, and a folding mechanism, substantially as described.

23. In a package-wrapping machine, the combination with reels for carrying webs of wrapping material, of which one web is a binder-web, a magazine, means for discharging an article from the magazine, a folding mechanism, and means for severing a wrapper-section from the webs, of two pair of reciprocating nippers for pulling the respective webs longitudinally, one pair being movable at a certain time while the other pair is substantially stationary, for adjusting the binder of the wrapper-section relatively to the other portions thereof, substantially as described.

24. In a package-wrapping machine, the combination with reels for carrying webs of wrapping material, a magazine, means for discharging an article from the magazine, a folding mechanism, and means for severing a wrapper-section from the webs, of reciprocating nippers for pulling the respective webs longitudinally, means for moving one pair of the nippers faster than the other, and means for moving one pair slightly after the other pair has ceased to move, for the purpose of shifting and adjusting the binder in proper relation to the other portions of the wrapper-section, after the wrapper-section is severed from the webs, substantially as described.

25. In a package-wrapping machine, the combination with reels for holding webs of wrapping material, a magazine for containing articles of merchandise, and means for discharging the articles successively from the magazine, of longitudinally-moving slides having fixed nipper-jaws, movable nipper-jaws mounted on the slides, mechanisms for moving the slides back and forth and operating the movable jaws at regular intervals, a folding mechanism, and means for transferring an article and a wrapper to the folding mechanism, substantially as described.

26. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, and means for successively discharging the articles therefrom, of reels for carrying webs of wrapping material, one of which webs is a binder-web having an adhesive margin, a fluid-tank, a moistening-disk for moistening the adhesive margin of the binder-web, means for supplying fluid from the tank to the moistening-disk, longitudinally-movable nippers for drawing or pulling the webs longitudinally, a cutter for severing the webs into wrappers, a folding mechanism, and means for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

27. In a package-wrapping machine, the combination with a table, reels for carrying the webs of wrapping material, mechanism for drawing or pulling the webs longitudinally over the table, guide-plates between which the webs pass, a cutter for severing the webs into wrapper-sections, a rocking pressing-finger which presses the webs down upon the said table after the cutter has severed a wrapper from the webs, a folding mechanism, and means for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

28. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise and means for successively discharging the articles from the magazine, of reels for carrying webs of wrapping material, longitudinally-movable nippers for drawing or pulling the webs longitudinally, a cutter for severing the webs into wrappers, a table over which the webs pass to the cutter, a folding mechanism, means for transferring an article and a wrapper to the folding mechanism, a rock-shaft carrying a brake-arm and a pressing-finger, the brake-arm acting at intervals to arrest one of the reels, and the pressing-finger acting to press the webs upon the table at regular intervals, and means for operating the rock-shaft, substantially as described.

29. In a package-wrapping machine, the combination with a folding-box having movable end-folder wings, of a toothed disk, links eccentrically connecting the end-folder wings with the toothed disk, a bell-crank lever having one end provided with a rack engaging the toothed disk, a trip-dog engaging the other arm of the lever to pull it in one direction and lower the rack, and a spring for raising the rack after the trip-dog has been tripped from engagement with said lever, substantially as described.

30. In a package-wrapping machine, the combination with a folding-box, of oscillatory tuckers or side angle-folders at the corners thereof, pivoted folder-wings at the ends of the box, rack-and-pinion mechanism for oscillating the tuckers or side angle-folders, a toothed disk, links eccentrically connecting the end-folder wings with the toothed disk, a bell-crank lever having one arm provided with a rack engaging the toothed disk, a trip-dog for engaging the other arm of the lever and pulling it in one direction to lower the rack, and a spring for raising the rack after the trip-dog has been tripped from engagement with said lever, substantially as described.

31. In a package-wrapping machine, the combination with a folding-box having tuckers or side angle-folders and end-folder wings, and means for operating the same, of a hollow swinging arm provided with pivoted folder-wings, and mechanism for swinging said arm and opening and closing its folder-wings during its swinging motion, substantially as described.

32. In a package-wrapping machine, the combination with a folding-box having tuckers or side angle-folders and end-folder wings, and means for operating the same, of a hollow swinging arm provided with pivoted folder-wings, racks and pinions for swinging said arm and opening and closing its folder-wings during its swinging motion, and means for independently operating the racks, substantially in the manner and for the purposes set forth.

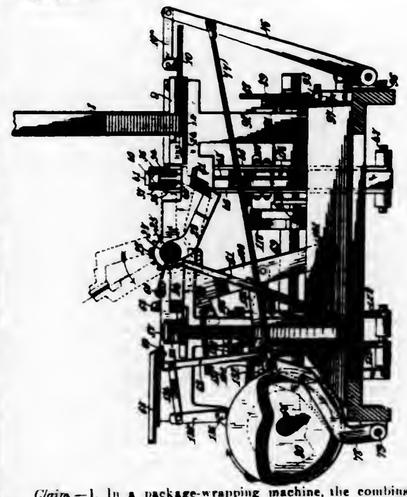
33. In a package-wrapping machine, the combination with a folding-box, and a receiving-table in proximity thereto, of a swinging, pressing and lifting arm having folder-wings which form folds in the ends of a wrapper, and subsequently grip the wrapped package, lift it out of the folding-box and place it substantially on a level with the receiving-table, mechanism, substantially as described, for swinging said arm and operating its folder-wings, and a pusher for pushing the package off the pressing and lifting arm onto a part of the receiving-table, substantially as described.

34. In a package-wrapping machine, the combination with a magazine, means for successively discharging articles from the magazine, means for moving wrapping material into position relative to each article discharged from the magazine, a folding-box, and means for transferring an article and a wrapper to the folding-box, of vertical rack-bars, a link pivoted intermediate its ends to one of the rack-bars and loosely connected at one extremity with the other rack-bar, a spring connecting the opposite extremity of the link with the rack-bar to which said link is pivoted, pinions engaging the rack-bars, a pressing and lifting arm rigid with one pinion, folder-wings on said arm, connections between the folder-wings and the other pinion, a cam, a lever engaging the cam and connected with the rack-bar which is rigid with one of the pinions, and a lever acted on at one end by the cam and having the other end lying in the path of the bar which operates the pinion by which the folder-wings are actuated, substantially as described.

35. In a package-wrapping machine, the combination with a magazine, means for discharging articles successively therefrom, reels for carrying webs of wrapping material, one of which webs is a binder-web having an adhesive margin, a cutter for severing the webs into wrapper-sections, a folding mechanism, and means for carrying an article and a wrapper to the folding mechanism, of a moistening-disk for moistening the adhesive margin of the binder-web, means for raising and lowering the moistening-disk at regular intervals, and means for supplying the said disk with moistening fluid, substantially as described.

36. In a package-wrapping machine, the combination of a support for an article which is to be wrapped, a reel for carrying a web of wrapping material, means for moving the web longitudinally, a cutter for severing a wrapper from the web, a folding-box having folding devices, means for placing an article and a wrapper in the folding-box, and a pressing and lifting arm having folders which serve first to fold end portions of the wrapper and second to grip and lift the wrapped package from the folding-box, substantially as described.

643,628. **PACKAGE-WRAPPING MACHINE.** RICHARD A. BERGEN, New York, N. Y., assignor of one-half to Wesley S. Block, same place. Filed Jan. 5, 1898. Renewed June 28, 1899. Serial No. 722,188. (No model.)



Claim.—1. In a package-wrapping machine, the combination with a folding-box, a magazine, means for discharging an article from the magazine, webs of wrapping material, means for drawing the webs longitudinally, means for severing webs into wrappers, each composed of a wrapper-body and a binder, and swinging, gripping and transferring jaws for depositing an article and a wrapper-body and binder in the folding-box, of end-folders movable toward and from each other over the ends of the folding-box and constructed to fold the end portions of the wrapper-body down upon the upper side of the article, and longitudinal folders movable toward and from each other over the longitudinal sides of the folding-box and constructed to fold the binder down upon the folded end portions of the wrapper-body, one of said longitudinal folders having means to press upon and secure an adhesive margin of the binder, substantially as described.

2. In a package-wrapping machine, the combination with a folding-box, a magazine, means for discharging an article from the magazine, webs of wrapping material, means for drawing the webs longitudinally, means for severing the webs into wrappers, each composed of a wrapper-body and a binder, and swinging, gripping and transferring jaws for placing an article and a wrapper-body and binder in the folding-box, of end-folders movable toward and from each other over the ends of the folding-box and constructed to fold the end portions of the wrapper-body down upon the upper side of the article, and longitudinal folders movable toward and from each other over the longitudinal sides of the folding-box and constructed to fold the binder down upon the folded end portions of the wrapper-body, one

of said longitudinal folders consisting of an elastic roller which rolls over one side of the binder to press upon and secure an adhesive margin of the same, substantially as described.

3. In a package-wrapping machine, the combination with a folding-box, means for depositing an article and a wrapper thereinto, and folding devices for folding the wrapper in the folding-box, of a vertically-arranged rock-shaft, a horizontal vibrating sweeper-arm secured to and turning with the rock-shaft for sweeping the wrapped package horizontally away from the folding-box, and mechanism for positively rocking said shaft and vibrating said sweeper-arm at proper-timed intervals, substantially as described.

4. In a package-wrapping machine, the combination with a folding-box, and folders for folding a wrapper about an article deposited in the box, of means for raising the package in the folding-box after it has been completely wrapped, a vertically-arranged rock-shaft, a vibrating sweeper-arm secured to and turning with the rock-shaft for sweeping the wrapped article away from the folding-box, and means for positively rocking said shaft and vibrating said sweeper-arm at timed intervals, substantially as described.

5. In a package-wrapping machine, the combination with a folding-box, and folders for folding a wrapper about an article deposited in a box, of means for raising the package in the folding-box after it has been completely wrapped, a receiver or chute arranged in relation to the folding-box, a vertically-arranged rock-shaft, a horizontally-vibrating sweeper-arm secured to and turning with the rock-shaft and movable over the folding-box for sweeping a wrapped article away therefrom onto the receiver or chute, and rack-and-pinion mechanism for rocking said shaft and horizontally vibrating said sweeper-arm at timed intervals, substantially as described.

6. In a package-wrapping machine, the combination with a folding-box, of end-folders movable to and fro over the ends of the folding-box, front and rear longitudinal folders movable to and fro over the front and rear sides of the folding-box, means for raising the wrapped article in the box, a horizontally-vibrating sweeper arm for sweeping the wrapped article away from the folding-box after it has been raised therein, and means for vibrating said sweeper-arm at timed intervals, substantially as described.

7. In a package-wrapping machine, the combination of a folding-box having upright front, rear and end walls which turn the ends and sides of a wrapper upwardly, end-folders movable to and fro over the ends of the folding-box, front and rear longitudinal folders movable to and fro over the front and rear sides of the folding-box, a receiver or chute arranged in relation to the folding-box, means for raising the wrapped article in said box, a horizontally-vibrating arm for sweeping a wrapped article away from the box onto the receiver or chute, and means for vibrating said arm at timed intervals, substantially as described.

8. In a package-wrapping machine, the combination with a folding-box, and means for depositing an article and a wrapper thereinto, of pivoted vibrating arms carrying end-folders at their upper ends which are movable with the said arms toward and from each other over the ends of the folding-box, a rotary cam, pivoted levers actuated by said cam, connecting-rods between said lever-arms and the vibrating folder-carrying arms, and longitudinal folders movable over the front and rear sides of the folding-box, substantially as described.

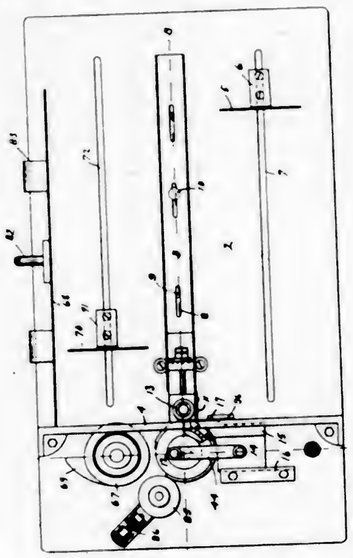
9. In a package-wrapping machine, the combination with a folding-box, end-folders movable to and fro, and front and rear longitudinal folders movable to and fro, of a horizontally-vibrating sweeper-arm for sweeping a wrapped article away from the folding-box, a vertically-arranged rock-shaft having a toothed portion and on which the sweeper-arm is mounted, a rack-bar engaging the toothed portion of said shaft, and means for reciprocating the rack-bar at timed intervals to vibrate the sweeper-arm over the folding-box, substantially as described.

10. In a package-wrapping machine, the combination with a folding-box, end-folders movable to and fro, and front and rear longitudinal folders movable to and fro, of a horizontally-vibrating sweeper-arm for sweeping a wrapped article away from the folding-box, a vertically-arranged rock-shaft having a toothed portion and on which the sweeper-arm is mounted, a rack-bar engaging the toothed portion of said shaft, a pivoted lever-arm, a rod connecting the pivoted lever-arm with the rack-bar, and a cam for actuating the pivoted lever-arm to rock the shaft and vibrate the sweeper-arm at timed intervals, substantially as described.

11. In a package-wrapping machine, the combination with a folding-box having upright front, rear and end walls, of vibrating arms pivoted at their lower ends and carrying at their upper ends front and rear folders which are movable over the front and rear side of the folding-box, vibrating arms pivoted at their lower ends and having end-folders at their upper ends which are movable over the ends of the folding-box, pivoted levers having rod connections with said pivoted vibrating arms, and cams for actuating the pivoted levers at timed intervals to first move the end-folders over the ends of the folding-box and subsequently move the longitudinal folders over the sides of the folding-box, substantially as described.

12. In a package-wrapping machine, the combination with a folding-box having upright front, rear and end walls, of vibrating arms pivoted at their lower ends and carrying at their upper ends front and rear folders which are movable over the front and rear side of the folding-box, vibrating arms pivoted at their lower ends and having end-folders at their upper ends which are movable over the ends of the folding-box, pivoted levers having rod connections with said pivoted vibrating arms, cams for actuating the vibrating levers at timed intervals to first move the end-folders over the ends of the folding-box and subsequently move the longitudinal folders over the sides of the folding-box, a horizontally-vibrating sweeper-arm movable over the folding-box to sweep the wrapped article therefrom, and means for vibrating said sweeper-arm at timed intervals, substantially as described.

643,624. PRINTING, STAMPING, OR CANCELING MACHINE. ROBERT C. BERRY, Indianapolis, Ind., assignor to the Pneumatic Canceling Machine Company, same place. Filed Mar. 8, 1899. Serial No. 708,219. (No model.)



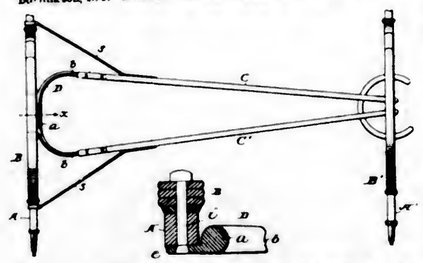
Claim.—1. A printing, stamping or canceling machine including a table with an opening through it, an open-bottom box reciprocable over said opening, a cylinder with a conduit connecting with said opening, a check-valve for closing said conduit, a piston in said cylinder, and a common means for reciprocating the box and piston.

2. A printing, stamping or canceling machine including a reciprocable exhaust box or port, a blast-tube to direct a blast of air on the pack of letters, &c., a cylinder with a conduit from one end connecting with said exhaust box or port and a conduit from the other end connecting with said blast-tube, a check-valve for closing the conduit from the exhaust box or port, a piston with ports through it governed by check-valves on the blast side thereof, and a common means for reciprocating said exhaust box or port and said piston.

3. A printing, stamping or canceling machine including a table having a slot in it over which the letters are packed on their edges in position to be fed to the canceling or printing mechanism, a feed-board against which said letters are packed, means operating through said feed-board for feeding the letters singly to the canceling or printing mechanism, and a blast-tube with its outlet directly above said slot and directed downward upon the pack of letters over said slot.

4. A printing, stamping or canceling machine including a type-wheel, a feed-roll cooperating therewith to receive the letters, &c., between them, and a reciprocable exhaust-box for conveying letters, &c., to the type-wheel and feed-roll with the end of the box next to the type-wheel curved parallel therewith and the extension of the box thereby formed provided with a suction-opening.

643,625. RUNNING-GEAR FOR VEHICLES. RICHARD S. BIRCH, Burlington, N. J. Filed Nov. 13, 1899. Serial No. 736,839. (No model.)



Claim.—1. The combination with the axle and spring of a vehicle, of a yoke connected to or forming part of the perches of the vehicle and provided with a portion which is connected with the spring and axle, substantially as set forth.

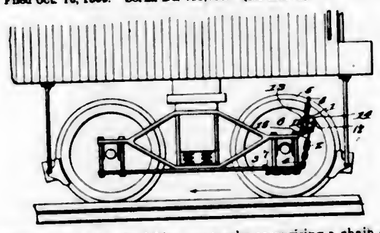
2. The combination with the spring and axle of a vehicle, of a yoke D having a rib *e* and bolts *i* passing through the spring, rib and axle securing the whole together, substantially as set forth.

3. The combination with the axle and spring of a vehicle, of a yoke having arms *b b* and transverse portion *a*, and a rib extending between the spring and axle and secured thereto, substantially as set forth.

4. As an article of manufacture, a yoke D having a transverse portion *a* with rib *e* and arms *b b* adapted for attachment to and forming part of the perches of the vehicle, substantially as set forth.

5. The combination with the axle and spring of a vehicle, of a yoke connected to or forming part of the perches of the vehicle and provided with a portion which is connected with the spring and axle and braces *s*, substantially as set forth.

643,626. TRUCK-LIFTER. JOHN H. BLAKE, Winslow, Ariz., assignor of two-thirds to Frank R. Black and William Irving, same place. Filed Oct. 16, 1899. Serial No. 733,755. (No model.)



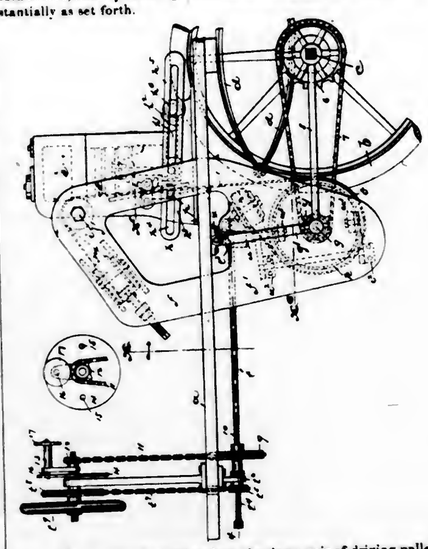
Claim.—A device for lifting car-trucks comprising a chain composed of two sections detachably and adjustably secured together at their inner ends, said chain being adapted to extend beneath the journal-box of a car-truck, the hook 7, arranged at the lower end of the chain and adapted to engage the adjacent tie-bar of a car-truck, and the hook 8 located at the upper end of the chain and consisting of a single shank having an elongated or extended bill offset from the shank to provide a wide mouth, whereby it is adapted to fit over the rim of a car-wheel and engage one of the ribs at the inner face of the said wheel, substantially as and for the purpose described.

643,627. TRANSMITTING DEVICE FOR HORSELESS CARRIAGES. JOHN C. BLEVNEY, Newark, N. J. Filed May 10, 1899. Serial No. 716,212. (No model.)

Claim.—1. The combination with a motor, a connecting-rod, and a crank having an arm, of a frame having an endless belt arranged therein over suitable pulleys journaled in said frame and a clutch arranged in connection with said arm, adapted to clutch the belt, and impart continuous movement thereto, substantially as set forth.

2. The combination with an endless belt, and pulleys operated thereby, of a reciprocating clutch and means for reciprocating the same, the said reciprocating means being provided with an oscillating arm which is adjustable in its relation to said clutch, whereby the reciprocating movements of said clutch will be increased or diminished in length of stroke, substantially as set forth.

3. The combination with a frame having pulleys and an endless belt arranged on said pulleys, parts of said belt being disposed side by side and movable in opposite directions, a clutch adapted to engage the oppositely-moving portions of the belt alternately, one clutch-dog engaging one portion of the belt at one stroke of the clutch and a second clutch-dog engaging the other portion of the belt in its return stroke, thereby effecting a continuous movement of said belt, substantially as set forth.



4. The combination with a frame having a pair of driving-pulleys disposed side by side in said frame, of an endless belt, arranged in said frame, and over said pulleys and moving in opposite directions on said pulleys to effect an opposite rotation of said pulleys, and a clutch arranged in connection with a sprocket-wheel for driving the wheels of the vehicle, the said clutch being adapted to be brought into clutching relation to one or the other of said pulleys to effect a reverse movement of the vehicle without changing the direction of movement of the belt, substantially as set forth.

5. In a horseless vehicle, the combination with the body thereof, of a swinging frame movable independent of said body and having means for transmitting power arranged over pulleys therein, means for operating said power-transmitting means and means for transmitting power from said power-transmitting means of the frame to the axle of the vehicle, and means for holding the swinging frame at or near the free swinging end thereof at a definite operative distance from the driven axle, substantially as set forth.

6. In a horseless vehicle, a swinging frame arranged on the body of said vehicle, having therein pulleys and a belt arranged over said pulleys, a clutch for imparting movement to the belt, means for operating the clutch and means for transmitting movement from the pulleys, and a clutch engaging one or another of said pulleys for changing the direction of movement of the last-said transmitting means, substantially as set forth.

7. In a horseless vehicle, a frame arranged on the body of said vehicle and having pulleys therein and an endless belt, arranged over said pulleys, a reciprocating clutch for imparting movement to the belt, and means for reciprocating said clutch, means for transmitting motion from the pulleys including a clutch engaging one or another of said pulleys for changing the direction of movement of the power-transmitting means, substantially as set forth.

8. In a horseless vehicle, a frame arranged on the body of said vehicle and having pulleys therein, and an endless belt arranged over said pulleys, parts of said belt lying side by side and movable in opposite directions, a reciprocating clutch for imparting movement to said belt, said clutch having a pair of clutch-dogs, one dog engaging one of the belt parts and the other dog engaging the other belt part, the said dogs being constructed to enter into operative engagement alternately and means for reciprocating said clutch, substantially as set forth.

9. In a horseless vehicle, a frame arranged on the body of said vehicle and having pulleys therein and an endless belt arranged over said pulleys, parts of said belt lying side by side and movable in opposite directions, a reciprocating clutch for operating said belt and a clutch arranged between a pair of said pulleys in connection with transmitting means, and adapted to enter into clutching relation with one or the other of the pulleys of said pair to effect a reverse move-

ment of the said transmitting means, or to lie idle between said pulleys to effect a stopping of the vehicle, substantially as set forth.

10. In a horseless vehicle, a frame supported by the body and movable in its relation thereto and having pulleys therein and an endless belt arranged over said pulleys, a reciprocating clutch for imparting movement to said belt and a clutch interposed between the members of a pair of said pulleys and in connection with means for transmitting power from said pulleys to the axle or wheels of the vehicle, means for operating the last-said clutch to effect a reverse action of parts, and means permitting a movement of the frame upon the body of the vehicle but maintaining the last-mentioned transmitting means in operative relation, substantially as set forth.

11. In a power-transmitting device for horseless vehicles, the combination with a frame, pairs of pulleys and an endless belt arranged thereon, a sprocket or power-transmitting wheel *y*, a sleeve arranged on the hub of said sprocket-wheel and adapted to enter into clutching engagement with members of a pair of said pulleys, and shifting means, all arranged and operating, substantially as set forth.

12. In a power-transmitting device for horseless carriages the combination with the frame, pairs of pulleys arranged in said frame, an endless belt arranged on said pulleys, a power-transmitting wheel arranged between one of said pairs of pulleys in connection with plates *r*, *v*, and a sliding clutching-sleeve arranged on the hub of said power-transmitting wheel and adapted to rotate with said wheel, and a lever having an arm between said plate *r*, and means for operating the lever to shift said plates and clutching-sleeve, substantially as set forth.

13. In a power-transmitting device, the combination with the frame having power-transmitting pulleys and belt, means for operating said belt, means for varying the speed of the belt, means for transmitting power from the pulleys to the device to be operated and means for reversing the movement of the last-mentioned power-transmitting means, of a single shaft or rod *t*, for operating both the reversing means and the means for varying the speed of the belt, substantially as set forth.

14. In a power-transmitting device, the combination with the frame having power-transmitting pulleys and an endless belt arranged thereon, a reciprocating clutch, an oscillating arm and a motor for operating said arm, and means for transmitting power from the pulleys, substantially as set forth.

15. In a power-transmitting device, the combination with the frame having power-transmitting pulleys and an endless belt arranged thereon, a reciprocating clutch, an oscillating arm, the clutch being adjustable in its relation to said arm to vary the distance of reciprocation of said clutch and a motor for oscillating said arm, and adjusting means, substantially as set forth.

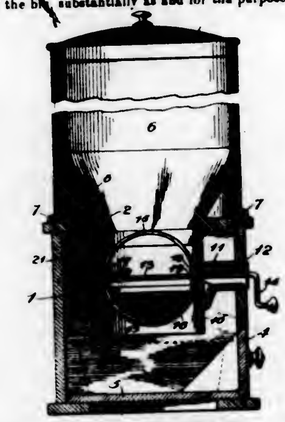
16. In a power-transmitting device, the combination with the frame having power-transmitting pulleys and an endless belt, a reciprocating clutch having oppositely-disposed clutching-dogs eccentrically pivoted upon a clutch-frame with rollers opposed to said dogs, a reciprocating arm and a motor for driving the same, and means for adjusting the clutch in its relation to the arm, substantially as set forth.

17. In a power-transmitting device, the combination with the body *a*, having motor *e*, slotted oscillating arm, and swinging frame, of pairs of pulleys *j*, *j*, *k*, *k*, and end pulleys *m*, *n*, a belt arranged on said pulleys and having parts lying substantially parallel with one another between the pairs of pulleys, a reciprocating clutch with oppositely-disposed dogs engaging said parallel parts of the belt alternately a reciprocating arm, means for swinging the frame and thereby changing the relation of the clutch and arm, substantially as set forth.

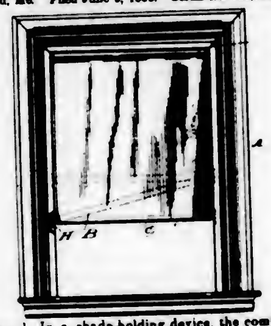
18. In a power-transmitting device, the combination with the wheeled and spring-supported body *a*, having motor *e*, slotted oscillating arm, and swinging frame connected to said body by a pendulous rod *g*, rod 8 for holding the swinging frame at a definite distance from the axle of the wheels of said body, pulleys and an endless belt arranged on said frame, an oscillating arm pivoted upon bearings on the vehicle-body, a belt-clutch operated by said arm, a motor operating said arm, a shifting clutch, a lever operating the same, a threaded and grooved rod *t*, operating the shifting clutch and swinging frame, sprocket-wheels t^3, and 9, chains and means for operating said chains, substantially as set forth.

643,628. KITCHEN-CABINET. THOMAS J. BRUMBACK, Memphis, Mo., assignor to the Climax Manufacturing Company, same place. Filed Oct. 6, 1897. Serial No. 654,308. (No model.)

Claim.—In a device of the class described, the combination of a hollow frame provided at its top and bottom with openings and having the opening 12 at its front, said frame being provided at a point below the opening 12 with a drawer, a bin mounted upon the frame and having a reduced portion extending through the opening of the top of the frame, a sifting device consisting of a cylindrical shell removably fitted upon the reduced portion of the bin and provided with a forwardly-extending sleeve fitting within the opening 12 and entirely filling the same, a sieve secured within the shell, an agitator arranged within the shell and provided with a spindle extending through and journaled in the sleeve, an exterior crank-handle 14 connected with the spindle and adapted to be drawn through the opening 12 when the sifting device is removed through the bottom of the frame, and the strap 21 located at the back of the sifting device, depending from the top of the frame and provided at its lower end with a hook detachably engaging the cylindrical shell, said strap and sleeve supporting the sifting device and retaining the same on the reduced portion of the bin, substantially as and for the purpose described.



643,629. SHADE-HOLDING DEVICE. FRANK M. BURROWS, Portland, Me. Filed June 9, 1898. Serial No. 719,955. (No model.)



Claim.—1. In a shade-holding device, the combination with a stick, longitudinally-movable shoes at the ends of the stick, pivotal connections between the stick and shoe and springs tending to move the shoes inward and resisting the tilting movement of the stick, of jambs having vertical grooves therein in which the shoes are placed and retaining edges projecting over the grooves for preventing the escape of the shoes and on which the shoes slide, substantially as described.

2. In a shade-holding device, the combination with confining-guides on the window-jambs and a shade-stick, of friction-shoes pivotally connected therewith and having independent longitudinal movement, and spring-pressed means carried by the stick and extending into the same for resisting the tilting movement of the stick and for moving the shoes inward, substantially as described.

3. In a shade-holding device, the combination with the side posts having vertical guide-grooves therein and overhanging flanges, of a shade-stick having rods or spindles therein, shoes pivoted on the ends of the stick and working in the grooves, yielding means normally forcing the shoes inward toward the stick and means for adjusting the shoes relative to the stick, substantially as described.

4. In a shade-holding device, the combination with the side posts having guide-grooves with overhanging retaining-flanges, of a curtain-stick and inwardly-spring-pressed elongated shoes pivotally connected with the stick and located in the grooves, substantially as described.

5. In a shade-holding device, the combination with a hollow stick, of spindles arranged in the ends of the stick, elongated shoes pivotally connected to the spindles at the ends of the stick, and springs for normally moving the spindles inward, substantially as described.

6. In a shade-holding device, the combination with a hollow stick, of spring-retracted rods mounted therein, pivoted tilting shoes at the ends of the rods and retaining-guides for the shoes at the sides of the window-frames, substantially as described.

7. In a shade-holding device, the combination with a shade and side posts, of pivoted shoes carried by the shade, means for holding the shoes in proper position relative to the posts, and yielding means normally tending to move the shoes toward each other, substantially as described.

8. In a shade-holding device, the combination with a hollow shade-stick, of reciprocating rods at opposite ends of the stick, elongated tilting shoes pivotally connected to the rods, means for adjusting the rods and springs normally tending to force the rods inward, substantially as described.

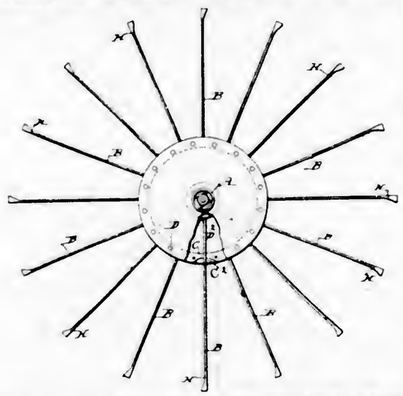
9. In a shade-holding device, the combination with a shade-stick, of rods movably mounted in the ends thereof, tilting shoes pivotally connected to the ends of the rods, springs having a normal tendency to draw the rods inward and means for adjusting the shoes relative to the rods, substantially as described.

10. In a shade-holding device, the combination with a hollow stick, of rods mounted therein, heads on the rods having reduced portions at their outer ends, tilting shoes pivotally connected to the outer ends of the heads, springs for normally forcing the rods inward and guides having overhanging retaining-flanges with which the shoes engage, substantially as described.

11. In a shade-holding device, the combination with a stick, of pivoted shoes carried thereby and extending above and below the same, springs interposed between the shoes and stick for moving the shoes inward to resist irregular movements of the stick and normally maintain the same in a horizontal position, guides located adjacent to the ends of the stick and in which the shoes are placed and means for retaining the shoes in the guides, substantially as described.

12. In a shade-holding device, the combination with the jambs of a window-frame having vertical guide-grooves, of a holding-fixture having pivoted heads, and substantially U-shaped strips secured in the grooves for retaining the heads in the grooves, substantially as described.

648,630. TRACTION-WHEEL FOR VEHICLES. JOHN V. BUSH, Colesburg, Iowa. Filed Nov. 4, 1899. Serial No. 735,763. (No model.)



Claim.—1. In a traction-wheel, a flexible spoke having a detachable rigid footpiece and the toe portion projecting forward at right angles to the axis of the wheel for the purposes stated.

2. In a traction-wheel, a footpiece on the end of a spoke and the toe portion of the foot projecting in a plane at right angles to the axis of the hub of the wheel, and a calk fixed to the bottom of the footpiece for the purposes stated.

3. In a traction-wheel, a hub having mortises for spokes, flexible spokes fitted in the mortises and rings fixed to the end portions of the hub to incline toward each other and also fixed to the spokes at some distance from the hub, in the manner set forth for the purposes stated.

4. In a traction-wheel, a hub having mortises for spokes, flexible spokes adapted to bend backward and forward in a plane at right angles to the axis of the hub fitted in the mortises, a ring fixed to the spokes at some distance from the hub and a disk fitted on the hub and fixed to the ring and spokes for the purposes stated.

5. In a traction-wheel, a hollow footpiece, straight and flat on its rear side and inclined forward on its front and a calk detachably fixed in the bottom, in combination with the free end of a spoke, for the purposes stated.

6. A traction-wheel for vehicles comprising a hub having mortises for spokes, flexible spokes fitted in the mortises and adapted to bend in the plane of the axis of the hub, rings fixed to the spokes at some distance from the hub, disks fitted to the end portions of the hub and fixed to the rings and spokes, footpieces fixed to the ends of the spokes and calks fixed in the bottoms of the footpieces, all arranged and combined to operate in the manner set forth for the purposes stated.

643,631. MACHINE FOR FILLING HORSE-COLLARS. BENJAMIN F. CANTERBURY, Clayton, Ala. Filed July 17, 1897. Serial No. 645,006. (No model.)



Claim.—In a machine for stuffing horse-collars, the combination of a base portion, longitudinally-grooved strips, a rack-bar having longitudinally-extending tongues moving in said grooved strips, a cog-wheel meshing with said rack, a crank for operating said wheel, a transversely-extending arm secured to said rack-bar, a packing-rod I carried by said arm and running parallel with the rack-bar, the guide J supporting said rod in a horizontal plane, a clip for holding the collar, transversely-hinged clamping-arms L, and keepers M for said arm, constructed and arranged as and for the purpose set forth.

643,632. WRENCH. ALFRED J. COOPER, Duryea, Pa. Filed Dec. 13, 1899. Serial No. 740,197. (No model.)



Claim.—1. In a wrench such as herein described, the combination with the handle having a longitudinal socket formed in and rigid with its outer end, and the fixed jaw at the extremity of and out of alinement with the handle, of a holding-tooth at the inner side of the fixed jaw adjacent the handle and a movable jaw having a shank sliding in said socket longitudinally of the handle and holding-teeth on the outer edge of said shank adapted to cooperate with the fixed tooth at the inner side of the fixed jaw; substantially as described.

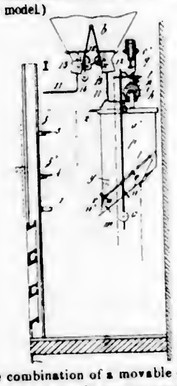
2. In a wrench such as described, the combination with the handle portion, having the longitudinally-extending socket formed in and rigid with its outer end, a fixed jaw at the extremity of the handle portion, and overlying the socket at one side of the handle, and a fixed tooth adjacent and projecting inwardly toward said socket at the inner side of the fixed jaw, of a movable jaw having a shank sliding in said longitudinal socket in the handle portion, a series of teeth on the edge of the shank from which the jaw projects adapted to co-

operate with the fixed tooth, the shank and socket being of such relative sizes as to permit of a slight pivotal movement of the shank on the fixed tooth and a spring for raising the inner end of the shank; substantially as described.

3. In a wrench, the combination with the handle portion, having a longitudinal socket therein opened out at the end of and in line with the handle portion, a fixed jaw carried by and rigid with said handle portion at one side of and overlying the socket, a fixed tooth connected with said fixed jaw at its inner side and projecting toward said socket, of a movable jaw having a shank sliding longitudinally in said socket in line with the handle and capable of a slight transverse movement therein, a series of teeth on said shank on the side from which the jaw projects adapted to coöperate with the fixed tooth, a spring for raising the inner end of the shank and a stop on said shank for preventing its escape from the handle portion; substantially as described.

4. In a wrench, the combination with the handle portion, struck up from sheet metal, with a longitudinal socket therein in line with the handle portion, and transversely-extending cheek-pieces at the extremity of said socket portion, and a fixed jaw confined between said cheek-pieces out of line with the handle and having a tooth projecting toward said socket at its inner side, of a movable jaw, a shank for the movable jaw sliding in said socket in line with the handle and having a slight transverse movement therein, a series of teeth on the face of said shank from which the jaw projects adapted to cooperate with the fixed tooth, a spring for raising the inner end of the shank to secure the engagement of the teeth and means for preventing the escape of the movable jaw; substantially as described.

643,633. APPARATUS FOR CHARGING INCLINED GAS-RETORTS. ANDRÉ COBB, Rheims, France. Filed Jan. 11, 1899. Serial No. 701,810. (No model.)



Claim.—1. The combination of a movable carrier, a bucket carried by said carrier and a movable stop coöperating with the carrier to limit the travel thereof, and thereby determine the limit of movement of the bucket with the carrier.

2. The combination with a bucket of a set of stop-bars corresponding to the respective rows of retorts and serving to limit the vertical descent of the bucket, the lower bar being fixed so as to arrest the bucket when its delivery-mouth comes opposite the lowermost row of retorts, the upper bars carrying tappets or abutments which are adjustable so as to bring them into or out of the path of movement of the bucket to arrest the same when they are brought into alinement with the retort to be charged and the corresponding tappet or abutment has been brought into operative position.

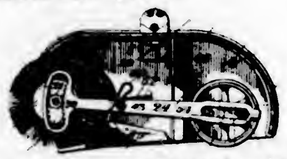
3. In the automatic system for charging inclined retorts herein specified, the combination of a bucket, spring-drums from which said bucket is suspended, a substantially horizontal movable carrier for supporting said drums so as to permit the bucket to move in a vertical direction independently of any movement imparted to the carrier and detent mechanism coöperating with said spring-drums, whereby the bucket may be moved in a substantially horizontal direction and the spring-drums are placed under tension by the descent of the loaded bucket in a vertical direction and the tension of the spring-drums will be exerted to raise the empty bucket in a vertical direction.

4. In the automatic system for charging inclined retorts, the combination with a fixed supply-hopper, of a charging-bucket coöperating therewith of means for automatically opening the valve of the charging-hopper when a bucket is brought into position to receive a charge and for automatically closing the valve of the charging-hopper when a suitable charge has been received in the bucket.

5. In the automatic system for charging inclined retorts, the combination with the bucket of an extension-casing inclosing the bucket telescopically and capable of being lowered until its delivery-orifice comes into line with the retort to be charged.

6. In the automatic system for charging inclined retorts, the combination with a charging-hopper, of a valve controlling the outlet of said hopper, means for operating said valve, a spring-supported bucket and mechanism for establishing a connection between said valve-operating means and the bucket, whereby the compression of the springs and the descent of the bucket under the load will effect the automatic closure of the delivery-valve of the supply-hopper when the bucket has received a load sufficient for the charging of the retort.

648,634. CARPET-SWEEPER. ALVIN H. DODD, Chicago, Ill., assignor to Julius W. Dyrenforth, trustee, same place. Filed Dec. 10, 1898. Serial No. 698,865. (No model.)



Claim.—1. A carpet-sweeper consisting of a casing, a brush, a driving-wheel to contact with the floor, a driving-rod inclosed within the sweeper-casing for transmitting motion from the driving-wheel to the brush, and a clutch mechanism inclosed within the sweeper-casing for rotating the brush in the same direction in both the forward and backward movement of the sweeper, substantially as described.

2. A carpet-sweeper consisting of a casing, a brush, a driving-wheel, a driving-rod through which motion is transmitted from the driving-wheel to the brush in both the backward and forward movement of the sweeper, and reversing-gears operatively connected with the driving-rod for rotating the brush in the same direction in both the forward and backward movement of the sweeper, substantially as described.

3. A carpet-sweeper consisting of a casing having its brush end formed so that the brush may project in front of the casing as well as contact with the floor beneath the casing, a brush mounted in the casing so as to project in front of the same and have a portion lie within the casing, a driving-wheel, means for transmitting motion from the driving-wheel to the brush, and mechanism for rotating the brush in the same direction in both the forward and backward movement of the sweeper, substantially as described.

4. A carpet-sweeper consisting of a casing, a brush, a clutch mechanism attached to the brush-shaft between its opposite ends and shielded by the bristles projecting from the shaft on opposite sides thereof, said clutch being adapted to rotate the brush in the same direction in both the forward and backward movement of the sweeper, a driving-wheel to contact with the floor, and means for transmitting motion from said wheel to the brush, substantially as described.

5. A carpet-sweeper consisting of a casing, a shaft carrying bristles, a set of reversely-operating ratchets and dogs, said ratchets consisting of internally-notched rings and said dogs having knuckles fitting in correspondingly-shaped sockets, both rings and dogs being attached to the brush-shaft between the bristles of the brush, and means connecting said dogs with driving mechanism whereby the brush is rotated in the same direction in both the forward and backward movement of the sweeper, substantially as described.

6. A carpet-sweeper consisting of a casing, the brush, the set of independently-operating pinions connected to the brush, a clutch for each pinion connected with the brush and pinion, one clutch operating oppositely to the other, a driving-rod, and means connecting the driving-rod with said pinions to rotate the brush from the driving-rod in both the backward and forward movement of the sweeper, substantially as described.

7. A carpet-sweeper consisting of a casing, a two-part shaft carrying bristles, a set of independently-operating pinions connected one to each section of the brush-shaft, a dog-holding plate or disk for each section of the brush-shaft and carrying dogs having knuckles, the disk being formed with cavities corresponding to the form of the dogs and their knuckles, an internally-toothed ring for each dog-holding disk or plate, said teeth and dogs having rounded ends, the dogs of one disk or plate operating oppositely to the other, and said dogs operating automatically in the backward and forward movement of the sweeper, and means for operating said pinions independently of each other, substantially as described.

8. A carpet-sweeper consisting of a casing, a brush, a driving-wheel to contact with the floor, a crank-shaft operated from said wheel, a pitman connected at one end to the crank of said shaft, and a clutch mechanism connecting the opposite end of the pitman and the brush, said clutch mechanism adapted to rotate the brush in the same direction in both the forward and backward movement of the sweeper, substantially as described.

9. A carpet-sweeper consisting of a casing, the brush, the set of independently-operating pinions connected to the brush, a clutch for each pinion connected with the brush and pinion, one clutch operating oppositely to the other, the pitman provided with a rack at one end to operatively engage the independent pinions, and the crank-shaft having one end of the pitman connected thereto, substantially as described.

10. A carpet-sweeper consisting of a casing, the brush, the set of independently-operating pinions connected to the brush, a clutch for each pinion connected with the brush and pinion, one clutch operating oppositely to the other, the pitman provided with the segmental rack at one end, some of the teeth of said rack engaging one pinion and other teeth the other pinion, and a crank-shaft for operating said pitman, substantially as described.

11. In a carpet-sweeper, the casing or shell consisting of the side pieces having inwardly-extending brackets, the top member fitting between the side pieces, the tie-rods for clamping the side pieces together, and the handle-socket castings provided with bolts passing through the top member and said brackets, substantially as described.

12. In a carpet-sweeper, the casing or shell consisting of the side pieces, the top member formed of a flexible board fitting between the side pieces, the tie-rods for clamping the side pieces and top member together, and the transverse strengthening-block placed across the inside of the top member at the end above the brush, substantially as described.

13. In a carpet-sweeper, the combination with the casing or shell having vertical ways or grooves formed on the inner faces of its side pieces, of the brush located at one end of the casing, the drive-wheel at the other end, and the partition fitting in said ways and separating the space occupied by the drive-wheel from the space between the brush and partition, substantially as described.

14. In a carpet-sweeper, the combination with the casing or shell and the brush, of the shoes 48 pivotally supported adjacent to the brush and independently thereof, and a spring for exerting a downward pressure on said shoes, substantially as described.

15. In a carpet-sweeper, the combination with the casing and brush, the casing having studs on its inside at the lower part adjacent to the brush, the shoes pivotally supported upon said studs, the dust-pan supported upon the same studs and the springs for holding the shoes and the pan in their normal position, substantially as described.

643,635. INCANDESCENT VAPOR-BURNER. FRANK B. DUFFEY, Los Angeles, Cal. Filed Aug. 24, 1899. Serial No. 728,331. (No model.)



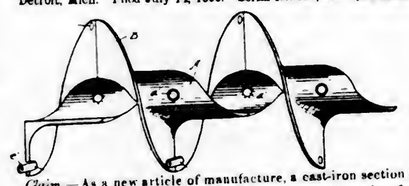
Claim.—1. In a gas or vapor burner, the combination with the generator, and a crown-plate therefor, of a superimposed deflecting-hood extending around the burner in close proximity to the crown-plate, the space between the hood and the crown-plate communicating with the interior of the burner by gas-ports located immediately above the plane of the crown-plate, and just beneath the top of the hood, the burner being provided above the hood with means for causing an ignition of the gas passing outward through said ports, substantially as described.

2. In a gas or vapor burner, the combination with a generator, having a crown-plate, of a collar exteoding upward from the crown-plate and provided with an upwardly extending slit, and with gas-ports adjacent to the crown-plate, and a hood extending around said collar and overhanging the crown-plate with a space beneath the hood communicating with the gas-ports in the collar, substantially as described.

3. In a gas or vapor burner, the combination with a generator having a crown-plate, of a collar at the upper side of the crown-plate having gas-ports, and a deflecting-hood extending around said collar and overhanging the crown-plate and provided with slits, substantially as and for the purpose specified.

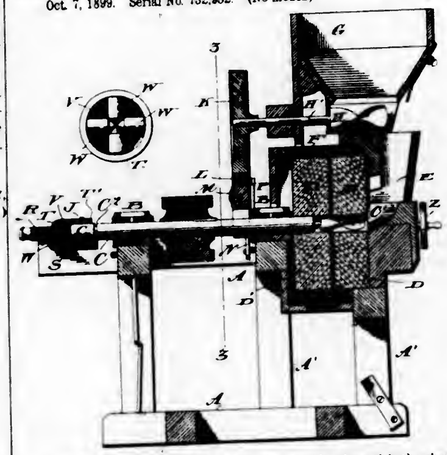
4. In a gas or vapor burner, the combination with a generator having a crown-plate, of a slitted collar above the crown-plate having gas-ports at the point of junction of said collar with the crown-plate, and a deflecting-hood encircling said collar, and provided with concaved flanges which overhang the crown-plate, and which are provided with slits and notches, substantially as and for the purpose specified.

643,636. SECTIONAL SCREW CONVEYER. ALBERT C. ELMER, Detroit, Mich. Filed July 14, 1899. Serial No. 723,797. (No model.)



Claim.—As a new article of manufacture, a cast-iron section for a screw conveyer, comprising a hub portion of half-tubular form having a bolt-hole near the center thereof, said hub having edges *c*, *d*, adapted to engage with corresponding edges of adjacent sections, substantially as described, and a spiral wing along one of its ends, substantially as shown and for the purpose set forth.

643,637. FEED-MILL. JOHN O. ENSBERG, Peterson, Minn. Filed Oct. 7, 1899. Serial No. 732,952. (No model.)

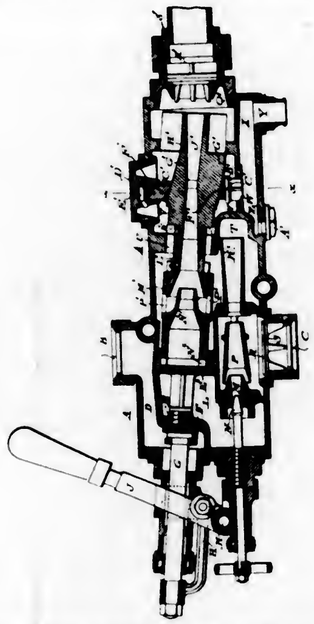


Claim.—In a feed-grinding mill, the combination with the shaft suitably mounted and carrying the grinding-wheel, the lever R pivoted at one end to the frame of the mill, an adjustable hand-operated shaft secured to its opposite end, the cup T recessed in its outer end and fitted over said lever R, the antifriction-rollers seated in said cup and arranged at right angles to each other, their inner ends tapering and held in contact with one another, the flanged thimble T' held within said box and having a bearing on the shaft, the forked yoke S secured to lever R and having arms engaging in an annular recess (C^3 in the shaft, all substantially as shown and described and for the purpose set forth.

643,638. DOUBLE-TUBE INJECTOR. THOMAS M. EYNON, Philadelphia, Pa., assignor to the Eynon-Evans Manufacturing Company, of Pennsylvania. Filed July 19, 1899. Serial No. 724,434. (Model.)

Claim.—1. In a double-tube injector, a movable forcing steam-nozzle, a forcing combining-tube attached thereto and an overflow-valve in combination with means for operating said valve simultaneously with the reciprocation of said forcing steam-nozzle and forcing combining-tube.

2. In an injector, a movable forcing steam-nozzle, and a forcing combining-tube having a cut-off barrel constructed on its outside, said forcing steam-nozzle and combining-tube being inclined at an angle to the axis of the injector-casing, in combination with an overflow-valve and connections common thereto and to said barrel.



3. In an injector, the combination of a forcing steam-nozzle, a forcing combining-tube movable in unison therewith, a cut-off barrel constructed on the outside of said combining-tube, an overflow-valve and means for enabling said barrel to cut off the passage of the water from the suction-nozzles to the overflow at the proper period.

4. In an injector, a cut-off barrel constructed on the outside of the forcing combining-tube, means for reciprocating the latter, an overflow-valve and connections common to said barrel and valve whereby the latter is actuated in unison with said barrel.

5. In an injector, a forcing combining-tube, inclined at an angle to the injector-casing, inclined upper and lower faces on said combining-tube, a yoke surrounding said tube, and having inclined ways engaging said faces of the combining-tube and an overflow-valve engaging said yoke and operating simultaneously therewith.

6. In an injector, a suction-opening, a threaded coupling therein, and a check-valve seated in said coupling and having a port therein.

7. In an injector, an overflow-chamber, a plurality of openings therein, a plug and an overflow-nozzle engaging said openings respectively, said plug and nozzle being interchangeable with respect to each other.

8. In an injector, an overflow-valve, an inclined combining-tube having a cut-off barrel constructed on its outside, and means substantially as described for operating said barrel and valve in unison.

9. In an injector, a movable forcing combining tube having a cut-off barrel and inclined upper and lower walls constructed on its outside, a yoke having inclined ways engaged by said walls and an overflow-valve actuated in unison with said yoke.

10. In an injector, a casing, a forcing combining-tube provided with a cut-off barrel constructed on its outside, a forcing steam-nozzle and a steam-valve all inclined at an angle to the axis of said casing, in combination with an overflow-valve and means for operating the latter and said barrel in unison.

11. In an injector, a casing, an inclined forcing combining-tube, having a cut-off barrel and upper and lower inclined faces, a yoke engaging said tube, guiding devices for said yoke and an overflow-valve operated by said yoke.

12. In an injector, a casing, a cut-off barrel, a passage in said casing adapted to be throttled by said barrel, an overflow-valve and means for operating said valve and barrel simultaneously.

13. The combination of an injector-casing, and a check-valve located in the suction thereof, said valve having a port therethrough.

14. The combination of an injector-casing, a check-valve located in the suction thereof, said valve having a port therethrough, and means for permitting steam to flow through said port, whereby freezing in the suction-pipe and supply-tank is prevented.

15. In an injector, a casing, a longitudinally-movable forcing steam-nozzle, a forcing combining-tube attached thereto, said nozzle and tube being inclined relatively to the axis of said casing, an overflow-valve, and means located within said casing for operating said valve in unison with said tube.

16. In an injector, a casing, a longitudinally-movable forcing combining-tube inclined at an angle to the axis of said casing, an overflow-valve, connections common to said valve and tube, and means for actuating the latter.

17. In an injector, a casing, a longitudinally-movable forcing combining-tube, inclined at an angle to the axis of said casing, a passage through which said tube extends, a shoulder on said tube adapted to throttle said passage, and means for actuating said tube.

18. In an injector, a casing, a forcing steam-nozzle, a forcing combining-tube attached thereto, a yoke engaging said tube, an overflow-valve operated by said yoke, means for guiding the upper portion of said yoke, and means for operating said nozzle, tube, yoke and valve.

19. In an injector, a main steam-inlet valve E, a steam-valve E^x, a forcing steam-nozzle N^x, a forcing combining-tube, the above parts being connected together and movable in unison, suction steam-nozzles, an overflow-valve, and means for enabling said valve to move in unison with said forcing combining-tube.

20. In an injector, a casing, a longitudinally-movable forcing combining-tube, an overflow-valve, connections common to said valve and tube and located within said casing, and means for actuating said tube.

21. In an injector, an overflow-chamber, a plurality of threaded openings of the same diameter therein, a plug and an overflow-nozzle having threaded portions of the same diameter engaging said openings, said plug and nozzle being interchangeable according to requirements.

22. In a double-tube injector, a casing, a movable forcing steam-nozzle, a forcing combining-tube attached thereto and an overflow-valve in combination with means located interiorly of said casing for operating said valve simultaneously with the reciprocation of said forcing steam-nozzle and forcing combining-tube.

23. In a double-tube injector, a casing, a suction-opening therein, a check-valve seated in said opening and having a port therethrough, a movable forcing combining-tube having a cut-off barrel thereon, a handle, and means whereby when said handle is moved to its extreme position, sufficient steam will pass through said port to prevent freezing in the suction-pipe or supply-tank.

643,639. GARMENT-SUPPORTER OR GARTER. JAMES W. FAXON, Oak Park, Ill. Filed Oct. 28, 1898. Serial No. 694,789. (No model.)



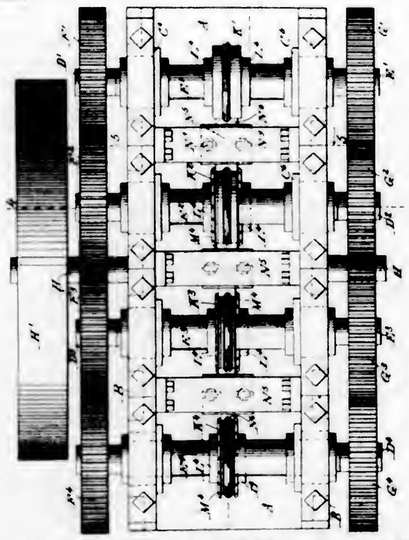
Claim.—As an article of manufacture a clasp for garters and garment-supporters consisting of two jaws each having pivotal lugs, a pintle pivotally connecting the same, a coil-spring surrounding said pintle the spread of the ends of which normally closes said jaws; one of said jaws being provided with a suitable tooth the outer end of which is beveled or inclined toward the adjacent end of said jaw and the side wall of which nearest the pivot of said jaws being undercut, and said jaw having a suitable eye formed in its upper end; the other jaw being provided with a companion opening for said tooth in the end normally closed against said first-mentioned jaw as and for the purpose set forth.

643,640. MACHINE FOR MAKING EXPANDED METALLIC LATHING. ALEXANDER B. FORDYCE, Newark, and WILLIAM DUNCAN, Kearny, N. J. Filed Mar. 23, 1899. Serial No. 710,218. (No model.)

Claim.—1. In a machine for making expanded metallic lathing, a plurality of mechanisms for slitting and stretching metal to form keys successively operating in different parallel planes; each of said mechanisms consisting of a series of cutters projecting radially from a common rotatable axis and of a cutting edge cooperating with said cutters.

2. In a machine for making expanded metallic lathing, a plurality of mechanisms for slitting and stretching metal to form keys successively operatingin different parallel planes, each of said mechanisms consisting of a series of cutters projecting radially frum a common rotatable axis and of an engaging edge cooperatiug with said cutters, and guides interposed between said mechanisms for directing the course of the blank.

3. In a machine for making expanded metallic lathing, a plurality of mechanisms for slitting and stretching metal to form keys successively operating in different parallel planes; each of said mechanisms consisting of a series of cutters projecting radially from a common rotatable axis and of a rotary engaging edge cooperating with said cutters.



4. In a machine for making expanded metallic lathing, a plurality of mechanisms for slitting and stretching metal to form keys successively operating in different parallel planes; each of said mechanisms consisting of a series of cutters projecting radially from a common rotatable axis and of a rotary engaging edge cooperating with said cutters, and guides interposed between said mechanisms for directiug the course of the blank.

5. In a machine for making expanded metallic lathing, a plurality of mechanisms progressively arranged and successively operating in different planes for throwing off keys from a blank.

6. In a machine for making expanded metallic lathing, a plurality of rotary mechanisms progressively arranged and successively operating in different planes for throwing off keys from a blank.

7. In a machine for making expanded metallic lathing, a plurality of rotary mechanisms progressively arranged and successively operating in different planes for throwing off keys from a blank, and means for driving said rotary mechanisms at the same rate of speed.

8. In a machine for making expanded metallic lathing, a series of pairs of coöperating feed-rolls, and a slitting and stretching mechanism carried by each pair of said rolls.

9. In a machine for making expanded metallic lathing, a plurality of rotary mechanisms progressively arranged and successively operating in different planes for throwing off keys from a blank, and guides interposed between said rotary mechanisms.

10. In a machine for making expanded metallic lathing, a plurality of rotary mechanisms progressively arranged and successively operating in different planes for throwing off keys from a blank, guides interposed between said rotary mechanisms, and means for driving said rotary mechanisms at the same rate of speed.

11. In a machine for making expanded metallic lathing, a series of pairs of coöperating rolls, the rolls of a succeeding pair being shorter than the rolls of a preceding pair, and rotary cutters carried by said rolls and operating in different parallel planes.

12. In a machine for making expanded metallic lathing, a series of pairs of coöperating rolls, the rolls of a succeeding pair being shorter than the rolls of a preceding pair, rotary cutters carried by said rolls and operating in different parallel planes, and guides interposed between said pairs of rolls.

13. In a machine for making expanded metallic lathing, a series of pairs of coöperating feed-rolls progressively arranged and successively operating, and a slitting and stretching mechanism carried by each pair of said rolls, the slitting and stretching mechanism carried by one pair of rolls operating in a plane different from the planes in which the slitting and stretching mechanisms carried by the other pairs of rolls operate.

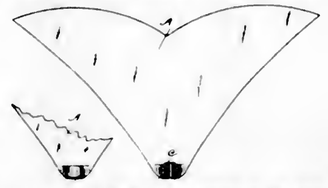
14. In a machine for making expanded metallic lathing, a roll, a series of cutters circularly arranged on an end of said roll, a cutting edge cooperating with said cutters, a second roll, a second series of cutters circularly arranged on the end of said second roll and turning in a plane different from that in which the first-mentioned cutters turn, the relative arrangement of the two series of cutters being such that the cuts made by the first series of cutters break joint with those made by the second series of cutters.

15. In a machine for making expanded metallic lathing, a series of grooved and ribbed rolls arranged in pairs of different lengths, and grooved and ribbed guides interposed between said pairs of rolls.

16. In a machine for making expanded metallic lathing, a series of rolls adjustable endwise and arranged in pairs of different lengths, and adjustable guides interposed between said pairs.

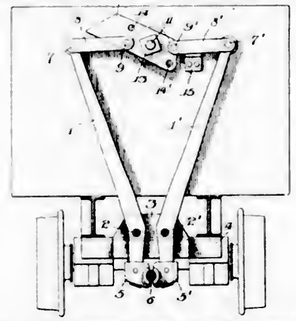
17. In a machine for making expanded metallic lathing, a journal-box, a sleeve adjustable in said box, nuts turned on the ends of said sleeve for holding it in its adjustments, and a shaft journaled in said sleeve and having a shoulder abutting an end of said sleeve.

643,641. UMBRELLA-COVER. ROBERT D. FRASER, Hamilton, Canada. Filed Apr. 14, 1899. Serial No. 713,034. (No model.)



Claim.—A protector adapted to be secured to the cover of an umbrella by means of a flap of suitable design and material, having an outer ferrule capable of fitting around the tip end of the rib of said umbrella, and a metallic flanged split eyelet capable of insertion in said ferrule when the same is in position on said rib, to prevent said ferrule from leaving its butted position against the bulb or fabric-fastening eyelet of said rib, substantially as described.

643,642. GRIPPER FOR CABLE-CARS. SIMON A. FRASER, New Glasgow, Canada. Filed Nov. 2, 1899. Serial No. 735,591. (No model.)



Claim.—1. In a gripper, a pair of pivoted gripping-levers, a pair of links each connected to one of said gripping-levers, a rocking lever connected to each of said links, which closes said gripper by spreading said links, and automatic means for locking said gripper, substantially as specified.

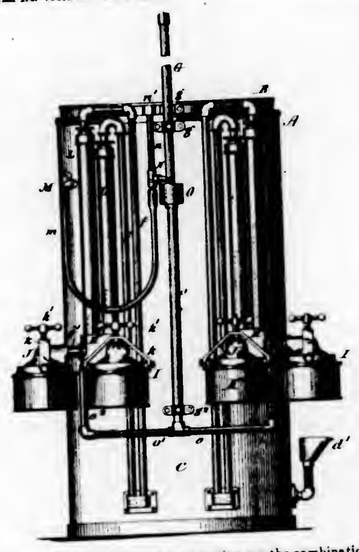
2. In a gripper, a pair of pivoted levers, a pair of links each pivoted to one of said gripping-levers, a rocking lever pivoted to each of said links, and having means for varying its pivotal connections with said links, and a stop coacting with said mechanism for locking the same, substantially as specified.

3. In a gripper, a pair of independently-fulcrumed gripping-levers, a pair of links each pivoted to one of said gripping-levers, a rocking lever pivoted to each of said links and fulcrumed intermediate of its pivotal connections with said links, and means for checking said rocking lever and automatically holding said gripper in closed position when said rocking lever has passed its dead-center position, substantially as specified.

4. In a gripper, a pair of independently-fulcrumed gripping-levers, a fulcrumed rocking lever, and means for connecting said

rocking lever with each of said gripping-levers, by which the rotation of said rocking lever closes said gripper, and a stop coacting with said rocking lever for locking said gripper, substantially as specified.

643,648. APPARATUS FOR GENERATING ACETYLENE GAS. HENRY F. FULLER, New York, N. Y., assignor to the Acetylene Apparatus Manufacturing Company, of West Virginia. Filed Jan. 4, 1899. Serial No. 701,120. (No model.)



Claim.—1. In a machine for generating gas the combination with a gasometer, having a movable part and a stationary part, of a generator, comprising a number of carbid-receptacles, and supports for said receptacles, said supports having lower chambers in connection with a water-supply, upper chambers in connection with said receptacles and a connection between said upper and lower chambers, said water-supply, and means for controlling it.

2. In a machine for generating gas, the combination with a gasometer, having a movable and a stationary part, of a generator, comprising a number of carbid-receptacles, a hollow support therefor, said support having upper chambers in connection with said receptacles, and a lower chamber, a vertical pipe for each of said upper chambers, a pipe within said first-mentioned pipe and passing through said upper chamber into said lower chamber, the length of said inner pipe varying with each of said upper chambers, and a water-supply for said lower chamber.

3. In a gas-generating machine the combination of a gasometer, having a movable and a stationary part, a generator consisting of a number of carbid-receptacles, hollow supports therefor, said supports having upper chambers in connection with said receptacles, and lower chambers in connection with a water-supply, a suitable connection between said upper and lower chambers, whereby water from said lower chambers may attack the contents of but one of said receptacles at a time, a water-supply for said lower chambers, and means for controlling said water-supply actuated by the movements of said gasometer.

4. A generator for a gas-generating machine consisting of a plurality of carbid-receptacles, and a suitable support for said receptacles, said support provided with a plurality of chambers, of which chambers one is connected with a water-supply, means connecting said water-supply chamber with other chambers whereby the latter are supplied successively with water, and means connecting said receptacles with chambers, substantially as specified.

5. A generator for a gas-machine comprising a number of carbid-receptacles, a suitable support therefor, provided with a plurality of chambers, one of said chambers being in connection with a water-supply, and others thereof in connection with said carbid-receptacles, and connections between said water-supply chamber and the others thereof, adapted to supply said receptacles successively with water, said connections consisting of a number of pipes, having varying heights and outlets at the upper end thereof, all in communication with said water-supply chamber and each of said outlets in communication with one of said other chambers connected with said receptacles, substantially as specified.

6. In a gas-generating machine, the combination with a gasometer, comprising a movable part and a stationary part, of a generator comprising a plurality of carbid-receptacles and a suitable support for said receptacles, said support being provided with a plurality of chambers, some of said chambers being in communication with said receptacles, and others of said chambers being in communication with a water-supply, said water-supply adapted to be controlled by the said movable part of said gasometer, and communication between said former chambers and said latter chambers consisting of a number of pipes of different lengths, all of said pipes in communication with said water-supply chambers, and each of said pipes having an outlet at its upper end in communication with one of said former chambers in communication with a carbid-receptacle whereby said receptacles are supplied successively with water.

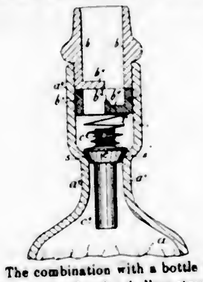
648,644. BICYCLE. LEONARD B. GAYLOR, Erie, Pa. Filed Apr. 19, 1899. Serial No. 713,558. (No model.)



Claim.—1. The combination with a handle-bar of a removable pin set transversely of the handle-bar, the ends of which project beyond the sides thereof, a ferrule provided with notches adapted to receive and cover the ends of the pin to prevent the turning of the grip and the escape of the pin, another ferrule at the other end of the grip, flanges on the ferrules which embrace the ends of the grip, the grip itself, and means to force the ferrules toward each other for the purposes set forth.

2. The combination with a handle-bar of a removable pin set transversely of the handle-bar, the ends of which project beyond the sides thereof, a ferrule provided with notches adapted to receive and cover the ends of the pin whereby movement of the grip is prevented and the pin hidden and prevented from endwise movement, another ferrule at the other end of the grip, flanges on the ferrules which embrace the ends of the grip, the grip itself, a centrally-perforated and threaded washer fastened in the end of the handle-bar, and a screw which passes through the outermost ferrule and threads into the washer, for the purposes set forth.

643,645. STOPPER OR CLOSING DEVICE FOR PREVENTING RECEPTACLES FROM BEING REFILLED. HENRI GUILLOU, Paris, France. Filed Mar. 28, 1898. Serial No. 675,481. (No model.)



Claim.—1. The combination with a bottle provided with an interior valve-seat in its neck, of a hollow stopper fixedly arranged within the bottle-neck, said stopper having a horizontal diaphragm partly closing the lower end of the stopper, a ring fixedly arranged below the stopper and having a horizontal diaphragm partly closing the lower end of said ring, said diaphragms projecting inwardly from opposite sides into position to prevent the insertion of an instrument through the ring, a valve arranged within the bottle-neck and adapted to normally rest upon the valve-seat therein, the parts being arranged whereby to leave an intervening space between the lower face of the ring and the valve, said valve having an upwardly-projecting screw-threaded stem or nipple, c^3, and a spiral spring encircling the said nipple and bearing at opposite ends against the under side of the ring and the upper face of the valve, the said valve being of sufficient weight to overcome the stress of the spring when the bottle is inverted, as and for the purpose set forth.

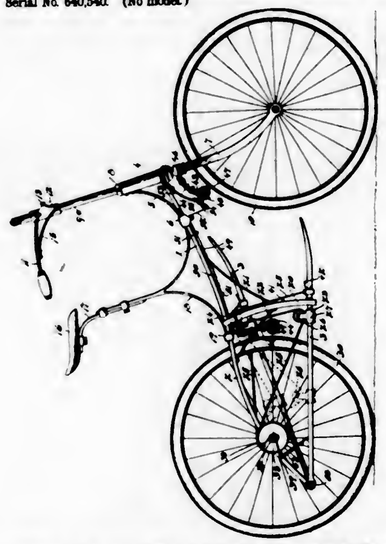
2. The combination with a bottle provided with an interior valve-seat in its neck, of a hollow stopper fixedly arranged within the bottle-neck, said stopper having a horizontal diaphragm partly closing the lower end of the stopper, a ring fixedly arranged below the stopper and having a horizontal diaphragm partly closing the lower end of said ring, a second ring arranged below the first ring and provided with a horizontal diaphragm partly closing its lower end, the various diaphragms projecting inwardly alternately from opposite sides whereby to provide a tortuous passage for the liquid and prevent the insertion of an instrument through the rings, an upwardly-projecting flange at the edges of the diaphragms of the rings, a valve arranged within the bottle-neck and normally resting upon the seat therein, the parts being arranged whereby an intervening space is left between the lower face of the lower ring and the upper face of the valve, the said valve having an upwardly-projecting screw-threaded stem or nipple, and a spring encircling said nipple and bearing against the lower ring and the valve, said valve being of sufficient weight to overcome the stress of the spring when the bottle is inverted, a sand for the purpose set forth.

643,646. PROPELLER FOR VESSELS. CHRISTIAN R. HANSEN, Chicago, Ill. Filed July 20, 1899. Serial No. 724,470. (No model.)



Claim.—The combination with a vessel, of an endless paddle-propelling device arranged upon the outer sides thereof and comprising parallel cables, paddles rigidly secured to said cables at a right angle thereto and projecting beyond both sides of the cables, grooved drums carrying said cables and between which the paddles project, shafts actuating said drums and a casing inclosing the upper paddles, substantially as described.

643,647. VELOCIPEDE. WILLIAM HARMON, Bartow, Fla., assignor of one-half to F. H. Farrell, Homeland, Fla. Filed June 12, 1897. Serial No. 640,540. (No model.)



Claim.—1. In a propelling mechanism for bicycles and like machines, the combination with the frame, and the drive-axle, of a driving-clutch, a vertically-swinging pedal, a single speed-changing pulley having a boxing longitudinally slidable on the pedal, means for locking the pulley-boxing in a fixed position at any point of adjustment on the pedal, a fixed direction-pulley mounted on the frame, and an operating-cable connected at one end with the clutch, thence passed directly from the clutch to and under the shiftable speed-changing pulley, then up to and over the fixed direction-pulley on the frame, and from the latter extended to a fixed point of adjustment on the pedal, said speed-changing pulley being adjustable along the pedal from a position near said fixed point of attachment for the cable to a position in proximity to the vertical plane of the clutch, substantially as set forth.

2. In a bicycle or like machine, the combination of a pair of bars spaced apart, forming a guide, a lug applied to one of the bars, a pedal element directed in its movements by the said bars, a spring for returning the pedal element to a normal position, and a catch pivoted intermediate of its ends to the pedal element immediately in the rear of the foot-rest and having its front end deflected laterally, substantially as shown for the purpose set forth.

3. In a bicycle or like machine, the combination with the frame, the steering-post, and a handle-bar, of an approximately horizontal brace having connection with the tube in which the steering-post is journaled, an upright support having connection at its lower end with the frame and joined at its upper end to the rear portion of the horizontal brace, and a segmental support at the juncture of the upright and horizontal brace and having the rear portion of the handle-bar resting thereon, substantially as set forth.

4. In a bicycle or like machine, the combination with the frame, the steering-post, and a handle-bar having pivotal connection with the steering-post, of an upright arch having connection at its lower end with the side bars of the frame, an approximately horizontal brace connecting the upper portion of the arch with the upper part of the tube in which the steering-post is mounted, a diagonal brace between the lower end of said tube and the upper portion of the arch, and a segmental support for sustaining the rear portion of the handle-bar, substantially as described.

5. In a road-machine, the combination of pedal elements, upper direction-pulleys, straps or cords secured to the pedal elements and passing over the upper direction-pulleys and adapted to transmit power to the drive-wheel, lower direction-pulleys, and straps or cords attached to the pedal elements and passing beneath the lower direction-pulleys and extending within convenient reach to be drawn upon by hand to supplement the action of the foot-pressure, substantially as described.

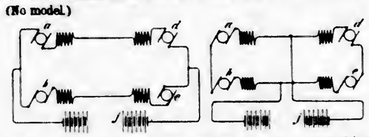
6. In combination, a pedal-yoke having end guides, upper and lower direction-pulleys, the latter being obliquely disposed, pedal elements operating in the guides of the pedal-yoke, straps passing over the upper direction-pulleys and connected with the pedal elements for transmitting motion therefrom to the drive-wheel, and straps or cords having connection at one end with the pedal elements and passing around the lower direction-pulleys and within reach, substantially as and for the purpose set forth.

643,648. CARPET-CLAMP. FANNIE J. HAWKINS, Cedar Rapids, Iowa. Filed May 10, 1899. Serial No. 716,315. (No model.)



Claim.—The combination with the riser and tread, of a stair adapted to receive a stair-rod in the angle thereof projecting beyond the side line of the carpet, of a clamp secured in vertical position on the riser beyond the side line of the carpet and above the position of the projecting end of the rod, said clamp comprising a vertical bracket E having side flanges, a curved plate-spring J between the flanges and a clamp-bar K pivoted between the flanges provided with an angular inner end in contact with the spring and a ring-shaped outer end with a curved recess to fit over the stair-rod, substantially as described.

643,649. APPARATUS FOR CONTROLLING ELECTRIC MOTORS. JEAN J. HEILMANN, Paris, France. Filed Nov. 8, 1899. Serial No. 736,233. (No model.)



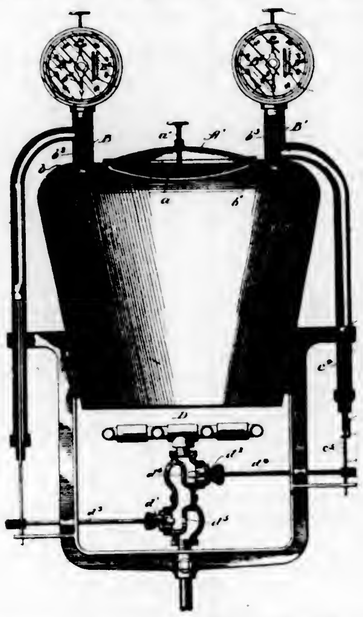
Claim.—1. In electric-motor cars four motors, arranged in series diagonally two by two, so that one of the motors on the one side of the carriage is in series with one of the motors on the other side, and adapted to equalize the strains and pressure of the current in the two series of motors when the vehicle is turning a curve, substantially as described.

2. The combination with a four-wheeled electric-motor vehicle,

of four motors, one for each wheel, each motor being in series with one on the opposite side of the vehicle, but not in series with the other motor on the same side thereof, substantially as and for the purpose set forth.

3. An electric-motor vehicle having two motors on each side, those on one side being in multiple series with those on the other side, substantially as and for the purpose set forth.

643,650. COOKER. WILLIAM F. HERDRICH and ELEHARD G. HEYD, Chicago, Ill. Filed Jan. 28, 1899. Serial No. 703,686. (No model.)



Claim.—1. The combination of a vessel for containing material to be cooked, a burner for supplying heat to the vessel, a tube opening into the top of the vessel, a second tube also opening into the top of the vessel, a piston for each tube, an opening in each tube, of which one is in a higher plane than the other, controlled by the pistons, a pipe leading from each opening downward, a piston in each tube, and means actuated by said pistons for controlling the supply of gas to the burner proportioned to the pressure generated in the vessel, substantially as described.

2. The combination of a vessel for containing material to be cooked, a burner for supplying heat to the vessel, a tube opening into the top of the vessel, a second tube also opening into the top of the vessel, a piston for each tube, means for adjusting the travel of each piston, an opening in each tube, of which one is in a higher plane than the other, controlled by the pistons, a pipe leading from each opening downward, a piston for each downwardly-extending pipe, a stem or rod for each such piston, and means actuated by the stems or rods for controlling the supply of gas to the burner proportioned to the pressure generated in the vessel, substantially as described.

3. The combination of a vessel for containing material to be cooked, a tube opening into the top of the vessel, a second tube also opening into the top of the vessel, a piston for each tube, means for adjusting the position of each such piston, an opening in each tube, of which one is in a higher plane than the other, controlled by the pistons, a pipe leading from each opening downward, a piston for each downwardly-extending pipe, a stem or rod for each such piston, a burner below the cooking vessel, an upper and lower valve supplying gas to the burner, and means connecting the valves with the piston rods or stems for diminishing the supply of gas to the burner proportioned to the pressure generated in the cooking vessel, substantially as described.

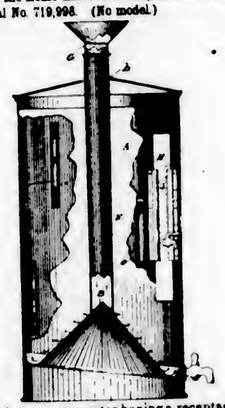
4. The combination of a vessel for containing material to be cooked, a tube opening into the top of the vessel, a second tube also opening into the top of the vessel, a piston for each tube, means for adjusting the position of each piston, an opening in each tube, of which one is in a higher plane than the other, controlled by the pistons, a pipe leading from each opening downward, a piston in each pipe, a stem or rod for each such piston, a rack on one rod, a rod having a rack being vertically adjustable on the other piston stem or rod, a burner below the cooking vessel, valves admitting gas to the burner, and a pinion on each valve-stem actuated by the racks on the piston stems or rods, whereby the supply of gas is controlled by the generated pressure in the vessel, substantially as described.

5. The combination of a vessel for containing material to be cooked, two tubes leading from the top of the vessel, a piston in each tube, one piston having a longer travel in operating, means for adjusting the pistons and indicating the pressure generated in the passage, a burner supplying heat to the vessel, valves admitting a supply of gas to the burner, and means actuated by the different travel of the respective pistons in the tubes from the generated pressure in the vessel for successively operating the valve and diminishing and shutting off the supply of gas to the burner, substantially as described.

6. The combination of a vessel for containing material to be cooked, two tubes leading from the top of the vessel, an opening in each tube, the opening in one tube being located in a higher plane than in the other tube, a piston in each tube controlling the opening of its tube, a stem for each piston, a rack on each stem, a pinion engaging each rack, an indicator for each tube operated by the rack and pinion, a downwardly-leading pipe from each tube-opening, a piston in each of such pipes, a burner below the cooking vessel, valves admitting a supply of gas to the burner, and means actuated by the pistons in the downwardly-leading pipes for operating the valves and diminishing and shutting off the supply of gas to the burner, substantially as described.

7. The combination of a vessel containing material to be cooked, tubes leading from the top of the vessel, an opening in each tube, the opening in one tube being located in a higher plane than in the other tube, a piston for each tube controlling the opening of the tube, a downwardly-leading pipe from each tube-opening, a piston in each of such pipes, a stem or rod for each pistos, a non-adjustable rack on one stem or rod and an adjustable rack on the other stem or rod, a burner below the cooking vessel, valves supplying gas to the burner, a stem for each valve, and a pinion on each stem engaging one with the non-adjustable rack and the other with the adjustable rack, whereby the supply of gas to the burner is controlled by the generated pressure in the cooking vessel, substantially as described.

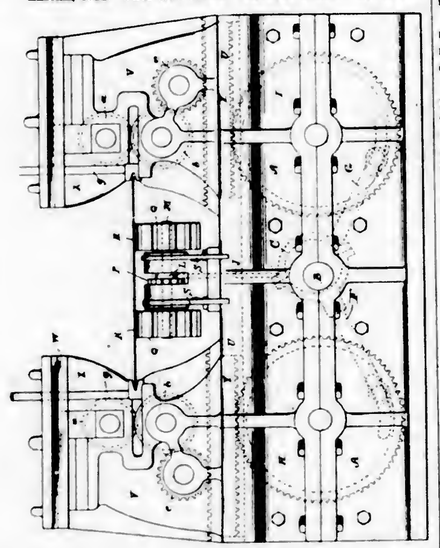
643,651. CREAM-SEPARATOR. EDWARD M. HEYLMAN, Pekin, Ill., assignor to the Acme Harvester Company, same place. Filed June 9, 1899. Serial No. 719,998. (No model.)



Claim.—1. A cream-separator having a receptacle provided with a conical bottom, the point of such cone being uppermost within said receptacle and substantially central, the base thereof provided with an annular trough, substantially as shown, such trough inclined whereby a lowest point is obtained, a faucet at such lowest point for carrying away the contents of the receptacle in combination with a removable conduit adapted to rest upon the upper portion of the cone and provided with serrations at its end where it rests on such cone all for the purposes set forth and described.

2. In a cream-separator, the combination of a receptacle, a coned bottom therefor whose apex is uppermost and substantially central, an annular trough formed at the base of said cone, such trough inclined to form a lowest point for drawing-off purposes, a faucet at said lowest point, a removable conduit having serrations in its lower edge, said lower edge resting on the cone near its apex whereby water introduced into such conduit will flow down the cone equally at all points, a funnel having a strainer therein for the top of the conduit and a cover or lid for the receptacle, the same being provided with an aperture for the insertion of said conduit all for the purposes described.

643,652. CORSET-STAY-TIPPING MACHINE. GEORGE A. HILL, Ansonia, Conn. Filed Nov. 5, 1898. Serial No. 696,591. (No model.)



Claim.—1. In a stay-tipping machine, the combination of feeding and holding mechanism, slides for simultaneously applying tips to the two ends of said stay, rolls carried by said slides for swaging said tips on said stays.

2. The combination in a tipping-machine, of means to receive and convey stays to the tipping mechanism, tip-retaining pockets to receive the ends of said stays, slides for feeding said pockets onto the stays and applying said tips, rolls carried by said slides for securing said tips to said ends alternately with the applying operation.

3. The combination in a tipping-machine, of means for feeding and supporting stays, tip-applying mechanism comprising a pocket to supply the tips, mechanism to feed the tips on the ends of said stays, and rolls for simultaneously swaging said tips to the two ends of said stays with a single operation of said applying mechanism.

4. The combination in a tipping-machine of means for holding stays, slides for simultaneously supplying tips and feeding them onto the ends of said stays, rolls carried by said slides for simultaneously swaging said tips to said ends.

5. The combination with the base, of stay supplying and supporting mechanism, means for applying tips to each end of said stays, comprising slides, a pocket for applying the tips, and rolls for securing the tips so applied alternately with the operation of the applying mechanism.

6. The combination in a tipping-machine of a suitable base, tip-applying mechanism slidably mounted thereon and comprising a slide carrying a tip feeding and applying device and rolls for securing said tips to the steels, means for reciprocating said slidable mechanism to and fro upon the base, whereby said tips are applied and secured with a single operation of said slide.

7. The combination in a tipping-machine, of a base, stay-supporting mechanism tip supporting and attaching mechanism slidably mounted on said base and comprising a pocket and rolls, means for reciprocating said attaching mechanism to and from the steels.

8. The combination with the driving-shaft, connections thereof with feeding mechanism, stay feeding and retaining means, segments H and I and connections thereof with the driving-shaft, slides operatively connected to said segments and mechanism mounted in said slides for securing tips to the steels.

9. The combination with a driving-shaft, of a conveyor for feeding stays, connections between the conveyer and driving-shaft whereby said conveyer is operated, slides bearing racks, segments engaging said racks, connections from the driving-shaft for operating said segments, and tip supplying and attaching mechanism.

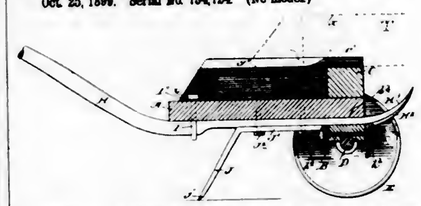
10. The combination in tip-attaching mechanism, of a slide and means for reciprocating the same, rolls carried by said slide, gears connecting said rolls, a fixed rack to operate said gears by the movement of said slide.

11. The combination in a tipping-machine, of slides and means for reciprocating the same, tip-applying devices carried by said slides, rolls mounted therein and operatively connected together, a fixed rack to operate said rolls by the movement of said slides.

12. The combination in a tipping device, of rolls operatively connected, means for supplying tips to the steels, a rack to operate said rolls, by a forward and backward movement, whereby a tip is secured.

13. The combination of a suitable base, of slides operatively mounted thereon, means for reciprocating said slides toward and from each other, stay-holding mechanism interposed between said slides, rolls carried by the slides to secure the tips to said stays and means for operating the holding device to successively feed the stay to and from the tippers.

643,653. TRUCK. ANDREW J. HOPKINS, Burton, W. Va. Filed Oct. 25, 1899. Serial No. 734,724. (No model.)



Claim.—1. A device for the purpose described, comprising a body, supporting-wheels, a bearing-block thereon, an operating-handle, side pieces extending rearwardly from said bearing-block and above the surface of the body to prevent sidewise displacement from the body, and a forwardly-projecting engaging device, substantially as described.

2. A device for the purpose described, comprising a body, supporting-wheels, a bearing-block thereon, an operating-handle, and a dog rearwardly inclined and adapted to engage the supporting-surface and prevent rearward movement of the truck, substantially as described.

3. A device for the purpose described, comprising a body, supporting-wheels at the forward end thereof, a bearing-block at the forward end of the body and extending above the same, a rearward-projecting handle, and a rearwardly-inclined dog having a biting lower end for supporting the rear end of the device and preventing rearward movement thereof, substantially as described.

4. A device for the purpose described, comprising a body, supporting-wheels at the forward end thereof, a bearing-block at the forward end of the body and extending above the same, a rearward-projecting handle, and a rearwardly-inclined dog for supporting the rear end of the device and preventing rearward movement thereof, and a forwardly-projecting hook or spur, substantially as described.

5. A device for the purpose described, comprising a body, supporting-wheels therefor, and a handle secured to the body extending beyond the forward end thereof and terminating in an engaging device for a tube, substantially as described.

6. A device for the purpose described, comprising a body, supporting-wheels therefor, a handle secured to the body extending beyond the forward end thereof and terminating in a hook or spur, and a downwardly-projecting holding-dog.

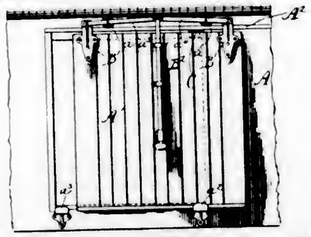
7. A device for the purpose described, comprising a body, supporting-wheels therefor, a block secured to the under side of the body, a handle secured to the under side of the body projecting forwardly beyond the body and terminating in a hook, a holding-dog secured to the under side of the body and having a portion secured to said block, and a strengthening-piece for said hook having a part secured to said block, substantially as described.

8. A device for the purpose described, comprising a body, an axle-block below the same, a bearing-block above the same, an axle, and bolts passing through the axle-block, body and bearing-block and having eyes securing said axle against the axle-block, substantially as described.

643,654. DOOR-HANGER. GRAHAM P. JONES, Chicago, Ill., assignor to the Jones Car Door Company, same place. Filed Apr. 19, 1899. Serial No. 713,676. (No model.)

Claim.—1. A hanger for sliding doors comprising a body, an over-

hanging portion forming a seat and provided with an eye for attachment of its operating-lever and with an incline upon its inner end, and a lateral web of substantially the width of the door provided on its inner end with an incline, the distance between the web and the base of the incline of the overhanging portion being less than the width of the track to which said hanger is adapted.



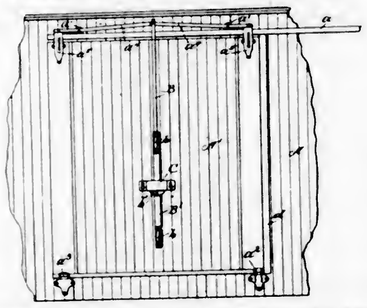
2. The combination, with a sliding door, levers provided with sheaves, a track upon which said sheaves run, an operating device for said levers, of hangers in which the levers are pivoted, an incline for forcing said door laterally when raised and a web on one of the hangers coacting with said incline, substantially as described.

3. The combination, with a sliding door, a track from which said door is suspended when operated, sheaves running on the track, levers in which the sheaves are journaled and by which the door is raised and lowered, of hangers in which the levers are pivoted, inclines for carrying said door inwardly when lowered and outwardly when raised, and a web on one of the hangers providing a wiper for said latter incline, substantially as described.

4. The combination, with a sliding door, a track from which said door is suspended when operated, raising and lowering levers carrying sheaves on which the door is slid, of cam-hangers in which the levers are pivoted, one of said hangers having a lateral web, and an incline or wedge in the path of the web, substantially as described

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643,655. CAR-DOOR. GRAHAM P. JONES, Chicago, Ill., assignor to the Jones Car Door Company, same place. Filed May 4, 1899. Serial No. 715,632. (No model.)



Claim.—1. The combination with a sliding door, and mechanism for moving it to and from its sliding position, of a device adapted to operate the lifting and lowering mechanism in any position of the door by either a lateral or a sliding movement.

2. The combination with a sliding car-door, and mechanism for lifting and lowering it to and from its sliding position, of a device adapted to operate the lifting and lowering mechanism either by a lateral movement in either direction or by a sliding movement.

3. The combination with a sliding car-door, and mechanism for moving it to and from its sliding position, of a device adapted to operate the lifting and lowering mechanism from its normal position by either a pivotal or a sliding movement.

4. The combination with a sliding car-door, and mechanism for lifting it to and from its sliding position, of an operating device for said lifting and lowering mechanism consisting of jointed rods, one of which passes freely through or coacts with a bracket on the door in any position of the door, substantially as described.

5. The combination with a sliding car-door, and mechanism for lifting and lowering it to and from its sliding position, of a jointed operating device for said mechanism, and a bracket adapted as a guide for said device or as a fulcrum upon which said device may have movement in either direction, substantially as described.

6. The combination of a car-door normally resting in a lowered position upon brackets, levers for raising said door to its operative position, jointed operating-levers, one of which is provided with a plate, and a bracket carried by the door with which said plate coacts when the levers are moved laterally, substantially as described.

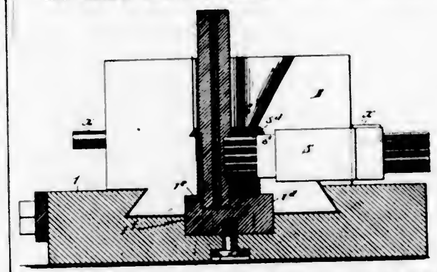
7. The combination with a sliding car-door, levers pivotally connected to the upper portion of the door, and sheaves carried by said levers, of a track on which said sheaves run, a connecting-rod pivoted to the levers, an operating-rod pivoted to the connecting-rod and provided with a plate, and a bracket through which said operating-rod freely passes and with which the plate coacts, substantially as described.

8. The combination with a sliding car-door, levers pivotally connected to the upper portion of the door, and sheaves carried by said levers and running on a suitable track, of a connecting-rod pivoted to the levers, an operating-rod pivoted to the connecting-rod and having a handle, and a bracket adapted as a guide through which said latter rod may slide or as a fulcrum upon which it may turn in either direction, substantially as described.

9. The combination with a sliding car-door, and mechanism for lifting and lowering it to and from its sliding position, of an operating device for said lifting and lowering mechanism adapted for downward movement through a guide on the door or for lateral movement in either direction upon said guide.

10. The combination of a car-door normally resting in a lowered position with respect to the door-opening, levers for raising said door to sliding position, a bracket on the door, and operating-levers, one of which passes through the bracket but may have a pivotal movement thereon in either direction to raise the door.

643,656. MOLD FOR LOCK-CYLINDERS AND KEY-HUBS. FRANCIS KEIL and HENRY F. KEIL, New York, N. Y. Filed Sept. 3, 1898. Serial No. 690,216. (No model.)



Claim.—1. In a mold for casting pin-tumbler locks, the combination with a bed-plate provided with a transverse recess in its face forming a guideway, of mold-sections provided with guiding projections adapted to slide in said recess, of a plate provided with an eye or opening in each end attached to the bed-plate, said ends projecting beyond the sides of the bed-plate, an arm rigidly secured to each mold-section, horizontally-arranged handles directly pivoted to said arms, and provided at their ends with curved spurs or hooks, which have a sliding movement in the eyes of the plate attached to the bed-plate, substantially as set forth.

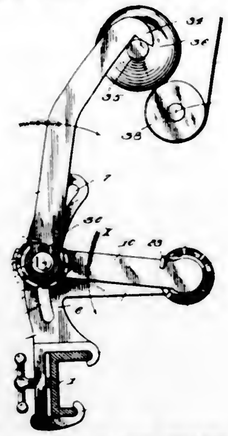
2. In a mold for casting pin-tumbler locks, the combination with a bed-plate provided with a guideway of mold-sections adapted to slide in said guideway, rigid arms connected to each mold-section, horizontally-arranged handles directly pivoted to said arms, and provided at their ends with curved spurs or hooks, bearings secured to the base-plate with which the spurs or hooks are slidably and detachably connected, of a shackle or yoke pivoted to one of the mold-sections, stop-pins on the other mold-section to limit the movement of the shackle, a cam mounted on the shackle and means for operating the cam, substantially as set forth.

3. In a mold for casting pin-tumbler locks, the combination with a bed-plate provided with a transverse recess forming a guideway, a central depression in said guideway, of a disk or plate seated in said depression and detachably secured to the bed-plate, a movable core engaging said disk or plate, mold-sections provided with guiding projections adapted to slide in the transverse recess of the bed-plate and means for operating the mold-sections, substantially as described.

4. The combination with a base-plate provided with a transverse recess forming a guideway, of a disk or plate seated in a recess in said guideway and detachably secured to the base-plate, mold-sections adapted to slide in said guideway, a longitudinally-removable core fitted between the mold-sections and a laterally-removable core

comprising a series of pins, each of said pins directly engaging the longitudinally-removable core, substantially as and for the purpose specified.

643,657. GUIDE-LEVER FOR LOOMS. LOUIS A. KING, Salem, Mass. Filed Nov. 18, 1899. Serial No. 737,477. (No model.)



Claim.—1. An attachment for looms comprising a frame securable to the loom-frame, an arm pivoted thereto and yieldingly pressed downward at its outer end, and a hooked lever pivoted to the end of the arm and yieldingly pressed inward, its hooked end being adapted to engage over a journal of the cloth-roll, substantially as described.

2. An attachment for looms comprising a frame securable to the frame of the loom, an arm pivoted thereto, a spring engaging the attachment-frame and the arm and normally pressing the arm downward, a lever pivoted to the arm and having a hooked upper end, and a spring engaging the arm and lever with a normal tendency to maintain the hooked end in engagement with a journal of the cloth-roll, substantially as described.

3. An attachment for looms comprising a pair of levers having hooked outer ends, springs for normally maintaining said hooks engaged over the journals of the cloth-roll and drawing said levers downward, and adjustable fastenings for securing the levers at different positions on a cross-beam of the loom, whereby they also act as side guides for the cloth as wound upon the cloth-roll, substantially as described.

4. In an attachment for looms, the combination with a frame adapted for attachment to the loom-frame and provided with a round opening and a curved slot in an arc having the opening for a center, of a horizontally-disposed arm pivoted in the opening, a pin at its outer end seated in the curved slot, a lever pivoted to the outer end of the arm and having a hooked upper end, and springs tending normally to press the horizontal arm downward and the lever inward, substantially as described.

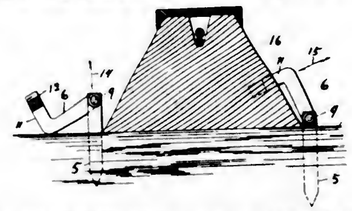
5. In a loom attachment, the combination with a frame adapted to be secured to the loom-frame and provided with a round opening and curved slot, of an arm pivoted in the opening, a pin on the arm seated in the slot, a boss on each end, on opposite sides of the arm, a hooked lever pivoted to the boss at the outer end of the arm, a notched disk on each boss secured against rotation, and a spring coiled around each boss having one end engaged in one of the notches of the respective disks, one of said springs bearing downward on the arm, and the other bearing laterally against the hooked lever, substantially as described.

643,658. RAILWAY-SPIKE. PETER J. KLEIN, New York, N. Y. Filed Filed May 25, 1899. Serial No. 718,246. (No model.)

Claim.—1. A railway-spike consisting of two parts hinged together, one of said parts being adapted to be driven into the tie or sleeper, and the other part being adapted to be driven into the rail, for the purpose set forth.

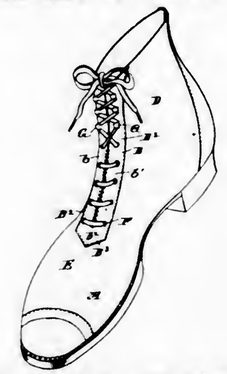
2. A railway-spike consisting of two parts hinged together, one of said parts being sharpened at the free end, the other part being provided with an angular extension which is sharpened at the end, for the purpose set forth.

3. A railway-spike consisting of two parts hinged together, one of said parts being sharpened at the free end, and the other part being provided with an angular extension the end of which is beveled at the sides, substantially as and for the purpose set forth.



4. The herein-described railway-spike, consisting of parts 5 and 6, said part 5 being sharpened at the free end, and being provided with a lug 7 and shoulder 8, the part 6 being provided with a similar lug and shoulder, and said lugs being connected together in such a way that the end of each lug will bear against the shoulder of the opposite part when the said parts are extended, said part 6 being provided with an angular extension 11 the sides of the end of which are beveled, substantially as and for the purpose set forth.

643,659. SHOE. ALFRED A. KOHN, Montgomery, Ala. Filed Nov. 22, 1897. Serial No. 659,381. (No model.)



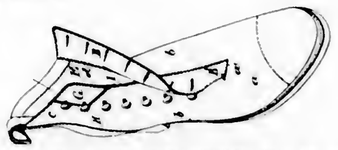
Claim.—1. A shoe having a vamp and two sides that extend above the ankle, each side comprising two portions secured together, one portion of each side being in the same piece of material as the vamp and extending above the ankle from the back to the front opening, the other portion of each side being a strip located at the front opening and projecting outwardly in front beyond the material of the first-mentioned portion above the ankle, said strips being of substantially the same area, the back edges of the sides being secured together, and fastening devices attached to said strips, substantially as described.

2. A shoe having a vamp and two sides that extend above the ankle, each side comprising two portions secured together, one portion of each side being in the same piece of material as the vamp and extending above the ankle from the back to the front opening, the other portion of each side being a strip extending from the vamp along the front of and projecting outwardly in front beyond the material of the first-mentioned portion above the ankle, the lower end of the strips lying upon the vamp below the front opening and stitched to said vamp across the same, said strips being of substantially the same area, the back edges of said sides being secured together, and fastening devices attached to said strips, substantially as described.

643,660. SHOE. ALFRED A. KOHN, Montgomery, Ala. Filed Nov. 30, 1897. Serial No. 660,213. (No model.)

Claim.—1. A shoe-upper having a vamp, two sides, and a flap, one side extending above the ankle from the back to the front opening in the same piece of material as the vamp but having a cut-out part in its top front corner the lower edge of which is above the instep and ankle, the other side extending from the back to the front opening above the ankle in the same piece of material as the vamp, the back edges of the sides being secured together, said flap being secured to the complete side at the edge of the front opening and having its lower end laid upon the vamp and secured thereto, said flap

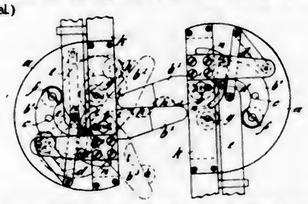
overlying the cut-out part of the other side when buttoned, substantially as described.



2. A shoe-upper having a vamp, two sides, and a flap, one side extending above the ankle from the back to the front opening in the same piece of material as the vamp but having a cut-out part in its top front corner the lower edge of which is above the instep and ankle, a filling-piece secured to the side having said cut-out part to close the latter, the other side extending complete from the back to the front opening above the ankle in the same piece of material as the vamp, the back edges of the sides being secured together, said flap being secured to the complete side at the edge of the front opening and having its lower end laid upon the vamp and secured thereto, said flap overlying the cut-out part of the other side when buttoned, substantially as described.

3. A blank for a shoe-upper comprising a piece of material having a recess D on one side to form the upper edges of the sides, said blank also having a cut along a line g, h, that extends centrally along the instep to a point above the same, a cut along a line from h to d^3 exteoding into the upper front edge of one side above the ankle portion, and a cut along a line from d^3 to d^4, to the apex of recess D, the last two mentioned cuts forming an extension on the upper front edge of one side and a recess in the corresponding edge of the other side, substantially as described.

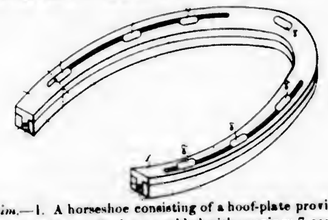
643,661. CAR-COUPLING. EMIL KRIBBER, Munich, Germany. Filed June 7, 1897. Renewed July 17, 1899. Serial No. 724,137. (No model.)



Claim.—1. In a car-coupling, the combination of a coupling-jaw, with a roller pivoted thereto, a sliding bar engaged thereby, and with a toggle connected to the bar and adapted to be actuated by the jaw, substantially as specified.

2. In a car-coupling, the combination of a coupling-jaw having projections and recesses, with a roller pivoted to the jaw, a sliding bar engaged thereby, a toggle connected to the bar and adapted to be actuated by the jaw, a spring engaging the jaw, a hand-lever connected to the sliding bar, and a keeper engaging the hand-lever, substantially as specified.

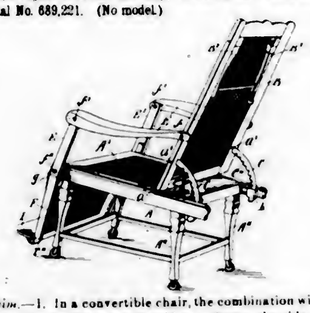
643,662. SPRING-HORSESHOE. JOHN M. LORD, Kansas City, Mo. Filed May 24, 1897. Serial No. 637,823. (No model.)



Claim.—1. A horseshoe consisting of a hoof-plate provided with recesses 4 and 6, a track-plate provided with openings 7 corresponding with said recesses 6 in the hoof-plate, lugs 3 on said track-plate arranged to engage said recesses 4 in the hoof-plate, and spring-studs arranged in said recesses 6 in the hoof-plate and protruding through said openings 7 in the track-plate, substantially as set forth.

2. A horseshoe consisting of an inner and outer portion, recesses formed in the shoe between said portions, a series of studs arranged in suitable openings in said outer portion, a series of springs connected with said studs arranged in said recesses, and antifriction-rollers arranged between said springs and said inner portion; substantially as and for the purpose set forth.

643,663. CONVERTIBLE CHAIR. EDGAR J. LUTWYCHE, Bellaire, Ohio, assignor to Annie D. Leuty, Detroit, Mich. Filed Aug. 22, 1898. Serial No. 689,221. (No model.)



Claim.—1. In a convertible chair, the combination with the rigid seat-frame, the back hinged to said seat-frame, the side rails of the seat-frame extending rearwardly of the point of the hinged connection between said back and seat a keeper mounted upon the ends of each of said projecting rails, curved rack-bars pivoted to the back of the chair and passing through said keepers, spring-actuated locking-plungers mounted upon the rails of the chair entering said keepers and engaging said rack-bars therein, a transverse shaft connected with said plungers, and a lever upon the end of said shaft.

2. In a convertible chair, the combination with the rigid seat-frame having side rails whose rear ends project beyond the seat-frame of the chair, keepers mounted on the projecting ends of the rails of said frame, the back hinged to said frame, a curved rack-bar pivoted to the back and adapted to pass through said keepers upon the projecting rail of the seat-frame, said keepers comprising a plate having a recess therein and provided with opposed lugs on its inner face extending into said recess, spring-actuated plungers entering said keepers between said lugs, and means for actuating said plunger.

3. In a convertible chair, the combination with the seat-frame, the back pivoted to the sat-frame, the arms pivoted to the back, the standards pivoted to the seat-frame and to the arms, the leg-supporting section hinged to said standards, the notched plate mounted on the standards, the spring-actuated dog pivoted in the leg-supporting section and engaging the notches of said plate, said dog having a button on one end which projects above the plane of the leg-supporting section for actuating said dog.

4. In a convertible chair, the combination with the seat-frame, the leg-supporting section hinged to the seat-frame, said leg-supporting section carrying a spring-actuated dog, a notched plate mounted upon an adjacent part adapted to be engaged by said dog to maintain said section estended, said plate having a curved slot therein and an arm projecting from the leg-supporting section carrying a pin which is adapted to lie in the curved slot in said notched plate.

643,664. PRINTER'S QUOIN. WILLIAM H. LYNCHARD, Council Bluffs, Iowa. Filed May 11, 1899. Serial No. 716,467. (No model.)



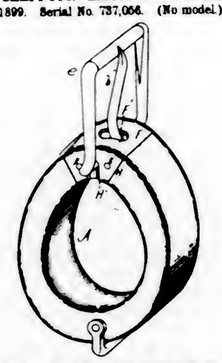
Claim.—1. The combination in a quoin, of two parallel bars, a wedge-bar mounted therewith, notches in said bars, and a mortise in said wedge, substantially as described.

2. The combination in a quoin, of two parallel bars, a wedge-bar located between said parallel bars, means for securing them together, a mortise in said wedge-bar, and grooves in said parallel bars on each side of said mortise and in line with each other, substantially as described.

3. The combination in a quoin, of two parallel bars, a wedge mounted between them and means for securing said parallel bars and wedge-bars together, a mortise in said wedge, notches on each side of said mortise in said parallel bars substantially in line with each other, and a lever having a part adapted to enter the mortise and a pin on each side of it engaging with said notches, substantially as described.

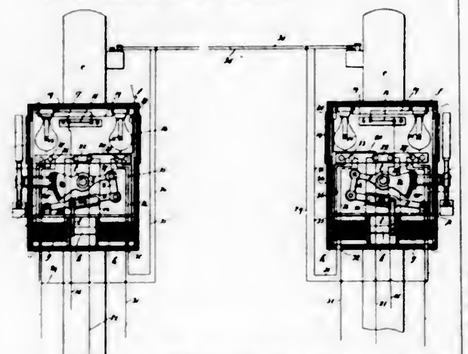
4. The combination in a quoin, of two parallel bars provided with dovetails on their inner sides, with a wedge-bar made in two pieces arranged to fit over said dovetails between said bars and hold the latter together, substantially as described.

643,665. SHAFT-TUG. ANDREW L. MACLACHLAN, Melrose, Mass. Filed Nov. 15, 1899. Serial No. 737,056. (No model.)



Claim.—The herein-described improvement in shaft-tugs, comprising the body portion A recessed as described between the points a, the portion of the tug between said points being provided with the cut B, radially-set central opening C and horizontal bore D; and the plate comprising the top portion F provided with the slot F', and the side portions H provided with the recesses H' and perforations H'' for the reception of fastening-bolts, substantially as described.

643,666. SIGNAL SYSTEM FOR RAILWAYS. KING W. MANSFIELD and WILLIAM R. THOMPSON, South Norwalk, Conn. Filed Apr. 6, 1899. Serial No. 711,949. (No model.)



Claim.—1. In a signal apparatus of the class described, a signal-box provided with signal lights and glasses in the opposite sides thereof, a shaft passing through one side of said box and provided at its outer end with a signal-arm, and a signal-glass, and also with a weighted arm, the weight of which is adjustable, a lever mounted in said box and adapted to turn said shaft, another lever pivotally connected with said first-named lever and provided with a longitudinal slot, two solenoids mounted beneath said last-named lever and provided with a longitudinally-movable armature-core which operates in connection with both of said solenoids, an arm connected with said armature-core and operating in connection with the slot in said last-named lever, and means for actuating said solenoids, substantially as shown and described.

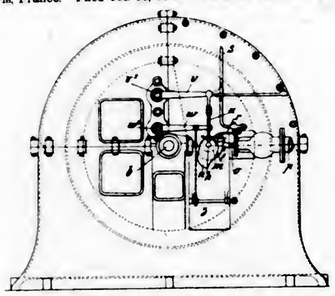
2. In a signal apparatus of the class described, a signal-box provided with a signal-light and a glass in the sides thereof, a shaft passing through one side of said box and provided at its outer end with a weighted arm, a signal-arm and a signal-glass frame, said signal-glass frame being adapted to operate in connection with said light and with the glass in the side of said box, and means for operating said shaft consisting of a lever pivoted in said box and geared in connection therewith, a pair of solenoids in said box provided with a common armature, and means for actuating said solenoids, substantially as shown and described.

3. A signal apparatus, comprising two signal-boxes, each of which is provided with signal devices, a pair of solenoids mounted in each of said boxes, and provided with a common armature in operative connection with the corresponding signal devices, said solenoids being connected electrically in two multiple sets, each of which includes one of the solenoids in each signal-box, and devices electrically connected with each of said multiple sets through which a trolley-arm or other device may establish a closed electrical circuit, substantially as shown and described.

4. A signal apparatus, comprising two signal-boxes each of which is provided with pivoted signal devices, a pair of solenoids, an armature common to both of said solenoids, a lever pivoted in said box and in operative connection with said armature, a second lever pivoted adjacent said first lever, and pivotally connected therewith and operatively connected with said pivoted signal devices, said solenoids being connected electrically in two multiple sets, each of which includes one of the solenoids in each signal-box, and devices electrically connected with each of said multiple sets and through which a trolley-arm or other device may establish a closed electrical circuit, substantially as shown and described.

5. A signal system of the class described, comprising two signal-boxes, each of which is provided with pivotal signal devices, a pair of solenoids mounted in each of said boxes and provided with a common armature in operative connection with said signal devices, said solenoids being electrically connected in two multiple sets, each of which includes one of the solenoids in each signal-box, the relative arrangement and construction being such that an energizing electrical current of short duration passed through one of said sets will operate said signal devices in both boxes to cause them to move into and remain in a predetermined position and a similar current of short duration passed through the other of said sets will operate said signal devices in both boxes to retract them from said predetermined position, substantially as shown and described.

643,667. CENTRIFUGAL MACHINE. MARCEL DE MARCHEVILLE, Paris, France. Filed Oct. 10, 1899. Serial No. 733,144. (No model.)



Claim.—In a machine for the separation of material held in suspension in a liquid, comprising a drum mounted to rotate within a fixed casing and provided with two valve-controlled inlets, the one for the substance or mixture to be treated and the other for a washing liquid, a hopper leading to a normally-closed discharge-outlet, and a movable scraper for detaching the separated material from the interior of the drum and directing the same into the hopper; the combination, with the shaft upon which the drum is mounted to rotate, of a cam-shaft driven thereby and levers or tappets actuated by the cams and in operative connection with the valves, scraper and shutter, the form of the cams and their angular arrangement relatively to one another being such as to bring about in proper sequence, and in constantly-recurring cycle, the opening and closing of the valves controlling the inlets, the bringing of the scraper into operative position, and the opening and closing of the discharge-aperture substantially as specified.

643,668. BRAKE-SHOE. CHARLES E. MARK, Chicago, Ill. Filed July 16, 1897. Renewed Oct. 23, 1899. Serial No. 734,531. (No model.)

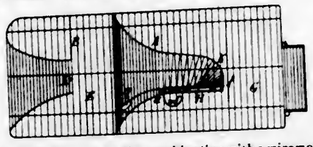


Claim.—1. A brake-shoe comprising a body part formed of relatively soft bendable metal bent so as to provide a concave braking-surface; and a series of relatively hard insert-pieces confined in recesses or cavities formed in the braking-surface of the body part be-

fore the bending thereof, and held therein by pressure exerted as a result of such bending.

2. A brake-shoe comprising a body part formed of relatively soft bendable metal bent so as to provide a concave braking-surface; and a series of relatively hard insert-pieces confined in recesses or cavities formed in the body part of the shoe before the bending thereof, and held therein by pressure exerted as a result of such bending, said insert-pieces consisting of a tread portion and a flange portion formed integrally therewith.

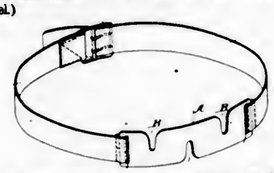
648,669. ANIMAL-TRAP. HENRI MARTY, Villefranche de Rouergue, France. Filed Dec. 28, 1897. Serial No. 664,036. (No model.)



Claim.—1. In a rat-trap, the combination with a wirework chamber, a truncated conical wirework partition A dividing the interior of the chamber into two compartments, and shaped to form a cage K at the apex of said partition, of a trap-door controlling communication between said compartments as described, said door being composed of a metal plate provided at one end with turned-down ears p' having holes and having turned-down edges p^2, a pivot carried by the cage K and passing through the holes, the latter being somewhat larger in diameter than the pivot, a counterweight carried by the door, an angle-iron carried by the cage and forming a seat for the trap-door, and being composed of a vertical flange l and a horizontal flange k against which latter flange the trap-door is normally pressed, the said flange l being secured to the bottom edge of the cage K, all arranged substantially as and for the purpose specified.

2. In a rat-trap, the combination with a wirework chamber, a truncated conical wirework partition A dividing the interior of the chamber into two compartments, and shaped to form a cage K at the apex of said partition, of a trap-door controlling communication between said compartments as described, said door being composed of a metal plate provided at one end with turned-down ears p' having holes and having turned-down edges p^2, a pivot carried by the cage K and passing through the holes, the latter being somewhat larger in diameter than the pivot, a counterweight carried by the door, an angle-iron carried by the cage and forming a seat for the trap-door, and being composed of a vertical flange l and a horizontal flange k against which latter flange the trap-door is normally pressed, the said flange l being secured to the bottom of the cage K, and a flexible hook m formed integral with the wirework of the partition A and adapted to be struck by the trap-door after the latter has been tilted somewhat downwardly and adapted to operate as described.

643,670. SKIRT-SUPPORTER AND WAIST-HOLDER. ANNIE MILLER, Philadelphia, Pa. Filed May 15, 1899. Serial No. 716,854. (No model.)



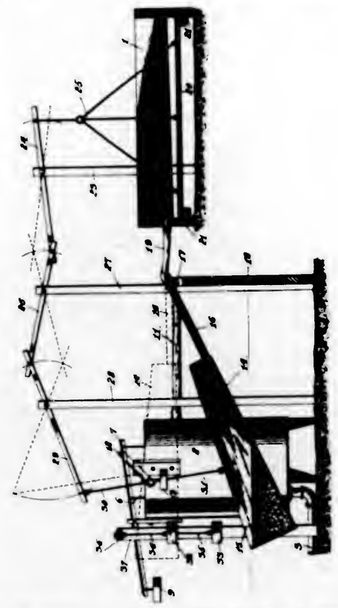
Claim.—1. In a device of the character described, a plate having a notch in its lower edge centrally of its length, and two notches in its upper edge equidistant from the center, and means for retaining the plate in position.

2. In a device of the character described, a plate having a notch in its lower edge adapted to receive a button of a shirt-waist, and two notches in its upper edge equidistant from the center to receive the buttons of a skirt, said plate having a slot in each end and belt-sections with their ends secured in the slots.

643,671. WATERING-TROUGH. CHARLES F. MITZINBERG, Scotland County, Mo. Filed Oct. 14, 1899. Serial No. 733,632. (No model.)

Claim.—1. The combination with a watering-trough, of a source of supply discharging directly into the trough, and an independent storage-tank connected to the trough and draining the latter.

2. The combination with a watering-trough, of a source of supply discharging directly into the trough, and an independent storage-tank connected to the trough, and having a vertical movement for draining the trough, and means for elevating and depressing the tank.



3. The combination with a watering-trough, of a source of supply discharging directly into the trough, and an independent storage-tank connected to the trough, and means for automatically draining the water from the trough into the storage-tank, and also for returning the water from the tank to the trough.

4. The combination with a watering-trough, having a tilting platform, of a storage-tank connected to the trough and having a vertical movement, and an operative connection between the platform and the tank, substantially as and for the purpose set forth.

5. The combination with a watering-trough, having a tilting platform, of a storage-tank, connected to the trough, and mounted to swing in a vertical direction, and a series of pivotally-connected levers forming an operative connection between the tilting platform and the storage-tank, for elevating the latter, substantially in the manner shown and described.

6. The combination with a watering-trough, of a storage-tank, having a rigid discharge-pipe pivotally or hingedly mounted to permit of a vertical movement of the tank, a flexible pipe connection between the outer end of the rigid pipe and the trough, and means for elevating and depressing the tank, substantially as and for the purpose set forth.

7. The combination with a watering-trough, of a storage-tank, having a vertical movement, and connected to the trough, flexibly-suspended superposed weights located in the path of the tank, and means for elevating and depressing the latter, substantially as and for the purpose set forth.

8. The combination with a watering-trough, of a storage-tank, having a vertical movement, connected to the trough, and provided with an opening in its upper side, flexibly-suspended superposed weights located in the path of the tank, and alined with the opening therein, and means for elevating and depressing the tank, substantially as and for the purpose set forth.

9. The combination with a watering-trough, of a vertically-movable storage-tank connected thereto, a supply-tank also connected to the trough, a cut-off valve for the supply-tank, a trip-lever for the cut-off valve, and located in the path of the storage-tank, and means for elevating and depressing the latter, substantially as and for the purpose set forth.

10. The combination with a watering-trough, of a vertically-movable storage-tank, having a flexible connection with the trough, a supply-tank, having a flexible connection with the storage-tank, a cut-off valve for the supply-tank, a trip-lever for the cut-off valve and located in the path of the storage-tank, and means for elevating and depressing the latter, substantially as and for the purpose set forth.

11. The combination with a watering-trough, of a storage-tank having a vertical movement, and connected with the trough, a supply-tank also connected to the trough, a cut-off valve for the supply-tank, a lever fulcrumed upon the latter, and having a float located within the tank, and also connected to the cut-off valve, a trip-lever mounted upon the supply tank, having one end located in the path of the storage-tank, and the opposite end normally engaging the valve-lever, and holding the valve closed, and means for elevating and depressing the storage-tank, substantially as and for the purpose set forth.

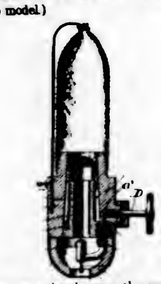
12. The combination with a watering-trough, having a tilting platform, of a supply-tank, a cut-off valve therefor, a valve-lever fulcrumed upon the tank, and provided with a float, a trip-lever also mounted upon the tank and normally engaging the valve-lever and holding the valve closed, a vertically-movable storage-tank connected to the trough, and traveling across the trip-lever, uprights supporting pivotally-connected levers, the outer free end of one lever being connected to the elevated end of the tilting platform, and the outer free end of one of the other levers being connected to the storage-tank, and flexibly-suspended superposed weights located in the path of the storage-tank, substantially as and for the purpose set forth.

13. The combination with a watering-trough, of a source of supply discharging directly into the trough, having means for controlling the supply of water, a storage-tank draining the trough, and means for automatically returning the drained water to the trough, prior to the discharge from the source of supply.

14. The combination with a watering-trough, of a vertically-movable storage-tank, having a rigid discharge-pipe pivotally or hingedly mounted, and a flexible pipe connection between the outer end of the rigid pipe and the trough, a source of supply having a flexible discharge-pipe connected to the rigid pipe of the storage-tank, and means for elevating and depressing the latter.

15. The combination with a watering-trough, of a source of supply discharging directly into the trough, a vertically-movable storage-tank draining the trough, and returning the drain-water to the latter, operating means for elevating the tank, and means for increasing the weight of the latter during the discharge of the drain-water.

648,672. BURNER. AMOS P. MOREY, Chicago, Ill., assignor of one-half to Mortimer Cahill, same place. Filed July 31, 1899. Serial No. 725,560. (No model.)



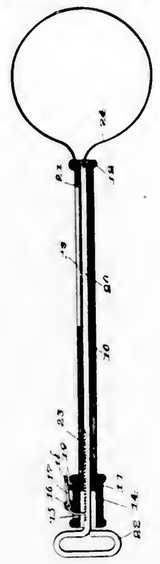
Claim.—1. In a generating-burner, the combination with a tubular jacket or casing, of a tubular plug fitted thereto, the meeting surfaces forming between them a generating-passage, and a holding device screw-threaded on one of said parts and bearing upon the other to hold the plug tightly within the casing, substantially as described.

2. In a generating-burner, the combination with a tubular jacket, of a tubular plug fitted within the same, said plug being provided upon its exterior surface with a series of channels united alternately at top and bottom making in combination with the contiguous wall of the jacket, a continuous tortuous channel between the plug and the jacket, substantially as described.

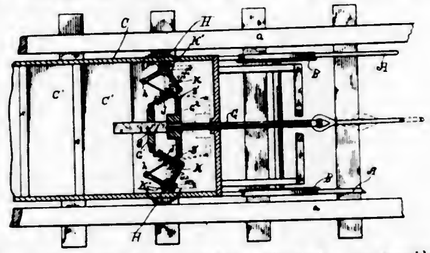
3. A vapor-generating burner, consisting of a tubular jacket or casing, a tubular plug fitted thereto, the meeting surfaces forming between them a generating-passage, a device for holding the plug tightly within the jacket or casing, a fluid-pipe connecting a part of said generating-passage with a supply, a descending vapor-pipe leading from another part of said passage, a valve controlling said descending vapor-pipe, and a second valve controlling the flow of vapor to the interior of said tubular plug, substantially as described.

643,673. HOG-HOLDER. ALBERTIS MORRIS, Waukee, Iowa. Filed Nov. 17, 1899. Serial No. 737,287. (No model.)

Claim.—An improved hog-holder, comprising in combination, a pipe 10, having a slot 13 therein, a pipe-section 14 secured to the pipe 10, and having a slot 15 therein, lugs 16 on the pipe-section 14, adjacent to the said slot, a pawl 17 pivoted between the lugs 16 and passed through the slot 15, a spring 19 connected with the pawl 17, a rod 20 having a handle 22 thereon and having ratchet-teeth 23, to be engaged by the pawl 17, a pin 21 on the rod to pass through the slot 13, and a wire loop 24 with its ends fixed respectively to the pipe 10 and the rod 20, substantially as, and for the purposes stated.



643,674. MINE ELEVATING APPARATUS. JOHN MUIRHEAD, Laurium, Mich. Filed Feb. 6, 1899. Serial No. 704,721. (No model.)



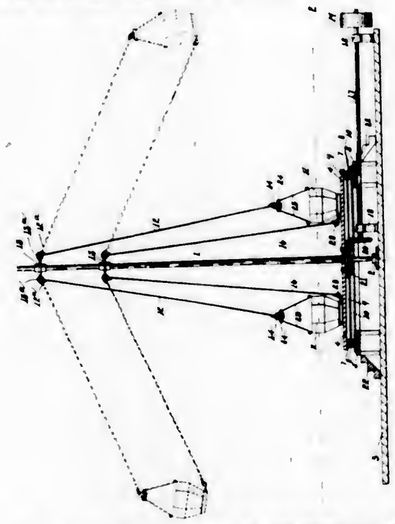
Claim.—1. The combination with a mine-shaft; a car movable up and down the said shaft; a draw-head carried by the car and arranged longitudinally of the shaft; a car-propelling cable operatively connected with the draw-head; and a beam arranged longitudinally of the shaft, out of the way of the path of the car; of a cam-shaped brake, having a serrated face provided with several pointed teeth projecting beyond the serrations, supported from the car and arranged as required to render it capable of biting or clutching the said beam upon oscillating it in one direction; two arms rigid with said cam-shaped brake, and projecting laterally from the axis of said brake and arranged at right angles, or at approximately right angles, to each other; a link operatively connecting one of the said arms with the draw-head; and a spring connected at one end to the other arm, and having its opposite end attached to the car, all arranged and operating as described and for the purpose set forth.

2. The combination with a mine-shaft; a car movable up and down the said shaft; a draw-head carried by the car and arranged longitudinally of the shaft; the car-propelling cable operatively connected with the draw-head; of a beam arranged longitudinally of the shaft out of the way of the path of the car, an oscillating cam supported from the car and arranged as required to render it capable of biting or clutching the said beam, upon oscillating it in one direction; two arms rigid with said cam, and projecting laterally from the cam's axis and arranged at right angles or approximately

at right angles to each other; a link operatively connecting one of the arms of said cam with the draw-head, and a spring connected, at one end, to the other arm and having its opposite end attached to the car, all arranged and operating substantially as shown, for the purpose specified.

3. The combination with a mine-shaft; a car movable up and down in said shaft; a draw-head carried by the car and arranged longitudinally of the shaft; the car-propelling cable operatively connected with the draw-head; of two beams arranged at opposite sides, respectively and longitudinally of the shaft; two oscillating cams supported from the car and arranged as required to render them capable of biting or clutching the different beams, respectively, upon oscillating them in one direction; two arms rigid with each cam, and projecting laterally from the cam's axis and arranged at right angles or approximately at right angles to each other; a link operatively connecting one of the arms of each cam with the draw-head, and a spring connected, at one end, to the other arm of each cam and having its opposite end attached to the car, all arranged and operating substantially as shown, for the purpose specified.

643,675. MERRY-GO-ROUND. THOMAS MURDY, Norristown, Pa. Filed June 3, 1899. Serial No. 719,203. (No model.)



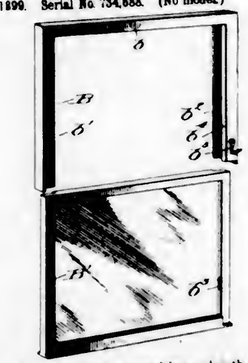
Claim.—1. In a merry-go-round of the class recited, the combination of the vertical shaft, the car, the rod hinged to said shaft and to the upper part of said car, the rod hinged to said shaft and to the bottom of said car, and arranged substantially as shown, whereby the car is maintained in substantially vertical position; the platform below the car upon which the latter is adapted to rest when said platform is at rest, and means for imparting a rotary motion to said shaft and platform in unison, substantially as set forth.

2. In a merry-go-round of the class recited, the combination of the vertical shaft, the cars, the rods hinged to said shaft and the upper part of said cars respectively, the rods hinged to said shaft and the bottoms of said cars respectively, and arranged substantially as shown whereby the cars are maintained in substantially vertical position, the horizontal platform connected to said shaft and adapted to support the cars when at rest, the circular trackway adapted to support and maintain the platform in the horizontal position, and means for imparting a rotary motion to said platform and shaft, substantially as and for the purpose set forth.

3. In a centrifugal merry-go-round, the combination of the rotatable vertical shaft, the car, the rod, 12, hinged to said shaft and pivoted and swiveled to the upper portion of the car, the rod, 16, hinged to said shaft and pivoted and swiveled to the bottom of said car and arranged substantially as shown, together with the wings attached to said car, whereby the latter is adapted to rotate on its axis during its gyration around said shaft, and is maintained substantially in vertical position, substantially as set forth.

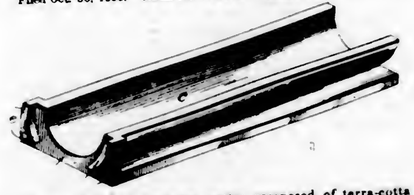
4. In a centrifugal merry-go-round, the combination of the vertical shaft, the platform, means for imparting a rotary movement to said shaft and platform in unison, the car, the rod hinged to said shaft and connected to the upper part of the car by a swivel-like connection, the supplemental bottom pivoted to the real bottom of the car, the rod hinged to said supplemental bottom and to the said shaft, and the wings on the sides of the car, all constructed, arranged and adapted to operate substantially as and for the purpose set forth.

643,676. WINDOW-SASH. JAMES W. MURRAY, St. George, Canada, assignor of one-fourth to Samuel Johnson, same place. Filed Oct. 24, 1899. Serial No. 734,688. (No model.)



Claim.—A window-sash, comprising a sheath adapted to fit in a window-frame and having an open side, grooves formed in said sheath adjacent to said open side; a pin fixed to the side of said sheath, a sash mounted to slide in said grooves and adapted to be removed from and inserted in said open side; and a latch pivoted to said sash and adapted to engage the pin of said sheath, whereby the sash may be locked to said sheath, substantially as described.

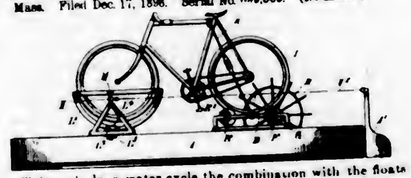
643,677. GUTTER. WILLIAM D. PAYNE, Tenallytown, D. C. Filed Oct. 30, 1899. Serial No. 735,242. (No model.)



Claim.—1. In an open-top gutter composed of terra-cotta or similar plastic material and adapted to form an edging for lawns, the herein-described gutter-section consisting of a semicylindrical body portion provided with a flat base extended on both sides beyond said body portion of the gutter to form lateral base-flanges, substantially as specified.

2. In an open-top gutter composed of terra-cotta or the like and adapted to form an edging for lawns, the herein-described gutter-section consisting of a semicylindrical body portion provided with a flat base extended on both sides beyond said body portion of the gutter to form lateral flanges, and having coupling-flanges on one end, substantially as specified.

643,678. WATER-CYCLE. SYLVESTER R. PERRY, Worcester, Mass. Filed Dec. 17, 1898. Serial No. 699,569. (No model.)



Claim.—1. In a water-cycle the combination with the floats of a front frame and a rectangular rear frame connecting said floats, of two transverse rods extending across the rear frame, an idle pulley journaled in said rods, a shaft extending longitudinally the rear frame and carrying paddle-wheels on its respective ends, a drive-pulley on said shaft in line with the idle pulley adapted to be driven by the rear wheel of a bicycle, a pivoted frame arranged upon the front frame and adapted to receive the front wheel of a bicycle, laterally-projecting arms extending from the said pivoted frame and slotted longitudinally at their outer ends, the tiller-arms pivoted upon the front frame and pivotally connected with the slotted arms, and the steering rods or cables connecting the tiller-arms and the rudders substantially as described.

2. In a water-cycle, the combination with the floats, of a rectangular front frame, and a rear frame connecting said floats, of the wheel-receiving frame L, and a depending arched bar having one half of the turn-table mounted thereon, a second bar connecting the members of the front frame upon which the other half of the turn-table is mounted, the laterally-projecting arms slotted at their outer ends, the tiller-arms pivoted upon the front frame and pivotally connected with the slotted arms, and the steering cables or ropes connecting the tiller-arms and the rudders substantially as described.

643,679. GARMENT-FASTENER. JOSEPH A. PHILLIPS, Baltimore, Md., assignor to the Raymond Button Company of Baltimore City, of Maryland. Filed Sept. 12, 1899. Serial No. 730,227. (No model.)

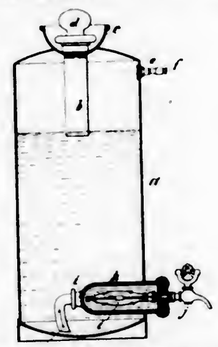


Claim.—1. In a garment-fastener, the combination of the stud, 1, consisting of a hollow shank, 6, having its upper end open and bent laterally to form the flange, 7, a flange, 4, having an annular groove, 5, all of said parts formed of one piece of metal; split ring, 3, around the outside of the shank, 6; and a socket, 2, having an annular groove, 11, a central aperture, 12, of less diameter than the split ring, 3; the metal around the said aperture being bent upward to reinforce the edge.

2. In a garment-fastener, the combination of the stud, 1, consisting of the hollow shank, 6, having a flange, 7, at the upper end, and a flange, 4, having an annular groove, 5; a split ring, 3, on the said shank, 6; and a socket, 2, having an annular groove, 11, and a central aperture, 12, the metal around the said aperture being turned upward to reinforce the edge.

643,680. WITHDRAWN.

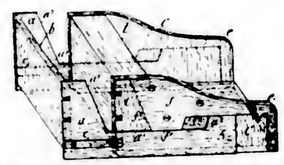
643,681. FOUNTAIN FOR FILTERING, UNDER PRESSURE, WATER, &c. CHARLES PREVET, Paris, France. Filed June 6, 1899. Serial No. 719,529. (No model.)



Claim.—1. An improved filtering-fountain not connected to any main or pipe for water or other liquid under pressure—comprising a receiver inclosing in its bottom the filtering device and in its top an opening with a valve, a tube provided with a funnel arranged at the upper part of the receiver for easily introducing liquid and preventing the coming out of the air filling the space between the upper part of the receiver and the level of the liquid, substantially as described.

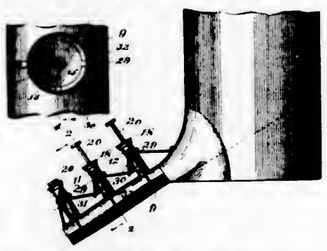
2. An improved filtering-fountain not connected to any main or pipe for water or other liquid under pressure, comprising a receiver having at its upper part an opening with a suitable valve and a pipe with a funnel, and in its lower part a casing communicating with the inner part of the fountain and containing a filter composed of a lens-shaped chambered disk of carbon, and unsized paper secured upon opposite sides of the said disk, substantially as described and represented in the accompanying drawings.

643,682. SLIDING SUPPORT AND STOP FOR DRAWERS, &c. LOUIS RAZY, Paris, France. Filed Dec. 20, 1897. Serial No. 662,633. (No model.)



Claim.—The combination with an article of furniture having a drawer-receiving receptacle or compartment the sides of which are provided with horizontal grooves, of a drawer-support having lateral cheeks recessed along their upper edges to form shoulders, a^1, at opposite ends of the recesses, and having each a horizontal bearing edge intermediate the shoulders, horizontal fillets secured to the outer faces of the cheeks of the support and slidingly arranged in the grooves of the sides of the compartment, a drawer arranged between the cheeks of the support, and fillets secured to the outer sides of the cheeks of the drawer, said fillets resting and adapted to slide upon the horizontal bearing edges of the cheeks of the support and being cut away at the rear ends to form shoulders having front and rear bearing edges f^2 adapted to abut against the shoulders a^2 in the manner described.

643,683. MEASURING VESSEL. WILLIAM M. REID, Bishopville, S. C. Filed July 15, 1899. Serial No. 723,966. (No model.)



Claim.—1. In a measuring vessel, the combination with a can and a discharge-spout having side slots, of a valve-cylinder of less diameter than the spout secured thereto and provided with side slots in line with those of the spout, a head fitted to slide in the cylinder, a screw passed through one of the cylinder-slots into the head, a valve secured in the bottom of the head and projecting through the side slots, a spring for holding the head outward, and a latch for locking it inward by engagement with the guide-screw, substantially as described.

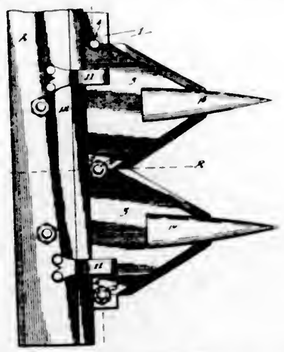
2. In a measuring vessel, the combination with a valve-cylinder, an inner cylinder therein having notches in its upper end, a disk in the cylinder having wings engaging in the notches and a central opening, a lid having a larger central opening, a plunger-rod of two diameters fitting in the openings in the disk and lid, a spring coiled around the smaller portion of the rod between the disk and the larger portion, a head secured to the rod below the disk and having a groove in its under face, and a valve secured in said groove, substantially as described.

3. The combination with a valve-cylinder, having side slots, of a plunger-head in the cylinder, a spring for retracting it, a screw projected through one of the slots into the head, a valve carried by the head, a latch or stop lever pivoted to the outside of the cylinder above and in line with the slots having a notched end to engage the screw to hold the head against the action of the spring, and a stop for the lever, substantially as described.

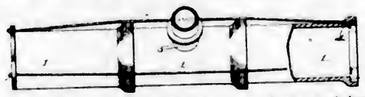
643,684. CUTTING APPARATUS FOR REAPING OR MOWING MACHINES. EDWIN ROBLIN, Belleville, Canada. Filed Aug. 1, 1899. Serial No. 725,821. (No model.)

Claim.—In a cutting apparatus of the class described, the combination with a cutter-bar, blades arranged on the same, and bolts securing the blades to the cutter-bar and provided at the upper faces of the former with nuts, of a locking bar arranged at the back of the nuts to lock the same against rotation and extending beyond the rear ends of the blades to overlap the joint, substantially as described.

643,684.



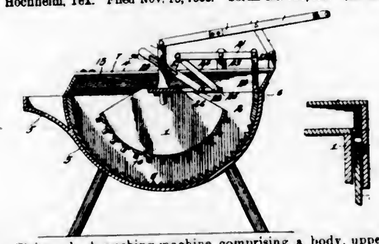
643,685. CULVERT. BENJAMIN P. SAUNDERS, Iatan, Mo. Filed June 26, 1899. Serial No. 721,822. (No model.)



Claim.—1. In a culvert, a series of connected pipes each having one end flanged and the other unflanged, said pipes being arranged with their unflanged ends fitting in the flanged ends of the adjacent pipes, in combination with a head-ring adapted to abut against either or both ends of said series of pipes, said ring having outwardly-extending lugs containing perforations to engage a series of external tie-rods, and inwardly-extending lugs containing perforations to engage a series of internal tie-rods, said tie-rods extending from end to end of said culvert, substantially as set forth.

2. In a culvert, a series of connected pipes as described, in combination with a head-ring adapted to abut against one end of said series of pipes, said ring having outwardly-extending lugs containing perforations to engage external tie-rods, and inwardly-extending lugs containing perforations to engage internal tie-rods, both said series of tie-rods being secured at one end to said plate, and, at the other end, the external rods passing through openings in the flange of the pipe to seats on the inner shoulder of said flange, and said inner rods having hooked ends to engage recesses in said inner shoulder, substantially as set forth.

643,686. WASHING-MACHINE. HERMANN G. SCHUMACHER, Hochheim, Tex. Filed Nov. 18, 1899. Serial No. 737,489. (No model.)



Claim.—1. A washing-machine comprising a body, upper and lower rubbers, the upper rubber being provided with a rigid arm, operating mechanism connected with the arm, a lever disposed longitudinally of the body and connected at its outer end with the lower rubber, an arm hinged to the upper rubber and connected with the inner end of the lever, and an adjustable connection between the hinged arm and the upper rubber, whereby the mechanism is adjusted to operate on different quantities of clothes, substantially as described.

2. A washing-machine comprising a body, upper and lower rubbers, the upper rubber being provided with a rigid vertical arm, a longitudinal lever arranged at one end of the washing-machine and connected at its outer end with the lower rubber, an arm hinged at its inner end to the upper rubber, extending longitudinally of the machine at a point below the lever, an inclined link connecting the inner end of the lever with the outer end of the hinged arm, and an inclined brace pivoted at its lower end to the hinged arm and having a slotted connection with the rigid arm, substantially as described.

643,687. REIN-HOLDER. JOHN S. SEWELL, Coleman, Tex., assignor of one-half to George F. Goss, same place. Filed July 20, 1899. Serial No. 724,529. (No model.)



Claim.—1. A rein-holder, comprising substantially parallel and spaced arms, and a link or ring slidable upon one of the arms and capable of being drawn into the space between the arms, substantially as and for the purpose set forth.

2. A rein-holder, comprising a pair of substantially parallel and spaced arms, a laterally-projecting shoulder provided upon one of the arms, and a ring or link slidable upon the other arm and capable of being drawn into the space between the two arms, substantially as and for the purpose set forth.

3. A rein-holder, comprising opposite attaching-arms, a pair of substantially parallel and spaced arms, a transverse shoulder projecting from one of the arms and away from the other arm, and a ring or link slidable upon the latter arm and capable of being drawn into the space between the two arms, substantially as and for the purpose set forth.

4. A rein-holder, formed from a single strap of flat metal bent intermediate of its ends into substantially parallel and spaced arms, one of the arms being in the form of a loop, and a ring or link embracing one side of the loop-shaped arm, slidable thereon, and capable of being drawn into the space between the two arms, substantially as and for the purpose set forth.

5. A rein-holder, formed from a single length of flat strap metal, folded intermediate of its ends into a pair of substantially parallel and spaced arms, a portion of the folds of one of the arms resting flush against each other, and one of the folds being bent laterally outward forming a shoulder, and then downward forming an attaching-arm, the folds of the other arm being separate, and the outer fold of the latter arm being bent into an attaching-arm, and a link or ring normally embracing the outer side of the latter arm, slidable thereon, and capable of being drawn into the space between the two arms, substantially as and for the purpose set forth.

6. A rein-holder, formed from a single length of flat strap metal, folded intermediate of its ends into substantially parallel and spaced arms, the ends of the strap being formed into attaching-arms, one of the attaching-arms being located adjacent to one end of the parallel arm, a fastening device extending through one end of one of the parallel arms and through the adjacent attaching-arm, and a spacing-sleeve embracing the fastening device, substantially as and for the purpose set forth.

643,688. LIFE-PRESERVER. JACOB SILBAR and HYMAN SILBAR, Milwaukee, Wis. Filed Nov. 21, 1899. Serial No. 737,761. (No model.)

Claim.—In a life-preserver, the combination of a pneumatic jacket and means to inflate the same, a wide seat portion 1, straps extending forwardly and rearwardly from the corners thereof, the ends of said straps being adjustably attached to the lower edges of the jacket to hold the latter in place, substantially as described and set forth.

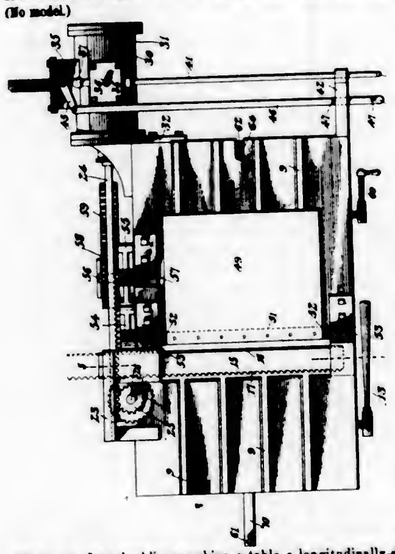


648,689. BOTTLE-STOPPER. ANDREW M. SIMS and ARPST J. ARPSTEN, Denver, Colo. Filed Apr. 28, 1899. Serial No. 714,795. (No model.)



Claim.—The combination with a bottle having a transverse opening formed through one side only of the neck and located adjacent to the upper edge thereof, and a stopper fitted in the neck and closing the transverse opening therethrough, of a locking-pin having an enlarged head at one end, and a spring tongue or spur extending toward the head of the pin, the latter being inserted through the opening in the bottle-neck and into the stopper, the free end of the tongue or spur engaging the inner wall of the neck at one side of the transverse opening and preventing the withdrawal of the pin, the shank of the latter filling said transverse opening, and the head engaging against the outer side of the neck, covering the outer end of the transverse opening and excluding the insertion of an implement to compress the spring-tongue, substantially as and for the purpose set forth.

648,690. MACHINE FOR DOUBLING METAL PLATES. RALPH R. SPEARS, Wheeling, W. Va. Filed Jan. 26, 1899. Serial No. 703,468. (No model.)



Claim.—1. In a doubling-machine, a table, a longitudinally-slidable creasing-bar arranged to move transversely of the table, means for projecting said bar across the table, and retracting it to a position at one side of the latter, separate means for causing said bar to clamp upon the work simultaneously with its longitudinal movement, and a single swinging folding-leaf pivotally supported at one side and independently of the creasing-bar, and adapted to swing completely over the latter, substantially as set forth.

2. In a doubling-machine, a table, a creasing-bar arranged transversely of the table, means for longitudinally sliding the creasing-bar into and out of operative position, independent means for causing the said bar to clamp upon the work simultaneously with its longitudinal movement, and means carried by the table for swinging one-half of the plate over the creasing-bar, substantially as set forth.

3. In a doubling-machine, a table having wedge surfaces, a reciprocatory creasing-bar also having wedge surfaces cooperating with those of the table, to provide means for causing said bar to clamp upon the work, and means carried by the table for folding the plate over said bar, substantially as set forth.

4. In a doubling-machine, a table, having oppositely-located guide-boxes, a slidable creasing-bar arranged transversely of the table, and having a wedging engagement with the guide-boxes to cause it to clamp upon the work, and means, carried by the table, for folding the plate over said bar, substantially as set forth.

5. In a doubling-machine, a table having oppositely-located guide-boxes having guide-openings whose walls are formed with wedge surfaces, a creasing-bar arranged above and transversely of the table and formed with wedge surfaces engaging the correspondingly-shaped walls of the guide-openings, and means, carried by the table, for folding the plate over said bar, substantially as set forth.

6. In a doubling-machine, a table, a movable creasing-bar cooperating with the table and having a rack, a shaft geared with the rack of the creasing-bar, fluid-pressure mechanism having a reciprocating piston carrying a rack-bar geared with said shaft, and means carried by the table for folding the metal plate over said creasing-bar, substantially as set forth.

7. In a doubling-machine, a table, a reciprocatory creasing-bar working above the table, a folding-leaf arranged to swing over the creasing-bar and having an oscillatory shaft, fluid-pressure mechanisms having a common support at one end of the table, each of said mechanisms having a reciprocatory piston operatively connected with the creasing-bar and the oscillatory shaft respectively, and a separate controlling-valve for each of the pressure mechanisms, substantially as set forth.

8. In a doubling-machine, a table having guides, a reciprocatory creasing-bar arranged transversely above the table and working in said guides, said creasing-bar having a rack extending longitudinally thereof, a shaft geared with the rack of the creasing-bar, fluid-pressure mechanism supported by the table and having a reciprocating piston, a rack-bar connected with said piston and geared with said shaft to provide for reciprocating the creasing-bar, and means, carried by the table, for folding the metal plate over said creasing-bar, substantially as set forth.

9. In a doubling-machine, a table, a creasing-bar supported transversely of the table, means for longitudinally sliding the bar entirely across the table, a transversely-arranged oscillatory shaft supported on the table at one side of and parallel to the creasing-bar, fluid-pressure mechanism supported by the table and having a reciprocating piston, a rack-bar connected with said piston and geared with said oscillatory shaft, and a flat swinging folding-leaf seated at one edge in the oscillatory shaft and movable therewith, substantially as set forth.

10. In a doubling-machine, a table, a reciprocatory creasing-bar arranged transversely of the table, a folding-leaf arranged to swing over the creasing-bar and having an oscillatory shaft, fluid-pressure mechanisms having a common support at one end of the table, each of said mechanisms having a reciprocatory piston a separate controlling-valve for each of the pressure mechanisms, and a rack-bar connected with the piston of each mechanism, one of said rack-bars being geared with the creasing-bar to reciprocate the latter, and the other of said rack-bars being geared with the oscillatory shaft of the folding-leaf, substantially as set forth.

11. In a doubling-machine, a table provided on its upper side with a plurality of longitudinally-disposed, parallel ribs whose upper surfaces lie in the same horizontal plane to form a flat rest-surface, said table being further provided with a solid transverse web interrupting the ribs, a longitudinally-movable creasing-bar arranged transversely of the table and adapted to work over the web thereof, and a swinging folding-leaf cooperating with said bar, substantially as set forth.

12. In a doubling-machine, the combination with a table carrying the doubling mechanism, of a pair of reciprocating bars slidably mounted beneath the table and having at their inner ends rack portions arranged in the same vertical plane, and a suitably-operated pinion interposed between and meshing with the inner rack portions of said bars, and centering-pins fitted to the outer ends of said bars

and projecting above the plane of the table respectively at opposite ends thereof, substantially as set forth.

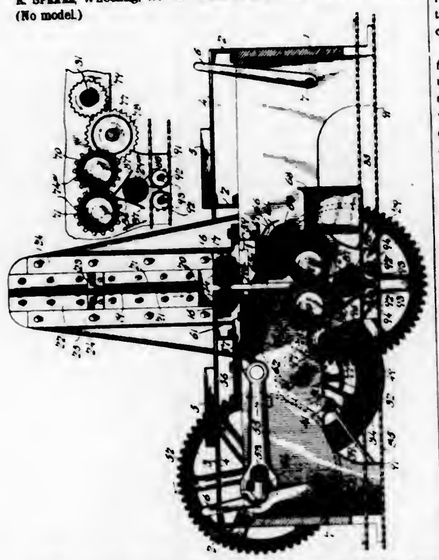
13. In a doubling-machine, the base, a table slidably mounted on said base and carrying doubling mechanism, reciprocating slide-bars mounted beneath the table and carrying centering-pins projecting above the plane of the table respectively at opposite ends thereof, means for adjusting said pins in unison and separate means for moving the sliding table to carry the doubled plate to the shearing-machine, substantially as set forth.

14. In a doubling-machine, the base, a table slidably mounted on the base and carrying doubling mechanism, and means for moving said table to carry the doubled plate to the shearing-machine, substantially as set forth.

15. In a doubling-machine, the base, a table slidably mounted on said base and carrying doubling mechanism, reciprocating slide-bars mounted beneath the table and carrying centering-pins, one of said slide-bars being provided at its outer end with a pivotal drop member supporting the centering-pin, a supporting-roller arranged on the base to normally sustain said pivotal drop member, and adjusting means for the table, substantially as set forth.

16. In a doubling-machine, the combination with the shearing-machine, and guard-arms extended from the backing for the stationary blade thereof; of a reciprocatory table carrying doubling mechanism and having grooves or depressions receiving said guard-arms, whereby the folded plate may be accurately carried to the shearing-machine, substantially as set forth.

643,691. MACHINE FOR DOUBLING METAL PLATES. RALPH R. SPEARS, Wheeling, W. Va. Filed Mar. 1, 1899. Serial No. 707,256. (No model.)



Claim.—1. In a machine for doubling sheet-metal plates, the base or stand provided at the top with oppositely-located, slatted table-sections, each having at one side edge thereof an upstanding rest-flange, doubling mechanism arranged to work in the space between the inner contiguous ends of the separate table-sections, and oppositely-located centering devices operating through spaces formed between the adjacent slats of the table-sections, substantially as set forth.

2. In a doubling-machine, the combination with the base, having a horizontal work-holding table, and doubling mechanism, of a pair of oppositely-located rock-shafts arranged at opposite ends of the frame, swinging centering-arms carried by said shafts and having their upper ends projecting above the plane of the table respectively at opposite ends thereof, a pair of contiguous reversely-arranged bell-crank levers having operative connections respectively with the separate rock-shafts, and an operating-treadle having a link connection with contiguous ends of both bell-crank levers, substantially as set forth.

3. In a doubling-machine of the class described, the combination with the table, and the doubling mechanism, of a pair of oppositely-located rock-shafts, swinging centering-arms carried by said shafts, and projecting above the plane of the table respectively at opposite ends thereof, and a single treadle having duplicate operating connections respectively with the separate rock-shafts, substantially as set forth.

4. In a doubling-machine for sheet-metal plates, a pair of bending-rolls, a vertically-reciprocating slide, a vertical creasing-blade, clamping-plates embracing an edge of said blade and fastened to the slide, and reinforce-plates fastened to opposite faces of the blade, substantially as set forth.

5. In a machine for doubling sheet-metal plates, a pair of bending-rolls, a vertically-reciprocating slide, a vertical triangular creasing-blade, and angle-plates receiving therebetween and reinforcing the vertical edge of the blade, said plates also abutting flat against the slide and fastened thereto, substantially as set forth.

6. In a doubling-machine, the combination of a pair of bending-rolls, a vertically-reciprocating slide, a vertical creasing-blade arranged at one side of the slide, a fastening connection between one edge of the blade and the slide, and reinforce strips arranged transversely of the blade at opposite sides thereof, substantially as set forth.

7. In a doubling-machine, the combination of a pair of bending-rolls, a vertically-reciprocating slide, a vertically-disposed triangular creasing-blade, clamp-plates embracing the vertical edge of the creasing-blade and fastened to said slide, and a pair of horizontal reinforce angle-plates arranged transversely of the creasing-blade and fastened to opposite sides thereof, substantially as set forth.

8. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a base, a pair of bending-rolls, a vertically-reciprocating creasing-blade adapted to work between said rolls, automatically-operating shearing mechanism arranged below the plane of the bending-rolls, means for operatively connecting the creasing-blade and the shearing mechanism, substantially as set forth.

9. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a base, a pair of bending-rolls, a transversely-arranged vertically-reciprocating creasing-blade, a drive-shaft, a clutch mechanism mounted upon the drive-shaft, a crank-wheel having a pitman connection with the slide, and also having a cam cooperating with the clutch mechanism, and a shearing mechanism arranged below the bending-rolls and including a gear-wheel, also having a cam cooperating with the said clutch mechanism, substantially as set forth.

10. A machine for handling sheet-metal plates, consisting of the following instrumentalities, to wit: doubling mechanism for doubling the plate, shearing mechanism operatively connected with the doubling mechanism, means for bringing the doubling and shearing mechanisms into action at different intervals, and separate means for automatically stopping respectively the doubling and shearing mechanisms, substantially as set forth.

11. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, shearing mechanism arranged below the bending-rolls, means for operatively connecting the shearing mechanism with the creasing-blade, means for reciprocating the creasing-blade, and also for operating the shearing mechanism, and separate means for stopping the movement of the blade and the action of said shearing mechanism, substantially as set forth.

12. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, shearing mechanism arranged below the bending-rolls, delivery mechanism arranged below the shearing mechanism, and means for operatively connecting the creasing-blade, the shearing mechanism and the delivery mechanism, substantially as set forth.

13. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: doubling mechanism for doubling the metal plate, shearing mechanism for trimming the doubled plate, delivery mechanism for feeding the doubled plate into position to be trimmed, and subsequently delivering the same from the machine, and means for operatively connecting the doubling, shearing and delivery mechanisms, substantially as set forth.

14. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: doubling mechanism for doubling the plate, delivery mechanism for feeding the doubled plate through the machine, shearing mechanism interposed between the doubling and delivery mechanisms, means for operatively connecting the doubling, shearing and delivery mechanisms, and a conveyer arranged to receive the doubled and trimmed plate from the delivery mechanism, substantially as set forth.

15. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: the doubling mechanism for doubling the plate, delivery mechanism, shearing mechanism interposed between the doubling and delivery mechanism, means for operatively connecting the doubling, delivery and shearing mechanisms, means for bringing the doubling and shearing mechanisms into action at different intervals, means for stopping the action of the delivery mechanism during the action of the shearing mechanism, and separate means for automatically stopping respectively the doubling and shearing mechanisms, substantially set forth.

16. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, shearing mechanism arranged below the bending-roll, delivery mechanism arranged below the shearing mechanism, means for operatively connecting the doubling, shearing and delivery mechanisms, means for separately bringing into action the doubling and shearing mechanisms, means for stopping the action of the delivery mechanism during the action of the shearing mechanism, and separate means for automatically stopping respectively the movement of the creasing-blade and the action of the shearing mechanism, substantially as set forth.

17. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing blade, shearing mechanism arranged below the bending-rolls, delivery mechanism arranged below the shearing mechanism means for operatively connecting the doubling, shearing and delivery mechanisms, and a conveyer arranged to receive the doubled and trimmed plate from the delivery mechanism, substantially as set forth.

18. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, fixed and movable shear-blades arranged in working relation below the bending-rolls, means for operating the movable shear-blade, and means for operatively connecting the doubling, shearing, and delivery mechanisms, delivery mechanism arranged below the shear-blade, substantially as set forth.

19. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: the doubling mechanism, fixed and movable shear-blades supported in working relation and receiving therebetween the doubled sheet from said doubling mechanism, means for operating the movable shear-blade and for automatically stopping the same in an inactive position, delivery mechanism arranged below the shear-blades, means for operatively connecting the doubling, shearing and delivery mechanisms, substantially as set forth.

20. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, a fixed shear-blade arranged below the plane of the bending-rolls, a horizontally-reciprocating shear-blade disposed in working relation to the fixed shear-blade, means for operating the movable shear-blade and for automatically stopping the same in an inactive position, a delivery mechanism arranged below the shear-blades, and means for operatively connecting the doubling, shearing and delivery mechanisms, substantially as set forth.

21. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, a stationary supporting-bar, arranged below the plane of the bending-rolls, a fixed shear-blade adjustably mounted on said supporting-bar, a horizontal reciprocating shear-head slidably supported at its ends and carrying an adjustable shear-blade disposed in working relation to the other shear-blade, means for operating the reciprocating shear-head and for automatically stopping the same in an inactive position, a delivery mechanism arranged below the shear-blade, means for operatively connecting the doubling, shearing and delivery mechanisms, substantially as set forth.

22. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: the doubling mechanism, shearing mechanism arranged below the doubling mechanism and essentially comprising a fixed and movable shear-blade, means for operatively connecting the doubling and shearing mechanisms, an apron arched over the fixed shear-blade and its support, and a delivery spout or chute for cuttings, arranged transversely below said apron, substantially as set forth.

23. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: a pair of bending-rolls, a vertically-reciprocating creasing-blade, shearing mechanism arranged below the beoding-rolls, a pair of relatively-yielding delivery-rolls arranged below the shearing mechanism, and means for operatively connecting the doubling and shearing mechanism and said delivery-rolls, substantially as set forth.

24. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: the doubling and shearing mechanisms, a pair of relatively-yielding delivery-rolls for receiving therebetween the doubled sheet, and means for operatively connecting the delivery-rolls and the doubling and shearing mechanisms, separate oppositely-extending conveyers, and a deflecting device arranged to deflect the doubled and trimmed sheets from the delivery-rolls onto either of the conveyers, substantially as set forth.

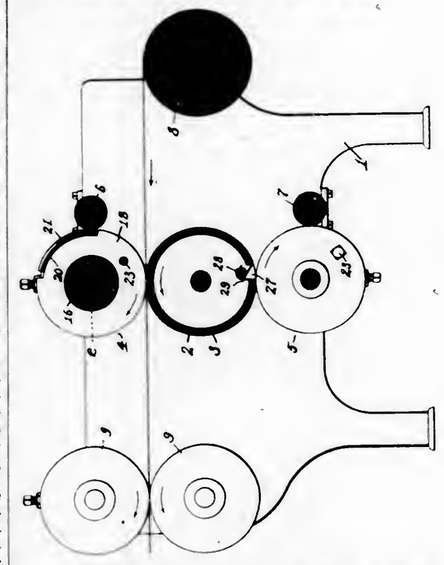
25. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: the doubling and shearing mechanisms, a pair of relatively-yielding delivery-rolls, and means for operatively connecting said rolls and the doubling and shearing mechanisms, separate oppositely-extending conveyers, gearing for positively rotating the delivery-rolls, means for stopping the motion of said rolls, and a deflecting device arranged to deflect the doubled and trimmed plate from the delivery-rolls onto either of the conveyers, substantially as set forth.

26. In a doubling-machine, the combination with the doubling mechanism, of a pair of positively-rotating delivery-rolls, a pair of oppositely-arranged conveyers, respectively traveling in opposite directions away from the machine, and a deflecting device essentially comprising a supporting-shaft, an oscillatory sleeve loosely mounted on said shaft, and a plurality of inverted-V-shaped fingers rigidly fastened to said sleeve, means for oscillating the sleeve on its support and separate means for locking said deflecting device in either of two positions, substantially as set forth.

27. In a doubling-machine, the combination with the doubling mechanism, of a pair of positively-rotating delivery-rolls, a pair of oppositely-arranged conveyers, respectively traveling in opposite directions away from the machine, an oscillatory support located intermediate the delivery-rolls and conveyers, and provided with an inverted-V-shaped deflector, an operating-lever rigidly connected at one end with said oscillatory support, and means to positively engage with the lever at different points to provide for holding the deflector in either of two positions, substantially as set forth.

28. A machine for handling sheet-metal plates consisting of the following instrumentalities, to wit: doubling mechanism for doubling the plate, shearing mechanism arranged below and in proximity to the doubling mechanism, delivery mechanism arranged below and in proximity to the shearing mechanism, means for operatively connecting the doubling, shearing and delivery mechanisms, and a conveyer arranged to receive the doubled and trimmed plate from the delivery mechanism, substantially as set forth.

643,692. PRINTING-PRESS. BERNARD H. SPECKBAUCH, Newport, Ky. Filed Sept. 27, 1899. Serial No. 731,799. (No model.)



Claim.—1. In a printing-press, the combination, substantially as set forth, of a printing-cylinder having a printing-surface in relief, an inking-roll therefor, an impression-cylinder running in direct contact with said printing-cylinder and having a yielding surface, and an additional cylinder cooperating with said impression-cylinder and having a printing-surface in relief in duplicate of said printing-cylinder, said impression-cylinder and additional cylinder being arranged to have a fabric passed between them, and an inking-roll cooperating with said additional cylinder.

2. In a printing-press, the combination, substantially as set forth,

of an impression-cylinder having a yielding surface, a printing-cylinder disposed over said impression-cylinder and having a printing-surface in relief, an inking-roll for said printing-cylinder, an additional cylinder disposed below said impression-cylinder and running in direct contact therewith and having a printing-surface in relief in duplicate of said printing-cylinder, and an inking-roll cooperating with said additional cylinder, and means for drawing a fabric between said printing-cylinder and impression-cylinder.

3. In a printing-press, the combination, substantially as set forth, of a pair of printing-cylinders with printing-surfaces in relief in duplicate of each other, an inking-roll for each of said printing-cylinders, an impression-cylinder cooperating with both of said printing-cylinders and having a yielding surface, and a pair of draw-rolls having diameters and surface speeds the same as said printing-cylinders.

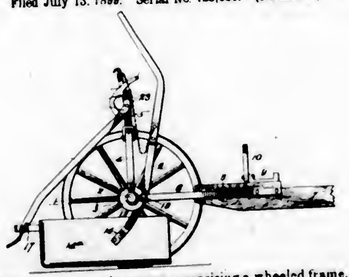
4. In a printing-press, the combination, substantially as set forth, of an impression-cylinder provided with a yielding peripheral surface having a slot extending lengthwise of the cylinder, a pair of printing-cylinders cooperating with said impression-cylinder and provided with printing-surfaces in relief and having spaces of interruption extending lengthwise of the cylinders, said printing-cylinders and impression-cylinder being so related that as they turn together said interruptions in the printing-cylinders will register with the slot in the impression-cylinder, an inking-roll for each of said printing-cylinders, and means for drawing a fabric between said impression-cylinder and one of said printing-cylinders.

5. In a printing-press, the combination, substantially as set forth, of a shaft, a series of separated disks secured thereon and having their peripheral surfaces gapped or interrupted, an impression-cylinder running in contact with the peripheries of said disks and having a yielding surface, an inking-roll cooperating with the surfaces of said disks, a cylinder running in direct contact with said impression-cylinder and having a printing-surface in relief, an inking-roll for said printing-cylinder, and means for drawing a fabric between said impression-cylinder and said disks.

6. In a printing-press, the combination, substantially as set forth, of a shaft, a series of separated disks secured thereon and having portions of their peripheral surfaces radially and concentrically reduced, curved relief-printing plates secured to the reduced peripheral surfaces of said disks and bridging between them and having their outer surfaces disposed in the arc of the outer peripheries of said disks, an inking-roll cooperating with the surfaces of said disks and printing-plates, an impression-cylinder cooperating with said disks and printing-plates and having a yielding surface, a cylinder running in direct contact with said impression cylinder and having printing-surfaces in relief, an inking-roll for said printing-cylinder, and means for drawing a fabric between said disks and printing-plates and said impression-cylinder.

7. In a printing-press, the combination, substantially as set forth, of a shaft, a series of separated disks thereon, each of said disks having a gapped or interrupted periphery, an additional series of separated disks upon said shaft, each of said last-mentioned disks having a plurality of gaps or interruptions in its periphery, one of the gaps in each of said last-mentioned disks being in line with the gaps in the first-mentioned disks, an inking-roll cooperating with said disks, an impression-cylinder cooperating with the peripheries of said disks and having a yielding surface, a printing-cylinder running in direct contact with said impression-cylinder and having printing-surfaces in relief, an inking-roll for said printing-cylinder, and means for drawing a fabric between said impression-cylinder and the peripheries of said disks.

643,693. WHEELED SCRAPER. SEL S. SPINDLE, Kansas City, Mo. Filed July 13, 1899. Serial No. 723,653. (No model.)

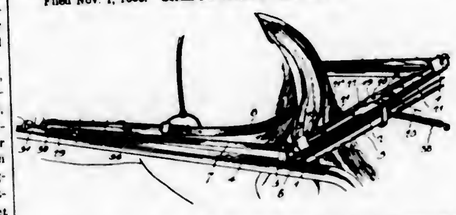


Claim.—1. A wheel-scraper, comprising a wheeled frame, a lever fulcrumed upon said frame, a second lever fulcrumed upon said frame and connected to the first-named lever, a notched brace-bar pivoted at its upper end to the last-named lever, a pan pivoted to the first-named lever and provided with a loop embracing said brace-bar, a trip-lever pivoted to said guide-loop and engaging the notch of the brace-bar, means to lock the first-named lever in a depressed position, and means to lock the companion lever in the position which it is caused to assume by the movement of the first-named lever, substantially as described.

2. A wheel-scraper, comprising a wheeled frame, a lever fulcrumed upon said frame, a second lever fulcrumed upon said frame and connected to the first-named lever, a notched brace-bar pivoted at its upper end to the last-named lever, a pan pivoted to the first-named lever and provided with a loop embracing said brace-bar, a trip-lever pivoted to said guide-loop and engaging the notch of the brace-bar, means to lock the first-named lever in a depressed position, and a dog carried with said second lever and adapted to engage the wheeled frame and lock said second lever in the position which it is caused to assume by the movement of the first-named lever, substantially as described.

3. A wheel-scraper, comprising a wheeled frame, a lever fulcrumed upon said frame, a second lever fulcrumed upon said frame, a notched brace-bar pivoted at its upper end to the last-named lever, a pan pivoted to the first-named lever and provided with a loop embracing said brace-bar, a trip-lever pivoted to said guide-loop and engaging the notch of the brace-bar, a connection between the levers which limits the distance they may move apart, means to hold the first-named lever in its depressed position, and means to lock the last-named or companion lever in the position which it is caused to assume by the movement of said first-named lever, substantially as described.

643,694. HORSE-DETACHER. IVER STENSLAND, Ellsworth, Iowa. Filed Nov. 1, 1899. Serial No. 735,511. (No model.)



Claim.—1. In a device of the class described, the combination of a singletree, spring-actuated bolts mounted on the ends of the singletree and adapted to engage the traces of a harness, an operating-lever arranged at the center of the singletree, rods adjustably connected at their outer ends to the spring-actuated bolts and provided at their inner ends with longitudinal slots, and links connected with the operating-lever and with the slots of the rods, substantially as and for the purpose described.

2. In a device of the class described, the combination of a singletree, casings mounted thereon and adapted to receive the traces of a harness, spring-actuated bolts mounted on the casings and having threaded inner portions, the combined stops and thumb-pieces having sleeves engaging the threaded portions of the bolts and located at the inner ends of the casings to limit the outward movement of the said bolts, and means for simultaneously reciprocating the bolts, substantially as described.

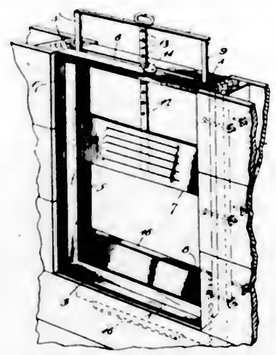
3. In a device of the class described, the combination of a singletree, casings mounted on the ends of the same, spring-actuated bolts guided in the casings and having threaded inner ends, rods provided with sockets receiving the said threaded ends, guide-tubes mounted on the singletree and forming mud-guards for the rods, and an operating device arranged at the center of the singletree and connected with the ends of the rods, substantially as described.

4. In a device of the class described, the combination with a catch designed to be mounted on a shaft or thill, a holdback-strap having an eye or loop to be engaged by the catch, and a releasing-strap connected with the catch and with the holdback-strap and adapted to be operated by the latter when the traces are released, substantially as described.

5. In a device of the class described, the combination with a shaft, of a catch mounted thereon, a guide located in rear of the shaft, a holdback-strap engaged by the catch, and a releasing strap or connection extending from the catch to the guide and passing through the same and connected with the holdback-strap at a point between the ends thereof, substantially as and for the purpose described.

6. In a device of the class described, the combination with a pair of shafts, of catches mounted thereon, guides located in rear of the catches, holdback-straps engaged by the latter, straps or connections extending from the catches through the guides and connected with the holdback-straps, and means for releasing the traces, substantially as described.

643,695. WATER-MEASURING GATE. ARTHUR H. STOKES, Olathe, Colo. Filed July 15, 1899. Serial No. 724,020. (No model.)



Claim.—1. In a water-measuring gate, the combination of a frame, and a gate adjustably mounted therein and comprising upper and lower separate plates with an opening between them of fixed dimension.

2. In a water-measuring gate, the combination with a frame, a gate proper removably mounted therein, and consisting of upper and lower plates having an opening between them of a fixed dimension, the upper plate having a series of lines thereon, and means for adjusting said gate.

3. In a water-measuring gate, the combination of a frame, a gate proper adjustably mounted within said frame and consisting of upper and lower plates having an opening between them of fixed dimension, the lower plate having upper and lower limiting-flanges thereon, and means for adjusting the gate.

4. In a water-measuring gate, the combination of a frame composed of angle-irons bent into rectangular form and placed back to back, spaced strips inserted between the angle-irons at opposite sides to thereby form guides with the inwardly-extending flanges of said irons, and providing openings at the top and bottom, a gate adjustably mounted in said guides and having an opening of fixed dimension, and means for moving and adjusting the said gate.

5. In a water-measuring gate, the combination of a frame having guides therein, a gate movably mounted in said guides and having an opening therein of fixed dimension, a series of lines being located on an upper portion of the gate, an adjusting-bar attached to the gate and having a series of openings therethrough, and means for preventing a depression of the said bar beyond a predetermined adjustment.

643,696. APPARATUS FOR GRINDING BALLS. FREDERICK W. TAYLOR, Philadelphia, Pa. Filed Apr. 28, 1898. Serial No. 679,138. (No model.)

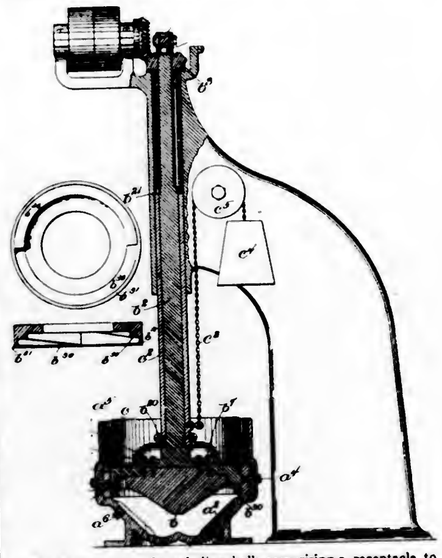
Claim.—1. An apparatus for grinding balls which consists of a receptacle or pot to contain a mass of balls, a confining member to closely confine said balls in the receptacle, and means for producing a movement of one of said parts relative to the other, substantially as described.

2. An apparatus for grinding balls comprising a stationary pot or receptacle adapted to contain a mass of balls and a grinding mixture, and a movable confining member adapted to closely confine the mass of balls in said pot, and to set the mass in motion, substantially as described.

3. An apparatus for grinding balls comprising stationary and movable members arranged to confine a mass of balls in the space between them, and a cam portion or surface on one of said members projecting into the space occupied by the balls, substantially as described.

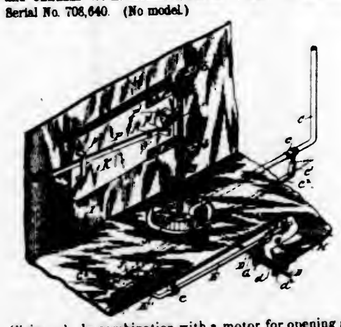
4. An apparatus for grinding balls comprising a pot or receptacle to contain a mass of balls, a tapered confining member projecting into said receptacle, and means for producing rotation of said confining member, substantially as described.

5. An apparatus for grinding balls comprising a receptacle to contain a mass of balls and constituting one grinding member; a confining portion to confine the said mass of balls within said receptacle and constituting the other grinding member; means for producing a movement of one of said members with relation to the other; and contiguous movable portions connected with said members respectively, substantially as described.



6. An apparatus for grinding balls comprising a receptacle to contain a mass of balls and constituting one grinding member, a confining portion to confine the said mass of balls within said receptacle and constituting the other grinding member; means for producing a movement of one of said members with relation to the other; and flanges, projecting from said members respectively, along the contiguous portions thereof, substantially as and for the purpose described.

643,697. OPERATING FURNACE-DOORS. HENRY H. THOELE and CHARLES W. H. MOELLER, Florence, Ala. Filed Mar. 11, 1899. Serial No. 708,640. (No model.)



Claim.—1. In combination with a motor for opening and closing the door of a locomotive, or furnace, a spring-actuating valve-rod, a plate on said rod, a toe-piece to engage said plate, a rock-shaft connected to the toe-piece, and a lever above the floor of a locomotive-cab, pivotally connected with the rock-shaft, and with a lever connected to a bar adapted to operate the steam or air supply valve for the purpose as specified.

2. In combination with a motor for opening and closing a furnace-door, a vertical shaft passing through the hinges of said door, a lug on said vertical shaft adjacent to said door, a latch on said door with an inclined tailpiece for raising said latch through the medium of the aforesaid lug on the vertical shaft referred to, of a right-angled lug on said door for opening said door by means of the lug on said vertical shaft contacting the same for the purpose as specified.

3. In combination with a motor for opening and closing a furnace-door, a vertical shaft extending from the motor and passing through the hinges of said door, a right-angled lug on said door, a lug on said vertical shaft adjacent to said door, which extends under

said right-angled lug, but not contacting said lug when said door is closed, a latch on said door having an inclined tailpiece thereon for raising said latch through the medium of the aforesaid lug on the vertical shaft referred to for the purpose as specified.

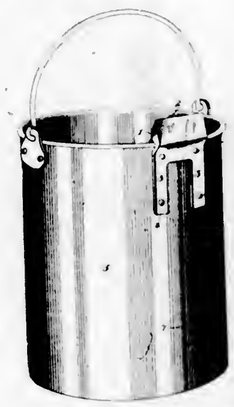
4. In combination with a motor for opening and closing the door of a locomotive or furnace, a spring-actuating valve-rod, a toe-piece to engage a plate on said valve-rod through the medium of a rock-shaft, and a pivoted lever above the floor of a locomotive-cab, and adapted to be operated through an opening in said floor for the purpose as specified.

5. In combination with a motor for opening and closing a locomotive-door, a spring-actuating valve-rod, a toe-piece to engage a plate on said valve-rod, through the medium of a rock-shaft under the floor of a locomotive and a pivoted lever for operating said rock-shaft and the means for holding said pivoted lever in a depressed position when the foot of the operator is removed.

6. In combination with a motor for opening and closing a locomotive door, a valve-rod for operating a valve in said motor through the medium of a rock-shaft, a pivoted lever mounted on the end of said rock-shaft, and the means for opening and closing a steam or air supply valve when operating said pivoted lever as specified.

7. In combination with a motor for opening and closing a furnace-door, a vertical shaft or pintle extending through the hinges of said door and terminating in an actuating-arm within said motor, of a block within said motor for the reception of a slide-valve, and ports for admitting the motive power, and the means for resisting the impact of the actuating-arm, when contacting the extensions of the block, referred to, a valve-rod connecting to said valve, a spring secured to said rod by a plate, a bracket on the floor for receiving the thrust of said spring, a toe-piece mounted on a rock-shaft, a pivoted lever for operating said rock-shaft, and the means for preventing the depression of said pivoted lever for the purpose, substantially as specified.

643,698. **BUCKET ATTACHMENT.** CHARLEY A. TROXEL, Garrison, Iowa. Filed Nov. 11, 1899. Serial No. 736,664. (No model.)



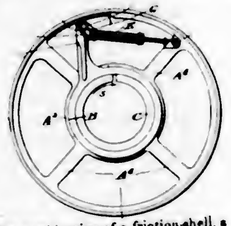
Claim.—1. The combination with a bucket, basket or like receptacle, of a vertically-disposed blade secured to the upper edge of the receptacle, and having a laterally-extending knife-edge located above said upper edge of the receptacle, substantially as and for the purpose set forth.

2. The combination with a bucket, basket or like receptacle, of a blade, having pairs of arms embracing the upper edge of the receptacle, and located upon the outer and inner sides thereof, and fastenings passing through the arms and the adjacent side of the receptacle, substantially as and for the purpose set forth.

3. As an article of manufacture, an attachment for buckets, baskets and like receptacles, comprising a blade, having pairs of arms located at opposite sides and at opposite ends of the blade, and provided with transversely-alined perforations, for the reception of fastenings.

4. The combination with a bucket, basket or like receptacle, having a seam or joint intersecting the upper edge of the receptacle, of a blade, having arms embracing the upper edge of the receptacle and also the seam or joint thereof, and fastenings located at opposite sides of the seam or joint and passing through the arms and the adjacent side of the receptacle.

643,699. **COMBINED BELT-PULLEY AND SPRING.** FRANK VAN DUSEN, Marion, Ohio. Filed May 13, 1899. Serial No. 716,656. (No model.)



Claim.—The combination of a friction-shell, a power-wheel having a hub loosely mounted on the shell, said shell having a radial projection, a cylindrical body, a spring inclosed within said body, and adapted to be compressed according to the direction of the movements of the aforementioned parts, and a rod partially inclosed by said body and attached at one end to the power-wheel and carrying abutments between which the spring is contained, substantially as and for the purposes specified.

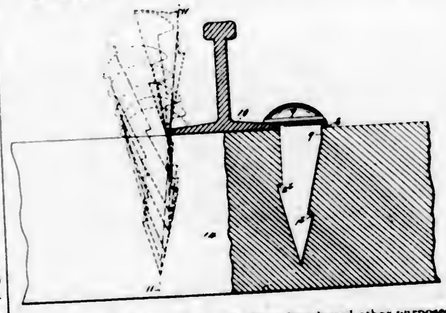
643,700. **HOOK AND EYE.** ELMER E. WARD, Colorado Springs, Colo., assignor of one-half to Frederic R. Hastings, same place. Filed Dec. 20, 1898. Serial No. 699,856. (No model.)



Claim.—1. A garment-fastener consisting of the eye member comprising the side bars, the front cross-bar, and the spring-tongue disposed between the side bars in nearly the same plane therewith and having an inclined free end terminating contiguous to the front cross-bar of said member, and the hook member provided with a bill having its cross-bar in a plane above the side bars thereof, the width of the bill on said hook member being less than the width of the front end of the eye member.

2. A garment-fastener comprising a hook member, and an eye member, each having its side bars bent or deflected inwardly at points between the front and rear ends thereof, and forming abrupt surfaces for engagement by the fastening appliances, said hook member provided at its front end with an angular bill which spans the space between the side bars, and the eye member provided with the spring-tongue arranged between the side bars thereof and having its front end terminating close to the front bar of said member, for the purpose described, substantially as set forth.

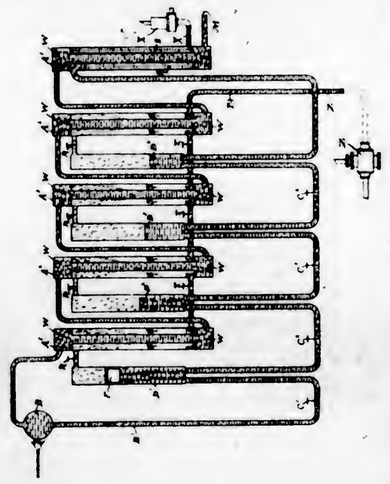
643,701. **SELF-LOCKING SPIKE.** CLARENCE D. WARNER, St. Louis, Mo., assignor, by direct and mesne assignments, of two-thirds to Havard Lindley, same place, and Edward R. Mackenzie, Baltimore, Md. Filed Sept. 29, 1898. Renewed July 28, 1899. Serial No. 725,370. (No model.)



Claim.—1. A self-locking spike, for railroads and other purposes, formed in wedges, the two wedges forming the point and lower portion of the shank being so arranged and placed with reference to each other as to form a cutting edge, and at their respective bases a shoulder in the front of the spike approximately midway thereof, and also a shoulder in the rear of the spike, the wedging-plane on the front being longer than that on the rear and disposed at a greater angle to the axis of the spike, substantially as and for the purposes described.

2. A self-locking spike, for railroads and other purposes, formed in wedges, the two wedges forming the point and lower portion of the shank being so arranged and placed with reference to each other as to form a cutting edge, and at their respective bases a shoulder in the front of the spike approximately midway thereof, and also a shoulder in the rear of the spike, the wedging-plane on the front being longer than that on the rear and disposed at a greater angle to the axis of the spike, substantially as and for the purposes described.

643,702. **METHOD OF DISTILLING AND EVAPORATING WATER.** ADDISON G. WATERHOUSE, Philadelphia, Pa. Filed May 24, 1899. Serial No. 718,004. (No specimens.)



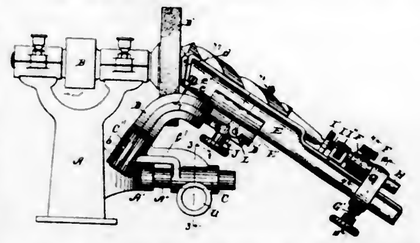
Claim.—1. The method of evaporating fluids, consisting in passing the fluid while under pressure through a series of heat-transferrers to a point within the apparatus where as much additional heat is applied to such fluid as it can contain without forming steam or vapor, then allowing the heated fluid to pass through a series of valves or passages by which the pressure under which the fluid is held is gradually reduced, thereby causing steam or vapor to repeatedly escape from said fluid as its pressure is reduced, then transferring the heat from the steam or vapor to the inflowing fluid, thereby causing the steam or vapor to condense into fluid; substantially as described.

2. The method of evaporating water or fluids, by transferring the heat or steam to the water to be evaporated while such water is under pressure, then by applying additional heat to the water under pressure after it has been raised in temperature by absorbing heat from the steam, then by gradually relieving the heated water from its pressure, allowing part of it to form into steam, and then by transferring the heat from such steam to the water under pressure while on its way to where heat is applied to it, causing the steam to be condensed into water substantially as described.

3. The method of evaporating fluids by supplying the fluid with nearly as much heat as it can retain without forming into steam; then by gradually relieving such fluid from its initial pressure, causing part of it to form into vapor, then transferring the heat of such vapor to the fluid before it has been raised to its highest temperature; thereby condensing such vapor into fluid; then transferring the heat of the fluid not formed into vapor to all of the fluid while on its way to where additional heat is applied to it; then drawing off the condensed or distilled fluid from a separate pipe from which the evaporated fluid passes; substantially as described.

4. In the art of distilling, the method of conducting water under pressure to where heat is applied to it, then by releasing it from its pressure, causing part of it to form into steam, and then condensing the steam by transferring its heat to the water while under pressure; substantially as described.

643,708. **DRILL-GRINDING MACHINE.** HENRY P. WHITE, Kalamazoo, Mich., assignor to Charles D. Fuller, same place. Filed Nov. 11, 1899. Serial No. 736,712. (No model.)



Claim.—1. In a drill-grinding machine, the combination of the base A, carrying a suitable grinding-wheel B'; a cylindrical arm A" extending parallel to the axis of said grinding-wheel; a bracket C adjustably supported on said arm A"; an arm D with a journal standing at an angle to the face of said grinding-wheel extending into a journal-bearing box C" back of the face of said grinding-wheel and extending upwardly and then downwardly in front of said grinding-wheel; a V-shaped drill-holder rounded on its under side at E' and resting in a curved bearing D' on the arm D; a hand-screw J extending upwardly through a transverse slot J" in the bearing portion D' and connecting by a screw-thread with the under side of the drill-holder to clamp the same when adjusted in its support; a transverse screw L controlled by a knurl or thumb-wheel L' suitably supported in said bearing portion D', the screw-threads of which are adapted to engage worm-gear threads in the under side of the drill-holder for the purpose of adjusting the same; a pointer g on said portion E' and a scale g' on the portion D' to indicate the position of the drill-holder; an adjustable tail block or stock for the drill-holder and a drill-lip rest secured to the forward end of the same, all coacting together substantially as described for the purpose specified.

2. In a drill-grinding machine the combination of the base A, carrying a suitable grinding-wheel B'; a cylindrical arm A" extending parallel to the axis of said grinding-wheel; a bracket C adjustably supported on said arm A"; an arm D with a journal standing at an angle to the face of said grinding-wheel, extending into a journal-bearing box C" back of the face of said grinding-wheel and extending upwardly and then downwardly in front of said grinding-wheel; a V-shaped drill-holder E rounded on its under side at E' and resting on a curved bearing D' on the arm D; a hand-screw J extending upwardly through a transverse slot J" in the bearing portion D' and connecting by a screw-thread with the under side of the drill-holder to clamp the same when adjusted in its support; an adjustable tail block or stock for the drill-holder and a drill-lip rest secured to the forward end of the same, all coacting together substantially as described for the purpose specified.

3. In a drill-grinding machine the combination of the base A, carrying a suitable grinding-wheel B'; a cylindrical arm A" extending parallel to the axis of said grinding-wheel; a bracket C adjustably supported on said arm A"; an arm D with a journal standing at an angle to the face of said grinding-wheel, extending into a journal-bearing box C" back of the face of said grinding-wheel and extending upwardly and then downwardly in front of said grinding-wheel; a V-shaped drill-holder E rounded on its under side at E' and resting in a curved bearing D' on the arm D; and means for adjusting the same in said support; an adjustable tail block or stock for the drill-holder and a drill-lip rest secured to the forward end of the same, all coacting together substantially as described for the purpose specified.

4. In a drill-grinding machine the combination of the base A, carrying a suitable grinding-wheel B'; a cylindrical arm A" extending parallel to the axis of said grinding-wheel; a bracket C adjustably supported on said arm A"; an arm D with a journal standing at an angle to the face of said grinding-wheel extending into a journal-bearing box C" back of the face of said grinding-wheel and extending upwardly and then downwardly in front of said grinding-wheel; a V-shaped drill-holder E supported on a bearing portion D' of said arm D; an adjustable tail block or stock for the drill-holder and a drill-lip rest secured to the forward end of the same, all coacting together substantially as described for the purpose specified.

5. In a drill-grinding machine, the combination of a suitable base carrying a grinding-wheel; a V-shaped drill-holder, an arm for carrying said drill-holder which extends downwardly back of the face of said grinding-wheel terminating in a suitable journal provided with a suitable bearing, the axis of which, if extended upwardly, would form an acute angle with the face of the grinding-wheel, coacting as specified.

6. In a drill-grinding machine the combination of a suitable base carrying a grinding-wheel; a V-shaped drill-holder; a journal in a suitable bearing to support said drill-holder, the axis of which, if extended from the face of the grinding-wheel upwardly, would form an acute angle with the face of the grinding-wheel, for the purpose specified.

7. In a drill-grinding machine the combination of a suitable base carrying a grinding-wheel; a V-shaped drill-holder; a journal in a suitable bearing to support said drill-holder, the axis of which, if extended from the face of the grinding-wheel upwardly, would form an acute angle with the face of the grinding-wheel; means of adjusting the support for said journal-bearing, for the purpose specified.

8. In a drill-grinding machine the combination of a suitable base; a grinding-wheel thereon; a V-shaped drill-holder with a drill-lip rest; a journal in a suitable bearing connected by suitable means to said drill-holder, the axis of which journal is in a line substantially through the apex of the V-shaped drill-holder so that the drill-holder swings as on a pivot at that point, the said axis, if extended upwardly from the face of the drill would form an acute angle therewith, for the purpose specified.

9. In a drill-grinding machine the combination of a suitable base; a grinding-wheel thereon; a V-shaped drill-holder with a drill-lip rest; a journal in a suitable bearing connected by suitable means to said drill-holder, the axis of which journal is substantially in a line through the apex of the V-shaped drill-holder so that the drill-holder swings as on a pivot at that point, the said axis, if extended upwardly from the face of the grinding-wheel would form an acute angle therewith; means of adjusting the said holder to vary the angle of its V sides to the line of the axis of said journal, to vary the clearance and to set the holder to grind the circumference and web of the drill at different angles for the purpose specified.

10. In a drill-grinding machine the combination of a base carrying a suitable grinding-wheel, with a V-shaped drill-support located on one side of said grinding-wheel, said drill-support being provided with means of oscillation which are placed on the opposite side of said grinding-wheel, the said means of oscillation being connected to the drill-support by a suitable arm passing across the edge of the grinding-wheel, for the purpose specified.

11. In a drill-grinding machine the combination of a suitable base; a grinding-wheel; a V-shaped holder supported on a suitable journal; a drill-lip rest *d* with an outwardly-curved lower portion *d'* adjustably supported on the front thereof for the purpose specified.

12. In a drill-grinding machine the combination of a suitable base; a grinding-wheel; a V-shaped holder supported on a suitable journal; a drill-lip rest *d* with an outwardly-curved lower portion *d'* on the front thereof for the purpose specified.

13. In a drill-grinding machine, the combination of a drill-holder; a journal extending into a suitable bearing for supporting the same, the axis of which journal, if extended upwardly from the face of the grinding-wheel, would form an acute angle therewith; a drill-lip rest on one side of said V-shaped holder and to one side of a line bisecting the angle thereof whereby a drill placed within the same will have its cutting edge at the periphery in advance of the cutting edge at the center, whereby a different angle of clearance can be given to the peripheral and central portion of the drill for the purpose specified.

14. In a drill-grinding machine the combination of a base supporting a grinding-wheel, with a V-shaped holder provided with means of oscillation, and having the angle of its sides so formed in relation to the angle of a line drawn through the center of oscillation, and the plane of the grinding-surface of the wheel, as to cause a drill of any diameter when placed within the holder to rest at a proper distance above the apex of said holder so that if the line of oscillation, upon which the said holder swings, were extended, it would pass substantially through the apex of said holder, and cross the axial line of the drill at the required distance from its point, to secure the proper curvature of the ground surface of the cutting end of the drill, in combination with a curved bearing for supporting the said V-shaped holder, and means for adjusting the said holder to different positions in the curved bearing, for the purpose specified.

15. In a drill-grinding machine the combination of a base supporting a grinding-wheel, with a V-shaped holder provided with means of oscillation, and having the angle of its sides so formed in relation to the angle of a line drawn through the center of oscillation, and the grinding-surface of the wheel, as to cause a drill of any diameter when placed within the holder, to rest at a proper distance above the apex of said holder so that if the line of oscillation upon which the said holder swings were extended, it would pass substantially through the apex of said holder, and cross the axial line of the drill at the required distance from its point, to secure the proper curvature of the ground surface of the cutting end of the drill, for the purpose specified.

16. In a drill-grinding machine, a V-shaped holder provided with means of oscillation, whose longitudinal line stands in such relation to the angle of a line drawn through the center of oscillation as to cause the angular sides of said holder when oscillated, to change their relation to a vertical line, whereby a drill resting in such holder would be caused to rock upon its axial line when said holder is oscillated, to grind the drill with more clearance at the point than at the periphery, for the purpose specified.

17. In a drill grinding machine, the combination of a V-shaped drill-holder; a suitable support therefor to allow the same to swing and means of adjusting the V-shaped support whereby the angles of the V-walls will be changed in relation to the support for said holder for the purpose specified.

18. In a drill-grinding machine, the combination of a V-shaped holder having an opening through its under side and a lever to act through said opening to raise the drills from the holder for ease of manipulation.

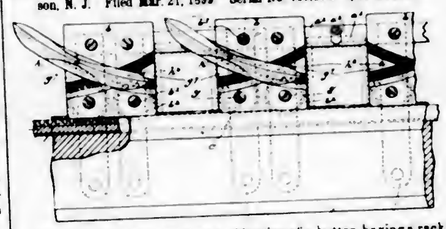
19. In a drill-grinding machine the combination of a V-shaped support E; a curved bearing for supporting the same; a screw supported in said curved bearing and adapted to engage worm-gears on the under side of the holder for adjusting the same.

20. In a drill-grinding machine the combination of a V-shaped drill-support with a curved bearing therefor, the line of which curved bearing is struck from the apex of the said V-shaped support, and means for adjusting the said drill-support to different positions in the curved bearing, for the purpose specified.

21. In a drill-grinding machine, a V-shaped drill-holder having a recess near the front end in which a member may be operated for the purpose of more easily manipulating the drill.

22. In a drill-grinding machine, the combination of a grooved holder, with means positioned to rise from the bottom of said groove to raise the drill therefrom.

643,704. LOOM. ADOLPH WIDMER and SAMUEL WIDMER, Paterson, N. J. Filed Mar. 21, 1899. Serial No. 709,894. (No model.)



Claim.—1. In a loom, the combination of a batten having a rack-bar groove therein, a rack-bar arranged in said groove, and a series of metallic strips disposed between the bottoms of said rack-bar and groove, substantially as described.

2. In a loom, the combination of a batten having a rack-bar groove therein, a rack-bar arranged in said groove, and having a longitudinal channel in its lower face, and a series of spaced metallic strips disposed in the channel of said rack-bar, substantially as described.

3. In a loom, the combination of a batten, shuttle-blocks having shuttle-races, mounted on said batten and each comprising two sections, one of said sections being provided with a transversely-extending recess and the other of said sections being arranged in said recess, and providing one of the walls of said races, shuttles, shuttle-actuating pinions journaled in said shuttle-blocks between the sections, and a rack-bar operatively arranged in said batten and engaging said pinions, the runner of each shuttle having an upper and a lower centrally-disposed widened bearing-surface and flanges each side of said surfaces, and the races of each shuttle-block being shaped to conform to said runner, substantially as described.

4. In a loom, the combination of a batten, shuttle-blocks having shuttle-races and mounted on said batten, shuttles, the runner of each shuttle having an upper and a lower widened bearing-surface and a flange each side of its upper and under surface, and the races in each shuttle-block being shaped to conform to said runner, and revoluble pinions inclosed in said shuttle-blocks and adapted to actuate the shuttles, each runner having a rack adapted to be engaged by the teeth of the pinions and disposed in the under side of said runner and in contiguity to but spaced from the rear under flange thereof, and each pinion having laterally-projecting hubs abutting against the interior surface of its shuttle-block and spacing the faces of said pinion therefrom, substantially as described.

5. The combination, with shuttle-blocks, having a pinion-recess and a hub-recess of greater depth than the pinion-recess, of pinions journaled therein, and self-lubricating hubs or rings of rawhide for said pinions, each hub having a reduced projection and an enlarged outer portion, one of the hubs being set into each face of each pinion with its projection extending into the same, and said hubs protruding from the face of the pinion so as to space the same from the adjacent surface of the shuttle and prevent contact of the pinion with the block, substantially as described.

643,705. VEHICLE RUNNING-GEAR. FREMONT D. WILLIAMS, Brattleborough, Vt. Filed Jan. 26, 1899. Serial No. 703,469. (No model.)



Claim.—1. A device of the class described comprising a front axle, a frame located above the axle and having a king-bolt in rear of same for pivotally connecting said frame to a vehicle-body, thill-coupling devices on said frame in advance of the axle, and outwardly-converging springs connecting the front and rear portions of the frame with the axle and supporting the former so that it may turn beneath the vehicle-body, substantially as described.

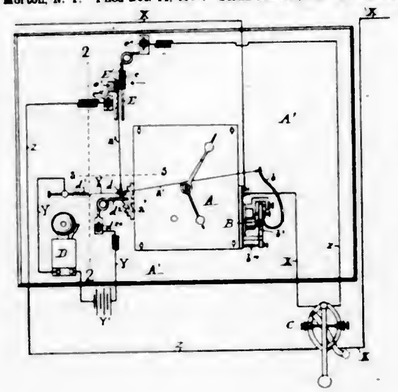
2. A device of the class described comprising an axle, a frame located above the axle and embodying front and rear bars, outwardly-converging springs arranged in pairs and secured at their inner ends to the front and rear bars of the frame, the outer ends thereof being curved downward and crossing the horizontal plane of the axle, and cross-bars connecting the ends of said springs to each other and to the axle, substantially as described.

3. A device of the class described comprising an axle, a frame located above the axle and provided in advance of the axle with lateral extensions, thill-couplings on said extensions, rearwardly-converging braces having their forward ends formed into washer-plates to receive the pendent threaded ends of ordinary U-shaped thill-coupling clips and extending therefrom to the rear bar of the frame, and springs supporting the frame above the axle, substantially as described.

4. A device of the class described comprising an axle, a frame composed of side bars, front and rear bars, and a central bar, a metal supporting-frame arranged within the said frame, a longitudinal king-bolt iron located above the central bar and provided with a king-bolt disposed in rear of the axle, and the springs arranged in pairs and extending from the front and back of the frame to the ends of the axle, substantially as described.

5. A device of the class described, comprising an axle, a frame consisting of side bars, a rear bar connecting the rear terminals of the side bars, and a front bar extending laterally beyond the side bars, coupling devices mounted on the front bar at the ends thereof, braces extending from the terminals of the front bar to the back of the frame, the springs arranged in pairs and extending from the front and back of the frame to the ends of the axle, and the longitudinal king-bolt iron having an eccentrically-arranged king-bolt, substantially as described.

643,706. TELEGRAPHIC SAFETY DEVICE. SELDEN R. WRIGHT, Morton, N. Y. Filed Dec. 11, 1897. Serial No. 661,584. (No model.)



Claim.—1. The combination of a main-line circuit; an electromagnetic device in said circuit having an arm movable when said circuit is opened; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit adapted to be moved by said movable arm; a motor adapted to be connected with said circuit-closer and to move it in one direction, upon operation of said movable arm, to close said circuit; and a spring to move said circuit-closer in the opposite direction for disengaging and opening the same.

2. The combination of a main-line circuit; an electromagnetic device in said circuit having an arm movable when said circuit is opened; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit adapted to be moved by said movable arm; a motor adapted to be connected with said circuit-closer and to move it in one direction, upon operation of said movable arm, to close said circuit-closer; a spring to move said circuit-closer in the opposite direction for disengaging and opening the same; a key in said main-line circuit; a secondary circuit connected with said main-line circuit; a second circuit-closer in said secondary circuit normally inoperative; and means for closing the second circuit-closer upon operation of the circuit-closer in the local circuit by said motor.

3. The combination of a main-line circuit; an electromagnetic device in said circuit having an arm moved in one direction when the said circuit opens; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit having a movable arm; means for moving the arm of said circuit-closer in a direction opposite to said movement of the arm of the electromagnetic device; a connection between the arm of the electromagnetic device and the arm of said circuit-closer; and a constantly-operating motor having means for engaging and moving the arm of the circuit-closer to close the local circuit upon movement of the arm of the electromagnetic device when the main-line circuit opens.

4. The combination of a main-line circuit; an electromagnetic device in said circuit having an arm moved in one direction when said circuit opens; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit having a movable arm; means for moving the arm of said circuit-closer in a direction opposite to said movement of the arm of the electromagnetic device; a connection between the arm of the electromagnetic device and the arm of said circuit-closer; a constantly-operating motor having means for engaging and moving the arm of the circuit-closer to close the local circuit upon movement of the arm of the electromagnetic device when the main-line circuit opens; a key in said main-line circuit; a secondary circuit connected with said main-line circuit; a second circuit-closer in said secondary circuit normally inoperative, and means for closing the second circuit-closer upon operation of the circuit-closer in the local circuit.

5. The combination of a main-line circuit; an electromagnetic device in said circuit having an arm movable when said circuit is opened; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit adapted to be moved by said movable arm; a motor adapted to be connected with said circuit-closer and to move it in one direction, upon operation of said movable arm, to close said circuit-closer; a spring to move said circuit-closer in the opposite direction for disengaging and opening the same; a key in said main-line circuit; a secondary circuit connected with said main-line circuit and when closed adapted to close said main-line circuit independently of the key; a second circuit-closer in said secondary circuit normally inoperative; and connections between the circuit-closer in the local circuit and the circuit-closer in the secondary circuit for closing the latter circuit-closer upon closing movement of the former circuit-closer.

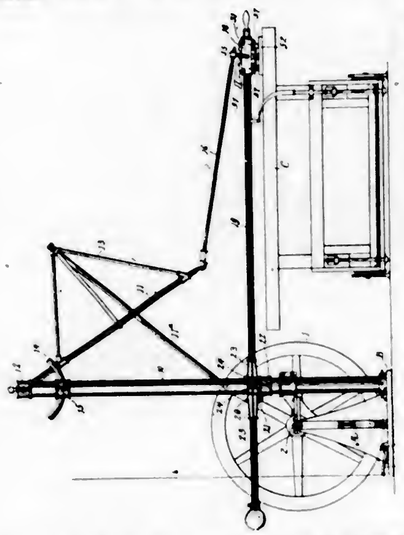
6. The combination of a main-line circuit X X; an electromagnetic device, as a sounder or relay, in said main-line circuit; a local circuit Y Y having an alarm device therein; a circuit-closer in said local circuit normally held open; a clock device having a spur-wheel, as *a*, adjacent to the movable part of said circuit-closer; and a connection from the armature of said electromagnetic device to the movable part of said circuit-closer and adapted, when the main-line circuit opens to move the movable part of said circuit-closer into an interdental space of said spur-wheel whereby said movable part is by the movement of said spur-wheel carried into contact with the stationary part of said circuit-closer.

7. The combination of a main-line circuit X X; an electromagnetic device, as a sounder or relay, in said main-line circuit; a local circuit Y Y having an alarm device therein; a circuit-closer in said local circuit normally held open; a clock device having a spur-wheel, as *a*, adjacent to the movable part of said circuit-closer; a connection from the armature of said electromagnetic device to the movable part of said circuit-closer and adapted when the main-line circuit opens to move the movable part of said circuit-closer into an interdental space of said spur-wheel whereby said movable part is by the movement of said spur-wheel carried into contact with the stationary

part of said circuit-closer; a key in said main-line circuit; a secondary circuit Z Z connected with said main-line circuit and adapted to close the same independently of the key; a circuit-closer in said secondary circuit, consisting of two parts, one of said parts being automatically movable; an insulating device upon one of said parts and normally breaking the circuit; and a connection from the movable part of the first-mentioned circuit-closer, to the movable part of the last-mentioned circuit-closer, for closing the circuit-closer in said secondary circuit upon a closing operation of the circuit-closer in said local circuit.

8. The combination of a main-line circuit; an electromagnetic device in said circuit having a part movable when said circuit is opened; a local circuit having an alarm device therein; a normally-inoperative circuit-closer in said local circuit adapted to be moved by said movable part; a motor adapted to be connected with said circuit-closer and to move it in one direction, upon operation of said movable part, to close said circuit-closer; and a spring to move said circuit-closer in the opposite direction for disengaging and opening the same.

643,707. ABRADING OR POLISHING MACHINE. CHARLES S. YARNELL, Minneapolis, Minn., assignor to the Moore Carving Machine Company, same place. Filed Sept. 23, 1899. Serial No. 731,402. (No model.)



Claim.—1. In an abrading or polishing machine, the combination with a standard and a vibrating arm pivoted on the standard, of a segmental slotted guide clamped to the standard through which guide the vibrating arm extends and in which it vibrates and by which it is prevented from movement laterally out of the plane of its vibration.

2. In an abrading or polishing machine, the combination with a standard, of a guide-bar swiveled vertically and pivoted horizontally on the standard, and a guard clamped adjustably on the standard projecting to near the guide-bar at both sides of its swiveling support on the standard, the guard being adapted to limit and substantially prevent lateral play of the guide-bar.

3. In an abrading or polishing machine, the combination with a guide-bar, and a carriage reciprocable on the guide-bar, of a vibrating arm, a rod connected at one end to the vibrating arm, and a yoke to which the connecting-rod is swiveled at its other end, said yoke straddling the carriage and being pivoted thereto at its forcate ends substantially in the line of the horizontal diameter of the carriage.

4. A carriage in a polishing-machine, comprising a tubular body part, a top detachable plate provided with legs, spool-shaped rollers mounted in said legs, and other spool-shaped rollers mounted under the body part in legs thereon, the upper and lower spool-shaped rollers being adapted to travel on the upper and under surfaces respectively of a guiding-bar.

5. In a carriage in an abrading or polishing machine, the combination of a tubular body part, a plate secured above to the body part by bolts in a medial longitudinal line thereof, and screws in pairs one on each side of each of said securing-bolts turning in the plate against the body part adapted to adjust the plate tiltably on the body part.

6. In a carriage in an abrading or polishing machine, the combination of a tubular body part, and spool-shaped rollers mounted one at each end in the upper portion of the body part said rollers being each provided with an annular rib medially adapted to travel in a groove therefor in a guide-bar on which said carriage is reciprocable.

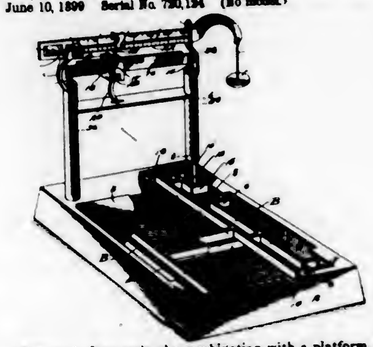
7. In a carriage in an abrading or polishing machine, the combination of a tubular body part, and spool-shaped rollers mounted one at each end in the tubular body part, said rollers being severally provided with a soft-metal band medially forming an adhering tread adapted to travel on the guide-bar on which the carriage is reciprocable.

8. In a carriage in an abrading or polishing machine, the combination with a tubular body part provided with legs in pairs, of rollers severally mounted in a pair of said legs by means of an axle, a sleeve-cone in a leg turning by screw-thread on the axle, another sleeve-cone in the other leg turning by screw-threads respectively on the axle and in the leg, ball-bearing cups in the ends of the rollers opposite said cones, and bearing-balls between the cones and cups.

9. In an abrading or polishing machine, the combination of a tubular carriage reciprocable on a guide-bar, a head-block swiveled and tiltable medially on the carriage, and expanding springs, inserted one at each side of the tilting connection, between the carriage and the head-block.

10. In an abrading or polishing machine, the combination with a reciprocable carriage, of a head-block pivoted thereto, a polisher-block having overhanging walls adapted to enter supporting-ways therefor in the head-block, and an adjustable clamp in the head-block provided with means for setting it up against the polisher-block.

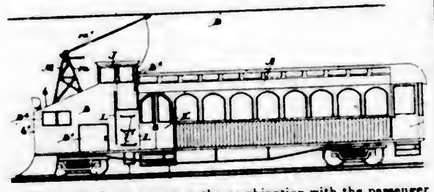
643,708. SCALE. ALBERT R. ZIMMERMAN, Troy, Kans. Filed June 10, 1899. Serial No. 720,194. (No model.)



Claim.—1. In a scale, the combination with a platform, of lever mechanism for operatively sustaining the said platform, hollow posts extending vertically above the lever mechanism and clear of the platform, rods having their lower extremities operatively connected to the lever mechanism and freely movable through the said posts, a transversely-extending cross-bar having its opposite ends rigidly secured to the upper extremities of the said rods above the posts, the said rods being clear of attached devices between the said cross-bar and their connection with the lever mechanism, a graduated beam supported above one end and independently of the said platform and the lever mechanism by the said posts and in a plane parallel with the cross-bar and directly over the latter, and a block movably mounted on the said cross-bar and having a vertically-adjustable slide therein adapted to be operated from beneath the same to bear against the under edge of the graduated beam, said slide having a slot therein longer than the width of the cross-bar.

2. In a scale, the combination with a platform, of lever mechanism for operatively sustaining the platform, a graduated beam located above and supported independently of the platform and lever mechanism, a cross-bar having an equal rise-and-fall movement from end to end and its opposite extremities rigidly connected to the devices supporting the same, the said cross-bar being situated directly under the graduated beam and the latter having its lower edge provided with regularly-formed serrations, a block slidingly mounted on the said cross-bar directly under the lower edge of the graduated beam, a slide vertically adjustable in the block and having an upper reduced edge to fit in the said serrations of the beam and also provided with a slot longer than the width of the cross-bar, and an eccentrically-mounted device on the block directly below the slide for raising and lowering the latter.

643,709. ELECTRIC SUBURBAN CAR. MICHAEL BRILLINGER, Toronto, Canada, assignor of one-half to Isaac Newton Devins, same place. Filed Aug. 31, 1899. Serial No. 729,067. (No model.)



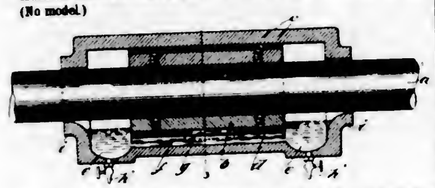
Claim.—1. In a motor-car, the combination with the passenger compartment occupying the rear portion of the car, of the freight-compartment occupying the forward portion and the motorman's compartment occupying the upper rear portion of the freight-compartment and extending up beyond the top of the car and provided with lookout-windows as shown and for the purpose specified.

2. In a motor-car the combination with the passenger-compartment occupying the rear portion of the car, of the freight-compartment occupying the forward portion, the motorman's compartment occupying the upper rear portion of the freight-compartment and extending up beyond the top of the car and provided with lookout-windows, and the open trolley-pole-supporting frame secured to the roof of the freight-compartment and leaving a clear space for outlook, and the trolley-pole pivoted on same and extending rearwardly and having the cord extending into the motorman's compartment as and for the purpose specified.

3. In a motor-car the combination with the passenger-compartment occupying the rear portion of the car, of the freight-compartment occupying the forward portion, and having an inclined roof and the motorman's compartment occupying the upper rear portion of the freight-compartment and extending beyond the top of the car and provided with lookout-windows as and for the purpose specified.

4. In a motor-car the combination with the passenger-compartment occupying the rear portion of the car, of the freight-compartment occupying the forward portion, the motorman's compartment occupying the upper rear portion of the freight-compartmeut and extending beyond the top of the car and provided with lookout-windows, the door in the side of the motorman's compartment, and the hand-rails and steps on the side of the car leading thereto as and for the purpose specified.

643,710. MEANS FOR LUBRICATING ROTATING SHAFTS. MATTHIAS BRUECHER, Chicago, Ill. Filed Mar. 6, 1899. Serial No. 707,983. (No model.)

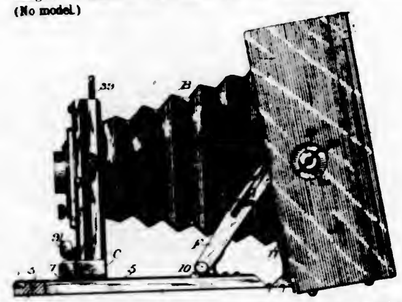


Claim.—1. In apparatus of the class described, the combination with a journal-box, of an oil reservoir or fountain provided therein, the journal-box being provided in its lower portion with a duct or passage having communication with the oil-reservoir and with the interior of the journal-box, a shaft and an enlargement provided thereon, rotatably mounted in said journal-box, the said enlargement being supported upon the lower bearing-surface of the journal-box below the oil-level of the reservoir or fountain, whereby a section of said enlargement is constantly immersed in and supplied with oil and said oil is distributed circumferentially and laterally within the bearing, substantially as described.

2. In apparatus of the class described, the combination with the journal-box *c*, of an oil reservoir or fountain *e* provided therein, the journal-box being provided in its lower portion with a duct or passage having communication with the oil-reservoir and with the interior of the journal-box, a shaft *a*, and an enlargement *b* provided thereon and rotatably mounted in said journal-box, the said enlargement being supported upon the lower bearing-surface of the journal-box below the oil-level of the reservoir or fountain, whereby a section of said enlargement is constantly immersed in and supplied with oil and said oil is distributed circumferentially and laterally within the bearing, substantially as described.

3. In apparatus of the class described, the combination with the journal-box *c*, of an oil reservoir or fountain *e* provided therein, the journal-box being provided in its lower portion with a duct or passage having communication with the oil-reservoir and with the interior of the journal-box, a shaft *a*, and an enlargement *b* formed of dovetailed sections adapted to be slipped into position upon the shaft provided thereon and rotatably mounted in said journal-box, the said enlargement being supported upon the lower bearing-surface of the journal-box below the oil-level of the reservoir or fountain, whereby a section of said enlargement is constantly immersed in and supplied with oil and said oil is distributed circumferentially and laterally within the bearing, substantially as described.

643,711. SWING-BACK FOR PHOTOGRAPHIC CAMERAS. WILLIAM P. CARLTON and HARVEY W. LOCKE, Rochester, N. Y.; said Locke assignor to said Carlton. Filed Feb. 11, 1899. Serial No. 706,287. (No model.)



Claim.—1. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, supports inside of said box on which said box is angularly adjustable, and a camera-bed having a hinge connection with said supports and provided with means for locking it thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

2. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, an intermediate frame composed of supports inside of said box on which said box is angularly adjustable and of a cross-piece at the bottom of the said box between said supports, and a camera-bed hinged to said cross-piece and provided with means for locking it to said frame in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

3. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, an intermediate frame composed of supports inside of said box on which said box is angularly adjustable, and of a cross-piece at the bottom of the said box between said supports provided with a portion of the runway for said camera-front, a camera-bed provided with the main portion of said runway and hinged to said frame so that the said cross-piece and the runway thereon form prolongations respectively of the extended bed and the runway thereon, said bed being provided with means for locking it to said frame in the extended position and forming when turned up a cover to the mouth of said box, substantially as described.

4. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, supports inside of said box on which said box is angularly adjustable, and a camera-bed having a hinge connection with said supports and provided with links hinged at one end to said bed and pivotally and slidingly connected at the other with said supports for locking the said bed thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

5. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, an intermediate frame composed of supports inside of said box on which said box is angularly adjustable and of a cross-piece at the bottom of the said box between said supports, and a camera-bed hinged to said cross-piece and provided with links hinged at one end to said bed and pivotally and slidingly connected at the other with said supports for locking the bed thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

6. In a swing-back photographic camera, the combination of a swinging camera-box, a device inside of said box for supporting or holding said box in the position to which it may be swung, and a fastener which passes through said device and the wall of said box for clamping them together and which is composed of a nut and a screw, one of them provided with a head inside of said box and the other with a thumb-head exposed on the outside of said box for manipulation by the photographer's fingers, substantially as described.

7. In a swing-back photographic camera, the combination of a swinging camera-box, supports inside of said box on which said box is angularly adjustable, a fastener which passes through one of said supports and the wall of said box for clamping them together and which is composed of a nut and a screw, one of them provided with a head inside of said box and the other with a thumb-head exposed on the outside of said box for manipulation by the photographer's fingers, and a camera-bed having a hinge connection with said supports and provided with means for locking it thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

8. In a swing-back photographic camera, the combination of a swinging camera-box, a device inside of said box for supporting or holding said box in the position to which it may be swung, and a fastener which passes through said device and the wall of said box for clamping them together and which is composed of a nut and a screw, one of them provided with a head inside of said box and a squared portion fitting in a correspondingly-shaped hole and the other with a thumb-head exposed on the outside of said box for manipulation by the photographer's fingers, substantially as described.

9. In a swing-back photographic camera, in combination with two parts which are movable relatively to each other in swinging the camera back, a double-headed screw-and-nut fastener which passes through both said parts at a point where they have relatively to each other a motion of translation, as opposed to a mere rotation about the axis of said fastener, one of the clamped parts being provided with a slot to permit said motion of translation and one element of the fastener having a squared portion traveling in said slot, the width of the slot corresponding with that of the said squared portion, substantially as described

10. In a swing-back camera, in combination with the swinging camera-box and a slotted device inside of said box for supporting or holding said box in the position to which it may be swung, a fastener which passes through the wall of said box and the slot in said inside device at a point where said box has in swinging a motion of translation relatively to said device and which is composed of a nut and a screw, one of them provided with a head inside of said box and a squared portion fitting in the slot of corresponding width in said device and the other of them provided with a thumb-head exposed on the outside of said box for manipulation by the photographer's fingers, substantially as described.

11. A swing-back photographic camera having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, supports inside of said box on which said box is angularly adjustable, a screw-fastener for clamping together the side of said box and the corresponding inside support, which fastener is located at a point where said box has in swinging a motion of translation relatively to said corresponding support, and a camera-bed having a hinge connection with said supports and provided with means for locking it thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, substantially as described.

12. A swing-back photographic camera, in which the swing-back is pivotally connected with the rest of the camera by means of two pins traveling in guides eccentric to both said pins and interconnected so as to travel together and not independently, substantially as described.

13. A swing-back photographic camera, in which a camera-box of sufficient size to incase the camera-front and collapsed bellows is pivotally connected with supports inside of said box by means of two pins traveling in guides eccentric to both said pins and interconnected so as to travel together and not independently, substantially as described.

14. A swing-back photographic camera, having, in connection with the camera front, and bellows, a swinging camera-box of sufficient size to incase the said camera front and bellows when this latter is collapsed, supports inside of said box on which said box is angularly adjustable, and a camera-bed having a hinge connection with said supports and provided with means for locking it thereto in the extended position, said bed forming when turned up a cover to the mouth of said box, and the said box being pivotally connected with said supports by means of two pins traveling in guides eccentric to both said pins and interconnected so as to travel together and not independently, substantially as described.

15. In a photographic camera, the camera-box of sufficient size to incase the camera-front and the collapsed bellows, which box has its bottom cut away, in combination with an intermediate frame having the cross-piece which forms the bottom of said frame hinged to the camera-bed and located in the cut-away place in the bottom of said box in the same horizontal plane with the remaining portion of the box-bottom, said box being pivotally connected with supports inside of said box, which supports form part of said intermediate frame, substantially as described.

16. In a photographic camera, the camera-box of sufficient size to incase the camera-front and the collapsed bellows, which box has its bottom cut away, in combination with an intermediate frame having the cross-piece which forms the bottom of said frame hinged to the camera-bed and located in the cut-away place in the bottom of said box in the same horizontal plane with the remaining portion of the box-bottom, said box being pivotally connected with supports inside of said box, which supports form part of said intermediate frame, and one of said bottoms being provided with a lip to cover the joint between them, substantially as described.

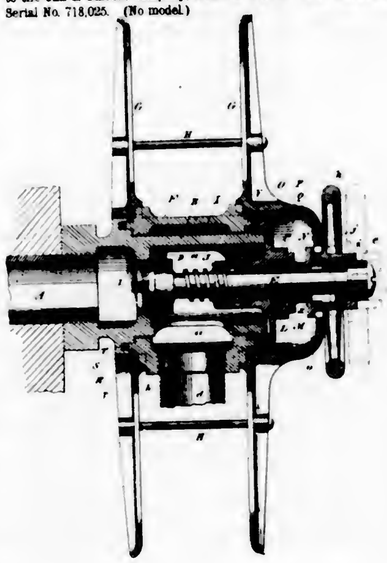
17. In a photographic camera, the camera-box of sufficient size to incase the camera-front and the collapsed bellows, which box has its bottom cut away, in combination with an intermediate frame having the cross-piece which forms the bottom of said frame hinged to the camera-bed and located in the cut-away place in the bottom of said box in the same horizontal plane with the remaining portion of the box-bottom, said box being pivotally connected with supports inside of said box, which supports form part of said intermediate frame, and the pivotal connection between the said box and the said supports being provided with vertical slots so that the said box can be lifted to bring its bottom above that of said intermediate frame and can be swung when lifted, substantially as described.

18. In combination with the camera-bed, and the camera-box, an intermediate frame composed of a cross-piece to which said bed is hinged and supports with which said box is pivotally connected, said supports being provided with vertical slots so that said box can be lifted relatively to said frame and can be swung by the aid of its pivotal connections with said supports, substantially as described.

19 A swing-back photographic camera having, in combination, a camera-bed, a swing-back, a pivotal connection between said bed and back which is movable relatively to said bed, and means for fastening the swing-back in its different positions of adjustment, substantially as set forth.

20. A swing-back photographic camera having, in combination, a camera-bed, a swing-back, a pivotal connection between said bed and back which is movable relatively to said bed, and a supplementary connection between said back and bed whereby when said back is tilted said pivotal connections automatically move relatively to said bed, substantially as set forth.

643,712. HOSE-REEL. EDWARD CLIFF, Newark, N. J., assignor to the Cliff & Gulbert Company, New York, N. Y. Filed May 24, 1899. Serial No. 718,025. (No model.)



Claim.—1. The water-supply apparatus, and the valve-casing connected therewith, combined with the reel to receive the hose, the valve within said casing for regulating the supply of water, the valve-stem connected with said valve and having the polygonal nut *e* at its outer end, the hand-wheel having its hub upon said nut and conforming therewith, and means for connecting said hand-wheel with said reel, said hand-wheel being capable of disengagement from the reel while remaining in engagement with said nut, and said nut being capable during the opening of said valve, to slide from within said hub while said wheel remains in engagement with said reel; substantially as set forth.

2. The water-supply apparatus, and the valve-casing connected therewith, combined with the reel to receive the hose, the valve within said casing for regulating the supply of water, the threaded valve-stem connected with said valve and having the polygonal nut *e* at its outer end, the hand-wheel having the hub *i* conforming with said nut and engaging the same, and means for connecting said hand-wheel with said reel, said hand-wheel being capable of disengagement from the reel so that the valve may be closed by hand, and the hub of said reel forming a chamber of sufficient length with respect to said nut that said hub may be moved outward upon said nut and free of the reel; substantially as set forth.

3. The water-supply apparatus, and the valve casing connected therewith, combined with the reel to receive the hose, the valve within said casing for regulating the supply of water, the threaded valve-stem connected with said valve and having the nut *e* on its outer end, the hand-wheel upon said nut and stem and having the inwardly-extending section *k* formed on its periphery with the right-angular flanges *m*, and the bonnet *o* forming a part of the outer disk of the reel and having the recesses *n* to receive said flanges *m* and permit of the locking of said hand-wheel and said reel together, and also when desired, the disengagement of said hand-wheel from said reel; substantially as set forth.

4. The water-supply apparatus, and the valve-casing connected therewith and having the ports or openings *a* in its sides, combined with the reel having the hub F mounted upon said valve-casing and forming between itself and said valve-casing the water-chamber, the hose-attaching nozzle connected with said hub, the valve within said casing, means for operating said valve, the threaded bonnet C screwed upon the outer end or body of said valve-casing, the screws W, W, passing through said bonnet and engaging the edge of said body, the flange O formed on said bonnet and having the annular groove P and packing Q, and the flange R formed at the inner end of the valve-casing and having the annular groove S and packing T, the said hub F being formed with the flanges V to enter and turn within said grooves P, S; substantially as set forth.

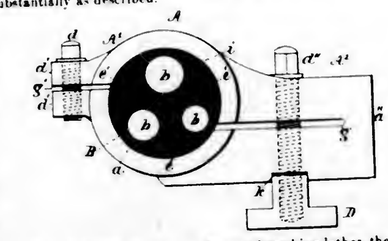
5. The water-supply apparatus, the valve-casing B connected therewith and having the valve-seat I and bonnet C, the latter having the threaded flange to engage the outer edges of said valve-casing and formed with the inwardly-extending threaded sleeve J, the recess L and flange O, and the packing M and nut N received by said bonnet, combined with the valve and its stem, the reel having the hub F mounted upon said valve-casing and provided at its opposite ends with the annular flanges V, the hose-attaching nozzle connected with said hub, the flange R formed at the inner end of said valve-casing and provided with the groove S and packing T, the groove P and packing Q formed in the said flange O, the valve within said casing, and means for operating said valve, the said hub having its annular flanges V mounted within said grooves P, S; substantially as set forth.

6. The water-supply apparatus, and the valve-casing B connected therewith and having the valve-seat I and bonnet C, the latter having the gland and the inwardly-projecting threaded sleeve J, combined with the valve D, the threaded valve-stem E extending through said sleeve and gland, the reel mounted on said valve-casing, and means for detachably connecting said reel and valve-stem; substantially as and for the purposes set forth.

7. The water-supply apparatus, and the valve-casing B connected therewith and having the valve-seat I and bonnet C, the latter having the gland and the inwardly-projecting threaded sleeve J, combined with the valve D, the threaded valve-stem E extending through said sleeve and gland and having the polygonal outer end, the reel mounted on said valve-casing, the hand-wheel on the polygonal outer end of said valve-stem and adapted for engagement with said reel, and means for preventing said hand-wheel from slipping off from the said valve-stem while permitting the polygonal portion of said valve-stem to slide through the hub of said wheel; substantially as and for the purposes set forth.

643,713. BORING ATTACHMENT FOR METAL-WORKING LATHES. ORA R. CONVERSE, Springfield, Ohio, assignor to the Western Manufacturing Company, same place. Filed June 5, 1899. Serial No. 719,507. (No model.)

Claim.—1. In a boring attachment for metal-working lathes, the case A, having the bore *i*, the parallel openings *g*, *g'*, extending from case A, having the bore *i*, the parallel openings *g*, *g'*, extending from either side of said bore *i*, dividing said case A, and terminating upon one side, within the latter: the rotatable and adjustable cylinder B, loosely fitted in said bore, having the perforated flange *a*, and provided, parallel to its axis, with a series of holes *b*, *b*, *b*, differing in size, and intersecting the periphery of said cylinder, in combination with the boring-bar A^3, having the removable cutter *a'*; the devices for changing said cutter from one angle to another, and for securing it in said boring-bar; means for clamping said cylinder and said boring-bar, and for attaching said case A, to the slide-rest of a lathe, substantially as described.

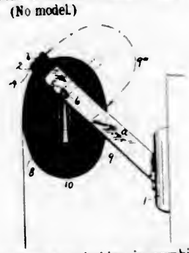


2. In a boring attachment for metal-working lathes, the combination with the case A, having a longitudinal bore *i*; the transverse parallel openings *g*, *g'*, extending from said bore, and terminating, on one side, within the exterior wall of said case; the rotatable and adjustable cylinder B, loosely fitted in said bore *i*, and provided, parallel to its axis, with holes *b*, *b*, *b*, variable in size, and cutting the peripheral wall of said cylinder; the openings *c*, *c*, in said cut walls; the boring-bar A^3, having the removable cutter *a'*; means for changing said cutter from one angle to another, and for fastening it in said boring-bar; means for clamping said cylinder B, in said case A, and for attaching the latter to the slide-rest of a lathe, substantially as hereinbefore specified

3. In a boring attachment for metal-working lathes, the case A, composed of the cylindrical body A', and the rectangular extension A^2; the parallel openings *g*, *g'*, dividing said body A', and said extension A^2, and terminating within the latter; the bore *i*, in said body A', of said case A; the rotatable and adjustable cylinder B, having the flange *a*, perforated with holes *c'*; said cylinder being provided with holes *b*, *b*, *b*, parallel to its axis, and intersecting its periphery; the openings *c*, *c*, in the latter, over said holes *b*, *b*, *b*, and extending from the flange *a*, to the opposite end of said cylinder; the boring-bar A^3; means for clamping said cylinder and said boring-bar in said case A; and means for attaching the latter to the slide-rest of a lathe substantially as hereinbefore specified.

4. In a boring attachment for metal-working lathes, the boring-bar A^3, having the removable cutter *a'*; the devices for changing said cutter from an angle of forty-five to ninety degrees, and vice versa, and for fastening said cutter *a'*, in said boring-bar A^3; the divided case A, having the bore *i*, the rotatable and adjustable cylinder B, loosely fitted in the latter, and having a perforated flange *a*; said cylinder being provided, parallel to its axis with holes *b*, *b*, *b*, cutting the periphery of said cylinder, and forming the openings *c*, *c*, in the latter; means for clamping said boring-bar and said cylinder in said case A; and means for attaching the latter to the slide-rest of a lathe; substantially as described.

643,714. TOILET-PAPER HOLDER. JOHN DREWSEN, Worcester, Mass., assignor to John G. Holman, Malden, Mass. Filed Oct. 14, 1899. Serial No. 733,581. (No model.)

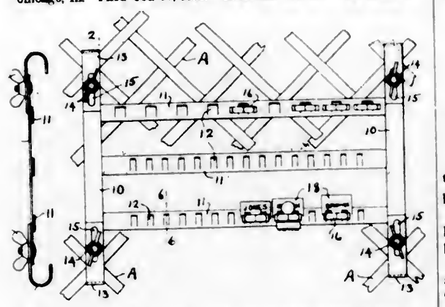


Claim.—1. In a toilet-paper holder, in combination with a roll of paper, a frame standing at an acute angle with the wall, a removable rod supported by said frame, and forms depending by their upper extremities from said rod and laterally adjustable thereon, adapt-

ed to fit into the ends of the opening in said roll, substantially as set forth.

2. In a toilet-paper holder, in combination with a roll of paper, a frame, a rod supported by said frame, and resilient forms having eyes in their upper extremities adapted to turn and slide upon said rod, said forms fitting into the ends of the opening in said roll and retaining the same in an elongated condition, substantially as set forth.

643,715. RACK FOR RUBBER STAMPS. HARRY S. FOLGER, Chicago, Ill. Filed Oct. 17, 1898. Serial No. 693,751. (No model.)



Claim.—1. A stamp-holding rack consisting of a pair of side bars connected together by a series of cross-bars, hooks on said side bars whereby said rack may be secured to a lattice-work substantially as described, a series of prongs on said cross-bars, said prongs being formed by partial punchings from said bars and bent outward from the face thereof, and stamp-holding clamps engaged and supported by said prongs.

2. A stamp-holding rack consisting of a pair of side bars connected together by a series of cross-bars, adjustable hooks on said side bars whereby said rack may be secured to and clamped upon a lattice-work substantially as described, a series of uniformly-spaced prongs on said cross-bars, said prongs being formed by partial punchings from said bars and bent outward from the face thereof, and stamp-holding clamps each engaged and supported by two adjacent prongs.

3. In a stamp-holding rack consisting of a framework having cross-bars and provided with means for clamping it at any desired position on a support, a series of uniformly-spaced prongs on the cross-bars of said framework, said prongs being formed by partial punchings from said bars and bent outward from the face thereof, and a series of stamp-holding clamps detachably engaged by said prongs, each clamp being constructed so as to be engaged by any two adjacent prongs and held from lateral displacement thereon.

643,716. CORN-HARVESTER. WILLIAM W. GREES, Oakland, and JOSIAH A. COLE, Topeka, Kans. Filed Oct. 24, 1899. Serial No. 734,646. (No model.)

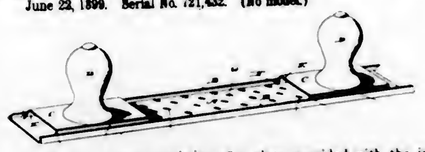


Claim.—1. A corn-harvester comprising a platform provided with a butt-wall in rear of a cutter, a bunching appliance fast with the platform in front of the butt-wall and having an inclined element disposed transversely of the platform, and a sectional bending contrivance overhanging the platform between the cutter and the bunching appliance, said bending contrivance having a stalk-deflecting bow-shaped member which is rotatably and longitudinally adjustable to assume different positions with relation to the cutter and the bunching appliance, substantially as described.

2. In a corn-harvester, a bunching appliance mounted on the harvester-platform comprising an inclined bar disposed transversely of the platform and fastened at its lower end thereto, a post secured to the platform and the elevated end of the bar, and an arm extending upwardly from the inclined bar at a point intermediate of its length, combined with a cutter, and a bending appliance having a stalk-deflecting element between the cutter and said bunching appliance, substantially as described.

3. A corn-harvester having its platform and guide-runner arranged to form an intermediate throat, a cutter across said throat, and a bending appliance comprising one member supported on the guide-runner and a second bow-shaped member clamped to the first member, the second member being rotatably and longitudinally adjustable with respect to the first member.

643,717. RASP. JAMES L. INGALSBE, Glens Falls, N. Y. Filed June 23, 1899. Serial No. 721,432. (No model.)

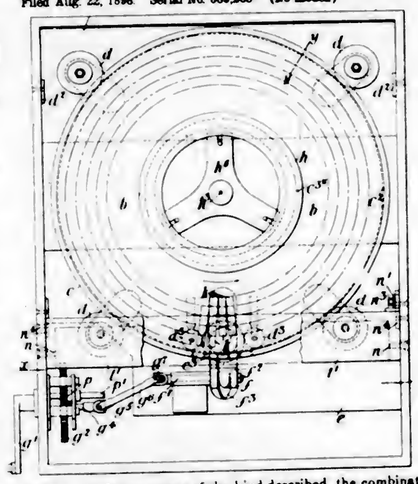


Claim.—1. A rasp, consisting of a plate provided with the inturned edges, handles carrying plates to fit between the sides of said plate, and cutting edges formed from the body of said plate.

2. A rasp, consisting of a plate provided with inturned sides, a pair of handles having means to hold them between the edges of the plate, and cutting edges formed from the body of the plate.

3. A rasp, consisting of a plate provided with inturned edges, and a series of rows of openings provided with cutting edges therethrough, and handles held in place by said inturned edges.

643,718. KINETOSCOPE. LEONARD U. KANE, London, England. Filed Aug. 22, 1898. Serial No. 689,263. (No model.)



Claim.—1. In apparatus of the kind described, the combination with the lenses, the transparent picture-plate, the ring of teeth connected to the plate, the cam engaging the said teeth and the shutter, of a pinion connected to the plate and a toothed rack connected to the case of the apparatus and gearing with the pinion substantially as described.

2. In apparatus of the kind described, the combination with the lenses, the transparent picture-plate, the ring of teeth connected to the plate, the cam engaging the said teeth and the shutter, of a pinion connected to the plate, a toothed rack connected to the case of the apparatus and gearing with the pinion and means for disengaging the rack from the pinion substantially as described.

3. In apparatus of the kind described the combination with the lenses, the transparent picture-plate, the ring of teeth connected to the plate, the cam engaging the said teeth and the shutter, of a pinion connected to the plate, a pivoted toothed rack connected to the case of the apparatus and gearing with the pinion and a pivoted spring-catch for normally holding the rack in engagement with the pinion substantially as described.

4. In apparatus of the kind described the combination with the cam for intermittently rotating the picture-plate of a shaft f carrying the cam, a universal joint g^1 connected to the said shaft, a shaft g^2 connected at one end to the said joint, a universal joint g^3 connected to the other end of the said shaft, a sliding shaft g^4 connected to the joint g^3, a pinion g^5 on the shaft g^4 a gear-wheel g^6 gearing with the pinion g^5 a shaft g carrying the wheel g^6 and a crank-handle on the shaft g substantially as described.

5. In apparatus of the kind described the combination with the case of an annular picture-plate, a toothed ring engaging the outer edge of the plate, rollers supporting and guiding the toothed ring a disk engaging the inner edge of the plate, a spring-plate connected to the disk, a pin fixed to the said spring-plate and a fork engaging the said pin and connected to the part carrying the pin substantially as described.

643,719. FURNITURE-CASTER. WILLIAM LIVINGSTONE, New York, N. Y., assignor to Robert Murray, trustee, same place. Filed July 20, 1899. Serial No. 724,507. (No model.)



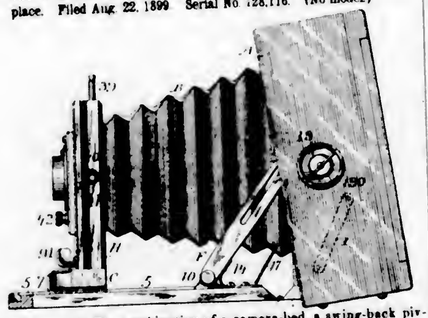
Claim.—1. In a furniture-caster a horn having its top hung on a swivel-pin at a point removed from the true center of the top, and bearing-points in the same horizontal plane between the horn and the swivel-plate equally distant from the true center of the top of the horn but unequally distant from the swivel-pin the most forward of said bearing-points and the swivel-pin being equidistant from a perpendicular line drawn through the axis of the caster-wheel substantially as specified.

2. In a furniture-caster the combination with the caster-wheel and its pin, of a caster-horn or wheel-hanger having perforated conical projections on the inner sides of and integral with the shanks, through which the caster-wheel pin is passed and its end riveted therein on the outside, substantially as specified.

3. In a furniture-caster the combination with the caster-wheel, of a caster-horn or wheel-hanger, having perforated conical projections on the inner sides of and integral with the shanks thereof, a tube having counterbored ends to fit over the said conical projections, and a pin passing through the perforated conical projections of the shanks and the tube and riveted on the outside of the shanks, substantially as described.

4. In a furniture-caster, the combination of a swivel-plate, a swivel-pin, a caster-wheel, a caster-wheel horn hung on the swivel-pin at a point removed from the true center thereof, bearing-points between the top of the horn and the swivel-plate one of the said bearing-points and the swivel-pin being on opposite sides of a perpendicular line drawn through the axis of the caster-wheel pin, and a bearing mounted on a shaft within the horn, the axes of the said bearing-wheel and the caster-wheel being in the same vertical plane, substantially as specified.

643,720. SWING-BACK FOR PHOTOGRAPHIC CAMERAS. HARVEY W. LOCKE, Rochester, N. Y., assignor to William F. Carlton, same place. Filed Aug. 22, 1899. Serial No. 728,116. (No model.)



Claim.—1. The combination of a camera-bed, a swing-back pivotally and slidingly connected therewith, and links pivotally connected at opposite ends to said camera-bed and swing-back respectively, whereby said swing-back moves vertically as it swings, substantially as set forth.

2. The combination of a camera-bed having vertically-extending supports, a swing-back pivotally and slidingly connected to said supports at approximately the middle line of said swing-back, and links pivoted at opposite ends to said camera-bed and to said swing-back, substantially as set forth.

3. The combination of a camera-bed which furnishes the bottom of the camera-casing, a swing-back constructed so as to form the sides and top of the camera box or casing thus constituting a swinging box, said swinging box being pivotally and slidingly connected with said camera-bed, and links pivotally connected at opposite ends to said bed and box respectively, substantially as set forth.

643,721. HOUSE-MOVING TRUCK. SOLOMON W. MAPLE, Elm Park, Okla. Filed Sept. 9, 1899. Serial No. 729,967. (No model.)



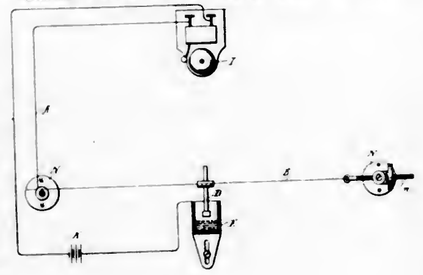
Claim.—1. In a house-moving truck the combination of a rear pair of trucks comprising rollers mounted in pairs, transverse adjustable connecting means for the trucks, a front truck, a bolster pivotally mounted upon the front truck, and connections between the bolster and the connection of the rear trucks.

2. A house-moving apparatus comprising a pair of rear trucks each including a frame having rollers journaled therein, an adjustable connection between said trucks, a front truck, a bolster pivotally mounted upon the front truck, adjustable connections between the bolster and the connection of the rear trucks, and draft appliances connected with the front truck.

3. In a house-moving apparatus, a pair of rear trucks, comprising transverse rigid rollers combined with a transverse adjustable connecting-beam rigidly connecting the trucks, a front centrally-located truck, a bolster swiveled upon the front truck, and adjustable connections between the bolster and the transverse connection of the rear truck.

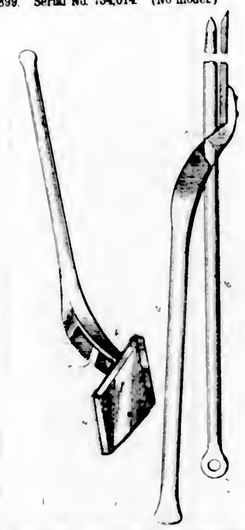
4. In a house-moving apparatus the combination with a pair of rear trucks comprising transverse rigid rollers and supporting-frames therefor, a transverse adjustable connecting-beam rigidly connecting the trucks, a front centrally-located truck having a bolster pivotally mounted thereon, adjustable connections between the bolster and the connection of the rear trucks and draft connections with the front truck including terminal elongated links having a mutually-connecting elongated hook adapted for direct engagement of the draft appliance.

643,722. THERMOSTAT. CHARLES E. MAY, Dunedin, New Zealand. Filed Nov. 14, 1898. Serial No. 696,488. (No model.)



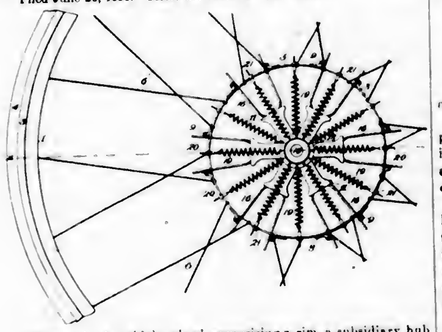
Claim.—The combination, with a metallic wire, and means for stretching it; of a movable contact-piece suspended from the wire between its ends and descending by gravity when the wire is heated, and a stationary contact-piece arranged in the downward path of the movable contact-piece, substantially as set forth.

643,723. FIRE-TONGS. WALTER B. MORLAN, Urich, Mo. Filed Oct. 18, 1899. Serial No. 734,014. (No model.)



Claim.—A pair of tongs, one member of which comprises a longitudinally-slotted handle, and a blade disposed substantially parallel to the handle, the rear wall of the slot meeting the outer side of the handle in an abrupt angle, and forming a sharp transverse fulcrum-bearing, and a poker or similar bar free from lateral projections, freely insertible longitudinally through the slot in the handle and engaging against the sharp fulcrum-bearing, and the latter biting into the poker, to prevent accidental longitudinal movement of the latter.

643,724. VEHICLE-WHEEL. JOHN H. MORRIS, Fremont, Nebr. Filed June 26, 1899. Serial No. 721,814. (No model.)



Claim.—1. A vehicle-wheel, comprising a rim, a subsidiary hub arranged concentrically within and rigidly connected to the rim, and provided with a series of slots, the hub proper arranged within the subsidiary hub and provided with a series of holders, and coil-springs mounted in said holders and terminating in short arms bearing against the holders and long arms projecting through the slots of the subsidiary hub, substantially as described

2. A vehicle-wheel, comprising a rim, a subsidiary hub arranged concentrically within and rigidly connected with the rim, and provided with a series of slots, and with grooved antifriction-rollers at the ends of said slots, the hub proper arranged within the subsidiary hub and provided with a series of holders, and coil-springs mounted in said holders and terminating in short arms bearing against the holders and long arms projecting through the slots of the subsidiary hub and engaging said antifriction-rollers, substantially as described.

3. A vehicle-wheel, comprising a rim, a subsidiary hub arranged concentrically within and rigidly connected with the rim, and provided with a series of slots, the hub proper arranged within the subsidiary hub and provided with a series of holders, coil-springs mounted in said holders and terminating in short arms bearing against the holders and long arms projecting through the slots of the subsidiary hub, and a series of springs connecting the hub with the subsidiary hub, substantially as described.

4. A vehicle-wheel, comprising a rim, a subsidiary hub arranged concentrically within and rigidly connected with the rim, and provided with a series of slots, the hub proper arranged within the subsidiary hub and provided with a series of holders, coil-springs mounted in said holders and terminating in short arms bearing against the holders and long arms projecting through the slots of the subsidiary hub, a series of springs connecting the hub with the subsidiary hub, nipples journaled in the subsidiary hub, eyebolts engaging said nipples, and retractile springs connecting said eyebolts with the hub, substantially as described.

643,725. BUSH-PULLER. SAMUEL P. MCCANN, Delark, Ark. Filed July 19, 1899. Serial No. 724,354. (No model.)



Claim.—The combination of the base 1; eyebolts 2, secured to the upper face of the base; arms 5 and 6, pivoted between said eyebolts; washer 2', working between said arms at their pivotal point, causing a space between the two arms for the lever; jaw 7, integral with said arm 6; lever 8, pivoted between said arms; jaw 9, integral with lever 8, and articulating with jaw 7, substantially as shown and described and for the purposes set forth.

643,726. ENAMELIZED STEEL OR HOMOGENEOUS IRON. WILLIAM F. NIEDRINGHAUS and GEORGE W. NIEDRINGHAUS, St. Louis, Mo., assignors to the National Enameling and Stamping Company, New York, N. Y. Original application filed Jan. 19, 1899, Serial No. 702,634. Divided and this application filed Mar. 6, 1899. Serial No. 708,007. (Specimens.)

Claim.—1. As a new article of manufacture "enamelized steel or homogeneous iron especially adapted for enameling purposes.

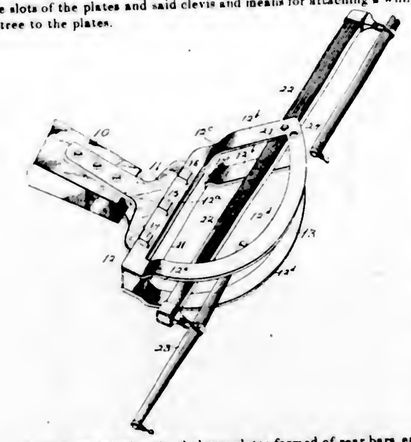
2. As a new article of manufacture, steel or homogeneous iron prepared for enameling by "enamelizing" the same by pretreatment in a molten condition with an enameling flux or fluxes whereby the said metal is specially adapted for retaining an adherent coating of enamel containing such or analogous fluxes.

3. As a new article of manufacture, steel or homogeneous iron having its surface when in a solid state in an enamelized condition, the said steel having a great affinity for enamels containing a flux or fluxes of a character similar to the flux or fluxes producing the enamelizing of the steel, and adapted to receive and retain an adherent coat of enamel containing such fluxes, free from objectionable flaws and defects.

643,727. CLEVIS FOR AGRICULTURAL IMPLEMENTS. EDWARD E. OLSON and HECTOR OLSON, Roland, Iowa. Filed Oct. 23, 1899. Serial No. 734,536. (No model.)

Claim.—1. In a draft device, a skeleton frame consisting of a straight length having bolt-holes and an extension at one end projecting at an angle and the said extension connected with the other end of the said straight length by a curved portion and bends in the frame to produce shoulders near the ends of the straight length having perforations, and the complete frame adapted to be fixed to a mating frame, a mating skeleton frame and a clevis, arranged and combined as shown and described for the purposes stated.

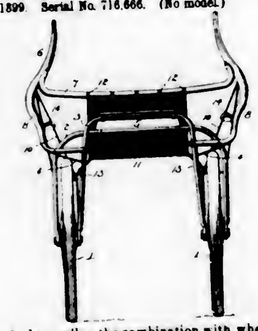
2. In a draft device, the skeleton plates formed with slots in their rear bars, the clevis between said plates, the bolts extended through the slots of the plates and said clevis and means for attaching a whiffletree to the plates.



3. In a draft device, the skeleton plates formed of rear bars, end bars at oblique angles to the rear bars and curved front bars integral therewith, the clevis between and bolted to the rear bars of the plates, the whiffletree between and fulcrumed to the plates at the jointure of the front and end bars thereof and means for adjusting said whiffletree.

4. In a draft device, the skeleton plates offset in opposite directions and mainly parallel with each other, the clevis to which the plates are bolted and means for fulcruming a whiffletree to said plates.

643,728. RACING-SULKY. MARTIN PAYNE, Troy, N. Y. Filed May 13, 1899. Serial No. 716,666. (No model.)



Claim.—1. In a sulky, the combination with wheels and upright front and rear axles, of shafts having their rear portions depressed or dropped in front of the wheels and connected to the axles immediately above the wheels.

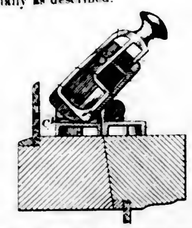
2. In a sulky, the combination with wheels, and front and rear axles, of shafts of greater width at their widest part than the said axles and having their rear portions depressed or dropped and connected to the front axle outside the wheels immediately thereabove and crossed over said wheels and connected to the rear axle.

3. In a sulky, a foot-rest comprising a plate having a slot, a foot-support having a rib adapted to move in the slot, and means for locking the support to the plate at different points.

4. In a sulky, the combination with a plate having a slot and a row of depressions or openings, of a foot-support having a lug adapted to enter any one of the openings, and a locking-bolt on the foot-support which is received in the slot.

643,729. SASH-LOCK. JOSEPH R. PAYSON, Sr., Chicago, Ill. Filed Nov. 6, 1899. Serial No. 735,869. (No model.)

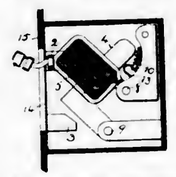
Claim.—1. The combination, in a sash-lock, of a back plate, a vertically-oscillating locking-arm pivoted thereto and a longitudinally-sliding spring-bolt guided in the arm, extending beyond the pivot-pin and adapted to engage with and lock upon the rear upper surface of the back plate when the arm approaches a horizontal position: substantially as described.



2. The combination, in a meeting-rail sash-lock, of a back plate, a vertically-oscillating arm pivoted thereto, forming a three-sided case and a longitudinally-sliding spring-bolt guide within said case extending beyond the axis of oscillation and engaging the rear upper surface of the back plate when the locking-arm is moved toward a horizontal position: substantially as described.

3. In a meeting-rail sash-lock, the combination with a back plate, and front plate having suitable means of engagement, of a vertically-swinging arm pivoted to the back plate consisting of a three-sided outer case, having an inside web for a spring-seat, outside drawing-lugs and suitable cross-perforations for pivot and guide pins and an inner spring-bolt provided with handle, suitable slots to receive pivot and guide pins and a spring interposed between the spring-seat and the bolt: substantially as described.

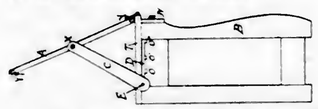
643,730. ELECTRIC SWITCH. WILLIAM T. PRINGLE, Primos, Pa., assignor of one-half to Edwin R. Keller, Philadelphia, Pa. Filed July 19, 1899. Serial No. 724,351. (No model.)



Claim.—1. In a flush switch the combination of fixed terminals, a movable contact member adapted to coöperate therewith, a slotted face-plate for covering the same, a manually-operative actuating member projecting through the slot of the face-plate and having a movable but positive engagement with the contact member, and spring means adapted to be put under strain by the initial movement of the actuating member and then to be released to accelerate the final movement of the switch, substantially as described.

2. In a flush switch the combination of fixed terminals, a movable contact member adapted to coöperate therewith, a slotted face-plate for covering said terminals and member, a manually-operative member projecting through the slot of the face-plate and traversing the longitudinal extension of the contact member and connected therewith by slot-and-pin connection, and spring means for coöperating therewith for accelerating the final movement of the actuating member in opening and closing the switch, substantially as described.

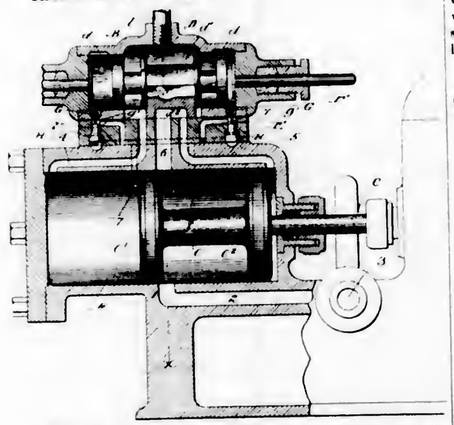
643,731. ADJUSTABLE BLACKBOARD AND TABLE OR DESK. DAVID W. PROSSER and WILLIAM W. WATSON, Jamestown, N. Y. Filed Feb. 23, 1899. Serial No. 706,630. (No model.)



Claim.—1. In an adjustable blackboard and desk, a desk having a notched slot in each end, a reversible blackboard which revolves on a supporting-frame, a supporting-frame having a cross-bar which rests in the notches in said slot and holds the blackboard on the desk-top or at the back of the desk, as shown and described.

2. In an adjustable blackboard and desk, the combination of a reversible blackboard A, a frame composed of arms C, C', and rod E pivotally attached to said board to support the same, a desk or table B having slots D, D', in each end and notches O, O', O^2, in said slots to receive and hold said rod, as shown and described.

643,732. STEAM PUMPING-ENGINE. BERT O. REOUSE, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed Sept. 25, 1899. Serial No. 731,597. (No model.)



Claim.—1. A steam-pump comprising a suitable piston and piston-cylinder, and a steam-chest inclosing a steam-actuated valve, the casing being provided with suitable ports or passages for admitting and exhausting the steam to and from the piston-cylinder, and also to and from the steam-actuated valve, and the admission and exhaust passages leading from the said steam-actuated valve being fitted with check-valves, substantially as and for the purpose described.

2. In a steam-engine, a steam-actuated valve for controlling the admission and exhaust to and from the piston-chamber, an engine-casing having suitable ports or passages for admitting and exhausting the steam to and from the piston-cylinder, and also to and from the steam-actuated valve, a water or condensing chamber into which the exhaust is conducted, and check-valves arranged intermediate of the steam-actuated valve and the said water or condensing chamber, for the purpose set forth.

3. In a steam-pump in which the exhaust can be turned into the water, and in which the reversing valve is actuated by steam from the piston-chamber, a plurality of check-valves arranged intermediate of such piston-chamber and steam-actuated valve, said check-valves opening to permit the exhaust to escape from the chamber of the steam-actuated reversing-valve.

4. In a steam-pump in which the exhaust can be employed to heat the water, the combination of the piston and piston-chamber, a reversing-valve actuated by steam from the piston-chamber, and a couple of steam-actuated check-valves arranged intermediate of the piston-chamber and reversing-valve and adapted to control the admission and exhaust of steam to and from the latter.

5. In a steam-pump in which the exhaust can be employed to heat the water, a piston and piston-chamber, a reversing-valve actuated by steam from the piston-chamber, and a deck-plate arranged between the cylinder and valve-chest and provided with supply and exhaust passages and also with check-valves for controlling the admission and exhaust of steam to and from the reversing-valve.

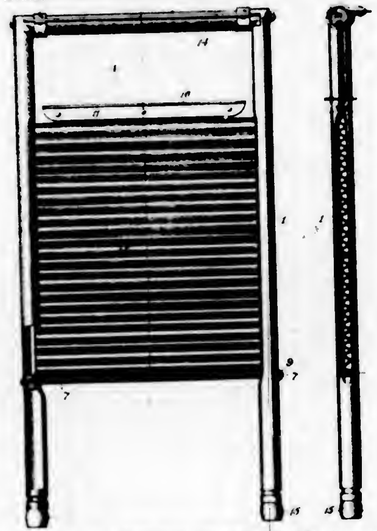
6. In an engine, the combination of a piston and piston-chamber, a reversing-valve actuated by steam from the piston-chamber, and a ported deck-plate removably arranged between the cylinder and valve-chest and provided with steam-actuated check-valves, substantially as and for the purpose described.

7. In a steam-pump, and in combination with a piston, cylinder and steam-actuated valve, a removable ported deck-plate provided with steam-actuated check-valves, substantially as and for the purpose set forth.

8. In a steam-pump in which the exhaust can be employed to heat the water, and in combination with a cylinder, steam-chest, piston and steam-actuated reversing-valve, a ported deck-plate arranged between the cylinder and steam-chest and provided with steam-actuated valve devices for controlling the admission and exhaust of steam to and from the reversing-valve, each steam-actuated valve device consisting of a check-valve and an actuating-plug for lifting such check-valve.

9. In a steam-pump in which the exhaust can be employed to heat the water, and in which the reversing-valve is actuated by steam from the piston-chamber, the combination of a cylinder, steam-chest, piston, steam-actuated reversing-valve, and a couple of steam-actuated valve devices arranged intermediate of the cylinder and steam-chest and adapted to control the admission and exhaust of steam to and from the said reversing-valve, each of said valve devices consisting of a check-valve and an actuating-plug for raising such check-valve, the casing being provided with a couple of passages each of which leads from the piston-chamber to the check-valve of one of said valve devices, and each of said passages having a branch which leads to the actuating-plug of the other valve device.

643,733. WASHBOARD. JAMES T. SARGENT and PETER J. JORCKEN, Cleveland, Ohio, assignors to the American Washboard Company, same place. Filed Dec. 13, 1898. Serial No. 699,126. (No model.)



Claim.—1. In a washboard, the combination of tubular side bars and headpiece provided with grooves extending longitudinally thereof and formed by bending or swaging in portions of the tubes forming the side bars and headpiece, a brand-board and a rubbing portion formed of metal and having their edges supported in the grooves in the side bars and headpiece, substantially as set forth.

2. In a washboard, the combination of tubular side bars and headpiece provided with grooves extending longitudinally thereof and formed by bending in portions of the tubes forming the side bars and headpiece, a locking-piece for holding the adjoining ends of said parts in alinement, a metallic brand-board and rubbing portion having their edges supported in grooves formed in the side bars and headpiece, substantially as set forth.

3. In a washboard, the combination of tubular side bars and headpiece provided with grooves extending longitudinally thereof, the grooves being formed by bending in portions of the tubes forming the side bars and headpiece a metallic brand board and rubbing portion having their edges arranged in said grooves, a bar arranged within the headpiece and having its ends projecting into and engaging the upper ends of the side bars and rods for holding the several parts in operative relation to each other, substantially as set forth.

4. In a washboard, the combination of tubular side bars and headpiece provided with grooves formed by bending in portions of the tubes constituting the side bars and headpiece, a metallic brand-board and rubbing portion formed integral with each other and having their edges supported in said grooves and a soap-supporting ledge secured in proper relation to the rubbing portion, substantially as set forth.

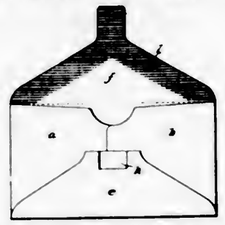
643,734. BRAKE-SHOE. WILLIAM D. SARGENT, Chicago, Ill. Filed Aug. 17, 1899. Serial No. 727,501. (No model.)



Claim.—1. A cast-iron brake-shoe having triangular prolongations tapering from the back to the wearing-surface of the shoe at the ends thereof and chill-hardened from the back, said chilled portions not extending to the wearing-surface of the shoe, substantially as and for the purpose described.

2. A cast-iron brake-shoe having tangential triangular prolongations at the ends thereof chill-hardened from the back, said chilled portions not extending to the wearing-face of the shoe, substantially as and for the purpose described.

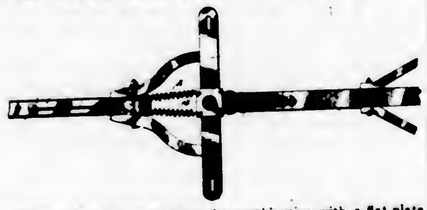
643,735. ENVELOP. EDWIN T. STUART, Ottawa, Kans. Filed Sept. 27, 1899. Serial No. 731,883. (No model.)



Claim.—1. An envelop-blank comprising a series of foldable flaps, one of which is slotted to form a lip and is provided with a foldable pocket-forming tongue adapted to have interlocking connection with the lip, said flap being foldable upon certain other flaps and forming a concealed pocket within the envelop, substantially as described.

2. As a new article of manufacture, an envelop comprising a body portion, the end flaps, a bottom flap, and a sealing-flap provided with a tongue, said bottom flap having a slot forming an internal lip, and also provided with a pocket-forming tongue having members foldable one upon the other and one of said members adapted for engagement with said lip, said bottom flap, with the folded tongue thereof being united to the end flaps and forming a pocket inside of the envelop adapted for the reception of the fastening-tongue on the sealing-flap, substantially as described.

643,736. TONGUE-SUPPORT. GEORGE W. WRIGHT, Yoakum, Tex. Filed July 15, 1899. Serial No. 724,022. (No model.)



Claim.—In a tongue-support, the combination with a flat plate having a central opening therein, and receiving the king-bolt of the vehicle, of a pair of chains connected to the rear end of the plate and at opposite sides of the opening therein, convergent rearwardly therefrom, and detachably connected at their point of convergence to the reach-bar of the vehicle, a pair of springs connected to the forward portion of the plate, and at opposite sides of the opening therein, a triangular plate having the forward ends of the springs connected to the opposite rear corners of the plate, and a rod loosely connected to the forward end or vertex of the plate, extending forward therefrom, and detachably connected at its forward end to the tongue, in advance of the pivotal point of the latter, substantially as and for the purpose set forth.

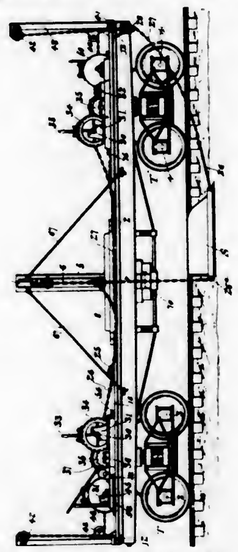
643,737. WARDROBE. LESLIE M. ADAMS, Portland, Oreg. Filed Feb. 7, 1899. Serial No. 704,810. (No model.)

Claim.—In a folding wardrobe, in combination, two upright sides, top and bottom pieces hinged at corresponding ends to one of the sides and having a detachable engagement with the opposite side, and a flexible back of fabric connected permanently along its vertical edges to the sides, and detachably connected along its top and bottom edges to the top and bottom pieces, whereby the top and bottom edges of the fabric may be disconnected from the top and bottom pieces, the latter folded against one of the side pieces and the folded structure rolled in the shape of a bundle within the flexible back which forms a protecting-cover therefor, substantially as described.

643,737.



643,738. DITCHING APPARATUS. JOHN T. BAXTER and SAMUEL H. BAXTER, Jackson, Tenn. Filed Mar. 30, 1899. Serial No. 711,092. (No model.)



Claim.—1. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, and driving mechanism for one of said drums controlled by the movement of the car.

2. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, and driving mechanism for one of said drums operated by an axle of the car.

3. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for said drums operatively controlled by the traveling movement of the carrying devices, and means for independently connecting said drums with the driving mechanism.

4. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for one of said drums controlled by the movement of the car, and means for locking the drums against retractive movement when the excavating device is in its elevated position.

5. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for one of said drums controlled by the movement of the car, and friction-brakes operable with said drums.

6. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for one of said drums controlled by the movement of the car, circular extensions on said drums, rings surrounding said circular extensions and adapted to frictionally engage the same, and means for operating said rings.

7. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for one of said drums controlled by the movement of the car, circular extensions on said drums, rings surrounding said circular extensions and adapted to frictionally engage the same, links connected respectively to said rings and to the framework, and rock-shafts fixed to said links for operating the same.

8. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, driving mechanism for one of said drums controlled by the movement of the car, circular extensions on said drums, rings surrounding said circular extensions and adapted to frictionally engage the same, links connected respectively to said rings and to the framework, rock-shafts fixed to said links for operating the same, and levers secured to said rock-shafts.

9. The combination with a car, of earth-excavating devices located at opposite sides of the same, two pairs of drums located respectively at opposite ends of the car, connections between the drums and the excavating devices for elevating said last-mentioned parts, driving mechanism for the drum controlled by the movement of the car, and means for independently connecting the several drums with the driving mechanism.

10. The combination with a car, of an earth-excavating device, a pair of arms supported by the car, a pair of drums, chains connecting said drums and excavating device, guiding means for said chains supported by said arms, and means for driving the drums operatively controlled by the traveling movement of the said car.

11. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device, shafts for supporting the drums and provided with clutches, and driving mechanism controlled by the movement of the car and operatively connected to said shafts.

12. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, shafts for supporting the drums, a shaft sustained upon the car and operatively connected with the car-axle for operation thereby, and driving connections between said last-mentioned shaft and the drum-shafts.

13. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, shafts for supporting the drums, a shaft sustained upon the car and operatively connected with the car-axle for operation thereby, driving connections between said last-mentioned shaft and the drum-shafts, and means for throwing said drums into and out of action alternately.

14. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, arms for supporting said connections, shafts for said drums, a second shaft, two series of meshing gears fixed respectively to said drum-shafts and to the other shaft, and operative connections between the latter and a car-wheel.

15. The combination with a car, of an earth-excavating device, a pair of drums, connections between the drums and the excavating device for elevating the latter, shafts for supporting the drums and provided with clutches and also having gears, a third shaft provided with gears meshing with the gears on the drum-shafts, sprocket-wheels secured to said third shaft and to the car-axle, and a sprocket-chain passing around said sprocket-wheels.

16. The combination with a car, of an earth-excavating device, a pair of drums, chains connecting the drums and the excavating device and secured to the opposite ends of the latter, overhanging arms on the car provided with pulleys to receive said chains, driving mechanism operatively controlled by the traveling movement of the carrying device, and means for individually connecting the drums to said driving mechanism.

17. The combination with a car, of an earth-excavating scoop having side and end walls, a bail secured to the front end of said scoop, a chain connected to said bail, a second chain connected to the rear of the scoop, arms located at different points in the length of and overhanging the car and provided with guiding means to receive said chains, a pair of drums independently operative and connected with said chains, and driving mechanism for said drums operatively controlled by the movement of a part of the supporting device of the car.

18. The combination with a car, of pairs of arms located at different points in the length of the car, one of said pairs of arms being elevatable and the other pair rotatable unitedly in a horizontal plane, an earth-excavating device adapted to be connected to one of each pair of arms on opposite sides of the car, hoisting mechanism, and connections between the hoisting mechanism and the earth-excavating device.

19. The combination with a car, of a pair of arms located at different points in the length of the car and one of said arms being supported for elevation and the other arm being supported for rotation, an earth-excavating device, hoisting mechanism, connections between the hoisting mechanism and the earth-excavating device, supported by said arms, and means controlled by the movement of the car for operating both of said arms.

20. The combination with a car, of a pair of arms located at different points in the length of the car and one of said arms being supported for elevation, an earth-excavating device, hoisting mechanism, connections between the hoisting mechanism and the earth-excavating device, supported by said arms, and means for raising and lowering the arm which is supported for elevation, said means being controlled by the movement of the car.

21. The combination with a car, of a pair of arms located at different points in the length of the car and one of said arms being movably mounted for elevation, an earth-excavating device, hoisting mechanism, connections between the hoisting mechanism and the earth-excavating device, a drum, an arm or mast supported by the car near said movably-mounted arm, and a chain connected with said movably-mounted arm and also with said drum, and a guiding device for said chain on the arm or mast.

22. The combination with a car, of pairs of arms located at different points in the length of the car, one of said pairs of arms being elevatably mounted and the other unitedly having rotation in a horizontal plane, an earth-excavating device adapted to be connected to one arm of each pair on opposite sides of the car, hoisting mechanism, connections between the hoisting mechanism and the earth-excavating device, a mast fixed near one end of the car, a chain supported by said mast, a drum to which one end of the chain is connected, a collar on said elevatable arm, and means for rotating said drum.

23. The combination with a car, of a pair of arms located at different points in the length of the car, and one of said arms being movably mounted for elevation, an earth-excavating device, hoisting mechanism, connections between the hoisting mechanism and the earth-excavating device, supported by said arms, a mast, a chain supported by the mast, a drum to which one end of the chain is connected, the other end of chain being connected to said movably-mounted drum, and mechanism controlled by the movement of the car for rotating said drum and for also operating said hoisting mechanism.

24. The combination with a car, of pairs of arms located at different points in the length of the car, one pair being elevatable and the other rotatable in a horizontal plane, hoisting mechanism, an earth-excavating device connected to one of each pair of said arms, connections between the hoisting mechanism and said earth excavating device, a turn-table for supporting the pair of rotatable arms, a shaft operatively connected to said turn-table, a second shaft operatively connected to the first-mentioned shaft, and two separate driving members shiftable alternately into working relation with said second shaft.

25. The combination with a car, of a pair of arms located at different points in the length of the car, hoisting mechanism, an earth-excavating device, connections between the hoisting mechanism and said earth-excavating device, a turn-table for supporting one of said arms and provided with a stud, a shaft operatively connected with said stud and having a gear at one end, a second shaft having a meshing gear, a third shaft having two slidable gears adapted to mesh with a gear at one end of said second shaft, and driving connections between said third shaft and the axle of the car.

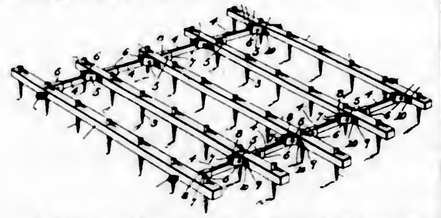
26. The combination with a car, of a pair of arms located at different points in the length of the car, one of said arms being movably mounted for elevation, a rod connected to said movably-mounted arm and pivotally supported on the car, hoisting mechanism, an earth-excavating device, connections between the hoisting mechanism and the earth-excavating device for raising and lowering the latter, a mast, a hoisting-drum, and a chain connected to said hoisting-drum and movably mounted on and supported by said mast.

27. The combination with a car, of a beam supported thereby, means for detachably connecting a plow beam or beams to said first-mentioned beam, a rack secured to said first-mentioned beam, a pinion meshing with the rack, a rod to which the pinion is secured, and means for locking the rod in an adjusted position.

28. The combination with a car, of a beam supported thereby, means for detachably connecting a plow beam or beams to said first-mentioned beam, a rack secured to said first-mentioned beam, a pinion meshing with the rack, a rod to which the pinion is secured, a ratchet secured to said rod, and a pawl on the car for engaging the ratchet.

643,739. HARROW. NICHLAS H. BLOOM and JOHN F. LOOS, Nashua, Iowa. Filed Oct. 14, 1899. Serial No. 733,650. (No model.)

Claim.—1. In a harrow, harrow-bars, in combination with connecting-links, and clips on the bars having the links pivotally connected thereto and provided with link-engaging shoulders disposed at an angle to each other, substantially as described.

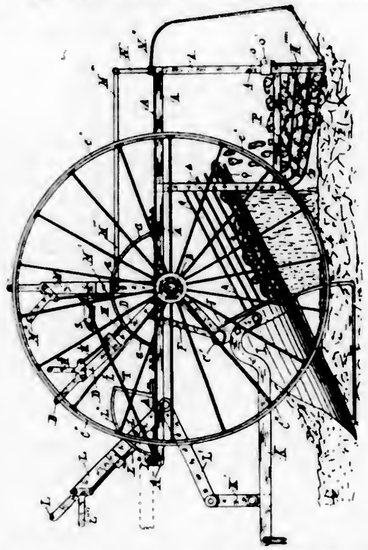


2. In a harrow, harrow-bars, in combination with connecting-links, and clips on the bars having the links pivotally connected thereto and provided with link engaging shoulders, the shoulders at one side of each bar being disposed at an angle to the shoulders at the opposite side, substantially as described.

3. In a harrow, harrow-bars, in combination with connecting-links, and clips on the bars to which the links are pivoted, the clips at corresponding ends of the links having normally-horizontal stop-shoulders and the clips at the opposite ends having normally-inclined stop-shoulders, substantially as specified.

4. In a harrow, harrow-bars, in combination with connecting-links, and clips on the bars each comprising ears between which the end of a link is pivotally received and a connecting portion extending over the link and forming a limiting-shoulder therefor, substantially as described.

643,740. MACHINE FOR DIGGING POTATOES. JAMES T. CECIL, Los Angeles, Cal. Filed July 6, 1898. Serial No. 685,286. (No model.)



Claim.—1. The potato-digging machine consisting of a scoop suspended from a crank-shaft, whose angular position is adjustable, bars having spaces between them at the upper end of the scoop, the receptacle provided with a discharging-door, the lever for operating the door, the reversing-lever acting in relation to the stop-quadrant for raising or lowering the scoop, the arms on the scoop to whose outer end the hauling-gear is attached, said arms being also connected with a catch-lever and stop-quadrant, whereby said scoop is still further operated and held—the entire machine being supported on carrying-wheels substantially as hereinbefore described and shown upon the annexed drawings.

2. In a potato-digging machine, a crank-shaft and scoop suspended from said crank-shaft and said scoop having bars at its upper end with spaces between them, a shoe having a horizontal surface at its under side, together with arms for attaching horses or hauling-rope thereto for the purpose of propelling the same, substantially as set forth.

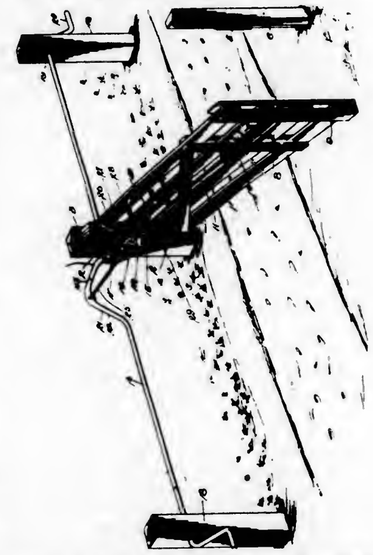
3. In a potato-digging machine a crank-shaft and scoop suspended from said crank-shaft, and having bars at its upper end with a shoe having a horizontal surface at its under side, together with arms for attaching horses or hauling power thereto for the purpose of propelling the same, the said scoop with its connections being connected to a lever operating from and in the framing of the machine for the purpose of more securely regulating the depth of its depression in the soil, substantially as set forth.

4. In a potato-digging machine, a crank-shaft and scoop suspended from said crank-shaft having bars at its upper end, a shoe at its under side, and arms for attaching horses or hauling power thereto for propelling the same, said scoop with its attachments being connected to a lever operating from and in the framing of the machine, for the purpose of more securely regulating the depth of its depression in the soil, the said scoop with its connections and frame being mounted on carrying-wheels which roll upon the soil wherein the scoop operates in the manner and for the purposes substantially as set forth.

5. In a potato-digging machine, a crank-shaft and scoop suspended therefrom, having bars at its upper end and a shoe at its under side, arms on the scoop projecting forward, for attaching hauling power to, said scoop and attachments being connected to an operating-lever at the front and mounted on carrying-wheels, being also connected at the rear end to a reversing-lever and stop-quadrant for maintaining the position of the scoop, substantially as described and shown upon the annexed drawings.

6. In a potato-digging machine the combination consisting of a crank-shaft bar, a scoop suspended therefrom, bars at the upper end of the scoop, a shoe at the under side of the scoop, arms on the scoop projecting forward, the operating-lever connected to said scoop, operating-levers at the front of the framing connected to said scoop, the framing, the carrying-wheels, the reversing-lever for maintaining the position of said scoop, the receptacle whereinto the potatoes fall, the door forming the rear vertical side of the receptacle, the lever for operating the door, the rocking shaft, and the link connections of the rocking shaft, all operating in the manner and for the purposes substantially as hereinbefore set forth and shown upon the annexed drawings.

643,741. GATE. ERASMUS T. CLARK, Danville, Ind. Filed Apr. 15, 1899. Serial No. 713,119. (No model.)



Claim.—1. The combination of a swinging gate, a rock-shaft provided with an arm, a bell-crank lever fulcrumed on the gate and provided with a lateral extension, a latch mounted on the gate and connected with the extension of the lever, and means for connecting the lever and the gate with the rock-shaft, substantially as described.

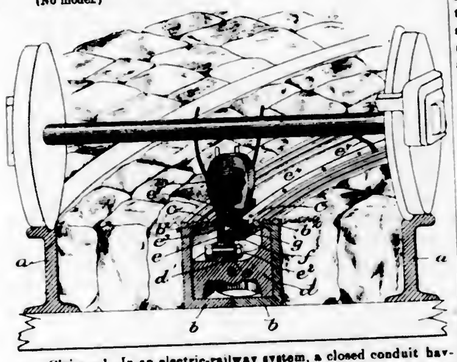
2. The combination of a swinging gate, a rock-shaft, a bell-crank lever fulcrumed on the back of the gate and provided with a lateral

extension, a latch mounted on the gate and connected with the lateral extension, a coiled spring connecting the bell-crank lever with the rock-shaft, and connections between the rock-shaft and the gate, substantially as described.

3. The combination of a swinging gate, a rock-shaft provided with a substantially V-shaped arm having a bend adjacent to the gate, a bracket mounted on the gate, a link connecting the bracket with the apex of the V-shaped arm, a latch carried by the gate, and a lever connected with the latch fulcrumed on the gate and yieldingly connected with the said bend of the V-shaped arm near the base of the latter, substantially as described.

4. The combination of a swinging gate, a bracket mounted on the gate and composed of the horizontal V-shaped portion and the inclined brace connected with the apex of the V-shaped portion, a rock-shaft having an arm, a link connecting the arm with the bracket of the gate, a latch, and connections between the latch and the rock-shaft, substantially as described.

643,742. CONDUIT SYSTEM FOR ELECTRIC RAILWAYS. LÉON DION, Boston, Mass. Filed July 2, 1897. Serial No. 643,188. (No model.)



Claim.—1. In an electric-railway system, a closed conduit having a cover or top capable of electrical conductivity, a main conductor inclosed therein, and an auxiliary conductor superimposed on said main conductor and composed of independent disconnected sections, each of said sections being free to rise and fall and having a limited freedom to move longitudinally.

2. In an electric-railway system, the combination with the main electrical conductor, of an auxiliary electrical conductor composed of a series of independent flexible sections formed of metal susceptible to magnetic attraction, each of said sections being free to rise and fall and having a limited freedom to move longitudinally for the purpose set forth.

3. In an electric-railway system, a continuous main electrical conductor, and an auxiliary electrical conductor composed of a series of independent flexible sections formed of metal susceptible to magnetic attraction, each of said sections being free to rise and fall and having a limited freedom to move longitudinally in combination with a conduit having its top surface composed of a series of sections or plates insulated from each other, and formed of metal not susceptible to magnetic attraction, for the purpose set forth.

4. In an electric-railway system, a conduit having a cover or top formed of manganese steel, a conductor composed of independent sections formed of metal susceptible to magnetic attraction, each of said sections being free to rise and fall and having a limited freedom to move longitudinally in combination with a magnet carried by the car, and means for electrically connecting said sections.

643,743. LIQUID-BARREL. CHARLES R. HARRIS, Williamsport, Pa. Filed Aug. 18, 1898. Renewed July 25, 1899. Serial No. 725,097. (No model.)

Claim.—1. A barrel made in telescoping sections of sheet-steel welded together, said sections having longitudinal corrugations extending from points inwardly removed from the heads of the barrel to the inner telescoping extremities of said sections, the corrugations of one section alining and communicating with the corrugations of the adjacent telescoping section.

2. A barrel made in two sections of drawn sheet-steel, said sections telescoping at their meeting edges and electrically welded together, each section having longitudinal communicating corrugations, substantially as set forth.

3. A barrel made in two sections of sheet metal, said sections welded together at their meeting edges, and having longitudinal communicating corrugations, the corrugations in each section being tapering with their wider ends at the meeting ends of the sections and their pointed ends terminating near the heads of the barrel.



4. A sheet-metal barrel having a hole therein, an annular flange projecting into the barrel from the wall of said hole, said annular flange being contracted in diameter at its inner end and said contracted portion of the flange being screw-threaded, and a combined spigot and bung adapted to screw into the contracted portion of the annular flange, the wider portion of said annular flange constituting a housing for said bung, substantially as set forth.

643,744. ELECTRIC HEATER. GARDNER C. HAWKINS, Boston, Mass., assignor to George E. Smith, same place. Filed Mar. 13, 1899. Serial No. 708,794. (No model.)



Claim.—1. In an electric heater, a surrounding case, a series of resistance mediums composed of wire wound about an insulating-core and located within said case and occupying a position at or near the delivery end thereof, said resistance mediums surrounding the center of rotation of the motor-shaft, an electric motor carrying a fan adapted to draw air into said case at or near its base, and force said air as a blast over the resistance medium, said air being heated on its way through said case to its delivery end, the construction and arrangement of parts being such as to establish air-currents which are defined by a combined whirling and outward movement, whereby the air is subjected to the repeated heating action of the heating mediums, substantially as described.

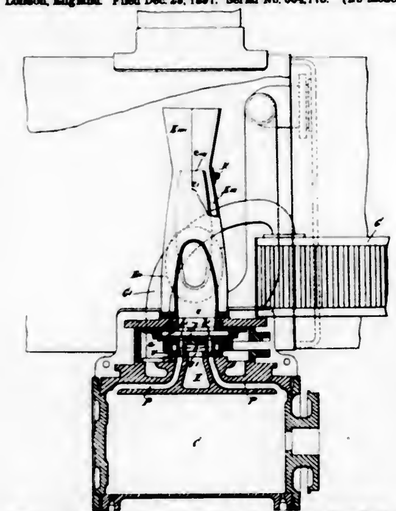
2. In an electric heater, a surrounding case, a series of resistance mediums composed of wire wound about an insulating-core to present a surface of considerable diameter, said mediums being exposed in said case, a fan composed of a plurality of inclined circular walls connected by blades, an electric motor to revolve said fan and create a blast of air which is delivered diagonally outward across said resistance mediums and is also made to travel about in said case to thereby impinge the air against a large portion of the exterior of said resistance mediums from different directions, substantially as described.

3. In an electric heater, an external case open at its outer or delivery end and adapted to receive air opposite or at its air-receiving end, an electric motor located in said case and carrying a fan which rotates in said case between its air-receiving end and its air-delivering end, a resistance medium contained within said case between its air-receiving and air-delivering ends, said resistance and said motor each deriving their electrical energy through independent wires, the construction and arrangement of parts being such as to establish air-currents which are defined by a combined outward and circular movement of the air within the case, said current impinging against a substantially large area of the heated resistance medium in said case, substantially as described.

4. In an electric heater, a surrounding case open at its outer or delivery end, and adapted to receive air at or near its opposite or air-receiving end, an electric motor located in said case and carrying a fan which rotates in said case between its air-receiving and and its delivering end, and a resistance-coil composed of a ring wound externally with wire, and means to support said ring inside of but removed from contact with the interior of said surrounding case between its air-receiving and air-delivering end, the blast of air created by said fan having access to the entire exterior surface of said resistance-coil, substantially as described.

5. In an electric heater, a surrounding case open at its outer or delivery end and adapted to receive air at or near its opposite or air-receiving end, an electric motor located therein and carrying a fan which rotates in said case between its air-receiving end and its air-delivering end, and a resistance-coil composed of a ring of insulating material occupying an angular position within said surrounding case and covered with a fine wire, the blast of air created by said fan impinging directly against said wire, substantially as described.

648,745. LOCOMOTIVE OR RAILWAY ENGINE. DAVID JOY, London, England. Filed Dec. 29, 1897. Serial No. 664,175. (No model.)



Claim.—1. In an improved engine of the class described, the combination, with the blast-pipe, the cylinder, and an exhaust-port enlarged into a passage extending to and arranged with relation to the blast-orifice of the blast-pipe, of a double-acting valve mechanism for separating the steam to be exhausted from the cylinder and passing the same respectively to the blast-pipe and exhaust-passage, said steam passed to said blast-pipe operating to produce a vacuum in said passage, substantially as and for the purpose set forth.

2. In an improved engine of the class described, the combination, with the blast-pipe, the cylinder, and an exhaust-port enlarged into a passage extending to and arranged with relation to the blast-orifice of the blast-pipe, of a jet or blower provided at the exhaust-orifice of the exhaust-passage, and a double-acting valve operating to separate the steam to be exhausted from the cylinder and pass the same respectively through the blast-pipe and through the exhaust-passage; said exhaust mechanism operating to produce a vacuum, substantially as and for the purpose set forth.

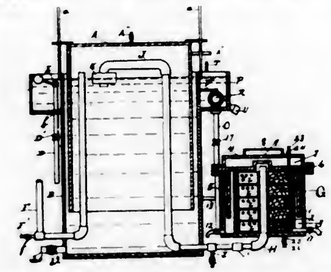
3. In an engine of the class described, the combination of the cylinder having the feed and exhaust ports, the blast-pipe, the valve having the special or supplementary ports *b b*, and a balance-plate arranged above said valve and having the ports or opening *b' b'*, substantially as and for the purpose set forth.

4. In an improved engine of the class described, the balance-plate arranged above the valve and provided with ports or openings, the blast-pipe extending from said balance-plate, and a valve with through ports or passages adapted to register with the ports or openings in the balance-plate, substantially as and for the purpose set forth.

5. In an improved engine of the class described, the combination, with the cylinder having the feed and exhaust ports, and the blast-pipe, of mechanism connected with the exhaust-port of the cylinder and operating to produce a vacuum, and a valve operating with respect to the feed and exhaust ports of the cylinder and having a supplementary or special port so arranged with relation to its exhaust-port that the steam will be passed from the cylinder to the blast-pipe at a time just previous to the regular exhaust, substantially as and for the purpose set forth.

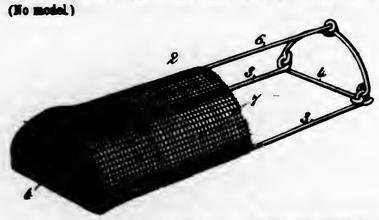
6. In an improved engine of the class described, a cylinder provided with a feed-port and an exhaust-port, a chamber communicating with said exhaust-port, and provided with an outer open end, a blast-pipe communicating with said outer open end of said chamber, and a valve mechanism mounted in connection with said feed and exhaust port, and furnishing means to separate steam passing from said cylinder into two parts and to send one part into said chamber and the other part into said blast-pipe, substantially as shown and described.

648,746. ACETYLENE-GAS GENERATOR. LESTER R. LE LANDE, Los Angeles, Cal. Filed Feb. 23, 1899. Serial No. 707,300. (No model.)



Claim.—An acetylene-gas machine, comprising a large water-tank; a gas-holder telescoping within said tank; a small water-tank at the side of the large water-tank adapted to hold a predetermined quantity of water, a valve in said small water-tank having two sets of ports (one of which is closed when the other is open) one set of ports adapted to form, with the connecting-pipes, an open way for the passage of water from said small tank into the generator at the bottom, and the other set of ports, with connecting-pipes, to form an open way for the passage of water from the large, into the small water-tank; a pipe connecting the large water-tank with one of the ports of the said valve; a collar having a stem connected to said valve; a weight on one end of said stem and a rod pivotally connected to the other end of said stem; an arm on the gas-holder adapted to strike said rod and depress the same upon the descent of said holder below a predetermined point, and thereby open the passage-way for the water to enter the generator; a pipe connecting one of the ports of the said valve with the generator at the bottom thereof; a generator, a plurality of carbid-trays divided into compartments in said generator adapted to receive water in the compartments in succession, commencing at the bottom of the generator; a pipe connecting said generator with the gas-holder, adapted to convey the gas produced in the generator to the gas-holder; a flexible tube connected to the top of said pipe, a float on the end of said tube adapted to keep the end thereof submerged at a constant depth, whereby the water cools and purifies the gas before it is admitted into the gas-holder; all constructed and operated substantially as described herein.

648,747. SIEVE ATTACHMENT FOR EAVES-TROUGHS. JOHN L. MARTIN, Glass, Tenn. Filed June 19, 1899. Serial No. 721,117. (No model.)

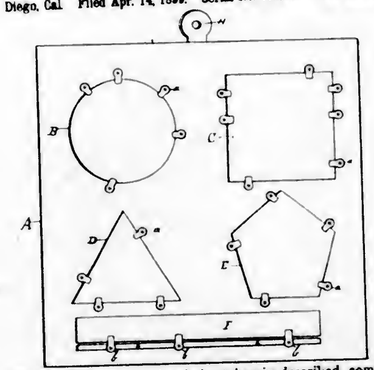


Claim.—1. An eaves-trough sieve attachment, consisting of a frame constructed with longitudinal side bars, connections between the ends of the side bars and arch-shaped bars at the ends of said side bars, and open-work material secured to the longitudinal side bars and supported in arched form by said arch-shaped end bars, substantially as described.

2. An eaves-trough sieve attachment, consisting of a frame constructed with longitudinal side bars, end bars connecting the latter, arch-shaped bars engaged with the ends of the side bars and a ridge-bar connecting the top portions of the arch-shaped bars, and screen material secured to the side bars and extending in arch form over and supported by the arch-shaped end bars and said ridge-bar, substantially as described.

3. The combination with an eaves-trough, of a sieve attachment therefor, consisting of a frame covered with open-work material adapted to be applied to and frictionally retained in place in said trough, said frame being constructed of wire comprising parallel longitudinally-extending side bars, transversely-extending end bars connecting said side bars, upwardly-extending arch-shaped end bars, and a ridge-bar parallel to said side bars and connecting the uppermost portions of said arch-shaped bars.

643,748. EDUCATIONAL CHART. CHARLES T. MEREDITH, San Diego, Cal. Filed Apr. 14, 1899. Serial No. 713,065. (No model.)



Claim.—1. The educational chart herein described, comprising a number of symbols, mounted on a common base, representing different plane geometric figures, each symbol being composed of a number of leaves, one, outer, leaf representing the geometric figure or unit, and the other subdivisional leaves lying thereunder representing aliquot parts of such unit or figure, each subdivisional leaf having a distinctive color and arranged to fold in a manner to expose the different leaves representing different aliquot parts of said figure, leaving intact the outlines of the original figure or unit, no matter into what parts the subdivisional leaves may have divided it.

2. The herein-described educational chart, comprising base A, having symbols as B, C, D, E, and F mounted thereon and representing different plane geometric figures, the said symbols being composed of leaves as one, one-half, one-fourth, one-eighth, one-sixteenth, and one thirty-second, representing such figure and aliquot parts thereof, adapted to be opened and closed, within the outlines of the unit, as desired; and the catches *a* for holding the leaves in position, substantially as shown and described.

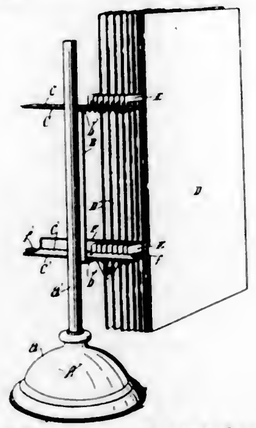
3. An educational chart for illustrating the manner of subdividing the unit into fractional parts, comprising the main body portion or base A, having mounted thereon symbols representing different geometric figures, these symbols being composed of a plurality of leaves, the outer leaf representing the geometric figure or unit, and the other leaves lying between it and the base representing fractional parts thereof; the area of each inner leaf being an aliquot part of the whole, and arranged in different colors, and adapted to be folded so as to disclose these subdivisional leaves, representing aliquot parts of the unit or whole.

4. An educational chart comprising a number of geometric figures disposed on a main body portion or base, each figure being represented by an outer leaf in shape a geometric figure or unit designed to be represented, and a plurality of smaller leaves lying thereunder having the shape and area of aliquot parts of the outer leaf or unit, each of said inner leaves having a distinctive color, all being collapsibly attached together and adapted when folded or closed to represent the geometric figure or unit and when unfolded or opened out to display different fractional parts of the figure or unit in different colors, substantially as shown and described.

643,749. TELEPHONE-DIRECTORY. LEWIS H. MERTS, Los Angeles, Cal. Filed Nov. 16, 1898. Serial No. 696,600. (No model.)

Claim.—1. In an index, the combination set forth of a standard; two horizontally-arranged hinge-bars attached to the standard, and provided with corresponding pivot-holes, each pivot-hole of the lower bar being arranged in front of a vertical line passing through the corresponding pivot-hole of the upper bar; a series of stiff leaves, each provided with metallic hinges having pintles to fit in the pivot-holes of the upper and lower bars; and a removable retaining device common to all the hinges in one bar and arranged above them to retain the pintles in the pivot-holes.

2. In an index, the combination set forth of two parallel hinge or pivot bars provided with corresponding pivot-openings; leaves, each provided with metallic hinges projecting from the leaf, each hinge being provided with a pintle to fit in one of the pintle or pivot holes; and a removable retaining-bar arranged to engage the hinges to prevent the pintles from being accidentally withdrawn from the pivot-holes, said bar being provided with a pivot at one end and a clamp-screw at the other.



3. In an index, the combination set forth of a weighted base, an upright secured to the base; a standard secured to the upright, and having its ends outturned, the lower outturned end being longer than the upper one; corresponding pivot or hinge bars arranged transverse the standard, secured to said outturned portions and provided with corresponding pivot or pintle openings; and stiff leaves, each provided with metallic hinges, each having a pintle to fit in one of the pintle-holes.

4. In an index, the combination set forth of the pintle or pivot bars provided with corresponding pivot-openings; a series of stiff leaves, each provided with metallic hinges projecting from the leaves, each hinge being provided with a pintle to enter one of the pivot or pintle holes; and a series of auxiliary stiff leaves, one secured to each of the hinged leaves by a flexible hinge independent of the metallic hinge, said hinge comprising two oppositely-arranged strips of material, each secured upon corresponding sides or surfaces of the two leaves with a space between the adjacent edges of the leaves.

5. The combination set forth of the hinge-bar provided with the pintle-opening, a cardboard sheet having a metallic hinge provided with an ear bent over the edge of the sheet beneath the hinge-arm, and adapted to rest against the hinge-bar when the leaf is swung to one side or the other.

6. The slotted standard provided with the two angled portions and with the longitudinal slot between said angled portions; an upright stem; screws inserted through the slot into the stem to clamp the standard to the stem; hinge-bars being secured to the angled portions to support the leaves substantially as set forth.

643,750. WINDOW-SWINGING DEVICE. GEORGE H. PARKER, Boston, Mass., assignor to Herbert A. Fuller, trustee, Newton, Mass. Filed Aug. 28, 1899. Serial No. 728,653. (No model.)

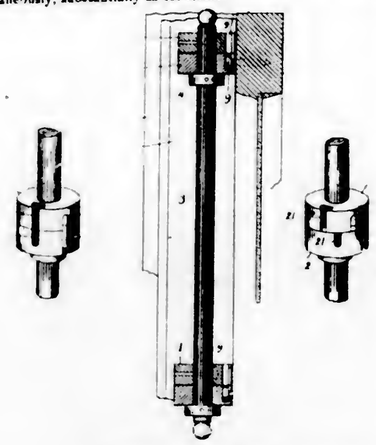
Claim.—1. In a window-swinging device, the combination of the two hinge members adapted to be turned one relative to the other, with their approximate faces in substantial contact, and said faces having the notches opening therefrom; the headed pins adapted to be engaged by said notches; and means for permitting the entrance of said headed pins into said notches before being locked therein by said turn of the hinge members, substantially as set forth.

2. In a window-swinging device, the combination with the headed pins, of the hinge members adapted to be turned one relative to the other with the approximate faces in contact, and formed with the vertical slots and notches adapted to be put in alinement and out of alinement in the manner and for the purpose set forth.

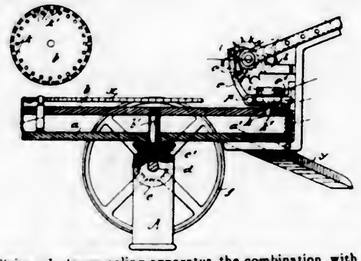
3. In a window-swinging device, the combination of the rod, and the two pairs of hinge members mounted thereon, each of said hinge members being formed with the slot and the notch adapted to coact with each other in the manner and for the purpose set forth.

4. In a window-swinging device, the combination of the rod, the two hinge members fixed on said rod, and the two hinge members

loosely mounted on said rod; a fixed and a loose hinge member constituting a pair, and one of said pair being located near the upper end of said rod, and the other near the lower end; and each of said hinge members being formed with a slot and a notch, all of which slots are adapted to be put in alinement with all of said notches simultaneously, substantially as set forth.



643,751. ANNEALING-FURNACE FOR CARTRIDGE-CASES. PAUL PONDORF, Gossenitz, Germany. Filed Mar. 3, 1899. Serial No. 707,661. (No model.)



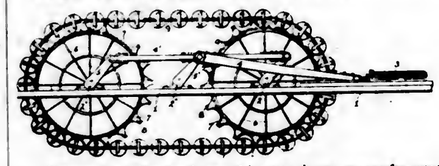
Claim.—1. In annealing apparatus, the combination, with a stationary support for the cartridge-cases, of a rotary plate provided with a series of holes for engaging the cartridge-cases arranged over the said support, means for revolving the said plate, and a perforated gas-pipe extending circumferentially over the said plate for the greater part of a circle and operating to heat the upper end portions of the cartridge-cases, substantially as set forth.

2. In annealing apparatus, the combination, with a rotary plate provided with holes for engaging with the cartridge-cases, a support for the cases arranged under the rotary plate, and a heater above the rotary plate; of a guide which registers with the said holes, a feed-chute, and feed mechanism arranged at the bottom of the feed-chute and operating to tilt the cartridge-cases so that they drop through the said guide, substantially as set forth.

3. In annealing apparatus, the combination, with a support for the cartridge-cases, a heater, and a rotary plate provided with holes for engaging with the cartridge-cases, and having projections spaced to correspond with the said holes; of a guide which registers with the said holes, and intermittently-operated feed mechanism actuated by the said projections and operating to drop the cartridge-cases into the said guide, substantially as set forth.

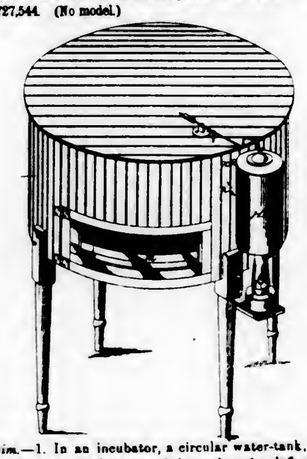
4. In annealing apparatus, the combination, with a support for the cartridge-cases, a heater, and a rotary plate provided with holes for engaging with the cartridge-cases; of a guide which registers with the said holes, a feed-chute, a rest at the bottom of the feed-chute, a star-wheel journaled at the bottom of the feed-chute between the said rest and guide, and driving devices actuated from the said rotary plate and operating to revolve the star-wheel intermittently, whereby the cartridge-cases are tilted at the bottom of the feed-chute and are dropped one by one through the said guide, substantially as set forth.

643,752. CHAIN PROPELLER. WARREN C. RAUB, St. Louis, Mo. Filed June 15, 1899. Serial No. 720,697. (No model.)



Claim.—A paddle-wheel comprising two drums, means for rotating the same, ridges having concave faces, disposed about the peripheries of the drums in lines parallel to the axes thereof, forked brackets disposed along the outer longitudinal edges of the ridges, a series of blades of substantially the full length of the drums, a series of circular rings surrounding each blade and distributed at intervals along the length thereof, the rings being positively supported by the concave faces of the ridges during the rotation of the drums, and insuring the retention of the blades in lines parallel to the radii of the drums, angle-bars for securing each blade centrally within the series of rings, endless cables passing through each board, angle-bar, and ring, and traveling over the forked brackets disposed along the ridges, the blades between the drums traveling substantially in a path tangential to the peripheries of the drums, and means for tightening the cables, substantially as set forth.

643,753. INCUBATOR. NEWTON C. SPRAGUE, Des Moines, Iowa, assignor to Robert H. Smith, same place. Filed Aug. 17, 1899. Serial No. 727,544. (No model.)



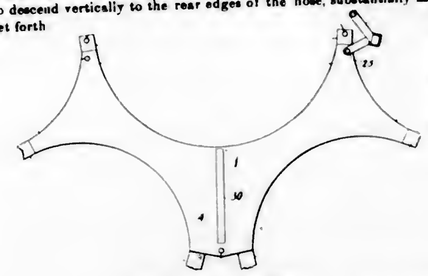
Claim.—1. In an incubator, a circular water-tank, a tube connected with the top and center of the tank and a deflector-plate inside of the tank for distributing hot water from the center of the tank to all parts of the circumference of the tank, and a tubular post having an air-distributer at its top under the center of the tank for supporting the tank and distributing air under the tank, arranged and combined to operate in the manner set forth for the purposes stated.

2. In an incubator, a circular case, a water-tank fitted in the top of the case, a tube fixed in the top and center of the case and communicating with a water-heater, a metal plate having a central apex fixed in the tank to distribute water from the center to all parts of the circumference of the tank, a water-heater outside of the case, a tube connected with the lower portion of the heater and terminating in the center of the tank, a tubular post fixed in the bottom and center of the case and an air-distributing chamber at the top of the post and under the center of the tank for supporting the tank and distributing air under the tank, all arranged and combined to operate in the manner set forth for the purposes stated.

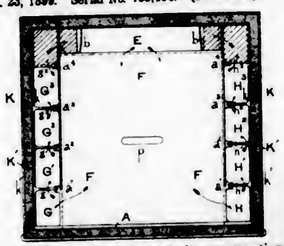
643,754. ABDOMINAL HOSE-SUPPORTING BELT. EMILY W. THAYER, Shirley, Mass. Filed Mar. 20, 1899. Serial No. 709,710. (No model.)

Claim.—The combination of the belt having an unbroken upper edge and adapted to have its ends united at the back of the wearer, the lower central edge of the belt being enlarged into the large tab

or apron, and the lower edge of the belt near its ends being formed with smaller tabs adapted to come over the hollow of the thigh of the wearer, elastics attached to the said front tab or apron and adapted to descend substantially vertically to the front edges of the wearer's hose, and the elastics attached to the said rear tabs and adapted to descend vertically to the rear edges of the hose, substantially as set forth



648,755. GAS-STOVE. JOSEPH TITCHETT, Warrington, England. Filed Jan. 23, 1899. Serial No. 703,138. (No model.)



Claim.—A gas-stove comprising in its construction the oven A the combustion-chamber B the bottom plate C provided with a slot c inclosing the combustion-chamber, the burner D the vertical flue E at the back of the oven the horizontal flue F on top of the oven the side flues G G′ G^3 G^2 and H H′ H^3 H^2 the vertical ribs g g' g^3 g^2 and A A′ A^3 A^2 inclosing the vertical sides flues the outer casing K comprising the plates k k' and the non-conducting packing K′ substantially as described.

643,756. MAGAZINE-CAMERA. LAIRD H. WALLACE, Denver, Colo., assignor to the E. & H. T. Anthony & Company, New York, N. Y. Filed Sept. 1, 1899. Serial No. 729,172. (No model.)

Claim.—1. In a camera the combination of an exposure-chamber, a rotating magazine, means to move the said parts into contact with each other, means to rotate the magazine, means to transfer a plate from one side of the magazine into the exposure-chamber and other means to transfer a plate from the exposure-chamber into the reverse side of the magazine, for the purposes set forth.

2. In a camera the combination of a movable exposure-chamber, a rotating magazine, means to rotate the magazine and simultaneously bring the exposure-chamber into contact with it, means to transfer a plate from one side of the magazine into the exposure-chamber and other means to transfer a plate from the exposure-chamber into the reverse side of the magazine, for the purposes set forth.

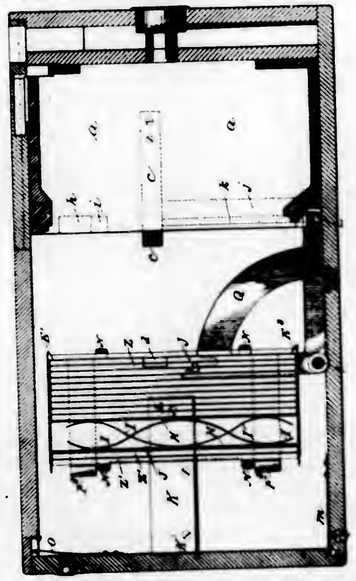
3. In a camera the combination of a movable exposure-chamber, and a magazine, means to move the parts into contact with each other and means to transfer a plate from one to the other, for the purposes set forth.

4. In a camera the combination of an exposure-chamber and a magazine, means to laterally separate and bring together said parts, and means to transfer plates from one to the other actuated by the movement of the magazine and chamber toward and from each other for the purposes set forth.

5. In a camera, the combination of a movable exposure-chamber, a rotating magazine, means to cause the said parts to approach and recede from each other, means to prevent backward movement of the magazine, and means to transfer a plate from one to the other actuated by the approach of the parts toward each other for the purposes set forth.

6. In a camera, the combination of a rotating magazine, a movable exposure-chamber, a rack-shaft having a quadrant-like device which engages with the magazine for its rotation and with the exposure-chamber for its reciprocating movement and means to transfer a plate from one to the other for the purposes set forth.

7. In a camera, the combination of an exposure-chamber, a rotating magazine, adapted to receive plates at both of its sides, means to rotate the magazine and other means to reciprocate the exposure-chamber and devices upon the magazine and exposure-chamber actuated by the approach of the said parts toward each other, whereby a plate may be transferred from one side of the magazine into the exposure-chamber and from the exposure-chamber into the magazine at its reverse side, for the purposes set forth.



8. In a camera, a rotating magazine, and a movable exposure-chamber, a cross-shaft actuated by a lever upon the exterior of the camera provided with a focusing index device upon the cross-shaft, whereby upon the backward movement of the lever the magazine will be rotated and the exposure-chamber retracted, but upon the forward movement of the lever the magazine will be stationary and the exposure-chamber focused for the purposes set forth.

9. In a camera, the combination of a magazine and an exposure-chamber, devices to transfer a plate from the magazine to the chamber and other devices for returning the plate from the chamber to the magazine, and means for focusing the chamber which also actuate the magazine, for the purposes set forth.

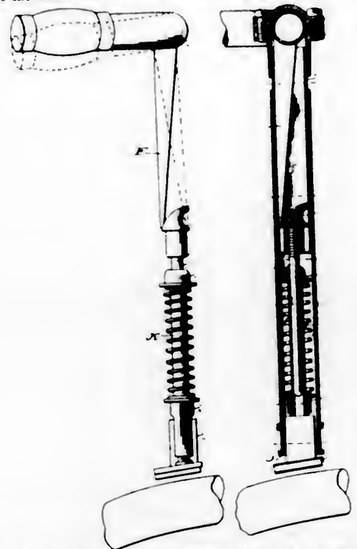
10. In a camera, the combination of a magazine and movable exposure-chamber, and means to transfer a plate from one to the other, actuated by the approach of the parts toward each other, and means to focus the exposure-chamber upon the return movement thereof, for the purposes set forth.

11. In a camera, an exposure-chamber and a magazine, means to reciprocate the chamber toward and from the magazine, and means to transfer a plate from one to the other and means to focus the chamber, for the purposes set forth.

648,757. BICYCLE-BRAKE. RUDOLF WERNER, Melbourne, Victoria. Filed July 31, 1897. Serial No. 646,609. (No model.)

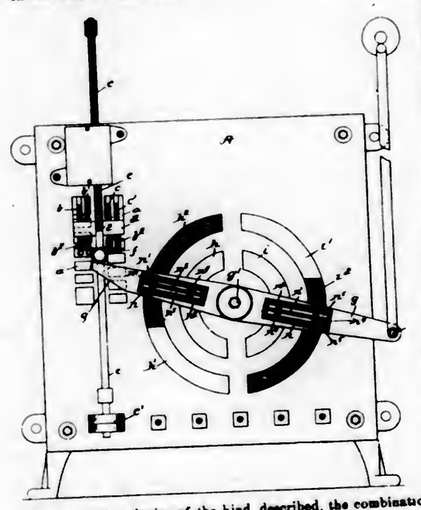
Claim.—1. In a bicycle-brake, the combination with a steering tube or pillar having a guide-slot, of a brake-shoe, a guide-plate secured thereto which moves in the slot, a brake-tube connected to the brake-shoe and straddling the guide-plate and connected to it, means for operating the brake-tube, a nut or head on the brake-tube, a split distance-tube loosely straddling the guide-plate and resting on the steering-tube, and a spring interposed between the top of the distance-tube and the head or nut, whereby the brake is kept normally elevated.

2. In a bicycle-brake, the combination with a steering tube or pillar, of a brake-shoe, a guide-plate secured thereto slidable in the steering-tube, a brake tube secured to the brake-shoe, a brake-rod telescoping with the brake-tube and secured thereto, a cap-piece secured to the rod which has an inclined face, an axially-rotatable handle-bar, a lever secured thereto and located within the steering-tube whose free end is adapted to ride on the incline of the cap-piece, a distance-tube straddling the guide-plate and resting on the steering-tube, and a spring bearing on said distance-tube which is adapted to actuate the brake tube and rod to hold the shoe normally raised.



3. In a bicycle-brake, the combination with the steering-tube or stem, of a cap-piece having an inclined top, a brake-shoe connected to the cap-piece, an axially-rotatable handle-bar, a lever secured to the handle-bar which projects down into the stem or steering-tube with its lower end positioned to ride on the incline and depress the cap-piece when the handle-bar is depressed, said lever lying in contact with the side of the steering-tube when inoperative, whereby it resists upward movement of the handle-bar and a spring adapted to hold the brake-shoe and cap-piece normally raised, with the latter in position for engagement by the free end of the lever.

643,758. STARTING-BOX AND CONTROLLER FOR ELECTRIC MOTORS. FRANK R. BLAKE, Boston, Mass. Filed Dec. 8, 1899. Serial No. 739,699. (No model.)



Claim.—1. In a device of the kind described, the combination of a circuit-switch for the motor, a rack-bar bearing contact-fingers which coöperate with the resistance-plates, a retarding device for said rack-bar which controls its movement in one direction, a weight for moving said rack-bar in its retarded direction, and connections whereby said rack-bar is moved in the opposite direction by the means employed for operating said circuit-switch, substantially as described.

2. In a device of the kind described, the combination of a circuit-switch for the motor, a rack-bar bearing contact-fingers which coöperate with the resistance-plates, a retarding device for said rack-bar which controls its movement in one direction, a weight for moving said rack-bar in its retarded direction, a projection on said rack-bar adapted to be engaged by the actuating-arm of said circuit-switch to be moved by said arm in the opposite direction, substantially as described.

3. In a device of the kind described, the combination of a circuit-switch for the motor, a rack-bar bearing contact-fingers which coöperate with the resistance-plates, escapement mechanism for retarding the movement of said rack-bar in one direction, a weight for moving said rack-bar in its retarded direction and connections whereby said rack-bar is moved in the opposite direction by the means employed for operating said circuit-switch, substantially as described.

4. In a device of the kind described, the combination of a circuit-switch for the motor, a rack-bar bearing pivoted spring-pressed contact-fingers which coöperate with the resistance-plates, a retarding device for said rack-bar which controls its movement in one direction, a weight for moving said rack-bar in its retarded direction, and connections whereby said rack-bar is moved in the opposite direction by the means employed for operating said circuit-switch, substantially as described.

5. In a device of the kind described, the combination of a circuit-switch for the motor comprising a number of concentrically-arranged segmental plates and a pivoted switch-arm bearing a number of contact-fingers adapted to coöperate with said segmental plates, means for turning said switch-arm on its pivot, a resistance-box having a number of plates, contact-fingers coöperating with said plates, retarded operating mechanism for moving said contact-fingers over said plates in one direction slowly to cut out the resistances, and connections whereby said contact-fingers are moved in the opposite direction and said retarded operating mechanism reset by said switch-arm, substantially as described.

6. In a device of the kind described, the combination of a circuit-switch for the motor comprising a number of concentrically-arranged segmental plates, a pivoted switch-arm bearing a number of contact-fingers, means for turning said switch-arm, a resistance-box having a number of plates, contact-fingers coöperating with said plates, a rack-bar bearing said contact-fingers, escapement mechanism for retarding the movement of said rack-bar in one direction, a weight for moving said rack-bar in its retarded direction, a projection on said rack-bar adapted to be engaged by said switch-arm for moving said rack-bar in the opposite direction, substantially as described.

7. In a device of the kind described, a circuit-switch for a motor comprising a number of contact-plates and a switch-arm bearing yieldingly-supported copper and carbon brushes located side by side and insulated from said switch-arm, substantially as described.

8. In a device of the kind described, a circuit-switch for a motor comprising two pairs of segmental contact-plates disposed concentrically, and a pivoted switch-arm bearing yieldingly-supported copper and carbon brushes located side by side and insulated from said switch-arm, substantially as described.

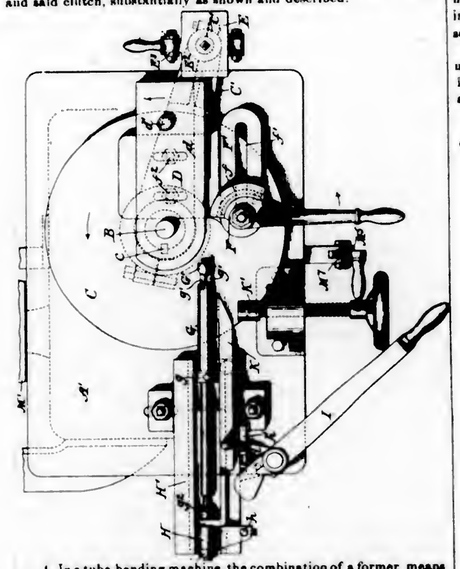
643,759. TUBE-BENDING MACHINE. LOUIS H. BRINKMAN, New York, N. Y. Filed June 23, 1899. Serial No. 721,548. (No model.)

Claim.—1. In a tube-bending machine, the combination of a shaft, a former carried by said shaft, a driving-shaft, gears operatively connecting said shafts, driving-wheels to rotate said driving-shaft respectively in opposite directions, a clutch to couple one or the other of said wheels to said driving-shaft, a projection carried by the first-named shaft, and shifting devices for said clutch actuated by said projection, substantially as shown and described.

2. In a tube-bending machine, the combination of a shaft, a former carried by said shaft, a gear on said shaft, a driving-shaft, a gear on said driving-shaft engaging the first-named gear, driving-wheels to rotate said driving-shaft respectively in opposite directions, a clutch to couple one or the other of said wheels to said driving-shaft, a pin or projection on said first-named gear, a rod having a stop in the path of said projection, and operative connections between said rod and said clutch, substantially as shown and described.

3. In a tube-bending machine, the combination of a shaft, a former carried by said shaft, a driving-shaft, gears operatively connecting said shafts, driving-wheels to rotate said driving-shaft respectively in opposite directions, a clutch to couple one or the other of said wheels to said driving-shaft, a projection carried with the first-named shaft, a rod having a stop for engagement by said projection, a hand-lever

connected to said rod, and operative connections between said rod and said clutch, substantially as shown and described.



4. In a tube-bending machine, the combination of a former, means to rotate the same, a clamp carried with the former to engage the end of the tube to be bent, and a second clamp also carried with the former to rotate therewith and arranged to press and hold the tube against the same, substantially as shown and described.

5. In a tube-bending machine, the combination of a former, means to rotate the same, a clamp carried with the former to engage the end of the tube to be bent, a plate carried with the former, and an eccentric clamp pivotally mounted on said plate to press and hold the tube against the former, substantially as shown and described.

6. In a tube-bending machine, the combination of a former, means to rotate the same, a clamp carried with the former to engage the end of the tube to be bent, a plate carried with the former and slotted parallel with the face thereof, and an eccentric clamp pivotally mounted on said plate and adjustable in said slot, substantially as shown and described.

7. In a tube-bending machine, the combination of a shaft, a disk secured to said shaft, a former engaging said shaft, a locking device to lock said former to said disk, a clamp carried with said disk to engage the end of the tube to be bent, a plate secured to said disk, and an eccentric clamp pivotally mounted on said plate, substantially as shown and described.

8. In a tube-bending machine, the combination of a rotating former, means to clamp the tube to be bent to said former, a mandrel, a sliding carrier for said mandrel, and a presser to hold the mandrel and tube against displacement, substantially as shown and described.

9. In a tube-bending machine, the combination of a rotating former, means to clamp the tube to be bent to said former, a mandrel, a sliding carrier for said mandrel, a presser sliding with the carrier to hold the mandrel and tube against displacement, and an abutment-screw for contact with said presser, substantially as shown and described.

10. In a tube-bending machine, the combination of a rotating former, means to clamp the tube to be bent to said former, a mandrel, a sliding carrier for said mandrel, and a latch to engage said carrier and hold the same in its forward position, substantially as shown and described.

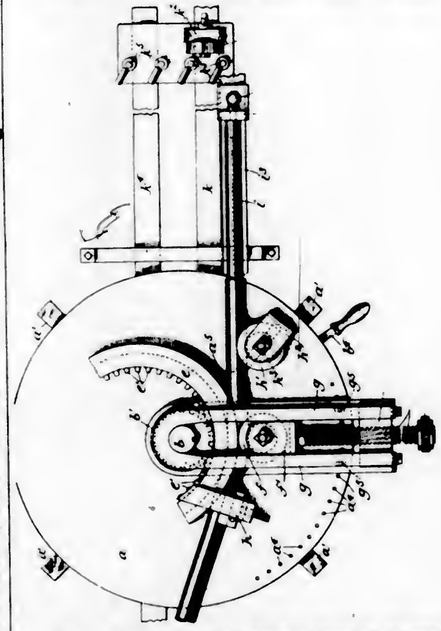
11. In a tube-bending machine, the combination of a rotating former, means to clamp the tube to be bent to said former, a mandrel, a sliding carrier for said mandrel, and a lever mounted on the frame of the machine and arranged to bear against said carrier to start the same back, substantially as shown and described.

12. In a tube-bending machine, the combination of a rotating former, means to clamp the tube to be bent to said former, a mandrel, a sliding carrier for said mandrel, a latch to engage said carrier and hold the same in its forward position and a lever mounted on the frame of the machine and arranged to release said latch and to bear against said carrier to start the same back, substantially as shown and described.

13. In a tube-bending machine, the combination of a former, a mandrel-stem, and a split mandrel-ball, the two parts of said ball being pivotally connected to said stem, substantially as shown and described.

14. In a tube-bending machine, the combination of a former, a mandrel-stem, and a split mandrel-ball, the two parts of said ball having contacting cam-faces and pivotally connected to said stem, substantially as shown and described.

648,760. TUBE-BENDING MACHINE. Louis H. Brinkman, New York, N. Y. Filed June 2, 1899. Serial No. 719,071. (No model.)



Claim.—1. In a machine of the character described, the combination of a driver of relatively-small radius, a former of relatively-large radius resting against and driven by the driver and means to press and hold the tube to be bent against the former, substantially as described.

2. In a machine of the character described, the combination of a driving-shaft and pinion of relatively-small radius, a former of relatively-large radius having on one side rack-teeth to be engaged by said pinion and means to press and hold the tube to be bent against the former, substantially as described.

3. In a machine of the character described, the combination of a driver of relatively-small radius, a former of relatively-large radius resting against and driven by the driver, and a clamp to secure to the former the tube to be bent, substantially as described.

4. In a machine of the character described, the combination of a driver of relatively-small radius, a former of relatively-large radius resting against and driven by the driver, a yoke mounted concentric with said driver and a presser carried by said yoke, substantially as described.

5. In a machine of the character described, the combination of a driver of relatively-small radius, a former of relatively-large radius resting against and driven by the driver, a yoke mounted concentric with said driver, a pulley mounted in said yoke and a screw carried by said yoke to press said pulley toward said former, substantially as described.

6. The combination of a former upon which the tube is to be bent, a driver to actuate said former and means to push the tube to be bent positively forward while it is being bent, substantially as described.

7. In a machine of the character described, the combination of a former upon which the tube is to be bent, a driver to actuate said former, means to press and hold the tube against the former, a clamp for the rear end of the tube to be bent and means to move said clamp positively toward the driver and former, substantially as described.

8. The combination of a former, means to impart motion thereto, a longitudinally-movable bar, means to move said bar, and a clamp carried by said bar, substantially as described.

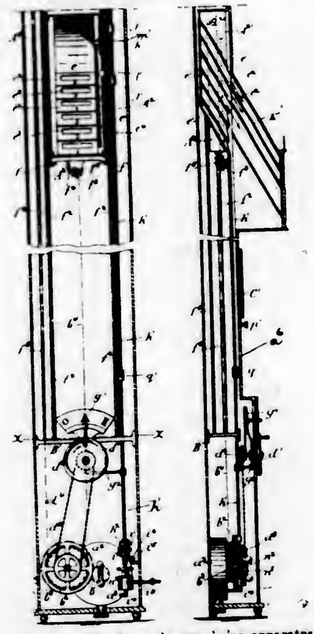
9. The combination of a shaft, a former driven by said shaft, a pinion on said shaft, a rack-bar engaging said pinion, and a clamp carried by said rack-bar, substantially as described.

10. The combination of a shaft, a former driven by said shaft, a pinion having a clutch connection with said shaft, means to control such clutch connection, a rack-bar engaging said pinion, and a clamp carried by said rack-bar, substantially as described.

11. The combination of a former, means to impart motion thereto, rack-bars, means to drive the same simultaneously in opposite directions, and a clamp adapted to be engaged with either of said rack-bars, substantially as described.

12. The combination of a shaft, a former driven by said shaft, a pinion carried by said shaft, rack-bars engaging opposite sides of said pinion, and a clamp adapted to be engaged with either of said rack-bars, substantially as described.

648,761. APPARATUS FOR PACKAGE AND POSTAL TRANSMISSION. Ivan Cirek, Lautschin, Austria-Hungary. Filed Aug. 31, 1896. Serial No. 604,479. (No model.)



Claim.—1. A postal and parcel transmission apparatus comprising a carrier adapted to reciprocate in guides in an elevator-shaft and provided with a plurality of compartments, each closed by flaps, receptacle E' on each floor of the elevator apparatus, spring-catches on the carrier and an oscillating rod provided with projections to engage with said spring-catches to arrest the cage or carrier when it reaches the required receptacle, substantially as described.

2. In a postal and parcel transmission apparatus, the combination with the elevator shaft and carrier, of a water-motor connected with the carrier and a valve normally closed and provided with a spring, a vertical oscillatory rod connected thereto, an indicating-lever connected with said rod, pawls secured to said rod and a ratchet-wheel connected with the said spring for operating the valve, substantially as described.

3. In an elevator, the combination with the elevator-shaft, of the carrier or cage, the water-wheel-lifting device, latch-pawls on the cage, a vertical oscillatory rod provided with projections to engage with the latch-pawls, stop-pawls on the said rod, a ratchet-wheel and valve connected therewith and a spring for connecting the ratchet-wheel and valve operated by the said rod, substantially as described, to open and close the water-supply at each of the stations or floors, substantially as described.

4. In an elevator, a carrier, the plate k' provided with a spring-actuated catch k^3, the springs k^2, the rod k^2, secured to the plate and around which the springs are placed, and a lug against which the springs bear, combined with the fixed plate l', and the stationary spring-actuated catch l^3, an oscillatory rod having projections to engage both the sliding and the stationary catches, a motor for operating the elevator-carrier, and a valve for opening and closing the supply to the motor operated by the oscillatory rod, substantially as described.

5. In a postal and parcel transmission apparatus, the combination with the elevator-shaft carrier provided with separate compartments, of flaps provided with levers for each compartment, a spring-operated rod e^4, connected with the several flap-levers, a sliding piece k' on the frame A', supported in the elevator-shaft, and a plate m' at the discharge-opening of the elevator-shaft, substantially as described for the purpose specified.

6. In a postal and parcel transmission apparatus, a carrier provided with flaps e^2 which are provided with openings e^3, the hand-wheel d' for arresting the carrier, the indicator finger g', the arm g^2, a connecting-link g^3, the rod k', supported vertically and carrying stops j', and adapted to be oscillated; spring-actuated catches on the carrier, the stop-pawls k^4, on the lower end of the rod; the ratchet-wheel i', and a valve for controlling the supply of water to the motor, substantially as set forth.

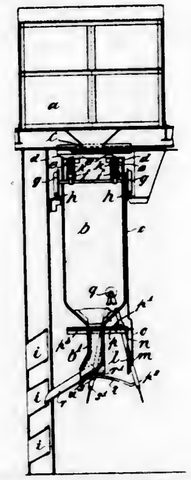
7. A governor for elevating apparatus, comprising centrifugal arms, cams upon said arms, a fixed disk n' and a rotary disk n' 1, acted upon by said cams, and a spring n' 5 connecting said arms to counteract their centrifugal movement, substantially as described.

8. A postal-transmission apparatus, comprising an elevator-carrier provided with separate compartments closed by hinged flaps, of a lever mechanism connected with said flaps having projections of unequal length, and stops on the several floors of the elevator adapted to engage said projections to open and close said flaps successively, substantially as described.

643,762. METHOD OF PRESERVING TIMBER. William Cross, Brisbane, Queensland. Filed Sept. 1, 1898. Serial No. 729,349. (No specimens.)

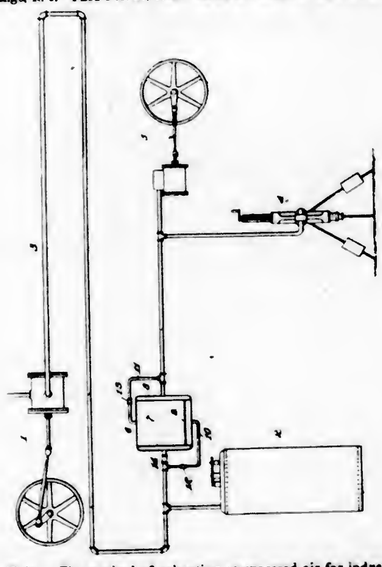
Claim.—The method herein described, consisting in first impregnating timber with a solution of arsenious acid and an alkali and afterward applying a solution of sulfate of copper.

643,768. WEIGHER AND CHARGER FOR GAS-RETORTS. John A. Drake, Ovenden, England. Filed Oct. 13, 1899. Serial No. 733,526. (No model.)



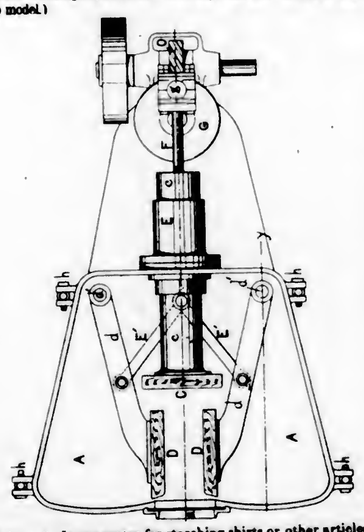
Claim.—The combination, with elevated rails, and a wheeled carriage running on them; of a measuring-hopper supported by the carriage and depending between the wheels and axles thereof, springs interposed between the said hopper and carriage, a plate supported from the hopper below the carriage and provided with a projecting pin and a graduated scale, a pointer pivoted on the said pin, and a depending rod rigidly secured to the said carriage and operatively connected with the said pointer, substantially as set forth.

643,764. METHOD OF REHEATING COMPRESSED AIR FOR INDUSTRIAL PURPOSES. THOMAS A. EDISON, Llewellyn Park, N. J., assignor to the Edison-Saunders Compressed Air Company, West Orange, N. J. Filed Feb. 27, 1899. Serial No. 706,976. (No model.)



Claim.—The method of reheating compressed air for industrial purposes, which consists in directing a portion of the air into intimate proximity with a source of burning combustible; in effecting a reduction in pressure of the air between the source of heat and the point of use; in causing a portion of the air to flow, by reason of such reduction of pressure, through the burning combustible to absorb heat directly therefrom and to support combustion thereof, and in mixing the directly-heated portion of air with the indirectly-heated portion of air, prior to use, substantially as set forth.

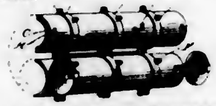
643,765. STARCHING-MACHINE. THOMAS B. GIFFEN and JOHN BISSETT, Rutherglen, Scotland. Filed Sept. 18, 1897. Serial No. 652,152. (No model.)



Claim.—1. In apparatus for starching shirts or other articles the combination with a water-tight receiver A provided with an opening *a* down one side through which the clothes project, of a sliding panel B, a reciprocating paddle C, two oscillating paddles D, and connecting-rods *d* and E' by which they are connected to the shank of the paddle C, substantially as described.

2. In apparatus for starching shirts and other articles, the combination of a water-tight receiver A provided with an opening *a* down one side through which the clothes project, a sliding panel B to close the opening, a reciprocating paddle C and two oscillating paddles D in the interior of the receiver A, connecting-rods *d* and E' by which the paddles D are connected to the shank of the paddle C, the crank-disk G rigidly mounted on the shaft *n'* to operate the paddles, a clutch N, the movable sleeve *n*, and the levers P and *p* for placing the two members of the clutch in gear, substantially as described.

643,766. APPARATUS FOR RAISING SUNKEN VESSELS. JOSEPH GRAFF, Colorado Springs, Colo., assignor to the Empire Wreckage and Salvage Company, same place. Filed Mar. 8, 1899. Serial No. 708,293. (No model.)



Claim.—1. In a sectional pontoon, the combination with two semicircular sections, of a series of straps secured thereon, each strap having a perforated lug or projection at its respective end, a longitudinally-extending rod engaging said perforations and locking the sections together one of said sections carrying a removable circular disk hinged thereto and adapted to engage the other section, whereby an air-tight compartment is formed substantially as described.

2. In a sectional pontoon, the combination with two semicylindrical sections removably secured together, of a lining of air-tight fabric secured in one of said sections and adapted to be folded against the inner wall thereof, said lining carrying an inflation-valve, and a removably-hinged disk secured to one of the sections for closing the ends of the pontoon, substantially as described.

643,767. CIGAR-ROLLING TABLE AND LEAF-WRAPPER CUTTER. SIMON HARTMAN and WILLIAM H. WIEGNER, Philadelphia, Pa. Filed Nov. 22, 1898. Serial No. 737,863. (No model.)



Claim.—1. In a cigar-wrapper-cutting machine, in combination, an endless knife, a perforated suction-plate constructed of an elastic material within said knife, means for exhausting air from beneath said suction-plate, and means for compressing said plate and bringing a leaf of tobacco carried thereby into contact with said knife.

2. In a cigar-wrapper-cutting machine in combination, an endless knife, a perforated elastic suction-plate, the top of which is concaved, placed within said knife, means for exhausting from beneath said suction-plate, and means for compressing said plate in order to bring a leaf of tobacco carried thereby into contact with said knife.

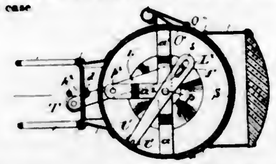
3. In a cigar-wrapper-cutting machine, in combination, an endless knife, a perforated elastic suction-plate, the top of which is concaved and the edges of which are chambered or rounded off, within said knife, means for exhausting air from beneath said suction-plate in order to bring a leaf of tobacco carried thereby into contact with said knife.

4. In a cigar-wrapper-cutting machine, in combination, an endless knife, a perforated suction-plate constructed of an elastic material, extending slightly above said knife, a perforated support for carrying said suction-plate, means for exhausting air from beneath said plate, and means for compressing said suction-plate in order to bring a leaf of tobacco carried thereby into contact with said knife.

5. In a cigar-wrapper-cutting machine, in combination, an endless knife, a perforated suction-plate the sides of which are elastic, and which project slightly above the cutting edge of said knife, means for exhausting air from beneath said plate, and means for compressing the sides of said plate in order to bring a leaf of tobacco carried thereby into contact with said knife.

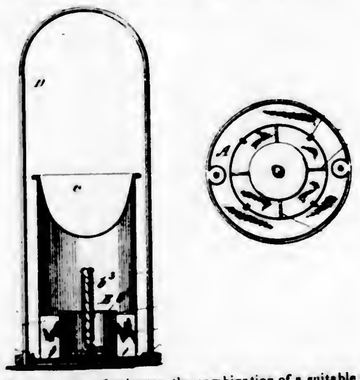
643,768. DARK LANTERN. HARRY F. HUGHES, New York, N. Y., assignor to Philip O'Reilly and John O'Reilly, same place. Filed July 13, 1899. Serial No. 723,677. (No model.)

Claim.—1. The combination of a casing having an opening therethrough, a shield adapted to close said opening, a lever pivoted within said case and engaging said shield, a second lever pivoted at one side of the first pivot, extending without the case and engaging the first lever at a point beyond its pivot on the side opposite to that on which the second pivot is located, whereby the swinging of the second lever will operate the first to cause the shield to cover or uncover the opening in the case.



2. The combination of a casing having an opening therethrough, a three-armed support located therein, two arms of which are secured to the case and extend across the central part of the case, a shield adapted to close said opening in the case, a lever engaging the shield, pivoted in the support centrally of the case, but extending beyond the pivot, a second lever pivoted in the third arm of the support, one end extending through the case and the other connected to the extension of the first lever.

643,769. FUMIGATOR. JOSEPH M. W. KITCHEN, East Orange, N. J. Filed Mar. 13, 1899. Serial No. 708,792. (No model.)



Claim.—1. In a fumigator, the combination of a suitable base, a lamp carried by said base, a cylinder inclosing said lamp, an evaporating-receptacle forming a continuation of said cylinder and located over the lamp and a bail connected to said base and independent of the cylinder and evaporating-pan.

2. In a fumigator, the combination of a suitable base, projections provided on the upper surface of said base, a peripheral flange for said base, a lamp carried by said base, a cylinder inclosing said lamp and resting on said projections, and an evaporating-receptacle carried by said cylinder.

3. In a fumigator, the combination of a suitable base, a bail connected with said base, a lamp on said base, radial wings extending from said lamp, a cylinder which is centered by said wings inclosing said lamp, projections on said base for holding the end of said cylinder off the base, and an evaporating-receptacle carried by said cylinder.

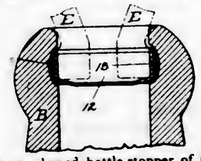
4. In a fumigator, the combination of a suitable base, a flange provided on the periphery of said base and projecting above the upper surface thereof, a ring forming a receptacle carried by said base, a flanged cover for said ring carrying a wick, a cylinder inclosing said lamp and an evaporating-pan carried by said cylinder.

5. In a fumigator, the combination of a base, a ring forming a receptacle carried by said base, a cover for said ring carrying a wick, radial wings extending from said ring, projections on said base, a cylinder centered by said wings and having its lower end engaging said projections, and an evaporating-receptacle carried by said cylinder.

6. In a fumigator, the combination of a base, integral feet on the under side of said base, protuberances on the upper side of the base, diametrically arranged thereon, a bail, the ends of which are held in said protuberances, a lamp carried by said base, a cylinder inclosing said lamp, and an evaporating-pan carried by said cylinder.

7. A fumigator comprising a base, integral feet on the under side of said base, protuberances on the upper side of the base diametrically arranged thereon, a bail, the ends of which are held in said protuberances, a ring forming a receptacle carried by said base, a cover for said ring carrying a wick, radial wings extending from said ring, a cylinder inclosing the lamp and centered by said wings, projections on said base with which the lower edge of the cylinder engages, and an evaporating-receptacle within the cylinder and carried by the upper edge thereof.

643,770. BOTTLE-STOPPER. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 17, 1899. Serial No. 727,602. (No model.)



Claim.—1. A cup-shaped bottle-stopper of a diameter smaller than that of the neck of its bottle and adapted to be expanded therein, provided with an inwardly-turned flange for engaging with an expanding instrument to support the stopper thereon.

2. A cup-shaped bottle-stopper having upwardly-turned sides of a diameter smaller than that of the neck of the bottle, and adapted to be expanded therein, provided with a downwardly-depressed imperforate bottom, having an excess of fullness over that required for the expansion of the stopper so as to remain in downwardly-arched form after expansion.

3. In combination with a bottle-neck having an internal retaining-seat and a gasket therefor, a cup-shaped bottle-stopper having upwardly-turned sides of a diameter smaller than that of the neck of the bottle, and adapted to be expanded therein, provided with a downwardly-depressed imperforate bottom, having an excess of fullness over that required for the expansion of the stopper so as to remain in downwardly-arched form after expansion.

4. An expansible cup-shaped bottle-stopper having its rim folded inwardly against its sides to form an annular reinforcement therefor.

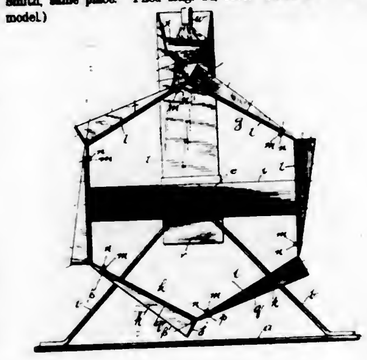
5. A cup-shaped bottle-stopper having its upper edge turned inwardly to form an annular rim for engaging with an expanding instrument to support the stopper thereon, and to be folded by the expanding operation against the inside of the stopper to form an annular reinforcement therefor.

6. An expansible, metallic bottle-stopper having a cylindrical zone for expanding against the gasket, and having its upper edge turned inwardly to form a supporting-shoulder for engaging with an expanding instrument, the bottom of the cap being depressed with sufficient fullness to remain in a dished or arched position after the stopper is expanded.

7. An expansible metallic bottle-stopper having an outer zone 23, and an inner zone 21, for expanding against the gasket and for reinforcing the stopper when expanded.

8. An expansible cup-shaped bottle-stopper having its rim folded inwardly against its sides to form an annular reinforcement therefor, and provided with a downwardly-depressed bottom having an excess of fullness to be reduced by the expansion of the stopper and to remain in downwardly-arched form after expansion.

643,771. APPARATUS FOR WASHING PHOTOGRAPHIC NEGATIVES. RICHARD K. MARSTON, Chicago, Ill., assignor to James H. Smith, same place. Filed Aug. 14, 1899. Serial No. 727,163. (No model.)



Claim.—1. A device of the class described, consisting essentially of a water-wheel mounted upon a horizontal axis, a series of buckets adapted to receive negative-plates therein, spring-actuated catches for detachably securing said plates in position, and means for distributing a flow of water to said buckets, substantially as described.

2. The combination in a device of the class described, of a water-wheel having a horizontal axis, said wheel being provided with a series of negative-holding buckets, spring-actuated catches for holding said negatives in place in said buckets, said catches being adapted to fit negative-plates of varying size, substantially as described.

3. The combination in a photographic-negative washer, of a water-wheel having a horizontal axis, a series of negative-holding buckets, spring-actuated catches for holding said negatives in place within said buckets and a trough having perforations throughout its length for distributing water to said buckets, substantially as described.

4. The combination in a photographic-negative washer, of a water-wheel having a horizontal axis, a series of negative-holding buckets, spring-actuated catches for holding said negatives in place within said buckets, a trough having perforations in its bottom throughout its length and a baffle-plate arranged lengthwise of said trough for distributing the water therein, substantially as described.

643,772. CARTON. WALTER R. MAYO, Chicago, Ill. Filed Apr. 1, 1899. Serial No. 711,440. (No model.)

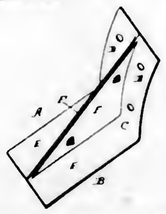


Claim.—1. A cartoo or shipping-package comprising a flexible advertising card or sheet sprung into a cylindrical body having a longitudinal side seam exteoding from end to end, a temporary readily-breakable fastening-strip covering the side seam and holding the sheet strained in its cylindrical shape, and temporary closures removably fitting the open ends of the cylindrical body, substantially as set forth.

2. A carton or shipping-package comprising a flexible advertising card or sheet sprung ioto a cylindrical body having a longitudinal side seam extending from end to end, a temporary readily-breakable fastening-strip covering the side seam and holding the sheet strained in its cylindrical shape, and flanged closures removably fitting the open ends of the cylindrical body and taking over and protecting the ends of said fastening-strip, substantially as set forth.

3. A carton or shipping-package comprising a flexible advertising card or sheet sprung into a cylindrical body, a readily-breakable fastening-strip for temporarily holding the card or sheet sprung in the cylindrical shape, and flanged closures frictionally held upon the opposite ends of the body and respectively of different sizes, substantially as set forth.

643,773. BOILER-BRACKET. RICHARD METCALF, Dayton, Ohio, assignor to the Brownell & Company, same place. Filed Oct. 30, 1899. Serial No. 735,245. (No model.)

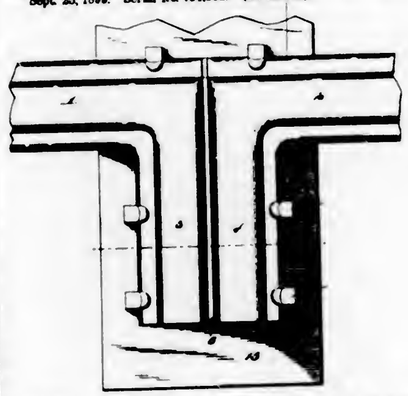


Claim.—1. A boiler-lug constructed of two uniform sections, said sections having corresponding upright and horizontal portions, and each section having a marginal wall extending throughout one side thereof, the wall of each section being brought in contact throughout and united to form a double or reinforced rib extending throughout the longitudinal center of the lug, substantially as described.

2. A supporting-lug for boilers, constructed of two separate blanks of uniform shape bent near their centers to provide two angularly-disposed portions, and a marginal wall or flange on one side of each blank which are brought in contact throughout their surfaces to form a single lug, the said walls or flanges forming, when the parts are united, a central longitudinal strengthening-rib of greater thickness than the remaining portions of the lug, and all points of which receive alike the strain due to supporting a boiler, substantially as described.

3. A boiler-lug constructed from sheet metal or boiler-plate from two sections which are uniformly bent to provide attaching and supporting portions D and E, said sections being also provided with marginal walls F which are brought together to form a single lug in which the said walls or flanges form a central longitudinal strengthening-rib of greater thickness than the remaining portions of the lug, and which has a greatly-increased depth at the point where the outer edge of said wall or flange is in a more direct line with the bend in the lug so that the said bend is suitably reinforced, substantially as described.

643,774. RAIL-JOINT. ANDREW G. MICHIE, Brainerd, Minn. Filed Sept. 25, 1899. Serial No. 731,562. (No model.)

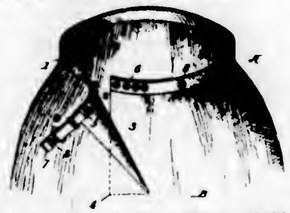


Claim.—1. A rail-joint comprising rail-sections turned outward at right angles and having a portioo of the base of each section cut away; and means for securing said arms or braces together.

2. A rail-joint comprising rail-sections having their ends bent outward at right angles and cut away at the base in combination with a yielding washer between the arms or braces, and means for securing the arms together.

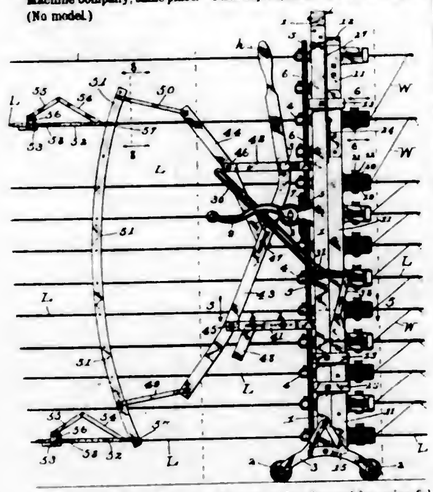
3. The combination with two rail-sections having their ends bent outward at right angles and cut away at the base, a washer interposed between the bent ends of the rails, filling-strips between the washer and rail-sections, bolts for securing the rail ends together, and spikes for securing them to a railway-tie.

643,775. SKIRT. ALBERT P. MCGRAW, McGraw, N. Y. Filed Aug. 16, 1898. Serial No. 688,706. (No model.)



Claim.—A skirt formed with a waistband and with a placket, an extension-piece extending from one edge of the placket and adapted to underlie a portion of the skirt beyond the other edge, a plurality of fastening devices, as 6, secured to the upper edge of one of the overlapping portions and a fastening device, as 5, secured to the other of the overlapping portions and adapted to be detachably engaged with either of the other fastening devices, and an adjustable fastening device on the waistband to secure the skirt around the waist of the wearer, substantially as described.

643,776. WIRE-FENCE MACHINE. JOHN NIXON and JAMES G. NIXON, Farmland, Ind., assignors to the Farmland Woven Wire Fence Machine Company, same place. Filed Sept. 1, 1899. Serial No. 729,187. (No model.)



Claim.—1. The combination, in a machine for making wire fabrics, of a suitable frame, a set of revolving spool-carrier drivers through which longitudinal wires pass mounted in said frame, a second frame mounted upon and movable in relation to said first frame, spool-carriers mounted on said second frame and adapted by the motion thereof to be shifted back and forth to and from the spool-carrier drivers and to be operated alternatively by said drivers, other spool-carriers mounted on a bar arranged adjustably to said shifting frame, said bar, a lever mounted on a pivot in said shifting frame and connected at one end to the structure embodying said bar and said spool-carriers and at the other by a link to a stationary point, whereby the motion of the spool-carriers mounted on said bar is multiplied and the spool-carriers mounted on said bar caused to move a greater distance than those mounted on the shifting frame.

2. The combination, in a machine for making wire fabric, of a stationary frame, a series of spindle-like spool-carrier drivers mounted therein, a train of gears connecting the shafts of said several spool-carrier drivers, a shifting frame mounted upon and adapted to move in relation to said stationary frame, spool-carriers mounted on said shifting frame and arranged alternatively on opposite sides of the row of spool-carrier drivers, and a lever whereby the entire shifting frame is moved up or down at one motion and the spools thus shifted all together to the spool-carrier drivers which were above or below them, respectively, substantially as shown and described.

3. The combination, in a machine for making wire fabric, of a stationary frame containing a series of spindle-like spool-carrier drivers, a train of gearing by which said spool-carrier drivers are connected together and caused to operate simultaneously, a series of projections arranged between the several spool-carrier drivers and forming guides for the spool-carriers as they are shifted, a double frame the parts whereof are rigidly connected to move in the same direction together and containing bearings for the spool-carriers, spool-carriers arranged alternatively upon one side and then upon the other in said bearings in said frame, and means whereby said frame and all the spool-carriers carried thereby are simultaneously moved up and down, whereby said spool-carriers are caused to operate in connection with the spool-carrier drivers just previously above or below them, substantially as set forth.

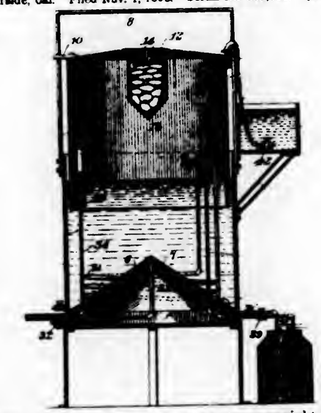
4. The combination, in a machine for making wire fabric, of the stationary frame 1 containing the spindle-like spool-carrier drivers, the two-part frame 11 the parts whereof are firmly united by the yokepiece 12 to move together in the same direction, guides 13 by which said movable frame is held to said stationary frame, stops 14 and 15 by which the movement of said movable frame on said stationary frame is limited, spool-carriers mounted on said movable frame, and spools mounted on said spool-carriers, and means for moving said movable frame in relation to said stationary frame, substantially as set forth.

5. The combination, in a machine for making wire fabric, of a stationary frame carrying the spindle-like spool-carrier drivers, a second frame carrying several spool-carriers and movable on the first, a bar carrying other spool-carriers and moving relatively to said frame, a motion-multiplying lever pivoted to said movable frame, and connections from said lever to said movable bar and its carriers and to a stationary part, whereby, as said movable frame is shifted, said bar and the spool-carriers mounted thereon are moved a greater distance, substantially as set forth.

6. The combination, in a machine for making wire fabric, of the arms 41 and 42 connected to said machine, the levers 43 and 44 pivoted to said arms and connected together by a slot and pin, the bar 51 connecting the outer ends of said levers, and the clamping devices mounted on the wires L and connected to said bar 51, all substantially as described and for the purposes specified.

7. The combination, with a machine for making wire fabric, of arms on said machine, levers pivoted to said arms, clamps adapted to engage with the horizontal wires of the fabric being formed, connections between said levers and said clamps, and stops on the arms with which the levers will come in contact as they are shifted, whereby the distance to which the machine is shifted at each motion of the levers may be adjustably predetermined, substantially as set forth.

643,777. ACETYLENE-GAS GENERATOR. CALVIN OGBURN, Riverside, Cal. Filed Nov. 1, 1898. Serial No. 695,168. (No model.)



Claim.—1. In an acetylene-gas generator, an upright water-tank provided within the lower end thereof with a closed conical reservoir and condensing-chamber, the gas-bell movable within the tank, the carbid vessel having a water-supply connection with the tank, a gas-condensing pipe projecting into the gas-bell and provided with a condensing-coil encircling the upper conical side of said reservoir and chamber and communicating with the interior thereof, and a gas-delivery pipe having an inner portion disposed within the conical reservoir and condensing-chamber and extending directly into the apex thereof, substantially as set forth.

2. In an acetylene-gas generator, the gasometer, a water-supply reservoir arranged exterior to the gasometer, and a flexible supply-pipe having one end fixedly connected with the reservoir and its other end connected with the exterior gas-bell to deliver the supply of water against the outer side of the latter, substantially as set forth.

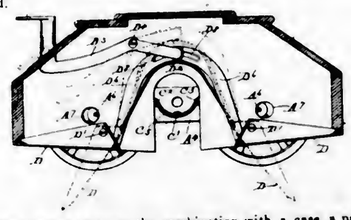
3. In an acetylene-gas generator, the gasometer, an exterior water-supply reservoir supported at the top of the water-tank of the gasometer, a supply-cock fitted to the reservoir, and a flexible supply-pipe connected at one end to said supply-cock and at its other end with the gas-bell to deliver the supply of water against the outer side of the latter, substantially as set forth.

4. In an acetylene-gas generator, the gasometer, the exterior water-supply reservoir supported at the top of the water-tank of the gasometer, a nipple open at both ends secured on the outside of the gas-bell and movable therewith, and a flexible pipe connection between said reservoir and the nipple, substantially as set forth.

643,778. CARPET-SWEEPER. STEPHEN PALMER, Lansingburg, N. Y. Filed July 6, 1898. Serial No. 685,245. (No model.)

Claim.—1. In a carpet-sweeper, the combination with the drive-wheels, a vertically-movable case; and case-supporting spring-and-link connections between the case and drive-wheels, of a spring-bail having interned ends projecting through and fitting apertures in the ends of the case, with the bail-arms bearing upon the outer surface of the case ends respectively; a brush-roll provided with axial end sockets having end bearings for the respective bail ends, whereby the roll is supported by the bail independently of the case; and actuat-

ing connections between the roll and drive-wheels, substantially as described.



2. In a carpet-sweeper, the combination with a case, a pair of oscillatory pans, and a retracting bow-spring made of wire and connecting the two pans; of an actuating-lever fulcrumed upon the case; a pair of links each pivotally connected at one end with the lever, and at the other end pivoted upon the end of one of the arms of the bow-spring where it enters the pan, substantially as described.

643,779. **HOSE-SUPPORTER.** REDDIN W. FARRAMORE, New York, N. Y. Filed Mar. 29, 1899. Serial No. 710,997. (No model.)



Claim.—1. A hose-supporter consisting of a belt or band formed of a single continuous piece of material of a length to pass across the back at the waist-line, and extend down over the abdomen from opposite sides, crossing near their extremities and projecting over the legs at the opposite sides of the body, a detachable fastening provided between the overlapped ends of the belt or band, and two independent hose-supporting straps connected to the ends of the belt or band beyond the crossing-point, whereby the tension on the straps through their connection with the hose causes the belt or band to more tightly cling to the body, substantially as described.

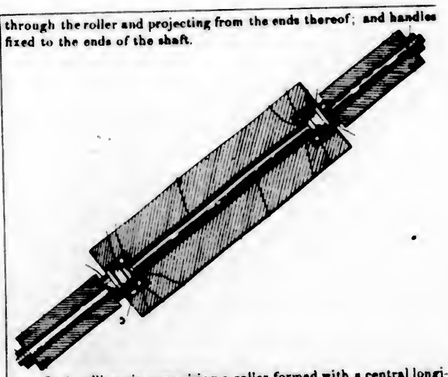
2. As an article of manufacture, a waistband of greater length than the waist measurement adapting it to have its end portions extended downward and crossed over the abdomen, a detachable connection at the point of intersection or crossing of the end portions of said belt and stocking-supporters attached to the extremities of the band.

3. As a new article of manufacture, a hose supporter comprising a waist-belt, a two-part fastener having its members attached respectively to said belt, near the ends thereof, and adapted for mutual engagement to maintain the end portions of the belt in divergent relation from the point of intersection and detachable connection of said belt, and hose-fasteners attached to the free ends of the waist-belt beyond the members of the fastener, substantially as described.

4. As a new article of manufacture, a hose-supporter comprising a single non-extensible waist-belt, a two-part fastener having its members secured respectively near end portions of said belt, within free extremities thereof, and arranged for mutual detachable connection to maintain the end portions of the belt in crossing relation and in divergent positions from the point of detachable connection, elastic tapes united to said free ends of the belt, and hose-fasteners attached to the tapes, substantially as described.

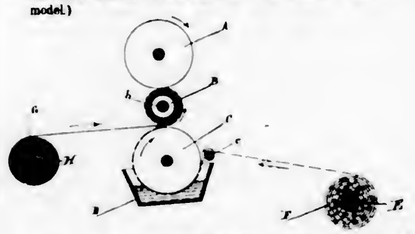
643,780. **ROLLING-PIN.** CLARENCE L. PITCHER, New York, N. Y. Filed June 21, 1899. Serial No. 721,365. (No model.)

Claim.—1. A rolling-pin comprising a roller formed with a central longitudinal bore, and end recesses concentric with said bore; antifriction-rollers supported within said recesses; a shaft extending through the roller and projecting from the ends thereof; and handles fixed to the ends of the shaft.



2. A rolling-pin comprising a roller formed with a central longitudinal bore, and end recesses concentric with said bore; cup-bearings secured within the recesses; a shaft extending through the roller; bearing-cones on said shaft; antifriction-rollers supported within the recesses and between the cup-bearings and cones, handles on the ends of the shaft; and caps for securing the handles to the shaft.

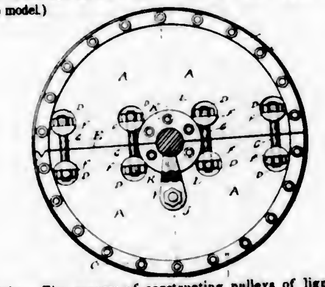
643,781. **APPARATUS FOR MERCERIZING.** RAOUL SUBRENAT, St. Julien, France. Filed Sept. 19, 1898. Serial No. 691,434. (No model.)



Claim.—1. In an apparatus for use as described, the combination with a roller B, and a roller C arranged below the first roller, of a tank adapted to contain the mercerizing liquid and into which the roller C is adapted to dip, and an unshrinkable blanket acting as a backing passing around the roller C and adapted to be rolled up with the fabric to be mercerized upon the roller B.

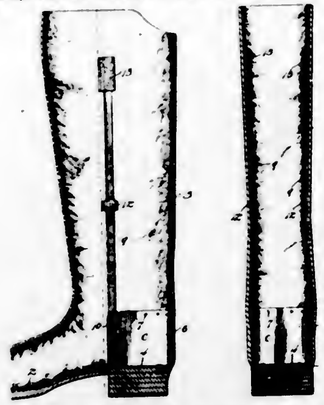
2. In an apparatus for use as described, the combination with the superposed rollers A, B, C, of the tank D, and an unshrinkable blanket acting as a backing passing around the roller C as described, and adapted to be rolled up with the fabric to be mercerized upon the roller B.

643,782. **FIBER PULLEY.** JAMES R. THANE, Holcomb Valley, Cal. Filed Apr. 23, 1898. Renewed Aug. 8, 1899. Serial No. 726,598. (No model.)



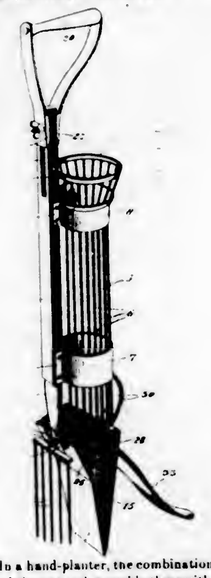
Claim.—The process of constructing pulleys of ligneous fiber which consists in compressing the fiber into disks, rings or plates and saturating the same by being soaked in resin-oil having from twenty-five to fifty per cent. of colophony dissolved therein, the said disks, rings or plates after removal from the resinous liquid, being maintained at a temperature of not less than 100° Fahrenheit, and not more than 200° Fahrenheit, then cooled in the open air and cemented together by shellac cement, then riveted together by rivets passed through holes in the said cemented disks, rings or plates, all substantially as hereinbefore described and shown upon the annexed drawings.

643,783. **HEEL-COUNTER.** JOHN TAYLOR, Gilbert's Creek, Ky. Filed Apr. 20, 1899. Serial No. 713,738. (No model.)



Claim.—The combination with a boot or shoe having a sheet-metal counter fastened therein, and elongated yieldingly-supporting strips pivotally connected at their lower terminals to the upper front corners of the said counter and firmly held in vertical relation to and movable with the portion of the boot or shoe above the counter and having a connection at the upper terminals to resist the breakdown of the part of the boot or shoe supported thereby.

643,784. **HAND-PLANTER.** HENRY H. WARNER, Wautoma, Wis., assignor of one-half to Michael J. Soens, Racine, Wis. Filed Oct. 12, 1899. Serial No. 733,394. (No model.)



Claim.—1. In a hand-planter, the combination with a hopper, of a jaw rigidly fixed thereto and movable therewith, a second jaw pivoted with respect to the hopper and the first-named jaw, and a coverer rigidly connected to the first-named jaw and movable therewith to cover the planted seed.

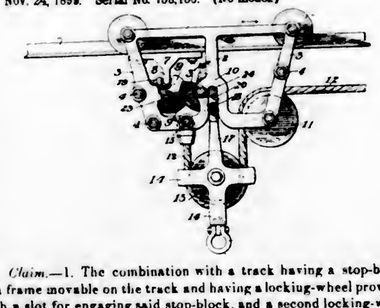
2. In a hand-planter, the combination with a hopper having a jaw rigidly fixed thereto and movable therewith, of a handle fixed to the hopper, a second jaw pivotally connected with the first-named jaw, a foot fixed to the pivoted jaw and adapted to engage the earth to move the pivoted jaw, and a coverer rigidly connected to the first-named jaw and movable therewith to cover the planted seed.

3. In a hand-planter, the combination with a longitudinally-slotted hopper having a handle fixed thereto, of a jaw rigidly fixed to the handle and movable therewith, a second jaw pivoted to the first-named jaw and movable with respect thereto, means for moving the pivoted jaw, and a coverer rigidly and removably connected with the fixed jaw and movable therewith to cover the planted seed.

4. In a hand-planter, the combination with a hopper having a handle fixed thereto, of fixed and movable jaws at the lower end of the hopper, the fixed jaw being adapted to receive interchangeably a foot-piece and a coverer.

5. A hand-planter comprising a hopper having a handle fixed thereto and provided with a handhold extending above and over the hopper, a jaw fixed to the handle, a second jaw pivoted to the first-named jaw and having an operating-foot, a seat upon the pivoted jaw, a spring connected with the hopper and entering the seat and adapted to hold the jaws normally in rigid engagement, and a coverer removably connected with the fixed jaw.

643,785. **CARRIER.** FRANK WERNER, Galesburg, Ill. Filed Nov. 24, 1899. Serial No. 738,155. (No model.)



Claim.—1. The combination with a track having a stop-block, of a frame movable on the track and having a locking-wheel provided with a slot for engaging said stop-block, and a second locking-wheel provided with a slot and with a portion for engaging the lifting-block when the latter enters said last-named slot, said locking-wheels having each a recessed portion for engaging the other wheel.

2. The combination with a track having a stop-block, of a frame movable on the track and having a locking-wheel provided with a slot for engaging said stop-block, a second locking-wheel provided with a slot and with a portion for engaging a lifting-block when the latter enters said last-named slot, said locking-wheels having each a recessed portion for engaging the other wheel, and a lock-block for engaging said recessed portions of the locking-wheels.

3. The combination with a track having a stop-block, of a frame movable thereon having a weighted locking-wheel mounted therein and provided with a slot for engaging said stop-block, a second weighted locking-wheel provided with a slot and with a portion for engaging a cross-bar on a lifting-block when the cross-bar enters the last-named slot, and a lock-block on the frame for limiting the motion of said wheels.

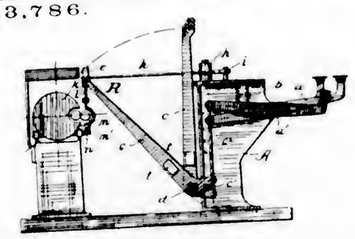
4. The combination with a track having a stop-block, of a frame movable on said track, a locking-wheel provided with a slot for engaging said stop-block, a second locking-wheel mounted in the frame and having a slot and a portion for engaging a cross-bar on an upwardly-extending portion of a lifting-block when the latter enters said last-named slot, each of said wheels having a recessed portion for engaging with the other wheel, and a lock-block for limiting the movement of each of said wheels.

643,786. **TYPE-WRITING MACHINE.** ERNST W. BRACKELSBERG, Ohligs, Germany. Filed June 26, 1897. Serial No. 642,423. (No model.)

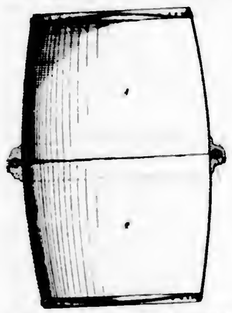
Claim.—1. In combination with a pair of converging, inclined guide-bars, one of which is rigid, the other spring-pressed and pivoted, a series of pivoted type-bars and mechanism for actuating the same, each of the said type-bars being recessed at *t* to weaken it for yielding laterally when brought in contact with one of the said guide-bars in its forward motion, substantially as set forth.

2. In combination with a pair of converging, inclined guide-bars, a series of pivoted type-bars and mechanism for actuating the same, each of the said type-bars being flexible in a lateral direction and arranged to be bent and guided by one of the said guide-bars, substantially as set forth.

643,786.



643,787. METALLIC CASK. MICHAEL BROCHU, Grand Rapids, Mich. Filed June 7, 1899. Serial No. 719,640. (No model.)



Claim.—1. A metal cask consisting of two stamped sheet-metal separable parts having integral concavo-convex flanges, and two detached clamping-rings, having concave channels to engage the convex sides of the flanges, and means for detachably securing the rings to each other, and having an acute angle between the head and side thereof, and a riveted ring in said angle, substantially as described.

2. In a metal cask composed of two separable parts of stamped sheet metal, and having an acute angle between the head and side thereof, a reinforcing-ring triangular in cross-section, and rivets securing the ring in said angle, substantially as described.

3. As an article of manufacture, the described metal cask consisting of two separate parts of stamped sheet metal, having integral concavo-convex flanges around their open ends, and acute angles between the heads and sides, reinforcing-rings in said angles, rivets for securing the same and two detachable rings having screw-threads, fins, and concave channels, substantially as described.

643,788. LUMBER-LOADER. LORENZO J. CODY, Duluth, Minn. Filed Oct. 24, 1899. Serial No. 734,669. (No model.)

Claim.—1. A log-loader comprising a platform, a derrick mounted thereon, formed of suitably-connected beams, with their lower ends connected to said platform, at its forward end, means for supporting said platform, comprising a sled, with its bunks, said platform being pivotally connected about centrally of its width on the rear one of said bunks, and adjustably connected to the forward one of said bunks, substantially as set forth.

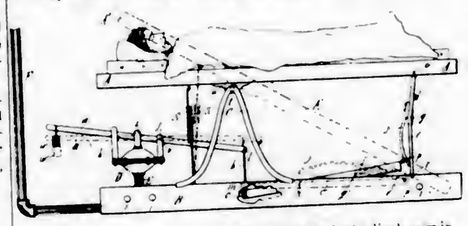
2. A log-loader comprising a platform, a derrick mounted thereon, formed of suitably-connected beams, with their lower ends connected to said platform, at its forward end, a sled having front and rear runners, said platform being pivoted about centrally of its width on a bunk of the rear runners, and extended through the bunk of the front runners, said latter bunk being provided with adjusting-holes and pins passed through said holes for holding the platform in an adjusted position, substantially as specified.

3. A log-loader, comprising a platform, a derrick mounted thereon, and a sled having front and rear runners, the said platform being pivoted about centrally of its width on the bunk of the rear runners and being capable of having a transverse movement on the bunk of the front runners, and means for holding the platform in the desired adjusted position, substantially as described.

4. A log-loader, comprising a platform, a derrick mounted thereon, and a sled having front and rear runners, said platform being pivoted about centrally of its width on a bunk of the rear runners and extended through the bunk of the front runners, said bunk being provided with adjusting-holes and pins passed through said holes for holding the platform in an adjusted position, substantially as described.



643,789. ALARM-BED. LUDWIG EDERER, Omaha, Nebr. Filed May 13, 1899. Serial No. 716,775. (No model.)



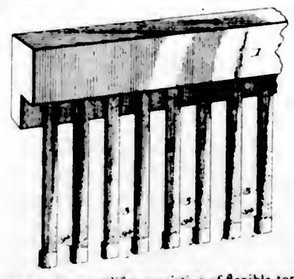
Claim.—1. The combination of a movable bed, of a diaphragm in pipe connection with the heating system, a latching mechanism to normally lock said bed in a natural position, and connections between said latching mechanism and said diaphragm to release said latching mechanism to move said bed.

2. The combination with a pivoted bed, of a spring to normally hold said bed in proper position, a locking mechanism to support said bed, a lever to lock said latching mechanism in one position, and a diaphragm connected to said lever to actuate the same to latch and release said locking mechanism.

3. The combination with a suitable support, of a bed tiltedly secured to said support, a spring to normally hold said support in a horizontal position, a locking mechanism normally in a locked condition to support said bed, a diaphragm in pipe connection, a lever secured to said diaphragm, and a second lever adapted to lock and release said locking mechanism, said last-mentioned lever and said diaphragm-lever being suitably connected, as and for the purpose set forth.

643,790. PIANO ATTACHMENT. ALVIN F. FLOREY, Washington, N. J., assignor to Cornish & Co., same place. Filed Jan. 20, 1899. Serial No. 702,802. (No model.)

Claim.—1. In a piano, a tone-modifier consisting of flexible tongues provided at opposite sides near their free ends with self-adhering hardened coatings, applied to the tongues in a plastic state, and strips of wood veneer applied to the opposite coated surfaces of the tongue, and held in place by the adherent quality of the coatings, one of said strips extending at its upper edge above that of the other, substantially as specified.

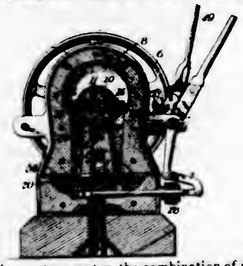


2. In a piano, a tone-modifier consisting of flexible tongues provided at opposite sides near their free ends with self-adhering hardened coatings, applied to the tongues in a plastic state, and strips of wood veneer applied to the opposite coated surfaces of the tongue, that strip which is toward the strings being extended above the upper edge of the other strip to form a tilting lip, substantially as specified.

3. In a piano, a tone-modifier consisting of flexible tongues provided at opposite sides near their free ends with self-adhering hardened coatings, applied to the tongues in a plastic state, and strips of wood veneer applied to the opposite coated surfaces of the tongue, that strip which is toward the strings being extended above the upper edge of the other strip to form a tilting lip, and the adjacent portion of the tongue being offset to lie flush at its front surface with the front surface of the shorter strip, substantially as specified.

4. In a piano, a tone-modifier consisting of flexible tongues provided upon opposite sides, adjacent to their free ends, with self-adhering coatings, and strips of wood veneer applied to the opposite coated surfaces of the tongues and held in place by said coatings, the portions of the tongues adjacent to the upper edges of the strips being arranged in the planes of those strips which are arranged upon the front surfaces of the tongues, substantially as specified.

643,791. ROTARY MOTOR. HARVEY O. GADBERRY, Carthage, Mo. Filed June 30, 1899. Serial No. 722,367. (No model.)



Claim.—1. In a rotary motor, the combination of a cylinder and its shaft, an eccentrically-mounted piston having terminal beveled bearing-surfaces, bevel-faced bearing-rings mounted in the cylinder-heads for axial movement, gland-plates located outside of the cylinder-heads, spring-washers interposed between the gland-plates and said bearing-rings, means for adjusting the gland-plates axially of the cylinder-shaft, and valve mechanism for controlling the admission of motive agent to the cylinder, substantially as specified.

2. In a rotary motor, the combination of a cylinder and its shaft, an eccentrically-mounted piston having terminal beveled bearing-surfaces, bevel-faced bearing-rings mounted in the cylinder-heads for axial movement, gland-plates mounted upon and adjustable toward and from the cylinder-heads, spring-washers in the form of dished disks encircling the cylinder-shaft and interposed between the gland-plates and said bearing-rings, and adapted to be compressed by the gland-plates, and valve mechanism for controlling the admission of motive agent to the cylinder, substantially as specified.

3. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of a rock-shaft operatively connected with said valve, a rock-arm, and means actuated by the cylinder-piston for oscillating the same, and a clutch having its members carried respectively by said rock-shaft and rock-arm for communicating motion from the latter to the former, substantially as specified

4. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having oscillatory elements respectively connected with said valve and actuated by the cylinder-piston, and clutch mechanism between said elements, substantially as specified.

5. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a rock-shaft operatively connected with said valve, a rock arm, clutch mechanism for connecting the rock-shaft with the rock-arm, and a cam carried by the spindle of the cylinder-piston for actuating said rock-arm, substantially as specified.

6. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a rock-shaft operatively connected with said valve, a rock-arm, clutch mechanism for connecting the rock-shaft with the rock-arm, and a cam mounted for adjustment upon the spindle of the cylinder-piston for actuating said rock-arm, substantially as specified.

7. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a rock-shaft operatively connected with said valve, a rock-arm, clutch mechanism for connecting the rock-shaft with the rock-arm, a cam mounted for angular adjustment upon the spindle of the cylinder-piston for actuating said rock-arm, and means for securing said cam at the desired adjustment, substantially as specified.

8. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of a rock-shaft operatively connected with said valve, a rock-arm, and means actuated by the cylinder-piston for operating said arm, and clutch mechanism for connecting the rock-shaft with the rock-arm, the same consisting of a toothed segment on one of said members, and a pawl-carrying element on the other of said members, substantially as specified.

9. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of a rock-shaft operatively connected with said valve, a rock-arm, and means actuated by the cylinder-piston for operating said arm, and clutch mechanism for connecting the rock-shaft with the rock-arm, the same consisting of a toothed segment on one of said members, and a pawl-carrying element on the other of said members, said pawl-carrying member being provided with an extension forming a reversing-lever, substantially as specified.

10. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of a rock-shaft operatively connected with said valve, a rock-arm, and means actuated by the cylinder-piston for operating said arm, and clutch mechanism for connecting the rock-shaft with the rock-arm, the same consisting of a toothed segment on one of said members, and a pawl-carrying element on the other of said members, said pawl-carrying member being provided with an extension forming a reversing-lever, and a lever carried by said extension and connected with the pawl, substantially as specified.

11. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a tubular rock-shaft operatively connected with said valve, a rock-arm having its spindle mounted in the bore of said rock-shaft, means actuated by the cylinder-piston for operating said rock-arm, and clutch mechanism having its interlocking arms carried respectively by said rock-shaft and rock-arm, substantially as specified.

12. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a tubular rock shaft operatively connected with said valve, a rock-arm having its spindle mounted in the bore of said rock-shaft, means actuated by the cylinder-piston for operating said rock-arm, tension devices connected with said spindle for frictionally resisting the rocking motion thereof, and clutch mechanism having its interlocking arms carried respectively by said rock-shaft and rock-arm, substantially as specified.

13. In a rotary motor, the combination with a cylinder and piston, and a reciprocatory valve for controlling ports in communication with the cylinder, of valve mechanism having a tubular rock-shaft operatively connected with said valve, a rock-arm having its spindle mounted in the bore of said rock-shaft, means actuated by the cylinder-piston for operating said rock-arm, tension devices consisting of a tension-nut threaded upon said spindle at the opposite end from the rock-arm, and a tension-spring interposed between said nut and a fixed object, for frictionally resisting the rocking motion of the spindle, and clutch mechanism having its interlocking arms carried respectively by said rock-shaft and rock-arm, substantially as specified.

643,792. DIVISIONAL OR KNOCKDOWN BOLT OR RIVET. ALFONSO D. GATES, Cleveland, Ohio. Filed Mar. 29, 1899. Serial No. 710,933. (No model.)



Claim.—1. A bolt formed in longitudinal sections and having a core tapered uniformly from one end to the other and located centrally with outer sections all around it, substantially as described.

2. A bolt having its body formed in a series of longitudinal sections with lateral flanges on each end to constitute heads for the bolt, and a core centrally in the bolt tapered uniformly from end to end and circular in cross-section, substantially as described.

3. The bolt having a body formed in sections and one of the said sections wedge shape transversely from end to end, and a wedging-core in contact with the inner edges of all the said sections and inclosed thereby, substantially as described.

4. The body of the bolt formed of a series of sections running from end to end and having head portions on each end and segmental in cross-section, and a uniformly-tapered core constructed circular in cross-section at one end to be locked in said body, substantially as described.

5. A bolt having a body consisting of longitudinal parts segmental in cross-section and one member of said parts arranged with its greater width reversely to the others, thereby constituting a wedging member for tightening the bolt, and a tapered core bearing against all said parts alike practically their entire length, substantially as described.

6. The bolt consisting of a series of longitudinal parts having each a lateral portion at each end forming part of a common head and curved transversely on their inner edges, and a central tapered core bearing against all said edges and constructed at its end to effect locking engagement with the body of the bolt itself, substantially as described.

7. A bolt having a body formed in a series of transversely-segmental parts extending its entire length, one of which parts has its greater arc on the inside of the bolt, and a tapered member constructed to be driven centrally in between all said parts and to form the core of the bolt, substantially as described.

643,798. SHIRT. EDWARD R. GOULD, Spokane, Wash. Filed Sept. 28, 1899. Serial No. 731,964. (No model.)

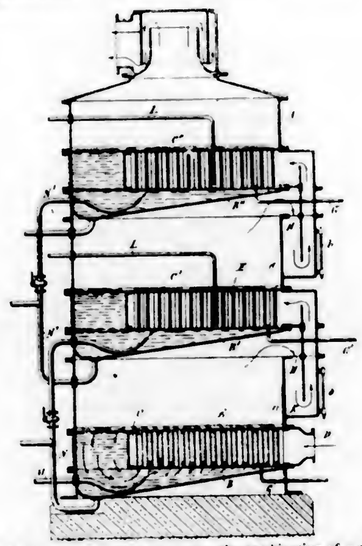


Claim.—As a new article of manufacture, a shirt having a turn-over collar provided on its under side with corner-pockets, a neck-band having a longitudinal flypiece secured to its outer side forming a long shallow pocket, said flypiece being provided with buttonholes, a detachable stiffening-piece placed under the collar and extending lengthwise of the same with its outer corners placed within the corner-pockets of the turn-over collar and its lower portion placed within the pocket of the neckband and provided with buttonholes, and buttons secured to the neckband and adapted to engage the buttonholes in the stiffening-piece and flypiece, substantially as described.

643,794. VACUUM-PAN. ROBERT HARVEY, Glasgow, Scotland. Filed Apr. 15, 1899. Serial No. 713,165. (No model.)

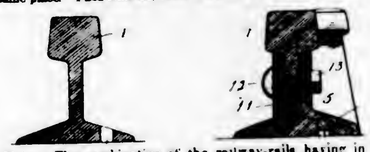
Claim.—1. In an evaporating apparatus, the combination of a series of pans disposed one above the other, steam-drums, one for each pan, arranged in the liquid-spaces of the said pans, a steam connection with the first drum of the series, and vapor-passages H situated at the ends of the pans, and each opening at one end into a pan above the liquid-level therein, and at its other end opening into the steam-drum above the pan into which it opens, such passages being formed with trapped portions K, substantially as set forth.

2. In an evaporating apparatus, the combination of a series of pans disposed one above the other, steam-drums, one for each pan, arranged in the liquid-spaces of the said pans, a steam connection with the first pan of the series, and vapor connections with the other steam-drums, each vapor connection leading into the vapor-space of the pan below the drum with which it is connected, and the pipes N, each of such pipes leading from the bottom of one of the pans to the pan above and discharging thereinto near the steam-drum, substantially as set forth.



3. In an evaporating apparatus, the combination of a series of pans disposed one directly above the other, and having sloping bottoms, steam-drums, one for each pan, arranged in the liquid-spaces of the pans and extending partially across the same so as to leave free spaces beyond the ends of the drums for the free circulation of the liquid in the pans, a steam connection with the first pan of the series, vapor-passages H situated at the ends of the pans, each opening at one end into a pan above the liquid-level therein, and at its other end opening into the steam-drum above the pan into which it opens, such passages having trapped portions K, and the pipes N connecting the several pans, each of such pipes leading from the bottom of one of the pans into the pan above and discharging thereinto near the free space beyond the end of the steam-drum, substantially as set forth.

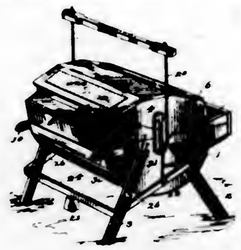
643,795. RAILWAY TIE AND JOINT PROTECTOR. JOHN W. HOWLE, Searcy, Ark., assignor of one-half to C. E. Lee and F. T. Lee, same place. Filed June 21, 1899. Serial No. 721,399. (No model.)



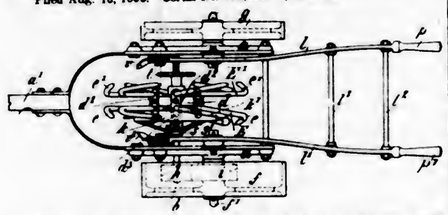
Claim.—The combination of the railway-rails, having in their outer flange, slots 4; a fish-plate 11, adapted to fit against the inner faces of the rails; a fish-plate 5, adapted to fit against the outer faces of the rails and provided with a flange 6, having projecting from its lower face, projections 8, adapted to work in the slots 4, of the rails; block 9, secured to the upper face of flange 6, and to the outer face of plate 5, its upper end fitting against the outer faces of the T part of the rails, and extending a little above the tops thereof and adapted to close the joints between the ends of the abutting rails, substantially as shown and described and for the purposes set forth.

643,796. WASHING-MACHINE. WILLIAM H. HUNTER, Troutman, N. C. Filed Aug. 3, 1899. Serial No. 726,021. (No model.)

Claim.—A washing-machine comprising a body having a cover and provided at opposite sides with vertical slots, the oppositely-inclined legs arranged in pairs at the front and back of the body and supporting the same, the presser, the rods 20 located at opposite sides of the body and provided at their lower ends with journals extending through the slots of the body and secured to the presser, a transverse handle connecting the upper ends of the rods 20, the rectangular frame detachably connected by rods 25 with the said journals and fulcrumed on one pair of legs and arranged to be supported by the other pair of inclined legs when there are no clothes within the washing-machine and also when it is disconnected from the journals, and a weight connected with the frame, substantially as described.

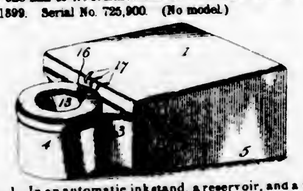


643,797. ROOT-DIGGER. JENS JENSEN, Kolding, Denmark. Filed Aug. 18, 1899. Serial No. 727,696. (No model.)



Claim.—In a machine of the class described the combination with a rotatable disk *d* provided with a set of fixed catching-hooks E *e* and a set of yielding catching-hooks E *e* of a cam-shaped guide-ring *k K* for the yielding catching-hooks, and of an adjusting-nut *l*, substantially as and for the purpose described.

643,798. INK-WELL. JAMES L. KRENTZLER, Bradford, Pa., assignor of one-half to W. J. Russell and F. W. Winger, same place. Filed Aug. 2, 1899. Serial No. 725,900. (No model.)



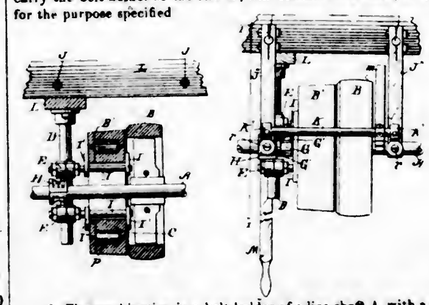
Claim.—1. In an automatic inkstand, a reservoir, and a well communicating therewith by a single passage, the top of which has portions of different heights, in combination with a hollow plug rotatably mounted in said well and having a side opening, the upper end of which is on a level with the highest point of the passage, substantially as described.

2. In an automatic inkstand, a reservoir, and a well in communication therewith by a single passage, the top of which has portions of different heights, in combination with a hollow plug rotatably mounted in said well and having a side opening, the upper end of which is on a level with the highest point of the passage, and a second opening below and in vertical alinement with the aforesaid opening and also adapted to be brought into communication with said passage, substantially as specified.

3. In an automatic inkstand, the combination with a supply-reservoir, of a well having a passage communicating with the reservoir, and constructed with a series of port-forming portions respectively of different elevations, a hollow plug rotatably mounted in the well and having openings in one side which are adapted to aline simultaneously with different parts of the passage and thereby regulate the flow of ink to the well, substantially as described.

643,799. BELT-HOLDER. FRANK R. LEVANSELER, Sturgis, Mich., assignor to Helen R. Levanseler, St. Joseph county, Mich. Filed Apr. 8, 1899. Serial No. 712,334. (No model.)

Claim.—1. In a belt-holder the combination of a line-shaft A, having a pulley B, thereon; a hanger or other support D, having pins I, parallel with the shaft; a frame C, adapted to move in the direction of the shaft; a rim B', conical in form, the large end of which is toward the pulley B, supported by said frame C; antifriction-rollers I', in suitable races; the belt-shifter consisting of rock-shafts J, J', having arms J"; pivotally connected by the rod; the arm *m*, to strike against the belt to ship the belt; a lever to swing the same to ship the belt; a lever G, pivoted on the frame C, and a collar H, on the line-shaft A, against which the said lever G, strikes to carry the belt-holder so the rim B', will contact with the pulley B, for the purpose specified.



2. The combination in a belt-holder of a line-shaft A, with a pulley B, thereon; a movable frame C; a rim B', the periphery of which is conical in form from edge to edge, which is supported to revolve on the frame C; a belt-shipper to ship the belt from the pulley to the rim and means for moving the belt-holder so that the rim B', will contact with the pulley B, the contacting edge of which is beveled to the point of contact with the periphery of the rim B', all coacting for the purpose specified.

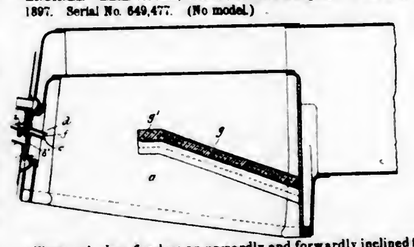
3. The combination in a belt-holder of a line-shaft A, with a pulley B thereon; a movable frame C; a rim B', conical in form supported to revolve on the frame C; both the frame and rim being formed with removable sections; a belt-shipper to ship the belt from the pulley to the rim and means for moving the belt-holder so that the rim B', will contact with the pulley B, all coacting for the purpose specified.

4. In a belt-holder the combination of a line-shaft with the pulley B, thereon; a frame C, carrying a revoluble rim B', which is conical in form; a belt-shipper consisting of rock-shafts J, J', arms J", pivotally connected together by the bar K, an arm *m* for shipping the belt and a lever G, adapted to move the holder so that the rim B', will contact with the pulley B; an operating-lever to actuate the same so that the belt can be shipped from the pulley onto the holder and to cause it to return to the pulley by contacting with the pulley for the purpose specified.

5. In a belt-holder the combination of the frame C, a rim B', conical in form and supported to revolve on frame C, by means of antifriction-rollers, both frame C, and rim B', being made with removable sections, as specified.

6. In a belt-holder the combination of the shaft A, pulley B, the frame C, a rim B', conical in form and supported to revolve on frame C, by means of antifriction-rollers, both frame C, and rim B', being made with removable sections; and means for moving the belt-holder so that the rim B', thereof will contact with the pulley B, for the purpose specified.

648,800. SMOKE-CONSUMING FURNACE FOR LOCOMOTIVE-ENGINES. KARL MAREK, Vienna, Austria-Hungary. Filed Aug. 25, 1897. Serial No. 649,477. (No model.)



Claim.—1. In a fire-box an upwardly and forwardly inclined fire-bridge extending over about two-thirds of the length of said box and having a comparatively small portion of its forward end substantially horizontal and in line with air-inlets in the front wall of the fire-box, for the purpose set forth.

2. In a fire-box, a fire-bridge whose forward end is adapted to change the direction given to the products of combustion by the body

of the bridge, in combination with means for feeding air into the forward corners of the fire-box, substantially as described.

3. In a fire-box, a fire-bridge whose forward end is substantially horizontal and adapted to change the direction given to the products of combustion by the body of the fire-bridge, in combination with a fire-door, means therein for directing air into the forward corners of the fire-box and under the bridge, substantially as set forth.

4. The combination with a furnace-door, of a draft device journaled centrally in an opening in said door and provided with a draft-passage having diverging lateral deflecting-walls, said device constructed to close or practically close the opening when swung into a vertical position on its journals, and a directing-plate b^3 projecting outwardly from the lower edge of said door-opening, for the purpose set forth.

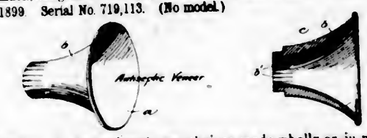
5. The combination with a furnace-door, of a draft device journaled centrally in an opening in said door and provided with a draft-passage having diverging lateral deflecting-walls, said device constructed to close or practically close the opening when swung into a vertical position on its journals, and means operating automatically to tilt said regulator into its closed position when the door is opened, for the purpose set forth.

6. The combination with a furnace-door, of the circular gravitating draft device $c\,d$, journaled in an opening in said door and provided with the lateral deflecting-walls f, the directing-plate b^3 projecting outwardly from the lower edge of the door-opening, and means operating automatically to tilt the device in a substantially vertical position when the furnace-door is opened, substantially as set forth.

7. The combination with a combustion-chamber provided with the inclined bridge g having its forward end g' at an angle to its inclined surface, and a door closing an opening in the wall of said chamber facing the said end g' of the bridge; of the discoidal gravitating draft device $c\,d$, journaled eccentrically in an opening in said door and provided with the lateral deflecting-walls f, and the directing-plate b^3 projecting outwardly from the lower edge of the door-opening, substantially as and for the purpose set forth.

8. In a fire-box, a straight inclined fire-bridge whose forward end makes an angle therewith, in combination with air-passages in the forward part of said fire-box adapted to direct air under the flames curving around the end of said bridge, and auxiliary passages directing air laterally in front of said flames, substantially as described.

643,801. ANTISEPTIC MOUTHPIECE. MORRIS MARTIN, Boston, Mass., assignor to the Hygienic Company, same place. Filed June 2, 1899. Serial No. 719,113. (No model.)



Claim.—1. An antiseptic mouthpiece made wholly or in part of a moisture-proof composition which sets rigidly from a plastic condition, and contains a disinfectant.

2. An antiseptic mouthpiece made wholly or in part of a hard drying or setting moisture-proof composition containing a disinfectant and a holder therefor such as solidified guncotton.

3. An antiseptic mouthpiece made wholly or in part of a hard drying or setting moisture-proof composition containing alpha-naphthol.

4. An antiseptic mouthpiece made wholly or in part of a hard drying or setting composition containing alpha-naphthol and guncotton.

5. A mouthpiece comprising a strengthening shell or foundation, and an antiseptic facing composed of a hard drying or setting moisture-proof composition containing a disinfectant.

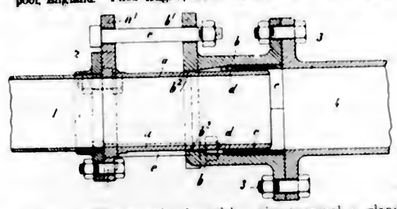
6. A mouthpiece comprising a strengthening shell or foundation and an antiseptic facing composed of a hard drying or setting moisture-proof composition which adheres firmly to the foundation and contains a disinfectant.

7. A mouthpiece comprising a strengthening-shell formed to fit the interior of an ordinary mouthpiece and having means for detachable engagement with the latter, and an antiseptic lining composed of a hard drying or setting moisture-proof composition which adheres firmly to the shell and contains a disinfectant.

8. A mouthpiece comprising a flaring metal shell divided at its smaller ends to form tongues adapted to maintain a frictional hold on an ordinary mouthpiece and provided with an antiseptic lining composed of a hard drying or setting moisture-proof composition which adheres firmly to the shell and contains a disinfectant.

9. The bereinbefore-described hard drying or setting antiseptic composition made by the drying or setting of a mixture of guncotton, ether, alpha-naphthol, and alcohol.

643,802. EXPANSION-GLAND. DONALD B. MORISON, Hartlepool, England. Filed Aug. 9, 1899. Serial No. 726,673. (No model.)



Claim.—1. The combination with a pipe-terminal, a gland secured thereto the bore of which increases in diameter inwardly from the outer open end of said gland, and a second pipe-terminal, of uniform diameter, somewhat smaller than the least diameter of the bore of the gland and extending into the same; of a packing in the space between the interfitting pipe-section and gland, and means for preventing the separation of said parts without interfering with their reciprocal motion, for the purpose set forth.

2. The combination with two pipe-terminals, of a gland rigidly secured to one of said terminals and fitting loosely onto the other, said gland having a bore tapering outwardly from the pipe-terminal to which it is secured, to form an annular space wedge-shaped in section between the interfitting parts, a rolling packing in said space, and means for preventing the separation of said interfitting parts without interfering with the reciprocal motion thereof, for the purpose set forth.

3. The combination with a pipe-terminal, a gland secured thereto the bore of which increases in diameter inwardly from the open outer end of said gland, and a second pipe-terminal, of uniform diameter, somewhat smaller than the least diameter of the bore of the gland and extending into the same; of a packing in the space between the interfitting pipe-terminal and gland, a retaining device for said packing and means for preventing the separation of the interfitting parts without interfering with their reciprocal motion, for the purpose set forth.

4. The combination with a pipe-terminal, a gland secured thereto the bore of which increases in diameter inwardly from the outer open end of said gland, and a second pipe-terminal of uniform diameter, somewhat smaller than the least diameter of the bore of the gland and extending into the same; of a packing in the space between the interfitting pipe-terminal and gland, means for limiting the displacement of said packing in the direction of the open end of the pipe-terminal within the gland, and means for preventing the separation of the interfitting parts without interfering with their reciprocal motion, for the purpose set forth.

5. The combination with two pipe-terminals, of an expansion-gland rigidly but detachably secured to one of said terminals and fitted to slide freely on the other, said gland having a bore tapering outwardly from the pipe-terminal to which it is secured to form an annular space wedge-shaped in section between the interfitting parts, a packing and a sectional confining-bushing therefor in said space, and means connecting the gland with the pipe-terminal on which it is fitted so as not to interfere with the reciprocal motion of either, for the purpose set forth.

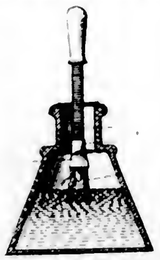
6. The combination with two pipe-terminals, of an expansion-gland secured to one of said terminals and sliding freely on the other, said gland provided with a bore tapering outwardly from the pipe-terminal to which it is secured to form an annular space wedge-shaped in section between the interfitting parts, the inner end of said bore of greater diameter than the internal diameter of said pipe to which the gland is secured, a packing in the aforesaid space, a sectional bushing interposed between the packing and the pipe-terminal, and means for preventing separation of the interfitting parts without interfering with the reciprocal motion thereof, for the purpose set forth.

643,803. BRUSH. WILLIAM SCHOTT, New York, N. Y. Filed Dec 30, 1899. Serial No. 742,112. (No model.)

Claim.—1 A brush comprising a flexible tubular shank of uniform diameter throughout and consisting of a coiled spring with the coils in contact with each other to form screw-threads, and an adjustable cap surrounding the shank and engaging the threads formed by the coils thereof, substantially as described.

2. A brush comprising a flexible tubular shank of uniform diameter throughout and consisting of a coiled spring with the coils in contact with each other to form screw-threads, and an adjustable sheet-metal cap having an opening for the shank and swaged adjacent to the opening to engage the threads formed by the coils of the shank, substantially as described.

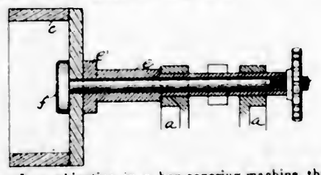
3. A brush comprising a flexible tubular shank of uniform diameter throughout and consisting of a coiled spring with the coils in contact with each other to form screw-threads, an adjustable cap surrounding the shank and engaging the coils thereof, and a handle embracing a plurality of the terminal coils of the shank, substantially as described.



4. A brush comprising a flexible tubular shank of uniform diameter throughout and consisting of a coiled spring with the coils in contact with each other to form screw-threads, an adjustable cap surrounding the shank and engaging the threads formed by the coils, and a brush-head embracing a plurality of the terminal coils of the shank, substantially as described.

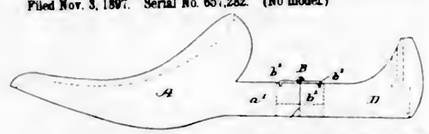
5. A brush comprising a flexible tubular shank of uniform diameter throughout and consisting of a coiled spring with the coils in contact with each other to form screw-threads, and an adjustable cap having an opening for the shank and provided with slits adjacent to said opening, the portions of the edge of the cap between said slits being swaged at an angle corresponding with the pitch of the threads formed by the coils of the shank, substantially as described.

643,804. BOX-COVERING MACHINE. ALBERT H. STEVENSON, Manchester, and NATHANIEL B. CRADWICK, Stockport, England. Filed May 13, 1898. Serial No. 680,564. (No model.)



Claim.—In combination in a box-covering machine, the frame having bearings, a hollow shaft journaled in said bearings and having an extension provided with a bearing end or head against which the bottom of the box may rest, said bearing end being arranged in position to hold the box in proper relation to the working parts of the machine, means for turning the hollow shaft, a bolt passing through the hollow shaft having a head thereon to clamp the bottom of the box between it and the bearing on the end of the hollow shaft, the opposite end of the bolt being screw-threaded and projecting from the hollow shaft and the nut for drawing the bolt to clamp the box, substantially as described.

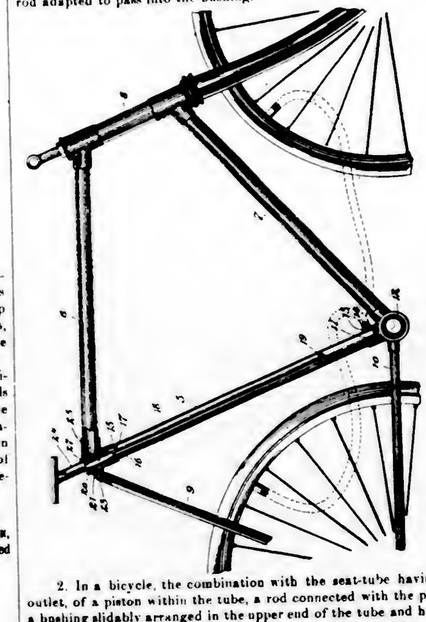
643,805. SHOE-FORM. ABEL D. TYLER, Jr., Brockton, Mass. Filed Nov. 3, 1897. Serial No. 657,282. (No model.)



Claim.—In a last, the combination of a fore part chambered from the bottom upwardly and having an integral transverse rib at its rear end, with a chambered heel part having an integral transverse rib at its front end, and a hinge the leaves of which are respectively attached to said ribs; the heel part having at its rear end a thickened wall provided with a pin-hole.

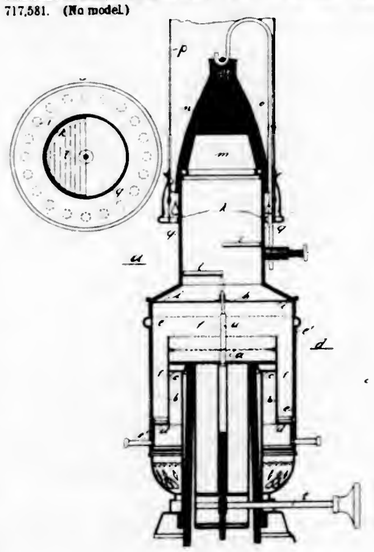
643,806. PUMP ATTACHMENT FOR BICYCLES. CLARENCE H. ALLEN, Tadmor, Ohio. Filed Oct. 11, 1899. Serial No. 733,319. (No model.)

Claim.—1. In a bicycle, the combination with the seat-tube having an outlet, of a piston within the tube, a rod connected with the piston, a bushing slidably arranged in the upper end of the tube and having a bottom provided with an opening through which the rod is passed, said bushing being slotted and having a terminal flange adapted to lie upon the upper end of the seat-tube, and a handle for the rod adapted to pass into the bushing.



2. In a bicycle, the combination with the seat-tube having an outlet, of a piston within the tube, a rod connected with the piston, a bushing slidably arranged in the upper end of the tube and having a bottom provided with an opening through which the rod is passed, said bushing being slotted and having a terminal flange adapted to lie upon the upper end of the seat-tube, and a handle for the rod having a longitudinal slot in which the rod is pivoted, said handle being adapted to fold and receive a portion of the rod and to pass into the bushing.

643,807. PETROLEUM INCANDESCENT-LAMP BURNER. JULIUS BRAUNSCHILD, Munich, Germany. Filed May 20, 1899. Serial No. 717,581. (No model.)



Claim.—An incandescent petroleum-burner having a wick-tube, a cylindrical guide encircling the same provided with perforations, and a wire sieve movable vertically within said guide and resting upon the wick substantially as described.

643,808. GAME-BOARD. FRANK A. BREWER, Jr., and FRED HAYES, Watsonville, Cal. Filed June 30, 1899. Serial No. 722,445. (No model.)

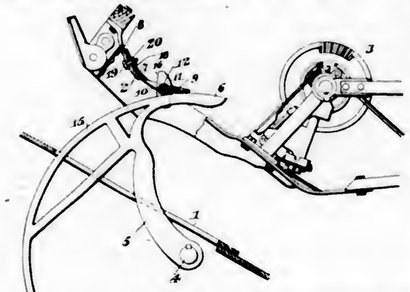


Claim.—1. A game board or chart, containing a diagram of a base-ball ground or field, with a circle representing each of the players, said circles being subdivided into radial spaces, the width of which is proportioned with relation to the usual chances of the game of base-ball, and which contain words or characters directing the subsequent move or play, in combination with pivoted pointers adapted to be spun or twirled, each of said pointers being provided at one end with a yielding tube or cover.

2. The combination with a game board or chart containing subdivided circles, of a pointer provided with a yielding tube or cover at one end, and bent downwardly near its center, and means for pivotally supporting the pointer above the surface of the board

3. The combination with a game-board, of a revoluble pointer made from sheet metal bent upon itself to form a point and having a flat central perforated bearing portion, and an enlarged flattened end, and a sleeve or tube of rubber adapted to be held in place by the enlarged end.

643,809. BINDER ATTACHMENT. HOWARD BUCKLEW, Warsaw, Ohio. Filed Aug. 29, 1899. Serial No. 728,908. (No model.)



Claim.—1. An attachment for grain-binders comprising a support and a revoluble needle-clearer mounted on the support and sustained thereby for a part of the clearer to turn in a plane contiguous to the path of a binder-needle, substantially as described.

2. An attachment for grain-binders comprising a spring-support and a revoluble needle-clearer journaled on the support and sustained in a position for a member thereof to turn in a plane parallel with and contiguous to the path of a binder-needle, substantially as described.

3. An attachment for grain-binders comprising a spring-support having means for adjustably fastening the support to a binder-frame, and a revoluble needle-clearer mounted on the support and sustained thereby for an element to turn in a plane contiguous to the path of a binder-needle, substantially as described.

4. An attachment for grain-binders comprising a support, and a revoluble needle-clearer mounted thereon and provided with a frictional driving-roller and with a blade, the latter being revolable in a plane contiguous to the path of a binder-needle, substantially as described.

5. A binder attachment comprising a resilient frame-plate and a rotary cutter mounted therein and composed of a roller designed to contact with the needle of a binder, and cutters carried at the ends of the roller and designed to sweep the opposite sides of the binder-needle, substantially as specified.

6. In a grain-binder, the combination with a needle, of a revoluble clearer driven from said needle and having an element disposed contiguous to the needle, substantially as described.

7. In a grain-binder, the combination with a needle, of a revoluble clearer driven by frictional engagement with said needle and having an element disposed for rotation in a plane contiguous to a side of the needle, substantially as described.

8. In a grain-binder the combination with a needle, of an adjustable frame-plate, and a rotary cutter mounted in the frame-plate and composed of a roller contacting with the back of the needle, and a blade arranged to sweep in close proximity to the side of the needle, substantially as specified.

9. In a grain-binder, the combination with a needle, of an adjustable resilient frame-plate, and a rotary cutter mounted in said plate, and comprising a roller designed to contact with the curved back of the needle, and a pair of knives arranged at the ends of the roller and designed to sweep the sides of the needle, substantially as specified.

10. In a binder, the combination with a needle, of a needle-clearer actuated by movement of the needle and having a blade disposed contiguous, and in positively-movable relation to, a side of the needle, substantially as described.

11. In a binder, the combination with a needle, of a rotary needle-clearer spanning the back of the needle and engaging frictionally therewith, said needle-clearer having blades contiguous to the sides of the needle, substantially as described.

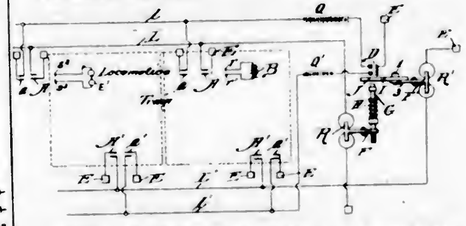
12. In a binder, the combination with a needle, of a needle-clearer engaging with the back of said needle and having a blade disposed contiguous to a side thereof, and means for yieldably presenting the needle-clearer to said needle, substantially as described.

13. A binder attachment comprising a leaf-spring support having a slot, and a revoluble needle-clearer mounted in the slotted support and having a blade arranged to rotate in the slot thereof, and contiguous to the side of a binder-needle, substantially as described.

14. A binder attachment comprising a support, a revoluble needle-clearer having a driving element, and blades extending substantially at right angles to each other from said driving element and arranged for rotation contiguous to the sides of a binder-needle.

15. A binder attachment comprising a spring-support having an adjusting-slot near one end and a clearer-slot near its other end, a revoluble clearer journaled on the support in operative relation to the path of a binder-needle, and elements revoluble with said needle-clearer and projecting through the clearer-slot of the spring-support.

643,810. CONTRIVANCE FOR AVOIDING COLLISIONS OF TRAINS. CARL BURIAN, Bucharest, Austria-Hungary, assignor of one-half to Alexander Moscu, same place. Filed Sept. 25, 1899. Serial No. 731,633. (No model.)



Claim.—1. In combination, the contacts A, A', disposed along the track, and one being arranged to be closed by a train running in one direction and the other being arranged to be operated by a train running in the other direction, circuit-wires *l*, *l'*, one for each train, batteries in said circuit-wires, said wires *l*, *l'*, forming parts of open circuits, contacts *a*, *a'* and D in said circuits *l*, *l'*, means for closing the contacts D comprising the batteries on the trains with contacts on the train in the circuit of said batteries arranged to engage the contacts A, A', electromagnets on the trains arranged to control the stopping mechanism of the train and contacts on the train connected electrically with said electromagnets and arranged to engage the contacts *a*, *a'*, whereby the said electromagnets will be energized from the batteries in the circuits *l*, *l'*, substantially as described.

2. In combination, the electromagnets on the trains controlling the stopping devices, the contacts on the train connected electrically with said magnets, the lines *l*, *l'* having batteries Q, Q', for energizing the magnets on the train, said lines having also contacts *a*, *a'* to engage the contacts on the train, contacts D controlling the lines *l*, *l'* to render the batteries Q, Q', active when the contacts on the train engage the contacts *a*, *a'*, means controlling the contacts D, comprising the electromagnets R, R', and the contact-closer controlled thereby, the lines L, L', and the contacts A, A', in said lines, and the batteries on the train with contacts *r*, *r'*, on the train and in circuit with said batteries for engaging the contacts A, A', substantially as described.

3. In combination, the electromagnets on the train for controlling the stopping devices, the contacts s^2, s^3 in circuit with said electromagnets, the lines *l*, *l'*, the contacts *a*, *a'*, therein in line with the contacts s^2, s^3 on the train, the batteries Q, Q' in the lines *l*, *l'*, the contacts D for controlling the lines *l*, *l'*, the bolt G for closing the contacts at D, the electromagnet R controlling the bolt G, the disk J having a hole therein through which the bolt may pass to close the contacts D, the electromagnet R' controlling the segment, the lines L, L' including the magnets R, R', the contacts A, A', controlling the lines L, L', and the batteries on the train having contacts to engage the contacts A, A'.

4. In combination, toothed wheels said wheels being operated from a moving part of the locomotive and a sliding block K operated from said toothed wheels, said block having a rack on its under side engaging one of the toothed wheels, a horizontal spring-governed bolt 8 and a vertical spring-governed bolt 18 guided in said block, means for retaining and releasing said bolts and connections operated by said bolts for operating the steam-valve and brake, substantially as described.

5. In combination with the sliding block K, means for giving it a to-and-fro motion from the connecting-rod of the locomotive, a spring-pressed bolt 8 carried by the block, a spring-pressed bolt 2 ending in an upturned nose, an armature for ordinarily retaining the bolt 2, an electromagnet on the locomotive controlling the armature, a bent lever 5 on the sliding block, said bolt 2 engaging with the articulated end of the downwardly-directed arm of the bent lever 5, said lever 5 controlling the bolt 8 and connections operated from the bolt 8 by which the steam-valve is operated.

6. In combination, the sliding block, means for operating the same from the moving parts of the locomotive, a spring-pressed bolt carried by the block, a bar 10, a casing in which said bar is guided, a plate 9 on the bar arranged to be engaged by the spring-bolt to be moved thereby, the said bar 10 being connected to the steam-valve to operate the same, means for holding the spring-bolt retracted, means for releasing the bolt comprising the electromagnet and devices controlled thereby, means for resetting the bolt and the said electrically-controlled devices comprising the lever 11, said lever being in the path of the plate 9 and a shoulder 35 on the bar 10 for returning the lever 11, substantially as described.

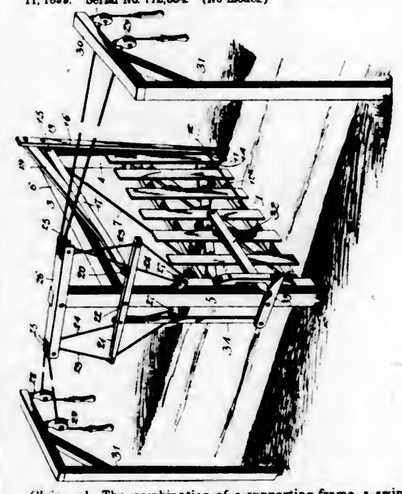
7. In combination, the sliding block K, means for reciprocating the same from an operating part of the locomotive, a spring-bolt 8 carried by the reciprocating block, means for holding said bolt connections to be operated by said bolt for controlling the steam-valve, said connections comprising the bar 10 with the plate 9 thereon, releasing means to operate the holding means of the bolt, said releasing means comprising a bolt 2, an armature for holding the same, and an electromagnet for controlling the armature, a lever 14 for returning the bolt to be engaged by the armature, a slide 12 having a portion to return the spring-bolt 8 and having also a shoulder 13 to operate the lever 14, and a lever connected with the slide, said lever being operated by the final movement of the connection leading to the steam-valve, substantially as described.

8. In combination, the sliding block, means for operating the same from a moving part of the locomotive, a bolt carried by the said block, means for holding the bolt inoperative, connections to be operated by said bolt for setting the brake, a slide 12 having a projection 15 for releasing said bolt from its holding means, means for operating said slide, said means including a bolt 8 carried by the slide, means for holding the bolt inactive, releasing means electrically controlled and a slide-bar operated by the bolt when released, said slide-bar controlling the operation of the slide 12, substantially as described.

9. In combination, the sliding piece, the bolt 18 carried thereby, means for holding said bolt, means for releasing the same, said releasing means being electrically controlled, a bar 19 with connections to the brake mechanism, a plate 21 having a sliding connection with the bar 19 and means for limiting the sliding movement, a pawl 22 carried by the plate 21 a rack-bar 23 carried by and having sliding connection with the bar 19, said plate 21 and rack-bar having projections to be struck by the spring-bolt and a yielding catch 24 carried by the plate 21 to be struck by the bolt for shifting the plate with its pawl in relation to the rack-bar, said bar 19 having an incline to release the catch from the bolt, to allow the bolt to engage the projection on the rack-bar for operating the bar 19 and the brake connections, substantially as described.

10. In combination, the sliding piece, the bolt 18 carried thereby, means for holding said bolt, means for releasing the same, said releasing means being electrically controlled, a bar 19 with connections to the brake mechanism, a plate 21 having a sliding connection with the bar 19 and means for limiting the sliding movement, a pawl 22 carried by the plate 21, a rack-bar 23 carried by and having sliding connection with the bar 19, said plate 21 and rack-bar having projections to be struck by the spring-bolt, and a yielding catch 24 carried by the plate 21 to be struck by the bolt for shifting the plate with its pawl in relation to the rack-bar, said bar 19 having an incline to release the catch from the bolt, to allow the bolt to engage the projection on the rack-bar for operating the bar 19 and the brake connections, a lever 27 for lifting the pawl out of the rack, means on the rack-bar for operating the lever, a spring-catch for holding the lever and means on the rack-bar for releasing the ratch from the lever 27, substantially as described.

643,811. GATE. WILLIAM A. COATS, Morrilton, Ark. Filed Apr 11, 1899. Serial No. 712,634. (No model.)



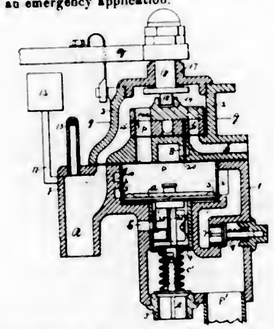
Claim.—1. The combination of a supporting-frame, a swinging gate, a horizontal lever 21 fulcrumed between its ends on the supporting-frame, a horizontally-disposed catch or keeper located beneath the lever 21 and pivoted between its ends and adapted to hold the gate closed, a link connecting the catch or keeper with the lever 21, means for connecting the gate with the latter, operating cords or ropes arranged in pairs at the ends of the lever 21 and extending upward and downward therefrom, and upper and lower guides receiving the operating-ropes, substantially as described.

2. The combination of a supporting-frame, a gate, a lever 13 connected with the gate, a horizontal lever 21 fulcrumed on the supporting-frame and connected with the said lever, operating cords or ropes arranged in pairs and connected with the horizontal lever and extending upward and downward therefrom, and guides receiving the operating cords or ropes, substantially as described.

3. The combination of a supporting-frame, a swinging gate, a bell-crank lever connected with the gate, a horizontal lever fulcrumed on the supporting-frame and connected with the bell-crank lever, pulleys or guides arranged above and below the horizontal lever, operating cords or ropes arranged in pairs and passing over the said pulleys, said operating-ropes being connected with the horizontal lever and extending upward and downward therefrom, a pivoted catch or keeper mounted on the supporting-frame and holding the gate closed, and a link connecting the catch or keeper and the horizontal lever, substantially as described.

643,812. AIR-BRAKE. MURRAY CORRINGTON, New York, N. Y. Filed Oct. 31, 1899. Serial No. 735,364. (No model.)

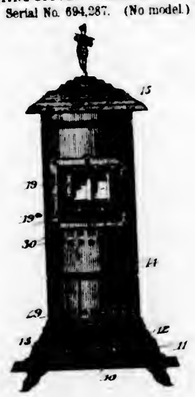
Claim.—1. In an automatic air-brake cut-off and relief valve device, including the usual moving parts of a triple-valve device the combination, with a piston-chamber and a piston controlling the release of train-pipe air working therein, of a row of ports through the bushing of the chamber for admitting train-pipe air from said chamber into the train-pipe in the rear and located so that said piston travels across them in one direction before air is charged past the piston into the rear train-pipe, and in the other direction before a train-pipe release-port is opened, a graduating-valve for gradually reducing the train-pipe pressure in a service application, an emergency-valve for quickly releasing the train-pipe pressure in an emergency application, and a yielding means for holding said emergency-valve closed, and for limiting the traverse of said piston to the proper position for a service application and permitting it to move to the position for an emergency application.



2. In an automatic brake system, including the usual moving parts of a triple-valve device operating in a train-pipe as a cut-off and relief valve device, the combination, with a piston in a chamber controlling the release of train-pipe air, of a graduating-valve for venting the train-pipe air in a service application, an emergency-valve for venting the train-pipe air in an emergency application and a row of ports opening from said chamber into a passage for admitting air past said piston into the rear train-pipe, located so as to be crossed by said piston in alternate directions before admitting air through said ports, and before opening the service-vent from the train-pipe, respectively, and a yielding means for limiting the movement of said piston for service action, but permitting it a further movement for emergency action.

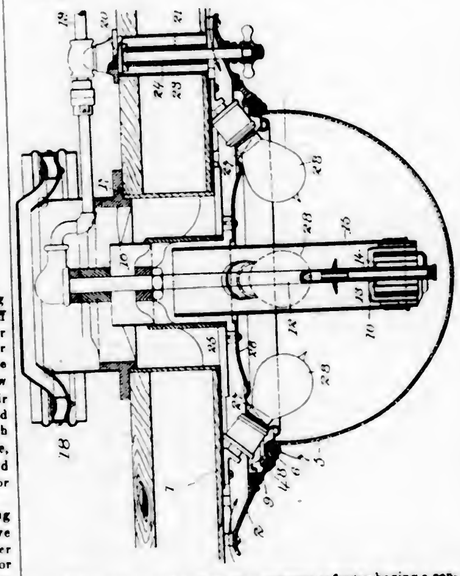
3. In an automatic brake system, including the usual moving parts of a triple-valve device operating as a cut-off and relief valve device in a train-pipe, the combination, with a piston in a chamber controlling the release of train-pipe air, of a graduating-valve for venting the train-pipe air in a service action, an emergency-valve for venting the train-pipe air in an emergency action, an engineer's valve, a tank charged with air from the piston-chamber, and a port through the wall of the chamber to the tank located so that the piston shall stand on one side of said port during the service action and on the other side thereof during the emergency action.

643,813. **HEATING-STOVE.** SAMUEL H COWLES, Oakville, Conn. Filed Oct. 22, 1898. Serial No. 694,287. (No model.)



Claim.—The stove, comprising the base-plate made in a single piece, and having the inwardly-extending horizontal annular flange 16, with the concentric rabbets and inner vertical annular flange 18, on its upper side, and the spanner or bridge-piece forming the support to the grate; the exterior casing seated at its lower edge in the outer rabbet, the fire-pot 21 seated at its lower edge in the inner rabbet, and bolted to the flange 18, which bears against its inner side; and the flared annulus 23, rabbeted on the upper end of the fire-pot, and forming a tight joint with the exterior casing, the latter being provided with the series of air-openings 29, 30, between said base-piece and said flared annulus, substantially as described.

643,814. **LIGHTING APPARATUS.** ROBERT M. DIXON, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, of New Jersey. Filed Dec. 7, 1897. Serial No. 661,085. (No model.)



Claim.—1. In a lamp structure, a concave reflector having a central opening and a series of lateral openings, a gas-burner located under the reflector, a series of electric lamps projecting inwardly through the lateral openings in said reflector, and a globe inclosing both the gas-burner and the electric lamps.

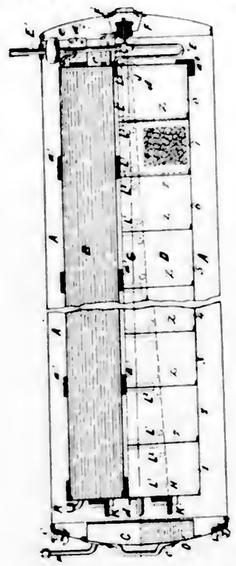
2. In combination with the inclosing globe of a gas-lamp, and the gas-supply pipe and valve therein, of a valve-stem projecting through the outer shell of the lamp structure, and the extension to the valve-casing surrounding said valve-stem and opening into the inclosing globe, substantially as described.

3. The combination of the car-ceiling the gas-supply pipe and valve above said ceiling, the inclosing lamp-globe fastened to the under side of said ceiling, the valve-stem extending down through said ceiling and lamp-globe, and the shell surrounding said stem, which shell is cast integrally with the valve-casing, and extends through the car-ceiling and opens into the inclosure within the lamp-globe, substantially as described.

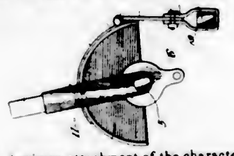
643,815. **ACETYLENE-GAS PRODUCER.** FERDINAND DUDERSTADT, Leipsic, Germany. Filed Feb. 20, 1899. Serial No. 706,298. (No model.)

Claim.—1. In an acetylene-gas-producing apparatus the combination of a carbid-holder consisting of two halves held out of contact by a feed-passage and divided into a plurality of sections by means of cross-partitions, with means of water-supply communicating with the interior of each of the said sections, said carbid-holder being arranged within the gas-holder and adapted to be easily and readily withdrawn from the same, substantially as and for the purpose specified.

2. In an acetylene-gas-producing apparatus for railway-cars or the like, the combination of an inclined feed-water passage with carbid-holders arranged in successive series of sections on both sides of the said passage, and a water-supply pipe for the said passage, the said sections being provided with holes opening into said passage at successively-higher levels in order that the water may be supplied successively to the several sections to produce acetylene gas in proportion to the consumption thereof and the consequent pressure on the water



643,816. **LOOM PICKER ATTACHMENT.** ROBERT L. DURHAM, Burlington, N. C. Filed Dec. 6, 1899. Serial No. 739,383. (No model.)

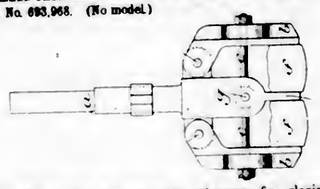


Claim.—1. A stirrup attachment of the character set forth, comprising a cam, a segmental member, a stirrup member hinged thereto, and a stirrup adjustably mounted on the said stirrup member.

2. A stirrup attachment of the character set forth constructed of metal and comprising a cam, a segmental member adapted to be attached to a picker-stick and having a portion of a hinge structure at its lower terminal, a stirrup member having a part of a hinge structure at its upper terminal and fitted in that at the lower terminal of the segmental member and also provided with a vertically-alined series of openings, and a stirrup having an upper reduced extremity adjustably embracing and connected to the said stirrup member.

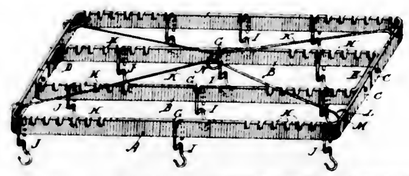
3. A stirrup attachment of the character set forth comprising a cam, a metallic segmental member adapted to retain its shape, and a stirrup movably attached thereto and depending therefrom.

643,817. **APPARATUS FOR FLINT-GLAZING COLORED PAPER.** HERRMANN GMEINER-BENDORF, Dresden, Germany. Filed Oct. 19, 1898. Serial No. 693,968. (No model.)



Claim.—The holder for a plurality of stones for glazing paper consisting of a stock having an abutment, clamping-jaws separately pivoted to said stock on opposite sides of said abutment, bolts attached to said stock and projecting through said jaws, and nuts applied to said bolts for separately clamping stones on opposite sides of said abutment, substantially as herein described.

643,818. **SKIRT-HANGER.** JOHN HEADLAND, Galva, Ill. Filed May 15, 1899. Serial No. 716,805. (No model.)



Claim.—1. A skirt-hanger comprising a plurality of rectangular frames of different sizes arranged one within the other and secured together at their ends; each of the side bars of said frames having its upper edge formed with a central notch, and a group of notches at either side of said central notch; hooks supported in said central notches, and hooks adjustably secured at either side of said central notch.

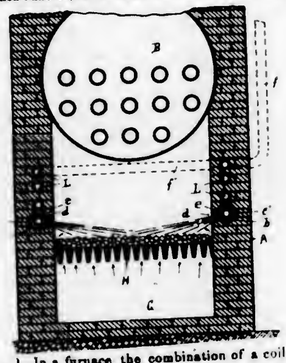
2. A skirt-hanger comprising a plurality of rectangular frames of different sizes, arranged one within the other, and secured together at their ends; each of the side bars of said frames having a central notch, and a group of notches at either side of the central notch; hooks secured in said central notches, and adjustable hooks at either side of said central hook; triangular suspending-frames loosely secured to the end bars of the outer rectangular frame, and adapted to overlap at their apices; and a ring connecting said triangular frames.

643,819. **SOLDERING-IRON.** WILLIAM C. HERBERT, Stanstead, Canada. Filed Jan. 19, 1899. Serial No. 702,626. (No model.)



Claim.—A soldering-iron, comprising a reservoir adapted to contain vaporizing fluid: a cylindrical extension formed at one end thereof; a removable plug-valve seat, having a central opening, mounted at the end of said extension; capillary-feeding material located within said reservoir and extending into said extension contiguous to said opening; a removable gasolene-cup mounted on said extension; an injector-tube, having radially-extending openings, removably secured on said extension; a soldering-head, having an integral rearwardly-extending annular flange removably secured on said tube, said flange having openings extending radially and in series from the forward end of the opening formed within said flange; a handle removably secured to the opposite end of said reservoir; and a rod adjustably mounted in said handle, and extending through said reservoir and said extension, the front end of said rod having a needle-valve adapted to cooperate with the opening in the plug-valve seat, substantially as and for the purposes set forth.

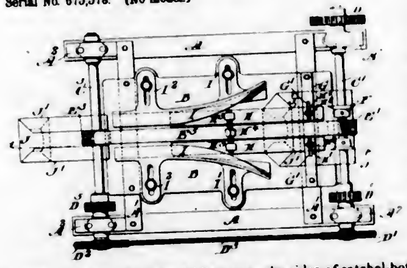
643,820. DECOMPOSED-STEAM FURNACE. ELVA D HODGE and LAWRENCE H. RABE, Cincinnati, Ohio, assignors to Alois Zeckendorf. Filed June 16, 1899. Serial No. 720,825. (No model.)



Claim.—1. In a furnace, the combination of a coil of pipe disposed in the secondary combustion-chamber having communication with the air at one end, the said coil having terminal ends disposed within the side walls of the combustion-chamber above the fuel-bed, a coil of pipe having communication with a source of steam-supply vertically disposed in each side wall of the combustion-chamber, a terminal limb from each steam-coil tapping the respective terminal limb of the air-coil and coextensive therewith and concentric discharge-orifices in said steam and air terminal limbs whereby steam and air may be superheated to approximately the same degree and together injected upon the upper surface of the fuel-bed from each side thereof, substantially as specified.

2. In a furnace, the combination of two coils of pipe horizontally disposed in the secondary combustion-chamber having communication with the air through the back thereof each coil being extended forward through the bridge-wall and terminating within the front ends of the said walls of the combustion-chamber above the fuel-bed, a branch pipe located in the bridge-wall connecting said pipes steam coils vertically disposed in the side walls of the combustion-chamber communicating with a source of steam-supply, the terminal limbs tapping and lying within the respective terminal limbs of the air coils and concentric orifices of discharge downwardly inclined in said steam and air terminals, whereby the steam and air may be superheated to approximately the same degree and together injected upon the upper surface of the fuel-bed from each side thereof, substantially as specified.

643,821. MACHINE FOR FOLDING SIDES OF SATCHEL-BOTTOMED BAGS. EDWIN J. HOWLETT, Philadelphia, Pa., assignor to the Union Paper Bag Machine Company, same place. Filed Mar 29, 1898 Serial No. 675,578. (No model.)



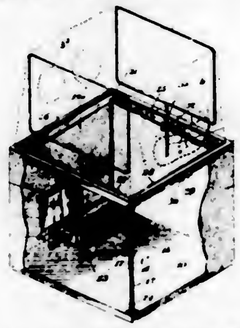
Claim.—1. A machine for folding over the sides of satchel-bottomed paper bags having in combination with means for feeding the bags through the machine, adjustable creasers as F F', F F' for creasing the bags on the lines of the folds desired, plates as H H lying along and parallel to the line of the crease adjustably secured to the frame of the machine and serving as straight-edges over which the folds are made, means for adjusting said plates toward and from each other and for maintaining them in parallelism, and stationary means for turning the outer edges of the bag over upon the body thereof on the lines of the creases as the bag is fed through the machine, substantially as specified.

2. A machine for folding over the sides of satchel-bottomed paper bags having in combination the belts E' and E² for feeding bags through the machine, adjustable creasers as F F', F F' for creasing the bags on the lines of the folds desired, plates as H H lying along and parallel to the line of the crease adjustably secured to the frame of the machine and serving as straight-edges over which the folds are made, means for adjusting said plates toward and from each other and for maintaining them in parallelism, and stationary means adjustable toward and from the plates for turning the outer edges of the bag over upon the body thereof on the lines of the creases as the bag is fed through the machine, substantially as specified.

3. A machine for folding over the sides of satchel-bottomed paper bags having in combination with means for feeding the bags through the machine, adjustable creasers as F F', F F' for creasing the bags on the lines of the folds desired, plates as H H lying along and parallel to the line of the crease and serving as straight-edges over which the folds are made, said plates being adjustably secured to the frame of the machine at one end and provided with means intermediate their ends for adjusting them toward and from each other and maintaining them in parallelism, and the folding-plates I I for turning the edges of the bag over the plates H H and down upon the center of the bag as the bag is fed through the machine.

4. A machine for folding over the sides of satchel-bottomed paper bags, having in combination with means for feeding the bags through the machine, adjustable creasers as F F' F F' for creasing the bags on the lines of the folds desired, plates H H lying along and parallel to the lines of the longitudinal creases and serving as straight edges over which the folds are made said plates being adjustably secured to the frame of the machine, and provided with means for adjusting them toward and from each other and maintaining them in parallelism and stationary curved plates I I for turning the outer edges of the bag over upon the body thereof as the bag is fed through the machine.

643,822. DEVICE FOR APPLYING HOT AIR OR VAPOR TO THE HUMAN BODY. OLIVER K. INMAN, Hartford, Conn. Filed Feb 28, 1899. Serial No. 707,141. (No model.)



Claim.—1. In a device of the class specified the combination, with a heating-chamber having a base and a collapsible frame, of a series of clamping-bars carried by the frame; and a hood removably secured in position by said bars.

2. In a device of the class specified, the combination, with a base, of a series of posts pivoted thereto and composed of articulated sections; means for preventing the collapse of said sections when extended; a frame to which the tops of said sections are pivoted; a covering secured to said base and frame; a series of clamping-bars carried by the frame; and a hood secured in position by said clamping-bars.

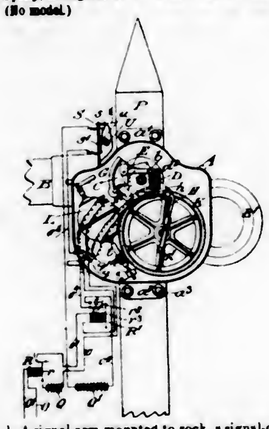
3. In a device of the class specified, the combination, with a collapsible frame to which a covering is secured, of clamping-bars for securing a hood to said frame; and means for supporting and distending the hood.

4. In a device of the class specified, the combination, with a collapsible frame having a covering, of clamping-bars for securing a hood to said frame; and a hood-distending device carried by one of said clamping-bars.

5. In a device of the class specified, the combination, with a covered frame, of clamping-bars for securing a hood to said frame, one of said bars having a perforated lug; and a hood-distending device adjustably secured in said lug.

6. In a device of the class specified, the combination, with a collapsible frame, of a series of posts each composed of articulated sections pivoted to the corners of the base of said frame, the lower sections of said posts having ribs which enter corresponding grooves in the upper sections when the frame is collapsed; a top frame pivoted to the upper sections of said posts; sleeves fitting over the joints between the sections and adapted to hold the posts when extended; a series of clamping-bars adjustably secured to the top frame, two of said bars having perforated lugs; and a series of frames having shanks mounted in the perforations of said lugs and adjustably secured therein, said frames serving to hold the hood distended, substantially as and for the purpose specified.

643,828. MOTOR-ACTUATED SIGNAL MECHANISM. THADDEUS B. KEELER, Rahway, N. J., assignor to the Standard Railroad Signal Company, Arlington, N. J. Filed Mar. 10, 1899. Serial No. 708,508. (No model.)



Claim.—1. A signal-arm mounted to rock, a signal-operating rod, electrically-controlled means for connecting the signal-operating rod with the rocking arm, an electric motor for actuating the signal-operating rod, an electric circuit for operating the motor and two independent means for making and breaking the motor-circuit, one under the direct control of the rocking arm and another under the control of the circuit for connecting the signal-operating rod with the rocking arm, substantially as set forth.

2. A signal-arm mounted to rock, a signal-operating rod, electrically-controlled means for locking the operating-rod to the rocking arm, a rotary wheel eccentrically connected with the operating-rod, an electric motor having a permanent engagement with said wheel to rotate it and thereby actuate the signal-operating rod, an electric circuit for actuating the motor, a break in the motor-circuit, means connected with the rocking arm for mechanically closing and opening said break in the motor-circuit, a second break in the motor-circuit and means under the control of the circuit for connecting the signal-operating rod with its arm for closing and opening the said second break, substantially as set forth.

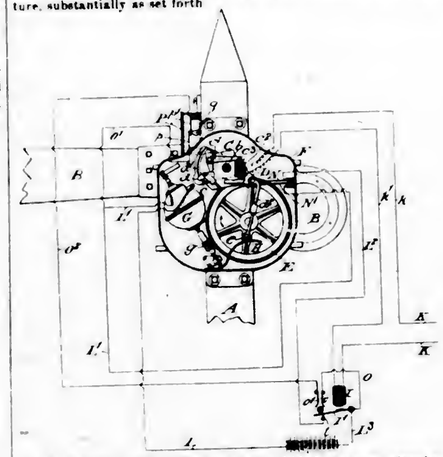
643,824. MOTOR-ACTUATED SIGNAL. THADDEUS B. KEELER, Rahway, N. J., assignor to the Standard Railroad Signal Company, Troy, N. Y. Filed May 10, 1899. Serial No. 716,314. (No model.)

Claim.—1. A motor-signal comprising a signal-blade mounted to tilt, a motor for actuating the signal, a main signal-controlling circuit, a primary circuit through the motor and a second circuit through the motor under the control of the main signal-controlling circuit for automatically operating the motor for a predetermined period after the main controlling-circuit is broken, substantially as set forth.

2. A motor-signal comprising a signal-blade mounted to tilt, a motor, a rocking segment under the control of the motor, means for locking the rocking segment to and releasing it from the signal-blade, a main signal-controlling circuit, a primary circuit through the motor and a second circuit through the motor for automatically returning the rocking segment to its normal position when the main circuit is broken, substantially as set forth.

3. A motor-signal comprising a signal-blade mounted to tilt, a motor-signal-actuating mechanism under the control of the motor, a main signal-controlling circuit, a primary circuit through the motor, a second circuit through the motor and circuit-closing mechanism under the control of the said signal-actuating mechanism to close the second circuit through the motor when the main controlling-circuit is broken, substantially as set forth.

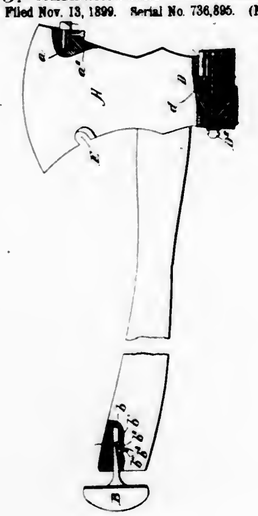
4. A motor-signal comprising a blade mounted to tilt, a motor, signal-actuating mechanism under the control of the motor to tilt the blade, a main signal-controlling circuit, an electromagnet included in said circuit, a primary circuit through the motor and a second circuit through the motor and including the armature of the said magnet as a part of the circuit, said second circuit being completed on the opening of the main circuit through a back contact of said armature, substantially as set forth



5. A motor-signal comprising a signal-blade, a motor, signal-actuating mechanism under the control of the motor, means for connecting said signal-actuated mechanism to and releasing it from the blade, a main signal-controlling circuit for locking the signal-actuating mechanism to and releasing it from the blade, an electromagnet included in said circuit, a primary circuit through the motor, a second electromagnet in the main signal-controlling circuit for completing the circuit through the motor, and a second circuit through the motor under the control of said second electromagnet to be closed when the main circuit is opened, substantially as set forth.

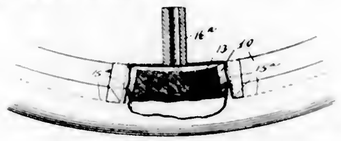
6. The combination with the signal-operating mechanism, the motor engaged therewith, the primary circuit through the motor, the main controlling-circuit for energizing the motor-circuit and an electromagnet included in said main controlling-circuit, of a second electric circuit through the motor, including the armature of said electromagnet, and contact-pieces included in said second electric circuit under the control of the signal-operating mechanism to be closed and opened, substantially as set forth.

643,825. COMBINATION-TOOL. MATHEW G. LAMBERT, Kateville, Canada. Filed Nov. 13, 1899. Serial No. 736,895. (No model.)



Claim.—A combination-tool, comprising an ax, having a bit-socket formed in the upper edge of the head, a bit removably secured therein, and a hand-grasp secured upon the extremity of the ax-handle, substantially as described.

643,826. PNEUMATIC TIRE. ARTHUR H. MARKS, Akron, Ohio, assignor to the Diamond Rubber Company, same place. Filed Apr. 15, 1899. Serial No. 713,126. (No model.)



Claim.—1. A pneumatic tire having an interior continuous tubular layer of material capable of holding air under pressure, in combination with a strip of similar material applied to the outer surface of said tubular layer and having its longitudinal edges secured thereto except at one point, a bridge piece secured at said point to the surface of the tubular layer and also to the strip, an inflation-tube communicating with the space thus provided between the bridge-piece and the tubular layer, and a second inflation-tube communicating with the interior of said tubular layer, substantially as described.

2. A pneumatic tire having an interior continuous tubular layer of material capable of holding air under pressure, in combination with a strip of similar material applied to the outer surface of said tubular layer and having its longitudinal edges secured thereto, except at one point, a bridge or saddle piece at said point having its transverse margins secured to the tubular layer, and its longitudinal margins secured to the free edges of the strip, an inflation-tube communicating with the space thus provided between the bridge-piece and the tubular layer, and a second inflation-tube communicating with the interior of said tubular layer, substantially as described.

3. The herein-described improvement in the art of making pneumatic tires and providing them with a service air-chamber and an emergency air-chamber, which consists in forming a layer of material into a continuous tube and applying thereto a strip of material by cementing or otherwise securing its longitudinal edges to said tubular member, except at one point at each margin, then securing a bridge or saddle piece at its ends to the surface of said tube and at its margins to the edges of said strip, applying suitable inflation-tubes to the saddle and to the tubular body and uniting the secured edges by vulcanization, substantially as described.

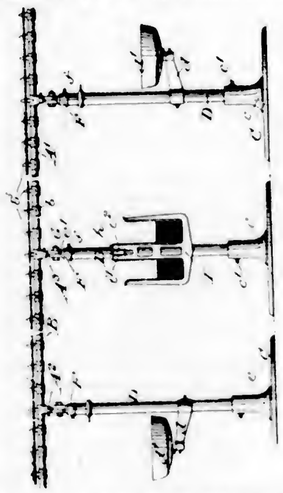
4. The hereinbefore-described improvement in the art of making pneumatic tires, which consists in forming a continuous tube of rubber, applying thereto a strip of rubber by securing the longitudinal edges of said strip to the sides of the tube, except at two opposite points, uniting the tube and strip at these points by means of a saddle-piece or bridge of vulcanizable material having its transverse margins secured to the tube and its longitudinal margins secured to the strip, connecting an inflation-tube to said saddle-piece and a second inflation-tube to the tube and subsequently uniting the several pieces by vulcanization or otherwise, substantially as described.

5. The hereinbefore-described improvement in the art of making pneumatic tires, which consists in forming a continuous tube of rubber, applying thereto a strip of rubber by securing the longitudinal edges of said strip to the sides of the tube, except at two opposite points, and uniting the tube and strip at these points by means of a saddle-piece or bridge of vulcanizable material having its transverse margins secured to the tube and its longitudinal margins secured to the strip, connecting an inflation-tube to said saddle-piece, providing an external tubular covering of fabric and rubber and an inflation-tube communicating with the first-mentioned rubber tube and uniting the several parts, except at the body of the saddle-piece, by vulcanization, substantially as described.

643,827. WORK-HOLDER FOR LACING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Filed Feb. 13, 1899. Serial No. 705,369. (No model.)

Claim.—1. In a card-lacing frame, a plurality of supporting-uprights, a card-lacing rack carried thereby comprising a pair of side bars, a plurality of cross-bars connecting the side bars and a plurality of spur-brackets mounted on the said bars in position to receive and retain the cards to be laced, substantially as set forth.

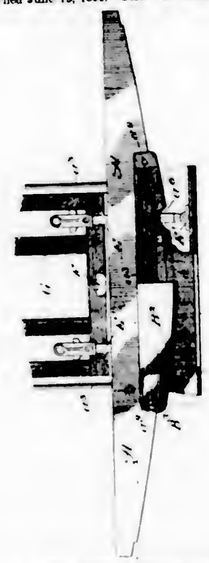
2. In a card-lacing frame, a plurality of supporting-uprights, a card-lacing rack carried thereby comprising a pair of side bars, a plurality of cross-bars connecting the side bars, a plurality of pairs of spur-brackets carried by the said side bars for receiving and retaining the cards to be laced and means for adjusting the pairs of brackets toward and away from each other, substantially as set forth.



3. In a card-lacing frame, suitable supports, a card-lacing rack carried thereby, a plurality of spur-brackets adjustably secured upon the rack, the said brackets having bearing-plates thereon provided with oppositely-extended arms, the arms upon one plate being arranged to lap past the arms upon the next adjoining plates as the brackets are moved into proximity to each other, substantially as set forth.

4. The combination with one of the supports of a card-lacing frame, of a bracket secured thereto, a pair of card-stack holders supported by the bracket and means for adjusting the holders toward and away from each other, substantially as set forth.

643,828. METALLIC BUFFER-BEAM EQUIPMENT. HENRY H. SESSIONS, Chicago, Ill., assignor to the Standard Coupler Company, New York, N. Y. Filed June 19, 1899. Serial No. 721,154. (No model.)



Claim.—1. As a new article of manufacture, a malleable cast-metal dead-block for buffer-beams having a curved face-plate and provided on its inner side with projecting buffer-stem thimbles formed integrally therewith and adapted to fit into sockets in the buffer-beam, substantially as and for the purpose set forth.

2. As a new article of manufacture, a metallic dead-block for buffer-beams provided with buffer-stem thimbles and a name and foot plate formed integrally with said block, substantially as and for the purpose set forth.

3. As a new article of manufacture, a metallic dead-block for buffer-beams provided at its upper portion with a rearward extension formed integrally therewith, and which, in turn, is provided with a forwardly-projecting foot-plate, substantially as and for the purpose set forth.

4. A metallic dead-block for buffer-beams, comprising a curved face-plate, ribs integral therewith on the inner side thereof, buffer-stem thimbles on the inner face of said plate and integral therewith, an extension at the upper part, a web carried thereby, and a foot-plate supported by and projecting forwardly from said web, substantially as and for the purpose set forth.

5. A malleable-iron dead-block provided with buffer-stem thimbles and foot-plate formed integrally therewith, said block being recessed to receive the coacting plate of the movable buffer-head, substantially as and for the purpose set forth.

643,829. DISK DRILL. CHARLES P. SEXTER, Peoria, Ill. Filed Aug. 26, 1899. Serial No. 728,641. (No model.)



Claim.—1. In a disk drill, the combination with a concave disk provided with a substantially-cone-shaped hub, of a cone-shaped spindle projecting out from and forming a part of the grain-boot, a removably-carried sleeve interposed between said spindle and the hub of the disk and forming a bearing therefor, a circumferentially-carried flange around said spindle and forming a covering for the hub of the disk, in the manner as and for the purpose described.

2. In a disk drill, the combination with the concave disk A, provided with the hub *a*, and the cone-shaped bearing *a'*, extending rearwardly through said disk, the removably-carried sleeve B, journaled on the spindle C, of the sand-box formed of the circumferential flange extension C', and the rectangular bolt *d*, and oil-cup *e*, substantially as and for the purpose set forth.

3. In a grain-drill, the combination with a support having a disk trunnion and a hub-seat provided with an annular flange of a removable sleeve having a notched flange and a disk having attached thereto a hub provided with a groove adapted to receive the flange around the seat in the frame-support, all substantially as specified.

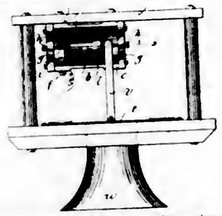
4. The combination, with a rotating disk arranged at an angle to the line of draft provided with a hub attached thereto having an annular groove in one end and an annular seat in the other end, of a support provided with a seat therein and an annular flange surrounding the seat and a trunnion extending out of said seat and a removable sleeve intervening between the trunnion and the hub, substantially as specified.

5. The combination, with a rotating disk arranged at an angle to the line of draft provided with a hub attached thereto having an annular groove in one end and an annular seat in the other end, of a support provided with a seat therein having a lug in the bottom of the seat and an annular flange surrounding the seat and a trunnion extending out of said seat and a removable sleeve provided with a notched flange intervening between the trunnion and the hub, substantially as specified.

6. The combination, with a rotating disk arranged at an angle to the line of draft provided with a hub attached thereto having an annular groove in one end and an annular seat in the other end, of a support provided with a seat therein having a lug in the bottom of the seat and an annular flange surrounding the seat and a trunnion extending out of said seat and a removable sleeve provided with a notched flange intervening between the trunnion and the hub, and a plate detachably connected with the trunnion and seated in the annular seat in the hub, substantially as specified.

643,830. TELEPHONE-TRANSMITTER. ALFRED STROMBERG, Chicago, Ill. Filed Nov. 10, 1899. Serial No. 736,475. (No model.)

Claim.—1. In a telephonic transmitter adapted for operation by sound-waves, the combination with two electrodes adapted for inclusion in a transmitter-circuit, of means for varying the contact between the electrodes without varying the pressure between the electrodes to increase the resistance of the transmitter-circuit upon an increase in force of the sound-waves, and to cause a relatively-less resistance in the transmitter-circuit upon a decrease in the force of the sound-waves, substantially as described.



2. The combination with a transmitter-circuit including a battery and engaging electrodes of a transmitter, of means for decreasing the area of contact between the electrodes of the transmitter upon an increase in the force of the sound-waves, and for effecting a relative increase of the area of contact between the electrodes upon a decrease in the force of the sound-waves without varying the pressure between the electrodes, substantially as described.

3. In a telephonic transmitter, the combination with a revoluble electrode, of a second electrode in contact therewith, and means for effecting the rotation of the revoluble electrode through the agency of sound-waves without varying the pressure between the electrodes, substantially as described.

4. In a telephonic transmitter, the combination with a revoluble electrode, of a second electrode in contact therewith, a diaphragm, and a connection between the diaphragm and the revoluble electrode to effect the rotation thereof through the action of sound-waves without varying the pressure between the electrodes, substantially as described.

5. In a telephonic transmitter, the combination with a revoluble electrode, of a second electrode in contact therewith, the said revoluble electrode being confined to a fixed axis of rotation, a diaphragm, and a connection between the diaphragm and the revoluble electrode to effect the rotation thereof through the action of sound-waves, substantially as described.

6. In a telephonic transmitter, the combination with a revoluble electrode, of a second electrode in contact therewith, a diaphragm, an arm *r* engaged between the diaphragm and the revoluble electrode serving to vary contact between said electrodes without varying the pressure between them, whereby upon an actuation of the diaphragm, the revoluble electrode is actuated to vary the resistance in the transmitter-circuit, substantially as described.

7. In a telephonic transmitter, the combination with a revoluble element formed in sections of metal and insulating material, of a second electrode adapted for engagement with the said metal and insulating material, the metal constituting an electrode of the transmitter, and means for effecting the rotation of the said element to vary the area of contact between the revoluble electrode and the electrode engaging the same, substantially as described.

8. In a telephonic transmitter the combination with a revoluble element formed in sections of metal and insulating material, of a second electrode adapted for engagement with the said metal and insulating material, the metal constituting an electrode of the transmitter, and means for rotating the element to decrease the area of contact between the revoluble electrode and the engaging electrode upon an increase in the force of the sound-waves, and to effect a relative increase of the area of contact upon a decrease in the force of the sound-waves, substantially as described.

9. In a telephonic transmitter, the combination with a revoluble element formed in sections of metal and insulating material, of a second electrode adapted for engagement with the said metal and insulating material, the metal constituting an electrode of the transmitter, a diaphragm, and a connection between the diaphragm and the said revoluble element for effecting its rotation, substantially as described.

10. In a telephonic transmitter, the combination with a revoluble element formed in sections of metal and insulating material, of a second electrode adapted for engagement with the said metal and insulating material, the metal constituting an electrode of the transmitter, a diaphragm, an arm *r* interposed between the diaphragm and the revoluble element, and a pin *w* provided upon the revoluble element and engaging the contiguous end of the arm *r*, substantially as described.

11. In a telephonic transmitter, the combination with an electrode in the form of comminuted material, of a revoluble element having uniform engagement with the said comminuted material, a packing for securing the comminuted material in place, the said revoluble element comprising a portion of insulating material and a metal portion, both adapted for engagement with the comminuted

material, the said metallic portion constituting the other electrode of the transmitter, and means for effecting a rotation of the said element to vary the area of contact between the revoluble electrode and the comminuted material, substantially as described.

12. In a telephonic transmitter, the combination with an electrode in the form of comminuted material, of a revoluble element having uniform engagement with the said comminuted material, a packing for securing the comminuted material in place, the said revoluble element comprising a portion of insulating material and a metallic portion, both adapted for engagement with the comminuted material, the said metallic portion constituting the other electrode of the transmitter, and means for decreasing the area of contact between the revoluble electrode and the comminuted material upon an increase in the force of the sound-waves and for effecting a relative increase of the area of contact between the revoluble electrode and the comminuted material upon a decrease in the force of the sound-waves, substantially as described.

13. In a telephonic transmitter the combination with an electrode in the form of comminuted material, of a revoluble element having uniform engagement with the said comminuted material, a packing for securing the comminuted material in place, the said revoluble element comprising a portion of insulating material and a metal portion, both adapted for engagement with the comminuted material, the said metallic portion constituting the other electrode of the transmitter, a diaphragm, a pin *w* extending from the shaft of the revoluble element, and an arm *v* interposed between the diaphragm and the said pin, substantially as described.

14. In a telephonic transmitter, the combination with an electrode in the form of comminuted material, of a revoluble element having uniform engagement with the said comminuted material, a packing for securing the comminuted material, in place, the said revoluble element comprising a portion of insulating material and a metallic portion, both adapted for engagement with the comminuted material, the said metallic portion constituting the other electrode of the transmitter, a diaphragm, and an arm *v* interposed between the diaphragm and the revoluble element to effect the rotation thereof, substantially as described.

15. In a telephonic transmitter, the combination with an electrode in the form of comminuted material, of a revoluble element having uniform engagement with the said comminuted material, a packing for securing the comminuted material in place, the said revoluble element comprising a portion of insulating material and a metallic portion, both adapted for engagement with the comminuted material, the said metallic portion constituting the other electrode of the transmitter, a diaphragm, and an arm *v* interposed between the diaphragm and the revoluble element to effect the rotation thereof, the arm *v* being so disposed with relation to the revoluble element as to decrease the area of contact between the revoluble electrode and the comminuted material upon an increase of force in the sound-waves, and to effect a relative increase of the area of contact between the revoluble electrode and the comminuted material upon a decrease in the force of the sound-waves, substantially as described.

16. In a telephone-transmitter, the combination with an electrode, of a second comminuted electrode and means for effecting the rotation of one of the electrodes through the agency of sound-waves, substantially as described.

17. In a telephone-transmitter, the combination with an element formed in sections of metal and insulating material, the metal constituting an electrode of the transmitter of a second comminuted electrode in engagement with the metal and insulating portions of the aforesaid element, and means for effecting the rotation of one of the electrodes through the agency of sound-waves, substantially as described.

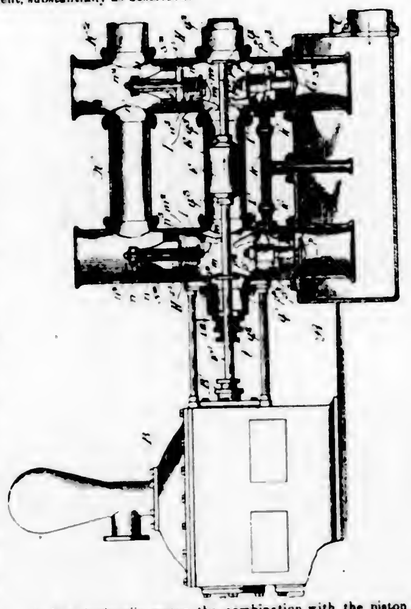
18. The combination with a transmitter-circuit including a battery and the electrodes of a transmitter which have sliding contact in the operation of the transmitter, of means for decreasing the area of contact between the electrodes of the transmitter upon an increase in the force of the sound-waves and for effecting a relative increase of the area of contact between the electrodes upon a decrease in the force of the sound-waves, substantially as described

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643,831. HYDRAULIC MOTOR. JOHN STUMPF, Chicago, Ill.
Filed Dec. 15, 1896. Serial No. 615,801. (No model.)

Claim.—1. In a hydraulic motor, the combination with the piston and piston-chamber having inlet and outlet ports, of an outwardly-opening valve at the inlet-port with means for closing it, a valve governing the outlet-port and mechanical valve-closing means therefor operating to close the outlet-valve during the movement of the piston toward the end of its discharge-stroke, whereby the inlet-valve is opened by the increase of pressure in the piston-chamber resulting from the further movement of the piston after the outlet-valve is closed, substantially as described.

2. In a hydraulic motor, the combination with the pistoo and piston-chamber having inlet and outlet ports, of an outwardly-opening valve at the inlet-port with means for closing it, a valve governing the outlet-port with mechanical valve-closing means therefor operating to close the outlet-valve during the movement of the piston toward the end of its discharge-stroke, whereby the inlet-valve is opened by the increase of pressure in the piston-chamber resulting from the further movement of the piston after the outlet valve is closed, and means for cushioning the inlet-valve in its opening movement, substantially as described.



3 In a hydraulic motor, the combination with the piston and piston-chamber having inlet and outlet ports, of an inwardly-opening valve at the outlet-port with means for closing it, a valve governing the inlet-port and mechanical valve-closing means therefor operating to close the inlet-valve during the movement of the piston, whereby the outlet-valve is opened by the suction in the piston-chamber resulting from the further movement of the piston after the inlet-valve is closed, substantially as described.

4. In a hydraulic motor, the combination with the piston and piston-chamber having inlet and outlet ports, of an inwardly-opening valve at the outlet-port with means for closing it, a valve governing the inlet-port with mechanical valve-closing means therefor operating to close the inlet-valve during the movement of the piston, whereby the outlet-valve is opened by the suction in the piston-chamber resulting from the further movement of the piston after the inlet-valve is closed, and means for cushioning the outlet-valve in its opening movement, substantially as described.

5 In a hydraulic motor, the combination with the piston and piston-chamber having inlet and outlet ports, of lift-valves governing said ports, opening in the direction opposite to the flow of the liquid, and mechanical valve-closing devices for the said valves operating to close them alternately in the opposite movements of the piston toward the ends of its strokes, whereby each valve is opened by the change of pressure in the chamber resulting from the further travel of the piston after the other valve is closed, substantially as described.

6. In a hydraulic motor, the combination with the piston and piston-chamber having inlet and outlet ports, of lift-valves governing said ports, opening in the direction opposite to the flow of the liquid, mechanical valve-closing devices for the said valves operating to close them alternately in the opposite movements of the piston toward the ends of its strokes, whereby each valve is opened by the change of pressure in the chamber resulting from the further travel of the piston after the other valve is closed, and means for cushioning the valves in their opening movements, substantially as described.

7. A double hydraulic motor having, in combination, two piston-chambers each provided with an inlet-port at its lower side and an outlet-port at its upper side, and an outwardly-opening valve at the inlet-port, a piston in each chamber, and mechanical valve-closing means at each said valve for closing the same, operatively connected with the piston in the other chamber to be actuated thereby, substantially as and for the purpose set forth.

8. A double hydraulic motor having, in combination, two piston-chambers each provided with an inlet-port at its lower side and an outlet port at its upper side, and an inwardly-opening valve at the outlet-port, a piston in each chamber, and mechanical valve-closing means at each said valve for closing the same, operatively connected with the piston in the other chamber to be actuated thereby, substantially as and for the purpose set forth.

9. A double hydraulic motor having, in combination, two piston-chambers each provided with an inlet-port at its lower side and an outlet-port at its upper side, an outwardly-opening valve at the inlet-port, and an inwardly-opening valve at the outlet-port, a piston in each said chamber, and mechanical closing means for each said valve operatively connected with the piston in the other chamber and actuated thereby to close the inlet and outlet valves in each said chamber alternately, substantially as and for the purpose set forth.

10. In combination, a water-pressure supplier, and a double hydraulic motor having two piston-chambers each provided toward one end with an inlet-port, at the lower side, and an outlet-port, at the upper side, each said inlet-port and each chamber, toward its opposite end, communicating with said supplier, a differential piston in each chamber, valves at said ports, and mechanical valve-closers, at each said valve, operatively connected with the piston in the other chamber to be actuated thereby to close the valves in each chamber alternately, substantially as and for the purpose set forth.

11. In a hydraulic motor, the combination, with the piston and the piston-chamber having an inlet-port at its lower side and an outlet-port at its upper side, of an outwardly-opening valve at the inlet-port having a stem, a bearing-piece on the stem and a spring confined between the said piece and a stop on the stem, and a piston-actuated valve-closer having a finger engaging the said piece, whereby in the movement of the piston toward the limit of its traverse in one direction, the said valve-closer, through the medium of the said piece and spring presses the valve yieldingly to its seat, substantially as and for the purpose set forth.

12. In a hydraulic motor, the combination, with the piston and the piston-chamber having an inlet-port at its lower side and an outlet-port at its upper side, of an inwardly-opening valve at the outlet-port having a stem, a bearing-piece on the stem and a spring confined between the said piece and a stop on the stem, and a piston-actuated valve-closer having a finger engaging the said piece, whereby in the movement of the piston toward the limit of its traverse in one direction, the said valve closer, through the medium of the said piece and spring, presses the valve yieldingly to its seat, substantially as and for the purpose set forth.

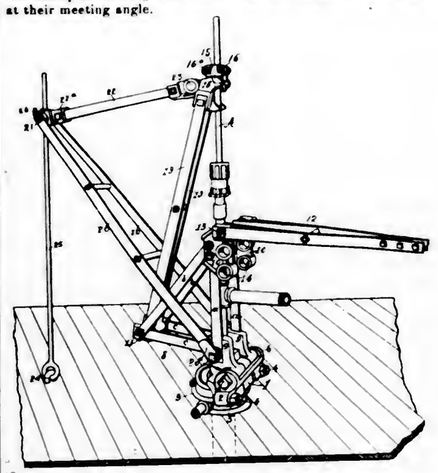
13. In a hydraulic motor, the combination, with the piston, and piston-stem, and the piston-chamber having an inlet-port at its lower side and an outlet-port at its upper side, of an outwardly-opening valve at the inlet-port, an inwardly-opening valve at the outlet-port, each valve being provided with a yielding bearing-piece, a stop movable with the piston, a head on the piston-stem, a dash-pot in the pistoo-chamber, into which the said head moves, and a valve-closer at each valve having a finger engaging the yielding bearing-piece on the valve, and a finger projecting toward the piston-stem, one into the path of the said moving stop, and the other into the path of the head, all constructed and arranged to operate substantially as and for the purpose described.

643,832. PUMPING-JACK. JOHN W. SWAN, Lima, Ohio. Filed July 25, 1898. Serial No. 686,761. (No model.)

Claim.—1. In a pumping-jack, a casing-head clamp, a bell-crank lever fulcrumed thereon, means for securing a surface-rod thereto, a polish-rod clamp, a lift-bar pivoted at its lower end upon the bell-crank lever and at its upper end operatively connected with the polish-rod clamp, a brace pivoted at its lower end upon the bell-crank lever and extending upwardly at an angle to said lift-bar, a tie rod or reach pivotally connected at one end to the upper end of the lift-bar and pivotally connected at its opposite end with said brace, and means for pivotally connecting said brace and tie with the floor or ground.

2. In a pumping-jack a polish-rod clamp, a latch or hook pivoted upon said clamp, a jaw-piece vertically bifurcated or recessed at one side to receive a polish-rod, means within said recess or bifurcation for engaging said latch or hook, and means for imparting to said jaw-piece a vertical movement.

3. A pumping-jack comprising a casing-head clamp, a bell-crank lever fulcrumed thereon, means for connecting a surface-rod to the bell-crank lever, a polish-rod clamp, a jaw-piece vertically bifurcated or recessed at one side to receive the polish-rod, means for detachably engaging the polish-rod clamp with the jaw-piece, a lift-bar connecting the bell-crank lever with the jaw-piece, a brace pivoted at its lower end upon the bell-crank lever and extending upwardly at an angle to the lift-bar, a tie rod or reach pivoted at one end to the jaw-piece and at its other end pivoted to the upper end of the brace, a floor-rod adapted to be pivotally secured at bottom, and means for detachably connecting said floor-rod at top with the brace and tie at their meeting angle.



643,833. IRON BEDSTEAD. RADU TATTU, Philadelphia, Pa.
Filed July 11, 1899. Serial No. 723,521. (No model.)



Claim.—1. In a bed, the posts having conical enlargements with integral extensions, members on the ends of the extensions interlocking with the ends of the side rails, and end rails having sockets fitting on the enlargements of the posts and having cut-away portions to receive the extensions of the enlargements, substantially as described.

2. In a bed, posts having conical enlargements, projections formed with the enlargements, side rails having sockets interlocking with the ends of the projections, and end rails with sockets fitting on the enlargements and cut away to receive the projections of the enlargements which act as keys, substantially as described.

643,834. ELECTRIC-ARC LAMP. CHRISTIAN J. TOERRING, Philadelphia, Pa. Filed July 18, 1899. Serial No. 724,260. (No model.)

Claim.—1. An arc-lamp comprising the combination of a cap-plate, an arc-inclosing globe supported by and secured substantially air-tight thereto, an outer tube secured thereto, a carbon inclosing and holding tube sliding at its lower end substantially air-tight within, and guided by, an aperture in the cap-plate, a flange for guiding the upper end of the carbon-holding tube within the outer tube, a pulley, a chain and an electromagnet for operating the carbon-holding tube, substantially as described.

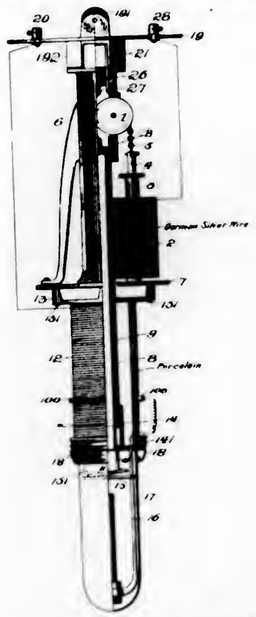
2. The combination of a cap-plate having a screw-thread on its outer surface, a globe pressed substantially air-tight against the under surface, and having a bead removed from the edge of the globe, and a screw-cap for connecting the parts and effecting a double seal, substantially as described.

3 The combination of a top plate, a casting secured thereto at its top but insulated therefrom, a solenoid-supporting plate secured to but insulated from the bottom of the casting and a globe-casing secured to the respective plates, substantially as described.

4. The combination of a top plate, a tube suspended therefrom, a cap-plate secured to the tube and a solenoid-supporting plate secured to and insulated from the top plate and tube, substantially as described.

5. A top plate, a legged casting and a magnet-supporting plate secured to but insulated from each other, a supporting-tube secured,

at its top, to the casting and supporting, at its bottom, the cap-plate for the globe, a carbon-carrying tube sliding within the supporting-tube and an electromagnet mounted on the supporting-plate for actuating the carbon-carrying tube, substantially as described.



6. A top plate, a legged casting and an electromagnet-supporting plate secured to but insulated from each other, a supporting-tube connected at its top with the casting and supporting the cap-plate for the globe, and a rheostat surrounding the supporting-tube between the cap-plate and the electromagnet-supporting plate, substantially as described.

7. The combination with the top plate, the electromagnet-supporting plate and an intervening casting connected thereto but insulated therefrom, a supporting-tube connected at the top to the casting and suporting at the bottom a cap-plate for the globe, a rheostat between the cap-plate and the solenoid-supporting plate and a heat-shield above the rheostat, substantially as described.

8. The combination of the top plate, a solenoid-supporting plate and an intervening casting connected to but insulated from the plates, the solenoid-supporting plate carrying a heat-shield and an outer globe-casing having its sections secured to the top plate, the solenoid-supporting plate and the heat-shield respectively, substantially as described.

9. The combination of a top plate, a solenoid-supporting plate and an intervening casting connected thereto but insulated therefrom, the solenoid-supporting plate carrying a heat-shield, a lamp-casing secured to the plates and to the heat-shield respectively and a globe-holder secured to the lamp-casing, substantially as described.

10. The combination of the cap plate having a globe secured directly to its under surface and a hollow rheostat supported on its upper surface, a carbon holding and containing tube holder moving within the rheostat and an aperture in the cap-plate and an electromagnet, pulley and chain supported above the rheostat for actuating the carbon-holder, substantially as described.

11. The combination of the top plate, an electromagnet-supporting plate and a casting connected to but insulated from these plates, a tube suspended from the casting but passing freely through an aperture in the solenoid-supporting plate and carrying a cap-plate at its lower end, a carbon-carrying tube moving within the first-mentioned tube and electromagnetic means for operating the carbon-carrying tube, substantially as described.

12. A constant-potential arc-lamp having its regulating-coil in series and wound with resistance-wire constituting a portion of the resistance of the lamp and a supplementary resistance to adjust for the voltage of the circuit substantially as described.

13. The combination of a cap-plate carrying a guiding-tube, a carbon-carrying tube, suspended from its top and carrying a clutch at its lower end, moving substantially air-tight in the guiding-tube, substantially as described.

14. The combination of a cap-plate carrying a guiding-tube, a carbon-carrying tube, suspended from its top and carrying a clutch at its lower end, moving substantially air-tight through a bushing near its lower end and having a flange at its top fitting the guiding-tube in a substantially air-tight manner, substantially as described.

15. The combination of a cap-plate, a carbon-carrying tube moving therewithin and having a locking-aperture in its side, substantially as described.

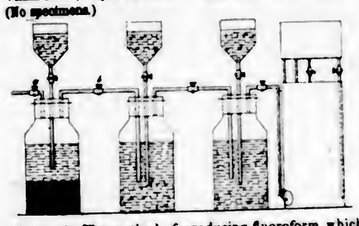
16. An arc-lamp comprising a top plate, a supporting-tube secured thereto, a cap-plate secured to the lower end of the supporting-tube, a small globe supported by and secured to the cap-plate in an air-tight fashion a carbon inclosing and carrying tube passing substantially air-tight through an aperture in the cap-plate and a clutch carried thereby, substantially as described.

17. An arc-lamp comprising a top plate, a supporting-tube, a cap-plate secured to the tube, a small globe supported by and secured to the cap-plate in an air-tight fashion and a carbon holding and inclosing tube passing substantially air-tight through an aperture in the cap-plate, having a guiding-flange within the supporting-tube at the upper end and carrying a clutch at its lower end.

18. An arc-lamp comprising a top plate, a supporting-tube, a cap-plate secured to its lower end, a hollow rheostat supported on its upper surface and surrounding the tube and a small globe secured air-tight to its lower surface, substantially as described.

19. An arc-lamp comprising a top plate, a supporting-tube, a cap-plate secured to its lower end, a globe secured air-tight to the under face of the cap-plate, a hollow rheostat surrounding the tube and supported on the upper face of the cap-plate, and electromagnetic operating devices for the carbon within the tube supported above the rheostat, substantially as described.

648,885. PROCESS OF MAKING FLUOROFORM. FRIEDRICH VALENTINER, Leipsic, Germany. Filed May 4, 1899. Serial No. 715,570. (No specimens.)

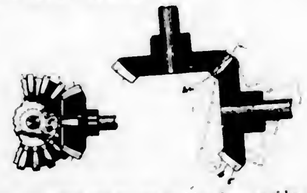


Claim.—1. The method of producing fluoroform which consists in causing fluorid of silver to react with iodoform in the presence of inert material having no part in the reaction, whereby the temperature is regulated and a slow and regular current of fluoroform gas is liberated at a suitably low temperature, substantially as described.

2. The method of producing fluoroform which consists in warming an intimate admixture of indoform, fluorid of silver and inert granular material, substantially as described.

3. The method of producing fluoroform, which method consists in submitting fluorid of silver and iodoform together with an inert medium, to the action of water, whereby the water dissolves the fluorid of silver and facilitates the action thereof upon the iodoform, and at the same time serves as a sealing liquid and cooling medium for the reaction mixture, a regular current of chemically-pure fluoroform free from air being obtained, substantially as described.

648,886. GEARING. HERBERT C. WARREN, Hartford, Conn., assignor of one-half to Moses C. Johnson, same place. Filed Dec. 28, 1897. Serial No. 663,849. (No model.)



Claim.—1. A gear having the working faces or sides of its teeth convex longitudinally thereof, and having the bottoms of the spaces between each two teeth convex longitudinally thereof.

2. A gear having the working faces or sides of its teeth convex longitudinally thereof, the crowns of said teeth being also convex, and having the bottoms of the spaces between each two teeth convex longitudinally, substantially as and for the purpose specified.

3. A bevel-gear each tooth of which has a convex crown or top portion and convex side faces or flanks, the bottoms of the interdental spaces between the teeth being so formed that when two gears are in mesh the teeth of one gear may rock longitudinally each at a point upon the complemental gear.

4. A bevel-gear having teeth of convex contour longitudinally both on the crown and on the flanks and provided with interdental spaces having convex bottoms, substantially as and for the purpose specified.

648,837. CREMATORY-CARRIAGE. PETER BRANSTON, San Francisco, Cal., assignor to George R. Fletcher, same place. Filed June 5, 1899. Serial No. 719,399. (No model.)



Claim.—1. A device for depositing bodies in a crematory-furnace consisting of a carriage, a track in line with the furnace-door, upon which the wheels of said carriage travel, a brake mechanism including brake-shoes carried by the cars and fixed brake-surfaces in the path of the shoes by which the carriage is checked when it reaches the end of its forward movement, a second carriage traveling upon the top of the first one and having a support for the body upon its front end whereby the body may be projected into the furnace by the advance of the uppermost car upon the lower one, and brakes including movable shoes and fixed brake-surfaces by which the uppermost car is checked when it reaches the end of its forward movement.

2. A device for depositing bodies in a crematory-furnace consisting of a carriage mounted upon wheels and movable in line with the mouth of the furnace, a second carriage traveling upon the top of the first carriage and having a support for the body projecting from its front, a brake mechanism by which the lower carriage is arrested at the end of its forward movement, and a second brake mechanism by which the upper carriage is arrested at the end of its independent forward movement upon the lower carriage, a support for the body mounted upon one of the carriages and mechanism for depressing the support so as to deposit the body upon the cradle within the furnace.

3. A device for depositing bodies in a crematory-furnace consisting of two carriages, one mounted to travel upon the top of the other, and both movable in line with the furnace-door, a brake mechanism by which the lower carriage is checked when it has reached the end of its forward movement, a second brake mechanism by which the upper carriage is checked when it has moved the length of its travel upon the lower carriage, a support for the body mounted upon the upper carriage and projecting from its front so that the final forward movement of the upper carriage projects said support and its burden into the furnace, and mechanism by which the support may be depressed so as to deposit a body upon the cradle within the furnace and allow the support to be withdrawn below the level of the cradle.

4. A device for depositing bodies in a crematory-furnace consisting of two cars, one traveling upon the other and both movable in line with the door of the furnace so that the first car may be advanced to a point near the furnace-door and the second advanced upon the first to project a body-support into the furnace, brakes consisting of hinged wings upon the sides of the two cars, and means for diverging said brake-shoes to stand at an angle with the car, and correspondingly-beveled lugs fixed in the path of the brake-shoes and between which the brake-shoes are compressed when each car successively arrives at the end of its movement, and means whereby the brake-shoes are retracted and disengaged from the lugs when the cars are to be withdrawn.

5. In a device for depositing bodies in a crematory-furnace, a car movable in line with the mouth of the furnace, a second car movable upon the top of the first car having a forwardly-projecting support for the body whereby the two cars are advanced together to a point near the mouth of the furnace, movable brake-shoes connecting with the lower car and fixed lugs with which said brake-shoes engage to stop the lower car at the end of its forward movement and allow the upper car to be projected so as to deposit its burden upon the cradle within the crematory, and movable brake-shoes upon the upper car, and fixed lugs or stops with which said shoes engage at the end of the forward movement of said upper car.

6. In a device for depositing bodies in a crematory, superposed carriages, a track upon which the lower carriage moves in line with the furnace, a track upon said car upon which the upper car is advanced with relation thereto to deposit the body within the furnace, brake-shoes hinged to the side of the lower car so as to be spread out or drawn in against the sides of the car, a mechanism by which said brake-shoes are actuated, consisting of a rocker-shaft, a depression-lever and connections by which said shaft is turned, levers actuated by the turning of said shaft and engaging the brake-shoes so as to separate them into divergent positions with relation to the car, and fixed lugs upon each side of the line of travel of the car between which said shoes are compressed when the car reaches the end of its forward movement.

7. A car having brake-shoes hinged to the sides, with mechanism for expanding said shoes into divergent positions so as to engage with fixed lugs upon each side of the line of travel of the car, a depression-lever hinged to the car, a wheel carried by the upper car traveling upon the top of said lever when the upper car is advanced whereby said lever is retained in its depressed condition, mechanism between the lever and the brake-shoes by which the shoes are maintained in their divergent position to engage the fixed lugs when the car has reached the end of its forward movement, and inclines carried by the lever by which the pressure-wheel is raised and the mechanism actuated to retract the brakes against the sides of the car and release them from the stops so that the car may be returned to its first position.

8. In a device for depositing bodies in a crematory-furnace, a car adapted to move in line with the furnace-opening, and means for checking said car at the end of its forward movement, a second car traveling upon the top of the first car so as to advance thereon after the first car has been checked and means for checking the second car at the end of its advance, a support for the body projecting in front of the second car, hinged parallel links connecting the support and the upper car whereby the support may be raised to receive the body when the links are in a vertical position and depressed to deposit the body on a cradle within the furnace when the links are turned about their pivot-points, a lever and a connected mechanism at the rear of the carriage whereby the movement of the support to raise or depress it is effected.

9. In a device of the character described, a carriage including upper and lower members with hinged parallel links by which the upper member may be raised or lowered with relation to the lower member, levers fulcrumed to the lower member and links connecting them with the upper member, levers pivoted to the lower member of the carriage with stops upon the movable ends, and arms fulcrumed to the main levers with the free ends adapted to engage the said stops to retain the upper portion of the carriage in its elevated position.

10. The two-part carriage with the upper portion movable about parallel pivoted links, and a fulcrumed lever by which it is raised or lowered, in combination with a stop fulcrumed to the main portion of the carriage, an arm fulcrumed to the main lever and engaging the stops, and a tilting arm and latch by which the stop is held in engagement with the arms or released therefrom.

11. The two-part carriage superposed and movable upon a lower carriage, parallel pivoted links connecting the two parts of the upper carriage, levers and connecting-links by which the upper portion is raised or depressed, a stop mechanism by which it is retained in its raised position, fulcrumed arms and latches by the movement of which the stop mechanism is engaged or disengaged, and wheels journaled to the arm, adapted to support the arm when traveling upon the lower car and to be depressed and disengage the stop mechanism when the upper carriage reaches the end of its forward travel.

648,888. PLOW. ALEXANDER G. CARTER, Fresno, Cal. Filed Aug. 4, 1899. Serial No. 726,070. (No model.)

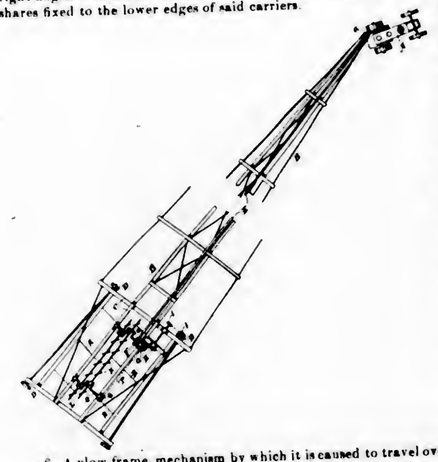
Claim.—1. A plow and frame, a boom connecting it with a distant center and a power mechanism by which the frame is caused to traverse an arc about its center of motion.

2. A plow-frame mounted upon wheels and plows carried thereon, a boom connecting the plow-frame with a distant center about which it is movable, mechanism carried by the plow-frame to which power is transmitted whereby the plow-frame is caused to move in the arc of a circle about its center of motion.

3. Plows carried upon a frame mounted upon wheels, a motor situated at a distance from the plow-frame, a boom having one end connected with the plow-frame and the other pivoted to the motor, connections between said motor and the plow-frame through which power is transmitted, driving mechanism connecting with the wheels of the plow-frame whereby it is caused to travel in an arc about the center of motion to which the boom is connected.

4. A plow-frame mounted upon wheels, plows carried thereon, a boom having one end fixed to the plow-frame and the other pivoted to a motor, a belt by which power is transmitted from the motor to the plow-frame and direction-pulleys upon the motor in line with the center of motion of the boom whereby the belt is maintained in line with its pulleys and allowed to follow the movements of the plow-frame.

5. A plow-frame mounted upon wheels, a boom having one end connected with the plow-frame, the other end pivoted to a motor, means for transmitting power from the motor along the boom of the plow-frame, carrier-plates mounted upon cranks movable in arcs at right angles with the direction of travel of the plow-frame, and plow-shares fixed to the lower edges of said carriers.

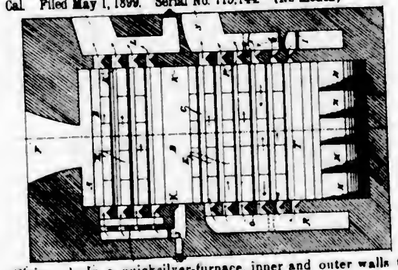


6. A plow-frame, mechanism by which it is caused to travel over the ground, crank-shafts journaled upon the frame with mechanism by which they are rotated, carrier-plates having the upper edges suspended from the crank-shafts and movable in planes transverse to the line of travel of the plow, said carriers having plows fixed to their lower edges.

7. A plow-frame, mechanism by which it is advanced over the surface of the ground, carrier-plates having their upper edges suspended from crank-shafts, plows carried upon the lower edges of said plates, mechanism by which the plates are movable in circular arcs to carry the plows through the ground, and bracing-rods having one end connecting with the plow-frame and the other with the movable carrier-plates.

8. The combination with a motor of a boom having one end pivoted to the motor, plows to the frame of which the opposite end of the boom is connected, and mechanism by which power is transmitted from the motor to drive the plows in arcs about the pivot-point.

643,839. QUICKSILVER-FURNACE. HUGH C. DAVEY, Calistoga, Cal. Filed May 1, 1899. Serial No. 715,144. (No model.)



Claim.—1. In a quicksilver-furnace, inner and outer walls the former having passages or openings through them, roasting and drying chambers formed between said inner walls and disposed one over the other so that the material will flow by gravitation from one chamber to the other, and a separate and independent fireplace and discharge-flue for each chamber and located between the inner and outer walls of the furnace.

2. In a quicksilver-furnace, inner and outer walls the former having passages or openings through them, superposed roasting and drying chambers between said inner walls and connecting so that the material will flow from one chamber to the other by gravitation, a fireplace and a discharge-flue for each chamber and located between the inner and outer walls, with the fireplace and discharge-flue of one chamber separate and independent of the fireplace and flue of the other chamber, and means for supplying ore at the top of one chamber and discharging it at the bottom of the other chamber.

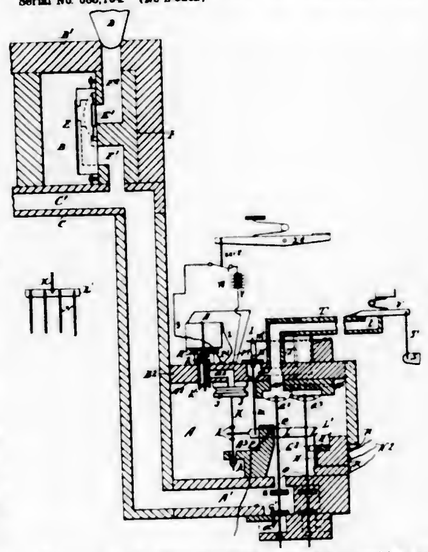
3. In a quicksilver-furnace, the outer walls thereof and superposed roasting and drying chambers having reversed inclined shelves over which the ore passes by gravitation, intermediate passages through which the ore is delivered from the drying-chamber into the roasting-chamber, independent escape-flues through which the moisture is discharged from the drying-chamber and the vapors from the roasting-chamber, a fireplace built at one end of the drying chamber, passages through the opposite walls of the chamber and a wall intermediate between the fireplace and the adjacent wall of the drying-chamber, said intermediate wall having passages therefrom corresponding with those in the walls of the drying-chamber.

4. In a quicksilver-furnace, the outer walls thereof and superposed roasting and drying chambers having oppositely-inclined shelves over which the ore passes by gravitation and forming channels from end to end beneath the shelves and openings made in the endwise walls of the chamber, said openings being made of a gradually-increasing diameter from the furnace upward to the discharge.

5. In a quicksilver-furnace, the outer walls thereof and superposed roasting and drying chambers with intermediate connecting-passages, oppositely-inclined alternating shelves over which the ore passes by gravitation, a fireplace and passages connecting it with the drying-chamber, an escape-flue through which products from the drying-chamber escape, a second fireplace communicating with the roasting-chamber, passages through the walls thereof and means whereby the heat products are caused to pass backward and forwardly through the roasting-chamber and escape-flue, into which said products are delivered, said flue being separate and independent from the escape-flue of the drying-chamber.

6. In a quicksilver-furnace, the outer walls thereof and superposed roasting and drying chambers with intermediate connecting-passages, separate fireplaces one communicating with the roasting-chamber and the other communicating with the drying-chamber, discharge-flues independent of each other and one in communication with each chamber through which the products of combustion may pass, enlarged cooling-chambers below the furnace-level of the roasting-chamber and inclined discharge-passages through which the ore may flow by gravitation, and controlling-gates by which the discharge from said passage is regulated.

648,840. COMBINED ELECTRICAL AND TUBULAR ORGAN-ACTION. WILLIAM B. FLEMING, Detroit, Mich. Filed June 11, 1898. Serial No. 683,164. (No model.)



Claim.—1. In an organ, the combination with a wind-box provided with a wind-channel communicable therewith, of a pneumatic, valves actuated by said pneumatic to control the communication of the wind-box with said channel, and the exhaust from said channel, an electromagnet to control the operation of said pneumatic, and a key-controlled wind-pipe also to control said pneumatic, whereby said valves may be controlled by the electromagnet, or by the wind-pipe, at the will of the operator, substantially as set forth.

2. In an organ, the combination with a wind-box provided with a series of wind-channels communicable therewith, of valves to govern the communication of the wind-box with each of said channels and the exhaust from said channels, electropneumato-electric mechanism consisting of a series of pneumatics, and electromagnets connected therewith to control said pneumatics, a series of additional pneumatics controlled by the first-named pneumatics to actuate said valves, key-controlled wind-pipes to control said additional pneumatics, and electrical circuits governed by the first-named pneumatics to control other parts of the organ, substantially as set forth.

3. In an organ, the combination with a wind-box provided with a series of channels communicable therewith, of pneumatics communicating with corresponding channels, an additional series of wind-channels communicable with the wind-box, valves to govern the communication of the corresponding last-named channels with the wind-box and the exhaust therefrom, additional pneumatics to actuate said valves, electromagnets to control each of the first-named channels and thereby to control the corresponding pneumatics, means whereby the additional pneumatics are governed by the first-named pneumatics, electrical circuits to control other parts of the organ, electrical contacts within said wind-box, and means within said wind-box actuated by the first-named pneumatics to open and close the corresponding electrical circuit through said contacts, substantially as set forth.

4. In an organ, the combination with a wind-box provided with a series of wind-channels communicable therewith, of valves to control the communication of said wind-box with each of said channels and the exhaust from said channels, a series of pneumatics, electromagnets to control the operation of said pneumatics, electrical circuits governing other parts of the organ mechanism, electrical contacts, means actuated by said pneumatics to open and close the corresponding electrical circuits through said contacts, an additional series of pneumatics to actuate said valves, and governable by the first-named pneumatics, and key-controlled wind-pipes to control the additional series of pneumatics, substantially as set forth.

5. In an organ, the combination with a wind-box provided with a series of channels communicable therewith, of a series of pneumatics, valves governed by said pneumatics to control the communication of said wind-box with said channels and the exhaust from said channels, an additional series of pneumatics to actuate said valves, means whereby the additional pneumatics are governed by the first-named pneumatics, electromagnets to control the operation of the first-named pneumatics, electrical circuits governing other parts of the organ mechanism, contacts within said wind-box to govern each of said electrical circuits, and devices actuated by the first-named pneumatics to open and close said contacts, said devices actuating said contacts in the operation of the organ whether the organ-couplers are closed or open and whereby said contacts are kept clean, substantially as set forth.

6. In a combined electrical and tubular action for pipe-organs, the combination with a wind-box provided with a series of channels communicable therewith, of valves governing the communication of the wind-box with each of said channels, an electrical circuit, electrical contacts within said box, electromagnets to control said contacts, pneumatics controlled by said magnets governing the operation of said contacts and thereby controlling said circuit, and additional pneumatics controlled by the first-named pneumatics to actuate said valves, and tubular mechanism to control said additional pneumatics, whereby said valves may be controlled electrically or pneumatically at the will of the operator, substantially as set forth.

7. In an organ, the combination with a wind-box provided with a wind-channel communicating therewith, of a key-controlled pneumatic, valves governed by said pneumatic to control the communication of said channel with the wind-box and the exhaust from said channel, an electrical circuit, electrical contacts within said box to govern said circuit, and a movable device controlled by said pneumatics to simultaneously govern said contacts and to actuate said valves, substantially as set forth.

8. In an organ, the combination with a wind-box provided with a series of wind-channels communicating therewith, a series of pneumatics, coupler-controlled electrical circuits governed by said pneumatics, electrical mechanism arranged to control said pneumatics, an additional series of pneumatics governed by the first-named pneumatics, tubular mechanism to govern said additional series of pneumatics, valves actuated by said additional series of pneumatics to control the communication of each of said channels with the wind-box and the exhaust from said channels whereby said valves may be controlled either electrically or by the tubular mechanism at the will of the operator, substantially as set forth.

9. In an organ, the combination with a wind-box provided with a series of wind-channels communicating therewith, of valves governing said communication and the exhaust from said channels, coupler-controlled electrical circuits, pneumatics governing said circuits, key-controlled electromagnets to govern said pneumatics, an additional series of pneumatics governed by said first-named pneumatics to actuate said valves, and key-controlled wind-pipes to govern the last-named pneumatics, whereby said valves may be controlled by the magnets or by the wind pipes at the will of the operator, substantially as set forth.

10. In an organ, the combination with a wind-box provided with a wind-channel communicating therewith, of valves governing the communication and the exhaust from said channel, a coupler-controlled electrical circuit, electrical contacts in said circuit, a pneumatic governing said circuit, an electromagnet governing said pneumatic, an additional pneumatic governed by the first-named pneumatic, and a key-controlled wind-pipe also controlling said additional pneumatic, whereby said valves may be controlled either by the magnet or by the wind-pipe at the will of the operator, substantially as set forth.

11. In an organ, the combination of a wind-box provided with a wind-channel communicating therewith, of valves to control said communication and the exhaust from said channel, a coupler-controlled electrical circuit, key-controlled electrical mechanism to control said valves and said circuit, and a key-controlled wind-pipe to also govern said valves, whereby the valves may be controlled either by the electrical mechanism or by the wind-pipe, at the will of the operator, substantially as set forth.

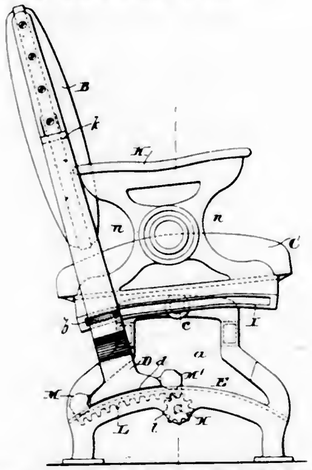
12. In an organ, the combination of a wind-chest, an additional wind-chest, a key controlled electrical circuit connecting said chests, coupler mechanism to control said circuit, and a stop-controlled means to govern the coupler mechanism, whereby both said chests may be played in unison or separately at the will of the player, substantially as set forth.

13. In an organ, the combination of a great chest, a swell-chest, a key-controlled electrical circuit connecting said chests, coupler mechanism to control said circuit, and a stop-controlled pneumatic to govern said coupler mechanism, whereby both said chests may be played in unison, substantially as set forth.

14. In an organ, the combination of a wind-chest, an additional wind-chest, a key-controlled electrical circuit connecting said chests, coupler mechanism governing said circuit, and means to govern the coupler mechanism, substantially as set forth.

15. In an organ, the combination of a wind-chest, additional swell-chests, electrical circuits connecting said chests, coupler mechanism governing said circuits, and means to govern the coupler mechanism, substantially as set forth.

643,841. CAR-SEAT. HENRY S. HALE, Philadelphia, Pa. Filed June 23, 1899. Serial No. 721,559. (No model.)



Claim.—1. In a car-seat, the combination of the seat-cushion frame, the stationary side frames located below the seat-cushion and inset at either end to a substantial extent beyond the end of the seat-cushion frame, an arm-rest carried by the seat-cushion frame, a shifting seat-back, and shifting side arms carrying said seat-back, and having their lower ends extended close to the side frames and movable bodily with reference thereto, the shifting side arm adjacent to the arm-rest and inset side frame extending downwardly outside of the arm-rest and inwardly at its lower end to the inset side frame, and the upper portion of said side arm extending inwardly over the arm-rest to the seat-back.

2. In a car-seat the combination of stationary side frames, a seat-cushion frame carried thereby, an arm-rest carried by said seat-cushion frame at either end, a shifting seat-back, and shifting side arms carrying said seat-back and extending on the outside of said arm-rest, the side arm adjacent to the arm-rest being bent or extended inwardly over the arm-rest to the seat-back.

3. In a car-seat the combination of stationary side frames, a seat-cushion frame carried thereby, an arm-rest carried by said seat-cushion frame at either end, a shifting seat-back, and shifting side arms carrying said seat-back and extending on the outside of said arm-rest and downward to the side frames below the seat-cushion frame and movable bodily thereon from one side to the other in shifting the seat-back, the side arm adjacent to the arm-rest being bent or extended inwardly over the arm-rest to the seat-back.

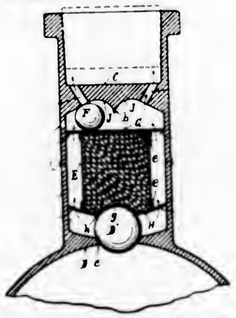
4. In a car-seat, the combination of stationary side arms, a tilting seat-cushion frame carried thereby, an arm-rest carried by said tilting seat-cushion frame, a shifting seat-back, and shifting side arms carrying the seat-back and arranged outside of the arm-rest.

5. In a car-seat the combination of side frames, a seat-cushion frame carried thereby, shifting side arms extending below the seat-cushion frame and movable bodily from one side to the other with reference to the side frames, and a foot-rest carried directly by the lower movable ends of the shifting side arms and moving therewith, whereby said foot-rest is caused to assume a position at the rear of the seat leaving the front portion unobstructed.

6. In a car-seat the combination of side frames, a seat-cushion frame carried thereby, shifting side arms extending below the seat-cushion frame and movable bodily from one side to the other with reference to the side frames, and a foot-rest consisting of two longitudinal bars M, M', carried directly by the lower movable ends of the shifting side arms and moving therewith, whereby said foot-rest is caused to assume a position at the rear of the seat leaving the front portion unobstructed.

7. In a car-seat the combination of side frames, a seat-cushion frame carried thereby, shifting side arms extending below the seat-cushion frame and projecting through the side frames upon the inner side thereof, and movable bodily from one side to the other with reference to said side frames, and a foot-rest carried by the lower ends of said shifting side arms inside of the side frames.

643,842. **NON-REFILLABLE BOTTLE.** JOHN V. D. HAVER, Chicago, Ill., assignor of two-thirds to Roderick R. Andrus, Cincinnati, Ohio, and James M. Rude, Covington, Ky. Filed June 12, 1899. Serial No. 720,185. (No model.)



Claim.—1. In a non-refillable vessel the combination of two diaphragms, a valve-orifice in the lower one, an annular groove formed in the under face of the upper one, one or more inclined orifices formed in said last-named diaphragm, a cork located between said diaphragms and longitudinally movable within said vessel, a valve-seating device located between the cork and lower diaphragm, a ball located between the upper end of the cork and the upper diaphragm adapted to engage the tapered walls of said annular groove, substantially as specified.

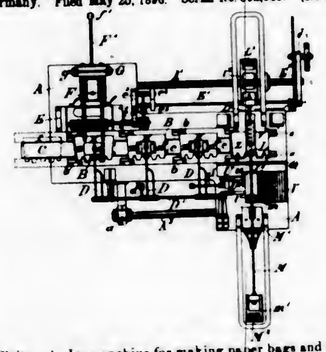
2. In a non-refillable vessel the combination of a neck provided with two diaphragms, a valve-orifice in the lower one, one or more inclined orifices in the upper diaphragm, the lower face of the upper diaphragm having an annular groove therein, a cork located between said diaphragms, a ball located between the upper end of the cork and said annular groove, a valve-seating device located between the orifice in the lower diaphragm and the lower end of the cork, the lower end of the cork being hollowed out to form a seat for said valve-seating device, the cork being adapted to have a longitudinal movement in said neck of lesser length than the diameter of the valve-seating device, substantially specified.

3. In a non-refillable vessel the combination of a neck provided with two diaphragms, a valve-orifice in the lower diaphragm, an inclined orifice in the upper diaphragm, an annular groove formed in the under face of the upper diaphragm, a cork loosely fitted in said neck between said diaphragms, the lower end of the cork being hollowed out, disks attached to the ends of said cork engaging the neck of the vessel, orifices located in said disks adapted to pass the liquid, a ball located between the upper disk and the annular groove, a valve-seating device located between the lower disk and the lower diaphragm adapted to seat in the orifice thereof and in the hollow end of the cork, the longitudinal travel of the cork being less than the diameter of the valve-seating device, substantially as specified.

4. In a non-refillable vessel the combination of a tube provided with two diaphragms, a valve-orifice in the lower one, one or more inwardly-inclined concentric orifices in the upper one, the under face of said upper diaphragm having an annular groove, a cork located between said diaphragms and longitudinally movable in said tube, a seat formed in the lower end of the cork, a valve-seating device located between the orifice in said lower diaphragm and the seat in the end of said cork, having a diameter greater than the length of cork movement, and a ball located between the upper end of said cork and said annular groove, the said ball being of greater diameter than the distance between the converged portion of said groove and the upper end of the cork, substantially as specified

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643,843. **PAPER-BAG MACHINE.** OTTO HEMER, Cannstadt, Germany. Filed May 26, 1896. Serial No. 592,985. (No model.)



Claim.—1. In a machine for making paper bags and the like, the combination of a stationary table having openings therein at predetermined distances apart, the spaces between the openings constituting stations to which the blanks are moved in succession, a reciprocating carriage having rails at opposite sides of the table, forwarding-catches for the blanks arranged on the rails, the same being beveled or inclined rearwardly and downwardly, and movable devices for limiting the movement of the blanks operated to pass upwardly through the openings on each forward movement of the carriage.

2. In a machine for making paper bags and the like, the combination of a stationary table having openings therein at predetermined distances apart, the spaces between the openings constituting stations to which the blanks are moved in succession, a reciprocating carriage having rails at opposite sides of the table, forwarding-catches for the blanks arranged on the rails, the same being beveled or inclined rearwardly and downwardly, and pivoted elbow-levers having angle-pieces working upwardly through the openings in the table for limiting the movement of the blanks on the forward movement of the carriage.

3. In a machine for making paper bags and the like, the combination of a stationary table having openings therein at predetermined distances apart, the spaces between the openings constituting stations to which the blanks are moved in succession, a reciprocating carriage having rails at opposite sides of the table, forwarding-catches for the blanks arranged on the rails, the same being beveled or inclined rearwardly and downwardly, elbow-levers pivoted beneath the table and having angle-pieces working upwardly through the openings in the table, means connecting all of said levers, and means for operating the levers simultaneously to elevate the angle-pieces at the forward movement of the carriage.

4. In a machine for making paper bags and the like, the combination of a stationary table having openings therein at predetermined distances apart, the spaces between the openings constituting stations to which the blanks are moved in succession, a reciprocating carriage for the blanks having rails at opposite sides of the table, forwarding-catches for the blanks arranged on the rails, the same being inclined rearwardly and downwardly, means operating upon the blanks to hold them in position on the table at each forward movement of the carriage and pivoted levers beneath the table having angle-pieces working through the openings on the forward movements of the carriage, for limiting the distance to which the blanks are carried.

5. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating carriage for the blanks, and gumming devices for the blanks, the same consisting of a slide having a horizontally-reciprocating movement at right angles to the movement of the carriage, a plate detachably connected to said slide, guides for the slide carried by a support having a vertical movement, means for engaging and releasing the support, gumming-stamps adjustably supported by the plate and partaking of the movements of the slide, and foot mechanism for operating the parts, substantially as described.

6. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating carriage for the blanks, and gumming devices for the blanks, the same consisting of a slide having a horizontally-reciprocating movement at right angles to the movement of the table, a support for the slide, and an operating-rod, said support having a vertical movement, a plate detachably connected to the slide, gumming-stamps adjustably supported by the plate, and partaking of the movements of the slide, a ratchet pendent from the support, a pawl engaging the ratchet and means for releasing the pawl to lower the stamps upon the blanks.

7. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating carriage for the blanks, and gumming devices for the blanks, the same consisting of an applying-roller, a slide having a horizontally-reciprocating movement at right angles to the movement of the table, a support for the slide having a vertical movement, means for maintaining the support in an elevated position, and for releasing the same to be lowered, a plate detachably connected to the slide, gumming-stamps adjustably supported by the plate, and partaking of the movements of the slide, and foot mechanism for operating the stamps, substantially as described.

8. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating slide for the blanks, a hollow mandrel located at the end of the table at right angles thereto, and a vertically-movable folder-box, J, working beneath the mandrel, substantially as described.

9. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating slide for the blanks, a hollow mandrel located at the end of the table at right angles thereto, a vertically-movable folder-box, J, a guide-bar therefor, a coupling uniting the bar to said folder-box, and an operating-lever for moving the parts, substantially as described.

10. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating slide for the blanks, a hollow mandrel at the end of the table, a reciprocating folder-box beneath the mandrel, a series of longitudinal folders for the blanks, a sliding carrier for the folder, and means for operating the carrier.

11. In a machine for making paper bags and the like, the combination of a stationary table, a reciprocating slide for the blanks, a hollow mandrel at the end of the table, a reciprocating folder-box beneath the mandrel, a series of longitudinal folders for the blanks, a sliding carrier therefor, a series of folders for the bottom flaps of the bags, a carrier therefor, and means for operating the said carriers.

12. In a machine for making paper bags and the like, the combination with the rods, L', and M, of the ejector devices for the bag, of the lever, M^3, the brake-segment fixed on said lever, a spring-pressed brake-block bearing on said segment, and the lever, M^4, all operating substantially as described.

13. In a machine for making paper bags and the like, the combination with a table provided with openings, a reciprocating carriage having rails at each side of the table, and conveying-fingers mounted on said rails, of elbow-levers mounted beneath the table, stops adjustably mounted on said levers and arranged to project through the openings in said table, a rod connected to the elbow-levers, and means for actuating the rod

14. In a machine for making paper bags or the like, the combination with a guide device, a support movable on said guide device, and paste-applying mechanism carried by said support, of means for reciprocating the paste-applying mechanism in one direction, and means for reciprocating the support at an angle to the direction of movement of the paste-applying mechanism.

15. In a machine for making paper bags or the like, the combination, with a guide device, a support movable thereon and a second guide device at right angles to the other one and carried by the support, of a paste-applying stamp mounted on the second guide device, means for moving said stamp, and means for moving the support.

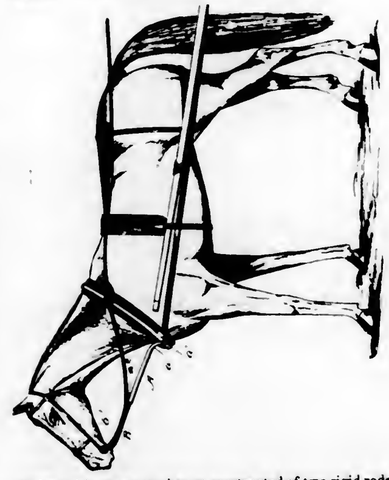
16. In a machine for making paper bags and the like, the combination with a support, and paste-applying mechanism carried thereby, of a rod connected to said support and provided with a rack, cam mechanism for reciprocating said rod, a pawl arranged to engage the rack, and means for holding said pawl out of engagement with said rack.

17. In a machine for making paper bags and the like, the combination with a support and paste-applying mechanism carried thereby, of a rod connected to said support and provided with a rack, a lever connected to the end of the rack, a roller carried by the lever, a rotatable cam arranged to bear against the lever, whereby the latter is vibrated, a pawl in engagement with the rack, a rod connected to the pawl, a treadle connected to the rod, and a spring for normally holding the treadle so as to retain the pawl in engagement with the rack.

18. In a machine for making paper bags and the like, the combination with a carriage arranged to transport the blanks, and a folding-box having its upper surface on a level with the carriage and arranged to receive the blanks therefrom, said folding-box having a recess, of a stop on the top of the folding-box to limit the movement of the blanks, a mandrel located above the folding-box, and means for lifting the folding-box, whereby the mandrel is received in the recess of the folding-box and the blank partly folded.

19. In a machine for making paper bags and the like, the combination, with a paste-applying roller, of a pivoted lever E^2 a friction-pulley adjustably mounted on said lever, and arranged to bear against the main driving-pulley of the machine, a belt-pulley connected to the friction-pulley, a belt-pulley connected to the paste-applying roller, and belts and pulleys intermediate the previously-mentioned belt-pulleys whereby motion is transmitted from the friction-pulley to the paste-applying roller, and the lever is capable of movement about its pivot, substantially as described.

643,844. **DEVICE FOR SUPPORTING HORSES' HEADS.** DAVID HOLFORD, Brtile, Canada. Filed Apr. 17, 1899. Serial No. 713,429. (No model.)

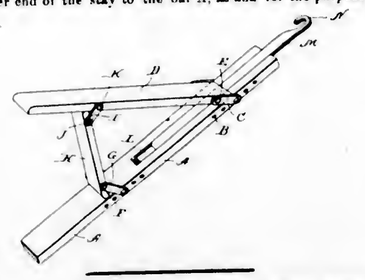


Claim.—A harness attachment constructed of two rigid rods having at one end means for rigidly attaching the said rods to the hames and tubular at the opposite ends; a yoke-frame having two rigid arms adapted to be adjusted in the tubular portion of the said rods; means for fastening the said arms in their adjusted position; a connecting-bar between said arms, said arms terminating in upwardly-curved ends; and means for attaching said ends to the bridle or bit, substantially as described.

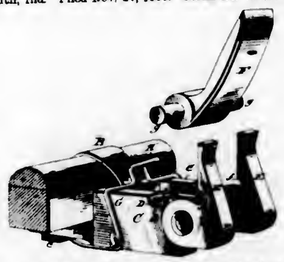
648,845. **SCAFFOLD-JACK.** HARRY A. KUHN, Glen Mills, Pa. Filed July 28, 1899. Serial No. 725,389. (No model.)

Claim.—1. A jack for supporting scaffolds upon roofs of various angles, consisting of a bar A having a longitudinal recess formed therein a slide-bar fitted and guided within said recess, a lug projecting downward from the slide-bar and adapted to engage suitable holes formed in the bottom of said recess, a hook formed upon the outer end of the slide-bar whereby it may be engaged with a similar hook of a similar jack in securing both jacks upon the roof, a support, links pivoted to the inner end of the support, said links in turn being adjustably pivoted to the bar A, a stay, links pivoting the stay to the support, and links adjustably pivoting the stay to the bar A, as and for the purpose set forth.

2. The herein-described combination of a bar A having a longitudinal recess l, formed therein, a slide-bar fitted within said recess, a lug formed upon the inner end of the bar, bushings set in the bottom of the recess having holes therein for the reception of the lug, a hook formed upon the outer end of the slide-bar, a support adjustably connected to the bar A by two links, a stay, two links pivoting the stay to the support, and two links adjustably pivoting the lower end of the stay to the bar A, as and for the purpose set forth

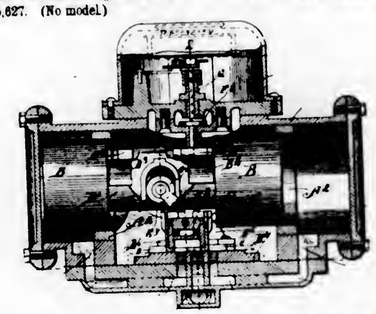


643,846. SHAFT OR THILL COUPLING. HENRY J. MITCHEL, Plymouth, Ind. Filed Nov. 27, 1899. Serial No. 738,384. (No model.)



Claim.—A shaft or thill coupling, consisting of a suitable coupling-head having outwardly-extending arms with segmental bearings and elastic cushions, coupling-sections pivoted to the arms, a swinging loop for engaging the coupling-sections and provided with a thumb-piece, and a bifurcated spring with which the swinging loop engages, said spring having an auxiliary coiled spring, substantially as and for the purpose set forth.

643,847. LIQUID-METER. EDDY T. MCKAIG, Chicago, Ill., assignor to John A. Rogers, same place. Filed Jan. 5, 1898. Serial No. 665,627. (No model.)



Claim.—1. The combination with a double-acting cylinder having a piston, a valve-seat and a sliding valve, of an actuating-cylinder upon and movable with said valve and a piston in said actuating-cylinder which is mechanically connected with the main piston.

2. A liquid-meter comprising a cylinder, a piston therein, a valve, an actuating-cylinder on said valve and a piston in said actuating-cylinder, said actuating-piston being connected with the main piston by means which, when said main piston is moved, act to raise said actuating-piston in its cylinder after which the pressure of the water on said actuating-piston forces the same downwardly in its cylinder and shifts said valve on its seat.

3. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a valve for intermittingly interrupting said communication, an actuating-cylinder, upon and movable with said valve, a piston in said actuating-cylinder, said last-mentioned piston being mechanically connected with the main piston.

4. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, an outlet-port, means for delivering liquid to said valve-chamber, a sliding valve for intermittingly connecting the opposite ends of the cylinder with the outlet-port, an actuating-cylinder upon and movable with said valve, a piston in said actuating-cylinder, said last-mentioned piston being mechanically connected with the main piston.

5. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber provided with a valve-seat and a sliding valve, an outlet-port opening into said seat, ports extending from the opposite ends of the cylinder passing each other at their inner ends and opening into the valve-seat on opposite sides of the outlet-port, said valve being adapted to alternately connect said outlet-port with the ports leading to the opposite ends of the cylinder, an actuating-cylinder upon and movable with said valve and a piston in said actuating-cylinder, said last-mentioned piston being mechanically connected with the main piston.

6. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for intermittingly interrupting said communication, an actuating-cylinder on said valve-closure in open communication at its upper end with the interior of the valve-chamber a piston in said actuating-cylinder subject to the pressure of the liquid in said chamber and operative connections between said actuating-piston and the main piston.

7. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for intermittingly interrupting said communication, an actuating-cylinder on said closure, a piston in said cylinder, a lever pivoted between its ends adjacent to said cylinder, and connected at one end with said actuating-piston, and operatively connected at its other end with the main piston.

8. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for intermittingly interrupting said communication, an actuating-cylinder on said closure, a piston in said cylinder subject to the pressure of the liquid in said chamber, a lever pivoted between its ends adjacent to said actuating-cylinder, and operatively connected at its lower end with said actuating-piston and operative connections between the upper end of the lever and the main piston, said lever acting when oscillated, to raise the actuating-piston against the pressure of the liquid until the lower end of said lever has passed beyond the central axis of the piston, when the pressure of the liquid upon said piston will act to move the actuating-cylinder and connected closure away from said lower end of the lever.

9. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for intermittingly interrupting said communication, an actuating-cylinder on said closure, a piston therein a lever pivoted between its ends adjacent to said cylinder, a connecting-link pivotally connected at one end with the lower end of said lever and at its opposite end with the piston and operative connections between the upper end of said lever and the main piston.

10. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for intermittingly interrupting said communication, an actuating-cylinder on said closure, a piston therein, levers pivoted between their ends on opposite sides of said actuating-cylinder, connecting-links pivotally connected at one end with the levers and at their opposite ends with the actuating-piston, and operative connections between said levers and the main piston.

11. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber adapted to have alternate communication with the opposite ends of the cylinder, a movable valve-closure for interrupting said communication, an actuating-cylinder on said closure, a hollow piston therein, a cross-head pivoted in the upper end of said piston, a lever pivoted between its ends adjacent to said cylinder, a connecting-link between the lower end of said lever and said cross-head, and operative connection between the upper end of said lever and the main piston.

12. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber, a three-way valve in said chamber comprising a valve-seat and a sliding valve-plate mounted thereon, guides on said seat engaging said plate, an actuating-cylinder on said plate, a piston in said cylinder and operative connections between said actuating-piston and the main piston

13. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber, a three-way valve in said chamber comprising a valve-seat and a sliding valve-plate an actuating-cylinder on said valve-plate, a piston in said cylinder, standards secured to the seat on opposite sides of the cylinder, levers pivoted to said standards and operatively connected at their lower ends with said actuating-piston and at their upper ends with the main piston, said standards being provided on their sides adjacent to said valve-plate with undercut rabbets which engage said plate.

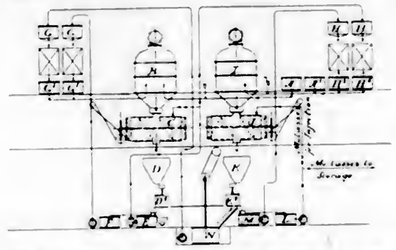
14. A liquid-meter comprising a double-acting cylinder, a piston therein, comprising active end portions and a reduced middle portion, a valve-chamber in communication with the interior of the cylinder, a valve-seat in said chamber, a sliding closure thereon, an actuating-cylinder on said closure, a piston therein, operative connections between said actuating-piston and the main piston and lugs on said cylinder adapted to be engaged by the active ends of the main piston in each reciprocation thereof.

15. In a liquid-meter the combination of a cylinder, a piston therein, a saddle on said piston, a valve operatively connected with said saddle, depending guide-lugs on said cylinder, and guide-flanges on the saddle adapted to engage said guide-lugs.

16. A liquid-meter comprising a cylinder, a piston therein, a valve and an auxiliary device on said valve which is actuated first by said piston and afterward by pressure of water within said valve-chamber to move said valve upon its seat.

17. A liquid-meter comprising a double-acting cylinder, a piston therein, a valve-chamber, a three-way valve in said chamber embracing a sliding valve-closure provided with a central opening, an actuating-cylinder on said closure, a piston in said cylinder, said piston being provided on its under side with a recess adapted to coact with said opening of the closure, and operative connections between said actuating-piston and the main piston.

643,848. MAKING BEET-SUGAR. JAMES G. OXNARD and WILHELM BAUR, New York, N. Y., assignors to the Oxnard Construction Company, of West Virginia. Filed Apr. 29, 1897. Serial No. 634,448. (No specimens.)



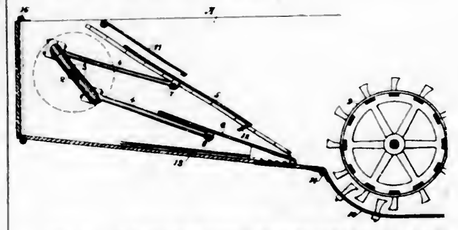
Claim.—1. The process herein described of manufacturing granulated sugar from beets which consists, essentially, in producing a granulated masse-cuite from clarified beet-juice; and purging and separately collecting the first molasses and claircе; then adding first molasses to fresh juice and the claircе used in washing a final raw-sugar masse-cuite and producing therefrom a final raw-sugar masse-cuite; then agitating and reducing the temperature of this final raw-sugar masse-cuite and adding during the cooling process, sufficient final molasses to maintain the masse-cuite of uniform fluidity; then purging the masse cuite and washing the same to a high test and collecting the resulting final molasses and claircе separately; then dissolving the final and washed raw sugar and clarifying and filtering the sugar solution and adding the same to clarified fresh juice and the aforesaid and clarified claircе used in washing the first or granulated masse-cuite, and finally boiling, purging and washing to produce another granulated-sugar masse-cuite; all of the lower sugars produced during the process being washed to a high test, melted and clarified and boiled for granulated sugar whereby the only products of the process are granulated sugar and final molasses.

2. The process herein described of manufacturing granulated sugar from beets which consists, essentially, in boiling clarified and filtered beet-juice to strike; then agitating and cooling the masse-cuite and adding first molasses thereto during the cooling process; purging the masse-cuite and separately collecting the first molasses and the claircе produced in washing the masse-cuite; then combining first molasses and the claircе used in washing a final raw-sugar masse-cuite, with clarified and filtered beet-juice and boiling to strike; then agitating and cooling the final raw-sugar masse-cuite; then purging this final raw-sugar masse-cuite and washing the same to a high test, and separately collecting the resulting final molasses and claircе; then dissolving this final and washed raw sugar and clarifying and filtering the sugar solution, and adding the same to clarified fresh juice and the clarified claircе of the straight strike and boiling to strike.

3. The process herein described of manufacturing granulated sugar from beets, which consists, essentially, in combining the first molasses purged from a granulated-sugar masse-cuite with thick clarified juice and with the claircе used in washing a final raw sugar and boiling the mixture to produce another final raw sugar; then purging, washing to a high test, dissolving, clarifying and filtering this final raw sugar and adding the same to fresh juice and the claircе of a first or straight strike and boiling to grain.

4. The process herein described of manufacturing granulated sugar from beets, which consists, essentially, in boiling a thick clarified juice to produce a granulated-sugar masse-cuite and subjecting the same to centrifugal action and washing, and separating the purged first molasses and claircе from each other; then combining the first molasses with thick clarified juice and a claircе produced from washing a final raw sugar and boiling the mixture *in vacuo* to produce a masse-cuite of final raw sugar; then lowering the temperature of and agitating the final raw sugar and adding, during the process of cooling and while the material is in motion, a final molasses purged from raw sugar; then subjecting the final raw-sugar masse-cuite to centrifugal action to purge its final molasses, and washing the final raw sugar to a high test and collecting the claircе separate from the final molasses, and returning the claircе for reuse with thick clarified juice and first molasses, and finally melting the final raw sugar and clarifying and filtering the sugar solution and combining it with thick clarified juice and the claircе used in washing a granulated masse-cuite, to form a second masse-cuite producing granulated sugar.

643,849. FEEDER FOR THRESHING-MACHINES. JAMES L. PATTERSON, Madera, and GEORGE T. HILL, Merced, Cal. Filed Nov. 15, 1899. Serial No. 737,018. (No model.)



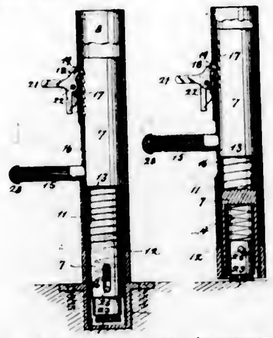
Claim.—1. A feeder for threshing-machines consisting of a feeder-case having vertical sides, guided pushers placed in vertical series and with one arranged at an angle with relation to the other said pushers extending across from side to side within the feeder-case and overlapping as shown, a shaft having oppositely-disposed cranks formed in it and connection between said cranks and the pushers whereby they are alternately forced forward and withdrawn.

2. In a feeder for threshing-machines, an inclosing case having vertical sides and open top, guided slidable pushers arranged in vertical series and standing at different angles and extending continuously from side to side within the casing, a superposed stationary board extending across the casing above the uppermost of the pushers, a shaft having cranks in opposite directions and rods connecting said cranks with the pushers whereby they are alternately reciprocated.

3. In a feeder for threshing-machines, an open-topped casing having vertical sides, pushers arranged in vertical series and guided and slidable at different inclines and extending continuously from side to side within the casing, the uppermost of said pusher-plates having an inturned section beneath its lower edge, a superposed receiving-board extending across above the upper end of the uppermost pusher, a shaft having oppositely-disposed cranks, connecting-rods uniting the cranks with the pushers, the pushers extending above and rearwardly from the hinge-joint.

4. In a feeder for threshing-machines, an open-topped casing having vertical sides, a crank-shaft journaled across the rear of said casing, pushers guided and slidable at different inclines within the casing and adapted to alternately force the straw forward toward the threshing-cylinder, a bottom and rear portion hinged at the upper rear edge and having a detachable connection between the front and bottom and the rear upper edge of the threshing-concave.

643,850. DOOR-STOP. GEORGE H. ROGERS, Birmingham, Ala. Filed May 18, 1899. Serial No. 717,340. (No model.)



Claim.—1. In a door-stop, to hold a door at any point between its extreme positions, the combination of a housing, a bolt adjustably fitted thereinto, having an independent spring-pressed end, a spring to hold the bolt normally elevated, an arm for depressing it projecting therefrom in a direction at right angles to the door and reaching through a slot in the housing its end provided with a rubber tip acting as a buffer and means to detachably hold the bolt when depressed.

2. In a door-stop to lock a door, or to hold it at any point between extreme positions, the combination of a cylindrical housing, a bolt movably fitted thereinto and having an independent spring-pressed end, an internal shoulder in the lower part of the bore of the housing, an external shoulder near the upper end of the bolt, a spring encircling this latter and confined between the two shoulders mentioned and having a normal tendency to hold the bolt elevated, ratchet-teeth provided in the side of the bolt and a pawl adapted to engage them, being pivotally mounted on the outside of the housing, a slot provided in this latter through which the pawl reaches the teeth, an outwardly-extending arm to manipulate this pawl and another arm for depressing the bolt, being attached thereto and projecting laterally through a slot in the housing.

3. In a door-stop to lock a door or to hold it at any point between extreme positions, the combination of a cylindrical housing, a bolt the lower part of which is hollow movably fitted thereinto, an internal shoulder in the lower part of the bore of the housing, an external shoulder near the upper end of the bolt, a spring encircling this latter and confined between the two shoulders mentioned and having a normal tendency to hold the bolt elevated, means to depress this latter and means to detachably hold it so, a supplementary bolt contained in the hollow part of the bolt mentioned and a spring behind it pressing it normally outwardly.

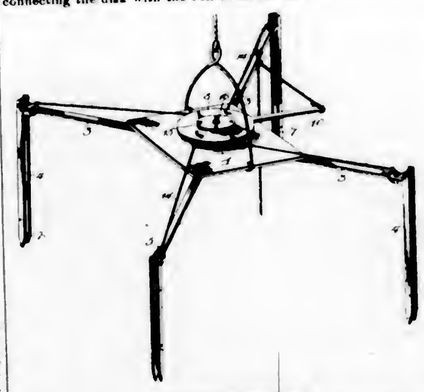
643,851. BROOM. JOHN R. ROSS, Nashville, Tenn. Filed July 22, 1899. Serial No. 724,796. (No model.)



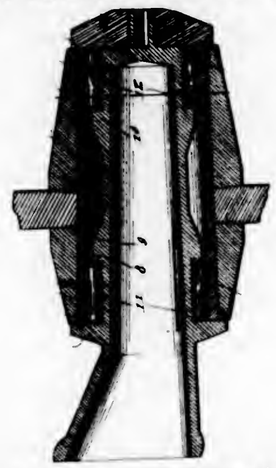
Claim.—The combination with a broom-handle, of a head composed of a block and a sheave or casing, bails having their bights extending through said block and provided at their ends with transversely-disposed loops, and hooks pivoted to one of the loops of said bails and adapted to engage the opposite loops, substantially as and for the purpose set forth.

643,852. HORSE HAY-FORK. LOUIS H. SOREN, Mancos, Colo. Filed Oct. 18, 1899. Serial No. 733,971. (No model.)

Claim.—The combination with the frame, of arms projecting horizontally from said frame and provided with tines, a disk having a central aperture and a depending collar to engage said boss and support the disk a slight distance above the frame, means for operating the disk, barbs pivoted to said tines, bell-crank levers pivoted to said arms, links connecting the bell-crank levers with the barbs, and rods connecting the disk with the bell-crank levers.



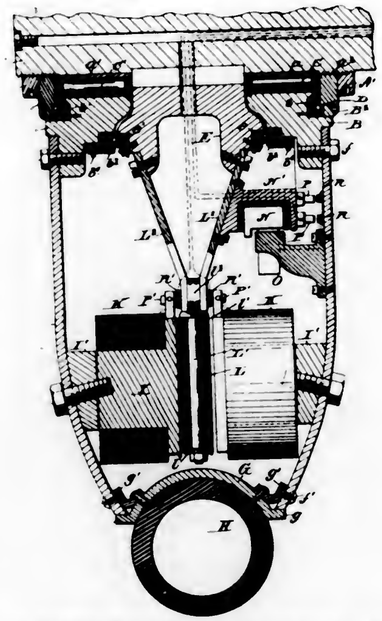
643,853. ROLLER-BEARING FOR WAGON-THIMBLES. JAMES M. WHISENANT, Clay, Ark., assignor of one-half to John A. West, Mount Pisgah, Ark. Filed Oct. 10, 1899. Serial No. 733,237. (No model.)



Claim.—The combination with a skein having a threaded extension, of a circular flange upon the skein and having its outer face lying at right angles to the axis of the skein, a second flange adjacent the first-named flange and having a face lying parallel with the face of the first flange, there being a cylindrical race between the flanges, a series of rollers in the race and adapted for engagement at their ends with the flanges, an additional flange adjacent the outer end of the skein and having a face lying at right angles to the axis of the skein, a nut disposed upon the reduced portion of the skein, and extending radially beyond the last-named flange, there being a race between the last-named flange and the nut, rollers disposed in the last-named race and bearing at their ends against the last-named flange and the nut, and a tapered boxing having an unbroken inner face and disposed upon the rollers and lying at its ends against the first-named flange and the nut.

643,854. ELECTRIC-MOTOR WHEEL. JAMES T. WHITTLESEY, Elizabeth, N. J. Filed June 26, 1899. Serial No. 721,955. (No model.)

Claim.—1. An electric-motor wheel for vehicles, comprising a stationary axle, two hubs rotatably mounted thereon, a web secured to each hub, a wheel-tire carried on the peripheries of the webs, a stationary electrodynamic element secured to the axle between the two hubs, and moving electrodynamic elements secured to the inside of both webs near the peripheries thereof and in proximity to and at opposite sides of said stationary element, and means for adjusting the air-gap between said opposing elements and the stationary element lying between them.



2. An electric-motor wheel for vehicles, comprising a stationary axle, a stationary electrodynamic element secured to said axle, two hubs one on each side of said element, webs secured to said hubs, a tire carried on the peripheries of said webs, moving electrodynamic elements secured to said webs on each side of the stationary element, and means for axially adjusting the hubs in order to maintain the proper alinement of the parts and a predetermined air-gap between the stationary and the moving electrodynamic elements.

3. In an electric-motor wheel, the combination with a stationary axle, of a stationary collar secured thereto, and carrying one element of the motor, two hubs rotatably mounted on the axle, one on each side of the stationary collar and carrying the other element of the motor, an annular bearing in each end of the stationary collar, a corresponding annular bearing in the adjacent ends of the rotatable hubs, and means for axially adjusting said latter bearings in order to regulate the relative axial positions of the stationary collar and the rotatable hubs.

4. In an electric-motor wheel, the combination with a stationary axle, of a collar rigidly secured thereto, two rotatable hubs one on each side of said collar, a ball-bearing ring in each end of the collar, a screw-threaded section on the adjacent end of each hub, an internally-screw-threaded ball-bearing ring engaging said screw-threaded section, and reacting electrodynamic elements carried by the collar and the hubs, respectively.

5. In an electric-motor wheel, the combination with a stationary axle, of a collar rigidly secured thereto, annular plates secured to said collar, and converging at their peripheries, and an annular armature-core, concentric with and secured to the outer edges of said plates.

6. In an electric-motor wheel, the combination with a stationary axle, of a collar rigidly secured thereto, annular plates secured to said collar and converging at their peripheries, an annular laminated armature core, and radial clamping-bolts for said core, having wide heads received between and secured to said plates.

7. In an electric-motor wheel, the combination with a stationary axle, of an armature-support rigidly secured thereto, a thin deep armature, a contact-ring on each side of said support near the armature, rotatable wheel-webs carrying field-coils facing opposite sides of the armature, and a contact on one of the coils on each side, bearing against the adjacent contact-ring, and in circuit with the field-coils.

8. In an electric-motor wheel, the combination with a stationary axle, of an armature-support rigidly secured thereto, an annular bracket secured on one side of said support, a commutator on said bracket, contact-brushes secured to said bracket rotatable wheel-webs, brush-holders on one of said webs, and contact-rings on said web bearing against said contact-brushes on the commutator-bracket.

9. An electric-motor wheel, having two metallic webs forming the body of the wheel, and constituting an essential part of the magnetic circuit through the reacting field-poles and armature.

10. An electric-motor wheel, comprising a stationary axle, a stationary electrodynamic element secured thereto, two dished webs rotatable on the axle and inclosing said stationary element, and a second electrodynamic element having pole-pieces carried on said webs, adjacent to said stationary element, said webs constituting an essential part of the magnetic circuit.

643,855. MUCILAGE-RECEPTACLE. JOHN B. WILLIAMSON, Louisville, Ky. Filed Sept. 21, 1898. Serial No. 691,523. (No model.)



Claim.—1. The combination with a receptacle and a cover hinged thereto, of an arm fixed to the under face of the cover, said arm bent to form a wiper and a dipper secured to said arm under the wiper.

2. The combination with a receptacle, of a spring-pressed lid or cover hinged thereto means actuated by the spring for retaining the cover closed or open an arm actuated by the cover a wiper at the free end of said arm and a dipper carried by said arm for elevating a portion of the contents of said receptacle.

3. The combination with a receptacle and a cover hinged thereto, of an arm secured to the cover and constituting a wiper and a dipper carried by said arm and disposed under the wiper.

4. A mucilage apparatus consisting of a receptacle and a hinged cover therefor, a brush and supports on the inner side of the cover adapted to removably sustain said brush in a horizontal position wholly inside of the closed receptacle and out of contact with contents thereof.

5. A mucilage apparatus consisting of a receptacle and a hinged cover therefor, a brush having a grooved handle, and hooks on the inner face of the cover for the reception of said brush and its retention normally within the receptacle, one of said hooks being adapted to enter the groove in the handle.

643,856. MANUFACTURE OF CEMENT. WILLIAM A. O. WUTH, Pittsburg, Pa. Filed July 20, 1898. Serial No. 686,472. (No specimens.)

Claim.—1. The herein-described process of forming cement, consisting in hydrating burnt lime with water containing a soluble salt which will evolve oxygen at a high temperature, mixing the hydrated lime with powdered blast-furnace slag and burning the mixture.

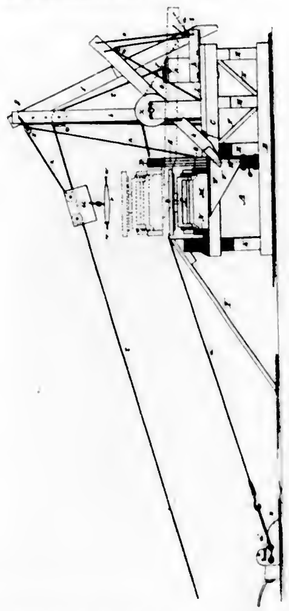
2. The herein-described process of forming cement, consisting in hydrating burnt lime with water containing a nitrate salt, mixing the hydrated lime with powdered blast-furnace slag, and burning the mixture.

3. The herein-described process of forming cement, consisting in hydrating burnt lime with water containing nitrate of soda, mixing the hydrated lime with powdered blast-furnace slag, and burning the mixture.

643,857. EXCAVATOR AND DITCHER. EDWARD M. ZAHL, Portland, Oreg. Filed Oct. 19, 1899. Serial No. 734,111. (No model.)

Claim.—1. In an excavator and ditcher, the combination with the stay-rope and traveler, of the car, the elevator therefor, and the scoop and elevating-rope, all combined and adapted to operate substantially as described.

2. In an excavator and ditcher, the platform and frame having the transverse track-frame, the car-elevator at the inner end of the track-frame, the skid, the drum and elevating-rope, the stay-rope, the traveler thereon, and the car, having the pivoted platform, for the purpose set forth, substantially as described.



3. The scoop having the pair of ears, provided respectively with the opening *b'* and bayonet-slot *a'*, for the purpose set forth, substantially as described.

4. The traveler having the balance-bar with pointed ends, in combination with the scoop having the pair of ears, provided respectively with a bayonet-slot and openings for the ends of the said balance bar, substantially as described.

5. In an excavator and ditcher, the frame and platform having the track-frame and the car-elevator, and provided with the standard, having the heelpiece detachably fitted on the frame, the stay-bar detachably secured to the frame and having its upper end secured to the standard, and the car-elevator lever pivoted to the said standard, whereby said standard, stay-bar, and car-elevator lever are adapted to be simultaneously removed from the platform and frame, without disassembling them from one another, substantially as described.

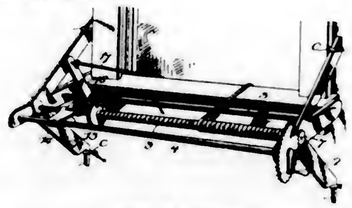
6. In an excavator and ditcher, the platform and frame having the standard, the winch, the rope *t* passed over a sheave in the standard, the traveler thereon, and the car-elevator, all in combination, substantially as described.

7. In an excavator and ditcher, the platform and frame having the transverse track-frame, the car-elevator at the inner end of the track-frame, the detent *d'* at the outer end of the track-frame, the skid, the drum and elevating-rope, the stay-rope, the traveler thereon, and the car, all arranged and combined to operate substantially as described.

8. In an excavator and ditcher, the frame A, having the beam G and gallows-frame R, and the guide-rods S, in combination with the car-elevator having the supporting-plate U, provided with the downturned brackets, V, with the guides W, on the guide-rods S, and the lever for raising and lowering the elevator, substantially as described.

643,858. PORTABLE FIRE-ESCAPE. EARL C. AKERS, Port Huron, Mich. Filed Oct. 10, 1899. Serial No. 733,188. (No model.)

Claim.—The combination in a portable fire-escape, of the supporting-brackets, the connecting rods 3 and 4, the winding-shaft journaled in said brackets, the life-line attached to the winding-shaft, a brake-lever supported upon the rod 3, a brake-strap having one end hooked around the rod 4 and having its body portion passed around the winding-shaft, and its other end passed through an aperture in the body portion and connected to said brake-lever, substantially as and for the purpose set forth



643,859. DIVIDED LAST. WILLIAM R. ARNOLD, Abington, Mass. Filed June 22, 1896. Serial No. 596,367. (No model.)



Claim.—1. A divided last having its toe and heel members provided with opposed hinge-recesses, combined with a hinge connecting said members, said hinge having laterally-extended locking end portions arranged within said recesses, the latter giving entrance to said laterally-extended end portions from the side of the last only, substantially as described.

2. A multipart last, having its parts movably joined by a connection, having adjacent its ends transverse lateral flanges embedded within the solid material of the respective parts of the last, said connection and its flanges having entrance to their said positions within the parts of the last solely by an edgewise movement transverse to the length of the last, substantially as described.

3. A transversely-divided last having three holes extended therein from one side thereof, the middle hole intersecting the line of said transverse division, slits respectively connecting the two outside holes with the part of said middle hole which is in the same part of the divided last, and a hinge having laterally-extended locking portions to enter said outside holes, the leaves of said hinge being received in said slits, substantially as described.

4. A multipart last containing a fore part, a heel part and a connecting-hinge having its two leaves provided each with a laterally-extended locking portion, said fore part and heel part having each a transverse opening extended therein from one side of said part to receive one of said hinge-locking portions, said transverse openings being connected with the adjacent ends of said parts by hinge-leaf-receiving slits also extended inwardly from the same side of said part, substantially as described.

5. A divided last, having its toe and heel members provided with opposing hinge-recesses, combined with a hinge connecting said members, said hinge having enlarged end portions, and being located in said recesses, and pins inserted in the last and transversely through the hinge, substantially as described.

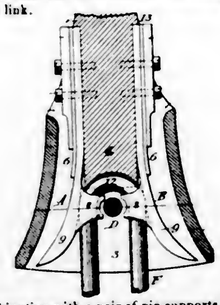
6. A multipart last, having its fore part and heel part connected by a hinge, one of said parts having a hinge-recess extending in from one side and one end wall, said recess terminating at its inner end parallel to said end wall in an offset portion, and the hinge having a leaf fitting said recess and having a lateral end portion locking against or into said offset part of the recess, the other part of the hinge being fastened in the other part of the last, substantially as described.

7. A multipart last, the fore part and heel part whereof are joined by a hinge, the leaves of which are respectively inserted in the fore part and heel part and formed each with a transverse rib or flange which projects outwardly from its leaf, substantially as described.

8. A multipart last, the fore part and heel part whereof are joined by an inserted hinge extending lengthwise of the last, and each leaf of which is formed with a transverse rib projecting outwardly from its leaf, the opposite ends of the fore part and heel part being cut away above the hinge to permit the last to shorten when the heel part is moved upwardly and forward, and also being formed with broad reciprocal bearing-surfaces between the hinge and the bottom of the last, substantially as described.

643,860. AUTOMATIC CAR-COUPLING. FERDINAND O. BLANKENBURGER, New York, N. Y., assignor of three-fourths to John Braun and the H. J. Brooks & Company, same place. Filed July 3, 1899. Serial No. 723,304. (No model.)

Claim.—1. An improved automatic car-coupling comprising a flat recessed draw-head having a flaring mouth, side walls extending rearwardly a sufficient distance, and a central longitudinal link-abutment integral therewith, and a pair of spring pin-supports removably attached to the sides of said abutment behind said side walls, and constructed with lateral projections notched at their inner edges and normally in contact with each other beneath the pin, and with flaring outer ends extending to the face of the draw-head, within said mouth, between said side walls but out of contact therewith, to coact with a standard pin and link.



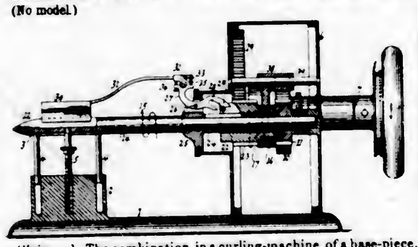
2. The combination with a pair of pin-supports having reinforced spring-shanks notched pin-engaging projections and flaring outer ends of a recessed draw-head having a flaring mouth, a central longitudinal link-abutment, and short side walls flanking the front ends of said pin-supports, and means for detachably fastening said pin-supports individually to the sides of said link-abutment behind said side walls.

3. The combination with a pair of spring pin-supports of a suitably-recessed draw-head having a flaring mouth, a central longitudinal link-abutment to whose sides said pin-supports are attached, and short side walls flanking the front ends of said pin-supports, behind which side walls the rear end of the draw-head is open for the free escape of dust or snow.

4. The combination with a pin and link and with a pair of spring pin-supports of a suitably-recessed draw-head having a central longitudinal link-abutment to whose sides said pin-supports are attached, short side walls flanking the front ends of said pin-supports, the customary hole extending through top and bottom to receive the pin, and openings behind said side walls and through the bottom between the pin-supports and behind the hole occupied by the pin, for the free escape of dust or snow.

5. The combination with a pin and link and with a pair of spring pin-supports of a suitably recessed draw-head having a flaring mouth, a central longitudinal link-abutment to whose sides said pin-supports are attached, short side walls flanking the front ends of said pin-supports, and a draw-bar, integral with said link-abutment, having a fast spring-engaging collar, substantially as hereinbefore specified.

643,861. APPARATUS FOR CURLING FEATHERS, &c. LOUIS BLUMENTHAL, New York, N. Y. Filed May 25, 1899. Serial No. 718,288. (No model.)



Claim.—1. The combination, in a curling-machine, of a base-piece, a supporting-frame thereon, a rotary curler-shaft supported by the frame and having a curler, a rocking thumb, a driven shaft, and devices actuated by the driven shaft to rotate the curler-shaft and curler and rock the thumb at timed intervals.

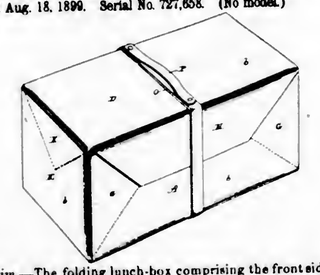
2. The combination, in a curling-machine, of a base-piece, a supporting-frame thereon, a rotary curler-shaft supported by the frame, a curler carried by the curler-shaft, a rocking lever, a thumb having an arm carried by the rocking lever, a driven shaft mounted in the frame, and devices actuated by the driven shaft to rotate the said curler-shaft, and curler and rock the said rocking lever at timed intervals.

3. The combination of a rotary curler-shaft, a curler thereon, a rocking lever, a thumb cooperating with the curler and having an arm pivotally mounted on the rocking lever, devices for adjusting said arm on the rocking lever to vary the pressure of the thumb, and devices for rotating the curler-shaft and rocking said lever.

4. The combination of a rotary shaft provided with a gear and a cam having a crank-pin, a curler-shaft actuated by the gear, curler on said shaft, a sector rocked by the crank-pin, a slide reciprocated by the cam and rocked by the sector, and a thumb swung and rocked by the slide, substantially as described.

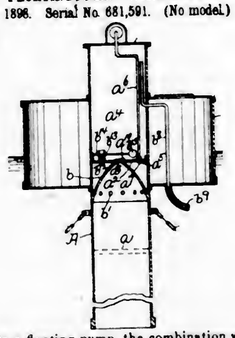
5. The combination of a rotary shaft provided with a gear and a cam having a crank-pin, a curler actuated by the gear, a sector rocked by the pin, a slide reciprocated by the cam and rocked by the sector, and a thumb having an incline or slot made to engage the slide, substantially as described.

643,862. FOLDING LUNCH-BOX. ABRAM S. BROWN, Tyrone, Pa. Filed Aug. 18, 1899. Serial No. 727,658. (No model.)



Claim.—The folding lunch-box comprising the front side piece A, the bottom piece B, the rear side piece C and the top piece D, arranged in series and flexibly jointed together, said side pieces A, C, having the end pockets L, M, respectively, and said top piece D having the end projecting flaps K, and the side flap H; and the end pieces E flexibly jointed to the ends of the bottom piece B, said end pieces having the pockets E for the reception of the flaps K and being further provided with the side projecting flaps G adapted to enter the pockets L M of the side pieces, all constructed and arranged substantially as described.

643,863. FLOATING PUMP. WILLIAM S. BRYANT, Boston, Mass. Filed May 24, 1898. Serial No. 681,591. (No model.)



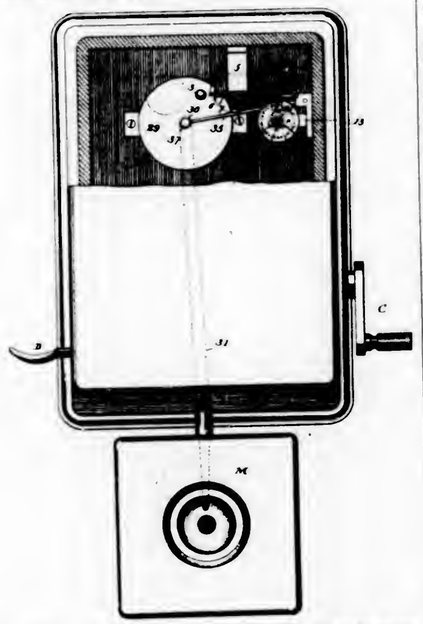
Claim.—1. In a floating pump, the combination with a substantially-long tube or pipe provided with a water-inlet at or near its lower end and separated by a partition wall or head to form an air-reservoir above and a water-chamber below the same, an air-inlet pipe extended through the air-reservoir and opening into the said water-chamber, a valve controlling the passage of air into the water-chamber, a separate port or opening through said partition-wall from said water-chamber into said air-reservoir, a valve cooperating with said port or opening, and an outlet-pipe for the said reservoir to conduct the compressed air in the reservoir directly out therefrom and provided with a flexible extension, substantially as described.

2. The combination with a floating pump provided with an air-cylinder immersed in water to form a stationary water-piston therein and responsive to wave motion of a deflector in the air-cylinder cooperating with the air-outlet port for said cylinder, substantially as described.

3. The combination with a floating pump having an air-cylinder immersed in water to form a stationary water-piston, and provided with an air-inlet port and with an air-outlet port, valves cooperating

with said ports, an air-reservoir communicating with the air-cylinder through the outlet-port, a second port connecting said air-cylinder and air-reservoir, a valve cooperating with said second port, and a float in the said reservoir to operate said valve, substantially as described.

643,864. **AUTOMATIC RETURN-SIGNALING DEVICE FOR TELEPHONES.** FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed May 3, 1899. Serial No. 715,443. (No model.)



Claim.—1. In an automatic return-signaling device for telephones, the combination with means for producing a signal at the distant or subscriber's station, of means for storing power by such signaling device, means for automatically producing air-vibrations by said stored power, a transmitter, and connections for operating the transmitter by said automatically-produced air-vibrations, substantially as described.

2. In an automatic return-signaling device for telephones, the combination with means for producing a signal at the distant or subscriber's station, of means for storing power by the operation of said signaling device, mechanical means for automatically producing air-vibrations by said stored power, a transmitter, connections for operating the transmitter by said air-vibrations, and circuit connections controlled by the power-storing and air-vibration-producing devices, substantially as described.

3. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of a hammer connected with and operated by said signal device, a power-storing device operated by such signal device, devices between the power-storing device and the hammer operated by the latter for storing the power, mechanical means for automatically producing air-vibrations operated by said stored power, a transmitter, and connections for operating the transmitter by said automatically-produced air-vibrations, substantially as described.

4. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of a hammer connected to and operated by said signal device, a power-storing device operated by such signal device, a ratchet-wheel connected to operate said power-storing device, a pawl engaging said ratchet, connections carrying the pawl arranged within striking distance of said hammer, mechanical means for automatically producing air-vibrations by said stored power, a transmitter, and connections for operating the transmitter by said automatically-produced air-vibrations, substantially as described.

5. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of a hammer connected to be operated by said signal device, a rod arranged within striking distance of said hammer, a pawl carried by said rod, a ratchet-wheel operated by the pawl, a power-storing device operated by the ratchet, and a dog controlling the ratchet, the said dog being controlled by said rod, substantially as described.

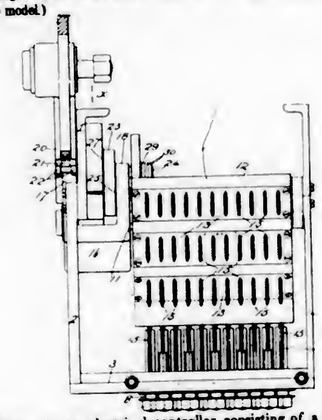
6. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of a hammer connected with and operated by said signal device, a rod arranged within striking distance of said hammer, a ratchet operated by said rod, a power-storing device operated by said ratchet, circuit connections, and means for opening and closing said circuit connections controlled by said ratchet, substantially as described.

7. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of means for storing power operated by said signal device, a ratchet-wheel for operating said means, a pawl operated by the signal device for operating the ratchet, circuit connections, a weighted lever controlling said circuit connections, and pins on the ratchet for controlling the pendulum, substantially as described.

8. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of means for storing power operated by said signal device, an air-vibration-producing device comprising a drum and hammer, means operated by the stored power for operating the hammer, a transmitter, and connections for operating the transmitter by said air-vibrations, substantially as described.

9. In an automatic return-signaling device for telephones, the combination with a signal device at the distant or subscriber's station, of means for storing power operated by said signal device, an air-vibration-producing device comprising a drum, a hammer, a vibrating arm supporting the hammer, and a crown-wheel operating the arm and operated by the stored power, substantially as described.

643,865. **CONTROLLER FOR ELECTRIC AUTOMOBILES.** CHARLES G. BURROWS, Windsor, Conn., assignor to the Eddy Electric Manufacturing Company, same place. Filed Nov. 15, 1899. Serial No. 737,112. (No model.)



Claim.—1. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a plate connected with the drum and oscillated by the handle, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

2. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a yoke oscillated by the handle, a plate connected with the drum and oscillated by the yoke, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

3. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a yoke oscillated by the handle, a plate connected with the drum, a pin projecting from the plate and engaged by the yoke, lugs projecting from the frame, pins projecting from the plate and adapted to engage the lugs, and springs made tense by the oscillation of the plate, substantially as specified.

4. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a plate connected with the drum and oscillated by the handle, an arm fixed upon the arbor of the plate, arms loose upon the arbor of the plate, springs connecting the loose arms with the drum, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

5. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a yoke oscillated by the handle, a plate connected with the drum, a pin projecting from the plate, pins projecting from the plate and adapted to engage the lugs, an arm fixed upon the arbor of the plate, arms loose upon the arbor of the plate, and springs connecting the loose arms with the drum, substantially as specified.

6. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, connected segments moved by the handle, a plate connected with the drum and oscillated by the segments, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

7. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a segment attached to the handle, a yoke, a segment attached to the yoke, a connection between the segments, a plate connected with the drum and oscillated by the yoke, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

8. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a segment attached to the handle, a yoke, a segment attached to the yoke, flexible bands connecting the segments, a plate connected with the drum and oscillated by the yoke, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

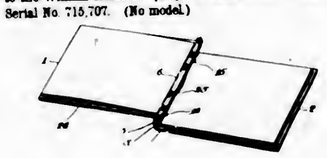
9. An electrical controller consisting of a supporting-frame, an insulating-block removably supported by the frame, terminals fastened to the block, a drum, contacts carried by the drum in position to be engaged with the terminals, a handle, a plate connected with the drum and oscillated by the handle, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

10. An electrical controller consisting of a supporting-frame, terminals held by the frame, a drum, insulating-strips carried upon the periphery of the drum, contacts fastened to the strips in position to be engaged with the terminals, a handle, a plate connected with the drum and oscillated by the handle, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

11. An electrical controller consisting of a supporting-frame, an insulating-block removably supported by the frame, terminals fastened to the block, a drum, insulating-strips carried upon the periphery of the drum, contacts fastened to the strips in position to be engaged with the terminals, a handle, a plate connected with the drum and oscillated by the handle, springs made tense by the oscillation of the plate, and lugs adapted to obstruct the forward movement of the plate until a spring has been made tense, substantially as specified.

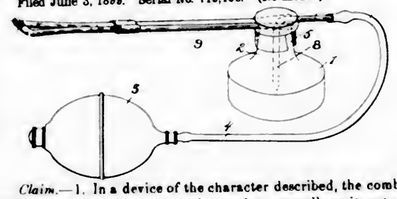
12. In combination with the oscillatory drum of an electrical controller, a plate loosely held by the drum, springs arranged to retain the plate in a normal position, a handle arranged to oscillate the plate from normal position, and pins projecting from the plate in position to engage fixed surfaces after the plate has been oscillated for advancing the plate and drum, substantially as specified.

643,866. **COPY-BOOK.** JOSEPH O. DECKERT, Philadelphia, Pa., assignor to the William Mann Company, of Pennsylvania. Filed May 5, 1899. Serial No. 715,707. (No model.)



Claim.—In a copy-book, the combination of the covers 1 and 2, the back pieces 3 and 4 having flexible connection therewith, the end piece 5 flexibly connected to the said back pieces, headed pins located on the inner face of one of the back pieces, a key having slots through which the headed pins pass thereby permitting a sliding movement of the said key, the key also having a slot provided with an enlarged opening, a headed post attached to the other of the said back pieces and adapted to engage the slot of the key for the purpose of interlocking the parts, the said back piece 3 being provided with a recess to receive the head of the said pin, and a spring interposed between the upper back piece and the leaves of the book, substantially as described.

643,867. **INSUFFLATOR.** ALLEN DE VILBISS, Toledo, Ohio. Filed June 3, 1899. Serial No. 719,190. (No model.)



Claim.—1. In a device of the character described, the combination with a reservoir having a neck tapering upwardly on its exterior; of an interiorly-smooth cylindrical cap fitting frictionally on said neck and closed at its top, an inlet-tube entering one side of the cap and turned down at its axial center, a source of air-supply to the outer end of this tube, a pair of tubes entering the other side of the cap near its top with their inner ends disposed therein at opposite sides of the inlet-tube, and a nozzle at the outer end of the pair of tubes, as and for the purpose set forth.

2. In an insufflator, the combination with the reservoir, a removable cap thereon, an inlet-tube, and a source of air-supply; of a pair of tubes whose inner ends are secured rigidly within the cap and whose outer ends curve inward toward each other and are made conical at their tips, a clasp surrounding the tubes between their ends, and a nozzle consisting of a block having flaring sockets in its opposite sides adapted to frictionally engage said conical tips, a longitudinal bore in its front end, and a second bore communicating therewith and extending transversely of the block between said sockets, as and for the purpose set forth.

3. In a device of the character described, the combination with the reservoir, the inlet-tube, and a source of air-supply; of a pair of tubes standing substantially parallel and connected with each other between their ends, their inner ends leading from said reservoir and their outer ends being curved toward each other and provided with exteriorly-conical tips, and a nozzle consisting of a block having flaring sockets in its opposite sides for engagement with the tubes, a longitudinal bore in its front end, and a second bore intersecting the longitudinal bore and opening into one of the sockets so as to leave a closed wall between its inner end and the other socket, substantially as described.

4. In a device of the character described, the combination with the reservoir, and a source of air-supply; of a pair of tubes standing substantially parallel and connected with each other between their ends, their inner ends leading from said reservoir and their outer ends being curved toward each other and the passage in one of said tubes being closed at its tip, and a nozzle consisting of a block having sockets in its opposite sides for engagement with the tubes, a longitudinal bore in its front end, and a second bore intersecting the longitudinal bore and opening into one of the sockets so as to leave a closed wall between its inner end and the other socket, substantially as described.

643,868. **DENTURE.** WILLIS H. DWIGHT, Le Mars, Iowa. Filed May 31, 1899. Serial No. 718,812. (No model.)



Claim.—1. The combination with a denture and a support or backing, one of said parts being provided with an undercut socket, of a pin provided at one end with spring-arms which are adapted for engagement with said socket and provided at its other end with a roughened shank which is adapted for engagement with said other part, and a mass of cement investing said socket and the part of the pin contained therein.

2. The combination with a denture and a support or backing therefor, one of said parts being provided with an undercut socket,

of a tubular pin provided on one end with spring-arms which are adapted for engagement with the socket and constructed at its other end for engagement with said other part, and a mass of cement investing said socket, the part of the pin therein contained, and also said tubular portion of the pin.

3. The combination with a denture provided with an undercut socket, of a pin for attaching the same to a support, a metallic socket-piece contained within said socket, spring-arms on one end of said pin which are held by their resiliency in contact with the walls of said socket-piece, a roughened shank on the other end of the pin adapted for engagement with the support, and a mass of cement investing said socket and the part of the pin contained therein.

4. The combination with a denture and a support or backing, one of said parts being provided with an undercut socket, of a pin provided on one end with spring-arms which are adapted for engagement with said socket and constructed at its other end for engagement with the backing or support, and a mass of cement investing said socket and the part of the pin contained therein, said spring-arms being rounded on their outer ends to permit their ready insertion into said socket.

5. The combination with a facing provided on its rear face with an undercut socket, a pin comprising spring-arms which engage said socket, a shank which projects from the rear face of the facing, and a mass of cement investing said socket and the part of the pin contained therein, of a backing comprising a plate of suitable metal which engages the rear face of the facing and through which the shank of the pin extends, and a body of metal which is flowed over the plate and covers said shank.

6. The combination with a denture provided with an undercut recess and a backing or support for the same, of a pin provided at one end with a roughened shank which is adapted for engagement with the backing or support and provided at its other end with spring-arms which are contained within said socket of the denture and which arms are held by their resiliency in contact with the walls of said socket, and a mass of cement investing said socket and the part of the pin contained therein.

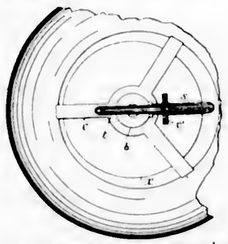
7. The combination with a denture and a backing or support, of a pin connecting said denture and support and a sheet of soft metal interposed between the meeting faces of the denture and support.

8. The combination with a denture provided with a socket, of a socket-piece provided with a lateral flange which projects from said socket and is embedded in the material forming the denture.

9. The combination with a denture provided with a socket, a socket-piece contained within said socket and provided with a lateral flange which extends into and is embedded in the material forming the denture, and a pin engaging at one end said socket and adapted for connection at its other end with a support or backing.

10. The combination with a denture, provided with a socket of a socket-piece having integral bottom, end and side walls, lateral flanges on said walls which project from said socket and are embedded in the material forming the denture, and a pin engaging at one end said socket and adapted for connection at its other end with a support or backing.

643,869. ACETYLENE-GAS LAMP. GEORGE R. GATES, Portland, Me. Filed May 12, 1898. Renewed Aug. 5, 1899. Serial No. 726,331. (No model.)



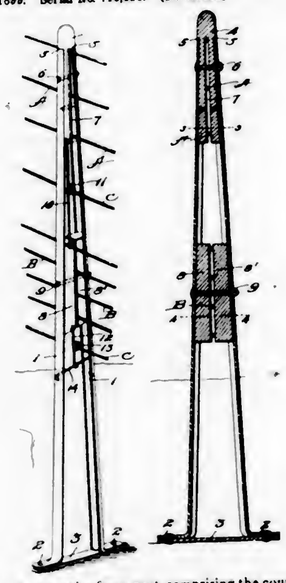
Claim.—1. In a gas-generating apparatus, the combination of a generating-chamber, a liquid-reservoir, a communicating duct or tube between said reservoir and the generating-chamber, the communication between the tube and the generating-chamber being a constricted opening of less area than the cross-area of the said tube or duct, and a gas tube or duct connecting the generating-chamber with the liquid tube or duct above the opening into the generating-chamber, substantially as described.

2. In a gas-generating apparatus the combination of a generating-chamber, a liquid-reservoir, a communicating duct or tube between said reservoir and the generating-chamber, the communication between the tube and the generating-chamber being a capillary opening and a gas tube or duct connecting the generating-chamber with the liquid tube or duct above the opening into the generating-chamber, substantially as described.

3. In a gas-generating apparatus the combination of a water-reservoir, a gas-generating chamber contained therein, a water-supply opening in said generating-chamber a water-supply duct connecting with said opening and extending downward below the level thereof and means for adjusting the vertical position of said chamber within the reservoir substantially as described.

4. In a gas-generating apparatus the combination of a water-reservoir open to atmospheric pressure a gas-generating chamber contained therein, a water-supply opening in said generating-chamber connecting with the interior of the water-reservoir and means for adjusting the vertical position of said opening with reference to the water-level within the reservoir, substantially as described.

643,870. FENCE-POST. ROBERT C. GLASCO, Anderson, Ind., assignor to The Century Fence Post Company, Pendleton, Ind. Filed May 13, 1899. Serial No. 716,630. (No model.)



Claim.—A composite fence-post, comprising the counterpart concave converging members 1 1, the conical block 4, formed with the annular shoulders 5 5, and the axial longitudinal slot 7, to receive the fence-wires and means for securing said members, block and fence-wires together, substantially as shown and described.

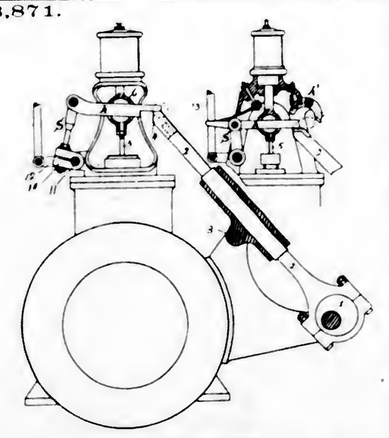
643,871. VALVE-GEAR FOR ENGINES. MAX F. GUTERMUTH, Darmstadt, Germany, assignor of one-fifth to Felix Lincke, same place. Filed Mar. 3, 1899. Serial No. 707,611. (No model.)

Claim.—1. In a detent-valve gear for steam-engines and the like the combination with the vertical valve-spindle, of a lever slidably connected with said spindle at a point intermediate the ends of the lever, a pivoted eccentric-rod 2 adapted to operate said lever and acting on an end of the lever projecting on one side of the valve-spindle, a movable pivot for said lever on the opposite side of the spindle, and a governor-rod for moving the pivot of the lever.

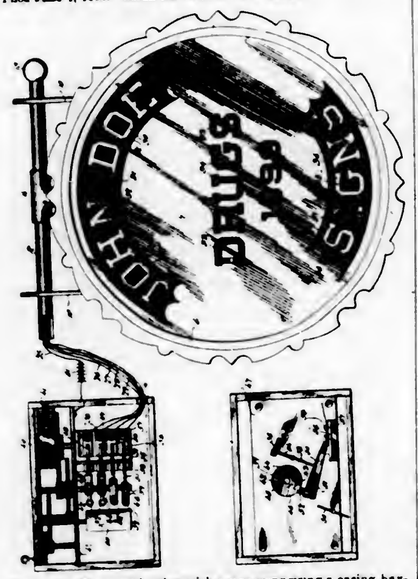
2. In a detent-valve gear for steam-engines and the like the combination of the vertical valve-spindle with a lever slidably connected between its ends with the said spindle, a pivoted eccentric-rod adapted to operate said lever, and a movable fulcrum-lever journaled to the other end of the said lever and controlled by a regulator, substantially as described.

3. In a detent-valve gear for steam-engines and the like the combination of the vertical valve-spindle with a lever slidably connected between its ends with the said spindle, an eccentric-rod adapted to impart motion to said lever, and a movable fulcrum-lever journaled to said lever and controlled by a regulator and a two-armed lever $h' h^2$ being journaled within the valve-support, substantially as described.

643,871.



643,872. ILLUMINATED SIGN. CHARLES H. HILL, Williamsport, Pa., assignor to the Prismatic Electric Sign Company, same place. Filed June 1, 1899. Serial No. 718,991. (No model.)



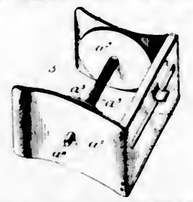
Claim.—1. The combination with a sign comprising a casing having transparent portions of a split ring removably mounted within the casing, lamps mounted upon the ring and movable therewith, said lamps having a common return, of circuits including certain of said lamps, and comprising said common return, and a circuit-closer for said circuits comprising a yieldable lever forming a terminal of its circuit, a shaft in circuit with the common return through a source of electricity, and a series of contacts adjustably mounted upon said shaft and adapted to intermittently engage their respective levers to complete the circuits of the latter, substantially as specified.

2. A sign comprising a casing having transparent portions, a plate connected with said casing and having rearwardly-extending portions provided with alining perforations, a tube passed through said perforations, and a lateral extension of said tube connected with and opening into the casing and adapted to receive means for energizing the illuminating means within the casing, substantially as specified.

3. A sign, comprising a casing, an insulating split ring removably arranged within the casing, a plurality of colored lamps mounted upon said ring and removable therewith, a tube rigidly connected with said casing and comprising an extension opening into the casing between the ends of the ring, and wires connected with said lamps and passed upwardly through said tube and its connection with the casing.

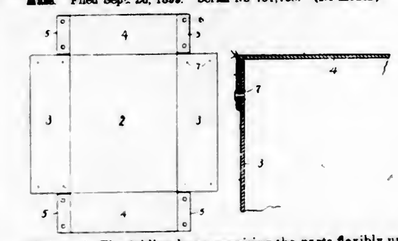
4. A sign comprising a cylindrical casing having end closures, each consisting of a frame and a transparent filling, a plurality of lamps within the casing, an arc-shaped plate secured to the casing and having backwardly-bent portions provided with alining perforations, screw-threaded alining perforations in said plate and casing, a T connection engaging the threads of the last-named perforations, and tube-sections passed through the first-named alining perforations and engaging the T connection and forming a means of access for electric circuits to the lamps within the casing, substantially as specified.

643,873. CABINET. WILLIAM C. HUDSON, Greeneville, Tenn. Filed June 1, 1899. Serial No. 719,017. (No model.)



Claim.—In a cabinet of the character described, the combination with the compartments, of a holder consisting of a front piece, spring side pieces having outwardly-bent ends the energy of which is exerted to force them laterally and frictionally lock them to the sides of the compartments, and a reel journaled in said spring side pieces and provided with brake or frictional surfaces, whereby when the holder is inserted into the compartment the spring-arms will subserve the double function of holding the holder in place and acting as a brake in the unwinding of the goods from the reel, substantially as and for the purpose set forth.

643,874. FOLDING TELESCOPE-BAG. ANNIE S. JENKINS, Lynn, Mass. Filed Sept. 26, 1899. Serial No. 731,705. (No model.)



Claim.—1. The folding bag comprising the parts flexibly united one to the other by means of fabric affixed to said parts, said fabric having a fold jutting out from each line of flexure and serving to protect the same from injury, said folds being formed by means of stitches along such lines of flexure, substantially as set forth.

2. The folding telescopic bag comprising the two parts telescopically applied one to the other, each of said parts consisting of the top or bottom having sides, ends and flaps flexibly united thereto and provided with means for removably securing said sides, ends and flaps together, the flexible means for uniting said sides, ends and flaps to said top or bottom consisting of fabric affixed thereto, said fabric having a fold jutting out from each line of flexure and serving to protect the same from injury, said folds being formed by means of stitches along such lines of flexure, substantially as set forth.

643,875. VEHICLE-TIRE. DAVID M. JORDAN, Providence, R. I., and FRANK A. CROWELL, Attleborough, Mass. Filed July 3, 1899. Serial No. 722,749. (No model.)

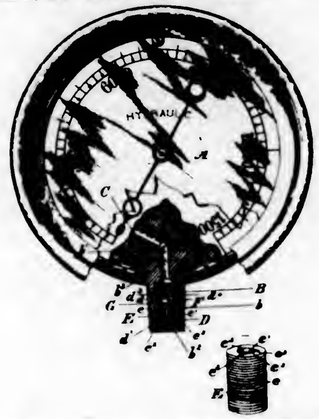
Claim.—1. In combination with the wheel of a vehicle provided with a metal tire, of a solid-rubber tire having a flat inner surface and provided with a series of longitudinal slots molded laterally from either side thereof and close to its inner surface and a circular groove molded on each side and beyond said series of slots, a thin metallic strip in each of said slots and having its projecting end portions bent to overlap the sides of the wood rim with a perforation near each extremity thereof, an annular flange having a laterally-projecting

flange adapted to enter the grooves of the tire, said annular flanges having outward depressions forming pockets adapted to inclose the extended side portions of the strips with perforations corresponding in size and location to the perforations in the same, a bolt passing through said perforations and through the wood rim for securing the parts together, as shown and described.



2. The herein-described vehicle-tire, consisting of the rubber tire A having a flat inner surface and provided with slots *d* passing through from either side thereof and a circular groove *f* formed on each side of the tire and beyond said slots, in combination therewith, of the metallic strip D adapted to enter each of said slots in the tire and having its projecting end portions bent vertically with a perforation near each extremity thereof, the side annular flanges E E having circular projecting flanges *e e* adapted to enter the grooves of the tire, said annular flanges having outward depressions *h* and perforations corresponding in size and location with the perforations in the metallic strip, with the bolt for securing the parts together to the wood rim of the wheel, as shown and described.

643,876. **PRESSURE-GAGE.** FREDERICK LANE, Brookline, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Jan. 17, 1898. Serial No. 666,934. (No model.)

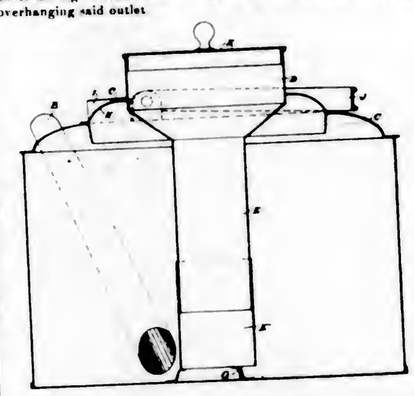


Claim.—The combination, in a pressure-gage, of a case; the socket secured therein having an interior passage and threaded inside and outside; the tube-spring within the gage and having its interior communicating with the interior of the socket; a shell threaded on the outside placed within the socket and engaging the threads in the inside thereof, such shell having a passage therethrough; a plug within the shell, such plug having a bore or passage and engaging the shell with threads, there being a chamber between the inner end of the plug and shell, the passages leading into such chamber above and below being countersunk and having notches, and the ball-valve placed in such chamber, as set forth.

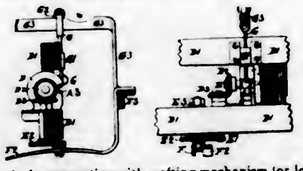
643,877. **PROTECTOR AGAINST STEAM FROM KETTLES.** CORY LORENSEN, Oakland, Cal. Filed Sept. 21, 1899. Serial No. 731,167. (No model.)

Claim—1. An attachment for a kettle and other culinary vessel consisting of a flanged cover adapted to be seated in the top opening of said vessel and formed rigid with a receiver provided with a supplemental removable cover, said receiver having a tubular extension from its lower end adapted to project to a point near the bottom of the vessel and said cover having a steam-discharge at one side protected by an inclosing hood.

2. An attachment for a kettle or other culinary vessel, consisting of a flanged cover formed rigid with a central funnel-shaped receiver, a supplemental cover for the receiver, a tubular extension from the lower end of the receiver, an extensible sleeve carried by the lower extension and provided with means for maintaining its lower edge out of contact with the vessel, whereby the attachment is adapted for use with vessels of varying depths and an open communication is maintained between the sleeve and the interior of said vessel, said cover having a steam-outlet at one side of the receiver and a hood overhanging said outlet.



648,878. **NEEDLE-LOOM.** DAVID J. MACDONALD, Dundee, Scotland. Filed Nov. 1, 1899. Serial No. 735,530. (No model.)



Claim.—1. In connection with wefting mechanism for looms, the combination of a lathe, an oscillating selvage-shuttle having a hook or projection, a driving-carrier therefor and a containing-case fixed to the lathe, with a stationary cam-plate and gearing connecting said carrier with the cam-plate to cause the shuttle to oscillate by the backward-and-forward movement of the lathe, substantially as described.

2. In connection with wefting mechanism for looms, the combination of a lathe, an oscillating selvage-shuttle having a hook or projection, a driving-carrier therefor and a containing-case fixed to the lathe with means for oscillating the shuttle by the backward-and-forward movement of the lathe and a moving finger G to engage the weft-loop, substantially as described.

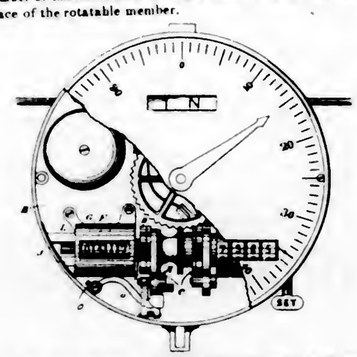
3. In needle-looms, appliances for taking up the slack of the weft and for controlling its tension, consisting of a guide-bar for the weft, and a weighted tension-lever bearing on the weft passing over the bar, in combination with a two-legged stationary bar having guide-eyes in their lower ends and a sliding piece working between the legs, the sliding piece having in it a guide-eye, a cord connecting the sliding piece to the weighted tension-lever, and the lathe having a cam-bar to act on the sliding piece, and also having a vertical rod with a sliding guide-eye, all substantially as herein set forth.

643,879. **FARE-REGISTER.** JOHN G. MILLER, San Francisco, Cal. Filed Apr. 4, 1899. Serial No. 711,662. (No model.)

Claim.—1. In a registering apparatus, the combination of a main operative mechanism, having a rotatable member with a clutch-surface, a casing and means whereby it is removably secured, a total-adder carried by the casing and having a member with a clutch to engage the said rotatable member, and means for automatically locking and releasing the rotatable member by the removal and insertion of the casing.

2. In a registering apparatus, the combination of a main operative mechanism and a total-adder removably connected therewith, and means for automatically engaging and locking the main operative mechanism when the total-adder is removed and automatically releasing said mechanism when the total-adder is restored.

3. In a fare-register and in combination with a main operative mechanism having a rotatable member with an engaging face, a removable total-adder, an independent slidable case within which it is inclosed, means for locking the casing within the main structure and a member of the total-adder having a face to engage and disengage the face of the rotatable member.

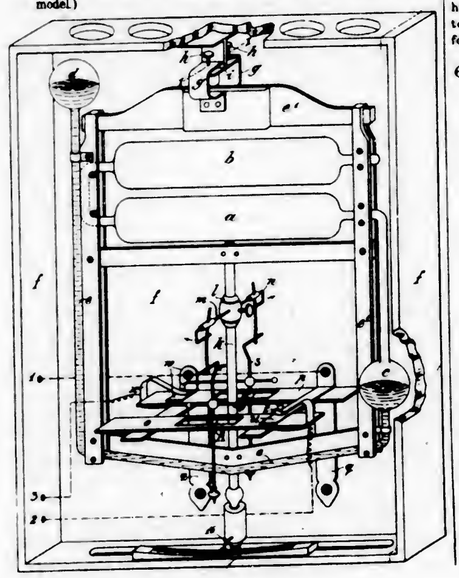


4. In a fare-register and in combination with a main operative mechanism having a rotatable member with a clutch portion, a removable total-adder movable endwise toward and from said member and having a clutch portion to engage the clutch portion thereof, and means in the path of the total-adder for automatically locking the rotatable member when the total-adder is removed and automatically releasing said member when the total-adder is replaced.

5. In a registering apparatus, the main operative mechanism, an independent and removable total-adder, and detachable connections between the two, a casing, inclosing the total-adder and having a projecting tongue, guides on the main structure for detachably locking the casing therein and holding the detachable connections in operative contact whereby the total-adder is connected with the main operative mechanism.

6. In a registering apparatus, a main operative mechanism, an independent detachable total-adder, a casing within which the total-adding mechanism is contained, means for connecting the total-adder with the main operative mechanism and disconnecting it therefrom, and a spring-actuated stop in the path of movement of the casing and which is automatically actuated by the removal of the total-adder to prevent the movement of the main operative mechanism and is released when the total-adder is inserted into position for work.

643,880. **THERMOSTATIC APPARATUS.** LUDWIG MORSBACHER, Gottingen, Germany. Filed June 21, 1899. Serial No. 721,298. (No model.)

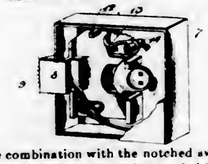


Claim.—1. A thermostat comprising a perforated box or housing, a frame suspended therefrom, a thermometer attached to said frame and consisting of a glass body completely closed, bent and expanded in several places to form air-chambers and spheres for mercury, a central rod secured to said frame, an adjustable sleeve on said rod, right-angular arms extending from said sleeve, vertical swinging levers with horizontal extensions trunnioned to supports secured to the box, the upper extremities of the vertical swinging levers adapted to engage with the right-angular arms of the said sleeve, circuit-closing springs, a circuit for each of said horizontal extensions, a magnet in each circuit, a shutter or valve, and means connecting said shutter or valve with the armatures of the electromagnets, substantially as and for the purposes set forth.

2. A thermostat comprising a perforated housing, a frame suspended from the inside of the top piece thereof, a thermometer secured to said frame and consisting of a glass body completely closed and formed into the cylinders *a* and *b*, spheres *c* and *d* and connecting-tubes, mercury in said spheres *c* and *d* and the tube connecting the same, a weighted rod on said frame, an adjustable sleeve on said rod, right angular arms on said sleeve, shelves attached to the housing, two vertical swinging levers trunnioned to said shelves and having their upper extremities in touch with the said right-angular arms, contact-springs *t* and *s* and contact-pieces *u* and *w*, in combination with two circuits in which electromagnets are included, a valve or shutter and means connecting said shutter with the armatures of the magnets, substantially as and for the purposes set forth.

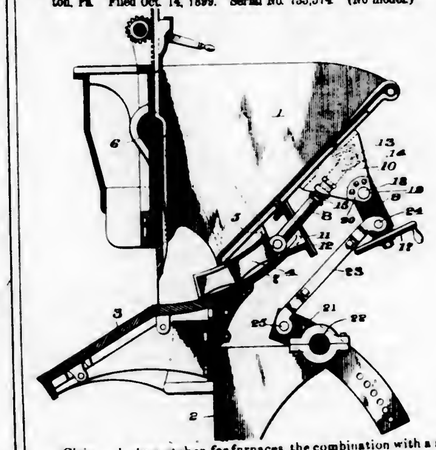
3. In a thermostat a frame suspended above its center of gravity, a thermometer attached thereto and consisting of a glass body completely closed and formed into cylinders *a* and *b*, spheres *c* and *d* and connecting-tubes, mercury in said spheres and the tube connecting the same, the cylinders *a* and *b* adapted to contain air under pressure to bear upon the mercury in the sphere *c*, which latter is placed lower than the sphere *d* and the air-cylinders *a* and *b*, in order to increase the sensitivity of the thermometer, substantially as and for the purposes set forth.

643,881. **RAILROAD-SWITCH STAND.** WILLIAM MCCAFFERY, Tyler, Wash. Filed June 21, 1899. Serial No. 721,324. (No model.)



Claim.—The combination with the notched switch-head and the pivoted switch-lever, of a locking device carried by the switch-lever and comprising the lock-bolt 8 and its stud 12, the shaft 14 and its hook 13 projecting into the path of the stud, and the plate 15 fixed to the outer end of said shaft, substantially as and for the purpose set forth.

648,882. **STOKING MECHANISM.** WILLIAM MCCLAVE, Scranton, Pa. Filed Oct. 14, 1899. Serial No. 733,574. (No model.)



Claim.—1. In a stoker for furnaces, the combination with a suitable hopper, of a swinging pusher mounted in the said hopper, means

for moving the said pusher back and forth, comprising one or more pivoted links, means for rocking the said links, and means for connecting the pusher with either end of the links or intermediate parts thereof, substantially as described.

2. In a stoking mechanism for furnaces, the combination with a suitable hopper, of an oscillating pusher mounted therein, means for moving the said pusher comprising a member pivoted upon the front of the hopper, a pitman adapted to connect the said pusher with either end of the member or an intermediate part thereof, a rock-shaft for imparting motion to the member, and a link connecting the said member with the said rock-shaft, substantially as described.

3. In a stoking mechanism for furnaces, the combination with a hopper, of an oscillating pusher pivotally suspended therein, means for oscillating the said pusher, comprising a member pivoted in a bracket upon the front of the hopper, a rod or pitman pivotally connecting the said member with the central portion of the pusher, the said member being provided with trunnions about centrally of its length upon which it is pivotally mounted in the said bracket, a screw mounted in the said member, a block engaging the said screw and pivotally connected with a pitman or rod, and means for rocking the said member upon its trunnions for imparting an oscillating movement to the pusher, the structure being such that the amount of movement given to the pusher can be regulated by the position of said block in the said member and by bringing the said block opposite the trunnions, the pusher will remain stationary without stopping the actuating mechanism, substantially as described.

4. In a stoking mechanism for furnaces, the combination with a suitable hopper, of an oscillating pusher mounted therein, a rocking member for actuating the said pusher comprising an open link having trunnions upon its outer sides, a screw mounted longitudinally of the said member, a hand-wheel for operating the said screw, a block moving upon said screw, a rod engaging said block within the walls of the link and connecting it with the pusher, and means for rocking the said link, the construction being such that by turning the screw, the block may be adjusted to different positions in the member for regulating the amount of throw given to the pusher, and may be brought opposite to the trunnions for holding the pusher stationary without stopping the actuating mechanism, substantially as described.

5. In a stoking mechanism for furnaces, the combination with a suitable hopper, of an oscillating pusher mounted therein, a rocking member for actuating the said pusher provided with trunnions upon its sides, a bracket secured to the front of the hopper and provided with outwardly-extending arms, removable journal-pieces for engaging the said trunnions secured to the said arms, whereby the member may be mounted between the sides of the bracket, a screw mounted in the said member, a block engaging the said screw, a rod engaging the said block within the walls of the link and connecting it with the pusher, said block being thus adapted to be placed opposite the trunnions or upon either side thereof, and means for rocking the member upon its trunnions for imparting an oscillating movement to the pusher, substantially as described.

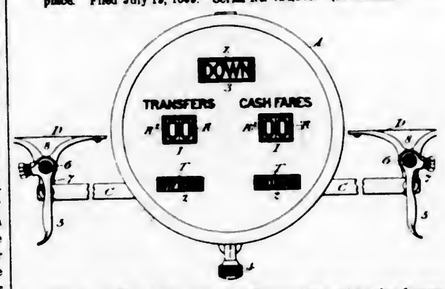
6. In a stoking mechanism for furnaces, the combination with a hopper, of a pusher mounted therein, rocking members pivotally mounted upon the front of the hopper, trunnions for supporting the said members, the said trunnions being located about centrally of their length, screws mounted longitudinally of the said members, blocks traveling upon the said screws and pivotally connected with the pusher, means for rotating the said screws and means for rocking the members, the construction being such that by turning the screws, the blocks may be so moved thereon as to impart a greater or less throw to the pusher or may be brought opposite to the trunnions of the members so as to hold the pusher stationary, substantially as described.

7. In a stoking mechanism for furnaces, the combination with a suitable hopper, of a swinging pusher mounted in said hopper, a rocking member for moving the said pusher, adjustable means for connecting the pusher with either end of the link or any intermediate portion of the same, a power-shaft mounted on the front of the furnace and provided with an arm or member, a link connecting the rocking member with an arm on the shaft, whereby motion will be imparted through said member to the swinging pusher, substantially as described.

8. In a stoking mechanism for furnaces, the combination with a hopper, of a pusher mounted therein, a rocking member mounted upon the front of the hopper with one of its open sides toward the furnace, and connected with the said pusher, trunnions for supporting the said member arranged upon its outer edges at a point intermediate its ends, a link having bifurcated ends, one end being journaled upon journals secured to the said member, the other end of the said link being bifurcated and journaled upon an arm on the rock-shaft, and a rock-shaft carrying the said arm, the construction being such that the motion of the rock-shaft will be imparted by means of the rocking member, to the oscillating pusher, substantially as described.

9. In a stoking mechanism for furnaces, the combination with a suitable hopper, of a swinging pusher mounted therein, a rocking member for moving the said pusher, said member being formed with an opening extending from near one end to nearly the other end, the said opening being thus surrounded by a metallic strip, trunnions mounted upon the outer edges of the said member at points opposite the central open portion, a screw mounted in the said member, and a block adapted to be moved thereon by the rotation of the said screw, said block being capable of traveling in the said opening from one end thereof to the other, a link connecting the member with the said pusher, said link being bifurcated so as to embrace the block but not to embrace any portion of the link, whereby the block may be brought opposite to the trunnions for stopping the action of the pusher, substantially as described.

643,883. **FARE-REGISTER.** ASTON E. NIELSEN, New York, N. Y., assignor to the Sterling Supply and Manufacturing Company, same place. Filed July 19, 1899. Serial No. 724,375. (No model.)



Claim.—1. The combination, in a fare-register, of a pair of actuators movable individually at will, a lever cross-bar connecting said actuators, a spring connected centrally with said cross-bar and therethrough with said actuators, a pair of registering-trains for the registration of two kinds of fares, as "cash fares" and "transfers," and means for transmitting registering impulses from the respective actuators to said trains respectively.

2. The combination, in a fare-register, of a pair of actuators movable individually at will, a lever cross-bar connecting said actuators, a spring connected centrally with said cross-bar and therethrough with said actuators a pair of registering-trains each comprising a trip-register and a permanent register, and means for transmitting registering impulses from the respective actuators to said trains respectively.

3. The combination, in a fare-register, of a pair of actuators movable individually at will, a lever cross-bar connecting said actuators, a spring connected centrally with said cross-bar and therethrough with said actuators, a pair of registering-trains, bell mechanism for each train, and means for transmitting impulses from each of said actuators to the corresponding one of said trains and its bell mechanism.

4. The combination, in a fare-register, of a mainspring, means for energizing said spring comprising an actuator-slide, means for transmitting registering impulses therefrom comprising a spring-pressed main pawl carried by said slide and provided with a laterally-projecting stud-pin and a ratchet-wheel or ratchet-wheels engaged by said pawl, and a relatively-fixed incline coacting with said stud whereby said pawl is guided out of contact with said wheel or wheels during the spring-energizing strokes of said slide.

5. The combination, in a fare-register, of a mainspring, means for energizing said spring comprising an actuator-slide, means for transmitting registering impulses therefrom comprising a spring-pressed main pawl carried by said slide, a pair of ratchet-wheels engaged in common by said pawl, a trip-register and a permanent register to whose units-wheels said ratchet-wheels are respectively connected, and means for insuring complete reciprocations of said slides.

6. The combination, in a fare-register, of a mainspring, means for energizing said spring comprising an actuator-slide, means for transmitting registering impulses therefrom comprising a spring-pressed main pawl carried by said slide, a ratchet-wheel engaged by said pawl, register-wheels to whose units-wheel said ratchet-wheel is connected, a spring-pressed lever-pawl engaging said ratchet-wheel, a bell-hammer and bell, and devices connecting said lever-pawl and bell-hammer.

7. The combination, in a fare-register, of a mainspring, means for energizing said spring and transmitting registering impulses therefrom comprising an actuator-slide, a spring-pressed main pawl carried by said slide, a ratchet-wheel engaged by said pawl, register-wheels to whose units-wheel said ratchet-wheel is connected, a spring-pressed lever-pawl engaging said ratchet-wheel, a bell-hammer and bell, a frame-piece interposed between said lever-pawl and bell-hammer and provided with a slot and stop for the latter, and a slot-and-pin connection between said lever-pawl and bell-hammer.

8. The combination, in a fare-register, of a mainspring, means for energizing said spring and transmitting registering impulses therefrom comprising an actuator-slide, a spring-pressed main pawl carried by said slide, a ratchet-wheel engaged by said pawl, register-wheels to whose units-wheel said ratchet-wheel is connected, a spring-pressed lever-pawl engaging therewith, a bell-hammer and bell, a rock-shaft carrying said bell-hammer and having a pair of crank-arms, a slot-and-pin connection between said lever-pawl and one of said crank-arms, a hole-and-pin connection between the other crank-arm and the bell-hammer, and a pair of frame-pieces one of which is provided with a stop for said bell-hammer.

9. The combination, in a fare-register, of a mainspring, means for energizing said spring and transmitting registering impulses therefrom comprising an actuator-slide, a spring-pressed main pawl carried by said slide, a pair of ratchet-wheels engaged in common by said pawl, a trip-register and a permanent register to whose units-wheels said ratchet-wheels are respectively connected, a safety-dog engaging the peripheries of both ratchet-wheels, and means for periodically pressing said dog against the teeth of said ratchet-wheels to correct their alinement.

10. The combination, in a register, of numeral-wheel having a laterally-projecting rim provided internally with radial stops, means for rotating said wheel step by step, a locking device comprising a rock-shaft parallel to the axis of said wheel having an arm to interlock with said stops, a spring pressing said arm into the path of said stops, and means for periodically retracting said arm to unlock said numeral-wheel.

11. The combination, in a register, of a pair of numeral-wheels having laterally-projecting rims provided internally with radial stops, a locking device comprising a rock-shaft parallel to the axis of said wheels having arms the extremities of which are rebent toward each other, a spring pressing said extremities into the paths of said stops, and means for periodically oscillating the locking device to unlock said wheels.

12. The combination, in a register, of a pair of numeral-wheels provided with stops, a locking device comprising a rock-shaft parallel to the axis of said wheels provided with arms adapted to interlock with said stops, a spring pressing said arms into the paths of said stops, means for periodically releasing said wheels comprising a lever-arm on said rock-shaft, and means for rotating said wheels step by step comprising an actuator-slide having an incline to coact with said lever-arm.

13. The combination, in a register, of a pair of numeral-wheels provided with stops, a locking device comprising a rock-shaft parallel to the axis of said wheels provided with arms to engage said stops, a spring pressing said arms into the paths of said stops, means for periodically retracting said arms comprising a lever-arm on said rock-shaft, means for rotating said wheels step by step comprising a mainspring, and devices transmitting registering impulses therefrom including an actuator-slide which serves also to energize said spring by its alternate strokes and is provided with an incline to coact with said lever-arm at the end of each spring-energizing stroke.

14. The combination, in a register, of a pair of numeral-wheels, means for rotating the same step by step comprising a reciprocating actuator, a spring-pressed pawl carried by said actuator, and a ratchet-wheel engaged by said pawl and that carries the units-wheel, a clutch-slide carried by said units-wheel and having a projection that is engaged after every ninth registration by said pawl to interlock said clutch-slide with the tens-wheel, and means for retracting said slide and disconnecting it from the tens-wheel when said pawl is retracted after each tenth registration.

15. The combination, in a register, of a pair of numeral-wheels having laterally-projecting rims that form a closed recess between their webs, means for rotating said wheels step by step comprising a reciprocating actuator, a spring-pressed pawl carried by said actuator, and a ratchet-wheel engaged by said pawl and that carries the units-wheel, a clutch-slide carried by said units-wheel within said recess, and having a projection that protrudes through a hole in the web of said units-wheel in line with one of the interdental notches of said ratchet-wheel and is engaged by said pawl after each ninth registration to interlock said clutch-slide with the tens-wheel, and means for retracting said clutch-slide to disconnect it from said tens-wheel after each tenth registration.

16. The combination, in a register, of a pair of numeral-wheels having laterally-projecting rims that form a closed recess between their webs, the rim of the tens-wheel being provided internally with inwardly-projecting spurs, a spring-retracted clutch-slide carried by the units-wheel within said recess, and having a projection that protrudes through a hole in the web of said units-wheel, and means engaging with said projection, and thereby moving said clutch-slide to interlock it with one of said spurs of the tens-wheel preliminary to each tenth registration.

17. In a fare-register, the combination with a pair of trip-registers of means for actuating the same step by step comprising a pair of reciprocating slides arranged parallel to each other with a space between and constructed with lugs at their inner edges, means for setting said registers to zero after each trip comprising a radial setting-shaft parallel to said slides, a spring and appurtenances pressing said shaft inwardly endwise, a clutch-slide carried by said setting-shaft constructed with a circumferential groove, and an actuator-lock having an arm engaging said groove and a pair of legs that swing into the paths of said lugs on the actuator-slides when the setting-shaft is pressed inward.

18. In a fare-register, the combination with trip-register wheels provided with stops, of means for actuating said wheels and means for locking the wheels after each actuation, the latter comprising a rock-shaft parallel to the axis of said wheels having spring-pressed arms that project into the paths of said stops, and means for unlocking and setting said wheels comprising a protruding setting-knob, an inwardly-yielding setting-shaft moved by said knob, and devices moved by said shaft whereby said arms are simultaneously retracted when the knob is pressed inward.

19. In a fare-register, the combination with one or more pairs of trip-register wheels and means for actuating the same of setting mechanism for turning said wheels to zero after each trip comprising a protruding setting-knob, an inwardly-yielding setting-shaft moved by said knob and rendered free to rotate by its inward movement, a clutch-slide carried by said shaft and a normally-stationary inner clutch member interlocked by said movement, a zero-stop unlocked by said movement, normally-stationary bevel-gearing and a normally-stationary shaft for said wheels for transmitting motion from said inner clutch member, and means for transmitting motion from the shaft last named to the respective register-wheels.

20. In a fare-register, the combination with one or more pairs of trip-register wheels and means for actuating the same of setting mechanism for turning said wheels to zero after each trip comprising a protruding setting-knob, an inwardly-yielding setting-shaft moved by said knob and rendered free to rotate by its inward movement, a clutch-slide carried by said shaft and a normally-stationary inner clutch member interlocked by said movement, a zero-stop unlocked by said movement, normally-stationary bevel-gearing and a normally-stationary shaft for said wheels for transmitting motion from said inner clutch member, a setting-cam for each pair of wheels carried by the shaft last named, and setting-dogs carried by the respective wheels and engaged by said cam.

21. In a fare-register, the combination with one or more pairs of trip-register wheels each having laterally-projecting rims that form a closed recess between their webs, and means for actuating the same, of setting mechanism for turning said wheels to zero after each trip comprising a protruding setting-knob, an inwardly-yielding setting-shaft moved by said knob and rendered free to rotate by its inward movement, a clutch-slide carried by said shaft and a normally-stationary inner clutch member interlocked by said movement, normally-stationary bevel-gearing and a normally-stationary shaft for said wheels for transmitting motion from said inner clutch member, a setting-cam within said recess of each pair of wheels, carried by the shaft last named, and setting-dogs carried by the respective wheels within said recess and engaged by said cam.

22. In a fare-register, the combination with a trip-register and means for actuating the same of means for setting said trip-register at zero after each trip, comprising a protruding setting-knob, a setting-shaft moved inwardly endwise and rotated by said knob, a clutch-slide carried by said setting-shaft and a normally-stationary inner clutch member interlocked by such inward movement, and a zero-stop composed of a peripheral shoulder on said inner clutch member, and a spring-pressed dog pivoted to the housing of said clutch member and having a lifting projection movable on a pivot by the coacting projection on the clutch-slide in bringing said shoulder against the nose of said dog at the conclusion of the setting operation.

23. In a fare-register, the combination with trip-register wheels and means for actuating the same of means for turning said wheels to zero after each trip, comprising a protruding setting-knob, a setting-shaft moved inwardly endwise and rotated by said knob, means for preventing the retraction of said shaft until the setting operation is completed, a rock-shaft having arms that are retracted by such inward movement, a stop-dog carried by each wheel and revolving in a path obstructed by said arms when so retracted, and a lug on each wheel against which said dog stops when the wheel is turned to zero.

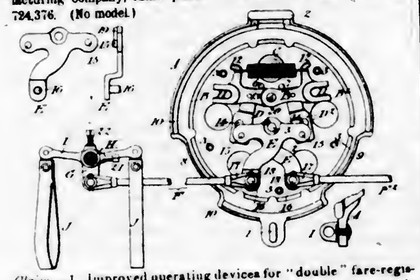
24. In a fare-register, the combination with a pair or pairs of trip-register wheels having the web of each wheel provided with a pair of lugs and a stop-dog pivoted between them and spring-pressed against one of said lugs, of means for turning said wheels to zero after each trip comprising a protruding setting-knob and a setting-shaft moved inwardly endwise and rotated by said knob, means for pre-

venting the retraction of said shaft until the setting operation is completed, and a rock-shaft having arms that are retracted by such inward movement into the paths in which such dogs revolve to coact with the latter for stopping the wheels individually at zero.

25. In a fare-register, the combination with parallel registering-trains each comprising a pair of trip-register wheels of means for turning said wheels to zero at the end of each trip comprising a protruding knob, a setting-shaft rotated by said knob, means for transmitting such rotation from said setting-shaft to said wheels at the setting operation comprising a normally-stationary shaft for said wheels, a direction-indicating trip-signal and mechanism transmitting motion from said normally-stationary shaft to said signal for changing its indication at the end of each trip.

26. In a fare-register, the combination with an actuator and pawl-and-ratchet devices for transmitting registering impulses therefrom of trip-register wheels and their appurtenances including a back plate and framepieces which support all the parts of the trip-register mechanism, a permanent register having its axis of rotation parallel to that of said register-wheels and a distinct housing or frame detachable at will from said framepieces, a train of spur-gearing, the last gear of which is fast to the units-wheel of said permanent register and separable therewith, for transmitting the registering impulses from the axis of said register-wheels to said permanent register when the latter is in working position, substantially as hereinbefore specified.

643,884. FARE-REGISTER-OPERATING DEVICE. ANTON E. NIELSEN, New York, N. Y., assignor to the Sterling Supply and Manufacturing Company, same place. Filed July 19, 1899. Serial No. 724,376. (No model.)



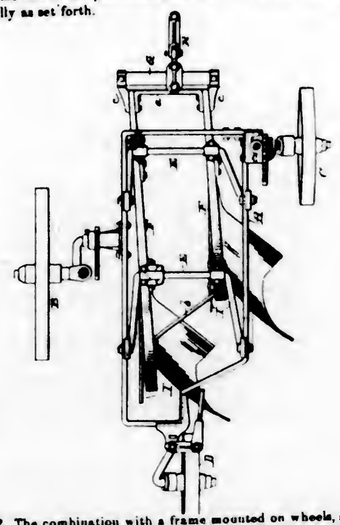
Claim.—1. Improved operating devices for "double" fare-registers comprising a register-back provided with a pair of pivot-studs one above the other and a pair of stops, a pair of main levers pivoted at their inner ends on the upper pivot-stud and having outer ends adapted to connect with the actuators of the respective registering mechanisms and bell mechanisms of the double register, a spring holding said levers normally against said stops, a pair of links pivoted to said levers, depending therefrom, and having thickened and slotted lower ends, and interchangeable removable levers adapted to be pivoted on the lower pivot-stud of said register-back and having in common stud-pins to coact with said slotted lower ends of said links and means for connecting the removable lever with a ringing device.

2. The combination, in double-register-operating devices, of a register-back provided with a pair of pivot-studs one above the other and a pair of stops, a pair of main levers pivoted on the upper pivot-stud and adapted to connect with the actuators of the respective registering mechanisms and bell mechanisms of the double register and constructed with rigid arms at top, a spiral spring stretched between said rigid arms and operating to hold said levers normally against said stops, a pair of links pivoted at their upper ends to said levers and having slotted lower ends, and a substantially-T-shaped lever or levers pivoted on the lower stud of said register-back and having studs on its lateral arms to coact with the said slotted ends of said links.

3. The combination, in double-register-operating devices, of a register-back having a pair of studs one above the other, a pair of main levers pivoted on the upper pivot-stud and adapted to connect with the actuators of the respective registering mechanisms and bell mechanisms of the double register, a pair of links pivoted to said levers, depending therefrom and having thickened and slotted lower ends, and a pair of substantially-T-shaped levers pivoted on the lower pivot-stud of said register-back and having short stud-pins to coact with said slotted lower ends from front and back respectively, substantially as hereinbefore specified.

643,885. WHEEL-PLOW. JAMES OLIVER, South Bend, Ind., assignor to the South Bend Iron Works, same place. Filed May 26, 1899. Serial No. 718,357. (No model.)

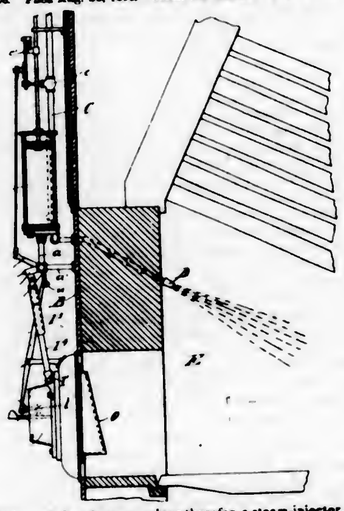
Claim.—1. The combination with a frame mounted on wheels, of bails or hangers pivoted to the frame and a gang of plows carried by said bails or hangers, the plow-beams being arranged obliquely to the frame and to the plows and pointing toward the landside, substantially as set forth.



2. The combination with a frame mounted on wheels, and bails or hangers pivotally secured to said frame, of a gang of plows carried by said hangers, the beams of said plows being arranged obliquely to the landsides of said plows and to the frame and bearing a fixed and unchangeable relation laterally with the sides of said frame, substantially as set forth.

3. In a gang-plow, the combination with a frame mounted on wheels, of a gang of plows mounted in said frame the plow-beams being arranged obliquely to the frame and pointing toward the landside of the plow and connected at their front ends, and a clevis attached approximately centrally to the connection between the front ends of the beams, substantially as and for the purpose set forth.

643,886. SMOKE-PREVENTER. JACOB ORMEROD, New York, N. Y., assignor to the Automatic Smoke-Preventer Company, same place. Filed Aug. 26, 1899. Serial No. 728,566. (No model.)



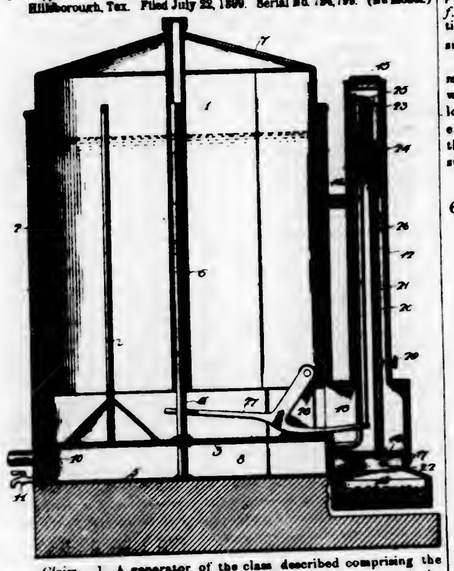
Claim.—1. In a furnace, a door therefor, a steam-injector, a valve for said injector, an arm secured to said valve to open and close the same, an actuating rock-shaft, a rod pivoted to said valve-arm and to said rock-shaft, a member fixed in said rock-shaft, a telescopic rod hinged to said door and to said rock-shaft member by an outwardly and laterally yielding connection at each end of said rod, whereby in the opening of the door, the rock-shaft member will be rotated about the axis of the shaft to rock said shaft and open the valve, and in the closing of the door the same will be permitted to swing back without operating said rock-shaft and valve, substantially as described.

2. In a furnace, in combination with a steam-injector, and a valve therefor, a door for said furnace, an air-draft door in the furnace-door, an actuating rock-shaft for said valve and air-draft door, a telescopic rod, a hinged connection between said furnace-door and rod and rock-shaft and rod, for rocking said shaft by the opening of the door and permitting the door to be closed without rocking the shaft, a lever connecting said rock-shaft and valve, a lever on said air-draft door, an arm fixed to said rock-shaft with which said lever contacts when the main door is closed to thereby open said air-draft door, substantially as described.

3. In a furnace, in combination with a main door, a draft-door in said main door, a steam-injector and valve therefor, an actuating rock-shaft, a telescopic rod pivoted to said door by a circularly-yielding connection and similarly connected to an arm of said rock-shaft for rocking said shaft, a lever pivoted at one end to said rock-shaft, a valve-arm to which the other end of said lever is pivoted, a dash-pot piston pivoted to the end of said valve-arm, a lever pivoted to said draft-door, and a contact-arm fixed on said rock-shaft in the line of travel of the draft-door lever, said lever adapted to contact with the contact-arm on the return of the main door to thereby open the draft-door, substantially as described.

4. In a furnace, a main door therefor, in combination with a draft-door and means to operate the latter, a rock-shaft, an extensible rod connecting said main door and rock-shaft, a gimbal-joint at each end of said rod for said connection consisting of a sleeve surrounding a pin on one part and having a lug pivoted to the other part at right angles to said sleeve, a lever pivoted to said rock-shaft, a steam-injector and valve therefor, a valve-arm, said lever pivoted to said valve-arm, substantially as described.

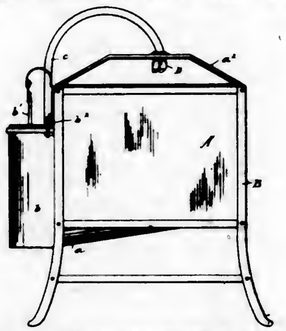
648,887. ACETYLENE-GAS GENERATOR. WILLIAM W. PIPER, Hillsborough, Tex. Filed July 22, 1899. Serial No. 724,799. (No model.)



Claim.—1. A generator of the class described comprising the chamber 12, the tank communicating with said chamber, and the gas-holder mounted in said tank, the carbid-chamber, the pipes 20 21 connecting the carbid and chambers and having their upper ends terminating respectively above and below the water-level of the chamber, the orificed bell or hood 23 encompassing the open ends of said pipes, and means substantially as described for communicating a vertical movement to said bell or hood through the medium of said gas-holder, as and for the purpose set forth.

2. The tank 2 provided with the bottoms 3 and 5, the latter forming the condenser-chamber 8, the vertical gas-pipe 9, and the outlet-pipe 10, the vertical standard 4, the gas-holder 1 and its guide-sleeve 6 encompassing said standard, the chamber 12 communicating with said tank, the carbid-chamber detachably suspended from said chamber, the gas-pipe 20 extending from said carbid-chamber to a point above the water-level in said chamber, and the water-pipe 21 extending from said carbid-chamber to a point below the water-level in said chamber, the pipe 14 extending from a point above the water-level in the chamber to the condenser-chamber, the lever 27 mounted in the tank and having its free end extending into the path of the guide-sleeve 6, the rod 26 pivoted to said lever, and the orificed bell 23 suspended from said rod and encompassing the open upper ends of said gas and water pipes 20 21, substantially as and for the purpose set forth.

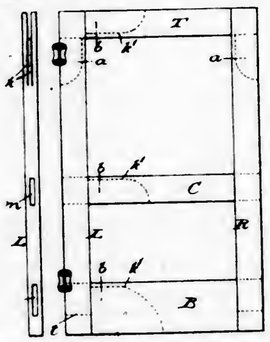
643,888. DISH-WASHING MACHINE. FRANK C. SHERMAN, Pontiac, Mich. Filed Nov. 6, 1899. Serial No. 736,069. (No model.)



Claim.—1. In a dish-washing machine in combination with a tank and means for delivering water into the tank, a dispersing-wheel provided with vanes having a vertical body *g*, and oblique foot-plates *f*, leading in one direction, and spurs leading in the opposite direction; the spurs overlying the forward edge of the adjacent foot-plate, substantially as described.

2. In a dish-washing machine, in combination with a tank and means for delivering water from above downward into the same, a water-dispersing wheel comprising a hub, blades secured to the hub longitudinal of its axis, each blade being provided with a foot that extends at an angle to the main body of the blade, and with a spur that extends at an opposite angle with the main body of the blade, substantially as described.

643,889. SCREEN DOOR OR WINDOW FRAME. CHARLES C. WHEELER, Holland, Mich. Filed Jan. 15, 1899. Serial No. 702,523. (No model.)



Claim.—1. A knockdown door or window frame comprising stiles and rails, one of the rails being provided with tongues or tenons at its ends and the stiles being provided, at their ends adjacent to the said rail, with kerfs extending from the outer edges of the stiles toward the inner edges of the said stiles but terminating a short distance from the inner edges, whereby the kerfs are hidden from view

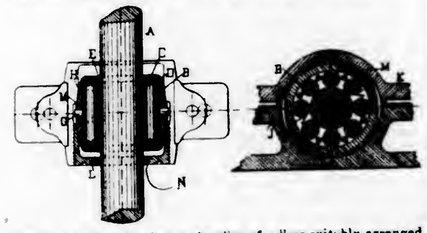
when the frame is in use, and the stiles are not materially weakened, substantially as set forth.

2. A knockdown door or window frame comprising stiles and rails, the rails being provided with tongues or tenons at their ends and with kerfs at one set of corresponding ends, which kerfs extend from the outer edges of the rails inwardly but not through the inner edges of the rails, and the stiles being provided with kerfs at one set of corresponding ends, extending from the outer edges of the stiles toward but not through their inner edges, whereby the kerfs in the stiles and rails are hidden from view when the frame is in use, and the strength of the frame is not materially reduced, substantially as set forth.

3. A knockdown door or window frame comprising stiles and rails, one of the rails being provided with tongues or tenons at its ends and each of the said stiles being provided, at its end in engagement with the said rail, with a pair of kerfs cut a distance apart corresponding to the thickness of the tongue or tenon in the rail, the said kerfs extending from the outer edge of the stile toward but not through the inner edge thereof whereby the kerfs are hidden from view when the frame is in use and the strength of the frame is not materially reduced, substantially as set forth.

4. A knockdown door or window frame comprising stiles and rails, the rails being provided with tongues or tenons at their ends, each of the rails being provided, at its end in engagement with one of the stiles, with a pair of kerfs extending from its outer edge toward but not through its inner edge, the said kerfs leading from the base of the tongue or tenon, and each of the stiles, at one end of the frame, being provided with a pair of kerfs corresponding to the thickness of the tongue or tenon, the said kerfs extending from its outer edge toward but not through its inner edge, substantially as set forth.

643,890. **ROLLER-BEARING.** ALFRED R. BURBOUF, Bonnières, France. Filed Aug. 8, 1899. Serial No. 726,586. (No model.)



Claim.—1. In a bearing, a plurality of rollers suitably arranged and between which a shaft may be passed, a divided sleeve passed about said rollers and being cylindrically formed interiorly and of the form of two cones exteriorly, a rib by means of which said cones are connected, said rib consisting of two members, each of which is crescent-shaped in form, and a pair of journal-box members in which said sleeve is mounted, and in connection with which sleeve one of said journal-box members operates to adjust said sleeve, substantially as shown and described.

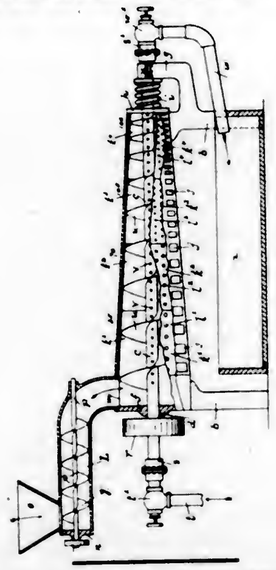
2. A bearing of the class described, comprising a pair of journal-box members, one of which is adjustable and between which a shaft is passed, a pair of collars mounted on said shaft, a plurality of rollers journaled at their ends in said collars and arranged longitudinally of said shaft, a divided sleeve passed about said rollers and provided with a cylindrical inner surface and of the form of cones exteriorly, said cones being connected by a divided rib consisting of two parts, each of which is crescent-shaped in form, said cones operating in connection with the inner surfaces of said journal-box members, substantially as shown and described.

643,891. **EXTRACTING-PRESS.** JOSEPHUS F. BUSSELLE, Irvington, Va. Filed July 19, 1899. Serial No. 724,339. (No model.)

Claim.—1. The combination of a shell or case having a feeding-in device at one end, a pressure-plate normally closing the discharge end, and the wall or shell of the case provided with strainer-holes which are reduced in size progressively from the feeding-in end to the discharge end; and a hollow shaft within the case carrying a tapered spiral flange or screw.

2. The combination of a tapered case having strainer-holes reduced in size progressively from the large end to the small end; a revoluble hollow steam-shaft extending through the case and provided with perforations; and a tapered spiral flange on the hollow shaft.

3. The combination of a tapered shell having slots, *j*, regularly placed and extending all along and around the shell; a lining of sheet metal within the shell and in contact therewith—said lining covering the said slots and the lining provided with holes which are reduced in size progressively from the large end to the small end; a hollow shaft through the shell and provided with perforations opening into the shell; and a spiral flange on said shaft.



643,892. **METHOD OF FORMING ACID-RESISTANT PRINTING-DESIGNS.** GEORGE R. CORNWALL, Port Chester, and HERMAN C. BOSDICKER, New York, N. Y., assignors, by mesne assignments, to Harry C. Cornwall, Wyoming, N. J. Filed Jan. 14, 1898. Serial No. 666,697. (No specimens.)

Claim.—1. The method of forming an acid-resistant design which consists in forming upon a plate a design in a material which is soluble in a non-aqueous solvent, applying to the parts of the plate not covered by the design a film of water-attracting material, removing the surplus material of said design down to the surface of the plate by its non-aqueous solvent, applying to the plate a non-aqueous solution of a hard acid-resistant material, drying the plate and applying water thereto.

2. The method of converting an acid-destructible printing-design into an acid-resistant design, which consists in applying to the parts of the printing-plate not covered by the design, a film of water-attracting material, then removing so much of the material of the design as projects above the surface on which it was formed, then applying to the plate a solution of asphalt in a non-aqueous solvent, drying the plate and exposing it to the action of water.

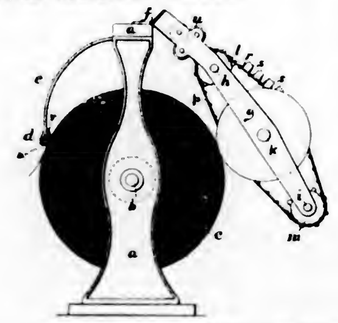
3. The method of converting an acid-destructible printing-design into an acid-resistant design which consists in applying to the parts of the plate not covered by the design a film of water-attracting material, then removing the surplus material of the design, applying to the plate a solution of sensitive asphalt in a suitable solvent, drying the plate, soaking it in water, whereby the asphalt is left only on the parts covered by the original design and finally exposing the design to the action of light so as to convert the asphalt into a comparatively insoluble and resistant form.

4. The method of forming a printing-design which is resistant to nitric acid and to turpentine, which consists in forming on a plate a design in ink-attracting material which is removable by a non-aqueous solvent, applying to the parts of the plate not covered by the design a film of water-attracting material, removing the surplus material of the design by a suitable non-aqueous solvent, applying to the plate a film of sensitive asphalt, treating the plate with water to remove the asphalt from the parts covered by the water-attracting film, and exposing the resulting design to the action of light.

5. The method of forming a printing-design which is resistant to nitric acid and to turpentine which consists in forming, on a plate, a design in a material such as crayon, tusche, transfer-ink or printing-ink, which is removable with turpentine, applying to the plate a solution of gum and water, drying the plate, removing the surplus material of the design with turpentine, applying to the plate a solution of

sensitive asphalt in a non-aqueous solvent, drying the plate, soaking it in water and thereby removing the asphalt from the parts covered by the gum, and exposing the asphalt design to the action of light.

643,893. **PRINTING ATTACHMENT FOR ROLL-HOLDERS.** WILLIAM C. DAY, Philadelphia, Pa. Filed Apr. 15, 1899. Renewed Nov. 27, 1899. Serial No. 738,450. (No model.)

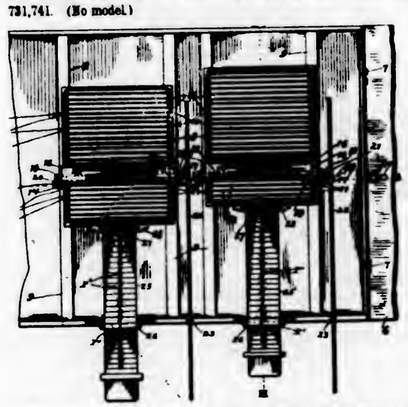


Claim.—1. In a printing attachment for paper-rolls, in combination, the paper-roll and its supporting shaft and frame, a frame hinged to the upper part of said supporting-frame, a friction-roll carried by said hinged frame engaging the paper-roll, endless belts driven by the movements of said friction-roll, idlers carried by said frame-supporting belts, type-carrying boxes and type carried by said belts, and means for inking said type.

2. In a printing attachment for rolls of paper or other materials in combination, a supporting-frame, a shaft carried by said frame, a roll of material carried by said shaft, a frame hinged to the upper part of said supporting-frame, a driving-shaft carried by said hinged frame, a friction-roller and sprocket-wheels carried by said shaft, shafts carried by said hinged frame, sprocket-wheels carried by said shafts, endless chain belts passing around said sprocket-wheels and meshing with the sprockets on said driving-shaft, type-carrying boxes, carried by said chain belts, type carried by said boxes and inking-rolls for inking said type.

3. The herein-described device for lifting and holding the cutting-knife clear of the material consisting of a tongue of thin metal carrying a block, said block being adapted to be placed against the under side of said knife and said tongue being adapted to be wrapped around said block and knife.

643,894. **READING-TEACHING OR EDUCATIONAL DEVICE.** STEPHEN PURDEE, Cleveland, Ohio. Filed Sept. 26, 1899. Serial No. 731,741. (No model.)



Claim.—1. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two slide-elevating arms arranged at opposite sides, respectively, of the carriage below the aforesaid shoulders, and means for elevating and lowering the said arms.

2. A machine of the character indicated, comprising a base; a track or way formed upon the base, a carriage engaging and movable endwise of the track or way; slides supported within and arranged transversely of the carriage at short intervals longitudinally of the carriage, which slides are capable of being elevated and have, respectively, two slots formed in opposite side edges, respectively, with each side edge registering with the slots in the adjacent side edges of the adjacent slides; two slide-elevating arms arranged at opposite sides, respectively, of the path of the carriage and arranged to register with the different slots, respectively, of any one of the slides in the lower or normal position of the slides, and mechanism for elevating or lowering both of the slide-elevating arms simultaneously.

3. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two racks arranged at opposite sides, respectively, of the path of the carriage and provided with arms arranged below the aforesaid shoulders, and a suitably-operated shaft provided with pinions meshing with the aforesaid racks, substantially as and for the purpose set forth.

4. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; two racks arranged at opposite sides, respectively, of the path of the carriage and provided with arms arranged to extend in under the aforesaid shoulders; a suitably-operated shaft provided with pinions meshing with the aforesaid racks; another pinion operatively mounted upon the said shaft, and a suitably-operated rack meshing with the last-mentioned pinion, substantially as and for the purpose set forth.

5. A machine of the character indicated, comprising a base; a track or way formed upon the base; a carriage engaging and movable endwise of the way or track; slides supported from and arranged within the carriage at short intervals longitudinally of the carriage, and each of the said slides having two downwardly-facing shoulders formed upon opposite side edges, respectively, of the slide; an inverted-U-shaped frame straddling the path of the carriage; a suitably-operated shaft arranged above the path of the carriage below the central member and supported from the frame; pinions operatively connected with the shaft at opposite sides, respectively, of the frame, and racks meshing with the pinions and provided with arms arranged to project in under the shoulders of the aforesaid slides, substantially as and for the purpose set forth.

6. In a machine of the character indicated, the combination with a carriage; vertically-movable slides bearing letters, characters or representations and supported from the carriage at short intervals longitudinally of the carriage, and mechanism for elevating any one of the said slides: of an index for indicating which slide is in the position required to render it capable of being operated upon by the slide-elevating mechanism, which index consists of a forwardly and rearwardly extending bar that is connected with the carriage at one end and extends laterally through an upright stationary wall and bears letters, characters or representations, corresponding with the representations upon the slides, and furthermore corresponding, in arrangement longitudinally of the index-forming bar, with the arrangement of the slides of the carriage, substantially as and for the purpose set forth.

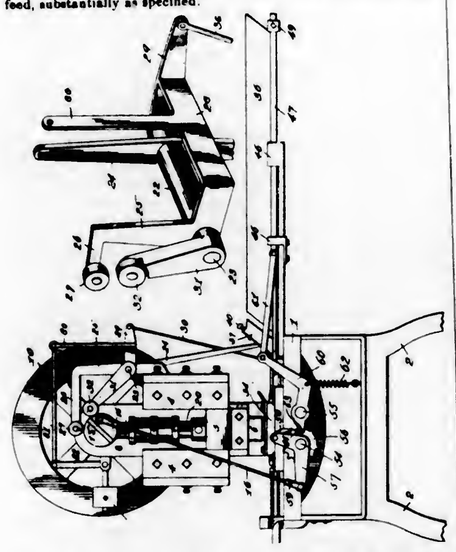
643,895. **CARD-CUTTING MACHINE.** THEODORE GOEBEL, St. Louis, Mo. Filed Feb. 17, 1899. Serial No. 705,942. (No model.)

Claim.—1. In a card-cutting machine, the combination with a suitable card-cutting die, of a cardboard-strip chute supporting strips of cardboard, mechanism for feeding said cardboard in communication with the die, and an adjustable feeding device operated by said mechanism for delivering the cardboard strips immediately after one strip has passed from beneath the die, substantially as specified.

2. In a card-cutting machine, the combination with a suitable card-cutting die, of an intermittent cardboard-strip-feeding mechanism, a cardboard-strip chute, suitable mechanism for starting the lowermost one of the cardboard strips out of said chute, and mechanism whereby the last-mentioned cardboard-strip-delivering mechanism is operated once to as many movements of the intermittent cardboard-strip-feeding mechanism as there are cards to be cut from a single cardboard strip, substantially as specified.

3. In a card-cutting machine, a suitable frame, a horizontal shaft

arranged for rotation in said frame, vertically-moving card-cutting dies operated from said shaft, double eccentrics located upon said shaft, mechanism operated by said eccentrics for feeding a cardboard strip beneath the dies, a suitably-located ratchet-wheel, a pin projecting from the face of said ratchet-wheel, suitable mechanism for transmitting the rotary motion of the shaft to said ratchet-wheel, and suitable mechanism operated by said ratchet-wheel for delivering a cardboard strip from the chute to the intermittent cardboard-strip feed, substantially as specified.

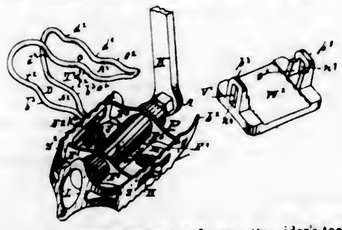


4. In a card-cutting machine, a cardboard-strip-feeding mechanism, comprising a sliding rod, means for imparting movement to said rod, clamping-fingers hinged upon said rod, a rock-shaft for actuating the clamping-fingers, and means for imparting movement to said rock-shaft, substantially as specified.

5. In a card-cutting machine, a cardboard-strip-feeding mechanism constructed with a sliding rod, means for actuating said sliding rod, pairs of clamping-fingers carried by said rod, a rock-shaft, the same being provided at certain points with flattened surfaces, anti-friction-rollers carried by the rear ends of the clamping-fingers, which rollers ride upon said flattened surfaces, and suitable mechanism for operating the rock-shaft the instant after motion has been imparted to the sliding rod, substantially as specified.

6. In a card-cutting machine, a cardboard-strip chute, mechanism for feeding the lowermost one of the cardboard strips from said chute, an adjustable gage arranged immediately in front of said chute, a fulcrumed stop arranged in a transverse slot in front of said gage, a bevel-faced lug integral with one end of said stop, and a depression-finger carried by the cardboard-strip-delivering mechanism for engaging said lug, substantially as specified.

643,896. TOE-CLIP AND COUNTERPOISE. PAUL GOLDSMITH, Troy, N. Y. Filed Oct. 9, 1897. Serial No. 654,667. (No model.)



Claim.—1. A wire toe-clip bent to fit over the rider's toes and forming two undulating rods connected at the ends only and being of V shape both above and below the foot, substantially as set forth.

2. A counterpoise for a bicycle-pedal provided at one side with a raised part M and lateral extensions and having also vertical slots n^2 at its opposite sides for attachment to the sides of the pedal, the said counterpoise being arranged within the pedal-frame and against the under side of the said shaft, substantially as set forth.

643,897. LAMP ATTACHMENT. FREDERICK W. HEDGELAND, Chicago, Ill. Filed Oct. 23, 1899. Serial No. 734,506. (No model.)



Claim.—1. A lamp attachment, comprising an expansible socket, composed of a number of segmental sections, and means for expanding said socket-sections to engage the inclosing walls of an aperture in supporting an object by frictional contact, substantially as described.

2. A lamp attachment, comprising an expansible socket-joint, composed of a number of segmental sections, an expanding-plug, inclosed by said sections, and means for loosely retaining the said sections in position to be operated upon by the expanding-plug, substantially as described.

3. In a lamp attachment, the combination with an expansible socket-joint, consisting of a number of segmental sections, means for loosely retaining said sections in position and an adjustable plug, adapted to expand said sections, substantially as described

4. In a lamp attachment, the combination with an expansible socket, consisting of a number of segmental sections loosely retained in position, of an expanding-plug, inclosed by said sections, a threaded sleeve with which said plug has a threaded engagement, and the burner-tube, on which said sleeve is loosely mounted substantially as described.

5. The combination with a lamp, of a threaded sleeve rigidly secured thereto, an expanding-plug having sloping sides and a threaded engagement with said sleeve, a number of segmental sections, having their inner faces beveled and loosely surrounding said plug, and means for retaining said sections in position to be spread by the expanding-plug, substantially as described.

643,898. DENTAL OVEN. HARRY M. HILL, St. Louis, Mo. Filed Jan. 23, 1899. Serial No. 703,174. (No model.)



Claim.—1. The combination with a grooved crucible and heating-wires arranged in the grooves of said crucible, of non-heat-conducting material around said crucible, a casing or shell, bands on the ends of the casing, said bands being provided with supporting-legs, an end wall containing binding-posts to which the heating-wires are connected, and a cap or cover for the crucible; substantially as described.

2. The combination with a crucible A and its electrical heating-wires, of the casing B, the head C, provided with binding-posts for the heating-wires of the crucible suitably insulated therefrom, the band E arranged at the end of casing B and provided with suitable supporting-legs, the band G, provided with suitable supporting-legs, and a cover or cap D; substantially as described.

3. The combination with an oven, of a hinged cap or cover therefor, a refractory plate secured to the inner face of said cover, an electrical heating-wire arranged in the face of the plate so that said plate will be interposed between the wire and the oven and binding-posts on the cover for said wire; substantially as described.

4. The combination with an oven, of a door D therefor, lugs d', for pivotally supporting said door as a shelf, a spirally-grooved plate secured to the inner face of said door, and an electrical heating-wire arranged in said groove; substantially as described.

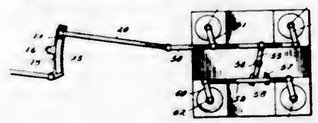
5. The combination with a crucible and its heating-wires, of non-heat-conducting material around said crucible, a casing or shell, bands at each end of the casing, legs on said bands for supporting

said crucible in substantially a horizontal or vertical position, and a cap or cover for the crucible; substantially as described.

6. The combination with the oven or crucible formed with deep grooves in its periphery, of an electrical heating-wire which is wound so as to occupy the bottoms of said grooves, and a covering for said crucible for closing said grooves, whereby the wire has sufficient room to expand without affecting the walls of said grooves; substantially as described.

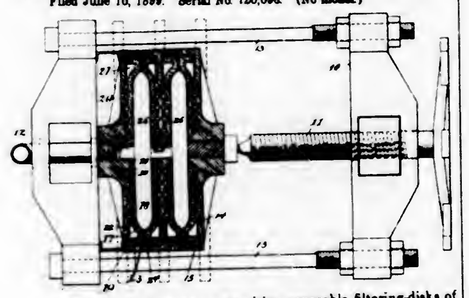
7. The combination with the oven or crucible formed with parallel spiral grooves, of an electrical heating-wire wound tightly in said grooves, and an asbestos covering for closing the tops of said grooves and holding said wire in position, said grooves being sufficiently deep to permit said wire to expand; substantially as described.

643,899. VALVE-GEAR FOR ENGINES. WILLIAM J. HILL, Elkmont, Ala., assignor of one-half to R. O. Woodfin, same place. Filed Apr. 19, 1899. Serial No. 713,647. (No model.)



Claim.—In a valve gear, the combination with rotary valves, having stems, radial arms thereon, a bar pivotally connected to the outer ends of said radial bars, the valve-rod pivotally connected with the bar, a second set of rotary valves having stems, radial arms on the stems, a bar pivotally connected with the outer ends of said arms, adjustable stops on the bar, and a centrally-pivoted lever having one end connected with the bar of the first set of valves and the other end projecting between the adjustable stops, substantially as described.

643,900. FILTER-PRESS. GUSTAV HOTTINGER, Chicago, Ill. Filed June 10, 1899. Serial No. 720,098. (No model.)



Claim.—1. A filter-press comprising separable filtering-disks of porous earthenware, arranged in pairs having recessed or hollowed-out opposed faces to form chambers for the material to be filtered, means for firmly pressing said disks toward each other, and means for introducing the material to be filtered into the spaces between the disks, substantially as described.

2. A filter-press comprising separable filter-disks of porous earthenware, means for pressing said disks toward each other, and metallic supporting-frames carrying said disks and adapted to distribute the pressure over the same, substantially as described.

3. A filter-press, comprising metallic supporting-frames and filtering-disks of porous earthenware, supported by and bearing against said frame throughout the major portion of their bearing-surfaces, substantially as described.

4. In a filter-press, the combination, with metallic supporting-frames having recesses in their opposing faces, of filtering-disks of porous earthenware mounted in said recesses and bearing against the frames, the units thus composed of frames and disks being each provided with conduits or passages to receive the filtered liquid after it passes through the disks and to discharge the same from the press, substantially as described.

5. In a filter-press, the combination, with metallic supporting-frames and porous-earthenware filtering-disks carried thereby, of conduits or passages located at the junction of the disks and frames to receive and discharge the filtered liquid, substantially as described.

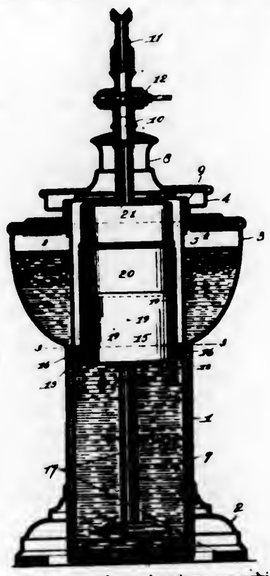
6. In a filter-press, the combination, with metallic supporting-frames and porous-earthenware filtering-disks carried by and bearing against said frames, of conduits or passages formed by coincident grooves in the meeting faces of the disks and frames, substantially as described.

7. In a filter-press, the combination, with disk-shaped supporting-frames having marginal flanges, of filtering-disks of porous earthenware having dished or hollowed-out central portions and secured by cement in the recesses thus formed in the frame, outlet-passages for the filtered liquid being provided at the meeting faces of the disks and frames, substantially as described.

8. In a filter-press, a supporting-frame having an annular marginal flange which is circumferentially grooved internally, in combination with a filtering-disk of porous earthenware having its margin similarly grooved, and a filling of cement located between the disk and frame and entering the grooves, substantially as described.

9. In a filter-press, the combination, with a supporting-frame having vertical grooves in its face, and a central apertured hub surrounded by a groove connecting the vertical grooves above and below it, of a filtering-disk of porous earthenware provided with corresponding vertical and circular grooves, and a central aperture, substantially as described.

643,901. ACETYLENE-GAS LAMP. PETER JOHNERAND, Jonesrand, Tex. Filed May 1, 1899. Serial No. 715,134. (No model.)



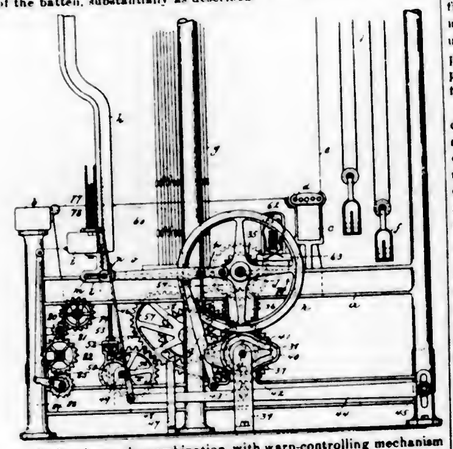
Claim.—The improved acetylene-lamp, comprising the water-receptacle having an opening in its upper end, the collar 4 provided with the depending flange 5 in which are formed perforations 6 and said flange inserted within said opening of said receptacle with said perforations closely adjacent to the top of the water-receptacle, the cylinder 7 with its upper end passed through said collar 4 and projecting above said perforated flange 5, the cap 8 carrying a burner, the said cap being tightly fastened upon the projecting upper end of said cylinder, the carbid-receptacle within said cylinder, and means for applying water to the carbid, substantially as herein specified.

643,902. NEEDLE-LOOM. GEORGE F. KUNTZ, Paterson, N. J., assignor to the American Automatic Loom Company, of New Jersey. Filed July 12, 1899. Serial No. 723,643. (No model.)

Claim.—1. In a loom, the combination, with warp-controlling mechanism and a batten having a groove or grooves in its upper surface, of reciprocating bars seated in said groove or grooves, filler-carriers mounted on said bars, loopers adapted to reciprocate transversely of said filler-carriers, levers fulcrumed on said batten and operatively connected to said bars, and means for vibrating said levers and reciprocating the loopers, said means being operative independently of the action of said batten, substantially as described.

2. In a loom, the combination, with warp-controlling mechanism and a batten, of reciprocating bars mounted on said batten, filler-carriers mounted on said bars, a suitably-guided frame carried by and movable transversely with reference to the batten, loopers car-

ried by said frame and adapted to coact with the filler-carriers, levers mounted on said batten, rods pivotally connecting said bars and said levers, and means for vibrating said levers and reciprocating said frame, said means being operative independently of the action of the batten, substantially as described.



3. In a loom, the combination, with warp-controlling mechanism and a batten having a groove in its upper surface, of reciproting bars seated side by side in said groove, filler-carriers adjustably mounted on said bars, a vertically-movable frame carried by and movable transversely with reference to the batten, guides for said frame carried by said batten, loopers carried by said frame, yieldingly mounted therein and adapted to coact with the filler-carriers, levers mounted on said batten, rods pivotally connecting said bars and said levers, and means for vibrating said levers and reciprocating said frame, substantially as described.

4. In a loom, the combination, with warp-controlling mechanism and a batten and with the drive-shaft, of reciprocating bars carried by said batten, filler-carriers mounted on said bars, levers fulcrumed on said batten and operatively connected to said bars, a vertically-movable and suitably-guided frame carried by said batten, loopers carried by said frame, yieldingly mounted therein and adapted to coact with said filler-carriers, suitably-journaled eccentrics operatively connected to said frame, suitably-fulcrumed levers operatively connected to said frame, suitably-fulcrued levers operatively connected to said first-named levers, operative connecting means between said drive-shaft and said eccentrics and between said drive-shaft and the last-named levers, and means for reciprocating the batten, substantially as described.

5. In a loom, the combination, with warp-controlling mechanism including a batten and with the drive-shaft, of reciprocating bars carried by said batten, filler-carriers mounted on said bars, levers fulcrumed on said batten and operatively connected to said bars, a vertically-movable and suitably-guided frame adapted to reciprocate transversely of said batten, loopers carried by said frame and adapted to coact with said filler-carriers, another and suitably-journaled shaft, eccentrics and an eccentrically-mounted gear carried on said last-named shaft, operative connectioo between said eccentrics and the frame, a suitably-journaled elliptical gear engaging said eccentrically-arranged gear and operatively connected to the drive-shaft, suitably-journaled cams, gearing connecting said cams and the drive-shaft, levers operatively engaging said cams, pitmen connecting said levers and said first-named levers, and operative connecting means between said batten and the drive-shaft, substantially as described.

6. In a loom, the combination, with the batten and with reciprocating filler-carriers, of a vertically-movable frame, guides for said frame carried by said batten, clamps adjustably mounted on said frame, and loopers yieldingly carried by said clamps and adapted to coact with said filler-carriers, substantially as described.

7. In a loom, the combination, with the batten and with reciprocating filler-carriers, of a vertically-movable frame, guides for said frame projecting downwardly from said batten, clamps adjustably mounted on said frame, oscillating blocks supported by said clamps, and loopers carried by said blocks and adapted to coact with said filler-carriers, substantially as described.

8. In a loom, the combination, with the batten and with reciprocating filler-carriers, of a vertically-movable frame, guides for said frame projecting downwardly from said batten, clamps adjustably mounted on said frame, oscillating blocks supported by said clamps, and loopers carried by said blocks and adapted to coact with said filler-carriers, each looper being disposed eccentrically of the pivotal axis of its block, substantially as described.

9. In a loom, the combination, with the batten and with reciprocating filler-carriers, of a vertically-movable frame, guides for said frame projecting downwardly from said batten, clamps adjustably mounted on said frame and provided with slotted projections at their upper ends, blocks pivotally connected to said clamps beneath the projections thereof, and loopers adjustably mounted in said blocks, penetrating said slotted projections and adapted to coact with said filler-carriers, substantially as described.

10. In a loom, the combination, with a batten having a longitudinal slot therein, of reciprocating bars arranged in said slot, strips secured upon said bars and having openings, slotted plates arranged on said bars over the openings therein, screws projecting into the strips and penetrating the slots of said plates, posts adjustably mounted on said plates over said openings and provided with adjusting-nuts, and needles penetrating and adjustably mounted on said posts, substantially as described.

11. In a thread-controlling device, the combination, with a spool or bobbin, of a pair of suitably-disposed coacting levers, a flier revolubly arranged in the axial line of said spool or bobbin and including an elastic arm provided with an eccentrically-disposed eyelet, said levers having eyelets at the ends thereof adjacent the flier, and said flier-arm being adapted to engage the other ends of said levers, and springs tending to separate the eyelet ends of said levers, substantially as described.

12. The combination, of a pair of suitably-fulcrumed spring controlled coacting levers, a spool or bobbin disposed between the same, and a flier revolubly mounted above said spool or bobbin, and including an upwardly-extending arm and a downwardly-extending arm, the former carrying an axially-disposed eyelet and the latter carrying an eccentrically-disposed eyelet and the upper arms of the levers being also provided with eyelets, the lower arms of said levers being adapted to be engaged by the downwardly-extending arm of the flier, substantially as described.

13. The combination with an arch-shaped frame and a spool or bobbin arranged within the same, of a pair of coacting levers fulcrumed in said frame on opposite sides of said spool or bobbin, a flier revolubly mounted upon said spool or bobbin and comprising upwardly and downwardly extending arms, and an axially-disposed eyelet carried by said first-named arm and an eccentrically-disposed eyelet carried by the other arm, said levers having eyelets at the ends thereof adjacent the flier and being adapted to be engaged by the downwardly-extending arm at the other of their ends, and springs tending to separate the eyelet ends of said levers, substantially as described.

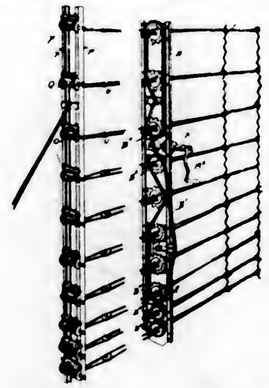
14. The combination, with an arch-shaped frame and a spool or bobbin arranged therein, of a pair of levers fulcrumed in said frame on opposite sides of said spool or bobbin, a flier revolubly mounted upon said spool or bobbin and comprising upwardly and downwardly extending flexible arms, and an axially-disposed eyelet carried by said first-named arm and an eccentrically-disposed eyelet carried by the other arm, said levers having eyelets at the ends thereof adjacent the flier and having their other ends bent inwardly, the one more than the other, and adapted to engage said downwardly-extending arm, springs tending to separate the eyelet ends of said levers, and a stationary eyelet carried by said frame above said flier, substantially as described.

15. In a loom, the combination with the frame including a breast-beam and with shedding mechanism including the batten, of a horizontally-reciprocating frame, guiding means carried by said breast-beam and sustaining said reciprocating frame, filler-carriers movable longitudinally of said batten, means for actuating said reciprocating frame, loopers pivotally supported in said reciprocating frame and adapted to coact with said filler-carriers, a movable device engaging said loopers, and a detent adapted to trip said device to disengage the loopers therefrom, substantially as described.

16. In a loom, the combination, with warp-controlling mechanism, and a batten, of reciprocating bars mounted on said batten, filler-carriers mounted on said bars, loopers adapted to reciprocate transversely of said filler-carriers, levers fulcrumed on said batten, and operatively connected to said bars, a drive-shaft journaled in said frame, operative connecting means between said drive-shaft and said levers, operative connecting means between said drive-shaft and said loopers, a longitudinally-reciprocating pitman operatively connected to said batten, means for guiding said pitman, and a link pivotally connected at one of its ends to said pitman and having eccentric connection with said shaft at the other of its ends, substantially as described.

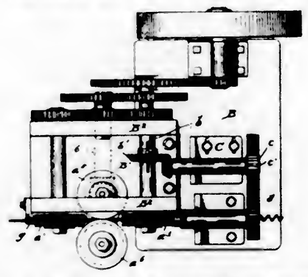
641,903. FENCE-MACHINE. JOHN LAER, Holly, Mich. Filed Sept. 13, 1898. Serial No. 690,853. (No model.)

Claim.—1. In a driving-gear for wire-fence machines, the combination of a supporting-frame; an intermediate gear consisting of a bevel gear-wheel and a spur-pinion; means for actuating the bevel-gear; adjacent twisters, each made in two portions, one portion being constructed with a spur-gear and adapted to mesh into said pinion, and the other portion being adapted to receive a sprocket-chain; and bearings for supporting the same; substantially as described.



2. In a driving-gear for fence-machines, the combination of a supporting-frame; a spur-pinion intermeshing into the gears of two twisters, each twister being composed of two portions, one portion being the spur-gear, and the other portion being a sprocket-wheel, and having an intermediate slot to receive strands of wire, each portion being formed with an annulus in such manner that when the annuli are brought together they form a bearing between the portions; and means for uniting the two portions of each twister; substantially as described.

643,904. WIRE-COILING MACHINE. JOHN LAUER, Detroit, Mich. Filed June 30, 1898. Serial No. 684,787. (No model.)



Claim.—1. In a machine for forming spiral wire, the combination with a die having a spiral groove adapted to form the wire to its own shape, formed therein, means for rotating said die, and a force-feed adapted to deliver the wire to said groove, substantially as and for the purpose described.

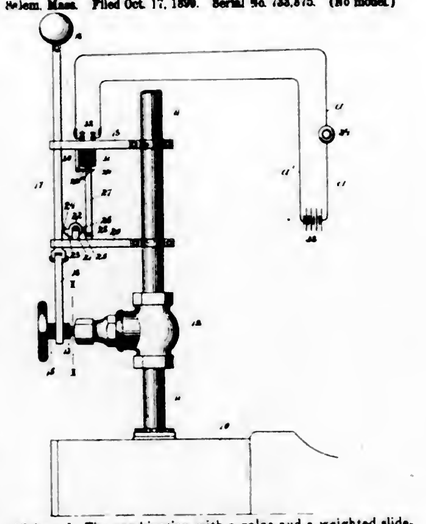
2. In a machine for coiling wire into a spiral, the combination of driving-rolls, means for imparting motion to them, a die having a spiral groove adapted to form the wire to its own shape, formed therein, said driving-rolls being adapted to deliver the wire to said groove, and means for rotating said die as the wire advances past said die, substantially as described.

3. In a machine for forming spiral wire, the combination of a force-feed, a rotating die arranged as the core of the spiral and means whereby the driving-gear of the rotating die may be changed, substantially as described.

4. In a machine for coiling wire, the combination of a spirally-grooved core and a hollow axle in which the core is held and means for rotating the core and axle together, substantially as described.

5. In a machine for coiling wire, the combination of a hollow holder, a spirally-grooved core adapted to be held in said holder, the said holder being provided with a throat-opening leading to the spiral groove directly at the center line of the die, substantially as described.

643,905. VALVE-OPERATING MECHANISM. ALBERT N. LOCKE, Nelem, Mass. Filed Oct. 17, 1899. Serial No. 733,875. (No model.)



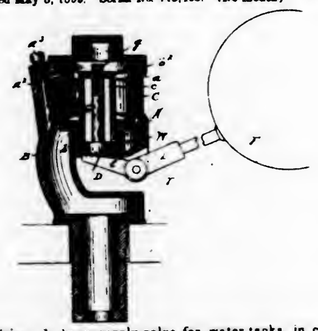
Claim.—1. The combination with a valve and a weighted slide-rod operatively connected with the valve, of a tilting check connected to the slide-rod to prevent its movement, a swinging locking-arm engaging and securing the said check, and a latch connected with the arm and adapted by its release to free the arm and check, thus permitting the sliding of the rod, substantially as described.

2. The combination with the valve, of the movable slide-rod normally moved in one direction, a tilting check to prevent such movement of the rod, a locking-arm to hold the check against the movement of the rod, and electrically-operated means for releasing the said locking-arm and permitting the movement of the check and slide-rod.

3. The combination with the rotary valve-stem, the slide-rod normally moved in one direction, a stop for the slide-rod, a cable connection between the slide-rod and valve-stem, means for releasing the stop, and a checking device for the valve-stem, said device being arranged to be released by the releasing of the slide-rod and the movement of the latter.

4. The combination with the rotary valve-stem and the slide-rod normally moved in one direction, of a releasable checking device for the slide-rod, a cable connection between the slide-rod and the valve-stem, and a frangible or collapsible connection between the valve-stem and an adjacent fixture, said connection being of a nature to be broken by the releasing of the slide-rod and the movement of the latter.

643,906. SUPPLY-VALVE. ELON A. MARSH, Detroit, Mich. Filed May 3, 1899. Serial No. 715,465. (No model.)



Claim.—1. In a supply-valve for water-tanks, in combination with a casing, a piston and piston-chamber adapted to be actuated by differential pressure therein, a valve upon said piston, passages of variable relative area leading from the high-pressure side into said

piston-chamber, and from said piston chamber to the low pressure side of the piston, a retarding mechanism in the outlet-passage, a float mechanism arranged to actuate the retarding mechanism, and a valve in the passage from the piston-chamber to the low-pressure side of the piston, the stem of said valve being connected to the retarding mechanism, and the valve and the retarding mechanism being regulated to limit the pressure of the water passing the retarding mechanism, substantially as described.

2. In a supply-valve operating to regulate the flow of water into a tank by a valve attached to a piston, the combination of a cylinder, and a piston arranged to be reciprocated therein by differential pressure, a valve upon said piston, passages of differential area leading from the high-pressure side into the piston-chamber, and from the piston-chamber to the low-pressure side, and means actuated by a float and by the passage of the water to regulate the relative area of said passages, substantially as described.

3. In a supply-valve, in combination with a casing inclosing a high-pressure chamber, a low-pressure chamber, and an intermediate chamber, and provided with a passage between the high-pressure chamber, and the low-pressure chamber, a passage between the high-pressure chamber and the intermediate chamber, and a passage between the intermediate chamber and the low-pressure chamber, a piston-valve arranged to be actuated by differential pressure and control the main passage, a disk partially closing the outlet from the low-pressure chamber, a valve arranged to be actuated simultaneously with said disk and arranged to control the passage-way leading from the intermediate chamber to the low-pressure chamber, substantially as described.

4. In a supply-valve for water-tanks, in combination with a casing, a piston and a piston-chamber adapted to be actuated by differential pressure therein, a valve upon said piston, passages of variable relative area leading from the high-pressure side into said piston-chamber, and from said piston-chamber to the low-pressure side of the piston, a retarding mechanism in the outlet-passage, a float mechanism arranged to actuate the retarding mechanism, and a valve in the passage from the piston-chamber to the low-pressure side of the piston, the stem of said valve being connected to the retarding mechanism, and the valve and the retarding mechanism being regulated to limit the pressure of the water passing the retarding mechanism, substantially as described.

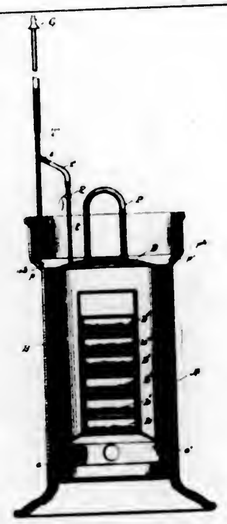
5. In a supply-valve, in combination with a casing inclosing a high-pressure chamber, an intermediate chamber and a low-pressure chamber, and provided with a passage between the high-pressure chamber and the low-pressure chamber, and with a passage between the intermediate chamber and the low-pressure chamber, a piston-valve arranged to be actuated by differential pressure, and to control the main passage, a disk partially closing the outlet from the low-pressure chamber, a valve arranged to be actuated simultaneously with said disk, and arranged to control the passage-way leading from the intermediate chamber to the low-pressure chamber, and a float adapted to actuate said disk, substantially as described.

6. In a supply-valve for water-tanks, in combination with a casing provided with an inlet-orifice, and a high-pressure chamber at the inlet-orifice, an outlet-orifice, and a low-pressure chamber at the outlet-orifice, a retarding mechanism in the outlet-orifice, an intermediate chamber of variable capacity formed by a piston-chamber and a piston arranged to be reciprocated therein by differential pressure, a valve connected with said piston arranged to open and close the direct passage between the high-pressure chamber and the low-pressure chamber, a passage from the high-pressure chamber into the intermediate chamber, and a valve-closed passage from the intermediate chamber into the low-pressure chamber, a valve closing said passage adapted to be operated by said retarding mechanism, and a float arranged to actuate the valve in the passage leading from the intermediate chamber to the low-pressure chamber, substantially as described.

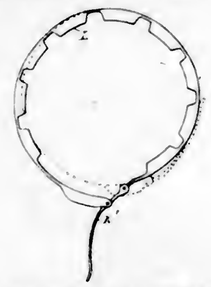
643,907. ACETYLENE-GAS GENERATOR. FRANCOIS C. MAURIN, Paris, France, assignor to Charles L. Cabanis, same place. Filed Dec. 2, 1897. Renewed July 27, 1899. Serial No. 725,320. (No model.)

Claim.—A portable acetylene-gas apparatus such as described, embodying essentially in its organization a water-containing receptacle A having a socket to receive a telescoping burner-pipe T, a combined generator and gas-holder B, adapted to be plunged into said receptacle, said generator being open at the bottom and having its top formed as a dome provided with upwardly-inclined projections adapted to engage corresponding strips secured to the inner surface of the water-receptacle, a pipe *t* extending vertically upward from the dome, provided with a cock R, a flexible means connecting said pipe with the burner-pipe T, and a basket C adapted to be secured in the generator by a bayonet connection and adapted to receive a plurality of casings arranged one above the other and provided with cartridges of calcium carbid, with means for feeding water to said casings successively, substantially as specified.

643,907.



643,908. JAR-CLOSURE. ERNST R. MEYER, Detroit, Mich. Filed Feb. 16, 1898. Serial No. 670,485. (No model.)



Claim.—1. In a jar-closure, a contractile clamping-ring formed of a sheet-metal band having overlapping ends linked together by a clamping-lever to which said ends are directly connected, the band between the points thus connected being of a length greater than the circumference of the jar at the closure.

2. In a jar-closure, a contractile clamping-ring formed of a sheet-metal band having alternating flat portions and portions having inwardly-inclined clamping-fingers on the edges of the band and provided with overlapping ends linked together by a clamping-lever adapted to draw said ends in opposite directions when the jar is closed.

3. In a jar-closure, a contractile clamping-ring formed of a flat sheet-metal band formed at intervals along its upper and lower edges with a series of inwardly-inclined flexible clamping-fingers and having overlapping ends and a clamping-lever in the plane of the band to which said ends are directly connected, the length of the band between said connections being greater than the circumference of the jar at the closure.

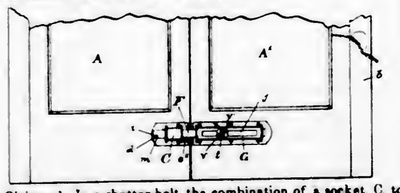
4. In a jar-closure, the combination of a contractile clamping-ring formed of a sheet-metal band having ends adapted to overlap each other when the jar is closed and a clamping portion intermediate between said ends provided at intervals apart with inwardly-projecting marginal clamping-fingers adapted to press the jar and cover together at restricted points in the circumference thereof, and a clamping-lever to which the band is directly connected, the band between the points thus connected being integrally of greater length than the circumference of the jar at the closure.

5. In a jar-closure, the combination of a contractile clamping-ring formed of a sheet-metal band with overlapping ends and a clamping portion intermediate between said ends provided at intervals along its upper and lower edge with inwardly-projecting flexible clamping-fingers adapted to press the jar and cover together at discontinuous points around the same, and a clamping-lever directly connected to the band, the length of the band between the points thus connected being greater than the circumference of the jar at the closure.

643,909.

Withdrawn

643,910. SHUTTER-BOLT. JOHN SABOLD, Boyertown, Pa. Filed Jan. 5, 1900. Serial No. 495. (No model.)

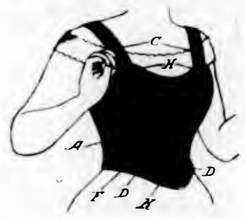


Claim.—1. In a shutter-bolt the combination of a socket, C, to be secured to one shutter and having at its entrance end and bottom a flange, *e*, provided with a hole, *e'*, and also provided with a vertical bead, *f*, on the inner side at the final or terminal end; and a sliding bolt to be secured on the other shuttle—said bolt having a straight lower edge, *l*, along its entire length except its projecting end which is broader in the vertical direction and projects downward and said broader end having a straight lower edge, *l'*, in a different plane from the other lower edge, *l*, and an inclined edge, *o*, connecting the said two lower edges, and also provided with a notch, *m*, and a hook or lip, *d*, the broader end having its outer surface beveled or tapered.

2. The herein-described shutter-bolt having a straight upper edge from one end to the other, a straight lower edge, *l*, along its entire length except at one end which latter is broader than the other parts of the bolt, and the lower edge, *l'*, of the broader part being in a different plane from the other lower edge, an inclined edge, *o*, connecting the said two lower edges, and the broader part provided in its lower edge with a notch which forms a hook or lip, *d*, at the extremity.

3. In a shutter-bolt, the combination of a shell or socket, G, having a front longitudinal slot, *j*, a bolt-opening, *k*, at the front end, a bolt-opening, *k'*, at the back end, and a bottom inclined slideway, *p*, whose high part is at said back end bolt-opening; a sliding bolt movable in said bolt-openings and having a limited up-and-down movement and provided with a flat T-knob having a round shank; and a button loose on said shank and provided on its front exterior face with two wedge-shaped cams, *r*, one reversely inclined from the other and both cams taking under the head of said flat head.

648,911. APPAREL-CORSET. ROSE SAHLIN, Chicago, Ill. Filed July 20, 1899. Serial No. 724,514. (No model.)



Claim.—1. A waist-front distender comprising a body-front having under-arm extensions at each side, each such extension having two terminals at the rear end, one at the top and the other at the bottom, the top terminal being arranged to return over the shoulder on the side at which the side extension to which it pertains originates, and the bottom terminals of said extensions being arranged to lap by each other at the back and return to the front on the sides opposite those at which said extensions respectively originate.

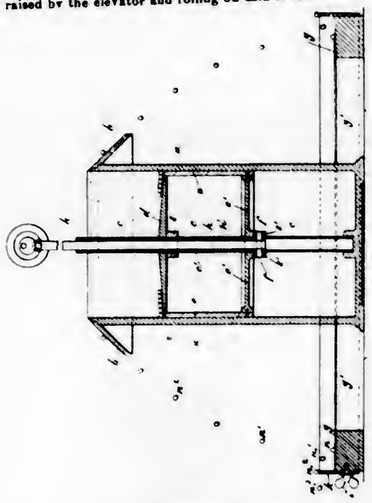
2. A waist-front distender comprising a front-form or body portion having lateral under-arm extensions, said extensions having, at the rear, two terminals, one at the top constituting a shoulder-strap, the other at the bottom, constituting a waist-strap, the top terminals being arranged to return forward, each over the shoulder on the side at which the extension to which it pertains originates, the bottom terminals or waist-straps lapping by each other at the back and returning forward and secured to the body portion at opposite sides, the upper edge of each waist-strap merging in the corresponding edges of the shoulder-strap terminal of the same extension, by means of an oblique upper rear edge of such extension, whereby the two terminals and the rear edge portion of the extension to which it pertains together constitute a continuous means of transmitting the stress from the shoulder, to the waist-line at the opposite side, as distinguished from transmitting the stress from above the shoulder, at one side, to below the shoulder, at the other side.

648,912. MACHINE FOR SORTING STEEL BALLS. FRIEDRICH SCHUHR, Schweinfurt, Germany. Filed Jan. 19, 1898. Serial No. 667,172. (No model.)

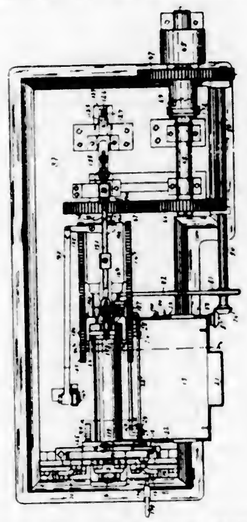
Claim.—1. The combination of the stationary support having a top surface sloping downwardly toward its outer edge, the elevator surrounding said support and having a top surface adapted to register with said sloping top of the support, the elevator-shaft surrounding the elevator, the annular slope or incline extending outwardly and downwardly from the upper end of the elevator-shaft, and means for sorting the bodies raised by the elevator and rolling off said incline.

2. The combination of the stationary support having a top surface sloping downwardly toward its outer edge, the elevator surrounding said support and having an inclined top surface whose inner, higher edge is adapted to register with the outer, lower edge of the stationary support, the elevator-shaft surrounding the elevator and engaging the same at the outer, lower edge of its inclined top surface, the annular slope or incline extending outwardly and downwardly from the upper end of the elevator-shaft, and means for sorting the bodies raised by the elevator and rolling off said incline.

3. The combination of the stationary central support having a top surface inclined downwardly toward its periphery, the elevator surrounding the said support, the elevator-shaft in which the elevator is adapted to move, the incline sloping downwardly and outwardly from the upper end of the elevator-shaft, and means for sorting the bodies raised by the elevator and rolling off said incline.



643,918. STOVEPIPE-ELBOW MACHINE. HERMANN SEKOWSKY Milwaukee, Wis. Filed June 5, 1899. Serial No. 719,447. (No model.)



Claim.—1. In a stovepipe-elbow machine, the combination of a shaft having one end thereof formed with a spiral pitch; and a head adjustably secured to the shaft end.

2. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof; and means for actuating the head upon said hinge; the opposing faces of the shaft end and head being formed with a spiral pitch.

3. In a stovepipe-elbow machine, an adjustable head secured to one end thereof at one side of the center of the shaft; a lug projecting from the shaft end into a recess in the head, and means for actuating the head upon said hinge; the opposing surfaces of the head and shaft being formed with a spiral pitch terminating in said lug.

4. In a stovepipe-elbow machine, the combination of a shaft having one end formed with a spiral pitch; a head adjustably secured to said shaft end at one side of the center; and means for alternately oscillating said head and rotating the shaft and head.

5. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof, the opposing faces of the head and shaft end being formed with a spiral pitch; means for creasing a pipe-cylinder in the space between the shaft and head; and means for rotating the shaft with the head.

6. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof at one side of the shaft center; and a lug projecting from the shaft and engaged in a recess in the head.

7. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof at one side of the shaft center; a bar, angular in cross-section, projecting from the shaft and loosely engaging a socket in the head; means for creasing a pipe-cylinder in the space between the shaft and head; and means for rotating the shaft and head.

8. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof at one side of the shaft center; means for adjusting the head upon said hinge to and from the shaft end; means for holding a sheet-metal cylinder non-rotatably on said shaft and head; and means for rotating the shaft.

9. In a stovepipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch; a head adjustably secured thereto, with the opposing face thereof also formed with a spiral pitch; means for adjusting said head with reference to the shaft end; a non-rotatable pipe-holder; and means for rotating the shaft.

10. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof; a non-rotatable pipe-holder adapted to hold a section of pipe over said shaft and head; means for crimping the pipe between the shaft end and head; and means for rotating the shaft; the opposing faces of the head and shaft end being provided with a spiral pitch.

11. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof; a lug projecting from the shaft and engaged in a socket in the head; means for creasing the pipe between the head and shaft; and means for rotating the shaft.

12. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof; a non-rotatable pipe-holder; means for creasing the pipe between the head and shaft; and means for rotating the shaft.

13. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof; a lug projecting from the shaft and engaged in a socket in the head; a hinge connecting said head and shaft between the lug and the center line of the shaft and head; and means for rotating the shaft.

14. In a stovepipe-elbow machine, the combination of a hollow shaft; a head adjustably secured to one end thereof; a rod extending through said shaft and secured to the head by a hinged connection; a lug projecting from the shaft and engaging a socket in the head; a hinge securing said shaft and head together between the lug and shaft end; means for actuating said rod to oscillate the head upon the shaft end; and means for rotating the shaft.

15. In a stovepipe-elbow machine, the combination of a hollow shaft; a head adjustably secured to one end thereof, with the opposing faces of the head and shaft end provided with a spiral pitch; a rod extending through the shaft and secured to said head; a hinge securing the head to the shaft end at one side of its center; means for actuating said rod longitudinally; and means for rotating the head.

16. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto; crimping-jaws adapted to enter the space between the head and shaft end; means for oscillating the head upon the shaft end; and means for rotating the shaft.

17. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto; crimping-jaws adapted to enter the space between the head and shaft end; means for oscillating the head upon the shaft; and means for rotating the shaft, the opposing surfaces of the head and shaft and being formed with a spiral pitch.

18. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto with the opposing faces of the head and shaft end formed with a spiral pitch; a hinge securing the head to the shaft end at one side of the center line; crimping-jaws adapted to register with the opening formed by oscillating the head upon said hinge; means for actuating the crimping-jaws; and means for rotating the shaft.

19. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws arranged to enter the space between the head and shaft, when the latter is oscillated on said hinge; a lug projecting from the shaft end and entering a recess in the head; and means for successively actuating the crimping-jaws and rotating the shaft and head.

20. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws arranged to enter the space between the head and shaft when the latter is oscillated on said hinge; a lug projecting from the shaft end and entering a recess in the head; and means for successively actuating the crimping-jaws and rotating the shaft and head, the opposing faces of the shaft and head being provided with a spiral pitch.

21. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws arranged to enter the space between the head and shaft, when the latter is oscillated on said hinge; a lug projecting from the shaft end and entering a recess in the head; a collar adapted to be shifted longitudinally of said shaft, to cover the joint between the head and shaft end; and means for successively actuating the crimping-jaws and rotating the shaft and head.

22. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws arranged to enter the space between the head and shaft, when the latter is oscillated on said hinge; a lug projecting from the shaft end and entering a recess in the head; a collar adapted to be shifted longitudinally of said shaft, to cover the joint between the head and shaft end; and means for successively actuating the crimping-jaws and rotating the shaft and head, the opposing faces of the shaft and head being provided with a spiral pitch.

23. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws adapted to register with the joint formed by the head and shaft end; a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end; and means for successively actuating the crimping-jaws, collar, head and shaft.

24. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line, with the opposing faces of the head and shaft end formed with a spiral pitch; a set of crimping-jaws adapted to register with the joint formed by the head and shaft end; a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end; and means for successively actuating the crimping-jaws, collar, head and shaft.

25. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line; a set of crimping-jaws adapted to register with the joint formed by the head and shaft end; a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end; a pipe-holder cooperative with said collar, to hold the pipe in position for the formation of the elbow; and means for successively actuating the crimping-jaws, collar, head and shaft.

26. In a stovepipe-elbow machine, the combination of a shaft; a head hinged thereto at one side of the center line, with the opposing faces of the head and shaft end formed with a spiral pitch; a set of crimping-jaws adapted to register with the joint formed by the head and shaft end; a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end; a pipe-holder cooperative with said collar, to hold the pipe in position for the formation of the elbow; and means for successively actuating the crimping-jaws, collar, head and shaft.

27. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch; means for oscillating the head upon the shaft end; crimping-jaws adapted to enter the space between the head and shaft end; an open collar adapted to be shifted longitudinally to cover the joint between the head and shaft end; clamping-arms adapted to engage said collar; a pipe-holder cooperative with said collar, to hold the pipe in position upon said head and shaft; and means for successively actuating the crimping-jaws, head, collar, clamping-arms and shaft.

28. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch; a lug projecting from the shaft and engaged in a slot in said head; means for oscillating the head upon the shaft end; crimping-jaws adapted to enter the space between the head and shaft end; an open collar adapted to be shifted longitudinally, to cover the joint between the head and shaft end; clamping-arms adapted to engage said collar; a pipe-holder cooperative with said collar to hold the pipe in position upon said head and shaft; and means for successively actuating the crimping-jaws, head, collar, clamping-arms and shaft.

29. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch; a lug projecting from the shaft and engaged in a slot in said head; a hiuge connecting the head and shaft end between the lug and the center line of the shaft; means for oscillating the head upon the shaft end; crimping-jaws adapted to enter the space between the head and shaft end; an open collar adapted to be shifted longitudinally to cover the joint between the head and shaft end; clamping-arms adapted to engage said collar; a pipe-holder cooperative with said collar, to hold the pipe in position upon said head and shaft; and means for successively actuating the crimping-jaws, head, collar, clamping-arms, and shaft.

30. In a stovepipe-elbow machine, the combination of a shaft; a head hinged to one end thereof at one side of the center line of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch; a pipe-holder adapted to hold the pipe upon said shaft and head; means for intermittingly actuating the pipe-holder; crimping-jaws adapted to register with the joint between the head and shaft end; and means for actuating said jaws to crimp the pipe in the intervals between the successive movements of the pipe-holder.

31. In a stovepipe-elbow machine, the combination of a shaft; a head hinged to one end thereof at one side of the center line of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch; a pipe-holder adapted to hold the pipe upon said shaft and head; means for intermittingly actuating the pipe-holder; crimping-jaws adapted to register with the joint between the head and shaft end; and means for successively actuating said jaws, head and shaft in the interval between the successive movements of the pipe-holder.

32. In a stovepipe-elbow machine, the combination of a shaft; a head hinged to one end thereof at one side of the center line of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch; a pipe-holder adapted to hold the pipe upon said shaft and head; a clamp adapted to rigidly bind the pipe upon said holder; means for intermittingly actuating the pipe-holder; crimping-jaws adapted to register with the joint between the head and shaft end; and means for actuating said jaws to crimp the pipe in the intervals between the successive movements of the pipe-holder.

33. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft being formed with a spiral pitch; a pipe-holder adapted to hold the pipe upon said shaft and head; a clamp adapted to rigidly bind the pipe upon the pipe-holder; an open head-collar adapted to be shifted with respect to the joint between the head and shaft end; clamping-arms adapted to bind the head-collar around the pipe over said joint; crimping-jaws adapted to register with the joint between the shaft and head; means for intermittingly actuating the pipe-holder; and means for successively actuating the crimping-jaws, head-collar, clamping-arms, head and shaft in the intervals between the successive movements of the pipe-holder.

34. In a stovepipe-elbow machine, the combination of a shaft; a head adjustably secured to one end thereof and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft end being formed with a spiral pitch; a head-collar; a pipe-holder; a clamping-collar connected therewith; a set of bending-rolls arranged to bend a sheet-metal blank around the shaft, with its ends engaging under said collars; means for moving the pipe-holder forwardly; a lever for actuating said clamping-collar to secure the cylindrical blank to the pipe-holder; crimping-jaws adapted to register with the joint between the shaft and head; and means for rotating the shaft.

35. In a stovepipe-elbow machine, the combination of a shaft provided with an enlarged end; a head adjustably secured to the shaft end and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft end being provided with a spiral pitch; a head-collar; a pipe-holder; a clamping-collar connected therewith; a lever for actuating the clamping-collar; a punch carried by the pipe-holder and adapted to be actuated by the clamping-collar lever to dent the pipe engaged by said collar; crimping-jaws adapted to register with the joint between the head and shaft end; and means for rotating the shaft.

36. In a stovepipe-elbow machine, the combination of a shaft provided with an enlarged end; a head adjustably secured to the shaft end and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft being provided with a spiral pitch; a head-collar; a pipe-holder; a clamping-collar connected therewith; a set of bending-rolls adapted to bend a sheet-metal blank into cylindrical form around said shaft, with its ends engaging under said collars; a lever for actuating the clamping-collar; a punch carried by the pipe-holder and adapted to be actuated by the clamping-collar lever to dent the pipe engaged by said collar; crimping-jaws adapted to register with the joint between the head and shaft end; and means for rotating the shaft.

37. In a stovepipe-elbow machine, the combination of a shaft; a pipe-holder adustably mounted thereon; a clamping-collar connected with the pipe-holder; a head-collar located at one end of the shaft; and a set of bending-rolls arranged to bend a sheet-metal blank into cylindrical form around said shaft, said collars being adapted to engage and guide the front and rear ends of said blank around the shaft and hold the cylinder thereto.

38. In a stovepipe-elbow machine, the combination of a shaft provided with an enlarged end, and having the end face formed with a spiral pitch; a head formed to fit said shaft end and hinged thereto

at one side of the center; means for adjusting the head upon said hinge; a pipe-holder adjustably mounted upon the shaft; a clamping-collar connected with the pipe-holder; an adjustable head-collar adapted to cover the joint between the shaft and head; a set of bending-rolls adapted to bend a sheet-metal blank into cylindrical form around the shaft, in a position with the ends of such cylinder engaged by said collars; a lever for clamping the pipe-holder collar upon said cylinder; means for crimping the cylindrical pipe in the space between the head and shaft end; and means for actuating said head to flatten the crimped or creased portion of the pipe, and rotating said shaft to discharge such portion of the pipe from between the shaft and the head.

39. In a stovepipe-elbow machine, the combination of a shaft; a pipe-holder adjustably mounted thereon; a set of bending-rolls adapted to bend a sheet-metal blank around said shaft; a feed-table; blank-holding stops adapted to retain the blanks thereon; a spring-actuated blank-holder adapted to engage the blank between it and said stops; and means, carried by the pipe-holder, for retracting said stops during their rearward movement, and releasing the blanks, whereby the latter are permitted to enter the bending-rolls.

40. In a stovepipe-elbow machine, the combination of a shaft having one end formed with a spiral pitch on the end face; a head adjustably secured thereto; crimping-jaws adapted to register with the joint between the head and shaft end; a pipe-holder; a clamping device connected therewith; a feed-table; means for automatically feeding sheet-metal blanks therefrom, and bending the same into cylindrical form around said shaft; pawl-and-ratchet mechanism-arranged to intermittingly actuate the pipe-holder; and means for successively actuating the crimping-jaws in the intervals between the successive movements of the pipe-holder.

41. In a stovepipe elbow machine, the combination of a shaft having one end face formed with a spiral pitch; a head hinged thereto at one side of the center line of the shaft; a head-frame; a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle; an actuating shaft; a jaw-actuating cam located thereon; and a sliding bar connected with said jaws and adapted to be actuated by said cam to close the jaws, said jaws being adapted to register eccentrically with the joint between the shaft and head.

42. In a stovepipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch; a head hinged thereto at one side of the center line of the shaft; a head-frame; a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle, adapted to register eccentrically with the joint formed by the head and shaft and; an actuating-shaft; a jaw-actuating cam located thereon; a sliding bar connected with said jaws and adapted to be actuated by the cam to close the jaws; and means for adjusting the head upon its hinge.

43. In a stovepipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch; a head hinged thereto at one side of the center line of the shaft; a head-frame; a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle, adapted to register eccentrically with the joint formed by the head and shaft end; an actuating-shaft; a jaw-actuating cam located thereon; a sliding bar connected with said jaws and adapted to be actuated by the cam to close the jaws, an elbow-lever connected with the jaws and adapted to be actuated by the cam to retract the jaws; and means for adjusting the head upon its hinge.

44. In a stovepipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of the shaft; crimping-jaws adapted to register with the joint between the head and shaft end; a gear-wheel, loose on the rear end of said shaft and adapted to be coupled thereto; an actuating-shaft; a jaw-actuating cam located thereon; a gear-wheel on said actuating-shaft, meshing with the gear-wheel on the head-shaft; and means for temporarily coupling said last-mentioned gear-wheel to the head-shaft.

45. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of the shaft; crimping-jaws adapted to register with the joint between the head and shaft end; a head-shaft gear-wheel loose on said shaft, and adapted to be coupled thereto; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; a gear-wheel on said actuating-shaft, meshing with the gear-wheel on the head-shaft; means for adjusting said jaw-actuating cam alternately to an operative and inoperative position; and means controlled by said cam-adjusting mechanism for coupling and uncoupling the head-shaft and head-shaft gear-wheel.

46. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of the shaft; crimping-jaws adapted to register with the joint between the head and shaft end a head-collar adapted to be adjusted to cover said joint; an adjustable pipe-holder cooperative with the head-collar in holding the elbow-pipe; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; means for adjusting said cam alternately to an operative and inoperative position; and means, controlled by the cam-adjusting mechanism, for actuating said head-collar, head and pipe-holder.

47. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of the shaft; crimping-jaws adapted to register with the joint between the head and shaft end; a head-collar adapted to be adjusted to cover said joint; clamping devices adapted to bind said collar upon the pipe engaged thereby; an adjustable pipe-holder cooperative with the head-collar in holding the elbow-pipe; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; means for adjusting said cam alternately to an operative and inoperative position; and means, controlled by the cam-adjusting mechanism, for actuating said head-collar, head-collar-clamping devices, head and pipe-holder.

48. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of the shaft; crimping-jaws adapted to register with the joint between the head and shaft end; a head-collar adapted to be adjusted to cover said joint; an adjustable pipe-holder cooperative with the head-collar in holding the elbow-pipe; clamping devices for said head-collar and pipe-holder; bending-rolls adapted to bend a sheet-metal blank into cylindrical form around the head-shaft; a feed-table; blank-holding stops therefor; a blank-holder adapted to feed the blanks to the bending-rolls; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; means for adjusting said cam alternately to an operative and inoperative position; and means, controlled by the cam-adjusting mechanism, for actuating said head-collar, clamping devices, head and pipe-holder.

49. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of said shaft; crimping-jaws adapted to register with the joint between the head and shaft end; an adjustable pipe-holder; a pipe-engaging clamp connected therewith; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; means for automatically adjusting said cam alternately to an operative and inoperative position at fixed intervals; means controlled by the cam-adjusting mechanism, for successively actuating the head, head-shaft and pipe-holder; and connections whereby the final movement of said pipe-holder is simultaneously communicated to uncouple the driving mechanism, pipe-engaging clamp, and the actuating mechanism of the pipe-holder.

50. In a stovepipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch; a head hinged thereto on one side of the center line of said shaft; crimping-jaws adapted to register with the joint between the head and shaft end; an adjustable pipe-holder; a pipe-engaging clamp connected therewith; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon; means for automatically adjusting said cam alternately to an operative and inoperative position at fixed intervals; means, controlled by the cam-adjusting mechanism, for successively actuating the head, head-shaft and pipe-holder; connections whereby the final movement of said pipe-holder is simultaneously communicated to uncouple the driving mechanism, pipe-engaging clamp, and the actuating mechanism of the pipe-holder; and a weight connected to the pipe-holder for retracting the same, when released from its actuating mechanism.

51. In a stovepipe-elbow machine, the combination with a head-shaft; of a pipe-holder provided with rearwardly-extending rack-bars; gear-wheels arranged to actuate the same; pawl-and-ratchet mechanism adapted to communicate an intermittent motion to said gear-wheels; and an arm carried by one of said gear-wheels, and arranged to respectively engage and disengage said pawl from the ratchet, as the pipe-holder completes its backward and forward movements.

52. In a stovepipe-elbow machine, the combination with a head-shaft; of a pipe-holder provided with rearwardly-extending rack-bars; gear-wheels arranged to actuate the same; pawl-and-ratchet mechanism adapted to communicate an intermittent motion to said gear-wheels; and an arm carried by one of said gear-wheels, and arranged to respectively engage and disengage said pawl from the ratchet, as the pipe-holder completes its backward and forward movements; together with a spring-catch, adapted to hold said pawl in either position of adjustment until actuated by the gear-wheel arm.

53. In a stovepipe-elbow machine, the combination with a head-shaft; a head hinged to one end thereof at one side of the center line of said shaft; a rod for oscillating the head upon said hinge; a gear-wheel adapted to actuate the shaft; a pipe-holder longitudinally movable on the head-shaft; rearwardly-extending rock-bars connected with the pipe-holder; pawl-and-ratchet mechanism and gear-wheels for actuating said racks; a latch carried by the head-actuating rod; connections adapted to communicate motion from said latch to retract said pawl; and an arm carried by the head-shaft gear-wheel, and adapted to communicate a forward motion to said pawl.

54. In a stovepipe-elbow machine, the combination of a pipe-holder; a feed-table provided with blank-holding stops; a spring-actuated blank-holder adapted to engage sheet-metal blanks between the same and said stops; mechanism for retracting said stops to release the blanks; and a guide carried by the pipe-holder, adapted to actuate the stop-retracting mechanism during the return movement of the pipe-holder.

55. In a stovepipe-elbow machine, the combination with a head-shaft; a pipe-holder; an open clamping-collar connected with the pipe-holder; an open head-collar; and a set of bending-rolls arranged to bend sheet-metal blanks around the head-shaft, said collars being arranged to engage the edges of said blanks and guide the same around the shaft.

56. In a stovepipe-elbow machine, the combination with a head-shaft, provided with an enlarged end; a pipe-holder adjustably mounted upon the head-shaft and provided with a pipe-holding collar; an open clamping-collar connected with the pipe-holder and cooperative with the pipe-holding collar; an open head-collar disposed about the enlarged end of said shaft; and a set of bending-rolls adapted to bend sheet-metal blanks around the head-shaft, with the ends engaging underneath said open collars and upon the pipe-holding collar and enlarged end of the shaft respectively; together with means for clamping said collars around the cylindrical ends of the pipe.

57. In a stovepipe-elbow machine, the combination of a head-shaft; a head hinged thereto at one side of the center line; a head-frame; a set of crimping-jaws located about the joint between the head and shaft end, and connected to each other and to the head-frame by a series of levers and links arranged to form an inwardly-moving toggle closing in the arc of a circle eccentric to that of the shaft and head.

58. In a stovepipe-elbow machine, the combination with a set of crimping-jaws connected to form an inwardly-moving toggle; of a bar connected with one or more of said jaws and adapted to actuate the same; an actuating-shaft; a jaw-actuating cam adjustably mounted thereon and adapted to engage and actuate said bar; and mechanism for automatically shifting said cam to and from its operative position with successive revolutions of the actuating-shaft.

59. In a stovepipe-elbow machine, the combination with a set of crimping-jaws connected to form an inwardly-moving toggle; of a jaw-actuating bar; an actuating-shaft; a cam adjustably mounted thereon and adapted to engage and actuate said bar; a hub connected with said cam, and provided with annular channels with a cross-channel connecting the same; a spring-actuated holding-pin adapted to engage in said channels; a switch located in one of the annular channels and arranged to lift the holding-pin out of the same; a shifting-lever for actuating said cam to adjust it alternately to its operative and inoperative positions; means for automatically actuating said shifting-lever in one direction, when the holding-pin is in registry with the cross channel, and in the other direction when the pin is lifted by said switch.

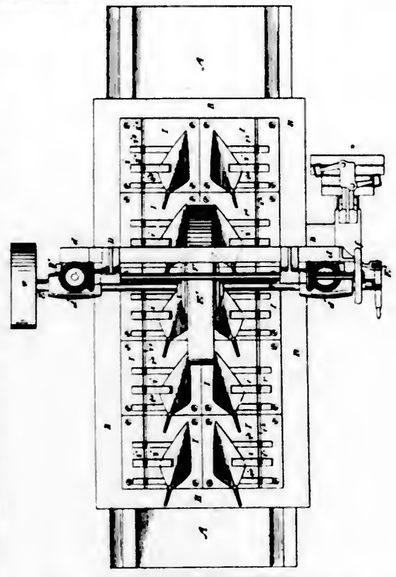
643,914. TROWEL-GRINDING MACHINE. EDWIN F. SHAW, Philadelphia, Pa., assignor to the Henry Disston & Sons, Incorporated, same place. Filed June 20, 1896. Serial No. 596,327. (No model.)

Claim.—1. The combination of a frame, a table mounted thereon, means for reciprocating said table, blocks on the table, means for clamping a trowel-blank to each block, the surface of each block being beveled in two directions so that trowels held thereto may be beveled from the center to each edge and from the heel or butt to the point at one operation, in combination with a grinding-wheel and means for rotating said wheel substantially as described.

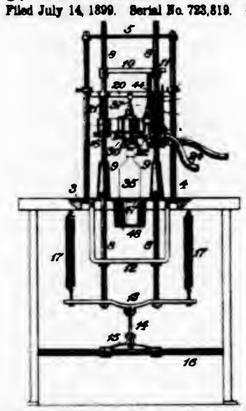
2. The combination in a trowel-grinding machine, of the frame, a bed, means for reciprocating said bed, two rows of independent blocks secured to said bed, the surface of each block being tapered in two directions, clamps on each block extending over one surface of a trowel-blank so as to secure the said blank in the adjusted position, the frame having standards, adjustable bearings on the standards, a driven shaft, a grinding-wheel mounted on said shaft and means for moving the shaft longitudinally in its bearings whereby a portion of each trowel-blank can be ground, substantially as described.

3. The combination of a reciprocated table, blocks thereon having a single beveled face adapted to receive the trowel-blanks, cushions interposed between the blocks and the table and a grinding-wheel mounted above the table, substantially as described.

4. The combination in a trowel-grinding machine, of the frame, a reciprocated table, a series of blocks secured thereto the surface of each block being tapered in two directions, a T-headed groove in each block, a clamp, a bolt securing the clamp to the block the head of said bolt being within the groove, stops against which the trowel-blank rests, with a grinding-wheel for grinding the surface of the blank, substantially as described.



643,915. BOTTLING-MACHINE. PATRICK W. SHIELDS, Homestead, Pa. Filed July 14, 1899. Serial No. 723,819. (No model.)



Claim.—1. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a water-valve working in a chamber carried by the carrier-block, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, means carried by the operating-rods for unseating the water-valve, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

2. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a syrup-pump carried by the carrier-block, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, means for actuating the piston of the syrup-pump by movement of the operating-rods, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

3. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a water-valve and syrup-pump connected to a chamber carried by said block a presser fixed to the carrier-block in position to be applied to the mouth of a bottle

a conduit connecting said chamber and presser, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

4. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a presser fixed to the carrier-block in position to be applied to the neck of the bottle, a syrup-pump and water-valve supported by the carrier block and connected to said presser a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, a rod, actuated by the cross-bar, for fixing a stopper in position in a bottle, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

5. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a water-valve working in a chamber carried by the carrier-block, a syrup-pump connected to the carrier-block, valves controlling communication between the water-valve chamber and syrup-pump and a common discharge or delivery passage, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, means for unseating the water-valve by movement of the operating-rods, means for actuating the syrup-pump by movement of the operating-rods, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

6. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a treadle connected to and adapted to impart downward movement to the operating-rods, a spring connected to and adapted to impart upward movement to the operating-rods, a water-valve working in a chamber carried by the carrier-block, a syrup-pump connected to the carrier-block, valves controlling communication between the water-valve chamber and syrup-pump and a common discharge or delivery passage, a presser fixed to the carrier-block in position to be applied to the neck of a bottle, a rod for fixing a stopper in position in a bottle, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, and means for actuating the water-valve, the syrup-pump piston, and the stopper-fixing rod by the movement of the operating-rods, these members being combined for joint operation to first close the joint between the delivery-passage and presser and the mouth of a bottle, to thereafter charge the bottle with aerated water and syrup, to thereafter fix the stopper in the bottle, and to thereafter release the presser from the bottle.

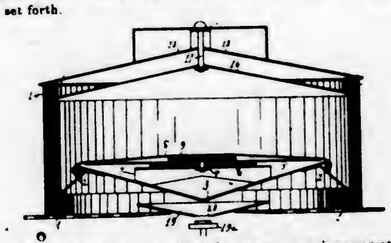
7. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a syrup-pump carried by the carrier-block, a cross-bar on the operating-rods, a spring interposed between and bearing on the carrier-block and cross-bar, means for actuating the piston of the syrup-pump by movement of the operating-bars, means for varying the length of stroke of the piston of the syrup-pump, a treadle connected to the operating-rods, and a spring acting on the operating-rods in reverse direction to that of the application of power to the treadle.

8. The combination, in a bottling-machine, of two operating-rods, a carrier-block supported freely thereon, a presser fixed to the carrier-block in position to be applied to the mouth of a bottle, a cross-bar or head fixed to the operating-rods, a cross-bar fitting freely on the operating-rods between the fixed cross-bar and the carrier block, fixed stops against which said freely-fitting cross-bar normally abuts, a spring interposed between and bearing on the freely-fitting cross-bar and the carrier-block, a rod passing freely through the carrier-block and presser and having a hook on its lower end to engage the wire of a bottle-stopper, and a pin coupling said rod to the freely-fitting cross-bar, said pin being set at an angle to a horizontal plane and passing through a horizontal opening of greater diameter in said cross-bar.

9. The combination, in a bottling-machine, of a carrier-block, having a delivery or discharge passage and a presser surrounding the lower end of said passage, a syrup-pump and a water-valve chamber, each provided with a connection for a flexible hose and fixed to the carrier-block, a valve controlling communication between the hose connection of the water-chamber and the delivery-passage, an inlet-valve controlling communication between the hose connection of the syrup-pump and the cylinder thereof, and an outlet-valve controlling communication between the cylinder of the syrup-pump and the delivery-passage.

648,916. OVEN FOR GAS OR GASOLENE STOVES. JAMES I. SLOAN, Kansas City, Kans. Filed Aug. 29, 1898. Serial No. 689,799. (No model.)

Claim.—1. In an oven for gas and gasolene stoves, a casing open at both ends and having an inturned flange around its upper edge, a collar arranged to engage said flange, an inner cover having draft-openings near its periphery arranged to engage said collar, an outer cover having draft-openings near its center arranged over said casing, and means for securing said outer to said inner cover, substantially as set forth.



2. In an oven for gas and gasolene stoves, a casing open at both ends and having an inturned flange around its upper edge, a collar arranged to engage said flange, an inner cover having draft-openings near its outer edge arranged to engage said collar, an outer cover having draft-openings near its center arranged over said casing, a pair of handles set at right angles to each other upon said outer cover, and a bolt passing through said handles and through said outer and inner covers and provided with a nut for binding said parts together substantially as set forth.

3. An oven for gas and gasolene stoves consisting of the combination with a casing open at both ends and having an inturned flange around its upper edge, a collar arranged to engage said flange, an inner cover having draft-openings near its outer edge arranged to engage said collar, an outer cover having draft-openings near its center arranged over said casing, and means for securing together said outer and inner covers, of a ring of smaller diameter than the casing arranged within the same, a cone-shaped protector carried on said ring, a bracket mounted in said protector, a plate of smaller diameter than said protector carried on said bracket, a sheet of woven wire arranged over said plate secured at its outer edge upon said protector and provided with a central opening, and a ring surrounding said opening arranged to elevate said wire off of said plate, substantially as set forth.

648,917. PAPER-HOLDER. HENRY TENDICK, Manitowoc, Wis. Filed July 6, 1899. Serial No. 722,821. (No model.)

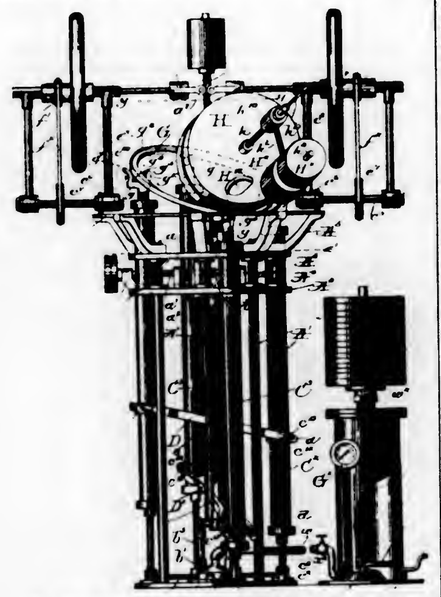
Claim.—1. In a paper-holder, a frame mounted to slide, cross-bars on the frame, and pockets depending from the cross-bars, each pocket consisting of a sheet or plate doubled upon itself and having one edge immovably secured to its cross-bar while the other edge is free to yield toward and from the cross-bar, substantially as specified.

2. In a device of the character described, a frame mounted to slide, and pockets of varying depths carried by said frame, the said pockets being formed of resilient material so that the free edges may yield toward and from the opposite edges which are fastened to the frame, substantially as specified.

648,918. AIR-COMPRESSOR. KNUT O. B. TEXTORIUS, Boston, Mass., assignor of nine-twentieths to John J. Howard, same place. Filed Apr. 26, 1899. Serial No. 714,571. (No model.)

Claim.—1. In an apparatus of the class described, compressors the movable members of which are connected in pairs to reciprocate alternately, a gyratory annular track supported by the movable members of the compressors and disposed in an inclined plane, a weighted wheel located to travel upon said gyratory track, means for supporting and operating the wheel, a second weighted wheel mounted to travel upon said track, and means whereby said second weighted wheel is held in working position to prevent the gyratory track from tilting.

2. In an apparatus of the class described, compressors the movable members of which are connected in pairs to reciprocate alternately, a vertical shaft having two oppositely-disposed arms, a shaft provided with a weighted wheel adapted to travel upon said gyratory track, two weighted wheels flexibly connected with each other and also with said last-mentioned shaft and to one of said arms.



3. In an apparatus of the class described, a main frame comprising a base-plate, upright standards, and a head carried by the latter, a receiving-chamber on the base-plate, a series of compressors radially arranged about said chamber, each compressor including a cylinder and a valved piston therein, a fixed, hollow piston-rod therefor communicating with the receiving-chamber, and a vertically-movable cylinder having an inlet-valve, a rocking arm mounted on a fixed pivot and connecting the cylinders of opposite compressors, a series of bifurcated members connected to the upper ends of the cylinders, and provided with supporting devices between the branches thereof, a gyratory, annular track adapted to rest upon said supporting devices, an actuator adapted to roll upon said track, means to move said actuator bodily in a substantially horizontal, circular path, whereby the weight of said actuator will operate to depress the cylinders one after another, and means to retain the upper portion of the track in place.

4. In an apparatus of the class described, compressors including movable members, a gyratory annular track adapted to actuate the movable members of the compressors and disposed in an inclined plane, a shaft provided with oppositely-disposed arms having equalizing-wheels, a weighted member adapted to travel upon the gyratory track and connected to one of said arms and also to said shaft, means to prevent the track from tipping, and means to cause the rotation of the equalizing-wheels during the travel of said weighted member.

5. In an apparatus of the class described, a plurality of compressors disposed in a circle, each compressor including a vertically-reciprocatory cylinder having a fixed piston, a common receiver connected with and adapted to receive compressed air from said compressors, the cylinders of opposite pairs being connected to reciprocate alternately, an inclined annular track resting upon the upper ends of said cylinders and also a flange having a beveled inner face, a vertical shaft, means to rotate said vertical shaft, a rotative actuating member connected with said shaft and having a beveled periphery adapted to roll against the beveled face of said flange, and having a preponderance of weight below its axis of rotation, an equalizing mechanism connected with said shaft including two diametrically-opposite fly-wheels, and means for rotating the fly-wheels during the travel of said rotative member.

6. In an apparatus of the class described, compressors the movable members of which are connected in pairs to reciprocate alternately, a gyratory, annular track mounted on the movable members of the compressors, and lying in an inclined plane, means to impart gyratory movement to said track, a fixed, horizontal track, and an equalizer rotatable thereupon, said equalizer including one or more fly-wheels rotatable about a horizontal axis, and means to rotate said equalizer bodily and also to rotate the fly wheel or wheels.

7. In an apparatus of the class described, a series of air-compressing devices, a receiver with which they are connected, a gyratory annular track supported by the movable members of said devices, an actuator adapted to move upon and gyrate the track, a shaft provided with oppositely-disposed arms carrying fly-wheels, a second shaft connected to the first-mentioned shaft and supporting said actuator, an adjustable connection between said second shaft and one of the arms, and means to rotate said fly-wheels during the travel of said actuator.

8. In an apparatus of the class described, a series of compressors arranged in a circle, the movable members of said compressors being connected in pairs to reciprocate alternately, an annular, gyratory track supported by the movable members and lying in an inclined plane, a centrally-disposed, vertical shaft, an actuator connected therewith and adapted to roll on and to effect gyratory movement of the track, the lowest point in said track being always maintained in advance of the point of contact of the actuator and the track, and an auxiliary roll adapted to travel on the track and in advance of the lowest point of the latter, connections between said roll and the vertical shaft, and means to rotate the latter to thereby move the actuator and auxiliary roll in a substantially horizontal, circular path.

9. In an apparatus of the class described, a main frame having a circular, horizontal head, a fixed annular track mounted thereupon, a centrally-disposed, vertical shaft, a frame connected therewith and carrying diametrically-opposite fly-wheels mounted to rotate on horizontal axes, rolls on said frame to travel on the track, connections between said rolls and fly-wheels to rotate the latter on their axes, a plurality of compressors, each comprising a fixed and a movable member, the latter being adapted to reciprocate vertically in bearings in the head, connections between the movable members of opposite pairs of compressors, whereby they will be reciprocated alternately, a gyratory, annular track mounted on the upper ends of the movable members and the compressors, and lying in an inclined plane, and a heavy actuating-roll adapted to travel upon the gyratory track and gyrate the same, and therethrough operate the compressors one after another, a connection between said roll and the vertical shaft, whereby the roll is bodily moved in a circular, horizontal path as the shaft is rotated, and means to rotate said shaft.

10. In an apparatus of the class described, a series of air-compressing devices, a gyratory track cooperative with the air-compressing devices, a weighted actuator mounted upon said gyratory track, a shaft provided with oppositely-disposed arms carrying fly-wheels, a support for said actuator connected to said shaft and also to one of said arms, a horizontal circular track located outside of the first-mentioned track, rotative driving means adapted to travel upon and to be operated by said last-mentioned track, and connections between said rotative driving means and the fly-wheels for operating the latter.

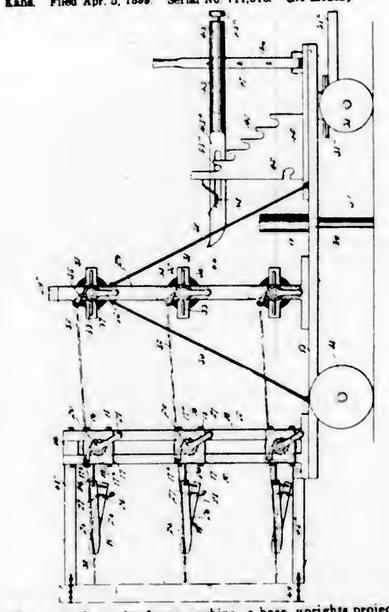
11. In an apparatus of the class described, a series of air-compressing devices, a gyratory track cooperative with the air-compressing devices, a weighted actuator mounted upon said gyratory track, a shaft provided with oppositely-disposed arms carrying fly-wheels, a support for said actuator connected to said shaft and also to one of said arms, a horizontal circular track located outside of the first-mentioned track, rotative driving means adapted to travel upon and to be operated by said last-mentioned track, and connections between said rotative driving means and the fly-wheels for operating the latter, two weighted arms located at relatively-remote points from the weighted actuator and serving to prevent the tipping of the gyratory track, and flexible connections between said weighted arms and the first-mentioned arms.

12. In an apparatus of the class described, a series of air-compressing devices, connected in pairs to compress alternately, a common receiver connected with said devices, an axially-rotatable, drum-like actuator movable in a circular, horizontal path, a spherical weight loose in the actuator, a gyratory track interposed between the compressing devices and the actuator and on which the latter rolls, means to move said actuator bodily to thereby gyrate the track and operate the compressing devices, one or more weighted devices mounted for movement upon the track at a point or points remote from said actuator, and means whereby said weighted device or devices will be caused to move in unison with the actuator.

13. In an apparatus of the class described, a series of air-compressing devices, an annular gyratory track mounted on the upper ends of the movable members of said compressing devices, a vertical shaft extending through said track and provided above the same with oppositely-disposed arms, a second shaft connected to said first-mentioned shaft and also to one of said oppositely-disposed arms, and provided with a weighted actuator adapted to travel on said track, a second pair of shafts connected to the vertical shaft and each having a wheel adapted to roll upon the gyratory track at a point remote from said actuator, flexible connections between said pair of shafts

and also between the same and said oppositely-disposed arms, governors carried at the ends of said oppositely-disposed arms, and means for operating said governors during the travel on said actuator.

648,919. WIRE-FENCE MACHINE. James K. Thoma, Winfield Kans. Filed Apr. 5, 1899. Serial No. 711,818. (No model.)



Claim.—1. In a wire-fence machine, a base, uprights projected from the base, a drum mounted to turn in said uprights, a locking device for the drum, a clamp provided with opposing jaws, and a cable carried from the drum, passed through the handle of one of said jaws and secured to the handle of the opposing jaw, for the purpose set forth.

2. In a wire-fence machine, a base, standards projected from the base, a drum mounted to revolve between said standards, means for vertically adjusting said drum, a locking device for the drum, a clamp provided with opposing jaws, a cable connected with the drum, being loosely passed through the handle of one jaw and securely fastened to the opposing jaw of the clamp, and a locking device for the handles of the jaws, for the purpose set forth.

3. In a wire-fence machine, the combination, with a base, standards carried by the base, drums vertically adjustable in said standards, a locking device for said drums, and a wire-clamping device controlled by said drums, of a second set of standards carried by the base, a reel mounted to turn in the second set of standards, tension devices for the heads of the reel, and locking devices for the reel, said reel being adapted to carry wire, which wire is adapted to be engaged by the clamping device connected with said drum, as described.

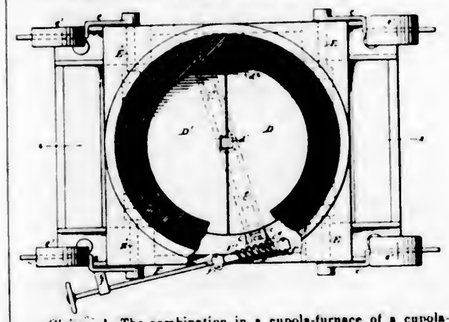
4. In a wire-fence machine, the combination, with a base, standards projected from the base, blocks adjustably carried by said standards, drums mounted in said blocks, a locking device for said drums, and a wire-clamping device consisting of pivotally-connected handles, each handle terminating in a jaw, means for locking the jaws in a closed position, and a cable attached to the drum, which cable is loosely passed through one of said handles, being attached to the opposing handle of the jaws, of a support adjacent to said standards, a reel carried by said support, and a locking device for the reel, said reel being adapted to carry wire, which wire is adapted to be grasped between the jaws of said clamp, for the purpose set forth.

5. In a wire-fence machine, the combination, with a base, standards projected from the base, blocks adjustably carried by said standards, drums mounted in said blocks, a locking device for said drums, and a wire-clamping device consisting of pivotally-connected handles, each handle terminating in a jaw, means for locking the jaws in a closed position, and a cable attached to the drum, which cable is loosely passed through one of said handles, being attached to the opposing handle, of a support adjacent to said standards, a reel carried by said support, a locking device for the reel, said reel being adapted to carry wire, which wire is adapted to be grasped between the jaws of said clamping device, arms projected from the base and from said standards, and means substantially as described, for locking said arms to a fence-post, as specified.

6. In a wire-fence machine, the combination of a revoluble drum, means for applying power to the same, a cable attached to the drum, and a clamp consisting in two pivoted jaws, the cable having one end attached to one jaw and the cable being passed loosely through the opening in the other jaw.

7. In a wire-fence machine, the combination with a frame, of a winding apparatus, a clamp having connection therewith, the clamp serving to engage the wire to haul the same, and means mounted on the frame for carrying the wire-reel, permitting the wire to be paid out as the machine advances along the fence-line, and the clamp and winding devices serving to haul the wire to tension the same.

643,920. CUPOLA-FURNACE. David Townsend, Philadelphia, Pa. Filed Mar. 18, 1899. Serial No. 709,668. (No model.)



Claim.—1. The combination in a cupola-furnace, of a cupola-body, doors hinged to the under side of the body, one door underlapping the other, fixed supports at each side of the doors, a bar pivoted to the underlapping door and adapted to engage the fixed supports, and means engaging the bar so as to turn it on its pivot and lock the doors in the closed position, substantially as described.

2. The combination of the body of the furnace, a fixed support or foundation for the same, hinged doors for closing the bottom of the furnace one door underlapping the other, a bar pivoted to the underlapping door, bevels on the bar, and inclines on the fixed portion of the structure cooperating with the bevels of the bar, whereby the doors are forced tightly against the bottom of the body of the cupola-furnace, substantially as described.

3. The combination of the body of a cupola-furnace, a fixed support or foundation for the same, counterbalanced pivoted doors arranged to close the bottom of the furnace, one door underlapping the other, and a retaining-bar pivoted to the underlapping door, the ends of said bar being supported on the fixed support of the structure and having on one end teeth with a screw-shaft arranged to engage the teeth of the bar and turn it on its pivots to lock the doors in the closed position, substantially as described.

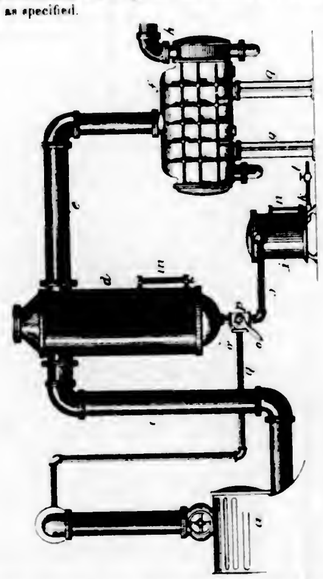
4. The combination in a cupola-furnace, of the pivoted doors mounted under the body of the furnace, a retaining-bar pivoted to one of said doors and having a weight at one end and a stop on the door against which the opposite end of the bar rests when the doors are opened, substantially as described.

5. The combination in a cupola-furnace, of the furnace-body, two pivoted doors mounted under the same, one underlapping the other, a retaining-bar pivoted to the underlapping door, having cam-blocks at each end, cross-beams on the fixed structure, brackets on the cross-beams arranged on opposite sides of the parting-line of the doors and in the path of the cross-bar, so that when the cross-bar is adjusted parallel with the parting-line of the doors, the doors will freely open but when the bar is turned it will pass over the brackets and be supported thereby, substantially as described.

6. The combination in a cupola-furnace, of the body, pivoted doors arranged to close the bottom of the furnace, a retaining-bar pivoted to one of the doors, said bar being made up of two longitudinal members, with a central pivot-block and end cam-blocks, substantially as described.

643,921. ATTACHMENT FOR SEPARATORS. Charles H. Treat, Mansfield, Ohio, assignor to the Direct Separator Company, Syracuse, N. Y. Filed Aug. 17, 1899. Serial No. 727,538. (No model.)

Claim.—1. In an attachment for separators, the combination with the exhaust-steam pipe of an engine, of a separator, a receiving-tank, in communication with said separator, said receiving-tank having a discharge-outlet into the atmosphere, and a means for cutting off said communication and simultaneously establishing communication between said receiving-tank and a source of live steam, substantially as specified.

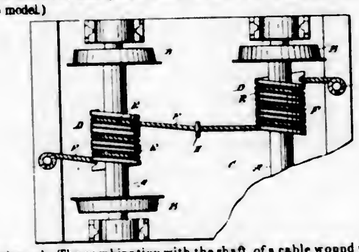


2. The combination with the exhaust-steam pipe of an engine, of a separator, a receiving-tank having a discharge-outlet into the atmosphere, a pipe connection between said separator and said tank, a pipe from a source of live steam leading into said pipe connection, and a valve at the juncture of said pipes, whereby communication can be established alternately between said separator and tank, and between the said tank and the source of live steam, substantially as specified.

3. The combination with the exhaust-steam pipe of an engine, of a separator, a receiving-tank, pipe *k* discharging into the atmosphere, cock *l*, connecting-pipe *j*, live-steam pipe *q*, and three-way valve *p*, at the juncture of said live-steam pipe and said pipe *j*, substantially as specified.

4. The combination with the exhaust-steam pipe of an engine, of a separator, a receiving-tank having a discharge-outlet into the atmosphere, with means for controlling the same, a pipe connection between said separator and said tank, having a valve therein, a steam-generator, a live-steam pipe connected with said receiving-tank and with said steam-generator, and means for controlling the admission of steam through said pipe to said tank, substantially as specified.

643,922. BRAKE. William F. Treixler, Allentown, Pa., assignor of one-half to Alfred J. Yost, Leo Wise, Gerold J. S. Kohler, and Franklin T. L. Keiter, same place. Filed Aug. 5, 1899. Serial No. 726,276. (No model.)



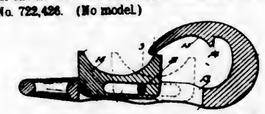
Claim.—1. The combination with the shaft, of a cable wound with a plurality of revolutions about said shaft, and a brake-shoe constructed of independent sections loosely mounted on the shaft and having spiral grooves on their peripheries in which the cable is secured, the said sections being of such a number that some of them will lie alongside of others when the cable is wound on the shaft, whereby tension on the cable will bind the sections on the shaft and force them laterally against each other, as set forth.

2. The combination with a shaft, of a cable wound around said shaft, and a brake-shoe constructed in sections formed with spiral grooves on their peripheries in which said cable is secured, a pair of sections being required for one revolution of the spiral, and there being provided a plurality of pairs, whereby a tension on the cable will tend to bind the sections on the shaft and force them laterally against each other, as and for the purpose set forth.

643,923. PROCESS OF TREATING FIBERS, &c., TO IMITATE SILK. Eduard Ungnad, Rixdorf-Berlin, Germany. Filed Aug. 10, 1898. Serial No. 688,252. (No specimens.)

Claim.—The improved process of treating vegetable fibers, yarns and fabrics to imitate silk, which consists in subjecting them, after they have been soaked in the usual manner in an alkaline solution of silk, to the action of carbonic acid which combining with the alkali of the silk solution converts it into an alkaline carbonate and thereby deposits the silk from its solution on the fiber, substantially as specified.

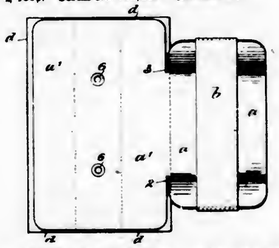
643,924. SNAP-HOOK. Jacob E. Vannote, Lakota, N. D., assignor of one-half to John A. Kinsey, same place. Filed June 30, 1899. Serial No. 722,426. (No model.)



Claim.—1. A snap, consisting of a longitudinally-slotted shank formed with a hook having a concave under surface at its free end and a transverse rib at the inner end of said surface, and a slide fitted to slide loosely in the slot of the shank, said slide having a concavity in its upper face opposed to the concave surface of the hook and a raised end section formed on each side of its concavity, the inner end section forming a finger-hold, and the outer end section abutting against the free end of the hook when the slide is at the outer limit of its movement, as set forth.

2. A snap, consisting of a longitudinally-slotted shank formed with a hook having a concave under surface at its free end and a transverse rib at the inner end of said surface, a transverse pin in the slotted portion of said shank, a slide having movement on the upper face of said shank and having a concavity on its upper face opposed to the concaved surface of the hook and a raised end section at each side of its concavity, said slide being formed on its bottom with a rib fitting in the slot of the shank and formed with a longitudinal slot in which the transverse pin is received, the said slot being of such a length that the inner end section of the slide will stop between the free end of the hook and the transverse rib when the slide is at the inner limit of its movement whereby to form a zigzag or undulating passage for the insertion of a ring, and whereby the said end section of the slide will abut against the free end of the hook when the slide is at the outer limit of its movement, as set forth.

643,925. INK-BLOTTER. Thomas P. Vernon, Sing Sing, N. Y. Filed Oct. 4, 1899. Serial No. 732,449. (No model.)

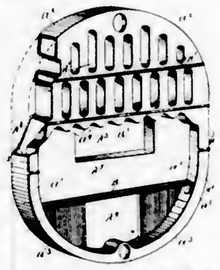


Claim.—1. The improved ink-blotter to be worn on the hand, comprising the connected portions *a* and *a'*, of press-board or other similar suitable material, an elastic removably and adjustably connected to the portion *a* to pass over the wrist, and a part *c* and means for connecting the same to the portion *a'* and a folded blotter-strip *d* adapted to be received between the parts *a'* and *c*, substantially as set forth.

2. The improved ink-blotter to be worn on the hand, comprising the integral portions *a* and *a'* of press-board or similar suitable material, studs connected to the respective ends of the portions *a*, an elastic band and sockets upon the respective ends thereof forming snap connections with the studs upon the part *a*, a part *c* and eyelets for connecting the same to the part *a'* and a folded blotter-strip *d* adapted to be removably connected between the opposite edges of the parts *a'* and *c*, substantially as set forth.

3. The improved ink-blotter to be worn on the hand, comprising the integral portions *a a'*, of press-board or similar suitable material having notches 2 3 between portions thereof, so that the respective ends of the portion *a* may bend upward while the portion *a'* remains flat, studs connected to the respective ends of the portion *a*, and projecting from the under side thereof, an elastic *b* and sockets upon the respective ends thereof which with the studs form snap connections for removably and adjustably connecting the elastic *b* to the part *a*, a part *c* of similar material and correspondingly formed to the part *a'*, and eyelets 6 in the central longitudinal line of the parts *a'* and *c* for connecting the said parts permanently together so that the respective opposite longitudinal edges of the parts *a'* and *c* are adapted to yieldingly separate, and a folded blotter-strip *d* upon the under side of the part *c* with the edges passed in between the parts *a'* and *c*, substantially as set forth

643,926. SECTION FOR GENERATORS. EDWARD P. WAGGONER, Syracuse, N. Y., assignor to the A. A. Griffing Iron Company, Jersey City, N. J. Filed Jan. 2, 1897. Renewed Dec. 18, 1899. Serial No. 740,822. (No model.)



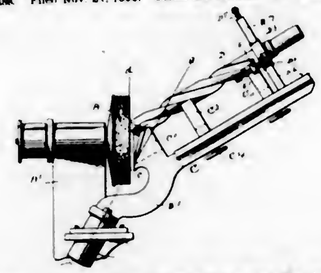
Claim.—1. The combination with a section for a generator, the same consisting of a single casting provided with circulating-openings in its upper and lower portions, passages extending from front to rear through its front and rear walls for forming parts of flues, a recess extending from front to rear of the section from one face thereof and beneath said passages for forming an end of a combustion-chamber, a water-containing chamber extending from front to rear of the section from the opposite face thereof, and shoulders provided upon the opposite side walls of the recess at one side of the water-containing chamber; of a grate-bar arranged crosswise of the section within the recess and having its opposite ends supported by said shoulders projecting from the opposite side walls of the recess, substantially as and for the purpose described

2. As an article of manufacture, the herein-described section for a generator, the same consisting of a single casting provided with circulating-openings in the upper and lower portions of its rear wall, passages extending from front to rear through its front and rear walls for forming parts of flues, a recess extending inwardly from the rear face of the section beneath the passages for forming the front end of a combustion-chamber, a water-containing chamber of less thickness than the section arranged in front of the recess, and a second water-containing chamber arranged at the bottom and side edges of the recess and projecting rearwardly beyond the first water-containing chamber and communicating therewith, substantially as and for the purpose set forth.

3. As an article of manufacture, the herein-described section for a generator, the same consisting of a single casting formed with top and bottom walls extending toward each other in opposite directions from substantially their central portions, said section being provided with circulating-openings in the upper and lower portions of its rear wall, passages extending from front to rear through its front and rear wall for forming parts of flues, and a recess extending inwardly from the rear face of the section beneath said passages for forming the front end of a combustion-chamber, substantially as and for the purpose set forth

4. As an article of manufacture, the herein-described section for a generator, the same consisting of a single casting formed with top and bottom walls extending toward each other in opposite directions from substantially their central portions, and substantially-flat front and rear walls, the rear wall having circulating-openings arranged substantially centrally in its upper and lower portions, said section being provided with passages extending from front to rear beneath the upper circulating-opening through its front and rear walls for forming parts of flues, a recess extending inwardly from the rear face of the section between said passages and the lower circulating-opening for forming the front ends of a combustion-chamber and an ash-pit, the top wall of said recess being corrugated for forming a corrugated crown-sheet, a water-containing chamber of less thickness than the section arranged in front of the upper end of the recess, a second water-containing chamber arranged at the bottom and side edges of the lower end of the recess and projecting rearwardly beyond the first water-containing chamber, fire and draft openings arranged one above the other between said passages and the lower circulating-opening and extending from the recess through the front face of the section, and shoulders provided upon the opposite side walls of said recess for supporting a grate-bar, substantially as and for the purpose described.

643,927. DRILL-GRINDER. OAKLEY S. WALKER, Worcester, Mass. Filed Nov 21, 1899. Serial No. 737,831. (No model.)



Claim.—1. In a machine for grinding twist-drills, the combination of a revolving grinding-wheel, an oscillating drill-holder pivoted upon the supporting-framework of the machine so that its axis of oscillation, produced, will intersect the plane of rotation of the surface of the grinding-wheel, in contact with the drill, and form an acute angle therewith, and an acute-angled V-shaped drill-support by which the drill to be ground is held in contact with the grinding-wheel with the end of the drill subtending the acute angle formed by the intersection of its axis of oscillation with the plane of rotation of the surface of the grinding-wheel in contact with the drill, whereby an increase in the diameter of the drill will increase the radius of curvature of the ground surface of the drill-lip.

2. The combination of a grinding-wheel, a drill-holder, V-shaped supports for holding the drills to be ground with their axes in a plane bisecting the angle formed by the sides of the V-shaped supports, said drill-holder having a rocking or oscillating motion by which the ground surface of the drill-lip is carried into contact with the grinding-wheel, with its axis of oscillation passing to one side of the plane bisecting the angle formed by the V-shaped supports and forming an acute angle therewith, substantially as described.

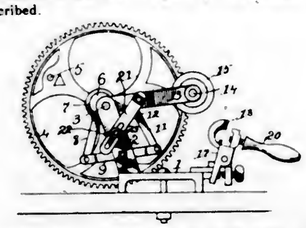
3. The combination of a grinding-wheel, a drill-holder having V-shaped supports for the drill to be ground, said drill-holder being journaled in bearings, and having an axis of oscillation which passes through the apex of the angle formed by the sides of said V-shaped supports, and at an acute angle to a plane bisecting the angle formed by the sides of the V-shaped supports, whereby an increase in diameter of the drill to be ground will increase its clearance, substantially as described.

4. The combination with a grinding-wheel, of a drill-holder, having V-shaped supports and a dog attached to the drill held in said supports provided with diametrically-opposite arms adapted to engage the drill-holder as the drill is turned therein to grind its opposite lips, substantially as described.

643,928. GRINDING-MACHINE. WILLIAM I. WALKER and ASHUS H. GRINN, Rock Island, Ill. Filed Dec. 1, 1899. Serial No. 738,532. (No model.)

Claim.—1. In a grinding-machine, the combination of a drive-shaft, a gear-wheel fixed on the drive-shaft, a frame pivoted on the drive-shaft and carrying a grinding-wheel in its swinging end, a pinion on the shaft of the grinding-wheel in mesh with the drive-wheel, an eccentric fixed on the drive-shaft, a lever fulcrumed between its ends and connected at one end with the eccentric and a connection between the opposite end of the lever and the grinding-frame, substantially as described.

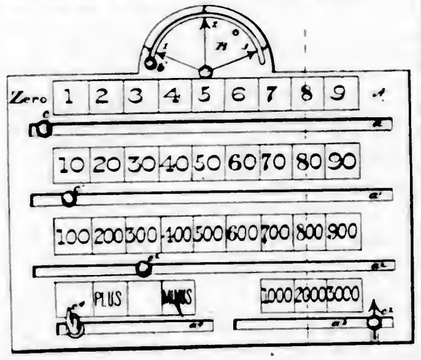
2. In a grinding-machine, the combination with a drive-shaft and a grinding-frame pivoted on the shaft, of an eccentric fixed on the drive-shaft, a lever fulcrumed between its ends, a connection between one end of the lever and the eccentric and a connection between the other end of the lever and the swingable grinding-frame, substantially as described.



3. In a grinding-machine, the combination with a drive-shaft and a grinding-frame pivoted on the shaft, of an eccentric fixed on the drive-shaft, a lever pivoted between its ends, a bearing on the grinding-frame adjustable to and from the pivot thereof, a connection between the eccentric and one end of the lever and a connection between the other end of the lever and the adjustable bearing of the swingable grinding-frame, substantially as set forth.

4. In a grinding-machine, the combination of a base, a forked standard, a drive-shaft, a gear-wheel and an eccentric fixable on the shaft, a frame pivoted on the shaft, a grinding-wheel journaled in the swinging end of the frame, a pinion on the shaft of the grinding-wheel in mesh with the gear-wheel of the drive-shaft, a lever pivoted in the standard and connected from one end with the eccentric and from the other end with the swingable frame, a slotted strap connected pivotally with the swingable frame and a clamp-bolt on the standard engaging the slot of the strap, substantially as described.

648,929. GAME-COUNTER. REINHARD J. WILKENS, Baltimore, Md. Filed Apr. 15, 1899. Serial No. 713,179. (No model.)



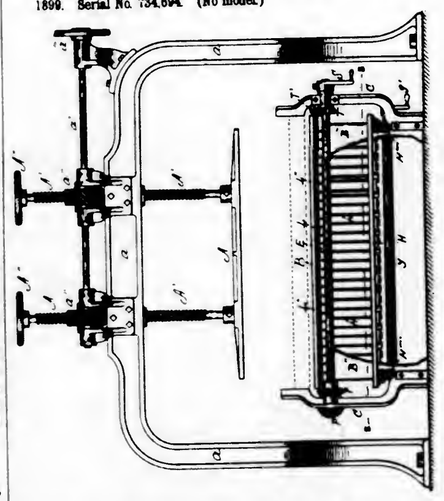
Claim.—As a new article of manufacture, a game-counter, consisting of the plate A, provided with the slots *a a' a² a³* and *a⁴*, located as shown, and having the numbers from "1" to "9" above the slot *a*; the numbers from "10" to "90" above the slot *a'*; the numbers from "100" to "900" above the slot *a²*, and the numbers from "1,000" and up above the slot *a³*, and the words "Plus" and "Minus" just above each end of the slot *a⁴*, and the indicators *c c' c² c³* and *c⁴*, one in each slot, and the top projection B having the slot *b* in which is an indicator *b'* the arrows and a different number for each arrow, as shown.

648,930. GUIDE FOR SEWING-MACHINES. WILLIAM F. AULD, Baltimore, Md. Filed Sept. 28, 1899. Serial No. 731,936. (No model.)



Claim.—A gage for sewing-machines comprising a stationary slotted guide-plate having a depressed center and provided on its marginal edge with ratchet-teeth; a gage fitting on said guide-plate and sliding in said depressed center, said gage also having a pawl which engages said ratchet-teeth; and a spring or other resilient connection between said guide-plate and said gage for retracting the latter when the pawl is released from engagement with the ratchet-teeth on the guide-plate.

648,931. UPHOLSTERING-MACHINE. CHARLES C. BALDWIN, HARLEY M. FERRILL, and FRED A. DROWN, Barton, Vt. Filed Oct. 26, 1899. Serial No. 734,694. (No model.)



Claim.—1. In an upholstering-machine, the combination with a stationary bed for supporting the mattress or cushion and a vertically-moving press or platen above said bed and adapted to be moved down upon the mattress; of a vertically-sliding frame beneath the bed, conforming substantially to the shape of said bed and provided with outwardly-projecting points for engaging the edges of the burlaps which constitute a portion of the mattress; and mechanism for lowering said vertically-sliding frame and drawing said edges tightly over the edges of the bed, substantially as set forth.

2. In an upholstering-machine, the combination with a stationary bed for supporting a mattress or cushion; of a vertically-sliding frame beneath the bed and conforming substantially to the shape of said bed; points extending diagonally downward from the outer edge of said frame and adapted to engage the uncompleted cushion or mattress lying on the bed; and mechanism for depressing said frame and thus drawing the edges of the burlaps tightly over the edge of the bed, substantially as described.

3. In an upholstering-machine, in combination, the stationary bed B supported by the frame; the sliding frame E conforming substantially in shape to the edge of the bed, set beneath it and provided with the downwardly-extending points *f*; springs supported by the frame of the machine and bearing against the under surfaces of the frame E; and shafts F mounted on the stationary portion of the machine and provided with the cams F' between the bed and the frame E, whereby said frame E is forced down against the power of the springs, substantially as and for the purpose set forth.

4. In an upholstering-machine, the combination with the stationary table or bed for supporting the mattress or cushion, provided with suitable perforations and supported by a frame; of a vertically-moving box consisting of sides and ends without a bottom and conforming generally in shape to the edges of the bed; and a stationary frame extending above the bed at the corners thereof and formed with vertical slideways adapted to receive the corners of the frame and allow it to move vertically down and be pressed upon the burlaps around the edges of the mattress or cushion, substantially as set forth.

5. In an upholstering-machine, in combination, a stationary table or bed provided with suitable perforations and supported by a frame; a vertically-moving box consisting of sides and ends but without a bottom, said box conforming generally in shape to the edges of the bed; a frame extending above the bed and adapted to guide said box and allow it to slide vertically down upon the mattress or cushion in process of manufacture as it lies on the bed; and mechanism secured to the stationary portion of the machine for drawing the edges of the burlap down over the edges of the bed, substantially as set forth.

6. In an upholstering-machine, in combination, a stationary table or bed provided with suitable perforations and supported by a frame; a vertically-moving box consisting of sides and ends but without a bottom, said box conforming generally in shape to the edges of the bed; a frame extending above the bed and adapted to guide said box and allow it to slide vertically down upon the mattress or cushion in process of manufacture as it lies on the bed; mechanism secured to the stationary portion of the machine for drawing the edges of the burlap down over the edges of the bed; and mechanism for drawing the skin or cover of the mattress or cushion down under the lower edges of the box and over the portions of the burlaps which lie on the edges of the bed, substantially as described.

7. In an upholstering-machine, in combination, a stationary bed for supporting the mattress or cushion; a vertically-moving box consisting of sides and ends but no bottom, conforming generally in shape to the edges of the bed and adapted to be moved vertically over the edges of the mattress or cushion on said bed; rolls supported by the frame and provided with points adapted to engage the edges of the cover or skin of the mattress or cushion, said rolls being set at points below the surface of the bed; and mechanism for rotating the rolls, substantially as described.

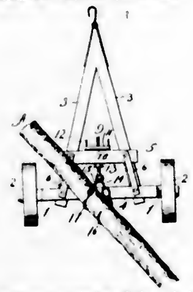
648,932. HAME-FASTENER. THEODORE BELLERSON, St. Louis, Mo. Filed July 3, 1899. Serial No. 722,741. (No model.)



Claim.—1. A device of the class described, comprising a plate, hook integral with one end thereof and having at its opposite end and integral therewith a downwardly-pending, closed, rectangular box or casing, in the upper portions of the ends of which are rectangular openings, a second curved plate operating through said casing and held in place by it and supported and guided by the arm and hook of the other of said mentioned plates and being provided with a small hook on one end, a long arm and a larger hook or haudhold at the opposite end and having a plurality of notches in the under side of said second-mentioned plate, and means within the casing for engaging said notched plate, substantially as specified.

2. A device of the class described, comprising a pair of plates, one of which has a hook on one end, the opposite one of which is provided with a hook at one end and a larger hook or handhold at its opposite end, said second-mentioned plate being held in place and guided by the arm and hook of the first-mentioned of said plates, and means carried by one of said plates, inclosed and protected, for engaging and holding the opposite plate, substantially as specified.

643,933. LOG-CART. GUSTAVE BENDER, Texarkana, Tex. Filed Dec. 18, 1899. Serial No. 740,795. (No model.)

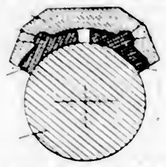


Claim.—1. A log-cart, consisting of the axle 1; wheels 2; hounds 3, secured on the top of the axle; bolster 4, secured on the top of the hounds; said bolster being so deep, that its top face is higher than the periphery of the wheels; front bolster 5, secured on the hounds in front of bolster 4; threaded eyebolt 9, secured in said front bolster; chains 14 and 15, depending from the threaded eye of said bolt 9; hooks 16 and 17, depending from said chains; substantially as shown and described and for the purposes set forth.

2. A log-cart, consisting of the axle 1; wheels 2; hounds 3, secured on the top of the axle; bolster 4, secured on the top of the hounds; said bolster being so deep that its top face is higher than the periphery of the wheels; front bolster 5, secured on the hounds in front of the bolster 4; strengthening-straps 6, secured to the bolsters 4 and 5; strengthening-straps 7, secured to the hounds and axle; threaded eyebolt 9, secured in said front bolster; chains 14 and 15, depending from threaded eye of said bolt 9; hooks 16 and 17 depending from said chains; substantially as shown and described and for the purposes set forth.

3. A log-cart, consisting of the axle 1; wheels 2; hounds 3, secured on the top of the axle; bolster 4, secured on the top of the hounds; said bolster being so deep, that its top face is higher than the periphery of the wheels; front bolster 5, secured on the hounds, in front of bolster 4; threaded eyebolt 9, passing horizontally through bolster 4; washer 10, working on said bolt and against the front face of said bolster; lever-nut 11, working on said rod and against the front face of said bolster; jam-nut 13, working on said rod and against the rear face of said bolster; chains 14 and 15, depending from the eye of said bolt 9; hooks 16 and 17, depending from said chains; substantially as shown and described and for the purposes set forth.

648,934. BEARING FOR JOURNALS. EDWIN H. BENNER, Elizabeth, N. J. Filed Oct. 18, 1899. Serial No. 733,965. (No model.)



Claim.—1. In a bearing for journals a yoke having longitudinal cylindrical grooves, in combination with bearing-pieces incapable of contact with each other having on one side concave cylindrical faces to fit the journal and on the other side longitudinal cylindrical projections to engage the grooves in said yoke.

2. In a bearing for journals the combination with bearing-pieces, each having a concave cylindrical surface on one side adapted to fit and bear upon the journal and a projection on its other side, of a yoke provided with recesses for receiving the projections on said bearing-pieces.

643,935. FIREARM. JOSEPH A. BENNETT, Hartford, Conn., assignor to Charles H. A. F. L. Ross, Balnagowan Castle, County of Ross, Scotland. Filed Sept. 20, 1899. Serial No. 731,064. (No model.)



Claim.—1. The combination with a firing-pin, of a catch-head mounted thereon and locked against rotation, a cocking-nut threaded upon the firing-pin, the nut and head having engaging ribs and grooves, and a spring for forcing the catch-head against the nut, substantially as described.

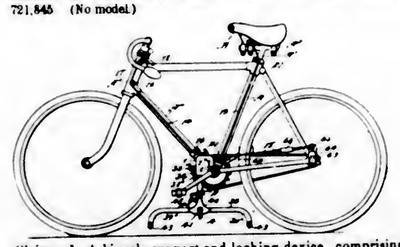
2. The combination with a firing-pin, of a catch-head carried upon the pin and held from rotation thereon, the forward end of the catch-head being counterbored, a spring contained within the counterbored end of the catch-head, and a cocking-nut threaded upon the firing-pin in the rear of the catch-head, the catch-head and nut being provided with engaging ribs and recesses to prevent the rotation of the nut, substantially as described.

3. The combination in a straight-pull breech mechanism with a recessed receiver, of a sleeve, and a movable latch mounted on the sleeve and adapted to engage the recess in the receiver when the breech is closed, substantially as described.

4. In a straight-pull breech mechanism the combination with a receiver having a locking-face thereon, of a sleeve sliding longitudinally in the receiver, a firing-pin contained in the sleeve and having a locking-face thereon, and a latch pivoted in the sleeve and adapted to engage simultaneously the locking-faces in the receiver and firing-pin when the parts are in their normal position, substantially as described.

5. The combination with a receiver having a locking-face thereon, of a sleeve sliding in the receiver, a firing-pin sliding in the sleeve and having locking-faces thereon corresponding to full-cocked and normal positions, and a latch pivoted to the sleeve, and adapted to engage the locking-face in the receiver and either of the locking-faces upon the firing-pin, dependent upon the position of the latter, substantially as described.

648,936. SUPPORT AND LOCKING DEVICE FOR BICYCLES. SHARKER A. BHISE, Bombay, India. Filed June 26, 1899. Serial No. 721,845. (No model.)



Claim.—1. A bicycle support and locking device, comprising a slidably-held upright rod, a transverse foot-piece thereon, having depending limbs and casters thereon, means to turn the slide-rod a quarter-revolution when raised or lowered, a treadle device connected with the top of the slide-rod, which will elevate said rod by foot-pressure upon said treadle, an automatically-operative device for locking the rod elevated, and a device for release of said rod, operative by either hand or foot power.

2. The combination with a bicycle-frame, and a casing thereon having a depending tube, of a slide-rod in said tube, having a transverse foot-piece, means to lock the rod elevated, a manually-operative device for release of said rod to permit its descent by gravity, a flexible connection extending from the top of the slide-rod and a treadle on a foot-rest engaged with the lower end of the flexible connection which will raise said slide-rod when the treadle is depressed.

3. The combination with a bicycle-frame, a casing thereon, a depending tube having a twisted depending slot that extends one-quarter way around said tube, a slide-rod in said tube having a transverse foot-piece, a tongue on the slide-rod which will traverse the slot, and means to elevate the slide-rod by foot-pressure, of a flexible connection extended between a device near the bicycle-saddle and a slide-bolt that locks the slide-rod elevated, said device being adapted to release the slide-bolt from the rod when the saddle is unoccupied.

4. In a device of the character described, the combination with a slidably-held upright rod, a transverse foot-piece thereon, means to turn the slide-rod a quarter-revolution when raised or lowered, means to elevate the slide-rod, a slide-bolt that retains the slide-rod elevated a foot-power treadle device for release of said slide-bolt to permit the slide-rod to descend by its gravity spring-pressed, a slide-bolt and a rockable lever engaging one end with the slide-bolt and at the upper end controlled by a lock and adapted to hold the slide-rod in lowered adjustment.

5. In a device of the character described, the combination with a slidably-supported rod having a tongue and a transversely-slotted tube that contains said slide-rod, of a reel on the bicycle-frame, a flexible connection wrapped on the reel for extension therefrom, and a shackle-bar, having a loop and secured on one end of said flexible connection, that will enter the transverse slot of the tube and be locked therein by the tongue on the slide-rod.

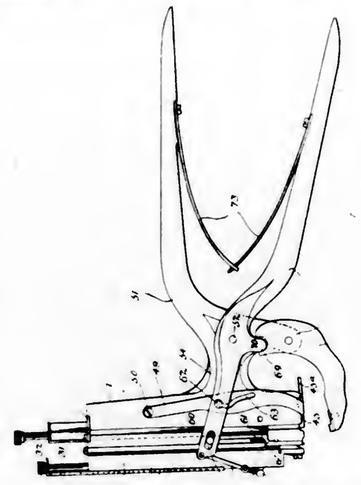
643,937. MACHINE FOR ATTACHING HOOKS AND EYES. LOTTIE A. BOGGS, Lincoln, Nebr. Filed Oct. 10, 1898. Serial No. 693,111. (No model.)

Claim.—1. A machine for attaching hooks and eyes having in combination a magazine for the devices to be attached, a staple-holder, a staple-chute, a circular feeder for conveying the staple from the staple-holder to said chute, arranged contiguous to and constituting one side of said chute, a plunger in said chute, an anvil opposite the end of said chute and means for conveying the device to be attached from said magazine into line with the plunger, substantially as set forth.

2. A machine for attaching hooks and eyes having in combination a magazine for the devices to be attached having a side opening for the exit of the device to be attached and a foot-piece under said opening for supporting the device to be attached, staple-driving mechanism, and means for ejecting the devices to be attached through said side opening toward said staple-driving mechanism, having claws projecting toward the magazine beyond said foot-piece and into said side opening so as to engage with the device to be attached, substantially as set forth.

3. A machine for attaching hooks and eyes having in combination a magazine for the devices to be attached, a staple-holder arranged parallel with said magazine, a staple-chute and a plunger or driver in said chute arranged between and parallel with said staple-holder and magazine, means for feeding the staples to said chute, means for advancing the devices to be attached into line with said plunger, and an anvil, substantially as set forth.

4. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a feeder for conveying the staples from said holder to said chute, having an imprint for the reception of the staple, means for driving the staple, means for holding the device to be attached opposite the staple-driving means and an anvil for clenching the staple, substantially as set forth.



5. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a rotary feeder arranged across said staple-holder for conveying the staples therefrom to said chute, and having a depression for the reception of the staple, means for driving the staple, means for holding the device to be attached opposite the staple-driving means, and an anvil for clenching the staple, substantially as set forth.

6. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a feeder arranged across said staple-holder and having a depression for receiving the staple, an ejector in said feeder for throwing the staple from said depression into said chute, means for driving the staple from said chute, means for holding the device to be attached and an anvil for clenching the staple, substantially as set forth.

7. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a feeder arranged across the staple-holder for conveying the staple to said chute, having an imprint for the reception of the staple, a pivoted ejector carried by said feeder and having one end arranged in said imprint, a yielding abutment for engaging with the other end of said ejector for forcing the staple from said imprint, means for driving the staple from said chute, means for holding the device to be attached and an anvil for clenching the staple, substantially as set forth.

8. A machine for attaching hooks and eyes having in combination a staple-holder having a bar which the staples straddle, a spring-follower saddled over said bar and pressing against said staples, a staple-chute, a feeder for conveying the staples from said holder to said chute, arranged across said holder and against which feeder the staples are pressed by said follower, means for driving the staple from said chute, means for holding the device to be attached, and an anvil for clenching the staple, substantially as set forth.

9. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a rotary feeder for conveying the staple from said holder to said chute, located across said staple-holder and having its arc of rotation arranged tangentially to said staple-chute, means for driving the staple from said chute, means for holding the device to be attached, and an anvil for clenching the staple, substantially as set forth.

10. A machine for attaching hooks and eyes having in combination a staple-holder for a plurality of staples, a magazine for the devices to be attached, a staple-chute arranged between and lengthwise of said holder and magazine, a rotary staple-feeder extending across the staple-holder and arranged with the chute at a tangent thereto, a plunger or driver in said chute, means for automatically advancing the device to be attached into line with said driver and an anvil arranged opposite said driver, substantially as set forth.

11. A machine for attaching hooks and eyes having in combination a magazin for the devices to be attached, the staple-driving

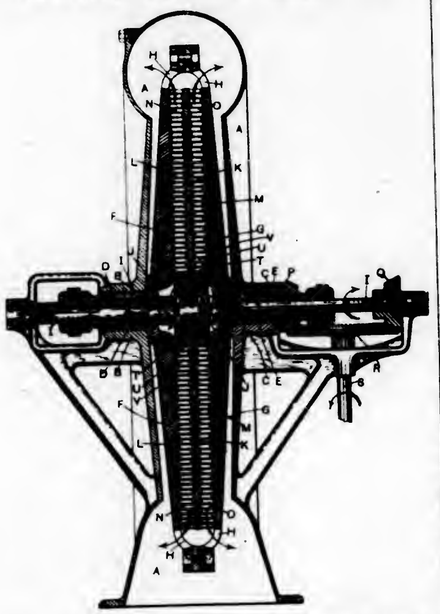
mechanism, an ejector for conveying the device to be attached from its magazine to the staple-driving mechanism, a lever for operating the staple-driving mechanism, a swinging arm supporting said ejector, said arm and lever having pin and cam slot connection, and an anvil for clenching the staple, substantially as set forth.

12. A machine for attaching hooks and eyes having in combination a magazine for holding the eye, whose cross-section is complementary in shape to the eye, said magazine being provided at its lower end with a side opening and with vertical openings in the larger part of its cross-section, an ejector for forcing the eye from said magazine, having claws adapted to engage with the shoulders of the eye through said vertical openings, staple-driving mechanism to which the eye is advanced by said ejector, and an anvil, substantially as set forth.

13. A machine for attaching hooks and eyes having in combination a staple-holder, a staple-chute, a plunger in said chute, a pivoted segmental feeder for conveying the staple from said holder to said chute, a magazine for the devices to be attached, a pivoted jaw provided with an anvil, an ejector for advancing the devices to be attached into line with said plunger, a lever having pin-and-slot connection with said ejector and also with said plunger and a jointed connection with said jaw and also with said segmental feeder, substantially as set forth.

14. A machine for attaching hooks and eyes having in combination a plunger, means for holding the device to be attached, and an anvil provided with tilting members having their inner ends arranged under and depressible by said plunger and their outer ends upwardly deflectable, substantially as set forth.

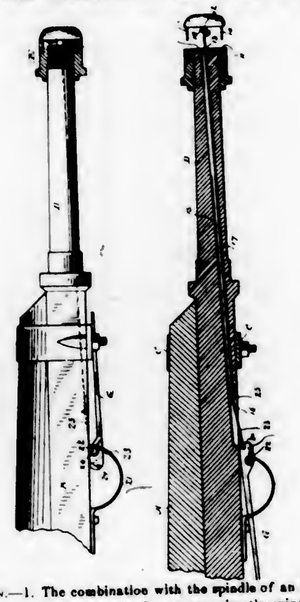
648,988. STEAM-TURBINE. JOHN F. BRADY, Chicago, Ill. Filed July 24, 1899. Serial No. 724,979. (No model.)



Claim.—1. In a steam-turbine, two revoluble vane-disks peripherally connected, and each mounted apart upon a separate hollow journal so as to form an interspace, a revoluble shaft mounted axially through the journals of the disks, and a vane-disk firmly mounted on the shaft within the interspace, and passage-ways leading into the interspace from a source of steam-supply, a series of circles of vanes, and each vane disposed at the angle substantially as stated, and projecting from the walls of the interspace, and a series of circles of vanes, each disposed at an angle to the first-named vanes and projecting from the sides of the shaft-disk, and adapted to revolve between and in a similar plane to the series of circles of vanes of the walls of the interspace, and in an opposite direction, by virtue of the action of steam, substantially as stated.

2. In a steam-turbine, two revoluble vane-disks peripherally connected, and each mounted apart upon a separate hollow journal so as to form an interspace, a revoluble shaft mounted axially through the journals of the disks, and a vane-disk firmly mounted on the shaft within the interspace, an axial passage-way in the shaft in communication with a steam-supply, and passage-ways through the sides of the shaft leading into the interspace, a series of circles of vanes, each disposed at the angle substantially as described, and projecting from the walls of the interspace, and a series of circles of vanes each disposed at an angle to the first-named vanes, and projecting from the sides of the shaft-disk, and adapted to revolve by the action of steam between and in a similar plane to the series of circles of vanes of the walls of the interspace, and in an opposite direction thereto, as stated.

648,989. LOCK FOR AXLE-NUTS. WILLIAM C. BRIGHAM, Hawleyville, Conn. Filed Dec. 12, 1899. Serial No. 740,084. (No model.)



Claim.—1. The combination with the spindle of an axle having a transverse groove in its end, of a nut engaging the spindle and having recesses adapted to register with the groove, a locking-plate having on its inner face a lug adapted to engage said groove and recesses, and means for retaining said locking-plate in the locking position so that the nut cannot be turned off.

2. The combination with the spindle of an axle having a groove in its end, of a nut engaging the end of the spindle and having recesses adapted to register with the groove, and holes 11, a locking-plate having on its face a lug adapted to engage the groove and recesses, and pins adapted to engage holes 11, and means for retaining said parts in engagement.

3. The combination with the spindle of an axle having a longitudinal opening and a groove in its end, of a nut engaging the end of the spindle and having recesses adapted to register with the groove, a locking-plate having a lug adapted to engage said groove and recesses, a rod lying in the longitudinal opening to the outer end of which the locking-plate is detachably secured, and an operating-lever and connections by which the rod is moved longitudinally to lock or release the locking-plate.

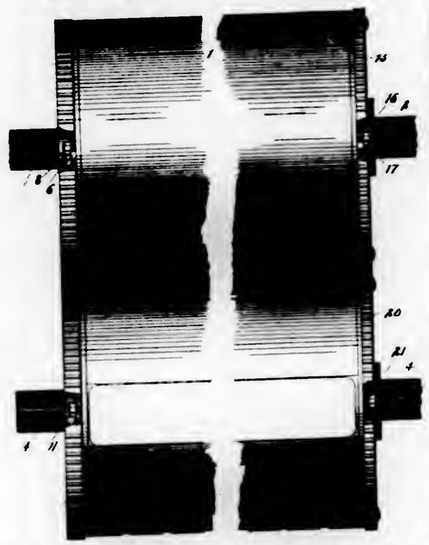
4. The combination with an axle and spindle, said spindle having a groove in its end and a longitudinal opening extending from said groove to an opening in the under side of the axle, of a nut engaging the end of the spindle and having recesses adapted to register with the groove, a locking-plate having a lug adapted to engage said groove and recesses, a rod lying in the longitudinal opening and connected to the locking-plate, an operating-lever having a rounded head, a spring-arm on the under side of the axle to which said head is eccentrically pivoted and a flexible connection one end of which is attached to the rod and the other to the rounded head opposite to its pivotal point so that movement of the operating-lever will either release the locking-plate or draw the flexible connection over the rounded head and thereby place the lug in engagement with the groove and recesses and lock the nut against backward movement.

5. In a device of the character described the combination with an axle and spindle having a longitudinal opening, a locking-lever having a rounded grooved head and a spring-arm to which said head is eccentrically pivoted, of a nut, a locking-plate adapted to engage the spindle and nut to prevent the latter from turning, and a connection intermediate the locking-plate and the rounded head whereby the locking-plate is retained in the locking position or is released.

6. In a device of the character described the combination with an axle and a spindle having a longitudinal opening, a locking-lever and a spring-arm to which it is pivoted, of a nut, a locking-plate adapted to engage the spindle and nut, and a connection intermediate the locking-plate and the operating-lever.

7. The combination with the spindle of an axle having a longitudinal opening and a groove in its end, a nut having holes 11 and recesses 14, and a locking-plate having a lug which engages the groove and recesses, and pins which engage the holes, of a rod lying in the longitudinal opening and connected to the lug, an operating-lever, a spring-arm to which it is eccentrically pivoted and a flexible connection between the operating-lever and the rod.

643,940. REGISTER-GEARING FOR PRINTING-PRESSES. ELIZABETH BROOKS, executrix of John Brooks, deceased, and WINFIELD S. HUSON, Plainfield, N. J., assignors to the Aluminum Plate and Press Company, same place and New York, N. Y. Filed June 15, 1899. Serial No. 720,632. (No model.)



Claim.—1. In a printing-press, the combination of the plate and impression cylinders with the main adjustable and fixed intermeshing gears upon said cylinders and the auxiliary adjustable and fixed gears upon said cylinders, substantially as and for the purpose set forth.

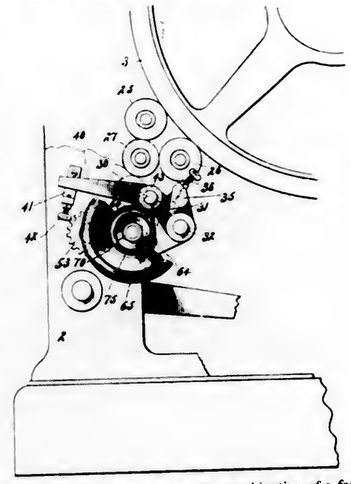
2. In a printing-press, the combination of the plate and impression cylinders, the main adjustable gear adjustably mounted upon one end of the plate-cylinder, the main fixed gear secured to one end of the impression-cylinder and meshing with said main adjustable gear, the auxiliary fixed gear secured to the opposite end of the impression-cylinder, and the auxiliary adjustable gear adjustably mounted upon the opposite end of the plate-cylinder and meshing with said auxiliary fixed gear, substantially as set forth.

3. In a printing-press, the combination of the plate and impression cylinders, the main adjustable gear formed with elongated slots, the bolts passing through said elongated slots into the plate-cylinder at one end and adjustably securing said gear to the cylinder, the intermeshing main fixed gear secured to the end of the impression-cylinder, the auxiliary fixed gear secured to the opposite end of the impression-cylinder, and the auxiliary adjustable gear meshing with the auxiliary fixed gear and formed with elongated slots through which suitable bolts pass into the plate-cylinder to adjustably secure said auxiliary gear, substantially as set forth.

4. In a printing-press, the combination of the plate and impression cylinders, the two pairs of intermeshing driving-gears secured to the ends of said cylinders, one of each pair of said gears being adjustable and the other of each pair being fixed, substantially as set forth.

5. In a printing-press, the combination of the plate and impression cylinders, the two pairs of driving-gears secured to the ends of said cylinders, one of each pair of which is adjustable while the other of each pair is fixed, the intermeshing pairs of gears engaging each other upon opposite faces at the opposite ends of the cylinders, substantially as and for the purpose set forth.

643,941. FORM-DAMPENING MECHANISM FOR PRINTING-PRESSES. ELIZABETH BROOKS, executrix of John Brooks, deceased, and WINFIELD S. HUSON, Plainfield, N. J., assignors to the Aluminum Plate and Press Company, same place and New York, N. Y. Filed June 15, 1899. Serial No. 720,633. (No model.)



Claim.—1. In a printing-press, the combination of a form-cylinder with the water-form rollers and distributer-roller, the water-fountain roller, the water-ductor roller, a divided cam for operating the water-ductor roller from the water-fountain roller adapted to vibrate the ductor-roller out of unison with the rotation of the water-fountain roller, substantially as set forth.

2. In a printing-press, the combination of a form-cylinder, the water-form rollers, the distributer-roller, and the water-fountain roller, and the water-ductor roller, of a gear keyed to the fountain-roller axle, another gear loosely journaled upon said axle, one of said gears having a greater number of teeth than the other, an intermediate gear meshing with both of said gears, upon the fountain-roller axle, a cam connected with and operated by said loosely-journaled gear, and means for operating the ductor-roller from said cam, substantially as set forth.

3. In a printing-press, the combination of a form-cylinder with the water-form rollers and distributer-roller, the water-fountain roller, the water-ductor roller, a gear 50 keyed to the axle of the water-roller, a gear 51 loosely mounted upon the axle of the water-roller, one of said gears having a greater number of teeth than the other, an intermediate gear 53 driven by gear 50 and driving gear 51, and a cam operated by gear 51 at a slightly-different speed from the speed of rotation of the water-fountain roller, and means for operating the ductor from said cam, substantially as set forth.

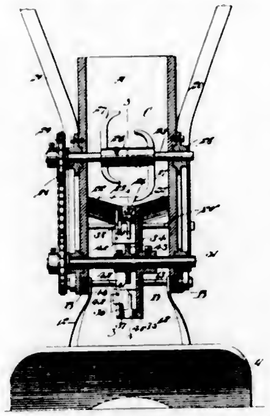
4. In a printing-press, the combination of a form-cylinder with the water-form rollers and distributer-roller, the water-fountain roller, the water-ductor roller, a divided cam comprising members 60 and 64 having frictional engagement with each other, means for driving the member 60 from the water-fountain roller, and a hand-wheel engaging the member 64 for adjusting it with relation to member 60, and means for operating the ductor-roller from the divided cam, substantially as set forth.

5. In a printing-press, the combination of a form-cylinder with the water-form rollers and distributer-roller, the water-fountain roller, the water-ductor roller, the differential gears 50, 51, the former of which is keyed to the axle of the water-fountain roller, the intermediate gear 53 meshing with said differential gears and a divided cam driven by the gear 51 and operatively connected with the ductor-roller, substantially as set forth.

6. In a printing-press, the combination of a form-cylinder with

the water-form rollers and distributer-roller, the water-fountain roller, the water-ductor roller, the differential gears 50, 51 the former of which is keyed to the axle of the water-fountain roller, the intermediate gearing meshing with said differential gears 50, 51, the divided cam 60, 64, the parts of which are adjustable with relation to each other, the hand-wheel 65 engaging one portion of the divided cam and means for operating the ductor-roller from the divided cam, substantially as set forth.

643,942. COTTON-SEED PLANTER. JAMES P. CALDWELL, Winnsborough, S. C. Filed Nov. 10, 1899. Serial No. 736,454. (No model.)



Claim.—1. In a planter, a rotatable seed-drop wheel having pockets and seed-ejecting pistons mounted to slide outwardly therein by gravity, and a regulating-wheel normally held to rotate with the seed-drop wheel and arranged to be engaged by the inner ends of said pistons to limit the inward movement thereof, said regulating-wheel being adjustable on the seed-drop wheel to vary the innermost position of the pistons.

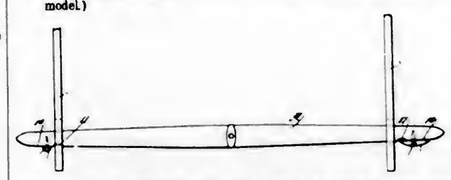
2. In a cotton-seed planter, a hopper having inclined sides, an opening in the bottom, a shaft journaled above the opening, and stirrers or agitators secured on the said shaft, said stirrers or agitators each comprising a sleeve and arms radiating from the sleeves, the outer extremities of which arms are curved in direction of the center of the hopper, the arms of one agitator or stirrer intervening the arms of the opposing agitator or stirrer, as described.

3. In a cotton-seed planter, a seed-drop wheel, comprising a body having a marginal flange, pockets formed on the body within the flange, which flange is provided with openings communicating with the pockets, pistons mounted to slide outward in the pockets by gravity, the inner ends of the pistons being arranged to extend out through the inner ends of the pockets, and a regulating-wheel normally held to rotate with the body in which said pockets are formed, and having an undulating peripheral surface, with which surface the inner ends of the pistons engage, as described.

4. In a cotton-seed planter, the combination, with a hopper having inclined sides, an arched slotted bottom, and agitators mounted to revolve in the hopper above the bottom, of a shaft journaled below the bottom of the hopper, a seed-drop wheel secured to the said shaft, which wheel is provided with a peripheral flange, pockets formed upon the said wheel within said flange, pistons mounted to slide outward in the pockets by gravity, a regulating-wheel normally held to rotate with the shaft carrying the seed-drop wheel, the regulating-wheel being adjustable on the shaft and provided with teeth and with convexed surfaces between the teeth, the teeth and the convexed surfaces between them being adapted for engagement by the inner ends of the pistons, and a shield located in front of the peripheral portion of the seed-drop wheel, for the purpose described.

5. In a cotton-seed planter, the combination, with a hopper having inclined sides, an arched slotted bottom, and agitators mounted to revolve in the hopper above the bottom, of a shaft journaled below the bottom of the hopper, a seed-drop wheel secured to the said shaft, which wheel is provided with a peripheral flange, pockets formed upon the said wheel within said flange, pistons mounted to slide outward in the pockets by gravity, a regulating-wheel normally held to rotate with the shaft carrying the seed-drop wheel, the regulating-wheel being adjustable on the shaft and provided with teeth and with convexed surfaces between the teeth, the teeth and the convex surfaces between them being adapted for engagement by the inner ends of the pistons, and a shield located in front of the peripheral portion of the seed-drop wheel, a drive-belt for the stirrers or agitators and the seed-drop wheel, and means for locking the pistons in the pockets in a manner to close the same, as described.

643,943. TRACE-HOLDER FOR SINGLETREES. LAWRENCE M. CAMPAU, Detroit, Mich. Filed Nov. 3, 1899. Serial No. 735,700. (No model.)



Claim.—1. A singletree provided with a flat surface at its rear edge near the ends, and a recess at the inner ends of the said flat portions, and buttons pivoted at the flat surfaces of the singletree, the said buttons being capable of standing at a right angle to the singletree, or parallel therewith extending over the recesses, as described.

2. A singletree, provided with flat surfaces at its rear edge near its ends and recesses adjacent to the inner ends of said flat surfaces, and buttons pivoted at said flat surfaces, the said buttons having flat forward faces and convexed rear surfaces, whereby the ends of the buttons when the buttons are parallel with the singletree closely approach the rear edge of the singletree, the said buttons being adapted, when parallel with the singletree, to extend across the said recesses, as described.

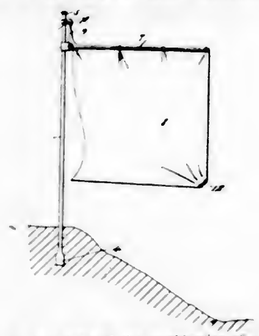
643,944. BOOK SUPPORTING AND ADJUSTING DEVICE. JOHN H CANFIELD, Harrison, Mich. Filed Apr. 14, 1899. Serial No. 712,969. (No model.)



Claim.—1. A book supporting and adjusting device, consisting of a strip provided with a central recess or seat, and disks or rollers pivoted eccentrically near the ends of the strip.

2. A book supporting and adjusting device, consisting of a strip provided with a central recess or seat, rollers or disks eccentrically pivoted to the strips, and rests or braces detachably connected to the strip to steady said strip.

643,945. FLAGSTAFF. GEORGE R. CLIFFORD, Vancouver, Canada. Filed May 15, 1899. Serial No. 716,861. (No model.)



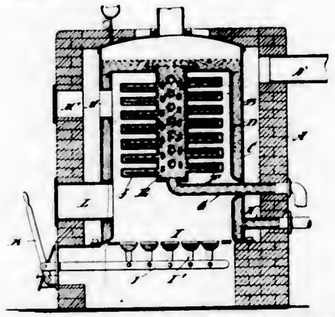
Claim.—1. In a flagstaff, the combination of a body portion, a U-clip attached thereto, an L-shaped flag-holder the elbow of which is pivoted in the clip, the long arm of the flag-holder being adapted to have the flag attached thereto, and the short arm being formed with a shouldered end, and a link pivoted to the body portion and adapted to engage the shouldered end of the said arm of the flag-holder, to hold the long arm at right angles to the body portion.

2. In a flagstaff, the combination of a body portion, an L-shaped flag-holder pivoted thereto at the elbow of the flag-holder, one arm of the flag-holder being adapted to carry the flag, and the other arm having a shouldered end, and a link pivotally connected with the body of the flag-holder and adapted to engage the said shouldered end.

3. In a flagstaff, the combination of a body portion, an L-shaped flag-holder pivoted thereon at the elbow thereof, one arm of the flag-holder being adapted to carry the flag, and means mounted on the body of the device for engaging the other arm of the flag-holder to hold the flag in position.

4. In a flagstaff, the combination of a body portion, an angular flag-holder pivoted to the body portion at the angle of the flag-holder, one arm of the flag-holder being adapted to carry the flag, and means attached to the body for holding the other arm of the flag-holder, whereby to display the flag.

643,946. STEAM-BOILER. MAURICE A. COOKE, Nashville, Tenn. Filed June 21, 1899. Serial No. 721,350. (No model.)



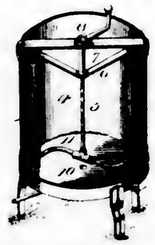
Claim.—1. A steam-boiler, comprising an inner and outer shell arranged one within the other and joined at their lower ends to form an annular water-space, each shell being provided with a closed top, a central tube depending from the top of the inner shell and terminating short of the lower water-space between the shells, the said tube having a closed lower end and an open upper end, and provided with radial tubes closed at their outer ends and having horizontal partitions arranged therein, a return-pipe leading from the bottom of the tube and extending outside of the shells, and an outgoing pipe leading from the annular space between the shells, substantially as described.

2. A steam-boiler comprising two shells, one inside of the other, and joined at their lower ends to form an annular boiler-space between them, a setting or wall surrounding the outer shell at a slight distance therefrom and thus forming a flue, a tube or thimble extending through both shells near the top of the inner one, and connecting the fire-box and the outer flue, a smoke-flue leading from the outer flue at the side opposite to said connecting-flue, a cylinder depending from the top of the fire-box and having radiating pipes connected thereto and closed at their outer ends, and circulating-pipes leading from the lower end of the depending cylinder with the annular space between the two shells, substantially as described.

3. A steam-boiler, comprising a setting having a smoke-flue, an inner and outer shell joined at the lower ends to form an annular water-space, the shells being arranged in the setting to form an annular flue, and connected near their upper ends by a thimble forming an opening from which the products of combustion pass to said flue, a tube depending from the top of the inner shell, said tube terminating short of the lower ends of the shells and provided with radial tubes having closed outer ends, a grate in the setting at the lower ends of the shells, a return-pipe leading from the closed lower end of the tube out through the setting, and an outgoing pipe leading from the annular space between the shells out through the setting, substantially as described.

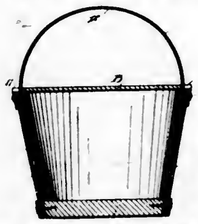
4. A steam-boiler, comprising a setting having a smoke-flue, an inner and outer shell joined at their lower ends to form an annular water-space and arranged in the setting to form an annular flue, the shells being connected on the side opposite the smoke-pipe of the setting by a thimble forming an opening through which the products of combustion pass to said flue, a central tube having an open upper end and a closed lower end, depending from the top of the inner shell, said tube terminating short of the lower ends of the shells and provided with radial tubes closed at their outer ends and provided with horizontal partitions, a grate in the setting, a return-pipe leading from the closed lower end of the central tube out through the setting, and an outgoing pipe leading from the annular water-space between the shells out through the setting, substantially as herein shown and described.

643,947. CREAM-SEPARATOR. WILLIAM S. COX, Elyria, Ohio. Filed June 29, 1899. Serial No. 722,326. (No model.)



Claim.—In a cream-separator the combination with a suitable receptacle, of a transverse detachable bracket formed with downturned arms adapted to embrace the upper edge of the receptacle and having an opening in the central portion thereof, a V-shaped brace secured to the under side of said bracket and extending down into the interior of the receptacle and having an opening in line with the opening of the transverse bracket, of smaller diameter than the hole in the last-mentioned bracket, a short tubular shaft extending through the hole in the transverse bracket and having its lower end resting on the upper side of the V-shaped bracket, and a second smaller tubular shaft extending through the hole in the V-shaped bracket and secured to the lower end of the short shaft in such a way that a shoulder will be formed to limit the downward movement of the tubular shafts, said smaller shaft being provided at its lower end with oppositely-curved horizontal tubular arms communicating with the last-mentioned vertical arm, whereby air will be drawn into the milk when the tubes and arms are rotated, and means of rotating the same, substantially as described.

648,948. BASKET FOR PACKING FRUIT. AUSTIN B. CULVER, Westfield, N. Y. Filed Dec. 9, 1899. Serial No. 739,800. (No model.)



Claim.—1. A basket, the body of which is provided with a cover having gains in its side edges, a handle the side members whereof extend through the gains in the cover, in engagement with the walls of the said gains, the side members of the handle being securely attached to the body of the basket, and the handle being constructed of an elastic material.

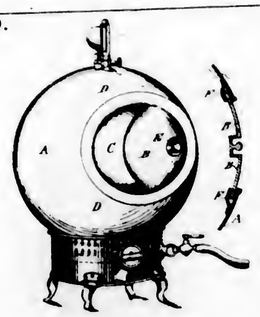
2. A basket, the body of which is provided with a handle of elastic material, the side members of the handle extending along the inner face of the side portions of the body of the basket, means for attaching the handle to the top and bottom portions of the body, and a cover loosely mounted on the body, having opposing gains in its side edges, through which gains the side members of the handle extend, for the purpose specified.

648,949. DISINFECTING APPARATUS. ROYAL E. DRAKE, New York, N. Y. Filed Oct. 2, 1897. Serial No. 653,859. (No model.)

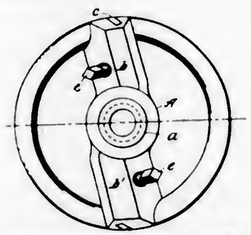
Claim.—1. An apparatus consisting of a spherical chamber with circular entrance and corresponding circular convex door operated in suitable tracks located on the concave interior, combined with suitable means for producing therein steam, vapor or gas for sterilizing or other purposes substantially as specified.

2. An apparatus consisting of a chamber with spherical front having a circular entrance and corresponding circular convex door operated in suitable tracks located on the concave interior, combined with suitable means for producing therein steam, vapor or gas for sterilizing or other purposes substantially as specified.

648,949.

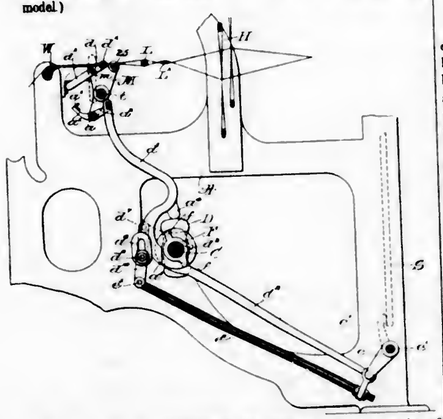


648,950. BIT-HOLDER FOR SHAPING-MACHINES. LAWSON S. DEPOE, Washington, Pa. Filed Mar. 28, 1899. Serial No. 710,754. (No model.)



Claim.—A bit-holder for shaping-machines comprising in its construction the interiorly-screw-threaded hub A adapted to receive bushings *a*, *a'*, the annular rim, and the arms *b* and *b'* formed integral with said hub and rim and provided in their outer ends with recesses *c*, *c'* to receive the cutters, combined with the set-screws *e* operating through said arms to engage the cutters and hold the same in the grooves of the arms, as and for the purpose specified.

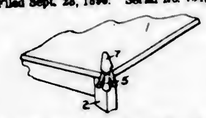
648,951. WARP-STOP-MOTION APPARATUS. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Aug. 7, 1899. Serial No. 726,368. (No model.)



Claim.—1. In an apparatus of the class described, a series of angularly-movable detectors having parallel side edges, and fulcrumed eccentric to their centers of gravity and below the warps, each detector having a warp-eye in its lighter portion, normal warp-threads maintaining the eye ends of the detectors depressed, a released detector moving by gravity into upright position with its eye end elevated above the warp-threads, a feeler to engage the depending portion of a released detector, stopping means operative by or through engagement of the feeler with a released detector, and a back-stop for a detector engaged by the feeler, the feeler and back-stop engaging opposite side edges of the detector, and being located below the fulcra of the detectors.

2. In a warp stop-motion, stopping means, and a frame to support a series of detectors and a feeler, and also to provide a warp-rest and back-stop, said frame consisting of stationary side supports and a series of cylindrical parallel rods fixedly attached to said supports, substantially as shown, said rods forming the only horizontal connections between the side supports and thus making a light, clean structure for the purpose set forth.

643,952. TABLE-CLOTH HOLDER. JOE D. EASTMAN, Indianapolis, Ind. Filed Sept. 28, 1899. Serial No. 731,976. (No model.)

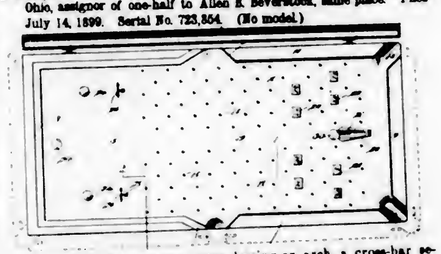


Claim.—1. A table-cloth holder including a distender for holding the corner of the table-cloth in suitable folds while on the table, and means for attaching the same to the corner of the table.

2. A table-cloth holder including a distender having a plurality of tapering extensions with creases between them in which the table-cloth can be fastened, and means for so attaching the same to the corner of the table that the large ends of said tapering extensions will extend downward.

3. A table-cloth holder including a distender for holding the corner of a table-cloth in suitable folds while on the table, a plate connected with the upper end of the distender adapted to rest on the corner of the table, and a spring secured to the distender adapted to bear against the under side of the table.

643,953. GAME APPARATUS. JOSEPH H. KELLER, Lexington, Ohio, assignor of one-half to Allen B. Beverstock, same place. Filed July 14, 1899. Serial No. 723,854. (No model.)



Claim.—1. A game apparatus, having an arch, a cross-bar secured to and extending between vertical portions of the arch, arms hanging from the arch and swinging thereon, a cross-bar extending between the arms and carried thereby and adapted to be engaged by a member passing beneath the arch, and a bell mounted to swing with the arms and to sound as the arms return against the first-named cross-bar.

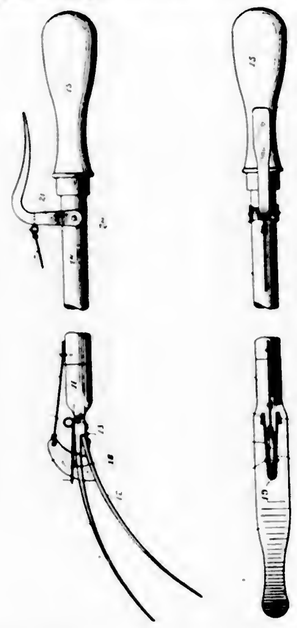
2. A game apparatus, having a bed or body adapted to stand at an inclination and to have balls rolled over it, walls at the edges of the bed or body, the walls having openings for the outward passage of the balls, pins standing on the bed or body and arranged in groups with a passage between them, and a cue-block fastened to the bed or body in line with said passage and serving to guide the cue in driving the ball through the passage.

3. In a game apparatus, the combination with a body portion, of an elevated structure mounted thereon and adapted to have objects roll beneath it, a bell, and means for supporting the bell, such means being hung from said elevated structure to swing thereon in the path of the rolling object, the elevated structure having a part in the path of swing of said means, which means are adapted to rebound against the said part of the elevated structure, whereby to sound the bell.

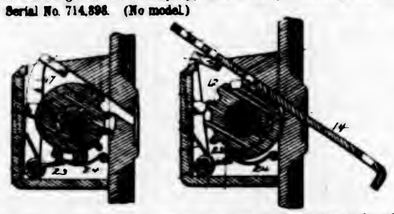
643,954. DEVICE FOR REMOVING ARTICLES FROM SHOW-WINDOWS. JOHN C. ERNST, Ansonia, Conn. Filed Dec. 9, 1899. Serial No. 739,796. (No model.)

Claim.—1. A device of the character described comprising jaws hinged together, one of said jaws having a slot and the other an arm passing through said slot, a pin passing through said arm and adapted to engage the outer face of one jaw to limit the movement of the other jaw in opening, and a spring engaging said pin and acting to normally hold the jaws in the open position.

2. A device of the character described comprising a fixed jaw having a slot, a ferrule by which it is carried, a hinged jaw having an arm passing through the slot, a pin passing through the arm and engaging the back of one jaw to limit the movement of the other jaw in opening, a spring engaging the pin and acting to hold the hinged jaw in the open position, a rod by which the ferrule is carried, an operating-lever pivoted to the rod, and a wire extending from said lever to the arm whereby the hinged jaw may be operated against the power of the spring.



648,955. LOCK. ALAN R. FERGUSSON, New York, N. Y., assignor to the Fergusson Lock Company, of New Jersey. Filed Apr. 28, 1899. Serial No. 714,898. (No model.)



Claim.—1. In a lock, the combination with a sliding bolt, of a tumbler adapted to turn thereon and operate the same and means on the tumbler adapted to be engaged by a key movable tangentially to said tumbler.

2. In a lock, the combination with a sliding bolt, of a tumbler adapted to turn thereon and operate the same and provided with a rack adapted to be engaged by a key movable tangentially to said tumbler.

3. In a lock, the combination of a sliding bolt and a tumbler mounted on the bolt and adapted to turn thereon and transmit motion to the bolt, said tumbler having projections adapted to mesh with shoulders on a key movable tangentially to said tumbler.

4. In a lock, the combination of a revoluble tumbler having projections adapted to be engaged by a key moved tangentially to the tumbler, a sleeve projecting from said tumbler and having a spiral groove, a bolt passing through the tumbler and a pin projecting from the bolt and entering said spiral groove.

5. In a lock, the combination with a bolt and a revoluble tumbler for moving it, of means adapted to be actuated by the key after the tumbler has been partially turned for releasing said tumbler to permit the complete withdrawal of the bolt.

6. In a lock, the combination with a bolt and a revoluble tumbler adapted to operate said bolt, of a spring-actuated device adapted to prevent the full movement of the tumbler and bolt and a key adapted to rotate the tumbler, move said device out of line therewith and effect the full withdrawal of the bolt.

7. In a lock, the combination of a bolt, a revoluble tumbler adapted to operate the bolt, and a shoulder on said tumbler, of a spring-actuated arm having a portion normally in line with the shoulder on the tumbler and adapted to be moved out of line with said shoulder by a key after the tumbler shall have been partially rotated.

8. In a lock, the combination of a bolt, a revoluble tumbler adapted to operate said bolt, and having shoulder, a series of independently-movable spring-pressed arms having portions in the path of said shoulder and a key constructed and adapted to rotate the tumbler and move said arms out of the path of the shoulder thereon.

9. In a lock, the combination with a revoluble tumbler, of a locking-bolt adapted to be moved by said tumbler, an arm pivotally connected in proximity to the tumbler, a lug on the arm in the path of a projection on the tumbler and an enlargement on said arm in the path of the key to be inserted so that when the key is inserted it will strike the enlargement on the arm and force the lug out of the path of the projection on the tumbler and permit the complete revolution thereof to withdraw the bolt.

10. In a lock, the combination with a revoluble tumbler having peripheral projections and a key to rotate said tumbler by engagement with said peripheral projections, a bolt means intermediate of the bolt and tumbler for converting the rotary motion of the tumbler into longitudinal movement of the bolt, means for arresting the tumbler before the complete withdrawal of the bolt and a key for rotating the tumbler and actuating said arresting means to permit the complete movement of the tumbler.

11. In a lock, the combination of a tumbler, a key adapted to rotate said tumbler by engagement with the periphery thereof, pivoted arms adapted to arrest the rotation of the tumbler when the latter is rotated otherwise than by the key, said arms having portions normally in the path of the key and adapted to be engaged by said key to move said arms away from the tumbler, a bolt and connections intermediate of the tumbler and bolt for moving the latter.

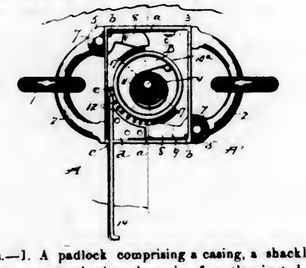
12. In a lock, the combination of a revoluble tumbler and a key adapted to rotate said tumbler, a spring bearing against the periphery of said tumbler to insure its retention in normal starting position, a bolt and connections between the bolt and tumbler.

13. In a lock, the combination of a tumbler having its peripheral face curved transversely, projections on said peripheral face, a bolt, connections between the tumbler and bolt for operating the latter, spring-actuated devices adapted to arrest the tumbler and a key curved transversely to conform to the peripheral face of the tumbler and having openings to receive the projections on said peripheral face when moved tangentially thereto to rotate the tumbler and move said spring-actuated devices away from the same.

14. In a lock, the combination of a tumbler, a key adapted to rotate said tumbler by engagement with the peripheral face thereof, shoulders on the tumbler, two independently-movable arms having portions normally in line with said shoulders and also having portions in line with the keyway, a bolt and means for transmitting motion from the tumbler to the bolt.

15. In a lock, the combination with a revoluble tumbler having peripheral projections and a bolt actuated by said tumbler, of a pivoted arm adapted to arrest the tumbler, a shutter bearing against the tumbler to retain it in normal starting position, a spring serving to press the pivoted arm and the shutter toward the periphery of the tumbler and a key for rotating the tumbler and moving said pivoted arm away from the same.

648,956. PADLOCK. ALAN R. FERGUSSON, New York, N. Y., assignor to the Fergusson Lock Company, of New Jersey. Filed May 31, 1899. Serial No. 718,871. (No model.)



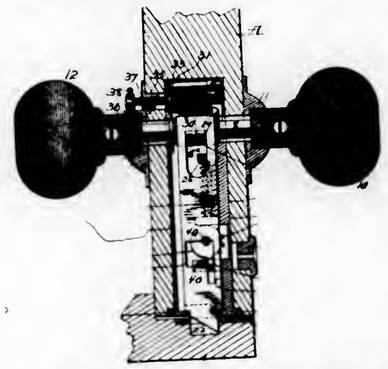
Claim.—1. A padlock comprising a casing, a shackle pivoted thereto, an arm projecting into the casing from the pivoted end of the

shackle, a tumbler having a rack, a locking-arm movable with the tumbler, and adapted to engage the shackle-arm, and a key movable tangentially to the tumbler and adapted to coöperate with the rack thereon to rotate said tumbler and move the locking-arm out of line with the shackle-arm, substantially as set forth.

2. A padlock comprising a casing, two shackles pivoted independently thereto and each provided with an arm projecting into the casing, a shaft mounted in the casing, locking-arms projecting in opposite directions from said shaft and coöperating with the shackle-arms to retain the shackles locked, a tumbler on said shaft and adapted to rotate said arms, a rack on the tumbler and a key adapted to engage said rack to rotate the tumbler.

3. In a padlock, the combination with a casing, a shackle pivoted therto and an arm projecting from said shackle and entering the casing, of a revoluble tumbler mounted in the casing, a coiled spring disposed within the tumbler for rotating said tumbler in one direction, an arm movable with the tumbler, said arm coöperating with the shackle-arm to normally lock the shackle, peripheral projections on the tumbler and a key adapted to mesh with said peripheral projections to rotate the tumbler.

643,957. LOCK. ALAN R. FERGUSSON, New York, N. Y., assignor to the Fergusson Lock Company, of New Jersey. Filed May 31, 1899. Serial No. 718,873. (No model.)



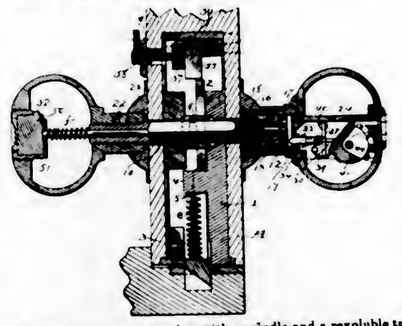
Claim.—1. The combination with a lock-casing, of a bolt therein comprising two parallel members united at one end to form the head of the bolt, each of said parallel members of the bolt having an elongated slot therein, a spindle passing transversely through the casing and between the separated ends of the members of the bolt, said spindle made in two independently-revoluble sections, a sleeve mounted to rotate with each section of the spindle, lugs projecting from said sleeves and entering the slots in the respective members of the bolt, a sliding locking-pin mounted in the casing and adapted to engage one of said sleeves and means for sliding said locking-pin.

2 The combination with a bolt having two holes therein, of a spindle made in two sections, a knob on each section, lugs connected with each section and entering one of said holes in the bolt, means for locking the outer spindle-section against rotation, a tumbler provided with a lug to enter the other hole in the bolt and coöperate with the wall thereof to withdraw the bolt when the tumbler is turned and a key for turning said tumbler.

3. The combination with a bolt, of a spindle made in two independently-revoluble sections, a sleeve on each section adapted to engage the bolt to withdraw it, parallel lugs on the sleeve on the outer spindle-section, a longitudinally-movable locking-pin, a lug on said pin to enter between said first-mentioned lugs to lock the outer spindle-section, a spring bearing against said pin to normally retain the lug thereon out of engagement with the lugs on the sleeve of the outer spindle-section whereby both spindle-sections will be normally operative to withdraw the bolt, a revoluble arbor bearing against one end of the locking-pin, a cam, and a pin on the arbor to coöperate with said cam to move the lug on the locking-pin between the lugs on the sleeve of the outer spindle-section.

4. The combination with a bolt, having an opening therein, of a revoluble tumbler disposed in said bolt, a lug on said tumbler disposed in the hole in the bolt and adapted to coöperate with the wall thereof to withdraw the bolt when the tumbler is rotated, peripheral projections on the tumbler and a key movable tangentially to the tumbler and adapted to mesh with said peripheral projections to rotate the tumbler.

643,958. LOCK. ALAN R. FERGUSSON, New York, N. Y., assignor to the Fergusson Lock Company, of New Jersey. Filed June 14, 1899. Serial No. 720,518. (No model.)



Claim.—1. The combination with a spindle and a revoluble tumbler having a cam thereon, of a slide having a portion actuated by said cam and a locking-pin projecting from the slide and adapted to engage the spindle.

2. The combination with a spindle, of a revoluble tumbler having a cam, peripheral projections on said tumbler adapted to mesh with a key moved tangentially thereto, a slide engaged by said cam and a locking-pin projecting from said slide and adapted to engage the spindle.

3. In a knob-lock, the combination with a knob, a spindle and a locking-bolt adapted to be operated by the spindle, of a revoluble tumbler in the knob, a slide mounted in the knob, a locking-pin projecting from the slide to lock the spindle to the knob, cams on the tumbler to operate the slide and a shutter mounted in the knob and normally locking the slide.

4. In a lock, the combination with a knob, a spindle and a locking-bolt adapted to be operated by the spindle, of a tumbler revolubly mounted in the knob, a cam at each side of the tumbler, a slide embracing the tumbler and engaging said cams, a locking-pin projecting from said slide and adapted to engage the spindle and a shutter in the knob adapted to normally lock said slide.

5. In a knob-lock, the combination with a knob, a spindle and a locking-bolt operated by the spindle, of a locking-pin, a slide to which said pin is secured, a tumbler for operating said slide and locking-pin, a shutter having recesses therein for the passage of the slide, and a spring adapted to force the shutter to position with the recesses out of alinement with the slide and prevent any movement of the slide until the shutter has been operated.

6. In a knob-lock, the combination with a locking-bolt, of a hollow spindle, knobs on the respective ends of said spindle, a rod in the spindle adapted to be locked to the outer knob, the inner end of the rod disposed in the inner knob, a button in said inner knob, a spring normally holding said rod against the button, a sleeve in said knob having a cut-out portion to form shoulders, and a lug or projection on the button adapted to be held against either one of said shoulders to hold the rod in or out of engagement with the outer knob.

643,959. CLOAK OR SKIRT RACK. ADOLPH GREENSPAN, Bowling Green, Ky. Filed Dec. 4, 1899. Serial No. 739,154. (No model.)



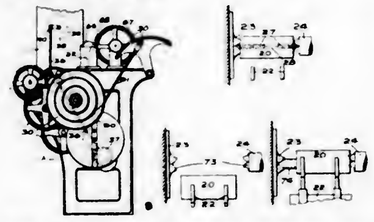
Claim.—1. A rack for the purpose described, comprising a standard having opposing spindles mounted therein, a rotary frame secured on said spindles, and disks fitted on said spindles and turning with the latter, said disks being spring-pressed into engagement with the standard whereby to lock the frame, as set forth.

2. A rack for the purpose described, comprising a standard having opposing stub-spindles mounted therein, a rotary frame secured on said spindles, and spring-pressed fluted disks on said spindles, said disks frictionally engaging said standard, as set forth.

3. A rack for the purpose described, comprising a standard having opposing spindles mounted therein, said spindles being formed with threaded extensions, a frame secured to said spindles, fluted disks having apertures whereby they are received on the extensions of the spindles, and being held from turning on said spindles, springs pressing said disks into frictional engagement with the standard, and tention-nuts on the said extensions whereby to compress the springs, as set forth.

4. In a rack for the purpose described, a frame mounted to rotate about a horizontal axis, and guards pivotally connected to said frame at the ends thereof, as set forth.

643,960. BOBBIN-MAKING MACHINE. ALEXANDER M. GRIMOND and JAMES CRICHTON, Dundee, Scotland. Filed Aug. 4, 1899. Serial No. 726,138. (No model.)



Claim.—1. In bobbin-making machines, the combination of right and left hand non-rotating bits 27, screws 88, nuts 89, quadrant 92, connecting-rod 91, variable crank 90, and hollow mandrels through which the bits 27 respectively extend.

2. In bobbin-making machines, the gradual chucking apparatus consisting of the reciprocating carrier 22, gripper-tube 74, hollow mandrel-sections 23 and 24, through one of which the gripping-tube moves and means for actuating these parts herein set forth.

3. In bobbin-making machines, the feeding apparatus, consisting of the valve-regulated chutes; the grooved roller 38, and the reciprocating carrier 22, with their actuating mechanism, as herein set forth.

4. In a bobbin-making machine, the combination of two hollow mandrel-sections, a boring apparatus working through one of the said sections, a gripper-tube working in the other of said sections, a boring-tool working in the gripper-tube, means for actuating said parts, and a feeding apparatus for delivering the blanks to the mandrel-sections.

5. The combination of a hollow mandrel adapted to engage the work and to hold the same, a boring-tool movable longitudinally in the mandrel to bore the work, a screw having rotatable connection with the boring-tool, means for turning the screw, such means permitting the longitudinal movement thereof, and a stationary nut in which the screw works, whereby the screw with the boring-tool is advanced longitudinally.

6. In a boring-machine, the combination of a reciprocal mandrel-section, a second mandrel-section, a reciprocal gripper in said mandrel-section, means for advancing the gripper longitudinally toward the reciprocal mandrel-section to clamp the work between the two, such means also serving to retract the gripper, means for moving the mandrel-section toward the gripper in time with the retraction thereof to engage the work with the second mandrel-section, a carrier movable transversely of the longitudinal line of the gripper to advance the work to a position between the gripper and the respective mandrel-section, and means for boring the work.

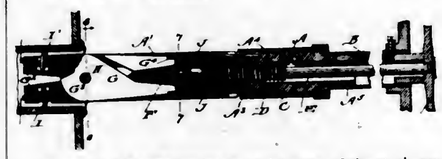
7. The combination with a machine for working blank material, of a plurality of chutes serving to carry the blanks, a valve mounted to command said chutes, closing one as the other is opened, a grooved roller serving to receive the blanks from the chutes, and a reciprocal carrier into which the blanks are delivered from the grooved roller, the carrier moving the blanks to the said machine.

8. In a boring apparatus, the combination of two hollow mandrel-sections, one of which is mounted to slide, a gripper movable in the other mandrel-section, and means for reciprocating the gripper and the said reciprocal mandrel-section, such means serving first to move the gripper toward the reciprocal mandrel-section and to retract the gripper, the reciprocal mandrel-section moving toward the gripper simultaneously with its retraction to engage the work with the other mandrel-section.

9. In a boring-machine, the combination of a hollow mandrel-section mounted to turn, a second hollow mandrel-section mounted to turn and reciprocate, a boring device arranged in each mandrel-section, a gripping-tube mounted to reciprocate in the first mandrel-section, the gripper-tube inclosing the boring-tool of said mandrel-section, and means for reciprocating the gripper-tube and the second mandrel-section, such means serving to advance the gripping-tube toward the second mandrel-section and subsequently to retract the gripping-tube and to simultaneously move the second mandrel-section toward the first.

10. In a boring-machine, the combination of a non-rotative boring-tool, a rotative screw with which the tool has rotary connection, a stationary nut in which the screw works, and means for imparting a turning movement to the screw, such means permitting the longitudinal movement of the screw.

643,961. TUBE OR FLUE CUTTER. ISIDOR J. B. HANTEN, Kranzburg, and JOHN J. KRAMP, Watertown, S. D. Filed Mar. 14, 1899. Serial No. 709,113. (No model.)



Claim.—1. The combination in a tube-cutter of the stock provided in its end with a longitudinal slot and in rear thereof with a threaded bearing, the tong-like arms crossed between their ends, pivoted at the crossing together and to the stock and fitted in the longitudinal slot of said stock and provided in their outer arms with the disk cutters, the threaded shaft turning in the bearing of the stock and provided with the wedge for spreading the cutters, and the springs for contracting the cutters substantially as set forth.

2. In a tube-cutter substantially as described, the combination of the hollow stock having near its outer end a threaded bearing, the tong-like arms pivoted within the stock at a point between their ends and having their outer ends provided with the cutters arranged to operate when their inner ends are spread apart, the spreading-wedge operating between the inner ends of the arms, and the shaft threaded in the threaded bearing of the stock and arranged to spread the arms substantially as set forth.

3. In a tube-cutter the combination of the stock having a slot and a threaded bearing, the tong-like arms operating in the slot of the stock and pivoted thereto, the spreading-wedge, the screw-shaft for operating the same and the springs substantially as set forth.

4. In a tube-cutter the combination of the disk cutters having the hub portions on their opposite sides, the supports for said cutters having recesses in which the cutters are pivoted, such recesses being enlarged to form grease-cups and the hub portions of the cutters operating to secure the same steadily within the recesses substantially as set forth.

5. The combination substantially as herein described of the stock having the threaded portion A^4, the arms pivoted to said stock, means for spreading such ends of the arms, the cover-sleeve provided with means whereby it is held from turning and having threads fitting the threads A^4 of the stock, and means whereby the stock may be turned in the said cover-sleeve substantially as set forth.

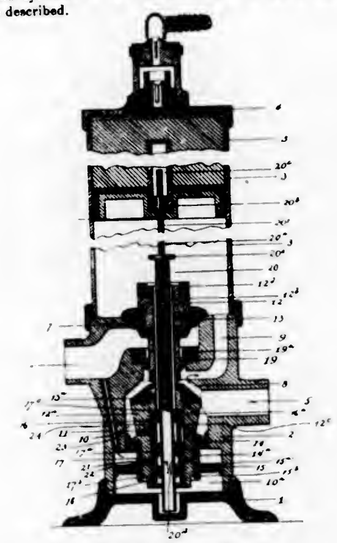
643,962. HYDRAULIC AIR-COMPRESSOR. JESSE C. HOWARD, Columbus, Ohio. Filed Oct. 24, 1899. Serial No. 734,648. (No model.)

Claim.—1. In a hydraulic air-compressor, the casing 2 having supply and exhaust ports with valve-seats 8 and 7, respectively, and piston-chambers 10 and 10^a, a valve-stem having valves for the seats 8 and 7, pistons in the chambers 10 and 10^a, with means for automatically changing the pressure from one piston to the other, substantially as described.

2. In a hydraulic air-compressor, the casing 2 having supply and exhaust ports with valve-seats 8 and 7, respectively, piston-chambers 10 and 10^a, a valve-stem having valves for the seats 8 and 7 and pistons for the chambers 10 and 10^a, a tubular cut-off valve reciprocating within said valve-stem provided with openings for admitting and cutting off the pressure-supply to the piston-chamber 10^a, substantially as shown and described.

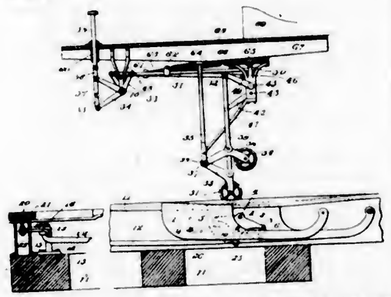
3. The casing provided with supply and exhaust ports and piston-chambers 10 and 10^a, a valve-stem having valves for the supply and exhaust ports, separate pistons for the chambers 10 and 10^a, openings in said valve-stem, a cut-off tube in said stem adapted to alternately admit water to and exhaust water from the chamber 10^a, substantially as described.

4. In a hydraulic air-compressor, the casing 2 having supply and exhaust ports with valve-seats 8 and 7, respectively, piston-chambers 10 and 10^a, and outlet 6, a valve-stem having valves for the seats 8 and 7, pistons for chambers 10 10^a, openings 23 and 21 communicating, respectively, with chambers 10 10^a, cylinders 16 and 17 each provided with an opening to register with openings 23 and 21 fitted within the valve-stem, and a cut-off tube reciprocating within the valve and cylinders 16 and 17, substantially as shown and for the purpose described.



643,963. STREET-RAILWAY-SWITCH-OPERATING DEVICE.

ADOLF HUBER, St. Louis, Mo. Filed Dec. 8, 1899. Serial No. 739,707. (No model.)



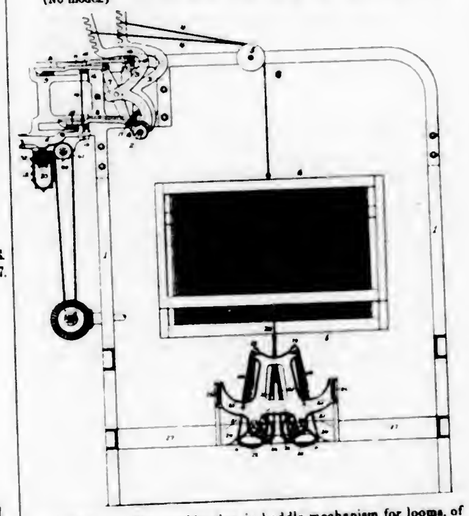
Claim.—1. The combination, in a switch-operating device, comprising two longitudinal rails 17 and 18 with a plate-rail 11 secured on top having two grooves on said plate-rail, levers 1 and 2 partially extending internally therein, means connected with a platform of a car for operating said levers, a shaft 4 journaled between said rails 17 and 18 carrying a three-armed rocker-lever 3 of which the two upper arms being pivotally connected with the said levers 1 and 2, by the adjacent bars 7 and 8, and the links 5 and 6, the said bars 7 and 8 rest at the forward end on pins 9 and 10 and said levers 1 and 2 being pivoted at the rearward end inward of said rails 17 and 18, a rod 12 hooked in at its rear end to the downward arm of the said three-armed rocker-lever 3 and at its front end to the bell-crank lever 13, which being fulcrumed on a vertical axle 14, and said lever 13 being pivotally connected with the switch-tongue by a rod 19 and a bar 21, all substantially as set forth.

2. In a switch-operating device, the combination comprising two longitudinal rails 17 and 18 with a plate-rail 11 secured on top, having two grooves on said plate-rail, two vertically-reciprocating and simultaneously-moving levers 1 and 2, partially extending through the said grooves; having two independent combinations for operating the two said levers, of which each being provided with a foot-post extending on the top of a platform of a car, a connection with a bell-crank lever by a link and said bell-crank lever being pivoted to a rod, which being attached to an arm secured to a shaft and on the other end of said shaft being secured to an arm at a right angle; and said arm having a pivoted connection with a downward-hanging rod, which being pivoted at its lower end to an arm mounted at its forward end on the shaft 38 and at its other end being provided with a little wheel, which when in an operative position, passes through the said groove and depressing the extension of said lever causing the switch to change, substantially as described.

3. In a switch-operating device, an attachment to a platform of a car for operating purpose on the mechanism in the midway of the main track, two independent combinations with its little wheels adapted, one to open a switch on either side of the track and the other to close it said combinations are held in position by the hangers 46 and 47, and the forward hanger 48 holding the shaft 70, two hanging rods 35 and 36 holding the shaft 38, in connection with a forked bar 41 which is secured at its upper end to the said hanger 46 and the two said hangers 46 and 47 holding the shafts 43 and 44, two suspension-springs secured to the rods 51 and 52 and to a cross-piece below the platform, automatically bring the operative little wheel back to its inoperative position, substantially as shown, for the purpose specified

643,964. SHEDDING MECHANISM FOR LOOMS.

EDMUND INGRAHAM, Philadelphia, Pa., assignor of one-half to the Fairmount Machine Company, same place. Filed May 8, 1896. Serial No. 590,731. (No model.)



Claim.—1. The combination, in heddle mechanism for looms, of the jack-levers having upper and lower jacks, grids for guiding the same, pattern-levers acting upon the lower jacks and having laterally-projecting pins and wires hooked around said pins at the lower ends and bent at the upper ends so as to form yokes parallel with the upper jacks, which yokes embrace the lower bar of the upper grid and enter the slots of said upper grid and serve as supports for the upper jacks, substantially as specified.

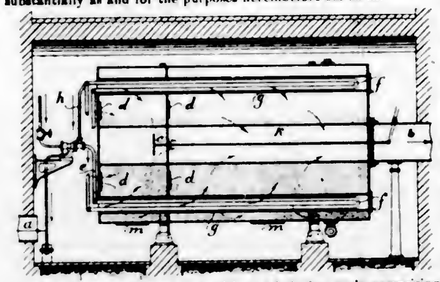
2. The combination, in heddle mechanism for looms, of a jack-lever having upper and lower jacks, a pattern-lever acting upon the lower jack, and a wire extending upward from said pattern-lever so as to act upon the upper jack, said wire being bent at its upper end so as to form a double yoke parallel with the upper jack and with the runs of the wire lying side by side, whereby a long and broad bearing for said upper jack is provided, substantially as specified.

3. The combination of the heddles, open or slotted levers having faces eccentric in respect to their fulcrums, straps carried by said levers and each connected at one end to a heddle and at the opposite end to a spring, and a stop-bar passing transversely through the slots or open portions of the levers and serving by contact with the levers to limit the descent of the heddles, substantially as specified.

643,965. MALT-DRUM.

FRIEDRICH KNÜTTEL, Charlottenburg, Germany. Filed Apr. 24, 1899. Serial No. 714,276. (No model.)

Claim.—1. A revolving drum for malting and drying grain comprising an outer shell, a central perforated tube closed at one end of the drum, perforated tubes arranged near the periphery of the shell, and closed at the opposite end of the drum, in combination with a closed kiln, means for supplying the same with hot and moist air, and heaters arranged within said peripherally-located perforated tubes, substantially as and for the purposes hereinbefore set forth.

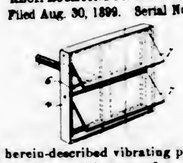


2. A revolving drum for malting and drying grain comprising an outer shell, a central perforated tube closed at one end of the drum, perforated tubes arranged near the periphery of the shell and closed at the opposite end of the drum, in combination with a closed kiln, means for supplying the same with hot and moist air, heaters arranged within said peripherally-located perforated tubes, supply and discharge pipes for the heating agent, and connections between said heaters and said supply and discharge pipes, substantially as and for the purposes hereinbefore set forth.

3. A revolving drum for malting and drying grain consisting of an outer shell, internally partitioned off into a plurality of communicating compartments, a central perforated tube closed at one end of the drum and extending through said compartments, perforated tubes arranged near the periphery of the shell and also extending through said compartments, heaters arranged in said peripherally-located perforated tubes and a regulating valve or valves C in the central perforated tube, substantially as and for the purposes hereinbefore set forth.

643,966. RECIPROCATING PROPELLER.

JAMES LICHETTI, Philadelphia, Pa. Filed Aug. 30, 1899. Serial No. 728,972. (No model.)



Claim.—The herein-described vibrating propeller comprising an open frame having an inturned ledge or flange, vertical and horizontal strengthening cross-bars for said frame which intersect each other substantially at the center of the frame, a power rod or shaft connected to said cross-bars, an upper blade or vane hinged at its upper edge to the frame and abutting the inturned flange at the top of the frame and having its lower end positioned to close against the horizontal cross-bar, and a lower blade or vane hinged to the frame and abutting the horizontal cross-bar below the upper vane, and having its lower free portion positioned to close against the inturned flange in the lower part of the frame.

643,967. MANIPOLDING-MACHINE.

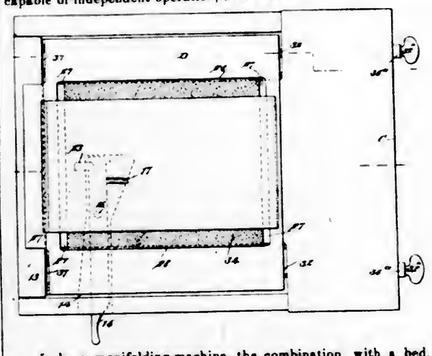
CHARLES LOHRMAN, New York, N. Y. Filed Dec. 2, 1899. Serial No. 738,943. (No model.)

Claim.—1. A bed, a tray mounted to rock on the bed, a guide-frame mounted to rock over the bed, the said frame having an opening in its upper portion, a table beneath the said opening, and means for holding a copying-sheet over the table.

2. A bed, a tray having movement to and from the bed, a guide-frame having an opening in its top, the said frame having likewise independent movement to and from the tray or a concerted movement therewith, a winding device for a copying-sheet located between the tray and frame, and a table extending across the opening in the frame.

3. A bed, a tray mounted to rock in the bed, a guide-frame having an opening therein and having rocking and sliding movement in the tray, the upper apertured or open portion of the frame extending over the tray, a table adapted to enter the frame, spool-supports carried by the guide-frame at opposite sides of and below the aperture or opening therein, and means for adjusting the said supports.

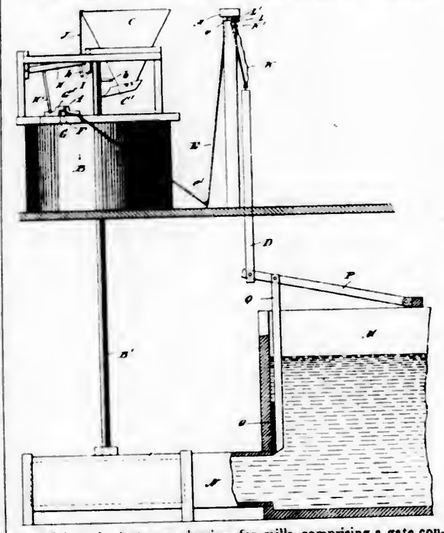
4. A bed, a tray mounted to rock in the bed, a guide-frame having an opening therein and having rocking and sliding movement in the tray, the upper apertured or open portion of the frame extending over the tray, a table adapted to enter the frame, spool-supports carried by the guide-frame at opposite sides of and below the aperture or opening therein, means for adjusting said supports, a latch connection between the guide-frame and the tray, and a locking connection between the tray and the bed, the two said connections being capable of independent operation, as set forth.



5. In a manifolding-machine, the combination, with a bed, a spring-controlled tray mounted in the said bed, the said tray having inclined openings in its sides, and a latch connection between the tray and the bed, of a guide-frame having an opening in its top, which top extends over the tray and beyond its sides, a pivot connected with the guide-frame, extending through the openings in the tray, shafts mounted to turn in supports carried partially by the tray and partially by the guide-frame, means for turning the said shafts, spools mounted on the sections of the shaft within the guide-frame, means for turning the spools with the shafts, a copying material extending from spool to spool beneath the opening in the upper portion of the guide-frame, a spring-table extending forwardly beneath the upper opening in the guide-frame and below the copying material, and a device for moving the pivot of the said guide-frame in the slots of the tray, substantially as described.

643,968. AUTOMATIC STOP FOR MILLS.

ALEXANDER S. MARTIN, Willard, Ga. Filed Dec. 6, 1898. Serial No. 698,468. (No model.)



Claim.—1. A stop mechanism for mills, comprising a gate controlling the water-supply, a suspended weight operatively connected with the gate so that the release of the weight will close the gate, a supporting-cord for the weight, guides for said cord, a bar secured to one end of the cord, a catch mounted to slide in guides and engaging one end of said bar, a fixed fulcrum-pin engaged by said bar, a

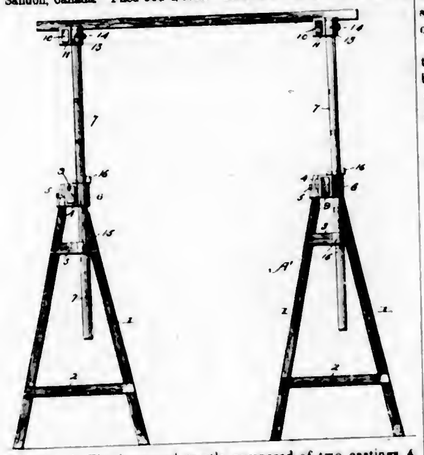
tripping-shaft having a crank-arm thereon connected with the catch to withdraw it, a mill-operating revolving shaft having a projecting arm adjacent to the tripping-shaft, a second crank-arm carried by the tripping-shaft and adapted to drop into the path of the arm on the revolving shaft when the tripping-shaft is released, whereby the catch is withdrawn and the suspended weight released, and means for normally holding the second arm of the tripping-shaft out of the path of the arm on the revolving shaft.

2. The combination with a mechanism for stopping mills, of a catch for holding the said mechanism inoperative, a horizontal tripping-shaft movable vertically at one end and having an arm connected with the catch to release it by a rotary movement of the shaft, a crank-arm on the vertically-movable end of said shaft, an arm revolving with the mill-spindle and adapted to engage the crank-arm of the tripping-shaft when the latter is in its lower position, and a cord or band attached to said tripping-shaft and having a loop extending across the hopper above its discharge, whereby the weight of the material in the hopper restrains the tripping-shaft.

3. A catch tripping or releasing mechanism, comprising a tripping-shaft having one end movable transversely of the shaft's axis and a crank-arm on the movable end, a rotating or power shaft having an arm adapted to engage said crank-arm when the tripping-shaft is at one end of its transverse movemeot, connections from the tripping-shaft to the catch, a band or cord connected to the movable end of the tripping-shaft to hold it away from the power-shaft, and a hopper, the band lying as a loop in the hopper and engaged by the material flowing, therethrough to hold the tripping-shaft disengaged.

4. The combination of the gate and a device for closing the same, with retaining mechanism for normally holding the gate open, a projection on the mill-spindle, a tripping device operatively connected with said retaining mechanism and movable into the path of said projection to be actuated thereby for tripping the retaining mechanism and releasing the device which closes the gate, and an operating member extending into the path of the material and operatively connected with the tripping device to hold the latter out of the path of the projection on the mill spindle as long as there is a sufficient supply of material.

643,969. SCAFFOLD OR PORTABLE TRESTLE. THOMAS MILNE, Sandon, Canada. Filed Oct. 4, 1899. Serial No. 732,499. (No model.)

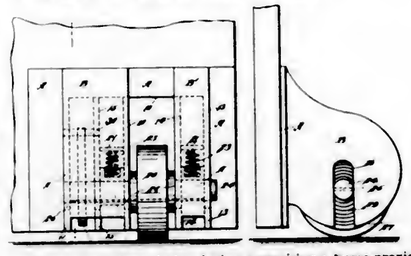


Claim.—1. The improved trestle composed of two castings 4, having sockets in the under side, tranaverse slots and vertical slots, and the two sets of divergent legs fitted in said sockets, horizontal bars 9, which are adjustable in the transverse slots, and vertical bars which are adjustable in the vertical slots, castings 11 applied to such vertical rods, and having sockets and transverse slots, and the horizontal top connecting-bars 10, as shown and described.

2. The improved trestle composed of the castings 4 having leg-sockets, transverse slots, and vertical slots arranged exteriorly to said sockets, the divergent legs 1, horizontal bars 9, and vertical rods 7, passing through the vertical slots, and devices secured to the legs for holding and guiding the lower portions of said rods, as shown and described.

3. As an improved article of manufacture, the castings 4 having vertical slots 6, leg-sockets in the under side, and transverse slots 8 arranged between the said sockets and vertical slots, as shown and described.

643,970. DOOR-CLOSER. JAMES E. MCFEELY, Pueblo, Colo. Filed Apr. 8, 1899. Serial No. 712,245. (No model.)



Claim.—1. A door-closing device, comprising a frame provided with independent casings, the side walls and partitions of the casings having vertical slots in their lower ends, spring-controlled bearing-blocks mounted to slide within the casings, a shaft passed through the slots in the casings, through the partitions and through the said bearing-blocks, a mainspring having one end secured to the shaft and the other end to a fixed support, and a wheel secured to the shaft, adapted for engagement with the floor or other surface, said wheel being located between the casings, for the purpose specified.

2. In a door-closer, the combination of a back plate having two casings attached thereto, the casings being separated from each other, the one of the casings having an interior partition forming it into two compartments, bearing-blocks sliding in the second casing and in one compartment of the first-named casing, springs pressing the bearing-blocks, a shaft mounted to turn in the bearing-blocks, a wheel attached to the shaft and located between the casings, and a helical spring located in the other compartment of the first-named casing and having one end attached to the shaft, the other end of the spring being attached to a part of said casing.

3. In a door-closer, the combination of a back plate having two casings mounted thereon, bearing-blocks mounted to slide in the casings, springs pressing the bearing-blocks, a shaft mounted to turn in the boxes, a wheel attached to the shaft between the casings, and a spring in connection with the shaft, to actuate the same and consequently the wheel.

4. In a door-closer, the combination of a supporting body portion, bearing-blocks mounted to slide therein, means for pressing the bearing-blocks downward, a shaft mounted in the bearing-block, a wheel attached to the shaft, and a spring engaged with the shaft, to actuate the same and consequently the wheel.

643,971. ROVING STOP-MOTION FOR SPINNING-FRAMES. JAMES H. NORTHROP, Tustin, Cal., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Sept. 16, 1899. Serial No. 730,671. (No model.)



Claim.—1. In a spinning-frame, a roving-guide maintained in operative position by a normal thread, and a cooperating, manually-released member to clamp and stop delivery of the roving upon breakage of the thread, and also to serve as a detent for the guide, release of said member liberating the roving and permitting the guide to move forward to insure delivery of the roving.

2 In a spinning-frame, means controlled by breakage of the thread to stop delivery of the roving, said means comprising two pivoted, independently-mounted members, one of which serves as a roving-guide and the other as a roving-clamp when cooperating with the guide member, manual movement of the clamp member into inoperative position liberating the roving and permitting the guide member to move into position to insure delivery of the roving.

3. In a spinning-frame, a rocking guide for the roving, notched at its upper end, an independently-mounted finger adapted to enter automatically said notch, to clamp and stop delivery of the roving when the thread breaks, said finger also holding the guide from forward movement, and an arm connected with the guide and having an open thread-eye, manual release of the finger liberating the roving and permitting the guide to move forward to insure delivery of the roving, engagement of the thread-eye thereafter with the pieced-up thread resetting the guide and finger in normal position.

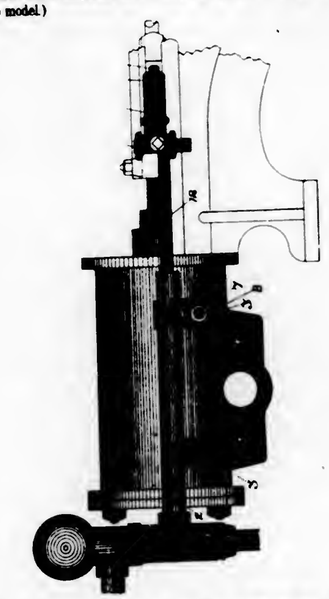
4. In a spinning-frame, the drawing-rolls, a pivotally-mounted guide to deliver the roving thereto, a cooperating, independently-mounted finger to clamp the roving when the thread breaks or slackens, and to hold said guide from moving toward the rolls, and means controlled by the thread to retain the guide in operative position, with the clamping-finger inoperative, manual release of the finger after delivery of the roving has been stopped liberating the roving and permitting the guide to move forward to insure delivery of the roving to the rolls.

5. In a spinning-frame, the drawing-rolls, a pivotally-mounted guide behind the back roll and through which the roving passes to the back roll, means controlled by the thread to maintain the guide in operative position, and a clamping device mounted independently of the guide and adapted to cooperate therewith and clamp the roving when the thread breaks or slackens, manual release of said device liberating the roving and permitting the guide to move into position to insure delivery of the roving.

6. In a spinning-frame, drawing-rolls, a traverse-rod, a yarn-guide pivotally mounted thereon, an independently-mounted finger movable with said rod and adapted to clamp and stop delivery of the roving upon breakage or slackness of the thread, means controlled by the thread to maintain the guide in operative position, manual release of said finger liberating the roving and permitting the guide to move toward the rolls, to insure delivery of the roving, and a stop for said guide, to limit its forward movement.

7. In a spinning-frame, drawing-rolls, a traverse-rod, a yarn-guide pivotally mounted thereon, an independently-mounted finger movable with said rod and adapted to clamp and stop delivery of the roving upon breakage or slackness of the thread, means controlled by the thread to maintain the guide in operative position, manual release of said finger liberating the roving and permitting the guide to move toward the rolls, to insure delivery of the roving, a stop to limit the forward movement of the guide, and means to temporarily move the guide out of operative position when starting up, to permit the slack to be taken up.

643,972. ADJUSTABLE PUMP. WILLIAM M. PAGE and CHARLES S. EDMONDS, Montpelier, Ind. Filed Mar. 31, 1899. Serial No. 711,306. (No model.)

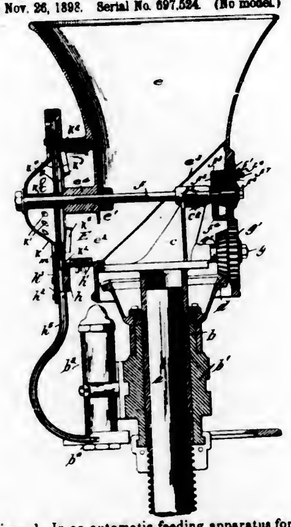


Claim.—1. In an adjustable pump for steam-engines, an adjusting plunger-rod head, provided with means for attaching same to the cross-head of a steam-engine and adapted to a universal adjustment within a plane perpendicular to the longitudinal dimension of said plunger-rod, substantially as and for the purpose specified.

2. In an adjustable pump for steam-engines, brackets adapted to be adjustably and reversibly attached to the barrel of a pump, in combination with an adjusting-head attached to the outer end of the pump-plunger, means adapting said adjusting-head to be attached to the cross-head of an engine, substantially as shown and described.

3. In an adjustable pump for steam-engines, the combination, with the barrel of a pump, of brackets adapted to receive said barrel, and be adjustable and reversible thereon, slots in the wings of said brackets, an adjusting-head attached to the plunger-rod of said pump, said adjusting-head consisting of a slotted sleeve, a head contained in said sleeve, a slot through the wall of said sleeve, a plunger-rod entering said head through said slot, means of adapting said sleeve to be attached to the cross-head of an engine, all constructed combined and operating substantially as shown and described.

643,973. AUTOMATIC APPARATUS FOR FEEDING CROWNS OR CLOSURES. WILLIAM PAINTER and JOHN T. HAWKINS, Baltimore, Md., assignors to the Crown, Cork and Seal Company, same place. Filed Nov. 26, 1898. Serial No. 697,524. (No model.)



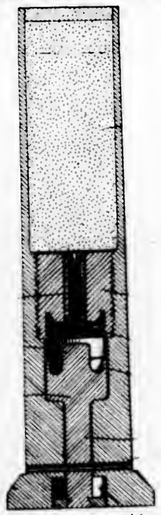
Claim.—1. In an automatic feeding apparatus for crown bottle-closures, a rotating selecting-cage having one side closed, adapted to receive the crowns or closures, a hopper communicating with the cage, through a central opening in the opposite side, said cage having in its periphery suitably-formed passages so that the crowns or closures can pass therethrough in one position only, said cage by its rotation causing the contained crowns or closures to be tumbled and changed in position therein until they are ultimately all presented to said passage in the required position to pass out into a surrounding channel-way, substantially as described.

2. In an automatic feeding apparatus for bottle-sealing machines, a hopper for the indiscriminate reception of the crowns or closures, a chamber external to said hopper, an inclined bottom to said hopper adapted to lead the closures to said external chamber and a receptacle or cage rotating within said external chamber, having one side closed and a central opening in the side adjoining said hopper, adapted to receive the crowns or closures indiscriminately from the hopper, and containing in its periphery suitably-formed passages such that the crowns or closures can pass therethrough in one position only; whereby, by the tumbling action of said cage the crowns or closures are changed in position therein until they present themselves in proper position to pass through said passages into a surrounding channel-way, substantially as described.

3. In an automatic feeding apparatus for bottle-sealing machines, a vertically-arranged hopper, a cylindrical chamber external thereto, a freely-rotating chamber or cage having one side closed and a central opening in the side adjoining the hopper, adapted to receive the crowns or closures indiscriminately from the hopper and by its rotation tumble said crowns or closures therein until by constant change of position they are all presented to suitably-formed passages in the periphery of said rotating chamber or cage so as to pass therethrough in one position only, substantially as described.

4. In an automatic feeding apparatus for closures for bottle-sealing machines, a selecting-cage and a pendulum adapted to prevent wedging of the closures, substantially as described.

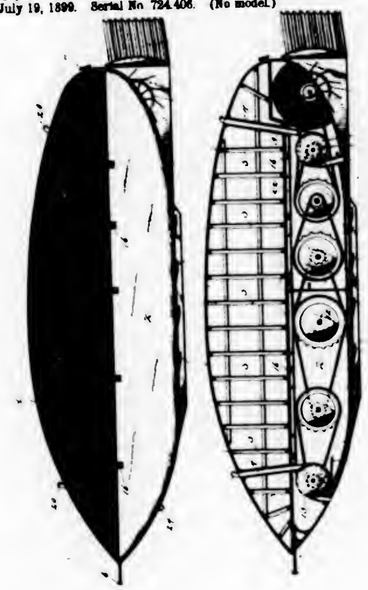
643,974. PERCUSSION-PRIMER. JOSEPH PARKER, Dartford, England, assignor to Vickers, Sons & Maxim, Limited, Sheffield, England. Filed Oct. 16, 1899. Serial No. 733,779. (No model.)



Claim.—1. A percussion-primer comprising a cylindrical casing having a front chamber charged with powder, a perforated and recessed anvil-block screwed into the primer—a percussion-cap held in the recess of the anvil-block—a striker of piston form adapted to slide in a bore of the primer-casing and provided with a button-head lodged in a recess of the primer-head, and a transverse safety-wire holding the striker, substantially as described.

2. A percussion-primer comprising a cylindrical casing having a front chamber charged with powder, a perforated and recessed anvil-block screwed into the primer, a percussion-cap held in the recess of the anvil-block, and a striker of piston form adapted to slide in a bore of the primer-casing and provided with a button-head movable in a recess in the head of the primer, substantially as described.

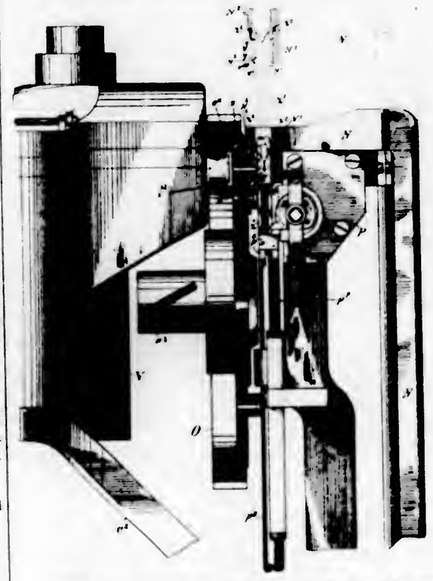
643,975. AIR-SHIP. JOHN F PICKERING, Gonaives, Haiti. Filed July 19, 1899. Serial No. 724,406. (No model.)



Claim.—1. The combination of a balloon, an attached car carrying a motor, and a propeller, fans driven by the motor, air-pipes provided with bent movable outlets leading both upward and downward from the fans and extending through the balloon and the bottom of the car, and means for shifting the blast of air from the fan to either the upward or downward air-pipes.

2. The combination of a balloon having passages leading entirely through it, a car connected with the balloon, fans or blowers mounted within the car, air-trunks leading from the fans, movable bent or crooked tubes coupled with the air-trunks, and means for directing the current directly upward or downward or through the bent tubes, substantially as described.

643,976. MATRIX-ALINING MECHANISM FOR LINOTYPE-MACHINES. JOHN PLACE, Manchester, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Dec. 31, 1897. Serial No. 665,046. (No model.)



Claim.—1. A series of matrices for conjoint use in a linotype-machine, each having a character or matrix proper in one edge, and also having on one side a longitudinal V-shaped rib and in the opposite side a groove of corresponding size and location; whereby such matrices are brought into approximate alinement during the composition of the line, but permitted to move endwise in relation to each other for final and exact alinement.

2. In a linotype-machine, an expanding spacer, comprising two connected and oppositely-tapered wedges, one wedge having on its side a longitudinal V-shaped rib, and the accompanying wedge having in its outer side a groove of corresponding shape and location; whereby said spacer is adapted to cooperate with complementary matrices.

3. In a linotype-machine, a series of flat matrices, each having in one edge a character or matrix proper, on one side a longitudinal V-shaped rib and in the opposite side a groove of corresponding form and location, in combination with a series of expanding spacers, each composed of two oppositely-tapered wedges, ribbed and grooved to correspond with the matrices.

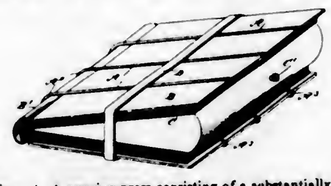
4. A linotype-matrix having at its edge an ear or shoulder with its surface inclined in relation to the edge of the matrix, substantially as shown.

5. In a linotype-machine, a matrix having a rib or shoulder with an inclined surface r^{20}, in combination with a mold having a corresponding inclined surface r^{21}, with mechanism for alining the matrices against the mold.

6. The combination with the matrices and space-bars of a linotype-machine, of a ridge and a groove, or equivalent surfaces, on opposite and corresponding sides of each; an incline on one of the bottom shoulders of each matrix and a corresponding incline on a fixed shoulder, motion over which latter by the said matrix, will tend to force the latter closely up to the casting mechanism, as and for the purposes set forth.

7. The combination with the matrices and space-bars of a linotype-machine, of a ridge and a groove, or equivalent surfaces on opposite and corresponding sides of each; a similar ridge and groove, or equivalent surfaces, distributed between the abutments adapted to hold the composed line of matrices and space-bars between them; an incline on one of the bottom shoulders of each matrix; a corresponding incline on a fixed shoulder, motion over which latter by the said matrix, will tend to force the latter closely up to the casting mechanism, as and for the purposes set forth.

643,977. COPYING-PRESS. ALBERTO POBLETE Y GARIN, Salamanca, Chile. Filed Apr. 10, 1899. Serial No. 712,428. (No model.)



Claim.—1. A copying-press consisting of a substantially wedge-shaped cushion, adapted to be interposed between the leaves of a book, and a device for exerting pressure on said book externally.

2. For use in copying-books, a pressure-equalizer consisting of a substantially wedge-shaped cushion adapted to be interposed between the leaves of a book.

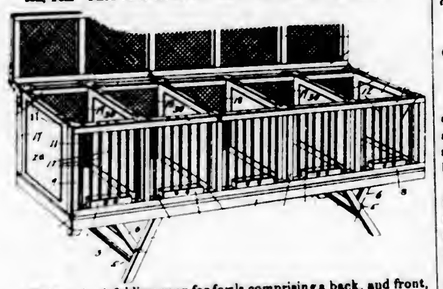
3. A copying-press, consisting of diverging clamps or holders adapted to embrace a copying-book, a cushion adapted to be filled with a fluid and interposed between the leaves of the book, and means for exerting pressure on said clamps externally, independently of the cushion.

4. A copying-press, consisting of diverging clamps or holders adapted to embrace a copying-book, a cushion adapted to be filled with a fluid and interposed between the leaves of the book, and a compressing-frame constructed to embrace, and slide upon, the diverging clamps.

5. A copying-press, consisting of diverging clamps or holders adapted to embrace a copying-book and provided with hooks at their free ends to hold the book, a cushion adapted to be filled with a fluid and interposed between the leaves of the book, and a compressing-frame constructed to slide upon the diverging clamps.

6. The combination of the diverging clamps or holders adapted to embrace a copying-book, the equalizing-cushion, and the compressing-frame constructed to embrace and slide upon the diverging clamps.

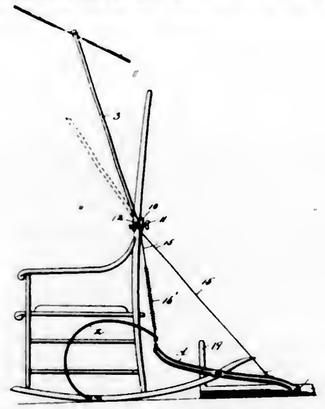
643,978. FOLDING POULTRY-COOP. HENRY M. RAMSAY, Houston, Tex. Filed June 21, 1899. Serial No. 721,364. (No model.)



Claim.—1. A folding coop for fowls comprising a back, and front, a cover hinged to the back so as to fold down flat against it, and a series of parallel vertical partitions, adapted to be folded between the front and back, the end partitions being permanently pivoted to the front and back, while one or more of the intermediate partitions is removable and grooved at its side edges for the reception of removable pivot-pins, and split pins fitting said recesses.

2. A coop for fowls, comprising a front frame provided with bars, a back and cover covered with netting in combination with solid partitions pivotally secured to the front and back, one or more of said partitions between the end partitions being formed with grooves at its side edges for the reception of removable pivot-pins, and split pins fitting said grooves, whereby said partition or partitions are removable to increase the capacity of one or more of the compartments of the coop.

643,979. FAN ATTACHMENT FOR CHAIRS. LUDWIG REES, Louisville, Ky. Filed June 29, 1899. Serial No. 722,259. (No model.)



Claim.—1. The combination of a chair and a fan attachment, consisting of a vibrating lever, a fan-shaft-supporting arm vertically, axially and radially adjustable, a fan-shaft connected with the arm, a cord wrapped around a drum on the fan-shaft extending to opposite ends of the lever, and a lever-operating spring, substantially as described.

2. The combination of a rocking-chair, a vibrating lever connected therewith, a fan-shaft-supporting arm vertically, axially and radially adjustable with relation to the chair, a drum or pulley connected with the fan-shaft, an operating-cord wrapped around the drum having an elastic or yielding section connected at opposite ends to opposite ends of the lever, and a lever-operating spring, substantially as described.

3. The combination of a rocking-chair, a vibrating lever connected with said chair, a slotted hollow fan-shaft-supporting arm, a fan-shaft connected with the supporting-arm through ball-bearings, an operating drum or pulley connected with the shaft, a cord wrapped around the drum connected with opposite ends of the lever, and a lever-operating spring, substantially as described.

4. In fan attachments for chairs having a horizontally-arranged fan-shaft carrying an operating drum or pulley adapted to be operated by a cord belt, the combination with the chair and fan-shaft, of a slotted hollow arm for supporting the fan shaft, guarding and concealing the operating-cord and providing for the ready adjustment of the cord in operative position, substantially as described.

643,980. BOW-FACING OAR. HIRAM M. ROBERTS, Vickery, and JOHN FITZGERALD, Port Clinton, Ohio. Filed Nov. 20, 1899. Serial No. 737,634. (No model.)

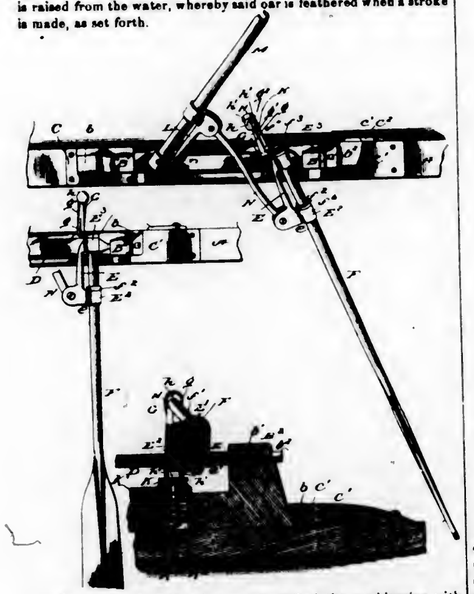
Claim.—1. In a bow-facing oar of the character described, the combination of a rockable support, a two-part oar mounted thereon and connected by suitable levers, means for tensioning said rockable support, and mechanism, substantially as described, to give said oar-blade a horizontal, a vertical and rotary movement, as set forth.

2. In a bow-facing oar of the character described, the combination of a two-part oar, suitably connected, a rockable oar-support, means for tensioning said support, and mechanism, substantially as described, for automatically turning said blade when the oar-support is rocked, as set forth.

3. In a bow-facing oar of the character described, the combination of a rockable oar-support, means for tensioning said support, a two-part oar suitably mounted thereon, and connected by a suitable link, with levers connecting by a universal joint the end of the oar-blade with the rowlock, whereby the said blade may be automatically feathered when it is raised from the water at the end of a stroke, as set forth.

4. In a bow-facing oar of the character described, the combination of a rockable oar-support, a two-part oar suitably mounted thereon and connected by a suitable link; with a lever connected to a rowlock and a crank-piece connected to the end of the oar and connected with said lever by a universal joint whereby the said oar is automatically turned when the support is rocked, as set forth.

5. In a bow-facing oar of the character described, the combination of a rowlock, a rockable oar-support mounted therein, a lever pivoted near one end of said rockable support, an oar-holding bracket pivoted near the opposite end of said support and connected with said lever by a suitable link, an oar rotatably mounted in said bracket, and means for limiting the extent of rotation, with levers connected by a universal joint for rotating or turning said blade when the oar is raised from the water, whereby said oar is feathered when a stroke is made, as set forth.



6. In a device of the character described, the combination with a gunwale of a boat, undercut brackets secured thereon and a turn-button secured to one of said brackets, of a rowlock having reduced projecting ends adapted to fit into the undercut openings and be secured and immovably held therein by said turn-button.

7. In a bow-facing oar of the character described, the combination of a rockable oar-support, a two-part oar suitably mounted thereon and connected by a suitable link, with levers connecting the end of the oar-blade with the rowlock for automatically feathering said oar and spring mechanism for taking up the wear of the automatic feathering device, as set forth.

643,981. APPARATUS FOR USE IN WRITING BY HAND. BENJAMIN F. ROBINSON, near Margaret, W. Va. Filed Aug. 1, 1899. Serial No. 725,730. (No model.)

Claim.—1. The combination in an apparatus substantially as described of the main bar, the pen-holding bar, the upper and lower hinged frames connecting said bars, one of the bars of the lower frame being prolonged or extended forming the handle substantially as set forth.

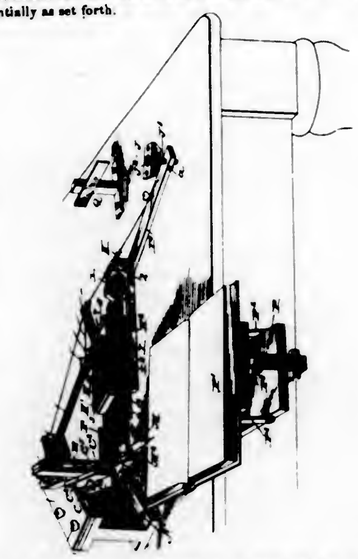
2. In an apparatus substantially as described, the combination of the pen-bar, the main bar, a support to which the same is hinged, the extended handle portion, and the upper and lower parallelograms composed of bars hinged together and to the pen-bar and main bar, substantially as set forth.

3. In an apparatus substantially as described, the combination of the main bar, the handle and pen bars in connection with and supported from the main bar, the upright bar to which the main bar is hinged at one end to swing laterally, and a carrier to which said upright bar is hinged to swing vertically as set forth.

4. In a writing apparatus substantially as described the combination of means for supporting the pen, the handle connected with such means whereby to operate the same, the handhold movable freely in any and all planes, and the ball-and-socket joint between the handhold and the handle substantially as set forth.

5. In an apparatus substantially as described, the combination of the writing devices, the handle connected with and arranged to operate the same, the handhold movable freely in any and all planes having a ball and socket, and the ball fitting in said socket and having a stem connected with the handle substantially as set forth.

6. The combination of a holder or support having a vertical socket, a bar fitting at its lower end in said socket the upright bar hinged at its upper end to the said first bar and swinging vertically on said hinge, the main bar hinged to said second bar the pen-bar and handle and connections between the main bar and the pen-bar and handle substantially as set forth.



7. In an apparatus substantially as described, the combination of a holder or support having a socket for one of the upright bars of the swinging frame, the swinging frame having a bar fitted to said socket and an upright hinged to said bar and swinging vertically thereon, a laterally-sliding bar by which to engage the upright and means for securing said laterally-sliding clamp in engagement with the upright substantially as set forth.

8. The combination of the pedestal having a laterally-opening clamp, the writing devices, and the carrier therefor having a shank fitted and held in the laterally-opening clamp of the pedestal substantially as set forth.

9. In an apparatus substantially as described, the combination of the main bar, the pen-supporting bar arranged laterally to the main bar, and parallelograms connecting the main and pen bars and composed of sections hinged endwise together and edgewise to said bars substantially as set forth.

10. The combination of the main bar, the bar extending laterally from the main bar near its outer end, the upright to which the inner end of the main bar is hinged, and a strut-brace hinged at its inner end to said upright and connected at its outer end with the brace extending laterally from the main bar substantially as set forth.

11. In an apparatus substantially as described, the combination of the main bar having at its outer end the upwardly-directed arm or bar, the handle-bar, intermediate connections between the main bar and the handle-bar, and the contractile spring cord or connection between the handle-bar and the upwardly-directed arm of the main bar substantially as set forth.

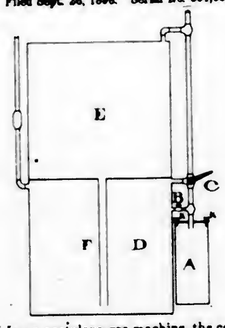
12. In an apparatus substantially as described, the combination of the main bar having a laterally-extending arm, the pen-holding bar, the lower parallelogram comprised of sections hinged together and to the main bar and pen-bar, and one of the sections being extended to form the handle-bar, and the contractile-spring connection between said parallelogram and the lateral arm of the main bar substantially as set forth.

13. In an apparatus substantially as described, the combination of the main bar, the pen-bar, the parallelogram frame connecting the main and pen bars and hinged to both said bars, the small bar pivoted to the pen-bar and carrying the penholder and the clamp for securing the penholder-carrying bar in its different adjustments substantially as set forth.

14. The combination in an apparatus substantially as described of the pen-bar, the handle-bar jointed connections between the handle and pen bars, the handhold movable freely in any and all planes and the ball-and-socket joint between the handhold and handle-bar substantially as set forth.

15. A writing apparatus having a pen-supporting device arranged for operation by the handle-bar, a handle-bar and a handhold movable freely in any and all planes having a universal joint connecting it with the handle-bar substantially as set forth.

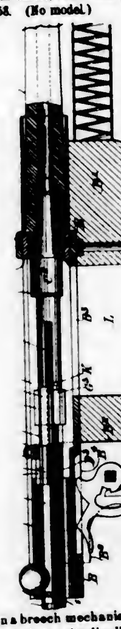
643,982. ACETYLENE-GAS MACHINE. CHARLES H. ROSS, Lincoln, Nebr. Filed Sept. 26, 1898. Serial No. 691,957. (No model.)



Claim.—1. In an acetylene-gas machine, the combination of the upper tank, the lower tank, the pipe leading from the upper to the lower tank, the generator, the escape-pipe leading upward from the generator and having upper and lower branches connecting it with the lower tank, a valve controlling the escape-pipe at the joint therewith of the upper connection with the lower tank and a valve controlling the lower branch of the escape-pipe, substantially as set forth.

2. An acetylene-gas machine comprising the upper and lower tanks, the pipes connecting the upper and lower tanks, the offtake-pipe I, the generator, the escape-pipe leading from the generator and having a branch connecting it with the upper tank and upper and lower branches connecting it with the lower tank, a valve in the lower branch connection, and a valve controlling the escape-pipe at the juncture therewith of the upper branch connection with the lower tank, substantially as set forth.

643,983. RECOIL-OPERATED FIREARM. CHARLES H. A. F. L. ROSS, Balnagowan Castle, Ross County, Scotland. Filed Apr. 30, 1897. Serial No. 634,553. (No model.)



Claim.—1. In a breech mechanism the combination with a breech-piece, of a breech-bolt longitudinally movable therein, a longitudinally-movable extractor, and an ejector projecting laterally from the inner wall of the breech-piece and adapted to strike the base of the cartridge and eject it, substantially as described.

2. In a recoil-operated gun, the combination with a fixed shoe, of a catch, a breech-bolt and a barrel longitudinally movable in the shoe, the barrel having projections thereon for actuating the catch and causing it to engage and disengage the breech-bolt, substantially as described.

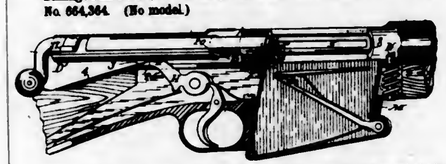
3. In a recoil-operated gun, the combination with a slotted fixed shoe, a sliding catch having inclined faces thereon spanning the slot in the shoe, a barrel sliding within the shoe and having pins thereon adapted to engage the opposite sides of the catch, and a breech-bolt, caught and released by the said catch as the latter is engaged by the one or the other of the pins upon the barrel, substantially as described.

4. In a breech mechanism for a recoil-operated gun, the combination with a fixed shoe, of a longitudinally-movable breech-piece, and a longitudinally-movable sleeve and breech-bolt therein, the breech-bolt comprising a revoluble bolt-head adapted to be locked to and unlocked from the breech-piece by the longitudinal movement of the sleeve, and a catch, thrown into engagement with the sleeve by the rearward movement of the breech-piece and disengaged by the forward movement thereof, and means for returning the longitudinally-movable parts to normal position when they have been driven rearwardly by the recoil, substantially as described.

5. In a breech mechanism for recoil-operated guns, the combination with a fixed and slotted shoe having guides on the exterior surface thereof, a catch sliding in the said guides and spanning the slot in the shoe, the said catch having correspondingly-inclined driving-faces on the opposite sides thereof, a breech-piece longitudinally movable in the shoe and having pins thereon projecting through the slot thereof and contacting with the opposite driving-faces of the catch, and a breech-bolt longitudinally movable in the shoe and having a projection thereon engaged by the catch and disengaged from the catch, according as the latter has been driven by one or the other of the pins upon the breech-piece, substantially as described.

6. In a breech mechanism for firearms the combination with a breech-piece, of a headed breech-bolt, locked to the breech-piece by a rotative movement, a firing-pin contained in the headed breech-bolt and projecting to the rear thereof, a sleeve longitudinally movable in respect to said firing-bolt, and having an anvil to contact with the rear end of the firing-pin, and a projection and a spiral slot for rotating the breech-bolt by the longitudinal motion of the sleeve, the slot having a longitudinal extension to permit the continued movement of the sleeve after the bolt has been locked, whereby the firing-pin will be actuated, substantially as described.

643,984. MAGAZINE BOLT-GUN. CHARLES H. A. F. L. ROSS, Balnagowan Castle, Ross County, Scotland. Filed Dec. 29, 1897. Serial No. 664,364. (No model.)



Claim.—1. The combination, with a receiver, of a breech-bolt, means for rotating the breech-bolt to unlock it from the receiver, and an extractor contacting with the breech-bolt to prevent undue unlocking rotation of the breech-bolt, substantially as described.

2. The combination with a receiver, of a breech-bolt provided with a bolt-head having locking-lugs thereon, a sleeve encircling the breech-bolt, means for moving the sleeve longitudinally relative to the breech-bolt, and means located near the front of the breech-bolt and immediately behind the bolt-head thereon for rotating the breech-bolt relative to the sleeve upon the longitudinal motion of the sleeve, substantially as described.

3. In a breech mechanism for firearms, the combination with a receiver, of a sleeve and a breech-bolt located within the sleeve and having spiral ribs formed thereon behind and adjacent to the forward end thereof, the sleeve having spiral grooves, the forward ends of which open upon the forward end of the sleeve, the ribs and grooves cooperating to rotate the breech-bolt upon a longitudinal motion of the sleeve, substantially as described.

4. The combination with a receiver, of a sleeve, an extractor, a breech-bolt, means for rotating the breech-bolt relatively to both the sleeve and extractor, the extractor acting as a positive stop to limit rotation of the breech-bolt, and means for moving the sleeve longitudinally relative to the breech-bolt and extractor, substantially as described.

5. In a straight-pull breech mechanism for firearms, the combination with a receiver, a sleeve, an extractor, a breech-bolt, means to unlock the breech-bolt from the receiver by rotating it relatively to the sleeve and to the extractor and against the extractor as a stop, and a fixed abutment for the extractor adapted to prevent the displacement thereof when struck by the breech-bolt, substantially as described.

6. In a breech mechanism for firearms, the combination with a receiver having guides for a sleeve therein, a sleeve sliding in the receiver, a breech-bolt, means for imparting a rotary locking or unlocking motion to the breech-bolt by the longitudinal motion of the sleeve, and an extractor, limiting the unlocking motion of the breech-bolt by having its one edge in engagement therewith and its opposite edge in engagement with guides upon the receiver, substantially as described.

7. In a breech mechanism for firearms, the combination with a centrally-recessed receiver having a shoulder thereon and having a longitudinal slot in one side, of a rigidly-connected sleeve and cover-plate, the sleeve sliding within the central recess of the receiver and the cover-plate in the longitudinal slot thereof, and closing it when the breech-bolt closes the breech, a breech-bolt having locking-lugs upon its forward end, means for rotating the breech-bolt by the longitudinal motion of the sleeve and cover-plate, and an extractor limiting the unlocking rotation of the breech-bolt, contained between the cover-plate and sleeve and having a limited longitudinal motion in relation thereto, the extractor bearing upon the shoulder formed upon the receiver to prevent its displacement by the rotating breech-bolt, substantially as described.

8. In a breech mechanism for firearms the combination with a breech-bolt, of a firing-pin, a hammer and a movable safety-stop preventing the contact of the hammer with the firing-pin while the breech-bolt is unlocked and moved by the hammer to lock the breech-bolt and to uncover the firing-pin for contact with the hammer, substantially as described.

9. The combination, in a straight-pull breech-closing mechanism, of a sleeve, a breech-bolt longitudinally movable and revoluble in respect to the sleeve and rotated by the longitudinal motion thereof for locking the breech, and a firing-pin, the rear end of the sleeve protecting the firing-pin from contact with the hammer until the sleeve is forced fully home, and whereby the sleeve may be forced home by the hammer to lock the breech-bolt, substantially as described.

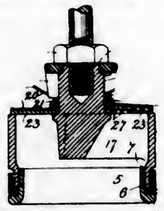
10. In a breech mechanism for firearms, the combination with a sleeve, of an extractor, longitudinally movable in respect thereto, a breech-bolt longitudinally movable and revoluble in respect to the sleeve and revoluble in respect to the extractor, and coacting abutting faces on the extractor and sleeve whereby the sleeve imparts a longitudinal motion to the extractor, substantially as described.

11. In a breech mechanism for firearms, the combination, with a sleeve, an extractor longitudinally movable in respect thereto, a breech-bolt longitudinally movable and revoluble in respect to both the sleeve and extractor and coacting abutting faces on the extractor and sleeve whereby the sleeve imparts a longitudinal motion to the extractor, substantially as described.

12. In a breech mechanism for firearms, the combination, with a sleeve having a slot therein, a longitudinally-sliding extractor having a projecting piece contained in the slot and engaging the sleeve by which it is moved, a breech-bolt, and means for rotating the bolt and moving it longitudinally by the longitudinal movement of the sleeve, substantially as described.

13. In a breech mechanism for firearms the combination, with a longitudinally-moving and rigidly-connected sleeve and cover therefor, of a breech-bolt, means for causing a rotary motion of the breech-bolt by the longitudinal motion of the sleeve, and an extractor having its stem slidingly held between the sleeve and cover and a projection on the sleeve, to engage and move the extractor, substantially as described.

643,985. PUMP-PISTON. ALFRED J. SALISBURY, Los Angeles, Cal. Filed Apr. 20, 1899. Serial No. 713,734. (No model.)



Claim.—1. In a pump-piston, the combination of a bucket having a central post, a ring loosely mounted on the post, a valve having a flat body portion and a hooked portion for engaging said ring, substantially as set forth.

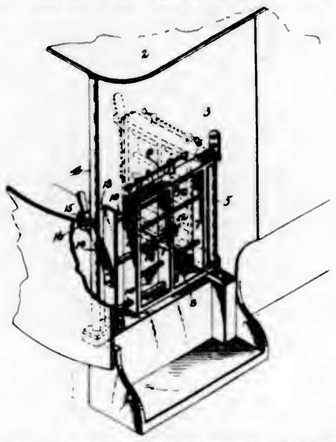
2. In a pump-piston, the combination of a bucket having a central post, a ring provided with lugs thereon seating on the post, a movable ring surrounding the post, and valves loosely hinged to said movable ring, substantially as set forth.

3. In a pump-piston, the combination of a bucket, a post secured to the bucket, a ring at the top of the post, pendent lugs connected with said ring, a loosely-mounted ring on the post beneath said lugs and valves movably hinged to the movable ring, substantially as set forth.

4. A pump-piston comprising a bucket having a post, a loose vertically-sliding ring surrounding the post, means for limiting the upward movement of the ring, and valves having L-shaped hooks whereby they are loosely connected with the loose ring; substantially as described.

5. A pump-piston comprising a bucket having a post, a loose vertically-sliding ring surrounding the post, means for limiting the upward movement of the ring, and valves each having L-shaped hooks whereby they are loosely connected with the loose ring, a flange at its inner end, and a packing; substantially as described.

648,986. GATE FOR CARS. EDWARD P. SARGENT, Merrimac, Mass. Filed Aug. 14, 1899. Serial No. 727,186. (No model.)



Claim.—1. In a car-gate, the combination, with a hinged section, a sliding section having an end bar, and a spring-latch connected thereto, of a vertical rod having upper and lower notched catches to receive the spring-latch and the end bar of the sliding section to hold the gate closed, and a spring-catch for holding the gate open, substantially as described.

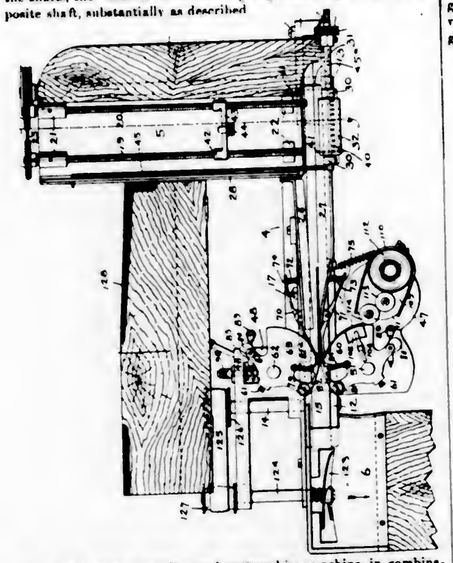
2. A gate comprising a hinged section and a movable or sliding section having an upright end bar provided with a spring-latch, combined with upper and lower notched or recessed lugs adapted to receive said end bar and latch, respectively, substantially as set forth.

648,987. STAMP-CANCELING AND POSTMARKING MACHINE. GEORGE W. SCHOCK, South Bend, Ind. Filed Nov. 1, 1897. Serial No. 656,999. (No model.)

Claim.—1. In a stamp-canceling and postmarking machine, the combination with a revoluble impression member and marking-die, of means for separating and feeding the mail-matter progressively comprising revolable screw feed-shafts upon which the mail-matter rests and is separated one by one in its forward movement, means for revolving the same, and an auxiliary feed-plate adapted to move coincidently with the feed movement of the screw-shafts, substantially as described.

2. In a stamp-canceling and postmarking machine, in combination with a revoluble impression member and marking-die, of means for separating and feeding the mail-matter successively from a parcel or bundle of mail-matter, comprising revolable screw-shafts, a gravity feed-plate resting upon the screw-shafts, and means for revolving the screw-shafts, substantially as described.

3. In a stamp canceling and postmarking machine, in combination with a revoluble impression member and marking-die, of screw-shafts and means for revolving the same, a feed-plate resting upon the shafts, the outer screw-shaft being of greater length than the opposite shaft, substantially as described.



4. In a stamp-canceling and postmarking machine, in combination with a revoluble impression member and marking-die, of a table supporting the feeding mechanism, screw-shafts each journaled at one end in bearings carried by the table, an upwardly-projecting flange upon the inner side of the table, a stop secured thereto and projecting above the ends of the screw-shafts, a feeding-plate propelled by the screw-shafts, and means for revolving the screw-shafts, substantially as described.

5. In a stamp-canceling and postmarking machine in combination with a revoluble impression member and marking-die of a feed mechanism, and a canceling and marking mechanism, a revoluble drum having longitudinally-arranged pins and a peripheral row of pins upon the forward end thereof, substantially as described

6. In a stamp-canceling and postmarking machine, a frame having a revoluble printing-die journaled in fixed bearings thereon, a revoluble impression member, a journal-box, and means for adjusting the same located between the said box and frame, a stem extending outwardly from the box, a sleeve screwed into an outer bracket extension of the frame through which the stem passes, a spiral spring upon the stem to pass between the box and sleeve and a nut adjustable upon the same to bear against the outer end of the sleeve, substantially as described.

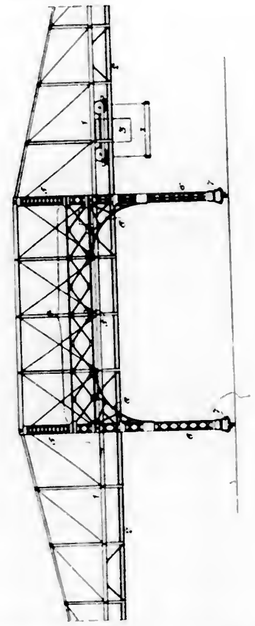
7. In a stamp-canceling and postmarking machine, in combination with a revoluble impression member and marking-die, a carrier-belt and means for continuously feeding mail-matter thereon, a stop for the mail-matter arranged in front of the canceling and postmarking mechanism comprising levers against which the mail-matter abuts, dogs carried by the impression member and marking-die respectively adapted to grasp the mail-matter held by the levers, the dog upon the marking-die simultaneously abutting against and positively separating the levers, substantially as described.

8. In a stamp-canceling and postmarking machine, the combination of a revoluble impression member and marking-die and means for feeding mail-matter thereto, dogs carried by the impression member and printing-die normally held in a projected position, and an inking-wheel carried by the marking-die normally held in a projected position, substantially as described.

9. In a stamp-canceling and postmarking machine, the combination of a revoluble impression member and marking-die and means for feeding mail-matter thereto, of an ink-receptacle comprising an inner and an outer casing, each having perforations in horizontal alinement, lugs upon the casings and a screw-bolt connecting the lugs, whereby the casings are revolved with reference to each other, and inking-rollers having a peripheral contact with the periphery of the ink-receptacle, substantially as described.

643,988. CRANE. JOHN W. SEAVER, Cleveland, Ohio, assignor to the Wellman-Seaver Engineering Company, same place. Filed Oct. 10, 1899. Serial No. 733,199. (No model.)

Claim.—1. The combination of a crane with auxiliary flanking girders, separated laterally therefrom and connected thereto by transverse girders, and a supporting structure for each of said auxiliary girders, substantially as specified.



2. The combination of a crane with auxiliary flanking girders separated laterally therefrom, and transverse girders connecting said auxiliary girders to the crane, supporting structures for said auxiliary girders, and knee-braces whereby said supporting structures are connected to the elevated structure, substantially as specified.

3. The combination of a crane with auxiliary flanking girders separated laterally therefrom, transverse girders connecting said auxiliary girders to the crane, supporting structures for the auxiliary girders, and means for tying the supporting structures together transversely at or near the bottom, substantially as specified.

4. The combination of a crane with auxiliary flanking girders laterally separated therefrom, transverse girders connecting said auxiliary girders to the crane, supporting structures for said girders mounted upon wheeled trucks and driving mechanism for the crane mounted upon one of the auxiliary girders, substantially as specified.

5. The combination of a crane with auxiliary flanking girders laterally separated therefrom, transverse girders whereby said flanking girders are connected to the crane, supporting structures for said flanking girders mounted upon wheeled trucks, motive-power apparatus carried by one of said flanking girders, a vertical shaft adapted to bearings in one of said supporting structures, gearing whereby the upper end of said shaft is connected to the motive-power apparatus on the girder, and other gearing whereby its lower end is caused to drive a wheel or wheels of the truck upon which said supporting structure is mounted, substantially as specified.

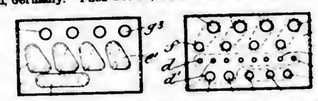
6. The combination of a crane consisting of two main longitudinal girders, with cross-braces and trolley-support, auxiliary flanking girders laterally separated from said main girders, transverse girders connecting said main and auxiliary girders and supporting structures upon which the auxiliary girders are mounted, substantially as specified.

643,989. MANUFACTURE OF CEMENT. FRANZ SEHR, Blankenhayn, Germany. Filed Oct. 21, 1899. Serial No. 734,386. (No specimens.)

Claim.—1. A cement consisting of powdered hard porcelain, half-burnt porcelain, feldspar and water-glass.

2. A cement consisting of approximately: fifty per cent. of powdered hard porcelain thirty-five per cent. half-burnt porcelain, fifteen per cent. of raw feldspar, and water-glass to form a paste.

643,990. SUPERHEATER. HUGO SCHMATOLSKI, Frankfort-on-the-Main, Germany. Filed Dec. 30, 1899. Serial No. 742,149. (No model.)



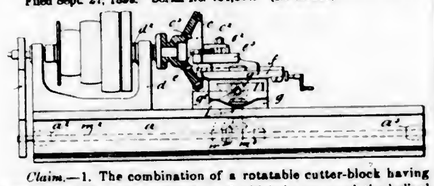
Claim.—1. A steam-superheating apparatus having a series of communicating steam-pipes arranged in zones of pipes, the pipes in each zone being different in number from the number of pipes of another zone, the total cross-sectional area of the pipes in the different zones decreasing in the direction of travel of the steam, and means for supplying heat to the pipes.

2. A steam-superheating apparatus having a series of communicating steam-pipes arranged in zones of different diameters, the total cross-sectional area of the spaces between the pipes being substantially equal in all the zones, and means for supplying heated gases to said spaces between the pipes.

3. In a superheating apparatus, the combination with a steam-chamber, and a series of steam-pipes terminating at said chamber, of a cap located within the steam-chamber over the ends of a plurality of said steam-pipes, whereby said pipes are put in communication with each other and the pressure on both sides of the cap is equalized, substantially as described.

4. In a superheating apparatus, the combination, with a steam-chamber, and a series of steam-pipes leading into and from said chamber, and means for heating said pipes, of a steam-interchanging device located in one of said pipes and having two sets of passages, one set leading from the center of the pipe to its inner periphery and the other set leading from the inner periphery of said pipe to its center, whereby the inner and outer layers of steam in the said pipe are interchanged, substantially as described.

643,991. MACHINE FOR CUTTING SPIRAL AND HELICAL TEETH IN CHUCK-JAWS. GEORGE S. TAYLOR, Birmingham, England. Filed Sept. 27, 1899. Serial No. 731,877. (No model.)



Claim.—1. The combination of a rotatable cutter-block having a cone-shaped bore, upon the face of which is arranged the helical line or lines of cutters, a jaw-holder having a line of traverse parallel with the conical face of the cutter-block and an automatic traverse equal to the pitch of the helical line of cutters, and mechanism for supporting, rotating and gearing together the cutter-block and jaw-holder, substantially as described.

2. The combination of a rotatable cutter-block having a conical bore, the face of which is fitted with helically-arranged lines of cutters, the said cutter-block being carried on a head-stock spindle, a middle slide supported on a bed to travel back and forth with the conical face of said block, a top slide working on said middle slide and carrying a jaw-holder, and means for automatically moving the said middle slide in relation to the rotation of the spindle carrying the cutter-block, substantially as set forth.

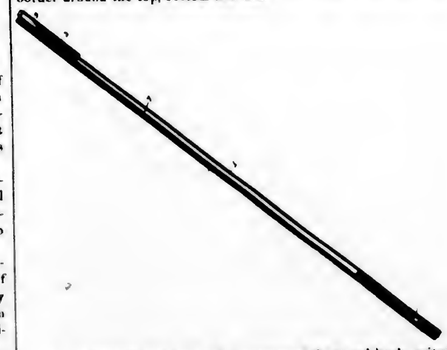
643,992. STAMP ORDER AND DELIVERY CASE. WILLIAM O. TAYLOR, Norristown, Pa., assignor to the Postal Improvement Company, Wheeling, W. Va. Filed Mar. 29, 1897. Renewed Aug. 8, 1899. Serial No. 726,597. (No model.)

Claim.—1. The combination of an envelop having a transparent front with a card adapted to fit within said envelop, said card having folded flaps at both the inner and outer ends, and provision for securing either flap to that portion of the envelop over which it is folded.

2. An envelop consisting of a back, a transparent front, and a border connecting them around the top, bottom and one end of the envelop, the back and front being disconnected at the other end of the envelop and the border on the front of the envelop at said open end being widened.

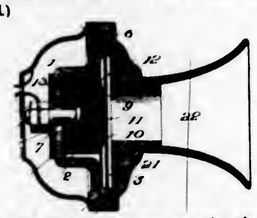
3. An envelop consisting of a back, a transparent front, a border connecting them together around the top, bottom and one end of the envelop, and independent borders for the back and front at the open end of the envelop.

4. An envelop consisting of a back, a transparent front, a border connecting them together around the top, bottom and one end of the envelop, and independent borders for the back and front at the open end of the envelop, said independent borders being wider than the border around the top, bottom and end.



5. An envelop consisting of a transparent front and back, united around the top, bottom and one end of the envelop, but disconnected at the other end, a stamp-order card adapted to fit in said envelop, and provision for securing a sealing-flap to both the front and back of the envelop at the open end of the same.

643,993. TELEPHONE-TRANSMITTER. CHARLES R. TUCKER and LOUIS S. JENKINS, York, Pa. Filed May 23, 1899. Serial No. 717,949. (No model.)



Claim.—1. In telephone apparatus, opposing electrodes, one of the electrodes having a chamber, a dense or non-dampening insulating material interposed between the opposing faces of the electrodes and attached to one of the said faces and spaced from the other face, and a granular resistance material in the chamber held in place by direct contact with the opposite electrode, substantially as specified.

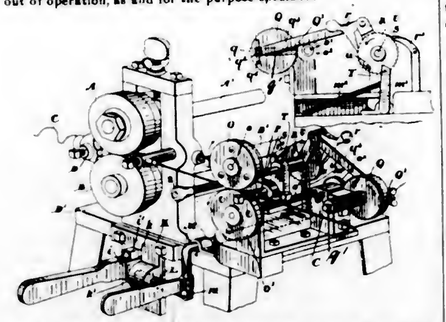
2. In telephone apparatus, a vibratory electrode, a fixed electrode having a central chamber formed with outwardly-flaring walls and having the marginal portion receding and spaced from the vibratory electrode, said receding marginal portion intersecting with the walls of the chamber and forming a projecting edge portion which approaches very close to the vibratory electrode without contact therewith, a non-dampening insulating material applied to the receding marginal portion of the fixed electrode, a granular resistance material placed in the outwardly-flaring chamber and held therein by direct contact with the vibratory electrode, substantially as set forth.

3. In a telephone-transmitter, a casing open at one side, a frame composed of independent sections, inclosing the fixed and vibratory electrodes and removably fitted in the casing through its open side and seated upon the portion near the open end thereof, and a cap-plate provided with the mouthpiece and having screw-thread connection with the casing said frame being clamped by the casing and cap-plate, substantially as set forth.

4. The herein-described telephone-transmitter consisting of a chambered frame of metal, a fixed electrode secured within the frame and insulated therefrom and having a chamber, a vibratory electrode closing the open side of the frame and clamped against a shouldered part thereof, granular material placed in the chamber of the fixed electrode and held in place by direct contact with the vibratory electrode, a case receiving the frame, and a cap-plate bearing the mouthpiece and clamping the frame between it and the case, substantially as described.

643,994. STOP MECHANISM FOR WIRE-COILING MACHINES. SYDNEY TURNER, Toronto, Canada. Filed Feb. 26, 1898. Serial No. 706,858. (No model.)

Claim.—1. The combination with the feed-rollers, and means for driving the same, of the friction-disks rotated by the wire passing into the machine, and means connecting such friction-disks with the driving means of the rollers whereby such driving means is thrown out of operation, as and for the purpose specified.



2. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, a tripping means operated by such friction-disks to release the spring-held lever to throw the driving-frictions apart, as and for the purpose specified.

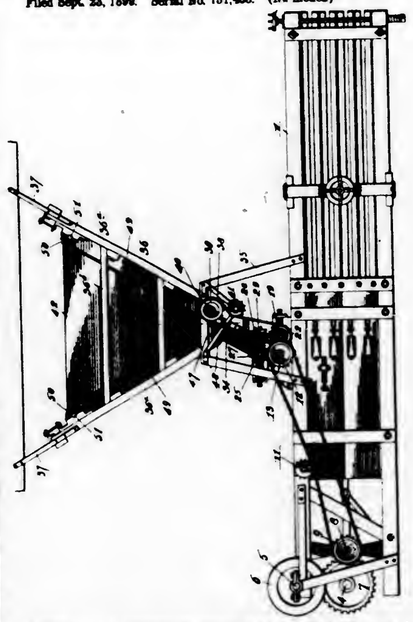
3. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, and tripping means to release the bolt and allow the lever to rise to throw the driving friction-disks apart, as and for the purpose specified.

4. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove, and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever, and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, and means operated through the rollers for tilting such arm to throw the bolt away from the lever, as and for the purpose specified.

5. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, the ratchet-wheel, means for suitably driving it from the wire-driven friction-rollers, and a pin extending from the ratchet-wheel designed to engage and tilt the arm on the end of the cross-rod, as and for the purpose specified.

6. The combination with the feed-rollers supported on suitable spindles and the loose pulley on one of the spindles provided with an end face friction-disk, the friction-disk secured on the main spindle and provided with a grooved hub, the forked arm extending into such groove and the spring-held lever rigidly connected to the bottom of the same, of the peripheral friction-disks designed to be rotated by the wire as it passes into the machine, the catch-plate secured to the lever, and the spring located above the same, the bolt designed to engage with the spring above the catch-plate to hold the lever down, the rod journaled on the bed-plate and pivotally connected to the bolt and having an arm at the opposite end, the ratchet-wheel, the gear at one end of the lower friction-disk and the diametric slot on the face of one of the gears Q, the arm on the spindle of the ratchet-wheel, the dog pivotally connected to the arm and engaging with the ratchet-wheel, and the link connecting the arm to the stud on the gear-wheel Q and the pin extending laterally from the face of the ratchet-wheel and designed to tilt the arm on the end of the cross-rod, as and for the purpose specified.

643,995. COTTON-PRESS. HENRY L. WHITMAN, St. Louis, Mo. Filed Sept. 23, 1899. Serial No. 731,403. (No model.)



Claim.—1. A continuous cotton-press comprising a press-box, means for delivering a continuous and unbroken web into said box, and a plunger of less dimension than the press-box, so as to form a space between it and the wall of the box to receive the web, whereby it presses said web in folds without breaking its continuity.

2. A continuous cotton-press comprising a press-box, means for continuously feeding an unbroken web into said press-box, and a plunger pressing said continuous web in folds, said plunger being of less dimension than the press-box so as to form a space between it and one wall of the press-box to permit the web to continue past it back from the pressing-point during compression.

3. In a continuous cotton-press, the combination of means for continuously feeding an unbroken web, a press-box having its feed-opening located beneath the web-feeding means, a plunger pressing the web in folds and constructed with its vertical dimension less than that of the press-box so as to leave a space between its upper side and the top of the press-box to permit the web to continue past it back from the pressing-point during compression, and a support mounted on the plunger for that portion of the web accumulating during compression.

4. In a continuous press, the combination of a press-box, web-pressing rollers above the box feeding a continuous unbroken web into the opening of the box by gravity, a plunger pressing the web into continuous connected folds and constructed with its vertical dimension less than that of the press-box so as to leave a space between it and one wall of the box, to permit the web to continue past it back from the pressing-point, to avoid breaking the web, and a receding support for the web carried by the plunger and brought beneath the web-pressing rollers while the plunger is pressing.

5. In a cotton-press, the combination of means for forming a continuous web, and a continuously-operating plunger-press into which the web is delivered, said press and its plunger being constructed so as to leave a space between one edge of the plunger and the corresponding wall of the press-box from the pressing-point to the feed-opening, to receive the cotton web and prevent severance thereof during pressing.

6. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, means for pressing the cotton to be baled into a web, and a web-support carried by said traverser, substantially as described

7. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, means for pressing the cotton to be baled into a web, and a slidable web-support carried by said traverser, substantially as described.

8. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, and a slidable spring-controlled web-support mounted on said traverser, substantially as described.

9. In a cotton-press, the combination of a baling-box, a reciprocating traverser arranged to operate therein, means for operating said traverser, a slidable web-support mounted on said traverser, and catches carried by said support arranged to arrest the forward movement thereof, substantially as described.

10. In a cotton-press, the combination of a baling-box, a reciprocating traverser arranged to operate therein, means for operating said traverser, a slidable web-support mounted on said traverser, catches carried by said support arranged to limit the forward movement thereof, and springs arranged to hold said support forwardly, substantially as described.

11. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, and a slidable web-support mounted on said traverser and having an inclined end, substantialy as described.

12. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, pressing-rollers for forming the cotton to be baled into a web, a slidable web-support mounted on said traverser and having a forward inclined end, and means for arresting the forward movement of said support, substantially as described.

13 In a cotton-press, the combination of a baling-box, a reciprocating traverser arranged to operate therein, means for operating said traverser, pressing-rollers, a slidable web support mounted on said traverser, slide-rods by which said support is connected to said traverser, and springs arranged on said slide-rods, substantially as described.

14. In a cotton-press, the combination of a baling-box, a plate mounted thereon, guides on said plate, a slide arranged to operate on said plate and to support a division-board between said guides, a spring secured to said plate and bearing against said slide, a traverser, and pivoted hooks carried by said slide arranged to be engaged by said traverser for the purpose of moving said slide, substantially as described

15. In a cotton-press, the combination of a baling-box, a traverser to operate therein, means for operating the traverser, means for pressing the cotton to be baled into a bat or web, and a movable support for arresting the movement of the web into the baling-box while the traverser is making the last part of its forward and the first part of its rearward movement.

16. A continuous cotton-press comprising a press-box having a feed-opening and a plunger, continuously-operating web-pressing rollers delivering into said feed-opening a continuous unbroken web, the relation between the transverse dimension of the plunger and the corresponding dimension of the press-box being such as to leave a web-passage from the point of pressing to the feed-opening, whereby the plunger may press said web into folds without breaking its continuity.

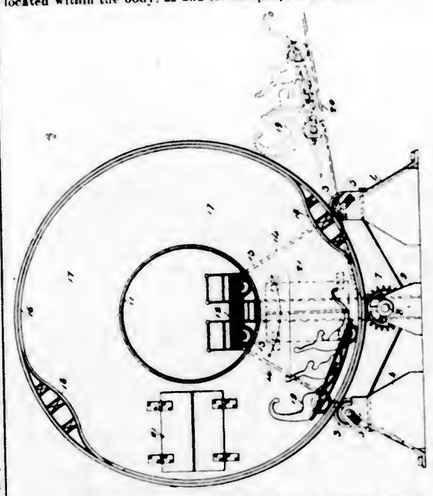
17. A continuous cotton-press, comprising a press-box having a feed-opening, means for forming the cotton into a continuous and unbroken web or bat, and which is located over the feed-opening of the press-box so as to deliver the bat by gravity into said feed-opening in an unbroken condition, and a plunger located in and of less vertical dimension than the interior of said press-box and acting to press said bat into folds without breaking its continuity.

18. A continuously-operating plunger-press provided with a suitable feed-opening and having the wall of the press-box on the side in which the feed-opening is formed, and between said feed-opening and the pressing-point, spaced apart from the plane of the corresponding edge of the plunger, whereby a space extends past said edge of the plunger when the latter is at the pressing-point and means for feeding a continuous and unbroken web or bat of cotton to said press; substantially as and for the purposes set forth.

643,996. PLEASURE-RAILWAY. JOHN ANDERSON, St. Louis, Mo., assignor of one-half to Samuel Barnes, same place. Filed June 5, 1899. Serial No. 719,461. (No model.)

Claim.—1. In combination with a suitable revolving body, of rails secured to the inner periphery of the same forming a track of spiral construction, throughout the entire length of said body, the ends of said tracks terminating adjacent to the ends of said body, and cars adapted to be placed upon said track, as and for the purpose described.

2. In combination with a cylindrical revolving body, of rails secured to the inner periphery of the same forming a track of spiral construction throughout the entire length of said body, the ends of said tracks terminating at the end of said body, cars adapted to be placed upon said tracks, and means for guiding said cars to the tracks located within the body, as and for the purpose described.



3. In combination with a cylindrical rotating body, of rails or guideways secured to the inner periphery of the same forming a track of spiral construction throughout the entire length of the said cylindrical body, and a spiral partition located between said tracks, and running the full length of the said body, as and for the purpose described.

4. In combination with a rotating body, of rails secured to the inner periphery of the same forming tracks of spiral construction, upon which cars are adapted to travel, and a spiral partition located between said tracks, and separating the latter, as and for the purpose described.

5. A pleasure-railway, comprising an outer cylinder, an inner cylinder centrally located within the same, rails secured to the inner periphery of said outer cylinder, and forming a track upon which cars are adapted to travel, and a partition located between the outer periphery of the inner cylinder, and the inner periphery of the outer cylinder, as and for the purpose described.

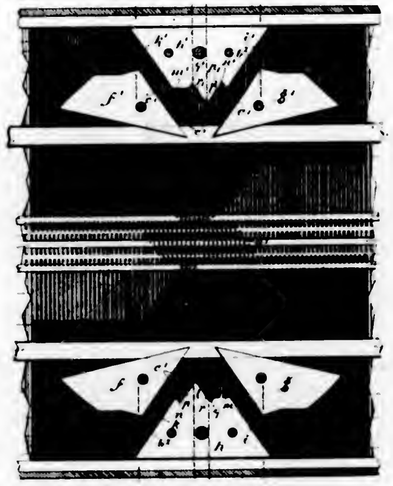
6. A pleasure-railway, comprising an outer cylinder, an inner cylinder located within the same, rails secured to the inner periphery of the outer cylinder, and forming tracks of spiral construction throughout the length of the said cylinders, a partition secured between the outer periphery of the inner cylinder, and the inner periphery of the outer cylinder forming a spiral partition throughout the entire length of the said cylinders, and a bridge passing entirely through the inner cylinder, and projecting a suitable distance beyond the ends of the same, rollers carried by said bridge, and in contact with the inner cylinder, and means for supporting the ends of the bridge, as and for the purpose described.

7. A pleasure-railway, comprising an outer cylinder, rails secured to the inner periphery of the same, forming tracks upon which cars are adapted to travel, the said tracks being spirally arranged along the entire length of the cylinder, a partition-wall located between said tracks, and also spirally arranged, and running the full length of the cylinder, and doors covering suitable openings formed in said partition, and on a line with one another, as and for the purpose described.

8. A pleasure-railway, comprising a revolving body, rails secured to the inner periphery of the same forming continuous tracks or guideways, cars adapted to be placed upon said tracks, and a partition located between said tracks, as and for the purpose described.

643,997. KNITTING-MACHINE. WILHELM BACH, Apolda, Germany. Filed Oct. 1, 1897. Serial No. 653,740. (No model.)

Claim.—1. The combination with the front and rear needle-beds, and the double-end tumbler-needles thereupon, of needle-drivers arranged on each bed, needle-hooks mounted on the drivers and those of one bed serving to move the needles from one bed to the other, advancing-cams for each bed, constructed to advance or push the drivers forward and thereby advance or push forward the corresponding needle-hooks and needles, retracting-cams for each bed, constructed to engage and retract the needle-hooks and thereby retract the corresponding drivers and pull over the corresponding needles, and means for actuating said cams, substantially as described.



2. The combination of two horizontal needle-beds separated by a longitudinal slot and each provided with double-end tumbler-needles, needle-drivers on each bed, needle-hooks engaged with and oscillatory upon the upper sides of the drivers and those of one needle-bed serving to pull across said slot the needles of the other bed, advancing and retracting cams for the drivers and needle-hooks, arranged over each needle-bed, and two connected slides which carry said cams, substantially as described.

3. The combination of two horizontal needle-beds separated by a longitudinal slot and each provided with double-end tumbler-needles, needle-drivers on each bed, needle-hooks engaged with and oscillatory upon the drivers and those of one bed serving to pull across said slot the needles of the other bed, advancing-cams over each bed for advancing the drivers thereof and thereby advancing the corresponding needle-hooks and needles, devices for lifting the needle-hooks from engagement with the needles when advanced, retracting-cams located at opposite sides of each advancing-cam and constructed to operate against a part of the needle-hooks to retract the same with the corresponding drivers and thus pull over corresponding needles, and means for simultaneously moving the advancing and retracting cams of the two needle-beds back and forth, substantially as described.

4. The combination of two horizontal needle-beds separated by a horizontal slot and each provided with double-end tumbler-needles, needle-drivers arranged on each bed and provided with heel-pieces, needle-hooks engaged with and oscillatory upon the upper sides of the drivers and provided with projections, cross-bars extending over the needle-hooks for lifting the latter from engagement with the needles when advanced, advancing-cams arranged over the two beds and acting on the heel-pieces of the drivers to advance the latter with corresponding needle-hooks and needle-retracting cams arranged over the two beds and acting on the projections of the needle-hooks to retract the same and their drivers and pull over corresponding needles, and slides for moving said cams back and forth, substantially as described.

5. The combination of two horizontal, separated needle-beds, each provided with double-end tumbler-needles, needle-drivers arranged on each bed, needle-hooks engaged with and oscillatory upon the drivers and provided with projections, advancing-cams arranged opposite each other and having central triangular points located one in advance of the other, cross-bars extending over the needle-hooks for raising them when advanced with the needle-drivers, retracting-cams arranged over each bed and acting against the projections of the needle-hooks to retract the same and thereby retract the drivers, and means for simultaneously moving the advancing and retracting cams of the two beds, substantially as described.

6. The combination of two horizontal needle-beds separated by a longitudinal slot and each provided with double-end tumbler-needles, needle-drivers on each bed, needle-hooks engaged with and oscillatory upon the needle-drivers of each bed and advanced thereby, the needle-hooks of one bed serving to pull over thereupon the needles of the other bed, devices for lifting the needle-hooks of each bed from engagement with the needles when the needle-hooks are advanced, devices for advancing the needle-drivers, and devices acting upon the needle-hooks to retract them with the drivers and thereby pull over corresponding needles from one bed to the other, substantially as described.

7. The combination of two separated needle-beds each having double-end tumbler-needles, needle-drivers on each bed, needle-hooks engaged with and oscillatory upon the drivers of each bed and advanced thereby, cross-bars extending over the needle-hooks to lift them when advanced, and the main advancing and retracting cams with jacquard mechanism for advancing certain drivers and thereby advancing corresponding needle-hooks and needles, and cams *f* having beveled edges f^3 for acting on said advanced drivers, substantially as and for the purpose described.

8 The combination of two needle-beds separated by a longitudinal slot and each having double-end tumbler-needles, needle-drivers on each bed, needle-hooks mounted on the drivers of each bed and advanced thereby, cross-bars for lifting the needle-hooks when advanced, and advancing and retracting cams over each bed, with a jacquard mechanism for advancing certain drivers and corresponding needle-hooks and needles, cams *f* having beveled edges f^3 and arranged under the said retracting-cams, and means for actuating said cams, substantially as and for the purposes described.

643,998. OVERSHOE. PRENTISS J. BATCHELOR, St. Louis, Mo. Filed Mar. 30, 1899. Serial No. 711,463. (No model.)



Claim.—The combination, with an overshoe, of the guide-loops secured at one side of the overshoe adjacent to the top edge thereof, the main strap secured at its inner end to the opposite side of the overshoe adjacent to the top edge thereof, extending around the rear part of the overshoe and through the guide-loops and provided with a buckle at its outer end, the hook secured to the toe part of the overshoe, and the attachment-strap having an eye at its inner end whereby it is removably connected with the hook, and adapted to engage the buckle at its outer end; substantially as described.

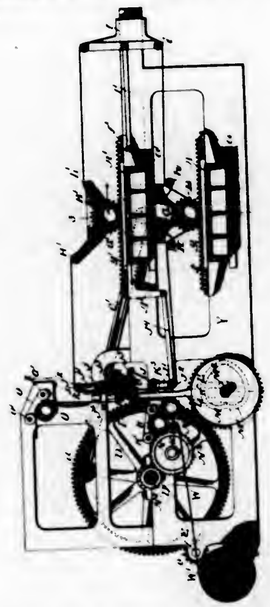
643,999. PRINTING-PRESS. HENRY F. BECHMAN, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed June 8, 1896. Serial No. 594,714. (No model.)

Claim.—1. In a printing-press, the combination of a traveling impression-cylinder, an oppositely-movable type-bed, a rack on the bed and a rack fixed on the frame; with a pair of gear-wheels of unequal diameter attached to the cylinder and respectively working in the rack fixed to the frame, and in the rack on the bed of the press whereby as the cylinder is traveling in one direction the bed is moved in the opposite direction, substantially as and for the purpose set forth.

2. In a printing-press, the combination of a traveling cylinder, and oppositely-moving bed, and a pair of gear-wheels of unequal diameter attached to the traveling impression-cylinder, and means for reciprocating said cylinder; with a stationary rack on the frame of the press; and a rack on the bed; the smaller of the two gear-wheels working in the rack fixed to the frame of the press, and the larger gear-wheel working in the rack fixed to the movable type-bed of the press, substantially as and for the purpose set forth.

3. In a printing-press, the combination of a pair of movable type-beds, a rack on each bed; and a fixed rack on the frame beside each bed; with a pair of locomotive impression-cylinders each having a pair of gear-wheels of unequal diameter fixed thereon, the members of each pair of gears respectively working in a rack on the frame and in a rack on the coöperating type-bed and means for simultaneously reciprocating said cylinders, substantially as and for the purpose set forth.

4. In a printing-press, the combination of a pair of locomotive impression-cylinders, a pair of movable type-beds, and web feeding and delivering mechanisms, with a pair of web-carrying rollers journaled in swinging arms or brackets provided with intermeshing segments, one of said arms being directly connected to and reciprocated by the beds, substantially as and for the purpose set forth.



5. In a printing-press the combination of a movable type-bed, an oppositely-movable cylinder, web feeding and delivery mechanism, a pair of equalizing looping-rollers adapted to assist in shifting the web intermittently over the bed, a pair of rollers journaled in oscillating arms and suitably connected so as to oscillate together, and operated directly from the beds substantially as described; with a web-carrying roller at the opposite end of the bed beyond the range of travel of the cylinder and movable by and with the bed, all substantially as described.

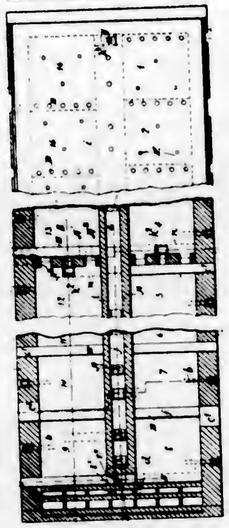
6. In a perfecting-press, the combination of the beds and cylinders, the web feeding and delivery mechanism, substantially as described; and movable guide-rollers between the beds; with a swinging guide-roller between the feed and first bed, a similar swinging guide-roller between the second bed and delivery said swinging rollers being mounted on rock-arms, intermeshing segments on said arms, and a pitman connection between one rock-arm and the beds, substantially as described.

7. In a printing-press, the combination of a pair of locomotive impression-cylinders, a pair of movable type-beds and web feeding and delivery mechanism, with a pair of web-carrying rollers attached to the beds and a pair of web-carrying rollers journaled in swinging arms or brackets, intermeshing segmental gears on said arms, and connections between said arms and the beds substantially as and for the purpose set forth.

8. The herein-described perfecting press, consisting of the upper and lower beds, and means for moving them simultaneously in the same direction; the upper and lower cylinders and means for moving them simultaneously in the same direction but opposite to the beds; the pair of guide-rollers intermediate the cylinders attached to and moving with the beds: a continuous web-feed mechanism, a continuous web-delivery mechanism, a pair of connected looping-rollers for converting the continuous feed and delivery of the web into an intermittent movement over the beds; and a pair of swinging looping-rollers connected to and moved by the beds, between the beds and looping mechanism, all substantially as and for the purpose described.

644,000. CONTINUOUS KILN FOR BURNING BRICKS OR THE LIKE. ARTHUR R. BROWN, London, England. Filed Nov. 15, 1898. Serial No. 696,575. (No model.)

Claim.—1. In a continuous kiln suitable for burning bricks and other articles, a fire-box arranged to extend transversely across and below the floor of each burning-chamber and comprising a solid hearth adapted to receive thereon a charge of fuel and an upwardly-extending grating of refractory material adapted to admit of the passage of air to the fuel on said hearth, substantially as described.



2. In a continuous kiln, a fuel-receptacle having a solid hearth arranged transversely across and below the floor of each burning-chamber and an upwardly-extending grating or perforated screen of refractory material arranged along one side of said hearth, means for supplying heated air through said grating or screen along the entire length thereof, substantially as described.

3. In a continuous kiln, a fire-box comprising a fuel-receptacle arranged transversely across and below the floor of said kiln and having a solid hearth and an upwardly-extending grating or perforated screen composed of refractory material, a transverse hot-air-supply chamber located at one side of said fuel-receptacle and in communication therewith through said grating or screen, means for supplying heated air to said chamber and fuel-charging apertures in the roof of said kiln above said fire-box, substantially as described for the purposes specified.

4. In a continuous kiln, a solid hearth arranged transversely across and below the floor of each burning-chamber, a transverse hot-air chamber located at one side of said hearth, an upwardly-extending grating or perforated screen of refractory material separating said hearth and hot-air chamber, and air-heating passages opening into the hot-air chamber and arranged so as to be heated to a high temperature from a previously-burned chamber of the kiln, substantially as described.

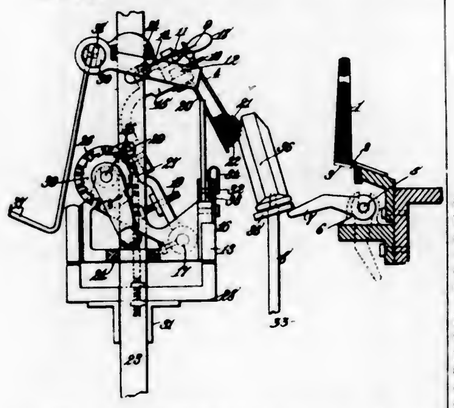
5. In a continuous kiln, a fire-box extending transversely across and below the floor of each burning-chamber, a transverse hot-air chamber in proximity thereto, air-heating passages opening into said hot-air chamber and arranged to be heated to a high temperature by heat from the next adjacent previously-burned burning-chamber of the kiln, air-inlet passages each adapted to admit cold air to the air-heating passages of the corresponding chamber and means for independently controlling each air-inlet, substantially as described.

6. In a continuous kiln suitable for burning bricks and other articles, a fire-box arranged to extend transversely across and below the floor of each burning-chamber and comprising a solid hearth adapted to receive thereon a charge of fuel and an upwardly-extending grating of refractory material adapted to admit of the passage of air to the fuel on said hearth, in combination with a transverse hot-air chamber arranged in proximity to said grating, air-heating passages opening into said hot-air chamber and arranged to be heated to a high temperature by heat from the next adjacent previously-burned burning-chamber of the kiln, air-inlet passages each adapted to admit cold air to the air-heating passages of the corresponding chamber and means for independently controlling each air-inlet substantially as described.

7. In a continuous kiln suitable for burning bricks and other articles, a fire-box arranged to extend transversely across and below the floor of each burning-chamber and comprising a solid hearth adapted to receive thereon a charge of fuel and an upwardly-extending grating of refractory material adapted to admit of the passage of air to the fuel on said hearth, in combination with a transverse hot-air chamber arranged in proximity to said grating, air-heating passages opening into said hot-air chamber and arranged to be heated to a high temperature by heat from the next adjacent previously-burned burning-chamber of the kiln, air-inlet passages each adapted to admit cold air to the air-heating passages of the corresponding chamber and means for controlling each air-inlet separately, a smoke-flue, passages leading from the said hot-air chamber to said smoke-flue, and means adapted to open and close communication between each fire-box and said smoke-flue, substantially as described.

8. A continuous kiln comprising burning-chambers arranged in two parallel rows a longitudinal division-wall located between said rows of kilns and formed at each end with a tall narrow opening adapted to connect the said rows of chambers the one with the other, two transverse partitions each arranged centrally across one row of said burning-chambers and also formed with tall narrow openings, dampers adapted to control the openings in said longitudinal wall and transverse partitions, a fire-box extending transversely across and below the floor of each burning-chamber, and means for supplying heated air to each of said fire-boxes, substantially as described.

644,001. DOFFING MECHANISM. PERCY CLOUGH and JOHN CLOUGH, Keighley, England. Filed June 15, 1899. Serial No. 720,729. (No model.)



Claim.—1. In a spinning-machine, the combination with a series of fliers and doffing mechanism for the bobbins, of a series of tufts, and means for causing the engagement of said tufts with the twizzles of said fliers, as and for the purpose set forth.

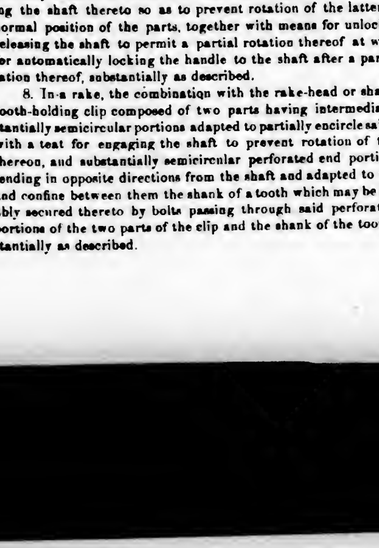
2. In a spinning-machine, the combination with a series of fliers, and doffing mechanism for the bobbins, of a series of tufts, means for causing the engagement of said tufts with the twizzles of said fliers, and means for maintaining said tufts in engagement with said flier-twizzles during the doffing operation, as and for the purpose set forth.

644,002. REVOLVING HAY-RAKE. HENRY B. CLUXTON, Ripley, Ohio. Filed Sept. 23, 1899. Serial No. 731,473. (No model.)

Claim.—1. In combination with the hollow toothed shaft, and its operating-handle, means for locking the latter to said shaft and releasing the same at will, the rod passing through said shaft having polygonal end portions, the sleeves fitting over the polygonal portions of said rod, and extending partly without and partly within the hollow shaft, a suitable draft-bar and means for securing the several parts together, substantially as described.

2. In combination with the hollow toothed shaft and its operating-handle, means for locking the latter to said shaft, and releasing the same at will, the rod passing through said shaft having polygonal end portions, the sleeves fitting over the polygonal portions of said rod, and extending partly without and partly within the hollow shaft, the disks journaled on the projecting portions of said sleeves, a suitable draft-bar, and means for securing the several parts together, substantially as described.

3. A rake of the character described, comprising a bifurcated draft bar or frame having its arms fixedly connected to the ends of a connecting-rod, a tubular shaft revolubly journaled on said rod and through which the latter extends; said shaft being provided with a series of teeth projecting from opposite sides thereof, a handle pivotally connected at one end to said shaft, a spring-actuated dog carried by said handle, adapted to automatically engage the shaft, and lock the handle thereto, and means for actuating said dog so as to release the shaft at will, substantially as described.



4. The combination, in a revolving rake, of a hollow shaft having a series of teeth projecting from opposite sides thereof, a rod or bar extending through said shaft, and provided at its ends with polygonal portions on which are fitted removable sleeves or plugs on which said shaft has its bearings, a suitable draft-bar having its rear ends secured to said rod, and means for confining the latter to the rod, and securing the several parts together, substantially as described.

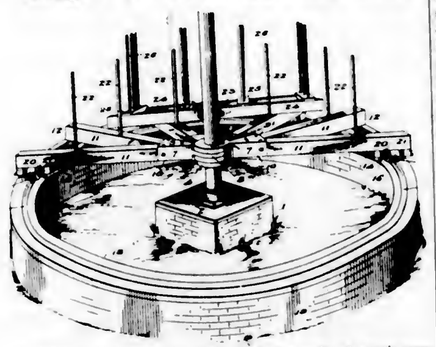
5. In combination with the revolving rake-head or shaft, a tooth-holding clip composed of two parts each having its intermediate portion arranged to partially embrace said shaft and each provided with projecting end portions extending in opposite directions from the shaft, between which projecting end portions the shanks of oppositely-extending teeth are clamped and removably secured, substantially as described.

6. In a revolving rake having teeth projecting in opposite directions from the rake-head, means for securing the teeth to said head, consisting of tooth-holding clips constructed in two parts, each part having its intermediate portion adapted to partially embrace the tooth-holding shaft or bar and having end portions which project in opposite directions therefrom; said end portions facing the correspondingly-projecting ends of the other part of the clip, and a tooth at each side of the bar having its shank fitted between opposed projecting end portions of said parts, together with bolts passing through the clip ends and tooth-shank for securing the bar, clip and teeth together.

7. A revolving rake comprising a bifurcated draft-bar having its branches secured to the ends of a rod forming the axis of the rake-head, a hollow shaft suitably journaled on said rod, a series of teeth projecting from opposite sides of said shaft, an operating-handle pivotally connected at one end with said shaft, and means for locking the shaft thereto so as to prevent rotation of the latter in the normal position of the parts, together with means for unlocking or releasing the shaft to permit a partial rotation thereof at will, and for automatically locking the handle to the shaft after a partial rotation thereof, substantially as described.

8. In a rake, the combination with the rake-head or shaft, of a tooth-holding clip composed of two parts having intermediate substantially semicircular portions adapted to partially encircle said shaft with a teat for engaging the shaft to prevent rotation of the clip thereon, and substantially semicircular perforated end portions extending in opposite directions from the shaft and adapted to receive and confine between them the shank of a tooth which may be removably secured thereto by bolts passing through said perforated end portions of the two parts of the clip and the shank of the tooth, substantially as described.

644,008. TRUCK. WILLIAM J. COOK and ALEXANDER HIRTH, Wheeling, W. Va. Filed Oct. 30, 1899. Serial No. 735,239. (No model.)



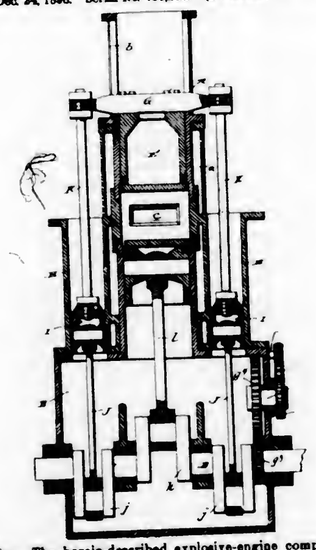
Claim.—1. In combination with a circular track, of a stationary vertical guide or standard mounted in the center of said track, and a series of independently-movable triangular trucks having their apices mounted upon said standard and revoluble therearound and having the bases slidable upon said track.

2. In combination with a circular track, of a base in the center thereof, a standard, guide or post mounted upon said base, and a series of independently-movable triangular trucks having their apices journaled upon said standard and having wheels connected to their bases and adapted to engage said track.

3. In combination with a circular track and a central post, guide or standard, of castings mounted upon said post, guide or standard, and revoluble therearound, a truck-section carried by each of said castings, and wheels carried by said sections to engage said track and allow the sections to revolve upon said track around the post, guide or standard.

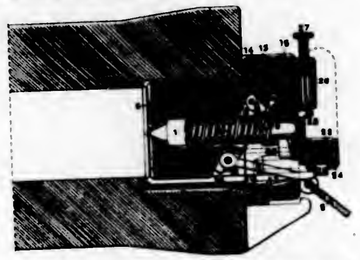
4. In combination with a circular track and a central post, guide or standard, of castings mounted upon said post, guide or standard, each of which is provided with the grooved rings, balls adapted to fit in said grooves and form bearings for the castings, a truck-section carried by each of said castings, and wheels carried by said sections to engage the track and allow the sections to revolve around the post, guide or standard.

644,004. EXPLOSIVE-ENGINE. JOHN F. CRAIG, Toledo, Ohio. Filed Dec. 24, 1898. Serial No. 700,238. (No model.)



Claim.—The herein-described explosive-engine comprising the housing, the upright cylinder, open at both ends, arranged upon, connected to and communicating directly with the housing having longitudinal slots at opposite points in its upper portion, the upright guide-tubes located at opposite sides of and fixed to the cylinder and communicating at their lower ends with the housing and having their upper ends open, the shaft journaled in suitable bearings in the housing and having cranks, lower and upper pistons arranged in the cylinder, a pitman connecting the lower piston and one crank, a cross-bar connected to the upper piston and extending through the slots of the cylinder, cross-heads arranged in the guide-tubes and rigidly connected with the extended portions of the cross-bar, and pitmen connecting the cross-heads and cranks of the shaft, substantially as specified.

644,005. BREECH-CLOSING MECHANISM FOR ORDNANCE. MICHEL DARMANCIER and AIMÉ DALSON, St. Chamond, France. Filed Feb. 5, 1898. Serial No. 669,262. (No model.)



Claim.—1. In breech-closing mechanism for ordnance of any caliber, a percussion firing mechanism consisting essentially of a spring firing-pin 1, the cocking and the releasing of which are effected at one and the same time by means of a lever 3 pivotally arranged within the interior of the breech-screw (or breech-block) and operated by means of a lanyard, the said lever actuating the firing-pin through the medium of a loosely-pivoted pawl or tappet and means for moving said lever into grooves in the swinging carrier and causing it to remain there engaged during the opening and closing movements of the breech.

2. In a breech-closing mechanism for ordnance, the combination with the reciprocating firing mechanism, of a screw split pin carried by a part of the breech mechanism that is stationary when the breech is closed and placed adjacent to the reciprocating firing mechanism and adjustable to enter a hole in a movable part of said mechanism to hold it from reciprocation, substantially as specified.

3. The combination in a breech-closing mechanism, of the reciprocating firing mechanism, a hand-lever mounted for angular movement about axes at substantially right angles to the axial line of the gun to open and close the breech, a sliding part on said lever having a movement transversely of the gun to unlock the lever, and a lug carried by said lever out of the path of the firing mechanism when the lever is locked and movable into the path of the firing mechanism by the unlocking movement of said sliding part, substantially as and for the purpose specified.

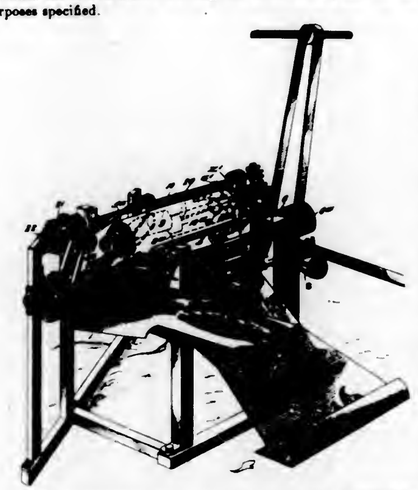
644,006. TOBACCO-LEAF-STEMMING MACHINE. FRED G. DIETERICH, Washington, D. C. Filed June 21, 1899. Serial No. 721,355. (No model.)

Claim.—1. In a machine of the class described; stemming-rolls operating with a wiping action; draw-rolls for pulling the stem through the stemming-rolls at one speed; a second set of draw-rolls for pulling the stem through the stemming-rolls at a different speed, and means for advancing the stem into engagement with the several sets of draw-rolls.

2. The combination with the stemming-rolls operating with a wiping action; of a plurality of sets of draw-rolls and means for imparting variable speeds to the different sets of draw-rolls, and means for advancing the leaf sidewise first into the stemming-rolls and then successively into the several sets of draw-rolls.

3. The combination with stemming means, comprising coacting opposing surfaces operating with a wiping action; of a pair of drawing-rolls having their entrant ends adjacent the entraut ends of the wiping-surfaces; a second set of draw-rolls having their entrant ends near the discharge end of the first set of draw-rolls, and means for advancing the leaves sidewise first into the entrant ends of the wiping-rolls and then into the entrant sod of the first set of draw-rolls, then into the entrant sod of the second set of drawing-rolls, said leaf-feeding means being arranged to release the stems after they are engaged by the second set of drawing-rolls, as specified

4. The combination with stemming means, comprising coacting opposing surfaces working with a wiping action; a pair of drawing-rolls, having their entrant ends adjacent the entrant ends of the wiping-surfaces; a second set of draw-rolls having their entrant ends near the discharge end of the first set of draw-rolls; means for advancing the leaf sidewise first into the entrant end of the wiping-rolls, then into the entrant ends of the first set of draw-rolls, then into the entrant ends of the second set of draw-rolls, said leaf-feeding means being arranged to release the stems after they are engaged by the second set of drawing-rolls, and driving mechanism constructed to rotate the several sets of drawing-rolls at variable speeds, for the purposes specified.



5. A leaf-stemming means, comprising coacting opposing surfaces operating with a wiping action; a plurality of sets of drawing-rolls; means for imparting variable speeds of rotation to the different sets of drawing-rolls, and means for advancing the stems laterally from one set of drawing-rolls to the other, as said rolls draw the stem through the wiping-surfaces.

6. In a machine of the class described, the combination with means for removing the leaf from the stem by a wiping action; of a mechanism for drawing the stem through the wiping means, comprising a plurality of sets of rolls having their gripping-surfaces in the plane of the wiping-line of the coacting leaf-removing surfaces, both sets of draw-rolls being disposed parallel with the wiping-line of the aforesaid coacting surfaces; means for advancing the leaf sidewise to the coacting wiping-surfaces and into the end of the first set of draw-rolls; speed-gearing for imparting a synchronous movement to the leaf-advancing means, and the first set of draw-rolls and for rotating the second set of rolls at an increased speed over the first set of draw-rolls, for the purposes specified.

7. In a tobacco-leaf-stemming machine of the character described; the combination with the wiping-rolls 5 5ª; the first set of draw-rolls 9 9ª, and the second set of draw-rolls 10 10ª, said wiping-rolls and drawing-rolls having their outer ends open to form entrant portions, the entrant portions of the several rolls being in the same horizontal plane; of means for advancing the leaf sidewise, first into the entrant end of the wiping-rolls in a line parallel with the longitudinal axis of the said rolls, and then divergingly rearward into the entrant end of the first set of draw-rolls and at the same time laterally in the direction of the length of said rolls, and then into the entrant end of the second set of drawing-rolls.

8. In a tobacco-leaf-stemming machine of the character described; a leaf-stemming means consisting of a pair of rolls having coacting opposing surfaces in the nature of card-teeth, said rolls having a stock portion and an inflatable rim to which the card-clothing is secured, substantially as shown and for the purposes described.

9. A stemming-roll, having tobacco-leaf-stemming means, comprising a stock portion; an inflatable rim mounted on said stock portion having a valved inlet, and wiping-surfaces mounted externally upon the tire, substantially as shown and for the purposes described.

10. A wiping-roll having tobacco-leaf-stemming means of the character described; consisting of a shaft having two threaded portions; a stock fixedly mounted upon the shaft between the said portions, said stock having end grooves; an inflatable rim mounted upon the stock having its ends engaging the seats or grooves on the ends of the stock; clamping-disks for holding the rim ends into their seats; clamping-nuts engaging said disks, mounted on the threaded portions of the shaft and card-clothing mounted upon the inflatable rim, all being arranged substantially as shown and for the purposes described.

644,007. PLANT-PROTECTOR. ALONZO G. FAYE, Medfield, Mass. Filed May 5, 1899. Serial No. 715,650. (No model.)



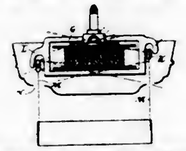
Claim.—1. A protector for plants, the same being composed of a blank or single piece of material having reverse inclines on its upper edge a projecting portion between them and a cover for said protector combined with a securing device to unite the ends of the blank, substantially as described.

2. A protector for plants, composed of a blank of flexible material having reverse inclines on its upper edge, a cover adapted to rest upon the inclines, and a securing device for the ends of the blank, provided with a projecting portion to engage the cover and prevent slipping thereof upon the inclines.

3. A protector for plants composed of thin flexible material adapted to have its lower edge driven in the ground and provided with a sloping upper edge, a cover to rest loosely upon and be supported by said sloping upper edge, and means projecting upward from the protector to prevent slipping of the loosely-supported cover upon the said sloping edge, substantially as described.

4. A protector for plants, the same being composed of a blank having reverse inclines on its upper edge and a projecting portion between them and being provided with eyelet-holes at its ends, combined with a fastening for the ends of the blank having a projecting portion to receive one edge of a glass to constitute a cover for the said protector.

644,008. SUSPENSION DEVICE FOR LAMPS, &c. EMIL FISHER, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed June 12, 1899. Serial No. 720,136. (No model.)



Claim.—1. In a suspension device, the combination with the canopy, of a yoke rigidly secured therein, a frame pivotally mounted in said yoke and carrying a spring-drum and chains secured to said drum and depending therefrom, substantially as described.

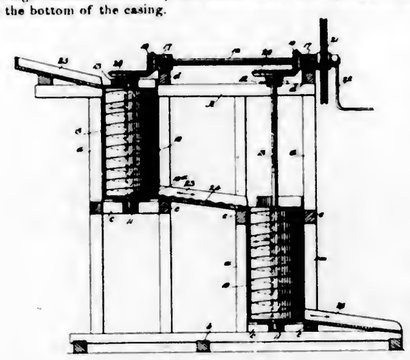
2. In a suspension device, the combination with a canopy, of a yoke rigidly secured thereto and formed with inwardly-projecting trunnions, a frame comprising a head formed with bearings to receive said trunnions, said frame arranged within said yoke and at right angles thereto, and a spring-drum arranged within the frame, substantially as and for the purpose described.

644,009. AMALGAMATOR. CHARLES G. GARRISON and JAMES A. FITZEMMONS, Vancouver, Canada, assignors of one-third to William Shrubsole Copland, same place. Filed Feb. 7, 1899. Serial No. 704,825. (No model.)

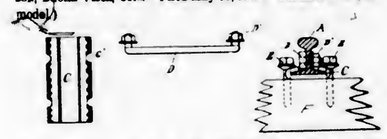
Claim.—1. The combination with a chamber; of a shaft rotatable therein, and a series of superimposed spiral segments mounted upon the shaft, said segments having amalgamating-surfaces and being each of a diameter to snugly turn within the casing, the several sections being adapted to rotate with the shaft, the outer edges of each segment being turned up vertically the depth of the pitch of the spiral formed thereby, whereby a spiral chute for the passage of the water and auriferous material without allowing the same to come into contact with the inner walls of the chamber, is provided for the purposes specified.

2. The combination with the cylindrical casing 10, opening at the top and having an outlet at the bottom, of a shaft projected vertically through the casing; means for rotating the said shaft; a series of spiral segments having amalgamating-surfaces, said surfaces being detachably connected to the shaft and rotative therewith, said segments being adapted to be independently removed from the shaft, each section having an upturned outer edge of the depth of the pitch of the spiral formed thereby, whereby said segments are disposed in

successive engagement to constitute a continuous spiral chute or runway, the outer edges of the sections traveling contiguous to the inner surface of the casing, whereby the water and auriferous material is held from contact with such casing and caused to continuously flow through the chute or runway and finally escape through the outlet at the bottom of the casing.

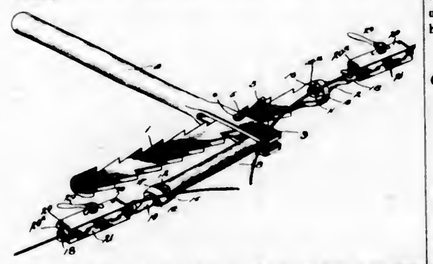


644,010. RAIL-JOINT. JOHN F. GOODING and ARCHIE E. ACKERSON, Buena Vista, Colo. Filed May 11, 1899. Serial No. 716,415. (No model.)



Claim.—In a rail-joint, of the class described, the combination, comprising the joint, the joint-plate having upturned flanges, the double bolt to be used instead of fish-plates and the screw E, having a circular flange E', substantially as specified.

644,011. WIRE-FENCE MACHINE. HENRY S. HEATWOLE, Mount Clinton, Va. Filed Apr. 17, 1899. Serial No. 713,392. (No model.)

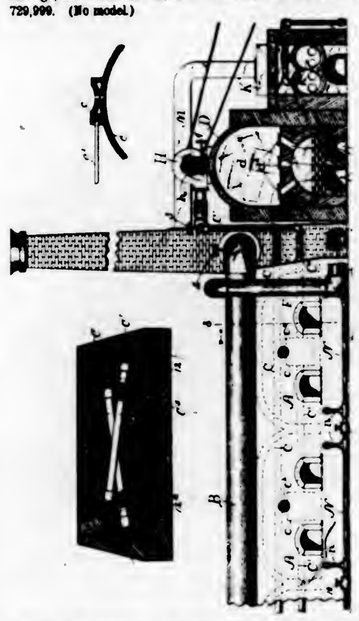


Claim.—1. A device of the class described comprising a ratchet-bar provided at its upper and lower edges with teeth, an operating-lever mounted on the ratchet-bar and provided with means for engaging the teeth at the upper edge thereof, the longitudinally-disposed bar 8 pivoted at one end to the lever and provided thereat with a tooth engaging the teeth at the lower edge of the ratchet-bar and retained in such engagement by gravity, and wire-engaging devices located at the opposite ends of the said bars, substantially as and for the purpose described.

2. In a device of the class described, a wire-engaging clamp composed of two jaws or sections having inner engaging faces, a screw or bolt mounted on one section and passing through the other, a nut engaging the screw or bolt and having an annular groove, and a pair of hook-shaped lugs engaging said groove and mounted on the adjacent section or jaw, substantially as described.

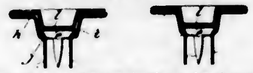
3. In a device of the class described, a wire-engaging clamp composed of the section 21 provided near its center with a screw or bolt and having a guide-pin, the section 20 provided with perforations receiving the guide-pin and the screw or bolt, and a nut engaging the screw or bolt and detachably connected with and rotatively mounted on the section 20, whereby the said sections will be held separated, substantially as and for the purpose described.

644,012. PROCESS OF DISTILLING COAL. JOSEPH HENIFEWAY, Sundance, Wyo., assignor, by direct and mesne assignments, of two-thirds to John W. Rogers, same place, and William E. Rothermel, Chicago, Ill. Filed Dec. 15, 1897. Renewed Sept. 9, 1899. Serial No. 729,999. (No model.)



Claim.—The method of heating a part of a battery of coke-ovens, which consists in utilizing the waste heat of one-half of said ovens, and also the heat obtained from the combustion of the volatile products of said half of said ovens, to heat and force air into the other half of said ovens, substantially as described.

644,013. PRONG-BUTTON. THEOPHILUS B. HYDE, Jr., Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Apr. 29, 1899. Serial No. 715,083. (No model.)

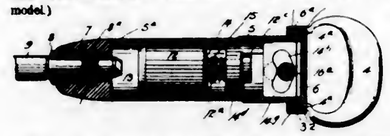


Claim.—1. A prong-button, having a head provided with a depressed center which forms the shank or hub and is constructed with a marginal ledge at its bottom, and a headed, pronged fastening inserted in said depressed center, with its prongs projecting through the said opening and its head resting upon and supported by said marginal ledge, and means for permanently securing the headed, pronged fastening in said depressed center against accidental displacement and before the setting of the button on a garment, substantially as described.

2. A prong-button, having a head provided with a depressed center which forms the shank or hub and is constructed with a marginal ledge at its bottom, the said marginal ledge being curled upinwardly to reinforce it and to present a smooth exterior surface, and a headed, pronged fastening inserted in said depressed center, with its prongs projecting through the said opening and its head resting upon and supported by said marginal ledge, and means for permanently securing the headed, pronged fastening in said depressed center against accidental displacement and before the setting of the button on a garment, substantially as described.

3. A prong-button, comprising a head having a depressed center which forms the shank or hub and is constructed with an open bottom having a marginal ledge, a headed, pronged fastening, the prongs of which protrude through such opening and the head of which is seated upon said ledge, the button-head and its fastening being permanently united by lateral displacements of the depressed center above such head before the button is set upon a garment, substantially as described.

644,014. POWER-HAMMER. MANETHO C. JACKSON, Denver, Colo. Filed Jan. 24, 1899. Renewed Jan. 8, 1900. Serial No. 778. (No model.)



Claim.—1. The combination with a casing, of a yoke located therein and provided with a slot 14^a in its forward portion, a cam-slot 14^b in its rear portion and a recess 14^c intermediate said portions, a crank-shaft engaging the slot 14^b, a reciprocating part having a stem engaging the slot 14^a of the yoke and provided with a head located in the recess 14^c, which is of sufficient width to allow the head longitudinal movement therein, and a spring surrounding the said stem and located between the yoke and the reciprocating part, the said spring moving bodily with the yoke and reciprocating part.

2. In combination, a casing, a tool, a sliding hammer, a crank with means for rotating the same, a yoke engaged by said crank and reciprocated by the rotation thereof, a connection between the yoke and the hammer adapted to yield longitudinally of said parts and a spring interposed between the hammer and said yoke.

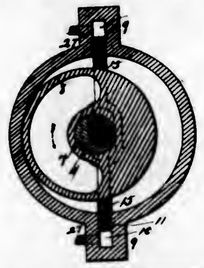
644,015. ILLUMINATED SIGN. PAUL JEAN and ALBERT BOUCHON, Paris, France. Filed Jan. 19, 1899. Serial No. 702,647. (No model.)



Claim.—1. In an illuminated sign, the combination of a casing provided with apertures along one or both longitudinal faces, lamps arranged opposite the solid portions of said faces, reflecting-surfaces upon said solid portions, said apertures being provided with continuous internal flanges or shields so arranged as to prevent any ray of light from said lamps from striking directly through said apertures, and one or more reflecting-surfaces arranged within said casing and opposite said apertures, substantially as set forth.

2. An apparatus for producing luminous letters, designs, pictures, &c., consisting of a casing having internally-reflecting front and rear walls provided with suitable apertures, a double-faced reflector located between said walls, and a series of lamps or other lighting devices situated in the same plane as the said reflector, substantially as set forth.

644,016. ROTARY ENGINE. HENRY R. JUNE and WILLIAM L. PERRY, Elmira, N. Y. Filed May 24, 1899. Serial No. 718,030. (No model.)



Claim.—1. In a rotary engine the combination with a casing, a driven shaft concentric therewith, and exhaust-ports on opposite sides of said casing, of an eccentric upon said shaft, a piston upon said eccentric and eccentric to it and said shaft, of a gate upon and projecting beyond the opposite sides of said eccentric and diametrical to the casing and reciprocated by the rotation of said piston to open and close said exhaust-ports alternately.

2. In a rotary engine the combination with a driven shaft, a casing provided with ways on opposite sides extending beyond its outer periphery and exhaust-ports opening outwardly from said ways, of a gate in said ways and diametrical to said casing, an eccentric upon said shaft, and a piston upon said eccentric and eccentric to it and said shaft and rotating through an opening in said gate whereby said gate is reciprocated in said ways to open and close said exhaust-ports alternately.

644,017. CORNER IRON OR STRAP FOR CARS. ISAAC L. KISER, Little Rock, Ark. Filed Oct. 6, 1899. Serial No. 732,806. (No model.)



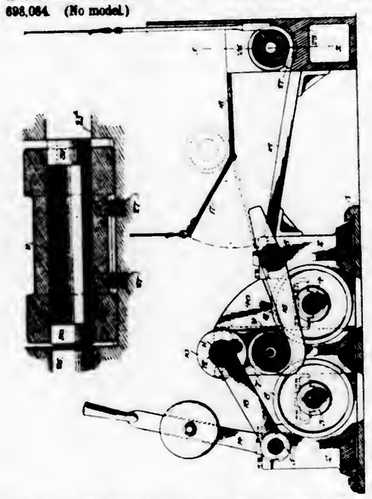
Claim.—1. A corner iron, or strap, for cars, consisting of an angle-plate having openings in its end portions, in combination with a clamping-rod having parallel screw-threaded ends and provided with the described bends, whereby the said rod is adapted to be applied along the outside of said corner-iron and with the parallel ends of the rod extended through the openings in the corner-iron, and nuts on the screw-threaded ends of said rod, substantially as described.

2. A corner iron, or strap, for cars, consisting of an angle-plate having oblong openings near its ends, in combination with a clamping-rod applied to the outside of said corner-iron and provided with parallel screw-threaded ends projecting through said openings at an angle of about forty-five degrees, and nuts on the screw-threaded portions of the rod ends, substantially as described.

3. The combination with a corner iron, or strap, for cars, of a clamping-rod having bends, as described, and provided with parallel threaded ends to project through openings in said corner-iron, and nuts on the threaded ends of said clamping-rod, substantially as described.

4. The combination with a car, of a corner-iron consisting of an angle-plate having openings near its ends, a clamping-rod provided with bends and having parallel screw-threaded ends to project through the openings of said corner-iron and through openings in the sills or belt-rails of the cars, and nuts turned onto the screw-threaded ends of said rod and adapted to rest in recesses in the inner faces of the belt-rails and sills of the car, substantially as described.

644,018. APPARATUS FOR CASTING HOLLOW INGOTS. NILS H. O. LILIENBERG, New York, N. Y. Filed Dec. 2, 1898. Serial No. 698,064. (No model.)



Claim.—1. The combination in an ingot-casting machine, of an ingot-mold, drums upon which the same is supported and by which it is rotated, means for pressing the mold into contact with said

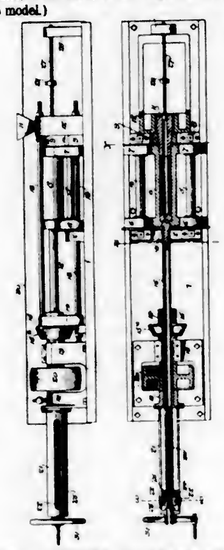
drums, said means being movable a sufficient extent to permit the mold to be moved laterally onto and from said drums, and provision for supplying molten metal to the mold, substantially as specified.

2. An ingot-casting machine, in which are combined an ingot-mold, drums for supporting and rotating the same, means for moving the mold laterally onto and from said drums, cheek-pieces between which the mold is longitudinally retained, and provision for introducing metal into the mold, substantially as specified.

3. An ingot-casting machine in which are combined drums for supporting and rotating the mold, a tilting mold-carrier for directing the mold to or from said rotating devices, a receiver for the filled mold, and an ingot-ejector working in conjunction with said receiver, substantially as specified.

4. An ingot-casting machine in which are combined drums for supporting and rotating the mold, means for supplying molten metal to said mold, a tilting mold-carrier for directing the mold to or from said rotating devices, a receiver for the filled mold, an elevated feed-platform, a mold-elevator for conveying the mold from the receiver to said platform, and means for governing the passage of the molds from said platform to the tilting mold-carrier, substantially as specified.

644,019. APPARATUS FOR CASTING HOLLOW INGOTS. NILS H. O. LILIENBERG, New York, N. Y. Filed Dec. 2, 1898. Serial No. 698,065. (No model.)



Claim.—1. The combination of an ingot-mold, a support upon which the same can be rotated, means for feeding molten metal into the mold, and a shaft engaging with the mold to rotate the same and movable longitudinally with reference to the mold so as to serve as an ingot-ejector, substantially as specified.

2. The combination of an ingot-mold, a support upon which said mold can be rotated, means for feeding molten metal into the mold, a shaft having a portion engaging with the mold so as to rotate the same and a head serving as an ingot-ejector and means for rotating said shaft and for causing longitudinal movement of the same with reference to the mold, substantially as specified.

3. The combination of an ingot-mold, means for rotating the same, a feed-hopper having a hollow spout adapted to one end of the mold, an ejector adapted to the opposite end of the mold, means for causing simultaneous longitudinal movement of said feed-hopper and ejector, substantially as specified.

4. The combination of an ingot-mold, a support upon which the same can be rotated, a driving-shaft capable of longitudinal motion with refereuce to the mold and having means for rotating the mold, and a friction-clutch for rotating said shaft, one portion of said clutch being longitudinally fixed and the other longitudinally movable with the shaft, substantially as specified.

5. The combination of a rotatable ingot-mold, a feed-hopper movable longitudinally from and toward the mold and having a hollow spout communicating with said mold, and an ejector for discharging the metal from said spout when the hopper is moved away from the mold, substantially as specified.

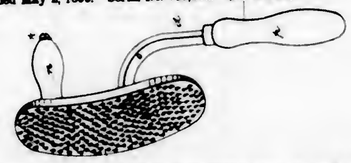
6. The combination of the rotatable ingot-mold, a feed-hopper having a spout communicating with the mold, means for mounting said hopper so that it can slide longitudinally, and an ejector for forcing the metal from said spout as the feed-hopper is moved, substantially as specified.

7. The combination of a rotatable mold, a feed-hopper having a hollow spout communicating with said mold, means for mounting said hopper so that it can slide longitudinally, an ejector-rod also mounted so as to slide, and a collar for limiting the sliding movement of said ejector-rod, substantially as specified.

8. The combination of the revoluble ingot-mold, means for supporting the same, a longitudinally-movable shaft having means for rotating said mold, a non-revoluble nut longitudinally confined to said shaft, and a screw-stem for operating said nut, substantially as specified.

9. The combination of the revoluble ingot-mold, a support therefor, a longitudinally-movable shaft having means for rotating said mold, a nut longitudinally confined to said shaft, a screw-stem for operating said nut and a retainer for preventing the turning of the nut with the shaft, substantially as specified.

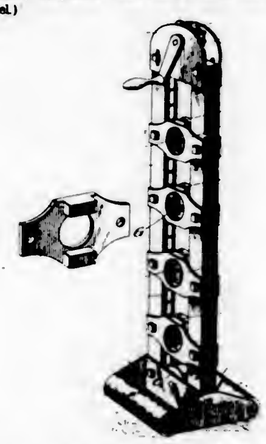
644,020. HORSESHOEING-RASP. DANIEL LUDWIG, Newark, N. J. Filed May 2, 1899. Serial No. 715,271. (No model.)



Claim.—1. The horseshoer's rasp comprising an oval concavo-convex plate with rasping-teeth on the convex side and handles including the curved bar or plate *d'*, separably attached to the concave side, a front handle *k*, and a rearwardly-extending handle *o*, *p*, substantially as set forth.

2. The combination with the toothed rasping-plate having a stud and hook at the back, of a separable handle-plate *d'*, perforated to receive the stud and slotted to receive the hook and having a handle-shank extending forward and curving backward therefrom and provided with a handpiece *p*, and a locking-handle *n*, holding the said plate *d'*, on said stud, substantially as set forth.

644,021. SLAT-AND-WIRE-FENCE MACHINE. JOSEPH MIELBACHLER, Meoga, Ill. Filed Dec. 8, 1899. Serial No. 739,655. (No model.)

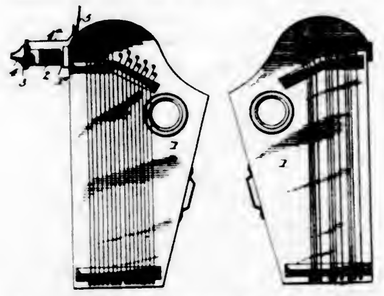


Claim.—1. In a wire-fence machine, the combination with a frame, guide and sprocket wheels journaled thereto, an endless chain which is passed over the guide and sprocket wheels, of twisting-heads which are positioned between the guide and sprocket wheels and are maintained in place and turned solely by engagement with the chain.

2. In combination with the supporting-frame and its endless chain, of a series of twister-heads each twister-head having teeth of sufficient length to extend through the links of the chain, the twister-heads being maintained in place and rotated by frictional contact of the teeth with the chain, cross-bars carried by the supporting-frame opposite the twister-heads, said cross-bars having inwardly-projecting portions which extend toward the twister heads and chain, substantially as shown.

3. In a wire-fence machine, the combination with the parallel bars and end cross-pieces which carry guide and drive wheels, of an endless chain, a series of twister-heads having plain surfaces on opposite sides and peripheral teeth for engagement with the endless chain, said heads having on opposite sides of their center slits for the passage therethrough of the fence-wires, plates or cross-pieces carried by the side bars, said plates having inwardly-projecting portions which extend toward the twister-heads, substantially as shown.

644,022. MUSICAL INSTRUMENT. WILLIAM W. MCCALLIP, Columbus, Ohio. Filed Aug. 28, 1899. Serial No. 728,706. (No model.)



Claim.—1. A stringed instrument of the cithern kind, combined with a holder having a seat for a harmonica or mouth-harp, with means for rotatably attaching the said holder to the stringed instrument, substantially as described.

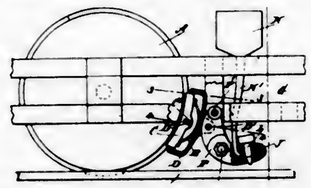
2. A stringed instrument of the cithern kind having strings on one side adapted to be tuned in a diatonic scale and strings for fundamentals and their chords on the reverse side, combined with a holder having a seat for a harmonica or mouth-harp, with means for rotatably attaching the same to the stringed instrument, substantially as described.

3. A stringed instrument of the cithern kind having strings adapted to be tuned in a diatonic scale on one side and strings for fundamentals and their chords on the reverse side, combined with a sound-chamber having a seat for a harmonica or mouth-harp and an opening with a movable cover, and means for attaching said sound-chamber to the stringed instrument, substantially as described.

4. A stringed instrument of the cithern kind, combined with an independent sound-chamber, a seat in said chamber for the mouth-harp, and means attaching the sound-chamber to the stringed instrument, substantially as described.

5. In combination, a stringed instrument of the cithern kind, a chart-holder thereon, a mouth-harp stationarily attached to the cithern, a mouthpiece movable on the mouth-harp, and a pointer attached to the mouthpiece, substantially as described.

644,023. CAR-BRAKE. FRANK S. SNYDER, Newburg, N. Y. Filed Mar. 17, 1899. Renewed Feb. 1, 1900. Serial No. 3,557. (No model.)

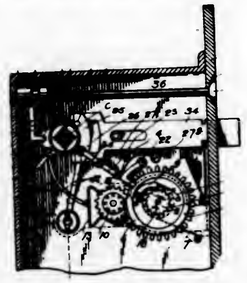


Claim.—1. A car-brake provided with a wheel-shoe, a casing in which the wheel-shoe is mounted, a spring interposed between the wheel-shoe and the casing, and a rail-shoe mounted to swing and connected with the casing to move the latter rearwardly and compress the spring to apply the wheel-shoe, the said casing being free to move rearwardly after the application of the wheel-shoe to allow free rearward swinging of the rail-shoe, whereby the latter is brought into frictional engagement with the rail after the wheel-shoe is applied, substantially as described.

2. A car-brake provided with a wheel-shoe, a casing in which said wheel-shoe is mounted to move, means for limiting the movement of the shoe in the casing, a rail-shoe connected with the wheel-shoe to move the latter in frictional contact with the car-wheel, means for actuating said rail-shoe to apply the wheel-shoe and to subsequently apply the rail-shoe on the rail and a valved sanding device carried by the rail-shoe and adapted to open when the rail-shoe moves toward the rail, substantially as shown and described.

3. A car-brake provided with a wheel-shoe, a curved rail-shoe having an approximately vertical member and an approximately horizontal member, the vertical member being pivoted at its upper end, the said rail-shoe being connected with the wheel-shoe to move the latter in frictional contact with the car-wheel, and means connected with the said rail-shoe at the angle or junction of the members, to actuate the rail-shoe to apply the wheel-shoe and to subsequently apply the rail-shoe on the rail, substantially as described.

644,024. ALARM-LOCK. EDWARD M. WAGNER, Denver, Colo. Filed Oct. 2, 1899. Serial No. 732,418. (No model.)



Claim.—1. In a burglar-alarm lock, the combination of a latch-bolt, its operating-spindle composed of male and female members, one member passing entirely through the other and the two members being connected to rotate independently of each other, means applied to the extremity of one member and engaging the extremity of the other member for locking the two members in operative relation, alarm mechanism arranged to be set off by a movement of one spindle member and suitable means for locking the said member against movement.

2. The combination of the latch-bolt, the operating cam members, a spindle composed of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, and a suitable connection between the said shaft and one of the cam members whereby the latter may be locked against movement at will.

3. The combination of the latch-bolt, the operating cam members, a spindle composed of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, said shaft being provided with a cam-groove, and a dog fulcrumed on the casing, one extremity of the dog projecting into said groove while the other extremity is adapted to engage one of the cam members whereby the said cam member and its corresponding spindle part are locked against movement.

4. The combination of the latch-bolt, the operating cam members, a spindle composed of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, a suitable connection between the said shaft and one of the cam members whereby the latter may be locked against movement at will, and a spring interposed between the lock-casing and a shoulder on the shaft whereby an end thrust is given the shaft to lock it temporarily in the desired position of adjustment.

5. The combination with the latch-bolt and its operating cam members, of a spindle composed of two parts to which the knobs are respectively attached, one spindle part being hollow and the other part passing entirely therethrough, a stop-nut applied to the extremity of one part and engaging the adjacent extremity of the other part for connecting the two parts in operative relation, the two parts operating independently of each other.

6. In a burglar-alarm lock the combination of the knob-spindle, the alarm-bell through which the spindle passes, and the bell-hammer, the bell being adjustably mounted on the lock-casing.

7. In a burglar-alarm lock the combination of the knob-spindle, the alarm-bell, a sleeve mounted in an opening in the bell, and through which the spindle passes, the sleeve being larger than the

spindle part to permit adjustment, the sleeve being provided with a bracket adjustably mounted on the lock-casing.

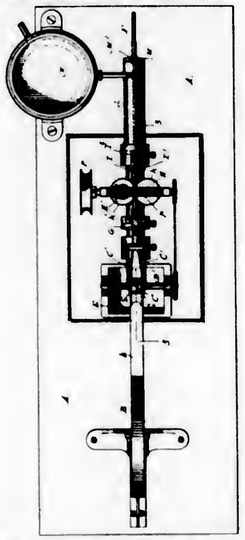
8. In a burglar-alarm lock the combination of the latch-bolt-retracting cam, alarm mechanism arranged to be set off by the movement of the cam, and means operated by the key for retracting the bolt without moving the cam.

9. In a burglar-alarm lock the combination of the latch-bolt-retracting cam, alarm mechanism arranged to be set off by the movement of the cam, and means operated by the key for retracting the bolt without moving the cam, and comprising a key-actuated arbor inserted in the lock-casing and an arm fast on said arbor and engaging the bolt.

10. In a burglar-alarm lock the combination of the spindle, the bolt-retracting cam operated by the spindle, alarm mechanism provided with a spur-wheel, two toggle members movably connected together, one member being pivotally connected with the said cam, and a spring-held dog fulcrumed on the casing and engaging the spur-wheel to lock the alarm mechanism in the set position, and a connection between the other toggle member and the dog whereby the movement of the cam actuates the dog and releases the alarm mechanism.

11. In a burglar-alarm lock the combination with the lock-casing inclosing the alarm mechanism, and an auxiliary plate for retaining the alarm mechanism in place when one side of the lock-casing is removed.

644,025. APPARATUS FOR MAKING PAPER TUBES. JOHN H. WHITE and EDWARD L. WHITE, Washington, D. C. Filed May 5, 1899. Renewed Jan. 15, 1900. Serial No. 1,542. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of a gumming-wheel, an annularly-grooved gumming-roll in contact with one edge of the rim of which the gumming-wheel rotates, and a flanged pressure-roller, between which and the gumming-roll the paper strip passes, so that one of its edges may be gummed.

2. The combination, substantially as hereinbefore described, of gumming mechanism, a mandrel, and annularly-grooved folding guide or feed wheels on opposite sides thereof, one of said guide-wheels having one of its edges cut away so as to keep the gummed edge of the paper strip clear of the guide or feed wheel.

3. The combination, substantially as hereinbefore described, of gumming mechanism, a mandrel, a forming-wheel, annularly-grooved folding guide or feed wheels, and a wrapping-guide which closes and seals the gummed paper strip into a tube.

4. The combination, substantially as hereinbefore described, of gumming mechanism, a forming-wheel, annularly-grooved folding guide or feed wheels, a wrapping-guide, a heater, and a mandrel between which and the above-mentioned tube-forming devices, the paper strip passes to form and seal the gummed tube.

5. The combination, substantially as hereinbefore described, of gumming mechanism, annularly-grooved folding guide or feed wheels, a wrapping-guide, a heater, a coating-chamber, and a mandrel between which and all the above-mentioned devices, except the gumming mechanism, the paper strip passes, to form, seal, and coat the gummed tube.

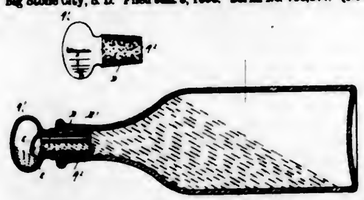
6. The combination, substantially as hereinbefore set forth, of gumming mechanism, tube-forming mechanism, a heater, and a mandrel passing through all except the gumming mechanism to form, seal and dry the tube.

7. The combination, substantially as hereinbefore set forth, of gumming mechanism, tube-forming mechanism, a heater and a coating device to gum, form, seal, dry and coat the tube.

8. The combination, substantially as hereinbefore set forth, of gumming mechanism, tube-forming mechanism, and an ironer or mold comprising a heated chamber and a mandrel within the chamber over which the tube passes after it is gummed.

9. The combination, substantially as hereinbefore set forth, of gumming mechanism, tube-forming mechanism, a heated chamber through which the gummed tube passes, and a mandrel within the heated chamber which the tube traverses.

644,026. MEASURING BOTTLE-STOPPER. WM. D. WOOTHEN, Big Stone City, S. D. Filed Jan. 3, 1899. Serial No. 700,877. (No model.)

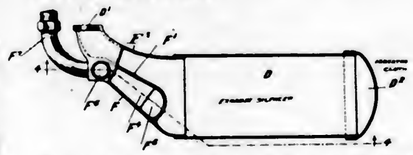


Claim.—1. As a new article of manufacture a bottle-stopper consisting of a closed chamber having a shank adapted to fit into and form the closure to the neck of the bottle and with two or more conduits through said shank and leading into said closed chamber and with a "dam" covering the open ends of said conduits within said closed chamber, substantially as and for the purpose set forth.

2. As a new article of manufacture a bottle-stopper consisting of a closed chamber having a shank adapted to fit into and form the closure to the neck of the bottle and with two or more conduits through said shank and of unequal diameters and leading into said closed chamber, and a "dam" covering the open ends of said conduits within said closed chamber and open on the side next the larger of said conduits, substantially as set forth.

3. As a new article of manufacture, a bottle-stopper consisting of a closed chamber having a shank projecting therefrom and adapted to fit into and form the closure to the bottle and with a conduit through said shank and leading into said closed chamber and with a "dam" covering the open end of said conduit within said chamber, substantially as and for the purpose set forth.

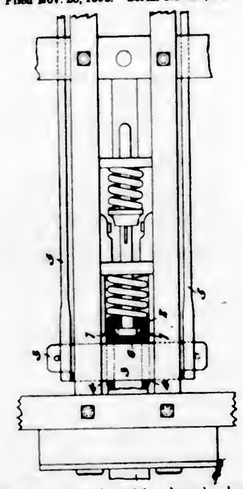
644,027. HYDROCARBON-VAPORIZER FOR EXPLOSIVE-ENGINES. WILLIAM RAIMES, London, England. Filed Sept. 18, 1899. Serial No. 730,890. (No model.)



Claim.—1. In a device of the character described, the combination with the casing of an exhaust-silencer, having an inlet at one end for admission of exhaust-gases and an outlet at the opposite end for the said gases, of a partition F' within the casing, a second partition F^4 forming the chambers F^3 F^5 communicating with each other at one end, the chamber F^3 communicating with an inlet for the explosive charge, and the chamber F^5 communicating with an outlet for the said charge.

2. In a device of the character described, the combination with the casing of an exhaust-silencer comprising the casing D having an outlet at one end for exhaust-gases, and a casing F^6 secured to the casing D at one end and provided at the opposite end with an inlet for admission of the exhaust-gases, of a partition F' within the casing F^6 and a partition F^4 forming two chambers F^3 F^5 communicating at one end with each other through opening F^5 said chamber F^3 communicating at the opposite end with the inlet for the oil and air and the corresponding end of chamber F^5 communicating with the outlet for the vaporized oil and air.

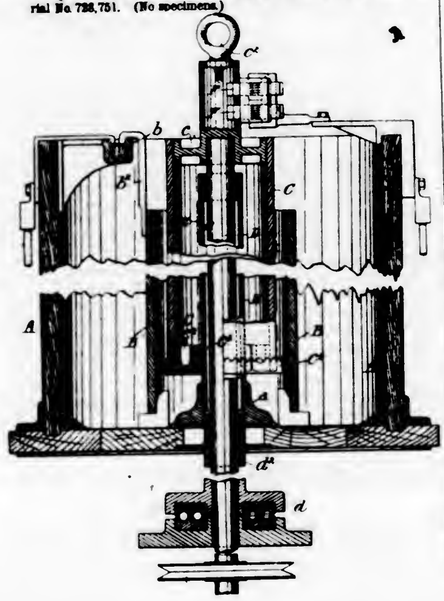
644,028. DRAW-BAR ATTACHMENT. WALTER R. COFFIN, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Nov. 23, 1899. Serial No. 737,986. (No model.)



Claim.—1. The combination with a draw-bar having in its shank a slot for the reception of a transverse key, of a block adapted to fit at the end of such slot and having lugs to prevent its displacement; substantially as described.

2. A device for preventing wear of the rear end of the key-slot of a hollow-shank draw-bar, consisting of a block adapted to fit in such key-slot and to extend across the same, and having lugs adapted to fit the inner walls of the bar and to prevent displacement of the block; substantially as described.

644,029. PROCESS OF ELECTRODEPOSITION OF METALS. SHERARD O. COWPER-COLES, London, England. Filed Aug. 28, 1899. Serial No. 728,751. (No specimens.)



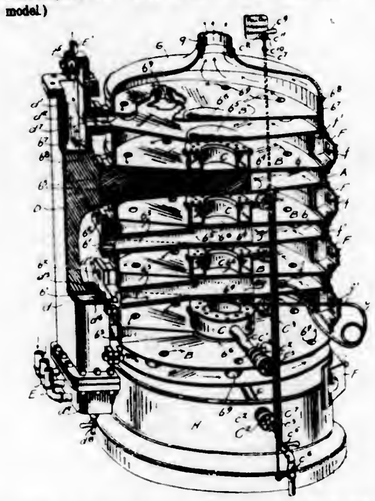
Claim.—1. In the electrodeposition of metals, the process consisting in passing an electric current from an anode to a cathode through an electrolyte containing the metal to be deposited, at the same time moving the cathode through the electrolyte at such a rate of speed as will cause the hydrogen bubbles to be thrown off from the cathode and give such friction between the metal deposit on the cathode and the electrolyte as to yield tough and smooth deposits.

2. In the electrodeposition of metals, the process consisting in passing an electric current from an anode to a cathode through an electrolyte containing the metal to be deposited, and at the same time rotating the cathode at such a high rate of speed as will cause the hydrogen bubbles to be thrown off from the cathode and give such friction between the metal deposits on the cathode and the electrolyte as to yield tough and smooth deposits.

3. In the electrodeposition of metals, the process consisting in passing an electric current from an anode to a cathode through an electrolyte containing the metal to be deposited, and at the same time moving the cathode through the electrolyte at a speed approximating one thousand feet per minute.

4. In the electrodeposition of metals, the process consisting in passing an electric current from an anode to a cathode through an electrolyte containing the metal to be deposited, and at the same time rotating the cathode at a speed approximating one thousand feet per minute.

644,030. SECTIONAL WATER-HEATER. FREDERICK S. HENNING, Toronto, Canada, assignor, by direct and mesne assignments, to James Oliver Buchanan and Harry Boughton-Hodgins, same place. Filed Aug. 22, 1896. Renewed Jan. 13, 1900. Serial No. 1,396. (No model.)



Claim.—1. A water-heater comprising a plurality of hollow sections having each an ingress and an egress port adapted to allow water to flow through said sections and means for independently applying heat to the several sections for the purpose specified.

2. A water-heater comprising a plurality of hollow sections having each ingress and egress water-ports therefor, separate burners beneath the several sections, feed-pipes connecting the fuel supply with said burners and means for causing mixed air and fuel to pass through said burners as and for the purpose specified.

3. A water-heater comprising a plurality of hollow sections having each ingress and egress water-ports therefor, burners beneath the several sections—pipes connecting burners with the fuel-supply—air-injectors and regulating-cocks interposed in the paths of said fuel, as and for the purpose specified.

4. A water-heater comprising a plurality of hollow water-sections with ingress and egress water-ports therefor the burners C—pipes c, air-injectors (^{2} cocks c^3 regulating-cock c^4 rod c^7 and regulator—as and for the purpose specified.

5. A water-heater comprising a plurality of hollow water-sections, ingress and egress water-ports therefor, combustion-chambers beneath the several chambers—doors and dampers therefor and separate burners supplied with fuel within the several combustion-chambers and flues leading from the several combustion-chambers, as and for the purpose specified.

6. In a water-heater the combination with a plurality of independent sections having hollow water-chambers—the ingress water-ports of which are respectively lower than the egress water-ports thereof—the water-chambers gradually rising from the one to the other of means for applying heat to the said water-chambers for the purpose specified.

7. A water-heater comprising a plurality of independent sections having spirally-shaped water-chambers with ingress water-ports respectively lower than egress-ports—the central parts of said water-chambers being horizontal—heaters placed beneath the several said central parts as and for the purpose specified.

8. A water-heater comprising a plurality of hollow water-sections—ingress and egress ports—and the double water-post D, the collecting and distributing caps d^4 and d^5 the draining-cock d^6 and means for applying heat to the water-sections, as and for the purpose specified.

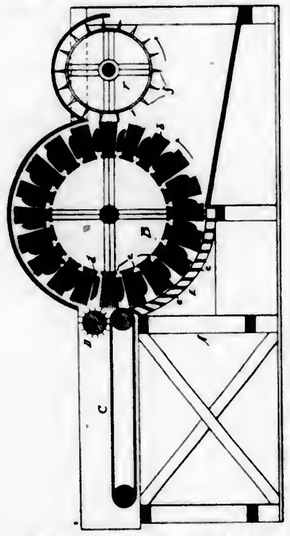
9. A water-heater comprising a plurality of hollow water-sections—ingress and egress water-ports therefor combustion-chambers between said water-sections—doors and dampers to said combustion-chambers—flues connecting said combustion-chambers—the cap and gas-vent—and base-burners situated in the several combustion-chambers, as and for the purpose specified.

10. In a water-heater the combination of a plurality of hollow water-sections—ingress and egress water-ports therefor the combustion-chambers—doors, dampers and vents therefor burners connecting with fuel-supply of the tube J cock j and nozzle j', as and for the purpose specified.

11. In a water-heater in combination with a plurality of water-sections and intermediate air-chambers of inclined flues, connecting the air-chambers through the water-sections, and means for applying heat in the air-chambers to the water-sections, as and for the purpose specified.

12. In a water-heater in combination with a plurality of water-sections and intermediate air-chambers of flues connecting the air-chambers, having the upper ends contracted and means for applying heat in the air-chambers, as and for the purpose specified.

644,031. TOW-CLEANER. ALEXANDER MORISON, Saginaw, Mich. Filed Mar. 9, 1899. Serial No. 708,322. (No model.)

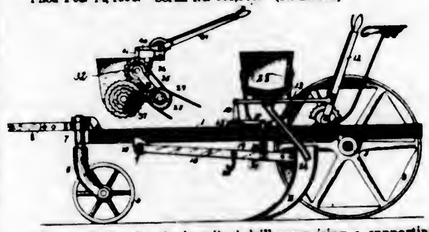


Claim.—1. In a tow-cleaner, the combination of a feed-apron and holding-roll, a rotary brush provided with long, flexible brush-bristles arranged in sections, and blocks alternating with the brush-sections and arranged to prevent the tow from entering deeply between the bristles, said blocks being normally free from the brushes and being rounded on the outer advance corner, whereby wires in front of a block can yield freely, substantially as described.

2. In a tow-cleaner, the combination of a hollow rotary brush provided with long, flexible bristles arranged in sections and having air-outlets from the interior of the brush, and blocks alternating with the brush-sections, arranged to be normally entirely free from the brush-sections and having the outer corner on the advance side rounded off, whereby brush-bristles can yield freely backward, substantially as described.

3. In a tow-cleaning machine, the combination of a grated concave, a rotary hollow brush provided with long, flexible bristles arranged in sections and with air-passages leading between the brush sections from the interior of the hollow brush, and blocks alternating with the brush-sections, arranged to prevent the tow from entering deeply between the bristles, said blocks being rounded on their outer advance corner, whereby the bristles are permitted to yield backward, substantially as described.

644,032. GRAIN-DRILL. GEORGE W. MURRAY, Sumter, S. C. Filed Feb. 14, 1898. Serial No. 670,309. (No model.)



Claim.—1. The herein-described drill comprising a supporting-frame, drag-bars pivotally mounted therein, drill tubes or points carried by said drag-bars, a transverse rock-shaft mounted on said frame, a crank-arm secured thereto, a hand-lever pivoted to said frame and connected by a pitman with said crank-arm, a series of arms extending from said rock-shaft, rods connecting said arms and said drag-bars, springs encircling said rods, and hooks carried by said drag-bars and designed to engage said rock-shaft, substantially as set forth.

2. The herein-described drill comprising a supporting-frame, drag-bars pivotally mounted therein, drill-tubes carried by said drag-bars, a transverse rock-shaft mounted on said frame and having a series of arms extending therefrom, means for rocking said shaft, a series of perforated blocks carried by said drag-bars, headed rods extended through the perforations of said blocks and connecting the same with the arms of said rock-shaft, washers secured to said rods, and springs interposed between said blocks and said washers, substantially as set forth.

3. The herein-described drill comprising a supporting-frame, a transverse rod mounted therein, drag-bars having their forward ends spaced apart and pivoted to said rod, drill-tubes carried by said drag-bars, a seedbox carried by said frame and having a longitudinal slot in its bottom, a rotatable shaft mounted in said slot and having a series of spirally-arranged recesses, means for varying the speed of rotation of said shaft, hoppers located below said seedbox, and tubes connecting said hoppers with said drill-tubes, substantially as set forth.

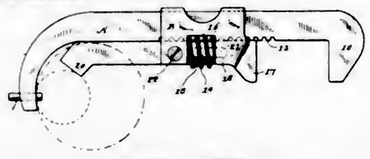
4. The herein-described drill comprising a supporting-frame, a transverse rod mounted therein, drag-bars having their forward ends spaced apart and pivoted to said rod, drill tubes or points carried by said drag-bars, a seedbox carried by said frame and having a longitudinal slot in its bottom, a rotatable shaft mounted in said slot and having a series of spirally-arranged recesses, means for varying the speed of rotation of said shaft, and connections between said seedbox and said drill tubes or points, substantially as set forth.

5. The herein-described drill comprising a main frame, drill-tubes carried thereby, a seedbox having a longitudinal slot in its bottom, a shaft mounted in said slot and having a series of spirally-arranged recesses, a cone series of gears keyed to said shaft, a shaft mounted adjacent said seedbox, means for rotating said shaft, a sprocket-wheel mounted on said shaft, a second shaft mounted adjacent thereto and also carrying a sprocket-wheel, a chain connecting said sprocket-wheels, a gear-wheel also mounted on said second shaft and designed to mesh with said cone-gears, means for adjusting said gear-wheel, and connections between said seedbox and said drill-tubes, substantially as set forth.

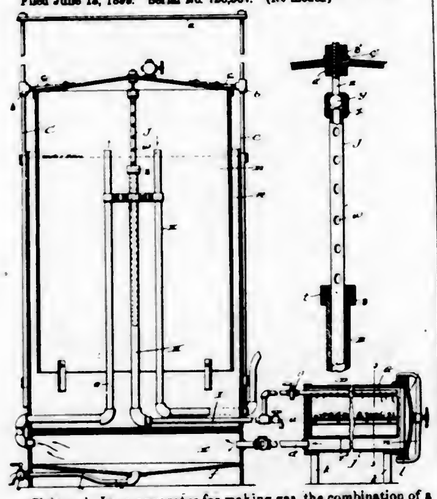
6. The herein-described drill, comprising a supporting-frame, drag-bars pivotally mounted therein, drill-tubes carried by said drag-bars, a transverse rock-shaft mounted on said frame, hooks carried by said drag-bars and designed to engage said rock-shaft, connections between said rock-shaft and said drag-bars, means for rocking said shaft, and means for feeding seed to said drill tubes or points, substantially as set forth.

644,033. COMBINED SPANNER AND WRENCH. FREDERICK SCHRADER, Bridgeport, Conn. Filed Dec. 4, 1899. Serial No. 738,128. (No model.)

Claim.—A combined spanner and wrench consisting of a body having at one end a wrench-jaw, the other end being curved and carrying a spanner-pin, and a slide having a wrench-jaw and also having an opening 16, upon one side of said opening an opening 18 and upon the other side of said opening a recess 19, an externally-threaded barrel lying in opening 16, a spanner-contact whose rear end lies in recess 19 and which is provided with a shank upon which the barrel is mounted and which engages opening 18, and a screw passing through the walls of recess 19 and through the spanner-contact by which the latter is locked to the slide.



644,034. ACETYLENE-GENERATOR. GEORGE F. SCHULER and MAYER GRANAT, Stockton, Cal.; said Granat assignor to said Schuler. Filed June 13, 1899. Serial No. 720,387. (No model.)



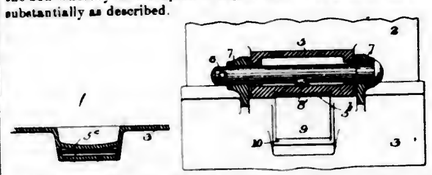
Claim.—1. In an apparatus for making gas, the combination of a generator, a water-tank, a movable gas-receiver, means for conveying gas from the generator to the receiver, a tube arranged in the tank and connected with the generator and having a packing-box, a pipe telescoped in the said tube and having one or more openings for the passage of water to the tube, and a universal joint connecting said pipe and the receiver, substantially as specified.

2. In an apparatus for making gas, the combination of a generator, an upright water-tank, a vertically-movable gas-receiver, means for conveying gas from the generator to the receiver, an upright tube arranged in the tank and connected with the generator and having a packing-box at its upper end, a pipe telescoped in said tube and having a socket at its upper end and also having one or more openings for the passage of water to the tube, a rod connected to the receiver and having a ball at one end arranged in the socket on the pipe, substantially as specified.

3. In an apparatus for making gas, the combination of a generator, a water-tank, a movable gas-receiver, a cooler arranged directly below the water-tank, a pipe connecting the generator and cooler, a pipe connecting the cooler and the receiver, a tube arranged in the tank and connected with the generator and having a packing-box, a pipe telescoped in the said tube and having one or more openings for the passage of water to the tube, and a universal joint connecting said pipe and the receiver, substantially as specified.

644,035. CAR-AXLE-BOX LID. JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed Nov. 4, 1899. Serial No. 735,758. (No model.)

Claim.—1. A journal-box having a lid adapted to swing to and from the face of the box, and a spring, said lid being pivoted on an axis oscillatory in a direction transverse to the plane of the face of the box whereby it is adapted to adjust itself to its seat on the box; substantially as described.



2. A journal-box having a lid, a spring, and a pivot-pin, said pivot-pin being oscillatory in a direction transverse to the plane of the face of the box; substantially as described.

3. A journal-box having a lid adapted to swing to and from the face of the box, a lug for the pivot-pin and a pivot-pin fitting in the lug and bearing therein at the middle portion only, whereby the pivot-pin may rock to permit adjustment of the lid to the box; substantially as described.

4. A journal-box having a lid adapted to swing to and from the face of the box, a lug for the pivot-pin, and a pivot-pin fitting in the lug and having at its middle an enlarged bearing portion, whereby the pivot-pin is adapted to rock to permit adjustment of the lid to the box; substantially as described.

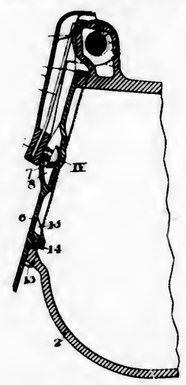
5. A journal-box having a lid adapted to swing to and from the face of the box, said lid being pivoted on an axis oscillatory transversely to the plane of the face of the box, whereby it is adapted to adjust itself to its seat on the box, and a leaf-spring bearing at one end on the box and at the other end on the lid, one of the bearing-surfaces being curved in a direction transverse to the length of the spring; substantially as described.

6. A journal-box having a lid adapted to swing to and from the face of the box, said lid being pivoted on an axis oscillatory transversely to the plane of the face of the box, whereby it is adapted to adjust itself to its seat on the box, and a leaf-spring bearing at one end on the hinge-lug of the box and at the other end on the lid, said lug having a bearing-surface curved in a direction transverse to the length of the spring; substantially as described.

7. A journal-box having a hinge-lug provided with a bearing-surface curved in the direction of its length and adapted to receive a spring; substantially as described.

8. A journal-box lid having means for retaining the outer end of the spring, and having a bridge or hood provided on its inner surface with walls adapted to confine the edges of the spring; substantially as described.

644,036. LID FOR CAR-AXLE BOXES. JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed Dec. 1, 1899. Serial No. 738,770. (No model.)



Claim.—1. The combination of an axle-box, a lid, and a spring-actuated closing-arm hinged to the box, connected loosely with the body of the lid and adapted to force the same against its seat, said lid being also loosely connected with one of the said parts at the hinge portion; substantially as described.

2. The combination with the lid, of a spring-actuated closing-arm, and a stud on the arm fitting an open socket on the lid; substantially as described.

3. The combination of an axle-box, a lid, and a spring-actuated closing-arm hinged to the box, connected loosely with the body of

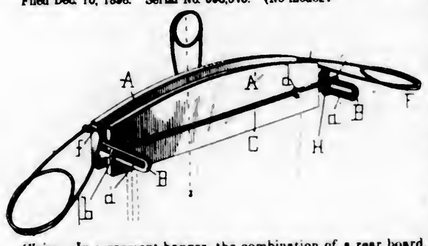
the lid and adapted to force the same against its seat, said lid having lugs fitting loosely at the hinge-pin; substantially as described.

4. An axle-box lid have an oil-shedding lip on its inner surface adapted to lie over the edge of the box and having upward projections to prevent spreading of the oil; substantially as described.

5. An axle-box lid having on its inner surface projections adapted to prevent lateral spreading of the oil; substantially as described.

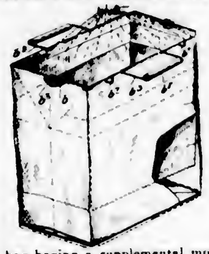
6. An axle-box lid having on its inner surface angular projections adapted to prevent lateral spreading of the oil; substantially as described.

644,037. GARMENT-HOLDER. JAMES W. TYLER, Camden, N. J. Filed Dec. 10, 1898. Serial No. 698,875. (No model.)



Claim.—In a garment-hanger, the combination of a rear board, an adjustable presser-board, slotted end guides on the ends of the rear board, a binding-rod passed through said slots, a binding-screw on said rod, centrally-bent and looped wire, and means for securing said centrally-bent wire to said rear board.

644,038. PACKING AND STORING VESSEL. GEORGE W. WHALLEY, Riverdale, Md., assignor of one-half to John G. Burchfield, same place. Filed Oct. 5, 1899. Serial No. 732,886. (No model.)



Claim.—1. A bag having a supplemental mouth adapted, normally, to lie within the bag proper, and to constitute, when required, a divisional compartment, substantially as described.

2. A bag having a supplemental mouth, of less flexibility than the bag proper, and adapted, normally, to lie within the bag, and to constitute, when required, a divisional compartment, substantially as described.

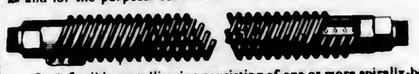
3. A bag having a supplemental mouth adapted, normally, to lie within the bag proper, and to constitute, when required, a divisional compartment, and a two-part frame or bail secured to the mouth of the bag and constituting a carrying means, substantially as described.

4. A bag having a supplemental mouth adapted, normally, to lie within the bag proper, and to constitute, when required, a divisional compartment, a two-part frame or bail secured to the mouth of the bag and constituting a carrying means, and means for holding the members of the frame closed, when desired, substantially as described.

5. A structure of the character described, comprising a bag proper having a square mouth and a square bottom, the latter being constructed substantially as specified, a frame or bail secured in each side of the mouth, the terminals of one of the frames being formed with eyes and those of the other member with hooks arranged at right angles to the eyes and interlocked with the same, handholds formed on the bails, fastening means carried by one bail to engage the other bail, whereby to keep the two bails closed, when desired, and a supplemental mouth adapted, normally, to lie within the bag proper and to constitute, when required, a divisional compartment, substantially as described.

644,039. FLEXIBLE PIPE. LIBB R. BENTON, New York, N. Y., assignor to the American Type Founders' Company, of New Jersey. Filed Aug. 29, 1898. Serial No. 689,753. (No model.)

Claim.—1. A flexible pipe or conduit consisting of one or more spirally-bent metallic tubes and a tubular fitting or coupling to which each of said tubes is attached, said fitting or coupling being tapered toward its inner end and extending inwardly beyond the attachment thereto of said tube or tubes so as to allow a gradually-increasing flexure of the pipe and avoid abrupt bending thereof, substantially as and for the purposes set forth.



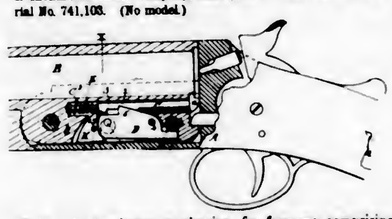
2. A flexible metallic pipe consisting of one or more spirally-bent tubes and one or more end fittings or couplings each formed with a longitudinal bore or passage, and a lateral opening in which an end of a spiral tube is secured, substantially as and for the purposes set forth.

3. A flexible metallic pipe consisting of one or more spiral tubes and one or more end fittings or couplings each formed with a longitudinal bore or passage and a lateral projection having a radially-disposed face through which an opening is formed into said bore or passage, one end of each tube being inserted and secured in such an opening, substantially as and for the purposes set forth.

4. A flexible metallic pipe or conduit for fluids, consisting of one or more spirally-bent tubes, and one or more tubular end fittings or couplings each formed with a lateral projection having a radially-disposed face through which one or more openings are made into the bore or passage of the fitting or coupling, each tube being coiled around such fitting or coupling and secured at the end in one of the lateral openings therein, and one or more of the end coils of the spiral being attached to the outer face of the fitting or coupling, substantially as and for the purposes set forth.

5. A flexible pipe or conduit consisting of a tubular metallic fitting, one or more spirally-bent metallic tubes each coiled around the outside and communicating with the bore of said fitting through a lateral opening therein, and one or more spirally-bent metallic tubes arranged within the spiral of the first-mentioned tube or tubes and inserted and secured in an opening in the inner end of said fitting in communication with the aforesaid bore thereof, substantially as and for the purposes set forth.

644,040. EJECTOR MECHANISM FOR BREAKDOWN FIRE-ARMS. MARTIN BYE, Worcester, Mass., assignor to the Harrington & Richardson Arms Company, same place. Filed Dec. 21, 1899. Serial No. 741,103. (No model.)



Claim.—1. An ejector mechanism for firearms, comprising the ejector-rod having a notch and stop-shoulder on its under side, an ejecting-spring therefor, a horizontally-pivoted catch-lever within a vertical slot in the barrel-hinging lug, said lever adapted for engaging the ejector-rod notch, a cross-pin fixed in said lever, its ends projecting laterally through openings at the sides of the lug, and a spring for said catch-lever; in combination with the barrel-hinging lug, and the frame provided with interior shoulders or offsets against which the projecting ends of said cross-pin are brought to contact by the breakdown movement of the barrel, substantially as set forth.

2. In a breakdown firearm, the combination, with the ejector-rod having a notch, a stop-shoulder and forward shoulder, and the ejector-spring acting against the same; of the movable catch-lever pivoted within a slot in the barrel-lug and carrying a nose or detent that engages the ejector-rod, and a laterally-projecting cross-pin that engages offsets in the frame, a spring for said catch-lever, and a pivoted starter-piece mounted within the slot, with its top end engageable with the ejector-rod, said starter operated by movement of the catch-lever, substantially as set forth.

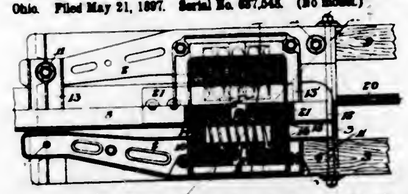
3. In an ejector mechanism for firearms; the combination, of the frame having the opposite inward offsets or shoulders, the barrel-hinging lug having the ejector-bore and slot therein, and the ejector and ejector-spring in said bore, a pivoted catch-lever adapted for locking said ejector, said lever pivoted within the slot of the lug and its moving arm provided with wing-studs or pin ends projecting laterally therefrom and through openings in the sides of the lug for engaging said frame-shoulders, a rearward arm on said lever, a coiled

spring supported in a recess above said arm; and an angular starter-block disposed adjacent to the end of said catch-lever, said starter pivoted within the slot, its top angle engageable with the ejector-rod, and its lower rear angle engageable by the fore end of said catch-lever, for operation substantially as set forth.

4. In an ejector mechanism for breakdown firearms, comprising a spring-actuated notched ejector-rod, a spring therefor and a spring-pressed catch-lever fulcrumed in a slot in the barrel-lug; and having the cross-pin fixed therein as a means for operating said catch-lever actuated from the frame by the breakdown action, said operating means adapted to serve as a check or stop for limiting the breakdown movement of the barrel.

5. In an ejector mechanism of the character described, the barrel-lug having the longitudinal ejector-bore, a vertical slot beneath said bore, and the transverse holes or openings through the sides of said lug, said side openings adapted for confining the swing of the catch-lever to a movement within the limit of the ejector-notches; in combination with the ejector-rod having the notch and shoulder, and the pivoted catch-lever provided with a cross-pin or lateral wing-studs that project through said side openings for engagement with shoulders in the frame for actuating said catch-lever; said pin also serving as a check or stop for limiting the breakdown movement of the frame, substantially as set forth.

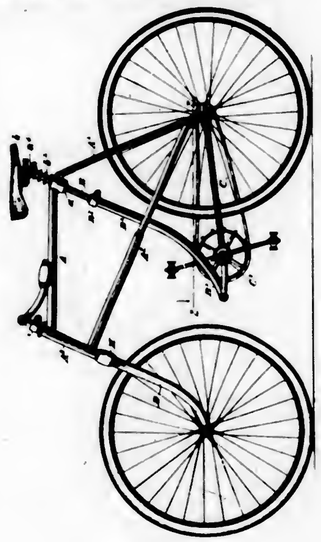
644,041. DRAFT-RIGGING FOR CARS. WILLIAM CARR, Chicago, Ill., assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed May 21, 1897. Serial No. 637,548. (No model.)



Claim.—1. Draft-arms fixed together at the top and having at the rear ends shoulders against which the draft-timbers fit, said draft-arms extending forwardly from the draft-timbers and constituting a conjoined continuation thereof.

2. Draft-arms having at the top a connecting web or plate, with shoulders adapted to fit between the longitudinal sills of the car, another shoulder adapted to fit against the transverse car-sill, and a portion of the plate extending forwardly under the sill.

644,042. BICYCLE. ARTHUR R. COLBURN, Washington, D. C. Filed Dec. 22, 1898. Serial No. 700,008. (No model.)



Claim.—1. The combination of the main frame, the vertically-adjustable and telescopic seat-standard whereby both the distance between the seat and the pedals can be adjusted and also the distance of the seat and pedals above the ground, said standard passing through the upper part of the frame and connected at its lower end to the crank-bracket support, and an adjustable clamp on said standard, above the frame, substantially as described.

2. The combination of the main frame, the pedal-crank-bracket support connected thereto, the vertically-adjustable telescopic seat-standard whereby both the distance between the seat and the pedals can be adjusted and also the distance of the seat and pedals above the ground, said standard passing through a guide in the upper part of the frame and connected at its lower end to said support, an adjustable clamp on the upper end of said standard, above the frame, and a spring interposed between said adjustable clamp and the frame, substantially as described.

3. The combination of the main frame, the swinging fork, the crank-bracket thereon, and a seat-standard guide in the upper portion of the frame; with an adjustable telescopic seat-standard whereby both the distance between the seat and the pedals can be adjusted and also the distance of the seat and pedals above the ground, said standard connected at its lower end to the said swinging fork and having its upper end playing through said guide, and an adjustable clamp on the upper end of said standard above the guide, substantially as described.

4. The combination of the main frame, the swinging fork, the crank-bracket supported thereon, and the guide-sleeve pivoted in the upper portion of the frame; with the vertically-adjustable and telescopic seat-standard whereby the distance between the seat and pedals can be adjusted said standard being connected at its lower end to the said swinging fork and having its upper end playing through said guide, an adjustable clamp on the upper end of said standard above the guide, said standard being adjusted relatively to the frame so as to hold the seat and pedals in the desired position above the ground and a spring interposed between said clamp and the guide, for the purpose and substantially as described.

5. In a bicycle, the combination of the rigid main frame, the guide-sleeve pivoted thereto, the swinging fork pivoted to the frame near the rear axle and carrying the driving mechanism, the extensible seat-standard consisting of an upper part playing through said guide, and a lower part telescoping with the upper part and pivoted at its lower end to the swinging fork, a seat attached to the upper member of the standard above said guide-sleeve, and the spring whereby said seat-standard and swinging fork are suspended from and cushioned upon the main frame, for the purpose and substantially as described.

6. In a bicycle, the combination of the rigid main frame, the guide-sleeve pivoted thereto, the swinging fork pivoted to the frame near the rear axle and carrying the crank-bracket and shaft, the extensible seat-standard playing through said guide and pivoted at its lower end to the swinging fork at a point in advance of the crank-bracket thereon, a seat attached to the upper member of the standard above said guide-sleeve and the spring interposed between said seat ard tube, whereby said seat-standard and swinging fork are suspended from and cushioned upon the main frame, for the purpose and substantially as described.

7. In a bicycle, the combination of the steering-head, the steering-sleeve rotatably journaled therein, the front fork having a tubular shank telescoping with said sleeve but extending below the sleeve and head, and means for preventing the shank rotating in the sleeve but permitting it to telescope therewith, with a coiled spring within said tubular shank and bearing against a stop in said sleeve, said spring extending to the lower end of said shank outside of the head and supporting and cushioning the steering head and sleeve on the fork, substantially as described.

8. In a bicycle, the combination of the steering-head, the steering-sleeve rotatably journaled therein having a tubular shank telescoping with said sleeve and projecting out of and below the head and sleeve, a vertical slot and transverse pin connection between said sleeve and shank within the head, whereby telescopic play is permitted but independent rotatable movement of the sleeve and fork prevented, and the spring within said tubular shank and extending therein outside of the sleeve and head, said spring bearing against said pin, and supporting and cushioning the steering head and sleeve on the fork, substantially as described.

9. The combination of the rigid frame connecting the front fork and rear axle, a swinging fork below and pivotally connected to said frame near the rear axle, the crank-bracket mounted on said fork in rear of the front end thereof, a swinging guide in the top part of the frame, a vertically-movable seat-standard playing through said guide and pivotally connected at its lower end to the forward extremity of the swinging fork at a point in advance of the crank-hanger, a spring for supporting said standard, the pivotal connection between the standard and the front end of said swinging fork, such

pivotal connection being substantially removed the length of a crank on the crank-shaft from the crank-hanger, substantially as described.

10. The combination of the main frame, the steering-head, and the steering-sleeve rotatably journaled therein, provided with handle-attaching devices at its upper end; with a front fork having a tubular shank telescoping in said sleeve, and also having diametrically-opposite vertical slots with a pin within the head transfixed in the said slots and rigidly attached to said sleeve, a spring within the tubular shank interposed between said pin and the base of the said tube, and a dust-excluder interposed between the steering-sleeve and the fork, substantially as described.

11. The combination of the rigid frame, a swinging fork lying below the frame and pivotally connected thereto near the rear axle, the crank-hanger mounted on said fork in advance of the rear wheel, said movable fork extending forward beyond the crank-hanger, and a vertically-movable seat-standard connected to the frame at its upper end and pivotally connected at its lower end to the forward extremity of the swinging fork at a point in advance of the crank-hanger, and a spring supporting said seat-standard and swinging fork on the rigid frame, substantially as described.

12. In a bicycle, the combination of the rigid frame, connected to the steering-fork and rear axle, a swinging fork below said frame connected thereto near the rear axle, the crank-hanger attached to said swinging fork in rear of its front end, and the vertically-movable seat-standard slidably connected to said frame at one end and pivotally connected at its lower end to the front end of said swinging fork in advance of the crank-hanger, for the purpose and substantially as described.

644,043. CORKSCREW. RALPH W. JORRES, St. Louis, Mo., assignor to Andrew J. Bradley, New York, N. Y. Filed June 21, 1899. Serial No. 721,305. (No model.)



Claim.—1. A tool-case comprising a hollow body-section and a cap therefor, said body-section having a transversely-arranged strengthening-plate fixed therein and having also a longitudinal slot at that end which cooperates with said cap, said plate having a hole and a slot therein with a stay between them, substantially as and for the purpose set forth.

2. A tool-case comprising a hollow body-section and a cap therefor, said body-section having a longitudinal slot at the end which cooperates with said cap, and a flanged strengthening-plate fixed transversely in said body-section and slotted in register with the slot of said body-section and having a hole in alinement with the slot and a stay between said hole and said slot, the flange of said strengthening-plate extending beyond the end of said body-section and adapted to cooperate with the cap, substantially as described.

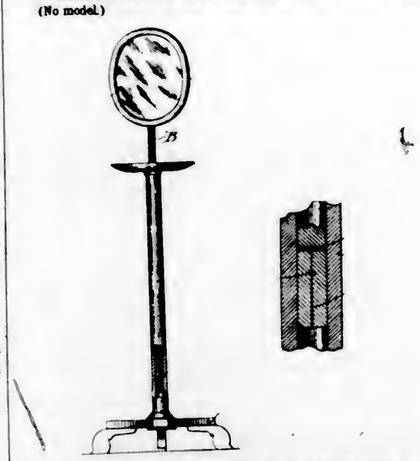
3. A folding tool comprising a hollow body-section and a cap therefor, said body-section having a transversely-arranged strengthening-plate fixed therein and a longitudinal slot at its edge, said plate having a hole and a slot therein, and a tool whose shank is doubled back approximately parallel with itself and has the parts thereof working in the hole and the slot of said plate, substantially as described.

4. A tool consisting of a main body-section and a cap therefor, said body-section having a transversely-arranged strengthening-plate fixed therein, said plate having a hole and a slot therein, and a corkscrew having its shank looped and the parts thereof working through said hole and said slot, and said body-section having a longitudinal slot in line with the slot in the strengthening-plate, substantially as described.

5. A tool-case comprising a hollow body-section and a cap therefor, and a corkscrew, said body-section having a longitudinal slot at the end which cooperates with said cap, and a flanged strengthening-plate fixed transversely in said body-section and slotted in register with the slot of said body-section and having a hole in alinement with the slot and a stay between said hole and said slot, the flange of said strengthening-plate extending beyond the end of the body-section and adapted to cooperate with the cap, said corkscrew having its shank doubled back approximately parallel with itself and the parts thereof working through the hole and the slot in said plate, substantially as described.

6. A tool consisting of a case comprising a main section and a cap therefor, and a corkscrew, said main section having a transversely-arranged strengthening-plate therein which is provided with a hole and a slot therein with a stay between them, and having a second strengthening-plate provided with an elongated slot, and said corkscrew having its shank looped back and the parts thereof working in the hole and the slot of said first-mentioned strengthening-plate and adapted to bind in the slot of the last-mentioned plate, substantially as described.

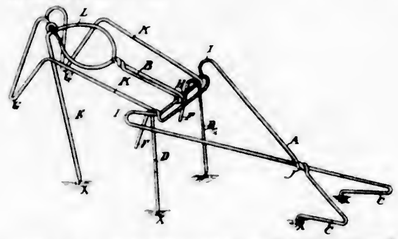
644,044. DRESSING STAND AND MIRROR. THORSTEN M. WARRENIUS, Watertown, Mass. Filed Aug. 17, 1898. Serial No. 688,756 (No model.)



Claim.—A dressing-stand comprising a centrally-bored column provided with a foot or base, a staff slidably fitted in said column, and having a saw-kerf at its lower extremity, and also having a bore intersecting said saw-kerf at a point above the lower extremity, an expanding device adapted to be disposed in said bore, thereby to expand the lower end of the staff more or less and to cause the same to frictionally engage the wall of the bore, and a bolt located above the saw-kerf and disposed at right angles to the expanding device and passing through the staff, and having its opposite ends countersunk in said staff.

REISSUES.

11,809. HEAD-REST FOR CASKETS. THOMAS W. OSBORLIN, Binghamton, N. Y. Filed Dec. 18, 1899. Serial No. 740,831. Original No. 628,649, dated July 11, 1899.



Claim.—1. A rest for caskets consisting of a frame separate from the casket, means carried by said frame for supporting it at a certain predetermined inclination, other means carried by the frame for supporting it at different angles of inclination, and means also carried by the frame for preventing endwise movement, substantially as described.

2. A rest for caskets consisting of a frame, legs pivoted on said frame at different portions in the length thereof for supporting it at different angles, and means also carried by the frame for preventing endwise movement, substantially as described.

3. A rest for caskets consisting of a frame separate from the casket, said frame having movable supporting-legs adapted to engage the bottom of the casket and support the frame at different angles of inclination, and other means wholly carried by the frame for preventing endwise movement, substantially as described.

4. In a head-rest for caskets, the frame A provided with the legs C, the ears I, and the rod H in combination with the extension-frame K provided with the auxiliary legs F and G, and the ring L; and the legs D and E; as described and specified.

5. In a head-rest for caskets, a wire frame made to support the body at a desired angle by means of movable vertical legs of different lengths located in different parts of the frame and provided with sharpened points to prevent their slipping on the bottom of the casket; in combination with a rigid wire frame having sharpened points at its lower extremities to engage the bottom of the casket, and relatively-short auxiliary rigid legs at its upper end to support it when let down, at a slight angle above the casket-bottom; said frame at its upper end being shaped to receive and hold the head, the lower part spreading out laterally to support the shoulders, the lower end narrowing; the head-frame and the body-frame being rigidly connected as described and specified.

DESIGNS.

32,245. PICK-GUARD. CHARLES A. NIGHTINGALE, Evansville, Ind. Filed Nov. 8, 1899. Serial No. 736,283. Term of patent 7 years.



Claim.—The design for a pick-guard, substantially as herein shown and described.

32,246. VEST FOB-CHAIN. SIDNEY O. BIGNEY, Providence, R. I. Filed Oct. 12, 1899. Serial No. 733,441. Term of patent 3½ years.



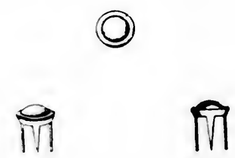
Claim.—The design for a vest fob-chain, substantially as shown and described.

32,247. COLLAR-BUTTON. EDWIN R. HOWITT, New Brunswick, N. J. Filed Dec. 1, 1899. Serial No. 738,924. Term of patent 14 years.



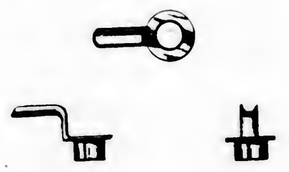
Claim.—The design for a collar-button herein shown and described.

32,248. BUTTON-FASTENING. THEOPHILUS R. HYDE, Jr., Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed May 18, 1899. Serial No. 717,369. Term of patent 14 years.



Claim.—The design for a button-fastening, substantially as shown and described.

32,249. SHOE-FASTENING HOOK. CHARLES GABEL, Philadelphia, Pa. Filed Dec. 30, 1899. Serial No. 742,167. Term of patent 7 years.



Claim.—The design for a shoe-fastening hook as herein shown and described.

32,250. HOOK. JAMES B. CAROLIN, Newark, N. J. Filed Jan. 25, 1900. Serial No. 2,805. Term of patent 7 years.



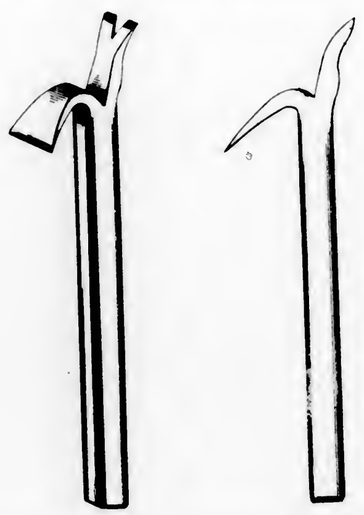
Claim.—The design for a hook, as herein shown and described.

32,251. CAP-BLANK FOR CAP AND STUD FASTENERS. HERMAN KERNOODE, Baltimore, Md., assignor to the Electus Fastener Company, Hoboken, N. J. Filed Jan. 16, 1900. Serial No. 1,697. Term of patent 14 years.



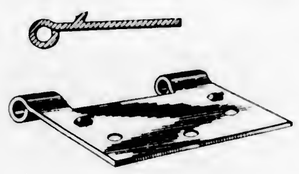
Claim.—The design for a cap-blank for stud and cap fasteners, as herein shown and described.

32,252. NAIL-EXTRACTOR. CHARLES P. LITTLEPAGE, Ballena, Cal. Filed Jan. 9, 1900. Serial No. 895. Term of patent 14 years.



Claim.—The design for a nail-extractor, as herein shown and described.

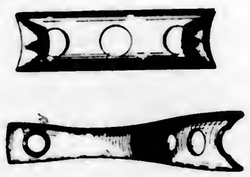
32,253. HINGE LEAF OR MEMBER. JOHN ANDERSON, Eveleth, Minn. Filed Jan. 2, 1900. Serial No. 177. Term of patent 14 years.



Claim.—The design for a hinge leaf or member herein shown and described.

32,254. STIRRUP. FOREST E. GOODMAN, Waco, Tex. Filed Jan. 11, 1900. Serial No. 1,154. Term of patent 7 years.





Claim.—The design for a stirrup, substantially as herein shown and described.

32,255. PUNCTURE-PREVENTER FOR BICYCLES. WADE H. MCINTOSH, Xenia, Ohio. Filed Jan. 23, 1900. Serial No. 2,547. Term of patent 3½ years.



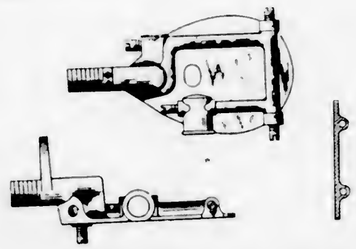
Claim.—The design for a puncture-preventer for bicycles, as herein shown and described.

32,256. BOLSTER FOR TOY WAGONS. HENRY R. AUTH, Toledo, Ohio. Filed Aug. 14, 1899. Serial No. 727,215. Term of patent 14 years.



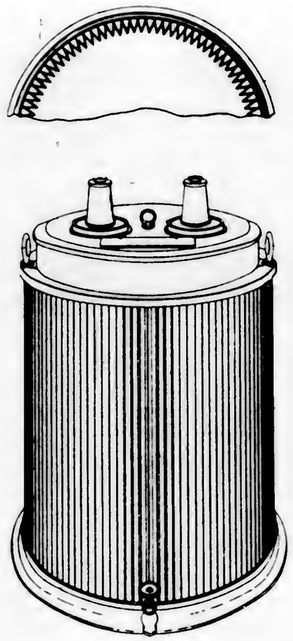
Claim.—The design for a bolster for toy wagons as herein shown and described.

32,257. BURNER-PLATE FOR GENERATORS. JOHN R. LAMBERT, Detroit, Mich. Filed Jan. 8, 1900. Serial No. 784. Term of patent 14 years.



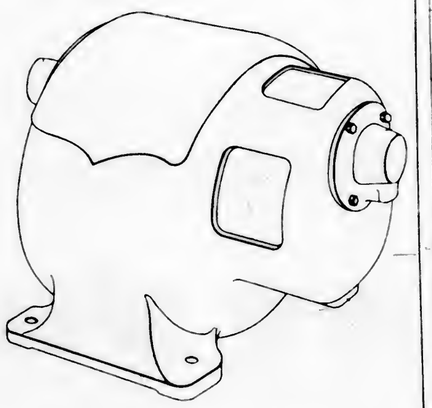
Claim.—The design for a burner-plate for generators substantially as herein shown and described.

32,258. TRANSFORMER-CASE. VERNON G. CONVERSE, Pittsburg, Pa. Filed Sept. 1, 1899. Serial No. 729,257. Term of patent 7 years.



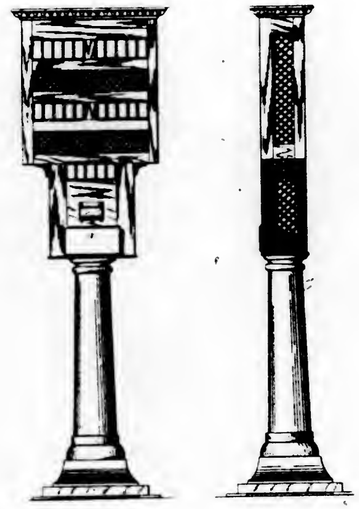
Claim.—The design for a transformer-case as herein shown and described.

32,259. CASING FOR DYNAMO-ELECTRIC MACHINES OR ELECTRIC MOTORS. NORMAN C. RAMSETT, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Jan. 18, 1900. Serial No. 1,944. Term of patent 14 years.



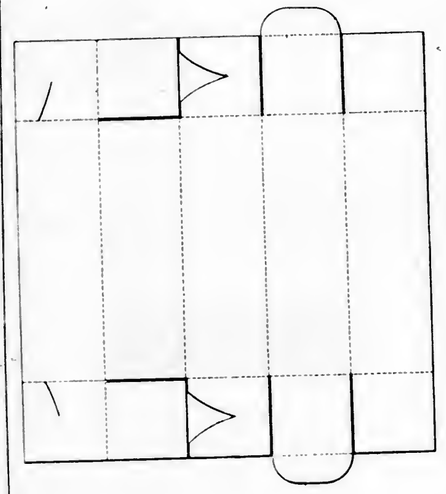
Claim.—The design for a casing for a dynamo-electric machine or electric motor substantially as shown and described.

32,260. CARD-DISPLAYING CABINET. LEO CANDA, Cincinnati, Ohio. Filed Jan. 11, 1900. Serial No. 1,148. Term of patent 3½ years.



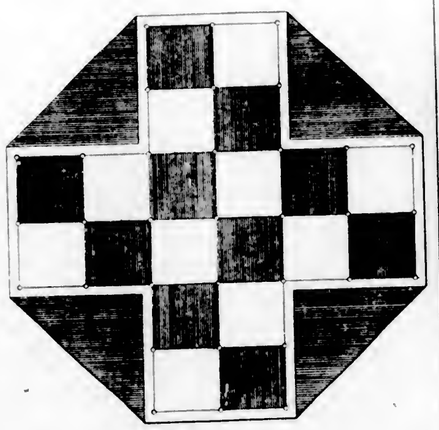
Claim.—The design for a card-displaying cabinet, substantially as shown and herein described.

32,261. PAPER-BOX BLANK. GEORGE A. COLGAN, New York, N. Y., assignor to George V. Cooper, Buffalo, N. Y. Filed Jan. 12, 1900. Serial No. 1,247. Term of patent 14 years.



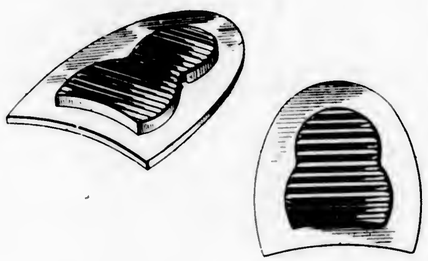
Claim.—The design for a paper-box blank, as herein shown and described.

32,262. GAME-BOARD. JAMES A. VARNUM, Boston, Mass., and ALBERT C. WARREN, New London, Conn. Filed Jan. 26, 1900. Serial No. 2,919. Term of patent 7 years.



Claim.—The design for a game-board, as herein shown and described.

32,263. HEEL-LIFT. FRANK C. MORGAN, Chicago, Ill. Filed Jan. 15, 1900. Serial No. 1,565. Term of patent 14 years.



Claim.—The design for a heel-lift, substantially as shown and described.

32,264. SKIRT-PROTECTOR. GEORGE S. HENSEL, Philadelphia, Pa., assignor to the Hensel, Colladay Company, of Pennsylvania. Filed Jan. 26, 1900. Serial No. 2,917. Term of patent 14 years.



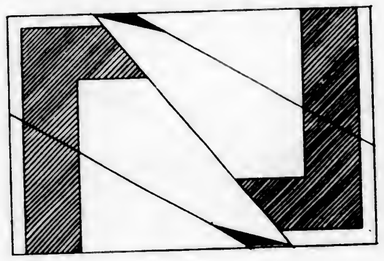
Claim.—The design for a skirt-protector substantially as shown and described.

32,265. NETTING. SOLOMON M. BLOCH, New York, N. Y. Filed Jan. 25, 1900. Serial No. 2,804. Term of patent 3½ years.



Claim.—The design for a netting, as herein shown and described.

32,266. TEXTILE FABRIC. JAMES HIRATARO TSUTSUMI, New York, N. Y. Filed Dec. 11, 1899. Serial No. 740,007. Term of patent 3½ years.



Claim.—The design for textile fabric, substantially as herein shown and described.

32,267. DECORATIVE FABRIC. HARMON GIEBEL, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,388. Term of patent 7 years.



Claim.—The design for a decorative fabric, as herein shown and described.

32,268. DECORATIVE FABRIC. HARMON GIEBEL, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,389. Term of patent 7 years.



Claim.—The design for a decorative fabric, as herein shown and described.

32,269. DECORATIVE FABRIC. HARMON GIEBEL, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,390. Term of patent 7 years.



Claim.—The design for a decorative fabric, as herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 20, 1900.

34,209. PENS. PERRY & COMPANY, LIMITED, Birmingham, England. Filed Dec. 30, 1899.



Essential feature.—The portraits, flag and eagle devices as shown, and the name "ABRAHAM LINCOLN." Used since 1868.

34,210. CORSETS. THE LASALLE & KOCH COMPANY, Toledo, Ohio. Filed Oct. 23, 1899.

AMERICAN QUEEN

Essential feature.—The words "AMERICAN QUEEN." Used since October 29, 1897.

34,211. LEATHER SHOES. EDWARD KIAM, Houston, Tex. Filed Jan. 25, 1900.



Essential feature.—The representation of a cat. Used since February 15, 1898.

34,212. CERTAIN NAMED DRY GOODS. HAY'S WATERPROOF BINDING COMPANY, Oshkosh, Wis. Filed Nov. 8, 1899.

34,212.



Essential feature.—A figure made up of a plurality of segments joined end to end and showing an arbitrary representation in the form of a flat circular figure. Used since October 24, 1899.

34,213. COTTON FLANNELS. PEPPERELL COMPANY, Lawrence, Mass. Filed Jan. 13, 1900.

ROYAL

Essential feature.—The word "ROYAL." Used since May 17, 1894.

34,214. BILLIARD-CLOTH. THE MCCOSHER & HUBBELL MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 24, 1900.

Draillib.

Essential feature.—The word "DRAILLIB." Used since August 1, 1899.

34,215. CARPET. E. S. HIGGINS CARPET COMPANY, New York, N. Y. Filed Dec. 23, 1899.



Essential feature.—The symbol two stars. Used since 1865.

34,216. CARPET. E. S. HIGGINS CARPET COMPANY, New York, N. Y. Filed Dec. 23, 1899.



Essential feature.—The symbol three stars. Used since 1865.

34,217. MATTRESSES, PILLOWS, BOLSTERS, CUSHIONS, AND COMFORTS. CHARLES WILLIS WHITE, Waco, Tex. Filed Nov. 23, 1899.

Cottodown

Essential feature.—The word "COTTODOWN." Used since April 1, 1899.

34,218. COCOA. STEPHEN L. BARTLETT, Boston, Mass. Filed Jan. 9, 1900.



Essential feature.—The representation of a warship, with the word "ADMIRAL" in connection therewith. Used since July 1, 1899.

34,219. LAGER-BEER. H. KOEHLER & COMPANY, New York, N. Y. Filed Feb. 7, 1896.



Essential feature.—The representation of the figure of Psyche resting upon a crescent. Used since July 1, 1896.

34,220. WHISKY. ANDREWS & Co., Dublin, Ireland. Filed July 24, 1899.

C. O. M.

Essential feature.—The letters "C. O. M." Used since March 21, 1885.

34,221. WHISKIES. L. FULDNER & Co., Milwaukee, Wis. Filed Jan. 20, 1900.

BALANCED ROCK



Essential feature.—The words "BALANCED ROCK" and the representation of a boulder or rock. Used since November 15, 1899.

34,222. COTTON-SEED OIL. ELBERT & GARDNER, New York, N. Y. Filed Jan. 5, 1900.

ELK



Essential feature.—The word "ELK" and the representation of an elk's head. Used for the past five years.

34,223. CERTAIN NAMED OILS. PITTSBURGH AND PHILADELPHIA OIL AND REFINING COMPANY, Camden, N. J. Filed Nov. 23, 1899.

P
AND
P

Essential feature.—The letters and word "P and P." Used since December 7, 1897.

34,224. VOLATILE STERILIZING AND ANTISEPTIC COMPOUND. GEORGE G. MCPHERSON, Toronto, Canada. Filed Jan. 26, 1900.

SPIRO-VITAE

Essential feature.—The compound word "SPIRO-VITÆ." Used since January 1, 1900.

34,225. PREPARATION FOR THE CURE OF A CERTAIN NAMED DISEASE. CHARLES H. CLARKE, Des Moines, Iowa. Filed Jan. 26, 1900.

R R R

Essential feature.—The letters "R R R." Used since December, 1899.

34,226. MEDICAL COMPOUND. ALBERT WESLEY KAHLE, Lima, Ohio. Filed Jan. 26, 1900.

U-KO-MA

Essential feature.—The hyphenated word "U-KO-MA." Used since September 30, 1899.

34,227. PAIN-KILLER. ENOS P. COOK, Lake Mills, Wis. Filed Jan. 24, 1900.

Hollyo

Essential feature.—The word "HOLLYO." Used since December 30, 1899.

34,228. HAIR-RESTORERS. NEWTON & EMERY, Portsmouth, N. H. Filed Jan. 6, 1900.



Essential feature.—The representation of a human head, one half of which is bald, while the other half is covered with hair. Used since November 1, 1899.

34,229. INCANDESCENT LIGHTS, THE PARTS THEREOF, AND MANTLES, CHIMNEYS, GLOBES, AND SHADES THEREFOR. WELSBACH LIGHT COMPANY, Gloucester City, N. J., and Philadelphia, Pa. Filed Jan. 17, 1900.

YUSEA

Essential feature.—The word "YUSEA." Used since January 1, 1900.

34,230. AUTOMATICALLY-PROPELLED WHEELED VEHICLES. THE "LOCOMOBILE" COMPANY OF AMERICA, New York, N. Y. Filed Jan. 24, 1900.

Locopost

Essential feature.—The word "LOCOPOST." Used since January 1, 1900.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BANCROFT AND THORNE.

Decided January 15, 1900.

1. DIVISION—GRINDING-MACHINE AND ATTACHMENT.

Division should not be required between a claim to a combination of elements in a grinding-machine and a claim for an attachment to be used in that machine for grinding curved surfaces when it does not appear that such attachments have acquired a distinct status in art and manufacture, and are separately classified in this office.

2. SAME—SAME—SUBCOMBINATION CLAIMS.

Where an attachment when in place forms with the other elements a complete organized machine, all of the parts of which coöperate to grind curved surfaces, *Held* that the combination of parts forming that attachment constitutes a subcombination in that organized machine and that a claim to it may properly be retained in the same case with claims to other combinations of elements.

ON petition.

GRINDING-MACHINES.

Application of John S. Bancroft and William H. Thorne filed October 23, 1896, No. 609,858.

Mr. William Sellers for the applicants.

GREELEY, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner requiring division in the above-entitled case.

The invention is a machine for grinding tools, and consists in the construction and arrangement of parts whereby the tool-holding chuck is properly adjusted and presented to the grinding-wheel. In grinding tools having plane faces the construction shown in Figure 3 of the drawings is used, and the tool to be ground is inserted directly into the chuck F. When, however, it is desired to grind a tool with curved surfaces, it is necessary to give the tool a different motion from that which the chuck F has, since that chuck can be adjusted only to grind plane surfaces. To accomplish this, the applicants have devised a tool-holding attachment (shown specifically in Figs. 9, 10, and 11) which is inserted in the chuck in the same manner as the tool was inserted to grind plane surfaces. The use of this attachment does not involve any change in the construction of the device as used for grinding plane surfaces, but is merely an additional element added to adapt it to the grinding of curved surfaces.

The Examiner holds that claims 2 and 7, which are drawn to cover this attachment specifically, are for a different invention from the remaining claims, which cover only such of the elements as are used in grinding plane surfaces, and has therefore required division.

When the attachment is in place, a complete organized machine is presented, all of the parts of which seem to coöperate to grind curved surfaces. It consists of a combination of all of the parts, including the attachment referred to, and that attachment certainly coöperates with the other parts to produce the result intended. A claim which omits that attachment is in the nature of a subcombination in the organized machine which is disclosed and is not necessarily a different invention from the element which it omits. If it were so held, it would not be right to allow in the same case different subcombinations of the same machine; but it is well settled that it is proper to allow such subcombinations and that they do not constitute different inventions. The Examiner has not in this case stated that attachments of the kind presented in this case have been recognized by inventors and manufacturers as a subject of invention distinct and independent from the other parts of grinding-machines or that such attachments are separately classified in this Office. It must be presumed, therefore, that such attachments have not acquired a distinct status in art and manufacture, but that if any have heretofore been made they are regarded as a dependent part of the grinding-machine. In any event it is held that there is such coöperation and dependence between the attachment and other parts of the machine in this case as to warrant the joinder of claims to them in one application.

The petition is granted.

Revision of Classification.

(ORDER NO. 1,328.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 5, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

Numerous changes having been made in the subclasses and definitions in class 145, Woodworking-Tools, all of the subclasses and definitions in class 145, Woodworking-Tools, are canceled and the following substituted therefor:

CLASS 145.—WOODWORKING-TOOLS.

Augers—		Augers—	
127.	Adjustable cutting-lip,	128.	Gage attachments,
123.	Countersinks,	116.	Miscellaneous,
126.	Detachable cutters,	118.	Pod,
124.	Expanding, reverse-taper,	125.	Secondary cutters,
		122.	Square-hole cutters.

Augers—
121. Sweeps.
119. Tubular—
120. Core-cutters.
117. Twist.
2. Axes—
3. Detachable-bit.
4. Gage attachments.
Bench-planes—
15. Adjustable mouthpieces.
11. Bit adjustments—
12. Angular.
Longitudinal—
13. Pivoted-lever and screw.
14. Screw.
16. Bit-clamps.
17. Bits.
6. Chamfering.
7. Core-box.
9. Flexible-face.
20. Gage attachments.
19. Handle attachments.
10. Irregular-work.
18. Lubricating attachments.
5. Miscellaneous.
8. Strip-cutters.
Bit-stocks—
66. Miscellaneous.
70. Ratchet—
72. Pivoted pawls.
73. Sliding pawls—
74. Changeable-face.
71. Straight-crank arm.
Straight—
67. Side-driving shaft.
U-crank arm—
69. Angular bit-shaft.
68. Speeding-gear.
21. Box-openers.
22. Cant-dogs.
23. Chalk-line holders and chalkers.
24. Chisels—
25. Compound.
26. Gage.
27. Cue-trimmers.
28. Drawing-knives.
Drawing-shaves—
49. Single-handle.
29. Hammers—
30. Nail-placers.
61. Handles—
65. Cross-bar—
77. Ratchet.
79. Fastenings—
80. End-cap.
81. Wedge—
82. Screw-expanded.
Hollow—
64. Retractile-tool.
62. Magazine—
63. Registering chambers.
75. Ratchet-and-pawl.
76. Ratchet-clutch.
78. Shield attachments.
83. Socket-fastenings—
84. Bevel-closing—
85. Axial-screw—
86. Spring-retracted jaws.
87. Rotating-ring—
88. Spring-retracted jaws.
92. Screw-cap—
93. Spring-retracted jaws.
Handles—
Socket-fastenings—
Bevel-closing—
91. Screw-cone.
89. Screw-ring—
90. Spring-retracted jaws.
94. Sliding-ring—
95. Spring-retracted jaws.
96. Cam-closing—
97. Spring-retracted jaws.
107. Friction-grip.
98. Lever-closing.
104. Pivoted-latch.
102. Shouldered-tang and cap.
103. Shouldered-tang and side-socket.
105. Sliding-latch.
106. Threaded-tang.
99. Transverse-screw clamp—
100. Integral-socket.
101. Split-socket.
31. Handsaws—
35. Attachments.
32. Truss-frame.
33. U-frame—
34. Extensible.
36. Mallets.
1. Miscellaneous.
Nail-extractors—
44. Claw-bar—
45. Pivoted-fulcrum.
40. Hammer-and-anvil.
39. Holding-hook.
37. Miscellaneous.
Nipper—
43. Lever-operated.
42. Wedge-operated.
41. Nut and screw lifters.
38. Pivoted-grapple bar.
46. Nail-sets.
114. Reamers.
Saw-handles—
109. Double-grip.
108. Miscellaneous.
113. Scroll.
Spindle—
112. Longitudinal-socket and tightening-bar.
110. Side-clamping plates.
111. Transverse-socket and tightening-bar.
47. Scrapers.
48. Scraping-planes.
50. Screw-drivers—
Holding attachments—
52. Side gripping-jaws.
Shell-guide—
51. Spring-operated.
53. Spiral-tool drivers—
Forward-pressure—
54. Reversible-rotation.
55. Spokeshaves—
56. Adjustable mouthpieces.
57. Beading-bits.
58. Gage.
59. Staple-pullers.
115. Tenon-cutters.
60. Wedges.

CLASS 145.—WOODWORKING-TOOLS.

DEFINITIONS.

Class 145.

145. WOODWORKING-TOOLS. This class includes hand-tools not otherwise specifically classified which are peculiar to the woodworking art.

Subclasses.

127. AUGERS, ADJUSTABLE CUTTING-LIP. The cutting lip or lips, usually detachable, can be adjusted to bore holes of different diameters.

123. AUGERS, COUNTERSINKS. Bits especially adapted to form countersinks.
(Note.—To complete a search for these devices, subclass Augers, secondary cutters, in class 145, WOODWORKING-TOOLS, should be investigated.)

126. AUGERS, DETACHABLE CUTTERS. Some of the cutting parts are detachable.
(Note.—To complete a search for these devices, subclasses Augers, secondary cutters, and Augers, adjustable cutting-lip, in class 145, WOODWORKING-TOOLS, should be investigated.)

124. AUGERS, EXPANDING, REVERSE-TAPER. The cutting lip or lips automatically expand as the bit penetrates to bore a hole which increases in diameter from the surface inward.

120. AUGERS, GAGE ATTACHMENTS. Attachments secured to augers to gage the depth of the hole bored.

116. AUGERS, MISCELLANEOUS. Rotating bits, not otherwise specifically classified, designed to bore holes in wood.

118. AUGERS, POD. The bit is pod-shaped and cuts with its end and side edges.

125. AUGERS, SECONDARY CUTTERS. The auger is provided with supplemental cutters which are integral or detachably connected to it and bores and counterbores or countersinks a hole at one operation.

122. AUGERS, SQUARE-HOLE CUTTERS. Auger-bits constrained by a pattern or surrounded by chisels or other cutters to adapt them to cut square holes.
(Note.—To complete a search for these devices, subclass Mortising, hollow chisel and bit, class 144, WOODWORKING, should be investigated.)

121. AUGERS, SWEEPS. Bits consisting of a centering-point, which may be an auger, and one or more cutting-arms parallel to it, which cut out annular disks or rings. The cutting-arms are generally adjustable to cut disks and rings of different diameters.
(Note.—To complete a search for these devices, subclass Special-work machines, single or combined, disk-cutting, sweep-cutter, class 144, WOODWORKING, should be investigated.)

119. AUGERS, TUBULAR. Lip-cutters are formed at the end of a tubular shell, through which the shavings pass.

120. AUGERS, TUBULAR, CORE-CUTTERS. A tubular shell is provided with cutting-teeth on its edge for cutting out a plug. It is sometimes provided with core-ejectors.
(Note.—To complete a search for these devices, subclass Special-work machines, single or combined, disk-cutting, rotary tubular-cutter, class 144, WOODWORKING, should be investigated.)

117. AUGERS, TWIST. The general structure of augers in which the chips are removed through spiral grooves cut in the bit-shank or by a spiral thread or ribbon which is wrapped about the shank of the bit or which itself forms the body of the bit.

2. AXES. Tools consisting of a handle and a blade mounted transversely to it and cutting by impact. The class includes hatchets and adzes. Bill-hooks are found in class 30, PRUNING IMPLEMENTS.

3. AXES, DETACHABLE-BIT. Axes the heads of which are made up of sections, so that the cutting part may be detached for sharpening, replacement, or the like.

4. AXES, GAGE ATTACHMENTS. Gage attachments for shingling-hatchets.

15. BENCH-PLANES, ADJUSTABLE MOUTHPIECES. Bench-planes provided with an adjustable part to regulate the size of the shavings-channel.

11. BENCH-PLANES, BIT ADJUSTMENTS. Bench-planes, not otherwise classified, provided with mechanism for adjusting the plane-bit with respect to the plane-stock. Planes in which the adjustment is made by unclamping the bit and resetting it are not included.
(Note.—To complete a search for these devices, subclass Planers, stationary cutter, bit adjustments, class 144, WOODWORKING, should be investigated.)

12. BENCH-PLANES, BIT ADJUSTMENTS, ANGULAR. The plane-bit can be adjusted angularly about its cutting edge as an axis.

13. BENCH-PLANES, BIT ADJUSTMENTS, LONGITUDINAL, PIVOTED-LEVER AND SCREW. The plane-bit is adjusted longitudinally by means of a pivoted lever, one end of which engages the bit, while the other is operated by a screw.

14. BENCH-PLANES, BIT ADJUSTMENTS, LONGITUDINAL, SCREW. The plane-bit is adjusted longitudinally by the direct action of a screw or nut engaging the plane-iron.

16. BENCH-PLANES, BIT-CLAMPS. Mechanism for clamping the plane-bit to the stock.
(Note.—To complete a search for these devices, all subclasses of Bench-planes, bit adjustments, in class 145, WOODWORKING-TOOLS, should be investigated.)

17. BENCH-PLANES, BITS. Bench-plane cutting-blades and mechanism for connecting the cutting-blade and the cap-piece which coöperates with it to make the plane-bit.

6. BENCH-PLANES, CHAMFERING. Bench-planes peculiarly modified to cut chamfers.

7. BENCH-PLANES, CORE-BOX. Planes cutting grooves or channels of segmental cross-section in blocks by tilting the knife from side to side.

9. BENCH-PLANES, FLEXIBLE-FACE. Bench-planes provided with a flexible face and mechanism for longitudinally bending the face to the desired curvature.

20. BENCH-PLANES, GAGE ATTACHMENTS. Gages to be applied to bench-planes.

(Note.—To complete a search for these devices, subclasses Bench-planes, chamfering, Bench-planes, irregular-work, class 145, WOODWORKING-TOOLS, and subclass Crozing and chamfering barrels, hand-crozes, class 147, COOPERING, should be investigated.)

19. BENCH-PLANES, HANDLE ATTACHMENTS. Handles and fastening mechanism for them peculiar to bench-planes.

10. BENCH-PLANES, IRREGULAR-WORK. Bench-planes, not otherwise classified, adapted from the shape of their cutter-faces, gages, etc., to finish surfaces other than plane.

18. BENCH-PLANES, LUBRICATING ATTACHMENTS. Bench-plane attachments for lubricating the surface which is being operated upon.

5. BENCH-PLANES, MISCELLANEOUS. Bench-planes not otherwise classified.

8. BENCH-PLANES, STRIP-CUTTERS. Bench-planes to cut shavings of considerable thickness, such as blind-slats, splints, etc. Machines for this purpose are classified in class 144, WOODWORKING, Slicers.

67. BIT-STOCKS, MISCELLANEOUS. Devices, not otherwise classified, for driving auger-bits, screw-drivers, and the like, comprising a stock in which the bit is mounted, a lever for producing rotation, and a knob or the like to which pressure can be applied. This class also contains some extension-shanks for bits.

70. BIT-STOCKS, RATCHET. Bit-stocks, not otherwise classified, provided with ratchet mechanism for driving the bit.
(Note.—To complete a search for these devices, subclass Ratchet-drills, in class 77, BORING AND DRILLING, should be investigated.)

72. BIT-STOCKS, RATCHET, PIVOTED PAWLS. The pawl is pivoted and swings into and out of engagement with the ratchet-wheel.

73. BIT-STOCKS, RATCHET, SLIDING PAWLS. The pawl slides into and out of engagement with the ratchet-wheel.

74. BIT-STOCKS, RATCHET, SLIDING PAWLS, CHANGEABLE-FACE. The ratchet-engaging faces of a sliding pawl may be shifted with respect to the ratchet to rotate the bit in one direction or the other.

71. BIT-STOCKS, RATCHET, STRAIGHT-CRANK ARM. The bit-stock is spindle-shaped and carries a ratchet-wheel which is engaged by a pawl carried by a straight-lever arm at right angles to the bit-stock. The lever is sometimes pivoted to the stock and folded up beside it when not in use.

66. BIT-STOCKS, STRAIGHT, SIDE-DRIVING SHAFT. The bit is in line with the straight stock, which is geared to and driven by a shaft set at an angle (usually ninety degrees) with the axis of the bit.
(Note.—Similar structures in which the pressure-knob is replaced by a feed-screw are found in subclasses Drilling-machines, portable, and Ratchet-drills, in class 77, BORING AND DRILLING.)

69. BIT-STOCKS, U-CRANK ARM, ANGULAR BIT-SHAFT. The bit is out of alinement with the axis of rotation of the U-crank stock which drives it.
(Note.—To complete a search for these devices, subclass Handpieces, angle attachments, in class 32, DENTISTRY, should be investigated.)

68. BIT-STOCKS, U-CRANK ARM, SPREDING-GEAR. The bit is geared so that one revolution of the U-crank will produce more than one revolution of the bit.

21. BOX-OPENERS. Devices designed for prying off box-lids, sometimes combined with nail-extractors.

22. CANT-DOGS. Devices for handling logs and heavy timbers, consisting of a lever and a hook pivoted thereto.

23. CHALK-LINE HOLDERS AND CHALKERS. Reels, spools, chalk-holders, and combined reels and chalk-holders for chalk-lines.

24. CHISELS. Hand and machine mortising chisels.

25. CHISELS, COMPOUND. Chisels the bits of which are formed of several parts clamped together.

26. CHISELS, GAGE. Depth and surface gage attachments for chisels.

27. CUE-TRIMMERS. Devices for trimming the ends of billiard-cues.

28. DRAWING-KNIVES. Cutting-blades provided with handles at each end. Many of the handles are angularly adjustable and are adapted to fold up on the blade as a guard when not in use.

49. DRAWING-SHAVES, SINGLE-HANDLE. Blades set in a stock provided with a single handle and adapted to cut by a drawing action.

29. HAMMERS. Tools designed primarily to be used as hand striking-tools.
(Note.—Claw-hammers in which the novelty resides in the nail-pulling attachment are not treated as compound tools, but are placed in the appropriate subclass of Nail-extractors in class 145, WOODWORKING-TOOLS.)

30. HAMMERS, NAIL-PLACERS. Devices formed in or secured on hammers or hatchets for holding a nail in position so that a blow of the hammer will set it.

61. HANDLES. Handles and attachments for handles to be used with woodworking-tools and such general handles as are shown to be capable of such use.

65. HANDLES, CROSS-BAR. Bar-handles, usually spindle-shaped, mounted transversely to the bit, generally an auger-bit, which is to be driven.
(Note.—Cross-bar handles provided with clamping-jaws are found in subclass Tap-wrenches in class 10, METAL BOLTS, NUTS, RIVETS, AND SCREWS.)

77. HANDLES, CROSS-BAR, RATCHET. Cross-bar handles driving bits through ratchet mechanism.

79. HANDLES, FASTENINGS. Devices, not otherwise classified, for fastening handles to woodworking-tools.

80. HANDLES, FASTENINGS, END-CAP. A cap extends beyond the edges of the tool-head eye and is secured to the end of the handle.

81. HANDLES, FASTENINGS, WEDGE. Wedges for use in retaining handles in eyed tool-heads and a few devices for removing such wedges.

82. HANDLES, FASTENINGS, WEDGE, SCREW-EXPANDED. The wedge is forced into the end of the split tool-handle by means of a screw or is itself expanded by the same means.

64. HANDLES, HOLLOW, RETRACTILE-TOOL. Hollow handles into which the tool may be wholly or partly withdrawn when not in use.

62. HANDLES, MAGAZINE. Handles chambered to form a receptacle or receptacles for several tools.

63. HANDLES, MAGAZINE, REGISTERING CHAMBERS. Several tools are held in a chambered holder mounted in the handle. This holder can be rotated to bring any of the tool-chambers in register with an opening or channel leading to the tool-socket.

75. HANDLES, RATCHET-AND-PAWL. Spindle-handles driving a bit through a ratchet and pawl.

76. HANDLES, RATCHET-CLUTCH. Spindle-handles driving a bit through a ratchet-clutch.

78. HANDLES, SHIELD ATTACHMENTS. Metal shields applied to the handles of eyed striking-tools to prevent the handle from breaking next to the tool-head.

83. HANDLES, SOCKET-FASTENINGS. Miscellaneous fastenings for retaining tools in socket-handles.
(Note.—To complete a search for such of these fastenings as have a chuck-like or movable jaw structure, such analogous devices as machine-chucks and tool-sockets, rock-drill chucks, pipe and rod vises, and expansible watch-keys should be investigated.

84. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING. Movable-jaw fastenings in which the relative movement of the holding-jaws and the handle-body or of the jaws and the jaw-actuating device, is along lines neither parallel nor perpendicular to the axis of the handle.

85. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, AXIAL-SCREW. Bevel-closing fastenings in which the jaws are drawn back into a beveled socket or are thrust forward into a conical cap or in converging grooves by an axially-moving screw working in a suitable nut.

86. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, AXIAL-SCREW, SPRING-RETRACTED JAWS. Devices similar to the preceding in which the jaws when released by the actuating means are separated by a spring or by their own resilience. A similar line of double classification is drawn in the remaining bevel-closing subclasses and in cam-closing devices.

87. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, ROTATING-RING. Devices in which the jaws are actuated by an interiorly-threaded ring which rotates but is confined by stops, so as to leave no longitudinal movement on the handle-body.

88. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, ROTATING-RING, SPRING-RETRACTED JAWS. Devices like the preceding in which springs are provided for opening the jaws.

92. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SCREW-CAP. Sockets in which a cap, screw-threaded in part, forces an attached cone over the tips of beveled jaws or forces rearwardly-beveled jaws into a conical socket.

93. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SCREW-CAP, SPRING-RETRACTED JAWS. Devices like the preceding, with spring means for opening the jaws.

91. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SCREW-CONE. Devices in which exteriorly-beveled and screw-threaded jaws are forced together by a ring or cap having an interior conical thread engaging the jaw-thread.

89. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SCREW-RING. Devices in which the jaws are given their converging movement by an interiorly-threaded ring laterally surrounding the handle and having a helical movement thereon.

90. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SCREW-RING, SPRING-RETRACTED JAWS. Devices like the preceding, with spring means for opening the jaws.

94. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SLIDING-RING. Devices in which the jaws are actuated or held closed by a ring sliding longitudinally on the wall of the socket.

95. HANDLES, SOCKET-FASTENINGS, BEVEL-CLOSING, SLIDING-RING, SPRING-RETRACTED JAWS. Devices like the preceding, with spring means for separating the jaws.

96. HANDLES, SOCKET-FASTENINGS, CAM-CLOSING. Devices in which the jaws are actuated or the tool-tang gripped by transversely-moving cams.

97. HANDLES, SOCKET-FASTENINGS, CAM-CLOSING, SPRING-RETRACTED JAWS. Devices like the preceding, with spring means for separating the jaws.

107. HANDLES, SOCKET-FASTENINGS, FRICTION-GRIP. Devices in which the tool-tang is forced into the socket and is retained by the elasticity of material forming the walls of the socket.

98. HANDLES, SOCKET-FASTENINGS, LEVER-CLOSING. Devices in which the tool is gripped by one or more pivoted clamping-levers actuated by various means.

104. HANDLES, SOCKET-FASTENINGS, PIVOTED-LATCH. Devices in which a latch pivoted to the handle engages a notch formed in the tool-shank for that purpose. No gripping action is necessary, as in the preceding subclass.

102. HANDLES, SOCKET-FASTENINGS, SHOULDERED-TANG AND CAP. Devices in which a shouldered tool tang or shank is secured in the socket by a cap or fastening-piece having an aperture smaller than the shouldered portion of the tang or one which may be moved to such position as to secure the tool after the shouldered part has passed through the cap-aperture.

103. HANDLES, SOCKET-FASTENINGS, SHOULDERED-TANG AND SIDE-SOCKET. Devices in which a tool tang or shank provided with a lateral lug or enlargement is laterally movable into a corresponding recess in the handle-socket and then secured there by additional fastening means.

105. HANDLES, SOCKET-FASTENINGS, SLIDING-LATCH. Devices in which a tool tang or shank provided with a recess is inserted in a socket having a sliding instead of a pivoted detent or latch which is laterally moved into and secured in the tang-recess.

106. HANDLES, SOCKET-FASTENINGS, THREADED-TANG. Devices in which a threaded tang is screwed into a nut secured in the handle.
(Note.—To complete a search for these devices, subclass Saw-handles, spindle, longitudinal-socket and tightening-bar, in class 145, WOODWORKING-TOOLS, should be investigated.)

99. HANDLES, SOCKET-FASTENINGS, TRANSVERSE-SCREW CLAMP. Devices in which the tool-tang is secured in the socket by turning a screw located at substantially-right angles to the axis of the socket.

100. HANDLES, SOCKET-FASTENINGS, TRANSVERSE-SCREW CLAMP, INTEGRAL-SOCKET. Devices like the preceding in which the tool-tang is held by screw or clamp in a socket conforming approximately in size and shape to the outline of the tang.

101. HANDLES, SOCKET-FASTENINGS, TRANSVERSE-SCREW CLAMP, SPLIT-SOCKET. Devices in which the parts of a split socket having the general outline of the tang are closed upon that tang by a transverse screw.

31. HANDSAWS. General structure of handsaws.
(Note.—Inventions in the cutting-teeth are placed in class 143, WOOD-SAWING.)

35. HANDSAWS, ATTACHMENTS. Attachments for handsaws, such as gages, lubricators, dust-blowers, and the like.

32. HANDSAWS, TRUSS-FRAME. The saw-blade is mounted in the ordinary bucksaw truss-frame having an intermediate stiffening-brace.

33. HANDSAWS, U-FRAME. The saw-blade is mounted in a U-shaped frame.

34. HANDSAWS, U-FRAME, EXTENSIBLE. The part of the U-frame which is parallel to the saw-blade can be varied in length.

36. MALLETS. Striking-tools the impacting faces of which are made out of soft metal, rawhide, wood, or other soft material.

1. MISCELLANEOUS. Woodworking-tools not otherwise classified

44. NAIL-EXTRACTORS, CLAW-BAR. Nail-extractors consisting of a claw fixed to a lever

45. NAIL-EXTRACTORS, CLAW-BAR, PIVOTED-FULCRUM. Claw-bars provided with a fulcrum which is pivoted to the lever; also, some bars provided with extensible fulcrums.
(Note.—To complete a search for these devices, subclass Nail-extractors, pivoted grapple-bar, in class 145, WOODWORKING-TOOLS, should be investigated.)

40. NAIL-EXTRACTORS, HAMMER AND ANVIL. Nail-extractors provided with a hammer for forcing the claw or nipper into engagement with the nail to be operated upon.

39. NAIL-EXTRACTORS, HOLDING-HOOK. The lifting-claw is held in contact with the nail by a pivoted hook engaging either with the nail or with some fixed support.

37. NAIL-EXTRACTORS, MISCELLANEOUS. Nail-extractors not otherwise classified.

43. NAIL-EXTRACTORS, NIPPER, LEVER-OPERATED. The nail is grasped by a pair of nipping-jaws which are lever-operated. One jaw of the nipper is ordinarily a prolongation of the lever.

42. NAIL-EXTRACTORS, NIPPER, WEDGE-OPERATED. The nail is grasped by a pair of nipping-jaws, which are forced together by a wedge or cam action.

41. NAIL-EXTRACTORS, NUT AND SCREW LIFTERS. Nail-extractors and a few analogous devices, such as horseshoe-calk pullers and devices for removing teeth from coal-breaking cylinders, in which the lifting force is applied through a nut and threaded lifting-bar.

38. NAIL-EXTRACTORS, PIVOTED GRAPPLE-BAR. The nail-engaging grapple or claw is pivoted to the lifting-lever.

46. NAIL-SETS. Tools to be set against the head of a nail and struck by a hammer to set the nail-head below the surface of the work in which it has been driven.

114. REAMERS. Rotating bits with side-cutting edges used in enlarging holes previously made.
(Note.—To complete a search for these devices, subclass Reamers in class 77, BORING AND DRILLING, should be investigated.)

109. SAW-HANDLES, DOUBLE-GRIP. Saw-handles adapted to be grasped by both hands of the operator.

108. SAW-HANDLES, MISCELLANEOUS. Handles and handle-fastenings, not otherwise classified, for handsaws.

113. SAW-HANDLES, SCROLL. The ordinary irregularly-shaped saw-handle having an opening through which the fingers of the operator are passed.

112. SAW-HANDLES, SPINDLE, LONGITUDINAL-SOCKET AND TIGHTENING-BAR. Spindle-shaped handles provided with an axial socket, into which the tightening-bar is secured. Usually the tightening-bar is threaded and engages with a nut fixed in the handle.

110. SAW-HANDLES, SPINDLE, SIDE-CLAMPING PLATES. A spindle-shaped handle attached to a saw-blade by means of plates secured to the handle and between which the saw-blade is clamped.

111. SAW-HANDLES, SPINDLE, TRANSVERSE-SOCKET AND TIGHTENING-BAR. A spindle-shaped handle secured to a saw-blade by a bar, one end of which is secured to the saw-blade, the other passing transversely through the handle or through a bracket attached to the handle.

47. SCRAPERS. Tools comprising a handle and a scraping-blade.

48. SCRAPING-PLANES. Scraping-blades set in a plane-like stock.
(Note.—To complete a search for these devices, subclass Drawing-shaves, single-handle, in class 145, WOODWORKING-TOOLS, should be investigated.)

50. SCREW-DRIVERS. Bits and gripping devices for driving wood-screws.

52. SCREW-DRIVERS, HOLDING ATTACHMENTS, SIDE-GRIPPING JAWS. The screw is held in contact with the driving-bit by one or more, generally two, side-gripping jaws.

51. SCREW-DRIVERS, SHELL-GUIDE, SPRING-OPERATED. The screw is guided by a tubular shell which surrounds the bit and is normally held beyond it by a spring.

53. SPIRAL-TOOL DRIVERS. The tool is rotated by the mutual interaction of a nut and coarse-pitched screw-thread.

54. SPIRAL-TOOL DRIVERS, FORWARD-PRESSURE, REVERSIBLE-ROTATION. Spiral-tool drivers in which, without change of direction in the application of force, rotation in either direction may be secured.

55. SPOKESHAVES. A plane-bit set in a knife-stock, short in comparison with its breadth and provided with a handle at each side. The tool is used to dress spokes, felles, etc.

56. SPOKESHAVES, ADJUSTABLE MOUTHPIECES. The opening in the stock through which the shavings pass can be altered by the adjustment of a movable mouthpiece or shoe.

57. SPOKESHAVES, BEADING-BITS. Spokeshaves provided with pattern-bits for cutting moldings. Many of the cutters are disks with various patterns around the periphery.

58. SPOKESHAVES, GAGE. Gage attachments for spokeshaves.
(Note.—To complete a search for these devices, subclass Spokeshaves, beading-bits, class 145, WOODWORKING-TOOLS, should be investigated.)

59. STAPLE-PULLERS. Devices for pulling staples, particularly wire-fence staples.

115. TENON-CUTTERS. Cutters for forming round tenons on spokes and the like, generally adapted to be mounted on a bit stock or spindle.

60. WEDGES. Wedges for splitting wood, etc.

C. H. DUELL,
Commissioner.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 9 TUESDAY, FEBRUARY 27, 1900 PRICE—$5 per year.

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Attorneys.

(ORDER No. 1,329.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 16, 1900.

Pursuant to the provisions of section 487 of the Revised Statutes, Alfred E. Glascock and Glascock & Co., of Washington, D. C., are, with the approval of the Secretary of the Interior, hereby disbarred from practice before the United States Patent Office for gross misconduct.

C. H. DUELL,
Commissioner.

(ORDER No. 1,330.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 16, 1900.

Pursuant to the provisions of section 487 of the Revised Statutes, Alfred Meltzer, of Chicago, Ill., is, with the approval of the Secretary of the Interior, hereby disbarred from practice before the United States Patent Office for gross misconduct.

C. H. DUELL,
Commissioner.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 29, 1900.

SIR: The Secretary of the Interior has ordered that William A. Aultman, of Mt. Orab, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 29, 1900.

SIR: The Secretary of the Interior has ordered that Frank H. Kerr, of Steubenville, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED FEBRUARY 27, 1900.

Labels.

7,365.—Title; "SPURGIN'S NEW FERRET INDEX." (For an Index.) *Spurgin Manufacturing Company*, Chicago, Ill. Application filed February 3, 1900.

7,366.—Title: "PHIPPS & ATCHISON LONDON." (For Hats.) *Phipps & Atchison*, New York, N. Y. Application filed January 18, 1900.

7,367.—Title: "THE SEAL of KENTUCKY." (For Flour.) *The Newport Milling Company*, Newport, Ky. Application filed January 30, 1900.

7,368.—Title: "OLD HONESTY." (For Flaked Oats.) *The Tingle & Drake Company*, Zanesville, Ohio. Application filed February 3, 1900.

7,369.—Title: "BLUE TRIPOD NATURAL LIMA BEANS." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed February 1, 1900.

7,370.—Title: "POINTER BRAND." (For Oranges.) *Azusa-Covina-Glendora Fruit Exchange*, Azusa, Cal. Application filed January 31, 1900.

7,371.—Title: "STAG BRAND." (For Oranges.) *Azusa-Covina-Glendora Fruit Exchange*, Azusa, Cal. Application filed January 31, 1900.

7,372.—Title: "THOROUGHBRED SEEDS." (For Seeds.) *George Tait & Sons*, Norfolk, Va. Application filed January 27, 1900.

7,373.—Title: "LUSTERINE." (For a Polish.) *Millard Woodsome*, Boston, Mass. Application filed January 29, 1900.

7,374.—Title: "LILY WATER." (For a Water.) *Adam Schantz*, Dayton, Ohio. Application filed January 30, 1900.

7,375.—Title: "MEDICATED CATARRH TOBACCO." (For Cigarettes, Cigars, and Smoking-Tobacco.) *J. M. Moyers*, Richmond, Va. Application filed February 3, 1900.

7,376.—Title: "AMAZON AGUE ELIXIR." (For a Medicine.) *H. W. Lake*, Waterbury, Conn. Application filed January 5, 1900.

7,377.—Title: "KEIM'S TOLU COUGH CURE." (For a Medicine.) *J. C. Todd*, Philadelphia, Pa. Application filed January 31, 1900.

Prints.

206.—Title: "THE SCRANTON CORRESPONDENCE SCHOOLS." (For Books and Pamphlets.) *The Scranton Correspondence Schools*, Scranton, Pa. Application filed February 1, 1900.

207.—Title: "FOREST CREAM." (For a Toilet Preparation.) *Thomas C. Grimshaw*, Pittsfield, Ill. Application filed January 31, 1900.

208.—Title: "GRAPHITE-OXIDE." (For Paint.) *Schroeder, Smith & Schroeder*, Lancaster, Pa. Application filed February 2, 1900.

209.—Title: "ROCK BOTTOM FLOOR PAINT." (For Paint.) *Schroeder, Smith & Schroeder*, Lancaster, Pa. Application filed February 2, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 20, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 6	Feb. 12	158
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Feb. 5	Feb. 9	100
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Feb. 5	Feb. 8	99
240	VII. Velocipedes, Games, and Toys.	Feb. 5	Feb. 8	180
106	II. Farm Stock, Products, etc.	Jan. 29	Feb. 12	185
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Jan. 25	Feb. 7	159
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 25	Feb. 6	173
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 25	Feb. 3	102
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 24	Feb. 8	90
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Jan. 24	Feb. 7	200
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Jan. 23	Feb. 8	75
253	X. Carriages and Wagons.	Jan. 23	Feb. 7	151
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 23	Feb. 7	126
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Jan. 23	Feb. 7	180
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Jan. 23	Feb. 6	157
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 22	Feb. 9	156
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 22	Feb. 9	97
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 22	Feb. 8	151
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Jan. 22	Feb. 7	135
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255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 22	Feb. 7	204
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 22	Feb. 7	157
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 22	Feb. 7	127
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246	I. Tillage and Fences	Jan. 22	Feb. 6	136
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 23	Feb. 6	92
248	XVIII. Steam-Engineering, etc.	Jan. 22	Feb. 6	160
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91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 22	Feb. 6	225
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Jan. 22	Feb. 3	196
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111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Jan. 20	Feb. 6	265
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85	XXVIII. Pneumatics, Air and Gas Engines, etc.	Dec. 29	Jan. 13	311

Total number of applications awaiting action.....5,712

Applications Under Examination—Continued.

Under one month.			
*Designs	Feb. 12	Feb. 19	48
†Trade-Marks	Feb. 14	Feb. 19	32
‡Labels and Prints	Feb. 20	Feb. 20	----

ISSUE OF FEBRUARY 27, 1900.

Patents	517—No. 644,045 to No. 644,561,	inclusive.
Designs	33—No. 32,270 to No. 32,302,	inclusive.
Trade-Marks	40—No. 34,231 to No. 34,270,	inclusive.
Labels	13—No. 7,365 to No. 7,377,	inclusive.
Prints	4—No. 206 to No. 209,	inclusive.
Reissues	1—No. 11,810.	
Total issue	608	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nevada	----	----
Arizona Territory	----	----	New Hampshire	5	----
Arkansas	3	----	New Jersey	15	4
California	16	3	New Mexico Territ'y	1	----
Colorado	2	----	New York	74	6
Connecticut	10	1	North Carolina	----	----
Delaware	----	----	North Dakota	1	----
District of Columbia	5	1	Ohio	37	4
Florida	1	----	Oklahoma Territ'y	3	----
Georgia	3	----	Oregon	2	----
Hawaii	----	----	Pennsylvania	54	5
Idaho	----	----	Rhode Island	6	----
Illinois	50	3	South Carolina	1	----
Indian Territory	----	----	South Dakota	3	----
Indiana	13	----	Tennessee	4	----
Iowa	16	1	Texas	9	----
Kansas	4	2	Utah	9	----
Kentucky	6	2	Vermont	1	----
Louisiana	2	----	Virginia	7	1
Maine	4	1	Washington	4	3
Maryland	5	----	West Virginia	6	1
Massachusetts	33	4	Wisconsin	9	----
Michigan	16	2	Wyoming	----	----
Minnesota	10	3	U. S. Army	----	----
Mississippi	----	----	U. S. Navy	----	----
Missouri	21	3	Total to citizens of the United States	471	51
Montana	2	----			
Nebraska	6	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	----	----
Australia	----	----	Jamaica	----	----
Austria-Hungary	1	----	Mexico	----	----
Barbadoes	----	----	Netherlands	----	----
Belgium	1	----	Newfoundland	----	----
Bermuda	----	----	New South Wales	----	----
Brazil	----	----	Peru	1	----
Canada	3	1	Norway	----	----
Chili	----	----	Queensland	----	----
China	----	----	Russia	3	----
Colombia	----	----	Scotland	1	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Ecuador	----	----	Spain	----	----
England	14	3	Sweden	1	----
Finland	----	----	Switzerland	3	----
France	7	----	Victoria	1	----
Germany	40	2	Western Australia	1	----
Guatemala	1	----	Total to citizens of foreign countries	79	6
Haiti	----	----			
India	----	----			
Ireland	1	----			

PATENTS

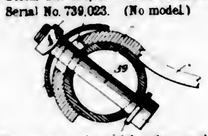
GRANTED FEBRUARY 27, 1900.

644,045. HARROW. JAMES H. ALBRIGHT, DANIEL T. ALBRIGHT, and EMERSON D. ALBRIGHT, Mifflinburg, Pa. Filed Dec. 29, 1898. Serial No. 700,382. (No model.)



Claim.—In an agricultural implement of the character described, longitudinal side bars, castings detachably connected with the inner sides of the bars in transverse alinement and having horizontal openings outwardly flared at the ends adjacent to the bars, and toothed bars having their end portions revolubly fitted in the openings of the said castings, and having their terminals outwardly deflected to fit the flared ends of the aforesaid castings and abutting against the inner sides of the longitudinal bars, said toothed bars bracing the longitudinal bars transversely against inward and outward displacement.

644,046. HARROW. JAMES H. ALBRIGHT, DANIEL T. ALBRIGHT, and EMERSON D. ALBRIGHT, Mifflinburg, Pa. Original application filed Dec. 29, 1898, Serial No. 700,382. Divided and this application filed Dec. 2, 1899. Serial No. 739,023. (No model.)



Claim.—1. The combination with a bar or shaft, of a tooth having a curved arm, a bolt, and an arched yieldable clamp in active relation to the arm of said tooth and to said bolt, the radius of the arched clamp being less than the curvature of the tooth-arm.

2. The combination with a shaft or bar, a tooth having a bearing thereon, a bolt passing through the tooth and the shaft, and a permanently-elastic clamp interposed between a nut on the bolt and said tooth, the radius of the spring-clamp being less than the curvature of the tooth.

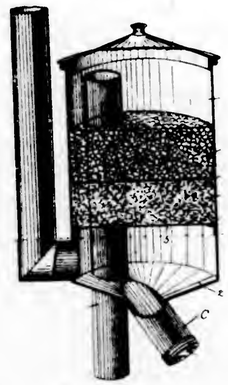
3. The combination with a shaft or bar having a circular cross-sectional outline and a transverse opening, and an earth-treating device having a curved arm to fit against the shaft or bar and provided with a longitudinal slot in the curved portion, of a bolt passing through the opening of the shaft and a slot of the arm, and a spring-clamp of less radius than the curved portion of the arm and interposed between it and the clamping portion of the bolt, said spring-clamp overlapping and concealing the longitudinal slot of the curved arm.

644,047. RAIN-WATER FILTER AND SETTLING-TANK. THEODORE ALMQUIST, Cokato, Minn. Filed Aug. 21, 1899. Serial No. 727,873. (No model.)

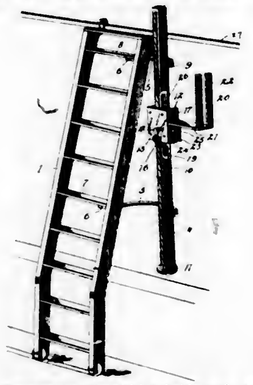
Claim.—1. An apparatus of the class described, consisting of a filter-chamber, provided with a bottom sloping downwardly and inwardly toward its center, a pocket or pipe extending down from the center of the bottom, an inflow-pipe opening into the lower part of the chamber at the side, filtering material arranged in said chamber above the outlet end of the inflow-pipe, and an outflow-pipe leading from the space above the filtering material to the outside of the chamber.

2. An apparatus of the class described, consisting of a filter-chamber provided with a bottom sloping downwardly and inwardly toward its center and terminating in a downwardly and outwardly extending pipe or pocket, an inlet-pipe opening into the lower part of the chamber at the side, filtering material arranged in said chamber above the outlet end of the inflow-pipe, and an outflow-pipe leading from the space above the filtering material to the outside of the chamber.

644,047.



644,048. STEP-LADDER. CHARLES E. ANDRE, Burlington, Iowa. Filed Nov. 28, 1899. Serial No. 738,565. (No model.)



Claim.—1. The combination with a ladder, of a guide secured thereto and held vertically suspended at one side thereof, and a carrier provided with rollers movably bearing on the said guide.

2. The combination with a ladder, of a vertical guide having stop projections thereon, the said guide being disposed at one side and clear of the ladder, and a carrier provided with rollers movably bearing on the said guide and having a stop device to engage the said projections.

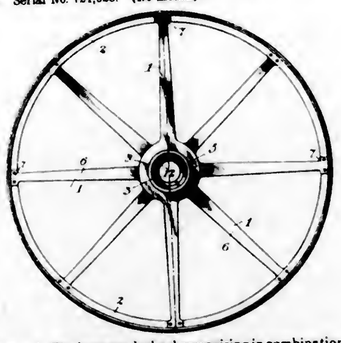
3. The combination with a ladder, of a guide secured thereto and having roller-engaging devices on the opposite sides thereof, and a carrier movably mounted on the said guide and having rollers for operation in relation to the said roller-engaging devices.

4. The combination with a ladder, of a guide disposed vertically and held outwardly from one side of the ladder, a carrier slidably mounted on the said guide, and an angular support attached to one side of the carrier.

5. The combination with a ladder, of a guide secured thereto

and having stop devices thereon and opposite side edge grooves, a carrier having rollers to engage the said grooves, a spring-actuated pawl to coact with the stop devices, and a handle or grip to one side of the pawl, and a support removably applied to one end of the carrier.

644,049. WHEEL. DAVID BAKER, Chicago, Ill. Filed June 23, 1899. Serial No. 721,625. (No model.)



Claim.—1. The improved wheel comprising in combination, a hub, a rim, continuous superposed sheet-metal spokes on each side of the wheel provided midway between their ends each with an opening to receive the hub and secured each to the rim at diametrically-opposite points, and tension-sleeves adjustable longitudinally of the hub and adapted to engage the inner spokes only, adjacent to their openings.

2. The improved wheel comprising in combination, a hub, a rim, continuous sheet-metal spokes provided midway between their ends each with an enlarged portion containing an opening and secured at their ends to the rim at diametrically-opposite points, and adjustable tension-sleeves mounted on the hub and extending within the openings in the spokes and provided each with an annular shoulder to form a support for the spokes.

3. The improved wheel comprising in combination, a hub, two series of continuous sheet-metal spokes arranged respectively on opposite sides of the wheel with the spokes on one side arranged midway between those on the opposite side, and each spoke provided midway between its ends with an opening, and adjustable tension-sleeves mounted on the hub and extending within the openings in the spokes.

4. The improved continuous spoke consisting of a sheet-metal strip provided midway between its ends with an opening to receive an adjusting-sleeve on the hub, and formed at its ends to be secured to the rim of the wheel at diametrically-opposite points.

644,050. MANUFACTURE OF LEAD PEROXID AND ITS APPLICATION TO ELECTRICAL STORAGE BATTERIES. HERMANN BECKMANN, Witten, Germany. Filed Dec. 9, 1899. Serial No. 739,778. (No specimens.)

Claim.—1. A process for producing lead peroxid particularly as a coating for the electrodes of storage batteries which consists in introducing metallic lead into a solution of free sulfurous acid as a positive electrode and subjecting it to the action of an electric current.

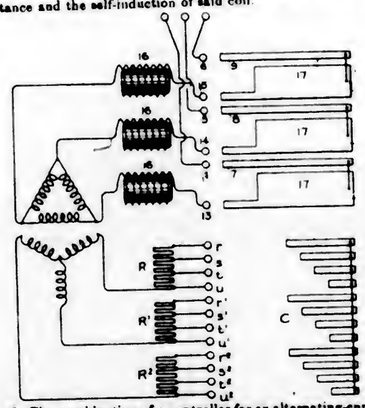
2. A process for producing lead peroxid particularly as a coating for the electrodes of storage batteries which consists in introducing metallic lead into a solution of a salt that in conjunction with an acid will generate sulfur dioxid adding a suitable acid and subjecting the lead as a positive electrode to the action of an electric current.

3. A process for producing lead peroxid particularly as a coating for the electrodes of storage batteries which consists in introducing metallic lead as a positive electrode into a solution of sodium hyposulfite in water, adding sulfuric acid and introducing an electric current.

644,051. CONTROLLER FOR ALTERNATING-CURRENT CIRCUITS. ERNST J. BERG, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 11, 1899. Serial No. 733,246. (No model.)

Claim.—1. The combination of an induction-motor, a resistance in the secondary of the motor, an inductance device in the primary leads of the motor, and a controller for varying the amount of said resistance and for varying the self-induction of said device.

2. The combination of an induction-motor, a resistance in the secondary of the motor, an inductance-coil in the primary leads of the motor, and a controller for asynchronously varying the amount of said resistance and the self-induction of said coil.



3. The combination of a controller for an alternating-current circuit, an inductance-coil in said circuit and a short-circuited secondary arranged to be put in close inductive relation to said inductance-coil at all times other than when the controller is about to break or has broken said circuit.

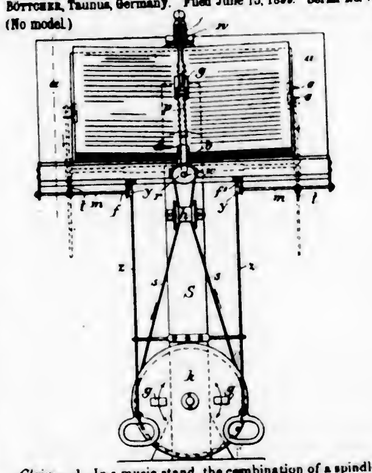
4. The combination of a controller for an alternating-current circuit, an inductance-coil in said circuit and a short-circuited secondary carried by said controller and arranged to be put out of close inductive relation to said inductance-coil when the controller is in position to break said circuit.

5. The combination of a translating device, an inductance-coil, a controller provided with contacts, and cooperating contact-fingers for connecting said translating device in circuit and for varying the energy supplied to the same, and means for varying the reactance factors of said inductance-coil without varying its number of effective turns.

6. The combination of a translating device, an inductance-coil, a controller for said translating device, means operated by said controller for increasing the reactance factor of said inductance-coil as the controller is moved to the off position and for maintaining said factor at a minimum at other positions of the controller.

7. In a switching means for alternating-current circuits, the combination of a resistance-varying means, and asynchronously and dependently operated means for introducing a high reactance electromotive force into said circuit.

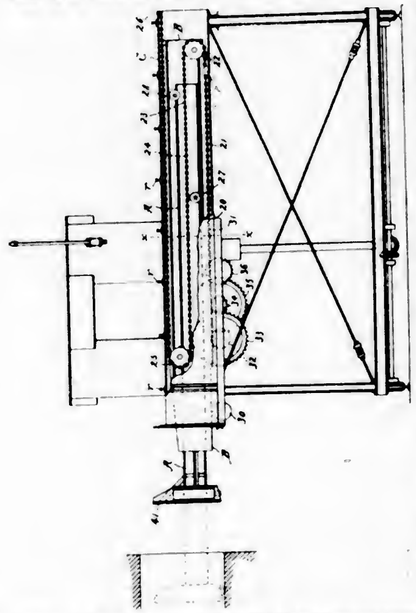
644,052. MUSIC LEAF-TURNER AND STAND. BERNHARDT BÖTTCHER, Taunus, Germany. Filed June 15, 1899. Serial No. 720,674. (No model.)



Claim.—1. In a music-stand, the combination of a spindle mounted in adjustable bearings and extending from the upper to the lower part of the desk, a cord-pulley on the lower end thereof and a cord-disk, by means of which said pulley may be operated by the foot of the player to partially turn said pulley, an arm fast on the said pulley-spindle having a sliding double rack mounted in its free end and an eye attached to each leaf of the music, to be turned over and means for causing said sliding rack to engage with its upper end one of said leaf-eyes, and for disengaging said rack end from the said leaf-eye after the leaf has been turned over substantially as described.

2. In a music-stand the combination of a centrally-disposed spindle and means for turning the same from the lower part of the stand, substantially as set forth, an arm fast on said spindle and a sliding double rack mounted at the free end of said arm, a pawl at either side of the desk in the path of movement of the said arm and rack, each pawl being adapted and movable to operate said rack in the opposite directions, a rotary spindle at either side of the desk, having lever to carry the said pawl, and footholds or loops suspended from said levers to operate said pawls in the manner and for the purpose substantially as described and for the purpose specified.

644,053. COKE-PUSHER. ALEXANDER E. BROWN, Cleveland, Ohio. Filed Apr. 26, 1899. Serial No. 714,519. (No model.)



Claim.—1. In an apparatus for charging or drawing coke-ovens, open-hearth or steel-heating furnaces, and the like, the combination of a frame or supporting structure, and a pusher bar or ram composed of sectional members, one of which members rests and is movable horizontally upon said frame or supporting structure, upon or against rollers or similar rotating supports or bearings provided for the purpose, and the other of which members rests upon the first named of said members, upon or against like rollers or rotating supports or bearings; sheaves or similar appliances, at the rear and forward portions respectively of said first-named member, and chains, or like devices, fastened to the rear portion of said second-named member, and, respectively, to the rear and forward portions of said frame or structure, which chains, in one case, pass over said sheave or sheaves at said rear portion, and, in the other case, pass over said sheave or sheaves at said forward portion of said first-named member, together with suitable means for actuating said first-named member horizontally forward and back on said frame or supporting structure, substantially as shown and described.

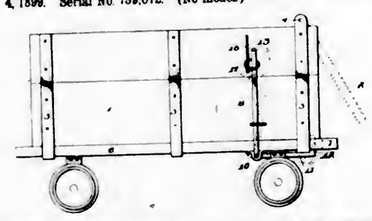
2. In an apparatus for charging or drawing coke-ovens, open-hearth or steel-heating furnaces, and the like, the combination of the box-girder C, having a suitable frame or supporting structure, the hollow beam or bar B, horizontally mounted on said box-girder C upon and against rollers as described; the pusher-bar A, mounted upon or within said beam or bar B, upon and against rollers provided for the purpose likewise as described, and sheaves 22 and 25 journaled in said beam or bar B at its rear and forward portions, respectively, and chains 21 passing over the sheaves 22 and anchored at one end to the rear portion of the pusher-bar A, and at the other end to the girder C, or its frame or support at or near the point described; chains 24 passing over the sheave 25, and anchored, at one end, to the rear portion of the pusher-bar A, and at the other end, to the rear portion of the girder C, or its frame or support, together with suitable means for actuating said beam or bar B forward and back upon said girder C, substantially as shown and described.

3. In an apparatus for charging or drawing coke-ovens, open-hearth or steel-heating furnaces, and the like, the combination of the box-girder C horizontally mounted upon a suitable frame or supporting structure provided for the purpose, the hollow beam, or bar, B having racks 31 and pinions 32, meshing therewith: the track-rollers 29, journaled to the sides of the beam or bar B, at its inner end, and resting on the girder-tracks *g*, provided for the purpose; the rollers 30, journaled to the outer end of said beam or bar, as described, the pusher-bar A, provided with supporting rollers 27, resting on flanges or tracks, provided for the purpose, on or near the lower side edges of the beam or bar B, and the rollers 28 bearing against suitable tracks along the upper portion of said beam or bar B, sheaves 22 and 25 journaled in said beam or bar B at its rear and forward portions respectively; chains 21, anchored, at one end, to the girder C, as described, which pass over the sheaves 22 and are anchored at their other end to the rear portion of the pusher-bar A; chains 24, anchored, at one end, to the rear portion of the pusher-bar A, which pass up over the sheaves 25 and are anchored, at their other end, to the girder C at its rear portion, together with a suitable gear system, in train with the pinion 32, and connected with a source of power, substantially as shown and described.

4. In an apparatus for drawing coke-ovens, open-hearth or steel-heating furnaces, and the like, the combination of a frame or supporting structure and a pusher bar or ram composed of sectional members, one of which rests upon said frame or supporting structure, upon or against rollers or similar rotating supports or bearings, provided for the purpose, and the other of which rests upon the first-named of said members, upon or against like rollers or rotating supports or bearings; sheaves or similar appliances on the rear and forward portions of the first-named of said members, and chains, or like devices, anchored to the rear portion of the second-named of said members, one of which chains or sets of chains passes up and over the said sheave on the said rear portion, to and is anchored at the forward portion of said first-named member, and the other of said chains passes up and over the said sheave on the said forward portion of said first-named member to and is anchored at the forward portion of said first-named member, together with a drum, or like device, connected with suitable driving mechanism and a chain, or similar band or like device, which passes around said drum and an oppositely-related sheave or drum provided for the purpose, and is fastened to the first above-named member at the rear of the same, substantially as shown and described.

5. In an apparatus for charging and drawing coke-ovens, open-hearth or steel-heating furnaces, and the like, the combination of a frame or supporting structure and the beam or bar B mounted on said frame or structure upon and against rollers, as described, the pusher-bar A mounted upon or within said beam or bar B upon and against rollers, likewise as described, the actuating-drum 53^a, the sheaves 50^a, 51^a, 51^b, 52^a, 52^b, the continuous chain or cable P, fastened to the rear end of the bar A, together with the stops 59 on said bar A, and the stops or bearings 54 and 55 on the beam B, and suitable means for actuating said drum 53^a, substantially as shown and described.

644,054. FASTENING FOR END-GATES FOR PIT-CARS. JAMES H. BROWN, EDWARD BELL, and JOHN SHAW, Yohoghany, Pa. Filed Dec. 4, 1899. Serial No. 739,072. (No model.)



Claim.—1. The combination with a pit or other car, of a rod or bar having its lower portion bent at an angle to the remaining portion, means for pivotally connecting the lower portion to the underneath face of the car, and a pair of horizontally-extending retaining-arms formed integral with said lower portion having the free

ends thereof bent upwardly and adapted to extend through the bottom of the car for retaining the end-gate in position, substantially as set forth.

2. The combination with a pit or other car, of a rod or bar having its lower portion bent at an angle to the remaining portion, means for pivotally connecting the lower portion to the underneath face of the car, a pair of horizontally-extending retaining-arms formed integral with said lower portion having the free ends thereof bent upwardly and adapted to extend through the bottom of the car for retaining the end-gate in position, and means for securing said rod or bar in a locked position, substantially as set forth.

644,055. BOTTLE-SPRINKLER. CHARLES F. BUTZ, New York, N. Y., assignor to Colgate & Co., same place. Filed Dec. 4, 1899. Serial No. 739,135. (No model.)



Claim.—1. A bottle-sprinkler comprising a bottle, A, having recess, *a*, formed around the mouth thereof, downwardly-projecting tubular section, *b*, a bottom portion, *c* at the base of said tubular section integral therewith, having perforations formed in said bottom portion, flange, *d*, formed in the upper portion of the section, *b*, adapted to said recess, *a*, formed around the mouth of the bottle, compressible casing, *g*, provided upon the tubular portion, *b*, and flange, *f* formed around the bottom portion, *c*, for securing the casing, *g*, in position between the flange, *d*, and the said flange, *f*, substantially as described.

2. A bottle-sprinkler comprising a bottle, A, having a recessed mouth, downwardly-projecting tubular section, *b*, a bottom portion, *c*, provided in the lower portion of said tubular section integral therewith and having perforations formed in said bottom portion, flange, *d*, formed in the upper portion of said walls, *b*, casing, *g*, provided upon the tubular portion, *b*, and flange, *f*, formed around the bottom portion, *c*, for securing the casing, *g*, in position between the flange, *d*, and the flange, *f*, and removable stopper, B, having the downwardly-projecting cylindrical portion, *h*, provided on the lower end thereof, substantially as described.

3. A bottle-sprinkler, comprising a bottle A, downwardly-projecting tubular section *b*, a bottom portion *c*, provided in the lower portion of said tubular section integral therewith and having perforations formed in said bottom portion, flange, *d*, formed in the upper portion of said walls, *b*, casing *g*, provided upon the tubular portion *b*, and flange *f*, formed around the bottom portion *c*, for securing the casing *g*, in position between the flange *d*, and the flange *f*, and removable stopper B, having the downwardly-projecting cylindrical portion *h*, and compressible disk *i*, provided on the lower end thereof, substantially as described.

644,056. NON-REFILLABLE BOTTLE. THOMAS P. CARAHER Cairo, Ill. Filed June 29, 1899. Serial No. 722,263. (No model.)



Claim.—In a non-refillable bottle, the combination with the grooved neck of the upper and lower corks, metallic cap divided or split, and having outwardly-projecting ears, adapted to be fastened together, and the top piece cut away at the division of the body portion, substantially as and for the purpose described.

644,057. ROTARY KILN. CHARLES L. CARMAN, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Feb. 20, 1899. Serial No. 706,182. (No model.)



Claim.—1. In a rotary kiln, the combination of a rotatable tubular portion provided with one or more discharge-openings in the periphery thereof, a swinging gate for each discharge-opening arranged to open and close the same, a circular guide or track made in sections and separated so as to automatically open and close the gate at its discharge-opening during the rotary movements of the kiln, substantially as described.

2. In a rotary kiln, the combination of a rotatable tubular portion provided with a discharge opening or openings in its lateral surface, a pocket arranged in line with and for each discharge-opening, and means for automatically opening and closing such pocket or pockets during the rotations of the tubular portion, substantially as described.

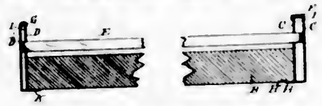
3. In a rotary kiln, the combination of a rotatable tubular portion provided with a discharge opening or openings in its lateral surface and at or near one end, a primary discharge-pocket and a second discharge-pocket in line with and for each discharge-opening, a gate or door for each pocket, and means for automatically opening and closing the gate or door to the primary and secondary pockets during the rotation of the kiln, substantially as described.

4. In a rotary kiln, the combination of a rotatable tubular portion provided with a discharge opening or openings at or near one end, a primary pocket in line with each discharge-opening, a second pocket in line with each primary pocket, a swinging gate arranged to open and close each primary pocket, a swinging gate arranged to open and close each secondary pocket, a circular guide or track made in sections separated so as to automatically open and close the gates of the primary and secondary pockets during the rotary movements of the kiln, substantially as described.

5. In a rotary kiln, the combination of a rotatable tubular portion provided with a discharge opening or openings in its lateral surface and at or near one end thereof, a primary discharging-pocket in line with each discharge-opening, a second discharging-pocket in line with each primary discharging-pocket, a weighted swinging gate or door provided with a trolley for opening and closing each primary pocket, a weighted swinging gate or door provided with a trolley for opening and closing each secondary pocket, and a circular guide or track made in at least two portions arranged adjacent to and concentric with the tubular portion and separated to provide a discharging-space between such portions and adapted to automatically open and close the gate mechanism of the discharging-pockets during the rotary movements of the kiln, substantially as described

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644,058. TEMPORARY BINDER. CHARLES H CARYL, Kalamazoo, Mich Filed June 30, 1897. Serial No. 643,042 (No model.)

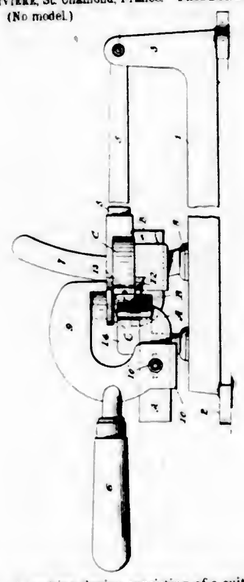


Claim.—1. In a temporary binder, the combination of a back-block B rounded on its back side and flat in front to form an abutment for the backs of the magazines to be bound; plate C at the bottom thereof with a portion F, turned outwardly from the book at right angles with suitable notches I, cut into the front thereof; a keeper-plate C adapted to hook over the projecting portion F, with a spur or ear projecting into the back of the binder to retain the same; and a plate D bent into a hook G, toward its front with slots I, cut therein; a keeper-plate D to hook over the same with an ear K to project into the back to retain the same; and binder-strips E, of sheet metal with their ends E' turned at right angles to rest within the slots I, I, and secure a magazine in place by being placed between the leaves thereof, all coacting together substantially as described for the purpose specified

2 In a temporary binder, the combination of the back-block B conformed to the shape of a book on its back side, with its front shaped to form an abutment for the backs of the magazines; plates at the top and bottom of said back-block bent outwardly to form hooks containing suitable slots; binder-strips E of sheet metal for insertion into said slots with their ends bent to retain them between the same and engage the hooks on the plates; and keeper-plates secured to the ends and projecting over the ends of the binder-strips to give the same a finished appearance and retain the binder-strips in position for the purpose specified.

3. In a temporary binder, the combination of the back-block conformed to the shape of the book on its back side with its front shaped to form an abutment for the backs of magazines; notched plates at the top and bottom of said back-block bent outwardly to form hooks, binder-strips of sheet metal for insertion between the leaves of a pamphlet or magazine adapted to extend into the slots said strips having their ends bent to hook under the hooks of the end plates to retain the same, as specified.

644,059. GRAFTING-MACHINE. JEAN M. CHEVRETON and STEPHANE RIVIÈRE, St. Chamond, France. Filed Dec. 27, 1898. Serial No. 700,453. (No model.)



Claim.—A grafting device consisting of a suitable base having a standard thereon, a lever pivoted to said standard and provided with slots parallel to the axis of the lever and one slot formed obliquely to its axis, a guide for said lever, knives secured in the aforesaid slots, and means for supporting the twigs to be operated upon, under said knives, substantially as set forth.

644,060. CUTTER-BAR FOR HARVESTERS. URIAH A. CLEVELAND, Hutchinson, Kans. Filed June 24, 1899. Serial No. 721,767. (No model.)

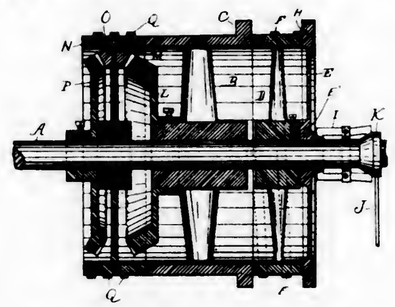


Claim.—1 In a machine of the character described, the combination with the guard-finger having a ball-bearing near its rear end, of a clamping-plate having downwardly-projecting flanges extending downward at the ends of the ball-bearing and forming stops at each end of the same, a ball-seat projecting downwardly from the forward end of the clamping-plate and a flange extending downwardly and outwardly from the outside of said ball-seat, substantially as described.

2. In a machine of the character described, the combination with the guard-finger, a cutter or sickle bar mounted thereon, of a clamping-plate extending over said cutter-bar, depending curved flanges extending from the forward end of said clamping-plate and circular in cross-section to form a ball-bearing, a ball mounted in said bearing and a flange extending downwardly from the top of said bearing, substantially as described.

3. In a machine of the character described, the combination with the guard-finger, of a ball-seat formed near the rear end of the same, slots or openings in the bottom of said seat, a cut-away portion in said finger in front of the ball-seat and a cutter or sickle bar mounted on said finger, a concaved face or bearing formed on the rear edge of said bar, a ball mounted in the bearing of the guard-finger, of a clamping-plate, and depending flanges extending downwardly from said plate over the ends of the ball-seat in the guard-finger, parallel depending flanges curved in cross-section extending from the forward edge of the clamping-plate, a ball mounted between said flanges and a flange extending downwardly and outwardly from the top of the seat formed by the parallel flanges and means for connecting said clamping-plate to the guard-finger.

644,061. FRICTION-CLUTCH. GEORGE W. COFFIELD, Dayton, Ohio. Filed Oct. 14, 1899. Serial No. 733,556. (No model.)



Claim.—In a reversible friction-clutch, the combination with a single shaft, of a main pulley B loose thereon, an adjacent wheel D tight on said shaft, an end wheel E loose on said shaft, a band F inclosing wheel D and one end of which is secured to the main pulley B and the other end of which is secured to wheel E, clutch devices secured to the shaft and adapted to lock wheel E to the shaft, a wheel N loose on the shaft, bevel-pinions M carried on the interior of said wheel N, a bevel gear-wheel L loose on the shaft, another bevel gear-wheel I' tight on said shaft, the said wheels L and I' engaging with opposite sides of the pinions M, and a band Q inclosing wheel N one end of said band being secured to a fixed point and the other end being secured to an operating-bar, whereby means are provided for driving the shaft in a direction with the main pulley and for reversing the movement of said shaft, substantially as shown and described.

644,062. NUT-LOCK. WILLIAM H. DE BRAK, Pleasant Hill, Ohio, assignor of two-thirds to William A. Raudabaugh, same place, and Joshua R. Raudabaugh, Celina, Ohio. Filed May 8, 1899. Serial No. 715,948. (No model.)

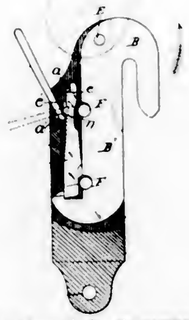


Claim.—In a nut-lock, the combination with a bolt, the screw-threaded portion of which is provided with a longitudinal groove extending from its tip inward, the outer portion of the groove being deeper than the inner portion, of a nut upon the bolt, and a key of uniform diameter throughout its length, said diameter being less than the depth of the outer portion of the groove and greater than the inner portion thereof, said key being of a greater length than the groove and of softer material than the nut, whereby the threads of the nut may be embedded within the inner end of the key and the outer end of the key may be bent around the bolt outside of the nut.

644,063. LOGGING-HOOK. WALTER M. DEYOE, Kingsley, Mich., assignor of one-half to David E. Wynkoop, same place. Filed May 23, 1899. Serial No. 717,976. (No model.)

Claim.—1. In a logging-hook device, the combination of the block A, having opposite parallel cheeks joined together and extending into an eye A', at the bottom; a hook B, pivoted at E', near the loop of the hook toward the top of said block so that the hook can be easily swung out and reversed; the shank B', of the hook provided with a hooked lug C; pins F, between the cheek-pieces against which the shank rests; a lock-piece D, retained between the cheeks and

adapted to engage the hooked lug C, on the shank B', and containing notches *c*, *c'*, to retain the same in position, and a notch *n*, for engaging a pin *a*, to the rear of said lock-piece D, to prevent its accidental displacement; and an additional pin *a'*, to serve as a fulcrum whereby a lever may be used for withdrawing the lock piece D, all coacting substantially as described for the purpose specified.



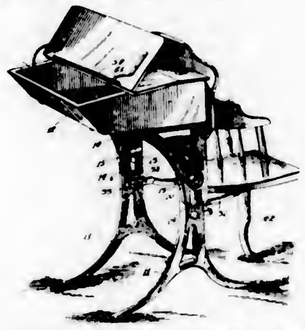
2. In a logging-hook device, the combination of a block with an eye for a chain; a hook pivoted to said block near its loop so as to throw the engaging portion thereof forward; a shank to the hook with a notch therein; a sliding lock-piece within the block to engage said notch so that the hook can be readily released for the purpose specified.

3. In a logging-hook device, the combination of a block; a hook pivoted to said block near its loop so as to throw the engaging portion thereof forward; the shank of the hook being provided with an engaging lug; a sliding lock-piece within said block to engage the lug on the shank automatically; and means of withdrawing said lock pieces, as specified.

4. In a logging-hook device, the combination of a block; a hook pivoted to said block near its loop so that it can be swung outward; a sliding lock within the block to engage said hook and retain it in such manner that it can be easily released, for the purpose specified.

5. In a logging-hook device, the combination of a block; a hook pivoted to said block near its loop end so that it can be swung outward; the said hook being provided with a hooked portion within the block adapted to swing within the block; and a sliding lock-piece to engage the hook within the block to retain the hook in the engaging position.

644,064. SCHOOL-DESK. WILLIAM T. DODD, Walla Walla, Wash. Filed Mar. 15, 1899. Serial No. 709,163. (No model.)



Claim.—1. In a school-desk, the combination with a supporting-frame and a vertically-adjustable desk-top, of an adjusting-lever fulcrumed at one end upon the frame and having bearing-contact at the other end with the under side of the desk-top, a feed-screw depending from an intermediate portion of said lever, and a feed-nut mounted upon the frame and engaging the feed-screw to impart motion to said lever, substantially as specified.

2. In a school-desk, the combination with a supporting-frame and a vertically-adjustable desk-top, of an adjusting-lever fulcrumed at one end upon the frame and having bearing contact at the other end with the under side of the desk-top, a curved feed-screw attached to and depending from an intermediate portion of the adjusting-lever, and a feed-nut mounted in fixed bearings and engaged with the feed-screw for imparting motion to the same to actuate the lever, substantially as specified.

3. In a school-desk, the combination of standards having movable and stationary members, and means for securing the former in their adjusted positions, a desk-top carried by the movable standard members, a cross-bar connecting the stationary standard members, a keeper on said bar, both bar and keeper having guide-openings, a desk-top-adjusting lever fulcrumed at one end upon said cross-bar and terminally bearing against the under side of the desk-top, a segmental feed-screw depending from the adjusting-lever and passing loosely through said guide-openings, and a feed-nut engaged with the feed-screw for imparting motion to the lever, substantially as specified.

4. In a school-desk, the combination of standards having movable and stationary members, and means for securing the former in their adjusted positions, a desk-top carried by the movable standard members, a cross-bar connecting the stationary standard members, a desk-top-adjusting lever fulcrumed at one end upon said cross-bar and having at its opposite end a rounded bearing-surface, a bearing-plate interposed between the bearing-surface of said lever and the under surface of the desk-top, a feed-screw depending from the lever, and a feed-nut mounted upon the cross-bar and engaging the feed-screw for imparting motion to the lever, substantially as specified.

5. In a school-desk, the combination of standards having movable and stationary members, and means for securing the former in their adjusted positions, a desk-top carried by the movable standard members, a cross-bar connecting the stationary standard members, an adjusting-lever fulcrumed at one end upon said cross-bar and having at its opposite end a rounded bearing-surface, a bearing-plate interposed between the bearing-surface of said lever and the under surface of the desk-top, and having a depending guide-pin engaged by the lever, a feed-screw depending from the lever, and a feed-nut mounted upon the cross-bar and engaging the feed-screw for imparting motion to the lever, substantially as specified.

6. In a school-desk, the combination of standards having movable and stationary members, and means for securing the former in their adjusted positions, a desk-top carried by the movable standard members, a cross-bar connecting the stationary standard members, an adjusting-lever fulcrumed at one end upon said cross-bar and provided at the other end with a bearing surface and a longitudinal slot, a guide-pin depending from the desk-top through said slot of the lever, and engaged by a nut, a feed-screw depending from the adjusting-lever, and a feed-nut mounted upon the cross-bar and engaging the feed-screw, substantially as specified.

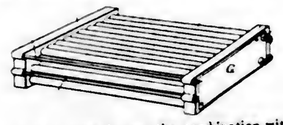
7. A school-desk having its top constructed to form a book-receptacle and having a hinged cover-section of an area less than that of the desk-top, a transverse book-supporting strip secured to the inner surface of said cover-section near its hinge, fixed stops projecting inwardly from the side walls of the book-receptacle, and brackets having straight bodies secured across the inner surface of the cover section beyond the ends of said strip, thence curving around the hinge-line, and terminating in hooks for engagement with said stops to hold the cover-section in a forwardly and upwardly inclined position, substantially as specified.

8. The combination with desk-standards, of a forwardly-extending yoke having a centrally-depending interiorly-threaded sleeve, a seat-standard removably fitted upon said sleeve, a seat-adjusting screw threaded in the sleeve and having a longitudinal channel, a set-screw engaging registering openings in the seat-standard and sleeve and terminally engaging said channel of the screw, and a seat upon the upper end of the screw, substantially as specified.

9. The combination with desk-standards, of a forwardly-extending yoke having a centrally-depending interiorly threaded sleeve, a seat-standard removably fitted upon said sleeve, a seat-adjusting screw threaded in the sleeve and having a longitudinal channel, a set-screw engaging registering openings in the seat-standard and sleeve and terminally engaging said channel of the screw, a seat swiveled upon the upper end of the screw, and stop devices for limiting the independent rotation of the seat with relation to the screw, substantially as specified.

10. The combination with desk-standards and a yoke pivotally and adjustably connected to said standards and centrally provided with an interiorly-threaded pendent sleeve, of a seat-standard removably and adjustably connected to the sleeve, a seat-screw fitted in said sleeve, a seat swiveled on the upper end of the screw, and stop devices for limiting the independent rotation of the seat with relation to the screw.

644,065. WATER-HEATER. ARTHUR W. DOWLER, Chicago, Ill. Filed June 9, 1899. Serial No. 719,898. (No model.)



Claim.—1. In a water-heater, the combination with a pair of heads each provided with two or more series of chambers, the end chamber of one series being connected with the adjacent series and a corresponding number of series of tubes, each pair of which opens into a chamber in said heads, whereby water entering one end of one of said tubes is caused to circulate alternately in opposite directions through the tubes and to pass through each of the tubes before being discharged, substantially as described.

2. In a water-heater, the combination with a pair of cast heads, each having two or more series of chambers therein, a series of holes in said heads communicating in pairs with said chambers and a cap-plate covering all of said chambers, the end chamber of one series being in open communication with the end chamber of the adjacent series, of a series of tubes fitting the holes in said heads, whereby water entering one of said tubes is caused to circulate in alternately-opposite directions successively through each of said tubes to the point of discharge, substantially as described.

3. In a water-heater, the combination with a pair of heads each provided with two or more series of chambers, the end chamber of one series being diagonally arranged for connection with the adjacent series, and a corresponding number of series of tubes each pair of which enters a chamber in said heads each series of said tubes being arranged in staggered relation to the next adjacent series to facilitate the circulation of heat.

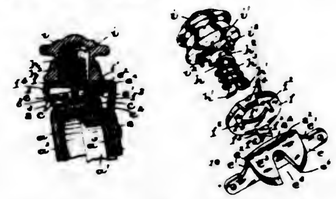
644,066. CONTROVERSIAL DEVICE. EDWARD DUNN, Watervliet, N. Y. Filed May 24, 1899. Serial No. 717,994. (No model.)



Claim.—1. In a controversial device, the combination with an inclosing case having inner and outer, relatively-fixed diaphragms, said inner diaphragm bearing upon a field opposing controversial characters, and said outer diaphragm having an aperture registering with and adapted to expose to view all of the field of the inner diaphragm occupied by said characters; of a rotary disk interposed between said fixed diaphragms and having a plurality of portions adapted to register successively with said aperture in said outer diaphragm and at the same time with the field of the inner diaphragm bearing said characters, said portions of the rotary disk bearing words referring to the subject of the controversy, and one of said portions of the rotary disk being apertured to expose to view one only of said characters, and another of said portions of the disk having one or more apertures adapted to simultaneously expose to view both of said characters when the respective portions of the disk are brought into registry with the aperture in the outer diaphragm; and mechanism for rotating said disk, whereby words on said disk and the characters on said inner diaphragm may be simultaneously exposed to view through the aperture in said outer diaphragm in connected relation with each other, substantially as described.

2. In a controversial device, the combination with a case having a cover, and an inner and outer diaphragm supported in fixed relation to each other, said inner diaphragm bearing on a field controversial characters, and said outer diaphragm having an aperture registering with all of said field occupied by said characters; of a rotary disk interposed between said diaphragms and having a plurality of portions adapted to successively register with said aperture in said outer diaphragm and at the same time with the field on the inner diaphragm bearing said characters, said portions of the disk bearing words referring to the subject of the controversy and having apertures adapted to expose to view said controversial characters in connection with said words through the aperture in the outer diaphragm; a spindle connected with said disk projected through the inner diaphragm; and mechanism for rotating said spindle contained in the space between said inner diaphragm and cover, substantially as described.

644,067. BAG-FRAME CATCH. BENNO VON EIGEN, Newark, N. J., assignor to Aug. Goertz & Co., same place. Filed Nov. 29, 1899. Serial No. 738,636. (No model.)



Claim.—1. In a purse or bag frame, the combination, with a pair of frame-sections, of a lock or catch on one of said frame-sections, comprising a fixed plate rigidly connected with the frame-section, a holding-catch connected therewith having a pivotal means of connection at or near the back of said fixed plate, for disengaging said lock or catch from the other frame-section, when pressure is applied to said holding-catch at one side thereof, and a second pivotal means of connection between said fixed plate and said holding-catch for returning the lock or catch to its normal position for holding engagement with the other frame-section, said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with said holding-catch, substantially as and for the purposes set forth.

2. In a purse or bag frame, the combination, with a pair of frame-sections, of a lock or catch on one of said frame-sections, comprising a fixed plate rigidly connected with the frame-section, a holding-catch connected therewith having a pivotal means of connection at or near the back of said fixed plate, for disengaging said lock or catch from the other frame-section, when pressure is applied to said holding-catch at one side thereof, a knob or head secured upon said holding-catch, and a second pivotal means of connection between said fixed plate and said knob or head for returning the lock or catch to its normal position for holding engagement with the other frame-section, said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with the said holding-catch, substantially as and for the purposes set forth.

3. In a purse or bag frame, the combination, with a pair of frame-sections, of a lock or catch on one of said frame-sections, a fixed plate rigidly connected with the frame-section, a pivotal disk connected therewith, having a holding-lip in normal holding engagement with the other of said frame-sections, and a second pivotal means of connection between said pivotal disk and said fixed plate, for disengaging its holding-lip from the other frame-section, when pressure is applied to said means at one side thereof and returning the lock or catch to its normal position, when released, substantially as specified, and said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with said holding-catch, and for the purposes set forth.

4. In a purse or bag frame; the combination, with a pair of frame-sections, of a lock or catch on one of said frame-sections, a fixed plate rigidly connected with the frame-section, a pivotal disk connected therewith, having a holding-lip in normal holding engagement with the other of said frame-sections, a knob or head connected with said pivotal disk and a second pivotal means of connection between said fixed plate and said knob or head, for disengaging its holding-lip from the other frame-section, when pressure is applied to said knob or head at one side thereof, substantially as specified, and said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with said holding-catch, and for the purposes set forth.

5. In a purse or bag frame, the combination, with a pair of frame-sections, of a lock or catch on one of said frame-sections, a fixed plate rigidly connected with the frame-section, a pivotal disk connected therewith, having a holding-lip in normal holding engagement with the other of said frame-sections, a chambered knob or head on said pivotal disk and a spring-encircled post pivotally connected with said pivotal disk and extending into said chambered knob or head, all arranged for the disengagement of the holding-lip on said pivotal disk from the other frame-section, when pressure is applied to said knob or head at one side thereof, substantially as and for the purposes set forth.

6. In a purse or bag frame, the combination, with a pair of frame-sections, of a fitting secured to one of said frame-sections, having a holding lip or projection, an L-shaped clip secured to the other of

said frame-sections, and a holding-catch pivotally connected with said clip at or near the back thereof, in normal holding eogagement with the holding lip or projection of said fitting on the other frame-section, but said holding-catch being capable of an upward movement for disengagement with said holding lip or projection, and a second pivotal means of connection between said clip and said holding-catch, for returning the catch to its normal position, when released, substantially as specified, and said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with said holding-catch, and for the purposes set forth.

7. In a purse or bag frame, the combination, with a pair of frame-sections, of a fitting secured to one of said frame-sections, having a holding lip or projection, an L-shaped clip secured to the other of said frame-sections, and a holding-catch pivotally connected with said clip at or near the back thereof, in normal holding engagement with the holding lip or projection of said fitting on the other frame-section, and a knob or head connected with said holding-catch, for disengaging said holding-catch from said holding lip or projection, when pressure is applied to said knob or head at one side thereof, and a second pivotal means of connection between said clip and said knob or head, for returning the holding-catch to its normal position, when released, substantially as specified, and said second pivotal means of connection being centrally connected with said fixed plate, and extending in an upward direction above said fixed plate and loosely connected with said holding-catch, and for the purposes set forth.

8. In a purse or bag frame, the combination, with a pair of frame-sections, a fitting secured to one of said frame-sections, having a holding lip or projection, an L-shaped clip secured to the other of said frame-sections, and having an opening, a pivotal disk, provided with a post or lug extending into said opening and secured against the under surface of said clip, a holding-lip on said disk in normal holding engagement with said holding lip or projection of said fitting on the other frame-section, and means connected with said pivotal disk, for disengaging it from holding engagement with the holding lip or projection of said fitting when pressure is applied to said means at one side thereof, substantially as and for the purposes set forth.

9. In a purse or bag frame, the combination, with a pair of frame-sections, a fitting secured to one of said frame-sections, having a holding lip or projection, an L-shaped clip secured to the other of said frame-sections, and having an opening, a pivotal disk, provided with a post or lug extending into said opening and secured against the under surface of said clip, a holding-lip on said disk in normal holding engagement with said holding lip or projection of said fitting on the other frame-section, a knob or head on said pivotal disk, for disengaging its holding-lip from the holding lip or projection of said fitting, when pressure is applied to said knob or head at one side thereof, substantially as and for the purposes set forth.

10. In a purse or bag frame, the combination, with a pair of frame-sections, a fitting secured to one of said frame-sections, having a holding lip or projection, an L-shaped clip secured to the other of said frame-sections, and having an opening, a pivotal disk, provided with a post or lug extending into said opening and secured against the under surface of said clip, a holding-lip on said disk in normal holding engagement with said holding lip or projection of said fitting on the other frame-section, a chambered knob or head on said pivotal disk, and a spring-encircled post connected with said pivotal disk and extending into said chambered knob or head, all arranged for the disengagement of the holding-lip on said pivotal disk from the holding lip or projection on the fitting, when pressure is applied to said knob or head at one side thereof, substantially as and for the purposes set forth.

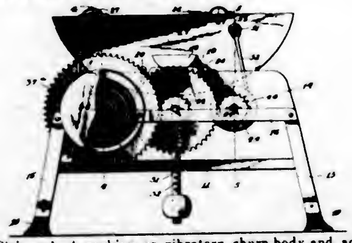
11. The herein-described holding-catch or lock consisting, essentially, of an L-shaped clip, having a shank provided with an opening c^4 and an opening c^5, a disk having a post pivotally secured in said opening c^5, and a holding lip or projection on said disk normally extending down into and through said opening c^5, substantially as and for the purposes set forth.

12. The herein-described holding-catch or lock consisting, essentially, of an L-shaped clip, having a shank provided with an opening c^4 and an opening c^5, a disk having a post pivotally secured in said opening c^5, and a holding lip or projection on said disk normally extending down into and through said opening c^5, and a knob or head secured on said disk, substantially as and for the purposes set forth.

13. The herein-described holding-catch or lock consisting, essentially, of an L-shaped clip, having a shank provided with an opening c^4, and a locking or holding disk, having a post pivotally secured in said opening c^5, substantially as and for the purposes set forth.

14. The herein-described holding-catch or lock consisting, essentially, of an L-shaped clip, having a shank provided with an opening c^4, and an opening c^5, having recessed portions c^6 in the edges contiguous to said opening c^5, a centrally-perforated disk f having a post pivotally secured in said opening c^5, and a holding lip or projection on said disk normally extending down into and through said opening c^5, a chambered head or knob secured on said disk f, and a spring-encircled post A in said knob or head, extending into and through said perforated disk f, and having end portions k' arranged in said recesses c^6, substantially as and for the purposes set forth.

644,068. CHURN. EDGAR B. EVERLY, Coffeysburg, Mo. Filed Jan. 3, 1899. Serial No. 700,992. (No model.)



Claim.—1. A rocking or vibratory churn-body and actuating mechanism therefor, in combination with a stem pendent from the churn-body and having a series of openings at intervals in its length, a weight having a vertical guide-opening therethrough to receive the said stem, one wall of the guide-opening being straight and the other inclined or flared at its upper end to admit of relative movement of the stem from the wall, and a stud projecting laterally from the upper end of the straight wall toward the inclined wall of the guide-opening and adapted to make detachable connection with the aforesaid stem by entering in one of the openings formed therein, substantially as set forth.

2 In a churn, the combination with an oscillatory churn-body and actuating mechanism therefor, of a counterbalancing-pendulum having a transversely-yielding spring-shank, a bob or weight having a guide through which said shank extends, said guide being flared at one end, and a stud arranged in the flared portion of the guide, to engage one of a series of spaced openings in the shank, to maintain the bob or weight at the desired adjustment upon the shank, the shank being capable of lateral deflection within the flared portion of the guide to disengage the same from the stud, and thereby release the bob or weight for adjustment, substantially as specified.

3. A rocking or vibratory churn-body, a motor connected therewith for operating the churn, a pendulum attached directly to the churn-body to control its movements and govern the motor, supporting bars or rockers attached to the sides of the churn-body and mounted upon the supporting-bars, guards attached to the sides of the supporting-bars and overlapping the outer sides of the rockers to prevent transverse displacement of the churn-body, and rolling stops attached to the supporting-bars at the ends of the guards to limit the extreme rocking movements of the churn and prevent its longitudinal displacement, substantially as specified.

4. In a churn, the combination with a supporting-frame and a rocking churn-body mounted thereon, of operating mechanism including a crank-disk, and means for communicating continuous rotary motion thereto, a wrist-pin carried by said crank-disk, a fulcrum-pin carried by said churn-body, a terminally-bifurcated pitman, rocking bearing-boxes 53 mounted in the terminal bifurcations of the pitman and fitted upon said wrist-pin and fulcrum-pin, respectively and keys detachably engaged with said pins to hold the bearing-boxes in place thereon substantially as specified.

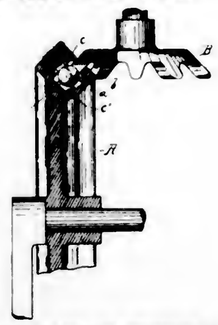
644,069. SHOE-FASTENER. AMOS L. FISHELL, Agner, Md. Filed Sept. 18, 1899. Serial No. 730,909. (No model.)



Claim.—1. A fastening for shoes, gloves, &c., comprising a plate of metal slitted to form central ears, and end lugs, said ears being bent toward each other to form a socket, and said end lugs being bent at right angles to form engaging prongs; and a catch formed from a single piece of resilient wire bent to form two loops at right angles to each other, one of said loops constituting a spring-catch to engage the socket, while the ends of the other loop form eyes for attaching the catch to the shoe or other article.

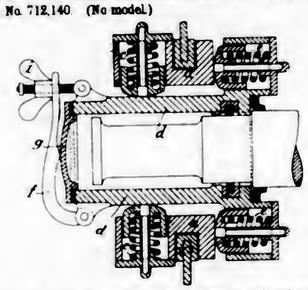
2 A fastening for shoes, gloves, &c., comprising a plate of metal formed with central ears bent and overlapped to form a socket, and with end lugs bent to form attaching-prongs; and a catch member consisting of a single piece of resilient wire bent to T shape to form a spring-loop and oppositely-projecting attaching loops or eyes, and curved longitudinally.

644,070. GEARING. CLAUDE H. FOSTER, Cleveland, Ohio. Filed May 12, 1899. Serial No. 716,609. (No model.)



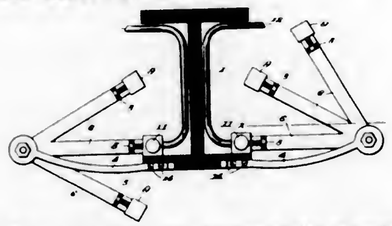
Claim.—In a gear-wheel, the combination, with a body having sperical contact elements mounted in an annular groove, and series of opposed ball-bearings, of adjustable screw-threaded plugs forming the outer ball-races of said bearings, and lock-nuts for said plugs, substantially as described.

644,071. AXLE-BOX. HANS GUMM, Bautzen, Germany, assignor of one-half to Hermann Otto, Görlitz, Germany. Filed Apr. 7, 1899. Serial No. 712,140. (No model.)



Claim.—In an axle-bearing, an axle-box, a pair of springs c, arranged at right angles thereto and adapted to permit a lateral displacement of the box, and a pair of springs e, fitted to the box parallel to the axle and adapted to permit a longitudinal displacement of the same, substantially as specified.

644,072. AUTOMATIC GRAVITY CUT-OUT FOR ELECTRICAL CIRCUITS. WILLIAM HASLOR, Poughkeepsie, N. Y. Filed June 20, 1899. Serial No. 721,266. (No model.)



Claim.—1. In a device of the character specified the combination with a base of insulating material, of contact conducting-blocks having beveled faces 10 and grooves 17 secured to said base, the line-wires 12 attached to said blocks, the supports 4 secured to the base, the gravity-arms 6 pivotally supported in the outer end thereof, the cross-head 6' on said arms, the jaws 7 on said cross-head and the fuse metal held in said jaws and resting in the grooves 17 on the contact-blocks, as described and for the purpose set forth.

2. In a device of the character specified the combination with a base of insulating material, of contact conducting-blocks having beveled faces 10 and grooves 17 secured to said base, the line-wires 12 attached to said blocks, the supports 4 secured to the base, the gravity-arms 6 pivotally supported in the outer end thereof, the cross-head 6' pivoted to the outer end of said arms, the jaws 7 on said cross-head and the fuse metal held in said jaws and resting in the grooves 17 on the contact-blocks as described and for the purpose set forth.

644,073. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,918. (No model.)



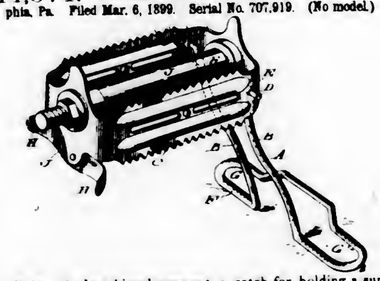
Claim.—1. In a bicycle-support attachable to a pedal-frame, a rotatable bearing, a socket, and an eye on said frame, and a sliding leg which is fitted in said bearing and adapted to have its upper end enter said socket or eye in the operative or inoperative position of the support.

2. A bicycle-support having a leg and a pedal-frame having movable bearings mounted therein through which said leg passes, a socket for the reception of said leg when the support is in operative position and an eye carried by said frame for the reception of said leg, when the support is in inoperative position, the opening in said eye being horizontal and that in said socket being substantially vertical.

3. A pedal-frame having a head rotatably mounted thereon and formed with an opening, a bicycle-support consisting of a leg and a base, said leg being adapted to slide through said opening of the head during its motions into operative and inoperative positions, and a pivotal latch pendent on its upper end from the front of said frame and adapted to engage said base.

4. In a bicycle-support, a leg with a base, a pedal-frame having a perforated head, a socket and an eye thereon, and a pivotal latch pendent from said frame, said head being journaled on said frame and said leg being adapted to slide through said head in its motions during location into operative and inoperative positions, said base being engaged by said latch in the inoperative position of said leg for controlling the latter against outer sliding motions

644,074. BICYCLE-SUPPORT. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 707,919. (No model.)



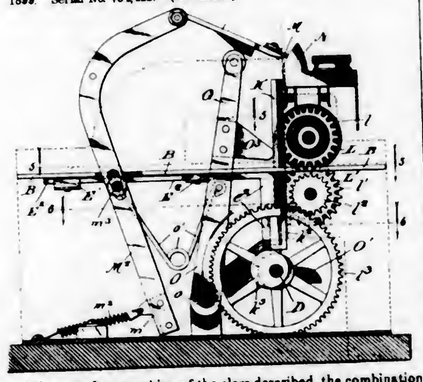
Claim.—1. In a bicycle-support, a catch for holding a supporting-leg in inoperative position on a pedal-frame, said catch consisting of a separate plate which is secured to said frame and provided with resilient terminals and finger-pieces.

2. A pedal-frame having an opening in the side thereof, and a support formed of a leg with a journal entering said opening, said leg being adapted to abut against the end wall of said frame in the operative position of the support, in combination with a spring whose ends are attached to said frame and leg, and whose intermediate portion is connected with the end piece of said frame.

3. In a bicycle-support, a pedal-frame having a catch attached thereto said catch consisting of a plate with resilient winged ends, bearings on said frame adapted to receive a journal on the leg of said support and a spring common to said leg and a suitable fixed point on said pedal-frame for lowering said leg, the base portion of said leg being adapted to be engaged by said catch for holding the support in inoperative position, said portion being adapted to press said winged ends toward each other so as to pass by and over the same, and then be seated in said plate.

644,075. MACHINE FOR STAMPING AND SEALING ENVELOPS.

FREDERICK J. HEWITT and CHARLES H. BRIDOUX, Chicago, Ill., assignors to the Hewitt Sealer and Stamper Company, same place. Filed Feb. 4, 1899. Serial No. 704,483. (No model.)



Claim.—1. In a machine of the class described, the combination of a table adapted to receive an envelop to be held in position thereon, a vertically-movable clamp between which and the table the body of the envelop is clamped and held in position, means for giving a vertical movement to the clamp, means for holding a stamp in position, for affixing to the envelop, means for moistening one of such pieces, and means for affixing a stamp to the envelop, substantially as described.

2. In a machine of the class described, the combination of a table adapted to receive an envelop to be held in position thereon, a vertically-movable clamp between which and the table the body of the envelop is clamped and held in position, means for giving a vertical movement to the clamp, means for holding a strip of stamps in position for affixing a stamp to an envelop, means for applying moisture to one of such pieces, means for cutting a stamp from the strip and affixing it to an envelop, and means for feeding the strip of stamps into position step by step, substantially as described.

3. In a machine of the class described, the combination of a table adapted to receive and hold an envelop in a horizontal position thereon, a vertically-movable clamp between which and the table the body of the envelop is clamped and held, means for giving a vertical movement to the clamp, means for holding a strip of stamps in position for affixing a stamp to an envelop, means for applying moisture to one of such pieces, means for cutting a stamp from the strip and affixing it to an envelop, and means for feeding the stamps into position in a step-by-step manner, substantially as described.

4. In a machine of the class described, the combination of a table adapted to receive an envelop to be held in a horizontal position thereon, a movable clamp between which and the table the body of the envelop is clamped and held in position to receive a stamp, means for holding a strip of stamps in position for affixing a stamp to an envelop, means for applying moisture to one of such pieces, means for cutting a stamp from the strip and affixing it to the envelop, means for feeding the stamps into position in a step-by-step manner, and means for discharging the stamped envelop after the stamp has been affixed thereon, substantially as described.

5. In a machine of the class described, the combination of a table for holding an envelop in position, a movable partition to assist in holding the envelop in position, a movable platen or similar element for squeezing the envelop between it and the table, a vibrating lever adapted to carry moisture-holding material and apply moisture to the surface of the envelop, means for operating the same, means for confining and guiding a strip of stamps, means for feeding the strip of stamps into position in a step-by-step manner, means for cutting off a stamp from the strip and affixing it to the envelop, means for operating the movable partition, and means for discharging the stamped envelop from its stamping position, substantially as described.

6. In a machine of the class described, the combination of a horizontal table for holding an envelop in position to be operated upon, a vertically-movable partition or wall to assist in holding the envelop in position, means for operating the same at the proper time, a vertically-movable platen for grasping the envelop between it and the horizontal table, means for operating the same at the proper time, a lever adapted to vibrate in a horizontal plane and carry moisture-holding material at one portion thereof and arranged to moisten a portion of the surface of the envelop, means for holding a strip of stamps, means for feeding the strip of stamps into position in a step-by-step manner, means for cutting off a stamp from the strip and affixing it to the envelop, and means for discharging the envelop from the table, substantially as described.

7. In a machine of the class described, the combination of a horizontal table for holding an envelop in position to be operated upon, a vertically-movable partition or wall to assist in holding the envelop in position, cam mechanism for operating the partition at the proper time, a vertically-movable platen for gripping the envelop between it and the table, cam mechanism for operating the same at the proper time, a swinging lever arranged to vibrate in a horizontal plane and carry a piece of moisture-holding material in contact with the surface of the envelop and moisten the same, cam mechanism for operating the swinging lever at the proper time, means for holding a strip of stamps, means for feeding the strip of stamps into position in a step-by-step manner, means for cutting off a stamp from the strip and affixing it to the envelop, and means for discharging the envelop from the table, substantially as described.

8. In a machine of the class described, the combination of a table adapted to receive an envelop to be held in horizontal position thereon, a movable clamp between which and the table the body of the envelop is clamped and held in position to receive a stamp, means for holding a strip of stamps and feeding it into position step by step for affixing a stamp to an envelop, means for applying moisture to one of such pieces, a vertically-movable plunger provided with a cutting edge for severing a stamp from the strip and affixing it to the envelop, cam mechanism for operating the stamp cutting and affixing plunger at the proper time, and means for discharging the envelop from the table after the stamp is affixed thereto, substantially as described

9. In a machine of the class described, the combination of a horizontal table for holding an envelop in position, a vertically-movable partition or wall to assist in holding the same in position and prevent its discharge, cam mechanism for moving the vertically-movable wall at the proper time to permit the discharge of the envelop, means for applying moisture to and affixing a stamp to the envelop, a lever-arm for discharging the envelop from the table at the proper time, and cam mechanism for operating the lever-arm, substantially as described.

10. In an apparatus of the class described, the combination of a horizontal table for holding an envelop in position to be operated on, a vertically-movable wall to assist in holding the envelop in position and prevent its discharge, cam mechanism for operating the vertically-movable wall at the proper time to permit the discharge of an envelop, a vertically-movable platen adapted to grip the envelop between it and the table, cam mechanism for operating the same, a swinging lever arranged to vibrate in a horizontal plane and carry a piece of moisture-holding material into contact with the surface of the envelop, cam mechanism for operating the moistening-lever in one direction, spring mechanism for vibrating it in the opposite direction, a tube for confining and guiding a strip of stamps, means for feeding the strip of stamps into position in a step-by-step manner, means for cutting off a stamp from the strip and affixing it to an envelop, and means for discharging the envelop from the table, substantially as described.

11. In an apparatus of the class described, the combination of a horizontal table for holding an envelop in position to be operated on, a vertically-movable wall to assist in holding the envelop in position and prevent its discharge, cam mechanism for operating the vertically-movable wall at the proper time to permit the discharge of an envelop, a vertically-movable platen adapted to grip the envelop between it and the table, cam mechanism for operating the same, a swinging lever arranged to vibrate in a horizontal plane and carry a piece of moisture-holding material into contact with the surface of the envelop, cam mechanism for operating the moistening-lever in one direction, spring mechanism for vibrating it in the opposite direction, a tube for confining and guiding a strip of stamps, means for feeding the strip of stamps into position in a step-by-step manner, a vertically-movable plunger provided with a cutting edge for cutting off a stamp from the strip and affixing it to the envelop, cam-and-lever mechanism for operating the plunger at the proper time or times, and means for discharging the envelop, substantially as described.

12. In an apparatus of the class described, the combination of a horizontal table for holding an envelop in position to be operated on,

a vertically-movable wall to assist in holding the envelop in position and prevent its discharge, cam mechanism for operating the vertically-movable wall at the proper time to permit the discharge of an envelop, a vertically-movable platen adapted to grip the envelop between it and the table, cam mechanism for operating the same, a swinging lever arranged to vibrate in a horizontal plane and carry a piece of moisture-holding material into contact with the surface of the envelop, cam mechanism for operating the moistening-lever in one direction, spring mechanism for vibrating it in the opposite direction, a tube for holding a strip of stamps in position, means for feeding the strip of stamps into position in a step-by-step manner, a vertically-movable plunger provided with a cutting edge for cutting off a stamp from the strip and affixing it to the envelop, cam-and-lever mechanism for operating the plunger at the proper time or times, a swinging lever-arm arranged to contact the envelop and discharge the same from the table, and cam mechanism for operating the discharging swinging lever-arm at the proper time or times, substantially as described.

13. In a machine of the class described, the combination of a horizontal table for holding an envelop in position to be operated on, a vertically-movable partition arranged to assist in holding the envelop in position and prevent its discharge, depending arm mechanism attached to said partition, cam mechanism adapted to contact the depending arm mechanism of the movable partition and operate the same at the desired time, a vertically-movable platen adapted to grasp an envelop between it and the table and provided with a depending arm, cam mechanism for operating this movable platen at the desired times, a tube for confining and guiding a strip of stamps, means for feeding a strip of stamps into position in a step-by-step manner, means for applying moisture to the envelop, a vertically-movable plunger for cutting and affixing a stamp to the envelop, cam-and-lever mechanism for operating the vertically-movable plunger, and means for discharging the envelop from the table at the proper time, substantially as described.

14. In a machine of the class described, the combination of a horizontal table for holding an envelop in position, a vertically-movable partition to assist in holding an envelop in position and prevent its discharge, means for operating the vertically-movable partition at the proper time, a vertically-movable platen for gripping an envelop between it and the table, means for applying moisture to the envelop, a slotted tube for confining and guiding a strip of stamps, finger mechanism for gripping the stamps, means for operating the finger mechanism to grip the stamps and move them forwardly in a step-by-step manner, a vertically-movable plunger provided with a cutter for cutting a stamp from the strip and affixing it to the envelop, and means for discharging the envelop, substantially as described.

15. In a machine of the class described, the combination of a horizontal table for holding an envelop in position, a vertically-movable partition to assist in holding an envelop in position and prevent its discharge, means for operating the vertically-movable partition at the proper time, a vertically-movable platen for gripping an envelop between it and the table, means for applying moisture to the envelop, a slotted tube for confining and guiding a strip of stamps, finger mechanism arranged above and below the slotted tube and adapted to be moved vertically and forwardly and backwardly to grasp the strip of stamps during its forward movement and release them during their backward movement, means for operating the finger mechanism vertically and backwardly and forwardly, a vertically-movable plunger provided with a cutting edge for cutting a stamp from the strip and affixing it to the envelop, and means for discharging the envelop from the table, substantially as described.

16. In a machine of the class described, the combination of a horizontal table to hold an envelop in position, a vertically-movable partition to assist in holding the envelop in position and prevent its discharge, depending arm mechanism on such movable partition, cam mechanism to operate the depending arm mechanism and the movable partition at the proper time and permit the discharge of the envelop, a vertically-movable platen for gripping the envelop between it and the table provided with a depending arm, a lever pivotally connected with the depending arm of the platen, cam-and-spring mechanism for operating the depending arm and platen at the proper times, a vibrating lever arranged to swing in a horizontal plane and adapted to carry moistening material to moisten the envelop, cam-and-lever mechanism for operating this moistening-lever at the proper times, a tube arranged in a horizontal place or substantially so and provided with slots in its upper and lower portions for confining and guiding a strip of stamps, finger mechanism vertically movably mounted in a slide adapted to pass through the slots in the tube for gripping the stamps and moving them forward, means for moving the finger-slide back and forward at the proper times, means for operating the finger mechanism vertically to grip the stamp and release it at the proper times, a vertically-movable plunger for cutting off a stamp from the strip and affixing it to the envelop, and means for discharging the envelop from the table at the proper time, substantially as described.

17. In a machine of the class described, the combination of a frame portion, a horizontal table for holding an envelop in position to be operated upon, a partition or wall vertically movably mounted in ways in the frame portion to assist in positioning the envelop and prevent its discharge, depending arm mechanism on this movable partition, cam mechanism to move the partition at the proper time to permit the discharge of an envelop, a vertically-movable platen provided with a depending arm mounted in a vertical guide on the frame of the machine for grasping the envelop between it and the table, a lever pivoted to the depending arm of the platen and the frame of the machine, cam-and-spring mechanism for operating this platen-lever and the platen at the proper time, a vibrating lever arranged to swing in a horizontal plane and carry a piece of moistening material into contact with the lower surface of the envelop, a sliding bar arranged to contact and operate the moistening-lever, a swinging lever arranged to operate this sliding bar, a cam-and-spring mechanism arranged to operate these swinging levers and sliding bars and carry the moistening material into contact with the envelop at the proper times, a slotted tube arranged in a horizontal plane or substantially so for confining and guiding a strip of stamps, a slide to move backward and forward and provided with two fingers vertically movably mounted therein and arranged to pass through the slots in the stamp-tube and grip a stamp during the forward movement of the same and release it during the backward movement of the same, cam mechanism for moving the slide backward and forward, cam-and-lever mechanism for operating the fingers vertically to grip the stamp and release it at the proper times, a vertically movably mounted plunger for cutting off a stamp from the strip and affixing it to the envelop, cam-and-lever mechanism for operating the plunger at the desired times, and means for discharging the envelop from the table at the proper time, substantially as described.

18. In a machine of the class described, the combination of a frame, a horizontal table for holding an envelop in position to be operated upon, a movable partition or wall mounted in vertical guides in the frame of the machine, a depending arm arranged at or near each end of the movable partition, a rotating cam-shaft, a cam on the rotating cam-shaft for each of the depending arms to operate the same and move the partition at the proper times to permit the discharge of an envelop, a movable platen adapted to grasp an envelop between it and the table and provided with a depending arm mounted in vertical guides on the frame of the machine, a lever pivoted to the frame of the machine and the depending arm of the platen, a spring connected with the lever and with the frame of the machine to move the platen downwardly, and a cam on the rotating cam-shaft adapted to move the platen upwardly against the tension of the spring, a swinging lever arranged to vibrate in a horizontal plane and carry moistening material into contact with the lower surface of the envelop, a spring to move this lever in one direction, a sliding bar and vibrating lever and a cam to operate the moistening-lever in the opposite direction, a stamp-tube arranged in a horizontal plane or substantially so and provided with slots in its upper and lower walls for confining and guiding a strip of stamps, a vertically-movable plunger for cutting off a stamp from the strip and affixing it to the envelop, a rock-shaft provided with a lever-arm engaging with the vertically-movable plunger and with a second lever-arm to be operated by a cam and a cam for moving the cutting and affixing plunger upwardly, a cam for moving the plunger downwardly, lever mechanism for discharging an envelop, and cam mechanism for operating the discharging-levers at the proper time, substantially as described.

19. In a machine of the class described, the combination of a frame, a horizontal table for holding an envelop in position to be operated upon, a movable partition or wall mounted in vertical guides in the frame of the machine, a depending arm arranged at or near each end of the movable partition, a rotating cam-shaft, a cam on the rotating cam-shaft for each of the depending arms to operate the same and move the partition at the proper times to permit the discharge of an envelop, a movable platen adapted to grasp an envelop between it and the table and provided with a depending arm mounted in vertical guides on the frame of the machine, a lever pivoted to the frame of the machine and the depending arm of the platen, a spring connected with the lever and with the frame of the machine to move the platen downwardly and a cam on the rotating cam-shaft adapted to move the platen upwardly against the tension of the spring, a swinging lever arranged to vibrate in a horizontal plane and carry moistening material into contact with the lower surface of the envelop, a spring to move this lever in one direction, a sliding bar and vibrating lever and a cam to operate the moistening-lever in the opposite direction, a stamp-tube provided with slots in its upper and lower walls for confining and guiding a strip of stamps, a vertically-movable plunger for cutting off a stamp from the strip and affixing it to the envelop, a rock-shaft provided with a lever-arm en-

gaging with the vertically-movable plunger and with a second lever-arm to be operated by a cam and a cam for moving the cutting and affixing plunger upwardly, a cam for moving the plunger downwardly, a rock-shaft provided with a discharging-lever, arm or arms projecting through the supporting-table to contact the envelop and discharge it at the proper times, a lever-arm on such rock-shaft, a cam on the rotating cam-shaft for operating the lever-arm in one direction, and a spring for operating it in the other direction, whereby the discharging-lever arm is operated at the proper time or times, substantially as described.

20. In a machine of the class described, the combination of a table for holding and supporting an envelop in position to be operated upon, a vertical partition to assist in positioning the envelop and form a support for the flap thereof, means for applying moisture to the flap of the envelop, means for raising the vertical partition at the proper times to permit the discharge of the envelop, means for sealing or affixing the free end of the flap to the envelop, and means for discharging the envelop, substantially as described.

21. In a machine of the class described, the combination of a table adapted to receive an envelop to be held in horizontal position thereon, means for clamping and holding the body of the envelop on the table, a movable retainer coacting with the table for positioning the envelop and holding the flap thereof opened, means for applying moisture to the flap, means for affixing the free end of the flap to the envelop, and means for discharging the envelop after it is sealed, substantially as described.

22. In a machine of the class described, the combination of a table adapted to receive an envelop and have the body of the envelop held in a horizontal position thereon, a movable retainer adapted for positioning the envelop on the table and holding the flap there of opened, means for applying moisture to the envelop for sealing the flap thereto, means for affixing the free end of the flap to the envelop, and means for discharging the envelop after it is sealed, substantially as described.

23. In a machine of the class described, the combination of a frame portion, a horizontal table for holding an envelop in position to be operated upon, a vertical partition movably mounted in vertical ways on the frame of the machine to assist in holding the envelop in position and furnish a support for the flap of the envelop, means for operating the vertical partition at the proper time or times to permit the discharge of the envelop, means for applying moisture to the envelop to provide for the affixing of the envelop and flap together, means for discharging the envelop from its gumming position, and a paid of rolls adapted to receive the discharged envelop and affix the free end of the flap and envelop together and discharge it in a sealed condition, substantially as described.

24. In a machine of the class described, the combination of a frame portion, a horizontal table for holding an envelop in position to be operated upon, a vertical partition or wall movably mounted in vertical ways or guides in the frame of the machine to assist in positioning the envelop and furnish a support for the flap thereof, cam mechanism for operating this vertically-movable partition at the proper time to permit the discharge of the envelop, a swinging plate provided with a piece of moisture-holding material adapted to be passed over the gum-flap and apply moisture thereto, lever mechanism on which this swinging plate is mounted to move the swinging plate into position with the gummed envelop, cam mechanism for operating this lever mechanism at the proper time or times, lever mechanism for discharging the envelop from its gumming position at the proper times, and a pair of cylindrical rolls adapted to receive the moistened envelop as it is discharged from its gumming position and seal the same, substantially as described.

25. In a machine of the class described, the combination of a frame portion, a horizontal table for holding an envelop in position to be operated upon, a vertical partition or wall to assist in positioning the envelop and prevent its discharge and form a support for the flap, cam mechanism for operating the vertical partition at the proper time or times to permit the discharge of the envelop, a swinging plate adapted to carry moistening material at its free end and contact the gummed surface of the envelop-flap and apply moisture thereto, a pair of lever-arms pivotally mounted to the frame of the machine to which the moistening-plate is pivotally secured, spring mechanism for operating these lever-arms in one direction, cam mechanism for operating the lever-arms in the other direction, a discharge lever or levers to contact the envelop at a proper time and discharge the same from its gumming position, and means for affixing the gummed edge of the flap to the body of the envelop, substantially as described.

26. In a machine of the class described, the combination of a frame portion, a horizontal table to hold an envelop in position to be operated upon, a vertical partition or wall movably mounted in vertical guides on the frame portion, depending arm mechanism on the movable partition, a cam-shaft, a cam on the cam-shaft for contacting the depending arm on the movable partition and operating the same at desired times, a swinging moistening-plate provided with moistening material at its free edge adapted to contact the gummed envelop-flap and moisten the same, a swinging lever-arm pivotally secured to the end of the moistening-plate and to the frame of the machine, a sliding bar mounted in the frame of the machine adapted to reciprocate thereon and pivotally connect with the arm of the moistening-plate, a cam on the cam-shaft for moving the sliding bar in one direction, spring mechanism for moving the sliding bar and swinging arms of the moistening-plate in the opposite direction, mechanism for discharging the envelop from its gummed position, and a pair of cylindrical rolls adapted to receive the discharging envelop and seal the flap and body of the envelop together, substantially as described

27. In a machine of the class described, the combination of a frame portion, a horizontal table adapted to hold an envelop in position to be operated upon, a vertical partition movably mounted in the vertical guides in the frame portion to assist in holding the envelop in position to be operated upon, depending arm mechanism on the vertical partition, a cam-shaft, a cam on the cam-shaft adapted to contact the depending arm mechanism and operate the partition at the desired times, a swinging plate provided with moisture-holding material at the free edge thereof, a swinging lever-arm pivotally connected to the frame portion for each end of the swinging moistening-plate to which it is pivotally connected, a connecting-bar connecting the lower ends of these swinging arms together, a sliding bar mounted in ways in the frame of the machine and pivotally connected to the cross or connecting bar of the moistening-plate arms, a cam on the cam-shaft adapted to move this sliding bar in one direction, a spring secured to the frame of the machine and to the swinging lever mechanism to move the same in the opposite direction, a supplementary lever pivotally mounted in the frame of the machine and adapted at its free swinging end to operate on the swinging plate, cam and spring mechanism to operate this supplemental lever and assist in the operations of the moistening-plate, lever mechanism for discharging the envelop from its gumming position, and a pair of cylindrical rolls adapted to receive the moistened gummed envelop and seal the same, substantially as described.

28. In a machine of the class described, the combination of a frame portion, a horizontal table adapted to hold an envelop in position for use, a vertical partition movably mounted in vertical ways or guides in the frame of the machine, depending arm mechanism on the vertical partition, a cam-shaft, a cam on the cam-shaft to operate the depending arm mechanism and move the partition at desired times and permit the discharge of the envelop, a swinging plate provided with moisture-holding material at its free edge adapted to be moved into position to apply moisture to the gummed surface of the envelop, a pivoted lever-arm for each end of the swinging moistening-plate pivotally secured to the frame of the machine, a cross-bar connecting such lever-arms together, a sliding bar to which the cross-bar is connected, a spring secured to such parts for moving them in one direction, a cam on the cam-shaft adapted to contact the sliding bar and move the parts in an opposite direction, a supplemental lever pivotally secured to the frame of the machine and so arranged that its free end contacts the swinging moistening-plate to assist it in its operations, a rock-shaft upon which the supplemental lever is mounted, an arm on such rock-shaft, a cam on the cam-shaft adapted to contact this last-named arm and operate the lever in one direction, a spring connected with the supplemental arm to move it in the opposite direction, discharging-lever mechanism to discharge the envelop from its gumming positioo, and cylindrical rolls adapted to grasp the moistened gummed envelop and seal the same, substantially as described.

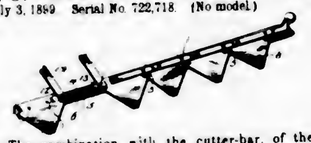
29. In an organized machine for stamping and sealing envelops the combination of a table adapted to receive an envelop to be held in a horizontal position thereon, a movable clamp between which and the table the body of the envelop is clamped and held, a movable retainer adapted for positioning the envelop on the table and holding the flap thereof opened, means for confining and guiding a strip of stamps for a stamp to be affixed to an envelop, means for applying moisture to one of such pieces, means for cutting a stamp from the strip and affixing the same to an envelop, means for moistening the gummed flap, means for discharging the envelop from its gumming position, and means for affixing the flap to the body of the envelop and sealing the same, substantially as described.

30. In an organized machine for stamping and sealing envelops, the combination of a table adapted to receive an envelop to be held in a horizontal position thereon, a movable clamp between which and the table the body of the envelop is clamped and held, a movable retainer adapted for positioning the envelop on the table and holding the flap thereof opened, means for confining and guiding stamps into position for affixing a stamp to an envelop, means for applying moisture to one of such pieces, means for affixing the stamp to the envelop, means for applying moisture to the envelop for the purpose of affixing the gummed flap thereto, means for discharging the envelop from its gumming and stamping position, and means for sealing the flap and envelop together, substantially as described.

31. In an organized machine for stamping and sealing envelops the combination of a frame portion, a rotating cam-shaft thereon, a table for holding an envelop in position to be operated on, a vertical partition movably mounted in guides in the frame of the machine to assist in holding the envelop in position and form a support for the flap and prevent the discharge of the envelop from the stamping position at desired times, cam mechanism on the cam-shaft to operate this movable partition at the desired time, means for confining and guiding a strip of stamps, means for applying moisture to the envelop, means for feeding the strip of stamps forwardly in a step-by-step manner, means for cutting off a stamp from the strip and affixing it to the envelop, means for applying moisture to the gummed surface of the envelop-flap, means for discharging the envelop from its stamping and gumming position, and a pair of cylindrical rolls adapted to receive the envelop as it is discharged and seal the flap and body portion together, substantially as described.

32. In an organized machine for stamping and sealing envelops, the combination of a frame portion, a table for holding an envelop in position to be operated on, a vertical partition or wall movably mounted in the vertical ways or guides on the frame of the machine to assist in holding the envelop in position and provide a support for the envelop-flap, means for operating the movable partition at desired times to permit the discharge of the envelop, a platen movably mounted in ways in the frame of the machine for holding the envelop between it and the table portion while a stamp is being affixed thereto and while the envelop-flap is being moistened, means for operating the platen at the desired time, a stamp-tube for confining and guiding a strip of stamps, means for feeding the strip of stamps into the desired position, means for feeding the strip of stamps into position in a step-by-step manner, a vertically-movable plunger for cutting off a stamp from the strip and affixing it to the envelop, means for operating this cutting and affixing plunger at the proper times, a swinging plate provided with moisture-holding material at its free lateral edge to apply moisture to the gummed surface of the envelop-flap, means for operating the swinging plate at the desired times, means for discharging the envelop from its stamping and gumming position, and a pair of cylindrical rolls adapted to receive the envelop as it is discharged and seal the flap and body portion together, substantially as described.

644,076. CUTTER-BAR. WILLIAM H. HODGES, Union Star, Mo. Filed July 3, 1899. Serial No. 722,718. (No model.)



Claim.—The combination with the cutter-bar, of the cross-shaped blocks arranged at intervals thereon, and a projecting pin adjacent to each block, the cutting-blades having their shanks recessed to fit the blocks and provided with openings to engage the pins, additional openings in said shanks, and pivoted levers carrying lugs for engagement with the openings in the shanks of the cutting-blades, substantially as described.

644,077. ACETYL SALICYLIC ACID. FELIX HOFFMANN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Aug. 1, 1898. Serial No. 687,385. (Specimens.)

Claim.—As a new article of manufacture the acetyl salicylic acid having the formula

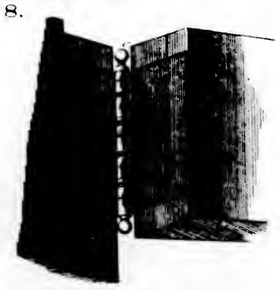
$$C^6H_4\begin{cases}O.COCH_3\\COOH\end{cases}$$

being when crystallized from dry chloroform in the shape of white glittering needles, easily soluble in benzene, alcohol and glacial acetic acid, difficultly soluble in cold water, being split by hot water into acetic acid and salicylic acid, melting at about 135° centigrade, substantially as hereinbefore described.

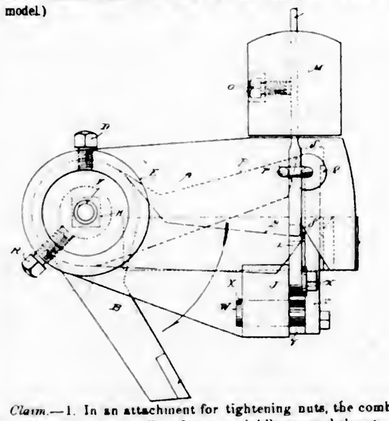
644,078. HINGE. CHARLES F. W. HORN, New York, N. Y. Filed Aug. 10, 1899. Serial No. 726,787. (No model.)

Claim.—A hinge comprising the leaves, having barrels adapted to aline, the barrels of one leaf having threaded sockets in their upper ends, the externally-threaded sleeves adapted to fit in the said sockets, said sleeves having heads upon which rest the barrels of the other leaf, and the pintle passing through all the barrels and through the threaded sleeves, substantially as shown and described.

644,078.



644,079. ATTACHMENT FOR TIGHTENING NUTS. EDWARD HUBER, Marion, Ohio. Filed May 31, 1899. Serial No. 718,903. (No model.)



Claim.—1. In an attachment for tightening nuts, the combination with a rotatable spindle, of an arm rigidly secured thereto, and a nut-tightening head adapted to be connected with said arm and rotate with said arm and spindle at one time and remain stationary at another, and a movable device interposed between said head and arm to effect such alternate connection and disconnection substantially as shown and described.

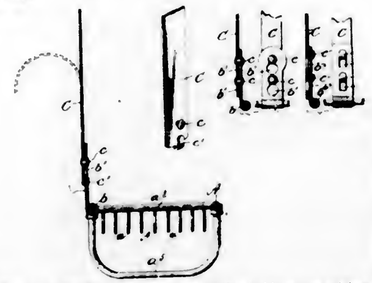
2. In an attachment for tightening nuts the combination with a rotatable spindle, of an arm rigidly mounted thereon, a weighted lever carried by said arm, a reciprocating bar adapted to be operated by said weighted lever into its normal position, a nut-tightening head, a lever rigidly connected with said head and adapted to engage with said reciprocating bar when in its normal position, and disengage therefrom when said bar is reciprocated from its normal position, substantially as shown and described.

3. In an attachment for tightening nuts, the combination with a rotatable spindle having an arm rigidly mounted thereon, of a lever pivotally connected with one end of said arm, and at its other end carrying a sliding weight, a bell-crank lever also pivoted upon said plate, a reciprocating bar pivotally connected to one arm of said lever while the other arm of said lever contacts with said weighted lever, a nut-tightening head loosely mounted in said drill spindle, a lever projectiug from said head and adapted to engage with said reciprocating bar when in its normal position and to disengage from said reciprocating bar when reciprocated out of its normal position

4. In an attachment for tightening nuts, the combination with a rotatable spindle having rigidly mounted thereon an arm, of a projection extending upward from said arm as also a slotted guide, a lever pivoted at one end to said projection and extending through the slot in said guide, an adjustable weight mounted on the other end of said lever, a bell-crank lever also pivoted to said projection, one arm of which contacts with said weighted lever, a reciprocating bar pivoted to the other arm of said lever, a shoulder on said bar, a nut-tightening head, having a stem or projection adapted to fit within the rotatable spindle and also having a lever rigidly mounted thereon, said lever being adapted to engage with the shoulder on said reciprocating bar when the bar is in its normal position and disengage therefrom when the power required to turn the nut-tightening head equals or exceeds the weight of the weighted lever, and means car-

ried by the plate to hold the head in position, all substantially as shown and described.

644,080. COMBINED SPONGE AND SOAP HOLDER. OTTO H. HEUBEL, New York, N. Y. Filed Sept. 25, 1897. Serial No. 653,050. (No model.)



Claim.—1. A hanger for suspending toilet-holders comprising a vertically-disposed ear having an aperture and provided therebelow with means for attaching it to the holder, and a flat flexible strap having a stud or pin on the outer face of its lower end to interlock with said ear-aperture, and lie flat therewith against the surface to which the holder is applied, and said strap being adapted, beyond the ear, to be bent over the edge of a tub or other support or passed behind a molding; the said ear being also adapted to be used without the straps to engage a nail or pin projecting from a wall or other surface; substantially as described.

2. The combination with a holder of the character described provided on its rear side with vertically-projecting apertured ears to permit the holder to rest flat against a wall, tub, or other support, of flat, flexible, vertical straps having studs or pins at their lower ends to interlock with said ear-apertures and adapted at their upper ends to be passed up behind a molding, or bent over or around a tub edge or other support; the said apertured ears being adapted to be used without the straps to suspend the holder from nails or pins projecting from a wall or other surface, substantially as described.

3. The combination with a holder having ears provided with an upper keyhole-slot and a lower straight slot or opening, of the flexible suspension-straps each provided on its outer face near its lower end with a headed stud and formed therebelow with an upturned hook, said straps being adapted to be bent around or over any suitable support.

644,081. DRAWER AND BOTTLE LABEL HOLDER. CLARENCE W. IVINS, Lebanon, Ohio. Filed June 15, 1899. Serial No. 720,681. (No model.)

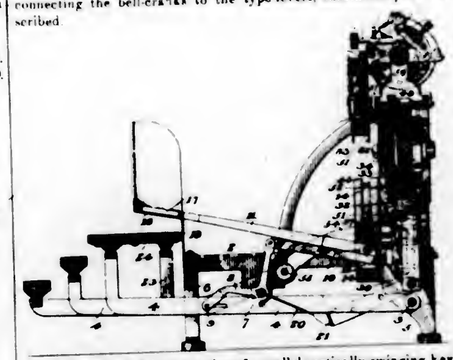


Claim.—As a new article of manufacture a label-holder, comprising a rectangular body, the back of which extends upward beyond the sides and front and is provided with a forwardly-extending spring-latch, a rectangular cover hinged to the front and forming an extension of the receptacle, the rear wall of the cover being cut away, a projection from the top of the cover and rubber buffers secured to the outer corners of the holder, substantially as described.

644,082. TYPE-WRITING MACHINE. WILLIAM J. KAUFFMAN, Canton, Ohio, assignor of two-thirds to Louis A. Loichot and Isaac Harter, same place. Filed June 11, 1898. Serial No. 683,174. (No model.)

Claim.—1. In a type-writer, a series of parallel vertically-swinging bell-crank levers, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers connected to the key-levers, said bell-crank levers having arms of the same length and swinging on a common horizontal axis, a series of type-levers mounted in a curved plane, and links connecting the bell-crank levers to the type-levers; substantially as described.

2. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers, with arms moving in parallel planes upon a common horizontal axis, one arm of each bell-crank having a direct loose connection with a key-lever, a series of type-levers mounted in a curved plane, and links connecting the bell-cranks to the type-levers, substantially as described.



3. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers, having a common horizontal axis and connected to the key-levers, a series of type-levers mounted in a curved plane, and links connecting the bell-cranks to the type-levers, each link being bent so that its ends are substantially parallel to the planes of movement of the parts to which they are connected; substantially as described.

4. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers which are duplicates of each other, each having a lower arm directly connected by a loose joint with a key-lever, a series of swinging type-levers mounted in a curved plane, and links connecting the upper arms of the bell-crank levers with the short arms of the type-levers, said links differing in length and being bent so that their end portions are substantially parallel to the planes of movement of the parts to which they are connected; substantially as described.

5. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers mounted over the same, with a common horizontal axis, said levers having arms of the same length, a series of type-levers mounted in a curved plane, and flat bars of different lengths connecting the upper arms of the bell-crank levers to the type-levers, said bars being bent so that each end portion is substantially parallel to the plane of movement of the part to which it is connected, substantially as described.

6. In a type-writer, a curved support having a dovetailed slot, a series of projecting plates having bases fitting in the slot, spacing-blocks between the plates in the slot, means for clamping the parts together and a series of type-levers pivoted between the plates; substantially as described.

7. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers, each having one arm provided with a loose pin-and-slot connection with a key-lever, and a pivotal link connection between the other arm and the type-lever, said bell-crank levers being pivoted in their elbow portions between the connections to the key-levers and the links, substantially as described.

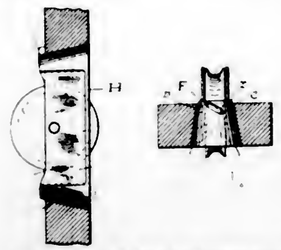
644,083. SASH HOLDER AND LOCK. FRED C. LEAVITT, Grantham, N. H. Filed July 15, 1899. Serial No. 723,949. (No model.)



Claim.—A spring-actuated pivoted lever, adapted to be secured within the window-frame, and having one of its ends crossing the path of movement of the lower sash, a spring-arm secured to said lever and in one position adapted to cross the path of movement of the sash, and a post adapted to be engaged with the spring-arm and hold the free end of the lever away from the path of movement of the sash, substantially as and for the purpose set forth.

644,084. WINDOW-PULLEY. ALFRED A. LIBBY, Portland, Me., assignor of one-half to Benjamin F. Allen, same place. Filed Sept. 25, 1899. Serial No. 731,556. (No model.)

Claim.—1. In a window-pulley, in combination, a shell provided with tapering ends, a lip on one end and a groove extending diagonally across the other end thereof on the other, substantially as and for the purposes set forth.



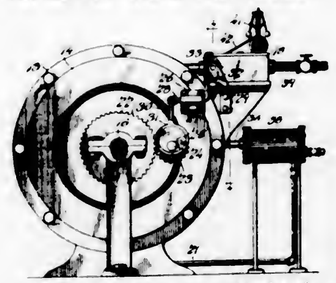
2. In a window-pulley, a shell formed with a groove extending diagonally across the end thereof to receive a fastening device extending from the inner surface of the structure in which said shell is mounted, substantially as and for the purposes set forth.

3. In a window-pulley, in combination, a shell provided with tapering ends, a sheave pivotally mounted therein, an overhanging lip on the inner side thereof and made integral with one end of said shell, the other end of said shell being provided with a diagonally-disposed groove, substantially as and for the purposes set forth.

4. In a window-pulley, in combination, a shell having a sheave mounted therein, said shell having tapering sides and ends, the superficial area of the outer edge being greater than that of the inner edge, one of said ends having on its inner side an overhanging lip made integral therewith, the other of said ends having a groove extending diagonally from a point near its inner edge nearly to the opposite edge of said end, substantially as and for the purposes set forth.

5. In a window-pulley, in combination, a shell formed with a groove extending diagonally across one end thereof to receive a fastening device extending from the surface of the structure in which said shell is mounted and means on the other end of said shell for preventing it from being removed from its confining structure, substantially as and for the purposes set forth.

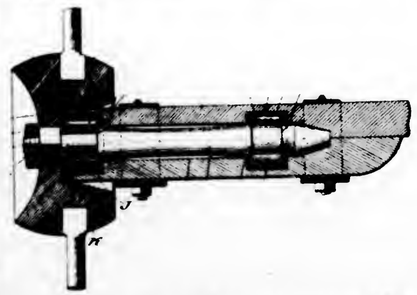
644,085. ROTARY ENGINE. WILLIS L. MANN, Jefferson City, Mo. Filed Mar. 1, 1899. Serial No. 707,269. (No model.)



Claim.—1. In a rotary engine, the combination of a cylinder having an inlet and an exhaust port, a piston operating within the cylinder and provided with spaced offstanding wings, an exhaust-pump connected with the exhaust-port of the cylinder, means for actuating the pump directly from the engine-shaft, a valve-chamber, a controlling-valve operating in said chamber, a rock-shaft having angularly-disposed arms, connecting means between one of the rocker-arms and the valve-stem, a master-gear mounted upon the engine-shaft, a pinion intermeshing with the master-gear, an eccentric connected with said pinion, and a yoke mounted upon the said eccentric and connected with the other rocker-arm, substantially as described.

2. In a rotary engine, the combination of a cylinder and a contained piston having spaced wings or heads, said cylinder having a tangentially-disposed inlet-port, a slide-valve controlling said inlet-port, a master-gear actuated by the piston-shaft, a pinion meshing with said master-gear, an eccentric carried by the spindle of the pinion, a yoke mounted upon the eccentric, a rocker having one arm connected with the stem of said slide-valve, and a connecting-rod between another arm of said rocker and said yoke, substantially as specified.

644,086. VEHICLE-WHEEL AND BEARING. WILLIAM L. MARTIN, Rancocas, N. J. Filed Nov. 23, 1899. Serial No. 738,014. (No model.)



Claim.—1. A wheel, a spindle or axle to which the same is secured to rotate as one, and a chambered axletree in which said spindle is mounted; the hub of said wheel having a recess in its inner side, the inner end portion of said axletree entering said recess, and the spokes of said hub circumscribing said inner end portion of the axletree.

2. A wheel, a spindle or axle to which the same is secured to rotate as one, a chambered axletree in which said spindle is mounted, and roller-bearings for said spindle between the same and said axletree; the hub of said wheel having a recess in its inner side, the inner end portion of said axletree entering said recess to the base thereof, the wall of said base freely abutting against the adjacent end of the axletree.

3. A wheel, a spindle or axle to which the same is secured to rotate as one, a chambered axletree in which said spindle is mounted and roller-bearings for said spindle between the same and said axletree, said spindle having circumferential shoulders within which the rollers of the bearings are contained; an angular portion on which the hub of said wheel is fitted, a threaded stem on said portion, and a nut on said stem, the hub of said wheel having a recess in its inner side, the base of said recess and the shoulder on the inner side of said squared portion freely abutting against the inner end of said axletree.

4. A wheel, a rotary spindle carrying the same, a hollow axletree in which said spindle is mounted, and roller-bearings for said spindle, said axletree having casings on its inner surface, the same receiving said bearings; the inner side of the hub of said wheel freely abutting against the inner end of said axletree and of the adjacent casing, and the spokes of said hub circumscribing the end portion of said tree.

5. A wheel, a spindle to which the same is secured, and an axletree in which said spindle is mounted, the hub of said wheel having a recess in its inner side, the same being adapted to have the outer end of said axletree project thereinto; and abut against the base of said recess, the latter flaring outwardly from said recess around the end portion of the axletree.

644,087. STENCIL-CUTTING MACHINE. STUART B. MOORE, New York, N. Y. Filed Jan. 20, 1899. Serial No. 702,765. (No model.)

Claim.—1. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and feed mechanisms variable between the different sets, substantially as described.

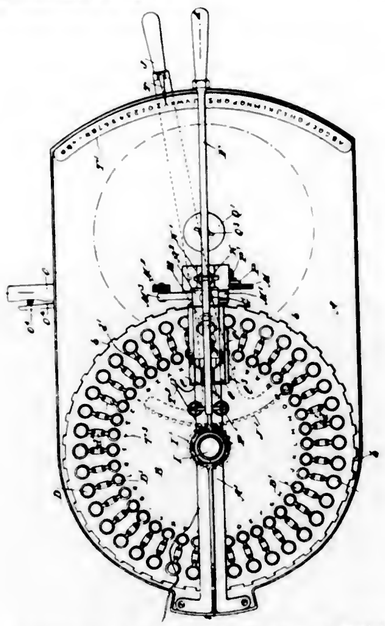
2. A stencil-cutting machine, comprising plural sets of punches and dies mounted to turn upon a common center, a member carrying punch-operating mechanisms and mounted to slide so as to engage the punches of either set, and a variable feed mechanism, substantially as described.

3. A stencil-cutting machine, comprising a supporting-frame, disks journaled thereon and carrying plural sets of punches and dies, a member carrying punch-operating mechanisms and mounted to slide on the frame so as to engage the punches of either set, and a variable stencil-feeding mechanism, substantially as described.

4. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a stencil-feed varied in amount by shifting from one set of punches to another, substantially as described.

5. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, a fixed arm or guide extending over the disks, a block sliding on the said

arm or guide, a lug adapted to hold the block in adjusted position, and a punch-operating mechanism carried by and adjustable with said block and adapted by said adjustment to engage either set of punches, substantially as described.



6. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, a variable-feed mechanism and means for holding the punch-operating mechanism in either of its adjusted positions, substantially as described.

7. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm, a latch carried by the block, a pin on the frame engageable thereby to hold the block in adjusted position, and a punch-operating mechanism carried by said block and adapted to engage either set of punches, substantially as described.

8. A stencil-cutting machine, comprising a member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and an automatic stencil-feeding mechanism operated by the reciprocation of the punch-operating mechanism and varied in amount by shifting from one set to another, substantially as described.

9. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and a stencil-feed automatically varied in amount by the shifting of the punch-operating mechanism, substantially as described.

10. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an automatic stencil-feed, a fixed arm or guide extending over the disks, a block sliding on the said arm or guide, and a punch-operating mechanism carried by and adjustable with said block and adapted by said adjustment to engage with either set of punches, substantially as described.

11. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on said arm, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a variable stencil-feed, substantially as described.

12. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm a latch carried by the block, a pin on the frame engageable thereby to hold the block in adjusted position, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a variable stencil-feed, substantially as described.

13. A stencil-cutting machine, comprising a frame, disks journaled thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block mounted to slide on said arm, a plunger mounted in the block, said plunger and the punches having positively-engaging means, and a lever pivoted upon the block and engaging the plunger, substantially as described.

14. A stencil-cutting machine, comprising a frame, disks journaled thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block mounted to slide on said arm, a plunger mounted in the block, said plunger and the punches having positively-engaging means, a lever pivoted upon the block and engaging the plunger, and a spring for returning the lever and plunger, substantially as described.

15. A paper-feed device for stencil-cutting machines, comprising a feed-wheel having a circular row of pins projecting from one side, a reciprocable bar or plunger, means for reciprocating said bar, a feed and a stop pawl carried by the bar, said pawls lying on opposite sides of the wheel center and being held in engagement with the pins, substantially as described.

16. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having a circular row of pins projecting therefrom, and two pawls movable with the operating-lever and lying one on each side of the feed-wheel center and engaging the pins, substantially as described.

17. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having a circular row of pins projecting therefrom, a plunger engaged by the operating-lever, and two pawls carried by the plunger and lying one on each side of the feed-wheel center and engaging the pins, substantially as described.

18. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having two circular rows of pins projecting therefrom and having different angular spacing in each row, two sets of pawls movable with the operating-lever, the two pawls of each set lying one on each side of the feed-wheel center and engaging its particular row of pins, and means for throwing either set of pawls out of engagement with its pins, substantially as described.

19. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having two circular rows of pins projecting therefrom and having different angular spacing in each row, two sets of pawls movable with the operating-lever, and the two pawls of each set lying one on each side of the feed-wheel center and engaging its particular rows of pins, and a pawl-controlling bar engaging the pawls of both sets, the said pawls having cam-surfaces oppositely arranged in each set and engaging the controlling-bar, whereby one set is thrown out of engagement when the other set is in engagement, substantially as described.

20. A stencil-cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and slidable to engage the operating mechanism with either row of punches, a stencil-feed wheel, and operating means therefor variable in extent by the shifting of the punch-operating mechanism, substantially as described.

21. A stencil-cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and slidable to engage the operating mechanism with either row of punches, a stencil-feed wheel provided with separate feeding means for each row of punches, and actuating means therefor carried by the sliding block and automatically shifted to engage different sets of feeding mechanisms by the shifting of the block, substantially as described.

22. The combination in a stencil-cutting device, of plural sets of punching mechanisms, operating means therefor engageable at will with either set of punches, and a variable-feed mechanism controlled by the shifting of the punch-operating mechanism, substantially as described.

23. A feeding mechanism for stencil-cutting machines, comprising feed-wheels engaging opposite sides of the stencil, actuating means therefor, a spring-held bar carrying the feed-wheels upon one side of the stencil, and having one end projecting from the frame, and a catch upon the projecting end of the bar adapted to engage the frame to hold the bar when depressed, substantially as described.

24. A stencil cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and movable to engage the operating mechanism with either row of punches, a stencil-feed wheel provided with separate feeding means for each row of punches, and actuating means therefor automatically shifted to engage different sets of feeding mechanisms.

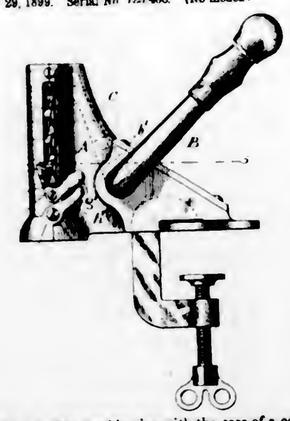
25. A stencil-cutting machine having plural sets of letter punches and dies and a lever mounted upon a movable pivot and adapted to engage any set of punches.

26. A stencil-cutting machine having plural sets of letter punches and dies, a movable lever adapted to engage the punches of any set, and a variable-feed mechanism.

27. A stencil-cutting machine having plural sets of letter punches and dies having a common fixed pivot, and means for feeding the stencil-sheet a variable distance.

28. A stencil-cutting machine having plural sets of letter punches and dies, having fixed pivots, means for engaging the punches of any set, and means for feeding the stencil-sheet a different distance for different sets of punches.

644,088. CORK-PULLER. CHARLES MORGAN, Freeport, Ill. Filed July 29, 1899. Serial No. 725,460. (No model.)



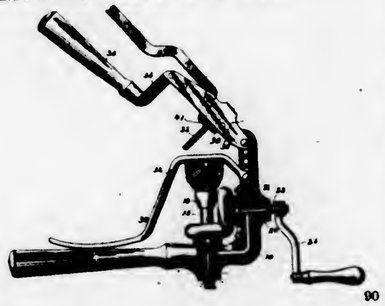
Claim.—1. The combination with the case of a cork-puller, of a corkscrew-carrier moved longitudinally therein, a corkscrew rotatably mounted in the carrier and reciprocated thereby, a nut threaded to the corkscrew and guided in the case and means operated by the bottle to lock the nut to the carrier; substantially as described.

2. In a cork-puller, the combination with a suitable case, of a corkscrew-carrier guided in the case, a handle connected with the carrier for moving the latter in the case, a corkscrew rotatably mounted in the carrier and reciprocated thereby, a nut threaded to the corkscrew and guided in the case, a device for automatically locking the nut to the case and a device actuated by the bottle to release the nut from the case and lock it to the carrier; substantially as described.

3. The combination with the case of a cork-puller, of a corkscrew-carrier provided with means for moving it longitudinally therein, a corkscrew mounted in the carrier and reciprocating therewith, a nut guided in the case and threaded to the corkscrew and mechanism extending into the path of the bottle for automatically locking the nut to the carrier; substantially as described.

4. The combination with a suitable case and operating-handle of a corkscrew-carrier guided longitudinally in the case and connected with the handle so as to be reciprocated thereby, a corkscrew rotatably mounted in the carrier and moving therewith, a nut guided in the case and threaded to the corkscrew, a device for automatically locking the nut to the case, a device for locking the nut to the carrier and a device extending into the path of the bottle, operating when forced from said path, to unlock the nut from the case and lock it to the carrier; substantially as described.

644,089. WRENCH. MARTIN H. MCCAULOU, Butterville, Ind. Filed Nov. 14, 1899. Serial No. 736,977. (No model.)



Claim.—1. In a device of the class described, the combination with a bracket having a shaft journaled therein, a nut-receiving recess carried by the shaft, a lever adapted to engage a wheel in operative position with respect to the nut-recess, means independent of said lever for engaging a bolt in said wheel, and means for rotating the shaft.

2. In a device of the class described, the combination with a bracket having a shaft journaled therein, and provided with a nut-receiving recess, of a lever adjustably connected with the bracket and adapted to clamp a wheel-rim in operative position with respect to said recess, separate means for engaging a bolt in said wheel, and means for rotating the shaft.

3. The combination with a bracket, of a shaft journaled therein and having a recess, said recess being adapted to receive the nut of a bolt carried by a wheel-rim, means for holding the wheel-rim with its nut in operative relation to the shaft, means for rotating the shaft to remove the nut, and means for initially moving the bolt from the wheel.

4. The combination with a bracket having a shaft journaled therein and provided with a recess, said recess being adapted to receive the nut of a bolt carried by a wheel-rim, means for holding the wheel-rim with its nut in operative relation to the recess, separate means for holding the bolt against rotation, means for initially moving the bolt from the wheel-rim, and means for rotating the shaft.

5. The combination with a bracket having a shaft journaled therein, said shaft having a recess adapted to receive the nut of a bolt carried by a wheel-rim, means for rotating the shaft, means for holding the nut in operative relation to the shaft, means for holding the bolt against rotation, and means for grasping the bolt and raising it from the rim.

6. The combination with a bracket, of a shaft journaled therein, said shaft having a recess adapted to receive the nut of a bolt carried by a body, means for rotating the shaft to move the nut from the bolt, and means for grasping the bolt to move it from the body.

7. The combination with a bracket, of a shaft journaled therein and having a recess adapted to receive the nut of a bolt passed through a body, means for rotating the shaft to remove the nut, means for initially moving the bolt with respect to the body, and means for finally moving the bolt from the body.

8. The combination with a bracket, of a shaft journaled therein and having a recess adapted to receive the nut of a bolt carried by a body, means for rotating the shaft to remove the nut, means for holding the body with the nut in operative relation to the shaft, separate means for holding the bolt against rotation, and additional means for grasping the bolt and removing it from the body.

9. The combination with a bracket, of a shaft journaled therein and having a recess adapted to receive the nut of a bolt carried by a body, means for holding the body with the nut in operative relation to said recess, separate means for holding the bolt against rotation, means for initially moving the bolt with respect to the body, and means for finally withdrawing the bolt from the body.

10. In a device of the class described, the combination with a bracket having a shaft journaled therein, and provided with a nut-receiving recess, of a lever adjustably connected with the bracket and adapted to clamp a body carrying a bolt in operative position with respect to said recess, separate means for engaging said bolt to hold it against rotation, and adjustable with respect to the nut-receiving recess, and means for rotating said shaft.

11. The combination with a bracket, of a shaft journaled therein and having a recess, said recess being adapted to receive the nut of a bolt carried by a body, means for holding the body with its nut in operative relation to said recess, means for rotating the shaft to move the nut, means for initially moving the bolt, and adjustable means for finally removing the bolt from the body.

12. The combination with a bracket having a shaft journaled therein and provided with a recess, said recess being adapted to receive the nut of a bolt carried by a body, of adjustable means for holding the body with its nut in operative relation with the recess, separate adjustable means for holding the bolt against rotation, means for initially moving the bolt, adjustable means for finally removing the bolt, and means for rotating the shaft.

644,090. BICYCLE-SUPPORTER. HUGH R. OBEY, Jackson, Ohio. Filed Apr. 5, 1899. Serial No. 711,834. (No model.)



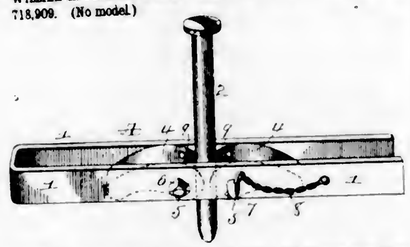
Claim.—1. In a bicycle-support the head by which the support is attached to the bicycle provided with an enlarged elongated inclined opening through which the upper portion of the supporting-tubing

passes, a spiral spring upon the upper end of said tubing, a bayonet-joint connection for holding the parts of the tubing extended, and a spring engaging the head and outer tubing to hold the parts retracted when engaged with the bicycle-frame, substantially as described.

2. The combination in a bicycle-support, an inner and outer tubing connected telescopically, and provided with a bayonet-joint connection, the outer portion being provided with an enlarged head and the lower end with a bifurcated or forked extension and a spring mounted on the inner tubing to engage the head and the outer tubing, substantially as described.

3. In a bicycle-support the combination with the head provided with the elongated inclined opening for connecting the support to the head, the tubing forming the support telescopically connected together, a bayonet-joint connection for holding the same extended, a spring mounted on the inner tubing to engage the outer tubing, and the outer tubing provided with a bifurcated or forked end to engage the bicycle-frame when the parts are contracted, substantially as described.

644,091. DEVICE FOR LOCKING TRUCKS TO CAR-BODIES. WILLIAM H. PEARSON, Boston, Mass. Filed May 31, 1899. Serial No. 718,909. (No model.)



Claim.—1. An attachment for supporting car-trucks from king-bolts, consisting of a frame and means mounted therein and adapted to engage the king-bolt for locking said frame to the king-bolt below the truck-transoms.

2. An attachment for supporting car-trucks from king-bolts, consisting of a frame adapted to rest against the bottom face of the truck-transoms, and means carried by said frame and adapted to engage the king-bolt for locking said frame thereto.

3. An attachment for supporting car-trucks from king-bolts, consisting of a frame, and a pair of cams pivotally mounted therein and adapted to lock said frame to the king-bolt.

4. An attachment for supporting car-trucks by king-bolts, consisting of a slotted frame, and a pair of cams pivotally mounted in said frame, said cams being provided with serrated jaws for the purpose of engaging the king-bolt.

5. An attachment for supporting car-trucks by king-bolts, consisting of a slotted frame, a pair of cams removably mounted in said slotted frame, and means for preventing the accidental displacement of said cams, substantially as and for the purpose described.

644,092. ATTACHMENT FOR PLOWS. CHARLES A. PHOENIX, Harford Mills, N. Y. Filed May 26, 1899. Serial No. 718,417. (No model.)



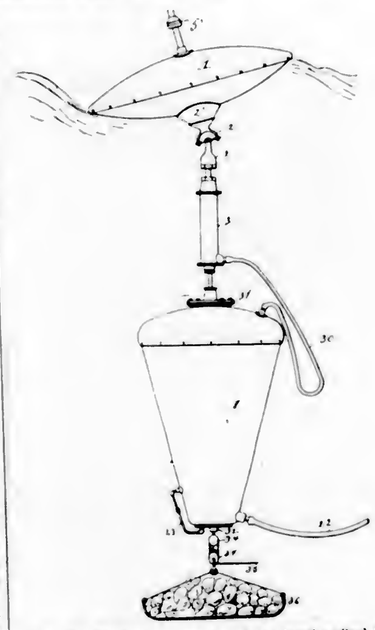
Claim.—1. In a plow, the combination with a guide-wheel of an upright grader-plate positioned in front of and extending across the face thereof.

2. In a plow, the combination of a guide-wheel, a support therefor adjustably secured to the plow-beam, and a grader-plate fastened to said support in front of the wheel, as and for the purpose set forth.

644,093. MARINE AIR-COMPRESSOR. JAMES F. PLAGE, Glen Ridge, N. J. Filed May 27, 1899. Serial No. 718,497. (No model.)

Claim.—1. In a marine air-compressor of the class described, an air-compressing cylinder flexibly connected to the under side of a floating buoy; in combination with a totally-submerged buoy or air-reservoir having a compensating cylinder attached thereto; and a piston-rod having a piston on each end, one of said pistons being located and fitted to work in the said air-compressing cylinder and the other in said compensating cylinder, substantially as shown and described.

2. In a marine air-compressor of the class described, having two buoys, one floating and the other totally submerged; an air-compressing cylinder; and a compensating cylinder; in combination with a piston-rod connecting said two cylinders together through two stuffing-boxes; said piston-rod having a piston on each end, one in the air-compressing cylinder and the other in the compensating cylinder, substantially as shown and described.



3. In a marine air-compressor of the class described, having two buoys, one floating and the other totally submerged; an air-compressing cylinder and a compensating cylinder; in combination with a piston-rod connecting said two cylinders together through two stuffing-boxes; said piston-rod having a piston fixed to the end within the air-compressing cylinder, and another piston of larger area fixed to the end within the compensating cylinder, substantially as shown and described.

4. In a marine air-compressor of the class described having two buoys, one floating and the other totally submerged below the first; an air-compressing cylinder attached to and suspended from the under side of said floating buoy by a flexible connection fixed between said floating buoy and said air-compressing cylinder; in combination with a compensating cylinder of larger inside diameter than said air-compressing cylinder; said compensating cylinder being supported or sustained substantially erect by said submerged buoy below, substantially in line with said air-compressing cylinder; and a piston-rod connecting said two cylinders together through stuffing-boxes; said piston-rod having a piston fixed to its upper end within said air-compressing cylinder, and a piston fixed to its lower end within said compensating cylinder, substantially as shown and described.

5. In a marine air-compressor of the class described, operated by a floating buoy and having a submerged air-compressing cylinder and a totally-submerged compensating cylinder; the combination of a piston working in said compensating cylinder; a valve opening from the lower part of said compensating cylinder below the piston into the upper part of same above the piston, and a valve opening from the upper part of said compensating cylinder above the piston, into the lower part of same below the piston, substantially as shown and described.

6. In a marine air-compressor of the class described, operated by a floating buoy and having a submerged air-compressing cylinder; and a totally-submerged compensating cylinder; the combination of a piston working in said compensating cylinder; a valve opening from the lower part of said compensating cylinder below the piston into the upper part of same above the piston, and held to its seat by a spring of small tension; and a valve opening from the upper part of said compensating cylinder above the piston into the lower part of same below the piston, and held to its seat by a spring of much stronger tension, substantially as shown and described.

7. Air-compressing mechanism for utilizing the power of waves, comprising two buoys, one floating on the surface of the water, and the other totally submerged and anchored beneath the same; and two cylinders connected together substantially in line endwise by a piston-rod having a piston on each end, substantially as shown and described.

8. Air-compressing mechanism for utilizing the power of waves, comprising two buoys, one floating on the surface of the water and the other submerged and anchored beneath the same; and two cylinders, connected together substantially in line endwise by a piston-rod having a piston on each end, one of said pistons being of larger area than the other, substantially as shown and described.

9. Air-compressing mechanism for utilizing the power of waves, comprising two buoys, one floating on the surface of the water and the other submerged and anchored beneath the same; and two cylinders, one considerably longer than the other, connected together substantially in line endwise by a piston-rod having a piston on each end, substantially as shown and described.

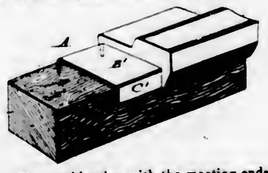
10. Air-compressing mechanism for utilizing the power of waves, comprising two buoys, one floating on the surface of the water and the other totally submerged and anchored beneath the same; two cylinders each having a piston; a piston-rod fixed at each end to one of said pistons; and an inlet or upward-opening valve, and an outlet or downward-opening valve, in one of said pistons, whereby under pressure the fluid in cylinder passes from above to below or from below to above the piston, through said valves, substantially as shown and described.

11. Air-compressing mechanism for utilizing the power of waves, comprising two buoys, one floating on the surface of the water, and the other totally submerged and anchored beneath the same; a compressing-cylinder and a fluid compensating cylinder, each with a piston fitted thereto respectively, said compensating cylinder being considerably longer than the compressing-cylinder; and said two pistons being rigidly connected together by a piston-rod, substantially as shown and described.

12. In an air-compressing mechanism for utilizing the power of waves, two cylinders, one considerably longer than the other and each having a piston; a piston-rod which connects together said two cylinders endwise; a valve opening from the space below the piston in the longer cylinder into the space above the same, and a valve opening from the space above said piston into the space below the same, substantially as shown and described.

13. In an air-compressing mechanism for utilizing the power of waves, two cylinders, one considerably longer than the other and each having a piston; a piston-rod which connects together said two cylinders endwise; a valve opening from the space below the piston in the longer cylinder into the space above the same, and held to its seat by a spring of comparatively-light tension, and a valve opening from the space above said piston into the space below the same, and held to its seat by a spring of much stronger tension, substantially as shown and described.

644,094. ELECTRICAL BOND FOR RAILROAD-RAILS. JAMES M. PRICE, Philadelphia, Pa.; Walter F. Price and William L. Price executors of said James M. Price, deceased. Filed Apr. 23, 1894. Renewed Jan. 16, 1900. Serial No. 1,689. (No model.)



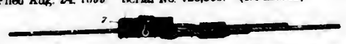
Claim.—1. The combination with the meeting ends of two rails having flanged bases, and a support for the joint thereof interfitting with said flanged bases, of a bond consisting of a flanged piece of an electric conducting material situated and fitting between the interfitting portions of the flanged bases of the rails and their support.

2. A sleeper, two rails having their adjacent ends supported thereon, and having depending flanges adapted to embrace the sides of the said sleeper, and the sheet of electric conducting material between the ends of said rail and said sleeper, said sheet having depending flanges between the flanges of the rails and the sleeper, said parts being combined substantially as described.

3. A copper, brass or other metallic sheet, laid in upon a sleeper used to carry railway rails, where two rails come together, the edges of the sheet overhanging the sides of the sleeper, and the sheet underlying the rails themselves at their ends, as at once a protecting-

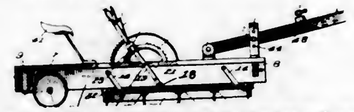
roof to the sleeper at that point, and a sufficient electrical bond to carry the working electrical current from rail to rail, substantially as described.

644,095. BUCKLE. COATSWORTH E. RAUSKAU, Clear Water, Fla. Filed Aug. 24, 1899. Serial No. 728,365. (No model.)



Claim.—A buckle consisting of a frame comprising parallel end bars, side bars; and a central cross-bar; a tongue pivoted upon the central cross-bar; and a shield or cover pivotally secured between said end bars above one of said side bars and formed on its under surface below its pivotal point with a cam whereby the shield or cover is held in closed position by contact with a strap passing between the cam and the adjacent side bar.

644,096. COMBINED VIBRATING HARROW AND ROLLER. JACOB M. RHODES, Fredericktown, Mo. Filed May 13, 1899. Serial No. 716,755. (No model.)



Claim.—1. The combination with the implement-frame, of the harrow, the links suspending the harrow, the hand-lever pivoted through the frame and connected below it to the harrow, and the spring connecting the hand-lever with the frame, substantially as described.

2. The combination with the implement-frame, of the harrow, the links suspending the harrow below the frame, the curved rack with part of its teeth omitted, the hand-lever pivoted in through slot in the frame at the center of the curved rack, the pawl slidably fixed on the hand-lever above the rack, operating devices for the pawl, and the spring connecting the hand-lever to the frame, substantially as described.

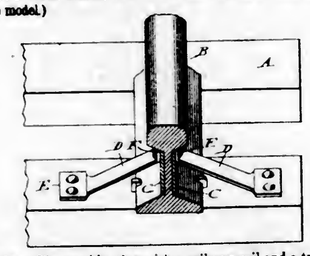
3. The combination with the implement-frame of the yielding vibratory harrow, supporting-spring, and means for locking it against vibration, substantially as described.

4. The combination with the implement-frame and the yielding vibratory harrow, of the hand-lever, the rack-and-pawl mechanism, the roller journaled in the frame and the scraper, substantially as described.

5. The combination with the implement-frame of the yielding vibratory harrow provided with alternate rows of ordinary harrow-teeth and root-cutting teeth, substantially as described.

6. The combination with the implement-frame consisting of front, rear, side and central beams, of the harrow in two sections hinged together below the central beam, links pivotally suspending the harrow-frame from the side and central beams, a hollow curved rack mounted over a slot in the central beam, and having part of its teeth omitted, a hand-lever projecting through said slot and pivoted at the center of the curved rack, a sliding pawl on the lever straddling the curved rack, and a spring connecting the lever with the central beam, substantially as described.

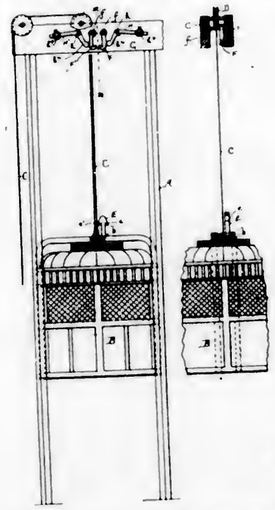
644,097. SAFETY-BRACE FOR JOINTS OF RAILWAY-RAILS. PAUL F. RICH, Tomah, Wis. Filed Mar. 18, 1899. Serial No. 709,680. (No model.)



Claim.—The combination with a railway-rail and a transverse tie on which the rail rests, of a plurality of oppositely-disposed supporting devices each consisting of a substantially-straight bar having an obliquely-disposed head and foot, the feet of the devices resting on the surface of the tie at a distance from the rail and being spiked to the tie, the heads of the supporting devices bearing opposite each

other against opposite sides of the web of the rail and being secured thereto by bolts through said heads and through the intermediate web of the rail, the supporting devices extending from the rail at right angles thereto.

644,098. ELEVATOR SAFETY-CATCH. ISAAC N. ROGERS, New York, N. Y. Filed Jan. 24, 1899. Serial No. 703,228. (No model.)



Claim.—1. The combination with the elevator-car and the lifting-ropes secured directly thereto and the integral double hook E secured to the car alongside the lifting-ropes, of the timbers G G at the head of the elevator-shaft, and means on said timbers to engage said hook, and sustain said car substantially as described.

2. In a device for automatically hooking and catching and holding a freight and passenger elevator-car, the suspended hooks fulcrumed and supported as shown on the upper timbers, and the weighted levers independently fulcrumed as shown, and acting upon the said suspended hooks, substantially as set forth.

3. In a device for automatically hooking and catching and holding a freight and passenger elevator-car, the double-hook bar, secured to the top of the car, the suspended hooks, fulcrumed on axles supported on the upper timbers, and the weighted levers also fulcrumed on said timbers, and acting against the hooks F F', substantially as set forth.

644,099. PLOW. JAMES R. ROSSETTER, Clarksville, Tenn. Filed Nov. 6, 1899. Serial No. 735,982. (No model.)



Claim.—1. In a plow, a saddle constructed of two side portions at an angle to each other, and a removable or detachable plow-point secured in place with one side of the same flush with one side of said saddle, the other side of said saddle being constructed to partially support a moldboard.

2. In a plow, a saddle constructed of two side portions at an angle to each other, a removable or detachable plow-point secured in place with one side of the same flush with one side of the saddle, and the other side thereof overlapping the other side of the saddle, and a removable or detachable moldboard partially received by the overlapping portion of the plow-point, and also partially supported by the second-named portion of the saddle.

3. In a plow, a saddle constructed of two side portions at an angle to each other, and a removable or detachable plow-point secured in place with one side of the same flush with one side of the saddle, the other side of said saddle being formed to partially support a moldboard, and the said first-mentioned side portion of the saddle being constructed at its rear to receive the forward end of a landside.

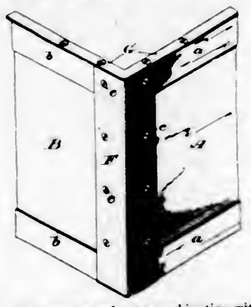
4. In a plow, a saddle having in one side a forwardly-extending recess the upper side of which is beveled, and a landside having a tongue fitting said recess, and beveled corresponding to the side of the latter.

5. In a plow, a saddle having a rear concaved edge on one side, and a moldboard secured to that side of the saddle and having a strengthening-rib following the general direction of the said concaved edge.

6. In a plow, a saddle constructed of two side portions at an angle to each other, a removable or detachable plow-point with one part flush with one portion of the saddle, and another part of the same overlapping the other portion of said saddle, a moldboard secured to the saddle flush with the overlapping portion of the plow-point, and a landside fitting the first-named portion of the saddle at the rear thereof.

7. In a plow, the saddle having the two side portions, the removable plow-point having the wing portions and intermediate rib, and formed with the notch or recess, a moldboard having its lower end received by said recess, and a landside, substantially as described.

644,100. CORNER FOR VEHICLE-BODIES. THOMAS J. RYAN, Racine, Wis., assignor to the Racine Wagon and Carriage Company, same place. Filed July 26, 1897. Serial No. 645,934. (No model.)



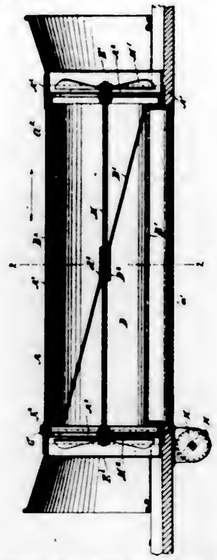
Claim.—1. In a vehicle-body the combination with side and end panels having raised portions or rails on the outside at top and bottom, of a metal corner-piece secured over the ends of said panels flush with the raised portions or rails, and constituting continuations thereof or stiles across the ends of the panels, substantially as and for the purposes set forth.

2. In a vehicle-body the combination with the bottom and side and end panels, of a wooden corner-post fitted in the angle between the panels and a metal corner-piece fitted over the ends of said panels, covering the joint between them and secured to the corner-post by screws, nails or rivets passing through said panels at a distance from the joint between their ends, substantially as and for the purposes set forth.

644,101. EXHAUST-AND-SUPPLY CAR-VENTILATOR. LOUIS SCHNEIDER, Sr., Williamsport, Pa. Filed Jan. 5, 1899. Serial No. 701,182. (No model.)

Claim.—1. In a ventilator, the combination with a wall having an elongated horizontal opening, a support on said wall contiguous to said opening, an obliquely-located plate revolubly around a horizontal axis and sustained by said support, and means for revolving said plate to reverse its oblique position with respect to said opening, to simultaneously move the ends, the one toward and the other away from the adjacent end of the opening, substantially as herein specified.

2. In a ventilator, the combination with a wall having an elongated horizontal opening, a support on said wall contiguous to said opening, a longitudinal shaft loosely mounted in said support, and carrying screw-wheels and an obliquely-located reversible plate sustained by said support, and through which said shaft passes, and independently revolves, and means for revolving said plate around a horizontal axis to reverse its oblique position with respect to said opening to simultaneously move the ends, the one toward and the other away from the adjacent end of the opening, substantially as herein specified.



3. In a ventilator for railroad-cars and analogous carriages, the open-ended horizontal casing A, having the side apertures a', communicating with the interior of the car, in combination with the reversible partition D', extending longitudinally within such casing and held with a fixed amount of obliquity with respect to the horizontal axis of the casing but with capacity to be partially revolved around said axis, to simultaneously move its ends, the one toward and the other away from the adjacent end of the aperture a' to vary its effect, substantially as herein specified.

4. In a ventilator for railroad-cars and analogous carriages, the open-ended horizontal casing A having the side aperture a', communicating with the interior of the car, in combination with the cylinder D supported within the casing and having the longitudinally-extending partition D', the latter having capacity for being partially revolved around its horizontal axis, so as to allow said partition to be set in any required position and be held in such position by friction, as herein specified.

5. In a ventilator for railroad-cars and analogous carriages, the open-ended horizontal casing A having the side aperture a', communicating with the interior of the car, in combination with the cylinder D supported within such casing and having the partition D', extending longitudinally within the latter, said cylinder having capacity for being partially revolved, and the cords G', G^3, and connected shaft H, with its pulleys H', H^3, and operating means H^4, all arranged for joint operation, substantially as herein specified.

6. In a ventilator for railroad-cars and analogous carriages, the open-ended horizontal casing A, having the side aperture a', communicating with the interior of the car, and the opposite aperture a^3, communicating laterally with the open air, in combination with the internal cylinder supported within such casing and having the partition D', extending longitudinally within such casing, said cylinder having capacity for being partially revolved, and with the shaft M mounted in the bearings A^2, revolving in a close-fitting opening d^4 in such partition, and the screw-wheels M', M^3, all arranged for joint operation substantially as herein specified.

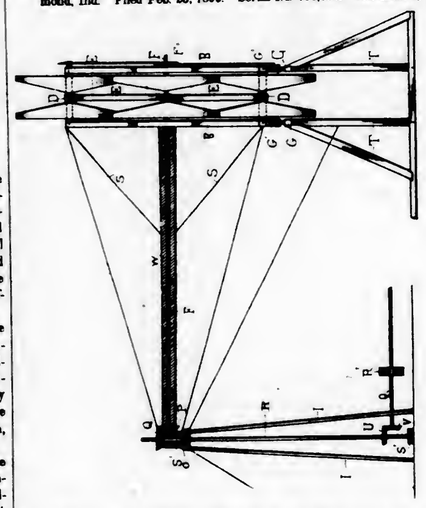
7. In a car-ventilator the cylindrical casing A, extending longitudinally and having open ends and apertured sides a', a^3, divided longitudinally into easily-separable parts A', A^2, a wire-cloth covering for each end and also for the lateral aperture a^3, a partially-revoluble interior casing comprising the longitudinal cylinder D, having apertures d', d^3, and oblique partition D', revoluble with said cylinder, and easily-revoluble shaft M, and screw-wheels M', M^3, arranged to promote the escape of the foul air, and means as the wheels H' H^3, and connections for reversing, adjusting, and holding the cylinder D and its oblique partition D' at will, all arranged for joint operation substantially as herein specified.

8. In a ventilator for railway-cars and analogous carriages, the car-wall having an opening and a suitable bearing contiguous thereto, revoluble plate supported in said bearing, located obliquely in juxtaposition to the opening, in combination with operating means comprising cords secured at one end to a portion connected to the plate, and a vertical shaft carrying pulleys around which said cords pass and in a recess in each of which the other ends are secured by a screw fitting the shaft, substantially as set forth.

9. In a ventilator for railway-cars and analogous carriages, the car-wall having an opening and a suitable bearing contiguous thereto, revoluble plate D' supported in said bearing, located obliquely in juxtaposition to the opening a plate J turning with the plate B' and having ears adapted to contact with fixed portions to limit the turning movement of the plate, in combination with operating means comprising cords engaged at one end to the ears of the plate J, and a vertical operating-shaft carrying pulleys around which said cords pass and to which their other ends are fastened, substantially as set forth.

10. In a car-ventilator having a cylinder D, with means for partially revolving within a casing A and carrying a partition D' oblique to the axis of said cylinder, stops J^2, J^4, carried on the cylinder and arranged to contact with the stops A^4, A^2, on the casing to determine the extreme positions to which the cylinder may be turned, all arranged to serve substantially as herein specified.

644,102. WIND MILL OR ENGINE. ISHAM SEDGWICK, Richmond, Ind. Filed Feb. 23, 1899. Serial No. 706,504. (No model.)



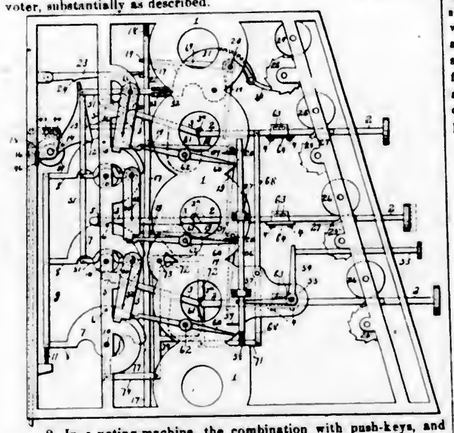
Claim.—1. A windmill, consisting of the central tower mounted on a suitable base, a vertical shaft journaled in said tower, rotatable bearings journaled at the top of said tower, a bevel gear-wheel carried at the top of said shaft, a long horizontal sleeve, a correspondingly-long shaft mounted in said sleeve having its inner end journaled in said bearings and having a bevel gear-wheel meshing with said gear of the vertical shaft, a framework connected to the outer end of said sleeve, a central wind-wheel and other wind-wheels arranged in a circle around and outside of said central wheel, all of said wheels being mounted in said framework, connections between said wheels and the long shaft, and means to brace and support said framework as it is swung around in any direction.

2. A windmill consisting of a central tower, a vertical shaft mounted in said tower, a horizontal sleeve at right angles to said shaft, a framework connected to the outer end of said sleeve, a shaft connected with said vertical shaft and extending through and out of said sleeve, a central wind-wheel and other wind-wheels arranged in a circle around and outside of said central wheel, all of said wheels being mounted in said framework and having connections with said horizontal shaft, and braces to support said sleeve and framework.

644,103. VOTING-MACHINE. ALBERT R. SINGER, Lewisburg, Ohio. Filed Dec. 15, 1898. Serial No. 699,325. (No model.)

Claim.—1. In a voting-machine, the combination with push-keys, of a series of disks 7 with pins thereon engaging with said push-keys when the mechanism is in a condition for straight voting, a movable

frame to which said disks are attached, an extension 9 with a spring thereon to keep said disks in position and to return the push-keys to their normal positions, and a pawl to engage with one of said disks after each vote, to prevent a repetition of said vote by the same voter, substantially as described.



2. In a voting-machine, the combination with push-keys, and counting-wheels actuated thereby, of a series of disks having pins thereon engaging with said push-keys, a frame consisting of bars 8 and 9 to which said disks are connected, a pawl 13 engaging with one of said disks after each vote, total-adding wheels 28 and 29, a disk 31, a pawl 30 on said disk 31 and engaging with said wheels, a bell-crank 34 to which said pawl 30 is connected, said bell-crank lever being also connected to the pawl 13, a bar 17, bell-crank levers 19 actuated by the push-keys, and a pin 22 on said bar 17, an arm 23 engaged by said pin and adapted to free the pawl 13, substantially as and for the purposes specified.

3. In a voting-machine, the combination with a series of jointed push-keys, and counting-wheels actuated by said keys, of cams 61 by which the lower portions of said keys are raised, mechanism actuated by the push-keys for moving said cams, levers 60, sliding bar 56, and arms 59 for moving said levers, and means for sliding said bar 56, substantially as herein shown and described.

4. In a voting-machine, the combination with jointed push-keys, of cams 61 for breaking the joints of said keys, levers 60 for causing the movement of said cams, a slide-bar 56, with arms 59 thereon engaging with said levers 60, a bell-crank lever 54, and push-rod 53 for actuating said slide-bar 56, and pawls 50 for controlling said levers 60, substantially as and for the purposes specified.

5. In a voting-machine, the combination with push-keys each consisting of two hinged parts, of disks 7 with pins thereon adapted to engage with the rear end of each of said keys when said keys are in a position for straight voting, cams 61 for engaging with the lower portions of said keys to remove them from connection with the pins on said disks, levers 60 for actuating said cams, and mechanism for moving said levers prior to an operation of the push-keys, substantially as and for the purposes specified.

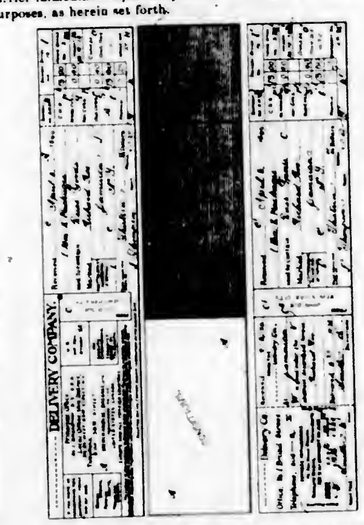
6. In a voting-machine, the combination with a push-key, consisting of two parts united by a hinge-joint, of a series of disks 7, and a system of differential levers between one of said disks and the push-key, substantially as and for the purpose specified.

7. In a voting-machine, the combination with a series of push-keys, of a series of locking-bars movable in opposite directions, hooks 66 projected from said bars and adapted to enter openings in said keys, and bell-crank levers 65 connected to said keys and bars, substantially as and for the purposes specified.

8. In a voting-machine, the combination with the shaft 14, of a toothed wheel 39 on said shaft, an arm 40 loose on said shaft, a platform 42, a connection 41 between said platform and the arm 40, and pawls 43 and 44 actuated by the arm 40 to engage the wheel 39 when a voter stands on the platform 42, and which pawls release said wheel 39 when the voter leaves the said platform, substantially as and for the purposes specified.

644,104. DUPLICATING SHIPPING-BLANK. GEORGE W. SLINGERLAND, New York, N. Y. Filed Apr. 17, 1899. Serial No. 713,377. (No model.)

Claim.—1. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering respectively with those of the extended or unfolded shipper's receipt and cashier's coupon, substantially as described, whereby as the receipt-blank overlies the way-bill-delivery blank and the shipper's receipt and data of the cashier's coupon are superscribed, the way-bill-delivery blank receives duplicate inscriptions fitting it for use as the way-bill proper during transit of the shipment, and whereby also the detached filled-out cashier's coupon gives the carrier immediate supervisory control of the shipment for tracing purposes, as herein set forth.



2. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering respectively with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out by superscription of the receipt-blank, and also having indicating imprinted spaces providing for consignee's receipt to the carrier for the delivered shipment, substantially as described.

3. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering respectively with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out by superscription of the receipt-blank, and also having indicating imprinted spaces providing for consignee's receipt to the carrier for the delivered shipment, and for signature of the carrier's deliveryman, substantially as described.

4. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having corresponding indicating imprinted spaces registering respectively with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out by superscription of the receipt-blank; said way-bill-delivery blank also having a separable consignee's voucher-coupon having indicating imprinted spaces providing for receipt from the carrier to the consignee for charges paid on the delivered shipment, substantially as described.

5. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier and provided with an identifying symbol for the shipment, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having corresponding indicating imprinted spaces registering respectively with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out by superscription of the receipt-blank; said way-bill-delivery blank also having a separable consignee's voucher-coupon having indicating imprinted spaces providing for entry of a shipment-identifying symbol similar to that of the shipper's receipt and cashier's coupon, and for the carrier's delivery-office address, and for receipt from the carrier to the consignee for charges paid on the delivered shipment, substantially as described.

6. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier and also providing for an identifying symbol for the shipment; and a separable cashier's coupon having indicating imprinted spaces for recording said shipment-identifying symbol and the financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include duplication of the shipment-identifying symbol of the cashier's coupon by superscription of the receipt-blank, substantially as described.

7. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment and the symbol of the carrier's forwarding office; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include duplication of the symbol of the carrier's forwarding office by superscription of the receipt-blank, substantially as described.

8. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment and the symbol of the carrier's delivery office; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include duplication of the symbol of the carrier's delivery office by superscription of the receipt-blank, substantially as described.

9. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier and to record the value of the shipment, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include aforesaid declared value of the shipment by superscription of the receipt-blank, substantially as described.

10. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier and record charges prepaid on the shipment, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment including said prepaid charges; and a way-bill-delivery blank having imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include aforesaid duplicate record of prepaid charges by superscription of the receipt-blank, substantially as described.

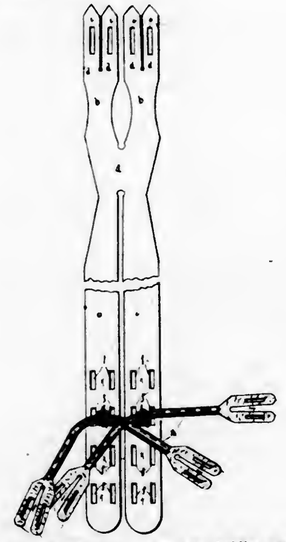
11. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment and having a specially-established space for entry of carrier's charges passing to shipper's accounts for settlement at stated times; and a way-bill-delivery blank having indicating imprinted and specially-established spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include aforesaid charges on account by superscription or imprint of the receipt-blank, substantially as described.

12. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier and having a specially-established space for imprint of the owner's-risk clause, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to include aforesaid owner's-risk clause by superscription or imprint of the receipt-blank, substantially as described.

13. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having on its obverse face indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to serve as the way-bill proper by superscription of the receipt-blank; said way-bill-delivery blank having on its reverse face indicating imprinted spaces for entry of instructions and provisions for transferring the shipment, substantially as described.

14. Duplicating shipping-blanks comprising a receipt-blank including a portion having indicating imprinted spaces whereby it is adapted when filled out to serve as a receipt to the shipper from the carrier, and a separable cashier's coupon having indicating imprinted spaces for recording identifying and financial data of the shipment; and a way-bill-delivery blank having indicating imprinted spaces registering with those of the extended or unfolded shipper's receipt and cashier's coupon and adapted to be filled out to serve as the way-bill proper during transit of the shipment; said receipt-blank having on its reverse face a transferring composition effecting duplication on the way-bill-delivery blank of the matter superscribed on the shippers's receipt and cashier's coupon of the receipt-blank, substantially as described.

644,105. SUSPENDERS. HENRY H. SMALL, York, Pa. Filed Apr. 19, 1899. Serial No. 713,655. (No model.)

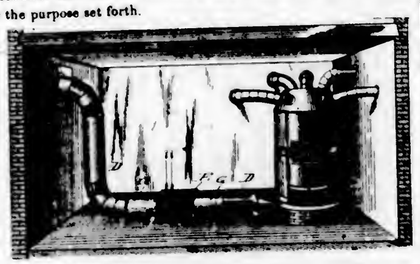


Claim.—A pair of suspenders adapted for holding overalls and trousers simultaneously and consisting of a body portion having bifurcated ends, the bifurcations of one end being in turn bifurcated and provided with four slots, and the bifurcations of the opposite end being each provided with a plurality of longitudinal slots arranged transversely in pairs, and a tab-strap adapted for successive engagement with the pairs of slots of each of the last-named bifurcations, each end of each tab being bifurcated, and the bifurcations of each tab-strap having each a longitudinal slot.

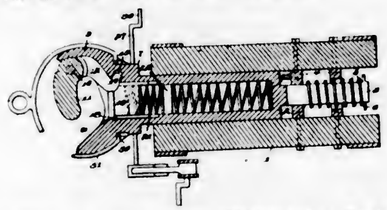
644,106. APPARATUS FOR HEATING BUILDINGS. ISAAC D. SHEAD, Toledo, Ohio, assignor to The Reading Stove Works, Orr, Painter & Co., Reading, Pa. Filed Oct. 27, 1899. Serial No. 734,968. (No model.)

Claim.—In combination with a tube or duct for conveying air to

a heater, a non-resonant box or case having a fan or blower mounted therein, said box or case being connected to the air tube or duct by a section of canvas or similar non-resonant tubing, substantially as and for the purpose set forth.



644,107. CAR-COUPLING. JOHN STAWARTS, Pittsburg, Pa. Filed Apr. 28, 1899. Serial No. 714,794. (No model.)



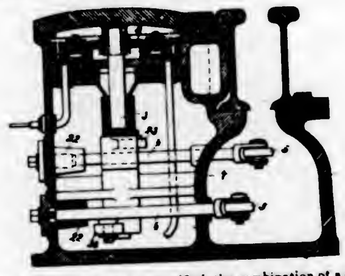
Claim.—1. In a car-coupler, the combination of a hollow draw-head having an enlarged portion provided with a projecting horn and a projecting ear, a laterally-swinging jaw pivotally secured to said ear and provided with a tailpiece extending at substantially right angles to the jaw, said tailpiece having a knuckle adapted to engage in a groove provided therefor in the draw-head, a spring-actuated locking-block arranged in the hollow draw-head, a shaft journaled in the draw-head, a pawl secured to said shaft, and means secured to the car-body for automatically operating said shaft and pawl to depress the locking-block and release the laterally-swinging jaw, substantially as described.

2. In a car-coupler, the combination with a hollow draw-head having an enlarged portion, of a laterally-swinging hooked jaw pivotally secured thereto and having a tailpiece extending at substantially right angles to the jaw, a spring-actuated locking block arranged within the hollow draw-head and adapted to be normally in engagement with the tailpiece to lock the swinging jaw, a shaft journaled in the enlarged portion of the draw-head, a pawl secured on said shaft and adapted to engage and force said locking-block rearwardly when the shaft is operated, means for securing the locking-block in said rearward position, a supporting-dog secured on the one end of the said shaft, and a pawl pivotally supported from the car-body and adapted to engage said dog for operating the shaft and releasing the swinging jaw when the draw-head is depressed, substantially as described.

3. In a car-coupler, the combination with a hollow draw-head having an enlarged portion, of a laterally-swinging hooked jaw pivotally secured thereto, a tailpiece formed integral with the said jaw extending at right angles thereto, a knuckle formed integral with the said tailpiece adapted to be seated in a recess formed in the draw-head and having its bottom partially cut away, a spring-actuated hollow block arranged in the said draw-head and adapted to lock said knuckle in the said recess, means secured in the said draw-head for retaining the said block out of engagement with the said knuckle and adapted to be operated by the said knuckle, a shaft journaled in the enlarged portion of the draw-head, a pawl secured to the said shaft adapted to engage the said locking-block when the shaft is operated, a supporting-dog secured on the one end of the said shaft, a pawl pivotally supported from the car-body and adapted to engage the said dog for operating the shaft and releasing the swinging jaw when the draw-head is depressed, and separate means for operating the said shaft, substantially as described.

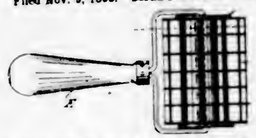
644,108. CONTACT DEVICE FOR CONDUIT ELECTRIC RAILWAYS. CARL F. P. STENDERACH, Leipsic, Germany, assignor to Electricitats-Gesellschaft Reitz & Co., mit Beschrinkter Haftung, same place. Filed Sept. 28, 1899. Serial No. 731,956. (No model.)

Claim.—1. In a device for supplying electricity from the main conductors of an underground feed system, to the feed-heads for the cars, comprising an oscillatory disk, for making and breaking the contact between the main conductors and the sectional feed-heads, means for positively oscillating the said contact-disk in both directions from the car in the manner and for the purpose substantially as described.



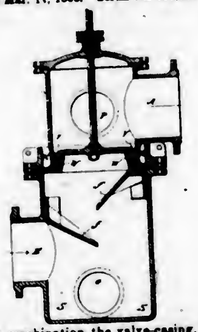
2. In a contact device as specified, the combination of a contact-disk to oscillate to make and break contact, a shaft to which said disk is keyed, cranks on said shaft and horizontally-disposed sliding bars connected to said cranks and having their free ends extending into the channel of the plow or runner of the car the said cranks being arranged to project one bar into the path of the plow or runner when the other is withdrawn substantially as described and for the purpose specified.

644,109. MASSAGE-ROLLER. MARGARET STONEBRIDGE, New York, N. Y. Filed Nov. 9, 1899. Serial No. 736,447. (No model.)



Claim.—A massage-roller consisting of a central cylindrically-shaped, firm roll, supporting and having thereon a cylindrically-shaped band of elastic material, upon which is a series of recessed compartments, the partitions of which compartments are pliable, thus causing, as the edges of the partitions are presented to the body, the air to be expelled, and, upon the presentation of the full surface of the compartment to the body, a vacuum to be formed, mechanically massaging that part of the body presented where heretofore manual application was necessary, substantially as and for the purpose described.

644,110. CLOSING-VALVE FOR WATER-GAS GENERATORS. HUGO STRACHE, Vienna, Austria-Hungary, assignor to La Société Internationale du Gaz D'Eau, brevets Strache, Société Anonyme, Brussels, Belgium. Filed Mar. 17, 1899. Serial No. 709,511. (No model.)



Claim.—1. In combination, the valve-casing, the valve having a depending edge within the same, said casing having a groove adapted to contain a sealing liquid to receive the edge of the valve and form a liquid seal, and an annular wall outside the casing extending above the edge of the said groove and forming a larger groove for receiving a cooling fluid to cool the sealing liquid, substantially as described.

2. In combination, the valve-casing, the valve having a depending edge within the same, said casing having a groove adapted to contain a sealing liquid to receive the edge of the valve and form a liquid seal, and an annular wall outside the casing extending above the edge of the said groove and forming a larger groove for receiving a cooling fluid to cool the sealing liquid, and ash-retaining shelves or baffle-plates arranged in proximity to said valve.

644,111. HARROW. JAMES F. TAYLOR, Greenbrier, Ark. Filed Nov. 13, 1899. Serial No. 736,819. (No model.)

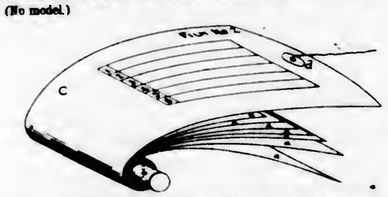


Claim.—1. A harrow comprising a central longitudinal draft-beam, the front side beams hingedly connected at their inner ends to the longitudinal beam and capable of adjustment longitudinally thereof, and the rear side beams adjustably connected at their inner ends to the central beam and having their outer ends adjustably connected with the outer ends of the front side beams, substantially as described.

2. A harrow comprising a central longitudinal draft-beam, front side beams hinged to the central beam and provided with harrow-teeth, rear side beams adjustably and hingedly connected at their inner ends to the central longitudinal beam, and adjustably connected at their outer portions to the outer portions of the front side beams, and a continuous rigid transverse rod adjustably and detachably interlocked with the rear side beams, substantially as described.

3. A harrow comprising a central longitudinal beam provided with perforations and having front loops located at opposite sides of its front portion, the front side beams hingedly connected with the beam and adapted to engage either the loops or perforations, and the rear side beams adjustably connected at their inner ends with the central beam and at their outer ends with the front side beam, substantially as described.

644,112. ROLL-BOOK FOR PHOTOGRAPHIC FILMS. EDWARD G. THOMAS, Boston, Mass. Filed Apr. 25, 1898. Serial No. 678,713. (No model.)



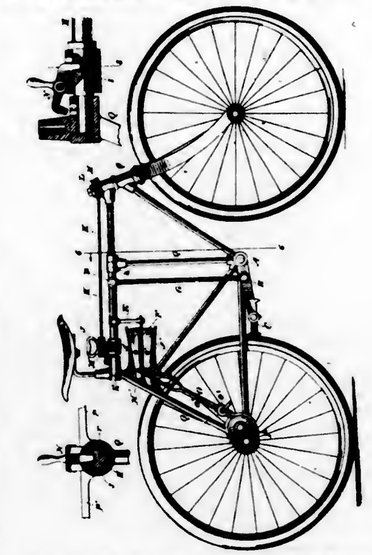
Claim.—1. The film-holder above described consisting of a roll carrying a set of leaves attached thereto by one of their edges and narrower in width than the length of the roll, each leaf being shorter than the leaf immediately following it, as set forth.

2. The film-holder above described consisting of a set of leaves attached at one end to a roll longer than the attaching edge of said leaves, each leaf being longer than the one immediately preceding it, said holder being provided with a suitable cover and means for fastening said cover about said holder, as and for the purposes set forth.

644,113. PROPULSION OF VEHICLES. WALTER H. UNDERWOOD, New York, N. Y. Filed July 17, 1895. Serial No. 556,391. (No model.)

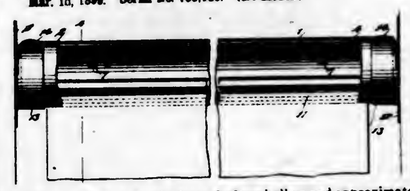
Claim.—1. In propelling mechanism for vehicles, the combination of the frame, pedals, levers and driving-axle, a motor connected to the driving-axle, a fluid-compressor, induction and eduction passages connecting the motor and fluid-compressor, a by-pass valve with which said passages communicate, said valve being arranged intermediate of the fluid-compressor and motor, and intermediate devices between the fluid-compressor and levers, whereby the former is operated by the movement of the latter, substantially as described.

2. In propelling mechanism for vehicles, the combination of the frame, pedals, levers and driving-axle, a fluid-compressor having communication with the motor, a rock-shaft H having laterally-extending arms, rods connecting the said arms to the levers, an arm *m* projecting from the rock-shaft, and a link E pivotally connected at one end to the fluid-compressor and adjustably connected at its other end to the arm *m*, substantially as and for the purpose set forth.



3. In propelling mechanism for vehicles, the combination of the frame, pedals, levers and driving-axle, a fluid-compressor having direct communication with the motor, a rock-shaft H, connections between the levers and rock-shaft whereby movement of the former will rock the latter, and adjustable connections between the rock-shaft and the fluid-compressor whereby the latter may be variably operated to vary the speed of the motor without varying the action of the levers, substantially as set forth.

644,114. CURTAIN-POLE. ALBION S. VERNIE, Forest Grove, Oreg., assignor of one-half to Albert L. MacLeod, Nez Percez, Idaho. Filed Mar. 15, 1899. Serial No. 709,169. (No model.)



Claim.—A curtain-pole, formed of two hollow and approximately-semicylindrical sections engaging with each other at one edge to permit the sections to be moved toward and from each other to engage and disengage the remaining edges of the sections, a retractile spring located within the sections and attached to the sections, the spring serving to draw the sections into closed position, and toggle-links pivoted to each other and respectively pivotally connected with the sections, one of the links being provided with a lug serving to engage the other link to hold them in extended position, thus holding the sections of the roller open against the tension of the spring, the links moving upward to work the toggle and permit the sections of the roller to be moved into closed position.

644,115. EMERGENCY-BOLT FOR RAILROAD-CARS. ISAIAH D. WATERMAN and SAMUEL S. BENNETT, Mahaffie, Pa. Filed Dec. 4, 1899. Serial No. 739,091. (No model.)



Claim.—An emergency-bolt comprising in its construction the bolt S having its one end exteriorly threaded and provided near its other end with an oblong opening with the wall at one end of said

opening on a line at right angles to the length of the bolt and the wall at the other end of the opening at an incline to the length of said bolt, combined with a head 8 pivotally mounted within the oblong opening of the bolt in a manner to permit its being moved transversely to the bolt and adapted when so moved to engage the straight wall of the opening, said bolt being provided on its one side with a groove to permit the insertion of a key for operating said head, and a nut mounted on the threaded end of said bolt for securing the same in position, as and for the purpose described.

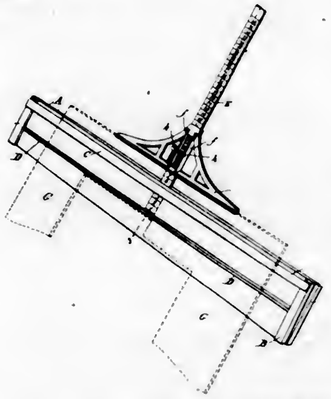
644,116. WINDOW WASHER OR MOP. AUSTIN WAYMIRE, Dayton, Ohio. Filed May 8, 1899. Serial No. 715,939. (No model.)



Claim.—1. In a device of the class described, the combination of a fixed jaw, of rectangular form, secured to the end of a handle, a movable jaw, a wire connected to said movable jaw and extending along the handle and provided with coil-springs for securely pressing the movable jaw against the fixed jaw, a metal core inclosed by the coil-spring, a pin inserted in the core between the coil-springs, a wire coiled around the lip of the movable jaw, and a loop in center of same to which the wire is connected, all as described and for the purposes specified.

2. The combination of the following elements: a fixed rectangular jaw, a movable jaw of about the same size, with coil-springs and metal core, the lip of the movable jaw being wound with wire, both jaws being inserted in the end of a handle, all as described.

644,117. DEVICE FOR CUTTING BEVELED EDGES. GEORGE H. WHAPLE, River Forest, Ill. Filed Nov. 27, 1899. Serial No. 738,289. (No model.)



Claim.—1. In a device for cutting paper or other materials on parallel lines, the combination of a flat base, a rotating frame hinged to said base and carrying a guide-bar longitudinally mounted thereon, adapted to be pressed against the surface of said base, a graduated arm secured to said base, substantially in the plane of its upper surface and at a right angle to its edge and the edge of said guide-bar, a cross-head slidably mounted transversely on said arm and having its front face at a right angle to said arm and parallel to said guide-bar, substantially as set forth.

2. In a bevel-cutting device, the combination of a flat base, a rotating frame hinged to said base and carrying a beveled guide-bar longitudinally mounted thereon, adapted to be pressed against the surface of said base, a graduated arm secured to said base substantially in the plane of its upper surface and at a right angle to its edge and the edge of said guide-bar, a cross-head slidably mounted transversely on said arm with its front face at a right angle to said arm and parallel with said guide-bar, substantially as set forth.

644,118. DEVICE FOR BINDING CORN-SHOCKS. WILLIAM J. WILEY, Castana, Iowa. Filed June 2, 1899. Serial No. 719,139. (No model.)



Claim.—1. A device of the class described comprising a body provided at one end with a socket and having a transverse eye arranged at right angles to the socket, said body being provided on its exterior with ears, and a substantially-U-shaped pawl extending longitudinally of the body and hinged to the ears and extending to the transverse eye, whereby it is adapted to engage a rope passed through the said eye, substantially as described.

2. A device of the class described comprising a body having an eye and designed to be connected to a rope, said body being provided with a fixed lug, and a resilient dog adapted to engage the rope and arranged contiguous to and cooperating with the said lug to form a clamp for holding a piece of twine or the like, substantially as described.

3. A device of the class described comprising a body having an eye, and a resilient dog adapted to engage a rope passed through the eye, said dog forming a clamp and adapted to hold a piece of twine between it and the body, substantially as and for the purpose described.

4. A device of the class described comprising a body designed to be connected with a rope, an arm fixed to the body, and a resilient substantially-U-shaped dog arranged to engage a rope and having its sides hinged to the body, one of its sides being extended and forming an arm located adjacent to the fixed arm and adapted to clamp a piece of twine, substantially as described.

5. A device of the class described comprising a body provided with perforated ears and having a fixed arm or lug located adjacent to one of the ears, and a substantially-U-shaped resilient dog adapted to engage the rope and having its terminals bent outward to form pintles to engage the perforations to the ears, one of the terminals of the dog being extended and forming an arm located between the arm or lug and the adjacent ear, substantially as described.

6. A device of the class described, comprising a body provided with an arm or lug and adapted to be connected to a rope, and a resilient dog adapted to engage the rope and having sides hinged to the body, one of the sides being provided with an arm or extension cooperating with the lug or arm of the body to form a clamp, substantially as described.

644,119. RECEPTACLE FOR ASHES OR GARBAGE. GEORGE C. WITT, Cincinnati, Ohio. Filed May 9, 1899. Serial No. 716,156. (No model.)

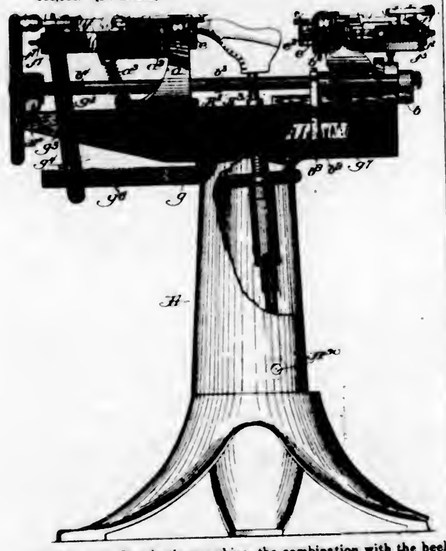


Claim.—1. An ash or garbage receptacle comprising a body having plain integral offset ends and having longitudinal corrugations

between said integral offset ends, a ring encircling the upper offset end of the body and of sufficient width to project above the same, a cover having a depending flange to embrace said ring and also having an annular shoulder to rest upon said ring, a ring encircling the lower offset end of the body and projecting below the same, a bottom having a depending annular flange disposed against the inner face of the lower offset end of the body, the free edge of said lower offset end bent up to embrace the lower edge of the flange depending from the bottom of the receptacle.

2. The combination of a receptacle having longitudinal corrugations, an ear curved transversely and secured between two corrugations, said ear having bearings at respective sides disposed over two outward corrugations and a handle having a part passing freely through said bearings and resting against the outward corrugations of the receptacle over which said bearings are disposed.

644,120. LASTING-MACHINE. ERASTUS WOODWARD, Somerville, Mass., assignor, by mesne assignments, to the Consolidated & McKay Lasting Machine Company. Filed Jan. 26, 1898. Serial No. 668,001. (No model.)



Claim.—1. In a lasting-machine, the combination with the heel and toe wipers, of a wiper-block for each set of wipers means for yieldingly holding said block in a predetermined normal position, and a jack for the last so positioned that said last will longitudinally engage the under surface of the wipers and cause the said wiper-block to tip, whereby the said block is free to move in response to the engagement of the wipers and the last, substantially as described.

2. In a lasting-machine, the combination with the heel-wiper block and the toe-wiper block and means for moving one of said blocks toward the other to bring the said blocks respectively adjacent to the toe and heel ends of the last, of a pivotal support for each block beyond the point at which the wipers first engage the surface of the last, and a jack for the last so positioned that said last will longitudinally engage the under surface of the wipers and cause the said wiper-blocks to tip, substantially as described.

3. In a lasting-machine, the combination with a toe-wiper block; of the toe-wipers thereon and means for closing the same; a pivotal support for said toe-wiper block beyond the point at which the said wipers are first engaged by the last, the said block being yieldingly held in a predetermined position upon said pivotal support; a heel-wiper block; means for moving said heel-wiper block toward the toe-wiper block to force the last into engagement with the same; and a jack for the last so positioned that said last will longitudinally engage the under surfaces of the wipers and cause the said wiper-blocks to tip, substantially as described.

4. In a lasting-machine, the combination with the heel and toe wipers; of pivotally-supported wiper-blocks therefor; a jack for the last so positioned that the said last will engage the under surfaces of the wipers and cause the said wiper-blocks to tip; means for bringing together said jack and wipers whereby the wipers are caused to ride along the inclined surfaces of the last until they are brought to a position to operate on an upper on the last; and an actuating device for the wipers adapted to cooperate with the means aforesaid for bringing together the jack and wipers, as set forth.

5. In a lasting-machine, the combination with a jack for the last, of the wipers, mechanism whereby said jack and wipers are brought together so that the latter are in position to operate on the upper on a jacked last, an actuating device for closing in the wipers, and means for connecting said actuating device with the mechanism aforesaid, or disconnecting it therefrom, at any point in the operation of said actuating device whereby said wipers may be automatically or manually operated, substantially as described.

6. In a lasting-machine, the combination with the toe-wiper block, of the toe-wipers thereon and means for operating the same, a pivotal support for said toe-wiper block beyond the point at which the said wipers are first engaged by the last, a jack for the last so positioned that said last will longitudinally engage the under surface of the wipers and cause the said wiper-block to tip, a heel-wiper block, means for moving said heel-wiper block toward the toe-wiper block to force the last into engagement with the latter, and means for closing in the toe-wipers in response to the movement of the heel-wiper block aforesaid, substantially as described.

7. In a lasting-machine, the combination with the pivotally-supported toe-wiper block; of the toe-wipers thereof and means for operating the same; the pivotally-supported heel-wiper block: the jack for the last so positioned that the said last will engage the under surfaces of the wipers and cause the said wiper-blocks to tip; means for moving said heel-wiper block toward the toe-wiper block to force the last into engagement with the said toe-wiper block; and an adjustable connecting device whereby the movement of the heel-wiper block may be transmitted to the toe-wipers, as set forth.

8. The combination with the toe-wipers; of the toe-wiper block; a carriage for said toe-wipers supported upon said block; and an actuating-lever for said carriage and wipers fulcrumed on said block, the point of connection between the said lever and said carriage being nearer the fulcrum of the lever than the point of connection between the lever and the wipers, substantially as and for the purpose described.

9. The combination with the toe-wiper; of an actuating-lever therefor; the heel-wipers; the movable heel-wiper carriage; means for moving said carriage toward the toe-wipers; a rod adjustably connected with said carriage; and a device for connecting said rod with the toe-wiper-actuating lever at any point in the movement of said rod.

644,121. TOY. JOSEPH YELLE, Holyoke, Mass. Filed Aug. 18, 1899. Serial No. 727,729. (No model.)



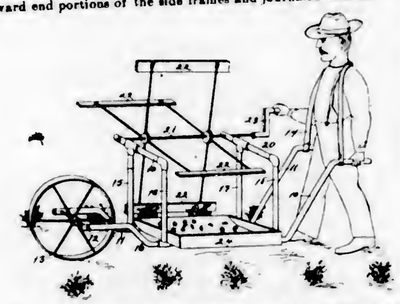
Claim.—1. A toy of the character described, comprising a box; a sliding cover therefor; an object, having an inwardly angularly extending portion pivotally connected to said box; connections between said cover and said angularly-extending portion, for projecting said object from the box; and a stop carried by said angularly-extending portion, adapted to contact against the under face of said cover, whereby the outward movement of said object will be positively limited.

2. A toy of the character described, comprising a box having a sliding cover; an object normally located within said box and having a curved body portion; an angularly-extending portion secured to the inner end of said object, said angularly-extending portion forming a stop; pins extending laterally from said angularly-extending portion; a socket formed in the end of each pin; a pivot-pin fixed on each side of said box and adapted to engage the sockets of said pins; and a cord connected to one of said pins and to said sliding cover, whereby the withdrawal of the cover operates to project the body portion of the object to a limited predetermined position, through the opening formed in said box by the withdrawal of the cover.

644,122. POTATO-BUG GATHERER. MILES BATEMAN and WILLIAM ZIMMERMAN, Lone Tree, Iowa; said Bateman assignor to said Zimmerman. Filed May 3, 1898. Renewed July 25, 1899. Serial No. 725,096. (No model.)

Claim.—1. The combination of the side frames made of gas-pipe and formed with the depressed central portions, the upwardly and

forwardly extending end portions having journal-bearings in the extremities thereof and the upwardly and rearwardly extending end portions having the handles attached thereto or formed thereon, the receptacle mounted on and connecting the depressed central portions of the side frames, the standards 15, 16, 17 and 18, also made of gas-pipe and rising from the side frames adjacent the corners of the receptacle, the bars horizontally mounted on and connecting the upper ends of the standards and laterally extended from the standards 15 and 17, the journal-bearings formed in the laterally-extending portions of the bars, a reel-shaft mounted for rotation in the bearings on the bars, the crank on the rear end of said shaft, the reel on the central portion of the shaft, and the supporting-wheel mounted between the forward end portions of the side frames and journaled thereto.



2. The combination of side frames, a wheel intersecting the forward ends of said side frames, handles on the rear ends of said side frames, a receptacle on the central portions of said side frames, standards rising from said side frames, bars on said standards, a shaft journaled in said bars, a crank on said shaft, a reel on said shaft between the bars, and a shoulder-strap connected with and connecting said handles.

644,123. FIRE-ESCAPE. WILLIAM BOWDY, New York, N. Y. Filed Apr. 27, 1899. Serial No. 714,625. (No model.)



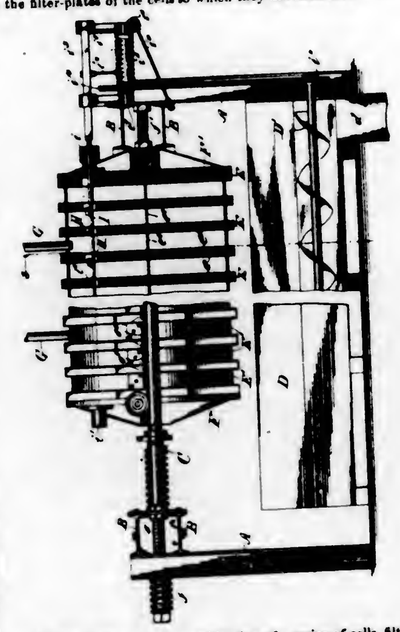
Claim.—1. A fire-escape, consisting of a platform and a back frame, hinged, so as to be folded together, and foldable supports, connecting the back frame with the platform, said back frame having means whereby it can be detachably hinged at one end to the face of a building at one side of a window, so that the platform is suspended across the sill of said window, and may be swung horizontally away from said window to an adjoining window, as and for the purpose set forth.

2. A fire-escape, consisting of a platform and a back frame, hinged so as to be folded together, the back frame being supplied with hinge-pintles, and folding supports connecting the back frame with said platform, the back frame and platform being adapted to be suspended across out the sill of a window and to be hinged at one side thereof, as and for the purposes set forth.

3. The combination with a window and sockets for hinges in the face of the building at the side of said window, of a portable foldable fire-escape, consisting of a back frame, and a platform hinged together, and adapted to extend across the sill of the window, the back frame having pintles, which engage with the said hinge-sockets at the side of the window, and folding supports connecting said back frame with the platform, as and for the purposes set forth.

644,124. FILTER-PRESS. WILLIAM R. BRADLEY, Frankfort, Ky. Filed Nov. 6, 1899. Serial No. 735,892. (No model.)

Claim.—1. In a filter-press, the combination of a series of cells, filtering-plates intermediate said cells, each of which is provided with an opening, and a plurality of supply-pipes connected with said cells, said supply-pipes having their discharge ends adjacent the openings in the filter-plates of the cells to which they are connected, and means for keeping said openings clear or free of material.



2. In a filter-press, the combination of a series of cells, filtering-plates intermediate said cells each of which plates is provided with an opening, a plurality of supply-pipes connected with said cells, said supply-pipes having their discharge ends adjacent the openings in the filter-plates of the cells to which they are connected, and means for keeping said openings clear or free of material.

3. In a filter-press the combination of a series of cells, filtering-plates intermediate said cells each of which plates is provided with an opening, a plurality of supply-pipes connected with said cells, said supply-pipes having their discharge ends adjacent the openings in the filter-plates of the cells to which they are connected, and means for keeping said openings clear or free of material, said means comprising a reciprocating bar to which are connected a number of angle-bars.

4. In a filter-press, in combination with apertured filtering-plates, a clearing device for said apertures comprising a bar which is adapted to be reciprocated and which extends through said openings and projections on said bar which move in and out of said openings when the bar is reciprocated.

5. In a filter-press, the combination of a series of cells, filtering-plates intermediate said cells, each of which is provided with an opening near its periphery, and a plurality of supply-pipes connected with said cells and having their discharge ends adjacent the openings in the filtering-plates adjacent the cells to which said pipes are connected.

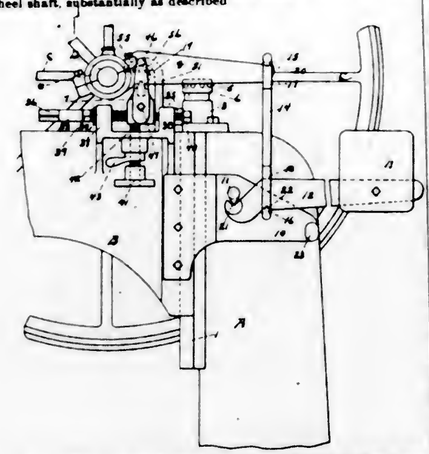
6. In a filter-press, the combination of a series of rings, filtering-plates intermediate said rings, and plates secured within said rings, said plates being adapted to abut against and brace adjacent filtering-plates.

644,125. BAND SAWING-MACHINE. GEORGE W. BOEBER, Delhi, Ohio, assignor to the J. A. Fay & Egan Company, Cincinnati, Ohio. Original application filed May 1, 1899. Serial No. 715,164. Divided and this application filed Aug. 12, 1899. Serial No. 727,054. (No model.)

Claim.—1. In a band sawing-machine, the combination of an upper saw-wheel, with a shaft therefor journaled in a single lever supported solely on a knife-edge extending lengthwise of the saw-wheel shaft, substantially as described.

2. In a band sawing-machine, the combination of an upper saw-wheel, a shaft therefor, with a single bearing-support for the shaft supported rockingly solely on a knife-edge extending lengthwise of the shaft, substantially as described.

3. In a band sawing-machine, the combination of an upper overhanging saw-wheel, with a shaft therefor journaled in a single lever supported solely on a knife-edge extending lengthwise of the saw-wheel shaft, substantially as described



4. In a band sawing-machine, the combination of an upper saw-wheel, a shaft therefor, with a single bearing-support for the shaft to one side of the saw-wheel supported rockingly solely on a knife-edge extending lengthwise of the shaft, substantially as described.

5. In a band sawing-machine, the combination of an upper saw wheel, a shaft therefor, with a single bearing-support for the shaft to one side of the saw-wheel supported rockingly solely on a knife-edge extending lengthwise of the shaft and adjacent to the vertical plane of the shaft, substantially as described.

6. In a band sawing-machine, the combination of an upper saw-wheel, a shaft therefor, a lower saw-wheel, and a band-saw blade for taking about the wheels, with a single bearing-support for the shaft of the upper saw-wheel supported rockingly on a knife-edge extending lengthwise of the shaft, and constructed and arranged for compensating for the variations in strain on the band-saw blade on the instant in parallel lines from a single rocking support direct to a single rigidly-connected line of knife-edge contact, substantially as described.

7. In a band sawing-machine, the combination of an upper saw-wheel, with a supporting rocking bearing therefor, supported rockingly solely on a knife-edge extending lengthwise of the bearing, with an angling vertical adjustment for the knife-edge, substantially as described.

8. In a band sawing-machine, the combination of a saw-wheel shaft, a rocking bearing therefor, a knife-edge bar solely supporting the bearing, with a weighting device, and a stop to limit the rocking movement of the bearing, substantially as described.

9. In a band sawing-machine, the combination of a saw-wheel shaft, a rocking bearing therefor, a knife-edge bar solely supporting the bearing, with a weighting device, and a stop to limit the longitudinal movement of the shaft, substantially as described.

10. In a band sawing-machine, the combination of a saw-wheel shaft, a rocking bearing therefor, a knife-edge bar solely supporting the bearing, with a weighting device, a stop for limiting the rocking movement of the bearing, and a stop for limiting the longitudinal movement of the shaft, substantially as described.

11. In a band sawing-machine, the combination of a saw-wheel shaft, a rocking bearing therefor, a knife-edge bar for supporting the bearing, a pivotal support for the bar, and a set-screw or similar means for adjusting the bar on its pivot, substantially as described.

12. In a band sawing-machine, the combination of a saw-wheel shaft, a rocking bearing therefor, a knife-edge bar for the bearing, a pivotal support for the bar, a set-screw or similar means for adjusting the bar on its pivot, and a transverse adjustment or adjustments for the bar, substantially as described.

13. In a band sawing-machine, the combination of an upper saw-wheel lever, having a bearing for the upper saw-wheel shaft at one end rigid with relation thereto and supporting the shaft, an upper saw-wheel shaft, a knife-edge bearing for the lever adjacent to the shaft but out of vertical line with its axis and extending lengthwise of the shaft, a weighting device connecting with the other end of the lever, and an angling vertical adjustment for the knife-edge bearing for the saw-wheel lever, substantially as described.

14. In a band sawing-machine, the combination of an upper saw-wheel lever having a bearing for the upper saw-wheel shaft at one end rigid with relation thereto, a knife-edge bearing for the lever adjacent to the shaft but out of vertical line with its axis, and a weighting device connecting with the other end of the lever through a knife-edge bearing, and a swiveling adjustment for the knife-edge bearing for the saw-wheel lever, substantially as described.

15. In a band sawing-machine, the combination of a single upper saw-wheel lever, having a bearing for the upper saw-wheel shaft thereon rigid with relation thereto and supporting the shaft, an upper saw-wheel shaft, a knife-edge fulcrum for the lever, extending longitudinally of the shaft, an angling vertical adjustment for the knife-edge fulcrum, a pressure-lever, a knife-edge fulcrum for the same, a link having knife-edge connections with the saw-wheel lever and the pressure-lever, with a pressure device, substantially as described.

16. In a band sawing-machine, the combination of a frame, a band-saw-wheel lever, a band-saw wheel mounted therein at one end, a knife-edge bar located intermediate of its ends and serving as a fulcrum therefor, an adjusting-screw on which the bar is pivotally hung to give it sidewise adjustment at one end, a set-bolt at the other end for vertical adjustment, a set bolt or bolts at the same end for horizontal adjustment, a pressure-lever, a knife-edge fulcrum for the same, a link having knife-edge connections with the saw-wheel lever and the pressure-lever, with a pressure device, substantially as described.

17. In a band sawing-machine, the combination of a saw-wheel lever, a saw-wheel shaft mounted therein, a knife-edge fulcrum for the same, an angling horizontal and an angling vertical adjustment therefor, a pressure-lever, a knife-edge fulcrum for the latter, a link having knife-edge connections with the levers, and a stop to limit the movement of the saw-wheel lever, substantially as described.

18. In a band sawing-machine, the combination of a main frame, with a bracket adjustable thereon supporting a knife-edge fulcrum for an upper saw-wheel shaft, an angling vertical and an angling horizontal adjustment therefor, a saw-wheel lever pivoted on the knife-edge fulcrum, a bearing for the saw-wheel at one end thereof, a knife-edge fulcrum, a weight-lever contacting therewith, a link with a knife-edge at each end contacting with the saw-wheel lever and the weight-lever, and a stop for the weight-lever, with a screw-shaft for adjusting the bracket and parts supported thereby with relation to the frame, constructed and arranged substantially as described.

644,126. NON-PUNCTURE AND SPREDING ATTACHMENT FOR PNEUMATIC TIRES. BENJAMIN CHARLES, Evansville, Ind., assignor of one-half to J. W. Ruminer and Joseph M. Kaelin, same place. Filed Dec. 1, 1899. Serial No. 738,838. (No model.)



Claim.—1. The combination with a tire, of an armor therefor, made in sections considered circumferentially of the tire, and an elastic strip or band encircling the armor circumferentially and fastened to it, which secures the armor to the tire.

2. The combination with a tire, of an armor therefor, made in sections considered circumferentially of the tire, and an elastic strip or band encircling the armor circumferentially, and rivets connecting said strip to the armor, said strip being adapted to hold the armor on the tire.

3. The combination with a tire, of an armor therefor having an external rib, and an independent tractive facing secured to the face of said rib.

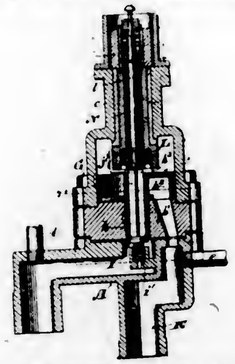
4. The combination with a tire, of an armor therefor having an external raised corrugation or rib, an independent tractive facing-strip for said rib, and rivets securing the strip to the face of the corrugation or rib.

5. The combination with a tire, of an armor therefor having an external corrugation or rib, an independent tractive facing-strip for said rib, and rivets passing through said strip and rib and having their heads projecting beyond the face of the strip.

6. The combination with a tire, of an armor therefor having an external circumferential rib and an internal circumferential concavity substantially in alinement therewith, of a circumferential strip on the tire which fits in the concavity, and a facing-strip on the exterior of the rib.

7. The combination with a tire, of an armor therefor, stripe on said armor, rivets securing the stripes to the armor, and plugs fitted in the rivets.

644,127. ENGINEER'S VALVE. NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Mar. 14, 1898. Serial No. 673,753. (No model.)



Claim.—1. In an engineer's valve the combination of a valve-case having main-reservoir and train-pipe connections and an exhaust-port, a main valve controlling communication between the train-pipe and the main reservoir and between the train-pipe and the exhaust-port, a single supply-passage leading from the main-reservoir connection into the main-valve chamber, a regulating-valve in said passage controlling the entire supply of air from the main reservoir to the train-pipe, a movable part exposed to train-pipe pressure and adapted to cause the opening of said regulating-valve when such pressure falls below a predetermined limit and to admit air from the main reservoir into the train-pipe when the main valve is in releasing and running position, and a spring acting on said movable part in opposition to the train-pipe pressure and tending to open said regulating-valve, substantially as and for the purposes set forth.

2. In an engineer's valve the combination of a valve-case having main-reservoir and train-pipe connections and an exhaust-port, a main valve controlling the admission and release of air to and from the train pipe, a supply-passage leading from the main-reservoir connection into the main-valve chamber, a regulating-valve in said passage controlling the entire supply of air from the main reservoir to the train-pipe, a movable part adapted to cause said regulating-valve to open when the train-pipe pressure falls below a certain limit and to admit air from the main reservoir into the train-pipe when the main valve is in releasing and running position, a spring acting upon said movable part in opposition to the train-pipe pressure and tending to open said regulating-valve, and means for adjusting the tension of said spring, substantially as and for the purposes set forth.

3. In an engineer's valve the combination with a suitable case having main-reservoir and train-pipe connections and an exhaust-passage and provided with a valve-seat having supply, train-pipe and exhaust ports, the exhaust-port having a graduating groove or notch on one side, of a disk-shaped valve having a through supply passage or port, a cavity in its working face and a tubular stem fitted to turn in an opening in the valve-seat and forming a passage between the main-reservoir connection and the valve-chamber, the supply-port of the valve-seat being connected by a passage with the train-pipe port, substantially as and for the purposes set forth.

4. In an engineer's valve the combination with a suitable valve-case having main-reservoir and train-pipe connections and an exhaust port or passage, of a disk-shaped main valve having a tubular stem fitted to turn in an opening through the valve-seat into the main-reservoir passage and forming a continuation of said passage into the main-valve chamber, a regulating-valve adapted to close the passage in said tubular stem and provided with a stem which is guided in said tubular stem, a tubular valve-operating stem fitted to turn in the valve-case, provided at its outer end with an operating-handle and engaging at its inner end with the main valve, and a movable part fitted to work in the inner end of said valve-operating stem and adapted to open the regulating-valve when the train-pipe pressure falls below a predetermined limit, substantially as and for the purposes set forth.

5. In an engineer's valve the combination with the main valve of a passage leading from the main-reservoir connection into the main-valve chamber, a regulating-valve controlling said passage, a movable part adapted to open said regulating-valve when the train-pipe pressure falls below a certain limit and means for manually opening said regulating-valve, substantially as and for the purposes set forth.

6. In an engineer's valve the combination with a suitable case having main-reservoir and train-pipe connections and an exhaust-opening, of a main valve controlling the supply and release of the fluid-pressure medium to and from the train-pipe, a regulating-valve adapted to close a passage leading from the main-reservoir connection into the main-valve chamber, means for automatically opening and closing said regulating-valve when the train-pipe pressure falls below and rises above a certain limit, and means for manually opening said regulating-valve, substantially as and for the purposes set forth.

7. In an engineer's valve the combination with a valve-case having main-reservoir and train-pipe connections and an exhaust-opening, of a main valve having a tubular stem which is fitted in an opening through the valve-seat into the main-reservoir passage and forms a continuation of said passage into the main-valve chamber, a regulating-valve adapted to close the passage in the stem of the main valve, and having a stem guided therein, a spring tending to close the regulating-valve, a tubular valve-operating stem fitted to turn in the valve-case and engaging at its inner end with the main valve, a movable part fitted in the inner end of said valve-operating stem, exposed on one side to the pressure in the main-valve chamber and adapted when said pressure falls below a certain limit to open the regulating-valve, and a spring contained in said valve-operating stem and acting against said movable part in opposition to the fluid-pressure on its opposite face, substantially as and for the purposes set forth.

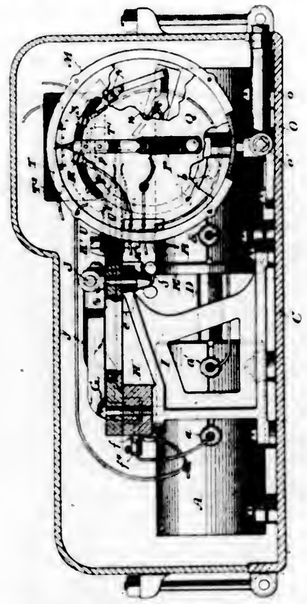
8. In an engineer's valve the combination of a valve-case having main-reservoir and train-pipe connections and an exhaust-opening, of a main valve controlling the admission and release of the fluid-pressure medium into and from the train-pipe, a regulating-valve controlling a passage from the main-reservoir connection into the main-valve chamber, a hollow stem fitted to turn in the valve-case, engaging at its inner end with the main valve and provided at its outer end with an operating-handle, a movable part in the inner end of said stem adapted to open the regulating-valve when the train-pipe pressure falls below a certain limit, a tubular adjusting-screw threaded in said stem, a spring interposed between said screw and movable part and acting thereon in opposition to the fluid-pressure in the main-valve chamber, and a push-pin projecting through the upper end of said stem for manually pressing said movable part into position to open the regulating-valve, substantially as and for the purposes set forth.

9. In an engineer's valve the combination of a valve-case provided with an outwardly-projecting flange and with stops, a valve for controlling the admission and release of fluid under pressure to and from the train-pipe, and a handle detachably connected with the valve-operating stem and having a spring-actuated detent adapted to indicate by its engagement with shoulders or notches in the flange on the valve-case the lap and service positions of the valve and having a projection extending below said flange and adapted by the engagement with the stops on the valve-case to limit the movement of the valve in both directions, in release and running position in one direction, and in emergency position in the other direction, the flange on the valve-case being notched or cut away to permit the removal of said handle only when the valve is on lap, release and service positions, substantially as and for the purposes set forth.

644,128. AUTOMATIC CONTROLLER FOR ELECTRIC COMPRESSORS. NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Sept. 2, 1899. Serial No. 729,383. (No model.)

Claim.—1. In an automatic controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit, two magnets having circuit connections so arranged that when said movable contact engages the maximum-pressure contact the switch will be opened and the compressor stopped and when it engages the minimum-pressure contact the switch will be closed and the compressor started, and a spark-arrrester arranged to be thrust between the contacts of said switch as soon as they are separated, substantially as and for the purposes set forth.

2. In an automatic controller for electric compressors the combination of a movable contact having a fluid-pressure actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit, two magnets connected in series with each other and with said switch and arranged to open and close the same, the coil of one of said magnets being connected at one end with the ground or return, and at the other end with said movable contact, the maximum-pressure contact being connected with the ground or return and the minimum-pressure contact with the source of current, and a circuit-controller in the circuit connection of the minimum-pressure contact arranged to be closed when the main switch is opened and vice versa, substantially as and for the purposes set forth.



3. In an automatic controller for electric compressors the combination of a movable contact, a spring-tube having a fluid-pressure-actuating connection and connected with and arranged to actuate said movable contact, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit, and two magnets having circuit connections so arranged that when said movable contact engages the maximum-pressure contact the switch will be opened and the compressor stopped, and when it engages the minimum-pressure contact the switch will be closed and the compressor started, substantially as and for the purposes set forth.

4. In an automatic controller for electric compressors the combination of a hand or index carrying an electrical contact, a spring-tube having a fluid-actuating connection and an actuating connection with said hand or index, a plate or dial having a curved slot, maximum and minimum pressure contacts adjustably secured in said slot on opposite sides of and in the path of the movable contact carried by said hand or index, a switch in the compressor-motor circuit, and two magnets having circuit connections so arranged that when said movable contact engages the maximum-pressure contact the switch will be opened and the compressor stopped, and when it engages the minimum-pressure contact the switch will be closed and the compressor started, substantially as and for the purposes set forth.

5. In an automatic controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit comprising fixed insulated contacts and a series of pivoted spring contact-arms adapted to be turned into and out of engagement with said fixed contacts, two magnets adapted to open and close said switch, and a spark-arrester arranged to be thrust by said magnets between the contacts of said switch as soon as they are separated, said magnets having circuit connections so arranged that the switch will be opened and the compressor stopped when the maximum-pressure contact is engaged by the movable contact and said switch will be closed and the compressor started when the minimum-pressure contact is engaged by said movable contact, substantially as and for the purposes set forth.

6. In an automatic controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit comprising a number of fixed insulated contacts, a rocking bar having a series of spring contact-arms mounted thereon and adapted to be turned into and out of engagement with said fixed contacts, two magnets the armature of which is adapted to close said switch, an incline carried by said armature in position by engagement with an arm of said rocking bar to open said switch, and a spark-arresting plate carried by said armature in position to be thrust between the contacts of the switch as soon as they are separated by said incline, substantially as and for the purposes set forth.

7. In an automatic controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a main switch in the compressor-motor circuit, two magnets for operating said switch connected in series with each other and with said switch, the coil of one of said magnets being connected at one end with the ground or return and at the other end with said movable contact, the maximum-pressure contact being connected with the ground and the minimum-pressure contact having a shunt connection with the source of current, a circuit-controller in said shunt connection consisting of two normally-engaging springs or contacts, and an insulating-strip operated by said magnets to separate said springs when the main switch is closed and to release them and permit them to come together when the main switch is opened, substantially as and for the purposes set forth.

8. In an automatic circuit-controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit, two magnets arranged to open and close said switch and connected in series with each other, the coil of one of said magnets being connected at one end with the ground or return and at the other with said movable contact, the maximum-pressure contact being connected with the ground or return and the minimum-pressure contact having a shunt connection with the source of current, a circuit-controller in said shunt connection consisting of two normally-engaging contacts, an insulating-strip operated by said magnets to separate the contacts of said shunt-circuit controller when the main switch is closed, and a spark-arrester also operated by said magnets and adapted to be thrust between the contacts of said switch when they are separated, substantially as and for the purposes set forth.

9. In an automatic circuit-controller for electric compressors the combination of a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a switch in the compressor-motor circuit consisting of fixed insulated contacts and of a number of spring contact-arms carried by a rocking bar, two solenoid-magnets having a common core adapted by engagement with an arm on said rocking bar to close said switch, an incline carried by said core and adapted by engagement with an arm of said rocking bar to open said switch, said magnets being connected in series with each other, the coil of one magnet being connected at one end with the ground or return and at the other end with said movable contact, the maximum-pressure contact being connected with the ground or return and the minimum-pressure contact having a shunt connection with the source of current, a circuit-controller in said shunt connection consisting of two normally-engaging springs or contacts, an insulating-strip carried by the core of said magnets and adapted to separate the contacts of the shunt-circuit controller when said switch is closed and vice versa, and a spark-arrester also carried by said core and arranged to be thrust between the contacts of said switch when they are separated, substantially as and for the purposes set forth.

10. In an automatic controller for electric compressors the combination with a movable contact having a fluid-pressure-actuating connection, maximum and minimum pressure contacts arranged to cooperate with said movable contact, a main switch in the compressor-motor circuit, two magnets for operating said switch, and a circuit-controller operated by said magnets and arranged to be opened when the main switch is closed and vice versa, said circuit-controller being arranged in a shunt connected with one of the aforesaid contacts and controlling the current-supply through said shunt to one of said magnets, substantially as and for the purposes set forth.

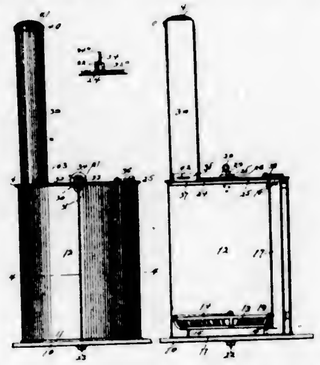
11. In an automatic controller for electric compressors the combination with a movable contact having a fluid-pressure-actuating connection and maximum and minimum pressure contacts adapted to cooperate with said movable contact, of two magnets adapted to control the compressor-motor circuit, two switches or circuit-breakers operated by said magnets and controlling the circuits including said magnets, each switch or circuit-breaker being arranged to open when the other closes and vice versa, said magnets having circuit connections so arranged that when said movable contact engages the maximum-pressure contact the compressor will be stopped and when said movable contact engages the minimum-pressure contact the compressor will be started, substantially as and for the purposes set forth.

12. In an automatic controller for electric compressors the combination with a movable contact having a fluid-pressure-actuating connection and maximum and minimum pressure contacts adapted

to coöperate with said movable contact, of two magnets adapted to control the compressor-motor circuit, two switches or circuit-breakers operated by said magnets and controlling the circuits including said magnets, each switch or circuit-breaker being arranged to open when the other closes and vice versa, and insulating-strips arranged to be thrust by said magnets between the contacts of said switches or circuit-breakers when they are separated, said magnets having circuit connections so arranged that when said movable contact engages the maximum-pressure contact the compressor will be stopped and when it engages the minimum-pressure contact the compressor will be started, substantially as and for the purposes set forth.

13. In an automatic controller for electric compressors the combination with a switch controlling the compressor-motor circuit and two magnets arranged to open and close said switch, of a pressure-gage comprising a movable part arranged to be actuated by fluid-pressure and a contact connected with said movable part by multiplying-gearing, and insulated maximum and minimum pressure contacts arranged on opposite sides and in the path of said movable contact, said magnets having circuit connections with said pressure-gage so arranged that when said movable contact engages the maximum-pressure contact the switch will be opened and the compressor stopped, and when said movable contact engages the minimum-pressure contact the switch will be closed and the compressor started, substantially as and for the purposes set forth.

644,129. TANK-HEATER. ALEXANDER R. DEMPSTER and WILLIAM D. RINEHART, Des Moines, Iowa, assignors to the Dempster Manufacturing Company, same place. Filed Feb. 24, 1899. Serial No. 706,703. (No model.)



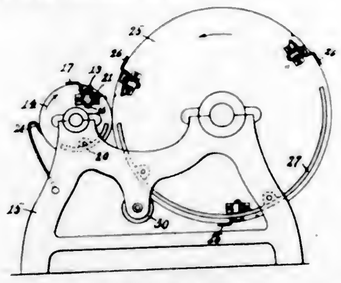
Claim.—1. In a tank-heater the combination of the body, the ears thereon, the rods traversing the ears and arranged for attachment to a supporting-trough, the cover formed in two sections and pivoted on one of said rods, the lugs on the cover-sections engaging one of the ears and the latch connecting the cover-sections.

2. In a tank-heater, the combination of the body, the ears 20, 21, thereon, the rods traversing the ears and arranged for attachment to a supporting-trough, the cover formed in two sections, ears 27, 28, on the cover-sections and located above and in allnement with the ear 20 and apertured for pivoting on the rod traversing said ear 20, the flange on one of the cover-sections overlapping the adjacent edge of the other cover-section, the lugs on the cover-sections opposite the ears 27, 28, and engaging beneath the ear 21, and the latch connecting the cover-sections.

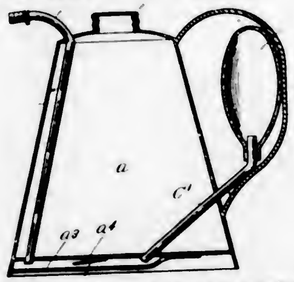
3. In a tank-heater, the combination of the body, the ears 20, 21, thereon, the rods traversing the ears and arranged for attachment to a supporting-trough, the cover formed in two sections and pivoted on the rod traversing the ear 20, the lugs on the cover-sections engaging beneath the ear 21, an ear 32 formed on and rising from one of the cover sections adjacent the ear 21, a stud 32ª formed on and laterally projecting from the ear 32 and slightly reduced in thickness at the point of jointure to the ear 32, an ear 33 on the other cover-section and a book-latch 34 pivoted on the ear 33 and notched to embrace the reduced portion of the stud 32ª, whereby the cover-sections are connected.

644,130. PAPER-BAG MACHINE. JAMES W. DUVALL and GEORGE A. SHEPARD, Middletown, Ohio, assignors, by direct and mesne assignments, to themselves and William G. Clark, same place. Filed July 29, 1899. Serial No. 725,469. (No model.)

Claim.—In a paper-bag machine for operating upon connected blank-sections, the combination of a roll, a pair of side grippers carried thereby, a flap-holder carried by said roll, a cylinder running in contact with and having a diameter in multiple of that of the roll, a multiplicity of pairs of side grippers carried by said cylinder, means for operating the grippers carried by the roll, means for operating the grippers carried by the cylinder, and holding said grippers in engagement with the blank until after the succeeding pair of grippers has engaged the next blank-section, and mechanism for turning said roll and cylinder continuously forward.



644,131. FORCE-CAN. EMANUEL R. REITMAN, Pullman, Ill. Filed May 24, 1899. Serial No. 718,073. (No model.)



Claim.—1. A receptacle provided with a nozzle and a handle, and a compressible bulb arranged between the handle and the receptacle in such manner that the handle serves as a guard for the bulb; the said bulb having a passage which leads from its interior and communicates with the nozzle and also with the interior of the receptacle, whereby the fluid may be drawn from the receptacle into the bulb and from the latter ejected through the nozzle, the said passage serving to both admit the fluid to and conduct it from the said bulb.

2. A receptacle provided with a nozzle and a handle, and a compressible bulb arranged adjacent to said handle and in such position that the two may be grasped together; the said bulb having a passage leading from its interior and communicating with the said nozzle, and the said passage being provided with a lateral valved opening which permits the fluid to enter the passage from the receptacle, whereby the fluid may be drawn into the bulb by way of said valved opening and said passage and then ejected from the bulb by way of said passage and said nozzle.

3. A receptacle provided with a nozzle and a handle, and a compressible bulb arranged adjacent to said handle and in such position that the two may be grasped together, the said bulb having suitable connection with the interior of the receptacle and also with the nozzle, whereby the fluid may be drawn from the receptacle into the bulb and from the latter ejected through the nozzle, and a portion of the passage through which the fluid is thus ejected from the bulb being suitably connected with the interior of the receptacle and thereby normally filled with fluid to prevent air from entering the bulb.

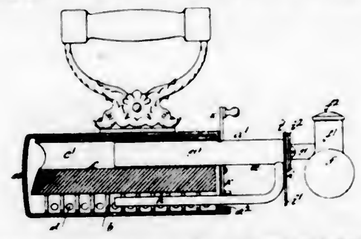
4. A receptacle provided with a nozzle and a loop-shaped handle, and a compressible bulb arranged within the handle in such manner that the latter serves as a guard for the former, the said bulb having suitable connection with the nozzle and also with the interior of the receptacle, whereby the fluid may be drawn from the receptacle into the bulb and from the latter ejected through the nozzle by simply compressing the bulb against the inner surface of the said handle.

5. A receptacle provided with a nozzle and a loop-shaped handle, and a compressible rubber bulb arranged within said handle in such manner that the latter serves as a guard for the former, the said bulb having suitable connection with the nozzle and also with the interior of the receptacle, whereby the fluid may be drawn from the receptacle into the bulb and from the latter ejected through the nozzle by compressing the bulb against the inner surface of the handle, and a portion of the ejecting-passage being maintained full of fluid for the purpose of preventing an admission of air to the said bulb.

6. A receptacle provided with a nozzle, a compressible bulb arranged external to said receptacle, and a single passage for connecting the bulb with the nozzle, a portion of said passage being substantially at or near the bottom of the chamber provided by the receptacle and such portion of the passage being provided with a valved opening which permits fluid to enter from the said chamber, whereby the fluid may be drawn from the receptacle into the bulb, by way of said passage and said valved opening, and then ejected from the bulb by way of such passage and said nozzle.

7. A receptacle provided with a nozzle and a loop-shaped handle, a compressible rubber bulb arranged within said handle in such manner that the latter forms a guard for the bulb, the said bulb being removably connected at one end with a pipe which leads to the interior of said receptacle, suitable means of communication being also provided between the nozzle and bulb and between the nozzle and the interior of said receptacle, whereby the fluid may be drawn from the latter into the bulb and then ejected through the nozzle by simply compressing the bulb against the inner surface of the handle.

644,132. SMOOTHING-IRON. JOSEF FELDMEYER, Wurzburg, Germany. Filed May 29, 1899. Serial No. 718,775. (No model.)



Claim.—1. In a smoothing-iron the combination of a hollow body *a*, a block *c* supported in body *a* at an interval above the floor thereof, and a heater comprising a reservoir *f*, an evaporator *g* in communication with said reservoir and a burner-pipe *h*, said evaporator being within the block *c* and the burner-pipe beneath the block *c* for the purpose set forth.

2. In a smoothing-iron the combinntion of a hollow body *a* a block *c* having a passage-way *c'* supported in body *a* at an interval above the floor thereof, and a removable heater comprising a reservoir *f* an evaporator *g* and a burner-pipe *h*, the evaporator being adapted to enter passage *c'* and the burner-pipe to enter the space beneath the block *c* for the purpose set forth.

644,133. SOFT-TREAD HORSESHOE. WILLIAM T. FRENCH, Hartwell, Ohio. Filed Aug. 14, 1899. Serial No. 727,108. (No model.)

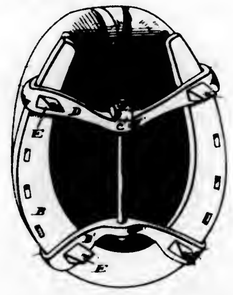


Claim.—1. In a horseshoe, the combination of a bed or foundation having a groove or channel formed around it, and having ledges on the inner walls of said groove or channel, said walls being extended out beyond said ledges, and a cushion or tread part formed of an elongated strip held in said groove or channel between the extended portions of the walls thereof and engaged by the ledges on the walls, substantially as set forth.

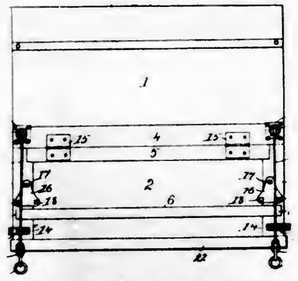
2. In a horseshoe, the combination of a bed or foundation formed of a metal strip in horseshoe shape and provided with a channel and nail-openings leading therefrom up through the bed and having along its opposite edges angular flanges provided on their inner surfaces with oppositely-arranged ledges, and being extended beyond said ledges, and a cushion or tread part having a body adapted for insertion between said flanges and having longitudinal recesses to receive the ledges, substantially as set forth.

644,134. CALK ATTACHMENT FOR HORSESHOES. SEPTIMUS S. GASTINEAU, Indianapolis, Ind., assignor of one-half to John W. Stokes, same place. Filed Nov. 1, 1899. Serial No. 735,519. (No model.)

Claim.—The herein-described calk attachment for horseshoes, consisting of a pair of bars having their ends bent up to form hooks to engage the edge of the horseshoe and having a sloping inner face as described, said bars being shorter than the maximum width of the shoes and being bent laterally toward each other for the purpose specified and applied transversely of the shoe from opposite directions or toe and heel thereof, and said bars having downwardly-tapering holes near their ends and middle holes transverse to the end holes, wedge-shaped calks seated in the tapering holes, and a threaded bolt passing through the middle holes, and a nut on said bolt whereby the bars are drawn toward each other and clamped to the shoe, said nut being normally locked in the concavity of the bent bar, substantially as described and shown.



644,135. END-GATE FOR WAGON-BEDS. LYSANDER L. HAWORTH, Decatur, Ill. Filed Oct. 28, 1899. Serial No. 735,027. (No model.)



Claim.—1. The combination of a scoop-board, a dump-door hinged in the scoop-board, supporting-rods for the scoop-board and means whereby the rods hold the dump-door closed when the scoop-board is raised, substantially as described.

2. The combination of a scoop-board, a dump-door hinged in the scoop-board, supporting-rods for the scoop-board and means whereby the rods hold the scoop-board raised and the dump-door closed, substantially as described.

3. The combination of a scoop-board, a dump-door hinged in the scoop-board, supporting-rods for the scoop-board connected with the bed and engageable with the scoop-board, extensions on the dump-door, and hitches on the scoop-board near the bottom thereof to hold the rods in engagement with the extensions of the door, substantially as described.

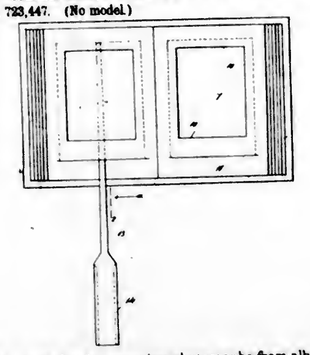
4. The combination of a scoop-board, a dump-door hinged in the scoop-board, swingable buttons on the board to hold the door closed, and supporting-rods for the scoop-board operative on the buttons of the door, substantially as described.

5. The combination of a scoop-board, a dump-door hinged in the scoop-board, swingable buttons on the board to hold the door closed, fingers on the buttons and supporting-rods for the board having sidewise shift to assume their different operative positions, such rods extending between the fingers of the buttons while the scoop-board is held closed, substantially as described.

6. The combination of a scoop-board, a dump-door hinged in the scoop-board, supporting-rods for the scoop-board, hitch-straps for the connecting-rods extending inward in the rear of the board and having each two depressions at different points along its transverse extension, buttons on the board engageable with the door and each having a pair of fingers and a cleat on the door extending beyond the sides thereof all arranged and operating as described.

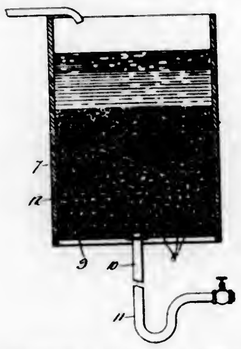
7. The combination with a combined scoop-board and dump, of board sustaining and locking rods extending to near the bottom of the board and chains attached to the ends of the rods to complete the lengths required to support the board in scooping position, substantially as and for the purpose described.

644,136. DEVICE FOR REMOVING PHOTOGRAPHS FROM ALBUMS. CHARLES HELD, New York, N. Y. Filed July 11, 1899. Serial No. 723,447. (No model.)



Claim.—A device for removing photographs from albums, comprising a handle provided with a long thin flexible shank or blade having an angular shoulder or projection at the end opposite the handle, said projection being substantially of a length corresponding to the thickness of a photograph card-mount, substantially as shown and described.

644,137. METHOD OF PURIFYING WATER. OMAR H. JEWELL, Chicago, Ill., assignor to the O. H. Jewell Filter Company, same place. Filed Sept. 7, 1897. Serial No. 650,734. (No model.)



Claim.—1. The method of purifying water which consists in passing the impure water through a granular filter-bed having an exposed filtering-surface, and at the same time applying suction from below, substantially as described.

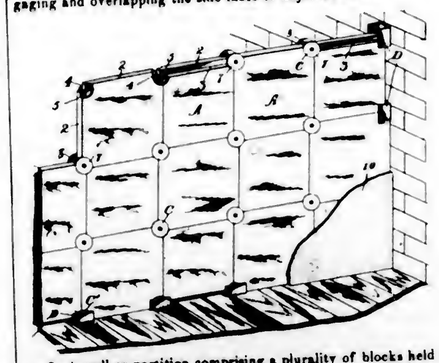
2. The method of purifying water which consists in passing the impure water downward through a granular filter-bed of gradually-increasing compactness from the top downward, and at the same time applying suction from below, substantially as described.

3. The method of purifying water which consists in passing the impure water through a granular filter-bed having an exposed filtering-surface, and at the same time extracting from the water by suction and retaining within the filter-bed, a greater or less portion of the air contained in the water, substantially as described.

644,138. BUILDING WALL OR PARTITION. EDMUND KETCHUM, Montclair, N. J. Filed Oct. 4, 1899. Serial No. 732,508. (No model.)

Claim.—1. A wall or partition comprising a plurality of blocks interlocked between their adjacent sides and having at the corners thereof complementary recesses intersecting the sides of the blocks, and tie members passed through the openings formed by said recesses and engaging and overlapping the side faces of adjacent blocks.

2. A wall or partition comprising a plurality of interlocking blocks having in their edges complementary recesses intersecting the sides of the blocks, and tie-spools having apertures for the passage of plaster and contained in the openings formed by said recesses and engaging and overlapping the side faces of adjacent blocks.



3. A wall or partition comprising a plurality of blocks held together by rabbet-joints and having in their edges complementary recesses intersecting the sides of the blocks, and tie members passed through the openings formed by said recesses and engaging and overlapping the side faces of adjacent blocks and interlocked therewith.

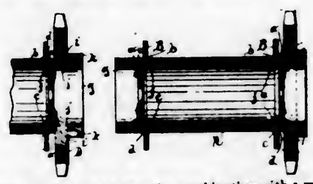
4. A building-block having longitudinal tenons on two of its edges and transverse tenons extending the width of the block at the ends thereof, and also having in its edges recesses intersecting the sides of the block.

5. A building-block having longitudinally-extending tenons on two of its edges and transverse tenons on its ends, said block having recesses at its corners, and also having countersinks substantially concentric with said recesses.

6. A building-block having in its opposite corners recesses intersecting the sides of the block, and also having in the corresponding corners of its side faces countersinks substantially concentric with said respective recesses and also intersecting the sides of the block.

7. A building-block having in one of its edges a recess intersecting the sides of the blocks, and also having in its opposite side faces countersinks substantially concentric with said respective recesses and also intersecting the sides of the block.

644,139. WHEEL-HUB. JOHN J. LAASE, Syracuse, N. Y. Filed June 12, 1899. Serial No. 720,141. (No model.)



Claim.—1. In a wheel-hub, the combination with a metallic tube constituting the body of the hub and provided on each end portion with an annular shoulder produced by circumferentially reducing said end portions, of spoke-attaching collars embracing said end portions and abutting against said shoulders, and wedging retaining-shoulders pressing the collars firmly against the abutment-shoulders and produced by expansion of said reduced end portions to their original diameters substantially as described.

2. In a wheel-hub the combination with a metallic tube constituting the body of the hub and provided on each end portion with an annular shoulder produced by circumferentially reducing said end portions, of spoke-attaching collars having their inner peripheries flaring and embracing said end portions, and abutting against said shoulders, a bevel produced by said flaring of the collars, and wedging retaining-shoulders pressing against said bevel and produced by expansion of said end portions to their original diameters substantially as described.

3. In a wheel-hub, the combination with a metallic tube forming the body of the hub, and having its end portions reduced circumferentially and thereby producing annular shoulders thereon, of spoke-attaching collars embracing said end portions and abutting against said shoulders, wedging retaining-shoulders formed on said end portions and pressing said collars firmly against the abutment-shoulders, annular ribs produced within the tube by the formation of the wedging-shoulders, and the bearing-cups inserted in the ends of the tube and seated on said ribs substantially as described.

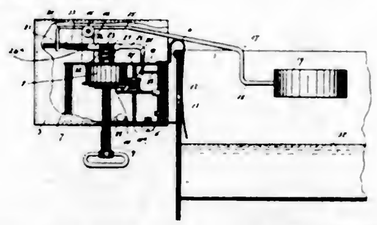
4. In a wheel-hub, the combination with a metallic tube forming the body of the hub, and having its end portions reduced circumferentially thereby producing annular shoulders, of spoke-attaching collars embracing said end portions and having their inner peripheral edges formed beveled, wedging retaining-shoulders formed on the end portions of the tube and pressing against said beveled edges of the collars to grip the collars between the latter shoulders and abutment-shoulders to lock said collars to the tube, annular ribs produced within the tube by the formation of the wedging-shoulders, and the bearing-cups inserted in the ends of the tube and seated on said ribs substantially as described.

5. The combination with a hub provided in one end portion with a series of longitudinal slots and screw-threaded externally on said end, of a sprocket-wheel embracing said end portion and provided on its inner periphery with a series of lugs engaging the aforesaid slots, and a screw-threaded retaining-ring applied to the screw-threaded portion of the hub and bearing against the sprocket-wheel substantially as described.

6. The combination with a hub provided in one end portion with a series of longitudinal slots, of a sprocket-wheel embracing said end portion and provided on its inner periphery with a series of lugs engaging the aforesaid slots, the bearing-cup inserted in the end of the hub and having a retaining-ring formed integral therewith and bearing against the sprocket-wheel substantially as described.

7. The combination with a wheel-hub, of a sprocket-wheel mounted non-revolubly thereon and adapted to be shifted longitudinally to apply it to and remove the same from the hub, a bearing-cup secured in the end of the hub, and a retaining ring or nut formed integral with the cup, and bearing against the sprocket-wheel substantially as described and shown.

644,140. OVERFLOW-ALARM. NATHANIEL M. LENT and GEORGE W. LENT, New York, N. Y. Filed Dec. 16, 1899. Serial No. 740,520. (No model.)

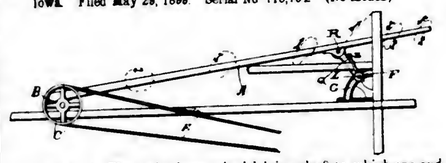


Claim.—1. An overflow-alarm, comprising a clockwork mechanism detachably connected with a liquid-receptacle, said clockwork mechanism being provided with an escapement-arbor, an escapement, and a stop-pin mounted thereon, an operating-lever pivoted to said clockwork mechanism and provided with a longer arm which carries a float which operates within said receptacle, a supplemental lever pivoted to said clockwork mechanism and one arm thereof being straight and operating in connection with the shorter arm of said operating-lever, the other arm thereof being bowed and operating in connection with said stop-pin, the relative construction and arrangement of parts being such that when the liquid in said receptacle raises said float, said bowed arm of said supplemental lever will be freed from said stop-pin, said escapement-arbor being provided with a hammer-arm whereby an alarm may be sounded, substantially as shown and described.

2. In an alarm device of the class described to operate in connection with a liquid-receptacle, a clockwork mechanism, and a bell, said clockwork mechanism being provided with an escapement-arbor which carries a hammer-arm, and with an escapement which operates in connection with said clockwork mechanism, a stop-pin connected with said escapement-arbor, a pivoted operating-lever, the longer arm of which is provided with a float and the shorter arm of which is provided with an eye at its outer end portion, and a supplemental pivoted lever, one arm of which operates in connection with said stop-pin, and the other arm of which operates slidably in connection with the shorter arm of said operating-lever whereby as said float is raised, said auxiliary lever is freed from said stop-pin, substantially as shown and described.

3. In an alarm device of the class described to operate in connection with a liquid-receptacle, a clockwork mechanism, and a bell, said clockwork mechanism being provided with an escapement-arbor which carries a hammer-arm, and with an escapement which operates in connection with said clockwork mechanism, a stop-pin connected with said escapement-arbor, a pivoted operating-lever, the longer arm of which is provided with a float and the shorter arm of which is provided with an eye at its outer end portion, and a supplemental pivoted lever, one arm of which operates in connection with said stop-pin, and the other arm of which operates slidably in connection with the shorter arm of said operating-lever whereby as said float is raised, said auxiliary lever is freed from said stop-pin, said auxiliary lever being provided with a tension device whereby it is normally maintained in engagement with said stop-pin, substantially as shown and described.

644,141. THRESHING-MACHINE. HENRY W. MEINERT, Dixon, Iowa. Filed May 29, 1899. Serial No. 718,704. (No model.)

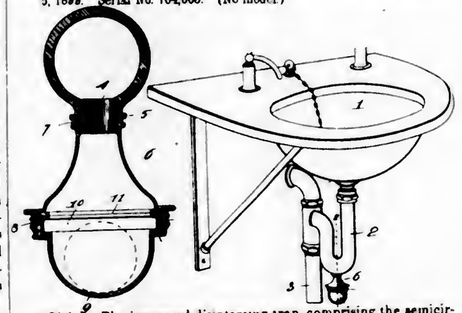


Claim.—1. The rack, the cranked driving-shaft to which one end of the rack is connected, and means for driving the shaft, combined with a rod or shaft connected to the under side of the outer end of the rack, supporting-arms loosely connected to said rod or shaft, a rod or shaft for connecting the lower ends of the arms, toothed segments through which the outer ends of the connecting rod or shaft pass, pinions upon the outer ends, and which engage with the toothed segments, and means for holding the connecting rod or shaft in any desired position upon the segments, substantially as described.

2. A rack, and a mechanism for operating it connected to one end, combined with the supporting-arms which are loosely connected with the rack near its outer end, a cross-piece to which the lower ends of the supporting-arms are connected, toothed segments through which the connecting cross-piece extends, and toothed sleeves for turning the cross-piece so as to raise and lower it in the segments, substantially as specified.

3. In a straw-rack, a clamping-rod provided with a head at one end, and a nut at the other, a sleeve placed upon the rod, suitable toothed collars applied to the sleeve, and a handle for causing the sleeve and its attachments to revolve, combined with the toothed segments and the supporting-arms for the outer end of the rack, and which arms are loosely connected to the sleeve, substantially as shown and described

644,142. TRAP. JAMES A. MULHERIN, St. Louis, Mo. Filed Feb. 6, 1899. Serial No. 704,665. (No model.)

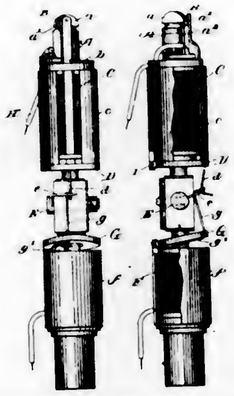


Claim.—The improved disinfecting-trap, comprising the semicircular cup 9 upon the upper marginal edge of which is formed the enlarged integral ring 10, the U-shaped trap 2, the body 6, the upper end of which is connected to said U-shaped trap and the lower end of which is provided with the screw-threaded flange 8, the packing-ring or washer 11, and means whereby said integral enlarged ring 10 and the said washer 11 are securely clamped in place within said screw-threaded flange 8, substantially as specified.

644,143. ELECTRIC GAS-LIGHTING CANDLE-BURNER. RAY N. NOYES, Haverhill, Mass., assignor to the Electric Gas Lighting Company, Boston, Mass. Filed Apr. 10, 1899. Renewed Jan. 2, 1900. Serial No. 165. (No model.)

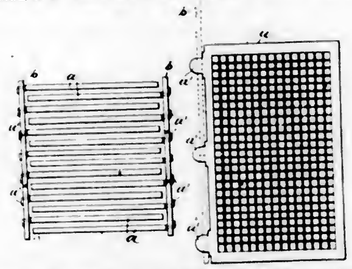
Claim.—1. In combination with a burner-tube, two helical magnets surrounding said burner-tube, one located above and one below

the gas-valve, one or more armatures to be operated by said magnets, one or more armature-pins, an oscillating gas-cock E, a pin or pins extending from its stem and adapted to make contact with said armature pin or pins, a spring to normally hold the armature up from the lower magnet, a fixed electrode *a'* at and insulated from the burner-tip, a movable electrode B to be operated by the armature when it rotates the gas-cock to turn on the gas, a spring *b* holding said electrodes normally in contact, and proper electric circuits to alternately energize the magnets, substantially as and for the purposes described.



2. In combination with a gas-burner pillar and tip, a magnet C, the collar *c*, the armature D, the armature-pin *d*, a rotating gas-cock E, a projecting pin *e* thereon, a lower magnet F, a collar *f* therefor, an armature G, an armature-pin *g*, a spring *g'* normally holding armature G separated from the magnet F, a fixed electrode at the burner-tip, a movable electrode to be operated by said armature D, and proper electric-circuit connections for alternately energizing said magnets, substantially as described and claimed.

644,144. CONNECTING-PLATE FOR STORAGE BATTERIES. HARRY G. OSBURN, Chicago, Ill., assignor to J. Herbert Ballantine, Newark, N. J. Filed Feb. 17, 1899. Serial No. 705,876. (No model.)



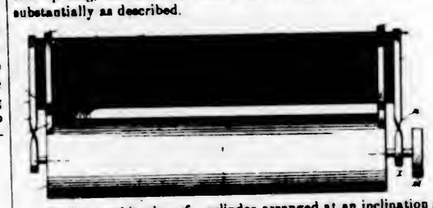
Claim.—1. In combination, a connecting-plate provided with a series of openings and a plurality of battery-plates, each having upon the edge a plurality of tongues or lugs passing through the respective openings and secured therein, substantially as described.

2. An electrode consisting of a plurality of plates each having a plurality of lugs or tongues situated along the edge thereof, and a common connecting-plate to which the lugs or tongues of said plurality of plates are connected, substantially as described.

3. In combination, a battery-plate having a plurality of lugs or tongues on the edge and a connecting-plate having a series of openings into which the several lugs are extended and secured, substantially as described

644,145. SEED-COTTON-FAN MACHINE. THOS. J. OVERSTREET, Norman, Okla. Filed Apr. 15, 1899. Serial No. 713,196. (No model.)

Claim.—1. The combination with a cylinder having a longitudinal opening in one side thereof, a fan journaled longitudinally in the cylinder, and a screen-cylinder journaled alongside and parallel with the fan-cylinder adjacent to the longitudinal opening, whereby the contents of the screen-cylinder are thrown across it by the blast from said opening, and means for rotating said fan and screen cylinder, substantially as described.

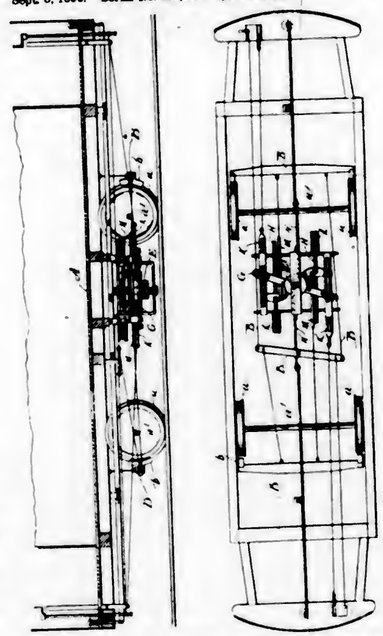


2. The combination of a cylinder arranged at an inclination and provided with a longitudinal opening on one side, a fan journaled longitudinally in the cylinder to throw its blast through said opening and a screen-cylinder arranged alongside of, and at the same inclination with the fan-cylinder, in position to receive the air-blast from the opening of the fan-cylinder, substantially as described.

3. The combination of the fan-cylinder having an opening in the side thereof, the curved arms thereon carrying the bearing-rings, the screen-cylinder journaled in said bearing-rings adjacent to said opening, the fan, its shaft, pulleys thereon, and belts on said pulleys extending around the screen-cylinder, substantially as described.

4. The combination of the fan-cylinder, having longitudinal blast-openings on one side, the shaft journaled in the cylinder, the fan and belt pulleys on the shaft, the screen-cylinder alongside of and parallel with the fan-cylinder, journaled rings on the screen-cylinder mounted on said bearing-rings, pulley-rings in the line of the blast from the fan on the screen-cylinder, and belts connecting them with the pulleys on the fan-shaft, substantially as described.

644,146. CAR-BRAKE. AUGUST C. PETERSON, Victoria, Ill. Filed Sept. 5, 1899. Serial No. 729,528. (No model.)



Claim.—1. The combination with a brake-rigging, of a spring and means for compressing the same, connections between said spring and the brake-rigging and means for locking the spring in its compressed condition, comprising a clutch device consisting of interlocking members, and a spring-controlled pin extending through the clutch members, substantially as and for the purpose described.

2. The combination with a brake-rigging, of a spring and means for compressing the same, connections between said spring and the brake-rigging, means for locking the spring in its compressed condition, comprising a clutch device consisting of interlocking members, and a spring-controlled pin extending through the clutch members, and means for depressing said pin to disengage the clutch members, substantially as and for the purpose described.

3. The combination with a brake-rigging, of a spring and means for compressing the same, connections between the spring and the brake-rigging, and a clutch mechanism adapted to lock the spring in its compressed condition, and comprising a fixed member and a vertically-movable member, and a spring-controlled pin extending through said clutch members and having the movable clutch member secured thereto, substantially as and for the purpose described.

4. The combination with a brake-rigging, of a spring and means for compressing the same, connections between said spring and the brake-rigging, a clutch mechanism for locking said spring in its compressed condition and comprising a fixed member and a vertically-movable member adapted to interlock with the fixed member and devices for operating said movable member to disengage the same from the fixed member to release the spring, substantially as and for the purpose described.

5. The combination with a brake rigging, of a spring and means for compressing the same, connections between said spring and the brake-rigging, a clutch mechanism for locking the spring in its compressed condition and comprising a fixed member and a vertically-movable member, a spring-controlled sliding pin rigidly connected with the movable member of the clutch and devices for engaging said pin and operating the same to release the movable member from the fixed member of the clutch, substantially as and for the purpose described.

6. The combination with a brake-rigging, of a spring, connections between the spring and the brake-rigging, a lever connected with the spring; a pull-bar adapted to be operated to move the lever and compress the spring, and a clutch device comprising outer locking members, one of which is connected to said lever, substantially as and for the purpose described.

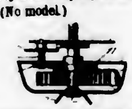
7. The combination with a brake-rigging, of a spring, connections between the spring and said brake-rigging, a lever connected with the spring, a pull-bar adapted to be operated to move the lever and compress the spring, and a clutch device connected with said lever to lock the spring in its compressed condition, said clutch device comprising two interlocking members and a spring-controlled pin extending therethrough, substantially as and for the purpose described.

8. The combination with a brake-rigging, of a spring, connections between said spring and the brake-rigging, a lever connected with the spring, a pull-bar adapted to be operated to move the lever and compress the spring and means for locking the lever and spring in its compressed condition, comprising a fixed clutch member rigid with the lever, a movable clutch member, a spring controlled pin extending through the clutch members and means for operating said pin to move the movable clutch member to disengage the same from the fixed clutch member, substantially as and for the purpose described.

9 The combination with a brake-rigging, of a spring, a bolt carrying said spring, a plate carried by said bolt and connected with the brake-rigging, a lever connected with said plate, a pull-bar adapted to be operated to move the lever and compress the spring, and a clutch device comprising two interlocking members one of which is connected to said lever, substantially as and for the purpose described.

10. The combination with a brake-rigging, of a spring, a bolt carrying said spring, a plate carried by said bolt and connected with the brake-rigging, a lever connected with the plate, a pull-bar adapted to be operated to move the lever and compress the spring, and a clutch mechanism for locking the lever and the spring in its compressed condition, comprising two interlocking members, and a spring-controlled pin extending through the clutch members, substantially as and for the purpose described.

644,147. BICYCLE-BELL. EDWARD D. ROCKWELL, Bristol, Conn., assignor to the Liberty Bell Company, same place. Filed Dec. 11, 1899. Serial No. 739,865. (No model.)

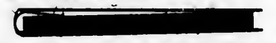


Claim.—1. In combination in a bicycle-bell, a cup-shaped base, a bottom plate, forming a cover for the base, a gong-post extending through the bottom plate, a spring-case mounted on the post, a mainspring with one end secured to the post and the other end secured to the spring-case, a gear-wheel secured to the spring-case, a top plate, an arbor mounted in said plates and projecting through the bottom plate, a pinion secured to the arbor under the bottom plate, a gear-wheel secured to said arbor between the plates, a vibrating hammer-lever operatively connected with said last-mentioned gear-wheel and bearing a hammer, a spring resting against the hammer-lever, a push-button adapted to engage the spring, means for holding the gong-post against backward movement, and a gong secured to the upper end of the post.

2. In a bicycle-bell, in combination, a cup-shaped base, a bottom plate forming a cover for the base, a gong-post extending through the bottom plate, a spring-case rotatably mounted on the post, a mainspring with its inner end secured to the post and its other end secured to the spring-case, a gear-wheel secured to the spring-case and engaging a pinion on an arbor extending through the bottom plate, the arbor bearing a gear-wheel located above the bottom plate, a vibrating hammer-lever operatively connected with said pinion and bearing a hammer, a spring normally holding the hammer-lever against movement, a push-button adapted to disengage the spring, whereby the hammer-lever is released, means for holding the gong-post against backward movement, and a gong secured to the upper end of the post.

3. In a bicycle-bell, in combination, a cup-shaped base, a bottom plate forming a cover for the base, a gong-post extending through the bottom plate, a spring-case located in the chamber under the bottom plate and rotatably mounted on the gong-post, a mainspring with its inner end secured to the post and its other end secured to the spring-case, a gear-wheel secured to the spring-case and engaging a pinion on an arbor extending through the bottom plate, the arbor bearing a gear-wheel located above the bottom plate, a vibrating hammer-lever operatively connected with said pinion, a pawl on the top plate with its free end engaging the teeth of said ratchet and bearing a hammer, a spring resting against the hammer-lever, means for releasing the spring from engagement with the hammer-lever, a ratchet secured to the gong-post underneath the top plate, and a gong secured to the upper end of the gong-post.

644,148. CARD-CASE. ABRAHAM L. ROSENTHAL, Chicago, Ill. Filed July 5, 1899. Serial No. 722,811. (No model.)



Claim.—1. A card-case, comprising two flexible parts hinged together so as to form two opposed covers, the cards being received upon the inner face of one of said covers, a spring-clasp between said covers consisting of a single piece of spring metal bent back upon itself so as to have two opposed parts, a pocket formed in the cover which receives the cards and into which one end of the clasp is removably received, the other end of said clasp being free, said pocket located beneath the card-supporting face of the cover so that the cards can be held in position without being bent out of alinement, the upper side of the pocket forming part of the face of the cover upon which the cards are received, the entire face being substantially flat, the free end of the clasp being opposed to the face of the upper part of the pocket, substantially as described.

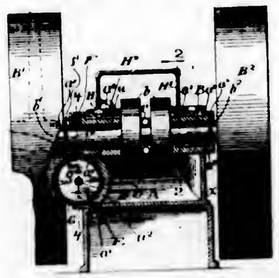
2. A pocket card-case, comprising two covers suitably hinged together, one said covers having a flat even inner face upon which the cards are supported, an adjustable spring-clasp formed from a single piece of metal bent back upon itself so as to form two opposed parts with a variable card-receiving space between them, said clasp attached to the cover upon which the cards are supported, the attached part of the spring being located below the inner face of the cover upon which the cards are supported so as not to interrupt the even face thereof when the cards are in position, so that the cards can be inserted in the card-receiving space between the two parts of the clasp without being bent out of alinement, the two opposed parts of the clasp being elastically pressed toward each other, so that the insertion or withdrawal of the cards of itself varies the distance between them.

3. A pocket card-case, comprising two covers suitably hinged together, one of said covers provided with a flat even surface upon which the cards are supported, a pocket or recess between the card-supporting face of said cover and the back thereof, a clasp having a rigid part adapted to be inserted in said pocket or recess without disturbing the flat even surface upon which the cards are supported and provided with another adjustable part which projects outwardly toward the end of the cover so as to form a card-receiving space between itself and the cover, the parts so arranged that the cards may be inserted in this card-receiving space without being bent out of alinement, substantially as described, the two opposed parts of the clasp being being elastically pressed toward each other, so that the insertion or withdrawal of the cards of itself varies the distance between them.

644,149. LUBRICATING DEVICE FOR ENGINES. CHARLES E. SARGENT, Chicago, Ill. Filed Nov. 1, 1899. Serial No. 735,474. (No model.)

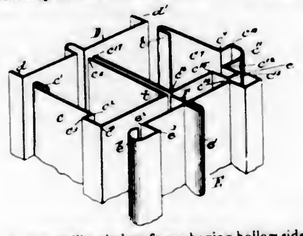
Claim.—1. The combination, in an engine of the class described, of a frame, a cylinder, suitable valves, a main driving-shaft, a piston connected therewith, a valve-operating shaft, a series of gears be-

tween the driving-shaft and the valve-operating shaft, a reservoir located below the working parts, a passage leading from the reservoir to one of said gears, passages leading from another point of said gear to the working parts of the engine, passages leading from said working parts to the reservoir and an approximately oil-tight casing about the said gear, whereby the same operates both to pump the oil from the reservoir to the working parts and to operate the valves; substantially as described.



2. In an engine and in combination with the working parts thereof, a reservoir below said working parts and connected therewith by suitable passages, a babbitted casing having an inlet and an outlet port, a passage connecting the inlet-port with the reservoir, passages connecting the outlet-port with the working parts of the engine, a gear in the casing, a second gear in mesh with the first and connections between said gears and the working parts of the engine for driving the gears; substantially as described.

644,150. WINDOW-FRAME. HENRY C. SMITH, Somerville, Mass. Filed May 31, 1899. Serial No. 718,794. (No model.)



Claim.—1. A metallic window-frame having hollow side-forming sections comprising the parts c, c^2 shaped substantially as described, and the inner combining-plate D uniting the inner edges of the side sections, and the bead-forming plate E made in the two parts E', E^2, and united to the side-forming sections, as and for the purposes set forth.

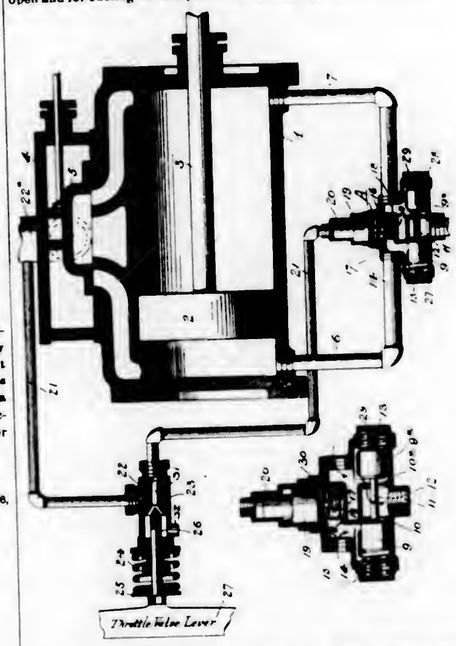
2. A metallic window-frame having hollow side-forming sections comprising the parts c, c^2 shaped to form the section G, and the flanges G', G^2, G^3, the inner combining-plate D united to the sections c, c^2 substantially as described to lock and stiffen the inner corners thereof, and the bead-plate E formed in two parts E', E^2 each having a central bead and two flanges forming the runways for the window-sashes, one of which flanges is extended to form a molding and the other of which to inclose the flange G^3, and a bead stiffening or reinforcing plate, as and for the purposes set forth.

3. In a metallic window-frame the combination of the hollow sections c, c^2 having in their faces weight-openings, the combining-plate D and the sectional bead-forming plates E', E^2, one of which is adapted to be secured to the sections c, c^2 in advance of the other, and one of which also covers the said weight-openings, as and for the purposes set forth.

644,151. CYLINDER RELIEF-VALVE. THOMAS D. SMITH, Wilkes-Barré, Pa. Filed May 22, 1899. Serial No. 717,814. (No model.)

Claim.—1. In a cylinder drainage and relief valve, the combination with the engine-cylinder, of drain-pipes leading fromlopposite ends of the cylinder, automatic drain valves adapted to open and close the drain-pipe ports alternately, a relief-valve interposed between and normally separating said drain-pipes when the engine is running under steam-pressure, and means for automatically opening said valve when steam is cut off the engine or there is an excessive pressure on either end of the cylinder.

2. In a cylinder drainage and relief valve, the combination with the cylinder, the drain-pipes and the automatic drain-valves, of the partition between said drain-pipes, the relief-valve normally closing an opening in said partition when the engine is running, the piston, and a connection between said valve and piston and means for communicating steam-pressure to said piston when the throttle-valve is open and for cutting off said pressure when the throttle-valve is closed.



3. In a cylinder drainage and relief valve, the combination with the engine-cylinder, of drain-pipes leading from opposite ends of the cylinder to a valve-casing, automatic drainage-valves within the casing, a partition in said casing separating the chambers into which said drain-pipes discharge, an opening in said partition, a relief-valve normally closing said opening when the engine is running under steam-pressure, and means for automatically opening said valve when steam is cut off the engine or the engine is reversed while running.

4. In a cylinder relief-valve, the combination with the engine-cylinder, of drain-pipes leading from opposite ends of the cylinder to a valve-casing, automatic drainage-valves within the casing, a partition in said casing separating the chambers into which said drain-pipes discharge, an opening in said partition, a relief-valve normally closing said opening when the engine is running under steam-pressure, and a spring for opening the valve when steam is cut off.

5. In a cylinder drainage and relief valve, the combination with the engine-cylinder, of drain-pipes leading from opposite ends of the cylinder to a valve-casing, automatic drainage-valves within the casing, a partition in said casing separating the chambers into which said drain-pipes discharge, an opening in said partition, a valve normally closing said opening when the engine is running, and means for automatically opening the valve when the engine is reversed while running and there is an excess of pressure on either side of said partition.

6. The combination with the drain-pipes and the automatic drain-valves, of the partition 18 between the outlets of the drain-pipes, the valve 16 normally closing an opening in said partition, the pistons 19 and 20 connected to said valve and the pipe 21 through which steam may be directed against the smaller piston 20, the larger piston being subject to pressure transmitted through the drain-pipe, substantially as described.

7. The combination with the cylinder and the drain-pipes of the the automatic drain-valves, the partition separating the outlets of the drain-pipes, the valve for opening and closing said partition, the steam-pipe 21 through which steam is admitted to close said valve, the valve arranged to close said steam-pipe, and means for closing said latter valve when the throttle-valve is closed, substantially as described.

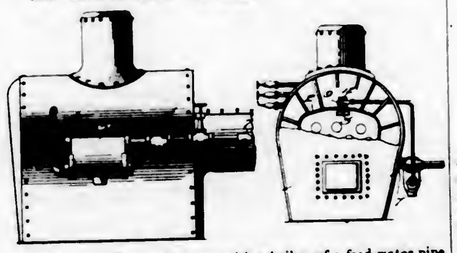
8. The combination with the cylinder and the drain-pipes, of the automatic drain-valves, the partition separating the outlets of the drain-pipes, the valve for opening and closing said partition, the steam-pipe 21 through which steam is admitted to close said valve, the valve 22 arranged to close said steam-pipe when the throttle-valve is closed, and to permit the steam confined between said valve and the relief-valve to escape, substantially as described.

9. The combination with the high and low pressure cylinders of a compound engine, of drainage-valves for each cylinder, forward and rear drain-pipes connected to each of said cylinders and to said drain-valves, a relief-valve interposed between the drain-pipes of each cylinder, a steam-pipe 21 through which steam is admitted to close said relief-valves, and the valve arranged to close said steam-pipe when the throttle-valve is closed.

10. The combination with the cylinders of a compound engine, forward and rear drain-pipes connected to each of said cylinders, a valve-casing for each cylinder into which its drain-pipes discharge and automatic drain-valves withio the casing adapted to open and close the drain-pipe ports, of independent outlets in the high-pressure valve-casing for the drainage from the forward and rear drain-pipes, a pipe 35 connecting the outlet of said forward drain-pipe with the rear draiu-pipe of the low-pressure cylinder, and a pipe 36 connecting the outlet of the rear drain pipe in the high-pressure valve-casing with the forward drain-pipe of the low-pressure cylinder, substantially as described.

11. The combination with the cylinders of a compound engine, forward and rear drain-pipes connected to each of said cylinders, a valve-casing for each cylinder into which its drain-pipes discharge and automatic drain-valves within the casing adapted to open and close the drain-pipe ports, of independent outlets in the high-pressure valve-casing for the drainage from the forward and rear drain-pipes, a pipe 35 connecting the outlet of said forward drain-pipe with the rear drain-pipe of the low-pressure cylinder, and a pipe 36 connecting the outlet of the rear drain-pipe in the high-pressure valve-casing with the forward drain-pipe of the low-pressure cylinder, a relief-valve interposed between the drain-pipes of each cylinder, a steam-pipe 21 through which steam is admitted to close said relief-valves, and the valve arranged to close said steam-pipe when the throttle-valve is closed.

644,152. BOILER. WILLIAM M. SMITH, Evansville, Ind., assignor of one-half to Sherman M. Haussermann, same place. Filed Aug. 11, 1899. Serial No. 726,947. (No model.)



Claim.—1. The combination with a boiler, of a feed-water pipe therefor, a valve-casing interposed in said pipe having a main passage ordinarily permitting the free flow of water to the boiler and having a branch outlet-passage leading from said main passage, a valve normally closing said branch outlet-passage, a pipe for conveying steam from the boiler to actuate and open said valve, and means in the boiler controlling the supply of steam to said pipe.

2. The combination with a boiler, of a feed-water pipe therefor, a valve-casing interposed in said pipe having a passage permitting the free flow of water ordinarily and having a branch outlet-passage leading from said passage, a spring-actuated valve normally closing said branch outlet-passage, a pipe for conveying steam from the boiler to said valve to press it back and open the branch passage, and a fusible device normally closing the steam-receiving end of said pipe.

3. A safety device for boilers consisting of a body or casing having a main passage extending longitudinally therethrough and a branch passage extending laterally therethrough, of a fusible plug fitted in said main longitudinal passage.

4. A safety device for boilers consisting of a body or casing having a steam-passage, a steam-chest screwed on the body and communicating with the steam-passage and a fusible plug in said body.

5. A safety device for boilers consisting of a body or casing having a main steam-passage and branch steam-passages, a hollow steam-chest screwed on the body and communicating with the branch passages, a nut screwed on the body and holding the steam-chest in position and a fusible plug in said main steam-passage.

644,158. HOOK AND EYE. ARTHUR T. SNELL, Los Angeles, Cal. Filed Oct. 7, 1899. Serial No. 732,961. (No model.)



Claim.—1. A hook and eye comprising an eye provided with a pointed and shouldered loop and a hook provided with a loop to receive the point of the eye-loop and also provided with a tongue between the members of the loop and extending toward, and upturned near the cross member of the loop with a space between the cross member of the loop and the upturned end of the tongue of a width to allow the insertion of the pointed loop of the eye to enter between the upturned point and the cross member of the hook; said upturned point of the tongue terminating at a point which is substantially in the path of the inner face of the bend of the loop of the eye when the same has been inserted and is being brought into hooking or unhooking position, substantially as set forth.

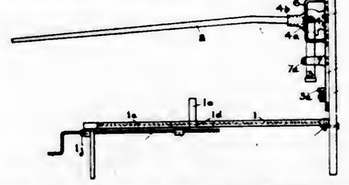
2. A hook formed of a wire bent intermediately to form an eye-socket and extending thence to form the side members of the hook and inwardly bent to a continuation of one of the side members and returned to form a spring-tongue and upturned at the edge of the socket to form a hook.

3. A hook provided with a loop having an eye-socket at one end and a tongue terminating in an upturned point at the edge of said socket, and shoulders at the junction of the eye-socket with the side members of the loop adjacent said upturned end.

4. A hook comprising a tongue upturned at its free end and a loop upturned at the front of said free end of the tongue and there provided with an eye-socket.

5. A hook comprising a centrally-disposed spring-tongue integral with one of the side members; said tongue upturned at its free end; and a loop upturned at the front of the said free end of the tongue and there provided with the eye-socket substantially as described.

644,154. TIRE-REMOVER. MYRON STARK, Dowagiac, Mich. Filed July 29, 1899. Serial No. 725,496. (No model.)



Claim.—In a tire-remover comprising a wheel-centering frame, a tire-supporting shoe and a fixed rack, the operating means herein described, comprising in combination: a plunger slotted at its upper end, a segmental pinion removably pivoted in said slotted end, a socket formed in said pinion, a bent lever removably inserted in said socket, and guides for retaining said pinion in mesh with the rack; all arranged substantially as described, and operating for the purposes set forth.

644,155. COTTON-GIN. ABNER D. THOMAS, Little Rock, Ark. Filed Aug. 14, 1899. Serial No. 727,185. (No model.)

Claim.—1. In a gin, the combination of the saws, a brush to raise and loosen the lint on the saws, means for directing a current of air on said saws substantially tangential thereto to remove the lint from the saws.

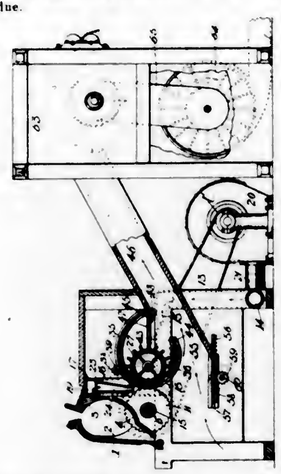
2. In a gin, the combination of the saws the gin-brush for removing lint therefrom, and means for rendering said brush inoperative and to provide a free passage between the brush and saws for the unobstructed escape of lint.

3. In a gin, the combination of the saws, the gin-brush for removing lint therefrom, means for directing a current of air on said saws, and means for rendering the brush inoperative and to provide a free passage for the escape of lint and air-currents between the saws and brush.

4. In a gin, the combination of the saws, a brush for removing lint from the saws, means for directing an air-current on said saws, and means for rendering said brush operative or inoperative as desired.

5. In a gin, the combination of the saws, a brush, means for directing a current of air on said saws, means for rendering said brush operative or inoperative as desired, and a cut-off board back of said brush.

6. In a gin, the combination of the saws, a brush, means for rendering said brush operative or inoperative as desired, means for directing a current of air on said saws, a flue leading from said brush, a cut-off board and means to move it to close the passage from the brush to the flue.



7. In a gin, the combination of the saws, a revoluble brush, and a movable shield adapted to be placed between the saws and brush for separating them.

8. In a gin, the combination of the saws, a revoluble brush, a movable shield adapted to be interposed between the saws and brush, and an adjustable cut-off to the rear of the brush.

9. In a gin, the combination of the saws, a revoluble brush, means for directing a current of air on said saws, and a movable shield adapted to be interposed between the saws and brush.

10. In a gin, the combination of the saws, a revoluble brush, a sliding shield for separating the saws and brush and provided with a rack, a gear-wheel mesbing with the rack and means to rotate the gear-wheel and thereby move the shield.

11. In a gin, the combination of the saws, a revoluble brush, a shield adapted to be interposed between the saws and brush, and guides for said shield.

12. In a gin, the combination of supporting-legs, an air-tube connecting to said legs, an air-passage extending up from said tube through one of the legs connected thereto.

13. In a gin the combination of supporting-legs, side pieces connected thereto, a hollow cross-beam, upright connecting the side pieces and hollow cross-beam, a tube connecting a pair of the supporting-legs, and an air-passage leading from said tube through each of the legs, the side pieces, and uprights to the hollow beam.

14. The combination in a saw-gin of a frame, supporting-legs therefor side pieces and uprights, a hollow beam connected to said uprights, a tube connecting said legs, air-passages extending up through said legs, side pieces and uprights, and a nozzle extending down from said cross-beam.

644,156. SAFETY ATTACHMENT FOR COTTON-GINS. ABNER D. THOMAS, Little Rock, Ark. Filed Oct. 14, 1899. Serial No. 733,564. (No model.)

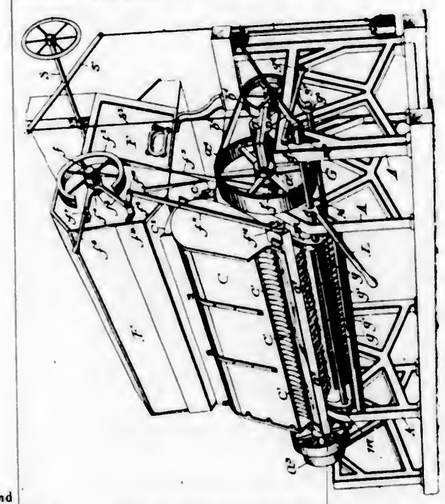
Claim.—1. In a safety attachment for cotton-gins, the combination of the saws, a detector to feel for and detect accumulation of cotton on the saws, and means controlled by the detector for rendering the parts inoperative on movement of the detector.

2. In a safety attachment for cotton-gins, the combination of the saws, a detector to feel for and detect accumulation of cotton on the saws, a gin-breast, and means controlled by the detector for moving the breast from the saws.

3. In a safety attachment for cotton-gins, the combination of the saws, a detector to feel for and detect accumulation of cotton on the saws, a pivoted gin-breast, and means controlled by the detector for turning the breast on its pivot.

4. In a safety attachment for cotton-gins, the combination of the gin-breast, the feeder to supply cotton thereto, the saws, a detector to feel for and detect accumulations of cotton on the saws, and means under control of the detector for moving the breast from the saws and stopping the feeder.

5. In a safety attachment for cotton-gins, the combination of a pivoted gin-breast, the saws projecting and working therein, a detector comprising fingers projecting between the saws and means controlled by said detector to lift the breast from the saws.



6. In a safety attachment for cotton-gins the combination of the feeder and operative means therefor, the movable gin-breast, the saws projecting and working therein, a detector to feel for and detect accumulation of cotton on the saws, means controlled by the detector for moving the breast from the jaws, and connections between the breast and feeder, to render the latter inoperative on movement of the breast from the saws.

7. In a safety attachment for cotton-gins, the combination of the saws, the gin-breast, a rock-shaft provided with devices for moving said breast, means normally tending to turn the rock-shaft and move the breast from the saws, a catch for preventing such movement of the rock-shaft, and a detector movable by accumulation of cotton on the saws to release the catch and thereby permit the breast to be moved.

8. In a safety attachment for cotton-gins, the combination of the saws, the gin-breast movable toward and from the saws, a detector to feel for and detect accumulation of cotton on the saws, means under the control of the detector normally tending to move the breast from the saws, and manually-operative devices for moving the detector to thereby free said means to effect movement of the breast.

9. In a safety attachment for cotton-gins, the combination of the saws, the pivoted breast, a shaft having devices for moving said breast, means for turning said shaft to thereby lift the breast, a catch to normally restrain the operation of said means, a hand-lever on said shaft, and provisions whereby the shaft may be turned by said hand-lever independently of the said means.

10. In a safety attachment for cotton-gins, the combination of the saws, the pivoted breast and means for raising the breast from the saws, devices for holding said means inoperative, and a trip for freeing said means from the control of said devices to thereby raise the breast.

11. In a safety attachment for cotton-gins, the combination of the saws, the pivoted breast, and means for raising the breast from the saws, devices for holding said means inoperative, a trip for freeing said means from the control of said devices to thereby raise the breast, and mechanism to return said means to the control of said devices.

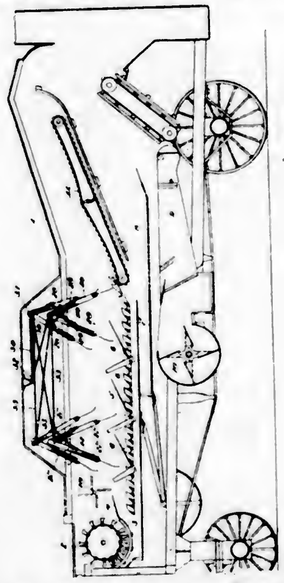
12. In combination, a series of gins each having a movable breast, means for raising said breasts, devices for holding said means inoperative, a trip connected to each gin for freeing said means from the control of said devices, and mechanism for simultaneously actuating the trips of all the gins of the series.

13. In combination, a series of gins each having a movable breast, means for moving said breasts, devices for holding said means inoperative, a trip connected to each gin for freeing said means from the control of said devices, mechanism for actuating the trips of all the gins of the series, and for returning the parts to their normal positions.

14. In a cotton-gin, the combination of the pivoted breast, the saws, a shaft having devices thereon for moving the breast from the saws, an arm having a pin-and-slot connection with said shaft, means acting on said arm for turning said shaft, a catch to prevent movement of said arm, and a hand-lever connected to said shaft for turning the same.

15. In a safety attachment for cotton-gins, the combination of the movable breast, the saws, a shaft having devices thereon for moving the breast from the saws, means for turning said shaft, a pivoted latch to restrain the operation of said means, a detector comprising fingers projecting between the saws, and adapted to be moved by cotton thereon and connections between the latch and detector to operate the former on movement of the latter to free the shaft to the action of its operating means.

644,157. THRESHING-MACHINE. MICHEAL F. YOUNG, Chester, Mich. Filed July 11, 1898. Serial No. 685,673. (No model.)



Claim.—1. In a threshing-machine, the overhung rake mechanism comprising the shafts arranged in the same horizontal plane, one in rear of the other, and each shaft provided with a plurality of cranks, the individual cranks on each shaft extending in different directions, the relative position of no two cranks on the same shaft being alike, and the opposite cranks of adjacent shafts also facing in different directions, gearing connecting the two shafts to drive them at a uniform speed, two series of fork-bars mounted respectively on the cranks of the shafts and provided with tines or fingers, links connecting one series of fork-bars with the framework of the machine, and other links connecting the fork-bars with each other, substantially as described.

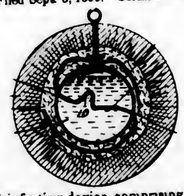
2. In a machine of the class described, the fork-bar, the adjustable heads applied to opposite faces of the bar, the through-bolt connecting both heads to the bar, flanges on the heads, and tines secured to the flanges and passing across the ends of the bolt to hold it in place, substantially as described.

3. In an agitator and feeder mechanism for threshing-machines, a fork-bar, the adjustable heads clamped to the respective faces of the bar, and the pair of tines fastened directly to the respective heads and supported adjustably thereby on the bar, substantially as described.

4. In an agitator and feeding mechanism for threshing-machines, a fork-bar, the heads applied to opposite faces of the bar and provided with offstanding flanges, the tines fastened securely to said flanges of the heads and adjustable with the latter on the bar and a through-bolt connecting the heads adjustably to said bar, substantially as described.

5. In an agitator and feeding mechanism for threshing-machines, the combination of the horizontal crank-shafts arranged one in rear of the other, two series of fork-bars fitted to the respective shafts, the heads clamped adjustably to said fork-bars and each pair of heads provided with tines which are adjustable on the bar independently of the movement or play of the fork-bar with its shaft, and links for limiting the movement of the fork-bars with their shafts, substantially as described.

644,158. DISINFECTING DEVICE. CARLOSTINE E. BLAKE, Minneapolis, Minn. Filed Sept. 5, 1899. Serial No. 729,430. (No model.)



Claim.—1. A disinfecting device, comprising the inner ball, filled with a suitable liquid, a wick extending from the same, and the outer shell of volatile substance, molded about or inclosing said inner ball and through which and with which the liquid from said ball evaporates, substantially as described.

2. A disinfecting device, comprising an inner ball, filled with a suitable liquid and having a wick extending therefrom, in combination, with an inclosing wick cover upon said ball, and a shell of volatile material, molded about or inclosing said ball with its wick covering, all substantially as described and for the purpose specified.

3. A disinfecting device, comprising an inner ball, filled with a suitable liquid and having a wick extending therefrom, in combination, with an inclosing wick cover upon said ball, and a shell of volatile material, molded about or inclosing said ball with its wick covering, said shell having an oily surface to prevent the direct attack of moisture thereon, substantially as described.

4. A disinfecting device, comprising the inner vessel of non-porous material, filled with a suitable liquid, said vessel provided with an exit-opening for the fluid, and means leading through said opening for slowly feeding the liquid therefrom, and the outer shell of volatile substance molded about or inclosing said inner vessel and through which and with which the liquid from said vessel evaporates, substantially as described.

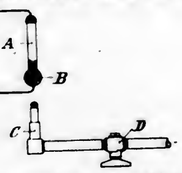
644,159. NUT-LOCK. EDWARD A. BLANTON, Jr., Ridley Park, Pa. Filed Sept. 24, 1898. Serial No. 691,791. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt and a nut formed with a recess, the said bolt and nut being provided one with screw-threads and the other with a series of eccentric bosses having curved surfaces of gradually-increasing radii, and a locking-piece adapted to be inserted into the recess of said nut and formed with screw-threads and with a series of bosses for engaging the threads and bosses of the bolt and nut, the engaging bosses being constructed to permit a limited movement of the parts relative to each other when moved in one direction, substantially as described.

2. In a nut-lock, the combination with a bolt and a nut formed with a recess, the said bolt and nut being provided one with screw-threads and the other with a series of eccentric bosses having curved surfaces of gradually-increasing radii, and a contractible locking-piece having separated ends and adapted to be inserted into the recess of the nut and formed with screw-threads and with a series of bosses for engaging the threads and bosses of the bolt and nut, substantially as described.

644,160. ELECTRIC GLOW-LAMP. WILHELM BOEHM, Berlin, Germany. Filed Feb. 2, 1899. Serial No. 704,275. (No model.)



Claim.—1. In an electric glow-lamp, the combination, with a glower which is a non-conductor at ordinary temperatures and be-

comes a conductor at higher temperatures, of a catalytically-acting body in proximity to said glower and arranged to heat said glower, means for supplying a gas to the catalytically-acting body whereby the latter is caused to heat the glower, and means for supplying current to the glower.

2. In an electric glow-lamp, the combination with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, said glower being coated with a mixture of an electrolyte, and a metal, of a catalytically-acting body in proximity to the glower and arranged to heat said glower, means for supplying a gas to the catalytically-acting body whereby the latter is caused to heat the glower, and means for supplying current to the glower.

3. In an electric glow-lamp, the combination, with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, of a mantle impregnated with a mixture of an electrolyte and a metal, said mantle being located on the glower, a catalytically-acting body in proximity to the glower, means for supplying the gas to said catalytically-acting body, and means for supplying current to the glower.

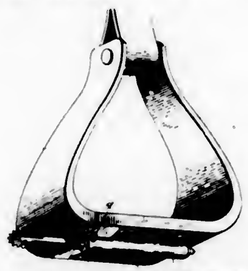
4. In an electric glow-lamp, the combination, with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, of a catalytically-acting body in proximity to the glower, and a covering of porous and refractory material upon the catalytically-acting body, means for supplying a gas to the latter, and means for supplying current to the glower.

5. In an electric glow-lamp, the combination with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, of a catalytically-acting body in proximity to the glower, means for supplying current to the glower, means for supplying gas to the catalytically-acting body, and mechanism for automatically shutting off the gas when the glower reaches a predetermined temperature.

6. In an electric glow-lamp, the combination with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, of a catalytically-acting body in proximity to the glower, means for supplying a gas to the catalytically-acting body, a valve for controlling said gas-supply, an electromagnet arranged to close said valve, and means for supplying current to the glower and to the electromagnet, whereby the valve is closed when the current flows.

7. In an electric glow-lamp, the combination with a glower which is a non-conductor at ordinary temperatures and becomes a conductor at higher temperatures, of a catalytically-acting body in proximity to the glower and arranged to heat the said glower, means for generating gas in proximity to the said catalytically-acting body whereby the latter is caused to heat the glower, and means for supplying current to the glower.

644,161. STIRRUP-SPUR. THOMAS G. COLEMAN, Gunsight, Tex. Filed Dec. 4, 1899. Serial No. 739,149. (No model.)

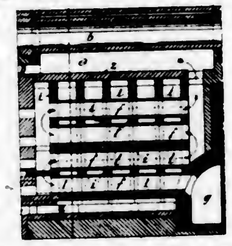


Claim.—1. A stirrup-spur, comprising a casing containing a spring, a rowel, a rowel-shank arranged within said casing and engaged by said spring normally to project said rowel, a detent adapted to engage the rowel-shank when the said rowel is withdrawn into the casing, and an external casing provided with means for engaging the stirrup, substantially as described.

2. A spur, comprising a casing having one end formed with a laterally-extended flattened chamber adapted to shield the rowel, a rowel, a rowel-shank arranged within said casing, a spring in said casing engaging said rowel-shank, a detent adapted to engage the rowel-shank and hold it against the tension of the spring, means to disengage the said detent from said shank, and an external casing, substantially as described.

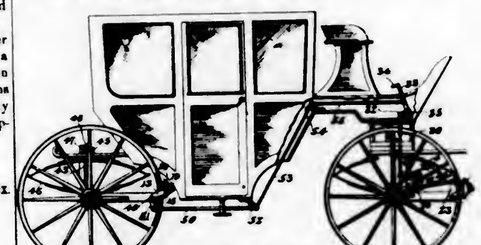
3. A stirrup-spur, comprising a casing having one end provided with a removable nut or plug, a spring arranged within said casing, a rowel-shank adapted to be engaged by said spring normally to project it, a rowel in said shank, a rowel-shield at the outer end of said casing, a detent to engage the rowel-shank when the rowel is retracted within said shield, and an external casing, the casings, spring, and rowel-shank being detachable at pleasure, substantially as described.

644,162. METALLURGICAL FURNACE. JOHN A. DRAKE, Ovenden, England. Filed Oct. 13, 1899. Serial No. 733,524. (No model.)



Claim.—In a regenerative furnace, the combination, with an outer casing, and a series of longitudinal heating-flues *f* arranged therein one above the other and forming a tortuous passage for the products of combustion; of a series of transverse imperforate walls *i* supporting the said flues and forming a series of cold-air passages having no communication with each other, tiles arranged in the said passages so that the cold air is conducted around each heating-flue, and a series of longitudinal air-inlet passages *w* arranged under the said flues *f*, each said cold-air passage being provided with a separate inlet-passage so that the air passing through each can be regulated separately to secure uniformity of temperature, substantially as set forth.

644,163. VEHICLE-BRAKE. JACOB FAUST, Scranton, Pa. Filed Nov. 27, 1899. Serial No. 738,405. (No model.)



Claim.—1. In a vehicle-brake, the combination of a brake-beam, a plurality of flexible connections passing through a fifth-wheel, and multiple operating devices separately associated with said flexible connections and adapted individually to operate the brake-beam through one of the series of flexible connections, as set forth.

2. In a vehicle-brake, the combination of a brake-beam, means for supporting said brake-beam on an axle, a plurality of flexible connections passing through the fifth-wheel between the hounds and on opposite sides of the body-brace, and separate operating devices connected individually to said flexible connections and operable independently to apply the brake-beam through one of the series of flexible connections, as set forth.

3. In a vehicle-brake, a brake-beam supported by brackets on the axle, in combination with an operating-lever, a bell-crank situated between the said lever and beam, a connection between the beam and bell-crank, and a flexible connection between the bell-crank and operating-lever, substantially as specified.

4. In a vehicle-brake, the combination with one of the axles, and a series of brackets thereon, of a brake-beam journaled in said brackets, an operating-lever, a bell-crank mounted on one of said brackets, a connection between said beam and bell-crank, and a flexible connection between the bell-crank and operating-lever, substantially as specified.

5. In a vehicle-brake, a brake-beam supported by brackets on the axle, in combination with a plurality of operating-levers, a bell-crank situated between said lever and beam and comprising one single arm and one bifurcated arm, a connection between the single arm and the beam, and flexible connections between the bifurcated portions of the other arm and the operating-levers, substantially as specified.

6. In a vehicle-brake, a brake-beam supported by brackets on the axle, in combination with an operating-lever, a bell-crank situated between said lever and beam, a connection between the beam and bell-crank, a flexible connection between the bell-crank and operating-lever, a retracting-spring for the bell-crank, and a stop-pin for the bell-crank, substantially as and for the purpose specified.

7. In a vehicle-brake, the combination with one of the axles, and a series of brackets thereon having divided bearings, of a journaled brake-beam detachably mounted in said bearings, an operating-lever, a bell-crank between said beam and lever, and connections between the beam, bell-crank and operating-lever, substantially as set forth.

8. In a brake, the combination with a turning axle, and a fifth-wheel, of brackets carried by the axle, a brake-beam in said brackets, independent brake-operating devices on a vehicle-body, and independent trains of operative connections extending through the fifth-wheel and associated with the brake-beam and with the brake-operating devices for actuation individually thereby, substantially as described.

9. In a vehicle-brake, a brake-beam having a crank-arm, a lateral extension or offset on said crank-arm, and a spindle projecting from the crank-arm, combined with a brake-shoe journaled on said spindle, a spring having one end fixed to said extension or offset and its free end seated on one end of the brake-shoe, and a stop-shoulder on the shoe cooperating with the extension or offset of the beam to limit the recession of the shoe under pressure of said spring, substantially as described.

10. In a vehicle-brake, the combination with a brake-beam having a spindle portion, of a brake-shoe journaled thereon, stop-shoulders on said beam and shoe and a spring connected to the brake-beam and pressing against the shoe, whereby the shoe is rendered self-adjusting, substantially as described.

11. In a vehicle-brake, a brake-beam supported by brackets on the axle, in combination with an axle-brace comprising a standard rigidly connected to the axle, and bearing against one of the transverse bars of the frame of the vehicle-body, substantially as described.

12. In a vehicle-brake, a brake-beam supported by brackets on the axle, an operating means therefor, in combination with a pair of standards rigidly secured to the axle, a cross-bar connecting the ends of said standards, vehicle-springs supported on the axle, a cross-bar connecting the upper portions of said springs, and a buffer interposed between the two cross-bars, substantially as and for the purpose specified.

644,164. AXLE. PLEASANT C. FORKETT, Arkansas City, Kans. Filed Dec. 15, 1899. Serial No. 740,404. (No model.)



Claim.—The combination with an axle-box in sections screw-threaded together and each section having at one end a cone-shaped socket, and a cylindrical bore, of an axle having an integral cone fitted to the inner socket, a cylindrical portion of less diameter than the diameter of the cylindrical bore of the box, a polygonal portion beyond the cylindrical portion with shoulder at the junction therewith, and a reduced screw-threaded portion beyond the polygonal portion, a cone independent of the axle and having a polygonal passage therethrough to receive the polygonal portion of the axle, and an axle-nut on the threaded end of the axle and bearing against the outer end of the said outer cone, all substantially as herein shown and described.

644,165. CRYPTOGRAPHIC TYPE-WRITING MACHINE. WILLIAM A. FERREY, Jr., New Orleans, La. Filed Nov. 21, 1898. Renewed Aug. 4, 1899. Serial No. 726,208. (No model.)



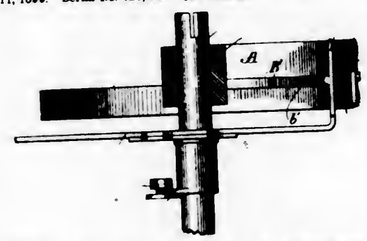
Claim.—1. In a type-writing machine, the combination with a hollow cylinder, and a disk fitting said cylinder and having its axis common therewith, the said disk and cylinder being adjustable about their common axis with respect to each other, and the said cylinder having a continuous annular groove therein; of a spring-catch connected to said disk and adapted to engage said groove in the cylinder and hold said disk and cylinder together in rotative relation, and means for locking said disk and cylinder at any predetermined adjustment, against rotation with respect to each other, substantially as described.

2. In a type-writing machine, the combination with a type-cylinder, of a disk fitting one end of said cylinder; said disk and said cylinder being each centrally apertured; an axial sleeve attached to the one member concentric with the opening therethrough, fitting the opening of the other member, and centering the two members upon each other in rotative relation with respect to each other; means for holding the two members together in rotative relation, and means for locking said members against rotation with respect to each other, substantially as described.

3. In a type-writing machine, the combination with a type-cylinder, of a disk fitting one end of said cylinder; said disk and said cylinder being each centrally and axially apertured; an annular flange on said disk fitting closely within said cylinder in rotative relation therewith; means for holding the said disk and cylinder together in rotative relation; and means for locking said disk and cylinder at any predetermined adjustment, against rotation with respect to each other, substantially as described.

4. In a type-writing machine, the combination of a non-rotative shaft; a type-cylinder which is mounted upon said shaft and movable therewith; a disk fitting one end of said cylinder over said shaft; means for locking said cylinder and disk upon said shaft to allow of rotation thereon; said disk and cylinder being capable of rotation with respect to each other about a common axis; and means for locking said cylinder and disk against rotation with respect to each other, substantially as described.

644,166. CRYPTOGRAPHIC TYPE-WRITING MACHINE. WILLIAM A. FERREY, Jr., and HARRY S. LEWIS, New Orleans, La. Filed Aug. 11, 1899. Serial No. 726,925. (No model.)



Claim.—1. In a type-writing machine, the combination with a type-carrier; of a set of sectional printing-type arranged adjustably in said carrier, and a device for separating the group of type into divisions, substantially as described.

2. In a type-writing machine, the combination with a type-carrier; of a set of sectional printing-type mounted therein and relatively adjustable; of a spacing device adjustably mounted in the carrier arranged to separate the group of type into divisions, substantially as described.

3. In a type-writing machine, the combination with a type-carrier; of a set of type arranged in sections adjustable thereon, and having a normal operating adjustment for intelligible writing; means for spacing said type-sections and means for securing the same in any adjustment; substantially as described.

4. In a type-writing machine, the combination with a type-carrier; of a set of sectional type adjustably mounted therein, and having a normal operating center for intelligible writing; a second set of type arranged in two divisions forming continuations of the first-named set, and means for varying the operating center of the type-carrier, substantially as described.

5. In a type-writing machine, the combination with a type-carrier; of a set of sectional type adjustably mounted thereon; and having a normal operating center for intelligible writing; a second set of type forming a continuation of the first-named set; and means for varying the operating center of the type-carrier; substantially as described.

6. In a type-writing machine, the combination with a type-carrier comprising a bar provided with oppositely-disposed edge flanges; of a series of separate type-sections mounted upon the face of said bar, with their ends engaging beneath the said flanges thereon, means for retaining said sections upon said bar, and means for permitting the adjustment of said sections along the face of the bar, substantially as described.

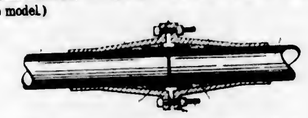
7. In a type-writing machine, the combination with the type-car-

rier consisting of a bar having oppositely-disposed edge flanges; of a series of separate type-sections mounted upon the face of the said bar, with their ends engaging beneath said flanges; another set of type also mounted upon the face of the said bar in two separate divisions, forming continuations of the ends of the first set, and means for varying the operating center of the said bar and the type thereon, substantially as described.

8. In a type-writing machine, the combination with a type-carrier provided with a slideway for the type upon its face, and flanges for retaining the type in position; of a series of printing-type in separate sections, comprising a full set, mounted in said slideway upon the face of the bar and adjustable along the said slideway, substantially as described.

9 In a type-writing machine, the combination with a type-carrier provided with a slidway for the type upon its face, and flanges for retaining the type in position; of a series of printing-type in separate sections, comprising a full set, mounted in said slidway upon the face of the bar and adjustable along the said slideway; a second set of type supplementary to the first set, arranged to be brought into position for printing by an adjustment of the carrier, substantially as described.

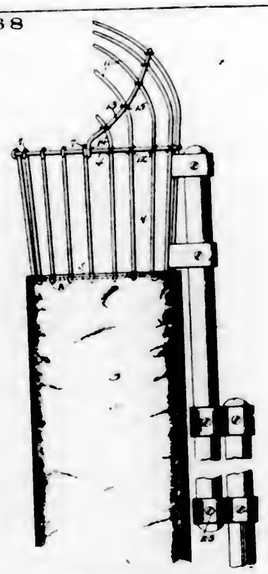
644,167. AMMONIA-PIPE COUPLING. CHARLES E. FRINK and MORRIS MURPHY, Chicago, Ill. Filed Oct. 14, 1899. Serial No. 733,580. (No model.)



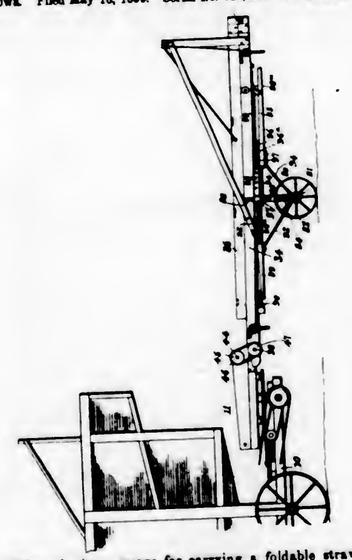
Claim.—1. In a pipe-coupling, the combination of a metal collar adapted to fit over and cover the meeting line of the pipes and to extend on both sides of such line; a transversely-divided soft-metal sleeve, each of whose two portions or sections fits over and incloses one of the opposite end portions of the collar and the adjacent portions of the pipe, the outer surfaces of said portions or sections being tapered away from the meeting line of the pipes; a couple of collars adapted to fit over the portions or sections of the soft-metal sleeve, and made with their interiors internally tapered in substantial correspondence with such portions or sections, said collars being extended toward one another so that their flaring ends substantially meet, and the two portions or sections of the soft-metal sleeve practically filling and being substantially all confined within said collars, and bolts for drawing such collars toward one another, each of said bolts being extended between and engaging flanges formed on said collars, whereby the adjustment of one set of bolts tightens both collars.

2. In a pipe-coupling, the combination of a soft-metal tubular structure adapted to fit over and inclose the ends of the pipes, and made with its opposite end portions tapering away from the meeting line of the pipes: a couple of collars inclosing the tapered end portions of such tubular structure and tapered correspondingly therewith, said soft-metal structure being extended to the opposite sides of the meeting line of the pipes to such an extent, and the inclination of the same and the collars being such, that a longitudinal movement of the collars will compress the soft-metal structure inwardly, and also longitudinally along the pipes in a direction toward the meeting line thereof, and said collars being sufficiently large and strong to enable them to alone withstand the strain incident to such compression, and being extended toward one another so that their flaring ends substantially meet, and the soft-metal structure substantially filling and being practically all confined within said collars; and bolts for drawing said collars together, each of said bolts being extended between and engaging flanges formed on said collars, whereby the adjustment of one set of bolts will tighten both collars.

644,168.



644,169. STRAW-STACKER. DAVID GILLILAND, Harper's Ferry, Iowa. Filed May 18, 1899. Serial No. 717,231. (No model.)



Claim.—1. As a means for carrying a foldable straw-stacker mechanism, a portable truck having a draft-tongue provided with a hitching device adapted to detachably connect with a stacker mechanism, a pivotal axle on said truck, means for shifting the position of said axle independently of the draft-tongue and changing relation of the axle to the draft-tongue and the stacker mechanism, and a locking device for holding the adjusting means and the axle in their adjusted relations to the stacker mechanism, substantially as set forth.

2. As a means for carrying a straw-stacker mechanism for a threshing-machine, a portable truck comprising a head-block, an independent bolster seated on and slidably connected to said head-block, an axle connected pivotally to said head-block, a draft-tongue attached to the head-block, and a lever fastened to the axle and having interlocking adjustable engagement with the head-block for maintaining the axle in variable positions relative to said head-block, for the purpose described, substantially as set forth.

3. As a means for carrying a foldable straw-stacker mechanism of a threshing-machine, a portable truck comprising a head-block, an independent bolster seated on and slidably connected to said head-block, a wheeled axle connected pivotally to said head-block, a lever fast with the axle, locking devices between the head-block and said lever, and a draft appliance connected to said truck and having means for detachably connecting the latter to a part of the stacker mechanism, substantially as and for the purposes described.

4. As a means for carrying a foldable stacker mechanism of a threshing-machine, a portable truck comprising a head-block having the bolster, and a locking-segment, a wheeled axle below said head-block, a braced stand fast with the axle and fitted loosely to the head-block, a king-bolt which connects the axle and the stand to the head-block, a lever fast with the axle to be shiftable therewith and provided with a locking contrivance arranged to connect with the segment of said head-block, and a draft-tongue attached to the head-block and having means by which it may be hitched to the stacker mechanism, substantially as and for the purposes described.

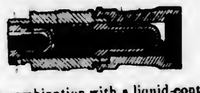
5. As a means for carrying a foldable straw-stacker, a portable truck provided with a head-block, a bolster confined slidably on said head-block, an axle connected pivotally with the head-block and independently of said bolster, and an adjusting and locking contrivance for holding the axle in proper relation to the head-block, substantially as described.

6. As a means for carrying a foldable straw-stacker, a portable truck comprising an axle, a two-part head-block having the fastening-bolts and connected by a king-bolt to said axle, a bolster seated on the head-block and provided with loops or plates which are slidably fitted to the bolts of said head-block, a lever, and locking contrivances therefor, substantially as described.

644,170. PAINT AND CALKING COMPOSITION. WARREN H. GOULD, Manchester, N. H. Filed Sept. 28, 1899. Serial No. 731,967. (No specimens.)

Claim.—The herein-described composition of matter to be used as a paint or cement, consisting of paint-skins dissolved in boiled linseed-oil, to which are added Prince's metallic, mineral red, pitch, and soapstone-dust, substantially as described.

644,171. ATTACHMENT FOR BEER-DISPENSING APPARATUS. WILLIAM HANDLER, Jerseyville, Ill. Filed Oct. 7, 1899. Serial No. 732,948. (No model.)



Claim.—1. The combination with a liquid-containing vessel, and a dispensing-faucet, of an interposed sectional casing provided with removable inlet and outlet nipples, and a comminuted filling within the casing held between the nipples, substantially as described.

2. An antifroth device consisting of a hollow casing, and similarly-disposed nipples closing the opposite ends of the casing and each provided with entrance-kerfs, substantially as described.

3. An antifroth device consisting of a hollow casing, inlet and outlet nipples provided with kerfs and closing the ends of the casing, and a comminuted filling within the casing, substantially as described.

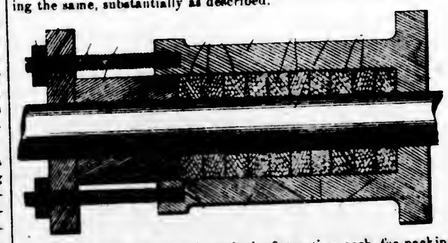
4. An antifroth device consisting of a hollow casing, inlet and outlet nipples facing in the same direction, and closing the ends of the casing, and a comminuted filling within the casing surrounding one nipple and partially surrounded by the other nipple, substantially as described.

5. An antifroth device, consisting of a hollow casing, and similarly-disposed nipples closing the opposite ends of the casing and each provided with a series of longitudinal kerfs extending the entire length thereof and entering and terminating in the rounded extremities of the nipples, substantially as described.

6. In an antifroth device, the combination with a pipe or tube, of a nipple having one end open and the other end closed by a hemispherical end portion, and having the closed end facing toward the source of supply, the nipple being provided with a series of kerfs or slits extending lengthwise thereof, and entering and terminating in the end wall of the nipple, substantially as described.

644,172. METHOD OF TREATING CORK FOR PACKING. SAML. W. HARVEY, Dubuque, Iowa, assignor of one-half to R. G. Imhoff. Filed Mar. 18, 1899. Serial No. 709,684. (No specimens.)

Claim.—1. The method of treating cork for packing purposes, which consists in subjecting the same to the action of a solution composed of gelatin, water and bichromate of ammonium, and then drying the same, substantially as described.



2. The herein-described method of treating cork for packing purposes, which consists in subjecting the same to the action of a solution composed of gelatin, warm water and bichromate of ammonium in approximately the proportions stated and then drying the same, substantially as described.

3. The herein-described method of treating cork for packing purposes, which consists in subjecting the same to the action of a solution composed of gelatin, water and bichromate of ammonium, and then drying the same under the action of heat at about 80° Fahrenheit, substantially as described.

4. The herein-described method of treating cork, which consists in subjecting it to the action of a solution composed of gelatin, water and bichromate of ammonium, until saturated with such solution and then drying the same under the action of heat, substantially as described.

644,173. STANCHION. EDGAR D. HOWE, Weedsport, N. Y. Filed Oct. 14, 1899. Serial No. 733,651. (No model.)



Claim.—1. In a cattle-stanchion, a frame, having opposite end rails, a side rail fixedly connecting the end rails, and an opposite side rail hinged to one of the end rails, and provided at its hinged end with a notch, a spring carried by the adjacent end rail, engaging the notch in the hinged rail, and normally closing the latter, a latch carried by the opposite end rail and holding the hinged rail closed, and means for closing the latter rail against the action of the spring.

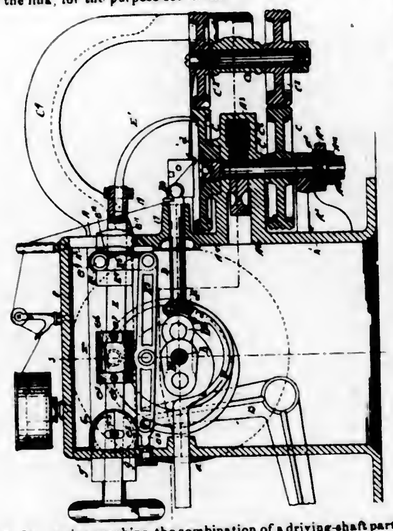
2. In a cattle-stanchion, a frame comprising upper and lower end rails, and a side rail fixedly connecting adjacent ends of the end rails, the opposite end of one of the latter rails being provided with a bifurcation, an opposite side rail having one end pivoted or hinged within the bifurcation of one of the end rails, and provided with a notch located within the bifurcation and formed in the inner side of the hinged rail, a spring carried by the bifurcated end rail, bearing against one wall of the notch in the hinged rail, and normally closing the latter, a latch carried by the opposite end rail and holding the hinged rail closed, and means for closing the latter rail against the action of the spring.

3. In a cattle-stanchion, a frame comprising opposite end rails, and a fixed side rail, an opposite side rail hinged to one of the end rails and foldable into a bifurcation in the other end rail, the latter being hollow, opposite guide-links slidable within the hollow end rail, and engaging oppositely-extending pins carried by the hinged rail, a stop-pin carried by the hollow rail and extending transversely through the guide-links, and a latch carried by the hollow end rail and engaging the hinged rail.

644,174. SEWING-MACHINE. SOLON G. HOWE, Detroit, Mich., assignor of one-half to Jerome W. Hyde, Springfield, Mass. Filed Nov. 19, 1897. Serial No. 659,088. (No model.)

Claim.—1. In a sewing-machine, the combination with a driving-shaft, of a needle-bar, a link connecting the needle-bar with the driving-shaft, said needle-bar formed in two parts having a threaded engagement the one with the other, one of said parts recessed to per-

mit the revolution of the crank, and forked to engage the adjacent end of the link, for the purpose set forth.



2. In a sewing-machine, the combination of a driving-shaft parted intermediate its ends and having its bearings in the case toward the outer ends of said shaft, a needle-bar having crank-arms connected therewith and with the inner ends of the shaft, and additional bearings at the inner ends of the shaft and adjacent to the crank-arms and on each side thereof supporting the crank-arms and the inner ends of the driving-shaft, substantially as set forth.

3. In a sewing-machine, the combination of a driving-shaft, and a case separable on the line of the driving-shaft, a looper-bar, a ball through which the looper-bar is sleeved, and a separable case for said ball projecting inward from the case of the machine, for the purpose set forth.

4. In a sewing-machine, the combination of a case cut away on one of its exterior lateral faces, a pressure-arm having a reciprocatory movement in said cut-away portion of the case, and means engaged upon the lateral face of the case to hold said arm in engagement in said cut-away portion, for the purpose set forth.

5. In a sewing-machine, the combination of a case cut away on one of its exterior lateral faces, a pressure-arm having a reciprocatory movement in said cut-away portion of the case, means engaged upon the lateral face of the case to hold said arm in said cut-away portion, and means to adjust said arm to take up lost motion occasioned by wear, for the purpose set forth.

6. In a sewing-machine, the combination of a looper-bar provided with a bracket-arm, a slide, an arm sleeved into said bracket-arm and having a ball-and-socket engagement with said slide, said slide provided with a cap-nut engaged over said ball-and-socket joint, for the purpose set forth.

7. In a sewing-machine, the combination with a looper-arm, of a bracket-arm sleeved thereupon, collars secured to the looper-arm to hold said bracket-arm in place and permit a free movement of said bracket-arm, a slide, and an arm sleeved into said bracket-arm and having a ball-and-socket engagement with said slide, for the purpose set forth.

8. In a sewing-machine, the combination of a case, a looper-bar, means to operate the looper-bar, and a sleeve located upon said bar, said sleeve formed with guide and wearing lugs adjacent to the case, substantially as set forth.

9. In a sewing-machine, the combination of a looper-bar, a ball-and-socket joint through which said bar is sleeved and keyed, a lever to rock said ball-joint having a fulcrumed engagement at one extremity thereof, an elbow-link having a ball-and-socket joint at one end with said lever, an additional lever engaged with the ball-joint of the looper-arm and with which the elbow-link has a ball-and-socket-joint connection, substantially as set forth.

10. In a sewing-machine, the combination of a looper-bar, a ball-and-socket joint through which said bar is sleeved and keyed, a lever to rock said ball-joint having a fulcrumed engagement at one extremity thereof, an elbow-link having a ball-and-socket-joint connection at one end with said lever, an additional lever engaged with the ball-joint of the looper-arm and with which an elbow-link has a ball-and-socket-joint connection, said elbow-link provided with balls at its extremity engaged in corresponding sockets in the corresponding levers, split collars securing said balls in place, and means to lock said collars in position, for the purpose set forth.

11. In a sewing-machine, the combination of a pair of upper feeding-disks, a pair of lower feeding-disks, and a holding device to hold the work together located underneath the lower pair of feeding-disks, substantially as set forth.

12. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel upon said shaft, a gang-toothed pawl to drive said ratchet-wheel, a movable barrel, means to move said barrel, an arm having a fulcrum connection with the pawl and with the barrel, an adjusting-screw engaged with said barrel and with the case of the machine to adjust said movable barrel, and a spring to hold the pawl in normal engagement with the ratchet-wheel, substantially as set forth.

13. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel upon said shaft, a gang-toothed pawl to drive said ratchet-wheel, a movable barrel, means to move said barrel, an adjusting-screw engaged with said barrel and with the case of the machine to adjust said movable barrel, and means connecting the gang-toothed pawl with said movable barrel, said movable barrel having a reciprocatory movement within the case of the machine, for the purpose set forth.

14. In a sewing-machine, the combination of a feeding-disk, a driving-shaft carrying the disk, a ratchet-wheel mounted on the shaft, a gang-toothed pawl to drive the ratchet-wheel, a reciprocatory barrel, means to reciprocate said barrel, antifriction-rollers adjacent to said barrel, means to adjust said barrel, and means connecting the gang-toothed pawl with said barrel, for the purpose set forth.

15. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel mounted on the shaft, a gang-toothed pawl to drive the disk, a gang-toothed pawl to prevent the retraction of the disk, a slide to simultaneously retract said pawls, and a lever to actuate said slide, substantially as set forth.

16. In a sewing-machine, the combination of a feeding-disk, a shaft carrying said disk, a ratchet-wheel mounted on said shaft, a gang-toothed pawl to drive said ratchet-wheel, a gang-toothed pawl to prevent the retraction of the ratchet-wheel, a yielding arm to actuate the driving-pawl, a slide provided with a spring bearing upon the retaining-pawl, and means to actuate said slide to simultaneously release said pawls from the ratchet-wheel, substantially as set forth.

17. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel upon the shaft, a gang-toothed pawl to drive the ratchet-wheel, an adjustable reciprocatory barrel, an oscillatory spring-actuated arm fulcrumed at one end to said barrel and reciprocatory therewith to normally hold the pawl in engagement with the ratchet-wheel with which arms said pawl has a fulcrumed connection at the opposite end thereof, means to retract the oscillatory arm to disengage the pawl, an adjusting device to adjust said barrel, an indicating device adjacent to the adjusting device to indicate the adjustment of the pawl, and means to automatically reciprocate said barrel, substantially as set forth.

18. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel upon the shaft, a gang-toothed pawl to drive said ratchet-wheel, an adjustable reciprocatory barrel, an oscillatory spring-actuated arm to carry the pawl and normally hold the pawl in engagement with the ratchet-wheel fulcrumed to said barrel and reciprocatory therewith, means to retract the oscillatory arm to disengage the pawl, an adjusting device to adjust said barrel, an index-plate, a traveling pointer carried by said adjusting device adjacent to said plate, and means to automatically reciprocate said barrel, substantially as set forth.

19. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel mounted upon the shaft, a gang-toothed pawl to drive the ratchet-wheel, an oscillatory and reciprocatory arm to carry the pawl, an adjustable barrel carrying said arm, a stationary index-plate, a traveling pointer carried by said barrel adjacent to said plate, and a transparent covering inclosing said plate, for the purpose set forth.

20. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel mounted on the shaft, a gang-toothed pawl to drive said ratchet-wheel, an adjustable barrel carrying said driving-pawl, a chambered cap located over a portion of said barrel, a stationary index-plate located in the chamber of the cap, a pointer carried by said barrel adjacent to said plate, and a transparent covering for said chamber, for the purpose set forth.

21. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a ratchet-wheel mounted on the shaft, a gang-toothed pawl to drive the ratchet-wheel, a reciprocatory barrel carrying the pawl, a driving-shaft, a cam upon the driving-shaft provided with a roller on its periphery to contact with said barrel upon the revolution of the cam to actuate the ratchet-wheel, substantially as set forth.

22. In a sewing-machine, the combination of a feeding-disk, a ratchet-wheel to actuate the disk, a pawl to engage the disk, an adjustable device carrying said pawl, an adjusting-screw to adjust said device, and a spring-actuated lever to lock said adjusting-screw, substantially as set forth.

23. In a sewing-machine, the combination of a feeding-disk, a shaft carrying the disk, a bearing carrying the lower end of the shaft, a cap interiorly and exteriorly threaded at one extremity thereof and having a threaded engagement with said bearing, and a lock-nut, said threaded portion of the cap being split, and said lock-nut and the adjacent portion of the cap having a beveled engagement the one with the other, substantially as set forth.

24. In a sewing-machine, the combination with a needle-bar, of a spring extending longitudinally of the bar provided with a depression toward its rear end, a sliding transverse pin located in said bar and loosely engaging said spring, the head of the pin in contact with the needle-bar gripping the thread therebetween when the tension of the spring is exerted on the pin, and a roller adjacent to said spring, said spring exerting its tension upon said pin upon the retracted movement of said needle-bar, substantially as set forth.

25. In a sewing-machine, the combination with a needle-bar, of a spring extending longitudinally of the bar having a recessed engagement in the needle-bar and formed with a depression toward its rear end, a transverse pin extending through said bar to form a thread tension device, and a roller located adjacent to the onter face of the spring, the spring exerting its tension upon said pin upon the retraction of the needle-bar permitting the roller to enter said depression in the spring, substantially as set forth.

26. In a sewing-machine, the combination of rotatable feeding-disks, a ratchet-wheel to drive said disks, a truck, a traveling platform upon said truck provided with a rack, and a pinion upon the shaft of the feeding-disks meshing with said rack, said pinion and said feeding-disks being of the same diameters, for the purpose set forth.

27. In a sewing-machine, the combination of feeding-disks, a traveling platform, means to synchronously drive said machine and actuate said platform and said disks, said platform provided with a rack and the shaft of the feeding-disks with a movable pinion to mesh with the rack, and means to throw the pinion out of mesh with the rack, for the purpose set forth.

28. The combination of a sewing-machine provided with feeding mechanism, a traveling platform provided with upwardly-projecting standards at opposite ends and at opposite sides having clamping-jaws at their upper ends to engage the work, and means to synchronously drive the feeding mechanism and the platform, for the purpose set forth.

29. The combination with a sewing-machine provided with feeding-disks, of a traveling platform, means to actuate the feeding-disks and the platform, and clamping devices supported upon the platform and to clamp and stretch the work, said clamping devices arranged to pass under and clear of said feeding-disks, substantially as set forth.

30. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform, said machine and platform provided with means to laterally clamp portions of the work together, and said platform provided with additional means to clamp and stretch the work longitudinally thereof, for the purpose set forth.

31. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform and a device carried by the platform provided with clamping mechanisms at different elevations to clamp and stretch the work, for the purpose set forth.

32. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform and standards carried by the platform having clamping devices, said standards provided with additional clamping devices to clamp and stretch the work, for the purpose set forth.

33. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform and standards carried by the platform, said standards provided with rigid clamping devices to engage the work, and with additional clamping devices having a jointed engagement with the standard to engage the work, for the purpose set forth.

34. The combination of a sewing-machine provided with feeding mechanism, a traveling platform, means to drive the platform standards carried by the platform, clamping devices carried by said standards and arranged to pass under and clear from the feeding mechanism, and additional clamping devices jointedly supported upon said standards to engage the work, and whereby the additional clamping devices may be swung out of the way of the feeding mechanism, for the purpose set forth.

35. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform, clamping devices carried by the platform to engage and stretch the work longitudinally thereof, and additional clamping devices to engage the work, for the purpose set forth.

36. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform, and upwardly-extending standards carried by the platform at opposite sides and at opposite ends thereof provided with clamping devices to clamp the work, the standards at the outer side of the platform having a jointed engagement at their lower ends upon the platform, for the purpose set forth.

37. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform, rigid standards supported upon the inner side of the platform toward its edge adjacent to the machine and at opposite ends thereof, and curved standards supported toward the outer edge of the platform having a jointed engagement at their lower ends upon the outer side of the platform, said standards separated at their lower ends and provided with means to engage and support the work, substantially as and for the purpose set forth.

38. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform, means to drive the platform, rigid standards supported upon said platform toward its inner edge, swinging standards supported toward the outer edge of the platform, and additional swinging standards supported toward each end of the inner edge of said platform, the swinging standards of the outer edge of the platform and the swinging standards of the inner edge of the platform made oscillatory at essentially right angles the one to the other, for the purpose set forth.

39. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform and means to drive the platform, standards to clamp the work supported upon the platform having a jointed connection upon the platform, said platform and standards provided with pawl-and-ratchet mechanism, for the purpose set forth.

40. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform to hold and carry the work, means to drive the platform, rigid standards at the inner edge of the platform and at opposite ends thereof, outer standards jointedly supported upon the outer edge of the platform, and lever mechanism to actuate said outer standards, said standards separated at their lower ends, for the purpose set forth.

41. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform to hold and carry the work, means to drive the platform, an outer standard provided with a clamping device to clamp the work jointedly supported toward the outer edge of said platform, and an inner rigid standard upon said platform cooperating with the outer standard, said platform provided with a supporting base or bracket upon which said standard is jointedly engaged, said base or bracket provided with a hub upon which the lower extremity of the standard is sleeved, for the purpose set forth.

42. The combination with a sewing-machine provided with feeding mechanism, of a traveling platform to hold and carry the work, means to drive the platform, outer clamping-standards supported upon the platform toward the outer edge and at the extremities thereof, and inner rigid standards upon said platform cooperating with the outer standards, said platform provided with a supporting base or bracket with which the standards are jointedly engaged, said standards each bifurcated toward its lower end and engaged astride a portion of said base, a hinge-pin to engage the bifurcated portion of the standard with said portion of the base, and a tubular wearing-bearing about said hinge-pin, for the purpose set forth.

43. The combination with a sewing-machine provided with inner and outer feeding-disks, of a shaft carrying the inner disks, a traveling platform to support and carry the work, a bearing adjacent to the platform carrying the lower end of said shaft, and means connected with the shaft to actuate the platform, substantially as set forth.

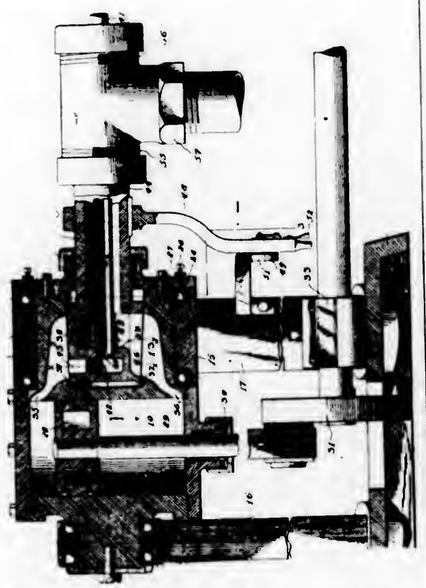
44. The combination with a sewing-machine, of a traveling platform to hold the work, means to drive said platform, standards carried at the inner side of said platform, swinging standards also carried at the inner side of said platform and toward the extremities thereof provided with clamping mechanism, and outer standards cooperating with the first-named standards to clamp the work, substantially as set forth.

644,175. OSCILLATORY ENGINE. WILSON F. HUTCHISON, Orange, Tex. Filed Mar. 29, 1899. Serial No. 711,009. (No model.)

Claim.—1. In an oscillating engine, the combination with the oscillatory piston-cylinder having at one side a valve-chamber, of a valve-plug seated in and coaxial with the valve-chamber and provided with separate steam inlet and exhaust chambers, feed and exhaust conveyers movable with the valve-plug and in communication respectively with the feed and exhaust chambers thereof, substantially as set forth.

2. In an oscillating engine, the combination with an oscillatory

piston-cylinder, having at one side a valve-chamber, of a valve-plug seated in and coaxial with the valve-chamber and provided with separate interior steam inlet and exhaust chambers, feed and exhaust ports communicating respectively with said separate chambers, concentric feed and exhaust conveyers movable with the valve-plug and in communication respectively with the feed and exhaust chambers thereof, and means for securing the said plug in fixed position, substantially as set forth.



3. In an oscillating engine, the combination with an oscillatory piston-cylinder, and an attached valve-chamber at one side thereof, of a valve-plug seated in and coaxial with said valve-chamber and having separate interior steam inlet and exhaust chambers, said separate chambers being provided with ports in communication with the cylinder-ports, a tubular valve-stem rigid with the plug and forming an exhaust-conveyer in communication with the exhaust-chamber, and a feed-pipe extending through the exhaust-conveyer and communicating with the steam-inlet chamber of the valve plug, substantially as set forth.

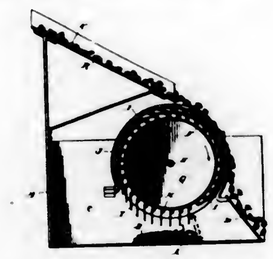
4. In an oscillating engine, the combination with an oscillatory piston-cylinder, having at one side a valve-chamber, of a valve-plug seated in said valve-chamber and having separate interior steam inlet and exhaust chambers partitioned from each other, a plurality of feed and exhaust ports communicating respectively with said separate chambers, each feed-port being diametrically opposite an exhaust-port, a tubular valve-stem rigid with the plug to form an exhaust-conveyer in communication with said exhaust-chamber, a feed-pipe extending through the exhaust-conveyer and fitted in the partition between the two chambers of the valve-plug, and a reversing device connected with the valve-plug and adapted to secure it fixed in an adjusted position, substantially as set forth.

644,176. WALL-TIE. JOHN D. JOHNSTON, Newport, R. I. Filed Sept. 8, 1899. Serial No. 729,831. (No model.)



Claim.—A wall-tie formed of a single piece of sheet metal and consisting of two V-shaped sections, having their apices connected by a longitudinal bridge and their diverging ends connected by transverse parallel braces formed with longitudinal orificed ears and the longitudinally-alined braces connecting said bridge and the transverse parallel braces, substantially as shown and described.

644,177. COAL AND SLATE SEPARATOR. MARTIN J. KERRIGAN, Stockton, Pa., assignor of one-half to Charles McDonald, Wilkes-Barré, Pa. Filed June 1, 1899. Serial No. 719,096. (No model.)



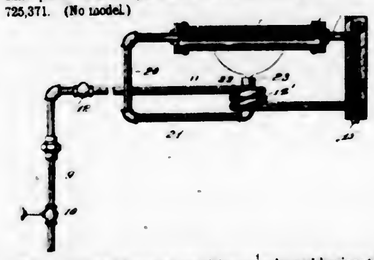
Claim.—1. The combination in a coal and slate separating machine of a rotative cylinder provided with parallel longitudinal pivoted blades means for holding the blades in backward tangential positions during part of each revolution, and a chute for dropping crushed coal and slate upon the edges of the blades, the blades forming the pockets adapted to receive the slate and carry the same past the point of discharge for the coal, substantially as described.

2. The combination in a coal and slate separating machine of a rotative cylinder provided with longitudinal blades loosely pivoted at its periphery on axes parallel with that of the cylinder and means for holding the blades in backward tangential positions during part of each revolution, the blades forming pockets to receive the slate and carry the same past the point of discharge for the coal, substantially as described.

3. The combination in a coal and slate separating machine, of a rotative cylinder provided with longitudinal blades pivoted at its periphery on axes parallel with that of the cylinder, means for delivering the mixed coal and slate on the cylinder and guard or deflecting bars for holding the blades in tangential positions during part of each revolution, of the cylinder, the blades forming pockets adapted to receive the slate and carry the same past the point of discharge for the coal, substantially as described.

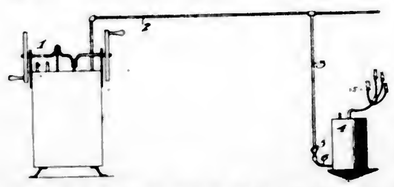
4. The combination in a coal and slate separating machine of a rotative cylinder provided with longitudinal blades loosely pivoted at its periphery on axes parallel with that of the cylinder, guard or deflecting bars secured to the frame overlapping and holding the blades in backward tangential positions for part of each revolution of the cylinder, a chute above the cylinder for discharging the coal and slate on the exposed ends of said blades while thus held, and an inclined plate below the cylinder for receiving the coal, the blades forming pockets adapted to receive the slate and carry the same past the point of discharge for the coal, substantially as described.

644,178. VAPOR-BURNER. DRURY T. KIRKPATRICK, Memphis, Tenn., assignor of forty-nine one-hundredths to William H. Murphy, same place. Filed May 31, 1898. Renewed July 28, 1899. Serial No. 725,371. (No model.)



Claim.—A vapor-burner comprising an enlarged horizontally-arranged superheating-chamber, an oil-supply pipe in connection with one end of the same, a coil formed in said pipe, a burner passing through the coil and extending above the same, suitable pipe connections leading from the opposite end of the superheating-chamber to the burner, whereby the latter is held in a vertical position to cause the flame issuing from the upper end of the same to come in contact with the superheating-chamber located above the burner, and a check-valve located in the oil-supply pipe, substantially as and for the purpose described.

644,179. MILKING APPARATUS. DANIEL KLEIN and WILLIAM P. SWARTS, Poughkeepsie, N. Y. Filed Apr. 18, 1898. Renewed Dec. 26, 1899. Serial No. 741,676. (No model.)



Claim.—1. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer communicating with the receptacle, and an alarm mechanism, of a movable counterbalanced controller having a liquid-shedding surface arranged in the path of inflow of liquid through said conveyer, and means, actuated by said impact element, for controlling the alarm mechanism, substantially as specified.

2. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer communicating with the receptacle, and an alarm mechanism, of a movable counterbalanced controller having a liquid-shedding surface arranged in the path of inflow of liquid through said conveyer, and means, actuated by said impact element, for controlling the alarm mechanism, substantially as specified.

3. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer communicating with the receptacle, and an alarm mechanism, of a movable counterbalanced controller having a flat liquid-shedding upper surface, arranged in the path of inflow of liquid through said conveyer, and means, actuated by said impact element, for controlling the alarm mechanism, substantially as specified.

4. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer, and an alarm mechanism consisting of an exhaust-actuated whistle, of a movable counterbalanced controller having a liquid-shedding surface arranged in the path of liquid admitted through said conveyer, and means actuated by said impact element for controlling communication between the whistle and the receptacle, substantially as specified.

5. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, the receptacle having a vent, a liquid-inflow conveyer in communication with the receptacle, and a signaling device consisting of an exhaust-actuated whistle in communication with said vent, of a movable counterbalanced controller having a liquid-shedding surface arranged in the path of liquid admitted to said conveyer, and a valve, actuated by said element and controlling said vent, substantially as specified.

6. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, said receptacle having a vent, a liquid-inflow conveyer communicating with the receptacle and an air-actuated signaling device in communication with said vent, of a movable counterbalanced controller having a liquid-shedding surface arranged in the path of liquid admitted through said conveyer, a valve for said vent, and a lever actuated by said impact element for communicating closing motion to the valve, substantially as specified.

7. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer, and an alarm mechanism, of a movable buoyant controller having a liquid-shedding surface arranged in the path of liquid admitted through said conveyer, and adapted to be raised by the surface of the liquid in the receptacle, and means actuated by said impact element for controlling the alarm mechanism, substantially as specified.

8. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, said receptacle also having a vent, a liquid-inflow conveyer, and an air-actuated alarm mechanism in communication with said vent, of a movable buoyant controller having a liquid-shedding surface arranged in the path of liquid admitted through said conveyer, and adapted to be moved by the surface of liquid in the receptacle, and a valve, actuated by said impact element, for controlling said vent, substantially as specified.

9. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, a liquid-inflow conveyer, and an alarm mechanism, of a controller having a liquid-shedding surface arranged in the path of, and movable in one direction by, the liquid admitted through said conveyer, and movable in the opposite direction by the rise of liquid in the receptacle, and means, actuated by said impact element, for controlling the alarm mechanism, substantially as specified.

10. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, said receptacle having a vent, and a liquid inflow-conveyer, of a movable controller having a liquid-shedding surface arranged in the path of liquid admitted through said conveyer, a hood or deflector within which the impact-surface of said impact element is arranged in all of its positions, and means actuated by the impact element for controlling said vent, substantially as specified.

11. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, said receptacle having a vent, and a liquid-inflow conveyer, of a controller having a liquid-shedding surface adapted to close said inflow-conveyer, and arranged in the path of liquid admitted therethrough, and means actuated by said float for controlling said vent, substantially as specified.

12. In a milking apparatus, the combination with a receptacle, and means for exhausting the same, said receptacle having a vent, and a liquid-inflow conveyer having a nozzle extended within the receptacle, of a controller having a liquid-shedding surface, adapted to be seated upon and close said nozzle, and arranged in the path of liquid admitted thereto, a hood or deflector attached to the nozzle and surrounding said float and the discharge end of the nozzle, and means actuated by the float for controlling said vent, substantially as specified.

13. In a milking apparatus, the combination with a receptacle, and means for exhausting the interior thereof, of a liquid-conveyer having a nozzle extended within the receptacle, a valved vent, a lever operatively connected with the valve of the vent, a nozzle-closing controller carried by the lever and arranged in the path of liquid introduced by said nozzle, and a hood or deflector attached to the nozzle and surrounding the discharge end thereof and the float, substantially as specified.

14. In a milking apparatus, the combination with a milk-receptacle having a vent, and being in communication with air-exhausting mechanism, and an inflow-conveyer communicating with the receptacle, of a valve for controlling said vent, a balanced lever arranged in operative relation with said valve and normally arranged out of contact therewith, and a buoyant controller having a liquid-shedding surface and carried by said lever for actuating the same, and disposed in the path of the inflow of liquid through said conveyer for depression by the liquid, substantially as specified.

15. In a milking apparatus, the combination with a milk-receptacle having a vent, and being connected with air-exhausting mechanism, and a downwardly-discharging liquid-inflow conveyer communicating with the receptacle, of a valve for controlling said vent, a buoyant counterbalanced controller having a liquid-shedding surface arranged beneath the discharge end of the inflow-conveyer, to receive the downward impact and weight of the liquid introduced into the receptacle, and connections between said impact element and the valve, whereby the depression of the former causes the seating of the latter, substantially as specified.

16. In a milking apparatus, the combination with a receptacle having a liquid-conveyer and means for exhausting the interior of the receptacle, of a vent having an inwardly-opening valve, a seating-spring connected with the valve and having a tension slightly less than that necessary to seat the valve in opposition to atmospheric pressure, a controller having a liquid-shedding surface arranged in the path of inflowing liquid through the conveyer, and operating connections between the controller and the valve for maintaining the valve seated in opposition to atmospheric pressure, substantially as specified.

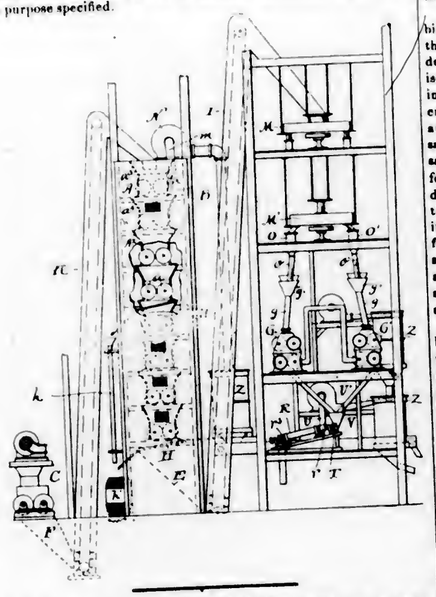
17. In a milking apparatus, the combination with a receptacle having a liquid-conveyer and means for exhausting the interior of the receptacle, of a vent having a controlling-valve, a valve-seating spring connected with the valve, and having a tension slightly less than that necessary to seat the valve in opposition to atmospheric pressure, tension-adjusting devices for the spring, a controller having a liquid-shedding surface arranged in the path of inflowing liquid through the conveyer and connections between the controller and the valve for seating the latter in opposition to atmospheric pressure, substantially as specified.

18. In a milking apparatus, the combination with a receptacle having a liquid-conveyer and means for exhausting the interior of the receptacle, of a vent having a controlling-valve, a valve-seating spring connected with the valve and having a tension slightly less than that necessary to seat the valve in opposition to atmospheric pressure, an adjustable vent-closer, a controller having a liquid-shedding surface arranged in the path of inflowing liquid through the conveyer, and connections between the controller and the valve for seating the latter in opposition to atmospheric pressure, substantially as specified.

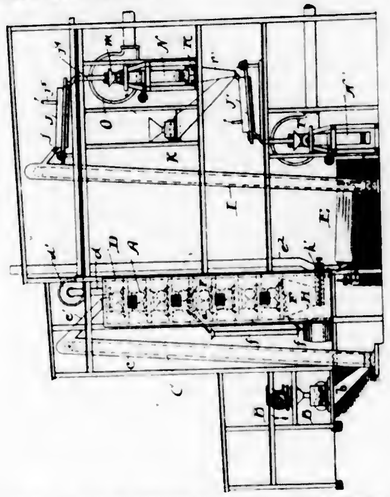
644,180. APPARATUS FOR SEPARATING MALLEABLE METAL FROM ROCK, &c. CHARLES H. LANE, Cleveland, Ohio. Filed Aug. 27, 1898. Serial No. 689,682. (No model.)

Claim.—In an apparatus for separating malleable metal from rock, the combination of a plurality of pairs of crushing-rolls arranged

one above another whereby the product of one pair of rolls is delivered by gravity to the action of the next pair below it, a hopper into which the lowest pair of rolls discharges, a plansifter for grading the product of said rolls into various grades, an elevator adapted to automatically lift the material out of said hopper and deliver it to said plansifter, a plurality of pairs of subsequent crushing-rolls, and means for mixing the several grades of the material as desired and delivering severally to the last-mentioned pair of crushing-rolls the said mixtures of the several grades of material, substantially as and for the purpose specified.



644,181. APPARATUS FOR SEPARATING METAL FROM ROCK. CHARLES H. LANE, Cleveland, Ohio. Filed May 31, 1899. Serial No. 718,834. (No model.)

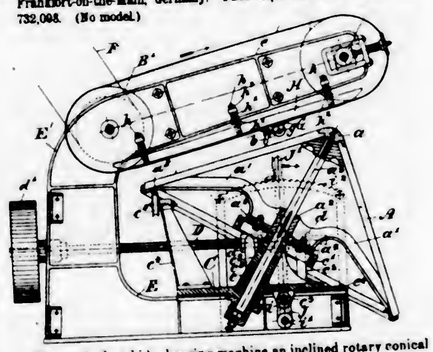


Claim.—1. In an apparatus for separating metal from rock, &c., the combination of a series of crushing-rolls adapted to act successively upon the material to reduce it to a pulverized condition, a drier, mechanism for automatically conveying the crushed product of said rolls and delivering it into said drier, a beater, and mechanism for automatically conveying the dried material to and delivering it into said beater, with an inclined air-separator tube having an outlet-pipe connected with its upper end, means for creating an upward current of air through said separator-tube and outlet-pipe, mechanism for automatically conveying the product of said beater to and delivering it slowly into the air-separator tube to the action of the air-current, and a settling-chamber connected in and hanging below said outlet-pipe and having a valved delivery-outlet at its lower end, substantially as and for the purpose specified.

2. In an apparatus for separating metal from rock, &c., the combination of a series of crushing-rolls adapted to act successively upon the material to reduce it to a pulverized condition, a drier, a beater device, an inclined air-separator tube having an outlet-pipe, mechanism for automatically conveying the material from one and delivering to another of said devices in the order named, mechanism for creating an upward current of air through said air-separator tube and outlet-pipe, a settling-chamber connected in and hanging below said outlet-pipe, a discharge-pipe connected with the lower end of said settling-chamber, a valve in said discharge-pipe, a conveyer for forcing the material out of said settling-chamber and through said discharge-pipe, and a crushing device into which said pipe delivers the material, a beater device into which said crushing device delivers its product, an inclined air-separator tube having an outlet-pipe, means for slowly delivering the material from said beater into said tube, a settling-chamber connected in and hanging below said outlet-pipe, and means for causing an upward current of air through said air-separator tube and outlet-pipe, substantially as and for the purpose specified.

3. In an apparatus for separating metal from rock, &c., the combination of a series of crushing-rolls adapted to act successively upon the material to reduce it to a pulverized condition, a drier, a beater device, an inclined air-separator tube, and mechanism for conveying the material from one and delivering it to another of said devices in the order stated, with an outlet-pipe connected in the upper end of said air-separator tube, a settling-chamber connected in said pipe, a suction-fan for creating an air-current up through said air-separator tube and through its outlet-pipe and the settling-chamber, a discharge-pipe connected in the lower end of said settling-chamber, a screw conveyer therein, a spring-actuated valve for closing the outlet of said discharge-pipe, a crushing device into which said pipe discharges, a beater device into which said crushing device delivers its product, an inclined air-separator tube, means for slowly delivering the material from said beater into said tube, an outlet-pipe connected with the end of said air-separator tube, a settling-chamber connected in said outlet-pipe, and a suction-fan connected with said pipe beyond the settling-chamber, substantially as and for the purpose specified.

644,182. MACHINE FOR DRESSING HIDES. MARTIN MAY, Jr., Frankfort-on-the-Main, Germany. Filed Sept. 29, 1899. Serial No. 732,068. (No model.)



Claim.—1. In a hide-dressing machine an inclined rotary conical beam in combination with a traveling tool.

2. In a machine for dressing hides the combination of a conical beam with a traveling tool-holder and a yielding rail over which the tool-holder travels.

3. In a machine for dressing hides a movable conical beam in combination with a traveling tool-holder carrying a tool provided with a roller and a yielding rail over which the said roller travels.

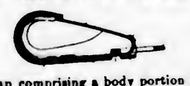
4. In a machine for dressing hides a traveling tool-holder and a carrier for the same inclined to the horizon in combination with a conical beam whose surface adjacent to the carrier is substantially parallel thereto.

5. In a machine for dressing hides an inclined carrier for a tool-holder in combination with a conical beam whose adjacent surface is parallel thereto and means for shifting the said conical beam horizontally.

6. In a machine for dressing hides an inclined apron provided with a hide-working tool in combination with an inclined conical beam whose adjacent surface is parallel to the apron.

7. In a machine for dressing hides a carrier for a tool-holder in combination with a belt, whereto it is attached, means to regulate the tension of the belt and a yielding rail on which rollers attached to the holder behind the tool travel.

644,183. HARNESS-SNAP. WILLIAM R. MORSE, Chicago, Ill. Filed June 24, 1899. Serial No. 721,676. (No model.)



Claim.—1. A snap, comprising a body portion and a loop or engaging piece stamped from sheet metal, a tongue associated with said parts, said tongue engaging the two parts so as to removably connect them together.

2. A snap, comprising a body portion stamped from a thin sheet of metal and bent into shape, an opening near the end of said body portion, a loop or engaging piece having a part fitting into said opening, a tongue having two branches, one of which passes between the part of the engaging piece and the body portion so as to connect the two together.

3. A snap, comprising a body portion stamped from a thin sheet of metal and bent into shape, an opening near the end of said body portion, a loop or engaging piece having a part fitting into said opening, a tongue having two branches, one of which passes between the part of the engaging piece and the body portion so as to connect the two together, and means for holding said toogue in position.

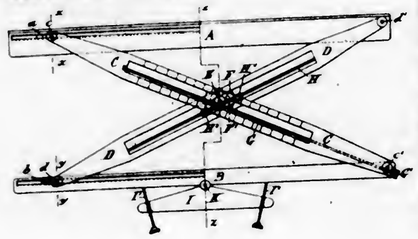
4. A snap, comprising a body portion, a loop or engaging piece separated therefrom and a tongue adapted to engage the loop or engaging piece and the body portion of the snap and firmly fasten them together.

5. A snap, comprising a body portion stamped from sheet metal, said body portion provided with side pieces which form a space into which the tongue is received, a loop or engaging piece stamped from sheet metal, a tongue bent back upon itself so as to form two branches and located between the side pieces and the body portion of the snap, one of the branches engaging the body portion and said engaging piece so as to firmly connect them together.

6. A snap, comprising a body portion stamped from sheet metal, the edges being bent at an angle to the remaining portion so as to form a groove open at the back, a slot or space in said body portion communicating with said groove, an engaging piece adapted to be inserted in said slot or space so as to project into said groove, a tongue received into said groove and provided with two branches, one of which passes between the engaging piece and the body portion of the snap so as to hold the two parts together.

7. A snap, comprising a body portion stamped from sheet metal, the edges being bent at an angle to the remaining portion so as to form a groove open at the back, a slot or space in said body portion communicating with said groove, an engaging piece adapted to be inserted in said slot or space so as to project into said groove, a tongue received into said groove and provided with two branches, one of which passes between the engaging piece and the body portion of the snap so as to hold the two parts together, and two projecting parts on said body portion adapted to be bent inwardly so as to hold said tongue in position.

644,184. COMBINED CENTROLINEAD AND PARALLEL-RULE. GEORGE MCMULLEN, Perth, Western Australia. Filed June 16, 1899. Serial No. 720,792. (No model.)



Claim.—1. An instrument for use in preparing perspective and other drawings comprising a pair of blades connected by crossed links each attached at one end by a fixed pivot and at the other end by a sliding pivot to the respective blades and slotted for the greater portion of its length for the reception of a slide and adjustable pivot whereby the instrument is rendered available for drawing either radial or parallel lines; one of the blades being provided with a working edge and the other with means for attaching the instrument to a drawing-board, substantially as herein described.

2. In an instrument for use in preparing perspective and other drawings the combination with a pair of blades connected by diagonally-pivoted slotted plates, whereof one is provided with the graduated scale C, of the tongued slides F F' and screws G and H, substantially as and for the purpose specified.

3. In an instrument for use in preparing perspective drawing and for drawing parallel lines, the combination, with the blades A, B, of the slotted links C, D, the pivots c, c', d, d', the tongued slides a, b, the adjustable pivot E, the tongued slides F, F' and the screws G, H, substantially as and for the purpose set forth.

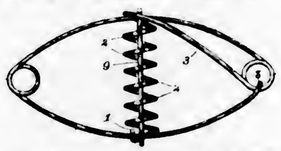
4. In an instrument for use in preparing perspective drawing and for drawing parallel lines, the combination, with the blades A, B, connected by the links C, D, of the fixing-piece I and set-screws I', I', substantially as and for the purpose set forth.

644,185. LAMP-CHIMNEY HOLDER. SILAS H. RAYMOND, Grand Rapids, Mich. Filed July 31, 1899. Serial No. 725,582. (No model.)



Claim.—The combination of a chimney having a truncated conical base and a cylindrical portion above said base, a burner, flexible clips attached to the burner and extending in semicircular form radially outward and upward and having inwardly-projecting angles slidably engaging and pressing downward upon the upwardly and inwardly inclined surface of the truncated conical base of said chimney and parallel vertical portions engaging and pressing inward upon the cylindrical portion of the same throughout their entire lengths, substantially as described.

644,186. TENSION DEVICE. EDWARD ROBERTS, Brownsburg, Ind. Filed Aug. 16, 1899. Serial No. 727,439. (No model.)



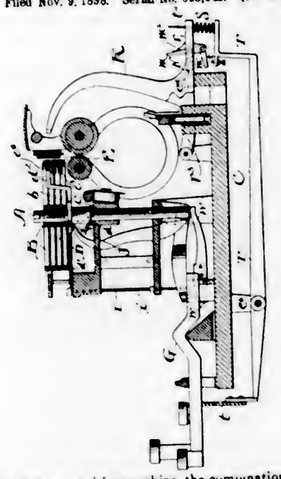
Claim.—1. A tension device consisting of a wire structure the ends whereof are adapted to be attached to the article to be held under tension, elastic sides extending between said ends, and a spring between said elastic sides whereby they are held distended except when forcibly drawn toward each other by the tension of the parts attached thereto.

2. A tension device composed of a single wire one end of which is formed into a coiled spring, a portion which runs thence to the end of the device, thence returning to the other end of the device, thence back again to the first end of the device where it is secured, the coiled-spring portion being arranged between the two portions which run from end to end of the device, substantially as shown and described.

3. A tension device comprising a spring 2, suitable ends to which the device to be placed under tension is connected, side wires running between the ends and past the ends of the spring, and a stay-

piece looped over the side wires and passing through the spring whereby the latter is held in position, substantially as shown and described.

644,187. TYPE-WRITING MACHINE. CHARLES SEARS, Cleveland, Ohio. Filed Nov. 9, 1898. Serial No. 696,945. (No model.)



Claim.—1. In a type-writing machine, the combination of an anvil having a plurality of parallel slots, and a plurality of type-shuttles each having on its inner face a fin which lies and moves in one of said slots, and each fin having two extensions which pass through the anvil, with mechanism for moving the anvil to bring any shuttle into the impression-line, a shuttle-operator adapted to engage with one of the rearward extensions on the fin of that shuttle which is in the impression-line, and a shuttle-locking device fixed to the frame of the machine and engaging with the other extensions on the fins of the other shuttles, substantially as specified.

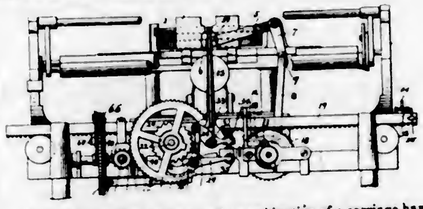
2. In a type-writing machine, the combination of an anvil-cylinder having a plurality of parallel slots, and a plurality of segment-shaped type-shuttles each having on its inner face a fin which lies and operates in one of said slots, each fin having one extension through the anvil which extension is vertically notched, and having also another extension through said anvil, mechanism for moving said anvil to bring either shuttle into the impression-line, a concentrically-mounted shuttle-operator having an outer horizontal end which is adapted to engage in the notched extension of that shuttle which is in the impression-line, mechanism for moving said operator, and a shuttle-locking device fixed to the frame and engaging with the other extensions on the fins of the other shuttles, substantially as specified.

3. In a type-writing machine, the combination of an anvil-cylinder having a plurality of circumferential slots, a plurality of segment-shaped type-shuttles, each having on its concave side a fin which lies and operates in one of said slots, each fin having two extensions which pass entirely through said slots, with mechanism for moving the anvil-cylinder to bring any shuttle into the impression-line, a shuttle-operator adapted to engage with one inward extension of the fin on the shuttle in the impression-line, and a shuttle-locking device fixed to the frame of the machine and engaging with the other extensions on the fins of the other shuttles, substantially as and for the purpose specified.

4. In a type-writing machine, the combination of the impression-hammer having a rearwardly-extended arm, a spring-latch mounted on said arm and adapted to engage with the machine-frame, and a bell-crank lever mounted on said arm, one arm of which engages with the latch, with a lever carrying a vertical rod which passes up through a slot in the hammer-arm, a coiled spring surrounding said rod and lying between the lever and hammer-arm, and an adjustable tripping device for engaging with the free arm of the bell-crank lever and the lever first named whereby the latter is operated, and mechanism whereby the said lever is operated by the key-levers, substantially as and for the purpose specified.

644,188. TYPE-WRITING MACHINE. CHARLES SEARS, Cleveland, Ohio. Filed May 1, 1899. Serial No. 715,165. (No model.)

Claim.—1. In a type-writing machine, the combination of the carriage, mechanism acting constantly on the carriage to draw it in the feeding direction, and a differential escapement which, whenever a key-lever is operated, permits the carriage to be moved a distance proportionate to the width of the corresponding character, with a spring-actuated impression-hammer, a rotatable ratchet under tension to move it in one direction, an escapement therefor which permits uniform movements of said ratchet whenever the key-levers are operated, and connections between said uniform escapement and impression-hammer, substantially as and for the purpose specified.



2. In a type-writing machine, the combination of a carriage having a rack-bar, a toothed-spring-barrel engaging with said rack-bar, and a differential escapement for controlling the movements of said rack-bar and carriage induced by said spring-barrel, whereby the actuation of any key-lever permits the rack-bar and carriage to be moved by the spring-barrel a distance proportionate to the width of the corresponding character, with an independent toothed spring-barrel, a rack-bar engaging with said spring-barrel, escapement mechanism for said rack-bar which permits it to be moved uniform distances whenever the key-levers are actuated, a spring-actuated impression-hammer, and connections between said hammer and the uniform-escapement mechanism, substantially as and for the purpose specified.

3. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the characters to the impression-point, and a spring-actuated impression-hammer, with a pivoted arm carrying an inking-roller which is adapted to contact with the character at the impression-point, and mechanism for positively moving said arm to carry said roller into contact with said character after the type segment or wheel has come to rest and before the hammer completes its impression-stroke, substantially as and for the purpose specified.

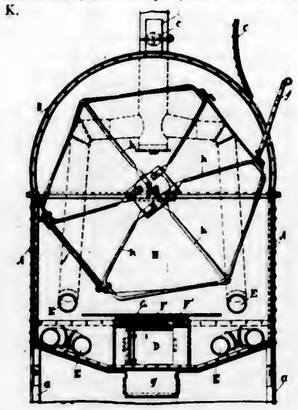
4. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the character to the impression-point, the combination of an impression-hammer, with an arm carrying an inking-roller and pivoted to a fixed support, which arm normally lies below the type segment or wheel and between it and the paper, and mechanism connecting said hammer and arm whereby the hammer in making its impression-stroke swings the arm upward with the result of causing the inking-roller to contact with the character at the impression-point and to move above the type segment or wheel and out of the way of the paper, substantially as and for the purpose specified.

5. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the characters to the impression-point, the combination of an arm pivoted to a fixed support and extended around behind the type segment or wheel and having an inking-roller mounted on its free end, said lever having an angle-arm, a bell-crank lever pivoted to a fixed support, a pin-and-slot connection between the angle-arm and one arm of said bell-crank lever, with a spring-actuated impression-hammer, a rock-shaft to which said hammer is attached, a forwardly-projecting arm attached to said rock-shaft and entering a slot in the horizontal arm of the bell-crank lever, and means for resetting said hammer and for releasing it to the action of its spring.

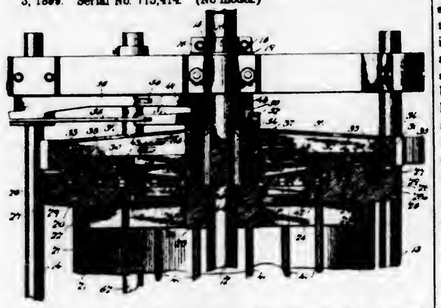
6. In a type-writing machine, the combination of the carriage, mechanism acting constantly on the carriage to draw it in the feeding direction, a differential escapement which, whenever a key-lever is operated permits the carriage to be moved a distance proportionate to the width of the corresponding character, a spring-actuated impression-hammer, a rotatable ratchet under tension to turn it in one direction, an escapement therefor which whenever the key-levers are operated permits uniform movements of said ratchet, and connections between the impression-hammer and said uniform escapement mechanism, with a pivoted arm carrying an inking-roller which is adapted to contact with the character at the impression-point, and mechanism intermediate of said arm and the hammer whereby the movement of the hammer causes a movement of the arm carrying the inking-roller, substantially as and for the purpose specified.

644,189. DRYING APPARATUS. PAUL SIEFELDT, Odessa, Russia. Filed Feb. 27, 1899. Serial No. 707,075. (No model.)

Claim.—In a machine for rapidly drying clothes, the combination of the furnace D, the double recurved exit-pipe E, the outer chimney E', the lower casing A, the upper casing B, the hinged lid C, the ventilating-tubes *b*, the dampers *c*, the horizontal shaft *o*, the drum H, the detachable frames I, the sand-layer plate F, the baffle-plate G and the handle K.



644,190. HOISTING-MACHINE. JOHN R. SIMPSON, Zincite, Mo., assignor of one-fourth to Willis T. Howerton, same place. Filed May 3, 1899. Serial No. 715,414. (No model.)



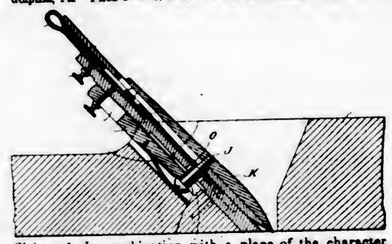
Claim.—1. In a hoisting apparatus, the combination with a continuously-revoluble drum-shaft, of a drum loosely mounted upon said shaft and having opposite clutch members, driving-gears fitted upon the shaft at opposite ends of the drum, keys for maintaining said gears against independent revoluble movement with relation to the shaft, said keys being provided at their inner ends with enlargements or heads, thrust-collars engaged with the heads or enlargements of the keys, return-springs terminally bearing against said thrust-collars and the hubs of the driving-gears, and means for simultaneously moving the gears in opposition to said return-springs, substantially as specified.

2. In a hoisting apparatus, the combination with a drum-shaft and a drum having a clutch member, of a driving-gear keyed to the shaft for axial movement thereon and having a cooperating clutch member, a ring mounted upon the keys of the gear intermediate it and the drum, springs bearing upon said ring and upon the gear, and a clutch-setting device adapted to impart axial movement to the gear and against said springs, to engage the clutch members.

3. In a hoisting apparatus, the combination with a base, a bed-frame, and side frames provided with bearings, of a drum-shaft mounted in bearings in the side frames and extending terminally beyond the plane thereof, a drum loosely mounted upon the drum-shaft between the side frames and held from endwise movement thereon, driving-gears keyed for axial movement upon the drum-shaft, rings mounted upon the keys of said gears, clutch members carried respectively by the drum and gears, springs arranged intermediate the rings and the adjacent gears and tending to hold the clutch members separated, a clutch-setting device having pairs of cooperating feed-screws interposed between said gears and the planes of the side frames, and means for simultaneously actuating the feed-screws to impart axial movement to the gears.

4. In a hoisting apparatus, the combination with a drum-shaft and a drum having a clutch member, of a driving-gear keyed to the shaft for axial movement thereon and having a cooperating clutch member, a ring mounted upon the keys of the gear between it and the drum, springs bearing upon said ring and upon the gear, a fixed object, a clutch-setting device interposed between the gear and the fixed object and adapted for extension to impart axial movement to the gear and against said spring, said fixed object having a clutch member adapted for engagement with the first-named clutch member, means for engaging and disengaging the clutch members, and means for retarding the speed of the drum when the clutch members are disengaged

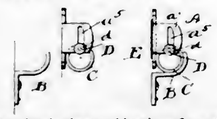
644,191. CARPENTER'S PLANE. ABRAHAM W. STAUFFER, Philadelphia, Pa. Filed May 6, 1899. Serial No. 715,818. (No model.)



Claim.—1. In combination with a plane of the character described, a bed-block adjustably secured within the stock, an adjusting-lever fitted within a recess formed in the bed-block, an extension formed with the adjusting-lever and fitted within the recess in the stock, said lever having a hole therethrough, a bit having a central slot therein, a clamp-plate adapted to fit upon the upper surface of the bit, a clamping-screw threaded into the plate, a washer surrounding the screw and adapted to bear against the under side of the bit and fit within a hole formed in the adjusting-lever, a bushing also surrounding the screw and bearing against the washer, a clamping-bar fulcrumed against the under side of the bed-block having its lower end slotted to engage the head of the screw, and means—such as a thumb-screw for drawing the upper end of the clamping-bar toward the bed-block whereby the lower end thereof will be caused to draw the screw and the parts carried thereby downward, as and for the purpose set forth.

2. In combination with a plane of the character described, a bed-block adjustably secured within the stock, an adjusting-lever, an extension formed with the adjusting-lever, a bit adjusted thereby, a clamp-plate, a clamping-screw, a washer and bushing surrounding said screw, a clamping-bar and means for operating the same.

644,192. LATCH. THEODORE R. STEVENS, Cleveland, Ohio. Filed Mar. 6, 1899. Serial No. 707,865. (No model.)



Claim.—1. In a latch, the combination of a casing having a pair of ears, each ear having a curved slot, a rod playing in the slots and having an enlarged head at each end outside the ears, a ring-latch loosely hung on the rod and a bracket to receive the ring-latch, substantially as described.

2. In a latch, the combination of a casing, a pair of ears projecting at substantially right angles from the casing, a ring-latch loosely journaled in and playing between the ears, the casing being cut away at the base of the ears, and a locking-bracket, the edge of whose engaging lip is substantially in line with the adjacent edges of the ears and out of line with the cut-away base of the casing.

3. A reversible casing for a latch, comprising a pair of ears projecting at substantially right angles from the casing, the casing being cut away on both sides at the base of the ears, the ears having curved slots, and all the features being uniform on each side of a medial horizontal line through the casing.

4. The combination of a casing, a ring-latch carried thereby, a cooperating bracket, the lower edge of the rear wall of said casing being cut away behind the ring-latch whereby the ring-latch when in engagement forms a diagonal strut between the casing and the bracket, substantially as described

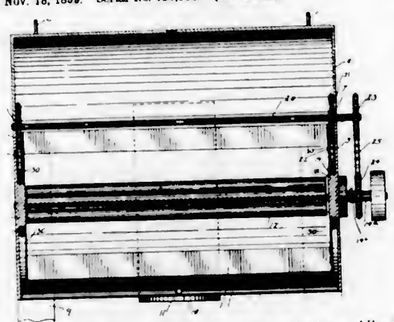
5. In a latch, comprising a ring-latch, a sustaining-casing and a locking-bracket, a rod bearing the ring-latch movable in the casing

and having disks at each end which serve to retain the rod and furnish a grasp for the fingers, substantially as described.

6. The combination of a casing adapted to be secured to a door or window near its edge, a bracket adapted to be secured to the member coöperating with said door or window, a roller carried by the casing and adapted to stand within the bracket and lock the casing to the bracket, slots through said casing and bracket, those in one member being horizontal and in the other vertical whereby the lock may be adjusted either vertically or horizontally, substantially as described.

7. A casing for a lock consisting of the sheet-metal plate *a* having a forwardly-turned end *a'* projecting at right angles to the rest of the plate, the plate a^3 riveted to the plate *a* and lying parallel with the plat *a'*, slots through said plates *a'* and a^3, the plate *a* being cut away at its upper and lower edges as at a^4 between the plates *a'* and a^3 there being holes through the plate *a* beyond the plate a^3 whereby it may be secured to a door or window and overhang the edge, substantially as described.

644,193. **CHURN.** REUBEN R. STONE, New York, N. Y. Filed Nov. 18, 1899. Serial No. 737,391. (No model.)



Claim.—1. A churn, comprising a casing, agitating-paddles revolubly mounted therein, macerating-rollers revolubly mounted therein, means for operating said paddles and rollers, and devices for disconnecting said rollers and said paddles, substantially as shown and described.

2. A churn, comprising a casing, a pair of shafts passed longitudinally therethrough, and each provided with a fluted roller, which rollers intermesh, a revoluble element operatively mounted at each end of said casing and provided with radial arms, paddles secured to said arms and arranged longitudinally of said casing, the relative arrangement being such that said paddles revolve around said rollers, means for revolving said paddles and said rollers, and means whereby said paddles and rollers may be disconnected, substantially as shown and described.

3. In a churn provided with a casing, means for admitting air under pressure at the bottom of said casing revoluble agitating means operating in a circular path in said casing, and revoluble macerating means operating within the circle of the path of agitating means, substantially as shown and described.

4. In a churn, provided with a non-rotatable casing, means for admitting air under pressure at the bottom of said casing, consisting of an elongated perforated nozzle in communication with said casing, and a supply-tank in communication with said nozzle, agitating means and macerating means mounted in said casing, and devices for actuating said means independently or in unison, the relative construction and arrangement of parts being such that said air under pressure first mixes with such contents of said casing as are directly agitated, substantially as shown and described.

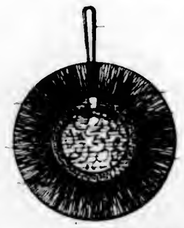
644,194. **DISINFECTING DEVICE.** CARLOSTINE E. BLAKE, Minneapolis, Minn. Filed May 3, 1898. Serial No. 679,595. (No model.)

Claim.—1. The combination, in a disenfecting device, of a porous vessel containing a disinfecting agent with an inclosing volatile shell, also of a porous nature.

2. The combination, of a porous vessel containing germicidal agents, with a shell of camphorous material molded upon said vessel, substantially as described.

3. The combination, of a porous vessel containing a disinfecting material, with an inclosing shell of volatile material containing an element that protects the same from the rapid action of moisture, substantially as described.

4. The combination, of a porous vessel containing disinfecting or germicidal agents, with a shell of volatile material containing a suitable proportion of oily substance for the purpose described, and a layer of material between said vessel and said shell, substantially as described.

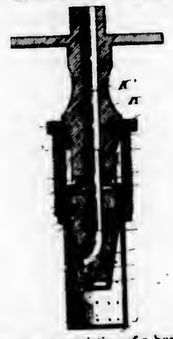


5. The combination, of a porous vessel containing disinfecting agents, with an inclosing shell composed of disinfecting material molded thereon, and a layer of disinfecting material interposed between said vessel and said shell, substantially as described.

6. A disinfecting device, comprising a shell of volatile substance, and a body of disinfecting substance inclosed within said shell and arranged to evaporate through and with the volatile substance forming said shell.

7. A disinfecting device, comprising a shell of suitably-scented naphthalene or moth-camphor, and inclosing a vessel containing formalin and carbolic acid that are evaporated through and with said naphthalene, substantially as described.

644,195. **BARREL-TAP.** GEORGE R. CHESEMAN, Auburn, N. Y. Filed Oct. 7, 1899. Serial No. 732,885. (No model.)



Claim.—1. A barrel-tap consisting of a bushing with an integral conical projection at its lower end, the bottom of said projection being imperforate, and having an aperture in its conical wall, lugs on the inner wall of the bushing, combined with a rotary hollow valve seated on the inner conical wall of said projection, a hollow key and stem to valve communcating with the valve, said key engaging the lugs on the inner wall of the bushing, as shown and described.

2. A barrel-tap consisting of a bushing with integral conical bottom, diametrically oppositely disposed lugs on the inner wall of the bushing, a conical valve with a single duct opening on the circumference of the valve and leading through a stem at the end of the latter, a recessed key having a duct communicating with the duct in said valve, and means for holding the latter to its seat, as set forth.

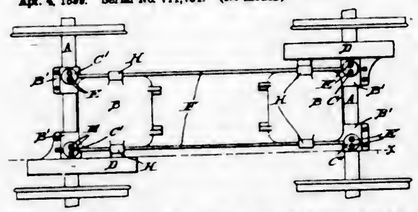
3. A barrel-tap consisting of a bushing with conical bottom with aperture in its wall, lugs on the inner wall of the bushing, combined with a rotary conical valve with a duct with an opening thereto through the tapering wall of the valve, a stem to the valve, diametrically oppositely disposed lugs on the stem, a nut having threaded connection with a shoulder of the bushing, the key having longitudinal and radial recesses, and a duct communicating with the duct in the valve, as set forth.

4. In a barrel-tap, the combination with the bushing the valve with duct as described seated in the conical portion of the bushing, the retaining-nut, the stem of the valve having lugs thereon, the key with longitudinal duct therein, radial recesses in the end of the key, diametrically oppositely disposed longitudinal recesses with angled ends, the lugs on the inner wall of the bushing designed to be seated in the latter, as set forth.

5. In combination with the bushing, the valve and nut for retaining same on its seat, the stem, of the valve, having its upper end tapering, the key with central longitudinal duct, radial recesses in the end of said key, and the packing interposed between said tapering portion of the stem and the enlarged portion of the duct in the key, as set forth.

6. In combination with the bushing with key and valve therein, the screen having a flange, the screws passing through the latter and engaging in threaded apertures in the lower end of the bushing, as shown and described.

644,196. **MOTOR SUSPENSION.** SAMUEL R. CLARKSON, Johnstown, Pa., assignor to the Johnson Company, of Pennsylvania. Filed Apr. 4, 1899. Serial No. 711,731. (No model.)



Claim.—1. The combination with a pair of motors, sleeved to their respective axles, of a frame extending from axle to axle and supported by the sleeve portions of the motors, said frame in turn supporting said motors, the connection between said motors and the frame being substantially in the lines of the centers of gravity of the motors.

2. The combination with a pair of motors sleeved to their respective axles, of a pair of side bars extending from axle to axle and supported at their ends from the sleeve portions of the motors, each of said side bars supporting one side of both of said motors at points substantially in the lines of the centers of gravity of the motors.

3. The combination with a pair of motors sleeved to their respective axles, of a pair of side bars extending from axle to axle, side connections between the said bars and the motors at points substantially in the lines of the centers of gravity of said motors, and springs between the said side bars and each of said motors.

4. The combination with the motors sleeved to the driven axles, of a suspension-frame spring-supported at its ends upon the sleeve portions of the motors, and means on the motors engaging the said bars at points substantially over the center of gravity of the motors.

5. The combination with the motors sleeved to the driven axles, of a suspension-frame common to both motors and spring-supported over the axles, and connections between the said frame and the motors at points substantially in the line of the centers of gravity of the motors.

6. The combination with the motors sleeved to the axle, and having spring-seats and springs above the axle, of a suspension-frame connected to the motors at points between the axles and substantially in the line of the centers of gravity of the motors, said frame being seated upon said springs.

7. The combination with the motors centered on the driven axles, and having springs or cushions adjacent to the axles, of a suspension-frame connected to both motors between the axles and at points substantially in the vertical lines of the centers of gravity of the motors, and supported by said springs or cushions to respond to vertical movement of both motors.

8. The combination with the driven axles and the motors centered thereon, of a suspension-frame connected to the motors at points between the axles and substantially in the vertical lines of the centers of gravity of the motors, and elastically connected thereto at points above the axles.

9. The combination with the axles, and the motors having their casings sleeved thereto, of a suspension and equalizing frame by which said motors are supported, elastic supports for said frame carried by the said casings and connections between the said casings and the said frame at points substantially in the vertical lines of the centers of gravity of the motors.

10. The combination with the axles, and the motor-casings having extensions sleeved on said axles, and provided with spring-seats on said extensions, of the suspension-frame elastically supported on said seats, said frame being disconnected from the truck-frame and axles and projections on the motor-casings loosely engaging the said frame.

11. The combination of the axles, the motor-casings sleeved thereto, and provided with guide extensions above the axle, the upper and lower cushions seated on said extensions, and a suspension-frame whose end portions are seated between the said cushions together with projections on the motor-casings which embrace the said frame.

12. The combination of the axles, the motor-casings having extensions sleeved to said axle, guides on said extensions, springs carried by said guides, a suspension-frame whose end portions are seated in said guides and between said springs, and connections between the said frame and the motor-casings at points substantially in the vertical lines of the centers of gravity of the said motors.

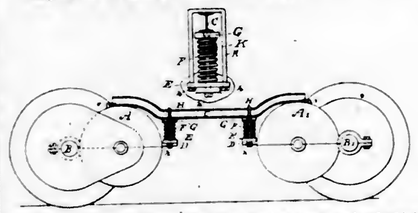
13. The combination of the axles, the motor-casings having sleeve extensions for engagement with said axles, and side lugs to receive a suspension-frame, guides carried by said sleeve extensions, springs carried by said guides, and the suspension-frame having its end portions seated in said guides and against the said springs and also engaging said lugs.

14. The combination with the two motor-casings having the sleeve extensions, the guides carried by said extensions, and the slotted side lugs, of the suspension-frame movably engaging said lugs or extensions, and elastically seated in said guides.

15. The combination with the axles, the motor-casings having the sleeve extensions engaging said axles, the guide rods or posts carried by said extensions, and the slotted side lugs, of the suspension-frame consisting of a pair of longitudinal bars which pass through said slotted lugs and whose end portions are seated between said guide-rods and springs carried by said guide-rods and acting upon said frame in both vertical directions, substantially as specified.

16. A motor suspension, comprising rigid longitudinal bars connecting and suspending the two motors of a car centered on its driven axles, and elastic supports carried by the motors and carrying said frame, substantially as specified.

644,197. **MOTOR SUSPENSION.** SAMUEL R. CLARKSON, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 22, 1899. Serial No. 728,072. (No model.)



Claim.—1. The combination with two motors, each of which is sleeved to a vehicle-axle, of a connecting-bar resting at its end portions upon the motor-casings and secured loosely thereto, springs interposed between said bar and the nose or free ends of the motors, and means whereby the vertical thrust of the motors in either direction effects a compression of the said springs.

2. The combination with two motors, each of which is sleeved to a vehicle-axle, of a longitudinal connecting-bar loosely seated at its ends upon the motor-casings, springs interposed between the said bar and the nose or free ends of the motors, and means whereby the vertical thrust of the motors in opposite directions is applied to opposite ends of the same spring, to effect compression thereof.

3. The combination with two motors, each of which is sleeved to a vehicle-axle, of a longitudinal connecting-bar seated upon the tops of the motor-casings for limited endwise movement, springs seated between the under side of the said bar and projections at the nose or free ends of the motors, and means whereby thrust of the motors in both vertical directions effects compression of the same springs.

4. The combination with two motors, each of which is sleeved to a vehicle-axle, and the connecting-bar seated thereon, of a single spring interposed between the said bar and the nose or free end of each motor, and means whereby said spring is compressed by vertical thrust of the motor in either direction.

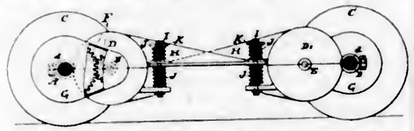
5. The combination with the two motors, each sleeved at one end to one of the driving-axles, and a connecting-bar seated on the motors, of top-bearing spring-caps carried by the motors at their free ends, bottom-bearing spring-caps, suspended from the said bar to be engaged by the motors upon upward movement thereof and springs seated between the said caps and compressed from one end by downward movement of the motors and from the other end by upward movement of the same.

6. In a motor suspension, the combination with a motor sleeved at one end to one of the driving-axles, of a supporting-spring for the free or nose portion of the motor, and means whereby downward movement of the motor about the axle effects a compression of said spring from one end and upward movement of the same effects a compression thereof from the opposite end.

7. The combination with the sleeved motors having spring-supports at their free or nose ends, and a beam or bar resting upon and loosely connecting said motors, of the spring-seats E, the U-bolts which suspend said seats from the said beam or bar, the cap-plates G, the bolts which carry the same from the said supports, and the coil-springs interposed between seats and plates, one of said bolts passing through each of the said springs, and the other bolt embracing the same.

8. The combination with two motors, each of which is sleeved to a vehicle-axle, of an elastic connection for the motors supported by bearings on the tops of the motor frames or casings and also connected with the free or nose portions of the motors.

644,198. **MOTOR SUSPENSION.** ARTHUR R. DU POST, Detroit, Mich., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 22, 1899. Serial No. 728,071. (No model.)



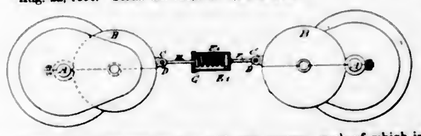
Claim.—1. The combination of a pair of electric motors sleeved to opposite axles of the truck and inside the wheel-base, an arm on each motor frame or casing extending toward the opposite motor, and independent springs, one seated on a lug of each motor frame or casing and supporting the arm of the opposite motor.

2. The combination with a pair of electric motors sleeved to opposite axles, of a car-truck within the wheel-base thereof, and having each a projecting arm, and a spring seated on a lug of each motor frame or casing, and supporting the arm of the opposite motor.

3. The combination of a pair of motors located inside the wheel-base of a truck and sleeved to opposite axles thereof, each motor having an arm projecting over to the nose of the other motor, and also having a short lug or projection, and a spring seated on each of said lugs or projections and supporting the end of the arm of the opposite motor.

4. The combination of a pair of electric motors located inside the wheel-base of a car-truck and sleeved to opposite axles thereof, the frame or casing of each motor having an integral arm extending therefrom to a point adjacent to the nose of the opposite motor, and also a lug to one side of the said arm, and springs seated on the said lugs and supporting respectively the arms of the opposite motor.

644,199. **MOTOR SUSPENSION.** RICHARD D. EYRE, Philadelphia, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 22, 1899. Serial No. 728,073. (No model.)



Claim.—1. The combination with two motors, each of which is sleeved to one of the driving-axles, of an arm or member loosely connected to each motor at its free or nose end, and a spring engaging the ends of both of said arms or members and tending, by its action, to draw the two motors toward each other.

2. The combination with two motors, each of which is sleeved to one of the driving-axles, of a suspension connection therefor, comprising two members, one of which is loosely connected to each motor, a loose connection between said members, and a spring acting horizontally upon both members and tending to hold the motors to horizontal position.

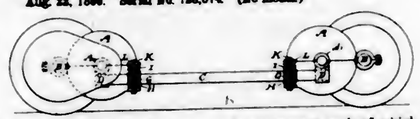
3. The combination with two motors, each of which is sleeved to one of the driving-axles, of an arm pivoted to the nose end of one motor and terminating in a head, an arm pivoted to the other motor and terminating in a guide portion for the said head, and a compression-spring seated within the said guide portion and tending by its action to maintain the horizontal position of said motors.

4. The combination with two motors, each of which is sleeved to one of the driving-axles, of a pair of arms, one of which is centered or pivoted to the nose end of each motor, one of said arms having a head and the other a guide which is engaged by said head, and a compression-spring seated between the said head and the outer end of said guide.

5. The combination with two motors, each of which is sleeved to one of the driving-axles, and having the lugs C and the rods or bolts D at their opposite ends, of the arm E centered upon one of said rods or bolts, and terminating in a head E', the arm F centered to the other rod or bolt and having the chambered head F' which seats the said head E' and the spring G seated in said head F', as described.

6. The combination with two railway-motors sleeved to different axles of a spring connection between the same acting in a horizontal direction to draw said motors toward each other.

644,200. **MOTOR SUSPENSION.** ALFRED J. GAIRING, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 23, 1899. Serial No. 728,074. (No model.)



Claim.—1. The combination with two motors, each of which is sleeved to a vehicle-axle, of a suspension-frame therefor consisting of a pair of bars whose end portions engage seats on the motor-frames or casings at points between the said axles, and cushioned connections between the free or nose portions of the motors and the said bars.

2. The combination with two motors, each of which is sleeved to a vehicle-axle, of a suspension-frame therefor consisting of a pair of rigid bars whose end portions engage seats on the motor-frame at points in the vertical lines of their centers of gravity, and cushioned connections between the free or nose portions of the motors and the said bars.

3. The combination with two motors, each of which is sleeved to a vehicle-axle, of the side bars whose end portions loosely engage seats or pockets on the motor frames or casings at points between the said axles, and cushioned connections between the free or nose portions of the motors and the said bars.

4. The combination with two motors, each of which is sleeved to a vehicle-axle, of the side bars whose end portions loosely engage seats or pockets on the motor-frame at points below and in the line of the centers of gravity of the motors, and spring-cushions interposed between the free or nose portions of the motors and the said bars.

5. The combination with two motors, each of which is sleeved to a vehicle-axle, of the side bars whose end portions loosely engage seats or pockets depending from the motor-frames at points between the vehicle-axles, of the cross-bars connected to the nose portions of the said frames and spring-cushions interposed between the cross-bars and the side bars.

6. The combination with two motors, each of which is sleeved to a vehicle-axle, of the side bars engaging depending seats on the motor-casings, the cross-bars connected to the nose portions of the said casings, and two sets of oppositely-acting springs interposed between the said side and cross bars.

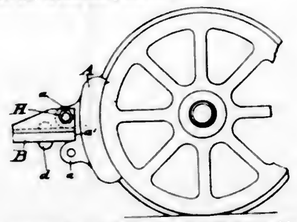
7. The combination with two motors, each of which is sleeved to a vehicle-axle, of the side bars engaging seats or pockets on the motor-casings, of cross-bars connected to the nose portions of said casings and extending underneath the said side bars rods or bolts secured in the end portions of the said cross-bars and carrying spring-caps above the side bars, spring-seats on the side bars, a set of springs interposed between the said seats and the spring-caps, and a second set of springs interposed between the said seats and the ends of the cross-bars.

8. The combination with two motors, each of which is sleeved to a vehicle-axle, of side bars whose end portions engage pockets or seats on the motor frames or casings, spring-seats carried by said side bars, cross-bars secured to the nose ends of the motors, spring-caps carried by the said cross-bars above the said spring-seats, springs interposed between the said seats and caps and springs interposed between the said seats and the ends of the cross-bars.

9. The combination with two motors, each of which is sleeved to a vehicle-axle, of side bars whose end portions engage the motors at points adjacent to their centers of gravity, cross-bars secured to the nose or free ends of the motors, and spring-cushions forming a connection between the side bars and the cross-bars.

644,201. **CAR-BRAKE.** HENRY S. GOUSHOUR, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 24, 1899. Serial No. 728,382. (No model.)

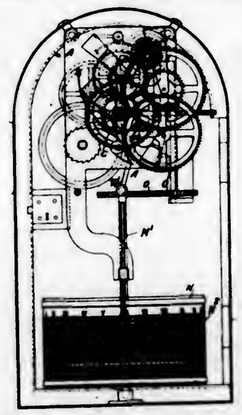
Claim.—1. The combination of a brake-beam, a shoe-attaching device rigidly secured to the end portion of said beam upon its upper side and projecting entirely above the beam, said device consisting of a bottom portion and parallel vertical side flanges, and a reversible brake-shoe having a pair of lugs or projections on its rear face, one of which seats and is secured between said side flanges, and the other of which engages the under side of the said beam, together with a bolt passing through said side flanges and the upper lug or projection and constituting the sole fastening between said shoe and attaching device, substantially as described.



2. The combination of a brake-beam, a shoe-attaching device C rigidly secured to the upper side of its end portion and projecting entirely above the beam, and having perforated side flanges, and a brake-shoe having a lug which fits between said flanges and has a perforation in alinement with the perforations in the flanges, the rear face of said shoe below said lug having a direct abutment against the adjacent edge of the beam, together with a bolt passing through the said aligned perforations and constituting the sole fastening between said shoe and attaching device, substantially as described.

3. In brake mechanism, the combination of the brake-beam, the attachment device C rigidly secured to and projecting entirely above the upper side thereof, and the reversible brake-shoe having a lug secured in the device C, a second lug engaging the under side of the beam, and a bearing-wall intermediate the two lugs abutting directly against the inner edge of the said beam, together with a bolt passing through the upper lug and the side portions of the device C and constituting the sole fastening between the shoe and the said device, substantially as described.

644,202. **SPEED INDICATOR AND RECORDER.** GEORGE R. HISLOP, Paisley, Scotland. Filed Aug. 19, 1898. Serial No. 689,045. (No model.)



Claim.—1. The combination in a speed-indicating mechanism for vehicles, with a clock having a graduated dial, and hands, one hand being a seconds-hand moving around the dial in one minute, of a face concentric with the clock-dial graduated to indicate miles per hour, a hand movable thereover, a shaft G carrying said hand, gear H', H^3, adapted to act in the same direction on shaft G, wheel H gearing with both wheels H', H^3, and shaft I carrying wheel H the shaft being driven by a wheel of the vehicle always in the same direction whichever direction the vehicle moves, the parts being proportioned to move hand F to the number indicating the speed of the vehicle in the time in which the seconds-hand makes one revolution.

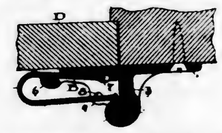
2. The combination in a speed-indicating mechanism for vehicles, with a clock having a graduated dial, and hands, one hand being a seconds-hand moving around the dial in one minute, of a face concentric with the clock-dial graduated to indicate miles per hour, a hand movable thereover, a shaft G carrying said hand, gear H', H^3, adapted to act in the same direction on shaft G, wheel H gearing with both wheels H', H^3, and shaft I carrying wheel H the shaft being driven by a wheel of the vehicle always in the same direction whichever direction the vehicle moves, the parts being proportioned to move hand F to the number indicating the speed of the vehicle in the time in which the seconds-hand makes one revolution, and a recorder having a body N driven by said clock one revolution in twenty-four hours, a diagram-card graduated in two directions the graduations in one direction indicating the twenty-four hours of the day and those in the other direction indicating miles per hour, a shaft I' including crank Q driven by the clock one revolution per hour, an arm moved by the crank, and a pencil moved thereby on the recorder-surface, as set forth.

3. In apparatus for indicating speed of vehicles the combination of a clock having suitable hour, minute and seconds hands, a speed-dial graduated to indicate speed in miles per hour or other given time, an indicating-hand for said dial, means driving said indicating-hand, consisting of shaft G, wheels H, H', oppositely and separately operative on shaft G, shaft I, oppositely-acting wheels J, J' for shaft I, opposite pawls K, K' operated by the vehicle-wheel and oppositely and separately operative on their wheels J, J'.

4. In apparatus for indicating speed of vehicles the combination of a clock having suitable hour, minute and seconds hands, a speed-dial graduated to indicate speed in miles per hour or other given time, an indicating-hand for said dial, a shaft therefor passing through the arbors of the clock-hands, means operated by movement of a wheel of the vehicle driving said indicating-hand, said means moving the indicating-hand in one minute or other small period of time over as many divisions of the speed-dial as the vehicle is moving miles per hour, whereby by watching the indicating-hand for a minute the speed per hour can be determined.

5. In apparatus for indicating speed of vehicles the combination of a clock having suitable hour, minute and seconds hands, a speed-dial graduated to indicate speed in miles per hour or other given time, an indicating-hand for said dial, means operated by movement of a wheel of the vehicle driving said indicating-hand, a graduated recording surface moved by the clock one space per hour, a recording-pencil, a spindle I' driven by the clock one revolution per hour, and a crank Q thereon and operating said pencil.

644,203. **SPRING-HINGE.** EDWARD C. HOFFMAN, Cleveland, Ohio. Filed Sept. 15, 1899. Serial No. 730,573. (No model.)



Claim.—1. A hinge comprising two sections, one of said sections provided with a spring member, a bearing member on the other section, an axis about which one of said members travels on the other, said bearing member having an unbroken periphery and eccentrically mounted on the axis, said axis nearer to a certain point of the periphery than to any other point thereof and the bearing member gradually increasing in depth from said point nearest the axis for a certain distance, and said spring member in initial contact with said bearing member at or near said point nearest the axis, whereby an initial rolling contact is maintained between the spring member and bearing member, substantially as described.

2. In hinges consisting of two sections, one of said sections provided with a pintle, a cam-knuckle having a continuous unbroken surface and mounted on said pintle, the other section provided with a flat spring member, one end of which is rigidly secured to the section and the other end free, the free end adapted to bear at all times against the knuckle, said cam-knuckle gradually increasing in radial depth from the point of beginning of travel of the members to the highest point of the knuckle and of constant depth from that point to the other end of the knuckle, whereby as said knuckle is turned upon said spring member the tension of the spring is steadily increased until the highest point of the knuckle is passed whereupon the returning power of the spring will be overcome, and the swinging section adapted to be held open at any point from said highest point to the wall, substantially as described.

3. In a separable spring-hinge comprising a door-section and a door-casing section, one of said sections provided with a spring having one of its ends secured thereto and its other end free and adapted to be held in direct contact with the opposite section, in combination with a confining member to hold the free end of the spring out of contact with the opposite section, substantially as described.

4. In a separable hinge comprising a cam-carrying section and a spring-carrying section, the spring composed of a flat metal spring bent back upon itself, one of its ends rigidly secured to its section and its other end free and adapted to bear against the cam of the

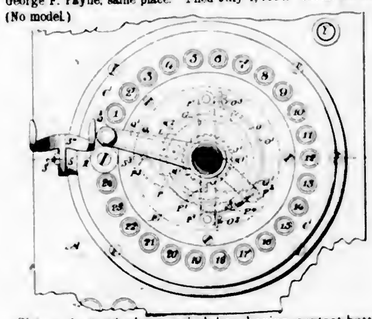
other section, and means for confining the free end of the spring when the cam-section is removed, substantially as described.

5. In spring-hinges, a hinge-section and a flat spring fixed thereon at one end and having its other end free to make frictional engagement with the opposite section, a removable pin for confining the spring when the hinge is separated, a support for said pin, substantially as described.

6. In hinges, a fixed section and a movable section, a flat removable spring mounted on one of said sections, a bridge and a projecting member intermediate said spring and section to hold the spring against longitudinal movement, said spring held under said bridge and in engagement with said projecting member, and bent back upon itself over the bridge, a bearing member on said other section with which the free end of said spring contacts, substantially as described.

7. In spring-hinges, a removable spring, a bridge and a lug for engaging said spring, said spring bent back over itself, and a confining member for engaging the free end of the spring substantially as described.

644,204. SWITCH-BOX FOR INTERCOMMUNICATING TELEPHONE SYSTEMS. ALBERT K. KELLER, Philadelphia, Pa., assignor to George F. Payne, same place. Filed July 1, 1897. Serial No. 643,083. (No model.)



Claim.—1. A telephone switch-box having contact-buttons arranged in a circle, in combination with a centrally-pivoted lever-switch adapted to make contact with each such button as it is turned, a catch adapted to hold the lever in contact with each button, a constantly-acting spring tending to return the lever to normal zero position and a catch-releasing device arranged, when operated, to release the lever and permit the spring to return it to normal position, together with a calling push-button mounted upon a spindle, said spindle being carried upon and concentric with the axis of the lever-switch, and cooperating contacts for the push-button, substantially as described.

2. A telephone switch-box having contact-buttons arranged in a circle, in combination with a centrally-pivoted lever-switch adapted to make contact with each such button as it is turned, a reciprocating calling push-button carried upon a spindle arranged upon and concentric with the axis of the lever-switch, a catch adapted to hold the lever in contact with each button, a constantly-acting spring tending to return the lever to normal zero position, and a brake arranged to moderate the rotative motion due to the spring, substantially as described.

3. A telephone switch-box having a dial or face carrying a series of contact-buttons arranged in a circle, a lever-switch adapted to be swept over the buttons to make contact with any desired one of them, a hollow spindle upon which the switch is carried to rotate, and a push-button, with a spindle or rod therefor passing through the hollow spindle, and cooperating contacts for the push-button within the box, substantially as described.

4. In a telephone switch-box the rim B having a non-conducting annulus as C secured to it in combination with a series of contacts arranged in a circle in said annulus, a plate as E detachably connected to form the front of the box, a rotating spindle secured to plate E and extending through said plate, a switch-lever Q attached to the outer end of said spindle and adapted to make contact with the circularly-arranged contacts aforesaid, mechanism for engaging and disengaging the spindle and retracting-spring secured to plate E, said mechanism and spindle being removable from the box with plate E, mechanism for operating the engaging and disengaging mechanism attached to plate E secured to the walls of the box and arranged to come into operative relation when the plate is secured in place and electrical connections also arranged to connect parts secured to the plate to parts secured to the box when the plate is secured in place, all substantially as specified and so as to permit the ready removal and replacement of the plate and attached parts from and in the box.

5. In a telephone switch-box the rim B in combination with a non-conducting annulus C secured to its outer edge and having a series of contact-buttons secured in it, a plate E detachably connected to the inner edge of the annulus C, a rotating spindle secured to plate E and extending through said plate, a switch-lever Q attached to the outer end of said spindle and adapted to make contact with the circularly-arranged contacts aforesaid, mechanism for engaging and disengaging the spindle and a retracting-spring secured to plate E, said mechanism and spindle being removable from the box with plate E, mechanism for operating the engaging and disengaging mechanism attached to plate E secured to the walls of the box and arranged to come into operative relation when the plate is secured in place and electrical connections also arranged to connect parts secured to the plate to parts secured to the box when the plate is secured in place, all substantially as specified and so as to permit the ready removal and replacement of the plate and attached parts from and in the box.

6. In a telephone switch-box the rim B having a non-conducting annulus as C secured to it in combination with a series of contacts arranged in a circle in said annulus, a plate as E detachably connected to form the front of the box, a tubular rotatable spindle supported on plate E, a lever-switch Q secured to the outer end of the spindle and adapted to make contact with the buttons, a push-button rod K extending through the hollow spindle and supported by it, mechanism for engaging and disengaging the spindle to prevent or permit its rotation and a spring arranged to return the switch-lever to normal position when the spindle is disengaged also supported on plate E, and coacting mechanism and connections secured to the box and arranged to come into operative relation to parts supported on plate E when said plate is secured in place.

7. A wall-board as A' in combination with a base-board A hinged to it at one edge said boards being formed as described to inclose a wire space A^3, and a telephone call-box secured to the front of base-board A and having its line-wires extending through said board and into the cavity inclosed by boards A and A'.

8. In a telephone switch-box a circular series of contacts forming terminals for line-wires, a centrally-pivoted rotating lever-switch adapted to make contact with the contacts as it is turned, a calling push-button and a spindle therefor carried on and concentric with the axis of the rotating switch, and cooperating contacts for the push-button, substantially as described.

644,205. TELEPHONE-TRANSMITTER. ALBERT K. KELLER, Philadelphia, Pa. Filed Aug. 20, 1898. Serial No. 689,117. (No model.)



Claim.—1. In a telephone-transmitter a containing-shell divided into two parts accurately centered so that when fitted together their axes are coincident, a central chamber formed in the body of the rear part, an electrode seated in said chamber, a diaphragm carried upon the face of the front part, a locking-ring over the diaphragm clamping it around its edges to said front part, and a plunger-electrode carried on the diaphragm and centered thereby, substantially as described.

2. In a telephone-transmitter a plunger-electrode comprising a spindle or stem, a cup-head thereon, a carbon button seated rigidly in said cup, a pliable disk washer of greater diameter than the cup, two stiff disks, one on either side thereof, and a clamping-nut on the stem holding the three disks firmly against the head, substantially as described.

3. In a telephone-transmitter a metallic shell divided into two parts, accurately centered so that when fitted together their axes are coincident, a cylindrical chamber centrally formed directly in and having its walls integral with the body of the rear part of the shell, said chamber being coated inside with insulating material, an electrode fixed rigidly within said chamber, a diaphragm carried by and rigidly clamped around its edges to the front part of the shell, a second electrode centrally mounted on the diaphragm, of a diameter somewhat less than that of the chamber, a pliable washer extending around the periphery of said second electrode, granular carbon within the chamber, and suitable circuit connections, the whole being so arranged that when the parts of the shell are placed together the second electrode will enter the chamber and make contact with the granular carbon, and when the parts of the shell are separated the front electrode is removed with the diaphragm, substantially as described.

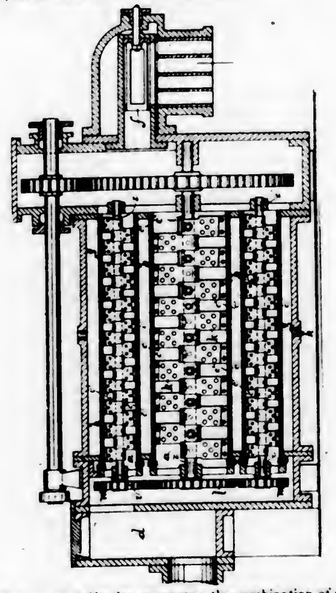
644,206. TELEPHONE-RECEIVER. ALBERT K. KELLER, Philadelphia, Pa. Filed Aug. 20, 1898. Serial No. 689,118. (No model.)



Claim.—1. In a telephone-receiver the combination of the following instrumentalities: a shell, a diaphragm, and a cap; a non-magnetic metal block supported within the shell near the diaphragm, and cut away upon opposite sides; a compound horseshoe-magnet composed of two closely-fitted members, one having its poles extended beyond the other, the extremities of both lying within the recesses formed by cutting away the block; soft-iron pole-pieces also lying within said recesses between the longer member of the magnet and the block and fitting snugly against the shorter member of the magnet, the outer ends of said pole-pieces approaching the diaphragm and carrying coils; and a single through-bolt securing the members of the magnet and the pole-pieces to each other and to the block in a single structure, substantially as described.

2. In a telephone-receiver a metal cup carrying the diaphragm over its mouth and having its neck internally screw-threaded, as at a, a recessed cylindrical block having an enlarged head or annulus threaded to fit the cup, a compound horseshoe-magnet having long outer members and short inner members with the extremities of both lying in the recesses in the block, iron pole-pieces partly lying within the recesses, fitting snugly within the longer magnet members and in contact with the shorter members, and thence extending into the cup, coils upon said pole-pieces within the cup, a single bolt passing through the block, the longer magnet-poles, and the pole-pieces to fasten them together, a set-screw tapped into the annulus of the block with its head lying within the cup, and a shell covering the magnets and screw-threaded exteriorly at one end to fit the screw-threads in the neck of the cup, substantially as described.

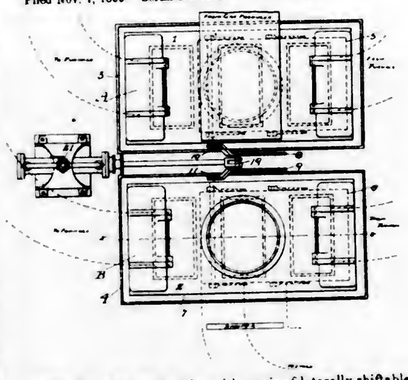
644,207. APPARATUS FOR REMOVING WATER FROM PULP-LIKE MATERIALS. HEINRICH KERRINNES, Tilsit, Germany. Filed Apr. 1, 1899. Serial No. 711,362. (No model.)



Claim.—1. In a filtering apparatus, the combination of a perforated filter-tube having a layer of filtering medium on its inner side, with a rotating shaft within said tube, and curved perforated scraping-blades mounted on said shaft and adapted upon its rotation to scrape the filtering medium and stir the material to be filtered, displacing inward the material from which the water has been removed.

2. A filtering apparatus comprising a plurality of perforated tubes *a* lined with filtering medium, a casing inclosing said tubes, a chamber communicating with the interior of said tubes, rotary shafts within said tubes, scrapers mounted on said shafts, and means for simultaneously rotating said shafts.

644,208. VALVE MECHANISM. DAVID D. LEWIS, Lorain, Ohio. Filed Nov. 7, 1899. Serial No. 736,165. (No model.)

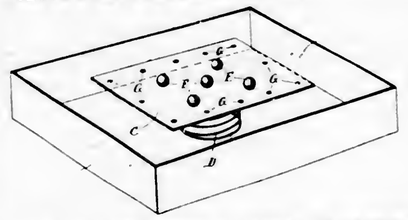


Claim.—1. The combination with a pair of laterally-shiftable reversing-valves arranged side by side, of oscillating shifting levers operatively connected one to each valve and arranged side by side in the space between them, a power-cylinder, a piston in said cylinder connected to both the said levers, and means for controlling the operation of said cylinder.

2. The combination with two valve-casings arranged side by side, and having each three ports opening therein, and a laterally-shiftable hood-valve in each casing arranged to cover two of said ports in each of its seated positions, of operating-levers connected to the said valves, arranged side by side in the space between the valves, a power-cylinder, and a piston in said cylinder operatively connected to both of the said levers, substantially as described.

3. The combination with the laterally-shiftable air and gas reversing-valves located side by side, of operating-levers for said valves arranged in the space between the same, an oscillating power-cylinder supported in line with the said space, a piston therein, having its rod connected to both the said levers, a pressure-supply pipe communicating with both ends of said cylinder, and a valve in said pipe for controlling the admission of pressure to the cylinder.

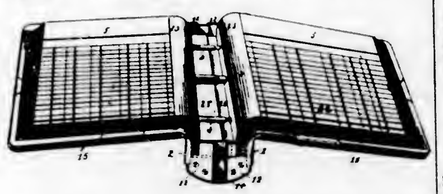
644,209. GAME. EDWARD T. B. MURPHY, East Haven, Conn. Filed Oct. 2, 1899. Serial No. 732,294. (No model.)



Claim.—1. A game consisting of a rectangular box having an open top, a spring secured to the bottom of the box, a table supported in a horizontal position on the upper end of the spring, said table having depressions for the reception of balls and apertures by which figures are held against accidental displacement, substantially as described.

2. As a new article of manufacture, a game consisting of a rectangular box having an open top, a spring secured within the box, a table mounted upon the spring, a series of balls adapted to be placed in depressions formed upon the table, and a series of images also adapted to be secured upon the table, as specified.

644,210. LOOSE-LEAF LEDGER. ELIAS L. MCCLURE, San Francisco, Cal. Filed Aug. 23, 1898. Serial No. 689,341. (No model.)



Claim.—1. In a loose-leaf ledger, the main clamping-bars 1, 2, rounded bars 13, end plates 12 connecting said bars 13 with bars 1 and 2, bars 20, a connection between bars 20 and bars 13 whereby they move simultaneously, and a flexible back-covering attached to bars 20 and sliding over bars 13 as the latter expand or contract, substantially as specified.

2. In a loose-leaf ledger, the main bars 1 and 2 provided with telescopic register-pins in the middle and at each side, the back-bars 13 and a flexible back-cover to slide upon the same and in combination therewith the equalizing-levers 16 to maintain uniform tension of the back-cover, operating substantially as described.

3. In a loose-leaf ledger, in combination, main clamping-bars 1, 2, provided with telescoping register-pins 4 and screw-binding telescoping pin 3, of larger diameter than pins 4, loose leaves 5, provided with perforations 3' 4' to fit the said telescoping pins, slitted as at 15' to admit of insertion and removal, rounded bars 13, bars 20, equalizing-bars 16, and flexible back-covering 14, substantially as specified.

4. In a loose-leaf ledger, movable clamping-bars 1, 2, rounded bars 13, end plates 12 connecting said bars, telescoping register-pins 4, telescoping screw-binding pin 3, bars 20, equalizing-levers 16, guard-plates 25, and flexible back-covering 14, substantially as specified.

5. In a loose-leaf ledger, the main clamping-bars 1 and 2, means to expand and close the same, and means to hold them parallel when moved, and in combination therewith the bars 13, the loose back-cover 14 and the levers 16 attached to and maintaining tension of the loose back-cover, substantially in the manner described.

6. In a loose-leaf ledger, the main bars 1 and 2, means to expand and close the same, the back-bars 13 connected to and moving therewith, the telescopic register-pins 3 and 4, connecting and guiding the main clamp-bars and the telescopic dowel-pins 18, connecting and guiding the back-bars 13, combined and operating, substantially as specified.

7. In a loose-leaf ledger, the main clamping-bars 1, 2, means to expand and contract the same, equalizing-levers for preserving parallelism, and overlapping guard-plates 25, attached to and moving with said bars 1 and 2, located in front of said expanding and equalizing mechanism, whereby the latter is concealed from view, substantially as specified.

8. In a loose-leaf ledger, the combination with the back-bars of means for moving said bars toward and from each other, a loose back-cover for said bars, and of a take-up connection interposed between the free ends of said cover, actuated automatically upon the movement of said bars, whereby the slack may be compensated for as the back is contracted, and the cover give outward as the book is expanded.

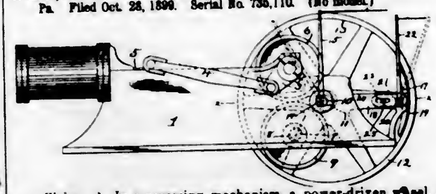
9. In a loose-leaf ledger, the combination with the back-bars of screw-actuated lock mechanism by means of which the bars are adjusted toward or from each other so as to contract or expand the book, a cover for the bars, and a take-up connection interposed between the free ends of said cover, actuated upon the movement of said bars so as to shorten or lengthen the said cover upon a contraction or expansion of the book.

10. In a loose-leaf ledger, the main clamping-bars 1, 2, rounded bars 13, bars 20, a connection between the bars 20 and 13, whereby they move simultaneously, and a flexible back-covering attached to the bars 20 and sliding over the bars 13 as the latter expand and contract, substantially as specified.

11. In a loose-leaf ledger, the combination with the back and loose cover therefor, of an automatic take-up connected with the free ends of the cover, whereby the cover may be adjusted to the adjustment of the back, and of a screw-actuated lock mechanism by means of which the back is contracted or expanded.

12. In a book of the character described, the combination with clamping-bars, of means for varying their relative positions, an expansible cover, means for preserving the parallelism of the clamping-bars, and overlapping guard-plates moving with the clamping-bars and located in front of the expansible cover.

644,211. REVERSING MECHANISM. JAMES W. MCKEE, Butler, Pa. Filed Oct. 28, 1899. Serial No. 735,110. (No model.)



Claim.—1. In a reversing mechanism, a power-driven wheel, a loosely-mounted reversing-wheel contacting therewith and a band-wheel having an inner bearing-face extending over said driving and reversing wheels and so mounted as to be drawn into contact with one or the other wheel, substantially as set forth.

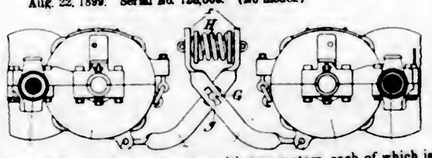
2. In a reversing mechanism, the combination of a power-driven wheel, a loosely-mounted reversing-wheel contacting therewith and a band-wheel mounted on a crank-shaft and having an inner bearing-face extending over the driving and reversing wheels and adapted to be drawn into contact with one or the other, substantially as set forth.

3. In a reversing mechanism, the combination of a bed or frame, a power-driven wheel mounted therein, an adjustable bearing supported in the frame, a loosely-mounted reversing-wheel carried by said frame and contacting with the driving-wheel, and a band-wheel having an inner bearing-face extending over the driving and reversing wheels and adapted to be drawn into contact with one or the other, substantially as set forth.

4. In a reversing mechanism, the combination of a bed or frame, a power-driven wheel mounted therein, an adjustable bearing formed of an eccentric-shaft mounted in said frame, a reversing-wheel loosely mounted on such adjustable bearing and a band-wheel having an inner bearing-face extending over the driving and reversing wheels and adapted to be drawn into contact with one or the other, substantially as set forth.

5. In a reversing mechanism, the combination of a bed or frame, a power-driven wheel mounted therein, a loosely-mounted reversing-wheel contacting with the power-driven wheel and a band-wheel having an inner bearing-face extending over said wheels and adapted to be drawn into contact with one or the other, and a brake mounted on the frame and adapted to contact with the inner bearing-face of the band-wheel.

644,212. MOTOR SUSPENSION. EDWIN G. HICKWANER, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 22, 1899. Serial No. 728,069. (No model.)



Claim.—1. The combination with two motors, each of which is sleeved to a vehicle-axle, of oblique interpivoted levers connecting the said motors, and a spring connecting arms of the said levers and acting in a direction to maintain their separation.

2. The combination with two motors, each of which is sleeved to a vehicle-axle, of intercrossed levers connected to the motors and to each other, and spring means for maintaining the separation of the arms of the said levers under the weight of the motors.

3. The combination with two motors, each of which is sleeved to a vehicle-axle, of levers pivoted to each motor, and intercrossing each other, a loose connection between said levers at their intercrossed portions, and a cushion-spring common to both levers.

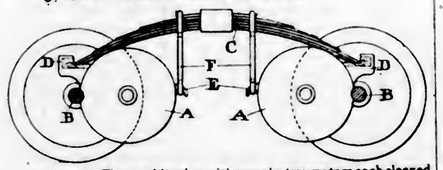
4. The combination with two motors, each of which is sleeved to a vehicle-axle, of a pair of oblique intercrossed and interpivoted levers connecting the free ends of the motors, and a spring acting horizontally upon arms of said levers to maintain their separation under the weight of the motors.

5. The combination with a pair of sleeved motors, of levers pivoted to the motors at points on the opposite side of their centers from the sleeves and intercrossing each other intermediate the motors, a loose connection between the intercrossing portions of said motors, and a spring interposed between said levers above said connections.

6. The herein-described motor suspension comprising a pair of interpivoted levers each having one arm loosely connected to one of the motors, and a spring interposed between the opposite arms of said levers.

7. The herein-described motor suspension comprising in combination with a pair of sleeved motors, levers pivoted to the motors at one end portion and having upwardly-extending intercrossed portions formed with slots, a pin engaging the said slots, and a helical spring between said levers above the said pin.

644,218. MOTOR SUSPENSION. EDWIN G. HICKWANER, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 22, 1899. Serial No. 728,070. (No model.)



Claim.—1. The combination with two electric motors each sleeved to an opposite axle of a truck, of an elastic connecting member rested at its ends upon the motor frames or casings, and connections between said member and the nose ends of both the motors.

2. The combination with two electric motors each sleeved to an opposite axle of a truck, of a spring rested at its ends upon the motor frames or casings, and ties connecting the spring with the nose ends of the motors.

3. The combination with two electric motors, each sleeved to an opposite axle of a truck, of a semi-elliptic spring rested at its ends upon the tops of the motor frames or casings and loops engaging the said springs and lugs or projections at the nose ends of the said frames or casings.

4. The combination with two electric motors each sleeved to an opposite axle of a truck, having lugs at their nose ends, and also projections overhanging the truck-axles, of a spring resting at its ends upon the tops of the motors and engaging the said projections, and ties connecting the nose-lugs with the said spring.

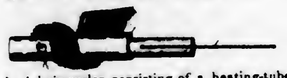
5. The combination with two electric motors each sleeved to an opposite axle of a truck, of a pair of springs resting at their ends upon the said motors and engaging lugs or projections thereof, and ties connecting the nose end of each motor with both of the said springs.

6. The combination with two electric motors each sleeved to an opposite axle of a car-truck, of a spring whose ends bear upon the tops of the motor frames or casings at one side of the centers of gravity of the motors, and connections between the said springs and the motors at the opposite sides of their centers of gravity.

7. The combination with two electric motors each sleeved to an opposite axle of a car-truck, of a spring whose end portions are supported by the motors, and connections between the said spring and the nose end of both motors.

8. The combination with two electric motors each sleeved to an opposite axle of a car-truck, and having their frames provided with lugs at their nose ends, and also with socketed projections overhanging the truck-axles, of a spring whose end portions engage the sockets of said projections, and tie-loops engaging the said springs and also the nose-lugs of the motors.

644,214. HAIR-CRIMPER. HENRY J. RUMRILLE, Camden, N. J. Filed Oct. 2, 1899. Serial No. 732,265. (No model.)



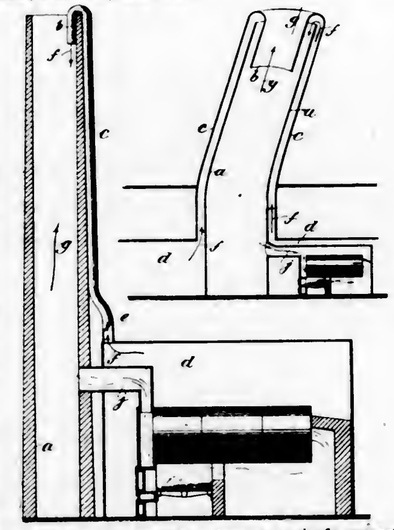
Claim.—1. A hair-curler consisting of a heating-tube, a longitudinally-extending tongue rigidly held at one end thereon, a plug of heat-non-conducting material partly occupying said tube and partly projecting outside of the same, and a swinging loop having its journals mounted on the outside portion of said plug.

2. In a hair-curler, a tube, a plug therein, a tongue on the exterior of said tube, and a loop journaled on said plug, said tongue being provided with a limb which is inserted between said tube and plug.

3. A tube, a longitudinally-extending tongue thereon, a handle-plug of heat-non-conducting material partly entering said tube, a loop mounted on said plug adapted to be swung over said tube, and a primary clamping device on said tube, said device having a limb which is inserted between said tube and plug.

644,215. APPARATUS FOR PRODUCING COMBUSTION. PAUL J. SCHLICHT, Summit, N. J. Filed Mar. 9, 1896. Serial No. 582,406. (No model.)

Claim.—1. The combination with a chimney or stack of a compartment adapted to hold heated air in the interior of a building, vessel or other structure, means arranged on the chimney outside of the said compartment for causing a current of air to move downward within said chimney or stack in contact with the products of combustion, and an air duct or passage leading from said compartment to said means and adapted to conduct the air from said compartment to said means, substantially as set forth.



2. The combination with a chimney or stack of a compartment adapted to hold heated air, a deflector arranged on the chimney outside the compartment for causing a current of air to move downward within said chimney or stack in contact with the products of combustion, and an air duct or passage leading from said compartment to said deflector, said air-duct being protected from the low temperature of the external atmosphere and being adapted to conduct the warm air from said compartment to said deflector, substantially as set forth.

3. The combination with a chimney or stack of a compartment adapted to hold heated air, a deflector arranged on the chimney outside the compartment for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading from said compartment to said deflector and adapted to receive heat from the combustion products within the chimney or stack and to deliver heated air to said deflector, substantially as set forth.

4. The combination with a chimney or stack of two or more compartments adapted to hold heated air, a deflector arranged on the chimney outside the compartments for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and one or more air ducts or passages leading from said compartments to said deflector and adapted to conduct air from said compartments to said deflector, substantially as set forth.

5. The combination with a chimney or stack, of a boiler or furnace room, a deflector arranged on the chimney outside of the boiler or furnace room for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading from the boiler or furnace room to said deflector and adapted to conduct the heated air from the furnace or boiler room to the said deflector, substantially as set forth.

6. The combination with a chimney or stack, of a deflector for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage inside of the chimney or stack adapted to deliver heated air to the deflector, substantially as set forth.

7. The combination with a chimney or stack of a compartment adapted to hold heated air, a deflector arranged on the chimney outside the compartment for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage on the side

of the chimney or stack leading from said compartment to said deflector and adapted to receive heat from the combustion products within the chimney or stack and to deliver heated air to said deflector, substantially as set forth.

8. The combination with a chimney or stack, of a deflector for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading to said deflector and adapted to deliver air thereto, and a distributing-chamber for distributing the air around the sides of the chimney or stack, substantially as set forth.

9. The combination with a chimney or stack, of a deflector for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading to said deflector and adapted to deliver air thereto, and a distributing-chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack, substantially as set forth.

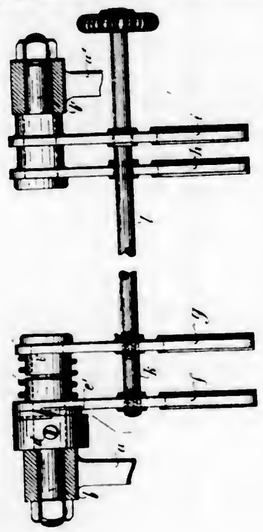
10. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, substantially as set forth.

11. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, substantially as set forth.

12. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, and an air-pipe connected with said chamber, substantially as set forth.

12. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack, and a stack-restricter below said box or chamber adapted to be secured to the top of the chimney or stack, substantially as set forth.

644,216. DEVICE FOR DRIVING BUNCHES TOWARD TIP-SHAPERS IN CIGAR-ROLLING MACHINES. CLARENCE B. SCHULTZ, Charlottenburg, Germany. Filed Dec. 14, 1896. Serial No. 615,590. (No model.)



Claim.—1. In a cigar-making machine, a tip-shaper, and opening and closing and swinging shaping and wrapping jaws movable longitudinally toward and away from the same.

2. In a cigar-making machine, a tip-shaper, opening and closing jaws mounted upon a swinging rod, and means for moving said rod longitudinally to move the jaws toward and away from the tip-shaper.

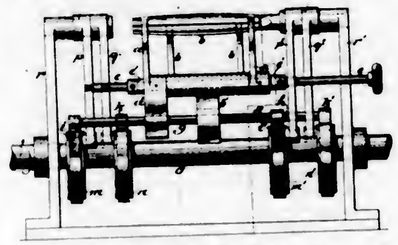
3. In a cigar-making machine, a tip-shaper, opening and closing and swinging shaping or wrapping jaws, movable longitudinally toward and away from the same, and means for adjusting the longitudinal movement of said jaws.

4. In a cigar-making machine, a tip-shaper, swinging levers, a rod mounted upon said levers, said rod being rigidly connected with one of said levers and slidingly connected with the other, opening and closing wrapping and shaping jaws mounted upon said rod, means for opening and closing said jaws, means for swinging said levers, and means for moving laterally the lever to which said rod is rigidly connected.

5. In a cigar-making machine, a tip-shaper, opening and closing jaws carried by a swinging rod, levers upon which said rod is mounted, one of said levers being provided with an inclined or cam face, a sleeve provided with a coacting inclined or cam face, and a spring for holding said lever under tension against said sleeve.

6. In a cigar-making machine, a tip-shaper, opening and closing jaws carried by a swinging rod, levers upon which said rod is mounted, one of said levers being provided with an inclined or cam face, a sleeve provided with a coacting inclined or cam face, and a spring for holding said lever under tension against said sleeve, said sleeve being adjustable to vary the lateral movement of said lever.

644,217. WRAPPING-SHAPER FOR CIGAR-ROLLING MACHINES. CLARENCE B. SCHULTZ, Charlottenburg, Germany. Filed May 20, 1898. Serial No. 681,194. (No model.)



Claim.—1. In a cigar-rolling machine, pivoted levers, pairs of wrapping-shapers pivoted upon said levers and capable of opening and closing, the pivots of said levers being coincident with the axis of closure of said members, and rotatable eccentrics having sheaves and rods, said levers being pivoted to said rods and said rods engaging said shapers to open and close the same.

2. In a cigar-rolling machine, pivoted levers, pairs of opening and closing longitudinal wrapping-shapers pivoted upon said levers and provided with shaping-jaws, and vibratory members pivoted to said levers to cause them to vibrate simultaneously in opposite directions, said vibratory members being connected with the shapers to open and close the same, the shaping jaws of each pair being situated opposite each other, the shaping-jaws of different pairs being alternately arranged, and the width of the shaping-jaws being less than the distance between the two shaping-jaws between which they are situated, whereby the shaping-jaws of each pair grasp the bunch between and along the spaces between the sides of two other shaping-jaws.

3. In a cigar-rolling machine, pivoted levers, pairs of opening and closing longitudinal wrapping shapers pivoted upon said levers and provided with shaping-jaws, and vibratory members pivoted to said levers to cause them to vibrate simultaneously in opposite directions, said vibratory members engaging slotted end portions of said shapers to alternately open and close the same, the shaping-jaws of each pair being situated opposite each other, the shaping-jaws of different pairs being alternately arranged, and the width of the shaping-jaws being less than the distance between the two shaping-jaws between which they are situated, whereby the shaping-jaws of each pair grasp the bunch between and along the spaces between the sides of two other shaping-jaws.

4. In a cigar-rolling machine, pivoted levers, a pair of longitudinal wrapping-shapers fulcrumed upon each of said levers, the pivot of said levers being in alinement with the axis of closure of said shapers, there being slots in the ends of said shapers, a shaft, eccentrics upon said shaft, eccentric sheaves and rods, said eccentric-rods carrying rods situated within the slots of said shapers, and said levers being pivoted to said eccentric-rods.

5. In a cigar-rolling machine, a plurality of jaws, levers on which said jaws are pivotally supported, said jaws being situated diametrically opposite when closed, the fulcrum of each of said levers being substantially in alinement with the axis of the bunch, eccentric-rods to which the lower portions of said levers are pivotally attached, a driving-shaft, and eccentrics mounted on said driving-shaft, said eccentric-rods being prolonged and each carrying a rod extending transversely thereto, there being slots in the lower portion of said jaws, the walls of said slots being engaged by said transverse rods.

6. In a cigar-rolling machine, a plurality of wrapping-shapers arranged in pairs and extending substantially the entire length of the bunch, said shapers being juxtaposed to each other in substantially-parallel order, levers on which said shapers are pivotally supported, said shapers being situated diametrically opposite when closed, the fulcrum of each of said levers being substantially in alinement with the axis of the bunch, eccentric-rods to which the lower portions of said levers are pivotally attached, a driving-shaft, and eccentrics mounted on said driving-shaft, said eccentric-rods being prolonged and each carrying a rod extending transversely thereto, there being slots in the lower portion of said shapers, the walls of said slots being engaged by said transverse rods.

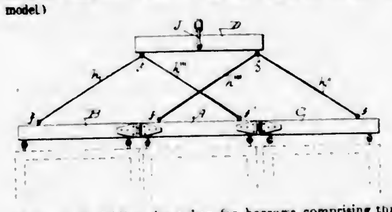
7. In a cigar-rolling machine, pairs of longitudinal wrapping-shapers, and means for alternately opening and closing and for rocking the same, the shapers of each pair being situated opposite each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers.

8. In a cigar-rolling machine, two pairs of longitudinal wrapping-shapers, and means for alternately opening and closing and for rocking the same, the shapers of each pair being situated opposite each other, the shapers of one pair alternating with the shapers of the other pair, the width of the shapers of one pair being less than the distance between the adjacent sides of the shapers of the other pair, whereby the shapers of one pair grasp the bunch between and along the spaces between the sides of the shapers of the other pair.

9. In a cigar-rolling machine, pairs of longitudinal wrapping-shapers, means for alternately opening and closing the same, and means for rocking the same about their axis of closure, the shapers of each pair being situated opposite to each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers.

10. In a cigar-rolling machine, pivoted levers, pairs of longitudinal wrapping-shapers pivoted upon said levers, the pivots of said levers being coincident with the axis of closure of said shapers, means for causing said levers to vibrate simultaneously in opposite directions, and means for alternately opening and closing said shapers, the shapers of each pair being situated opposite to each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers.

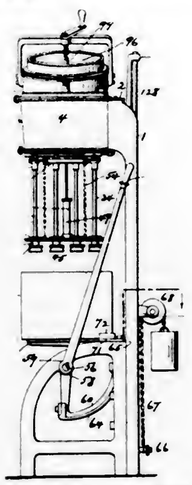
644,218. FOLDING DRAW-BAR FOR HARROWS. ROBERT D. TAYLOR, Strand, Iowa. Filed May 29, 1899. Serial No. 718,658. (No model.)



Claim.—1. A folding draw-bar for harrows comprising three straight bars hinged together to extend in a straight line and a fourth straight bar, corresponding in length with the other bars, flexibly connected with the three distinct hinged bars by means of four rods in the manner set forth for the purposes stated.

2. A jointed draw-bar for harrows comprising three straight bars A, B and C hinged together and a corresponding bar D flexibly connected with said three bars by four rods h, h', h'' and h''' and eye-bolts f fixed to the bars and arranged and combined as shown and described to operate in the manner set forth for the purposes stated.

644,219. BOTTLE-FILLING MACHINE. JAMES G. WARREN, Providence, R. I. Filed Mar. 4, 1898. Renewed Aug. 16, 1899. Serial No. 727,445. (No model.)



Claim.—1. In a bottle-filling machine, the combination of a tank having a given quantity of liquid therein, and a divider, vertically movable in said tank, through said liquid and having vertical partitions constituting a series of compartments of equal size, open at the bottom, which divider is adapted to rest by the lower edges of its sides and of said partitions upon the bottom of the tank, and to divide the entire quantity of said liquid into as many equal parts as there are compartments in said divider, substantially as specified.

2. In a bottle-filling machine, the combination of a tank adapted to contain a determined quantity of liquid and having its bottom provided with a plurality of discharge-ports arranged in equal spaces, respectively, and a divider which is vertically movable in said tank, and made with vertical partitions to form compartments of equal size and equal in number and corresponding in location with said discharge-ports, and which is adapted to rest upon the bottom of said tank and to divide the entire quantity of said liquid into as many equal parts as there are compartments in said divider, together with means for closing and opening said ports, all arranged and operating, to divide the whole of said liquid in the tank into so many equal portions, and to discharge into as many bottles or other receptacles, from said compartments, respectively, the liquid which has been so divided, substantially as described.

3. In a bottle-filling machine, the combination of a tank adapted to contain a quantity of liquid and having its bottom provided with a plurality of discharge-ports, arranged in equal spaces, respectively, a divider of a height exceeding the depth of said liquid and movable within said tank, and made with partitions of the same height to form compartments equal in number and corresponding in location with said discharge-ports and adapted to rest upon the bottom of said tank, and means within the tank for the purpose of lowering said divider through said liquid in the tank to divide the entire quantity thereof into equal parts as many in number as the number of said compartments and thereafter to raise the divider in the tank, substantially as shown.

4. In a bottle-filling machine, the combination of a reservoir to hold the liquid to be bottled, a tank having a bottom formed into a series of sockets or depressions separated from each other by intermediate ridges, ports in the lowest part of said sockets or depressions, respectively, a divider vertically movable in said tank, separated by partitions therein into compartments of equal size and adapted to rest by the bottom edges of its sides and of its partitions upon said ridges, respectively, means for opening and closing said ports and a pipe connection from said reservoir to said tank, with a suitable valve therein, substantially as set forth.

5. In a bottle-filling machine, the combination of a reservoir to hold the liquid to be bottled, a tank having a bottom formed into a series of sockets or depressions separated from each other by intermediate ridges, ports in the lowest part of said sockets or depressions, respectively, a divider within said tank, separated by partitions into compartments of equal size and adapted to rest by the bottom edges of its sides and of its partitions upon said ridges, respectively, means

of the chimney or stack leading from said compartment to said deflector and adapted to receive heat from the combustion products within the chimney or stack and to deliver heated air to said deflector, substantially as set forth.

8. The combination with a chimney or stack, of a deflector for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading to said deflector and adapted to deliver air thereto, and a distributing-chamber for distributing the air around the sides of the chimney or stack, substantially as set forth.

9. The combination with a chimney or stack, of a deflector for causing a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and an air duct or passage leading to said deflector and adapted to deliver air thereto, and a distributing-chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack, substantially as set forth.

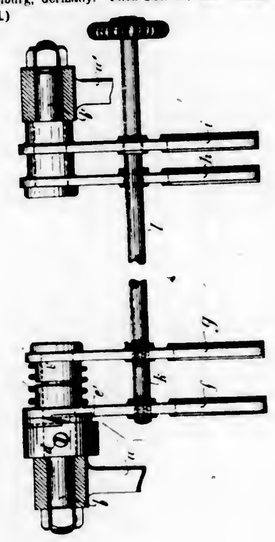
10. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, substantially as set forth.

11. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, substantially as set forth.

12. As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack adapted to be secured to the chimney or stack, and an air-pipe connected with said chamber, substantially as set forth.

12 As an article of manufacture, an attachment for a chimney or stack consisting of a deflector adapted to cause a current of air to move downward within said chimney or stack in contact with the products of combustion escaping therethrough, and a distributing box or chamber provided with a perforated bottom for distributing the air around the sides of the chimney or stack, and a stack-restricter below said box or chamber adapted to be secured to the top of the chimney or stack, substantially as set forth.

644,216. DEVICE FOR DRIVING BUNCHES TOWARD TIP-SHAPERS IN CIGAR-ROLLING MACHINES. CLARENCE B SCHULTZ, Charlottenburg, Germany. Filed Dec. 14, 1896. Serial No. 615,590. (No model.)



Claim.—1. In a cigar-making machine, a tip-shaper, and opening and closing and swinging shaping and wrapping jaws movable longitudinally toward and away from the same.

2. In a cigar-making machine, a tip-shaper, opening and closing jaws mounted upon a swinging rod, and means for moving said rod longitudinally to move the jaws toward and away from the tip-shaper.

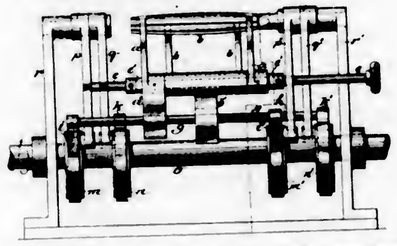
3. In a cigar-making machine, a tip-shaper, opening and closing and swinging shaping or wrapping jaws, movable longitudinally toward and away from the same, and means for adjusting the longitudinal movement of said jaws.

4. In a cigar-making machine, a tip-shaper, swinging levers, a rod mounted upon said levers, said rod being rigidly connected with one of said levers and slidingly connected with the other, opening and closing wrapping and shaping jaws mounted upon said rod, means for opening and closing said jaws, means for swinging said levers, and means for moving laterally the lever to which said rod is rigidly connected.

5. In a cigar-making machine, a tip-shaper, opening and closing jaws carried by a swinging rod, levers upon which said rod is mounted, one of said levers being provided with an inclined or cam face, a sleeve provided with a coacting inclined or cam face, and a spring for holding said lever under tension against said sleeve.

6. In a cigar-making machine, a tip-shaper, opening and closing jaws carried by a swinging rod, levers upon which said rod is mounted, one of said levers being provided with an inclined or cam face, a sleeve provided with a coacting inclined or cam face, and a spring for holding said lever under tension against said sleeve, said sleeve being adjustable to vary the lateral movement of said lever.

644,217. WRAPPING-SHAPER FOR CIGAR-ROLLING MACHINES. CLARENCE B. SCHULTZ, Charlottenburg, Germany. Filed May 20, 1898. Serial No. 681,194. (No model.)



Claim.—1. In a cigar-rolling machine, pivoted levers, pairs of wrapping-shapers pivoted upon said levers and capable of opening and closing, the pivots of said levers being coincident with the axis of closure of said members, and rotatable eccentrics having sheaves and rods, said levers being pivoted to said rods and said rods engaging said shapers to open and close the same.

2. In a cigar-rolling machine, pivoted levers, pairs of opening and closing longitudinal wrapping-shapers pivoted upon said levers and provided with shaping-jaws, and vibratory members pivoted to said levers to cause them to vibrate simultaneously in opposite directions, said vibratory members being connected with the shapers to open and close the same, the shaping jaws of each pair being situated opposite each other, the shaping-jaws of different pairs being alternately arranged, and the width of the shaping-jaws being less than the distance between the two shaping-jaws between which they are situated, whereby the shaping-jaws of each pair grasp the bunch between and along the spaces between the sides of two other shaping-jaws.

3. In a cigar-rolling machine, pivoted levers, pairs of opening and closing longitudinal wrapping shapers pivoted upon said levers and provided with shaping-jaws, and vibratory members pivoted to said levers to cause them to vibrate simultaneously in opposite directions, said vibratory members engaging slotted end portions of said shapers to alternately open and close the same, the shaping-jaws of each pair being situated opposite each other, the shaping-jaws of different pairs being alternately arranged, and the width of the shaping-jaws being less than the distance between the two shaping-jaws between which they are situated, whereby the shaping-jaws of each pair grasp the bunch between and along the spaces between the sides of two other shaping-jaws.

4. In a cigar-rolling machine, pivoted levers, a pair of longitudinal wrapping-shapers fulcrumed upon each of said levers, the pivot of said levers being in alinement with the axis of closure of said shapers, there being slots in the ends of said shapers, a shaft, eccentrics upon said shaft, eccentric sheaves and rods, said eccentric-rods carrying

rods situated within the slots of said shapers, and said levers being pivoted to said eccentric-rods.

5. In a cigar-rolling machine, a plurality of jaws, levers on which said jaws are pivotally supported, said jaws being situated diametrically opposite when closed, the fulcrum of each of said levers being substantially in alinement with the axis of the bunch, eccentric-rods to which the lower portions of said levers are pivotally attached, a driving-shaft, and eccentrics mounted on said driving-shaft, said eccentric-rods being prolonged and each carrying a rod extending transversely thereto, there being slots in the lower portion of said jaws, the walls of said slots being engaged by said transverse rods.

6. In a cigar-rolling machine, a plurality of wrapping-shapers arranged in pairs and extending substantially the entire length of the bunch, said shapers being juxtaposed to each other in substantially-parallel order, levers on which said shapers are pivotally supported, said shapers being situated diametrically opposite when closed, the fulcrum of each of said levers being substantially in alinement with the axis of the bunch, eccentric rods to which the lower portions of said levers are pivotally attached, a driving-shaft, and eccentrics mounted on said driving-shaft, said eccentric-rods being prolonged and each carrying a rod extending transversely thereto, there being slots in the lower portion of said shapers, the walls of said slots being engaged by said transverse rods.

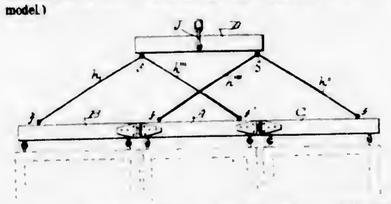
7. In a cigar-rolling machine, pairs of longitudinal wrapping-shapers, and means for alternately opening and closing and for rocking the same, the shapers of each pair being situated opposite each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers

8. In a cigar-rolling machine, two pairs of longitudinal wrapping-shapers, and means for alternately opening and closing and for rocking the same, the shapers of each pair being situated opposite each other, the shapers of one pair alternating with the shapers of the other pair, the width of the shapers of one pair being less than the distance between the adjacent sides of the shapers of the other pair, whereby the shapers of one pair grasp the bunch between and along the spaces between the sides of the shapers of the other pair.

9. In a cigar-rolling machine, pairs of longitudinal wrapping-shapers, means for alternately opening and closing the same, and means for rocking the same about their axis of closure, the shapers of each pair being situated opposite to each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers.

10. In a cigar-rolling machine, pivoted levers, pairs of longitudinal wrapping-shapers pivoted upon said levers, the pivots of said levers being coincident with the axis of closure of said shapers, means for causing said levers to vibrate simultaneously in opposite directions, and means for alternately opening and closing said shapers, the shapers of each pair being situated opposite to each other, the shapers of different pairs being alternately arranged, and the width of the shapers being less than the distance between the two shapers between which they are situated, whereby the shapers of each pair grasp the bunch between and along the spaces between the sides of two other shapers.

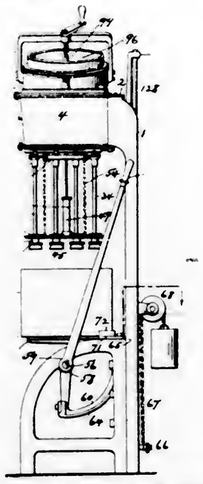
644,218. FOLDING DRAW-BAR FOR HARROWS. ROBERT D. TAYLOR, Strand, Iowa. Filed May 29, 1899. Serial No. 718,658. (No model.)



Claim.—1. A folding draw-bar for harrows comprising three straight bars hinged together to extend in a straight line and a fourth straight bar, corresponding in length with the other bars, flexibly connected with the three distinct hinged bars by means of four rods in the manner set forth for the purposes stated.

2. A jointed draw-bar for harrows comprising three straight bars A, B and C hinged together and a corresponding bar D flexibly connected with said three bars by four rods h, h', h'' and h''' and eye-bolts f fixed to the bars and arranged and combined as shown and described to operate in the manner set forth for the purposes stated.

644,219. BOTTLE-FILLING MACHINE. JAMES G. WARREN, Providence, R. I. Filed Mar. 4, 1898. Renewed Aug. 16, 1899. Serial No. 727,445. (No model.)



Claim.—1. In a bottle-filling machine, the combination of a tank having a given quantity of liquid therein, and a divider, vertically movable in said tank, through said liquid and having vertical partitions constituting a series of compartments of equal size, open at the bottom, which divider is adapted to rest by the lower edges of its sides and of said partitions upon the bottom of the tank, and to divide the entire quantity of said liquid into as many equal parts as there are compartments in said divider, substantially as specified.

2. In a bottle-filling machine, the combination of a tank adapted to contain a determined quantity of liquid and having its bottom provided with a plurality of discharge-ports arranged in equal spaces, respectively, and a divider which is vertically movable in said tank, and made with vertical partitions to form compartments of equal size and equal in number and corresponding in location with said discharge-ports, and which is adapted to rest upon the bottom of said tank and to divide the entire quantity of said liquid into as many equal parts as there are compartments in said divider, together with means for closing and opening said ports, all arranged and operating, to divide the whole of said liquid in the tank into so many equal portions, and to discharge into as many bottles or other receptacles, from said compartments, respectively, the liquid which has been so divided, substantially as described.

3. In a bottle-filling machine, the combination of a tank adapted to contain a quantity of liquid and having its bottom provided with a plurality of discharge-ports, arranged in equal spaces, respectively, a divider of a height exceeding the depth of said liquid and movable within said tank, and made with partitions of the same height to form compartments equal in number and corresponding in location with said discharge-ports and adapted to rest upon the bottom of said tank, and means within the tank for the purpose of lowering said divider through said liquid in the tank to divide the entire quantity thereof into equal parts as many in number as the number of said compartments and thereafter to raise the divider in the tank, substantially as shown.

4. In a bottle-filling machine, the combination of a reservoir to hold the liquid to be bottled, a tank having a bottom formed into a series of sockets or depressions separated from each other by intermediate ridges, ports in the lowest part of said sockets or depressions, respectively, a divider vertically movable in said tank, separated by partitions therein into compartments of equal size and adapted to rest by the bottom edges of its sides and of its partitions upon said ridges, respectively, means for opening and closing said ports and a pipe connection from said reservoir to said tank, with a suitable valve therein, substantially as set forth.

5. In a bottle-filling machine, the combination of a reservoir to hold the liquid to be bottled, a tank having a bottom formed into a series of sockets or depressions separated from each other by intermediate ridges, ports in the lowest part of said sockets or depressions, respectively, a divider within said tank, separated by partitions into compartments of equal size and adapted to rest by the bottom edges of its sides and of its partitions upon said ridges, respectively, means

for raising and lowering said divider in the tank, means for opening and closing said ports and pipe connection between said reservoir and tank, with a suitable valve therein, substantially as specified.

6. In a bottle-filling machine, the combination of a tank having means to receive and discharge a liquid, a divider having compartments and vertically movable in the tank, rotatable shafts properly mounted and extending across said tank from side to side within the same, cam-fingers upon said shafts and friction-rollers mounted upon the exterior of the divider and engageable by said cam-fingers, substantially as described.

7. The combination of a tank, two rotatable shafts mounted in the tank and having each two cam-fingers fastened thereon, four springs secured at their upper ends to the tank within the same and engageable by friction with the cam-fingers, respectively, at or near the inner ends of said cam-fingers, and a divider, made with compartments and provided with friction-rollers at or near its corners, which are supported by said cam-fingers, respectively, substantially as shown.

8. In a bottle-filling machine, the combination of a source of supply, a reservoir, a pipe from the source of supply to the reservoir with a valve in said pipe, a tank having discharge-pipes extending from the bottom thereof, a pipe from the reservoir to the tank and a valve in said pipe, a divider in the tank, two rotatable shafts in the tank with cam-fingers arranged and adapted to move the divider vertically in the tank, a series of horizontally-arranged valves beneath the tank adapted to open and close said discharge-pipes from the tank, a bar to operate the valves last aforesaid, a vertical rod properly supported on the back of the machine, an operating-lever and means between said operating-lever and vertical rod to communicate motion from the former to the latter, a crank-arm on the rear end of each of said rotatable shafts, two slotted lever-arms pivotally mounted on the back of the machine and each having a hub and a crank-arm therefrom, a rod from each of the crank-arms last aforesaid to the crank-arms of said rotatable shafts, respectively, a slotted lever-arm pivotally mounted on the back of the machine and having a hub and a crank-arm therefrom, a valve-operating bar aforesaid, a slotted lever-arm pivotally mounted on the back of the machine having a hub and a crank-arm therefrom, a crank-arm on the valve first mentioned, a rod between the two crank-arms last aforesaid, a slotted lever-arm pivotally mounted upon the back of the machine having a hub and a crank-arm therefrom, a crank-arm on the valve secondly above named, a rod between the two crank-arms last aforesaid, four cross-arms fastened upon the vertically-movable rod, all provided with stud-pins at their ends, respectively, the lowest cross-arm engageable with the two slotted lever-arms first aforesaid and adapted to operate the mechanism for raising and lowering the divider in the tank, the next cross-arm above engageable with the slotted arm connected with the mechanism for operating the series of valves beneath the tank, the next cross-arm above engageable with the slotted lever-arm connected with the mechanism for operating the valve between the reservoir and tank, and the top cross-arm engageable with the slotted lever-arm connected with the mechanism to operate the valve between the source of supply and the reservoir, all arranged and operating substantially as and for the purpose specified.

9. In a bottle-filling machine the combination of a tank provided with discharge-pipes extending from the bottom thereof, valves in each of said discharge-pipes and means adapted to connect said valves for simultaneous movement, an operating-lever mounted on the side of the machine, a vertically-movable rod and connecting means to operate said rod from the lever, a cross-bar on said rod with a stud-pin at the end thereof, a slotted lever-arm pivotally mounted on the back of the machine and having a hub and a crank thereon and a connection between said crank and the means for operating the valves of the discharge-pipes, all arranged and operating substantially as shown and for the purpose specified.

10. In a bottle-filling machine, the combination of a tank with discharge ports, two rotatable shafts mounted in the tank across the same, cam-fingers on said shafts, a partitioned divider with friction-rollers and supported on said cam-fingers, a crank on the end of each shaft, an operating-lever mounted on the side of the machine, a vertically-movable rod and connecting means to operate said rod from the lever, two slotted lever-arms pivotally mounted on the back of the machine each having a hub and a crank therefrom and a rod from each of the cranks last aforesaid to the cranks of the shafts, respectively, all arranged and operating substantially as shown and for the purpose specified.

11. In a bottle-filling machine, the combination of a filling-tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all said valves simultaneously, a reservoir, a communication from the reservoir to the tank with a valve arranged to open or close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a support for a plurality of bottles and a lever provided with means adapted to simultaneously raise said bottles by means of said support into contiguity with said discharge-pipes, respectively, lower the divider, close the valve to the communication between the reservoir and tank, and open the valves of said discharge-pipes, substantially as specified.

12. In a bottle-filling machine, the combination of a source of supply, a reservoir, a pipe from the source of supply to the reservoir with a valve in said pipe, a filling-tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all said valves simultaneously, a communication from the reservoir to the tank with a valve arranged to open or close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a support for a plurality of bottles and a lever provided with means adapted to simultaneously raise said bottles into contiguity with said discharge-pipes, respectively, close the valve in the pipe from the source of supply to the reservoir, open the valve in the pipe from the reservoir to the tank, lower the divider and open the valves in the discharge-pipes, substantially as described.

13. In a bottle-filling machine, the combination of a tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all said valves simultaneously, a reservoir, a communication from the reservoir to the tank with a valve arranged to open or close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a support for a plurality of bottles and a lever provided with means adapted to simultaneously lower said bottles by means of said support, close the valve of the discharge pipes, raise the divider, and open the valve from the reservoir to the tank, substantially as set forth.

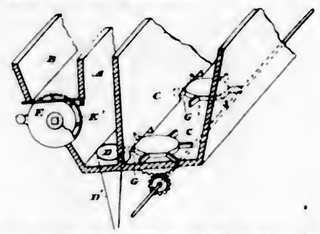
14. In a bottle-filling machine, the combination of a source of supply, a reservoir, a pipe from the source of supply to the reservoir with a valve in said pipe, a tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all said valves simultaneously, a communication from the reservoir to the tank with a valve arranged to open or close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a support for a plurality of bottles and a lever provided with means adapted to simultaneously lower said bottles by means of said support, close the valves in the discharge-pipes, raise the divider, close the valve in the pipe between the reservoir and tank and open the valve in the pipe between the reservoir and source of supply, substantially as specified.

15. In a bottle-filling machine, the combination of a reservoir, a valve for filling said reservoir from a suitable source of supply, a tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all the last-mentioned valves simultaneously, a communication from the reservoir to the tank with a valve arranged to open or close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a support for a plurality of bottles and a lever which simultaneously lowers said bottles by means of said support from said discharge-pipes, raises the divider and opens the valve for filling the reservoir, substantially as described.

16. In a bottle-filling machine, the combination of a tank, a plurality of discharge-pipes from said tank at the bottom thereof, valves in each of said pipes, respectively, connecting means adapted to operate all said valves simultaneously, a reservoir, a communication between the reservoir and tank with a valve arranged to open and close said communication, a divider having an open bottom and vertically movable in the tank and separated into equal compartments corresponding in number and location with said discharge-pipes, means for vertically moving said divider, a source of supply with a communication therefrom to the reservoir having a valve therein, a vertically-movable bottle-carrying table, a swinging operating-lever, through which the table is actuated, a vertically-reciprocating rod, connected with and moving in unison with the table and devices connected with all said valves and made operative by said rod, substantially as specified.

17. In a bottle-filling machine, the combination of a tank having controllable means to supply a liquid to the same, a quantity of liquid in said tank, a divider open at the top and bottom, which is separated into vertical compartments of equal size and which is movable vertically into and through the whole body of said liquid, to divide the entire quantity of said liquid equally into as many parts as there are compartments in said divider, and controllable means in said tank adapted to discharge said liquid therefrom, and so arranged and placed as to correspond in location with the vertical planes of said compartments, respectively, substantially as described.

644,220. FEED-BOX FOR SEED AND FERTILIZER MIXING AND SOWING MACHINES. ISAAC J. WEAVER, Boort, Victoria, assignor of one-half to Stephen Purser, Bendigo, Victoria. Filed Dec. 23, 1899. Serial No. 741,449. (No model.)



Claim.—In a seed and fertilizer mixer and sower, a carrying and distributing box divided into three bins or compartments, the central compartment being and remaining practically vacant with a series of shoe-receivers opening into and along the floor of such central compartment, the outer bins carrying respectively the seed and fertilizer, the feed-wheels and connections adapted to be drawn forward to operate and discharge in view of the driver in such manner that the seed and fertilizer mingle and pass down in a continuous flow into tubular hoes or drills and be sown in each hoe-furrow formed by the drills or hoes as before described.

644,221. SPRING ATTACHMENT FOR SUSPENDERS, &c. PAUL R. WIRT, Bloomsburg, Pa. Filed Nov. 9, 1899. Serial No. 736,398. (No model.)

Claim—1. A spring attachment of the class described comprising a carrying-frame, and a zigzag spring located within the frame and having guide-eyes freely sliding upon opposite portions of the frame.

2. A spring attachment of the class described, comprising a carrying-frame having straight side bars, a zigzag spring lying in the space between the side bars and provided at opposite sides thereof with guide-eyes having a free sliding engagement with the side bars.

3. A spring attachment of the class described, comprising a carrying-frame having side bars, and a zigzag spring arranged in the space between said side bars and having at the opposite bends or apices thereof guide-eyes freely sliding upon the side bars.

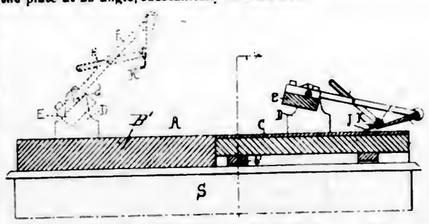
4. A spring attachment of the class described, comprising a rectangular open carrying-frame having straight parallel side bars, and a zigzag spring lying in the space between the side bars, and having at the bends or apices thereof guide-eyes freely sliding upon the side bars.

5. A spring attachment of the class described, comprising a rectangular carrying-frame provided at one end with a laterally-deflected offset forming a guide-loop, disposed at one side of the longitudinal plane of the side bars of the frame, and a zigzag spring arranged to work within said frame and provided at the bends or apices thereof with guide-eyes slidably engaging the side bars of the frame.

6. A spring attachment of the class described, comprising a carrying-frame having side bars, and a zigzag spring lying in the space between the side bars, said spring being provided at the opposite bends or apieces thereof with half-twists forming elongated guide-eyes freely sliding upon the side bars.

644,222. INKING DEVICE FOR PLATE-PRINTING. JAMES E. BROOKES, East Liverpool, Ohio. Filed June 21, 1899. Serial No. 721,361. (No model.)

Claim.—1. A machine for use in inking plates in plate-printing, comprising a table having a plate-supporting part and a palette part, in combination with a carriage adapted to be reciprocated over the table, and a flexible blade on the carriage, and means whereby said blade may be pressed down by hand upon the plate and passed over the plate at an angle, substantially as described.



2. A machine for use in inking plates in plate-printing, comprising a table on which the plate is mounted, in combination with a carriage adapted to be reciprocated over the table, with a pivoted frame on the carriage and a flexible blade in the frame to be passed at an angle over the plate, substantially as and for the purpose set forth.

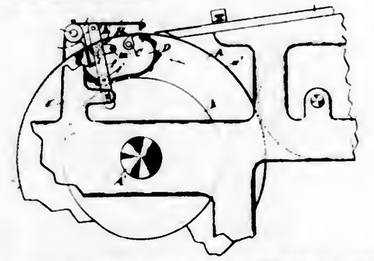
3. A machine for use in inking plates in plate-printing, comprising a table on which the plate is mounted, in combination with a carriage adapted to be reciprocated over the table with a pivoted frame on the carriage and a flexible blade and means whereby it may be adjusted to different angles in the frame, as and for the purpose set forth.

4. A machine for use in inking plates in plate-printing, comprising a table on which the plate is mounted, in combination with a carriage adapted to be reciprocated over the table, with a counterweighted, pivoted frame on the carriage and a flexible blade in the frame to be passed at an angle over the plate, substantially as and for the purpose set forth.

5. A machine for use in inking plates in plate-printing, comprising a table on which the plate is mounted, in combination with a carriage adapted to be reciprocated over the table, and a flexible blade with clamping-plates for the blade on the carriage, the upper clamping-plate extending farther over the blade than the lower one, as and for the purpose set forth.

6. A machine for use in inking plates in plate-printing, comprising a table having a plate-supporting part and a palette part and means for heating both said parts of the table, in combination with a carriage adapted to be reciprocated over the table, and a flexible blade on the carriage and means whereby said blade may be pressed down by hand upon the plate and passed over the plate at an angle, substantially as described.

644,223. PRINTING-PRESS. JOHN BROOKS and WINFIELD S. HUSON, Plainfield, N. J., assignors to the Aluminum Plate and Press Company, same place and New York, N. Y. Filed Sept. 27, 1898. Serial No. 691,999. (No model.)



Claim.—1. The combination in a printing-press, of a paper-carrier provided with a grooved off surface and with a gripper-gap, movable sheet-supporting fingers extending clear across said gap and in substantial contact with the off side of said gap, and recessed front gages adapted to coact with said grooves and fingers to keep the sheet in gage position, substantially as described.

2. The combination in a printing-press, of a paper-carrier provided with grooves in the off side and with a gap, sheet-supporting fingers carried in said gap adjustable lengthwise of said carrier so as to be set either for the normal surface of the off side of said carrier or for said grooves, and front gages adapted to coact with said grooves and fingers, substantially as described.

3. The combination in a printing-press, of a paper-carrier provided with a gap, a series of sheet-supporting fingers in the gap, and a rotatable shaft on which said fingers are adjustably mounted so as to move said fingers as a series to and from the impression side of

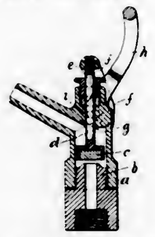
said gap, and means for normally holding said series of fingers down across the gap and for raising said series when desired to give access to the gap, substantially as described.

4. The combination in a printing-press, of a paper-carrier provided with a gap, and with grooves on its off side, supporting-fingers carried in said gap and resting at one end on the impression side of the gap and in substantial contact at the other end with the off side of the gap, front gages provided with recessed blades adapted to enter said grooves and fit over said fingers, and means for raising and lowering said gages, substantially as described.

5. The combination in a printing-press, of a paper-carrier provided with a gap, front gages adapted to coact with said carrier, and an adjustable stop-lever m' for said gages, substantially as described.

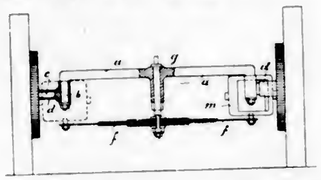
6. The combination of a paper-carrier A, a front-guide shaft g carrying front guides or gages c coacting to preserve a sheet in gage position, and a front guide adjustable stop-lever m' for adjusting the position of said gages to said carrier A, substantially as described.

644,224. ELBOW-LEVER VALVE. JOHANNES DRECKMANN, Cassel, Germany. Filed Nov. 9, 1899. Serial No. 736,414. (No model.)



Claim.—An adjustable elbow-lever valve characterized by the valve-spindle d being revolubly fixed with a screw-thread in a cross-head e so that it may be adjusted to its valve-seat by being turned, and by the connecting-links f being bent to bear against the fulcrum-pins i of the hand-lever h when the valve is closed so that any further turning of the same is prevented, substantially as hereinbefore described.

644,225. MOTOR-CAR. HANS J. ELSNER, Kalk, Germany. Filed Dec. 2, 1899. Serial No. 739,022. (No model.)

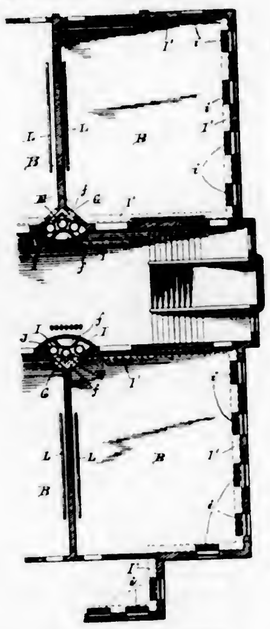


Claim.—In motor-cars the combination of steering-wheels located on adjustable axle-shafts with a motor, which is revolved around the same axis as its corresponding axle, for each wheel, springs supporting the motors and a lever supporting the openings and pivoted on the first axle, said lever serving as steering means for the wheels, substantially as set forth and described.

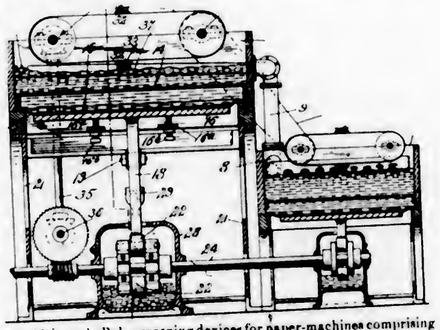
644,226. HEATING AND VENTILATING SYSTEM. CASPER FLUOR, Oshkosh, Wis. Filed May 31, 1899. Serial No. 718,831. (No model.)

Claim.—1. In a heating and ventilating system, the combination with a chimney, of heating-flues arranged therein and provided with openings near the upper parts of the rooms of a building for discharging hot air therein, horizontal foul-air ducts arranged beneath the floors of the rooms and having a series of registers or openings in the floors of the said rooms, the said openings being spaced apart and arranged upon the sides of the rooms which are farthest from the hot-air inlet, foul-air flues in the chimney adapted to receive the foul air from the said ducts, the system being such that the heated air will be drawn downwardly through the central portion of the room and more evenly distributed through the same because of the spaced arrangement of the series of registers leading into the foul-air ducts, the rooms being the more thoroughly heated and ventilated because of the said distribution of the air, substantially as described.

2. In a heating and ventilating system, the combination with one or more large chimneys having vertical flues therein, the said flues opening into the tops of different rooms, means for thoroughly heating the said chimney or chimneys and the air passing through the same, horizontal ventilating-ducts leading into the said chimneys, the said ducts having a series of openings or registers spaced apart in the floors of the rooms and arranged near the windows of the rooms and upon the opposite sides of the said rooms from the hot-air flues, the structure being such that the heated air will be evenly distributed through the central portion of the rooms and the cold air entering the rooms through the windows will be carried into the various registers or openings leading to the ventilation-duct, substantially as described.



644,227. SCREEN FOR PAPER-MACHINES. HENRY S. FURMINGER, Mittineague, Mass. Filed Apr. 18, 1899. Serial No. 713,443. (No model.)



Claim.—1. Pulp-screening devices for paper-machines comprising a main screen-box and an auxiliary screen-box, flexible bottoms in said boxes, stiffening-plates for said bottoms, and means for imparting consecutive shocks to said bottoms in a line transverse to the surfaces thereof, an outlet in the main screen-box substantially on the line of the normal pulp-level therein and leading into said auxiliary screen-box, means for sweeping the surface of the pulp in said main screen-box toward said outlet therein, and means for varying the degree of the vertical movements of the flexible bottom in said main screen-box, and a suitable tubular connection from the bottom of the main screen-box, to the paper-machine, substantially as described.

2. Pulp-screening devices for paper-machines comprising a main screen-box and an auxiliary screen-box, flexible bottoms for said boxes, an outlet extending from a point near the surface of pulp in said main screen-box to said auxiliary screen-box, a shaft extending under said boxes, and means on said shaft for imparting to said flexible bottoms consecutive shocks, and for regulating the force thereof, and devices on the main screen-box for sweeping the surface of the pulp therein toward the outlet leading to said auxiliary screen-box, and a suitable tubular connection from the bottom of the screen-box to the paper-machine, substantially as described.

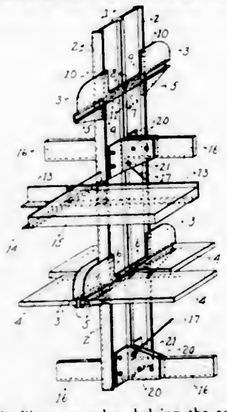
3. In a pulp screen for paper-machines, a box, a screen-plate therein, a flexible bottom therefor, and means for imparting consecutive shocks to said bottom consisting of a shaft, a series of rolls suitably mounted thereon for rotation in a fixed vertical plane, a rigid stem supported for reciprocatory vertical movement under and in contact with said bottom, and whose lower extremity intercepts the plane of rotation of said rolls whereby said stem is lifted and dropped by each of said rolls, and means for adjusting said stem vertically relative to the path of rotation of said rolls, substantially as described.

4. In a paper-machine, the following instrumentalities in combination: a main screen-box, an auxiliary screen-box, flexible bottoms therefor, an outlet at the level of the pulp in said main screen-box, and a pipe leading therefrom to said auxiliary screen-box, means for sweeping the surface of pulp in said main screen-box toward said outlet; a shaft extending under said boxes, and means on said shaft for imparting consecutive shocks to said bottoms, a save-all, and a pipe connection therefrom leading into the pipe connecting the two screen-boxes; a pump connected with said auxiliary screen and delivering into said main screen, and a tubular connection from the latter to the paper-machine, substantially as described.

5. Pulp-screening devices for paper-machines comprising a main screen-box and an auxiliary screen-box, an outlet from a point substantially at the level of pulp in the main screen extending to said auxiliary screen-box, a flexible bottom for said main screen-box, and means for imparting thereto a vertically-reciprocating movement, and devices on said main screen-box for sweeping the surface of the pulp therein toward said outlet, and a tubular connection between the main screen-box and the paper-machine, substantially as described.

6. In a paper-machine the following instrumentalities in combination: a main screen-box, an auxiliary screen-box, flexible bottoms therefor, an outlet substantially at the level of pulp in said main screen-box extending to said auxiliary screen-box, means for sweeping the surface of the pulp in said main screen-box toward said outlet, means for imparting vertically-reciprocating movements to said bottoms, a save-all, a conduit from the latter to said auxiliary screen-box and from the latter to said main screen-box, and mechanism for elevating pulp from said auxiliary to said main screen-box, substantially as described.

644,228. LIBRARY OR OTHER SHELVING. PAUL L. HAY, Pittsburg, Pa. Filed Dec. 8, 1898. Serial No. 698,664. (No model.)



Claim.—1. In library or other shelving, the combination, with an upright having a plain outer face, longitudinal grooves in the sides thereof and straight flanges at right angles to the body, of a bracket comprising an underbrace bearing against the outer face of the upright, a rearwardly-extending portion provided with means, located between the flanges, for engaging a clamping device, a clamping device arranged between the flanges to engage with the rearwardly-extending portion of the bracket and with the flanges, substantially as set forth.

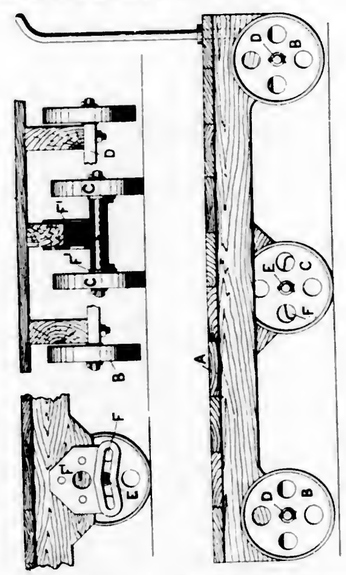
2. In library or other shelving, the combination, with an upright having a plain outer face, longitudinal grooves in the sides thereof and straight flanges at right angles to the body, of a bracket comprising an underbrace bearing against the outer face of the upright, means, as 10, engaging with a flange of the upright, a rearwardly-extending portion provided with lugs, located between the flanges, for engaging a clamping device, a clamping device arranged between the flanges to engage with the lugs and with the flanges, substantially as set forth.

3. In library or other shelving, the combination, with an upright having a plain outer face, longitudinal grooves in the sides thereof and flanges at right angles to the body, of a bracket bearing against the outer face and comprising a rearwardly-extending portion having apertured lugs located between the flanges a clamping device comprising threaded bolts and a screw-threaded sleeve or nut arranged between the flanges and adapted to engage with the apertured lugs and the flanges, substantially as set forth.

4. In library or other shelving, the combination, with flanged uprights, of brackets carrying a shelf, each bracket provided with an underbrace, 5, a rearwardly-extending part provided with apertured lugs, and clamping means comprising a right-hand-threaded bolt, a left-hand-threaded bolt and an internally-threaded sleeve or nut, said bolts passing through the apertured lugs and having their threaded ends within the sleeve or nut and their other ends adapted to bear against a flange on the uprights, substantially as set forth.

5. In library or other shelving, the combination, with a flanged upright or standard 1, of a bracket 3, having an underbrace 5, bearing against the outer face of the standard, lugs, as 10, engaging with a flange of the standard, a rearwardly-extending portion having apertured lugs located between the flanges, a clamping device between the flanges, comprising screw-threaded bolts and a screw-threaded sleeve or nut, said clamp adapted to engage with the apertured lugs and with the flanges, substantially as set forth.

644,229. TRUCK. JOHN H. HEBLETHWAITE, Hoylake, England. Filed Aug. 30, 1899. Serial No. 729,002. (No model.)



Claim.—1. In a truck, the combination with a suitable frame, of wheels arranged on each end thereof, a shaft-carrying frame secured to the center of the truck, a movable shaft mounted in the said frame, and loosely-mounted independent wheels upon the said shaft, the structure being such that the truck may be readily turned upon the center wheels and yet the wheels will so accommodate themselves to the movement of the truck as to support the frame with a broad load-carrying base, substantially as described.

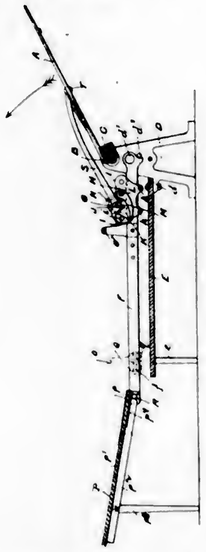
2. In a truck, the combination with a suitable frame, of wheels secured to each end thereof, a frame secured beneath the central portion of the truck and having slotted brackets secured thereto, a shaft having wheels mounted upon each end thereof and engaging the slots in the said brackets, the construction being such that when the truck is moving in one direction the axles of the central wheels will move to one end of the slots in the brackets and when the truck is moving in the other direction the said axles will move to the other end of the said slots, substantially as described.

3. In a truck, the combination with a suitable frame having wheels under each end of the frame, of a casting or frame secured beneath the center of the said truck, brackets secured to said frame and having slots formed therein, the said slots being preferably lower at each end than at the middle, a short shaft engaging the said slots and carrying wheels at its ends, the construction being such that when the truck is pulled in one direction the short shaft will move to one end of the slots in the brackets and when the truck is moved in the other direction the said shaft will move to the other end of said slots, and when the truck is stationary the said shaft will move to the highest point in said slots, substantially as described.

4. In a truck, the combination with a suitable frame, of axles secured to each end thereof carrying supporting-wheels, a casting or frame secured beneath the central portion of said truck and provided with longitudinally-extending brackets having slots formed therein, the said slots being inclined downwardly at their ends, a short shaft carrying a pair of supporting-wheels and engaging the slots in the said brackets, whereby the shaft carrying the central wheels will move to the ends of the said slots when the truck is being moved back and forth and when it is stationary the said short shaft will assume a central position so that the truck can be easily turned upon the same, substantially as described.

644,230. WITHDRAWN.

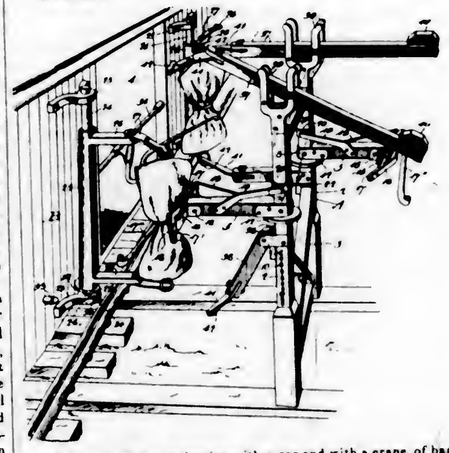
644,231. SHEET-PRINTING MACHINE. ALFRED JOHNSON, New York, N. Y., and ANDREW J. STONE, London, England. Filed June 27, 1899. Serial No. 722,070. (No model.)



Claim.—1. In combination, the side rails, the carriages running thereon, the gripper mechanism carried by the carriage, means for operating said gripping mechanism, the rock-shaft journaled at one end of said track with means for operating the same, and the fly-fingers carried by said rock-shaft.

2. In combination, the brackets, the rails hinged thereto, the rock-shaft journaled in the brackets and carrying the fly-fingers, the carriages traveling on said rails and carrying grippers and operating connections between the rock-shaft and carriages, substantially as described.

644,232. MAIL SUPPLYING AND DELIVERING APPARATUS. VIRGIL A. JONES, Waverly, Nebr. Filed Apr. 4, 1899. Serial No. 711,687. (No model.)



Claim.—1. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, a spring-pawl on the bag-receiving device, and a catch on the crane adapted to be engaged by said spring-pawl, substantially as described.

2. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, two projections secured to the crane, and a spring-pawl fixed to said bag-receiving device and provided with a tooth adapted to engage between said projections, substantially as described.

3. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, a ring secured to the crane above said bag-receiving device and provided with two teeth the faces of which are beveled, and a spring-pawl secured to the bag-receiving device and provided with a tooth adapted to engage between said projections, substantially as described.

4. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, means for holding the bag-receiving device yieldingly in its effective position, and a spring-arm on said receiving device having a frictional engagement with the crane for holding said device in its operative position, substantially as described.

5. The combination with a car and with a crane, of bag-supplying devices carried respectively by the car and by the crane, means for holding the bag-receiving device yieldingly in its effective position, a pin adapted to engage in an opening in said bag-receiving device, and a chain on the crane to which said pin is connected, substantially as described.

6. The combination with a car and with a crane, of a bag-supplying device on the car, a swinging arm on the crane, a strap secured to said arm and having an angular portion and an inwardly-bent portion secured to the outer end of said arm, a bearing on the crane upon which said arm and strap fit, a hook secured to the inwardly-bent portion of said strap, and a bag-holding spring secured to one of the branches of the hook, substantially as described.

7. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, said bag-supplying device including a longitudinally-reciprocative, rotative post, two projections with reversely-inclined sides, and a single projection on said post adapted to fit between said first-mentioned projections and having reversely-inclined sides which cooperate therewith, substantially as described.

8. The combination with a car and with a crane, of bag supplying and receiving devices carried respectively by the car and by the crane, said bag-supplying device including a longitudinal reciprocative, rotative post, a lug having a beveled pocket with reversely-inclined sides, and a beveled lug on said post adapted to fit in said pocket, and provided with reversely-inclined sides which cooperate therewith, substantially as described.

9. The combination with a car and with a frame, of bag supplying and receiving devices carried respectively by the car and by the crane, said bag-supplying device including a longitudinally-reciprocative, rotative post provided with arms between which a bag can

be supported, bearings for said post, a lug secured to the post, a cooperating lug on one of said bearings having a pocket to receive said first-mentioned lug and also having inclined faces, substantially as described.

644,233. BLACK DISAZO DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Sept. 10, 1898. Serial No. 690,649. (Specimens.)

Claim.—1. As a new article of manufacture the disazo coloring-matters which can be derived from ortho-nitro-ortho-amido-phenol-sulfo-acid, and which on suitable reduction with ammonium sulfid in ammoniacal solution exhibit a step-by-step reduction reproducing the nitro-amido-phenol-sulfo-acid, all substantially as described.

2. As a new article of manufacture the specific new coloring-matter which can be derived from ortho-nitro-ortho-amido-phenol-sulfo-acid, alpha-naphthylamin and alpha-naphthol-alpha-sulfo-acid (1.4 or 1.5) and which on suitable reduction with ammonium sulfid in ammoniacal solution exhibits a step-by-step reduction reproducing the nitro-amido-phenol-sulfo-acid and which yields a dull-green solution in concentrated sulfuric acid, a deep-blue solution when dissolved in water, no perceptible change of color in bulk on the addition of a little caustic soda, a reddish-brown to violet precipitate with ferric chlorid, and a violet-red with hydrochloric acid which may change on standing or treatment with large excess and a precipitate form, all substantially as described.

644,234. BLACK DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Sept. 10, 1898. Serial No. 690,651. (Specimens.)

Claim.—As a new article of manufacture the specific new coloring-matter which can be derived from ortho-nitro-ortho-amido phenol-sulfo-acid and alpha-naphthylamin as middle and end component and which is characterized by its behavior on suitable reduction with ammonium sulfid in ammoniacal solution in that a step-by-step reduction reproducing the nitro-amido-phenol-sulfo-acid can be observed and which yields a deep-blue solution in concentrated sulfuric acid, a violet-red solution in water, no perceptible change of color in bulk on the addition of a little caustic soda, a purple-black precipitate with hydrochloric acid, and a violet-brown to brown precipitate with ferric chlorid, all substantially as described.

644,235. BLACK DISAZO DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Oct. 17, 1898. Serial No. 693,792. (Specimens.)

Claim.—1. As a new product disazo coloring-matters which can be obtained from ortho-nitro-para-amido-phenol-ortho-sulfo-acid and which yield ortho-nitro-para-amido-phenol-ortho-sulfo-acid on reduction with ammonium sulfid in ammoniacal solution, all as hereinbefore described.

2. As a new product the new disazo coloring-matter which can be derived from ortho-nitro-para-amido-phenol-ortho-sulfo-acid and the Cleve's alpha-naphthylamin-sulfo-acid as middle component, alphanaphthol-alpha-sulfo-acid (1.4-1.5) as end component, and which yields ortho-nitro-para-amido-phenol-ortho-sulfo-acid on reduction with ammonium sulfid in ammoniacal solution, and by being readily soluble in water and soluble in concentrated sulfuric acid, giving a olue-green solution, and giving with water a blue solution the color of which on the addition of a little caustic soda is practically unchanged when seen in bulk, hydrochloric acid turning this blue solution to crimson or red and addition of ferric chlorid producing a brown-red to brown precipitate, all substantially as hereinbefore described.

644,236. BLACK DISAZO DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Oct. 17, 1898. Serial No. 693,800. (No specimens.)

Claim.—1. As a new product the disazo coloring-matters which can be obtained from para-nitro-ortho-amido-phenol-ortho-sulfo-acid and which yield para-nitro-ortho-amido-phenol-ortho-sulfo-acid on reduction with ammonium sulfid in ammoniacal solution, all as hereinbefore described.

2. As a new product the new disazo coloring-matter which can be derived from para-nitro-ortho-amido-phenol-ortho-sulfo-acid and alpha-naphthylamin as middle component, and alpha-naphthol-alpha-sulfo-acid (1.4 or 1.5) as end component, and which yields para-nitro-ortho-amido-phenol-ortho-sulfo-acid on reduction with ammonium sulfid in ammoniacal solution, and by being readily soluble in water and soluble in concentrated sulfuric acid, giving a moss-green solution, and giving with water a blue solution the color of which on the addition of a little caustic soda is practically unchanged when seen in bulk, hydrochloric acid turning this solution violet-red to crimson which may change on standing, a large excess forming a violet-red precipitate, and the addition of ferric chlorid giving a violet to violet-red precipitate, all substantially as hereinbefore described.

644,237. BLACK DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Sept. 10, 1898. Serial No. 690,650. (Specimens.)

Claim.—As a new article of manufacture the specific new coloring-matter which can be derived from ortho-nitro-ortho-amido-phenol-sulfo-acid, alpha-naphthylamin and beta-naphthol and which is characterized by its behavior on suitable reduction with ammonium sulfid in ammoniacal solution in that a step-by-step reduction reproducing the nitro-amido-phenol-sulfo-acid can be observed and which yields a violet-black solution in concentrated sulfuric acid, a blue solution when dissolved in water, scarcely any perceptible change of color in bulk on adding caustic soda, a violet-red precipitate with hydrochloric acid and also a violet-red precipitate with ferric chlorid, all substantially as described.

644,238. DISAZO DYE FROM CHLORAMIDOPHENOL. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Feb. 18, 1899. Serial No. 706,050. (Specimens.)

Claim.—1. The disazo coloring-matter which can be obtained from a hereinbefore-described chloro-ortho-amido-phenol, and which on partial reduction yields the intermediate coloring-matter from the chloro derivative of ortho-amido-phenol which is adapted for diazotation and combination with R salt in alkaline solution substantially as described.

2. The specific disazo coloring-matter from para-chloro-ortho-amido-phenol and Cleve's alpha-naphthylamin-sulfoacid as middle component, and alpha-naphthylamin as end component, and which on moderate reduction yields the intermediate coloring-matter from para-chlor-ortho-amido-phenol and Cleve's naphthylamin sulfoacid, and which is difficultly soluble in cold water, more readily soluble in hot water, giving a violet-blue solution, and soluble in concentrated sulfuric acid, giving an intensely dark-blue solution, all substantially as described.

644,239. BLACK DISAZO DYE. PAUL JULIUS, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Feb. 18, 1899. Serial No. 706,051. (Specimens.)

Claim.—1. The disazo coloring-matters which can be obtained from ortho-chlor-ortho-amido-phenol-para-sulfo-acid and which yield chlor-amido-phenol-sulfo-acid on reduction, all substantially as described.

2. The disazo coloring-matter which may be obtained from ortho-chlor-ortho-amido-phenol-para-sulfo-acid, alpha-napthylamin as middle component, and beta-naphthol-3.6-disulfo-acid (R salt) as end component, which is readily soluble in water giving a blue solution, soluble in sulfuric acid giving a blue-green solution, and which yields ortho-chlor-ortho-amido-phenol-para-sulfo-acid upon reduction, all substantially as described.

644,240. BLACK DISAZO DYE. HEINRICH A. BERNTHSEN, Mannheim, and PAUL JULIUS, Ludwigshafen, Germany, assignors to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Feb. 28, 1899. Serial No. 707,199. (Specimens.)

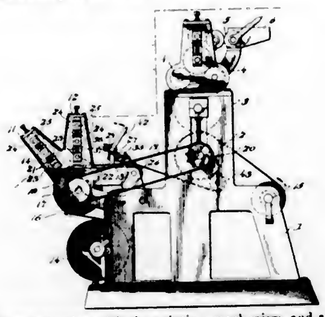
Claim.—1. The new disazo coloring matters which can be obtained from nitro-amido-phenol which form on partial reduction an intermediate product adapted for diazotation and combination with an alkaline solution of R-salt, substantially as described.

2. The specific disazo coloring-matter which can be obtained from ortho-amido-para-nitro-phenol, alpha-naphthylamin, and 1.8-dioxy-naphthalene-4-sulfo-acid, which yields upon partial reduction the intermediate product from ortho-amido-para-nitro-phenol and alpha-naphthylamin, and which is soluble in water and in concentrated sulfuric acid giving a blue-green solution, and dyes wool from the acid-bath giving blue-black shades, which turn to a beautiful green-black on treatment with chromates, all substantially as hereinbefore described.

644,241. PRINTING-PRESS. JOHN E. CAPS, Kansas City, Mo. Filed Dec. 5, 1898. Serial No. 698,329. (No model.)

Claim.—1 The combination with a printing-press, of a multi-color-printing attachment embracing an impression-roll, a color-printing roll, cooperating with said impression-roll, independent color-striping mechanism interposed between the color-printing roll and the printing devices of the press, to operate upon the paper as it is fed to the latter, and means for adjusting said independent color-striping mechanism to throw the same in and out of action without disturbing the adjustment of the color-printing roll, substantially as set forth.

2. The combination with the printing mechanism and a paper-feed mechanism of a printing-press, of a plurality of independent striping-fountains mounted on a common support to be adjustable simultaneously therewith and each fountain capable of a limited play and held under yieldable tension in active relation to the path of the paper web, substantially as described.



3. The combination with the printing mechanism and a paper-feed mechanism of an ordinary press, of a friction-roller adjacent to the path of the paper web, a rock-shaft adjacent to the friction-roll, and a series of striping-fountains supported by the rock-shaft to be adjustable therewith and each fountain equipped with a tension device which yieldably supports a wiper in said fountain contiguous to the path of the paper web, substantially as described.

4. The combination with the printing devices and paper-feed mechanism of a printing-press, of a plurality of independent striping-fountains arranged in advance of the printing-press and mounted on a common support, said fountains being capable of simultaneous adjustment, and each having an independent limited play, substantially as set forth.

5. The combination with a printing mechanism and a paper-feed mechanism, of a color-striping mechanism wholly independent of the printing mechanism and embracing a friction-roll, a series of independent fountains supported adjacent to said friction-roll, a series of fibrous wipers supported by the respective fountains in active relation to the path of the paper web as it traverses the friction-roll, a tension device for each fountain, and means for adjusting said fountains, substantially as described.

6. The combination with a printing mechanism and a paper-feed mechanism of an ordinary press, of a color-striping mechanism embracing the roll, a rock-shaft, a series of striping-fountains hung independently on said shaft and each carrying a wiper which is presented in active relation to the path of the paper web as it traverses said roll, tension devices by which the series of fountains are yieldingly held in active relation to the roll, and means for simultaneously lifting the striping-fountains from the path of the paper web, substantially as described.

7. The combination with the printing devices and paper-feed mechanism of an ordinary press, of a multicolor mechanism embracing a series of striping-fountains and a revoluble color-printing roll, the latter being operatively connected with the printing devices, and means to exert a yielding pressure on each fountain, substantially as described.

8. A striper-fountain for a multicolor attachment for printing-presses provided with a fibrous wiper having its active end projected beyond the fountain, a fibrous pad in contact with the wiper, and a clamping device by which the fibrous pad and wiper are confined in proper position within the fountain, substantially as described.

9. The combination with a friction-roll, of a shaft, a series of striper-fountains hung loosely on the shaft and each having a wiper which has its active end contiguous to the friction-roll, and a tension device carried by the shaft and operatively connected with the fountain to yieldingly press the wipers thereof on a paper web adapted to traverse the friction-roll, substantially as described.

10. The combination with a shaft and a roll, of a series of fountains each having a hanger mounted loosely on the shaft, a tension-arm fixed to the shaft adjacent to each fountain-hanger, and a spring connecting the hanger and tension-arm, substantially as described.

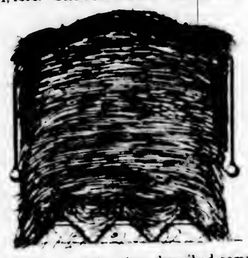
11. The combination with a roll and a shaft, of a series of fountains each having a hanger fitted loosely on the shaft, a tension-arm clamped to said shaft adjacent to each hanger and normally free from contact therewith to permit the fountain and hanger to have a limited rocking movement on the shaft, a tension-spring connecting the arm and hanger, and means for rocking the shaft whereby the tension-arms may engage with the hangers to tilt the fountains away from active relation to the roll, substantially as described.

12. The combination with a roll, of a rock-shaft having a lever-arm, a series of fountains each carrying a wiper, a series of hangers rigid with the fountains, loosely fitted on the shaft and having the stop-arm, a tension-arm clamped to the shaft adjacent to each of the hangers and normally separated from the stop-arm to permit the hanger and fountain to have a limited play on said shaft, and a tension-spring connecting said arm with the hanger, substantially as described.

13. The combination with a printing-press, of a multicolor mechanism comprising a color-printing roll, arranged in advance of the printing-press, a plurality of striping-fountains arranged in the path of the paper between said roll and the printing devices of the press, and means for throwing the striping-fountains in and out of action independently of the color-printing roll, substantially as set forth.

14. In a multicolor-press, the combination with a printing mechanism including means for supplying ordinary printers' ink thereto, of a water-color printing mechanism including printing and impression rolls arranged for joint operation to apply impressions in one or more water-colors to the work in advance of the impressions in ordinary ink, and means for feeding the work from the water-color mechanism continuously to the ordinary printing mechanism, substantially as described.

644,242. GRAIN-SHED. WILLIAM F. COMBS, Reno City, Okla. Filed Nov. 11, 1899. Serial No. 736,637. (No model.)

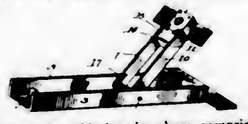


Claim.—1. A device of the class described comprising a series of overlapped sheets of waterproof material forming a covering, a layer of grain or analogous material arranged upon the said covering, and means for weighting and binding the said layer at intervals, substantially as and for the purpose described.

2. A device of the class described comprising a series of contiguous trestles adapted to support the weight of a stack and having oppositely inclined sides and forming a series of complete tunnels or spaces to ventilate the stack, and an independent covering for the stack, substantially as described.

3. A device of the class described comprising a series of trestles designed to be arranged at the base of the stack and forming ventilating-spaces, a covering consisting of layers or sheets of waterproof material overlapped at their adjacent edges, a layer of grain or analogous material arranged upon the said covering, and the longitudinal and transverse wires extending across the layer at right angles to each other, and depending therefrom at the sides and ends of the stack and provided with weights, substantially as described.

644,243. BURGLAR-ALARM. PHILIP B. CORNICK, Genito, Va. Filed Sept. 5, 1899. Serial No. 729,486. (No model.)



Claim.—1. A portable burglar-alarm comprising a body-plate having a nipple, a spring-actuated pivoted hammer and laterally-extending retaining-lips upon the hammer and base-plate respectively and adapted to lie one upon the other for reversible application between a door and its jamb.

2. A portable burglar-alarm comprising a base-plate having parallel side flanges and oppositely-extending transverse retaining-lips, a hammer comprising a plate having parallel side flanges extended beyond its end and oppositely-extending transverse retaining-lips, a shaft extending between the flanges of the base-plate and through the flanges of the hammer, a spring coiled upon said shaft and operatively connected with the hammer and base-plate respectively, and a nipple and hammer-block supported respectively by the base-plate and hammer.

3. In a portable burglar-alarm, the combination with a base-plate, of a hammer pivotally carried by the base-plate and composed of a plate having transversely-extended retaining-lips, parallel side flanges, a spring end bent up between the side flanges, a hammer-block, and a cover hinged to the hammer-block and engaging the spring end of the plate.

4. In a portable burglar-alarm, the combination with a base-plate provided at one end with oppositely-extending retaining-lips, at its opposite end with a nipple and along its sides with parallel flanges, of a hammer comprising a plate having transversely-extending retaining-lips at one end, parallel flanges along its sides, and an upturned spring end having a bent edge, a hammer-block secured to the plate and provided with a cavity and vent-openings leading thereto, a cover hinged to the hammer-block and engaging the bent edge of the spring end of the plate, a shaft passed through the side flanges of the hammer and base-plate respectively, and a spring coiled around the shaft and connected with the hammer and base-plate in a manner to constantly urge the former in the direction of the nipple.

5. A portable burglar-alarm comprising a base-plate having its sides throughout a portion of its length bent upwardly at right angles to lie parallel, unbent portions forming outwardly and oppositely extending lips, a nipple upon the base-plate, a hammer pivoted between the unbent sides of the plate and having oppositely-extending lips adapted to lie upon the first-named lips, and a spring adapted to move the hammer to engage it with the nipple.

6. A portable burglar-alarm comprising a base-plate having its sides throughout a portion of its length bent upwardly at right angles to lie parallel, unbent portions forming outwardly and oppositely extending lips, a hammer consisting of a plate having its sides bent upwardly and parallel throughout a portion of its length and continued beyond the body of the plate and pivoted to the sides of the base-plate, the unbent portion of the hammer-plate forming oppositely-extending lips adapted to lie against the first-named lips, a nipple upon the base-plate, a hammer-block upon the hammer, and a spring adapted to move the hammer to engage the block with the nipple.

644,244. PIANO ATTACHMENT. CHEVALIER G. FERRATA, Greenville, S. C. Filed July 8, 1899. Serial No. 723,166. (No model.)



Claim.—1. In a musical instrument, the combination with a plurality of vibratory bodies, of a bow adapted for reciprocation with respect thereto and in engagemet therewith, means for reciprocating the bow at a predetermined speed, means for reciprocating the bow at a different speed, and means for varying the length of the path of reciprocation of the bow.

2. In a musical instrument, the combination with a vibratory body, of means for vibrating the body, means for raising the body into engagement with the vibrating means, means for varying the speed of effective operation of the vibrating means, and means for varying the length of the path of motion of the vibrating means.

3. In a piano, the combination with the strings, of a bridge, means for raising the strings into engagement with the bridge, a bow adapted to engage the strings when raised, means for reciprocating the bow at a predetermined speed, means for reciprocating the bow at a second predetermined speed, and means for varying the length of the path of reciprocation of the bow.

4. In a musical instrument, the combination with a vibratory body, of a bridge, means for engaging the body with the bridge, a reciprocatory bow adapted to engage the body when in engagement with the bridge means for reciprocating the bow at different speeds, and means for varying the length of the path of reciprocation of the bow.

5. In a piano, the combination with the strings, of a bridge adapted for engagement by the strings, means for establishing engagement between the bridge and strings, a reciprocatory bow adapted to engage the strings when in engagement with the bridge, means for operating the bow at a predetermined speed, means for operating the bow at a second predetermined speed, means for varying the speed of operation of the bow when in operative relation to either of the first-named means, and means for varying the length of the path of operation of the bow.

644,245. BALL-BEARING. CARROLL E. GATES, New York, N. Y., assignor of one-half to Charles Fowler, same place. Filed Aug. 3, 1898. Serial No. 687,582. (No model.)



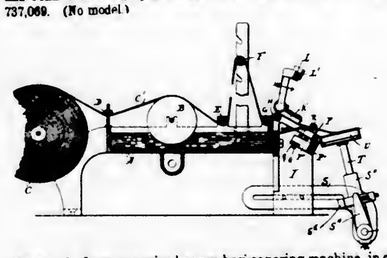
Claim.—1. The combination with opposed bearing-surfaces of a ball-carrier located between the said bearing-surfaces, balls mounted in the said carrier and lubricators mounted in the said carrier interspersed among the balls.

2. The combination with opposed bearing-surfaces of a ball-carrier located between the said bearing-surfaces and provided with openings for receiving balls and openings for receiving lubricators alternately arranged, and balls and lubricators alternately mounted in said openings substantially as described.

3. The combination with opposed bearing-surfaces of a ball and lubricator carrier located between said bearing-surfaces, balls and lubricators mounted alternately in said carrier and projecting therefrom onto the said bearing-surfaces, the heads of the lubricators contacting also with the surfaces of the balls.

4. The combination with a cup, a cone, a hub supporting the cup, and a shaft supporting the cone, of a dished ball and lubricator carrier mounted between the opposed surfacer of the cup and cone and balls and lubricators alternately mounted in said carrier.

644,246. BOX-COVERING MACHINE. GEORGE W. GLAKER, Salem, Mass., assignor of three-fourths to Charles C. Briggs, same place, and John C. Metcalf, Lynn, Mass. Filed Nov. 15, 1899. Serial No. 737,069. (No model.)



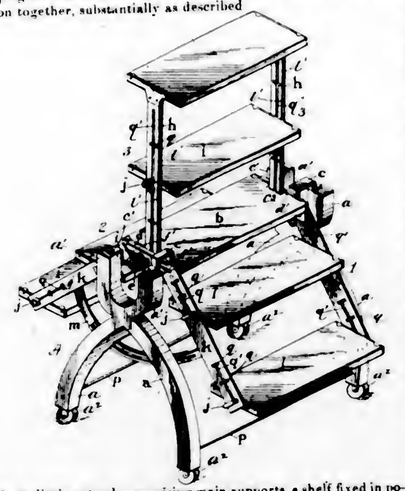
Claim.—1. In an organized paper-box-covering machine, in combination, an oscillating knife L, pivotally arranged above and in rear of a stationary inclined knife P secured to a pivotally-adjustable bar P', having a front cut-away portion p' adapted to receive the rear portion of the box-former and box held thereon, substantially as and for the purpose set forth.

2. In an organized paper-box-covering machine, in combination, an oscillating knife L, pivotally arranged above and in rear of the stationary inclined knife P, secured to a bar P', pivotally connected to the head or frame I, and having ears or projections P'', P'', and set-screws R, and regulating screw-bolts Q for the purpose of adjusting the position of the stationary knife relative to the movable knife, substantially as and for the purpose set forth.

644,247. DISPLAY-STAND. ROBERT L. HENLEY, Louisville, Ky., assignor of one-half to James H. Button, same place. Filed Oct. 2, 1899. Serial No. 732,269. (No model.)

Claim.—1. A display-stand, comprising a main support, three display-sections having side arms projecting in different directions, plates connecting contiguous ends of the arms of two sections, and

clamping devices for locking said plates and the arms of the third section together, substantially as described



2. A display-stand, comprising main supports, a shelf fixed in position between said supports and with spaces between its ends and said supports, a plurality of display-sections having side arms projecting into said spaces, plates connecting together contiguous ends of the arms of two of said sections, and clamping devices for locking said plates to contiguous arms of a third section and for locking the latter arms between said plates and the ends of the fixed shelf.

3. A display-stand, comprising a main support, a plurality of display-sections having side arms, pivoted plates connecting adjacent ends of said side arms with each other, and means for locking said pivoted plates in adjusted position

4. A display-stand, comprising a main support, and a plurality of display-sections supported thereby, each of said display-sections embodying supporting-arms and shelves connecting said arms together and being mounted to have pivotal and bodily adjustments, substantially as described.

5. A display-stand, comprising a main support, and a plurality of display-sections supported thereby, two of said display-sections being adjustable pivotally at opposite sides of the base of a third section, and each of said display-sections embodying supporting-arms and shelves connecting said arms together, substantially as described.

6. A display-stand, comprising a main support, and a plurality of display-sections supported thereby, two of said display-sections being adjustable pivotally at opposite sides of the base of a third section and said third section being removable, and each of said display-sections embodying supporting-arms and shelves connecting said arms together, substantially as described.

7. A display-stand comprising a main support, and a plurality of display-sections supported thereby, one of said display-sections being removable and the other sections having pivotal and bodily adjustments, as described, said other sections being provided with pivoted shelves, all for the purposes specified.

8. A display-stand, comprising a main support, a plurality of display-sections having side arms, plates to which contiguous ends of said arms are secured, clamp members carried by said plates, double-faced clamp members, one face of each of which engages the clamp member on the adjacent plate, clamp members to engage the other faces of the double-faced members, and means for locking said clamp members together.

9. A display-stand, comprising a main support, a plurality of pivotally and bodily adjustable display-sections, pivoted plates connecting one display-section with another, and means for locking said plates in adjusted position

10. A display-stand, comprising a main support, a fixed shelf, and pivotally-mounted display-sections having means for holding them in any one of several positions, each display-section having side arms and pivoted shelves having means for securing them in any one of several positions of pivotal adjustment.

11. A display-stand, comprising a main support, a fixed shelf, pivoted display-sections at opposite sides of said fixed shelf, and a removable display-section above said shelf, each display-section comprising side arms and shelves, and the shelves of the pivoted sections being pivotally adjustable.

12. A display-stand, comprising a main support, a fixed shelf, pivotally and bodily adjustable sections at opposite sides of said fixed shelf, and a removable display-section projecting above said shelf.

13. A display-stand, comprising a main support, a fixed shelf, pivotally and bodily adjustable display-sections at opposite sides of said fixed shelf, each of said sections having adjustable shelves, and a removable display-section projecting above said fixed shelf.

14. A display-stand, comprising a main support, pivoted plates, means for clamping said plates in adjusted position, and a plurality of display-sections carried by said plates, said sections having side arms, pivoted to opposite ends of said plates and adjustable to and from each other bodily thereon.

15. A display-stand, comprising a main support, pivoted plates, a plurality of display-sections, having side arms pivoted to opposite ends of said plates and adjustable to and from each other bodily thereon, means for clamping said arms in pivotally-adjusted position, and means for clamping the plates in adjusted position and for clamping contiguous ends of the side arms to said plates in certain adjustments of the arms, substantially as described.

16. A display-stand, having supporting-legs, a fixed shelf in the space between the upper ends of said legs, bent arms securing said shelf to the legs, and adjustable display-sections having side arms in the spaces spanned by said bent arms.

17. A display-stand, having display-sections constructed with side arms, and plates connecting the arms of one section with the companion arms of the other section, said arms having pivot-pins and said plates having elongated openings for said pivot-pins, substantially as described.

18. A display-stand, comprising main supports, a plurality of display-sections having side arms, and pivotally-mounted plates connecting the arms of one section with the companion arms of the other section, said arms having pivot-pins and said plates having elongated openings for said pivot-pins, substantially as described and for the purposes set forth.

19. A display-stand, comprising main supports, a plurality of pivotally and bodily adjustable display-sections, adjustable plates connecting one display-section with the other, said plates having flanges to engage edges of the sections, and means for clamping the sections in adjusted position.

20. A display-staud, comprising main supports, a plurality of pivotally and bodily adjustable display-sections, adjustable plates connecting one display-section with the other, means for clamping said sections in adjusted positions, said sections having pivotally-adjustable shelves and clamping means therefor, substantially as described and for the purposes set forth.

21. A display-stand, comprising main supports, a fixed shelf, mounted between the upper ends of said supports, a plurality of display-sections, projecting in different directions from said fixed shelf and having side arms extending toward each other and into spaces between the ends of the fixed shelf and the main supports, and clamping means for locking the contiguous ends of said arms together, in said spaces.

22. A display-stand, comprising main supports, a fixed shelf, mounted between the upper ends of said supports, a plurality of display-sections projecting in different directions and having side arms extending toward each other and into spaces between the ends of the fixed shelf and the main supports, plates connecting together contiguous ends of the arms of two sections, means for pivoting said arms upon said plates and for permitting the arms to be adjusted toward and from each other bodily on said plates, and clamping means for said arms.

23. A display-stand, comprising a main support, a display-section having side arms projecting above said support and provided with shelves connecting its arms together, pivoted plates engaging the lower ends of said arms, side arms pivoted to opposite ends of said plates and adjustable to and from each other bodily thereon, pivoted shelves connecting the latter arms together in pairs, and clamping means for locking the plates adjustably to the lower ends of the first-mentioned arms and for locking the other arms to the plates in certain positions of bodily adjustment of said arms, substantially as described.

24. A display stand, comprising main supports, a display-section having arms at its sides, each arm provided with clamp members at both sides, plates having clamp members engaging those on the outer sides of said arms, clamp members engaging those on the inner sides of said arms, means for locking the clamp members together, and display-sections having arms pivoted to said plates.

25. A display-stand, comprising main supports, a display-section having arms at its sides, each arm provided with clamp members at both sides, plates having clamp members engaging those on the outer sides of said arms, clamp members engaging those on the inner sides of said arms, means for locking the clamp members together, and display-sections having arms pivoted to said plates and pivoted shelves connecting their arms together.

26. A display-stand, comprising main supports, a fixed shelf, means supporting said fixed shelf between said supports, each of said means having arms projecting from the shelf to the adjacent support and a clamp member between said arms, plates having clamp members, display-sections having side arms pivotally connected with said plates, a display-section having side arms each formed at its lower end with a clamp member at each side, and means for forcing the clamp members into interlocking engagement with each other.

27. A display-stand, comprising a main support, a plurality of display-sections supported thereby, one of said display-sections being removable, and the other sections having pivotal and bodily adjustments and provided with pivotally-mounted shelves, said sections having arms approaching each other, clamping means for locking said arms together.

28. A display-stand, comprising main supports, a fixed shelf, means supporting said fixed shelf between said main supports, each of said means having arms projecting from the shelf to the adjacent support and a clamp member between said arms, pivotally-mounted plates each having a clamp member, pivotally and bodily adjustable display-sections having side arms connected by said plates, and provided with pivotally-mounted shelves, a removable display-section having side arms formed at the lower ends with open-ended slots and clamp members at both sides of each arm, and a rod extending through the clamp members and provided with means for forcing the clamp members into interlocking engagement.

29. A display-stand, comprising a main support and a plurality of relatively-adjustable display-sections, each of said sections having a series of pivoted shelves, means for permitting the shelves to be adjusted bodily toward and from each other, and means for securing the shelves in adjusted position.

30 A display-stand, provided with side arms and shelves connecting said arms together, said arms and shelves having angular openings and bolts having angular sections removably engaged with the angular openings in the shelves and arms, and serving to lock said shelves adjustably to the arms, substantially as described.

31. A display-stand, provided with side arms and shelves connecting said arms together, said arms and shelves having angular openings, bolts having angular sections removably engaged with the angular openings in the shelves and arms, said bolts having reduced inner ends, and springs for attaching said bolts to the shelves so as to permit disengagement of the angular sections thereof from said openings.

32. A display-stand, provided with side arms, having angular openings connected together in series, shelves connecting said arms and having angular openings, and bolts having angular sections removably engaged with said openings in the arms and shelves, said bolts also having reduced inner ends located in the openings in the shelves and serving as pivots for the shelves when the angular sections of the bolts are disengaged from said openings, substantially as described, whereby the shelves are adjustable pivotally and bodily, as specified.

33. A display-stand, having a main support, and a pivoted display-section, comprising side arms having angular openings connected together in series by slots, shelves connecting said arms together and having angular openings, bolts having angular sections removably engaged with said angular openings, and also having reduced inner ends located in the openings in the shelves and serving as pivots when the angular sections of the bolts are disengaged from said openings, and springs connecting said inner ends of the bolts with the shelves.

34. A display-stand, comprising main supports, a fixed shelf between the upper ends of said main supports, a plurality of display-sections mounted to be adjustable pivotally and bodily as described: each of said sections comprising slotted side arms, shelves between said arms having angular openings, and bolts connecting the shelves with the arms, said bolts being longitudinally movable and having round and angular sections, as specified.

35. A display-stand, comprising main supports, pivotally-adjustable plates, and display-sections, having side arms with confronting ends secured to said plates, and shelves pivoted between said arms.

36. A display-stand, comprising main supports, pivotally-adjustable plates, display-sections having side arms with their confronting ends connected by said plates, each of said sections also having shelves pivoted between its arms and means for fixing the shelves in adjusted positions, and clamps, securing said plates in adjusted positions and also fixing the confronting ends of the side arms to said plates.

37. A display-stand, comprising main supports, pivotally-adjustable plates having clamp members, display-sections having side arms with their confronting ends connected by said plates and shelves pivoted between the arms of each section, means for pivoting said arms to opposite ends of the plates and for permitting the arms to be adjusted bodily toward and from the centers of the plates, clamp members to engage those on the plates, and a locking-bolt extending through said plates and clamp members and having heads to engage the confronting ends of said arms in certain adjustments of the sections.

38. A display-section comprising main supports, plates adjacent to the upper ends thereof, having clamp members, clamp members adjacent thereto, a display-section, means for causing said members to clamp the lower ends of said section between them, and display-sections having side arms attached to said plates and connected thereby.

39. A display-stand, comprising main supports, plates adjacent to the upper ends thereof, having clamp members, clamp members adjacent thereto, a display-section having arms projecting between said clamp members and formed to interlock therewith, locking bolts to secure said clamp members and arms together, and display-sections having side arms attached to said plates and connected thereby.

40. A display-stand, comprising main supports, pivotally-mounted plates adjacent thereto, having clamp members, clamp members adjacent thereto, a display-section, having arms projecting between said clamp members and formed to interlock therewith, display-sections projecting from opposite ends of said plates, means for pivoting the latter sections to the plates and for permitting them to be adjusted toward and from the centers thereof, and a locking-bolt extending through the clamp members and having heads at its outer ends, substantially as described and for the purpose set forth.

41. A display-stand, comprising main supports, a fixed shelf, display-sections having arms projecting in different directions from opposite ends of said shelf, means for securing the arms of the several sections together, and dogs secured to said shelf for engaging the arms of one section.

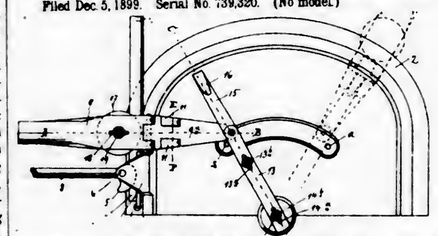
644,248. IMPLEMENT FOR TESTING MEAT. WILLIAM H. HUNTINGTON, Boston, Mass. Filed Nov. 24, 1899. Serial No. 738,217. (No model.)



Claim.—1. A meat-tester, comprising a rod or spindle having a penetrating-point at one end, a handle at its opposite end, and sharp teeth or projections in rear of the point and adapted in the withdrawal of the implement to remove and retain particles of the meat, and a tubular sheath surrounding the rod or spindle between said teeth and the handle and adapted to be slid outwardly to completely cover the toothed portion of the rod or spindle and retain the particles of meat in the teeth.

2. A meat-tester, comprising a rod or spindle having a penetrating-point at one end, a handle at its opposite end, and provided in rear of its point with sharp teeth or projections adapted, in the withdrawal of the implement, to remove and retain particles of meat, and a tube inclosing the rod or spindle between its handle and teeth and provided at its inner end with a handle, said tube being adapted to be slid outwardly and inclose the toothed portion of the rod or spindle and retain the particles of meat in the teeth.

644,249. BENDING AND FORMING MACHINE. MARTIN L. KEYES, Carthage, N. Y., assignor to Franklin E. Robinson, same place. Filed Dec. 5, 1899. Serial No. 739,320. (No model.)



Claim.—1. In a metal-bending machine the bed-plate or die having a flange and a shoulder, mechanism for clamping the bar to the die, a jointed handle carrying an antifriction-roll pivoted to a connecting-bar, a connecting-bar pivoted to the frame or die and means for engaging the jointed handle with the extension of the bar, combined, substantially as set forth for the purposes stated.

2. A frame or die having engaging shoulders, the die being formed with curves having different radiuses, mechanism for clamping the metal to the die, a handle pivoted to a pivotal bar, a pivotal bar pivoted to the machine and having an extension for engaging a shoulder on the handle and an antifriction-roll on the handle, combined, substantially as set forth for the purposes stated.

3. The die having curved shoulders in different radiuses, the bar pivoted to the die and having an extension-hook at its end, a handle pivoted to the bar, an antifriction-roll on the handle and means for clamping the end of the metal to the die, combined, substantially as set forth for the purposes stated.

4. The die having shoulders having two different radiuses, an adjustable bar pivoted to the die and having a spring extension, a handle pivoted to the bar, an antifriction-roll pivoted to the handle, stops for limiting the movement of the bar and mechanism for clamping the bar to the die combined, substantially as set forth for the purposes stated.

5. The die having a flange and a shoulder, a bar pivoted to the die and having a spring-hook extending beyond the pivotal point of the handle, a handle pivoted to the bar, the handle carrying stops for engaging the extension of the bar and adjustable antifriction-roll adjustably secured to the handle and mechanism for clamping the bar to be operated on the die, combined, substantially as set forth for the purposes stated.

6. A die having a flange and a shoulder being formed in a curve having different radiuses, an adjustable bar pivoted to the die and having a spring extension beyond the pivotal point of the handle, a handle pivoted to the adjustable bar and provided with mechanism for engaging the bar to be operated on and a stop for engaging the extension of the bar, stops on the die for limiting the movement of the bar and mechanism for clamping the bar to the die, combined, substantially as set forth for the purposes stated.

7. A die having a curved face, a cam operated by the handle for securing the bar to be operated on, a pivoted handle having a hinge, the handle carrying an antifriction-roll for operating on the metal to conform the same to the shape of the die, mechanism for engaging the pivoted handle and operating with the handle, a stop for limiting the movement of the pivoted handle and engaging mechanism, and mechanism for disengaging the engaging mechanism from the handle combined for the purposes stated.

8. A die having a curved face, mechanism for engaging and clamping the metal to the face of the die, a pivoted handle carrying an antifriction-roll for operating on the metal to conform the same to the shape of the die, mechanism for engaging the pivoted handle and movable with the handle, a stop for limiting the movement of the handle and the handle-engaging mechanism, and mechanism for disengaging the movable engaging mechanism from the handle, combined, substantially as set forth, for the purposes stated.

9. A die having a curved face, mechanism for engaging and clamping the metal to the face of the die, a pivoted handle carrying an antifriction-roll for operating on the metal to conform the same to the shape of the die, mechanism for engaging the pivoted handle and movable with the handle, a stop for limiting the movement of the handle and the handle-engaging mechanism, and mechanism for disengaging the handle and the engaging mechanism, combined, substantially as set forth, for the purposes stated.

644,250. **COMPOSITION FOR WATERPROOFING.** WILLIAM C. KIPLING and EDWARD ARNOLD, Sudbury, England; said Kipling assignor to George Lancelot Andrewes, same place. Filed Nov. 8, 1897. Serial No. 657,873. (No specimens.)

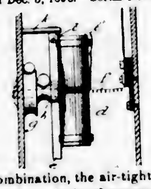
Claim.—1. A wash for rendering silk, cotton or other material waterproof, containing tannate of alumina, substantially as described.

2. A composition of matter for waterproofing silk, cotton or other material, composed of tannic acid and acetate of alumina, substantially as described.

3. A composition of matter for waterproofing silk, cotton or other material, composed of sulfate of alumina, acetate of lead, tannic acid and distilled water, substantially as described.

4. A composition of matter for waterproofing silk, cotton or other material, composed of the following ingredients in substantially the proportions named: sulfate of alumina, three to five ounces; acetate of lead, four ounces; tannic acid, one-fourth ounce; distilled water, one gallon.

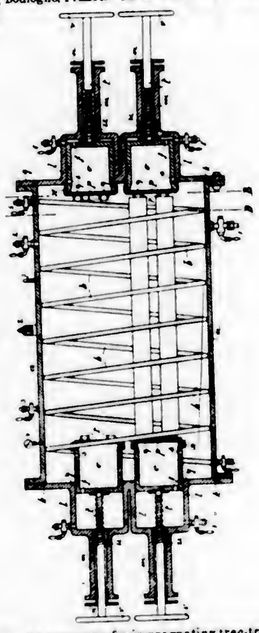
644,251. **ELECTRIC-CONTACT APPARATUS.** CARL G. O. H. VON KÖHLER, Stockholm, Sweden, assignor to the Patentaktiebolaget Svea, same place. Filed Dec. 5, 1898. Serial No. 698,386. (No model.)



Claim.—1. In combination, the air-tight tube having the terminals exposed in its interior, a body of mercury in said tube to contact with said terminals, means for turning the tube comprising the weak and strong springs, the pulleys to which they are attached, the catch for holding the tube in one upright position, the lever for stretching the stronger spring and means for operating the lever and catch consisting of the rotary shaft and the arms thereon to engage the catch and lever respectively, substantially as described.

2. In combination the tube, air-tight and containing mercury and electric contacts and means for oscillating said tube comprising the strong and the weak springs acting in opposition, catch mechanism and means for controlling the same, substantially as described.

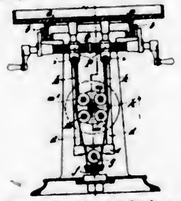
644,252. **APPARATUS FOR IMPREGNATING WOOD.** GEORG F. LEBIODA, Boulogne, France. Filed Oct. 5, 1899. Serial No. 732,704. (No model.)



Claim.—1. An apparatus for impregnating tree-trunks or lengthy pieces of wood, comprising a vessel or cylinder *a* having two ends or covers *g* provided with a number of cylindrical extensions *e* in which there are adjustably arranged hollow cylinders *o* having inserted plates *p* provided with a number of perforations *q* surrounded by annular sharp-edged bosses or cutters *r* with the object of enabling tree-trunks or long pieces of wood to be held fast between the perforated plates *p* and of facilitating the penetration of the impregnating fluid in the direction of the fibers substantially as hereinbefore described.

2. In apparatus described for impregnating wood, the combination of the adjustable hollow cylinders *o* with openings such as *s* and *f*, and with projecting flanges *r* adapted to engage corresponding annular grooves *y* provided in the ends *g* of the main cylinder, whereby the hollow cylinders *o* may be closed tightly against the said ends *g* to shut the openings *s*, while the openings *f* communicate with taps 8 substantially as hereinbefore described.

644,253. **APPARATUS FOR MAKING CHOCOLATE.** LOUIS B. LEHMANN, Dresden-Lobtau, Germany. Filed Oct. 7, 1899. Serial No. 732,968. (No model.)



Claim.—1. In a machine for producing reciprocatory movements of a table or support, the combination of the belt or flexible connection, connected at one end to a fixed support, and at the other to the table-support, and a rotary cam device for deflecting the belt; substantially as described.

2. In a machine for producing reciprocatory movements of a table or support, the combination of a belt or flexible connection in the form of a loop suspended at two fixed points and connected to the table-support, of a rotary cam device within the loop, whereby the loop is alternately extended or pressed outward, and the table alternately raised and lowered; substantially as described.

3. In a machine for producing the reciprocatory movement of a table or support, the combination of a belt or flexible band in the form of a loop, the ends of which are attached to fixed supports, a block resting on the loop, connections between the table and block and a rotary cam device within the loop, whereby said loop is intermittingly pressed outward, and the table thereby intermittingly raised and lowered; substantially as described.

4. In a machine for producing reciprocatory movement of a table or support, the combination of the belt or flexible band in the form of a loop, the ends of which are attached to fixed supports, the block resting in the loop, the rods connected to the table and block and the rotary cam device located within the loop, consisting of the disks carrying the pairs of rollers, the rollers diametrically opposite each other forming an operative pair; substantially as and for the purpose set forth.

5. In a machine for producing reciprocatory movements of a table or support, the combination of the flexible band or belt in the form of a loop, the ends of the loop rigidly connected to supports, a block resting in the loop of the belt, connections between said block and table, a rotary cam device for intermittently pressing said loop outward and means for regulating the length of the loop to vary the extent of the reciprocation of the table or support; substantially as described.

6. In a machine for producing reciprocatory movements of a table or support, the combination of the flexible band or belt in the form of a loop, the screw-threaded blocks to which the ends of the band are secured, the block resting in the loop of the band, connections between said block and table, the rotary cam device for intermittently pressing the loop outward, and the spindle provided with the oppositely-screw-threaded portions on which run the blocks carrying the ends of the band whereby by turning the spindle the distance between the ends of the loops may be regulated to vary the length of the loop; substantially as and for the purpose set forth.

644,254. **THILL-COUPLING.** WILLIAM H. MAKUTCHAN, Princeton, Ill., assignor of one-half to Howard Edward Makutchan, same place. Filed July 14, 1899. Serial No. 723,787. (No model.)

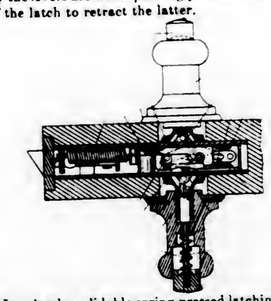


Claim.—1. In a device of the class described, the combination with an axle and an axle-clip, of a substantially U-shaped coupling-piece having one of its sides arranged in the bearings of the axle-clip and adapted to connect a coupling-iron with the same, the other side of the coupling-piece being located below the said bearings, a substantially U-shaped spring fulcrumed between the ends of its sides on the lower portion of the U-shaped coupling-piece and having its front end bearing against the coupling-iron to form an antirattler, and a transverse hanger interposed between the clip-plate and the axle and rigidly secured in position by the axle-clip, said hanger being provided with depending hooks detachably receiving the rear ends of the sides of the spring, substantially as and for the purpose described.

2. In a device of the class described, the combination with an axle, and an axle-clip provided in the upper face of its clip-plate with a transverse groove, of a hanger arranged in the groove and rigidly secured to the axle by the said clip, a substantially U-shaped coupling-piece having one side arranged in the bearings of the axle-clip and adapted to connect a coupling-iron to the same, and a spring fulcrumed between its ends on the lower portion of the U-shaped coupling-piece and having its front end bearing against the coupling-iron, said spring being composed of two sides having their rear ends detachably engaging the hooks of the rigid hanger, substantially as described.

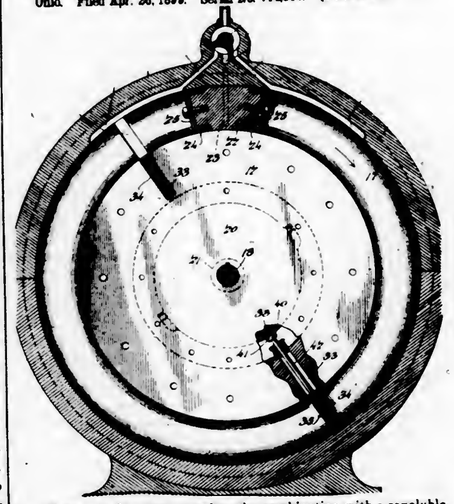
644,255. **LOCK.** JOHN C. MEYER, San Francisco, Cal. Filed June 26, 1899. Serial No. 721,864. (No model.)

Claim.—1. In a latch, a slidable spring-pressed latching-bolt, a stationary framework fixed between the rearwardly-extending parallel arms of the latch, toggle-levers arranged in pairs and fulcrumed in said framework, the forward ends pivoted to the framework and the rear ends connecting with the rear portion of a latch with the transverse pivoted angles of said levers projecting through the sides of the lock-plate, hollow knob-shanks in line with said angles, push-buttons movable within said knob-shanks, pins connected therewith having their inner ends disconnected from and adapted to engage the transverse meeting angles of the levers and force them inwardly whereby the levers are correspondingly extended in the line of movement of the latch to retract the latter.



2. In a latch, a slidable spring-pressed latching-bolt having rearwardly-extending parallel bars, a frame fixed between said bars, toggle-levers having the front ends pivoted to the stationary frame, a pin projecting through slots in the rear portion of said frame and connecting with the parallel bars of the slidable latch, pivots by which the transverse angles of the levers are united so that said angles project through the lock-plate, hollow knob-shanks fixed upon opposite sides of the door in line with the projecting lever-angles, spring-pressed push-buttons slidable in the outer ends of said shanks, pins connecting with said buttons extending inwardly through guiding-tubes and having the inner ends beveled and contacting with the transverse angles of the toggle-levers whereby a pressure upon the push-buttons acts to compress the levers transversely and extend them in the line of movement of the latch to withdraw the latter.

644,256. **ROTARY ENGINE.** GEORGE W. MONTGOMERY, Bellaire, Ohio. Filed Apr. 26, 1899. Serial No. 714,567. (No model.)



Claim.—1. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam for each piston-wing having oppositely-convexed outer and inner cam-faces, and a cam-yoke connected with each piston-wing, and having diametrically-opposite bearings respectively upon said cam-faces, substantially as specified.

2. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam for each piston-wing having oppositely-elongated outer and inner cam-faces, and a cam-yoke connected with each piston-wing and having diametrically-opposite bearings respectively upon their respective cam-faces, substantially as specified.

3. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam having outer and inner cam-faces of which the major axes are arranged perpendicularly to each other, and a yoke connected with the piston-wings and having diametrically-opposite bearings upon said cam-faces, substantially as specified.

4. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam having an outer cam-face of which the major portion is concentric with the axis of rotation and the remaining portion is flattened, and an inner oval cam-face having its major axis arranged to connect the centers of said concentric and flattened portions of the outer cam-face, and a cam-yoke connected with a piston-wing and having diametrically-opposite bearings respectively upon said cam-faces, substantially as specified.

5. In a rotary engine, the combination with a revoluble member and radially-reciprocable piston-wings carried thereby, of a cam for each piston-wing having outer and inner cam-faces elongated in planes at right angles to each other and arranged flush with each other at the extremities of the major axis of one of said cam-faces, and a cam-yoke connected with each piston-wing and having diametrically-opposite bearings respectively upon their respective cam-faces, substantially as specified.

6. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam having a concentric seat, outer and inner relatively-eccentric cam-faces, a cam-yoke connected with a piston-wing and having diametrically-opposite bearings respectively upon said cam-faces, and a strap mounted upon said concentric seat, and having the cam-yoke arranged therein for reciprocation, substantially as specified.

7. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam having a concentric strap-seat, and outer and inner cam-faces having their major axes arranged upon perpendicularly-disposed lines, a strap mounted in said seat and provided with guides, and a cam-yoke connected with a piston wing, mounted in said strap, and provided with diametrical bearings in contact at diametrically-opposite points respectively with said cam-faces, substantially as specified.

8. In a rotary engine, the combination with a revoluble member, and radially-reciprocable piston-wings carried thereby, of a cam having a concentric strap-seat and outer and inner cam-faces, 45 and 47, of different widths inclosed within said strap-seat, a strap mounted upon said seat and provided with a guide-thimble and diametrically-opposite guideways, a cam-yoke arranged within said strap, provided with keys mounted in the diametrical guideways thereof, and provided with diametrically-opposite bearing-points in contact respectively with said cam-faces, and a piston-wing stem extending through said guide-thimble and connected with the cam-yoke, substantially as specified.

9. In a rotary engine the combination of a supporting-frame having an annular concaved seat, a rotary cylinder fitted at its outer periphery in said seat and provided with a piston-chamber, a continuous annular channel opening into the piston-chamber, an annular web projecting inwardly from said seat and fitting in the channel of the cylinder, a fixed abutment carried by said web, piston-wings mounted for reciprocatory movement in guides in the cylinder, and piston-wing-operating devices, comprising cams having outer and inner faces, of which the major axes are arranged perpendicular to each other, and yokes connected with the piston-wings and having diametrically-opposite bearings upon said cam-faces, substantially as described.

10. In a rotary engine, the combination of a rotary cylinder provided in its outer wall with a continuous channel in communication with its piston-chamber, an abutment-carrying web fitted in said channel and provided with cylinder-ports and communicating exhaust-channels communicating with the piston-chamber at opposite sides of the plane of the fixed abutment, piston-wings mounted in guides in the cylinder, a convexed cam arranged adjacent to the axis of the cylinder, and a cam-yoke mounted upon the cam and connected with a piston-wing, said cam having a wing-retracting portion of which the extremities are separated a less angular distance than the extremities of said exhaust-channels in the abutment-supporting web, substantially as specified.

644,257. SPICE-CABINET. PATRICK J MULLOY, Ardoch, N. D. Filed May 18, 1899. Serial No. 717,343. (No model.)

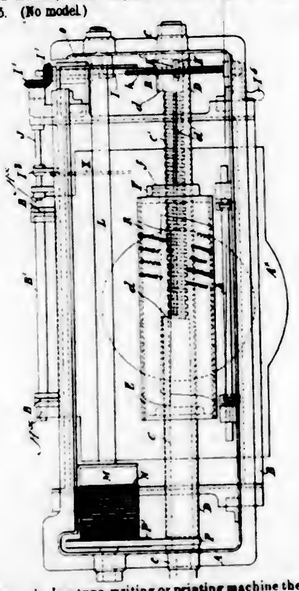


Claim.—1. A spice-receptacle having a downwardly-tapered or funnel-shaped lower end and a communicating depending outlet-spout, a vertical feed-screw arranged axially in said spout, an operating-spindle, connections between the operating-spindle and the spindle of the feed-screw, a housing for said connections and agitator-arms carried by the spindle of the feed-screw, above and below said housing, substantially as specified.

2. A spice-receptacle having a downwardly-tapered or funnel-shaped lower end and a communicating depending outlet-spout, a feed-screw arranged axially in said spout, an operating-spindle, connections between the operating-spindle and the spindle of the feed-screw, and a disk carried by the spindle of the feed-screw and arranged horizontally in the receptacle to leave an annular space between the periphery thereof and the wall of the receptacle, substantially as specified.

3. A spice-receptacle having a downwardly-tapered or funnel-shaped lower end and a communicating outlet-spout, a feed-screw arranged axially in said spout, an operating-spindle, connections between said spindle and the spindle of the feed-screw, and a corrugated disk-shaped guard carried by the spindle of the feed-screw and arranged horizontally in the receptacle to leave an annular space between the periphery thereof and the wall of the receptacle, substantially as specified.

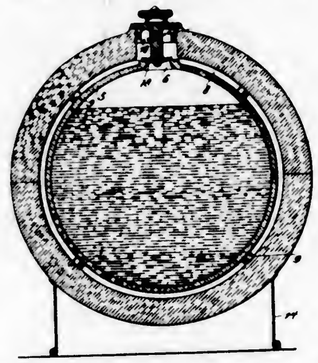
644,258. CARRIAGE. ALPHONSUS G. O'FARRELL, Dublin, Ireland, assignor of four-seventhe to James Edward Schumacher and Walter Richard Makins, York, England. Filed Aug. 30, 1898. Serial No. 689,865. (No model.)



Claim.—1. In a type-writing or printing machine the combination of a shaft rigidly mounted in frame hinged to the top of the frame-work of the machine, a screw-thread cut in said shaft for a portion of its length, a sleeve mounted upon and free to revolve on said shaft, said sleeve having a longitudinal slot cut in it for a portion of its length, a platen mounted upon said sleeve capable of revolving with and sliding longitudinally upon said sleeve, a pin arranged to pass through a boss on the platen in the slot of said sleeve and to engage with the screw-thread cut in the fixed shaft, a disk mounted upon the said sleeve having teeth cut in the major portion of its periphery, a recess formed in periphery of said disk between the said teeth, a rocking shaft armed at one end with a handle and at the opposite end with a bevel-wheel and provided below and at right angles to the fixed shaft, a helical spring for returning the rocking shaft to its normal position after each oscillation, an escapement-dog mounted upon said rocking shaft and consisting of a rigid section and an adjustable-spring-section, each of said sections being arranged to engage with the teeth cut in the periphery of said disk, a second shaft arranged at right angles to the escapement-shaft and armed with a bevel-wheel arranged to gear with bevel-wheel on the last-named shaft, a lever mounted upon the second shaft, a spacing-lever, and a link for connecting it to the lever on the second shaft, all as set forth.

2. In a type-writing or printing machine the combination of a disk mounted upon the said sleeve having teeth cut in the major portion of its periphery, a recess formed in periphery of said disk between the said teeth, a rocking shaft armed at one end with a handle and at the opposite end with a bevel-wheel and provided below and at right angles to the fixed shaft, a helical spring returning the rocking shaft to its normal position after each oscillation, an escapement-dog mounted upon said rocking shaft and consisting of a rigid section and an adjustable-spring-section, each of said sections being arranged to engage with the teeth cut in the periphery of said disk, a second shaft arranged at right angles to the escapement-shaft and armed with a bevel-wheel arranged to gear with bevel-wheel on the last-named shaft, a lever mounted upon the second shaft, a spacing-lever and a link for connecting it to the lever on the second shaft, a lever pivoted to the rear of the machine and armed with a projection for engaging with the spacing-lever, said lever armed with a projection being actuated by the keys and spacing-lever of the machine, a counter-shaft mounted in the hinged frame at the back of and parallel with the platen-shaft and sleeve, a pulley and belt for connecting the counter-shaft and sleeve together, a second pulley mounted upon said counter-shaft upon which a cord is wound, a weight attached to free end of cord, a disk mounted upon said counter-shaft and having projections formed upon its periphery, a lever mounted upon the escapement-shaft arranged to engage with the projections on the last-named disk for intercepting its rotation for marginal spacings, and a handle fixed to the counter-shaft for winding up the weight and returning the platen to its normal position, all as set forth.

644,259. RECEPTACLE FOR HOLDING AND STORING LIQUID AIR OR OTHER LIQUID GASES. OSCAR P. OSTERGREN, New York, N. Y. Filed May 1, 1899. Serial No. 715,156. (No model.)



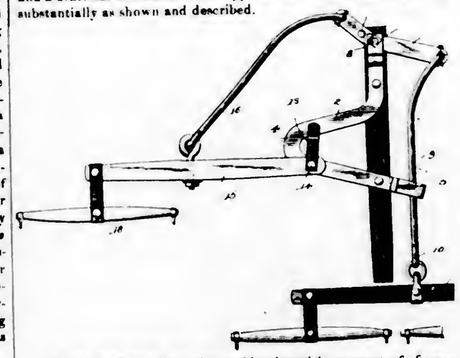
Claim.—1. In a receptacle for holding liquid air or other liquids vaporizable at atmospheric temperatures and pressure, the combination of an interior vessel for holding the liquid, with an exterior porous casing surrounding same, a space being arranged between the interior vessel and the porous casing, and an orifice in the interior of the vessel opening into said space, the exterior of the said porous casing being exposed to the atmosphere, substantially as specified.

2. In a receptacle for holding liquid air or other liquids vaporizable at atmospheric temperatures and pressure, the combination of an interior vessel for holding the liquid, with an exterior porous casing surrounding same, a space being arranged between the interior vessel and the porous casing, an orifice in the interior vessel opening into said space, the exterior of the said porous casing being exposed to the atmosphere, and a non-return valve fitted to said opening, whereby fluid is permitted normally to pass in one direction only, substantially as specified.

3. In a receptacle for holding liquids, the combination of an interior vessel for holding the liquid, with an exterior porous casing surrounding same, a space being arranged between the interior vessel and the porous casing, an orifice in the interior vessel opening into said space, and a non-return valve fitted to said opening whereby fluid is permitted normally to pass in one direction only, an opening in said porous casing, a valve fitted thereto, a connection between said valve and said non-return valve whereby when the former is opened the latter is rendered inoperative, thereby permitting the passage of fluid in either direction, substantially as specified.

644,260. DRAFT-EQUALIZER. EMIL ROHLFFS, Spencer, S. D. Filed Aug. 25, 1899. Serial No. 728,490. (No model.)

Claim.—1. In a draft-equalizer, the combination with a support, of an equalizing-lever, an equalizing-bar fulcrumed at one end to the support and at one side of the central line of draft, which latter passes through the fulcrum of the equalizing-lever, a link connecting one end of the lever with an intermediate point of the equalizing-bar, and a draft-bar connected to the opposite end of the equalizing-lever, substantially as shown and described.

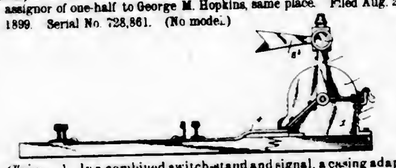


2. In a draft-equalizer, the combination with a support, of a frame-iron having its ends angularly related and terminating at its opposite extremities in a raised portion and a guide-loop and formed with a transverse V-shaped extension, a draft-equalizing lever adjustably fulcrumed under the raised end of the frame-iron, an equalizing-bar terminally fulcrumed upon the V-shaped extension of the frame-iron, a link connecting the equalizing-bar at its middle with one end of the equalizing-lever, and a draft-bar pivotally connected to the opposite end of the equalizing-lever and extending through the terminal eye of the frame-iron, substantially as specified.

3. As an element of an equalizing device, a substantially V-shaped frame, having one side longer than the other, and terminating in an eye, the outer end of the opposite shorter side having an outwardly and transversely disposed extension, provided with an offset or substantially L-shaped terminal, substantially as shown and described.

4. In a draft-equalizer, the combination with a supporting-frame, of an equalizing-lever carried by the frame and located intermediate of the opposite ends thereof, an equalizing-bar pivoted to the frame and at one side of the lever, a draft-bar carried by the frame and located at the opposite side of the lever, and connecting means carried exclusively by the frame, and operatively connecting the equalizing-lever with the draft-bar and the equalizing-bar, respectively, said frame being designed for application to the tongue of a vehicle, substantially as shown and described.

644,261. SWITCH-STAND. CHARLES SCHLARED, Columbus, Ohio, assignor of one-half to George M. Hopkins, same place. Filed Aug. 29 1899. Serial No. 728,861. (No model.)



Claim.—1. In a combined switch-stand and signal, a casing adapted to stationarily support a lantern, the master-wheel 2 in said casing to which the switch-rod is to be attached having a shaft 2^a standing parallel to the track and protruding beyond the sides of the casing, lensed signal-arms connected to each end of said shaft 2^a, a pinion 3 engaging said master-wheel and having its shaft protruding from the casing, and a rocking lever attached to said shaft, substantially as described.

2. In a switch-stand, a casing, the master-wheel 2 in said casing to which the switch-operating rod is to be attached, a pinion 3 engaging said master-wheel having its shaft protruding beyond the casing, an oscillating lever connected to the protruding end of said shaft, and independently-adjustable keepers for said lever located at opposite sides of the axis of oscillation of said lever, substantially as described.

644,262. STRAINER FOR DOWN-SPOUTS. BURTON A. STAIR, Harrisonville, Mo. Filed Dec. 22, 1899. Serial No. 741,294. (No model.)

Claim.—1. In a strainer of the class described, the combination with a down-spout or like pipe-line, of a strainer, comprising a shell or casing, a removable top or cover therefor, a pipe-section carried by the cover, communicating with the interior of the strainer, and

also telescopically receiving the adjacent end of the down-spout, and a strainer proper removably housed within the shell or casing.



2. In a strainer of the class described, the combination with a down-spout or like pipe-line, of a strainer, comprising a shell or casing, having upwardly-divergent walls, a removable top or cover for the shell or casing, a pipe-section carried by the cover, communicating with the interior of the shell or casing, and telescopically receiving the adjacent end of the down-spout, and a removable strainer proper supported upon the interior walls of the shell or casing, and removable through the upper end of the latter.

3. In a strainer of the class described, the combination with a down-spout or like pipe-line, of a strainer, comprising a shell or casing open at opposite ends and provided with upwardly-divergent walls, one or more strainers proper removably housed within the shell or casing, and comprising a perforate bottom, an outwardly-inclined marginal rim frictionally engaging the similarly-inclined walls of the shell or casing and a handle for removing the strainer, and a removable cover or top for the upper end of the shell or casing, and provided with an opening telescopically receiving the adjacent end of the down-spout.

4. In a strainer of the class described, the combination with a down-spout or like pipe-line, of a strainer, comprising a shell or casing open at its upper and lower ends, and inclined upwardly and outwardly from the down-spout, one or more strainers proper removably housed within the shell or casing, and a removable top or cover for the latter, and provided with an opening telescopically receiving the adjacent ends of the down-spout.

5. In a strainer of the class described, the combination with a down-spout or like pipe-line, of a strainer, comprising a shell or casing open at its upper and lower ends, inclined upwardly and outwardly from the down-spout, and provided with upwardly-divergent walls, one or more strainers proper removably housed within the shell or casing and supported upon the inclined walls thereof, and a top or cover removably fitted to the open upper end of the shell or casing, and provided with an opening, and a pipe-section rising from the wall of the said opening and telescopically receiving the adjacent end of the down-spout.

6. A strainer of the class described, comprising an inverted substantially cone-shaped shell or casing open at its lower and upper ends, and normally inclined to one side of the perpendicular, one or more strainers, located within the interior of the shell or casing, each strainer being substantially circular in form and provided with an outwardly-inclined rim frictionally engaging the inclined walls of the shell or casing, and a removable cover fitted to the upper open end of the shell or casing, and provided with an opening located at one side thereof, and a pipe-section rising from the walls of said opening.

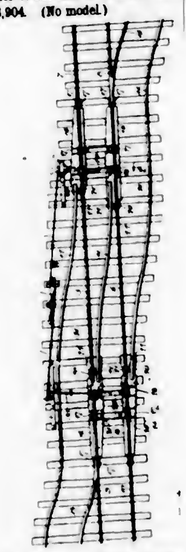
644,268. WRENCH. OTTO STECHHAN, Indianapolis, Ind., assignor to the Indianapolis Drop Forging Company, same place. Filed Jan. 8, 1900. Serial No. 725. (No model.)

Claim.—1. A wrench wherein the screw-step is formed on the end of a prolonged handle-tang, which tang is bent around upon itself bringing the step into position substantially as set forth.



2. The combination, in a wrench, of the main member having the usual stationary jaw, a sliding jaw secured to the said main member by loop portions passing around the same, a screw for operating said sliding portion, and a step upon which said screw is mounted, said step being formed upon the end of a prolonged handle-tang extending out from the main member, which said handle-tang is, after the sliding jaw has been placed upon the main portion, bent around upon itself, bringing the step into position, substantially as and for the purposes set forth.

644,264. RAILROAD-SWITCH. JAMES C. STURR, Knottsville, W. Va., assignor of one-half to William Jennings. Filed Aug. 11, 1899. Serial No. 726,904. (No model.)



Claim.—1. In a railway-switch system, the combination with a main track way including movable rails, of a switch at each side of the main track way and comprising a single rail common to both switches, and means for moving the movable rails into alinement with the main or switch rails each of said switches comprising also a portion of a main-track way rail.

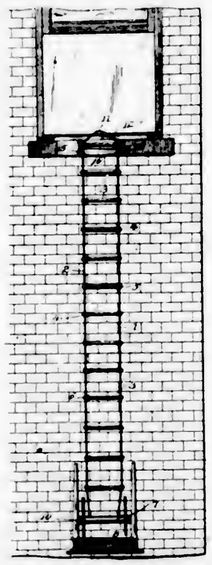
2. In a railway-switch system, the combination with a main track-way comprising fixed and movable rails, of a switch at each side of the main track way and comprising fixed switch-rails, each of said switches including also a portion of a main-track rail, a rail common to the switches and located intermediate the main-track rail and at an angle thereto, and a common means having connections with the movable rails to move them into simultaneous engagement with the switch-rails or the adjacent main-track rails.

3. In a railway-switch system, the combination with main-track rails comprising movable rails, of switch-rails adjacent thereto, a plate including chairs engaging and holding the adjacent ends of corresponding rails, and with which the movable rails are in slidable contact, and means for operating the movable rails to cause them to alternately aline with adjacent fixed rails.

4. In a switch system, the combination with a main track way comprising fixed rails, and additional rails, portions of which are movable, of switch-rails adapted for alinement with the movable rails alternately with the adjacent fixed rails of the main track, a plate having a single chair connected with the fixed portion of each movable rail, and having a double chair connected with the adjacent ends of the adjacent main and switch rails, connections between corresponding movable rails, bell-crank levers connected with said connections, a lever, and links connecting the bell-crank levers with the last-named lever and adapted to transmit motion from the lever to the movable rails.

5. In a railway-switch system, the combination with main-track rails including rails having fixed portions and movable portions, of switch-rails, a plate beneath each movable-rail portion and having a chair engaging the corresponding fixed-rail portion, and an additional chair engaging the adjacent ends of the corresponding main and switch rails, transverse depressions in said plates, connections between the elements of each pair of movable-rail portions, lying in said depressions, and a lever connected with said connections and adapted to reciprocate them in the depressions and aline the movable-rail portions with the main and switch rails alternately.

644,265. FIRE-ESCAPE. PHILIP C. THIRION, Missoula, Mont. Filed Nov. 10, 1899. Serial No. 736,501. (No model.)

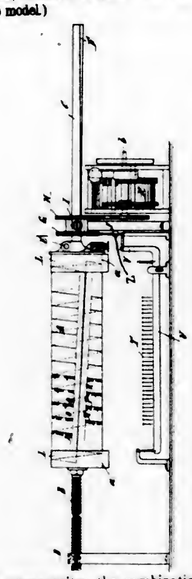


Claim.—1. In a fire-escape, the combination with an article of furniture, of a reel mounted thereon, a flexible ladder having its lower end connected to the reel, and an anchoring device applied to the opposite upper end of the ladder, the article of furniture forming a weight at the lower end of the ladder, when said ladder is in use.

2. In a fire-escape, the combination with an article of furniture, having legs, and opposite cross-bars carried by the legs, of a reel, having its opposite ends journaled in the respective cross-bars, a flexible ladder, having its lower end connected to the reel, and an anchoring-hook provided at the opposite upper end of the ladder, the table forming a weight at the lower end of the ladder when the fire-escape is in use.

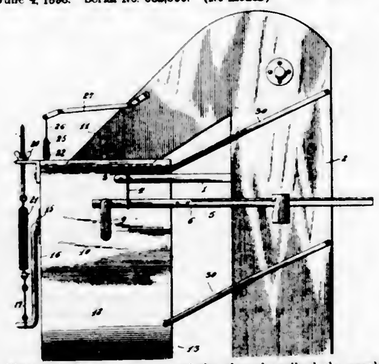
3. A flexible ladder, comprising opposite cables, rounds having their inner ends fitting against the inner sides of the respective cables, ferrules fitted to the respective ends of the rounds, and headed fastening devices passing transversely through the respective cables and longitudinally into the adjacent ends of the rounds.

644,266. PAPER-CARRIER FOR TYPE-WRITERS. EDOUARD VAN DER BELEN, Brussels, Belgium. Filed Nov. 7, 1898. Serial No. 695,698. (No model.)



Claim.—In a type-writer, the combination with the horizontal spindle having a threaded portion engaging a nut-bearing, and the platen carried by said spindle, with means for clamping the paper obliquely thereon, of a motor for rotating said spindle, a ratchet-wheel having mutilated portion in line with the edge of the paper to form the margin, and an escapement-pawl cooperating with said ratchet-wheel, substantially as described.

644,267. AUTOMATIC GRAIN-SCALE. CHARLES H. WILKEN, Preston, Iowa, assignor of one-half to Ira Lenker, same place. Filed June 4, 1898. Serial No. 682,566. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a suitable support, of a vertically-movable hopper or receptacle, a counterbalancing-weight, an oscillating partition pivotally mounted within the hopper or receptacle and adapted to be shifted from one side of the same to the other side thereof, mechanical means for automatically shifting the partition when released, and a pair of

catches pivotally mounted on the hopper or receptacle and arranged to engage the partition, said catches being connected with the support, whereby when the hopper or receptacle moves downward, the catches will be lifted out of engagement with the partition, substantially as described.

2. In an apparatus of the class described, the combination of a hopper or receptacle having an opening at its bottom and provided with an oscillating partition, a spring connected with the partition and adapted to swing the same, and means for holding the partition while the hopper or receptacle is receiving its charge and being automatically released by the movement of the said hopper or receptacle, substantially as described.

3. In an apparatus of the class described, the combination of a vertically-movable hopper or receptacle having an opening at its bottom and provided with an oscillating partition, a pair of substantially L-shaped catches provided at their angles with engaging portions, and pivoted to the hopper or receptacle, the upper portions of the catches being provided with slots, a pair of supporting-arms, links depending from the supporting-arms and connected with the slotted portions of the catches, and a counterbalancing-weight, substantially as described.

4. In an apparatus of the class described, the combination of a hopper or receptacle having an opening at the bottom and provided with an oscillating partition, a pair of catches supported independently of the hopper and arranged to engage the upper edge of the partition, whereby the latter will be released when the hopper or receptacle moves downward, and a spring connected with the partition and adapted to swing the same, substantially as described.

5. In an apparatus of the class described, the combination of a vertically-movable hopper or receptacle having an opening at the bottom, an oscillating partition mounted within the hopper, catches located at the top of the hopper or receptacle and supported independently of the same and arranged to engage the upper end of the partition, an exterior arm connected with the partition, and a spring connected with the arm and with the hopper or receptacle, substantially as and for the purpose described.

6. In an apparatus of the class described, the combination of a hopper or receptacle, an oscillating partition mounted within the same and provided with an exterior arm, an adjusting-screw mounted on the hopper or receptacle, and a spring connected with the screw and the arm, substantially as described.

7. In an apparatus of the class described, the combination of a hopper or receptacle having an opening at the bottom, an oscillating partition pivotally mounted within the hopper or receptacle and adapted to be shifted from one side of the same to the other side thereof, said partition being provided with an exterior arm, and a spring connected with the arm and with the hopper or receptacle, substantially as and for the purpose described.

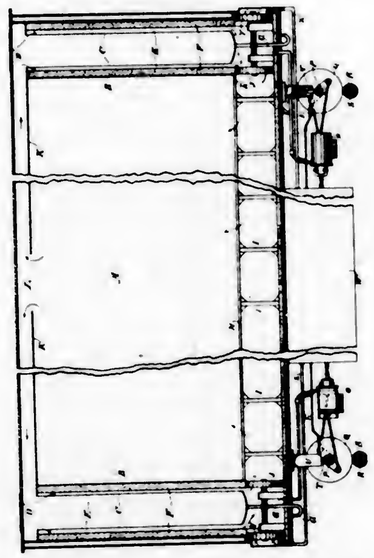
8. In an apparatus of the class described, the combination of a hopper or receptacle having an opening at the bottom, an oscillating partition pivotally mounted within the hopper and adapted to be shifted from one side of the same to the other side thereof, means for holding the partition while the hopper or receptacle is receiving its charge, an arm connected with the partition, and a spring actuating the arm and adapted to swing the partition, substantially as and for the purpose described

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644,268. REFRIGERATOR-CAR. JOHN ZOBRIST, Hanford, Cal., assignor, by direct and mesne assignments, to the John Zobrist Refrigerator and Ventilator Company, same place. Filed Apr. 6, 1899. Serial No. 711,997. (No model.)

Claim.—1. In a refrigerating-car, vertically-disposed ice-chambers at opposite ends of the car, hermetically-closing doors in the roof through which ice may be lowered into said chambers open-work walls surrounding the ice-chambers, an annular air-passage exterior thereto, a second open or net work wall outside of said air-chamber, a body of salt packed in the space exterior to said network wall and between it and an outer closed casing, a lining extending across the top of the car and from end to end thereof forming a passage between it and the roof having a central opening communicating with the body of the car and openings at the ends communicating with the air-passages surrounding the ice-chamber, a passage formed along the center of the floor of the car around and over which the boxes are packed, openings between the opposite ends of said passage and the lower ends of the refrigerating air-chambers at the ends of the car, fans revoluble in said openings and mechanism whereby they are driven to cause a circulation of air through the refrigerating-chambers and the body of the car.

2. A refrigerator-car having vertically-disposed refrigerating-chambers at opposite ends, boards extending longitudinally along the car and having spaced legs or brackets by which they are supported above the car-floor to form a longitudinal air-passage open at the sides, said boards also separated along their inner edges to form a central open channel between them and said boards and legs removable to permit access to the floor beneath, and means for forcing air through said passage and the refrigerating-chambers.



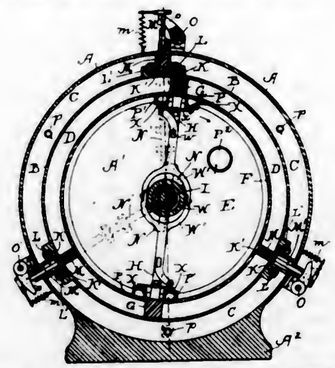
3. A refrigerator-car having boxes at each end, ice-chambers interior to said boxes and separated therefrom to form an air passage, a filling of salt surrounding the air-passage, a longitudinal, open-sided air-passage along the floor of the car and formed of longitudinal boards separated along their longitudinal edges, a packing of moisture-absorbing material in the longitudinal passage beneath the boards said boards removable to give access to said packing, an air-passage along the upper part of the car and means for forcing air through said passages.

4. A refrigerator-car having an air-passage centrally along its bottom and containing a packing of moisture-absorbing material, said passage formed of sections including longitudinal boards and supports, and removable to give access to the bottom of the car and the filling, ice-chambers in the ends of the car and surrounded by moisture-absorbing material, and an air-passage in the upper part of the car and connecting with passages surrounding the ice-chambers, a fan disposed in each end of the longitudinal passage for forcing the air from each end toward the center of the car and circulating the air through said passages, and means for operating the fans by compressed air.

5. A refrigerator-car having vertically-disposed refrigerating-chambers at opposite ends and containing moisture-absorbing material, an air-distributing channel along the floor of the car also containing said material, return-passages adjacent to the roof of the car, horizontal shafts under each refrigerating-chamber, fan-wheels at the ends of the distributing-channel and fixed to the inner ends of the shafts, motor-wheels on the outer ends of said shafts, an air-compressing mechanism including a storage-reservoir and closed passages from said reservoir and opening into the car proximate to the motor-wheels whereby the latter are driven and in turn drive the fans.

6. In an apparatus of the character described, a car having vertically-disposed refrigerating-chambers containing moisture-absorbing material, an air-distributing channel along the floor of the car and also containing said material, return-passages adjacent to the roof of the car, fan-wheels in the distributing-channel and means whereby said wheels are driven including compressed-air cylinders, pump-cylinders with pistons reciprocating therein and connecting with cranks upon a crank-shaft, a driving-wheel fixed upon the car-axle and a second wheel adapted to contact therewith fixed upon the crank-shaft, a frame within which the crank-shaft is journaled, a cylinder having a plunger movable therein upon which said frame is suspended and a pipe connecting said cylinder with the compression-receiver whereby the pressure therefrom acts upon the plunger to raise the journal-frame and crank-shaft and disengage the contact-pulleys to stop the pumps.

644,269. ROTARY ENGINE. GEORGE A. AYER, Beachmont, Mass. Filed Apr. 27, 1899. Serial No. 714,705. (No model.)

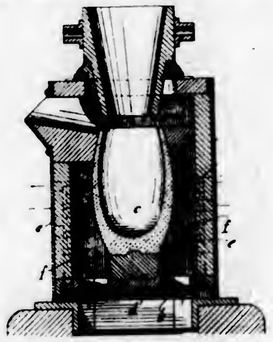


Claim.—1. In a rotary engine, a cylindrical shell comprising an outer annular steam-chamber, a central exhaust-chamber and an intermediate annular piston-chamber with three inlet-ports connecting said annular chambers and two outlet-ports connecting the intermediate and exhaust chambers, in combination with a rotatable cylindrical wall separating the intermediate chamber from the exhaust, and carrying two pistons and their diametrical connecting-bar, the exhaust-ports being formed through said rotatable wall in front of the pistons, substantially as set forth.

2. In a rotary engine, an annular steam-chamber and piston-chamber with three valve-controlled inlet-ports and three radially-moving steam-abutments adjacent thereto and successively actuated, in combination with a rotatable cylindrical shell formed with a diametrical bar mounted on the main shaft, with two pistons exteoding into the piston-chamber and with a central exhaust-chamber and an exhaust-port open through said shell in front of each piston into said central chamber, substantially as set forth.

3. In a rotary engine, an annular steam-chamber and piston-chamber with valve-controlled steam-ports, radially-moving abutments adjacent thereto and means for operating and reversing the valves to control the direction of movement of the pistons, in combination with a rotatable cylindrical shell formed with a diametrical bar secured on the main shaft, with a piston extending into the piston-chamber to traverse it and with a central exhaust-chamber and an exhaust-port leading from said shell in front of each piston into said central chamber, substantially as set forth.

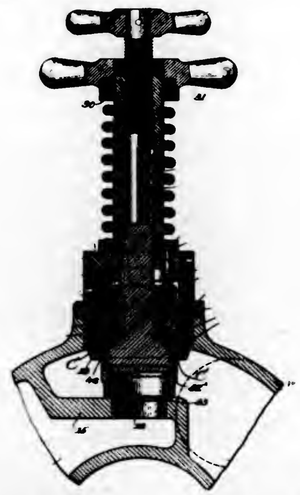
644,270. CRUCIBLE-FURNACE. RUDOLF BAUMANN, Oerlikon, Switzerland. Filed Mar. 13, 1899. Serial No. 709,597. (No model.)



Claim.—1. In combination in a crucible-furnace having a shaft rectangular in cross-section, the grating at the lower part of the shaft, the crucible and the air-passages in the corners of the shaft with horizontal tuyers extending from the several corners in different directions, substantially as described.

2. In combination in a crucible-furnace, the shaft having the corners, the passages located at the corners and having tuyers located at different levels, those of one level being directed to discharge the air in one direction around the shaft and those of the next level discharging the air around the shaft in the other direction, substantially as described.

644,271. ADJUSTABLE AUTOMATIC RELIEF-VALVE. FRED S. BEAN, Manchester, N. H. Filed Oct. 16, 1899. Serial No. 733,765. (No model.)



Claim.—1. A valve apparatus having vacuum and discharge chambers and a valve-chamber, the latter being of progressively-increased area in the direction of the opening movement of the valve, a valve provided with a device fitted snugly against said valve-chamber, and means for holding the valve closed under normal pressure and yieldable under abnormal pressure.

2. A valve apparatus having vacuum and discharge chambers and a valve-chamber, the latter being tapered inward toward its lower end, a valve provided with a device fitted snugly against said valve-chamber, and means for holding the valve closed under normal pressure and yieldable under abnormal pressure.

3. A valve apparatus having vacuum and discharge chambers and a valve-chamber, the latter being of progressively-increased area in the direction of the opening movement of the valve, a valve provided with a device fitted snugly against said valve-chamber, and a spring for holding the valve closed under normal pressure and yieldable under abnormal pressure.

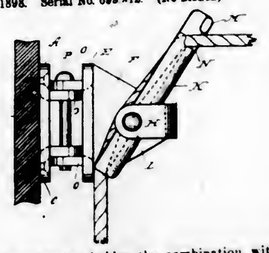
4. A barrel, a casing therein and tapered interiorly, a valve movable in the casing and provided with an annular member adapted to snugly fit against said casing, and yieldable means for holding the valve closed under normal pressure.

5. A barrel having vacuum and discharge chambers, and a wall separating the same provided with a port, a cylindrical valve, a casing connected with the barrel and adapted to inclose said cylindrical valve, and the casing being of greater cross-sectional area than the valve, an annular flexible member carried by the valve and adapted to snugly fit against the wall of its casing, a hand-operated valve controlling said port, and means operating against the cylindrical valve and serving to hold it closed under normal pressures.

6. A valve apparatus having vacuum and discharge chambers, and a valve-chamber, a valve having a stem and of less cross-sectional area than the valve-chamber, a flexible ring or washer surrounding the stem and having a downturned flange to fit snugly against the wall of the valve-chamber, and means for securing said flexible ring or washer in place, a second ring surrounding the valve-stem and engaging the said flexible ring or washer, and a nut in threaded engagement with the stem and serving to hold said second ring in place.

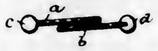
7. A barrel having vacuum and discharge chambers, a casing fitted to the barrel, and having a cap-piece provided with a perpendicular projection, a ring surrounding said perpendicular projection and having a series of pins extending through the cap-piece, a valve movable in said casing and provided with means adapted to be operated by said pins, a device connected to said perpendicular projection, and a spring acting against said device and ring, and means cooperative with the valve and serving to unseat the same when acted upon by the water during its backward pressure.

644,272. CLOTHES-LINE HOLDER. JOHN H. BELL, Utica, N. Y. Filed Dec. 21, 1898. Serial No. 699,912. (No model.)



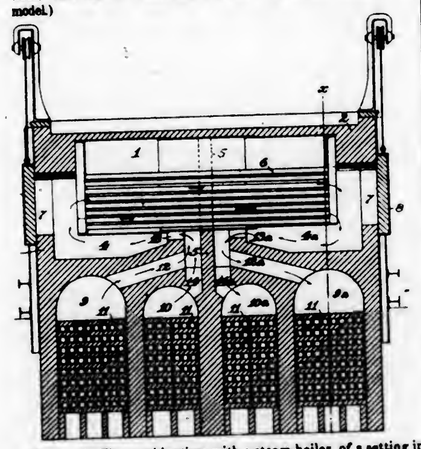
Claim.—In a clothes-line holder, the combination, with a swiveled bracket, the base of which is provided with a forwardly-extending arm, the forward portion of the arm being bent at an angle and extending rearwardly toward the base of a lever pivotally secured within the bent portion of the arm, one end of which normally lies adjacent to the base, said lever being provided with side walls to form a channel for the reception of the rope, one of the walls extending past the upper end of the bottom and being provided at a short distance in front of the end of the bottom with a laterally-projecting guard which lies in the plane of the bottom, and the upper edge of the other side wall projecting past the end of the bottom toward said guard.

644,278. COLLAR OR CUFF BUTTON. JENNIE L. BRIGGS, Taunton, Mass. Filed Mar. 1, 1898. Serial No. 672,135. (No model.)



Claim.—In a cuff or collar button, the combination with the bar *a*, the spiral loop *b*, and the button *c* permanently secured to the bar, of the screw-threaded end of the bar *a*, and the internally-screw-threaded button *d*, as described.

644,274. GAS-FURNACE FOR STEAM-BOILERS. EDWARD M. BUTZ, Bellevue, Pa. Filed Feb. 11, 1899. Serial No. 705,230. (No model.)

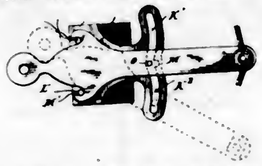


Claim.—1. The combination, with a steam-boiler, of a setting inclosing two combustion-chambers each adapted to contain a portion of the boiler, a partition-wall interposed between said combustion-chambers, a passage through said wall for the traverse of products of combustion from one combustion-chamber to the other, two regenerator-chambers, and passages, each connecting one of the regenerator-chambers with one of the combustion-chambers at points adjacent to said wall.

2. The combination with a steam-boiler, of a setting inclosing two combustion-chambers, each adapted to contain a portion of the boiler, a partition-wall interposed between said combustion-chambers and having an opening therethrough, an air-regenerator chamber and a gas-regenerator chamber communicating with one of said combustion-chambers through a port opening thereinto adjacent to said partition-wall, and like air and gas regenerator chambers communicating with the other combustion-chamber through a port adjacent to said partition-wall.

3. The combination, with a return tubular steam-boiler, of a setting inclosing two combustion-chambers, each surrounding a portion of the shell of the boiler and open to the ends of the tubes thereof, adjacent to its outer end wall, a partition-wall interposed between the combustion-chambers and forming the inner end wall of each of them, two air-regenerator chambers and two gas-regenerator chambers built in the setting below the combustion-chambers, and passages, each connecting one of the combustion-chambers, adjacent to its inner end wall, with one of the air-regenerator chambers and one of the gas-regenerator chambers.

644,275. GATE. WILLIAM A BYERLY, Bridgewater, Va. Filed Sept. 27, 1899. Serial No. 731,839. (No model.)

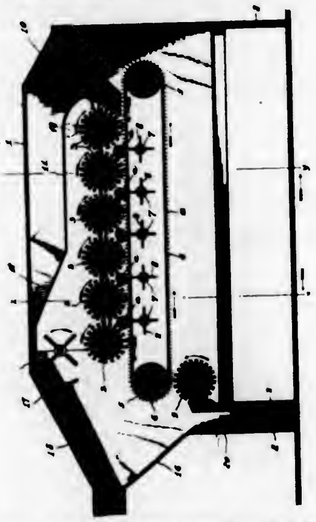


Claim.—1. In a gate-mounting, the lower hinge and hinge-post, a plate on the post having two pins or pintles, a lever having notches which engage one or the other or both the pins or pintles as described, and a guide-slot in the plate with which the lever engages, said lever engaging the pintle of the gate as described.

2. The operating-hinge for a gate, consisting of the base-plate having two pintles, and a double-curved slot struck from these pintles as centers, and a lever provided with a notch at each side, said lever passing between the pintles and having a pin extending into said slot, substantially as described.

3. In combination with a base-plate having two pins or pintles and a double-curved slot, the lever between said pintles and having notches in position to make engagement with said pintles, as described, a pin in the lever entering the slot, and a stop for said pin at midway position, all combined substantially as described.

644,276. DELINTING-MACHINE. WINFIELD S. CANNADAY, Florence, Ala., assignor of one-half to John Kasmire. Filed July 6, 1899. Serial No. 722,949. (No model.)



Claim.—1. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes revolving in the same direction, of an endless belt or carrier located beneath said brushes and in contact

with the lower sides thereof, and provided with spurs upon its outer surface, means for moving the contiguous portions of the scouring-brushes and the belt in the same direction, to convey the seed through the machine, and means for directing a current of air over the top of the scouring-brushes, substantially as and for the purpose set forth.

2. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes, of an endless carrier or belt located below the brushes, beaters located between the upper and lower sections of the endless carrier or belt and adapted to agitate the same, and means for directing a current of air over the top of the scouring-brushes, substantially as and for the purpose set forth.

3. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes, of an endless belt or carrier located beneath the brushes and in contact with the lower sides thereof, rotary beaters located between the upper and lower sections of the carrier or belt, and in engagement with one of said sections, each beater being arranged between the pairs of adjacent brushes, and means for directing a current of air over the top of the brushes, substantially as and for the purpose set forth.

4. In a cotton-seed delinter, the combination with a series of scouring-brushes, and a carrier cooperating with said brushes and adapted to discharge the cleaned seed at one end of the machine, of a casing or housing fitted over and embracing the upper sides of the brushes, a fan or blower provided at one end of the casing or housing adjacent to the discharge end of the machine, a transverse branch or passage communicating with the opposite end of the casing or housing, and a discharge-passage leading from the outer end of the transverse branch, whereby the cleaned seed is discharged at one end of the machine, and the lint at the opposite end thereof, substantially in the manner shown and described.

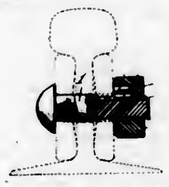
5. In a cotton-seed delinter, the combination with a frame having a feed-hopper at one upper outer end, and a discharge-passage at the opposite lower outer end thereof, of a horizontal series of transverse rotary scouring-brushes located intermediate of the feed and discharge ends of the frame, an endless carrier or belt located below the brushes, rotary beaters arranged between the upper and lower sections of the carrier or belt and in engagement with the under side of the upper section thereof, a casing or housing located above the scouring-brushes and embracing the same, a rotary fan or blower located at one end of the casing and adjacent to the discharge end of the frame, a transverse branch extending from the opposite end of the casing, and a discharge-passage in communication with the outer end of said branch, substantially as shown and described.

6. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes, of an endless belt or carrier located beneath said brushes and in contact therewith, smaller rotary brushes located intermediate of adjacent scouring-brushes and the belt, and means for directing a current of air over the top of the scouring-brushes, substantially as shown and described.

7. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes, of an endless belt or carrier located beneath the brushes and in contact therewith, rotary supports for the upper section of the belt or carrier, smaller rotary brushes located intermediate of adjacent scouring-brushes and the upper section of the belt or carrier, and means for directing a current of air over the top of the scouring-brushes, substantially as and for the purpose set forth.

8. In a cotton-seed delinter, the combination with a series of rotary scouring-brushes, of an endless belt or carrier located beneath the brushes and in contact therewith, rotary beaters located between the upper and lower sections of the endless carrier or belt, supporting and agitating the upper section of the latter, smaller rotary brushes located intermediate of the adjacent scouring-brushes and the upper section of the belt or carrier, and means for directing a current of air over the top of the scouring-brushes, substantially as and for the purpose set forth.

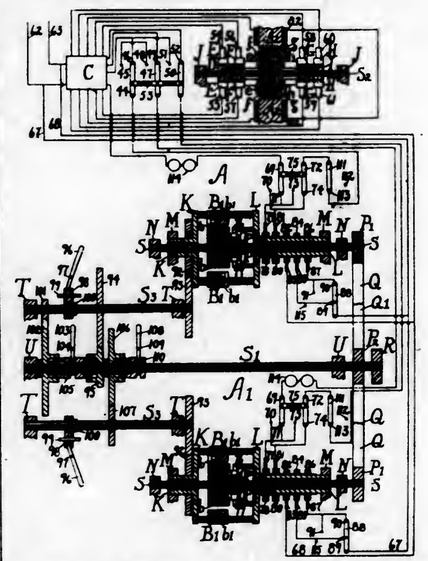
644,277. NUT-LOCK. CORNELIUS S. CLARK, Norfolk, Va., assignor of one-fourth to Marcellus Miller, same place. Filed June 13, 1899. Serial No. 720,380. (No model.)



Claim.—1. The combination with a bolt having a longitudinal groove therein, of a nut adapted to screw upon said bolt, having a socket therein intersecting the bolt-opening, the said socket extending from the inner end wall of the nut and terminating short of the outer end wall and the outer sides of the nut, and a gravity-actuated locking-dog in said socket adapted to fit within the groove in said bolt, as and for the purposes set forth.

2. The combination with a bolt having a longitudinal groove therein, of a nut adapted to screw upon said bolt, having a socket therein intersecting the bolt-opening, the said socket extending from the inner end wall of said nut, terminating short of the outer end wall of said nut and of the sides thereof, and provided with a lateral extension or offset, and a gravity locking-dog fitting and adapted to turn within said socket and provided with a laterally-extending wing or lip adapted to fit within said lateral extension or offset and to engage the groove in said bolt, as and for the purposes set forth.

644,278. MEANS FOR REGULATING ELECTRIC MACHINES. WILLIAM H. COOLEY, Brockport, N. Y. Filed Mar. 9, 1898. Serial No. 708,338. (No model.)



Claim.—1. A supply-circuit, an electromotive-force generator connected across the terminals thereof, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof.

2. A supply-circuit, an electromotive-force generator connected across the terminals thereof, a translating device, means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, means for varying as desired that portion of such generator in series and that portion of such generator in parallel with such translating device, and means whereby energy from such supply-circuit absorbed in such generator in excess of that required to meet the losses in such generator, is utilized in supplying energy from such generator to such translating device.

3. A supply-circuit, an electromotive-force generator connected across the terminals thereof, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, such generator so divided into sections that, by their different arrangements, the total electromotive force thus generated in series with such translating device will vary in value in practically an arithmetical progression, and whereby also the total electromotive force thus generated in parallel with such translating device will vary in value in practically an arithmetical progression.

4. A supply-circuit, an electromotive-force generator connected across the terminals thereof and arranged to generate an electromo-

tive force constant in direction, and practically equal in amount and counter to the potential at the terminals of such supply-circuit, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof

5. A supply-circuit, an electromotive-force generator connected across the terminals thereof and arranged to generate an electromotive force practically equal to the potential at the terminals of such supply-circuit, a translating device, and means whereby such translating device may be variously protected against the full potential between the terminals of such supply-circuit, by the electromotive forces in any desired portions of such generator.

6. A supply-circuit, an electromotive-force generator connected across the terminals thereof, a source of electric energy, means whereby such source of electric energy may be variously connected across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, and means whereby a portion of the energy from such source of electric energy may be utilized in that portion of such generator in parallel therewith, in supplying energy to such supply-circuit in series with such source of electric energy.

7. A supply-circuit, an electromotive-force generator divided into sections and connected across the terminals thereof, with the values of the electromotive forces generated in such sections forming one or more progressions practically geometrical, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of the sections of such generator and in parallel with the remaining one or ones.

8. A supply-circuit, an electromotive-force generator connected across the terminals thereof, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof.

9. A supply-circuit, an electromotive-force generator connected across the terminals thereof, two translating devices, means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, means for varying as desired that portion of such generator in series and that portion of such generator in parallel with each of such translating devices, and means whereby energy from such supply-circuit absorbed in such generator in excess of that required to meet the losses in such generator, is utilized in supplying energy from such generator to one or both of such translating devices.

10. A supply-circuit, an electromotive-force generator connected across the terminals thereof, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, such generator so divided into sections that by their different arrangements the total electromotive force thus generated in series with each of such translating devices will vary in value in practically an arithmetical progression, and whereby also the total electromotive force thus generated in parallel with each of such translating devices will vary in value in practically an arithmetical progression.

11. A supply-circuit, an electromotive-force generator connected across the terminals thereof, and arranged to generate an electromotive force constant in direction and practically equal in amount and counter to the potential at the terminals of such supply-circuit, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof.

12. A supply-circuit, an electromotive-force generator connected across the terminals thereof and arranged to generate an electromotive force practically equal to the potential at the terminals of such supply-circuit, two translating devices, and means whereby each of such translating devices may be variously protected independently against the full potential between the terminals of such supply-circuit, by the electromotive forces in any desired portions of such generator.

13. A supply-circuit, an electromotive-force generator connected across the terminals thereof, two sources of electric energy, means whereby each of such sources of electric energy may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, and means whereby a portion of the energy from each of such sources of electric energy may be utilized in such generator, in supplying energy to such supply-circuit in series with such sources of electric energy.

14. A supply-circuit, an electromotive-force generator connected across the terminals thereof, two translating devices, and means for so generating an electromotive force in such generator and for so connecting variously each of such translating devices across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, that the current traversing any portion of such generator can never exceed that traversing one of such translating devices.

15. A supply-circuit, an electromotive-force generator connected across the terminals thereof, means for generating an electromotive force in such generator practically equal in amount and counter to the potential at the terminals of such supply-circuit, two translating devices, means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such generator and in parallel with the remaining portion thereof, and means whereby the electromotive force generated in that portion of such generator connected across the terminals of such supply-circuit in series with and between such translating devices, is utilized in supplying the difference between the sum of the potentials impressed upon each of such translating devices taken singly, and the potential impressed by such supply-circuit upon the terminals of the circuit containing such translating devices and the portion of such generator in series with and between such translating devices.

16. A supply-circuit, an electromotive force generator divided into sections and connected across the terminals thereof, with the values of the electromotive forces generated in such sections forming one or more progressions practically geometrical, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of the sections of such generator and in parallel with the remaining one or ones.

17. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in each one of such windings, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

18. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in each one of such windings, a translating device, means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, and means whereby energy from such supply-circuit absorbed in such windings in excess of that required to generate such electromotive forces in such windings, is utilized in supplying energy to such translating devices.

19. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, a translating device, means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, and means for generating such an electromotive force in each one of such windings that, by their different arrangements, the total electromotive force thus generated in series with such translating device will vary in value in practically an arithmetical progression, and whereby also the total electromotive force thus generated in parallel with such translating device will vary in value in practically an arithmetical progression.

20. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating electromotive forces in such windings constant in direction and together practically equal in amount and counter to the potential at the terminals of such supply-circuit, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

21. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating electromotive forces in such windings together practically equal to the potential between the terminals of such supply-circuit, a translating device, and means whereby such translating device may be variously protected against the full potential between the terminals of such supply-circuit, by the electromotive forces in any desired ones of such windings.

22. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, a source of electric energy, means for variously connecting such source of electric energy across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, and means whereby a portion of the energy from such source of electric energy may be utilized in the winding or windings in parallel therewith, in supplying energy to such supply-circuit in series with such source of electric energy.

23. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in each one of such windings, with the values of the electromotive forces in such windings forming one or more progressions practically geometrical, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

24. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in each one of such windings, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

25. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in each one of such windings, two translating devices, means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, and means whereby the energy from the supply-circuit absorbed in such windings in excess of that required to generate such electromotive forces in such windings, is utilized in supplying energy to one or both of such translating devices.

26. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, two translating devices, means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings, and in parallel with the remaining one or ones, and means for generating such an electromotive force in each one of such windings that, by their different arrangements, the total electromotive force thus generated in series with each of such translating devices will vary in value in practically an arithmetical progression, and whereby also the total electromotive force thus generated in parallel with each of such translating devices will vary in value in practically an arithmetical progression.

27. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating electromotive forces in such windings constant in direction and together practically equal in amount and counter to the potential at the terminals of such supply-circuit, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

28. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating electromotive forces in such windings together practically equal to the potential between the terminals of such supply-circuit, two translating devices, and means whereby each of such translating devices may be variously protected independently against the full potential between the terminals of such supply-circuit, by the electromotive forces in any desired ones of such windings.

29. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, two sources of electric energy, means whereby each of such sources of electric energy may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, and means whereby a portion of the energy from each of such sources of electric energy may be utilized in such windings, in supplying energy to such supply-circuit in series with such sources of electric energy.

30. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, two translating devices, and means for generating such an electromotive force in each one of such windings and for so connecting variously each of such translating devices across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones, that the current traversing any portion of such windings can never exceed that traversing one of such translating devices.

31. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit, means for generating an electromotive force in such windings practically equal in amount and counter to the potential at the terminals of such supply-circuit, two translating devices, means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one on ones of such windings and in parallel with the remaining one or ones, and means whereby the electromotive force generated in the winding or windings connected across the terminals of such supply-circuit in series with and between such translating devices, is utilized in supplying the difference between the sum of the potentials impressed upon each of such translating devices taken singly, and the potential impressed by such supply-circuit upon the terminals of the circuit containing such translating devices and such winding or windings in series with and between such translating devices.

32. A supply-circuit, a series of windings, means for connecting such windings together in series across the terminals of such supply-circuit and for generating an electromotive force in each of such windings with the values of the electromotive forces in such windings forming one or more progressions practically geometrial, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

33. A supply-circuit, a system of magnetic poles, an armature in operative relation thereto and connected across the terminals of such supply-circuit, a translating device, and means whereby such translating device may be connected across the terminals of such supply-circuit in series with any desired portion of the conductors of such armature and in parallel with the remaining portion thereof.

34. A supply-circuit, a system of magnetic poles, an armature in operative relation thereto and connected across the terminals of such supply-circuit, two translating devices, and means whereby each of such translating devices may be connected independently across the terminals of such supply-circuit in series with any desired portion of the conductors of such armature and in parallel with the remaining portion thereof.

35. A supply-circuit, a series of windings each connected to a commutator, means for connecting such windings together in series across the terminals of such supply-circuit and for generating an electromotive force in each one of such windings, a translating device, and means whereby such translating device may be connected across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

36. A supply-circuit, a series of windings each connected to a commutator, means for connecting such windings together in series across the terminals of such supply-circuit and for generating an electromotive force in each of such windings, two translating devices, and means whereby each of such translating devices may be connected independently across the terminals of such supply-circuit in series with any desired one or ones of such windings and in parallel with the remaining one or ones.

37. A supply-circuit, a device of practically-constant electromotive-force-absorbing value connected across the terminals thereof, a translating device, and means whereby such translating device may be variously connected across the terminals of such supply-circuit in series with any desired portion of such electromotive-force-absorbing device and in parallel with the remaining portion thereof.

38. A supply-circuit, a device of practically-constant electromotive-force-absorbing value connected across the terminals thereof, two translating devices, and means whereby each of such translating devices may be variously connected independently across the terminals of such supply-circuit in series with any desired portion of such electromotive-force-absorbing device and in parallel with the remaining portion thereof, such that for any such arrangement of such translating devices relative to such portions of such electromotive-force-absorbing device the volume of current traversing any portion of such electromotive-force-absorbing device can never exceed that traversing one of such translating devices

39. Two pairs of elements, means for connecting one element of the first pair to a load to be driven at two or more different speed ratios, and means for imparting to the load rotary effort, first from said first pair of elements, then transferring the load to the second pair of elements at a different speed ratio, and then back again to said first pair at still a different speed ratio.

40. Two pairs of elements, means for connecting one element of the first pair to a load to be driven at two or more different speed ratios, means for imparting to the load rotary effort first from said first pair of elements, then transferring the load to the second pair of elements at a different speed ratio, and then back again to said first pair at still a different speed ratio, and means for varying the

rate of relative rotation between the elements of each pair while one of the elements of such pair is connected to the load.

41. Two pairs of elements, a first element of each pair permanently connected to a common load to be driven, and means for first connecting the second element of the first pair to the load at a given speed ratio, then transferring the load to the second pair at a different speed ratio for the second element of such second pair, and then back again to the first pair at still a different speed ratio for the second element of such first pair.

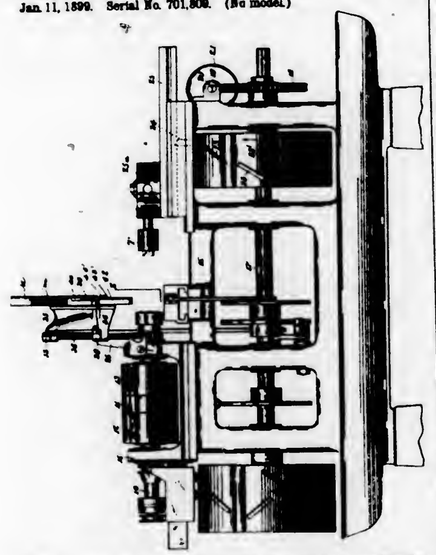
42.. Two pairs of elements, a first element of each pair permanently connected to a common load to be driven, means for first connecting the second element of the first pair to the load at a given speed ratio, then transferring the load to the second pair at a different speed ratio for the second element of such second pair, and then back again to the first pair at still a different speed ratio for the second element of such first pair, and means for varying the rate of relative rotation between the elements of each pair while both of the elements of such pair are connected to the load.

43. Two pairs of elements, means for connecting one element of the first pair to a load to be driven at two or more different speed ratios, means for imparting to such load rotary effort from each of such pair of elements, and means for so varying the normal rate of relative rotation between the elements of each pair that such motors will both of them communicate rotary effort to such load when working together at each of such different ratios.

44. Two pairs of elements, means for connecting one element of the first pair to a load to be driven at two or more different speed ratios, means for communicating to such load rotary effort from each of such pair of elements, a supply-circuit to the terminals of which the armature of each of such pair of elements is arranged to be connected, means for generating an electromotive force between the terminals of such supply-circuit practically equal to the potential at such terminals, and means for so varying the amount of such electromotive force generated in series and that generated in parallel with the armature of each of such pair of elements that both of such pairs of elements when working together at each of such different ratios will communicate rotary effort to such load.

45. In an electric motor, means whereby a revolubie and load-carrying element of such motor may move angularly in either direction over a portion of a revolution of such element independently of the load, and means whereby during such independent motion from one extreme to the other thereof, the angle of lead of the brushes on the commutator of such motor is reversed.

644,279. FEED ATTACHMENT FOR SCREW OR ANALOGOUS MACHINES. ELBERT M. COUCH and FRANK HARRINGTON, Hartford, Conn., assignors to The Pratt & Whitney Company, same place. Filed Jan. 11, 1899. Serial No. 701,809. (No model.)



Claim.—1. In a machine of the class specified, the combination, with a magazine for containing blanks, of independently-mounted detents one of which acts primarily to stop the column of blanks and another to stop said column when the blank to be delivered therefrom has been released part of one of said detents overlapping the other detent; a movable carrier for holding the selected blank; a spindle carrying a chuck; and means for withdrawing the blank from the carrier and depositing the same in the chuck of said spindle.

2. In a machine of the class specified, the combination, with a magazine for containing blanks, of a carrier movable with reference to said magazine; an independently-mounted detent for primarily stopping the column of blanks; a second independently-mounted detent for stopping said column when the first-named detent is actuated to release a selected blank, one of said detents being actuated on the movement of the carrier and one detent controlling the movement of the other detent; a chuck-spindle; and means for withdrawing a selected blank from the carrier and depositing the same in said spindle.

3. In a machine of the class specified, the combination, with a stationary magazine for containing blanks, of a movable carrier; independently-mounted detents for stopping the column of blanks at different points, one of said detents being actuated by the other, and both detents being controlled by the movement of the carrier; and means for withdrawing a selected blank from said carrier and depositing the same in the chuck-spindle of the machine.

4. The combination, with a stationary magazine for containing blanks, of independently-mounted detents located at intervals on said magazine for restraining the column of blanks and permitting the selection of an individual blank therefrom; and a movable carrier having jaws for temporarily holding the selected blank, said carrier actuating one of said detents and, through said detent, the other detent.

5. The combination, with a magazine for containing blanks, of two detents located at intervals, one of which is provided with an arm or tailpiece overlapping a projection on the other; and means for actuating one detent to withdraw the holding-surface thereof from contact with the blank to be selected, thereby throwing in the other detent to detain the column of blanks.

6. The combination, with a magazine for holding blanks, of a detent having an arm or tailpiece; and a second detent actuated by the first-named detent, said detents being located at intervals and acting, respectively, to release a selected blank and to restrain the movement of the column of blanks, and a device for actuating one detent and, through the same, the other detent.

7. The combination, with a magazine for holding blanks, of a detent having a rounded stop-surface adapted to bite against a blank; and means for actuating said detent to withdraw the same from the blank with which it is in contact.

8. The combination, with a magazine for holding blanks, of two detents, the upper one of which has an arm or tailpiece overlapping a flange on the lower detent, one of said detents being formed with a curved stop-face concentric with its axis of movement; and means for actuating one detent, and through the same the other detent.

9. The combination, with a magazine for holding blanks, of a pivoted detent provided with an arm or tailpiece; a spring for normally withdrawing said detent from the path of movement of the blanks; a second pivoted detent having a curved stop-surface concentric with its axis of movement, and also having a flange or projection in engagement with the arm or tailpiece of the first detent; and means for actuating said second detent to withdraw the same from contact with the lowermost blank of the column and to force the first detent within the path of the blanks to retain said column when the selected blank has been released.

10. The combination, with a chute down which blanks are adapted to roll by gravity, of a movable blank-carrier; independent detents located at intervals on the chute for controlling the entrance of blanks to said carrier, one of said detents being actuated by the other detent; and guides upon which the blank-carrier is mounted.

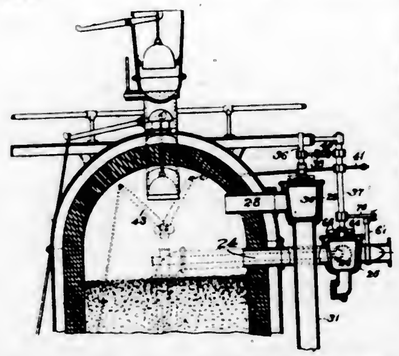
11. The combination, with a chuck-spindle, of guides disposed with relation thereto; a magazine for containing blanks; a blank-carrier movable upon said guides; independent detents the action of which is controlled by the blank-carrier; means actuated from the cam-shaft of the machine for operating said carrier; and a transfer device for withdrawing a blank from said carrier and inserting it within the jaws of the chuck-spindle.

12. In a machine of the class specified, the combination, with a chuck-spindle, of a magazine for containing blanks; fixed guides; a blank-carrier having yielding jaws mounted for sliding movement upon said guides; detents for controlling the movement of the blanks into said carrier one of said detents being actuated by the blank-carrier; a cam, devices actuated by said cam for reciprocating the carrier; and a device for transferring a selected blank from the jaws of the carrier and inserting the same within the chuck.

13. The combination, with a magazine for containing blanks, of a movable blank-carrier for temporarily retaining a selected blank; independently-pivoted detents, one of which is actuated by said blank-carrier, for controlling the movements of the blanks; a pitman connected to the blank-carrier; a lever for actuating said pitman; and a cam for operating said lever.

14. The combination, with a magazine for containing blanks, of two detents, one of which acts to stop the column of blanks and the other to release the blank selected from said column, one of said detents having an arm or tailpiece overlapping the other; a movable blank-carrier for actuating one of said detents, and thereby, through the same, the other detent; means for moving said blank-carrier to a position in line with the axis of the chuck; and means for transferring a blank held by said carrier to said chuck.

644,280. VALVE MECHANISM FOR GAS-GENERATORS. JOHN COTHER, Pittsburg, Pa. Filed Dec. 1, 1897. Serial No. 660,345. (No model.)



Claim.—1. In a gas-generator the combination of two chambers having their lower ends connected to an air-supply, a valve mechanism controlling the flow of air to the chambers, passages connecting the upper end of each chamber to the lower end of the other chamber, a valve mechanism controlling the flow of gas through said passages, pipes connecting the upper end of each chamber to a gas reservoir or conduit, a valve mechanism controlling the flow of gas to the reservoir or conduit and mechanism for operating said valve mechanisms simultaneously, substantially as set forth.

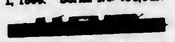
2. The combination of a valve-casing, a rotatable valve arranged in said casing and provided with a stem, arms secured to said stem, and inclined ridges arranged in the path of movement of said arms whereby the valve may be shifted in the direction of its axis while being rotated, the rotary and longitudinal movements of the valve being simultaneous, substantially as set forth.

644,281. PROCESS OF DRYING AND VARNISHING PRINTS. SAMUEL CRUMP, Poughkeepsie, N. Y. Filed Dec. 1, 1899. Serial No. 738,848. (No specimens.)

Claim.—1. The process of producing and drying a lustrous print or lithograph upon an absorbent material, which consists in impressing or transferring the design or print upon the material with ink or size, applying dry powdered varnishing material upon the design or impression while wet, and subjecting it to a heat sufficient to fuse the varnishing material and unite it with the ink or size, as a surface coating or crust thereof, and chilling the same.

2. The process of producing a lustrous print or lithograph upon an absorbent material, which consists in impressing or transferring the design or print upon the material with ink or size, applying dry powdered varnish upon the design or impression while wet, and subjecting it to a heat sufficient to dissolve the varnish and incorporate it with the ink or size, as a surface coating or veneer thereof, and chilling the same.

644,282. VARNISHED PRINT. SAMUEL CRUMP, Poughkeepsie, N. Y. Filed Dec. 1, 1899. Serial No. 738,849. (Specimens.)



Claim.—1. A print, lithograph, or similar production, having its design or picture composed of a basic layer of ink or size, and a superimposed crust or veneer of varnishing material coextensive with the basic layer and united therewith.

2. A lustrous print, lithograph or similar production, having a basic color impression and a superimposed crust or veneer of varnishing material coextensive with the color impression and united therewith.

644,283. CURLING-IRON HEATER. ISAAC E. DAVIS, Dillon, Kans. Filed June 8, 1899. Serial No. 719,833. (No model.)

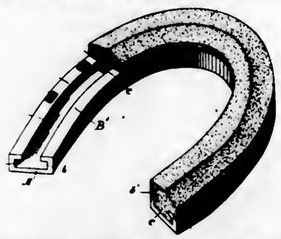


Claim.—1. In a curling-iron heater, the combination with a lamp-chimney having oppositely-alined openings formed through the sides thereof, of a split tube having the edges of its opposite sides brought together at one end and forming a rigid end to the tube, said edges diverging toward the opposite end of the tube and forming a yielding end therefor, an outer annular flange at the yielding end of the tube, and spring-fingers at the opposite rigid end thereof, substantially as and for the purpose set forth.

2. In a curling-iron heater, the combination with a lamp-chimney having oppositely-alined openings provided through the sides thereof, of a split tube, having outwardly-flared flanges at one end and spring-fingers at the other, said tube being adapted to be fitted in the openings in the lamp-chimney, whereby the spring-fingers are adapted to frictionally engage the walls of one of the openings, and the flange at the opposite end of the tube being adapted to engage the exterior of the lamp-chimney at opposite sides of the adjacent opening, and thereby prevent longitudinal displacement of the tube, substantially as shown and described.

3. In a curling-iron heater, the combination with a lamp-chimney having oppositely-alined openings provided through the sides thereof, of a split tube perforate throughout its length, and having spring-fingers at one end and an outwardly-flared peripheral flange at the opposite end thereof, said tube being adapted to be fitted in the openings of the lamp-chimney, whereby the spring-fingers frictionally engage the walls of one of the openings, and the peripheral flange engages the exterior of the lamp-chimney at opposite sides of the adjacent opening, and the split tube also being adapted to be pressed together to release the same, substantially as shown and described.

644,284. ELASTIC-TREAD HORSESHOE. CHARLES Y. DE LAY, Murphy, Cal. Filed Feb. 6, 1899. Serial No. 704,696. (No model.)



Claim.—A horseshoe comprising a shoe having a groove or channel and inwardly-extending flanges overhanging the same, a bar of rubber or elastic material fitting said groove or channel and having a portion to interlock under said flanges one of said flanges being provided with nail-holes which lie interior to the plane of the outer side of the shoe and the outer edge of the elastic bar whereby they are covered by said bar.

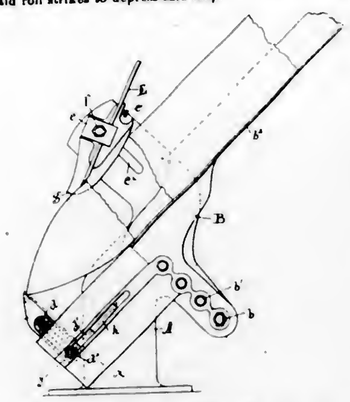
644,285. MACHINE FOR POINTING PICKETS. ARVID EK, Portland, Me. Filed Nov. 30, 1899. Serial No. 737,576. (No model.)

Claim.—1. In a machine for pointing pickets, the combination of a standard, a pointing-knife secured thereto, a lever having a rest for holding the picket, said lever being pivoted to the standard on the opposite side of the rest from the knife, a stop on said lever against which the end of the picket abuts, said stop having a limited vertical movement and means for depressing said stop out of line of the knife as the knife approaches the end of the picket.

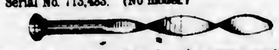
2. In a machine for pointing pickets, the combination of a standard, a pointing-knife secured thereto, a lever pivoted to the standard and having a rest for holding the picket, a stop against which the end of the picket abuts secured to said lever, so as to have a limited vertical movement, a cam-surface for depressing said stop as it approaches the knife and a spring for raising it.

3. In a machine for pointing pickets, the combination of a standard, a pointing-knife secured thereto, a lever pivoted to the standard and having a rest for holding the picket, a stop against which the

picket abuts secured to said lever so as to have a limited vertical movement, an antifriction-roll on said stop and a cam-surface against which said roll strikes to depress said stop.

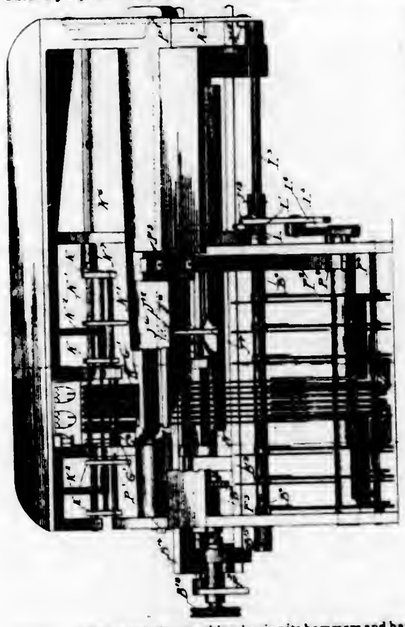


644,286. NAIL. JOHN T. EUSTER, Eagleville, Cal. Filed Apr. 18, 1899. Serial No. 713,483. (No model.)



Claim.—An improved nail having the upper part of the shank cylindrical and the lower part flattened and twisted into spiral form, the front edge of the spiral being beveled to an edge and the rear edge square and without bevel, to give increased strength at that point, and said nail having a rounded point with its edges beveled and with one of the edges merging into the beveled front edge of the spiral body.

644,287. TABULATING-MACHINE. DORR E. FELT, Chicago, Ill. Filed July 13, 1899. Serial No. 723,678. (No model.)



Claim.—1. The tabulating-machine, having its hammers and hammer-controlling mechanism located as shown, and the latter being constructed to allow the paper to enter through it, and also having its paper-feed rolls below the printing-center and means for directing the paper thereto, substantially as specified.

2. In a tabulating-machine, a printing mechanism embracing a series of open frames for transmitting motion from one part to another of said mechanism, in combination with paper-guides positioned in the openings in said frames and forming the path whereby the paper enters the machine, substantially as specified.

3. In a tabulating-machine, the combination of the series of open-ended frames O, with paper-guides directing the entering paper through the frames, feed-rolls for actuating the paper, and a laterally-movable carriage in which said rolls are supported, substantially as specified.

4. In a tabulating-machine, a printing mechanism embracing a series of U-shaped movable frames for transmitting motion from one part to another of said mechanism arranged to permit the passage of the paper through them without interfering with their operation, substantially as specified.

5. In a tabulating-machine, a printing mechanism embracing a series of spring-actuated hammers and their holding devices, selecting mechanism for selecting the hammers to be operated, and a series of open frames connecting said holding devices and said selecting mechanism, substantially as and for the purpose set forth.

6. In a tabulating-machine, the combination with the devices for making the impressions, of means for selecting the devices to be operated, and a series of graduated motion-transmitting levers O whereby said selecting means may cause the operation of the desired impressing devices, substantially as specified.

7. In a tabulating-machine, the combination with the devices for making the impressions, of means for selecting the devices to be operated, and a series of graduated motion-transmitting levers O, pivoted at one end and movable at the other end, whereby the selecting means may cause the operation of the desired impressing devices, substantially as specified.

8. In a tabulating-machine, the combination with the devices for making the impressions, of means for selecting the devices to be operated, and a series of graduated independent motion-transmitting levers O arranged in a pile, as set forth, whereby said selecting means may cause the operation of the desired impressing devices, substantially as specified.

9. The combination in a tabulating-machine with the feed-rolls for moving the paper vertically in line-spacing, and means for actuating said rolls in such movements, of a hand device geared to and adapted to impart a backward rotation to the rolls and thereby to return the paper to its starting position, substantially as specified.

10. The combination in a tabulating-machine with the laterally-movable paper-carriage, and feed-rolls for moving the paper vertically in line-spacing, and means for actuating said rolls in such movements, of a hand device geared to and adapted to impart a backward rotation to the rolls and thereby to return the paper to its starting position, substantially as specified.

11. The combination in a tabulating-machine with the feed-rolls for moving the paper vertically in line-spacing, and means for actuating the rolls in such movements, of gearing actuated in unison with the rolls and adapted to impart a backward rotation thereto, and a hand-lever for actuating said gearing and causing it to give such backward rotation to the rolls, substantially as specified.

12. The combination in a tabulating-machine with the feed-rolls for moving the paper vertically in line-spacing, and means for actuating the rolls in such movements, of a train of gears actuated in unison with the feed-rolls and adapted to impart reverse rotation thereto, a toothed segment actuated by said gears, and a hand-lever adapted to actuate said segment and gears in rotating the rolls reversely, substantially as specified.

13. The combination in a tabulating-machine with feed-rolls for moving the paper vertically in line-spacing, and means for actuating the rolls in such movements, of gearing including a segment O^3 moving in unison with the rolls and loose on its shaft, and a lever fast on the shaft of the segment and provided with means whereby it may lock with and actuate the segment and thereby cause a backward rotation of the rolls, substantially as specified.

14. The combination with a laterally-movable paper-carriage and the feed-rolls for moving the paper vertically in line-spacing, of a stationarily-located ratchet mounted on and actuating a shaft whereby said rolls are rotated, a gear also stationarily located and adapted to actuate said shaft, and hand-operated means whereby said gear may be reversed and made to rotate the rolls backward, substantially as specified.

15. The combination with the laterally-movable paper-carriage and the feed-rolls for actuating the paper in line-spacing, of a stationarily-located ratchet and a stationarily-located gear both mounted on a shaft by which power is carried to said feed-rolls, and both adapted to actuate the shaft, and hand-operated means engaging said gear and acting to reverse the rolls to the extent of the aggregate feeding rotations received from the ratchet, whereby the paper is returned to position for starting another column, substantially as specified.

16. In a tabulating-machine, the combination with the feed-rolls for feeding the paper vertically in line-spacing, of a toothed segment mechanically connected to the rolls so it will be moved away from its normal position by the feeding movements, and also so as to enable it to impart a backward rotation to the rolls, and means for returning said segment to its normal position upon the completion of a column and thereby causing the backward rotation of the rolls, substantially as specified.

17. The combination with a single hand-lever, of a paper-carriage, means whereby said lever may shift the carriage laterally in column-spacing, and means whereby said lever may impart a backward rotation to the paper-feed rolls and thus return the paper vertically to its starting position at the time of shifting the carriage, substantially as specified.

18. The combination with a paper-carriage of a single hand-lever, means whereby said lever may shift the carriage in column-spacing and means whereby it may at the time of shifting the carriage cause backward rotation of paper-feed rolls and thus return the paper vertically to its starting position, said lever having a uniform stroke regardless of the length of the columns tabulated, substantially as specified.

19. The combination in a tabulating-machine, of paper-feed rolls for feeding the paper in line-spacing, said rolls being provided with means for operating them by hand in adjusting the paper, means for reversing said rolls and returning the paper to its starting position, and a clutch connecting said rolls with said reversing means and located so as to be readily operable by the same hand which turns the rolls to adjust the paper, substantially as specified.

20. The combination of the line-spacing feed mechanism, and the paper-returning mechanism, the latter embracing separable pinions C^2 and C^3, substantially as specified.

21. The combination with mechanism adapted to feed either continuous or short paper, of mechanism for returning the paper to its starting-point, the latter being connected to the former by separable pinions, one of which is provided with a hub extending through the case of the machine so as to be operable from the outside, substantially as specified.

22. The combination with the frame for returning the printing-hammers to their normal positions after each printing operation, of the shafts B^4 and L^4 provided with engaging projections whereby the latter must turn with the former and is also capable of independent movement, and connections between said shaft L^4 and said frame, substantially as specified.

23. The combination with the frame for returning the printing-hammers to their normal positions after each printing operation of shaft B^4 actuated with the printing mechanism at the time of the ordinary tabulating operations, a shaft L^4 arranged in line with shaft B^4 and having a projection engaged by a projection on said shaft B^4 and turning with the same and also capable of turning independently when actuated by the answer-printing lever, and connections between shaft L^4 and said frame, substantially as specified.

24. The tabulating-machine provided with feeding mechanism adapted to feed either short lengths of paper or continuous paper, and also provided with mechanism for returning the paper to its starting position, said last named mechanism being detachably connected to said feeding mechanism, substantially as specified.

25. The tabulating-machine adapted to be used with either wide or narrow paper, having a paper-guide H^2 cut out at the center and with wings R R at either side of the cut-out portion, the proximate edges of the wings being cut at an angle adapted to deflect the wide sheets upward, substantially as specified.

644,288. TIRE FOR WHEELS. HARRISON G. FROST, Brookline, Mass. Filed Mar. 1, 1899. Serial No. 707,282. (No model.)



Claim.—1. An elastic tire for wheels, consisting of a base member of hard rubber or like material, an elastic member surmounting and attached to said base member, and tread members integral with said elastic member, joined thereto by neck portions, the tread portions flattened on their exterior, elongated and overhanging said neck portions at the ends, where they approach each other, leaving a recess underneath, whereby an elastic transfer from one tread to another without jolts is secured, substantially as specified.

2. As a new article of manufacture, a tire made up in sections, each section having a base formed of a lower portion of hard rubber or like material covered by a thin soft-rubber covering and, integral with said soft-rubber covering, separate tread portions.

3. As a new article of manufacture, a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions; each section being slotted at the extremities of its base to receive securing-bolts, said slots being formed in the hard-rubber lower portion and the thin soft-rubber covering therefor.

4. As a new article of manufacture, a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions; the base of said tread portions being rounded to permit the free flow of surface water from the open spaces between the said tread portions; and each section being slotted at the extremities of its base to receive securing-bolts, said slots being formed in the hard-rubber lower portion and the soft-rubber covering therefor.

5. The combination of a solid tire made up of a base comprising a lower portion of hard rubber or other like material, and a thin soft-rubber covering integral therewith; and tread portions integral with said soft-rubber covering and separated from one another by portions of said base; a wheel; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

6. The combination of a solid tire made up of a base comprising a lower portion of hard rubber or other like material, and a thin soft-rubber covering integral therewith; and tread portions integral with said soft-rubber covering and separated from one another by portions of said base; a wheel; a tire-holder; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

7. The combination of a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions separated from one another by portions of said base; a wheel; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

8. The combination of a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions separated from one another by portions of said base; a wheel; a tire-holder; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

9. The combination of a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions which are wider at the top than at the base and separated from one another by open spaces which are narrower at the top than at the bottom; and the extremities of the base of each section being slotted to receive securing-bolts; a wheel; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

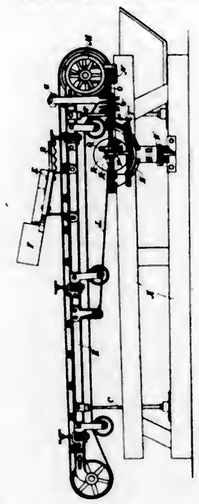
10. The combination of a solid tire made up in sections, each section having a base formed of a lower portion of hard rubber or other like material, covered on top by a thin soft-rubber covering integral therewith; and integral with said soft-rubber covering, tread portions which are wider at the top than at the base and separated from one another by open spaces which are narrower at the top than at the bottom; and the extremities of the base of each section being slotted to receive securing-bolts; a wheel; a tire-holder; and securing means such as bolts, screws, or the like which pass downwardly through said slots, the heads of said bolts or screws resting upon and being cushioned by said soft-rubber covering.

11. The combination of a tire made up of a lower portion of hard rubber or like material having integral therewith separate tread portions, and a thin cushion of soft rubber for cushioning the securing means; a wheel; and securing means, such as bolts, screws, or the like, which pass downwardly through holes in the hard-rubber lower portion in the interval between the bases of the soft-rubber tread portions and are cushioned by the said thin cushion of soft rubber.

12. The combination of a tire made up of a lower portion of hard rubber or like material having integral therewith separate tread portions, and a thin cushion of soft rubber for cushioning the secur-

ing means; a wheel; a tire-holder; and securing means, such as bolts, screws, or the like, which pass downwardly through holes in the hard-rubber lower portion in the interval between the bases of the soft-rubber tread portions and are cushioned by the said thin cushion of soft rubber.

644,289. CONCENTRATOR. GEORGE GATES, Jackson, Cal. Filed Jan. 13, 1899. Serial No. 702,041. (No model.)



Claim.—1. In a concentrator, the combination with a belt and feeding devices, of a trough interposed between the same and constructed with connected channels from which the pulp successively overflows from one channel to the other, said channels provided with bottom discharges whereby the pulp is delivered directly upon the belt, at different points in the length thereof, depending on its gravity, said feeding devices connecting with the initial channel of the series.

2. In an endless-traveling-belt concentrator, the combination with a moving belt of a series of troughs extending transversely above the belt having the edges connected to form a continuous overflow from one to another of said troughs, spaced perforations made in the bottoms of the troughs from end to end, said perforations being also alined transversely of the troughs and in line lengthwise of the belt, and a preliminary distributer consisting of divergent troughs by which the pulp is delivered from a common supply into the first trough simultaneously from one end to the other.

3. The mechanism for distributing and grading pulp and afterward depositing it upon an endless traveling belt for concentration, consisting of a series of troughs having the edges connected continuously, said troughs extending transversely across above the belt having lines of spaced perforations through the bottoms from end to end, said perforations also standing in line lengthwise of the belt, a distributer by which pulp is delivered from end to end of the first of said troughs, so as to fill and successively overflow to the subsequent troughs of the series and be discharged therefrom in lines upon and lengthwise of the belt, and water-supply troughs extending transversely across the belt nearer to its head than the pulp-troughs.

4. The combination with an endless-traveling-belt concentrator of a series of transversely-disposed troughs with continuously-connected edges, a distributing pulp-supply discharging into the first of said troughs to overflow successively to the following ones, perforations made in the bottoms of said troughs from end to end, and in lines lengthwise of the belt, a water-supply device situated nearer to the head of the belt consisting of a central and two exterior troughs supported transversely of the belt, the central trough being unperforated, a perforated supply-pipe extending transversely and in line above said central trough into which it delivers so that water overflows therefrom into each of the exterior troughs, and perforations made in the bottoms of the exterior troughs through which the water is delivered from one side to the other of the belt and in small independent quantities.

5. A mechanism for distributing and grading pulp and afterward depositing it upon an endless traveling belt for concentration, consisting of a series of troughs with connecting edges, extending transversely above the surface of the belt, supports therefor from the belt-carrying frame whereby the troughs partake of the movement of said frame, said troughs having perforations extending from end to end and with the perforations in one trough in line with those of the other troughs to form lines of perforations which are parallel with the travel of the belt.

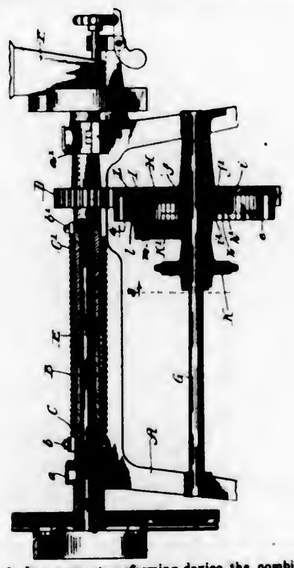
6. A mechanism for distributing and grading pulp and afterward depositing it in the order of its gradation, upon an endless traveling belt, consisting of a series of parallel troughs with connecting edges, said troughs extending transversely above the belt, having lines of perforations from end to end, said perforations being also directly in line with each other in series transversely of the troughs and lengthwise of the belt, and a means for supplying pulp and water to the first of said troughs.

7. In an endless-belt concentrator of the character described, a distributer whereby the pulp is graded and delivered upon the belt, and a clear-water supply consisting of a plurality of transversely-disposed troughs having discharge-openings in the bottom of each and so disposed with relation to corresponding openings in the other troughs as to form parallel rows of perforations exteeding parallel with the travel of the belt, substantially as described.

8. In a clear-water supply for traveling concentrator-belts, a means for subdividing the amount of water delivered upon the belt, and discharging the same at separated points whereby the washing away of the finer sulfurets is lessened, consisting of central unperforated and exterior perforated troughs connected along their contiguous edges, a supply-pipe parallel with and above the central trough, with openings through which water is delivered so as to overflow into each of the side troughs.

9. An endless-belt concentrator having an oscillating frame upon which it is carried, means by which the belt is caused to travel slowly from the lower toward the upper end, mechanism for distributing and grading pulp and depositing it upon the belt, consisting of a series of parallel, transverse, perforated troughs having their upper edges connected to form a continuous overflow from one trough to another whereby the pulp is graded according to its gravity and is deposited at different points on the belt, means whereby said frame is oscillated and means for regulating the travel of the belt.

644,290. POWER-TRANSFORMING MACHINE. JAMES R. GOODSUN, St. Charles, Ill. Filed Nov. 6, 1899. Serial No. 736,006. (No model.)



Claim.—1. In a power-transforming device, the combination of a rotary shaft, a pinion loose upon the shaft, a spring surrounding the shaft and connected at one end with the shaft and at its opposite end with the pinion, a reciprocal driving sprocket-wheel, a gear-wheel meshing with said pinion, and intermittent grip mechanism between said sprocket and gear wheels, substantially as and for the purpose set forth.

2. In a power-transforming device the combination with the reciprocal drive-wheel and the internally-toothed ratchet-wheel H having the friction-hub *f*, of an arm upon the drive-wheel, a pawl pivotally mounted upon said arm, an arm I loose upon the said hub within the ratchet-wheel and loosely engaging the pawl eccentrically of its pivot, and friction retarding means between said hub and arm I, substantially as and for the purpose set forth.

3. In a power-transforming device the combination with the reciprocal drive-wheel and the internally-toothed ratchet-wheel H having the friction-hub *f*, of an arm upon the drive-wheel, a pawl pivotally mounted upon said arm, an arm I loose upon the said hub within the ratchet-wheel and loosely engaging the pawl eccentrically of its pivot, a shoe upon the arm I and a spring upon the arm I operating to press the shoe against the said hub, all constructed and arranged to operate substantially as set forth.

644,291. BLACK TRISAZO DYE. JULIUS HERRMANN, Offenbach-on-the-Main, Germany, assignor to K. Oehler, Anilin and Anilinfarben-Fabrik, same place. Filed Dec. 21, 1899. Serial No. 741,075. (Specimens.)

Claim.—As new articles of manufacture the polyazo coloring-matters, adapted to dye unmordanted cotton a full fast black; which result from the combination of one molecule of a paradiamin first with one molecule of a monoazo coloring-matter from 2:8-amido-naphthol-sulfosic acid and tolylene-diamin-sulfosic acid, then with one molecule of an amido-naphthol-sulfosic acid, according to the general formula

Para-diamin { Monoazo coloring-matter from diazotized 2:8-amido-naphthol-sulfosic acid + tolylene-diamin sulfonic acid
Amido-naphthol sulfosic acid,

substantially as hereinbefore described; which are gray to brown-black powders with a metallic luster, easily dissolving in water to a bluish-black solution, from which on adding hydrochloric acid a dark-blue precipitate is separated; on addition of a little soda-lye the color does not change, but much soda-lye produces a reddish-violet precipitate; concentrated sulfuric acid yields a pure-blue solution, from which on addition of water a bluish-violet precipitate separates out.

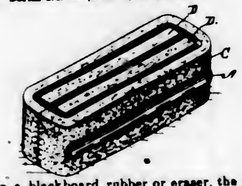
644,292. BLACK POLYAZO DYE. JULIUS HERRMANN, Offenbach-on-the-Main, Germany, assignor to K. Oehler, Anilin and Anilinfarben-Fabrik, same place. Filed Dec. 21, 1899. Serial No. 741,076. (Specimens.)

Claim.—As new articles of manufacture, the polyazo dyestuffs adapted for dyeing cotton a fast black which result from the combination of one molecular proportion of a paradiamin with two molecular proportions of a monoazo dye as obtained by combining diazotized 2:8-amido-naphthol-sulfonic acid and tolylene-diamin-sulfonic acid, according to the following formula,

Para-diamin { Monoazo dye from diazotized 2:8-amido-naphthol sulfonic acid + tolylene diamin sulfonic acid,
Mono azodye from diazotized 2:8-amido-naphthol sulfonic acid + tolylene diamin sulfonic acid,

substantially as hereinbefore described; which form gray to brown-black powders, showing a metallic luster, being readily soluble in water, and on addition of hydrochloric acid to the aqueous solution a bluish-black precipitate results, soda-lye changes the color of the aqueous solution into reddish violet; concentrated sulfuric acid yields a pure blue solution from which on adding water a blackish-violet precipitate falls down.

644,293. BLACKBOARD-RUBBER. MANFRED HOUSE, Kalamazoo, Mich., assignor of one-fourth to George Houston, same place. Filed May 27, 1899. Serial No. 718,609. (No model.)

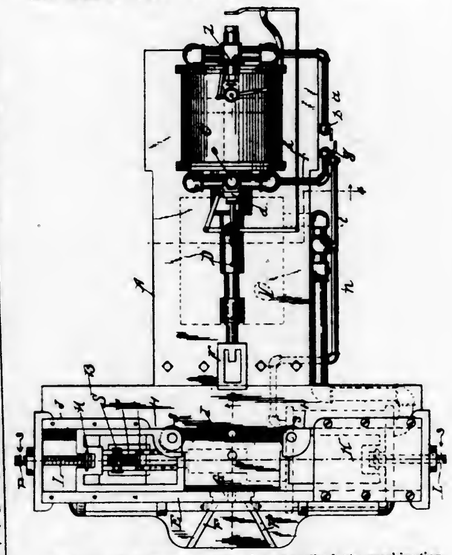


Claim.—1. In a blackboard rubber or eraser, the combination of the base, consisting of strips A, A, secured to each other by an intervening cushion B, of felt or similar material, and rabbeted on their outside edges to form projecting tongues; a band of felt C, around the same with strips cut out at the side to allow the tongues of the center block or base to project; and narrow strips of felt D, secured to the face of the block at intervals, to increase the rubbing-surface, all coacting substantially as described, for the purpose specified.

2. In a blackboard rubber or eraser, a block made up of strips with an intervening cushion of felt or similar material; and a suitable rubbing-surface consisting of felt suitably secured thereto, coacting for the purpose specified.

3. In a blackboard-eraser, the combination of a central base or block, the opposite sides of which are rabbeted to form projecting tongues; a band of felt around the same with strips cut out to allow the tongues to project; and strips on the faces of said blocks, for the purpose specified.

644,294. MACHINE FOR BENDING, FORGING, WELDING, AND SHAPING METAL. MARTIN KENNEDY, Chicago, Ill. Filed June 18, 1899. Serial No. 720,676. (No model.)



Claim.—1. In a machine of the class described, the combination with a bed-plate and a reciprocating tool-carrying hammer operated by fluid under pressure, of a pair of die-blocks horizontally adjustable toward and away from each other and at right angles to the hammer, and a vertical flange on the bed-plate at one side of said die-blocks and constituting an abutment against which the hammer operates and spanning the space between said die-blocks, substantially as and for the purpose described.

2. In a machine of the class described, the combination with a bed-plate and a reciprocating tool-carrying hammer operated by fluid under pressure, of a pair of die-blocks horizontally adjustable toward and away from each other and at right angles to the hammer, means for reciprocating one of said blocks by fluid under pressure, and a vertical flange on the bed-plate at one side of said die-blocks and constituting an abutment against which the hammer operates and spanning the space between said die-blocks, substantially as and for the purpose described.

3. In a machine of the class described, the combination with a bed-plate and a reciprocating tool-carrying hammer operated by fluid under pressure, of a pair of die-blocks, one of which is horizontally adjustable toward and away from the other and at right angles to the hammer, while the other block is horizontally reciprocable by fluid under pressure toward and away from the adjustable block and a vertical flange on the bed-plate at one side of said die-blocks and constituting an abutment against which the hammer operates and spanning the space between said die-blocks, substantially as and for the purpose set forth.

4. In a machine of the class described, the combination with a reciprocating tool-carrying hammer, operated by fluid under pressure, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, an abutment against which the hammer operates and a removable filling-plate at the center of length of said abutment between the die-blocks, substantially as and for the purpose described.

5. In a machine of the class described, the combination with a

reciprocating tool-carrying hammer operated by fluid under pressure, of a pair of die-blocks one of which is adjustable toward and away from the other and at right angles to the hammer, while the other block is reciprocable by fluid under pressure toward and away from the adjustable block, an abutment against which the hammer operates and a removable filling-plate at the center of length of said abutment between said blocks, substantially as and for the purpose described.

6. In a machine of the class described, the combination with a reciprocating tool-carrying hammer operated by fluid under pressure, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, each of said blocks being provided at the corner thereof nearest the hammer with curved sockets and removable and interchangeable corner-pieces, adapted to fit in said sockets, either rotatively or non-rotatively, substantially as and for the purpose described.

7. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure, and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constitute guides for the die-blocks, screws working through suitable fixed bearings and rotatively connected with the die-blocks so that said blocks will have only longitudinal movement with the screws, substantially as and for the purpose described.

8. In a machine of the class described, the combination with a bed-plate, the reciprocating tool-carrying hammer operated by fluid under pressure, and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constitute guides for the die-blocks, screws working through suitable fixed bearings and detachable and rotatively connected with the die-blocks so that said blocks will have only longitudinal movement with the screws, substantially as and for the purpose described.

9. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and an abutment against which the hammer operates, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, screws working through suitable fixed bearings and rotatively but detachably connected with the die-blocks and means for reciprocating one of said die-blocks by fluid under pressure when disconnected from its adjusting-screw, substantially as described.

10. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and an abutment against which the hammer operates, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, screws working through suitable fixed bearings and rotatively but detachably connected with the die-blocks, a lever pivoted to the bed-plate and adjustably connected at one end with one of said die-blocks and means for vibrating said lever by fluid under pressure, substantially as described.

11. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure, an abutment against which the hammer operates and a removable filling-plate at the center of length of said abutment, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, screws working through suitable fixed bearings and rotatively but detachably connected with the die-blocks and means for reciprocating one of said blocks by fluid under pressure when disconnected from its adjusting-screw, substantially as described.

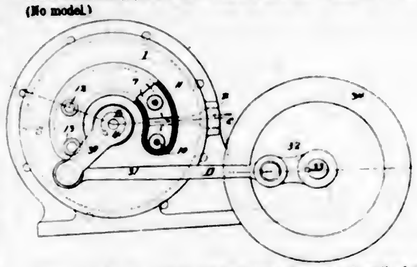
12. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constituting guides for the die-blocks, a dovetail-and-groove connection between the die-blocks and the bed-plate along the side thereof next the hammer, and means for adjusting said blocks toward and away from each other and at right angles to the hammer, substantially as described.

13. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constituting guides for the die-blocks, a dovetail-and-groove connection between the die-blocks and the bed-plate along the side thereof next the hammer, means for adjusting said blocks toward and away from each other and at right angles to the hammer, and means for reciprocating one of said blocks by fluid under pressure, substantially as described.

14. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constituting guides for the die-blocks, a dovetail-and-groove connection between the die-blocks and the bed-plate along the side thereof next the hammer, screws working through suitable fixed bearings and rotatively but detachably connected with the die-blocks for adjusting the same, substantially as described.

15. In a machine of the class described, the combination with a bed-plate, a reciprocating tool-carrying hammer operated by fluid under pressure and a vertical flange upon the bed-plate constituting an abutment for the hammer, of a pair of die-blocks adjustable toward and away from each other and at right angles to the hammer, a pair of vertical flanges on the bed-plate parallel with the abutment at opposite ends thereof, which, in conjunction with the abutment constituting guides for the die-blocks, a dovetail-and-groove connection between the die-blocks and the bed-plate along the side thereof next the hammer, screws working through suitable fixed bearings and rotatively but detachably connected with the die-blocks for adjusting the same and means for reciprocating one of said die-blocks by fluid under pressure when disconnected from its adjusting-screw, substantially as described.

644,295. VAPOR OR GAS ENGINE. JOHN G. LEPPER and WILBUR F. DIAL, Bridgeport, Conn. Filed Jan. 12, 1899. Serial No. 701,953. (No model.)



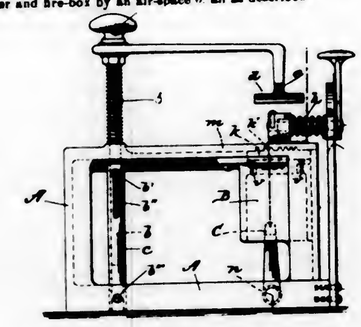
Claim.—1. In an explosive-engine of the character described, the cylinder having chambers and oscillating pistons as described, the shaft connected to such pistons and having a crank thereon, a pitman connected to said shaft and a second shaft having a rotating crank connected to said pitman, a sprocket-wheel on the second shaft, and a sprocket-chain leading back to a sprocket and cam wheel concentric with the first shaft, and exhaust-valves connecting to the cylinder-chambers and operated by said sprocket and cam wheel, all combined substantially as described.

2. In an explosive-engine of the character described, the cylinder and oscillating pistons, the shaft concentric with the cylinder and supporting the pistons, the sparking and exhaust mechanism, and a cam-wheel, concentric with the shaft and driven continuously in one direction, said cam-wheel controlling the sparking and exhaust mechanism to insure the described sequence of explosion and exhaust, all the specified elements in combination, substantially as described.

3. In a gas-engine, the cylinder having chambers separated by fixed radial partitions as described, the annular projection on the cylinder having escape-passages from the cylinder-chambers, the exhaust-valves at the entrance of said escape-passages having their stems arranged radially to the cylinder, the cam-wheel arranged concentric to said valves in position to operate on the valve-stems successively, and means for operating said cam-wheel continuously in one direction, all combined substantially as described.

644,296. COMBINED CIGAR BRANDING AND TRIMMING MACHINE. FRANK LEVROE, Pawtucket, R. I. Filed Dec. 6, 1899. Serial No. 739,453. (No model.)

Claim.—In a cigar trimming and branding machine the combination of a burner surrounded by a fire-box B, a vertical reciprocating plunger adapted to press the cigar against the brand; and a trimming device fixed to the base of the machine and separated from the burner and fire-box by an air-space a, all as described



644,297. TOP HANGER FOR STEAM-BOILERS. RICHARD METCALF, Dayton, Ohio, assignor to the Brownell & Company, same place. Filed Oct. 30, 1899. Serial No. 735,248. (No model.)

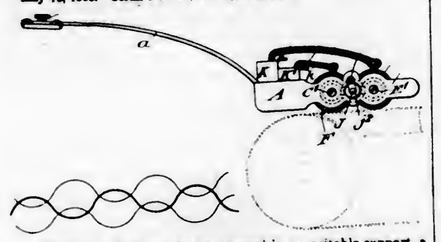


Claim.—1. A top hanger for steam-boilers, the same being formed of boiler-plate, and consisting of a ring, tubular in cross-section and having flanges extending in opposite directions from the lower portion of said ring, by means of which said hanger is attached to a boiler.

2. A top hanger for steam-boilers, consisting of two parts, correspondingly formed in rings with extended flanges, the said rings being semitubular in cross-section and of uniform inner and outer circumference so that when brought together a complete ring, tubular in cross-section, is formed, and means for attaching the two parts below the ring, substantially as shown and described.

3. A top hanger for steam-boilers, comprising two sections each of which consists of a semitubular ring with an attaching-flange extending from the lower part thereof, the said sections being assembled with the hollow sides of the rings together so as to form a complete ring, hollow in cross-section, and from the lower parts of which attaching-flanges extend, and the two sections being secured to each other between the lower part of the rings and the flanges, substantially as described.

644,298. FANCY-LINE ATTACHMENT FOR RULING AND LINE-PRINTING MACHINES. GEORGE F. McADAMS, New York, N. Y. Filed May 18, 1899. Serial No. 717,364. (No model.)



Claim.—1. A line attachment comprising a suitable support, a plurality of shafts mounted therein, one in advance of the other, disks carried by the said shafts, certain of the disks having sinuous peripheries, the said disks being so located on the shafts with respect to each other as to print a pattern on the sheet being treated, substantially as set forth.

2. A line attachment comprising a suitable support, a rotary shaft mounted therein, a plurality of disks having sinuous peripheries, carried by the shaft and means for clamping the disks in different rotary adjustments relatively to each other, substantially as set forth.

3. A line attachment comprising a suitable support, a plurality of rotary shafts mounted therein, one in advance of the other, a plurality of disks having sinuous peripheries, carried by the said shafts, means for clamping the disks on each shaft in different rotary adjustments relatively to each other and means for adjusting the shafts rotatably with respect to each other, substantially as set forth.

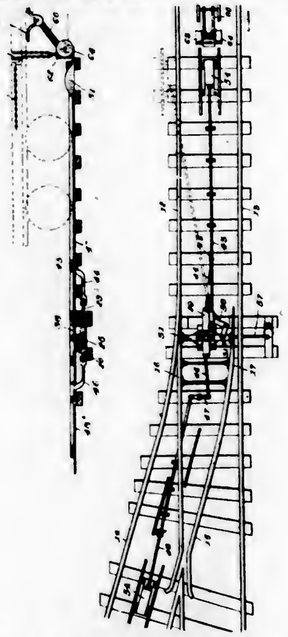
4. A line attachment comprising a suitable support, a pair of lining-disk-carrying shafts mounted therein, gearing connecting the said shafts and means for disconnecting the shafts at pleasure for permitting the disk or disks upon one shaft to be rotatably adjusted with respect to the disk or disks upon the other shaft, substantially as set forth.

5. A line attachment comprising a suitable support, front and rear lining-disk-carrying shafts mounted therein, gears carried by the said shafts, an intermediate gear and means for moving the gear into and out of engagement with one of the gears carried by the said shafts, substantially as set forth.

6. A line attachment comprising a suitable support, a rotary shaft mounted therein, a fixed and a movable collar carried by the shaft, one or more lining-disks interposed between the said collars and a combined clamping-nut and traction-wheel having a screw-threaded engagement with the said shaft and serving the double function of clamping the disk or disks in position on the shaft and for engaging the surface of the sheet being passed beneath the attachment for positively rotating the shaft, substantially as set forth.

7. A line attachment comprising a suitable support, a plurality of rotary shafts mounted therein, one in advance of the other, one or more lining-disks having sinuous peripheries, carried by each of the said rotary shafts, means for supplying ink to the disks and means for adjusting the shafts and thereby the disks, laterally with respect to each other to produce different patterns, substantially as set forth.

644,299. SWITCH-OPERATING DEVICE. JOHN A. P. McDONALD, Bradford, Pa. Filed Aug. 26, 1899. Serial No. 728,622. (No model.)



Claim.—1. In a switch-operating mechanism, the combination with the movable rails of a switch, of a slotted transverse bar connecting said rails, having two sets of seats in its upper edge, dogs pivoted beneath said bar, a cross-head carried by said dogs, normally seated in one set of seats and means for raising said cross-head out of the seats, in which it rests and dropping it in the other set, substantially as described.

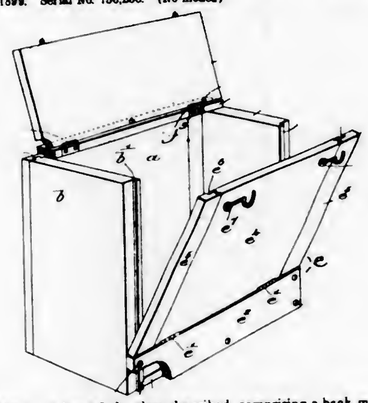
2. In a switch-throwing mechanism, the combination with a transverse bar, a longitudinally-slidable bar, a cross-head adapted to engage said cross-bar, and pivoted supports for said cross-head adapted to be operated by the longitudinal bar, whereby the said transverse bar will be locked in a predetermined position, when the switch is opened or closed, substantially as described.

3. In a switch-operating mechanism, the combination with the movable rails of a switch, of a transverse bar connecting the same, having portions adapted to be engaged when the switch is closed and when open, pivoted dogs arranged and carrying a cross-head to engage said portions, a bar for actuating the dogs and operating-rods and a bell-crank lever for opening and closing the switch, substantially as described.

4. In a switch-operating mechanism, the combination with the movable rails of a switch, of pivoted dogs intermediate the sides of the rails, a cross-head carried thereby, a transverse bar connecting the said rails, and provided with a slot through which the cross-head projects, a longitudinally-slidable bar adapted to operate the dogs whereby the transverse bar is locked in a predetermined position when the switch is opened or closed, and a bell-crank lever and rods for sliding the transverse bar, substantially as described.

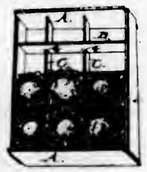
5. In a switch-operating mechanism, the combination with a car, downwardly-projecting pivotally-secured arms extending therefrom, a weighted head on the forward ends of said arms, and wheels on either side of the head, substantially as described.

644,800. BOX. DAVID B. MCPHERSON, Boston, Mass. Filed Nov. 8, 1899. Serial No. 736,236. (No model.)



Claim.— A box of the class described, comprising a back member; side members united thereto by vertical dovetail joints; a bottom member having a mortised joint with said side members; and top and front members adapted to be secured removably to said assembled members, to complete said box, said top and front members each comprising a fixed part and a swinging part hinged thereto, said swinging parts fitting against each other when the box is closed; means to hold said swinging parts in fixed position; and a vertical tongue-and-grooved joint intermediate said side and front members to impart lateral strength to said box front, without interfering with the free swinging movement of said upper front part.

644,301. SHIPPING AND STORING CASE. WILLIAM C. POST, Chicago, Ill., assignor of one-half to H. H. Corwin, Riverhead, N. Y. Filed Dec. 9, 1899. Serial No. 739,782. (No model.)

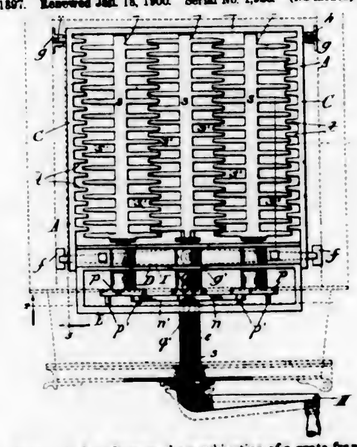


Claim.— 1. A packing-case having a slatted top, bottom and sides, end pieces extending above and below the plane of the upper and lower edges of said sides, and longitudinal and transverse series of strips interior to said sides, the top one of said series being slotted and mounted on the upper edges of the other series said slots being of sufficient size to permit the strips of the upper series to be set at an angle both horizontally and vertically to vary the diameter and form of the entrance ends of the cells formed by the strips to correspond with irregularities in the shape and size of the goods to be packed.

2. A packing-case including an inclosing slatted frame having spaces for the free circulation of air, and superposed longitudinal and transverse strips standing on edge and forming cells for the goods, said superposed strips being notched into and mounted with relation to the lower strips said notchees being of a size permitting the strips to have their ends set one in advance of the other and the entrances to the cells varied to correspond with the variations in the shape and size of the goods the cells are intended to receive.

3. A case for cauliflower consisting of a shallow slatted inclosure having ventilating-spaces and longitudinal and cross strips forming cells in which the heads of cauliflower are placed one deep and with their flower portions of each out of contact with the case and with the other heads, one series of said strips being notched and seated loosely on top of the strips of the other series and yieldingly in contact with the leaves surrounding the flower portions of the heads.

644,302. GRATE. BENJAMIN F. REYNOLDS, Chicago, Ill.; Ellen D. Reynolds, administratrix of said Benjamin F. Reynolds, deceased, assignor to the B. F. Reynolds & Company, same place. Filed June 1, 1897. Renewed Jan. 18, 1900. Serial No. 1,920. (No model.)



Claim.—1. In a furnace, the combination of a grate-frame A pivotally mounted at its rear end to swing at its forward end in a vertical plane, fixed supports at opposite sides of the forward end of the grate-frame, said supports being in different planes, and a horizontally-disposed bar l upon which the grate-frame is mounted at the center of its forward end arranged to be shifted to engage either of said supports at will, substantially as described.

2. In a furnace, the combination of a grate-frame pivotally mounted toward its rear end on laterally-extending trunnions, fixed supports at opposite sides of the forward end of the grate-frame said supports being in different planes, a horizontally-disposed bar provided with an upwardly-projecting stud upon which the grate-frame is mounted at its forward end, and a forwardly-extending branch arm connected to the center of said bar serving as a means for swinging said bar in a horizontal plane to permit it to be shifted from one support to another, substantially as and for the purpose set forth.

644,808. WIRE BRUSH. EDWARD R. RICE, New Durham, N. H. Filed Oct. 12, 1896. Serial No. 608,296. (No model.)

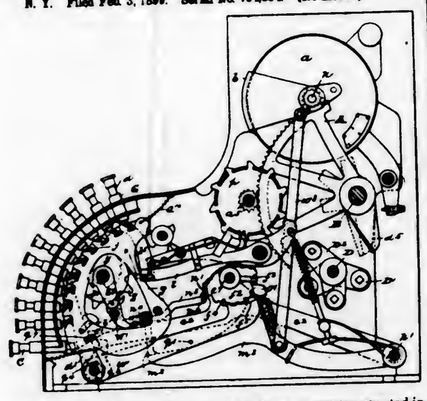


Claim.—1. A brush of the class described, comprising a handle having notches or slits approximately at right angles to each other in its upper end, a bunch of brush-wires in one slit, said slit having a width to receive and support said brush-wires, said bunch of brush-wires being bent within their notch intermediate their ends, and a binding-wire in the other of said slits, said binding-wire engaging and binding said brush-wires within the handle at their bent portion, substantially as described.

2. A brush of the class described, comprising a handle having notches or slits approximately at right angles to each other, and a perforation below one of said notches in its upper end, a bunch of brush-wires in one slit, said slit having a width to receive and support said brush-wires, and a binding-wire in the other of said slits and in said perforation, said bunch of brush-wires being bent within their notch intermediate their ends, and said binding-wire engaging said brush-wires within the handle at their bent portion, substantially as described.

3. The herein-described wire brush, comprising a handle provided with a binding-wire and a bunch of brush-wires, said brush-wires being bent within the handle intermediate their ends and held in an aperture in said handle, and the binding-wire being held rigidly by said handle, and provided at one end with a loop, the other end of the binding-wire being tightly wrapped spirally about said brush-wires and said handle, and the free end thereof secured through the loop of said other end, substantially as described.

644,304. CASH-REGISTER. LAFAYETTE S. SCOTT, New York, N. Y. Filed Feb. 3, 1899. Serial No. 704,354. (No model.)



Claim.—1. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and escapement devices controlling said mechanism, of a series of press-keys, a suitably-driven revoluble element adapted to actuate said escapement devices, and means, operatively disposed between said press-keys and said element, for controlling the movement of the latter, said element being movable independently thereof, substantially as described.

2. The combination, with a frame, suitably-acteated indicating mechanism operatively arranged therein, and escapement devices controlling said indicating mechanism, of a series of press-keys, suitably-driven star-wheels controlling said escapement devices, and means, disposed between said press-keys and said star-wheels, for controlling the movements of the latter, said element being movable independently thereof, substantially as described.

3. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device and a series of segments having operative connection with each of said keys and with said star-wheel, and controlling the movements of the latter, said element being movable independently thereof, substantially as described.

4. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, a suitably-driven star-wheel controlling said escapement device, a segment having a graduated operative connection with each of said keys, and means, controlled by said segment and operatively connected to the same and said star-wheel, for stopping the latter at a predetermined limit, said element being movable independently thereof, substantially as described.

5. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device, a series of segments having operative connection with each of said keys, the operative connection between one of said segments and said keys being graduated, means, controlled by said segment and operatively connected to the same and said star-wheel, for stopping the latter at a predetermined limit, and locking means, for said star-wheel, operatively disposed between the same and another of said segments, substantially as described.

6. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device, a graduated stop connected to said star-wheel and revoluble therewith, a series of segments having operative connection with each of said keys, the operative connection between one of said segments and said keys being graduated, a lever controlled by said segment and operatively arranged relatively to said stop, and locking means for said star-wheel, operatively disposed between the same and another of said segments, substantially as described.

7. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device, a graduated stop connected to said star-wheel and revoluble therewith, a series of segments having operative connection with each of said keys, the operative connection between one of said segments and said keys being graduated, a lever controlled by said segment and operatively arranged relatively to said stop, and locking means for said star-wheel, operatively disposed between the same and another of said segments, another of said segments having hooked teeth adapted to lock or engage said keys, substantially as described.

8. In a cash-register, the combination, with the frame, and devices to be actuated arranged therein, of a suitably-driven star-wheel, a drum having a peripheral notch and carried by and movable with said star-wheel, a series of movable segments, a series of keys controlling said segments, a suitably-fulcrumed pawl adapted to engage the notch in said drum and to be actuated by one of said segments, an arm movable concentrically relatively to said drum and the star-wheel, and another pawl carried by said arm and adapted to engage said notch and to be disengaged therefrom by the other of said pawls, substantially as described.

9. In a cash-register, the combination, with the frame, and devices to be actuated arranged therein, of a suitably-driven star-wheel, a graduated stop carried by and movable with said star-wheel, a drum having a peripheral notch and also carried by and movable with said star-wheel, a series of movable segments, a series of keys controlling said segments, a suitably-fulcrumed pawl adapted to engage the notch in said drum and to be actuated by one of said segments, an arm movable concentrically with said drum and the star-wheel, another pawl carried by said arm and adapted to engage said notch and to be disengaged therefrom by the other of said pawls, and a lever operatively arranged relatively to said stop, one of said segments having an operative connection with said lever and a graduated operative connection with the keys, substantially as described.

10. In a cash-register, the combination, with the frame, and devices to be actuated arranged therein, of a suitably-driven star-wheel, a graduated stop carried by and movable with said star-wheel, a drum having a peripheral notch and also carried by and movable with said star-wheel, a series of movable segments, a series of keys controlling said segments, a suitably-fulcrumed pawl adapted to engage the notch in said drum and to be actuated by one of said segments, an arm movable concentrically with reference to said drum and the star-wheel, another pawl carried by said arm and adapted to engage said notch and to be disengaged therefrom by the other of said pawls, a lever operatively arranged relatively to said stop, another of said segments having an operative connection with said lever and a graduated operative connection with the keys, and a pin carried by said arm, and another of said segments having hooked teeth adapted to lock or engage said keys and provided with a lug adapted to be engaged by said pin, substantially as described.

11. In a cash-register, the combination of a series of movable spring-actuated segments having peripheral notches, a series of press-keys provided with pins working in said notches, the notches in one of said segments being differentially disposed and in another of said segments forming hook-shaped teeth adapted to engage the pins of, and lock down, the press-keys, a revoluble graduated stop, a suitably-fulcrumed lever operatively connected with said first-named segment and movable relatively to said stop, operative driving or actuating means for said segments and said stop, and means, movable with said stop, adapted to operatively engage said second-named segment to effect a disengagement of said pins from the teeth thereof, substantially as described.

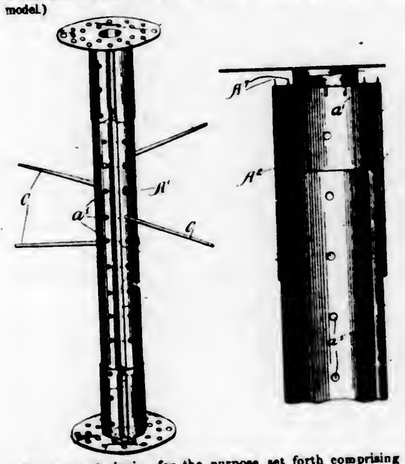
12. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an

automatically-driven star-wheel controlling said escapement device, a graduated stop connected to said star-wheel and revoluble therewith, a series of segments having operative connection with each of said keys, the operative connection between one of said segments and said keys being graduated, a lever controlled by said segment and operatively arranged relatively to said stop, locking means for said star-wheel, operatively disposed between the same and another of said segments, a resetting-crank, and operative connecting means between said crank and the star-wheel, substantially as described.

13. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device, a graduated stop connected to said star-wheel and revoluble therewith, a series of movable spring-actuated segments having peripheral notches engaged by said keys, the notches in one of said segments being differentially disposed and in another of said segments forming hook-shaped teeth, a hooked lever controlled by said first-named segment and adapted to engage said stop, locking means for said star-wheel operatively disposed between the same and another segment, a resetting-crank, and operative connecting means between said crank and the star-wheel, the hook-shaped teeth of said second-named segment being adapted to engage said keys, and means for disengaging the keys from said second-named segment, substantially as described.

14. The combination, with a frame, suitably-actuated indicating mechanism operatively arranged therein, and an escapement device controlling said indicating mechanism, of a series of press-keys, an automatically-driven star-wheel controlling said escapement device, a graduated stop connected to said star-wheel and revoluble therewith, a disk or drum having a peripheral notch and also connected to and revoluble with said star-wheel, a series of movable spring-actuated segments having peripheral notches engaged by said keys, the notches in one of said segments being differentially disposed and in another of said segments forming hook-shaped teeth, a hook-shaped lever controlled by said first-named segment and adapted to engage said stop, a locking-pawl adapted to engage the notch of said disk or drum and be engaged by another of said segments, an arm movable concentrically with said star-wheel and the disk or drum and the stop, a pawl carried by said arm and also adapted to engage the notch in said disk or drum and be engaged by the other of said pawls, a resetting-crank, operative connecting means between said crank and the arm, the hook-shaped teeth of said second-named segment being adapted to lock down said keys, and said segment being provided with a lug, and a pin carried by said arm and adapted to engage said lug, substantially as described.

644,805. DEVICE FOR DRYING FABRICS. LUCINDA R. H. SHERWOOD, Chicago, Ill. Filed June 19, 1899. Serial No. 721,023. (No model.)



Claim.—1. A device for the purpose set forth comprising an elongated body about which the fabric to be dried is wound in superposed layers, said body being provided on one side with a longitudinal groove, fastening devices within said groove adapted for engagement with the end margin of the fabric, and a series of fastening devices arranged around said body at each end thereof and which project from said body and are adapted for engagement with the side margins of the fabric.

2. A device for the purpose set forth comprising an elongated extensible body about which the fabric to be dried is wound in superposed layers, said body being provided with a longitudinal groove, fastening devices within said groove, and a series of circumferentially-separated fastening devices extending around said body at each end thereof.

3. A device for the purpose set forth comprising an elongated body provided with a longitudinal groove, pins attached to said body and projecting laterally into said groove, and pins projecting also from the ends of said body.

4. A device for the purpose set forth, comprising an elongated tubular body about which the fabric to be dried is wound in superposed layers, said body being provided on one side with a longitudinal groove, fastening devices within said groove, and a series of circumferentially-separated fastening devices arranged around said body at each end thereof.

5. A device for the purpose set forth, comprising an elongated tubular body open at each end thereof and provided on one side with a longitudinal groove, and in the wall thereof with a plurality of apertures, fastening devices within said groove, and fastening devices extending around said body at each end thereof.

6. A device for the purpose set forth, comprising an elongated body provided with a longitudinal groove, pins attached to said body and projecting laterally into said groove, a neck on one end wall of said body, a supporting-base attached centrally thereof to said neck, and pins projecting from said end wall and surrounding said neck.

7. A device for the purpose set forth, comprising two tubular sections which have telescopic engagement, said sections being provided with longitudinal depressions forming grooves, the depression in the outermost section fitting within the groove of the innermost section, fastening devices within said grooves, fastening devices extending around said sections at the outer ends thereof, and means for locking said section from relative endwise movement.

8. A device for the purpose set forth, comprising two tubular sections which have telescopic engagement, said sections being provided with longitudinal depressions forming grooves, the depression in the outermost section fitting within the groove of the innermost section, fastening devices within said grooves, fastening devices extending around said sections at the outer ends thereof, a bolt passing through the walls of said sections in said grooves, and a screw-threaded nut on said bolt, one of said walls being provided with a longitudinal slot engaged by said bolt.

9. A device for the purpose set forth, comprising two tubular sections which have telescopic engagement, said sections being provided with longitudinal depressions forming grooves, pins attached to said sections and projecting laterally into said grooves, the depression of the outermost section fitting within the groove of the innermost section and overlying the pins in said groove, pins projecting from the ends of said sections, and a locking device in said grooves opposite said pins.

10. A device for the purpose set forth, comprising an elongated tubular body provided on one side thereof with a longitudinal groove and provided also in the walls thereof with a plurality of apertures, fastening devices within said groove, fastening devices also extending around said body at the ends thereof, and a plurality of radial arms adapted for detachable engagement with said apertures in said walls of the body.

11. A device for the purpose set forth, comprising two tubular telescopic sections, about which the fabric to be dried is wound in superposed layers, a row of attaching devices on one side of said sections adapted for engagement with the end margin of the fabric, a plurality of attaching devices at the outer ends of said sections adapted for engagement with the side margins of the fabric, and clamping means engaging the walls of said sections for locking the sections from relative endwise movement.

12. A device for the purpose set forth comprising an elongated body, about which the fabric to be dried is wound in superposed layers, said body being provided with a longitudinal groove, fastening devices in said groove, a series of circumferentially-separated fastening devices arranged around said body near each end thereof, and means for varying the distance between the fastening devices, carried by one end of said body and those carried by the other end of said body.

13. A device for the purpose set forth comprising an elongated body provided with a longitudinal groove, fastening means in said groove for the end margin of a fabric, and provided also at its ends with grooves within which are located fastening devices for the side margins of the fabric.

14. A device for the purpose set forth comprising an elongated body provided with a longitudinal groove, fastening means in said groove for the end margin of a fabric, and provided also at its ends with grooves within which are located fastening devices for the side margins of the fabric, said fastening devices at the end of the body being made adjustable as to their distance apart to provide for fabrics of different widths.

644,806. LUBRICATOR FOR WINDMILLS. HERMAN TENBAS, Brandon, Wis. Filed Apr. 28, 1899. Serial No. 714,840. (No model.)



Claim.—1. A lubricator comprising a casing forming an oil-reservoir and provided at one end with means for distributing oil to the bearings of a machine, an oscillating carrier arranged to swing to and from the distributing means, a transversely-disposed series of wheels located within the casing, connections between the wheels whereby they may rotate one another successively, means connected to the rear wheel of the series for operating the carrier, and actuating means located at the other end of the series for rotating the first wheel and designed to be connected with the machine to be lubricated, substantially as described.

2. A lubricator comprising a casing forming an oil-reservoir and provided with means for distributing oil to the bearings of a machine, a transverse series of wheels located within the casing, connections between the wheels whereby they may rotate one another successively, an oscillating carrier arranged to swing over the gearing to the distributing means, means connected to the rear wheel of the series for operating the carrier, and an actuating-pawl arranged to engage the first wheel of the series and designed to be connected to the machine to be lubricated, substantially as described.

3. A lubricator comprising a casing and provided with a distributing device having separate compartments or gutters, a transversely-disposed series of wheels arranged within the lubricator, connections between them whereby they may rotate one another successively, an oscillating carrier arranged to swing over the said wheels, said carrier being provided with longitudinal grooves or gutters having cups at their rear ends and corresponding with the compartments or gutters of the distributing device, means connected to the wheel at one end of the series for operating the carrier, and means for actuating the wheel at the other end of the series, substantially as described.

4. A lubricator comprising a casing provided with a distributing device having separate grooves or gutters, a transversely-disposed series of wheels located within the casing, connections between the wheels whereby they may rotate one another successively, a rectangular carrier arranged to swing over the gearing, said carrier being provided with partially-covered longitudinal grooves, means connected to the wheel at one end of the series for operating the carrier, and means for actuating the wheel at the other end of the series, substantially as described.

5. A lubricator comprising a casing provided with distributing means, a transversely-disposed series of wheels located within the casing, connections between them whereby they may rotate one another successively, an oscillating carrier arranged to swing over the gearing and provided at opposite sides of the casing with arms journaled thereon, means connected to the last wheel of the series for engaging the adjacent arm of the carrier for operating the latter, and a pawl for actuating the first wheel of the series, substantially as described.

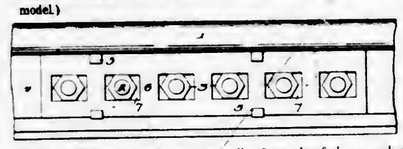
6. A lubricator comprising a casing provided with a distributing device, a transversely-disposed series of wheels located within the casing, connections between them whereby they may rotate one another successively, an oscillating carrier arranged to swing over the said wheels, means connected to the last wheel for operating the carrier, a reciprocating pawl arranged to actuate the first wheel, a rock-shaft having a crank connected with the reciprocating pawl, and means for connecting the rock-shaft with the machine to be lubricated, substantially as described.

7. A lubricator comprising a casing, a train of ratchet-wheels located within the casing and provided with teeth or projections to engage the adjacent wheels, whereby the same may be successively rotated, an oscillating carrier arranged to swing over the said wheels means carried by the last wheel of the series for operating the carrier to move the same to the distributing device, the weighted check pawls or dogs engaging the ratchet-wheels and locking the same against retrograde movement, and means for rotating the first wheel of the train, substantially as described.

8. A lubricator comprising a casing, a distributing device, the transversely-disposed train of ratchet-wheels located within the casing, connections between the wheels whereby they may rotate one another successively, an oscillating carrier arranged to swing over the gearing, means connected to the last wheel for operating the carrier, the reversely-arranged weighted check-pawls engaging the ratchet-wheels, a centrally-arranged pivot supporting said pawls, and a reciprocating pawl for rotating the first wheel, substantially as described.

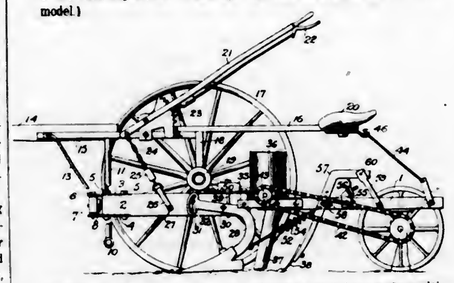
9. A lubricator comprising a casing, a transversely-disposed series of wheels located within the casing, connections between the wheels, whereby they may rotate one another successively, an oscillating carrier arranged to swing over the said wheels, a distributing device located at one side of the series of wheels, means connected to the last wheel of the series for operating the carrier to move the same to the distributing device, a spring for swinging the carrier in the opposite direction, a reciprocating pawl engaging and rotating the first wheel, a rock-shaft having a crank connected with the reciprocating pawl, and a lever mounted on the rock-shaft and located outside of the casing and designed to be connected with the machine to be lubricated, substantially as described.

644,807. NUT-LOCK. EDWARD WATKINS and CHARLES COLTERYAHN, Pittsburg, Pa. Filed Sept. 15, 1899. Serial No. 730,571. (No model.)



Claim.—The combination with a rail, of a pair of clamps adapted to be mounted against one side of the web of said rail and clamped between the underneath face of the top and the upper face of the base, a fish-plate secured to the said clamps, prevented thereby from engaging the web of the rail and provided with a series of circular openings, a retaining-plate secured to the said clamps and provided with a series of rectangular openings registering with the openings of the said fish-plate, a fish-plate engaging the web of the rail opposite the first-named fish-plate and provided with a series of circular openings, a series of bolts engaging through the openings of the fish and retaining plates and through the web of the rail, said bolts having the heads thereof engage the last-named fish-plate and their screw-threaded ends extend through the rectangular openings of the retaining-plate, and a nut mounted on the screw-threaded end of each bolt and adapted to engage the walls of the rectangular openings to prevent its turning when in position, substantially as set forth.

644,808. PLANTING ATTACHMENT FOR CULTIVATORS. JOHN C. WEDDLE, Taylor, Tex. Filed Apr. 19, 1899. Serial No. 713,607. (No model.)



Claim.—1. In a corn and cotton planting attatchment for cultivators, the combination of the front frame carrying a plow or sweep, a rear frame supporting a seedbox and a ground-wheel, means for throwing the plow and planting mechanism out of operation, and means for making a movable connection between the two frames.

2. The combination of the front section carrying a plow, the cultivator-frame to which said front section is connected in a doubly-pivoted manner, lifting means for adjusting the height of said section from the ground, lifting mechanism for the planting-section, and the seat-supporting frame whereby the operator rides upon the machine, substantially as described.

3. The combination with the cultivator-frame having drive-wheels, of the front frame of a planter attachment, said frame carrying an adjustable plow or sweep, means for connecting said frame in a double pivotal manner with the cultivator-frame, means for guid-

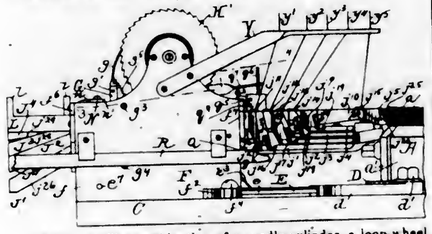
ing the mechanism from the driver's seat, a spring connecting the plow and planting attachment to normally hold the latter in contact with the ground, lifting mechanism for adjusting the height of the parts from the ground, a seat-carrying frame, and a stirrup-provided guiding device mounted transversely upon the plow-carrying frame, substantially as described.

4. The combination with a cultivator-frame, of a planter attachment consisting essentially of a front frame supporting the plow, means for hinging said frame at its forward end to the cultivator-frame in a double pivotal manner, the rear frame carrying the ground-wheel, a seed-distributer, a delivery-chute and cover-plows, means for making a double pivotal connection between the front and rear frame, a seat-carrying frame, a spring connecting the planting-frame with the cultivator-frame to normally draw the former toward the ground, and means for supporting the rear end of the rear frame from the seat-carrying frame, substantially as specified.

5. In a corn and cotton planting attachment for cultivators, the combination of the front frame or beam carrying an adjustable plow, means for doubly pivoting the end of the front frame to the cultivator-frame, and a rear frame carrying the seed-dropping devices together with a spring connection between said frame and the plow or sweep, to normally hold the planting mechanism in contact with the ground, substantially as described.

6. In a corn and cotton planting attachment for cultivators, the combination with a front section carrying a plow and pivotally supported on the cultivator-frame, of a rear section carrying a seed-distributing device, and coverers, together with means for operating the seed-distributer, a spring connection between the plow and planter to normally hold the latter in contact with the ground, and leverage means for lifting and sustaining the sections of the machine for convenience in transportation, substantially as described.

644,309. **KNITTING-MACHINE.** ALBERT WHITE, Lowell, Mass. Filed Oct. 20, 1898. Serial No. 694,130. (No model.)



Claim.—1. The combination of a needle-cylinder, a loop-wheel, a series of yarn-guides having delivery ends, and means for causing said delivery ends, one at a time in approaching said cylinder, to reach the same place without moving any other delivery end toward said cylinder.

2. The combination of a needle-cylinder, a loop-wheel, a yarn-guide, means for causing said yarn-guide to approach and to recede from said cylinder, and shears, between the open blades of which said yarn-guide passes in receding from said cylinder.

3. The combination of a needle-cylinder, a loop-wheel, a plurality of yarn-guides, means for causing, one at a time, any one of said yarn-guides to approach said cylinder, and a single tube, to direct a jet of air, across the path of said approaching guide and toward said loop-wheel.

4. The combination of a needle-cylinder, a loop-wheel, a yarn-guide, having a delivery end, means for causing said yarn-guide to approach said needle-cylinder, means for causing said guide to recede from said cylinder, and separate pattern devices to control the operation of either of said means.

5. The combination of a needle-cylinder, a loop-wheel, a yarn-guide, having a yarn-delivery end, a slide, a link, connecting said guide and said slide, a yarn-guide retainer, pivoted to said slide and provided with a projection, a stop, adapted to be engaged by said projection, to hold said yarn-guide away from said needle-cylinder, a spring, to move said yarn-guide toward said needle-cylinder when said projection is disengaged from said stop, and a pattern device to force said projection out of engagement with said stop.

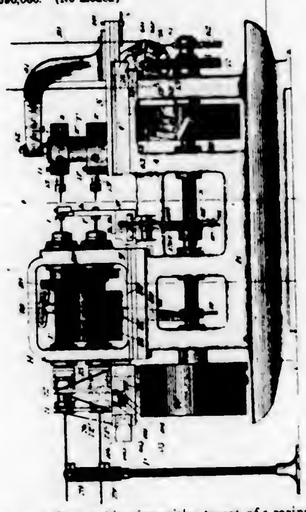
6. The combination of a needle-cylinder, a loop-wheel, a yarn-guide, having a yarn-delivery end, a slide, a link, connecting said guide and said slide, a yarn-guide retainer, pivoted to said slide and provided with a projection, a stop, to be engaged by said projection, to hold said yarn-guide away from said needle-cylinder, a reciprocating hook, adapted to engage another projection with which said retainer is provided, a pattern device, to force said last-named projection into the path of said hook, and a spring, to raise said first-named projection into engagement with said stop.

7. The combination of a needle-cylinder, a loop-wheel, a yarn-guide, having a yarn-delivery end, a slide, a link, connecting said guide and said slide, a yarn-guide retainer, pivoted to said slide and provided with a projection, a stop, adapted to be engaged by said projection, to hold said yarn-guide away from said needle-cylinder, a spring, to move said yarn-guide toward said needle-cylinder when said projection is disengaged from said stop, a pattern device to force said projection out of engagement with said stop, a reciprocating hook, adapted to engage another projection with which said retainer is provided, another pattern device, to force said last-named projection into the path of said hook, and a spring, to raise said first-named projection into engagement with said stop.

8. The combination of a needle-cylinder, provided with a cam, a lever, operated by said cam, a carriage, a spring, to hold said carriage in engagement with said lever, a series of hooks, pivoted on said carriage and each provided with a notch, an apron, pivoted on said carriage and extending under all of said hooks and having a spring-finger, a controller, to limit the upward movement of said hooks, a deflector, to press upon said spring-finger and thereby to lift said apron against said hooks, a series of slides, equal in number to said hooks, an equal series of yarn-guide retainers, each pivoted to one of said slides, and each provided with a downward projection having a tooth, adapted to engage the notch of the corresponding hook, and each retainer having two oppositely-projecting lateral offsets and an upward projection, adapted to engage a stop-bar, said stop-bar, an equal series of yarn-guides, links, each connecting a yarn-guide and a retainer, pattern devices, to engage said offsets, to bring said retainer-teeth into the path of said hooks, or at will to disengage said retainer from said stop-bar.

9. The combination of a needle-cylinder, a loop-wheel, a series of movable yarn guides or carriers, means of causing said guides or carriers to approach and recede from said cylinder, and a loop-wheel guide arranged to direct the yarn into the needles while the yarn-guides are receding from said cylinder.

644,310. **MULTIPLE-SPINDLE SCREW-MACHINE.** LOUIS C WORRNER and FRANK HARRINGTON, Hartford, Conn., assignors to The Pratt & Whitney Company, same place. Filed Sept. 2, 1898. Serial No. 690,086. (No model.)



Claim.—1. The combination, with a turret, of a reciprocatory turret-supporting device; automatic means for operating said turret-supporting-device; a reciprocatory slide having a stud or projection; a pawl carried by said stud or projection, said pawl serving to rotate the turret on the retractive movement of the turret-support; and a stop for holding said reciprocatory slide stationary at a predetermined point in the retractive movement of the turret-supporting device.

2. In a machine of the class specified, the combination, with multiple spindles for holding the work, of means for automatically actuating said spindles; a turret-support; a cam-shaft having a cam for automatically operating said turret-support; means for automatically actuating said cam-shaft and for driving the same at different speeds; a turret having two separated tool-receiving portions mounted for rotation on the turret-support; a slide having a stud or projection movable with said turret-support; a pawl pivoted to said stud or projection; a stop for restraining the movement of said slide at the proper time; a turret-locking device also movable with the turret-support; a device for positively actuating said turret-locking device in one direction; a spring for actuating said locking device in the opposite direction; and a stop with which said positively-actuating device engages.

3. The combination, with a turret, of a turret-support having a chambered base; means for reciprocating the turret-support; a reciprocatory slide having a stud or projection carrying a pawl; and a stop for arresting the movement of the slide at a predetermined point in the retractive movement of the turret-support.

4. The combination, with a turret, of a turret-support; a reactive slide carrying a stud having a turret-rotating device movable with said turret-support; automatic means for operating the turret-support; and a stop cooperating with the slide carrying the turret-rotating device.

5. The combination, with a turret, of a turret-support; a slide having a stud carrying a turret-rotating device; a turret-locking device; automatic means for operating the turret-support; means for actuating the locking device; and means for operating the slide carrying the turret-rotating device by and upon the retractive movement of said turret-support.

6. The combination, with a turret, of a turret-support; a slide carrying a stud on which is mounted a turret-rotating device, said slide being movable with the turret-support; a stop on the frame with which said slide engages during the retractive movement of the turret-support; a turret-locking device movable with the turret-support, a lever for actuating said turret-locking device; a stop with which said lever engages; and automatic means for operating the turret-support.

7. The combination, with a turret, of a turret-support; a slide having a stud carrying a turret-rotating device; a turret-locking device carried by said turret-support, the turret rotating and locking devices being disposed at opposite sides of the axis of rotation of the turret; and means for automatically operating the turret-support, the turret-rotating device and the turret-locking device.

8. The combination, with a turret, of a recessed turret-support, a slide having a vertical stud or projection located in the recess of said turret-support, a pawl carried by the stud or projection of said slide; a stop on the frame, for arresting the movement of said slide; and automatic means for operating the turret-support.

9. The combination, with a turret, of a turret-support, a reciprocatory slide carrying a projection having a turret-rotating device movable with said support, a turret-locking device carried by said support and movable relatively thereto; automatic actuating means for operating the turret-support; and separately-operable actuators for the turret rotating and locking devices.

10. The combination, with a turret, of a turret-support; a reciprocatory locking device carried by said support and movable relatively thereto, a slide reciprocatory on and relatively to the turret-support; a vertical stud on said slide; a turret-rotating pawl supported for oscillation on said stud, and automatic actuating means for operating the turret-support, the turret-locking device, and the reciprocatory slide.

11. The combination, with a turret, of a recessed turret-support; a reciprocatory turret-locking device carried by said support and movable relatively thereto; a spring-retracted turret-rotating slide having a stud or projection reciprocatory on and relatively to the turret-support; a turret-rotating pawl supported for oscillation on the stud or projection of the turret-rotating slide; and automatic actuating means for operating the turret-slide, the turret-locking device, and the turret-rotating slide.

12. The combination, with a turret having recesses, of a turret-support; a spring-advanced reciprocatory turret-locking device carried by said support and movable relatively thereto; a spring-retracted turret-rotating slide reciprocatory on and relatively to the turret-support, said slide having a stud or projection; a turret-rotating pawl supported for oscillation on the stud or projection of the turret-rotating slide; and automatic actuating means for operating the turret-support, the turret-locking device, and the turret-rotating slide.

13. The combination, with a turret, of a turret-support; a reciprocatory turret-locking device carried by said support; a by-pass device carried by the support for operating said turret-locking-device; an actuator for said by-pass; a movable turret-rotating device having a stud or projection, a pawl carried by said stud or projection; and means for arresting the movement of said turret-rotating device upon the retractive movement of the turret-slide.

14. The combination, with a turret, of a turret-support; a reciprocatory turret-locking device carried by said support; a by-pass device carried by said support for operating said turret-locking device; a stop in the path of movement of the by-pass and operative for actuating the latter; a movable turret-rotating device having a stud; a pawl pivoted to said stud; and a stop for arresting the movement of said turret-rotating device at a predetermined point in the retractive movement of the turret-support.

15. The combination, with a turret having tool-receiving portions of large diameter and an intermediate recessed portion of small diameter, the portions of large diameter having sockets, of adjustable tool-clamping devices located in the tops of said tool-receiving portions, the lower tool-clamping devices projecting into the recessed portion of the turret whereby they are readily accessible when it is desired to remove or adjust the tools.

16. The combination, with a turret, of a recessed turret-support; a turret-rotating pawl carried by a projection on a slide disposed in the recess of the turret-support; a spring cooperating with said projection; a stop with which said slide engages; a cam having a groove; a shoe on the turret-support working in said groove and adapted thereby to locate the turret-support positively in its several positions during the reciprocation of said support; and means for actuating the cam.

17. The combination, with a support, of a cam-shaft and means for actuating the same; a rotary spindle; a chuck; a rod-feeding device cooperating with the spindle and chuck; means for automatically actuating said rod-feeding device and said chuck; manually-operated means separate from but in engagement with said rod-feeding device for independently actuating the rod-feeding device; a tool-slide mounted on said support for reciprocation transversely to the axis of rotation of the cam-shaft and the spindle; an actuating-lever for shifting said tool-slide; and a cam on said cam-shaft and adjustable toward and from the axis of the latter and cooperative with said actuating-lever.

18. In a screw-machine, the combination, with a blank-carrying spindle, a chuck, and rod-feeding devices mounted therein, of means for automatically actuating said devices, and independent means separate from said rod-feeding devices for manually operating said devices when desired.

19. In a screw-machine, the combination, with a blank-carrying spindle, a chuck, and rod-feeding devices mounted therein of means for automatically actuating said chuck and rod-feeding devices, said means including slides, and a manually-actuated device separate from the rod-feeding devices for independently operating said slides when desired.

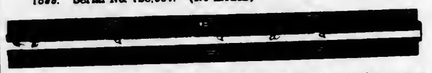
20. In a screw-machine, the combination, with a spindle and rod chucking and feeding devices carried thereby, of slides connected with said devices; means for automatically actuating the slides; and means separate from but in engagement with the slides for manually actuating the slides when it is desired to impart a movement thereto independent of the automatic action of the machine.

21. In a screw-machine, the combination, with multiple spindles and rod chucking and feeding devices carried thereby, of a slide connected with the rod-chucking devices; a second slide connected with the rod-feeding devices; means for automatically actuating said slides at the proper times; and means separate from but in engagement with the slides for manually actuating either of said slides when it is desired to effect an independent adjustment thereof.

22. In a screw-machine, the combination, with multiple spindles arranged in parallelism and rod chucking and feeding devices carried by said spindles, of two slides; a channeled guide-bar projecting from the frame on which said slides are fitted; a stud or spindle mounted in said guide-bar; and manually-operated means carried by said stud or spindle for effecting an independent adjustment of the slides when desired.

23. In a screw-machine, the combination, with multiple spindles arranged in parallelism and rod chucking and feeding devices carried by said spindles, of a channeled guide-bar projecting from the frame; two slides connected, respectively, with the rod chucking and feeding devices and movable upon said channeled bar, said slides being provided with teeth; a stud or spindle fixedly mounted in the guide-bar; toothed wheels carried on the ends of said stud or spindle for engaging with the teeth of the slides; and means for manually actuating said wheels.

644,311. **METHOD OF WINDING HELICES FOR ELECTRICAL PURPOSES.** JAMES C. ANDERSON, Jersey City, N. J. Filed June 15, 1899. Serial No. 720,667. (No model.)



Claim.—1. The method of winding helices for electrical purposes, consisting in simultaneously winding a plurality of helices upon separated zones of a single core, and inserting sheets of insulating mate-

rial between the superposed layers of the helices, each sheet being common to all the helices.

2. The method of winding helices for electrical purposes, consisting in simultaneously winding a plurality of helices upon separated zones of a single core, inserting sheets of insulating material between the superposed layers of the helices, each sheet being common to all the helices, and then separating the helices by transversely severing said sheets and core between the adjacent helices.

3. The method of winding helices for electrical purposes, consisting in simultaneously winding one layer of each helix upon separated zones of a single core, then simultaneously wrapping all of said layers with insulating material, then simultaneously winding the second layers of the helices upon the insulating-wrapper over the first layers, then simultaneously wrapping all of the second layers with insulating material and so on until the desired length of helix has been formed, and finally separating the helices, substantially as described.

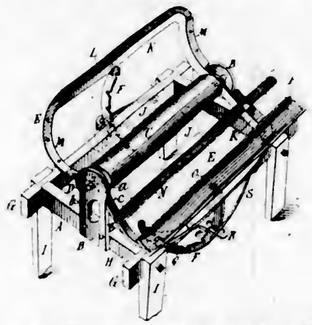
644,312. ELECTRICAL HELIX. JAMES C. ANDERSON, Jersey City, N. J. Filed Aug. 29, 1899. Serial No. 728,843. (No model.)



Claim.—1. An article of manufacture consisting of a plurality of helices for electrical purposes, wound in layers on a single core, in combination with individual sheets of insulating material inserted between the layers and extending throughout all the helices, substantially as described.

2. An article of manufacture consisting of a plurality of helices for electrical purposes wound in layers on separated zones of a single core, in combination with layers of insulating material alternating with the layers of the helices and being common to all the helices, substantially as described.

644,313. SHEEP-SHEARING STOCK. PHILANDER ANDERSON, New York, N. Y. Filed Nov. 1, 1898. Serial No. 695,218. (No model.)



Claim.—1. In animal-stocks and the like, side carriers for supporting the side of an animal, and an intermediate body-carrier for engaging the body of the animal between its legs, said carriers having between them spaces through which the legs of the animal may project, and within which the legs can move as the animal is rolled across said intermediate carrier from one to the other of said side carriers.

2. In animal-stocks and the like, a central carrier passing between the legs of the animal and adapted to engage its body between its legs, and side carriers at the respective sides of said central carrier, separated therefrom sufficiently to give room for the animal's legs between the side and central carriers, and vertically adjustable around the latter.

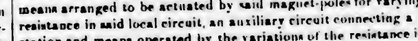
3. In animal-stocks and the like, the combination with two side carriers on which the animal can be laid, spaced apart and adapted to receive the animal's legs between them, of a central carrier between said side carriers passing between the animal's legs and having a cylindrical form, and supporting the under side of the animal's body as it is turned from one side carrier to the other.

4. In animal-stocks and the like, two side carriers in combination with a central carrier between them, rotative, and adapted to pass between the legs of the animal, and engaging the under side of its body as it is turned from one to the other side carrier.

5. In animal-stocks and the like, a central member and two side wings, said member and wings having leg-spaces between them, and adjustable holders for said wings, said wings adapted to hold the animal downward and the under side of its body toward said central member, and said central member passing between the animal's legs and engaging the under side of its body.

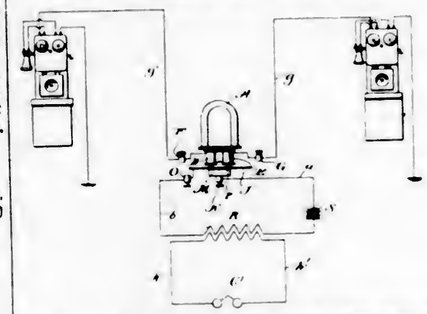
6. In animal-stocks and the like, two wings E, an intervening member C, a frame A carrying said parts, and adjustable holders F for said wings.

644,314. BUCKLE. GEORGE V. BATES, Mamaroneck, N. Y. Filed July 21, 1899. Serial No. 724,706. (No model.)



Claim.—The herein-described garment-buckle, the same consisting of a frame comprising an intermediate bar and opposite openings, the outer edge of one of said openings having a hook, which latter has its inner portion disposed inwardly at substantially a right angle to the frame and at a point some distance therefrom acutely bent outwardly terminating in an entering-point in close proximity to and in substantially the same plane with the adjacent edge of the said intermediate bar, substantially as and for the purpose specified.

644,315. TELEPHONIC RELAY. FRED H. BROWN, Oak Park, Ill. Filed Nov. 27, 1899. Serial No. 738,251. (No model.)



Claim.—1. In a telephonic apparatus, a main-line circuit connecting two distant stations, an independent or local circuit including a generator, means arranged in the main-line circuit for varying the resistance of said local circuit, an auxiliary circuit connected to a third station and means operated by the variations in the resistance of the local circuit for reproducing the impulses of the main line in said auxiliary circuit, as and for the purpose set forth.

2. In a telephonic apparatus, a main-line circuit connecting two distant stations, an independent or local circuit including a generator, a magnet, a coil encircling the pole-piece of said magnet, said coil included in circuit with the main line, a diaphragm arranged to vibrate under the influence of said magnet-coil, said diaphragm included in said local generator-circuit, means actuated by the vibrations of said diaphragm for varying the resistance of said local circuit, an auxiliary circuit connected to a third station and means operated by the variations in resistance of the local circuit for reproducing the impulses of the main line in said auxiliary circuit, as and for the purpose set forth.

3. In a telephonic apparatus, a main-line circuit connecting two distant stations, a horseshoe-magnet, coils arranged upon each at the poles of said magnet, said coils being in series with each other and with said line, an independent local circuit, including a generator, means arranged to be actuated by said magnet-poles for varying the resistance in said local circuit, an auxiliary circuit connecting a third station and means operated by the variations of the resistance in the local circuit for reproducing the impulses of the main line in said auxiliary circuit, as and for the purpose set forth.

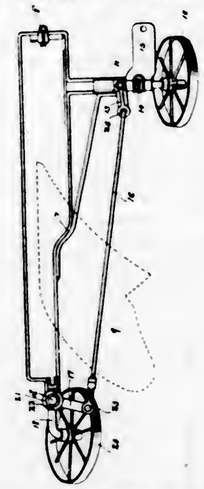
4. In a telephonic apparatus, a main-line circuit connecting two distant stations, a horseshoe-magnet, coils for each of the poles of said magnet said coils included in series with each other and with said line-circuit, an independent local circuit including a generator, a diaphragm and a variable contact actuated thereby, and arranged in said local circuit, said diaphragm supported over to be vibrated by said magnet-poles, whereby the resistance of the local circuit is varied synchronously with the impulses of the main line, an auxiliary circuit connecting a third station, and means actuated by the variations of resistance in the local circuit for reproducing the main-line impulses in said auxiliary circuit, as and for the purpose set forth.

5. In a telephonic apparatus, a main-line circuit connecting two distant stations, a magnet having a pole-piece, a coil for said pole-piece said coil included in circuit with the main line, a local circuit including a generator, a diaphragm included in said local circuit, said diaphragm arranged in inclined position relative to the horizontal, and to be vibrated by said magnet-pole, carbon balls resting upon said inclined diaphragm for completing the said local circuit, whereby when said diaphragm is vibrated the resistance of the local circuit is varied, an auxiliary circuit connecting a third station, and means actuated by the variations in resistance of the local circuit for reproducing the impulses of the main line in said auxiliary circuit, as and for the purpose set forth.

6. In a telephonic apparatus a main-line circuit connecting two distinct stations, a telephone receiving instrument and a telephone transmitting instrument, a single diaphragm common to both instruments, said receiving instrument arranged in the main-line circuit, a local circuit including a generator, said transmitting instrument arranged in said local circuit, an induction-coil having its primary also arranged in said local circuit, and its secondary arranged to connect a third station whereby the impulses in said main-line circuit are reproduced in the circuit of said secondary, as and for the purpose set forth.

7. In a telephonic apparatus, a main-line circuit connecting two distant stations, a telephone-receiver and a telephone-transmitter, a diaphragm common to both receiver and transmitter, said diaphragm being arranged in inclined position relative to the horizontal, said receiver arranged in said main-line circuit, a local circuit including a generator, the variable contact of said transmitter resting upon said diaphragm and included in said local circuit, an induction-coil having its primary included in said local circuit and its secondary connecting a third receiving-station, as and for the purpose set forth.

644,316. PLOW. WILLIAM T. M. BRUNEMER, Bradley, Ill., assignor to The David Bradley Manufacturing Company, same place. Filed Feb. 27, 1899. Serial No. 706,955. (No model.)



Claim.—1. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a crank connected to the pivot of said furrow-wheel, a caster-wheel pivoted to swing about a substantially-vertical axis, a lever connected to the pivot of said caster-wheel and normally extending at an angle to the line of travel, and a rigid connecting device connecting said lever and crank, said connecting device being arranged to lie slightly outside of a line drawn through the point of its connection with said lever and the pivot of the furrow-wheel, substantially as described.

2. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a crank connected to the pivot of said furrow-wheel, a caster-wheel, and means for transmitting power derived from the tendency of said caster-wheel to rotate to said crank in a line lying outside of the pivot of said furrow-wheel, substantially as and for the purpose specified.

3. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a caster-wheel also pivoted to swing about a substantially-vertical axis, and means operating normally to hold said furrow-wheel slightly inclined inwardly toward the furrow, substantially as described.

4. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a caster-wheel also pivoted to swing about a substantially-vertical axis, and means operating to hold said caster-wheel normally in a position inclined slightly out from the furrow, substantially as and for the purpose specified.

5. In a plow, the combination with a machine-frame, of a furrow-wheel having a vertically-pivoted axle 11, a crank 13 connected to said axle, a caster-wheel having a vertically-pivoted axle 18, a lever 17 mounted upon said axle, and a rigid adjustable connecting-rod 16 connecting said crank and lever, the point of connection of said rod and crank lying normally outside of a line drawn from the point of connection of said rod and lever and the pivot of the axle 11, substantially as described.

6. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a caster-wheel also pivoted to swing about a substantially-vertical axis, a crank 13 connected to the axle of the furrow-wheel, a lever 17 connected to the axle of said caster-wheel, said lever being adapted to rotate partially independently of the axle of the caster-weeel, and a stop limiting the extent to which said lever may rotate independently of said axle, substantially as described.

7. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a caster-wheel also pivoted to swing about a substantially-vertical axis, a crank 13 connected to the axle of the furrow-wheel, a lever 17 connected to the axle of said caster-wheel, said lever being adapted to rotate partially independently of the axle of the caster-wheel, and a disk 21 mounted upon said axle and keyed thereto, said disk having a segment 22 adapted to engage said lever, substantially as described.

8. In a plow, the combination with a machine-frame, of a furrow-wheel pivoted to swing about a substantially-vertical axis, a caster-wheel also pivoted to swing about a substantially-vertical axis, and means operating normally to hold said furrow-wheel inclined slightly toward the furrow and to hold said caster-wheel normally inclined slightly out from the furrow, substantially as and for the purpose specified.

9. In a plow the combination of a machine-frame, a caster-wheel pivoted to swing about a substantially-vertical axis, and means operating to hold said caster-wheel normally at an angle outwardly inclined to the line of draft, substantially as and for the purpose specified.

10. A plow having a furrow-opener, adjustable traction mechanism arranged back of the furrow-opener which acts normally to exert outward pressure upon the furrow-opener, and means operated by the team for controlling the action of said traction mechanism, substantially as and for the purposes specified.

11. The combination of a machine-frame, a caster-wheel adapted to swing about a substantially-vertical axis, a laterally-extending lever loosely connected with said caster-wheel, means limiting the independent movement of said lever and caster-wheel when in operative position, a substantially-horizontal arm or crank, and means connecting said lever and arm, substantially as described.

12. The combination of a machine-frame, a caster-wheel having a vertically-extending axle arranged to rotate in a suitable bearing, a lever loosely mounted on said axle and extending laterally, means carried by said axle adapted to engage said lever to limit the independent movement of said lever and axle, a substantially-horizontal arm or crank, and means connecting said lever and arm, substantially as described.

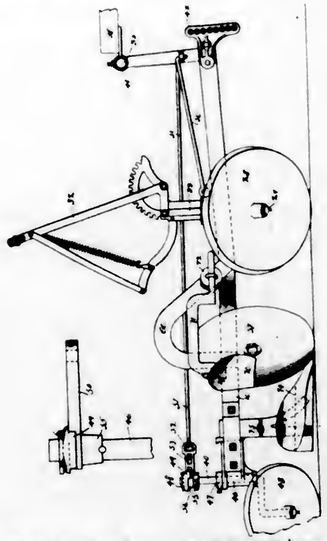
644,317. AGRICULTURAL IMPLEMENT. WILLIAM T. M. BRUNEMER, Bradley, Ill., assignor to The David Bradley Manufacturing Company, Chicago, Ill. Filed May 6, 1899. Serial No. 715,773. (No model.)

Claim.—1. A plow having a furrow-opener-supporting frame or beam, land and furrow wheels supporting said frame and angularly adjustable with reference to said supporting-frame to change the line of travel of the plow, and means for automatically controlling the angular position of said wheels so as to counteract to a greater or less extent the side pressure upon the furrow-opener, substantially as described.

2. A plow having a furrow-opener-supporting frame or beam, a furrow-opener carried thereby, a wheel-axle extending transversely of said frame and arranged to swing about a vertical pivot, land and furrow wheels mounted upon said axle, and means operated by side pressure upon the furrow-opener for adjusting the angular position of said axle so as to cause the machine to run away from the land side and counteract to a greater or less extent the pressure upon the furrow-opener, substantially as described.

3. A plow having a furrow-opener support or beam, a furrow-opener carried thereby, an axle extending transversely of said beam and arranged to swing about a vertical pivot, land and furrow wheels

mounted thereupon, a caster-wheel back of the furrow-opener and arranged to swing about a substantially-vertical axis, said caster-wheel being set normally so as to run out from the land-side, and means operated by the swinging of the caster-wheel upon its vertical axis for adjusting the land and furrow wheels, substantially as and for the purpose specified.



4. A plow having a furrow-opener support or beam, a furrow-opener carried thereby, an axle extending transversely of said beam and arranged to swing about a vertical pivot land and furrow wheels carried by said axle, and a controlling device arranged back of the furrow-opener, said controlling device being operated by the side pressure upon the furrow-opener to control the angular position of the land and furrow wheel axle with refereuce to the furrow-opener beam, substantially as and for the purpose specified.

5. In a plow, the combination of a furrow-opener support or beam, a furrow-opener carried thereby, an axle extending transversely thereof and pivoted to swing about a vertical axis, land and furrow wheels carried by said axle, a caster-wheel at the rear of the furrow-opener, said caster-wheel being arranged to swing about a substantially-vertical axis and having a laterally-projecting lever, a horizontal arm pivoted near the front end of the beam, a connecting device connecting said lever and arm, and a connecting-rod connecting said arm with the furrow-wheel axle at the furrow-wheel side of the plow, substantially as described.

6. In a plow, the combination of a furrow-opener support or beam, a furrow-opener carried thereby, an axle extending transversely thereof and pivoted to swing about a vertical axis, land and furrow wheels carried by said axle, a caster-wheel at the rear of the furrow-opener, said caster-wheel being arranged to swing about a substantially-vertical axis and having a laterally-projecting lever, a horizontal arm pivoted near the front end of the beam, a connecting-rod connecting said lever and arm, a connecting-rod connecting said arm with the furrow-wheel axle at the furrow-wheel side of the plow, and a tongue connected with said arm, substantially as described.

7. The combination of a machine-frame, a caster-wheel adapted to swing about a substantially-vertical axis, a laterally-extending lever loosely connected with said caster-wheel, means limiting the independent movement of said lever and caster-wheel when in operative position, a substantially-horizontal arm or crank, and a tie-rod for connecting said lever and arm, substantially as described.

8. In an agricultural implement, the combination of a machine-frame, a caster-wheel pivoted to swing about a substantially-vertical axis, and having a laterally-extending arm, means limiting the independent movement of said arm and caster-wheel, and a tie-rod or connecting device which operates normally to hold said caster-wheel in operative position and permits angular adjustment thereof when the line of travel of the implement is altered, substantially as described.

9. In an agricultural implement, the combination of a machine-frame, a caster-wheel pivoted to swing about a substantially-vertical axis, a furrow-opener, an arm connected with said caster-wheel and extending laterally toward the landside of the machine, means connected to said arm for automatically preventing backward movement thereof except when the line of travel is altered, and connecting mechanism between said arm and the caster-wheel for limiting their independent movement, substantially as described.

10. An agricultural implement consisting of suitable supporting devices, and a furrow-opener comprising a cutting-disk and a moldboard coacting therewith to remove the dirt therefrom, the lower edge of said moldboard being in close proximity to the disk-surface and extending substantially radially in a substantially-horizontal position from the axis of the disk to or near the outer edge thereof, the upper portion of said moldboard being curved outward, substantially as described.

11. An agricultural implement consisting of suitable supporting devices, and a furrow-opener comprising a cutting-disk and plowing mechanism arranged back of said disk acting to square the furrow, substantially as and for the purpose specified.

12. In a plow, the combination with furrow-opener-supporting devices, of a disk furrow-opener, and a landside-plow arranged back of said disk and arranged to square the furrow, substantially as and for the purpose specified.

13. The combination with a furrow-opener-supporting device, of a rotary spindle carried thereby, a ball-bearing therefor, means holding the parts of said bearing together, independently of the disk, and means for attaching a disk to one end of said spindle, substantially as described.

14. The combination with supporting devices, of a sleeve, a spindle in said sleeve, balls supporting said spindle in said sleeve and forming bearings therefor, said spindle having a face at one end to form a seat for a furrow-opener disk, a bolt uniting the parts of the bearing, and means for detachably securing a disk to said spindle, substantially as described.

15. The combination with supporting devices, of a sleeve 59 having concave recesses at its ends, a spindle fitted in said sleeve, cones carried by said spindle, balls between said cones and the ends of the sleeve, a bolt exteoding through said spindle for holding the parts together, said bolt having a screw-threaded engagement with the spindle, a disk mounted upon the end of said bolt, and a nut upon the end of said bolt securing said disk thereupon, substantially as described.

16. A bearing for the disks of disk-machines consisting of a sleeve having concave recesses at its ends, chilled rings in said recesses, said rings having concave bearing-faces forming cups to receive ball-bearings, a spindle extending through said sleeve, cones at the inner and outer ends of said spindle, a bolt exteuding through said spindle and detachably connected thereto, and a plate at the inner end of said spindle adapted to form a seat for the disk, substantially as described.

644,318. AGRICULTURAL IMPLEMENT. WILLIAM T. M. BRUNKENER, Bradley, Ill., assignor to The David Bradley Manufacturing Company, Chicago, Ill. Filed July 12, 1899. Serial No. 723,561. (No model.)

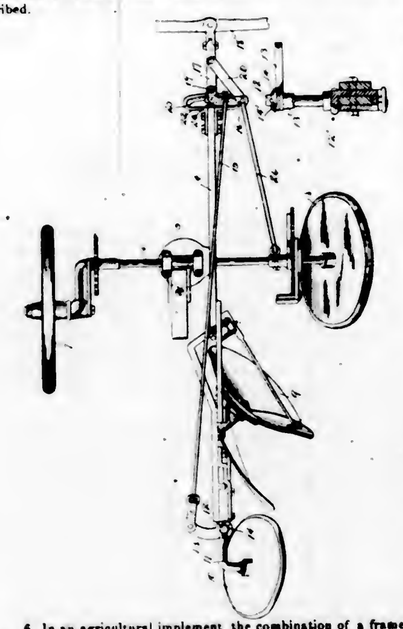
Claim.—1. In an agricultural implement, the combination of a frame, a furrow-opener, a caster-wheel back of the furrow-opener, a draft device which receives the draft of the team and means connected with said draft device for holding said caster-wheel normally in operative position and for releasing said caster-wheel so that it may turn independently when the line of draft is altered, substantially as described.

2. In an agricultural implement, the combination of a frame, a furrow-opener, a caster-wheel back of the furrow-opener, a draft device which receives the draft of the team, said draft device being pivotally supported and means connecting said draft device and caster-wheel for holding said caster-wheel normally in operative position, and adapted to permit said caster-wheel to turn when the direction of the draft is varied, substantially as described.

3. In an agricultural implement, the combination of a beam, a draft-bracket at the forward end thereof pivoted to swing in a horizontal plane, an arm carried by said bracket and projecting at an angle thereto, a furrow-opener, a caster-wheel back of the furrow-opener, said caster-wheel having a laterally-extending arm, and a connection between the caster-wheel arm and said bracket-arm, whereby the position of the caster-wheel arm is controlled by the position of the bracket-arm, substantially as described.

4. In an agricultural implement, the combination of a beam, a transversely-adjustable bracket at the forward end thereof pivoted to swing in a horizontal plane, an arm carried by said bracket and projecting at an angle thereto, a furrow-opener, a caster-wheel back of the furrow-opener, said caster-wheel having a laterally-extended arm, and a connection between the caster-wheel arm and said bracket-arm whereby the position of the caster-wheel arm is controlled by the position of the bracket-arm, substantially as described.

5. In an agricultural implement, the combination of a frame, a furrow-opener, an axle pivoted to said frame, land and furrow wheels mounted on said axle, a caster-wheel back of the furrow-opener, a draft device, and means connecting said draft device and said axle, means connecting said draft device end said caster-wheel, said connecting means being arranged to vary the position of said axle and caster-wheel when the line of draft is altered, substantially as described.



6. In an agricultural implement, the combination of a frame, a furrow-opener, an axle pivoted to said frame, land and furrow wheels carried by said axle, a caster-wheel back of the furrow-opener, a draft-bracket at the forward end of said frame pivoted to swing in a horizontal plane, an arm carried by said bracket and projecting at an angle thereto, a laterally-projecting arm carried by the caster-wheel, a connection between the caster-wheel arm and said bracket-arm, and a connection between said bracket-arm and said axle whereby the position of said caster-wheel and of the land and furrow wheels is controlled by the position of said draft-bracket, substantially as described.

7. In an agricultural implement, the combination of a machine-frame, three wheels supporting said frame, a pivoted draft device, a laterally-extending arm connected therewith, and means operated by the swinging of said draft device for controlling the position of said wheels, substantially as described.

8. In an agricultural implement, the combination of a machine-frame, three wheels supporting said frame, a pivoted draft device which receives the draft of the team, a laterally-extending arm rigidly connected therewith, and means operated by the swinging of said draft device for controlling the position of said wheels, substantially as described.

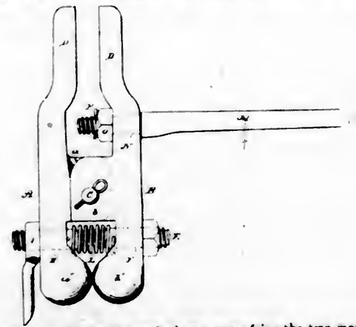
9. In an agricultural implement, the combination of a machine-frame, land and furrow wheels and a rear caster-wheel supporting said frame, an adjustable draft device which receives the draft of the team, and means operated by change of position of the draft device for adjusting the position of said land and furrow wheels, and for releasing said caster-wheel to permit it to turn in either direction, substantially as described.

10. In an agricultural implement, the combination of a frame, an axle pivoted to said frame, land and furrow wheels mounted on said axle, a draft device extending normally substantially in the line of draft and means connecting said draft device and axle and operating to control the position of said axle, substantially as described.

11. In an agricultural implement, the combination of a frame, an axle pivoted to said frame, land and furrow wheels mounted on said axle, a caster-wheel, means normally holding the caster-wheel in operative position, and means operated by the team for adjusting the position of said axle when the line of draft is altered, and for releasing the caster-wheel, substantially as described.

12. In an agricultural implement, the combination of a frame, angularly-adjustable land and furrow wheels supporting said frame, a draft device which receives the draft of the team and normally lies in the line of draft, said draft device having a rigid laterally-extending arm, and means operated by variations of the line of draft for angularly adjusting said wheels, substantially as described.

644,819. CLAMP FOR MAIL-CRANES. EMMETT F. CAPLEY, Aspenhill, Tenn. Filed June 26, 1899. Serial No. 721,878. (No model.)

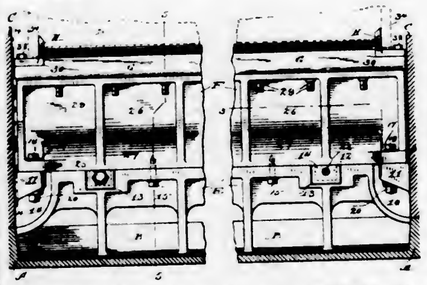


Claim.—1. The mail-pouch clamp, comprising the two members pivoted together, and having the jaws at one end with the globular engaging extremities, the handles at the opposite ends of the members, the spring to normally keep the globular ends of the jaws in engagement with each other, and the bracket-arm, to which one of the members is pivoted or swiveled, said bracket-arm being adapted to be bolted or otherwise secured to the arm of a mail-crane, substantially as described.

2. In a mail-pouch clamp, the combination of the pivoted jaws A, B, having the engaging ends *a'*, *b'*, and the handles D, with the spring L, stud E and tension-bolt G, substantially as described.

3. The bracket-arm M, having the pin O, in combination with the mail-pouch clamp comprising the pivoted jaws A, B, having the engaging ends *a'*, *b'*, the handles D, and the spring and tension devices, one of said jaws being pivoted on the pin O, as at N, substantially as described.

644,820. ADJUSTABLE KNIFE-BAR FOR SUGAR-MILLS. ANDREW B. CLEMENS, Ansonia, Conn., assignor to the Farrel Foundry and Machine Company, same place. Filed Dec. 16, 1899. Serial No. 740,531. (No model.)



Claim.—1. In a device of the character described the combination with an abutment having transverse recesses 12 and recesses 13, of a knife-bar having lugs lying in recesses 12, blocks lying in recesses 13, headless double-threaded adjusting-bolts carried by the knife-bar and passing through the blocks, and nuts engaging the ends of the adjusting-bolts whereby the knife-bar may be moved laterally.

2. In a device of the character described the combination with an abutment having transverse recesses 12 and recesses 13, of housings having lugs 11, a knife-bar having lugs lying in recesses 12 and slots 19, blocks lying in recesses 13, headless double threaded adjusting-bolts carried by the knife and passing through the blocks, nuts engaging the ends of the adjusting-bolts, and bolts 18 which pass through slots 19 and engage the lugs.

3. In a device of the character described the combination with

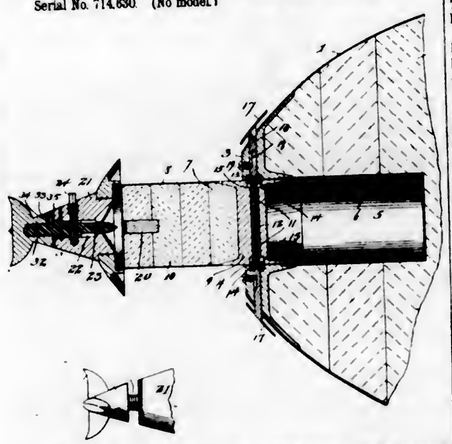
an abutment having transverse recesses 12, recesses 13, and slots 16, of a knife-bar having lugs lying in recesses 12, bolts which pass through slots 16 and engage the knife-bar, blocks lying in recesses 13, headless double-threaded adjusting-bolts carried by the knife-bar and passing through the blocks, and capped nuts engaging the ends of the adjusting-bolts.

4. In a device of the character described the combination with an abutment, E, of a knife-bar, as F, having lugs 21, blocks 14, headless double-threaded adjusting-bolts rigidly secured in lugs 21 and passing through the blocks, and nuts engaging the ends of the adjusting-bolts and bearing on the blocks.

5. In a device of the character described the combination with the bed and abutmeot E having transverse recesses, of knife-bar F having lugs lying in said recesses, blocks at the ends of said recesses, headless double-threaded adjusting-bolts passing through said lugs and blocks, nuts on opposite sides of said lugs, and nuts 24 engaging the blocks.

6. In a device of the character described the combination with the bed, abutment E and knife-bar F laterally movable thereon, of knife G, having recesses 30 and grooves 31, and side guides H rigidly secured in said recesses and grooves.

644,321. TORPEDO. EMIL GATHMANN, Chicago, Ill., assignor to the Gathmann Torpedo Gun Company, same place. Filed Apr. 27, 1898. Serial No. 714,630. (No model.)



Claim.—1. In a fish-torpedo, the combination, with the torpedo proper having a fuseway therein, of a fuse having its detonating charge normally separated or isolated from the bursting charge of the torpedo, and means actuated by the resistance of the water for bringing said fuse and its detonating charge into close proximity to the bursting charge, substantially as described.

2. In a fish-torpedo, the combination, with the torpedo proper having a fuseway therein at its forward end, of a fuse having its detonating charge normally separated or isolated from the interior of said torpedo, and automatic mechanism actuated by the resistance of the water whereby the fuse is moved along said fuseway into the interior of the torpedo, substantially as described.

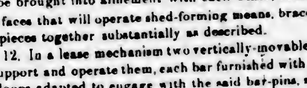
3. In a fish-torpedo, the combination, with the torpedo proper having a fuseway in its forward end, of a fuse having its detonating charge normally separated or isolated from the interior of said torpedo, means for holding the fuse against direct longitudinal motion, and means actuated by the resistance of the water to the movement of the torpedo, whereby to release said holding means and permit the rearward motion of the fuse along the fuseway into the interior of the torpedo, substantially as described.

4. In a fish-torpedo, the combination, with a torpedo proper having a fuseway in its forward end, of a fuse having a spiral groove or thread and provided with means for rotating it when exposed to the resistance of the water, the torpedo having a projection adapted to engage the spiral groove or thread of the fuse and move the same longitudinally of the fuseway during its rotation, substantially as described.

5. In a fish-torpedo, the combination, with a torpedo proper having a fuseway in its forward end, of a fuse provided on its body portion with an external spiral groove of gradually-diminishing depth and having means for imparting to said fuse a rotary motion when exposed to the resistance of the water, the torpedo proper being provided with a springy-actuated pin to engage said spiral groove, substantially as described.

6. In a fish-torpedo, the combination, with a torpedo proper having a fuseway at its forward end and provided with a spring-actuated pin projecting into said fuseway, of a fuse having a thickened base to form a partition, a propeller or fan wheel at its forward end, and a spiral groove of gradually-diminishing depth upon the rear portion of its body with which said spring-actuated pin engages, substantially as described.

644,322. LEASE MECHANISM. PHILIPP GOLDSCHMIDT, Paterson, N. J. Filed June 22, 1897. Serial No. 641,774. (No model.)



Claim.—1. The combination in a lease mechanism of two rotatable bars, each provided with a series of dent-supporting means, of a series of dents loosely suspended on each bar.

2. The combination in a lease mechanism of two mutually-cooperating rotatable bars with two sets of singly-detachable loosely-suspended dents, means supporting said bars adapted to move said dents in opposite directions at the same time substantially as and for the purposes described.

3. The combination in a lease mechanism of two rotatable bars having faces furnished with dent-supporting means, a row of dents loosely suspended on the dent-supporting means of each bar substantially as described.

4. In a lease mechanism two rotatable bars, each having a series of dent-supporting means, a series of dents loosely suspended on each bar, each dent having a slot furnished therein and means at the top forming said loose suspension on the bar substantially as and for the purposes described.

5. In a lease mechanism two rotatable bars, each having a series of dent-supporting means, a series of dents loosely suspended on each bar, means furnished at the top for attaching the dent to the bar substantially as and for the purposes described.

6. The combination in a lease mechanism of two bars capable of rotation on their axes so as to bring corresponding faces on said bars into alinement, means for supporting said bars and operating them in a vertical direction to and from each other with dents attached to the opposite-lying faces of each bar substantially as and for the purposes described.

7. The combination in a lease mechanism of two bars capable of rotation on their axes so as to bring corresponding faces on said bars contiguous to each other, dents, having thread-guiding means formed on them, means furnished on the faces of the said bars adapted to support the dents substantially as set forth and described.

8. The combination in a lease mechanism of two bars, each having faces furnished with dent-supporting means, a row of dents attached to the dent-supporting means on the contiguous faces of the bars, means, for supporting said bars adapted to make them capable of rotation on their axes so as to bring corresponding faces into alinement with each other and for moving said bars vertically to and from each other as and for the purposes described.

9. The combination in a lease mechanism of two bars, each having faces furnished with pins, a row of individually-detachable dents alevated by the said pins attached to the alined faces on each bar, means for supporting said bars and adapted to make them capable of rotation on their axes so as bring their faces into alinement with each other substantially as described.

10. The combination in a lease mechanism of two bars, each having faces furnished with pins, a row of dents detachably secured on the pins of two contiguous opposite-lying bar-faces, two vertical rods having means at the top for supporting the bar, and bringing the faces of the bars into alinement with each other and having gearing means attached for operating the bars to and from each other substantially as described.

11. A frame consisting of two end pieces, each end piece having a front and rear guideway, a vertical rod secured in each guideway, gearing means for moving the said rods up and down, two horizontal-lying bars each of which is supported by a pair of the stated front and rear vertical rods respectively, and each of which has faces that can be brought into alinement with each other, means furnished on said faces that will operate shed-forming means, braces securing said end pieces together substantially as described.

12. In a lease mechanism two vertically-movable bars and means to support and operate them, each bar furnished with pins, dents having loops adapted to engage with the said bar-pins, slits provided in the dents to receive the warp-threads, guides for the dents having

grooves placed crosswise of their length and attached to the frame, a dent-rest pivoted in the frame substantially as described.

13. In a lease mechanism a front and rear bar having four faces each, a row of pins suitably secured to each surface of said bars, two front and two rear vertical rods having bearings at the top supporting respectively each front and rear bar, each rod furnished with a tooth-rack at the bottom, a rod supported between the side frames having two pinions and a hand-wheel attached, each pinion gearing into the tooth-rack of a front and rear bar-supporting rod, two front and two rear dent-guides having grooves placed crosswise of their length with spacing means interposed between each front and rear guide, said guide supported appropriately in the frame substantially as illustrated and described.

14. In a lease mechanism composed of two side frames, each side frame having a front and rear longitudinal groove, a front and rear vertical bar-supporting rod moving respectively in the said front and rear groove, each rod furnished at the top with a forked bearing and at the bottom with a tooth-rack, two pinions each of which gears into the rack of a front and rear bar-supportiog rod, a rod having said pinions and a hand-wheel mounted thereon, a front and rear bar having surfaces furnished with pins mounted in the said forked bearings, a front and rear row of dents, each dent having a loop coöperating with a pin from the bar and a slit furnished for the thread substantially as illustrated and described.

644,323. CARPET STRETCHER, TACKER, AND TACK-PULLER. PETER C. GREENAWALT, Reading, Pa. Filed Dec. 1, 1899. Serial No. 738,873. (No model.)



Claim.—1. In a combined carpet stretcher and tacker, the combination of an operating-lever provided with a claw at its lower end and having tack and plunger-rod passages which unite in one passage near the lower end of the lever, a cap, a tack-holding receptacle provided with passages which latter, when the cap is in position, coincide with the tack and plunger-rod passages, a plunger-rod provided on its upper end with a tack-pulling claw, a claw-lever pivoted to the said operating-lever near its lower end, and an operating-cord attached to said claw-lever and terminating in proximity to the hand of the operator, whereby the device can be used to stretch a carpet and drive a tack in said stretched carpet, and also used to draw a tack without changing the arrangement of the parts, substantially as described

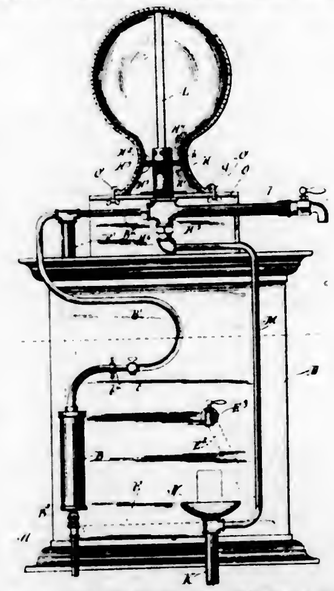
2. A combined stretcher and tacker, comprising an operating-lever made up of a body portion having two parallel passages formed therein, a cap at one end having apertures coinciding with the upper ends of the said passages, the said cap being also provided with a tack-receptacle, a carpet-engaging head secured to the other end of the said lever which is provided with passages adapted to coincide and prolong the passages formed in the body portion of the lever, one of said passages converging into the other in the said head portion, whereby tacks inserted in one passage may be directed into the other, a tack-driving rod mounted in the straight passage, carpet-engaging teeth secured in the lower end of the head, and a pivoted engaging claw secured to the said head for assisting in stretching the carpet, substantially as described.

644,324. PROCESS OF MAKING YELLOW BASIC DYES. PAUL JULIUS and WALTHER REESS, Ludwigshafen, Germany, assignors to the Badische Anilin and Soda Fabrik, same place. Filed Sept. 1, 1899. Serial No. 729,186. (No specimens.)

Claim.—1. The improvement in the art of manufacturing basic yellow coloring-matter which consists in treating diamido-toluyl alcohol with beta-naphthol and an oxidizing agent, all substantially as described.

2. The improvement in the art of manufacturing basic yellow coloring-matter which consists in treating diamido-toluyl alcohol with beta-naphthol and ferric chlorid, all substantially as described.

644,325. WATER COOLER AND FILTER. FRANK G. KAMMERER, Chicago, Ill. Filed Mar. 22, 1899. Serial No. 710,021. (No model.)



Claim.—1. The combination with a refrigerator, a coiled cooling-pipe therein terminating in a faucet, a filter sustained upon the side wall of said refrigerator, a pipe supplying water under pressure to the filter, a storage vessel supported upon the upper wall of said refrigerator above the level of the cooling-pipe, said storage vessel being in communication with said filter, and a pipe leading from said storage vessel to the cooling-pipe, through which and said cooling-pipe water descends from said storage vessel by gravity.

2. The combination with a refrigerator, a storage vessel, a coiled cooling-pipe in said refrigerator located below the storage vessel and receiving water therefrom by gravity, said cooling-pipe terminating in a faucet, a filter discharging into said storage vessel, a pipe supplying water under pressure to said filter, a pipe or passage leading from the lower part of the refrigerator and connected with a drainage-pipe, and an overflow-pipe in the storage vessel leading to said drainage-pipe.

3. The combination with a refrigerator, a storage vessel, a cooling-pipe for said refrigerator located below the level of the storage vessel and receiving water therefrom by gravity, said cooling-pipe terminating in a faucet, a filter discharging into said storage vessel, a pipe supplying water under pressure to said filter, a pipe or passage leading from the lower end of the refrigerator and connected with the drainage-pipe, a drinking-cup holder under said faucet provided with a passage connecting the same with said drainage-pipe, and an overflow-pipe leading from the storage vessel to said drainage-pipe.

4. The combination with a filter, a pipe supplying water to said

filter under pressure, a storage vessel provided with a mouth or opening in its lower side only, a tubular stopper closing said mouth of the vessel, a pipe leading from the filter to said stopper, a discharge-pipe connected with said pipe which leads from the filter to the stopper and leading to a faucet, and an overflow-pipe passing through said stopper and to within a short distance of the top of the vessel and affording a free exit for water and also a free inlet of air thereto.

5. The combination with a refrigerator, a cooling-pipe therein terminating in a faucet, a storage vessel located above the level of the cooling-pipe and discharging therethrough by gravity, a filter discharging into said storage vessel, a pipe supplying water under pressure to said filter, said vessel being provided at its bottom only with a mouth or opening, a tubular stopper in said mouth of the vessel, a pipe leading from the filter to the stopper, a discharge-pipe connected with said pipe which leads from the filter to the stopper and leading to said cooling-pipe, and an open overflow and air-inlet pipe passing through said stopper and to within a short distance of the top of the vessel.

6. A water storage and supply apparatus embracing a storage vessel made in one piece and of glass or the like, and provided with a depending neck forming a mouth or opening in the bottom of the vessel only, a tubular stopper inserted within said depending neck and provided with an annular packing which is compressed between the stopper and the inner surface of said depending neck to make a tight joint between the same and the stopper, a discharge-pipe connected with said stopper and an open overflow and air-inlet pipe passing through said stopper and to within a short distance of the top of the vessel.

7. The combination with a filter, a pipe supplying water to the filter under pressure, a storage vessel, a tubular stopper therefor, an inlet and outlet pipe, and an overflow-pipe, said tubular stopper being provided at its outer end with an opening for the connection of one of said pipes therewith and having also at such outer end a reduced opening for the passage of the other pipe therethrough, a pipe leading from the filter to the said inlet and outlet pipe, and a discharge-pipe connected with such inlet and outlet pipe and provided with a a faucet.

8. The combination with a filter, a pipe supplying water to the filter under pressure, a storage vessel, a stopper therefor, an inlet and outlet pipe, and an overflow-pipe, one of which is connected with the tubular stopper outside of the mouth of the vessel and the other of which passes through the said stopper into the interior of the vessel, said stopper being made larger in diameter than the pipe which passes through it and being constructed to afford water-tight joints between the same and the mouth of the vessel and between the outer end of the same and said pipe which passes through it, a pipe leading from the filter to the said inlet and outlet pipe, and a discharge-pipe connected with said inlet and outlet pipe and provided with a faucet.

9. The combination with a water-filter, of a pipe supplying water thereto under pressure, a storage vessel having an orifice in its bottom which is connected with the discharge-passage of the filter and through which water from the filter is delivered through the pressure of water in the supply-pipe, a discharge-pipe leading downwardly from said orifice and through which water is discharged by gravity, said discharge-pipe being provided with a faucet and an overflow and air-inlet pipe passing through said orifice and terminating at the top of the storage vessel, said overflow-pipe being open for the free exit of water and inlet of air.

10. The combination with a storage vessel of glass or the like having an opening at its lower end and a flange at the lower edge of said opening, a plate or board upon which said vessel is supported and to which the same is attached by fastening means engaging said flange, a tubular stopper adapted to close the opening in said vessel, said stopper passing through an opening in said supporting plate or board and being rigidly secured thereto, an inlet and outlet passage in said stopper and an overflow and air-inlet pipe passing through said stopper

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644,326. **PROCESS OF MAKING INDIGO PRODUCTS.** RUDOLF KNIETSCH and HENRY S. A. HOLT, Ludwigshafen, Germany, assignors to the Badische Anilin and Soda Fabrik, same place. Filed Oct. 18, 1898. Serial No. 693,942. (No specimens.)

Claim.—1. The process for the production of indigo products from an aromatic glycocoll-carboxy-di-alkyl-ester by heating same to a temperature of above 200° centigrade, and so converting it into a piperazine derivative, then melting this piperazine derivative with a fixed caustic alkali, all substantially as described.

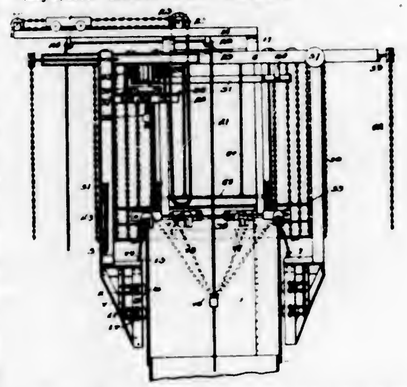
2. The process for the production of indigo products from an aromatic glycocoll-carboxy-di-alkyl-ester by heating same to a temperature of above 200° centigrade, and so converting it into a piperazine derivative, then melting this piperazine derivative with a fixed caustic alkali and lime, all substantially as described.

3. In a process for the production of indigo products from an aromatic glycocoll-carboxy-di-alkyl-ester, heating the same to a temperature of above 200° centigrade and so converting it into a piperazine derivative.

4. In a process for the production of indigo products melting a piperazine derivative of an aromatic glycocoll-carboxy-dialkyl-ester with a fixed caustic alkali, all substantially as described

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644,327. **SCAFFOLDING.** LUTHER L. KNOX, Pittsburg, Pa. Filed May 8, 1899. Serial No. 715,942. (No model.)



Claim.—1. In a scaffold, the combination with a series of brackets and vertical standards, of a support connected to each of said standards, a circular track suspended from the said supports, and means for supporting said scaffold from the exterior of a stack or the like, substantially as described.

2. In combination with a stack or like structure, a series of brackets carrying spring-actuated friction-rollers arranged circumferentially around said structure, a working platform arranged on said brackets, and means for supporting the brackets and platform from the exterior of the structure, substantially as described.

3. In combination with a stack or like structure, a series of supporting-brackets and a working platform, a traveling crane supported by said brackets, a fall-line connected to said crane, means supported by the brackets for adjusting the material after disengagement from the fall-line, and means for supporting said brackets directly from the stack or like structure, substantially as described

4. In a scaffold adapted for constructing stacks, chimneys and the like, the combination of a series of brackets with a working platform thereon, a crane supported from the brackets, a circular track and a transverse track supported from the circular track, a fall-line supported from the crane, means capable of being connected to said fall-line for elevating the scaffold, and means supported direct from the stack or chimney for supporting the scaffold, substantially as described.

5. In a scaffold of the class described, a series of supporting-brackets with a working platform thereon, spring-actuated friction-rollers suitably mounted in the said brackets combined with means comprising a band engaging the exterior of the stack and detachably connected to the brackets for supporting the latter and the working platform, substantially as described.

6. In a scaffold, the combination with a working platform arranged around a stack or chimney, of a crane and a fall-line, means capable of being connected to the fall-line and to the stack or chimney for elevating the working platform, and means connected to the working platform and to the stack or chimney for supporting the working platform direct therefrom, substantially as described.

7. In a scaffold, the combination with a stack or like structure, of a series of brackets and means for adjusting said brackets to the exterior of the stack or like structure, means capable of being connected to the stack or like structure and to the brackets for adjusting the latter vertically, and means connected to and supported direct from the stack for supporting the brackets, substantially as described.

8. In a scaffold, the combination with a stack or like structure, of a series of brackets arranged around said stack or like structure and supported direct therefrom, a working platform arranged on the brackets, spring-pressed rollers carried by the brackets, and means connected to the brackets and to the stack or like structure for elevating the brackets and working platform, substantially as described

9. In combination, a series of brackets carrying a working platform, a crane, a fall-line, a circular track, a buggy or carrier traveling thereon, means for adjusting the brackets vertically, and means for supporting the same direct from a stack or like structure, substantially as described

10. In a scaffold, the combination with a series of supporting-brackets carrying a series of spring-actuated friction-rollers, a working platform arranged on the said brackets, of a crane and fall-line, and means connected to the working platform and to a stack or like structure for supporting the working platform, substantially as set forth.

11. In a scaffold, the combination with a working platform arranged around a stack or like structure, of a crane and fall-line, means capable of being connected to the fall-line and structure for elevating the working platform, means for supporting the platform when not in use from the top of the structure, and separate means for supporting the platform when in use from the exterior of the structure, substantially as described.

12. In a scaffold, the combination of the supports with the working platform thereon, of the standards carried by said supports, bars supported from said standards, a circular track supported from said bars, a transversely-extending track supported from said circular track, and means connected to the working platform and to a stack or like structure for supporting the working platform therefrom, substantially as described.

13. In a scaffold, the combination of a working platform, a crane and a fall-line, a circular track and a transversely-extending track supported therefrom, a buggy or carrier supported from said transversely-extending track, means connected to the working platform and to a stack or like structure for supporting the platform therefrom, and means for adjusting said platform vertically, substantially as described.

14. In a scaffold, the combination of a working platform, a crane and a fall-line, a carrier supported on said crane and means for operating said carrier, a circular track supported below the crane, and a transversely-extending track supported from said circular track and adapted to travel thereon, and means connected to the working platform and to a stack or like structure for supporting the platform therefrom, substantially as described.

15. In combination with a stack or like structure, a working platform, a crane and a fall-line, a traveling carrier arranged on said crane, means for operating said carrier, and means connected to the structure for supporting the working platform therefrom, substantially as described.

16. An adjustable scaffold comprising a series of supporting-brackets with a working platform arranged thereon, spring-actuated friction-rollers journaled in an oblong slot arranged in the said brackets, and means connected to a stack or like structure for supporting the said brackets and platform, substantially as set forth.

17. In a scaffold, the combination with a series of brackets, spring-actuated friction-rollers mounted therein, a vertical standard carried by each of the said brackets, of a support connected to each of the said standards, a circular track suspended from the said supports, and means for supporting the said brackets from the exterior of a stack or the like, substantially as set forth.

18. In a scaffold, the combination of a series of supporting-brackets arranged circumferentially of a stack or chimney, spring-actuated friction-rollers mounted therein, a working platform secured to the said brackets, a crane and a fall-line, means capable of being connected to the fall-line and to the stack or chimney for elevating the brackets and working platform, and means connected to the said brackets and to the stack or chimney for supporting the brackets directly therefrom, substantially as described.

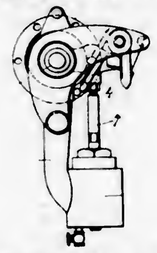
19. In a scaffold, the combination of a series of brackets arranged circumferentially of a stack or like structure, spring-actuated friction-rollers arranged therein, a working platform secured to the said brackets, standards carried by the said brackets, bars supported thereby, a circular track supported from the said bars, a transversely-extending track supported from said circular track, means for supporting the said platform when not in use from the top of the said structure, and separate means for supporting the platform when in use from the exterior of the structure, substantially as described.

20. In a scaffold, the combination of a series of brackets arranged circumferentially of a stack or like structure, spring-actuated friction-rollers arranged therein a working platform secured to the said brackets, standards carried by the said brackets, bars supported thereby, a circular track supported from the said bars, a transversely-extending track supported from said circular track, means for supporting the said platform when not in use from the top of the said structure, separate means for supporting the said platform when in use from the exterior of the structure, and means for adjusting the said brackets and platform vertically, substantially as set forth.

21. In combination with a stack or like structure, a series of supporting-brackets arranged circumferentially thereof and carrying a working platform, spring-actuated friction-rollers mounted in the said brackets adapted to engage the said stack or structure, a crane and a fall-line, a traveling carrier arranged on said crane, means for operating said carrier, and means connected to the stack or structure for supporting the said brackets and platform, substantially as described.

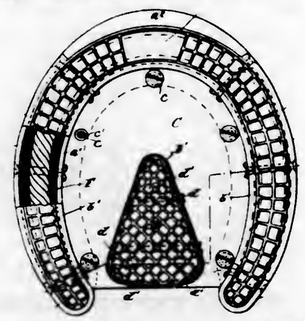
22. In combination with a stack or like structure, a series of supporting-brackets arranged circumferentially thereof and carrying a working platform, spring-actuated friction-rollers mounted in the said brackets adapted to engage the said stack or structure, a crane and a fall-line, a traveling carrier arranged on said rane, means for operating said carrier, means connected to the exterior of the stack or structure for supporting the said brackets and platform when in use, separate means for supporting the brackets and platform when not in use from the top of the stack or structure, and means for adjusting the brackets and platform vertically, substantially as set forth.

644,328. **ENGINE-VALVE.** HENRY M. LANE, Norwood, Ohio. Original application filed Feb. 27, 1899, Serial No. 706,911. Divided and this application filed July 26, 1899. Serial No. 726,119. (No model.)



Claim.—In an engine of the Corliss type, an admission-valve, a bonnet therefor having a depending arm, a rotatable valve-stem and a steam-lever thereon; in combination with a dash-pot carried by said depending arm.

644,329. **SOFT-TREAD HORSESHOE.** ANTHONY M. MEISNER, Chicago, Ill. Filed Mar. 26, 1898. Serial No. 710,465. (No model.)



Claim.—1. A soft-tread horseshoe having a skeleton frame provided with depending flanges resulting in a channel, an elastic tread having a portion occupying said channel, and means for securing the elastic tread in place, the outer flange of the frame being provided at the toe with a downward extension terminating approximately in the plane of the lower face of the elastic tread and the elastic tread being provided with flanges which overlap the outer flanges of the frame but which terminate at the downward extension of the toe, whereby the lower edge of said downward extension is left uncovered, substantially as set forth.

2. A soft-tread shoe having a skeleton frame provided with depending flanges resulting in a channel, an elastic tread having a portion occupying said channel, and means for securing the elastic tread in place, the flanges being provided at the toe and at the heel with downward extensions terminating approximately in the plane of the lower face of the elastic tread, substantially as set forth.

3. A soft-tread shoe having a frame provided with depending flanges resulting in a channel, an elastic tread having a portion occupying said channel, and means for securing the elastic tread in place,

the flanges being provided at the toe and heel with downward extensions terminating approximately in the plane of the lower face of the elastic tread, and the elastic tread being provided between said downward extensions with lateral flanges overlapping the flanges of the frame, substantially as set forth.

4. A soft-tread shoe having a frame, an elastic tread consisting of a body of rubber or similar elastic material, and an elastic core of non-metallic fibrous material embedded in and surrounded by the rubber, and means for securing the elastic tread in place, substantially as set forth.

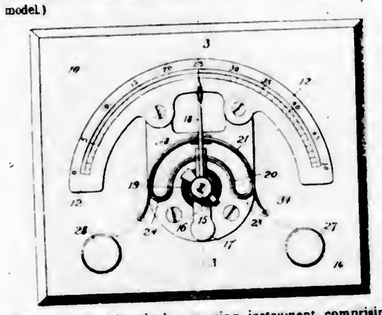
5. A soft-tread shoe having a frame provided with depending flanges resulting in a channel, an elastic tread having a portion occupying said channel, said elastic tread consisting of a body of rubber or similar elastic material, and an elastic core of non-metallic fibrous material embedded in and surrounded by the rubber, the core being disposed between the depending flanges of the frame so as to extend both above and below their lower edges, and means for securing the elastic tread in place, substantially as set forth.

6. A soft-tread shoe having a frame provided with depending flanges resulting in a chanuel, an elastic tread consisting of a body of rubber or similar elastic material, and an elastic core of non-metallic rope embedded in and surrounded by the rubber, said core being disposed near the lower face of the tread and between the depending flanges of the frame, and means for securing the elastic tread in place, substantially as set forth.

7. A soft-tread shoe having a frame provided with depending flanges resulting in a channel, an elastic tread consisting of a body of rubber or similar elastic material and an elastic core of non-metallic rope embedded in and surrounded by the rubber, the core being disposed near the lower face of the tread and between the depending flanges, and means for securing the elastic tread in place, the frame being provided at the toe and at the heel with downward extensions terminating approximately in the plane of the lower face of the elastic tread, and the elastic tread being provided with lateral flanges overlapping the outer flanges of the frame and terminating at said downward extensions, substantially as set forth.

8. A horseshoe having an inwardly-presented flange *a*" located a considerable distance above the plane of the lower face of the shoe, a plate conforming to the inner contour of the shoe, and means passing through perforations in the plate for securing it to the flange, said perforations being enlarged to preserve the elasticity of the plate, substantially as set forth.

644,330. **ELECTRICAL MEASURING INSTRUMENT.** JAMES W. PACKARD, Warren, Ohio. Filed Jan. 12, 1900. Serial No. 1,245. (No model.)



Claim.—1. An electrical measuring instrument, comprising in combination a core adapted to revolve about an axis, and a flattened solenoid-coil arranged spirally about said axis, said core standing normally at one end of the coil, and being adapted to move toward the other end of the coil under the influence of said solenoid when energized.

2. An electrical measuring instrument, comprising in combination a scale, an indicator, an indicator-shaft, means for normally holding the indicator at zero on the scale, a solenoid-core carried by said indicator-shaft, and a solenoid having a flattened coil, the opposite walls of said coil being circular and concentric with the indicator-shaft and inclined to a plane at right angles to said shaft, said core being adapted to travel between the walls of the coil, for the purpose set forth.

3. An electrical measuring instrument, comprising in combination a scale, an indicator, an indicator-shaft, a flattened solenoid-coil arranged spirally about said shaft, and a shunt-coil carried by said shaft and adapted to travel between the walls of the solenoid-coil, for the purpose set forth.

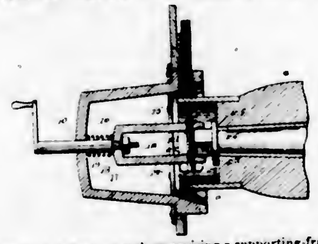
4. An electrical measuring instrument, comprising, in combination, a scale, an indicator, an indicator-shaft, a solenoid-core carried by said indicator-shaft, and a solenoid having a flattened coil the opposite walls of said coil being circular and concentric with the indicator-shaft, said coil being variably inclined with reference to a plane at right angles to said shaft whereby said core is caused to travel variable distances for equal increments of current or potential.

644,881. **PROCESS OF MAKING PHTHALIC ACID.** EUGEN SAPPER, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Nov. 16, 1897. Serial No. 658,749. (Specimens.)

Claim.—1. The process of producing phthalic acid which consists in heating a substance whose formula contains that of the naphthalene nucleus with sulfuric acid in the presence of mercuric sulfate, substantially as described.

2. The process of producing phthalic acid which consists in heating a hereinbefore-defined naphthalene body with sulfuric acid until phthalic acid is produced, substantially as described.

644,332. **HUB-WRENCH.** HENRY SAULS and GEORGE S. COOK, Mineral, Tex. Filed Dec. 27, 1899. Serial No. 741,761. (No model.)



Claim.—1. A hub-wrench comprising a supporting-frame including a sleeve, rack-bars mounted radially of the sleeve, a disk provided with a spiral thread engaging the rack-bars, said disk being rotatably mounted upon the sleeve, and a wrench rotatably mounted in the supporting-frame.

2. A hub-wrench comprising a supporting-frame including a sleeve having radial openings, a clamping-jaw disposed in each opening, a disk rotatably mounted upon the sleeve and operatively connected with the clamping-jaws to move them, and a wrench mounted in the supporting-frame.

3. A hub-wrench comprising a supporting-frame including a sleeve having radial openings, a rack-bar slidably mounted in each opening, a disk mounted upon the sleeve and having a spiral thread engaging the rack-bars, said disk being adapted to move the bars into and out of operative position, a shaft rotatably mounted in the frame and adapted for longitudinal movement therein, means for holding the shaft yieldably at one limit of its longitudinal movement, and clamping-jaws carried by the shaft.

4. A hub-wrench comprising a sleeve having radial openings, a clamping-jaw disposed in each opening, a disk mounted upon the sleeve and having a spiral thread operatively engaged with the jaws, said disk being rotatable, a ring carried by the sleeve and lying against the disk to hold it in operative relation to the jaws, a shaft rotatably mounted in the frame and adapted for longitudinal movement, means for holding the shaft yieldably in one direction of longitudinal movement, and clamping-jaws carried by the shaft and adapted for movement therewith into and out of the inclosure of the sleeve.

644,333. **YELLOW DYE.** CONRAD SCHRAUBE, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Dec. 18, 1897. Serial No. 662,186. (Specimens.)

Claim.—1. As a new article of manufacture sulfonated peri-hydroxy-phenanthronaphthazin which dissolves in water with a yellow color, in nitric-acid of 40° Baumé with a red color and which dyes silk and wool yellow shades substantially as described.

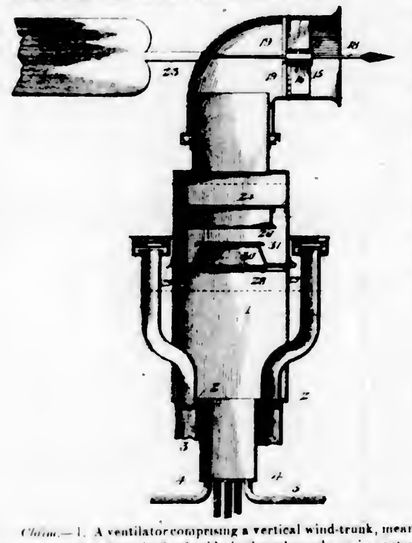
2. As a new article of manufacture the sulfonated peri-hydroxy phenanthronaphthazin bodies which can be obtained by treating phenanthrenquinone with peri-hydroxy-ortho-diamido-naphthalene-sulfo-acid and which dissolve in water with a yellow color, the aqueous solution gives a yellow precipitate on adding caustic soda, which dissolves with a reddish-yellow color on heating, and the dry dyestuff dissolves in nitric acid of 40° Baumé with a red color, and in sulfuric acid of 66° Baumé with a blue-violet color, substantially as described.

3. As a new article of manufacture the dyestuff which can be obtained by the treatment of phenanthrenquinone with 1.2-diamido-naphthol-5.7-disulfoacid, and which dissolves in water with a pure-yellow color, the aqueous solution gives a yellow precipitate on adding caustic soda, which dissolves with a reddish-yellow color on heating, and the dry dyestuff dissolves in nitric acid of 40° Baumé with a red color and in sulfuric acid of 66° Baumé with a blue-violet color, substantially as described.

644,334. **BLACK TRISAZO DYE.** CONRAD SCHRAUBE and ERNST SCHLEICHER, Ludwigshafen, Germany, assignors to the Badische Anilin and Soda Fabrik, same place. Filed Sept. 27, 1899. Serial No. 731,833. (No specimens.)

Claim.—The new black trisazo dye which can be obtained from oxy-naphthylamin-sulfoacid ($NH_2.OH.SO_3H-1.8.4$) by combining one molecular proportion of this acid with one molecular proportion of diazo-sulfonic acid in acid solution, and one molecular proportion of diazo-azo-benzene body in alkaline solution, and which is soluble in cold water giving a violet solution, turning gray-blue on heating and greenish blue on addition of caustic soda, soluble in pure sulfuric acid giving a blackish solution, and which is destroyed by treatment with diazo-benzene-sulfoacid in alkaline solution, all substantially as described.

644,335. **VENTILATOR.** ROBERT H. SCHUMACHER, Navasota, Tex. Filed Nov. 15, 1898. Serial No. 696,551. (No model.)



Claim.—1. A ventilator comprising a vertical wind-trunk, means for augmenting a downdraft of cold air therethrough, a pipe extension of less diameter than said wind-trunk, communicating directly with the lower end thereof, and having branched distributing-tubes, a series of vitiated-air flues bent to extend into and through the lower end of the wind-trunk and having their upper ends grouped around the outside thereof, a drain-gutter supported around the outside of the wind-trunk and receiving the upper ends of said vitiated-air flues, and weather-caps supported by said drain-gutter over the open ends of the vitiated-air flues, substantially as described.

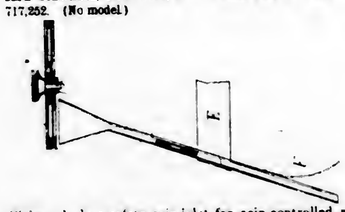
2. In a ventilator, an upright air-trunk having an interior annular drain-gutter closed at its inner side by an upwardly-convergent annular flange, and a shield arranged horizontally above the gutter and having a pendent annular flange overhanging the same, substantially as set forth.

3. In a ventilator, the combination of an upright air-trunk having a distributing-pipe connection at its lower end, a plurality of exhaust-tubes arranged exterior to and supported by said trunk, and a weather-protecting device supported by the trunk on the exterior thereof and having connection with the upper ends of said exhaust-tubes, substantially as set forth.

4. In a ventilator the combination of an upright cold-air trunk provided with an exterior annular drain-gutter having bottom drain-openings, a plurality of exhaust-tubes arranged exterior to and supported by said trunk, and having their upper ends projecting through the bottom of said gutter, and a flanged weather-cap supported within the gutter above the upper ends of said exhaust-tubes, substantially as set forth.

5. A ventilator comprising a vertical wind-trunk, a drain-gutter supported within the wind-trunk and provided with an upwardly-projecting flange and with drain-ports which open through the wind-trunk, a shield supported above the drain-gutter and within said wind-trunk and having a depending flange arranged concentric with the flange of the drain-gutter, and a cowl revolubly mounted on the wind-trunk, substantially as described.

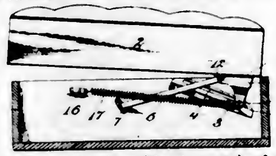
644,336. **SAFETY COIN-INLET FOR SLOT-MACHINES.** JOSEPH SCHWARTZ, New York, N. Y. Filed May 15, 1899. Serial No. 717,252. (No model.)



Claim.—1. In a safety coin-inlet for coin-controlled apparatus, the combination of a bottom plate turned up on its circumference and having in its rear portion a circular opening extending on each side laterally and parallel to the circumference into a small channel, with an intermediate plate having in its front and rear portion a circular opening and on its lower surface a small stop, moving in the small channels of the bottom plate, a top plate cut out in the front, and a center pin to which the intermediate plate is rigidly connected, as specified.

2. In a safety coin-inlet for coin-controlled apparatus a bottom plate turned up on its circumference and having in its rear portion, a circular opening extending on each side laterally and parallel to the circumference into a small channel, in combination with an intermediate plate having in its front and rear portion a circular opening and on its lower surface a small stop, a top plate cut out in the front, a center pin with knob to which the intermediate plate is rigidly connected, and a coin-chute composed of a funnel-shaped top, a coin-guide attached laterally to the funnel and having bent-over edges, and a bent metal strip on the inside lower portion of the coin-guide, as specified.

644,337. **LID-OPERATING MECHANISM FOR BOX-COUCHES.** JULIUS T. SENG, Chicago, Ill., assignor to the Seng Company, same place. Filed Jan. 11, 1900. Serial No. 1,121. (No model.)



Claim.—1. The combination with a box-couch, of guide-plates mounted on the receptacle portion thereof near its rear wall, and provided with slots disposed at an inclination to the couch, and means located between and adapted for slidably and rotatably connecting the lid near its rear end with the said guide-plates, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

2. The combination with a box-couch, of guide-plates mounted on the receptacle portion of the couch and provided with inclined slots, the rear ends of the slots of the said guide-plates being somewhat abruptly depressed with relation to the remaining portions of the slots, means located between and adapted for slidably and rotatably connecting the lid near its rear edge with the said slots, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

3. The combination with a box-couch, of guide-plates arranged upon the end walls of the receptacle portion and having slots disposed at an inclination, means for slidably and rotatably connecting the said lid with the aforesaid slots of the plates, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

4. The combination with a box-couch, of opposite inclined plates applied to the inner surfaces of the end walls of the receptacle portion of the couch near the rear upper corner thereof and provided with slots arranged at an inclination with relation to the couch, of means depending from the lid and slidably and rotatably connecting

the same with the slots of the plates, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

5. The combination with a box-couch, of opposite inclined guide-plates applied to the inner surfaces of the end walls of the receptacle portion of the couch near the rear upper corner thereof, and provided with slots arranged at an inclination, the rear ends of which slots are suddenly depressed or arranged at an angle to their remaining portions, of means depending from the lid and slidably and rotatably connecting the same with the aforesaid slots of the plates, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

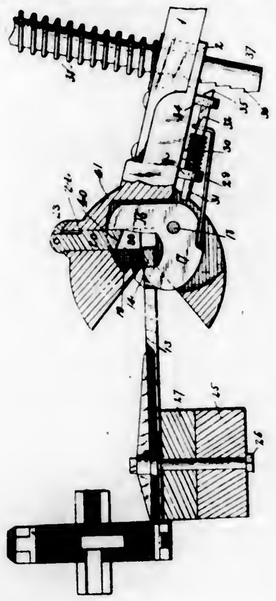
6. The combination with a box-couch, of oppositely-located plates having inclined guide-slots secured to the inner surfaces of the end walls of the receptacle portion of the couch, a plate or bracket depending from each end of the couch-lid and having a lug engaging slidably and rotatably in the slot of the adjacent guide-plate, and spring-actuated mechanisms for aiding in sliding and partially rotating said lid.

7. The combination with a box-couch, of opposite guide-plates secured to the inner surfaces of the end walls of the receptacle portion of the couch, said plates having inclined guide-slots, opposite angular plates or brackets depending from the under side of the couch-lid and terminating in legs offset to avoid said plates and having headed legs engaging said slots of the guide-plates, and spring-actuated mechanisms for aiding in sliding and partially rotating the said lid.

8. The combination with a box-couch, of opposite guide-plates having inclined slots and secured to the inner surfaces of the end walls of the receptacle portion of the couch, securing-plates depending from the under side of the couch-lid and terminating in depending legs provided with studs engaging the slots, lid sliding and rotating devices arranged in advance of the same, and coiled springs connected to the depending legs and to a point within the couch-body for aiding in sliding and rotating the said lid.

9. The combination with a box-couch, of opposite guide-plates having inclined slots and secured to the inner surfaces of the opposite end walls of the receptacle portion of the couch, a pair of angular securing-plates located on the under side of the couch-lid and provided with headed studs engaging the said slots and below the same provided with laterally-disposed lugs having perforations, coiled springs connected to the said perforations and to fixed points within the couch-body, and links connected pivotally to the end walls of the receptacle portion and similarly to the under side of the said securing-plates.

644,838. COUPLING FOR HAY-LOADERS. STEPHEN A. SLAUSON, Chicago, Ill. Filed Oct. 7, 1899. Serial No. 732,942. (No model.)



Claim.—1. In a coupling for hay-loaders, &c., a body portion and a pair of jaws secured thereto; a hook mounted within a recess in said jaws; a spring-controlled rod having teeth passing through said body; a spring-controlled bolt normally engaging said teeth and a rod connecting said hook and bolt, all combined as set forth.

2. In a coupling for hay-loaders, the combination with the tongue having a spring-controlled rod, of a pair of open jaws secured to said tongue; a hook mounted in said jaws; a locking-bolt having a spring, said locking-bolt being connected with said hook and designed to hold the same normally open and a detent formed on said bolt adapted to engage said rod and secure the same against movement at the instant said hook is released, as specified and for the purpose set forth.

3. In a coupling for hay-loaders or the like, a body portion having a pair of divergent jaws; a hook cooperating with said jaws; a bolt and means to connect said bolt and hook with each other; a rod passing through said body and provided with a series of teeth or apertures and a spring designed to hold said bolt normally in engagement with said rod and also hold said hook in an open position and a pin adapted to cooperate with said hook and automatically engage and secure it in a closed position until said pin is withdrawn, all combined in the manner specified and for the purpose set forth.

4. The herein-described coupling device for hay-loaders comprising a pair of rigid divergent jaws having guiding-faces; a hook mounted in said jaws; a rod having teeth; a bolt and a spring adapted to hold it against said rod; means to connect said hook with said bolt in combination with a securing-pin having a bifurcated end adapted to straddle the free end of said hook and secure the hook in a closed position until withdrawn substantially as specified and for the purpose set forth.

5. In a coupling for hay-loaders or the like, a body portion and a pair of divergent jaws secured thereto; a hooking member having a hook-section proper 17 and stem 16, operatively mounted in a recess provided near the meeting-point of said jaws, in combination with a locking-pin 20 fitting an aperture in said jaws and having a recess 39 and a beveled face designed to engage the stem 16 and thereby hold the hook in an open position until said pin is withdrawn, all substantially as specified and for the purpose set forth.

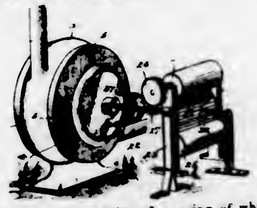
644,839. WIRE CLOTHES-PIN. JULIUS G. STRADER, Elbow, Va., assignor of one-half to John W. Talbott, Gayton, Va. Filed Dec. 12, 1899. Serial No. 740,166. (No model.)



Claim.—1. A wire clothes-pin having at one end an eye adapted to slide upon the clothes-line, and its opposite end provided with a spring-coil having one end of the coil extending from the main portion of the pin, and the opposite end of the coil forming a parallel extending spring-arm, substantially as described.

2. A wire clothes-pin having at one end two sliding eyes to receive the clothes-line, and a coiled spring, the opposite end of the pin having a spring-coil with two parallel extending spring-arms projecting in a plane at right angles to the plane of the first said spring-coil, substantially as described.

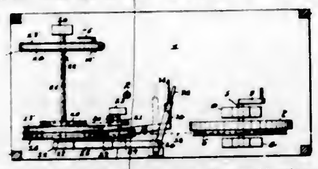
644,840. AIR METER. SAMUEL L. TERRY, Chicago, Ill., assignor of one-half to William Stretton, Phillipsburg, Kans. Filed Oct. 13, 1898. Serial No. 693,318. (No model.)



Claim.—A fluid-meter consisting of a casing, of which the wall is interiorly concaved and the heads provided with bevel-faced pivots in the form of concavities projected into the body of the casing by thickening the walls at their location, a core eccentrically mounted in the casing and having a cross-sectional convexed peripheral surface extending laterally beyond the inner surfaces of the bevel-faced pivots or beyond those portions of the inner surface of the casing which bound the fluid-chamber to form an effectual break-joint, the

said core being provided eccentrically to the casing with core-spindles and having wing-seats radially extending outwardly therefrom, wings movably mounted in said seats, one of the core-spindles being extended in reduced form, a ratchet mechanism on said reduced extended portion of one of the spindles, a worm on the spindle outside of the ratchet mechanism, and recording mechanism actuated by the said worm.

644,841. OIL-WELL APPARATUS. JOSEPH TIOBORSKI, Glade Mills, Pa. Filed Apr. 11, 1899. Serial No. 712,607. (No model.)



Claim.—1. In an oil-well apparatus, the combination of a bull-wheel shaft, bull-wheels rigidly secured to said bull-wheel shaft, a power-driven bull-sheave connected by a bull-rope to one of said bull-wheels for driving said bull-wheel shaft, an auxiliary wheel loosely mounted on said bull-wheel shaft adapted to engage with said bull-rope, and mechanism for connecting said bull-rope with the rigid and loose bull-wheels.

2. In an oil-well apparatus, the combination of a bull-wheel shaft, bull-wheels rigidly secured to said bull-wheel shaft, a power-driven bull-sheave connected by a bull-rope to one of said bull-wheels for driving the bull-wheel shaft, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft adapted to engage with said bull-rope, a movable or oscillating bar engaging with said bull-rope to connect it with the rigid and loose bull-wheels, and a lever mechanism connected to said movable and oscillating bar to operate the same.

3. In an oil-well apparatus, the combination of a bull-wheel shaft having bull-wheels rigidly secured thereon, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft having a bull-rope passing around the same and over a power-driven bull-sheave, a friction-wheel mounted on a movable shaft and adapted to engage with the face of said auxiliary bull-wheel, and connections from said movable shaft to the bull-wheel shaft to reverse the movement of the said bull-wheel shaft.

4. In an oil-well apparatus, the combination of a bull-wheel shaft having bull-wheels rigidly secured thereto, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft having a bull-rope passing around the same and over a power-driven bull-sheave, a friction-wheel mounted on a movable shaft and adapted to engage with the face of said auxiliary bull-wheel, and a sheave mounted on said movable shaft having a sheave-rope passing around the same and over a sheave on the bull-wheel shaft to reverse the movement of said bull-wheel shaft.

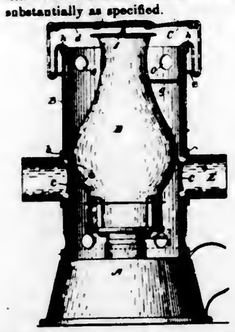
5. In an oil-well apparatus, the combination of a bull-wheel shaft having bull-wheels rigidly secured thereon, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft having a bull-rope passing around the same and over a power-driven bull-sheave, a friction-wheel mounted on a movable shaft and adapted to engage with the face of said auxiliary bull-wheel, a sheave mounted on said movable shaft having a sheave-rope passing around the same and over a sheave on the bull-wheel shaft to reverse the movement of said bull-wheel shaft, and a sliding bar connected to said movable shaft having lever mechanism engaging therewith for operating the same.

6. In an oil-well apparatus, the combination of a bull-wheel shaft having bull-wheels rigidly secured thereon, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft having a bull-rope passing around the same and over a power-driven bull-sheave, a shaft having a friction-wheel thereon and connections from said shaft to the bull-wheel shaft, and means for engaging said bull-rope with the friction-wheel to revolve the bull-wheel shaft more rapidly.

7. In an oil-well apparatus, the combination of a bull-wheel shaft having bull-wheels rigidly secured thereon, an auxiliary bull-wheel loosely mounted on said bull-wheel shaft having a bull-rope passing around the same and over a power-driven bull-sheave, a shaft having a friction-wheel thereon and connections from said shaft to the bull-wheel shaft, and a lever-operated roller or wheel adapted to engage said bull-rope with the friction-wheel to revolve the bull-wheel shaft more rapidly.

644,842. COMBINED EGG-TESTER AND COOKER. WILLARD UPTON, Rochester, N. Y., assignor of one-half to James H. Doty, same place. Filed May 17, 1899. Serial No. 717,197. (No model.)

Claim.—1. The combination with a cylinder, of a frame comprising an open-work platform, standards depending therefrom and having reverse bends and loops to support the platform above a chimney the lower loop being outside the cylinder, a lower ring supported in the lowermost of said loops, and horizontal connectors joining said standards in pairs below the plane of the lower ring and curved and adapted to press firmly against the inner wall of the cylinder with their terminals at diametrically-opposite sides of the platform, substantially as specified.



2. A reversible egg-tester comprising a cylinder, provided with draft-openings adjacent to each end and testing-tubes projecting diametrically from the cylinder approximately adjacent to one end.

3. The combination with a support provided with a vertical annular flange, of a reversible cylinder fitting within the flange and provided with draft-openings at its opposite ends and with testing-tubes projecting diametrically therefrom, approximately adjacent to one end of the cylinder.

4. The combination of a lamp, a cylinder and an open frame, the latter having two similar and parallel rings connected by standards engaging the cylinder, one ring being below and the other above the end of the cylinder, the standards projecting downward within the cylinder and connected therein, substantially as shown and described.

644,843. NON-REFILLABLE BOTTLE. JOSHUA V. R. VAN HAME, New York, N. Y., assignor of one-fourth to John Ellsworth Stevens, same place. Filed Nov. 10, 1899. Serial No. 736,504. (No model.)



Claim.—1. The combination with a bottle or similar vessel, having a liquid-outflow tube and an air-inlet tube, of a cap slidably mounted upon the mouth of the vessel and carrying means which operate in connection with the upper ends of said tubes to close the same when said cap is depressed, and having apertures in alinement with said tubes; and means for preventing rotation of said cap.

2. The combination with a bottle or similar vessel, having a liquid-outflow and an air-inlet tube, of a cap slidably mounted upon and surrounding the mouth of the vessel having apertures in the rim or vertical portion thereof in alinement with said tubes, which apertures are open when the cap is raised and closed when it is depressed; stoppers mounted upon the under surface of the cap in alinement with each of the tubes; and means for preventing rotation of said cap.

3. The combination with a bottle or similar vessel, having a liquid-outflow tube and an air-inlet tube, of a sectionally-rectangular post having the lower end thereof secured immovably between said

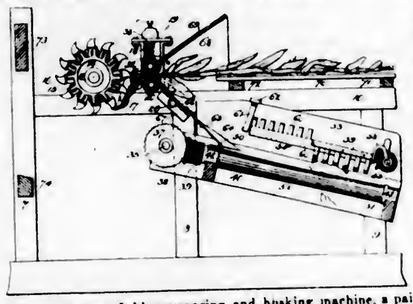
tubes, and a head upon the upper end; a cap slidably mounted upon said post and apertured to receive said head; stoppers upon the under surface of said cap above said tubes, and a rim depending from said cap and surrounding the mouth of the bottle, and having apertures therein in alinement with said tubes.

4. In a bottle or similar vessel, a liquid-outflow tube, the upper portion of which is formed into an S-shaped trap to prevent direct access to its lower portion, said lower portion being formed into a chamber or recess deflected to one side of the bottle and having a downwardly-inclined side on which said valve rests when opened, and a flat upper wall, between which and the tube is a downwardly-projecting shoulder; the opposite side of said chamber being tapered or curved and provided with an inwardly-ranging shoulder, and the end of said chamber terminating in a tubular valve-seat; and a valve within said chamber or recess and adapted to close the lower end of said tube, said valve being hollow and air-filled, whereby it floats, and being sectionally circular in form, the lower portion thereof being conoidal and tapered, and provided at its upper end with a plurality of outwardly-directed curved wings; and an air-inlet tube mounted within the bottle adjacent to the liquid-outflow tube, and provided with a valve in the lower portion thereof.

5. A non-fillable bottle having mounted in the neck thereof, liquid-outflow and air-inlet tubes, both of which are formed with recesses or chambers deflected toward the same side of the bottle, valves mounted in said tubes normally to close the same, and adapted when the bottle is tilted to fall into their respective recesses, and permit the liquid and the air respectively to flow thereover; and a washer or disk mounted in the lower portion of the neck of the bottle and holding said tubes.

6. A non-fillable bottle having mounted in the neck thereof, a disk firmly secured in position, liquid-outflow and air-inlet tubes mounted in said disk and having their lower ends projecting therethrough, chambers projecting to one side of said tubes, valves mounted therein, a disk mounted above said chambers, a filling between said disks and surrounding said tubes, a disk below the top of the bottle through which the liquid-outflow and air-inlet tubes pass, said liquid-outflow tube being formed into an S-shaped trap in the intervening space, a filling above the top disk, a post inserted in said filling and provided with means to prevent rotation thereof, said post being sectionally rectangular and provided with a head, and a cap slidably-mounted upon said post having a recess in which said head works, and a depending rim surrounding the mouth of the bottle, and provided with apertures in lateral alinement with the liquid-outflow and air-inlet tubes; said cap carrying stoppers upon its under surface to close the respective tubes.

644,844. CORN-HUSKING AND FODDER-PREPARING MACHINE. ALBERT VAN NESS, Chicago, Ill. Filed Sept. 3, 1896. Renewed May 1, 1899. Serial No. 715,192. (No model.)



Claim.—1. In a fodder-preparing and husking machine, a pair of feeding-rolls each having peripheral ribs arranged obliquely to the axis of the roll, all of the ribs upon a given section of the periphery or sectoral surface of the roll being parallel to each other throughout its length, and all of the ribs in the adjacent sectoral surfaces throughout the length of the roll being oblique to or reversed with respect to the direction of the first-named ribs, whereby a uniform distributing action may be obtained upon the stalks as they are fed to the machine, substantially as described.

2. In a fodder-preparing and husking machine, the combination of a pair of feeding-rolls, each having peripheral ribs arranged obliquely to the axis of the roll, all of the ribs upon a given sectoral surface of the roll throughout its length being parallel to each other, and all of the ribs upon the adjacent sectoral surfaces throughout the length of the roll being arranged to meet said first-named ribs at an angle thereto, the coacting ribs upon the two rolls being arranged to coincide with each other when in action, and means for positively actuating said rolls in unison, substantially as described.

3. In a fodder-preparing and husking machine, the combination of a pair of feeding-rolls each having peripheral ribs arranged obliquely to the axis of the roll, all of the ribs upon a given sectoral surface of the roll throughout its length, being parallel to each other, and all of the ribs upon the adjacent sectoral surfaces throughout the length of the roll being arranged to meet said first-named ribs at an angle thereto, the coacting ribs upon the two rolls being arranged to coincide with each other when in action, means for positively actuating said rollers in unison, and means for permitting the axes of said rolls to yield or separate from each other, as and for the purposes set forth.

4. The combination in a machine of the class described, of inclined husking-rolls arranged parallel to each other, a revoluble shaft arranged above said rolls and in a plane midway between the two, and a series of independent elastic presser-fingers arranged at intervals throughout the length of said shaft, as distinguished from yielding longitudinal flaps, whereby the ears of corn may be permitted to move longitudinally upon the husking-rolls and be pressed against them in successive order by said fingers, substantially as described.

5. The combination in a machine of the class described, of inclined husking-rolls arranged parallel to each other, a revoluble shaft arranged above said rolls, and a series of independent yielding presser-fingers mounted upon said shaft in groups arranged longitudinally thereof, each group being attached to a different part of the periphery of said shaft, substantially as described.

644,845. LETTER-FILE. CLARENCE H. WILEY, Hartford, Conn. Filed Feb. 1, 1899. Serial No. 704,118. (No model.)



Claim.—1. In combination in a letter-file, a back piece formed in sections connected by a hinge, binder-hooks hinged to the back piece on the line of the connecting-hinge, covers hinged to the outer edge of the respective sections of the back piece, and means for locking the sections of the back piece in a closed position.

2. In combination in a letter-file, a back piece formed in sections connected by a hinge, binder-hooks hinged to the back piece on the line of the connecting-hinge, and covers hinged to the outer edge of the respective sections of the back piece.

3. In combination in a letter-file, a back piece formed in sections connected by a hinge, binder-hooks hinged to the back piece on the line of the connecting-hinge and projecting crosswise of the back in opposite directions, and covers hinged to the outer edge of the respective sections of the back piece.

4. In combination in a letter-file, a back piece formed in sections pivotally connected, covers hinged to the outer edge of the respective sections of the back piece, binder-hooks pivoted on the line of connection of the sections of the back piece and projecting crosswise of the back in opposite directions and having a cross-bar connecting each pair of hooks.

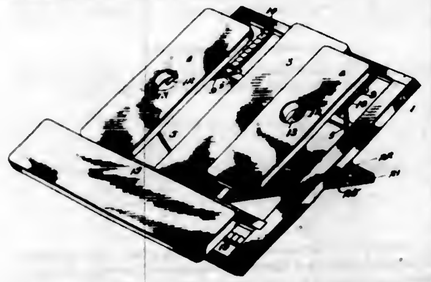
5. In combination in a letter-file, a back piece formed in sections pivotally connected, covers hinged to the outer edge of the respective sections of the back piece, binder-hooks pivoted on the line of connection of the sections of the back piece and projecting crosswise of the back in opposite directions and having a cross-bar connecting each pair of hooks and means for holding the sections of the back piece in a closed position.

644,846. BOOK-SUPPORT AND ARM-REST. JAMES R. M. WINBURN, Gainesville, Ga. Filed Jan. 31, 1899. Serial No. 704,027. (No model.)

Claim.—1. In a device of the class described, the combination of a frame, an adjustable section connected with the frame and adapted to be raised and lowered, said section being provided with an opening, and a dog mounted on the section and arranged to engage the frame to maintain the section at any desired adjustment, said dog being located at the said opening, whereby it is adapted to be engaged by the finger of the operator, substantially as described.

2. A device of the class described comprising a frame, having openings and provided therein with ratchets, adjustable leaves or sections arranged at the openings and provided with finger-openings, links connecting the leaves or sections with the frame, and dogs mounted on the leaves or sections at the finger-openings thereof and engaging the ratchets, substantially as described.

3. A device of the class described, comprising a frame provided with ratchets, independently-adjustable leaves or sections having openings, links connecting the leaves or sections with the frame, and dogs mounted on the leaves or sections and engaging the ratchets, said dogs being provided with arms arranged at the openings of the leaves or sections, substantially as described.



4. A device of the class described comprising a frame provided with parallel side openings and having a transverse opening at its bottom, T-shaped castings arranged at the upper ends of the side openings and at one end of the transverse opening and provided with ratchets disposed longitudinally of the said openings, the leaves or sections 4 arranged at opposite sides of the frame and provided with finger-openings, the transverse leaf 15, links connecting the leaves or sections with the frame, dogs mounted on the leaves or sections and engaging the ratchets, the dogs of the leaves or sections 4 being provided with arms located at the finger-openings, substantially as and for the purpose described.

644,847. LACED BOOT OR SHOE. CHARLES BALCOM, Lynn, Mass. Filed Dec. 27, 1898. Serial No. 700,253. (No model.)



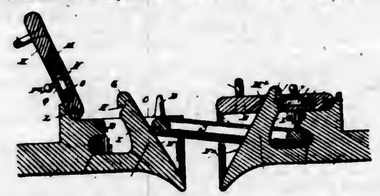
Claim.—1. A stormproof boot or shoe having two compressible parts of fabric and rubber forming the sides of an opening, and cord-engaging members projecting from the outer surfaces of said parts and having fastening devices which extend through the compressible parts and are turned or upset within said parts, the upset portions of the fastening devices indenting or compressing the surrounding compressible material before the same is vulcanized, to compensate for the thickness of said upset portions, whereby the formation of projections on the inner surfaces of the compressible parts is prevented, and a lacing-cord engaged with said projections is enabled to maintain a tight joint between the parts which it connects, the said compressible parts being strengthened by vulcanization after the compression of the portions surrounding the fastening devices.

2. A stormproof boot or shoe having two compressible parts of fabric and rubber, forming the sides of an opening, cord-engaging members projecting from the outer surfaces of said parts and having fastening devices which extend through the compressible parts and are turned or upset within said parts, and reinforcing devices which are interposed between the inner surfaces of the compressible parts and the upset portions of said fastening devices and surround the latter, the said fastening and reinforcing devices being embedded in the compressible parts before vulcanization of the latter and causing the compression of the portions of the said parts which surround the fastening devices, to compensate for the thickness of the fastening and reinforcing devices, whereby the formation of projections on the inner surfaces of the compressible parts is prevented, and a lacing-cord engaged with said projections is enabled to maintain a tight joint between the parts which it connects, the said compressible parts being strengthened by vulcanization after the compression of the portions surrounding the fastening devices.

3. A stormproof boot or shoe having two parts forming the sides of an opening, each part being composed of an outer compressible layer of fabric and rubber, and an inner layer or lining attached thereto, cord-engaging members projecting outwardly from the outer surface of the outer layer of each part; and having fastening devices which extend through said compressible outer layers and are upset within the latter, and reinforcing devices which are interposed between the inner surfaces of the outer layers and the inner layers and surround the said fastening devices, the said fastening and reinforcing devices being embedded in the inner surface of the outer layers before vulcanization, which outer layers are compressed around the fastening devices to compensate for the thickness of the upset portions of the fastening devices and the reinforcing devices, whereby the formation of projections on the inner surfaces of the outer layers is prevented, so that the inner layers lie smoothly and without inward projections upon all the outer layers and reinforcing and fastening devices, the outer layers being strengthened by vulcanization after the compression of the portions surrounding the fastening devices.

4. A stormproof boot or shoe having two compressible parts of fabric and rubber, forming the sides of an opening, cord-engaging members projecting from the outer surfaces of said parts and having fastening devices which extend through the compressible parts and are upset within the latter and pressed into the inner surfaces of the compressible parts before vulcanization, and a lacing-cord having a loop which is interposed between the outer surface of one of the compressible parts and the head of the lower cord-engaging member on said part and is pressed into the outer surface of said compressible part before vulcanization, the said compressible parts being subsequently vulcanized, so that the indentations made therein by the fastening devices and the loop of the lacing-cord are made permanent.

644,848. CAR-COUPLING. JOSEPH M. BROWNFIELD, Pinos Altos, N. Mex. Filed May 27, 1899. Serial No. 718,546. (No model.)



Claim.—1. In a car-coupling, the combination with a recessed draw-head, of a stationary inwardly-inclined pin in said recess having a notch in its inner face, a pivoted latch-plate with a hole to slip over the upper end of the pin and a spring-bolt in a recess in the latch-plate adapted to engage in the notch in the pin, substantially as described.

2. In a car-coupling, the combination with a recessed draw-head, of a stationary pin in said recess projecting above the top thereof, teats projecting upwardly from the side walls of said recess, a latch-plate pivoted to the draw-head in position to cover the recess and provided with holes to receive the teats, a hole to receive the end of the pin, and a recess communicating with the last-named hole, and a spring-impelled bolt in said recess adapted to engage in a notch in the inner face of the pin when the latch-plate is down, substantially as described.

3. In a car-coupling, the combination with a recessed draw-head, of a stationary inwardly and upwardly inclined pin in said recess, having a notch in its inner face, a pivoted latch-plate secured to the top of the draw-head and having a hole through which the inclined pin projects, a longitudinally-arranged spring-pressed locking-bolt arranged in a slotted recess in the latch-plate, adapted to engage the notch in the pin and an upwardly-projecting pin on the locking-bolt for withdrawing the same from engagement with the first-named pin, substantially as described.

644,849. DEVICE FOR HOLDING CORNERS OF BLOTTING OR OTHER SHEETS UPON DESKS, &c. LOUIS W. CUTTING, Arlington, Mass. Filed Dec. 13, 1899. Serial No. 740,218. (No model.)

Claim.—The herein-described corner-holder for paper sheets, consisting of a sector-shaped plate having two straight sides forming a right angle, and provided on said sides with downwardly-extending flanges whereby the plate is raised to form a socket for the reception of the corner of the sheet to be held, said plate having a hole near its vertex for an attaching screw or pin, and pointed spurs on its under

side at the edges, adapted to penetrate the adjacent surface to thereby steady the plate and prevent it from turning on the attaching screw or pin, substantially as described.



644,850. DEHORNING IMPLEMENT. JERRY D. DEUELL, Fort Collins, Colo. Filed Aug. 9, 1899. Serial No. 726,712. (No model.)



Claim.—1. In a dehorning implement, the combination of handle-levers, shanks pivotally attached to the handle-levers and having cutters thereon, said shanks being crossed and pivotally connected to each other, and transverse bars to which the handle-levers are pivotally connected, the shanks having movement between the bars.

2. In a dehorning implement, the combination of handle-levers, a pair of bars between which the handle-levers are fulcrumed, shanks pivotally attached to the handle-levers and having cutters connected thereto, and an antifriction connection between the shanks and the bars.

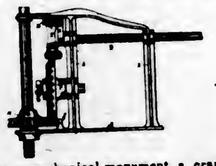
3. In a dehorning implement, the combination of handle-levers, a pair of bars to which the handle-levers are fulcrumed and extending transversely of the implement, shanks pivotally attached to the levers and having guide-slots therein, cutters supported by said shanks, the latter being pivotally connected, and antifriction-rollers held by the bars and movable in the guide-slots of the shanks.

4. In a dehorning implement, the combination of a pair of transversely-extending bars, handle-levers pivotally connected thereto, pivotally-attached shanks provided with slots and having ends movably attached to the said handle-levers, cutters supported by the opposite extremities of said shanks, and antifriction devices carried by the said bars and movable in the slots of the shanks.

5. In a dehorning implement, the combination of handle-levers, a pair of bars to which said handle-levers are pivotally connected, having space-lugs in reverse position thereon and carrying oppositely-disposed antifriction-rollers, pivoted shanks having terminals thereof movably attached to the said handle-levers and provided with guide-slots in which the antifriction-rollers are fitted, and cutters supported by the said shanks beyond the pivotal point of the latter.

6. In a dehorning implement, the combination of handle-levers, pivoted to shanks supporting cutters and having terminals applied to opposite faces of the handle-levers in movable relation thereto, and a pair of transversely-extending bars to which the handle-levers are fulcrumed, the shanks having movement between the bars and the latter holding the parts relatively spaced.

644,851. MECHANICAL MOVEMENT. CHARLES F. J. DETERS, Davenport, Iowa. Filed Oct. 30, 1899. Serial No. 736,217. (No model.)



Claim.—1. In a mechanical movement a crank-shaft suitably mounted to revolve in a frame, a segmental casting loosely mounted upon a shaft and provided with cogs upon one of its sides; an arm connecting said crank-shaft and segmental casting; a pinion upon a revolving shaft, the teeth of said pinion adapted to engage the teeth of said segmental casting for the purpose of imparting a reciprocating rotary motion to said pinion and the shaft to which it is secured.

2. A crank-shaft mounted to revolve in a suitable frame, a segmental casting provided with teeth or cogs on one of its sides and mounted to revolve upon a shaft or spindle; an arm loosely connecting said segmental casting with said crank-shaft.

3. In a mechanical movement a crank-shaft mounted to revolve in bearings in a suitable frame, the segmental casting F provided with teeth on one of its sides and loosely mounted upon a shaft projecting from the frame; an arm E loosely connecting said crank-shaft and segmental casting; a pinion H secured to a shaft mounted to revolve in bearings in the frame, the teeth of said pinion engaging the teeth on the segmental frame and a lug J substantially as and for the purposes herein described.

644,852. FRICTION-CLUTCH. JEPHTHAH P. DUVALL, Waverly, Iowa. Filed May 10, 1899. Serial No. 716,269. (No model.)

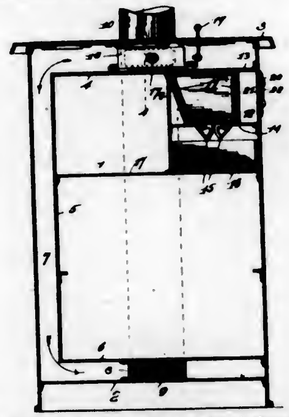


Claim.—1. A friction-clutch comprising a fast wheel or pulley, a loose pulley adapted to frictionally engage the fast wheel or pulley, a clamping-nut arranged to engage the outer face of the loose pulley, and a screw receiving the nut and extending longitudinally of and having a swiveled connection with the hub of the fast wheel or pulley, said screw being provided with threads arranged to advance the nut toward the loose wheel or pulley when the said nut is turned in a direction opposite to that of the rotation of the fast wheel or pulley, substantially as described.

2. A friction-clutch comprising a shaft, a fast wheel or pulley mounted thereon, a loose wheel or pulley, a clamping-nut arranged to engage the outer face of the loose wheel or pulley, and a screw threaded in the nut and extending longitudinally of and having a swivel connection with the shaft, and provided with screw-threads arranged to advance the nut toward the loose wheel or pulley when the said nut is turned in the direction opposite that of the rotation of the shaft, whereby the movement of the fast wheel or pulley will release the clutch when the screw is held stationary, substantially as described.

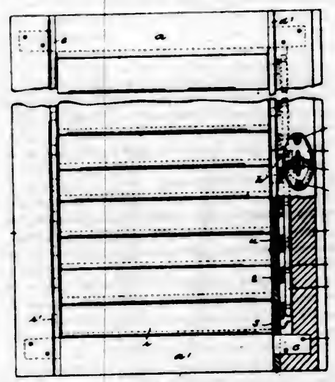
3. A friction-clutch comprising a shaft, a fast wheel or pulley mounted thereon, a loose wheel or pulley, a screw extending longitudinally of the shaft and having a swival connection therewith and provided at its outer end with a grip, and a clamping-nut provided with an arm having a strap attached to it, said nut being arranged on the screw, the latter being provided with threads arranged to advance the nut toward the loose wheel or pulley when the said nut is turned in a direction opposite to that of the rotation of the shaft, substantially as described.

644,853. RANGE. LUCAS ROSE, St. Louis, Mo. Filed Oct. 3, 1898. Serial No. 692,570. (No model.)



Claim.—In a range, the combination of the body, an oven spaced from the body at the top, the bottom, and on one side, to form an indirect passage for the products of combustion; and spaced from the body on the opposite side near the top to form a chamber; a fire-pot and ash-box situated in said chamber, the ash-box resting on the oven; and an air-heating chamber formed between the fire-pot and the body and having communication with the outer air and with the fire-pot, substantially as described.

644,854. WINDOW SHUTTER OR BLIND. GEORGE H. HAMALIAN, Paterson, N. J., assignor of one-third to Harutune S. Jemayan, Philadelphia, Pa. Filed June 21, 1899. Serial No. 721,295. (No model.)

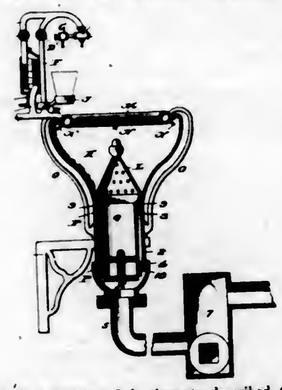


Claim.—1. In a blind or shutter having pivoted slats, a movable rod having eccentric connection with each slat, a suitably-pivoted sector having a radial slot, operative connecting means between said rod and said sector, and a pivoted handle or thumb-piece carrying an eccentric-pin engaging the slot in said sector, said handle or thumb-piece and the sector being eccentrically pivoted, substantially as described.

2. In a blind or shutter having pivoted slats, a movable rod having eccentric connection with each slat, a suitably-pivoted sector having teeth on one of its faces, a suitably-pivoted half-pinion disposed at right angles to said sector and engaging the teeth thereof, said rod having an eccentric connection with the half-pinion, and a pivoted handle or thumb-piece carrying an eccentric-pin, said sector having a radial slot receiving the pin of said thumb-piece, and said thumb-piece and the sector being eccentrically pivoted, substantially as described.

3. In a blind or shutter having pivoted slats and a suitably-operated rod for actuating said slats, each slat having trunnions, of removable cranks carried by said trunnions and operatively connected to said rod, and a cylindrical device receiving each trunnion and one end of said crank and securing the latter in place, substantially as described.

644,855. FOUNTAIN-CUSPIDOR. GEORGE R. HAYCOCK, Chicago Ill. Filed Apr. 2, 1898. Serial No. 676,190. (No model.)



Claim.—1. In a cuspidor of the character described, the combination with the supporting-sleeve provided with ball-races at its upper and lower ends, of a tube inclosed within said sleeve and provided with cones, balls interposed between said cones and ball-races, a bowl secured to the upper end of the tube, and water-nipples arranged to direct a jet of water so as to strike the interior wall of the bowl tangentially and thereby rotate it, substantially as described.

2. In a cuspidor of the character described, the combination with the supporting-sleeve provided with ball-races at its upper and lower ends, and a check-valve at its lower end, of a tube inclosed within said sleeve and provided with cones, balls interposed between said cones and ball-races, a bowl secured to the upper end of the tube, and water-nipples arranged to direct a jet of water so as to strike the interior wall of the bowl tangentially and thereby rotate it, substantially as set forth.

3. In a cuspidor of the character described, the combination with the supporting-sleeve provided with ball-races at its upper and lower ends, of a tube inclosed within said sleeve and provided with cones, balls interposed between said cones and ball-races, a bowl secured to the upper end of the tube, and water-nipples arranged to direct a jet of water so as to strike the interior wall of the bowl tangentially and thereby rotate it, and a conical strainer located in the bowl over said tube, substantially as described.

4. In a cuspidor of the character described, the combination with the supporting-sleeve, arms secured to said sleeve and projecting upwardly therefrom, a tube supported within said sleeve to rotate therein, a bowl secured to the upper end of the tube, and a circular water-pipe supported by the arms within the upper end of the bowl and having nipples to direct the streams of water against the inner surface of the bowl tangentially and thereby rotate the bowl, substantially as set forth.

5. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation and provided with a downwardly-extending tubular discharge stem or spindle, and a removable perforated cap covering the upper end of the bore of said tubular stem or spindle.

6. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation, and provided with a downwardly-extending tubular discharge stem or spindle; a suitable support or standard adapted to receive the said hollow and rotary discharge stem or spindle, one or more cones secured or formed on the latter, one or more cups within the hollow portion of the said support or standard, antifriction-balls arranged between the said cone or cones and cup or cups thus provided, and means for maintaining a jet of water for rotating the said bowl.

7. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation, and provided with a downwardly-extending tubular discharge stem or spindle provided with a couple of cones; a tubular support or standard having its upper end adapted to receive the said stem or spindle and provided with a couple of cups; antifriction-balls interposed between the cones and cups thus provided, means for maintaining a jet of water for rotating and cleansing the bowl; and an outlet or discharge opening in the said support or standard located at a point below the lower end of the said tubular and rotary discharge-stem.

8. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation, and provided with a downwardly-extending tubular discharge stem or spindle, a support or standard having a socket-piece adapted to receive the said tubular and rotary discharge stem or spindle, a cup screwed into each end of the said socket-piece, a couple of cones formed or secured on the said rotary discharge stem or spindle, and antifriction-balls interposed between the cones and cups thus provided, and means for maintaining a jet of water for rotating and cleansing the bowl, the water being discharged from the latter by way of the said rotary and hollow stem.

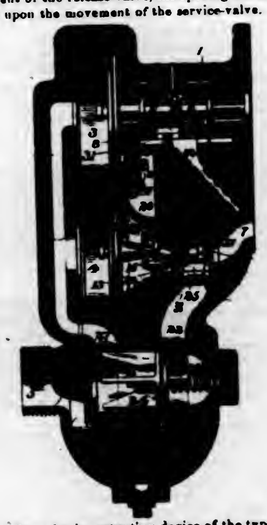
9. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation, and provided with a single, central and downwardly-extending discharge-opening, a hollow perforated cap covering the said discharge-opening and extending upwardly into the interior of the bowl, and means for maintaining a jet of water for rotating the said bowl.

644,856. FLUID-PRESSURE BRAKE. MAURY W. HIBBARD, Chicago, Ill., assignor to Richard Fitzgerald, same place. Filed Oct. 21, 1899. Serial No. 734,336. (No model.)

Claim.—1. In a railway-brake-actuating device of the type in which a movable-abutment-actuated release-valve and a movable-abutment-actuated service-valve are independent of each other, the combination, with said valves, of means for causing the full train-pipe reduction to affect the abutment of the release-valve and cause it to move regardless of the operation of the service-valve and the consequent opening of such latter valve, the movement of said means to permit the passage of auxiliary reservoir-pressure being dependent upon the movement of the service-valve.

2. In a railway-brake-actuating device of the type in which a movable-abutment-actuated release-valve and a movable-abutment-actuated service-valve are independent of each other, the combination, with said valves, of means for holding substantially the full reservoir-pressure against the release-valve abutment until such latter

abutment operates its valve, the service-valve operating independent of any movement of the release-valve, the opening of said means being dependent upon the movement of the service-valve.



3. In a railway-brake-actuating device of the type in which the brake-release valve and service-valve are independent, the combination, with said valves governing respectively the brake-release ports and the brake-cylinder port, of movable abutments for actuating them, and means for choking or preventing the flow of reservoir-pressure through the brake-cylinder port until the brake-release valve has closed the exhaust, the opening of said means being dependent upon the movement of the service-valve.

4. In a railway-brake-actuating device of the type in which the brake-release valve and service-valve are independent, the combination, with said valves, of movable abutments for actuating them, and means in the route of the reservoir-air to the brake-cylinder and physically independent of the release-valve abutment for assuring the closing of the exhaust from the brake-cylinder before the admission of pressure thereto.

5. A railway-brake-actuating device having a brake-release valve independent of the service and emergency valves, the emergency-valve governing, in emergency action, both the reservoir and train-pipe pressure through a port to the brake-cylinder, independent movable abutments for operating the release-valve and for operating the service and emergency valves, the abutment of the service and emergency valves being operated and controlled in all its movements solely by fluid-pressure in a train-pipe reduction for service action, the service-valve abutting the emergency-valve and halting until a sufficient reduction is made in train-pipe pressure to produce emergency action.

6. In a railway-brake-actuating device, a drain-cup formed on said device and having a single constricted port or opening communicating with the train-pipe nozzle of the device, but outside the path of flow of the train-pipe air and unaffected thereby whereby a trap is formed, in combination with a substantially-conical strainer pointing against the direction of incoming air and located in said nozzle substantially above said port or opening, whereby dust, dirt, &c., striking the strainer will drop into said drain-cup and remain trapped therein without disturbance by the flow or current of the train-pipe air.

7. In a device for actuating fluid-pressure brakes, the combination, with a casing having a chamber with ports communicating with the auxiliary reservoir and with the brake-cylinder, of a hollow emergency-valve normally seated in the brake-cylinder port and having a service-port communicating with the brake-cylinder port, a movable abutment within such casing and having a stem movable within the emergency-valve and whose free end normally closes said service-port, a flange or enlargement on the stem, the emergency-valve having a hollow portion surrounding the said stem and its enlargement, but having a passage between the stem and such surrounding portion for reservoir-air and means for releasing the brake-cylinder.

8. In a device for actuating fluid-pressure brakes, the combination, with a casing having a chamber with ports communicating with the auxiliary reservoir and with the brake-cylinder, of a hollow emergency-valve normally seated in the brake-cylinder port and having a service-port communicating with the brake-cylinder port, a movable abutment within such casing and having a stem movable within the emergency-valve and whose free end normally closes said service-port, such stem having a surface groove for the passage of reservoir-air, a flange or enlargement on the stem, a collar secured to the inner end of the emergency-valve and surrounding the stem and its flange but providing an annular space around the stem for the passage of reservoir-air and means for releasing the brake-cylinder.

9. In a device for actuating fluid-pressure brakes, the combination, with a casing having a chamber with ports communicating with the auxiliary reservoir and with the brake-cylinder, of a hollow emergency-valve normally seated in the brake-cylinder port and having a service port communicating with the brake-cylinder port, a movable abutment within such casing and having a stem movable within the emergency-valve and whose free end normally closes said service-port, a flange or enlargement on the stem, a split collar secured to the inner end of the emergency-valve and surrounding the stem and its flange but leaving a space around the stem for the passage of reservoir-air in service action, and means for releasing the brake-cylinder.

10. In a railway-brake-actuating device of the type in which the brake-release valve and service-valve are independent and located in separate chambers in a casing, the combination, with such a casing, of movable abutments in said chambers respectively, a passage communicating between said chambers for the flow of reservoir-pressure with itself in the form of a chamber or enlarged passage next to the release-valve chamber on the reservoir side of its abutment and a tube having a flanged rim at its inner end and movable in said chamber or enlarged passage to govern such reservoir-pressure passage, said tube choking such pressure in case the release-valve should fail to move in advance of the service-valve.

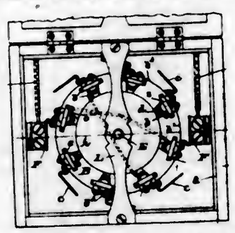
11. In a railway-brake-actuating device, a release-valve and a service-valve, abutments for operating such valves, in combination with means for preventing the normal free flow of pressure from the reservoir if the release-valve should fail to operate and thus fail to close the brake-release, the opening of such means to permit the flow of reservoir-pressure being controlled by the opening of the service-valve, the service-valve being capable of movement according to train-pipe reductions and independent of the fact whether the release-valve operates or not.

12. A railway-brake-actuating device having a movable-abutment-actuated release-valve, and a service and an emergency valve both actuated by another and single abutment affording no communication between its two faces, and controlled solely by fluid-pressure, a slight reduction in train-pipe pressure moving the service-valve to abut the emergency-valve until a further reduction is made and on a further reduction lifting the emergency-valve.

13. In a railway-brake-actuating device, a release-valve and a service-valve, abutments for operating such valves, the service-valve abutment being always exposed on one side to reservoir-pressure, in combination with means for preventing the normal free flow of pressure from the reservoir if the release-valve should fail to operate and thus fail to close the brake-release, the service-valve being movable according to train-pipe reductions and independent of whether the release-valve operates or not.

14. In a railway-brake-actuating device of the type in which the brake-release valve and service-valve are independent, the combination, with said valves governing respectively the brake-release ports and the brake-cylinder port, of movable abutments for actuating the valves and always exposed on one side to reservoir-pressure, and means for choking or preventing the flow of reservoir-pressure through the brake-cylinder port until the brake-release valve has closed the exhaust.

644,857. MULTIPLE-FUSE CUT-OUT. JAMES R. HUBBARD and CHARLES J. DORSEY, Baltimore, Md., assignors of one-third to Harry T. Mudd, same place. Filed Oct. 28, 1899. Serial No. 735,059. (No model.)



Claim.—1. In a multiple-fuse apparatus, the combination of a disk carrying a plurality of fuses each electrically and mechanically separated and protected by surrounding non-conducting material; spring contact-plates connected to said fuses and borne on the periphery of said disk and engaging a pair of stationary blocks, as shown and described.

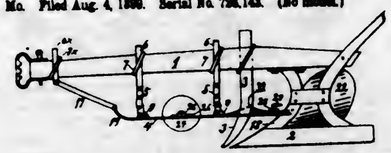
2. In a multiple-fuse apparatus, the combination of a box; a non-conducting disk containing a plurality of fuses electrically and mechanically isolated one from the other and mounted in the box; spring contact-plates disposed in pairs diametrically opposite on the periphery of said disk; a pair of stationary contact-blocks; a circular ratchet fixed to one side of said disk, a similar ratchet secured to the wall of the box; and a spring bearing on the opposite side of the disk, substantially as described.

644,858. REMOVABLE ROD FOR CURTAINS, ROLLER-BLINDS, OR THE LIKE. ERNST E. KAEMMER, Hamburg, Germany. Filed May 22, 1899. Serial No. 717,721. (No model.)



Claim.—In a curtain-rod, the combination of the longitudinally-recessed telescoping sections *a*, *d* having journal-pins at their opposite ends, the socket *c* attached to the end of section *a*, the sectional rod *f*, *g*, the section *f* of which engages the journal-pin at the end of section *d*, while the section *g* of which is provided with a pin *h* adapted to engage socket *c*, said sectional rod *f*, *g* being adapted to be held in engagement with the longitudinal recess of the rod *a*, *d*, substantially as and for the purpose set forth.

644,859. PLOW ATTACHMENT. LAURENCE KOSER, Blackwell, Mo. Filed Aug. 4, 1899. Serial No. 726,143. (No model.)



Claim.—1. A plow attachment consisting of a broad, runner-shaped plate or shoe, adapted to be drawn on the ground below the plow-beam, and having up-and-down yielding connections with the beam, substantially as and for the purpose set forth.

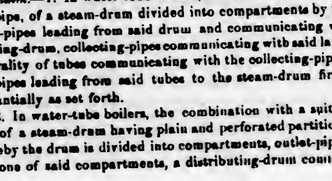
2. A plow attachment consisting of a broad, runner-shaped plate or shoe, adapted to be drawn on the ground below the plow-beam, and having yielding and adjustable connections with the plow-beam, substantially as and for the purpose set forth.

3. A plow attachment consisting of a broad, runner-shaped plate or shoe, suspended from the plow-beam, so as to be drawn on the ground in front of the plow proper; said plate having an arm extending from it in front of and about parallel to the moldboard, substantially as and for the purpose set forth.

4. A plow attachment, consisting of a broad, runner-shaped plate or shoe, suspended from the plow-beam and adapted to be drawn on the ground in front of the plow proper; said plate having an extensible arm or portion by which to broaden the plate in front of the moldboard, substantially as and for the purpose set forth.

5. A plow attachment consisting of a broad, runner-shaped plate or shoe adapted to be suspended from the plow-beam and drag on the ground in front of the plow proper; said plate having near its middle a slot, and a rolling colter journaled on the plate and projecting down through the slot, substantially as and for the purpose set forth.

644,860. MACHINE FOR SILVERING GLASS IN MANUFACTURING MIRRORS. CONSTANT LAVAL, Pittsburg, Pa. Filed Apr. 8, 1899. Serial No. 712,304. (No model.)



Claim.—1. The combination, in a machine for silvering glass, of an amalgam-box having an amalgam-distributing slit, an amalgam-melting pot communicating with said box and rising above the same to place the level of the amalgam in the pot above the distributing-slit, two perforated gas-burner pipes arranged, respectively, in juxtaposition to said pot and box, and a gas-supply pipe common to both gas-burner pipes, substantially as described.

2. The combination with a crucible or melting-pot, of a distributing box or tank in communication with said crucible or melting-pot and provided in its upper side with a narrow discharge-slit, a perforated gas-pipe surrounding said crucible or melting-pot, a perforated gas-pipe extending beneath the distributing box or tank, and a tubular casing surrounding said gas-pipe, substantially as described.

3. The combination with a crucible or melting-pot, of a distributing box or tank, a pipe connecting said box or tank with the crucible or melting-pot, a reticulated diaphragm disposed in said pipe, and valves arranged in said pipe on opposite sides of said diaphragm, substantially as described.

4. The combination with a crucible or melting-pot, of a distributing box or tank in communication with said crucible or melting-pot and having concaved sides and a narrow slitted opening in its upper side, and a series of rollers arranged in substantially the same plane as the upper end of the distributing box or tank, substantially as described.

644,861. PROJECTILE. JACQUES LOCLAIN, Paris, France. Filed June 27, 1899. Serial No. 723,057. (No model.)



Claim.—1. A projectile consisting of a cap and base connected by a central bar or core, all made of a hard metal, and a sleeve or filling of heavier metal, such as lead, about said bar or core between the cap and base and of less diameter than said parts.

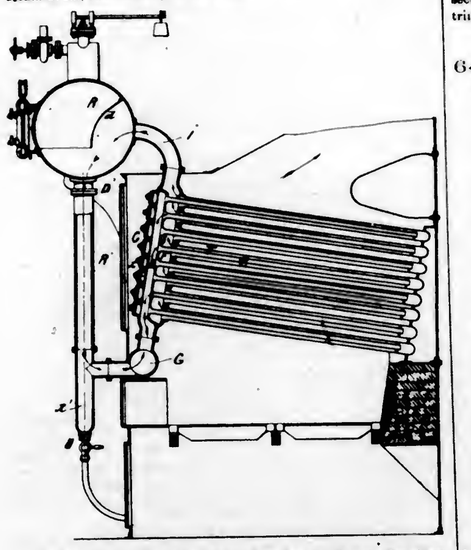
2. A projectile consisting of a cap and base connected by a central bar or core, all made of hard metal, said bar or core having projections thereon, and a sleeve or filling of heavier metal, such as lead, about said bar or core between the cap and base and of less diameter than said parts.

644,862. WATER-TUBE BOILER. JEAN MAZIERES, Bordeaux, France. Filed Apr. 28, 1898. Serial No. 679,128. (No model.)

Claim.—1. In water-tube boilers, the combination with suitable inlet-pipe, of a steam-drum divided into compartments by partitions, outlet-pipes leading from said drum and communicating with a distributing-drum, collecting-pipes communicating with said latter drum, a plurality of tubes communicating with the collecting-pipes, and return-pipes leading from said tubes to the steam-drum first-named, substantially as set forth.

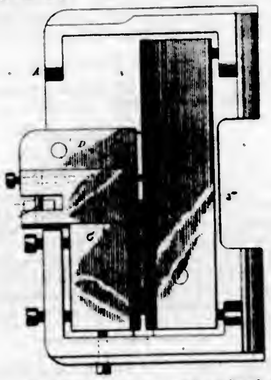
2. In water-tube boilers, the combination with a suitable inlet-pipe, of a steam-drum having plain and perforated partitions therein whereby the drum is divided into compartments, outlet-pipes leading from one of said compartments, a distributing-drum communicating

with said outlet-pipes, vertically-arranged collecting-pipes communicating with said distributing-drum, a plurality of boiler-tubes communicating with said collecting-pipes, return-pipes communicating with said boiler-tubes and with the discharge-compartments of the steam-drum, substantially as set forth.



3. In water-tube boilers, the combination of a distributing-drum, collecting-pipes connected with said drum, and a plurality of boiler-tubes communicating with said collecting-pipes, each of said tubes being composed of an outer pipe and an inner pipe having wedge-like bearings and provided with perforations, and means for removing said pipes from their bearings, substantially as set forth.

644,363. LINOTYPE-MACHINE. OTTMAR MERGENTHALER, Baltimore, Md., assignor, by mesne assignments, to the Mergenthaler Linotype Company, New York, N. Y. Filed May 19, 1897. Serial No. 637,248. (No model.)



Claim.—1. In a linotype-machine, a slug-trimming knife comprising two sections one of which is movable relatively to the other, substantially as described.

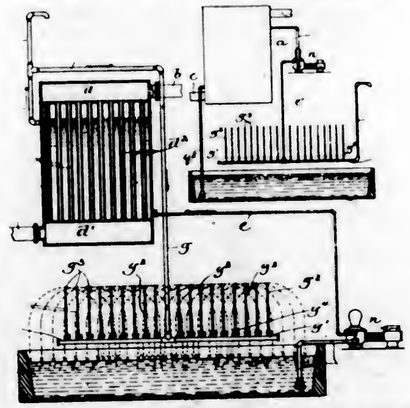
2. In a linotype-machine, a slug-trimming knife comprising two sections, in combination with means for moving one of said sections out of action when it is desired to trim a slug having a lateral projection, substantially as described.

3. In a linotype-machine, a slug-trimming knife comprising a fixed section and a movable section in combination with means for throwing the movable section into and out of action, whereby they are adapted for joint or independent use, substantially as described.

4. In a linotype-machine, a slug-trimming knife comprising a fixed section and a section adapted to slide forward and backward, substantially as described.

5. In a linotype-machine, a pair of opposing trimming-knives one of said knives being stationary and the other knife comprising two sections one of which is movable relatively to the other to facilitate trimming slugs having lateral projections, substantially as described.

644,364. LIQUID-COOLING APPARATUS. WILLIAM B. MCKAY, Boston, Mass. Filed Mar. 3, 1899. Serial No. 707,802. (No model.)



Claim.—1. An apparatus of the character specified, comprising a cooling device having suitable passages for gas, vapor or steam, said passages being surrounded by spaces for liquid, a collecting-basin open to the atmosphere, a conduit arranged to transfer the heated liquid from the said liquid-space to the collecting-basin, said conduit including a plurality of small vertical discharge-pipes located over different portions of the collecting-basin, each pipe having a valve or cock and having a spraying or distributing nozzle adapted to discharge small unbroken streams of liquid in a substantially-horizontal direction, and means for returning the cooled liquid from said collecting-basin to the liquid-space in said cooling device.

2. The combination with a condenser comprising two receiving-chambers d d' connected by a series of corresponding pipes d^2, connections with said chambers for gas, vapor or steam, a casing surrounding said pipes d^2, a collecting-basin open to the atmosphere and located below the condenser, a conduit connected at its upper end with the casing of the condenser and having horizontal branches g g' extending over the collecting-basin and provided with a series of small vertical pipes g^2 having valves or cocks and provided with horizontal-spraying nozzles at their upper ends adapted to discharge small unbroken streams of liquid, and means for returning liquid from the collecting-basin to the space within the casing of the condenser.

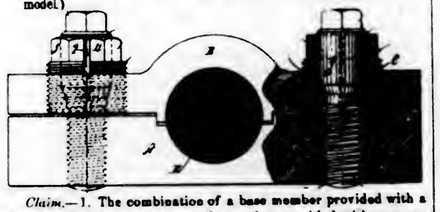
644,365. ROCKING GRATE FOR FURNACES. CARLETON W. MASON, New York, N. Y., and CHARLES YINGLING, Metuchen, N. J.; said Mason assignor to said Yingling. Filed July 13, 1894. Serial No. 517,294. (No model.)



Claim.—1. In a grate, rotatory parallel sections having substantially-plane tops sufficiently far above the axes of turning to give horizontal as well as vertical movements to said tops and interleaved fingers B' E' F' as shown, in combination with means for rocking the adjacent sections in opposite directions so that the interleaved fingers move up and down together but laterally in opposite directions, substantially as described.

2. In a grate, a supporting-frame having open-top bearings, in combination two or more parallel sections mounted on axes supported in such bearings with provisions for rocking said sections, the said sections having substantially-plane tops adapted to serve as fuel-supporting surfaces and arranged so far above the axes that the motion induced by rocking shall not only tilt the sections but also move the tops horizontally, and a section being allowed to rise when a cinder or coal is caught by the end of a finger and thus permit, when required, the passage downward of such masses, substantially as described.

644,366. LOCKING ADJUSTMENT FOR JOURNAL-BEARINGS. AUGUSTUS NEWELL, Pasadena, Cal., assignor of one-half to Fred H. Gansbergen, Chicago, Ill. Filed Oct. 12, 1899. Serial No. 733,373. (No model.)



Claim.—1. The combination of a base member provided with a screw-threaded hole; an adjustable member provided with a screw-threaded hole of larger diameter than that in the base member; a hollow expansible screw provided with a tapering seat and screwed into the adjustable member; and a locking-screw provided with a tapered portion to seat in the tapered seat and provided with a screw-threaded portion screwed into the base member.

2. A hollow expansible screw provided with an internal tapering seat and being longitudinally slitted throughout one side and longitudinally slitted throughout a portion of the other side.

3. An adjusting device comprising a base member having a threaded hole; an adjustable member provided with a V-threaded hole; a hollow expansible V threaded screw to screw in the V-threaded hole and provided with a tapering seat; and a locking-screw provided with a tapering shoulder to fit said seat and with a threaded portion screwed into the hole in the base member.

644,367. COMPOSITION OF MATERIAL FOR LINING VESSELS USED FOR STORING OR BOILING CORROSIVE LIQUIDS. ROMEDIUS PARISI, Merritton, Canada. Filed Mar. 25, 1898. Serial No. 675,107. (No specimens.)

Claim.—1. A composition of matter for acid-proof lining of boilers, tanks and similar vessels, composed of hydraulic cement, chamotte, some silicious material, water and silicate of soda.

2. A composition of matter for acid-proof lining of boilers, tanks, and similar vessels, composed of hydraulic cement, pulverized chamotte and quartz and of diluted silicate of soda.

3. A composition of matter for acid-proof lining of boilers, tanks, and similar vessels, composed of twenty-six per cent. of hydraulic cement, twelve per cent. chamotte, twenty-one per cent. of quartz and of a suitable quantity of diluted silicate of soda.

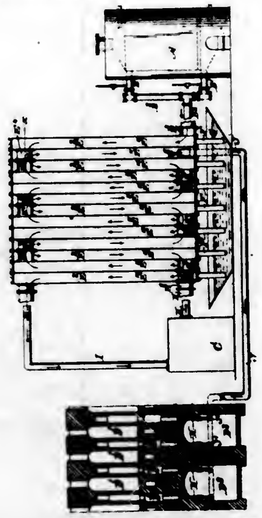
644,368. APPARATUS FOR TRANSFERRING HEAT FROM ONE FLUID TO ANOTHER. FREDERIC W. C. SCHNIEWIND, Pittsburg, Pa., assignor to the United Coke and Gas Company, Charleston, W. Va., and Philadelphia, Pa. Filed Aug. 11, 1897. Serial No. 647,857. (No model.)

Claim.—1. An apparatus for transferring heat from one fluid to another having in combination a series of frames E', thin plates or diaphragms E^2 separate from and secured between each pair of frames to form chambers E^{10} E^{11}, conduits E^4 connecting each alternate pair of chambers E^{10}, conduits E^5 connecting each alternate pair of chambers E^{11} and inlet and outlet conduits leading to and from each set of connected chambers E^{10} and E^{11}.

2. An apparatus for transferring heat from one fluid to another having in combination a series of frames E', having flanges around the edges thereof, thin plates or diaphragms E^2 separate from and secured between each pair of frames to form chambers E^{10} E^{11}, conduits E^4 connecting each alternate pair of chambers E^{10}, conduits E^5 connecting each alternate pair of chambers E^{11} said conduits being situated between the plates E^2 as specified and inlet and outlet conduits leading to and from each set of connected chambers E^{10} and E^{11}.

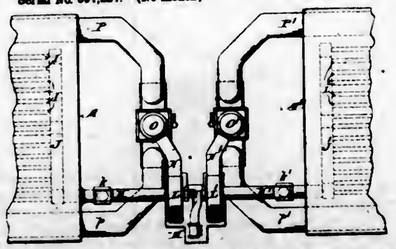
3. An apparatus for cooling gas by transferring its sensible heat to another fluid having in combination a series of frames E', thin plates or diaphragms E^2 secured between each adjacent pair of frames to form chambers E^{10} and E^{11}, conduits E^4 connecting each alternate pair of chambers E^{10} into a conduit for the hot gas, conduits E^5 connecting each alternate pair of chambers E^{11} into a conduit for the cooling fluid, inlet and outlet conduits to and from each series of connected chambers, a water-receptacle G and dust-conduits F leading from the bottoms of chambers E^{10} into the water-receptacle.

4. In combination with a gas-generator A, a gas-cleaner C, and a bank of coke-ovens D, and apparatus E made up of a series of frames E' having thin plates E^2 separate from and secured between them to form chambers E^{10} E^{11}, means for connecting the alternate chambers E^{10} into a conduit and the alternate chambers E^{11} into another conduit, the conduit comprising the chamber E^{10} connecting with the producer and the cleaner and the conduit comprising the chambers E^{10} connecting with the cleaner and the coke-oven bank as and for the purpose specified.



5. In an apparatus for transferring heat from one fluid to another, the combination of a series of flanged frames E', thin plates or diaphragms coextensive with said frames, and secured between the flanges of each pair of frames to form chambers, conduits connecting the chambers in alternate pairs, inlet and outlet conduits leading to and from each set of connected chambers, and dust-conduits leading from alternate chambers.

644,869. REGENERATIVE COKE-OVEN. FREDERIC W. C. SCHNIEWIND, Everett, Mass., assignor to the United Coke and Gas Company, Philadelphia, Pa., and Charleston, W. Va. Filed Nov. 23, 1898. Serial No. 697,227. (No model.)



Claim.—1. In combination with a bank of coke-ovens having regenerators for preheating the air and to support combustion by the waste heat of the furnaces used for heating the ovens, air-supply conduits as P and p leading to each regenerator, a system of cooling-flues situated in the masonry beneath the ovens and furnaces, a conduit as K connecting said flues with conduits P and p, a valve as O whereby the connection to either conduit can be closed at will and means as specified whereby the air is drawn through the cooling-flues into the supply-conduit connected thereto and into the appropriate regenerator.

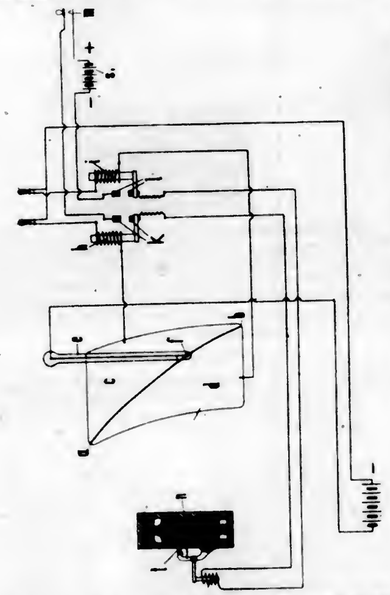
2. In combination with a bank of coke-ovens having regenerators for preheating the air and to support combustion by the waste heat of the furnaces and for heating the ovens, air-supply conduits as P and p leading to each regenerator, a system of cooling-flues situated in the masonry beneath the ovens and furnaces, a conduit as K connecting said flues with conduits P and p, a valve as O whereby the connection to either conduit can be closed at will, a regulable air-passage independent of the cooling-flues opening into the pipes

or conduits connecting said flues with the regenerators, and means as specified whereby the air is drawn through the cooling-flues and air-passage into the supply-conduit connected thereto and into the appropriate regenerator.

3. In combination with a bank of coke-ovens having regenerators for preheating the air and to support combustion by the waste heat of the furnaces used for heating the ovens, a system of cooling-flues situated in the masonry beneath the ovens and furnaces, a collecting-fan for drawing air through said flues, and a discharge-conduit from said fan connecting with the air-supply pipes leading to the regenerators.

4. In combination with a bank of coke-ovens having regenerators for preheating the air and to support combustion by the waste heat of the furnaces and for heating the ovens, a system of cooling-flues situated in the masonry beneath the ovens and furnaces, a collecting-fan for drawing air through said flues, a supplemental air-inlet to the fan independent of the cooling-flues, and a discharge-conduit from said fan connecting with the air-supply pipes leading to the regenerators.

644,870. APPARATUS FOR ADJUSTING ELEVATION OF GUNS. GUSTAV A. SCHOELLER, Mülheim-on-the-Ruhr, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Nov. 29, 1899. Serial No. 738,634. (No model.)



Claim.—1. In an apparatus for adjusting the elevation of guns of the character specified, an index-plate partly constructed of insulated conducting material and partly of non-conducting material, a conducting index-hand with a contact moved in changing the elevation of the gun to slide upon the index-plate, a source of electricity and electric connection to the metallic part or parts of the index-plate and to the index-hand, whereby the circuit is closed when the contact of the index-hand is over the metallic part or parts of the index-plate, substantially as and for the purpose specified.

2. In an apparatus for adjusting the elevation of guns of the character specified, an index-plate made of three parts, two metallic insulated parts and a non-conducting index-curve; an index-hand with a contact moved in changing the elevation of the gun to slide upon the index-plate, a source of electricity, an electric connection from one pole to the index-hand, respectively its contact, and parallel connections to the metallic parts of the index-plate, whereby the current is closed whenever the contact of the index-hand is upon the metallic parts of the index-plate, substantially as and for the purpose specified.

3. In an apparatus for adjusting the elevation of guns of the character specified, an index-plate made of three parts, two metallic insulated parts and a non-conducting index-curve; an index-hand with a contact caused in changing the elevation of the gun to slide upon the index-plate; a source of electricity; an electric connection from one pole to the index-hand, respectively its contact; parallel connections to the metallic parts of the index-plate, and electric signals inserted within the circuit or circuits, whereby the current is closed whenever the contact of the index-hand is upon the metallic parts of the index-plate and the closing indicated by the signals, substantially as and for the purpose specified.

4. In an apparatus for adjusting the elevation of guns of the character specified, an index-plate partly constructed of insulated conducting material and partly of non-conducting material, an index-hand with a contact caused in changing the elevation of the gun to slide upon the index-plate; a source of electricity and electric connections to the metallic part or parts of the index-plate and to the index-hand, respectively its contact, whereby the circuit is closed when the contact of the index-hand is over the metallic part or parts of the index-plate; in combination with a separate electric circuit with a key and an open contact or open contacts, electromagnets (or solenoids) inserted into the index-plate circuit or circuits, said magnets closing the contacts of the separate electric circuit, so that the current is directed to the firing device, when the key is pressed down, substantially as and for the purpose specified.

644,871. HEDDLE FOR LOOMS. SAMUEL SEWALL, Tewksbury, Mass. Filed July 26, 1897. Renewed Jan. 4, 1900. Serial No. 394. (No model.)



Claim.—1. A heddle formed of a flat metal strip having an eye and end portions substantially unyielding or unbending in the direction of the warp, and having portions intermediate of the eye portion and the end portions, which are resilient or yielding in the direction of the warp.

2. A heddle formed of a flat metallic strip having an eye portion and slotted end portions unyielding or unbending in the direction of the warp, said end portions extending considerably beyond their slots, said heddle having portions intermediate of the eye portion and the end portions, which are resilient or yielding in the direction of the warp.

3. A heddle formed of a thin flat metallic strip arranged with its faces parallel to the warp, and having reduced or cut-away portions to permit the heddle to yield longitudinally of the warp.

4. A heddle formed of a thin flat metallic strip arranged with its faces parallel to the warp, and having a thread-eye, said heddle having portions thereof above and below the eye cut away and compressed to permit the heddle to bend or yield longitudinally of the warp.

5. A heddle formed from a thin metallic strip slit at a suitable point for the eye and having the sections offset in opposite directions, said sections being curved in transverse cross-section for the purpose described.

6. A heddle formed from a thin slitted metal strip, the sections of which are offset in opposite directions and are concave-convex in transverse cross-section.

7. A heddle formed of a flat metallic strip having an eye portion and end portions unbending in the direction of the warp, and intermediate portions capable of bending in the direction of the warp, said eye portion being twisted to have its faces at an angle to the faces of the said end portions.

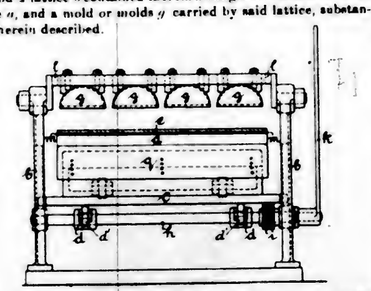
8. A heddle formed of a flat metallic strip, having a slotted eye portion and slotted end portions, unbending in the direction of the warp, and intermediate portions capable of bending in the direction of the warp, the slot in the eye portion being out of the straight line connecting the slot in the end portions.

9. A heddle formed of a flat metallic strip, slit intermediate of its ends to form a thread-eye and having the inner edges only of the slit portions offset to cross each other, and form shoulders for preventing the chafing of the thread in the eye, the outer edge of said slit portions being in sinuous curves to prevent chafing of adjacent threads.

10. A heddle formed of a flat metallic strip slit intermediate of its ends to provide a thread-eye, said slit portions being transversely and outwardly curved, whereby the strength of the heddle is increased at its eye portion and the latter is prevented from bending, and being curved at their edges to prevent chafing of adjacent warp-threads.

644,872. APPARATUS FOR MANUFACTURING GLASS ARTICLES. PAUL T. SIEVERT, Dresden, Germany. Filed Dec. 8, 1899. Serial No. 739,641. (No model.)

Claim.—1. In an apparatus for the manufacture of hollow glass bodies by causing steam-pressure to be exerted against a layer of hot plastic glass, the combination of a plate *a* and a porous mat *m* thereon for supporting said layer, a carrying-plate *c* for supporting said plate *a*, means for raising and lowering the said carrying-plate *c*, a frame *l* and a lattice *n* contained therein arranged at a distance above said plate *a*, and a mold or molds *g* carried by said lattice, substantially as herein described.



2. In an apparatus for the manufacture of hollow glass bodies by causing steam-pressure to be exerted against a layer of hot plastic glass, the combination of a plate *a* and a porous mat *m* thereon for supporting said layer, a carriage *q* for supporting said plate *a*, a carrying-plate *c* for supporting said carriage, means for raising and lowering said carrying-plate *c* and carriage *q*, and a frame *l* with an attached mold or series of molds *g* arranged at a distance above said plate *a*, substantially as herein described.

3. In an apparatus for the manufacture of hollow glass bodies by causing steam-pressure to be exerted against a layer of hot plastic glass, the combination of a plate *a* and a porous mat *m* thereon for supporting said layer, an adjustable carriage *q* for supporting said plate *a*, a carrying-plate *c* for supporting said carriage, means for raising and lowering said carrying-plate *c* and carriage *q*, means for vertically adjusting the upper part of said carriage, and a frame *l* with an attached mold or series of molds arranged at a distance above said plate *a*, substantially as herein described.

4. In an apparatus for the manufacture of hollow glass bodies by causing steam-pressure to be exerted against a flat layer of hot plastic glass, the combination of a plate *a* and a mat *m* thereon for supporting said layer, an invertible frame *l* and lattice-work *o* therein, molds *g* attached to said lattice, means for raising the said plate *a*, and means for detachably uniting said plate *a* to said frame *l* to simultaneously reverse the position of parts thus united, substantially as herein described.

5. In an apparatus for manufacturing hollow glass bodies by causing steam-pressure to be exerted against a flat layer of hot plastic glass, the combination of a plate *a* and a porous mat *m* thereon for supporting said layer, a frame *l* and lattice *o* and a mold or molds *g* carried thereby, and automatically-disconnecting fastenings between said frame and said plate, substantially as herein described.

644,873. TAG. SAMUEL J. SILBERMAN, New York, N. Y. Filed Oct. 25, 1899. Serial No. 734,754. (No model.)

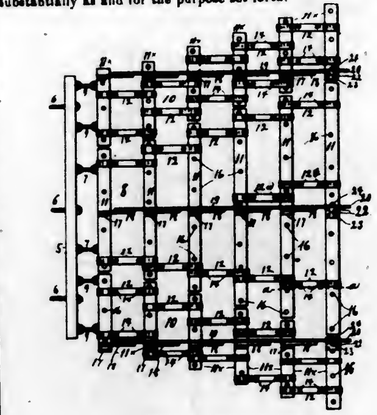


Claim.—1. As a new article of manufacture, a sewed article, comprising two cloth-sections united by a seam, and a tag situate between the cloth-sections and held in place by the seam, thus securing the tag and perforating it at the seam so that the exposed portion of the tag may be readily torn from the part inside the seam.

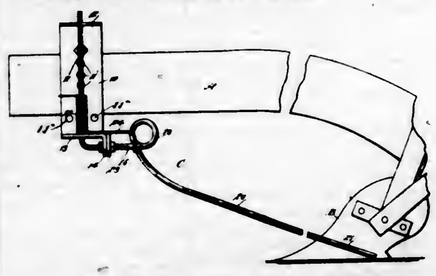
2. As a new article of manufacture, a sewed article, comprising two sections of cloth united by a seam, a tag situate between said sections of cloth and held in place by the seam, and a fastening device joining the inner end of the tag with the edge of one of the cloth-sections inside of the seam.

644,874. HARROW. ELIAKIM A. SOWERWINE, Randolph, Nebr. Filed Dec. 20, 1898. Serial No. 699,855. (No model.)

Claim.—In a harrow, the combination with a long singletree, of a harrow made in three sections, which are secured side by side independently of each other to the singletree; the middle one of the sections being larger than the side sections and the latter being detachable from the singletree; each of said sections being constructed of rocking cross frame-bars provided with harrow-teeth, and longitudinal frame-bars, in the ends of which the cross-bars are journaled, and a regulating hand-lever operatively connected with the rocking bars, so that the teeth of each section may be tilted backward and forward; the middle section of such harrow having cross frame-bars of increased length toward the rear of the harrow, and the side sections having cross-bars of substantially-equal length, and the adjacent edges of the sections lying substantially parallel to each other, substantially as and for the purpose set forth.



644,875. PLOW-FENDER. NICHOLAS STEFFEN, Darlington, Wis. Filed Aug. 9, 1899. Serial No. 726,690. (No model.)



Claim.—1. In a plow-fender, a rod adapted to extend from a point opposite the plowshare to the plow-beam, and a body-plate for said rod, said plate having outwardly-extending upper and lower members formed with openings to receive said rod, the said plate being further provided with a vertically-extending series of apertures and a horizontally-extending series therebelow, adapted to receive bolts whereby to attach the plate to the plow-beam, as set forth.

2. In a plow-fender, a support adapted for attachment to a plow-beam, a rod having a shank mounted in said support said rod extending rearwardly from said shank, a plate secured to said support and having an elongated slot in which said rod is received, and a spring bearing against said rod whereby to hold the latter at one end of said slot, as set forth.

3. In a plow-fender, a support arranged for attachment to a plow-beam, a rod having a shank mounted in said support, the said rod extending rearwardly from said shank, a plate adjustable horizontally on said support and having a slot receiving said rod whereby the latter may be adjusted laterally, as set forth.

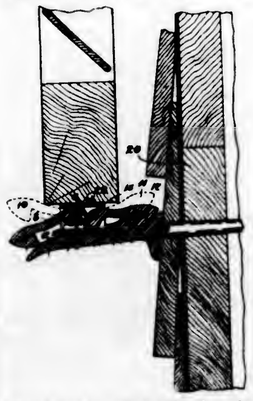
4. In a plow-fender, a body-plate arranged for attachment to a plow-beam and having outwardly-extending upper and lower members, the lower member being provided with a lug, a rod having a shank mounted in said members, a plate adjustably secured to said lug and formed with an elongated slot receiving said rod, and a spring coiled around said shank and tending to hold said rod at one end of said slot, as set forth.

5. In a plow-fender, a support adapted for attachment to a plow-

beam at the land side face thereof, a resilient rod adjustably carried by the said support, said rod comprising a shank-section, a horizontal section terminating in a coil, an intermediate curved section adapted to extend beneath a plow-beam in direction of the working side thereof, and a drag-section adapted to be located adjacent to the land side of the plow, and means for adjusting the said rod, as described.

6. In a plow-fender, a body-plate arranged for attachment to a plow-beam, and a rod attached to said body-plate, the said rod being adjustable laterally on said plate and spring-pressed in one direction, as set forth.

644,876. SHUTTER-FASTENER. WILLIAM H. SWIFT, Revere, Mass. Filed Sept. 23, 1899. Serial No. 731,932. (No model.)



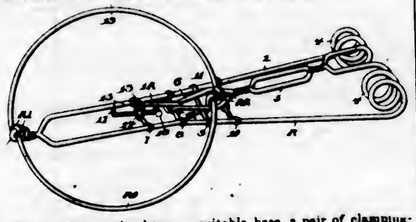
Claim.—1. In a blind fast and lock, a bracket adapted to be fastened to a blind; a catch adapted to be fastened to a window-stool; a recess in one of said parts and a projection upon the other of said parts, formed to engage said recess and lock said blind against vertical displacement in both directions, up and down.

2. In a blind fast and lock, a bracket adapted to be fastened to a blind, a catch adapted to be fastened to the wall of a house, a recess in one of said parts and a projection upon the other of said parts formed to engage said recess and lock said blind against vertical displacement in both directions, up and down.

3. In a blind fast and lock, a bracket adapted to be fastened to a blind, a catch adapted to be fastened to a window-stool, a recess in one of said parts, and a projection upon the other of said parts formed to engage said recess and lock said blind against vertical displacement in both directions, up and down, in combination with two catch-levers pivoted to said bracket, one of said catch-levers adapted to engage said catch.

4. In a blind fast and lock, a bracket adapted to be fastened to a blind, a catch adapted to be fastened to the wall of a house, a recess in one of said parts, and a projection upon the other of said parts formed to engage said recess and lock said blind against vertical displacement in both directions, up and down, in combination with two catch-levers pivoted to said bracket, one of said catch-levers adapted to engage said catch.

644,877. ANIMAL-TRAP. JOHN H. THEURET, Pittsburg, Pa. Filed Dec. 12, 1899. Serial No. 740,079. (No model.)



Claim.—In an animal-trap, a suitable base, a pair of clamping-jaws suitably connected thereto, a catch-plate 13 pivotally connected to the said base and provided with a pair of openings, a bait-hook secured in the said catch-plate, a fastening-arm pivotally connected to said base and adapted to engage in one of the said openings of the catch-plate and also adapted to be operated by the said bait-hook, a spring-actuated operating-arm connected to said base and adapted to be retained in an inoperative position by said fastening-arm and when released therefrom by means of the bait-hook is adapted to operate said clamping-jaws.

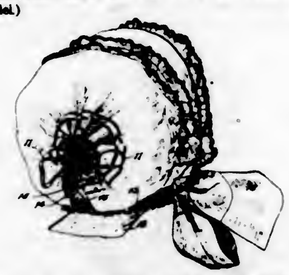
644,878. OFFICE-DOOR MESSAGE-BOX. GEORGE E. TOMS, Vancouver, Canada. Filed Oct. 11, 1899. Serial No. 733,312. (No model.)



Claim.—1. In a device for the purposes set forth having a closable box with an upper side having an opening for exposing the writing material an inclined table under said opening, in combination with a drum 12 for the writing material, having flanges thereon supporting the lower side of the said table, conveying-rolls 14 and 15 located at the upper side of the table arranged to receive the paper therebetween, a rack-and-pawl mechanism to prevent the rolls from being turned backward, and a slot 21 in the rear end of the box for allowing the paper to pass through a door, as specified.

2. In combination with a box of the class described having a drum 12 provided with flanges on opposite ends for holding the paper, a hinged cover designed to open outwardly, an opening 9 in said cover, an inclined table 10 lying beneath said opening with its lower side resting on the flanges of the drum 12, rolls 14 and 15 located at the upper side of said table, means for turning said rolls forward only, and a slot 21 in the back of the box for the passage of the paper.

644,879. APPAREL-CAP. BENJAMIN VENDIG and ALEXANDER SCHIFF, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,802. (No model.)



Claim.—As a new article of manufacture, the herein-described flat piece of fabric having parallel side edges, one of which is adapted to form the front edge of a cap and the other of which is provided with a drawing-string whereby it may be gathered together to form the central rear portion of the cap, and the said fabric being further provided with end edges which are inclined from their middle inwardly toward each side edge, these inclined portions which extend toward the side edge containing the drawing-string being provided with devices whereby they may be fastened together to form the rear lower portion of the cap, as set forth.

644,880. SWEEPER. ALBIN VOGELS, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,665. (No model.)

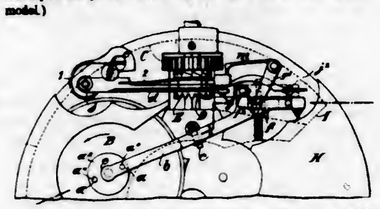
Claim.—1. A sweeper for vehicle-wheels, comprising a frame, a brush mounted thereon, and a friction-wheel mounted on the frame to engage the inner surface of the rim of the vehicle-wheel and frictionally driven thereby and connected with the brush, to drive the same.

2. A sweeper for vehicles, the sweeper comprising a frame mounted on the vehicle and having movable sections, a brush mounted on the movable sections, a friction-wheel also mounted on one of the movable sections and connected with the brush to drive the same, the friction-wheel being adapted to engage the inner side of the rim of one of the bicycle-wheels, to be driven thereby, and means for moving said movable sections of the frame to engage and disengage said friction-wheel and its driving member.



3. A sweeper for bicycles, the sweeper comprising clamps adapted to be attached to the bicycle-frame, frame-bars carried by the clamps and formed in slidable sections, means for sliding the sections for the purpose described, a brush carried by the outer frame-bars, and a friction-wheel also carried by the outer frame-bars and geared with the brush to drive the same, the friction-wheel being adapted to be engaged with the bicycle-wheel and to be driven thereby.

644,881. STEM-WINDING WATCH. REINHARDT VOSSELER, Bonnheim, Germany, assignor of two-thirds to Adolf Reisser and Sebastian Schimpf, same place. Filed Aug. 2, 1899. Serial No. 725,887. (No model.)



Claim.—In a device for the purpose set forth, the combination with the spring-barrel and its shaft, the latter having in it an axial bore with a left-hand screw-thread, a screw screwed into said bore, means for preventing the rotation of said screw with said shaft, a pivotally-mounted bar *b*, adjustable by the said screw, and provided with screws *p* and *q*, a disconnecting spring-lever *d*, the spring *m* bearing thereagainst, means between the screw *q* and the spring *m* whereby the latter is put under tension by the winding up of the mainspring, the rocking lever *g*, on one arm of which the screw *p* bears, the spring *k* of said lever, the two beveled stop-pins *j* and *j*^{3}, slidably mounted in the plate H with their bevels facing in opposite directions, said pins being loosely mounted in the respective ends of the lever *g* and the springs which bear on the heads of said pins, substantially as set forth.

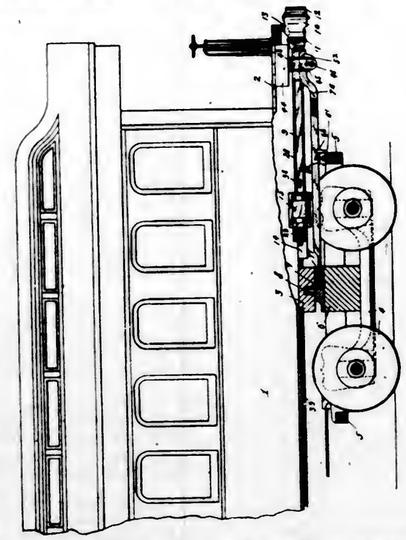
644,882. DRAFT-RIGGING FOR CARS. EDWIN C. WARBURN, Minneapolis, Minn. Filed Dec. 9, 1899. Serial No. 699,726. (No model.)

Claim.—1. The combination with a car, of a draft-rigging comprising a draft-bar mounted with freedom for lateral movements with respect to the car-body, and a yielding connection such as a spring, between said draft-bar and the adjacent truck-frame, the arrangement being such that lateral strains on the said draft-bar in traveling curves will draw the advance end of the truck toward the center of the arc being traveled.

2. The combination with a car, of a draft rigging comprising a draft-bar mounted with freedom for lateral pivotal movements with respect to the car-body, a coupler-head pivoted to the end of said draft-bar, and a yielding connection, such as a spring, between said draft-bar and the adjacent truck-frame, said parts operating substantially as and for the purposes set forth.

3. The combination with a car, of a draft-rigging comprising a draft-bar mounted on the car-body with freedom for lateral movements, an intermediate lever pivoted to one of the truck-frames and subject to the action of said draft-bar, and a yielding connection between said lever and the truck-frame, substantially as described.

4. The combination with a car, of a draft-rigging comprising draft-bars mounted on the car-body, with freedom for lateral movements, cooperating intermediate levers pivoted to the truck-frames near their pintle, and spring devices yieldingly connecting the outer ends of the truck-frames with the intermediate portions of the cooperating levers, substantially as described.



5. The combination with a car, of a draft-rigging comprising a draft-bar mounted on the car-body with freedom for lateral movement, and a spring connection between said draft-bar and the adjacent truck-frame arranged to be thrown out of action at will, substantially as described.

6. The combination with a car, of a draft-rigging comprising a draft-bar mounted on said car-body, with freedom for lateral movements, and a spring device acting on said draft-bar to yieldingly hold the same in its normal position, a lock for said spring device releasable at will and arranged to be reset by a return movement to normal position of said draft-bar, substantially as described.

7. In a draft-rigging, for cars, the combination with a laterally-movable draft-bar, of a spring device acting thereon, consisting of a sliding bracket, a sliding bolt, a spring reacting against said bracket and said bolt, a lock for securing said bolt and means for releasing said lock at will and setting the same subject to the action of said bolt, whereby the movement to normal position of the said bolt will relock the said bolt, substantially as described.

8. In a draft-rigging for cars, the combination with a laterally-movable draft-bar, of a spring device acting thereon comprising a sliding bolt, a sliding bracket having depending perforated lugs, the pair of loose and headed thimbles loose on said bolt and passed through said perforated lugs, the fixed stops on said bolt, the spring acting on said thimbles and pressing the same against said fixed stops, the spring-pressed lock-pin engageable with a seat or perforation in said bolt to lock the same and adapted to be released at will, substantially as described.

9. In a draft-rigging for cars, the combination with a laterally-movable draft-bar, of a spring-device acting thereon comprising the sliding bolt having the pair of fixed stops, the longitudinal groove and lock-pin seat, the sliding bracket, a spring, the pair of loose and headed thimbles cooperating with said bracket and normally pressed against said fixed stops by said spring, the spring-pressed lock-pin cooperating with the said longitudinal groove and pin-seat, and a detent with which said lock-pin is engageable to hold it inoperative, said parts operating substantially as described.

10. The combination with a car, of a laterally-movable draft-bar and a pair of spring devices acting on said draft-bar, the one forming a yielding connection between the same and the body of the car, and the other forming a yielding connection between the same and the adjacent truck-frame, substantially as described.

11. The combination with a car, of a laterally-movable draft-bar suitably connected to said car, and a pair of spring devices acting on said draft-bar transversely thereof and tending to hold the same in an intermediate position, one of said spring devices forming a yielding connection between said draft-bar and the body of the car, and

the other between said draft-bar and the adjacent truck-frame substantially as described.

12. The combination with a car, of a laterally-movable draft-bar suitably connected thereto, a pair of spring devices acting on said draft-bar, the one constituting a yielding connection between the same and the body of the car, and the other constituting a yielding connection between the same and the adjacent truck-frame, and means for rendering the said two spring devices independently operative and inoperative at will, substantially as described.

13. The combination with a car, of a laterally-movable draft-bar suitably connected thereto, a lever or intermediate bar pivotally connected to the truck-frame in the vicinity of its pintle, and acting on said draft-bar at its free or outer end, and a pair of spring devices acting directly on said pivoted lever, the one constituting a yielding connection between the same and the body of the car, and the other constituting a yielding connection between the same and the outer end of the adjacent truck-frame, substantially as described.

14. The combination with a car having the ordinary or suitable trucks pivoted thereto, of connections between said trucks whereby, in traveling curves, the pivotal movements of the one truck, will tend to produce corresponding movements of the other truck in the same direction.

15. The combination with a car, of a draft-rigging comprising laterally-movable draft-bars with connections between the same and the car-trucks, and connections between said trucks whereby lateral movements of one of the said draft-bars will tend to produce corresponding movements of both of said trucks, substantially as and for the purposes set forth.

16. The combination with a car, of a draft-rigging comprising laterally-movable draft-bars normally under spring tension to assume intermediate positions, yielding connections between said draft-bars and the adjacent truck-frames, and connections between the sides of the truck-frames of the car, said parts operating substantially as and for the purposes set forth.

17. The combination with a car, of a draft-rigging comprising laterally-movable draft-bars yieldingly held in intermediate positions transversely of the car-body, yielding connections between said draft-bars and the adjacent truck-frames, means for rendering said latter yielding connection operative and inoperative at will, and connections between the said two truck-frames, whereby the pivotal movement of one truck is transmitted to the other, substantially as described.

18. The combination with a car having pivotally-connected trucks, of yielding connections between the two truck-frames, the arrangement being such that the pivotal movement of one truck-frame will tend to produce corresponding movements of the other truck in the same direction, substantially as described.

19. The combination with a car having pivoted trucks, of connections between the corresponding sides of the two truck-frames, which connections consist of the tension-rods, the seats or pockets for connecting the same to said truck-frames, and the springs applied between said tension-rods and seats or pockets, substantially as and for the purposes set forth.

20. In a draft-rigging, the combination with a draft-bar, a draft box or lug device and followers, of a coiled spring compressed between said followers, and a loose core or stop within said coiled spring of less length than the normal distance between said followers, substantially as described.

21. A draft-box having integrally-formed sides and top and a removable bottom section and provided with an inward pocket or cylindrical section for the secondary spring device, substantially as described.

22. An integrally-formed draft-box comprising the sides, top and cylindrical pocket, in combination with the removable bottom having ledges or flanges adapted to support the followers, substantially as described.

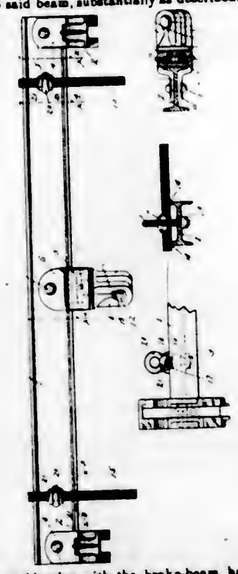
23. The combination with a draft-box provided with draft-lugs, of bolts for securing the same to the draft-timbers, said bolts being passed through perforations in the sides of said draft-box and having their heads located adjacent to certain of said draft-lugs, whereby they are prevented from turning, substantially as described.

24. The combination with cars, of draft connections connecting the same and arranged to guide the car-trucks in the same direction, in traveling curves.

25. A continuous draft-rigging for cars, comprising draft-bars having attached yokes or spring-pockets, equalizing-bars applied to said draft-bars, connections between the said equalizing-bars, and spring connections between said draft-bars and the car-body, arranged to receive both bumping and draft strains, substantially as described.

644,883. BRAKE-BEAM. EDWIN C. WASHBURN, Minneapolis, Minn. Filed Jan. 16, 1899. Serial No. 702,232. (No model.)

Claim.—1. The combination with a brake-beam having a pair of longitudinal flanges projecting from the side thereof, of a guide-rod having notched engagements with both of said flanges, and a draw-bolt engaging said guide-rod between said flanges and clamping the same to said beam, substantially as described.



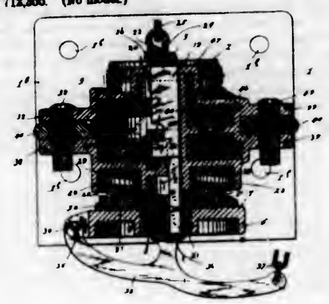
2. The combination with the brake-beam, having longitudinal flanges that are notched as at 17 of the guide-rods 15, notched as at 16 for engagement with said notches 17, and the eyebolt 18 embracing said guide-rod 15, passed through said brake-beam and provided with a nut 19, said parts operating substantially as and for the purposes set forth.

3. The combination with a brake-beam, of the reversible lever-bracket 9 having the ears 8 and headed swiveled stud or projection 10, and the socket-section 3 cast around said stud or projection to form a swivel-joint and provided with integrally-cast clamping-jaws for rigidly securing it to the said brake-beam, substantially as described.

4. The combination with a brake-beam, of a reversible lever-bracket formed in two sections, one having a headed stud or projection, and the other being cast around said stud or projection, and a bolt or pin engaging the said stud or projection and its seat for preventing swivel movements of the parts, substantially as described.

5. The combination with a brake-beam, having longitudinal flanges, of the guide-rod 15 having notched engagements with both flanges of said beam, and the eyebolt 18 engaging said guide-rod and securing the same to said brake-beam, the said eyebolt being provided with the integrally-formed extension eye 20, the latter adapting the beam to be hung from an inside hanger, substantially as described.

644,884. DRAFT-RIGGING FOR ENGINES AND TENDERS. EDWIN C. WASHBURN, Minneapolis, Minn. Filed Apr. 10, 1899. Serial No. 712,355. (No model.)



Claim.—1. The combination with a coupler pivoted for lateral movements, of means for primarily securing the same to a car or tender, and a secondary or emergency connection for rendering the said coupler operative when the primary connection is disabled, substantially as described.

2. The combination with a coupler pivoted for lateral movements, and means for primarily securing the same to a car or tender, of a pair of link connections connecting the sides of said coupler to the said car or tender, said links normally permitting the free lateral oscillations of said coupler, but adapted to serve as an emergency connection, substantially as described.

3. The combination with a draft-bracket, of a coupler pivotally secured thereto, and secondary or emergency connections between the said coupler and bracket, said secondary connections being arranged to normally permit the lateral oscillation of said coupler, substantially as described.

4. The combination with a draft-bracket and coupler pivoted thereto, of link connections between the sides of said coupler and said draft-bracket, said links serving as secondary or emergency connections, substantially as described.

5. The combination with a draft-bracket having the draft-lugs 2 and the pairs of draft-lugs 4, of the coupler pivotally connected to said draft-lugs 2 by the pin or bolt 3, and provided with the laterally-projected pairs of lugs or ears 38, and the links 40 connected to the corresponding pairs of ears or lugs 4 and 38, by means of the pins or bolts 5 and 39 respectively, substantially as described.

6. The combination with a draft-bracket and the coupler pivoted thereto, of a pair of springs applied between said bracket and said coupler on the opposite sides of its center, for yieldingly holding said coupler upward, substantially as described.

7. The combination with a draft-bracket having the projected supporting-arms 6, of the spring-base or chafing-plate movable over said supporting-arms 6, a coupler pivotally connected to said draft-bracket, and one or more springs applied between said spring-base and said coupler, substantially as described.

8. The combination with a draft-bracket provided with supporting-arms 6 with bearing-surfaces 7, of the spring-base or chafing-plate 30 with bosses 31 working on said surface 7, the coupler pivoted to said draft-bracket and provided with the spring seats or sockets 28, and the pair of springs 29 engaging the said seats 28 and working over said bosses 31, substantially as described.

9. The combination with a draft-bracket, of a coupler pivoted thereto and provided with a locking dog or pin with depending lower end, and the pin-lifting lever 33 pivoted to said bracket and provided with the extended shelf or pin-lifting section 36, substantially as and for the purposes set forth.

10. The combination with a draft-bracket provided with the supporting-arm 6 with elongated perforation 8, of the coupler pivoted to said draft-bracket and provided with a locking dog or pin having a depending end that works through said perforation 8, and a lifting-lever working below said supporting-arm 6 and operating on said dog or pin to lift the same, substantially as described.

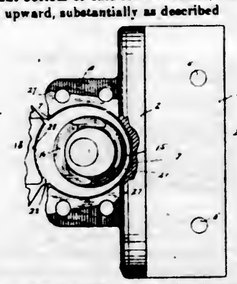
11. The combination with a draft-bracket having the supporting-arms 6 with bearing-surface 7 and perforation 8, of the spring-base or chafing-plate 30 with bosses 31 and elongated perforation 2, the coupler pivoted to said draft-bracket and provided with a locking dog or pin with depending lower end working through said perforations 8 and 32, the pin-lifting lever pivoted to said supporting-arm 6 and having the extended shelf or section 36 for engagement with said locking pin or dog, and the springs 29 applied between said coupler and said spring base 30, substantially as described.

12. The combination with the draft-bracket having the draft-lugs 2 and supporting-arms 6 with surface 7 and perforation 8, of the coupler having the lugs or flanges 11 and spring seats or sockets 28, the pin or bolt 3 pivotally connecting said parts 2 and 11, the spring-base or chafing-plate 30 working on said surface 7 and provided with bosses 31 and perforation 32, the springs 29 in said sockets 28 engaging around said bosses 31, the locking-dog 19, the depending stem 21, and the lifting-lever 33 pivoted to said arms 6 and provided with the shelf or extended surface 36 engaging said stem 21 to lift the dog, substantially as described.

644,885. DRAFT-RIGGING FOR ENGINES AND TENDERS. EDWIN C. WASHBURN, Minneapolis, Minn. Filed May 1, 1899. Serial No. 715,097. (No model.)

Claim.—1. The combination with a coupler, of a support to which it is attached, one of which parts has a bearing-head with flat upper and lower surfaces and contracted neck portion, and the other of which has a segmental bearing seat or socket extended and engaging said bearing-head throughout more than one hundred and eighty degrees, said seat or socket having a flat lower surface against which the said head portion is pressed to hold the coupler upward, substantially as described.

2. The combination with a coupler and a support to which it is attached, said coupler having a bearing-head connected thereto by a contracted neck portion and formed with flat upper and lower surfaces, and said support having a correspondingly-formed seat or socket engaging said bearing-head throughout more than one hundred and eighty degrees, of a spring device applied to the upper surface of said bearing-head for holding the flat under surface of said bearing-head against the flat bottom of said seat or socket, whereby the coupler-head is held upward, substantially as described



3. The combination with a coupler-head provided with a projecting bearing-head, of a bearing-bracket or support provided with a seat or socket receiving the said bearing-head and supporting the same, and a spring applied to force the said bearing-head downward into engagement with the bottom of said seat or socket and thereby to hold the coupler-head upward, substantially as described.

4. The combination with a coupler-head provided with a projecting bearing-head connected therewith by a contracted neck portion, of a bearing-bracket or support provided with a seat or socket fitting the said bearing-head and extending throughout more than one hundred and eighty degrees, and a spring applied between the said bearing-head and said bracket or support tending to hold the forward end of the coupler upward, substantially as described.

5. The combination with the coupler 18 formed with the bearing-head 21 connected therewith by the neck 22, of the bearing-bracket having the block 4 with segmental bearing-seats 7 fitting the said bearing-head 21, the removable retaining-plate 8 formed with the spring-seat 14, and the spring 15 in the said seat 14 engaging the said bearing-head 21, for holding said coupler-head upward, substantially as described.

6. The combination with a coupler, of a support to which it is attached, one of said parts having a bearing-head connected thereto and provided with flat under and upper surfaces, and the other of said parts having a flat supporting-surface upon which said bearing-head is mounted, a removable top plate or bar securable over the upper surface of said bearing-head by means of draw-bolts, and a spring seated against said top plate or bar and engageable with the upper surface of said bearing-head, substantially as described.

7. The combination with a coupler provided with a projecting bearing-head connected thereto by a contracted neck portion, of a bearing-bracket or support provided with a seat or socket engaging the said bearing-head through more than one hundred and eighty degrees, a pivot-bolt passed axially through said socket and bearing-head, and a coiled spring surrounding said bolt with its axis eccentric to the axis thereof, said spring acting to hold upward the outward end of the coupler, substantially as described.

8. A coupler-head formed with the bearing-head 21 connected to the body thereof by the neck 22, said neck and head being formed hollow and provided with the vertical thimble 23 connecting the upper and lower walls thereof, and the horizontally-extended web 24 connecting the intermediate portion of the said thimble 23 with the side walls of said head and neck portions, substantially as described.

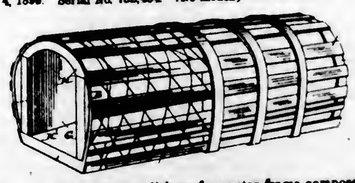
9. The combination with the coupler-head provided with the bearing head or projection, and a draft-bracket or support having a seat or socket in which said bearing-head is mounted, of a retaining plate or bar engaging the walls of the said seat or socket and arranged to strain the same together when drawn outward, and a bolt passed through said retaining-plate and said bearing-head for pivotally connecting them, substantially as described.

10. The combination with the coupler-head formed with the bearing-head 21 and neck 22, of the draft-bracket having the block portion 4 formed with the seat or socket 7 and with the flaring ledges or shoulders 27, the retaining-plate 8 formed with the flaring ledges or shoulders 26 cooperating with said shoulders 27, bolts connecting the said plate to said block, and a pivot-bolt passed through the said plate 8 and the said head 21, the said parts operating substantially as described.

11. The combination with a coupler provided with a projecting bearing-head connected thereto by a contracted neck portion, of a

bearing-bracket or support provided with a seat or socket engaging the said bearing-head through more than one hundred and eighty degrees, a pivot-bolt passed axially through said socket and bearing-head, and a coiled spring surrounding the said bolt and acting upon the said bearing-head to hold the outer end of the coupler upward, substantially as described.

644,886. **FISH-TRAP.** JOHN W. WATTS, Springfield, Ill. Filed Oct. 4, 1899. Serial No. 732,484. (No model.)

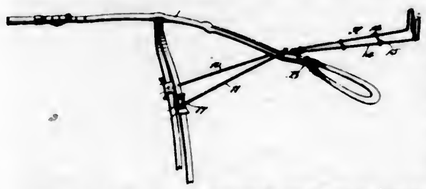


Claim.—1. A fish-trap consisting of an outer frame composed of end pieces with longitudinally-extending bottom, side, and top pieces secured thereto, an inner frame in one end of said outer frame secured to upper and lower cross-pieces connected with one of said end pieces, and a netting closing the opposite end of said first outer frame, said inner frame having side pieces with upper and lower pivoted gates thereon, substantially as described.

2. A fish-trap consisting of a frame of end pieces having secured to the outer faces longitudinal bottom, side, and top pieces, an inner frame secured by cross-pieces to said end pieces, said inner frame having side pieces forming bearings for pivoted flaps normally closing at their inner ends, and wire-netting forming the opposite end of the trap from said gate-entrance, substantially as described.

3. A fish-net consisting of an outer frame having substantially a flat bottom and curved top and sides, an inner frame secured in one end of said outer frame and provided with side pieces normally sustaining end portions of said top pieces, and forming bearings for pivoted flaps normally closing at their inner ends, and a wire-netting forming an end for said trap opposite the entrance end thereof, substantially as set forth.

644,887. **REIN-GUARD.** JOHN T. WEST, Bowling Green, Ky. Filed Aug. 19, 1899. Serial No. 727,789. (No model.)



Claim.—1. A rein-supporter adapted for attachment to a harness, and consisting of a frame provided with rein-guides at its rear end and arms at its forward end, the forward ends of the said arms being constructed for engagement with the harness, and a fastening-pin carried by the frame at each side and adapted to engage sockets or eyes on the harness substantially as described.

2. A rein-supporter consisting of a frame having rein-guides at its rear end and forwardly-extending arms at its forward end, the forward portions of said arms being bent to form a hook or pin adapted to engage the harness and a fastening device comprising an approximately-horizontal pin carried at each side of the body of the frame the ends of the said arms and the horizontal pins being arranged for detachable connection with a harness, substantially as set forth.

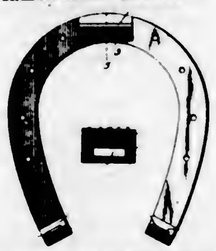
3. A rein-supporter adapted for attachment to the straps of a harness and comprising a frame having a body portion provided with vertical guide-fingers at its rear end and diverging arms at its forward end, and cross-bars connecting the sides of the body portion of the frame, each side of the body portion of the frame at the forward end being provided at its inner face with a forwardly-extending and substantially-horizontal pin, and the forward ends of the said arms each having an upwardly-extending member, for the purpose set forth.

1. The combination, with the strap to which the crupper is attached, the said strap being provided with sockets, and the hip-strap of a harness, of a rein-supporter consisting of a frame provided with rein-guides at its rear end and forwardly-extending arms at its forward end, the said arms having a downward inclination, which arms diverge at their forward portions, each arm being provided with means for attachment to the hip-strap, and fastening devices carried by the frame, adapted to enter the said sockets for the purpose set forth.

5. A rein-supporter adapted for attachment to the straps of a harness, and comprising a frame having a body portion provided with vertical guide-fingers at its rear end and arms at its forward end, cross-bars connecting the sides of the body portion of the frame, each side of the body portion of the frame at the forward end being provided with an approximately-horizontal pin and the forward ends of the said arms each having an approximately-right-angle bend, substantially as described.

6. The combination with the straps to which the crupper is attached, the said straps being provided with sockets and the hip and back straps of the harness, of a rein-supporter consisting of a skeleton frame provided with rein-guides at its rear end and forwardly-extending arms at its forward end, the said arms being provided with means for attachment to the harness, and fastening devices carried by the body of the frame at each side thereof and adapted to enter the said sockets for the purpose set forth.

644,888. **HORSESHOE.** NILS M. WIG, Alexandria, Minn. Filed Feb. 9, 1899. Serial No. 705,074. (No model.)



Claim.—1. As a new article of manufacture, a horseshoe comprising a cast-metal body, and slotted hardened calks each having the slotted portion thereof embedded in and united permanently to the cast-metal body by the fluid metal filling the slot of the calk during the casting of the shoe, each calk protruding from the shoe-body and also presenting exposed wearing-surfaces adapted to be worn away uniformly with the body of the shoe, as set forth.

2. As a new article of manufacture, a horseshoe comprising a cast-metal body, and hardened calks each having a slotted base portion embedded in the body and united permanently thereto by a tongue of the body formed by the fluid metal filling the calk-slot during the process of casting the shoe, the embedded part of the calk and the tongue therefor adapted to wear uniformly with the cast body, said tongue serving during wear of the shoe and the calk to hold the latter permanently to the shoe, as set forth.

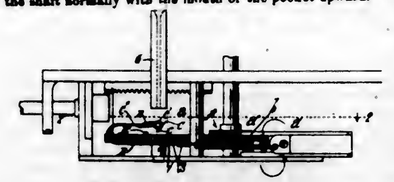
3. As a new article of manufacture, a horseshoe comprising a cast-metal body, hardened calks embedded in said body and each having a protruding wearing-surface which is beveled transversely in opposite directions, and the row of hardened pins embedded in each calk and projecting beyond the crest formed by the beveled surfaces thereof, substantially as described.

4. As a new article of manufacture, a horseshoe comprising a cast-metal body, the hardened calks each having a slotted end embedded in the body for union permanently therewith by an integral tongue formed by the fluid metal filling the slot during the process of casting the body and each calk furthermore provided with a crested wearing-face which protrudes beyond the body, and a row of hardened pins embedded in each calk and projecting beyond the crest thereof, substantially as described.

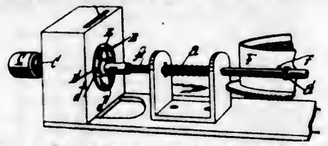
644,889. **COIN-OPERATED MECHANISM.** JOSEPH L. WILSON, Los Angeles, Cal., assignor to the Symphonion Manufacturing Company, New York, N. Y. Filed May 1, 1899. Serial No. 715,196. (No model.)

Claim.—1. In a coin-actuated machine, the combination of a spring-actuated wheel provided with a socket and with a projecting pin; an escapement operatively connected with the wheel; a pivoted lever to normally stop the escapement, and provided with a stop to seat in the socket; means to hold the lever to normally keep the stop in the socket; a shaft journaled to the lever radially of the wheel and provided with a coin-pocket and with a trip to stand in the path of the said projecting pin to be actuated thereby to turn the shaft to tilt the pocket; and means for normally holding the shaft in position with the pocket upright.

2. In a coin-actuated machine, the combination of a bent escapement-stopping lever provided on its lower limb with an upwardly-projecting stop-pin; a wheel connected with the escapement and provided on its under side with a socket for the stop-pin and on its upper side with an upwardly-projecting pin; a shaft journaled in the upper limb of the lever radially of the wheel and provided with a coin-pocket and with a trip in the path of the projecting pin to be operated thereby to turn the shaft to tilt the pocket; and means to hold the shaft normally with the mouth of the pocket upward.



644,890. **ESCAPEMENT-RELEASING MECHANISM FOR COIN-OPERATED MACHINES.** JOSEPH L. WILSON, Los Angeles, Cal., assignor to the Symphonion Manufacturing Company, New York, N. Y. Filed May 11, 1899. Serial No. 716,453. (No model.)

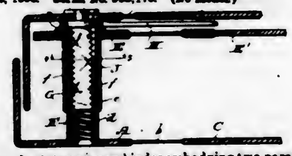


Claim.—1. The combination with the escapement-releasing rod, the disk-pocket, and the socketed push-button, of disk-holding springs extending from the pocket toward the rod and forming a guide to guide a push-button-operated disk into engagement with the rod; the outer portions of said springs normally extending into the path of the disk to prevent the return of the disk to the pocket after it has been forced out.

2. The combination with the chute and the pocket arranged below the chute, of springs arranged in the pocket extending along opposite sides thereof across the extended plane of the chute to receive between them a coin from the chute, the side springs normally standing with a space between them less than the diameter of the coin with which the machine is to be operated so that when the coin is dropped into the machine said side springs will be spread apart substantially as set forth.

3. The combination with the escapement-releasing rod, the disk-pocket and the socketed push-button; of disk-holding spring-tongues extending from the pocket toward the escapement-releasing rod and bent toward each other in an S form and extending outside the pocket, the space between the springs being normally less than the diameter of the coin or other disk by which the machine is to be operated and the springs being arranged with a bend of the S coinciding with the downward extension of the chute to receive the coin in said bend, and an inward bend of the S of each spring being outside the pocket.

644,891. **TEMPORARY BINDER.** JAMES R. WOODWORTH, Milwaukee, Wis.; Hattie R. Woodworth, administratrix of said James R. Woodworth, deceased, assignor to Meta C. Baker, Chicago, Ill. Filed Mar. 22, 1898. Serial No. 675,178. (No model.)



Claim.—1. A temporary binder embodying two parallel strips of suitable material, combined with a telescopic joint consisting of a hollow section having a corrugated surface within its bore longitudinally thereof but non-continuous around the same, and another section having an exterior corrugated surface that comes in or out of mesh with the one aforesaid when said joint-sections are engaged and one of them partially rotated.

2. A temporary binder embodying two parallel strips of suitable material, combined with a telescopic joint consisting of a hollow section the bore of which presents alternate channels and corrugated surfaces lengthwise thereof, and another section having corrugated surfaces that come within the channels of the former section to permit engagement or disengagement of both sections, but which mesh with the aforesaid corrugated surfaces to maintain the joint; this meshing being attained by partial rotation of one of said sections.

3. A temporary binder embodying two parallel strips of suitable material, combined with a telescopic joint consisting of a hollow section having a corrugated surface within its bore longitudinally thereof but non-continuous around the same, and another section having an exterior corrugated surface that comes in and out of mesh with the one aforesaid when both joint-sections are engaged; together with a lever-arm connected to one of said joint-sections, the latter being rotative upon the other.

4. A temporary binder embodying two parallel strips of suitable material, combined with a telescopic joint consisting of a hollow section having a corrugated surface within its bore longitudinally thereof but non-continuous around the same, and another section having an exterior corrugated surface that comes in or out of mesh with the one aforesaid when both joint-sections are engaged and one of them partially rotated; together with a sleeve that loosely engaging the outer joint-section serves as a shield for the inner one.

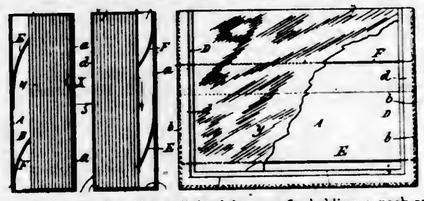
5. A temporary binder embodying two parallel strips of suitable material one of which is apertured, combined with a telescopic joint consisting of a hollow section having a corrugated surface within its bore longitudinally thereof but non-continuous around the same, another section having an exterior corrugated surface that comes in and out of mesh with the one aforesaid when both sections are engaged and one of them partially rotated, and a head on the rotative joint-section for passage through the apertured strip and opposition to its outer face.

6. A temporary binder embodying two parallel strips of suitable material one of which is apertured, combined with a telescopic joint consisting of a hollow section having a corrugated surface within its bore longitudinally thereof but non-continuous around the same, another section having an exterior corrugated surface that comes in and out of mesh with the one aforesaid when both sections are engaged and one of them partially rotated, a head on the rotative joint-section for passage through the apertured strip to be brought in opposition thereto, and a sleeve that loosely engaging the outer joint-section serves as a shield for the inner one.

7. A temporary binder embracing two parallel strips of suitable material one of which is apertured, in combination with a telescopic joint one section of which has rotative interlocking connection with the other, a head on the rotative joint-section for passage through the apertured strip to be brought into opposition thereto, a lever-arm connected to the rotative joint-section, and a sleeve that loosely engaging the outer joint-section serves as a shield for the inner one.

8. A temporary binder embodying two parallel strips of suitable material, combined with a telescopic joint consisting of sections that have sliding engagement and rotative interlocking connection.

644,892. **MAGAZINE PLATE-HOLDER.** ARTHUR L. ADAMS, London, England. Filed June 23, 1899. Serial No. 721,526. (No model.)



Claim.—1. A holder or light-tight case for holding a pack or series of flat sensitized surfaces for photographic purposes, consisting of an outer receptacle, and an inner receptacle adapted to fit and slide within said outer receptacle and to contain a pack of sensitized surfaces, said inner receptacle being removable from and adapted to be reversed and replaced in reversed position in said outer receptacle, substantially as set forth.

2. A holder or light-tight case for holding a pack or series of flat sensitized surfaces for photographic purposes, consisting of an outer receptacle, and an inner receptacle adapted to fit and slide within said outer receptacle and to contain a pack of sensitized surfaces, said inner receptacle being removable from and adapted to be replaced in reversed position in said outer receptacle, and means for pressing said sensitized surfaces toward a side of said inner receptacle, substantially as set forth.

3. A holder or light-tight case for holding a pack or series of flat sensitized surfaces for photographic purposes, consisting of an inner receptacle adapted to admit the sensitized surfaces thereto and permit their withdrawal therefrom, and having a permanently-closed

side parallel with said surfaces and an open side also parallel with said surfaces, a rabbet or rim at said open side for retaining the sensitized surfaces in the receptacle, means for pressing the sensitized surfaces toward the open side, and an outer receptacle provided with a permanently-closed side adapted to close the open side of the inner receptacle, said inner receptacle being removable from said outer receptacle and adapted to be inserted into the outer receptacle either with its open side opposed to said closed side of the outer receptacle or in reversed position therein, substantially as set forth.

4. A holder or light-tight case for holding a pack or series of flat sensitized surfaces for photographic purposes, consisting of an inner receptacle adapted to admit the sensitized surfaces thereto and permit their withdrawal therefrom, and having a permanently-closed side parallel with said surfaces and an open side also parallel with said surfaces, a rabbet or rim at said open side for retaining the sensitized surfaces in the receptacle, means for pressing the sensitized surfaces toward the open side, and an outer receptacle provided with a permanently-closed side adapted to close the open side of the inner receptacle, said inner receptacle being removable from said outer receptacle and adapted to be inserted into the same either with its open side opposed to said closed side of the outer receptacle, or in reversed position therein, said outer receptacle being provided at one side with a rabbet adapted to support one of said sensitized surfaces at the outside of the outer receptacle and opposite a closed side of the same, substantially as set forth.

644,893. PIPE-JOINT. CHESTER B. ALBREE, Allegheny, Pa. Filed Apr. 29, 1899. Serial No. 714,974. (No model.)

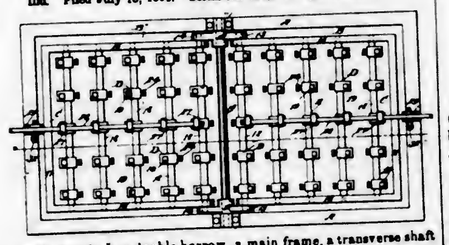


Claim.—1. As a packing device for a pipe-joint, a web arranged to extend rearwardly and obliquely from the joint at an angle to the pipe, and bear at its inner portion against packing, and means for drawing the outer portion of the web toward the middle of the joint; substantially as described.

2. As a packing device for a pipe-joint, webs arranged to extend outwardly and rearwardly from the joint and from each other at oblique angles to the pipe, and bear at their inner portions against packings, and means for drawing the outer portions of the webs toward each other; substantially as described.

3. As a packing device for a pipe-joint, a web arranged to extend rearwardly and obliquely from the joint at an angle to the pipe, and bear at its inner portion against a packing, a flange at the outer margin of the web, and bolts connected with the flange and adapted to draw the web toward the middle of the joint; substantially as described.

644,894. HARROW. WILLIAM M. BAKER, Fortville, Ind., assignor of one-half to Corydon M. Rich and James G. Thomas, Muncie, Ind. Filed July 15, 1899. Serial No. 723,903. (No model.)



Claim.—1. In a double harrow, a main frame, a transverse shaft mounted in said frame, oppositely-extending supports carried by said shaft, and oppositely-extending toothed frames pivotally connected with said supports.

2. In a double harrow, a main frame, a shaft mounted in said frame and provided with hubs each having two opposing side wings and oppositely-extending toothed frames located within the main frame and pivotally connected with the wings of the hubs.

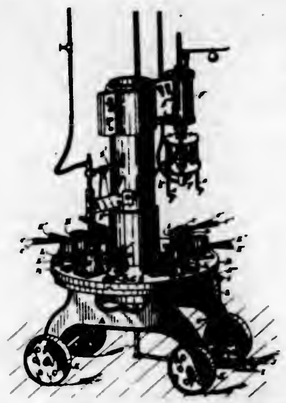
3. In a double harrow, a main frame, a shaft mounted in said frame and provided with hubs having opposing side wings, oppositely-extending harrow-frames located within the main frame and each provided with a series of supporting-bars journaled in the sides of the respective frames, the trunnions of the innermost supporting-bar of each harrow-frame extending beyond the sides of the frame and entering the respective wings of the hubs, a series of teeth carried by each of said bars, arms secured to the upper ends of corresponding teeth carried by said supporting-bars of each harrow-frame and a shifting bar for each harrow-frame pivotally connected with the upper portions of said arms and arranged to raise and lower the harrow-frames and control the inclination of the teeth.

4. In a harrow, the combination with a main frame, a harrow-frame pivoted at one end in the main frame, transverse supports pivoted in the sides of the harrow-frame and teeth secured to the said supports, of arms secured to the central teeth of said supports a shifting bar pivotally connected with the upper portions of said arms, a standard secured to the main frame and arranged to receive and guide the shifting bar, the said standard being provided with a series of apertures and the outer end of the shifting bar being likewise provided with a series of apertures each adapted to be brought into registry with either of the apertures in the standard and means for securing the parts in the adjusted position, whereby the longitudinal throw of the shifting bar and its vertical adjustment may be regulated.

5. In a harrow, a main frame, a shaft mounted in said frame and provided with hubs, wings extending from said hubs and a harrow-frame located within the main frame, and pivotally connected at one end with the wings of the hub.

6. In a harrow, a main frame, a harrow-frame located within the main frame, transverse supports journaled at their ends in the sides of the harrow-frame, the trunnions of the supports at one end of the harrow-frame extending beyond the sides of said harrow-frame and pivotally connected with the main frame, teeth secured to the transverse supports and a regulating device arranged to raise and lower the harrow-frame and control the inclination of the teeth of said frame.

644,895. GLASS BLOWING AND PRESSING MACHINE. EDMUND B. BALL, Muncie, Ind., assignor to the Ball Brothers Glass Manufacturing Company, same place. Filed Oct. 31, 1898. Serial No. 695,082. (No model.)



Claim.—1. In a glass-blowing machine, the combination with a table, of a blowing-mold on the table, and a pressing-mold supported by the table, positioned out of contact therewith and secured in place at adjustable distances therefrom.

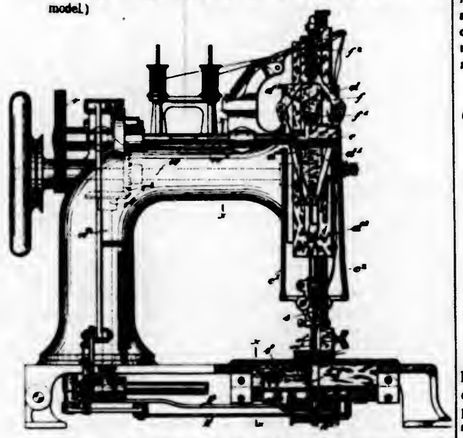
2. In a glass-blowing machine, the combination with a table, of a blowing-mold on the table, and a removable pressing-mold supported by the table, positioned out of contact therewith and secured in place at adjustable distances therefrom and located adjacent to the blowing-mold.

3. In a glass-blowing machine, the combination with a table, of a standard on the table, a screw-threaded portion on the standard, a pressing-mold having a screw-thread on its exterior, the screw-thread on the exterior of the mold adapted to engage the screw-threaded portion of the standard whereby the mold can be secured to and supported by the standard.

4. In a glass-blowing machine of the character described the combination with a rotary table carrying the blowing-mold, of a substantially U-shaped support on the table extending beyond the same, and a pressing-mold seated in the support beyond and out of contact with the table, substantially as described.

5. In a glass-blowing machine, of the character described, the combination with a metallic table and blowing instrumentalities, of a pressing-mold into which a heated body of glass is primarily inserted, a standard extending from the table and having a seat to which the mold is secured out of contact with the table thereby preventing the rapid passage of the heat from the mold to the table, means for shaping the glass in the mold, a blowing-mold and means for transferring the article from the pressing-mold to the blowing-mold, substantially as described.

644,896. HEMSTITCH SEWING-MACHINE. GEORG RAUH, Rorschach, Switzerland. Filed Nov. 10, 1897. Serial No. 657,994. (No model.)



Claim.—1. In a hemstitch sewing-machine, the combination, with the shuttle, two needles, each coöperating with the shuttle, and mechanism for feeding the fabric forward one step for each stitch, of a piercer and a shaper, said needles, piercer and shaper being arranged one behind the other in a line in the direction of the feed, the needles being arranged between the piercer and the shaper and each of the said elements being one or more stitch lengths apart from the adjacent element, substantially as set forth.

2. In a hemstitch sewing-machine, the combination, with the shuttle, two needles each coöperating with the shuttle, mechanism for feeding the fabric forward one step for each stitch, a piercer and a shaper, said needles, piercer and shaper being arranged one behind the other in a line in the direction of the feed, the needles being arranged between the piercer and the shaper and each of the said elements being one or more stitch lengths apart from the adjacent element, of means for laterally vibrating said needles whereby they may be set out of line so as to form the outer stitches of the hemholes, substantially as set forth.

3. In a hemstitch sewing-machine, the combination, with the shuttle, two needles each coöperating with the shuttle, mechanism for feeding the fabric forward one step for each stitch, a piercer and a shaper, said needles, piercer and shaper being arranged one behind the other in a line in the direction of the feed, the needles being arranged between the piercer and the shaper and each of the said elements being one or more stitch lengths apart from the adjacent element, of the presser-foot and stitch-plate, each provided with a separate hole for the piercer, shaper and needles, substantially as set forth.

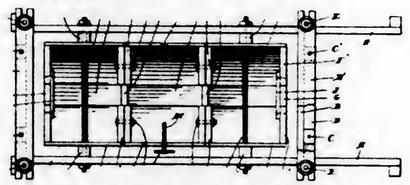
4. In a hemstitch sewing-machine, the combination with the needle-bar, two needles, each coöperating with a shuttle, a shaper, and mechanism for feeding the fabric forward one step for each stitch, of a piercer hinged to the needle-bar, said needles, shaper and piercer being arranged one behind the other in a line in the direction of the feed, one or more stitch lengths apart from each other and the needles being arranged between the piercer and shaper, substantially as set forth.

5. In a hemstitch sewing-machine, the combination with the needle-bar, two needles, each coöperating with a shuttle, a piercer, and mechanism for feeding the fabric forward one step for each stitch, of a shaper hinged to the needle-bar, said needles, piercer and shaper being arranged one behind the other in a line in the direction of the feed, one or more stitch lengths apart from each other, and the needles being arranged between the piercer and shaper, substantially as set forth.

6. In a hemstitch sewing-machine, the combination, with a piercer, a shaper, two needles each coöperating with a shuttle, and mechanism for feeding the fabric one step for each stitch, said needles, shaper and piercer being arranged one behind the other in a line in the direction of the feed, one or more stitch lengths apart from each other, and the needles being arranged between the piercer and the shaper, of a shifting mechanism connected with the needles whereby they may be laterally vibrated, an adjustable eccentric provided with a number of lifts for acting on said shifting mechanism, and means for adjusting or shifting said eccentric, substantially as set forth.

7. In a hemstitch sewing-machine, the combination with a piercer, a shaper, two needles each coöperating with a shuttle and mechanism for feeding the fabric one step for each stitch, said needles, shaper and piercer being arranged one behind the other in a line in the direction of the feed, one or more stitch lengths apart from each other, and the needles being arranged between the piercer and the shaper, of toggle-levers connected with the needles, and a vertical movable rod acting on said toggle-levers, whereby the needles may be laterally vibrated, substantially as set forth.

644,897. ADJUSTABLE MOLD FOR CEMENT TROUGHS. JEREMIAH BOLTON, Leslie, Mich. Filed Sept. 28, 1899. Serial No. 731,905. (No model.)



Claim.—1. The combination of side walls, an end wall adjustable longitudinally of the side walls, and an inner mold having transversely-divided and detachable sections to vary the length of the mold, and planks between the said sections to vary the width of the mold, substantially as described.

2. The combination of side walls, an end wall abutting against the side walls, clamping-bars embracing the side walls and connected to the end walls, and detachable bolts engaging the clamping-bars, substantially as described.

3. The combination of adjustably-connected side walls and end walls, and an inner mold composed of convex sections having heads attached in series by bolts, and detached planks of variable widths between the opposing sections, substantially as described.

4. The combination of outer side and end walls, and an inner mold composed of detachable sections having opposing indentations in their upper edges, and detached planks between the opposing sections, substantially as described.

5. The combination of side walls, end walls abutting against the same at right angles, clamping-bars removably connected to the end walls and embracing the side walls, detachable bolts engaging and binding the clamping-bars against the edges of the side walls, an inner mold composed of detachable convex sections having heads and detached planks between the opposing sections, substantially as described.

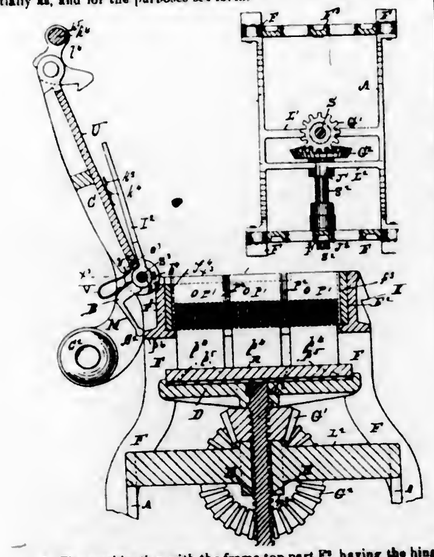
6. The combination of outer side and end walls, convex sections having heads and detachably connected, detached planks between the opposing sections, bolts passing through the side walls and supporting the opposing sections, and blocks between the side walls and sections, substantially as described.

7. The combination of side walls, end walls abutting against the side walls, clamping-bars embracing the side walls and end walls, pins detachably connecting the bars and end walls detachable bolts connecting the clamping-bars, convex sections having heads and connected by bolts and also having opposing indentations in the upper edge, detached planks between the opposing sections and heads, bolts passing through the side walls and also through the sections, and blocks between the side walls and sections, substantially as described.

644,898. MACHINE FOR ATTACHING COLOR SPECIMENS TO SAMPLE-CARDS. CHAUNCEY D. BRADY, Green Island, N. Y., assignor to Georgianna Bradt, same place. Filed Oct. 8, 1898. Serial No. 693,000. (No model.)

Claim.—1. The combination with the frame-top part F^3, having arranged therein the ticket-inclosures O, each provided with a piston p^4, arranged to rest upon a bed beneath the inclosures, said bed having an elastic upper part and a non-elastic lower part; of means substantially as described whereby said bed and pistons are operated to

move upwardly; a cover hinged to the frame part F^3, the horizontally-arranged rock-shaft S^3, constructed to journal in the hinged connection that said cover makes with the frame part; fingers I, adjustably connected to said rock-shaft; and the cranks B, B, arranged on said shaft, and each provided with the crank-arm M, the spring V, and the fingers I^3; constructed and arranged to be operated substantially as, and for the purposes set forth.



2. The combination with the frame-top part F^3, having the hinging-eyes c^3, at its rear corners, each provided with a hinging-pin H, secured thereon, and each having on its inner end a cone-form recess or bearing h^3; of the cover C, having the hinging-eyes c', c', each arranged to turn on one of said hinging-pins; the rock-shaft S^3, having the cone-form ends a^4, a^4, each adapted to journal in the inner end of one of each of said hinging-pins; said rock-shaft having the slot a^3, the collars i^3, provided with set-screws, and the fingers I; and the cranks B, B, attached to said rock-shaft, and each having the arm M, the spring V, and the finger I^3, constructed and arranged to be operated substantially as, and for the purposes set forth.

3. The combination with the frame-top part F^3, having at its rear corners the hinging-eyes c^3, provided with the hinging-pins H, and the front corners of said frame part having the latch-catches K, K; of the cover C, provided with the hinging-eyes c', c', each entered upon one of the hinging-pins H, and the latches l^4, pivoted to the cover at l^3, and intermediately-connected handle-bar h^4, constructed and arranged to operate substantially in the manner as and for the purposes set forth.

4. The combination with the frame-top part F^3, having arranged therein the ticket-inclosures O, each provided with a piston p^4, of the horizontally-arranged plate D, having the rubber R on its upper surface; means whereby said plate, the rubber and pistons resting thereon, may be moved upwardly and downwardly substantially as described; a cover hinged to said frame part at one side thereof; the horizontally-arranged rock-shaft S^3, constructed to journal in said hinged connection of cover and frame; and provided with the fingers I, adjustably connected thereto; and the cranks B, B, each having a crank-arm M, a finger I^3, and a spring V, constructed and arranged to be operated substantially as and for the purposes set forth.

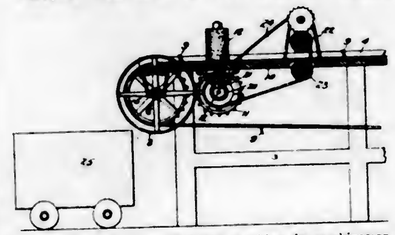
5. The combination with the frame-top part F^3, inclosing the rectangular interior E, having its inner end, and side faces vertically grooved at regular distances apart; of partitions P^3, having their upper side edges vertically slotted at regular intervals, and having each of their ends inserted in one of the oppositely-located end grooves; and the partitions P', having their lower edges vertically slotted at regular intervals, and having each of their ends entered in one of the oppositely-located side grooves, with the slotted parts of the partitions where rectangularly intersecting, each entered within the other to form the ticket-inclosures O, and a graduated scale upon the end and side walls of the inclosure at their tops, with said graduation registering with said grooves, whereby said partitions may be accurately located to form ticket-inclosures having desired areas, substantially as shown and described.

644,399. STORM-APRON FOR BUGGIES. ROBERT E. BRIER and WILLIAM E. CLARK, St. Louis, Mo. Filed Feb 16, 1899. Serial No. 706,987. (No model.)



Claim.—A storm-apron having its lower edge turned upward and inward and secured to form a hem along the lower edge of the apron, said hem being provided with a transverse slit at each side of the center of the apron, an elastic band having one end inserted in each of said slits, the inclosed ends extending toward each other, and a device closing each of said slits and securing the adjacent end of the band, said device consisting of two metal rings bridging the slit, one lying on the outside and the other on the inside of the apron and one being provided with prongs passing through the parts of the hem and the elastic band and engaging the other ring, substantially as described.

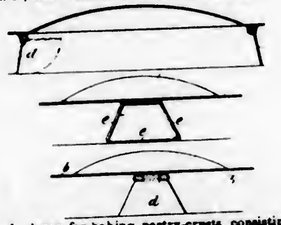
644,400. MACHINE FOR SCRUBBING OR WASHING MEATS. MAYNARD E. BROOKS, Chicago, Ill., assignor to the Swift & Company, same place. Filed Jan. 29, 1898. Serial No. 668,385. (No model.)



Claim.—1. In a meat-scrubbing machine, in combination with a frame supporting a shaft, a pulley mounted on said shaft, a carrier passed over said pulley at one end of the machine and consisting of an endless belt having arms projecting upward from the surface thereof, scrubbing devices adapted to act upon the meat, rotary cylinders of greater diameter than said pulley mounted on said shaft on opposite sides of said pulley and projecting above the ends of said arms, said cylinders being adapted to receive the meat from the carrier and to deliver the same, and means for rotating said cylinders in the direction of movement of said carrier, substantially as described.

2. In a meat-scrubbing machine, in combination with a frame supporting a shaft, a pulley mounted on said shaft, a carrier passed over said pulley at one end of the machine and consisting of an endless belt having arms projecting upward from the surface thereof, scrubbing devices adapted to act upon the meat, rotary cylinders of greater diameter than said pulley mounted on said shaft on opposite sides of said pulley and projecting above the ends of said arms, and beyond the end of the machine, said cylinders being adapted to receive the meat from the carrier and to deliver the same, and means for rotating said cylinders in the direction of movement of said carrier, substantially as described.

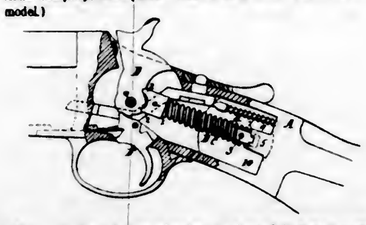
644,401. BAKE-PAN. MARGARET BROWNE, Worksop, England. Filed Apr. 17, 1899. Serial No. 713,292. (No model.)



Claim.—1. A pan for baking pastry-crusts, consisting of a baking-plate formed with a concavo-convex central portion and a surrounding rim, and supporting-legs attached to said rim, substantially as set forth.

2. A pan for baking pastry-crusts, consisting of a baking-plate formed with a concavo-convex central portion and a surrounding straight, level rim, and supporting-legs attached to said rim, substantially as set forth.

644,402. MAINSPRING ATTACHMENT FOR FIREARMS. MARTIN BYE, Worcester, Mass., assignor to the Harrington & Richardson Arms Company, same place. Filed Jan. 2, 1900. Serial No. 62. (No model.)



Claim.—1. In a firearm having a pivoted hammer, a spirally-coiled wire mainspring and a spring-supporting stem or push-bar embraced by said coiled spring and acting against the hammer; the combination with said spring and its stem, of a supporting-seat for the end of said spring provided with a slot or recess for the end of said stem, into and from which the stem can pass, a transverse opening in said stem adapted for receiving a stop or pin, when the stem is at rearward position, as a means for retaining the spring under tension upon the stem, and to permit free removal of the stem and spring when the hammer is dropped, substantially as set forth.

2. In a firearm, the frame provided with the forwardly-projecting bifurcated or vertically-slotted seat having a transverse recess or notch in the end thereof, in combination with the discharging-hammer, the coiled-wire mainspring, and the hammer-actuating spring-supporting stem having a transverse hole therethrough that moves into alinement with said notch when the stem is forced back by the cocking of the hammer, for the purpose set forth.

644,408. EXPLOSIVE. EMIL CALLENBERG, Halten, Germany, assignor to Alexander Johnston Brown, Matlock, England. Filed Apr. 5, 1899. Serial No. 711,765. (No specimens.)

Claim.—1. An explosive composed of turpentine-oil, collodion cotton and nitroglycerin in the proportions substantially as described, the same heated to form a jelly, and mixed with nitrate of potash, Epsom salts and soda, substantially in the manner, and for the purposes set forth.

2. An explosive composed of turpentine-oil four parts, collodion cotton one part, and nitroglycerin thirty parts, heated together to form a gelatin, and mixed with forty parts nitrate of potash, twenty-seven parts of Epsom salts and one part of soda, the whole suitably mixed and kneaded, substantially as described

644,404. FIRE-ESCAPE. EDWARD M. CHRIST and WILLIAM L. HALDEMAN, Pine Grove, Pa. Filed Sept. 19, 1899. Serial No. 730,976. (No model.)



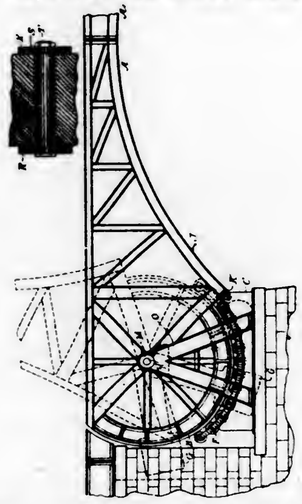
Claim.—1. A fire-escape, comprising a rigid tube, means within the tube for retarding the passage of a rope through the same, a thimble fastened to one end of the tube, a collar mounted loose on the tube and bearing against the head, and a bail fastened to the collar.

2. In a fire-escape, the combination of a rigid tube, a spiral strip fitting snugly within the tube, and a thimble or cap attached to each end of the tube, the thimbles or caps being formed with shoulders preventing the movement of the spiral strip endwise out of the tube, and the thimbles or caps being open to admit the passage of a rope through the tube and around the spiral strip, as described.

3. A fire-escape, comprising a rigid tube, a spiral strip fitted snugly within the tube, and means attached to each end of the tube to prevent the displacement of the spiral strip by endwise movement, such means being open to permit the passage of a rope through the tube and around the spiral strip, as described.

4. A fire-escape, comprising a rigid tube, means within the tube for retarding the passage of a rope through the same, a collar mounted to slide loose on the tube between the ends thereof, a bail or fastening attached to the collar, and means at each end of the tube to prevent the movement of the collar off of the tube.

644,405. BASCULE LIFT-BRIDGE. JOHN P. COWLES, Cleveland, Ohio. Filed Oct. 30, 1899. Serial No. 735,836. (No model.)



Claim.—1. A revolving bascule-bridge, with a span having a segmental bearing-surface B, engaging a series of rollers F, resting in an arc-shaped cradle C, and supports for the ends of the span when the latter is closed, the supports being independent of the rollers, so that the latter is relieved of the strain from the live or moving load, and said strain is transmitted by said supports to the abutments or piers substantially as shown and described.

2. A revolving bascule-bridge, provided with two spans, each provided at its fulcrum end with a segmental bearing-surface, B, engaging a series of rollers, F, resting in a cradle, C; the free ends of the spans being adapted to abut one on the other when the bridge is closed, and a support for the fulcrum end of the span when the latter is closed, the support being independent of the said rollers substantially as shown and described.

3. A revolving bascule-bridge, provided with two spans, each having at its fulcrum end a segmental bearing-surface, B, engaging the rollers, F, resting in a cradle, C; the free ends of the span being adapted to abut one on the other, the spans forming an arch when the bridge is closed, and self-adjusting skewbacks, K, for the shore ends of the bottom chords or arch of the span substantially as shown and described.

4. A revolving bascule-bridge, provided with two spans, each having at its fulcrum end a segmental bearing-surface, B, engaging the rollers, F, resting in a cradle, C; the free ends of the spans being adapted to abut one on the other, the spans forming an arch when the bridge is closed, and self-adjusting skewbacks, K, for the shore ends of the bottom chords or arch of the span; said adjustable skewbacks forming a uniform bearing for the bottom chords, and also providing a stop for the span, to prevent the latter from assuming a position below the proper level when the bridge is closed, substantially as shown and described.

5. A revolving bascule-bridge, provided with a span having a segmental bearing-surface, B, in engagement with a series of anti-friction-rollers, F, resting in a cradle, C, formed with arc-shaped tracks, E, a self-adjusting skewback for the end of the bottom chord of the span to rest on when the bridge is closed, and a foundation support-

ing both the said skewback and the said cradle, C, with rollers, F, and receiving the load of the bridge as well as the weight of the span, substantially as shown and described.

6. A revolving bascule-bridge provided with a span having a segmental bearing-surface, a series of antifriction-rollers, F, simultaneously engaged at their peripheral surfaces by the said segmental bearing-surface, B, a cradle, C, carrying the said rollers on arc-shaped tracks, E, and an adjustable skewback, K, attached to the said cradle, C, and adapted to be engaged by a part of the span when the bridge is closed, substantially as shown and described.

7. A revolving bascule-bridge provided with two spans, each having at its fulcrum end a segmental bearing-surface, B, a series of antifriction-rollers simultaneously engaged at their peripheral surfaces by the said segmental bearing-surface, B, a set of side bars, R, holding the rollers in position, a cradle, C, carrying said rollers on arc-shaped tracks, E, and an adjustable skewback, K, attached to the said cradle, C, and adapted to be engaged by the bottom chord, J, when the bridge is closed and forming an arch, substantially as shown and described.

8. A revolving bascule-bridge provided with a span having a segmental bearing-surface adapted to rest and roll on a series of antifriction-rollers in an arc-shaped cradle, and having a pin or trunnion through the axis of rotation resting on a frame O, which relieves the said rollers from any pounding which may be caused by the live or moving load; the pounding strain is transmitted by said frame to the abutments or piers, substantially as shown or described.

9. A revolving bascule-bridge provided with a span having a segmental bearing-surface, adapted to rest and roll on a series of antifriction-rollers in an arc-shaped cradle, and having a pin or trunnion through the axis of rotation resting on a frame, O, which anchors the span to the masonry, thus preventing the span being blown or otherwise turned over, substantially as shown and described.

10. A revolving bascule-bridge provided with two spans, each having at its fulcrum end a segmental bearing-surface, B, a series of antifriction-rollers simultaneously engaged at their peripheral surfaces by said segmental bearing-surface; a set of side bars, R, holding the rollers in position; a cradle, C, carrying said rollers on arc-shaped tracks, E; a rack, I, engaging pinion, H, for opening and closing the span, and an adjustable skewback, K, attached to the said cradle, C, and adapted to be engaged by the bottom chord, J, when the bridge is closed and forming an arch, substantially as shown and described.

11. A revolving bascule-bridge having a span counterbalanced to be in equilibrium in any position, adapted to rest and roll on a series of antifriction-rollers, resting in a cradle carrying said rollers on arc-shaped tracks; the free ends of the span being adapted to abut one on the other, the spans forming an arch when the bridge is closed, and adjustable skewbacks for the shore ends of the bottom chord or arch of the span, substantially as shown and described.

12. A revolving bascule-bridge provided with a span having a segmental bearing-surface in engagement with a series of antifriction-rollers and having its fulcrum end provided with a counterweight to counterbalance the span at any angle of its throw, an adjustable skewback for the end of the bottom chord of the span to rest on when the bridge is closed, and forming an arch and an arc-shaped cradle supporting both the said skewback and the said rolling surface and receiving the load of the bridge as well as the weight of span and transmitting the same to the foundation, substantially as shown and described.

13. A revolving bascule-bridge having a span counterbalanced to be in equilibrium in any position, adapted to rest and roll on a series of antifriction-rollers, resting in a cradle carrying said rollers on arc-shaped tracks; the free ends of the span being adapted to abut one on the other, the spans forming an arch when the bridge is closed, and adjustable skewbacks for the shore ends of the bottom chords of the span, and a segmental gear-rack attached to the segmental bearing-surface, a pinion for imparting a swinging motion to span, substantially as shown and described.

14. A revolving bascule-bridge having a span counterbalanced to be in equilibrium in any position, having a segmental bearing-surface adapted to rest and roll on a series of antifriction-rollers, resting on arc-shaped tracks, a segmental gear-rack attached to the said segmental bearing-surface, said gear-rack having flanges bearing against the rollers preventing sidewise displacement; the free ends of the bridge being adapted to abut one on the other, the spans forming an arch when closed and adjustable skewbacks for the shore ends of the bottom chord or arch of the span, substantially as shown and described.

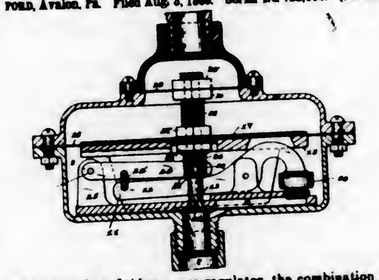
15. A revolving bascule-bridge having a span counterbalanced to be in equilibrium in any position, having at its fulcrum end a segmental bearing-surface, a series of antifriction-rollers, said rollers having two diameters, the larger diameter engaging the said segmental bearing-surface, and the smaller diameter engaging the arc-shaped tracks of the cradle; the rollers being provided with side bars holding the rollers in position, a cradle carrying said rollers on arc-shaped tracks, a gear-rack, I, engaging a pinion, H, which is geared to the motor for opening and closing the span, and an adjustable skewback, K, attached to the said cradle and adapted to be engaged by the bottom chord when the bridge is closed and forming an arch, substantially as shown and described.

16. A revolving bascule-bridge having a span counterweighted to be in equilibrium in any position and provided at its fulcrum end with a segmental bearing-surface, adapted to rest and roll on a series of antifriction-rollers, said rollers mounted to revolve freely on shouldered pins fastened to side bars which hold the rollers in position, a cradle having arc-shaped tracks for supporting said rollers, a rack attached to the said segmental bearing-surface, a pinion for imparting a swinging motion to the said span, a frame, O, for taking the live or moving load when the bridge is closed and forming an arch, substantially as shown and described.

17. A revolving bascule-bridge having a span counterbalanced to be in equilibrium in any position, adapted to rest and roll on a series of antifriction-rollers; said rollers having two diameters, the larger diameter engaging the said segmental bearing-surface, and the smaller diameter engaging the arc-shaped tracks of the cradle; the rollers mounted to revolve freely on pins, T, fastened to side bars, R, which hold the rollers in position; a cradle carrying said rollers on arc-shaped tracks; the free ends of the span being adapted to abut one on the other, the spans forming an arch when the bridge is closed, and an adjustable skewback for the shore ends of the bottom chords of the span, and a segmental gear-rack attached to the segmental bearing-surface, a pinion for imparting a swinging motion to the span, substantially as shown and described.

18. A revolving bascule-bridge having a movable span provided at its fulcrum end with a segmental bearing-surface adapted to rest and roll on a series of antifriction-rollers in a cradle having arc-shaped tracks; a rack on said segmental bearing-surface, said rack being provided with a flange which bears against the rollers; a pinion for imparting a swinging motion to the span; a frame, O, for taking the live or moving load when the bridge is closed and forming an arch, substantially as shown and described.

644,406. FLUID-PRESSURE REGULATOR. SAMUEL E CRAWFORD, Avalon, Pa. Filed Aug. 3, 1899. Serial No. 726,091. (No model.)



Claim.—1. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow and connected to said partition or diaphragm, and flexible counteracting means within said case adapted to be connected to said partition or diaphragm to balance the valve and equal the pressure against the valve when acted upon by the same pressure.

2. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow and connected to said partition or diaphragm, and flexible counteracting means within said case adapted to be connected to said partition or diaphragm to balance the valve and equal the pressure against the valve when acted upon in the opposite direction by the same pressure.

3. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow and connected to said partition or diaphragm, and a flexible or yielding counteracting-diaphragm within said case adapted to be connected to said partition or diaphragm to balance said valve and equal the pressure against the valve when acted upon by the same pressure.

4. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow and connected to said partition or diaphragm, and a flexible or yielding counteracting-diaphragm within said case over said supply-passage adapted to be connected to said partition or diaphragm to balance said valve and be acted upon in the opposite direction by the same pressure as that which acts on the valve.

5. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow, a lever fulcrumed in said case and connected to said valve and partition or diaphragm, a flexible or yielding counteracting-diaphragm fitting over an opening in the case from the said supply-passage, and a pressure plate or post adapted to engage said lever and counteracting-diaphragm to balance said valve and be acted upon in an opposite direction by the same pressure as that which acts on the valve.

6. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith at the bottom and top respectively, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe, a lever fulcrumed in said case and connected to said valve, a flexible or yielding counteracting-diaphragm fitting over an opening in the case from the supply-passage adapted to balance said valve and equal the pressure against the valve when acted upon by the same pressure, a hollow stem connected to said lever and passing through and secured to said first-named partition or diaphragm to deliver the regulated fluid to the discharge-pipe at the top of the case, and a flexible or yielding packing-box connected to the upper end of the hollow stem above the discharge-pipe.

7. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith at the bottom and top respectively, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe, a lever fulcrumed in said case and connected to said valve, a flexible or yielding counteracting-diaphragm fitting over an opening in the case from the supply-passage adapted to engage said lever to balance said valve and equal the pressure against the valve when acted upon by the same pressure, a hollow stem passing through and connected to said first-named partition or diaphragm to deliver the regulated fluid to the discharge-pipe at the top of the case, a flexible or yielding packing-box connected to the upper end of the hollow stem above the partition or diaphragm and below the discharge-pipe, and a lever fulcrumed in the case and adapted to be connected to said first-named lever and hollow stem

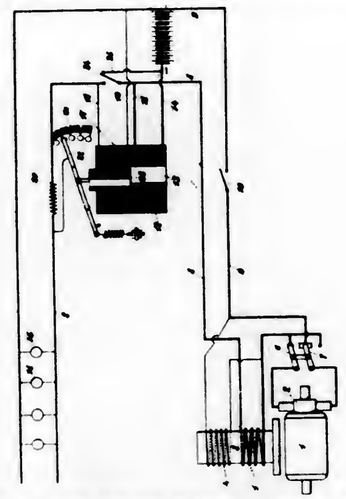
8. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow, a flexible or yielding counteracting-diaphragm within said case adapted to balance said valve and equal the pressure against the valve when acted upon by the same pressure, and connections from the first-named partition or diaphragm to the valve and counteracting-diaphragm.

9. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow, a flexible or yielding counteracting-diaphragm within said case, and a stem or rod connected to the partition or diaphragm, valve and counteracting-diaphragm, said counteracting-diaphragm adapted to balance said valve and equal the pressure against the valve when acted upon by the same pressure.

10. In a fluid-pressure regulator, the combination of an inclosing case having supply and discharge pipes connected therewith, a flexible or yielding partition or diaphragm within said case, a valve within said case over the passage from the supply-pipe opening with or in the direction of the flow and connected by a lever fulcrumed in said case to the said partition or diaphragm, a flexible or yielding counteracting-diaphragm within said case adapted to balance said valve and equal the pressure against the valve when acted upon by the same pressure, and a stem connected to said lever for carrying the valve and adapted to engage with the counteracting-diaphragm.

644,407. AUTOMATIC REGULATION OF SYSTEMS OF ELECTRICAL DISTRIBUTION. JOHN L. CREVELING, New York, N. Y. Filed Oct. 28, 1899. Serial No. 735,087. (No model.)

Claim.—1. In a system of electrical distribution, the combination of a generator, a storage battery in circuit therewith, a lamp-circuit into which both the generator and battery are adapted to deliver current and an electromagnetic regulator in the lamp-circuit for varying the resistance of and maintaining the potential of the said lamp-circuit substantially constant, comprising in its structure means for varying the resistance of the lamp-circuit and a plurality of windings acting thereon, one of the said windings being in shunt to the lamps and another of the said windings being connected to the lamp-circuit in series with the battery.



2. In a system of electrical distribution, the combination of the following instrumentalities in operative relation, to wit: a generator, a storage battery in circuit therewith, a lamp-circuit and an electromagnetic regulator for the said lamp-circuit comprised in part by a winding in series with the battery and in multiple with the generator, wherein the battery and generator electromotive forces oppose each other.

3. In a system of electrical distribution, the combination of the following instrumentalities in operative relation, to wit: a generator, a storage battery and a lamp-circuit and an electromagnetic regulator for the said lamp-circuit comprised in part by a plurality of windings, one of the said windings being normally in shunt relation to the lamp-circuit and the other of the said windings being normally in series with the battery, the said battery and winding being in multiple with the generator-circuit.

4. In a system of electrical distribution, the combination of a generator, a storage battery in circuit therewith, a lamp or consumption circuit into which both the generator and battery are adapted to deliver current, a variable resistance in the lamp or consumption circuit and electromagnetic means connected to the generator-main circuit and to the battery for increasing the resistance in the lamp or consumption circuit upon a decrease of current from the battery to the lamp or consumption circuit.

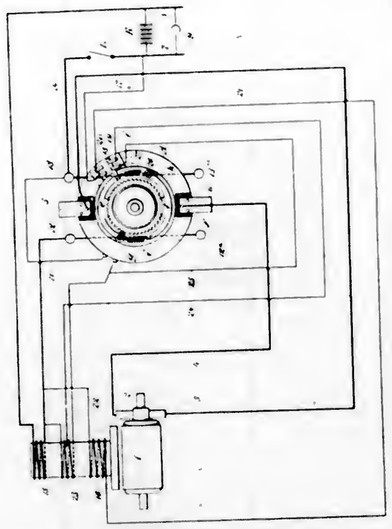
644,408. CAR-LIGHTING SYSTEM. JOHN L. CREVELING, New York, N. Y. Filed Oct. 28, 1899. Serial No. 735,088. (No model.)

Claim.—1. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, of a pole-changing device adapted to control the circuit, positive-transmission means intervening between the rotating armature and the pole-changing device and electromagnetic means in circuit with the dynamo for breaking the mechanical transmission, substantially as described.

2. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, of a pole-changing device having both a frictional connection and a positive mechanical transmission connection with the dynamo-shaft, and means for breaking the mechanical transmission connection without breaking the frictional connection.

3. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, of a pole-changing device adapted to control the circuit, positive transmission means intervening between the rotating armature and the pole-changing device, electromagnetic means in circuit with the dynamo for breaking the mechanical trans-

mission and a shunt to one of the field-circuits of the generator controlled by the pole-changer-operating means.



4. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, of a pole-changing device adapted to control the circuit, positive transmission means intervening between the rotating armature and the pole-changing device, electromagnetic means in circuit with the dynamo for breaking the mechanical transmission and means for controlling a battery-circuit through the field-magnet from the pole-changing device.

5. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, of a pole-changing device adapted to control the circuit, positive transmission means intervening between the rotating armature and the pole-changing device, electromagnetic means in circuit with the dynamo for breaking the mechanical transmission, a shunt to one of the field-circuits of the generator controlled by the pole-changer-operating means, and means for controlling a battery-circuit through the field-magnet from the pole-changing device.

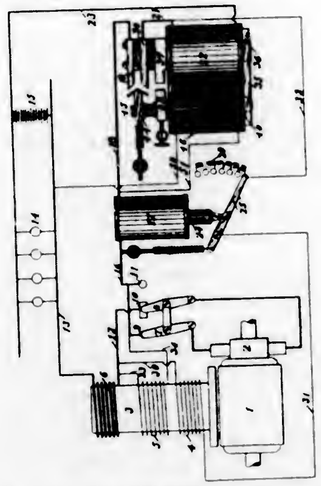
6. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, a pole-changer comprising in its structure a rotating toothed wheel, an arm engaging therewith and an electromagnet in the dynamo-circuit acting upon the said arm.

7. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, a pole-changer comprising in its structure a rotating toothed wheel and an arm engaging therewith and an electromagnet in circuit with the dynamo acting upon the said arm and a frictional connection driving the said toothed wheel and forming part of the means whereby the said toothed wheel is driven from the dynamo-shaft.

8. In a system of electrical distribution containing a dynamo and storage battery and wherein the dynamo is liable to have its direction of rotation reversed, means for rectifying the direction of current delivered to the battery, comprising in its structure a positive mechanical transmission or connection driven in harmony with the generator and means controlled by the flow of the generator-current for breaking the said transmission.

644,409. ELECTRICAL DISTRIBUTION. JOHN L. CREVELING, New York, N. Y. Filed Oct. 28, 1899. Serial No. 735,039. (No model.)

Claim.—1. In a system of electrical distribution, the combination of the following instrumentalities in operative combination, to wit, a generator, a storage battery adapted to be charged thereby, an electromagnetic switch in the generator-main circuit, a field-coil in shunt to the generator-mains, an opposing field-coil in the battery main circuit, a battery-shunt field-coil, a variable resistance in series therewith and means operated by the fluctuations of the current of the generator for varying the amount of variable resistance in circuit with the battery-shunt field-coil.



2. In a system of electrical distribution, the combination of the following instrumentalities in operative relation, to wit, a generator and a storage battery in circuit therewith and a line-switch, a magnet-coil in a derived circuit to the generator-circuit and a magnet-coil in electrical connection with the generator-circuit and the battery-circuit, the connections of the said last-named coil being such that when the line-switch is closed in the normal operation of the system the generator-current will circulate in the said coil and when the line-switch is open a battery-current will circulate in the said coil in a reverse direction to the direction taken by the current supplied by the generator.

3. In a system of electrical distribution comprising a generator and storage battery in circuit with each other, the combination of electromagnetic means for controlling the flow of current in the generator-mains, comprising a coil responding to the fluctuations of tension in the generator-main circuit and a coil normally in the generator-main circuit and connected to the battery by a conductor distinct from the generator-main circuit, the said conductor being normally in the battery-circuit when the generator-circuit is interrupted.

644,410. MITERING ATTACHMENT FOR BEVELS. WILHELM DANIELSON, New York, N. Y. Filed May 24, 1899. Serial No. 717,982. (No model.)

Claim.—1. A mitering attachment for carpenters' bevels, the same consisting of a straight-edge provided with a projecting pivot-pin for application to the pivot of the bevel, and a stop-gage, adjustable on said straight-edge and provided with a finger said finger and pivot-pin being in line with the edge of said straight-edge, substantially as set forth.

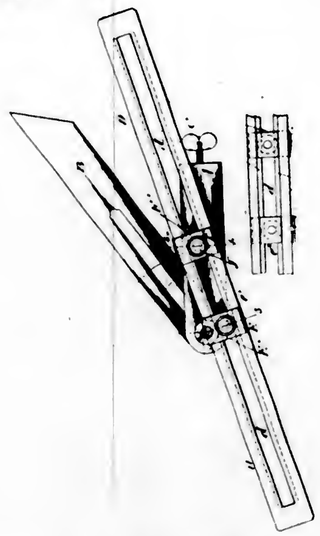
2. A mitering attachment for carpenters' bevels, the same consisting of a straight-edge with a projecting pivot-pin for applying it to such bevels, and a sliding gage provided with a stop-finger having a knife-edge said finger and pivot-pin being in line with the edge of said straight-edge, substantially as set forth.

3. A mitering attachment for carpenters' bevels, the same consisting of a straight-edge having two adjustable slides, one of which is provided with a projecting pivot-pin for connecting it with the bevel, and the other with a stop-finger said finger and pivot-pin being in line with the edge of said straight-edge, substantially as set forth.

4. A mitering attachment for carpenters' bevels, the same consisting of a straight-edge having a longitudinal slot, means for connecting the straight-edge with the bevel, a sliding gage, a nut, and a set-screw passing through the gage, slot and nut for adjusting the slide, substantially as set forth.

5. The combination, with a carpenter's bevel, of a straight-edge having a pivot, the axis of which and the axis of the pivot of said bevel are in line with the edge of said straight-edge, and an adjustable gage on the straight-edge, adapted to fit into the inner angle of the bevel, substantially as set forth.

644,410.



644,411. BICYCLE DRIVING-GEAR MECHANISM. GEORGE W. DRAPENBAUGH, Bellaire, Ohio. Filed Dec. 6, 1898. Serial No. 698,442. (No model.)



Claim.—As an improvement in bicycle drive-gearing, the combination with the drive-gear; the crank-axle, said axle having a centrally-enlarged portion terminating at the ends in ball-races and having a threaded end; a drive-gear mounted on each end of the axle each having an internal annular groove or socket, each having an inwardly-extending hub portion having its inner end projected over the enlarged portion of the axle and terminating in clutch members; and a ball race or groove to receive the bearing-balls 5^c, said hubs having ball-races 5^d on their outer faces and outwardly-curved portions 5^b forming the counterpart of the bearing-cones; the bearing-cones, the said outwardly-curved portions forming ball-races on their inner sides, said races terminating in annular depressed seats 5^f; the detachable cuffs 6, having shouldered portions 6^a, adapted to project within the annular grooves or seats 5^f, of the drive-gear hubs, said cuffs having races adapted to bear against the bearing-balls 8; a casing surrounding the clutch mechanism, said casing forming a fixed part of the bicycle-frame, the ends thereof abutting the shoulder 6^c of the cuffs; the lock-nuts 18 and the pedals; the sliding clutch 11^a, mounted on the crank-axle shaft and means for operating said clutch, all being arranged substantially as shown and for the purposes described.

644,412. CUSHIONING DEVICE FOR BOOTS OR SHOES. EVERETT H. DUNBAR, Lynn, Mass. Filed Nov. 17, 1899. Serial No. 737,271. (No model.)

Claim.—1. The combination with a boot or shoe, of an inner plate forming a bearing for the under side of the foot, and perforated rubber studs or buttons interposed between said plate and the bottom of the shoe, the said plate being perforated in alinement with the perforations in the studs.

2. A cushioning device to be placed inside of boots and shoes, said device comprising a plate provided with a series of rubber buttons or studs projecting from one face and having ventilating-perforations extending from one side to the other through said studs.

3. A cushioning device to be placed inside of boots and shoes, said device comprising a plate provided with a series of rubber buttons or studs projecting from one face, the studs being shaped with a neck or contracted portion adjacent to the plate, and a terminal head beyond said neck.

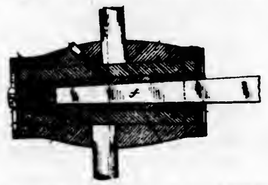


4. A cushioning device to be placed inside of boots and shoes, said device comprising a plate provided with a series of rubber buttons or studs projecting from one face and concaved on their outer ends, the device having ventilating-perforations extending from side to side through said studs.

5. A cushioning device to be placed inside of boots and shoes, said device comprising a plate consisting of a body part or layer, and a facing-layer having perforations, and a series of rubber buttons or studs projecting through said perforations and having bases held between the body-layer and the facing-layer.

6. A cushioning device to be placed inside of boots and shoes, said device comprising a plate provided with a series of rubber buttons or studs projecting from one face and disposed along the edge of the plate, said studs having inclined end faces and being thickest on the side nearest said edge.

644,413. AXLE AND WHEEL. JOSEPH S. DURBIN, Emsworth, Pa. Filed Aug. 9, 1898. Serial No. 688,222. (No model.)



Claim.—1. The combination with a tapering axle-body, of a disk firmly secured thereon and having a circular outer edge, a hub fitting the bearing-surface of the axle and having an annular projecting band extending over the disk and close to the edge thereof, a disk confining the hub upon the axle and an annular band on the opposite end of the hub and extending around said disk close to the edge thereof, substantially as set forth.

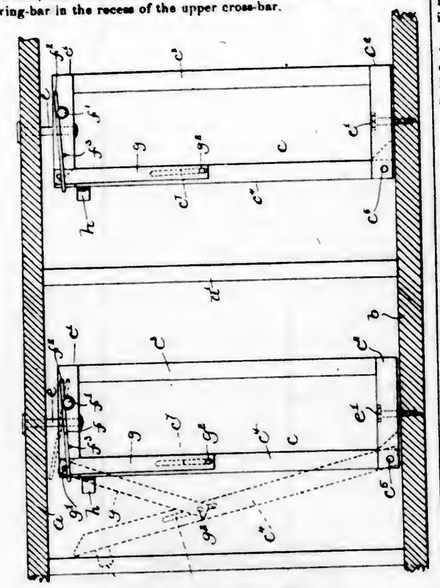
2. The combination of a square, tapering axle-body, with a disk firmly secured thereon, a sleeve fitting around the square, tapering axle-body and having a cylindrical outer face, and a hub fitting around the sleeve and having an annular projecting band extending over the disk, a disk confining the sleeve and hub upon the axle and an annular band on the hub at the opposite end of the hub and extending around the said disk, substantially as set forth.

3. The combination of a square, tapering axle-body having a threaded seat or bolt-hole in its outer end, with a disk secured upon the axle-body, a sleeve fitting around said body and having a cylindrical outer face, a hub fitting upon said sleeve, a confining plate or disk holding the sleeve and hub upon the axle, said plate having an angular central opening, and a bolt having an angular neck fitting the plate and engaging the bolt-hole of the axle, substantially as set forth.

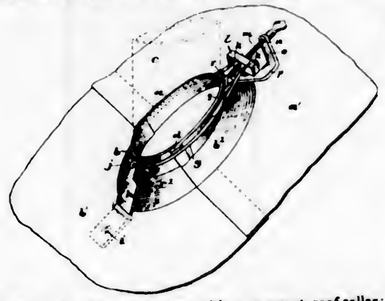
644,414. STANCHION. CLARK EDWARDS, Lisbon, N. H. Filed July 28, 1899. Serial No. 725,375. (No model.)

Claim.—In a device of the character described, the stanchion-frame comprising upper and lower cross-bars the upper one having a recess in its end, a vertical bar connecting the ends of the cross-bars at one side of the frame, a swing-bar pivotally connected to the other end of the lower cross-bar and having its upper end beveled on the inner side and adapted to fit the recess in the end of the upper cross-bar, said swing-bar being provided with an elongated slot e^7, arms pivoted at their upper ends to the upper part of the stanchion-frame and having a pin at their lower ends occupying the said slot in the swing-bar, the forked clamp A secured to the upper end of the swing-bar and adapted to engage either of two fixed uprights according as the stanchion is employed as a right-hand-opening or a left-hand-opening stanchion, and a loop-shaped catch pivoted to the upper cross-bar and adapted to normally pass around and confine the upper end of the swing-bar in the recess of the upper cross-bar, said catch being adapted to be automatically lifted by the incline of the swing-bar when said swing-bar is being moved from its outward to its inner

position, and to then drop over and confine the upper end of said swing-bar in the recess of the upper cross-bar.



644,415. ROOF-COLLAR. HENRY C. FOLGER, Somerville, Mass. Filed Nov. 27, 1899. Serial No. 738,445. (No model.)



Claim.—1. The combination with a two-part roof-collar; of clamping means comprising a member taking around one part of the collar so as to draw upon the same and extending around to the far side of the other part of the collar, and a tightening device operating against that side of the collar and engaged with the first-named member of the clamping means.

2. The combination with a flashing and roof-collar in a plurality of overlapping parts; of clamping means comprising a yoke embracing the collar and a tightening device connected with said yoke and working against one section of the collar whereby it may operate to draw together the several sections, substantially as and for the purpose described.

3. The combination with a flashing and roof-collar in a plurality of overlapping parts; of clamping means comprising a yoke embracing the collar and a tightening-screw engaging the yoke and working against one section of the collar, substantially as and for the purpose described.

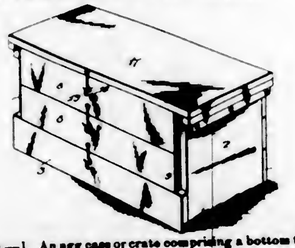
4. The combination with a flashing and roof-collar in a plurality of overlapping sections; of clamping means comprising a yoke embracing the collar and a tightening-screw engaging the yoke, together with a bearing for said screw having an abutment for its end to work against and a yoke compounded therewith and bearing against one section of the collar.

5. The combination with a two-part roof-collar and a stay-piece extending upwardly along one part of the same and designed for attachment to the roof; of a clamping-wire engaged with said stay-piece and embracing one part of the collar, and a tightening device arranged to operate against the other part of the collar and engaging the clamping-wire, substantially as described.

6. The combination with a two-part roof-collar; of a clamping-wire embracing one part of the same, a cross-piece joining the ends of said wire on the far side of the other part of the collar, a bracket having a yoke engaging that side of the collar, and a screw having a bearing in said bracket and being tapped through the cross-piece of the clamping-wire, its end bearing against a part of the bracket in rear of yoke, substantially as described.

7. The combination with a two-part roof-collar and a stay-piece extending upwardly along one part of the same and designed for attachment to the roof; of a clamping-wire engaged with said stay-piece and embracing one part of the collar, a cross-piece joining the ends of said wire on the far side of the other part of the collar, a bracket having a yoke engaging that side of the latter, and a screw having a bearing in the said bracket and being tapped through the cross-piece of the clamping-wire, its end bearing against a part of the bracket in rear of the yoke, substantially as described.

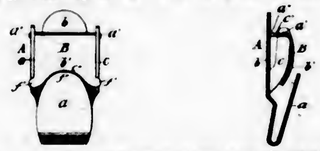
644,416. EGG-CASE. WILLIAM I. GALLAGHER, Arbutus, W. Va. Filed Sept. 6, 1899. Serial No. 729,581. (No model.)



Claim.—1. An egg case or crate comprising a bottom tray formed with fixed end walls secured to the bottom board of said case or crate and extending to the top edge of the uppermost tray; a set of superimposed hinged trays adapted to close in between said end walls; and a plain cover hinged to the uppermost superimposed hinged tray, substantially as and for the purpose set forth.

2. An egg case or crate, comprising a base-tray provided with extension end walls extending to the top edge of the uppermost superimposed hinged tray, a series of independent superimposed hinged trays adapted to fold down on said base-tray, a cover hinged to the uppermost tray and means as described for independently fastening said cover and trays, substantially as and for the purpose set forth.

644,417. SKIRT-SUPPORTER. ARTHUR R. GEOFFROY, New York, N. Y. Filed Aug. 15, 1898. Serial No. 688,588. (No model.)

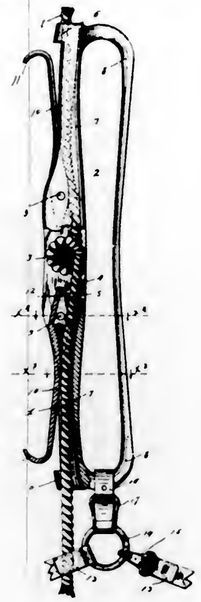


Claim.—1. The combination of the part, A, composed of the elastic back plate, the hook, and the arms, *c*, integral with each other, with the lever-plate, B, constructed as described, pivoted to the arms, *c*, and having the integral laterally-extended lugs, *f'*, arranged to rest normally upon said arms, substantially as and for the purpose herein set forth.

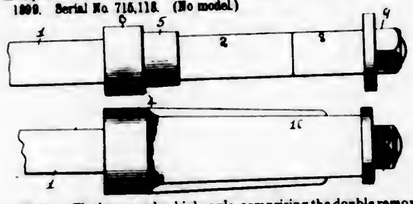
2. The combination of the part, A, composed of the elastic back plate, the hook, and the arms, *c*, integral with each other, the lever-plate, B, pivoted to the arms, *c*, having the laterally-extended lugs, *f'*, arranged to rest upon the arms, *c*, and constructed with the recess, at its end to receive the adjacent portion of the hook, substantially as and for the purpose herein set forth.

644,418. FIRE-ESCAPE. IRA L. GLEASON, Hutchinson, Minn. Filed May 31, 1899. Serial No. 718,804. (No model.)

Claim.—The combination with a rope or other flexible connection, of the traveler 2 having the stud 3 about which the rope is turned, and provided with suitable guide-channels for the rope, including the eyes 6, the pair of brake-levers 10 pivoted to the traveler on opposite sides of the stud 3, the bail 8 connecting the opposite ends of the traveler, and the body sling or strap secured to the bail 8, the brake-levers 10 being so disposed that they may be gripped by the hand, the fingers of which are passed through the opening formed between the body of the traveler and the said bail 8 all for coöperation substantially as described.



644,419. AXLE. ALBERT O. GLOSS, Potosi, Mo. Filed May 1, 1899. Serial No. 715,118. (No model.)

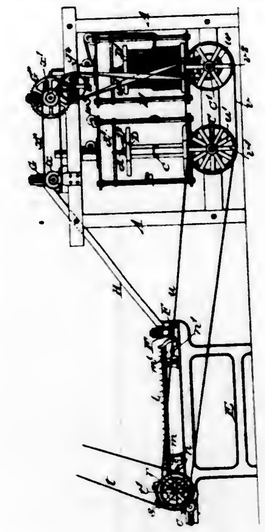


Claim.—The improved vehicle-axle, comprising the double removable shoulder 4 having a small collar 5 adapted to fit upon and extend over the spindle, and tapered outside to fit within the common wheel-box, and a larger collar 6 integral with one end of said collar 5 and provided with a square opening 7 adapted to fit upon the square end of the axle and also tapered outside to fit within the common wheel-box, in combination with a square axle and a spindle, substantially as specified.

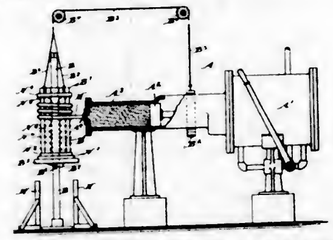
644,420. MACHINERY FOR PREPARING FIBROUS MATERIALS FOR SPINNING. JOHN GOOD, New York, N. Y. Filed Oct. 18, 1898. Serial No. 693,864. (No model.)

Claim.—1. The combination of an upright flier, an upright bobbin supported on and in frictional contact with the bottom of said flier, rollers outside of said flier for unwinding a roving from said bobbin, means for rotating said flier and rollers in the respective directions for the untwisting of the roving as it is unwound from said bobbin, means for heckling, drawing or combing the untwisted fibers of said roving and rollers for feeding said fibers thereto, and a board for supporting the fibers between said unwinding-rollers and feed-rollers, substantially as herein described.

2. The combination of an upright flier and an upright bobbin therefor, a journaled spindle for said bobbin, a bearing in the bottom of said flier in which the lower journal of the spindle is capable of turning, a movable cross-bar fitted between the arms or side bars of said flier and containing a bearing in which the upper journal of said spindle is capable of turning, and means for securing said bar to said arms or side bars, substantially as herein described.



644,421. MEANS FOR MANUFACTURING EARTHENWARE COILS. CHARLES GRAHAM, New York, N. Y. Filed Nov. 1, 1899. Serial No. 735,496. (No model.)



Claim.—1. In an apparatus for making earthenware coils, a press adapted to form a continuous tube of plastic material, a drum adapted to carry temporarily a support of similar material for said tube having a helical retaining-path formed thereon and receiving said tube, means for moving said drum to present said path to said tube as the latter issues from said press, and provisions for removing said drum from said support and its tube, all combined and arranged to serve substantially as herein specified.

2. In an apparatus for making earthenware coils, a drum having a series of longitudinal grooves on its surface, adapted to receive a series of standards of plastic material having spurs arranged to form a helical path around said drum, a press adapted to produce a continuous tube of the same material, and means for supporting said drum and standards in position to receive such tube along said path, all combined and arranged to serve substantially as herein specified.

3. In an apparatus for making earthenware coils, a drum having a series of longitudinal grooves on its surface, adapted to receive a series of standards of plastic material having spurs arranged to form a helical path around said drum, a removable head and means for locking it to said drum, adapted to support a base-ring of plastic material upon which said standards rest, a press adapted to produce a continuous tube of the same material, and a mandrel upon which said drum is mounted with liberty to revolve and also move vertically, said mandrel being located in such relation to said press as to present said path to said tube, all combined and arranged to serve substantially as herein specified.

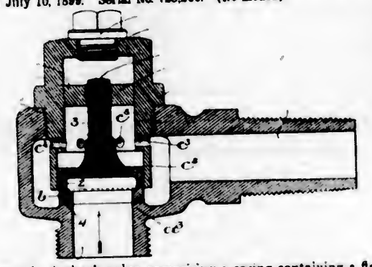
4. In an apparatus for making earthenware coils, a drum having a series of longitudinal grooves on its surface, adapted to receive a series of standards of plastic material having spurs arranged to form

a helical path around said drum, and temporary spurs at the upper ends of said standards, a removable head and means for locking it to said drum, adapted to support a base-ring of plastic material upon which said standards rest, a temporary ring resting on said temporary spurs and serving to hold the upper ends of said standards in place, a press adapted to produce a continuous tube of the same material, and a mandrel upon which said drum is mounted with liberty to revolve and also move vertically, said mandrel being located in such relation to said press as to present said path to said tube, all combined and arranged to serve substantially as herein specified.

5. In an apparatus for making earthenware coils, a press adapted to form a continuous tube of plastic material, a drum having a series of longitudinal grooves on its surface, adapted to receive standards of like material, a removable head and means for locking it to said drum, adapted to support a base-ring of the same material, a mandrel upon which said drum is mounted with liberty to revolve and also move axially thereon, and a counterbalance-weight attached to said drum and serving to lessen the power required to raise the latter, all combined and arranged to serve substantially as and for the purposes herein specified.

6. The press A, plunger A^4 and die A^4 thereon, the mandrel B, drum B' having the grooves *b* thereon, and head B^3 removably secured thereto, arranged in such relation to said die as to receive a tube therefrom tangentially upon the surface of said drum, in combination with the counterbalance-weight B^2 and the cords and sheaves B^5 B^6 therefor, all adapted to serve substantially as and for the purposes herein specified.

644,422. CHECK-VALVE. EDWARD GREENWOOD, Phillips, Me.
Filed July 10, 1899. Serial No. 723,260. (No model.)



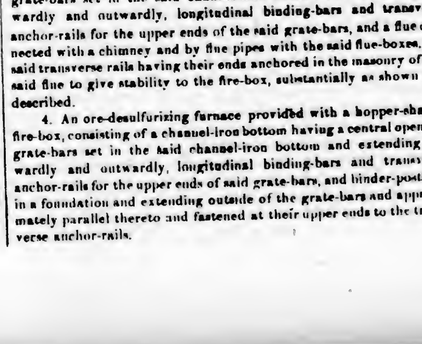
Claim.—1. A check-valve comprising a casing containing a flat valve-seat and having inlet and outlet branches, and an independent threaded opening, a valve adapted to abut against said seat and having a cylindrical lower body having its lower edge ground flat and a stem reduced above said body, said stem being formed for engagement by a tool whereby it may be rotated, a combined cap, cage, and guide screwed into said threaded opening and having an annular extension or cage inside the valve-casing, surrounding and guiding the lower body of the valve and apertured back of said valve-body for the passage of fluid, and also having a bearing near its outer portion for the upper part of the valve-stem, and a screw-plug fitted into the said cap in alinement with the end of the valve-stem, to afford access to said stem with a tool.

2. A check-valve comprising a casing containing a flat valve-seat and having inlet and outlet branches, and an independent opening, a valve adapted to abut against said valve-seat and having a relatively-wide cylindrical body having its lower edge ground flat and a reduced stem, said stem being formed for engagement by a tool whereby it may be rotated, a combined cap, cage, and guide screwed into said threaded opening and having an annular extension or cage inside the valve-casing, surrounding and guiding said valve-body, and apertured back of the valve-body for the passage of fluid, and also having a bearing near its outer portion surrounding and guiding the valve-stem, and a screw-plug fitted into the said cap in alinement with the end of the valve-stem, to afford access to said stem with a tool.

644,423. NECK-YOKE AND TONGUE CONNECTION. ARTHUR L. GREGORY, Moosomin, Canada. Filed Sept. 26, 1899. Serial No. 731,734. (No model.)

Claim.—1. The combination with a neck-yoke, of a releasable tongue connection, comprising a body-piece secured on the neck-yoke, and having a socket-chamber therein, a coupling-bar, a ball on the end of said coupling-bar loosely seated in the socket-chamber, said coupling-bar extending through an open slot in the body-piece, and a locking device for the ball operative by a rockable lever, and adapted by adjustment to lock the ball loosely in the socket-chamber or release it for removal therefrom.

2. The combination with a vehicle-tongue, and a neck-yoke, of a releasable connection therefor, comprising a body-piece held upon the neck-yoke and having a socket-chamber therein, a coupling-bar extended from the tongue and having a ball thereon loosely seated in the socket-chamber, and a cross-shaft revoluble in the body-piece and adapted by adjustment to lock or release the ball in or from the socket-chamber.



3. The combination with a vehicle-tongue, and a neck-yoke, of a ferrule on the tongue, a coupling-bar extended from the ferrule, a ball on said bar, a body-piece secured upon the neck-yoke and having a socket-chamber therein, the ball on the coupling-bar loosely seating in the socket-chamber and said bar occupying a slot in an end wall of the body-piece, and a transverse keeper-shaft journaled in the body-piece so as to cross above the ball near its periphery, said shaft having a notch therein which when disposed above the ball will release it from the socket-chamber.

4. The combination with a tongue, and a neck-yoke, of a ferrule on the tongue having an apertured chamber at its end, a coupling-bar, a ball at each end of said bar, one of greater diameter than the other, the larger ball occupying the chamber of the ferrule, a body-piece secured upon the neck-yoke and having a socket-chamber therein, the projecting ball on the coupling-bar loosely occupying said socket-chamber and the coupling-bar passing through a slot in the end wall thereof, and a rockable shaft journaled in the body-piece and provided with a notch, the shaft by adjustment of the notch from or toward the ball respectively locking the ball loosely in place or releasing it.

644,424. FURNACE FOR DESULFURIZING ORES. HENRY GUYER, Campalon, Peru. Filed Sept. 1, 1899. Serial No. 729,148. (No model.)

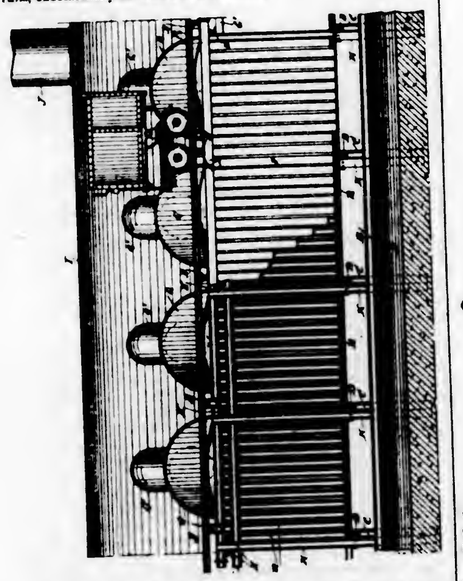
Claim.—1. An ore-desulfurizing furnace, provided with a hopper-shaped fire-box consisting of a channel-iron bottom having a central opening, grate-bars set in the said channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars and transverse anchor-rails for the upper ends of the said grate-bars, and a sheet-metal cover for the said fire-box and having openings and flue-boxes, substantially as shown and described.

2. An ore-desulfurizing furnace, provided with a hopper-shaped fire-box consisting of a channel-iron bottom having a central opening, grate-bars set in the said channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars and transverse anchor-rails for the upper ends of the said grate-bars, and a flue connected with a chimney and by flue-pipes with the said flue-boxes, substantially as shown and described.

3. An ore-desulfurizing furnace, provided with a hopper-shaped fire-box consisting of a channel-iron bottom having a central opening, grate-bars set in the said channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars and transverse anchor-rails for the upper ends of the said grate-bars, and a flue connected with a chimney and by flue pipes with the said flue-boxes, the said transverse rails having their ends anchored in the masonry of the said flue to give stability to the fire-box, substantially as shown and described.

4. An ore-desulfurizing furnace provided with a hopper-shaped fire-box, consisting of a channel-iron bottom having a central opening, grate-bars set in the said channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars and transverse anchor-rails for the upper ends of said grate-bars, and binder-posts set in a foundation and extending outside of the grate-bars and approximately parallel thereto and fastened at their upper ends to the transverse anchor-rails.

5. An ore-desulfurizing furnace, comprising a series of posts, cross-ties on said posts, a fire-box set on said cross-ties and provided with a channel-iron bottom resting on the cross-ties, grate-bars set in the channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars for the upper ends of the grate-bars, transverse anchor-rails for said binding-bars and grate-bars, and binder-posts outside of the grate-bars and connected with the said anchor-rails, substantially as shown and described.



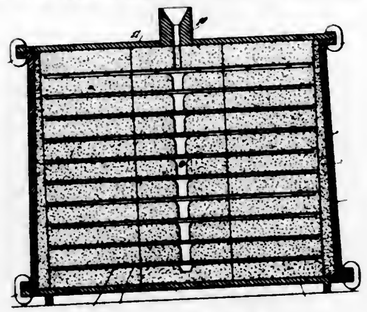
6. An ore-desulfurizing furnace, comprising a series of posts, cross-ties on said posts, a fire-box set on said cross-ties and provided with a channel-iron bottom resting on the cross-ties, grate-bars set in the channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars for the upper ends of the grate-bars, transverse anchor-rails for said binding-bars and grate-bars, binder-posts outside of the grate-bars and connected with the said anchor-rails, longitudinal bars for the said binder-posts, and transverse holding-beams having curved ends for engagement with the said longitudinal binder-post bars, substantially as shown and described.

7. An ore-desulfurizing furnace, comprising a series of posts, cross-ties on said posts, a fire-box set on said cross-ties and provided with a channel-iron bottom resting on the cross-ties, grate-bars set in the channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars for the upper ends of the said grate-bars, transverse anchor-rails for said binding-bars and grate-bars, binder-posts outside of the grate-bars and connected with the said anchor-rails, and a sheet-metal roof on supporting-beams carried by the anchor-rails, the roof having charge-lids and flue-boxes, substantially as shown and described.

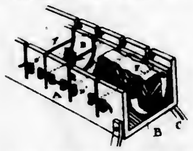
8. An ore-desulfurizing furnace, comprising a series of posts, cross-ties on said posts, a fire-box set on said cross-ties and provided with a channel-iron bottom resting on the cross-ties, grate-bars set in the channel-iron bottom and extending upwardly and outwardly, longitudinal binding-bars for the upper ends of the grate-bars, transverse anchor-rails for said binding-bars and grate-bars, binder-posts outside of the grate-bars and connected with the said anchor-rails, longitudinal bars for said binder-posts, transverse holding-beams having curved ends for engagement with the said binder post-bars, track-rails on the said transverse holding-beams, and a roof under the track-rails and carried on supporting-beams resting on the anchor-rails, said roof having charge-lids and flue-boxes, substantially as shown and described.

644,425. APPARATUS FOR CASTING METAL. JOSEPH W. HARRISON, Converse, Ind. Filed Feb. 4, 1899. Serial No. 704,461. (No model.)

Claim.—In an apparatus for casting small steel articles, a series of molds arranged in tiers and having horizontal gateway-sections at the edge, and certain of the molds having vertical gate-sections flared at the top, the said vertical gate-sections when placed in alinement forming a single pouring-gate common to all the horizontal gates, and a perforated casing flared downward and outward and engaging around the tiers of molds, there being a space between the tiers of molds and the casing to receive sand, substantially as specified.



644,426. UPHOLSTERING APPARATUS. JOHN L. HEFFNER, Peoria, Ill. Filed Oct. 5, 1898. Serial No. 692,855. (No model.)



Claim.—1. In an upholstering apparatus, a mold or former in which to form tufting, openings in the sides for the passage of the tying medium stretched across the former and fastening devices for holding such tying medium for the purposes set forth.

2. In an upholstering apparatus comprising a mold or former, openings in the sides for the passage of the tying medium stretched across the former, fastening devices for holding the said tying medium and shaping-blocks within the former substantially as described and for the purposes set forth.

3. In an upholstering apparatus comprising a mold or former, openings in the sides for the passage of the tying medium stretched across the former, fastening devices for holding the said tying medium, shaping-blocks within the former, and swinging blocks above the shaping-blocks for the purposes set forth and described.

4. In an upholstering apparatus, a mold or former in which to form tufting, openings in the sides, for the passage of the tying medium stretched across the former, and fastening devices secured near the openings for the purposes set forth in combination with an adjustable bottom for changing the depth of the mold substantially as described and shown.

5. For use in an upholstering-machine a shaping-block having a conical opening cut in each end thereof the largest ends of such openings coming together within the block, such double-coned cavity forming a depression in the block wherein to form tufts substantially as set forth.

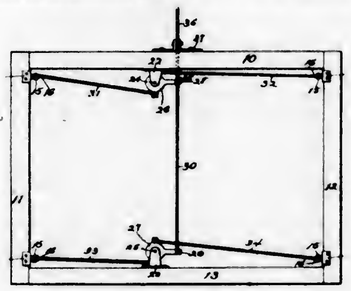
6. In an upholstering-machine, the combination of the former consisting of the sides A and bottom B, slots or openings in the sides thereof, tying medium within the openings, fastening devices for grasping the said tying medium, suitable forming-blocks within the mold, pivotal blocks above the forming-blocks adapted to swing as set forth and an adjustable bottom for changing the depth of the mold substantially as herein described.

644,427. PLATFORM-SCALE. JAMES W. HICKMAN, Clearfield, Iowa. Filed May 29, 1899. Serial No. 718,657. (No model.)

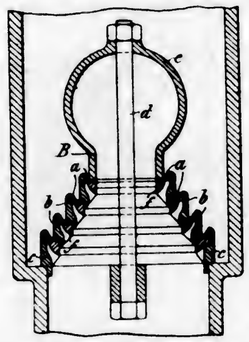
Claim.—1. In a platform-scale, the brackets 22 and 23 fixed to the central portion of parallel side pieces of a frame, three-armed disks 26 and 27 mounted in said brackets, bell-crank levers suspended in the corners of the frame, rods connected with said bell-crank levers and the three-armed disks, and a rod connecting the long arms of the said disks, arranged and combined as shown and described to operate in the manner set forth.

2. The frame, the brackets mounted thereon, the bell-cranks mounted in the brackets, the platform mounted in the frame, the plates on the platform, the knife-edges on the plate the links depend-

ing from the horizontal arms of the bell-cranks and suspending said knife-edges, brackets 22, 23, mounted on the frame, three-armed disks mounted in the brackets 22, 23, rods connecting arms of said disks to vertical arms of the bell-cranks, a rod connecting said disks, a bell-crank 36 arranged for connection to a scale-beam and a rod 35 of indeterminate length connecting one of the disks with the bell-crank 36.



644,428. COMPOUND LIP-VALVE. BENEDIKT HÜBEL, Hamburg, Germany. Filed June 1, 1898. Serial No. 682,267. (No model.)



Claim.—1. A lip-valve, comprising several pairs of rings arranged or superposed in a conical shape, each pair of rings consisting of a rigid ring and an elastic ring having an upwardly-projecting portion, as set forth.

2. In a compound lip-valve, the combination with several concentric annular seats arranged one above the other in a conical shape, each seat having at the outer border an annular wall projecting upward, of several elastic rings bent upward at the outer border to form lips with said walls of said seats, substantially as set forth.

3. A valve-seat having circumferentially-disposed ports, a valve-ring of flexible material secured to the upper surface of the seat just within the ports, and having its outer edges turned upwardly, forming a circular flange, and a ring surrounding said valve-ring and against which it seats.

4. A valve consisting of a series of superposed and successively-smaller rings, each having circumferentially-disposed ports opening to their upper surfaces, valve-rings of flexible material secured between successive rings and bordering the ports, the side of said valve-rings next the port extending upwardly to form a flange, and a ring on the opposite side of the ports, forming a valve-seat.

5. A valve, consisting of a series of superposed and successively-smaller rings, each having circumferentially-disposed ports opening to their upper surfaces, valve-rings of flexible material secured between successive rings and bordering the ports, the side of said valve-rings next the port extending upwardly to form a flange, a ring on the opposite side of the ports forming a valve-seat, the top and bottom rings having a central extension, and a bolt passing through the same.

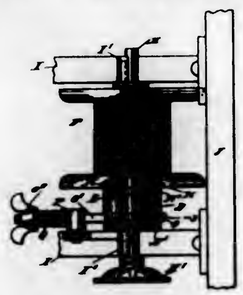
6. A valve composed of a series of superposed and successively-smaller rings, having circumferentially-disposed ports opening to their upper surfaces and having valve-seats bordering the ports and below their upper ends, and flexible valve-rings on said seats, having an upwardly-extending flange next the port, said rings having their horizontal parts secured between the superposed rings.

7. A lip-valve, comprising several pairs of rings superposed one upon the other, each pair of rings, consisting of a rigid and an elastic ring having an upwardly-projecting edge, the rings of each pair being arranged concentrically, as set forth.

8. A valve, comprising a series of seats in the form of rings arranged one upon the other, the rings being of successively-increasing diameter from the top to the bottom and each provided with a port outside of the seat next above, and elastic rings secured between the seats and bent upwardly at one edge to form a lip-valve, substantially as described.

9. A valve, comprising a series of seats in the form of rings arranged one upon the other, the rings being of successive increasing diameter from the top to the bottom, and each provided on its inner face at the base with a flange engaging the inner face of the seat next below, and with ports outside of the seat next above, and elastic rings secured between the seats and bent upwardly at one edge to form a lip-valve, substantially as described.

644,429. FRICTION WARP-RACK FOR LOOMS. WILLIAM J. IRWIN, New York, N. Y. Filed Sept. 26, 1899. Serial No. 731,617. (No model.)



Claim.—1. In a warp-rack for looms, a shaft mounted to turn in said rack, a warp-beam mounted to turn on said shaft, a spring-held barrel connected to said warp-beam for taking up the slack in the warp, and a hook frictionally engaging the said barrel and provided with a longitudinally-spring-pressed shank, as set forth.

2. In a warp-rack for looms, a shaft mounted to turn in said rack, a warp-beam mounted to turn loosely on said shaft, a spring-held barrel connected to said warp-beam for taking up the slack of the warp, a hook frictionally engaging said barrel and formed with a longitudinally-spring-pressed shank, and means for varying the tension of said hook, as and for the purpose set forth.

3. A loom having a rack, a shaft mounted to turn in said rack, a warp-beam mounted to rotate loosely on said shaft, a spring connected at one end with said warp-beam, and at its other end with said shaft, an adjustable friction device for said shaft, said friction device comprising a drum on the shaft, a hook engaging the drum, a spring pressing said hook, and means for adjusting the tension of said spring, substantially as shown and described.

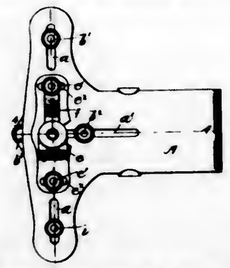
4. In a loom, a warp-rack, a shaft mounted to turn in said rack, a warp-carrier mounted to rotate loosely on said shaft, a spring connected at one end to said carrier and at its other end to said shaft, a barrel on said shaft, a hook slidable in a bearing on the rack, a spring coiled around the shank of said hook and holding it in frictional engagement with said barrel, and a nut screwing on the shank of said hook and arranged to adjust the tension of said spring, as set forth.

5. In a loom, a warp-rack, a shaft mounted to turn in said rack, a warp-carrier mounted to rotate loosely on said shaft and formed with apertures on one side, a disk loose on said shaft and having pins entering said apertures, a helical spring secured at one end to said disk and at the other end to said shaft, a barrel fixed on said shaft and inclosing said disk and spring, a hook slidable in a bearing in the rack and spring-held into frictional engagement with said barrel, and means for varying the tension of said hook, as set forth.

644,480. CENTER-GAGE. WILLIAM JOHNSON, Boston, Mass. Filed Dec. 6, 1898. Serial No. 698,418. (No model.)

Claim.—1. The center-gage above described consisting of a base-plate having a fixed centering-point and a set of centering-jaws, each jaw of said set being pivoted to the jaw on each side of it, certain of the pivots being slidably secured to the base-plate, whereby said jaws are adapted to be adjusted about said centering-point, as set forth.

2. The center-gage above described consisting of the base-plate provided with guiding-slots and a set of movable centering-jaws pivotally connected to each other and to said base-plate in the manner described, whereby the direction of movement of said jaws with relation to a fixed center between them, is controlled by the location of said guiding-slots, as and for the purposes set forth.

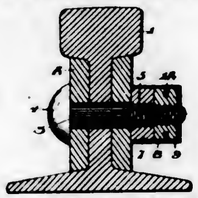


3. The center-gage above described consisting of a base-plate having a fixed centering-point thereon, and a set of centering-jaws pivotally connected together and to said base-plate and movably mounted on said base-plate and guided in their movements thereon, in combination with springs whereby said jaws are kept normally closed about said centering-point as set forth.

4. The center-gage above described consisting of a base-plate provided with guiding-slots and a centering-point, in combination with a set of movable centering-jaws connected to each other and to said base-plate and movable in said guiding-slots, in combination with a slide adapted to slide on said base-plate and connected to one of the pivots of said jaws, as and for the purposes set forth.

5. In a center-gage, a base-plate and a marking-tool located in a fixed position thereon, and means whereby the gage and the object to be centered are brought into a predetermined relation with each other, said means consisting of centering-jaws each pivotally connected to the jaw adjacent thereto and to said base-plate and adapted to adjust themselves about said marking-tool, as and for the purposes set forth.

644,481. NUT-LOCK. STANISLAW KAROLEWSKI, Pittsburg, Pa. Filed Dec. 21, 1899. Serial No. 741,130. (No model.)

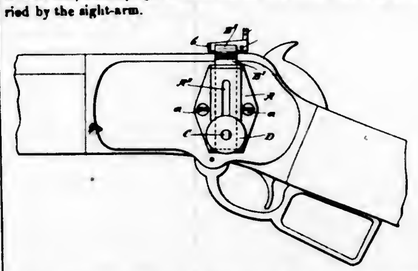


Claim.—The combination with a bolt provided with a screw-threaded portion of two different diameters, one of which is provided with right-hand screw-threads and the other with left-hand screw-threads, of a nut mounted upon said larger diameter of said bolt, of a nut mounted upon said smaller diameter of said bolt and provided with a screw-threaded recess centrally of each side and which extend in a vertical and horizontal manner, a sleeve mounted upon said nuts and adapted to have its inner end flush with the object the bolts extend through and the opposite or outer end extending over the said bolt, said sleeve provided centrally of each side thereof with an opening registering with one of the recesses arranged in the sides of the nut, and a screw extending through each of the openings of the said sleeve and secured in the registering recess, and said screws having their heads countersunk in the said sleeve, substantially as described.

644,432. GUN-SIGHT. PETER LAWLESS, Ouray, Colo., assignor of one-half to Rosalie W. Haskins, same place. Filed July 11, 1899. Serial No. 723,443. (No model.)

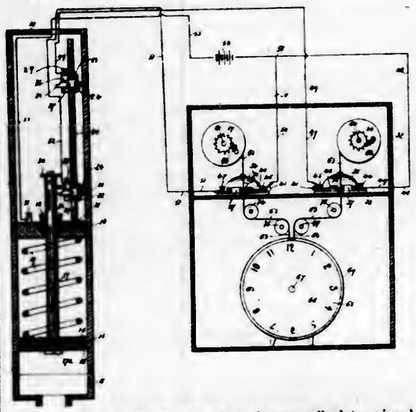
Claim.—1. The combination of the vertically-adjustable sight-arm having a horizontal member split at one end, a sight adjustable transversely on said horizontal member, and an expanding-screw arranged in the slit of the sight-arm.

2. The combination of the plate having a guideway and a longitudinal slot leading into said guideway, the sight-arm fitted to slide in said guideway, the screw secured to the sight-arm and projecting through the slot of the plate, said screw being cut away on opposite sides so as to present flat surfaces adjacent to the longitudinal walls of said slot, a clamping-nut rotatable on said screw, and a sight carried by the sight-arm.



3. The combination of the sight-arm having a vertical sliding member and means for clamping the same, a horizontal member, a sight-base adjustable transversely on said horizontal member, means for securing the base in position, and a sight pivoted to said base.

644,488. SIGNAL APPARATUS FOR BOILERS. WILLIAM B. LOWE, Jr., Atlanta, Ga. Filed Dec. 2, 1898. Serial No. 698,060. (No model.)



Claim.—1. In an apparatus of the class described, two signal devices, time-recording tapes wound on spools mounted over said signal devices, each of said signal devices being provided with an electric magnet, and a pivoted armature, marking-points connected with each of said armatures, and pads supported adjacent to said armatures and between which and the armatures the tapes are adapted to be drawn, and a clock mechanism provided with a rotatable face with which said tapes are connected and on which they are adapted to be wound, substantially as shown and described.

2. In an apparatus of the class described, two signal devices, two recording-tapes, means for synchronously moving said tapes, each of said signal devices being provided with an electromagnet, and a movable armature, marking-points connected with each of said armatures, and pads supported adjacent to said armatures and between which and the armatures the tapes are arranged to be drawn and means for closing an electrical circuit through said movable armature, substantially as shown and described.

3. In an apparatus of the class described, two signal devices, time-recording tapes, each of said signal devices consisting of a vibratory bell-striker provided with a movable armature, marking-points connected with said armatures, pads supported adjacent to said armatures and between which and the armatures said tapes are arranged to be drawn, means for closing an electrical circuit through said armatures and for synchronously moving said tapes, substantially as shown and described.

4. In an apparatus of the class described, two signal devices, time-recording tapes and means for synchronously moving said tapes, each of said signal devices being provided with an electromagnet and a movable armature, marking-points connected with said armatures, pads supported adjacent to said armatures and between which and said armatures said tapes are arranged to be drawn, said tapes being provided with graduations arranged at intervals in proportion to the

speed at which they are moved, and the means for moving said tapes consisting of clock mechanisms provided with a rim which is actuated thereby and which is moved at a speed corresponding to the speed of a clock-pointer, substantially as shown and described.

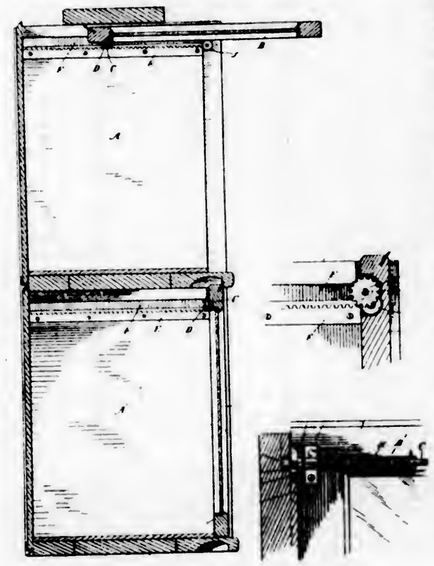
5. In an apparatus of the class described, signal devices, time-recording tapes wound on spools mounted adjacent said signal devices, each of said signal devices consisting of a vibratory electromagnetic bell having a movable armature, marking-points connected with each of said armatures, pads supported adjacent said armatures and between which and said armatures tapes are arranged to be drawn, and a clock mechanism provided with a rotatable face operatively connected therewith, and with a rim about which said tapes are wound, said rim being provided with means for positively engaging said tapes, substantially as shown and described.

6. In an apparatus of the class described, a movable clock-face provided with a deflected rim upon which are arranged means for positively engaging a tape or other recording member, and a recording-tape which is arranged to be moved by said rim at a predetermined speed, substantially as shown and described.

7. An apparatus of the class described, comprising a pressure-actuated device, consisting of a casing adapted to be connected with a boiler or similar device, a piston mounted therein, high and low contact devices in connection with which said piston operates, a pair of signal devices comprising electromagnetic vibratory bells respectively in electrical connection with high and low signal devices, each of said bells being provided with a movable armature, marking-points connected with said armatures, pads arranged adjacent said armatures, high and low pressure recording tapes, said tapes being arranged to pass between said marking-points and said bells, and means for moving said contact-tapes comprising a clock mechanism with which is operatively connected a movable dial with which said tapes are connected, and in connection with which they are synchronously revolved, substantially as shown and described.

8. In an apparatus of the class described, a pressure-actuated device, comprising a casing, a transverse head arranged therein, a piston operatively mounted in said casing and beneath said head, a rod connected with said piston and operating through said transverse head, an upright connected with said transverse head, and provided with two adjustable contact devices, said rod connected with said piston being provided with a contact device which operates in connection with the contact devices upon said upright, said contact devices upon said upright being provided with pivoted spring-actuated contact-pieces and high and low pressure signal devices in operative connection with said contact devices upon said upright, substantially as shown and described.

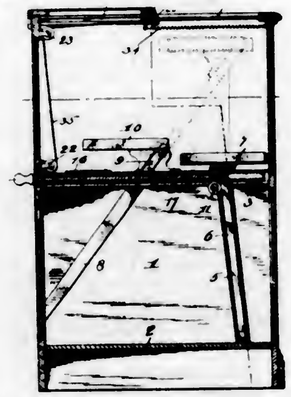
644,434. BOOKCASE. FRANK MACEY, Grand Rapids, Mich. Filed Dec. 16, 1899. Serial No. 740,537. (No model.)



Claim.—1. The combination of a case having grooves in its respective ends, a rod adapted to traverse said grooves, a front having a groove in its inner surface engaging the rod, bearings for the rods, pinions fixed on the rod, and racks fixed on the casing engaging the pinions, substantially as described.

2. The combination of a case having horizontal grooves in its ends, and rolls near the front ends of the grooves, a rod having rolls at its respective ends adapted to traverse the groove in the case, pinions on the rod, racks on the case engaging the pinions, a front pivotally supported upon the rod and having a groove engaging the rod, and bearings engaging the rod, and a spring surrounding the rod and attached at one end thereto, and attached to the front at the other end, substantially as described.

644,435. CIGAR-CASE. FERDINAND MAGUOLO, Edwardsville, Ill. Filed Aug. 10, 1899. Serial No. 726,799. (No model.)



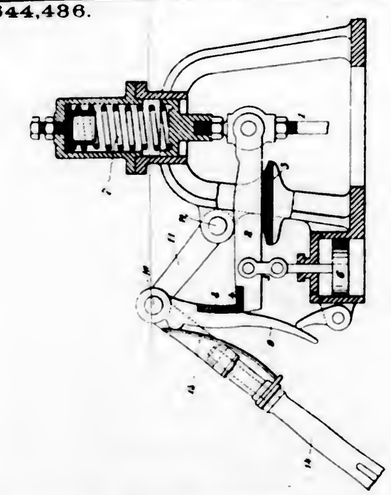
Claim.—1. In a case of the class described, a rectangular framework, a pair of horizontally-arranged partitions in said framework, in the upper one of which are a plurality of slots extending inwardly from the rear side, bars arranged to pass vertically through said partitions, trays carried by the upper ends of said bars, operating-handles arranged to move rearwardly between the horizontal partitions to the rear of said bars, flexible connections between said handles and the vertically-moving bars, pins fixed in the said handles, which pins pass through the slots in the upper one of the horizontal partitions, and spring-hooks arranged on the upper one of said partitions for engaging the pins when the same are at their rearward limit of movement, substantially as specified.

2. In a case of the class described, a rectangular framework, a pair of horizontally-arranged partitions in said framework, in the upper one of which are a plurality of slots extending inwardly from the rear side, bars arranged to pass vertically through said partitions, trays carried by the upper ends of said bars, operating-handles arranged to move rearwardly between the horizontal partitions to the rear of said bars, flexible connections between said handles and the vertically-moving bars, pins fixed in the said handles, which pins pass through the slots in the upper one of the horizontal partitions, spring-hooks arranged on the upper one of said partitions for engaging the pins when the same are at their rearward limit of movement, a section of plate-glass arranged to slide in the top of the case, and flexible connections from said section of plate-glass to the said handles whereby said section of glass is moved rearwardly simultaneous with the vertical movement of either one of the tray-carrying bars, substantially as specified.

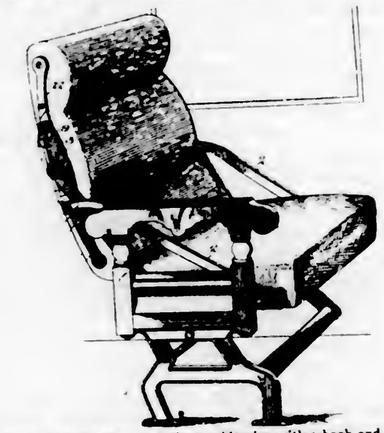
644,436. LIFTING-VALVE GEAR FOR ENGINES. RUDOLF H. MANTEL, Riga, Russia. Filed Nov. 1, 1899. Serial No. 735,473. (No model.)

Claim.—In steam-distributing lifting-valves for steam-engines the combination of the valve rod or stem with a latch-lever hinged with one end to the said rod or stem and acted upon by means of any suitable snapper whatever and with a curved surface upon which the said latch-lever bears tangentially and with an air or liquid brake acting upon the other end of the said lever so as to have the said air or liquid brake acting upon the said lifting-valve with an increasing intensity of force according as the said valve is descending upon its seat substantially as shown and described.

644,436.



644,437. CAR-SEAT. HERMANN MEIER, Palestine, Tex. Filed Nov. 8, 1899. Serial No. 736,259. (No model.)



Claim.—1. In a car-seat, the combination with a back and arm therefor, of a back-plate connected to the arm, clips on the back adapted to engage with the back-plate, and an independent locking device also adapted for positively securing said plate to the back independently of the clips.

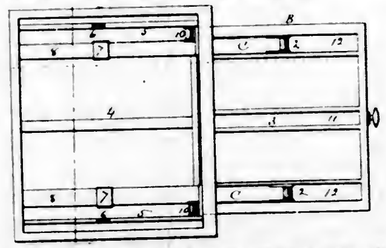
2. In a car-seat, the combination with a back and arm therefor, of a back-plate secured to the arm, a connector-plate secured to the back, clips on the connector-plate adapted to engage with the back-plate and hold said plates together, and an independent locking device also adapted for securing said plates to each other independently of the clips.

3. In a car-seat, the combination with a back and arm therefor, of a back-plate secured to the arm, clips on the back which detachably embrace the edge of the back-plate and afford a connection between said plate and the back, and a locking device on the back, independent of the clips, which also secures the plate to the back.

4. In a car-seat, the combination with a back, and arm therefor, of a back-plate secured to the arm which has a locking-bolt aperture provided with a contracted entrance leading in from the edge of the plate, a connector-plate secured to the back and provided with clips which embrace the edges of the back-plate, and a spring-actuated locking-bolt having a head adapted for reception in the aperture and a shank adapted to pass through the entrance to said aperture.

5. In a car-seat, the combination with a back and an arm therefor, of a connector-plate secured to the back, end plates secured to the back, a back-plate secured to the arm and adapted to fit in between the end plates and abut them, and means for locking the back-plate and connector-plate together.

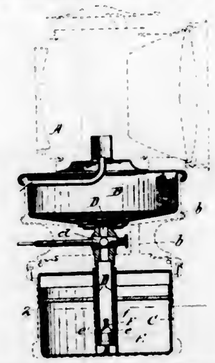
644,438. DRAWER-SUPPORT. EMIL MERTENS, Dayton, Ohio. Filed July 17, 1899. Serial No. 724,097. (No model.)



Claim.—1. In a drawer-support the combination of the frame with longitudinal rails, the guides parallel therewith provided with inclines midway on their under surfaces, the supporting-arms, the stirrups attached to said supporting-arms, the longitudinal rails, the drawer with grooves in its under surface adapted to receive said supporting-arms, the gravity-arms pivoted to the rear of said drawer to operate said supporting-arms, substantially as described.

2. In a drawer-support the combination of the frame with horizontal rails, the rollers connected immediately with the front ends thereof, the guides with inclines midway thereof, the supporting-arms, the stirrups attached to said supporting-arms and these provided with rollers on their outer ends, the drawer with grooves in its under surface adapted to receive said supporting-arms, the stirrups attached to the inner ends of said supporting-arms, the gravity-arms pivoted to the rear end of said drawer to carry said supporting-arms outwardly about one-half the movement of the drawer, substantially as described.

644,439. ACETYLENE-GAS GENERATOR. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, same place. Filed Feb. 20, 1899. Serial No. 706,128. (No model.)



Claim.—1. In an acetylene-lamp, the combination with a generating-chamber, a burner connected therewith, a water-chamber and a tube leading therefrom to the generating-chamber and terminating adjacent to the bottom thereof, of a longitudinally freely movable piece fitting loosely within the discharge end of the water-tube adapted to rest upon the bottom of the generating-chamber when the parts of the lamp are assembled, and so as to provide with the walls thereof an annular passage of such restricted radial width that an excess of gas-pressure will stop the discharge of water from such passage.

2. In an acetylene-lamp, in combination, a generating-chamber having a gas-discharge port, a water-pipe entering the chamber and discharging downwardly, its discharge aperture being of greater than capillary bore, and a rod freely movable within the end of the tube and of such diameter as to form with the walls of the tube an annular passage of such restricted radial width that an excess of gas-pressure will stop the flow of water.

3. In an acetylene-lamp, in combination, a generating-chamber

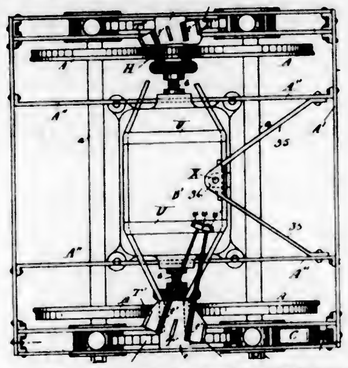
having a gas-discharge port, a water-pipe entering the chamber and discharging downwardly, its discharge-aperture being of greater than capillary bore, and a rod freely movable within the end of the tube and of such diameter as to form with the walls of the tube an annular capillary passage.

4. In an acetylene-lamp, the combination with a generating-chamber, a burner connected therewith, a water-chamber and a tube leading therefrom to the generating-chamber, and having its discharge end directed downwardly, of a longitudinally-apertured plug fitted to the discharge end of such water-tube and having its inner end tapering in form so as to form an annular sediment-pocket, and a longitudinally-movable rod located within the aperture of the plug.

5. In an acetylene-lamp, the combination with a generating-chamber, a burner connected therewith, a water-chamber and a tube leading therefrom to the generating-chamber, and having its discharge end directed downwardly, of a longitudinally-apertured plug fitted to the discharge end of such water-tube and having its inner end tapering in form so as to form an annular sediment-pocket, a longitudinally-movable rod located within the aperture of the plug, and being of greater length than the aperture of the plug, and having enlarged ends.

6. In an acetylene-lamp, the combination with a generating-chamber, a burner connected therewith, a water-chamber and a tube leading therefrom to the generating-chamber, of a longitudinally-apertured plug fitted to the discharge end of such water-tube and having its inner end tapering in form so as to form an annular sediment-pocket, a longitudinally-movable rod located within the aperture of the plug, and being of greater length than the aperture of the plug, and having enlarged ends, the aperture of the plug opening laterally at its inner end.

644,440. TRUCK FOR RAILWAY-CARS. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Feb. 8, 1897. Serial No. 622,469. (No model.)



Claim.—1. In a railway-car truck, four drive-wheels, two on each side thereof, a friction-roller placed between adjacent wheels on each side of the truck, one wheel on each side of the truck mounted in a movable journal-box, an adjustable device for maintaining contact between the friction-roller and the drive-wheels, substantially as described.

2. In a railway-truck, a pair of drive-wheels, a friction-roller placed between them and in contact with each, a means for imparting motion to said friction-roller, the journal-box of one of said drive-wheels movable longitudinally, a link connecting with said movable journal-box, a means for operating said link, thereby moving said journal-box and maintaining a constant, elastic contact between the friction-roller and the drive-wheels, substantially as described.

3. In a railway-truck, two pairs of drive-wheels, a friction-roller placed between each pair, a flexible rotary connection between the shaft upon which the friction-roller is mounted and the friction-roller, with a means for maintaining a constant, elastic contact between the drive-wheels and the friction-roller, substantially as described.

4. In a railway-truck, two pairs of drive-wheels suitably mounted, a friction-roller placed between each pair of drive-wheels, said friction-roller consisting of a hub with a removable ring forming a friction-surface, with a flexible rotary connection between said roller and the shaft upon which it is mounted, substantially as described.

5. In a railway-car truck, a friction-roller, a shaft upon which it is mounted connected with a motor, one or more brackets secured to or connected with the hub of said roller, one or more brackets keyed to said shaft, a spring housed within each pair of brackets, forming a flexible rotary connection between the friction-roller and the shaft upon which it is mounted, one or more drive-wheels adapted to engage with said friction-roller, substantially as described.

6. In a railway-car truck, the combination of a pair of drive-wheels suitably mounted, with a friction-roller mounted on a shaft connected with a motor, one of the journal-boxes of said drive-wheels movable longitudinally, a link engaging with said movable journal-box, a collar at one end of said link, a bolt adapted to pass through said collar and engage with the side of the other journal-box of said pair, a spring mounted on said bolt seated against said collar and operating to draw the drive-wheels in contact with the friction-roller, substantially as described.

7. In a railway-car truck, two pairs of drive-wheels suitably mounted, a friction-roller mounted on a shaft operated by a motor, a removable ring forming the periphery of said friction-roller, a flexible rotary connection between the friction roller and the shaft upon which it is mounted, with a means for holding the drive-wheels in constant, elastic contact with said friction-roller, substantially as described.

8. In a railway-car truck, a pair of drive-wheels, a friction-roller mounted between them, a means for maintaining a constant, elastic contact between the drive-wheels and the friction-roller by the operation of a spring acting upon the journal-box of one of said drive-wheels, substantially as described.

9. In a railway-car truck, a pair of drive-wheels, a friction-roller mounted between them, the journal-box of one of said drive-wheels movable horizontally, said journal-boxes united by an adjustable resilient coupling, so arranged that the drive-wheels shall be held in contact with the friction-roller by means of the resiliency of said coupling, substantially as described.

10. In a railway-car truck, a pair of drive-wheels on each side thereof, a friction-roller between said drive-wheels, a link secured to one of the journal boxes, a bolt passing through said link engaging with the opposite journal-box, a spring on said bolt, the resiliency of which tends to force the bolt in contact with the journal-box, a wedge adapted to be driven between the end of said bolt and the end of said link, causing a tension of said spring and providing a means for relieving the drive-wheels from the action of said spring, substantially as described and for the purpose set forth.

11. In a railway-car truck, two wheels on each side, a friction-roller, a means for driving the wheels by imparting motion to said friction-roller, a means for making a constant elastic contact between said drive-wheels and said friction-roller, the flanges of the drive-wheels interlocking with the groove in the friction-roller, substantially as described and for the purpose set forth.

12. In a railway-car truck, two pairs of drive-wheels, a friction-roller between each pair, a motor operating a shaft upon which said friction-roller is mounted, said friction-roller placed slightly above the center of said drive-wheels, whereby the weight of the friction-roller and the armature may be partially supported by the drive-wheels, substantially as described and for the purpose set forth.

13. In a railway-car truck, four drive-wheels, two on each side thereof, a friction-roller placed between adjacent wheels on each side of the truck, one wheel on each side of the truck mounted in a movable journal-box, and an adjustable elastic contact maintained between the friction-roller and said drive-wheels, substantially as described.

14. In a railway-car truck, four drive-wheels, two on each side thereof, a friction-roller placed between adjacent wheels on one side of said truck, one of said wheels in contact with said friction-roller mounted in a movable journal-box, and means for maintaining contact between the friction-roller and the drive-wheels by means of a spring acting upon said movable journal-box, substantially as described.

15. In a railway-car truck, a friction-roller connected to the armature of a motor adapted to rotate in connection with one of the drive-wheels, a key arranged to hold the bearing portion of said friction-roller in connection with the castings, the bearing portion of said friction-roller adapted to be held on the casting by the flange of the drive-wheel engaging with the groove in the periphery of said friction-roller, substantially as described and for the purpose set forth.

16. In a railway-car truck, a friction-roller adapted to rotate in connection with one of the drive-wheels, a lug on the casting adapted to engage with an aperture in the end of said friction-roller, with a cap on the end of the shaft upon which the friction-roller is mounted, suitably secured to the end of said friction-roller, substantially as described and for the purpose set forth.

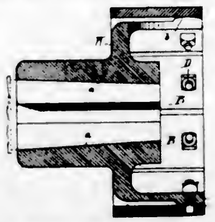
17. In a car-truck, drive-wheels arranged on each side of said truck, a brace pivoted to the frame of the truck near one end thereof, a plate attached to or formed integral with said brace, a car resting upon said truck, a king-bolt passing through said car and through said plate into said truck, substantially as described and for the purpose set forth.

18. A railway-car, consisting of a truck having drive-wheels on each side thereof carrying equal weights, a car-body supported by said truck, a king-bolt passing through said car-body into said truck at a point eccentric to said truck and which point is also without the line of support of said car-body, substantially as described.

19. In a railway-car truck, a rotating shaft, a friction-roller in contact with one or more truck-wheels and driven by said shaft, and a flexible rotary connection between said shaft and said roller, whereby the roller may have a certain amount of rotary motion independent of the shaft, substantially as described.

20. In a railway-car truck, a friction-roller placed between adjacent wheels on one side of a truck, one or both of said wheels being so mounted as to be capable of horizontal adjustment, and a spring or equivalent means for maintaining contact between the friction-roller and said wheels, substantially as described.

644,441. FRICTION-ROLLER. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Dec. 22, 1897. Serial No. 662,977. (No model.)

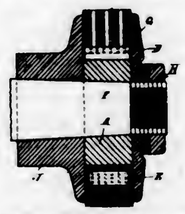


Claim.—1. A friction-roller consisting of a hub, a web, secured thereto a series of resilient fingers projecting from said web extending substantially parallel to the hub, and the tire secured to said fingers, substantially as described.

2. A friction-roller consisting of a hub, a web, secured thereto, a series of fingers secured to said web, said fingers extending substantially parallel to the hub, and a tire secured to said fingers and supported therefrom throughout a portion of its width, substantially as described.

3. A friction-roller consisting of a hub, a web formed on said hub, there being a series of grooves in said web, springs attached at one end to said web and placed within said grooves, a tire resting upon the loose ends of said springs, and means for securing said tire to said springs, substantially as described.

644,442. FRICTION-ROLLER. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Jan. 12, 1898. Serial No. 666,463. (No model.)

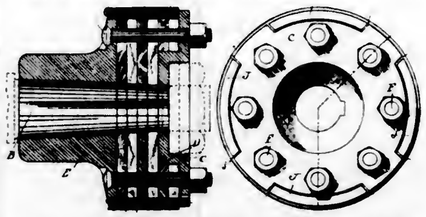


Claim.—1. A friction-roller, comprising a continuous and integral yielding core, a tire made up in sections whose inner edges rest on the periphery of the continuous core, means for securing said tire and said core together, with means for securing the tire-sections in position, substantially as described.

2. A friction-roller comprising a continuous yielding core, a tire composed of layers, each layer made up of a series of strips and each layer breaking joints with the layers next adjoining it, with a means for uniting the inner edges of each layer to the periphery of the core and means for securing the layers together, substantially as described.

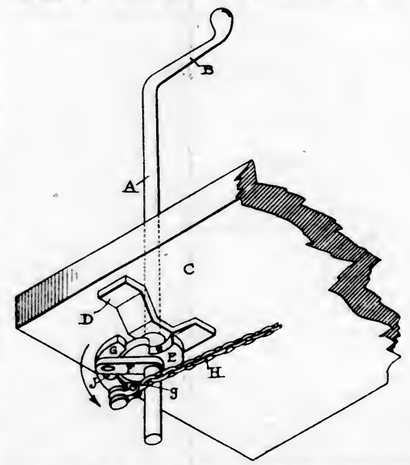
3. A friction-roller, adapted for use in friction-driven trucks, comprising a yielding core, a tire made up of a series of layers, each layer composed of a series of sections, means for uniting the layers together, means for uniting the sections, with a yielding substance between adjacent layers, so arranged and connected up that the tire-sections will be driven toward each other in operation between the drive-wheels of a truck, substantially as described.

644,443. FRICTION-ROLLER. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Jan. 12, 1898. Serial No. 666,464. (No model.)



Claim.—A friction-roller, comprising a casting, a yielding core, a thin metallic tire, a disk, and locking-horns on the edge of said tire engaging with openings in said disk, substantially as described.

644,444. CAR-BRAKING MECHANISM. JAMES F. MCELROY, Albany, N. Y., assignor to The Consolidated Car-Heating Company, same place. Filed Oct. 22, 1898. Serial No. 694,271. (No model.)



Claim.—1. A mechanical brake, consisting of a rotary brake-staff, an arm formed integral therewith or secured thereto, a lever pivoted upon said brake-arm, a brake-chain secured to said lever, with a cam-block arranged to guide said lever, substantially as described.

2. In a mechanical brake, a rotary brake-staff, an arm rigidly secured thereto, a lever pivoted to said arm, with a brake-chain attached to said lever, substantially as described.

3. In a mechanical brake, a brake-staff, a brake-chain, a flying lever pivotally supported to said brake-staff or a projection thereon, said brake-chain connected with said flying lever near one end of the same, a cam-block, all so arranged and connected up that a partial revolution of the brake-staff will cause the end of the flying lever to which the chain is attached to move forward of the brake-staff, guided by the cam-block, until the brake-chain passes the fulcrum of the flying lever, when the brake-chain will come in contact with the brake-staff, with a means for locking the flying lever out of contact with the cam-block during the further revolution of the brake-staff in the direction of winding the brake-chain thereon.

4. A mechanical brake, consisting of a flying lever suitably supported by a brake-staff and attached near one end to a brake-chain, a cam-block arranged to guide said flying lever, with a brake-staff and a means for locking said flying lever out of contact with the cam-block after the revolution of the brake-handle has brought the chain in contact with the brake-staff.

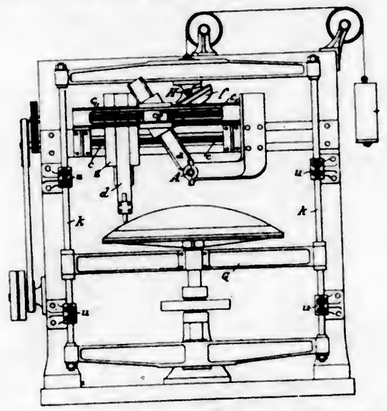
5. A mechanical brake, consisting of a brake-staff, a brake-chain, a flying lever pivotally mounted on a projection on the brake-staff, said chain connected to said flying lever, a cam-block, a means for automatically locking said flying lever when the brake-chain is brought in contact with the brake-staff during the revolution of the

brake-staff, in such a manner that the cam-block will not interfere with the flying lever during the further revolution of the brake-staff in winding up the brake-chain.

6. In a mechanical brake, a brake-staff, a chain, a flying lever pivotally secured to a projection on the brake-staff, said chain connected to said flying lever, a cam-block arranged to guide said flying lever, a lever-stop with which said flying lever engages when the chain is unwound, and means for locking the flying lever during the winding of the chain on the brake-staff in such a manner that the flying lever cannot engage with said lever-stop except when the chain is unwound.

7. In a mechanical brake, a brake-staff, a brake-chain, a flying lever pivoted to a projection on the brake-staff and attached to said brake-chain, a cam-block arranged to guide said flying lever, a lever-stop consisting of a curved recess the surface of which is the arc of a circle of which the fulcrum of the flying lever is the center, so arranged that when the chain is unwound, the end of the flying lever will come in contact with said stop.

644,445. GRINDING-MACHINE. FIDELIS HERZ, Nuremberg, Germany. Filed Dec. 29, 1897. Serial No. 664,311. (No model.)



Claim.—1. In a grinding-machine for parabolic surfaces, a rotating support for the surface sustained by a spindle and driven by a pulley, in combination with a grinding-tool operatively connected to a sliding arm and to a second pivoted arm, together with a screw-threaded shaft operatively connected to said arms and driven by a second pulley, all of said parts being so arranged that as the surface is rotated the tool is given advance movement thereover in such direction as to cut or grind a perfect paraboloidal surface, substantially as described.

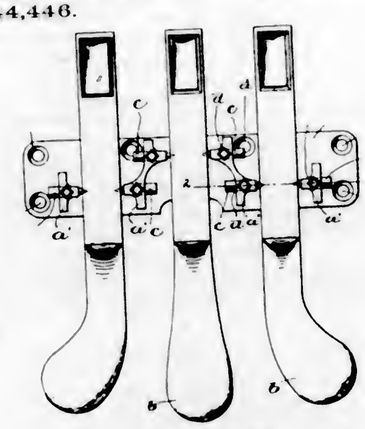
2. In a grinding-machine for parabolic surfaces, a rotating support for the surface sustained by a spindle and driven by a pulley, in combination with a grinding-tool operatively connected to a sliding arm and to a second pivoted arm, together with means operatively connected to said arms and driven by a second pulley, all of said parts being so arranged that as the surface is rotated the tool is given advance movement thereover in such direction as to cut or grind a perfect paraboloidal surface, substantially as described.

644,446. PIANO-PEDAL SUPPORT AND BEARING. ALBERT F. NORRIS, Boston, Mass. Filed Apr. 7, 1899. Serial No. 712,113. (No model.)

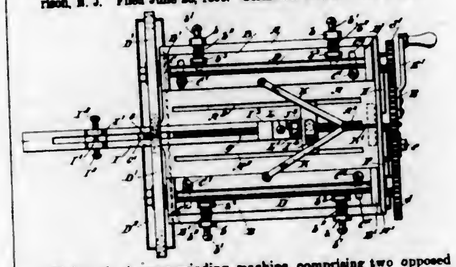
Claim.—1. In combination, a base having integral standards, two or more pedals, pivots loosely fitted in sockets in said standards and adapted to slide longitudinally thereof, and set-screws screwing laterally through said standards and adapted to bind the pivots in the standards, substantially as and for the purpose set forth.

2. In combination, a base having four standards rising therefrom, each of the outer standards having a single pivot adjustably mounted therein and each of the two intermediate standards having two pivots adjustably mounted therein and extending in opposite directions, two of the pivots carried by the intermediate standards being in the rear of the other two pivots, a pedal mounted to oscillate on the rear pivots of the intermediate standards and a pedal mounted to oscillate between each of the front pivots of the intermediate standards and the pivots carried by the outer standards.

644,446.



644,447. RAZOR-GRINDING MACHINE. JOSEPH NORTH, Harrison, N. J. Filed June 20, 1899. Serial No. 721,221. (No model.)



Claim.—1. A razor-grinding machine, comprising two opposed grinding-wheels adapted to engage opposite sides of the razor, a bar mounted to slide between and beneath said wheels and having means for securing a razor thereto, a threaded shaft journaled beneath said razor-holder, a nut mounted upon the razor-holder and adapted to engage said threaded shaft, means for turning the grinding-wheels, and rotative connection between the grinding-wheels and the threaded shaft, substantially as described.

2. A razor-grinding machine, comprising two opposed grinding-wheels adapted to engage opposite sides of the razor, a bar mounted to slide between and beneath said wheels and having means for securing a razor thereto, a threaded shaft journaled beneath said razor-holder, a nut mounted upon the razor-holder and adapted to engage said threaded shaft, a spring acting on said nut to disengage it from the threaded shaft, a releasable catch adapted to hold the nut and shaft in engagement, means for turning the grinding-wheels, and rotative connections between the grinding-wheels and the threaded shaft, substantially as described.

3. A razor-grinding machine, comprising two opposed grinding-wheels adapted to engage opposite sides of the razor, means for separating the grinding-wheels at will to clear the razor, a bar mounted to slide between and beneath said wheels and having means for securing a razor thereto, a threaded shaft journaled beneath said razor-holder, a nut mounted upon the razor-holder and adapted to engage said threaded shaft, means for turning the grinding-wheels, and rotative connection between the grinding-wheels and threaded shaft, substantially as described.

4. A razor-grinding machine, comprising a frame, two parallel plates or standards adjustably secured to the frame by cross slots and bolts, a grinding-wheel and its shaft journaled upon each plate or standard, the wheels being opposed, mechanism for turning said wheels, a razor-support adapted to slide beneath and between said wheels, and means for temporarily separating the wheel-carrying ends of the plates to clear the razor, while the ends remain fixed, substantially as described.

5. A razor-grinding machine, comprising a frame, two parallel plates or standards adjustably mounted on the frame to be moved toward and from each other, a grinding-wheel and its shaft journaled upon each plate or standard, the wheels being opposed, mechanism

for turning said wheels, a razor-support adapted to slide beneath and between said wheels, links pivoted to the wheel carrying the ends of the said plates and to each other, and a rod connected to said links whereby the wheel-carrying ends of the plates may be separated to clear the razor, while the other ends remain fixed, substantially as described.

6. A razor-grinding device comprising a grinding-wheel, a slide having means thereon for holding the razor and presenting it to the wheel, an adjustable support for said slide adapted to engage the razor-back adjacent the wheel, and means for moving said slide.

7. A razor-grinding device, comprising a grinding-wheel, a slide-bar provided with means for holding the razor, a feeding means for said slide-bar having a flexible connection to one end thereof, guides for the slide-bar, and an adjustable support engaging the razor-back adjacent the grinding-wheel.

8. A razor-grinding device comprising grinding-wheels and means for turning them, a slide-bar having a longitudinal slot and provided with means for securing a razor thereto, a feed device connected with one end of the slide-bar, said end of the slide-bar having a hinge therein, and a vertically-adjustable pin passing through the slot in the slide-bar adjacent the wheels and engaging the back of the razor.

9. A razor-grinding machine, comprising a frame, two standards or plates adjustably mounted upon the frame to be moved toward and from each other, a shaft and grinding-wheel thereon mounted upon each plate or standard, a driving-pinion upon each shaft, a main driving-gear mounted upon the frame by an adjustable pivot and meshing with one of the said pinions, and an adjustable idler-pinion connecting said gear and the pinion upon the other shaft, substantially as described.

10. A razor-grinding machine, comprising a frame, two standards or plates adjustably mounted upon the frame to be moved toward and from each other, a shaft and grinding-wheel thereon mounted upon each plate or standard, a driving-pinion upon each shaft, a driving-gear meshing directly with one of said pinions, an adjustable idler-pinion connecting the driving-gear with the other pinion, and an arm adjustably secured to the frame and having bearings therein for the driving-gear, substantially as described.

11. A razor-grinding machine, comprising a frame, two standards or plates adjustably mounted upon the frame to be moved toward and from each other, a shaft and grinding-wheel thereon mounted upon each plate or standard, a driving-pinion upon each shaft, a main driving-gear mounted upon the frame by an adjustable pivot and meshing with one of the said pinions, an adjustable idler-pinion connecting said gear and the pinion upon the other shaft, a razor-supporting slide adapted to slide beneath and between the grinding-wheels, a threaded shaft journaled in the frame, a nut on the razor-holding slide adapted to engage said shaft, and rotative connection between said shaft and the wheel-turning mechanism.

644,448. CIRCUIT-CLOSER FOR TELEGRAPH-KEYS. ELMER E. RYE and LOUIS C. MCINTOSH, Los Angeles, Cal. Filed Oct. 28, 1899. Serial No. 735,069. (No model.)

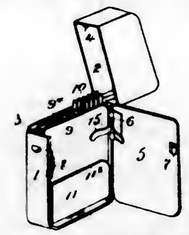


Claim.—1. An automatic circuit-closer for telegraph-keys comprising a frame adapted to be pivoted to the key-lever and having arms which project upwardly above the key-knob of said lever and connected by an elastic strip, said frame normally closing the said circuit through said key, substantially as and for the purpose set forth.

2. An automatic circuit-closer for telegraph-keys comprising the angular frame composed of angular side pieces, the lower ends of which are connected by a metallic piece, and the upper ends of which are connected by a rubber strip which is arranged in close proximity to the knob of the key-lever, a holder to which the frame is pivoted, said holder adapted to be secured to the free end of the key-lever, and a contact plate adapted to be secured to the front leg of the key and contact with the angular frame, substantially as and for the purpose set forth.

3. An automatic circuit-closer for telegraph-keys comprising the angular frame composed of angular side pieces, the lower ends of which are connected by a metallic piece, and the upper ends of which are connected by a rubber strip which is arranged in close proximity to the knob of the key-lever, a holder to which the frame is pivoted, said holder adapted to be secured to the free end of the key-lever and having a forked end, and a contact-plate also having a forked end and adapted to be secured to the front leg of the key and contact with the angular frame, substantially as and for the purpose set forth.

644,449. MATCH-SAFE. MICHAL OBERLÄNDER, New York, N. Y. Filed Nov. 15, 1899. Serial No. 737,023. (No model.)



Claim.—1. A match-safe comprising a receptacle adapted to contain matches and having a pivoted plate or wall along which matches can rest and travel, an igniting-surface, and means for holding such wall in position to cause any one match to ignite as it is drawn across the igniting-surface, substantially as described.

2. A match-safe comprising a receptacle adapted to contain matches and one or more plates or walls pivotally supported within the same adapted to receive a match between them, and provided with igniting-surfaces, and means for pushing said wall or walls toward the matches, substantially as described.

3. A match-safe comprising a receptacle adapted to contain matches and having one or more pivoted plates or walls provided with an igniting-surface adapted to receive matches between them, and a spring for holding said walls against the matches, substantially as described.

4. A match-safe comprising a receptacle adapted to contain matches and one or more pivoted plates or walls adapted to rest against a plurality of matches and having the lower edge or edges at a distance from the bottom of the receptacle to provide a free space for the match-heads, said plates or walls having an igniting-surface for the match-heads, substantially as described.

5. A match safe or box comprising a receptacle having a movable side, one or more movable plates supported within the receptacle substantially parallel with the movable side and adapted to bear against a plurality of matches, and a spring located between said movable side and the adjacent plate whereby when the side is closed the spring will be compressed between said side and plate to press the movable plate toward the matches, substantially as described.

6. In a match safe or box, the combination of a receptacle with a frame adapted to receive matches, and one or more plates pivotally connected with said frame and adapted to lie against a plurality of matches, and an igniting-surface for the match-heads to pass over, substantially as described.

7. In a match safe or box, the combination of a receptacle with a frame adapted to fit within said receptacle and one or more plates pivotally connected with said frame and having their lower edges at a distance from the bottom of the frame to provide a space for match-heads, and means for pressing said plate or plates toward the matches, substantially as described.

8. In a match safe or box, the combination of a receptacle with a frame adapted to fit within said receptacle and having a permanent wall extending above the edge of the frame and one or more plates or walls movably connected with and extending above the frame and adapted to receive between them a plurality of matches, an igniting-surface for the match-heads, and means for pressing the movable plates or walls toward the matches, substantially as described.

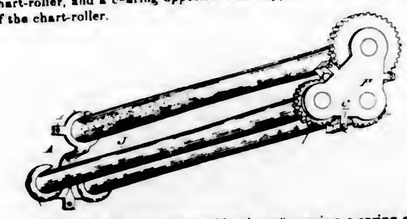
9. In a match safe or box, the combination of a receptacle having a movable side with a frame adapted to fit within said receptacle and having one or more movable plates or walls alined with the movable side and adapted to bear against a plurality of matches, means for pressing said plates toward the matches, and a hook and strap for removably holding said frame within said receptacle to prevent its withdrawal from the receptacle by the withdrawal of matches therefrom, substantially as described.

644,450. CHART-CASE. WINFIELD S. CROSBY, Detroit, Mich. Filed Apr. 12, 1899. Serial No. 712,796. (No model.)

Claim.—1. In a chart-hanger, the combination of a stationary support, and a rotary support spaced therefrom, a Hartshorn curtain-roller journaled in said supports, the spring-actuated shaft of said roller being mounted within the stationary support against rotary movement, a chart-roller adjacent and parallel to the Hartshorn roller, supports for the ends of said chart-roller, one of said supports being a rotary support, and a gear connection between said rotary supports.

2. In a chart-hanger, the combination of a casing, a spring-motor, comprising the elements of a spring curtain-roller, a chart-roller,

two rotary supports journaled adjacent to the motor, a gear connection between said supports and between one of the supports and the motor, each support being adapted to detachably hold one end of the chart-roller, and a bearing opposite each support for the other end of the chart-roller.



3. In a chart-hanger, the combination of a casing, a spring curtain-roller journaled therein, provided with a gear-wheel on one of its ends, two intermeshing gear-wheels, each having a socket formed therein, one of said wheels being in mesh with the gear-wheel upon the curtain-roller, a support opposite each socket and a chart-roller adapted to be detachably secured within the sockets and supports, substantially as described.

644,451. COMBINED RAY-FILTER AND HALF-TONE GRATING. JOHN OWEN, Merchantville, N. J. Filed Aug. 24, 1896. Serial No. 603,722. (No model.)

Claim.—1. A half-tone grating having a colored-ray filter in approximate optical coincidence with its working surface; substantially as and for the purpose set forth.

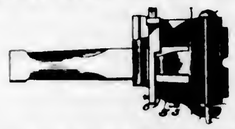
2. A combined half-tone grating and colored-ray filter which have their approximation to each other carried to a point at which they cease to reflect light to each other.

3. A half-tone grating and a colored-ray filter in optical contact therewith in combination with each other and with an inflexible, transparent support.

4. The combination of a translucent sheet, a half-tone grating which forms an integral part of the sheet, and a colored-ray filter in optical contact with the half-tone grating, all as set forth.

5. The combination of a half-tone grating which has been photographically formed in the substance of a film with a staining for the film; substantially as and for the purpose set forth.

644,452. CAR-COUPLING. CLARENCE O. PARSONS, West Hunticoke, Pa., assignor of one-half to Wilbur G. Allen, same place. Filed May 12, 1899. Serial No. 716,571. (No model.)



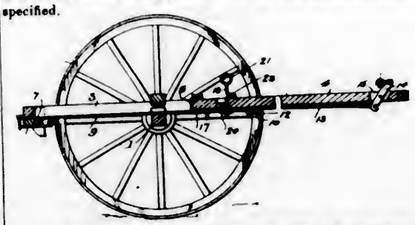
Claim.—1. A safety device designed to be applied to car-couplings of the Janney type and comprising a bracket adapted to be secured to the bottom of a coupler-head and having a front or outer supporting arm or portion located beneath the knuckle-pin perforation in position to receive and support the lower end of the knuckle-pin, substantially as described.

2. A safety device for car-couplings consisting of a bracket and comprising an inner portion adapted to be secured to the bottom of a coupler-head, and an outer supporting portion having a perforation to receive the lower end of a knuckle-pin and spaced from the coupler-head to receive the key of the knuckle-pin, substantially as described.

3. The combination with a coupler-head of the Janney type, of a safety device consisting of a bracket and comprising an inclined inner portion secured to the bottom of the coupler-head, and a horizontal supporting portion having a perforation for the reception of the knuckle-pin and spaced from the draw-head to receive the key of the knuckle-pin, substantially as described.

644,453. AUTOMATIC VEHICLE-BRAKE. JOHN W. PATTERSON, Madisonville, Ky. Filed Aug. 7, 1899. Serial No. 726,426. (No model.)

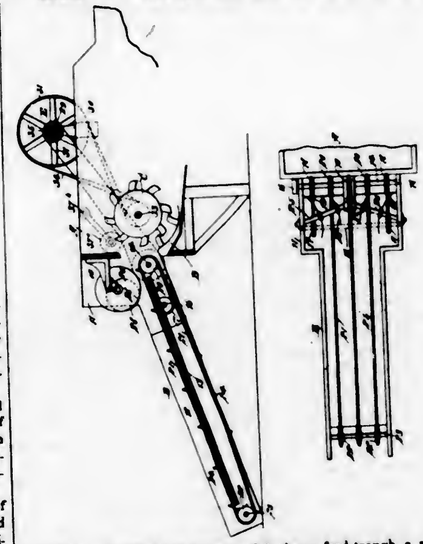
Claim.—1. The automatic vehicle-brake, comprising a brake-beam, bail-like or looped arms connected to said brake-beam, a sliding rod arranged upon the under side of the tongue and connected to said arms, at their looped ends, a lever pivoted in said tongue and connected to said rod, a catch adapted to engage the rear edge or end of the tongue and connected to the loop of said arms, and means to hold said catch in engagement with the tongues, substantially as specified.



2. The automatic vehicle-brake, comprising a brake-beam, bail-like or looped arms connected to said brake-beam, a sliding rod arranged upon the under side of the tongue and connected to said arms, at their looped ends, a lever pivoted in said tongue and connected to said rod, a catch adapted to engage the rear edge or end of said tongue and connected to the loop of said arms, and a pin with an upper manipulating end and passing through the tongue, and having a plate fixed to its lower end to engage and hold said catch in its tongue-engaging position, substantially as set forth.

3. The automatic vehicle-brake, comprising a brake-beam, bail-like or looped arms connected to said brake-beam, a sliding rod arranged upon the under side of the tongue and connected to said arms, at their looped ends, a lever pivoted in said tongue and connected to said rod, a catch adapted to engage the rear edge or end of said tongue and connected to the loop of said arms, and a pin with an upper manipulating end and passing through the tongue, said pin having a bead or offset adapted to engage the upper side of the tongue and a plate at its lower end to engage and hold said catch in its tongue-engaging position, substantially as set forth.

644,454. BAND-CUTTER AND FEEDER. PETER H. PETERSEN, Herman, Nebr. Filed Aug. 1, 1899. Serial No. 725,738. (No model.)



Claim.—1. In a band-cutter and feeder, a feed-trough, a series of independent feed-belts located within said trough, some of said feed-belts being of greater length than the others, means for driving said feed-belts, spurs projecting from said feed-belts and curved in direction of the delivery ends of the belts, cutter-shafts journaled above the feed-belts at angles to each other, and disk cutters secured upon the said shaft, substantially as described.

2. In a band-cutter and feeder, a feed-trough having its upper end of greater width than the lower or body portion of the trough, a bracket or hanger supported between the sides of the wider portion of the trough, cutter-shafts arranged at angles to each other and journaled at their outer ends in bearings carried by the sides of the wider portion of the trough, and at their inner ends in bearings carried by the said bracket, and feed-belts located in the said trough, some of said feed-belts being of greater length than others, substantially as described.

3. In a band-cutter and feeder, a feed-trough having its upper end of greater width than the lower or body portion of the trough, independent feed-belts located in the said trough and extending the full length thereof, shorter feed-belts arranged only within the wider portion of the trough and between the longer feed-belts and the sides of the trough, and cutters located above the belts at the wider portion of the trough, substantially as set forth.

4. In a band-cutter and feeder, a feed-trough having its upper end of greater width than the lower or body portion of the trough, independent feed-belts located within the said trough, some of said feed-belts extending the full length of the trough and some of them being shorter and arranged only within the wider portion of the trough, cutter-shafts located at the wider portion of the feed-trough and journaled above the feed-belts, the said cutter-shafts being at angles to each other, and concave disk cutters secured upon the said shafts and having their front edges parallel to each other and their rear edges diverging, for the purpose set forth.

5. In a band-cutter and feeder, cutter-shafts journaled at angles to one another, and concave disk cutters secured upon the said shafts and having their front edges parallel to each other and their rear edges diverging, the said cutters being graduated in size, substantially as shown and described.

6. In a band-cutter and feeder the combination with a feed-trough and feed-belts located within said trough, of cutter-shafts journaled above the feed-belts at angles to each other, and disk cutters secured upon the said shaft and having their front edges parallel to each other and their rear edges diverging, the said cutters being graduated in size and having their inner faces convexed and their outer faces concaved, substantially as set forth.

7. In a band-cutter and feeder, the combination, with a feed-trough, a series of independent chain feed-belts located within said trough, means for driving the said belts, spurs projected from the said belts, and cutter-shafts journaled above the feed-belts at angles to each other, and concave disk cutters secured upon the said shaft, having their front edges parallel to each other and their rear edges diverging, for the purpose set forth.

8. In a band-cutter and feeder, a feed-shaft, a governor-shaft, and an expansion-pulley carried by the governor-shaft and consisting of a series of segments pivotally connected with the governor-shaft and controlled by centrifugal force, said expansion-pulley being in belt connection with the feed-shaft, as described.

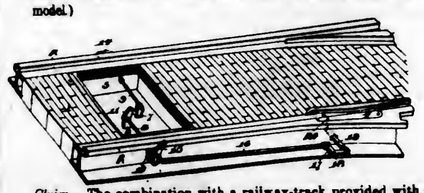
9. In a band-cutter and feeder, a feed-shaft, a governor-shaft, means for rotating the governor-shaft, an expansion-pulley comprising a series of segments arranged around the governor-shaft and pivoted to move toward and from the same the said pulley being controlled by centrifugal force, a belt connecting said expansion-pulley with the feed-shaft, and means for keeping the belt normally in proper relation to the pulleys over which it passes, substantially as described.

10. In a band-cutter and feeder, the combination, with a feed-shaft, a drive-shaft, and a governor-shaft belted to the drive-shaft, of a slotted collar secured to the governor-shaft, an expansion-pulley consisting of a series of segmental bell-crank levers, each lever comprising a long arm extending along the shaft and having an enlargement at its free end, and a short arm at an angle to the shaft, the said bell-cranks being pivoted in the slots of said collars at the junction of their members, and a spring-controlled follower having bearing against the shorter members of the said bell-cranks, the enlarged surfaces of the cranks being arranged for belt connection with the said feed-shaft, as and for the purpose specified.

11. In a band-cutter and feeder, the combination with a feed-shaft, of a governor-shaft, means for rotating the governor-shaft, an expansion-pulley consisting of a series of bell-crank levers each having a long arm extending along the shaft and provided with a segmental head at its free end, and a short arm extending at an angle to the long arm, the said levers at the junction of their members being pivotally connected with the shaft, a spring-controlled device engaging the short arms of the levers to normally hold the parts of the pulley together, and a belt connecting the segmental heads of the levers with the feed-shaft, substantially as set forth.

12. The combination with the feed-shaft, the cylinder and concave, and the feed-belts for feeding the grain to the cylinder, of a governor-shaft, a pulley on said governor-shaft, a belt connection between the said pulley and the cylinder-shaft and an expansion-pulley carried by the governor-shaft and consisting of a series of segments pivotally connected with the governor-shaft and controlled by centrifugal force, said expansion-pulley being in belt connection with the feed-shaft, substantially as described.

644,455. SWITCH-OPERATING MECHANISM. JEFFREY A. PHILLIPS, Amos, W. Va. Filed Dec. 7, 1899. Serial No. 739,518. (No model.)



Claim.—The combination with a railway-track provided with a pivoted switch-tongue and a casing interposed between the sections of the track, of a pair of upwardly-extending supports or bearings mounted in the said casing and arranged at an angle from each other, an operating-shaft 8 journaled at one end in one of said supports and having its opposite end extending outwardly through one of the rail-sections of the track, an operating-shaft 9 journaled at one end in the other of said supports and having its opposite end extending outwardly through the other of the said rail-sections of the track, a tapering crank-arm secured at its lower end to said shaft 8 and having its upper end bifurcated, a tapering crank-arm secured at its upper end to said shaft 9 and having its lower end bifurcated, a link-arm connected at one end to the bifurcated upper end of one of the crank-arms and at its other end to the bifurcated upper end of the other of said crank-arms, a trip-arm 14 secured to the outer end of said shaft 9, a trip-arm 15 secured to the outer end of said shaft 8, a main lever connected at one end to the lower end of said trip-arm 15, a bell-crank lever pivotally secured to the base of one of the rail-sections of the track and pivotally connected to the opposite end of said main lever, and a switch-shoe pivotally connected at one end to said bell-crank and at its opposite end to said switch-tongue, substantially as described.

644,456. GARMENT-SUPPORTER. JOSEPH H. PILKINGTON, Waterbury, Conn. Filed Sept. 20, 1899. Serial No. 731,044. (No model.)



Claim.—1. In a garment-supporter the combination with a loop having an opening 26 and slot 27, of a base, an outwardly-tapering stud extending therefrom and a spring also carried by the base so that a ply of the garment will be held between the spring and the loop and another ply between the loop and the tapering stud.

2. In a garment-supporter a base having an outwardly-tapering stud extending therefrom and carrying a spring which is adapted to yield to different thicknesses of garments in use.

3. In a garment-supporter a base having a raised central portion leaving a recess in the under side thereof, an outwardly-tapering stud, a spring whose ends extend above the raised portion and a plate lying in the recess, the lower end of the stud passing through the base, the spring and the plate and being headed over to lock the parts in place.

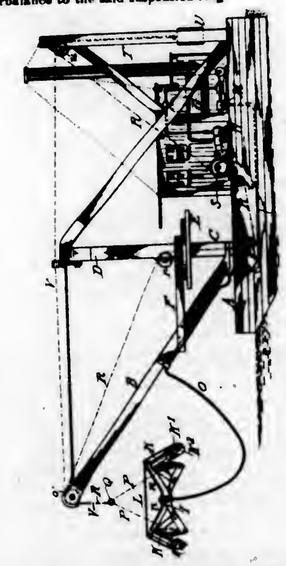
644,457. DREDGER. WILLIAM B. PLUMB, San Francisco, Cal., assignor of one-half to P. F. Dundon, same place. Filed May 26, 1899. Serial No. 718,362. (No model.)

Claim.—1. In a dredger, a hull, a swinging boom, a suspended bucket, a counterbalance, a winding-drum, a chain or cable connecting the bucket and counterbalance, and having intermediate turns around said drum, means for operating and reversing said drum, and a second chain or cable connecting said bucket and counterbalance, and having the same point of connection with the bucket as the first chain or cable.

2. In a dredger, the combination of the hull, a swinging boom, and a bucket, a vertically-movable counterbalance, a chain extending from the bucket to said counterbalance, and having intermediate turns around a winding-drum, and a second chain connecting the bucket and counterbalance, and guided overhead upon the dredger-frame.

3. In a dredger, a sectional bucket, chains connecting the bucket-

sections to a suspension-ring, and tending to open said sections, a counterbalance, a hoisting-chain connecting said ring to winding machinery and to said counterbalance, and a second chain connecting said counterbalance to the said suspension-ring.



4. A dredge-bucket composed of two sections pivoted together, a cylinder and piston carried by each section, fluid-pressure connections to both cylinders, and a flexible connection extending between the two cylinders, and guided on both pistons.

5. A dredge-bucket composed of two sections pivoted together by means of bails or yokes, a cylinder and piston secured to each yoke, a guide on each piston, guides on said yokes, a chain or cable connecting the two cylinders and passing over said guides, and fluid-pressure connections to both cylinders, whereby the outward movement of said piston causes the bucket-sections to close.

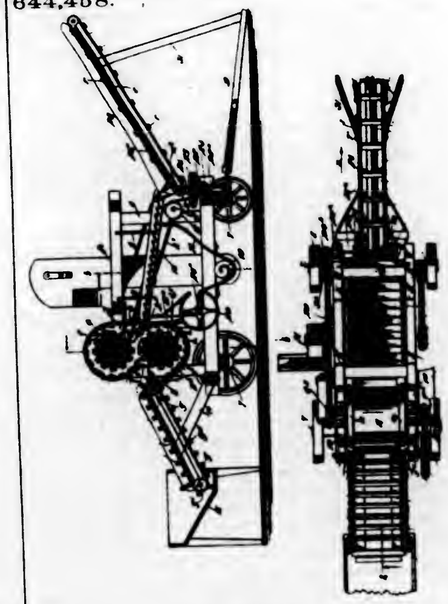
6. A dredge-bucket comprising two sections pivoted together by bails or yokes, power-cylinders carried by said yokes, and set approximately at right angles thereto, a piston in each cylinder carrying a guide-pulley, guide-pulleys on said yokes, a chain or cable extending from one cylinder over said guide-pulleys to the other cylinder, and fluid-pressure connections to both cylinders.

644,458. CORN-SHELLING MACHINE. CHARLES D. PRINDLE, Newkirk, Okla. Filed July 26, 1899. Serial No. 725,154. (No model.)

Claim.—1. In a corn-shelling machine, the combination with a support and a feeding device on said support, of two shelling-cylinders mounted to rotate in opposite directions on said support, one directly above the other, a concave extending from the feeding device rearwardly underneath and around the lower cylinder and terminating with its upper edge close to the upper cylinder, and an upper concave having its forward edge extending within the mouth of the lower concave close to the lower cylinder, said upper concave extending from such edge up around the upper cylinder and terminating rearwardly of the upper edge of the lower concave, as and for the purpose set forth.

2. In a corn-shelling machine, a frame or support, a feeding device thereon, two shelling-cylinders mounted to rotate in opposite directions on said support one directly above the other, a concave extending from the feeding device rearwardly underneath and around the lower cylinder and terminating with its upper edge close to the upper cylinder, an upper concave having its forward edge extending within the mouth of the lower concave close to the lower cylinder, said upper concave extending from such edge up around the upper cylinder and terminating rearwardly of the upper edge of the lower concave, a flap-plate located between the rear edges of the two concaves, a vertical wall in the frame having a rearwardly-bent upper end supporting the free end of said flap-plate, a cob-separator depending loosely in the frame and having its forward end extending underneath the rearwardly-bent upper end of said wall, and means for reciprocating said separator, as set forth.

644,458.



644,459. FISH TRAP-NET. THOMAS REDDING, Seattle, Wash. Filed Oct. 24, 1899. Serial No. 734,658. (No model.)



Claim.—1. A drag-net comprising a V-shaped net, floats supporting the same, a fish-retaining receptacle secured to the apex of said net, and communicating therewith, V-shaped vertical partition-walls dividing the net into compartments, floats supporting the upper ends of said partition-walls, and means for holding the lower ends of the partition-walls below the surface of the water, as set forth.

2. A drag-net comprising a trap having vertical walls and floats supporting the same, a fish-retaining receptacle secured to the apex of the trap communicating therewith, V-shaped partition-walls having apexes outwardly disposed, floats supporting the same walls, and vertical strips connected to the apexes, the lower ends secured to the bottom of the net, links connecting the inner ends of the floats secured to the partition-walls, and rods connecting the links, suitable passage-ways being left underneath the links, as shown and described.

644,460. COMBINED CUFF HOLDER AND BUTTON. DAVID REICHBLUM and MAX REICHBLUM, Wheeling, W. Va. Filed Dec. 2, 1899. Serial No. 739,014. (No model.)

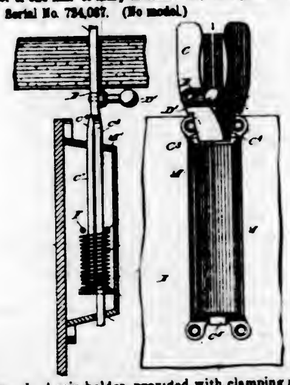


Claim.—1. A cuff-holder, comprising a main body, a clasp secured on one end of the same, a link-button loosely secured to the other end thereof, and a slidable button mounted on the main body, substantially as described.

2. A cuff-holder, comprising a main body, having integral sockets at each end, a spring-clasp pivoted in one of said sockets, an eyebolt pivoted in the other socket, a link-button loosely secured in the eye of said bolt, and a button slidably mounted on said main body, substantially as described.

3. A combined cuff holder and button, comprising a main body, having integral sockets at each end, a spring-clasp pivoted in one of said sockets, an eyebolt pivoted in the other socket, a link-button, having a pivoted member, loosely secured in the eye of said bolt, a sleeve adjustably secured on the main body, an upwardly-extending shank integral therewith, and a button pivoted to said shank, substantially as described.

644,461. REIN-HOLDER. FRANKLIN A. RIDOUT, Cynthiana, Ky., assignor of one-half to Mary M. Anderson, same place. Filed July 17, 1899. Serial No. 724,067. (No model.)



Claim.—1. A rein-holder, provided with clamping members pivoted together for clamping the reins between them, and a locking device for locking the clamping members in an open position for the insertion of the reins, the locking device being arranged on the clamping members between their connecting-pivot and their free ends, and being thus adapted to be actuated by the operator pressing the reins against it to unlock the clamping members for the latter to close, and to then automatically clamp the reins, substantially as shown and described.

2. A rein-holder, provided with a casing, clamping members mounted to slide therein for clamping the reins between them, a locking device for locking the clamping members in an open position for the insertion of the reins, the locking device being adapted to be actuated by the operater pressing the reins against it to unlock the clamping members for the latter to close, and to then automatically clamp the reins, and a spring connected with the said clamping members, for imparting a sliding motion thereto relatively to the casing in one direction for closing the members, as set forth.

3. A rein-holder, provided with a casing, clamping members for the reins, pivoted together and mounted to slide in the casing, and adapted to be closed thereby, a locking device for locking the members in an open position, and a spring pressing the said clamping members for sliding the same in one direction in the casing to close the members for clamping the reins, substantially as shown and described.

4. A rein-holder, provided with clamping members pivoted together and mounted to slide into an open or closed position, a spring pressing the said pivoted members, and a latch pivoted on one of the clamping members and adapted to engage with its free end a pin on the other clamping member, substantially as shown and described.

5. A rein-holder, comprising a casing or support, and pivoted clamping members engaging said casing and slidable longitudinally to swing the clamping members on their pivot owing to their engagement with the casing.

6. A rein-holder, comprising a casing or support, pivoted clamping members engaging said casing and slidable longitudinally, and a spring for moving the clamping members longitudinally to swing them on their pivot.

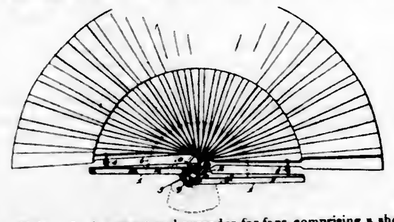
7. A rein-holder, comprising a casing or support, pivoted clamping members, and a latch pivoted to one member and extending to a locking engagement with the other member across the space adapted to receive the reins, so that the latch is adapted to be engaged and operated by the reins.

8. The combination of the casing, the pivotally-connected clamping members slidable therein, the latch connecting the rein-holding portions of said members, and the spring for sliding the clamping members.

644,462. DISAZO DYE FROM STILBENE. CHRISTOPHER RIS, Basle, Switzerland, assignor to John R. Geigy & Co., same place. Filed Sept. 9, 1899. Serial No. 729,944. (Specimens.)

Claim.—The herein-described new disazo coloring-matters, derived from stilbene by diazotizing the product of condensation of two molecules of paranitrotoluenesulfoacid with one molecule of paraphenylenediamin and combining the diazo compound with a suitable compound to form an azo dye, the said coloring-matters forming brown powders, soluble in water with orange to brown color, precipitated by mineral acids in dark-brown flocks, scarcely soluble in alcohol, insoluble in ether and benzene, soluble in concentrated sulfuric acid with a blue color, giving when treated with reducing agents colorless solutions, which contain diamidostilbenedisulfoacid, paraphenylenediamin and the amido compound of the component used for the combination, and which dye unmordanted cotton orange to brown shades, substantially as described.

644,468. FAN SUPPORT AND SPREADER. JULIAN H. RIVERS, St. Louis, Mo. Filed Nov. 20, 1899. Serial No. 737,611. (No model.)



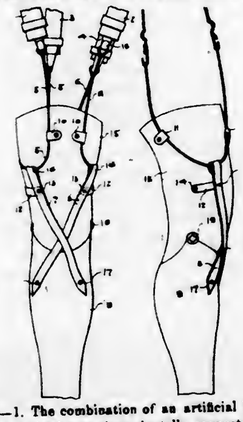
Claim.—1. A support and spreader for fans, comprising a shoulder, a plurality of arms integral with said shoulder, a means carried by said arms for retaining a fan in an upright position, and a separate means carried by the said arms for retaining a fan in an open position, substantially as specified.

2. A fan support and spreader, comprising a shoulder having an aperture in its center, arms projecting from said shoulder, a brace secured to said arms, and a means carried by the said arms for retaining the fan in an open position, substantially as specified.

3. A fan support and spreader, comprising a shoulder having an aperture in its center, arms projecting from said shoulder, a brace secured to said arms, and a coil-spring having a hook on its upper end attached to each of said arms, substantially as specified.

4. A fan support and spreader, comprising a shoulder having an aperture in its center, arms projecting from said shoulder, a brace secured to said arms, a coil-spring having a hook on its upper end attached to each of said arms, and a suitable base and support for supporting the device, substantially as specified.

644,464. ARTIFICIAL-LIMB SUSPENDER. JAMES F. ROWLEY, Chicago, Ill. Filed July 15, 1899. Serial No. 723,928. (No model.)



Claim.—1. The combination of an artificial limb comprising a thigh-section and a leg-section, pivotally connected together, a suspender comprising a loop slidingly connected to the leg-section independently of said pivotal connection and adapted to pass over and be supported on the shoulder of the wearer, and guides on said thigh-section slidingly engaging said loop; all arranged to swing the leg-section forward on its pivotal connection, through an upward tension on said loop.

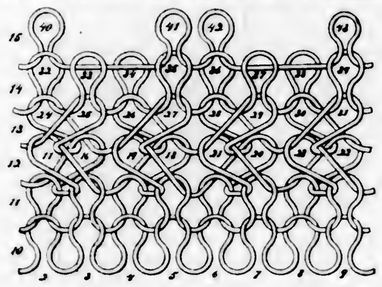
2. The combination of an artifical limb comprising a thigh-section and a leg-section, pivotally connected together; a suspender

comprising a strap secured to the front of the leg-section and extending upwardly upon the thigh-section, movable thereon, and a loop slidingly engaging said strap and adapted to pass over and be supported on the shoulder of the wearer; and guides on the thigh-section slidingly engaging said loop; all arranged to swing the leg-section forward on its pivotal connection, through an upward tension on said loop.

3. The combination of an artificial limb comprising a thigh-section and a leg-section, connected together by a knee-joint; a pair of guides on the thigh-section; a suspender, comprising a loop passing through said guides, and slidingly engaged thereby, and connected to the leg-section, independent of said joint connection, at a part of said loop intermediate of said guides; the upper end of said loop being adapted to pass over and be supported on the shoulder of the wearer.

4. The combination of an artificial limb comprising a thigh-section and a leg-section, connected together by a knee-joint; a pair of guides on the thigh-section; a suspender, comprising a loop passing through said guides, and slidingly engaged thereby; a strap connected to the leg-section, independent of said joint connection, and engaging said loop at a part intermediate of said guides; the upper end of said loop being adapted to pass over and be supported on the shoulder of the wearer.

644,465. METHOD OF KNITTING FABRICS. GEORGE E. RUTLEDGE, Chicago, Ill., assignor to the George D. Whitcomb Company, same place. Filed Dec. 16, 1899. Serial No. 740,490. (No specimens.)



Claim.—1. The herein-described method, in the art of knitting double-ribbed work, of changing from relatively-close work to relatively-open work, consisting in crossing the stitches in adjacent wales, in pairs, and then casting off the stitches of the wales to be discontinued.

2. The herein-described method, in the knitting of a plurality of articles without interruption, each of such articles having a portion more closely knitted than another portion thereof, consisting in changing from the relatively-close knitted portion of one article to the relatively-open knitted portion of the other, by casting off the stitches of the wales to be discontinued, and in forming at the completion of each article a round in which the stitches of adjacent wales are crossed in pairs.

3. The herein-described method, in the art of knitting double-ribbed work, of changing from relatively-close work to relatively-open work, consisting in crossing the stitches in adjacent wales, in pairs, in a plurality of successive rounds, and then casting off the stitches of the wales to be discontinued.

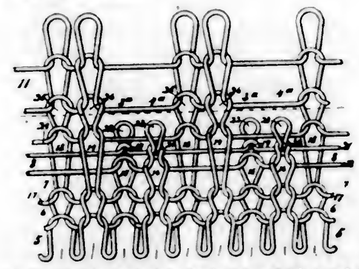
644,466. KNITTED FABRIC. GEORGE E. RUTLEDGE and ULYSSES G. LEE, Chicago, Ill., assignors to the George D. Whitcomb Company, same place. Filed Dec. 16, 1899. Serial No. 740,493. (No specimens.)



Claim.—1. As an article of manufacture, a knitted fabric having some of its intermediate wales discontinued, the last stitch of each discontinued wale being without direct connection with the wales which are continued.

2. As an article of manufacture, a knitted fabric having some of its intermediate wales discontinued, the last stitch of each discontinued wale, being a key-stitch, having no direct connection with the continued wales, so that tension upon the fabric is not applied to such key-stitch.

644,467. METHOD OF FORMING KNITTED FABRICS. GEORGE E. RUTLEDGE and ULYSSES G. LEE, Chicago, Ill., assignors to the George D. Whitcomb Company, same place. Filed Dec. 16, 1899. Serial No. 740,494. (No specimens.)

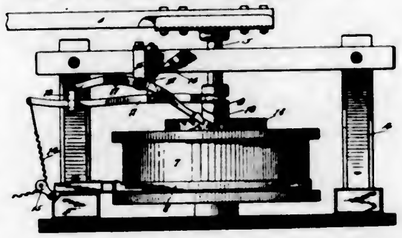


Claim.—1. The method, in the knitting of fabrics, of dropping out certain wales, consisting in knitting into the last stitch of the wale to be dropped a key-stitch whereby such last stitch is prevented from pulling out, such key-stitch being independent of the wales which are to be continued.

2. The method, in the knitting of a plurality of articles, each having a portion more closely knitted than other portions, of changing without interruption from the closer-knitted portion of one article to the more open portion of the next article to be fabricated by knitting into the last stitches of each of the wales to be dropped a key-stitch, and continuing the remaining wales to form the more open portion of the next article, each key-stitch being independent of the wales which remain.

3. The method, in the knitting of fabrics, of changing from relatively-close to relatively-open work by the dropping of wales, consisting in holding upon the needles the wales which are to be continued, and while they are so held knitting into the remaining wales one or more rounds, then casting off the stitches last formed and knitting onto the wales which had been thus held.

644,468. HOIST. ROBERT RUTTER, South Butte, Mont. Filed Oct. 31, 1899. Serial No. 735,374. (No model.)



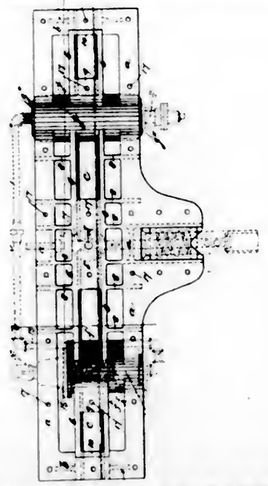
Claim.—1. The combination with a frame, of a revolubly-mounted member, a clutch serving to impart movement thereto, a ratchet fixed to the said member, a lever forming a pawl fulcrumed on the frame and engaging the rod, a second lever in connection with the clutch, to throw the same, the two levers extending approximately in the same direction, and a link forming a connection between the two, to cause them to be simultaneously operated.

2. In a hoisting apparatus, the combination with a frame or support, of a drum mounted to turn thereon, a clutch serving to transmit movement to the drum, a lever mounted on the frame or support and having connection with the clutch to actuate the same, a ratchet attached to the drum, and a pawl working with the ratchet to prevent the back movement of the drum when the clutch is in gear, such pawl having connection with the clutch-lever so as to disengage the pawl from the ratchet simultaneously with the disengagement of the clutch.

644,469. CAR BODY-BOLSTER. MORSE R. SCHAFFER, St. Louis, Mo., assignor to the American Steel Body Double Bolster Company, same place. Filed Dec. 11, 1899. Serial No. 739,943. (No model.)

Claim.—1. A car body-bolster having a cylindrical tube arranged transversely thereto and adapted to be closed at each end by a removable head or cover, the cylindrical wall of the said tube being integral with the body-bolster, substantially as described.

2. A car body-bolster having a closed chamber adapted to hold compressed air, the walls of the said chamber being integral with the body-bolster, substantially as described.



3. A car body-bolster having a central hole, and having the center plate and the side bearings on its under side, and having a cylindrical tube and a closed chamber, the said parts, with the inclosing walls of the said tube and chamber, being integral throughout, substantially as described.

644,470. BEET-PLOW. WILLIAM F. SCHMIDT, Blanco, Cal. Filed Aug. 19, 1899. Serial No. 727,799. (No model.)



Claim.—1. A beet plow comprising a frame, standards adjustable upon said frame, and points adjustably and reversibly mounted at the feet of the said standards.

2. A beet-plow comprising a frame, standards adjustable upon the said frame, points adjustably and reversibly mounted at the feet of said standards, and lifters carried by the said points, adjustable with the points and capable of adjustment to the points when said points are reversed.

3. In a beet-plow, a frame, and reversible standards carried by said frame, the said standards being capable of vertical and lateral adjustment relative to the frame.

4. A beet-plow comprising a frame, standards for the frame, a pivot-bolt connecting the standards with the frame, and braces for the upper portion of the standards, the standards being adjustable on the frame and the braces adjustable relative to the standards.

5. In a plow, a frame, reversible standards for the said frame, a pivot-bolt passed through the standards and the frame, a second pivot-bolt connecting the standards above the frame, cross-braces loosely mounted on the said bolts, and a clamp for the said braces where the braces cross one another, as described.

6. In a plow, the combination, with a frame, a reversible standard at each side of the frame, a pivot-bolt connecting the standards with the frame, a connecting-bolt uniting the standards above the frame, and braces for the upper portion of the standards, loosely mounted on the said bolts, of points adjustably and reversibly connected with the foot-sections of the standards, lifters adjustable upon the said points, and means, substantially as described, for inclining the standards forwardly or rearwardly, and for contracting or expanding the rear end of the frame, as described.

644,471. GARMENT-FASTENING. CARL SCHON, Jr., Catonsville, Md., assignor of one-half to Charlotte E. Nicolai, Baltimore, Md. Filed Dec. 8, 1899. Serial No. 739,682. (No model.)



Claim.—1. An eye or fastener member, consisting of a piece of metal bent or folded to form an open and unobstructed loop or eye, the two end portions of the blank being carried in common plane past each other to form a bearing-surface for such loop or eye, and thence turned downward to form fastening legs or points.

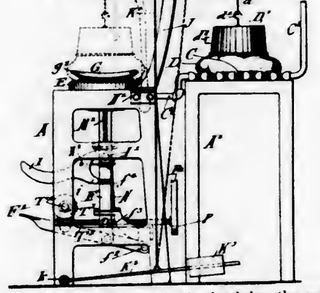
2. The herein-described eye or fastener, comprising the open and unobstructed loop *a*, bearing portions *d* and *e*, and legs *c*.

3. A loop or eye for dress-fastenings and the like, comprising the base or bearing portion *d*, *e*; the open and unobstructed loop or eye *a* extending obliquely across said bearing-face; and legs or fastening-points *c* extending downward from the under face of the bearing portion *d*, *e*.

4. In combination with a fabric, an eye comprising an open and unobstructed loop *a*, bearing-surface *d*, *e*, and points *c*, the latter passing through the fabric and bent down upon the face thereof opposite to that on which the bearing portions *d*, *e*, rest.

5. In combination with a fabric, an open and unobstructed loop or eye *a* provided with bearing portions *d*, *e*, and with legs *c*, said legs passing through the fabric to the side opposite that against which the bearing portions *d*, *e*, rest, and being folded down upon the rear face of the fabric, obliquely to the bearing portions *d*, *e*.

644,472. HAT-MACHINE BRIM-CURLER. GUSTAV SIEGSCHNEIDER, Yonkers, N. Y. Filed Dec. 22, 1899. Serial No. 741,240. (No model.)



Claim.—1. In a machine for flanging hat-brims, the combination of telescoping male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, means for turning the hat-brim over said flange, a pressure-bag, and means for heating the same, substantially as set forth.

2. In a machine for flanging hat-brims, the combination of a stationary female forming-block, means for heating the same, a movable male forming-block having a flange, means for telescoping the said male forming-block into the female forming-block, means for turning the hat-brim over said flange, a pressure-bag, and means for heating the same, substantially as set forth.

3. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said female forming-block being stationary and said male forming-block being provided with a flange, means for heating the female forming-block, means for turning the hat-brim over said flange, means for telescoping the male forming-block into the female forming-block, means for locking the male forming-block down upon the female forming-block and means for automatically unlocking and releasing the said male forming-block, substantially as set forth.

4. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, a flexible brim stretching and smoothing cap placed over the flange and hat-brim for turning the hat-brim around the edge of the flange, and means, copper-

ating with the two forming-blocks and cap for pressing and setting the brim to final shape, substantially as set forth.

5. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, a flexible cap having an elastic shirring-cord and placed over the hat-brim for turning it over the said flange, a pressure-bag, and means for heating the same, substantially as set forth.

6. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, a flexible cap placed over the flange for turning the hat-brim thereover, a straining-hoop, for said cap, a pressure-bag, and means for heating the same, substantially as set forth.

7. The combination of a forming-block having a flange, a flexible cap placed over the flange, means, coöperating with flange and cap, for pressing and setting the brim to final shape, a straining-hoop surrounding the said forming-block, and means for bringing the adjacent edge of the said hoop in contact with said cap for straining or stretching the same over the said flange, substantially as set forth.

8. The combination of a forming-block having a flange, a flexible cap placed over the flange, means, coöperating with the flange and cap, for pressing and setting the brim to final shape, and an adjustable straining-hoop around the said forming-block, adapted to contact with said cap, substantially as set forth.

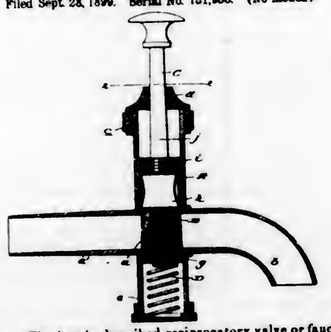
9. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange provided with a groove, means for heating the female forming-block, a flexible cap placed over the flange, for turning the hat-brim thereover, a straining-hoop adapted to press a portion of the cap into said groove and stretch the cap, a pressure-bag, and means for heating the same, substantially as set forth.

10. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, means for turning the hat-brim over said flange, means for telescoping the male forming-block into the female forming-block, means for automatically securing the male forming-block in lowered position, a pressure-bag, and means for heating the same, substantially as set forth.

11. In a machine for flanging hat-brims, the combination of male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, means for turning the hat-brim over said flange, a treadle-operated device for depressing the male forming-block, a hand-lever provided with means for automatically locking the male forming-block in lowered position, a pressure-bag, and means for heating the same, substantially as set forth.

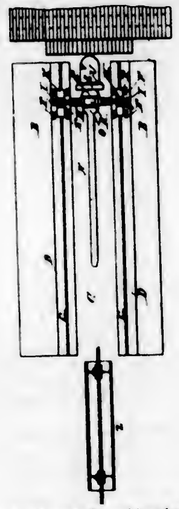
12. In a machine for flanging hat-brims, the combination of telescoping male and female forming-blocks, said male forming-block having a flange, means for heating the female forming-block, means for turning the hat-brim over said flange, a bag-heater, a pressure-bag, and means for swinging said bag through an angle of one hundred and eighty degrees from said heater over onto said blocks, substantially as set forth.

644,473. VALVE OR FAUCET. RICHARD SELLERS, New York, N. Y. Filed Sept. 28, 1899. Serial No. 731,950. (No model.)



Claim.—The herein-described reciprocatory valve or faucet consisting essentially of the casing having the removable screw-cap at its lower end, and also having the induction-port at an intermediate point of its length, the discharge-spout opposite the induction-port, and the valve-seat *g* located between said induction-port and discharge-spout and tapered or gradually reduced in size in the direction of its length, the endwise-movable cut-off piston B tapered in conformity to the seat and having the transverse port A adapted to register with and effect communication between the induction-port and discharge-spout, when the valve is opened, and the lower solid portion adapted to rest between the induction-port and the discharge-spout, when the valve is closed, the stem connected to the upper end of the piston and extending through the upper end of the casing, and the coiled spring interposed between the lower end of the piston and the screw-cap *f*, substantially as specified.

644,474. APPARATUS FOR MAKING SHEET-GLASS. JOHN Q. SHAFFER, Pittsburg, Pa. Filed Nov. 4, 1899. Serial No. 735,767. (No model.)

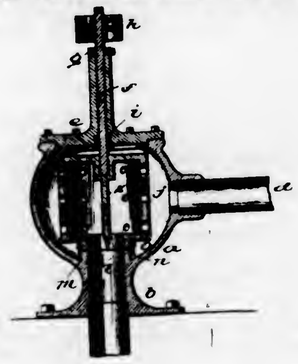


Claim.—1. In an apparatus for making sheet-glass, a pipe, means for attaching a blank to said pipe, a supporting-frame to which said pipe is attached by a universal joint and traveling carriages movable horizontally in right lines upon which said frame is mounted, substantially as described.

2. In an apparatus for making sheet-glass, a pipe, means for detachably securing a blank to the pipe, gimbal-rings supporting said pipe while allowing universal movement of the same, and movable supports for said rings all substantially as described.

3. In an apparatus for making sheet-glass, the combination with a pipe, means for attaching a blank to said pipe, means for supporting the pipe and allowing a universal motion of the same and means comprising supporting-carriages, movable horizontally in right lines for supporting said pipe while it is being moved horizontally, substantially as described.

644,475. CENTRIFUGAL PUMP. WILLIAM B. SHARPNECK, Chicago, Ill., assignor of one-half to John D. Ross and Everett W. Brooks, same place. Filed June 12, 1899. Serial No. 720,228. (No model.)



Claim.—1. The combination of the vertical casing *a*, provided with an outlet *d*, base *b* having a central opening, and a neck *m*, with a revolving perforated cylinder *j* having a neck *l* and a partition *k* extending into the neck, substantially as described.

2. The combination of the vertical casing *a* having a base *b*, neck *m*, and a cap *e* provided with a stuffing-box on its under side and a bearing formed in an extension of said cap *e* with a revolving perforated cylinder having a neck *l* and a packing-ring *n* attached to one of said necks and embracing the other, substantially as described.

3. The combination in a centrifugal pump, of the vertical casing *a* having a suction-pipe *c*, discharge-pipe *d*, cap *e* and neck *m*, with the vertical shaft *f* running in said cap, the adjustable collar *g* mounted on said shaft, the perforated revolving vertical cylinder carried thereby having a partition *k*, a neck *l* surrounding the inlet into the cylinder and a band *n* fast on said neck *l* and loosely inclosing the the neck *m*, all substantially as described and shown.

644,476. INFLATION-VALVE FOR PNEUMATIC TIRES. ROBERT L. SMITH, New Brunswick, N. J., assignor of one-half to William I. Dreisbach, Williamsport, Pa. Filed Nov. 8, 1898. Serial No. 696,590. (No model.)



Claim.—1. An inflating-valve comprising a casing having a compression-stud, a valve-seat plug with a conical seat-recess, and a compressible valve slidably confined in said seat-recess and having in one end a recess adapted to receive the compression-stud, said valve being compressible by direct contact with the seat-plug and the stud, substantially as described.

2. An inflating-valve comprising a casing having a central compression-stud, a valve-seat plug with a conical seat-recess and a central air-port, and a compressible conical valve provided at one end with a stem and at its other end with a recess, said valve being slidably confined in the valve-seat plug for the stem to play in the port and adapted to be compressed by said seat-plug and the stud, substantially as described.

3. An inflation-valve comprising a valve shell or casing having an air-port at its inner end, an adjustable valve-seat plug arranged within the shell or casing, and a compressible valve adapted to be forced or expanded within the seat of said plug by contacting with the shell or casing, substantially as set forth.

4. An inflation-valve, comprising a shell or casing having an air-port at its inner end, a valve-seat plug longitudinally adjustable within said shell or casing, and having a valve-seat recess, and a compressible valve loosely housed within said recess and movable with the plug, said plug being adjustable to the position for compressing the valve within the recess thereof, substantially as set forth.

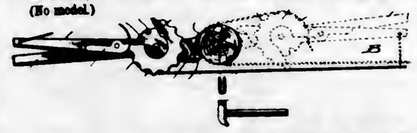
5. An inflating-valve comprising a casing having a compression-stud, a valve-seat plug with a conical seat-recess and a flange at the base of said seat-recess, and a conical compressible valve confined slidably in the seat-recess by the flange of the valve-seat plug, substantially as described.

6. An inflation-valve, comprising a tubular valve shell or casing provided at its inner end with an air-port and a valve-compressing stud, an adjustable valve-seat plug mounted within said shell or casing and provided in its inner end portion with a valve-seat and an inturned retaining-flange surrounding the peripheral edge of said seat, and a compressible valve-body arranged within said valve-seat, substantially as set forth.

7. An inflation-valve, comprising a tubular valve shell or casing interiorly threaded and provided at its inner closed end with an inwardly-projecting hollow valve-compressing stud, and an exteriorly-threaded valve-seat plug mounted within the shell or casing and provided within its inner end portion with a conical valve-seat recess and at its inner edge with an annular retaining-flange overhanging said recess, and a conical compressible valve-body housed within the valve-seat recess and provided in the wide base end thereof with a reëntrant recess adapted to take over the said valve-compressing stud, substantially as set forth.

8. In an inflation-valve, the combination of a flexible attaching-disk provided with a central recess and an elastic nipple protruding from said recess, the valve shell or casing having an annularly-grooved portion fitting within said nipple, and a fastening encircling the nipple and annularly-grooved portion of the valve shell or casing, substantially as set forth.

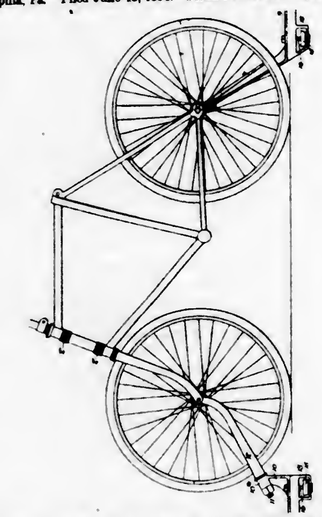
644,477. COMBINATION-TOOL FOR WIREWORKING. EMERY R. SWARM, Calumus, Iowa. Filed June 23, 1898. Serial No. 721,622. (No model.)



Claim.—1. A combination-tool consisting of a segment made on the arc of a circle, having a scalloped circumference with the apexes between the scallops being grooved to receive the wire, a handle supporting said segment, a clamping-lever pivoted thereto, designed to hold one end of the wire between said lever and segment and a second lever pivoted to said segment-carrying lever and provided with a scalloped end designed to engage against the post about which the wire-stretcher is adapted to be swung, as set forth.

2. A wire-stretching tool, consisting of two levers pivoted together, one of which is scalloped at its end, a segment with grooved circumference carried by one of said levers, a clamping-lever which coöperates with one end of said segment to hold the wire and a hook secured near the free end of said segment-carrying lever, as shown and described, and for the purpose set forth.

644,478. BICYCLE-CAROUSEL. THOMAS R. TINNEY, Philadelphia, Pa. Filed June 13, 1898. Serial No. 683,329. (No model.)

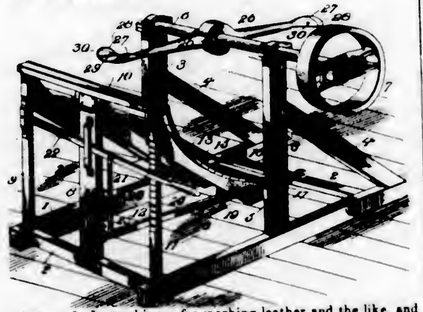


Claim.—1. The combination in a bicycle-carousel, of a series of pairs of bicycles disposed one behind another in a circular course, and a series of connecting-bars having rollers for bearing laterally upon the guide-rail, each connecting-bar having at the rear end laterally-projecting arms with eyes at their outer ends, forks hung to the front axles of each pair of bicycles and extending in front of the front wheels of the same, stems on said forks passing through the eyes of the connecting-frame, and means for securing said stems to said eyes, substantially as specified.

2. The combination in a bicycle-carousel, of a series of pairs of bicycles disposed one behind another in a circular course and a series of connecting-bars having rollers for bearing laterally upon a guide-rail, each connecting-bar having at the front end a fork, one arm of which is connected to the inner portion of the rear frame of the outer bicycle of the pair, the other arm of the fork being connected to the outer portion of the rear frame of the inner bicycle of the pair, substantially as specified.

3. The combination in a bicycle-carousel, of a series of pairs of bicycles disposed one behind another in a circular course and frames for longitudinally connecting said bicycles, each of said frames having the laterally-projecting rear arms, one connected to the front of one bicycle of the pair and the other to the front of the other bicycle of the pair, said arms being disposed at an angle other than a right angle to the longitudinal line of the frame, substantially as specified.

644,479. LEATHER-WORKING MACHINE. JAMES H. TOPP and EDWIN VOSBURGH, Johnstown, N. Y. Filed Nov. 21, 1899. Serial No. 737,795. (No model.)



Claim.—1. In machinery for working leather and the like, and in combination with a staking mechanism, an apron, a tension device having one end of the apron connected therewith, and mounted for tilting movement, an operating-lever, a spring positively connected at its ends with, respectively, the tension device and the operating-lever, and means for holding the lever in an adjusted position to vary the tension of the said connecting-spring and apron, substantially as set forth.

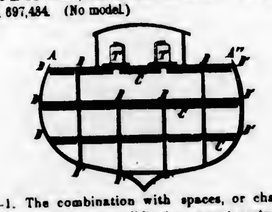
2. In leather-working machinery of the character described and in combination with a staking mechanism, a tension-regulating device at one end of the apron and connected therewith and mounted so as to turn about an axial support, an operating-lever, a spring connecting the tension device with the operating-lever, and a second spring disposed for returning the tension device to a normal position when the operating lever is released, substantially as specified.

3. In leather-working machinery and in combination with a staking mechanism, an apron, a pivotally-mounted tension device disposed to vary the relation of the apron with reference to the staking mechanism, an operating-lever, a spring connecting said lever with the tension device, a hand-lever operatively connected with the first-mentioned lever, and a spring for returning the parts to a normal position, substantially as set forth.

4. In leather-working machinery, staking mechanism including an arm having its outer end flattened, outwardly flared and transversely curved, a blade transversely curved and having its edge made rounding or convex and formed with parallel slots, and fastenings adjustably connecting the blade with the outer end of the aforesaid arm, substantially as described.

5. A machine of the character described, comprising a base, uprights forming the base, staking mechanism applied to the upper ends of the uprights, a cross-timber connecting the uprights, concave beds transversely spaced and having their lower ends attached to the cross-timber, an apron located in the space formed between said beds, a pivotally-mounted cam having the lower end of the apron attached thereto, a foot-lever, a spring connecting one end of the cam with the foot-lever, a second spring connecting the opposite end of the cam with said cross-timber, a hand-lever connected with the foot-lever, and a spring for returning the parts to a normal position, substantially as set forth.

644,480. DEVICE FOR PREVENTING SHIPS FROM SINKING. FRANCISCO L. DE VILLA, Guatemala, Guatemala. Filed Nov. 25, 1898. Serial No. 697,434. (No model.)

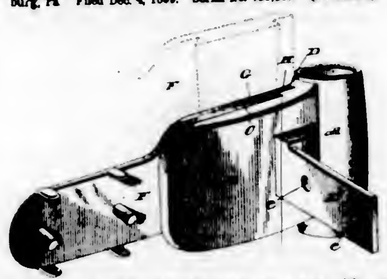


Claim.—1. The combination with spaces, or chambers, in a ship's hull, of the foldable expansible air-compartments, composed of a rigid top plate which is bolted to the ceiling of said chambers, a braced bottom plate, and accordion-like sides connecting such top and bottom portions in such manner as to exclude air and water, and means for forcing air into said compartments, as shown and described.

2. The combination, with spaces or chambers in a ship's hull, of foldable expansible air-compartments which are permanently secured to the ceilings of said chambers, and provided with a rigid bottom, of bars hinged at one end below the ceiling and adapted to engage a wall-support at the other end, as shown and described, whereby said bars extend horizontally beneath the compartments, to support them when collapsed, and are adapted to be readily dropped to release said compartments, as shown and described.

3. The combination, with spaces or chambers in a ship's hull, of foldable, expansible compartments which are permanently secured to the ceilings thereof, bars hinged to side walls of said chambers for upholding said compartments, shelves I hinged to opposite walls, and adapted, when in horizontal position, to support the free ends of said bars, hinged brackets or braces K adapted to engage and support the shelves, and means for locking and releasing the said brackets when it is desired to allow the shelves and bars to fall, and thus permit expansion of the air-compartments, as shown and described.

644,481. CORNER-FASTENING. WILLIAM C. WALTON, Harrisburg, Pa. Filed Dec. 4, 1899. Serial No. 739,166. (No model.)



Claim.—1. A corner-fastening comprising a plate with a wedge-shaped portion with undercut walls, and a beveled side-locking portion, and a cooperating part with correspondingly-shaped sockets to receive the same, as set forth.

2. A corner-fastening comprising a boss with a lateral portion having a wedge-shaped socket and a socket with undercut wall in a different plane, and a plate with a tapered projection and a side portion in different planes to engage the sockets of said lateral portion, as set forth.

3. A corner-fastening comprising a boss with a lateral portion with undercut walls in two different vertical planes, and a plate with a projection having undercut walls and an extension in a different plane with beveled end wall and interengaging with the undercut walls of the lateral portion and forming a double lock in different vertical planes lying parallel with the side of the lateral portion and the face of the plate, substantially as shown and described.

4. The improved corner-fastening described comprising in combination, the boss with lateral portion with sockets in different vertical planes and a lug with openings, and the side-rail plate having portions in different planes with undercut walls to engage in said sockets, substantially as and for the purposes specified.

644,482. TANNING PROCESS. FRANZ W. WARTENBERGER, Hamburg, Germany. Filed Mar. 23, 1899. Serial No. 710,223. (No specimens.)

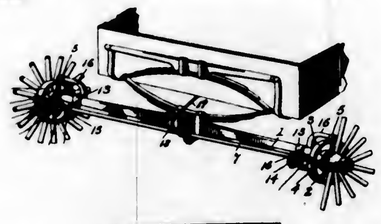
Claim.—1. The process, which consists in subjecting hides or skins previously prepared for tanning by the usual processes, to the action of a solution of about one part of picric acid and of about seventy parts of water, for the purpose set forth.

2. The process, which consists in subjecting hides or skins, previously prepared for tanning by the usual processes, to the action of a weak solution of picric acid and then to the action of a solution of hyposulfite of soda, for the purposes set forth.

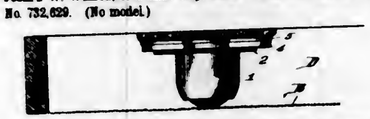
644,488. VEHICLE-BRAKE. DAVID R. WILLIAMS, Eagleport, Ohio. Filed Nov. 23, 1899. Serial No. 738,068. (No model.)

Claim.—1. In a device of the class described, the combination with a friction-wheel, of a friction-band partly encircling the friction-wheel, a rock-shaft operatively connected to the friction-band, a bar carried by the axle and having its ends projecting beyond each side thereof, a journal for the rock-shaft carried on one end of said bar and the friction-band fastened to the other end, and means for operating the rock-shaft, to bring the friction-band into engagement with the friction-wheel, substantially as described.

2. In a device of the class described, the combination with a friction-wheel, of a friction-band partly encircling the friction-wheel, a rock-shaft operatively connected to the friction-band, a clip embracing the axle, a straight clip-bar held to the under side of the axle by the clip and having its ends projecting beyond each side of the axle, a detachable journal for the rock-shaft fitted to one end of the clip-bar, a supporting-arm detachably secured to the opposite end of the bar, said arm having one end of the friction-band attached thereto, and means for operating the rock-shaft to bring the friction-band into engagement with the friction-wheel, substantially as described.



644,484. CLOTH-CLEANER FOR GYRATORY FLOUR-BOLTERS. JOSEPH W. WILSON, Salt Lake City, Utah. Filed Oct. 5, 1899. Serial No. 732,629. (No model.)

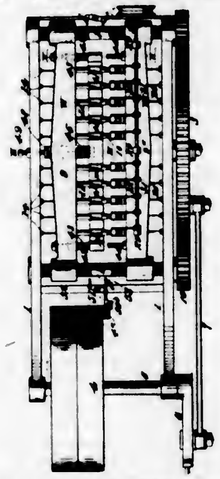


Claim.—1. In a cloth-cleaner for flour-bolters, the combination of a frame, a facing carried thereby, and a ball on which said frame is carried; substantially as described.

2. A cloth-cleaner for flour-bolters comprising a cup, a ball loosely seated therein, and a facing of soft material carried by said cup, substantially as described.

3. A cloth-cleaner for flour-bolters comprising a cup, a ball loosely seated therein, a frame or spider carried by said cup, and a facing of soft material on said frame or spider, substantially as described.

644,485. NUT-CRACKING MACHINE. ROBERT E. WOODSON, St. Louis, Mo. Filed Jan. 18, 1897. Serial No. 619,691. (No model.)



Claim.—1. In a nut-cracking machine, the combination of movable jaw-carriers, nut-cracking jaws supported by said carriers, a reciprocating shuttle-bar carried by one of said jaw-carriers arranged to receive the nuts to be cracked by said jaws, and springs arranged in the rear of said shuttle-bar adapted to project said bar forwardly; substantially as described.

2. In a nut-cracking machine, the combination of movable jaw-carriers, nut-cracking jaws supported by said carriers, a reciprocating shuttle-bar arranged to receive the nuts to be cracked by said jaws and springs arranged in the rear of said shuttle-bar to project said bar forwardly, means for retracting said shuttle-bar and means for holding it when retracted; substantially as described.

3. In a nut-cracking machine, the combination of nut-cracking jaws suitably supported and arranged to be moved to and from each other, a shuttle-bar arranged to receive the nuts to be cracked by said jaws, means for retracting said shuttle-bar, and a pivoted dog arranged to engage and hold said shuttle-bar when retracted, substantially as described.

4. In a nut-cracking machine, the combination of a supporting-frame, cross-bars arranged to be moved to and from each other, nut-cracking jaws carried by said cross-bars, a shuttle-bar carried by one of said cross-bars arranged to receive the nuts to be cracked by said jaws, springs arranged to press said shuttle-bar forward, pins carried by the opposing cross-bar arranged to carry said shuttle-bar backward, a dog pivoted to said first-mentioned cross-bar, and provided with a hook adapted to engage said shuttle-bar, and a heel adapted to be tripped on the backward movement of said cross-bars, substantially as described.

5. In a nut-cracking machine, the combination of a jaw having a shank, a member loosely mounted on said shank, a nut-receiving member loosely mounted on said first-mentioned member, and a spring located in the rear of said nut-receiving member, and an opposing jaw adapted to approach and recede from said first-mentioned jaw, substantially as described.

6. In a nut-cracking machine, the combination of a jaw having a shank, a member loosely mounted on said shank, a nut-receiving member loosely mounted on said first-mentioned member, a circular knife carried by said first-mentioned member arranged to enter said nut-receiving member, and a spring located in the rear of said nut-receiving member, and an opposing jaw adapted to approach and recede from said first-mentioned jaw, substantially as described.

7. In a nut-cracking machine, the combination of a jaw having a shank, a reciprocally-movable member carried by said jaw, a rocking bar arranged to engage and retain said movable member, a spring arranged to control said rocking bar, and a means for tripping said rocking bar to release it from engagement, and an opposing jaw; substantially as described.

8. In a nut-cracking machine, the combination of a jaw, a second and movably-mounted jaw, means for retaining said second jaw, and means whereby said second jaw is released from the exertion of forward pressure when pressure is brought thereagainst in the act of cracking a nut; substantially as described and for the purpose set forth.

9. In a nut-cracking machine, the combination of a jaw having a shank, a support for said shank, a movable member on said shank, a pivoted rocking bar, a hook carried by said rocking bar adapted to engage said movable member, a toothed segment on the opposite end of said rocking bar, and a pinion carried on said jaw-shank support arranged to engage said segment, substantially as described.

10. In a nut-cracking machine, the combination of jaws having shanks, a support for said shanks, movable members on said shanks, pivoted rocking bars, hooks carried by said rocking bars adapted to engage said movable members, toothed segments on the opposite ends of said rocking bars, a shaft mounted on said jaw-shank support, means for operating said shaft, and pinions carried by said shaft arranged to engage the segments of said rocking bars, substantially as described.

11. In a nut-cracking machine, a jaw, and a circular knife centrally located in said jaw forming a part thereof adapted to cut the shell of the nut in the act of cracking it and an opposing jaw; substantially as described.

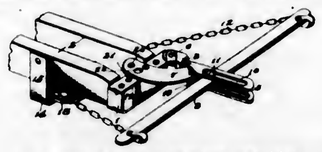
12. In a nut-cracking machine, the combination of a jaw provided with a movable yielding member, and a circular knife arranged to be projected through said movable member in the act of cracking a nut for the purpose of cutting the shell of said nut, and an opposing jaw adapted to approach and recede from said first-mentioned jaw, substantially as described.

13. In a nut-cracking machine, the combination of oppositely-arranged reciprocating bars, sectional dished nut-receiving jaws carried by said reciprocating bars, a roller carried by one of said reciprocating bars, and a cam carried by the driving mechanism of the machine arranged to strike said fork for the purpose of operating said bars, substantially as described.

14. In a nut-cracking machine, a jaw comprising an inner member, an outer loosely-mounted nut-receiving member carried by said inner member, and an opposing jaw; substantially as described.

15. In a nut-cracking machine, a jaw having a reciprocally-mounted inner member, and an outer nut-receiving member loosely mounted on said inner member, means for permitting the yielding and causing the return of said outer member, and an opposing jaw; substantially as described.

644,486. DRAFT-EQUALIZER. WILLIAM M. WUNDERLICH, Giltner, Nebr. Filed Jan. 9, 1900. Serial No. 860. (No model.)



Claim.—1. A device of the class described comprising a pivoted guide arranged to swing laterally of a draft beam or frame, a main whiffletree mounted on the guide, and an adjustable stop engaging the guide at the inner side thereof and holding the same against inward movement, said guide being adapted to swing outward beyond the stop, substantially as described.

2. A device of the class described comprising a pivoted guide designed to be connected with a draft frame or beam and provided with a slot or way, a main whiffletree mounted on the guide and engaging the slot or way, and an adjustable stop engaging the inner side of the guide, the latter being adapted to swing outward beyond the stop, substantially as described.

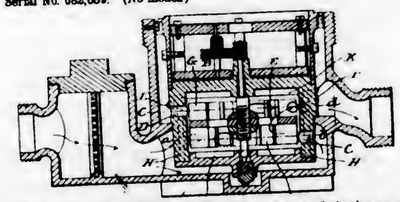
3. A device of the class described comprising a pivoted guide designed to be mounted on a frame or draft-beam, a main whiffletree slidingly mounted on the guide, an adjustable stop engaging the guide at the inner side thereof and holding the same against inward movement, said guide being adapted to swing ontward freely, and flexible connections between the main whiffletree and the draft beam or frame, whereby the guide is relieved of strain, substantially as described.

4. A device of the class described comprising a pivoted guide, a main whiffletree slidingly mounted on the guide, a pulley designed to be mounted on a draft beam or frame, a flexible connection passing around the pulley and attached to the ends of the main whiffletree, and means for securing the guide at the desired adjustment, substantially as described.

5. A device of the class described comprising a guide, a main whiffletree slidingly mounted on the guide, means for connecting the whiffletree with the draft beam or frame, an adjustable stop comprising a curved body provided at one end with an arm for engaging the guide, and having a radially-arranged arm located between its ends and mounted on the pivot of the guide, and a fastening device engaging the inner end of the body portion of the stop, substantially as described.

6. A device of the class described comprising a transverse loop or frame designed to be mounted on a draft beam or beams, and provided with perforations, a guide composed of a pair of bars pivoted at their inner ends to the transverse loop and provided with longitudinal slots, a main whiffletree mounted on the guide and provided with a pivot arranged in the slots thereof, a pulley, a flexible connection passing around the pulley and attached to the whiffletree, an adjustable stop consisting of a body portion provided at one end with an arm for engaging the guide, and an arm extending from the body portion between the ends thereof and mounted on the pivot of the guide, and a fastening device engaging perforations of the slot and the transverse loop, substantially as described.

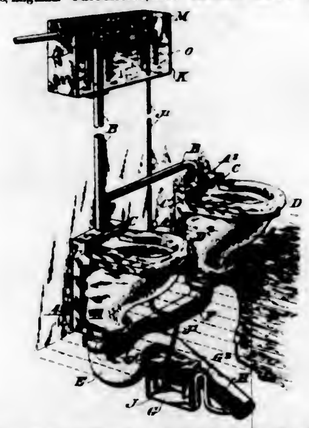
644,487. WATER-METER. EMIL ZUNKELLER, Ludwigshafen, Germany, assignor to Friedrich Lux, same place. Filed May 28, 1898. Serial No. 682,059. (No model.)



Claim.—1. The combination, in a water-meter of the inner, cylindrical measuring vessel having water-passages and top and bottom plates closing its ends and provided with radial stemming-ribs approximately triangular in cross-section, one face of each rib being vertical and the other inclined, and a rotary vane-wheel within the cylinder, substantially as and for the purpose described.

2. In a water-meter, the combination with the outer casing having an inlet and an outlet, and a frame or inner case in the upper part of said casing for containing a suitable register, of the cylindrical measuring vessel having upper and lower sets of lateral water-passages and top and bottom cover-plates provided with radial stemming-ribs triangular in cross-section, each rib having one face inclined and the opposing face at right angles to the plate, and a water-wheel composed of a disk having curved vanes on its upper and lower sides, substantially as and for the purposes described.

644,488. WATER-CLOSET OR URINAL. MOSES J. ADAMS, Harrogate, England. Filed Mar. 27, 1899. Serial No. 710,663. (No model.)

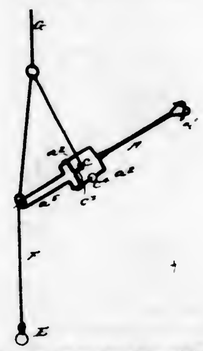


Claim.—1. The combination with a water-closet or flushed urinal, of a chamber for collecting liquid from the outlet-pipe thereof, a second chamber within the said chamber, a siphon for automatically draining the first-mentioned chamber, a connection between said second chamber and the flushing-cistern, and means actuated by the rising of the liquid in the chamber for controlling the admission of water to said cistern, substantially as specified.

2. The combination with a water-closet or flushed urinal of a chamber G for collecting liquid from the outlet-pipe thereof, a siphon for automatically draining the said chamber, connection between said chamber and inlet-valve and an inner chamber J for trapping air and transmitting same to the flushing-cistern to actuate the supply-tap, substantially as, and for the purpose, specified.

3. The combination with a water-closet or flushed urinal of a chamber G for collecting liquid from the outlet-pipe thereof, a siphon for automatically draining the said chamber, and an inner chamber J for trapping air, a pipe such as J' forming a communication between said chamber J and the flushing-cistern, the lever of the supply-tap and a cap O suspended from the lever of the supply-tap over the open end of the pipe J', substantially as described, and for the purpose specified.

644,489. SPRING-ACTUATED FISH-HOOK. DAVID W. ANDERSON, Richmond, Va. Filed Apr. 17, 1899. Serial No. 713,339. (No model.)

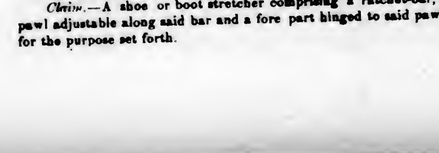


Claim.—1. A device for catching fish, and similar purposes, having a horizontally or laterally extending hook with two oppositely-moving spring-actuated hook-points, a drawing means positively connected to the heel or inner part of the hook, means for holding said hook with one side higher than the other, whereby said points may act upwardly and downwardly, a trigger for holding the parts of the hook in set position, and means for releasing the trigger, substantially as set forth.

2. A device for catching fish, and similar purposes, having a horizontally or laterally arranged hook with two oppositely-moving spring-actuated points, a draft device positively connected to the heel or inner end of the hook, an eccentrically-arranged weight connected to the hook for holding the said two hook-points in a plane other than the horizontal, a sinker flexibly connected to the heel or inner part of the hook, a trigger for holding the hook-points in a set position and a trigger-releasing device supplemental to and connected to the draft device, substantially as set forth.

3. A mechanism for catching fish, and similar purposes, having a horizontally or laterally arranged hook with two oppositely-moving spring-actuated points, a draft device a trigger for holding the said points in a set position, a hook-carrier interposed between the heel or inner part of the hook and the draft device, and a trigger-releasing device interposed between the trigger and the draft device, and means for holding the points of the hook in a plane other than the horizontal, substantially as set forth.

644,490. DUMPING-CAR. JOHN T. ARGO, Poindexter, Ky., assignor of two-thirds to John Wigglesworth and Fred McCarty, same place. Filed June 23, 1899. Serial No. 721,462. (No model.)



Claim.—1. A dumping-car, comprising a wheeled truck or support adapted to serve as a platform-car, a body-platform detachably and rotatably mounted upon said truck, and tilting boxes adapted to rest in a horizontal position upon said body-platform and pivoted at their bases to the opposite ends thereof and having handles at their outer ends whereby they may be tilted and the body-platform rotated.

2. A dumping-car, comprising a wheeled truck or support, adapted to serve as a platform-car, a body-platform rotatably mounted thereon, and tilting boxes adapted to rest horizontally upon said body-platform with their inner ends in close proximity and at or near the center of the platform, each box being pivoted forward of its center to the end of the body-platform, substantially as described.

3. A dumping-car comprising a wheeled truck or support, adapted to serve as a platform-car, a body-platform rotatably mounted thereon, and inclined tilting boxes adapted to rest in a substantially-horizontal position upon said body-platform, said boxes being closed and of greatest depth at their inner ends and open and of least depth at their outer ends and pivoted forwardly of their centers to the ends of the body-platform.

4. A dumping-car, comprising a wheeled truck or support adapted to serve as a platform-car, and carrying one member of a turn-table, a rotatable body-platform mounted on said truck and carrying the other part of the turn-table, a pivot-pin connecting the body-platform and truck and independent of the turn-table, tilting boxes pivoted at their bases and forwardly of their centers to the ends of the body-platform and provided at their outer ends with handles, and locking means for connecting the inner ends of the boxes.

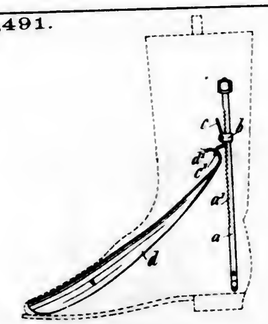
5. A dumping-car, comprising a wheeled support or truck adapted to serve as a platform-car, and a detachable body rotatably mounted thereon and composed of a platform, and a pair of tilting boxes mounted upon the opposite ends of said platform and provided with a locking device to hold them connected against tilting, side portions bearing against the sides of said platform, and handles whereby the body in entirety may be rotated on said truck.

6. A dumping-car, comprising a wheeled truck or support adapted to serve as a platform-car, a body-platform detachably and rotatably mounted on the truck, and tilting boxes pivoted upon the opposite ends of said body-platform and adapted to rest thereon.

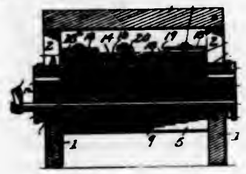
644,491. SHOE OR BOOT STRETCHER. ROBERT BROEK, Zerbst, Germany, assignor to Friedrich Gustav Pabst, Hamburg, Germany. Filed Aug. 7, 1899. Serial No. 726,427. (No model.)

Claim.—A shoe or boot stretcher comprising a ratchet-bar, a pawl adjustable along said bar and a fore part hinged to said pawl, for the purpose set forth.

644,491.



644,492. CLOTHES-WRINGER. CALVIN F. BESORE, Ida Grove, Iowa, assignor of one-half to Bart Varner, same place. Filed Nov. 2, 1899. Serial No. 736,566. (No model.)



Claim.—1. In a wringer, a pair of coacting rollers, one of which is stiff, the other roller having an elastic core intergeared with the stiff roller and said core incased in a yieldable body, as and for the purposes described.

2. In a wringer, a stiff roller, in combination with a flexible roller cooperating therewith and comprising a spring-core, a reinforcing-spring coiled around the core, and a pliable covering incasing the core and reinforcing-spring, substantially as specified.

3. In a wringer, the combination with a stiff roller, of a flexible roller having an elastic core incased within a yieldable body, and groups of pressure-rolls arranged at intervals along and in cooperative relation to said flexible roller, as and for the purpose described.

4. In a wringer, a stiff roller, and a flexible roller in combination with sectional presser-rolls with the sections of one roll extending at their ends beyond the end of the sections of the laterally-adjacent roll, substantially as specified.

5. In a wringer, a stiff roller and a flexible roller, in combination with sectional presser-rolls, and brackets with bearing-lugs at varying distances apart between which the sections of the presser-rolls are received and in which they are journaled, substantially as specified.

6. In a wringer, a stiff roller and a flexible roller, in combination with sectional presser-rolls, and brackets having stepped portions with terminal bearing-lugs to receive the roll-sections, substantially as described.

7. In a wringer, a stiff roller, and a flexible roller, in combination with sectional presser-rolls, a plurality of brackets arranged in line with each other, and carrying the sections of the presser-rolls, and an independent pressure-spring for each bracket, substantially as described.

8. In a wringer, the combination with coacting rollers, one of which is yieldable at different points along its length relatively to the other roller, of groups of pressure-rolls arranged at intervals along said yieldable roller, and means for holding each group of pressure-rolls yieldably in contact with the flexible roller, substantially as described.

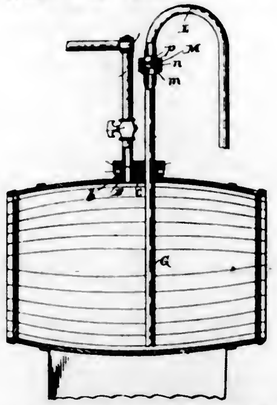
644,493. DEVICE FOR RIMMING AND CRIMPING CARTRIDGES. NATHANIEL P. BLAKEMAN, Wichita, Kans. Filed Nov. 6, 1899. Serial No. 736,080. (No model.)



Claim.—In a crimping-tool, the combination with a shell, of crimping-head having flaring sides and provided with crimping-pins taking into the bore of the head, and a spring-supported plunger hav-

ing tapering sides, the lines of taper being inverse to the lines of the walls of the head, substantially as set forth.

644,494. SIPHON. CLYDE M. BRADY, Brunswick, Ga. Filed Nov. 16, 1899. Serial No. 737,230. (No model.)



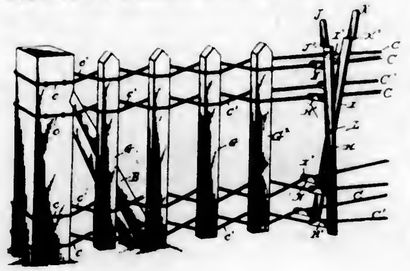
Claim.—1. A siphon comprising a bung adapted to be air-tightly fit to a tank, cask or other vessel, a siphon-pipe passing through said bung into the cask and to near its lower side or end, the outer projecting end of the siphon doubled downward to a point below the liquid level of the said tank, a pump communication through the said bung within the cask, a pump connected with the said communication, and a valved air communication through the said bung independent of the said pump, substantially as and for the purpose described.

2. A siphon comprising a bung adapted to be air-tightly fit to a tank, cask or other vessel, a siphon-pipe having one stem passing through the bung within the cask and its opposite end doubled and extending downward outside of the said cask, the lower end of said outside portion provided with a valve, a valved pump communication through the said bung within the cask, a pump connected with said valved communication, and a valved air communication through the said bung independent of the said pump, substantially as and for the purpose described.

3. A siphon comprising a bung adapted to be air-tightly fit to a tank, cask or other vessel, said bung having a passage-way extending vertically therethrough, a pipe depending from said passage-way, a siphon-pipe also connected with said passage-way and extending to or below the lower end of said depending pipe, an air passage-way having a valve, a pump connection with said aic passage-way, and a passage-way through the said bung independent of the pump passage-way and having a valve, substantially as and for the purpose described.

4. A siphon comprising a bung adapted to be air-tightly fit to a tank, cask or other vessel, said bung having a passage-way with a depending pipe, a siphon-pipe also connected with said passage-way and extending to or below the lower end of said depending pipe, the bung having an air passage-way, a manually-operated valve within said air-passage, a pump connection with said air-passage, said pump connection having a check-valve, substantially as described.

644,495. FENCE-MACHINE. LEONIDAS P. BROWN, Centralia, Mo. Filed Mar. 5, 1898. Serial No. 672,653. (No model.)



Claim.—1. In a wire-fence-picketing machine, a pair of uprights centrally pivoted together side by side and provided with laterally-projecting arms having slots or notches to receive the line-wires of the fence, substantially as described.

2. In a wire-fence-picketing machine, a pair of uprights centrally pivoted together side by side and provided with laterally-projecting arms having slots or notches to receive the line-wires of the fence, and means for preventing the displacement of the wires, substantially as described.

3. In a wire-fence-picketing machine, a pair of uprights centrally pivoted together side by side and provided with laterally-projecting arms having slots or notches to receive the line-wires of the fence, and pivoted latches having angular notches on their forward lower edges to prevent displacement of the wires from said slots, substantially as described.

4. In a wire-fence-picketing machine, the uprights pivotally secured together at their mid-length and provided with suitable handles on their upper ends, and a plurality of arms projecting laterally from each upright at about right angles thereto and on the same side above and below the pivotal point, and means for stringing and securely holding the wires on the arms, all substantially as described.

5. The fence-machine herein described consisting of uprights II and I pivotally secured together at about their centers and provided with suitable handles and arms II′ and I′, projecting laterally from these uprights respectively on the same side, each arm being provided with a slot or open notch N leading inward and formed from one edge thereof, and means for securing the wires in the notches against displacement, all substantially as described.

644,496. HORSE-POWER FOR UNLOADING HAY. CHARLES A. CLARK, Flint, Mich., assignor of one-half to Frederick J. Ottaway, same place. Filed Nov. 11, 1899. Serial No. 736,633. (No model.)

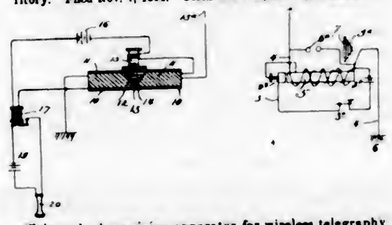


Claim.—1. The combination, with the tubular standard, the ratchet-plate and pawl, the hub, the disk secured thereto, the drum, the rollers on the upper flange of said drum, the annular groove therein and the roller-catches journaled in said groove, the spring-dog, the cord or cable, the pulleys and the swivel, said cord or cable passing through the tubular standard, substantially as described.

2. The combination, with the standard having a central hole and screw-threaded upper end, the rotatable hoisting-drum, having an annular groove on its upper face and the catches located therein, of the rotatable disk the dog pivoted thereto, the brackets and pulleys, and the rope or cord secured to said dog and passing around said pulleys and through the hole in the standard, substantially as described.

3. The combination, with the bracket, the standard having a central hole and a screw-threaded upper end, the rotatable drum having a flange at its lower edge and an annular groove on its upper face, and the catches, of the rotatable disk, the antifriction-rollers journaled in brackets secured to said disk, the pivoted dog, and the cord or rope secured to said dog and passing over said pulleys and through the hole in the standard, substantially as described.

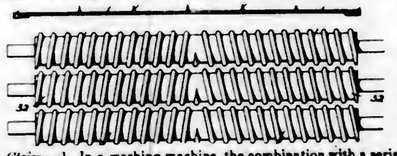
644,497. WIRELESS TELEGRAPHY. ARCHIE F. COLLINS, Saratoga Springs, N. Y., assignor, by direct and mesne assignments, to the American Wireless Telephone and Telegraph Company, of Arizona Territory. Filed Nov. 7, 1899. Serial No. 736,198. (No model.)



Claim.—1. A receiving apparatus for wireless telegraphy, comprising a non-conductor tube, oppositely-disposed conductor-plugs arranged within the tube, and having their inner ends beveled to form a tapering pocket, adapted to receive loose magnetic particles, a local circuit embracing said plugs, and filings, and a magnet in said circuit arranged to act on said particles, substantially as and for the purpose set forth.

2. A receiving apparatus for wireless telegraphy consisting of a coherer, comprising a non-conducting tube, alined conductor-plugs arranged within the tube and having their separated inner ends beveled to form a V-shaped pocket, which is adapted to receive comminuted magnetic particles, a conductor-strip of high electrical resistance bridging the inner ends of said plugs, a local circuit embracing said plugs, and magnetic particles, a relay, and a magnet in said circuit the latter being arranged to act on said magnetic particles, substantially as and for the purpose set forth.

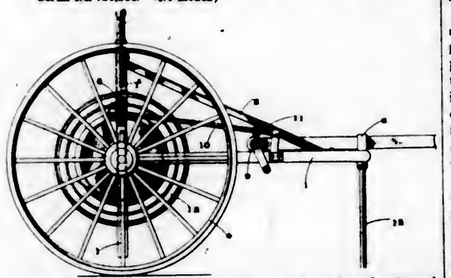
644,498. WASHING-MACHINE. EDWARD S. COOK, London, England. Filed May 22, 1899. Serial No. 717,767. (No model.)



Claim.—1. In a washing-machine, the combination with a series of troughs of endless chains, a series of rollers on which said chains are mounted and so arranged as to guide said chains into and out of each trough in succession and then under the entire series of troughs, a series of bars carried by said chains and provided with pins or projections, an endless apron supported on rollers in juxtaposition to said chains and adapted to be pierced by the pins of said bars, and guide-rollers arranged to lead said apron away from the chains at one end of the machine whereby to disengage it from said pins, and toward the chains at the opposite end of the machine whereby the pins may again engage the apron, substantially as described.

2. In a washing-machine, the combination with a series of troughs of endless chains, a series of grooved rollers carrying at their ends sprocket-wheels on which said chains are mounted, said rollers being so arranged as to guide said chains into and out of each trough in succession and then under the entire series of troughs, and certain of said rollers being located, respectively, over the division between each pair of troughs, an adjustable roller located above each of said last-named rollers to form in conjunction therewith a wringer, a series of bars carried by said chains and provided with pins or projections, an endless apron supported on rollers in juxtaposition to said chains and adapted to be pierced by the pins of said bars, and guide-rollers arranged to lead said apron away from the chains at one end of the machine whereby to disengage it from said pins, and toward the chains at the opposite end of the machine whereby the pins may again engage the apron, substantially as described.

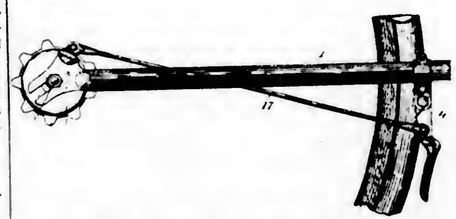
644,499. APPARATUS FOR LIFTING AND TRANSPORTING GOODS. HARRY O. COOPER, Liverpool, England. Filed Aug. 5, 1899. Serial No. 726,283. (No model.)



Claim.—1. The combination with a two-wheeled truck, of standards extending vertically from the same near each wheel, a frame guided vertically by said standards, means for raising said frame, and suspending means secured to said frame.

2. The combination with a two-wheeled truck, vertical tubular standards secured to the ends of the truck-frame, axles extending from said standards on which said wheels are journaled, a frame guided in said standards, suspending devices depending from said frame, a rack on each end of said frame, a pinion engaging each rack, spindles carrying the same, a shaft extending across the truck-frame having a handle at each end and gearing interposed between said shaft and pinion for driving the latter, substantially as described.

644,500. DRIVING AND BRAKE MECHANISM. JAMES S. COPELAND, Hartford, Conn. Filed July 20, 1899. Serial No. 724,480. (No model.)



Claim.—1. In a driving and brake mechanism for a vehicle, in combination, a driving member consisting of a gear-wheel, a pawl-carrier operated by the driving member and having pawl-sockets extending therethrough, a driven clutch member located on one side of the carrier and having a ratchet-recess, a driven clutch member located on the opposite side of the carrier and having a ratchet-recess, brake mechanism connected to the last-mentioned clutch member, and a self-operating pawl located in the socket in the carrier said pawl being adapted to engage the recesses in each of the driven clutch members.

2. In a driving and brake mechanism, in combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets each extending therethrough, a plural number of independently-movable driven clutch members located concentric with and on opposite sides of the carrier and each having a ratchet-recess formed therein, and a gravity-operated pawl borne by the carrier and adapted to engage the recess in the respective oppositely-operating driven clutch members.

3. In combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets extending therethrough and inclined in the direction of rotation of the carrier, a free-moving pawl borne in each of the pawl-sockets, a plural number of independently-movable driven clutch members located on opposite sides of the carrier and each having a shouldered ratchet-recess formed therein adapted to register with the pawl-sockets in the carrier, the shoulder of the ratchet-recess in one of the driven clutch members facing in a different direction of rotation from the shoulder in the ratchet-recess in the other driven clutch member, and each shoulder adapted to be engaged by each of said pawls.

4. In combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets extending therethrough, a spherical pawl borne in each of said pawl-sockets, a plural number of independently-movable clutch members located on opposite sides of the carrier and each having a shouldered ratchet-recess formed therein adapted to register with the pawl-sockets in the carrier, a shoulder of the ratchet-recess in one driven clutch member facing in a different direction of rotation from the shoulder of the ratchet-recess in the other driven clutch member and the shoulder in each of the driven clutch members being adapted to be engaged by each of the pawls in the carrier.

5. In a driving and brake mechanism in combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets each extending therethrough, a plural number of independently-movable driven clutch members located on opposite sides of the carrier with ratchet-recesses formed therein with shoulders facing in different directions of rotation, a wheel-hub secured to one of said clutch members, a brake mechanism connected to the opposite clutch member, and free-moving self-operating pawls borne in the pawl-sockets in the carrier and adapted to engage the ratchet-recesses in the respective driven clutch members.

6. In a driving and brake mechanism in combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets extending therethrough and inclined in the direction of rotation of the carrier, a driven clutch member located on one side of and mounted concentric to the carrier and having shouldered recesses, a wheel-hub secured to said driven clutch member, a driven clutch member located on the opposite side of the carrier and mounted concentric thereto and having a shouldered recess, brake mechanism connected to the last-mentioned driven clutch member and free-moving pawls located in the sockets in the carrier, each pawl being adapted to engage a shouldered recess in each of the driven clutch members.

7. In a driving and brake mechanism in combination, a driving member, a pawl-carrier operated by the driving member and having pawl-sockets each extending therethrough, a driven clutch member located outside of and mounted concentric to the carrier and having a shouldered recess, a driven clutch member located inside of the carrier opposite to the other clutch member and having a shouldered

recess, a wheel-hub secured to said inner driven clutch member, brake mechanism connected with the driven clutch member located outside of the carrier, and free-moving pawls located in the sockets in the carrier, each pawl being adapted to engage a shouldered recess in each of the driven clutch members.

8. In combination, a driving member with means for operating it, a pawl-carrier operated by the driving member and having a pawl-socket extending therethrough and forming one member of a clutch device, driven members located on opposite sides of the carrier and each having a recess with a shoulder facing the wall of the pawl-socket and each of said driven members forming another member of the clutch mechanism, and a free-moving gravity-operated pawl located in the pawl socket and adapted to be located between the wall of the socket and the shoulder in each of the recesses in the driven members and forming the connections between the clutch members.

9. In combination, a wheel-hub, a ring-shaped clutch member having recesses and means for securing it to said hub, a sprocket-wheel having a carrier secured thereto and mounted on said clutch member, the carrier having pawl-sockets each extending therethrough and adapted to register with the ratchet-recesses in the ring-shaped clutch member, a cup-shaped brake-clutch member fitting upon the outside of the carrier and having a ratchet-recess adapted to register with the pawl-sockets in the carrier, free-moving pawls located in the sockets in the carrier, each pawl being adapted to engage a ratchet-recess in the ring-shaped and cup-shaped clutch members respectively, and a tire-brake mechanism connected to the brake-clutch member.

10. In a driving and brake mechanism, in combination, a driving member, a pawl-carrier secured to the driving member and having pawl-sockets each extending therethrough, a plural number of independently-driven clutch members located concentrically on opposite sides of the carrier and each having a shouldered ratchet-recess formed therein, one or more pawls located in the pawl-sockets in the carrier and adapted to engage each of the shouldered ratchet-recesses in the oppositely-movable driven clutch members, and a brake operatively connected to one of said clutch members.

644,501. ADJUSTABLE CURTAIN-ROLLER FIXTURE. THOMAS CRADDOCK, Providence, R. I. Filed Dec. 9, 1899. Serial No. 739,849. (No model.)



Claim.—1. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged and formed with projecting portions, and a bracket adjustable upon the base and provided with means to positively engage and interlock with the projecting portions of said lugs to hold it in the required position, the interlocking connection being effected by a sliding movement of the bracket, substantially as described.

2. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged and formed with projecting portions, and a bracket slidable upon the base and mounted to swing toward and from the lugs in a plane at a right angle to their line and provided with means to positively interlock with the projecting portions of any one of the lugs by a sliding movement, substantially as specified.

3. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged, a bracket adjustable upon the base and provided with means to interlock with any one of the lugs by a laterally-sliding movement, and a dog to cooperate with adjacent lugs between which the bracket may be located to fix the position of the said bracket, substantially as set forth.

4. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged, a rod paralleling the line of studs, and a bracket pivotally and slidably mounted upon the rod and adapted to make interlocking connection with any one of the series of studs, substantially as described.

5. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged, a rod paralleling the line of studs, a bracket pivotally and slidably mounted upon the rod and adapted to make interlocking connection with any one of the said studs, and a dog mounted upon the rod to slide and turn thereon and adapted to cooperate with the lugs to hold the bracket in fixed position, substantially as specified.

6. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged, a rod paralleling the line of studs, a bracket pivotally and slidably mounted upon the rod and adapted to cooperate with the lugs to hold the bracket in fixed position, substantially as specified.

7. An adjustable fixture for curtain-rollers, comprising a base having a series of spaced lugs longitudinally arranged, a bracket adapted to interlock with any one of the lugs by a lateral movement, and a dog to cooperate with the bracket and adjacent lugs and with said bracket fill the space between contiguous lugs, substantially as specified.

8. In an adjustable curtain-roller fixture, a base having a longitudinal series of lugs, a bracket having its rear side in different planes corresponding with, respectively, the front and rear sides of the base, and means for securing the bracket to the base in an adjusted position, substantially as described.

9. In an adjustable curtain-roller fixture, a base having a longitudinal series of hooked lugs, and a bracket having a base-flange notched to clear the lugs, and having a projecting portion to underlap and interlock with any lug of the series, substantially as described.

10. In an adjustable curtain-roller fixture, a base having ears and a series of hooked lugs, a rod supported by the ears, a bracket pivotally and slidably mounted upon the rod and having a projecting portion to interlock with any one of the lugs in an adjusted position by a laterally-sliding movement, and a dog to secure the bracket when positioned, substantially as described.

11. An adjustable curtain-roller fixture, comprising a base having hooked lugs at one edge, a rod at the opposite edge, a bracket slidable and pivotal upon the rod and having a notched basal flange to interlock with any one of the lugs by a lateral movement, and a dog slidably and pivotally mounted upon the rod with the bracket and cooperating with the lugs to hold the bracket in place, substantially as and for the purpose described.

644,502. TYPE-WRITER. WILLIAM S. CRAIG, London, England, assignor of one-half to Charles Chase Whitacre, same place. Filed July 27, 1898. Serial No. 687,090. (No model.)



Claim.—1. In a type-writing machine, the combination with the paper-roller, the paper-roller spindle, the fixed knobs at the extremities of the said spindle, and the paper-carriage frame, of a rotary sleeve for longitudinally adjusting the paper-roller, said sleeve forming the bearing of the roller-spindle at one end, substantially as described for the purpose specified.

2. In a type-writing machine, the combination with the paper-roller, the paper-roller spindle, the fixed knobs at the extremities of said spindle, and paper-carriage frame, of an externally-screw-threaded rotary sleeve forming the bearing of the roller-spindle at one end and accurately fitting between one end of the said roller and the knob fixed to that end of the said spindle, substantially as described for the purpose specified.

3. In a type-writing machine, the combination with the paper-roller, the paper-roller spindle, the fixed knobs at the extremities of the said spindle, and the paper-carriage frame, of an externally-screw-threaded rotary sleeve forming the bearing of the said spindle at one end, and accurately fitting between one end of the said roller and the knob fixed to that end of the spindle, and a fixed nut on the frame of the paper-carriage, which nut forms a bearing in which the said sleeve can turn to carry the paper-roller longitudinally in its carriage in either direction, substantially as described for the purpose specified.

4. In a type-writing machine, the combination with the paper-roller, the paper-roller spindle, the fixed knobs at the extremities of the said spindle, and the paper-carriage frame, of an externally-screw-threaded sleeve forming the bearing of the said spindle at one end, and accurately fitting between one end of the said roller and the knob fixed to that end of the spindle, a fixed nut on the frame of the paper-carriage, which nut forms a bearing in which said screw-threaded sleeve can turn to carry the paper-roller longitudinally in its carriage in either direction, a head fixed to said sleeve for turning the same, an extension on the spindle at the opposite end of the paper-roller, a presser-roller and means for enabling the presser-roller to move laterally in its bearings to a limited extent, substantially as described for the purpose specified.

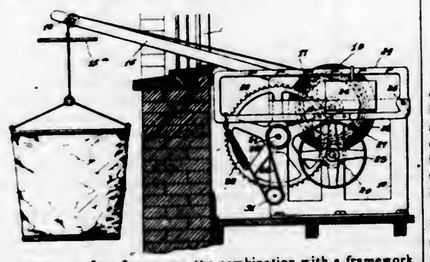
644,503. INSECT-DESTROYER. FRANK DAYTON, Portland, Oreg. Filed Aug. 23, 1899. Serial No. 728,330. (No model.)

Claim.—1. As a new article of manufacture, an insect catching and killing device comprising in combination a frame, a wire-cloth facing therefor, firmly stretched over and fastened at its edges to the frame, a pole or handle, and a joint whereby the frame is attached to the pole, the articulation holding the frame in one position until readjusted, and, at the same time, allowing the frame to be readily adjusted to bring it flatly against the surface of the wall or ceiling; the wire-cloth facing being of suitable tension and size of mesh, the latter presenting numerous loops or openings formed by the interwoven strands, into which loops or openings the insect is squeezed, in operating with said device, and the insect thereby caught and killed, substantially as described.



2. As a new article of manufacture, an insect catching and killing device comprising in combination a frame, a wire-cloth facing therefor, stretched over and fastened at its edges to the frame; arms spanning the under side of the frame; dependent perforated bearings at the center of such arms; the pole, and the bifurcated head therefor, in which the said bearings are received; and the bolt and nut for holding the articulation or joint together; the wire-cloth facing being of suitable tension and size of mesh, the latter presenting numerous loops or openings formed by the interwoven strands, into which loops or openings the insect is squeezed, in operating with said device, and the insect caught and killed, substantially as set forth.

644,504. FIRE-ESCAPE. WILLIAM J. DERMODY, Omaha, Nebr. Filed June 29, 1899. Serial No. 722,305. (No model.)



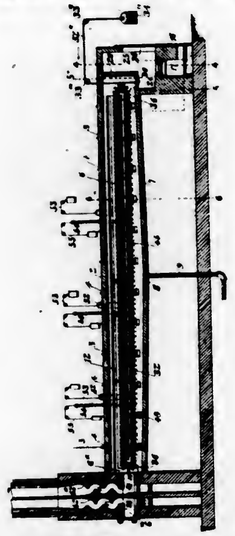
Claim.—1. In a fire-escape, the combination with a framework, of a spool-shaft mounted therein and carrying a spool, an arm pivoted to the frame and having a guide-sheave at its free end, a cable coiled on the spool and guided by the sheave of the arm, a cage attached to the cable, brake-shafts geared together for simultaneous rotation, one of said shafts carrying a brake-wheel and the other shaft provided with a spool, a counterpoise-lever provided with a shoe arranged to ride upon the brake-wheel, and a spring connected with said lever and having a flexible connection with the spool of one brake-shaft, substantially as described.

2. A fire-escape consisting of a suitable frame, a spool-shaft mounted in said frame and provided with a winding-spool, an arm pivoted to the frame and carrying a sheave, a cage-cable coiled on the spool, a helical retracting-spring connected to the spool-shaft and to the frame, brake-shafts intergeared with the spool-shafts, one of said brake-shafts having a brake-wheel and the other brake-shaft carrying a winding-spool, a beam adapted to support a shiftable counterpoise and provided with a brake-shoe arranged to ride upon the brake-wheel, a coiled spring connected with the free end of the beam and a cable connected with the spool of one brake-shaft and to said coiled spring.

3. In a fire-escape, the combination with a spool-shaft, of the brake-shafts geared together for simultaneous rotation, one of said shafts carrying a brake-wheel and the other shaft provided with a spool, a counterpoise-lever provided with a shoe arranged to ride upon the brake-wheel, and a spring connected with said lever and having a flexible connection with the spool of one brake-shaft, substantially as described

4. In a fire-escape, the combination with a spool-shaft, and a cage-carrying cable, of brake-shafts intergeared with the spool-shaft, one of said brake-shafts having a brake-wheel and the other brake-shaft carrying a winding-spool, a beam adapted to support a shiftable counterpoise and provided with a brake-shoe arranged to ride upon the brake-wheel, a coiled spring connected with the free end of the beam, and a cable connected to the spool of one brake-shaft and to said coiled spring, substantially as described.

644,505. GARBAGE-FURNACE. SAMUEL W. DIXON, Findlay, Ohio. Filed Oct. 17, 1898. Serial No. 693,767. (No model.)



Claim.—1. In a garbage-furnace, the casing having an interior evaporating-chamber, and provided in its longitudinal side walls with heat-flues opening into said chamber contiguous to the crown thereof, a fire-chamber independent of the evaporating-chamber, and in direct communication with said heat-flues, and a garbage-support arranged in the evaporating-chamber below the plane of communication between the heat-flues and evaporating-chamber near the crown of the latter, substantially as set forth.

2. In a garbage-furnace, the casing having an interior evaporating-chamber, a pair of separate longitudinal heat-flues arranged respectively at opposite sides of said chamber, and extending the full length thereof, a garbage-support arranged within the evaporating-chamber between the two heat-flues, the latter having means for circulating the heated products of combustion above and below the latter, and a fire-chamber in direct communication with said flues, substantially as set forth.

3. In a garbage-furnace, the furnace-casing having an interior evaporating-chamber, separate upright interior heat-radiating surfaces independent of and spaced from the main side walls of the casing, the interval between said surfaces and the main side walls forming heat-circulating flues, means for maintaining said radiating-surfaces in a heated condition, and a garbage-support arranged between said radiating-surfaces, substantially as set forth.

4. In a garbage-furnace, the furnace-casing having an interior evaporating-chamber, and separate protective heat-radiating walls arranged longitudinally within the chamber at opposite sides thereof, said radiating-walls being independent of and spaced from the main walls of the casing, means for circulating heated air and gases alongside of and over the top edges of said radiating-walls, and a garbage-support arranged between said radiating-walls, substantially as set forth.

5. In a garbage-furnace, a furnace-casing having an interior evaporating-chamber, and protective fire-brick radiating-walls arranged longitudinally within said chamber at opposite sides thereof, said fire-brick walls having their upper edges terminating short of the crown of the chamber to form continuous longitudinal circulating-passages, a fire-chamber having flue-openings in communication with the flues formed at one side of said radiating-walls, and a garbage-support arranged between said radiating-walls, substantially as set forth.

6. In a garbage-furnace, the furnace-casing having an interior evaporating-chamber and heat-flues extending longitudinally of the

chamber at the sides thereof, said heat-flues having continuous longitudinal circulating-passages communicating with the chamber at the top sides thereof, and supplemental circulating-openings below the plane of said passages, suitable cut-off slides for controlling the circulation through said supplemental openings, and the garbage-support within said chamber, said garbage-support having its platform portion disposed in a plane between said circulating-passages and supplemental circulating-openings, substantially as set forth.

7. In a garbage-furnace, the casing having an interior evaporating-chamber, and interior walls arranged longitudinally within the chamber at opposite sides thereof to form side heat-flues, said walls having their upper edges terminating short of the crown of the chamber, and provided therein with supplemental circulating-openings, controlling-slides arranged to cover and uncover said supplemental circulating-openings, a separate cut off slide arranged to work transversely in the heat-flues adjacent to each of said controlling-slides, and an open garbage-support having its platform portion disposed in a plane between the top edges of said walls and the supplemental circulating-openings thereof, substantially as set forth.

8. In a garbage-furnace, the casing having an interior evaporating-chamber, and side heat-flues extending longitudinally of the chamber at the sides thereof and having continuous circulating-passages communicating with the chamber at the top sides thereof, an open garbage-support arranged in said chamber, and means for directing portions of the heated products in said flues into the evaporating-chamber at points below the plane of the platform portion of the garbage-support, substantially as set forth.

9. In a garbage-furnace, the casing provided with an interior longitudinal evaporating-chamber having a single bottom discharge-opening at one end, side heat-circulating flues in communication with and disposed longitudinally of said chamber, a main cremating or combustion chamber arranged below and beyond the plane of said discharge-opening, and provided at the top with a garbage-receiving heating-floor with a manhole therein, and a feeding-compartment built above the cremating or combustion chamber and partitioned from the contiguous end of the evaporating-chamber, a drop-door covering said discharge-opening and automatically operated by the weight of the garbage, and a garbage-carrier arranged longitudinally in the evaporating-chamber, substantially as set forth.

10. In a garbage-furnace, the combination of the furnace-casing having separate evaporating and cremating chambers, and a combined garbage-carrier and separating-grate supported within the evaporating-chamber, and comprising a traveling endless support, and a plurality of regularly-spaced platform-bars providing liquid-drains therebetween, said platform-bars being formed of T-shaped strips whose flat sides or bases are secured to the traveling endless support, thereby disposing their webs or flanges outward from the endless support to form therebetween garbage-pockets which open as the bars pass from the upper run into the lower run of the carrier, substantially as set forth.

11. In a garbage-furnace, the combination of the furnace-casing having separate evaporating and cremating chambers, and a combined garbage-carrier and separating-grate supported within the evaporating-chamber and comprising an endless apron formed of a plurality of regularly-spaced platform-bars providing liquid-drains therebetween, said bars being formed of T-strips, having at their ends right-angularly-disposed arms forming inclosing sides and whose flat sides or bases are fitted to the supports for the bars, thereby disposing the webs or flanges of the latter outward from the said bars, substantially as set forth.

12. In a furnace or crematory, the combination with the casing, of a stack formed with a scent-consuming chamber having a sinuous passage with continuous fire-brick walls, which walls are formed with alternate projecting portions and depressions, the projecting portions of one wall lying opposite the depressions in the opposite wall.

13. In a furnace or crematory, the combination with the casing, of the stack formed with a scent-consuming chamber having a sinuous passage with continuous fire-brick walls, provided with alternate projecting portions and depressions, the projecting portions of one wall lying opposite the depressions in the opposite wall, and one fire-brick wall of said sinuous passage being fitted in and lining a wall of the stack proper, substantially as set forth.

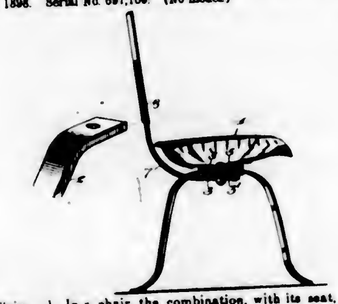
14. In a furnace or crematory, the combination with the casing, of the stack formed with a scent-consuming chamber having central and side tiers of fire-brick, which brick are formed with alternate projecting portions and depressions, the side tiers of brick being fitted directly in and lining the walls of the stack proper, and the projecting portions of each tier lying opposite the depressions in the adjacent tier, substantially as set forth.

15. In a furnace or crematory, the combination with the casing, of a stack formed with a scent-consuming chamber, having a sinuous passage with continuous fire-brick walls, which walls are formed with alternate projecting portions and depressions, with the projecting portions of one wall lying opposite the depressions of the opposite wall, and regulating valves or dampers arranged at the apices of the projecting portions of said walls, substantially as set forth.

16. In a furnace or crematory, the combination with the casing, of the stack provided with a scent-consuming chamber having a central partition, and also having built within the partition, and in the walls thereof at opposite sides of the partition, approximately-triangular fire-brick having similarly-curved faces, said fire-brick being arranged in a superposed relation to form projecting or jutting portions, said projecting or jutting portions of the fire-brick in the partition and at the sides of the stack being disposed alternately to form sinuously-curved deodorizing-passages at both sides of the partition, and a separate fire-box arranged at the lower end of each deodorizing-passage, substantially as set forth.

17. In a furnace or crematory, the combination with the casing, of the stack provided with a scent-consuming chamber having separate continuous sinuous deodorizing-passages walled at each side with fire-brick lining having laterally-projecting portions jutting into the passages, and horizontal regulating-slides adjustably supported between the matching fire-brick at the projecting portions thereof, substantially as set forth.

644,506. CHAIR. WALKER A. DRONSOLD, York, Pa. Filed Nov. 21, 1898. Serial No. 697,109. (No model.)



Claim.—1. In a chair, the combination, with its seat, legs and back, of clips adapted to compass or receive the inner end of said legs and a single fastening-bolt for said back, legs and clips, substantially as set forth.

2. In a chair, the combination with its seat, legs and back, each independent of the other, and each leg having an aperture in its inner end, clips adapted to receive the inner ends of said legs, and a single fastening-bolt for said legs, back and clips, substantially as specified.

3. In a chair, the seat having ribs on its under side, a clip adapted to receive said ribs, a second clip cooperating with the aforesaid clip and having ways, and the legs adapted to enter said ways, said ways having lugs therein adapted to engage apertures in said legs, substantially as set forth.

4. In a chair, a seat having ribs on its bottom, a clip lying between the ribs, a second clip acting in conjunction therewith, said clips having coinciding ways, legs having angular extremities lying in the ways, lugs formed on the bottom of the lower clip, a back having a spring extension lying between the lugs and a bolt for clamping all the members of the chair together, substantially as described.

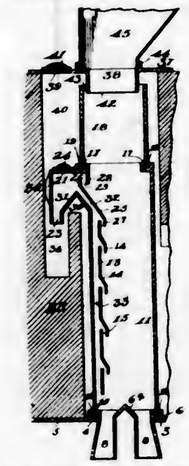
644,507. BONE-BLACK RETORT. BERNHARDT ERB, North Warren, Pa. Filed Dec. 5, 1899. Serial No. 739,968. (No model.)

Claim.—1. A retort for the purpose described, comprising, a hollow metal body provided at its upper end with an integral depending chambered extension having in its lower end a vent-hole, substantially as described.

2. A retort for the purpose described, comprising a hollow metal body provided at its upper end with an integral, depending, chambered extension having in its lower end a vent-hole and in its upper side an opening in line with said vent-hole, and a removable cover for said opening, substantially as described.

3. A retort for the purpose described comprising a hollow metal body provided at its upper end with an integral, depending, chambered extension having in its lower end a vent-hole, a series of spaced, vertically-arranged partitions provided at one side of the retort in a manner to afford a flue, and an inclined partition having its lower end projecting over the upper end of the uppermost of said partitions and its upper end into said chambered extension and affording, in connection with the bottom of said extension, a continuation of said flue, substantially as described.

4. A retort for the purpose described comprising a hollow metal body provided at its upper end with an integral, depending, chambered extension having in its lower end a vent-hole and depending from its upper side a flange, a series of spaced vertically-arranged partitions provided at one side of the retort in a manner to afford a flue, and an inclined partition having its lower end projecting over the upper end of the uppermost of said partitions and its upper end into said chambered extension and having therein a vertical portion extending upward above the lower end of said flange, but at a distance therefrom, for the purpose described, said inclined partition affording, in connection with the bottom of said extension, a continuation of said flue, substantially as described.



5. A retort for the purpose described comprising a hollow metal body provided at its upper end with an integral depending chambered extension having a vent-hole in its lower end and provided at opposite side edges with rounded flanged projections, for the purpose described.

6. In a kiln for revivifying bone-black, a retort comprising an upright tube provided at its upper end with an integral, depending, chambered extension having in its lower end a vent-hole and in its upper side an opening in line with said vent-hole, a removable cover for said opening, a heating-box supported on said tube, a plate supported on the top of the kiln having pendent therefrom a short tube extending downward into said heating-box but spaced therefrom, and having an aperture in line with said opening in the chambered extension, a removable cover for said aperture and a hopper supported on said plate.

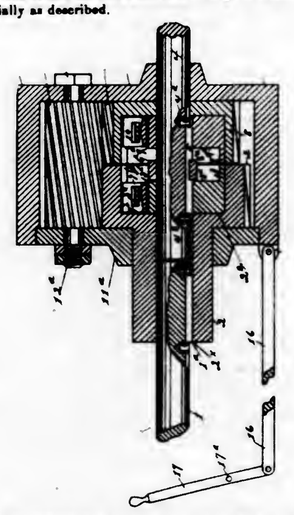
7. In a kiln for revivifying bone-black, in combination with a plate supported in the brickwork of the kiln having near opposite ends apertures and in its central portion a bridge or arch inclined downwardly toward said apertures, and affording on its upper side a seat, of a retort having its lower end received into said seat, a discharge-tube extending downward from each of said apertures and a cooler-cylindar having its upper end inclosing the lower end of each of said discharge-tubes, substantially as described.

8. In a kiln for revivifying bone-black, a retort comprising an upright tube provided around its upper edge with integral projections affording a recess or seat and having at said upper end an integral depending chambered extension provided in its lower end with a vent-hole, a heating-box supported on said tube and having its lower edge portion received in said seat or recess, and a plate supported on the top of the kiln having pendent therefrom a short tube extending downward into said heating-box but spaced therefrom, substantially as described.

644,508. PROPELLER REVERSE-GEAR. FRANKLIN A. HERRINGTON, New York, N. Y. Filed Aug. 27, 1897. Serial No. 649,741. (No model.)

Claim.—1. The combination of a shaft, a wheel rotatable and longitudinally movable independently thereof, clutch mechanism connected to rotate with said shaft and longitudinally movable with said wheel, and a projection held from longitudinal movement with relation to said shaft and adapted to engage and operate said clutch mechanism to connect said wheel to rotate in unison with said shaft, substantially as described.

2. The combination of a shaft, a wheel rotatable and longitudinally movable independently thereof, a split friction-band connected to rotate with said shaft and independently movable therealong, a lever mechanism to cause said friction-band to engage said wheel, a wedge, and means to hold said wedge from longitudinal movement with relation to said shaft to enable said wedge to operate said lever, substantially as described.



3. The combination of a shaft, a wheel mounted concentrically therewith and movable independently thereof, a friction-band split by a slot into sections, one of said sections providing a fulcrum and the other thereof a resistance-face to receive pressure, a lever having one of its ends located in said slot, an arm connected to rotate with said shaft and with said friction-band, an eccentrically-located wedge, and means to move certain of said parts longitudinally to force said wedge between said arm and said lever to cause said friction-band to engage said wheel, substantially as described.

4. The combination of a shaft, a wheel rotatable thereon, a friction-band split by a slot into sections, a lever having one of its ends located in said slot, an arm connected to rotate with said shaft and with said friction-band, a wedge, means to hold said wedge from longitudinal movement with relation to said shaft, and means to move said wheel, friction-band, arm and lever along said shaft to force said wedge between said arm and said lever, substantially as described.

5. The combination of a shaft, a longitudinally-movable reverse mechanism mounted thereon, a lever friction mechanism movable with said reverse mechanism, and a wedge held from longitudinal movement with relation to said shaft and adapted to operate said lever friction mechanism to connect said shaft with said reverse mechanism, substantially as described.

6. The combination of two wheels, one of said wheels having a clutch-chamber in its inner face, a friction-band located in said clutch-chamber, a shaft connected with said friction-band and along which said wheels and friction-band are longitudinally movable, means to expand said friction-band against the side walls of said clutch-chamber, means to connect said shaft with the other of said wheels, and means to rotate one of said wheels in the opposite direction to the other thereof, substantially as described.

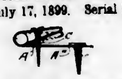
7. The combination of two wheels, one of said wheels having a clutch-chamber in its inner face, a shaft, clutch mechanism to connect said shaft with said wheels, each of said wheels having spiral gear-teeth upon its periphery, a case carrying gearing adapted to mesh with said wheels and transmit and reverse motion from one to the other thereof, and means to move said case longitudinally with relation to said shaft, substantially as described.

8. The combination of a shaft, two gear-wheels journaled in a case carrying gearing adapted to transmit and reverse motion from one to the other of said gear-wheels, said case and gear-wheels being longitudinally movable with relation to said shaft, each of said wheels having a clutch-chamber in its inner face, a split friction-band located in each of said clutch-chambers, each of said friction-bands being longitudinally movable along said shaft and connected to rotate therewith and provided with a lever to expand it against the side walls of its respective clutch-chamber, a double-ended wedge adapted to operate said levers alternately, and means to hold said

wedge from longitudinal movement with relation to said shaft, substantially as described.

9. The combination of a shaft, a driving-wheel and a reversing-wheel having gear-teeth upon their peripheries, the axes of said wheels being concentric with the axis of said shaft, a case carrying a double-depth transmitting-pinion and a reversing-pinion, said transmitting-pinion meshing with said driving-wheel and with said reversing-pinion, and said reversing-pinion with said reversing-wheel, said case and wheels being longitudinally movable with relation to said shaft, each of said wheels having a clutch-chamber in its inner face, a split friction-band located in each of said clutch-chambers, each of said friction-bands being longitudinally movable along said shaft and connected to rotate therewith and provided with a lever to expand it against the side walls of its respective clutch-chamber, a double-ended wedge adapted to operate said levers alternately, and means to hold said wedge from longitudinal movement with relation to said shaft, substantially as described.

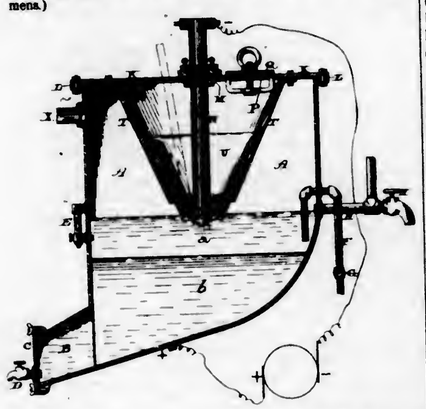
644,509. **FRICTION-HINGE.** CHARLES H. FAIRBANKS, Grand Rapids, Mich. Filed July 17, 1899. Serial No. 724,185. (No model.)



Claim.—1. In a friction-hinge, a base partially surrounding a pintle, a pintle, a tension-screw, and a spring mounted upon the base and having one free end engaging both the pintle and the base to produce frictional contact between the pintle and the base, substantially as, and for the purpose set forth.

2. In a friction hinge, a pintle, a spring-strap partially surrounding said pintle forming a base and a suspended arm, the end of this arm bent back in position to bear upon the pintle and the upper surface of the base to force the pintle into the bend of the strap to cause friction, and a tension-screw for securing said strap, substantially as and for the purpose set forth.

644,510. **PROCESS OF ELECTRICAL REDUCTION.** ELLIS P. FROST, Washington, D. C., assignor of one-half to Frederick A. Lehmann, same place. Filed Nov. 21, 1899. Serial No. 737,782. (No specimens.)



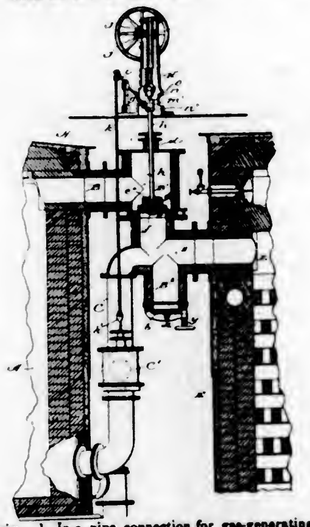
Claim.—1. The process of treating chemicals or non-conducting ores which consists in forming an electric arc between an electrode and an aqueous electrolyte, and mechanically passing said chemicals or ores into said arc.

2. The process of treating chemicals or non-conducting ores which consists in forming an electric arc between an electrode immersed in an aqueous electrolyte, and the said electrolyte, and mechanically passing the said chemicals or ores into said arc.

3. The process of making carbid of calcium which consists in forming an electric arc between an electrode and an aqueous electrolyte, and passing the mixture of lime and carbon to be acted upon into said arc.

4. The process of making carbid of calcium which consists in forming an electric arc between an electrode and an aqueous electrolyte, passing the mixture of lime and carbon to be acted upon into said arc, and then dropping the carbid through the electrolyte into a substance which protects the material from the action of the electrolyte.

644,511. **PIPE AND VALVE CONNECTION FOR WATER-GAS APPARATUS.** OLAF H. GULDLIN, Fort Wayne, Ind. Filed Feb. 23, 1897. Serial No. 624,746. (No model.)



Claim.—1. In a pipe connection for gas-generating apparatus, the combination with a ball-valve, a rod having a swivel-joint, a valve-seat and provisions for grinding the valve upon its seat, of an ash-chamber below the same for receiving deposits and having a bottom door for admitting a cleaning-tool to clean said valve and seat, substantially as described.

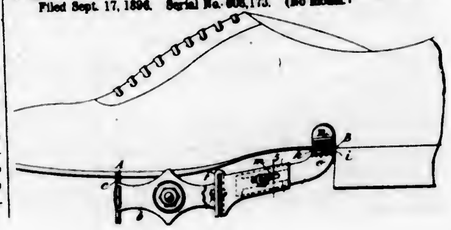
2. In a pipe connection for gas-generating apparatus the combination with an annular valve-seat and a ball-valve, of a valve-rod having a swivel-joint and mechanism above the joint for raising and lowering the valve, and provisions for grinding the valve upon its seat, substantially as described.

3. The combination with a gas-generator and the carbureting and fixing chamber or superheater, of the pipe connection between the same, having an annular valve-seat, a hemispherical or ball valve for said seat, a valve-rod and a connected rack-bar, the valve being connected to turn with the rod and the rod being connected to the rack-bar by a swivel-joint, whereby the valve may be turned or ground upon its seat.

4. In a pipe connection for gas apparatus, the combination with an annular valve-seat therein, of a hemispherical or ball valve, a valve-rod therefor and a connected rack-bar, a stand or casing having a guideway for said bar, gearing for raising and lowering said bar, said valve being connected to its rod by an angular joint and the rod being connected to the rack-bar by a swivel-joint and having an angular section for the application of a wrench to turn the same and the valve, for grinding the latter upon its seat, substantially as described.

5. In a pipe connection for gas apparatus, the combination with an annular valve-seat therein, of a hemispherical or ball valve, a valve-rod therefor and a connected rack-bar, a stand or casing having a guideway for said bar a pinion J, on a transverse shaft in said stand for raising and lowering said bar and the cam-lever K for locking the pinion and holding the rod with the valve either on or off its seat, substantially as described.

644,512. **CYCLE-PEDAL.** HARRY S. HALFORD, London, England. Filed Sept. 17, 1896. Serial No. 606,173. (No model.)



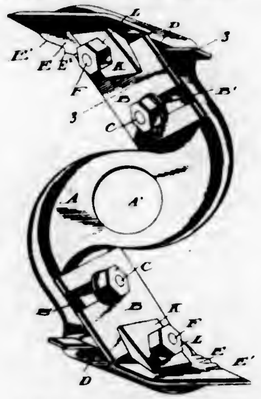
Claim.—An adjustable attachment for cycle-pedals consisting of a rearward extension adapted to be attached to a cycle-pedal, an extension-arm adjustable on the rearward extension, and a rear support secured to the rear end of the extension-arm sufficiently above the plane of the bearing-surfaces of the pedal plates or blocks, that when the front plate or block bears against the ball of the foot and the rearward support against the waist of the foot immediately in front of the heel the rear plate or block is below the foot.

644,513. **TOILET-SOAP HOLDER.** WALTER R. HALL, San Francisco, Cal., assignor of one-half to Alric O. Colton, same place. Filed Oct. 8, 1897. Serial No. 654,561. (No model.)



Claim.—The hereto-described soap-holder comprising the rectangular receptacle with perpendicular parallel sides and ends having a flat and relatively-narrow bottom provided with deep channels and longitudinal dividing ridges between them, with apertures in the bottom of the channels, the said standing sides and ends being greater in height than the distance between the perpendicular sides, whereby the cake of soap is maintained in upright position with its thin edge resting on the bottom and is held with both sides entirely exposed to the atmosphere, the perpendicular sides having each a central opening extending perpendicularly downward from the top to the bottom, and the opening in one side being opposite to that in the other side, perforations in the said sides and ends, and feet on the bottom of the holder adapted to raise the same clear of the surface in which the holder is placed, all for operation as set forth.

644,514. **CUTTER-HEAD.** SAMUEL HARRINGTON, Baltimore, Md. Filed July 18, 1899. Serial No. 724,274. (No model.)

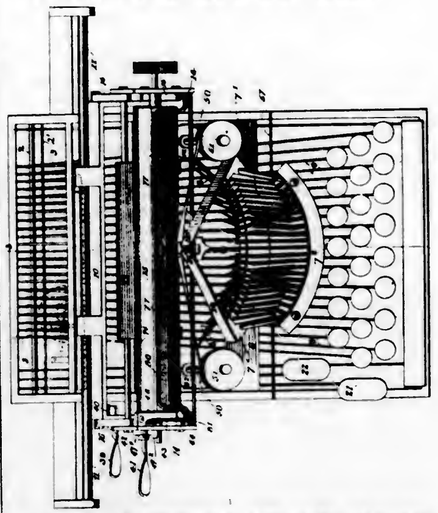


(Claims.—1. A cutter-head for making moldings, panels &c., consisting of the substantially-S-shaped head, cutting-blades mounted on the arms of said head and parallel with the edges of said arms, and the end cutting-blades mounted in recesses in said arms and having their cutting edges at obtuse angles to the first-mentioned cutting-blades, as shown and described.

2. In combination with the cutter-head, substantially S-shaped, the cutting-blades B mounted with their edges parallel to the front faces of said arms, the end cutting-blades mounted in recesses in said arms, the lower walls of said recesses being at an inclination, the outer ends of each blade B resting upon the upper faces of the end cutting-blades, and means for holding the blades to the cutter-head.

3. In combination with the cutter-head having radiating arms, the blades B mounted thereon, the end cutting-blade mounted in recesses in the ends of said arms, the inner cutting portion of each of said end blades being flush with the cutting edge of the blades B and the angled washer, and means for holding the blades to the cutter-head, as shown and described.

644,515. **WRITING-MACHINE.** HERBERT C. HESS, New York, N. Y. Filed Oct. 23, 1899. Serial No. 734,494. (No model.)



Claim.—1. The combination of an endwise-movable carriage, a platen mounted thereon and movable transversely to the line of travel and obliquely to the horizontal plane of the machine, means for at will so moving the platen transversely, a series of pivoted horizontally-disposed key-levers extending under the carriage and to the front of the machine, a series of type-bars pivoted in front of the platen below the horizontal plane thereof and normally inclined away from the platen toward the front of the machine, two or more characters on each type-bar and a link directly connecting each type-bar and its corresponding key-lever.

2. The combination of an endwise-movable carriage, a platen mounted thereon and movable transversely to the line of travel and obliquely to the horizontal plane of the machine, means for at will so moving the platen transversely, a series of horizontally-disposed key-levers radially arranged pivoted at their rear ends at the rear of the machine and extending under the carriage to the front of the machine, a series of type-bars each pivoted in a fixed support in front of and below the plane of the platen and normally inclined away from the platen toward the front of the machine, the pivots being arranged in a curve or arc occupying a less width of space than the key-levers above which they are arranged, a link directly connecting each key-lever and its corresponding type-bar and two or more characters on each type-bar.

3. The combination of a carriage traveling endwise upon fixed rails or supports, a platen mounted thereon and adapted to be shifted from its normal position transversely to its axis in a plane oblique to the horizontal plane of the machine, a series of type-bars each pivoted upon a stationary frame or support at their lower ends in front of and below the level of the platen and normally lying at rest inclined from the pivots away from the platen and toward the front of the machine and having each three characters on its upper end, a series of character key-levers horizontally arranged, pivoted at the rear of the machine, extending forward under the carriage and type-bars and respectively operatively connected with their corresponding type-bars by direct link connections, two shift-keys pivoted at rear of machine, extending to the front and depressible different distances, a pin or shaft operated upon by said keys to be moved a different distance according to the key depressed, a correspondingly-operated rock-shaft, a cross-bar or bail movable therewith, and operative connections between said bail and the transversely-movable platen, substantially as set forth.

4. The combination of a carriage traveling endwise upon fixed rails or supports, a platen mounted thereon and adapted to be shifted transversely to its axis in a plane oblique to the horizontal plane of the machine from its normal position to either of two other positions,

a series of type-bars each pivoted at its lower end upon a stationary frame or support in front of and below the level of the platen and normally lying at rest inclined from the pivots away from the platen and toward the front of the machine, a series of character key-levers horizontally arranged, pivoted at the rear of the machine and extending forward under the carriage and type-bars, a link directly connecting each key-lever and its corresponding type-bars, two similarly pivoted and arranged shift key-levers, operative connections between the shift key-levers and the transversely obliquely movable platen, and three type or characters on each type-bar, substantially as set forth.

5. The combination of an endwise-movable carriage, a platen-frame carried thereby and movable transversely to the line of travel of the carriage and obliquely to a vertical transverse plane through the machine, a platen carried by the frame, two shift-keys, mechanism interposed between the frame and the shift-keys whereby upon the operation of one shift-key the platen-frame is moved a definite distance from its normal position and upon the operation of the other shift-key it is moved another definite distance from its normal position, type-bars having multiple characters, horizontal key-levers pivoted at the rear of the machine and extending forward under the carriage and type-bars, and direct link connections between the key-levers and type-bars.

6. The combination of one or more shift-keys, a rock-shaft 25, an arm 24 extending therefrom and having a projection or part acted upon by the shift-keys, arms projecting from the rock-shaft, a cross-bar 27 connecting them, an endwise-moving carriage arranged in a plane oblique to the horizontal plane of the machine, a platen-frame mounted upon the carriage and capable of being moved transversely to the line of travel of the carriage in a plane oblique to the horizontal plane of the machine and operative connections between the platen-frame and the cross-bar 27 whereby upon the operation of a shift-key the platen-frame may be obliquely shifted for the purpose set forth.

7. The combination of an endwise-movable carriage, a platen mounted thereon and movable transversely obliquely to the horizontal plane of the machine, a series of pivoted type-bars each having three characters thereon, a series of key-levers horizontally arranged, pivoted at the rear of the machine and extending forward under the carriage and type-bars, a direct link connection between each key-lever and its corresponding type-bar, two shift-keys horizontally disposed and pivoted at their rear ends at the rear of the machine and operative connections between each shift-key and the obliquely-movable platen whereby upon the depression of one shift-key the platen is moved from its normal position to a second position and on the depression of a second shift-key is moved to a third position.

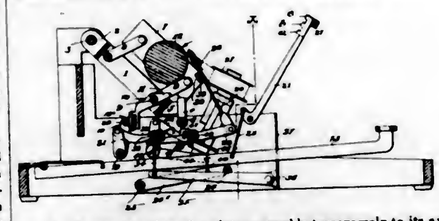
8. The combination of a platen movable endwise and transversely in a plane oblique to the horizontal plane of the machine, means for at will moving the platen obliquely transversely, a series of type-bars pivoted in front of the platen and each having more than one character thereon, a series of horizontally-disposed key-levers pivoted at the rear of the machine and extending forward under the platen and type-bars and a direct link connection between each key-lever and its corresponding type-bar.

9. The combination of a platen movable endwise and transversely in a plane oblique to the horizontal plane of the machine, means for at will moving the platen transversely, a series of type-bars whose pivots are arranged in a single arc in front of the platen and each having on its upper end more than one character, a series of horizontally-disposed key-levers pivoted at the rear of the machine and extending forward under the platen and pivots of the type-bars, and direct link connections between each key-lever and its corresponding type-bar.

10. The combination of a platen movable endwise and transversely in a plane oblique to the horizontal plane of the machine, two shift-keys, operative connections between each shift-key and the transversely-movable platen whereby on the depression of one key the platen may be moved transversely from its normal position into another definite position and on the depression of the other shift-key be moved from its normal position to still another definite position, a series of type-bars having their pivots arranged in a single curve or arc in front of and below the platen, three characters on the upper end of each type-bar, a series of horizontally-disposed key-levers pivoted at the rear of the machine and extending forward under the platen and type-bars, and a direct link connection between each key-lever and its corresponding type-bar.

644,516. WRITING-MACHINE. HERBERT C. HESS, New York, N. Y. Filed Oct. 23, 1899. Serial No. 734,495. (No model.)

Claim.—1. The combination of an endwise-movable platen, means for shifting it transversely at the will of the operator, type-bars having multiple characters thereon, key-levers, a ribbon-carrier and mechanism interposed between the ribbon-carrier and key-levers to impart to the carrier a variable extent of movement from its normal position according to the position occupied by the platen.



2. The combination of a platen movable transversely to its axis at will, type-bars having multiple characters, key-levers, a ribbon-carrier and variable-leverage ribbon-carrier-actuating mechanism interposed between the key levers and the ribbon-carrier whereby a variable extent of movement may be imparted to the ribbon-carrier according to the position occupied by the platen.

3. The combination of a platen, a ribbon-carrier normally holding the ribbon away from the printing-point on the platen, type-bars, key-levers, ribbon-carrier-actuating mechanism interposed between the ribbon-carrier and key-levers to project the ribbon over the printing-point when an impression is to be taken, mechanism for at will shifting the platen transversely, and means whereby when the platen is so shifted the ribbon-carrier-actuating mechanism is adjusted to impart to the ribbon-carrier such extent of movement as to carry the ribbon over the printing-point in any position to which the platen may be shifted.

4. The combination of the platen movable transversely to its axis, a ribbon-carrier mounted to be moved correspondingly with the transverse movement of the platen, a lever or support in which the ribbon-carrier is mounted, type-bars, key-levers, ribbon-carrier-actuating mechanism interposed between the key-levers and the ribbon-carrier support to advance the ribbon over the printing-point when an impression is to be taken, mechanism for shifting the platen transversely and changing or adjusting the relation of the ribbon carrier support and the ribbon-carrier-actuating mechanism whereby such extent of movement may be imparted to the ribbon carrier to project the ribbon over the printing-point of the platen when shifted.

5. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier that normally holds the ribbon away from the printing-point on the platen, and mechanism interposed between the key-levers and ribbon-carrier for imparting to the ribbon-carrier a variable extent of movement corresponding with the positions of the platen whereby the ribbon-carrier may be moved from its normal position to project the ribbon over the printing-point in any position of the platen.

6. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier that normally holds the ribbon away from the printing-point on the platen, mechanism interposed between the key-levers and ribbon-carrier for imparting to the ribbon-carrier different extents of movement corresponding with the position of the platen, and a loose connection between the transversely-movable platen and the ribbon-carrier by which the ribbon-carrier is moved with and in its normal relation to the platen and the key-levers thereby relieved of part of the work of moving the ribbon-carrier when the platen is shifted.

7. The combination with a transversely-movable platen, type-bars and key-levers, of a ribbon-carrier having a variable extent of movement corresponding with the position of the platen, a lever in which it is pivoted, an arm engaging said lever and operated by the key-levers and mechanism for shifting the platen and varying the relation of said arm to the axis of the lever carrying the ribbon-carrier, thereby varying the leverage and correspondingly the extent of movement of the carrier.

8. The combination of a platen movable transversely to its axis and obliquely to the horizontal plane of the machine, a ribbon-carrier movable in substantially the same oblique plane, type-bars, key-levers and mechanism interposed between the key-levers and carrier for moving the ribbon-carrier variable distances to project the ribbon over the printing-point in any position of the platen.

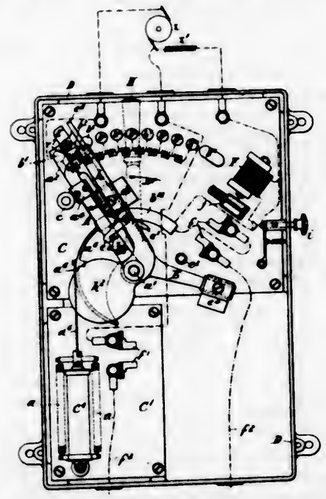
9. The combination of an endwise-movable carriage, a platen-frame carried thereby and movable transversely to the line of travel of the carriage obliquely to the horizontal plane of the machine, a correspondingly-movable ribbon-carrier normally holding the ribbon away from the printing-point, type-bars, key-levers, mechanism for shifting the platen-frame obliquely and mechanism interposed between the carrier and key-levers and operated by said levers for imparting to the ribbon-carrier a variable extent of movement from its normal position to project the ribbon over the printing-point in any position of the platen.

10. The combination of an endwise-traveling carriage, a platen carried thereby and movable transversely to its axis in a plane oblique to the horizontal plane of the machine, a series of type-bars pivoted at or near their lower ends in front of the carriage below the platen and normally inclining away from the platen toward the front of the machine, one or more shift-keys for moving the platen transverse to its axis in said oblique plane, key-levers respectively connected to the type-bars, carriage-feed mechanism interposed between the carriage and key-levers, a ribbon-carrier that holds the ribbon normally away from the printing-point, variable-leverage ribbon-carrier-actuating mechanism interposed between the key-levers and carrier, and means for varying the leverage of the carrier-actuating mechanism when the platen is shifted, whereby when a key-lever is depressed each excursion of movement of the ribbon-carrier from the normal position is effected as to carry the ribbon over the printing-point in either position of the platen.

11. The combination of the carriage, a platen-frame mounted thereon, the platen carried thereby, the rock-shaft 9 and arm 10, the arm 17, rock-shaft 18, arm 19, transverse bar 20, shift-keys, the arms 31 and 32, link 34 and arm 35, the universal bar, type-bars and key-levers, the ribbon-carrier and the lever in which it is pivoted.

12. The combination with a carriage and transversely-shifting platen, one or more shift-keys for shifting the platen, type-bars and key-levers, of a ribbon-carrier mounted in a support rocking about a fixed pivot, and operating connections actuated by the several key-levers and engaging said rocking support at different distances from its pivot according to the position of the platen to project the ribbon over the printing-point in any position of the platen.

644,517. RESISTANCE-SWITCH FOR ELECTRIC CIRCUITS. JOHN H. HOLMES and FRANK BROADBENT, Newcastle-upon-Tyne, England. Filed Dec. 18, 1899. Serial No. 740,744. (No model.)



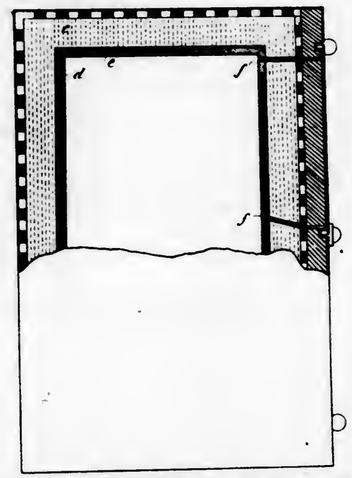
Claim.—1. In resistance-switches for electric circuits, a movable member adapted to work over a series of resistance-contacts, and means for returning the said member in a direction to cut out resistance in combination with another movable member, means for engaging these two movable members to operate together when moved in a direction to insert resistance, and a contact through which the second movable member can electrically connect the switch-terminals and means for then releasing the first-named member and means for controlling the backward movement of the said first-named member so that it slowly cuts out resistance, substantially as described.

2. In resistance-switches for electric circuits, a movable member adapted to work over a series of resistance-contacts, and means for returning the said member in a direction to cut out resistance in combination with another movable member, means for engaging these two movable members to operate together when moved in a direction to insert resistance and a contact through which the second movable member can electrically connect the switch-terminals, and a device tending to move the second movable member from the position in which it closes the circuit and an electromagnetic device to keep the circuit closed against the action of the said device, substantially as described.

3. In resistance-switches for electric circuits, a movable member adapted to work over a series of resistance-contacts, and means for returning the said member in a direction to cut out resistance in combination with another movable member, means for engaging these two movable members to operate together when moved in a direction to insert resistance, and a contact through which the second movable member can electrically connect the switch-terminals and means for then releasing the first-named member, a handle by which the switch is operated, and means whereby the handle is protected from improper actuation, substantially as described.

4. In resistance-switches for electric circuits, a movable member adapted to work over a series of resistance-contacts, and means for returning the said member in a direction to cut out resistance in combination with another movable member, means for engaging these two movable members to operate together when moved in a direction to insert resistance, and a contact through which the second movable member can electrically connect the switch-terminals and means for then releasing the first-named member, and means substantially as described whereby the operator cannot operate the first-named movable member which puts on and cuts out the resistance until he brings the second-named member back to the extreme "off" position, substantially as described.

644,518. SAFE, &c. STEFAN JABLONSKI, Warsaw, Russia, assignor to Stefan Niewiarowski, same place. Filed Oct. 13, 1899. Serial No. 733,517. (No model.)



Claim.—1. In a safe, a filler between the inner and outer walls composed of a fireproof compound expansible when exposed to the action of heat and a thin wood sheathing or lining covering said filler at the door-joints, for the purpose set forth.

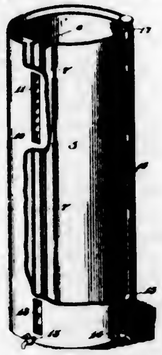
2. In a safe, a filler between the inner and outer walls made of slabs of a fireproof compound expansible when exposed to the action of heat, a wood grating interposed between said filler and the outer walls of the safe, and a thin wood sheathing or lining covering the filler at the door-joints, for the purpose set forth.

644,519. CREAM-SEPARATOR. CORWIN JOHNSON, Watertown, S. D. Filed July 15, 1899. Serial No. 723,976. (No model.)

Claim.—1. A cream-separator comprising an inner and an outer vessel, said inner vessel having a longitudinal slot throughout its length, the material at the edges of the slot being bent outwardly to form flanges secured to the inner surface of the outer vessel in a water-tight manner, inspection-openings in the outer vessel communicating with the inner vessel through said slot and having transparent closures, and a bottom for the inner vessel extending beneath and connected with the lower ends of the flanges.

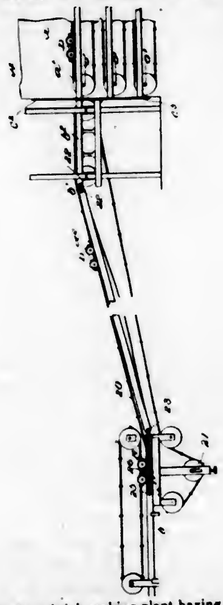
2. A cream-separator comprising an inner and an outer vessel separated by an interspace, a longitudinal slot in the inner vessel having flanges at its edges contacting with the inner surface of the

outer vessel and secured thereto in a water-tight manner, inspection-openings in the outer vessel communicating with the inner vessel through said slot and having transparent closures, and a valved communication between the inner vessel and said interspace.



3. A cream-separator comprising an inner and an outer vessel separated by an interspace, a longitudinal slot in the inner vessel extending throughout the length thereof, flanges at the edges of the slot and contacting with the inner surface of the outer vessel and secured thereto in a water-tight manner, inspection-openings in the outer vessel communicating with said slot, and having transparent closures, a spigot communicating with said slot, a spigot communicating with the interspace through the outer vessel, and a valved communication between the inner vessel and the interspace.

644,520. BRICK-MAKING PLANT. CLEMENS C. JONES, Richmond, Va. Filed Sept. 14, 1899. Serial No. 730,464. (No model.)



Claim.—1. In a brick-making plant having a drier, a kiln, and a brick-making machine or machines, a series of tracks leading from such machine or machines through such drier, around the kiln and back to the machine or machines, supports for the bricks movable on said tracks, and means contiguous to the latter for continuously conveying said supports from the machines to the drier, thence to and from the kilns, and back to the machines, substantially as set forth.

2. In a brick-making plant, the combination with a drier having a plurality of tracks therein arranged at different altitudes, of stationary tracks beyond the ends of such drier, track-sections connecting said stationary tracks with the ends of the drier, and means for alining said track-sections with the tracks within the drier, as set forth.

3. In a brick-making plant, the combination with a drier having a series of tunnels therein, and a plurality of tracks within each tunnel, of stationary tracks beyond the ends of the drier, track-sections connecting such stationary tracks with the several tunnels of the drier, and means for alining each track-section with the tracks of each tunnel, as set forth.

4. In a brick-making plant, the combination with a drier, and tracks arranged therein at different altitudes, of stationary tracks beyond the ends of such drier, track-sections movable over the ends of the drier and connected to the stationary tracks, means for alining the track-sections with the several tracks within the drier, pallets designed to travel over such tracks and track-sections, and means for moving such pallets, as set forth.

5. In a brick-making plant, the combination with a drier having tracks arranged therein, and continuous track-rails at the receiving and discharge ends of such drier designed to coincide with the tracks in the latter, endless ropes movable over such tracks throughout their entire lengths, and pallets having wheels movable on such tracks, such ropes being designed to engage and move the pallets to the receiving end of the drier, through the latter, and from its discharge end back to the receiving end, as set forth.

6. A brick-making plant having a continuous system of track-rails, pallets having rollers movable on such track-rails, and conveyer-ropes adjacent to the track-rails throughout the entire plant designed to engage the pallets substantially as set forth.

7. In a brick-making plant, the combination with a drier having tracks therein at different altitudes, and conveyer-ropes for moving pallets over such tracks, of movable track-sections designed to coincide with such tracks in the drier, means for shifting such track-sections, and means operated by the latter for operating the conveyer-ropes of each track within the drier, as set forth.

8. In a brick-making plant having a drier and a kiln, a plurality of tracks extending from the brick-making machines through such drier and from the latter to the kiln and back to said machines, pallets having wheels movable on such tracks, and means contiguous to each of the several tracks for moving such pallets in series over the latter, substantially as set forth.

9. In a brick-making plant having a drier and a kiln, a plurality of tracks extending from the brick-making machines through such drier and from the latter to the kiln and back to the brick-making machines, flat pallets having wheels movable on such tracks, endless ropes movable over such tracks, and cleats or buttons thereon for engaging the pallets, substantially as set forth.

10. In a brick-making plant having a kiln, a drier provided with a plurality of tunnels and tracks at different altitudes in each tunnel, a series of stationary tracks beyond the ends of the drier extending around the kiln and back to the brick-making machines, two series of movable track-sections connecting the several stationary tracks successively with the tracks of the drier, and means for conveying bricks over the several stationary tracks and track-sections, substantially as set forth.

11. The combination with the drier having tracks therein at different altitudes, endless ropes adjacent to each track, stationary tracks leading from the brick-making machines, movable track-sections leading from such stationary tracks to the tracks of the drier, and means intermediate of said sections and each of the endless ropes for operating the latter when the track-section is brought into line therewith, substantially as set forth.

12. The combination with the drier having tracks therein at different altitudes endless ropes for each track, a shaft at one end of each track having a gear-wheel thereon, a second shaft having wheels meshing with said gear-wheel, a pinion on said second shaft, stationary tracks, movable track-sections connected to said stationary tracks and movable over the receiving end of the drier, means for raising and lowering such sections, rack-bars carried by the latter for engaging the pinion on the said second shaft, and pallets movable over said tracks and track-sections, substantially as set forth.

13. The combination with the drier having tunnels and a series of tracks in each tunnel, stationary tracks, movable track-sections leading from the latter to the receiving end of the drier, upper and lower doors carried by such sections, pallets movable on said tracks and sections, and means for moving the same, substantially as set forth.

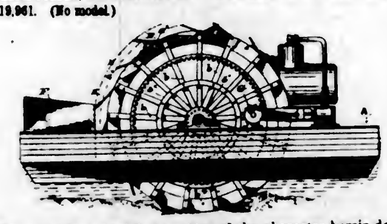
14. A pallet having its body composed of upper and lower plates, axles projecting from the ends of such body, and wheels on such axles, substantially as set forth.

15. In a brick-making plant having tracks extending from the brick-making machines, through the drier, around the kilns and back to the said machines, corresponding endless ropes, and pallets composed of reversible flat bodies and wheels on the ends thereof designed to travel over such tracks, substantially as set forth.

16. In a brick-making plant having means for conveying pallets, wheels over which such pallets are passed, and rods designed to be projected between such pallets as the latter travel over said wheels, substantially as set forth.

17. In a brick-making plant having means for conveying pallets, wheels over which such pallets are passed, a series of rods carried by such wheels, and a disk having a cam-groove for forcing such rods outwardly between the pallets passing over the wheels, substantially as set forth.

644,521. ROTARY DREDGING AND EXCAVATING MACHINE. DENNIS JORDAN, San Francisco, Cal. Filed June 19, 1899. Serial No. 719,961. (No model.)



Claim.—1. In a dredging-machine of the character herein described, the dredging-wheel having cutting and excavating devices on its periphery projecting forwardly at an angle in the direction of the rotation, and water-elevating devices of less projection than the excavating devices between the said excavating devices.

2. In a dredging-machine of the character herein described and operating with a continuous feed, the dredging-wheel having alternately-arranged cutting and excavating devices and water-elevating devices on its periphery.

3. In a dredging-machine of the character herein described, the combination of the scow having a well or opening, a dredging-wheel mounted to rotate in said opening in contact with the submerged bottom to be dredged, alternately-disposed cutting and excavating devices and water-elevating devices on the periphery of the wheel, the slanting aprons connecting the back of one device with the bottom of the device next in front, and a receptacle on the scow adapted to receive the material and water from the discharge side of the wheel.

4. The combination of the skeleton heads fixed on a common axle, the forwardly inclined and projecting plates fixed between the heads and having closed backs, the slanting aprons joining the back of one plate to the rear edge of the next adjacent plate in front, and the closed side flanges on the skeleton heads.

644,522. MILK-PAIL HOLDER. SAMUEL KNIGHT and JOHN L. MAXWELL, Bridgton, Me. Filed Sept. 20, 1899. Serial No. 731,086. (No model.)

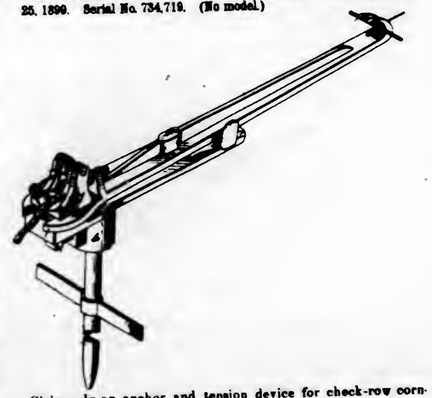


Claim.—1. A milk-pail holder, comprising a ring having oppositely-disposed upstanding necks provided with curved heads, the parts forming the heads gradually diverging from the necks and the latter having stops on their lower portions, and retainer-hooks movably mounted on the said necks and limited in opposite directions by the divergence of the parts of the head and the stops on the necks.

2. A milk-pail holder, comprising a ring having oppositely-disposed upstanding necks which are reinforced by coiling and provide stops at their upper terminations, said necks having curved heads extending therefrom and the opposite portions gradually diverging toward the outer looped extremity of each, and retainer-hooks movably mounted on said heads and having play between the upper terminations of the necks and the diverging parts of the said head to thereby adapt the holder for application to different sizes of pails and permit the hooks to be moved and caught over the upper edge of the pails.

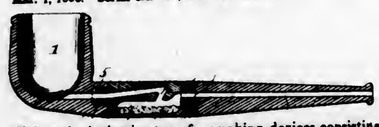
3. A milk-pail holder having a ring with upstanding necks at opposite points and heads continued from said necks, the said parts being formed of two pieces of stiff wire, the one extremity of the ring being bent at an angle and looped and curved to form the head, and the opposite terminal brought down close to and parallel with the single strand above the angle of the ring, the extremity of the ring interlocked closely over the bend and coiled around the part of the strand thereabove, as well as the adjacent terminal and the part of the ring extending away from the angle having its opposite extremity arranged to form a neck for the opposite head in a similar manner to thereby have the opposite extremities of the wires alternately bent into the heads and coiled to form the necks.

644,523. ANCHOR AND TENSION DEVICE FOR CHECK-ROW CORN-PLANTERS. KNUD K. LEROI, Jr., Newburg, Minn. Filed Oct. 25, 1899. Serial No. 734,719. (No model.)



Claim.—In an anchor and tension device for check-row corn-planters, the combination with the anchor-plate, the clamp at the rear end thereof, the swinging cam and the plate pivoted to the front end of said anchor-plate and formed with a curved recess at the free end, of the release-bar formed with a slot at the rear end, a lug with which a tension-rope is adapted to be connected and a pin adapted to engage with said pin, substantially as described.

644,524. ATTACHMENT FOR PIPES. ADOLPH LIST, Cape Girardeau, Mo., assignor of one-half to William H. Coerver, same place. Filed Mar. 1, 1899. Serial No. 707,364. (No model.)



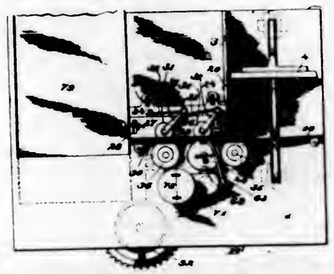
Claim.—1. A nicotine-trap for smoking devices consisting of a body having a chamber therein open at one end and closed at the other, the open end communicating with a threaded portion for the reception of a stem of ordinary construction, said body having a longitudinal duct over the chamber therein and communicating at one end with a downwardly and forwardly extending duct, the other end of which communicates with the top of the chamber, said body having a nipple at one end through which the longitudinal duct extends, said nipple threaded for the reception of a tobacco-holder of ordinary construction.

2. The combination with a smoking device having a holder for tobacco and a stem of common construction, of an independent attachment removably inserted between the tobacco-holder and the stem, said attachment having a chamber therein communicating at one end with the duct in the stem, said attachment also having an angular or hook-shaped duct with its downwardly-extending portion communicating with the top of said chamber at a point removed from the inner end thereof and its longitudinally-disposed portion communicating with the tobacco-holder.

3. The combination with a bowl having a shank projecting therefrom at an angle, and a stem, of an independent attachment removably connected at its respective ends to the stem and to the shank of the bowl, said attachment having a chamber therein communicating at one end with the duct in the stem and also having an angular duct communicating at one end with the duct in the shank of the bowl and extending to a point in proximity to the inner end of said chamber, the shorter arm of said angular duct extending downwardly and inclining forwardly to the chamber at a point removed from the inner end thereof.

644,525. STAMP-CANCELING AND POSTMARKING MACHINE. JOHN L. LESTER, St. Louis, Mo. Filed Jan. 21, 1899. Serial No. 702,934. (No model.)

Claim.—1. In a postmarking and stamp-canceling machine, the combination of a table, a marker-head, feeding mechanism, a follower arranged to carry the mail-matter to said feeding mechanism, a strap by which said follower is carried, a weight on said strap, a series of counterbalance-weights carried by said strap, a box into which said counterbalance-weights are adapted to move, a spring-supported false bottom in said box, electrical conductor-contacts arranged between the body of said box and said false bottom, a motor and connections between said motor and said contacts, substantially as described and for the purpose set forth.



2. In a postmarking and stamp-canceling machine, the combination of a table, a marker-head, feeding mechanism, a follower arranged to carry the mail-matter to said feeding mechanism, a strap by which said follower is carried, a weight on said strap, a series of counterbalance-weights carried by said strap, and sheaves arranged in pairs on which said strap travels in reverse directions, substantially as described.

3. In a postmarking and stamp-canceling machine, the combination of a table, a marker-head, guides against which the mail-matter bears in its travel past said marker-head, an adjustable frame on said table, an adjustable guide-plate mounted on said frame, and pressure-rollers mounted on said frame adapted to bear against the mail-matter, substantially as described.

4. In a postmarking and stamp-canceling machine, the combination of feeding mechanism, a marker-head, a rocking lever having its free end arranged in the path of travel of the mail-matter through said feeding mechanism, said lever being adapted to engage said marker-head to move it, an inking-roller and means arranged to impart motion to said inking-roller and marker-head, substantially as described.

5. In a postmarking and stamp-canceling machine, the combination of feeding mechanism, a marker-head, a rocking lever, studs on said marker-head with which said rocking lever is adapted to engage, said lever having its free end arranged in the path of travel of the mail-matter through said feeding mechanism, an inking-roller and means arranged to impart motion to said inking-roller and marker-head, substantially as described.

6. In a marker-head for postmarking and stamp-canceling machines, the combination of a disk bearing characters designating the postal station; a disk containing type designating the date; and a disk containing rollers bearing characters designating the hours, and pivoted type bearing characters designating a fraction of an hour and the periods of a day, substantially as described.

7. In a marker-head for postmarking and stamp-canceling machines, the combination of disks bearing characters designed to be imprinted on the mail-matter, a shaft on which said disks are mounted, a knob by which the parts of the marker-head may be manipulated, and a spring-catch carried by said knob adapted to connect it to said shaft, substantially as described.

644,526. BARBER-CHAIR. JOHN B. LOWRY, St. Louis, Mo., assignor to the August Kern Barber Supply Company, same place. Filed July 31, 1899. Serial No. 725,600. (No model.)

Claim.—1. In a barber-chair, the combination of an outer cylinder, an inner cylinder to which the seat of the chair is secured, a valve carried by the inner cylinder to permit a liquid to flow from the inner to the outer cylinder when the inner cylinder is raised, a rack hung upon the outer cylinder and fitting in a slot in the inner cylinder, a rock-shaft journaled in the head of the inner cylinder, a dog actuated from the rock-shaft, and springs for moving said dog into and out of contact with said rack, substantially as set forth.

2. In a barber-chair, the combination of an outer cylinder, an inner cylinder provided with a valve to permit a liquid to flow from the inner to the outer cylinder when the inner cylinder is raised, a rack hung upon the outer cylinder and which fits in a slot in the inner cylinder, a rock-shaft, a dog actuated from the rock-shaft, springs for forcing said dog into and out of engagement with the rack when said shaft is turned, an arm actuated from said rock-shaft and having an inclined lower end adapted to bear against a projection on the inner cylinder, and a spring secured to said rack and adapted to be engaged by said arm, substantially as and for the purpose set forth.



3. In a barber-chair, the combination of an outer cylinder, an inner cylinder to which the chair-seat is secured, a rack suspended from the outer cylinder and fitting in a slot in the inner cylinder, a rock-shaft and a dog actuated from the rock-shaft whereby when the dog is caused to engage said rack the chair-seat is elevated and the rack is pressed against the outer cylinder to hold the seat from rotation, substantially as set forth.

4. In a barber-chair, the combination of an outer cylinder, an inner cylinder, a rack carrying a spring and suspended from the outer cylinder and fitting in a slot in the inner cylinder, a rock-shaft, a dog for engaging said rack actuated from said rock-shaft, and an arm actuated from the shaft and provided with an inclined end, a projection on the inner cylinder with which the inclined end is adapted to engage whereby the arm is forced against the spring carried by the rack, substantially as set forth.

5. In a barber-chair, the combination of an outer cylinder, an inner cylinder to which the chair-seat is secured having a valve in the bottom thereof, a rack hung from the outer cylinder and fitting in a slot in the inner cylinder, a rock-shaft, a dog actuated from the rock-shaft, and which is adapted to engage said rack, a spring-supported rod, and an arm actuated from the rock-shaft and which is adapted to engage the spring-supported rod to open the valve in the bottom of the inner cylinder, substantially as and for the purpose set forth.

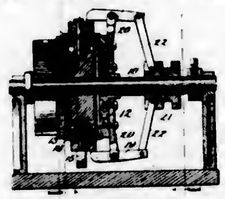
6. In a barber-chair, the combination of an outer cylinder, an inner cylinder, a rack carrying a spring and suspended from the outer cylinder and fitting in a slot in the inner cylinder and having a cut-away portion in its back to form a shoulder 12 that bears against the outer cylinder, a rock-shaft, a dog actuated from the rock-shaft which is adapted to engage said rack, and an arm actuated from the rock-shaft and means whereby the arm is moved toward said rack so as to engage the spring carried by the rack, substantially as and for the purpose set forth.

7. In a barber-chair, the combination of an outer cylinder, an inner cylinder, a rack carrying a spring and suspended from the outer cylinder and fitting in a slot in the inner cylinder and having cut-away portions in its back to form shoulders 12 and 13, a rock-shaft, a dog actuated from the rock-shaft and which is adapted to engage said rack, and an arm actuated from the rock-shaft and arranged to move toward said rack so as to engage the spring carried by the rack; said shoulder 12 acting as a fulcrum and the shoulder 13 as a stop, substantially as and for the purpose set forth.

8. In a barber-chair, the combination of an outer cylinder, an inner cylinder to which the seat is secured, a rock-shaft having an eccentric, a dog carried by the eccentric on the rock-shaft, a rack with which said dog engages hung upon the outer cylinder and a valve located in the bottom of the inner cylinder whereby, when the seat is raised mechanically, it is supported by liquid and held to any adjustment, substantially as set forth.

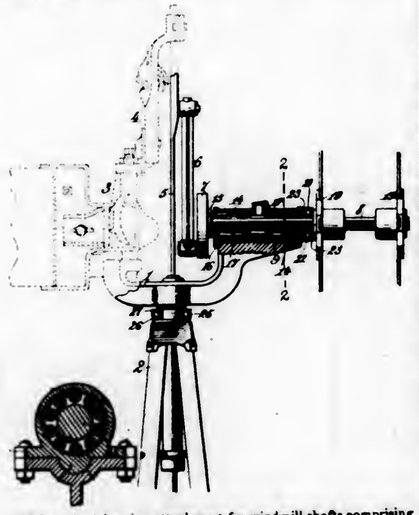
9. In a barber-chair, the combination of an inner cylinder, an outer cylinder, valves located in the bottom of the inner cylinder, a rack, a rock-shaft having eccentrics, a dog carried by one of the eccentrics on the rock-shaft and adapted to engage said rack, an arm carried by the other eccentric on the rock-shaft and means whereby the arm is adapted to open one of the valves in the bottom of the inner cylinder to permit the inner cylinder to descend, substantially as set forth.

644,527. REVERSING-GEAR. GEORGE W. LYTH, Findlay, Ohio. Filed Jan. 26, 1899. Serial No. 703,494. (No model.)



Claim.—A clutch mechanism adapted to transmit motion from a rotatable shaft, the combination with the shaft, of a driver keyed to rotate with the shaft and having a gear-face upon one side, a driven element directly mounted loosely upon the shaft and having a gear-face adjacent the driver to cooperate with the gear-face of the latter, a disk loosely mounted directly upon the shaft, transverse openings in the disk, gears rotatably mounted in the opening and engaging the gears of the adjacent elements at points equidistant from their centers, whereby one element may be rotated from the other element in a reverse direction and at an equal speed, a brake engaging the disk and adapted to hold it against rotation, clutch-arms mounted upon the driver and adapted to engage and hold the disk, and means for operating the clutch-arms.

644,528. ROLLER-BEARING FOR WINDMILL-SHAFTS. RUFUS G. MARCY, Bluffton, Ind. Filed June 12, 1899. Serial No. 720,213. (No model.)



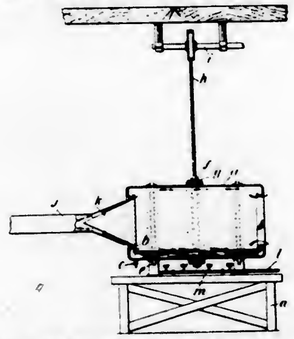
Claim.—1. A bearing attachment for windmill-shafts comprising a sleeve or journal-box having a flat base provided with lateral flanges arranged to be attached to the flanges of the half-box of the yoke-frame, cages fitted in the opposite ends of the sleeve or journal-box, and rollers journaled at their opposite ends in the ends of the cages, substantially as described.

2. A bearing attachment for windmill-shafts comprising a sleeve or journal-box having a flat base provided with means for attaching the same to the flanges of the half-box of the yoke-frame, a longitudinal rib formed centrally on the bottom of the flat base, cages fitted in the opposite ends of the sleeve or journal-box, and rollers journaled at their opposite ends in the ends of the cages, substantially as described.

3. A bearing attachment for windmill-shafts comprising a sleeve or journal-box constructed for attachment to the half-box of the yoke-frame, cages fitted in the opposite ends of the sleeve or journal-box and each consisting of two annular heads rigidly held apart by rods and provided on the edges of their adjacent faces with recesses, and rollers loosely journaled at their opposite ends in said recesses, substantially as described.

4. A bearing attachment for windmill-shafts comprising a sleeve or journal-box constructed for attachment to the half-box of the yoke-frame, cages fitted in the opposite ends of the sleeve or journal-box, and rollers journaled at their opposite ends in the ends of the cages, in combination with an annulus adapted to be slipped over the shaft between the end of the sleeve or journal-box and provided with a plurality of perforations, and antifriction-balls seated in said perforations and projecting beyond the opposite faces thereof, substantially as described.

644,529. EVAPORATING APPARATUS. JAMES MCCREDY, London, England. Filed Aug. 14, 1899. Serial No. 727,199. (No model.)



Claim.—1. In evaporating apparatus, the combination of a hollow rotary cylinder having open ends each constructed with an annular, inwardly-curved flange to retain the material to be treated therein, an air-supply pipe having a mouth arranged to deliver air into one of the annularly-curved flanged open ends of said cylinder, a device arranged in the mouth of said pipe for directing the air toward the inner surface of the cylinder, means for rotating the cylinder, and means for heating said cylinder, substantially as and for the purposes described.

2. In evaporating apparatus, the combination of a hollow rotary cylinder having open ends, each constructed with an annular, inwardly-curved flange to retain the material to be treated therein, an air-supply pipe having a funnel-shaped mouth arranged to deliver air into one of the annularly-curved flanged openings of said cylinder, a device arranged in the funnel-shaped mouth of said pipe for directing the air into the cylinder toward the inner surface thereof, means for rotating said cylinder, and means for heating said cylinder, substantially as and for the purposes described.

3. In evaporating apparatus, the combination of a hollow rotary cylinder having open ends provided with means for retaining the material to be treated in said cylinder, means for rotating said cylinder, an air-supply pipe having a funnel-shaped mouth, an air-distributing cone located in the funnel-shaped mouth of said pipe and having its base extended into one end of said rotary cylinder, and means for heating the cylinder, substantially as and for the purposes described.

4. In evaporating apparatus, the combination of a hollow rotary cylinder to receive the material to be treated, means for rotating said cylinder, an air-supply pipe having a funnel-shaped mouth, an air-distributing cone located in the funnel-shaped mouth of said pipe and having its base extended into one end of the said rotary cylinder, gas-burners for externally heating said cylinder, and a draw-off cock for removing the contents of the cylinder, substantially as described.

644,530. TILE AND PROCESS OF PRODUCING SAME. HENRY C. MERCER, Doylestown, Pa. Filed July 3, 1899. Serial No. 722,725. (No model.)



Claim.—1. The method of making and ornamenting pottery which consists in forming a clay base with a design having raised and ground portions, covering the design with a layer of slip, then applying a second layer of slip of different color from the first, and then remov-

ing the second layer of slip from the raised portions of the design and thereby exposing the first layer of slip on said raised portions.

2. The method of making and ornamenting pottery which consists in forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base and of a hard, close-grained nature when dry, then, after the drying of said hard layer, applying a second layer of slip of different color from the first and of looser and more friable nature, and then removing the second layer of slip from the raised portions of the design.

3. The method of making and ornamenting pottery which consists of forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base, then applying a second layer of slip of different color from the first, and then removing the second layer of slip and portions of the first layer from the raised portions of the design.

4. The method of making and ornamenting pottery which consists in forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base and of a hard, close-grained nature when dry, then, after the drying of said hard layer, applying a second layer of slip of different color from the first and of looser and more friable nature, and then removing the second layer of slip and portions of the first layer from the raised portions of the design.

5. The method of making and ornamenting pottery which consists of forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base, then after the drying of said layer applying a second layer of slip of different color from the first, then removing the second layer of slip and portions of the first layer from the raised portions of the design and finally firing the pottery.

6. The method of making and ornamenting pottery which consists of forming a clay base with a face having a rough portion, covering the said base with a layer of slip contrasting in color with the base, then applying a second layer of slip of different color from the first, and then removing the second layer of slip from the protuberances of the rough portion of the face whereby a flecked or stippled effect is produced.

7. The method of making and ornamenting pottery which consists of forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base, then after the drying of said layer applying a second layer of slip of different color from the first then removing the second layer of slip and portions of the first layer from the raised portions of the design by abrasive action and finally firing the pottery.

8. The method of making and ornamenting pottery which consists of forming a clay base with a design having raised and ground portions, covering the design with a layer of slip contrasting in color with the base, and of a hard close-grained nature when dry, then, after the drying of said hard layer, applying a second layer of slip of different color from the first and of looser and more friable nature when dry than the first, then removing the second layer by attrition from the raised portions of the design and finally firing the pottery.

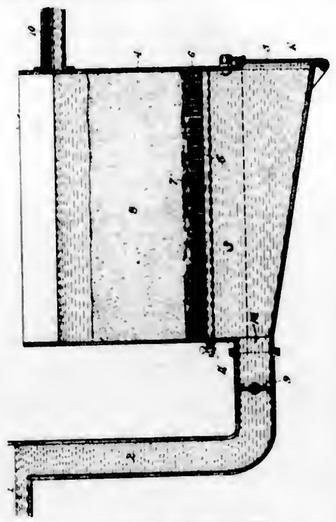
9. The method of making and ornamenting pottery which consists in forming a clay base with a design having raised and ground portions one of which has again a rough or irregular face, covering the design with a layer of slip contrasting in color with the base, then applying a second layer of slip of different color from the first, and then removing the second layer of slip from the raised portion and the protuberances of the rough or irregular portion of the design, substantially as specified.

644,531. OPEN GRAVITY-FILTER. HOWARD MORTON, Pittsburg, Pa.; Fidelity Title and Trust Company, same place, administrator of said Morton, deceased. Filed Apr. 30, 1898. Serial No. 679,345. (No model.)

Claim.—1. In a filter, open at the top and having the surface of the water therein exposed to the atmosphere, a bed of filtering material, a chamber below the filtering material, an inlet-passage opening into the chamber, and an outlet-passage of greater capacity than the inlet-passage for suddenly releasing the water from the chamber, and a space or chamber above the inlet-passage in which a vacuum or a partial vacuum may be created, substantially as set forth.

2. The combination, in a filtering device, of a bed of filtering material, a chamber below the filtering material having an inlet and an outlet passage, the outlet-passage being of greater capacity than the inlet-passage, means for closing the inlet-passage and means for suddenly releasing the water from the chamber whereby the filtering material may be cleaned by the downward flow of filtered water under the action of gravity and unbalanced atmospheric pressure, substantially as set forth.

3. In an open-top filter, the combination, of a bed of filtering material, a chamber below the filtering material having an inlet and an outlet passage, the outlet-passage being of greater capacity than the inlet-passage, a space or chamber above the inlet and outlet passages and below the filtering-bed, means for suddenly releasing the water from the chamber through the outlet-passage to create a vacuum or a partial vacuum between the surface of the water in the chamber and the bottom of the filter-bed whereby a rapid downward flow of filtered water through the filtering material is effected, substantially as set forth.



644,582. COTTON-ELEVATOR AND GIN-FEEDER. STEPHEN D. MURRAY, Dallas, Tex. Filed Apr. 24, 1899. Serial No. 714,296. (No model.)



Claim.—1. The combination with a vertical trunk or casing provided with a depending feed-chute, of a cotton-conveying tube arranged horizontally over the trunk and closed at one end, a tube of greater diameter surrounding the conveying-tube and closing the upper end of the trunk air-tight, said tubes having openings in their under sides over the trunk, the larger tube being closed air-tight at one end about the conveying-tube, a suction-pipe connected with the other end of said larger tube, and a screen arranged in the trunk, said screen being attached at its lower edge to the upper end of one side of the feed-chute and at its upper edge to the lower side of the conveying-pipe, substantially as described.

one end about the conveying-tube, a suction-pipe connected with the other end of said larger tube, and a screen arranged in the trunk to prevent the entrance of cotton into the larger tube, substantially as described.

2. The combination with a vertical trunk or casing provided with a feed-chute, of a cotton-conveying tube arranged horizontally over the trunk and closed at one end, a tube of greater diameter surrounding the conveying-tube and closing the upper end of the trunk air-tight, said tubes having openings in their under sides over the trunk, the larger tube being closed air-tight at one end about the conveying-tube, a suction-pipe connected with the other end of said larger tube, and a screen arranged in the trunk, said screen being attached at its lower edge to the upper end of one side of the feed-chute and at its upper edge to the lower side of the conveying-pipe, substantially as described.

3. The combination with a vertical trunk or casing provided with a feed-chute, of a cotton-conveying tube arranged horizontally over the trunk and closed at one end, a tube of greater diameter surrounding the conveying-tube and closing the upper end of the trunk air-tight, said tubes having openings in their under sides over the trunk, the larger tube being closed air-tight at one end about the conveying-tube, a suction-pipe connected with the other end of said larger tube, a screen arranged in the trunk to prevent the entrance of cotton into the larger tube, and a normally-open gate or valve adapted to close the opening in the conveying-tube, substantially as described.

4. The combination with a vertical trunk or casing provided with a depending feed-chute, of a cotton-conveying tube arranged horizontally over the trunk and closed at one end, a tube of greater diameter surrounding the conveying-tube and closing the upper end of the trunk air-tight, said tubes having openings in their under sides over the trunk, the larger tube being closed air-tight at one end about the conveying-tube, a suction-pipe connected with the other end of said larger tube, a screen arranged in the trunk to prevent the entrance of cotton into the larger tube, and a flexible collapsible valve arranged in the feed-chute, substantially as described.

5. In an apparatus for feeding seed-cotton to cotton-gins, the combination with a suction conveyer, of a pendent feed-chute comprising two separable sections fitted, one within the other and interiorly grooved at their meeting ends, and a collapsible valve fitted in the groove in the innermost section, substantially as described.

6. In an apparatus for feeding seed-cotton to cotton-gins, the combination with a suction conveyer-pipe, of a pendent feed-chute, said chute being made in two separate sections, the adjacent ends of which are enlarged and fitted one within the other, a frame fitted in one of said enlarged ends, and a flexible valve attached to said frame, substantially as described.

7. In an apparatus for feeding seed-cotton to cotton-gins, the combination with a suction conveyer-pipe, of a pendent feed-chute, said chute being made in two separable sections the adjacent ends of which are enlarged and fitted one within the other, a frame fitted in one of said enlarged ends, and a flexible tube attached at one end to said frame and attached at two sides to the sides of the feed-chute, substantially as described.

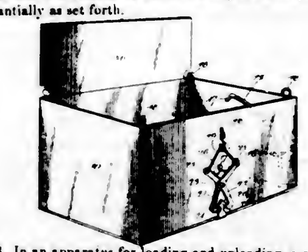
8. In an apparatus for feeding seed-cotton to cotton-gins, the combination with a feed-chute or receptacle-box, of a casing, feed-rollers arranged in the casing, a picker-roll disposed beneath the feed-rollers, a chute for delivering the cotton from the picker-roll to the gin, a screen located beneath and in rear of the picker-roll, a box or trough for catching the dirt which drops by gravity through the screen, means for directing the dirt into said box or trough and a conveyer arranged in the box or trough and operating to discharge the dirt therefrom, substantially as described.

9. In a cotton elevating or conveying device, the combination with a cotton-conveying tube closed at one end, a suction-tube of greater diameter surrounding the conveying-tube and closed air-tight at one end about the conveying-tube, and means for discharging the cotton from the conveying-tube, substantially as described.

644,588. APPARATUS FOR LOADING OR UNLOADING. THOMAS M. MCIFFORD, Hastings, Nebr., assignor of one-third to Henry S. Brown, same place. Filed Apr. 25, 1899. Serial No. 714,444. (No model.)

Claim.—1. In loading and unloading apparatus, a receptacle, and a folding butt-board applied to a wall of the receptacle and adapted to be turned down against the outer side of said wall and to be raised to a vertical position, the lower edge of the butt-board and the top edge of the said wall coming squarely together, forming a butt-joint to limit the movement of the butt-board when raised, substantially as described.

2. In an apparatus for loading and unloading, a receptacle open at its upper end, suspension devices applied to the upper open end at or near the corners of the receptacle, and a butt-board hinged to one wall of said receptacle to extend vertically above and in the plane thereof and adapted to fold outward and downward against the outer side of said wall so as to be out of the way of the suspension devices, substantially as set forth.



3. In an apparatus for loading and unloading, a receptacle provided with the suspension devices, a hinged bottom, a catch applied to the swinging edge of the bottom, and oppositely-disposed pivoted latch members adapted to engage with opposite sides of the catch, substantially as specified.

4. In an apparatus for loading and unloading, a receptacle provided with suspension devices, a hinged bottom, a catch applied to the swinging edge of the bottom, vertically-disposed latch members pivoted to swing in a plane parallel with the wall of the receptacle to which they are applied and having their upper ends spaced apart and their lower ends adapted to engage with opposite sides of the catch, and a trip-cord having divergent branches attached to the upper spaced ends of the latch members, substantially as described.

5. In an apparatus for loading and unloading, a self-closing bottom hinged to the receptacle, stop-rods located within the receptacle and connected to the bottom and slidably confined to the said receptacle to positively arrest the descent of the swinging edge portion of the bottom under the weight of the load therein, and a latch mechanism between the receptacle and its bottom to positively hold the latter in a closed position against the weight of the load therein, the same consisting of a latch, and oppositely-disposed pivoted latch members, substantially as described.

6. In an apparatus for loading and unloading, a receptacle, a bottom hinged thereto, a catch fastened to the free edge of said bottom, latch members pivoted together and to the receptacle by the same pivot-fastening and adapted to swing in a plane parallel with the wall to which they are attached and having their ends outwardly divergent, and a spring attached to the receptacle at a point between the upper diverging ends of the latch members to properly position them and to hold their clutching ends in engagement with opposite sides of the said catch, substantially as set forth.

644,584. TONGUE-SUPPORT. JEFFERSON J. NAGLEY, Marysville, Wash., assignor of one-half to Horace W. Nagley and Guy J. Nagley, same place. Filed July 18, 1899. Serial No. 724,294. (No model.)



Claim.—1. A tongue-support comprising a body provided with ways and having ratchet-teeth, a slide mounted in the ways, a dog pivotally mounted on the slide and normally engaging the ratchet-teeth, and an operating-cord connected with the dog and with the body, whereby the slide may be raised and lowered by the driver, substantially as described.

2. A tongue-support comprising a body provided with ways and having ratchet-teeth, a slide mounted in the ways and provided with a caster-wheel, a dog mounted on the slide and engaging the ratchet-teeth, and an operating-cord connected with the slide and adapted to operate the dog, substantially as described.

3. A tongue-support comprising a body designed to be secured to a tongue and provided with ratchet-teeth, a slide mounted on the body, a dog pivotally mounted on the slide, engaging the ratchet-teeth and provided with a pulley, a support arranged at the top of the body and having a pulley, and an operating-cord extending from the dog to the support, secured at one end to the latter and passing over the said pulleys, substantially as described.

644,585. GRAIN-CAR DOOR. SAMUEL W. NEALL, Philadelphia, Pa. Filed Apr. 14, 1899. Serial No. 713,000. (No model.)

Claim.—1. The combination in a car-body having an opening, of two horizontally-disposed vertically-movable doors adapted to rest back of the side jambs of the opening, the meeting edges of said doors being beveled, each of said jaws being capable of vertical movement irrespective of the vertical movement of the other door, substantially as described.



2. The combination in a car-body having a doorway, of two independent vertically-movable doors resting back of the door-jambs, one of said doors being mounted above the other, with means for suspending the upper door and means for locking the upper and lower doors in position, the said lower door being capable of vertical movement irrespective of the vertical movement of the upper door, substantially as described.

3. The combination of a car-body having a doorway, two independent vertically-movable doors adapted to rest back of the door-jambs, one of said doors being mounted above the other and having a beveled portion extending down behind the lower door, and means for suspending the upper door, substantially as described.

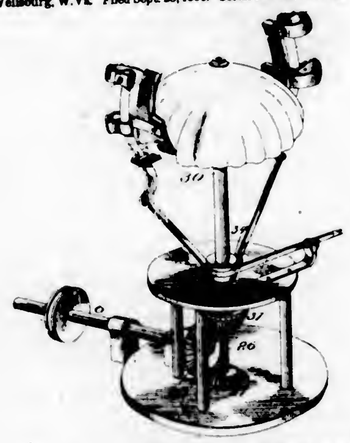
4. The combination of a car-body having a doorway, vertically-movable upper and lower doors, said doors being wider than the doorway and adapted to rest back of the door-jambs, and means for suspending the upper door, the meeting edges of both doors being beveled and the lower edges of the upper door resting back of the upper edges of the lower door, substantially as described.

5. The combination of a car-body having a doorway, vertically-movable upper and lower doors wider than the doorway and adapted to rest back of the door-jambs, the lower edges of the upper door being beveled and resting back of the beveled upper edge of the lower door, means for securing the doors in position independently of each other, and means located inside the car for suspending the upper door, said means limiting the upward movement of said door, substantially as described.

6. The combination of a car-body, upper and lower doors wider than the car-body and adapted to rest back of the door-jambs, the upper edge of the lower door being on a bevel and the lower edge of the upper door being on a bevel and resting back of the edge of the lower door, and means for locking the doors in position, the bevel of the doors being such that the upper door will be pushed back as the lower door is raised, substantially as described.

7. The combination of a car-body having a doorway, a series of doors wider than the doorway and adapted to rest back of the door-jambs, means located inside the car-body for suspending one of the said doors, and means carried on the outside of the doors for locking them in the doorway, the lowermost door being capable of upward movement irrespective of similar movement of the other doors, substantially as described.

644,536. GLASS-FINISHING APPARATUS. ASA O. NEVILLE, Wellsburg, W. Va. Filed Sept. 23, 1899. Serial No. 731,438. (No model.)



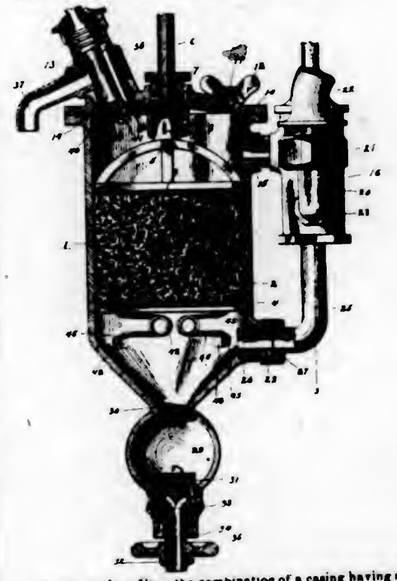
Claim.—1. In apparatus for finishing glassware, a former, supporting-arms, and buffers cooperating with the former and yieldingly and adjustably connected with the said supporting-arms, as and for the purpose described.

2. In glass-finishing apparatus, a former and supporting-arms in combination with sectional buffers having the contiguous ends of their parts overlapping and alining transversely, and yielding connections between the supporting-arms and the respective sections, as and for the purpose set forth.

3. In glass-finishing apparatus, a former and supporting-arms in combination with buffers, and yielding connections of approximately C form between the supporting-arms and buffers, substantially as described.

4. In glass-finishing apparatus, a former and supporting-arms in combination with sectional buffers having their contiguous ends overlapping, and a single spring connection between each section of the buffer and its supporting-arm and disposed so as to leave corresponding ends of cooperating sections free, as and for the purpose set forth.

644,537. WATER-FILTER. OSCAR R. HICKEY, Big Springs, Tex. Filed May 18, 1899. Serial No. 717,341. (No model.)



Claim.—1. In a filter, the combination of a casing having spaced feed and flushing ports 26 and 15 respectively, spaced diaphragms and interposed filtering material arranged between the planes of said ports, means for holding upper diaphragm which is adjacent to the flushing-port against movement in a direction toward said port, springs for supporting the lower diaphragm above the plane of the feed-port and bearing against the same in a direction toward the first-named diaphragm so as to yield in a direction opposite to that in which the water ordinarily moves in passing through the filter, and means for admitting liquid to the casing through either of said ports, substantially as specified.

2. In a filter, the combination of a casing having spaced feed and flushing ports, spaced diaphragms and interposed filtering material arranged between the planes of said ports, means for holding that diaphragm which is adjacent to the flushing-port against movement in a direction toward said port, said means consisting of a depressing-screw threaded in the casing, and a spider carried by said diaphragm and having said screw arranged in the path thereof, springs for supporting the other diaphragm and bearing against the same in a direction toward the first-named diaphragm, and means for admitting liquid to the casing through either of said ports, substantially as specified.

3. In a filter, the combination of a filter-casing containing a filtering medium and provided with feed and flushing ports and an outlet-valve, a reversing-valve having its casing in communication with said feed and flushing ports, a coupling-arm communicating with the valve-casing at its points of communication with said ports, and having a swivel connection with the casing, said coupling-arm being constructed for engagement with a supply-faucet, and a locking device

for securing the reversing-valve casing in its adjusted position with relation to the coupling-arm, substantially as specified.

4. In a filter, the combination of a filter-casing containing a filtering medium and provided with feed and flushing ports and an outlet-valve, a reversing-valve having its casing in communication with said feed and flushing ports, a coupling-arm communicating with the valve-casing at its points of communication with said ports, and having a swivel connection with the casing, said coupling-arm being constructed for engagement with a supply-faucet, and a jam-nut threaded upon the coupling-arm for securing the reversing-valve casing in its adjusted position with relation thereto, substantially as specified.

5. The filter-casing provided with a sediment receptacle or pocket, the drain-valve 31 having a tubular stem, and constructed to seat downwardly at the bottom of the receptacle or pocket, and a hand-operated device for forcing the valve downward against its seat, substantially as described.

6. The filter-casing provided with a sediment receptacle or pocket, the stuffing-box fitted to the outlet thereof, the tubular valve-stem carrying a valve which seats downwardly at the bottom of the receptacle or pocket, and a hand-wheel for the stem on the outside thereof, whereby the valve may be raised against the pressure of the contents of the filter-casing, and is kept seated by the said pressure, substantially as described.

7. In a filter, the combination of a casing-cylinder containing a filtering medium and provided with lateral feed and flushing ports and a bottom drain-port, a drain-valve controlling said drain-port, a reversing-valve for controlling said feed and flushing ports and provided with means for attachment to a supply-faucet, a casing-cap having a central pressure-screw for operating upon the filtering medium, and also provided with an annular series of spaced openings, threaded studs carried by the casing-cylinder to fit in said openings, and engaged by thumb-nuts, said openings of the cap being adapted for engagement with different studs, and a filter outlet-faucet carried by the cap at an eccentric point and provided with a controlling-valve, substantially as specified.

644,588. VOLTAIC CELL. ALBERT PFANHEUSER, Berlin, Germany. Filed Apr. 15, 1899. Serial No. 713,174. (No model.)



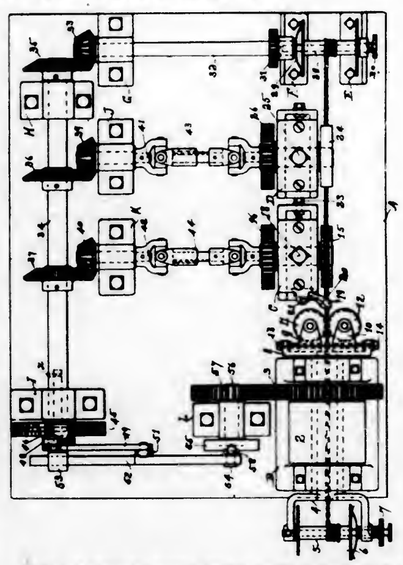
Claim.—1. A voltaic cell comprising a carbon electrode, that part of the same which dips into the exciting fluid being divided by a deep groove or channel, for the purpose of increasing the effective surface and a tubular positive electrode, having one end bent inward and passing through said channel, all substantially as described.

2. A voltaic cell comprising a carbon electrode, that part of the same which dips into the exciting fluid being divided by a deep groove or channel, for the purpose of increasing the effective surface and a tubular electrode having one end bent inward and passing through said channel, and insulating-blocks fitting said channel and engaging said end, substantially as described.

644,589. MACHINE FOR CURBING CHAINS. JEREMIAH W. PRESBREY, Attleborough, Mass. Filed Sept. 14, 1899. Serial No. 730,413. (No model.)

Claim.—1. In a chain curbing machine, the combination with a hollow shaft and means for rotating the same, of the grooved wheels carried on said shaft and arranged for independent rotation in a plane perpendicular to the axis of said shaft, and each provided with a peripheral groove and flat surfaces on either side of said groove adapted to engage with adjacent links of a chain in such manner as to prevent them from twisting between said wheels as the latter revolve with the shaft, while permitting them to feed forward as said wheels independently rotate, the holding-jaws arranged forward of and in line with said wheels and each provided with adjacent parallel grooves adapted to receive the links of a chain and prevent them from rotating, while permitting the same to move forward through said jaws, and means for causing the progressive forward movement of said chain through said wheels and jaws.

2. In a machine for curbing chain, the combination of a hollow shaft provided at one end with a bifurcated extension adapted to serve as a bearing-support for a spool journaled therein, and at its opposite end provided with an extension adapted to serve as a seat for adjustable supports, peripherally-grooved wheels mounted in said supports for revolution with said shaft, and also arranged for independent rotation in said supports in a plane perpendicular to the axis of said shaft, with means for rotating said shaft.



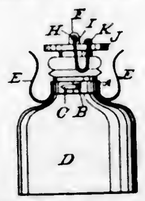
3. In a machine for curbing chain, the combination of the hollow shaft, the grooved wheels carried on said shaft and arranged for contemporaneous independent rotation in a plane perpendicular to the axis of said shaft, and each provided with a peripheral groove and flat surfaces on either side of said groove adapted to engage and hold adjacent links of a chain and prevent them from twisting between said wheels, the holding-jaws each provided with parallel peripheral grooves adapted to receive the twisted or flattened links and prevent them from rotating, and means for rotating said shaft to thereby twist that portion of the chain extending from said wheels to said jaws.

4. In a machine for curbing chain, the combination with a hollow shaft, and means for rotating the same, of wheels carried on said shaft and revoluble therewith, and mounted for independent rotation in a plane perpendicular to the axis of said shaft, and each provided with a peripheral groove and flat surfaces on either side of said groove, said grooves and flat surfaces being adapted for engagement with adjacent links of a chain to thereby prevent said links from twisting between said wheels while permitting free forward movement of said chain through said wheels, holding-jaws arranged forward of and in line with said wheels, and each provided with adjacent parallel grooves adapted for engagement with adjacent links of a chain to thereby prevent them from rotating, while permitting free forward movement of the same through said jaws, the similarly-grooved wheels arranged to receive said chain from said jaws and adapted to compress or flatten the links in their passage through said grooves, feed-wheels arranged to receive said chain from said grooved wheels and adapted to maintain the tension on the chain, and also to assist in the feed of the same through the machine, and means for operatively connecting said grooved and feed wheels with said rotatable shaft.

5. In a machine for curbing chain, the combination of means for holding a length of chain in which the adjacent links lie in planes normally at right angles to each other, means adapted to spirally twist such links, means adapted to flatten such links so twisted, means for causing the progressive forward or feed movement of said chain through the machine, with means for winding the chain preparatory to removal.

6. In a machine for curbing chain, the described means for twisting the links of a chain, the same consisting of the hollow shaft 1, the grooved wheels 11, 12, carried on said shaft and arranged for contemporaneous independent rotation in a plane perpendicular to the axis of said shaft, and adapted to hold the interposed links of a chain and prevent them from twisting between said wheels, the holding-jaws 19, 20, arranged in line with and a sufficient distance in advance of the same, and adapted to hold the links and prevent them from rotating as said wheels are revolved, and means for rotating said shaft to thereby twist that portion of the chain extending from said wheels to said jaws, all combined with each other and arranged to operate as and for the purposes specified.

644,540. ATTACHMENT FOR INK-BOTTLES. EDWARD J. ROBINSON, Santa Monica, Cal. Filed Sept. 19, 1899. Serial No. 731,034. (No model.)



Claim.—1. An attachment for ink-bottles, comprising a band surrounding the neck of the bottle, having a hole at one end and a tongue at the other; strips projecting at right angles from said band, said strips forming a clamp adapted to hold a penholder therein, the band being attached to the bottle and a cork-holding string attached at one end to the cork and the other end to the band, substantially as described herein.

2. An attachment for ink-bottles, comprising band A having hole C in one end and tongue B at the other, for securing same to the neck of a bottle, and strips E at right angles thereto forming penholder-clamps.

3. As a new article of manufacture, the herein-described blank, composed of the strap A, provided at one end with the hole B and at the other end with the tongue C adjusted in width to snugly fit in the hole B, the blank having lateral projections E to form penholder-supports, and the cork-holding projection F having hole H to receive a string.

644,541. MARKING-TICKET. WALTON D. SMITH, Prophetstown, Ill., assignor to the A. Kimball Company, New York, N. Y. Filed Mar. 15, 1897. Serial No. 627,597. (No model.)

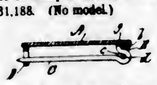


Claim.—1. A marking-ticket, for the edge of goods, comprising a flexible foldable body having a pin-bearing portion and a pin-engaged portion, respectively, the latter portion of the body being provided with a locking-slot, and with pin-receiving openings, and being extended at one end to form a folding point-protecting flap having a locking-tongue, and adapted to be folded onto the body after the points of a fastening-pin have been passed through said openings and bent down, the locking-tongue of the flap being adapted to engage in said locking-slot, substantially as specified.

2. A marking-ticket, for the edges of goods, comprising a flexible foldable body having a pin-engaging portion and a pin-engaged portion, respectively, the latter portion of the body being provided with pin-receiving openings and said pin-engaged portion extended at one end, forming an integral point-protecting flap, said flap being foldable upon the pin-engaged portion and having detachable interlocking connection therewith, whereby the points of a fastening-pin may be inclosed between the locking-flap and the pin-engaged portion of the body after said pin-points shall have been passed through said openings and bent upon the pin-engaged portion, substantially as described.

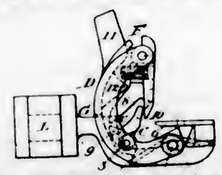
3. A marking-ticket comprising a pin-bearing portion and a pin-engaged portion, the former having a connected pin; and the latter portion having a slot and tongue, the points of pin in the use of the ticket being passed through the pin-engaged portion, the bent-over ends of the pin being concealed by the tongue which engages in the said slot.

644,542. JOINT FOR PIN-TONGUES. GEORGE H. TILFORD, Providence, R. I., assignor to Philip Wunderle, same place. Filed Sept. 21, 1899. Serial No. 731,188. (No model.)



Claim.—The joint-post, provided with the perforation *b*, the circularly-swaged pivot *d*, formed at the bottom of the circular groove *h*, which extends from the perforation *b* at one side of the post to the said perforation at the opposite side, and forms the continuous ears *c c*, adapted to guide the direction of the pin-tongue, and the notch *g* at the base of the post adapted to receive and form a bearing for the rear end of the pin-tongue, substantially as described.

644,543. CLOTH-CLAMP FOR TEXTILE MACHINERY. ROBERT P. WILMOT, Auburn, R. I., assignor to the Wilmot & Jerauld Manufacturing Company, Saco, Me. Filed June 3, 1899. Serial No. 719,234. (No model.)



Claim.—1. The combination, in a cloth-clamp for textile machinery, of an under jaw provided with a cloth-support, an upper jaw comprising a gripping-pawl swinging above said cloth-support and having an unbroken lower edge to coact with the cloth upon said support and a rigid rearwardly-extending projection, and an automatic controller in the form of a shoe-shaped lever having its pivot at its rear end and an open notch immediately in front of said pivot between a top projection and a flat-soled toe end which are acted on respectively by said projection and said lower edge of the pawl, in succession, when the clamp is opened.

2. The combination, in a cloth-clamp for textile machinery, of an under jaw provided with a cloth-support, an upper jaw comprising a gripping-pawl swinging above said cloth-support and having an unbroken lower edge to coact with the cloth upon said support and a rigid rearwardly-extending projection, and an automatic controller in the form of a shoe-shaped lever having its pivot at its rear end, a short top projection at this end, an open notch at top immediately in front of said top projection to coact with said projection on the pawl when the latter drops, and a relatively-long toe end having a flat sole to coact with the cloth upon said support preliminary to dropping the gripping-pawl upon the cloth.

3. In an automatic cloth-clamp for textile machinery, a shoe-shaped controller pivoted at its rear end and having a flat-soled toe end to rest upon the cloth, a rigid top projection and an open notch immediately in front of said top projection, in combination with a cloth-clamping pawl having a rigid rearwardly-extending projection that coacts with said top projection of the controller when the pawl is retracted and bears upon the controller within said notch when the controller is dropped upon the cloth.

4. In an automatic cloth-clamp for textile machinery, a shoe-shaped controller having a flat-soled toe end to rest upon the cloth, a rigid top projection and an open notch immediately in front of said top projection, in combination with a cloth-clamping pawl having a rearwardly-extending projection to coact with said top projection and notch, and a spring-pressed arm to which said pawl and controller are pivoted substantially as hereinbefore specified.

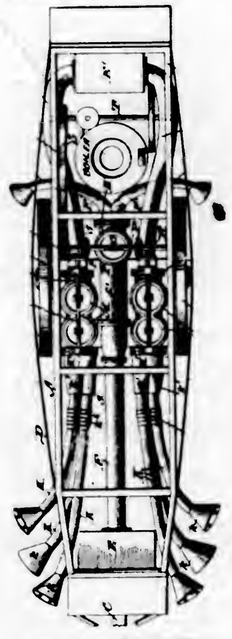
5. The combination of a tenter-chain link provided with a rigid clamp-jaw having a cloth-support at top, a gripping-pawl constructed with a rigid rearwardly-extending projection, an automatic controller in the form of a shoe-shaped lever having an open notch at top to coact with said projection, a laterally-swinging arm pivoted to said lower jaw and to which said gripping-pawl and controller are pivoted, and a spring tending to hold said arm in normal position, substantially as hereinbefore specified.

6. An improved cloth-clamp comprising an under jaw provided with a cloth-support, a gripping-pawl to coact with the cloth upon said support, an automatic controller that normally coacts with said gripping-pawl to control its grip on the cloth, a laterally-swinging arm pivoted to said under jaw and to which said pawl and said controller are pivoted, and means for rendering rigid the pivot-joint between said pawl and said arm when very thin cloth is to be held in the clamp, substantially as hereinbefore specified.

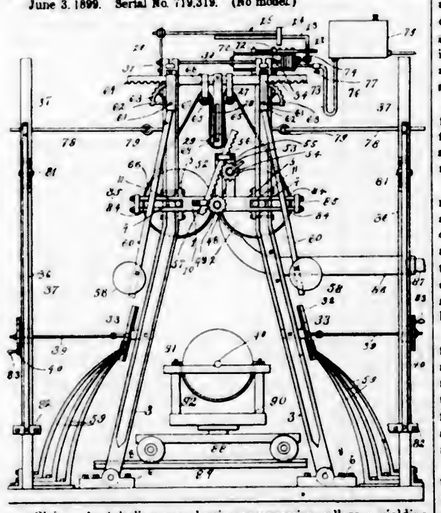
644,544. COTTON-PICKING MACHINE. WILLIAM L. BELT, Washington, D. C., assignor of one-fourth to William Wallace Kirby, same place. Filed Sept. 26, 1899. Serial No. 731,711. (No model.)

Claim.—1. In a pneumatic cotton-picking machine, the combination, with the wheeled frame, of three cotton-conducting tubes arranged alongside each other longitudinally of the frame, each of the two outer tubes having a separate series of branches and nozzles *k*, and two cylinders arranged vertically in connection with each such tube, a double crank-shaft arranged over each pair of such cylinders, and connected with pistons thereof, a single vertical cylinder H connected with the middle tube, collapsible rubber inlet and outlet valves, arranged with the cylinders as specified, a transverse crank-shaft which is operatively connected with the piston of said cylinder, gearing connecting said transverse shaft with the side shafts, and two separate cotton-receptacles with which the aforesaid tubes connect, respectively, as shown and described.

2. In a pneumatic cotton-picking machine, the combination with an air and cotton conducting tube, of one or more terminal tubes, a flared or tunnel-shaped cup secured to the end of each terminal, and having internal ribs arranged at the mouth, as shown and described, for the purpose specified.



644,545. BALING-PRESS. EDGAR BYARS, Rhome, Tex. Filed June 3, 1899. Serial No. 719,319. (No model.)



Claim.—1. A baling-press having compression-rollers, a yielding frame for said rollers, arms pivotally attached to said frame, weights attached to said arms, and means engaging the upper ends of said arms whereby said arms raise said weights and resist the receding motion of said frame, said frame consisting of a pair of I-beams provided with bearings at the central portion thereof for said rollers and pivotally mounted below said bearings.

2. A baling-press having compression-rollers, a yielding frame for said rollers, arms and weights attached thereto for resisting the receding motion of said frame, and means for engaging said arms and causing the same to raise said weights upward and outward as said frame recedes, said frame consisting of a pair of I-beams for said rollers pivotally mounted and provided with bearings for the shafts of said rollers, and said arms being pivotally mounted on said I-beams whereby the resistance to the receding motion of said frame will become greater as the bale increases in size.

3. A baling-press having compression-rollers, a yielding frame for said rollers, and means for resisting the receding motion of said rollers and frame, said means consisting of arms pivotally mounted on said frame and having weights on the long ends thereof and toothed segments on the short ends, brackets attached to said frame, and racks supported and slidable in said brackets and adapted to engage said segments as the rollers recede from the forming bale.

4. A baling-press having compression-rollers, a yielding frame for said rollers, and means for resisting the receding motion of said rollers and frame, said means consisting of a vacuum-cylinder mounted on one side of said frame, a piston for said cylinder whose rod is attached to the other side of said frame, said cylinder being provided with suitable valves and means for operating the same.

5. A baling-press having compression-rollers, a yielding frame for said rollers, and a vacuum-cylinder for resisting the receding motion of said frame and rollers as the bale increases in size, said cylinder being mounted on one side of said frame and provided with a piston whose rod is attached to the other side of said frame, an exhaust-valve and a weight for controlling the same, and a cock for turning in steam or compressed air.

6. A baling-press having compression-rollers, a yielding frame for said rollers, and springs for resisting the receding motion of said frame and rollers as the bale increases in size, said frame being provided with bearings for said springs, said springs being rigidly mounted at one end and free at the other, the free ends pressing in said bearings.

7. A baling-press having compression-rollers, a yielding frame for said rollers and means for resisting the receding motion of said frame and rollers, said means consisting of springs rigidly mounted at one end and pressing against said frame, arms pivotally attached to said frame and having upper extensions, weights attached to said arms and means for engaging the upper extensions of said arms whereby the resistance to the receding motions of said frame will be greater as the bale increases in size.

8. A baling-press having compression-rollers, a yielding frame for said rollers, and means for resisting the receding motion of said frame and rollers, said means consisting of springs rigidly mounted and adapted to press against said frame, arms mounted at one end on said frame, weights attached to said arms, means for causing said arms to raise said weights whereby the resistance to the receding motion of said frame will be greater as the bale increases in size, and a cylinder and means creating a vacuum in said cylinder to resist the outward movement of said frame.

9. A baling-press having compression-rollers, a yielding frame for said rollers, and means for resisting the receding motion of said frame and rollers, said frame consisting of sills, bearings attached to said sills, and I-beams in which the rollers are mounted, pivotally mounted in said bearings.

10. A baling-press having compression-rollers, a frame for said rollers consisting of sills and I-beams pivotally mounted in said sills and having bearings for said rollers, and means for resisting the receding motion of said frame and rollers, said means consisting of arms pivotally attached to said frame, weights adjustably attached to the long ends of said arms, toothed segments formed on the other ends, brackets attached to said frame, and racks supported and slidable in said brackets and adapted to engage said segments as the bale increases in size.

11. A baling-press having compression-rollers, a yielding frame for said rollers, said frame consisting of I-beams pivotally mounted and provided with bearings for said rollers, means for resisting the receding motion of said frame and rollers, and means for retarding the inward motion of said frame to starting position consisting of a frame, rods running through the frame-pieces at each corner thereof and attached to said I-beams, and means for applying friction to said rods.

12. A baling-press having compression-rollers, a yielding frame for said rollers consisting of I-beams pivotally mounted and provided with bearings for said rollers, means for resisting the receding motion of said frame and rollers, and means for retarding the inward motion of said frame to starting position, said means consisting of a frame mounted outside of said roller-frame, rods attached to said I-beams and operating through said frame, and arms pivoted on said frame and provided with friction-clutches adapted to engage said rods.

13. A baling-press having compression-rollers, a yielding frame for said rollers pivotally mounted, said rollers being normally pressed

toward each other, and means for drawing said rollers away from each other and for retarding the inward motion of said frame and rollers to starting position consisting of a frame outside of said roller-frame, threaded rods operating through said frame and attached to said roller-frame, and nuts provided with cranks for operating said rods.

14. A baling-press having compression-rollers, a yielding frame for said rollers, consisting of I-beams pivotally mounted, means for resisting the receding motion of said frame and rollers, and means for retarding the inward motion of said frame and rollers to starting position consisting of a frame mounted rigidly outside of the roller-frame, rods operating through said frame and attached to said I-beams, arms pivoted on said frame and provided with friction-clutches adapted to engage said rods, and springs mounted on said rods and adapted to exert pressure on said arms.

15. A baling-press having compression-rollers, a yielding frame consisting of I-beams pivotally mounted and provided with bearings for the journals of said rollers, a vacuum-cylinder for resisting the receding motion of said frame and rollers, and means for operating said cylinder consisting of a valve for closing the exhaust of said cylinder, a lever pivotally mounted on said cylinder, a weight slidably mounted on said lever, a rod attached to said weight and to said frame, a storage-tank for compressed air or steam, and a pipe provided with a suitable cut-off connecting said tank and said cylinder.

16. A baling-press having compression-rollers, a yielding frame for said rollers consisting of I-beams pivotally mounted and provided with bearings for the shafts of said rollers, means for resisting the receding motion of said rollers and frame, a core, and a hanger for the core, said hanger having arms resting on the shafts of said rollers and said roller-shafts moving outward between the arms of said hanger.

17. A baling-press having compression-rollers, a yielding frame for said rollers, means for resisting the receding motion of said frame and rollers, a core, a core-hanger, and means for engaging and releasing said core, said means consisting of disks having sleeves journaled in said hangers, said sleeves having openings square in cross-section, boxes for receiving the ends of the core, threaded bolts mounted in said sleeves having swivel connections with said boxes, cog-wheels interiorly threaded for operating said bolts, and racks for operating said cog-wheels.

18. A baling-press having compression-rollers, a yielding frame for said rollers consisting of I-beams pivotally mounted, means for resisting the receding motion of said frame and rollers consisting of arms pivoted on said I-beams, weights adjustably mounted on the lower and longer ends of said arms, hangers attached to said I-beams, bars mounted and slidable in said hangers, and means adapting said bars to engage the upper ends of said arms.

19. A baling-press having compression-rollers, a yielding frame for said rollers consisting of I-beams pivotally mounted, means for resisting the receding motion of said frame and rollers, means for opening and closing said frame independently of said resisting means, a core, and means for holding and releasing said core.

20. A baling-press having compression-rollers horizontally movable and a compression-roller vertically movable, a pair of yielding I-beams provided with bearings for each horizontally-movable compression-roller, a pair of vertically-sliding beams provided with bearings for said vertically-movable compression-roller, guides for the upper ends of said beams, link-bars pivotally connected to said beams and to said I-beams, and means for resisting the receding motion of said compression-rollers.

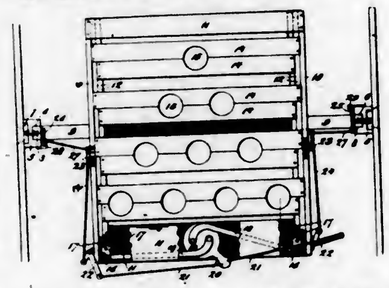
21. A baling-press having horizontally-movable compression-rollers and a vertically-movable compression-roller, a pair of yielding I-beams pivotally mounted and provided with bearings for each horizontally-movable compression-roller, a pair of vertically-sliding beams provided with bearings for the vertically-movable compression-roller, weights and means for attaching the same to said sliding beams, link-bars pivotally connected to said beams and to said I beams for aiding in resisting the upward motion of said sliding beams, and means for resisting the receding motion of said first-named compression-rollers.

22. A baling-press having horizontally-movable compression-rollers and a vertically-movable compression-roller, a pair of I-beams pivotally mounted and provided with bearings for each horizontally-movable compression-roller, a pair of vertical sliding beams provided with bearings for the vertically-movable compression-roller, link-bars pivotally attached to said beams and to said I-beams, means for resisting the receding motion of said first-named compression-rollers, a sprocket-chain and sprocket-wheels for driving said rollers, and weights adapted to maintain a constant tension of said sprocket-chain.

23. A baling-press having horizontally-movable and a vertically-movable compression-roller, a pair of I-beams pivotally mounted and provided with bearings for each horizontally-movable compression-roller, a pair of vertical sliding beams provided with bearings for the vertically-movable compression-roller, link-bars pivotally attached to said sliding beams and to said I-beams, means for resisting the receding motions of said first-named compression-rollers, a sprocket-chain and sprocket-wheels for driving said rollers, and means for maintaining constant tension of said chain consisting of said sprocket-chain, a sprocket-wheel, a yoke and bearing for said wheel movable on said sliding beam, a cable attached to said yoke, a weight attached to said cable, and suitable pulleys or idlers over which said cable runs, similar driving mechanism being applied to each end of the compression-rollers.

24. A baling-press having a series of compression-rollers, a yielding frame for said rollers consisting of a pair of I-beams pivotally mounted, and means for resisting the receding motion of said frame, said means consisting of bars having racks integral therewith and slidable in said frame and arms pivotally attached to said frame and having weights attached to the lower ends thereof and segments integral with the upper ends thereof, the pivotal bearing of said segments being nearer one side thereof whereby said weights will have increasing lever-power as the bale increases in size.

644,546. BOWLING-ALLEY. CHARLES W. CRAWFORD, Cincinnati, Ohio. Filed Nov. 3, 1899. Serial No. 735,853. (No model.)



Claim.—1. In combination, with the usual, spotted, end portion of the bed of a bowling-alley, a mechanism adapted to receive a set of pins and operating to place the said set of pins on the spots of the alley-bed and then move away, to permit the usual free use of the alley-bed and spotted pins: substantially as set forth.

2. In a mechanism for spotting pins on an alley-bed, a carrier adapted to receive a set of pins; means for moving said carrier, and its pins to the proper position to bring the bases of said pins onto their respective spots on the alley-bed: and means for then releasing said pins from said carrier; substantially as and for the purpose set forth.

3. In a pin-setting mechanism, the combination, with a carrier, movable toward and from the surface on which the pins are to be set up and actuated in its movement toward said surface by the weight of the pins carried, of means for effectuating the retention of the pins in the said carrier until it shall have carried them to their destination; and means for then automatically releasing the pins from the carrier; to permit the latter to be moved out of the way and into a position for reuse when needed; substantially as set forth.

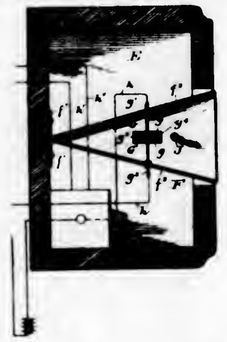
4. In an apparatus for placing tenpins, the combination of guided standards, shoes running vertically thereon, a carrier attached to the shoes, tenpin-clamps mounted on the carrier, means for moving the clamps to open and close the same, and detents arranged to operate said means.

5. In an apparatus for placing tenpins, the combination of a vertically-movable carrier, clamps mounted thereon, the clamps comprising members movable toward and from each other to clamp the tenpins, bell-crank levers having connection with the members to move the same, a crank-disk having connection with the bell-crank levers, tripping-levers movable with the carrier and connected with the crank-disk, and stationary detents engaged by the tripping-levers to throw the members of the clamps.

6. An apparatus for placing tenpins, the apparatus comprising a carrier movable toward and from the floor, clamps mounted on the carrier and comprising members movable toward and from each other to clamp the tenpins, and means for operating the clamps.

644,547. TELEPHONE-TRANSMITTER. ERNEST R. FAHNESTOCK, Washington, D. C., assignor to the Fahnestock Transmitter Company, New York, N. Y. Filed Jan. 15, 1897. Renewed Aug. 5, 1899. Serial No. 726,330. (No model.)

Claim.—1. A receiving tube or chamber for telephone transmission, and similar purposes, it having two approximately-flat diaphragm-like parts opposite to each other, and continuously diverging from an inner closed end to an outer, relatively-wider, open, receiving end, each arranged to reflect the sound from its inner surface to the inner surface of the other, substantially as set forth.



2. A tube or chamber for telephone transmission or similar purposes having a relatively-large, open, outer receiving end and formed with two vibratable walls converging continuously toward each other from said open larger outer end, they being arranged to provide a sound-chamber extending continuously from the inner surface of one of the converging walls to the inner surface of the other, in combination with the terminal of an electric or magnetic circuit adjacent to one of the said vibrating walls, and means for supporting the opposing terminal of said circuit, substantially as set forth.

3. A receiving tube or chamber for telephone transmission, or similar purposes, it having outwardly-flaring opposite walls terminating in a closed inner end and a relatively-wider, open, receiving, outer end, each of said walls being arranged to receive the sound directly on its inner surface and to reflect the sound to the corresponding face of the other wall, in combination with two electrodes respectively secured to the said walls and situated in the sound-receiving space between them, substantially as set forth.

4. A chamber for telephone transmission and similar purposes it having two approximately-flat vibratable diaphragm-like parts or walls diverging from their inner ends to an open outer end and arranged to receive the sound directly between the vibrating parts thereof and to reflect it from the inner surface of one to the inner surface of the other as it passes toward the narrower inner end, in combination with an electric or magnetic circuit having one terminal connected with each of said vibrating parts substantially as set forth.

5. A receiving tube or chamber for telephone transmission, or similar purposes, it having outwardly-flaring approximately-flat opposite walls terminating in a closed inner end and diverging continuously from said end to an outer, relatively-wider, open, receiving end each of said walls being adapted to reflect sound from its inner surface against the inner surface of the other, opposite wall and said tube being supported entirely at the inner closed end, whereby the diverging walls are free at all points outside of said inner end to respond to vibrations received against their inner surfaces, in combination with an electric or magnetic circuit adapted to receive and transmit vibrations from said walls substantially as set forth.

6. The tube or chamber for telephone transmission or similar purposes, it having two diverging walls forming a relatively-wide open mouth at their outer ends, each wall being adapted to directly receive the sound on its inner surface, an electrode connected to one of said walls and situated between the inner surfaces of the diverging parts, and another electrode arranged in said chamber between said diverging walls oppositely to the aforesaid electrode, substantially as set forth.

7. A chamber for telephone transmission and similar purposes it being formed of a flattened tube having the relatively-wider approximately-flat converging diaphragm-like sides, and the relatively-narrower intermediate side parts, said chamber expanding continuously from its inner end to a relatively-large, open, outer receiving end, and the said converging parts being adapted to reflect sound from the inner surface of one directly across the intervening space to the inner surface of the other, in combination with an electric circuit having its terminals connected with electrodes carried by and arranged between said diaphragm-like sides of the tube substantially as set forth.

8. In a telephone, the combination of a tube or chamber formed with two vibratable walls diverging outward from a relatively-narrow inner end and adapted to receive sound in the chamber formed between them, and extending from one end of the casing to the other, and an electric or magnetic circuit having one terminal adjacent to one of said vibratable walls and its other terminal adjacent to the other of said vibrating walls and opposite to the first said terminal; substantially as set forth.

9. A tube or chamber for telephone transmission or similar purposes, having two vibratable walls diverging continuously outward from a closed inner end, to provide an intermediate chamber across which sound will be reflected from one of said walls to the other, and each wall having at its rear end a laterally-projecting portion, *f*, by which the tube can be supported; substantially as set forth.

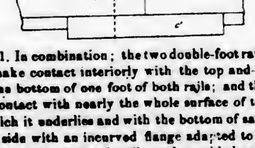
10. A receiving-tube for telephone transmission and similar purposes, it having two oppositely approximately flat, vibratable walls diverging continuously outward from an inner closed end to an outer receiving end, and each adapted to reflect sound from its inner surface to the inner surface of the other wall, and an integral transverse extending support, *f'*, at the inner closed end, substantially as set forth.

644,548. NUT-LOCK. SMITH FERRIS, New York, N. Y. Filed Aug. 3, 1899. Serial No. 725,982. (No model.)



Claim.—In combination; the screw-threaded bolt provided with the polygonal surfaces and with the key-mortise; the nut; the nut-cap provided with the boss fitting interiorly to the polygonal surfaces of the bolt and also provided with the wedge-bottomed key-slot; and the wedge-shaped key; all substantially as described and for the purposes set forth.

644,549. RAILWAY-RAIL JOINT. SMITH FERRIS, New York, N. Y. Filed Aug. 3, 1899. Serial No. 725,983. (No model.)



Claim.—1. In combination; the two double-foot rails; the wedge adapted to make contact interiorly with the top and—in lesser degree—with the bottom of one foot of both rails; and the shoe adapted to make contact with nearly the whole surface of that portion of both rails which it underlies and with the bottom of said wedge, provided on one side with an incurved flange adapted to make contact interiorly with one foot of both rails, and provided on the other side with an incurved flange adapted to make contact interiorly with the top of said wedge; all substantially as described and for the purposes set forth.

2. In combination; the two double-foot rails; the wedge adapted to make contact interiorly with the top and—in lesser degree—with the bottom of one foot of both rails; and the top-curved shoe adapted to make contact with nearly the whole surface of that portion of both rails which it underlies and with the bottom of said wedge, provided on one side with an incurved flange adapted to make contact interiorly with one foot of both rails, and provided on the other side with an incurved flange adapted to make contact interiorly with the top of said wedge; all substantially as described and for the purposes set forth.

3. In combination; the two double-foot rails; the edge-mortised wedge adapted to make contact interiorly with the top and—in lesser degree—with the bottom of one foot of both rails; the shoe provided with the angular mortise; and the tapering angular key; all substantially as described and for the purposes set forth.

644,550. BEARING. HERBERT R. GILLETTE, Benton Harbor, Mich., assignor to the Gillette Roller Bearing Company, same place. Filed June 30, 1899. Renewed Feb. 2, 1900. Serial No. 3,743. (No model.)

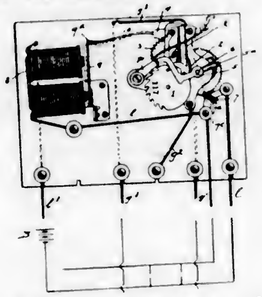
Claim.—1. The combination, in a wheel, of a box, outwardly and inwardly extending flanges at one end thereof, a hub-plate surrounding the opposite end of the box, a ring secured to the said box, and rollers confined between the box and said inwardly-extending flange, substantially as described.

2. The combination, with a shaft, of a wheel having a box, outwardly and inwardly extending flanges at one end thereof, a hub-plate surrounding the opposite end of the box, a ring secured to said box, and friction-rollers intermediate the box and the axle therein and confined in position by said inwardly-projecting flange and the ring, substantially as described.



3. The combination, with a shaft and an adjustable collar thereon, of a wheel having a box, outwardly and inwardly extending flanges at one end thereof, a hub-plate surrounding the opposite end of the box a ring secured to said box, and friction-rollers intermediate the box and the axle therein and confined in position by said inwardly-projecting flange and the ring, substantially as described.

644,551. **ELECTRIC SIGNALING APPARATUS.** GEO. HARRIS, Detroit, Mich. Filed Aug. 6, 1898. Serial No. 687,909. (No model.)



Claim.—1. In combination with a signaling apparatus, an electrically-actuated catch, an arm on the signaling apparatus adapted to engage the catch, a local circuit adapted to actuate the catch, a crank on the signaling apparatus and means whereby the crank closes and opens the circuit and thereby actuates the catch to enable it to engage the holding-arm, substantially as described.

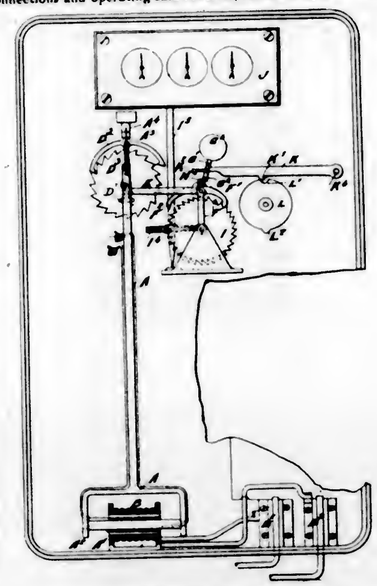
2. In combination with a signaling apparatus a chain of gear-wheels, means for actuating said gear-wheels, an escapement adapted to regulate the motion of said gear-wheels, a catch adapted to engage said escapement only when said escapement is at rest and thereby lock said gear-wheels, an electromagnet adapted to withdraw said catch from engagement with said escapement, a pair of terminals, 7, 7*, and a lever adapted to store up the actuating power of said gear-wheels and to make contact between said terminals at the limit of its motion thereby completing the circuit through the coils of said magnet drawing said catch into position to engage said escapement at the commencement of the return motion of said lever, substantially as shown and described.

644,552. **ELECTRIC METER.** GEORGE HOOKHAM, Birmingham, England. Filed Sept. 12, 1899. Serial No. 730,206. (No model.)

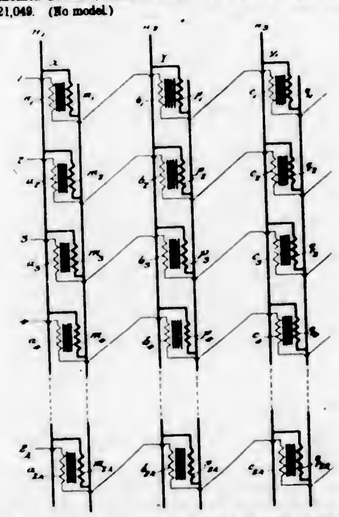
Claim.—1. An electric meter comprising a pendulum, a shunt-coil carried thereby, a series coil coacting with said shunt-coil, a recording-wheel train, reversible connections from said pendulum for operating said train, and means for automatically reversing said connections at determined intervals, substantially as described.

2. An electric meter comprising a pendulum, a shunt-coil carried thereby, a series coil coacting with said shunt-coil, a recording-wheel train, reversible connections from said pendulum for operating said train, and means for automatically reversing said connections at determined intervals, and for controlling the current in said shunt-coil, substantially as described.

3. An electric meter comprising a pendulum, a shunt-coil carried thereby, a series coil coacting therewith, a recording-wheel train, reversible pawl-and-ratchet mechanism connecting said pendulum and counting-wheel train, a current converter or reverser in said shunt-circuit, and means for simultaneously reversing said pawl-and-ratchet connections and operating said reverser, substantially as described.



644,553. **APPARATUS FOR CONVERTING ALTERNATING INTO CONTINUOUS CURRENTS, AND VICE VERSA.** MAURICE HUTIN and MAURICE LEBLANC, Paris, France. Filed June 19, 1899. Serial No. 721,049. (No model.)



Claim.—1. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores wound with primary and secondary coils, the primary coils being connected in dephased groups so that each member of the same group is affected by the same phase of the primary current and the secondary coils being connected in dephased groups so that each member in the same group is the seat of an electromotive force of the same phase, substantially as described.

2. An apparatus for transforming alternating currents of order p into alternating currents of order $2k$ comprising $p\,k$ separate magnetic cores, each wound with one primary circuit and two secondary circuits, the secondary circuits being wound in opposite directions, the primary circuits and secondary circuits being each respectively connected in dephased groups, so that any secondary coil of a group is the seat of an electromotive force of substantially the same phase as any other coil of the same group, substantially as described.

3. An apparatus for transforming alternating currents of order p into alternating currents of order k comprising a number of separate magnetic cores wound with primary and secondary coils, the primary coils being so grouped among themselves that as one passes from one group to the next the phase of the current varies by $\frac{1}{p}$ and the secondary circuits being grouped among themselves so that members of the same group are in the same phase but as one passes from one group to the next the phase varies by $\frac{1}{k}$ of a period, substantially as described.

4. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores wound with primary and secondary coils, the primary coils and secondary coils being each respectively connected in dephased groups, and the number of turns of a primary coil on a core as one passes from core to core acting on the same secondary circuit, varying according to a sine law, substantially as described.

5. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores, each wound with primary and secondary coils respectively grouped among themselves, the number of turns of a primary coil on a core, as one passes from core to core acting on the same secondary circuit, varying according to a sine law, and the number of turns to a primary coil on a core, as one passes from core to core acted on by the same primary circuit, varying according to a sine law, substantially as described.

6. An apparatus for transforming alternating currents of order p into alternating currents of order k, comprising a number of separate magnetic cores, wound with primary and secondary coils respectively connected in dephased groups, members of the same group being in the same phase and the windings being such that the intensities of the fluxes developed in the cores acting on the same secondary circuit are represented by a series of sines whose arcs vary by $\frac{2\pi}{p}$, and the intensities of the fluxes developed in the coils by the same primary circuit are represented by a series of sines whose arcs differ by $\frac{2\pi}{k}$, substantially as described.

7. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores whose sections vary according to a sine law, as one passes from core to core, substantially as described.

8. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores whose sections vary according to a sine law connected by yokes, the winding being such as to produce fluxes having one direction in the core of odd order and fluxes having an opposite direction in the cores of even order, whereby the cross-section of the yokes or connecting-pieces is reduced, substantially as described.

9. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores mounted in two stories, each core above another, and yokes or connecting-pieces therefor, the winding being such as to produce fluxes having one direction in any superposed pair of cores and having opposite directions in laterally-adjacent cores, whereby the cross-section of the yokes or connecting-pieces is reduced, substantially as described.

10. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores, each supplied with two secondary circuits formed of low-resistance bands, insulated from each other and bent about the cores and each further supplied with a primary coil, the number of turns of which, on successive cores, varies according to a sine law, substantially as described.

11. An apparatus for transforming alternating currents of any order into alternating currents of any other order, comprising a number of separate magnetic cores whose cross-sections vary according to a sine law, each core supplied with two secondary circuits formed of low-resistance bands insulated from each other, bent about the cores, and each core further supplied with a primary coil, the number of turns of which, on successive cores, varies according to a sine law, substantially as described.

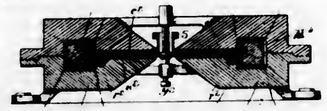
12. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a series of separate magnetic cores with cross-sections varying according to a law, with a gap or gaps in the series where the cross-section is zero, and primary and secondary circuits wound thereon, the secondary circuits being formed of low-resistance bands and shaped to lie against each other and to inclose no magnetic flux at the points corresponding to the gaps, substantially as described.

13. An apparatus for transforming alternating currents of any order into continuous currents, or reciprocally, comprising a transformer having a number of separate magnetic cores wound with primary and secondary coils, the primary coils and secondary coils being each connected in dephased groups, the number of secondary phases being greater than the number of primary phases, and the secondary coils being connected to a rectifier comprising commutator segments and brushes moving with relation to each other, substantially as described.

14. An apparatus for transforming alternating currents of any order into continuous currents, or reciprocally, comprising a transformer having a number of separate magnetic cores, wound with primary and secondary coils, the primary coils and secondary coils being each connected in dephased groups such that the number of secondary phases is greater than the number of primary phases, a commutator comprising stationary brushes connected with the secondary coils, rotating rings in contact with the brushes, commutator-sections electrically connected and mounted to rotate with the rings and stationary brushes contacting with the commutator-sections for taking off straight currents, substantially as described.

15. An apparatus for transforming alternating currents of any order into alternating currents of any other order comprising a number of separate magnetic cores wound with primary and secondary coils, the primary coils and secondary coils being each respectively connected in dephased groups, and having the number of turns of the primary coils on a core, as one passes from core to core in the same group, varying according to a sine law and having the section of the wire of the primary coil varying inversely with the number of turns in the primary coil, substantially as described.

644,554. **ELECTRIC RECUPERATOR.** MAURICE HUTIN and MAURICE LEBLANC, Paris, France. Filed June 19, 1899. Serial No. 721,050. (No model.)



Claim.—1. The combination of an inductive circuit carrying an alternating current and a conductor, which is part of the circuit, mounted to oscillate within a constant magnetic field of force, the inertia of the moving conductor, and the intensity of the magnetic field being adjusted with reference to the frequency of the current, as described, for the purpose of reducing the apparent self-induction of the circuit, substantially as described.

2. The combination of an alternating-current dynamo-electric machine having a member which is the seat of low-frequency alternating currents and a conductor mounted to oscillate within a constant magnetic field, which conductor is in circuit with the member, the inertia of the oscillating conductor, and the intensity of the magnetic field having the relations described with reference to the frequency of the alternating current for the purpose of neutralizing the apparent self-induction of the member, substantially as described.

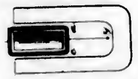
3. The combination of a circuit carrying an alternating current, a conductor which is part of the circuit, mounted so as to be free to oscillate through any angle however great within a constant magnetic field of force, the moment of inertia of the conductor, and the intensity of the magnetic field having the relations described with reference to the frequency of the current for the purpose of reducing or neutralizing the apparent self-induction of the circuit, substantially as described.

4. The combination of an induction-motor having an armature-circuit which is the seat of alternating electromotive forces and a conductor, forming part of the armature-circuit, mounted to oscillate within a constant field of force, for the purpose of reducing the apparent self-induction of the armature-circuit, substantially as described.

644,555. **PROCESS OF REDUCING APPARENT INDUCTANCE OF ELECTRICAL CIRCUITS.** MAURICE HUTIN and MAURICE LEBLANC, Paris, France. Original application filed June 19, 1899, Serial No. 721,050. Divided and this application filed Dec. 26, 1899. Serial No. 741,623. (No specimens.)

Claim.—1. The process of reducing or neutralizing the apparent

self-induction of a circuit carrying an alternating current, which consists in passing the current through a conductor mounted to oscillate with relation to a constant magnetic field of force, in the manner described for the purpose stated.



2. The process of reducing or neutralizing the apparent self-induction of a circuit carrying an alternating current, which consists in passing the current through a conductor mounted to oscillate with relation to a constant magnetic field of force, the inertia of the conductor, the intensity of the field and the frequency of the current having the relation substantially as described for the purpose stated.

3. The process of reducing or neutralizing the apparent self-induction of a circuit carrying alternating current, which consists in passing the current through a conductor mounted to oscillate with relation to a constant but regulable magnetic field of force and varying the intensity of the field with relation to the frequency of the current and the inertia of the conductor in the manner substantially as described.

4. The process of reducing or neutralizing the apparent self-induction of a circuit carrying an alternating current of abnormally-low frequency, which consists in passing the current through a conductor mounted to oscillate with relation to a constant magnetic field of force, the inertia of the conductor and the intensity of the field having a relation to the periodicity of the low-frequency current, substantially as described.

644,556. SUCTION-BOX FOR PAPER-MAKING MACHINES. SIGVERT M. JOHNSON, Milwaukee, Wis., assignor of one-half to Peter Wagner, same place. Filed Feb. 7, 1899. Serial No. 704,805. (No model.)



Claim.—1. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; apron-supporting rollers located at each side of the box or casing; air-excluding devices surrounding the suction-chamber and adjustable therewith; and means for automatically adjusting such devices to correspond with the vertical movement of the apron.

2. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; a frame provided with adjustable cross-bars; means for pressing said frame upwardly against the apron; and devices for regulating said pressure; the sides and cross-bars of said frame being adapted to cooperate with the box or casing, and its adjustable heads in excluding air from the suction-chamber.

3. In a suction-box for paper-making machines, the combination, with the pulp-apron; a box or casing provided with adjustable heads and a suction-pipe; apron-supporting rollers located at each side of the box or casing; a frame provided with adjustable cross-bars engaged in channels in the upper surfaces of said heads; and means for pressing said frame upwardly against the apron, said frame being adapted to cooperate with the box or casing, and its adjustable heads in excluding air from the suction-chamber.

4. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads; apron-supporting rollers located at each side of the box or casing; a frame provided with adjustable cross-bars, having a yielding under surface secured to said heads; and means for pressing said frame upwardly against the apron, said frame being adapted to cooperate with the box or casing, and its adjustable heads in excluding air from the suction-chamber.

5. In a suction-box for paper-making machines, the combination with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; apron-supporting rollers located at each side of the box or casing; a frame provided with channeled side bars and adjustable cross-bars engaged in said channels; and means for pressing said frame upwardly against the apron, said frame being adapted to cooperate with the box or casing and its adjustable heads, in excluding air from the suction-chamber.

6. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; an apron-supporting roller extending through said heads; a sleeve supported on said roller; supplementary collars adapted to be supported on said roller; a frame provided with adjustable cross-bars; and means for pressing said frame upwardly against the apron, said frame being adapted to cooperate with the box or casing and its adjustable heads, in excluding air from the suction-chamber.

7. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; a shaft extending through said heads; one or more apron-supporting sleeves or rollers disposed thereon between the heads; with supplementary devices for adjusting the support to correspond with the length of the space between the heads; together with an adjustable air-excluding frame adapted to press upwardly against the apron around the sides and heads of the box or casing.

8. In a suction-box for paper-making machines, the combination, with the pulp-apron; of a box or casing provided with adjustable heads and a suction-pipe; and an adjustable air-excluding frame for said box or casing; a shaft extending through said heads; and a set of sleeves or collars adapted to be supported on the shaft and to be used either interchangeably or collectively in the space between the heads, to support the pulp-conveying apron.

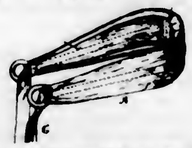
9. In a suction-box for paper-making machines, the combination, with a pulp-apron; of a box or casing provided with suitable air-excluding devices; a shaft extending through the heads of the box or casing; and a sleeve carried by the shaft and adapted to support the apron between the heads.

10. In a suction-box for paper-making machines, the combination, with a pulp-apron; of a box or casing provided with adjustable heads; a shaft extending through the heads of the box or casing; and a set of sleeves or collars, adapted to be adjusted on the shaft between the heads, to support the pulp-conveying apron.

11. In a suction-box for paper-making machines, the combination, with a pulp-apron; of a box or casing provided with adjustable heads and suitable air-excluding devices; a shaft extending through the heads of the box or casing; and a set of sectional sleeves or collars adapted to be adjusted on the shaft between the heads, and to support the pulp-conveying apron, some of said sleeves or collars being formed in detachable sections, adapted to be secured together around said shaft.

12. In a suction-box for paper-making machines, the combination, with a pulp-conveying apron; of a box or casing provided with suitable air-excluding devices; a shaft extending through the heads of the box or casing; and a sleeve carried by the shaft and adapted to support the apron between the heads; together with a reinforcing-web for said sleeve.

644,557. APPAREL-BELT. MONROE KOON, New York, N. Y. Filed Dec. 14, 1899. Serial No. 740,268. (No model.)



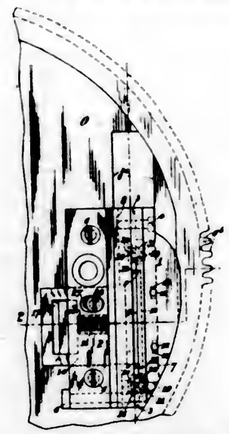
Claim.—1. The herein-described belt, composed of a body portion of suitable flexible material, such, for example, as ribbon, transverse stays permanently fixed in the said body portion at the middle thereof, longitudinal stays disposed on opposite sides of said transverse stays, and means for connecting the ends of said body portion to hold the belt in place, substantially as set forth.

2. The herein-described belt, composed of a body portion of suitable flexible material, such, for example, as ribbon, a group of transverse stays permanently fixed in said body portion at the middle thereof for holding the back of the belt distended laterally, the said transverse stays being gradually shortened in length upon opposite sides of the middle line of the group to determine the gradual taper of the belt from the back toward the front, longitudinal stays disposed on opposite sides of said transverse stays, rings at the opposite ends of the said body portion, the said rings being of a diameter less than the width of the said body portion at its middle, and means for connecting the rings to hold the belt in place, substantially as set forth.

644,558. MOLD-BLOCK FOR LINOTYPE-MACHINES. PHILIP C. LAWLESS, London, England. Filed Sept. 9, 1899. Serial No. 730,263. (No model.)

Claim.—1. A linotype-mold consisting of two complementary slotted parts, movable one in relation to the other, so that their slots may be placed in register or out of register; whereby the mold is adapted for the production of type-high linotypes, or for the production of lower linotypes with a sprue attached.

2. In a linotype-machine, a mold consisting of two slotted members, movable one in relation to the other, and means whereby said members may be fixed in relation to each other, with their slots in line or out of line, according to the height of the linotype required.



3. In a linotype-machine, a slotted mold comprising two slotted members, movable one in relation to the other, means for holding the base portion out of alinement with the forward portion during the casting action, and means for thereafter moving one portion in relation to the other, whereby the sprue or base portion of the slug is separated from the remaining portion.

4. In a linotype-machine, the combination of an ejector for the slug, a mold consisting of two slotted members, movable in relation to each other, so that their slots may be caused to stand in line or out of line with each other, means whereby the slots are held out of line during the casting operation, and means whereby the slots are subsequently brought into line, whereby the sprue or base portion is separated from the body portion of the slug and brought into position behind the same, in order that the ejector may deliver both portions through the front of the mold.

5. The hereinbefore-described combination of two slotted mold-blocks, one for the linotype and the other for the sprue, and adapted to stand with their slots nearly in echelon during casting; a wedge and incline device to move the sprue mold-block over the linotype mold block to sever the web connecting sprue and linotype; means for engaging the wedge and incline; and means for returning the sprue mold-block.

6. The hereinbefore-described combination of two slotted mold-blocks, one for the linotype and the other for the sprue, one movable over the other and adapted to stand with its slot nearly in echelon with the slot of the other during casting; means for moving the sprue mold-block over the linotype mold-block to sever the web connecting the sprue to the linotype; means for returning it; cores to core the end of the linotype; and means to protrude them into the linotype-slot and to retract them.

7. The hereinbefore-described combination of two mold-blocks, one for the linotype and the other for the sprue, one movable over the other and adapted to stand with its slot nearly in echelon with the slot of the other during casting; means for moving the sprue mold-block over the linotype mold-block to sever the web connecting the sprue to the linotype; means for returning it; cores to core the end of the linotype; and lever devices actuated by the sprue mold-block to protrude them into the linotype-slot and to retract them.

8. The hereinbefore-described combination of two mold-blocks, one having a slot for the linotype and the other having a slot for the sprue, one movable over the other and adapted to stand with its slot nearly in echelon with the slot of the other during casting; a core carried by the sprue mold-block to core the foot of the linotype; means for moving the sprue mold-block over the linotype mold-block to sever the web connecting the sprue to the linotype; and means for returning it.

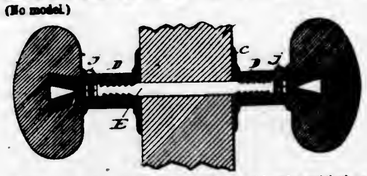
9. The hereinbefore-described combination of two mold-blocks, one having a slot for a narrow linotype and the other having a slot for the sprue, capable of having cast in their slots a narrow linotype and a sprue or a full-width linotype, according to the positions of the said slots relatively to each other.

10. The hereinbefore-described combination of two mold-blocks, one having a slot for a narrow linotype and the other having a slot for the sprue, one movable over the other and adapted to stand with its slot nearly in echelon during casting; means for moving the sprue mold-block over the linotype mold-block to sever the web connecting sprue and linotype; means for returning it; and means for locking the movable mold-block to the other with the respective slots in register with each other for casting full-width linotypes.

11. A slotted linotype-mold, in combination with two cores mounted therein and adapted to be projected into and withdrawn from the opposite ends of the mold-slot.

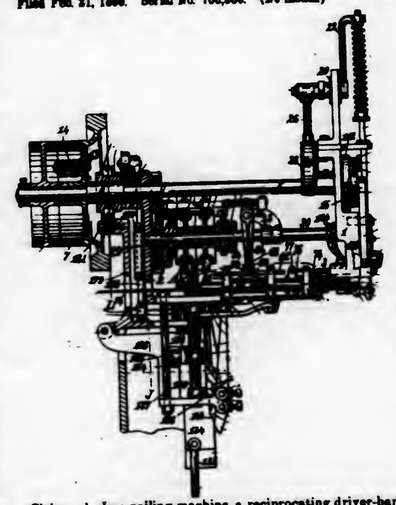
12. A linotype-mold, comprising two slotted members, a slide connection between them, and a spring tending to throw the slots out of line, substantially as described.

644,559. COUPLING-FASTENER FOR DOOR-KNOBS, &c. VINCENT W. LEWIS, Harriman, Tenn. Filed Feb. 9, 1899. Serial No. 705,140. (No model.)



Claim.—In a door-knob fastener the combination with the coupler made in two parts and provided with a cavity, one of said parts provided with a tooth extending crosswise of said cavity, of a coupling-bar provided with inclined notches on one end and on opposite sides thereof adapted to enter the cavity in the coupler and to be engaged by said tooth, and a screw for fastening the two parts of the coupler together substantially as described.

644,560. NAILING-MACHINE. FRANK HOWE, Boston, Mass. Filed Feb. 21, 1899. Serial No. 706,389. (No model.)



Claim.—1. In a nailing-machine, a reciprocating driver-bar with inclined portions, and a guide for said driver-bar with inclined surfaces whereby the driver-bar is given a slight forward movement bodily in unison with its reciprocating movement, for the purpose set forth.

2. In a nailing-machine, a reciprocating driver-bar with inclined portions, and a guide for said driver-bar with inclined surfaces, combined with a metal-strip-feeding device and cutters with inclined cutting edges to cut a tapered nail or tack from said strip whereby the driver-bar will have a forward movement bodily in unison with its reciprocating movement, its driving end will follow the incline of the cutting edge of the cutters, and the tapered nail will not move laterally upon the end of the driver while the nail is being driven, for the purpose set forth.

3. In a nailing-machine, a reciprocating driver-bar, a spring to move the driver-bar in one direction to drive the nail or tack, mechanism to move the driver-bar in opposition to the influence of said spring, an eccentric, and intermediate mechanism between the eccen-

tric and said spring to alternately compress and release said spring from compression, whereby said spring is under the greatest compression due to said eccentric at the time the driver-bar is released from the mechanism which moves the driver-bar in opposition to said spring in order to drive the nail or tack, and is released from compression due to said eccentric, at the time the machine is at rest, for the purpose set forth.

4. In a nailing-machine, in which nails or tacks are cut from a metal strip or tape with their head portions cut alternately from opposite edges of the strip or tape, a feeding-tube through which said strip or tape is fed and by which it is carried, bearings in which said tube is rotatably mounted, mechanism to oscillate said tube and the strip carried thereby in said bearings, a sleeve longitudinally movable on said tube, pawls carried by said sleeve and engaging said metal strip, a spring to normally hold said sleeve forward, a cam and cam-roll to move said sleeve backward when the feeding-tube is oscillated, whereby said strip is intermittingly fed forward a predetermined amount during each oscillation of the feeding-tube, for the purpose set forth.

5. In a nailing-machine in which nails or tacks are cut from a metal strip or tape with their head portions cut alternately from opposite edges of the strip or tape, a feeding-tube through which said strip or tape is fed and by which it is carried, bearings in which said feeding-tube is rotatably mounted, mechanism to oscillate said feeding-tube and strip or tape carried thereby in said bearings, a sleeve longitudinally movable on said feeding-tube, pawls carried by said sleeve and engaging said metal strip, mechanism to intermittingly reciprocate said sleeve upon said feeding-tube to intermittingly feed said strip or tape forward, and detent-pawls carried by said feeding-tube to prevent the drawing backward of the strip or tape by the backward movement of the said sleeve and pawls carried thereby, for the purpose set forth.

6. In a nailing-machine in which nails or tacks of two different dimensions are to be cut from metal strips or tapes with their head portions cut alternately from opposite edges of said strips or tapes, two feeding-tubes through which said strips or tapes are fed, bearings in which said tubes are rotatably mounted, a rotary shaft, two cams loosely mounted on said shaft, intermediate mechanism between each of said cams and a feeding-tube whereby each tube is oscillated by the action of its respective cam when said cam is rotated to turn the strip or tape carried thereby, and two clutches one for each of said cams between said shaft and cams coupled together and operated in unison, whereby one of said cams is clutched to the shaft and the other cam is released by the operation of the clutches, for the purpose set forth.

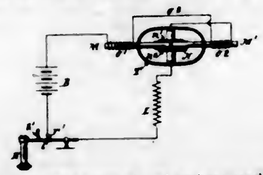
7. In a nailing-machine in which nails or tacks of two different dimensions are to be cut from metal strips or tapes with their head portions cut alternately from opposite edges of said strips or tapes, two feeding-tubes through which said strips or tapes are fed, bearings in which said tubes are rotatably mounted, a rotary shaft, two cams loosely mounted on said shaft, intermediate mechanism between each of said cams and a feeding-tube, whereby each tube is oscillated by the action of its respective cam when said cam is rotated, to turn the strip or tape carried thereby, and two clutches one for each of said cams between said shaft and cams coupled together and operated in unison, whereby one of said cams is clutched to the shaft and the other cam is released by the operation of the clutches, and a locking device for said cams operated in unison with the clutches and locking each cam in a stationary position when released from the rotary shaft by its clutches, for the purpose set forth.

8. In a nailing-machine in which nails or tacks of two different dimensions are to be cut from metal strips or tapes, with their head portions cut alternately from opposite edges of said strip or tape, a nail or tack tube, a driver and operating mechanism to cause it to drive a nail or tack through said tube, two feeding-tubes through which the metal strips or tapes are fed into said nail or tack tube movable laterally and longitudinally to bring them in turn in line with the nail or tack tube and to move them into operative position with said tube, two treadles, two slides each connected with and operated by one of said treadles, cam-surfaces on said slides, arms operated by said cam-surfaces and acting on said feeding-tubes to move them laterally and longitudinally, for the purpose set forth.

9. In a nailing-machine in which nails or tacks of two different dimensions are to be cut from metal strips or tapes with their head portions cut alternately from opposite edges of said strip or tape, a nail or tack, a driver and operating mechanism to cause it to drive a nail or tack through said tube, two feeding-tubes through which the metal strips or tapes are fed into said nail or tack tube, movable laterally and longitudinally to bring them in turn in line with the nail or tack tube and to allow them to be moved into operative position with said tube, a turning mechanism to rotate said feeding-tubes, a starting and stopping mechanism, two treadles, two slides each connected with and operated by one of said treadles, cam-surfaces on said slides, arms actuated by said cam-surfaces to move said feeding-tubes, laterally and longitudinally in order to bring the desired feeding-tube into operative position to cause the operation of said turning mechanism and to turn the feeding-tube thus located, said slides engaging the starting mechanism to start the machine, for the purpose set forth.

10. In a nailing-machine in which nails or tacks of two different dimensions are to be cut from metal strips or tapes, a nail or tack tube, a driver and operating mechanism to cause it to drive a nail or tack through said tube, two feeding-tubes through which the metal strips or tapes are fed into said nail or tack tube, movable laterally and longitudinally to bring them in turn in line with the nail or tack tube and allow them to be moved into operative position with said tube, a starting and stopping mechanism, two treadles, two slides each connected with and operated by one of said treadles, cam-surfaces to move said feeding-tubes into operative position, a lever connected to said starting mechanism and engaged by said slides to start the machine, and a bar connected to said lever and operated thereby to lock the feeding-tubes in operative position, for the purpose set forth.

644,561. MICROPHONE. ERNEST R. FARNSTOCK, Washington, D. C. Filed Mar. 1, 1899. Serial No. 707,421. (No model.)



Claim.—1. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, and an electromagnet separate from the telephone receiving-magnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

2. The combination of a microphone consisting of non-magnetic granular material held between flexible diaphragms, and an electromagnet separate from the telephone receiving-magnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet vibrate the flexible diaphragms of the microphone, and so produce a mechanical movement of the granular material sufficient to unpack the same.

3. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, and an electromagnet separate from the telephone receiving-magnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

4. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, and an electromagnet separate from the telephone receiving-magnet and within the telephone-circuit; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

5. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, an electromagnet separate from the telephone receiving-magnet, and a device to break the circuit of the electromagnet when the telephone is not in use; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

6. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, an electromagnet separate from the telephone receiving-magnet and within the telephone-circuit, and a device to break the circuit of the electromagnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

7. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit containing an induction-coil, and an electromagnet separate from the telephone receiving-magnet, and within the secondary circuit; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

8. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone circuit containing the microphone and also containing an induction-coil, and an electromagnet separate from the telephone receiving-magnet, and within the secondary circuit; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

9. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part; and an electromagnet separate from the telephone receiving-magnet, and connected in shunt with the microphone; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same.

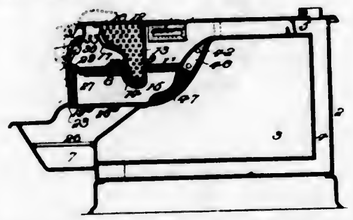
10. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, and an electromagnet separate from the telephone receiving-magnet, and within the telephone-circuit; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same; and a device to cut out the electromagnet when the microphone is being used.

11. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, and an electromagnet separate from the telephone receiving-magnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same; and the sound-receiving chamber of the transmitter being bell-shaped with approaching sides, between which is placed the microphone.

12. The combination of a microphone consisting of non-magnetic granular material held between diaphragms, a telephone-circuit of which the microphone forms a part, and an electromagnet separate from the telephone receiving-magnet; such electromagnet and the microphone being so connected that changes in the strength of the electromagnet produce a mechanical movement of the granular material sufficient to unpack the same; the sound-receiving chamber of the transmitter being bell-shaped with approaching sides, between which is placed the microphone; and the electromagnet consisting of two electromagnet-cores attached to opposite sides of the bell-shaped mouthpiece.

REISSUES.

11,810. STOVE OR RANGE. EDWIN R. CARGOES, Newark, N. J. Filed June 16, 1899. Serial No. 720,890. Original No. 640,716, dated June 11, 1895.



Claim.—1. In a downdraft-stove, the combination of a fire-pot or magazine and a plurality of trunks or tubes extending downwardly from the upper part of the fire-pot, from a plane above the level of the bed of fuel, and adapted to direct jets of air toward the bed of fuel for its combustion, all constructed for the purpose of conducting the air and the products of combustion downwardly through the fuel under the influence of the draft.

2. A stove having a fuel-magazine, a partition extending downwardly a predetermined distance therein to divide said fuel-magazine into a fire-pot proper and a gas duct or flue, and one or more trunks or tubes adapted to deliver air into the fire-pot down upon the bed of fuel.

3. In a stove, the combination with the fuel-magazine, of a hollow partition extending a predetermined distance down into the fuel-magazine to divide the same into a fire-pot proper and a gas duct or flue, said hollow partition being provided with air inlets and outlets, and a plurality of trunks or tubes adapted to deliver air into the fire-pot.

4. In a stove, the combination with the fuel-magazine, of an air-duct extending a predetermined distance down into the fuel-magazine to divide the same into a fire-pot proper and a gas-duct, one or more air trunks or tubes, and an imperforate fuel-support, whereby jets of air are directed upon the bed of fuel and drawn therethrough under the influence of the draft.

5. A stove or range having a fuel-magazine and a transverse air-duct and perforated partition separating said fuel-magazine into a fire-pot proper and a gas-duct, said air-duct being suspended from a removable section of the top plate of the stove or range in front of the pot-holes, substantially as set forth.

6. A stove or range having a fuel-magazine and provided with a divided top plate, one section of which is arranged in front of the front pot-holes, and a removable, transverse air-duct and perforated partition which is arranged under said front section and divides the fuel-magazine into the fire-pot proper and the gas-duct, substantially as set forth.

7. A stove or range having a fuel-chamber therein provided with a transverse air-duct, said duct having a pocket at its upper part, the top plate of the stove having air-inlets to admit air to said pocket.

8. The combination with a stove or range having in it a fuel-chamber, of the metal air-duct extending transversely across said chamber, said duct being provided at its narrow, lower part with a protecting-tile, and at its upper part with a pocket extending toward the front of the stove and adapted to receive air through apertures in the stove-top.

9. A stove or range for burning bituminous coal, having a fuel-magazine, a transverse air-duct and partition, and a gas-duct back of said partition, the back wall of said flue being formed of a curved tile at its lower part and a water-back above said tile and resting thereon, as set forth.

10. A stove or range for burning bituminous coal, having a fuel-magazine, a transverse air-duct and partition, a gas-duct back of said air-duct, a charging-door and an imperforate fire-bed, and having a hinged front extending from the fire-bed up nearly to the charging-door and lined with a refractory tile, said front forming the front wall of the fuel-chamber, substantially as set forth.

11. A stove or range for burning bituminous coal, having a fuel-magazine, a transverse air-duct and partition, a gas-duct back of said air-duct, a charging-door and an imperforate fire-bed, and having a front, which extends from the fire-bed up nearly to the charging-door, said front being hinged at its upper edge, connected at its lower edge to the hearth-plate, and lined with refractory tiles or material, substantially as set forth.

12. A stove or range for burning bituminous coal, having a front for the feel-chamber, hinged to the stove-front and a projecting lip below the charging-door, the said front having air-inlets, and a tile on its inner face with recesses which register with the inlets and open out of the upper edge of the tile under the lip, substantially as set forth.

13. A stove or range having a fuel-magazine at its front part, the top plate of said magazine having a wicket-recess at its front edge and a poke-hole of small size in said recess, and having a covering-wicket set in said recess so as to close said poke-hole normally, said wicket being adapted to swing out of said recess toward the front for uncovering the poke-hole, as set forth.

14. A stove for burning bituminous coal having in its side at the top plate an aperture provided with an inclined trunk and a peep-window of mica at the outer end of said trunk, substantially as set forth.

15. A stove or range for burning bituminous coal, having a transverse air-duct and a gas-duct back of said air-duct, and having also a peep-window of mica in the side of the stove at the end of said gas-duct, said window being situated at about the level of the top of the stove, substantially as set forth.

16. A stove or range for burning bituminous coal, having a charging-door provided with a mica window and having an apertured sliding screen mounted on the inner face of the door and adapted to be moved into and out of register with said window, said screen having a trunk at the aperture therein, substantially as set forth.

17. A stove or range for burning bituminous coal, having a charging-door provided with a mica window having passages for air about the mica, and having an apertured slide mounted on the inner face of the door and provided with a trunk about the aperture therein, said slide being adapted to put the aperture therein into or out of register with the mica window, substantially as set forth.

18. A stove or range having a fuel-magazine, a gas-duct and a transverse, pendent, hollow partition between said magazine and gas-

duct, the back wall of said gas-duct having the peculiar ogee form shown, that is, a concavity at its lower part and a substantially-vertical middle portion, whereby the gases are deflected upward, and a backwardly-flared upper part, all as set forth.

19. A stove or range for burning bituminous coal, having a fuel-magazine and a transverse air-duct and partition at the rear of same, and having a removable front between the fire-bed and the charging-door which front forms the front wall of the fuel-magazine and extends down to the fire-bed, whereby the fire-box may be opened for the removal of coke and unburned fuel.

20. In a downdraft-stove, the combination of a fire-pot or magazine, a plurality of trunks or tubes, constructed and arranged to deliver jets or currents of air down upon or toward the bed or fuel, and means for conducting or drawing the jets or currents of air downwardly through the fuel.

21. In a downdraft-stove, the combination of a fire-pot or magazine, an imperforate fuel-support, and a plurality of trunks or tubes, constructed and arranged to deliver jets or currents of air down upon or toward the bed of fuel, and means for conducting or drawing the jets or currents of air downwardly through the fuel.

22. In a downdraft-stove, the combination of a fire-pot or magazine, having an opening at or near the bottom thereof, said opening communicating with a flue leading to the chimney, an imperforate fuel-support at the bottom of the fire-pot or magazine, and a plurality of trunks or tubes for delivering jets or currents of air down upon or toward the fuel-bed, all constructed for the purpose of conducting the jets or currents of air downwardly through the fuel under the influence of the draft.

23. In a downdraft-stove, the combination of a fire-pot or magazine having a lateral opening at or near its bottom communicating with a flue leading to the chimney, a fuel-support at the bottom of the fire-pot or magazine, a plurality of air-tubes extending downwardly from the upper portion of the fire-pot from a plane above the level of the fuel and adapted to direct jets of air toward the fuel for its combustion, and a gas-duct contiguous to the walls of the fire-pot or magazine; all constructed for the purpose of conducting the air and the products of combustion downwardly through the fuel and through the lateral opening in the fire-pot or magazine under the influence of the draft, substantially as described.

24. In a downdraft-stove, the combination of a fire-pot or magazine having a lateral opening at or near its bottom communicating with a flue leading to the chimney, a fuel-support at the bottom of the fire-pot or magazine, a plurality of air-tubes extending downwardly from the upper portion of the fire-pot or magazine to direct jets of air into the fuel, and an ash-pit normally closed off from the external air to prevent an upward draft; all constructed for the purpose of conducting the air and the products of combustion downwardly through the fuel and through the lateral opening in the fire-pot or magazine under the influence of the draft, substantially as described.

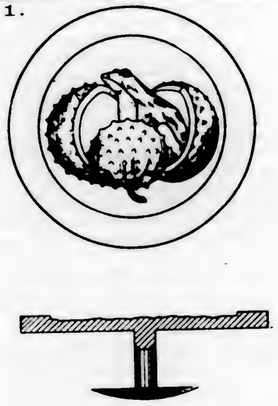
DESIGNS.

32,270. BADGE OR SIMILAR ARTICLE. GEORGE H. DUNCAN, Schenectady, N. Y. Filed Dec. 23, 1899. Serial No. 741,479. Term of patent 14 years.



Claim.—The design for a badge or similar article, substantially as shown and described.

32,271. SOUVENIR-BUTTON. ANDREW AMBROSE WEBBINGER, Toledo, Ohio. Filed June 9, 1899. Serial No. 719,974. Term of patent 3½ years.



Claim.—The design for a souvenir-button, as herein shown and described.

32,272. CUFF OR SLEEVE BUTTON. WILLIAM ARTHUR, Newark, N. J., assignor to the Newark Watch-Case Material Company, same place. Filed Jan. 20, 1900. Serial No. 2,212. Term of patent 3½ years.



Claim.—The design for a cuff or sleeve button as herein shown and described.

32,273. BRACELET. WILLIAM H. SAARY, Attleborough, Mass., assignor to the James R. Blake Company, same place. Filed Jan. 20, 1900. Serial No. 2,210. Term of patent 7 years.



Claim.—The design for a bracelet herein shown and described.

32,274. SPECTACLE-TEMPLE TIP. HARRY L. KING, Spokane, Wash. Filed Feb. 1, 1900. Serial No. 3,648. Term of patent 7 years.



Claim.—The design for a spectacle-temple tip substantially as herein shown and described.

32,275. PENCIL-SHARPENER. JAMES L. KELLOGG, New York, N. Y. Filed Feb. 5, 1900. Serial No. 4,145. Term of patent 7 years.



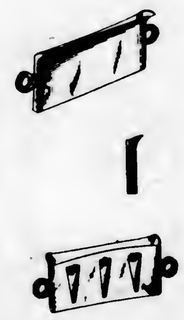
Claim.—The design for a pencil-sharpener, substantially as shown and described.

32,276. SYRINGE-NOZZLE. FREDERICK H. JOHNS, Wakefield, Mass. Filed Jan. 31, 1900. Serial No. 3,536. Term of patent 14 years.



Claim.—The design for syringe-nozzle herein shown and described.

32,277. TICKET OR CHECK HOLDER. JOHN R. MCCUSKER, Newburyport, Mass. Filed Jan. 29, 1900. Serial No. 3,241. Term of patent 7 years.



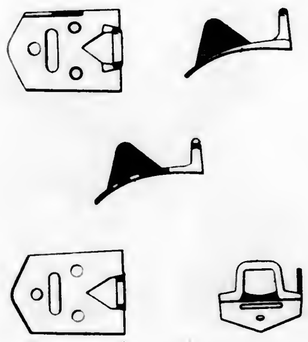
Claim.—The design for a ticket or check holder, substantially as herein shown and described.

32,278. TOP FOR SOCKET MEMBERS FOR GLOVE-FASTENERS. MADISON D. SHIPMAN, DeKalb, Ill. Filed June 23, 1899. Serial No. 721,536. Term of patent 14 years.



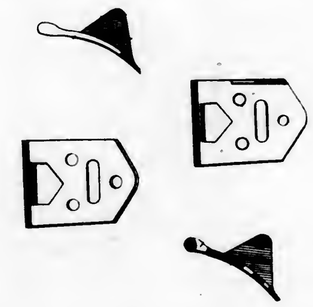
Claim.—The design for the top of the socket member of a glove-fastener or similar article, substantially as shown and described.

32,279. LOOP-PLATE FOR TOP-COLLAR FASTENERS. CARL WIGHT and WILLIAM R. DIPPERT, Des Moines, Iowa. Filed Jan. 16, 1900. Serial No. 1,690. Term of patent 14 years.



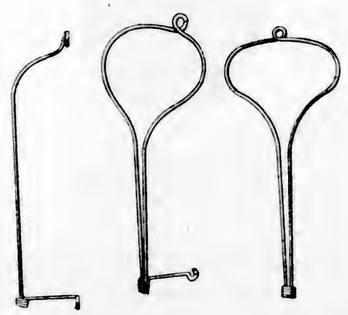
Claim.—The design for a loop-plate, for a top-collar fastener, substantially as herein shown and described.

32,280. HINGE-PLATE FOR TOP-COLLAR FASTENERS. CARL WIGHT and WILLIAM R. DIPPERT, Des Moines, Iowa. Filed Jan. 16, 1900. Serial No. 1,691. Term of patent 14 years.



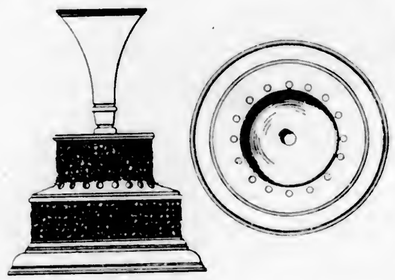
Claim.—The design for a hinge-plate of a top-collar fastener, substantially as herein shown and described.

32,281. TOWEL-RACK. JOHN J. WRIGHT, Salamanca, N. Y., assignor of one-half to Arthur D Bedell, same place. Filed Jan. 23, 1900. Serial No. 2,548. Term of patent 3½ years.



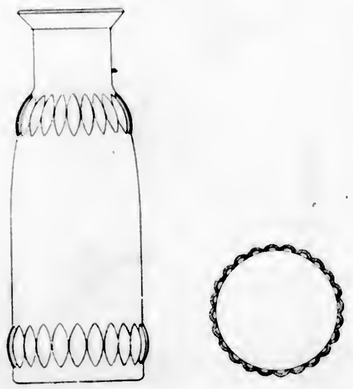
Claim.—The design for a towel-rack, substantially as described and shown.

32,282. CASING FOR ODORATING APPARATUS. CHARLES G. ETTE, St. Louis, Mo. Filed Oct. 21, 1899. Serial No. 734,402. Term of patent 14 years.



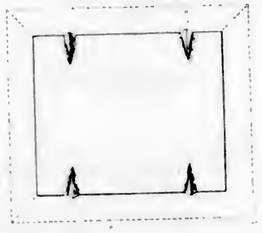
Claim.—The design for a casing, for an odorating apparatus, as herein shown and described.

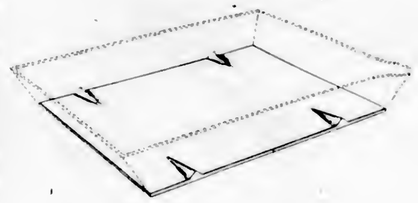
32,283. BOTTLE. JULES FARNAM, New York, N. Y. Filed Feb. 2, 1900. Serial No. 3,750. Term of patent 14 years.



Claim.—The design for a bottle, substantially as herein shown and described.

32,284. TRAY. LOUIS MCCARTHY, Boston, Mass. Filed Dec. 1, 1899. Serial No. 738,916. Term of patent 14 years.





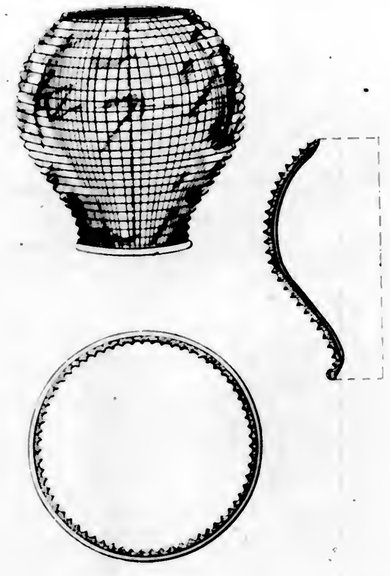
Claim.—The design for a tray, as herein shown and described.

32,285. PICTURE-FRAME OR SIMILAR ARTICLE. ALICE M. GAMLIN, New York, N. Y. Filed Jan. 5, 1900. Serial No. 514. Term of patent 3½ years.



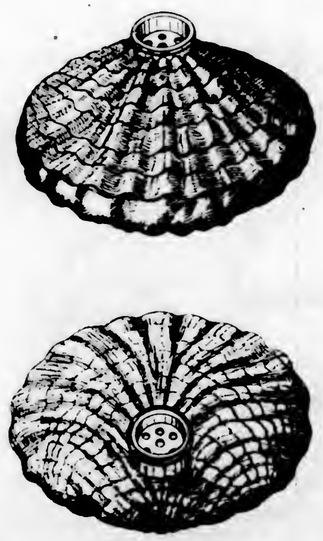
Claim.—The design for a picture-frame or similar article, as herein shown and described.

32,286. LAMP-SHADE. ELIAS L. ELLIOTT, New York, N. Y. Filed Jan. 31, 1900. Serial No. 3,524. Term of patent 7 years.



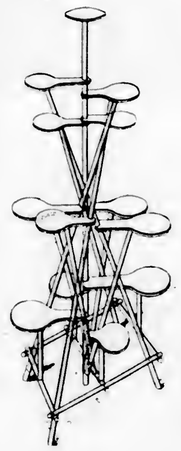
Claim.—The design for a lamp-shade as herein described and shown.

32,287. CUSPIDOR-BOWL. GEORGE H. JOHNSON, Fort Wayne, Ind. Filed Dec. 9, 1899. Serial No. 739,855. Term of patent 14 years.



Claim.—The design for a cuspidor-bowl, as herein shown and described.

32,288. FLOWER-POT SUPPORT. CARL OSCAR STONE, New York, N. Y. Filed Feb. 3, 1900. Serial No. 3,905. Term of patent 14 years.



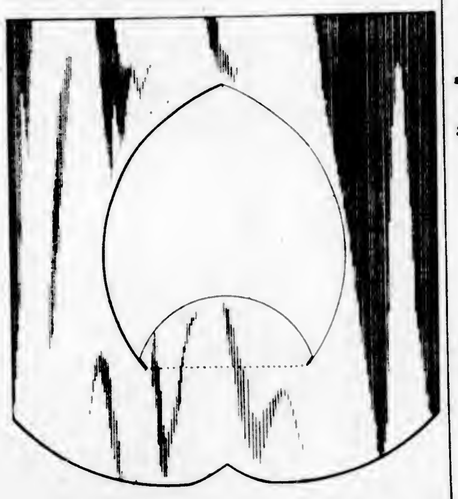
Claim.—The design for a flower-pot support, substantially as shown and described.

82,289. FAUCET. WILLIAM GEURINK, Cleveland, Ohio. Filed Feb. 3, 1900. Serial No. 3,908. Term of patent 7 years.



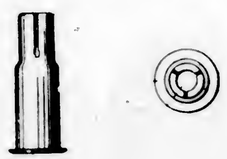
Claim.—The design for a faucet, substantially as herein shown and described.

82,290. COVER FOR CLOSET-SEATS. WILLIAM T. BALDWIN, East Radford, Va. Filed Dec. 18, 1899. Serial No. 740,947. Term of patent 14 years.



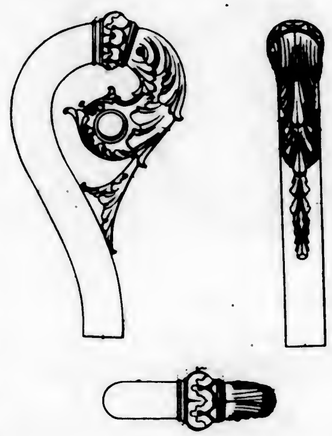
Claim.—The design for a cover for a closet-seat, herein shown and described.

82,291. CASTER-SOCKET. GEORGE D. CLARK, Plainville, Conn. Filed Dec. 26, 1899. Serial No. 742,160. Term of patent 14 years.



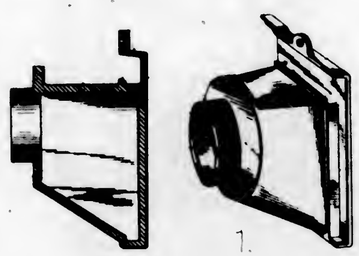
Claim.—The design for a caster-socket substantially as herein shown and described.

82,292. TOP MOUNT FOR METAL BEDSTEADS. ALEXANDER S. PUTNAM, Worcester, Mass. Filed Dec. 23, 1899. Serial No. 741,476. Term of patent 7 years.



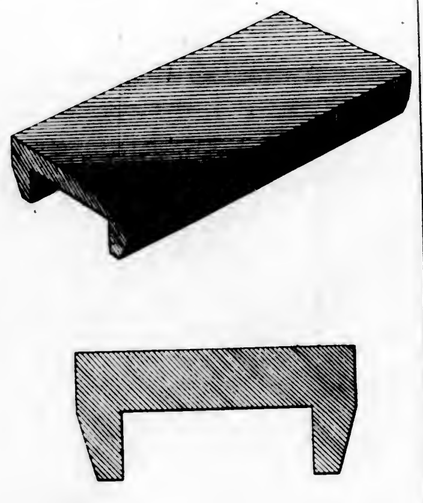
Claim.—The design for a top mount for metal bedsteads, substantially as herein shown and described.

82,293. WATER-BACK FOR RANGES OR STOVES. WALTER L. CULVER, St. Louis, Mo., assignor to the Wrought Iron Range Company, same place. Filed Feb. 5, 1900. Serial No. 4,151. Term of patent 14 years.



Claim.—The design for a water-back for ranges and stoves, substantially as herein shown and described.

82,294. ROLLED BAR. DAVID S. BUSSELL, Pittsburg, Pa., assignor to the R. D. Nuttall Company, Allegheny, Pa. Filed Dec. 1, 1899. Serial No. 738,922. Term of patent 14 years.



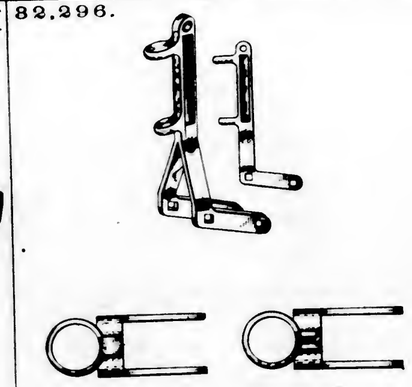
Claim.—The design for a rolled bar, as herein shown and described.

82,295. SHOE FOR GRAIN-DRILLS. GAYLARD W. DENYES and OWEN SCHUTT, Canopolis, Mich. Filed Jan. 31, 1900. Serial No. 3,373. Term of patent 14 years.



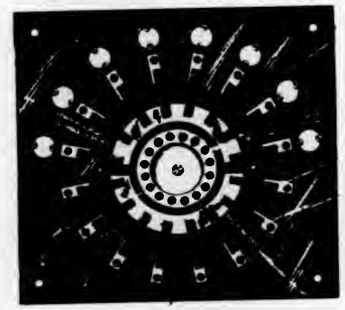
Claim.—The design for a grain-drill shoe, as herein shown and described.

82,296. BOLSTER-STAKE. WILLIAM H. BARTER, Allen, S. D. Filed Jan. 24, 1900. Serial No. 2,683. Term of patent 14 years.



Claim.—The design for a bolster-stake substantially as herein shown and described.

82,297. SWITCHBOARD. HANS O. SWOBODA, New York, N. Y., assignor to the Falcon Electric Manufacturing Company, of New York. Filed Dec. 15, 1899. Serial No. 740,473. Term of patent 7 years.



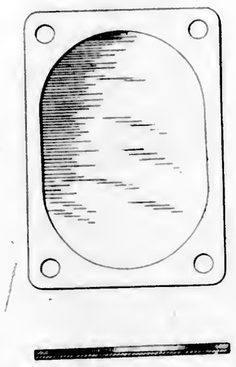
Claim.—The design of a switchboard substantially as shown and described.

82,298. FONT OF TYPE. FREDERICK W. GOUDY, Chicago, Ill., and JOSEPH W. PHINNEY, Medford, Mass. Filed Feb. 1, 1900. Serial No. 3,050. Term of patent 14 years.



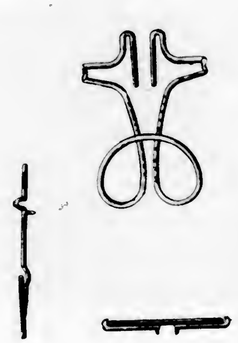
Claim.—The design for a font of type as herein shown and described.

82,299. GAME-BOARD. EDWIN G. ROSE, Washington, D. C. Filed Jan. 29, 1900. Serial No. 3,237. Term of patent 3½ years.



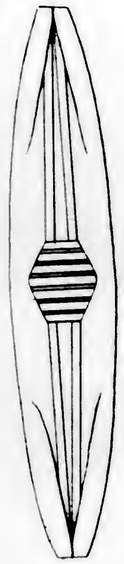
Claim.—The design for a game-board herein shown and described.

82,800. ICE-CREEPER. HARRY J. BECK, Philipsburg, Pa., assignor of one-half to Claude Getts, same place. Filed Dec. 30, 1899. Serial No. 742,161. Term of patent 3½ years.



Claim.—The design for an ice creeper, as herein shown and described.

82,801. BODY FOR BELTS OR SIMILAR ARTICLES. MONROE KOCH, New York, N. Y. Filed Feb. 5, 1900. Serial No. 4,149. Term of patent 7 years.



Claim.—The design for the body of a belt or similar article, as shown and described.

82,302. CARPET-BORDER. ARTHUR MIDDLETON ROSE, Fairview, Westchester county, N. Y., assignor to Matthew J. Whittall, Worcester, Mass. Filed Dec. 20, 1899. Serial No. 741,082. Term of patent 3½ years.



Claim.—The design for carpet-border substantially as shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 27, 1900.

84,231. ZITHER-LIKE HARP. THE HARP-O-CHORD COMPANY, Columbus, Ohio. Filed Feb. 3, 1900.

HARP-O-CHORD

Essential feature.—The hyphenated word "HARP-O-CHORD." Used since August 29, 1899.

84,232. WITHDRAWN.

84,233. BOOKS RELATING TO MEDICAL SUBJECTS. ESTATE OF IRA WARREN, Boston, Mass. Filed Dec. 2, 1899.

HOUSEHOLD PHYSICIAN.

Essential feature.—The words "HOUSEHOLD PHYSICIAN." Used since 1857.

84,234. CERTAIN NAMED STARCH AND CORN-STARCH PRODUCTS. HOFFMANN'S STÄRKEFABRIKEN, Salzufien, Germany. Filed Nov. 9, 1899.



Essential feature.—The word "RICENA" and the representation of a female person receiving a cat dressed like a child, which presents boxes. Used since January, 1899.

84,235. BLUING. REDDITT & SONS, LIMITED, New York, N. Y., and Hull, England. Filed Nov. 3, 1899.



Essential feature.—A horizontal panel surmounted by a curved panel and having below it a similar panel curved in the opposite direction, all three panels having ornamental ends, with the shaded background. Used since 1866.

84,236. HAMS, BACON, AND LARD. WM. H. TAYLOR COMPANY, Chicago, Ill. Filed Feb. 5, 1900.

CUPID

Essential feature.—The word "CUPID." Used since April 1, 1898.

84,237. BUTTER. JAMES G. TURNBULL, Barton, Newport, Albany, Morgan, and Charleston, Vt. Filed Feb. 5, 1900.

M.B.

Essential feature.—The letters "M. B." Used since October, 1894.

84,238. CERTAIN NAMED GROCERIES. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 31, 1900.

WANTMORE

Essential feature.—The word "WANTMORE." Used since January 8, 1900.

84,239. WITHDRAWN.

84,240. CANNED VEGETABLES, FRUITS, AND FISH. SMITH BROS. & BURDICK COMPANY, Davenport, Iowa. Filed Jan. 30, 1900.

Usona

Essential feature.—The word "USONA." Used since December 7, 1899.

84,241. CERTAIN NAMED FOODS. AUGUSTINE HOBBY, Liverpool, England. Filed Feb. 5, 1900.



Essential feature.—The representation of two strong youths or children holding a dumb-bell in their right and left hands, respectively. Used since July 13, 1898.

84,242. FOOD FOR INFANTS AND INVALIDS. FAIRCHILD BROS. & FOSTER, Elizabeth, N. J., and New York, N. Y. Filed Feb. 1, 1900.

Lacfōd

Essential feature.—The word "LACFŌD." Used since January 2, 1900.

84,243. MIXED FOOD FOR ANIMALS. BROOKS-GRIFFITH COMPANY, Minneapolis, Minn. Filed Feb. 1, 1900.

ROYAL

Essential feature.—The word "ROYAL." Used since a time prior to January 15, 1896.

84,244. CONDENSED MILK. ST. LOUIS CONDENSED MILK COMPANY, St. Louis, Mo. Filed Feb. 5, 1900.

MASCOT

Essential feature.—The word "MASCOT." Used since January 1, 1900.

84,245. EVAPORATED CREAM. ST. LOUIS CONDENSED MILK COMPANY, St. Louis, Mo. Filed Feb. 5, 1900.

TWIN

Essential feature.—The word "TWIN." Used since January 1, 1900.

84,246. TEAS. FRANK SAMUEL HALFORD, Toronto, Canada. Filed Oct. 10, 1899.

SOCIAL

Essential feature.—The word "SOCIAL." Used since 1898.

84,247. PEANUT-CANDY. BOSMAN & LOSMAN, Norfolk, Va. Filed Jan. 30, 1900.

B & L

Essential feature.—The letters and character "B & L." Used since January 16, 1900.

84,248. FLAVORS FOR SODA-WATER. MILTON R. MURRAY, Boston, Mass. Filed Jan. 26, 1900.



Essential feature.—The pictorial representation of a floating ship carrying the British flag and having her cargo discharged upon the water, the same being surrounded by an oval border and the scrolls having thereon the dates "1773" and "1899," respectively. Used since December 13, 1899.

84,249. CIDER. T. B. HALL & CO., Liverpool, England. Filed Feb. 5, 1900.



Essential feature.—The representation of a pelican with nest and young and the word "PELICAN." Used since December 3, 1858.

84,250. WINE. JULIUS PAUL SMITH, New York, N. Y. Filed Jan. 27, 1900.

The Pride of California

Essential feature.—The words "THE PRIDE OF CALIFORNIA." Used since October 9, 1899.

84,251. GIN. MYERS & CO., Covington, Ky. Filed Jan. 13, 1900.



Essential feature.—The representation of a griffin. Used since November 15, 1899.

84,252. CERTAIN NAMED TOBACCOS, CIGARS, STOGIES, TOBIES, CHEROOTS, CIGARETTES, AND SNUFF. CHARLES J. CORBIN & SON, Fairmont, W. Va. Filed Jan. 29, 1900.



Essential feature.—The pictorial representations of an ant and a human eye. Used since January 20, 1900.

84,253. REMEDY FOR CERTAIN NAMED DISEASES. PAUL CONDAY, Pittsburg, Pa. Filed Dec. 26, 1899.

GOLD

Essential feature.—The word "GOLD." Used since November 17, 1897.

84,254. REMEDY FOR CERTAIN NAMED DISEASES. JOHN S. LEONHARDT, Lincoln, Nebr. Filed Jan. 26, 1900.

GONO

Essential feature.—The word "GONO." Used since November 18, 1892.

84,255. REMEDY FOR CERTAIN NAMED DISEASES. THE POPE COMPANY, Charlotte, Mich. Filed Jan. 9, 1900.



Essential feature.—The representation of a cherub within a crescent holding a bottle to his lips. Used since November 28, 1899.

84,256. REMEDIES FOR CERTAIN DISEASES. HARRY W. GUTHEY, Detroit, Mich. Filed Jan. 31, 1900.

Preventine.

Essential feature.—The word "PREVENTINE." Used since December 15, 1896.

84,257. CURE FOR CERTAIN NAMED DISEASES. CARL LAUX, Los Angeles, Cal. Filed Jan. 31, 1900.

URICSOL

Essential feature.—The word "URICSOL." Used since October 1, 1899.

84,258. CURES FOR CERTAIN NAMED DISEASES. CHARLES F. LEE, Arkansas City, Kans. Filed Jan. 29, 1900.

PHYTO-PUROS

Essential feature.—The compound word "PHYTO-PUROS." Used since May, 1883.

84,259. CERTAIN NAMED DRUGS AND CHEMICALS. CHEMISCHE FABRIK HELFENBERG AGTIEN-GESELLSCHAFT, VORMALS EUGEN DIETERICH, Helfenberg, Germany. Filed Jan. 27, 1900.

Eigon

Essential feature.—The word "EIGON." Used since November 10, 1897.

84,260. DRUGS, CHEMICALS, AND CERTAIN NAMED OILS. GEORGE LUDDENS & CO., New York, N. Y., and Chicago, Ill. Filed Jan. 26, 1900.

VERA

Essential feature.—The word "VERA." Used since December, 1899.

84,261. MEDICAL WINES, PILLS, PLASTERS, AND OINTMENTS. ALFRED JOSEPH GIGUERE, Fall River, Mass. Filed Feb. 1, 1900.

St. Antoine



Essential feature.—The name "ST. ANTOINE" and the representation of the saint as drawn in the accompanying facsimile. Used since September 15, 1899.

84,262. SALVE. GUNDA P. OLSEN, Bayonne, N. J. Filed 1900.



Essential feature.—A portrait of the registrant. Used since January 17, 1900.

84,263. CHEMICAL COMPOUND. THE TALIAFERRO ROBINSON CHEMICAL CO., Washington, D. C. Filed Feb. 3, 1900.

IOGELIDINE

Essential feature.—The word "IOGELIDINE." Used since October 1, 1899.

84,264. METAL CLASPS. THE CLARK MANUFACTURING COMPANY, East Orange, N. J., and Boston, Mass. Filed Jan. 25, 1900.

MONARCH

Essential feature.—The word "MONARCH." Used since April 28, 1898.

84,265. HARNESS AND SADDLERY. DODSON, FISHER, BROCKMANN COMPANY, Minneapolis, Minn. Filed Jan. 29, 1900.



Essential feature.—The representation of a gopher. Used since January 1, 1896.

84,266. CERTAIN NAMED ELECTRICAL SUPPLIES. THE FALCON ELECTRIC MANUFACTURING COMPANY, New York, N. Y. Filed Jan. 20, 1900.

FALCON

Essential feature.—The word "FALCON." Used since August, 1899.

84,267. CERTAIN NAMED ILLUMINATING MATERIAL AND APPARATUS. WORSNOP & COMPANY, LIMITED, Halifax, England. Filed Jan. 18, 1900.

ACETYLOID

Essential feature.—The word "ACETYLOID." Used since July 11, 1899.

84,268. CERTAIN NAMED VELOCIPEDE PARTS. POPE MANUFACTURING COMPANY, Portland, Me., and Hartford, Conn. Filed Jan. 20, 1898.

DUROID

Essential feature.—The word "DUROID." Used since December, 1897.

84,269. AUTOMATICALLY-PROPELLED WHEELED VEHICLES. THE "LOCOMOBILE" COMPANY OF AMERICA, New York, N. Y. Filed Jan. 26, 1900.

Locomail

Essential feature.—The word "LOCOMAIL." Used since January 15, 1900.

84,270. LUMBER AND PILING. GLOSS LUMBER COMPANY, Kansas City, Mo. Filed Jan. 22, 1900.



Essential feature.—A representation of the globe and an encircling band. Used since January 1, 1900.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1899.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 31, 1900.

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with section 494 of the Revised Statutes I have the honor to submit the following report of the business of the Patent Office for the year ending December 31, 1899:

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:		
Cash received	$1,158,650 00	
Cash refunded	4,980 00	
Net cash	1,153,730 00	
Certificates of deposit	34,055 00	
Total cash and certificates		1,187,775 00
Copies:		
Cash received	104,692 86	
Cash refunded	7,013 57	
Net cash	97,679 31	
Certificates of deposit	459 67	
Total cash and certificates		98,138 98
Recording assignments:		
Cash received	23,849 09	
Cash refunded	1,170 02	
Net cash	22,679 07	
Certificates of deposit	123 00	
Total cash and certificates		22,802 07
Subscriptions to Official Gazette:		
Cash received	12,063 15	
Cash refunded	66 67	
Net cash	11,996 48	
Certificates of deposit	67 50	
Total cash and certificates		12,063 98
Registration of prints and labels:		
Cash received	5,419 00	
Cash refunded	942 00	
Net cash	4,477 00	
Certificates of deposit	30 00	
Total cash and certificates		4,507 00
Aggregates.		
Cash received	$1,304,674 12	
Cash refunded	14,122 26	
Net cash	1,290,751 86	
Certificates of deposit	34,705 17	
Total cash and certificates		1,325,457 03

EXPENDITURES.

Approximate amounts expended and incurred under the several appropriations from January 1, 1899, to December 31, 1899.

	Expended.	Estimated liabilities.	Total.
Salaries	$754,408 35		$754,408 35
Scientific library	1,616 15		1,616 15
Transportation of publications to foreign countries	(*)		
International Union for Protection of Industrial Property	700 00		700 00
Stationery	9,357 68		9,357 68
Postage on foreign matter	1,949 00		1,949 00
Furniture	1,807 51		1,907 51
Carpets	306 65		306 65
Ice	437 35		437 35
Telephones	50 00		50 00
Washing towels	87 50		87 50
Sundries	8,946 07		8,946 07
Official Gazette, (illustrations,) paid contractor	51,654 40		51,654 40
Photolithographing, paid contractor	85,541 59		85,541 59
Printing and Binding.			
Paid Public Printer, for Official Gazette, indexes, printing specifications, miscellaneous work	288,796 49	$11,895 04	295,691 53
Total	1,199,958 69	11,895 04	1,211,788 73

* Not accessible.

RECEIPTS AND EXPENDITURES.

Receipts from all sources	$1,325,457 03
Expenditures	1,211,788 73
Surplus	113,673 30

Statement of balance in the Treasury of the United States on account of the patent fund.

Amount to the credit of the fund January 1, 1899	$4,972,976 34
Amount of receipts during the year 1899	1,325,457 03
Total	6,298,433 37
Deduct expenditures for the year 1899	1,211,788 73
Balance January 1, 1900	5,086,649 64

SUMMARY OF THE BUSINESS OF THE PATENT OFFICE.

Number of applications for patents for inventions	38,927
Number of applications for patents for designs	2,400
Number of applications for reissues of patents	106
Total number of applications	41,443
Number of caveats filed	1,716
Number of applications for registration of trade-marks	2,059
Number of applications for registration of labels	689
Number of applications for registration of prints	142
Number of applications filed	1
Number of disclaimers filed	926
Number of appeals on the merits	
Total	5,500

Total number of applications, etc., requiring investigation and action	46,943
Number of patents issued, including designs	25,435
Number of patents reissued	92
Total	25,527
Number of trade-marks registered	1,649
Number of labels registered	511
Number of prints registered	100
Total	2,260
Number of patents expired during the year	18,135
Number of patents withheld for non-payment of final fees	3,997
Number of applications allowed awaiting final fees	8,037

PATENTS ISSUED.

Patents issued to citizens of the United States, with the ratio of population to each patent granted.

States and Territories.	Patents and designs.	One to every—
Alabama	88	17,195
Alaska Territory	1	
Arizona Territory	27	2,208
Arkansas	98	11,515
California	731	1,652
Colorado	257	1,604
Connecticut	789	945
Delaware	42	4,011
District of Columbia	200	1,151
Florida	54	7,248
Georgia	131	14,025
Hawaii	7	
Idaho	28	3,013
Illinois	2,152	1,778
Indian Territory	25	
Indiana	655	3,347
Iowa	490	3,901
Kansas	296	4,821
Kentucky	223	8,283
Louisiana	119	9,401
Maine	149	4,426
Maryland	297	3,509
Massachusetts	1,774	1,262
Michigan	805	2,601
Minnesota	394	3,304
Mississippi	95	13,574
Missouri	776	3,452
Montana	90	1,474
Nebraska	164	6,456
Nevada	11	4,160
New Hampshire	122	3,096
New Jersey	998	1,455
New Mexico Territory	15	10,288
New York	3,798	1,579
North Carolina	77	21,012
North Dakota	51	3,569
Ohio	1,501	2,446
Oklahoma Territory	46	1,344
Oregon	108	3,046
Pennsylvania	2,355	2,252
Rhode Island	272	1,270
South Carolina	46	25,084
South Dakota	62	5,313
Tennessee	177	9,984
Texas	351	6,366
Utah	43	2,509
Vermont	98	4,005
Virginia	213	7,774
Washington	154	2,208
West Virginia	116	6,575
Wisconsin	545	3,095
Wyoming	18	3,343
United States Army	7	
United States Navy	8	
Total	22,124	

Patents granted to citizens of foreign countries.

Algeria	1	Java	3
Argentina	5	Mexico	14
Austria-Hungary	100	Netherlands	13
Belgium	65	New South Wales	32
Bermuda	1	New Zealand	41
Brazil	1	Norway	6
Bulgaria	1	Peru	2
Canada	371	Queensland	5
Cape Colony	1	Russia	25
Chile	1	Scotland	53
China	1	South African Republic	7
Danish West Indies	1	South Australia	10
Denmark	20	Spain	1
Dutch West Indies	1	Sumatra	1
Egypt	1	Sweden	45
England	1072	Switzerland	72
Finland	3	Tasmania	5
France	292	Trinidad	1
Germany	888	Turkey	2
Guatemala	2	Uruguay	2
India	4	Venezuela	1
Ireland	27	Victoria	43
Island of Tahiti	1	Western Australia	7
Italy	23	Total	2,311
Jamaica	4		
Japan	3		

The following tables present a comparative statement of the business of the Patent Office since the enactment of the statute of 1836 and exhibit in detail the business of the Office during the last calendar year:

Comparative statement of the business of the Office from 1837 to 1899, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837			435	$20,289 08	$23,506 98	
1838			520	43,128 54	37,335 98	$4,784 68
1839			435	36,019 97	34,543 51	3,476 46
1840	755	228	473	36,056 51	39,080 67	
1841	847	312	495	40,413 01	35,068 67	5,344 34
1842	761	291	517	36,508 68	31,941 48	4,566 85
1843	819	315	519	36,215 51	30,776 96	5,438 55
1844	1,045	380	497	43,509 26	36,344 58	6,164 73

Comparative statement of the business of the Office from 1837 to 1898, inclusive—Continued.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1845	1,246	452	508	51,076 14	39,395 65	11,680 49
1846	1,272	448	688	50,264 16	46,158 71	4,105 45
1847	1,531	533	569	63,111 19	41,878 35	21,232 84
1848	1,698	607	658	67,576 69	58,905 84	8,670 85
1849	1,955	595	1,077	80,752 78	77,716 44	3,036 34
1850	2,193	602	998	86,927 05	80,100 95	6,826 10
1851	2,258	760	873	95,738 61	86,916 98	8,821 63
1852	2,639	996	1,019	112,056 34	95,916 91	16,139 43
1853	2,673	901	961	121,527 45	132,999 88	
1854	3,294	866	1,844	168,789 84	167,146 22	36,919 02
1855	4,435	906	2,013	216,459 35	179,540 33	
1856	4,960	1,084	2,505	196,598 09	190,981 08	
1857	4,771	1,010	2,996	196,139 01	211,582 09	
1858	5,364	948	3,710	203,716 16	193,193 74	10,522 42
1859	6,285	1,079	4,598	245,948 15	210,376 41	35,668 74
1860	7,653	1,084	4,819	256,259 59	252,880 80	3,531 79
1861	6,643	700	3,240	187,354 44	221,491 91	
1862	5,096	894	3,521	215,754 99	182,810 39	32,944 06
1863	6,014	787	4,170	195,598 39	189,414 14	6,179 15
1864	6,972	1,088	5,080	240,919 98	229,868 00	11,051 98
1865	10,664	1,987	6,618	248,791 84	274,190 34	74,598 50
1866	15,269	2,738	9,450	495,665 38	361,724 28	133,941 10
1867	21,276	3,597	12,015	646,561 98	639,263 32	7,218 60
1868	20,445	3,705	13,378	661,585 86	602,670 77	58,886 09
1869	19,271	3,694	12,986	668,145 81	495,430 74	206,715 07
1870	19,171	3,973	13,321	669,456 76	557,147 19	112,309 57
1871	19,472	3,965	13,022	678,716 45	562,661 64	116,694 82
1872	18,946	3,090	13,580	699,796 29	665,595 00	34,131 29
1873	20,414	3,948	13,954	705,191 77	691,178 98	12,012 79
1874	21,602	3,181	13,599	738,276 17	679,268 41	58,999 76
1875	21,686	3,094	14,287	743,453 86	721,657 71	21,795 65
1876	21,485	2,997	15,595	757,997 65	652,542 60	105,445 05
1876	20,908	3,809	14,187	733,342 65	613,152 62	119,190 28
1877	20,220	2,755	13,444	735,875 55	598,089 89	132,298 66
1878	20,059	2,680	13,213	708,981 47	589,688 97	174,338 50
1879	23,012	2,490	13,947	749,665 32	536,665 17	210,330 15
1880	26,059	2,406	16,564	853,665 80	605,178 98	248,498 81
1881	31,522	2,558	19,297	1,009,219 45	683,867 67	325,351 78
1882	34,576	2,741	22,368	1,146,240 00	675,284 26	471,005 14
1883	35,600	2,588	20,413	1,075,798 80	970,579 76	105,219 04
1884	35,717	2,552	24,283	1,188,089 15	1,024,378 85	163,710 30
1885	35,988	2,518	22,508	1,154,551 40	992,503 45	162,047 95
1886	35,618	2,622	21,477	1,144,509 60	994,472 22	150,037 38
1887	35,797	2,351	20,506	1,118,516 10	973,108 78	145,407 32
1888	40,575	2,451	24,156	1,261,798 05	1,052,955 96	208,772 09
1889	41,048	2,511	26,202	1,340,372 66	1,099,297 74	241,074 92
1890	40,552	2,408	23,944	1,271,225 78	1,139,713 35	131,572 43
1891	40,758	2,290	23,559	1,268,331 86	1,110,789 24	175,598 59
1892	38,478	2,247	26,769	1,242,871 64	1,141,088 45	101,883 19
1893	38,439	2,286	20,897	1,187,489 58	1,100,047 12	87,309 46
1894	40,680	2,415	23,057	1,245,246 98	1,106,389 49	138,857 44
1895	43,988	2,271	23,273	1,324,059 88	1,113,413 71	210,646 12
1896	47,905	2,176	23,794	1,375,641 73	1,122,843 13	252,798 59
1897	35,843	1,659	22,207	1,187,734 48	1,186,196 20	1,538 28
1898	41,443	1,716	25,567	1,295,457 08	1,211,788 78	113,673 30
1899						

Statement showing the number of the first patent, Design patent, and reissued patent, and the number of the first certificate of registration of a Trade-Mark and a Label issued in each calendar year since July 28, 1836, when the present series of numbers of Letters Patent commenced, together with the total number of each issued during the year.

[The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.]

Calendar Year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1836 (July 28)	1						109							
1837	110						436							
1838	546		1				515		6					
1839	1,061		7				404		13					
1840	1,465		20				458		10					
1841	1,923		20				490		6					
1842	2,413		35				488		13					
1843	2,901	1	49				494	14	11	519				
1844	3,305	15	60				473	12	7	497				
1845	3,873	27	67				475	17	11	508				
1846	4,348	44	78				566	59	13	638				
1847	4,914	108	91				495	60	14	569				
1848	5,409	168	105				584	46	23	653				
1849	5,998	209	126				988	49	30	1,067				
1850	6,961	268	158				864	88	26	998				
1851	7,895	341	184				757	90	25	872				
1852	8,888	431	209				800	109	20	1,019				

Statement showing the number of the first patent, Design patent, and reissued patent—Continued.

Year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1863	9,513	540	229	.....	.....	.....	846	86	29	961	.....	.....	.....	.....
1864	10,358	696	258	.....	.....	.....	1,759	57	28	1,844	.....	.....	.....	.....
1865	12,117	693	286	.....	.....	.....	1,898	70	51	2,019	.....	.....	.....	.....
1866	14,009	753	337	.....	.....	.....	2,315	107	68	2,503	.....	.....	.....	.....
1867	16,394	880	420	.....	.....	.....	2,686	113	97	2,896	.....	.....	.....	.....
1868	19,010	973	517	.....	.....	.....	3,467	108	126	3,695	.....	.....	.....	.....
1869	22,477	1,075	643	.....	.....	.....	4,165	108	131	4,404	.....	.....	.....	.....
1870	26,642	1,188	874	.....	.....	.....	4,303	133	333	4,778	.....	.....	.....	.....
1871	31,005	1,366	1,106	.....	.....	.....	3,040	148	147	3,339	.....	.....	.....	.....
1872	34,045	1,508	1,253	.....	.....	.....	3,321	195	116	3,632	.....	.....	.....	.....
1873	37,266	1,708	1,369	.....	.....	.....	3,761	176	247	4,184	.....	.....	.....	.....
1874	41,047	1,879	1,596	.....	.....	.....	4,696	139	246	5,085	.....	.....	.....	.....
1875	45,695	2,018	1,844	.....	.....	.....	6,099	221	296	6,616	.....	.....	.....	.....
1876	51,784	2,289	2,140	.....	.....	.....	8,574	304	280	9,426	.....	.....	.....	.....
1877	60,658	2,533	2,480	.....	.....	.....	12,201	385	400	12,986	.....	.....	.....	.....
1878	72,959	2,958	2,880	.....	.....	.....	12,544	446	420	13,410	.....	.....	.....	.....
1879	85,508	3,304	3,250	.....	.....	.....	12,957	506	534	13,997	.....	.....	.....	121
1880	98,460	3,810	3,794	1	.....	.....	12,157	737	429	13,323	121	.....	.....	456
1870	110,617	4,547	4,223	123	.....	.....	11,667	905	464	13,036	491	.....	.....	491
1871	122,304	5,439	4,687	608	.....	.....	12,200	884	529	13,613	491	.....	.....	488
1872	134,504	6,336	5,216	1,099	.....	.....	11,616	747	501	12,864	529	288	.....	791
1873	146,190	7,088	5,717	1,591	1	.....	12,280	586	468	13,334	529	288	.....	1,370
1874	156,350	7,999	6,200	2,150	233	.....	12,201	915	631	14,247	1,126	288	.....	1,431
1875	171,641	8,894	6,831	3,288	465	.....	14,173	809	685	15,667	959	473	.....	1,908
1876	185,813	9,686	7,458	4,247	987	.....	12,980	699	568	14,187	1,216	288	.....	1,947
1877	196,733	10,385	8,090	5,463	1,389	.....	12,945	690	809	14,444	1,455	468	.....	1,987
1878	211,078	10,975	8,589	6,918	1,861	.....	13,133	598	466	14,213	873	355	.....	558
1879	223,211	11,567	9,017	7,790	2,176	.....	13,986	515	506	15,047	949	308	.....	1,086
1880	236,137	12,088	9,588	8,139	2,379	.....	15,546	565	471	16,584	884	308	.....	1,051
1881	251,665	12,647	9,994	8,973	2,581	.....	18,135	661	371	19,167	947	304	.....	1,808
1882	269,890	13,508	10,265	9,980	2,935	.....	21,105	1,080	167	22,352	908	306	.....	1,534
1883	291,016	14,598	10,432	10,882	3,791	.....	19,147	1,150	116	20,413	1,081	513	.....	1,456
1884	310,168	15,678	10,548	11,843	4,304	.....	23,331	773	130	24,233	1,057	391	.....	1,407
1885	333,494	16,451	10,677	12,910	4,695	.....	21,797	595	116	22,508	1,133	260	.....	1,513
1886	355,391	17,046	10,798	13,969	5,073	.....	20,439	949	99	21,477	1,059	267	.....	1,326
1887	376,790	17,995	10,899	15,072	5,453	.....	19,585	895	85	20,506	1,089	319	.....	1,548
1888	395,205	18,880	10,978	16,131	5,780	.....	23,260	733	75	24,158	1,415	304	.....	1,719
1889	418,665	19,558	11,053	17,360	6,099	.....	25,288	886	84	26,258	1,411	304	.....	1,799
1890	443,987	20,439	11,137	18,775	6,408	.....	23,285	886	80	23,944	1,708	137	.....	1,943
1891	466,315	21,275	11,217	20,537	6,540	.....	22,661	617	81	23,559	1,737	a6	.....	1,743
1892	488,976	22,093	11,298	22,374	None.	1	23,766	903	99	24,769	1,677	None.	2	1,679
1893	511,744	23,004	11,397	23,351	Do.	3	19,875	926	64	20,867	1,806	Do.	4	1,810
1894	531,619	23,963	11,461	25,757	Do.	7	20,983	1,115	59	22,057	1,889	Do.	3	1,892
1895	552,508	25,057	11,520	27,596	6,546	10	21,867	1,445	61	23,373	1,813	1	29	1,843
1896	574,369	26,458	11,581	29,399	6,547	43	22,098	1,631	65	23,794	1,671	14	18	1,703
1897	596,467	28,113	11,646	31,070	6,561	58	20,404	1,808	60	22,267	1,396	200	35	1,473
1898	616,871	29,916	11,706	32,308	6,761	98	23,296	2,139	98	25,537	1,640	511	100	2,290
1899														

a Registration of labels practically ceased May 27, 1891, under decision of the United States Supreme Court in *Higgins et al.* v. *Keuffel et al.* (55 O. G., 1139) with the registration of No. 6,545, June 14, 1892. Resumed June 9, 1896, with the registration of No. 6,546.

Statement of prices paid for photolithographic work since 1884–85.

Fiscal year.	Contractor.	Patents issued.	Official Gazette. Per page.	Official Gazette. Number of copies.	Publishing expired patents.	Total Official Gazettes.
1884–85	Norris Peters	21,496	$7 86	6,500	.....	$99,614 40
1885–86	....do	24,134	7 45	6,500	.....	44,351 00
1886–87	....do	21,731	7 45	6,500	.....	41,998 40
1887–88	....do	20,653	7 45	6,500	.....	41,196 60
1888–89	....do	21,518	7 45	6,500	.....	43,999 70
1889–90	....do	25,857	7 45	6,500	.....	55,998 40
1890–91	....do	25,307	7 45	7,000	.....	65,926 10
1891–92	Norris Peters Co	23,686	7 45	7,000	.....	58,989 50
1892–93	....do	23,466	7 45	7,000	.....	54,998 20
1893–94	National Lithographic Co	23,546	6 30	7,000	$4,999 70	49,997 70
1894–95	Norris Peters Co	20,745	5 95	7,000	.....	38,997 88
1895–96	A. B. Graham	23,791	5 10	7,000	.....	43,995 80
1896–97	Norris Peters Co	23,204	4 50	7,000	.....	35,719 00
1897–98	....do	23,731	5 10	7,000	.....	39,749 40
1898–99	....do	23,590	5 60	7,000	.....	46,085 60
1899–1900	....do	a26,364	5 60	7,000	.....	a54,947 20

Statement of prices paid for photolithographic work since 1884–85—Continued.

Fiscal year.	Contractor.	Drawings of Letters Patent per sheet, current issues. Thin copies.	Thick copies.	Bond copies.	Other lithographic work.	Total.
			Cents.	Cents.		
1884–85	Norris Peters	$0 01	3	3	$78,671 99	$118,286 39
1885–86	....do	01	3	3	84,940 19	130,291 19
1886–87	....do	01	3	3	79,509 57	121,377 97
1887–88	....do	01	3	3	77,907 96	119,091 56
1888–89	....do	01	3	3	83,284 54	127,284 94
1889–90	....do	01	3	3	101,998 07	160,265 07
1890–91	....do	01	3	3	110,998 97	176,965 07
1891–92	Norris Peters Co	c1 48	3	3	99,998 58	139,998 08
1892–93	....do	c1 48	3	3	99,788 93	154,787 23
1893–94	National Lithographic Co	c1 46	3	3	94,911 33	144,909 08
1894–95	Norris Peters Co	c 95	2	2	60,488 04	98,779 92
1895–96	A. B. Graham	d 98 / e 01	.0175	.0175	58,896 60	101,192 90
1896–97	Norris Peters Co	d 80 / d 84 / e 015	.015	.01 / .02	58,980 78	94,672 78
1897–98	....do	d 90	.02	.025	75,999 85	128,065 45
1898–99	....do	e 02 / f 89	.02	.025	a98,533 37	a147,480 59
1899–1900	....do	e 02				

a Estimated amounts for current year based upon business for first half of fiscal year 1899–1900. c For 102 copies. d For 100 copies. e Two proof copies each. f For 75 copies.

Table showing the number of patents issued by the United States and foreign countries from the earliest period to December 31, 1899. (*Foreign figures for 1899 estimated.*)

Countries.	To 1870, inclusive.	1871 to 1899.	Total.
Austria	.....	20,750	20,750
Austria-Hungary	15,850	67,568	83,418
Bahamas	.....	2	2
Barbadoes	.....	112	112
Belgium	35,044	119,111	154,155
Bolivia	42	65	107
Brazil	185	3,200	3,385
British Guiana	33	94	127
British Honduras	1	19	20
Canada	4,061	64,429	68,510
Ceylon	56	439	497
Chile	80	295	375
Denmark	464	9,770	10,234
Fiji Islands	.....	22	22
Finland	112	859	971
France	103,984	204,694	308,678
Germany	9,996	116,118	126,114
Great Britain	53,408	224,721	278,129
Guatemala	.....	57	57
Hawaii	.....	161	161
Hong-Kong	.....	68	68
Hungary	.....	12,355	12,355
India	445	5,641	6,086
Italy and Sardinia	4,723	45,267	49,990
Jamaica	28	128	156
Japan	.....	3,365	3,365
Leeward Islands	.....	16	16
Liberia	.....	2	2
Luxemburg	.....	3,875	3,875
Malta	.....	27	27
Mauritius	113	223	336
Mexico	22	2,504	2,526
Netherlands	4,585	.....	4,585
Newfoundland	40	215	255
New South Wales	236	8,428	8,664
New Zealand	109	6,550	6,659
Norway	737	8,706	9,443
Portugal	245	2,707	2,952
Queensland	67	4,235	4,302
Russia	1,464	8,065	10,029
St. Helena	.....	4	4
South African Republic	.....	1,356	1,356
South Australia	138	4,871	4,994
Spain	.....	22,314	22,314
Straits Settlements	.....	87	87
Sweden	1,689	12,089	13,668
Switzerland	.....	18,715	18,715
Tasmania	43	1,746	1,789
Trinidad	6	137	143
Tunis	.....	249	249
Turkey	.....	662	662
Venezuela	.....	134	134
Victoria	822	8,795	9,617
Western Australia	.....	1,917	1,917
Total foreign	238,108	1,018,367	1,256,475
United States	120,573	529,550	650,123
Grand total	358,681	1,547,917	1,906,598

SUMMARY OF TABLES.

In 1899 there were received 38,987 applications for patents, 2,400 applications for designs, 106 applications for reissues, 2,059 applications for registration of trade-marks, 629 applications for registration of labels, and 143 applications for registration of prints. There were 25,435 patents granted, including designs, 92 patents reissued, 1,649 trade-marks registered, and 511 labels and 100 prints. The number of patents that expired was 18,135. The number of allowed applications awaiting the payment of final fees was 8,037. The number that were forfeited for non-payment of the final fees was 3,997. The total expenditures were $1,211,783.73. The receipts over expenditures were $113,673.30. The total balance to the credit of the Patent Office in the Treasury of the United States on January 1, 1900, was $5,086,649.64.

In proportion to population more patents were issued to citizens of Connecticut than to those of any other State—1 to every 945 inhabitants. Next in order are the following: District of Columbia, 1 to every 1,151; Massachusetts, 1 to every 1,262; Rhode Island, 1 to every 1,270; Oklahoma Territory, 1 to every 1,344; New Jersey, 1 to every 1,455; Montana, 1 to every 1,474; New York, 1 to every

1,579; Colorado, 1 to every 1,604; California, 1 to every 1,652. The fewest patents granted in proportion to the number of inhabitants were in the following states: South Carolina, 1 to every 25,024; North Carolina, 1 to every 21,012; Alabama, 1 to every 17,195; Georgia, 1 to every 14,025, and Mississippi, 1 to every 13,574.

As to foreign patents, 1,072 patents were granted to residents of England; 888 to those of Germany; 371 to those of Canada; France, 292; Austria-Hungary, 100; Scotland, 83; Switzerland, 72; Belgium, 65; Sweden, 45; Victoria, 43; New Zealand, 41; New South Wales, 32; Ireland, 27; Russia, 25; Italy, 23; Denmark, 20; Mexico, 14; Netherlands, 13; South Australia, 10; South African Republic and Western Australia, 7 each; Norway, 6; Argentina, Queensland, and Tasmania, 5 each; India and Jamaica, 4 each; Finland, Japan, and Java, 3 each; Guatemala, Peru, Turkey, and Uruguay, 2 each, and Algeria, Bermuda, Brazil, Bulgaria, Cape Colony, Chile, China, Danish West Indies, Dutch West Indies, Egypt, Island of Tahiti, Spain, Sumatra, Trinidad, and Venezuela, 1 each.

THE WORK OF THE OFFICE.

The examining work of the Office has been kept well in hand during the year. On December 27, 1898, there were 5,467 applications awaiting action, while on December 26, 1899, 5,392 applications were awaiting action. On December 27, 1898, two divisions were examining applications filed within one month thirty-three divisions those filed within two months, and one division those filed within three months, while on December 26, 1899, thirty-three divisions were examining applications filed within one month, and three divisions those filed within two months. At both dates substantially all of the divisions were taking up amended cases for action within fifteen days after the amendments were filed.

This is a most excellent showing when the disadvantages under which the work is being done are taken into account. The lack of suitable room greatly hampers and unnecessarily delays the work in many divisions.

During the year the work of the clerical divisions has been kept well in hand. The work of furnishing printed copies of specifications and drawings of patents has been placed under the control of one person, and the system adopted by him has been such that single copies have been much more promptly furnished and the class orders are now being filled within a week, where a year ago they were often not filled within three months. With sufficient room to properly arrange these printed copies orders for them could be filled almost as soon as received.

THE CLASSIFICATION DIVISION.

In my annual report for the calendar year 1898 I stated that a classification division had been organized, but that the work had not progressed far enough to enable the Office to determine the best system in all of its details. I am now able to report progress and outline the system adopted.

During the present year considerable progress has been made in the work, but owing to the lack of room the work has been hampered, as it will continue to be until additional space becomes available, as it will when the General Land Office removes from the Patent Office building.

One of the first steps taken was to rearrange the original drawings of all patents in numerical order. The object of this was to economize our storage space and to make it possible to find any given patent at a moment's notice. Formerly the drawings were arranged by subclasses, and as it was necessary to know the classification of a patent before it could be found a long search was often necessitated. The first ten thousand patents had no numbers and were identified only by name and date. This involved additional labor to properly arrange them. The numerical arrangement of the original drawings of nearly seven hundred thousand patents and trade-marks has been completed and lists of patents issued without drawings, and of drawings which have not been found are now being made. When this is completed, the patents for which there are no drawings will be represented by dummies containing the number of the patent and a statement as to whether there were any drawings or whether the same have been lost. These dummies will be filed in their appropriate relation with the original drawings for the purpose of preserving the record.

The classification proper has meanwhile been carried on. One division consisting of eight main classes has been completely classified, and from one to three classes in nine other divisions have been completely or partially classified.

The following plan of classification has been adopted:

Under the provisions of section 4886 of the Revised Statutes a patent is to be granted only when the invention was not known or used by others nor patented or described in any printed publication prior to the invention thereof by the applicant. To ascertain these facts, a search must be made.

The present field of search, which increases greatly every year, consists of about 700,000 United States patents, 1,250,000 foreign patents, and 74,000 volumes of scientific works in the Patent Office Library.

It is the object of classification to reduce this immense mass of matter to classes and subclasses of convenient size, capable of clear separation and definition and based upon a system sufficiently elastic to provide for future growth. Without such classification it would be impossible to examine the 40,000 applications filed annually or to make searches of sufficient accuracy to justify the treatment of a patent as *prima facie* evidence of its validity. Inability to make accurate searches also renders uncertain property rights to the amount of millions of dollars and menaces the security of all manufacturing interests based upon patents.

The first and most difficult step in classification is the separation of the subject-matter into main classes of a character that will bring together such

inventions as are *similar in structure* and *analogous in their use*, both of which elements are essential in their citation as references in the rejection of an application for a patent.

In order that there may be certainty in placing a patent in its proper class, the first rule to be observed is that wherever there is liability to conflict between two or more classes one will be fixed upon as the *superior class* and all the others which are related thereto will be treated as *inferior classes*. This being settled, all patents which *contain more than one invention* or which cover a construction which *combines in a single apparatus or machine* the subject-matter of two or more classes are placed in the *superior class*, and when necessary the *inferior classes* are completed by placing therein copies of these patents, which are known as *cross-references*.

The various kinds of main classes are as follows and rank according to number:

MACHINES.

1. Combination-machines, or such as perform more than one operation; 7. Functional-machine classes, which are defined by the character of the operation performed; 6. Material-machine classes, which are limited to operation upon some particular material; 4. Article-machine classes, which are used solely in the making of a specific article and incapable, without considerable change, of any broader or more general use; 5. Functional-material-machine classes, which are functional machines limited further by the material operated upon; 3. Functional-article-machine classes, which are functional machines limited to the making of a specific article; 2. Material-article-machine classes, which are material classes limited to the making of a specific article; 8. Machine elements, which are mechanical movements or parts which may be found in any class of complete machines.

ARTICLES OF MANUFACTURE.

Articles of manufacture are divided into (1) Finished articles, (2) Structural materials, and (3) Compositions of matter, ranking in the order named. They are only occasionally numerous enough to constitute main classes and are generally grouped according to their function or use and placed in classes with the machines for making them.

PROCESSES OR METHODS.

Processes or methods are divided into (1) Machine processes and (2) Article processes, according as they are most closely related to the machine or the product, and they are placed in the same classes with them.

Having formed proper main classes, the material is next separated into finer divisions, called "subclasses."

The following table indicates the method of dividing a class into subclasses, the figures at the left, under the column headed "Rank," indicating the order of their superiority and determining the placing of doubtful and mixed patents:

Diagram of Patent Office classification.

Rank.		Patentable inventions.					
Statutory divisions.	Subclasses.	Statutory divisions.	Subclasses.	Subclasses.	Subclasses.	Subclasses.	Divisions.
1	----						Apparatus or machine—
							General utility—
							Combination-machines—
	2						Miscellaneous,
	3						Functional subclasses,
							Single-operation machines—
	6						Miscellaneous,
	7						Structural types—
	8						Structural subdivisions,
	9						Major structure,
	10						Minor structure,
							Special article, making,
							Combination-machines—
	1						Art subclasses,
							Single-operation machines—
	4						Art subclasses—
	5						Structural subdivisions.
2	----						Article of manufacture or product (grouped by functions)—
							(*a*) Finished articles,
							(*b*) Structural materials—
	12						Miscellaneous,
	13						Articles—
	14						Structural subdivisions,
							(*c*) Compositions of matter—
							Functional classes—
	16						Specific use.
3							Method or process—
	15						Article processes—classified with Article.
	11						Machine processes—classified with Machine.

The subclasses into which Articles of Manufacture and Processes are divided will be readily understood without further explanation than has already been given.

The machines composing the class will be divided into General utility and Special-article-making machines, the subclasses of Special-article-making machines being superior to those of the General-utility group, as indicated by the figures on the left. Each of these groups is then divided into Combination and Single-operation machines, the meaning of which has been before explained. The combination-machine classes are distinguished by titles indicating the number and character of the operations performed, as "Turning and sawing," "Boring and tenoning," &c.

The Single-operation machines of the General-utility group are divided into subclasses ranking as follows: Miscellaneous; Structural-type subclasses, which are complete machines of a definite type, as "Horizontal boring mills;" Major-structure subclasses, which are important portions of a machine, and Minor-structure subclasses, which are less important parts and which may be included in the superior subclasses.

The machines, both Combined and Single-operation, of the Special-article, making, group are formed into Art classes, their names indicating the article made, as "Clothes-pin machines."

As the numbers in the "Rank" column indicate the relative superiority of the subclasses of the forms shown in the table, they serve as a guide in placing the mixed patents which always go, in case of conflict, into that one of the subclasses involved

which has the lowest number and are cross-referenced into the others.

As an example of an actual class divided into subclasses according to this table, the following has been made up of extracts drawn from a recently completed class and containing an example of each type of subclass described. The numbers in the "Rank" column are those which the subclasses bear in the completed class, but correspond relatively to those in the former table.

CLASS 144.—WOODWORKING.

Rank.		
Statutory divisions.	Subclasses.	Statutory divisions. Subclasses. Subclasses. Subclasses. Subclasses.
1		Apparatus or machine—
		General utility—
		Combined machines—
	1	Miscellaneous,
	35	Boring and sawing,
	36	Planing and matching,
		Single-operation machines—
	49	Miscellaneous,
		Planers—
	114	Miscellaneous,
	118	Disk,
	130	Cutter adjustments,
	132	Bit adjustments,
		Special article, making—
	3	Combined machines—
	8	Chair-round tenoning,
	9	Clothes-pin,
		Single or combined—
	21	Disk-cutting—
	23	Rotary tubular cutter.
2	276	Article of manufacture or product— Wood-ornamenting, articles.
3	277	Method or process— Wood-ornamenting, processes.

CROSS-REFERENCING.

Cross-referencing, as before explained, when necessitated by mixed matter, is always from the *lowest-numbered or superior* subclass into the *inferior or higher-numbered* one.

In some cases cross-referencing is necessary because certain structural features are common to two or more classes or subclasses, and in these cases it may be carried in either or both directions, as desired.

SEARCH-CARDS.

When it would be necessary to cross-reference a considerable portion of one subclass into another, a *search-card* is used instead. This is a card stamped with the title of the subclass in which it is to be placed and containing printed directions to search any other subclasses from which cross-references would otherwise have been drawn.

PRESERVATION OF CLASSIFICATION.

In order that lost copies of patents may be replaced in the files used in searching by the Examiner and the public and to prevent unauthorized changes in the classification, the following records are made:

After a patent has been classified, and also when a new patent is issued, it is stamped by the Classification Division with the number and title of its appropriate class and subclass. A card is then prepared giving the number of the patent and the name of the inventor, and this also is stamped with the proper class and subclass. When brought together in their proper subclasses, these cards constitute a subclass card-index, which will enable the Classification Division to check up any subclass and replace any lost copies. Each of these cards also shows whether the patent is cross-referenced into other subclasses, and the patent is represented in those subclasses by a similar card headed with the word "Cross-Reference."

A numerical list of all the patents issued is also kept in the Classification Division, and the classification of each patent as soon as it is made is entered on this list, so that it can always be ascertained where any patent is placed.

If the classification of any patent is to be changed, the Classification Division is notified, and, if the change is approved, will make a new subclass-card, destroy the old one, and change the classification on the numerical list. As all changes must be made and all stamping done by the Classification Division, no unauthorized changes can occur.

Printed publications will not be taken up until the patents are all reclassified, except in the case of chemical bodies and compositions of matter, which are being embodied in a card-index, and which will be a valuable supplement to the patent classification.

ROOM.

The expectation expressed in my last annual report that "in a few months some additional room will be placed at our disposal" has not yet been realized. The work of the Office in all of its branches is hampered by the lack of necessary room. Even when the General Land Office vacates the Patent Office building, room sufficient for the necessary work of the Office will not be available. The business of this Office increases from year to year, and consequently the necessity for more space, especially for storage purposes, cannot be too strongly emphasized. Some of these records constitute the legal evidence of title of many of the large manufacturing industries of the country, while others disclose the proceedings in this Office when the applications for the issued patents were pending, and it is self-evident that all of these should be preserved in a fireproof building. Their loss would work an incalculable injury not alone to the owners of the patents, but the public in general.

The American Society of Mechanical Engineers, The Patent Bar Association of Chicago, The National Association of Agricultural Implement and Vehicle Manufacturers, as well as other organizations and individuals, have forcefully called to the attention of your honorable bodies the necessity for such a building.

I commend to your careful consideration and heartily approve of Senate Bill No. 1,159, which provides for the construction of a "fireproof building, for the use and accommodation of the Patent Office of the United States, including a Hall of Inventions."

It is now almost universally recognized that this country owes a debt of gratitude to its inventors and progressive manufacturers. In view of the well-known fact that the inventors of the country have paid all of the expenses of carrying on the Patent Office and that this Office has covered into the Treasury over five millions of dollars in excess of all expenditures, no more fitting way of recognizing the value of the patent system to the country can be found than by using this money for the erection of a suitable building in which the business of the Office can be conveniently and safely carried on, and at the same time giving ample space for illustrating the growth of the industrial arts by means of suitable models.

THE SCIENTIFIC LIBRARY.

The efficiency and accuracy of the work of this Office depend to a considerable degree upon its library. It should be kept abreast of the progress in the mechanical and manufacturing arts of the day, and to that end ample appropriations should be made. For years the appropriation for this library has been inadequate. Every effort made to increase it has failed, and authority has been denied to the Commissioner of Patents to dispose of such publications therein contained as are of no special value in its special field and to use the proceeds in the purchase of modern works. No sound reason can be advanced why this authority should not be given.

DESIRED LEGISLATION.

Nothing has impressed me more forcibly during the two years in which I have occupied the position of Commissioner of Patents than the advisability and necessity of limiting the number of appeals in "merit" and "interference" cases. Under the present statutes if an application is rejected by the Principal Examiner an appeal lies to the Board of Examiners-in-Chief, and from that tribunal to the Commissioner of Patents in person, and from him to the Court of Appeals of the District of Columbia.

In interference proceedings the appeals are the same, save that the first appeal is from the Examiner of Interferences. These various appeals necessarily delay the issue of patents, whereby the rights of the public are prejudiced in that the monopoly does not begin to run until the actual issue of patent. The applicants for patents are put to heavy expenses, which to many are a grievous burden.

In my opinion there should be but one appeal in the Patent Office and no appeal to the Court of Appeals of the District of Columbia. The reason why there should be no appeal to the court is that under section 4915 of the Revised Statutes the applicant to whom a patent is refused can prosecute his application in another court and an aggrieved party in an interference proceeding can renew his contest in another court.

I suggest an amendment to the statutes by which the Board of Examiners-in-Chief be abolished and that in their place and in the place of the present Assistant Commissioner there be three Assistant Commissioners appointed who, together with the Commissioner, shall be persons of competent legal knowledge, scientific ability, and well versed in patent law and shall hear all appeals from the Primary Examiner and Examiner of Interferences. The Commissioner, with any two of the Assistant Commissioners or the three Assistant Commissioners, shall have the power to review and determine upon all adverse decisions made by the Principal Examiners upon applications for patents and for reissue patents and of the decisions of the Examiner of Interferences on all questions relating to priority of invention. Such a system will lead to an early decision of the question, limit the number of appeals, thereby relieving inventors from an unnecessary burden, and will end the anomalous condition which now exists, in that one person—the Commissioner of Patents—reviews the decisions made by a board composed of three. Under the present statutes the decisions of the Board of Examiners-in-Chief have not that force and effect that they ought, for the reason that all their decisions are not final and are largely treated in "merit" cases as only applying to the case in hand. The Assistant Commissioners should be appointed for a definite term of years, say six, (the first appointments, however, to be respectively for two, four, and six years.)

While the question of politics manifestly should not and does not to any extent enter into the conduct of the Patent Office, yet in order to overcome any objections that might be offered on that score provision might be made that not more than two of them should be appointed from the same political party.

In view of the fact that aside from the judicial duties of the Commissioner he has to perform executive duties, it may be urged that he should be in harmony with the Administration, and therefore it may be thought best that no change in the manner of his appointment be made.

A bill embodying these features has been introduced, and its enactment as a law will, in my opinion, be beneficial to the patent system.

At the present time an application can be kept alive in the Office for an indefinite number of years, although there is no good reason why at least ninety per cent. of all patents cannot be issued within one year after filing applications therefor. The practice of keeping applications pending in the Patent Office is, in my opinion, reprehensible, as it certainly does not promote the progress of invention, but rather tends to stifle it. If an application does not become involved in an interference, it should not be permitted to remain in the Patent Office more than three years without abridging its life of seventeen years. Were it not for the number of appeals, all interferences could be disposed of within that time. To meet any case of unusual hardship, discretion might be lodged with the Commissioner of Patents to extend the proposed limit of three years.

The Trade-Mark Statutes should be amended so

as to provide for the registration of trade-marks used in interstate commerce. Other amendments are required; but as this subject is being dealt with by the commission appointed in 1898 I refrain from making any further suggestions upon this point.

I am informed that the commissioners appointed under act of Congress approved June 4, 1898, to revise the statutes relating to patents, trade and other marks, &c., recently submitted to Congress a preliminary report comprising a large number of documents bearing on the treaties and conventions between the United States and foreign nations regarding patents and trade-mark protection on some special features of foreign patent and trade-mark laws and on the history of trade-mark legislation in the United States.

I understand that this preliminary report is to be followed shortly by a full report which will include a review of the arrangements entered into between the United States and foreign nations and between foreign nations with respect to patents and trade-marks, of foreign patent and trade-mark laws, and of trade-mark protection in the United States, and will include propositions for such changes in the statutes as are required to give effect to treaty stipulations, as well as such changes as will incorporate into our laws such provisions of foreign patent and trade-mark laws as are deemed advantageous to the public interest and in harmony with our institutions. A feature of this report which is of particular interest will be a proposed revision of the trade-mark law to provide for the registration of trade-marks used in interstate commerce and to encourage a more general registration of trade-marks by reducing the registration fee.

President McKinley in his annual message of December 5, 1899, says:

> Our future progress and prosperity depend upon our ability to equal, if not surpass, other nations in the enlargement and advance of science, industry, and commerce. To invention we must turn as one of the most powerful aids to the accomplishment of such a result.

May not our inventors hopefully look to the Fifty-sixth Congress for aid and effectual encouragement in improving the American patent system?

Respectfully submitted,

C. H. DUELL,
Commissioner.

Patents No. 644,562 to 645,051.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 90—No. 10 TUESDAY, MARCH 6, 1900 PRICE—$5 per year.

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REMITTANCES TO THE PATENT OFFICE.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 6, 1900.

The attention of patrons of this Office is again called to the fact that the Office cannot be responsible for Office fees lost in transmission.

Remittances should be made only by certificates of deposit, drafts, certified checks, postal or express money-orders. *If cash is sent by mail, it should always be registered.*

By direction of the Commissioner.

E. V. SHEPARD,
Chief Clerk.

Attorneys.

(ORDER No 1,331.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 27, 1900.

Pursuant to the provisions of section 487 of the Revised Statutes, Thomas W. Stewart, of Kalamazoo, Mich., is, with the approval of the Secretary of the Interior, hereby disbarred from practice before the United States Patent Office for gross misconduct.

C. H. DUELL,
Commissioner.

Roster of Attorneys.

A Roster of Attorneys registered and entitled to practice before the Patent Office, corrected to January 1, 1900, is ready for delivery. Price, 5 cents.

CERTIFICATES OF REGISTRATION ISSUED MARCH 6, 1900.

Labels.

7,378.—Title: "WRIGHT'S BATH PERFUME TABLETS." (For Bath-Tablets.) *Charles Wright Company*, Detroit, Mich. Application filed February 5, 1900.

7,379.—Title: "THYMOL-MYRRH." (For Tooth-Paste.) *Charles Wright Company*, Detroit, Mich. Application filed February 5, 1900.

7,380.—Title: "LIVER FOOD." (For a Medicine.) *The Dr. Chase Co.*, Philadelphia, Pa. Application filed February 10, 1900.

7,381.—Title: "KELLER BROS. CHANGE OF LIFE REMEDY." (For a Medicine.) *Keller Bros.*, Newark, N. J. Application filed February 2, 1900.

7,382.—Title: "REED'S NYANZA TONIC." (For a Medicine.) *Reed's Remedy Co.*, St. Paul, Minn. Application filed February 12, 1900.

7,383.—Title: "I-CURE-U." (For a Dyspepsia Cure.) *William Whittaker Chase*, Newburg, N. Y. Application filed February 8, 1900.

7,384.—Title: "CANVASBACK WHISKY." (For Whisky.) *Wittemann Bros.*, New York, N. Y. Application filed February 10, 1900.

7,385.—Title: "CANVASBACK WHISKY." (For Whisky.) *Wittemann Bros.*, New York, N. Y. Application filed February 10, 1900.

7,386.—Title: "OLD EPICUREAN WHISKY." (For Whisky.) *Wittemann Bros.*, New York, N. Y. Application filed February 10, 1900.

7,387.—Title: "REAL GERMAN LAGER." (For Bottled Beer.) *Commonwealth Brewing Company*, Philadelphia, Pa. Application filed February 12, 1900.

7,388.—Title: "PURE GOLD." (For Coffee.) *The Gray Lithograph Company*, New York, N. Y. Application filed January 27, 1900.

7,389.—Title: "FAULTLESS." (For Candy.) *The McFadden Candy Co.*, St. Paul, Minn. Application filed January 22, 1900.

7,390.—Title: "NATURAL SALMON." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed February 12, 1900.

7,391.—Title: "NATURAL TOMATOES." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed February 12, 1900.

7,392.—Title: "RALSTON HEALTH FOOD BAKING POWDER." (For Baking-Powder.) *Ralston Pure Food Co.*, Minneapolis, Minn. Application filed February 8, 1900.

7,393.—Title: "20TH CENTURY PAINT." (For Roof-Paint.) *Val Blatz' Sons*, Louisville, Ky. Application filed January 31, 1900.

7,394.—Title: "IMPROVED WOOD FILLER." (For a Wood Filler.) *Andrew W. Fuller*, South Norwalk, Conn. Application filed February 12, 1900.

7,395.—Title: "BLACK DIAMOND HARNESS DRESSING." (For Harness-Dressing.) *J. W. Jarrett*, Philadelphia, Pa. Application filed February 8, 1900.

7,396.—Title: "SPURGIN'S MULTI-LETTER FILE." (For a Letter-File.) *Spurgin Manufacturing Company*, Chicago, Ill. Application filed February 8, 1900.

Print.

210.—Title: "THE BECKMAN CO." (For Horse-Blankets.) *The Beckman Company*, Cleveland, Ohio. Application filed January 16, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 27, 1900

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Feb. 15	Feb. 15	38
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 14	Feb. 19	134
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Feb. 12	Feb. 14	98
240	VII. Velocipedes, Games, and Toys.	Feb. 10	Feb. 14	166
106	II. Farm Stock, Products, etc.	Feb. 7	Feb. 15	181
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 6	Feb. 15	112
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Feb. 5	Feb. 16	79
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Feb. 1	Feb. 13	193
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Jan. 30	Feb. 14	138
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Jan. 30	Feb. 14	119
246	I. Tillage and Fences	Jan. 30	Feb. 14	195
102	XIX. Stoves and Furnaces	Jan. 30	Feb. 13	212
253	X. Carriages and Wagons	Jan. 29	Feb. 15	140
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Jan. 29	Feb. 15	150
39	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 29	Feb. 15	131
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 29	Feb. 15	133
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Jan. 29	Feb. 14	112
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Jan. 29	Feb. 14	80
255	XII. Mechanical Engineering, Store-Service, etc.	Jan. 29	Feb. 14	220
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Jan. 29	Feb. 14	79
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Jan. 29	Feb. 13	139
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Jan. 29	Feb. 13	151
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91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 29	Feb. 13	213
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Jan. 29	Feb. 13	147
133	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Jan. 29	Feb. 12	111
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Jan. 29	Feb. 12	163
98	XXI. Textiles, etc	Jan. 29	Feb. 12	156
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Jan. 29	Feb. 10	206
248	XVIII. Steam-Engineering, etc	Jan. 29	Feb. 9	184
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 29	Feb. 7	184
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Jan. 28	Feb. 13	299
	Between one and two months.			
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Jan. 23	Feb. 7	145
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Jan. 23	Feb. 7	212
190	IX. Hydraulics, Fire-Extinguishers, etc.	Jan. 20	Feb. 13	133
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Jan. 4	Jan. 17	355

Total number of applications awaiting action.....5,668

Applications Under Examination—Continued.

Under one month.			
*Designs	Feb. 19	Feb. 21	48
†Trade-Marks	Feb. 19	Feb. 24	32
‡Labels and Prints	Feb. 27	Feb. 27	....

ISSUE OF MARCH 6, 1900.

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Designs	24—No. 32,303 to No. 32,326,	inclusive.
Trade-Marks	37—No. 34,271 to No. 34,307,	inclusive.
Labels	19—No. 7,378 to No. 7,396,	inclusive.
Prints	1—No. 210.	
Reissues	1—No. 11,811.	
Total issue	572	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	....	Nevada	2	....
Arizona Territory	....	....	New Hampshire	23	4
Arkansas	1	....	New Jersey	....	....
California	9	1	New Mexico Territ'y	....	....
Colorado	4	....	New York	79	13
Connecticut	12	1	North Carolina	2	....
Delaware	1	....	North Dakota	1	....
District of Columbia	7	....	Ohio	33	3
Florida	3	....	Oklahoma Territ'y	....	....
Georgia	3	....	Oregon	1	....
Hawaii	....	....	Pennsylvania	64	4
Idaho	1	....	Rhode Island	8	....
Illinois	41	6	South Carolina	....	....
Indian Territory	....	....	South Dakota	1	....
Indiana	8	1	Tennessee	2	....
Iowa	19	....	Texas	8	1
Kansas	3	....	Utah	3	....
Kentucky	3	1	Vermont	1	....
Louisiana	10	....	Virginia	5	....
Maine	5	....	Washington	4	....
Maryland	2	....	West Virginia	2	....
Massachusetts	31	6	Wisconsin	11	1
Michigan	8	3	Wyoming	....	....
Minnesota	5	4	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	15	1	Total to citizens of the United States	454	50
Montana	3	....			
Nebraska	5	....			

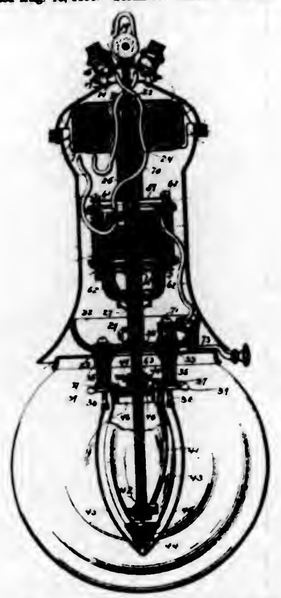
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Italy	1	....
Australia	....	....	Jamaica	....	....
Austria-Hungary	1	1	Mexico	....	....
Barbadoes	1	....	Netherlands	1	....
Belgium	....	....	Newfoundland	1	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	Peru	....	....
Canada	4	....	Norway	1	....
Chili	....	....	Queensland	....	....
China	....	....	Russia	1	....
Colombia	....	....	Scotland	....	....
Cuba	....	....	South African Republic	....	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	27	2	Sweden	....	....
Finland	....	....	Switzerland	....	....
France	5	3	Victoria	2	....
Germany	15	....	Western Australia	....	....
Guatemala	....	....			
Haiti	....	....	Total to citizens of foreign countries	60	7
India	....	....			
Ireland	....	2			

PATENTS

GRANTED MARCH 6, 1900.

644,562. ELECTRIC-ARC LAMP. THOMAS H. ADAMS, Cleveland, Ohio. Filed Aug. 16, 1899. Serial No. 727,282. (No model.)



Claim.—1. The combination in an electric-arc lamp, of a carbon-guide, an air-pot disposed in line with the axis thereof, a clutch, regulating means, and connections intermediate of the clutch, regulating means and the plunger of the air-pot.

2. The combination in an electric-arc lamp, of a carbon-guide, an air-pot in line therewith, a clutch, connections between the clutch and plunger of the air-pot and means for operating said clutch.

3. The combination in an electric-arc lamp, of a carbon slotted guide-tube, an air-pot in line therewith, a clutch-ring, a rod connected with the plunger of the air-pot and adapted to resist the upward movement of the clutch and means for first compressing air in the air-pot and subsequently actuating the clutch to raise the upper carbon.

4. The combination in an electric-arc lamp, of a clutch-ring, a lifter therefor, means for actuating said lifter and an arm pivoted to the lifter and bearing upon the clutch-ring to prevent the same from vibrating.

5. The combination in an electric-arc lamp, of a clutch-ring, a lifter therefor, means for raising the lifter, an arm pivoted to the lifter and bearing on the clutch-ring, an air-pot and a rod connected with the plunger of the air-pot and resting on said pivoted arm.

6. The combination in an electric-arc lamp, of a clutch-ring, an air-pot, a rod connected with the plunger of the air-pot and terminating over said clutch, a lifter having a hook at one end normally disposed a short distance below the clutch-ring and adapted when raised to engage said clutch-ring after having first caused a compression of air in the air-pot.

7. The combination in an electric-arc lamp, of a clutch-ring, an air-pot, a lifter for the clutch-ring having a tubular portion, an arm pivoted to the lifter and bearing upon the clutch-ring, and a rod attached to the plunger of the air-pot, passing through the tubular portion of the lifter and bearing upon the pivoted arm.

8. In an electric-arc lamp, the combination with a frame and a bracket secured thereto, of a spring secured between its ends to said bracket, and a regulator-magnet mounted on the ends of said spring.

9. In an electric-arc lamp, the combination with a casing and a clutch, of a bracket within the casing, two flat springs secured between their ends to the ends of said bracket a regulator-magnet mounted between the ends of said springs.

10. In an electric-arc lamp, the combination with a carbon-guide tube, of an air-pot disposed upon said tube and in line with the axis thereof, a plunger within said air-pot, and a rod having an arm at its upper end entering said air-pot and connected with said plunger, the other end of said rod terminating over the clutch.

11. The combination in an electric-arc lamp, of a carbon-guide, an air-pot disposed in line with the axis thereof, a clutch, a plunger in the air-pot, and a plunger-rod having a ball-and-socket connection with the plunger arranged to resist the movements of the clutch.

12. The combination of an air-pot, a plunger therein, said plunger having a compartment open at both ends, a rod entering one end of said compartment and a ball fixed to the end of the rod within said compartment, said ball being appreciably smaller than the compartment and adapted to move longitudinally therein to close the passage of air through the plunger.

13. In an electric-arc lamp, the combination of a casing, a carbon-guide tube secured in the bottom thereof, an air-pot upon the carbon-guide tube, a tubular extension of the air-pot, a cap on the casing and a rod depending from said cap and having a head disposed within the casing.

14. In an alternating-current electric-arc lamp, the combination with a casing, a ring at the upper end thereof having notches, an inductive resistance and clamps for said inductive resistance, said clamps having flanges to enter the notches in the ring and having shoulders to rest on said ring.

15. In an electric-arc lamp the combination with a clutch and a lifter therefor, of two helices, a U-shaped laminated core having its respective arms entering the respective helices, each arm of said core inclosed in a sleeve which projects beyond the end of the same and a connection between the cross-bar of said U-shaped core and the clutch-lifter.

16. In an electric lamp, the combination with a casing, of a ring mounted upon said casing, said ring having a horizontal portion and an upright portion at the inner edge of the horizontal portion, lugs upon the horizontal portion, and a hood mounted upon said lugs and encircling the upright member of the ring.

17. In an electric lamp, the combination with a casing and a slotted guide-tube therein, of an upper carbon-holder within said tube and freely movable therein, said holder having an upwardly-projecting portion, a graphite body attached to said upwardly-projecting portion and bearing against the inner face of the slotted tube, and a conductor passing through the slot in the tube and electrically connected with the carbon-holder.

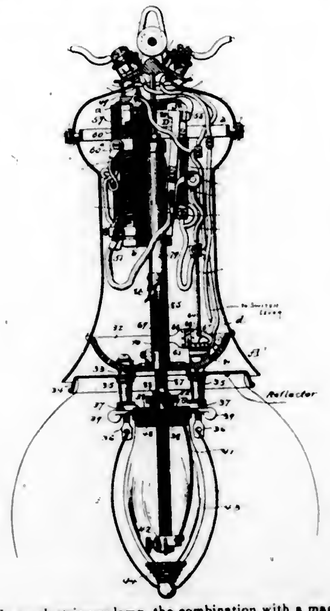
18. In an electric lamp the combination with a magnet, its armature and a clutch connected with the armature, of an air-pot, a rod extending from the plunger of said air-pot to the clutch and a finger projecting from said rod and adapted to sustain the armature when the parts are at rest and to strike said finger should the piston stick.

19. In an arc-lamp, the combination with a magnet, its armature and a clutch, of a lifter for the clutch, a spring between the armature and lifter, an air-pot, a rod extending from the plunger of the air-pot to the clutch and a finger on said rod disposed under said armature.

644,568. ELECTRIC-ARC LAMP. THOMAS H. ADAMS, Cleveland, Ohio. Filed Sept. 20, 1899. Serial No. 731,128. (No model.)

Claim.—1. In an electric-arc lamp, the combination with a magnet-coil in the main lamp-circuit, of a shunt-circuit around said coil and including a resistance, a circuit-breaker controlled by the armature of the magnet and included in said shunt-circuit and a constantly-

closed shunt-circuit around the magnet-coil and including a variable resistance.



2. In an electric-arc lamp, the combination with a magnet-core having salient poles and a consequent pole, a coarse-wire winding on said core at one side of said consequent pole, a fine-wire winding on the core at the other side of said consequent pole, a portion of said fine-wire winding being wound on the coarse-wire coil and an armature pivotally mounted between its ends on the consequent pole and adapted to be actuated by the salient poles.

3. In an electric-arc lamp, the combination with a casing and a hood, of a magnet secured to the hood, a bar secured to the lower end of the magnet and to the casing, a plate secured to the top of the magnet and having an arm and connected with a lamp-terminal, a resistance supported by said bar and plate, an armature for the magnet, a shoe on said armature and a resistance carried by the armature, one end of said resistance connected with said shoe and the other end connected with a terminal of the lamp.

4. In an electric-arc lamp, the combination with a regulator-magnet and its armature, of a clutch-ring, a lifter therefor, a lever comprising two metal sections and an intermediate section of non-conducting material, the free end of one of said metal sections pivotally mounted in the frame of the lamp and the free end of the other metal section loosely connected with the lifter, and a rod attached at its upper end to the armature of the regulator-magnet and connected at its other end with said sectional lever at a point between the ends of the latter.

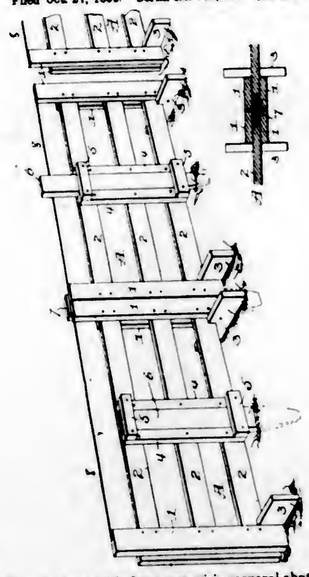
5. In an electric-arc lamp, the combination with a frame, a regulator-magnet and its armature, of a clutch-ring, a lifter therefor, a lever, an upwardly-projecting conical pin at one end of said lever, the frame having a bearing for said conical pin, a supporting device under the end of the lever having the conical pin, a loose connection between the other end of said lever and the lifter, and a rod attached at one end to the armature of the regulator-magnet and at the other end to said lever at a point between the end of the latter.

6. In an electric-arc lamp, the combination with a regulator-magnet and its armature, of a clutch-ring, a lifter therefor, connections between said lever and the armature of the magnet, an air-pot in the lower part of the lamp and a rod projecting downwardly from the plunger of said air-pot and resting on the clutch-ring at the side thereof opposite the connection of the lifter therewith.

7. In an arc-inclosed electric-arc lamp, the combination with a frame, an inner arc-inclosing globe and a cover for said globe, of a vertically-adjustable yoke inclosing the globe and adapted to be swung laterally and a spring fixed upon the bottom of the yoke and constructed to form a socket for the bottom of the globe.

8. In an electric-arc lamp, the combination with a casing and arms or posts depending therefrom and having threaded sockets, of screws entering said sockets and depending therefrom, thumb-nuts for locking said screws, an inner globe, a cover therefor, a yoke embracing the globe and having its ends attached to said screws and a spring carried by said yoke and bearing against the bottom of the globe.

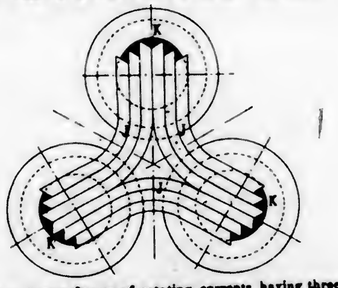
644,564. PORTABLE FENCE. JAS C. ALEXANDER, Fort Mitchell, Ala. Filed Oct. 27, 1899. Serial No. 735,000. (No model.)



Claim.—1. A portable fence comprising several abutting sections, each section comprising several parallel rails, two parallel uprights secured at each end of the series of rails and projecting at their outer vertical edges beyond said rails, the parallel uprights of one section abutting against the parallel uprights of the adjacent section so as to form a pocket between the two sections, and posts inclosed and guided in said pockets throughout the lengths of the latter and adapted at their lower ends to be driven into the ground.

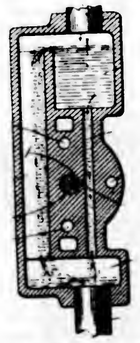
2. A fence comprising a series of portable sections, each section having parallel uprights projecting at their edges beyond the body of the section to which they are secured, the uprights of adjacent sections abutting and forming pockets at the juncture of the sections, posts passing through and guided in said pockets, bars secured to and projecting laterally beyond the lower end of said uprights, parallel guide-bars secured to the central portion of each section, posts disposed between and guided by said parallel bars and cross-bars secured to the outer faces of said parallel bars at the respective ends thereof to prevent outward displacement of said posts.

644,565. TRANSFORMER. EMIL ARNOLD, Carlsruhe, Germany. Filed Dec. 23, 1898. Serial No. 700,164. (No model.)



Claim.—A transformer of rotating currents having three iron cores connected by a yoke in three sections, the ends of two sections of the yoke being magnetically connected to each core, and two cores being connected by each section, substantially as described.

644,566. INTERNAL-COMBUSTION ENGINE. BAXTER M. ALLISON, Chicago, Ill. Filed Oct. 17, 1898. Serial No. 693,731. (No model.)



Claim.—1. In an internal-combustion engine, a mixer and vaporizer provided with a non-regulated gravity-duct, means for maintaining a constant flow of oil therethrough, an admission duct or passage extending laterally from the side of said gravity-duct, and a throttle-valve arranged in the said admission duct or passage for throttling or varying the admission of oil to the mixing-chamber, substantially as and for the purpose described.

2. In an internal-combustion engine, a mixer and vaporizer comprising an overflow-chamber, a gravity-duct leading downward from the bottom of said overflow-chamber, an admission duct or passage leading laterally from the side of said gravity-duct, means for supplying oil to said overflow-chamber and thereby maintaining a constant and uniform flow of oil through said gravity-duct, a suitable mixing-chamber communicating with said admission-duct, and a throttle-valve arranged in said admission duct or passage, whereby the supply of oil to the mixing-chamber can be varied at will and without checking or in any way varying the flow of oil through said gravity-duct.

3. In an internal-combustion engine, a mixer and vaporizer comprising an overflow-chamber, a non-regulated supply-duct leading downwardly from the lower portion of said chamber, a valve-controlled and normally-open admission-duct leading laterally from the said supply-duct, and a by-pass leading from the top of said overflow-chamber.

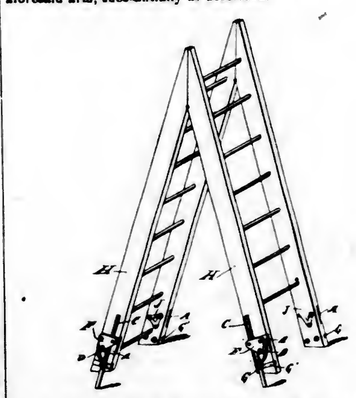
4. In an internal-combustion engine, a mixer and vaporizer comprising an overflow-chamber, a non-regulated supply-duct leading downwardly from the lower portion of said chamber, the said supply-duct being also straight and substantially of a uniform diameter throughout its length, a valve-controlled and normally-open admission-duct leading laterally from the said supply-duct, and a by-pass which leads from the top of said overflow-chamber and which is of a larger diameter than the said supply-duct.

5. In an internal-combustion engine, a mixer and vaporizer comprising a mixing-chamber; a supply-duct through which a constant, uniform and non-regulated flow of oil is maintained; a normally-open admission-duct leading laterally from the said supply-duct to the mixing-chamber, a portion of said admission-duct being bored through the stem or shank of a rotary valve, whereby the admission of oil to the mixing-chamber may be regulated or controlled by turning the said valve, and means for supplying oil to the said supply-duct.

6. In a mixer and vaporizer for internal-combustion engines, the combination of a straight and vertical supply-duct which is non-regulated and which is of a uniform size throughout its length, a normally-open and valve controlled or regulated admission-duct leading laterally from the side of said supply-duct, and means for supplying oil to the said supply-duct, whereby a free and unrestricted flow of oil may be maintained through the latter, and whereby the successive admissions of oil through the said admission-duct may be controlled or varied at will.

644,567. LEVELING ATTACHMENT FOR STEP-LADDERS. MAX A. BAETZ, Asbury Park, N. J. Filed Aug. 10, 1899. Serial No. 726,738. (No model.)

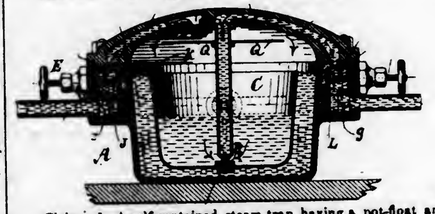
Claim.—1. The combination in an adjustable leveling attachment of front and back plates, an extension-rod provided with ratchet-teeth and movable between said front and back plates, a pawl mounted between said front and back plates and adapted to engage in said ratchet-teeth upon said rod and employed as a means for locking the said rod in position, an arm pivotally mounted between the aforesaid plates and formed with an eccentric end which engages against the pawl and is employed to engage and disengage the said pawl and the aforesaid ratchet-teeth upon the said rod, and a spring also mounted between the aforesaid plates and securely fastened at one end, the free end engaging against the lower end of the pawl and adapted to normally keep the pawl in contact with the eccentric end of the aforesaid arm, substantially as described.



2. The combination in an adjustable leveling attachment of front and back plates, an extension-rod provided with ratchet-teeth and movable between said front and back plates, projections formed upon the said back plate and acting as a guide for the extension-rod to move in, a pawl mounted between said front and back plates and adapted to engage in said ratchet-teeth upon the said rod and employed in conjunction with an operating-arm to securely lock said pawl and rod in position, an arm pivotally mounted between the aforesaid plates and formed with an eccentric end which engages against the pawl and is employed to operate the said pawl, a spring also mounted between the aforesaid plates and securely fastened at one end, the free end engaging against the lower end of the pawl and adapted to normally keep the pawl in contact with the eccentric end of the aforesaid arm, and a guide-piece fastened to side of step-ladder and formed to allow the lower end of said extension-rod to move in it, substantially as described.

3. The combination in an adjustable leveling attachment, of an extension-rod movable in and held between a front and back plate, said extension-rod provided with ratchet-teeth, a pawl and operating-arm mounted between the said plates and employed to lock the extension-rod in position, a spring also mounted between the said plates and engaging against the lower end of said pawl, attaching-bolts extending through the device and adapted to hold the mechanism together and afford a means for fastening the side of the step-ladder, and a plate or washer adapted to be fastened against the side of the step-ladder under fastening-nuts, substantially as described.

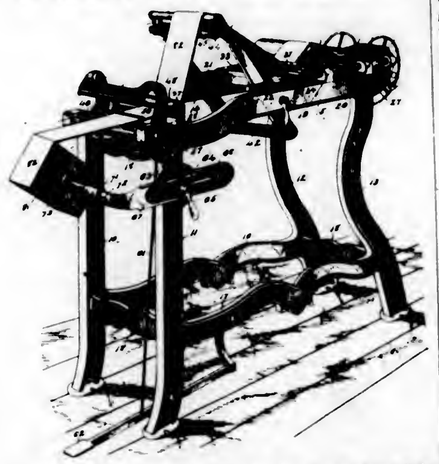
644,568. STEAM-TRAP. WILLIAM J. BALDWIN, New York, N. Y. Filed July 10, 1899. Serial No. 723,295. (No model.)



Claim.—1. A self-contained steam-trap having a pot-float and provided with an inlet and an outlet, a by-pass from said inlet to said outlet in the wall of the trap, a valve controlling said by-pass, a cover provided with inlet and outlet passages, and valves controlling the connections of said passages with the main inlet and outlet, substantially as described.

2. The combination in a steam-trap of a pot-float adapted to control the discharge from the trap, passages in the cover normally connecting the inlet with the interior of the trap and the interior of the trap with the discharge-outlet, valves controlling said passages, a by-pass in the wall of the trap leading from the inlet to the outlet and a valve controlling said by-pass, substantially as described.

644,569. PAPER-BOX MACHINE. CHARLES BECK, Philadelphia, Pa. Filed Mar. 29, 1899. Serial No. 710,968. (No model.)



Claim.—1. The combination in a box-covering machine of the frame, the parallel rods adjustable longitudinally thereon to beyond the end of the frame, the paper-roll-carrying brackets removably secured thereon at their outer ends, the glue-reservoir resting loosely on the top of said rods, the cut-off knives, and the strip-extending counterbalanced yoke pivotally secured to the frame between the glue-roll and the knives substantially as described.

2. The combination in a box-covering machine, of the frame, the parallel rods adjustable longitudinally thereon to beyond the end of the frame, the paper-roll-carrying brackets removably secured thereon at their outer ends, the glue-reservoir resting loosely on the top of the rods, the cut-off knives, and the strip-extending counterbalanced yoke between the glue-reservoir and knives, substantially as described.

3. The combination in a box-covering machine of the frame, the glue-reservoir and roller mounted thereon, the cut-off knives, and the counterbalanced tension-roll-carrying yoke freely pivoted to the frame intermediate the glue-roll and knives, substantially as described.

4. The combination in a box-covering machine of the frame, a yoke pivoted thereto and counterbalanced by weights below its pivot, a tension-roll pivoted in the upper ends of the yoke, and a drip-pan suspended below the roll, substantially as described.

5. The combination in a box-covering machine of the frame, and the counterbalancing tension-roll-carrying yoke pivoted thereto, said yoke comprising two arms pivoted to the inside of the side frames whereby the body of the yoke is opened to permit of the passage of the strip of paper therethrough under the roll, substantially as described.

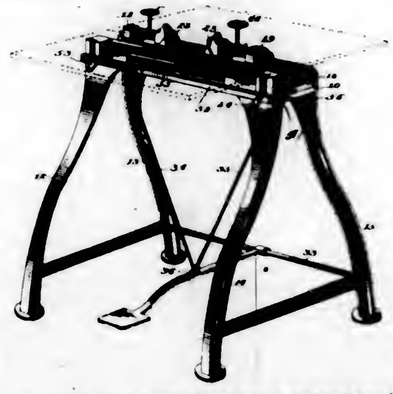
6. The combination in a box-covering machine of the frame, the slotted pivoted arm thereon, the horizontally-adjustable rotary shaft mounted in the end thereof, means for locking it against backward rotation, and the box-support secured to the shaft, substantially as described.

7. The combination in a box-covering machine of the slotted pivoted arm, the horizontal rotary shaft therein, means for locking it against backward rotation, the box-support on the shaft, the rod mounted in the arm parallel with the shaft, and the bifurcated head on the rod straddling the shaft in a peripheral groove therein, substantially as described.

644,570. MACHINE FOR CUTTING HOLES IN PAPER BOXES. CHARLES BECK, Jr., Philadelphia, Pa. Filed May 11, 1899. Serial No. 716,411. (No model.)

Claim.—1. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a casting or head having a longitudinal groove, a pair of slidable heads in said groove, means for locking said heads at any adjustment, a punch and stationary die carried by each head, a treadle, and connections between the punches and the treadle whereby the punches are operated in any adjustment by the depression of the treadle, substantially as described.

2. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a casting or head having a longitudinal groove, a pair of slidable heads in said groove, means for locking said heads at any adjustment, a punch and stationary die carried by each head, a treadle, an elbow-lever for each punch having its upper arm in engagement therewith and its lower arm provided with a laterally-projecting pin or roller, a horizontal bar resting on said pins or rollers and guided in grooves in the frame, and a treadle connected with said horizontal bar, substantially as described.



3. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a casting or head having a longitudinal groove, slidable heads therein, hand-screws for securing the slidable heads in any adjustment, stationary dies fixed on the slidable heads, punches slidably mounted in said heads, springs for retracting said punches, pins depending from the punches, elbow-levers pivoted to the sliding heads having their upper arms engaging behind said pins and their lower ends provided with laterally-projecting pins or rollers, a vertically-slidable horizontal bar resting on said pins or rollers, a treadle, and rods connecting the treadle with the horizontal bar, substantially as described.

4. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a frame, a pair of parallel bars pivoted thereto, a horizontal arm pivotally connected to the upper ends of said bars, a table resting on said arm, a spring for drawing the arm laterally in one direction, a stop for the arm, and a set-screw threaded through the stop and bearing against the end of the arm to move it in the opposite direction against the action of the spring, the movement of the arm by the spring and set-screw causing the table to be raised and lowered, substantially as described.

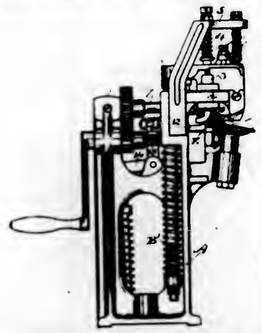
5. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a frame provided with parallel vertical guide-ribs at each end, a table in two sections, cross-irons secured to the table, parallel fingers depending from the cross-irons in contact with the guide-ribs, a clamping-screw passing between the parallel fingers and guide-ribs into the frame, and a vertically-adjustable horizontal arm supporting the parallel fingers, substantially as described.

6. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a frame provided with parallel vertical guide-ribs at each end, a table in two sections, cross-irons secured to the table, parallel fingers depending from said cross-irons in contact with the guide-ribs, a clamping-screw passing between the parallel fingers and guide-rib into the frame, a pair of parallel bars pivoted to the frame, a horizontal arm pivoted to the upper ends of said bars, a spring tending to draw the arm in one direction, a stop against the action of the spring, and a set-screw threaded through the stop and bearing against the end of the horizontal arm, substantially as described.

7. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a slidable head provided with ways or bearings, a punch or cutting-die located in said ways, a projecting end on the head leaving rabbets at the sides thereof, a stationary but removable die provided with depending sides located in said rabbets, screws securing the removable dies, and a removable bearing-plate for securing the punch in its bearing, substantially as described.

8. In a machine for cutting thumb-holes in the lids of paper boxes, the combination of a slidable head provided with ways or bearings, a punch or cutting-die located in said head and provided with lateral flanges resting on said ways, a projecting end on the head leaving rabbets at the sides thereof, a stationary but removable die provided with depending sides located in said rabbets, screws securing the removable dies, and a removable bearing-plate for securing the punch in its bearing, substantially as described.

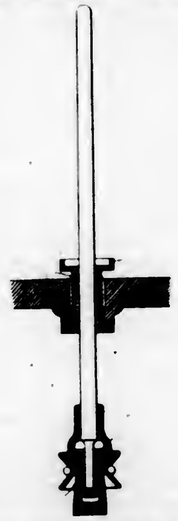
644,571. CHANNELING-MACHINE. FRANK E. BECKMAN, Lynn, Mass., assignor of one-half to Frederick L. Alley, same place. Filed Mar. 18, 1897. Serial No. 628,129. (No model.)



Claim.—1. In a channeling-machine, the combination with a knife carrier or support, of a slide having an edge-cutting knife fixedly secured thereto, and a sliding tongue-and-grooved connection between the knife carrier or support and the slide arranged to support the slide and knife in operative position on the knife-carrier and to permit the ready removal of the slide and knife, whereby a series of slides having different edge-cutting knives may be interchangeably used in the machine, substantially as described.

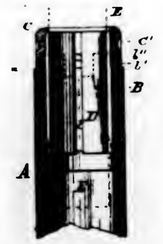
2. In a channeling-machine, the combination with a knife carrier or support, provided along its lower end with a supporting-groove parallel to the line of the feed of the work, of a slide provided with a rib slidingly fitted in said groove to support the slide, an edge-cutting knife secured to said slide, and a stop to determine the position of the slide in the groove to bring the knife into operative relation to other parts of the machine, substantially as described.

644,572. SPINDLE FOR SPINNING, TWISTING, DOUBLING, AND WINDING MACHINES. CARL BERGMANN, Meinsen, Germany. Filed Feb. 12, 1898. Serial No. 670,141. (No model.)



Claim.—The combination with a spindle, a step-bearing therefor and a fixed socket in which said step-bearing is suspended and adapted to rock on a pivot, and the whirl secured to the spindle so that the power will be applied in a plane passing through the pivotal axis of the step-bearing; of a coiled spring having free motion in any direction, a seat for said spring above the whirl and a bearing for the spindle supported in the free end of said spring, for the purpose set forth.

644,573. BINDER FOR HANDLE-BARS AND SEAT-POSTS OF BICYCLES. EPHRAIM H. BOWEN, Buffalo, N. Y., assignor to the George H. Pierce Company, same place. Filed Jan. 16, 1899. Serial No. 702,274. (No model.)



Claim.—1. A telescopic clamp comprising an inner part or tube which is screw-threaded at one end and is provided with a longitudinal slot at its opposite end, an exterior member or sleeve also provided with a slot, said inner and outer parts having coacting wedge surfaces at the sides of the slots therein, and a rotative coupling member adapted to give rotative endwise movement to said parts.

2. A telescopic clamp comprising an inner part or tube which is screw-threaded at one end and is provided with a longitudinal slot at its opposite end and with wedge-shaped ribs or projections at the opposite sides of said slot, an outer member or sleeve which is also provided with a longitudinal slot and has oblique surfaces at the opposite sides of said slot adapted to engage the wedge-shaped ribs of the inner member, and a rotative coupling member or nut engaged with the screw-threads of the inner member and having rotative engagement with the outer member.

3. A telescopic clamp comprising an inner tube screw-threaded at one end and having a longitudinal slot at its opposite end, and provided at either side of said slot with wedge-shaped projections or flanges, an exterior part or sleeve which is split through its entire length and provided with oblique edges adapted for engagement with the oblique edges on said wedge-shaped projections, and a coupling member or nut engaging the screw-threads on the inner sleeve and having connection with the outer sleeve by means of a flange and groove.

4. A telescopic clamp, comprising inner and outer longitudinally-movable clamping members, both of which are expansible and contractible and a coupling-piece adapted to give endwise relative movement to said parts, said inner and outer members being provided with coacting wedge surfaces which operate circumferentially on said parts to expand the outer and contract the inner part.

5. A telescopic clamp comprising inner and outer expansible and contractible parts, a nut having screw-threaded engagement with one of said parts and engaging the other of said parts by means of a radial flange and groove, said inner and outer parts being provided with coacting wedge-shaped surfaces which operate circumferentially on said parts to expand the outer and contract the inner part.

6. A binder of the nature described consisting, in connection with the tubular part A, of a cylindrical sleeve having a single longitudinal slot the opposing edges of which are of inverted-V shape, a revoluble nut at the upper end of said sleeve, and a cylindrical tubular shell having a longitudinal slit, inclined projections on both sides of the said slit adapted to engage the similarly-constructed slot in said sleeve, a screw-thread at the upper end of said shell adapted to engage the nut C, and a coupling connection between the nut and outer member, whereby by revolving said nut the inclined projections on the shell will cause the expansion of the said sleeve and the contraction of said shell.

644,574. METHOD OF PICKLING METAL STRIPS. EDWARD I. BRADDOCK, Winchester, Mass., assignor to the New Process Coating Company, Portland, Me. Filed Nov. 3, 1899. Serial No. 735,697. (No specimens.)



Claim.—1. The method of pickling strips, sheets, &c. of iron or steel, which consists in rolling the iron or steel strip into the form of a coil, interposing between the convolutions of said coil a separator, and dipping the coil thus formed in a pickling bath to cleanse the same, substantially as and for the purpose specified.

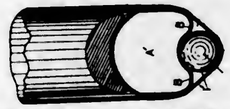
2. The method of pickling substantially-long strips, sheets, &c. of iron or steel, which consists in simultaneously rolling the substantially-long strip, sheet, &c. of iron or steel to be pickled, and a flexible separator, into the form of a coil in which the flexible separator is interposed between successive or adjacent convolutions and makes contact therewith at different points, dipping the coil thus formed into a pickling solution, removing the coil from the pickling solution, and unwinding the pickled strip, sheet, &c. from the separator, substantially as described.

644,575. GALVANIZING APPARATUS. EDWARD I. BRADDOCK, Winchester, Mass., assignor to the New Process Coating Company, Portland, Me. Filed Nov. 14, 1899. Serial No. 736,911. (No model.)



Claim.—A galvanizing apparatus comprising an outer vessel, a smaller inner vessel located therein to form a continuous passage from one side of said outer vessel to the other, and to leave a space in the outer vessel above said inner vessel, and a partition-wall at one side of the inner vessel extended upward above the level of the upper edge of one side of said inner vessel to separate the space in the outer vessel above the inner vessel into two chambers, substantially as and for the purpose specified.

644,576. PNEUMATIC TIRE FOR VEHICLE-WHEELS. JOHN F. BRADY, Chicago, Ill. Filed Dec. 19, 1898. Serial No. 699,681. (No model.)



Claim.—The combination, with a tire, oval in cross-section and provided with a partition dividing the interior into an inflatable and a non-inflatable portion, the non-inflatable portion forming the periphery or apex of the oval, of a single row or series of normally-compressible spheres loosely placed in the non-inflatable portion of the tire, and means for inflating the inflatable portion, the partition engaging with the inner peripheries and partially encircling the sides of the spheres and preventing permanent lateral displacement of the spheres when the tire is inflated.

644,577. SHORTHAND NOTE-BOOK. HERMANN BUSCHSTOCK, Hanover, Germany. Filed Mar. 14, 1899. Serial No. 709,111. (No model.)

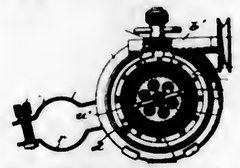


Claim.—In a shorthand exercise-book having between its ordinary leaves bearing the longhand text a number of separable transparent sheets for transcription purposes, said ordinary leaves being provided with a blank space between each line of longhand text to permit transcription of the latter beneath the line on a transparent sheet, substantially as described and shown and for the purpose mentioned.

644,578. COMBINED CYCLOMETER AND SPEED-INDICATOR. EDWARD D. CLAPP, Washington, D. C. Filed Apr. 1, 1898. Serial No. 676,069. (No model.)

Claim.—1. In a speed-indicator for vehicles, the combination with a watch or chronometer, of an indicator-plate, mechanism actuating the indicator-plate from a wheel of the vehicle, a gear-wheel removably mounted upon an arbor and turning loosely thereon, an indicator actuated by said gear-wheel, and a second gear-wheel removably mounted upon an arbor, the last-mentioned gear-wheel being driven from the watch-movement and geared to the former gear-wheel, substantially as shown and for the purpose herein set forth.

2. In a speed-indicator for vehicles, the combination with a watch or chronometer, of an indicator-plate rotatably mounted above the dial-plate of the watch or chronometer, mechanism transmitting motion to the indicator-plate from a wheel of the vehicle, a gear-wheel removably mounted upon an arbor above the dial-plate and adapted to turn loosely upon said arbor, an indicator carried by said gear-wheel, and a second gear-wheel also removably mounted upon an arbor; the last-mentioned gear-wheel being driven from the watch-movement and geared to the former gear-wheel, substantially as shown and for the purpose set forth.



3. In a speed-indicator for vehicles, the combination with a watch or chronometer having a central arbor extended above the dial-plate, of an indicator-plate rotatably mounted above the dial-plate, mechanism transmitting motion to the indicator-plate from a wheel of the vehicle, a gear-wheel removably mounted upon the aforesaid central arbor of the watch and adapted to turn loosely upon said arbor, an indicator carried by said gear-wheel, and a second gear-wheel also removably mounted upon an arbor which is actuated by the watch-movement, the last-mentioned gear-wheel being geared to the former gear-wheel, substantially as shown and for the purpose set forth.

4. In a speed-indicator for vehicles, the combination with a watch or chronometer having a central arbor extended above the dial-plate and a second arbor also extended above the dial-plate, the last-mentioned arbor being driven from the watch-movement; of an indicator-plate rotatably supported above the dial-plate, mechanism transmitting motion to the indicator-plate from a wheel of the vehicle, a gear-wheel removably mounted on the central extended arbor and adapted to turn loosely upon said arbor, an indicator carried by said gear-wheel, and a second gear-wheel removably mounted upon the other extended arbor and adapted to turn therewith, the last-mentioned gear-wheel meshing with the former gear-wheel, substantially as shown and for the purpose set forth.

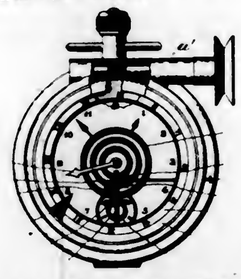
5. In a combined speed-indicator and cyclometer, the combination with a watch or chronometer, of indicator-plates rotatably mounted above the dial-plate of the watch, one of said plates having graduations and the other a pointer or indicator, mechanism transmitting motion to the indicator-plates from a wheel of the vehicle, a gear-wheel removably mounted above the dial-plate upon an arbor upon which it turns loosely, an indicator carried by said gear-wheel, and a second gear-wheel removably mounted upon an arbor which is driven from the watch-movement, the last-mentioned gear-wheel being in mesh with the former gear-wheel, substantially as shown and for the purpose set forth.

6. In a speed-indicator for vehicles, the combination with a watch or chronometer, of an indicator-plate rotatably mounted above the dial-plate of the watch, mechanism transmitting motion to the indicator-plate from a wheel of the vehicle, a central arbor above the dial-plate, and a second arbor extended above the dial-plate and driven from the watch-movement; together with gear-wheels adapted to be removably mounted on the aforesaid arbors, and an indicator actuated by the gear-wheels, substantially as shown and for the purpose set forth.

7. In a combined speed-indicator and cyclometer, the combination with a watch or chronometer, of a central arbor extended above the dial-plate, a second arbor extended above the dial-plate and driven from the watch-movement, indicator plates rotatably supported above the dial-plate, one of said indicator-plates having graduations and the other a pointer or indicator, and mechanism transmitting motion to the indicator-plates from a wheel of the vehicle; together with several sets of gear-wheels adapted to fit upon the extended arbors, one of the gear-wheels of each set being loosely mounted and carrying an indicator while the other is adapted to turn with its arbor and gear with the former, substantially as shown and for the purpose set forth.

8. In a combined speed-indicator and cyclometer, the combination with a watch or chronometer, of a central arbor extended above the dial-plate, a second arbor extended above the dial-plate and driven from the watch-movement, annular plates of different width rotatably supported above the dial-plate and provided with coincident teeth, one of said plates having a greater number of teeth than the other, the wider plate having graduations and the other an indicator; a worm in mesh with the toothed plates, and mechanism imparting motion to the worm from a wheel of the vehicle; together with several sets of gear-wheels, said gear-wheels fitting the aforesaid extended arbors and one of each set carrying an indicator, substantially as shown and for the purpose set forth.

644,579. COMBINED CYCLOMETER AND SPEED-INDICATOR. EDWARD D. CLAPP, Washington, D. C. Original application filed Apr. 1, 1898, Serial No. 676,069. Divided and this application filed May 17, 1899. Serial No. 717,210. (No model.)



Claim.—1. In a combined cyclometer and speed-indicator, the combination with a watch, of distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven by the watch-movement, a second gear-wheel carrying a pointer, one of the gear-wheels being a differential gear-wheel, and means for gearing said gear-wheels one to the other, substantially as shown and for the purpose set forth.

2. In a combined cyclometer and speed-indicator, the combination with the watch, of distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven from the watch-movement, a second gear-wheel carrying a pointer adapted to move in unison with the aforesaid pointer, one of the gear-wheels being a differential gear-wheel, a shaft, and pinions mounted on the shaft to mesh with the gear-wheels, substantially as shown and for the purpose set forth.

3. In a combined cyclometer and speed-indicator, the combination with a watch, of distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven by the watch-movement, a second gear-wheel carrying a pointer adapted to move in unison with the aforesaid pointer; one of the gear-wheels being a differential gear-wheel; a shaft; pinions on the shaft to mesh with the aforesaid gear-wheels, one of the pinions being movable upon the shaft, and means for moving said pinion, substantially as shown and for the purpose set forth.

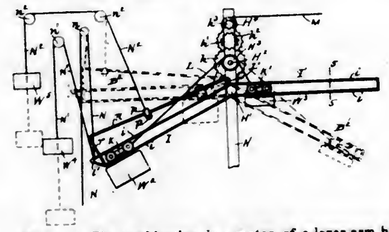
4. In a combined cyclometer and speed-indicator, the combination, of a watch, distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven by the watch-movement, a second gear-wheel carrying a pointer adapted to move in unison with the aforesaid pointer; one of the gear-wheels being a differential gear-wheel; pinions mounted on a shaft to mesh with the gear-wheels, one of the pinions being movable; and an operating-lever connected to the movable pinion, substantially as shown and for the purpose set forth.

5. In a combined cyclometer and speed-indicator, the combination, of a watch, distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven by the watch-movement, a second gear-wheel carrying a pointer adapted to move in unison with the aforesaid pointer, one of the gear-wheels being a differential gear-wheel; pinions mounted on a shaft to mesh with the gear-wheels, one of the pinions being movable and provided with a grooved collar; and a lever having a yoke engaging the grooved collar, the end of the lever projecting beyond the watch-casing, substantially as shown and for the purpose set forth.

6. In a combined cyclometer and speed-indicator, the combination, of a watch having a casing extended above the face of the watch; differential gear-rings mounted in said extension and having graduations and a pointer, respectively; a gear-wheel driven by the watch-movement; a second gear-wheel mounted above the face of the watch and carrying a pointer adapted to move in unison with the aforesaid pointer; and changeable gearing between said gear-wheels, substantially as shown and for the purpose set forth.

7. In a combined cyclometer and speed-indicator, the combination, of a watch, distance-measuring mechanism operating a pointer above the face of the watch, a gear-wheel driven by the watch-movement, a second gear-wheel, and a pointer operated by the latter; together with changeable gearing between the aforesaid gear-wheels, substantially as shown and for the purpose set forth.

644,580. MOTOR. WILLIAM CLINE, Lancaster, Pa., assignor to Daniel D. Good, John J. Stewart, and Joseph Sondheimer, same place. Filed Dec. 14, 1897. Serial No. 661,797. (No model.)



Claim.—1. The combination, in a motor, of a lever-arm having one end hinged to a support, a traveler adapted to move lengthwise of the lever-arm, the lever-arm being adapted to move under the weight of the traveler after a downward impulse is given the free end of said lever-arm, means for imparting a downward impulse to the free end of the lever-arm, means for raising the free end of the lever-arm, means for automatically restoring the traveler to its normal position by the raising of the free end of the lever-arm, and a connection between the traveler and mechanism to which power is to be applied, for the purpose specified.

2. The combination, in a motor, of lever-arms having their adjacent ends hinged to a support, a traveler on each of the lever-arms and adapted to move lengthwise thereof, one of said travelers being of greater weight than the other, the lever-arms being adapted to be moved by the weight of the heavier traveler after a downward impulse is given the free end of the lever-arm carrying the same, means for imparting a downward impulse to the free end of the lever-arm carrying the heavier traveler, a connection between the travelers, whereby the movement of one traveler toward the free end of its lever-arm actuates the other traveler toward the hinged end of the other lever-arm, and a connection between the heavier traveler and mechanism to which power is to be applied, for the purpose specified.

3. The combination, in a motor, of lever-arms set at a vertical angle the one with the other and having their adjacent ends rigidly connected with an oscillating support, a traveler on each of the lever-arms and adapted to move lengthwise thereof, one of said travelers being of greater weight than the other, the lever-arms being adapted to be moved by the weight of the heavier traveler after a downward impulse is given the free end of the lever-arm carrying the same, means for imparting a downward impulse to the free end of the lever-arm carrying the heavier traveler, a connection between the travelers, whereby the movement of one traveler toward the free end of its lever-arm actuates the other traveler toward the hinged end of the other lever-arm, and a connection between the heavier traveler and mechanism to which power is to be applied, for the purpose specified.

4. The combination, in a motor, of lever-arms set at a vertical angle the one with the other and having their adjacent ends rigidly connected with an oscillating support, a traveler on each of the lever-arms and adapted to move lengthwise thereof, one of said travelers being of greater weight than the other, the lever-arms being adapted to be moved by the weight of the heavier traveler after a downward impulse is given the free end of the lever-arm carrying the same, means for imparting a downward impulse to the free end of the lever-arm carrying the heavier traveler, a drum, ropes connecting the rear ends of the travelers with said drum and being wound in opposite directions about the same, and a connection between said drum and mechanism to which power is to be applied, for the purpose specified.

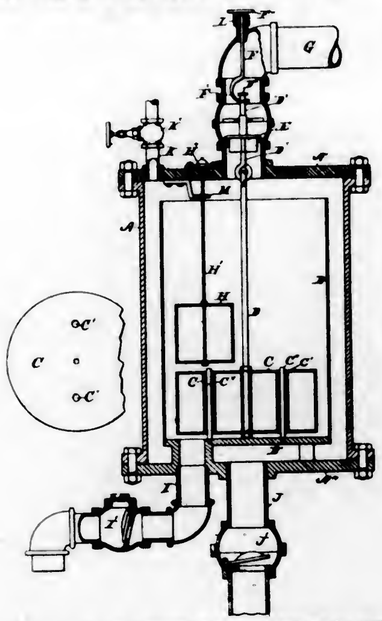
644,581. BROOM-HOLDER. HARRY F. COOPER, Apollo, Pa. Filed Apr. 29, 1899. Serial No. 715,019. (No model.)



Claim.—A broom-holder comprising two plates, one of which is provided with a vertically-slotted boss, the rear face of which is recessed transversely of the slot, and the other plate is open and provided at one end with a T-shaped head adapted to fit within the slot and the recess, the walls of the openings being at right angles to the plane of the plate, whereby the plate is invertible, the base-wall be-

ing provided with a diverging walled recess at its central portion and curved upon each side of said recess, to form two pointed teeth in the plane of the plate, and the walls opposite said recess being contracted.

644,582. STEAM VACUUM-PUMP. FRED R. CRUMBAKER, Meadon, Mich., assignor of one-half to Henry D. Cushman, Three Rivers, Mich. Filed Apr. 13, 1896. Serial No. 677,516. (No model.)



Claim.—1. In a low-pressure steam vacuum-pump the combination of an exterior or main casing A, with a top and bottom; the steam-pipe G, connecting to the top thereof having a valve within opening outwardly; a connection to said valve so that it can be opened by hand; a suitable valve or cock supported on the top thereof; a water-inlet pipe containing a check-valve connecting to the bottom of said main casing; an internal chamber or receiver open at its top and having a bottom within the main chamber; an outlet-passage containing a check-valve connecting to the bottom of the inner chamber, a float located in the bottom of said inner chamber and connected by a suitable rod to the valve in the steam-pipe to control the same; and an additional lighter float toward the bottom of said internal chamber connected by a suitable rod to a vent-valve in the top of the main chamber, all coacting together as described for the purpose specified.

2. In a steam vacuum-pump the combination of the exterior main casing, having suitable valve connections for the introduction of steam and the escape of air, and the induction and eduction of the water and an interior casing having a bottom within the main casing, floats C, and H, therein, said interior casing being open at its top so that the water drawn up by said pump shall pass around and overflow into the same to rapidly condense the steam and operate the floats as specified.

3. In a steam vacuum-pump, the combination of an exterior casing having suitable connections for the introduction of steam and the escape of air and the induction and eduction of water and an interior casing within around which the inflowing water passes to rapidly condense the steam within, floats in said interior casing operated by said inflowing water to control the admission of steam and air for the purpose specified.

4. In a steam vacuum-pump the combination of a casing with suitable valve connections for the introduction of steam and the outlet of air and for the induction and eduction of water, a vent-valve to break the vacuum, a float operated by the inflowing water supported well down toward the bottom of said casing and connected to said vent valve to control the same and hold it open until the water has had opportunity to fully escape from the pump for the purpose specified.

5. In a low-pressure steam vacuum pump the combination of a chamber, suitable connections for the introduction of steam and the outlet of air and for the induction and eduction of water, a steam-pipe delivering into the said chamber, an outwardly-opening valve E, into the said steam-pipe, a spindle to connect to the said valve to enable the manipulation of the same by hand, a float in said chamber operated by the inflowing water connected to said valve to open the same against steam-pressure when the vacuum is broken for the purpose specified.

644,583. ARTIFICIAL DENTURE. JOHN H. DOYLE, Atlanta, Ga. Filed Feb. 15, 1899. Serial No. 705,589. (No model.)



Claim.—1. In an artificial denture, the combination of a gum-plate, and the gum consisting of a series of layers of composition affixed to each other and to the face of the gum-plate.

2. In an artificial denture, the combination of a gum-plate having its face roughened, or dentated, and the gum consisting of a series of layers of composition affixed to each other and to the roughened, or dentated, face of the gum-plate.

644,584. SIGHT FOR FIREARMS. GEORGE DURRENBERGER, Middlefield, Conn., assignor to Lyman A. Mills, same place, executor of William Lyman, deceased. Filed Aug. 17, 1899. Serial No. 727,507. (No model.)



Claim.—1. In a sight for firearms the combination of a base, a sight-carrier guided thereon to swing in an arc having its axis below the base and longitudinal of the barrel, and adjusting means for operating the carrier in its guiding-bearings to either side of the vertical central plane of the barrel for wind-gage, substantially as and for the purpose specified.

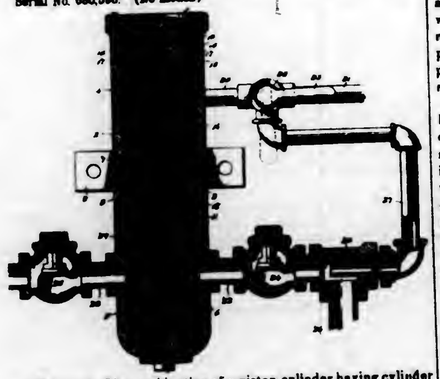
2. In a wind-gage sight for firearms, the combination of a base provided with a transverse curved groove or guiding-way, a sight-carrier fitting and adapted to travel in said groove or way, and adjusting means for moving the carrier along the guiding-way to adjust the sight for wind-gage, substantially as and for the purpose specified.

3. In a wind-gage sight for firearms, the combination of a base adapted to be secured to the firearm and provided with a guiding-groove curved in the arc of a circle transverse to the axis of the barrel and of retaining form in cross-section, a sight-carrier fitting and received in said guiding-groove and provided with a rack or series of teeth and an adjusting-screw journaled in the base and intermeshing with the said rack or teeth to operate the sight-carrier in its bearings substantially as and for the purpose specified.

4. In a wind-gage sight for firearms, the combination of the base adapted to be secured to the firearm and provided with a raised part having a transverse groove curved in the arc of a circle and of retaining form in cross-section; a carrier fitting said groove and provided with a rack or section of a worm-gear, a sight mounted on said carrier, and an adjusting-screw journaled in said raised part of the base and intermeshing with the worm-gear teeth of the carrier for adjusting the sight for wind-gage, substantially as and for the purpose specified.

5. In a wind-gage sight for firearms, the combination of a base provided with the raised part A^5 having the transverse curved groove a^2 in its rear face, and the groove a^4 forward thereof, an adjusting-screw journaled in the base over and impinging upon the highest part of said groove a^2, a sight-carrier provided with the curved projecting part f' fitting the groove a^2 of the base, and a part f'' joined therewith and fitting the groove a^4 of the base, and provided with a rack or teeth upon its exterior surface intermeshed with said adjusting-screw, a sight mounted upon said carrier, and means for tightening the carrier in its guiding grooves or ways, substantially in the manner and for the purpose specified.

644,585. STEAM-PUMP. WALTON H. ESY, Roanoke, Va., assignor of one-half to Malcolm W. Bryan, same place. Filed May 11, 1898. Serial No. 680,390. (No model.)



Claim.—1. The combination of a piston-cylinder having cylinder inlet and outlet ports, and feed and exhaust reversing-ports, the feed reversing-ports being controlled by the cylinder-piston, and a cylinder-port-controlling valve having channels in communication with the valve-casing at opposite sides of the plane of the valve, to apply fluid-pressure in opposite directions thereto, said valve also having feed and exhaust reversing-ports in communication with the channels thereof, for alternate registration with said feed and exhaust reversing-ports of the cylinder, substantially as specified.

2. The combination of a piston-cylinder having cylinder inlet and outlet ports, and feed and exhaust reversing-ports, the feed reversing-ports being controlled by the cylinder-piston, and a cylinder-port-controlling valve having channels in communication with the valve-casing at opposite sides of the plane of the valve, to apply fluid-pressure in opposite directions thereto, each channel having communicating feed and exhaust ports adapted for alternate respective registration with the feed and exhaust reversing-ports of the cylinder, substantially as specified.

3. The combination of a piston-cylinder having cylinder inlet and outlet ports, and feed and exhaust reversing-ports, the feed reversing-ports being controlled by the cylinder-piston, and a cylinder-port-controlling valve having channels in communication with the valve-casing at opposite sides of the plane of the valve, to apply fluid-pressure in opposite directions thereto, the exhaust reversing-ports being in communication respectively with the cylinder outlet-ports, and each channel of the valve having a feed and an exhaust reversing-port, of which the feed-port of one channel is adapted to register with one feed reversing-port of the cylinder, while the exhaust reversing-port of the other channel registers with an exhaust reversing-port of the cylinder, substantially as specified.

4. The combination with a piston-cylinder, of valve mechanism having a valve-seat provided with independent inlet-ports and piston-controlled outlet-ports which are in communication with the cylinder at different distances from the terminals thereof, said outlet-ports being adapted for closure by the cylinder-piston without obstructing the inlet-ports, an exhaust-port adapted for communication with either of said outlet-ports, feed and exhaust reversing-ports in communication with the cylinder, one of said feed-ports being adapted for exposure by the cylinder-piston while the said outlet-port is obstructed thereby, and a fluid-actuated valve mounted in a casing for controlling said ports in the valve-seat, and provided with an exhaust-cavity for connecting one of said outlet-ports with the exhaust-port of the valve-seat, a feed-channel having feed-ports for alternate respective registration with said feed and exhaust reversing-ports of the valve-seat, substantially as specified.

5. The combination with a piston-cylinder, of valve mechanism having a valve-seat provided with independent inlet-ports and piston-controlled outlet-ports which are in communication with the cylinder at different distances from the terminals thereof, said outlet-ports being adapted for closure by the cylinder-piston without obstructing the inlet-ports, an exhaust-port adapted for communication with either of said outlet-ports, feed and exhaust reversing-ports in communication with the cylinder, one of said feed-ports being adapted for exposure by the cylinder-piston while the said outlet-port is obstructed thereby, and a fluid-actuated valve mounted in a casing for controlling said ports in the valve-seat, and provided with an exhaust-cavity for connecting one of said outlet-ports with the exhaust-port of the valve-seat, a feed-channel having feed-ports for alternate respective engagement with the inlet-ports of the valve-seat, and conducting-channels in communication with the valve-casing respectively at opposite sides of the plane of the valve, and each provided with an inlet and an exhaust port for alternate respective registration with said inlet and exhaust reversing-ports of the valve-seat, substantially as specified.

6. The combination with a piston-cylinder, of valve mechanism having a valve-seat provided with independent inlet-ports and piston-controlled outlet-ports which are in communication with the cylinder at different distances from the terminals thereof, said outlet-ports being adapted for closure by the cylinder-piston without obstructing the inlet-ports, an exhaust-port adapted for communication with either of said outlet-ports, feed and exhaust reversing-ports in communication with the cylinder respectively adjacent to the said outlet and inlet ports, the feed-reversing ports being located at points nearer the center of the length of the cylinder than the said outlet-ports, for exposure in advance of the outlet-ports during the advance movement of the cylinder-piston, substantially as specified.

7. The combination with a piston-cylinder, of valve mechanism having a valve-seat provided with independent inlet-ports and outlet-ports in communication with the cylinder, an exhaust-port adapted to be connected with either of said outlet-ports, and also provided with reversing feed-ports and reversing exhaust-ports in communication with the cylinder, and a fluid-actuated valve mounted in a casing for controlling said ports in the valve-seat, and provided with an exhaust-cavity for connecting one of said outlet-ports with the exhaust-port of the valve-seat, a feed-channel having spaced feed-ports for alternate respective registration with the inlet-ports of the valve-seat, and conducting-channels, in communication with the valve-casing respectively at opposite sides of the plane of the valve, and each provided with an inlet and an exhaust port for alternate respective registration with said reversing inlet and exhaust ports of the valve-seat, substantially as specified.

8. The combination with a piston-cylinder, of valve mechanism having a valve-seat provided with independent inlet-ports and outlet-ports in communication with the cylinder, an exhaust-port adapted to be connected with either of said outlet ports, and also provided with reversing feed-ports and reversing exhaust-ports in communication with the cylinder, and a fluid-actuated valve mounted in a casing for controlling said ports in the valve-seat, and provided with an exhaust-cavity for connecting one of said outlet-ports with the exhaust-port of the valve-seat, a feed-channel having spaced feed-ports for alternate respective registration with the inlet-ports of the valve-seat, and conducting-channels, in communication with the valve-casing respectively at opposite sides of the plane of the valve, and each provided with an inlet and an exhaust port for alternate respective registration with said reversing inlet and exhaust ports of the valve-seat, the said exhaust conducting-ports, in communication with the conducting-channels, being arranged in advance of the cooperating feed-ports which are in communication with the same channels, substantially as specified.

9. The combination of a piston-cylinder, a cylinder-port-controlling valve, piston-controlled valve-reversing ports, and piston-controlled ports for equalizing fluid-pressure upon opposite sides of the piston subsequent to the exposure of the reversing-ports, substantially as specified.

10. The combination of a piston-cylinder, a cylinder-port-controlling valve, the cylinder being provided with piston-controlled safety-ports in communication with cylinder feed-ports, and adapted when exposed to equalize the pressure upon opposite sides of the piston, and piston-controlled valve-reversing ports, arranged for exposure prior to said safety-ports and having communication with the cylinder beyond the limit of its stroke, substantially as specified.

11. The combination of a piston-cylinder, a fluid-actuated cylinder-port-controlling valve having its casing in communication by piston-controlled valve-reversing ports with the cylinder, and piston-controlled safety-ports communicating with the cylinder at an interval greater than that between the reversing-ports, and communicating with the cylinder-inlet ports for equalizing the pressure upon opposite sides of the plane of the piston subsequent to the exposure by the piston of the reversing-ports, substantially as specified.

12. The combination of a piston-cylinder, and a fluid-actuated cylinder-port-controlling valve of which the casing is in communication by piston-controlled valve-reversing ports with the piston-cylinder, the valve-seat being provided with pairs of ports of which the members are respectively in communication with the cylinder at an interval greater than said valve-reversing ports, and with the cylinder-inlet ports, and the valve being provided with cavities for connecting said ports in the valve-seat in pairs to equalize the pressure upon opposite sides of the plane of the piston, substantially as specified.

13. The combination of a piston-cylinder and a fluid-actuated cylinder-port-controlling valve of which the casing is in communication by piston-controlled feed and exhaust valve reversing ports with the piston-cylinder, the valve-seat being provided with pairs of safety-ports of which the members are respectively in communication with the cylinder, at an interval greater than said inlet-valve-reversing ports, and with the cylinder inlet-ports, the exhaust-valve-reversing ports being in communication with the cylinder outlet-ports, and the valve being provided with cavities for connecting said safety-ports in pairs, to equalize the pressure upon opposite sides of the plane of the piston, and with cavities for connecting the inlet reversing-ports with the valve-casing at one side of the valve, and an outlet reversing-port with the valve-casing at the other side of the valve, substantially as specified.

14. The combination with a piston-cylinder, of valve mechanism including a valve-seat provided with cylinder inlet, outlet, and exhaust ports, with reversing-ports in communication with the interior of the cylinder, and with pairs of safety-ports, one member of each pair of safety-ports being in communication with the interior of the cylinder and the other with the adjacent cylinder inlet-port, and each safety-port which is in communication with the cylinder being arranged contiguous to one of said reversing-ports, for simultaneous closure by the cylinder-piston, and a valve having its casing, at opposite sides of the plane of the valve, in communication with said reversing-ports, provided with an exhaust-cavity for connecting the cylinder outlet-ports with the exhaust-port of the valve-seat, feed-ports for communication with the inlet-ports of the valve-seat, and safety-channels for connecting the members of said pairs of safety-ports, to equalize the pressure upon opposite sides of the plane of the cylinder-piston when the latter approaches the limits of its strokes, substantially as specified.

15. The combination with a piston-cylinder, of valve mechanism including a valve-seat provided with cylinder inlet, outlet, and exhaust ports, with reversing-ports in communication with the interior of the cylinder, and with pairs of safety-ports, one member of each pair of safety-ports being in communication with the interior of the cylinder, and the other with the adjacent cylinder inlet-port, and each safety-port which is in communication with the cylinder being arranged contiguous to one of said reversing-ports, for simultaneous closure by the cylinder-piston, and a valve having channels respectively in communication with chambers at opposite sides of the plane of the valve and provided with ports for communication with said reversing-ports of the valve-seat, an exhaust-cavity for connecting the outlet-ports of the valve-seat with the exhaust-port, having continuously-supplied feed-ports for alternate registration with the inlet-ports of the valve-seat, and also having safety-channels for connecting said pairs of safety-ports to equalize the pressure upon opposite sides of the plane of the piston when the latter approaches the limits of its strokes, substantially as specified.

16 The combination with a piston-cylinder, of valve mechanism including a valve-seat provided with cylinder inlet, outlet, and exhaust ports, reversing-ports in communication with the interior of the cylinder, and pairs of safety-ports, one member of each pair being in communication with the interior of the cylinder and the other with the contiguous cylinder inlet-port, the reversing and safety ports which are in communication with the cylinder being controlled by the cylinder-piston and being arranged for successive exposure in the order named as the piston approaches the limit of each stroke, and a valve having its casing in communication at opposite sides of the plane of the valve with reversing-ports located at equal distances from opposite ends of the piston-cylinder, and said valve being provided with an exhaust-cavity, spaced feed-ports for registration with the cylinder inlet-ports, and safety-channels for connecting the pairs of safety-ports, substantially as specified.

17. The combination with a piston-cylinder, of valve mechanism having a central exhaust-port, spaced cylinder outlet-ports and spaced cylinder inlet-ports, and also provided at obliquely-opposite points, contiguous to the cylinder inlet-ports with feed and exhaust reversing-ports, both of which are in communication with the cylinder for control by the cylinder-piston, and the latter of which is in communication with the cylinder outlet-port, and a valve having its casing in communication at points upon opposite sides of the plane of the valve with a feed and an exhaust reversing-port located near opposite ends of the cylinder, said communication being made through independent channels and ports in the valve, and said valve being also provided with an exhaust-cavity and a plurality of feed-ports for alternate registration with the cylinder inlet-ports, substantially as specified.

18. The combination with a piston-cylinder, of valve mechanism including a valve-seat provided with cylinder inlet, outlet, and exhaust ports, and piston-controlled reversing inlet and exhaust ports arranged in planes upon opposite sides of the plane of said cylinder-ports, and a valve provided in the plane of said cylinder-ports with an exhaust-cavity and a continuously-supplied feed-channel having ports for registration, respectively, with the cylinder inlet-ports, and provided in the planes, respectively, of said reversing-ports, with channels in communication with the valve-casing respectively at opposite sides of the plane of the valve and having ports for registration with the reversing-ports, substantially as specified.

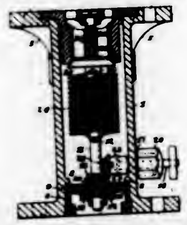
19. A pump having a continuous cylindrical casing divided by an intermediate annular partition to form piston and plunger cylinders, a pump-barrel having its inner end, threaded in the opening of said partition and spaced at its outer end from the end of the plunger-cylinder, said barrel being provided at its inner end with a wrench-seat, a piston and a connected plunger seated, respectively, in said piston-cylinder and pump-barrel, the outer end of the piston-cylinder having a removable head, and the piston being provided with a wrench-seat accessible through the adjacent head-fitted end of the cylinder, valved inlet and outlet pipes in communication with the plunger-cylinder, and valve mechanism for controlling the admission and exhaust of motive agent for actuating the piston, substantially as specified.

20. The combination with a pump having a fluid-actuated plunger, and valve mechanism for controlling the admission and exhaust of motive fluid, the pump-cylinder having communicating inlet and outlet pipes, of a supply-pipe tapping the said inlet-pipe radially, an exhaust-conveyer communicating with the exhaust-port of said valve mechanism and entering the inlet-pipe of the pump-cylinder axially, and a three-way cock arranged at the intersection of said exhaust-conveyer with the exhaust-port of the valve mechanism, substantially as specified.

21. The combination with a pump having a fluid actuated plunger, and valve mechanism for controlling the admission and exhaust of motive agent, said pump-cylinder having communicating inlet and outlet pipes provided with check-valves, and the valve mechanism having an exhaust-pipe 31, of a supply-pipe tapping said inlet-pipe radially, an exhaust-conveyer 27 communicating laterally with said exhaust-pipe of the valve mechanism and terminating in a nozzle arranged axially in the inlet-pipe of the pump-cylinder across the communicating end of the supply-pipe, and a three-way cock arranged at the intersection of said exhaust-conveyer with the exhaust-pipe of the valve mechanism, substantially as specified.

22. The combination with a piston-cylinder, of a fluid-actuated cylinder-port-controlling valve, mounted in a casing which is in communication with the cylinder by ports controlled by the cylinder-piston, the valve having at one end a socket disposed transversely to the path of movement of the valve, and a stem fitting to slide in a guide in the end of the valve-casing, and provided at its inner end with a transverse stud for detachable engagement with said socket in the valve, substantially as specified.

644,586. VALVE. LAURENCE C. RUSSELL, New York, N. Y. Filed Oct. 31, 1898. Serial No. 695,027. (No model.)



Claim.—1. A valve provided with a casing, a rotatable portion mounted in said casing, a resilient device engaging said valve and portion and an independent device out of alinement with said portions, constructed to engage and rotate the same.

2. A valve provided with a casing, a pinion mounted within said casing, a resilient device connected with said valve and pinion and means for operating said pinion.

3. A valve provided with a casing, a pinion mounted within said casing, a resilient device connected with said valve and pinion and a shaft carrying a pinion to drive the former pinion.

4. A valve connected with an independently-mounted rod or shaft by a resilient device, said shaft carrying a pinion, and means for driving said pinion.

5. A valve connected with an independently-mounted rod or shaft by a resilient device, said rod or shaft carrying a pinion, and an exteriorly-mounted shaft provided with a pinion to drive the first-mentioned pinion.

6. A valve connected with an independently-mounted rod or shaft by a resilient device, a device to prevent the rotation while permitting of the longitudinal movement of said shaft and means for moving said rod.

7. A valve provided with a rod or shaft, a resilient device engaging said valve and rod and means for moving said rod longitudinally and carrying a device engaging the same to prevent the rotation of said rod.

8. A valve provided with a casing, a longitudinal rod or shaft mounted therein carrying a pinion, a resilient device between said valve and shaft, and means engaging said pinion to expand or contract said device from the outside of said casing.

9. A valve provided with a casing, a longitudinal shaft or rod mounted therein carrying a pinion, a resilient device between said valve and rod, a horizontal shaft carrying a pinion to drive the former pinion to elevate or depress said rod.

10. A valve connected with the longitudinal rod or shaft by a resilient device and a horizontal shaft engaging said rod to prevent the rotation thereof by said device.

11. A valve provided with a longitudinal rod or shaft having a groove, and a horizontal shaft carrying a tongue or projection constructed to enter said groove to prevent the rotation of said rod while permitting the longitudinal movement thereof.

12. A valve provided with an independently-mounted rod or shaft, a resilient device engaging said rod and valve, means for adjusting the opening of the valve and means for reciprocating said rod and carrying a device engaging the same to prevent the rotation thereof.

644,587. COMBINED GANG CULTIVATOR, HARROW, AND HILLER. ALEXANDER T. FISCHER and EDWIN C. LEWIS, Detroit, Mich. Filed July 6, 1899. Serial No. 722,971. (No model.)



Claim.—1. In gang-cultivators for simultaneously working three or more rows of garden truck, the combination of a frame and three or more rows of cutters or hillers interchangeably connected with the frame, the middle row of cutters being wider or covering more space than the side rows, substantially as described.

2. In gang-cultivators for simultaneously working three or more rows of garden truck, the combination of a frame, three or more rows of cutters or hillers interchangeably connected with the frame, the middle row of cutters being wider than the side rows, and gages in front and rear for regulating the depth of the work.

3. In gang-cultivators for simultaneously working three or more rows of garden truck, the combination of a frame, three or more rows of cutters or hillers interchangeably connected with the frame, the middle row of cutters being wider than the side rows, and an adjustable or removable rake arranged athwart the rear end of the frame, substantially as described.

4. In straddle-row cultivators, the combination of a frame, three or more rows of cutters or hillers interchangeably connected with the frame, the middle row being wider than the side rows, an adjustable or removable rake arranged athwart the rear end of the frame, and a draft appliance attached to the middle of the frame, substantially as described.

644,588. BELT-DRUM FOR BELT-POLISHING MACHINES. MICHAEL J. FLAVIN and JOHN T. MORIARTY, Chicopee Falls, and PATRICK A. FLAVIN, Athol, Mass. Filed Oct. 16, 1899. Serial No. 733,752. (No model.)



Claim.—1. A drum for belt-polishing machines, comprising two rigid circular heads, a continuous flexible tube of textile material extending over and attached directly to the periphery of these heads, said tube extending from one head to the other, and means for securing the heads at various distances apart on the shaft, so that the tube may sag more or less between the heads, substantially as described.

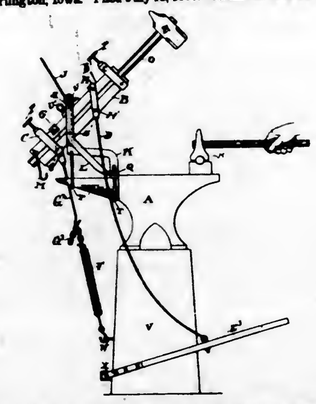
2. A drum for belt-polishing machines, comprising two rigid heads or disks, a number of strips of flexible material extending from head to head and secured thereto, a tube of flexible material outside such base-strips, and adjustable means for holding the heads a greater or lesser distance apart, substantially as described.

3. A drum for belt-polishing machines consisting of two rigid circular heads, a continuous flexible tube having its ends securely attached to said heads, and a plurality of rods bearing on one head, extending inside the tube, and adjustably connected to the other head, by which rods the distance between the heads may be regulated, all combined substantially as described.

4. In a belt-polishing machine, the combination of the shaft, a drum-head or disk fixed on said shaft, a drum-head or disk longitudinally movable on the shaft but compelled to rotate therewith, means for adjusting these heads to different relative positions, and a continuous tube of non-elastic flexible material permanently attached at its ends to both the said heads, all substantially as described.

5. In a belt-polishing machine, the shaft, a disk fixed thereon and a disk rotating with the shaft but movable lengthwise thereof, spreader-rods extending from one disk to the other and engaging one of the disks by screw engagement, so as to adjust the distance between the heads, a continuous tube of flexible material connecting the peripheries of the disks, all combined substantially as described.

644,589. FOOT-POWER HAMMER. FRIEDRICH W. FÖRSTER, Burlington, Iowa. Filed July 13, 1899. Serial No. 723,686. (No model.)



Claim.—1. The combination with a bracket, of a clamp for a hammer pivotally mounted in said bracket, and means for adjusting the pivotal support of the clamp both vertically and laterally.

2. The combination with a bracket or standard comprising two members, of a clamp for a hammer disposed between the members of the clamp or support, a pin passing through said members and pivotally connected with the clamp, means for adjusting the clamp laterally on said pin, and means for permitting a vertical adjustment of said pin.

3. The combination with a bracket or support comprising two members, and a clamp for a hammer disposed between the members of the bracket or support, of a sleeve mounted on the clamp, a plate for normally securing the sleeve to the clamp, means for releasing the sleeve from the plate to permit the adjustment of the sleeve, and a pin passing through the members of the bracket or support and said sleeve.

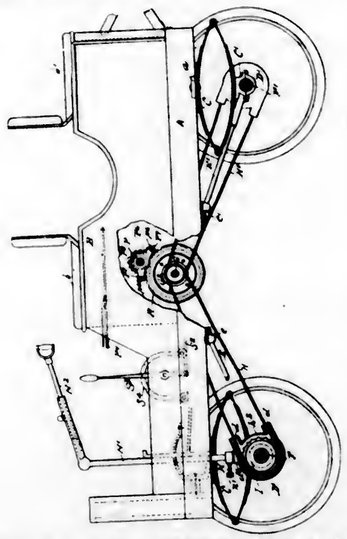
4. The combination with a bracket comprising two members and means at the lower end of said bracket for securing it to an anvil, of a clamp disposed between the members of the bracket and comprising two parallel elongated members for the reception of the handle of a hammer between them, a pin passing through the members of the bracket and pivotally supporting the clamp, means for vertically adjusting said pin and means for effecting the lateral adjustment of the clamp on said pin.

644,590. MOTOR-VEHICLE. HIRAM A. FRAZIER, Tamaqua, Pa., assignor of one-half to Elmer E. Brode, same place. Filed May 23, 1899. Serial No. 717,884. (No model.)

Claim.—1. In a motor-vehicle the combination with a frame, of mechanism in said frame for driving said vehicle, flexible means for communicating motion from the driving mechanism to the front and rear axles, springs between said axles and frame and radius-bars connecting said axles and frame.

2. In a motor-vehicle the combination with a frame, of mechanism in said frame for driving said vehicle, flexible means for commu-

nicating motion from the driving mechanism to the front and rear axles, casings in which said axles rotate, springs fixed to said frame and to spring-seats mounted on said casings, and radius-bars flexibly connected to said casings and to the frame.



3. In a motor-vehicle the combination with a frame, of mechanism in said frame for driving said vehicle, an axle parted midway of its length and provided with connecting-gear mounted in a rotary frame adapted to rotate said axle parts jointly, and a fixed casing inclosing said axle parts and rotary frame and having bearings for said axle parts.

4. In a motor-vehicle the combination with a rotary axle and a fixed casing therefor, of an end extension of said axle having a universal-joint connection therewith, an extension of said casing pivotally connected thereto, and a wheel secured to said axle extension and mounted upon the pivoted casing extension, said jointed connections of the axle parts and of the casing parts being located in the vertical plane of the wheel-rim.

5. In a motor-vehicle the combination with a rotary axle and a fixed casing inclosing the axle and having bearings therefor, of an extension of said axle having a universal-joint connection therewith, a cylindrical extension of said casing inclosing the end of the main casing, having a pivotal connection thereto, and forming a swinging bearing for said axle extension, a wheel having a hub secured to said rotary axle extension and centrally recessed to loosely inclose said pivoted casing extension, and a circular series of rollers pocketed between said recessed hub and the periphery of the pivoted casing extension, said rollers, pivotal connection and universal-joint connection being all located in the central vertical plane of the wheel-rim.

6. In a motor-vehicle the combination with a rotating axle having pivoted journal ends with wheels mounted thereon and a fixed casing in which the intermediate portion of said axle is rotatively mounted, of a steering mechanism comprising bell-crank levers pivoted to said fixed casing approximately in the vertical axial plane and having the arms thereof projected forward of said plane, a connecting-rod L^4 from each of said levers pivoted to a rearwardly-extended wheel-arm L^3, and means for simultaneously operating said levers, substantially as set forth.

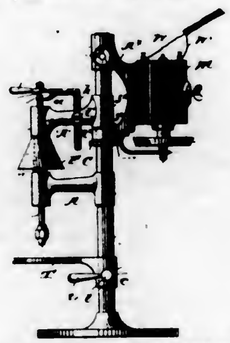
7. In a motor-vehicle the combination with a frame, of a drive-shaft, a driven shaft from which motion is transmitted to the vehicle-axles, fixed gear-wheels of different diameters carried by said drive-shaft, loose gear-wheels on said driven shaft in mesh with said fixed wheels respectively, friction-wheels carried by said loose gears, and a clutch mechanism carried by the driven shaft comprising a flanged sleeve fixed to said shaft, a clutch-sleeve slidable on said flanged sleeve two series of radially-guided friction-shoes adapted to engage said friction-wheels respectively and spring-compressed telescope connections between said slidable sleeve and each of said series of shoes.

8. In a motor-vehicle having positively-driven front and rear axles, the combination with a centrally-parted front axle having a differential driving gear connection, of pivoted end extensions to said axle parts, and wheels having a ratchet connection to said axle extensions substantially as described.

9. In a motor-vehicle the combination with a frame, a drive-shaft, and a driven shaft from which motion is transmitted to the vehicle-axles, of a reversing-gear connection between said shafts comprising a gear-wheel fixable to said driven shaft, two gear-wheels on said drive-shaft one of which meshes directly with said gear-wheel on the driven shaft, a clutch mechanism for engaging one or other of said gear-wheels with the drive-shaft, and an idler gear-wheel arranged in mesh with the second of said drive-shaft gears and also with the driven-shaft gear.

10. In a motor-vehicle the combination with a frame, a drive-shaft, and a driven shaft from which motion is transmitted to the vehicle-axles, of a gear-wheel fixed to said drive-shaft, a flanged sleeve fixed to said driven shaft, a gear-wheel loosely carried by said flanged sleeve and in mesh with said drive-gear, a clutch mechanism between said loose wheel and the driven shaft, a brake-wheel carried by said flanged sleeve, and a brake mechanism comprising a band inclosing said brake-wheel and a lever mechanism carried by the frame and adapted to operate said band.

644,591. ELECTRIC DRILL, &c. WARREN P. FREEMAN, New York, N. Y., assignor to the Empire Electrical Machinery Company, same place. Filed Apr. 8, 1899. Serial No. 712,342. (No model.)



Claim.—1. The combination of a standard, a support extending therefrom, a drill-stock rotatably mounted in said support, a friction-gear, secured to said drill-stock so as to rotate with it, a motor swiveled to the standard, a friction-gear mounted on the shaft of the motor-armature and means substantially as set forth for bringing the two friction-gears into engagement one with the other.

2. The combination of a standard, a support extending thereupon, a vertically-adjustable drill-stock rotatably mounted in said support, a friction-gear of horizontally-fixed position, secured to said drill-stock so as to rotate with it; a motor swiveled to the standard, a friction-gear mounted on the shaft of the motor-armature and means substantially as set forth for bringing the two friction-gears into engagement one with the other.

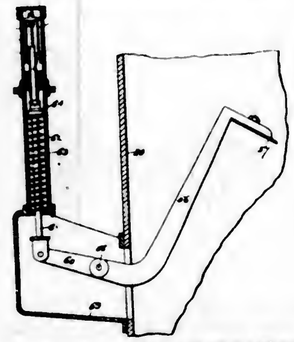
3. The combination of a standard a support extending therefrom, a drill-stock rotatably mounted in said support, a friction-gear secured to said drill-stock so as to rotate with it, a motor swiveled to the standard and provided with an armature which, except when energized, is supported a little out of the position to which the draft of the field would naturally tend to bring it, a friction-gear secured to the shaft of said armature and means substantially as set forth for bringing the two friction-gears into contact, one with the other.

644,592. STOP MECHANISM FOR HOG-SCRAPING MACHINES. HORACE C. GARDNER, Chicago, Ill., assignor of one-half to Gustavus F. Swift, same place. Filed Apr. 20, 1899. Serial No. 713,987. (No model.)

Claim.—1. In a scraping apparatus, the combination with scraping mechanism, of means for carrying the object to be scraped past the scraping mechanism, and means actuated by abnormal action of the scraping mechanism for automatically stopping the carrying mechanism, substantially as described.

2. In a scraping apparatus, the combination with scraping mechanism, of means for carrying the object to be scraped past the scraping mechanism, and means operated by the lodgment in the scraping mechanism of one of the objects under treatment for automatically stopping the carrying mechanism, substantially as described.

3. In a scraping apparatus, the combination with a plurality of scrapers adapted to be moved by the passage of a carcass, and a carrier adapted to convey carcasses past such scrapers, of means for automatically stopping the carrier when a scraper is held out of its normal position for an unusual length of time, substantially as described.



4. In a scraping apparatus, the combination with a plurality of scrapers, of a carrier adapted to convey carcasses past such scrapers, and means actuated by the engagement of any one of said scrapers with a carcass for an abnormal length of time to stop the carrier, substantially as described.

5. In a scraping apparatus, the combination with scraping mechanism, and means for conveying objects to be scraped past such scraping mechanism, of means actuated by the lodgment of any one of said objects in said scraping mechanism for automatically giving an alarm, substantially as described.

6. In a scraping apparatus, the combination with a plurality of movable scrapers, of means for conducting objects to be scraped into engagement with such scrapers, thereby moving them out of their normal position, and means automatically operated by the movement of a scraper for giving an alarm when such scraper remains out of its normal position an extraordinary length of time, substantially as described.

7. In a scraping apparatus, the combination with a plurality of movable scrapers, of means for conducting objects to be scraped into engagement with such scrapers, thereby moving them out of their normal position, and means automatically operated by the movement of a scraper for stopping the apparatus when such scraper remains out of its normal position an extraordinary length of time, substantially as described.

8. In a scraping-machine, the combination with a cylinder, and a plurality of movable scrapers mounted therein, of a carrier adapted to convey carcasses past such scrapers in such manner as to move the scrapers out of their normal position while a carcass is passing them, and automatic mechanism for giving an alarm when any one of the scrapers remains out of its normal position an extraordinary length of time, substantially as described.

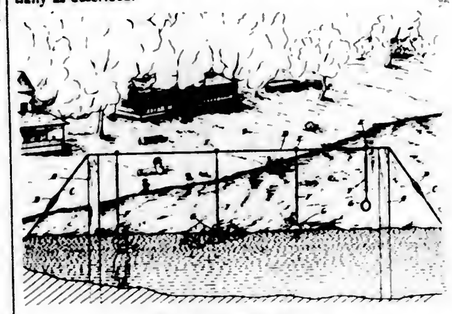
9. In a scraping-machine, the combination with a cylinder, and a plurality of movable scrapers mounted therein, of a carrier adapted to convey carcasses past such scrapers in such manner as to move the scrapers out of their normal position while a carcass is passing them, and automatic mechanism for stopping the carrier when any one of the scrapers remains out of its normal position an extraordinary length of time, substantially as described.

10. In a scraping-machine, the combination with a cylinder, and a plurality of movable scrapers mounted therein, of a carrier adapted to convey carcasses past such scrapers in such manner as to move the scrapers out of their normal position while a carcass is passing them, automatic mechanism for stopping the carrier when any one of the scrapers remains out of its normal position an extraordinary length of time, and automatic brake mechanism for overcoming the momentum of the machine, substantially as described.

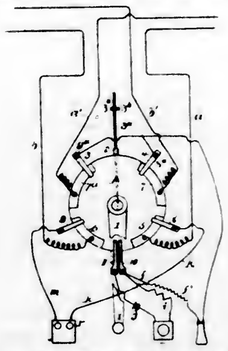
11. A scraping apparatus, having scraping devices, means for causing the scraping devices to traverse the object to be scraped, auxiliary mechanism for giving an alarm and means controlled by the operation of the scraping devices for automatically actuating said auxiliary mechanism when said scraping devices act abnormally, substantially as described.

644,593. SWIMMING DEVICE. MEMO GATES, Copemish, Mich. Filed Sept. 8, 1899. Serial No. 729,863. (No model.)

Claim.—In a swimming device, the combination of posts, a cable supported by the posts, guys and turnbuckles to stretch the cable, a wheel mounted on the cable, a yoke journaled to the wheel and spanning the cable, a longitudinally-yielding support depending from the yoke, and a belt attached to the lower end of the support, substantially as described.



644,594. TELEPHONE SYSTEM. JOSHUA W. GORE, Chapel Hill, N. C. Filed Aug. 16, 1899. Serial No. 727,436. (No model.)



Claim.—1. In a party-line telephone system, the combination with a main line and a return-line, of a switch having a movable part and a series of contact-fingers, a series of four insulated conducting-strips secured to said movable part and having the line-wire connected with two of them, and the return-line connected with the other two of said strips, a signaling device connected in circuit with two of said fingers and local telephone-circuits connected with the remaining fingers, whereby when the switch is turned, one side of the main line will be closed through the signaling device and one side of the return-line and the other side of the main line closed through the local telephone-circuits and the other side of the return-line.

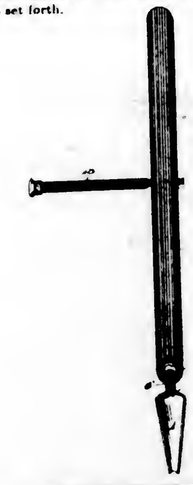
2. The combination with a revoluble spring-retained disk, means for operating said disk and means for limiting its movements in both directions, of a series of insulated conducting-strips secured to said disk, main-line wires attached to two of said strips, return-wires for the respective sides of the line connected with the other strips, fingers normally resting on said first-mentioned strips, a signaling device included in circuit with said fingers, two contact-fingers normally disposed between the main-line-wire strips and connected in a local telephone-circuit, and fingers normally resting on the return-wire strips and included in the local telephone-circuit.

644,595. REVERSIBLE REAMER. PETER GRABLER, Mansfield, Ohio. Filed Feb. 7, 1899. Serial No. 704,784. (No model.)

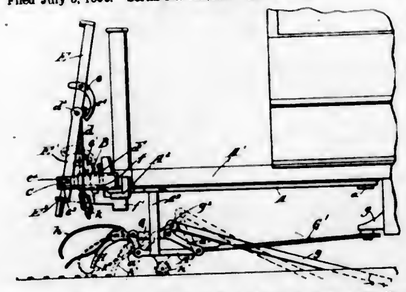
Claim.—1. In a device of the character described, a hollow pod or reamer having a continuous taper from one end to the other with flat cutting edges to permit the operation of the pod in either direction, said pod being open at its smaller end and closed at its larger end with a shank connected to the closed end, combined with a detachable operating-handle having means for securing to the shank either at the end or side of the handle, substantially as shown and described.

2. In combination a pod or reamer having a flat cutting-surface, the edges of said surface allowing for the operation of the pod in either direction, the lower end of said reamer or pod being beveled, a head formed integral with the upper end of said reamer or pod, a handle, means carried by said head for securing the reamer or pod

to the end or side of the said handle, and a lever adapted to be connected to the said handle to assist in the operation of said reamer, substantially as set forth.

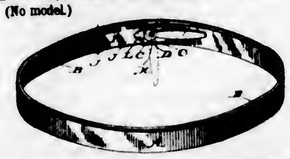


644,596. CAR-FENDER. DOMENICO GUARINO, New York, N. Y. Filed July 5, 1899. Serial No. 722,884. (No model.)



Claim.—The combination, in a fender for street-cars, of collapsible frames, a frame beneath the car and pivotally connected to the car, said frame carrying the collapsible frames, a movable frame fastened to the lower portion of the frame under the car, a scoop carried upon the movable frame, a guiding-roller for guiding the fender around curves, and lugs located upon the surface of the ground and adapted to bring the car to a standstill instantly when the scoop is in lowered position, substantially as described.

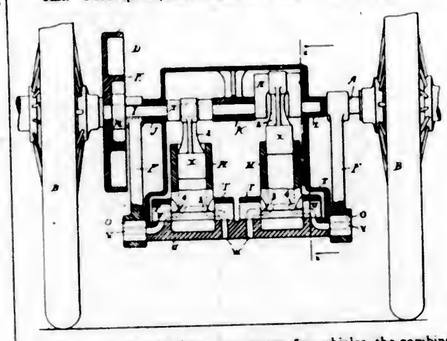
644,597. EMBROIDERY-FRAME. CHARLES G. GUYER and GEORGE K. RUDERT, Wilmington, Del. Filed June 3, 1899. Serial No. 719,223. (No model.)



Claim.—1. In an embroidery-frame, a non-expansible outer ring, an expansible inner one divided at one side, a shouldered slotted plate secured to one end of the inner ring, and a cam-lever secured to the other end, substantially as shown and described.

2. In an embroidery-frame, a non-expansible outer ring, and an expansible inner one divided at one side, combined with the plate D applied to one end of the ring, a pivot projecting from the plate, a cam-lever placed upon the pivot, and a slotted shouldered plate applied to the opposite end of the inner divided ring, and against which the cam operates, for the purpose of expanding the inner ring, substantially as specified.

644,598. MOTOR-VEHICLE. CHARLES O. HEDGES, Massillon, Ohio. Filed Apr. 17, 1899. Serial No. 713,948. (No model.)



Claim.—1. In a fluid-pressure motor for vehicles, the combination with a main driving shaft or axle, a pair of arms pivotally mounted thereon, a motor-housing carried by said arms, one or more motors pivotally mounted in said casing, an inlet and an exhaust port extending through said casing and communicating with said cylinders, a crank-shaft mounted in bearings in said housing, pistons adapted to reciprocate in said cylinders, connected with said crank-shaft, a clutch member carried by said main driving shaft or axle, and another clutch member carried by said crank-shaft, means for swinging said housing to cause said latter clutch member to engage with the former clutch member, substantially as shown and described.

2. In a fluid-pressure motor for vehicles, the combination with a main driving shaft or axle, of a pair of arms connected therewith, a housing connected with said arms, one or more motor-cylinders within said housing, a trunnion extending from each side of each cylinder, suitable bearings for said trunnions, inlet and outlet ports opening into said bearings, a passage in each of said trunnions, said passage adapted to communicate with the respective inlet and outlet ports, a crank-shaft carried by said housing, pistons adapted to operate in said cylinders and connected with said crank-shaft whereby said cylinders are oscillated, such oscillation opening and closing said inlet and exhaust ports alternately, mechanism for connecting said crank-shaft with the vehicle driving-shaft and adapted to be manipulated in either direction, substantially as shown and described.

3. In a fluid-pressure motor for vehicles, the combination with a vehicle proper, and a tight housing supported by said vehicle, one or more cylinders having a pair of trunnions extending from opposite sides of each of said cylinders, bearings in which said trunnions are mounted, a crank-shaft mounted in said housing, a piston for each cylinder, a crank-rod for each piston, and adapted to connect with said crank-shaft whereby the pistons are oscillated, such oscillation of the pistons by the crank-shaft also acting to oscillate the cylinders, said casing and said trunnions having passages therein, said passages being opened and closed alternately by the oscillation of said cylinders, to permit a pressure fluid to enter the cylinders at one time and to escape therefrom at another time, means between said crank-shaft and driving shaft or axle for transmitting motion to said driving-shaft in both directions, substantially as shown and described.

4. In a fluid-pressure motor for vehicles, the combination with a vehicle and a structure suspended from its driving-axle, of a crank-shaft mounted in the suspended structure, clutch mechanism adapted to connect and disconnect the crank-shaft from the driving-shaft and to transmit forward-and-backward motion to the driving-shaft from a constant motion in the crank-shaft, one or more engines oscillatingly mounted in said suspended structure having their pistons connected with said crank-shaft, and having inlet and exhaust ports in said suspended structure and in the oscillating supports, and means to manipulate said clutch mechanism.

5. In a fluid-pressure motor for vehicles, the combination with a vehicle, of a structure suspended from its driving-axle, of a crank-shaft mounted in said structure, a motion-transmitting clutch device between the crank-shaft and driving-shaft and a double member on the crank-shaft, and means to swing the suspended structure to present the latter member of the clutch into contact with either surface of the former member, one or more oscillating engines mounted in said structure with the piston or pistons thereof connected to the crank-shaft and with their inlet and exhaust ports in the structure and in the oscillating supports in the cylinder or cylinders.

6. In a fluid-pressure motor for vehicles, the combination with a vehicle and a structure suspended therefrom, of a crank-shaft mounted in the suspended structure, clutch mechanism adapted to connect and disconnect the crank-shaft from the driving-shaft of the vehicle, and to transmit forward and backward motion to the driving-shaft from the constant motion in the crank-shaft, one or more engines oscillatingly mounted in said suspended structure having their pistons connected with said crank shaft, and having inlet and exhaust ports in said suspended structure and in the oscillating supports, and means to manipulate said clutch mechanism.

644,599. CHICKEN-BROODER. ERNEST F. HODGSON, Dover, Mass. Filed Nov. 2, 1899. Serial No. 735,612. (No model.)

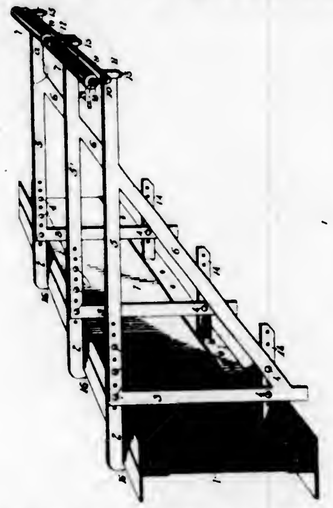


Claim.—1. In a chicken-brooder, the combination with the body portion having a brooding-chamber, and an open space centrally beneath the same, of a plate located in said space and forming an elongated heating-chamber said plate having an upwardly-extending front, and a lamp-body carried below said plate and having a burner above said plate, and openings in the rear of said lamp-body and in said upwardly-extending front whereby a draft of air is caused in one direction beneath said plate and in the opposite direction above, substantially as described.

2. In a chicken-brooder, the combination with the body portion having a brooding-chamber and having a centrally-open space, of a plate slidably located in said space and having an upwardly-turned front provided with perforations, a lamp-body located below said plate and having a burner located above the same, and openings in said plate in rear of said lamp, substantially as described.

3. In combination with the plate A, a chimney secured thereto, an oil-tank beneath the same and an elongated filling-tube extending from the oil-tank to the front and an elongated wick-raiser stem extending from the wick-tube to the front, substantially as described.

644,600. RAILROAD-TIE RECEIVER. BION R. HOMAN, Pacific Junction, Iowa. Filed Mar. 15, 1899. Serial No. 709,148. (No model.)

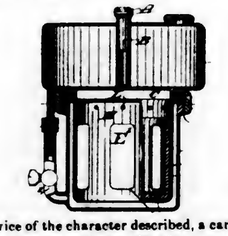


Claim.—A railroad-tie receiver, composed of a supporting-platform comprising two or more integral right-angled bracket-irons an adjustable hook and brace mounted at the top and bottom side of each bracket-iron, and sockets in the ends of the horizontal sides of each bracket-iron, in combination with rollers and roller-supports mounted in and extended between each two bracket-irons.

644,601. ACETYLENE-GAS GENERATOR. WILLIAM C. HOWAN, Meriden, Conn., assignor to the Edward Miller & Company, of Connecticut. Filed Sept. 25, 1899. Serial No. 731,586. (No model.)

Claim.—1. A cup comprising a strengthening-skeleton and porous material permanently molded thereto.

2. In a device of the character described, a movable cup formed of a porous material and a metallic bearing-face permanently secured thereto.



3. In a device of the character described, a carbid-chamber having a porous portion, means for varying the exposure of said porous portion to the carbid, and means for holding water adjacent said porous portion.

4. A cup formed of a porous material, a band of strengthening material adjacent the edge of said cup, and strips of strengthening material extending longitudinally of said cup, said bands and strips being permanently secured to said cup.

5. In a device of the character described, a carbid-chamber having a porous portion, a water-chamber disposed externally of said carbid-chamber, means for varying the exposure of said porous portion to the carbid, and said carbid-chamber having a gas communication with said water-chamber for equalizing the pressure in said chambers.

6. In a device of the character described, a damper having apertures, a porous carbid-chamber, said parts being nested and one of said parts being movable, a water-chamber disposed externally of said parts and having a direct gas communication with said carbid-chamber.

7. In a device of the character described, a damper having perforations, a porous carbid-chamber, said parts being nested and one of said parts being movable, and a water-chamber disposed externally of said carbid-chamber.

8. In a device of the character described, a damper having segmental openings, a porous cup having impervious segments and revolubly mounted with respect to said carbid-chamber, a water-chamber disposed externally of said parts, the space in said carbid-chamber having a direct gas communication with said water-space near the top thereof.

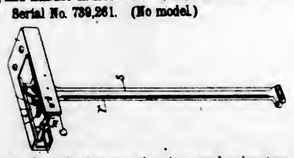
9. In a device of the character described, a damper having segmental openings, a porous cup having impervious segments, said cup being movable relatively to said damper, a water-chamber disposed externally of said parts, the space in said water-chamber having a direct gas communication with the space in said carbid-chamber near the top thereof.

10. In a device of the character described, a water-reservoir, a water-chamber detachably secured to said water-reservoir, means to conduct water to said water-chamber from said water-reservoir, a perforated damper having segmental openings and detachably secured to said water-reservoir, a porous cup mounted so as to be movable independently of said damper, said cup and damper being mounted internally of said water-chamber, and means for moving said parts independently.

11. In a device of the character described, a water-reservoir, a water-chamber detachably secured to said water-reservoir, means for supplying water to said water-chamber from said water-reservoir, a porous carbid-cup within said water-chamber, and strengthening means integral with said cup.

12. In a device of the character described, a water-reservoir, a water-chamber detachably secured to said water-reservoir, means for supplying water to said water-chamber from said water-reservoir, a porous carbid-cup forming an internal carbid-space, and means to vary the size of that portion of the porous cup that is exposed to the carbid.

644,602. DUPLEX TYPE-BAR HANGER. ERNEST A. HORNBOSTEL, Sr., and ERNEST A. HORNBOSTEL, Jr., Des Moines, Iowa. Filed Dec. 5, 1899. Serial No. 739,261. (No model.)



Claim.—1. In a duplex type-bar hanger having two extensions, an equalizing-lever having two journal-bearings in combination with

one of the parallel forward extensions of the hanger and means for adjusting one of the said extensions relative to the other and the lever, for the purposes stated.

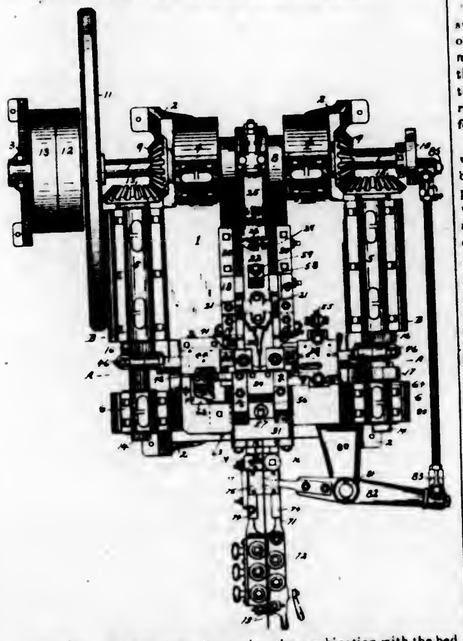
2. A duplex type-bar hanger having one or more screw-holes and two parallel forward extensions and a groove in the inside face of one of the extensions, an equalizing-lever having two journal-bearings fitted and pivoted in said groove, corresponding journal-bearings in the other parallel extension, and a screw in the front ends of said parallel extensions, arranged and combined to operate in the manner set forth for the purposes stated.

3. The equalizing-lever having a double-inclined plane on its rear face and a groove at the juncture of the two planes, straight flat faces on its top, bottom and front and two pivot-bearings, in combination with one of the parallel forward extensions of a duplex type-bar hanger having a longitudinal groove in its inside face to admit the lever, and a transverse groove coinciding with the groove in the lever, and a pin for pivotally connecting the lever with said extension, to operate in the manner set forth.

4. The equalizing-lever having a double-inclined plane on its rear face and a groove at the juncture of the two planes, straight flat faces on its top, bottom and front and two pivot-bearings, in combination with one of the parallel forward extensions of a duplex type-bar hanger having a longitudinal groove in its inside face to admit the lever, and a transverse groove coinciding with the groove in the lever, and a pin for pivotally connecting the lever with said extension, and means for adjusting one of the parallel forward extensions relative to the other extension, to operate in the manner set forth.

5. A duplex type-bar hanger, comprising a rear end portion adapted to be fixed to the frame of a type-writer, two parallel forward extensions and one of them provided with a groove extending longitudinally from its free front end rearward, and the other extension flexible and provided with two pivot-bearings, an equalizing-lever having two pivot-bearings fulcrumed in the groove of said grooved extension and also provided with two pivot-bearings, two pivots having type-bars fixed thereto fitted in the said bearings and a screw for adjustably connecting the ends of the two parallel extensions, all arranged and combined to operate in the manner set forth, for the purposes stated.

644,603. **WIRE-NAIL MACHINE.** WILLIAM J. HUTCHINS, Joliet, Ill. Filed July 18, 1898. Serial No. 686,306. (No model.)



Claim.—1. In a wire-nail machine, the combination with the bed provided with the upright and vertically-recessed anvil portion, the table recessed across its top, and arranged adjacent the recessed side of said anvil; the die-block seated upon said table and provided with a depending portion adapted to fit into said table-recess, and with an extending portion adapted to fit into the recess of said anvil, and means for vertically and longitudinally adjusting said die-block, for the purpose specified.

2. In a wire-nail machine, the combination with the bed provided with the upright vertically-recessed anvil portion; the top recessed table arranged adjacent the recess of said anvil portion; the die-block seated upon and shaped to register with the top of said table, and provided with the portion extending into said anvil-recess; the vertically-adjustable wedge arranged to give longitudinal adjustment, and the screw arranged to give vertical adjustment, to said die-block, substantially as set forth.

3. In a wire nail machine, the combination with the bed, provided with the upright vertically-recessed anvil portion; the top recessed table arranged adjacent said anvil; the die-block provided with depending and lateral projections adapted to respectively fit in said table and anvil recesses; the adjustable wedge arranged to give longitudinal adjustment, and the screw arranged to give vertical adjustment, to said table and die-block; and the clamps arranged holding said die-block seated, substantially as set forth.

4. In the herein-described wire-nail machine, the combination with the bed and the die-block; the die-block-supporting table provided with the depending portion arranged fitted into the vertical opening of the bed, and the screw turned through an underreaching ledge of the bed and into a vertical hole of said table, and adapted to be turned to give vertical adjustment to said table, substantially as and for the purpose specified.

5. In the herein-described wire-nail machine, the combination with the machine-standards, and the grip-lever and its actuating-cam, the barrel attached to the machine-standard and the coil-spring arranged seated at one end in said barrel, and impinging the grip-lever at its opposite end, substantially as and for the purpose specified.

6. In the wire-nail machine described, in combination with the longitudinal guideway thereof, the opposite posts arranged at one end portion of said guideway; the opposite links respectively swung from pins of said posts; the header cross-head provided with opposite trunnions swung in said links; the opposite sliding blocks arranged in the opposite end portion of said guideway and arranged supporting and guiding the rear end of said cross-head by means of a cross-pin, and the crank-and-pitman mechanism for operating said head, substantially as and for the purpose specified.

7. In a wire-nail machine, the header cross-head supported by swinging links at its forward end and longitudinally-traveling blocks, or heads, at its rear end and operated by means of a crank-and-pitman mechanism arranged in the wire line of the machine, whereby the nail-heading tool carried thereby is brought into direct line with the nail-wire line when at the limit of its forward movement, and raised above said line at its receding movement, substantially as set forth.

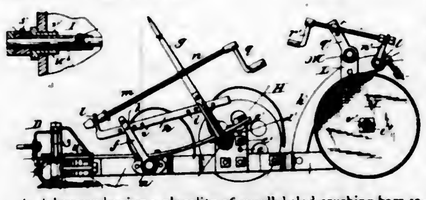
8. A wire-nail machine, provided with means for feeding forward, at stated intervals, two strands of nail-wires simultaneously, one strand vertically above the other; horizontally-operating, gripping mechanism arranged to jointly grip said wires at the junction where the nails are formed, transversely-operating point-cutters arranged in opposite and independently-adjustable pairs adapted to engage and simultaneously point two nails; a longitudinally-operating header arranged in vertical line with the nail-wires and adapted, during its advancing movement, to descend from a position vertically above the nail-wires, engage and shed the nails from the nail-wires and thereafter engage the nail-wire ends and simultaneously form the nail-heads; and during its receding movement to ascend to its former position above the path of the forwardly-infeeding headed ends of the nail-wires and with crank mechanism arranged in direct line with the nail-wire for giving movement to said header, substantially as set forth.

644,604. **COMBINED HARROW AND ROLLER.** ISAAC C. INBODEN, Campbelltown, Pa. Filed Oct. 27, 1899. Serial No. 734,921. (No model.)

Claim.—1. A harrow having teeth secured to pivoted bars supported in the frame of the harrow, levers attached to said bars, a bar connecting said levers, and an operating-rod externally screw-threaded engaging the bar connecting the levers; in combination with a nut on one of said levers engaged by the screw-threaded portion of the operating-rod and supported thereby.

2. A harrow having teeth secured to bars pivotally supported in the frame of the harrow, levers attached to said bars, a bar adjustably connected to said levers and having an upturned member at its front end, and an operating-rod externally screw-threaded and connected to said bar; in combination with a fixed nut supported on the harrow-raising lever and engaged by the screw-threaded portion of the operating-rod.

3. A harrow having a plurality of vertical clod-crushing bars forming part of the frame thereof and between which the clods may revolve, and a series of harrow-teeth in rear of the bars; in combination with a roller adjustably connected to the rear end of the frame of the harrow to move vertically.



4. A harrow having a plurality of parallel clod-crushing bars secured to and within the frame thereof and between which the clods may revolve, and a series of harrow-teeth in rear of said bars; in combination with a roller pivotally connected to the rear end of the frame of the harrow to move vertically.

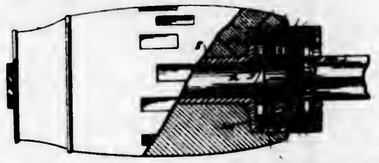
5. A harrow having a clod-crushing device forming part of the frame thereof, and a series of teeth in rear of said crusher; in combination with a roller vertically adjustable in its frame and said frame pivotally connected to the frame of the harrow.

6. A harrow having adjustable teeth, tooth-bars pivotally supported in the frame of the harrow, a screw-threaded operating-rod extending rearward and connected to said bars, and a roller connected to the frame of the harrow; in combination with a scraper supported by the frame of the roller, adjustable thereon and a screw-threaded operating-rod connected to the scraper.

7. A harrow; in combination with a roller secured to the frame of the harrow and having a frame provided with a transverse fixed bar and a transverse pivoted bar, a scraper supported by the latter bar and adjustably secured thereto, and a screw-threaded operating-rod for said scraper.

8. A roller having a shaft supported at each end in a bearing secured to the frame of the roller; in combination with a sleeve surrounding the shaft and secured thereon, and a box surrounding said sleeve and having a collar at one end and a square body provided with a cylindrical bore and secured in the end of the roller.

644,605. **WATERPROOF PROTECTOR FOR VEHICLE-BEARINGS.** HUGH A. JACOBS, Cleveland, Ohio. Filed July 11, 1899. Serial No. 723,513. (No model.)



Claim.—1. In a device for the purpose described, the combination with a spindle, axle and screw-threaded collar thereon, of an inner sleeve screwed upon said collar, and extending in horizontal flanges upon either side thereof of a spindle-box provided with an enlarged inner extremity internally screw-threaded, an outer sleeve exteriorly screw-threaded and provided with a vertical flange and reëntrant flange, at one extremity the said outer sleeve being screwed into said enlarged portion of the box, and an inclosing cap, internally screw-threaded to fit over the outer sleeve, and provided with a vertical flange at the extremity opposite the vertical flange upon the outer sleeve, whereby said vertical flanges are opposed to the extremities of the flanges of the inner sleeve, and washers between said vertical and horizontal sleeves, substantially as described.

2. In a device for the purpose described, the combination with the axle, spindle and screw-threaded collar, of an inner internally-screw-threaded sleeve upon said collar provided with horizontally-extending flanges on either side, a spindle-box provided with an internally-screw-threaded enlarged portion at the inner extremity, an outer sleeve externally threaded for insertion in said enlarged extremity and provided with vertical and horizontal reëntrant flanges at one extremity the said outer sleeve being placed annularly about the inner sleeve, an inclosing cap internally screw-threaded for attachment to the outer sleeve and provided with a vertical and reëntrant flange at the end opposite to the flanges of the outer sleeve, the said reëntrant flanges being arranged to pass between the flanges of the inner sleeve and the axle, and washers between said reëntrant flanges and the inner sleeve and collar substantially as described.

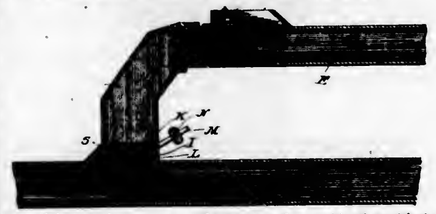
3. In a device for the purpose described, the combination with a spindle, axle and screw-threaded collar thereon, of an inner sleeve screwed upon said collar, and extending in horizontal flanges upon either side thereof, the extreme edges of said extensions being grooved, of a spindle-box provided with an enlarged inner extremity internally screw-threaded, an outer sleeve externally screw-threaded and provided with a vertical flange and reëntrant flange at one extremity, the said outer sleeve being screwed into said enlarged portion of the box, and the adjacent surfaces of the inner and outer sleeves being corrugated, and an inclosing cap internally screw-threaded to fit over the outer sleeve, and provided with a vertical flange at the extremity opposite the vertical flange upon the outer sleeve, whereby said vertical flanges are opposed to the extremities of the inner sleeve, and washers between said vertical and horizontal flanges, substantially as described.

644,606. **GARMENT.** LAURA H. JOHNSON, Battle Creek, Mich. Filed Oct. 26, 1899. Serial No. 734,800. (No model.)



Claim.—A bust-supporting garment having a back portion, armholes, and forwardly-projected front portions and fulled throughout the breast portions of said fronts to form concave pockets, said front portions having their upper and lower edges convergent toward their free ends and being made of freely-pliable material whereby the ends may be tied together in front to connect the said front portions in any desired adjustment and, at the same time, form with the aid of the fulling formation of said parts, the pockets for the bust substantially as set forth.

644,607. **SEED-CONVEYER.** THOMAS R. JOHNSON, Webberville, Tex. Filed Dec. 27, 1899. Serial No. 741,741. (No model.)



Claim.—1. In a cotton-seed conveyer, the combination with the air and seed flues communicating with each other, of the cut-off valve and pressure-valve connected thereto and operated thereby, said cut-off valve and pressure-valve being located in the elbow or opening between said air and seed flues, for the purpose set forth, and the pressure-controlled seed-valve in the seed-flue, substantially as described.

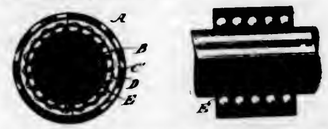
2. The combination, in a cotton-seed conveyer, of the air-flue, the cut-off valve and pressure-valve therein, connections between said valves, whereby they are operated simultaneously, and the adjustable balancing-weight for the cut-off valve, with the seed-flue communicating with the air-flue at the point where the cut-off valve and pressure-valve are located, said seed-flue having the opening adapted to communicate with a gin-stand, and being further provided with a seed-valve, substantially as described.

3. In a cotton-seed conveyer, the combination with the communicating air and seed flues, of the counterbalanced cut-off valve, the pressure-regulating valve, said valves being each provided with a crank-arm and the link connecting said crank-arms, substantially as described.

644,608. **BALL-BEARING.** JULIUS KELLER, Philadelphia, Pa., assignor to the Keller Tool Company, of Pennsylvania. Filed Feb. 7, 1899. Serial No. 704,780. (No model.)

Claim.—1. A ball-bearing, comprising a bearing portion provided

with a race, a plurality of balls situated therein, the walls of said race holding the balls against longitudinal movement in opposite directions relative to said bearing portion, and a retaining-ring provided with a plurality of openings through which the balls project, the diameter of said openings being less than that of said balls.

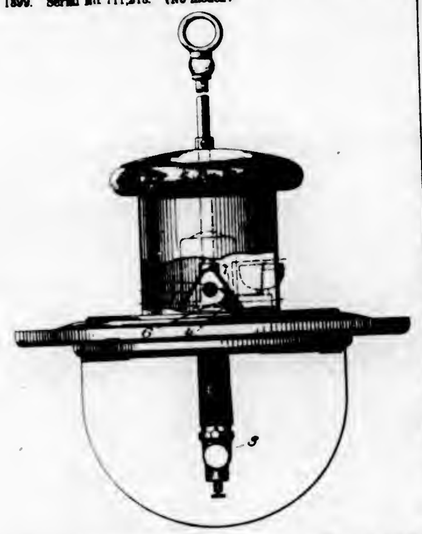


2. A ball-bearing, comprising a bearing portion provided with a race, a plurality of balls situated therein, the walls of said race holding the balls against longitudinal movement relative thereto, and a divided retaining-ring provided with a plurality of openings through which the balls project, the diameter of said openings being less than that of said balls.

3. A ball-bearing, comprising a bearing portion provided with a race, a plurality of balls situated therein, said race holding the balls against longitudinal movement relative thereto, and a resilient-retaining-ring provided with a plurality of openings through which the balls project, the diameter of said openings being less than that of said balls.

4. A ball-bearing, comprising a bearing portion provided with a race, a plurality of balls situated therein, said race holding the balls against longitudinal movement relative thereto, and a divided resilient retaining-ring provided with a plurality of openings through which the balls project, the diameter of said openings being less than that of said balls.

644,609. **PREHEATING-TUBE.** ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, same place and Charleston, W. Va. Filed Mar. 31, 1899. Serial No. 711,318. (No model.)



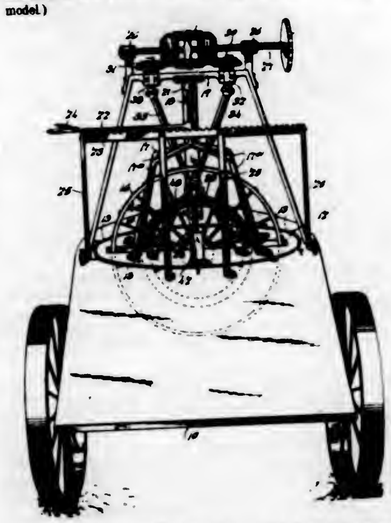
Claim.—1. In a vaporizing apparatus the combination of the vaporizing-tube and the preheating-tube arranged parallel and adjacent thereto, said preheating-tube having an opening on the side adjacent to the vaporizing-tube, together with the deflecting-plate located over said opening.

2. In a vaporizing apparatus the combination of a horizontal vaporizing-tube and an alcohol-tube arranged parallel thereto and a little to one side of and below the vaporizing-tube, said alcohol-tube having an opening in the side adjacent to the vaporizing-tube, together with the feeding-funnel and its connections to the alcohol-tube, and the wicking of refractory and absorbent material in said alcohol-tube and connections.

3. As an article of manufacture an alcohol-tube having a feeding-funnel connected thereto, an opening in the wall and a deflecting-plate over said opening consisting of a cut-away portion of the wall of the tube bent outwardly over the opening left by said cut-away portion.

4. As an article of manufacture a preheating-tube having a longitudinal opening in its wall and a deflecting-plate over said opening, consisting of a cut-away portion of the wall of the tube bent outwardly over the opening left by said cut-away portion.

644,610. **TRACTION-ENGINE.** RILEY KNIGHT and IRA W. KNIGHT, Moscow, Idaho. Filed Apr. 8, 1899. Serial No. 712,906. (No model.)



Claim.—1. The combination with a vehicle having a supporting-frame, of a fixed yoke or support mounted on said frame, a turn-table mounted for revoluble movement in an opening in said frame, a steering-wheel carried by the turn-table, a spider fixed to the turn-table and having a central spindle stepped at its upper end in a bearing on said yoke or support, said spindle being arranged directly over the steering-wheel, and means for actuating the turn-table to vary the position of the steering-wheel, substantially as specified.

2. The combination with a vehicle-wheel having a supporting-frame, of a fixed yoke or support mounted on said frame, a turn-table mounted for revoluble movement in an opening in said frame, antifriction-bearings arranged between the turn-table and the frame, a steering-wheel carried by the turn-table, a spider fixed to the turn-table and having a central spindle, a ball-and-socket connection between the upper end of the spindle and the yoke or support, and means for communicating rotary motion to the turn-table, substantially as specified.

3. The combination with a vehicle having a frame and supporting-wheels, of a fixed yoke supported by said frame, a turn-table mounted for revoluble movement in an opening in said frame, a spider fixed to the turn-table and having a central spindle stepped at its upper end in a bearing on said yoke, a steering-wheel mounted upon the turn-table, a steering-lever fixed to the spindle of said yoke, and a rack traversed by the steering lever, said lever having a hand-latch, substantially as specified.

4. The combination with a vehicle having a frame and supporting-wheels, of a turn-table, a steering-wheel mounted upon the turn-table, means for actuating the turn-table to angularly vary the position of the steering-wheel with relation to the length of the vehicle, driving mechanism mounted upon the frame, and flexible connections between the driving mechanism and the steering-wheel for communicating revoluble movement to the latter, substantially as specified.

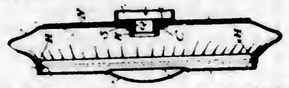
5. The combination with a vehicle having a frame and supporting-wheels, of a turn-table, a steering-wheel mounted upon the turn-table, means for actuating the turn-table to angularly vary the position of the steering-wheel with relation to the length of the vehicle, driving mechanism mounted upon the frame, and flexible connections, including tumbling-rods, between the driving mechanism and said steering-wheel, for communicating rotary motion to the latter, substantially as specified.

6. The combination with a vehicle having a frame and supporting-wheels, of a turn-table, a steering-wheel mounted upon the turn-table and having side gears, means for angularly varying the position of the turn-table with relation to the length of the vehicle, driving mechanism including driving-spindles arranged at opposite sides of the axis of movement of the turn-table, driven pinions mounted upon the turn-table and meshing with said side gears of the steering-wheel, and tumbling-rods connecting said driving-spindles with the driven pinions, substantially as specified.

7. The combination with a vehicle having a frame and supporting-wheels, of a turn-table, a steering-wheel mounted upon the turn-table and having side gears, means for angularly varying the position of the turn-table with relation to the length of the vehicle, driving mechanism including driving spindles arranged at opposite sides of the axis of movement of the turn-table, driven pinions mounted upon the turn-table and meshing with said side gears of the steering-wheel, and extensible tumbling-rods connecting said driving-spindles with the driven pinions, substantially as specified.

8. The combination with a vehicle having a frame and supporting-wheels, of a turn-table, a steering-wheel mounted upon the turn-table and having side gears, means for angularly varying the position of the turn-table with relation to the length of the vehicle, driving mechanism, consisting of a driving-shaft, driving-spindles, and differential gearing for communicating motion from the driving-shaft to the driving-spindles, driven pinions mounted upon the turn-table and meshing with said side gears on the steering-wheel, and flexible connections between the driving-spindles and the driven pinions, substantially as specified.

644,611. **GAS-METER.** VALENTINE KOWOPIENKI, Philadelphia, Pa. Filed July 6, 1899. Serial No. 722,924. (No model.)



Claim.—1. A gas-meter diaphragm composed of a single piece of material, and comprising a side wall having its peripheral portion consisting of two members, one of said members being laterally deflected and extending outwardly from the edge of said wall proper, the other of said members extending inwardly from the outer edge of the first-mentioned member and diverging therefrom, a laterally-deflected flange at the inner edge of said last-mentioned member, and a plate having a flange secured to said flange.

2. In a gas-meter, a diaphragm composed of a single piece of material and having an opening in the center thereof, the peripheral edges of said diaphragm being deflected, a plate having an inwardly-extending flange engaged by said edges, fastening devices for holding said diaphragm in position upon said flange, a plate attached to the outer portion of said diaphragm, an inlet-pipe for the interior of said diaphragm, an exteriorly-threaded nipple holding said pipe in position, a flanged nut engaging said nipple, and a washer held between the flange of said nut and the material of which said diaphragm is composed, whereby the parts are held in assembled position.

3. A gas-meter diaphragm composed of a single piece of material and comprising a side wall having its peripheral portion consisting of two members, one of said members being laterally deflected and extending outwardly from the edge of said wall proper, the other of said members extending inwardly from the outer edge of first-mentioned member and diverging therefrom, a laterally-deflected flange at the inner edge of last-mentioned member, a plate forming the other side wall of the diaphragm and having a lateral flange situated within the flange of said member, said flange of the plate being provided with an annular recess, and fastening devices for securing said flanges together, said fastening devices compressing the flange of said member into the recess of said other flange.

644,612. **CLASP.** CARL C. LAETZ, Cleveland, Ohio. Filed Sept. 15, 1899. Serial No. 730,587. (No model.)



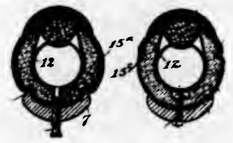
Claim.—1. As a new article of manufacture, a clasp to engage over a band having a hook along its top to engage a band and inward projections, formed in its body opposite said hook, and slots at its bottom at an angle to each other, and a tongue hinged on said hook and having a cam to cooperate with said projections for locking the clasp on a band, substantially as described.

2. A clasp-body having its upper end turned over its full width and forming a hook and slots in its lower portion to secure suspenders therein, and a tongue pivoted on the said hook and having a portion of its engaging edge formed into a cam, substantially as described.

3. A clasp-body having a slotted hook at its top and slots at its bottom at an angle to each other, and a hinged tongue on said hook having a cam to be turned inward against the band, substantially as described.

4. A clasp-body having a hook portion at its top and slots in its lower portion at an angle to each other to secure suspenders therein, and a tongue pivoted at its edges and top in said hook portion and having a cam between its pivot portions formed with a smooth surface, and the clasp-body having inward projections formed to cooperate with said smooth cam-surface for locking the clasp on a band, substantially as described.

644,613. **TIRE FOR BICYCLE OR OTHER VEHICLE WHEELS.** WILLIAM LENNARD-FOOTE, New York, N. Y. Filed June 26, 1899. Serial No. 721,824. (No model.)



Claim.—1. In a tire for bicycle and other vehicle wheels, the combination with a base of cork provided with a continuous channel, of a pneumatic tube in said channel, a core closing the entrance to said channel and a tread of suitable material covering the core and suitably secured to the cork base.

2. In a tire for bicycle and other vehicle wheels, the combination with a base of cork provided with a continuous channel and covered exteriorly and interiorly by canvas or the like, of a pneumatic tube in the channel of the base, a core suspended over the entrance to the channel and a tread of suitable material covering said core and having side extensions whose edges are fastened to the cork base.

3. In a tire for bicycle and other vehicle wheels, the combination with a base of cork provided with a continuous channel and with a covering of canvas and the like, of a pneumatic tube in the channel of the base, a core closing the entrance to said channel and a tread of suitable material covering said core and having side extensions covering the base between the tread and the rim of the wheel with the ends of said extensions secured in place beneath the edges of the wheel-rim.

4. In a tire for bicycle and other vehicle wheels, the combination with a base of cork composed of channeled sections of suitable length, whereby when the sections are connected in a ring a channel extends throughout the ring, of a pneumatic tube in said channel, a core closing the entrance to said channel and a tread of suitable material covering the core and suitably secured to the cork base.

5. In a tire for bicycle and other vehicle wheels, the combination with a base of cork composed of channeled sections of suitable length and plates or washers of suitable material interposed between the sections, of a pneumatic tube in the continuous channel of the cork base, a core closing the entrance to said channel and a tread of suitable material covering the core and suitably secured to the cork base.

6. The combination with the grooved rim of a vehicle-wheel, of a base of cork provided with a continuous channel and seated in said groove of the rim, bolts connected to said base and passing through the grooved rim and provided with screw-nuts whereby the base is secured to the rim, a pneumatic tube within the channel of the base, a core filling the entrance to said channel and a tread of suitable material covering the core and having extensions suitably secured to the base.

7. The combination with a base of cork provided with a continuous channel and covered interiorly and exteriorly with canvas or the like, of a pneumatic tube in the channel of said core, a core of cork provided with a canvas covering on its under surface and supported on the cork base at the entrance to its channel, and a tread of suitable material covering said core and suitably secured to the base.

8. The combination with the wheel-rim and a base of cork provided with a continuous channel, of a pneumatic tube placed in said channel, a core closing the entrance to said channel, a tread of suitable material covering the core and secured to the cork base, and a valve for inflating the pneumatic tube connected to said tube and extending through the cork base and the wheel-rim.

644,614. **LAND-SCRAPER.** GEORGE M. LIGHT, Pomeroy, Wash. Filed Nov. 14, 1899. Serial No. 736,971. (No model.)

Claim.—1. A machine of the class described comprising a frame,

front and rear scraper-blades movably connected with the frame and adapted to be arranged at an inclination, harrow-teeth also movably mounted on the frame and adapted to be arranged at an inclination, and operating mechanism connected with the scraper-blades and the harrow-teeth and adapted to adjust the same, substantially as described.



2. A machine of the class described comprising front and rear blades, adapted to be set at an inclination, a frame connecting the blades, a shaft journaled on the frame and carrying harrow-teeth adapted to be arranged at an inclination, and operating mechanism connected with the blades and with the shaft, whereby the teeth and the blades are simultaneously adjusted, substantially as described.

3. A machine of the class described comprising front and rear scraper-blades, a frame connecting the blades and having the same hinged to it, shafts journaled on the frame, arms fixed to the blades and to the shafts, a bar connected with the said arms, and a lever for adjusting the bar, substantially as described.

4. A machine of the class described comprising a frame, front and rear scraper-blades hinged to the frame and adapted to be arranged at an inclination, shafts journaled on the frame and carrying harrow-teeth, the front and rear arms extending upward from the scraper-blade and from the shafts, a bar 18ª connected with the arms of the scraper-blades and with the front arm of the shafts, a short bar connecting the arms of the shafts, and means for adjusting the bar 18ª, substantially as described.

5. A machine of the class described comprising the front and rear scraper-blades adapted to be arranged at an inclination to engage the surface of the ground, and the rearwardly-disposed cutting-blades secured to the rear scraper-blades, and arranged substantially at right angles to the same, and adapted to be adjusted simultaneously with the scraper-blades, substantially as described.

6. A machine of the class described comprising a frame, front and rear scraper-blades hinged to the frame, and adapted to engage the surface of the ground, the rearwardly-disposed weed-cutting blades having shanks secured to the rear scraper-blades, and means for adjusting the scraper-blades, whereby the weed-cutting blades may be set at the desired inclination, substantially as described.

7. A machine of the class described comprising a series of sections composed of front and rear scraper-blades connected together, a reach extending rearward from the sections and connected with the same at the front thereof and provided between its ends with a joint, a truck connected with the reach, and a seat supported above the truck, substantially as described.

8. A machine of the class described comprising a series of sections composed of front and rear scraper-blades, a reach connected with the sections and composed of two sections pivoted together, one of the reach-sections being provided with a segmental head, and a seat-supporting truck arranged at the rear end of the reach, substantially as described.

9. A machine of the class described comprising a series of sections composed of front and rear scraper-blades, operating mechanism for adjusting the blades, a transverse bar connected with the front blades, a truck provided with a seat and having a reach composed of pivotally-connected front and rear sections, the front section being forked to clear the operating mechanism and connected with the transverse bar, substantially as described.

10. A scraper composed of sections having front and rear blades and provided with fenders adapted to prevent the blades from binding when turning the scraper, substantially as described.

11. A scraper composed of sections having front and rear blades and provided with fenders composed of substantially L-shaped pieces secured to the front and rear faces of the blades of one section and arranged to be engaged by the blades of the adjacent section, substantially as described.

12. A machine of the class described comprising a series of sections composed of front and rear scraper-blades, a truck provided with a drop-axle and having a reach provided in rear of the said sections with a joint, and a seat adjustably mounted on the top portion of the axle, substantially as described.

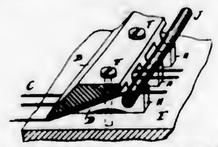
13. A machine of the class described comprising a frame, front and rear scraper-blades arranged to engage the surface of the ground, and the rearwardly-diverging weed-cutting blades constructed of flat metal, said weed-cutting blades consisting of shanks secured to the rear scraper-blade, and weed-engaging portions arranged at an angle to the shanks and connected with the same by quarter-bends, substantially as described.

644,615. FIRE-GRATE. JOHN J. LOSS, Ittabena, Miss. Filed Aug. 12, 1899. Serial No. 727,033. (No model.)



Claim.—In an open fireplace, a front section, having an entrance-opening, and vertically-disposed ribs or enlargements located at opposite sides of the entrance-opening and upon the rear or inner side of the section, each rib having a vertically-disposed flanged groove formed therein and opening outward through the upper end thereof, and provided at its lower end with a stop-shoulder, opposite side sections having vertically-disposed lateral flanges at the front edges thereof, detachably fitting in the respective grooves of the front section, and resting upon the stop-shoulders thereof, each side section having a vertical groove located in its inner face and adjacent to its rear edge, said groove being open at its upper end, and provided with a stop-shoulder at its lower end, and a back section, having its opposite end edges detachably fitting in the respective grooves of the opposite side sections, and resting upon the stop-shoulders thereof.

644,616. SCALE BRIDGE-BAR FOR PIANOFORTES. JOHN H. LUDWIG, New York, N. Y. Filed Aug. 6, 1898. Serial No. 687,899. (No model.)



Claim.—1. A scale bridge-bar for pianofortes, having one edge lower than the other and legs, having extensions on the other edge, which extensions have recesses in their upper ends and a rod resting in said recesses, substantially as herein shown and described.

2. In a pianoforte the combination with a metal frame and strings, of a scale bridge-bar, independent of the metal frame, and having one edge lower than the other and also having legs, which rest upon the metal frame, and a support for the strings, along that side of the bar having the higher edge, the strings passing under the bar, and between the legs and bearing upward on the lower edge of the bar and downward on the support along the higher edge of the bar and means for holding the bridge-bar on the metal frame substantially as herein shown and described.

644,617. NON-REFILLABLE BOTTLE. WILLIAM B. LYNCH, Orlando, Fla. Filed Dec. 2, 1899. Serial No. 739,060. (No model.)

Claim.—1. A device of the class described comprising a receptacle provided at its neck with an annular groove to form a frangible upper portion and having longitudinal grooves extending from the said groove to divide the frangible portion into sections, said neck being provided at the annular groove with an opening having a smooth lower edge, a lower cork or stopper, and an upper stopper or plug locked in the upper frangible portion of the neck and cut away at one side to provide a space for the reception of the wedge, substantially as described.

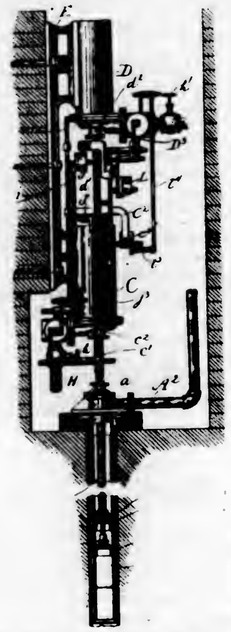


2. A device of the class described comprising a receptacle having an annular groove and provided with longitudinal grooves extending upward from the annular groove, a lower cork or stopper and an upper stopper or plug locked in the upper portion of the neck and cut away at one side to provide a space for the reception of a wedge, substantially as described.

3. A device of the class described comprising a receptacle having a frangible upper portion and provided at the inner face thereof with a recess, a lower cork or stopper, an upper stopper or plug arranged in the frangible portion and provided with a recess adapted to register with the recess of the bottle, and a locking device comprising a rectangular block arranged within the recess of the stopper or plug and adapted to project bodily therefrom to engage the recess of the neck, and a bowed spring secured to the inner face of the block at a point between the ends thereof, the terminals of the spring being free and engaging the stopper or plug, substantially as described

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644,618. PUMPING MACHINERY. DARNEY H. MAURY, Jr., Peoria, Ill. Filed Mar. 28, 1898. Serial No. 675,372. (No model.)



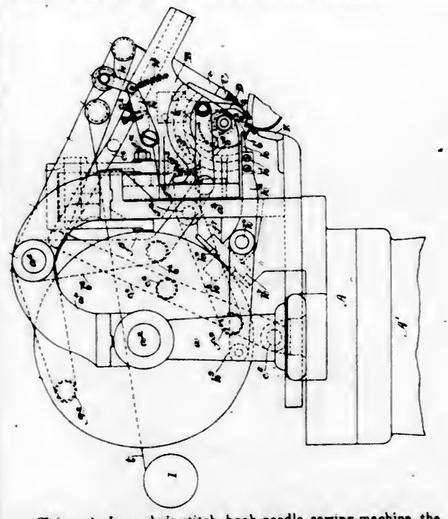
Claim.—1. An actuating mechanism for double-plunger pumps, comprising a single-acting actuating-cylinder and piston for each plunger, an independent exhaust and admission valve for each cylinder, and means for closing and opening the valve of each cylinder during each working stroke of the other piston by the movement of the latter.

2. An actuating mechanism for double-plunger pumps, comprising an actuating cylinder and piston for each plunger, an exhaust and admission valve for each cylinder, means for closing and opening the valve of each cylinder during each working stroke of the other piston by the movement of the latter, and means for closing the valve of each cylinder by the movement of its own piston.

3. An actuating mechanism for double-plunger pumps, comprising an actuating cylinder and piston for each plunger, and valve mechanism for admitting and exhausting fluid-pressure to effect a slow working stroke and quick return of each piston, comprising a tappet-pawl moving with each piston and two tappet-arms arranged in the path of each pawl and connected with the valve of the other cylinder and movable in succession by the pawl during the working stroke of the piston.

4. An actuating mechanism for double-plunger pumps, comprising an actuating cylinder and piston for each plunger and valve mechanism for admitting and exhausting fluid-pressure to effect a slow working stroke and quick return of each piston, comprising a tappet-pawl moving with each piston, two tappet-arms arranged in the path of each pawl and movable in succession by the latter during the working stroke of its piston, and reversely-arranged lever connections between each pair of tappet-arms and the valve which controls the movement of the other piston to that which actuates said pair of tappet-arms.

644,619. SHOE-SEWING MACHINE. JAMES W. MELOON, Brockton, Mass., assignor to the United Shoe Machinery Company, Paterson, N. J. Filed May 21, 1898. Serial No. 681,319. (No model.)



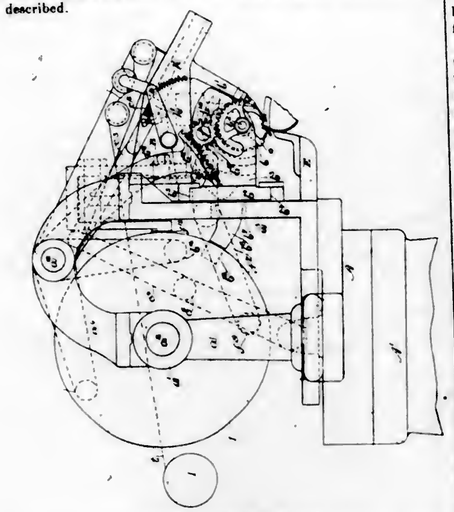
Claim.—1. In a chain-stitch hook-needle sewing-machine, the combination with a needle and the component parts of a stitch-forming mechanism including a work-feeding mechanism, of a loop-shortener independent of the work-feeding mechanism, and means to actuate said loop-shortener to cause it to engage the loop of thread drawn up by the needle and to exert a sidewise pull thereon in the line of the feed of the work, substantially as described.

2. In a chain-stitch hook-needle sewing-machine, the combination with the needle and the component parts of a stitch-forming mechanism including a work-feeding mechanism, of a loop-shortening device independent of the work-feeding mechanism, and means to actuate said device to cause it to shorten the loop of the preceding stitch after the needle has been withdrawn from such loop, by a pull on the loop last drawn out in the line of the feed of the work, substantially as described.

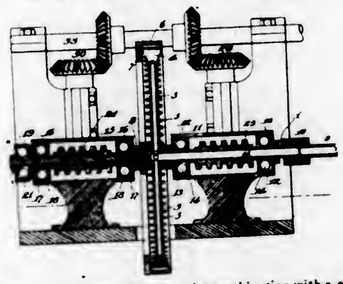
3. In a chain-stitch hook-needle sewing-machine, the combination with a needle and component parts of the stitch-forming mechanism, of a loop-shortener, means to actuate the loop-shortener to cause it to engage the loop of thread being drawn out by the needle and exert a pull thereon, in the direction of the feed of the work and away from the closed end of the preceding loop, and means to hold the work fixed during the operation of the loop-shortener, substantially as described.

644,620. SHOE-SEWING MACHINE. JAMES W. MELOON, Brockton, Mass., assignor to the United Shoe Machinery Company, Paterson, N. J. Filed May 21, 1898. Serial No. 681,320. (No model.)

Claim.—In a chain-stitch hook-needle sewing-machine, the combination with the needle and component parts of a stitch-forming mechanism, of means to impart a lateral thread-pulling movement to the needle in the direction of the feed of the work while the needle is out of the work and retains the loop of thread, substantially as described.



644,621. IMPACT-MOTOR. REINHOLD MEHRINGER, New Canaan, Conn. Filed May 13, 1899. Serial No. 716,635. (No model.)



Claim.—1. In an impact-motor, the combination with a concentric series of buckets mounted rotatably, and an impact-nozzle cooperating therewith and mounted to rotate in an opposite direction, of a power shaft, means for transmitting the opposite movements of the buckets and nozzle to said shaft to rotate the latter, and ratchet mechanism for permitting the shaft to rotate independently of said buckets and nozzle, substantially as set forth.

2. In an impact-motor, the combination with a concentric series of buckets mounted rotatably, of an impact-nozzle mounted to rotate in an opposite direction, a power-shaft, connections between the rotatable elements and said power-shaft, and a pawl and ratchet interposed between such connections, substantially as set forth.

3. In an impact-motor, the combination with a series of concentric buckets connected to a rotatable ring, of a plurality of hollow arms having nozzles for directing a pressure fluid against said buckets, said arms being rotatably mounted, two worm-screws of opposite pitch driven by the buckets and by said arms, a worm-gear rotated by each of said screws, a power-shaft, and connections between the worm-gears and said shaft, substantially as set forth.

4. In an impact-motor, the combination with a series of concentric buckets connected to a rotatable ring, of a plurality of hollow arms having nozzles for directing a pressure fluid against said buckets, said arms being rotatably mounted, two worm-screws driven by the buckets and by said arms, a worm-gear rotated by each of said screws, a power-shaft, connections between the worm-gears and said shaft, and a ratchet and pawl connecting each of said worm-gears with its shaft, substantially as set forth.

5. In an impact-motor, the combination with a hollow shaft, of a sleeve mounted on a portion of said shaft, a series of hollow arms carried by the shaft and having nozzles at their extremities, a series of buckets carried in a ring connected to said sleeve, a worm-screw, on the hollow shaft, a worm-screw of opposite pitch on the sleeve, worm-gears driven by said screws, a power-shaft, and connections between the worm-gears and said power-shaft, substantially as set forth.

6. In an impact-motor, the combination with a hollow shaft mounted in a bearing-sleeve on antifriction-balls, of a sleeve concentric to said hollow shaft and mounted in a sleeve on antifriction-balls, an antifriction-bearing between the concentric sleeve and the hollow shaft, a series of buckets carried in a ring connected to said sleeve, and a series of arms connected to the hollow shaft and carrying oozzles which cooperate with said buckets, substantially as set forth.

7. In an impact-motor, the combination with a hollow shaft mounted in a bearing-sleeve on antifriction-balls, of a sleeve concentric to said hollow shaft and mounted in a sleeve on antifriction-balls, an antifriction-bearing between the concentric sleeve and the hollow shaft, a series of buckets carried in a ring connected to said sleeve, a series of arms connected to the hollow shaft and carrying nozzles which cooperate with said buckets, a power-shaft, and connections between the hollow shaft, the sleeve and said power-shaft, substantially as set forth.

644,622. RIM AND TIRE FOR VEHICLE-WHEELS. CHARLES MILLER, Auburn, N. Y. Filed Dec. 22, 1899. Serial No. 741,263. (No model.)



Claim.—1. A rim formed of sheet metal and having its edges turned at an angle, the channel extending longitudinally with the rim and provided with an air-valve, and the bottom provided with a continuous flange 10, combined with the frames 12 provided with semicircular recesses at their ends, the screws 8, and the nuts applied to the outer ends thereof, substantially as shown.

2. A vehicle-rim provided with a continuous air-channel, having pneumatic cushions communicating with said channel, outer removable bulbs covering said cushions, frames surrounding the bulbs, and means for attaching the frames and bulbs to the rim, substantially as described.

3. A vehicle-rim provided with a continuous air-channel, having pneumatic cushions communicating with said channel, and outer bulbs or sections of substantially box-like form, said bulbs being provided with flanges, frames resting on said flanges and attaching means, substantially as described.

4. A vehicle-rim provided with upturned flanges 2 and with a continuous air-channel, and a series of radial nipples communicating therewith, pneumatic cushions fitting over said cushions, outer sections or bulbs fitting over said cushions, but not in immediate contact therewith, said outer sections being provided with flanges adapted to fit against said upturned flanges 2, frames adapted to fit over said outer sections, and means for attaching said sections to the rim, substantially as described.

644,623. HOLDER FOR PLAYING-CARDS. FREDERICK MUELLER, Philadelphia, Pa., assignor to C. F. Rumpp & Sons, same place. Filed Jan. 9, 1899. Serial No. 701,553. (No model.)



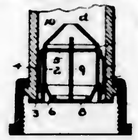
Claim.—1. A holder for playing-cards, composed of a back-piece, two cover-pieces E, E, independent thereof, the coverings *s*, *t*, arranged respectively over the inner and outer faces of the back-piece and cover-pieces and extending beyond the edges thereof and end-retaining pieces *b*, *b*, located at the ends of the back-piece and projecting inwardly through the inner covering *s*.

2. A holder for playing-cards, composed of a back-piece, two cover-pieces E, E, independent thereof, the coverings *s*, *t*, arranged respectively over the inner and outer faces of the back-piece and cover-pieces and extending beyond the edges thereof and end-retaining pieces *b*, *b*, located at the ends of the back-piece and projecting inwardly through the inner covering *s* and side-retaining pieces *d*, *d*, located at the sides of the back and also projecting through the inner covering *s*.

644,624. PROCESS OF ACIDIFYING MILK FOR MANUFACTURING OLEOMARGARINE. WALTER MÜLLER, Rixdorf, Germany. Filed Jan. 12, 1899. Serial No. 701,921. (No specimens.)

Claim.—The herein-described process for generating aroma or enhancing the same in acidifying milk, consisting in introducing into the milk a suitable fermenting medium and then immediately hermetically sealing the same from contact with the atmosphere, until it has reached the intended degree of acidification.

644,625. GAS-REGULATOR. NORMAN MCBETH, Cleveland, Ohio. Filed May 4, 1898. Serial No. 679,894. (No model.)



Claim.—1. A gas-check having a cylindrical body with an outwardly-extending flange about its lower edge and a tapered top terminating in a central passage, and a valve inside the check arranged to seat downward, thus cutting off back pressure on the meter, substantially as described.

2. The gas-check having a flange about its bottom to bear against the end of a pipe, and springs on its outside to frictionally engage in the pipe, substantially as described.

3. The pipe, the gas-check therein having a cylindrical body, and a spring extending through said body and bent at its sides to bear against the pipe and hold the body in position, substantially as described.

4. The check having a conical top with a circular passage and a flange about its bottom and valve-seat, in combination with an inside valve seated from above, substantially as described.

5. The gas-checking device having a cylindrical body with a tapered top having an outlet at its center and said body provided with an opening in its bottom, in combination with a valve in said body arranged to close said opening from within the body and means to hold the device removably in the end of a service-pipe, substantially as described.

644,626. TELLURIAN. JAMES P. MCDANIELS and JOHN L. SWAN, Hodunk, Mich. Filed Oct. 31, 1899. Serial No. 736,415. (No model.)

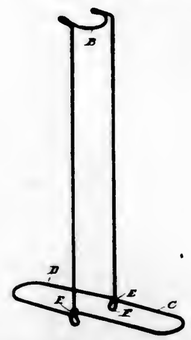


Claim.—1. A tellurian comprising a non-revoluble spindle, a hollow column fitted loosely on the spindle, an emblem representative of the sun on the said column, a sphere emblematical of the earth and having an orbital path around the sun-emblem, a carrying-arm fast with the upper end of the hollow column and normally overhanging the earth-sphere, an arm journaled on the carrying-arm and supporting an emblem representing the moon adapted to pursue an orbital path around the earth-sphere, for the purpose described, substantially as set forth.

2. A tellurian comprising a non-revoluble spindle, a hollow column fitted loosely thereon, a table fast with the column, means for rotating said table, a sphere mounted on the table to travel therewith and having means for rotating the same on its axis, a horizontal arm fast with the column, a curved arm journaled in the horizontal arm and carrying an emblem indicating the moon, a stationary gear fast with the spindle, and other gears between the stationary gear and the curved arm, substantially as described.

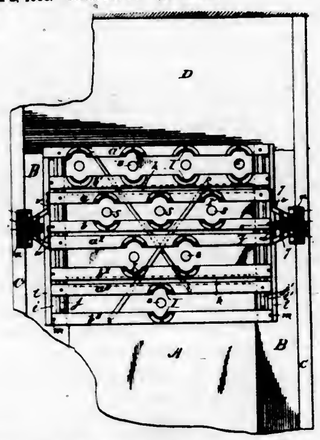
3. A tellurian, comprising a base, a vertically-disposed fixed spindle supported thereby, a hollow column fitted loosely on the spindle, an emblem representing the sun carried by said column, a circular table fixed to the hollow column, and having a peripheral series of gear-teeth, a master-gear mounted upon the base, means for operating the master-gear, a gear fixed to the fixed spindle, an inclined spindle mounted upon the table, located eccentric with respect to the fixed spindle and traveling with the table about the sun-emblem, an earth-emblem independently revoluble upon the inclined spindle, a train of gears between the inclined spindle and the fixed gear, and also carried by the table, a carrying-arm fixed to the hollow column and alined normally above the sun and earth emblems, a bowed arm loosely journaled in the carrying-arm and having an orbital path around the earth-emblem, a moon-emblem fixed to the latter arm, a fixed gear carried by the fixed spindle, and a train of gears between the said fixed gear and the moon-arm, and mounted upon the carrying-arm.

644,627. BROOM BRIDLE AND HOLDER. LOUIS OEHME, Jr., Philadelphia, Pa. Filed July 6, 1899. Serial No. 722,909. (No model.)



Claim.—A broom bridle and holder formed of a single piece of wire comprising arms terminating at the top in a retaining-loop, the lower ends of said arms being bent into oppositely-disposed loops and embracing sections, the section of one arm being curved and hooked to the opposite arm above its loop, the said arms and loops being so shaped as to lie approximately in the center of the sides of the broom.

644,628. BOWLING-ALLEY. CHARLES J. OLSON, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, same place. Filed Jan. 2, 1900. Serial No. 54. (No model.)



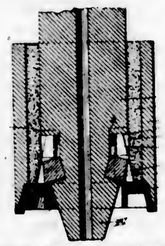
Claim.—1. In a pin-spotter of the type shown and described, the combination, with a pin-carrying frame composed of sets of bars having socket-like, bottomless, receptacles for the pins and adapted to have its pairs of pin-carrying bars move laterally, to either hold, or release, the pins; means for elevating said pin-carrying frame; and means for causing it to move vertically, up and down, of levers, pivotally arranged, in pairs, at either side of the frame, with the lower ends of each pair coupled to the laterally-movable ends of one set of said bars; and groove-cams, with which the upper ends of said levers engage and which operate to oscillate said levers, to make them properly move the bars of said set; all substantially as and for the purposes set forth.

2. In a pin-spotter of the type shown, the combination, with the vertically-movable pin-carrier frame; and means for guiding it during its up-and-down movements, of the variable counterbalancing-weight; whereby the loaded frame will just overbalance the suspending-weight, with either a greater, or a less number of pins, accordingly as said weight is varied; substantially as hereinbefore set forth.

3. In a pin-spotter, of the type shown, the combination, with the vertically-movable frames of the pin-carrier; and uprights adapted to be mounted on the side buffers of an alley, as specified, and to act as guides, or ways for said movable frames, of a suitable weight operating to lift said frames, after the spotting operation shall have been performed; the oscillatory levers each pivotally mounted on one of the said frames and having their lower ends connected with the laterally-movable slats of the pin-holder proper, as specified; and groove-cams, in the said uprights, with which the upper, rollered ends of said lever connect, and which operate the latter; all in substantially the manner and for the purposes hereinbefore set forth.

4. In a pin-spotter of the type shown, the combination, with the cam-groove, or cam-recess, of the upright 4, in which travels the roller of the lever 6, the partition 10; and an automatic switch device connected with the upper end of said partition and operating for the purpose hereinbefore set forth.

644,629. BEAD RING-MOLD FOR CASTING PIPE. COLONEL W. OSBUN, Newcomerstown, Ohio. Filed Mar. 30, 1898. Serial No. 675,767. (No model.)

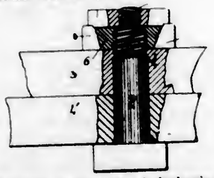


Claim.—1. A bead-ring pattern consisting of a main-pipe pattern, a groove at the bottom of said pattern, collapsible-ring sections adapted to work in said groove, said sections having wedge-shaped openings between them and wedge-shaped blocks adapted to enter said wedge-shaped openings, said sections and said blocks forming a collapsible ring, substantially as shown and described.

2. In an apparatus for casting pipe, a pattern having at the bottom a centering-plug and just at the top of said plug an annular groove, rectangular in cross-section, and holes extending from said groove up into said pattern, a ring fitting in said groove and composed of sections, springs attached to the inside of said sections and extending up into the holes in said pattern, wedge-shaped blocks adapted to enter the opening between adjoining sections, and means for expanding said ring, substantially as shown and described.

3. In an apparatus for casting pipe, a pattern having at the bottom a centering-plug and just at the top of said plug an annular groove, rectangular in cross-section, and holes extending from said groove up into said pattern, said plug provided with longitudinal recesses extending downward from the top of said plug, the bottom of said recesses being grooved on each side, a ring fitting in said groove and composed of sections, springs attached to the inside of said sections and extending up into the holes in said pattern, and wedge-shaped blocks fitted in said recesses and adapted to enter the openings between the sections of the ring, substantially as shown and described.

644,630. NUT-LOCK. JOHN PEARSON, Omaha, Nebr. Filed Mar. 9, 1899. Serial No. 708,426. (No model.)



Claim.—A nut-lock comprising a bolt, having a right and left handed thread, two nuts of like conformation, one adapted to fit upon said right, and one upon said left handed thread, and a keeper adapted to bind upon said lower nut, and provided with a plurality of seatings, so that as said upper nut is partially unscrewed it rises within and engages said seatings, as and for the purpose set forth.

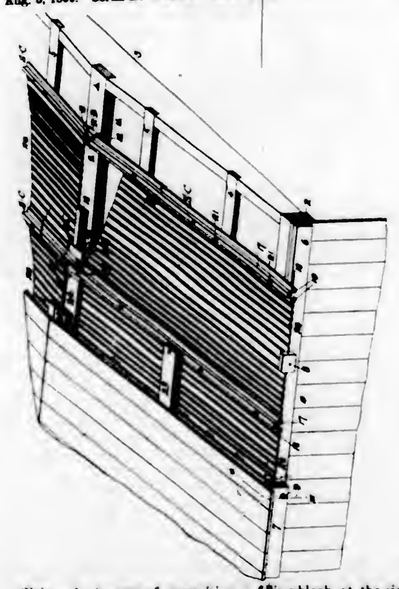
644,631. SUSPENDERS. FERNANDO H. PEELLE, Jonesborough, Ind. Filed May 1, 1899. Serial No. 715,157. (No model.)



Claim.—1. In suspenders, the combination with the webbing or shoulder-strap, of parallel plates regularly spaced apart from each other, a disk rotatably mounted between the said plates and having inner and outer collars and a peripheral groove, a spring arranged in the intervals between said collars and attached thereto and held by the said disk between the plates, means for rotatably supporting the disk in the plates, and an attaching strap or cord having one end attached to the disk over which it is movable and the opposite end secured at one side to one of the plates.

2. In suspenders, the combination with a webbing or shoulder-strap, of parallel plates equally spaced apart and connected at their upper portions, a pair of disks rotatably mounted between said plates, one of which has an outer flange with a peripheral groove, an adjacent collar, and a concentric sleeve, and the other provided with a similar flange having a peripheral groove, a central sleeve and a collar adjacent the said sleeve and concentric therewith, the collars and sleeves of the opposite disks being fitted within and bearing against each other, a spring arranged in the interval between said collars and attached respectively to the outer collar of one disk and the inner collar of the opposite disk, means for rotatably supporting said disks, and attaching straps or cords movably engaging the grooved flanges of the disks and having their upper ends attached thereto.

644,632. CAR-ROOF. CHARLES O. PERE, Springfield, Mo. Filed Aug. 5, 1899. Serial No. 726,223. (No model.)



Claim.—1. A car-roof, comprising a filling-block at the ridge-line of the roof, a supercarline suitably secured and formed with an inverted channeled portion, laterally-extending flanges, and gutters below said flanges, one end of the channeled portion engaging said filling-block, a ridge cap or cresting enveloping and secured to the filling-block and overlapping the upper end of the supercarline, and provided with a flange overlapping at its end the upper end of the adjacent supercarline-gutter, substantially as described.

2. A car-roof, comprising a filling-block at the ridge-line of the roof, a supercarline suitably secured and formed with an inverted channeled portion, laterally-extending flanges, and gutters below said flanges, said gutters having their upper ends bent upward or upset, one end of the channeled portion engaging said filling-block, a ridge cap or cresting enveloping and secured to the filling-block and overlapping the upper end of the supercarline, and provided with a flange overlapping at its end the upper end of the adjacent supercarline-gutter, substantially as described.

3. A car-roof, comprising a filling-block at the ridge-line of the roof, a supercarlioe seitably secured and formed with an inverted channeled portion, laterally-extending flanges, and gutters below said flanges, said gutters having their upper ends bent upward or upset, one end of the channeled portion engaging said filling-block, a ridge cap or cresting enveloping and secured to the filling-block and overlapping the upper end of the supercarline, and provided with a flange overlapping at its end the upper end of the adjacent supercarline-gutter, and roof-plates having their side edges fitting between the flanges and gutters of the adjacent supercarlines and the upper ends overlapping the flanges or gutter of the ridge cap or cresting, substantially as described.

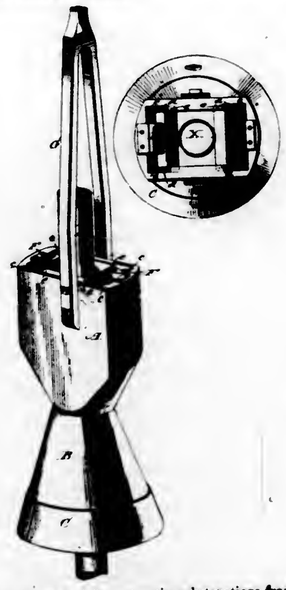
4. A car-roof, comprising filling-blocks, secured upon the ridge-bar of the car, filling-strips connecting said blocks, supercarlines having channeled or inverted-U-shaped portions embracing and supported by said filling-blocks, and provided also with laterally-projecting flanges and underlying gutters, ridge caps or crestings resting upon the filling-strips and projecting laterally beyond the same and formed with underlying gutters at opposite sides of the filling-strips and arranged to discharge into the gutters of the supercarlines, and provided at their ends with arched or inverted-U-shaped portions, the arched portion of one cap or cresting externally embracing the other, and the latter externally embracing and overlapping the filling-block and the upper ends of the supercarlines, devices for securing said caps or crestings in position, and roof-plates connecting the supercarlines and having their upper ends overhanging the gutters of the caps or crestings and in turn overlapped by the crestings, substantially as and for the purpose described.

5. A car-roof, comprising a filling-block at the ridge-line of the roof, a supercarline suitably secured and formed with an inverted channeled portion, laterally-extending flanges, and gutters below said flanges, said gutters having their upper ends bent upward or upset, one end of the channeled portion engaging said filling-block, a ridge cap or cresting enveloping and secured to the filling-block and overlapping the upper end of the supercarline and provided with a flange overlapping at its end the upper end of the adjacent supercarline-gutter, and roof-plates having their side edges fitting between the flanges and gutters of the adjacent supercarlines and the upper ends overlapping the flanges or gutters of the ridge cap or cresting, in combination with an outer roof-section supported a suitable distance above the supercarlines to provide an air or ventilating space, substantially as described.

6. In a car-roof, the combination of a series of filling-blocks secured to the ridge-bar of the car, filling-strips connecting said blocks, spacing-blocks interposed between the crown and fascia moldings of the car, supercarlines secured across the purlins of the car and embodying channeled portions embracing and resting upon said filling-blocks, laterally-projecting flanges, and gutters below said flanges, ridge caps or crestings resting upon said filling-strips and provided at their ends with interlocking portions of inverted-U shape in cross-section, the inner of each pair of interlocked portions externally embracing the corresponding ridge-block and the upper ends of the corresponding supercarlines, said ridge caps or crestings being also provided at opposite sides of the filling-strips with gutters arranged to discharge into the gutters of the supercarlines, roof-plates having their side edges fitting between the flanges and the gutters of adjacent supercarlines and their upper edges projecting into the gutters of the adjacent roof caps or crestings, and their lower edges bearing against said spacing-blocks, a supplemental ridge-bar resting upon the U-shaped or arched portions of the ridge caps or crestings, bolts extending down through the same, said filling-blocks, and the ridge-bar, and an outer roof-section secured upon said supplemental ridge-bar and the crown-moldings, substantially as described.

644,633. DEVICE OR TOOL FOR EXTRACTING OBSTRUCTIONS FROM DEEP WELLS. CHARLES A. PRESTCOTT, Pearl City, Ill. Filed Dec. 21, 1899. Serial No. 741,156. (No model.)

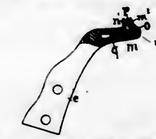
Claim.—1. A device or tool for extracting obstructions from deep wells, consisting of a suitable body having a central opening with inclined walls, rack-teeth upon the inclined walls, and clutching-rollers having pinions adapted to engage with the rack-teeth, substantially as and for the purpose described.



2. A device or tool for extracting obstructions from deep wells, consisting of a suitable body having a central opening, clutching-rollers located therein, pinions upon the ends of the rollers to engage rack-teeth in the central opening of the body, and retaining-plates extending over the opening in the body to prevent the rollers from dropping out, substantially as and for the purpose specified.

3. A device or tool for extracting obstructions from deep wells, consisting of a suitable body having a flaring extension, a detachable circumferential plate upon the extension, suitable clutching-rollers in the body of the tool or device, and a suitable bail connected to the body and provided with means for attaching thereto a suitable sucker or other rod, substantially as and for the purpose set forth.

644,634. WELT-GUIDE. ANDREAS PITTROFF, Frankfort-on-the-Main, Germany, assignor, by mesne assignments, to Wernigk & Müller, Waldheim, Germany. Filed Dec. 24, 1897. Serial No. 663,316. (No model.)

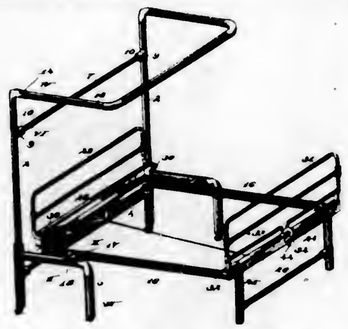


Claim.—In a sewing-machine welt-guide adapted to guide a slitted welt substantially as described, the combination of a supporting-arm *e*, an outer jaw *m* provided with a sharp bend or seat *m'* for receiving the thick edge of the welt and with an upwardly-projecting lip m^3, an inner jaw *n* provided with the upwardly-projecting lip *n'* and the laterally-projecting lip *o* and an edge-guide *q* located in the recess between the jaws and placed opposite to the sharp bend or seat *m'*, the said lips $n' m^3$ having between them a free opening between which the edge *p* of the welt is adapted to project.

644,635. METALLIC FOLDING BEDSTEAD. CHARLES L. PLUNKETT, St. Louis, Mo., assignor of one-half to Charles R. Crouch, same place. Filed May 26, 1899. Serial No. 718,332. (No model.)

Claim.—1. In a folding metallic bedstead, the combination of a supporting-frame having brace-legs a folding portion swiveled to said brace-legs, slide-rods carried by said folding portion adapted to engage said brace-legs, spring-controlled toggle-links connected to said

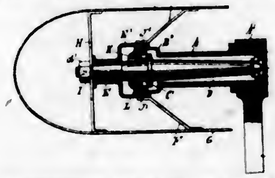
slide-rods, a pivoted footpiece, a toothed bar connected to said footpiece, and a connecting-rod joining said toothed bar and said toggle-links, substantially as described.



2. In a folding metallic bedstead, the combination of a supporting-frame, a folding portion swiveled thereto, and a pocket carried by said folding portion adapted to receive the mattress or bedding, and to serve as a counterbalance, substantially as described.

3. The combination in a folding metallic bedstead, of a supporting-frame, a folding portion swiveled thereto, and a box-shaped pocket arranged at the head of said folding portion adapted to loosely receive the mattress and bedding; substantially as described.

644,636. PEDAL AND CRANK PIN FOR CYCLES. IVOR REES, Sully, England. Filed Nov. 6, 1897. Serial No. 657,640. (No model.)



Claim.—The combination with the driving-crank of a cycle, of the hollow tubular crank-pin, the bearing-cup in the inner end of same, the pedal-pin with its specially-situated central ball-bearing and means for adjusting same, the pedal-frame and the enlarged central overlapping hub, all constructed arranged and operating substantially as and for the purpose described and set forth.

644,637. FILTERING MATERIAL. JAMES R. REID, Elmira, N. Y. Filed Nov. 20, 1899. Serial No. 737,678. (No specimens.)

Claim.—1. A filtering material consisting of calcined carbonaceous swamp-earth, substantially as set forth.

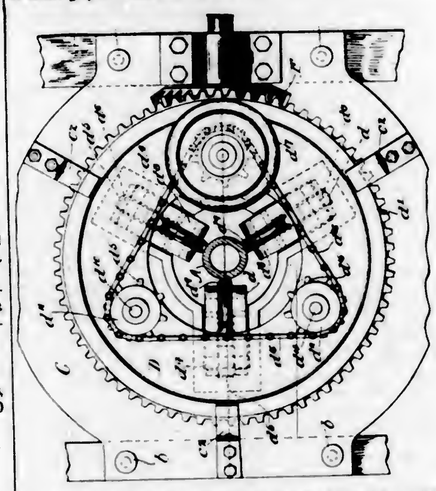
2. A filtering material consisting of calcined carbonaceous earth substantially as set forth.

644,638. ROTATING DEVICE FOR ROTARY DRILLS. JAY R. RHODES, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed Jan. 18, 1900. Serial No. 1,900. (No model.)

Claim.—1. A device for gripping and rotating drill-rods or the like comprising a plurality of rolls having peripheries adapted to bite or engage the said rod or the like and movable to and from the latter; a roll-adjusting member through which the said rod or the like extends and which is, together with the said rolls with which it has suitable connection, adjustable in a direction parallel with the axis of rotation; and means whereby said adjustment of the roll-adjusting member and rolls will cause the latter to move to or from the drill-rod or the like.

2. A device for rotating and gripping drill-rods or well-tubes comprising a plurality of gripping-rolls which are movable to or from the rod; a ring or centrally-apertured plate through which the drill-rod extends and which is, together with the said gripping-rolls with which it is suitably connected, adjustable in a direction parallel with the said rod; and means whereby such adjustment of the roll-adjusting member and rolls will cause the latter to move toward or away from the drill-rod.

3. A device for gripping and rotating drill-rods or the like comprising a couple of members through which the drill-rod extends and which are connected for relative adjustment in a direction parallel, or substantially parallel, with the axis of rotation; a plurality of gripping-rolls which are movable toward or away from the drill-rod; means for connecting the said rolls with one of said members, the connection being such that the relative adjustment of the two members operates to adjust both the rolls and the member with which the same are connected in a direction parallel, or substantially parallel, with the drill-rod; and means whereby said adjustment of the rolls and member with which they are connected will cause the rolls to either grip or release the drill-rod.



4. A rotary head for gripping and rotating drill-rods comprising a vertically-adjustable ring or centrally-apertured plate through which the drill-rod extends; a plurality of gripping-rolls which are carried by the said rotary head and which are adjustable for alternately gripping and releasing the drill-rod; a plurality of screw-threaded rods or standards which are mounted upon said head and which extend through openings in said ring or plate; an adjusting-nut on each rod, and means for connecting the said adjusting-nuts with the said ring or plate; means for simultaneously rotating the said adjusting-nuts for the purpose of adjusting the ring or plate along the screw-threaded rods in a direction parallel with the axis of the drill-rod, and means for causing such adjustment of the ring or plate to effect a lateral adjustment of the rolls relatively to the drill-rod; and suitable means for rotating the rotary head for the purpose of rotating the drill.

5. A rotary head for gripping and rotating a drill-rod or the like comprising a couple of circular members which are connected for relative adjustment in a direction parallel, or substantially parallel, with the axis of rotation; a plurality of gripping-rolls mounted upon swinging arms which are pivoted to one of said members, whereby the relative adjustment of the two members will cause the rolls and the member to which they are connected by the swinging arms to shift in a direction parallel, or substantially parallel, with the drill-rod; and means whereby said relative adjustment on the part of the two members will cause the said swinging arms to swing to or from the drill-rod and thereby cause the rolls to either grip or release the said rod.

6. A device for gripping and rotating rotary drills or the like comprising three relatively-equidistant gripping-rolls; a roll-adjusting member through which the rod or the like extends and which is, together with the said three relatively-equidistant rolls with which it is suitably connected, adjustable in a direction parallel, or substantially parallel, with the axis of rotation, and means whereby such adjustment of the roll-adjusting member and the three rolls will cause the latter to move to or from the said rod.

7. A device whereby rods, shafts or pipes of various sizes and shapes may be effectively gripped and rotated and at the same time permitted to shift longitudinally, comprising three relatively-equidistant, or substantially-equidistant, gripping-rolls mounted upon a rotatable member and provided with peripheries adapted to bite the rod, pipe or shaft to be rotated; means for adjusting one or more of said rolls in a direction or directions radial to the said rod, pipe or shaft, and whereby the rolls may be caused to either grip or release the same; and means for rotating the said rotatable member.

8. A rotating device for rotary drills, comprising a rotary head through which the drill-rod extends, the said head being provided with a plurality of upwardly-divergent guideways, a plurality of gripping-rolls provided with peripheries adapted to engage the drill-rod and arranged for adjustment along said guideways, a vertically-adjustable member with which the said rolls are suitably connected, means for adjusting the said vertically-adjustable member in a direction parallel with the axis of rotation, so as to cause the rolls to simultaneously slide along their respective guideways and thereby either grip or release the drill-rod, and means for rotating the rotary head for the purpose of rotating the drill.

9. A rotating device for rotary drills, comprising a rotary head provided with a plurality of upwardly-divergent guideways, and also with an opening through which the drill-rod extends; a plurality of adjustably-mounted gripping-rolls provided with peripheries adapted to engage or bite the drill-rod and arranged about the latter with their axes at right angles to the same; means for simultaneously adjusting the gripping-rolls along the said upwardly-divergent guideways, so as to cause the rolls to either grip or release the drill-rod, the adjusting mechanism and the said upwardly-divergent guideways cooperating to force the gripping rolls into contact with the drill-rod, and means for rotating the rotary head for the purpose of rotating the drill.

10. A rotating device for rotary drills comprising a rotary head having a central opening through which the drill-rod extends; a plurality of adjustably-mounted gripping-rolls arranged about the drill-rod with their axes at right angles to the latter and provided with peripheries adapted to engage the said drill-rod; the said rolls being also arranged to occupy positions within a like number of radial recesses with which the rotary head is provided; an adjusting device adapted and operative to simultaneously adjust the rolls in and out of said recesses for the purpose of causing the rolls to grip or release the drill-rod, the said recesses being formed or constructed in such manner that their opposing side walls embrace the adjustable mountings which connect the gripping-rolls with the said adjusting device and whereby the latter will be relieved from the torsional or twisting strain incident to a rapid rotation of the drill; and suitable means for rotating the said rotary head for the purpose of rotating the drill.

11. A rotating device for rotary drills comprising a rotary head having a central opening through which the drill-rod extends, three radial recesses leading from said central opening and providing three upwardly-divergent guideways, three gripping-rolls mounted and arranged for adjustment along said upwardly-divergent guideways, the said rolls being adapted to bite the said drill-rod, means for simultaneously adjusting the said rolls along the said three upwardly-divergent guideways for the purpose of causing the three rolls to either grip or release the drill-rod, and means for rotating the said rotary head for the purpose of rotating the said drill.

12. In a device for the purpose specified, the combination of the bevel-gear provided with upwardly-divergent guideways and a central opening, gripping-rolls mounted for adjustment along said upwardly-divergent guideways, adjusting-screws for simultaneously adjusting the rolls along said upwardly-divergent guideways, the said adjusting-screws and upwardly-divergent guideways cooperating to force the rolls into contact with the drill-rod, and means for rotating the said device for the purpose of rotating the drill.

13. In a rotating device for rotary drills, the combination of the rotary base portion having a central opening through which extends the drill-rod, the said base portion being also provided with radial guideways, the ring or centrally-apertured plate arranged above the said base portion, a plurality of swinging arms depending from said ring or plate and arranged to slide in said guideways, gripping-rolls mounted at the free ends of said arms, means for causing a relative shift or adjustment of the said ring or plate and base portion, whereby the gripping-rolls may be adjusted toward or away from the drill-rod, and means for rotating the device for the purpose of rotating the drill.

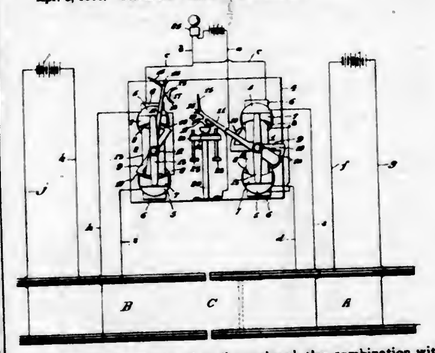
14. A rotating device for rotary drills, comprising a rotary head provided with a plurality of upwardly-divergent guideways, and also with an opening through which the drill-rod extends; a plurality of swinging arms mounted upon the said rotary head and adapted to slide in said guideways, and a plurality of gripping-rollers journaled in the free ends of said arms; the said rollers being provided with peripheries adapted to engage the drill-rod, and arranged about the latter with their axes at right angles to the said drill-rod; means for simultaneously adjusting the swinging arms along the said guideways so as to cause the rollers to grip or release the drill-rod, and means for rotating the rotary head for the purpose of rotating the drill.

15. A rotating device for rotary drills comprising a rotary head through which the drill-rod extends, and a bed-plate adapted to afford a suitable bearing for the rotary head; the said rotary head consisting of a base portion provided with radial recesses adapted to afford a plurality of upwardly-divergent guideways, and an upper portion adapted and arranged for vertical adjustment relative to the said base portion; a plurality of swinging arms supported by the said upper adjustable portion, the said arms being adapted to rest and slide upon the guideways afforded by the said radial recesses, and a plurality of gripping-rollers journaled in the free ends of said arms; the said rollers being arranged about the drill-rod with their axes at right angles to the latter, and provided with peripheries adapted to engage the said drill-rod; means for adjusting the said upper portion of the head, so as to cause the gripping-rollers to grip or release the drill-rod, and means for rotating the rotary head for the purpose of rotating the drill.

16. A rotating device for rotary drills, comprising the bed-plate and the rotary head adapted to rotate thereon; the said rotary head consisting of a base portion provided with a central opening through which the drill-rod extends and also provided with a plurality of radial recesses adapted to afford upwardly-divergent guideways, an upper ring supported upon screw-threaded rods or standards which rise from the said base portion, an adjusting-nut on each rod and means for connecting the said nuts with the said ring, the adjusting-nuts being provided with sprocket-teeth and a sprocket-chain being arranged about the sprockets thus formed and provided, a hand-wheel on one or more of said sprockets, swinging arms pivotally supported from said ring and adapted to slide upon the said guideways, gripping-rollers journaled in the free ends of said arms and provided with peripheries adapted to engage the drill-rod; and means for rotating the said head for the purpose of rotating the drill.

17. A rotating device for rotary drills, comprising the stationary bed-plate having a central opening, the bevel-gear having a central opening and supported for rotation upon the bed-plate, the vertically-adjustable ring supported upon the said bevel-gear, the gripping-rollers supported from the under side of the ring and arranged for adjustment along upwardly-divergent guideways formed in the said bevel-gear, the said guideways being provided with grooves which permit the gripping-rollers to turn on their respective axes, means for adjusting the said ring so as to cause the gripping-rollers to engage the drill-rod with their peripheries, and a bevel-gear for rotating the aforesaid bevel-gear.

644,689. ELECTRIC RAILWAY-SIGNAL. JUDSON SHOEMAKER, Topeka, Kans., assignor to Charles C. Gardiner, Bradford, Kans. Filed Apr. 8, 1899. Serial No. 712,319. (No model.)



Claim.—1. In an electric railway-signal, the combination with separate track-sections and circuits including them, of a pair of relays included in the circuits of their respective track-sections, an alarm-circuit including a terminal, and an armature for each relay included in said alarm-circuit and adapted to alternately engage the terminal, each of said armatures being adapted for engagement with the previously-engaged armature under the influence of its relay to move it from the terminal and lock it in a disengaged position.

2. In an electric railway-signal, the combination with separate track-sections, and circuits including them, of relays in the circuits of their respective track-sections, an alarm-circuit including a terminal, armatures for said relays located in the alarm-circuit, and adapted to alternately engage the terminal to close the alarm-circuit, and adapted to interlocking means carried by the armature adapted for engagement to hold their respective armatures against the action of their relays to influence the alarm-circuit.

3. In an electric railway-signal, the combination with the separate track-sections, of a pair of relays provided with rotary armatures carrying arms whose contiguous ends are provided with combined contact and interlocking members, a common contact for both

armature-arms with which they are adapted to alternately engage, said interlocking members being adapted for mutual engagement to raise the arms with their contact members out of operative position and lockingly hold them, a bell or alarm circuit including therein said contact and both armatures, and separate local circuits for the relays, substantially as set forth.

4. In an electric railway-signal, the combination with the separate track-sections, of a pair of relays provided with rotary armatures carrying arms whose ends work in proximal relation, each armature-arm being provided contiguous to its free end with a contact projection and a locking-notch, a common contact for the contact projection of both armature-arms with which they are adapted to engage, said members being adapted to alternately raise and hold the other member in its notch with the contact members out of operative position, a bell or alarm circuit including therein said common contact and both armatures, and separate local circuits for the relays, substantially as set forth.

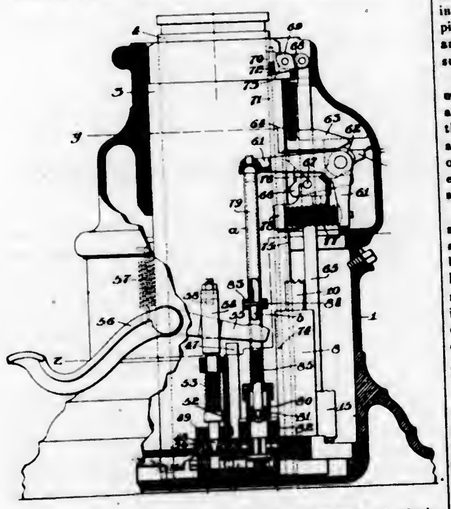
5. In an electric railway-signal, the combination with the separate track-sections, of a pair of relays provided with rotary armatures carrying arms whose ends work in proximal relation, each arm being provided at its free end with an angularly-disposed deflecting-finger, at or near the base of the latter with a locking-notch, and contiguous to the notch with an offstanding forked foot, a common contact for the contact projection or prong of both armatures, a bell or alarm circuit including therein said common contact and both armatures, and separate local circuits for the relays, substantially as set forth.

6. In an electric railway-signal, the combination with the separate track-sections, of a pair of relays provided with rotary armatures carrying arms, whose ends work in proximal relation, each arm being provided with an angularly-disposed deflecting-finger, an angular locking-notch, and an offstanding U-shaped foot, a mercury-contact cup common to both armature-arms, a bell or alarm circuit including therein the mercury-contact cup and both armatures, and separate local circuits for the relays, substantially as set forth.

7. In an electric railway-signal, the combination with the separate track-sections, of a pair of relays provided with rotary armatures carrying swinging arms, a common contact-post for both arms with which they are adapted to alternately engage and provided at its upper end with a mercury-contact cup, and with a horizontal cross-arm, insulating screws or studs adjustably fitted in the ends of said cross-arm, locking mechanism carried by said arms adapted for mutual engagement to hold the contacts inoperative, a bell or alarm circuit including therein the contact-post and both armatures, and separate local circuits for the relays, substantially as set forth.

644,640. DENTAL CHAIR. GIDEON SIBLEY, Philadelphia, Pa.

Filed June 3, 1895. Serial No. 551,507. (No model.)



Claim.—1. In a chair, the combination, with a pedestal, of telescopic seat-supporting sections fitted thereto, a vertically-extensible device confined within said sections, means whereby it is connected with the latter, a fixed pipe in the pedestal extending into the said sections and communicating with said extensible device, and a pump having operative communication with said pipe, substantially as described.

2. In a chair, the combination, with a pedestal, of telescopic seat-supporting sections fitted thereto, a head or support on the lower end of the outer section, and a head or support on the upper end of the inner section, a vertically-extensible device connected or engaged at its respective ends with said heads or supports, a fixed pipe in the pedestal communicating with said extensible device, and a pump having operative communication with said pipe, substantially as described.

3. In a chair, the combination, with a pedestal, of telescopic sections fitted thereto, lift and guide cylinders connected with one of said sections, a communication between the upper portion of the lift-cylinder and the lower portion of the guide-cylinder, a stationary pipe extending into the lift-cylinder, a pump having operative communication with said pipe, and a plunger fitted to the guide-cylinder and engaged with another telescopic section, substantially as described.

4. In a chair, the combination, with a pedestal, of two telescopic sections fitted thereto, lift and guide cylinders contained within the inner telescopic section and connected with the outer section, a port or tube connecting the upper portion of the lift-cylinder with the lower portion of the guide-cylinder, a stationary pipe extending into the lift-cylinder, a pump having operative communication with said pipe, and a plunger fitted to the guide-cylinder and engaged with the inner telescopic section, substantially as described.

5. In a chair, the combination, with a pedestal, of telescopic sections fitted thereto, the outer section being provided with a head at its lower end, two cylinders rising from said head, one of said cylinders constituting a lift-cylinder and the other a guide-cylinder, a port or tube connecting the upper end of the lift-cylinder with the lower end of the guide-cylinder, a pipe suitably supported within the pedestal and fitted to the lift-cylinder, a pump having operative communication with said pipe, and a plunger fitted to the guide-cylinder and engaged with the inner telescopic section, substantially as described.

6. In a chair, the combination, with the pedestal, a bed-block therein, a vertical pipe rising from said bed-block, a pump communicating with the pipe by way of a duct or passage in the bed-block, and suitably-disposed check and release valves, of telescopic sections fitted to said pedestal, a lifting-cylinder on one of said sections to receive the vertical pipe, a guide-cylinder adjacent thereto, a port or tube connecting said cylinders, a plunger in said guide-cylinder, and an abutment therefor on the other telescopic section, substantially as described.

7. In a chair, the combination, with a pedestal, of a vertically-movable seat-supporting section, an air-chamber supported thereon, a valve in said chamber, a vertically-movable normally-depressed plunger or piston within the chamber, a pump and intermediate connections between the same and said section, substantially as described.

8. In a chair, the combination, with a pedestal, of telescopic sections therein, an air-chamber supported on the inner section, a valve in said chamber, a vertically-movable normally-depressed plunger or piston within the chamber, a pump, lifting devices for said sections, and operative connections between said lifting devices and the pump, substantially as described.

9. In a chair, the combination, with a pedestal, of a vertically-movable seat-supporting section, an air-chamber supported thereon, a valve in said chamber, a vertically-movable magnetic piston within the chamber, a pump, and intermediate connections between the same and said section, said connections being provided with an armature or surface constructed and arranged to effect the depression and the elevation of the piston during the raising and the lowering of the seat-supporting section, respectively, substantially as described.

10. In a chair, the combination, with a pedestal, of telescopic sections fitted thereto, a head on the inner section provided with an air-chamber, a valve and a coacting magnetic piston in said chamber, lift and guide cylinders within the said sections, a connecting-head for said cylinders constructed and arranged to coact with the magnetic piston, a port or tube connecting the upper end of the lifting with the lower end of the guide cylinder, a pipe suitably supported within the pedestal and fitted to the lift-cylinder, a pump having operative communication with said pipe, and a plunger fitted to the guide-cylinder and engaged with the inner telescopic section, substantially as described.

11. In a chair, the combination of an extensible seat-supporting standard, a pump, operative connections between said pump and the standard, clamping mechanism arranged to automatically clamp said standard, and means whereby the said mechanism, during each stroke of the pump, is released preparatory to the adjustment of the standard, substantially as described.

12. In a chair, the combination, with an extensible standard to support the seat, of a clamping and releasing mechanism therefor, and a pump operatively connected with said mechanism, together with means for releasing said mechanism independently of the pump, substantially as described.

13. In a chair, the combination of a standard comprising a plurality of telescopic sections, means for vertically adjusting said sections, and clamp mechanisms constructed and arranged to automatically clamp the respective sections during each removal of the elevating pressure in the operation of adjusting said sections, substantially as described.

14. In a chair, the combination of a standard, comprising a plurality of telescopic sections, means for vertically adjusting said sections, clamp mechanisms constructed and arranged to automatically clamp the respective sections during each removal of the elevating pressure in the operation of adjusting said sections, and independent means for releasing said clamp mechanism, substantially as described.

15. In a chair, the combination of a standard comprising a plurality of telescopic sections, a pump, operative connections between the same and said sections, and clamp mechanisms constructed and arranged to automatically clamp the respective sections during each removal of the elevating pressure in the operation of adjusting said sections, substantially as described.

16. In a chair, the combination with a base or pedestal, of a plurality of telescopic seat-supporting sections fitted to and extensible in said base or pedestal, means for vertically adjusting said sections, and clamp mechanisms mounted on the base or pedestal and on the outermost section respectively, and constructed and arranged to automatically clamp the respective sections during each removal of the elevating pressure in the operation of adjusting said sections.

17. In a chair, the combination with a pedestal, of a plurality of telescopic seat-supporting sections fitted to and extensible in said pedestal, a plurality of telescopic elevating and lowering sections arranged within said former sections and connected therewith, a pump having operative communication with the inner sections, clamping and releasing mechanism for each of the supporting-sections, and means for simultaneously operating said mechanisms.

18. In a chair, the combination with a base or pedestal, of a series of telescopic seat supporting and guiding sections fitted thereto, a series of telescopic elevating and lowering sections mounted within and incased by said former sections and movable therewith, a pump, and operative connection between the same and the inclosed series of sections.

19. In a chair, the combination, with an extensible seat-supporting standard, a pump, operative connections between said pump and the standard, clamping and releasing mechanism for said standard, and connections between the pump and said mechanism constructed and arranged to be operated by the action of the pump preparatory to the adjustment of the standard, substantially as described.

20. In a chair, the combination, with a pedestal, telescopic sections therein, clamping devices to act upon said sections, a piston operatively connected with said devices, a cylinder for said piston, a pump having communication with said cylinder, lifting devices connected with the telescopic sections and with the pump, whereby the clamping and lifting devices are successively operated, substantially as described.

21. In a chair, the combination, with an extensible standard, a clamping and releasing device therefor, a piston operatively connected with said device, a cylinder for said piston, a pump having communication with said cylinder, a lifting device operatively connected with said pump and with the standard, a release-valve, and means for operating the piston and the release-valve successively, substantially as described.

22. In a chair, the combination, with a pedestal, telescopic sections therein, shoes to clamp said sections, cams to actuate said shoes a vertically-movable rod depending from the upper cam, a cam-head thereon, a spring-actuated crank-lever, a double cam thereon arranged to act upon the said cam-head and upon the cam-lever for the lower clamping-shoe, and means for operating said lever at predetermined intervals, substantially as described.

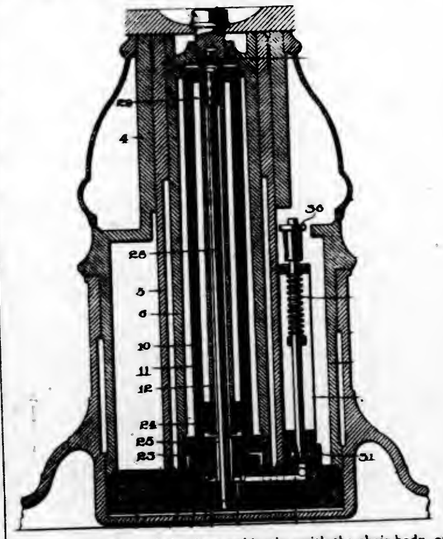
23. In a chair, the combination, with a pedestal, telescopic sections therein, shoes to clamp said sections, cams to actuate said shoes, a vertically-movable rod depending from the upper cam, a cam-head thereon, a spring-actuated crank-lever, a double cam thereon arranged to act upon the said cam-head and upon the cam-lever for the lower clamping-shoe, a piston engaged with said crank-lever, a cylinder for the piston, a pump having communication with the cylinder, and lifting devices connected with the telescopic sections and with the pump, substantially as described.

24. In a chair, the combination of an extensible seat-supporting standard, a pump, operative connections between said pump and the standard, clamping mechanism arranged to automatically clamp said standard, and means whereby the said mechanism, during each stroke of the pump, is released preparatory to the adjustment of the standard, together with a release-valve, and independent means for releasing the clamping mechanism and opening the release-valve, substantially as described.

25. In a chair, the combination of the pedestal, the bed-block therein provided with a duct or passage, the cushion-tube, the release-valve, the pump, the adjustable seat-supporting standard, and lifting devices for said standard operatively connected with the pump by way of said duct or passage, the said cushion-tube rising from the bed-block and communicating with the duct or passage at a point intermediate the lifting devices and the release-valve, substantially as described.

644,641. DENTAL CHAIR. GIDEON SIBLEY, Philadelphia, Pa.

Filed Jan. 22, 1896. Serial No. 576,452. (No model.)



Claim.—1. In a chair, the combination with the chair-body, of a base or standard provided with a central recess or chamber and a series of telescopic pipe-sections whereof one section is affixed to said base or standard, provisions whereby a movable section of the series is connected with the chair-body, a depending head on the lower end of a movable section of the series adapted to enter said recess or chamber and provided with a port leading to the interior of the latter section, and a pump having operative communication with the fixed section and with said port, together with a rod rising into said fixed section, substantially as described.

2. In a chair, the combination, with an extensible seat-supporting standard, of a base or head provided with a central recess or chamber, a series of telescopic pipe-sections whereof one section is affixed to said base or head, provisions whereby a movable section of the series is engaged with the standard, a depending head on the lower end of a movable section of the series, adapted to enter said recess or chamber and provided with a port leading to the interior of the latter section, and a pump having operative communication with the fixed pipe and with said port together with a rod rising into said fixed pipe, substantially as described.

3. In a chair, the combination, with an extensible seat-supporting standard, of a base or head provided with a recess or chamber, a series of telescopic pipe-sections whereof one section is affixed to said base or head, provisions whereby a movable section of the series is engaged with the standard, a depending head on the lower end of a movable section of the series, adapted to enter said recess or chamber and provided with a port leading to the interior of the latter section and with a port or ports leading to the bottom of the head, a valve for said latter port or ports, and a pump having operative communication with the fixed pipe and with said ports, substantially as described.

4. In a chair, the combination with a support, of a series of telescopic seat-supporting sections fitted thereto, a series of telescopic lifting-sections confined within said first-named sections, means for extending or contracting said lifting-sections, clamp devices for each of said seat-supporting sections, and a common means for operating said clamp devices, substantially as described.

5. In a chair, the combination, with an extensible standard to support the seat, of a normally-active clamp therefor, means for raising and lowering said standard, operative connections between said means and the clamp whereby during the operation of said means the clamp is intermittently actuated, and means for releasing said

clamp independently of the raising and lowering means, substantially as described.

6. In a chair, the combination, with an extensible standard, of a clamp therefor, a lever having operative connection with said clamp, an adjacent lever, means yieldingly connecting said levers, means for raising and lowering said standard, operative connections between said means and one of said levers, and independent operating means for the other lever, substantially as described.

7. In a chair, the combination with an extensible standard and means for raising and lowering the same, of a clamp for said standard, a shaft, a lever thereon operatively connected with said clamp, a second lever on the shaft, a spring connecting said levers, and independent operating mechanisms for the respective levers, substantially as described.

8. In a chair, the combination, with an extensible standard and means for raising and lowering the same, of a clamp for said standard, a shaft, a lever thereon, an arm adjacent to said lever, means for adjusting said arm and lever in relation to each other, a second lever on the shaft, a spring connecting said levers, and independent operating mechanisms for the respective levers, substantially as described.

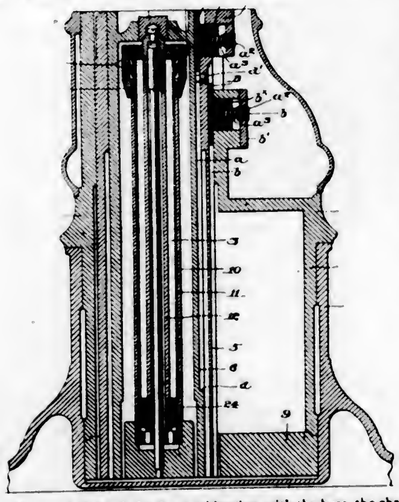
9. In a chair, the combination, with an extensible standard, of a normally-active shoe to clamp the same, a cam-lever acting upon said shoe, a rock-lever having operative connection with said cam-lever, and means for actuating said rock-lever, together with means for raising and lowering said standard, and operative connections between said means and the rock-lever, whereby during the operation of said means the shoe is intermittently actuated, substantially as described.

10. In a chair, the combination, with a support, telescopic seat-supporting sections, shoes to clamp said sections, upper and lower cams to actuate said shoes, a vertically-movable rod depending from the upper cam, a binding-arm on said rod, a lever provided with rollers adapted to act upon said arm and upon the cam-lever, and means for operating said lever at predetermined intervals, substantially as described.

11. In a chair, the combination with a support of an extensible seat-supporting standard, a telescopic raising and lowering pipe therefor, a rod rising into the lower portion of said pipe, and a pump having operative communication with said pipe, substantially as described.

12. In a chair, the combination, with a base or pedestal, and a chair-body, of a telescopic raising and lowering pipe or cylinder, one section of which is affixed to said base or pedestal, and another section of which is connected with said chair-body, a rod rising into the said fixed section, and a pump having operative communication with said pipe or cylinder.

644,642. DENTAL CHAIR. GIDEON SIBLEY, Philadelphia, Pa. Filed Feb. 5, 1897. Serial No. 622,092. (No model.)



Claim.—1. In a chair, the combination, with the base, the chair-body, and the telescopic guide-sections connected with the latter, of a telescopic lift-cylinder comprising three sections whereof the first section is affixed to the base and provided with an internal packing at the upper end, the second section is fitted within the first section and headed at its upper end, and the third section is engaged at its upper end with the chair-body and is provided at its lower end with a packing engaging the second section, and a pump having operative communication with the lower end of the lift-cylinder, substantially as described.

2. In a chair, the combination, with the base, the chair-body, and vertical guides therefor, of a telescopic lift-cylinder comprising three sections whereof the first section is affixed to the base and provided with an internal gasket at the upper end, the second section is fitted within the first section and headed at its upper end, and the third section is engaged at its upper end with the chair-body and is provided at its lower end with a gasket engaging the second section, the packing on the first or fixed section comprising a collar, gaskets therein, a ring intermediate said gaskets, and a screw-ring in the top of the collar, substantially as described.

3. In a chair, the combination, with the base, a chair-body and a standard comprising a series of telescopic sections, and means for vertically adjusting and supporting said sections, of a spring-pressed friction device mounted on said base and engaged with the outermost section, and a spring-pressed friction device mounted on said section and engaged with the contiguous section, the pressure of said friction devices being such as to be overcome by the action of the adjusting and supporting means during the elevation of said sections, and by the weight of the chair-body when the adjusting and supporting means are thrown out of action, substantially as described.

4. In a chair, the combination, with a base or support, and a chair-body, of a vertically-movable standard therefor, means for vertically adjusting and supporting said standard, a shoe, a horizontal guide therefor, a spring tending to press said shoe against the standard, and means exteriorly of said standard for adjusting the pressure of the spring, substantially as described.

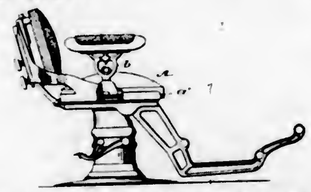
5. In a chair, the combination, with a base or support, and a chair-body, of a vertically-movable standard therefor provided with a longitudinal peripheral groove having beveled sides, a correspondingly-beveled shoe fitted to said groove, a horizontal guide for said shoe, and a spring tending to press said shoe into the groove, substantially as described.

6. In a chair, the combination, with a base or support, and a chair-body, of a vertically-movable standard therefor, a shoe bearing against the outer side of said standard, a supporting-block therefor, an exterior extension or housing in which said block is fitted and horizontally guided, a set-screw in the outer wall of said housing, and a spring interposed between said screw and the block, substantially as described.

7. In a chair, the combination, with a base or support, and a chair-body, of an extensible lifting-cylinder, a pump, operative connections between said pump and cylinder, a normally-closed release-valve, means for opening the same, an extensible guide-cylinder and a spring-pressed friction device normally engaging said latter cylinder, the pressure of said device being such as to be overcome by the pressure of the fluid from the pump during the elevation of the standard, and by the weight of the chair-body when the release-valve is opened, substantially as described.

8. In a chair, the combination with a base and a chair-body, of a series of telescopic lifting-sections operatively connected with said base and chair-body, means for elevating said sections and for permitting their descent, an outer telescopic guide-cylinder connected with the chair-body and with said base, a spring-pressed friction device mounted on said base and engaged with the outermost section of said guide-cylinder, and a spring-pressed friction device mounted on said cylinder-section and engaged with the contiguous section, substantially as described.

644,643. ARM-REST FOR DENTAL CHAIRS. GIDEON SIBLEY, Philadelphia, Pa. Original application filed Jan. 12, 1899, Serial No. 576,452. Divided and this application filed July 28, 1899. Serial No. 725,339. (No model.)



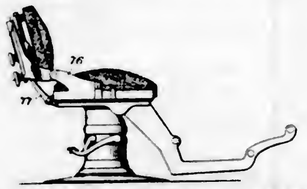
Claim.—1. In a chair, the combination with a seat, of arm-rests, horizontal pivot-supports therefor whereby said rests may be bodily swung toward and from each other, locking devices mounted on said arm-rests and bodily movable therewith, and stationary means about which said devices turn and with which they coact to secure the said arm-rests in positions of adjustment, substantially as described.

2. In a chair, the combination with a seat provided with laterally-arranged socketed sectors, of pivoted arm-rests, and means thereon to engage the sockets in the sectors, and thereby lock the arm-rests in predetermined positions of lateral adjustment, substantially as described.

3. In a chair, the combination with a seat provided with laterally-arranged horizontal bars thereon, of arm-rests provided with open hook-like pivot-boxes adapted to be mounted on said bars, and means for securing said arm-rests in positions of lateral adjustment, substantially as described.

4. In a chair, the combination with a seat provided with laterally-arranged sectors and supporting-bars, of arm-rests provided with hoods and boxes adapted to be applied to said sectors and bars respectively, and means in said hoods to engage the sectors and lock the arm-rests in positions of lateral adjustment, substantially as described.

644,644. RACK-REST FOR DENTAL CHAIRS. GIDEON SIBLEY, Philadelphia, Pa. Original application filed Feb. 5, 1897, Serial No. 622,092. Divided and this application filed July 28, 1899. Serial No. 725,342. (No model.)



Claim.—1. In a dental chair, the combination with an adjustable portion, and a clamping member therefor provided with two opposite walls, one of which is inclined, of a series of concentric disk rollers one of which acts against one of said walls and another against the opposite wall, a support for said rollers and means for adjusting said support.

2. In a dental chair, the combination with an adjustable portion, of a clamping member therefor provided with oppositely-inclined jaws or walls, independently-rotatable disk rollers bearing against the respective jaws or walls, a support for said rollers, and means for adjusting said support, whereby the said rollers in their action against the oppositely-inclined jaws or walls will be free to rotate reversely of each other.

3. In a dental chair, the combination, with an adjustable portion, of a clamping member therefor having oppositely-inclined walls one of which is provided with a longitudinal groove, three concentric disk rollers whereof the central roller is slightly larger than the others and is adapted to turn freely within the said groove and to bear upon the opposite wall, while the other rollers bear only upon the grooved wall in paths laterally of the said groove, a support for said rollers, and means for adjusting said support, substantially as described.

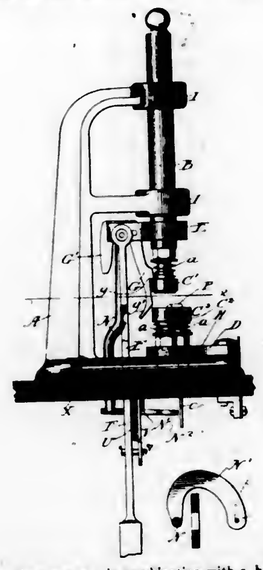
4. In a chair, the combination, with the seat, and the swinging back-frame, of the pivoted supporting-bar extending into said frame, the clamping-block for said bar provided with an inclined wall, a roller engaging said wall, a support for said roller, and means in the back frame for adjusting said support, substantially as described.

5. In a chair, the combination, with the seat, and the swinging back-frame, of the pivoted supporting-bar extending into said frame, the clamping-block for said bar provided with an inclined wall, a roller engaging said wall, a nut provided with a support for said roller, and an actuating-screw for said nut supported in the back-frame, substantially as described.

6. In a chair, the combination, with the seat and the swinging back-frame, of the pivoted supporting-bars extending into said frame, the two-part expansible clamping-block provided with oppositely-inclined walls, independent rollers bearing against the respective walls, a nut provided with a support for said rollers, and an actuating-screw for said nut supported in the back-frame, substantially as described.

644,645. BUTTON-MAKING PRESS. EUGENE W. SILSBY, Chicago, Ill. Filed Jan. 14, 1899. Serial No. 702,153. (No model.)

Claim.—1. In a button-press, in combination with a head and base, cooperating compound dies, one carried by the head and two supported on the base; a carrier for said two dies constructed and arranged to be moved to bring either of said dies at will into cooperative relation with the upper die; a latch adapted to lock the upper die to cause it to operate as rigid; a switch located in relation to one of the lower dies and constructed and arranged to disengage the latch when the upper die engages said lower die; a thrust-rod in said lower die; an arm reciprocating with the head and having a finger extending below the lower die constructed and arranged to bear laterally against the protruding end of said thrust-rod while the head descends to bring the upper die into coöperation with said lower die and to pass below the thrust-rod at the limit of said descending movement, one of said parts being adapted to move laterally when the finger passes beyond the rod; whereby the finger becomes engaged under the rod, and lifts the latter to eject the button when the head rises.



2. In a button-press, in combination with a head and base, cooperating compound dies, one carried by the head and two supported on the base; a carrier for said two dies constructed and arranged to be moved to bring either of said dies at will into cooperative relation with the upper die; a latch adapted to lock the upper die to cause it to operate as rigid; a switch associated with one of the lower dies constructed and arranged to disengage the latch when the upper die approaches said lower die; a thrust-rod in said lower die and a pendant carried by the reciprocating head and having a finger extending below the lower die constructed and arranged to bear against the protruding end of said thrust-rod while the head descends to bring the upper die into cooperation with said lower die, and to swing under the end of said thrust-rod at the limit of said descending movement, whereby the thrust-rod is caused to eject the button when the head rises.

3. In a press, in combination with a reciprocating head and fixed base, an upper and lower die carried by the head and base respectively, said dies being constructed and arranged to leave the device which is formed between them in the lower die at the termination of their cooperative action; a thrust-rod in said lower die; an arm reciprocating with the head extending down past the lower die and provided with a finger adapted to extend under the thrust-rod when the head is at the lowest position; a carrier on the base arranged to move the lower die laterally, the range of such lateral movement being sufficient to carry the thrust-rod off the finger.

4. In a press, in combination with the reciprocating head and fixed base, an upper and lower die carried by the head and base, respectively, said dies being constructed and arranged to leave the device formed between them in the lower die; a thrust-rod in said lower die, and a pendant carried by the reciprocating head extending down past the lower die and provided with a finger adapted to extend under the thrust-rod when the head is at the lowest position; a carrier on the base arranged to move the lower die laterally, the range of such lateral movement being sufficient to carry the thrust-rod off the finger, whereby the finger is caused to hang against the side of the thrust-rod while descending past it and to swing in under the thrust-rod when it passes the end of the latter: substantially as set forth.

5. In a press, in combination with a standard and base, a head reciprocating in the standard; a compound die carried by the reciprocating head; a die-carrier on the base having a plurality of dies and constructed and arranged to be moved to bring said dies successively one at a time in line with a die carried by the head; a draft-bar connected to the head and extending through the base between the standard and the path of reciprocation of the head and a pedal mechanism connected therewith; a latch carried by the reciprocating head and pivotally suspended between the path of the die and the standard by gravity to swing into position to lock the compound die carried by the head, and suitable means associated with one of the dies on the carrier for deflecting the latch when the die carried by the head descends to cooperate with such die on the carrier.

6. In combination with an upper die and a lower die, one of which is adapted to yield with respect to the other, two dies and a carrier on which they are mounted adapted to be moved to bring said two dies one at a time into cooperating relation with said upper die, said two dies having each two elements, one of which is adapted to yield longitudinally with respect to the other; a latch for locking the two elements of the upper die to prevent yielding; means provided in relation to one of the lower dies for disengaging such latch to permit the yielding element of the upper die to yield when it cooperates with the lower die which is so provided.

7. In a press, in combination with the reciprocating head and a fixed base; a carrier on the base adapted to oscillate, a die carried by the reciprocating head and two dies carried by the oscillating carrier; the carrier having adjacent to its pivot on the base two seats or faces at an angle to each other which is the complement of the angle through which the carrier oscillates to bring its two dies respectively into cooperative relation to the upper die, and a spring secured to the base and bearing against the carrier at the angle between said faces, whereby it tends to hold the carrier at one limit or the other of its range of oscillation and to move it from any point between said limits to the nearer limit.

8. In a press, in combination with a reciprocating head and the die carried thereby; a fixed base and an oscillating carrier thereon and two dies carried thereby; mechanism for oscillating the die-carrier to bring its dies alternately into cooperation with the die of the reciprocating head, and mechanical connections by which said mechanism derives movement from the reciprocating movement of the head.

9. In a press, in combination with a reciprocating head and a die carried thereby, the fixed base and an oscillating die-carrier thereon and two dies carried thereby; a bar reciprocating with the head; a cam V mounted thereon; a spring U which connects the cam to the bar attached at one end to the cam and at the other end to the bar and tending to hold the cam upward; the cam having a transverse slot below the spring, and a stud on the bar which engages the slot; an abutment at the upper part of the cam, and lateral stops on the bar between which said abutment may oscillate and which limits said oscillating movement; suitable connections from the oscillating carrier comprising an abutment which protrudes into the plane of reciprocation and oscillation of the cam V, constructed and arranged to be encountered by said cam as the bar reciprocates to cause the carrier to be oscillated: substantially as described.

10. In a press, in combination with the reciprocating head and the die carried thereby; a fixed base and an oscillating carrier thereon and two dies carried thereby; a rock-shaft journaled in the base having one arm which engages the carrier to oscillate it; a bar reciprocating with the head and a cam V mounted thereon; a spring U which connects the cam to the bar attached at one end to the cam and at the other end to the bar and tending to hold the cam upward; the cam having a transverse slot below the spring, and a stud on the bar which engages such slot; an abutment at the upper part of the cam and lateral stops on the bar between which said abutment may oscillate and which limit such oscillating movement; the rock-shaft having a second arm projecting downward and extending into the path of the cam V, arranged to be encountered by the latter as the bar reciprocates to cause the carrier to be oscillated: substantially as set forth.

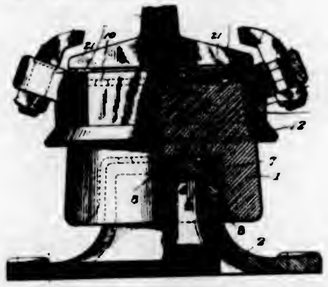
11. In a die-press, in combination with a reciprocating head and the draft-bar for operating it; vertical guideways for the draft-bar and a pedal mechanism for operating the same comprising an upstanding link at the rear of the draft-bar; a pedal-lever pivotally connected to the upper end of such link and extending across the draft-bar, and a second link pivotally connected to the draft-bar and to the forward part of the pedal-lever, and an abutment on the draft-bar above the pivot of the last-mentioned link thereto and below the pedal-lever adapted to afford bearing for the latter as it descends, said parts being constructed and arranged substantially as set forth to cause the rear fulcrum of the pedal-lever at the upper end of the upstanding link to advance toward the draft-bar as the pedal-lever is depressed at the forward end and increase the leverage of the pedal as it descends.

12. In a die-press, in combination with a reciprocating head, a vertically-guided draft-bar for operating it; pedal mechanism for operating the same comprising an upstanding link at the rear of the draft-bar; a pedal-lever pivotally connected to the upper end of such link and extending across the draft-bar; an abutment on the draft-bar below the pedal-lever adapted to afford bearing for the latter as it descends, and suitable means for causing the draft-bar to move longitudinally forward during its descent to cause the rear fulcrum of the pedal-lever at the upper end of the upstanding link to approach the abutment by which the pedal-lever actuates the draft-bar.

13. In a die-press, in combination with a reciprocating head, a vertically-reciprocating draft-bar for operating it; pedal mechanism for operating the same comprising an oscillating link at the rear of the draft-bar; a pedal-lever pivotally connected to the upper end of such link and extending across the draft-bar; an abutment on the draft-bar to receive the pressure of the pedal-lever and afford bearing for the latter as it descends, and suitable means for causing the pedal-lever to move longitudinally forward during its descent, to cause the rear fulcrum of the pedal-lever to approach the abutment by which said lever actuates the draft-bar.

14. In a power-supplying mechanism, a reciprocating draft-bar from which power is communicated to such mechanism; pedal mechanism for operating the draft-bar comprising an oscillating link at the rear of such draft-bar, a pedal-lever pivotally connected to the link and extending across the draft-bar, an abutment on the draft-bar receiving the pressure of the pedal-lever and affording bearings for the latter as it descends, and means for causing the pedal-lever to move longitudinally forward during its descent and causing the rear fulcrum of the lever to approach the abutment by which the said lever actuates the draft-bar.

644,646. INSULATOR FOR USE ON ELECTRIC RAILWAYS. JAMES THOMAS and WILLIAM R. THOMAS, Catasauqua, Pa. Filed Dec. 12, 1899. Serial No. 740,077. (No model.)



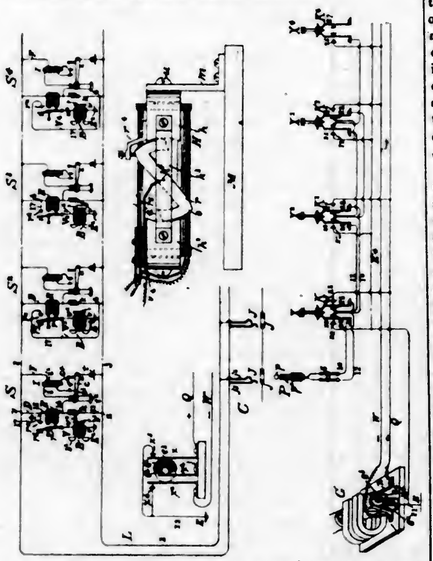
Claim.—1. An insulator comprising an insulating-block having a recess at one end adapted to engage a base, a base for supporting the said block, spacing projections on said base for separating the block a suitable distance therefrom, an attaching-cup adapted to fit upon the other end of the said insulating-block, spacing projections on said block for separating the cup a suitable distance therefrom, means for holding the parts together, and means for securing a conductor to the said cup, substantially as described.

2. An insulator for supporting conductors, comprising a base having a projecting portion, spacing projections formed thereon, a cup for supporting a conductor, spacing projections on said cup for engaging said conductor, and an insulating-block interposed between the base and cup, the said block being provided at one end with a recess adapted to fit over the base and being adapted at its other end to engage a recess formed in the said cup, spacing projections on said block for engagiug the cup, and cement or other adhesive material interposed between the parts for holding them together, substantially as described.

3. An insulator comprising a base, an insulating-block and an attaching-cup, laterally-projecting lugs on said cup having bolt-holes therein, bolts having many-sided heads engaging the bolt-holes in the said cup, said holes having rectangular countersunk portions for engaging the many-sided heads of the bolts to prevent their turning, the heads upon the said bolts being adapted to overhang portions of a conductor for holding the same upon the cup, substantially as described.

4. An insulator for conductors comprising a base, an attaching-cup, an insulating-block for securing them together, apertured lugs formed upon the said cup and inclined toward the conductor, bolts adapted to fit in recesses in the said lugs, said bolts having head portions formed with rectangular bases adapted to fit in shallow countersunk portions in the said lugs so that the bolts cannot turn when secured in place, overhanging end portions formed on the said heads for embracing the flanges of a conductor, the structure being such that, by loosening one of the bolts and slightly lifting the head thereof out of the countersunk portion, it may turn to one side so as to liberate the conductor, substantially as described.

644,647. SELECTIVE SIGNAL FOR TELEPHONE-CIRCUITS. GEORGE K. THOMPSON, Malden, and ERNEST C. ROBBS, Medford, Mass., assignors to the American Bell Telephone Company, Boston, Mass. Filed July 18, 1899. Serial No. 724,236. (No model.)



Claim.—1. In a telephone signaling system and apparatus, the combination with a metallic or double-conductor main circuit; and means for transmitting an intermittent current of definite direction over one of the conductors thereof; of a bridge of said circuit containing a condenser, and a relay responsive to such a current and adapted to maintain the steady attraction of its armature during the passage thereof; a normally-disconnected earth branch controlled by the said armature, and united during the attracted position thereof to the said main-circuit conductor; and a polarized bell having its magnet in the said earth branch, and having its armature biased to move in one direction with each emission, and oppositely with each intermission of the said current.

2. The combination in a telephone-signaling system, of a metallic or double-conductor main circuit; and a source of intermittent current of definite directionconnecting with one of the conductors thereof; with a subscriber's signaling apparatus comprising a bridge between the main conductors of said circuit; a condenser, and a relay in the said bridge, the latter organized to attract its armature and to steadily maintain the attraction thereof during the passage over the said main conductor of the said intermittent current; a ground branch of the said main conductor normally disconnected therefrom, but brought into direct connection therewith by the action of the said relay-armature when attracted; and a polarized bell having its magnet in said branch, and its armature biased or adjusted to vibrate in response to the said main-line current of single direction; whereby the temporary connection of the ground branch, and a continuous ringing of the polarized bell included therein, may both be effected by the same intermittent current of the said source, acting through the steadily-attracted relay-armature, and the intermittently-attracted bell-armature; substantially as set forth.

3. The combination of a metallic telephone-circuit extending between a central station and two substations; a ground branch at each substation extending from one of the main-circuit conductors, but normally detached therefrom; a sluggish or slow-acting neutral switching-relay as indicated, at each substation, bridged in series with a condenser between the main conductors of said circuit, and adapted on the excitement of its magnet to switch the said ground branch into connection with the appropriate main conductor; a polarized bell, biased or adjusted to respond to intermittent currents of definite direction in one, and a similar bell oppositely polarized or oppositely biased to respond to like intermittent currents of opposite direction in the other of said ground branches; and means at the central station for impressing upon the said appropriate main conductor, intermittent currents of either direction, for the selective operation of either bell.

4. In a telephone system, a metallic main circuit extending between a central station and two substations; a slow-acting neutral switching-relay responsive by the protracted attraction of its armature to the passage through its coils of an intermittent current, connected serially with a condenser in a bridge at each substation between the two conductors of said main circuit; normally-discontinuous earth branches, one at each substation, extending from the said main-circuit conductors respectively, and each including a polarized electromagnetic bell responsive by the vibration of its armature to an intermittent current, the said earth branches being each adapted for connection with its own main conductor by the operation of the switching-relay at the same station; and means at the central station for transmitting an intermittent current over either main conductor of said metallic circuit, and for simultaneously grounding the other main conductor; substantially as and for the purpose set forth.

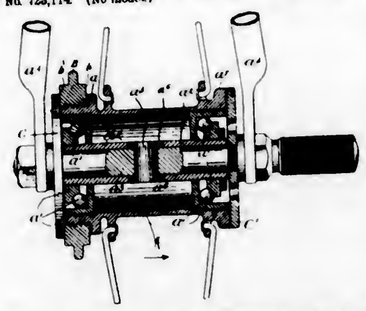
5. A system of selective signaling, comprising a main metallic telephone-circuit extending to four substations; a bridge at each substation containing a slow-acting neutral switching-relay, and a condenser; a normally detached and discontinuous earth branch at each substation, two of the said branches being associated with one, and two with the other of the main conductors of said metallic circuit, and all adapted to be switched into direct connection with their respective main conductors by the action of their respective relays; a polarized bell in each earth branch, those associated with the same main conductor being biased or adjusted oppositely, and thereby made respectively responsive to intermittent currents of opposite direction respectively transmitted over the said conductor; and means as indicated at the central station for transmitting an intermittent current of either direction over either main conductor, and for simultaneously establishing a shunt of relatively-low resistance around the bell-magnets associated with the other main conductor; whereby in a circuit having no permanently-connected earth branches, either substation-bell may be selectively operated, to the exclusion of the others.

6. The combination of the two main conductors of a metallic telephone-circuit having four substations; with two normally-disconnected ground branches located at two of said substations and adapted for direct connection with one of the said main conductors, each branch containing an oppositely-polarized or oppositely-biased electromagnetic call-bell; two other ground branches similarly detached from but adapted for connection with the other main conductor, and respectively containing the oppositely-biased bells of the other stations; a normally-open shunt, of resistance low relatively to that of the bell-magnets, around each such bell-magnet, means for uniting all of the said earth branches to their respective main conductors when a current adapted for the operation of any of the bells is transmitted over either main conductor; and means at the central station for closing the shunt-circuit of the two bells of either main conductor, when an intermittent current adapted for the operation of either of the two bells of the other main conductor is transmitted over the said other main conductor; substantially as described.

7. In a system of selective signals for a telephone-circuit, the combination of a normally-groundless double-conductor main circuit extending between a central station and four substations; a normally-detached earth branch at each substation, two of them being associated with one conductor, and two with the other conductor of said main circuit; a slow-acting neutral switching-relay at each substation, bridged in series with a condenser between the conductors of said main circuit, all of the said relays being responsive to intermittent currents of either direction over either main conductor, and adapted when excited thereby to attract and maintain the attraction of their armatures, which constitute switches to temporarily unite the earth branches at their respective stations to the prearranged main conductors; a polarized electromagnetic bell connected in the earth branch of earth substation, those in the two branches of either main conductor being oppositely biased or adjusted to respond to intermittent currents of opposite direction respectively; a source of signaling-current at the central station having one pole grounded, and organized to deliver intermittent currents of plus and minus direction respectively to different terminal conductors; an independent earth connection at said central station; and a signaling-key at the said central station for each substation-bell, adapted when operated to connect the main conductor thereof with the appropriate source terminal, and the other main conductor with the said independent earth connection; whereby an intermittent current of definite direction may be transmitted over a particular main conductor for the selective operation of the corresponding substation-bell, and of the relays at all stations, the two bells of the other main conductor being shunted by the said independent earth connection.

8. In a telephone signaling system and apparatus, the combination with either main conductor of a metallic telephone-line circuit; of a normally-disconnected earth-branch at a substation; a polarized bell biased to respond to an intermittent current of definite direction and having its electromagnet included in said branch; a bridge of the main circuit at said station including a condenser, and a relay controlling the connection of said earth branch with the main circuit, and adapted to establish the same on the attraction of its armature; means at a central station for transmitting the said intermittent current over said main conductor for the operation of said relay and bell; and a grounding device automatically applied to said main conductor during the intermissions of said current; substantially as set forth.

644,648. **BACK-PEDALING BRAKE.** CHARLES G. TIEFEL, Rochester, N. Y., assignor, by mesne assignments, to Robert H. Canfield, Corning, N. Y. Filed Mar. 27, 1896. Renewed July 7, 1899. Serial No. 723,114. (No model.)

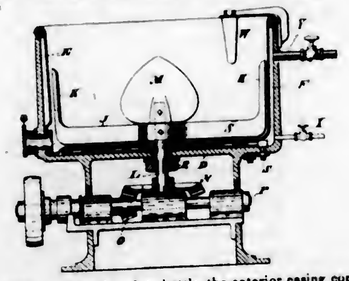


Claim.—1. In a vehicle-brake, the combination with two revoluble members, one being movable relatively to the other, a bearing for one of the revoluble members, two rotary and two non-rotary engaging surfaces for transmitting substantially-equal pressure to one of the revoluble members in opposite directions substantially lengthwise of its axis and thereby retarding the revolution of said one of the revoluble members without transmitting pressure to the bearing, and means for locking the revoluble members together and for operatively engaging said surfaces, substantially as and for the purpose described.

2. In a vehicle-brake, the combination of revoluble driven and driving members, one being movable relatively to the other, and two revoluble and two non-revoluble engaging surfaces for transmitting substantially-equal pressure to the driven member in opposite directions substantially lengthwise of its axis, and means for locking the revoluble members together and for operatively engaging said surfaces, substantially as and for the purpose specified.

3. In a vehicle-brake, the combination with two revoluble members, one being movable relatively to the other, two rotary and two non-rotary engaging surfaces, two of said surfaces transmitting substantially-equal pressure to the other two of said surfaces substantially lengthwise of the axis of the revoluble members in opposite directions, and means for locking the revoluble members together and for engaging said surfaces, substantially as and for the purpose set forth.

644,649. **CHOCOLATE-KETTLE.** WILLIAM WALTER, New York, N. Y. Filed Jan. 5, 1899. Serial No. 701,205. (No model.)



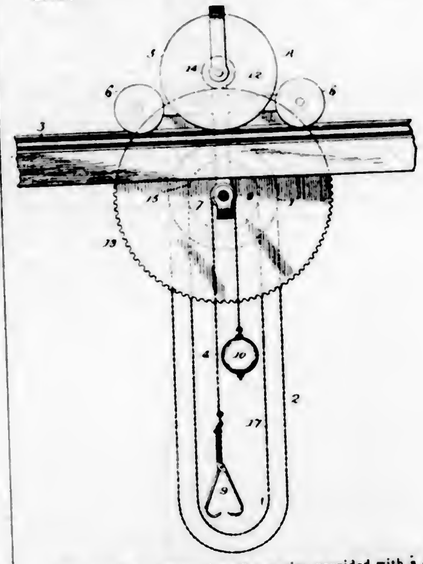
Claim.—1. In a chocolate-kettle, the exterior casing comprising the upper part B forming a receiver, and the lower part C constituting a hollow supporting-base, said receiver and base being separated by a substantially-horizontal partition D which forms a bottom for said part B, combined with the receptacle E within said part B and surrounded by the water-chamber F having an inlet and an outlet for water, the steam-coil S intermediate the bottom of said receptacle E and said partition D and adapted by the contact of its continuous surfaces with the water in said chamber to heat the same, the stirrer within said receptacle, the central vertical shaft connected with said stirrer and extending downward within said hollow base, the horizontal power-shaft extending within said base, and the gear-wheels N, O, within said base and connecting said power-shaft and said vertical shaft; substantially as and for the purposes set forth.

2. In a chocolate-kettle, the exterior casing forming a receiver and having the substantially-flat bottom, and the receptacle E within said receiver and having a substantially-flat bottom, a water-chamber being formed between the sides and bottom of said receiver and the adjacent surfaces of said receptacle, combined with the stirrer within said receptacle, the non-perforated steam-coil S intermediate the bottom of said receptacle and the bottom of said receiver, and the outlet at the lower portion of the side of said receptacle and receiver; substantially as and for the purposes set forth.

3. In a chocolate-kettle, the exterior casing forming a receiver, and the receptacle E within said casing and forming between itself and said casing a water-chamber, said receptacle having a substantially-flat bottom and provided with an outlet at the lower edge of its side, combined with the vertical shaft I, extending through the bottoms of said casing and receptacle, the stirrer J secured upon the upper portion of said shaft and comprising the horizontal blade and standards K, K, the central stirrer M connected with the upper end of said shaft, means for rotating said shaft, and the non-perforated steam-coil S in said water-chamber, substantially as and for the purposes set forth.

4. In a chocolate-kettle, the exterior casing, the receptacle E within said casing and forming between itself and said casing the water-chamber, the stationary frame V having its sides W extending downward into said receptacle at one side of the latter in position to check the centrifugal force of the chocolate, and the thermometer held and protected by said frame, combined with the rotatory stirrer within said receptacle, and the non-perforated steam-coil S within said chamber; substantially as and for the purposes set forth.

644,650. **CONVEYER FOR COTTON-BALES, &c.** SAMUEL J WEBB, Minden, La. Filed Apr. 2, 1898. Serial No. 676,244. (No model.)



Claim.—1. The combination of a carrier provided with a driving-wheel and with a shaft 7, means for turning the driving-wheel on the rotation of said shaft, means for disconnecting the driving-wheel from the shaft, and a cable for supporting the load connected to turn the said shaft, substantially as set forth.

2. The combination of a carrier provided with a driving-wheel, shaft 7, and a supporting-chain connected therewith, gears between the shaft and the driving-wheel, and means for disconnecting said gears to permit the independent rotation of the shaft, substantially as set forth.

3. The combination of a carrier provided with a driving-wheel, shaft 7, load-supporting chain connected therewith, a loose gear upon the shaft connected with the driving-wheel, and means for connecting said gear with the shaft, substantially as set forth.

4. The combination with a carrier, driving-wheel, driving shaft and cable connected therewith to support the load, of a pulley 1, a chain turning the shaft to lift the load, and means for connecting the shaft with and disconnecting it from the driving-wheel, substantially as set forth.

5. The combination with a carrier provided with a driving-wheel and pinion therefor, of a shaft mounted in the same, a sprocket-wheel carried on said shaft, a pulley mounted on the shaft and a toothed wheel also mounted on said shaft and engaging the pinion to rotate the driving-wheel, substantially as described.

644,651. **FIFTH-WHEEL.** FRANK E. WILCOX, Mechanicsburg, Pa., assignor of one-half to Herbert C. Brown, same place. Filed Nov. 23, 1899. Serial No. 738,094. (No model.)



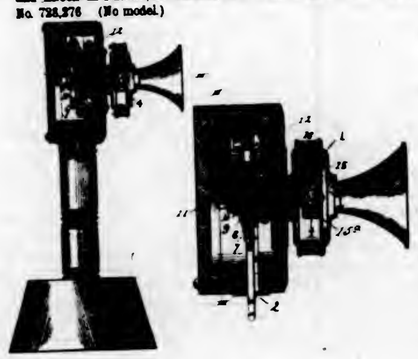
Claim.—1. The combination with an upper member of a fifth-wheel having the integral perforated lugs, C C, of a lower member; a yoke having arms to receive bolts and a spring-pocket made in the body of the metal; a spring located in the pocket; a follower-plate resting on the spring and bearing against the lower member; and bolts for rigidly uniting the yoke and lugs, C C; in substance as set forth.

2. The combination with an upper member of a fifth-wheel having the perforated lugs, C C, of a lower member; a yoke having arms and a spring-pocket, F, made in the body of the metal; a spring located in the pocket; a follower-plate resting on the spring and bearing against the lower member; a removable spring-retaining plate, J; and bolts for rigidly uniting the yoke and lugs, C C; in substance as set forth.

3. The combination with an upper member of a fifth wheel having the integral perforated lugs, C C, of a lower member; a yoke having arms to receive bolts and a spring-pocket, F, made in the body of the metal; a spring located in the pocket; a follower-plate resting on the spring and bearing against the lower member; and bolts for rigidly uniting the yoke and lugs, C C; said follower-plate being provided with means for holding it in position during its upward and downward movements; in substance as set forth.

4. The combination with an upper member of a fifth-wheel having the perforated legs, C C, of a lower member; a yoke having arms and a spring-pocket, F, made in the body of the metal; a spring located in the pocket; a follower-plate resting on the spring and bearing against the lower member; and bolts for rigidly uniting the yoke and lugs, C C; said follower-plate having recesses which receive the bolts, L L'; in substance as set forth.

644,652. **TELEPHONE-TRANSMITTER.** JOSEPH M. WILDERMAN and ENOCH A. NELSON, St. Charles, Mo. Filed Aug. 24, 1899. Serial No. 728,276. (No model.)



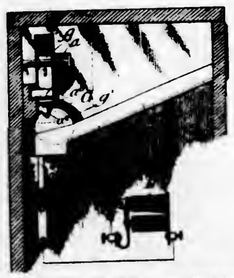
Claim.—1. A transmitting-telephone comprising a revoluble axle mounted in the frame, two metallic pieces mounted on said axle, contact-springs arranged in the transmitter-circuit and bearing flatwise against said pieces, a casing with comminuted particles therein mounted on said axle and electrically connected on opposite sides to one of said pieces and to the diaphragm, and a metallic shell in which said diaphragm is mounted, said shell being electrically connected to the other metallic piece, substantially as described.

2. A transmitting-telephone comprising a revoluble axle mounted in the frame and having a metallic sleeve thereon and a metallic rod therein, flat contact-springs in the transmitter-circuit bearing respectively against said rod and said sleeve, a casing with comminuted particles therein mounted on said axle and connected on one side to said rod and on the other to the diaphragm, and a metallic shell in contact with said diaphragm and said sleeve, substantially as described.

3. The combination of a comminuted-resistance transmitting-telephone having its casing mounted on a revoluble axle, a receiving-telephone and a retractile lever operatively connected to said casing to turn it and arranged to support the receiving-telephone and be actuated by the weight thereof, said axle having a metallic rod therein and a metallic sleeve thereon connected electrically to opposite sides of said casing, and stationary contact-springs bearing flatwise on said rod and said sleeve respectively whereby they are incorporated in the transmitter-circuit, substantially as described.

4. The combination of a comminuted-resistance transmitting-telephone whose casing is mounted on a revoluble axle, a ratchet-wheel fixed on said axle, a receiving-telephone, and a retractile lever having a pawl thereon adapted to cooperate with said ratchet-wheel, said lever being arranged to support the receiving-telephone and be actuated by the weight thereof, said axle having two metallic pieces forming part of the transmitter-circuit, and contact-springs bearing flatwise thereon for connecting them to the fixed portions thereof, substantially as described.

644,653. **COIN-ACTUATED MECHANISM FOR TELEPHONES.** ARTHUR F. WINES, Chicago, Ill.; W. S. J. Wines administrator of said Arthur F. Wines, deceased. Filed Sept. 15, 1897. Serial No. 651,710. (No model.)



Claim.—1. In a mechanism of the class described, the combination of a suspended lever, a fulcrum or pivot on which the lever loosely hangs in normal position and away from which it is capable of being moved, a coin-channel arranged to have the insertion of a coin change the fulcrum-point of the lever, and means for operating the lever, substantially as described.

2. In mechanisms of the class described, the combination of an electric circuit having a pair of terminals, a suspended lever normally prevented from contacting the terminals and means adapted to change the fulcrum of the lever when a coin is inserted and close the electric circuit, substantially as described.

3. In mechanisms of the class described, the combination of an electric circuit embracing a pair of terminals, a suspended lever normally prevented from contacting the terminals, a coin-channel arranged adjacent to such lever so that a coin when inserted will engage the lever, change its fulcrum-point and permit it to contact and close the terminals, and means for operating the lever, substantially as described.

4. In mechanisms of the class described, the combination of an electric circuit embracing a pair of terminals, a suspended lever, a coin projection on the lever, a coin-channel arranged so as to bring a coin into engagement with the lever whereby as the lever is operated its normal fulcrum-point is changed the terminals contacted and closed, and means for operating the lever, substantially as described.

5. In mechanisms of the class described, the combination of an electric circuit embracing a pair of terminals, a suspended lever, a spring to hold the lever on its fulcrum-points, a coin projection on the lever, a coin-channel arranged so as to bring a coin into engagement

with the lever whereby as the lever is operated its normal fulcrum-point is changed the terminals contacted and closed, and means for operating the lever, substantially as described.

6. In mechanisms of the class described, the combination of an electric circuit embracing a pair of terminals, a suspended lever, a coin projection on the lever, a coin-channel arranged so as to guide a coin into engagement with the projection on the lever so as to change its normal fulcrum-point contact the terminals and close the circuit, and a push-bar for such lever provided with a guard to admit one coin at a time, substantially as described.

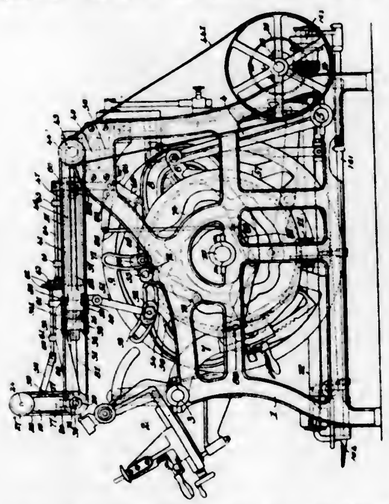
7. In mechanisms of the class described, the combination of an electric circuit embracing a pair of terminals, a suspended lever, a spring to hold the lever on its fulcrum or pivotal points, a coin projection on the lever, a coin-channel arranged so as to guide a coin into engagement with the projection on the lever so as to change its normal fulcrum-point contact the terminals and close the circuit, and a push-bar for such lever provided with a guard to admit of one coin at a time, substantially as described.

8. In a coin-actuated mechanism, the combination of a suspended lever having at one end a horn or extension supporting the lever in normal position, a fulcrum or pivot over which the horn of the lever loosely hangs in normal position and away from which it is capable of being moved, a coin-channel delivering a coin in the path of travel of the acting end of the suspended lever, and means for operating the lever, substantially as described.

9. In a coin-actuated mechanism, the combination of a suspended lever having at one end a horn or extension supporting the lever in normal position and having at its opposite end a toe or catch, a fulcrum or pivot over which the horn of the lever loosely hangs in normal position and away from which it is capable of being moved, a coin-channel delivering a coin in line to be engaged by the toe or catch of the suspended lever and means for operating the lever, substantially as described.

10. In a coin-actuated mechanism, the combination of a suspended lever, a coin-channel arranged for the insertion of a coin to change the fulcrum-point of the lever and whereby the coin is held in place by the lever and retained as a fulcrum until the time when the motion of the lever simultaneously changes the fulcrum and releases the coin, and means for operating the lever, substantially as described.

644,654. **SOLE-LEVELING MACHINE.** ERASTUS B. WINKLEY, Lynn, Mass. Filed June 15, 1899. Serial No. 720,694. (No model.)



Claim.—1. In a sole-leveling machine, the combination with a sole-leveling hammer, of a shoe-supporting jack and connected mechanisms operating automatically to change the relative longitudinal position and lateral inclination of the hammer and jack, substantially as described.

2. In a sole-leveling machine, the combination with a sole-leveling hammer, of a shoe-supporting jack and connected mechanisms operating automatically to change the relative longitudinal position and longitudinal inclination of the hammer and jack, substantially as described.

3. In a sole-leveling machine, the combination with a sole-leveling hammer, of a shoe-supporting jack and connected mechanisms operating automatically to change the relative longitudinal position and lateral and longitudinal inclination of the hammer and jack, substantially as described.

4. In a sole-leveling machine, the combination with a shoe-supporting jack, of a sole-leveling hammer and mechanism for automatically tilting the hammer both longitudinally and laterally, substantially as described.

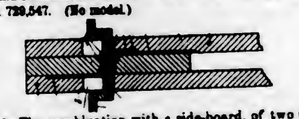
5. In a sole-leveling machine, the combination with a shoe-supporting jack and a sole-leveling hammer, of connected mechanisms for changing the relative longitudinal position of the jack and hammer, and mechanism for raising and lowering the hammer to accommodate it to the variations in height of the shoe-sole, substantially as described.

6. In a sole-leveling machine, the combination with a plurality of shoe-supporting jacks, of a sole-leveling hammer cooperating with each jack and connected mechanisms operating automatically to actuate one jack and hammer for leveling a left shoe and to actuate the other jack and hammer for leveling a right shoe, substantially as described.

7. In a sole-leveling machine, the combination with a shoe-supporting jack, of a sole-leveling hammer provided with a hammering-face to act upon the fore part of the sole, and a hammering-face to act upon the shank of a shoe-sole, and connected mechanisms operating automatically to actuate the jack and hammer to change their relative longitudinal positions and to bring into operative position either of the operating-faces of the hammer according as the fore part or shank of the shoe is brought into position to receive the blows thereof, substantially as described.

8. In a sole-leveling machine, the combination with a sole-leveling hammer, of a shoe-supporting jack, mechanism for automatically actuating the hammer and jack to impart to the jack and hammer relative longitudinal movements and means under the control of the operator to stop the relative longitudinal movements of the jack and hammer at any desired point, substantially as described.

644,655. **SIDE-BOARD ATTACHMENT.** ARTHUR M. WEWELL, Lincoln, and FREDERICK D. KERR, Beatrice, Nebr. Filed Sept. 5, 1899. Serial No. 729,547. (No model.)



Claim.—1. The combination with a side-board, of two supporting-bars one pivotally secured to the upper edge of the side-board and the other being pivotally secured to the lower edge of said side-board, and a latch to lock said pivotally-secured supporting-bars to said side-board.

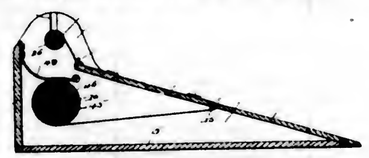
2. The combination with a side-board, of two supporting-bars, one of said supporting-bars being pivotally secured to the upper edge of said side-board, the remaining supporting-bar being pivotally secured to the lower edge of said side-board and a spring-latch to detachably secure said supporting-bars to said side-board.

3. The combination with a side-board, of a supporting-bar pivotally secured to the upper edge of said side-board, a second supporting-bar pivotally secured to the lower edge of said side-board, said side-board and supporting-bars being provided with registering openings, and a shaft provided with a crank at each end revolubly working within said side-board, said cranks being adapted to work through the registering openings within said supporting-bars, all arranged substantially as and for the purpose set forth.

4. The combination with a side-board, of a supporting-bar hinged to the upper edge of said side-board, a second supporting-bar hinged approximately intermediate of its length to the lower edge of said side-board, a shaft provided with cranks at each end working within said side-board, said cranks working through said registering openings within said supporting-bars and a spring to latch said crank-shaft, all arranged substantially as and for the purpose set forth.

5. The combination with a side-board provided with a suitable shaft-opening, of a plate having a half-bearing secured to one side of said side-board, said plate extending upwardly, said half-bearing entering said shaft-opening, a second plate extending downwardly and having its half-bearing extending into said shaft-opening to form a complete journal with said first-mentioned half-bearing, a supporting-bar pivotally secured to said upwardly-extending plate, a second supporting-bar pivotally secured to said downwardly-extending plate, openings within said bars registering with said shaft-opening, a shaft provided with a crank at each end within said journal-bearing and passing through said supporting-bars, all arranged substantially as and for the purpose set forth.

644,656. **WRITING-TABLET.** HENRY E. YOUTSEY, Frankfort, Ky. Filed Nov. 28, 1899. Serial No. 738,618. (No model.)



Claim.—1. A tablet comprising a casing having a fixed top covering a portion thereof, a lid hinged to the casing and adapted to move into and out of the plane of the top, a roller carried by the lid adapted for movement with the same to permit the adjustment of a strip thereto, and winding-spindles journaled in the casing and adapted to receive a strip of paper engaging the roller carried by the lid.

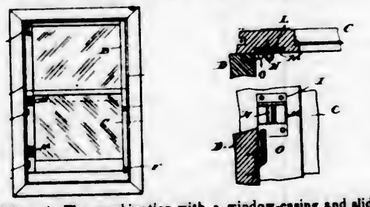
2. A tablet comprising a casing having a fixed portion forming an arm-rest, a lid hinged to the casing, a guide-roller journaled in the lid and adapted to receive a strip of paper passed over the lid, said lid being adapted for movement to carry the paper into operative relation to the arm-rest and out of operative relation thereto to facilitate the adjustment of the paper strip, and winding-spindles mounted in the casing and adapted to feed and receive the paper passed over the lid.

3. A tablet comprising a casing having an arm-rest, a lid for the casing having a guide-roller and adapted to receive a strip of paper, said lid being adapted for movement to carry the paper into operative relation to the arm-rest and for movement away from the arm-rest to facilitate the application of the paper, and paper-carrying devices in the casing.

4. A tablet comprising a casing having a cover for a portion thereof, a lid hinged to the casing and having a recess in its edge adjacent to the cover, a guide-roller journaled in the recess and adapted to receive a strip of paper passed over the lid, and paper-holding devices within the casing, said lid being adapted for movement toward and away from said cover to hold the paper in operative relation thereto and to facilitate the application of the paper to the lid.

5. A tablet comprising a casing provided with a lid having a recess in its edge, an arm-rest upon the casing, a guide-roller mounted in the recess of the lid, a guide-strip upon the lid, a spindle rotatably mounted in the casing and adapted to receive a paper-roll, a hand-wheel upon the spindle, a peripheral groove in the spindle exteriorly of the casing, a hook pivoted to the casing and adapted for engagement with the groove to hold the spindle from longitudinal displacement, a spool journaled in the casing and having an angular recess, a second and removable spindle journaled in the casing and having an angular portion engaging the recess, said spindle being adapted to receive paper from the roll upon the first spindle, a peripheral groove in the second spindle, a hook pivoted to the casing and adapted for engagement with the groove to hold the spindle from longitudinal displacement, a lever pivoted to the casing, a pawl mounted upon the lever, a ratchet upon the spool adapted for engagement by the pawl, a bracket upon the casing, and a screw engaging the bracket and lying in the path of movement of the lever, said screw being adapted for adjustment to vary the length of the path of movement of the lever.

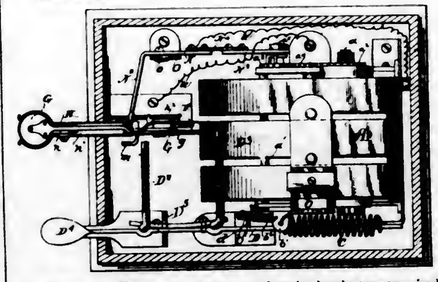
644,657. **WINDOW-SASH.** MELCHIOR ZOECKNAYER, New York, N. Y. Filed Aug. 6, 1898. Serial No. 687,888. (No model.)



Claim.—1. The combination with a window-casing and sliding lower sash, of hinge-pintles attached to and projecting from the lower half of one guide-strip and extending over one side bar of the sash, a countersunk sliding plate in said sash side bar, flush with the face of the side bar and having at one end a hinge-socket projecting beyond the face of the side bar such a distance that its central axis is the same distance from the front of the sash side bar as the vertical central axis of the hinge-pintle on the guide-strip is from the face of the sash side bar, substantially as herein shown and described.

2. The combination with a window-casing of upper and lower sliding sashes, a guide-strip, hinge-pintles projecting from the lower half of said guide-strip, the countersunk plates L in one side bar of the lower sash, a sliding plate M mounted in each countersunk plate L to slide transversely to the height of the sash, the plates M being flush with the face of the sash side bar, and each having a socket N at the end toward the guide-strip provided with the hinge-pintles, hinge-sockets on one side bar of the upper sash, and hinge-pintles on the lower half of the parting-strip for engagement with said upper-sash hinge-sockets, substantially as herein shown and described.

644,658. **CIGAR-LIGHTER.** CHARLES R. ABBOTT and SAMUEL ABBOTT, Cleveland, Ohio, assignors to the Abbott Electric and Manufacturing Company, same place. Filed Jan. 27, 1899. Serial No. 703,563. (No model.)



Claim.—1. The combination of an electric circuit, two terminals in said circuit relatively retractible, a removable torch, an extinguisher, said terminals adapted to ignite said torch, means for operating said extinguisher to extinguish the torch and controlled by the latter, substantially as set forth.

2. The combination of a magneto-electric machine and an electric circuit, a pivoted lever one end of which is provided with a flexible terminal and the opposite end of which is journaled on a pin revolved by the armature-rotating means of the magneto-electric machine, a lamp in said circuit having its wick-tube in the vicinity of and capable of being contacted by said terminal, substantially as set forth.

3. The combination of a magneto-electric machine and an electric circuit, mechanism for rotating the armature of said machine, a lever in said circuit, and having one end provided with an electric terminal, a lamp in said circuit whose wick-tube forms a second terminal in said circuit, said armature-rotating mechanism adapted to contact said two terminals, an extinguisher, means connected with said armature rotating mechanism for raising said extinguisher, means for locking the latter in such raised position, and means operated by said lamp to release said extinguisher, substantially as set forth.

4. The combination of a torch-seat, a torch removable from said seat, an extinguisher, means for raising the latter from the torch, means for locking same in such raised position, and means for unlocking same actuated by said torch in seating, substantially as set forth.

5. The combination of a torch-seat, a torch removable from said seat, an extinguisher, means for raising the latter from the torch, means for locking same in such raised position, and a bar projecting into the torch-seat for unlocking the extinguisher, substantially as set forth.

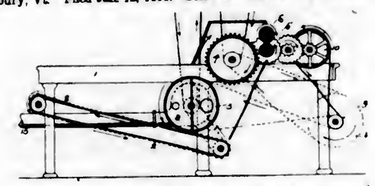
6. The combination of a torch-seat, a torch removable from said seat, an extinguisher, means for raising the latter from the torch, means for locking same in such raised position, and a bar projecting into the torch-seat for unlocking the extinguisher, said bar actuated by said torch in seating, substantially as set forth.

7. The combination of a torch-seat, a torch removable from said seat, an extinguisher, means for raising the latter from the torch, means for locking same in such raised position, and a bar projecting into the torch-seat for unlocking the extinguisher, said torch provided with an inclined portion for engaging the end of said bar to effect such unlocking, substantially as set forth.

8. The combination of a torch-seat, a torch removable from said seat, an extinguisher secured to a lever pivoted in the vicinity of said seat, means for actuating said extinguisher-lever to assume a raised position, a catch-lever for locking said lever in such position, a bar disconnectably engaging said catch-lever, said extinguisher-lever-actuating means adapted to disconnect said bar and catch-lever, means for urging said bar against the seated torch and operative during the disconnection of said bar and catch-lever whereby said bar is caused to project into the seat-space of the torch, means for engaging said bar and catch-lever on such projection of said bar, whereby on re-

seating said torch said catch-lever is released and said extinguisher permitted to drop upon the torch-wick, substantially as set forth.

644,659. PICKING-MACHINE. EDWARD H. BLOSSOM, St. Johnsbury, Vt. Filed Jan. 12, 1899. Serial No. 702,006. (No model.)

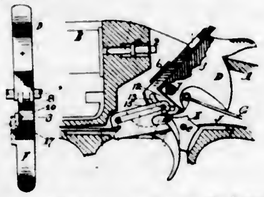


Claim.—1. In a picking-machine, a revolving, perforated, suction-drum in combination with means for withdrawing air from the interior of said drum and independent means for applying a blast of air to the inner face of the wall of the said drum in order to dislodge impurities and open the perforations, substantially as set forth.

2. The combination in a picking-machine of a revolving picker-cylinder with projecting teeth, spring-actuated adjustable feeding-in rolls, a perforated revolving suction-drum provided with a stationary partition, dividing the drum into two chambers, an exhausting device connected with one of the said chambers and means for creating a draft connected with the other chamber, as set forth and for the purpose described.

3. The combination in a picking-machine of the toothed picker-cylinder, spring-actuated adjustable feeding-in rolls, a subdivided perforated suction-drum, an exhaust-fan attached to one subdivision of said drum, means for applying a positive blast to the other subdivision, and an endless carrier to convey away the product, all being mounted on suitable framework, for the purpose set forth and as described.

644,660. SAFETY-LOCK FOR FIREARMS. HOMER M. CALDWELL, Worcester, Mass., assignor to the Harrington & Richardson Arms Company, same place. Filed Dec. 15, 1899. Serial No. 740,421. (No model.)



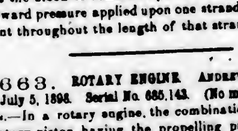
Claim.—1. In a firearm-lock mechanism, the hammer having a front recess embracing the contact position, and comprising a hammer-body provided with a movable hammer-face secured to and slidable on the front of the hammer-body for controlling said recess, said movable hammer-face having a rigid arm thereon provided with a slot; in combination, with the trigger, and an endwise-yielding stud carried on said trigger and engaging said slot for moving said hammer-face.

2. In a firearm-lock mechanism, a movable hammer-face united for sliding connection upon the hammer-body, and having an arm provided with a segmental slot, a stud controlled by the trigger and engaging in said slot for moving said hammer-face, and adapted to lock under the hammer-body for retaining the parts at position of safety, substantially as set forth.

3. In combination as described, the pivoted hammer provided with the movable recessed hammer-face united to and sliding in guides upon the front of the hammer-body, an arm fixed to said movable hammer-face extending backward adjacent to the hammer-tumbler, a curved slot in said arm, a trigger having a backwardly-extended arm, a spring or yielding bar on said trigger-head arm carrying a stud that passes through the slot in the hammer-face arm operatively uniting the adjacent arms and the end of said stud engageable with or beneath a portion of the hammer-body, for the purpose set forth.

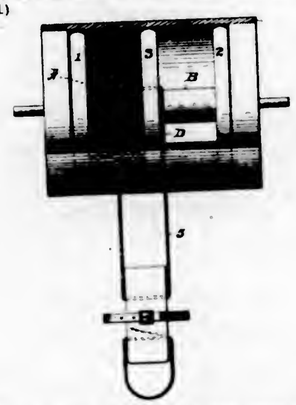
4. In a firearm-lock mechanism, the hammer comprising a pivoted hammer-body having the tumbler-surface with cock-notch 8 and inclined way 10 adjacent to said notch, and a movable hammer-face secured in slidable connection with the front of said hammer-body and controlling a space adapted for receiving the firing-pin head, a backwardly-extending segmentally-slotted arm fixed to said hammer-face, a trigger having an arm adjacent to said hammer-face arm and provided with a spring-pressed coupling-stud supported therein and passing through said slotted arm, its end normally engageable beneath the hammer-body, and releasable at said inclined way; in combination with the firing-pin, sear, mainspring and return-springs for said trigger and sear, as set forth.

644,661. CHALK-SHARPENER. PISCUS CHOCK, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,653. (No model.)



Claim.—In a device for tailors' use substantially as described the combination of the receptacle A, the bolt B, the cutter-blades *s*, *s*, formed with the V-shaped cutting edges *c*, *c*, and the washers *w*, *w*, for the purpose and substantially as set forth.

644,662. SAFETY LOWERING APPARATUS. DANIEL M. COLLINS, Sioux City, Iowa. Filed Apr. 8, 1899. Serial No. 712,325. (No model.)



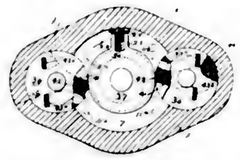
Claim.—1. The combination with a cable wound in opposite directions around a common axle, the cable having a depending loop between the points where it is wound around the axle, of a block suspended in the loop of the cable, an angle being formed in the loop where it passes through the block whereby to cause the block to remain in position in the loop until lowered by a downward pressure applied upon one strand or side of the cable at any point throughout the length of that strand or side.

2. The combination with a cable wound in opposite directions around a common axle, the cable having a loop formed in it between these two winding-points, of a block having a hole formed transversely therein for the reception and passage therethrough of the loop, the latter having a sharp angle formed therein at each end of the hole whereby to prevent accidental slipping of the block upon the cable.

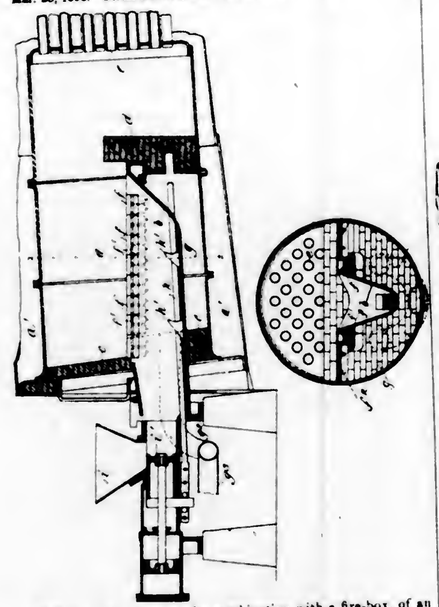
3. The combination with two spools on a common axis, and an endless cable wound in opposite directions around a common axle, the cable having a depending loop between the points where it is wound around the axle, of a block suspended in the loop of the cable, an angle being formed in the loop where it passes through the block whereby to cause the block to remain in position in the loop until lowered by a downward pressure applied upon one strand or side of the cable at any point throughout the length of that strand or side.

644,663. ROTARY ENGINE. ANDREW DAHLIN, Vasa, Minn. Filed July 5, 1898. Serial No. 685,143. (No model.)

Claim.—In a rotary engine, the combination with the cylinder and the rotary piston having the propelling projection, of the pair of oscillating abutments tangentially engaging said piston, provided with cylindrical concavities adapted to complete the cylinder-bore, and provided each with the pair of exhaust-ports, two independent pairs of admission-ports opening into said cylinder, a pair of vibrating valves operating to open and close said admission-ports in reverse order, means for oscillating said abutments with a properly-timed action, and a series of connected valves for simultaneously opening and closing the cooperating members of said pairs of admission and exhaust ports, whereby the engine may be reversed, substantially as described.



644,664. FURNACE. FRED A. DALEY, La Grange, Ill. Filed Mar. 23, 1896. Serial No. 584,423. (No model.)



Claim.—1. In a furnace, the combination with a fire-box, of an elongated horizontally-disposed fuel-retort, dead-plates upon each side of the retort, said retort and dead-plates serving to afford a sealed space beneath the fire-box and retort, twyer-openings provided along the longitudinal sides of the retort and affording communication between the fire-box and the space beneath the same, and means for forcing air under pressure into the space beneath the fire-box, substantially as described.

2. In a furnace, an imperforate fuel-bearing surface and a retort, dividing the furnace into a fire-box and an air-chamber, the retort being provided with twyer openings or passages for establishing communication between the air-chamber and the fire-box, and means for conveying air under pressure to the air-chamber, substantially as described.

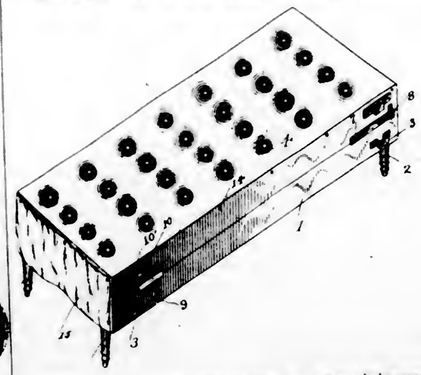
3. In a furnace, the combination with a fuel-retort, of a fuel-supporting means alongside of the retort, said means and retort separating the furnace into a fire-box and an air-chamber, the retort being provided with twyer openings or passages for establishing communication between the air-chamber and the fire-box, and means for conveying air into and maintaining it under pressure in the air-chamber, substantially as described.

4. In a furnace, the combination with a fuel-bearing plate, and a fuel-retort dividing the furnace into a fire-box and an air-chamber, the retort being provided with twyer openings or passages for establishing communication between the air-chamber and the fire-box, and means for conveying air into and maintaining it under pressure in the air-chamber, substantially as described.

5. In a mechanical stoker, the combination with fuel-bearing plates and an elongated fuel-retort, the said retort being located between the plates and serving therewith to divide the furnace into a fire-box and an air-chamber, the retort being provided with twyer openings or passages for establishing communication between the air-chamber and the fire-box, means for conveying air into and maintaining it under pressure in the air-chamber, and means for forcing fuel into the retort, substantially as described.

6. In a mechanical stoker, the combination with imperforate fuel-bearing plates and an elongated retort, the said retort being located between the plates and serving therewith to divide the furnace into a fire-box and an air-chamber, the retort being provided with twyer openings or passages for establishing communication between the air-chamber and the fire-box, means for conveying air under pressure to the air-chamber, and means for forcing fuel into the retort, substantially as described.

644,665. BED-COUCH. HARRY J. DASCHBACH, Pittsburg, Pa. Filed Aug. 12, 1898. Serial No. 688,446. (No model.)



Claim.—A combination bed and couch comprising in its construction two equal independent sections one of which is stationary and provided with suitable supporting-legs and the other of which is movable and adapted to fit upon the stationary section or be supported on a plane therewith, and means for supporting said movable section at the side engaging the stationary section, said means consisting of a pair of keepers 3, secured to the side of the stationary section and adapted to receive a pair of L-shaped hooks 5, secured to the engaging side of the movable section, combined with a pair of slotted supporting-legs pivotally secured to the opposite side of the movable section, and a pair of keepers secured to the said side of the movable section and adapted to receive the upper ends of the said pivoted supporting-legs to hold the latter in the supporting position, substantially as herein shown and described.

644,666. CONTROLLER FOR ELECTRIC MOTORS. MAXWELL W. DAY, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 17, 1898. Serial No. 699,552. (No model.)

Claim.—1. The combination, in a motor-regulating system, of a dynamo-electric machine, one or more motors at a distant point supplied with current from the dynamo, switches located near the dynamo for varying the circuit relation between it and the motors, and means adjacent to the motors for operating the switches.

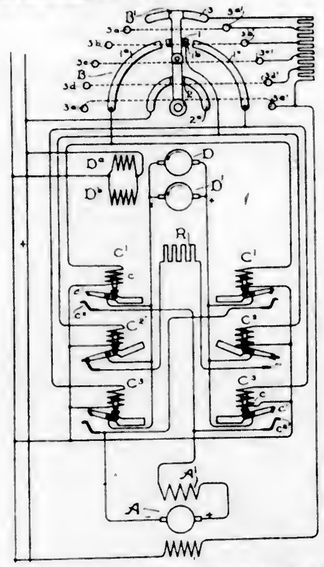
2. The combination, in a motor-regulating system, of a dynamo-electric machine, one or more motors at a distant point supplied with current from the dynamo, electromagnetic switches located near the dynamo for varying the circuit relation between it and the motors, and means adjacent to the motors for operating the switches.

3. The combination of a source of electric energy, one or more motors, electromagnetically-controlled switches connecting the motors in various circuit relations to the source of energy, a switch for varying the electromotive force of the source, to regulate the speed and torque of the motors, and contacts on the switch controlling the motor-switches.

4. In a system of control for electric motors, the combination of a generator, one or more electric motors supplied from the generator, a motor-regulating switch, electromagnetic switches for regulating the relation of the motors and generator, and contacts on the regulating-switch for controlling the electromagnetic switches.

5. The combination of a generator, one or more electric motors fed from the generator, a resistance-switch for controlling the generator-field, electromagnetic switches for starting, stopping or revers-

ing the motors, and contacts on the field-regulating switch for controlling the electromagnetic switches.



6. In a motor system for turret control or the like, the combination of a generator with one or more motors at a distant point, electromagnetic switches located near the generator and connected to pass current through the motor-armature in either direction or close its circuit through a resistance as may be desired, a switch adjacent to the motors for regulating their speed and torque, and contacts on the switch for controlling the operation of the electromagnetic switches.

7. The combination of a generator supplying one or more electric motors, a switch regulating their speed and torque, electromagnetic switches in pairs controlling their relation to the generator so as to determine their direction of rotation, other electromagnetic switches for closing their armature-circuits through a resistance, and means for operating the electromagnetic switches at desired times.

8. In a system of control for electric motors, in combination, a generator, one or more motors supplied with current therefrom, switches normally open and arranged to close the circuit of said motors for rotation in either direction, other switches normally closed and arranged to short-circuit the motor through a suitable resistance, and means for controlling the operation of said switches from a distant point.

9. In a system of control for electric motors, in combination, a generator, one or more motors supplied with current therefrom, switches normally open and arranged to close the circuit of said motors for rotation in either direction, other switches normally closed and arranged to short-circuit the motor through a suitable resistance, and a controlling-switch for controlling the operation of said switches.

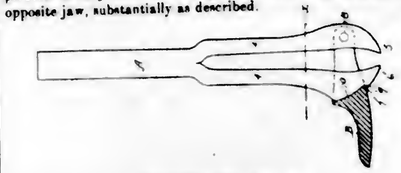
10. The combination with a dynamo-electric machine, of one or more motors supplied with current thereby, switch-contacts for varying the motor connections, and means controlled from a plurality of separate points for controlling the said switch-contacts and for varying the voltage of the dynamo.

11. The combination with a dynamo-electric machine, of one or more motors supplied with current thereby, switch-contacts for varying the motor connections, and means controlled from a plurality of separate points for controlling the said switch-contacts, for varying the voltage of the dynamo, and for short-circuiting the motors through a suitable resistance.

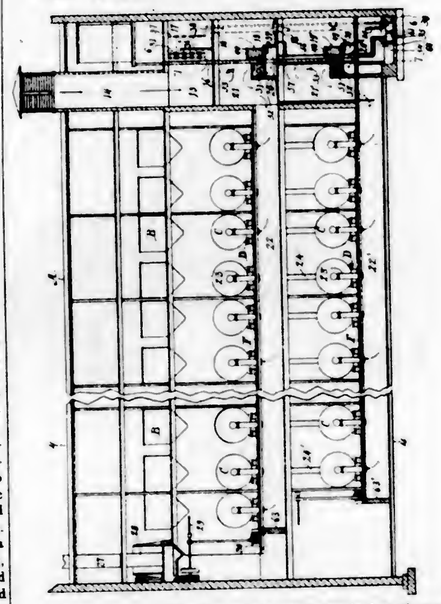
12. In combination, a motor or motors, switches for said motors, a plurality of switches for controlling the operation of said motor-switches, and circuit connections such that the operation of one of said controlling-switches opens the circuit of the other of said switches.

644,667. NAIL-PULLER. JOHN DEBELS, Southington, Conn. Filed Nov. 15, 1899. Serial No. 737,074. (No model.)

Claim.—The combination of the arms 4, 4, and jaws 5, 6, one of said jaws having the shoulder 9 and incline 10, with the foot-lever pivoted to the jaw 5 and bearing on the incline and shoulder of the opposite jaw, substantially as described.



644,668. MEANS FOR ATTEMPERATING AND PURIFYING AIR. JOHN F. DORNFELD, Milwaukee, Wis. Filed Jan. 6, 1899. Serial No. 701,307. (No model.)



Claim.—1. In air attemperating and ventilating devices, the combination with a chamber 17 through which air is introduced to a room of a building, of two sets of heat-radiating devices located at a distance apart, and an interposed and separating partial wall so disposed as to compel air passing through the chamber to pass first over one set of the heat-radiating devices and then over the other set of heat-radiating devices, and air-filtering devices 40 located in the passage for the air in its course after passing the heat-radiating devices in the chamber 17.

2. In a ventilating system, the combination with a building having air-induction chambers, of an air-attemperating apparatus or filter consisting of an open or screen-like cage and means for spraying water on the cage through which the incoming air must pass in one chamber, and a filter-like water-saturating apparatus through which incoming air must pass in an adjoining chamber.

3. An air-filtering apparatus comprising an upright cage-like structure having walls formed of metal rods at little distances apart held in place by metal strips woven as a warp about the rods, a cover for the cage-like structure, and means for spraying water on the walls of the cage.

4. In a ventilating system, the combination with a building having a chamber for the passage of incoming air, of steam heating-pipes located in said chamber, a water-supply tank located below the chamber and a pipe leading from the heating-pipes to the tank adapted to discharge the water of condensation into the tank, and air-filtering devices as 40 located in the passage for the air in its course after passing the heat-radiating devices in the chamber having the heating devices therein.

5. In a ventilating system, the combination with a building having a chamber for the passage of incoming air, of a plurality of sets of heating-pipes located in said chamber one set for exhaust-steam and one set for live steam, a water-supply tank below said chamber and pipes leading from said sets of heating-pipes to and discharging it into said tank, and air-filtering devices as 40 and 51 located in the passage for the air in its course after passing the heat-radiating devices in the chamber having the heat-radiating devices therein.

6. In a building, the combination with air-filtering apparatuses and air-saturating devices supplied with water, of a plurality of water-tanks below the filtering and saturating apparatuses, a pipe leading from said saturating apparatuses to one of said tanks, an overflow from said tank to another tank, a surface dam in said last-mentioned tank and a pipe leading from the filtering apparatus to said last-mentioned tank.

7. In a ventilating system, the combination in a building having attemperating-chambers and attemperating apparatuses therein adapted for the use of water therewith, of a water-holding tank below said chambers, pipes for conveying water from the tank to said attemperating apparatuses, and other pipes adapted to conduct the water after it has been used in said attemperating apparatuses to and discharging it into said tank.

8. An air-filtering apparatus comprising a cage-like structure having walls composed of a plurality of series of metal rods in juxtaposition but with spaces for the passage of air and water between them, a closed top and an open bottom, and a water-pipe leading to the cage-like structure terminating in a nozzle adapted to spray water into and upon the cage-like structure.

9. In a ventilating system, the combination with a building, of means for transmitting attemperated air through the building, an air-supply channel leading to said air-transmitting means from attemperating devices, a plurality of air-attemperating devices one at least of which devices includes coke or similar filtering material, and one at least of which said attemperating devices includes metallic screens or perforated plates, the attemperating devices being located near each other in an air-passage chamber provided with an air supply inlet.

10. In a ventilating system, the combination in a building, of pure-air-using compartments communicating with a channel or flue of an air-outlet and a channel or flue of an air-supply connected to and leading from an air-attemperating room or rooms communicating by a passage or passages to an inlet, the passage or passages provided or obstructed by wire screen or perforated sheet metal and coke or similar material, and means for spraying water on the attemperating materials as the air passes through the perforations and crevices.

11. In a ventilating system, the combination in a building, of pure-air-employing compartments communicating with an air-exhaust channel or flue and an air-supply channel or flue connected to and leading from an attemperator room or rooms, air-passages obstructed in one or more departments with coke or similar material and in one or more other communicating departments with wire screen or perforated sheet-metal plates, and an air-inlet, and means for spraying water on the perforated metal and coke as the air passes through the openings and crevices.

12. In a ventilating system, the combination in a building, of pure-air-employing compartments communicating with a channel or flue of an air-outlet and a channel or flue of an air-supply connected to and leading from an air-attemperating room or rooms, air-passages leading from an air-inlet said passage or passages provided or obstructed with wire screen or perforated sheet metal and coke or similar material, and means for spraying water of different temperatures on the metal and coke attemperators.

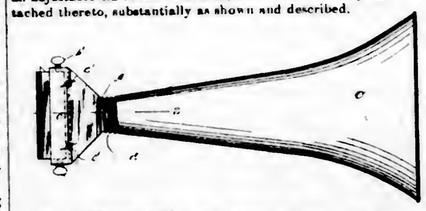
13. In a ventilating system, the combination in a building, of pure-air-employing compartments communicating with a channel or flue of an air-outlet and a channel or flue of an air-supply connected to and leading from an air-attemperating room or rooms communicating by a passage or passages to an inlet, the passage of the attemperating-rooms being respectively provided and obstructed by wire screen or perforated sheet metal in one department and by coke or similar material in another communicating department, and means for spraying water on the attemperating materials in the several departments at different temperatures.

644,669. MUSICAL INSTRUMENT. CHARLES H. FROELICH, West Chicago, Ill. Filed Sept. 25, 1899. Serial No. 731,649. (No model.)

Claim.—1. In combination with a harmonica, a holder therefor comprising a resonance-chamber, means for clamping the harmonica therein, an adjustable lid to said chamber and means for attaching the latter to a sound-modifying horn, substantially as shown and described.

2. In combination with a harmonica, a holder therefor comprising a resonance-chamber, means for adjustably clamping the harmonica therein, and means for attaching the said chamber to a sound-modifying horn, substantially as shown and described.

3. In combination with a harmonica, a holder therefor comprising a resonance-chamber, means for clamping the harmonica therein, an adjustable lid to said chamber, and a sound-modifying horn attached thereto, substantially as shown and described.



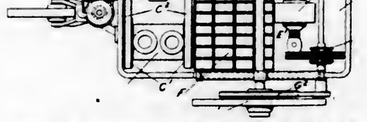
4. A combined holder and resonance-chamber for a harmonica comprising means for holding the latter securely seated therein, an adjustable lid to prevent the egress of air between the edges of the resonance-chamber and the harmonica, the said chamber being provided with a sound-controlling horn and having an opening for permitting the egress of sound thereinto, substantially as shown and described.

5. A combined holder and resonance-chamber for a harmonica comprising means for holding the latter securely seated therein, a spring-controlled adjustable lid to prevent the egress of air between the edges of said resonance-chamber and the harmonica, and means for attaching the said resonance-chamber to a sound-controlling horn, the said chamber provided with an aperture through which the sound and air are conducted into said horn, substantially as shown and described.

644,670. COMPOSITION FOR TREATING TEXTILE FABRICS. CHARLES GREEN, Uxbridge, Mass., assignor to Albert C. Warren, Newton, and George L. Stevens, Boston, Mass. Filed July 3, 1899. Serial No. 722,674. (No specimens.)

Claim.—The composition for the treatment of textile fabrics herein described, the same consisting of chlorid of magnesium, chlorid of sodium and chlorid of ammonium, dry or in solution, and in about the proportions stated.

644,671. ELECTRIC-MOTOR CAR. CHARLES M. JOHNSON, New York, N. Y. Filed Aug. 8, 1898. Serial No. 688,098. (No model.)



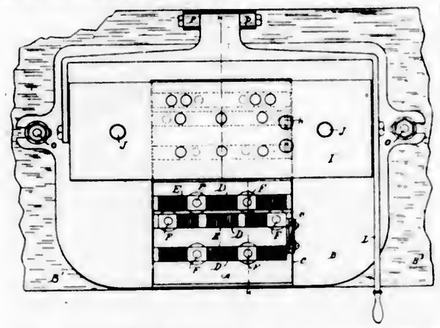
Claim.—1. In a motor-car, an electric motor having a single field-winding and double armature-windings, the said armature-windings being independent of each other and mounted on a common core, a commutator for each of said armature-windings, a storage battery connected with one of said commutators, a generator of electricity connected with the other of said commutators, a circuit connecting the generator with said storage battery, and a switch controlling said circuit.

2. In a motor-car, a prime motor, a dynamo driven by said prime motor, a storage battery, a circuit connecting said storage battery with said dynamo, a switch controlling said circuit, an electric motor having a single field-winding and double armature-windings, the said armature-windings being independent of each other and mounted on a common core, a commutator for each of said armature-windings, a circuit connecting one of said commutators with said dynamo, a circuit connecting the other of said commutators with said storage battery, and a switch for controlling the last-mentioned circuit.

644,672. RIVETING-MACHINE. JACOB F. JOHNSON, Racine, Wis. Filed Oct. 19, 1899. Serial No. 734,058. (No model.)

Claim.—1. In a riveting or stamping machine, the combination with the work-table; of a platen mounted thereon, and provided with a series of elastic buffers adapted to support the material to be riveted; and a die-plate provided with a series of heading-dies, adapted to register with the rivet-heads, said die-plate being adapted to be actuated by the puncher-head of the machine, to which it is applied.

2. In a riveting or stamping machine, the combination with the work-table; a removable bed; a platen mounted thereon; a series of spring-supported buffer-pins located in sockets in the platen; and a die-plate provided with a series of heading-dies, adapted to register with the rivet heads, said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.



3. In a riveting or stamping machine, the combination with the work-table; of a removable bed; a platen mounted thereon; a series of spring-supported buffer-pins located in sockets in the platen, and a spring-supported die-plate provided with a series of removable heading-dies, adapted to register with the rivet-heads, said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.

4. In a riveting or stamping machine, the combination with the work-table; of a platen mounted thereon; a gage secured to said platen; a series of spring-supported buffer-pins located in sockets in the platen; and a spring-supported die-plate provided with a series of heading-dies, adapted to register with the rivet-heads; said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.

5. In a riveting or stamping machine, the combination with the work-table; of a platen mounted thereon and provided with raised parts serrated or notched on their upper surfaces; a gage secured to said platen; a series of spring-supported buffer-pins located in sockets in the platen; and a spring-supported die-plate, provided with a series of heading-dies, adapted to register with the rivet-heads, said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.

6. In a riveting or stamping machine, the combination with the work-table; of a platen mounted thereon; a series of spring supported buffer-pins located in sockets in the platen; a spring-supported die-plate, provided with a series of heading-dies, adapted to register with the rivet-heads; and a lever for depressing the die-plate into contact with the work, said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.

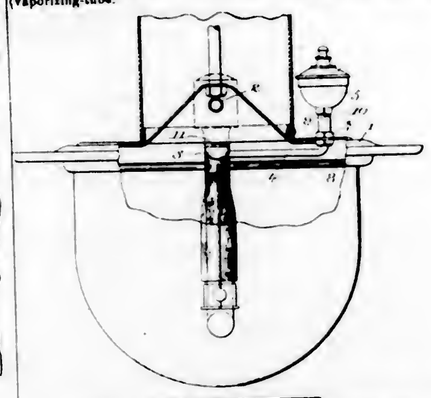
7. In a riveting or stamping machine, the combination with the work-table; of a platen slidably mounted thereon; a series of spring-supported buffer-pins located in sockets in the platen; and a spring-supported die-plate, provided with a series of heading-dies, adapted to register with the rivet-heads, said die-plate being adapted to be actuated by the puncher-head of the machine to which it is applied.

644,673. SWINGING ALCOHOL-CUP FOR VAPOR-BURNERS. ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, same place and Charleston, W. Va. Filed June 1, 1899. Serial No. 718,970. (No model.)

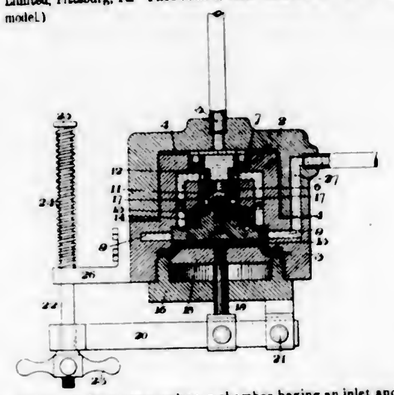
Claim.—1. The combination with the supporting-frame and vapor-burner, of a vaporizing-tube, and a swinging alcohol-cup supported from the frame, adapted to be swung under the vaporizing-tube or to one side thereof, the supporting-arm for said cup being also a supply-duct, together with a measuring-cup mounted at the center of oscillation of said arm and alcohol-cup and discharging into the supply-duct and a removable cap for said alcohol cup.

2. The combination of the lamp-casing, the vaporizing-tube, the alcohol-cup, the supporting-tube pivoted at one end in the casing, and connected at the other end with the alcohol-cup, and the measuring-cup mounted on the exterior of the casing, discharging into the tube and rotating therewith.

3. The combination with the supporting-frame and vapor-burner, of a vaporizing-tube, and a swinging alcohol-cup supported from the frame, adapted to be swung under the vaporizing-tube or to one side thereof, together with a stop so located as to prevent the cup being swung beyond that position, which brings it immediately under the vaporizing-tube.



644,674. HYDRAULIC VALVE. CORNELIUS KUHLEWIND, Knoxville, Pa., assignor to the Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Filed June 9, 1899. Serial No. 719,933. (No model.)



Claim.—1. In pressure-valves, a chamber having an inlet and an outlet port, a thin plate arranged to close the outlet-port, and connections arranged to slide the plate over the inner face of the chamber to open and close the port; substantially as described.

2. In pressure-valves, a valve-chamber having an inlet and side outlet ports, and a valve-head movable within the chamber and having thin flexible plates fitting against the inner walls of the chamber and arranged to close the outlet-ports; substantially as described.

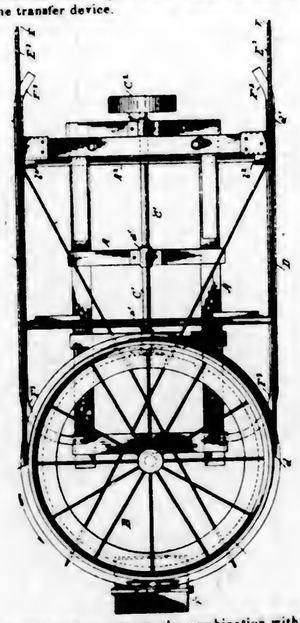
3. In pressure-valves, a valve-chamber having an inlet at one end, and side outlet-ports, and a movable disk valve arranged to close the outer ends of the outlet-ports, and having a head within the chamber provided with thin plates arranged to fit against the walls of the chamber and close the inner ends of the outlet-ports; substantially as described.

4. In pressure-valves, a housing having an internal valve-chamber, an inlet leading to one end of the chamber, branch outlet-ports leading from the sides of the chamber to an annular outlet-port, a disk arranged to close the outer ends of the branch ports, and having flexible packing, and an inner head secured to the disk and provided on its sides with sets of thin flexible plates arranged to close the inner ends of the branch ports; substantially as described.

5. In pressure-valves, a chamber having an inlet and an outlet port, a series of thin plates secured to a movable member within the chamber, and connections arranged to move the member to slide the plates along the inner face of the chamber over the outlet-port; substantially as described.

644,675. ROPE-TRAMWAY SYSTEM. JAMES T. LUDLOW, San Francisco, Cal., assignor to the Vulcan Iron Works, same place. Filed Aug. 9, 1899. Serial No. 726,631. (No model.)

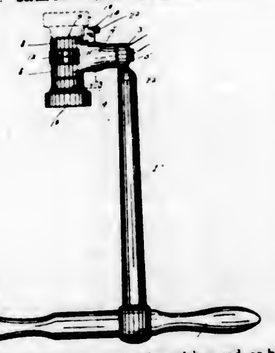
Claim.—1. In a rope-tramway system, the combination with the track-ropes, of a transfer device located at the terminal or transfer end of the system, the switch-rails leading onto the said transfer device, a switch movably attached to each switch-rail, connection between each switch and the track-ropes, and of means for imparting rotary motion to the transfer device.



2. In a rope-tramway system, the combination with the track-rope, of a transfer device located at the terminal or transfer end of the system, of devices for guiding the carriers from one track-rope onto the transfer device and from said device onto the opposite track-rope, mechanism for imparting rotation to the transfer device and of independent means for conveying the carriers onto the transfer device and removing same therefrom, whereby the said carriers are automatically shifted from one track-rope to the opposite one.

3. In a rope-tramway system, the combination with the track-ropes for the carriers, an endless haulage-rope for propelling the carriers, connection between the carriers and the haulage rope, a turn-table located at the transfer end of the system, mechanism for imparting rotary motion to the turn-table, switch-rails leading onto the turn-table, of a switch movably connected to the outer end of each rail, and a connection between each switch and the track-ropes.

644,676. CYLINDER-WRENCH. HENRY LUND, Grafton, N. D. Filed Apr. 6, 1899. Serial No. 711,906. (No model.)



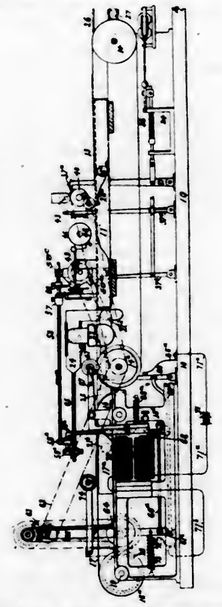
Claim.—1. In a wrench, the combination with a rod or bar, of a wrench-head pivoted thereto and projected laterally therefrom, and a nut-socket carried by said wrench-head and projected in a plane parallel to said rod or bar, substantially as described.

2. In a wrench, the combination with a wrench-head, of a nut-socket or nut-engaging portion rotatively mounted in said wrench-head, and provided with a ratchet, and an endwise-sliding pawl having reversely-inclined ratchet-engaging sections, substantially as and for the purposes set forth.

3. In a wrench, the combination with the wrench-head and its operating bar or rod, of the nut-socket rotatively mounted in said head and provided with the ratchet 12, a sliding pawl 14 having the reversely-beveled ratchet-engaging sections 15 and 16, and the spring plunger or part mounted in said head and yieldingly pressing said pawl to its work, substantially as described.

4. In a wrench, the combination with the bar or rod 1 and handpiece 2, of the wrench-head 4 formed with the ears 8, the nut-socket 10, the stem 9 of which is rotatively mounted in said ears 8, the ratchet 12, secured to said stem 9, the sliding pawl 14 mounted in said head 4 and provided with the reversely-beveled surfaces 15 and 16 and recesses 17, and the spring-pressed detent 18, the point 20 of which engages said recesses 17, substantially as described.

644,677. MACHINE FOR PREPARING CONTINUOUS ROLLS OF TOBACCO-WRAPPERS FOR MANUFACTURING CIGARS OR CIGARETTES. LEVERETT L. MAXFIELD and WILLIAM MAXFIELD, New York, N. Y., assignors of three-eighths to Charles F. Lighthouse, same place. Filed July 10, 1899. Serial No. 723,334. (No model.)



Claim.—1. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a conduit having a perforated top, a perforated belt, and means for moving the belt over said perforated conduit, of an exhaust mechanism in communication with said conduit, means for applying paste to a strip of tobacco placed on the traveling belt, a reel upon which the band of tobacco strips is automatically wound, and mechanism whereby the strips of tobacco to which paste has been applied are automatically secured to the end of the band being wound on the reel.

2. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a conduit, having a perforated top, a perforated belt, means for moving the belt over said perforated conduit, and an exhaust mechanism in communication with said conduit, of means for applying the paste to a strip of tobacco placed on the traveling belt, a reel upon which the band of tobacco strips is automatically wound, mechanism whereby the strips of tobacco to which the paste has been applied are automatically connected to the end of the band being wound on the reel, and mechanism whereby the pasted strips connected to the band are subjected to pressure before being wound on the reel.

3. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a conduit having a perforated top, a perforated belt, means for continuously moving the belt over said perforated conduit, a supplemental perforated conduit, a supplemental perforated belt adapted to travel over the latter conduit, and means for imparting motion intermittently to the latter belt, of an exhaust mechanism in communication with both of said conduits, a reel located over the supplemental belt and adapted to take up the band of tobacco strips, means for applying paste to the strips of tobacco placed on the main traveling belt, mechanism whereby the strips of tobacco to which the paste has been applied are automatically connected to the end of said band, and means whereby the strips pasted to the band are subjected to pressure before being wound upon the reel.

4. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with pasting mechanism, main and supplemental conduits having perforated tops, perforated belts adapted to travel over said conduits, and means for imparting continuous motion to the belt of the main conduit and intermittent motion to the belt of the supplemental conduit, of exhaust mechanism communicating with the two conduits, a compartment located above the belt of the main conduit and having a perforated bottom, a compartment below the first-mentioned compartment and beneath the belt of the main conduit, tubes connecting said compartments with the exhaust mechanism, a shutter mechanism adapted to transfer the exhaust from one of said compartments to the other, and intermittently-operating pressure mechanism in advance of aforesaid compartments and serving to compress the strip pasted to the band being wound on the reel.

5. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a conduit having a perforated top, a perforated belt, and means for imparting a continuous movement to said belt, of an exhaust apparatus in communication with said conduit, a paste-receptacle mounted over the traveling belt on trunnions supported in the frame of the machine, a roller supported over the belt in front of the paste-receptacle, an electric circuit in which said roller is included, and mechanism whereby when a strip of tobacco is fed by the belt under said roller and the electric circuit is broken the paste-receptacle will revolve one revolution and automatically deposit paste on the end of the traveling strip of tobacco.

6. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a conduit having a perforated top, a perforated belt adapted to travel over said conduit, a supplemental conduit with a perforated top, a perforated belt adapted to intermittently travel over the latter conduit, and an exhaust mechanism connected with both conduits, of a roller arranged over the belt of the main conduit near the front of the machine and forming part of an electric circuit, a paste-receptacle arranged over said belt in advance of said roller, two exhaust-compartments and their shutter mechanism in advance of the pasting mechanism, a pressure mechanism for the strip located in advance of the exhaust-compartments, a take-up reel for the band of connected strips, and mechanism whereby as a strip of tobacco passes under the roller at the front of the machine the electric circuit is broken and the paste-receptacle is caused to revolve and apply the paste to the end of the strip of tobacco, and, in proper sequence, the shutter of aforesaid exhaust-compartments is shifted to connect the pasted strip to the end of the band of tobacco, the pressure mechanism is applied to the strip connected to said band, and the several devices are reset for action on the successive strips, the operation being continuous and automatic.

7. In a machine for preparing continuous rolls of tobacco-wrappers, the combination with a traveling belt for carrying the tobacco strip, of a paste-receptacle provided with a gear and mounted on trunnions over the belt, a second gear meshing with the gear on the paste-receptacle and carried by a shaft provided with a sprocket-wheel driven continuously from the main driving-shaft, a friction-disk between the latter gear and the hub of said sprocket, means whereby said gear is prevented from revolving, an upright lever pivoted to the frame of the machine, and a trigger connected to said lever and adapted to be operated by the breaking of an electric circuit to operate said upright lever to release the gear to move the paste-receptacle.

8. The combination with the paste-receptacle adapted to be intermittently operated and provided with a projection on its circumference, of a hub or center having a shaft provided with a sprocket-wheel driven continuously from the main driving-shaft, a friction-disk bearing on one of the faces of said hub or center and provided with a projection on its circumference and held stationary by a trigger with a pin entering a hole in the face of said disk, a perforated belt at the rear of the machine, a suspended standard provided with gearing at its top driven continuously from a sprocket-wheel on the main driving-shaft, gearing at the bottom of said suspended standard, and a system of rods connected to said suspended standard and adapted to be moved through the instrumentality of the projection on aforesaid friction-disk when the latter is released by the projection on the circumference of the paste-receptacle, and thus impart movement to the mechanism to drive intermittently the aforesaid belt.

9. The combination with the paste-receptacle adapted to be intermittently operated and provided with a projection on its circumference, of a hub or center having a shaft provided with a sprocket-wheel driven continuously from the main shaft, a friction-disk bearing on one of the faces of said hub or center and provided with a projection on its circumference and held stationary by a trigger with a pin entering a hole in the face of said disk, a perforated belt at the rear of the machine, a suspended standard provided with gearing at its top which is driven contiuously from a sprocket-wheel on the main driving-shaft, gearing at the bottom of said suspended standard, a system of rods connected to said suspended standards and adapted to be moved through the instrumentality of the projection on said friction-disk when the latter is released by the projection on the circumference of the paste-receptacle, and thus impart movement to the mechanism to drive intermittently the aforesaid belt, a friction-disk on the other face of said hub or center held stationary by a trigger with a pin entering a hole in the face of the disk, the said disk also provided with a projection, a stop 60 on one of the aforesaid rods, with which the projection on said disk is adapted to contact, and an upright lever, as 37^b, adapted to release the last-mentioned friction-disk, and means including an electric circuit whereby said upright lever is operated.

10. The combination with the traveling belt for moving a strip of tobacco in position to be pasted, and automatically-operating pasting mechanism, of an exhaust mechanism comprising a compartment located above said belt and having a perforated bottom and a compartment located beneath said belt and having a perforated top, a shutter adapted to transfer the exhaust from one of said compartments to the other, mechanism connected to said shutter and extending toward the pasting mechanism, and mechanism arranged near the pasting mechanism and adapted to be automatically operated to shift the shutter at suitable intervals.

11. The combination with the traveling belt for moving a strip of tobacco in position to be pasted, and automatically-operating pasting mechanism, of a take-up reel for the band of connected strips, an exhaust mechanism operating to connect the pasted strips to said band, a pressure mechanism between the reel and exhaust mechanism, connections estanding from the pressure mechanism to near the pasting mechanism, and automatically-operating means between said connections and the pasting mechanism, whereby the pressure mechanism is applied and removed at suitable intervals.

12. The combination with means for moving the strips of tobacco in position to be pasted, and automatically-operating pasting mechaniam, of a belt adapted to move intermittently, a take-up reel arranged over said belt, an exhaust mechanism for connecting the pasted tobacco strips to the band on the take-up reel, a roller suitably supported in the rear of said belt and adapted to compress the strips pasted to the band, a shutter for the exhaust mechanism and connections between the gearing of said belt, the shutter and the automatically-operating pasting mechanism, whereby the belt is moved, the shutter shifted and the pressure-roller depressed intermittently.

13. The combination with the paste-receptacle 46 provided with gear 45 and having a circumferential projection adapted to apply the paste, of gear 40 having a hole in its face and mounted on a shaft carrying a sprocket 42 and interposed friction-disk 40^a, a rod 39, having a grooved point and adapted to enter the hole in the face of the gear 40 and provided with a pin 38, lever 37, and means whereby said lever is depressed intermittently to release rod 39, substantially as set forth.

14. The combination with gears 40 and 45, the latter attached to the paste-receptacle 46, and means for driving continuously the shaft of gear 40, of lever 37, trigger 35, electromagnet 29, its armature and attached lever 32, and roller 28 normally in circuit with said magnet, substantially as set forth.

15. The combination with gears 40 and 45, the latter attached to paste-receptacle 46 and having projection 46^a, locking-rod 39, levers 37, 37^a, 37^b, center 51 adapted to be continuously driven, and provided with friction-disks 50, 50^a having projections 50^c 50^d respectively, and triggers 35, 35^a and their connections to aforesaid levers, and an electric circuit including roller 28 and lever 32, substantially as set forth.

16 The combination with friction-disks 50, 50^a having projections 50^c, 50^d respectively, and adapted to be intermittently released, of rod 58 provided with stops, rod 65 and its connected shutter, vertical rod 59^a, connected to short lever 59^d, rod 60^a, suspended standard 61 having continuously-driven gears at top and bottom, belt 17 and gear 20 on shaft-carrying drum 18^a, substantially as set forth.

17. The combination with friction-disks 50, 50^a having projections 50^c, 50^d respectively, and adapted to be intermittently released, of rod 58 provided with stops, vertical rod 59^a connected to short lever 59^d, rod 60^a, suspended standard 61, rod 60^b, lever 66, standard 18^b, electromagnet 70, contacts 66^a and 72^b, pressure-roller 67^d, one of whose supporting-arms carries armature 68, and stop 69 on shaft of roller 67^d, substantially as set forth.

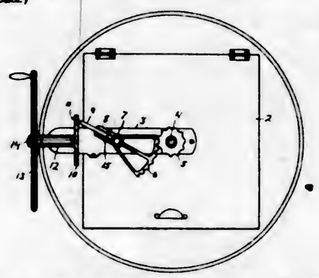
18. The combination with friction-disks 50, 50^a having projections 50^b, 50^c respectively, and adapted to be intermittently released, of rod 58, rod 65 and its connected shutter, vertical rod 59^b connected to short lever 59^d, rod 60^a suspended standard 61 having continuously-driven gears at top and bottom, belt 17, gear 20 on shaft-carrying drum 18^a, rod 60^b, lever 66, standard 18^b, electromagnet 70, contact 66^a and 72^b and pressure-roller 67^d, one of whose supporting-arms carries armature 68, and stop 69 on shaft of roller 67^d, substantially as set forth.

19. The combination with the drum 14^a on main driving-shaft 15, of pressure-roller 67^d whose shaft is provided with friction-rollers 67^e, said rollers adapted to bear upon drum 14^a, and suitably supported on arms 67, 67^a in which the shaft of pressure-roller 67^d is journaled.

20. The paste-receptacle 46 provided with a projection, as 46^a, on its circumference for depositing the paste, in combination with plunger 47 and means for operating the latter, substantially as set forth.

21. The paste-receptacle 46 provided with a projection, as 46^a, on its circumference for depositing the paste, in combination with the plate 46^c for regulating the discharge of the paste and evenly spreading it, substantially as set forth.

644,678. MOTION-CONVERTING MECHANISM. HARRY W. MEYER, Fort Wayne, Ind. Filed Sept. 1, 1899. Serial No. 729,131. (No model.)



Claim.—In a mechanical movement, the combination of a suitable frame, a horizontal revolving driving-shaft mounted in said frame, a disk 10 upon the inner end of said shaft, an oscillating toothed quadrant having a rearwardly-extending bifurcated lug, and mounted upon a stud, and arranged in a horizontal plane at right angles to said disk; a vertical oscillating shaft mounted in said frame and having secured upon its upper end a pinion which is engaged by said quadrant; a gyrating bar pivoted to said quadrant, ranging in said bifurcated lug, and having a connection with said disk by means of which said bar is actuated; and means for revolving said driving-shaft, substantially as shown and described.

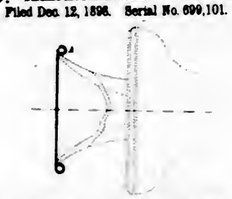
644,679. DOUBLE OR TANDEM SPRING DRAFT-RIGGING FOR RAILWAY-CARS. WILLIAM H. MINER, Chicago, Ill. Filed Mar. 31, 1899. Serial No. 711,234. (No model.)



Claim.—1. In a tandem-spring draft rigging for railway-cars, the combination with the draft-timbers and stop-castings, of a draw-bar, tandem-arranged springs, followers and draw-bar extensions or plates, furnished with transverse recesses, and a spacing or abutment block bearing and fitting at its ends in said transverse recesses of said draw-bar extensions or plates and bearing against the shoulders of the recesses, and a connection between said draw-bar extensions or plates substantially as specified.

2. In a tandem-spring draft-rigging, the combination with the draft-timbers and stop-castings, of tandem-arranged springs, followers bearing against the end of the springs, a draw-bar against the rear end of which the front follower abuts, a rear spacing or abutment block, and an intermediate spacing or abutment block, said draw-bar extension-plates having transverse recesses to receive the ends of said intermediate spacing-block, and having shoulders at their rear ends bearing against the rear spacing-block, and connecting-bolts, substantially as specified.

644,680. TELEPHONE-GUARD. LILLIAN R. ORDWAY, San Francisco, Cal. Filed Dec. 12, 1898. Serial No. 699,101. (No model.)

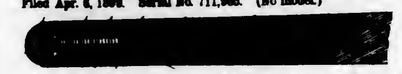


Claim.—1. A telephone-guard molded or formed of one piece of celluloid and provided with a curled flange to removably hold it in place, substantially as described.

2. A guard for telephone-mouth pieces consisting of a thin disk of celluloid having its circumferential edge formed into an annular roll, substantially as described.

3. A guard for telephone-mouth pieces consisting of a thin disk of celluloid having its circumferential edge formed into an annular roll, the edge meeting, but not secured to, the rear surface of the disk whereby a smooth front surface and an elastic gripping-ring are provided, substantially as described.

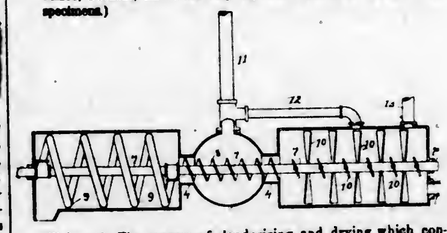
644,681. CUE-TIP HOLDER. ORVILLE G. PAGE, Des Moines, Iowa. Filed Apr. 6, 1899. Serial No. 711,985. (No model.)



Claim.—1. The combination with a billiard-cue, having a shoulder near its smaller end, and a screw-threaded opening located centrally in its smaller end, a collar having a central screw-threaded opening to coincide with the opening in the cue and designed to overlap the cue and engage said shoulder, a spring-metal collet having an enlarged head, a flange on the collet to project forwardly and designed to admit a cue-tip, a shank at the rear end of the collet, screw-threaded and designed to pass through the opening in the collar and into the opening in the cue, said collet being traversed from its head to a point near the rear end of its shank by two slots, being arranged at right angles to each other substantially as and for the purposes stated.

2. The combination of a billiard-cue, having a shoulder near its smaller end, and an opening located centrally in its smaller end, a collar having a central opening to coincide with the opening in the cue and designed to overlap the cue and engage said shoulder, a spring-metal collet having an enlarged head, a flange on the collet to project forwardly and designed to admit a cue-tip, a shank at the rear end of the collet, designed to pass through the opening in the collar and into the opening in the cue, said collet being traversed from its head to a point near the rear end of its shank by two slots, being arranged at right angles to each other, substantially as and for the purposes stated.

644,682. PROCESS OF DEODORIZING AND DRYING. FRANK M. PRATT, Decatur, Ill. Filed July 24, 1899. Serial No. 724,991. (No specimens.)



Claim.—1. The process of deodorizing and drying which consists of bringing live steam into contact with the substance to be treated then forcibly withdrawing the steam as nearly as possible

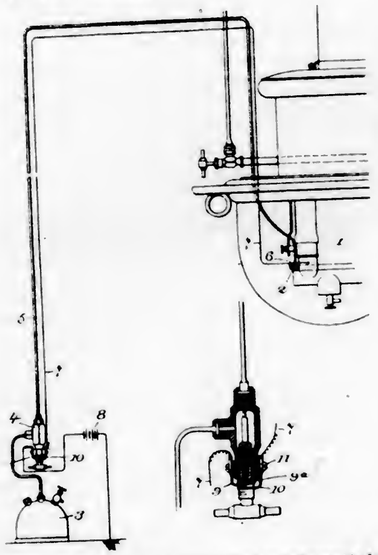
before it coudenses, then subjecting the substance to dry heat until whatever moisture it may have retained is couverted into steam and forcibly withdrawing the steam so produced.

2. The process of deodorizing and drying which consists of agitating the substance to be treated, bringing live steam into contact with the substance, forcibly withdrawing the steam as nearly as possible before it condenses, subjecting the substance to dry heat until whatever moisture it may have retained is converted into steam and forcibly withdrawing the steam so produced.

3. The process of deodorizing and drying which consists of moving the material through a chamber in an agitated condition, supplying live steam to the chamber, forcibly withdrawing the steam and applying dry heat to the material as it passes through the discharge end of the chamber.

4. The process of deodorizing and drying which consists of moving the material in an agitated condition through a chamber having two divisions, applying live steam and suction to the material in the first division of the chamber and applying dry heat and suction to the material in the second division.

644,683. SYSTEM OF IGNITION. WALTER H. PUMPHREY, New York, N. Y., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa. Filed Mar. 6, 1899. Serial No. 708,016. (No model.)



Claims.— 1. The combination of a reservoir for inflammable fluid, a cup, connections from the reservoir to the cup, an electric igniter in the cup, a valve, and means controlling the ignition and the flow of the fluid from the reservoir to the cup.

2. The combination of a reservoir for inflammable fluid, a cup, connections from the reservoir to the cup, an electric igniter in the cup, and an electrically-operated valve which controls the flow of fluid from the reservoir to the cup.

3. The combination of a reservoir for inflammable fluid, a cup, connections from the reservoir to the cup, an electric igniter in the cup, and a valve which controls the flow of fluid from the reservoir to the cup, together with an electrical switch controlling said igniter.

4. The combination of a reservoir for inflammable fluid, a cup, connections from the reservoir to the cup, an electric igniter in the cup, and an electrically-operated valve which controls the flow of fluid from the reservoir to the cup, together with an electrical switch controlling said igniter.

5. The combination of a reservoir for inflammable fluid, a cup, connections from the reservoir to the cup, an electric igniter in the cup, and a valve which controls the flow of fluid from the reservoir to the cup, together with an electrical switch controlling said igniter, and mechaniam whereby the opening of the valve will close the switch, and the closing of the valve will open the switch.

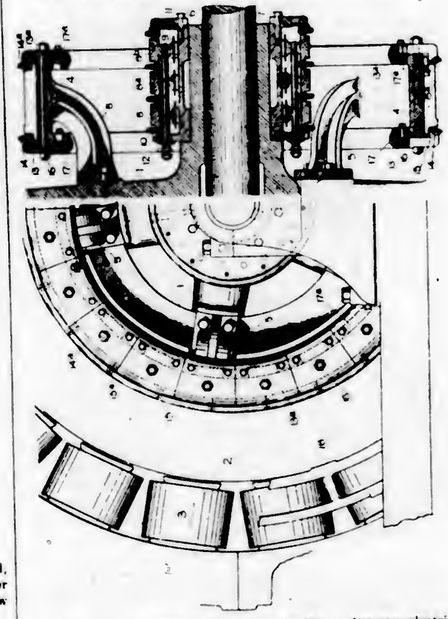
6. The combination of a reservoir for inflammable fluid, a cup, tubing from the reservoir to the cup, an electric igniter in the cup, a valve which controls the flow of fluid through said tubing, an electromagnet which controls said valve and is in circuit with the igniter, and a switch for opening and closing said circuit.

7. The combination of a reservoir for inflammable fluid, a cup, tubing from the reservoir to the cup, a valve controlling the connection between reservoir and tubing, an electric ignitar in operative relation to the cup, a second electrically-operated valve located in the line of tubing near the lamp, and mechanism whereby an electric current may be sent through said electrically-operated valve and igniter.

8. The combination of a reservoir for inflammable finid, a cup, tubing from the reservoir to the cup, a valve controlling the connection between reservoir and tubing, an electric igniter in operative relation to the cup, a second and electrically-operated valve located in the line of tubing near the lamp, and mechanism whereby an electric current may be sent through said electrically-operated valve and igniter automatically by the opening of the first-mentioned valve.

9. The combination of a valve, a normally-open electrical switch, and connection mechanism whereby the opening of the valve closes the switch, together with means for adjusting the switch so as to close with varying degrees of valve-opening.

644,684. DYNAMO-ELECTRIC MACHINE. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 27, 1899. Serial No. 734,914. (No model.)



Claim.—1. A current collecting device for a dynamo-electric machine having at its sides annular barriers of insulating material rising above the plane of the brush-contacts and formed of a plurality of independent segments.

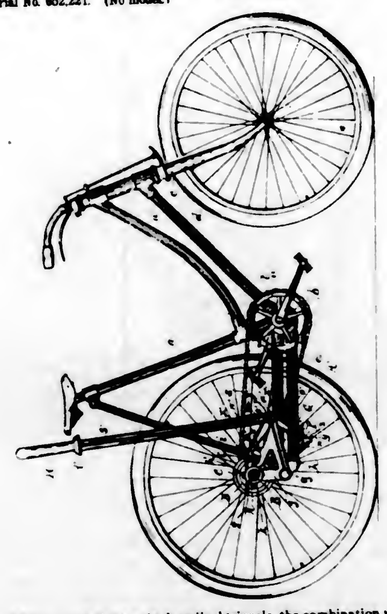
2. A commutator for a dynamo-electric machine, comprising an annular support, an annular range of clamp-plates overlapping the ends of the commutator-bars, and an annular beading of insulating material locked in place by the clamp-plates and rising above the plane of the commutator-bars.

3. A commutator for a dynamo-electric machine, comprising an annular support, a circular range of commutator-bars thereon, a circular range of segmental clamp-plates overlapping the ends of the bars, and a circular range of insulating-strips locked between the clamp-plates and commutator-bars and rising above the plane of the commutator-bars.

4. A commutator for a dynamo-electric machine, comprising an annular support, a circular range of commutator-bars thereon, a circular range of clamp-plates at the ends of the bars, annular insulating-barriers between the bars and the clamp-plates, and means for preventing leakage between the commutator-bars and the clamp-plates at the joints of the barrier-segments.

5. A commutator for a dynamo-electric machine, comprising an annular support, clamp-plates for the commutator-bars and an insulating-beading between the clamp-plates and the bars, formed of a ring of segments connected at the joints by insulating-dowels.

644,685. TRICYCLE. JOHN R. ROWLANDS, Syracuse, N. Y., assignor to Charles H. Shattuck, same place. Filed Sept. 20, 1897. Serial No. 652,221. (No model.)

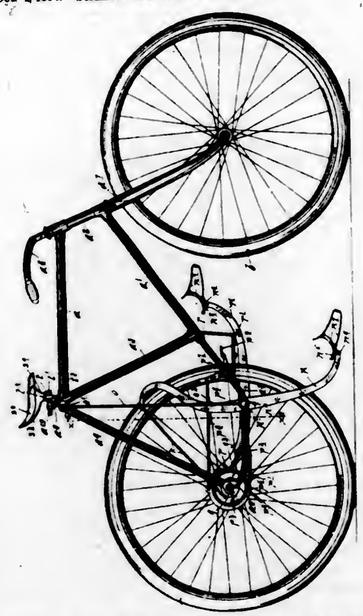


Claim.—1. In the herein-described tricycle, the combination with the driving-axle and traction-wheel, of a hand-operated device having a main and a secondary movement, means connecting said device with the traction-wheel and operated by the main movement of said propelling device to transmit motion to the traction wheel, a reversing mechanism actuated by the secondary movement of said propelling device to reverse the travel of said traction-wheel, a device normally preventing the reversal of said mechanism during the forward movement of the tricycle, and means to operate said latter device to allow the reversal of the same during said movement, substantially as described.

2. In the herein-described tricycle, the combination with the driving-axle having a carrying-wheel rigidly secured thereto and a traction-wheel journaled thereon, of equalizing-gears connecting said traction-wheel and axle, a clutch-collar connected with the traction-wheel, a coöperating clutch member provided with suitable gripping devices to engage said collar, a suitably-pivoted oscillatory segment connected with said clutch member to transmit a like motion thereto, a hand propelling-lever connected with said segment and having a main and a secondary stroke, a shifting-lever on said clutch member and actuated by the secondary stroke of said hand-lever to operate said gripping devices to reverse the travel of the tricycle, a device carried on said segment and normally preventing a forward secondary stroke of the hand-lever, and hand-operated mechanism for actuating said device to allow said hand-lever to be given said latter movement for the purpose set forth.

3. In the herein-described tricycle, the combination with the driving-axle and traction-wheel, of a clutch-collar connected with the traction-wheel, a coöperating clutch member formed with reversely-tapered recesses adjacent to said collar, spring-pressed gripping-rollers within said recesses, a pivoted shifting-lever having rods to engage said rollers and lock the same, one at a time, in inoperative position, a suitably-journaled shaft, an oscillatory segment secured to said shaft and provided with cams on its ends, a hand propelling-lever secured to said shaft to impart motion to said segment and having a main and a secondary stroke, said shifting-lever being arranged to be engaged by said cams when said hand-lever is given a secondary stroke, stops limiting the secondary strokes of the lever, a guard-lever pivoted to said segment and normally in the path of one of said stops to limit the forward main stroke of the hand-lever, a groove in the aforesaid shaft, a sliding rod in said groove and secured at one end to said guard-lever and provided with two transverse pins at its opposite end, a spring-actuated push-rod carried on the hand-lever and provided at its lower end with a slotted bar to receive the outer end of the aforesaid sliding bar, said bar being formed with two parallel inclined surfaces to engage the aforesaid pins to actuate said sliding bar for the purpose set forth.

644,686. BICYCLE. EDWARD M. RUNYAN and MERRITT G. POND, Minneapolis, Minn., assignors, by direct and mesne assignments, to the American Timber Brokers, Superior, Wis., and Duluth, Minn. Filed Oct. 4, 1897. Serial No. 653,934. (No model.)



Claim.—1. In a cycle, a clutch device involved in the propelling mechanism and comprising, pawls carried by one of the clutch-sections, a ratchet-wheel carried by the other member of said clutch-sections, and a spring friction-ring split at one point only and connected to said pawls or operating thereon, and frictionally engaging the clutch-section which carries said ratchet-wheel, or a part movable therewith whereby the use of independent springs is obviated, substantially as described.

2. In a cycle, a clutch device involved in the propelling mechanism and comprising pawls carried by the traction-wheel, a loose drum or hub provided with the cylindrical ledge f^{12}, and the split friction-ring f^7 f^8, the cylindrical flange of which frictionally engages said ledge f^{12} and the vertical flange f^9 of which is connected to said pawls by means of cam-slot and pin connections f^{10} f^{11}, substantially as described.

3. In a bicycle, the combination with the traction-wheel, of the pawls f^4 pivoted on said flanges f and provided with the stop-surfaces f^5 for engagement with said rims f^3, the loose hubs or drums g provided with ratchet-teeth f^6 and cylindrical ledge f^{12}, and the split friction-ring f^7 f^8, the cylindrical flanged portion f^7 of which frictionally engages said ledge f^{12} and the vertical flanged portion of which is connected to the coöperating pawls f^4 by means of the cam-slot and pin engagements f^{10} and f^{11}, substantially as described.

4. In a cycle, the combination with the fixed spindle c, of the wheel-hub h^2 provided with ball-runways b^2, the hubs or drums g provided with the ball-runways g' and g^2, the double-faced cone k mounted on said spindle c with freedom from both sliding and rotary movements, the single-faced cone-bearing k' mounted for sliding movement on said spindle c, and the bearing-balls k^2 working between the said ball runways and the coöperating cones, substantially as described.

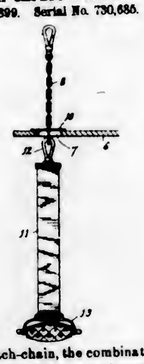
5. In a bicycle, the combination with the vibrating foot-operated driving-levers and the traction-wheel, of a foot-operated brake involving the friction-wheel p on the hub of the traction-wheel, the

segmental brake-shoe p^3 provided with the stop-lug p^4, the spring-arm p' secured to the machine and provided with the stop-surface p^5, the bell-crank lever p^6 provided with the foot or heel piece p^9 and subject to the action of the retracting-spring p^{10}, and the rod p^8 connecting the free ends of said brake-shoe p^3 and bell-crank p^6, substantially as described.

6. In a machine of the character described, the combination with vibrating driving-levers provided with pedals at their forward ends, of a pair of foot or heel rests supported from the machine-frame in position to be readily engaged or stepped upon when the heels are turned inward with the feet on the pedals, and a brake device involving an operating-lever provided with a heel-piece normally standing over and slightly above one of said foot or heel rests, whereby the rider may operate the brake while standing on said rests and pedals, substantially as described.

7. In a bicycle of the character described, the combination with vibrating driving-levers provided with pedals at their forward ends, of heel or foot rests located in position to be readily engaged or stepped upon when the heels are turned inward and the feet are on the pedals, substantially as described.

644,687. WATCH SAFETY DEVICE. JOHN SAVELAND, Lake, Wis. Filed Sept. 16, 1899. Serial No. 730,685. (No model.)



Claim.—1. In a watch-chain, the combination of an inner section of short length provided with means at its extremity for attaching it to a watch-ring, a guard on the section near its other extremity of considerable size adapted to bear against and thereby engage the walls of a pocket-aperture, a detachable outer section attached to the inner section just outside the guard, and an enlarged device or stop on the outer section.

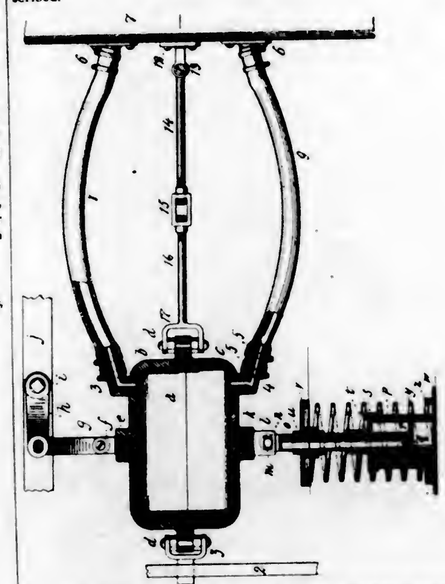
2. A watch-chain comprising an inner section of short length provided with means at one extremity for attaching it to a watch-ring, a guard on the section near its other extremity of considerable size, a detachable outer section attached to the inner section just outside the guard on the inner section, and an enlarged device or stop on the outer section the chain being adapted for use with a pocket in a garment which pocket has a wall having a small slot through which the chain proper may be passed but through which the guard and the stop device are too large to pass.

3. A watch-chain in two detachable sections, comprising an inner section having at one end means for attaching it to a watch and at the other end having a transversely-projecting guard and a chain-uniting device, and an outer section having at its attachable end a transversely-projecting guard and a chain-uniting device adapted to engage detachably the chain-uniting device on the end of the inner section, the guards being of such size and form as adapts them severally to engage the opposite sides of a wall of a pocket through an aperture in which the chain-uniting devices pass.

644,688. FEED-WATER REGULATOR. ALBERT R. SHATTUCK, New York, N. Y. Filed May 1, 1899. Serial No. 715,090. (No model.)

Claim.—1. In combination with a steam-generator, a movable closed receptacle outside of said generator, flexible pipes connecting said receptacle respectively with the steam and water spaces of said generator, a pivoted rod extending from said receptacle to said generator, a spring opposing the downward movement of said receptacle, and a regulating device controlled by and through the movement of said receptacle, substantially as described.

2. In combination with a steam-generator, the movable closed receptacle *a* outside of said generator, the spring *y* opposing the downward motion of said receptacle *a*, the reversely-arched flexible pipes 8, 9 respectively communicating with the upper and lower portions of said receptacle and with the steam and water spaces of said generator, the jointed rod 14, 16 extending between said pipes from said receptacle to said generator, and a regulating device controlled by and through the movement of said receptacle, substantially as described.



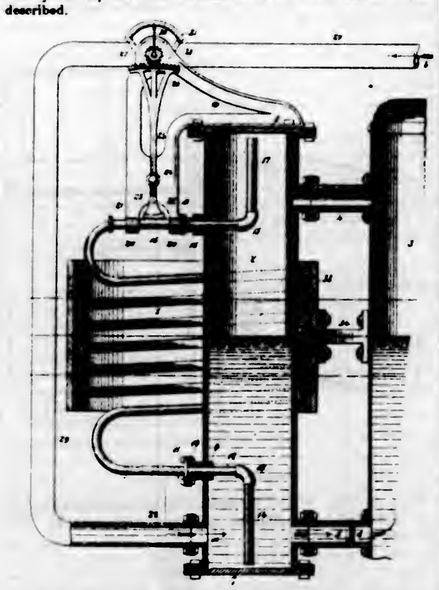
3. The combination with a steam-generator of the movable closed receptacle *a* outside of said generator and communicating with the steam and water spaces thereof, the spring *y* opposing the downward motion of said receptacle, jointed rod *o* extending downward from said receptacle and connected to said spring *y*, dash-pot actuated by said rod *o* and a regulating device controlled by and through the movement of said receptacle, substantially as described.

4. The combination with a steam-generator of the movable closed receptacle outside of said generator, the guide 2 for said receptacle, spring *y* opposing the downward motion of said receptacle, jointed rod *o* extending downward from said receptacle and connected to said spring *y*, flexible pipes 8, 9 respectively communicating with the upper and lower portions of said receptacle and with the steam and water spaces of said generator, the jointed rod 14, 16 extending from said receptacle to said generator, and a regulating device controlled by and through the movement of said receptacle, substantially as described.

644,689. FEED-WATER REGULATOR. ALBERT R. SHATTUCK, New York, N. Y. Filed May 10, 1899. Serial No. 716,204. (No model.)

Claim.—1. The combination in a regulator controlled by changes of water-level in a boiler, of a stand-pipe communicating at its lower portion with the water-space of said boiler, and also with the feed-water supply thereof and at its upper portion with the steam-space of said boiler, a tube 1 expansible and contractible under variations of temperature rigidly secured at one end to and communicating with the lower part of said stand-pipe and secured at the other end so as to be free to expand and contract and communicating with the upper part of said stand-pipe, vertical tubes 14 and 17 connected to the extremities of said tube 1 within said stand-pipe, a controlling device such as a valve or cock and intermediate mechanism for actuating said controlling device by the expansion and contraction of said tube, substantially as described.

2. The combination in a regulator controlled by changes in water-level in a boiler, of a stand-pipe communicating at its lower portion with the water-space of said boiler and also with the feed-water pipe thereof and at its upper portion communicating with the steam-space of said boiler, a check-valve between said stand-pipe and said boiler, a tube expansible and contractible under variations of temperature rigidly secured at its lower end to and communicating with the lower portion of said stand-pipe and secured at its upper end so as to be free to expand and contract, a controlling device such as a valve or cock, and intermediate mechanism for actuating said controlling device by the expansion and contraction of said tube, substantially as described.



3. The combination in a regulator controlled by changes in water-level in a boiler, of a tube expansible and contractible under variations of temperature, having one end rigidly fixed and communicating with the feed-water inlet and water-space of said boiler, and the other end movably secured so as to be free to expand and contract, a rack near the free end of said tube, a pivoted lever, toothed sector on said lever engaging with said rack, a second toothed sector on said lever, a pinion engaging with said last-named sector, and a rotary cock or valve actuated by said pinion, substantially as described.

644,690. KNOCKDOWN BOX. JOHN SHELLENBERGER, Davenport, Iowa, and CHARLES L. KIRK, Holland, Mich. Filed Oct. 23, 1899. Serial No. 734,422. (No model.)



Claim.—1. A knockdown box comprising a main body portion adapted to be readily formed into a quadrilateral figure, integral fastenings in the terminals of the main body portion adapted to engage with each other, a bottom portion adapted to be readily formed into three sides of a parallelogram, and fastenings made an integral part of the upturned side piece of the said bottom portion, and adapted to engage with fastenings of a similar nature made perforate near the top and within the main body portion, substantially as set forth.

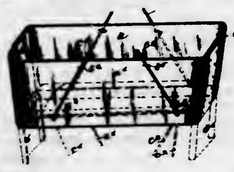
2. A knockdown box comprising a blank, a tongue formed on one end of the said blank, a slit in the other end of the said blank with which the said tongue is adapted to engage, four scores across the said blank relatively-equal distances apart, a blank for the bottom of said box, two scores across said bottom blank, practically equal in distance apart to the width or length of the said box, fastenings in the ends of said bottom blank adapted to engage with fastenings of a similar nature made perforate near the top and in two opposite sides of the said box, substantially as set forth.

3. A knockdown box comprising a blank adapted to be readily formed into a quadrilateral figure, fastenings fashioned into the ends of the said blank and adapted to engage one with the other for holding said blank together, a blank for forming the bottom, adapted to be readily turned up at each end, fastenings made in said upturned portion, and fastenings made perforate near the top and in two opposite sides of the quadrilateral figure, into which the fastenings of the said bottom portion are adapted to engage, substantially as set forth.

4. A knockdown box, a blank equal in width to the height of the box, divisions in said blank, attenuant lines laterally across said blank adapted to weaken the structure between said divisions, inherent fastenings in the end of the said blank, adapted to engage one with the other, a bottom blank divided into three divisions, attenuant lines laterally across said blank to weaken the structure between said divisions, and inherent fastenings in the end of said blank, adapted to engage with similar fastenings made perforate near the top and made into the side of said box, substantially as set forth.

5. A knockdown box comprising a blank adapted to be readily formed into a quadrilateral figure, fastenings fashioned into the ends of the said blank and adapted to engage one with the other for holding said blank together, a blank for forming the bottom adapted to be readily turned up at each end, a tongue projecting laterally from the body of the upturned extremities of said blank, and perforations in two opposite sides of the said quadrilateral figure, into which the said tongues of the said bottom portion are adapted to enter, substantially as set forth.

644,691. NESTING FRUIT-BASKET. JOHN SHELLENBERGER, Davenport, Iowa, and CHARLES L. KIRK, Holland, Mich. Filed Oct. 23, 1899. Serial No. 734,423. (No model.)



Claim.—1. A basket comprising side and end walls, bottom pieces operatively hinged at opposite walls adapted to overlap each other, and a wire passing under said bottom pieces for securing them in place, substantially as set forth.

2. A basket comprising side and end walls, pieces adapted to form the bottom thereof attached to opposite walls, hinges in said pieces, and a wire passing under said bottom pieces for securing them in place, substantially as set forth.

3. A basket comprising side and end walls, pieces adapted to form the bottom thereof attached to opposite walls, hinges in the said pieces, a bail-handle, and a wire, carrying said handle and passing under said bottom pieces for securing them in position, substantially as set forth.

4. A basket comprising side and end walls, a bottom piece formed into an inverted arch, a handle comprising flexible wires carrying a bail-handle, perforations in the side walls of said basket through which said wires pass, and a means for fastening said wires under said bottom for securing said bottom in position, substantially as set forth.

5. A basket comprising side and end walls, a bottom for said basket not entirely held in place by the structure thereof, and two wires passing under said bottom and jointly forming a handle above said basket, whereby the entire weight of said basket is carried by said wires, substantially as set forth.

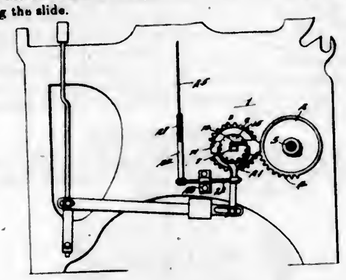
6. A blank for forming a box or basket, scores or attenuant lines across the grain thereof, wires placed obliquely to the grain of said blank and bridging said scores, before the blank is bent, the ends of said wires extending through said blank and bent back on the opposite side, substantially as set forth.

7. A basket comprising side and end walls, a blank for the bottom wider than the space between the side walls of said basket, adapted to be attached to opposite walls thereof, and upturned flaps, or portions, of said basket, said upturned portions sufficiently wide to provide for shrinkage, substantially as set forth.

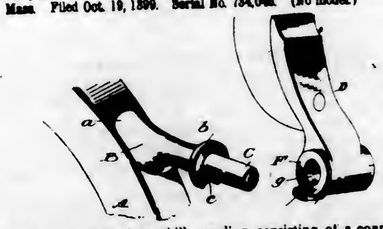
644,692. BOX-MOTION FOR LOOMS. JOHN W. SMALL, Haw River, N. C. Filed Nov. 24, 1899. Serial No. 738,214. (No model.)

Claim.—1. In a device of the character set forth, the combination with a partially-toothed disk, of an adjacent gear provided with a diametrically-extending slot, a shaft on which said gear is mounted, having a projecting rectangular arm, a slide with terminal abutments movably mounted in the said disk and having an elongated slot through which the arm of the shaft extends and also provided with an angularly-disposed outwardly-extending rectangular working arm, and a head movably mounted on both arms and having slots therein of the same shape and corresponding to the angle of disposition of the said arms.

2. In a device of the character set forth, the combination with a toothed disk of the form set forth, of an adjacently-situated gear having a slide diametrically movable therethrough and provided with an angularly-disposed outwardly-extending rectangular working arm, the said slide having opposite abutments and provided with a central elongated slot, a shaft on which the said gear is mounted having a rectangular arm extending therefrom and through the slot in the slide, a head having slots closely arranged therein for the movement therethrough of the said arms and of the same shape as the latter, the slot for the arm projecting from the shaft being in the center of the head and that for the slide-arm being at an angle corresponding to the latter and to one side of the center of the head, and means for shifting the said head inwardly toward or outwardly from the gear carrying the slide.



644,693. THILL-COUPLING. CHARLES E. STONE, Amesbury, Mass. Filed Oct. 19, 1899. Serial No. 734,046. (No model.)



Claim.—1. A shaft or thill coupling, consisting of a coupling-pin, a notched circumferential flange, and a socket-head provided with a lug and locking-lip thereon engaging said flange, substantially as and for the purpose set forth.

2. A shaft or thill coupling, consisting of a coupling-pin and a socket-head having means to engage therewith and lock itself thereto, and a washer having a tubular extension fitting in the socket-head to form a bushing for the pin, substantially as and for the purpose described.

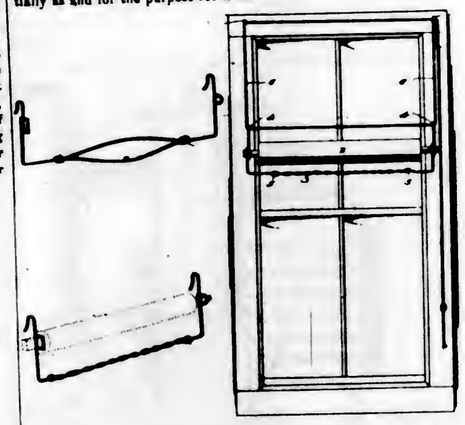
3. A shaft or thill coupling, consisting of a coupling-pin, a circumferential notched flange, and a socket-head with a lug having locking-lip engaging said flange, and a washer with tubular extension fitting in the socket-head, substantially as and for the purpose specified.

4. A shaft or thill coupling, consisting of a tubular bracket, a coupling-pin having a screw-threaded shank extending through said bracket and adapted to screw into the axle, and a socket-head and means for locking the head to the flange, substantially as and for the purpose set forth.

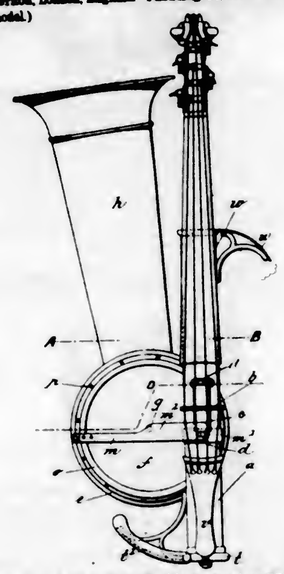
5. A shaft or thill coupling, consisting of a tubular bracket having a countersink upon its outer end and a notched circumferential flange, a coupling-pin having a screw-threaded shank extending through the bracket and adapted to screw into the axle, and a socket-head with lug and locking-lip to engage with the flange, substantially as and for the purpose described.

644,694. SHADE-ROLLER BRACKET. LEVI J. STONE, Carthage, Mo. Filed Aug. 4, 1899. Serial No. 726,063. (No model.)

Claim.—As an article of manufacture, a shade-roller bracket consisting of two parts each of which is formed with a vertical portion provided with a bearing-eye and with a substantially-horizontal portion provided with a terminal guide-eye, the eye of the horizontal portion of one part of the hanger engaging the horizontal portion of the other part of the hanger, said horizontal portions being bowed to cause the guide-eyes to frictionally bind the substantially-horizontal portions and thereby hold the parts in their initial adjustment to the roller, said bowed horizontal portions being adapted to be twisted together to retain them in a permanently-adjusted position, substantially as and for the purpose set forth.



644,695. VIOLIN OR OTHER STRINGED INSTRUMENT. JOHN M. A. STROH, London, England. Filed Aug. 21, 1899. Serial No. 728,088. (No model.)



Claim.—1. A stringed musical instrument, comprising in its construction a bridge supporting the strings, a rocking lever connected with the said bridge and supporting the same, a diaphragm held and supported at the edges and adapted to oscillate in the center, a transmitting device situated between the extremity of the rocking lever and the diaphragm and adapted to transmit oscillations from the said lever to the diaphragm, a resonator situated in proximity to the diaphragm and adapted to receive and distribute the waves of air caused by the vibrations of the diaphragm, and a body portion adapted to support the rocking lever diaphragm and resonator and to connect these parts with the parts holding the ends of the strings, substantially as described.

2. In a stringed musical instrument, in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the latter are transmitted to a diaphragm, the combination of the rocking lever and the diaphragm, with a link interposed between the extremity of the rocking lever and the diaphragm, and a flexible cord attached at one end to the said rocking lever and at the other to the diaphragm, substantially as described.

3. In a stringed musical instrument, in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the latter are transmitted to a diaphragm, the combination of the rocking lever and the diaphragm, with a tubular link interposed between the extremity of the rocking lever and the diaphragm, and a flexible cord passing through the said tube, one end of the said cord being attached to the rocking lever and the other to the diaphragm, substantially as described.

4. In a stringed musical instrument, in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the latter are transmitted to the diaphragm, the combination of the rocking lever and diaphragm, with a link interposed between the same, so as to transmit vibrations, a spring mounted on the rocking lever and attached to the same, and a link attached with one end to the center of the diaphragm and at the other end to the said spring, substantially as described.

5. In a stringed musical instrument in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the latter are transmitted to a diaphragm, a rocking lever turning on knife-edges, substantially as described.

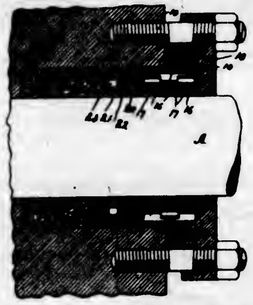
6. In a stringed musical instrument, in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the same are transmitted to a diaphragm, a circular diaphragm held and supported at the edge and connected in the center with the said rocking lever, substantially as described.

7. In a stringed musical instrument in which the bridge supporting the strings is mounted on a rocking lever and the vibrations of the latter are transmitted to a diaphragm, the combination of the said diaphragm with a trumpet-shaped resonator adapted to receive and distribute the sound-waves produced by the vibrations of the diaphragm, substantially as described.

8. The combination of bridge *b* and rocking lever *c* with main body portion *a*, a drum-head containing a circular diaphragm and supported by the main frame, a transmitting device situated between the rocking lever and the center of the diaphragm, and a resonator adapted to receive and transmit the waves of sound caused by the vibrations of the diaphragm, substantially as described.

9. The combination of the main body portion *a*, with bridge *b* and rocking lever *c*, a drum-head containing a diaphragm, a transmitting device, between the rocking lever and the diaphragm and an open frame *m* adapted to connect the drum-head with the main body portion *a* and to protect the lever *c*, substantially as described.

644,696. PISTON-ROD PACKING. FREDERICK F. SWAIN, Chicago, Ill. Filed May 20, 1899. Serial No. 717,548. (No model.)



Claim.—1. A packing for piston-rods, comprising an inner ring arranged to encircle the rod, an outer ring arranged to encircle the inner ring, clamping-plates arranged to encircle said outer ring, and clamping-springs arranged to engage said plates to hold the parts in the desired relation, as and for the purpose set forth.

2. A packing for piston-rods, comprising an inner ring arranged to encircle the rod, an outer ring arranged to encircle the inner ring, clamping-plates having hooked ends and arranged in encircling relation with respect to said outer ring, and clamping-springs having hooked ends adapted to be sprung over the hooked ends of said clamping-plates and operating to hold the parts in the desired relation, as and for the purpose set forth.

3. A packing for piston-rods, comprising a sectional inner ring arranged to encircle the rod, a sectional outer ring arranged to encircle the inner ring and breaking joints therewith, clamping-plates arranged to hold said parts in proper relation, said clamping-plates having hooked ends, and clamping-springs having engaging ends and adapted to be sprung over the proximate ends of adjacent clamping-plates, as and for the purpose set forth.

4. A packing for piston-rods, comprising an inner eccentric ring and an outer eccentric ring, the eccentricities of said rings being oppositely arranged with respect to each other, and means for clamping the same upon the piston-rod, as and for the purpose set forth.

5. A packing for piston-rods, comprising an inner ring having an eccentric outer surface, and arranged to encircle the piston-rod, an outer eccentric-shaped ring arranged to encircle said inner ring, the eccentricities of said rings being oppositely arranged with respect to each other, and a holding-spring encircling said outer ring for holding said rings in proper relation, as and for the purpose set forth.

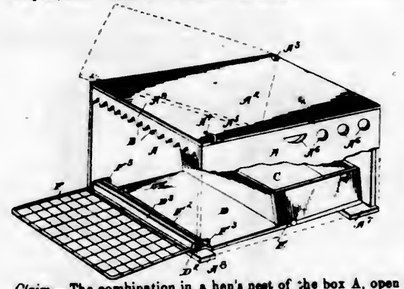
6. A packing for piston-rods, comprising a plurality of sets of packing-rings mounted on the rod, each set including an inner eccentric-shaped ring and an outer eccentric-shaped ring, the eccentricities of said rings being oppositely arranged with respect to each other, the sets of rings breaking joints with each other, and an encircling holding-spring, as and for the purpose set forth.

7. The combination with a casing, of a gland bolted thereto, a sleeve having an inwardly-projecting perforated flange, a retaining-ring arranged to bear against said flange and the interior of said sleeve, and one or more sets of packing-rings interposed between said retaining ring and gland, as and for the purpose set forth.

8. A packing for piston-rods, comprising the combination of a casing, a gland, a packing-ring, a sleeve surrounding the packing-ring and extending inwardly beyond the same, and a piston-ring bearing against the inner side of the packing-ring and on its peripheral surface forming a joint against the sleeve, whereby said piston-ring prevents access of steam-pressure to the outer periphery of the packing-ring, as and for the purpose set forth.

9. In a packing for piston-rods, the combination of a casing, a gland, one or more packing-rings, a sleeve surrounding the packing-rings and extending inwardly beyond the same, said sleeve provided at its inner end with an inwardly-projecting flange, and having a ground-seat formed on the inner surface thereof, and a piston-ring held between said flange and the packing ring or rings, and bearing on its outer periphery against said ground-seat, said piston-ring and flange having their bores of larger diameter than the exterior diameter of the piston-rod, as and for the purpose set forth.

644,697. HEN'S NEST. GEORGE H. USSELLE, Ernest, Mo. Filed May 25, 1899. Serial No. 718,160. (No model.)



Claim.—The combination in a hen's nest of the box A, open at its front end, the tilting bottom D, the nest-box, C, on the rear portion of the tilting bottom, a gate F having the slotted projections F^6, a rod F^5 passing through the slots of said projections and having its ends secured in the sides of the box A, and a pivotal connection between the gate and the front end of the tilting bottom in advance of the bar F^5, substantially as described.

644,698. BUTTER PLATE AND MOLD. HENRY M. WILLIAMS, Fort Wayne, Ind., assignor of one-fourth to Franz Burger, same place. Filed Sept. 19, 1898. Serial No. 691,350. (No model.)



Claim.—1. In a combined butter dish and mold, a bottom portion having a concave perforated face for supporting a butter cake, and a top adapted to said bottom portion and provided with a convex face concentric with said concave face, substantially as and for the purpose described.

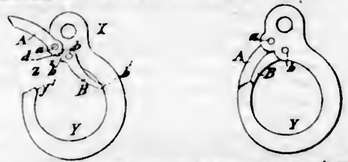
2. In a combined butter dish and mold, a bottom portion having a concave perforated support for a butter cake, a top adapted to said bottom portion and provided with a convex face, and a projection on the top arranged to enter a perforation of the butter cake and support, substantially as described.

3. In a combined butter dish and mold, a bottom portion having a support for a butter cake, a top for the bottom portion, and knives on the under side of the top arranged to divide the cake into sections, substantially as described.

4. In a combined butter dish and mold, a bottom portion having a perforated support for a butter cake, a top adapted to the bottom portion and having a projection arranged to enter the perforation in the support, and knives on the top radiating from said projection, substantially as described.

5. A combined butter dish and mold comprising a perforated support for a butter cake and a top having a convex face and formed with a flange adapted to surround the support, and with a projection adapted to enter a perforation of the butter-cake support, substantially as described.

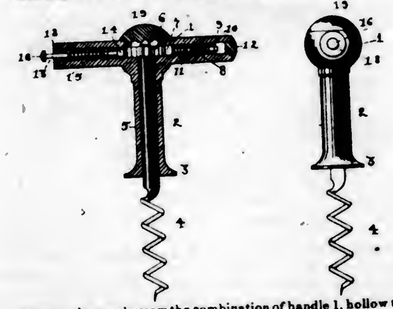
644,699. SAFETY HOOK, RING, &c. HORACE G. WOODFORD, London, England. Filed Aug. 21, 1899. Serial No. 728,007. (No model.)



Claim.—1. A safety hook or ring formed with an opening or gap, two tongues adapted to close said opening, one of which is adapted to open inwardly and the other outwardly, and means for connecting said tongues so that a movement of one tongue produces a corresponding movement of the other in the opposite direction, substantially as described and shown.

2. The combination with a hook, ring, or the like of two tongues A and B, pivoted to the hooks, and each capable of moving through an arc of a circle, the gearing teeth or cogs a^3 and b^3, and the spring C, substantially as described and shown.

644,700. CORKSCREW. JAMES BLUNDELL, Southport, England. Filed Aug. 19, 1898. Serial No. 689,040. (No model.)



Claim.—In a corkscrew the combination of handle 1, hollow trunk 2 depending therefrom, spindle 5 located and free to revolve in said trunk, screw 4 attached to said spindle, ratchet-wheel 6 rigidly attached to said spindle, a spring-actuated pawl 7 to prevent rotation of said spindle in one direction while allowing rotation in the other direction, a detent 14 supported on a stem 13, a spring 15 whereby detent 14 is held normally out of engagement with ratchet 6, and a button 16 on the projecting end of said stem, whereby when pressure is applied thereto the revoluble parts are locked, substantially as described.

644,701. GRAIN-DOOR FOR FREIGHT-CARS. THOS. A. BOYERS, Gainesville, Tex. Filed Oct. 13, 1899. Serial No. 733,503. (No model.)

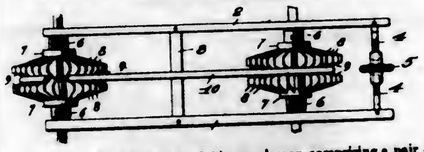
Claim.—1. The combination with a pintle, of a door rotatably and slidably mounted thereon, a hook concentric with the pintle, and an opening in the door adapted to receive the hook to support the door.

2. The combination with a doorway, of a pintle mounted adjacent thereto, a keeper, and a door rotatably and slidably engaged with the pintle and adapted to slide into and out of engagement with the keeper, an opening in the door, and a hook concentric with the pintle and adapted to enter the opening of the door to support the latter.



3. The combination with a pintle, of a door slidably and rotatably mounted thereon, an opening in the door adjacent the pintle, a hook concentric with the pintle and adapted to enter said opening, a projection on the door having an opening therein, and a pin adapted to enter the last-named opening and cooperate with the hook to support the door.

644,702. VARIABLE-SPEED GEARING. CHARLES H. BROOKS, St. Louis, Mo. Filed June 12, 1899. Serial No. 720,209. (No model.)



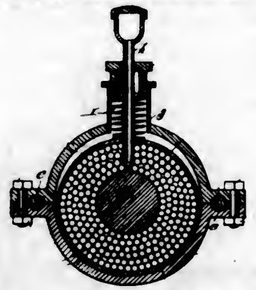
Claim.—The improved variable-speed gear, comprising a pair of shafts, a pair of wheels mounted upon each shaft, each of said wheels comprising a sleeve 6 arranged to slide upon its shaft, a collar 7 integral with one end of each sleeve, a plurality of radial blades 8 set edgewise in each collar and projecting laterally therefrom, whereby the contiguous edges of said blades of each pair of wheels intermesh, and suitable means for moving said wheels upon said shafts, substantially as specified.

644,708. MOISTENING APPARATUS. MATHEW J. BOOHLEY, Delavan, Wis. Filed Sept. 26, 1898. Serial No. 692,105. (No model.)



Claim.—A seam-dampener comprising a flexible bulb, a tube projecting through one end of the bulb terminating near the other end of the bulb and rigidly secured at a point between its ends to the end of the bulb, said tube having a hole in its wall inside of the bulb, a removable nozzle on the outer end of said tube, means within said nozzle for checking the flow of water through the same, a guiding device rigidly secured in the opposite end of the bulb and permanently closing the same, said guiding device projecting within the tube and having an elongated socket in its inner end, into which the inner end of said tube loosely enters and in which said tube has free longitudinal movement.

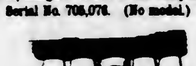
644,704. METALLIC PACKING. ARDEIR L. DUDLEY, Chicago, Ill. Filed May 16, 1898. Serial No. 680,802. (No model.)



Claim.—1. The combination with a cylindrical casing having a tubular opening, of an adjusting-casing comprising two semicircular sections and located within the cylindrical casing, a quantity of shot or balls located within the adjusting-casing, a spring located within the tubular opening of the cylindrical casing and resting against one portion of the adjusting-casing, a plug or cap secured in the outer portion of the said tubular opening, and an oil-cup having a stem passing through the said block and into the adjusting-casing, substantially as described.

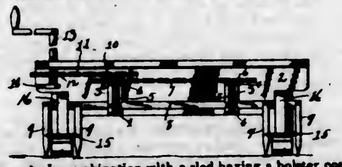
2. The combination with the stuffing-box A', of the gland B, fitting therein, a cylindrical casing secured to the stuffing-box and gland, an adjusting-casing located within the cylindrical casing and composed of two semicircular sections, adjustable filling-pieces located within the adjusting-casing, and means to force the sections of the adjusting-casing toward each other, substantially as described.

644,705. IMPRESSION-BAND FOR DENTISTRY. GEORGE EVANS, New York, N. Y., assignor to the Evans Company, same place. Filed Feb. 9, 1899. Serial No. 705,076. (No model.)



Claim.—As an article of manufacture a band or collar for taking impressions of the natural teeth or roots, adapted to be mounted on the tooth or root and made to conform thereto, and having projections extending out from and clear of its sides whereby when plaster is flared around the band and root or tooth the projections become embedded therein and thus prevent the band from becoming displaced or misplaced when the plaster impression is removed from the tooth or root, substantially as specified.

644,706. SCREW SLED-BRAKE. HENRY M. GUPPER, Union, Wis. Filed Dec. 30, 1899. Serial No. 742,092. (No model.)

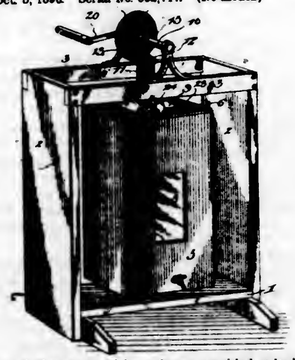


Claim.—1. In combination with a sled having a bolster connecting the runners, brackets having upper and lower extensions attached to said bolster, threaded shafts journaled in apertures in the upper extensions and resting on the upper surface of the lower extension, a brake-beam threaded on the shafts and having depending prongs on each side of the runners, as and for the purpose described.

2. In combination with a sled having a bolster connecting the runners, brackets attached to said bolster, shafts having a suitable brake-beam attached thereto, journaled to the brackets, said shafts having angular upper ends, sprocket-wheels thereon, a chain, and suitable operating means connected to one of said sprocket-wheels, as and for the purpose set forth.

3. In combination with a sled having a bolster connecting the runners, shafts having suitable brake-beam attached thereto, wheels connected by a sprocket-chain on the upper end of said shafts, a crank-lever having a sprocket-wheel on its lower end and a chain connecting it to a second wheel on one of the shafts, as and for the purpose described.

644,707. CHURN. PETER F. GLASBRENNER, East Newbern, Ill. Filed Oct. 5, 1898. Serial No. 692,717. (No model.)



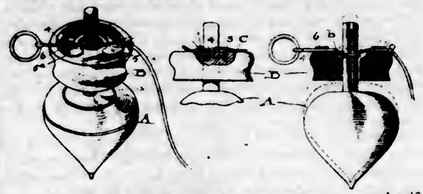
Claim.—A churn comprising a frame provided at its bottom with a stud, a rotary churn-body pivotally mounted on the said stud and provided at its bottom with an interior vertical pivot, the vertical rod 13 mounted on the pivot, a cover arranged on the churn-body and having an opening to receive the rod 13, the plate secured to the upper face of the cover and provided with a socket, the pinion 12 arranged on the rod 13 and provided with a depending hub 11 detachably interlocked with the socket of the plate and serving as the means for retaining the cover on the churn-body and adapted to be readily removed from the former, a bracket arranged at each side of the top of the frame, a horizontal rod fixed to one bracket and extending through an enlarged bearing of the other, said rod being provided at the inner end of the enlarged portion with an opening receiving the upper end of the rod 13, a slidable sleeve arranged on the rod and extending through the enlarged bearing of the adjacent bracket and provided at its outer end with a handle, a gear-wheel 19 carried by the inner end of the sleeve and meshing with the said pinion, and means for locking said sleeve on the rod, substantially as described.

644,708. KNIFE OR SCISSORS SHARPENER. MOSES L. HAWKS, Chicago, Ill. Filed Aug. 3, 1899. Serial No. 726,010. (No model.)



Claim.—The herein-described sharpener, consisting of the frame A, the sharpening-bar B, and ring C, the frame having an opening *a* and angular sides intersecting with the sharpening-surface of the bar and adaptable as a guide in the sharpening of knives, the ring adjustably securing the bar between the prongs of the frame and having the spur *c* with face side *c'* adaptable as a guide in the sharpening of scissors, all substantially as set forth.

644,709. SPINNING-TOP. MARTIN M. HENRY, Cleveland, Ohio. Filed Oct. 26, 1899. Serial No. 734,748. (No model.)



Claim.—1. A spool for spinning tops having a central orifice adapted to have the stem of a top rotatably supported therein, and tension devices for the top-spinning cord on opposite sides of its orifice, whereby the cord can be engaged beneath said tension devices and about the stem of the top to hold the top up and spin it, substantially as described.

2. A spool for spinning tops constructed in its center to receive and release the stem of the top, and means secured to the spool to hold the spinning-cord under tension at two places, with the spindle of the top between them, substantially as described.

3. The spool constructed to support the stem of a top rotatably therein, and a tension device for engaging the spinning-cord having grooves for the cord to run in and adapted to be tightened on the spool, substantially as described.

4. A spool having a central bearing for the top-spindle to turn in and tension mechanism fixed thereto for holding the spinning-cord, in combination with the top having a spindle to turn in said bearing, substantially as described.

5. The top and its spindle, in combination with a spool and a cord frictionally engaged on said spool at two places and wound around the said spindle between its engagements on the spool, substantially as described.

6. The spool having a central bearing for a top to turn in, friction engagements for the spinning-string on opposite sides of said bearing, and a fixed guide for the string outside one of said friction engagements, substantially as described.

7. A spool to spin tops having a central orifice for the top-stem and a cavity in the top of the spool about said stem and tension devices on the spool next to said cavity to engage the spinning-cord, substantially as described.

8. The spool having a central orifice for the stem of the top and a tension device on said spool having its ends exposed to introduce the spinning-cord beneath them, and stops on said ends to prevent the said cord from being drawn beyond its working position, substantially as described.

644,710. RAILROAD-TIE. ABRAHAM L. A. HIBBERWRIGHT, Newark, N. J., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 31, 1898. Serial No. 689,917. (No model.)



Claim.—1. A railroad-tie formed of a solid block of molded material having embedded therein and within the faces of the tie a metal frame formed of reticulated metal with strengthening-bars extending longitudinally of the tie, substantially as described.

2. A railroad-tie formed of a solid block of molded material containing steam-ashes and a suitable binding material, such as cement, having embedded therein and within the faces of the tie a metal frame formed of reticulated metal with strengthening-bars extending longitudinally of the tie, substantially as described.

3. A railroad-tie having embedded therein a metal frame bent to rectangular form and lying at approximately-uniform distances inside each of the faces of the tie, in combination with one or more strengthening-bars at each corner of the rectangle formed by the metal frame and extending longitudinally of the tie, substantially as described.

4. Tie A formed of molded material having embedded therein the rectangular metal frame *a* and having at each corner strengthening-bars *b* inside the frame and strengthening-bars *c* on opposite sides of the bars *b* outside the frame, substantially as described.

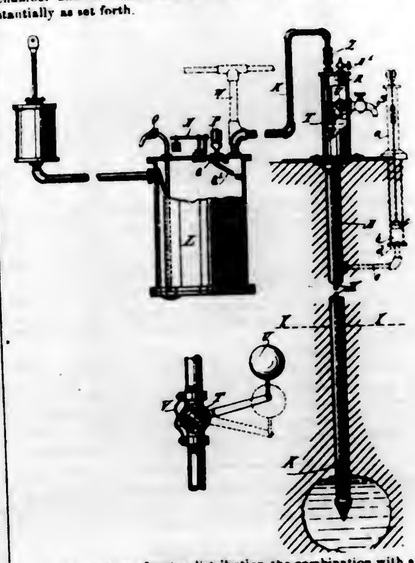
644,711. PNEUMATIC WATER-SUPPLY SYSTEM. FRANK R. KINSMAN, Plainfield, N. J. Filed June 17, 1896. Serial No. 593,073. (No model.)

Claim.—1. The combination with the source of water-supply, of a distributing-pipe extending below the level of the water, a water-chamber at the upper end of said pipe, an independently-operating cock closing the exit from said chamber, an air-pipe extending into the distributing-pipe for the purpose described, a cock in the air-pipe, a float in the water-chamber controlling the air-cock, and a snap-action device operating on said float and air-valve whereby the air-valve is quickly opened and closed at predetermined levels of the water, as and for the purpose set forth.

2. The combination with the air-cock, of the float controlling the same, a projection extending from the stem of the air-valve, and a curved plate-spring engaged by said projection to give a snap action to the valve, substantially as and for the purpose set forth.

3. In a system of water distribution, the combination with several independent wells or springs of a discharge-pipe leading from each and having a cock standing normally closed, a common source of compressed air, pipes leading air therefrom simultaneously to each of said wells or springs for elevating and discharging the water, and means at each of said wells or springs for automatically controlling the supply of air thereto and producing a flow of water through the discharge-pipe when the cock therein is opened, substantially as set forth.

4. The combination with a well, of a pipe therein, a chamber at the upper end of the pipe, a pipe conveying compressed air passing through said chamber and down into the water-pipe, a valve in said air-pipe, a float in the chamber controlling said valve, an elevated tank through which said air-pipe also passes, a water-pipe connecting said chamber and tank, a float in the tank controlling a cock in the air-pipe, and means for cutting off communication between the chamber and the tank when drawing water from the former, substantially as set forth.



5. In a system of water distribution, the combination with a pipe leading from the source of water-supply, of a pipe leading from a compressed-air reservoir into the water-pipe, a cylinder with a piston connected to the lower end of the air-pipe and sealed in the water-pipe above the inlets thereof, and inlet and outlet valves in said cylinder for the purpose set forth.

6. The combination with the water-pipe extending into a well below the level of the water, a cylinder located and sealed therein above the inlet, inlet and outlet valves at the lower end of said cylinder, a spring-returned piston in said cylinder, and an air-pipe connected to said cylinder for leading air thereto, as and for the purpose set forth.

7. The combination with a source of compressed air, of a number of wells or springs each provided with a discharge-pipe, a cock in each discharge-pipe for controlling the flow of water therefrom, a tank or water-chamber at each well supplied with water from the discharge-pipe, each well having a pipe leading thereto from the source of compressed air, a valve in the air-pipe at the well, and a float in said tank or water-chamber connected to and controlling said valve and itself controlled by the opening and closing of the cock in the discharge-pipe.

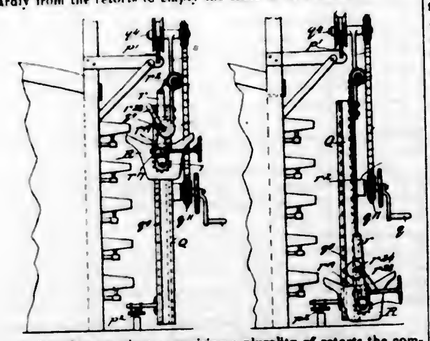
644,712. LADLING DEVICE. WM. LANYON and JOSIAH LANYON, Pittsburg, Kans. Original application filed May 25, 1898, Serial No. 681,718. Divided and this application filed Sept. 28, 1898. Serial No. 692,129. (No model.)

Claim.—1. In a furnace plant comprising a plurality of retorts the combination of a workman's protective shield, means for moving the same longitudinally before the ends of the retorts, a ladle movably supported upon the shield, means for moving the ladle upon its supports toward and away from the retorts, means for raising and lowering the ladle, and means for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents.

2. In a furnace plant comprising a plurality of retorts, the combination of a workman's protective shield, means for movably supporting the shield, a ladle movably supported on the shield, means for moving the ladle upon its supports toward and away from the retorts, means for raising and lowering the ladle, and means for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents.

3. In a furnace plant comprising a plurality of retorts the combination of a workman's protective shield, means for movably supporting the shield, a ladle movably supported on the shield, means

supported directly upon the shield for moving the ladle upon its supports toward and away from the retorts, means for raising and lowering the ladle, and means for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents



4. In a furnace plant comprising a plurality of retorts the combination of a workman's protective shield, means for movably supporting the shield, a ladle, means supported directly upon the shield for swinging the ladle toward and away from the retorts, and means also supported directly upon the shield for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents.

5. In a furnace plant comprising a plurality of retorts, the combination of a workman's protective shield, means for movably supporting the shield, a ladle, means for raising and lowering the ladle, means supported directly upon the shield for moving the ladle toward and away from the retorts, and means also directly supported upon the shield for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents.

6. In a furnace plant comprising a plurality of retorts the combination of a workman's protective shield, means for movably supporting the same, a ladle movably supported on the shield, means supported directly upon the shield for raising and lowering the ladle, and for holding the same in such position positively, means supported directly upon the shield for moving the ladle toward and away from the retorts, and for holding the same in such position positively, and means also supported directly upon the shield for tilting the ladle outwardly and downwardly from the retorts, to empty the same of its contents, and also for holding the ladle in this position positively while such emptying is effected.

7. In a furnace plant comprising a plurality of retorts the combination of a suspended traveling protective shield for the workmen, means supported directly thereon for moving the same longitudinally before the retorts, a ladle movably supported thereon, means supported directly upon the shield for moving the ladle toward and away from the retorts, means directly supported upon the shield for raising and lowering the ladle, and means also directly supported upon said shield for tilting the ladle outwardly and downwardly from the retorts to empty the same of its contents.

8. In a furnace plant, comprising a plurality of retorts the combination of a protective shield constructed of a pair of connected air-chests movable in front of the retorts, and separated from each other by a space, a ladle movably supported between the chests, means supported directly upon the chests for moving the shield longitudinally before the retorts, means supported directly upon the shield for moving the ladle toward and away from the retorts, means directly supported upon the shield for raising and lowering the ladle and its supports, and means also directly supported upon said shield for tilting the ladle outwardly and downwardly.

9. In a furnace plant, the combination with a plurality of retorts, and a track adjacent to the front ends of the retorts, of a pair of connected air-chests mounted on said tracks and having their adjacent vertical edges separated from each other, said edges forming ways, ladle-supporting mechanism mounted in said ways, a ladle mounted in said ladle-supporting mechanism, and means carried by the air-chests for raising and lowering said ladle-supporting mechanism.

10. In a furnace plant, the combination, with a furnace a track adjacent to said furnace, and a pair of connected air-chests movable along said track and separated from each other, of a ladle-supporting device mounted directly upon and movable vertically between the adjacent edges of the air-chests and provided with bearings, a ladle provided with trunnions mounted in said bearings, and mechanism carried by the ladle-supporting device for rotating the ladle on its trunnions.

11. In a furnace plant, the combination with a plurality of retorts a track adjacent to the retorts, and a shield movable along said track, of a ladle-supporting device carried by the shield, and means acting intermediate the ladle-supporting device and the shield, for swinging the ladle away from the front of the furnace.

12. In a furnace plant, the combination with a plurality of retorts, and a track adjacent to said retorts, of a pair of connected air-chests mounted on rollers movable on said track a flange secured to one of the air-chests, a ladle mounted between the air-chests, means for raising and lowering the ladle and a cam bearing upon the flange and arranged to move the ladle away from the front of the furnace.

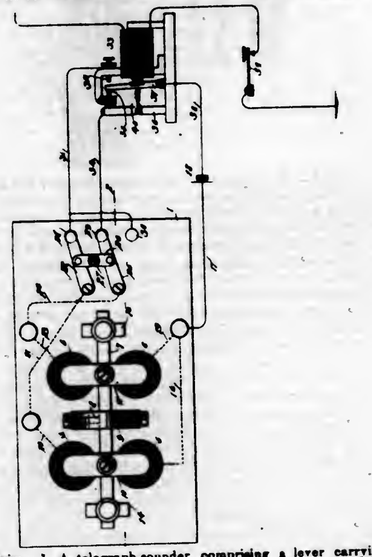
13. In a furnace plant, the combination, with a plurality of retorts, and a track adjacent to said retorts, of a pair of connected air-chests mounted on rollers movable on said track, a flange secured to one of the air-chests, a ladle, a swinging frame supporting said ladle, mechanism carried by the air-chests for raising and lowering said ladle, and a cam attached to the swinging frame and arranged to bear on the flange.

644,718. CASTING MECHANISM. WILLIAM LANYON and JOSIAH LANYON, Pittsburg, Kans. Original application filed May 25, 1898, Serial No. 681,718. Divided and this application filed Sept. 28, 1898. Serial No. 692,131. (No model.)



Claim.—In a casting or molding apparatus, a rotary mold-table comprising radial truss-work and concentric supporting-rings, a series of movable molds arranged radially upon the rings, each mold being provided at the sides with trunnions, brackets or hooks on the outer ring adapted to receive the trunnions on the molds when the latter are moved outward to dump a casting, and means passing through each of said supporting-rings for adjusting the position of the molds, substantially as described and shown.

644,714. TELEGRAPH-SOUNDER. SAMUEL F. LIVELY, Alderson, W. Va. Filed June 6, 1899. Serial No. 719,567. (No model.)

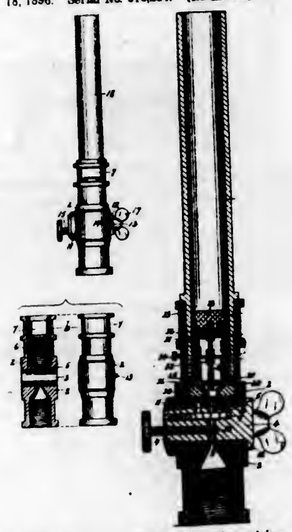


Claim.—1. A telegraph-sounder, comprising a lever carrying armatures at opposite sides of its fulcrum, two sets of electromag-

nets for said armatures, a source of electricity one pole of which is connected with one end of the coils of each set of electromagnets, a switch comprising two parts connected to move in unison and each having a conducting connection with the other end of the coils of one set of electromagnets, a relay comprising an electromagnet, an armature connected with the other pole of the source of electricity and two contacts adapted to be engaged alternately by the armature, stationary contacts arranged to be engaged by the parts of the said switch, and conducting connections from said stationary switch-contacts to the relay-contacts.

2. A telegraph-sounder, comprising a lever carrying armatures at opposite sides of its fulcrum, two sets of electromagnets for said armatures, a source of electricity one pole of which is connected with one end of the coils of each set of electromagnets, a switch comprising two pivoted members insulated from each other, a link connecting said members to compel them to move in unison, a conducting connection from the respective other ends of the coils of the sets of electromagnets to one of the switch members, three stationary contacts adapted to be engaged by said switch members, a relay comprising an electromagnet, an armature connected with the other pole of the source of electricity, and two contacts adapted to be engaged alternately by the armature, a conducting connection from one of the relay-contacts to the central switch-contact, and a conducting connection from the other relay-contact to the two outer switch-contacts.

644,715. GAS-BURNER. FREDERICK W. MAGER, London, Canada. Filed Dec. 18, 1896. Serial No. 616,231. (No model.)



Claim.—1. In a gas-burner, the combination with a body provided with an interiorly-screw-threaded chamber, a controlling and regulating member journaled in the body below the chamber, and also provided with a chamber having an inlet and a series of outlets, and a supplemental regulating device in the inlet; of a hollow jam-nut secured in the chamber in the body above the inlets, a bridge-plate resting on said jam-nut, a stem secured to the bridge-plate, a regulating device on the stem, an inverted perforated cup surrounding the stem and regulating device, and resting on the bridge-plate, and a burner-tube engaging the screw-threads in the chamber, and surrounding the cup, substantially as and for the purpose set forth.

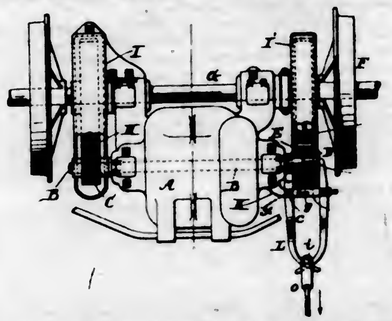
2. In a gas-burner, the combination with a body provided with an interiorly-screw-threaded chamber, a controlling and regulating member journaled in the body below the chamber, and also provided with a chamber having an inlet and a series of outlets, and a supplemental regulating device in the inlet; of a hollow jam-nut secured in the chamber in the body above the inlets, a bridge-plate resting on the jam-nut, a stem secured to the plate, a regulating device on the stem, an inverted perforated cup surrounding the stem and regulating device, and resting on the bridge-plate, a flange on the cup, and a burner-tube engaging the threads in the chamber, surrounding the cup and resting on the flange, substantially as and for the purpose set forth.

3. In a gas-burner the combination with a body provided with a chamber having a series of gas-inlets, and an air-inlet, a controlling and regulating member journaled in the body below the chamber, said member being also provided with a chamber having an inlet and a series of outlets adapted to register with those in the body, and a supplemental regulating device journaled across the inlet in the controlling and regulating member; of a perforated bridge-plate secured within the chamber in the body, above the gas-inlets, a screw-threaded apertare in the plate, a stem having a screw-threaded end engaging the threaded aperture, a shoulder on the free end of the stem, and a regulating device loosely surrounding the stem, an inverted perforated cup surrounding the stem and resting on the bridge-plate, and a burner-tube standing within the chamber, surrounding the cup and resting on the bridge-plate, substantially as and for the purpose set forth.

4. In a gas-burner, the combination with a body having an air-inlet and a series of gas-inlets, and a controlling and regulating member journaled in the body beneath the chamber, said member being provided with a chamber having an inlet and a series of outlets; of an inverted perforated cup within the chamber in the body, means for regulating the perforations, an automatic regulating device within the cup, and a burner-tube provided with air-inlets, said tube being adapted to stand within the chamber and surround the cup, substantially as and for the purpose set forth.

5. In a gas-burner, the combination with a body having an air-inlet and a series of gas-inlets, a controlling and regulating member journaled in the body below the chamber, a chamber in said member, an inlet and a series of outlets therefor, and a supplemental regulating device within the inlet; of an inverted perforated cup within the chamber in the body, means for regulating the perforations, an automatic regulating device within the cup, and a burner-tube provided with air-inlets, said tube being adapted to stand within the chamber and surround the cup, substantially as and for the purpose set forth.

644,716. ELECTRIC-CAR BRAKE. ULDERIQUE R. MAILLE, Providence, R. I. Filed July 7, 1899. Serial No. 723,094. (No model.)



Claim.—1. In a brake mechanism for electric cars, the combination of a rotatable shaft properly mounted and having car-wheels fastened thereon, a gear of a diameter less than that of the car-wheels fastened upon said shaft and having a certain number of teeth, a second gear fastened upon said shaft, of a diameter less than that of the first gear and having a less number of teeth but of the same size, an electric motor having a shaft rotated thereby and suitably mounted, a pinion fastened upon the motor-shaft and having a certain number of teeth engageable with the teeth of the gear first mentioned, a gear, loose upon the motor-shaft, having a larger number of teeth than said pinion, engageable with the second-named gear and also having a central conical recess, a cone-wheel sliding upon and turning with the motor-shaft and movable into said recess of the said loose gear on the motor-shaft, and a pair of levers, suitably mounted, and means to operate the same, whereby said cone-wheel is movable into frictional contact with the loose gear of the motor-shaft, substantially as described.

2. In a brake mechanism for cars having an electric motor with a shaft rotated thereby and a pair of car-wheels rotating with a properly-mounted shaft and driven by said motor, the combination therewith of two gears fast upon one of said shafts and a fixed gear and a loose gear on the other of said shafts, a cone-wheel fast on the shaft last named, movable into frictional contact with said loose gear and a lever arranged to move said cone-wheel into such contact with said loose gear, all said gears being of such diameter and furnished with such number of teeth, that the gear and wheel, so in contact, move with unequal speed, substantially as shown.

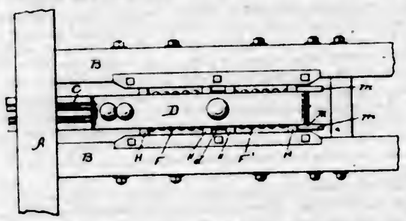
3. In a brake mechanism for cars having an electric motor with a shaft rotated thereby and a pair of car-wheels rotating with a properly-mounted shaft and driven by said motor, the combination therewith of two gears fast upon one of said shafts, a fixed gear and a loose gear on the other of said shafts, a cone-wheel fast upon the shaft last named, movable into frictional contact with said loose gear, and means arranged and adapted to impart such movement to the cone-wheel, said fixed cone wheel and loose gear, so in contact, rotating at unequal speeds, substantially as described.

4. In a brake mechanism for cars having an electric motor with a shaft rotated thereby and a pair of car-wheels rotating with a properly-mounted shaft and driven by said motor, the combination therewith of a cone-wheel mounted on one of said shafts and adapted to rotate therewith at the rate of said shaft and a loose gear mounted on the same shaft and adapted to be driven by said motor and connected gearing at a rate of rotation different than that of the cone-wheel, and means arranged and adapted to bring said cone-wheel and loose gear into forcible contact, substantially as and for the purpose specified.

5. In a brake mechanism for cars having an electric motor and a shaft rotated thereby, two friction clutch members, mounted on said shaft, and means, substantially as shown, to impart to said two clutch members a different rate of rotation, one of said clutch members rotating with said shaft, but movable thereon, and the other loose upon said shaft, and means adapted to bring said two clutch members into frictional contact with each other, substantially as and for the purpose specified.

6. In a brake mechanism for cars having an electric motor with a shaft and a cone-wheel turning with but slidable thereon, the combination therewith of a loose gear upon said shaft, rotatable at a speed different from that of the shaft, substantially as shown, a fixed bracket properly supported, and a lever fulcrumed thereon and having one end in contact with said gear, an adjustable arm mounted on said bracket and a lever adjustably fulcrumed on said arm and having one end in contact with the cone-wheel, together with means adapted to move said levers in unison to and against said gear and cone-wheel, respectively, as and for the purpose set forth.

644,717. TANDEM-SPRING DRAFT-RIGGING FOR RAILWAY-CARS. CHARLES M. MILEHAM, Chicago, Ill., assignor to William H. Miner, same place. Filed May 19, 1899. Serial No. 717,405. (No model.)



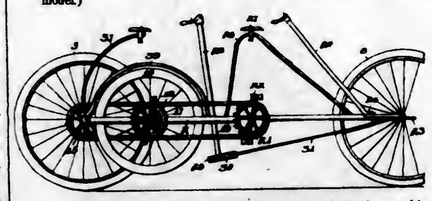
Claim.—1. In a tandem-spring draft-rigging for railway-cars, the combination with the draw-bar and its extension or pocket, of draft-timbers, stop-castings, tandem springs and followers, there being open spaces for lateral play between the draw-bar extension or pocket and the stop-castings of a centering-saddle at the rear end of the draw-bar extension or pocket and fitting between the same and the stop-castings or the rear stops thereon, to center the rear end of said draw-bar extension or pocket by permitting the draw-bar to swing laterally substantially as specified.

2. In a tandem-spring draft-rigging for railway-cars, the combination with a draw-bar and its extension or pocket, of draft-timbers, stop-castings, tandem springs and followers, there being open spaces for lateral play between the draw-bar extension or pocket and the stop-castings of a centering-saddle at the rear end of the draw-bar extension or pocket and fitting between the same and the stop-castings or the rear stops thereon to center the rear end of said draw-bar extension or pocket by permitting the draw-bar to swing laterally, said centering-saddle having limbs extending rearwardly to compensate for the backward-and-forward movement of the draw-bar and its extension or pocket, substantially as specified.

3. In a draft-rigging for railway-cars, the combination with a draw-bar and its extension or pocket, of the stop-castings, spring and followers, there being open spaces for lateral play between the draw-bar extension or pocket and the stop-castings and a centering-saddle at the rear end of the draw-bar extension or pocket and fitting between the same and the stop-castings to center said extension or pocket between the stop-castings while permitting the draw-bar to swing laterally as required in passing around curves, substantially as specified.

4. In a draft-rigging for railway-cars, the combination with a draw-bar and its extension or pocket, of the stop-castings, spring and followers, there being open spaces for lateral play between the draw-bar extension or pocket and the stop-castings and a centering saddle at the rear end of the draw-bar extension or pocket and fitting between the same and the stop-castings to center said extension or pocket between the stop-castings while permitting the draw-bar to swing laterally as required in passing around curves, said centering-saddle being secured to the rear follower of the draft-rigging and embracing said draw-bar extension or pocket, substantially as specified.

644,718. VELOCIPEDE OR LIKE VEHICLE. WILLIAM H. MILLER, Canton, Ohio. Filed Dec. 12, 1899. Serial No. 740,061. (No model.)



Claim.—In a velocipede of the character described, the combination of a pair of supporting-braces, a sleeve connected to the rear end thereof, an axle journaled in said sleeve having a wheel connected to each end thereof, a pair of extensions formed integral with said sleeve, a crank-rod mounted in the said extensions, a sprocket-wheel mounted on each end of the said rod, a sprocket-wheel mounted to each end of the said axle, means for connecting the said sprocket-wheels together, a short shaft mounted in the said braces and provided at each end with a suitable pedal-crank, a sprocket-wheel mounted on one end thereof, a sprocket-wheel mounted on the said crank-rod, a chain connecting the two last-named sprocket-wheels together, a series of seats suitably supported upon the said braces, a front axle pivotally connected to the said braces having a wheel secured to each end thereof, a front steering-rod suitably connected to the said axle, a rear steering-rod suitably supported in said braces, a sprocket-wheel connected to the lower end of said rod, and means for connecting the said sprocket-wheel to the front axle, substantially as set forth.

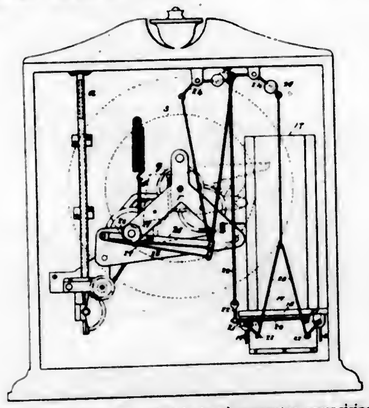
644,719. TREATMENT OF SCRAP IRON OR STEEL. MALCOLM MCDOWELL, Chicago, Ill., assignor, by mesne assignments, to the Fort Dearborn Iron Company, same place. Filed Oct. 26, 1896. Serial No. 610,262. (No specimens.)

Claim.—1. The herein-described process of treating scrap iron or steel, consisting in first reducing the scrap to small pieces, then freeing the same from dirt and oxids, then charging the cleaned scrap together with a flux into a heating and welding furnace and so manipulating the same that the charge will be alternately plunged into and lifted from the flux, preventing rapid oxidation, meanwhile subjecting the same to a temperature sufficiently high to reduce it to a homogeneous mass or ball, and then removing the ball and subjecting it to pressure by squeezing or hammering to produce a bloom or billet, substantially as described.

2. The herein-described process of treating scrap iron or steel, consisting in first reducing the scrap to small pieces, then freeing the same from dirt and oxids, then separating the scrap into grades dependent upon the size of piece, and treating each grade separately by charging a suitable quantity of the same together with a flux into a heating and welding furnace and so manipulating the same that the charge will be alternately plunged into and lifted from the flux, preventing rapid oxidation, meanwhile subjecting the same to a temperature sufficiently high to reduce it to a homogeneous mass or ball, and then removing the ball and subjecting it to pressure by squeezing or hammering to produce a bloom or billet, substantially as described.

3. The herein-described process of treating scrap iron or steel, consisting in first reducing the scrap to small pieces and freeing the same from dirt and oxids, then separating the same into grades dependent upon the size of piece and treating each grade separately by charging a suitable quantity of the same together with a flux into a heating and welding furnace and so manipulating the charge that the pieces will become alternately submerged in the flux and then removed therefrom, meanwhile subjecting the charge to a rising temperature sufficient to reduce it to a homogeneous mass or ball, and then removing the ball and subjecting it to a pressure by squeezing or hammering to produce a bloom or billet, substantially as described.

644,720. AUTOMATIC VENDING AND INDICATING APPARATUS. WILLIAM HORTHORPE, London, England, assignor to Frank William Ogden Smith, same place. Filed July 5, 1899. Serial No. 722,855. (No model.)

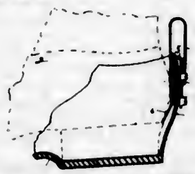


Claim.—1. The improved coin-freed apparatus comprising the combination with a goods-delivery mechanism, of a coacting indicating mechanism having operating connections with said goods-delivery mechanism and having a spring-operated train of wheels adapted to be wound by the operator through the medium of an inserted coin and on release to eccentrically rotate a pointer a predetermined distance to indicate the next article to be delivered out of a series and simultaneously therewith to operate the said delivery mechanism to deliver any article corresponding to that indicated by the pointer, substantially as described.

2. The improvement in coin-freed apparatus comprising the combination with a goods-delivery mechanism, of a coacting indicating mechanism having operating connections with said goods-delivery mechanism and having a winding-spindle adapted to impart a half-revolution to the first wheel of a spring-operated train of wheels driving the pointer, the stops on said first wheel and the locking-levers *x* and *y*, all arranged and adapted to operate substantially as described.

3. The improvements in coin-freed apparatus comprising the combination with a goods-delivery mechanism of the kind described, of an indicating mechanism having a spring-operated train of wheels adapted to be wound up by the operator through the medium of the inserted coin, and on release to eccentrically rotate a pointer a predetermined distance to indicate the next article to be delivered out of a series, and simultaneously therewith by means of a pair of oppositely-disposed cams 27, 28 and levers 25, 26 to operate and release the flaps of the delivery mechanism so as to deliver an article corresponding with that indicated by the pointer, substantially as described.

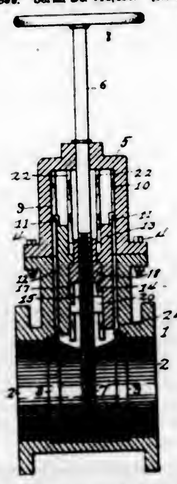
644,721. FASTENER FOR RUBBERS. HARRY C. PAINE and WILLIAM G. DICKEY, Taylorstown, Pa. Filed Mar. 27, 1899. Serial No. 710,537. (No model.)



Claim.—1. A fastener for overshoes, comprising the curved metal strap 5, terminating at its inner end in an inclined tongue 6, and provided on its rear face with guides, and means for securing said strap to the overshoe, combined with a curved spring key-plate operating in said guides with its inner end adapted to engage the spring-tongue 6, to compress the same, and a pin secured in the rear end of said spring key-plate to limit its movement in the guides, substantially as described.

2. A fastener for overshoes, comprising in combination with the overshoe having a shouldered recess in the upper part of the heel portion, a curved metal strap engaging in said recess and riveted to said overshoe, said strap terminating at its inner end in an inclined spring-tongue adapted to engage the heel of a shoe, guides formed integral with the rear face of said strap, a curved spring key-plate engaging and adapted to operate in said guides with its inner end engaging the spring-tongue, and means secured to the outer end of said key-plate to limit its movement in the guides, substantially as described.

644,722. DISK VALVE. HENRY PARRORST, Allegheny, Pa. Filed May 11, 1899. Serial No. 716,409. (No model.)



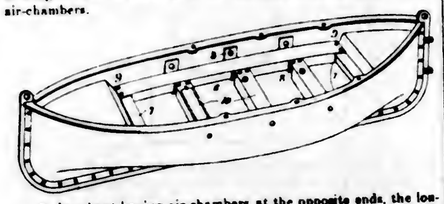
Claim.—1. The combination with a valve-casing having opposite valve-seats, of a pair of valve-disks having bosses forming sockets on their inner faces, said sockets being of unequal size, a wedge-block fitting neatly within the socket of one disk and adapted to move vertically within the socket of the opposite disk whereby one of said disks is moved in advance of the other, a valve-stem mounted for rotation in the valve-casing and engaging said wedge-block, a cap or dome secured to the valve-casing, a pair of guides secured to the top of the valve-disks and adapted to operate in guideways formed in the valve-casing and cap or dome, a pair of guides 22, suspended from the cap or dome and adapted to engage the inner faces of the valve-disks, said valve-disks being provided on their inner faces with abutting bearing-lugs, the lugs on one valve-disk having concave faces adapted to receive the convex faces of the lugs on the opposite valve-disk and one of said valve-disks having a projection formed integral with its periphery at the lower side thereof and adapted to engage the valve-casing to arrest the movement of said valve-disk previous to the seating of the opposite valve-disk, substantially as described.

2. The combination with a valve-casing having opposite valve-seats, of a pair of valve-disks having oblong bosses on their inner faces forming sockets, said sockets being of unequal size with a wedge-block fitting neatly within one socket, and loosely within the opposite socket, a valve-stem mounted for rotation in the valve-casing and engaging said wedge block, a cap or dome secured to the valve-casing, guides secured to the periphery of the valve-disks and adapted to operate in guideways formed in the valve-casing and cap or dome, a pair of guides suspended from the cap or dome, said valve-disks having abutting bearing-lugs and one of said valve-disks having a projection adapted to engage the valve-casing to limit the movement of the same before the opposite valve-disk has completed its movement, substantially as described.

644,728. METALLIC LIFE-BOAT. WILLIAM S. RAY, San Francisco, Cal. Filed Nov. 23, 1898. Serial No. 736,002. (No model.)

Claim.—1. A boat having the sides, each formed of continuous single sheets of shaped metal, a keel and stem and stern post formed of a single piece of metal to which the boat sides are secured, gunwales formed of segmental strips secured upon opposite sides of the upper edges of the boat, and interior longitudinally-disposed air-tanks following the interior curvature of the boat sides, transverse end cleats to which they are secured and intermediate hangers or supports upon which the central portions rest.

2. In a life-boat having air-compartments at the opposite ends, longitudinally-disposed rectangular air-chambers extending between said end compartments following the interior line of the boat sides and out of contact therewith, cleats or supports to which the ends of said side chambers are removably secured, and intermediate supports or hangers fixed to the sides of the boat and extending beneath said air-chambers.



3. In a boat having air-chambers at the opposite ends, the longitudinally-disposed rectangular air-chambers following the inner curvature of the sides of the boat out of contact therewith, end supports to which said side chambers are removably secured, and transverse box-shaped thwarts extending between said side air-chambers.

4. A boat having end air-chambers, horizontally-disposed rectangular chambers following the inner curvature of the boat out of contact therewith, supports fixed at intervals along the boat sides extending beneath said chambers and upon which they rest without fastening, end cleats or supports to which the ends of said chambers are removably secured, transverse thwarts extending between said chambers, said thwarts forming containing-boxes and being removable in unison with the side chambers.

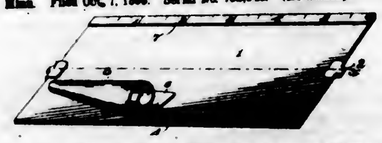
644,724. ARTIFICIAL FLOWER OR PLANT. AUREL A. RICHTER, Dresden, Germany, assignor to Ernst Richard Böhme, same place. Filed Aug. 9, 1899. Serial No. 726,667. (No specimens.)



Claim.—1. The process of producing a woolly or moss-like appearance on artificial flowers plants &c., consisting in coating the part to be ornamented with adhesive material and then strewing over such surface carled hemp fiber or tow; substantially as described.

2. The process of producing a woolly or moss-like appearance upon artificial flowers, plants &c., consisting in coating the parts to be ornamented with adhesive material, applying to such surface carled hemp fiber, coating said fiber with adhesive material and finally strewing upon said coated fiber, wool, cloth or silk dust; substantially as described.

644,725. BLOTTER-HOLDER. OLAF I. SANDAL, Minneapolis, Minn. Filed Oct. 7, 1899. Serial No. 732,946. (No model.)



Claim.—A blotting-pad, having a blotting under surface, and a handle formed from a single sheet of stiff celluloid or like material, one end of the sheet being secured flat against the upper side of the pad, and forming an attaching-base, the main portion of the sheet being twisted or rolled into a conical-shaped spiral disposed above the attaching-base, and inclined across one inner corner of the pad, the larger end of the spiral being located adjacent to the inner longitudinal edge of the pad, and the opposite smaller end extending toward the front of the adjacent transverse edge of said pad.

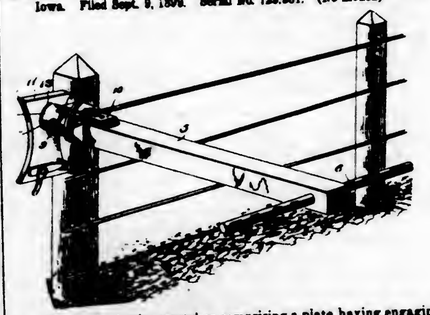
644,726. NUT-LOCK. BENJAMIN F. VOLLER, Pittsburg, Pa. Filed Dec. 14, 1899. Serial No. 740,240. (No model.)



Claim.—1. The combination with the bolt having longitudinal grooves in its threaded end, of the nut adapted to be mounted upon said threaded end and having a pair of pins mounted in its outer face, and a locking-spring mounted upon said pins and so constructed that when in the operative position its locking end will engage the bolt and when in the inoperative position its locking end may be supported by the opposite end of the spring, substantially as set forth.

2. The screw-threaded nut having pins mounted on its outer face, combined with the locking-spring mounted upon said pins with its one end adapted to project normally into the screw-threaded opening in the nut, and means carried by the other end of said spring for holding the locking end thereof in the inoperative position, substantially as described.

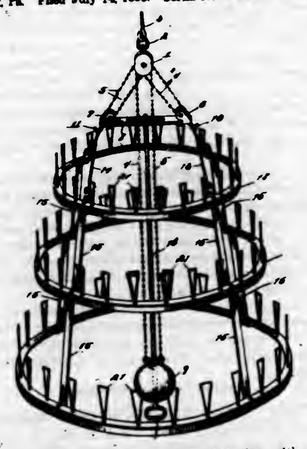
644,727. WIRE-STRETCHER. JOHN H. ANDREW, Grand River, Iowa. Filed Sept. 9, 1899. Serial No. 729,961. (No model.)



Claim.—1. A wire-stretcher comprising a plate having engaging teeth at its edges and having a clutch element upon one face, a lever rotatably mounted upon the plate and having a clutch element adapted to engage the first-named clutch element, said lever having a cylindrical portion, additional plates mounted upon the lever and having the end portions at one end separated and projecting over the cylindrical portion of the lever, means for rotating the lever, and a jaw mounted upon the plate, and means for moving the jaw against the plate to exert a gripping action.

2. A wire-stretcher comprising a plate having teeth at its edges, a clutch member upon one face of the plate, a lever rotatably mounted centrally of the clutch element, a second clutch element upon the end of the lever and adapted to engage the first clutch element, said lever having a cylindrical portion, plates secured to the lever and having the end portions at one end separated and projecting over the cylindrical portion, and means for rotating the lever.

644,728. SAFETY GLOBE-HANGER. GEORGE W. BUSTER, Harrisburg, Pa. Filed July 14, 1899. Serial No. 723,862. (No model.)



Claim.—1. In a display-rack, the combination with a suspending-block provided with pulleys, a plurality of rings provided with loops for supporting articles of merchandise; a supporting bar or block for said rings, provided with pulleys and end hooks; chains or cords connected with said suspending-block passing around the pulleys of the supporting bar or block and over the pulleys of the sus-

pending-block, a weight secured to said chains or cords; a rod depending from the supporting bar or block for lowering the rack, rods connecting said rings; and bails for supporting said rods from the hooks of the supporting-bar.

2. In a display-rack, the combination with a suspending-block provided with pulleys; a supporting bar or block having pulleys thereon; a plurality of rings provided with loops for supporting articles of merchandise, the same being hung from the said supporting bar or block; a rod depending from said bar or block; a weight movable thereon; and chains or cords connected to the suspending-block, passing around the pulleys of the supporting bar or block and those of the suspending-block, and connected to the weight.

3. In a display-rack the combination with a suspending-block, of a bar provided with pulleys and end hooks and having a chain connection with the suspending-block, a vertical rod secured to said bar and provided with a movable weight; a plurality of rings provided with supports for goods; a plurality of equidistant rods for securing said rings together bent to form seats for said rings, and bails for suspending the ring-securing rods from the hooks of the bar.

644,729. **SNATCH-BLOCK.** WALTER W. BOURS, Aberdeen, Wash. Filed Nov. 15, 1899. Serial No. 737,040. (No model.)



Claim.—1. In a snatch-block, a metal sheave-inclosing shell, consisting of a single back section, a front section comprising a fixed lower member and an upper member hinged thereto having its periphery coincident and continuous with the periphery of the fixed member, lugs formed at the tail end of the shell-sections, and abutting to maintain the distance between the two, a sheave and a pin upon which it is turnable between the sections of the shell, said pin having a screw-threaded end fitting a correspondingly-threaded opening in the front section, and a shoulder against which the inner face of front section abuts and securing means passing through the lugs of the tail end.

2. In a snatch-block, a shell including a back section formed rigid with a shouldered pin, threaded at one end, said section having an inturned lug at the tail end and a slotted head at the opposite end, a front section including a lower member having a lug at the tail end abutting against that of the said back section and having hinge-lugs, and a member hinged to said lugs and having a width at the hinge end substantially equal to that of the companion member to which it is hinged and converging coincidently with the said back section, and having a slot made in its free end, a latch pivoted to the upper end of the back section and adapted to engage said slot, and having a depressed notch at its front where it passes through the slot, and a pin by which the hinged member is retained in engagement with the latch.

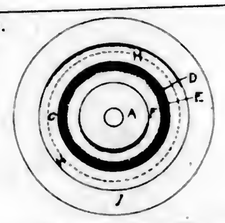
3. A snatch-block consisting of a shell composed of a back formed of a single elliptical section and a front of two transversely-divided hinged members, a sheave tornable between the front and back sections, a sheave-pin having shouldered screw-threaded end fitting corresponding threads in the front section, corresponding spacing tail-lugs and holding-bolt, a latch hinged to the top of the back section and extending transversely through a slot in the hinged front member, and a swival-bolt turnable in the latch.

4. A snatch-block and a sheave in combination with a hollow radially-pierced screw-threaded sheave-pin by which the sides of the block are centrally connected, said pin being closed at one end, a spring-pressed piston-plate therein, and an adjustable screw-plug at the opposite end.

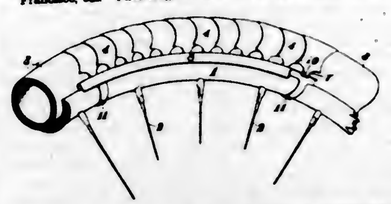
644,730. **FLEXIBLE HUB FOR WHEELS.** SAMUEL COLT, Santa Barbara, Cal. Filed Aug. 4, 1899. Serial No. 726,177. (No model.)

Claim.—In the combination of a hub working independently of a wheel but held in firm relation to it, a central flange C sliding in the hub two exterior flanges B the circular groove F within the hub the circular spring D the circular spiral spring E the circular space between hub and wheel substantially as described and for the purpose specified.

644,780.



644,781. **ARMOR FOR VEHICLE-TIRES.** ROBERT COUSINS, San Francisco, Cal. Filed Aug. 15, 1899. Serial No. 727,320. (No model.)



Claim.—1. In tire-armor, a series of overlapping plates embracing and covering the tire from side to side but not attached thereto and in combination therewith the trough-like rings 8 and 9 attached to the wheel-rim and provided with perforations to receive the tangs 7 of the armor-plates, substantially as specified.

2. In tire-armor, a series of overlapping plates having their flat surfaces smooth and provided at each end with tangs 7, the perforated trough-like rings 8 and 9 and means to attach the latter to the wheel-rim, substantially as specified.

3. In tire-armor, the flexible tire 3, armor-plates 4 and the rings 8 and 9 to which the armor-plates are so attached that the latter can move inward and the tangs 7 slide through the rings 8 and 9, substantially as specified.

4. In tire-armor, the combination of the flexible tires 3, armor-plates 4, the retaining-rings 8 and 9 attached to the wheel-rim by the bands 11 constructed and operating in the manner substantially as specified.

644,782. **CORN-CUTTING SPOON.** JESSE A. CRANDALL, New York, N. Y., assignor to Irving T. Bush and Stephen V. White, same place. Filed Aug. 24, 1899. Serial No. 728,288. (No model.)



Claim.—1. A corn-cutting spoon comprising a handle and a bowl, the bowl being formed with an opening therein, cutting-teeth formed integral with one edge of said opening and extending below the opposite edge of the opening, said teeth being adapted to deliver the cut corn into the spoon-bowl.

2. A corn-cutting spoon consisting of a handle and a bowl, the bowl being formed with a transverse slot near its rear end, rearward-extending teeth formed integral with the forward edge of said slot and extending below the rear edge of the slot, the bottom of the bowl inclining upward from the teeth to the forward point of the spoon whereby the cut corn will be delivered to the front end of the spoon away from the teeth.

3. A corn-cutting spoon consisting of a handle and a spoon-bowl, the spoon-bowl being formed with an opening in its bottom, cutting-teeth formed integral with one edge of said opening, said teeth extending below the opposite edge of the opening, the bottom of the spoon-bowl inclining upward from said teeth to the forward or delivery end of the spoon-bowl.

644,788. **COLOR-PRINTING MACHINE.** SÉVERIN I. DELEUIL, Vincennes, France. Filed Sept. 23, 1896. Serial No. 661,869. (No model.)

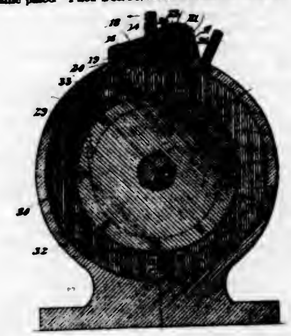
Claim.—1. In a color-printing machine, the combination with a frame, of a cylinder, a piston adapted to be reciprocated therein, a distributing-plate arranged above the cylinder and adapted to receive a stencil, a bellows arranged intermediate the distributing-plate and the cylinder, and a frame arranged above the distributing-plate and adapted to receive the sheets to be printed.

2. In a color-printing machine, the combination with a frame, of a cylinder, a piston adapted to be reciprocated therein, means for removably supporting the cylinder in position, a distributing-plate arranged above the cylinder and adapted to receive a stencil, a bellows arranged intermediate the distributing-plate and the cylinder, and a frame arranged above the distributing-plate and adapted to receive the sheets to be printed.

3. In a color-printing machine, the combination with a frame, of a cylinder, a piston adapted to be reciprocated therein, a distributing-plate, a bellows, a frame to receive the sheets to be printed, all arranged as set forth, a grooved cam P, a driving-shaft upon which said cam is mounted, a bell-crank lever, a second bell-crank lever, a rod connecting the said levers, ratchet-wheels S, S', pawls carried by the said second lever and engaging the ratchet-wheels, a shaft carrying the ratchet-wheels, and having a worm portion, the worm-wheel U, nut V, and screw-rod X, all arranged as and for the purpose specified.

4. In a color-printing machine, the combination with a cylinder, and a piston adapted to be reciprocated therein, of a plates adapted for reciprocation, a driving-shaft having a crank portion, a bearing-sleeve eccentrically mounted on the crank, a worm-wheel on the said sleeve, a shaft extending transversely of the driving-shaft, a screw on the transverse shaft engaging the worm-wheel, and a connecting-rod having one end in connection with the platen and the opposite end mounted upon the bearing-sleeve.

644,734. **ROTARY ENGINE.** RICHARD B. DIXON, Toronto, Canada, assignor of one-fourth to William T. J. Lee and Duncan O. Cameron, same place. Filed Dec. 31, 1896. Serial No. 700,843. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder and a piston mounted in the cylinder, of radially-expansible packing-rings arranged in contact with the extremities of, and carried by the piston-drum, said packing-rings being arranged peripherally in contact with the inner surface of the cylinder-wall, and means for yieldingly securing the packing-rings to the piston-drum, substantially as specified.

2. In a rotary engine, the combination with a cylinder, and a piston mounted in the cylinder with its drum terminating short of the cylinder-heads, of radially-expansible packing rings arranged in contact with the extremities of the piston-drum and peripherally in contact with the inner surface of the cylinder-wall, and bolts connecting said packing-rings through the piston-drum, substantially as specified.

3. In a rotary engine, the combination with a cylinder, of a piston having its drum arranged terminally separated from the heads of the cylinder and provided with longitudinally-elongated openings, radially-expansible packing-rings arranged in contact with the extremities of the piston-drum and peripherally in contact with the inner surface of the cylinder-wall, and bolts connecting said packing-rings, and extending through the openings in the piston-drum, said bolts being of less cross-sectional area than said openings to allow independent movement, substantially as specified.

4. In a rotary engine, the combination with a cylinder, of a piston having its drum arranged terminally out of contact with the heads of the cylinder, radially-expansible split packing-rings arranged in contact with and carried by the piston-drum, and also arranged peripherally in contact with the inner surface of the cylinder-wall, and means for securing the packing-rings to the piston-drums, said means preventing axial movement but allowing radial expansion against axial movement, substantially as specified.

5. In a rotary engine, the combination with a cylinder, of a winged piston having its drum arranged terminally out of contact with the cylinder-heads, radially-expansible split packing-rings arranged in contact with and carried by the extremities of the piston-drum and also arranged peripherally in contact with the inner surface of the wall of the cylinder, the separated extremities of said packing-rings being arranged in advance of the piston-wing, and means for securing the packing-rings against axial displacement, substantially as specified

6. In a rotary engine, the combination with a cylinder, of a piston having a radially-extensible wing, and radially-expansible packing-rings carried by the piston in peripheral contact with the inner surface of the wall of the cylinder, and connected with the said piston-wing, for yieldingly holding the latter in terminal contact with the inner surface of the wall of the cylinder, substantially as specified.

7. In a rotary engine, the combination with a cylinder, of a piston having a hollow radially-expansible wing, and packing-rings carried by the piston in peripheral contact with the inner surface of the cylinder-wall and having engagement with the inner surface of said expansible piston-wing, for holding the latter in contact with the inner surface of the cylinder wall, substantially as specified.

8. In a rotary engine, the combination with a cylinder, of a piston having a hollow radially-yielding wing of sheet metal, arranged in contact at its apex with the inner surface of the wall of the cylinder, and radially-expansible packing-rings carried by the piston in peripheral contact with the inner surface of the cylinder-wall, and provided with means, extending into the interior of said piston-wing, and bearing outwardly thereon contiguous to its apex, to maintain the latter in frictional contact with the inner surface of the cylinder-wall, substantially as specified.

9. In a rotary engine, the combination with a cylinder, of a piston having a radially-expansible sheet-metal wing, provided with bowed front and rear walls, adapted to be extended more or less to allow the maintenance of the apex of the wing in contact with the inner surface of the cylinder-wall, and radially-expansible packing-rings carried by the piston in peripheral contact with the inner surface of the cylinder-wall, and having means engaged with the piston-wing, adjacent to its apex, to extend the latter radially into contact with the inner surface of the cylinder-wall, substantially as specified.

10. In a rotary engine, the combination with a cylinder, of a piston having a radially-expansible sheet-metal wing provided with respectively concaved and convexed operative walls, and expansible packing-rings carried by the piston in peripheral contact with the inner surface of the cylinder-wall, and provided with means, in engagement with said wing, for extending the latter to maintain its apex in contact with the inner surface of the cylinder-wall, substantially as specified.

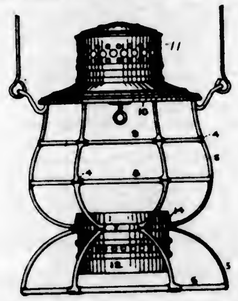
11. In a rotary engine, the combination with a cylinder, of a piston having a radially-expansible sheet-metal wing provided with respectively concaved and convexed operative walls, and expansible packing-rings carried by the piston in peripheral contact with the inner surface of the cylinder-wall, and a transverse bar connecting said packing-rings and extending through the interior of said wing in contact with the inner surface thereof adjacent to its point of bearing upon the inner surface of the cylinder-wall, substantially as specified

12. A rotary engine having in combination with its cylinder and

piston, a pocket comprising a steam-chamber and having an offset portion forming a cushion-chamber, a swinging abutment mounted in said pocket and having a stop-ear operating in the cushion-chamber, said abutment being so arranged that the hub portion thereof allows but slight communication between the steam-chamber and the cushion-chamber, whereby the fluid in the cushion-chamber is compressed by the stop-ear, substantially as specified.

13. A rotary engine having, in combination with its cylinder and pistos, an abutment-pocket, communicating with a steam chamber, and having an inlet-port in communication therewith, an abutment mounted to swing in said abutment-pocket, and having an eccentric hub for contant with a fixed object when the abutment is extended, and a stop-ear 21 carried by the abutment, and operating in a cushion-chamber 22, in communication with the steam-supply port, whereby fluid cushions are formed between said stop and the opposite walls of said chamber toward the limits of movement of the abutment in opposite directions, substantially as specified.

644,785. **HAND-LANTERN.** FREDERICK W. DURHAM, New York, N. Y. Filed Feb. 4, 1899. Serial No. 704,496. (No model.)



Claim.—1. In a lantern-guard, a vertical, curved, tubular rib having horizontal tubular holding-pieces formed integral therewith, for engaging the horizontal ribs or rings of the guard, substantially as shown and described.

2. In a lantern-guard, a vertical tubular rib, having engaging tubes for the horizontal guard-rings formed integral with the vertical portion of the rib, and projecting at right angles thereto, substantially as shown and described.

3. A lantern-guard in which are comprised curved, tubular vertical ribs, in combination with solid horizontal rings or ribs, substantially as shown and described.

4. A lantern-guard, in which are comprised tubular vertical ribs having short horizontal tubes formed therewith and projecting at right angles, in combination with solid horizootal rings passing through the tubular projections from the vertical ribs, substantially as shown and described.

5. A lantern-guard, in which are comprised a series of curved tubular vertical ribs provided with horizontal projecting tubular sections, in combination with a series of horizontal guard-rings passing through and held in place within the horizontal portions of the vertical ribs, substantially as shown and described.

6. In a lantern-guard, a vertical, curved, tubular rib formed from a strip of sheet metal having the edges of the vertical portion bent inward, horizontal tubular sections being formed by bending portions of the body of the metal inward, but in the opposite direction, to the bending of the vertical ribs, substantially as shown and described.

7. In a lantern of the character herein specified, the combination with one of the horizontal rings of the guard, of a sheet-metal ring for holding the oil-pot, said ring being held in place by turning the upper edge thereof back upon itself, and over the guard-ring, substantially as shown and described.

8. In a lantern, a ring for holding the oil-pot, formed of sheet metal having its upper edge turned back upon the body of the ring, and over one of the horizontal rings of the lantern-guard, substantially as shown and described.

644,786. **LEMON-SQUEEZER.** JOHN L. EARLEY, New York, N. Y. Filed May 26, 1899. Serial No. 718,377. (No model.)

Claim.—1. A lemon-juice extractor, consisting of a body, a series of conically-arranged blades having independent chambers between them, a barrier for each chamber of slightly-less width at the base than the width of the chamber to which it belongs, and a basin constituting the base of the body, the bottom of the said chambers being at about the level of the top of the basin, whereby the chambers and their barriers effectually retain all the solid material while the liquid is drained therefrom and is free to escape into the said basin, and whereby the basin may be filled with liquid without contacting with the pulp separated therefrom.



2. A lemon-juice extractor consisting of a cone-extractor having juice-extracting projections upon its surface, chambers between the extracting projections, arranged for the individual retention of solid matter, a barrier for the bottom portion of each chamber, said barriers defining the outer base-line of the cone, being located between the base portions of the extracting projections, and a basin below the level of the bottom of said chambers.

3. A lemon-juice extractor consisting of a cone-extractor having juice-extracting projections upon its surface, chambers between the extracting projections, arranged for the individual retention of solid matter, a barrier for the bottom portion of each chamber, said barriers defining the outer base-line of the cone, being located between the base portions of the extracting projections, and a basin below the level of the bottom of said chambers, the said chambers having their bottom wall inclined from the outer periphery of the cone-extractor downwardly toward the center of the same.

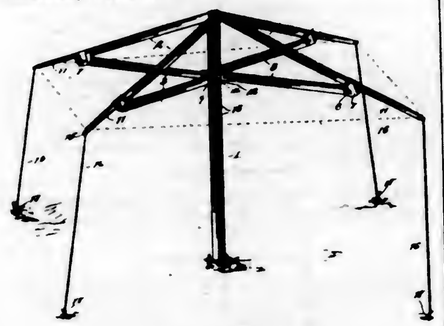
4. A lemon-juice extractor, consisting of a cone-extractor having juice-extracting projections upon its surface, chambers between the extracting projections, arranged for the individual retention of solid matter, a barrier for the bottom portion of each chamber, said barriers defining the outer base-line of the cone and being located between the base portions of the extracting projections, a basin below the level of the bottom of the said chambers, a handle for the basin extending downwardly therefrom, said basin being adapted exclusively for the retention of juice and the handle simply as a means whereby the device may be placed upon a support and conveniently carried or held in the hand during the operation of extraction.

5. A lemon-juice extractor, consisting of a cone-extractor having juice-extracting projections upon its surface, chambers between the extracting projections, arranged for the individual retention of solid matter, the chambers being in series one above the other, each chamber being provided with a barrier at the outer edges of the extracting projections, said barriers being of such width that a space intervenes their side edges at the base and the opposing surfaces of the extracting projections, one chamber of a series being adapted to empty fluid into the next lowest chamber, and a basin located below the level of the lowermost chambers of the said series, which basin is arranged to receive liquid from all of the said chambers, for the purpose described.

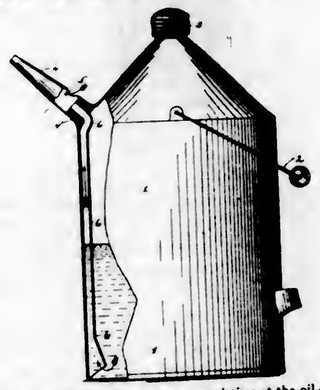
6. A lemon-juice extractor consisting of a body provided with a basin, a column rising from the central portion of said basin and provided with a conical core, blades in conical arrangement carried by said core, and spaces between the blades, constituting chambers for the retention of seed and pulp, the bottom of which chambers are above the bottom of the said basin and are given an inward inclination, barriers at the front base portions of each chamber, located between the said blades, said barriers being arranged to permit the outward flow of juice at their sides from the chambers into said basin, yet retaining all solid matter and seeds within the chambers, each barrier being flush with the outer surface of the base of the cone, for the purpose described.

644,787. **LAWN-SHADE.** JOHN H. FRY, Grand Rapids, Mich., assignor of one-half to Carter J. Sawyer, same place. Filed Sept. 30, 1899. Serial No. 732,199. (No model.)

Claim.—In a device of the class described, the combination of a squared pole, a rectangular runner provided with perforated ears or lugs offset from the adjacent side faces of the sleeve and forming recesses 8, the supporting bars or arms pivoted at their inner ends to the side faces of the pole and having outer tapered portions cut away at their inner or lower edges, and the braces pivoted to the ears or lugs in the recesses 8 and to the supporting bars or arms at the inner ends of the tapered portions, whereby the bars or arms and the braces are adapted to fold compactly at each of the side faces of the pole, substantially as described.

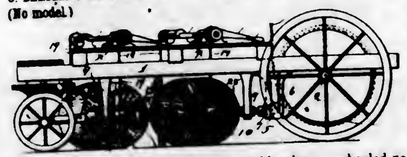


644,788. **NON-EXPLOSIVE OIL-CAN.** JOHN A. GRAY, McKee's Rocks, and FREDERIC LEHMANN, Allegheny, Pa. Filed Apr. 21, 1899. Serial No. 713,907. (No model.)



Claim.—A non-explosive oil-can, consisting of the oil-can 1, provided with a spout, a vent 5 formed in the said spout at a point near the base of the same, a cork or plug 4' arranged in the interior of the spout located between the vent and the body of the can, an opening through the said cork or plug, a downwardly-extending tube or passage 6 secured in the said opening, said tube or passage terminating at a point near the base of the can, the entrance of which is enlarged to freely admit the fluid, and the exit at the top contracted to a less diameter than the exit of the spout, all arranged and combined for service, substantially as described.

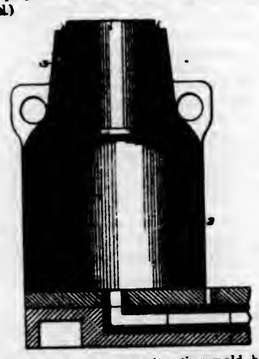
644,739. **STREET-SWEEPER.** ALTON H. GREELEY and CHARLES O. BARTLETT, Cleveland, Ohio. Filed Jan. 28, 1898. Serial No. 668,269. (No model.)



Claim.—1. In a street-sweeper, in combination; a wheeled vehicle; a longitudinal shaft mounted therein; gearing connecting said shaft with an axle of the vehicle; yokes sleeved at one side on said shaft; a brush-shaft mounted diagonally in the other side of each yoke; means for vertically adjusting each brush-shaft, and a gear connection between the longitudinal shaft and each brush-shaft; substantially as described.

2. In a street-sweeper, in combination; a wheeled vehicle; a longitudinal shaft mounted therein; gearing connecting said shaft with an axle of said machine; yokes sleeved at one side on said shaft; a brush-shaft mounted in the other side of each yoke; a gear connection between the longitudinal shaft and each brush-shaft; a universal joint in each brush shaft; and means for vertically adjusting each brush-shaft; substantially as described.

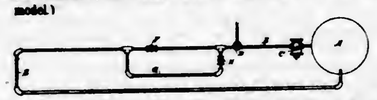
644,740. **INGOT-MOLD AND SINK-HEAD LINING-BRICK THEREFOR.** JACOB K. GRIFFITH, Latrobe, Pa., assignor to the Latrobe Steel Company, same place. Filed Feb. 23, 1898. Serial No. 671,242. (No model.)



Claim.—1. A bottom-pour steel-casting mold, having an upper metal extension provided with a sink-head cavity, having a smooth inner face which tapers upwardly and inwardly, the lower part of the cavity being at least as small as the mold-cavity, and a separately-molded hollow burnt lining-brick fitting in the sink-head cavity, and having a tapered outer face; substantially as described.

2. A bottom-pour mold, having an upwardly and inwardly tapering sink-head cavity, a correspondingly-tapered lining-brick fitting therein, and a pin arranged to engage the upwardly-projecting portion of the brick and temporarily hold it in place; substantially as described.

644,741. **OIL-GAS VALVE AND APPARATUS.** SAMUEL GUTHRIE, San Francisco, Cal. Filed Aug. 29, 1899. Serial No. 728,821. (No model.)



Claim.—1. An apparatus for controlling the flow of the liquids consisting of a supply tank, a pipe departing from and returning to said tank, a pump by which a continuous circulation of liquid within the pipe is produced, means for regulating the pressure within the pipe, and a valve or cock through which the liquid is delivered under pressure, said valve comprising a rectangular or diamond-shaped port, and a correspondingly-shaped passage over which it is adjustable.

2. The combination of a supply-tank, a pipe connected therewith and means whereby a continuous circulation of liquid is produced in said pipe, and means for regulating the pressure within the pipe including a valve having a diamond-shaped port made through it with two of the angles in the line of movement of the valve, and a seat with a connecting passage having a port of the same shape with that of the valve and with two of its angles in the line of movement of the corresponding angles of the valve.

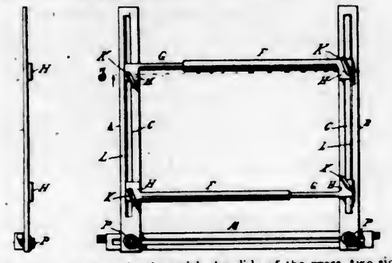
3. The combination of a supply-tank, a pipe connected therewith, means whereby a continuous circulation of liquid is produced in said pipe, and means for regulating the pressure in the pipe including a cock or valve having the diamond-shaped port or ports with two of the angles in the line of travel of the valve, the other two approximately at right angles therewith, and a seat over which the valve moves having a correspondingly-shaped passage coincident in position with the port of the valve whereby the movement of the valve over the port in the seat varies the size of the discharge-opening without materially altering its shape.

4. An apparatus for the transmission of liquids consisting of a tank, a pipe departing from and returning into said tank, a pump situated within the length of the pipe by which the liquid is caused to constantly circulate under pressure, a by-pass pipe, both ends of which connect with the main pipe, a cock or valve situated in the main pipe between the ends of the by-pass whereby the flow of liquid may be stopped in the main pipe and transmitted through the by-pass, and a spring-pressed valve situated in the by-pass pipe with means for regulating the pressure thereon.

5. An apparatus for the transmission and distribution of liquids, consisting of a tank, a pump drawing liquid from the tank, a pipe through which the liquid is transmitted, said pipe returning into the tank, a cock in the length of said pipe whereby the flow therethrough may be interrupted, a by-pass pipe connecting with the main pipe upon each side of said cock, a spring-pressed adjustable tension-valve whereby the flow through the by-pass and the pressure under which it passes are regulated, a valve-chamber connecting with the main pipe between the pump and said pressure-regulating valve, and one or more valves by which the flow from said chamber is regulated.

6. In an apparatus for the distribution of liquids under pressure, a tank, a pump by which liquid is drawn therefrom, a pipe through which the liquid is forced by the pump, said pipe returning into the tank, a cock in said pipe by which the flow may be reduced or cut off, a by-pass, the ends of which connect with the main pipe upon each side of said cock, a tension-valve in said by-pass by which the pressure in the main pipe is regulated when the cock has been closed, a valve-chamber connected with the main pipe between the pump and said pressure-regulating valve, and having one or more delivery-pipes, a valve turnable within said valve-chamber having a diamond-shaped delivery-port, and a corresponding-shaped discharge-passage which it controls, two of the angles of said ports being in the line of movement of the valve and the other two transversely thereto.

644,742. **GRIPPER FOR PRINTING-PRESSES.** THOMAS G. JENKINS and JOHN R. WILLS, Wheeling, W. Va. Filed May 18, 1899. Serial No. 717,375. (No model.)



Claim.—1. In combination with the slide of the press, two side grippers longitudinally slotted and connected by cross-bars or extension-rods consisting of two sections, one of which is a hollow tube and the other a rod, so arranged that by placing the end of the rod within the end of the tube they may be extended or contracted in length, the extension-rods being laterally movable in the slots of the side grippers, thus furnishing means whereby any-sized sheet of paper may be firmly gripped on all four sides or margins, substantially as and for the purposes set forth and described.

2. In a gripper for platen printing-presses, the combination with the slide and the platen, of two longitudinally-slotted laterally movable side grippers, extension-rods extending from one side gripper to the other, each composed of two sections, one of which is a hollow tube and the other a rod, the end of which works within the tube, said extension-rods being movable in the slots of said side grippers, thus permitting the extension-rods and side grippers to be adjusted to each grip the edges of any-sized sheet of paper, and means for securing the extension-rods in the slots, substantially as and for the purposes set forth and described.

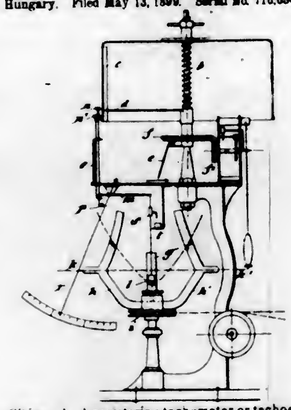
3. A gripper for platen printing-presses, consisting of two longitudinally-slotted side grippers and two cross-bars or extension-rods extending between the side grippers and movable in the longitudinal slots, each of said extension-rods consisting of a tube and a rod the end of which works within the tube, furnishing means for extending or contracting their length to suit any-sized sheet of paper, substantially as described.

4. A gripper for platen printing-presses, consisting of two side grippers provided with longitudinal slots, two cross-bars or extension-rods having their ends secured in said slots and movable therein, the said extension-rods consisting of two sections, one section being a hollow tube with its under side cut away making it horseshoe-shaped, and adapted to receive the end of the other section, and means for adjusting the side grippers and extension-rods to grip the edges of any-sized sheet of paper, substantially as described.

5. In a gripper for platen printing-presses, the combination with two longitudinally-slotted side grippers, of two cross-bars or extension-rods provided with means whereby their length may be contracted or extended, each consisting of a tube and a rod the end of which slides within the tube, and the ends of said extension-rods forming slides which are movably secured in the slots of the side grippers, substantially as and for the purposes set forth and described.

6. In combination, the longitudinally-slotted side grippers carrying means whereby they may be secured to the slide of the press, the connecting-rods or extension-rods composed of two sections, one of which slides within the other enabling the side grippers to be adjusted any desired distance apart, their ends movably secured in the longitudinal slots of the side grippers, and means carried by said ends whereby they may be rigidly secured in any position to grip the edges of any-sized sheet of paper, substantially as and for the purposes set forth and described.

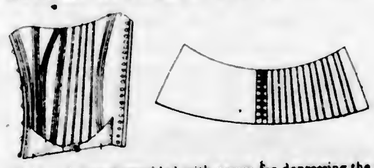
644,743. **SPEED-RECORDER.** JOSEF KARLIK, Kladno, Austria-Hungary. Filed May 13, 1899. Serial No. 716,636. (No model.)



Claim.—1. A registering tachometer or tachograph for main and transmission shafts, comprising: a drum receiving the diagram-paper, and axially mounted on a screw, along which it is moved by its own weight; a braking device for regulating the rotation of said drum; the tachometer proper actuating the registering stylet or point, and a second stationary stylet for drawing the base-line on the diagram, substantially as and for the purpose set forth.

2. A registering tachometer or tachograph for main and transmission shafts, comprising a movable drum receiving the paper for diagrams, a series of interconnected tubes rotated by the shaft acted on and containing liquid, a float on the liquid in the central tube, a movable stylet actuated by the float and registering on the paper of the drum, the variations of the liquid-line corresponding to the variations of speed of the shaft, and a stationary stylet drawing the base-line on the diagram drawn by said movable stylet, substantially as and for the purpose set forth.

644,744. **CORSET.** GRACE MARPLE, Fort Worth, Tex. Filed Dec. 21, 1898. Serial No. 699,901. (No model.)



Claim.—A corset provided with means for depressing the abdomen and leaving the corset loose over the hips, said means consisting of straps attached to each of the side pieces of the corset at the front part thereof and straps provided with stays attached to each of the side pieces of the corset at the back part thereof, the straps attached to the back and those attached to the front being adjustably secured together and all of said straps being secured to the interior of the corset.

644,745. **ELECTRIC SWITCH.** NORMAN MARSHALL, Newton, Mass., assignor to the Marshall-Sanders Company, Boston, Mass. Filed Apr. 25, 1899. Serial No. 714,465. (No model.)



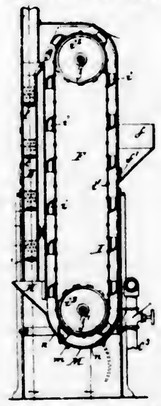
Claim.—In an electric snap-switch, the combination with an insulating-base and ratchet-plate attached to said base and having teeth, of a handle, a spindle extending from the handle, a crank-plate K, rigidly attached to the spindle, a stud J on said plate, a cam catch-plate I having a slot G, G' through which the stud J extends, a catch I, formed on the cam catch-plate I and extending downward into the plane of the ratchet-plate, a spring wound about and having one end attached to the spindle and its other end connected to move the cam catch-plate, and a moving contact-bar insulated from but attached to the cam catch-plate, substantially as described.

644,746. **APPAREL-SHIRT.** FRANK J. SCHAFFER, Allegheny, Pa., assignor of one-half to Matthew Bigger, Pittsburg, Pa. Filed Nov. 15, 1899. Serial No. 737,061. (No model.)



Claim.—A shirt composed of a substantially non-elastic front section, a substantially non-elastic back section, and elastic inserts at each side connecting the said sections above and below the armholes from the neck-opening to the bottom of the shirt.

644,747. **ROASTING-MACHINE.** CHARLES F. SHUMAKER, Silver Creek, N. Y. Filed May 6, 1897. Serial No. 635,374. (No model.)



Claim.—1. The combination with an upright roasting-chamber having at its upper end an inlet for the material to be roasted and an outlet at its bottom, of a burner opening into the side of the roasting-chamber and projecting a flame across the same, and a cluster of horizontal retarding-rods arranged at different elevations above the burner, whereby the coffee-beans are retarded, distributed, and turned over in falling from one rod to the other, substantialy as set forth.

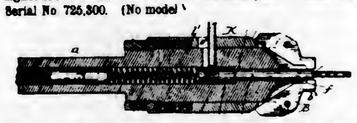
2. The combination with an upright roasting-chamber having at its upper end an inlet for the material to be roasted and an outlet at its bottom, of a series of burners opening at different elevations into the side of the roasting-chamber and each elongated horizontally to project a sheet of flame into the chamber which practically covers the width of the chamber, and retarders arranged in the chamber above the burners for retarding, distributing and turning the coffee-beans in falling from one sheet of flame to the other, substantially as set forth.

3. The combination with an upright roasting-chamber having at its upper end an inlet for the material to be roasted and an outlet at its bottom, of a series of burners opening at different elevations into the side of the roasting-chamber and projecting flames across the same, retarders arranged in the chamber above the burners, and an elevator arranged adjacent to said chamber and receiving the material from the bottom of the roasting-chamber and delivering it to the top thereof, substantially as set forth.

4. The combination with an upright roasting-chamber having an inlet at its upper end and an outlet at its lower end, of a burner opening into the side of said chamber and projecting a flame across the same, and horizontal retarding-rods removably supported in said chamber above the burner, substantially as set forth.

5. The combination with an upright roasting-chamber having an inlet at its upper end and an outlet at its lower end, of a burner opening into the side of said chamber and projecting a flame across the same, open sockets secured to the inner side of said chamber above the burner, and horizontal retarding-rods loosely resting in said sockets, substantially as set forth.

644,748. **SCREW-TAP.** CLAES A. SVENSSON, Buffalo, N. Y., assignor of one-half to William W. Oliver, same place. Filed July 27, 1899. Serial No. 725,300. (No model.)



Claim.—1. In a screw-tap, the combination with a supporting-head, of tap-levers arranged lengthwise at the front end of said head and pivoted to the same between their ends, the front arms of said levers being provided with tapping-threads, an expanding-rod arranged to bear against the inner faces of said levers on the front side of their pivots, and a contracting-sleeve sliding on said head and engaging against the rear arms of said tap-levers substantially as set forth.

2. The combination with a supporting-head and contractible tap sections or levers mounted on said head, of an expanding-rod movable lengthwise in said head and adapted to bear against the inner faces of said tap sections or levers, a spring arranged to force said expanding-rod forwardly, a trip-rod or projection connected with said expanding-rod and adapted to encounter a stop or abutment for retracting the expanding-rod, and a contracting device operating against said tap sections or levers, substantially as set forth.

3. The combination with a supporting-head and contractible tap sections or levers mounted on said head, of an expanding-rod movable lengthwise in said head and adapted to bear against the inner faces of said tap sections or levers, a spring arranged to force said expanding-rod forwardly, a trip rod or projection connected with said expanding-rod and adapted to encounter a stop or abutment for retracting the expanding-rod, a contracting-sleeve sliding on said head and bearing against said trap sections or levers, and a spring arranged to force said sleeve forwardly against said tap sections or levers, substantially as set forth.

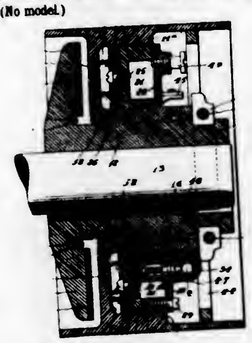
4. The combination with a supporting-head, of tap-levers arranged lengthwise of the head and pivoted thereto between their ends, an expanding-rod arranged to slide lengthwise in the head and adapted to bear against the inner faces of said levers on the front sides of their pivots, a spring arranged to force said expanding-rod forwardly, a projecting trip-rod connected with said expanding-rod, a contracting-sleeve sliding on said head and provided with a beveled face which bears against the rear arms of said tap-levers, and a spring arranged to force said sleeve against said levers, substantially as set forth.

5. The combination with a supporting-head and contractible tap sections or levers mounted on said head, of an expanding-rod movable lengthwise in said head and adapted to bear against the inner faces of said tap sections or levers, a spring arranged to force said expanding-rod forwardly, a contracting-sleeve sliding on said head, bearing against said tap-levers and provided with a transverse slot, a spring arranged to force said sleeve against said levers, and a hand-lever arranged in the slot of said sleeve and pivoted to said head, substantially as set forth.

6. The combination with a supporting head and contractible sections or levers mounted on said head, of an expanding-rod movable lengthwise in said head and adapted to bear against the inner faces of said tap sections or levers, a spring arranged to force said expanding-rod forwardly, a removable trip-rod arranged in the front end of said expanding-rod and projecting beyond said tap-levers, and a contracting device operating against said tap-levers, substantially as set forth.

7. The combination with a supporting-head provided at its front end with bifurcated radial lugs and at its rear end with a projecting collar, of tap-levers pivoted between their ends to said lugs, an expanding-rod sliding in an axial opening in said head and adapted to bear against the front arms of the tap-levers, a spring arranged in the axial opening of said head and bearing against the rear end of said expanding-rod, a trip-rod connected with said expanding-rod, a contracting-sleeve sliding on said head and bearing at its front end against the rear arms of said tap-levers, and a spring surrounding said head between the collar thereof and a shoulder of said sleeve, substantially as set forth.

644,749. AUTOMATIC FLUID-PRESSURE FRICTION-CLUTCH. JOSEPH H. WIEHL, Harmony, Pa. Filed Nov. 28, 1898. Serial No. 697,655. (No model.)



Claim.—1. In a friction-clutch, the combination with driving and driven elements, of a cooperating friction device, and mechanism for operating the same, said mechanism having a pair of members, one of which is movable relatively to the other, a projection with a seat therein on the driving element, and a latch movably mounted on the friction device for engagement with the said seat.

2. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, a friction device for actuating the axially-movable element, said device having a piston held from axial movement and revolubly seated in a pressure-chamber in the axially-movable element, and automatic mechanism for operating the friction device, having a member actuated by a device on the axially-movable element.

3. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, a friction device for actuating the axially-movable element, said device having a piston revolubly seated in a pressure-chamber in the axially-movable element, a thrust-plate carried by the other element to resist axial movement of the piston, and automatic mechanism for operating the friction device, and having a member actuated by a device on the axially-movable element, substantially as specified.

4. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, a friction device for actuating the axially-movable element, said device having a piston held from axial movement and revolubly seated in a pressure-chamber in the axially-movable element, means for locking said piston to the other element, to prevent relative movement of the piston and said element, and automatic mechanism for operating the friction device, and having a member actuated by a device on the axially-movable element, substantially as specified.

5. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, a friction device for actuating the axially-movable element, said device having a piston revolubly seated in a pressure-chamber in the axially-movable element, a thrust-plate carried by the other element to prevent axial movement of the piston in one direction, means for locking the piston to said other element for preventing relative rotary movement of said piston and element, and automatic mechanism for operating the friction device, and having a member actuated by a device on the axially-movable element, substantially as specified.

6. In a friction-clutch, the combination of driving and driven elements having opposite separable friction-faces, one of said elements being axially movable, spring means for separating said faces, a friction device for advancing the axially-movable element in opposition to said spring means and provided with a piston held from axial movement and seated in a pressure-chamber in the axially-movable element, an automatic pumping mechanism for operating said friction device, and a lever and a cam carried respectively by the friction device and by one of said elements, the cam being outside of the lever and the latter held in contact therewith by an interposed yielding device.

7. In a friction-clutch, the combination of driving and driven elements, one of which is provided with a hub and the other being mounted upon said hub and having a concentric flange, a friction device housed in the flanged element and designed to cause the communication of motion from the driving element to the driven element, a projection on the said hub having a seat, a pivotal latch carried by the friction device and adapted to engage the said seat, and automatic pumping mechanism operating the friction device, the said pumping mechanism being controlled by a lever and a cam carried respectively by the friction device and one of the said elements.

8. In a friction-clutch, the combination of driving and driven elements having opposing friction-faces, one of which is provided with a hub and the other mounted upon said hub for axial movement, a friction device mounted upon said axially-movable element for advancing the latter and bringing said friction-faces into contact, locking mechanism carried in part by the friction device and driving element and adapted to be thrown into engagement to connect them, and automatic fluid-pumping mechanism for operating the friction devices, the same being controlled by a lever and a cam carried respectively by the friction device and driven element, the cam being outside of the lever.

9. In a friction-clutch, the combination of driving and driven elements having opposing friction-faces and also provided with concentric hubs, of which the outer one is revoluble independently of the inner one and axially movable thereon, a friction device having a piston mounted upon the axially-movable hub for axially advancing the element of which said hub forms a part, latch mechanism for connecting the friction device and the inner element, and automatic fluid-pumping mechanism for operating the friction device, the same being controlled by a lever and a cam carried respectively by the friction device and driven element, the cam being outside of the lever.

10. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other and provided with a hub and a concentric flange forming inner and outer guides, the said elements having hubs in bearing relation to each other, a friction device actuating the axially-movable element and having an annular piston fitted between said guides and held from axial movement, the mechanism for connecting the friction device and the driving element, and automatic fluid-pumping mechanism for operating the friction device, the same having a lever and a cam carried respectively by said friction device and one of the elements, a part of the lever being held in contact with the cam, and the latter located outside of said lever.

11. In a friction-clutch, the combination of driving and driven elements, one of which is provided with a friction-disk and the other axially movable on the element carrying the friction-disk and provided with a web for contact with the latter, and a flange extending in both directions from the place of said web, one portion of said flange overhanging and encircling the friction-disk of the first-named element, a friction device seated and housed in the axially-movable element at the opposite side of the plane of said web from the friction-disk and adapted for actuating said axially-movable element, and automatic fluid-pumping mechanism for operating the friction device, the same having a lever and a cam carried respectively by said friction device and the driven element, the cam being outside of the lever.

12. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other and recessed to form an annular pressure-chamber, one of said elements also being provided with a friction-disk and the other axially movable and having a web for contact with said friction-disk, a friction device for actuating the axially-movable element, said device having a piston held from axial movement and seated in said pressure-chamber, a flanged packing-ring carried by the face of the piston and having inner and outer concentric beveled flanges in contact with the inner and outer walls of the pressure-chamber, an annular follower-plate seated between the flange of the packing-ring, and automatic fluid-pumping mechanism for operating the friction device, the same having a lever and a cam carried respectively by said friction device and the driven element, the cam being outside of the lever.

13. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, a friction-producing device for actuating the axially-movable element, and having a piston fitted in a pressure-chamber in the axially-movable element, and automatic mechanism for operating the friction device, the same having a pump, and cooperating pump-actuating members including a traveler and a cam, and means for locking the friction device to the driving element.

14. In a friction-clutch, the combination of driving and driven elements, one of which is provided with a flange, a friction device having a piston located in a pressure-chamber in the flanged element, automatic mechanism for operating the friction device comprising a cam carried by said flange, a pump, a traveler for actuating the movable member of the pump traversing said cam and carried by the friction device, and a latch attachment on the friction device adapted to engage a portion of the other element to connect the same with the friction device.

15. In a friction-clutch, the combination of driving and driven elements, one of which is axially movable toward and from the other, the axially-movable element having a pressure-chamber therein, a friction-producing device for actuating the axially-movable element and having a piston mounted in the pressure-chamber and recessed to form a reservoir for piston-actuating fluid, and automatic mechanism for operating the friction device, comprising a pump and cooperating pump-actuating members, including a traveler and a cam, and means for connecting the friction device and one of said elements.

16. In a friction-clutch, the combination of driving and driven elements, one of which is provided with a pressure-chamber, a friction device comprising a piston fitted in said pressure-chamber and recessed to form a reservoir, automatic mechanism for operating the friction device, comprising a pump for forcing fluid from the reservoir into the pressure-chamber, and cooperating pump-actuating members, including a traveler and a cam, means for locking the friction device and the driving element, and a relief-valve controlling a port in communication with the reservoir and pressure-chamber.

644,750. SIGNAL-TORCH. OSCAR V. WOOD, Fostoria, Ohio. Filed June 30, 1899. Serial No. 722,464. (No model.)

Claim.—1. In a signal-torch, the combination with a casing, containing an inflammable material, and an igniting device embedded in said inflammable material and projecting beyond a side of the casing, of a cap slidably fitted upon the casing, and provided upon its inner side with a fixed roughened or friction surface, and means for preventing accidental axial turning of the cap upon the casing, substantially as and for the purpose set forth.

2. In a signal-torch, the combination with a casing having a longitudinal exterior groove, and containing an inflammable material, of an igniting device embedded within the inflammable material and projecting into the groove, and a cap having an inner rib provided with a roughened or friction surface, said rib registering with the groove in the casing, and the roughened or friction surface thereof adapted to light the igniting device, substantially as shown and described.

3. In a signal-torch, the combination with a casing having longitudinal external grooves, provided at their outer ends with slots communicating with the interior of the casing, and an inflammable material contained within the latter, of matches or the like embedded in the inflammable material, and having their heads projecting through the respective slots and received within the adjacent grooves, and a cap having inner longitudinal ribs terminating short of the closed end of the cap, and provided with roughened or friction surfaces, said cap being slidably fitted to the casing, and the ribs registering with the respective grooves thereof, substantially as and for the purpose set forth.

4. In a signal-torch, the combination with a tubular casing formed of paper or like light material, having longitudinal grooves pressed in the outer side thereof, and containing an inflammable material, of igniting devices embedded within the inflammable material and projecting into the respective grooves, and a tubular cap formed of material similar to the casing, and having external grooves pressed therein and forming inner ribs, the latter being provided with roughened or friction surfaces, the cap being slidably fitted to the casing, and the ribs registering with the grooves thereof, substantially as and for the purpose set forth.

5. A signal-torch, comprising a casing, containing an inflammable material, and an igniting device embedded in said inflammable material and projecting beyond a side of the casing, and a cap slidably fitted upon the casing, and provided with an inner roughened or friction surface, said casing and cap having registering ribs and grooves for preventing axial turning of the cap upon the casing, substantially as shown and described.

644,751. CABINET. PHILIP H. YAWMAN, Rochester, N. Y., assignor, by mesne assignments, to the Yawman & Erbe Manufacturing Company, same place. Filed Dec. 7, 1897. Serial No. 661,063. (No model.)

Claim.—1. In a cabinet, the combination with the casing open at the front, the ways at the sides thereof extending around the top and bottom and at the rear, and the two flexible curtains sliding in the ways and serving to counterbalance each other at all points, of the rack-bars sliding in guides upon the sides of the casing connected to the forward proximate ends of the curtains, and the pinions meshing with said rack-bars for causing the simultaneous operation of the curtain in opposite directions, said curtains being unconnected at their rear ends.

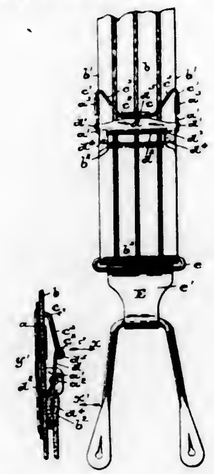
2. In a cabinet, the combination with the casing open at the front, and having the ways at the sides extending around the top and bottom, of the two flexible curtains sliding in the ways, each provided with the bars at their proximate ends, the rack-bars sliding in guides on the sides of the casing near the front thereof, the rearwardly-extending arms on the proximate ends of the curtains connecting them with the rack-bars, and the pinions between the bars.

3. In a cabinet, the combination with the casing open at the front, and having the ways at the sides extending around the top and bottom, of the two flexible curtains, each having the projections on the rear sides, the connected gears, one pair for each curtain, arranged at the upper and lower ends of the casing engaging the curtains near their edges, and connections between the proximate edges of the curtains for causing their simultaneous operation in opposite directions.

4. In a cabinet, the combination with the casing and ways thereon, of a flexible curtain traveling on the ways, and composed of a plurality of sections, each section having on one face and at one edge a bead extending over the said face, and at the other edge and on the same face a roll extending away from the face and adapted to embrace the bead on an adjacent section, and toothed wheels connected for simultaneous operation and engaging with the rolls on the curtain-sections.

5. In a cabinet, the combination with the casing open at the front having the ways at the sides extending around the top and bottom, the two flexible curtains sliding in the ways, said curtains being composed of a plurality of sections, each section having a bead at one edge extending over one face and at the other edge a roll extending in the same direction as the said bead and adapted to embrace the bead on an adjacent section, of the connected gears, one pair for each curtain, and connections between the proximate edges of the curtains to cause the simultaneous operation of the latter in opposite directions.

644,752. BUCKLE. GEORGE B. ADAMS, Irvington, N. J. Filed Nov. 11, 1899. Serial No. 736,662. (No model.)



Claim.—1. In a buckle, a face-plate and a holding or grasping jaw, having a pivotal motion in relation to each other, a clamping or holding means on one side of the fixed axis of rotation of said jaw, and a spring independent of said jaw and said face-plate, having a main body portion loosely but pivotally connected with said jaw on the other side of the axis of rotation of said jaw, said spring having a free end portion in operative engagement with said face-plate, providing connections between said face-plate and the jaw, away from the combined axis of rotation of said plate and jaw, said spring cooperating with said jaw to normally force the upper portion of the jaw in a direction away from the back of the face-plate, and normally forcing the lower portion of the jaw in a direction toward the inner surface of said face-plate, for holding contact with a webbing or band, substantially as and for the purposes set forth.

2. In a buckle, a face-plate and a holding or grasping jaw, having a pivotal motion in relation to each other, a clamping or holding means on one side of the fixed axis of rotation of said jaw, and a spring independent of said jaw and said face-plate, having a main body portion loosely but pivotally connected with said jaw on the other side of the axis of rotation of said jaw, said spring having a free end portion in operative engagement with said face-plate, providing connections between said face-plate and the jaw, away from the combined axis of rotation of said plate and jaw, said spring cooperating with said jaw to normally force the upper portion of the jaw in a direction away from the back of the face-plate, and normally forcing the lower portion of the jaw in a direction toward the inner surface of said face-plate, for holding contact with a webbing or band, and means connected with said buckle for securing a "cast-off" thereto, substantially as and for the purposes set forth.

3. In a buckle, a face-plate provided with bearing portions, and a holding or grasping jaw, comprising a body portion pivotally secured to said bearing portions of said face-plate, the said body portion lying in a plane back of the plane of the inner surface of the face-plate, a holding means on the body portion of said jaw below the pivotal connection between said face-plate and jaw, a loop or extension on said body portion above the said pivotal connection, a spring independent of said jaw and said face-plate, having a portion loosely and pivotally connected with said loop or extension, said spring having another portion in operative engagement with said face-plate, providing a connection between said face-plate and the jaw, away from the combined axis of rotation of said plate and jaw, said spring cooperating with said face plate and jaw to normally force the upper portion of the jaw in a direction away from the back of the face-plate, and normally forcing the lower portion of said jaw in a direction toward the inner surface of said face-plate, for holding contact with a webbing or band, substantially as and for the purposes set forth.

4. In a buckle, a face-plate provided with bearing portions, and a holding or grasping jaw, comprising a body portion pivotally secured to said bearing portions of said face-plate, the said body portion lying in a plane back of the plane of the inner surface of the face-plate, a holding means on the body portion of said jaw below the pivotal connection between said face-plate and jaw, a loop or extension on said body portion above the said pivotal connection, a spring independent of said jaw and said face-plate, having a portion loosely and pivotally connected with said loop or extension, said spring having another portion in operative engagement with said face-plate, providing a connection between said face-plate and the jaw, away from the combined axis of rotation of said plate and jaw, said spring cooperating with said jaw to normally force the upper portion of the jaw in a direction away from the back of the face-plate, and normally forcing the lower portion of said jaw in a direction toward the inner surface of said face-plate, for holding contact with a webbing or band, and means connected with said buckle for securing a "cast-off" thereto, substantially as and for the purposes set forth

5. In a buckle, a face-plate, provided with bearing portions, and a holding or grasping jaw comprising a body portion pivotally secured to said bearing portions of said face-plate, said body portion lying in a plane back of the plane of the inner surface of the face-plate, a clamping or holding means on said body portion, below the pivotal connection and extending toward the face-plate, a centrally-arranged loop or extension on said body portion, and an independent spring having a main body portion arranged in said loop or extension cooperating therewith to cause a holding contact between said jaw and the inner surface of said face-plate, and said spring having its free end portions rigidly connected with said face-plate, all of said parts combined and operating to permit the passage of a band between said jaw and face-plate, substantially as and for the purposes set forth.

6. In a buckle, a face-plate, provided with bearing portions, and a holding or grasping jaw comprising a body portion pivotally secured to said bearing portions of said face-plate, said body portion lying in a plane back of the plane of the inner surface of the face-plate, a clamping or holding means on said body portion, below the pivotal connection and extending toward the face-plate, a centrally-arranged loop or extension on said body portion, an independent spring having a main body portion arranged in said loop or extension cooperating therewith to cause a holding contact between said jaw and the inner surface of said face-plate, and said spring having its free end portions rigidly connected with said face-plate, all of said parts combined and operating to permit the passage of a band between said jaw and face-plate, and means connected with said buckle for securing a "cast-off" thereto, substantially as and for the purposes set forth.

7. The herein-described buckle, consisting, essentially, of a face-plate a, rearwardly-extending and perforated lugs a' on said face-plate, a pair of holding-loops a^2 on said face-plate extending along the side edges of said face-plate, a holding or grasping jaw d pivotally connected with said lugs a', grasping-teeth d^3 on said back plate, a holding-loop d^5 on said jaw, at a right angle to said loops a^2, or approximately so, and a spring c, having end portions c' arranged in said loops a^2, a main portion c^2 pivotally arranged in said loop d^5, and connecting parts c^3, curved portions c^4 between said end portions c' and parts c^3, and curved portions c^4 between said parts c^3 and said main portions c^2, all constructed and arranged for causing a normal holding contact of said jaw d^2 with a band or webbing and by an inward pressure on said loop d^5 and spring-connected therewith to separate said jaw from its holding contact with said band or webbing, substantially as and for the purposes set forth.

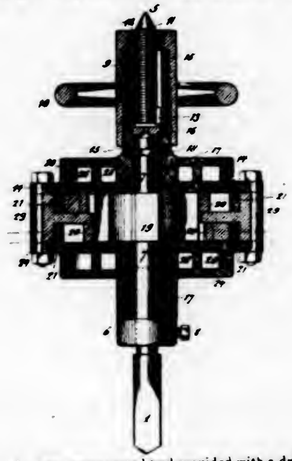
8. The herein-described buckle, consisting, essentially, of a face-plate a, rearwardly-extending and perforated lugs a' on said face-plate, a pair of holding-loops a^2 on said face-plate, extending along the side edges of said face-plate, a holding or grasping jaw d pivotally connected with said lugs a', grasping-teeth d^3 on said back plate, a holding-loop d^5 on said jaw, at a right angle to said loops a^2, or approximately so, and a spring c, having end portions c' arranged in said loops a^2, a main portion c^2 pivotally arranged in said loop d^5, and connecting parts c^3, curved portions c^4 between said end portions c' and parts c^3, and curved portions c^4 between said parts c^3 and said main portion c^2, all constructed and arranged for causing a normal holding contact of said jaw d^2 with a band or webbing and by an inward pressure on said loop d^5 and spring connected therewith to separate said jaw from its holding contact with said band or webbing, and a cross-bar on said back plate, for securing the end of said band or webbing thereto, substantially as and for the purposes set forth.

9. In a buckle, in combination, a face-plate, and a holding or grasping jaw pivotally secured to said face-plate, said plate and jaw having an open space between them for the passage of a band or webbing, a spring made from a continuous piece of wire rigidly connected with said face-plate and curved in an upward direction and extending inwardly, over the band or webbing, and having a main portion lying in operative spring contact with a portion of said grasping-jaw, substantially as and for the purposes set forth.

10. In a buckle, in combination, a face-plate, and a holding or grasping jaw pivotally secured to said face-plate, said plate and jaw having an open space between them for the passage of a band or webbing, a loop or extension connected with said jaw, a spring made from a continuous piece of wire rigidly connected with said face plate and curved in an upward direction and extending inwardly, over the band or webbing, and having a main portion in operative and pivotal spring contact with said loop or extension on said jaw, substantially as and for the purposes set forth.

11. In a buckle, the combination, with a face-plate, having holding-loops, of a holding-jaw pivotally connected with said face-plate, comprising a body portion, having a laterally-arranged opening, a grasping means extending inwardly toward said face-plate, a cross-bar extending in a direction parallel with said grasping means, for fastening thereto the end of a band or webbing, a loop or extension on said holding jaw, and a spring made from a continuous piece of wire rigidly connected with said holding-loops on said face-plate, extending upwardly and inwardly toward said grasping-jaw, and having a main portion in operative and pivotal spring contact with said loop or extension, substantially as and for the purposes set forth.

644,753. PORTABLE ENGINE FOR TOOLS. JOHN F. ALLEN, New York, N. Y. Filed May 17, 1898. Serial No. 680,923. (No model.)



Claim.—1. A power-operated tool provided with a driving-shaft and with fluid-actuated pistons and speed-reducing means directly connecting said driving-shaft and pistons, whereby each full stroke of the pistons causes a rotation of the driving-shaft through a part only of a revolution, substantially as set forth.

2. The combination with a driving-shaft of two pistons arranged to move in different directions, one of said pistons being carried by the other piston and having a speed-reducing connection directly to said driving-shaft, substantially as set forth.

3. The combination with a driving-shaft having a gear-wheel thereon, of a piston having an internal gear thereon meshing with the gear-wheel of the driving-shaft and means for actuating the piston to move the internal gear eccentrically relatively to the gear-wheel.

4. The combination with a driving-shaft having a gear-wheel thereon, of two pistons arranged to move in different directions and a casing for said pistons, one of said pistons being carried by the other piston and having an internal gear thereon meshing with said gear-wheel.

5. The combination with a driving-shaft having a gear-wheel thereon, of an inner piston and an outer piston and a casing therefor, the inner piston being carried by the outer piston and having an internal gear thereon meshing with said gear-wheel and said internal gear and gear-wheel having different numbers of teeth, and the inner piston having valve-passages therein and the casing having ports therein arranged to cooperate with such valve-passages, substantially as set forth.

6. A power-operated tool provided with a driving-shaft having a gear-wheel thereon, an inner and outer piston and a casing therefor, the inner piston being carried by the outer piston and the two pistons being arranged to move substantially at right angles to each other and the inner piston having an internal gear thereon meshing with said gear-wheel and said internal gear and gear-wheel having different numbers of teeth, and the inner piston having valve-passages therein and the casing having ports therein arranged to cooperate with such valve-passages, substantially as set forth.

7. The combination of an inner and outer fluid-actuated piston and a casing therefor, the inner piston being carried by the outer piston and movable in one direction relatively thereto and the outer piston being movable in a different direction relatively to the casing and the inner piston having valve-passages with ports opening against the casing, for the eduction and induction of fluid to actuate the inner piston and other valve-passages therein for the eduction and induction of fluid to operate the outer piston, and the casing having induction and eduction ports arranged successively in the paths of said piston-valve ports and the outer piston having passages arranged to cooperate with those valve-passages of the inner piston for the eduction and induction of fluid to actuate the outer piston, substantially as set forth.

8. A power-operated tool provided with a driving-shaft having a gear-wheel thereon, an inner and outer piston and a casing therefor, the inner piston being carried by the outer piston and movable in one direction relatively thereto and the outer piston being movable in a different direction relatively to the casing, and the inner piston having an internal gear thereon meshing with said gear-wheel and said internal gear and gear-wheel having different numbers of teeth, and the inner piston having valve-passages therein and the casing having induction and eduction ports therein arranged to cooperate with such valve-passages and the outer piston having passages arranged to cooperate with those valve-passages of the inner piston for the induction and eduction of fluid to actuate the outer piston, substantially as set forth.

9. The combination with a driving-shaft having a gear-wheel thereon, said gear-wheel having an even number of teeth, of two sets of inner and outer fluid-actuated pistons oppositely arranged whereby their momentums are balanced, each inner piston being carried by its outer piston and movable in one direction relatively thereto and each outer piston being movable relatively to the casing in a direction substantially at right angles to the direction of movement of its inner piston relatively to it, and each inner piston having an internal gear thereon meshing with said gear-wheel and said internal gear and gear-wheel having different numbers of teeth, substantially as set forth.

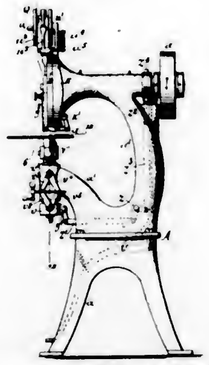
10. A power-operated tool provided with the tool-carrying shaft 7 having the gear-wheel 19 thereon, a casing comprising the middle piece 29 and the heads 14 and 24, the two sets of inner pistons 20 and outer pistons 21, each inner piston being carried by its outer piston and movable in one direction relatively thereto and each outer piston being movable relatively to the casing in a direction substantially at right angles to the direction of movement of its inner piston relatively to it, and each inner piston having an internal gear thereon meshing with said gear-wheel 19 and having a number of teeth different from that of said gear-wheel, and each inner piston having valve-passages 22 therein and the casing-heads 14 and 24 having induction-ports 25 and eduction-ports 27 therein arranged to cooperate with said valve-passages, and each outer piston having passages 23 therein arranged to cooperate with those valve-passages 22 of the inner piston for the induction and eduction of fluid to actuate the outer piston, and the casing-heads 14 and 24 having eduction and induction passages 26 and 28 therein, substantially as set forth.

644,754. STAPLING-MACHINE. MATTHEW V. ALLEN, Niagara Falls, N. Y. Filed Apr. 24, 1899. Serial No. 714,255. (No model.)

Claim.—1. The combination with the staple former and driver, of a rock-lever pivoted between its upper and lower arms, an anvil arranged on the lower arm of the rock-lever and adapted to support a staple-blank, and a cam arranged on the staple-driver and adapted to engage with the upper arm of the rock-lever during the upward movement of the driver and with the lower arm of the rock-lever during the downward movement of the driver, whereby the rock-lever is turned so as to move the anvil toward and from the driver, substantially as set forth.

2. The combination with the staple former and driver, of an anvil adapted to carry the staple-blank to the former and driver, a clamping-plate provided with two jaws arranged on opposite sides of the anvil, and a lever which is operated by a cam on the former and

whereby the jaws of the clamping-plate are moved from the anvil, substantially as set forth.



3. The combination with the staple former and driver, of a rock-lever carrying an anvil, a cam which is arranged on the driver and whereby the rock-lever is turned for moving the anvil toward and from the former and driver, a clamping-plate guided on the rock-lever and provided with jaws above the anvil, and a clamp-lever pivoted concentrically with the anvil-lever and having one of its arms engaging with a cam on the former and its other arm engaging with said clamping-plate, substantially as set forth.

4. The combination with the staple former and driver, of a staple-support, a rear link pivotally connected with the rear end of the staple-support, and a front link loosely connected with the front end of the staple-support, substantially as set forth.

5. The combination with the staple former and driver, of a staple-support, a rear link pivotally connected with the rear end of the staple-support, a front link loosely connected with the front end of the staple-support, and a spring whereby the staple-support is yieldingly held in its forward operative position, substantially as set forth.

6. The combination with the staple former and driver, of a staple-support, a rear link pivotally connected with the rear end of the staple-support, a front link provided with a pin passing through a slot in the staple-support, and a spring whereby the links are moved into their foremost position and the staple-support is held in its operative position, substantially as set forth.

7. The combination with the staple former and driver, and the anvil whereby the staple-blank is presented to the former and driver, of a staple-support adapted to support the staple while being driven, links carrying said support, a spring whereby said support is moved forwardly, and a cam which is arranged on the former and which holds the staple-support back until the anvil is withdrawn from the staple and then permits said support to move forward into engagement with the staple, substantially as set forth.

8. The combination with the staple former and driver, and the anvil whereby the staple-blank is presented to the former and driver, of a staple-support adapted to support the staple while being driven, a rear link pivotally connected with said support, a front link loosely connected with said support, a spring whereby said support is moved forwardly and upwardly, a roller arranged on the front link, and a cam which is arranged on said former and engages with said roller and whereby said support is held back until the anvil is withdrawn from the staple and then permits said support to move forward into engagement with the staple, substantially as set forth.

9. The combination with the staple forming and driving mechanism and the anvil whereby the staple-blank is presented to said mechanism, of a cutter whereby the staple-blank is severed from the wire-stock and which has a shearing movement at an oblique angle to the path of the wire-stock, and a carrier which supports said cutter and which is capable of rectilinear adjustment toward and from said anvil, substantially as set forth.

10. The combination with the staple-driver and the driving-wheel having a crank which is connected by a link with said driver, of a cutter mounted on a slide, and a rock-lever having one of its arms engaging with said slide and its other arm adapted to be engaged by said link, substantially as set forth.

11. The combination with the staple forming and driving mechanism and the anvil whereby the staple-blank is presented to said mechanism, of a cutter whereby the staple-blank is severed from the wire-stock and which has a shearing movement at an oblique angle to the path of the wire-stock, a carrier which supports said cutter and which is capable of rectilinear adjustment toward and from said anvil, and a cam whereby said carrier is shifted, substantially as set forth.

12. The combination with the staple forming and driving mechanism and the anvil whereby the staple-blank is presented to said mechanism, of a cutter whereby said blank is cut, and a rotatable guide having a curved passage whereby the wire is directed to said cutter and anvil, substantially as set forth.

13. The combination with the staple forming and driving mechanism and the anvil whereby the staple-blank is presented to said mechanism, of a carrier movable toward and from the anvil, a wire-cutter mounted on the carrier, and a tubular guide which is capable of rotary adjustment on the carrier in front of the cutter and which is provided with a curved-wire passage, substantially as set forth.

14. The combination with the upper and lower straight-wire guides which are arranged in line, of two wire-feed rollers arranged on opposite sides of the course of the wire between said guides and having their axes arranged on a line which is oblique to the course of the wire as it passes through said guides, one of said rollers having its operative portion projecting across a line extending from one guide to the other, whereby the wire is deflected or bent by the rollers as it passes from one guide to the other and a straightening effect is produced upon the same while being fed, substantially as set forth.

15. The combination with two wire-feed rollers, of a rotary shaft supporting one of said rollers, a rock-shaft provided on one side of its center with a crank which supports the other roller, a rock-arm arranged on the opposite side of the rock-shaft, a shifting-lever, and a spring connection between said rock arm and lever whereby upon moving the lever in one direction the rock-shaft is turned so that the roller on the crank thereof is held yieldingly in contact with the other roller while upon moving the lever in the opposite direction the rock-shaft is turned so as to move the feed-roller on its crank away from the opposing roller, substantially as set forth.

16. The combination with two wire-feed rollers, of a rotary shaft supporting one of said rollers, a rock-shaft provided on one side of its axis with a crank supporting the other roller, a rock-arm arranged on the rock-shaft on the opposite side of its axis, a shifting-lever provided with a swiveling lug, a rod connected at one end with said arm and passing loosely with its opposite end through said swiveling lug, a spring bearing with its ends against one side of said lug and a shoulder on said rod, and a shoulder arranged on said rod on the opposite side of said lug, substantially as set forth.

17. The combination with the wire-feed rollers and the driving-wheel, of a shaft supporting one of said rollers and provided with a ratchet-wheel, a ratchet arm journaled loosely on said shaft and provided with a pawl engaging with the ratchet-wheel, a pair of toggle-bars one of which is connected with said ratchet-arm and a link connecting the other toggle-bar with a crank on the driving-wheel, substantially as set forth.

18. The combination with the wire-feed rollers and the driving-wheel, of a shaft supporting one of said rollers and provided with a ratchet-wheel, a ratchet-arm journaled loosely on said shaft and provided with a pawl engaging with the ratchet-wheel, an upper toggle-bar connected with the ratchet-arm, a lower toggle-bar connected by a link with a crank on the driving wheel, and a rotary adjusting-disk to which the lower toggle-bar is pivoted eccentrically, substantially as set forth.

19. The combination with the staple forming and driving mechanism and the anvil whereby the staple-blank is presented to said mechanism, of a cutter-carrier adjustable toward and from the anvil, a pair of wire-feed rollers one of which is connected with a ratchet-wheel, a ratchet-arm provided with a pawl engaging with the ratchet-wheel, a toggle having its upper bar connected with the ratchet-arm, and a rotary adjusting-disk to which the lower bar of the toggle is pivoted eccentrically and which is provided with a cam whereby the cutter-carrier is adjusted, substantially as set forth.

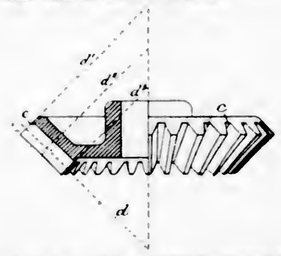
20. The combination with the feed-rollers, the shaft supporting one of said rollers and the ratchet-wheel secured to said shaft, of an oscillating ratchet-arm provided with a pawl engaging with the teeth of said wheel, a lifting-arm mounted loosely on said shaft and connected loosely with said ratchet-arm so as to oscillate with the ratchet-arm during a part of the movement of the latter but permits the ratchet-arm to have a slight movement independent of the lifting-arm, a cam arranged on the lifting-arm and adapted to be engaged by the pawl for lifting the latter from the ratchet-teeth during the first part of the backward movement of the ratchet-arm independent of the lifting-arm, and a frictional coupling connecting the ratchet-wheel and lifting-arm, substantially as set forth.

21. The combination with the feed-rollers, the shaft supporting one of said rollers and the ratchet-wheel secured to said shaft, of an oscillating ratchet-arm provided with a pawl engaging with the teeth of said wheel, a lifting-arm mounted loosely on said shaft and oscillating with the ratchet arm during a part of the time, a cam arranged on the lifting-arm and adapted to be engaged by the pawl for lifting the latter out of engagement with the ratchet-wheel during the first part of the backward movement of the ratchet-arm independent of the lifting-arm, a projection arranged on the pawl-arm and engaging with a slot in the lifting-arm, a pressure-block arranged in a socket in the lifting-arm, and a spring whereby said block is pressed against the ratchet-wheel, substantially as set forth.

22. The combination with a bracket provided with a spindle adapted to support a spool of wire, of a curved brake-arm pivoted to said bracket and adapted to move between the flanges of the spool, a brake-band adapted to bear against the wire on the core of the spool and secured with its ends to the outer and inner ends of the brake-arm, an eccentric projection or crank arranged on the brake-arm, and a spring connecting said projection or crank with the bracket, whereby the brake-arm and band are yieldingly moved toward or away from the wire-spool as the projection or crank is swung from one side of the dead-center to the other, substantially as set forth.

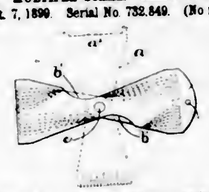
23. The combination with the staple forming and driving mechanism, of a clencher-box arranged below said mechanism and provided with an opening in its top, two clencher-jaws arranged in said box and each provided with an inner vertical face, upper and lower horizontal faces, an outer curved face, a shoulder at the upper end of the curved face, a straight vertical face at the lower end of the curved face, a shoulder at the lower end of the straight outer face, and a pivot arranged at the inner lower corner of each jaw and engaging with a vertical slot in the box, and a clencher-plate provided with a horizontal upper face which engages with the lower faces of the jaws and with hooks at opposite ends of the horizontal face which engage with the lower outer shoulders of the jaws, substantially as set forth.

644,755. BEVEL-GEAR. JAMES ARTHUR, New York, N. Y. Filed Sept. 10, 1898. Serial No. 690,634. (No model.)



Claim.—A bevel-gear, the teeth of which have their side throughout their length conforming to a curve generated from a pitch-circle that is about a mean of the pitch-circle of their outer ends and the pitch-circle of their inner ends, the central parts of the teeth being of standard shape, the teeth increasing beyond their normal width from said generating-circle to their outer ends and decreasing from their normal width from said generating-circle toward their inner ends, the teeth being of uniform height throughout their length.

644,756. MULTIPLE SCALE. RALPH W. BAILEY, Newbury, Mass. Filed Oct. 7, 1899. Serial No. 732,849. (No model.)

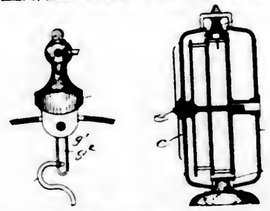


Claim.—1. A multiple scale comprising a series of scale-plates mounted side by side on a pivot-stud on which each plate is adapted to swing independently, each plate having at one end a graduated scale and at the opposite end two projections separated by a space equal to the length of the said scale, the scale of each plate differing in length from the scales of all the other plates.

2. A multiple scale comprising a series of scale-plates mounted side by side on a pivot-stud on which each plate is adapted to swing independently, each plate having at one end a graduated scale and at the opposite end two projections separated by a space equal to the length of the said scale, the scale of each plate differing from the scales of all the other plates, and cover-plates connected with said pivots at opposite sides of the scale-plates, said cover-plates being rigidly connected with each other.

3. A scale-plate having at one end a graduated scale and at the other end two projections separated by a space of the same length as the said scale.

644,757. CLOCK-CASE. ELIJAH C. BARTON, East Hampton, Conn. Filed Mar. 9, 1898. Serial No. 673,183. (No model.)



Claim.—1. In a clock, the combination of a case or framework adapted to support a clock-movement, a gong secured at its center to said frame, rotating spindles extending from said case or framework through said gong and concentrically therewith, and hands carried by said spindles, substantially as described.

2. In a clock, the combination of a case or framework supporting a clock-movement, a spool or bracket projecting from the front side of the case or framework, a gong supported at its central section by said spool or bracket, whereby said gong is rigidly attached to said case or framework, rotating spindles extending from said case or framework through said gong and concentrically therewith, and hands carried by said spindles, substantially as described.

3. In a clock mechanism, in combination, a frame adapted to support the clock-movements, a hollow post secured to said frame, arbors extending through said post, time-indicating devices secured to said arbors, and a gong bearing a dial secured to said post and partially inclosing the frame.

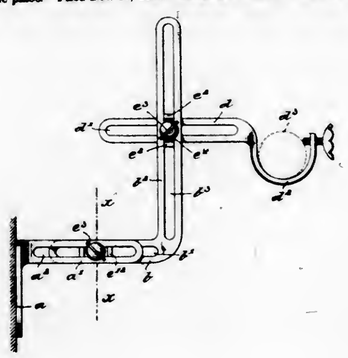
4. In a clock mechanism, in combination, a frame adapted to support a clock-movement, gongs each composed of resonant material and secured to the frame, a hollow post secured to the frame and adapted to support one of said gongs, arbors projecting from the clock-movement through said post, time-indicating devices supported outside of the gong on said arbors, and a dial arranged on said gong.

5. In a clock mechanism, in combination, an inner ring or case adapted to support the clock-movement, a gong secured to said case, a striker secured to the case and located outside of the gong and adapted to be operated by the clock-movement, a hollow post secured to the case, a gong secured to the post, arbors projecting through the post and operated by the clock-movement, and time-indicating devices supported outside of the gong on said arbors.

6. In a clock mechanism, the combination with a face composed of resonant material and having time-indicating characters displayed thereon, of devices supported in operative relation to said characters and adapted in connection therewith to indicate different fractions of time.

7. In a clock, the combination of a case or framework supporting a clock-movement, a gong rigidly secured in operative relation to the framework, rotating spindles extending from the case or framework through said gong, and hands carried by said spindles, substantially as described.

644,758. EXTENSIBLE AND ADJUSTABLE BRACKET. RUDOLPH H. BECK, Philadelphia, Pa., assignor of one-half to George Koch, same place. Filed Dec. 11, 1899. Serial No. 739,890. (No model.)



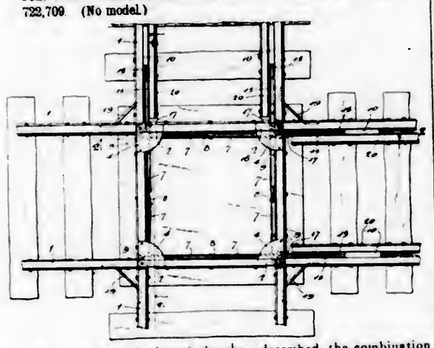
Claim.—1. An extensible and adjustable bracket or support, comprising an angular supporting-bracket having a projecting slotted arm, an angle-arm having two members both of which are slotted, one of said members being arranged parallel with the projecting arm of the supporting-bracket, a supporting-arm longitudinally slotted and arranged at right angles to the other member of said angle-arm, means for adjustably securing the parallel parts of the bracket together and to permit of adjustment of said parts in a longitudinal direction, and means for adjustably securing the crossing parts of said bracket in substantially right-angled relationship and to permit of the adjustment of said parts in vertical and horizontal planes, substantially as and for the purposes described.

2. In a bracket of the character described, two parallel parts, each slotted in the same plane, a plate having projections at two of its ends adapted to traverse the slots of both parts, and a clamping-screw adapted to traverse said slots and to enter said plate to bind the parts together, substantially as and for the purposes described.

3. In a bracket of the character described, two crossing parts, each slotted in a plane at right angles to the plane in which the other is slotted, a plate having two flanged ends adapted to surround or inclose one of said parts, a projection formed on each flanged end and adapted to traverse the slot of the other of said parts, and a clamping-screw adapted to traverse both slots and to enter said plate to bind said crossing parts together, substantially as and for the purposes described.

644,759. AUTOMATIC SWITCH FOR RAILWAY-CROSSINGS.

JOHN E. BERKSTRESSER, Sylacauga, Ala. Filed July 3, 1899. Serial No. 722,709. (No model.)



Claim.—1. In a device of the class described, the combination with the stationary rails of a crossing, of pivoted switch-plates arranged at the angles formed by the rails and adapted to complete the latter, depressible operating-bars adapted to be engaged by the wheels of a train and located beyond the crossing, outer connecting-rods extending from the depressible bars to the switch-plates, the inner connecting-rods extending from the said switch-plates, and the levers connecting the adjacent ends of the inner rods, substantially as described.

2. In a device of the class described, the combination with the stationary rails of a crossing, of movable switch-plates provided with shafts or spindles, the connecting-rods having curved ends arranged horizontally and hinged to the shafts or spindles and adapted to extend partially around the same, and operating devices arranged at the outer ends of the connecting-rods, substantially as described.

3. In a device of the class described, the combination of a movable switch-plate having a shaft or spindle, a stop, a resilient connecting-rod extending from the shaft or spindle, adapted to rotate the same and provided with a lug, said rod being capable of springing laterally to engage the lug with the stop and disengage it therefrom, and means for operating the connecting-rod, substantially as described.

4. In a device of the class described, the combination of a switch-plate having a shaft or spindle, a resilient connecting-rod having a curved end hinged to the shaft or spindle, said connecting-rod being provided with a lug, and a stop arranged in the path of the lug and adapted to be engaged by the same, substantially as described.

5. In a device of the class described, the combination with the stationary rails of a crossing provided at their adjacent ends with shoulders, bearing-plates supported by the shoulders, pivoted switch-plates arranged on the bearing plate, and means for operating the switch-plates, substantially as described.

6. In a device of the class described, the combination with the stationary rails of a crossing, provided at their adjacent ends with shoulders, bearing-plates supported on the shoulders, and braces extending across the outer angles of the rails and connecting the latter, of pivoted switch-plates arranged on the bearing-plates, and means for operating the switch-plates, substantially as described.

644,760. WASHBOARD.

ANDREW W. BISHOFF, Ambia, Ind., assignor of one-half to Frederick E. Hanson, same place. Filed Nov. 20, 1899. Serial No. 737,686. (No model.)



Claim.—1. A washboard comprising a solid rectangular frame provided at the inner faces of its sides with longitudinal ways and having an opening extending entirely through one of the sides and forming an entrance to the ways, a series of reversible and interchangeable slats arranged in said ways and adapted to be removed from and introduced into the same through the said opening, and an adjusting device arranged at one end of the frame and engaging the adjacent slat to hold the slats out of alinement with the opening, substantially as described.

2. A washboard comprising a frame having opposite ways, a series of separate reversible and interchangeable slats or sections provided with interlocking projections and recesses, located at their side edges, and an adjusting device for holding the slats in engagement with one another, substantially as described.

3. A washboard comprising a frame composed of side bars provided at their inner faces with grooves, one of the side bars having an opening communicating with its groove, the transverse bars 3, 4 and 5 connecting the side bars, and a back, reversible and interchangeable slats arranged in the grooves and interlocked with each other, and adjusting-screws mounted on the frame at the top thereof and engaging the top slat or section, substantially as described.

644,761. MACHINE FOR CORKING AND LABELING BOTTLES.

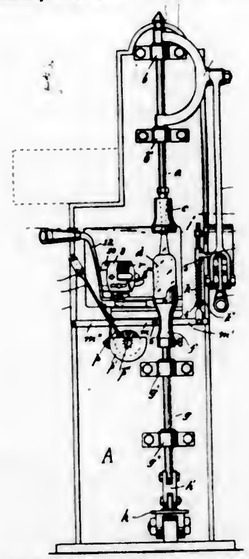
GEORGE BOWEN, Bolton, England. Filed Jan. 19, 1899. Serial No. 702,616. (No model.)

Claim.—1. In mechanism of the class described, the combination with a frame having a support designed to receive and hold a bottle, a plunger designed to force corks into said bottle, and an arm or lever designed to operate said plunger, of a pivotally-mounted brush adapted to contact with said bottle, a lever connected thereto and having an arm designed to be engaged by said former arm or lever, a label-carrier, and means for causing said label-carrier to contact with said bottle, substantially as set forth.

2. In mechanism of the class described, the combination with a frame having a support designed to receive and hold a bottle, a plunger designed to force corks into said bottle, and an arm or lever designed to operate said plunger, of a pivotally-mounted brush adapted to contact with said bottle, a lever connected thereto having a spring-pressed vertical arm provided with a lateral projection designed to engage the operating-lever of said plunger, a label-carrier, and means for causing said label-carrier to contact with said bottle, substantially as set forth.

3. In mechanism of the class described, the combination with a frame having a support designed to receive and hold a bottle, a plunger designed to force corks into said bottle, and an arm or lever designed to operate said plunger, of a pivotally-mounted brush adapted to contact with said bottle, a lever connected thereto and operated by said former arm or lever, a receptacle for an adhesive substance, a grooved or furrowed roller mounted in said receptacle and designed to contact with said brush, a label-carrier, and means for causing said label-carrier to contact with said bottle, substantially as set forth.

4. The herein-described label-affixing mechanism, comprising a frame having a support designed to receive and hold a bottle, means for applying paste to said bottle, a tubular holder having a forward tray-like portion designed to carry the labels, a carrier for said holder comprising a block or member fitting within the tubular portion thereof and supporting the same, and means for causing said carrier to move horizontally into engagement with said bottle, whereby the former is caused to gradually move backward upon said block or member, substantially as set forth.



5. The herein-described label-affixing mechanism, comprising a frame having a support designed to receive and hold a bottle, means for applying paste to said bottle, a tubular holder designed to carry the labels to be applied to said bottle and provided with forwardly-projecting spring retaining-arms, a carrier for said holder, a lever pivoted to said frame and designed to force said holder against said bottle, whereby said holder is moved slightly backward upon said carrier, and means for increasing the speed of said carrier as it approaches said bottle, substantially as set forth.

6. The herein-described label-affixing mechanism, comprising a frame having a support designed to receive and hold a bottle, means for applying paste to said bottle, a tubular holder designed to carry the labels to be applied to said bottle, a carrier for said holder having a member fitting within the latter, an arm or member carried by said frame and having a cam-groove therein in which said carrier is mounted, and a lever designed to move said carrier, whereby said holder is caused to contact with said bottle and simultaneously move slightly backward upon said carrier, substantially as set forth.

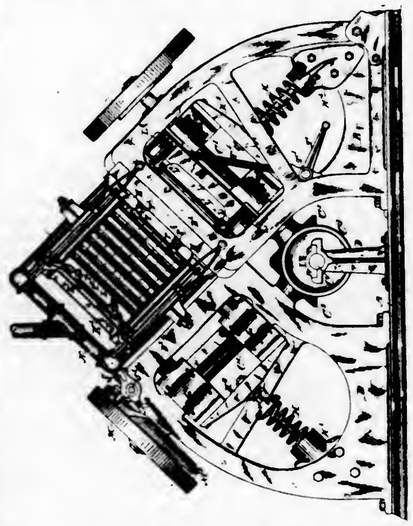
7. The herein-described label-affixing mechanism, comprising a frame having a support designed to receive and hold a bottle, means for applying paste to said bottle, a tubular holder designed to carry the labels to be applied to said bottle, a carrier for said holder having a member fitting within the latter, an arm or member carried by said frame and having a curved cam-groove therein, a lever pivoted to said frame and having pivotal connection with an arm of said carrier, and a lug or projection secured to said latter arm and fitting in said cam-groove, substantially as set forth.

644,762. MACHINE FOR MAKING EGG-CASE FILLERS.

JOHN T. CARMODY, Cedar Rapids, Iowa, assignor, by mesne assignments, to the J. G. Cherry Company, same place. Filed Mar. 20, 1899. Serial No. 709,817. (No model.)

Claim.—1. In a machine of the class described, the combination of means for simultaneously forming all of the filler-strips necessary for a complete egg-case filler and providing all of said strips with notches or slits in their edges, means for bringing said strips together in two sets with the strips of each set in planes that are parallel with each other and that intersect the planes of the strips of the other set, and with their notches at their points of intersection, and means for thereafter simultaneously advancing all of the strips of each set while in their respective planes toward the strips of the other set, whereby at each operation of the machine a complete egg-case filler is made substantially as set forth.

2. In a machine of the class described, the combination of means for holding as many sheets or blanks as there are filler-strips in the complete egg-case filler, said sheets or blanks being arranged in two sets with the sheets of each set in planes that are parallel with each other and that intersect the planes of the sheets of the other set, means for providing all of the sheets, at their points of intersection, with marginal slits or notches, means for advancing all of the sheets in their respective planes until the sheets of one set partially interlock with the sheets of the other set, means for simultaneously severing a complete set of filler-strips from each set of sheets, and means for simultaneously drawing the severed strips of one set toward the severed strips of the other set and thereby completely interlocking the two sets of filler-strips thus formed, substantially as set forth.



3. In a machine of the class described, the combination of means for holding as many sheets or blanks as there are filler-strips in the complete egg-case filler, said sheets or blanks being arranged in two sets with the sheets of each set in planes that are parallel with each other and that intersect the planes of the sheets of the other set, a number of dies arranged in as many gangs or sets as there are sheets or blanks and adapted to simultaneously perforate all of the sheets of both sets at a given distance from their ends, a cutter arranged in advance of each gang or set of dies, said cutters being adapted to simultaneously sever all of the sheets of both sets upon the lines of the perforations made at the next preceding operation of the dies whereby each strip of each set is provided with a marginal notch or slit, means for operating the dies and cutters, means for feeding all of the sheets or blanks forward a distance equal to the width of a filler-strip after each operation of the dies and cutters and thereby causing their notched ends to interlock in advance of the next operation of the cutters, and means for simultaneously advancing toward each other all the filler-strips of the two sets thus made and severed by the dies and cutters, substantially as set forth.

4. In a machine of the class described, the combination of means for holding a number of sheets or blanks, a number of dies arranged in as many gangs or sets as there are sheets and with the several gangs or sets in line with each other, whereby they are adapted to perforate all of the sheets of both sets at a given distance from their ends, means for feeding all of the sheets forward a distance equal to the width of a filler-strip after each operation of the dies, and a number of cutters, one for each sheet, adapted to sever all of the sheets upon the lines of the perforations made by the dies, substantially as set forth.

5. In a machine of the class described, the combination of a means for holding a number of sheets or blanks, a plurality of fixed and movable bars arranged alternately, cooperating die members carried by said bars, respectively, means for moving one set of bars toward and from the other set, means for feeding a sheet of material between the cooperating die members of each pair of bars, and means for severing the sheets upon the lines of the perforations made by the dies, substantially as set forth.

6. In a machine of the class described, the combination of a plurality of fixed and movable bars arranged alternately, a gang of die members carried by each of the bars, the die members of one bar being adapted to coöperate with the die members of the adjacent bar, means for moving the movable bars toward and from the fixed bars, a number of cutters, one carried by each of the movable bars and adapted to coöperate with the adjacent fixed bar for severing the sheets, and means for intermittently advancing the sheets, substantially as set forth.

7. In a machine of the class described, the combination of a plurality of fixed bars each having a plurality of matrices, a plurality of movable bars, alternating with the fixed bars, each having a plurality of punches, means for imparting lateral reciprocation to the movable bars, a knife carried by each of the movable bars adapted to coöperate with a ledger-blade on the adjacent fixed bar, sheet-feeding tubes each having its forward end secured to one of the fixed bars, and means for intermittently feeding sheets of material through said tubes, substantially as set forth.

8. In a machine of the class described, the combination with means for severing filler-strips from a number of sheets of strawboard or the like, of means for intermittently feeding forward the sheets of strawboard, said feeding means comprising a pair of rolls adapted to engage each sheet, intermeshing pinions carried by the shafts of each pair of rolls, a second pinion carried by the shaft of one roll of each pair, a movable clutch member carried by said pinion, a fixed clutch member carried by the shaft and adapted to coöperate with the movable clutch member, a rack-bar engaging the pinions last aforesaid, and means for reciprocating the rack-bar, substantially as set forth.

9. In a machine of the class described, the combination with means for forming and severing filler-strips from a number of sheets, of means for intermittently feeding forward said sheets, said feeding means comprising a tube for each sheet having openings in its opposite sides, a pair of rolls for each sheet adapted to engage the sheet through the openings in the tube, intermeshing pinions carried by the shafts of each pair of rolls, a fixed clutch member carried by one shaft of each pair of rolls, a movable clutch member mounted to slide and rotate upon said shaft, a pinion movable with said movable clutch member, a rack-bar engaging the movable pinion, and means for reciprocating the rack-bar, substantially as set forth.

10. In a machine of the class described, the combination with means for forming and severing filler-strips from a number of sheets, of means for feeding forward the sheets, said feeding means comprising a pair of rolls for each sheet, said pairs of rolls being arranged in parallel rows and staggered, and means for rotating all of the rolls intermittently, substantially as set forth.

11. In a machine of the class described, the combination with means for forming and severing filler-strips from a number of sheets, of means for intermittently feeding forward the sheets, said means including a pair of rolls for each sheet, said rolls being arranged in parallel rows, shafts carrying the rolls, a reciprocable rack-bar arranged between the two rows of shafts, a pinion carried by one shaft of each pair and meshing with the rack-bar, right and left clutch members carried by said pinions, coöperating clutch members carried by the shafts, and intermeshing pinions, whereby rotation is transmitted from one shaft of each pair to the other, substantially as set forth.

12. In a machine of the class described, the combination with a gang of coöperating die members and means for actuating them, of, means for discharging a blast of air in the vicinity of the matrices for dislodging the chips, substantially as set forth.

13. In a machine of the class described, the combination of a number of coöperating die members comprising punches and matrices arranged in sets or gangs, and a number of relatively-movable bars carrying said die members, the bars that carry the matrices being provided with air-channels having discharge-openings directed into the matrices, and means for discharging air into said channels, substantially as set forth.

14. In a machine of the class described, the combination of two relatively-movable bars, means for relatively moving them, a set of punches carried by one of them, a set of matrices carried by the other and adapted to coöperate with the punches, one of said bars being provided with an air-channel having discharge-openings directed toward the places where the chips are discharged from the matrices, and means for discharging air into said channel, substantially as set forth.

15. In a machine of the class described, the combination of a number of coöperating die members arranged in separate sets or gangs, means for operating said die members, means for feeding a sheet of material to each of the sets or gangs of coöperating die members, and means for discharging jets of air into the spaces between the several sheets being fed to the die members, substantially as set forth.

16. In a machine of the class described, the combination with a number of coöperating die members arranged in separate sets or gangs, means for operating them, and means for feeding a sheet of material to each set or gang of die members, of means for directing jets of air against the chips as they fall from the dies for blowing them into the space between the sheets that are being fed to the dies, and means for directing jets of air into the spaces between said sheets, substantially as set forth.

17. In a machine of the class described, the combination with coöperating die members arranged in a plurality of sets or gangs, a pair of relatively-movable bars carrying the coöperating die members of each set, and means for feeding sheets of material to the several sets or gangs of die members, of flexible aprons each having one of its edges connected to one of the bars aforesaid, a plate against which the other edge of said apron bears, said plate being adapted to close the spaces between the sheets of material, and means for discharging currents of air into the spaces between said aprons and sheets, substantially as set forth.

18. In a machine of the class described, the combination of two machine-sections having means for holding as many separate sheets or blanks as there are strips in the egg-case filler, said sheets or blanks being arranged in two sets, one carried by each machine-section, with the sheets of each set in planes that are parallel with each other and that intersect the planes of the sheets of the other set, means for simultaneously feeding the two sets of sheets forward, intermittently, means for providing the ends of all of the sheets of each set, at their intersections with the sheets of the other set, with notches, means for severing a filler-strip from each sheet, and means for simultaneously interlocking the two sets of filler-strips thus formed, substantially as set forth.

19. The combination with the feeding, punching, cutting and interlocking mechanism substantially as described, said mechanisms being disposed in two groups adapted to make and assemble the parts of a filler between them, of a swinging arm adapted to move in the space between the two groups of mechanisms, and means for swinging such arm for the purpose of dislodging the completed filler, substantially as set forth.

20. In an egg-case-filler machine, the combination of a number of fixed and movable bars arranged alternately, coöperating die members carried by the bars, a pair of rods, means for connecting the rods with all of the movable bars, yokes connected with the rods, cams disposed within the yokes and adapted to move the rods endwise, and a spring adapted to move the rods in one direction and hold them in normal positions, substantially as set forth.

21. In a machine of the class described, the combination of means for forming all of the filler-strips necessary for a complete egg-case filler, said strips having notches or slits in their edges, means for bringing said strips together in two sets with the strips of each set in planes that are parallel with each other and that intersect the planes of the strips of the other set, and with their notches at their points of intersection, two sets of grippers, each set being adapted to grip the filler-strip of one of the two sets, and means for advancing and retracting the grippers, substantially as set forth.

22. In a machine of the class described, the combination with means for holding two sets of sheets with the sheets of each set in planes that are parallel with each other and that intersect the planes of the sheets of the other set, means for notching the sheets at their points of intersection, means for advancing the sheets so as to partly interlock them, and means for severing a set of filler-strips from each set of sheets, of two sets of grippers, each set being adapted to grip the filler-strips of one of the two sets; means for advancing and retracting the grippers, and means for opening and closing their jaws, substantially as set forth.

23. In a machine of the class described, the combination of two machine-sections, each having means for holding a set of sheets, means for perforating the sheets, cutters for severing filler-strips from the sheets, means for advancing the sheets and arresting them in such positions that the cutters will intersect the perforations aforesaid, a set of grippers, means for advancing and retracting the grippers, a means for opening and closing their jaws, the grippers of each machine-section being adapted to grip the filler-strips made by the other machine-section, substantially as set forth.

24. In a machine of the class described, the combination with two machine-sections, each having means for making a set of filler-strips, of a set of grippers carried by each machine-section and adapted to grip the filler-strips made by the other machine-section, each of said grippers having a pair of spring-actuated jaws, arms carrying the jaws and having cam-surfaces, means for advancing and retracting the grippers, and means for engaging the cam-surfaces aforesaid for operating the jaws, substantially as set forth.

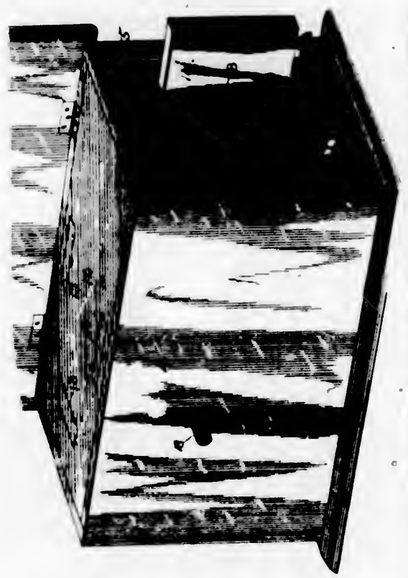
25. In a machine of the class described, the combination with two machine-sections each having means for making a set of filler-strips, of a set of grippers carried by each machine-section, a movable part by which the grippers are carried, means for imparting reciprocating movement to said part whereby the grippers are advanced and retracted, a means whereby the movement aforesaid is caused to operate the jaws of the grippers, substantially as set forth.

26. In a machine of the class described, the combination with the bars, F, having matrices, the bars, G, having dies, the cutters carried by the bars, G, means for advancing the sheets between the bars, F and G, means for reciprocating the bars F, grippers having arms disposed between the bars G and G, means for imparting reciprocating movement to the arms of the grippers, and means for converting said reciprocating movement and operating the jaws of the grippers, substantially as set forth.

27. In a machine of the class described, the combination of the bars, F, having matrices, the bars, G, having dies, cutters carried by the bars, G, means for reciprocating the bars, G, means for advancing the sheets between the bars, F and G, grippers having arms disposed between the bars F and G, a reciprocable frame to which the arms of the grippers are attached, means for reciprocating said frame whereby the arms of the grippers are reciprocated endwise, and means for converting the endwise-reciprocating movement of the grippers and thereby operating their jaws, substantially as set forth.

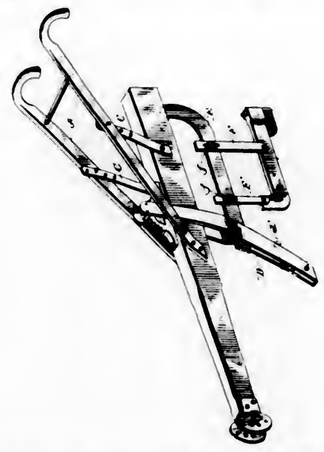
28. In a machine of the class described, the combination of two machine-sections each having means for making a set of filler-strips and each having a set of grippers adapted to grip the set of filler-strips made by the other machine section, and means for operating said grippers, said operating means including a reciprocable frame having cross-bars, provided with studs, and hooks, and rods supported by the hooks and engaging the arms of the grippers, the grippers and their arms being formed of lengths of spring metal bent to form eyes for receiving the studs, substantially as set forth.

644,768. AIR-COOLER AND REFRIGERATOR. JOHN CORMACK, St. Johns, Newfoundland. Filed June 21, 1899. Serial No. 721,354. (No model.)



Claim.—A cooler and refrigerator, comprising a casing, a hinged top therefor; a receptacle mounted within said casing, said receptacle having an open top; non-conducting material interposed between the walls of said receptacle and said casing; a closed refrigerating-chamber located within said receptacle, said chamber being of a less size than said receptacle, whereby a space will be formed between the walls of said chamber and the walls of said receptacle, said space abutting against the sides, end and bottom walls of said chamber and forming a repository for the refrigerating material; a supplementary top removably interposed between said hinged lid or top and said receptacle, said top being provided with a series of openings leading to said space, said openings being normally closed by hinged doors, a space being formed between the top of said chamber and said supplemental top; non-conducting material located within said space above said chamber; and a door adapted to afford access solely to said refrigerating-chamber, substantially as described.

644,764. PLOW-STOCK. JOSEPH W. FILLIP and ROBERT B. LITTLE, Tunis, Tex. Filed Nov. 15, 1899. Serial No. 737,123. (No model.)



Claim.—In a plow-stock of the class described, the combination of the standard, the standard-brace, the supports attached to said brace, and the foot-bar secured to said supports independently of the foot of the standard.

644,765. COMPOSITION OF MATTER ESPECIALLY ADAPTED FOR USE IN MANUFACTURING BUILDING-BLOCKS. LEOPOLD GLEICHMAR, Rudolstadt, Germany. Filed Jan. 2, 1900. Serial No. 135. (No specimens.)

Claim.—A composition of matter suitable for the manufacture of building-blocks consisting of linseed-oil, castor-oil, rosin and a thickening ingredient of a granular or sandy character, as specified.

644,766. PROCESS OF PRODUCING BUILDING-BLOCKS. LEOPOLD GLEICHMAR, Rudolstadt, Germany. Filed Jan. 2, 1900. Serial No. 136. (No specimens.)

Claim.—1. The process of manufacturing blocks which consists in melting together linseed-oil and castor-oil adding thereto pulverized marble, boiling the mixture and subsequently adding marble and sand and compressing the mass into suitable shapes.

2. The herein-described process of manufacturing blocks which consists in boiling crude linseed-oil, castor-oil and marble-dust and thereupon adding a granular substance composed in part of marble-dust and thereupon compressing the mass into suitable shapes.

3. The herein-described process of producing blocks the same consisting in heating linseed-oil, castor-oil and marble-dust and thereupon adding to the mass a granular material comprised in part of marble-dust and thereupon compressing the mass into suitable shapes.

644,767. SEAM RUBBING AND CLEANING MACHINE. JOHN R. HADAWAY, Brockton, Mass. Filed Nov. 23, 1899. Serial No. 738,030. (No model.)

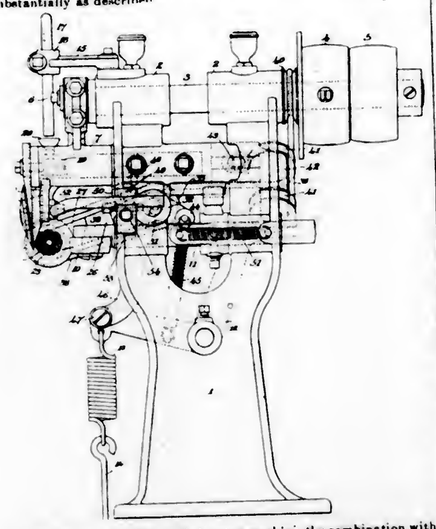
Claim.—1. In a seam rubbing and cleaning machine, the combination with a seam rubbing and cleaning tool constructed and arranged to act in the crease between the upper and sole of a shoe, of a liquid-supplying device having a part also arranged to enter the crease between the upper and sole and supply a cleaning liquid to the stitches of the seam adjacent to the point of operation of the tool, substantially as described.

2. In a seam rubbing and cleaning machine, the combination with a seam-rubbing tool constructed and arranged to act in the crease between the upper and sole of a shoe, of a cleaning device for cleaning the rubbing-face of said tool and means for actuating said cleaning device, substantially as described.

3. In a seam rubbing and cleaning machine, the combination with a seam rubbing and cleaning tool, of a tool-cleaning brush and means for throwing said brush into and out of operative relation to the tool, substantially as described.

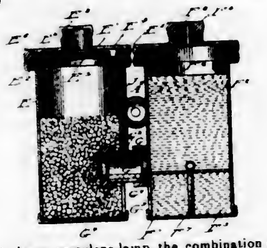
4. In a seam rubbing and cleaning machine, the combination with a seam rubbing and cleaning tool, of a tool-cleaning brush, and means

for yieldingly advancing said brush in operative relation to the tool, substantially as described.



5. In a seam rubbing and cleaning machine, the combination with a seam rubbing and cleaning tool, of a work rest and presser, a tool-cleaning brush, and connected mechanisms for actuating the work rest and presser and tool-cleaning brush, whereby said brush will be thrown into or out of operative relation to the tool as the work rest or presser is retracted and advanced, substantially as described.

644,768. ACETYLENE-GAS-GENERATING LAMP. FREDERICK W. HEDGELAND, Chicago, Ill. Filed Nov. 6, 1899. Serial No. 735,865. (No model.)



Claim.—1. In an acetylene-lamp, the combination of two companion cylinders arranged side by side, one containing the carbid, and the other the water-reservoir and equalizing-chamber, said equalizing-chamber being in communication with the carbid by a water-passage, and a gas-passage connecting said water-passage with the upper part of the carbid-cylinder, substantially as specified.

2. The self-generating acetylene-lamp, consisting of a burner, two separated companion cylinders, one for the carbid and the other for the water, a horizontal pipe forming the only communication between the cylinders and admitting water from the water-cylinder to the carbid-cylinder, a gas-passage conducting gas from above the carbid to said pipe, and means for controlling the admission of water when the lamp is not in use, substantially as specified.

3. The self-generating acetylene-lamp, consisting of a burner, two separated companion cylinders, one for the water and the other for the carbid, a cross-passage between the cylinders admitting water from one cylinder to the other, a gas-passage conducting the supply of gas whereby the generation is regulated to said cross-passage, and means in the water-cylinder for preventing access by the water to the carbid when the lamp is not in use.

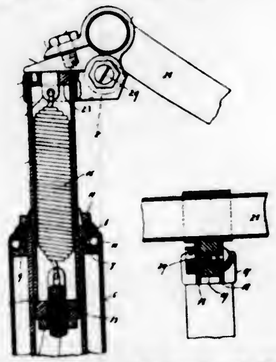
4. The self-generating acetylene-lamp consisting of two separated companion cylinders, one containing the carbid, and the other the water, the latter being divided into a water-reservoir above and an equalizing-chamber below, a valved water-passage between said chamber and said reservoir, and a horizontal cylinder forming a water-passage between the equalizing-chamber and the carbid-cylinder and to which gas from above the body of carbid is admitted, said last-mentioned cylinder serving as a means of coupling the companion cylinders together, substantially as specified.

5. The self-generating acetylene-lamp consisting of two separated companion cylinders, one containing the carbid, and the other the water, the latter being divided into a water-reservoir above and an equalizing-chamber below, a valved water-passage between said chamber and said reservoir, and a horizontal cylinder forming a water-passage between the equalizing-chamber and the carbid-cylinder and to which gas from above the body of carbid is admitted, said last-mentioned cylinder being fixed to one of the companion cylinders and held to the other by a swiveled nut, substantially as specified.

6. In an acetylene-lamp, a carbid-cylinder having a removable top, a water-cylinder having a removable cap and containing a reservoir and an equalizing-chamber below the reservoir, a connecting-passage G fixedly attached to one cylinder and through which water flows from the equalizing-chamber to the carbid, a nut swiveled to the other cylinder and engaging the outside of said passage, a burner, a tube surrounding the burner and admitting air along the same, a hood having a rear projection and a socket between the cylinders and receiving said projection, substantially as specified.

7. The self-generating acetylene-lamp, consisting of twin cylinders E and F, arranged side by side, one containing the water and the other the carbid, a burner communicating with the carbid-cylinder, and located centrally between and in front of the cylinders, a hood for said burner, a water-passage connecting the cylinders and permitting the water to feed to the carbid-cylinder and to which passage the gas has access, so that its pressure may regulate the flow of the water, and means for shutting off the water from the carbid, substantially as specified.

644,769. BICYCLE. CHARLES L. JESSE, Springfield, Mass. Filed July 1, 1899. Serial No. 722,496. (No model.)



Claim.—1. A handle-bar post for bicycles and similar vehicles which is tubular in form and the lower end of which is closed by a plug, a spring in said post and connected with the plug in the lower end thereof, a clamp or band secured to the upper end of said post, a lever pivoted to one side of said clamp or band and projecting over the end of said post and provided with a finger which passes downward into said post and is connected with said spring, said lever being also provided over its pivotal support with a clamp through which the handle-bar passes, substantially as shown.

2. A handle-bar post for bicycles and similar vehicles which is tubular in form and both ends of which are closed by plugs, a spring mounted in said post and adjustably connected with the plug in the lower end thereof, a clamp or band secured to the upper end of said post, a lever pivoted to one side of said clamp or band and projecting over the end of said post and provided with a finger which passes downwardly through the plug therein and is connected with said spring, said lever being also provided over its pivotal support with a clamp or band through which the handle-bar is passed, substantially as shown and described.

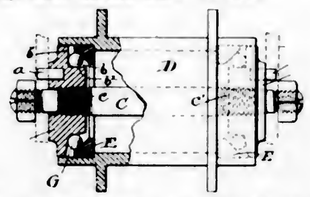
644,770. SOLVENT FOR LEACHING ORES. ROBERT W. KENNEDY, Ashland, Oreg. Filed Mar. 13, 1899. Serial No. 708,936. (No specimens.)

Claim.—1. A solvent for leaching ores comprising sodium thiosulfate, ammonium carbonate, and copper sulfate in water in proportions substantially as described.

2. A solvent for leaching ores, comprising sodium thiosulfate, ammonium carbonate, and copper sulfate in water, with the addition of phosphoric acid, potassium cyanid and sodium or potassium acetate, substantially in the proportions described.

3. A solvent for leaching ores, comprising sodium thiosulfate, ammonium carbonate, copper sulfate, and potassium cyanid in water, in proportions substantially as described.

644,771. BALL-BEARING. ROBERT H. KIMBALL, Cleveland, Ohio. Filed Sept. 7, 1899. Serial No. 729,675. (No model.)



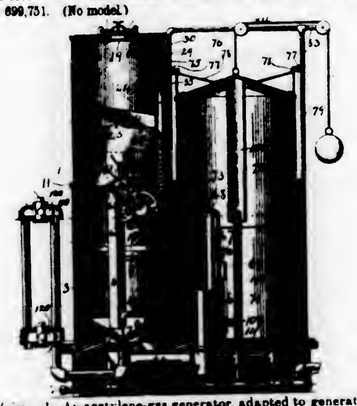
Claim.—1. In a ball-bearing, a non-rotative member, provided with an annular groove having two bearing-surfaces which are disposed to each other at a varying angle, substantially as specified.

2. In a ball-bearing, a non-rotative member, provided with an annular groove having two bearing-surfaces which are disposed angularly with respect to each other, the angle between them being a gradually-decreasing angle in both directions from that part of the circumference where the balls support the weight, substantially as specified.

3. In a ball-bearing, a non-rotative member provided with an annular groove having two bearing-surfaces which are disposed angularly with respect to each other, the angle between them being a gradually-decreasing angle in both directions and for a part of the circumference from near a point where the weight is to be supported, and a uniform angle for the remaining part of the circumference, combined with a rotative member having a bearing-surface, and balls confined in the raceway between said members, substantially as specified.

4. A non-rotary axle having oppositely-threaded ends, two non-rotating ball-bearing cups upon said threaded ends, each having an annular groove with two ball-bearing surfaces which are angularly disposed with respect to each other, said angle being a gradually-decreasing angle in both directions and for a part of the circumference from the place where the weight is to be supported, and means for preventing the rotation of said cups, with a rotative hub, two cones secured in said hub, and balls confined in the raceways between said cups and cones, substantially as specified.

644,772. ACETYLENE-GAS GENERATOR. PHILIPPE LAPERLE and OSCAR P. BOULARD, Montreal, Canada. Filed Dec. 19, 1898. Serial No. 699,751. (No model.)



Claim.—1. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; means for forming compartments in said runway each compartment having an open top; and means for precipitating the contents of one of said compartments into the generating-chamber.

2. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; means, automatically operated by the increase and decrease of the volume of gas, for forming compartments in said runway, each compartment having an open top; and means for precipitating the contents of one of said compartments into the generating-chamber.

3. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; doors located in said runway, movable into and out of a position within said runway, forming compartments, each compartment having an open top; and means for precipitating the contents of one of said compartments into said generating-chamber.

4. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway formed therein, said runway having an open top; doors mounted to have a movement into and out of said runway, said doors being movable in opposite directions, whereby compartments will be formed, each compartment having an open top; and means for precipitating the contents of one of said compartments into the generating-chamber.

5. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; doors mounted to have a movement into and out of said runway, the movement of the doors being simultaneous, the movement of each door being in a direction opposite that of the other, whereby compartments will be formed, each compartment having an open top; and means for precipitating the contents of one of said compartments into the generating-chamber.

6. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, the movement of the doors being simultaneous, the movement of each door being in a direction opposite that of the other, whereby compartments will be formed; and means for precipitating the contents of one of said compartments into the generating-chamber.

7. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; doors mounted to have a movement into and out of said runway, said doors being movable in opposite directions, whereby compartments will be formed, each compartment having an open top; means for imparting movement to said doors intermittently; and means for precipitating the contents of one of said compartments into the generating-chamber.

8. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein, said runway having an open top; doors mounted to have a movement into and out of said runway, the movement of the doors being simultaneous, the movement of each door being in a direction opposite that of the other, whereby compartments will be formed each compartment having an open top; means for imparting movement to said doors intermittently; and means for precipitating the contents of one of said compartments into the generating-chamber.

9. A carbid-charge former, comprising a carbid-runway; a series of doors movable into and out of position in said runway, said doors moving vertically from the lower side of said runway in opposite directions, one of said doors being adapted to separate the charge from the bulk carbid; and means for imparting movement to said doors.

10. A carbid-charge former, comprising a carbid-runway having an open top; a series of doors movable into and out of position in said runway, said doors moving vertically from the lower side of said runway in opposite directions, one of said doors being adapted to separate the charge from the bulk carbid; and means for imparting movement to said doors.

11. A carbid-charge former, comprising a carbid-runway; a series of doors movable into and out of position in said runway, said doors moving vertically from the lower side of said runway, in opposite directions, the movement of said doors being simultaneous, one of said doors being adapted to separate the charge from the bulk carbid; and means for imparting movement to said doors.

12. A carbid-charge former, comprising a carbid-runway, having an open top; a series of doors of a width equal to the width of the runway and movable into and out of position in said runway, said doors moving vertically from the same side of said runway, in opposite directions, the movement of said doors being simultaneous, one of said doors being adapted to separate the charge from the bulk carbid; and means for imparting movement to said doors.

13. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a move-

ment into and out of said runway, said doors having rack-bars; pinions mounted between said doors and cooperating with said rack-bars; and means for imparting movement to said pinions, whereby said doors will be given a positive and simultaneous movement in opposite directions.

14. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive cooperating relation to each of said doors; means for imparting movement to said pinions, whereby said doors will have a positive and simultaneous movement; and means for precipitating the contents of one of said compartments into the generating-chamber.

15. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive cooperating relation to each of said doors; means for imparting movement to said pinions, whereby said doors will have a positive and simultaneous movement; means for limiting the movement of said pinions, whereby the length of movement of said doors will be regulated; and means for precipitating the contents of one of said compartments into the generating-chamber.

16. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive cooperating relation to each of said doors; means for imparting movement to said pinions, whereby said doors will have a positive and simultaneous movement; and means for precipitating the contents of one of said compartments into the generating-chamber, said means being operated at a predetermined point in the movement of said frame, whereby the movement of said pinions in one direction will be automatically limited and the length of movement of the doors be regulated.

17. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive cooperating relation to said rack-bars; a vertically-moving frame located within said generator; connections between said frame and said pinions for imparting a positive and simultaneous movement to said doors when said frame has reached a predetermined point in its movement; and means for precipitating the contents of one of said compartments into the generating-chamber.

18. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive coacting relation to said rack-bars; a segmental gear adapted to impart movement to said pinions; a vertically-moving toothed frame located in said generating-chamber, said frame, during a predetermined period of its movement, imparting a movement to said gear, whereby said doors will be given a positive and simultaneous movement; and means for precipitating the contents of one of said compartments into the generating-chamber.

19. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a carbid-receptacle located within said generator; a generating-chamber; a carbid-runway mounted within said chamber and adapted to receive the carbid from said receptacle, said runway having an open top, whereby the generated gas will be allowed to mingle with the carbid in said runway and said receptacle, thereby drying the gas; and means for delivering the carbid in automatically-regulated quantities from said runway, to be decomposed.

20. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway formed in said receptacle; means, mounted in said runway, for positively forcing said carbid along said runway; means for forming a carbid charge during the passage of the carbid over said runway; and means, located in said runway for precipitating a quantity of the carbid into the generating-chamber.

21. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway located in said chamber; means, mounted within said runway for positively forcing the carbid along said runway; doors located in said runway and movable into and out of a position within said runway, to form compartments therein; means for imparting movement to said doors; and means for precipitating the contents of one of said compartments into the generating-chamber.

22. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway located in said chamber; means, automatically operated by the movement of the gasometer-bell, for positively forcing the carbid along said runway; doors located in said runway and movable into and out of a position within said runway, to form compartments therein; means for imparting movement to said doors; and means for precipitating the contents of one of said compartments into the generating-chamber.

23. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; a door mounted in said runway and movable in the direction of movement of the carbid, adapted to move the carbid along said runway; means for imparting movement to said door; charge-forming mechanism located in said runway, adapted to form a carbid charge; and means for precipitating said formed charge into the generating-chamber.

24. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; a door pivotally mounted within said runway and movable in the direction of movement of the carbid, adapted to move the carbid therethrough; means for imparting movement to said door at predetermined periods; charge-forming mechanism located in said runway, adapted to form a carbid charge; and means for precipitating said formed charge into the generating-chamber.

25. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; a door pivotally mounted in and forming a part of said runway and movable in the direction of movement of the carbid, adapted to move the carbid therethrough; means for imparting movement to said door; charge-forming mechanism located in said runway, adapted to form a carbid charge; and means for precipitating said formed charge into the generating-chamber.

26. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway to form compartments therein; means for imparting movement to said doors; a pivotally mounted door located at one end of and forming a portion of said runway; means, operated at a predetermined period of movement of said compartment-forming means, for imparting movement to said door, whereby the carbid will be positively forced along said runway; and means for precipitating the contents of one of said compartments into the generating-chamber.

27. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors mounted to have a movement into and out of said runway, to form compartments therein, said doors having rack-bars; pinions mounted to have a positive cooperating relation to said rack-bars; a vertically-moving frame located within said generator; connections between said frame and said pinions for imparting a positive and simultaneous movement to said doors when said frame has reached a predetermined point in its movement; a pivotally-mounted door located in and forming a part of said runway; operative connections between said door and said frame, for imparting movement to said door, when said frame is at a predetermined point in its movement; and means for precipitating the contents of one of said compartments into the generating-chamber.

28. An acetylene-gas generator, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway formed in said receptacle; mechanism for forming a carbid charge, during the passage of the carbid over said runway; an opening for the passage of the carbid formed at the end of said runway, said opening being normally closed; and means, operated by the movement of the carbid-charge-forming mechanism, for releasing said closing mechanism.

29. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway located in said chamber, said runway having an open top; doors located in said runway, movable into and out of position within said runway, to form compartments therein said doors having a simultaneous movement; means for imparting a movement to said doors; and means, operated by said compartment-forming means, for precipitating the contents of one of said compartments into the generating-chamber.

30. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; carbid-charge-forming mechanism located in the path of movement of the carbid; a door pivotally mounted, adapted to receive said formed charge, said door being normally held closed; and means, operated by the forming mechanism, for tripping said holding mechanism, whereby said charge will be precipitated into the generating-chamber.

31. An acetylene-gas generator, comprising a generating-chamber; a carbid-receptacle located therein; a carbid-runway located in said chamber; means for forming compartments in said runway; a door pivotally mounted for receiving the contents of one of said compartments, said door being normally held closed; and means operated positively and solely by said compartment-forming means, for tripping said holding mechanism, whereby said contents will be precipitated into said generating-chamber.

32. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; means mounted therein, for positively forcing the carbid along said runway; means for forming compartments in said runway; a door, pivotally mounted, for receiving the contents of one of said compartments, said door being normally held closed; and means for tripping said holding mechanism at a predetermined period whereby said contents will be precipitated into the generating-chamber.

33. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; means, mounted therein, for positively forcing the carbid along said runway; means for forming compartments in said runway; a door, pivotally mounted, for receiving the contents of one of said compartments, said door being normally held closed; and means, automatically operated, for tripping said holding mechanism, whereby said contents will be precipitated into the generating-chamber.

34. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid runway located therein, said runway having an open top; means for forming compartments within said runway, each compartment having an open top; a door pivotally mounted, adapted to receive the contents of one of said compartments, said door being normally held closed; and means operated by said compartment-forming means, for tripping said holding mechanism, whereby said contents will be precipitated into said generating-chamber.

35. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway formed therein; doors mounted to have a movement into and out of said runway, whereby compartments will be formed; mechanism for imparting movement to said doors; a tilting platform mounted at one end of said runway adapted to receive the contents of one of said compartments, said platform being normally held in a closed position; and means for tripping said holding mechanism at a predetermined period of movement of said compartment-forming mechanism.

36. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway; means for forming compartments in said runway; a tilting platform located in said runway, adapted to receive the contents of one of said compartments and precipitate the same into the generating-chamber; means for normally holding said platform in one position; and means, operated positivaly and solely by the compartment-forming means, for tilting said platform.

37. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-receptacle located therein; carbid-charge-forming mechanism located in the path of movement of the carbid; a door, pivotally mounted, adapted to receive the formed charge, said door being normally held closed; means operated by said charge-forming mechanism for tripping said holding mechanism, whereby said charge will be precipitated into the generating-chamber; and means for returning said door to its normal position.

38. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway formed therein, said runway having an open top; means for forming compartments within said runway, each compartment having an open top; a door pivotally mounted, adapted to receive the contents of one of said compartments, said door being normally held closed; means, operated by said compartment-forming means, for tripping the holding mechanism, whereby said contents will be precipitated into said generating-chamber; and means for returning said door to its normal position.

39. An acetylene-gas generator, comprising a generating-chamber; a carbid-receptacle located therein; carbid-charge-forming mechanism located in the path of movement of the carbid; a door, adapted to receive the formed charge, said door being normally held closed; means operated by the charge-forming mechanism, for tripping said holding mechanism, whereby the charge will be precipitated into the generating-chamber; and means, independently operated, for automatically returning said door to its normal position.

40. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway formed therein; means for forming compartments within said runway; a door pivotally mounted, to receive the contents of one of said compartments, said door being normally held closed; means operated by said compartment-forming means, for tripping the holding mechanism, whereby said contents will be precipitated into said generating-chamber; and independent means for returning said door to its normal position

41. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk comprising a generating-chamber; a carbid-runway formed therein; doors mounted to have a movement into and out of said runway, whereby compartments will be formed; mechanism for imparting movement to said doors; a tilting platform mounted in juxtaposition to the delivery end of said runway, adapted to receive the contents of one of said compartments, said platform being held normally in a closed position; means located in the path of movement of said compartment-forming mechanism, for tripping said holding mechanism at a predetermined period of movement of said compartment-forming mechanism; and means for returning said platform to its normal position.

42. An acetylene-gas generator, adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway formed therein; doors mounted to have a movement into and out of said runway, whereby compartments will be formed; mechanism for imparting movement to said doors; a tilting platform mounted in juxtaposition to the delivery end of said runway, adapted to receive the contents of one of said compartments, said platform being normally held in closed position; means located in the path of movement of the compartment-forming mechanism, for tripping said holding mechanism at a predetermined period of movement of said compartment forming mechanism; and means for automatically returning said platform to its normal position, said means being operated independently of the movement of said compartment-forming mechanism.

43. An acetylene-gas generator adapted to generate gas from carbid introduced in bulk, comprising a generating-chamber; a carbid-runway located therein; doors movable into and out of said runway to form compartments therein; a door pivotally mounted at one end of said runway adapted to receive the contents of one of said compartments, said door being normally held in its closed position; mechanism for imparting movement to said movable doors; and tripping mechanism, located in the path of movement of said door-moving mechanism, for automatically releasing said door from its normal position, whereby the charge located on said door will be precipitated into the generating-chamber, at a predetermined period in the movement of said doors.

44. An acetylene-gas generator, comprising a generating-chamber; a carbid-runway located therein; doors movable into and out of said runway to form compartments therein; mechanism for imparting movement to said doors; a door mounted at the lower end of said runway, adapted to receive the contents of one of said compartments, said door being normally held in a closed position; tripping mechanism, located in the path of movement of said door-moving mechanism, for automatically releasing said door from its normal position whereby the charge located thereon will be precipitated into the generating-chamber; and independent means for returning said door to its normal position.

45. The combination, in an acetylene-gas generator, with a carbid-runway adapted to receive the carbid from the carbid-receptacle; of a tilting platform mounted in juxtaposition to said runway; means for imparting an intermittent pivotal movement to said platform; and a yielding partition mounted to receive the impact of the platform when returning to its closed position.

46. In an acetylene-gas generator, the combination with a carbid-runway adapted to receive the carbid from the carbid-receptacle; of a tilting platform mounted in juxtaposition to and forming the lower end of said runway; means for imparting an intermittent pivotal movement to said platform; and a yielding partition, forming the movement-limiting end of the runway for said carbid, mounted to receive the impact of the platform when returned to its normal position.

47. An acetylene-gas generator, comprising a generating-chamber; a carbid-receptacle located at the top thereof, said receptacle having a delivery-opening; a series of plates extending vertically within said chamber, below said receptacle, said plates being located on opposite sides of the diameter of the generator, the opening in said receptacle being located to deliver the contents to the space between said plates; a bottom formed between said plates, forming a runway; and a tilting platform mounted at the end of said bottom, said platform being adapted the deliver the carbid to be decomposed, whereby the generated gas is allowed to mingle with the carbid, thereby drying the gas.

48. An acetylene-gas generator, comprising two members held in telescopical relation to each other; a peripheral support for the inner member, secured to the outer member; a water seal formed between said members; and a series of locking devices, carried by said inner member, adapted to engage with said outer member removably, to hold said members in their telescoped position.

49. An acetylene-gas generator, comprising an outer and an inner member arranged to telescope; a flange secured about the inner periphery of said outer member, to support said inner member; a water seal formed between said members said seal covering said

flange; means, carried by said inner member, for preventing the passage of the carbid into said water seal; and a series of locking devices, carried by said inner member, adapted to removably engage with said outer member, to hold said members fixedly in their telescoped position.

50. A water-supply for acetylene-gas-generating apparatus, comprising a reservoir, having its water-level held uniformly on the same horizontal plane; means for supplying water thereto; and independent connections between said reservoir and the generating-chamber and the gasometer, for holding the level of the water seals in said chamber and said gasometer at approximately the same horizontal plane, independently of each other.

51. A water-supply for acetylene-gas-generating apparatus, comprising a reservoir; means for supplying water thereto; independent connections between said reservoir and the generating-chamber and the gasometer, for holding the level of the water seals in said chamber and said gasometer at approximately the same plane as the water-level in said reservoir, independently of each other.

52. An acetylene-gas generator, comprising a generating-chamber; a carbid-receptacle located therein; an opening formed in said generator leading to said receptacle, said opening being adapted to allow of the entry of carbid; means for automatically holding said opening closed; a refilling device removably connected to said generator over said opening; said device being normally closed; means for releasing said closing means after said device is in position, whereby said generating-chamber will remain closed during the filling operation; and means for feeding the carbid to said generating-chamber.

53. The combination with an acetylene-gas generator automatically held sealed against the entrance of air; of a refilling device normally closed, removably connected to said generator, the opening of said device, when filled and in position, allowing the carbid to disturb the sealed condition of the generator without permitting the air to enter therein.

54. An acetylene-gas generator comprising a generating-chamber; an opening formed at the top thereof; a cushion formed contiguous to said opening; a door hingedly mounted to be normally held seated against said cushion and automatically close said opening; and a refilling device, adapted to be passed into said opening, the contents of said refilling device serving to move said door from its closing position, substantially as described.

55. A water-supply for acetylene-gas-generating apparatus, comprising a reservoir; means for supplying water thereto; a valved connection between said reservoir and the generating-chamber, to prevent the return of the water therefrom; and a connection between said reservoir and the gasometer, said connections being independent of each other, and adapted to retain an independent uniform level in said chamber and said gasometer.

56. The combination with an acetylene-gas generator, having a bottom adapted to receive the residue, said bottom having an opening; of a tube, normally sealed, connected to said opening, said tube having a valved passage-way; and a water-supply pipe, having its outlet within the tube, said supply-pipe serving to agitate the contents of said tube and cause the residue to be withdrawn therefrom.

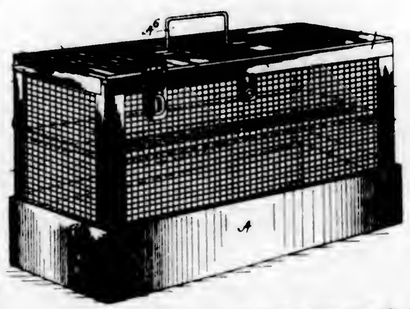
57. The combination with an acetylene-gas generator, having a bottom adapted to receive the residue, said bottom having an opening; of a tube, normally sealed, connected to said opening, said tube having a plurality of passage-ways and outlets, each controllable; and a water-supply pipe, adapted to agitate the contents of said tube and cause the residue to be withdrawn therefrom.

58. The combination with an acetylene-gas generator having a bottom adapted to receive the residue, said bottom having an opening; of a tube, normally sealed, connected to said opening, said tube having a plurality of valved outlets located at varying heights relatively to said generator; and a water-supply pipe adapted to agitate the contents of said tube and cause the residue to be withdrawn therefrom.

59. The combination with an acetylene-gas generator, having a bottom adapted to receive the residue, said bottom having an outlet; of a tube connected to said outlet, said tube extending upwardly and then downwardly outside said generator; a valve located at the upper bend of said tube; a valved connection between the upward and downward portions of said tube, said connection being below said upper bend; and a pipe connected to a source of water-supply, extending into said tube, whereby the residue will be forced through said tube with varying degrees of pressure.

60. An acetylene-gas generator adapted to generate gas from carbid introduced in bulk, said generator comprising a generating-chamber; a carbid-runway located therein, said runway having relatively an open top; means for forming compartments in said runway, each compartment having relatively said open top; and means for precipitating the contents of one of said compartments into the generating-chamber.

644,778. BAIT-BOX. HENRY LEVI, Chicago, Ill. Filed Aug. 17, 1899. Serial No. 727,575. (No model.)



Claim.—1. A box comprising a pan or box which forms the bottom of said box proper, front and rear sides hinged within and below the top of said pan or box and adapted to fold inwardly within said box, ends hinged to the lateral edges of one of said sides and adapted to fold within said box with said sides, means to secure the free edges of said ends to the lateral edges of the opposite side of said box and a cover for said box, substantially as described.

2. A box comprising front and rear sides hinged to the bottom of the box and adapted to fold one upon the other, ends hinged to the lateral edges of a side of said box, means to secure the free edges of said ends to the lateral edges of the opposite side, a cover for said box, means to secure said top or cover in position and a tray or partition in said box which divides the same into upper and lower compartments, said tray or partition comprising a hinged section which affords access to the lower compartment of said box, substantially as described.

3. A box comprising a box or pan, which forms the bottom of the box proper, front and rear sides hinged within and below the top of said box or pan, ends hinged to the lateral edges of a side of said box, means to secure the free edges of said ends to the lateral edges of the opposite side of said box, a cover for said box, said top or cover comprising a section which may be raised independently of the rest, and a tray or partition within said box which divides the same into upper and lower compartments, said tray or partition comprising a hinged section which affords access to the lower compartment of said box, substantially as described.

4. A box comprising a lower bottom portion forming a box or pan and an upper portion having open-work walls or sides, a cover for said box, means to secure said cover upon said box, a tray or partition within said box, which divides the same into upper and lower compartments, said tray comprising a hinged section which affords access to the lower compartment, substantially as described.

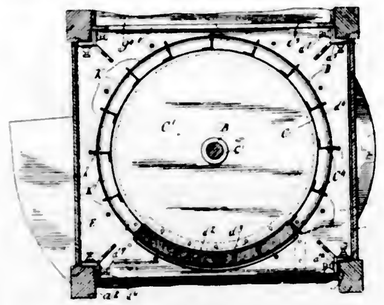
5. A box comprising a box or pan which forms the bottom of the box proper, hinged sides and ends which are adapted to fold inwardly within said box, one upon another, means to secure adjacent free edges of said sides and ends to each other, a cover for said box and means to secure said cover upon said box, substantially as described.

6. The combination with a box of a cover therefor, said cover comprising sections which may be raised independently of each other, means located within the box to secure all but a single section of said cover in closed position and means accessible from the exterior of the box for locking the remaining section, substantially as described.

644,774. OAT-CLIPPING MACHINE. WILLIAM MATTHEWS, Chicago, Ill. Filed Dec. 16, 1898. Serial No. 699,515. (No model.)

Claim.—1. The combination with a supporting-frame, of a horizontal rotative shaft, journaled therein, a conical cylinder having a closed head rigidly secured on said shaft, radial flanges rigidly attached to the periphery of the cylinder, extending outwardly therefrom, a conical, non-rotative, longitudinally-adjustable shell, like in form to and inclosing the cylinder, horizontal ways, rigidly attached to the frame, supporting the shell, means for moving the shell longitudinally of the drum consisting of a rotative screw-threaded shaft connected with said frame and shell and means for adjusting the shell vertically and laterally consisting of feet having a vertical part and a horizontal part, bearing-pieces between said feet and the ways, and set-screws having screw-threaded engagement with said feet and acting to force the bearing-piece against the ways.

2. An improved shell consisting of interchangeable parts, for a machine of the class described, having on its inner surface a plurality of raised spiral ridges circumferentially encircling the shell and transverse ridges between said spiral ridges.



3. An improved conical shell constructed of interchangeable parts for a machine of the class described having on its inner surface a plurality of raised spiral ridges circumferentially encircling the shell and transverse ridges between said spiral ridges, said shell being provided with a plurality of apertures between said ridges.

4. An improved shell for a machine of the class described, having on its inner surface a plurality of spiral converging ridges circumferentially encircling said shell the pitch thereof decreasing toward one end of the shell and transverse ridges between said spiral ridges.

5. An improved shell for a machine of the class described, having on its inner surface a plurality of spiral converging ridges circumferentially encircling the same, the pitch thereof decreasing, the height of said ridges increasing toward one end of the shell.

6. An improved shell for a machine of the class described, having on its inner surface a plurality of converging spiral ridges circumferentially encircling the same, the pitch thereof decreasing and the height of the ridges increasing toward one end of the shell and transverse ridges between said spiral ridges.

7. A shell for a machine of the character described provided interiorly with a plurality of encircling ridges forming between the same a plurality of encircling grooves, transverse ridges in said grooves the wall of said shell being provided between said ridges with a plurality of apertures and means acting to uniformly decrease the capacity of the grooves toward the discharge end of the shell.

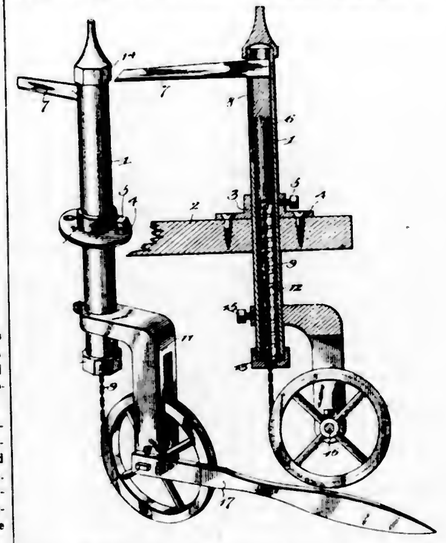
8. In a machine of the character described, the combination with a drum provided with peripheral flanges or beaters, of a surrounding shell, having on its inner surface a plurality of converging spiral ridges circumferentially encircling the shell, and forming between the same a plurality of spiral grooves, the height of said ridges increasing and the pitch thereof decreasing toward one end of the shell, and transverse ridges between the spiral ridges, a plurality of perforations in said grooves extending through the shell, said beaters being so adjusted with respect to the shell that the distance from the edge of the beaters to the bottom of the grooves uniformly decreases in the direction of the decrease of the pitch of said spiral ridges.

9. An improved shell for a machine of the class described, said shell being conical and formed of a plurality of interchangeable duplicate staves and having on its inner surface a plurality of raised spiral ridges circumferentially encircling the shell.

10. In a machine of the character described, the combination with a drum provided with beaters, of a shell formed of a plurality of interchangeable duplicate staves, said shell having on its inner surface a plurality of converging spiral ridges circumferentially encircling the same, the height of said ridges increasing and the pitch thereof decreasing toward one end of the shell, said shell being so related to the drum, and its beaters, that the distance from the edge of the beaters to the bottom of the grooves uniformly decreases in the direction of the decrease of the pitch of said spiral ridges.

644,775. CHEESE-CUTTER. BURTON B. NAGLEY and ISAAC ASBERY, Marysville, Wash. Filed Dec. 31, 1898. Serial No. 700,834. (No model.)

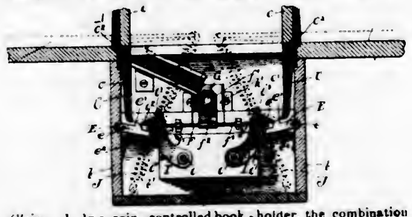
Claim.—1. A cheese-cutter comprising a slotted tubular standard, a plunger guided in the standard, a knife extending through the slot of the same and connected with the plunger, removable caps secured to the upper and lower ends of the standard, the lower cap being provided with an opening, a coiled spring arranged within the lower portion of the standard, and interposed between the plunger and the lower cap, means arranged between the ends of the standard for securing the same to a counter, a connection extending through the opening of the lower cap and through the coiled spring and attached to the plunger, and operating mechanism located beneath the counter and attached to the said connection, substantially as described.



2. A cheese-cutter comprising a slotted tubular standard, a plunger guided in the standard, a knife extending through the slot of the same and connected with the plunger, a bracket mounted on the lower portion of the standard and having a depending slotted portion, a shaft journaled on the bracket, a wheel mounted on the shaft and arranged within the slot of the bracket, a handle fixed to the wheel, a coiled spring located within the lower portion of the standard and bearing against the plunger, and a flexible connection between the wheel and the lower end of the plunger, substantially as described.

3. A cheese cutter comprising a vertical tubular standard having a longitudinal slot, a collar adjustably secured to the standard at a point between the ends thereof and adapted to be fastened to a counter, a plunger arranged within the tubular standard, a knife connected with the plunger and extending through the slot of the standard, a cap secured to the upper end of the standard and confining the knife in the slot, an L-shaped bracket adjustably secured to the lower portion of the standard, a coiled spring arranged within the standard and engaging the lower end of the plunger, a cap secured to the lower end of the standard and provided with an opening and forming a seat for the spring, a wheel mounted on the bracket, and a flexible connection passing through the opening of the lower cap and attached to the plunger and to the periphery of the wheel, substantially as described.

644,776. COIN-CONTROLLED BOOK-HOLDER. HARRY L. PECK, Chicago, Ill. Filed June 23, 1899. Serial No. 721,523. (No model.)



Claim.—1. In a coin-controlled book-holder, the combination with a pair of pivoted frames, of pivoted locking-arms independent of the frames and adapted to engage the same only in their closed position, a single device for simultaneously releasing said pivoted locking-arms, and coin-controlled means for operating said single device.

2. A book-holder, comprising a table provided with an opening,

a pair of frames pivotally secured one on either side of said opening, flexible connections between said frames upon which the back of a book may rest, toothed segments on said frames adapted to intermesh with each other, a pivoted locking-arm adapted to engage a movable part of one frame, a coin-controlled device for releasing said arm.

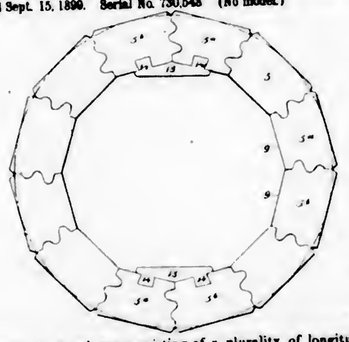
3. A book-holder, comprising a table having an opening therethrough, a pair of frames hinged to the said opening one on either side, flexible connections between said frames, pivoted arms for locking said frames in an upright position, coin-controlled mechanism for releasing said frames, and means independent of the coin-controlled mechanism for returning said frames to their upright positions.

4. A book-holder, comprising a table provided with an opening therethrough, metal frames pivoted to the side of said opening, a wooden plate secured to the upper part of each frame, flexible connections between said wooden plates whereby a book may be supported between the same, intermeshing toothed segments integral with the lower portion of said frames, pivoted spring-pressed locking-arms engaging said frames, a coin-controlled mechanism for releasing said locking-arms.

5. In a book-holder, the combination of a pair of upright movable frames, between which the book may be secured in its closed position, locking devices for holding said frames in said upright position, controlled mechanism for withdrawing said locking devices, and a pivoted gravity pawl or dog adapted to engage said controlled mechanism and retain the locking device in a retracted position during a portion of the movement of the frame when opening the book.

6. In a coin-controlled book-holder of the character described, the combination of the frame c', the spring-actuated lock-arm E, the gravity-dog I having a projecting nose i^3 and projection i^5, and coin-controlled means for actuating said locking-arms E.

644,777. COLUMN. GEORGE J. PFAHL, White Plains, N. Y. Filed Sept. 15, 1899. Serial No. 730,548. (No model.)



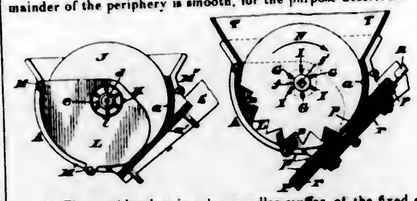
Claim.—1. A column consisting of a plurality of longitudinal sections which fit each other at their edges and are provided upon their inner surfaces with dovetail grooves, the inner sides of said sections diverging angularly, and angular tie-blocks which fit said inner surfaces of said sections and are provided with dovetail tongues which take into said grooves therein, substantially as shown and described.

2. A column composed of separate longitudinal sections, two of which are fitted at their edges by longitudinal grooves and ribs, the inner surfaces of said sections diverging angularly, dovetail grooves formed in the inner surfaces of said sections, and an angular tie-block which fits the inner surface of said sections at their line of connection and is provided with dovetail tongues which fit said dovetail grooves in said sections, substantially as described.

644,778. COLLAR-STUFFER. SILAS H. RANDALL, Wyoming, Ohio, assignor to Randall & Co., Cincinnati, Ohio. Filed Nov. 5, 1898. Serial No. 695,543. (No model.)

Claim.—1. The combination, in a horse-collar stuffer, of a casing provided with a discharging-throat; a tube having a longitudinal slot communicating with said throat; a toothed stuffing-rod reciprocating within said tube; and a rotary feed-disk in said casing, and having a portion of its periphery toothed and the remainder smooth, the machine being so arranged as to cause this smooth periphery to traverse said throat and slot while said rod is making its return or non-effective stroke, substantially as herein described, and for the purpose set forth.

2. The combination, in a horse-collar stuffer, of a casing having a throat $a\,b$; a pair of rotary feed-disks J, N, and a flat stripping-plate L, fixed vertically between said disks and in close contact with them, a portion of the periphery of each disk being toothed, while the remainder of the periphery is smooth, for the purpose described.



3. The combination, in a horse-collar stuffer, of the fixed guiding-tube P, having a longitudinal slot p, and a series of inwardly-projecting ratchet-teeth p'; and a rod R reciprocating within said tube and having ratchet-teeth r, for the purpose described.

4. The combination, in a horse-collar stuffer, of a casing having a shaft D journaled in it; a driving-head secured to said shaft, a pair of toothed feed-disks J, N, attached to said head, and a flat stripper-plate L, fixed vertically between said disks and in close contact with them, for the purpose described.

644,779. PROCESS OF MANUFACTURING METALLIC CARBONATES BY ELECTROLYSIS. JOSEPH W. RICHARDS and CHARLES W. ROEPPER, Bethlehem, Pa., assignors to the American Electrolytic Company, of Delaware. Filed July 6, 1897. Serial No. 643,541. (No Specimens.)

Claim.—1. The hereinbefore-described process of manufacturing metallic carbonates by electrolysis, which consists in employing an anode of the metal whose carbonate is to be formed and an electrolyte containing a salt of an organic acid and passing through the electrolyte a current of such character as to split up said acid and generate carbonic acid as a resultant in the region of the anode, which, in combination with the metal of the anode, forms the desired carbonate, substantially as described.

2. The hereinbefore-described process of manufacturing metallic carbonates in conjunction with oxids of a similar metal by electrolysis, which consists in employing an anode of the metal whose combined carbonate and oxid are to be produced; and an electrolyte containing a salt of an organic acid and also an oxidizing reagent; and passing through the electrolyte a current of such character as to split up said organic acid, and as a resultant generate carbonic acid in the region of the anode, which, in combination with the metal of the anode, forms the desired carbonate, while the decomposed oxidizing reagent evolves oxygen which simultaneously combines with the metal of the anode, substantially as described.

3. The hereinbefore-described process of manufacturing carbonate of lead by electrolysis, which consists in employing an anode of lead and an electrolyte containing an acetate, and passing through the electrolyte a current of such character as to split up the acid radical of said acetate and to generate carbonic acid as a resultant in the region of the anode, which, in combination with the lead anode, forms carbonate of lead, substantially as described.

4. The hereinbefore-described process of manufacturing white lead by electrolysis, which consists in employing a lead anode and an electrolyte containing an acetate and also an oxidizing reagent; and passing through the electrolyte a current of such character as to split up the acid radical of said acetate and as a resultant generate carbonic acid in the region of the anode, which, in combination with the anode, forms carbonate of lead, while the decomposed oxidizing reagent evolves oxygen, which, simultaneously combining with the lead anode, forms hydrated oxid of lead intermingled with the carbonate, substantially as described.

644,780. CORN-PLANTER. URIAS SHAEFFER, Lancaster, Ohio. Filed Aug. 7, 1899. Serial No. 726,361. (No model.)

Claim.—1. In a corn-planter, the combination with a planter-frame, a perforated rotating disk mounted thereon, of a hopper mounted above said disk, a ring-frame in said hopper, a metallic cut-off fulcrumed in said frame and having an end recess 16 and a coiled spring having an extension at one end which passes through said end recess and engages the ring-frame and having its remaining end bearing on the inner end portion of said cut-off and retaining the latter in place, substantially as and for the purpose specified.

2. In a corn-planter cut-off, the combination with a frame-ring 8 having a cross-arm or web provided with a pocket or depression, of a metallic cut-off fulcrumed in said ring and having a projecting portion adapted to bear in said ring-pocket, said cut-off being provided with a downturned lip portion 19 and a coiled spring, the upper portion of which retains the cut-off in hinged connection with the

ring and the extension of the lower end of which passes through said coil and engages said ring cross-arm, substantially as and for the purpose specified.



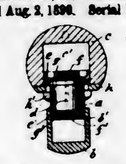
644,781. SUPPORTING-FRAME FOR BEDSTEADS. JOHN F. STEPHENSON, Glenferrie, Victoria. Filed Aug. 31, 1899. Serial No. 727,891. (No model.)



Claim.—1. The combination with a standard having a cone formed thereon and provided with a key, of a socket-piece having a conical cavity arranged to fit over said cone, and provided with a plurality of keyways arranged to receive said key, and means carried by said socket-piece for engaging a rail, substantially as set forth.

2. The combination with a standard having a cone formed thereon and provided with a key, of a socket-piece having a conical cavity arranged to fit over said cone and provided with a plurality of keyways arranged to receive said key, a shoe formed with said socket-piece and having a closed bottom and sides and an open top, and a stud projecting from the bottom of said shoe, substantially as set forth.

644,782. HYDRAULIC PRESS FOR MINING PURPOSES. ALFRED J. TOWER and JAMES TOWER, Jr., Westhoughton, and ELIAS HAYES, Derby, England. Filed Aug. 2, 1899. Serial No. 726,845. (No model.)



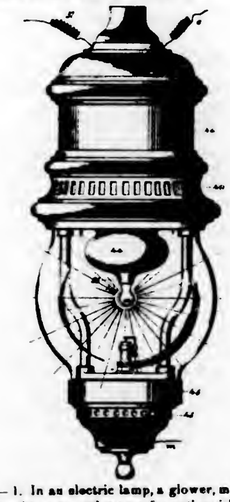
Claim.—1. In a hydraulic press of the character described, a series of duplex rams each ram of the series comprising an inner member or ram movable within a cylinder and an outer member or ram inclosing the outer end of the inner ram and movable thereon.

2. In a hydraulic press of the character described, the combination with the bar c having a series of cylinders c', of a ram a movable within each of said cylinders, and a ram b fitted to each of the rams a and inclosing the outer end thereof.

3. In a hydraulic press of the character described, the combination with the bar c and a plurality of rams carried thereby, each of said rams having an independent unobstructed outer convex-faced flange or head projecting over the spaces between said rams.

4. In a hydraulic press of the character described, a duplex ram comprising an inner member or ram movable within a cylinder and an outer member or ram inclosing the outer end of the inner ram and movable thereon, said outer member or ram being provided with an escape-opening b' in its wall.

644,788. ELECTRIC GLOW-LAMP. JOHN VAN VLECK, New York, N. Y., assignor to Christopher D. Smithers, same place. Filed May 9, 1899. Serial No. 716,134. (No model.)



Claim.—1. In an electric lamp, a glower, means for producing a flame to heat the same and means for extinguishing said flame controlled by the current established in said glower, substantially as described.

2. In an electric lamp, a glower, means for producing a flame to heat the same and means for controlling the supply of combustible to said flame controlled by the current established in said glower, substantially as described.

3. In an electric lamp, a glower, means for producing a gas-flame to heat the same, and means for cutting off the gas-supply to said flame controlled by the current established in said glower, substantially as described.

4. In an electric lamp, a glower, a source of gas-supply, a burner communicating with said source and producing a flame adapted to heat said glower and means for controlling the gas-supply to said burner through the current in said glower, substantially as described.

5. In an electric lamp, a glower, means for producing a flame adapted to heat said glower and means for igniting said flame controlled by the current in said glower, substantially as described.

6. In an electric lamp, a glower, a source of gas-supply, a burner communicating with said source and producing a flame adapted to heat said glower, a valve controlling the gas-supply to said burner and an igniter for said burner; the said valve and the said igniter being controlled by the current in said glower, substantially as described.

7. In an electric lamp, a glower, means for producing a flame to heat the same, an electromagnetic device for controlling the ignition of said flame, and the supply of combustible thereto, and means for controlling said electromagnetic device actuated by the current established in said glower, substantially as described.

8. In an electric lamp, a glower, an electromagnet in circuit therewith, a circuit-breaker controlled by said electromagnet, means for establishing and cutting off the heat-supply to said heater, an electromagnet controlling said means and circuit connections; whereby when said last-named electromagnet shall be energized it shall operate said means to establish the heat-supply to said heater, and thereafter when said glower shall by said heater have been rendered electrically conducting, said first-named magnet shall operate said circuit-breaker to cut out said last-named electromagnet and cause said means to cut off the heat-supply, substantially as described

9. In an electric lamp, a glower, a burner communicating with a source of combustible, and adapted when ignited to produce a heating-flame in proximity to said glower, separable electrodes disposed at the outlet of said burner, means for cutting said electrodes out of circuit, means for separating and bringing together said electrodes and circuit connections; whereby when the actuating-current is established, said means for separating said electrodes shall operate to draw them apart and produce an igniting-spark at the burner and thereafter when the flame shall have rendered said glower electrically conducting said means shall operate to bring said electrodes into contact, substantially as described.

10. In an electric lamp, a glower, a gas-burner communicating

with a source of gas-supply, a valve for said burner, an electromagnetic device controlling said valve, a circuit-breaker in circuit with said electromagnetic device, an electromagnetic device in circuit with said glower and controlling said circuit-breaker and circuit connections; whereby when said valve-controlling electromagnetic device is energized it shall open said valve to admit gas to said burner to produce a heating-flame for said glower, and thereafter when said glower shall have been rendered electrically conducting said last-named electromagnetic device shall operate said circuit-breaker to deenergize said valve-controlling device and thereby control said valve to shut off the gas-supply, substantially as described.

11. In an electric lamp, a glower, a gas-burner communicating with a source of gas-supply, a valve for said burner, an electric igniter for said burner controlled by said valve, a circuit-breaker in circuit with said electromagnetic device, an electromagnetic device in circuit with said glower and controlling said circuit-breaker and circuit connections; whereby when said valve-controlling electromagnetic device is energized it shall open said valve to admit gas to said burner, and said valve shall actuate said igniting device to ignite said gas to produce a heating-flame for said glower, and thereafter when said glower shall have been rendered electrically conducting said last-named electromagnetic device shall operate said circuit-breaker to deenergize said valve-controlling device and thereby control said valve to cut off the gas-supply, substantially as described.

12. In an electric lamp, having a burner communicating with a source of gas-supply, the combination of the glower *a*, and electromagnet *c* in circuit, a valve controlling the supply of gas to said burner, an electromagnet *d* controlling said valve and in shunt-circuit with said glower and a circuit-breaker *h* in said shunt controlled by said electromagnet *c*, substantially as described.

13. In an electric lamp having a burner communicating with a source of gas-supply, the combination of the glower *a* and electromagnet *c* in circuit, an electric igniter disposed at the burner-outlet, an electromagnet *d* controlling said igniter in shunt-circuit with said glower, and a circuit-breaker *h* in said shunt controlled by said electromagnet *c*, substantially as described.

14. In an electric lamp having a burner communicating with a source of gas-supply the combination of the glower *a*, electromagnet *c*, a valve 9 controlling the supply of gas to said burner, a fixed electrode 11 at the burner-outlet a movable electrode 10 carried by said valve, an electromagnet *d* controlling said valve, a circuit-breaker *h* controlled by electromagnet *c* and circuit connections, substantially as described.

15. In an electric lamp having a glower, a burner communicating with a source of gas-supply and adapted to produce a heating-flame for said glower, a valve in said burner and means for electrically actuating said valve and thereby establishing a supply of gas to the heating-flame, and means controlled by said glower for throwing the electrical actuating mechanism of said valve out of operation after said glower by said flame shall have been rendered electrically conducting, substantially as described.

644,784. **ELECTRIC GLOW-LAMP.** JOHN VAN VLECK and WM. N. STEVENS, New York, N. Y., assignors to Christopher D. Smithers, same place. Filed June 8, 1899. Serial No. 719,761. (No model.)

Claim.—1. In an electric glow-lamp, a heater, a glower, circuit-controlling mechanism for establishing circuit through said glower and breaking circuit through said heater, and means for manually operating said mechanism, substantially as described.

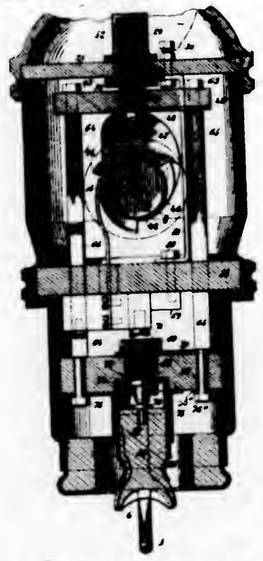
2. In an electric lamp, a glower, a heater, mechanism for altering the proximity of said heater to said glower and simultaneously throwing said heater out of operation and means for manually operating said mechanism, substantially as described.

3. In an electric glow-lamp, a heater, a glower, circuit connections and a circuit-closing switch; the said switch being constructed and arranged so that upon an initial movement circuit shall be closed through both glower and heater, and upon a further movement circuit shall be broken through said heater, substantially as described.

4. In an electric glow-lamp, a heater, a glower, circuit connections and a circuit-closing switch; the said switch being constructed and arranged so that upon an initial movement thereof in given direction circuit shall be closed through both glower and heater, and upon a further movement in the same direction circuit shall be broken through said heater, substantially as described.

5. In an electric glow lamp, a heater, a glower, circuit connections and a circuit-closing switch constructed and arranged so that upon an initial movement of said switch in given direction circuit shall be closed through both glower and heater, and upon a further movement in the same direction, circuit shall be broken through said heater, and means for preventing said switch being moved in the opposite direction, substantially as described.

6. In an electric glow-lamp, a heater, a glower, circuit connections and a circuit-closing switch; the said switch being constructed and arranged so that upon an initial movement circuit shall be closed through both glower and heater, and upon a further movement, circuit shall be broken through said heater, and upon a third movement, circuit shall be broken through said glower, substantially as described.



7. In an electric glow-lamp, a heater, a glower, circuit connections and a circuit-closing switch; the said switch being constructed and arranged so that upon an initial movement thereof in given direction circuit shall be closed through both glower and heater, upon a further movement thereof in the same direction, circuit shall be broken through said heater, and upon a third movement thereof in the same direction, circuit shall be broken through said glower, substantially as described.

8. In an electric glow-lamp, a heater, a glower, circuit connections, a circuit-closing switch constructed and arranged so that upon a movement of said switch in a given direction circuit shall be closed through both glower and heater, and means for preventing said switch being moved in the opposite direction, substantially as described.

9. In an electric glow-lamp, a movable heater, a glower, circuit connections, a circuit-controlling switch, and means for moving said heater controlled by said switch—the aforesaid parts being constructed and arranged so that upon an initial movement of said switch, circuit shall be closed through both glower and heater, and upon a further movement, circuit shall be broken through said heater and said heater moved away from said glower, substantially as described.

10. In an electric lamp, the combination with a heater, a glower, and circuit connections, of a rotary commutator in circuit, and means for actuating the same; the said commutator being constructed and arranged to close circuit through both heater and glower, to close circuit through the glower only, and to break circuit through both heater and glower, substantially as described.

11. In an electric lamp, in combination with a heater, a glower, circuit connections, and contact-fingers as 13, 14, 15, of a rotary commutator against which said fingers bear, and provided on its periphery with a conducting-face 9, a face of insulating material 8, and a face partly conducting and partly insulating as 11, 10, 12, substantially as described.

12. In an electric lamp, in combination with a heater, a glower, circuit connections, and contact-fingers as 13, 14, 15, a rotary commutator against which said fingers bear and provided on its periphery with an eccentric conducting-face 9 and an eccentric face partly conducting and partly insulating as 11, 10, 12, substantially as described.

13. In an electric lamp, the combination with a movable heater, a glower and circuit connections, of a rotary commutator, and means for actuating the same, the said commutator being constructed and arranged to close circuit through both heater and glower, to close circuit through the glower only, and to break circuit through both glower and heater, and mechanism actuated by said commutator for moving said heater away from said glower when said commutator is set to break circuit through said heater, substantially as described.

14. In an electric lamp, in combination with a heater, a glower, circuit connections, a rotary commutator 7, and contact-fingers as 13, 14, 15 bearing thereon, a movable support for said heater, and a cam 47 on said commutator for moving said support, substantially as described.

15. In an electric lamp, in combination with a heater, a glower, circuit connections, a rotary commutator 7, and contact-fingers 13, 14, 15 bearing thereon, a movable support for said heater, a spring acting on said support to more said heater into proximity to said glower, and a cam 47 on said commutator for moving said support against said spring to carry said heater away from said glower, substantially as described.

16. In combination with a glower of the kind herein specified, a support of insulating material having arms or projections forming a close joint with the extremities of said glower, and leading-wires embedded in said arms and connected to said glower, substantially as described.

17. In combination with a glower of the kind herein specified, a support of insulating material having arms or projections provided with recesses to receive the ends of said glower, and leading-wires embedded in said arms and connected to said glower, substantially as described.

18. The combination with the glower 5 of the ring 77 of insulating material having arms 79, 80, the said glower at its extremities forming a close joint with said arms and leading wires embedded in said arms and connected to said glower, substantially as described.

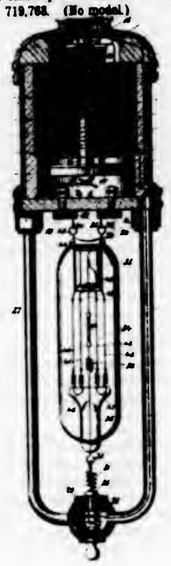
19. The combination with the glower 5, of the ring 77 of insulating material having arms 79, 80, said glower at its extremities forming a close joint with said arms, the inclosing shell 78 for said ring, leading-wires embedded in said arms and connected to said glower, and means for detachably connecting said wires in an electric circuit, substantially as described.

20. In an electric lamp of the type herein specified, a fixed glower, a heater, a support for said heater, rods 64 and 65 carrying said support, cross-bar 49 connecting said rods, rotary shaft 40 and cam 47 on said shaft and acting upon said cross-bar and through said rods and support to vary the proximity of said heater to said glower, substantially as described.

21. In an electric lamp, a cylindrical support, a glower fixed in position below said support, a heater, a support carrying said heater; the said heater-support being movable through said glower-support to vary the distance between said heater and said glower, substantially as described.

22. In an electric lamp, a glower, a support therefor having an opening, a heater and a movable support therefor; the support for said heater extending through and being movable in said opening in said glower-support, substantially as described.

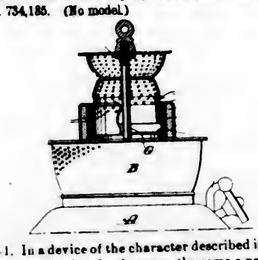
644,785. **ELECTRIC GLOW-LAMP.** JOHN VAN VLECK, New York, N. Y., assignor to Christopher D. Smithers, same place. Filed June 8, 1899. Serial No. 719,763. (No model.)



Claim.—1. The combination of an inclosing translucent envelop, a glower and an electric heater in proximity thereto within said envelop, the said heater consisting of a plurality of filaments in series, and circuit connections for said glower and filaments sealed in the substance of said envelop, substantially as described.

2. The combination with the inclosing translucent envelop 34 having solid portions 35 and 36 of the glower *a* and a plurality of heating filaments within said envelop and circuit connections for said glower and filaments sealed in said solid portions, substantially as described.

644,786. **LAMP.** FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Oct. 20, 1899. Serial No. 734,185. (No model.)



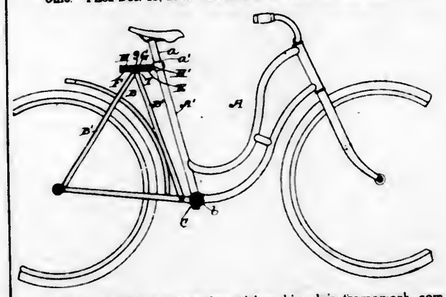
Claim.—1. In a device of the character described in combination, an inner and outer tube forming between the same a passage in which a wick is adapted to move, a stationary spreader a portion of which is adjacent said inner tube and forms a continuation thereof, a movable guard resting upon the wick and means carried near the lower portion of said guard to engage with the spreader at the limit of its upward movement.

2. In a device of the character described, an outer and an inner wick-tube, a perforated spreader a portion of which is adjacent said inner tube and forms a continuation thereof, a guard carried by the wick so as to be movable therewith, a tubular extension upon said guard projecting loosely into the inner wick-tube, an inward flange at the lower end of said tubular extension adapted to engage with said stationary spreader when the wick is raised to the limit of its upward excursion.

3. In a device of the character described, an inner wick-tube, an outer wick-tube, a spreader stationary with respect to said tubes, a portion of said spreader being adjacent said inner tube and forming a continuation thereof, a wick located between said tubes, a guard supported by said wick, said guard having a tubular extension with an inner flange near its lower end, in combination with perforations around said tubular portion and an air-gap between the inner wall of said tubular portion and the external wall of the adjacent portion of the spreader.

4. In a device of the character described in combination, an inner and an outer wick-tube, a spreader stationary with respect thereto, a portion of said spreader being adjacent said inner tube and forming a continuation thereof, a guard for the top of said wick and movable therewith, means carried by the lower portion of said guard to engage with said spreader and limit the upward excursion of the wick, said guard being of a size sufficient to substantially cover the wick-space between the aforesaid wick-tubes when the wick is lowered.

644,787. **BICYCLE-FRAME.** GURDON H. WILLIAMS, Cleveland, Ohio. Filed Dec. 15, 1898. Serial No. 699,348. (No model.)



Claim.—1. The combination with a bicycle's framework composed of a forward section and a rear section hinged together horizontally at the bottom horizontally and transversely of the machine;

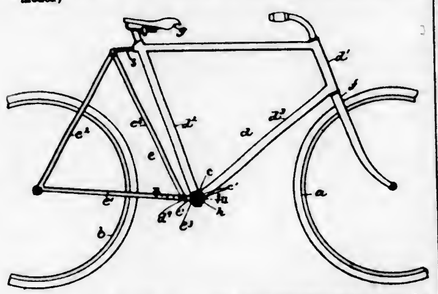
of a spring connection arranged between the upper ends of the said frame-sections and comprising the following: a bar pivoted horizontally and transversely of and extending rearwardly from the forward frame-section; a block pivoted horizontally and transversely of the said bar to the rear frame-section and arranged to afford bearing for and shiftable endwise of the bar, and two springs supported from the bar and confined between opposite ends, respectively, of the aforesaid block and opposite ends, respectively, of the bar, substantially as and for the purpose set forth.

2. The combination with a bicycle's framework comprising a forward frame-section and a rear frame-section horizontally and transversely hinged together at the bottom: of a spring connection between the upper ends of the frame-sections, which spring connection comprises the following: a bar extending rearwardly from the upper end of the forward frame-section to and over the rear frame-section, which bar is pivoted horizontally and transversely, at its forward end, to the forward frame-section; two upwardly-projecting arms formed upon the rear frame-section and arranged at opposite sides, respectively, of the aforesaid bar; a block arranged to afford bearing for and shiftable endwise of the said bar and pivoted, horizontally and transversely of the bar, to the aforesaid arms, and two springs confined between opposite ends, respectively, of the aforesaid block, and opposite ends, respectively, of the bar, substantially as and for the purpose set forth.

3. The combination with a bicycle's framework comprising a forward frame-section and a rear frame-section horizontally and transversely hinged together at the bottom, and a spring connection between the upper ends of the two frame-sections, which spring connection comprises the following: a hollow bar extending rearwardly from the upper end of the forward frame-section to and over the rear frame-section and having an internal chamber extending from end to end of the bar and provided with end walls, which bar is transversely pivoted to the forward frame-section; a block arranged within the said chamber and pivoted horizontally and transversely of the chambered bar to the rear frame-section and shiftable endwise of the said chamber; two springs confined within the chambered bar between opposite ends, respectively, of the said block, and opposite end walls, respectively, of the chamber of the bar, and the forward spring being heavier than the rear spring.

4. The combination with a bicycle's framework comprising a forward section and a rear section horizontally and transversely hinged together at the bottom; of a hollow bar extending forwardly and rearwardly over the rear frame-section and transversely pivoted to the forward frame-section, which bar has an internal chamber extending from end to end of the bar and having end walls, which chamber has its side walls slotted longitudinally of the bar, as at h^2, and two arms formed upon the rear frame-section and projecting upwardly at opposite sides, respectively, of the aforesaid bar; a block arranged within the aforesaid chamber above the rear frame-section and pivoted, transversely of the bar, to the aforesaid arms, and having the pivot-forming member or members extending laterally through the slots of the side walls of the aforesaid chamber; two springs confined within the bar between the block and opposite end walls, respectively, of the bar, substantially as and for the purpose set forth.

644,788. FRAMEWORK FOR BICYCLES. GURDON H. WILLIAMS, South Brooklyn, Ohio. Filed Sept. 5, 1899. Serial No. 729,508. (No model.)

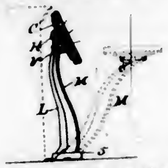


Claim.—1. The combination with the operating-shaft-containing cylinder of a bicycle, and the machine's framework composed of a forward section comprising the two upwardly extending and diverging tubular bars d^3 and d^5, and the rear section comprising the two tubular bars d' d' extending rearwardly from the aforesaid cylinder and any suitable number of upwardly extending and converging bars d^4, and a spring connection between the upper ends of the two frame-sections: of a sleeve or collar releasably fixed upon the central portion of the aforesaid cylinder and having two hollow lugs arranged in line with the different aforesaid diverging bars, respectively, of the forward frame section, and annular external shoulders formed upon the said lugs and engaged by the said bars; two eyes mounted upon the aforesaid cylinder at opposite ends, respectively, of the aforesaid sleeve or collar and having two hollow lugs projecting rearwardly from the different eyes, respectively, and embraced by the different aforesaid rearwardly-extending bars, respectively, of the rear frame-section, and annular shoulders formed upon the inner ends of the said last-mentioned lugs and engaged by the said rearwardly-extending bars.

2. The combination with the operating-shaft-containing cylinder of a bicycle, and the machine's framework composed of a forward section and a rear section, and a hinge connection between the said frame-section and comprising the aforesaid cylinder: of a split collar or sleeve formed upon the forward frame-section and embracing the aforesaid cylinder, which sleeve or collar has the split formed in its lower portion and is provided with two depending ears arranged at opposite sides, respectively, of the split; a bolt extending through the said ears and having its head arranged at the outer side of one of the ears, a nut mounted upon the bolt's shank at the other side of the other ear, and two eyes formed upon the rear frame-section and embracing the aforesaid cylinder, at opposite ends, respectively, of the aforesaid sleeve or collar, substantially as shown, for the purpose specified.

3. The combination with the cylinder A; the forward frame-section d comprising the upwardly-diverging tubular bars d^3 and d^5; the rear frame-section c comprising the bars c' and c', extending rearwardly from opposite ends, respectively, of the aforesaid cylinder, and the upwardly-converging bars c^2, and a spring connection between the upper ends of the two frame-sections: of the split sleeve or collar d^6 having the hollow lugs d^7 d^8 and the shoulders d^9; the bolt l^3; the nut l^4, and the eyes c^3 having the hollow lugs c^4 and the shoulders c^5, all arranged and operating substantially as shown, for the purpose specified.

644,789. FOLDING STOOL OR SEAT. FREDERICK YUSEK, Bryan, Ohio. Filed Dec. 19, 1898. Serial No. 699,894. (No model.)



Claim.—1. In a folding stool, the comoination with a seat, and two standards pivotally secured to said seat on opposite sides of the center, of a base or housing provided with a slot, said standards provided with toes or pivots, and friction-plate having lugs provided with semicircular notches to take over said toes or pivots on the standards, substantially as shown and for the purpose described.

2. In a folding stool, the combination of a seat, bracket secured to said seat, a plate having pivotal connection with said bracket, and standards having pivots, with a yoke secured to said plate, the yoke and plate provided with sockets for the reception of the pivots on the standards, substantially as and for the purpose described.

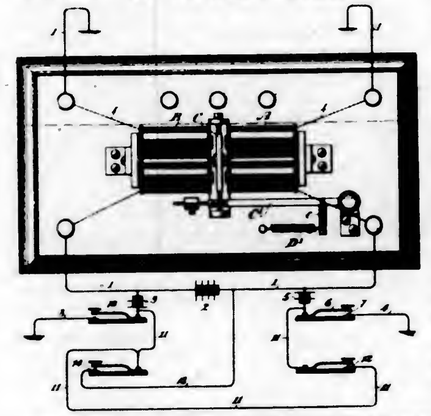
3. In a folding stool, the combination with a seat, and bracket secured to said seat, a plate having pivotal connection with said bracket, and yoke secured to said plate, of standards provided with pivots which take between the pivoted plate and yoke, and spring having controlling contact with said standards, whereby the standards are drawn into a vertical position, and the seat tilted, substantially as shown and described.

4. In a folding stool the combination with a seat having a bracket secured thereto, a plate and pintle passing through said plate and bracket, whereby the seat is revolubly connected to said plate, and yoke provided with semicircular notches secured to said plate, of a pair of standards provided with lugs which take in said semicircular notches in the yoke, and spring having controllable contact with one of said standards, whereby the standards are drawn into vertical position and the seat tilted, substantially as shown and in the manner described.

5. In a folding stool, the combination with a seat provided with a bracket, a plate having pintle connection with said bracket; two standards pivotally secured to opposite sides of the center of said seat, by means of a yoke, said standards having toes or pivots on their ends, of a base provided with a friction-plate, said base and plate having lugs with semicircular notches within which the standard-toes take, and spring having controllable connection with one of said standards whose normal tendency is to draw the standards into vertical position, substantially as shown and in the manner specified.

6. In a folding stool comprising a seat and standards secured on opposite sides of the center of said seat, said standards provided with toes or extensions at their ends, the combination of a base provided with a slot, and friction-plate adjustably secured in said base, said base and plate having lugs with semicircular notches in which the standard-toes take, a spring acting on one of said standards whose normal tendency is to throw said standards into vertical position with buffer or cushion secured to the standards, and yoke provided with semicircular notches, within which the lugs or toes on the opposite ends of the standards take, whereby said standards are connected to the seat, substantially as shown and for the purpose described.

644,790. RAILWAY SIGNALING SYSTEM AND APPARATUS THEREFOR. HENRY BEEBE, New Rochelle, N. Y. Filed July 22, 1898. Renewed Oct. 11, 1899. Serial No. 693,266. (No model.)



Claim.—1. In a relay, the combination of a pair of opposing magnet-coils arranged in series in a normally-closed circuit, and an armature between said coils, and means for actuating said armature by shunting the circuit of one of said coils, substantially as set forth.

2. A relay comprising opposing magnet coils and an armature between said coils, both of said coils being arranged in series in a normally-closed circuit and one of said coils being included in a normally-open shunt-circuit, substantially as set forth.

3. In a relay, the combination of a pair of opposing magnet-coils, included in a normally-closed circuit, and a normally-open shunt-circuit for each member of said pair of coils, substantially as set forth.

4. In a relay, the combination of a pair of opposing magnet-coils included in a normally-closed circuit, and a normally-open shunt-circuit including a source of electric energy for each member of said pair of coils, substantially as set forth.

5. In a relay, the combination of a pair of opposing magnet-coils included in a permanently-closed circuit, and a normally-open shunt-circuit for each member of said pair of coils, substantially as set forth.

6. In a relay, the combination of a pair of opposing magnet-coils included in a permanently-closed circuit, and a normally-open shunt-circuit including a source of electric energy for each member of said pair of coils, substantially as set forth.

7. In a relay, the combination of a pair of opposing magnet-coils, included in a normally-closed circuit, an armature for said coils operating a circuit-controller biased to oppose the initial movement thereof, and a normally-open shunt-circuit for each member of said pair of coils, substantially as set forth.

8. In a relay, the combination of a pair of opposing magnet-coils included in a permanently-closed circuit, an armature for said coils operating a circuit-controller biased to oppose the initial movement thereof, and a normally-open shunt-circuit for each member of the said pair of magnet-coils, substantially as set forth.

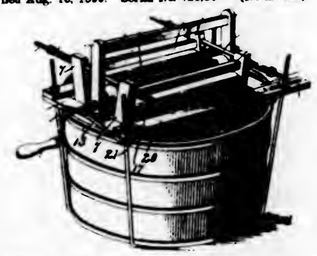
9. In a relay, the combination of a pair of opposing magnet-coils included in a normally-closed circuit, a normally-open primary shunt-circuit for each member of the pair of coils, and a normally-open secondary shunt-circuit for each primary shunt-circuit, substantially as set forth.

10. In a relay, the combination of a pair of opposing magnet-coils included in a normally-closed circuit, an armature for said coils operating a circuit-controller, a spring attached to said circuit-controller opposing the initial movement thereof, a normally-open primary shunt-circuit for each member of said pair of coils, and a normally-open secondary shunt-circuit for each primary shunt-circuit, substantially as set forth.

11. In an electric signaling system for road-crossings, the combination of a signal for the road and a circuit therefor, a signal for the track and a circuit therefor, said circuits operatively connected together, whereby the initial operation of the track-signal depends upon the operation of the road-signal, a circuit-controller for said circuits, opposing electromagnetic coils controlling said circuit-controller, and circuits for said coils controlled by a passing train, substantially as set forth.

12. In a railway signaling system, the combination of a crossing-signal and a track-signal, said signals being provided with connected means whereby a failure of the train to properly operate the crossing-signal causes the track-signal to show "danger," substantially as set forth.

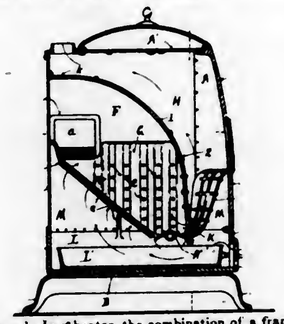
644,791. WASHING-MACHINE. DANIEL BIGGS, Denton, Tex. Filed Aug. 10, 1899. Serial No. 726,817. (No model.)



Claim.—1. In a washing-machine, the combination with the machine-frame carrying washing devices, of a fastening-frame comprising supporting-bars adapted to rest on the top of a tub or like receptacle, cross-bars connected at one end to one of the supporting-bars and adjustable on the other supporting-bar, and hooks connected adjustably to the cross-bars, and adapted to engage under the tub, substantially as described.

2. In a washing-machine, the combination with the main frame-carrying washing devices, of a fastening-frame comprising supporting-bars adapted to rest on the top edge of a tub or like receptacle, cross-bars resting across the opposite ends of the supporting-bars and having slots at one end, hooks adapted to engage the lower flange of the tub and pivotally connecting the ends of the supporting-bar and cross-bars, and similar hooks passing through the slots of the cross-bars and adapted to engage the lower flange of the tub at the opposite sides thereof, substantially as described.

644,792. HEATER. STANHOPE BOAL, Piqua, Ohio. Filed Sept. 14, 1899. Serial No. 730,412. (No model.)



Claim.—1. In a heater, the combination of a frame, a partition dividing the interior into a primary and overlying secondary combustion-chamber, a flue for said secondary chamber, a fire-box in the bottom of the primary chamber consisting of perforated plates supported at the top against the frame and inwardly inclined to a bottom support, a fire-box bottom, a passage between the fire-box and secondary combustion-chamber through the bottom of the partition and a non-perforated front plate supported at the top by the frame in the secondary combustion-chamber and inclined to the said bottom, the inclination of the bottom plates forming an air-jacket encompassing the fire-box, substantially as described.

2. In a heater, the combination of a frame, an upwardly and rearwardly curved plate dividing the interior into a primary and an overlying combustion-chamber, a feed-door for the former, an offtake-flue for the latter, a fire-box in the bottom of the combustion-chamber composed of perforated plates supported at the top by the frame and inclined rearwardly to a bottom support, a bottom for the fire-box, an orifice between the fire-box and secondary combustion-chamber through the lower portion of the partition, an imperforated front plate inclined from the front of the frame to the fire-box bottom, the space formed by the inclined plates forming an encompassing air-jacket, whereby air is drawn downwardly through the fuel from all sides except the side upon which the products of combustion are carried out, substantially as described.

3. In a heater, the combination of a steel frame, an upwardly and rearwardly curved cast-iron partition-plate, having a passage formed in the lower end and supported by said frame, a primary and overlying secondary combustion-chamber being formed by said partition, a door for the former and offtake-flue for the latter, a fire-box in the primary chamber composed of detachable perforated plates resting at their tops against the frame and inwardly inclined, a fire-box bottom, a non-perforated detachable fender-plate in the secondary combustion-chamber likewise supported at the top against the frame and inwardly inclined to the bottom, the space formed between the frame and inclined detachable plates forming a superheating air-jacket, substantially as specified.

4. In a heater the combination of a primary and a secondary combustion-chamber separated by an upwardly and rearwardly turned partition, a passage-way in the lower end thereof, inclined perforated plates in the primary chamber, an imperforated inclined plate in the secondary chamber, and a fire-box bottom abutting said inclined plates at their lower ends, substantially as described.

5. In a heater, the combination of a primary and a secondary combustion-chamber separated from each other by a curved partition-plate, an orifice in the lower end thereof, inclined perforated plates in the primary chamber, an imperforated plate in the secondary chamber, the said plates resting at their upper ends against the heater-frame, thereby forming an air-jacket between the plates and frame, a fire-box bottom abutting the lower end of said plates, a feed-door for the primary chamber and offtake-flue for the secondary chamber, substantially as described.

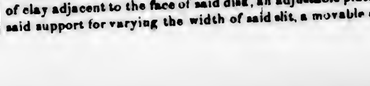
644,793. LAWN-MOWER. THOMAS COLDWELL, Newburg, N. Y. Filed Nov. 13, 1899. Serial No. 736,847. (No model.)



Claim.—1. In a lawn-mower, the combination with the frame provided with cutting mechanism, of supporting-wheels movable vertically with respect to the frame, a shaft operatively connected with said wheels for raising and lowering the same, an arm connected to said shaft, an operating-lever, a link connecting said lever and arm, a cam on said shaft provided with stop portions at different distances from the center of the shaft and means for adjusting said cam on the shaft to bring one of said portions beneath the said link, substantially as described.

2. In a lawn-mower, the combination with the frame provided with cutting mechanism, of supporting-wheels movable vertically with respect to the frame, a shaft operatively connected with said wheels for raising and lowering the same, an arm connected to said shaft, an operating-lever, a link connecting said lever and arm, a cam mounted on said shaft in line with said link and capable of movement around the shaft, said cam having peripheral portions at different distances from the center of said shaft, and means for securing said cam to the shaft, substantially as described.

644,794. TOOL FOR LAYING CONDUITS FOR ELECTRICAL CONDUCTORS. JAMES F. CUMMINGS, Detroit, Mich., assignor to the American Vitrified Conduit Company, New York, N. Y. Filed July 22, 1899. Serial No. 724,777. (No model.)



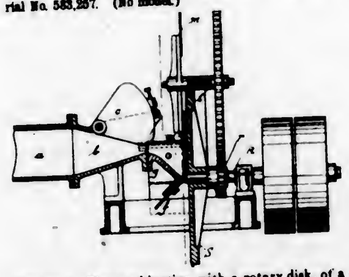
Claim.—1. A tool for laying conduit for electrical conductors comprising a central stem and a non-collapsible alining and scraper helix surrounding and fixedly secured to said stem of a size to fit the bore of the conduit.

2. A tool for laying conduits for electrical conductors comprising a central stem and a surrounding helix formed of a single rod substantially as and for the purpose described.

3. A tool for laying conduits for electrical conductors, comprising a central stem, two helices surrounding said stem and a brush arranged on said stem between the helices substantially as and for the purpose described.

4. A tool for laying conduit for electrical conductors comprising a central stem and a series of surrounding scraper-surfaces having their opposite portions spaced from and in alinement with each other and adapted to fit the bore of the conduit

644,795. MACHINE FOR USE IN PREPARING CLAY. HERMANN DIEDERICH, Charlottenburg, Germany. Filed Mar. 14, 1896. Serial No. 583,267. (No model.)



Claim.—1. The combination with a rotary disk, of a support for a column of clay adjacent to the face of said disk, forming a slit, a movable clearing device adapted to pass through said slit between the disk and said support, and a knife located at a distance from said support for removing the clay from the face of said disk, substantially as described.

2. The combination with a rotary disk, of a support for a column of clay adjacent to the face of said disk, forming a slit between them, a rotary clearing device, provided with parts adapted to pass through said slit, between said disk and the clay support, and a knife secured adjacent to a portion of the face of said disk at a distance from said support for removing the clay from the face of said disk, substantially as described

3 The combination with a rotary disk, of a support for a column of clay adjacent to the face of said disk forming a slit, a movable clearing device adapted to pass through said slit between the disk and said support, and a knife located at a distance from said support for removing the clay from the face of said disk and adjusting means for varying the width of the said slit, substantially as described.

4. The combination with a rotary disk, of a support for a column of clay adjacent to the face of said disk, an adjustable plate secured to said support for varying the width of said slit, a movable clearing device having parts adapted to pass through said slit, and a knife located at a distance from said support for removing the clay from said disk, substantially as described.

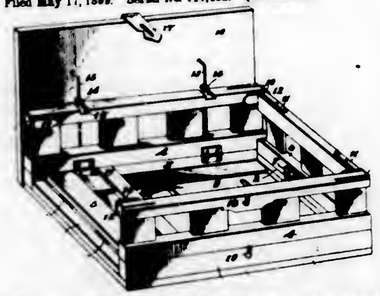
5. The combination with a rotary disk, of a support for a column of clay, adjacent to the face of said disk, an adjustable plate secured to said support for varying the width of said slit, a rotary clearing device provided with knives adapted to be passed through said slit and a stationary knife located at a distance from said support for removing the clay from the face of said disk, substantially as described.

6. The combination with a rotary disk, of a pug-mill outlet or die, disposed perpendicularly to the face of said disk between its center and circumference the discharge-aperture of said die being narrowest adjacent to the center of said disk and increasing in width toward the periphery, and means for removing the clay from the face of said disk, substantially as described.

7. The combination with the pug-mill outlet or die and clay-guide, of a gang of independently-movable weighted plates at the mouth of said pug-mill outlet adapted to bear with their edge on the clay issuing therefrom and abutments to limit the downward movement of said plates, said abutments being independently adjustable to permit a larger clay feed toward the periphery of the disk.

8. The combination with a disk, adapted to rotate in a vertical plate, a pug-mill outlet or die and an inclined-plane guide from said mill outlet terminating at a slight distance from said disk along a line substantially radial to the axis of the said disk, a gang of independently-movable weighted plates at the mouth of said pug-mill outlet adapted to bear with their edges on the clay issuing therefrom into the guide, a stationary knife mounted on the framework and adjustable to and from the disk, a bearing of the framework, a rotary shaft journaled therein lying above the center of the guide and with its axis perpendicular to the plane of the disk knives radiating from said shaft adapted to traverse the slit between the guide and the disk in a direction from the center to the periphery of the disk, and means for revolving said disk and shaft for the purpose set forth.

644,796. KNOCKDOWN CRATE. HARRY B. DREW, Kittery, Me. Filed May 17, 1899. Serial No. 717,122. (No model.)



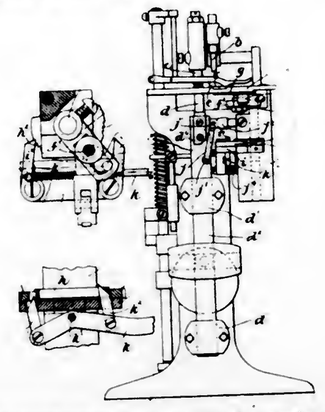
Claim.—A knockdown or collapsible crate or box, comprising a bottom provided at its upper face with longitudinal and transverse bars, one set of bars being wider than the other, the sides and ends hinged to said bars and adapted to fold inward over the bottom and offset therefrom to provide a space or compartment, when the crate or box is folded, the rear side being provided at its upper edge with recesses, the eyes arranged within the recesses, the cover, the guide-rods extending across the inner face of the cover, passing through the said eyes and slidingly and hingedly connecting the cover to the rear side, whereby the cover is adapted to be arranged over the bottom, when the parts are folded, and is capable of being arranged in an upright position at the back of the crate or box, when the same is open, the upper and lower fastening devices mounted on the front side and a hasp mounted on the cover on the front edge thereof and adapted to engage either of the fastening devices, substantially as, and for the purpose described.

644,797. EYELETING-MACHINE. LORENDER C. EMERSON, Grafton, Mass., assignor to the Merrick Sewing Machine Company, Boston, Mass. Filed Nov. 4, 1895. Renewed May 27, 1899. Serial No. 718,534. (No model.)

Claim.—1. In an eyeleting-machine, an edge-gage for the work, and means for moving said edge-gage step by step to vary the location of successive eyelets from the edge of the work.

2. In an eyeleting-machine, the combination of a movable edge-gage for the work, a shaft journaled in a fixed bearing on the frame of the machine and provided with a crank-arm connected with the gage, and means for rotating said shaft step by step

3. In an eyeleting-machine, the combination of a movable edge-gage for the work, a shaft journaled in a fixed bearing on the frame of the machine and provided with a crank-arm connected with the gage, means for rotating said shaft step by step, and means for reversing the direction of rotation of the shaft.



4. In an eyeleting-machine, a movable edge-gage for the work, intermittently-operating means for moving said gage progressively step by step to determine the location of the eyelets at graduating distances from the edge of the work, and means for varying the maximum distance of the gage from the setting-dies.

5. In an eyeleting-machine, setting devices, a movable edge-gage for the work, and means for moving said edge-gage automatically with relation to the said setting devices to determine the position of successive eyelets from the edge of the work.

6. In an eyeleting-machine, the following instrumentalities, viz: a slotted work-support, setting devices working in said slot, an edge-gage at the surface of said work-support, and means to change the position automatically of said edge-gage with relation to the coacting point of the sets whereby successive eyelets may be set at varying distances from the edge of the material

7. In an eyeleting-machine, a work-support, a movable edge-gage, a connected arm, a plate provided at opposite sides of its center of motion with ratchet-teeth, connections between said arm and plate, actuating means to engage either of said sets of ratchet-teeth, means under the control of the operator to determine which set of said teeth shall be operated, and means to start said actuating means in motion at one operation of the machine in setting an eyelet that said actuating means may between one and the next setting operation of the machine move the edge-gage automatically to vary the distance of successive eyelets from the edge of the work.

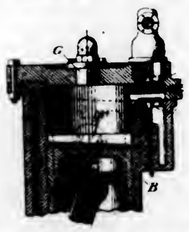
8. In an eyeleting-machine, a work-support, an edge-gage, a slotted arm, a plate having a plurality of ratchet-teeth at opposite sides of the center of motion, and actuating means cooperating with said teeth to move said arm and edge-gage automatically to vary the distance from the edge of the material of one and the next eyelet to be set.

9. A slotted work-support having an attached edge-gage and a presser-foot, and a top and a bottom set, combined with a shaft, connections between said shaft and said work-support, a ratchet-plate attached to said shaft, and means to actuate said ratchet-plate intermittingly step by step in one and then in an opposite direction to thereby enable the eyelets to be set in the two pieces of a boot or shoe back from the edges of the eyelet-pieces at variable distances, substantially as described.

10. In an eyeleting-machine, the following instrumentalities, viz: a top and bottom set, means to actuate them, a slotted work-support having an edge-gage, automatic means to gradually move the work-support with its attached edge-gage laterally at the proper times with relation to said top and bottom set to thereby position the work resting on the said work-support with its edge against said edge-gage that eyelets may be set at any desired distance back from the edge of the eyelet-piece in which the eyelets are being set, substantially as described.

11. An eyeleting-machine containing the following instrumentalities, viz: a top set, a bottom set, means to actuate them, a slotted work-support having an edge-gage, and automatic means for gradually changing the relative position of said top and bottom sets and work support and edge-gage to enable eyelets to be set at varying distances back from the edge of an eyelet-piece laid on said work-support, substantially as described.

644,798. **INTERNAL-COMBUSTION ENGINE.** ARTHUR J. FRITH, New York, N. Y., assignor to the Diesel Motor Company of America, of New York. Filed Oct. 23, 1899. Serial No. 734,479. (No model.)



Claim.—1. In an internal-combustion engine, the combination of a cylinder, a head on said cylinder, a piston in said cylinder, said piston and cylinder-head being so shaped with respect to each other as to form between them a channel to serve as a clearance-space and ignition-chamber, the longitudinal axis of said channel lying substantially at right angles to the longitudinal axis of the cylinder, substantially as described.

2. In an internal-combustion engine, the combination of a cylinder, a head on said cylinder, a piston in said cylinder, said piston and cylinder-head being so shaped with respect to each other as to form between them a channel, the longitudinal axis of said channel coinciding with the diameter of the cylinder, and lying substantially at right angles to the longitudinal axis of the cylinder, to serve as a clearance-space and ignition-chamber, substantially as described.

3. In an internal-combustion engine, the combination of a cylinder, a head on said cylinder having a plane inner face, a piston in said cylinder, having a plane face opposed to the plane face of the cylinder-head and a channel in the piston-face, the longitudinal axis of said channel coinciding with a diameter of the cylinder, and lying substantially at right angles to the longitudinal axis of the cylinder, to provide clearance between the piston and the cylinder-head, substantially as described.

4. In an internal-combustion engine, the combination of a cylinder, a head on said cylinder having a plane inner face, said cylinder provided near said head with a lateral admission-port, a piston in said cylinder, having a plane face opposed to the plane face of the cylinder-head and a channel in the piston-face to provide clearance, the longitudinal axis of the channel lying substantially at right angles to the longitudinal axis of the cylinder, and in a plane passing through the longitudinal axis of the cylinder and the axis of the admission-port, whereby at the outer limit of the stroke the channel and port aline, and provide a continuous chamber for the admission of the fuel charge, substantially as described.

644,799. **ACETYLENE-GAS BURNER.** WILLIAM HAHN, Chicago, Ill., assignor to J. Bruce Carroll, same place. Filed Mar. 29, 1899. Serial No. 710,994. (No model.)



Claim.—1. An acetylene-gas burner in which is combined a supply-tube, a burner-head having therein an enlarged bore the axis of which is substantially at right angles to that of the supply-tube, a burner-tip located at the top of said bore, said tip having a central opening, a hollow plug closed at the outer end, said plug being of smaller diameter than that of said enlarged bore and projecting diametrically through the same into the supply-tube, an eduction-opening formed in the top of said plug coaxial with and of smaller diameter than that of said tip, and means for admitting air to said enlarged bore, substantially as described.

2. The combination in an acetylene-burner, of a main trunk having diverging branches arranged at an angle to each other of about ninety degrees, each of said branches being provided at its upper extremity with a burner-head having therein an enlarged bore the axis of which is substantially at right angles to that of the supply-tube, a burner-tip located at the top of said bore, said tip having a central opening, a hollow plug closed at its outer end, said plug being of smaller diameter than that of said enlarged bore and projecting diametrically through the same into the supply-tube, an eduction-opening formed in the top of said plug coaxial with and of smaller diameter than that of said tip, and means for admitting air to said enlarged bore, substantially as described.

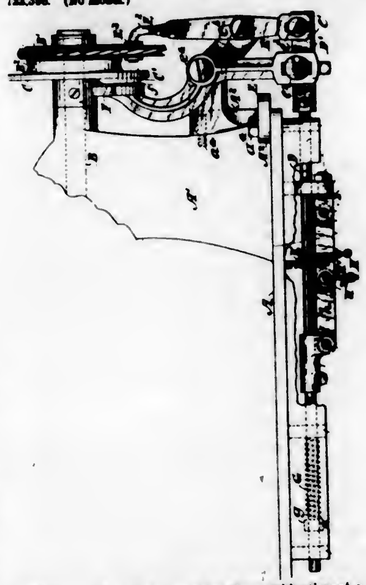
3. An acetylene-gas burner in which is combined a supply-tube, a burner-head having therein an enlarged bore open at the bottom, the axis of which is substantially at right angles to that of the supply-tube, a burner-tip located at the top of said bore, said tip having a central opening, a hollow plug closed at the outer end, said plug being of smaller diameter than that of said enlarged bore and projecting diametrically through the same into the supply-tube, said plug having an eduction-opening at the top coaxial with and of smaller diameter than that of said tip, substantially as and for the purpose set forth.

644,800. **ASH-SIFTER.** GEORGE P. HARRIMAN, Buffalo, N. Y. Filed June 10, 1898. Serial No. 683,107. (No model.)



Claim.—The combination in a sifter, of a casing and a door shutting against the inside of said casing, with a wire fastener 11 sliding and swinging in suitable bearings in said casing and having bends formed in the body of the wire between the bearings and arranged to swing against the door and thus fasten the same, said fastener having one of its ends bent downward and then at right angles to the first bend, so as to enter the side of the casing to lock the door fast, substantially as described.

644,801. **STOP-MOTION FOR SEWING-MACHINES.** JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, of New York. Original application filed Feb. 20, 1899, Serial No. 706,801. Divided and this application filed June 30, 1899. Serial No. 722,396. (No model.)



Claim.—1. In a sewing-machine the combination of a rod movably supported in suitable brackets, a lever provided with a brake-shoe and actuated by said rod, a main driving-shaft, a cam-surface on said shaft, a spring to normally hold the brake-shoe in contact with said cam, and a toggle-lever connected to said rod, substantially as described.

2. In a sewing-machine the combination of a rod movably supported in suitable brackets, a lever provided with a brake-shoe and actuated by said rod, a main driving-shaft, a cam-surface on said shaft, a spring to normally hold the brake-shoe in contact with said cam, a toggle-lever connected to said rod, and means to limit the throw of said toggle-lever, substantially as described.

3. In a sewing machine the combination of a main driving-shaft having fast and loose pulleys, and also a cam-surface thereon, a rod and means to actuate the same, a brake-lever adapted to engage said surface, and a belt-shipping lever, both of said levers connected to and actuated simultaneously by said rod, substantially as described.

4. In a sewing-machine the combination of a main driving-shaft having fast and loose pulleys and also a cam-surface thereon, a rod movably supported in suitable brackets, a brake-lever and a belt-shipping lever both of which are secured to said rod, a spring to normally hold the brake-lever in engagement with said cam-surface and the belt on the loose pulley, and a toggle-lever connected to said rod, substantially as described.

644,802. **ARTIFICIAL LIMB.** LYDIA R. HALLIDAY and ROBERT P. CURTS, Columbus, Ohio, assignors to the Columbus Pharmacal Company, same place. Filed June 10, 1898. Serial No. 683,146. (No model.)



Claim.—1. In an artificial-limb joint the combination with the foot and leg body, of a ball bearing partly within said foot-body and partly within said leg-body, bolts 14 and 15 extending respectively from said foot and leg body, said bolts having a loop connection with each other within the center of said ball, substantially as and for the purpose specified.

2. In an artificial-limb joint, the combination with the foot and leg body, said foot-body having a partial ball-socket and trunnion-sockets therein and said leg-body having a partial ball-socket and trunnion-sockets extending at right angles with the trunnion-sockets of the foot-body, of a hollow ball adapted to bear partially within said foot-socket and partially within said leg-socket and having oppositely-located trunnions adapted to bear in said foot trunnion-sockets and oppositely-located trunnions adapted to bear in said leg trunnion-sockets and foot and leg rods jointedly connected within said ball, substantially as and for the purpose specified.

644,803. **ARTIFICIAL TOOTH-CROWN.** HENRY D. JUDT, Philadelphia, Pa. Filed Oct. 6, 1898. Serial No. 732,784. (No model.)



Claim.—1. An anchor or pin for connecting an artificial tooth-crown with a natural root consisting of a piece of material having its ends adapted to enter said crown and root and formed with a longitudinally-extending canal and a vertically-extending open side.

2. An artificial tooth-crown having a cavity therein, and a member on a wall of said cavity integral therewith and partially occupying said cavity and an anchor having its ends adapted to enter respectively said crown and a natural root, and provided with a vertical canal adapted to receive said member and a divided side, the walls of which latter are adapted to engage said member.

3. An anchor with a longitudinally-extending canal or groove therein for the purpose set forth, and a core removably occupying said canal.

644,804. **ACETYLENE-GAS LAMP.** PETER F. MCCAFFREY and THOMAS A. DUNNER, Salt Lake City, Utah. Filed June 1, 1899. Serial No. 719,001. (No model.)



Claim.—1. In an acetylene-gas lamp, the combination, with a support, of a section secured thereto at its lower end and having its upper end perforated and provided with a screw-threaded boss, a perforated diaphragm upon the upper end of the section and provided with a screw-threaded boss, an upper section secured to the diaphragm and provided with a perforated cap, a tube through said perforations, the lower end of which is screw-threaded and provided with means for forming a passage between said sections, and the upper end is provided with a burner.

2. In an acetylene-gas lamp, the combination of a sectional column or pedestal provided with an intermediate diaphragm and with an internally-threaded boss forming a valve-seat, a tube having a threaded and grooved lower portion screwed into said boss, a valve carried by said tube above the grooved portion thereof and adapted to said seat of the boss, and means for turning the tube, substantially as described.

3. In an acetylene-gas lamp, the combination of a sectional column or pedestal having its members separably coupled together and provided with an intermediate diaphragm forming a lower carbid-chamber and an upper water-chamber, an absorbent casing fitted removably in the carbid-chamber afforded by the lower pedestal-section, means for admitting water from said elevated chamber to the absorbent casing, and a perforated water-distributing tube arranged within the carbid-chamber and in contact with one side of said absorbent casing, substantially as described.

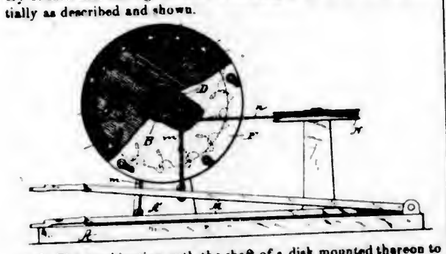
4. In an acetylene-gas lamp, the combination, with a water and a carbid receptacle, the top of the water-receptacle being provided with a graduated scale, a screw-threaded diaphragm between the receptacles, a tube, the lower end of which is grooved longitudinally and screw-threaded and passed through the diaphragm, and the upper end projects above the top of the water-receptacle and is provided with a burner, and the intermediate portion is provided with a valve adjacent to one end of said groove, and a handle upon the end of the tube adapted to register with the scale.

5. In an acetylene-gas lamp, the combination, with two cylinders, one of which is provided with a perforated end and the other one is open at both ends, a base, a perforated cap, and a perforated diaphragm for securing said cylinders together and closing the ends thereof, a tube through the cap through the diaphragm and the perforated end of the cylinder, the lower end of said tube being provided with means for forming and controlling a passage between the cylinders, and the other end is provided with a burner.

644,805. **CLUTCH.** JOSEPH A. MCGEE, Big Spring, Ind. Filed Sept. 7, 1899. Serial No. 729,761. (No model.)

Claim.—1. The combination with a shaft of a disk mounted

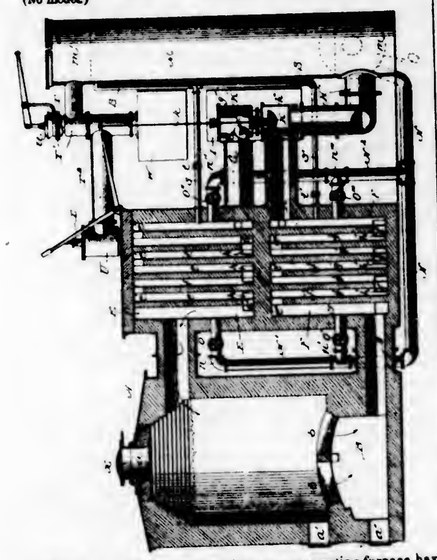
thereon, said disk having transverse half-round seats in its periphery with deeper indentations or sockets intermediate the ends of the seats, half-round pawls in said seats, springs in said sockets to press the pawls and a revoluble ring or sleeve closely surrounding the periphery of said disk having notches to be engaged by the pawls, substantially as described and shown.



2. The combination with the shaft of a disk mounted thereon to revolve therewith, said disk having transverse half-round seats in its periphery with deeper indentations or sockets intermediate the ends of the seats, half-round pawls in said seats, springs in said sockets to press the pawls and a ring or sleeve having motion of rotation around the disk in alternate opposite directions and having notches to engage the pawls, substantially as shown.

3. The combination with a ring having inside notches a disk having transverse peripheral grooves with a flange projecting into the groove along one edge and deeper indentations or sockets intermediate the ends of the seats, half-round pawls seated in the grooves and springs in the sockets to press the pawls out on the unflanged side of the groove into engagement with the notches of the ring, substantially as specified.

644,806. APPARATUS FOR MANUFACTURING GAS. HAWLEY PETTIBONE, Bridgeport, Conn. Filed Feb. 18, 1899. Serial No. 706,016. (No model.)



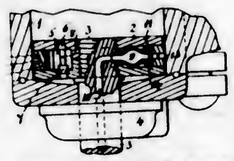
Claim.—1. The combination with a gas-generating furnace having gas-outlet pipes as C and D at top and bottom, of two superheaters, one of which connects with the top of the generator through pipe C and the other of which connects with the bottom of the same through pipe D, a valved gas-outlet pipe as G and valved air and steam supply pipes as *s* and *n* connecting with the gas-discharge side or end of each superheater, substantially as described.

2. The combination with a gas-generating furnace having gas-outlet pipes as C and D at top and bottom, of a superheater connecting with the top of the generator through pipe C and having an air-inlet *a* adjacent to the gas-inlet, a second superheater connecting with the bottom of the generator through pipe D and having an air-inlet *a'* adjacent to the gas-inlet, a valved gas-outlet pipe and valved air and steam supply pipes connecting with the gas-discharge side or end of each superheater, substantially as described.

3. The combination with a gas generating furnace having gas-outlet pipes as C and D at top and bottom, of two superheaters, one of which connects with the top of the generator and the other of which connects with the bottom of the same, a tubular steam-boiler having a gas-receiving chamber, a valved gas-outlet pipe connecting each superheater with said chamber of the boiler, and valved air and steam supply pipes connecting with the gas-discharge side or end of each of said superheaters, substantially as described.

4. The combination with a gas-generating furnace having a gas-outlet pipe C at the top and a gas-outlet pipe D at the bottom, of a superheater, as E, connecting by said pipe C with the top of the generator, and having at its discharge side or end a valved gas-outlet pipe G, a valved air-supply pipe *n''* and a valved steam-supply *s*, a second superheater, as F, connecting by said pipe D with the base of the generator and having at its discharge side or end a valved gas-outlet pipe H, and the valved air and steam supply pipes *n'''* and *s'*, substantially as described.

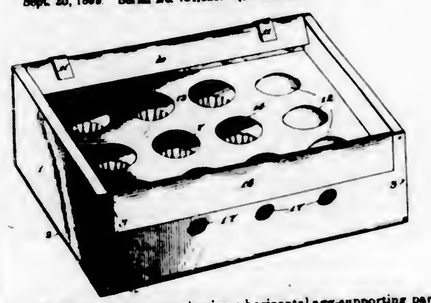
644,807. FLUID-PRESSURE JOINT FOR PISTONS. ROBERT C. SAYER, Bristol, England. Filed Aug. 3, 1899. Serial No. 726,045. (No model.)



Claim.—1. A cylinder, a ram connected to the cylinder, a lubricant-reservoir connected to the ram, a valve between the reservoir and ram, hollow jointed links connected to the ram, a valve between the links and ram, a hollow piston-rod connected to the links, a piston with chamber working in the cylinder, a groove around the piston and connected with the chamber and a packing in the groove.

2. A cylinder, a ram connected to the cylinder, a lubricant-reservoir connected to the ram, a valve between the reservoir and ram, hollow jointed links connected to the ram, a valve between the links and ram, a hollow piston-rod connected to the links, a piston with annular groove working in the cylinder, a packing-ring fitting in the groove, a cylinder-packing with annular groove, a flexible connection between the annular groove and the hollow piston-rod, and a valve in the piston and leading to the chamber.

644,808. EGG-CASE. JOHN M. SHARP, Delavan, Wis. Filed Sept. 25, 1899. Serial No. 731,623. (No model.)



Claim.—1. An egg-case, having a horizontal egg-supporting partition, hinged to one side of the case, and foldable to the exterior thereof, and a cover, fitting snugly the tops of the eggs, hinged to the opposite side of the case, and also foldable to the exterior thereof, substantially as shown and described.

2. An egg-case, having an egg-supporting partition, a cover hinged to one side of the case, and fitting snugly the tops of the eggs, and a shoulder provided upon the inner face of the opposite side of the case, fitting against the outer side of the free edge of the cover and holding the latter in place, substantially as shown and described.

3. An egg-case, having the upper edge of one side bent inwardly and forming a shoulder, an egg-supporting partition located within the interior of the case, and a cover, located between the partition and the shoulder, fitting snugly the tops of the eggs, and hinged to one side of the case opposite the shoulder, the free edge of the cover engaging the shoulder, when said cover is in use, substantially as shown and described.

4. An egg-case, having one edge bent inwardly and forming a shoulder, spring-clips embracing the bent edge, an egg-supporting partition, and a cover hinged to one side of the case, and having its free edge engaging the shoulder, in the closed position of the cover, substantially as shown and described.

5. An egg-case, having one edge bent inwardly and forming a shoulder, an egg-supporting partition, a flexible strip having one edge secured to the partition, and its opposite edge secured to the adjacent side of the case, between the latter and the folded edge thereof, a hinged cover fitting snugly the eggs, and having its free edge engaging the shoulder, in the closed position of the cover, substantially as shown and described.

6. An egg-case, comprising opposite wooden end pieces, a bottom and opposite sides formed from a single sheet of cardboard or the like fastened to the edges of the end pieces, the upper edge of one side being bent inwardly to form a shoulder, an egg-supporting partition formed of the same material as the bottom and sides of the case, having its peripheral edges bent downwardly forming foot-flanges resting upon the bottom of the case, a flexible strip secured to one flange of the partition and to the adjacent side of the case contiguous to the bent portion thereof, a cover fitting snugly the tops of the eggs, and having one edge bent upwardly opposite the bent portion of the side of the case, and a flexible strip embracing the bent portion of the cover and the adjacent side of the case, and forming a hinge for the cover, the free edge of the latter engaging the under side of the bent portion of the case, when the cover is in use, substantially as shown and described.

644,809. PLUSH LAP-ROBE. JOSEPH STROOCK, New York, N. Y. Filed Nov. 23, 1899. Serial No. 738,080. (No specimens.)



Claim.—1. The herein-described process of manufacturing plush lap-robes having a uniform surface and having their main portions dyed or printed in a dark solid color and provided with a central ornamental portion in lighter colors, which consists in weaving the entire main body of the robe with a cheap quality of weft, of a dark natural color which is incapable of taking the dyes of light colors, and dyeing or printing the said main body the dark solid color, weaving the material to receive the ornamental portion of a finer quality of material of a very light natural color which will take the lighter-colored dyes, dyeing or printing the design therein in lighter colors than the said dark solid color and attaching the said ornamental portion to the main body whereby a cheaper robe is produced having the same ornamental effect as those made wholly of the finer quality of material, substantially as described.

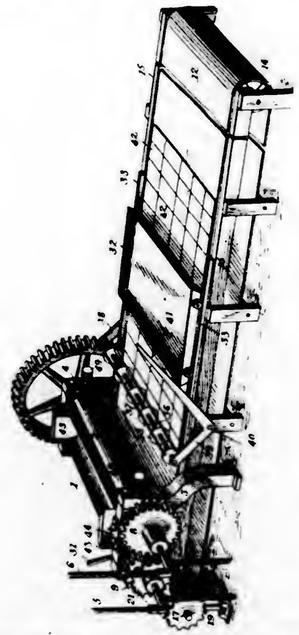
2. A plush lap-robe having its main body composed of a cheap quality of weft-threads of a naturally-dark color, incapable of receiving light-colored dyes, printed or dyed a plain dark color and provided with an ornamental panel composed of the same kind of weft, of a more expensive quality and naturally-light color printed or dyed in lighter colors, said ornamental panel being attached to the main body said robe having all the ornamental effects of a robe made wholly from the more expensive material, substantially as described.

644,810. MACHINE FOR MIXING AND PREPARING PLASTIC MATERIAL. PHILIP L. SYLVESTER, Scranton, Pa. Filed Sept. 16, 1899. Serial No. 730,698. (No model.)

Claim.—1. In a machine for mixing and preparing plastic material, the combination with the heated mixing-rolls having different peripheral speeds, of a conveyer-belt below said rolls arranged to travel at approximately the same speed as the periphery of the faster-running roll, and an artificially-cooled scraper movable toward and from the face of said roll.

2. In a machine for mixing and preparing plastic material, the combination with the heated mixing-rolls having different peripheral speeds, of a cold scraper adapted to scrape the material from the faster-running roll, and a conveyer arranged to receive the material scraped from said roll and to carry it off in sheet form.

3. In a machine for mixing and preparing plastic material, the combination with the mixing-rolls having different peripheral speeds, of a scraper-knife adapted to scrape the material from the faster-running roll, a conveyer below said rolls arranged to travel at approximately the same speed as the faster-running roll, and means for stopping and starting said conveyer.



4. In a machine for mixing and preparing plastic material, the combination with the heated mixing-rolls having different peripheral speeds, of a scraper adapted to scrape the plastic material from the faster-running roll, a conveyer-belt below said rolls arranged to travel at approximately the same speed as the periphery of the faster-running roll and adapted to receive the material scraped from said roll, and a scoring-knife arranged to score the material as it passes along on the belt.

5. In a machine for mixing and preparing plastic material, the combination with the heated mixing-rolls having different peripheral speeds, of a scraper adapted to scrape the plastic material from the faster-running roll, a conveyer-belt below said rolls arranged to travel at approximately the same speed as the periphery of the faster-running roll and adapted to receive the material scraped from said roll, and a scoring-knife journaled above the belt and consisting of a series of disks and one or more bars arranged transversely to said disks.

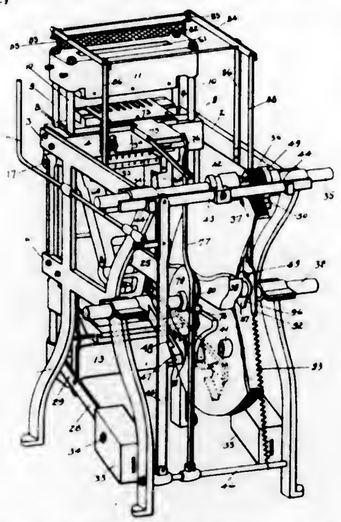
6. In a machine for mixing and preparing plastic material, the combination with the mixing-rolls and the scraper of the belt-frame below and extending rearwardly from said rolls, the conveyer-belt extending over said frame, the scoring-knife adjustable toward and from said belt, and the pan or receptacle movable upon ways longitudinally of said frame, substantially as described.

7. In a machine for mixing and preparing plastic material, the combination with the mixing-rolls, of the conveyer-belt beneath said rolls, the driving-roller for said belt secured to a suitable shaft, a sprocket wheel or gear loosely mounted on said shaft and geared to the shaft of one of said mixing-rolls, and a clutch for connecting said wheel or gear to its shaft.

8. In a machine for mixing and preparing plastic material, the combination with the mixing-rolls having different peripheral speeds, of a scraper-knife movable toward and from the face of the faster-running roll and having passage-ways therein through which a cooling fluid may be passed, as and for the purpose set forth.

9. In a machine for mixing and preparing plastic material, the combination with the mixing-rolls, of the end frames having guideways therein, bearings for said rolls located within the guideways and having overlapping flanges the ends of which are beveled or sharpened, the bearings of one of said rolls being adjustable toward and from the bearings of the other roll.

644,811. MACHINE FOR MAKING BUTTONS. PHILIP L. SYLVESTER, Scranton, Pa. Filed Oct. 18, 1899. Serial No. 734,019. (No model.)



Claim.—1. The combination with the stationary die-block of a movable die-block mounted upon guide-rods, a cross-head in which said guide-rods are secured, a toggle-lever connected to the center of the cross-head by a ball-and-socket joint and means for operating said lever.

2. The combination with the stationary die-block of a movable die-block mounted upon guide-rods, a cross-head in which said guide-rods are secured, a toggle-lever connected to the center of the cross-head by a ball-and-socket joint, said lever being adjustable in length, and means for operating said lever.

3. The combination with the stationary die-block of a movable die-block and a cross-head connected thereto by guide-rods, a toggle-lever connected to said cross-head, and a weighted lever arranged to counterbalance said parts.

4. The combination with the stationary die-block of the movable die-block and a cross-head mounted upon guide-rods, a toggle-lever connected to said cross-head, a push-rod connected to said toggle-lever and having two cams or tracks thereon, an operating-shaft and a stud or pin rotatable therewith, adapted to engage said cams alternately, thereby flexing and straightening said toggle-lever.

5. In a button-making machine, the combination with a pair of dies having perforations therethrough, one of said dies being movable toward and from the other die, of a series of pins projecting into the perforations in one of said dies and means for moving said pins and causing them to project into the perforations in the other die when said dies are closing.

6. In a button-making machine, the combination with the stationary and movable dies having perforations therethrough and a toggle-lever arranged to operate said movable die, of a pin-frame having a series of pins projecting through the perforations in the stationary die, and means for moving said pins upward, into the perforations in the movable die when the dies are closing.

7. In a button-making machine, the combination with the stationary and movable dies having perforations therethrough of a pin-frame having a series of pins projecting into the perforations in the stationary die, a toggle-lever arranged to operate the movable die and also to raise said pin-frame when the dies are closing.

8. The combination with the movable and stationary dies having perforations therethrough and a toggle-lever arranged to operate the movable die toward and from the stationary die, of a vertically-movable pin-frame having a series of pins projecting into the perforations in the stationary die said frame having inclined shoulders or lugs resting upon the toggle-lever, whereby when said lever is straightened the pin-frame will be lifted.

9. In a button-making machine, the combination with stationary and movable dies having perforations therethrough of the pin-frame having pins projecting into the perforations in the stationary die, a toggle-lever arranged to operate the movable die and to raise said pin-frame when the dies are closing, and means for further raising said pin-frame when the dies separate, so as to eject the formed buttons from the stationary die.

10. The combination with the movable and stationary dies having perforations therethrough, the toggle-lever arranged to operate the movable die toward and from the stationary die, and the pin-frame having pins projecting into the perforations in the stationary die and adapted to be raised by the toggle-lever when the dies are closing, of the rocking lever connected to said pin-frame and having cams or tracks thereon, and an operating-gear having a stud adapted to engage said cams so as to raise and then lower the pin-frame after the dies separate.

11. In a button-making machine, the combination with the movable and stationary dies having perforations therethrough of the pin-plate having pins projecting into the perforations in the stationary die, means for closing said dies and for raising the pin-plate when the dies are nearly together to perforate the buttons, means for further raising the pin-plate when the dies are separated to eject the buttons from the stationary die, a stripper arranged to pass beneath the buttons while in their elevated position and means for lowering said pin-plate while the stripper is beneath the buttons.

12. In a button-making machine, the combination with the movable and stationary dies having perforations therethrough, of a pin-plate having pins extending into the perforations in the stationary die, means for closing said dies and for raising the pin-plate when the dies are nearly together to perforate the buttons, means for further raising the pin-plate when the dies are separated to eject the buttons from the stationary die and a stripper arranged to pass beneath the buttons while in their elevated position, said stripper having a yielding forward motion and a positive backward motion.

13. In a button-making machine, the combination with the movable and stationary dies having perforations therethrough, of the pin-plate having pins projecting into the perforations in the stationary die, means for closing said dies and for raising the pin-plate when the dies are nearly together, to perforate the buttons, means for further raising and then lowering the pin-plate when the dies are separated, an automatically-operated stripper adapted to extend between the pins while in their elevated position and to be withdrawn after the pins are lowered, and means for automatically stopping the machine when the stripper is withdrawn.

14. The combination with an operating-shaft having an operating-gear thereon of a driving-shaft having a loosely-mounted clutch-pinion meshing with said operating-gear, a clutch member upon the driving-shaft adapted to engage said pinion, an arm secured to the operating-shaft and a rod operatively connected with said clutch member and having an inclined face or cam projecting into the path of said arm, whereby when said arm engages the inclined face on the rod the clutch member will be disengaged from the pinion.

15. The combination with an operating-shaft having an operating-gear thereon of a driving-shaft having a loosely-mounted clutch-pinion meshing with said operating-gear, a clutch member upon the driving-shaft adapted to engage said pinion, an arm secured to the operating-shaft and a rod operatively connected with said clutch member and having an inclined face or cam projecting into the path of said arm, whereby when said arm engages the inclined face on the rod the clutch member will be disengaged from the pinion, a friction-wheel upon the driving shaft and a shoe upon the operating-gear said shoe being arranged to engage the friction-wheel when the arm bears against the inclined face on the rod.

16. The combination with an operating-shaft having an operating-gear thereon of a driving-shaft having a loosely-mounted clutch-pinion meshing with said operating-gear, a clutch member upon the driving-shaft adapted to engage said pinion, an arm secured to the operating-shaft and a rod operatively connected with said clutch member and having an inclined face or cam projecting into the path of said arm, whereby when said arm engages the inclined face on the rod the clutch member will be disengaged from the pinion, a friction-wheel upon the driving-shaft, a shoe upon the operating-gear adapted to engage the friction-wheel when the arm bears against the inclined face on the rod, and a hand-lever arranged to move the clutch member into engagement with the pinion.

17. The combination with a stationary die and a movable die and means for automatically raising and lowering the latter of a guard suspended in front of said dies and means for automatically lowering said guard in advance of the movable die.

18. The combination with a stationary die and a die movable toward and from said stationary die, of a guard yieldingly suspended in front of said dies and arranged to be automatically lowered in advance of the movable die.

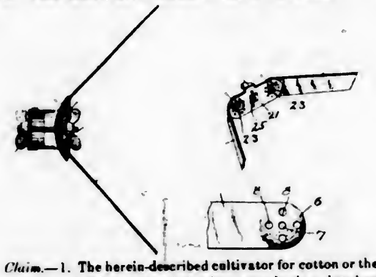
19. The combination with the stationary die and the movable die, a toggle-lever for raising and lowering the movable die and an operating-shaft and intermediate connections for operating the toggle-lever, of a lever suitably supported above the machine, a guard suspended from the forward end of said lever in front of the dies, a rod connected to the rear end of said lever, and a cam upon the operating-shaft engaging a pin upon said rod, whereby the guard is lowered in advance of the movable die.

20. In a machine for forming articles from plastic material, the combination with the stationary die-block and the movable die-block mounted upon guide-rods, the cross-head to which said guide-rods are secured, the toggle-lever connected to said cross-head, the operating-gear and intermediate connections arranged to straighten and flex the toggle-levers alternately, of means for automatically stopping said gear when the toggle-levers are flexed.

21. In a machine for forming perforated articles from plastic material, a lower die-block having a perforated die and an upper die-block having a channel extending vertically therethrough, and a perforated die extending across the lower end of said channel, means for bringing said dies together, and pins arranged within the perforations in the lower die and adapted to be extended into the perforations in the upper die when said dies are nearly together.

22. The combination with a pair of dies and means for automatically moving one of said dies toward and from the other die, of a guard, and means for automatically moving said guard in front of the dies to prevent access to the same before said dies come together.

644,812. COTTON-CULTIVATOR. CHARLES A. THURMOND, Perry, Ga. Filed Oct. 26, 1899. Serial No. 734,843. (No model.)

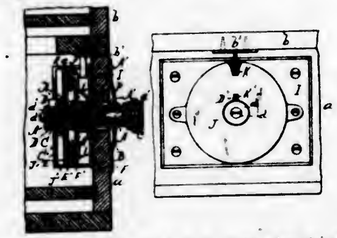


Claim.—1. The herein-described cultivator for cotton or the like, comprising a suitable beam and shank; an anchoring-plate having a concaved outer face and anchoring-stems; suitable means to attach said plate to said shank, in combination with cultivator-blades having inner cup-shaped ends adapted to fit said plate and means to hold said parts in an adjusted position in the manner specified and for the purpose set forth.

2. The herein-described cultivator for growing cotton-plants or the like, comprising a suitable beam and shank therefor; an anchoring-plate secured to said shank; cultivator-blades having inner cup-shaped ends and means to adjustably attach said cup-shaped ends to said anchoring-plate, whereby said blades may be disposed in varying angles of inclination in the manner specified and for the purpose set forth.

3. The herein-described cultivator for cotton-plants or the like, comprising a suitable beam and shank therefor, the latter having a vertically-disposed slot; an anchoring-bolt passing through said slot; a cup-shaped anchoring-plate in combination with cultivator-blades having cup-shaped ends fitting said plate and means to hold said parts together as specified and for the purpose set forth.

644,813. COMBINATION-LOCK. GEORGE W. WATSON and CHAS. BEAR, Pawtucket, R. I. Filed Dec. 23, 1899. Serial No. 741,799. (No model.)



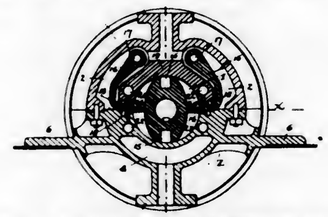
Claim.—1. In a combination-lock, in combination, the spindle A formed with the annular thickened portion A' provided with the pin A''; the disk F provided with the flange F', notch *f* and pin H', said disk being supported by the portion A'; the case formed with the slot K; the dial; and the block B on the spindle and in engagement with the dial, substantially as described.

2. In a combination-lock, in combination, the spindle A, A'; the collar C, C' on said spindle and provided with the pin C''; the disk E supported on said collar and provided with the flange E', notch *e* and pin H; the dial; and the case formed with the slot K; substantially as set forth.

3. In a combination-lock, in combination, the spindle A, A'; the collar C, C' on said spindle and provided with the pin C''; the disk E supported on said collar and provided with the flange E', notch *e*, pin H and pins *g*; the sleeve D on the spindle and provided with the lock D' adapted to extend between the pins *g*; the dial; and the case formed with the slots K and K', substantially as described.

4. In a combination-lock, in combination, the spindle A, A'; the collar C, C' on the spindle next the thick portion A'; the sleeve D on the spindle next the collar and provided with the lock D'; a knob on the front end of the spindle; the block B on the spindle between the knob and the thick portion A'; the disk F provided with the notch *f*, mounted on the portion A' of the spindle and adapted to be engaged thereby; the disk E provided with the notch *e*, mounted on the collar and adapted to be engaged thereby; and the spring L between the front disk and the wall to which the lock is secured, substantially as set forth.

644,814. ROTARY ENGINE. JAN BROM, Farmsum, Netherlands. Filed July 31, 1899. Serial No. 725,726. (No model.)



Claim.—1. In a rotary engine and in combination, a cylinder, an eccentric piston, swinging abutments or tongue shaped parts coacting therewith, a loose end to the cylinder a packing for same, a slide-valve chamber in which such loose end is situated and means for supplying and removing fluid-pressure to and from such slide valve chamber, the loose end being so proportioned that pressure may be exerted upon it to press it against the piston greater than the pressure outward from the cylinder, substantially as described.

2. In a rotary engine and in combination a cylinder, an eccentric piston located therein, swinging abutments coacting with said piston, a flanged sleeve forming one end of said cylinder, a stuffing-box through which the sleeved part passes, the main shaft, which the sleeved part surrounds, and a fluid-pressure chamber on the side of the flanged part opposite to the cylinder the flanged part being so proportioned that pressure may be exerted on the flanged part to press it against the piston greater than the pressure outward from the cylinder substantially as described.

3. In a rotary engine, and in combination with the cylinder, an eccentric piston therein, swinging abutments coacting with said piston, an end casing for said cylinder reversing, inlet and exhaust passages for fluid-pressure in same, ports communicating with the cylinder, a pair of semicircular chambered slides working over such ports and exhaust-passages, a movable flanged head pivoted to said slides, and means for moving such head substantially as described.

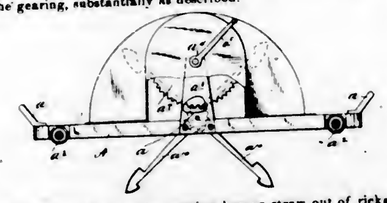
4. In a rotary engine, the combination with the cylinder having an eccentric piston and swinging abutments coacting therewith, of the slide-valve chamber 25, semicircular reversing-slides 28 28 a movable flanged head pivoted to same, a link 31 pivoted to said head, a stuffing-box on the chamber 25, a rod passing through such stuffing-box and attached to the link, and a handle for the rod whereby the latter may be moved to move the link and connected parts, substantially as described.

644,815. HAY OR STRAW CUTTER. GEORGE COMPORT, Bozeman, Mont. Filed Dec. 22, 1899. Serial No. 741,336. (No model.)

Claim.—1. A hay or straw cutter of the character described, comprehending a portable base provided with handles for moving it and having oppositely-disposed standards at the sides thereof, two shafts journaled in said standards, one of said shafts having a pinion fixed thereon, and carrying at its projecting end, at the side of the base, a rotary cutter, the other of said shafts being provided with a crank-handle and having a driving-gear thereon in mesh with said pinion, substantially as shown and for the purpose set forth.

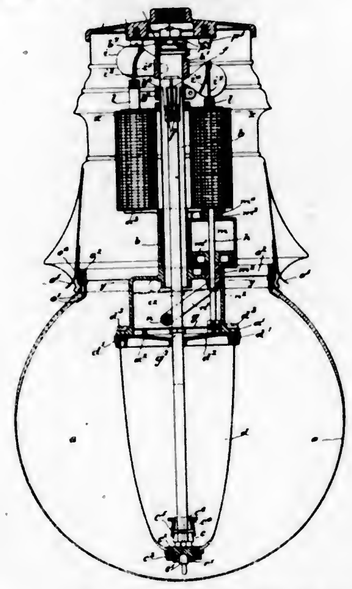
2. A device of the character described, comprising a portable base carrying a handle at each end, and rollers at the sides of the

ends, standards secured to the base intermediate of its ends, transverse shafts journaled in the standards, one of which shafts carries a gear-wheel and the other a pinion in mesh therewith, a crank carried by one shaft, cutter-arms carried by the other shaft, the arms being provided with double-edged cutting-heads, and a casing inclosing the gearing, substantially as described.



3. A portable cutter for cutting hay or straw out of ricks or mows, the combination with a frame, adapted to be moved in either direction, and furnishing an abutment against which the cutters may operate, a shaft adapted to be revolved in either direction at will, and having mounted thereon a series of arms, the outer extremities of which are provided with knives, having shoulders, arranged one above the other, and on opposite sides, the shoulders serving as cutter-heads, substantially as specified.

644,816. ELECTRIC-ARC LAMP. WILLIAM J. DAVY, London, England, assignor of one-half to Charles Williamson Milne, same place. Filed May 25, 1899. Serial No. 718,260. (No model.)



Claim.—1. In an inclosed arc-lamp in which the carbon tends to feed forward, the feed-mechanism chamber closed at its ends, a transparent inclosing bell bearing against one end of the chamber, a carbon passing through this end of the chamber into the inclosing bell, a disk fitting loosely in the mechanism-chamber and having a hole through which the carbon passes freely, a regulating-rod loosely attached to the disk near its periphery, a stop adapted to limit the motion of the disk at an opposite point of the periphery, and a means for determining the position of the rod according to the resistance of the arc.

2. An inclosed arc-lamp consisting of the carbon guide-tube closed at one end, the feed-mechanism chamber attached at one end to the other end of the guide tube, a transparent inclosing bell bearing against the other end of the chamber, a dash-pot fixed on the end at one side of the chamber, a piston working in the dash-pot and a rod fixed to the piston passing into the mechanism-chamber to operate the feed device therein and passing outward to the regulating mechanism the whole forming an inclosed chamber in which any transference of gases has to take place through the dash-pot.

3. The means for fixing the inclosing bell in position consisting of a fitting fixed on the end of the bell opposite to its mouth and provided at its outer end with a recess, a loop or double yoke having a projection bearing in the recess and side arms, and spring-bolts hung on the lamp-frame and a swivel-joint connecting the side arms of the yoke to the spring-bolts.

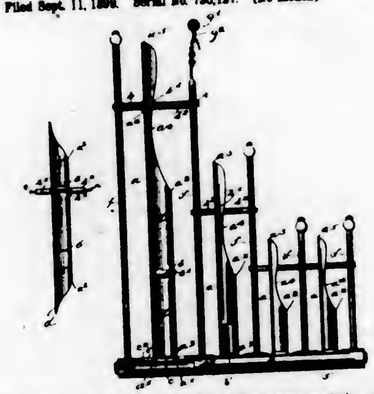
4. The carbon holder consisting of a split cylinder forming tongues adapted to grip the carbon and spring-contacts riveted at one end to the tongues and bearing at the other end on the carbon guide-tube.

5. The negative carbon-holder comprising the split socket with tapered exterior surface and an internally-tapered bush fitting on the tapered jaws and having a pin adapted to pass through the slits in the socket.

6. The means for conveying current to the movable carbon consisting of a contact-roller, a link carrying the contact-roller and a piece fixed to the feed devices that raises the roller of the carbon when the feed devices are operative.

7. The shunt cut-out device comprising a cut-out lever fulcrumed to an insulated ring on the main tube and capable of being engaged by the main lever, an insulated spring-contact plate forming with the cut-out lever the cut-out switch, and a shunt-coil one end of which is connected to the negative terminal of the lamp while the other end is connected to the spring-contact.

644,817. MUSICAL INSTRUMENT. JOHN C. DEAGAN, Chicago, Ill. Filed Sept. 11, 1899. Serial No. 730,127. (No model.)



Claim.—1. In a musical tube for instruments of the class described, the combination with a tubular portion, of an air-tight plug or partition disposed therein producing a double sympathetic air-column or resonator, and means, as an extension a', whereby the tube may be set in vibration, substantially as described.

2. In a musical tube for instruments of the class described, the combination with a tubular portion, of a vibrating reed a^4, a partition disposed within said tubular portion, to produce a double sympathetic air-column or resonator, and means, as an extension a', whereby the tube may be set in vibration, substantially as described.

3. In a musical tube for chimes, the combination with a metallic tubular portion, of an upper vibrating reed a^4, a plug or partition disposed midway within said tubular portion, to produce double resonators, and an extension a' provided at the lower end adapted to secure the vibration of the tube for the production of a musical tone, substantially as described.

4. In a musical tube for chimes, the combination with a tubular portion, of an air-tight plug or plugs disposed therein producing double sympathetic air-columns or resonators, and a portion adapted to be struck for the production of a characteristic musical tone, substantially as described.

5. The combination with a musical tube of the class described, of an arched reinforcing-piece c secured to the extremity of said tube, adapted to strengthen the same and thereby obtain a better tone from the musical tube, substantially as described.

6. The combination with a musical tube of the class described, of extensions a' provided thereon, and a reinforcing piece attached between said extensions, whereby the same are reinforced for the purpose of setting the tube in vibration, substantially as described.

7. In a musical instrument of the class described, the combination with a hollow sounding-board e, of tubular uprights or rods f secured in said sounding-board, and musical tubes a supported by the said uprights above openings in said sounding-board, substantially as described.

8. In a musical instrument of the class described, the combination with a tubular sounding-board e constructed of hard wood, of tubular uprights or rods f secured in said sounding-board, and musical tubes a supported by said tubular rods above openings in said sounding-board, substantially as described.

9. In a musical instrument of the class described, the combination with a tubular sounding-board having openings therein, of leather facing-strips provided upon the walls of said openings, tubular uprights or rods f secured in said sounding-board, and musical tubes a supported by said tubular rods above openings in said sounding-board, substantially as described.

10. In a musical instrument of the class described, the combination with a sounding-board having openings therein, of supporting-rods attached to said sounding-board, and a plurality of musical tubes carried by said rods, having extensions supported in position within the openings and adapted to strike against the walls thereof, the said tubes being tuned to produce different harmonious tones, the tubes producing the highest tones being duplicated, substantially as described.

11. In a musical instrument of the class described, the combination with a tubular sounding-board having cushioned openings therein, of supporting-rods attached thereto, and a plurality of musical tubes carried by said rods in position to strike against the cushioned walls of said openings, the said tubes being respectively tuned to produce a fundamental tone, an octave above the same and a duplicated double octave, substantially as described.

12. In a musical instrument of the class described, the combination with the cross-bar h, of a supporting-frame, of a musical tube, through an opening in which said cross-bar extends, and a covering of yielding material provided upon said bar adapted to engage said tube and to permit its free vibration substantially as described.

13. In a musical instrument of the class described, the combination with the cross-bar h, of a supporting-frame, of a musical tube, through an opening at a node of which said cross-bar extends, a washer and spacing-sleeves of rubber or other yielding material provided upon the bar engaging and supporting the tube, substantially as described.

14. In a musical tube for instruments of the class described, the combination with a tubular portion inclosing the air-column of an adjustable air-tight plug or partition disposed therein, and means for securing it in its position of adjustment, substantially as described.

15. In a musical tube for instruments of the class described, the combination with a slotted tubular portion inclosing the air-columns, of an adjustable cup forming the plug or partition therein, and means, as a screw extending through the slot, for securing the partition in its position of adjustment, substantially as described.

16. In a musical instrument of the class described, the combination with a sounding-board e, of hard wood having openings therein, tubular uprights f secured to said sounding-board, a plurality of musical tubes a tuned respectively to a fundamental tone, an octave above, and a duplicated double octave and extensions a' provided upon said tubes and disposed within said openings adapted simultaneously to strike the walls thereof and set the tubes in vibration, substantially as described.

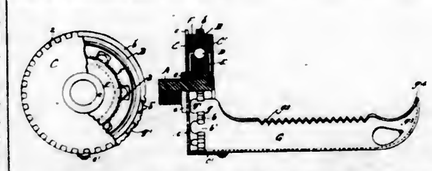
17. In a musical instrument of the class described, the combination with a sounding-board e, of hard wood having openings therein, tubular uprights f secured to said sounding-board, a plurality of musical tubes a tuned respectively to a fundamental tone, an octave above, and a duplicated double octave and extensions a' provided with reinforcing-fork c provided upon said tubes and disposed within said openings, adapted simultaneously to strike the walls thereof and set the tubes in vibration, substantially as described.

644,818. PEDAL. WILLIAM DIEBEL, Philadelphia, Pa. Filed Oct. 6, 1898. Serial No. 692,814. (No model.)

Claim.—1. A swinging pedal, comprising a bearing ring or casing having a series of alternating openings and solid portions, means for rotatably mounting the same upon a central crank-pin, and a pedal-blade partially encircling said ring or casing and having a series of alternating ears and openings at its inner end respectively engaging the openings and solid portions of the bearing ring or casing, substantially as described.

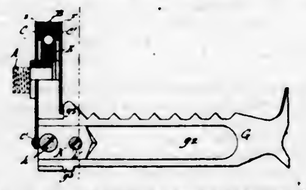
2. The combination of a pedal-blade having its side edges upturned and formed with a semicircular inner end having a series of ears to attach the pedal solely thereat to the pedal-support; a rotative ring or casing constituting said support and having openings to receive said ears; and a pin upon which said ring or casing is mounted, substantially as described.

3. A stamped sheet-metal pedal-blade having upturned side edges, a spherically-formed outer end, and a semicircular inner end having attaching-ears, in combination with a support therefor having openings in which said ears are secured.



4. A swinging pedal comprising a bearing ring or casing, means for rotatably mounting the same upon a central crank-pin, and a sheet-metal pedal-blade, said ring or casing being formed with a circular rib b having recesses b', and said pedal-blade having ears g entering said recesses and rigidly clamped therein substantially as set forth.

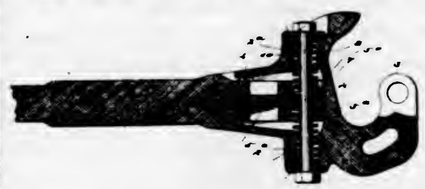
644,819. PEDAL. WILLIAM DIEBEL, Philadelphia, Pa. Filed Nov. 30, 1898. Serial No. 697,851. (No model.)



Claim.—1. A swinging pedal, comprising a bearing ring or head formed with depending concave clamping-ears, a U-shaped sheet-metal tread-piece having corrugated or concave sides the free ends of which are seated in the concavities in said ears, and convex clamping-plates securing said free ends of the tread-piece to said concave ears, substantially as described.

2. A swinging pedal, compriaing a bearing ring or head formed with concave clamping-ears extending forward beyond the plane of the ring, a U-shaped sheet-metal tread-piece having corrugated or concave sides the free ends of which are seated in the concavities in said ears, said tread-piece having heels or stops to limit the movement of said free ends into the clamping-ears, and plates having convex sides screwed to said ring or head and clamping said free ends of the tread-piece thereto.

644,820. CAR-COUPLING. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed June 22, 1899. Serial No. 721,434. (No model.)



Claim.—1. In a car-coupler, the combination of a shank, a head having a hollow neck to receive the outer end of the shank, a pin connecting the head to the shank, and springs located in the head and interposed between the head and the shank for keeping the former normally in line with the latter, substantially as set forth.

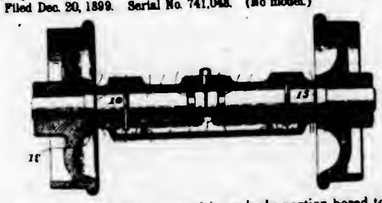
2. In a car-coupler, the combination of a shank having a reduced outer end, a head having a hollow neck that receives the reduced outer end of the shank, a pin connecting the head to the shank, a bolt passing through the end of the shank and through caps seated against the head, and springs surrounding said bolt and located between the end of the shank and said caps, substantially as set forth.

3. In a car coupler, the combination of a shank, a head having a hollow neck to receive the end of the shank, a pin connecting the head to the shank, a bolt passing through a hole in the end of the shank and through a bore in the head, caps seated against the head and through which said bolt passes, and springs surrounding said bolt and fitting at their outer ends in the bore in the head and at their inner ends in chambers formed in the end of the shank, substantially as set forth.

644,821. FIREPROOF COMPOSITION FOR BUILDING PURPOSES. HAROLD W. HATHAWAY, Boston, Mass. Filed June 10, 1898. Serial No. 683,095. (No specimens.)

Claim.—The herein-described fireproof composition of matter, consisting of coal-ashes, liquid silicate of soda as a binder, and fluor-spar as a setting agent, substantially as described.

644,822. CAR-AXLE. FRANK E. HAWKSWORTH, Helena, Mont. Filed Dec. 20, 1899. Serial No. 741,048. (No model.)



Claim.—1. An axle-box comprising a body portion bored to receive axle-sections, an oil-chamber being formed below the bearing in the said axle-box, scraping-rings mounted in grooves in the said axle-box, near each end, passages leading from the said rings back to the oil-chamber for conducting the oil thereto, substantially as described.

2. An axle-box for receiving the sections of a divided axle comprising a tubular body portion having an oil-recess formed longitudinally thereof and beneath the bearing-surface, means for introducing oil into the said chamber, recesses formed at each end of the said chamber, slots leading into the same, rings mounted in the said slots and adapted to rest upon the axle-sections for carrying oil from the recesses to the same, blocks for closing the upper ends of the said slots and holding the rings in proper position, and means for maintaining sufficient oil at each end of the said chamber to lubricate the rings, substantially as described.

3. An axle-box having a bearing for receiving the divided sections of an axle, scraping-rings adapted to be inserted in grooves in the said axle-box, the said scraping-rings being divided and having one end bent at right angles for engaging a recess formed in the axle-box, said rings being adapted to prevent oil from passing outwardly upon the axle-sections, while the bent portions of the rings will operate to hold the said rings stationary with respect to the axle-sections, substantially as described.

4. In an axle-box, the combination with a main body portion having a bearing formed therein, an oil-chamber formed in the said box below the bearing, scraping-rings arranged in grooves at the ends of the axle-box and having passage-ways leading from the said rings into the oil-chamber for returning the oil thereto and packing in the said passages for preventing the oil from gushing upwardly therein, substantially as described.

644,823. ELECTRIC LAMP FOR BICYCLES. GUSTAVUS HEIDEL, St. Louis, Mo., assignor to the Globe Electric Company, same place. Filed Jan. 9, 1899. Serial No. 701,556. (No model.)

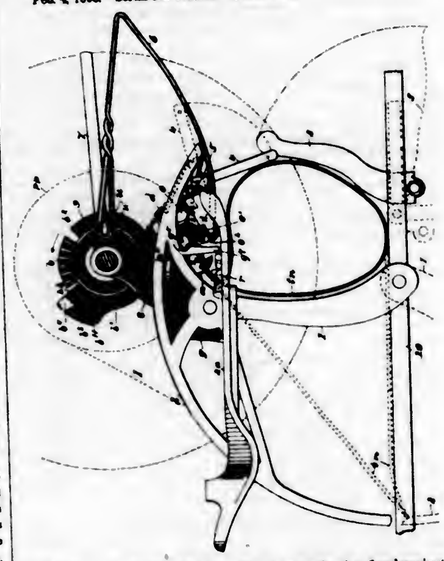


Claim.—1. In an electric lamp for bicycles, a supporting-frame, a revoluble friction-wheel mounted in said frame having an elastic rim formed with a beveled lateral face and a peripheral face, the latter, adapted to bear against a wheel of the bicycle, an armature, and armature-shaft, a friction-cone carried by said shaft adapted to bear against the beveled lateral face of the elastic rim of said friction-wheel, a lamp-bulb, and conductors leading from said armature to said lamp-bulb, substantially as described.

2. In an electric lamp for bicycles, clips applied to the bicycle, notched lips on said clips, a supporting-frame pivoted to said clips, a friction-wheel mounted on a shaft carried by said frame and adapted to bear against a wheel of the bicycle, electrical generating mechanism driven by said friction-wheel, springs secured to said clips and fitting in said notched lips, said springs being provided with arms containing offsets adapted to engage said shaft, substantially as described.

3. In an electric lamp for bicycles, a supporting-frame, a revoluble friction-wheel mounted in said frame, said wheel having a beveled elastic rim having a peripheral face adapted to bear against a wheel of the bicycle and a beveled lateral face, an armature, an armature-shaft, a friction-cone carried by said shaft adapted to bear against the beveled lateral face of said friction-wheel rim, a governor adapted to control the movement of said armature-shaft whereby the contact between said friction-cone and beveled elastic rim is regulated; substantially as described.

644,824. KNOTTER FOR HARVESTERS. ANTON HEUSER, Chicago, Ill., assignor of one-half to William Zimmerman, same place. Filed Feb. 4, 1898. Serial No. 669,110. (No model.)



Claim.—1. The combination with a knotter having fixed projecting parts, of a tier-wheel and reciprocating parts actuated by said tier-wheel, with means on said reciprocating parts to engage said knotter-head parts to put and hold the knotter to the starting-point, substantially as specified.

2. The combination with a rotary knotter-head with fixed diametrically-opposed shoulders, of reciprocable spurs to place and release said shoulders, and a tier-wheel with means to reciprocate said spurs and start said knotter under timed conditions, substantially as specified.

3. The combination with a hinged reciprocable arm carrying a twine-cutter, of a hinged reciprocable arm in a plane parallel to said twine-cutter arm provided with mandible-cams, substantially as specified.

4. The combination with a hinged reciprocable arm provided with a twine-cutter, and a hinged reciprocable mandible cam-arm in a plane parallel to said twine-cutter arm, of a single hinge-center for both said arms, substantially as specified.

5. The combination with a slotted breast-plate and knotter-bill, of a hinged reciprocable arm to move the twine laterally to said knotter and an elevated horisontal arm thereon to hold the twine at an upper position and drop it therefrom to a lower position, and a knife to cut the twine in its latter position, substantially as specified.

6. The combination with a rotatable knotter-head with hinged mandible, of a fixed closing-cam followed by cams combinedly movable, to successively open and close said mandible, substantially as specified.

7. The combination with a knotter-head with hinged mandible, of combinedly-yielding cams to successively open said mandible to receive both band ends and to close the mandible thereon, substantially as specified.

8. The combination with a slotted breast-plate and knotter-bill, of a hinged reciprocable arm with spur to open and close said slot and a horizontal arm to hold the twine in an upper position and an arm to move the twine laterally upon said bill, a knife below said twine position and means to drop the twine before the edge of said knife, substantially as specified.

9. The combination with a twine-holder-actuating pinion, of a flanged tier-wheel with an automatically-adjustable spur to actuate said pinion, substantially as specified.

10. The combination with a bipillar knotter-frame whereof one of said pillars is a round wheel-stud and the other pillar a means to hold hinged operating mechanism, of a bolt forming both the hinge-axis of said twine-operating mechanism and means for fastening said pillar to its support, substantially as specified.

11. The combination with a knotter-frame pillar and bolt to fasten said pillar to its support, of a hinge-operating cam-arm and a hinge-operating twine-operating arm on a common axis, substantially as specified.

12. The combination with a knotter-frame and hinge-operating twine-operating arm and hinge-operating cam-arm, of a bolt to fasten said pillar to its support and to form the axis for said twine-operating mechanism and cam-arm, substantially as specified.

13. The combination with a knotter-pinion and reciprocating piece to draw the twine out of its line, and means whereby said twine will return said piece, of a tier-wheel with notched flange and mechanism whereby said reciprocating piece operates on said flange and through said notch, substantially as specified.

14. The combination with a knotter-pinion and reciprocating piece to draw the twine out of its line, and means to hold the twine to its new place, and means whereby said twine will return said piece, of a tier-wheel with notched flange and mechanism whereby said reciprocating piece operates, substantially as specified.

15. The combination with a hinged reciprocating piece having an arm at right angles to said piece, and in an arc to its hinge-center, provided with twine-cutting mechanism and a roller-holding spur, all in an integral piece; and a knotter-pinion, of a tier-wheel, partially flanged, and a cam, said flange and cam projecting, radially, beyond said wheel to engage said spur and operate said reciprocating piece, substantially as specified.

16. The combination with a slotted breastplate and a reciprocable bar parallel to said slot, with fixed members transverse to said slot to laterally move and to cut the twine, and a roller-holding spur to said bar, of a tier-wheel with rack-gear and flange in planes parallel to the wheel-plane and projecting radially beyond said wheel, said flange and spur engaging to actuate said bar, substantially as specified.

17. The combination with a pinioned knotter, a slotted breastplate and a reciprocable bar parallel to said slot with twine-bridge and knife thereon transverse to said slot and a roller-carrying spur to said bar, of a tier-wheel with rack-gear and flange in planes parallel to the plane of said wheel and projecting radially beyond it to engage said spur and pinion, substantially as specified.

18. The combination with a twine holder base-plate having twine-receiving notch and a chambered receptacle transverse to said plate of a finger with working surface parallel to said plate and a bolt and spring in said chamber, substantially as specified.

19. The combination with a slotted breastplate, of a spur moving longitudinally to itself to open and close said slot, a tier-wheel with notched flange, said flange in a plane parallel to the plane of said wheel and radially beyond it and a rollered spur on mechanism directly connected to said spur, actuated by said notched flange, substantially as specified.

20. The combination with a rod centrally doubled into an eye or loop beyond which its members are twisted upon each other and beyond said twist said members are spread apart to a proper width and inclination after which they are sharply bent upon themselves and parallel to said loop and to each other until said loop and ends of said members fit to their respective holders, of a breastplate to receive said rod ends and a stud to receive said loop, substantially as specified.

21. The combination with a twine-holder-actuating pinion, of a tier-wheel circumferentially flanged, said flange in a plane parallel to the plane of the wheel, with a projection on said flange carrying a spur to actuate said pinion, substantially as specified.

22. The combination with a twine-holder-actuating pinion, of a flanged tier-wheel and a reciprocable tooth on said flange to actuate said pinion, substantially as specified.

23. The combination with a knotter-pinion and twine-holder pinion, of a tier-wheel with a notched radial flange having a rack-gear between said flange ends and blank spaces between said gear and flange ends and a spur on a radial extension of said flange to actuate said twine-holder pinion, substantially as specified.

24. The combination with a tier-wheel having a notched flange and rack-gear in equiradial and parallel planes, said gear opposite said notch, and a spur, radially beyond said flange, of a twine holder and a knotter both actuated directly by said wheel, substantially as specified.

25. The combination with a tier-wheel having a notched flange and rack-gear in parallel and equiradial planes, said gear opposite said notch, and a spur on and radially beyond said flange, of a twine-holder and a knotter both directly actuated by said wheel, and a twine-cutter with an actuating-piece intermediate said cutter and wheel, substantially as specified.

26. The combination with a tier-wheel having a notched flange and a rack-gear in parallel equiradial planes, said gear opposite said notch, and a spur radially beyond said flange, of a twine-holder and a knotter directly connected to said wheel and a twine-cutter and a twine-bridge with an intermediate piece to connect said tier-wheel to said cutter and bridge, substantially as specified.

27. The combination with a slotted breastplate, of a bisupported knotter-frame, said two parts supporting rotary twine-holding and hinged twine-cutting mechanism, respectively, substantially as specified.

28. The combination with a tier-wheel with an automatically-adjustable spur, at right angles to the plane of the wheel, of a twine-holder pinion actuated by said spur, substantially as specified.

29. The combination with a tier-wheel and twine-holder, of a hinged spring-actuated plate in the plane of the wheel with spur thereon at right angles thereto, substantially as specified.

30. The combination with a twine-holder and pinion therefor, of a tier-wheel with an automatically-adjustable spur at right angles to the plane of the wheel to operate said pinion, substantially as specified.

31. The combination with a tier-wheel with an automatically-adjustable tooth, reciprocable transversely to the plane of said wheel, of a shaft with a twine-holder pinion, substantially as specified.

32. The combination with a tier-wheel with a flange in the plane of the wheel, with a spur reciprocable with a hinged plate in said flange at right angles thereto, of a knotter-frame pillar and twine-holder revoluble thereon, actuated by said spur, substantially as specified.

33. The combination with a knotter-frame with horizontally-parallel ribs, whereof one rib has a notch for a shaft-bearing, and whereof the other rib is bored for a shaft-bearing, of a socketed knotter-pinion with a gudgeon for said notched rib and a shaft for said bored rib and means to connect said shaft and pinion, substantially as specified.

34. The combination with a knotter-frame with horizontally-parallel ribs whereof one has a notch shaft-bearing and the other rib a bored shaft-bearing, of a gudgeoned and socketed pinion and shaft for said socket, substantially as specified.

35. The combination with a knotter-head having fixed projecting parts, of reciprocating mechanism provided with means to bring the twine on the bill and means to engage said fixed knotter-head parts to put and hold the knotter to the starting-point, substantially as specified.

36. The combination with a tier-wheel with a notched flange, having gear-teeth between the ends of said flange, and said flange and gear-teeth radially exterior to said wheel and in planes parallel to the wheel-plane, and a slotted breastplate, of reciprocable mechanism provided with a twine-spur over said slot and a roller-spur actuated by said flange, substantially as specified.

37. The combination with a breastplate and a knotter-bill, of a hinged arm, reciprocable in a plane parallel with the plane of said plate, provided with an elbowed arm in a plane vertical to said reciprocable arm and a twine-cutter in the plane of said elbowed arm, substantially as specified

38. The combination with a slotted breastplate, of an arm reciprocable in a plane parallel with the plane of said plate provided with an elbowed arm in a plane vertical to said reciprocable arm, a cutter in the plane of said elbowed arm and means to adjust the edge of said cutter, substantially as specified.

39. The combination with a twine-holder base-plate with twine-receiving notch and a receptacle transverse to said plate and chambered from its outer end, of a finger with bolt and coiled spring in said chamber and a notched rotatable disk between said plate and finger, substantially as specified.

40. The combination with a twine-holder, a ribbed base-plate provided with a twine-notch, a finger-holding flange and a chambered bolt receptacle, of a finger with a bolt and spring in said chamber, and a notched disk to receive the twine from the notch of said base, substantially as specified.

41. The combination with a twine-holder base-plate provided with a twine-receiving notch and a chambered bolt-receptacle, of a finger with a longitudinal inclined ridge and a twine-notch at the lower end of said ridge and a bolt and spring in said chamber, substantially as specified.

42. The combination with a notched base-plate provided with a chambered bolt-receptacle, the base of said receptacle in the plane of said plate and the axis of said chamber vertical to said plate, of

a finger with bolt and spiral spring in said receptacle and a notched disk to receive the twine from said base-plate notch and a tier-wheel with a spur in flange, said flange in a plane parallel to the plane of said wheel, with intermediate mechanism to operatively connect said wheel and disk, substantially as specified.

43. The combination with a centrally-held base-plate provided with a twine-receiving notch and a finger-flange and a chambered bolt-receptacle, of a finger provided with a twine-ridge, a twine-notch, and a bolt and spring in said chamber, substantially as specified.

44. The combination with a knotter-pinion, a slotted breastplate and a twine-bridge across said slot, of a tier-wheel with toothed rack and flange in parallel planes and a cam, radially exterior to said wheel, reciprocable mechanism to carry said twine-bridge provided with a roller-spur to engage said flange and cam, substantially as specified.

45. The combination with a slotted breastplate and a twine-holder, of an arm parallel to said slot with twine-bridge and twine-cutter, each transversely attached to said arm and longitudinally reciprocable across said slot, reciprocable mechanism to hold the twine above and means to pass it before the cutter edge, substantially as specified.

46. The combination with a twine-holder-actuating pinion, of a tier-wheel circumferentially flanged, said flange in the plane of the wheel, and a reciprocable spur on said flange to actuate said pinion, substantially as specified.

47. The combination with a knotter-head having diametrically-opposite placed fixed projecting parts and a pinion with a tooth projecting beyond its fellows, of reciprocable spurs to operate said opposed projections, a tier-wheel and connecting mechanism to actuate said spurs, a gear-sector on said tier-wheel arranged to engage and release said pinion-tooth at its ends, substantially as specified.

48. The combination with a longitudinally-reciprocable arm having means to guide and hold a parallel-edged end-sharpened twine-cutter, and a fixed stop for said edge, substantially as specified.

49. The combination with a longitudinally-reciprocable arm having means to guide and hold a parallel-edged end-sharpened blade, of fixed means to hold and to invariably adjust the edge of said blade to a predetermined line, substantially as specified.

50. The combination with a twine-holder pinion, of a tier-wheel circumferentially flanged, said flange in the plane of the wheel, and a reciprocable spring-actuated spur on said flange to actuate said pinion, substantially as specified.

51. The combination with a twine-holder-actuating pinion, of a circumferentially-flanged tier-wheel with a radially-extended projection, the plane of said flange parallel to the plane of said wheel, said projection provided with a spur automatically adjustable to said pinion, substantially as specified.

52. The combination with a shaft with non-rotatable centrally-held twine-holder base-plate thereon and a bolt-receptacle, chambered from its outer end, projecting vertically from the said plate, and a twine-receiving disk, of a finger on a peripheral portion of said plate, a bolt to connect, and a spring on said bolt, in said chamber, to press said plate, disk, and finger upon each other, substantially as specified.

53. The combination with a knotter-frame post with non-rotatable centrally-held twine-holder base-plate thereon, a bolt-receptacle, chambered from its outer end, projecting vertically from the said plate, and a twine-operating disk on said pillar, of a finger on said plate, a bolt to connect and a spring on said bolt in said chamber to press said plate, disk, and finger upon each other, substantially as specified.

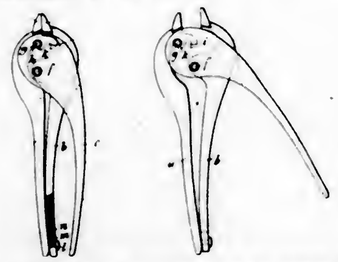
54. The combination with a non-rotatable shaft with centrally-held twine-holder base-plate thereon and a bolt-receptacle, chambered from its outer end, projecting vertically from the said plate, and a finger-stop on the edge of said plate, of a finger on a peripheral portion of said plate, a bolt to connect, and a spring on said bolt, in said chamber, to compress said plate, disk, and finger upon each other, substantially as specified.

55. The combination with a non-rotatable shaft with centrally-held circularly-ribbed twine-holder base-plate thereon and a bolt-receptacle, chambered from its outer end and a twine-disk on said shaft, of a finger and a bolt with coiled spring in said chamber to press said plate, disk, and finger upon each other, substantially as specified.

56. The combination with a knotter-head having fixed projecting spurs, oppositely placed to its axis, of reciprocating mechanism with means to engage said opposed spurs to put and hold the knotter to the starting-point, and a twine-cutter fixedly attached to said reciprocating mechanism, substantially as specified.

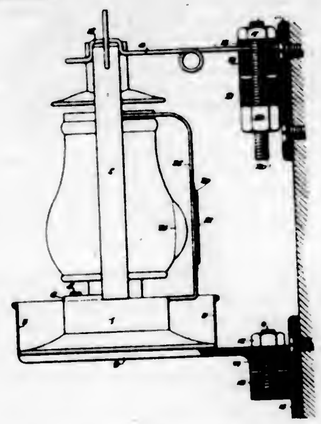
644,825. WRENCH. THOMAS JENSEN, Arendal, Norway. Filed Jan. 3, 1900. Serial No. 272. (No model.)

Claim.—1. Tongs and wrenches comprising the limbs *a* and *b* operated by a lever *c*, which lever is pivoted to the one limb *b* and has a pin *g*, which alternately may engage sockets *h* and *i* in the other limb *a* substantially as described.



2. A tong and wrench comprising two jaw members displaceable longitudinally of each other, a lever carried by one of said members and a pivotal connection between said lever and the other member adapted to be disengaged by displacing said jaw members.

644,826. LANTERN-HOLDER FOR VEHICLES. AARON R. W. KRESSY, Pennsville, Pa. Filed Sept. 13, 1899. Serial No. 730,572. (No model.)



Claim.—1. A lantern-holder for vehicles, consisting of a cup or base mounted upon a projecting arm and adapted for the reception of the base of the lantern, in combination with positive means independent of the cup for imparting downward pressure to the lantern, whereby its base is firmly pressed against the bottom of the cup, substantially as specified.

2. A lantern-holder for vehicles, consisting of a cup or base mounted upon a projecting arm and adapted for the reception of the base of the lantern, in combination with a transverse spring-bar having a bearing upon the lantern-base and serving to confine the latter vertically to the cup, substantially as specified.

3. The combination of a lantern having on the top of the foot a projecting edge rib with a cup-like holder adapted for the reception of the base of the lantern and having a transverse retainer bearing upon said projecting rib on the top of the foot, substantially as specified.

4. The combination of a tubular lantern, with a base constructed for the reception of the base of the lantern, and provided with means for vertically confining the same thereto, and a retainer for engaging with the upper portion of the tube structure of the lantern, substantially as specified.

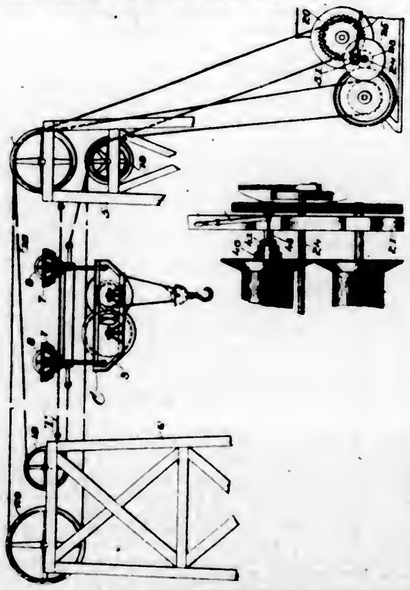
5. The combination of a lantern, a support therefor, a retainer for engaging with the upper portion of the lantern, a bracket carrying said retainer, means for adjusting said retainer vertically with respect to the bracket, and means for securing the retainer, against vertical movement, to the bracket, substantially as specified.

6. The combination of the bracket having a projecting boss with bolt passing therethrough, a block above said boss, a nut below the same engaging said bolt, and a nut and washer for securing a retainer to said block, substantially as specified.

644,827. PROCESS OF PRODUCING MATERIAL FOR COVERING FLOORS. AUGUST MAYER and FRITZ LANGENBERGH, Cottbus, Germany, assignors to the Bremer Linoleumwerke Delmenhorst, Delmenhorst, Germany. Filed Dec. 5, 1899. Serial No. 739,302. (No specimens.)

Claim.—The process herein described of producing material for floor-cloth or the like consisting in pressing wood-dust or other ligneous material into a mass, willowing said mass to produce shredded material and then mixing said willowed shreds with oil or a binding material, substantially as described.

644,828. HOISTING APPARATUS. NATHANIEL C. MILLS, Malden, Mass. Filed June 26, 1899. Serial No. 721,813. (No model.)



Claim.—1. In an apparatus of the class specified, a carriage provided with a roll, two endless bands connected respectively with the roll and with the carriage, means for operating said bands in unison and for operating that one of said bands connected with the roll, independently of the other band when the carriage is at rest, and hoisting mechanism controlled by said roll.

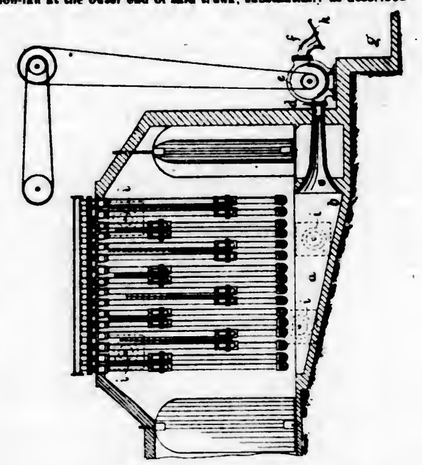
2. In an apparatus of the class specified, a carriage provided with a roll, two bands connected respectively with the roll and with the carriage, the band which is connected with the roll being endless, means for operating said bands in unison, a second roll supported by the carriage and operated by said first-mentioned roll, and hoisting mechanism controlled by said second roll.

3. In an apparatus of the class specified, a carriage provided with a roll, two bands connected respectively with the roll and with the carriage, and that band which is connected with the roll being endless, and means for operating said bands in unison.

4. In an apparatus of the class specified, a carriage provided with a roll, two bands connected respectively with the roll and with the carriage, and that band which is connected with the roll being endless, and means for operating said bands in unison, and for actuating the endless band independently of the other band and when the carriage is at rest.

644,829. FUEL-ECONOMIZER. DAVID RENWORTH, Clay Cross, England, assignor to the Clay Cross Coal, Lime and Iron Works, same place. Filed Dec. 21, 1897. Serial No. 663,804. (No model.)

Claim.—An apparatus comprising a series of vertically-arranged pipes, vertically-reciprocating scrapers in contact therewith, a casing inclosing said pipes and scrapers, said casing provided with a longitudinally-inclined bottom, a trunk or pipe having an inwardly-opening flaring mouth at the lower end of said inclined bottom, and a suction-fan at the outer end of said trunk, substantially as described.



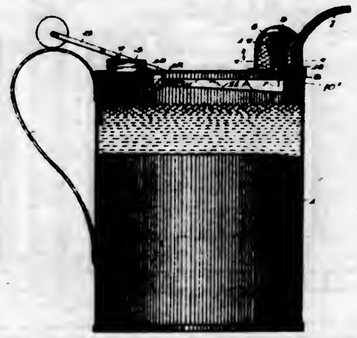
644,830. GAS-BURNER FOR HEATING PURPOSES. ALPHONSE SEYEWETZ, Lyons, France. Filed Apr. 24, 1899. Serial No. 714,326. (No model.)



Claim.—1. In a gas heating apparatus burning low-pressure gases, an improved burner consisting of the combination of a wire-gauze cylinder closed at one end and an interior gas-conducting tube pierced on its lower side along its entire length with small holes, said wire-gauze cylinder being spaced apart from the inner gas-tube, substantially as herein set forth.

2. In a gas heating apparatus burning low-pressure gases, an improved burner consisting of the combination of a wire-gauze cylinder closed at one end and having an annular opening at the other end and an interior gas-conducting tube pierced on its lower side along its entire length with small holes, said wire-gauze cylinder being spaced apart from the inner gas-tube, substantially as herein set forth.

644,831. NON-EXPLOSIVE OIL-CAN. ELIZABETH SHADE and HARRY SHADE, Pittsburg, Pa. Filed Aug. 3, 1899. Serial No. 726,967. (No model.)



Claim.—1. In a device of the character described, the combination with the can-body and the semi-oval-shaped hood mounted on the top thereof and forming a trap, of an outlet-spout secured in said hood and communicating with the interior thereof, a pipe ar-

ranged in a vertical position within said hood and communicating with the interior of the can, and a gravity-lever pivotally connected at its one end to the under face of the top of the can-body and having a valve connected to the other end for closing the outlet for the oil from the can to the hood, substantially as set forth.

2. In an oil-can, the combination with the can proper provided in its top with an oil-outlet, of a semi-oval-shaped hood inclosing the said outlet and suitably connected to the top of the can-body, an outlet-spout secured in the wall of said hood with its inner end in close proximity to the top of the can, and a horizontally-extending gravity-lever having its one end pivotally connected to the under face of the can-top and a valve secured near the other end of said lever for closing the oil-outlet from the can to the hood, substantially as set forth.

3. The combination with the body portion of an oil-can provided with a flat top, having an oil-inlet and an oil-outlet, of a semi-oval-shaped hood on top of the can and inclosing the oil-outlet and forming a trap, a pipe mounted on top of the can within the hood and communicating with the oil-outlet, an outlet-spout secured in the wall of the hood, a pivotally-supported gravity-lever, and a ball-valve carried by said gravity-lever and adapted to close the oil-outlet from the can to the hood when the can is in an upright position, substantially as set forth.

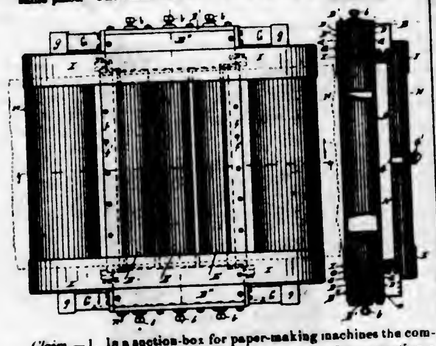
4. The combination with a can-body having a flat top provided with an outlet, of a semi-oval-shaped hood mounted on the top and inclosing said outlet and forming a trap, and a pivotally-supported gravity-lever carrying a valve adapted to normally close the said outlet, substantially as set forth.

5. In an oil-can, the combination with the can proper having a flat top provided with an outlet and a trap surrounding said outlet, of a gravity-lever pivotally supported at its one end from the under side of said flat top, and a ball-valve secured to said lever and adapted to normally close said outlet, substantially as set forth.

6. In an oil-can, the combination with the body portion thereof having a flat top and an outlet arranged therein, of a vertical tube secured to the said top and surrounding said opening, a semi-oval-shaped hood of greater height than the said tube adapted to be secured to the said top and inclose the said tube, said hood forming a trap, a discharge-spout secured to the said hood, extending therein to close proximity to the said top, a valve adapted to close the said opening, a valve-stem secured to the said valve, and a gravity-lever suitably arranged within the said can-body and connected to the said valve-stem, substantially as described.

7. In an oil-can, the combination with the body portion thereof having a flat top and an outlet arranged therein, of a vertical tube secured to the said top and surrounding said opening, a semi-oval-shaped hood of greater height than the said tube adapted to be secured to the said top and inclose the said tube, said hood forming a trap, a discharge-spout secured to the said hood extending therein to close proximity to said top, a valve adapted to close the said opening, a valve-stem secured to the said valve, a lug suitably secured to the inner face of said top, a gravity-lever pivotally connected at one end to the said lug and suitably connected at its opposite end to the said valve-stem, and a suitable inlet arranged in the said top, substantially as described.

644,832. SUCTION-BOX FOR PAPER-MAKING MACHINES. SAMUEL W. SHEARER, Erie, Pa., assignor of one-half to John J. Casben same place. Filed Mar. 23, 1899. Serial No. 710,231. (No model.)



Claim.—1. In a suction-box for paper-making machines the combination of an open-topped box having an aperture for connecting a suction-pipe thereto, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings, the tops of which journal-bearing supports are on the same plane with the tops of said rollers, and strips of rubber or other suitable packing secured to the tops of the sides of the box so as to extend to and contact with the journal-bearing supports at the ends thereof and also contact with the outside rollers mounted in said box, substantially as and for the purpose set forth.

2. In a suction-box for paper-making machines, the combination of an open-topped box having an aperture for connecting the suction-pipe thereto, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings of said rollers, deckle-plates on the tops of said journal-bearing supports extending to the ends of the rollers and on the same plane with the tops thereof, and strips of rubber or other suitable packing secured to the tops of the sides of the box so as to extend to and contact with the journal-bearing supports and the deckle-plates thereon and also contact with the outside rollers, substantially as and for the purpose set forth.

3. In a suction-box for paper-making machines, the combination of an open-topped box having an aperture for connecting the suction-pipe therewith, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings of said rollers and extending to the ends of said rollers, the tops whereof are on the same plane with the tops of said rollers, strips of rubber or other suitable packing secured to the tops of the sides of the box extending to and contacting with the journal-bearing supports at the ends thereof, and also contacting with the outside rollers mounted therein, longitudinal rollers mounted in bearings at the sides of the box, and endless belts mounted on said rollers so as to cover the ends of the rollers mounted in the top of said box and also portions of the tops of the journal-bearing supports at the ends thereof, substantially as and for the purpose set forth.

4. The combination in a suction-box for paper-making machines, of journal-bearing supports adapted to be secured to the ends of the box, sleeves containing roller-bearings adapted to be inserted into openings in the journal-bearing supports, cap-plates adapted to be secured over the openings in the journal-bearing supports, and set-screws therein adapted to contact with the ends of the journals of rollers operating in said roller-bearings, substantially as and for the purpose set forth.

5. The combination in a suction-box for paper-making machines, of an open-topped rectangular box A having an opening a therein adapted to be connected with the suction-pipe a', longitudinal rollers E E E, the tops of which extend above the tops of the sides of the box and roller-bearing sleeves D for the journals of said rollers, journal-bearing supports B for the sleeves D, the tops of which supports are on the same plane as the top of the rollers E E E, packing-strips F contacting with the outside rollers E E on the tops a^4 a^5 of the sides of the box, laterally-extending arms G secured to the journal-bearing supports B B, rollers H H mounted in said arms, and endless rubber belts I I passing around the ends of the rollers H H and covering and contacting with the tops of the journal-bearing supports B B and the tops of the ends of the rollers E E E, substantially as and for the purpose set forth.

644,833. IMPACT WATER-MOTOR. DAVID P. SIMS, Lincoln, Nebr., assignor to the Sims Hydraulic Engine Company, same place. Filed Nov. 18, 1898. Serial No. 696,230. (No model.)



Claim.—1. In combination with the casing, the water-wheel mounted therein, the ears a', the nozzles held in inclined apertures in the casing by said ears, and the S-shaped buckets, with their upper edges curved, disposed about the circumference of said wheel, whereby the full force of water from either nozzle is brought to bear against the buckets, as set forth.

2. In combination with the valved chamber, the shaft mounted therein and the pulley mounted thereon, the treadle having a lug w^3 with elongated slot w^4 therein, the pulley X′ and plate supporting same, the lug X carried by the pulley X′ and engaging in said slot, and the cable passing about said pulleys, as shown and described.

644,884. GRAMOPHONE. HENRY K. SMITH, Philadelphia, Pa. Filed July 10, 1899. Serial No. 723,377. (No model.)



Claim.—1. The combination of a pivoted arm having at its free end a sound-reproducing device, with a horn or sound-amplifier carried by the arm and consisting of a series of sections so as to be collapsible, and means carried by the arm for holding said horn in an extended condition.

2. The combination of a pivoted arm having at its free end a sound-reproducing device, with a horn or sound-amplifier carried by the arm and consisting of a series of sections so as to be collapsible and provided with a socket on the bell-mouth of the horn, and means carried by the arm consisting of a wire or rod having a free end adapted to receive the socket for holding said horn in an extended condition.

3. The combination of a pivoted arm having at its free end a sound-reproducing device, with a horn or sound-amplifier carried by the arm and consisting of a series of sections so as to be collapsible and provided with a socket on the bell-mouth of the horn, and means carried by the arm consisting of a wire or rod having a free end adapted to receive the socket for holding said horn in an extended condition and pivoted to the arm to one side of the line of tension put upon it by the horn, and means to limit the movement of the wire or rod in one direction but permit its adjustment about its pivot in the other direction for packing.

4. In a sound-producing instrument a horn or sound-amplifier consisting of a series of sections telescoping into each other, the smaller end being formed with an elbow of hard material the intermediate sections of non-metallic material and the large end being formed of metal, in combination with means acting upon the two end parts to stretch or hold the parts in an extended condition.

5. In a sound-producing instrument a horn or sound-amplifier consisting of a series of sections telescoping into each other, the smaller end being formed with an elbow of hard material and the large end being formed of metal, in combination with means to stretch or hold the parts in an extended condition, and a flexible connection between several of the sections to connect them with the largest section and prevent relative displacement when collapsed.

6. In a speaking instrument, the combination of a sound-reproducing device having a rigid tubular end, a horn or sound-amplifier having an elbow at the small end of metal or other hard resonant material receiving the tubular end of the reproducing device, and an interposed washer or packing of non-resonant material fitting tightly and forming a practically-rigid joint between the tubular end of the reproducing device and the end of the amplifier.

7. In a speaking instrument, a sound-amplifier or horn, consisting of a series of sections telescoping into each other and tapering so as to form when extended a horn-shaped structure the intermediate section being formed of fiber, or non-metallic resonant material and the small end and bell-mouth or larger end section being formed of metal, in combination with suitable means connecting with the end sections for holding the horn or sound-amplifier in an extended condition.

8. In a speaking instrument, the combination of a moving record, a supporting-bracket located to one side of the moving record, a vertical pivot-pin supported in the end of the bracket and free to revolve about a vertical axis, a freely-movable arm jointed to the vertical pin on a transverse axis, a suitable stop connected to the movable arm and directed backward and downward so as to strike against the vertical pin above the bracket and limit the downward motion of the movable arm without obstructing in any manner its lateral motions upon the bracket and a sound-reproducing device carried upon the free end of the arm and having a needle-point acting upon the moving record.

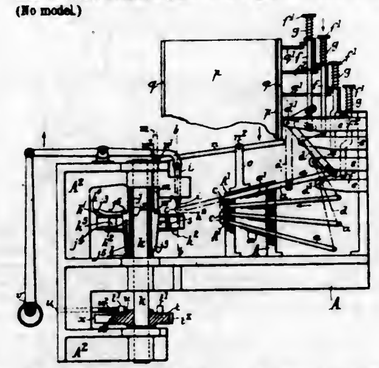
9. In a speaking instrument, the combination of an arm pivoted so as to have universal movement, a sound-reproducing device carried at the free end of the arm, a bracket extending close to the pivoted end of the pivoted arm, an upright pin pivoted on a vertical axis in the end of the bracket and connected to the pivoted arm on a transverse axis whereby the arm is universally jointed close to its outer end, and a stop wholly connected to the arm and having its lower end arranged in alinement with the vertical pin whereby when the arm is free the stop is caused to abut against the pin to limit the downward motion of the free end about the transverse axis but which when the instrument is in operation is out of contact with the vertical pin.

10. In a gramophone instrument, the combination of a pivoted arm carrying at its free end a sound-reproducing device, a support for the arm at its pivoted end consisting of the bracket E extending outward and upwardly close to the arm, a hinge device F pivoted to the end of the bracket on a vertical axis and connected with the arm on a transverse axis, and a stop-finger k secured to the under side of the arm and projecting backward and downward so as to abut against the vertical pin only when the outer end of the arm is unsupported, the construction being such that when the arm is in its normal position during the operation of the instrument the stop-finger k has no connection with the vertical pin.

11. In a speaking instrument of the character described, the combination of the rotating table, a box-like structure inclosing the power devices for moving the table, a sound-reproducer adapted to be moved over the table, a pivoted arm carrying the sound-reproducer, and a bracket E to which the arm is pivoted said bracket being pivoted at e to the box-like structure adjacent to one corner thereof so that the arm may be swung around parallel to the box to condense the machine for shipment, and a suitable clamping device for clamping the base of the bracket to the box-like structure whereby the arm is held in a rigid extended condition when the machine is in operative adjustment.

12. In a gramophone instrument of the character described the universal pivoted arm H formed of sheet metal with top horizontal and sides bent at an angle to the top surface so as to project vertically downward for strengthening purposes and further having the free end of the horizotal top curved to form a tubular socket for receiving the sound-reproducer, in combination with a vertical pivot-pin jointed to the arm on a transverse axis extending through the sides at its end most distant from the tubular socket.

644,835. TYPE MAKING AND COMPOSING MACHINE. MAURICE W. SMITH, London, England. Filed Aug. 6, 1898. Serial No. 687,953. (No model.)



Claim.—1. In combination in a type making and composing machine, a mold-wheel in which the type are formed one at a time, dies adapted to be moved radially to and from position over the mold in the mold-wheel, key mechanism for operating the radially-movable dies, means for giving an intermittent movement to the mold-wheel, and means operated independently of the key mechanism for forcing the dies into the molds, substantially as described.

2. In combination, the mold-wheel with means for giving a step-by-step movement thereto, a series of radially-arranged die-bars with key mechanism for sliding them along right lines toward and from the mold-wheel, and means for forcing the dies into the molds, said means being operated independently of the key mechanism, substantially as described.

3. In a type making and composing machine having a semicircular frame with die-levers adapted to advance any one die to a common centering-point, an intermittently-rotated mold-wheel having a number of holes or type-molds adapted to be placed in succession in the centering-point of the dies, substantially as set forth.

4. In a type making and composing machine the combination of a mold-wheel with means for giving a step-by-step movement thereto, a series of radially-arranged dies and die-bars with key mechanism for sliding said bars along right lines toward and from the mold-wheel, means for allowing of a slight vertical motion for the dies consisting of leaf-springs attached to the semicircular frame and upon which the die-bars rest, and means for forcing the dies into the molds, said means being operated independently of the key mechanism, substantially as described.

5. In a type making and composing machine, a mold-wheel composed of four sections and top and bottom plates fitted with screws for securing these sections together, and having channels or passages fitted with slides for adjusting the size of the type-molds, substantially as set forth.

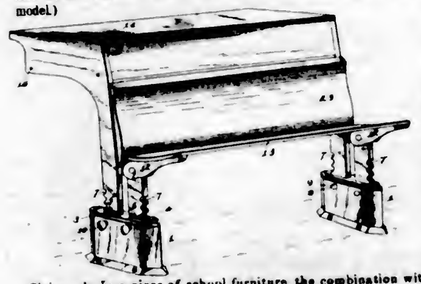
6. In a type making and composing machine, a mold-wheel composed of four sections and top and bottom plates fitted with screws for securing these sections together and having slides moving endwise in channels or passages formed between the sections of the wheel in combination with vertical wedges for adjusting the said slides, substantially as set forth.

7. In a type making and composing machine, a horizontally-arranged mold-wheel having a number of type-molds and composed of four equal sections secured together by a top and bottom plate, and fitting onto the square portions of a sleeve keyed on a vertical shaft, substantially as set forth.

8. In a type making and composing machine the combination with a mold-wheel formed of four sections and having a number of mold-holes and slides for adjusting the size of such mold-holes, vertically-arranged wedges for operating the slides, of means for operating the said wedges successively through the action of the keys or buttons upon the keyboard substantially as set forth.

9. In a type making and composing machine the combination with a mold-wheel formed of four sections and having a number of mold-holes and slides for adjusting the size of such mold-holes, and wedges for operating these slides, of the means for intermittently rotating and locking the wheel in position, substantially as and for the purpose set forth.

644,886. SCHOOL-DESK. FRANK H SWAIN and DANIEL P. BROWN, St. Louis, Mo. Filed June 30, 1899. Serial No. 722,374. (No model.)



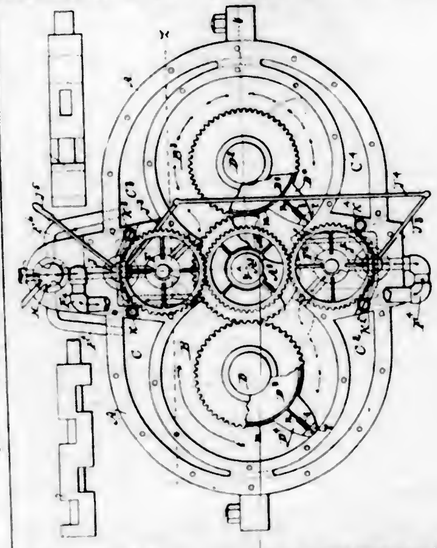
Claim.—1. In a piece of school furniture, the combination with two upright bars and means for adjusting them vertically, and guide-strips secured to said bars and provided with a plurality of apertures; of a seat-back, L-shaped castings at the ends of the back fitting loosely over said guides, and pins removably passing through the castings and taking into certain of said apertures, as and for the purpose set forth

2. In a school-desk, in combination with two upright bars 5 and supports therefor, and guide-strips 18 attached thereto and provided with apertures 20; of L-shaped castings 22 fitting over said strips, a back-rest 23 attached to the two castings, and pins 21 passing through said castings and removably entering the apertures in said strips, substantially as described.

644,887. COMPOUND ROTARY ENGINE. ALFRED WATKINS, Des Moines, Iowa. Filed Apr. 3, 1899. Serial No. 711,485. (No model.)

Claim.—1. In a compound rotary engine, a frame or case having four distinct cylinders in parallel pairs and four distinct auxiliary chambers communicating with the cylinders, bores or chambers for gates located midway between the pairs of cylinders and communicating therewith, rotary gates fitted in said bores or chambers and fixed to a rotatable shaft in bearings in the ends or heads of the case, mating quadruple rotary valves fitted in bores above and below the rotary gate and steam passage-ways communicating with said valves, the cylinders and the auxiliary chambers, as shown and described for the purposes stated.

2. In a compound rotary engine, a frame or case having four distinct cylinders in parallel pairs and four distinct auxiliary chambers communicating with the cylinders, bores or chambers for gates located midway between the pairs of cylinders and communicating therewith, rotary gates fitted in said bores or chambers and fixed to a rotatable shaft in bearings in the ends or heads of the case, mating quadruple rotary valves fitted in bores above and below the rotary gate and steam passage-ways communicating with said valves, the cylinders and the auxiliary chambers, a supply-pipe communicating with one of the quadruple rotary valves and a branch pipe communicating with the other quadruple rotary valve, and means for operating the rotary gates and valves in concert with hubs having radial pistons located in the four cylinders, as shown and described for the purposes stated.



3. In a compound rotary engine, a frame or case having four distinct cylinders in parallel pairs and four distinct auxiliary chambers communicating with the cylinders, bores or chambers for gates located midway between the pairs of cylinders and communicating therewith, rotary gates fitted in said bores or chambers and fixed to a rotatable shaft in bearings in the ends or heads of the case mating quadruple rotary valves fitted in bores above and below the rotary gate and steam passage-ways communicating with said valves, the cylinders and the auxiliary chambers, a supply-pipe communicating with one of the quadruple rotary valves and a branch pipe communicating with the other quadruple rotary valve, and means for operating the rotary gates and valves in concert with hubs having radial pistons located in the four cylinders, a reversing-valve in each bore that conveys steam from the supply-pipes to the quadruple valves and arms extending from the reversing-valves and pivotally connected by means of a rod and an arm extending from one of the reversing-valves for simultaneously operating the two reversing-valves, as shown and described for the purposes stated.

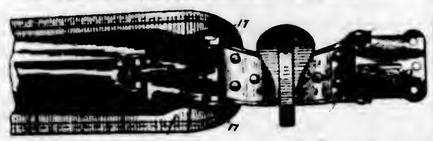
4. In a compound rotary engine, a frame or case having four distinct cylinders and four distinct auxiliary chambers communicating with each other, a supply-pipe, a passage-way communicating with the four cylinders and four auxiliary chambers, a branch pipe communicating with the four cylinders and the four auxiliary chambers and two branch pipes each communicating direct with one of the auxiliary chambers, arranged and combined as shown and described to convey initial steam simultaneously into the cylinders and auxiliary chambers in the manner set forth for the purposes stated.

5. In a rotary steam-engine, a hub having a piston extending radially, a slot in the end face of the piston extending its entire length, a piston-head having an integral extension fitted in said slot, a continuous groove in each end face of the hub near its circumference, a groove in each end face of the piston intersecting the continuous groove in the hub, grooves in the ends of the head and its extension in alinement with the grooves in the ends of the piston and a metal packing in said grooves, as shown and described for the purposes stated.

6. A compound rotary engine comprising a frame or case having four distinct cylinders in parallel pairs and four distinct auxiliary

steam-chambers, a central bore between the two pairs of cylinders, rotary gates fitted in said central bore to communicate with the cylinders and fixed to a rotatable shaft that has bearings in the ends or heads of the case, a rotatable shaft extended through each pair of cylinders, a hub fitted in each cylinder and fixed to one of said shafts in the cylinders and provided with a piston extending from its periphery, a quadruple rotary valve located in a bore above the rotary gate and a corresponding valve located in a bore below the rotary gate, gearing connecting the shafts of the hubs in the cylinders, the shaft of the rotary gates between the pairs of cylinders and the quadruple rotary valves, a main supply-pipe, a four-way cock, a branch pipe communicating with the lower quadruple valve, two branch pipes each communicating with the four-way cock and one of the auxiliary chambers, steam-passages connecting all the cylinders, the rotary gates, the quadruple valves, the supply-pipes, exhaust-pipes and two reversing-valves, all arranged and combined as shown and described to operate in the manner set forth for the purposes stated.

644,838. HARNESS-SADDLE. JOSEPH H. WHEELER, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,289. (No model.)



Claim.—1. In a harness-saddle, in combination, a jockey-plate attached to the pad and having its lower face transversely recessed, a plate fitting within such recess and adapted for movement longitudinally as to the bed, such plate having a hinge-lug, and means for securing the plate in any position to which it may be adjusted.

2. In a harness-saddle, in combination, a jockey-plate attached to the pad and having its lower face transversely recessed and longitudinally slotted, a plate fitting within such recess and adapted for movement longitudinally as to the pad, such plate having an upstanding hinge-lug, and a binding-screw set through the slot of the jockey-plate into the hinge-plate.

3. In a harness, in combination, a pair of pads, a jockey-plate attached to each pad and having a forwardly-projecting apertured ear, a rubber bumper secured in the aperture of the ear, and a rigid arch hinged to the jockey-plates so as to be cushioned by the bumpers

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644,839. ROOFING-LAP. WILLIAM P. WHITMORE, St. Louis, Mo. Filed Dec. 28, 1899. Serial No. 741,791. (No model.)



Claim.—1. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, plain fabric strips cemented to their outer faces at the point of lapping, and metallic fastening devices passing through both these strips and both the lapping edges.

2. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, a plain fabric strip on the outer face of the upper sheet, a second plain fabric strip on the outer face of the lower sheet and extending from a point below the lower edge of the upper sheet in between where the edges lap, means for retaining the exposed edge of this second strip, and fastening devices passing through both strips and both lapping edges.

3. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, plain fabric strips upon these sheets opposite their points of lapping, metallic fastening devices passing through the strips and sheets, and an independent lapping strip entirely covering both fabric strips and the fastening devices and held in position along both its edges.

4. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, metallic fastening devices passing completely through the same, where they lap, a gravel covering on the lower sheet, a lapping strip cemented at its lower edge upon this covering and at its upper edge to the upper sheet above the fastening devices whereby no cement contacts with the latter, and a gravel covering upon this strip and extending upward to the next joint.

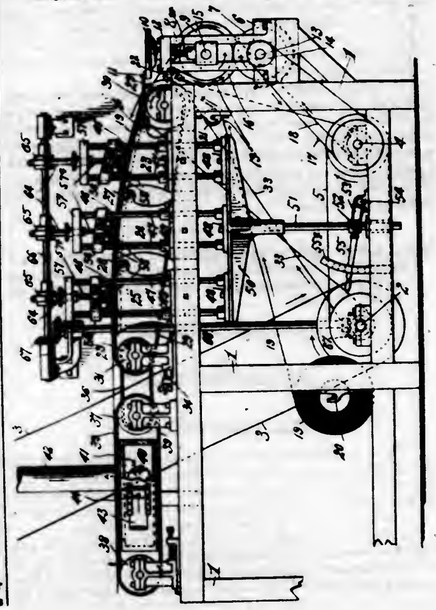
5. A roof-joint comprising the upper and lower sheets of felt or the like with an interposed strip of plain fabric between and projecting below their lapping edges, fastening devices extending through said edges and strip, gravel cemented upon the lower sheet up to the lower edge of this strip, a lapping strip cemented upon the gravel and extending thence up over the projecting portion of the strips and the fastening devices beyond the lower edge of the upper sheet and cemented onto its body, and a gravel covering upon this strip and extending upward to the next joint.

6. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, a narrow plain fabric strip on the outer face of the upper sheet and extending to its lower edge, a second wider plain fabric strip on the outer face of the lower sheet and extending from a point below the lower edge of the upper sheet in between where the edges lap and to a point above the upper edge of the narrow strip, means for retaining the exposed edge of this second strip, fastening devices passing through both strips and both lapping edges, and an independent lapping strip entirely covering both fabric strips and the fastening devices and held in position along both its edges.

7. A roof-joint comprising the upper and lower sheets of felt or the like lapping at their meeting edges, a narrow plain fabric strip on the outer face of the upper sheet and extending to its lower edge, a second wider plain fabric strip on the outer face of the lower sheet and extending from a point below the lower edge of the upper sheet in between where the edges lap and to a point above the upper edge of the narrow strip, and an independent lapping strip entirely covering both fabric strips and held in position along both its edges.

8. A roof-joint comprising the upper and lower sheets of felt or the like with an interposed strip of plain fabric between their lapping edges, a second strip of plain fabric upon the outer face of the upper sheet and narrower than said interposed strip, fastening devices extending through said edges and both the strips, gravel cemented to the lower sheet up to the lower edge of the interposed strip, a lapping strip cemented upon the gravel and extending thence over said outer fabric strip beyond the lower edge of the upper sheet and cemented onto the body of the latter, and a gravel covering upon this lapping strip and extending upward over the sheet to the next joint.

644,840. PAPER-COATING MACHINE. WILLIAM P. WOOD, Holyoke, Mass. Filed Apr. 24, 1899. Serial No. 714,267. (No model.)



Claim.—1. In a paper-coating machine, a roll for applying a coat of liquid material on one side of a web of paper, a feed-roll adjustable toward and from said first-named roll, said liquid-applying roll having a circumferential speed different from said feed-roll, a curved bed over which the web of paper passes, smoothing-brushes having transverse movements across the paper and located over said curved bed, a suction-box, an endless apron running over the surface of said box, perforations in said apron covering an area of less width than that of the paper, an exhauster connected with said box, and means for imparting movement to said feed-roll and movement of said perforated apron away from said feed-roll, substantially as described.

2. A paper-coating machine comprising a suitable frame, a pair of rolls supported thereon whereby a web of paper is drawn into the machine, and a coating of liquid material applied to one side thereof, a curved bed on said machine, an endless apron running over said curved bed; a suction-box located beyond said curved bed, a second endless apron running over said suction-box and in contact with its upper surface; perforations in said apron covering an area of less width than that of the paper, whereby the latter is adapted to adhere to said apron, a series of brushes supported over the said curved bed means for imparting a reciprocating traverse movement to said brushes, and for rotating said feed and coating rolls and said aprons, substantially as described.

3. In a paper-coating machine, a roll for applying a coating of material in liquid form to a piece of paper, and a feed-roll for said paper, said coating-roll having a bearing against said feed-roll and a greater circumferential speed than the latter, a curved bed over which the paper is drawn from said feed-roll, whereby said paper is made to lie flat against said bed after having said liquid applied thereto, and brushes having transverse movements across said paper for smoothing the surface of said coating, substantially as described.

4. In a paper-coating machine, a roll for applying a coating of material in liquid form to a piece of paper, and a feed-roll for said paper, said coating-roll having a bearing against and a greater circumferential speed than said feed-roll, a curved bed over which the paper is drawn from said feed roll, whereby said paper is made to lie flat against said bed, after having said liquid applied thereto, an endless apron traveling away from said feed-roll, means for applying suction to the under side of said apron within the limits of the paper, and perforations through said apron whereby said paper is caused, by said suction, to adhere to said apron, substantially as described.

5. In a paper-coating machine, a roll for applying a coating of material in liquid form to a piece of paper, and a feed-roll for said paper, said coating-roll having a greater circumferential speed than said feed-roll, a curved bed over which the paper is drawn from said feed-roll, whereby said paper is made to lie flat against said bed after having said liquid applied thereto, an endless apron traveling away from said feed-roll, means for applying suction to the under side of said apron, within the limits of the paper, and perforations through said apron whereby said paper is caused, by said suction, to adhere to said apron, and a series of brushes movable as one away from and toward said curved bed, and individually adjustable relative thereto, substantially as described.

6. In a paper-coating machine, means for supporting the smoothing-brushes for movement, as a unit, toward and away from the paper, comprising movable bases having uprights thereon for supporting suitable rods, on which said brushes individually have a sliding movement transversely of the paper, suitable clamps on said rods for holding said brushes, and means for individually transversely moving said brushes, and for vertically moving said brush supporting bases, substantially as described.

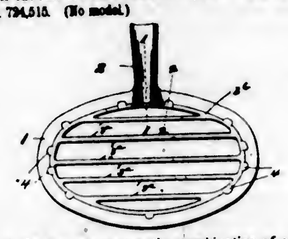
644,841. ART OF MANUFACTURING TEMPERATURE-EQUALIZING COILS. FRANK ALLEN, New York, N. Y., assignor to the Allen Ice Machine Company, same place. Filed Nov. 16, 1899. Serial No. 737,165. (No model.)



Claim.—1. The art of manufacturing temperature-equalizing coils having spaced interior and exterior tubes, the same consisting in interposing a helical spacing-wire between the tubes, and thereby forming a passage between the tubes, and then bending the said parts one on the other so as to form a coil, substantially as set forth.

2. The art of manufacturing temperature-equalizing coils having spaced interior and exterior tubes, the same consisting in the following steps, namely: placing a helically-wound wire around a tube, inclosing said tube and wire within another tube, then heating the parts of the tubes to be bent, and finally bending the said parts at their heated portions, so as to form the sinuosities of the coil, substantially as set forth.

644,842. COACH-STEP. THOMAS BENDER, New Haven, Conn., assignor of one-half to John A. Hull, same place. Filed July 20, 1899. Serial No. 724,515. (No model.)



Claim.—1. In a carriage-step the combination of a tread-bar frame having an overhanging flange and fastening-cleats, of a step-frame surrounding the body portion of said tread-bar frame and shrunk thereon, whereby the said frames become inseparable, substantially as described.

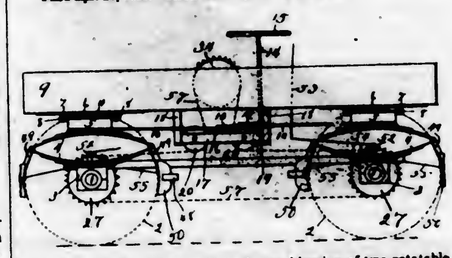
2. In a carriage-step the combination with a tread-bar frame having an overhanging flange upon the top side and fastening-cleats which form a flange upon the bottom side thereof, of a step-frame surrounding the body portion of said tread-bar frame, the said overhanging flange being against one side and the said fastening-cleats against the opposite side of said step-frame, all constructed and operating substantially as described.

3. In a carriage-step the combination with a tread-bar frame 3 having the flange 3ª and fastening-cleats 4 integral therewith of a step-frame 1 provided with the shank 2 substantially as described.

4. In a carriage-step having a plurality of channel tread-bars, the combination therewith of a plurality of rubber pads which are adapted to be inserted in the said channel-bar and means, as locking-screws, for rigidly securing said pads within the said channel tread-bars, substantially as described.

5. In a carriage-step the combination with a tread-bar frame 3 having a plurality of channel tread-bars 10, of a plurality of rubber pads 8 substantially T shape in cross-section, the body portion of which is adapted to be inserted in said channel-bars and locking-screws, as 9, for fastening the said pads within the said channel-bars, substantially as described.

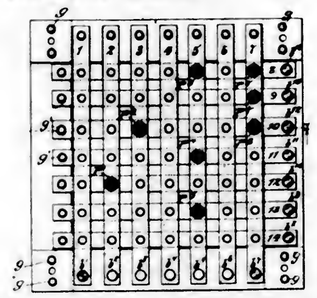
644,843. MOTOR-VEHICLE. ANTHONY BIHL, Stockton, Cal. Filed Apr. 17, 1899. Serial No. 714,672. (No model.)



Claim.—1. In a motor-vehicle the combination of two rotatable axles, wheels loosely mounted on the axles and having suitable notches in the hubs thereof, suitable clutches rigidly attached to the axles, and adapted to engage with said notches in each of the hubs, a suitable fifth-wheel journaled to the center of each axle, a reach attached to and connecting the said fifth-wheels, a suitable sprocket or grooved wheel attached to the center of each axle, a suitable chain belt adapted to engage with said sprocket or grooved wheel and a power-wheel located in the body, guide-pulleys located beneath the body, and the body aforesaid, mounted on bolsters, said bolsters mounted on springs which are journaled on the axles, all arranged and operating substantially as shown and described and for the purposes set forth.

2. In a motor-vehicle, the combination with a suitable running-gear of a clutch composed essentially of a plate 36 attached rigidly to the axle, a double dog or pawl 38 pivotally attached to said plate 36, the cross-bar 41 attached to said pawl 38, the bolt 43 inserted in said cross-bar 41 and the friction-regulator 46, said friction-regulator 46 adapted to engage with a friction-ring 47, said friction-ring 47 rigidly attached to springs or journal-boxes, the springs 56 adapted to engage with the friction-regulator 46 and the cogs or notches 40 arranged on the hubs of the wheels, all arranged and operating substantially as shown and described.

644,844. ELECTRIC SWITCHBOARD. MARY T. BUSSELL, New York, N. Y., executrix of Jesse H. Bunnell, deceased. Filed Nov. 18, 1899. Serial No. 737,402. (No model.)



Claim.—1. A switchboard having conducting switch-bars and one or more conducting switch-plugs adapted to make electrical contact directly between the bars; in combination with springs adapted to exert lateral pressure against the plugs in such manner as to cause them to bear frictionally and laterally against both of the interconnected bars.

2. A switchboard having conducting switch-bars and one or more conducting switch-plugs adapted to make electrical contact directly between the bars; in combination with springs secured to one set of said bars and adapted to exert lateral pressure against the plugs in such manner as to cause them to bear frictionally and laterally against both of the interconnected bars.

3. A switchboard having conducting switch-bars provided with plug-holes in alinement with each other; in combination with switch-plugs and springs secured to one set of the switch-bars in such manner as to exert lateral pressure against the switch-plugs, when in position, and cause them to bear frictionally and laterally against both of the interconnected bars.

4. A switchboard having conducting switch-bars provided with plug-holes in alinement with each other; in combination with switch-plugs and double springs S secured to the under surface of the lower set of switch-bars and with their upturned ends in alinement with the plug-holes and adapted, when the plugs are in position, to cause the same to bear frictionally against the interconnected bars.

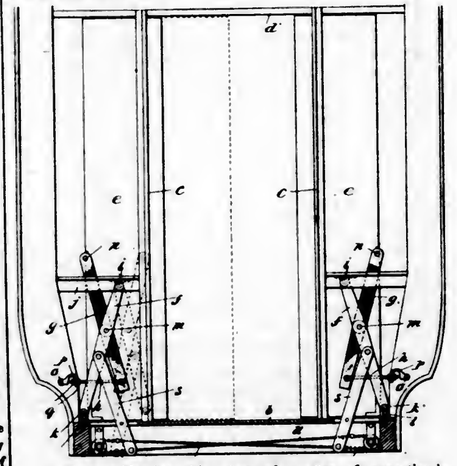
5. A switchboard consisting of two sets of metallic cross-bars 1 to 7 inclusive and 8 to 14 inclusive, having their opposite ends secured to an insulating base or frame and provided with plug-holes in alinement with each other: in combination with switch-plugs P' P^2, &c., having conducting parts p, together with double springs S secured to the under surface of the lower set of switch-bars with their upturned ends in alinement with the plug-holes, the arrangement being such that when the switch-plugs are in position the springs cause them to act upon the principle of a lever and exert strong frictional bearing against the interconnected bars, substantially as described.

644,845. DOOR-HANGER. JOSEPH D. CARL, Elizabeth, N. J., assignor of one-half to David C. Gillespie, same place, and Langdon R. Valentine, New York, N. Y. Filed Aug. 3, 1899. Serial No. 725,835. (No model.)

Claim.—1. The combination with a door and a supporting-frame, of toggle-levers pivotally connected to one another, one of such levers being pivoted at its upper end, to the frame, and engaging at its lower end by a vertically-movable connection, with the lower part of the door, and the other lever being pivoted at its upper end to the door, a link pivoted to the frame and pivotally connected to the latter toggle-lever at a point below the common pivot of the toggle-levers, and means for adjusting the length of said link.

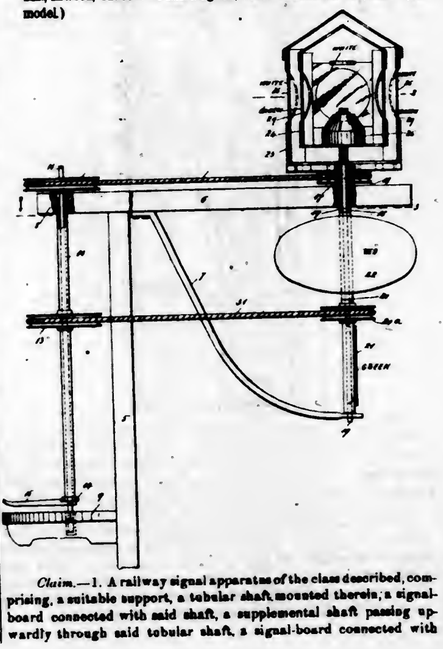
2. The combination with a door-frame and a door, of toggle-levers arranged at the lower part of the door and engaging at their upper ends respectively with the frame and the door, a vertically-movable connection between the lower ends of one of the levers and of the door, a link pivoted to the frame and to one of the toggle-levers, as operating-lever connected to the other toggle-lever and pivoted to the door-frame, and operating means connected to said operating-lever, substantially as described.

3. The combination with a door-frame and a pair of doors, of supporting and operating devices for each door comprising toggle-levers arranged at the lower part of the door, and engaging at their upper ends respectively with the frame and the door, a vertically-movable connection between the lower ends of one of the levers and of the door, a link pivoted to the frame and to one of the toggle-levers and operating mechanism located below the level of the doors and levers connecting the operating mechanism to one of the toggle-levers of each door-supporting device.



4. The combination with a door, of a system of supporting-levers therefor, lying alongside the door, supported from a pivot substantially midway of the travel of the rear edge of the door, and connected to the door at points near the rear edge thereof so that when the door is fully extended the levers are not exposed.

644,846. SIGNAL APPARATUS FOR RAILWAYS. DANIEL COLLEN, Inwood, Canada. Filed Aug. 31, 1899. Serial No. 729,144. (No model.)



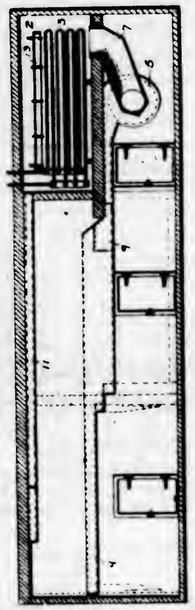
Claim.—1. A railway signal apparatus of the class described, comprising, a suitable support, a tubular shaft mounted thereon, a signal-board connected with said shaft, a supplemental shaft passing upwardly through said tubular shaft, a signal-board connected with

said supplemental shaft, an outer signal-casing connected with the upper end of the tubular shaft, through the bottom of which the upper end of the supplemental shaft passes, another signal-casing within the outer signal-casing and mounted on the end of the supplemental shaft, a lamp within said inner signal-casing, and means for operating said shafts, substantially as shown and described.

2. A railway signal apparatus of the class described, comprising a suitable support, a tubular shaft mounted therein, a signal-board connected with said shaft, a supplemental shaft passing upwardly through said tubular shaft, a signal-board connected with said supplemental shaft, an outer signal-casing connected with the upper end of the tubular shaft, through the bottom of which the upper end of the supplemental shaft passes, another signal-casing within the outer signal-casing and mounted on the end of the supplemental shaft, a lamp within said inner signal-casing, and means for operating said shafts, comprising another tubular shaft geared in connection with said supplemental shaft a shaft mounted in said last-named tubular shaft and geared in connection with said first-named tubular shaft, and arms connected with the last-named tubular shaft and the shaft mounted therein, substantially as shown and described.

3. A railway signal apparatus, comprising a suitable support, a vertically-arranged tubular shaft mounted therein and projecting upwardly therethrough, a signal-casing connected with the upper end of said tubular shaft, a supplemental shaft passing upwardly through said tubular shaft and into said casing an inner signal-casing mounted on said last-named shaft within said first-named casing, a lamp in said inner casing, said tubular shaft and the shaft mounted therein being each provided with a signal-board of different colors, and means for turning said shafts and the parts connected therewith, substantially as shown and described.

644,847. PROCESS OF PREVENTING FORMATION OF FROST ON REFRIGERATING-SURFACES. MADISON COOPER, Minneapolis, Minn. Filed Sept. 26, 1899. Serial No. 731,567. (No specimens.)

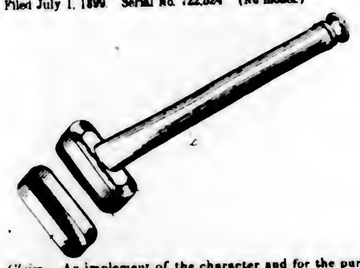


Claim.—1. The process of preventing the formation of frost upon refrigerating-surfaces, which consists in placing chlorid of calcium, or other deliquescent salt in a solid form, in proximity to said surfaces permitting the moisture of the atmosphere to unite with said deliquescent salt to form a brine and allowing said brine to flow over said refrigerating-surfaces.

2. The process of keeping refrigerating-surfaces free from frost and purifying and drying the air which is to be cooled by said surfaces, which consists of placing chlorid of calcium, or other deliquescent salt in a solid form in proximity to said surfaces and passing air over said surfaces while they are coated with brine formed by the uniting of the moisture of the atmosphere with said salt.

3. The process of dehydrating and purifying air, which consists in placing chlorid of calcium or other deliquescent salt in a solid form in proximity to pipes or other surfaces, passing air over said pipes or other surfaces and over said salt and permitting the brine formed by the union of the moisture of the air with said salt to flow over said pipes or surfaces.

644,848. GRIDDLE-GREASER. FRED H. CLINE, Chicago, Ill., assignor to Frank S. Ogden, same place, and J. C. Belton, Wheaton, Ill. Filed July 1, 1899. Serial No. 722,524. (No model.)



Claim.—An implement of the character and for the purpose indicated comprising an integral wick-pocket and a hollow handle whose cavity communicates with that of the pocket; a body of absorbent material lodged in the pocket and protruding from the open mouth thereof, and a distributer consisting of a rigid body embedded in the absorbent body and having superficial recesses extending across it toward the mouth of the wick-pocket to afford channels for conducting the liquid from the reservoir to the exposed surface of the wick.

644,849. NUT-LOCK. THOMAS W. CROSIER, Roanoke, Va. Filed Mar. 1, 1899. Serial No. 707,263. (No model.)



Claim.—1. A nut-lock consisting of a circular spring-metal washer provided with a bolt-opening, and having portions around its outer edge permanently bent or deflected on straight lines tangentially to form laterally-offset spring projections or shoulders for yieldingly engaging the sides of a nut, the projections or shoulders extending from the same side of the washer and each projection or shoulder having a gradual inclination from one end to the other, the portion of the washer between the shoulders lying flat against the object to which the nut-lock is applied, substantially as described.

2. A lock-nut in the form of a washer having a flat body portion with nut-engaging means, and a plurality of prongs extending inward into the bolt-opening with their points arranged in a common plane, which plane is at an angle to the plane of the washer-body.

3. The combination with a threaded bolt and nut, of a locking-washer having a flat body portion with nut-engaging means, and inwardly-projecting prongs for engaging the bolt-threads, the points of said prongs being arranged in a common plane which corresponds to the pitch of the bolt-thread, the prongs being adapted under pressure to be forced laterally into the bolt-threads, substantially as described.

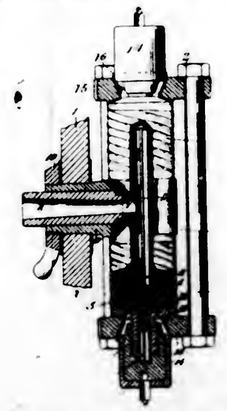
644,850. FUSE-BLOCK. HARRY P. DAVIS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Jan. 30, 1899. Serial No. 703,776. (No model.)

Claim.—1. In a fuse-block for electric circuits, a fuse, provided with end terminals and a protective device so located adjacent to each terminal as to be forced, longitudinally of the fuse-chamber, against said terminal by the explosive action resulting from the blowing of the fuse.

2. In a fuse-block for electric circuits, a fuse provided with end terminals and a cut-off-valve device so located in front of each terminal that the air and gas expansion caused by the blowing of the fuse will force said device against the end of the terminal and thus protect the same from the arc.

3. A fuse-block for electric circuits having a fuse-chamber provided with a blow-out opening, in combination with a fuse having a terminal-piece at each end comprising a shell, a filling of loosely-packed non-combustible material and a metal base, making removable spring-contact with the corresponding end of the fuse-block.

4. In a fuse-block for electric circuits, a fuse having a terminal-piece at each end comprising a shell, a metal base, a filling of loosely-packed non-combustible material and a follower



5. In a fuse-block for electric circuits, a fuse having a terminal-piece at each end comprising a shell, a metal base, a filling of loosely-packed asbestos or similar material and a follower.

6. A fuse-block for electric circuits comprising a body portion having a longitudinal fuse-chamber and a lateral blow-out opening, end plates connected by clamping-bolts, and removable terminal-heads.

7. A fuse-block for electric circuits comprising a body portion having a longitudinal fuse-chamber and a lateral blow-out opening, a clamping and reinforcing frame and terminal-heads having a locking-joint connection with the body portion.

8. A fuse-block for electric circuits comprising a non-conducting body portion having metal ends, a fuse-chamber and a blow-out opening, a reinforcing-frame and terminal-heads detachably locked to said metal ends.

9. A fuse-block for electric circuits comprising a hollow non-conducting body portion having metal ends and reinforced both longitudinally and laterally to resist internally-exerted pressure and terminal-heads having an interrupted screw-thread locking engagement with said metal ends.

10. A fuse-block for electric circuits, comprising a cylinder built up of alternate wire helices and insulating-tubes, and metal ends clamped to said cylinder by a reinforcing-frame, in combination with a fuse provided with terminal-protecting means and terminal-heads detachably locked to said metal ends.

11. A fuse-block for electric circuits comprising a body portion having a fuse-chamber, a blow-out opening and detachable terminal-heads, in combination with a fuse having terminal-pieces each of which comprises a shell filled with loosely-packed non-combustible material, a metal base and a follower.

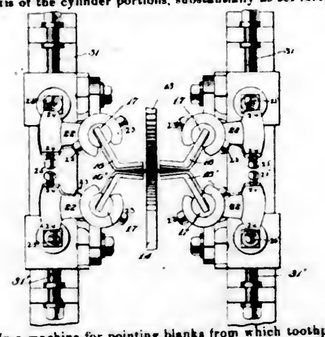
12. A fuse-block for electric circuits, comprising a wire-wound body portion having solid metal ends, a frame for clamping said ends to said body portion, detachable terminal-heads and means for clamping the block to a supporting-base.

13. A fuse-block for electric circuits comprising a body portion having a longitudinal chamber and a lateral blow-out opening, auxiliary means for resisting both longitudinally and laterally exerted internal pressure, and detachable terminal-heads, in combination with a fuse having terminal pieces provided with protective valve devices.

644,851. MACHINE FOR POINTING WOODEN TOOTHPICKS. WM. H. DYER, Strong, Me. Filed Sept. 20, 1897. Serial No. 652,227. (No model.)

Claim.—1. In a machine for pointing toothpicks, a suitable feeding mechanism, combined with the four knives which have their cutting ends turned at an angle and arranged so that two of them operate upon each end of the pick, and the cylindrical holders arranged on each side above and below, and parallel to the line of feed of the picks, and in which the cylindrical portions of the knives are adjustable, and by means of which the knives are made adjustable in relation to each other, substantially as shown.

2. In a machine for pointing toothpicks, the smooth wheel 14, the toothed wheel 13, operating mechanisms therefor, and the two springs for holding the toothpicks in position while being operated upon, combined with the cylindrical holders arranged on each side above and below and parallel to the line of feed of the material, and the two sets of adjustable knives having cylindrical portions which are adjustable in said holders, and having their cutting edges turned at an angle to said arms, and which cutting portions are transverse to the axis of the cylinder portions, substantially as set forth.

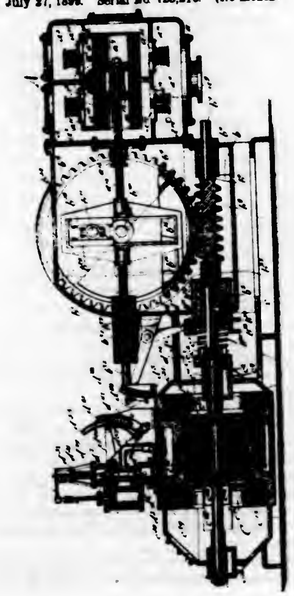


3. In a machine for pointing blanks from which toothpicks are to be formed, four knives or cutters, the upper ones of which form a bed to hold the strip while the lower ones are drawn slightly back from the edges of the upper knives, combined with a smooth and a toothed wheel which form the feeding mechanism, substantially as shown.

4. A knife-holder consisting of the slotted cylindrical holder, combined with the adjustable plate 20 provided with a bearing for the cylinder, the arm 22 having an opening in its edge, and through which the cylinder extends, and which arm is provided with two ears; set-screws to pass through the ears, and an ear formed upon the plate 20 and which extends between the two set-screws, substantially as described.

5. The sliding head, suitable ways upon which it is adjusted, screws for adjusting the head, the plate 20 provided with an adjusting-slot, and which plate is pivoted upon the said head and provided with a bearing for the cylinder, an ear, the cylinder 17 which is journaled in the bearing of the plate, the arm 22 through which one end of the cylinder extends, and which is provided with ears 24; and adjusting-screws 25 which pass through the ears upon the bearing, and bear against the ear upon the plate 20, substantially as set forth.

644,852. ELECTRIC PUMP. CARL RICKENBYER, Yonkers, N. Y. Filed July 27, 1899. Serial No. 725,218. (No model.)



Claim.—1. The combination with an electric motor and a pump operated thereby, of a hydraulic regulating device for the motor, and a pipe connected with the delivery-chamber of the pump and leading directly to the said regulating device, said pipe being adapted to directly transmit the fluid-pressure in said delivery-chamber to the regulating device for the automatic operation thereof, whereby the fluid-pressure in the delivery-chamber of the pump influences the motor, at all times, when said pipe is open to said regulating device.

2. The combination, with an electric motor, a pump and intermediate driving mechanism, of an automatic hydraulic regulating device for the motor, means for conducting fluid thereto from the pump, a safety armature-resistance supplemental or auxiliary to said regulating device, and means interposed between the pump and motor and acted on by the said driving mechanism for throwing more or less resistance thereby into the armature-circuit.

3. The combination, with an electric motor and a pump operated thereby, of a hydraulic regulating device for the motor, a pipe for conducting fluid thereto directly from the delivery-chamber of the pump, whereby the fluid-pressure in said delivery-chamber is transmitted to and automatically operates the said regulating device, a safety armature-resistance, supplemental or auxiliary to said regulating device, and means interposed between the pump and motor for throwing more or less resistance into the armature-circuit.

4. The combination, with an electric motor, and a pump driven thereby, of hydraulically-operated means for throwing resistance into the armature-circuit for controlling the fluid-discharge from the pump, and a safety device additional to and independent of said means, for throwing additional resistance into the armature-circuit so that the motor is rendered free from the influence of irregularities of the pump.

5. The combination with an electric motor, and a pump driven thereby, of a hydraulic regulating device, a pipe whereby the said regulating device is at all times, when open, directly connected with and influenced by the fluid-pressure in the delivery-chamber of the pump, and a rheostat in the armature-circuit, said rheostat being controlled directly by the fluid-pressure in and operated by said regulating device.

6. The combination, with an electric motor and a pump driven thereby, of a rheostat in the armature-circuit, a cut-out switch in the main circuit and independent of said rheostat, and means under the influence of the fluid-tension in the pump, for cutting the circuit in or out, and for throwing more or less resistance through said rheostat into the armature-circuit.

7. The combination, with an electric motor and a pump driven thereby, of a rheostat in the armature-circuit, a cut-out switch in the main circuit and independent of said rheostat, and a hydraulic regulator connected with the delivery-chamber of the pump, and provided with means for throwing more or less resistance, through said rheostat, into the armature-circuit, and for operating said cut-out switch.

8. The combination, with an electric motor and a pump driven thereby, of a rheostat in the armature-circuit, a cut-out switch in the main circuit and independent of said rheostat, and means influenced by the fluid-tension in the delivery-chamber of the pump for automatically operating said cut-out switch and breaking the circuit when the resistance through the said rheostat is at the maximum.

9. The combination, with an electric motor and a pump driven thereby, of a rheostat in the armature-circuit, a cut-out switch in the main circuit, means subjected to the influence of the fluid-tension in the delivery-chamber of the pump for automatically operating said rheostat for throwing more or less resistance into the armature-circuit and for operating said cut-out switch, and a safety-resistance arranged in the armature-circuit and under the influence of the connections between the pump and motor.

10. The combination, with an electric motor and a pump driven thereby, of a rheostat in the armature-circuit, a hydraulic regulating device connected with the pump and under the influence of the fluid-tension therein, means for manually operating said rheostat, and means connected with the hydraulic regulating device for automatically connecting the same with said manually-operative means, whereby the rheostat is placed under the automatic control of said hydraulic regulating device.

11. The combination, with an electric motor, and a pump driven thereby, of a rheostat in the armature-circuit, a hydraulic dynamometric regulating device connected with the delivery-chamber of the pump, a cut-out switch in the main circuit, means for manually closing said switch for starting up the motor and for operating said rheostat, and means connected with the hydraulic regulating device for automatically connecting the same with said manually-operative means, whereby the rheostat and cut-out switch are placed under automatic control.

12. The combination, with an electric motor, of a cut-out switch in the main circuit, a rheostat in the armature-circuit said switch being independent of said rheostat, and automatic dynamometric means in common with and for operating both the rheostat and switch.

13. The combination, with an electric motor, of a rheostat in the armature-circuit, a hydraulic regulating device provided with two levers, and means for connecting the levers or disconnecting them, one of said levers being connected with the rheostat.

14. The combination with an electric motor, of a rheostat in the armature-circuit, and a hydraulic regulating device provided with two levers and with a spring-actuated link, pivoted to one of said levers and engaging the other lever, whereby the levers may be disconnected for manual operation or automatically connected with the rheostat.

15. The combination with an electric motor, of a rheostat in the armature-circuit, a cut-out switch in the main circuit, a lever connected with the rheostat, means for operatively connecting said cut-out switch with said lever, and a hydraulic regulating device connected with said lever.

16. The combination with an electric motor, of a rheostat in the armature-circuit, and a hydraulic regulating device, comprising a valved fluid-chamber provided with fluid-inlets at each side of the valve, a dynamometric device subjected to the action of the fluid at one end of the valve, and between which and the valve one of said inlets is located, another chamber containing a piston, suitably connected with said rheostat, and suitable ducts or passages, one on each side of said piston for leading off the pressure fluid.

17. The combination with an electric motor, of a rheostat in the armature-circuit, and a hydraulic regulating device, provided with a dynamometric device, a valve, means for introducing fluid between the dynamometric device and valve, means for introducing fluid to the opposite end of the valve, suitable ducts or passages controlled by said valve, and suitable means connected with the rheostat and operated by the fluid issuing from the one or the other of said valve-controlled ducts or passages.

18. The combination, with a hydraulic dynamometric regulating device, a cut-out switch and a set of resistances, of a set of levers, adapted to move independently, and a link connecting the levers, said levers operating the resistances and cut-out switch.

19. The combination, with a hydraulic dynamometric regulating device, a set of electric resistances, and a cut-out switch, of levers for operating said switch and resistances, a link connection between the levers, and a spring acting to automatically bring one lever into operation with the other.

20. The combination, with an electric cut-out switch, and a hydraulically-operated lever for operating said switch, of a spring-cam acting to hold the switch in open or closed position.

21. The combination, with an electric cut-out switch, a hydraulically-operated lever, a spring-cam acting on the switch also, and a set of resistances operated by said lever, of a set of dynamometrically-operated safety-resistances.

22. The herein-described hydraulic dynamometric regulating device, comprising a balanced piston-valve, a diaphragm, and a dynamometric spring, of a bracket supporting said spring, a clamp for the diaphragm, and means for limiting the travel of said valve.

23. The combination, with an electric motor and a pump operated thereby, of a set of armature-resistances, means connected with the pump for hydraulically controlling the same, a set of dynamometric safety-resistances, both sets of resistances being embraced in the armature-circuit, and means for controlling said dynamometric safety-resistances.

24. The combination, with an electric motor, and a pump operated thereby, of a rheostat in the armature-circuit, a hydraulic regulating device connected with the pump and provided with two levers, and means for connecting the two levers or disconnecting them, one of said levers being connected with the rheostat and the other being adapted through said connecting means of the levers to break the connection between the rheostat and said regulating device.

25. The combination, with an electric motor and a pump operated thereby, of a rheostat in the armature-circuit, and a hydraulic regulating device connected with the pump, and provided with two levers, and with a spring-actuated link, pivoted to one of said levers and engaging the other lever, whereby the levers may be disconnected or connected as desired.

26. The combination, with an electric motor and a pump operated thereby, of a rheostat in the armature-circuit, a cut-out switch in the main circuit, a hydraulic regulating device connected with the pump and provided with a lever connected with said rheostat, and means for operatively connecting the said lever and cut-out switch.

27. The combination, with an electric motor and a pump operated thereby, of a rheostat in the armature-circuit, and a hydraulic regulating device, comprising a valved fluid-chamber provided with fluid-inlets at each side of the valve, communicating with the delivery-chamber of the pump, a dynamometric device between which and the valve one of said inlets is located, another chamber containing a piston, suitably connected with said rheostat, and suitable ducts or passages one at each side of said piston for leading off the pressure fluid.

28. The herein-described dynamometric hydraulic regulating device, consisting of two chambers, provided with fluid-inlets, a diaphragm at the end of one of said chambers, a dynamometric spring acting on said diaphragm, a piston-chamber, ducts or passages connecting the same with the first two chambers, an exit, means for controlling the communication between said first two chambers and the said ducts or passages and between the latter and said exit, a piston in said piston-chamber, and suitable mechanism connected with said piston.

29. The herein-described dynamometric hydraulic regulating device, consisting of two chambers, provided with fluid-inlets, a valve working between said chambers, a diaphragm at the end of one of said chambers, a dynamometric spring acting on said diaphragm, a piston-chamber, ducts or passages connecting the latter and the first two chambers, and controlled by said valve, an exit also controlled by said valve, a piston in said piston-chamber, means for limiting the movement of said valve, means for limiting the movement of the piston, and suitable mechanism operated by said piston.

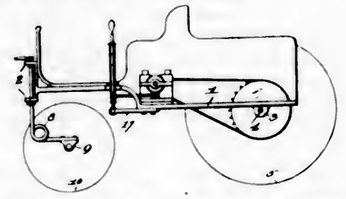
30. The combination of the bed-plate, the incased armature thereon, the pump, and the incased driving mechanism supported also on said bed-plate, between the motor and pump, the casing of the pump being supported by the casing of the driving mechanism.

31. The combination, with an electric motor, of the pump proper, the driving mechanism provided with a longitudinally-movable driving-shaft terminating between the motor and pump, a relief-spring between said shaft and the armature-shaft, a safety armature-resistance, and means controlled by said intermediate spring for throwing in more or less resistance.

32. The combination, with an electric motor, of a pump, driving mechanism arranged between the motor and pump, a safety-resistance in the armature-circuit, and arranged between the pump and motor, and means by which said safety-resistance is connected with a suitable portion of the driving mechanism.

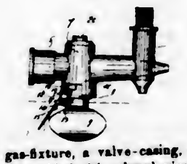
33. An electric motor provided with field-coils, portions of which are concentric with the circumference of the armature, and portions of which, at the side of the armature are tangential to the cylindrical part of the coil.

644,853. **MOTOR-VEHICLE.** EUGENE FARL, St. Louis, Mo. Filed July 3, 1899. Serial No. 722,742. (No model.)



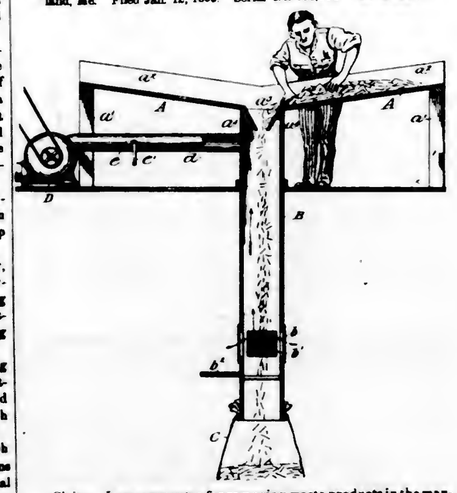
Claim.—In a motor-vehicle, a frame, suitable traction-wheels on which said frame is arranged, means carried by the frame for driving the rear pair of wheels, a pair of vertically-arranged shafts journaled in the forward portion of the frame, springs integral with the lower ends of said shafts, the ends of which springs are bent rearwardly, and journal-boxes secured to said rearwardly-bent ends in which the stub-axles of the front wheels operate, substantially as specified.

644,854. **ATTACHMENT FOR GAS-FIXTURE KEYS.** PIERRIE A. FLORIMONT, Newark, N. J. Filed May 27, 1899. Serial No. 718,617. (No model.)



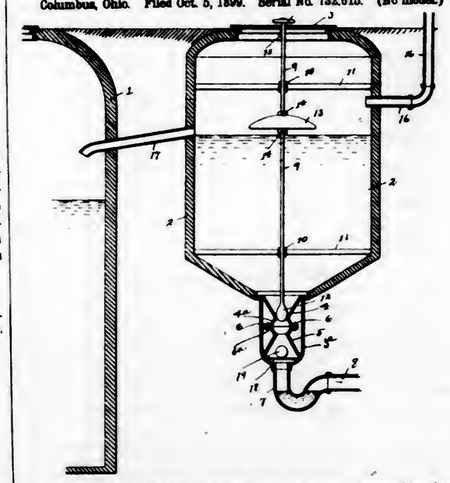
Claim.—In a gas-fixture, a valve-casing, a valve operatively mounted therein, and provided with a thumb-piece, a shoulder formed upon said casing and extending partially therearound, a flange formed upon said casing between and separated from the ends of said shoulder, a pin fixed in said valve and operating in connection with the ends of said shoulder, and a spring-actuated catch mounted upon said valve adjacent and extending within the plane of the edge of said thumb-piece and operating in connection with said flange, the relative arrangement and construction of parts being such that said catch engages either end of said shoulders synchronously with said pin, substantially as shown and described.

644,855. **DEVICE FOR REMOVING WASTE PRODUCTS.** MAURICE W. FORSTER, Strong, Me., assignor to Charles Forster, Portland, Me. Filed Jan. 12, 1899. Serial No. 701,914. (No model.)



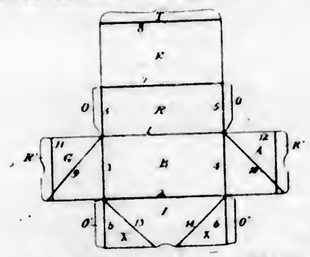
Claim.—In an apparatus for removing waste products in the manufacture of wooden articles, the combination of the table A, provided with an opening a^3, the downwardly-projecting portion a^4, the chute B, having openings *b*, covered with wire netting or gauze b', the slide b^3, the outlet-pipe *d*, and the fan D, substantially as, and for the purpose, above described.

644,856. **OVERFLOW-RESERVOIR FOR CISTERNS.** JOHN GAA, Columbus, Ohio. Filed Oct. 5, 1899. Serial No. 732,615. (No model.)



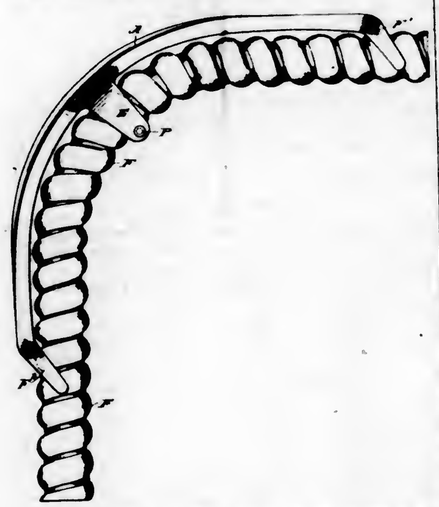
Claim.—In an overflow-reservoir for cisterns, the combination with a cistern, of a reservoir arranged adjacent thereto, a valve-casing in the lower portion thereof and a sewer-pipe communicating therewith, of a vertically-movable valve-rod 9 having a valve adapted to close communication with said sewer-pipe, a float projection on said valve-rod, a rain-water-supply pipe 16 leading to said reservoir and a pipe 17 leading therefrom to said cistern, substantially as specified.

644,857. PAPER BOX. ROBERT GAIR, New York, N. Y. Filed Nov. 3, 1898. Serial No. 695,389. (No model.)



Claim.—The herein-described paper box, the same consisting of the side R with flaps O, O, side I with flaps O' O' and diagonal-scored lines 13 14, ends A, G, flaps R' R' with diagonal-scored lines 9 10 crossing said ends and flaps, cover E and tongue T, the sides and ends being connected together by the flaps O, O, O' O', the flaps being adapted to be bent over at right angles to the ends to brace the ends and sides and to hold the tongue T of the cover in place, and the box adapted to be folded flat by bending the flaps R' R' upward and the ends inward on the diagonal-scored lines 9 10, and the side I on the diagonal lines 13 14, substantially as specified.

644,858. MEANS FOR GIVING RIGIDITY TO ELBOWS OR TURNS OF FLEXIBLE CONDUITS. EDWIN T. GREENFIELD, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,636. (No model.)



Claim.—1. A rigid curvilinear holding device adapted to hold a flexible armored conduit or cable rigidly in a curved position, substantially as described.

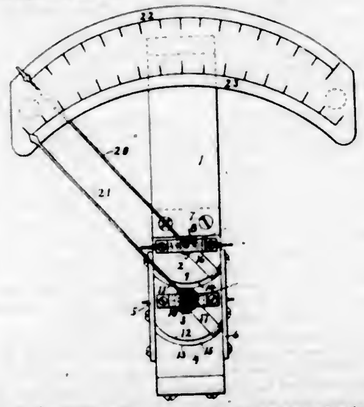
2. A rigid curvilinear holding device for a flexible armored conduit or cable having means at its opposite ends; together with means between said ends for securing it in position and giving to the armored conduit or cable a definite rigid curvature, substantially as described.

3. A rigid curvilinear holding device for a flexible armored conduit or cable provided with forks at its opposite ends, and intermediate means for securing it in position and giving to the armored conduit or cable a definite rigid curvature, substantially as described.

4. A rigid curvilinear holding device for a flexible armored conduit or cable provided with means for securing it to the face of a wall or other supporting-surface, substantially as described.

644,859. ELECTRICAL MEASURING INSTRUMENT. ADRIAN H. HOTZ, Penacook, N. H. Filed Sept. 22, 1899. Serial No. 731,249. (No model.)

Claim.—1. In a measuring instrument, the combination of a plurality of calibrated scales, an equal number of indicating-needles one for each scale, said needles being movable in parallel planes and all being pivoted on the same side of said scales, and mechanism for operating said needles, substantially as described.



2. In a measuring instrument, the combination of a plurality of calibrated scales, an equal number of pivotally-mounted indicating-needles one for each scale, said needles being so pivoted that the arcs traversed thereby will be substantially parallel, substantially as described.

3. In a measuring instrument, the combination of a plurality of calibrated scales, an equal number of pivotally-mounted indicating-needles the pivots of which are adjacent to each other, each of said needles being movable in a segmental plane, the arc boundaries of all of said planes lying on the same side of said pivots, and mechanism for operating said needles, substantially as described.

4. In a measuring instrument, the combination of a plurality of indicating mechanisms operated from a source or sources of current, a single magnet influencing said mechanisms, said magnet having adjacent extremities, and a plurality of air-gaps between said extremities, each of said mechanisms being under the influence of one of said air-gaps, substantially as described.

5. In a measuring instrument, the combination of a plurality of mechanisms operated from a source or sources of current, an indicating-needle operated by each of said mechanisms, said needles being movable in parallel planes, a single magnet influencing said mechanisms, said magnet having adjacent extremities, and a plurality of air-gaps between said extremities, each of said mechanisms being under the influence of said air-gaps, substantially as described.

6. In a measuring instrument, the combination of a plurality of calibrated scales, a similar number of indicating-needles, one for each scale, said needles being all mounted on the same side of said scales and movable in parallel superposed planes, and mechanism for operating said needles, substantially as described.

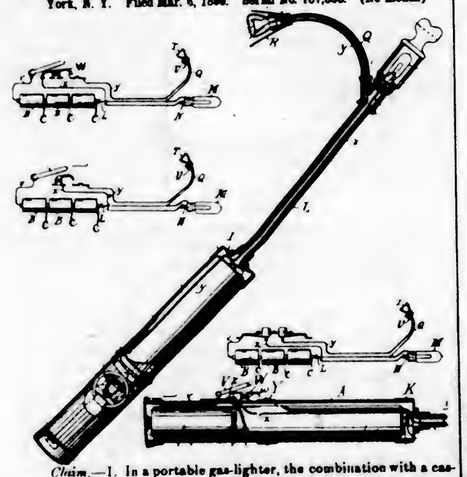
7. In a measuring instrument, the combination of a plurality of calibrated scales, an equal number of pivotally-mounted indicating-needles the pivots of which are adjacent to each other, said needles being movable in parallel, superposed, segmental planes, the arc boundaries of said segments all lying on the same side of said pivots, and mechanism for operating said needles, substantially as described.

8. In a measuring instrument, the combination of a single magnet having adjacent extremities, a plurality of air-gaps between said extremities, a plurality of indicators operated by mechanisms, each of said mechanisms being under the influence of one of said air-gaps, connections between said mechanisms and a source or sources of current to be measured, and calibrated scales adapted to indicate the movement of said indicators, substantially as described.

9. In a measuring instrument, the combination of a single magnet having adjacent extremities, a plurality of air-gaps between said extremities, a plurality of mechanisms each of which is under the influence of one of said air-gaps, connections between said mechanisms and a source or sources of current to be measured, a plurality of calibrated scales, and a plurality of indicating-needles moved by said mechanisms, said needles being movable in parallel planes, substantially as described.

10. In a measuring instrument, the combination of a single magnet having adjacent extremities, a plurality of air-gaps between said extremities, a plurality of mechanisms each of which is under the influence of one of said air-gaps, connections between said mechanisms and a source or sources of current to be measured, a plurality of calibrated scales, and a plurality of indicating-needles moved by said mechanisms, said needles being movable in parallel superposed planes, substantially as described.

644,860. ELECTRIC GAS-LIGHTER. CONRAD HUBERT, New York, N. Y. Filed Mar. 6, 1899. Serial No. 707,868. (No model.)



Claim.—1. In a portable gas-lighter, the combination with a casing containing a battery and having an extension thereon, an electric lamp, an electric igniter and a cock-turner carried by the extension, the lamp and igniter being normally in open circuit in relation to the battery, and means, carried by the casing, for placing the lamp or igniter in closed-circuit relation with the battery, substantially as described.

2. In a portable gas-lighter, the combination with a casing containing a battery and having an extension thereon, an electric lamp, an electric igniter and a cock-turner carried by the extension, the lamp and igniter being normally in open-circuit relation with the battery, and a single part having a movement of variable extent to close the circuits through both the igniter and lamp, and to close the circuit through one independently of the closure of the circuit through the other, substantially as described.

3. In a portable gas-lighter, the combination with a casing, of an electric lamp, an electric igniter and a cock-turner, all carried by the casing, an electric battery contained in the casing, and being normally in open-circuit relation to the lamp and igniter, and means, carried by the casing, for placing the lamp and igniter in closed-circuit relation to the battery and for placing the lamp in closed circuit with the battery independently of the igniter, substantially as described.

4. A gas-lighter provided with an electric igniter, an electric lamp and a battery normally in open circuit, of a single manually-actuated part for closing first the lamp-circuit and then the igniter-circuit, substantially as described.

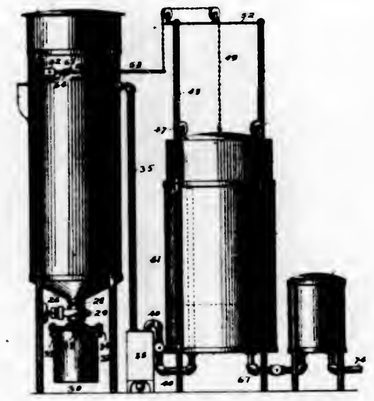
5. A gas-lighter provided with an electric igniter, an electric lamp and a battery normally in open circuit, of a single manually-actuated part for closing first the lamp-circuit independently of the igniter-circuit and for then opening the lamp-circuit and closing the igniter-circuit, substantially as described

6. A circuit-closer comprising two movable members and a fixed terminal and having two points of contact, one point being normally open and one point being normally closed, but the last-named point being opened when the two members are pressed together hard, substantially as described.

7. In an electric switch, the combination with a movable member permanently connected to one lead of a circuit, of a contact-point connected to the other lead of the circuit, and an intermediate movable member, normally making contact with the point and out of contact with the other movable member, but when moved by the latter breaking contact with the point, substantially as described.

8. In an electric switch, the combination with a movable member permanently connected to one lead, of two contact-points connected to the other lead, and an intermediate movable member normally making contact with one point and out of contact with the other point and movable member, but when moved by the latter breaking contact with the first point and making contact with the second point, substantially as described.

644,861. ACETYLENE-GAS APPARATUS. FRANK S. HUTCHINSON, New York, N. Y. Filed Nov. 10, 1898. Serial No. 696,005. (No model.)



Claim.—1. An apparatus of the character described, comprising a generator, a gasometer, automatically-operated means for feeding carbid to the water in the generator, a trap for relieving any excess of pressure in the gasometer, said trap being adapted to contain liquid and having a plate dividing the same into two compartments above the liquid, an inlet and an outlet pipe connecting one chamber of the trap with the generator and the gasometer, an escape-pipe connecting with the other chamber, and a filter for drying and cleansing the gas, substantially as described.

2. In an acetylene-gas apparatus, a feed mechanism comprising a movable body adapted to carry the carbid, a lever, means operated by the lever for imparting motion to the movable body, a second lever, and means operated by the second lever for intermittingly operating the first-mentioned lever, substantially as described.

3. In an acetylene-gas apparatus, a feed mechanism comprising a movable belt, a weighted lever, means operated by the lever for imparting motion to the belt in one direction, a cam-wheel for moving the weighted lever in one direction, a second lever, and means operated by the second lever for rotating the cam-wheel, substantially as described.

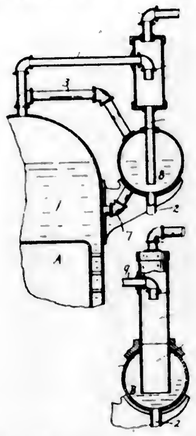
4. In an acetylene-gas apparatus, a feed mechanism comprising a movable belt, pulleys around which the belt passes, a shaft, gears connecting the shaft with one of the pulleys so as to operate in unison, a ratchet-wheel secured to the shaft, a weighted lever carrying a pawl adapted to rock on said shaft and rotate the ratchet-wheel, a cam-wheel, a second ratchet-wheel rotating with the cam-wheel, and a second lever carrying a pawl adapted when moved in one direction to operate the cam-wheel, substantially as described.

5. In an acetylene-gas apparatus, the combination with a generator having means for holding carbid, a movable body arranged under the carbid-holding means, a lever having one end thereof adjustable, means operated by the lever for imparting motion to the movable body, a cam-wheel having a series of teeth with rounded ends adapted to engage the adjustable end of the lever, and means for operating the cam-wheel, substantially as described.

6. In an acetylene-gas apparatus, the combination with a generator having two compartments or chambers, a hopper arranged in one chamber adapted to hold the carbid, a movable belt arranged under the hopper, said hopper being provided with sides or guides, which rest on the belt, a tilting lever operatively connected with the belt to move it, a second lever operatively connected to the first lever to move it, means for operating the second lever, a chute connecting the two chambers, and a deflector or trough arranged below the chute, substantially as described.

7. In an apparatus of the character described, the combination with a gas-generator, of a gasometer, and a trap connected with the generator and the gasometer, said trap containing a liquid and having its body portion of two telescopic members, a plate depending from the top of the casing dividing the space above the liquid into two chambers, and extending some distance below the surface of the liquid, an escape-pipe connected with one chamber, and inlet and outlet pipes connecting the other chamber with the gasometer and the generator, the pipe from the generator extending below the surface of the liquid, and a pipe for filling and keeping the liquid in the trap at a fixed height, substantially as described.

644,862. BOILER. DAVID S. JACOBUS and MARTIN R. JACOBUS, Ridgefield, N. J. Filed May 6, 1899. Serial No. 715,824. (No model.)



Claim.—1. The combination with a steam-heating boiler, of a water supply and receiving vessel located at a level with respect to the boiler to be only partially filled with water at all times and said vessel being connected below the water-level with the water-space of the boiler and above the water-level with the steam-space of the boiler, a separator having a connection with the water supply and receiving vessel below its water-level and a connection with the steam-space of the boiler, and a steam-main connected with said separator, substantially as described.

2. The combination with a steam-heating boiler, of a water supply and receiving vessel located at a level with respect to the boiler to be only partially filled with water at all times and said vessel being connected below the water-level with the water-space of the boiler and above the water-level with the steam-space of the boiler and also connected at another level with the water-space of the boiler so as to induce circulation of water, a separator having a connection with the water supply and receiving vessel below its water-level and a connection with the steam-space of the boiler, and a steam-main connected with said separator, substantially as described.

3. The combination with a steam-heating boiler, of a water supply and receiving vessel located at a level with respect to the boiler to be only partially filled with water at all times and said vessel being connected below the water-level with the water-space of the boiler and above the water-level with the steam-space of the boiler, a separator having a connection with the water supply and receiving vessel below its water-level, a steam-main connected with the top of said separator, and a connection with the steam-space of the boiler and said separator arranged intermediate of its connection with the steam-main and its connection with the water supply and receiving vessel, substantially as described.

4. The combination with a steam-heating boiler, of a water supply and receiving vessel located at a level with respect to the boiler to be only partially filled with water at all times and said vessel being connected below the water-level with the water-space of the boiler and above the water-level with the steam-space of the boiler, a separator having a connection with the water supply and receiving vessel below its water-level and a connection with the steam-space of the boiler having a downwardly-turned discharge end in said separator, and a steam-main connected with said separator, substantially as described.

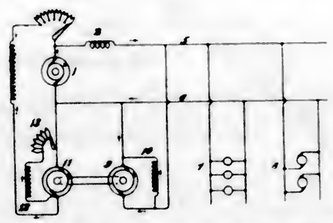
5. The combination with a steam-heating boiler, of a water supply and receiving vessel located at a level with respect to the boiler to be only partially filled with water at all times and said vessel being connected below the water-level with the water-space of the boiler and above the water-level with the steam-space of the boiler, a separator having a connection with the water supply and receiving vessel below its water-level, a discharge-opening for steam at the top of said separator, and a connection with the steam-space of the boiler and said separator arranged intermediate of its connection with the steam-main and its connection with the water supply and receiving vessel, substantially as described.

644,863. BICYCLE-SUPPORT. CARL KORDENAT, Reedsburg, Wis. Filed Dec. 13, 1898. Serial No. 699,130. (No model.)

Claim.—A bicycle-support comprising a bracket attachable to a rear-fork brace of a bicycle and having its lower end in the form of an outwardly-offset disk provided with a countersunk central aperture, a spring-washer located in the countersink of the disk-aperture isolated from dirt and moisture, a pivot-bolt having the head thereof within said disk-aperture in opposition to the spring-washer, an arm having one end thereof in the form of an apertured disk loose on the pivot-bolt, a nut run on said pivot-bolt against the latter disk, and a radial projection on one of said disks engageable with any one of a plurality of radial depressions in the opposing disk, these depressions being so disposed that said arm may be locked in elevated position parallel to the fork-brace or in swung-down position as a support for the bicycle at an acute angle to said brace.



644,864. ELECTROMOTIVE-FORCE REGULATION. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Oct. 6, 1898. Serial No. 692,797. (No model.)



Claim.—1. Means for regulating the electromotive force of a circuit supplied by a generator which tends to give a variable electromotive force, comprising a motor driven by current from said circuit and a compensating generator having a shunt-wound field-magnet and having its armature mechanically connected to the armature of said motor and electrically connected to a field-magnet winding of the main generator so as to exert a magnetizing effect in opposition to that exerted by the normal magnetizing-current.

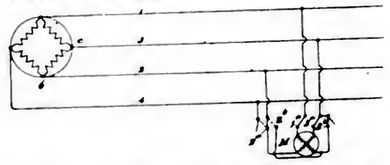
2. Means for regulating the electromotive force of a circuit supplied by a variable-speed generator comprising a motor driven by current from said circuit, and a compensating generator having a field-magnet provided with a shunt-winding and having its armature mechanically connected to the armature of said motor and electrically connected in series with a magnetizing-circuit for the main generator so as to oppose the electromotive force otherwise impressed upon such magnetizing-circuit.

3. In a system of electrical distribution, the combination with a main generator which tends to give a variable electromotive force and a compensating generator having a shunt-wound field-magnet worked below magnetic saturation and an armature electrically connected to a field-magnet winding of the main generator, of a motor driven by current derived from the main circuit and having a saturated field-magnet and an armature mechanically connected to the compensating generator so as to drive the same in opposition to the main generator.

4. In a system of direct-current electrical distribution, the combination with a compound-wound generator, of a shunt-wound compensating generator having a normally-unsaturated field-magnet and having its armature connected to a field-magnet winding of the main generator, and a shunt-wound motor driven by current derived from the main circuit and mechanically connected to the compensating generator so that the current supplied by the latter to the field-magnet winding of the main generator shall act in opposition to the normal magnetizing-current, the field-magnet of said motor being normally saturated.

5. In a system of direct-current electrical distribution, the combination with a variable-speed generator having a shunt field-magnet winding, of a shunt-wound compensating generator having a normally-unsaturated field-magnet and having its armature connected in series with the shunt-winding of the main generator, and a motor driven by current derived from the main circuit and mechanically connected to the compensating generator so that the current supplied by the latter to the shunt-winding of the main generator shall oppose its normal current, the field-magnet of said motor being normally saturated.

644,865. SYSTEM OF ELECTRICAL DISTRIBUTION. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed June 14, 1899. Serial No. 720,525. (No model.)



Claim.—1. In a system of electrical distribution, a two-phase motor, a two-phase primary or secondary generator and means for connecting the motor-windings to intermediate leads and to extreme leads from the generator for different quarter-phase electromotive forces.

2. In a system of electrical distribution, a two-phase motor, a two-phase generator, and means for connecting adjacent leads from the generator to the motor-windings for a relatively-low electromotive force and small starting torque and current and for connecting opposite leads to the motor-windings for a maximum electromotive force, torque and current.

3. In a system of electrical distribution, a two-phase motor, a two-phase generator having an open-coil or two-circuit armature-winding, and means for connecting the motor-windings to adjacent single leads and to a joint lead from an intermediate connection of the two circuits for a relatively-small starting torque and current, for connecting adjacent single leads only for a greater torque and current, and for connecting opposite leads for a maximum torque and current.

4. In a system of electrical distribution, a two-phase motor, a two-phase generator having an open-coil or two-circuit armature-winding unsymmetrically connected, and means for connecting adjacent single leads and a joint lead, adjacent single leads only, or opposite leads, according to the electromotive force and resulting torque desired.

5. The method of starting two-phase electric motors which consists in supplying the motor from adjacent generator-leads for a relatively-low starting torque and current and from opposite leads for a maximum torque and current.

6. The method of starting two-phase electric motors which consists in supplying the motor from adjacent single leads and a joint intermediate lead of a two-circuit generator-armature for a relatively-small starting torque and current, then from adjacent single leads only for a greater torque and current, and finally from opposite leads for a maximum torque and current.

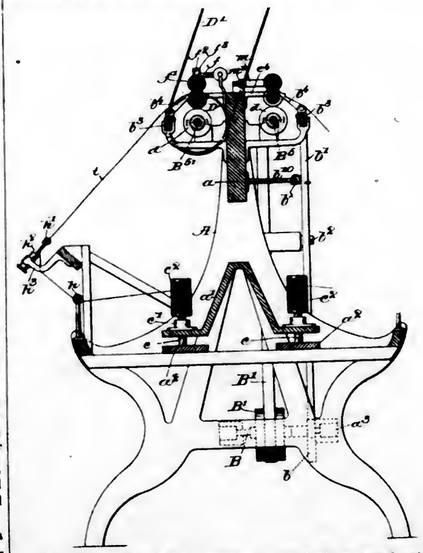
7. The method of starting a two-phase electric motor or operating the same economically under light load from a two-phase generator which consists in supplying the motor with currents from adjacent leads of the generator.

8. The method of starting a two-phase electric motor or operating the same economically under light load from a two-circuit, two-phase generator, which consists in supplying the motor with currents from adjacent single leads and a joint intermediate lead of the generator.

644,866. THREAD-WINDING MACHINE. ROBERT MORRISON, Canton, Mass. Filed Jan. 7, 1897. Serial No. 618,241. (No model.)

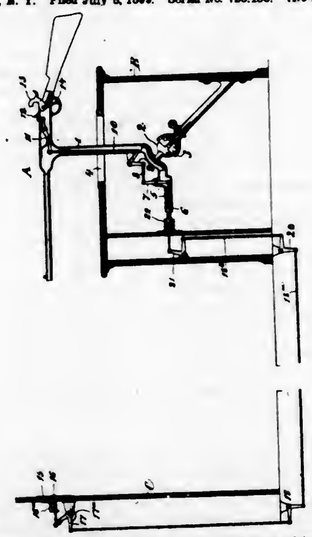
Claim.—1. In a thread-winding machine, a rotatable drum or cylinder, a rotatable spindle having two trundles, one of which is removable, and having journals extended beyond said trundles, and a removable tube located on said spindle between said trundles, bearings for said journals, said drum or cylinder rotating said spindle continuously at a uniform speed, a thread-guide, means to reciprocate it, a uniformly-acting pressure-roll located between said trundles and roughened-cloth periphery pressing continuously on the thread going onto said tubes directly at the winding-point, guide-bearings in which said pressure-roll is free to rise as the mass of thread wound on the tube increases, substantially as described.

2. In a thread-winding machine, a rotatable driving-drum, a rotatable spindle having a tube to receive the thread, and two separated trundles at the ends of said tube and in constantly-driven contact with said drum during the winding of the thread until the entire thread mass is wound, said spindle projecting beyond said trundles, bearings to receive the projecting ends of said spindle and cooperating therewith to maintain said trundles in said continuous contact, a thread-guide, means to reciprocate it, and a uniformly-acting pressure-roll having a roughened periphery of textile material located between said trundles and pressing continuously on the thread going onto said tubes directly at the winding-point, guide-bearings for said pressure-roll, said pressure-roll being raised by the thread mass as the latter increases on the tube, substantially as described.



3. In a thread-winding machine, a rotatively-mounted spindle provided with a tube adapted to receive a thread, a roll located above the tube and having a roughened-cloth periphery adapted to bear at all times in contact with the thread upon said tube, and guides or brackets having longitudinal slots to receive the journals of said roll.

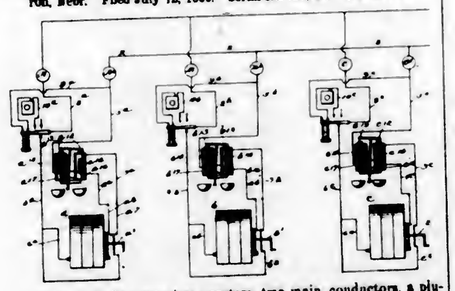
644,867. TARGET APPARATUS. JOHN L. MCCULLOUGH, New York, N. Y. Filed July 8, 1899. Serial No. 723,153. (No model.)



Claim.—1. A mechanical target apparatus comprising a target, a gun mounted on a universal joint and having a trigger and hammer, mechanism for operating said target, and mechanically-operated connecting mechanism substantially as described intermediate the trigger of the gun and said target-operating mechanism whereby the movement of the trigger is communicated mechanically to the mechanism at the target when the gun is correctly aimed, substantially as set forth.

2. In a target apparatus, the combination with a gun mounted on a universal joint, the said joint, an arm 5 carried by the said joint whereby the said arm moves in unison with the gun, an operating-plunger carried by said arm, and mechanism intermediate said operating-plunger and the trigger of the gun whereby the pulling of the trigger causes said plunger to be protruded, of a target, situated in front of the gun, target-operating mechanism, a plunger 22, so situated as to be alined with the operating-plunger when the gun is correctly aimed, and connecting mechanism intermediate the plunger 22 and the target-operating mechanism whereby, when the trigger is pulled the target will be operated mechanically.

644,868. TELEPHONE SIGNAL-CIRCUIT. DANA MCNEIL, Chadron, Nebr. Filed July 12, 1899. Serial No. 723,524. (No model.)



Claim.—1. In a telephone system, two main conductors, a plurality of stations connected thereto, each station-calling apparatus comprising a call-bell magnet provided with coils of relatively-high resistance normally in circuit, independent call-bell-magnet coils of low resistance normally cut out, one terminal of each pair of coils connected to the same main conductor, the remaining terminal of each pair of coils terminating in contact-points, and a switch connected to the other main conductor, normally in contact with the terminal of the high-resistance coil and adapted to close the circuit from the source of electricity through the low-resistance coils when current is sent to line and to open the circuit of the high-resistance coils, substantially as set forth.

2. In a system of telephone-circuits, two main conductors, call-bell-magnet coils of relatively-high resistance at each station, normally in circuit between the said main conductors, said coils being cut out of circuit at the calling station, other call-bell-magnet coils of relatively-low resistance, normally cut out of circuit at the called stations and a source of electricity in series with the said low-resistance call-bell-magnet coils at the calling station when current is being sent to line for the purpose of calling, substantially as set forth.

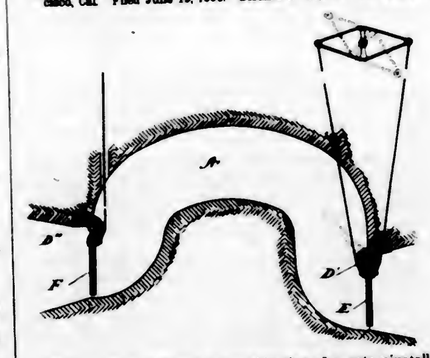
3. In a system of multiple-station telephone-circuits, two main conductors, call-bell-magnet coils of relatively-high resistance at each station, normally in a bridging-circuit between said main conductors, call-bell-magnet coils of relatively-low resistance at each station normally out of circuit, an electric generator for sending calls at each station adapted when operated to be connected in series with the low-resistance windings on the said bell-magnets at the calling station, and together therewith in parallel circuit with the high-resistance call-bell-magnet coils of all other stations, the arrangement being such that the high-resistance coils are cut out and the low-resistance coils cut in at the calling station, substantially as described.

4. In a system of multiple-station telephone-circuits, two main conductors, call-bell-magnet coils of relatively-high resistance normally in a circuit between the said main conductors, independent call-bell-magnet coils of relatively-low resistance normally out of circuit, an electric generator adapted when operated to open the circuit of the said high-resistance call-bell-magnet coils and to close the circuits of the said low-resistance call-bell-magnet coils, substantially as set forth.

5. In a system of multiple-station telephone-circuits, two main conductors, call-bell-magnet coils of relatively-high resistance, independent call-bell-magnet coils of relatively-low resistance, and an electric generator at each station, the arrangement being such that all the high-resistance call-bell-magnet coils are normally in circuit between the said main conductors, at the calling station the said high-resistance coils are removed from the said independent main circuit, and the said low-resistance coils in series with the generator are adapted to be included therein, and when talking the generator and all of said coils at the talking stations are removed from the said main circuit, substantially as set forth.

6. In a system of multiple-station telephone-circuits, two main conductors, call-bell-magnet coils of relatively-high resistance at each station normally in a bridging-circuit between the main conductors, call-bell-magnet coils of relatively-low resistance at each station normally out of circuit, an electric generator for sending calls at each station, normally short-circuited, adapted when operated to be connected in series with the said low-resistance call-bell-magnet coils, and to open the circuit of the high-resistance call-bell-magnet coils at the calling station, substantially as set forth.

644,869. WAVE-POWER MOTOR. WILLIAM HEWELL, San Francisco, Cal. Filed June 19, 1899. Serial No. 721,173. (No model.)

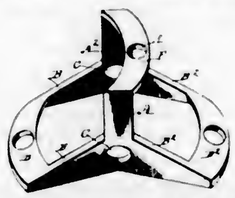


Claim.—1. In a motor the combination of a gate pivotally attached to the entrance of a tunnel, adapted to be pushed inward by the power of a wave flowing into a tunnel from a canal, thereby operating a pump in unison therewith.

2. In a motor the combination of a gate pivotally attached to a tunnel, adapted to be pushed outward by the power of a wave flowing outward from a tunnel against said gate, thereby operating a pump in unison therewith.

3. In a motor a tunnel whose floor is inclined upward from the entrance to about the center, and downward from that point to the end of the tunnel, it being adapted to admit a wave which passing through a gate hung at the entrance of the tunnel, can pass out of the tunnel through a gate hung at the end of the tunnel.

644,870. PORTABLE WINCH. CHARLES H. ROBERTS, Mitchellville, Iowa. Filed Sept. 12, 1898. Serial No. 730,283. (No model.)

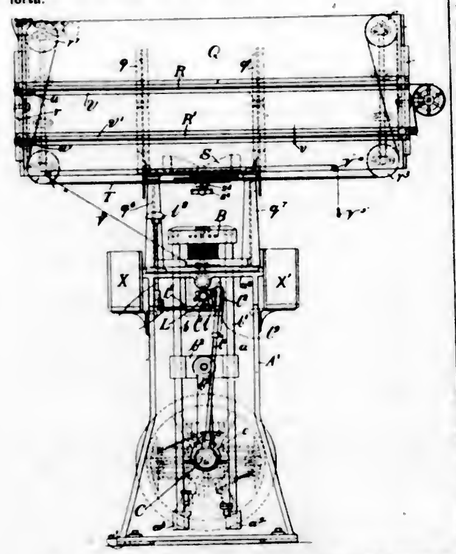


Claim.—A portable winch comprising a frame composed of two vertical parallel sides having branches extending laterally and in opposite directions at their lower ends and journal-bearings at the juncture of said branches, the branches connected at their outer ends and the tops of the parallel sides connected by a cross-bar curved in a horizontal plane so that its center lies directly above the edge of the drum, said bar having an aperture to admit and direct the passage of a rope relative to the exterior of a drum, a drum or rotatable shaft mounted in the said bearings in the frame, a ratchet-wheel fixed to the end of the shaft, a spring-actuated pawl attached to the frame and a crank-handle on the end of the shaft or journal extended outside of the frame, all arranged and combined for the purposes stated.

644,871. MACHINE FOR PUNCHING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Filed Aug. 14, 1896. Serial No. 602,756. (No model.)

Claim.—1. In combination, punches, keys for controlling the punches, said keys being arranged for operation by the hands of the operator, a drive-shaft for operating the punches, a drive-wheel loosely mounted on the drive-shaft, a clutch for locking the drive-wheel to and releasing it from the shaft, clutch-operating mechanism

arranged to move along the drive-shaft into and out of operative position and interconnected foot-pedals connected with the clutch-operating mechanism one for throwing the clutch-operating mechanism into operative position and the other for throwing the clutch-operating mechanism out of operative position, substantially as set forth.



2. In combination, a punching mechanism, means for operating it, a feed-carriage, a bar forming a support for the carriage, means for drawing the carriage along the bar, a rack fixed to the carriage-supporting bar, a rock-shaft, teeth carried by the rock-shaft in position to alternately engage the rack as the shaft rocks, while free to move along the shaft, said carriage being engaged with said teeth to move along its support as the teeth move along the shaft and means for rocking the shaft to permit the carriage to move step by step, substantially as set forth.

3. The feed mechanism comprising a feed-carriage, a supporting-bar along which the carriage is adapted to travel, a rack fixed to said bar, a rock-shaft, independent teeth mounted to rock with the shaft and free to slide along the shaft, a spring tending to slide one of the teeth away from the other, the aforesaid carriage being provided with abutments for holding it engaged with the teeth, means for rocking the shaft to bring the teeth alternately into engagement with the rack and means for keeping the carriage under tension tending to draw it along its support, substantially as set forth.

4. The combination with the feed-carriage, its actuating-spring and means for controlling its movement, of a pivoted jaw mounted on the carriage for engaging the card and a rocking lever having one arm loosely engaged with said pivoted jaw and another arm connected with the carriage-actuating spring, substantially as set forth.

5. The combination with the feed-carriage, its actuating-spring and means for controlling its movement, of a pivoted jaw mounted on the carriage for engaging the card and a rocking lever engaged with said pivoted jaw and provided with a series of bearings for attaching it to the carriage-actuating spring at different distances from its fulcrum, substantially as set forth.

6. The combination with the feed-carriage, its operating-spring, the rack, the rock-shaft and the teeth carried by the rock-shaft, of a lever for rocking the shaft, a shaft-operating rod having a yielding connection with one arm of the lever, a hand operating-rod and a connection between the hand operating-rod and the said lever for rocking the shaft to release the teeth from the rack for returning the feed-carriage, substantially as set forth.

7. The combination with the feed-carriage, its operating-spring, the rack, the rock-shaft and the teeth carried by the rock-shaft, of the angle-lever for rocking the shaft, the shaft-operating rod having a yielding connection with one arm of the angle-lever, a hand operating-rod and a connection between the hand operating-rod and the said angle-lever for rocking the shaft to release the teeth from the rack for returning the feed-carriage, substantially as set forth.

8. The combination with the feed-carriage and means for controlling its movement, of a pulley, a cord connecting the periphery of the pulley with the carriage, a coiled spring for actuating the pulley and hence the carriage a winding-wheel engaged with the spring for winding and unwinding the spring independent of the pulley and means for locking the winding-wheel to and releasing it from the pulley, substantially as set forth.

9. The combination with the feed-carriage and means for controlling its movement, of a pulley fixed to rotate with a shaft, a cord connecting the periphery of the pulley with the carriage, a pair of coiled springs for actuating the shaft and hence the carriage, winding-wheels for winding and unwinding the springs independent of the shaft and means for locking the winding-wheels to and releasing them from the shaft, substantially as set forth.

10. In combination, a main supporting frame or pedestal, a support for the feed-carriage extending rearwardly from the main frame or pedestal, a pivoted bracket at the rear of the feed-carriage support, wires stretched from the main frame to said pivoted bracket and forming a track for supporting the cards, means for actuating the feed-carriage and means for controlling its movement substantially as set forth.

11. The combination with the punching and feeding mechanism and the means for operating them, of guide-checks mounted to slide toward and away from each other, a spring-actuated lever, links connecting the lever with the checks to cause them to move simultaneously, a stop for limiting the movement of the lever and means for adjusting the stop, substantially as set forth.

12. The combination with the supports provided with elongated bearings, of a base-plate, means for adjusting the base-plate forward and backward on the bearings, a pattern-board hinged to the base and means for adjusting the pattern-board in different tilted adjustments relative to the base, substantially as set forth.

13. The combination with the pattern-board and its support, of means for holding the pattern-board in various tilted adjustments with respect to its support, a rule arranged to slide up and down along the face of the board and means for operating the rule whatever be the tilted adjustment of the pattern-board, substantially as set forth.

14. The combination with the card-feeding mechanism, the pattern-board and an indicator arranged to travel across the board and under the control of the feed mechanism and means for tilting and bodily adjusting the pattern-board while the action of the indicator remains intact, substantially as set forth.

15. The combination with the pattern-board and a suitable support therefor, of a rule arranged to slide up and down along the face of the board, a segment, a wire attached at its opposite ends to the segment, guide-pulleys at the back of the board for directing the wire up and down at each end of the board, connections between the wire and the movable rule and means for operating the segment to adjust the rule for reading the pattern, substantially as set forth.

16. The combination with the pattern-board, a suitable support therefor, a rule arranged to move up and down along the face of the board, a segment carried in rotary adjustment and a wire connecting the segment with the rule, of a worm and worm-wheel for operating the segment, a hand-lever for operating the segment and means for releasing the worm-wheel from the segment when the hand-lever is brought into use, substantially as set forth.

17. The combination with the pattern-board, a suitable support therefor, a rule arranged to move up and down along the face of the board and a rule-operating wire, of a segment, spring-actuated levers pivoted to the opposite ends of the segment and forming bearings for the attachment of the ends of the wire and means for varying the tension of the wire, substantially as set forth.

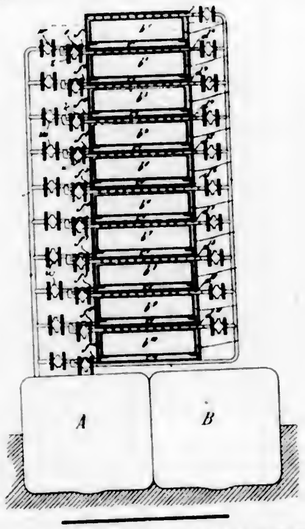
18. The combination with the card-feeding mechanism, the pattern-board and a suitable support therefor, of an indicator mounted to travel across the face of the pattern-board and under the control of the feeding mechanism, and means for varying the extent of movement of the indicator at each step of feed, substantially as set forth.

19. The combination with the pattern-board, a suitable support therefor and a rule arranged to move up and down along the face of the board, of an indicator mounted to move bodily up and down with the rule, and means for imparting to the indicator a step-by-step movement across the face of the board, substantially as set forth.

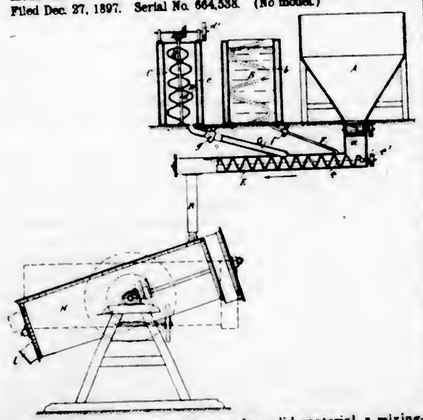
20. The combination with the pattern-board, a suitable support therefor, and a double rule arranged to move up and down along the face of the board, a spring-actuated cord extending across the face of the board in two parts corresponding to the parts of the double rule, the said cord being mounted to move bodily up and down with the double rule, and means for imparting to the cord a step-by-step movement across the face of the board, substantially as set forth.

644,872. APPARATUS FOR MAKING EXTRACTS. ERNST SCHLIEMANN and EDGAR VON BOYEN, Hamburg, Germany. Filed May 5, 1898. Serial No. 679,780. (No model.)

Claim.—An apparatus for continuous extraction consisting of a series of closed receptacles constituting chambers and arranged columnwise, a tank in each chamber provided with a perforated bottom and supported so as to have a free space between the bottom of the tank and that of the chamber, a supply-pipe for supplying the extracting liquid, perforated serpentines above said tanks, supply connections, including cocks, from the said supply-pipe to the said serpentines, a delivery-pipe and delivery connections, including cocks, leading to said delivery-pipe from the spaces between the tank and chamber bottoms, and adapted to draw off the extract, connections, including cocks, from the delivery-pipe connections of each chamber to the serpentine in the next chamber below, test-cocks in the respective delivery connections, a pipe leading upwardly from the delivery connection of the lowest tank, connections, including cocks, from said pipe to the supply-pipe connections of the respective tanks, and a steam-supply pipe and connections, including cocks, leading therefrom to the said supply connections, substantially as and for the purpose set forth.



644,873. APPARATUS FOR PREPARING DOUGH. JOSEPH SCHWEITZER, Paris, France, assignor to La Société Internationale de Meunerie et de Panification, (Système Schweitzer,) Brussels, Belgium. Filed Dec. 27, 1897. Serial No. 664,538. (No model.)



Claim.—1. In a mixer, a hopper for solid material, a mixing-channel, a tank for liquid-supply connected to said channel, means for mixing the liquid and solid in said channel, a kneading-trough, means for altering and fixing the inclination of said trough, a longitudinal shaft in said trough, gearing for continuously rotating the said shaft at all inclinations of the trough, loose arms on said shaft bearing spindles sensibly parallel to the central shaft, stops on the internal walls of said kneading-trough preventing the rotation of said arms, arms rigidly secured on said shaft and rotating therewith, and spindles on said rotating arms parallel to and intermediate with the stationary spindles aforesaid.

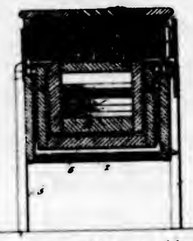
2. In a dough-mixer, the meal-hopper A, water-tank B, yeast-vessel C provided with duplex spiral stirrer D, mixing-channel E, spiral mixing-wires *e* in combination with the kneading-trough H supported on trunnions O and provided with geared shaft *i*, loose arms *m*, spindles *n*, stops *t*, arms *p* and spindles *q*.

3. In a device of the character described, a trough, a shaft journaled therein, loose arms on said shaft bearing spindles parallel to the shaft, stops on the trough preventing the rotation of said arms, arms rigidly secured on said shaft to rotate therewith, and spindles on said rotating arms parallel to and intermediate of the stationary spindles, substantially as described.

4. In a device of the character described, a trough mounted on suitable bearings, means for inclining the trough in its bearings, a shaft journaled in the trough, gearing for continuously rotating the shaft at all inclinations of the trough, fixed arms bearing spindles parallel with the shaft, and arms loosely mounted on the shaft and carrying spindles intermediate of the first-named spindles and also parallel to the shaft, substantially as described.

5. In a device of the character described, a trough, a shaft journaled in the longitudinal axis thereof, loose arms on the shaft bearing spindles parallel to said shaft, arms rigidly secured on the shaft and bearing spindles intermediate of and parallel to the first-named spindles, a conduit containing parallel worm-screws discharging into the trough, and a flour-hopper, a salt-water tank and a yeast vessel discharging into the conduit, substantially as described.

644,874. WASHING-MACHINE. FRANK H. SEASHOLS, St. Mary's, Ohio, assignor of one-half to Henry F. Schrader, same place. Filed Sept. 13, 1899. Serial No. 730,333. (No model.)

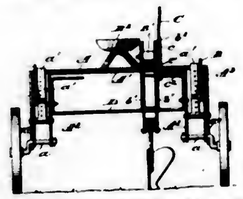


Claim.—1. A washing-machine, comprising the body portion, a close top or cover, upper and lower rubbers, journals for pivotally supporting said rubbers, castings in the cover, each of said castings being provided with a central bore and flanges constituting a guideway for the journals of the upper rubber, arms outside of the machine integral with the journals of the upper and lower rubbers to which are removably connected links or bars, and an operating-lever pivoted at one side of the machine and provided with a projection to which is removably connected one end of said links or bars.

2. A washing-machine, comprising the body portion, a closed top or cover, upper and lower rubbers, journals for pivotally supporting said rubbers, one journal on the upper rubber and one journal on the lower rubber having a spherical enlargement and projecting through one side of the machine, castings secured in the cover, each of said castings being provided with a central bore and flanges constituting a guideway for the journals of the upper rubber, arms outside of the machine integral with one of the journals of both the upper and lower rubbers to which arms are removably connected links or bars, and an operating-lever, pivoted at one side of the machine and provided with a T-shaped projection intermediate of its length to which is connected one end of each of the said links or bars.

644,875. WHEEL-FRAME FOR PLOWS OR CULTIVATORS. JAMES B. SELLS, Bluff City, Tenn. Filed Oct. 12, 1899. Serial No. 733,363. (No model.)

Claim.—1. In a sulky-frame for plows and cultivators, the combination with two flat bars which are connected to provide a horizontal cross-bar of double thickness, said bars having downwardly-extending ends to provide hangers, of a bar having downward and rearward extended ends which ends are connected to the outer depending sides of the hangers, bars connecting the horizontal bars to each other, a seat-support which extends rear of the frame, levers pivoted to the inclined side bars of the frame, and links which connect the levers to crank-axles, said crank-axles being journaled in the lower portion of the hangers, substantially as shown and for the purpose set forth.



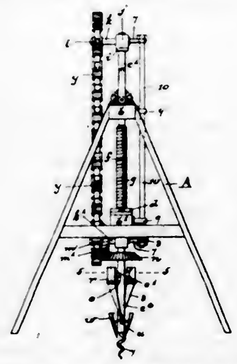
2. In combination with a wheel-supported frame, a tongue rigidly attached to the frame on one side of its center, a lever pivoted to the tongue in advance of the frame, a link adjustably attached to the lever near its fulcrum, said link having a projecting portion or catch as shown, a plate carried by the tongue with which the catch on the link engages, a bail which is connected to the frame and to the lower end of the link and a spring which engages with the bail and link, for the purpose set forth.

3. In a sulky-frame for plows and cultivators constructed substantially as shown and provided with hangers, the combination with a bail having inturned ends at its forward portion and apertures through the side pieces thereof, of hangers having perforations whereby the bail may be attached to said hangers at different points, for purpose set forth.

4. In a sulky-frame for plows and cultivators, the combination with a frame constructed substantially as shown and provided with depending hangers and inclined side bars which are connected thereto the hangers having apertures at different points, levers pivoted to the inclined bars and adapted to engage with segmental plates carried by the hangers, links detachably connected to the levers, said links being adapted to be placed in engagement with the apertures in the inclined bars of the frame, crank-axles journaled to the hangers and provided with links as shown, a bail pivoted to the hangers and connected to the beam of an implement and to a lever which is pivotally attached to a tongue in advance of the wheeled frame, substantially as shown.

5. In a sulky-frame for plows and cultivators, the combination with a pair of connected bars A A′, the ends of which are bent at right angles to provide hangers A^3, crank-axles journaled in the lower ends of the hangers, a bar A^2 which extends parallel with the bars A, A′ hereinbefore mentioned, the end portions of said bar A^2 extending downward and rearward and being connected to the hangers above the axle, a tongue carried by the frame, a bail D pivotally attached to the hangers, said bail being adapted to engage with an implement carried by the frame, levers B B pivoted to the inclined bars of the frame so as to extend rearward said levers having spring-actuated bolts which engage with segmental plates *a′* attached to the hangers, said levers determining by their position the depth with which the cultivators or plow will enter the soil, the parts being organized substantially as shown.

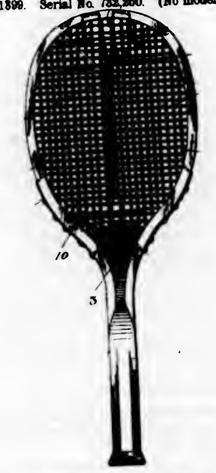
644,876. MACHINE FOR BORING POST-HOLES. OWEN SHEVLIN, Baltimore, Md. Filed Sept. 16, 1899. Serial No. 730,724. (No model.)



Claim.—1. In a post-hole-digging machine, the combination of an upright frame; a revolvable screw-shaft vertical in said frame; two sleeves, *j*, *j′*, loose on said shaft—one above and the other below the frame—each sleeve having two arms projecting from opposite sides; a sprocket-wheel carried on one arm of each sleeve and over which travels an endless-chain conveyer; a vertical rod, 10, secured to the other arms of the two sleeves; and fork-shaped stationary arms, 9, on the frame coacting with said vertical rod to keep the sleeves from turning with the shaft, as set forth.

2. In a post-hole-digging machine, the combination of a vertical revoluble shaft having at its lower end two transverse slots, *o*, *u*; two horizontal arms, *p*, *p′*, adjustable in the upper slot, *o*; a vertical cutter-head, *r*, at the end of each arm; and inclined cutter-blades hinged to said vertical cutter-heads and having their lower ends pivoted in the lower slot, *u*, said inclined cutter-blades being adjustable to any degree of inclination, as set forth.

644,877. RACKET. FRANK L. SLAUGHTER, New York, N. Y. Filed Sept. 30, 1899. Serial No. 732,260. (No model.)

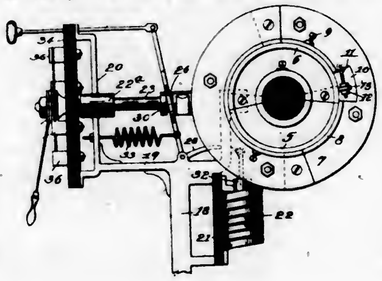


Claim.—1. A lawn-tennis racket consisting of a frame and a web, the web having a center reinforced by longitudinal strands which parallel the main strands, said reinforcing-strands extending from end to end of the frame and passing through the same whereby the ends of the reinforcing-strands will be securely held in place, as and for the purpose set forth.

2. A lawn-tennis racket consisting of a frame and a center piece provided with apertures therein, a web composed of strands, the last longitudinal strand having its ends passed out through an aperture in the frame, thence downwardly along the frame and thence through apertures in the frame and in the center piece and thence to its destination and suitable means to secure the free ends of the strands as specified and for the purpose set forth.

3. A lawn-tennis racket consisting of a frame and center piece having perforations therein and a web having the last strand passed through the perforations in the frame and center piece and back and forth forming a reinforced center, all arranged as set forth.

644,878. AUTOMATIC CIRCUIT-BREAKER. DAVID W. STILSON, St. Louis, Mo. Filed July 3, 1899. Serial No. 722,745. (No model.)



Claim.—1. A lighting or power circuit arranged with a generator for supplying said circuit with alternating currents, a switch, and means whereby said switch is actuated when the current or electromotive force in said circuit is at the zero-point of any one alternation, substantially as specified.

2. The combination with an electric lighting or heating circuit supplied with alternating currents, of a generator, a switch, and means whereby said switch is opened when the current of any one alternation is at the zero value and while the mean effective current in said circuit is greater than a predetermined value, substantially as specified.

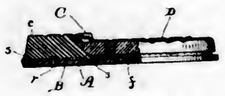
3. In an automatic circuit-breaker, a switch, a rotatably-arranged shaft carrying the blade of said switch, a sleeve arranged to slide upon said shaft, a finger integral with said sleeve, an electromagnet for actuating said sleeve, an adjustable disk mounted upon a synchronous-motor shaft, and pins projecting laterally from said disk, substantially as specified.

4. The combination with an alternating-current synchronous motor, a circuit and an alternating-current generator of a switch arranged in said circuit, means carried by the synchronous-motor shaft for actuating said switch when the load on the circuit becomes too great, and an electromagnet in the circuit which acts to position the parts for the cut-out operation, substantially as specified.

5. In a device of the class described, an alternating-current generator, a circuit leading from said generator, a motor operating synchronously with the alternations derived from said generator, a switch in the circuit leading from the generator, means carried by the shaft of the synchronous motor for actuating the switch when the load for the generator becomes too great, which means operates to open the circuit at a time when the current in the circuit is at a zero value, and an electromagnet in the circuit leading from the generator, which acts to position the parts for the cut-out operation, substantially as specified.

6. In a device of the class described, an alternating-current generator, a circuit leading from said generator, a motor operating synchronously with said generator, a switch in the circuit, means carried by the shaft of the synchronous motor for actuating the switch when the load for the generator becomes too great, which means operates at a time when the current in the circuit is at the zero-point, substantially as specified.

644,879. RUBBER-TREAD HORSESHOE. WILLIAM P. STRAWMYER and OTTO NILIUS, Indianapolis, Ind. Filed Jan. 2, 1900. Serial No. 72. (No model.)



Claim.—1. A horseshoe composed of an inner non-metal part, which bears against the horse's hoof when in position, a stiffening part B secured thereto, a non-metal adhesive part C having a flange *f*, and an outer metal part placed upon the said flange and thus gripping and holding said non-metal part.

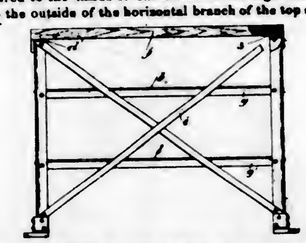
2. The combination, in a horseshoe, of a leather part A, a metal stiffening part B secured thereto having enlarged rear ends, a rubber part C secured thereon and having heel portions with outer inclined surfaces, and an outer metal portion D having its rear ends formed to fit up onto the inclined heel portions of the rubber part C, said parts being so arranged that the heel portions of the rubber part are supported and strengthened by the part B so far as they project beyond said part D, substantially as shown and described.

3. The combination, in a horseshoe, of the sole-leather part A of substantially the form of the horse's hoof, a reinforcing narrow metal part B having its heel ends enlarged, a rubber part C also having enlarged heel ends and with a flange formed integrally therewith extending out around its outer edge, and a metal part D adapted to be superimposed upon said flange and thus reinforce and protect said rubber part C, said several parts being constructed, arranged and operating substantially as shown and described.

644,880. WORK-BENCH. WILLIAM VANDERMAN, Willimantic, Conn. Filed June 17, 1897. Serial No. 641,129. (No model.)

Claim.—1. In combination in a work-bench, end sections including legs and cross-pieces formed of angle-iron with the recesses in each instance facing inwardly, and a table secured to the outside of the horizontal branch of the top cross-piece.

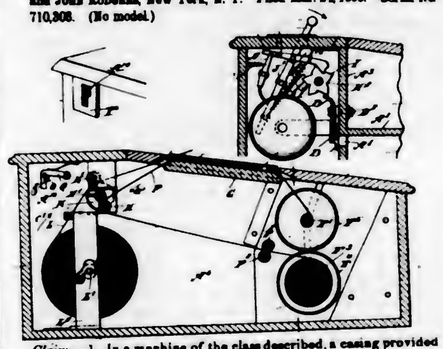
2. In combination in a work-bench, end sections including legs and cross-pieces formed of angle-iron with the recesses in each instance facing inwardly, lengthwise pieces connecting the end sections and secured to the inside of one branch of the legs, and a table secured to the outside of the horizontal branch of the top cross-pieces.



3. In combination in a work-bench, end sections including legs and cross-pieces formed of angle-iron with the recesses in each instance facing inwardly, a table secured to the outside of the horizontal branches of the top cross-pieces, and a shelf secured to cross-pieces with the ends of the shelf inclosed by the angle in said cross-pieces.

4. In combination in a work-bench, end sections including cross-pieces formed of angle-iron with the recesses facing inwardly and legs formed of angle-iron with the recesses facing inwardly, the ends of the legs being inclosed within the angle of the cross-pieces and secured to a branch thereof, and a table secured to the outside of the horizontal branch of the top cross-piece.

644,881. SALES AND CASH REGISTER. CARL J. D. WALTER and JOHN RODGERS, New York, N. Y. Filed Mar. 24, 1899. Serial No. 710,308. (No model.)



Claim.—1. In a machine of the class described, a casing provided with a table over which a sheet of paper is adapted to be passed and an opening through which a strip of paper is adapted to be projected, reels arranged in one end of the casing and upon and from which a sheet of paper is adapted to be wound and unwound, a reel at the opposite end of the casing and from which a strip is adapted to be unwound, feed-rollers for feeding the sheet of paper over the table, a second set of feed-rollers, one of which is carried by the shaft of one of the first-named feed-rollers, said feed-rollers serving to feed the strip of paper through the opening in the top of the casing and in a direction opposite to the line of travel of the sheet, and means for operating one of the first-named feed-rollers, substantially as described.

2. In a machine of the class described, a casing provided with a table over which a sheet of paper is adapted to be passed and with an opening through which one end of a strip is adapted to be passed, a feed device for feeding the sheet of paper, a feed device for feeding the slip of paper, said feed device being operated from the first feed device and feeding the slip in the opposite direction to that of the sheet, a till in the casing, a spring for opening the till, means for operating one of the feed devices, and a locking device for locking the till closed, and operated by the operating means of the first-named feed device, substantially as described.

3. In a machine of the class described, a casing provided with a table over which a sheet of paper is adapted to be passed and with an opening through which a strip is adapted to be passed, a feed device for feeding the sheet of paper, a feed device for feeding the slip of paper, said feed device being operated from the first feed device and feeding the slip in the opposite direction to that of the sheet, a till in the casing a spring for opening the till, means for operating the first-named feed device, a locking device for the till, operated from the said operating means, an alarm, and means for operating the alarm from the feed-operating means, substantially as described.

4. In a machine of the class described, the combination with a desk, feed-rollers mounted in the desk, and a star-wheel on the shaft of one of the feed-rollers, of a lever pivoted in the desk and having one end projecting out through the desk, a pivoted and spring-pressed pawl carried by the lever, and engaging the star-wheel, a pivoted locking-lever having one end projecting over the end of the pawl, and means for locking the locking-lever in position, substantially as described.

5. In a machine of the class described, the combination with a feed device, and a star-wheel for operating the feed device, of a pivoted operating-lever, a pawl pivoted to the operating-lever and a spring having one end secured to the pawl and its other end to the lever, whereby the spring serves to hold the pawl in engagement with the star-wheel and also to return the lever to its normal position, as set forth.

6. In a machine of the class described, the combination with a feed device, and a star-wheel for operating the feed device, of a pivoted operating-lever, a pivoted and spring-pressed pawl carried by the lever, means for locking the pawl out of engagement with the star-wheel, and means, whereby when the pawl is locked out of engagement with the star-wheel, the operating-lever will also be locked, substantially as described.

7. In a machine of the class described, the combination with feed-rollers, and a star-wheel on the shaft of one of the rollers, of a pivoted operating-lever, a pivoted and spring-pressed pawl carried by the lever, a pivoted lever for engaging the pawl to raise it out of engagement with the star-wheel, and a fixed stop against which the end of the pawl when out of engagement with the star-wheel, is held, substantially as described.

8. In a machine of the class described, the combination with feed-rollers, and a star-wheel on the shaft of one of the feed-rollers, of a pivoted lever, a pivoted and spring-pressed pawl carried by the lever and having one end engaging the star-wheel, a bell, and a pivoted and spring-pressed striker with which the other end of the said pawl engages, substantially as described.

9. In a machine of the class described, the combination with feed-rollers, and a star-wheel on the shaft of one of the feed-rollers, of a pivoted lever, a pivoted and spring-pressed pawl carried by the lever and having one end engaging the star-wheel, said pawl being provided with a lateral projection at its other end, a bell, and a pivoted and spring-pressed striker adapted to be engaged by the projection of the pawl, substantially as described.

10. In a machine of the class described, the combination with feed-rollers, and a star-wheel carried by one of said rollers, of a lever, a pivoted and spring-pressed pawl carried by the lever, and engaging the star-wheel, a pivoted locking-lever having one end projecting over one end of the pawl, a sliding plate on the end of the said lever, and a spring-catch for engaging said sliding plate, substantially as described.

11. In a machine of the class described, the combination with a desk, feed-rollers mounted therein, a star-wheel on the shaft of one roller, and means for operating the star-wheel to turn the feed roller, of a till provided with a catch on its inner end, and a pivoted latch having one end engaging the said catch and its other end projecting into the path of the star-wheel, substantially as described.

12. A machine of the class described, provided with a manually-operated lever, a pawl carried by the lever, a star-wheel adapted to be turned by said pawl, a pair of drawing-rollers between which the paper passes, one of said rollers turning with said star-wheel, a table over which the paper passes before passing between the drawing-rollers, the table permitting of conveniently writing on the paper through a slot in the frame of the machine, an unwinding-reel for carrying the roll of paper to be drawn over the said table by the said drawing-rollers, a winding-up reel for winding up the paper after it leaves the drawing-rollers, friction-wheels on the shafts of the said reels, for driving the winding-up reel from the unwinding-reel, the latter being located above the winding-up reel, and a weight carried by the said unwinding-reel shaft, for holding the wheel of the latter in frictional contact with the wheel of the winding-up reel, substantially as shown and described.

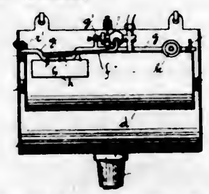
13. A machine of the class described, provided with a manually-operated lever, a pawl carried by the said lever, a star-wheel adapted to be turned by said pawl, a till-locking device controlled by said star-wheel, and a locking device for the said lever, to hold the latter against movement and prevent opening of the till by unauthorized persons, substantially as shown and described.

14. A machine of the class described, provided with a manually-operated lever, a pawl carried by the said lever, a star-wheel adapted to be turned by said pawl, a till-locking device controlled by said star-wheel, a locking device for the said lever, to hold the latter against movement and prevent opening of the till by unauthorized persons, the said locking device comprising a locking-lever engaging the said pawl, a slide on said locking-lever, and a latch for engaging the said slide, to lock the locking-lever in place, substantially as shown and described.

15. In a machine of the class described, the combination with a star-wheel, a till-locking device controlled by the star-wheel, an operating-lever, and a pawl carried by the lever and engaging the star-wheel, of a pivoted locking-lever having its inner end projecting over one end of the said pawl, a slide on the outer end of the said lever and having a round inner end, and a spring-pressed catch notched to engage the said slide, substantially as described.

16. In a machine of the class described, the combination with a desk or the like provided with an opening in one side over which is secured a plate having a bayonet-slot, a star-wheel, a till-locking device controlled by the star-wheel, an operating-lever, and a pawl carried by the lever and engaging the star-wheel, of a pivoted locking-lever having its inder end projecting over one end of the pawl, a slide mounted on the outer end of the said lever, and having a shoulder on its under side, and a pivoted latch provided with a notch for engaging the said slide, substantially as described.

644,882. FLUSHING APPARATUS FOR WATER-CLOSETS, &c. FRIEDRICH WAGNLIN, Dresden, Germany. Filed June 30, 1897. Serial No. 643,024. (No model.)



Claim.—1. The combination with a tank, and a discharge therefor, of a vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the vessel carried by the lever and into the tank, a valve controlling the flow of water through said pipes, said valve being operated by the lever when the latter is tilted in one direction, the said lever being adapted to be operated by the pivoted vessel when the latter is turned to bring it to a horizontal position to effect the opening of the valve, all as and for the purpose specified.

2. The combination with a tank, and a discharge therefor, a of vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the vessel carried by the lever and into the tank, a valve controlling the flow of water through said pipes, said valve being adapted to be opened when the lever is tilted or swings in one direction and to be closed when it swings in the reverse direction, said lever being engaged by the pivoted vessel when the latter is turned to bring it to a horizontal position to effect the opening of the valve, and being freed from the said vessel when the latter overturns to effect the closing of the valve.

3. The combination with a tank, and a discharge therefor, of a vessel pivotally mounted within the tank, and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried by one end of said lever, a weight carried by the other end of the lever, pipes adapted to discharge water into the latter-mentioned vessel and into the tank, a valve controlling the flow of water through the pipes, said valve being operated by the lever in its tilting movements, and said lever being adapted to be engaged by the pivoted vessel when the latter is turned up to a horizontal position.

4. The combination with a tank, and a discharge therefor, of a vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the latter vessel and into the tank, a valve controlling the flow of water through the pipes, said valve being operated by the lever in its tilting movements, and a ratchet device within the tank engaging the pivoted lever and holding the same until the pivoted vessel has overturned.

5. The combination with a tank, and a discharge therefor, of a vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the latter vessel and into the tank, a valve controlling the flow of water through the pipes, said valve being operated by the lever in its tilting movements, a ratchet device pivotally mounted within the tank with the teeth of which the pivoted lever is adapted to engage to prevent tilting of said lever in a direction to effect the closing of the valve, and said ratchet device being adapted to be operated by the pivoted

vessel when the latter overturns to permit the said tilting movement of the lever.

6. The combination with a tank and a discharge therefor, of a vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the vessel carried by the lever and into the tank, a valve controlling the flow of water through said pipes, said valve being operated by the lever in its tilting movements, the said lever being adapted to be operated by the pivoted vessel when the latter is turned to bring it to a horizontal position to effect the opening of the valve, and means for automatically bringing the pivoted vessel to a horizontal position comprising a pivoted seat and connections intermediate the latter and the pivoted vessel whereby when the seat is raised the pivoted vessel is brought to a horizontal position for filling.

7. The combination with a tank, and a discharge therefor, of a vessel pivotally mounted within the tank and adapted to overturn when filled with water to a certain height, a pivoted lever, a vessel carried thereby, pipes adapted to discharge water into the vessel carried by the lever and into the tank, a valve controlling the flow of water through said pipes, said valve being operated by the lever in its tilting movements, and said lever being adapted to be operated by the pivoted vessel when the latter is turned to bring it to a horizontal position to effect the opening of the valve, and means for automatically bringing the vessel to a horizontal position consisting of a pivoted frame *l*, a pivoted seat operating said frame, pivoted levers *m*, *n*, and a cord *o*, connecting the lever *n*, with the pivoted vessel, all arranged as and for the purpose specified.

644,888. HAND-RAKE. MYLES Y. WARREN, Philadelphia, Pa. Filed Oct. 5, 1899. Serial No. 733,631. (No model.)



Claim.—1. A rake, provided with a cleaner movable on the teeth of the rake, a spring-lever fulcrumed on the rake and engaging said cleaner, to move the latter up or down on the rake-teeth, and means for locking said spring-lever, to hold the cleaner in an uppermost position, substantially as shown and described.

2. A rake provided with a cleaner movable on the teeth thereof, a spring-lever fulcrumed on the rake and provided with oblique arms engaging the cleaner, and means for locking the spring-lever to the rake-handle, substantially as described.

3. A rake provided with a cleaner movable on the teeth thereof, a spring-lever fulcrumed on the rake and formed with oblique arms, each having a loop through which the cleaner passes, and means for locking the spring-lever to hold the cleaner in an uppermost position, substantially as described.

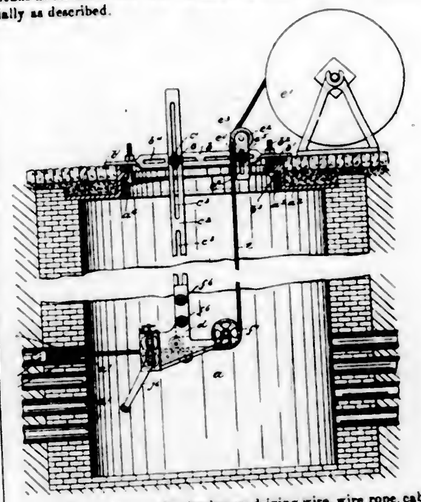
4. A rake provided with a cleaner movable on the teeth thereof, a spring-lever bent to form oblique arms engaging the cleaner and each formed of two members, one of which is fixedly secured to the rake-handle, and means for detachably locking the connecting end of the other members to the rake-handle, substantially as described.

5. The combination with a rake provided with loops fulcrumed on its handle and with a cross-arm projecting from opposite sides of its handle, of a cleaner in the form of a link through which the teeth project, and a spring-lever bent to form oblique arms, each having a loop at its end through which the cleaner passes, and formed of two members, one member of each arm being fixedly secured to the rake-handle and the other members of the arms being connected, the connected end of the said members extending through one loop of the handle and adapted to have the other loop of the handle swung over it, substantially as described.

644,884. APPARATUS FOR FORCING WIRES, WIRE ROPES, CABLES, &c., THROUGH CONDUITS. JOHN WRIGLEY, Elmira, N. Y. Filed Mar. 11, 1899. Serial No. 708,652. (No model.)

Claim.—1. In an apparatus for forcing or driving wire, wire rope, cables or the like through conduits, the combination of the forcing or driving means proper and means for adjustably suspending said driving means in an operative position relatively to the conduit, substantially as described.

2. In an apparatus for forcing or driving wire, wire rope, cables or the like from a manhole through conduits communicating therewith, the combination of the driving or forcing means proper and means for adjustably suspending said driving means in an operative position relatively to the conduits and consisting of a bar adapted to bridge the mouth of the manhole and a hanger carrying said driving means at its lower end and adjustably secured to said bar, substantially as described.



3. In an apparatus for forcing or driving wire, wire rope, cables or the like from a manhole through conduits communicating therewith, the combination of the forcing or driving means proper, a slotted bar adapted to bridge the mouth of said manhole, a slotted hanger, a bolt penetrating the slots in said hanger and the bar, said driving or forcing means proper being secured to the lower end of said hanger, a slotted bracket, a bolt penetrating a slot in said bar and in the bracket, and rollers carried by said bracket and the driving or forcing means proper, substantially as described.

4. An apparatus for forcing or driving wire, wire rope, cables or the like through conduits, consisting of a suitable frame, revoluble shafts adjustably mounted in said frame, intermeshing pinions connecting said shafts, and coacting feed-rolls carried on said shafts, substantially as described.

5. In an apparatus for forcing or driving wire, wire rope or cables or the like through conduits, a suitable frame comprising a plate and a bracket projecting therefrom, revoluble shafts adjustably mounted in said plate and the bracket, intermeshing pinions mounted on said shafts, and coacting feed-rolls carried on said shafts, said plate and the bracket being disposed on opposite sides of the pinions and said pinions being spaced from the feed-rolls by one of them, substantially as described.

6. In an apparatus for forcing or driving wire, wire rope, cables or the like through conduits, a suitable frame comprising a plate and a bracket projecting therefrom, revoluble shafts mounted in said plate and the bracket, intermeshing pinions mounted on said shafts, coacting feed-rolls carried on said shafts, said plate and the bracket being disposed on opposite sides of the pinions and said pinions being spaced from the feed-rolls by one of them, springs arranged in said bracket and the plate and between the shafts, and means for adjusting said shafts relatively to each other, substantially as described.

7. In an apparatus for forcing or driving wire, wire rope, cables or the like through conduits, a suitable frame comprising a plate and a bracket projecting therefrom, revoluble shafts mounted in said plate and the bracket, intermeshing pinions mounted on said shafts, coacting feed-rolls carried on said shafts, said plate and the bracket being disposed on opposite sides of the pinions and said pinions being spaced from the feed-rolls by one of them, flanged bearing-blocks for said shafts mounted in said plate and the bracket, springs disposed between said bearing-blocks, and suitably-mounted adjusting-screws adapted to act against one of said bearing-blocks in each pair, substantially as described.

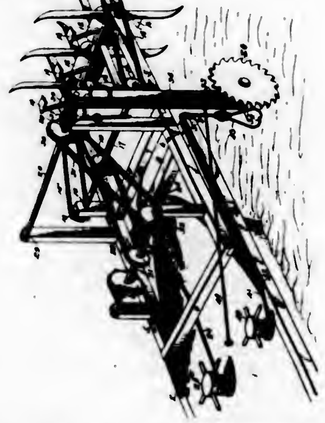
8. In an apparatus for forcing or driving wire, wire rope, cables or the like through conduits, a suitable frame comprising a plate and a bracket projecting therefrom, said plate and the bracket being provided with slots each open at one end, revoluble shafts mounted in said plate and the bracket, intermeshing pinions mounted on said shafts, coacting feed-rolls carried on said shafts, said plate and the bracket being disposed on opposite sides of the pinions and said pinions being spaced from the feed-rolls by one of them, flanged and divided bearing-blocks for said shafts mounted in the slots of said plate and the bracket, springs disposed between said bearing blocks, movable bridge-pieces mounted on said plate and the bracket and each spanning the open end of the slot therein, and a screw mounted in each bridge-piece and adapted to act against the adjoining bearing-block, substantially as described.

9. An apparatus for forcing or driving wire, wire rope, and electric cables or the like through conduits, consisting of a suitable frame, revoluble shafts mounted in said frame, means for transmitting power from one of said shafts to the other, said frame consisting of a plate and brackets projecting oppositely therefrom, movable brackets mounted in one of the brackets of said frame, coacting feed-rolls carried by said shafts, other coacting feed-rolls carried by said movable brackets, and means for transmitting power from one of said shafts to said last-named feed-rolls, substantially as described.

10. An apparatus for forcing or driving wire, wire rope, and electric cables or the like through conduits, consisting of a suitable frame, revoluble shafts mounted in said frame, means for transmitting power from one of said shafts to the other, said frame consisting of a plate and brackets projecting oppositely therefrom, movable brackets mounted in one of the brackets of said frame, coacting feed-rolls carried by said shafts, other coacting feed-rolls carried by said movable brackets, means for transmitting power from one of said shafts to said last-named feed-rolls, and means for adjusting the movable brackets and the feed-rolls carried thereby relatively to each other, substantially as described.

11. An apparatus for forcing or driving wire, wire rope, and electric cables or the like through conduits, consisting of a suitable frame, revoluble shafts adjustably mounted in said frame, suitably-journaled feed-rolls operatively connected to said shafts, intermeshing pinions carried by said shafts, straightening-rolls journaled in said frame, a guide-roller journaled in said frame, and driving means operatively connected to one of said shafts, substantially as described.

644,885. MACHINE FOR CUTTING GRASS, &c., FROM RIVER-BOTTOMS. JOSEPH ALLEN, Chipco, Fla. Filed June 1, 1899. Serial No. 719,016. (No model.)



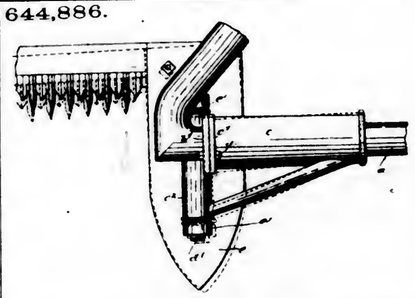
Claim.—In a machine of the character described, the combination with the frame adapted to be pivoted to the bow of a vessel, of cutter-heads 12 fixed to a shaft 11 supported at the forward end of said frame and provided with suitable cutters, a sprocket-wheel 15 fixed to said shaft, a shaft 17 having sprocket-wheels 16 and 19 fixed thereto, a sprocket-chain connecting the wheels 15 and 16, a driving-shaft 22 having a sprocket-wheel 21 fixed thereto, a sprocket-chain 20 connecting the sprocket-wheels 19 and 21, a windlass, a rope connected to the pivoted frame and passing over a pulley 25 secured to the bow of the boat and connected to the windlass, substantially as and for the purpose set forth

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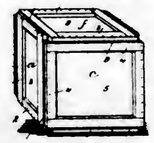
644,886. SICKLE-BAR ADJUSTER. MARTIN ANDERSON, Vermillion, S. D. Filed Sept. 7, 1899. Serial No. 729,729. (No model.)

Claim.—In a mower, the combination with a coupling-arm, of an eccentric sleeve mounted to roll thereon, a bearing mounted loosely on the sleeve, and cutting apparatus carried by the bearing, the bearing and sleeve having means for adjustably locking them together.

644,886.



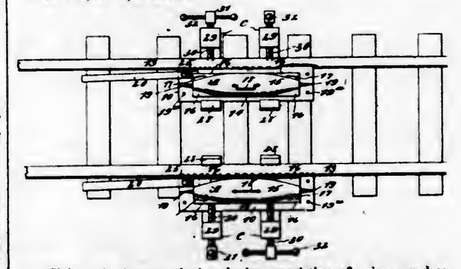
644,887. WOODEN SHIPPING-BOX. ERASTUS H. BARNES, New York, N. Y. Filed Aug. 14, 1899. Serial No. 727,092. (No model.)



Claim.—1. A wooden shipping box or package, comprising similar sections each composed of a frame of battens surfaced on one side to the edges with a thin slab of wood, the said sections being set together so that the thin slabs of wood all come on the inside of the box and the batten-frames of one section overlap those of the adjacent section, the grain of the wood of the adjacent battens running lengthwise at the joints and the nails connecting the sections are driven across the grain of the wood in different directions through the battens of one section into those of the other sections, substantially as set forth.

2. A wooden shipping box or package comprising similar sections, each composed of a frame of battens having the grain of the wood running lengthwise and surfaced on one side to the edges with a thin slab of wood, the end sections lapping upon and being connected to the side sections and shorter vertically than the side sections an amount equal to the thickness of the top and bottom sections, and the top and bottom sections fitting between the side sections and overlapping the end sections, the said sections being connected by rows of nails driven across the grain of the wood through the batten-frames of one section into those of the other sections in lines that are at right angles to one another or approximately so, the corners having notches of semicubical form, substantially as set forth.

644,888. CAR-REPLACER. JOHN C. BATES, Gilman, Colo., assignor of three-fourths to Norman S. Brown, Jr., Albert G. Worrington, and George C. Nottingham, same place. Filed Sept. 26, 1899. Serial No. 731,631. (No model.)



Claim.—1. A car-replacing device, consisting of a base, and an elliptical body mounted on said base and provided with side flanges at its ends having a longitudinal downward inclination, as described.

2. A car-replacing device, comprising a base, means for securing the base to the track, and a body mounted on the base, said body being substantially elliptical in general contour and provided with side flanges at its ends, the flanges at one side of the body having downwardly-inclined longitudinal grooves, as and for the purpose specified.

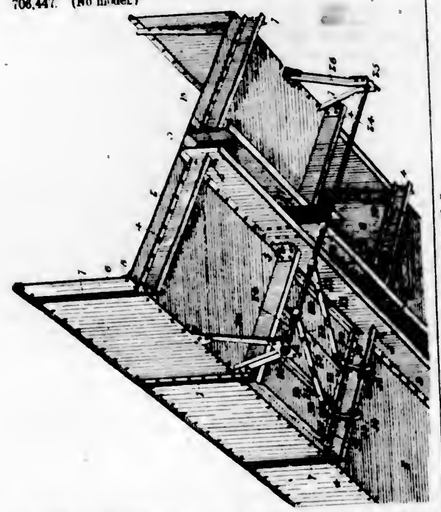
3. A car-replacing device, consisting of a base, means for securing the base to a track, a body substantially elliptical in general contour, mounted on the said base and provided with side flanges at its ends, which flanges extend downwardly in direction of the terminals of the body, sundry of the flanges having longitudinal grooves therein, and a guide-rail pivotally connected with the base of the said replacing device, for the purpose set forth.

4. The combination, with a car-replacing device comprising a base and a body mounted on the said base, substantially elliptical in general contour and provided with horizontally-located side flanges at its ends, the flanges having an inclination in direction of the terminals of the body and sundry of the flanges being provided with grooves therein, of a guide-rail adjustably connected with the end portion of the base, means for securing the guide-rail to the sleepers of a track, and a clamping mechanism for the replacing device, as described.

644,889. **PROCESS OF MAKING SIZE-POWDER.** LUDWIG BAECK, Crefeld, Germany. Filed Apr. 11, 1899. Serial No. 712,664. (No specimens.)

Claim.—The process for manufacturing priming-powder, consisting in making a solution of glue by steeping and boiling in water, adding soda, alum or other salt which has the effect of causing the mass to become solid, and when the mass is fully solidified pulverizing same to form a powder which is readily soluble owing to its finely-divided state, and finally adding to the resulting powder alum and pulverized soap, substantially as set forth.

644,890. **STEEL CAR AND DOOR MECHANISM THEREFOR.** ARTHUR B. BELLOWS, Pittsburg, Pa. Filed Feb. 23, 1899. Serial No. 706,447. (No model.)



Claim.—1. A steel car having a central longitudinal sill and plate-girder sides provided with vertical strengthening members, said sides terminating at the floor-level and secured directly to the bottom, and arranged to take the entire strain usually carried by the side sills, whereby said side sills are dispensed with; substantially as described.

2. A steel car, having a longitudinal center sill and cross-sills, and plate-girder sides having strengthening members secured to the cross-sills; substantially as described.

3. A steel car having a longitudinal center sill composed of two channels with their upper flanges secured to the car-bottom, cross-sills composed of channel-sections secured to the car-bottom and to the center sill, and plate-girder sides secured directly to the bottom and arranged to assist in supporting the weight; substantially as described.

4. A steel car having plate-girder sides provided with inner and outer vertical strengthening members, the outer strengthening members being secured at their lower ends to cross-sills; substantially as described.

5. A car having a vertically-swinging door in its bottom, a horizontal rock-shaft, an automatic latch on the door arranged to engage the car-bottom and hold the door in closed position, and a lever on the rock-shaft having link connection with the latch and arranged to operate it and open and close the door; substantially as described.

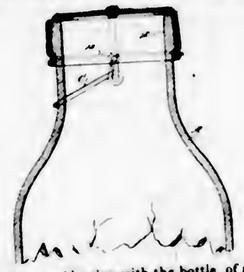
6. A car having a swinging bottom door, a horizontal rock-shaft having lever connections arranged to open and close the door, and an automatic latch upon the door connected with the lever mechanism and arranged to be positively opened and closed thereby; substantially as described.

7. A car having a swinging bottom door, lever connections arranged to open and close the same, a movable latch supported beneath the car body and an automatic latch upon the door connected with and actuated by the door-swinging mechanism, said automatic latch cooperating with the movable latch on the car-body; substantially as described.

8. A car having a swinging bottom door provided with a locking-slide, a rock-shaft having a lever with a pivotal link connection to the slide, and an automatic latch arranged to engage the slide when the door is thrown into closed position; substantially as described.

9. A car having a swinging bottom door provided with a slide, a rock-shaft having a lever-arm provided with a link connected to the slide, the joint between the lever and the link having limiting-lugs, and an automatic swinging latch arranged to engage the slide; substantially as described.

644,891. **MOUTH-GUARD FOR BOTTLES.** CHARLES H. BOGART, New York, N. Y. Filed June 30, 1899. Serial No. 722,422. (No model.)



Claim.—1. The combination with the bottle, of a yielding band surrounding the neck of the bottle and also engaging the top edge thereof, and a rigid ring embedded in said band at the top edge thereof and of a diameter intermediate between the inner and outer diameters of the bottle's mouth.

2. A mouth-guard for bottles and the like, comprising a yielding band forming a tube open at the top and at the bottom, said band being cylindrical in its lower portion and contracted at its upper edge, and a rigid ring embedded in said band at the upper edge thereof.

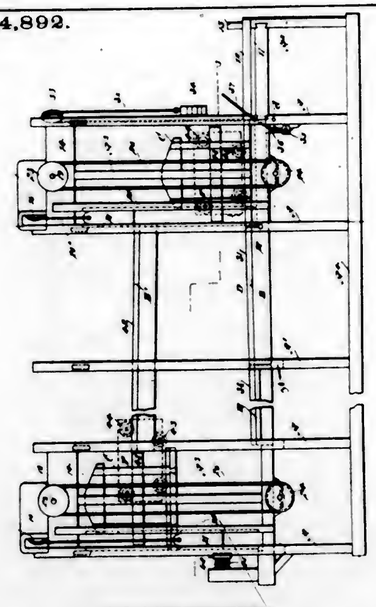
644,892. **COAL OR FREIGHT RUN.** JOHN BRADY, New York, N. Y. Filed Apr. 25, 1899. Serial No. 714,456. (No model.)

Claim.—1. The stationary runs having rails, the tilting weighing-platform provided with a section having rails and a section without rails, the latter section being adapted to receive an elevator; in combination with an elevator, a car of which is provided with rails adapted to abut the rails on the weighing-platform, and a weighted balancing device connected with the weighing-platform.

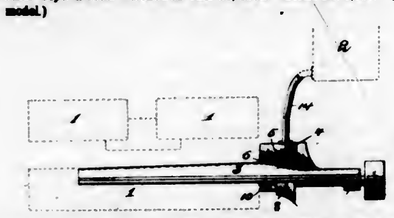
2. The stationary runs having rails, the tilted weighing-platform located at a point within the said runs, which platform is pivoted intermediate of its ends and provided with rails at one side of the pivot and a railless section at the opposite side of the pivot, in combination with an elevator, the car of which is adapted to rest upon the railless section of the weighing-platform, said car having rails adapted to abut the rails of the weighing-platform and the rails of the stationary runs, and a weighted balance device connected with the weighing-platform.

3. In a coal or freight runway, the combination, with an upper track and a lower track, and a scale-platform forming a portion of one of the tracks, said scale-platform being balanced to be upset by a given weight, of a locking device arranged to hold the scale-platform when desired in fixed position, elevator-shafts extending from the upper to the lower tracks, and elevator-cars mounted to travel in said elevator-shafts, each elevator-car being provided with rails capable of constituting sections of the lower track, each car being likewise provided with tracks at its sides at an elevation from the bottom, and a receiver for weights connected with the scale-platform, whereby the number of pounds placed on the platform in excess of the amount that the platform is designed to balance can be ascertained, as described.

644,892.

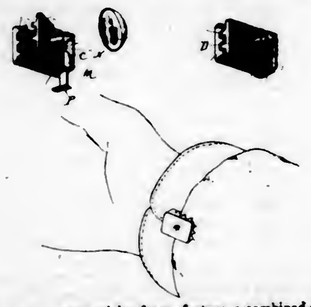


644,893. **CIGAR-TIP FORMER.** JOHN BUNN, Binghamton, N. Y., assignor to the Bunn Cigar Rolling Machine Company, same place. Filed Sept. 4, 1896. Renewed Jan. 31, 1900. Serial No. 3,590. (No model.)



Claim.—In a cigar-machine, the combination with a cigar-header having a tip-forming chamber, of a conical roller the periphery of which forms a movable portion of the interior wall of the said chamber, the outer end of said roller having a cutting edge to slit the wrapper, substantially as set forth.

644,894. **COMBINED CUFF-BUTTON AND FASTENER.** SIMON CARLIN, Philadelphia, Pa. Filed Oct. 12, 1899. Serial No. 733,457. (No model.)



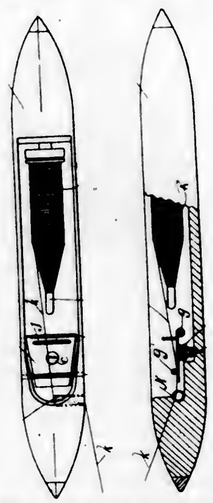
Claim.—1. As a new article of manufacture, a combined cuff-button and fastener consisting of a body having a spring-section, a shank projecting from the body, a back adapted to be attached to the head of the shank and a spring-actuated clamp pivoted to the body carrying a sliding bar for the body.

2. A combined cuff-button and fastener, consisting of a body, a clamp pivoted thereto, a spring for forcing the clamp open, a bar arranged to close the clamp against the action of the spring, a shank projecting from the body, a head formed upon the outer end of the shank, a back having a keyhole-slot formed therein for the reception of the head of the shank, and a plate-spring located within the back adapted to hold the shank in position, as specified.

3. In a combination with a cuff-button, a spring-section with a heel, a clamp hinged to the body, teeth formed upon said body and clamp, and adapted to interlock, a spring for forcing the clamp open, and a bar adapted to engage the heel and close the clamp against the spring, as specified.

4. In a cuff-button, a body having a spring-section formed thereon by slotting the stock, a heel projecting from the spring-section, a clamp pivoted to the body, a spring adapted to force said clamp open, a bar fitted to slide within the body, said bar being wedge shape and adapted to act upon the heel whereby the clamp may be closed by forcing the bar inward, as specified.

644,895. **TENSION DEVICE FOR LOOM-SHUTTLES.** FRED CARPENTIER, Woonsocket, R. I. Filed Oct. 12, 1899. Serial No. 733,694. (No model.)



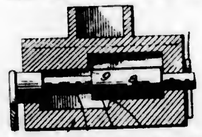
Claim.—A tension device for loom-shuttles, consisting of the combination of a pin passing through the shuttle near the end of the cop-spindle, a plate hold to swing on said pin, a spiral spring placed under said plate and having the coils of its upper part made larger than the coils of its lower part to receive the head of a screw, a screw to occupy said spring to regulate its pressure, an opening made in said plate to allow of access to the screw, a pin passing horizontally through the shuttle over the free end of the plate, substantially as described.

644,896. **EXPLOSIVE SHELL.** JOHN J. CONRYN, Philadelphia, Pa. Filed May 9, 1898. Renewed Jan. 19, 1900. Serial No. 2,070. (No model.)



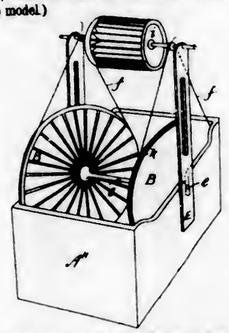
Claim.—The herein-described combination of a butt, a cap and a casing for forming a complete shell, stay-rods securely attached to the butt and passing through the cap, wires coiled around said stay-rods and securely attached to the butt, their opposite ends being loosely attached to the cap, a cable attached to the butt adapted to be coiled upon a reel, conductors carried by the cable and so connected with the shell as to explode the contents when a current is passed therethrough and leave the wires alive, as and for the purpose set forth.

644,897. AUTOMATIC CAR-COUPLING. CHARLIE R COOKSTON, Paragould, Ark. Filed Oct. 5, 1899. Serial No. 732,642. (No model.)



Claim.—The combination with a draw-head having a ledge projecting slightly upwardly from the floor thereof and part way across the same, of the knuckle-jaw pivoted in the draw-head and having a tailpiece formed with an angular shoulder 6 and a beveled or inclined toe 6', and a locking-shaft formed with an eccentric section which is adapted to rest upon the ledge and have one end thereof project beyond the inner end of the ledge and formed with a shoulder 9, which, when the knuckle-jaw is in closed position, is in the path of movement of the shoulder 6 of the tailpiece, while the periphery of the overhanging portion of the eccentric section is in the path of movement of the said toe, substantially as set forth.

644,898. PHOTOGRAPHIC WASHING APPARATUS. WILLIAM F. CRAWFORD, London, England. Filed Mar. 17, 1899. Serial No. 709,418. (No model.)



Claim.—1. In a machine for treating with liquids sensitized surfaces, a pair of axially-united radially and correspondingly grooved disks, means for rotating said disks, and countersunk elastic rings around the edges of said disks adapted to permanently retain or rapidly release all or any objects inserted in the radial grooves of said disks.

2. In a machine for treating with liquids sensitized surfaces, a pair of axially-united radially and correspondingly grooved disks, means for rotating said disks, flat carriers adapted to retain and protect thin films inserted therein, elastic rings peripherally adjusted on said disks, and adapted to retain or release said carriers, and means for treating with liquid the said films.

3. In a machine for treating with liquids sensitized surfaces, a pair of axially-united radially and correspondingly grooved disks, means for rotating said disks, flat carriers adapted to retain and protect thin films inserted therein, elastic rings peripherally adjusted on said disks and adapted to retain or release said carriers, and a plurality of baths capable of successively receiving the rotatable mechanism and carriers.

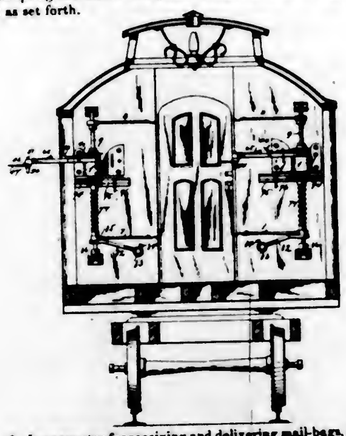
4. In a machine for treating with liquids sensitized surfaces, in combination, the grooved disks B, the connecting-axle C, the water-wheel i, the pulleys g, the supports E, the connecting-bands f, the retaining-bands l, and means for immersing the lower half of the said disks B in liquid.

5. In a machine for treating with liquids sensitized surfaces, in combination, the horizontal shaft C, means for revolving the said shaft, the inwardly and correspondingly radially grooved disks B mounted on said shaft, the carriers F, the sectors G, and a plurality of baths capable of successively receiving the said rotatable mechanism.

644,899. MAIL-BAG CATCHER AND DELIVERER. GEORGE W. CULVER, Ogden, Utah. Filed May 25, 1899. Serial No. 718,207. (No model.)

Claim.—1. In apparatus for receiving and delivering mail, a box having a coiled spring, a central sleeve with which it is connected, arms for delivering the mail, branches connected therewith and retracted by said spring, all arranged as set forth.

2. In apparatus for receiving and delivering mail-pouches, a box having a coiled spring, a central sleeve with which it is connected, arms for delivering said pouches connected therewith and retracted by said spring and means to adjust the tension of the spring, all combined as set forth.



3. In apparatus for receiving and delivering mail-bags, a box having a coiled spring, a central sleeve with which it is connected, arms for delivering said bags connected therewith and means for adjusting the distance between said arms, all combined as set forth.

4. In apparatus for receiving and delivering mail-bags a box provided with a tension-spring encircling a central sleeve with which it is connected arms for delivering said bags connected therewith, means for adjusting the distance between said arms and means to hold them taut apart, all arranged as set forth.

5. In apparatus for receiving and delivering mail-pouches a box provided with a tension-spring encircling a central sleeve with which it is connected, arms for delivering said pouches connected therewith, means to adjust the distance between said arms and a spring to hold them apart, all arranged as set forth.

6. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring, a central sleeve having recesses or grooves in which fit the ends of the spring; means to rotate said sleeve to adjust the tension of the spring, and delivery-arms connected with the said box, all arranged as set forth.

7. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring, delivery-arms spaced apart connected therewith, the lower arm being adjustable, whereby the distance between the arms may be regulated and means to operate said arms, all arranged as set forth.

8. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring encircling a central sleeve with which it is connected, means to adjust the tension of said spring, a graduated dial to indicate said tension and delivery-arms retracted by said spring, as set forth.

9. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring, a central sleeve provided with grooves into which fit the ends of the spring, a graduated ratchet-wheel secured to said sleeve and means to actuate said wheel whereby the tension of the spring may be adjusted, all combined as set forth.

10. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring encircling a central sleeve with which it is connected, delivery-arms for holding a pouch, means to throw out and retract said arms and a device to retain them in their retracted position, all arranged as set forth.

11. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring encircling a central sleeve with which it is connected, a receiving-arm connected therewith and provided with a gooseneck on its outer end, and means to actuate said arm, all arranged as set forth.

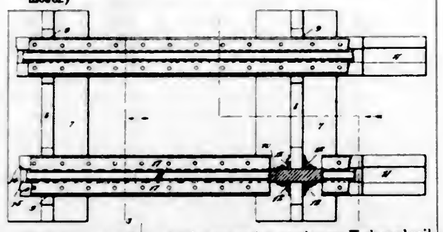
12. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring encircling a central sleeve with which it is connected, a central sleeve having grooves into which fit the ends of said spring, a receiving-arm provided with a collar encircling said sleeve and means to actuate said arm, all arranged as set forth.

13. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring encircling a central sleeve with which it is connected, a receiving-arm connected therewith and provided with a gooseneck at its outer end and a leaf-spring in the throat of said neck all arranged as set forth

14. In apparatus for receiving and delivering mail-pouches, a box provided with a tension-spring, a receiving-arm terminating in a gooseneck, said neck being capable of both horizontal and vertical adjustment, and means to retain it in either adjusted position, all arranged as set forth.

15. In apparatus for receiving and delivering mail-pouches, a receiving-arm terminating in a gooseneck and means for vertical and horizontal adjustment of the neck, as set forth.

644,900. RAILWAY. SANFORD B. DICKINSON and JOHN A. ROGERS, Corning, N. Y. Filed Mar. 16, 1899. Serial No. 709,281. (No model.)



Claim.—1. A railway, having cross-ties, continuous T-shaped rail trusses or stringers the webs of which are set into and secured to the cross-ties and extending throughout the length of the track, and rails mounted on and secured to the trusses.

2. A railway, having cross-ties each comprising a horizontal base-flange and a vertical web, the webs being formed with recesses extending downward into the body thereof, continuous longitudinally-extending rail-trusses mounted in the recesses of the webs and supported by the webs, the rail-trusses having grooves formed longitudinally in the upper faces thereof, and rails, the base-flanges of which are set into the grooves of the rail-trusses, to be held thereby.

3. A railway, having cross-ties comprising vertical webs and horizontal base-flanges, the former being provided with recesses in their upper edges, T-shaped rail-trusses extending throughout the length of the track and secured in the recesses of the webs of the cross-ties, and rails mounted on and secured to the trusses.

4. A railway, having cross-ties, longitudinally-extending trusses set into the upper edges of the cross-ties and supported by the same and extending throughout the length of the track, the trusses having grooves formed in their upper faces, rails, having base-flanges set into the grooves, and tie-plates bearing down on the base-flanges of the rails and secured to the trusses to hold the rails in place.

5. A railway, having longitudinally-extending trusses running throughout the length of the track and formed with grooves in their upper faces, rails, having base-flanges set into said grooves, and continuous tie-plates bearing down on the base-flanges of the rails and secured to the trusses to hold the rails in place.

6. A railway, having cross-ties comprising vertically-extended webs and horizontal base-flanges, the former having recesses formed in their upper edges, longitudinally-extending trusses set into the recesses and provided with grooves in their upper faces, rails, having base-flanges set into the grooves, and tie-plates bearing down on the base-flanges and secured to the trusses.

7. A railway, having ties with vertical webs having recesses formed in their upper edges, longitudinally-extending trusses running continuously throughout the railway and set into said recesses, continuous concussion-plates mounted on the upper faces of the trusses, rails bearing on the concussion-plates, and means for securing the rails in place.

8. A railway, having ties with vertical webs formed with recesses in their upper edges, longitudinally-extending trusses running continuously throughout the railway and set into the recesses of the ties, continuous concussion-plates mounted on the upper faces of the trusses, rails bearing on the concussion-plates, and tie-plates engaging the base-flanges of the rails and secured to the upper faces of the trusses.

9. A railway, having ties with vertical webs formed with recesses in their upper edges, longitudinally-extending trusses running continuously throughout the railway and set into the recesses in the webs of the ties, the trusses being formed with grooves in their upper faces, continuous concussion-plates laid in said grooves, rails, the base-flanges of which bear on the concussion-plates, and means for holding the plates in position.

10. A railway, having cross-ties comprising horizontal base-flanges and vertically-extending webs, the latter having recesses formed in their upper edges, trusses extending longitudinally with the track and fitted in the recesses of the webs, braces secured to the trusses and to the webs to hold the trusses in place, channel-irons receiving the contiguous ends of the trusses and secured to each to join the trusses with each other, and rails mounted on and secured to the upper faces of the trusses.

644,901. GUN-SIGHT. ARTHUR R. DOUGLASS, Charlton, Iowa. Filed May 4, 1899. Serial No. 715,620. (No model.)



Claim.—The combination with the gun-barrel having transverse seat-grooves for the reception of the front and rear gun-sights, of the front sight comprising a vertical fence *a*, of arch form provided with a retaining-notch a^3, and an open space between the top of the arch and its base, and between the parallel sides which support the arch, the lower edge of said arched fence being formed with a recess *a'* the axis of which is parallel to the bore of said gun-barrel, and a diaphragm C pivotally secured to said arch by a retaining-screw, the periphery of said diaphragm being provided with graduated sight-notches *c' c'*, and a series of retaining-teeth c^2 for engaging the retaining-notch a^3, and the rear sight B formed in its upper edge with the recess *b*, the axis of which is parallel to the bore of the gun-barrel and with the corresponding recess *a'* in said front sight, and the pivoted diaphragm D formed with graduated notches *d d* and teeth *d'* secured to the wall B of said rear sight, as set forth.

644,902. SAFETY-PIN. GEORGE P. FARMER, Montclair, N. J. assignor to the Consolidated Safety Pin Company, Bloomfield, N. J. Filed Aug. 12, 1899. Serial No. 726,960. (No model.)

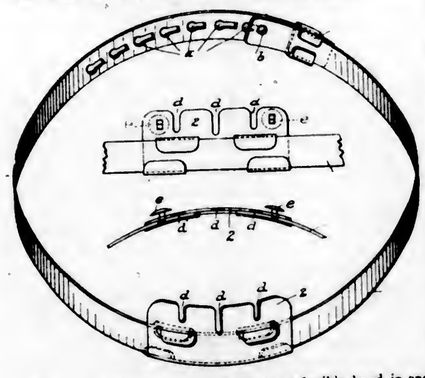


Claim.—1. The combination with the back member of a safety-pin having a portion bent at an angle with the main portion, of a partition or stop-plate secured to said bent portion and a hood or shield embracing the end of said back member and said partition or stop-plate and movable longitudinally in one direction to admit the point of the pin and in the opposite direction to prevent its disengagement, said hood or shield being bent in to embrace the straight portion of said back member and to form shoulders to engage the bent portion of said back member and limit the longitudinal movement of the hood or shield, substantially as shown and described.

2. The combination with the back member of a safety-pin having a portion bent at an angle with the main portion, of a partition or stop-plate bent around the bent portion of the back member and a hood or shield embracing the end of said back member and said partition or stop-plate and movable longitudinally in one direction to admit the point of the pin and in the opposite direction to prevent its disengagement, said hood or shield being bent in to embrace a straight portion of said back member and to form shoulders to en-

gage the bent portion of said back member and limit the longitudinal movement of the hood or shield, substantially as shown and described.

644,903. SKIRT-SUPPORTER. JOSEPH M. FLANNERY, Braddock, Pa. Filed June 3, 1897. Serial No. 639,197. (No model.)



Claim.—1. A skirt-supporter comprising a flexible band in one end of which is formed a series of eyelet-holes and the opposite end being provided with a headed pin adapted to engage said eyelet-holes, a slidable plate mounted on said band the upper edge of which projects or extends over the upper edge of the body of the band and in which is formed a number of vertical slots forming seats to engage fasteners on the band of the skirt, substantially as set forth.

2. A skirt-supporter comprising a flexible band in one end of which is formed a series of eyelet-holes the opposite end being provided with a headed pin adapted to engage said eyelet-holes, a slidable plate mounted on said band the upper edge of which projects or extends above the upper edge of the body of the band in which are formed vertically-disposed slots the middle slot being of greater length or depth than the remaining slots, the said slots forming seats to engage fasteners on the band of the skirt, substantially as set forth.

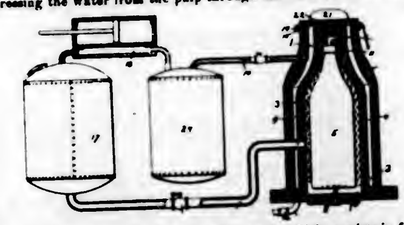
644,904. METHOD OF PRODUCING ORNAMENTAL FABRICS. MARK H. FRANK, New York, N. Y. Filed Aug. 2, 1899. Serial No. 726,866. (No specimens.)



Claim.—The herein-described method of producing ornamented fabrics, consisting in stamping on a single common base or body fabric a complete design including a lace-pattern and an embroidery-pattern, stitching or otherwise temporarily securing the lace parts of the design to one side of the base fabric, working the embroidery directly in and upon such pattern and upon the same side of the base or body fabric without the interposition of a separate design carrying the patterns for the embroidery, and then removing the exposed fabric intervening the said lacework and superimposed embroidery except such as is covered by the embroidery-work, thus producing a front surface composed wholly of lacework and embroidery without any edge of a base or ground fabric appearing at the front.

644,905. METHOD OF COATING FRAGILE VESSELS. WEBB W. GARIS, East Stroudsburg, Pa. Filed Sept. 2, 1899. Serial No. 729,317. (No specimens.)

Claim.—1. The process of coating fragile vessels which consists in forming the coating upon the walls of the vessel, by injecting pulp under pressure into a space bounded by the walls of the vessel and a closure and having the contour and thickness of the coating and expressing the water from the pulp through the walls of the closure.

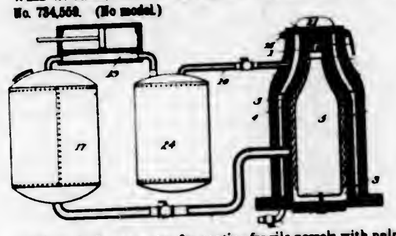


2. The process of coating fragile vessels which consists in forming the coating upon the walls of the vessel, by injecting pulp under pressure into a space bounded by the walls of the vessel and a closure and having the contour and thickness of the coating, expressing the water from the pulp through the perforated walls of the closure and drying the coating by hot air injected through the closure-walls.

3. The method of coating fragile vessels which consists in impacting pulp under pressure in a molded space one of the walls of which is the article being coated.

4. The process of coating fragile vessels which consists in supporting the vessel within a closure-formed space having the contour and thickness of the coating, injecting into such space pulp under pressure upon the walls of the vessel and expressing the water from the pulp through the closure-walls.

644,906. APPARATUS FOR COATING FRAGILE VESSELS. WEBB W. GARIS, East Stroudsburg, Pa. Filed Oct. 23, 1899. Serial No. 734,562. (No model.)



Claim.—1. In apparatus for coating fragile vessels with pulp, the combination of a flask having an inner perforated wall inclosing a closure-space open at the top and provided with a stopper, of means for centering a vessel within said closure-space and means for injecting pulp under pressure into said closure-space.

2. In apparatus for coating fragile vessels with pulp, the combination of a flask provided with an inner perforated wall forming an inner closure-space and an outer closed wall, an intervening space, means within the closure-space for centrally supporting a vessel, means for injecting pulp through said inner perforated wall, means for injecting air into the intervening space, and means for draining the said spaces.

3. In apparatus for coating fragile vessels a double-walled flask the inner wall inclosing a closure-space and having perforations and open at its top, the outer wall closed and forming with the inner wall an intervening space, in combination with a bottom centering-support in the closure-space and a stopper for the open top, a valved pipe for supplying pulp under pressure into the closure-space, and a valved pipe for supplying air under pressure into the intervening space.

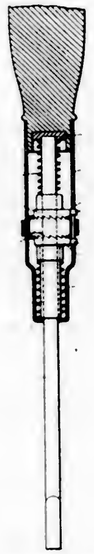
4. In apparatus for coating fragile vessels, a double-walled flask forming an inner closure-space, an intervening space, the inner wall perforated and open at its top and the outer wall closed, in combination with means for centering a vessel within said closure-space, a stopper for the open top, an interior wall-packing at the inner end of the stopper, means for supplying pulp under pressure into the closure-space and means whereby air is supplied under pressure into the intervening space.

5. In apparatus for coating fragile vessels, a double-walled flask forming an inner closure-space, and an intervening space, the inner wall perforated and open at its top and the outer wall closed, a stopper for the open top, an interior wall-packing at the inner end of the stopper, means for supplying pulp under pressure into the closure-space, means for supplying air under pressure into the intervening space, and a duct or passage in the inner wall having communication with the closure-space and the intervening spaces.

6. In apparatus for coating fragile vessels, a double-walled flask the inner wall inclosing a closure-space and having perforations and an interior polished surface, open and contracted at its top, the outer closed wall forming with the inner wall an intervening space, and a stopper for said open top, in combination with a bottom center pin in said closure-space, a tank for containing pulp, a valved pipe for connecting the tank and the closure-space, and an air-pump connecting the intervening space.

7. In apparatus for coating fragile vessels, the combination of a flask forming a closure-space the wall whereof has perforations, means within the closure-space for securing and centering a vessel, and means for injecting pulp under pressure through the perforated wall.

644,907. SCREW-DRIVER. GEORGE E GAY, Augusta, Me. Filed Oct. 26, 1899. Serial No. 734,795. (No model.)



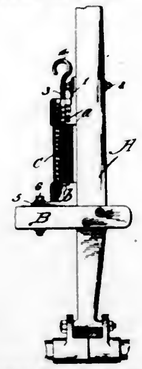
Claim.—1. A ratchet screw-driver, comprising a handle, a blade, a ratchet disk secured to turn with the blade, two pawl members loosely mounted on the blade and spring-pressed toward the ratchet-disk, a ferrule forming part of the handle and surrounding the disk and pawl members, said ferrule having a longitudinal slot and each pawl member having an arm extending through said slot, and a ring frictionally held on said ferrule and adapted to engage with either arm, said ring being of a width less than the distance between the two arms in their locked position, whereby the device may be used as an ordinary screw-driver, as set forth.

2. A ratchet screw-driver, having a ratchet-disk secured to turn with the shank or blade, two pawl members consisting of disks loosely mounted upon the shank or blade to engage opposite sides of the ratchet-disk, a ferrule or tube forming a part of the handle and closely surrounding the disk and pawl members, said ferrule having a longitudinally-extending slot and the pawl members having integral arms extending through said slot and having the sides opposite the arms relieved or cut away to permit introduction within the ferrule, substantially as described.

3. A ratchet screw-driver, having a ratchet-disk secured to turn with the shank or blade, two pawl members consisting of disks loosely mounted upon the shank or blade to engage opposite sides of the ratchet-disk, a ferrule or tube forming a part of the handle and closely surrounding the disk and pawl members, said ferrule having a longitudinally-extending slot, and the pawl members having integral arms extending through said slot and having the sides opposite the arms relieved or cut away to permit introduction within the ferrule, springs holding the pawl members toward the disk, and a ring mounted to slide outside the ferrule and between said arms, substantially as described.

4. A ratchet screw-driver, having a ratchet-disk secured to turn with the shank or blade, two pawl members loosely mounted upon the shank or blade to engage opposite sides of the ratchet-disk, a ferrule or tube forming a part of the handle and surrounding the disk and pawl members, said ferrule having a longitudinally-extending slot and the pawl members having arms extending into said slot, springs holding the pawl members toward the disk, a ring mounted to slide outside the ferrule and between said arms, and a sleeve encircling the shank and engaging the disk with one end and the end of the ferrule with its other end, substantially as described.

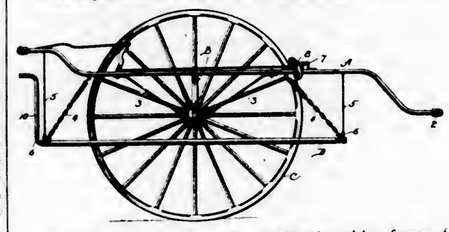
644,908. EQUALIZING-SPRING FOR VEHICLES. WILLARD E. HAHN, Warren, and GEORGE O. COOMBS, Rockland, Me. Filed Nov. 11, 1899. Serial No. 736,629. (No model.)



Claim.—1. In combination with the thill A, a cross-bar B, a spring and bracing device composed of the caps *a* and *b* and fixed to the said thill and cross-bar, the intermediate tubing *c*, the stem having means for connection with the tug, provided with a nut at its inner end and surrounded by the spring, all the parts being combined and operating, substantially as described.

2. In combination with a thill and cross-bar, two independent and interchangeable cap-pieces and an intermediate tubing, a spring and stem, the parts being combined and operating as set forth.

644,909. AMBULANCE. HARRY C. HALL, Telluride, Colo. Filed Aug. 8, 1899. Serial No. 726,543. (No model.)



Claim.—1. In an ambulance, the combination with a frame, of a stretcher suspended therefrom by elastic hangers which extend from the stretcher upon an incline toward both the longitudinal and transverse center of the frame.

2. The combination with a frame extending upward at one end and downward at the other, of a stretcher suspended therefrom upon elastic hangers which slope toward the longitudinal and transverse center of the frame.

3. The combination with a frame extending upward at one end and downward at the other end, of a stretcher suspended therefrom upon elastic hangers which slope toward the longitudinal and transverse center of the frame and depending stay-arms connected with the stretcher to prevent undue lateral motion of the latter.

4. The combination with a frame extending upward at one end and downward at the other end, of a stretcher suspended therefrom upon elastic hangers which slope toward the longitudinal and transverse center of the frame and stay-arms having pivotal connection with the frame whereby they are capable of swinging endwise and connected to the stretcher in such a manner as to prevent undue lateral motion thereof.

5. The combination with a frame extending upward at one end and downward at the other end, of a stretcher suspended therefrom upon elastic hangers which slope toward the longitudinal and transverse center of the frame and depending stay-arms pivoted to the

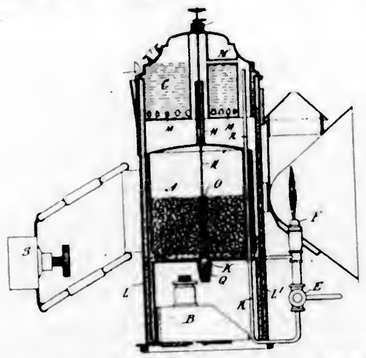
frame to swing lengthwise thereof and elastic connections between the lower ends of these arms and the stretcher for preventing undue lateral motion of the latter.

6. The combination with a frame and axle inclined upward and wheels, of a stretcher and elastic hangers extending from the latter to the frame upon an incline toward the longitudinal and transverse center of the frame.

7. The combination with a frame and axle and wheels, of a stretcher and elastic hangers extending from the latter to the frame upon an incline toward the longitudinal and transverse center of the frame and a gooseneck connected with the stretcher by which the latter may be steadied.

8. The combination with a frame and axle and wheels said frame extending upward at one end and downwardly at the opposite end, of a stretcher yieldingly suspended from the frame.

644,910. ACETYLENE-GAS-GENERATING LAMP. STUART P. HALLOWS and ARTHUR TUCKER, London, England. Filed Aug. 26, 1899. Serial No. 728,598. (No model.)



Claim.—1. An acetylene-gas lamp, comprising an outer and an inner casing forming a water-jacket; a water-chamber at the top of the lamp having a vent-opening and communicating by openings with the water-jacket; said water-jacket having communication with the inner casing, a carbid-receptacle within the inner casing; a water-inlet pipe extending centrally within the carbid-chamber; a valve controlling the flow of water through said pipe, and means for conveying the gas to a burner.

2. An acetylene gas lamp comprising an outer and an inner casing forming a water-jacket; a water-chamber at the upper portion of the lamp having a vent-opening, and a series of openings communicating with the water-jacket; said water-jacket having communication with the inner casing, a carbid-chamber; a water-supply pipe and a gas-escape pipe rising respectively from the bottom and top of the carbid-chamber; a valve for said water-supply pipe, and a gas-delivery pipe communicating with a burner and with the gas-escape pipe of the carbid-chamber.

3. An acetylene-gas lamp comprising an inner and an outer casing forming a water-jacket; a water-chamber at the upper portion of the lamp having a vent-opening and openings communicating with the water-jacket; said jacket having communication with the inner casing, a carbid-chamber surrounded by said jacket; a valved water-supply pipe rising centrally from the bottom of the carbid-chamber; a gas-escape pipe projecting from the top of the carbid-chamber, and means for supplying the gas to a burner.

644,911. ARTIFICIAL BAIT. FREDERICK W. HEDGELAND, Chicago, Ill. Filed Nov. 15, 1899. Serial No. 737,072. (No model.)



Claim.—1. An artificial bait, comprising a body provided with spiral blades and alternating grooves throughout its surface and adapted to have a rotary motion in its passage through the water, substantially as described.

2. An artificial bait, comprising a hollow body, having its greatest diameter at its longitudinal center and from thence tapering in the direction of each end and having its surface composed of alternating spiral ribs and spiral grooves, substantially as described.

3. An artificial bait, comprising a body, the exterior surface of which is composed of a number of spiral ribs and intermediate grooves, said ribs and grooves extending the whole length of the body and vanishing at the ends, substantially as described.

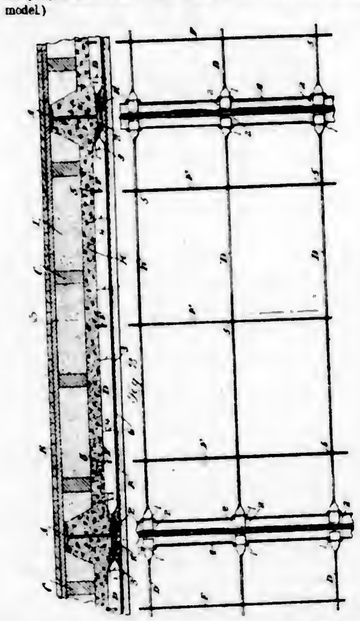
4. An artificial bait, comprising a body the exterior surface of which is composed of a number of spiral ribs and intermediate grooves, the alternating surfaces of the grooves being of a different color or shade, substantially as described.

5. An artificial bait, comprising a hollow body adapted to have a rotary motion when drawn through the water, the surface of said body being composed of a number of spiral ribs and corresponding intermediate grooves, the surface of one groove being of a silvery-white color and the next groove of a dark color, and so on, alternating throughout the series and having a vanishing effect when rotated, substantially as described.

6. An artificial bait, comprising a hollow spiral body, adapted to have a rotary motion when drawn through the water, a tube, open at both ends and inserted longitudinally through said body and having its respective ends rigidly fixed in the respective ends of the body, a wire rod extending through said tube and projecting from each end thereof, and means for loosely retaining said rod in position, substantially as described.

7. In an artificial bait, the combination with a hollow spiral body, of an axial tube, fixed therein, a wire rod inserted in and projecting from the respective ends of said tube, the hooks secured to one end of said rod, the swivel secured to the opposite end, and means for loosely retaining said rod in place, substantially as described.

644,912. FIREPROOF CONSTRUCTION. ABRAHAM L. A. HIMELWRIGHT, Newark, N. J., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 20, 1897. Serial No. 648,855. (No model.)



Claim.—1. A fireproof floor construction having light metal bars arranged edgewise vertically and extending from floor-beam to floor-beam, metallic lathing supported by and below said bars and parallel with the lower edges of said bars to form a foundation to receive the concrete, and a body of concrete extending from floor-beam to floor-beam applied from above on said lathing and in which the bars are embedded, said metal bars and lathing being constructed and arranged to support the concrete while the concrete is green and provide tension-bars for the construction, substantially as described.

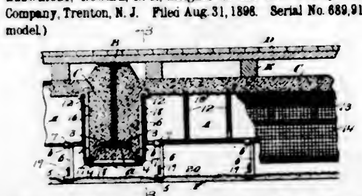
2. The combination with floor-beams, of light metal bars arranged edgewise vertically and entirely supported by said beams and extending from beam to beam, metal spacers connecting said bars

longitudinally of the beams, and metallic lathing supported by and below said bars, all constructed and arranged to receive and support the body of concrete, substantially as shown and described.

3. The combination with the beams A, of the flat metal bars D placed edgewise vertically and bent at right angles at their ends to form horizontal portions resting upon the beams, metallic lathing supported by and below said bars, and concrete or similar plastic material filled in from above upon said metallic lathing and in which the metal bars are embedded substantially as shown and described.

4. The combination with the beams A, of bars extending from beam to beam and with their ends resting upon the flanges of the beams, and clamps E having loops 1 above the flanges of the beams, through which loops the bars pass and legs 2 below the flanges of the beams, substantially as shown and described.

644,913. FIREPROOF CONSTRUCTION. ABRAHAM L. A. HIMELWRIGHT, Newark, N. J., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 31, 1898. Serial No. 689,914. (No model.)



Claim.—1. The combination with beams, of metal supports extending from beam to beam and resting on the lower flanges of the beams, reticulated metal on said supports extending over the space between the beams to a point near the beams and then downward and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, and a body of concrete or similar plastic material applied from above on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the bottom flanges of the beams, substantially as described.

2. The combination with beams, of arched rods supported on the bottom flanges of the beams, reticulated metal supported by said rods, and extending between the beams and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, and a body of concrete or similar plastic material applied from above on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the flanges of the beams, substantially as described.

3. The combination with beams, of arched rods supported on the bottom flanges of the beams, reticulated metal supported by said rods and extending between the beams and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, a body of concrete or similar plastic material applied from above on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the flanges of the beams, and a fireproof ceiling suspended below the flange-fireproofing, substantially as described.

4. The combination with beams, of arched rods supported on the bottom flanges of the beams, reticulated metal supported by said rods and extending between the beams and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, reticulated metal inclosing the bottom flanges of the beams and offset to form an air-space below the beams, and a body of concrete or similar plastic material applied on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the flanges of the beams and filling the space between the two layers of reticulated metal beneath the beams, substantially as described.

5. The combination with beams, of arched rods supported on the bottom flanges of the beams, reticulated metal supported by said rods and extending between the beams and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, reticulated metal inclosing the bottom flanges of the beams and offset to form an air-space below the beams, a body of concrete or similar plastic material applied on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the flanges of the beams and filling the space between the two layers of reticulated metal beneath the beams, and a fireproof ceiling suspended below the flange-fireproofing, substantially as described.

6. The combination with girders and transverse beams supported thereby, of metal supports extending from beam to beam and resting on the bottom flanges of the beams, reticulated metal on said supports and extending between the beams and about the bottoms of the beams and providing space between the metal and the flanges and bottoms of the beams, reticulated metal extending from said supports about and below the girders, and a body of concrete or similar plastic material applied on said reticulated metal and forming a fireproof filling between the beams and about and below the bottoms of the beams and girders, substantially as described.

7. The combination with the beams A and girders B, of rods 12 extending from beam to beam, supports 16 depending from said rods adjacent to the girders and extending about and below the girder-flanges, and reticulated metal on said supports, substantially as described.

8. The combination with the beams A and girders B, of rods 12 extending from beam to beam, supports 16 depending from said rods adjacent to the girders and extending about and below the girder-flanges, rods 17 on said supports at opposite sides of the girder, and reticulated metal on said supports and rods 17, substantially as described.

9. The combination with the beams A and girders B, of rods 12 extending from beam to beam, supports 16 depending from said rods adjacent to the girders and extending about and below the girder-flanges, rods 17 on said supports at opposite sides of the girder, hangers *a* on the girder-flanges provided with hooks 4 for the rods 17, and reticulated metal on said supports and rods 17, substantially as described.

10. The combination with a metal floor member having a flange, of hanger *a* having flanges 3 hooked over the opposite sides of the flange and depending hooks 4 on opposite sides of the floor member, and rods 17 extending longitudinally of the floor member and supported in said hooks, substantially as described.

11. The combination with a metal floor member having a flange, of rods 16 arranged along the floor member and extending downward and inclosing the flange of the floor member, hanger *a* having flanges 3 hooked over the opposite sides of the flange of the floor member and depending hooks on opposite sides of the floor member, rods 17 supported in said hooks, and reticulated metal 18 on the frame formed by the rods 16, 17, substantially as described.

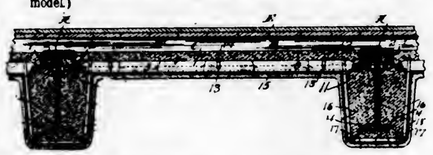
12. Hanger *a* having the flanges 3 adapted to engage the opposite sides of a flange on a metal floor member and depending hooked supports 4 at opposite ends of the hanger adapted to support rods or bars extending longitudinally of the floor member, substantially as described.

13. Hanger *a* formed from a slit metal plate and having its slit portions bent in opposite directions to form flanges 3 and depending hooked supports 4 at opposite ends of the hanger adapted to support rods or bars extending longitudinally of a flanged floor member, substantially as described.

14. A hanger formed of a metal plate having portions slit or punched therefrom to form flanges 7 adapted to engage the opposite sides of a beam-flange, and a depending arm 6 provided with a seat for a rod or bar, substantially as described.

15. Hanger *a* formed of a metal plate having the depending arm 6 and seat 5, and having one end of the plate bent to engage the flange of a beam and a portion cut or punched from the plate and bent to engage the other flange, substantially as described.

644,914. FIREPROOF CONSTRUCTION. ABRAHAM L. A. HIMELWRIGHT, Newark, N. J., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 31, 1898. Serial No. 689,915. (No model.)



Claim.—1. The combination with flanged beams, of metal joists extending from beam to beam and supported from the tops of the beams and dropped below the flanges of the beams, reticulated metal between the beams and extending downward near the beams and about the bottoms of the beams with space between the metal and beams, and a body of concrete or similar plastic material applied from above on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the bottom flanges of the beams, substantially as described.

2. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and placed edgewise vertically and twisted near the ends to form portions lying flatwise to the beam and hooked over the top flanges of the beams, reticulated metal between the beams and extending downward near the beams and about

the bottoms of the beams with space between the metal and beams, and a body of concrete or similar plastic material applied on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the bottom flanges of the beams, substantially as described.

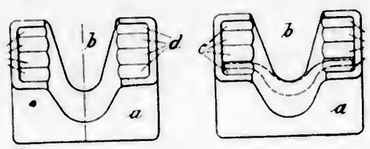
3. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and placed edgewise vertically and twisted near the ends to form portions lying flatwise to the beam and bent upward and hooked over the top flanges of the beams whereby the joists are dropped below the beam-flanges, reticulated metal between the beams and extending downward near the beams and about the bottoms of the beams with space between the metal and beams, and a body of concrete or similar plastic material applied on said reticulated metal and forming a fireproof web between the beams and fireproofing about and below the bottom flanges of the beams, substantially as described.

4. The combination with girders and transverse beams supported thereby, of joists formed of metal plates extending from beam to beam and placed edgewise vertically and twisted near the ends to form portions lying flatwise to the beam and hooked over the top flanges of the beams, reticulated metal between the beams and extending downward near the beams and about the bottoms of the beams with space between the metal and beams, reticulated metal extending from the joists downward and about the bottoms of the girders with space between the metal and girders, and a body of concrete or similar plastic material applied on the reticulated metal and forming a web between the beams and a fireproof filling about and below the bottoms of the beams and girders, substantially as described.

5. The combination with the beams A, of the flat metal bars C placed edgewise vertically and twisted at the ends to form portions lying flatwise to the beams and hooked over the tops of the beams, substantially as described.

6. The combination with the beams A, of the flat metal bars C placed edgewise vertically and twisted at the ends to form portions lying flatwise to the beams and bent upward and then over the top flanges of the beams and hooked around said flanges, substantially as described.

644,915. STAND FOR TRIAL-PIECES FOR POTTERY-KILNS. JOSEPH P. HOLDCROFT, WILLIE JACKSON, and ARTHUR TOMKINSON, Tunstall, England. Filed Sept. 17, 1898. Serial No. 691,266. (No model.)



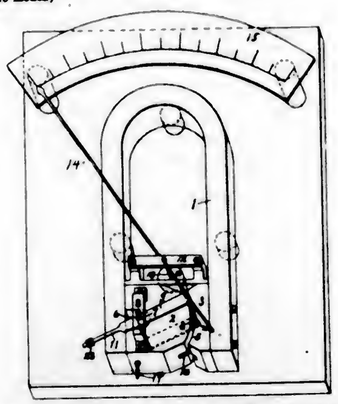
Claim.—A refractory stand having a flat or other suitably-shaped base for supporting such stand, a central depression extending from front to rear of such stand and open at front and back, the bottom of such depression rising toward the rear of such stand, and a series of steps ledges or grooves at each side of such depression as illustrated for holding composition sticks or heat-indicators, substantially as described.

644,916. SECTIONAL VEHICLE-HUB. WILLIAM HORNER, Linden, Ind. Filed Nov. 9, 1899. Serial No. 736,380. (No model.)



Claim.—The combination with an axle-spindle provided with a tapering outer end, an intermediate screw-threaded portion, and a smooth bearing portion; of a collar having a perforated partition to engage the smooth bearing portion and being provided with internal screw-threads, a nut screwed upon the screw-threaded portion of the spindle and located within the collar, a hub-section having a screw-threaded boss to engage the screw-threads of the collar and provided with a tubular extension to receive the outer end of the spindle, and a second hub-section mounted upon the tubular extension, substantially as and for the purpose set forth.

644,917. ELECTRICAL MEASURING INSTRUMENT. ADRIAN H. HOTT, Penacook, N. H. Filed Sept. 22, 1899. Serial No. 731,348. (No model.)



Claim.—1. In a measuring instrument, the combination of a magnet having tapered pole-pieces, the ends of which face each other, a movable coil having one side adapted to move between said tapered poles, an indicating-needle, and a connection between said coil and said indicating-needle, substantially as described.

2. In a measuring instrument, the combination of a magnet having tapered pole-pieces the ends of which face each other, the surface of one of said poles being convex and the other being concave, a coil pivoted at one side and having its other side adapted to move between said tapered pole-pieces, an indicating-needle and a connection between said coil and said indicating-needle, substantially as described.

3. In a measuring instrument, the combination of a magnet having pole-pieces tapered toward each other, the ends of said pole-pieces having oppositely-disposed convex and concave surfaces respectively, an opening in said convex pole-piece, a coil having one side pivotally mounted in said opening and surrounding said convex pole-piece, the other side of the coil being adapted to move between said pole-pieces, an indicating-needle, and a connection between said coil and said indicating-needle, substantially as described.

4. In an indicating instrument, the combination of a magnet having tapered pole-pieces facing each other, the surface of one of said poles being convex and the other being concave, a coil pivoted at one side and having its other side adapted to move between said poles, a pivotally-mounted indicating-needle, and a multiplying connection between said coil and said indicating-needle, substantially as described.

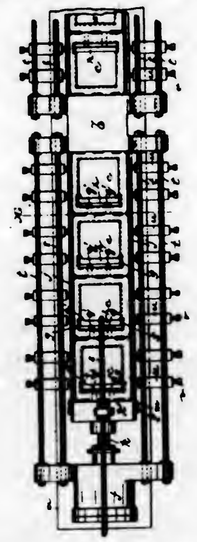
5. In an indicating instrument, the combination of a magnet having tapered pole-pieces facing each other, the surface of the end of one of said poles being convex and the end of the other being concave, a coil pivoted at one side and having its other side adapted to move between said poles, a pivotally-mounted indicating-needle, a roll fixedly connected with the bearing of said needle, and a flexible connection between the periphery of said roll and the swinging end of said coil, substantially as described.

6. In an indicating instrument, the combination with the magnet, of a pivotally-mounted coil, fixed terminals located adjacent to the pivot of said coil, terminals of said coil carried thereby and located at the respective ends thereof adjacent to the pivots, and flexible conductors connecting each of said fixed terminals with one of the coil-terminals, said conductors extending directly between the respective terminals in a substantially-straight line, substantially as described.

7. In an indicating instrument, the combination with the magnets, of a pivotally-mounted coil, fixed terminals located adjacent to the pivots of said coil, terminals of said coil carried thereby and located adjacent to the respective ends thereof, and flexible conductors connecting said fixed terminals with the coil-terminals, each of said conductors leading from its fixed terminal at one side of the shaft to the coil-terminal located at the opposite end of the shaft, the conductors being substantially parallel to the shaft of said coil, substantially as described.

8. In an electrical measuring instrument, the combination of a shaft in fixed bearing, a coil having one side fixedly mounted on said shaft, its other side being free to rotate about said shaft as an axis, a field of force influencing said moving side of the coil, an indicating-needle, a connection between said needle and said coil, fixed terminals of the current to be measured located at the respective ends of said shaft, and flexible conductors of low resistance connecting said fixed terminals with terminals of the coil, each of said conductors leading from its fixed terminal at one side of the shaft to that part of the coil adjacent to the opposite end of the shaft, the conductors being substantially parallel to the coil-shaft, substantially as described.

644,918. INGOT-CASTING MACHINE. JOHN ILLINGWORTH, Newark, N. J. Filed June 3, 1899. Serial No. 719,332. (No model.)



Claim.—1. The improved ingot-casting machine herein described, comprising a bed, a series of molds supported thereon and each having within the mold-chamber ingot-compressing means, means extending from said compressing means outside of said mold-chamber and into engagement with the next mold of the series, means for coupling a portion of said molds together and means for moving said coupled molds back and forth on said bed and for operating the compression means of the molds, substantially as set forth.

2. The improved ingot-mold herein described, comprising a bed, a series of molds movable on said bed, an abutment at one end of said series, and a hydraulic cylinder and piston at the opposite end, coupling-strips arranged at the opposite sides of and parallel with the series of molds, and removable fastening-pins passed through said strips into the molds, substantially as set forth.

3. The combination with a bed, a series of molds each having a pressure-plate therein, a stud at one end and at the other end of said series a hydraulic cylinder and piston, of coupling-strips *j*, and pins *j'*, located at the sides of the molds for coupling any one mold of the series to the piston, whereby said mold may be released from the next mold in the series and the pressure-plate therein released to permit the insertion of a wedge, substantially as set forth.

4. The combination with a bed, of a series of perforated molds, each having within the mold-chamber thereof a pressure-plate and in the perforations thereof pins adapted to engage said pressure-plate and extending out from one mold to engage the next mold in the series, and means for moving said molds back and forth on said bed to permit the operation of said plates and pins, substantially as set forth.

5. The combination with a bed, stud and hydraulic mold-operating devices of a series of perforated molds, each having pressure-plates and pins therein, coupling devices in connection with the hydraulic operating devices and means for separably connecting the hydraulic devices with the molds, substantially as set forth.

6. In an ingot-casting machine, the mold having a perforated side or end with movable pins in the perforations thereof and a pressure-plate within said mold extending vertically to the mouth of said mold whereby a wedge may be inserted between said plate and ingot, the said pins being arranged below said mouth and extending from the outside of the mold into engagement with the plate, substantially as set forth.

7. In an ingot-casting machine, the combination with the mold-having a pressure-plate therein movable independent of the mold and adapted to be operated from the outside of said mold to secure a compression of the plastic ingot therein, of a hydraulic piston and coöperating means for operating the said pressure-plate, and a separable wedge adapted to be inserted within the mold, between the said pressure-plate and the ingot, substantially as set forth.

8. In an ingot-casting machine, the combination with a series of molds and means for moving said molds back and forth in the direction of the series, of rods or bars *t*, *t*, arranged at opposite sides of said molds and carrying adjustable blocks *w*, *w*, and screws *v*, arranged in said blocks and adapted to engage the sides of the molds, substantially as set forth.

9. In an ingot-casting machine, the combination with a track or way having an abutment and hydraulic devices at opposite ends; of a series of carriages or trucks, a series of molds thereon, and horizontal rods *t*, arranged at opposite sides of said series of molds and having a series of blocks supported thereon, said blocks being each provided with screws *v*, serving as guides or stays in holding the molds in position on the carriages as said molds are moved on their carriages and otherwise operated.

644,919. ROD STRAIGHTENING AND FINISHING MACHINE. JOHN ILLINGWORTH, Newark, N. J. Filed Aug. 8, 1899. Serial No. 726,500. (No model.)



Claim.—1. The combination with suitable grips, of a straightening-head, and means for rotating the same, the said straightening-head having therein a series of straightening-rolls adapted to engage the periphery of the rod at a plurality of points in the same perpendicular plane, substantially as set forth.

2. The combination with a straightening-head, and means for rotating the same, the said straightening-head having a series of rolls adapted to engage the periphery of the rod at one point of its length, of a hydraulic pushing-grip adapted to force the rod longitudinally between said rolls, substantially as set forth.

3. The combination with a straightening-head, and means for rotating the same, said head having a series of rolls arranged in a whirl or circle around the axial center of the head and being radially adjustable, of a pushing-grip adapted to force the rod longitudinally through the axial center of said head, substantially as set forth.

4. The combination of a rotating straightening-head having parallel annular cheeks and ribs or braces extending therebetween, rolls independently pivoted in said cheeks and lying between the ribs in a circle around the axial center of the head and being radially adjustable, and pushing and pulling grips disposed at opposite sides of said straightening-head, substantially as set forth.

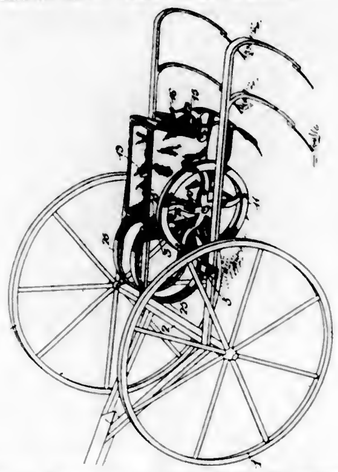
5. In combination with a rotary straightening-head, having opposite rolls adjustably arranged parallel with the axis of said head and fixed in one transverse plane, a grip for forcing the rod between the rolls and means for operating the rolls and grip, substantially as set forth.

6. In combination with a rotary straightening-head comprising a pair of side plates having hollow trunnions and slideways with adjustable boxes in said slideways, and parallel rolls arranged in said boxes, and means for forcing the rod to be straightened or treated through said hollow trunnions and between said rolls and operating means, substantially as set forth.

7. The combination with a rotary straightening-head, comprising a pair of side plates having hollow trunnions and gearing in connection therewith for transmitting rotary motion thereto, boxes having slideways on said side plates, rolls beveled at the ends toward the rod-pushing devices, said rod-pushing devices, and means for operating the gearing, all substantially as and for the purposes set forth.

8. The combination with a rotary straightening-head, comprising a pair of side plates with a collection of parallel rolls adapted to engage the periphery of a rod passing longitudinally therebetween, said rolls being beveled or rounded at the ends from which the rod is first fed, and pushing and pulling grips and means for operating the same, substantially as set forth.

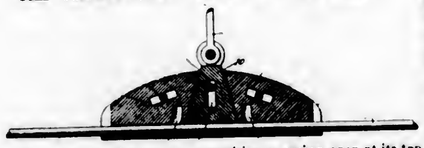
644,920. SEED-PLANTER. CHARLES W. INGRAM, Bruceville, Tex. Filed Jan. 11, 1900. Serial No. 1,112. (No model.)



Claim.—1. The combination with a cultivator; of a seedbox-supporting frame having a hinged connection therewith, a seedbox, and discharge mechanism therefor, and springs connected to the seedbox and exerting their energy to elevate the same to raise its discharge mechanism from engagement with the ground, substantially as and for the purpose set forth.

2. The combination with a cross-bar adapted to be secured to the beams of a cultivator; of a seedbox provided with dropping mechanism, a seedbox-supporting frame to which the seedbox is connected, said supporting-frame being hinged to the cross-bar, and springs secured to the cross-bar and having one set of ends removably engaged with the said supporting-frame, substantially as and for the purpose set forth.

644,921. WIRE-HANGER. JAMES W. L. JAQUES, Salt Lake City, Utah. Filed Nov. 27, 1899. Serial No. 738,355. (No model.)



Claim.—1. A wire-hanger, comprising a casing open at its top and ends, clamping-blocks movable in opposite directions in said casing for engaging with a wire, and a wedge-block for moving the first-named blocks outward, substantially as specified.

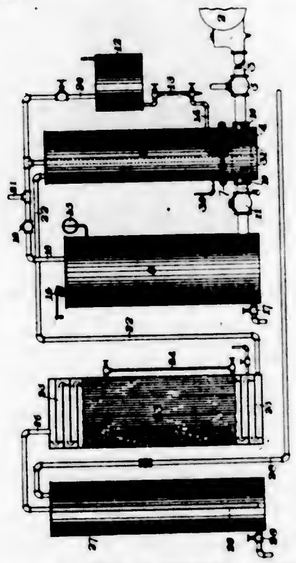
2. A wire-hanger, comprising a casing, blocks movable longitudinally in said casing and in opposite directions, the inner or adjacent ends of said blocks being inclined upward and inward, and a block having its opposite sides inclined for engaging with the inclines of the first-named blocks, the said last-named block having a movement transversely of the first-named blocks, substantially as specified.

3. A wire-hanger comprising a casing, clamping-blocks movable longitudinally in said casing and in opposite directions, bolts passing through the side walls of the casing and also passing through slots in the blocks, the said slots being inclined outward and upward, and a wedge-block for engaging with the inner or adjacent ends of the first-named blocks, substantially as specified.

4. A trolley-hanger, comprising a casing, clamping-blocks movable longitudinally and in opposite directions in said casing, bolts extended through slots in said blocks, the slots being inclined upward and outward, a wedge-block movably engaging with the inclined inner ends of the first-named blocks, and a bolt passing through a slot formed in the wedge-block, substantially as specified.

5. A wire-hanger, comprising a casing, clamping-blocks movable in said casing and in opposite directions, the said blocks having holes or openings in their under sides for receiving the ends of wires, and means for moving said blocks longitudinally and at the same time moving the blocks into engagement with a wire, substantially as specified.

644,922. CARBURETER. GEORGE R. JOHNSON and THOMAS F. GILLOOLY, Kellettville, Pa. Filed Feb. 20, 1899. Serial No. 706,095. (No model.)



Claim.—1. In a gas plant, a gas-engine, a pipe leading from its exhaust-port to an expansion-tank, and having a backwardly-seating check-valve, a pipe leading from the expansion-tank to a retort arranged to supply oil or combustible matter to the products and means for heating said retort; substantially as described.

2. In a gas plant, a gas-engine, a pipe leading therefrom to an expansion-tank, and having a vacuum check-valve arranged to intermittently admit air, and means for applying oil or combustible matter to the exhaust products taken from the expansion-tanks; substantially as described.

3. In a gas plant, a gas-engine, a pipe leading from its exhaust-port to a heating-drum, said pipe having a vacuum check-valve opening into the outer air, a pipe leading from the drum to an expansion-tank, a pipe leading from the expansion-tank into a retort inclosing the drum, and means for supplying oil to the outside of the heating-drum; substantially as described.

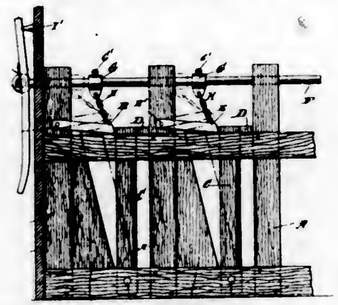
4. In a gas plant, a gas-engine, a heating-drum connected with its exhaust-port, a pipe leading from the heating-drum to an expansion-tank, and containing a check-valve, a retort surrounding the heating-drum, means for supplying oil to the outside of the drum, a pipe leading from the expansion-tank into the retort inclosing the drum, and a pipe leading from the retort to a storage-tank; substantially as described.

5. In a gas plant, a gas-engine, a heating-drum connected to its exhaust-port, a pipe leading from the drum to an expansion-tank, a retort inclosing the drum, an oil-tank having a feed-pipe leading to the outside of the drum within the retort, a pipe leading from the expansion-tank into the retort, and a pipe leading from the expansion-tank to the oil-tank; substantially as described.

6. In a gas plant, a retort, a heating-drum therein, a pipe leading from the exhaust-port of a gas-engine to the drum, means for supplying oil to the outer surface of the drum, a pipe leading from the drum to an expansion-tank, a pipe leading from the expansion-tank into the retort, and a pipe arranged to lead the mingled products of combustion and vaporized oil from the retort to the carbureter; substantially as described.

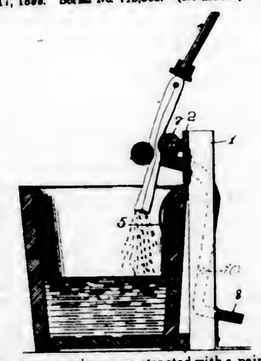
7. In a gas-making plant, a retort containing a drum, means for heating said drum, means for forcing air or gases through the retort, an oil-supply pipe arranged to drop oil upon the retort, a pipe leading from the drum to a tank, a pipe arranged to supply air or gases from the tank to the retort, and a pipe leading from the retort to the carbureter; substantially as described.

644,928. CATTLE-STANCHION. ADOLPH JOOST, Kankakee, Ill. Filed Aug. 23, 1899. Serial No. 728,192. (No model.)



Claim.—In a cattle-stanchion, the combination of the stationary stanchions, the swinging posts cooperating therewith, the catches for holding the swinging posts in their active position, a slide-rod extending longitudinally over the posts, flexible connections extending from the slide-rod to each of the catches, the outer end of the rod being formed with an eye, and passing through a wall, a knife-edge located on said wall above the rod, a lever having a groove in one end adapted to engage said knife-edge, and an elongated aperture between its ends for the passage of the eye at the end of the rod, and a hook pivoted to the lever and adapted to be swung into engagement with said eye.

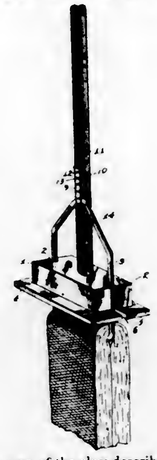
644,924. MOP-WRINGER. GUSTAVE A. KAHL, Sorento, Ill. Filed Apr. 17, 1899. Serial No. 713,393. (No model.)



Claim.—1. A mop-wringer, constructed with a pair of standards framed together at their top and bottom ends, a spring secured to the cross-bar at the upper ends of said standards for engaging over the edge of the bucket, L-shaped feet fixed to and extending laterally from the lower ends of the standards, brackets projecting rearwardly from the upper ends of the standards, a roller journaled between said brackets, a frame pivoted to the outside of the standards, and a roller carried between the ends of said frame, which roller is adapted to engage against the first-mentioned roller, substantially as specified.

2. In a mop-wringer, a pair of standards, cross-bars framing the ends of said standards together, a spring extending downwardly from the upper one of the cross-bars, L-shaped feet extending outwardly from the lower ends of said cross-bars, a pair of brackets extending rearwardly from the upper ends of the standards, a roller journaled between said brackets, a frame composed of a single bar, the same being fulcrumed to the outside of the standards, the lower portion of which frame passes transversely across the front of the lower ends of the standards, a hook secured to one of the standards for limiting the movement of the frame, and a roller journaled between the ends of said frame, substantially as specified.

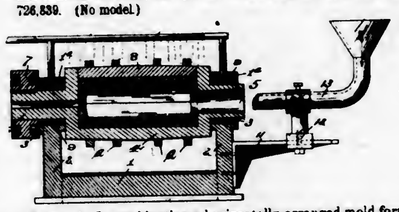
644,925. MOP-HEAD. GUSTAVE A. KAHL, Sorento, Ill. Filed Sept. 11, 1899. Serial No. 730,108. (No model.)



Claim.—1. In a mop of the class described, composed of a body carrying a resilient strip, a handle mounted on said body, an endless rod 3 passed around said body for supporting the mop material and a means for locking said rod at any desired location, substantially as specified.

2. In a mop of the class described, composed of a body, grooves formed in the ends of said body, a resilient strip secured to the bottom of said body, an endless rod passed over said body and guided in said grooves, a handle mounted in said body, a detent formed on said handle, a strap secured at one end to said detent, said strap arranged to be passed over the handle of said rod 3 and to be brought in communication with the hook formed on said detent for adjusting said rod at any desired height, said rod and strap arranged for holding the mop material, substantially as specified.

644,926. APPARATUS FOR MAKING CASTINGS. JOHN KELLING and CHARLES C. ALLEN, Shelby, Ohio. Filed Aug. 10, 1899. Serial No. 726,839. (No model.)



Claim.—1. In combination, a horizontally-arranged mold formed in two sections hinged together, one of said sections being without end walls, the other section having end walls adapted to close the open ends of the first section when the parts are clamped together, hollow trunnions extending from said ends, means for feeding the metal through one of said trunnions and means for rotating said mold.

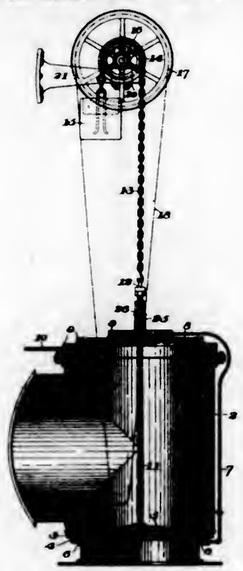
2. In combination, the two-part mold, trunnions extending therefrom, means for rotating the mold, bearing-rings for said trunnions

having grooves in their peripheries, and a spray-pipe running above said mold having branches communicating with said grooves, substantially as described.

3. In combination the mold formed in two sections, having the exterior of the same tapering from the central point thereof toward each of its ends, and a series of rings adapted to fit said mold to hold said sections together, substantially as described.

4. In combination, the mold formed of two sections hinged together, linings for said sections having their meeting edges tongued and grooved, the meeting edges of the lining breaking joint with the meeting edges of the outer part of said sections, substantially as described.

644,927. HOT-BLAST VALVE. JULIAN KENNEDY, Pittsburg, Pa. Filed Nov. 13, 1897. Serial No. 658,442. (No model.)



Claim.—1. In hot-blast valves, a valve-chamber having walls of non-heat-conducting refractory material, a vertically-moving horizontally-seating disk valve therein, and a metal cover-plate through which the valve-stem extends, said plate covering the top of the valve-chamber and being arranged to hold a pool of water over a major part of its area.

2. In hot-blast valves, a valve-chamber having walls of non-heat-conducting refractory material, a vertically-movable valve therein arranged to fit upon a horizontal seat in the lower part of the chamber, a plate covering the top of the valve-chamber and through which the valve-stem extends, said plate being arranged to hold a pool of water over a part of its area, and means for supplying water to, and drawing it from the pool.

3. The combination with a valve-casing containing a vertically-movable valve, of a water-cooled valve-seat in the lower portion of the chamber, a cover-plate for the chamber having a water-cooling reservoir, and a connection between the water-cooling cavity in the seat and the said reservoir.

4. In hot-blast valves, the combination with a valve-chamber having non-heat-conducting refractory side walls, of a water-cooled cover-plate of good heat-conducting material therefor, and a horizontally-seating metal valve, said valve being of substantially the same contour as the lower face of the cover, so as to be water-cooled by this cover when in raised position.

5. The combination with a valve-chamber having a cover, of a valve having a rod extending through a hole in the cover, a collar upon the rod arranged to come in close proximity to the upper portion of the cover when the valve is lowered to its seat, and a packing adapted to be compressed between the collar and the cover when the valve is closed.

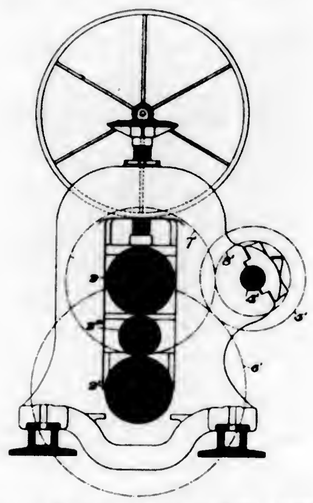
6. The combination with a valve-chamber having a cover, of a valve having a rod extending through this cover, and a collar upon the rod provided with a yielding packing arranged to contact with the cover when the valve is closed and thus seal the valve-rod.

7. The combination with a bracket, of a casting having a bore arranged to receive the bracket, means for clamping this portion of the casting about the bracket in any adjusted position, said casting having another bore extending at an angle to the first-named bore, an adjustable sleeve in the latter bore, mechanism for clamping the sleeve in its adjusted position, a shaft extending through the sleeve and carrying a pulley, and a hot-blast valve having a flexible connection extending over the pulley.

8. The combination with a valve-casing having a water-cooled cover shaped to hold a pool of water over a major part of its area, of a horizontally-seating valve of substantially the same contour as the inner face of the cover, and a counterweight having a flexible connection with the valve, this connection being arranged to vary the counterbalancing effect in different positions of the valve.

9. In hot-blast valves, a valve-chamber having side walls of non-heat-conducting material, a plate covering the top of the chamber and arranged to hold a pool of water upon its intermediate portion above this chamber, and means for feeding water to this pool.

644,928. ROLLING-MILL. JULIAN KENNEDY, Pittsburg, Pa. Filed June 29, 1898. Serial No. 684,711. (No model.)



Claim.—1. Adjusting mechanism, comprising adjusting-screws having threaded portions, the thread of one portion being in opposite direction and of relatively-quicker pitch than the other, traveling nuts set upon the portions of quicker pitch, and means for moving the nuts along the screws to impart rotation to the screws; substantially as described.

2. Adjusting mechanism for rolls, comprising adjusting-screws having threaded portions, the thread of one portion being in opposite direction to that of the other, traveling nuts set upon one portion, and means for moving the nuts along the screws to impart rotation to the screws; substantially as described.

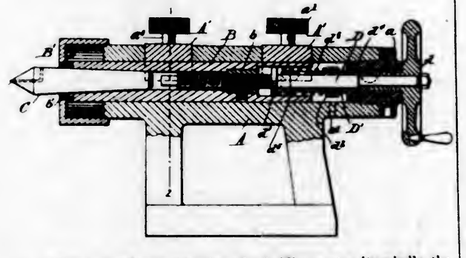
3. Adjusting mechanism for rolls, comprising adjusting-screws having threaded portions, the thread of one portion being in opposite direction and of relatively-quicker pitch than the other, traveling nuts set upon the portions of quicker pitch, means for moving the nuts along the screws to impart rotation to the screws, and a cylinder mounted on the housings and adapted to move said nuts; substantially as described.

4. Adjusting mechanism for rolls, comprising vertical rotatable screws, non-rotatable nuts adapted to travel on the screws and to cause them to rotate, a motor mounted upon the housings and adapted to move the nuts, and connecting mechanism arranged to transmit to the roll-bearings the motion produced by rotation of the screws; substantially as described.

5. In a rolling-mill, a set of rolls, one of which is adjustable vertically, a single shaft extending across both housings opposite to the intermediate position of the adjustable roll, toothed wheels secured near the opposite ends of said single shaft, and gears at the opposite ends of the rolls engaging directly with the toothed wheels on said shaft; substantially as described.

6. A two-high rolling-mill having a vertically-adjustable roll, a single shaft extending across both housings opposite to the intermediate position of the adjustable roll, an external gear and pinion connecting one end of the shaft with one roll, and an internal gear and pinion connecting the other end of the shaft with the other roll; substantially as described.

644,929. FOOT-STOCK FOR GRINDING-MACHINES. ABRAHAM B. LANDIS, Waynesborough, Pa. Filed Sept. 9, 1899. Serial No. 729,893. (No model.)



Claim.—1. The combination of a holding-center, its spindle, the means for operating said spindle, the spindle-bearing, said spindle-bearing consisting of a solid block bored to receive said spindle, and having a transverse channel with a bearing-block mounted therein, formed with a bearing-face which rests upon said spindle, and means for adjusting and securing said block to hold said spindle, substantially as set forth.

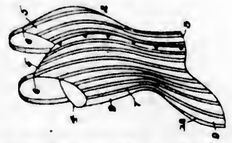
2. The combination of the bearing A having the transverse channel containing bearing-block A', said block secured thereto by a screw, the tension-spring around said screw, the clamping-screw engaging one side of said block, the spindle, the operating devices, and the center carried by said spindle, substantially as set forth.

3. The combination, of a holding-center, its spindle, the bearing for said spindle, a screw journaled in the end of said bearing and engaging a nut in the end of said spindle, a sleeve mounted on said screw to turn therewith and slide thereon, a spring interposed between a collar on said sleeve and a collar on said screw, said collar being secured on said screw in front of said sleeve, substantially as described, and for the purposes specified.

4. In a tool-stock, the combination, of the holding-center carried by a spindle which is adjustably mounted in a bearing and adapted to be supported against longitudinal thrust through a yielding or spring connection, substantially as set forth.

5. The combination of a holding-center carried by an adjustable spindle, adjusting means therefor, a rigid support for said parts, and a spring interposed between said support and parts, whereby by slightly separating said parts the load will be thrown onto said spring, substantially as set forth.

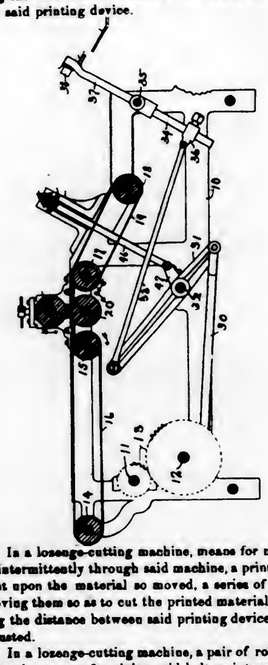
644,930. APPAREL-CORSET. MINNIE W. LAWRENCE, Winchester, Mass. Filed Nov. 20, 1897. Renewed Mar. 8, 1899. Serial No. 708,289. (No model.)



Claim.—A corset having twin neck extensions suitably stiffened, said corset being made comparatively short in front at its lower end, with depending side and rear portions, the body of said corset comprising a lining or inner ply of material 8 extending from the top to the bottom thereof, and an outer ply or cover also extending from the top to the bottom thereof with interposed springs to hold the front upper, and side and rear lower portions of the said cover outward or away from the said lining or inner ply of material, so as to give an apparent shapely figure to the wearer.

644,931. LOZENGE-MAKING MACHINE. FRANK H. MARKER, Chicago, Ill., assignor to the Pan Confection Company, same place. Filed June 26, 1899. Serial No. 721,807. (No model.)

Claim.—1. In a lozenge-cutting machine, a belt, means for giving said belt an intermittent movement so as to convey material intermittently, a printing device and means for operating it so as to print upon the intermittently-moving material, a series of cutters and means for moving them so as to cut the printed material, means for adjusting the stroke of said cutters, and means for adjusting the position of said printing device.



2. In a lozenge-cutting machine, means for moving lozenge material intermittently through said machine, a printing device adapted to print upon the material so moved, a series of cutters and means for moving them so as to cut the printed material, and means for permitting the distance between said printing device and said cutters to be adjusted.

3. In a lozenge-cutting machine, a pair of rollers and a belt carried thereby, means for giving said belt an intermittent forward motion, a printing device adapted to print upon material carried by said belt, a series of cutters and means for moving them so as to cut such material, and means for varying the distance between said printing device and said cutters.

4. In a lozenge-cutting machine, means for moving lozenge material intermittently through said machine, a pivoted arm provided with a series of cutters, means for moving said arm about its pivot so as to cut the moved material, and means for varying the stroke of said arm.

5. In a lozenge-cutting machine, a belt and means for moving it so as to convey material through said machine a series of cutters supported upon a pivoted arm, means for moving said arm on its pivot so as to bring said cutters in contact with material on said belt, and means for adjusting the stroke of said arm.

6. In a lozenge-cutting machine, devices for moving material through said machine and for furnishing a point at which lozenges may be cut from such material, a reciprocating table laterally removed from such cutting-point, a series of cutters supported upon a pivoted arm, and means for moving said arm about its pivot so as to cut lozenges at the cutting-point and transfer them laterally so as to deposit them upon said reciprocating table.

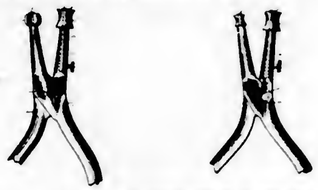
7. In a lozenge-cutting machine, means for moving lozenge material through said machine, a series of cutters, a delivery-table, means for moving said cutters so as to cut lozenges from the moved material and transfer the cut lozenges laterally to said delivery-table, and means for varying the length of the cutter movement.

644,932. DENTAL TOOL. CLINTON W. MILLER, Chicago, Ill. Filed July 20, 1899. Serial No. 724,539. (No model.)

Claim.—1. A dental tool comprising two members pivoted together, each member having a roller with its axis longitudinally disposed with relation to said member.

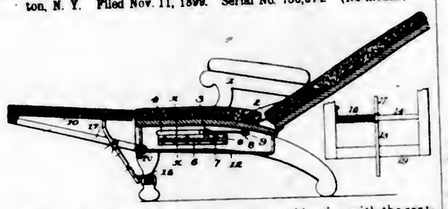
2. In a dental tool, two members pivoted together to produce handles, with extensions beyond the pivot; one of which is reduced to form a spindle, a removable spindle attached to the other nose and rollers on the spindles.

3. In a dental tool, two members pivoted together to produce handles, extensions beyond the pivot, spindles carried by the extensions; one of said spindles being longer than the other, and rollers of varying dimensions and shapes mounted on the spindles.



4. In a dental tool, two members acting in conjunction, and a fixed and removable roller carried by the members.

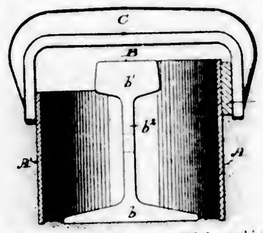
644,933. RECLINING-CHAIR. CHARLES W. MCCALL, Binghamton, N. Y. Filed Nov. 11, 1899. Serial No. 736,674. (No model.)



Claim.—1. In a reclining-chair and in combination with the seat-frame provided with side slots and racks fixed, on its inner side walls parallel with and below said slots, the back hinged to the seat and the arm-rests pivoted to the back, of a rod extending through the slots and having ratchet-arms standing rearward and engaging the racks, a spring fixed on the rod and having a movable pressure contact with the frame and knobs fixed on the ends of the rod, whereby the rod, its ratchets, spring-arm and the arm-rests are caused to slide together in adjusting the back.

2. In a reclining-chair, a seat-frame having side-wall slots and racks fixed on the inner sides of said walls parallel with and below said slots, a hinged back and arm rest pivoted thereto, in combination with a rod extending through said slots, having ratchet-arms standing rearward and engaging the racks, a knob fixed on each end and a spring-arm on said rod slidable on a fixed part of the frame, whereby in adjusting the back the rod carries with it the pawls, the knobs and the spring-arm, as described.

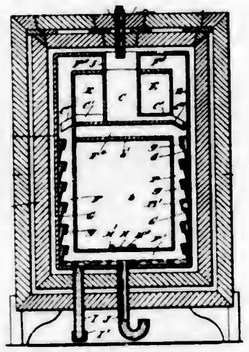
644,934. CONSTRUCTION OF RAILWAY-RAIL JOINTS. EMERY M. MCVICKER, Milwaukee, Wis. Filed Sept. 29, 1899. Serial No. 732,052. (No model.)



Claim.—1. The method of forming rail-joints which consists in securing to the sides of the rail ends two metal plates which are fitted at their ends to the rails and are bent or curved outwardly therefrom beyond and extend downward approximately to the base of the rails, closing the openings between said plates and the base of the rails with sand, clay or other suitable material, pouring molten metal into the receptacles thus formed between said plates and rail ends, and causing said metal to fuse therewith, substantially as and for the purposes set forth.

2. The method of forming rail-joints which consists in securing to the sides of the rail ends two wrought-metal plates which are fitted at their ends to the rails and are bent or curved outwardly therefrom beyond and extend downwardly approximately to the base of the rails, closing the openings between said plates and the base of the rails, pouring molten metal into the receptacles thus formed between said plates and rail ends and causing such metal to unite therewith by fusion, substantially as and for the purposes set forth.

644,935. REFRIGERATOR. JOHN HASH, Dayton, Wash. Filed Aug. 19, 1899. Serial No. 727,806. (No model.)



Claim.—1. In a refrigerator, a vertically-extending series of upwardly-extending pockets adapted to receive the drippings from the ice-chamber, each pocket having a downwardly-extending lip adapted to direct the overflow from one pocket to the pocket next below, as set forth.

2. A refrigerator provided with an ice-chamber, and a series of outwardly and upwardly extending pockets on the sides of the refrigerator below said ice-chamber and adapted to receive the drippings from the latter, the said pockets being located one below the other and each having a downwardly-extending lip whose lower edge lies nearer the side of the refrigerator than the upper and outer end of the pocket next below, as and for the purpose set forth.

3. A refrigerator having an ice-chamber in its upper part, a series of pockets on the side walls and arranged to overflow into each other, the overflow-lip of said pockets being rolled downward and under, so that the water will drip from the lower edge thereof into the pocket below, and means for conducting the water from the ice-chamber into the upper pocket of the series, substantially as described.

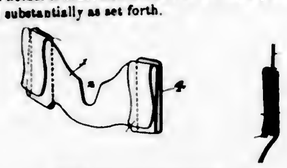
644,936. STABLE-FORK. PAUL C. NELSON, Kensington, Minn. Filed Nov. 16, 1899. Serial No. 737,211. (No model.)



Claim.—A stable-fork comprising a handle, a head and tines, coil-springs encircling two or more of the tines, a clearer-block having holes through which the tines project, said clearer-block being connected to the springs, and a hook carried by one of the tines to engage the clearer-block and hold it in its retracted position, substantially as and for the purpose set forth.

644,937. NECKTIE-HOLDER. WALTER A. NORDYKE, Indianapolis, Ind. Filed Mar. 20, 1899. Serial No. 709,791. (No model.)

Claim.—A necktie-holder composed of transparent or light-colored material, rendering it inconspicuous with light-colored ties, and consisting of a central union-piece having a notch 2 in its upper edge adapted to engage under the head of the collar-button where the ends of the collar come together in front, two hooks extending rearwardly and upwardly, one from each end of the lower edge of said union-piece and adapted to engage with the lower edge of each end of the collar, on each side of collar-button, and two other hooks extending forward and downwardly, one from each end of the top edge of said union-piece and each adapted to receive and hold one end of the tie, which is then formed by said ends between said hooks, whereby said holder is concealed and said tie is securely held in place and form, all substantially as set forth.



644,938. HOLDER FOR FURRING-RODS. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Aug. 6, 1898. Serial No. 687,926. (No model.)



Claim.—1. A holder for furring rods or strips consisting of a single flat piece of metal forming a spike or prong adapted to be driven into a wall or similar support and having near the outer end an arm cut from the holder so as to be free at one end and adapted to be bent flatwise of the holder around the furring rod or strip and of such length as to inclose the furring rod or strip sufficiently to hold the latter in place when the arm is bent around the rod or strip, substantially as described.

2. A holder for furring rods or strips consisting of a spike or prong adapted to be driven into a wall or support and provided at or near its outer end with a leaf-like arm adapted to be bent, on a line or lines extending across the face or widthwise dimension of the arm, around the furring rod or strip and of such length as to inclose the furring rod or strip sufficiently to hold the latter in place when the arm is bent around the rod or strip, substantially as described.

644,939. FIREPROOF CONSTRUCTION. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Aug. 6, 1898. Serial No. 687,926. (No model.)



Claim.—1. The combination with flanged beams, of fireproof blocks arranged on opposite sides of the webs of the beams and resting upon the flanges of the beams, metal joists supported on the tops of the blocks and extending from beam to beam, reticulated metal extending from beam to beam and between the joists, and a filling of concrete or similar plastic material applied upon said reticulated metal, substantially as described.

2. The combination with flanged beams, of fireproof blocks arranged on opposite sides of the webs of the beams and resting upon the flanges of the beams, metal joists supported on the tops of the blocks and extending from beam to beam, reticulated metal supported by and below said joists, and a filling of concrete or similar plastic material applied upon said reticulated metal and in which the joists and portions of the beams above the blocks are embedded, substantially as described.

3. The combination with flanged beams, of fireproof blocks extending along the webs of the beams and below the beams to form a fireproof protection for the webs and bottoms of the beams and resting upon the flanges of the beams, joists supported on the tops of the blocks and extending from beam to beam, reticulated metal below said joists, and a filling of concrete or similar plastic material applied upon said reticulated metal and in which the joists and portions of the beams above the blocks are embedded, substantially as described.

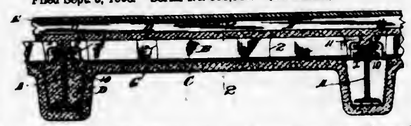
4. The combination with flanged beams, of fireproof blocks extending along the webs of the beams and below the beams to form a fireproof protection for the webs and bottoms of the beams, joists supported on the tops of the blocks and extending from beam to beam, reticulated metal extending from beam to beam and between the joists, a filling of concrete or similar plastic material above said reticulated metal, hangers held in position on the beams by the blocks and extending below the protection beneath the beams, and a ceiling supported by said hangers, substantially as described.

5. The combination with flanged beams, of a fireproof floor including a framework of reticulated metal covering the space between the beams and a filling of concrete or similar plastic material applied from above upon said reticulated metal, and fireproof blocks on opposite sides of the webs of the beams resting upon the flanges of the beams and forming substantially the sole support for the fireproof floor, substantially as described.

6. The combination with flanged beams, of fireproof blocks arranged on opposite sides of the webs of the beams and resting upon the flanges of the beams, a framework of reticulated metal covering the space between the beams and supported on the tops of the blocks, a filling of concrete or similar plastic material applied on said reticulated metal, hangers consisting of metal rods or strips molded into said blocks and projecting below the beams, and a ceiling supported by said hangers, substantially as described.

7. A fireproof block formed of plastic material molded to the required form to rest upon the lower flange of a beam and extend beneath the beam to form a fireproof protection for the bottom of the beam and having molded therein a ceiling-hanger formed of a metal rod or strip having one end bent to overlap and rest upon the flange of the beam when the block is applied thereto and its other end projecting from the block to support a ceiling below the latter, substantially as described.

644,940. FIREPROOF CONSTRUCTION. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Sept. 6, 1898. Serial No. 690,317. (No model.)



Claim.—1. The combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams and below the bottoms of the beams with space between the reticulated metal and the beams, and a filling of concrete or similar plastic material between the beams in which the joists are completely embedded, substantially as described.

2. The combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams and below the bottoms of the beams with space between the reticulated metal and the beams, and a continuous body of concrete or similar plastic material between the beams and filling the space between the reticulated metal and the beams and in which the joists are completely embedded, substantially as described.

3. The combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams below the joists and under the bottoms of the beams with space between the reticulated metal and the beams, and a filling of concrete or similar plastic material applied upon the reticulated metal between the beams and in which the joists are embedded, substantially as described.

4. The combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams below the joists and under the bottoms of the beams with space between the reticulated metal and the beams, and a continuous body of concrete or similar plastic material applied upon the reticulated metal and embedding the joists and filling the space between the reticulated metal and the beams, substantially as described.

5. The combination with floor-girders and beams extending transversely to the girders, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams and around the bottoms of the beams and girders with space between the reticulated metal and the beams and girders, and a continuous body of concrete or similar plastic material applied upon the reticulated metal and filling the space about the webs of the beams and girders and between the reticulated metal and the bottoms of the beams and girders, substantially as described.

6. The combination with floor-girders and beams extending transversely to the girders, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams below the joists and extending about the

bottoms of the beams and girders with space between the reticulated metal and the beams and girders, and a continuous body of concrete or similar plastic material applied upon the reticulated metal and embedding the joists and filling the space about the webs of the beams and girders and between the reticulated metal and the bottoms of the beams and girders, substantially as described.

7. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and provided with notches at their opposite ends to receive the flanges of the beams whereby the joists are supported on their edges and extending above and below the beam-flange, reticulated metal below the joists extending between the beams and around the bottoms of the beams with a space between the reticulated metal and beams, and concrete or similar plastic material applied upon the reticulated metal and embedding the joists, substantially as described.

8. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and provided with notches at their opposite ends to receive the flanges of the beams whereby the joists are supported on their edges and extending above and below the beam-flange, reticulated metal extending between the beams and around the bottoms of the beams, and a continuous body of concrete or similar plastic material applied upon the reticulated metal and embedding the joists and filling the space about the webs of the beams and between the reticulated metal and the bottoms of the beams, substantially as described.

9. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and provided with notches at their opposite ends to receive the flanges of the beams whereby the joists are supported on their edges and extending above and below the beam-flange, reticulated metal below said joists, and a filling of concrete or similar plastic material applied upon the reticulated metal and in which the joists are embedded, substantially as described.

10. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and provided at their opposite ends with notches receiving the bottom flanges of the beams whereby the joists are supported on their edges and extend below the beams, reticulated metal below the joists extending from beam to beam and below the bottoms of the beams, and concrete or similar plastic material applied upon the reticulated metal and in which the joists are embedded, substantially as described.

11. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and provided at their opposite ends with notches receiving the bottom flanges of the beams whereby the joists are supported on their edges and extend below the beams, reticulated metal below the joists extending from beam to beam and below the bottoms of the beams, and concrete or similar plastic material applied upon the reticulated metal to form a web between the beams embedding the joists and extending along the beams to fireproof the webs and upper flanges of the beams, substantially as described.

12. The combination with flanged beams, of joists formed of metal plates extending from beam to beam and notched on their edges to receive the beam-flanges whereby the joists are supported on their edges, said joists being arranged to form wedge-shaped spaces between the joists, the successive spaces tapering in opposite directions, reticulated metal extending between the beams, and a filling of concrete or similar plastic material applied upon the reticulated metal and forming wedge-shaped bodies between the joists, substantially as described.

13. The combination with beams, of joists extending between the lower portions of the beams and formed of metal plates supported on their edges, reticulated metal between the beams, concrete or similar material applied on said metal to form a fireproof web extending between the lower portions of the beams and embedding the joists, and floor-supporting joists extending from beam to beam and dividing the air-space above the web, substantially as described.

14. The combination with beams, of joists extending between the lower portions of the beams and formed of metal plates supported on their edges, reticulated metal between the beams, concrete or similar material applied on said metal to form a fireproof web extending between the lower portions of the beams and embedding the joists and extending along the beams to fireproof the webs and upper flanges of the beams, and floor-supporting joists extending between the fireproofing of the beam-webs and dividing the air-space above the concrete web, substantially as described.

15. The combination with beams, of joists extending between the lower portions of the beams and formed of metal plates supported on their edges, reticulated metal between the beams, and concrete or similar material applied on said metal to form a fireproof web extending between the lower portions of the beams and embedding the joists and extending along the beams to fireproof the webs and upper flanges of the beams, substantially as described.

16. The combination with a beam-flange, of clip x thereon having a depending portion provided with opening 1 and a plate-joist having tongue 10 entering said opening to support the plate on its edge, substantially as described.

17. The combination with a beam-flange, of clip x thereon having a depending portion provided with opening 1 and a plate-joist having tongue 10 entering said opening below the flange and tongue 11 above the flange, substantially as described.

18. The combination with a beam-flange, of clip x thereon having a depending portion provided with opening 1 and a plate-joist having tongue 10 entering said opening below the flange and tongue 11 above the flange resting on the clip, substantially as described.

19. The combination with the beams A, of plate-joists B notched at their ends to receive the beam-flanges, reticulated metal between the beams, and a filling C of concrete or similar material in which the joists are completely embedded, substantially as described.

20. The combination with the beams A, of plate-joists B notched at their ends to receive the beam-flanges, reticulated metal between the beams and extending around the bottoms of the beams, and a filling of concrete or similar material between the beams and around the webs and bottoms of the beams, substantially as described.

21. The combination with the beams A, of plate-joists B notched at their ends to receive the bottom flanges of the beams, reticulated metal between the beams, a web of concrete or similar material D between the beams embedding the joists, and floor-supporting joists H extending from beam to beam and resting on the web D, substantially as described.

22. The combination with the beams A, of plate-joists B notched at their ends to receive the bottom flanges of the beams, reticulated metal between the beams, a web of concrete or similar material D between the beams embedding the joists, fireproofing D′ extending along the webs and upper flanges of the beams, and floor-supporting joists H extending between the fireproofing D′ and resting on the web D, substantially as described.

23. The combination with the beams A, of plate-joists B notched at their ends to receive the bottom flanges of the beams, reticulated metal between the beams, a web of concrete or similar material D between the beams embedding the joists and fireproofing D′ extending along the webs and upper flanges of the beams, substantially as described.

24. The combination with the beams A, of a web of concrete or similar material D extending between the lower portions of the beams, and floor-supporting joists H extending from beam to beam and resting on the web D, substantially as described.

25. The combination with the beams A, of a web of concrete or similar material D extending between the lower portions of the beams and bodies of concrete or similar material D′ extending along the webs and upper flanges of the beams, and floor-supporting joists H extending between the concrete D′ and resting on the web D, substantially as described.

26. The combination with the beams A, and fireproof web D between the lower portions of the beams, of the floor-supporting joists H extending over a series of beams and notched to rest upon the tops of the beams and on web D, substantially as described.

27. The combination with the beams A and girders I, of rods 12 supported by the beams, supports 13 depending from the rods 12 and extending about the girder-flange, and reticulated metal on said supports, substantially as described.

28. The combination with beams A and joists B, of supports 16 extending downward from the joists and beneath the beam-flanges and seated on the beam-flanges, and reticulated metal on said supports, substantially as described.

644,941. FIREPROOF CONSTRUCTION. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Sept. 6, 1898. Serial No. 690,318. (No model.)



Claim.—1. In a fireproof floor or similar construction, the combination with beams, of a web of fireproof material extending from beam to beam and a series of ribs of concrete or similar plastic material molded upon the web and extending upward therefrom and from beam to beam, substantially as described.

2. In a fireproof floor or similar construction, the combination with beams, of a fireproof web extending from beam to beam, tension members in said web, and a series of ribs of concrete or similar plastic material molded upon the web and extending upward therefrom and from beam to beam, substantially as described.

3. In a fireproof floor or similar construction, the combination with beams, of a fireproof web extending from beam to beam, a series of ribs of concrete or similar plastic material molded on said web and extending upward therefrom and from beam to beam, and tension members embedded in said ribs, substantially as described.

4. In a fireproof floor or similar construction, the combination with beams, of a fireproof web extending from beam to beam, and a body of concrete or similar plastic material molded on said web and forming a series of ribs extending upward from said web and from beam to beam and a continuous covering of the beams above the fireproof web, substantially as described.

5. In a fireproof floor or similar construction, the combination with beams, of a fireproof web formed of a series of bodies of fireproof material extending from beam to beam with adjacent bodies tapered longitudinally in opposite directions, and a series of ribs of concrete or similar plastic material molded on said web and extending upward therefrom and from beam to beam, substantially as described.

6. In a fireproof floor or similar construction, the combination with beams, of a fireproof web formed of a series of bodies of fireproof material extending from beam to beam with adjacent bodies tapered longitudinally in opposite directions, a series of ribs of concrete or similar plastic material molded on said web and extending upward therefrom and from beam to beam, and tension members embedded in said ribs, substantially as described.

7. In a fireproof floor or similar construction, the combination with beams, of a fireproof web extending from beam to beam, tension members embedded in said web, a series of ribs of concrete or similar plastic material molded on said web and extending upward therefrom and from beam to beam, and tension members embedded in said ribs, substantially as described.

8. In a fireproof floor or similar construction, the combination with beams, of a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the ribs extending upward from said web, substantially as described.

9. In a fireproof floor or similar construction, the combination with beams, of a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the ribs extending upward from said web, and tension members embedded in said ribs, substantially as described.

10. In a fireproof floor or similar construction, the combination with beams, of a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the ribs extending upward from said web, and metallic tension members embedded in said web and in said ribs, substantially as described.

11. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, and a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from the web above said joists, substantially as described.

12. In a fireproof floor or similar construction, the combination with beams, of metal joists extending from beam to beam, and a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from the web above said joists, and tension members extending from beam to beam and embedded in said web, substantially as described.

13. In a fireproof floor or similar construction, the combination with beams, of metal joists extending from beam to beam and arranged to form wedge-shaped spaces between the joists with the successive spaces tapering in opposite directions, and a body of concrete or similar plastic material forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from the web above said joists, substantially as described.

14. In a fireproof floor or similar construction, the combination with beams, of metal joists extending from beam to beam, reticulated metal extending between the beams below said joists and a body of concrete or similar plastic material applied upon the reticulated metal and forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from said web, substantially as described.

15. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, reticulated metal extending between the beams below said joists, and a body of concrete or similar plastic material applied upon the reticulated metal and forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from the web, substantially as described.

16. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates supported on their edges and extending above and below the bottoms of the beams and from beam to beam, reticulated metal extending between the beams below said joists and a body of concrete or similar plastic material applied upon the reticulated metal and forming a web and a series of ribs extending from beam to beam with the joists embedded in the web and the ribs extending upward from said web, substantially as described.

17. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates supported on their edges and extending above and below the bottoms of the beams and from beam to beam, reticulated metal extending between the beams below said joists and a body of concrete or similar plastic material applied upon the reticulated metal and forming a web, a series of ribs extending from beam to beam, and a continuous covering for the webs of the beams, substantially as described.

18. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, said joists being arranged to form wedge-shaped spaces between the joists with the successive spaces tapering in opposite directions, and a body of concrete or similar plastic material embedding the joists and forming wedge-shaped bodies between the joists, substantially as described.

19. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges, said joists being arranged to form wedge-shaped spaces between the joists with the successive spaces tapering in opposite directions, reticulated metal extending between the beams below the joists, and a filling of concrete or similar plastic material applied upon the reticulated metal and forming wedge-shaped bodies between the joists, substantially as described.

20. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges so as to extend above and below the bottoms of the beams, reticulated metal below said joists extending between the beams and below the bottoms of the beams with space between the reticulated metal and the beams, and a body of concrete or similar plastic material applied upon the reticulated metal and forming a web and a series of ribs extending from beam to beam with the joists embedded within the web and the ribs extending upward from the web, substantially as described.

21. In a fireproof floor or similar construction, the combination with beams, of joists formed of metal plates extending from beam to beam and supported on their edges so as to extend above and below the bottoms of the beams, reticulated metal below said joists extending between the beams and below the bottoms of the beams with space between the reticulated metal and the beams, a body of concrete or similar plastic material applied upon the reticulated metal and forming a web, and a series of ribs extending from beam to beam with the joists embedded within the web and the ribs extending upward from the web, and a ceiling of reticulated metal and plastic material suspended below said web, substantially as described.

22. In a fireproof floor or similar construction, the combination with the beams, of a lower layer of fireproof material extending between and under the beams, a metal fabric extending between the beams and embedded in said lower layer, and a structure of plastic material above said layer extending between the beams and having upright ribs integrally united with said layer, substantially as described.

23. In a fireproof floor or similar construction, the combination with the beams, of a lower layer of fireproof material extending between and under the beams, a metal fabric extending between the beams and embedded in said lower layer and a structure of plastic material above said layer extending between the beams and having upright ribs transverse to the beams integrally united with said layer, substantially as described.

24. In a fireproof floor or similar construction, the combination with the beams, of a lower layer of fireproof material extending between and under the beams, a metal fabric extending between the beams and embedded in said layer, a structure of plastic material extending between the beams and having upright ribs transverse to the beams integrally united with said layer, and metal bars or strips embedded in the ribs of said structure, substantially as described.

25. In a fireproof floor or similar construction, the combination with the beams and a fireproof web extending between the lower portion of the beams, of formers arranged for molding vertical ribs on said web, substantially as described.

26. The combination with a flanged beam, of clip a embracing the flange of the beam and having a projecting bolt, a hanger b having a vertically-slotted connection with said bolt, and a ceiling member supported by the hanger, substantially as described.

27. The combination with beams and metal plates extending from beam to beam, of spanners between said plates formed of metal loops

14 embracing the plates, and separate spanner-rods 15 connecting the loops on adjacent plates, substantially as described.

28. The combination with a series of metal plates arranged on edge, of metal loops 14 embracing the tops of the plates, and spanner-rods 15 connecting adjacent loops and having a hook connection therewith, substantially as described.

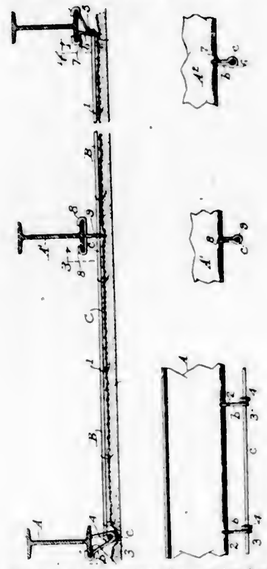
29. The combination with the beams A and plate-joists B supported on their edges, of the web D in which said joists are embedded and the vertical ribs D' molded on the web in line with the joists, substantially as described.

30. The combination with the beams A, of web D extending from beam to beam, tension members in said web, and vertical ribs D' molded on the web in line with the tension members, substantially as described.

31. The combination with the beams A, and a fireproof web extending between the lower portion of the beams, of formers X extending between the beams and arranged for molding vertical ribs D' on the web, substantially as described.

32. The combination with the beams A, and a fireproof web extending between a lower portion of the beams, of formers X extending between the beams and arranged for molding vertical ribs D' on the web and fireproofing D² filling the spaces between the formers and the webs of the beams, substantially as described.

644,942. FIREPROOF CONSTRUCTION. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Sept. 6, 1898. Serial No. 690,319. (No model.)



Claim.—1. A hanger consisting of a metal rod or strip formed to hook over a beam-flange or similar surface and having an intermediate depending loop which loop is adapted to receive and support the pull on a rod or strip for the support of a ceiling or similar construction and with one loop-arm inclined from the hook in the direction of the pull on the rod and the upper end of the other loop-arm engaging the under side of the beam and inclined at a small angle to the vertical in a direction opposite to that of the pull upon the rod, substantially as described.

2. A hanger consisting of a metal rod or strip having one end formed to hook over a beam-flange or similar surface and having an intermediate depending loop which loop is adapted to receive and support the pull on a rod or strip for the support of a ceiling or similar construction and with one loop-arm inclined from the hook in the direction of the pull on the rod and the other end of the hanger rod or strip bearing against the under side of the beam at the upper end of the other loop-arm, said last-mentioned loop-arm being inclined at a small angle to the vertical in a direction opposite to that of the pull upon the rod, substantially as described.

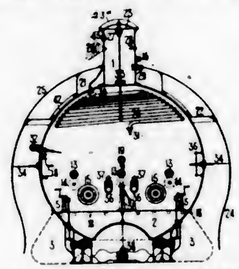
3. A hanger consisting of a metal rod or strip formed to hook over a beam-flange or similar surface and having an intermediate depending loop which loop is adapted to receive and support the pull on a rod or strip for the support of a ceiling or similar construction and with one loop-arm inclined from the hook in the direction of the pull on the rod and the upper end of the other loop-arm engaging the under side of the beam and inclined at a small angle to the vertical in a direction opposite to that of the pull upon the rod, said loop-arms lying in the same plane transversely to the beam with the loop opening longitudinally of the beam, substantially as described.

4. The combination with the flanged beams A, of hangers *b* formed of metal rods or strips having an end bent to embrace the flange of the beams and forming an intermediate depending loop with one loop-arm inclined from the hook in the direction of the pull on the hanger, and the upper end of the other loop-arm engaging the under side of the beam, ceiling-rods supported by and only at the bottom of said loops below the beams, and a ceiling supported by said ceiling-rods, substantially as described.

5. The combination with the flanged beams A, of hangers *b* formed of metal rods or strips having an end bent to embrace the flange of the beams and to form an intermediate depending loop with one loop-arm inclined from the hook in the direction of the pull on the hanger, ceiling-rods supported by and only at the bottom of said loops below the beams, and a ceiling of metallic lathing and plastic material supported by said ceiling-rods, substantially as described.

6. The combination with the flanged beams A, of hangers *b* formed of metal rods or strips having an end bent to embrace the flange of the beams and to form an intermediate depending loop opening longitudinally of the beams, rods extending longitudinally of the beams and passed through said loops, ceiling-rods hooked over said rods and extending transversely to the beams, and a ceiling of metallic lathing and plastic material supported by said ceiling-rods, substantially as described.

644,943. DIVING AND SUBMARINE APPARATUS. GIUSEPPE PINO, Genoa, Italy. Filed Oct. 29, 1898. Serial No. 694,934. (No model.)



Claim.—1. In an apparatus for effecting the descent and the propulsion under water, of one or more persons, a repelling device 24 or analogous means provided around the apparatus and on its outside, so as to form points of support, adapted to execute the work from the interior toward the exterior, and a protecting device for the apparatus itself.

2. In an apparatus for affecting the descent and the propulsion under water, of one or more persons, a spherical jacket or cap 25 or an outer protecting-cover for the apparatus, for the purpose above described.

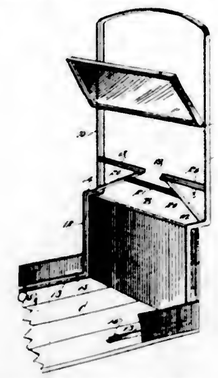
3. In an apparatus for effecting the descent and the propulsion under water of one or more persons, the arrangement of water-gates or sluices 37, the object of which is to close the holes of the armlets 36, so as to prevent the latter from being forced inward when exposed, to high water-pressures.

4. In an apparatus for effecting the descent and the propulsion under water of one or more persons; the combination with the body of the apparatus, and the dome provided with the air-cock 28, of the compressed-air reservoir 20 provided with the valve 30 for charging the reservoir 20 with air from the exterior of the vessel when afloat, and the valve for supplying air from the reservoir to the interior of the body, as set forth.

5. In a diving and submarine apparatus, the combination with the main body portion of the apparatus, of the dome 1 provided with an inlet-door having a cork protecting-cover, substantially as specified.

644,944. STORM-FRONT FOR BUGGIES. ARTHUR A. PRALL, Dayton, Iowa. Filed July 26, 1899. Serial No. 725,166. (No model.)

Claim.—1. A storm-front for vehicles, comprising a frame arranged for attachment at the dashboard of the vehicle and adapted to extend above the same, said frame being provided with a window, and means for locking the window in a closed position, the said window being hinged and spring-controlled whereby when released from the locking device it is thrown open and held in the open position.

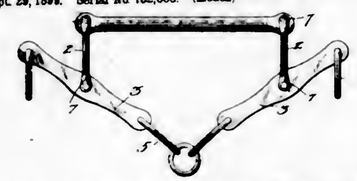


2. A storm-front for buggies, comprising a frame adapted for attachment to a vehicle at the dashboard and to extend above the same, the said frame being provided with a spring-controlled window, a lock for the said window, devices for the attachment of a storm-curtain, and an opening for the driving-reins, which opening leads into the space adapted to be closed by the said window, as described.

3. A storm-front for buggies, comprising a frame consisting of upper vertical side bars, an upper connecting cross-bar, lower vertical side bars provided with horizontal feet and means for attaching the feet to the body of the vehicle, together with horizontal side bars connecting the upper and the lower sections, an intermediate cross-bar located in the upper portion of the said frame, a lower cross-bar in the same section of the frame, a window hinged to the upper cross-bar and arranged for engagement with the lower one, and a lock for the said window, substantially as described.

4. A storm-front for buggies, comprising a frame consisting of upper vertical side bars, an upper connecting cross-bar, lower vertical side bars provided with horizontal feet and means for attaching the feet to the body of the vehicle, together with horizontal side bars connecting the upper and the lower sections, an intermediate cross-bar located in the upper section of the frame, a lower parallel cross-bar having an opening in its center, braces for the inner ends of the divided cross-bar, and a short cross-bar connecting the braces, so that a space is formed for the driving-reins below the divided cross-bar, which space communicates with the space between the two cross-bars, a spring-controlled window hinged to the upper cross-bar and arranged for closing engagement with the divided cross-bar and the upper side bars of the frame, and a lock for said window, substantially as described.

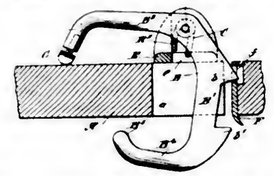
644,945. BRIDLE-BIT. ROBERT F. REYNOLDS, Fisk, Ala. Filed Sept. 29, 1899. Serial No. 732,008. (Model.)



Claim.—1. A bit comprising a mouthpiece, bit-rings loosely pivoted to the ends thereof, levers pivoted intermediate their ends to the bit rings and links, rings and links loosely pivoted respectively at the upper and lower ends of said levers, and a ring connecting the links at the lower ends of said levers, substantially as and for the purpose set forth.

2. A bit comprising a mouthpiece, bit-rings loosely pivoted to the ends thereof, levers pivoted intermediate their ends to the bit-rings, said bit-rings provided with upper and lower shoulders, the upper to engage the mouthpiece and the lower to engage the levers, rings and links loosely pivoted respectively at the upper and lower ends of said levers, and a ring connecting the links at the lower ends of said levers, substantially as and for the purpose set forth.

644,946. DOOR-LATCH. FREDERICK E. RICHARDSON, Manchester, Iowa, assignor of one-half to Charles E. Smith, same place. Filed May 19, 1899. Serial No. 717,455. (No model.)



Claim.—1. A door-latch, comprising a bar pivoted intermediate its length upon a vertical pivot and located at one side of a door, one end of said bar extending toward the door edge and being adapted to engage the keeper, and the other end extending inward from the door edge, and then curving toward the door, an adjustable extension for this end of the latch-bar, and a keeper adapted to be secured to the door-jamb, substantially as described.

2. A door-latch, comprising an integral yoke or stirrup shaped bar the ends of which embrace the door edge and adapted to serve as handles for the sides of the door, a locking-tooth on the outer or bottom portion of the stirrup, a pivot for said bar at one side of the door near its edge, and a keeper on the door-jamb adapted to engage the tooth on the bar, substantially as described.

3. A door-latch, comprising a yoke or stirrup shaped bar which embraces the door edge and has a locking-tooth on the outer or bottom portion of the stirrup, and a pivot for said bar at one side of the door near its edge, the pivoted side of the stirrup having an adjustable extension adapted to contact with the side of the door and thus to limit the projection of the locking-tooth, substantially as described.

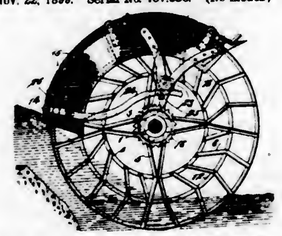
4. A door-latch, comprising a yoke or stirrup shaped bar which embraces the door edge and has two locking-teeth on the outer or bottom portion of the stirrup, a pivot for said bar at one side of the door near its edge, a keeper on the door-jamb adapted to engage one of the teeth on the bar, and a keeper on the wall adapted to engage with the locking-tooth when the door is swung open, substantially as described.

5. A door-latch, comprising a yoke or stirrup shaped bar which embraces the door edge and has two locking-teeth on the outer or bottom portion of the stirrup, a pivot for said bar at one side of the door near its edge, the pivoted side of the stirrup having an adjustable extension adapted to contact with the side of the door and thus to limit the projection of the locking-tooth, a keeper on the door-jamb adapted to engage one of the teeth on the bar, and a keeper on the wall adapted to engage the other locking-tooth when the door is swung open, substantially as described.

6. A door-latch, comprising an integral yoke or stirrup shaped bar the ends of which embrace the door edge and adapted to serve as handles for the sides of the door, a locking-tooth on the outer or bottom portion of the stirrup, a pivot for said bar at one side of the door near its edge, a keeper on the door-jamb adapted to engage the tooth on the bar, and a spring acting on the stirrup to hold the locking-tooth projected, substantially as described.

7. A door-latch, comprising an integral yoke or stirrup shaped bar the ends of which embrace the door edge and adapted to serve as handles for the sides of the door, a locking-tooth on the outer or bottom portion of the stirrup, a pivot for said bar at one side of the door near its edge, a spring mounted on the pivot and engaging the stirrup to keep the locking-tooth projected, and a keeper on the door-jamb adapted to engage the tooth on the bar, substantially as described.

644,947. WATER-WHEEL. WILHO ROSKAINEN, New York, N. Y. Filed Nov. 22, 1899. Serial No. 737,950. (No model.)



Claim.—1. A water-wheel, a cut-off and brake consisting of a segmental boxing, means for moving the boxing circumferentially of

the wheel, and means for causing a braking connection between the boxing and the wheel, substantially as specified.

2. A water-wheel, comprising a shaft, arms extended outward from said shaft, blades mounted in the outer portions of said arms, a cut-off consisting of a segmental boxing, means for moving said cut-off circumferentially of the wheel, and means for drawing a portion of said boxing into tight engagement with the wheel, substantially as specified.

3. A water-wheel, comprising a shaft, arms extended outward from the shaft, blades secured on the outer portions of said arms, a cut-off and brake consisting of a boxing engaging around a portion of the wheel, rollers mounted on said boxing and engaging with peripheral bands or rings on the wheel, means for causing movements of said boxing circumferentially of the wheel, and means for drawing one section of the boxing toward the wheel to cause the rollers mounted thereon to engage more or less tightly against the rings or bands of the wheel, substantially as specified.

4. A water-wheel, comprising a shaft, arms extended outward from said shaft, blades secured on the outer portions of said arms, a segmental boxing engaging around a portion of said wheel, a worm-wheel mounted on the shaft, a bracket connecting said worm-wheel with the boxing, a worm-shaft engaging with the worm-wheel, and means for causing the boxing to engage more or less tightly against the periphery of the wheel, substantially as specified.

5. A water-wheel, comprising a shaft, arms extended outward from said shaft, blades secured on the outer portions of said arms, a cut-off consisting of a segmental boxing mounted on the wheel, rollers attached to said boxing and engaging with peripheral rings on the wheel, a worm mechanism for moving said boxing circumferentially of the wheel, a rack-bar having connection with the boxing, and a pinion engaging with said rack-bar for moving the boxing toward and from the wheel, substantially as specified.

6. A water-wheel, a segmental boxing movable circumferentially of the wheel, means for causing the movements of said boxing, dogs mounted on the boxing, a rack attached to the wheel and with which said dogs are adapted to engage, and a rod for moving the dogs into and out of engagement with the rack, substantially as specified.

7. The combination with a water-wheel, of a cut-off and brake consisting of a segmental boxing formed in two hinged sections, means for moving the boxing circumferentially of the wheel, and means for moving one of the sections toward and from the wheel, substantially as specified.

644,948. PIPE-CLEANER. OTTO SPAHR, New York, N. Y. Filed Oct. 26, 1899. Serial No. 734,752. (No model.)



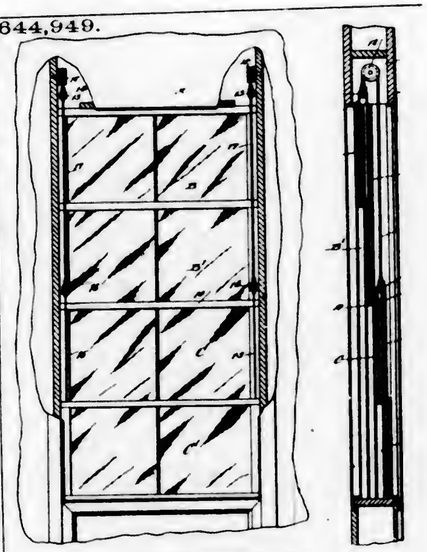
Claim.—The combination with the bowl, stem, and mouthpiece of a pipe, of a cleaning attachment consisting of a body formed with a tubular cylindrical portion fitted in the end of the stem and having a threaded extension on which the mouthpiece is fitted, three flattened surfaces forming a triangular portion whose three side edges engage the inner walls of the stem at equal distances apart whereby to hold the attachment securely in the bowl and to scrape the walls when the attachment is turned, and a reduced inner end extending into the heel of the bowl, there being provided a lateral aperture extending through the body and communicating with the opening in the tubular portion, as and for the purpose set forth.

644,949. SASH-BALANCE. THOMAS M. SPINER, Shubuta, Miss. Filed Nov. 1, 1899. Serial No. 735,503. (No model.)

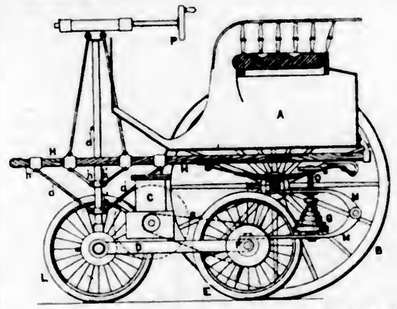
Claim.—1. A window-frame, sashes mounted in the window-frame, the sashes being arranged in pairs, each sash of a pair balancing the other and the sashes of one pair balancing the sashes of the mating pair, and means, substantially as described, for independently moving the sashes of either pair, or simultaneously operating both pairs of sashes.

2. The combination, with a window-frame, of two pairs of sashes, the sashes of each pair being mounted to slide in the said frame, one sash of a pair balancing the other and one pair of sashes balancing the mating pair, cords connecting the upper rails of the sashes of each pair, rollers over which the said cords pass, rollers journaled in the frame, and connecting-cords passed over the guide-rollers and secured to the first-mentioned rollers, whereby each pair of sashes may be independently operated or both pairs of sashes simultaneously operated, as set forth.

644,949.



644,950. MOTOR-DRIVEN VEHICLE. JOHN H. THORNTON and JAMES P. LEA, Altringham, England. Filed Dec. 29, 1897. Serial No. 664,463. (No model.)



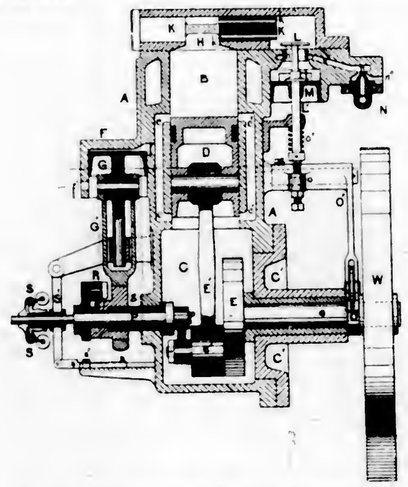
Claim.—1. In a motor-driven vehicle the combination with the body and ordinary wheels, of a traction-frame hinged to the axle by a pivoted joint, a motor and traction-wheel carried by the traction-frame, pivoted connecting-levers by which the traction-frame is connected at its other end to the vehicle and a spring inserted between the levers to regulate the pressure of the traction-wheel upon the ground substantially as described.

2. In a motor-driven vehicle the combination with the body A shafts H upon which the body of the vehicle is mounted and wheels B, of the traction-frame D provided with traction-wheel E and guiding-wheel L and motor C the jointed levers M connecting the body of the carriage with the traction-frame the spring for regulating the pressure of the traction-wheel upon the ground and the adjusting-screw O substantially as described.

3. In a motor-driven vehicle the combination with the vehicle-body the ordinary wheels and a traction-frame and traction-wheel journaled therein of two pivoted connecting-levers one end attached to the traction-frame and the other to the vehicle by which the traction-frame is attached to the body and a spring inserted between such levers to adjust the pressure of the traction-wheel upon the ground substantially as described.

644,951. INTERNAL-COMBUSTION ENGINE. JOHN H. THORNTON, Altringham, and JAMES P. LEA, Manchester, England. Filed Aug. 1, 1898. Serial No. 687,469. (No model.)

Claim.—1. An internal-combustion motor comprising in its construction a main cylinder B, a main piston D working therein, an air-chamber C at the back of the piston communicating with the main cylinder by ports *c c'* in which air is compressed and forced into the main cylinder at the completion of the stroke of the piston, an auxiliary cylinder F and piston G communicating both with the main cylinder and the air-chamber by which the combustible part of the charge is drawn into the main cylinder (and air forced into the chamber) a charge-heater K at the end of the cylinder by which the charge is vaporized and valve *l*, and port *h* by which the exhaust is discharged and the combustible part of the fresh charge drawn in, substantially as described.



2. In an internal-combustion motor the combination with the main cylinder B, main piston D and air-compressing chamber C connected to the cylinder by the ports *c c'* of the auxiliary cylinder F connected to the main cylinder and air-chamber by the ports *f* and *e* and with the atmosphere by the port *f'* and the auxiliary piston G by which the combustible part of the charge is drawn into the cylinder and air forced into the air-chamber, substantially as described.

3. In an internal-combustion engine the combination with the main cylinder B and piston D, the air-chamber C connected thereto by ports *c* and *c'*, the auxiliary cylinder F and piston G connected by ports *f* and *e*, of the charge-heater K by which the combustible part of the charge is heated, the exhaust-valve L controlling the port *h*, the piston-valve M, controlling the port *l* and the oil-inlet nozzle in the inlet-port *n*, substantially as described.

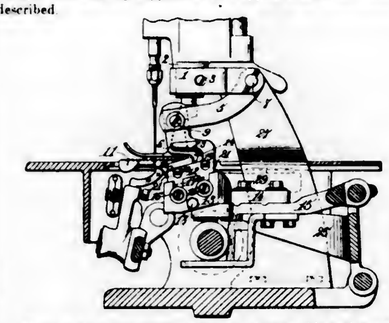
4. In an internal-combustion engine the combination with the main cylinder B and piston D and air-chamber C connected thereto by ports *c* and *c'* of the auxiliary cylinder F and piston G connected thereto by the ports *f* and *e* by which the charge is drawn into the cylinder and the air forced into the air-compressing chamber substantially as described.

5. In an internal-combustion engine the combination with the main cylinder B, main piston C and crank E of the auxiliary cylinder F and piston G the eccentric for operating the auxiliary piston, the pawl rotated by the spindle engaging therewith, the governor on the rotating spindle, and the sliding piece with projection to engage the pawl and throw it out of gear when the speed is excessive, substantially as and for the purpose described.

644,952. SEWING-MACHINE TRIMMER. ADELBERT L. TRAVER, Philmont, N. Y. Filed Nov. 23, 1898. Serial No. 697,269. (No model.)

Claim.—1. In a trimming mechanism for sewing-machines, the combination with the feed-bar and feed-dog, of a vertically and laterally adjustable lower cutter-blade carried with said feed-bar and feed-dog, an upper cutter-blade in pivotal lapping engagement with said lower cutter-blade and actuated therefrom, a vibratory lever to support the upper cutter-blade, said vibratory lever and upper cutter-blade being adjustable with the lower cutter-blade, a guide-plate carried with the feed-bar and lower cutter-blade, and means for imparting a rocking adjustment to said guide-plate to maintain the lapping edges of said cutter-blades in close operative relation, substantially as described.

2. In a trimming mechanism for sewing-machines, the combination with the upper and lower cutter-blades, the feed-bar and attached feed-dog, of a bracket mounted on said feed-bar, a clamping guide-plate attached to said bracket and adapted to keep the cutting edges of said upper and lower cutter-blades in operative relation, the said upper cutter being provided with a slot through which it is adapted to pivot on one of the attaching-screws of the said clamping guide-plate, and a vibratory support for said upper cutter, substantially as described.



3. In a trimming mechanism for sewing-machines, the combination with the feed-bar and attached feed-dog, of a bracket attached to said feed-bar, a lower cutter-blade, an upper cutter-blade having a pivotal connection with said lower cutter-blade, a vibratory support for the upper cutter-blade, and a clamping guide-plate adjustably attached to an arm of the feed-bar bracket and adapted to keep the cutting edges of the upper and lower cutters in operative relation, the lower cutter being carried by said plate, substantially as described.

4. In a trimming mechanism for sewing-machines, the combination with the feed-bar and feed-dog, of a bracket adjustable on said feed-bar, a lower cutter-blade actuated through the feed-bar, an upper cutter-blade in pivotal connection with the lower blade and actuated therefrom, a clamping guide-plate attached to an arm of the feed bar bracket and adapted to keep the cutting edges of the upper and lower cutters in operative relation, a vibratory lever to support the upper cutter, a block secured to the machine-head and having a bifurcated arm to receive the upper end of said lever, a rock-pin through which the said lever is connected with said bifurcated arm, and means for adjusting the said cutter-blades toward and from the line of stitch, substantially as described.

5. In a trimming mechanism for sewing-machines the combination with the feed-bar and attached feed-dog, of a lower cutter-blade mounted on and actuated through said feed-bar, an upper cutter-blade actuated from said lower blade and in close pivotal relation therewith, a clamping guide-plate carried by the feed-bar and adapted to maintain the cutting edges of said cutter-blades in close lapping operative relation, a vibratory lever to support the upper cutter, a block secured to the machine-head and having an arm with which the upper end of said lever is pivotally connected, and a standard to brace said block and its arm, substantially as described.

6. In a trimming mechanism for sewing-machines, the combination with the feed-bar and attached feed-dog, and the upper cutter-blade and lower cutter-blade arranged in lapping operative relation, the said upper blade being in pivotal connection with and actuated from the said lower blade, of a clamping guide-plate carried on the feed-bar with said lower cutter-blade and having on one side a bearing or bearings against which the lower cutter-blade is adapted to be rocked for giving the edge of said lower blade a shear-cut adjustment with relation to the lapping edge of the upper cutter-blade, and screws for attaching the lower cutter-blade to said clamping-plate and for coacting with said bearings in imparting a rocking adjustment to said lower blade, substantially as described.

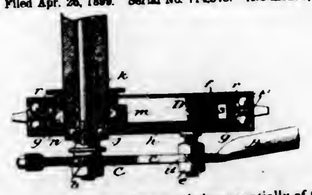
7. In a trimming mechanism for sewing-machines, the combination with the feed-bar and attached feed-dog, of a vertically and laterally adjustable lower cutter-blade carried with said feed-bar and feed-dog, an upper cutter-blade actuated from the lower cutter-blade and in pivotal lapping engagement therewith, and means for giving a rocking adjustment to the lower cutter-blade toward the lapping edge of the upper cutter-blade, for maintaining a shear cut, substantially as described.

644,953. PROCESS OF MANUFACTURING ARTIFICIAL STONES. ALEXANDER ULICH, St. Petersburg, Russia, assignor to H. Amelung & Co., same place. Filed Dec. 12, 1898. Serial No. 699,058. (No specimens.)

Claim.—The process of manufacturing artificial stone, which consists in mixing together oxid of magnesium, chlorid of magnesium,

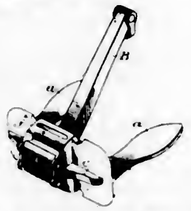
amorphous silicic acid, and an inert material, shaping the mass, allowing it to harden and subjecting it to a bath of water-glass, substantially as described.

644,954. DRIVE-GEARING. IRVING F. WALES, Woonsocket, R. I. Filed Apr. 26, 1899. Serial No. 714,573. (No model.)



Claim.—The bicycle described consisting essentially of the frame having the bottom line run, the rear brace, and the vertically-disposed plate connecting said run and brace and having a notch *a* in its rear end and also having horizontal slots *c*, a gear-case made up of a section *f* formed in one piece and having a central, vertically-disposed portion *h* provided with an opening *i* and also with screw-threaded apertures, a marginal flange *l* extending laterally from the portion *h* and having exterior threads arranged in the same plane as portion *h*, the shallow, lateral flange *m* merging at its ends into the flange *l*, and a vertically-disposed, annular flange *p* provided on its inner side with a rib *r*, and an annular section *g* screwed on the threaded portion of section *f* and having a rib *r* at its inner side, a wheel-hub equipped with a pinion *n* arranged within the flange *m* and having one of its ends loosely arranged in the opening *i* of case-section *f*, an axle extending through the hub and having one of its ends adjustably secured in the notch *a* of the frame-plate, bolts screwed into the threaded apertures in the portion *h* of the case-section *f* and adjustably secured in the slots *c* of said frame-plate, the annular gear having the inner rib disposed between the section *g* and the flange *p* of the gear-case and provided with teeth intermeshed with those of the pinion *n*, the outer teeth, and the lateral, circular flanges, and antifriction-balls disposed at opposite sides of the inner rib of the annular gear and interposed between said gear and the ribs of the case, substantially as and for the purpose set forth.

644,955. ANCHOR. JOHN WATSON, Chester, Pa. Filed Aug. 4, 1899. Serial No. 726,133. (No model.)



Claim.—1. The combination in an anchor, of the fluke-section having an opening for the passage of a shank, grooved bearing-blocks on each side of the opening, with a T-headed shank adapted to the opening in the fluke-section, the curved head of the shank resting on the bearing-blocks, substantially as described.

2. The combination in an anchor, of the fluke-section, an opening therein for the passage of the shank, said section having curved bearing-blocks at each side forming, with the back of the fluke-section, grooves, with a shank having a curved T-head adapted to the grooves, and resting upon the bearing-blocks, with a removable plate secured to the back of the fluke-section, so that when this plate is detached the shank can be removed, substantially as described.

3. The combination of a fluke-section having an opening for the passage of the shank, curved bearing-blocks on each side of the opening, grooves formed between the bearing-blocks and the casing of the fluke-section, openings at each end of the grooves for the passage of mud or other foreign matter, a shank having a curved T-head adapted to the bearing-blocks, substantially as described.

644,956. LEVER-SHEARS. FELIX A. WILLIAMS, Blossville, Tex. Filed Oct. 14, 1899. Serial No. 733,667. (No model.)

Claim.—1. In hand-lever shears consisting of a right-angled lever, the vertical portion or operating-arm being of greater length than the base or short arm of said right-angled lever, an adjustable brace secured to the extreme free ends of said right-angled lever, the short arm of said right-angled lever being pivoted to a support or frame, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to a frame or support and contacting said shear-blade on said right-angled lever, a draw-bar secured to the long arm of said right-angled lever, the opposite end of said draw-bar being secured to an operating-lever which is pivoted to the frame of the machine, in combination with a lateral brace contacting the long arm of said right-angled lever and a half-staple engaging said lateral brace for the purpose as shown and described.

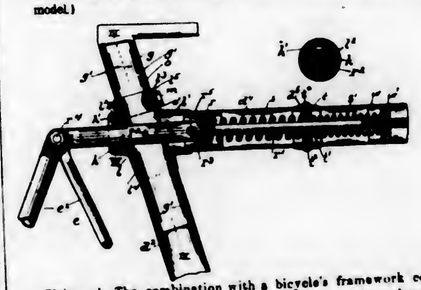


2. In hand-lever shears consisting of a right-angled lever, the vertical portion or operating-arm being of greater length than the base or short arm of said right-angled lever, said short arm being pivoted to a support or frame, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to the frame or support forming part of said machine, in combination with lateral brace, consisting of a half-staple secured to the vertical arm of said right-angled lever, a standard engaging said half-staple at one end, the opposite end or base being secured to the frame or support of the machine for the purpose as shown and described.

3. In hand-lever shears consisting of a right-angled lever, the perpendicular or vertical portion being of greater length than the base or short arm of said right-angled lever, said short arm being pivoted to a frame or support, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to the frame or support forming part of the machine, and the means for operating said right-angled lever, in combination with a hinged table which is provided with a clamping device thereon, said clamping device consisting of a serrated lever, and a serrated standard for securing said serrated lever for the purpose as shown and described.

4. In hand-levers, the combination of a right-angled arm bearing a shear blade, said shear-blade in contact with a blade on the frame supporting said right-angled arm, a hinged table on said frame, said table provided with a bed and operating-lever for securing work on said bed, for the purpose as shown.

644,957. SPRING-FRAME FOR BICYCLES. GORDON H. WILLIAMS, South Brooklyn, Ohio. Filed Sept. 5, 1899. Serial No. 729,507. (No model.)



Claim.—1. The combination with a bicycle's framework comprising a forward section and a rear section horizontally and transversely hinged together at the bottom: of a spring confined within the forward frame-section; a stationary piece forming an abutment for one end of the said spring; a slidable piece forming an abutment for the spring's other end; a link operatively connected with the said slidable piece and pivoted to and transversely of the rear frame-section; another spring, that is lighter than the aforesaid first-mentioned spring, confined within the forward frame-section; a stationary abutment for one end of the lighter spring, a slidable abutment for the other end of the lighter spring, and a rod having a member overlapping the outer end of the movable abutment of the lighter spring and suitably connected with the movable abutment of the heavier spring, substantially as and for the purpose set forth.

2. The combination with a bicycle's framework comprising a foward section and a rear section horizontally and transversely hinged together at the bottom: of a spring confined within the forward frame-section; a stationary piece forming an abutment for one end of the said spring; a slidable piece forming an abutment for the spring's other end; a link operatively connected with the said slidable piece and pivoted to and transversely of the rear frame-section; another spring, that is lighter than the aforesaid first-mentioned spring, confined within the forward frame-section; a stationary abutment for one end of the lighter spring, a slidable abutment for the other end of the lighter spring, and a rod having a member overlapping the outer end of the movable abutment of the lighter spring and suitably connected with the movable abutment of the heavier spring, and the arrangement of parts being such that the lighter spring is normally under tension and somewhat places the heavier spring under tension, substantially as and for the purpose set forth.

3. The combination with a bicycle's framework having a forward section and a rear section horizontally and transversely hinged together at the bottom: of a forwardly and rearwardly extending rod arranged within the forward frame-section; a slide-forming member formed upon the rear end of the said rod; a member loosely embracing the said rod a suitable distance forward of the said slide-forming member and rigid with the forward frame-section; a spiral spring confined upon the said rod between the rear end of the said rod-embracing piece and the forward end of the aforesaid slide-forming member; another slide-forming member held to the said rod a suitable distance forward of the aforesaid rod-embracing piece; a spring, that is lighter than the first-mentioned spring, confined upon the rod between the said rod-embracing piece and the last-mentioned slide-forming member, and a link operatively connecting the first-mentioned slide-forming member with the rear frame-section, substantially as and for the purpose set forth.

4. The combination with a bicycle's framework having a forward section and a rear section horizontally and transversely hinged together at the bottom; of a forwardly and rearwardly extending rod arranged within the forward frame-section; a slide-forming member formed upon the rear end of the said rod; a stationary member loosely embracing the said rod a suitable distance forward of the said slide-forming member and rigid with the forward frame-section; a spiral spring mounted upon the rod between the said stationary piece and the aforesaid slide-forming member; another slide-forming member held to the said rod a suitable distance forward of the aforesaid stationary rod-embracing piece; a spiral spring, that is lighter than the first-mentioned spring, confined upon the rod between the said stationary piece and the last-mentioned slide-forming member, and a link operatively connecting the first-mentioned slide-forming member with the rear frame-section, substantially as and for the purpose set forth.

5. The combination with a bicycle's frame comprising a forward section and a rear section suitably hinged together at the bottom: of a forwardly and rearwardly extending rod arranged within the upper portion of the forward frame-section, and having opposite ends screw-threaded externally, a suitably-supported slide-forming nut mounted upon the rear end of the rod; a slide-forming member mounted upon the forward portion of the rod; a nut engaging the rod forwardly of the last-mentioned slide-forming member; two spiral springs mounted upon the said rod between the said slide-forming members and arranged the one forward of the other; a piece rigid with the forward frame-section and arranged between and holding apart adjacent ends of the springs; a link operatively connecting the rear slide-forming member with the rear frame-section, and the forward spring being lighter than the rear spring, substantially as and for the purpose set forth.

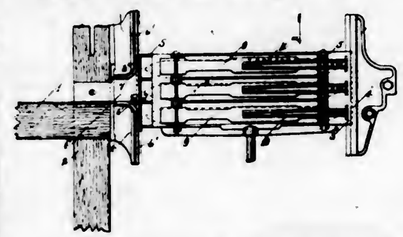
6. The combination with a bicycle's framework, comprising the forward section *d* and the rear section *e* transversely hinged together at the bottom: of the springs *s* and *s'*; the piece *t* rigid with the forward frame-section; the slide-forming nut r_1; the rod r^2; the link r^3; the slide-forming member *w*, and the nut *w'*, all arranged and operating substantially as shown, for the purpose specified.

7. The combination with a bicycle's framework having a forward section comprising an upper forwardly and rearwardly extending tubular bar d^4, and a rear section hinged to and transversely of the forward section at the bottom of the framework: of the springs *s* and *s'*; the piece t_1; the slide-forming nut r_1; the rod r^2; the link r^3; the slide-forming member *w*, and the nut *w'*, all arranged and operating substantially as shown, for the purpose specified.

8. The combination with a bicycle's framework comprising a forward frame-section having an upper forwardly-extending tubular bar d^4, and a tubular saddle-post standard d^5, the rear frame-section hinged to and transversely of the forward frame-section at the bottom of the framework, and the hollow cross-shaped piece *l* secured to the said bar and standard and having a rearwardly-projecting arm l^5; of a spiral spring arranged within the aforesaid bar; a slide-forming member *r* forming an abutment for the rear end of the spring; another member *l* forming an abutment for the forward end of the spring and rigid with the bar; a link r^2 operatively connecting the slide-forming member with the rear frame-section and extending through the aforesaid rearwardly-projecting arm, and a lateral guide for the said link within the said arm.

9. The combination with a bicycle's framework comprising a forward frame-section having an upper forwardly and rearwardly extending tubular bar d^4, and a tubular saddle-post standard d^5; the rear frame-section hinged to and transversely of the forward frame-section at the bottom of the framework, and a hollow piece *l* connecting the said bar and standard and having an upwardly-projecting tubular arm and a depending tubular arm arranged in line; a spiral spring arranged within the aforesaid bar; a slide-forming member *r* forming an abutment for the rear end of the spring; another member *l* forming an abutment for the spring's forward end and rigid with the bar; a link r^2 operatively connecting the slide-forming member with the rear frame-section; of the saddle-post extending through the aforesaid tubular arms and split longitudinally from its lower end upwardly as required to render the post capable of straddling the aforesaid link, and means for clamping the saddle-post to the upper tubular arm and comprising the internal clamping-ring *o* and the screw *m*.

644,958. SHUTTLE-BOX FOR LOOMS. HORACE WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed June 5, 1899. Serial No. 719,380. (No model.)



Claim.—1. In a drop-box loom, a shuttle-box guide for the inner ends of the shuttle-boxes located back of an alinement with the front of the reed, and having a lip or flange projecting in front of the inner ends of the shuttle-boxes, and in front of the ends of the inactive shuttles, substantially as shown and described.

2. A shuttle-box frame provided with a recess near the inner end of the shuttle-box, located back of an alinement with the front of the reed, a guide-plate fitted in said recess having a vertical groove for the inner end of the shuttle-boxes, and a lip or flange projecting therefrom in front of the shuttle-box cells in which are the inactive shuttles, substantially as shown and described.

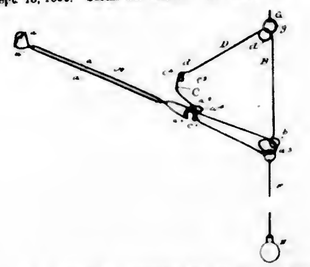
3. A shuttle-box frame, and a shuttle-box guide attached thereto near the inner end of the shuttle-boxes, and provided with a front alining surface between the shuttle-boxes and the face of the reed, with an attached lip or flange projecting in front of the inactive shuttles, substantially as shown and described.

4. In a drop-box loom, a shuttle-box guide for the inner ends of the shuttle-boxes, having a lip or flange extending in front of the open inner ends of the shuttle-boxes, and in front of the inner ends of the shuttles, both above and below the level of the raceway, and having a central opening therethrough with curved sides or edges for the ingoing and outgoing shuttles, and a horizontal shelf at the lower inner side of said opening, substantially as shown and described.

644,959. GREEN-BLACK DYE. JULIUS ABEL, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Dec. 19, 1899. Serial No. 740,886. (No specimens.)

Claim.—The new coloring-matter which can be obtained from ortho-hydroxy-dinitro-diphenylamin-sulfoacid, sodium sulfid and sulfur, which is readily soluble in water giving a greenish solution from which hydrochloric acid and ammonium chlorid precipitate a brown-black flocculent precipitate and which dyes unmordanted cotton giving green-black shades which are not materially altered by treatment with chromates and copper salts, substantially as described.

644,960. **FISH-HOOK OR ANIMAL-TRAP.** DAVID W. ANDERSON, Richmond, Va., assignor of one-half to Julian T. Wright, same place. Filed Sept. 13, 1899. Serial No. 730,385. (No model.)

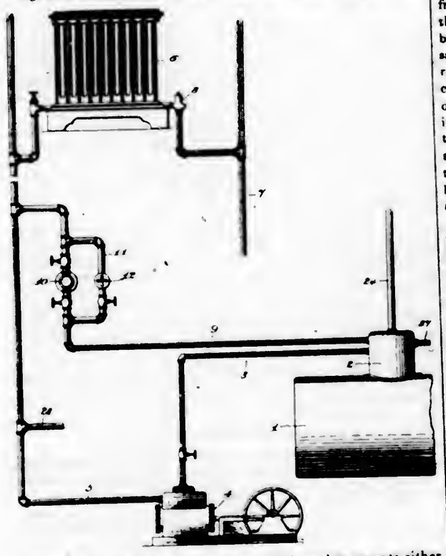


Claim.—1. A device for catching fish and for similar purposes having the hook part with two oppositely-moving spring-actuated arms and a drawing device connected to that part of the hook opposite to the points, and a trigger for holding the two oppositely-moving spring-arms in set position and adapted to rock relatively about one of the said hook-arms when engaging with or disengaging from the other hook-arm, and means for operating the trigger, substantially as set forth.

2. A device for catching fish, and similar purposes, having a horizontally and laterally extending hook with two oppositely-moving spring-actuated hook-points, means for attaching the same to a line, a trigger adapted to engage the shank of one of said hooks and to turn or twist thereon transversely to the shank, and having means for engaging the shank of the other hook, and a drawing device for disengaging the trigger adapted to connect the latter with the line independently of the connection between the line and hook, substantially as set forth.

3. A device for catching fish, and similar purposes, having a hook with two oppositely-moving spring-actuated hook-points, a trigger pivotally connected or linked with the shank of one of said hooks, having means for engaging the shank of the other hook, and a free arm, and means for connecting said arm with the line independently of the connection between said line and the hook, substantially as set forth.

644,961. **STEAM-HEATING SYSTEM.** CHARLES A. BALL, Washington, D. C. Filed July 5, 1899. Serial No. 722,824. (No model.)



Claim.—1. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live steam system, a boiler a radiating system, means for supplying steam at approximately-atmospheric pressure to the radiating system when the pressure in the boiler is above a predetermined limit, means for supplying steam from the boiler and at boiler-pressure to the radiating system when the boiler-pressure falls below said predetermined limit, the change being automatic and governed by said boiler-pressure, and means in the return of the system for returning the water of condensation to the boiler under either condition of supply to the radiating system

2. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a radiating system, means for supplying steam at approximately-atmospheric pressure to the radiating system when the pressure in the boiler is above a predetermined limit, means for supplying steam from the boiler and at boiler-pressure to the radiating system when the boiler-pressure falls below said predetermined limit, the change being automatic and governed by said boiler-pressure, and means in the return of the system for automatically returning the water of condensation to the boiler under either condition of supply to the radiating system.

3. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a power-fixture, a radiating system, an exhaust-pipe leading from said power-fixture to the supply-pipe of the radiating system, a direct connection between the boiler and said supply-pipe having a reducing-valve therein, means in said direct connection for admitting steam at boiler-pressure from the boiler direct to said supply-pipe when the pressure in the boiler falls below a predetermined limit, the change being automatic and governed by said boiler-pressure, and means in the return of the system for returning the water of condensation to the boiler under either condition of supply to the radiating system.

4. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a power-fixture, a radiating system, an exhaust-pipe leading from said power-fixture to the supply-pipe of the radiating system, a direct connection between the boiler and said supply-pipe having a reducing-valve therein, a by-pass around said reducing-valve, a pressure-regulating valve in said by-pass for admitting steam at boiler-pressure from the boiler direct to said supply-pipe when the pressure in the boiler falls below a predetermined limit, the change being automatic and governed by said boiler-pressure, and means in the return of the system for returning the water of condensation to the boiler under either condition of supply to the radiating system.

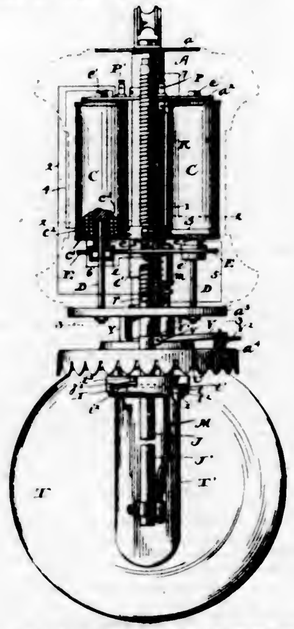
5. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a radiating system, means for supplying steam at approximately-atmospheric pressure to the radiating system when the pressure in the boiler is above a predetermined limit, means for supplying steam from the boiler and at boiler-pressure to the radiating system when the boiler-pressure falls below said predetermined limit, the change being automatic and governed by said boiler-pressure, a return from said radiating system to said boiler, an exhausting apparatus in said return adapted to operate only under the low-pressure or exhaust condition on the supply side of the system, an air-relief in the return on the boiler side of the exhausting apparatus, a return steam-trap in the return on the boiler side of said exhausting apparatus adapted to operate under either condition of supply to the radiating system, and a direct connection between said return steam-trap and the return on the radiator side of the exhausting apparatus, said connection being automatically sealed during the operation of the exhausting apparatus and automatically opened when the latter is not operating.

6. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a radiating system, means for supplying steam at approximately-atmospheric pressure to the radiating system when the pressure in the boiler is above a predetermined limit, means for supplying steam from the boiler and at boiler-pressure to the radiating system when the boiler-pressure falls below said predetermined limit, the change being automatic and governed by said boiler-pressure, a return from said radiating system to said boiler, an exhausting apparatus in said return adapted to operate only under the low-pressure or exhaust condition on the supply side of the system, an air-relief in the return on the boiler side of the exhausting apparatus, a return steam-trap in the return on the boiler side of said air-relief adapted to operate under either condition of steam-supply to the radiating system and having an air-relief therein, and a direct connection between said return steam-trap and the return on the radiator side of the exhausting apparatus, said connection being automatically sealed during the operation of the exhausting apparatus and automatically opened when the latter is not operating.

7. In a steam-heating system adapted to operate either as a low-pressure or exhaust system or as a pressure or live-steam system, a boiler, a radiating system, means for supplying steam at approximately-atmospheric pressure to the radiating system when the pressure in the boiler is above a predetermined limit, means for supplying steam from the boiler and at boiler-pressure to the radiating system when the boiler-pressure falls below said predetermined limit, the change being automatic and governed by said boiler-pressure, a return from said radiating system to said boiler, a static valve in the return of each radiator of the system for permitting the escape of water of condensation and entrained air but preventing the escape of steam under either condition of supply to said radiating system, an exhausting apparatus in said return adapted to operate only under the low-pressure or exhaust condition on the supply side of the system an air-relief in the return on the boiler side of the exhausting apparatus, a return steam-trap in the return on the boiler side of said air-relief adapted to operate under either condition of supply to the radiating system and having an air-relief therein, and a direct connection between said return steam-trap and the return on the radiator side of the exhausting apparatus, said connection being automatically sealed during the operation of the exhausting apparatus and automatically opened when the latter is not operating.

8. In a steam-heating system, an air-relief and water-return consisting of a chamber in the return-pipe, an exhausting apparatus connected to said chamber and adapted to operate under a predetermined boiler-pressure, a closed tank receiving the water and air from said exhausting apparatus, an outwardly-opening valve in said tank for permitting the automatic escape of the entrained air, a return steam-trap connected with and operated by the boiler and having an air-relief therein, a pipe connecting said tank and trap, said pipe being extended to and connected with the chamber in the return-pipe and having a check therein for preventing the passage of water toward said chamber, but permitting its passage in the opposite direction, the whole operating so that, when the exhausting apparatus is running, the return will be through the same and the tank to the trap, and, when said exhausting apparatus is not running, the return will be through the trap-supply pipe to the trap direct from the chamber in the return-pipe.

644,962. **ELECTRIC-ARC LAMP.** EDWARD M. BARNUM, Cleveland, Ohio, assignor to Arthur L. Garford, Elyria, Ohio. Filed Apr. 10, 1899. Serial No. 712,437. (No model.)



Claim.—1. In an electric-arc lamp, in combination, a central tube, a pair of magnets on opposite sides of said tube, an armature-plate slidable upon said tube, a rod extending downward from said armature-plate, said rod being adapted to support a lower carbon, a clutch adapted to hold an upper carbon which lies partially within said tube, and a rod for releasing said clutch which rod is operated by said magnets, substantially as described.

2. In an electric-arc lamp, in combination, a central tube, a pair of magnets one on each side of the tube, a cross-bar slidable along said tube and carrying armatures for said magnets, an inner tube within the tube first mentioned and adapted to embrace an upper carbon, a lower-carbon rod operated by said cross-bar, a clutch for holding the upper carbon and a rod for releasing said clutch, which rod is operated by the cross-bar, substantially as described.

3. In an electric-arc lamp, in combination, a central tube, a pair of magnets one on each side of the tube, a cross-bar slidable along said tube and carrying armatures for said magnets, an inner tube within the tube first mentioned and adapted to embrace an upper carbon, an insulating-block between the two tubes, a rod depending from said block, a gravity clutch-plate carried by said rod, and a rod for releasing said clutch-plate, which rod is operated by the cross-bar, substantially as described.

4. In an electric-arc lamp, in combination, a central tube, a pair of magnets one on each side of said tube, a cross-bar slidable upon said tube and carrying armatures for said magnets, a lower-carbon rod secured to but insulated from said cross-bar, a gravity-clutch adapted to grasp an upper carbon within said central tube, a lifting-bar secured to but insulated from said cross-bar and extending beneath said clutch, there being play between said lifting-rod and the clutch, whereby an energization of the magnets raises the lower carbon and if such movement is great enough releases the upper carbon, substantially as described.

5. In an electric-arc lamp, in combination, a frame, a pair of plates secured thereto, the upper plate forming the bottom of the casing inclosing the magnets, the lower plate forming a top over the globes, an insulating-sleeve extending from one plate to the other, a lower-carbon rod passing through said sleeve, a pair of magnets above the upper plate adapted to actuate said rod, and means for holding an upper carbon in juxtaposition with a carbon carried by said rod, substantially as described.

6. In an electric-arc lamp, a central tube, a pair of plates rigidly secured thereto, a pair of magnets above the upper plate, means for holding a globe below the lower plate, said means including rods which slide through said two plates and a locking-lever between said two plates, in combination with an insulating-sleeve extending from one plate to the other, a clutch below the lower plate adapted to hold a carbon, and a rod extending through said sleeve and operated by said magnets to release said clutch, substantially as described.

7. In an electric-arc lamp, in combination, a central tube, a sheet-metal plate E surrounding the same, and carrying a sleeve e' slidably engaging with the tube, a pair of cups e, each cup being made of an integral piece of metal separate from the plate E but rigidly secured to that plate, a pair of magnets suitably supported on opposite sides of the central tube said magnets having projecting cores taking loosely into said cups, substantially as described.

8. In an electric-arc lamp, in combination, a central tube, a plate surrounding the same and slidably guided thereby, a magnet having coils on opposite sides of said central tube, said plate constituting the armature for said magnet, a rod for supporting one carbon, and a clutch for operating the other carbon, and a clutch-rod for operating the clutch, said two rods depending from said armature-plate on opposite sides of the central tube, substantially as described.

9. In an electric-arc lamp, in combination, a central tube, a plate E surrounding the same and guided to slide along the tube, a pair of magnets adapted to attract said plate, a lower-carbon rod, a clutch for the upper carbon, a rod for operating said clutch depending from the said plate, said two rods being insulated from the plate by bushings and washers substantially as shown and being adjustable with reference thereto by means of nuts screwing onto said rods, substantially as described.

10. In an electric-arc lamp, in combination, a frame, a pair of plates rigidly secured thereto, tubes extending from the lower plate through the upper, rods within said tubes, shoulders on said rods, and a lever between said plates extending into said tubes and adapted to engage with the shoulders on the rods, and means adapted to connect said rods with a lamp-globe, substantially as described.

11. In an electric-arc lamp, in combination, a plurality of plates carrying flanges adapted to take beneath the flange of a globe, rods extending upward from said plates, means for engaging said rods to hold them in an elevated position or allow them to descend, means for preventing the rods normally spreading apart but allowing them to be sprung apart when desired to remove the globe, substantially as specified.

12. The combination, in an electric-arc lamp, of a pair of semi-annular plates, an inwardly-extending depending flange on each of said plates, a rod extending upward from each of said plates, means supported by the frame of the lamp for engaging said rod and holding it in an elevated or depressed position, and a ring surrounding said rods and preventing their spreading apart, said ring being adapted to be elevated when the rods are depressed, thus allowing the separation of the semi-annular plates and the removal of the globe, substantially as described.

13. In an electric-arc lamp, in combination, a frame, a plate a^4 secured to the lower end thereof, a cover for an inner globe below and secured to the plate a^4, a plate U below the plate a^4 and adapted to support an outer globe, and means for supporting said plate U near the plate a^4 and also at a distance below it, substantially as described

14. In an electric-arc lamp, in combination, a frame, two plates secured thereto, a casing extending upward from the upper plate, a cover for the inner globe beneath the lower plate, posts extending upward from said cover and secured to said lower plate, an insulating-sleeve extending from the upper plate of said cover, and the lower-carbon rod passing through said sleeve, substantially as described.

15. The combination of a central tubular frame, four plates carried thereby, a casing extending from the first or top plate to the third plate, a pair of magnets carried by the second plate, means for engaging a globe beneath the fourth plate, and mechanism between the third and fourth plates for holding said means in either an elevated or depressed position, substantially as described.

16. The combination of a frame carrying three plates, a pair of magnets supported by the upper of said plates, a cover for an inner globe beneath the lowest of said plates, posts extending from said cover to the said lowest plate, mechanism between the lowest and the intermediate plate adapted to lock an outer globe in an elevated position or allow its descension, a lower-carbon rod extending through said intermediate plate and the lowest plate and the cover of the inner globe and adapted to be actuated by said magnets, substantially as described.

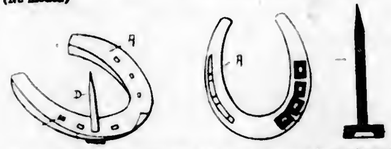
17. The combination of a frame, two plates carried thereby, mechanism between said two plates for holding in an elevated position or allowing to descend a globe, a pair of sleeves connecting said two plates, and a pair of rods passing through said sleeves, one of said rods adapted to govern a lower carbon and the other adapted to govern an upper carbon, substantially as described.

18. In an electric-arc lamp, in combination, a central outer tube, a smaller tube within the same, insulating-washers between the two tubes, four plates carried by said outer tube, a casing extending from the first or upper plate to the third plate, magnets carried by the second plate within the casing, said inner tube adapted to embrace a carbon which extends down below the fourth plate, means for holding a lower carbon beneath the same, said fourth plate forming a cover for the globe surrounding the arc between said carbons, substantially as described.

19. The combination, in an electric-arc lamp, of a pair of magnets, an armature therefor, a lower-carbon rod, and an upper-carbon clutch operated by said armature, the actuation of the magnet operating to bring the carbons together, said magnets being wound with a coarse and a fine winding, the fine winding being on a shunt-circuit whereby the magnets attract the armature more the greater the resistance of the arc, said coarse winding being normally on a shunt-circuit, which includes a piece carried by said armature, and a projection in the line of movement of said piece whereby this shunt is established when the armature is sufficiently attracted, substantially as described.

20. In an electric-arc lamp, in combination, a central tube A, a smaller tube within the same and adapted to embrace a carbon, an opening through said tube A, an arm F secured to said inner tube and extending out through said opening, an armature adapted to govern the arc, a pair of magnets wound with coarse and fine wire, said fine wire being on a shunt-circuit whereby the magnets attract more the greater the resistance of the arc, and said coarse wire being on a shunt a part of which is carried by said arm and a part by said armature, said parts only coming into engagement when the armature is attracted more than normally, substantially as described.

644,963. **NAIL FOR UNEVENLY-WORN HORSESHOES.** WILLIAM J. BEOK, Fitzroy, Victoria. Filed July 20, 1899. Serial No. 724,551. (No model.)

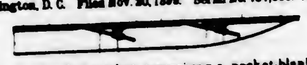


Claim.—1. An improved nail for unevenly-worn horseshoes comprising a shank, and an enlarged head formed on said shank provided with a sunken center, substantially as described.

2. An improved nail for unevenly-worn horseshoes comprising a shank with an enlarged head, said enlarged head having a grooved wearing-face and a sunken center, substantially as described.

3. An improved nail for unevenly-worn horseshoes having a shank with an integral head of enlarged area and with a grooved wearing-face protruding above the worn face of the shoe which head has a sunken center all as and for the purposes hereinbefore described and as illustrated in the drawings.

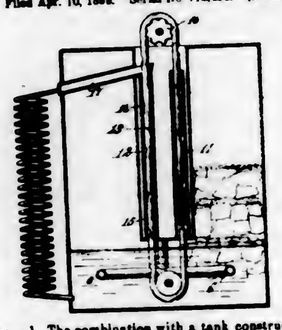
644,964. **SAFETY-POCKET FOR GARMENTS.** MAX BERNSTEIN, Washington, D. C. Filed Nov. 20, 1899. Serial No. 737,660. (No model.)



Claim.—1. A safety-pocket comprising a pocket-blank proper, and attached supplemental blanks forming the safety-pockets, the bottom of each supplemental blank constituting the flap or mouth-closure for the next adjacent pocket, substantially as described.

2. A safety-pocket comprising a pocket-blank proper, attached supplemental blanks forming the safety-pockets, the bottom of each supplemental blank constituting the flap or mouth-closure for the next adjacent pocket, and fastening means carried by the supplemental pockets, substantially as described.

644,965. **REFRIGERATING APPARATUS FOR COLD-STORAGE CHAMBERS.** CHARLES W. BLAGG, Sioux City, Iowa, assignor to himself, Louis Booker, Charles Wise, and William Francis Blagg, same place. Filed Apr. 10, 1899. Serial No. 712,438. (No model.)



Claim.—1. The combination with a tank constructed for the reception of a refrigerating medium, and provided with two extensions separated by an air-space, of a well disposed in the main portion of the tank and communicating with the atmosphere through the top of the latter, air-pipes leading from the bottom of the well along the bottom of the extensions through the refrigerant and to the exterior of the tank, and a fan for forcing air through said well and pipes, substantially as described.

2. The combination with a tank constructed for the reception of a refrigerating medium and provided with two extensions separated by an air-space, of a well disposed in the rear portion of the main tank and communicating with the atmosphere through the top of the latter, air-pipes leading from the bottom of the well along the rear wall of the tank and over the bottom of the latter and over the bottoms of the extensions and projecting through the front walls of the latter, and a fan for forcing air through said well and pipes, substantially as described, and for the purposes specified.

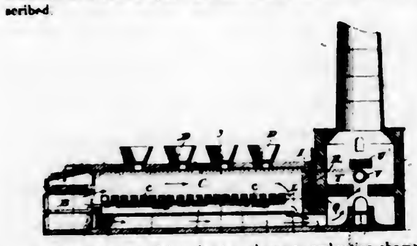
3. The combination with a tank provided with extensions separated by an air-space, of a well disposed vertically in said tank and open at its upper end, air-pipes leading from the bottom of the well along the rear wall of the tank and over the bottom of the latter and over the bottoms of the extensions, and a rotary fan disposed over the upper open end of the well, substantially as described

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644,966. **GARBAGE-FURNACE.** SAMUEL H. BROWN, Washington, D. C., assignor, by direct and mesne assignments, of two-thirds to Michael McBarron, Boston, Mass., and William V. McGrath, Jr., Philadelphia, Pa. Filed Aug. 23, 1897. Serial No. 649,113. (No model.)

Claim.—1. A furnace comprising a combustion-chamber, a chamber below and in communication with the combustion-chamber, a wall dividing the lower chamber, a stack, passages that lead, respectively, from the upper chamber to the stack, and to one of the parts of the lower chamber, and a passage establishing communication between the two parts of the lower chamber, the arrangement being such that a portion of the heated products of combustion and heated air is passed over the liquid portion of the refuse to vaporize the same, and the vapor produced is brought into contact with another portion of the heated products of combustion, and thus destroyed, substantially as and for the purpose described.

2. A furnace comprising a heat-producer, a combustion-chamber in communication therewith, a chamber below and in communication with the combustion-chamber, a wall dividing the lower chamber, a stack, passages from the upper chamber, leading, respectively, to the stack and to one of the parts of the lower chamber, and a passage through the wall placing the two chamber parts in communication the arrangement being such that a portion of the heated products of combustion and heated air is passed over the liquid portion of the refuse to vaporize the same, and the vapor produced is brought into contact with the remaining portion of the heated products of combustion, and thus destroyed, substantially as and for the purpose described.



3. A furnace comprising a heat-producer, a combustion-chamber, having a perforated bottom, a chamber below the latter having a perforated bottom, a passage from the producer leading into both of said chambers whereby products of combustion pass directly from the producer to both chambers, a third chamber below the other two and an outlet from the latter to the third chamber, substantially as and for the purpose described.

4. A furnace comprising a heat-producer, a combustion-chamber adjacent to the heat-producer and having openings in its bottom, a second chamber below the combustion-chamber, having a perforated bottom, a third chamber below the two mentioned chambers, a passage leading from the two upper chambers to the bottom one, a stack, and a passage from the bottom chamber to the stack, substantially as described.

5. A furnace comprising a heat-producer, a combustion-chamber adjacent to the heat-producer, a second chamber arranged below the combustion-chamber, both communicating with the heat-producer, a bottom chamber, a wall dividing the two lower chambers, a stack, and two passages from the upper chambers, one leading to the bottom chamber and the other leading to the stack, substantially as described.

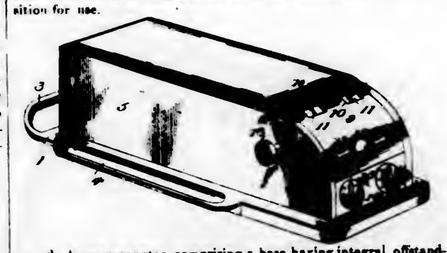
6. A furnace comprising a heat-producer, a combustion-chamber adjacent to the heat-producer, a second chamber arranged below the combustion-chamber, both communicating with the heat-producer, a bottom chamber, a wall dividing the two lower chambers, and having an opening connecting the parts of the bottom chamber, a stack, a passage leading from the two upper chambers to the bottom chamber at one side thereof, the other side of the bottom chamber connecting with the passage from the upper chambers to the stack, substantially as described.

7. A furnace comprising a heat-producer, a combustion-chamber adjacent to the heat-producer, a second chamber arranged below the combustion-chamber, both communicating with the heat-producer, a bottom chamber, a stack, a passage extending downward from the two upper chambers to the stack, a passage from the two upper chambers to the bottom chamber, and a passage having means for opening and closing it, extending directly from a point adjacent to the intermediate chamber to the stack, substantially as described.

8. A furnace comprising a heat-producer, a combustion-chamber adjacent to the heat-producer, a second chamber arranged below the combustion-chamber, both communicating with the heat-producer, a bottom chamber, a wall dividing the two lower chambers and having openings connecting the parts of the bottom chamber, a stack, a passage leading from the two upper chambers to the stack, a second passage leading from the two upper chambers to the bottom chambers at one side thereof, the other side of the bottom chamber connecting with the passage from the upper chambers, and slats or slabs designed to be placed in the passages leading from the upper chambers to regulate the size thereof, substantially as described.

644,967. **GAME-COUNTER.** HUGH H. BYRNE, La Crosse, Wis. Filed May 6, 1899. Serial No. 715,860. (No model.)

Claim.—1. A game-counter, comprising a base formed upon its upper side to provide a cribbage-board or like counter, a casing applied to the base and concealing and protecting the cribbage-board, indicating mechanism carried by and inclosed within the casing, and catches detachably connecting the casing to the base, whereby said casing may be readily and conveniently applied and removed to bring either the said indicating mechanism or the cribbage-board into position for use.



2. A game-counter, comprising a base having integral offstanding receptacles, and provided upon its top side with indicating devices, a casing seated upon the base, catches detachably connecting the casing and base, registering mechanism housed within the casing, and indicating means for registering the total number of games, substantially as set forth.

3. In a game-counter, registering mechanism neutral as to points won or lost and designed to be read either way, and a device for indicating the manner in which the points registered should be read.

4. In a game-counter, a single set of registering mechanism for each player to indicate both the number of points won and the number of points lost in the game, said mechanism being itself neutral as to minus and plus points and adapted to be read either way, and indicating mechanism to determine the manner in which the points registered should be read, the same consisting of movable pointers, and a character common to and cooperating with the pointers.

5. In a game-counter, a casing having an observation-opening, an inclosed indicator movable past the opening and carrying point characters neutral as to plus or minus and designed to be read either way, means for operating said indicator, and a device for indicating the proper manner in which the points registered should be read.

6. In a game-counter, a casing having an observation-opening, a wheel located wholly within the casing and having a peripheral portion approaching close to the said observation-opening, an endless indicating-strip housed at all points within the casing and operated by means of said wheel, a series of pulleys for giving proper direction to and preventing slack in the indicating-strip, and an operating-knob connected with the said wheel for rotating it, substantially as specified.

7. A game-counter, comprising a casing having a plurality of observation-openings, independently mounted and operated wheels located within the casing and having their peripheral portions approaching close to the observation-openings, endless indicating-strips movable by means of said wheels, independent series of direction-pulleys for each indicating-strip, operating-knobs for the said wheels, indicating mechanisms for determining the manner and character of reading the registering mechanisms to determine the status of each player with reference to the game, and tallying devices for determining the number of games, substantially as set forth.

8. A game-counter, comprising a base having integral offstanding receptacles, and provided upon its top side with indicating devices and having elongated openings and recesses in its bottom side in line with said openings, a casing detachably connected with the base, turn-buttons applied to the casing and adapted to pass through the elongated openings and to be turned crosswise thereof and seated in the said recesses, registering mechanism housed within the casing, and indicating means for registering the total number of games, substantially as set forth.

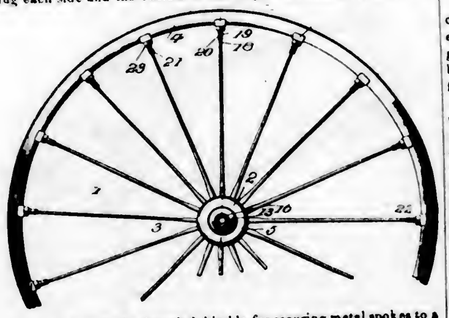
644,968. **WHEEL.** HOLMAN CRAWFORD and JAMES M. COLLINS, Maysville, Ky. Filed June 26, 1899. Serial No. 721,920. (No model.)

Claim.—1. In a wheel, the combination with the hub made in two sections, means at the meeting ends of said sections for locking the spokes thereto, of headed spokes forming part of said locking means, of a thimble on the end of each spoke, passing through the felly, and a clamp and nut for adjusting and holding the parts of the wheel in fixed relation, substantially as set forth.

2. In a wheel the combination with a series of spokes, each provided with a locking-head at its inner end, a thimble screwed on the outer end, which is seated in the felly of a wheel, a jam-nut working on the external screw-threads of the thimble, and a clamp interposed on said thimble and between the felly and the jam-nut, substantially as set forth.

3. In a wheel, the combination with the felly thereof, a series of thimbles seated in perforations in said felly, the thimble having an interior screw-thread, the spokes having threaded ends, and screwed

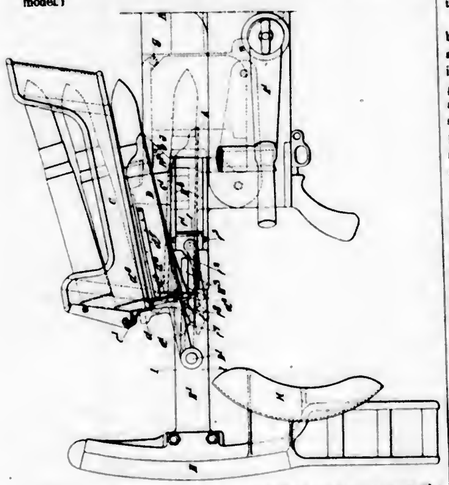
into the thimble, the latter having a flanged head, a reduced exterior threaded portion and a square boss below said threaded portion, a clamp interposed between the felly and a jam-nut, and adapted to hug each side and the bottom of the felly, substantially as set forth.



4. An interiorly-threaded thimble for securing metal spokes to a felly, consisting of a cylindrical body portion, reduced at the lower end and exteriorly screw-threaded, and a square boss formed below said reduced threaded portion for applying a wrench or the like for adjustment, substantially as set forth.

5. In a wheel the combination, with the felly, a spoke made of single pieces having a threaded outer end, and a head at its inner end, approximately an inverted-V shape in side view, of a thimble seated in the felly of the wheel, having an adjusting connection with said thimble and the threaded outer end of the spoke, a boss formed on the lower end of the thimble and below said outer threads, and a hub made in two sections, each section provided with oppositely-disposed projections and slots forming seats to conform to the configuration of the head at the inner end of the spokes, substantially as set forth.

644,969. AUTOMATIC GUN. ARTHUR T. DAWSON and LOUIS SILVERMAN, London, England, assignors to the Vickers, Sons & Maxim, Limited, same place. Filed Aug. 21, 1899. Serial No. 727,984. (No model.)



Claim.—1. In cartridge-feed mechanism for automatic guns, the combination with a hinged cartridge-carrier adapted to be raised to receive a cartridge and to be depressed to bring said cartridge into a position to be thrown into the barrel, of a cartridge-hopper superimposed above said carrier, and of means for liberating the lowermost cartridge in the hopper to permit it to fall into the carrier as the latter rises into a position to receive it substantially as described.

2. In cartridge-feed mechanism for automatic guns, the combination with a hinged cartridge-carrier adapted to be raised to receive a cartridge and to be depressed to bring said cartridge into a position to be thrown into the barrel, of a cartridge-hopper superimposed above said carrier, of an escapement device on the hopper which acts to prevent the cartridges from escaping by jamming action on the lowermost cartridge in the hopper, and of a projection on said carrier for actuating the said escapement device as the carrier assumes its elevated position, substantially as described.

3. In cartridge-feed mechanism for automatic guns, a hinged cartridge-carrier of trough shape with longitudinal beadings at its edges and with a curved or inclined back portion which acts to longitudinally shift the cartridge as it falls into the carrier and to thereby bring its flange beneath the said beadings, for the purposes specified.

4. In cartridge-feed mechanism for automatic guns, the combination with the recoiling gun-barrel, of the hinged cartridge-carrier having a lateral projection which rests on a part of the breech end of the barrel until it completely advances after recoiling, and a pivoted arm to bear against said lateral projection of the carrier and support it in its elevated position at such an angle to the axis of the breech of the gun that the ejected cartridge-cases will strike it and prevent its premature descent substantially as and for the purpose specified.

5. In cartridge-feed mechanism for automatic guns, the combination with the hinged cartridge-carrier and the pivoted arm by which it is elevated and supported, of a friction-stop in the form of a convex protuberance which lies beneath the said pivoted arm and past which said arm has to be moved by bending laterally in order to permit the carrier to descend substantially as and for the purpose specified.

6. In cartridge-feed mechanism for automatic guns, the hinged carrier constructed on its under side with the longitudinal, permanently curved or inclined cartridge-case guide d^9 for acting directly upon the ejected cartridge-cases and directing them downward, substantially as and for the purposes described.

7. In cartridge-feed mechanism for automatic guns, the combination with the hinged carrier, of a shield adapted to move therewith and capable of being struck by the ejected cartridge-cases substantially as and for the purposes specified.

8. In a cartridge-feed mechanism for an automatic gun, the combination of a hinged carrier having a longitudinal groove, a tubular stem arranged at one side of the carriar and having a fixed abutment on its exterior, a spring pistoo working in said stem, a catch pivotally mounted on the spring-pistoo and engaging said fixed abutmant when the piston is retracted, and a finger carried by the said pivoted catch, lying in the path of said hinged carrier and constructed to enter and work in the longitudinal groove of the latter, substantially as and for the purposes described.

9. In a cartridge-feed mechanism for an automatic gun, the combination of a hinged carrier having a longitudinal groove, a tubular stem having a fixed abutment on its exterior, a spring-piston working in said stem, a catch pivotally mounted on the spring-piston to engage the fixed abutment when the piston is retracted and constructed at its rear end portion with an extensioo to bear against the under side of said fixed abutment, and a finger projecting laterally from said pivoted catch into the path of the hinged carriar when it descends and constructed to work in the said longitudinal groove, substantially as and for the purposes described.

10. In a cartridge-feed mechanism for an automatic guo, the combination of the hinged carrier, a tubular stem arranged at one side of the carrier and having a fixed abutment on its forward end portion, a spring-piston working in the tubular stem, a catch pivoted on said piston and provided at its pivotal point with an arm, a spring acting to normally press said arm upward and the catch into engagement with said fixed abutment, and a device operated by the carrier in its descent to actuate the catch and disengage it from the abutment, substantially as and for the purpose described.

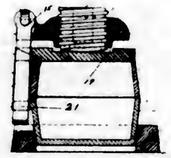
11. In cartridge-feed mechanism for automatic guns the combination with the hinged carrier, the pivoted catch, the fixed abutment and the spring-piston, of a transverse pin connecting the said catch to the spring-piston, and of shoulders on the ends of said pin to slide against guiding-surfaces on the stem of the gun substantially as and for the purpose specified.

644,970. DENTAL FLASK. THOMAS G. DONALDSON, Baltimore, Md. Filed Feb. 6, 1899. Serial No. 704,731. (No model.)

Claim.—1. The combination with a dental flask of an equalizing compressor-plate provided with an equalizing compressor-screw and connecting-links securable to the bottom section of said flask substantially as described.

2. The combination in a dental flask comprising a flask-holder, an equalizing compressor-plate, flask-sections, and connecting-links with means for compressing said flask-sections, substantially as described.

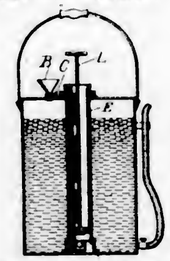
3. An equalizing compressor-plate for compressing the dental flask, provided with an equalizing compressor-screw having a socket for receiving the wrench, said equalizing compressor-plate being also provided with grooved lugs for receiving securing-links, and means for tightening the flask parts, substantially as described.



4. The combination in a dental flask comprising a flask-holder, a wrench, an equalizing compressor-plate provided with an equalizing compressor-screw and grooved for receiving the upper jaws of the links, and links with means for connecting and tightening the parts of the flask, substantially as described.

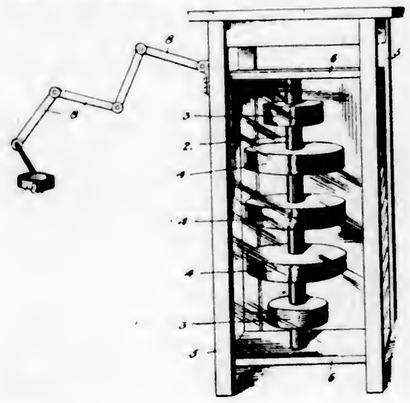
5. The combination of a dental flask with a compressor comprising a flask-holder, a wrench, an equalizing compressor-plate, a top section, a middle section, a bottom section, and connecting-links, the said equalizing compressor-plate being provided with equalizing compressor-screw with socket for receiving the wrench and with grooved lugs for receiving the upper jaws of the connecting-links; and the said bottom section being provided with lugs for receiving the enlarged lower ends of the links, for compressing and tightening the flask-sections, substantially as described.

644,971. SPRAY. ROBERT F. DULL, Bridgewater, Va. Filed Nov. 15, 1899. Serial No. 737,075. (No model.)



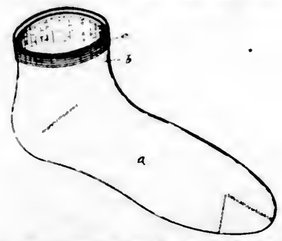
Claim.—The hand-spray, consisting of the portable tank or vessel, the removable air-pump located in said vessel, the inclosing perforated or slotted lateral and end bearing cup for the lower end of said pump secured to the bottom of said tank, the removable connection of the upper portion of said pump with the top of said tank, the outlet-valve in the bottom of said pump, and the flexible discharge-tube connected to said tank, substantially as specified.

644,972. INDUCTION-COIL FOR X-RAY APPARATUS. REGINALD A. FESSENDEN, Allegheny, Pa., assignor to the Fessenden Manufacturing Company, Pittsburg, Pa. Filed Mar. 19, 1897. Serial No. 628,375. (No model.)



Claim.—An induction-coil vertically mounted in an insulating-framework surrounding said coil, adapted to support it at more than one point, provided with a table-top and a movable arm attached to the insulating-framework provided with a tube-holder, substantially as and for the purposes set forth.

644,973. FOOT FOR STOCKINGS. MORRIS FRIEDLANDER, East Orange, N. J. Filed Apr. 21, 1899. Serial No. 713,865. (No model.)



Claim.—As an article of manufacture, the herein-described foot-piece for a stocking, comprising a body portion terminating at the ankle and adapted to be sewed to the lower end of the leg portion of an old stocking, and a band c, of elastic webbing, sewed at its lower edge to said body portion below the top thereof and projecting at its upper free edge above said top, substantially as set forth.

644,974. HOLDER FOR PACKING OF SCUTCHER-DRUMS. WALTER FROST, Manchester, England, assignor to Samuel Herbert Brooks and Frederick George Goodbehere, same place. Filed Sept. 24, 1897. Serial No. 652,932. (No model.)

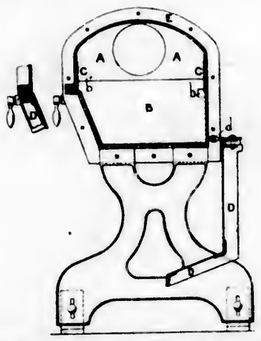


Claim.—In a cotton opener or scutcher the combination with the framing A, the perforated exhaust-drums B and C by which the dust is drawn from the fibers, and the strips of leather E for preventing escape of air around the peripheral edges thereof, of the annular metallic holders D placed around the peripheral edges of the drums and removably attached to the framing, and the flange *d* thereon forming a recess to receive and clamp the said leather strip E in position substantially as described.

644,975. DUST TRUNK OR TUBE FOR COTTON-OPENERS. WALTER FROST, Manchester, England, assignor to Samuel Herbert Brooks and Frederick George Goodbehere, same place. Filed Sept. 24, 1897. Serial No. 652,933. (No model.)

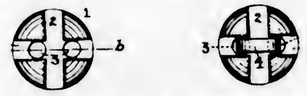
Claim.—1. A pneumatic dust tube or trunk for separating dust from fibers, a casing comprising a trunk-casing A, loose division-plates B suspended therein, brackets C upon which the division-plates are

suspended, and a pivoted lid or cover of angular form, inclosing the bottom and one side of the trunk, substantially as and for the purpose described.



2. In a pneumatic dust tube or trunk for separating dust from cotton fibers, a casing, a number of division-plates constructed with an aperture B' to provide a rubbing-surface both top and bottom, in combination with brackets affixed to the sides of the trunk upon which they are suspended and a pivoted lid or cover to close the bottom and side of the trunk, substantially as described.

644,976. DRUGGET-PIN. JAMES H. GIBSON, Southport, England. Filed May 18, 1899. Serial No. 717,336. (No model.)



Claim.—1. In a drugget-pin the combination of a head having in its upper surface two countersunk channels at right angles to each other, and perforations in one of said channels, with a staple whose top is adapted to lie in said channel, substantially as described.

2. As a new article of manufacture a drugget-pin comprising a head having two channels or recesses in its upper surface at right angles to each other, perforations in one of said channels, and a staple whose limbs are passed through said perforations, and whose top lies flush within the channel in which said perforations exist, substantially as described.

644,977. COMBINED PASTE-BOX AND DAUBER. EDGAR T. GILBERT, Rochester, N. Y., assignor to the E. T. Gilbert Manufacturing Company, same place. Filed Oct. 4, 1899. Serial No. 732,562. (No model.)



Claim.—1. The combination with a receptacle and a cover therefor, of a second receptacle on the cover, and a closure for the said receptacle having a dauber upon its inner face.

2. The combination with a receptacle having a cover, and a receptacle connected to the cover, of a closure for the latter receptacle having the tapering sides and provided upon its under surface with a covering of fibrous material.

3. The combination with a receptacle having a cover and the rim or flange 5 thereon, of a closure for the said receptacle having its sides tapered to fit within the rim, and a dauber 11 of fibrous material secured upon its lower end.

4. The combination with a receptacle containing a paste or similar material, and a cover therefor formed of sheet metal, of a superposed dauber-receptacle constructed of sheet metal secured to the cover by a single rivet passing through both parts, and a cover for the upper receptacle having a dauber secured to the under side thereof.

644,978. VEGETABLE-CUTTER. GEORGE B. GREASER, Drab, Pa. Filed July 14, 1897. Serial No. 644,554. (No model.)



Claim.—1. In a vegetable-cutter, a reciprocating frame having ways upon its sides, a block upon said ways, a spring-actuated holder upon said block, a second holder upon said cutting frame, and means for adjusting said block longitudinally in the ways with relation to the second holder, substantially as described.

2. In a vegetable-cutter, a reciprocating frame provided with ways upon its sides, a block having sliding movement in said ways, stops upon the sides along the ways, movable arms upon the block adapted to engage with and be disengaged from the stops, a holder carried by said block, and a second holder carried by the reciprocating frame substantially as described.

3. In a vegetable-cutter, a reciprocating frame, a holder carried by the said frame, a member adjustable with relation to the before-mentioned holder, and a yielding holder upon said adjustable member, the parts being so arranged that the holders will coact; substantially as described.

4. In a vegetable-cutter, the combination of a reciprocating frame, a holder fixed to the frame, a block adjustable in the frame with relation to the holder, brackets upon the block, a plunger holder seated in the brackets, and a spring for keeping the plunger-holder in operative position.

5. In a vegetable-cutter, the combination of a reciprocating frame, a holder suitably supported upon said frame, grooves in the sides of said cutting frame, a block slidable in said grooves, notches formed in the sides along the grooves, a lever pivoted to the block, guides upon said block, arms pivoted to the lever and passing through said guides, said arms being adapted to enter and recede from the notches upon appropriate movement of the lever, brackets upon said block, a plunger in said brackets, said plunger having a socket formed in its forward end, and a coiled spring bearing at one end against the plunger and at its other end against one of the brackets, whereby the plunger is normally held in a forward position, the parts being so arranged that the holder and the plunger cooperate to engage and hold an article placed between them; substantially as described.

6. In vegetable-cutters, the combination of a base member having reciprocating mechanism thereon, a cutting-frame reciprocating on said base member, a shaft journaled in said cutting-frame, said shaft being provided with a holder, arms upon said shaft, and cams upon the base member adapted to engage the arms in the reciprocation of the parts and to impart rotation to the shaft; substantially as described.

7. In a vegetable-cutter, the combination of a base member, cutting mechanism attached to said member, a frame reciprocating on said base member, a shaft mounted in the reciprocating frame, the shaft being provided with a holder arms extending from the shaft, a cam on the base member below the shaft having one of its sides curved outwardly, and a second cam on the base member lying out of the line of the shaft carried by the reciprocating frame and to one side of the first-mentioned cam, the second cam having its forward portion inclined, whereby rotation is imparted to the shaft upon operating the reciprocating frame.

8. In a vegetable-cutting machine of the character indicated, a holder, a reciprocating member, means for reciprocating the holder and cutting member one with relation to the other, means for rotating the holder in the movement of reciprocation, and means for locking said holder in position during the action of the cutting member; substantially as described.

9. A vegetable-cutting machine of the nature indicated, comprising a base member, a reciprocating frame upon said base member, the cutting-frame and base member having reciprocation one with relation to the other, a shaft journaled upon said cutting-frame, said shaft being provided with a holder, a cutting mechanism upon the base member, means for rotating the shaft during the reciprocation of the parts, and means for locking said shaft in position, during the action of the cutting mechanism; substantially as described.

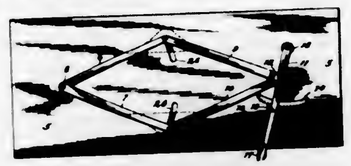
10. A vegetable-cutting machine of the character indicated, comprising a base member, a cutting mechanism upon said base member, a reciprocating frame upon said base member, said frame and base member having reciprocation one upon the other, a shaft journaled upon said frame, said shaft being provided with a holder, a plate upon said shaft, said plate being provided with notches, a locking member upon the cutting-frame adapted to engage with and be disengaged from the notches, and means for releasing the locking member from the notches and permitting rotation of the shaft, before again engaging the locking member with the notches and thus holding the shaft against rotation during the action of the cutting mechanism; substantially as described.

11. A vegetable-cutting machine of the character indicated, comprising a base member, a cutting mechanism upon said base member, a reciprocating frame upon said base member, said cutting-frame and base member having reciprocating movement one upon the other, a shaft journaled upon said cutting-frame, said shaft being provided with a holder, a plate upon said shaft, said plate being provided with notches, a lever upon the reciprocating frame, a lug upon said lever adapted to engage with the notches upon the plate, and means for releasing the lug from a notch to permit rotation of the shaft before again throwing the lug into a notch and thus holding the shaft in a fixed position during the action of the cutting mechanism; substantially as described.

12. A vegetable-cutting machine of the character indicated comprising a base member, a cutting mechanism upon said base member, a reciprocating frame upon said base member, said base member and frame having reciprocation one upon the other, a shaft journaled in said reciprocating frame, said shaft being provided with a holder, a plate having notches therein upon said shaft, a lever upon the reciprocating frame, a lug upon said lever adapted to engage the notches in the plate, an arm upon said lever, and a cam upon the base member in the path of the before-mentioned arm, whereby during the reciprocation of the frame, the lug will be disengaged from its notch in the plate and held from said engagement during rotation of the shaft but will engage a notch after the shaft has been sufficiently rotated; substantially as described.

13. A machine of the character indicated comprising a base member provided with a reciprocating mechanism, a cutting-frame upon said base member, said frame and base member having reciprocation one with relation to the other, a shaft journaled upon said reciprocating frame, said shaft being provided with a holder, arms projecting from said shaft, a plate provided with notches upon said shaft, a lever upon the reciprocating frame, a lug upon said lever adapted to engage with and be disengaged from the notches in the plate, an arm depending from said lever, a cam upon the base-plate in line with the shaft, said cam having one of its sides rounded, and a second cam upon said base-plate out of line with the shaft but in line with the depending arm of the lever, said second cam lying toward the curved side of the first-mentioned cam and having its forward portion inclined; substantially as described.

644,979. HEARSE ATTACHMENT. MILTON M. GUILEY, Hartville, Ohio, assignor of one-half to Philo C. Smith, Cairo, Ohio. Filed Aug. 9, 1899. Serial No. 726,711. (No model.)



Claim.—1. In a device of the class described, the combination with a base, of cooperating toggle-levers mutually connected, and having a common pivotal connection with the base, a clamping-jaw pivoted to the intermediate pivot of each lever, and means connected with the levers for operating them.

2. The combination with a base, of toggle-levers having a common pivotal connection therewith, slots in the base through which the pivots of the levers are passed, a clamping-jaw carried by each pivot, and means for operating the toggle-levers.

3. In a device of the class described, the combination with a base having slots therein, toggle-levers having a common pivotal connection with the base, the pivot of the links of each lever being passed through a slot in the base, a clamping-jaw carried by each of said pivots, and a lever connected with the toggle-levers for operating them and having means for holding it in different positions in its adjustment.

4. In a device of the class described, the combination with a base having slots therein, of toggle-levers comprising mutually-pivoted links, a common pivotal connection between said levers and the base, pivots for the links of the levers passed through openings in the base, clamping-jaws carried by said pivots, stops in the paths of said jaws adapted to move them upon their pivots, a lever connected with the toggle-levers for operating them, and means for holding the lever at different points in its adjustment.

644,980. PLOW ATTACHMENT. EDWIN H. GURNEY, Chagrin Falls, Ohio. Filed Dec. 27, 1898. Renewed Aug. 10, 1899. Serial No. 726,846. (No model.)



Claim.—1. A plow having a colter at one side of the share, in combination with a seamer secured to the inner side of the colter and consisting of a blade inclined upwardly and rearwardly and curved upwardly between its longitudinal edges, substantially as described.

2. A plow having a colter at one side of the share, in combination with a fender applied to the colter and overhanging the moldboard, and a seamer projecting laterally from the colter and coming between the share and the overhanging portion of the feeder, substantially as described.

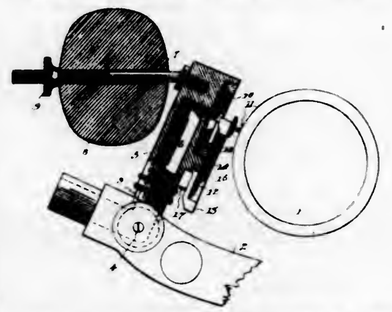
3. The combination with a plow having a moldboard and landside, of a share having a vertically-disposed colter at one side adapted to aline with said landside, and a fender secured to the upper part of the colter and projecting over the said moldboard.

4. The combination with a plow having a moldboard and landside, of a share having a vertically-disposed colter at one side adapted to aline with said landside, a seamer adjustably mounted on the inner face of the colter above and over a part of the share, and a fender secured to the upper part of the colter and projecting rearwardly over the said moldboard.

5. In combination with a plow, a fender secured at one end to the landside portion of the furrow-opener and arching over the moldboard and inclining rearwardly, substantially as set forth.

6. In a plow the combination with a share provided with a colter, of a fender secured to the colter and arching over the moldboard and inclining rearwardly and terminating in a blunt point, a seamer consisting of a blade upwardly and rearwardly inclined and curved upwardly between its longitudinal edges, and means for adjustably connecting the seamer to the colter, substantially as and for the purpose described.

644,981. GRAPHOPHONE-REPRODUCER. WILLIAM HART, Kirksville, Mo. Filed Nov. 22, 1897. Serial No. 659,434. (No model.)



Claim.—1. In a graphophone, the combination of a record and a reproducer comprising a diaphragm, of a resilient stylus-carrying arm having a pivotal connection at one end with the reproducer-frame to permit of its oscillation in a direction toward and away from the diaphragm, the resiliency of said stylus-carrying arm also permitting a movement, independent of its pivotal motion, transversely of the faces of the diaphragm and record, and a stylus adjustably mounted in said arm and adapted for adjustment with respect thereto in a direction toward and away from the record, substantially as described.

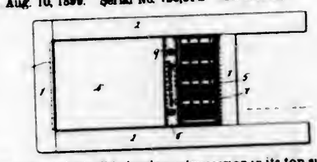
2. In a graphophone, the combination of a record and a reproducer comprising a diaphragm adapted to vibrate at right angles to the face of the record, of a flat stylus-carrying spring-arm having a pivotal connection at one end to a fixed point of attachment on the

reproducer-frame to permit the stylus to freely vibrate in a direction toward and away from the diaphragm, said flat spring-arm being arranged edgewise with reference to the faces of the diaphragm and record to prevent independent movement thereof in the direction of vibration of the stylus and permitting the same to move transversely of the faces of the diaphragm and the record, and a stylus adjustably mounted in said arm and adapted for adjustment with respect thereto in a direction toward and away from the record, substantially as set forth.

3. In a graphophone, the combination with the reproducer, of a pivoted arm bearing a stylus and a pin which are relatively adjustable, whereby either the stylus or pin may be caused to engage with the diaphragm, substantially as described.

4. In a graphophone, the combination with the reproducer, of a pivoted arm, a stylus having adjustable connection with the pivoted arm to engage centrally with the diaphragm, and a pin attached to the said pivoted arm and adapted to engage with the diaphragm at a point remote from its center upon moving the stylus outward or away from the diaphragm, substantially as and for the purpose set forth.

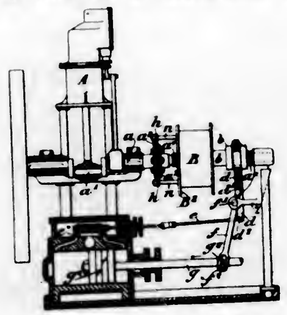
644,982. DESK-SLIDE. TJARK J. HOUTHAM, New York, N. Y. Filed Aug. 10, 1899. Serial No. 726,814. (No model.)



Claim.—1. A desk-slide having a depression in its top surface, one wall forming an end of said depression being undercut on an incline and the side walls being vertical, a removable and replaceable tablet or plate seated in said depression so that the upper surface thereof will be flush with the top of the slide, and having its opposite ends beveled, one of said beveled ends fitting under the said undercut end wall of the depression, a removable transverse rail seated in the depression and lying flush with the top of the tablet and slide, one side of said rail being undercut on an incline to overhang the adjacent beveled end of the tablet or plate when the parts are in position, and means for detachably securing the rail to the slide, substantially as described.

2. A desk provided with a horizontal slide moving in a recess therein and having a depression in its top surface, the outer end walls forming said depression being undercut on an incline and the side walls being vertical, a removable and replaceable writing-tablet and a transparent plate seated in said depression in the slide so that the upper surfaces thereof will lie flush with the upper face of the slide and each having beveled opposite ends and vertical side walls, the outer beveled ends of the tablet and plate respectively fitting under the said inclined undercut end walls of the depression, a removable transverse rail extending between and bearing upon the adjacent beveled ends of the said tablet and plate and having its opposite sides undercut on an incline to overhang and abut the said adjacent beveled ends of the tablet and plate to force these parts into position, and means for securing the rail within the depression so that the upper face thereof will lie flush with the upper surfaces of the slide, tablet and plate, substantially as described.

644,983. SPEED-GOVERNOR FOR ENGINES. ROBERT F. C. KEATS, Portsmouth, England, assignor to Bertram Charles Elliot, Chelsea, England. Filed Nov. 14, 1898. Serial No. 696,426. (No model.)



Claim.—1. In a steam-engine governor, the combination with a governing-engine and a shaft rotated thereby, of a sleeve having a screw-threaded connection with said shaft, a pulley loosely mounted on said sleeve and driven from the engine to be governed, a clutch connection between said pulley and sleeve and means for controlling the valve mechanism of the engine to be governed, the same being thrown into operation by the longitudinal movement of said pulley on said shaft caused by a variation in the speed of the governing-engine and the engine to be governed.

2. In a steam-engine governor, the combination with a governing-engine and a shaft rotated thereby, of a sleeve having a screw-threaded connection with said shaft, a pulley loosely mounted on said sleeve and driven from the engine to be governed, a clutch connection between said pulley and sleeve, an engine for controlling the valve mechanism of the engine to be governed, and means actuated by the longitudinal movement of said pulley on said shaft for operating the valve of the controlling-engine, said longitudinal movement of said pulley being caused by a variation in the speed of the governing-engine and the engine to be governed.

3. In a steam-engine governor, the combination with a governing-engine and a shaft rotated thereby having screw-threads thereon, of a sleeve having internal screw-threads thereon meshing with the screw-threads on said shaft, a ratchet-wheel secured to said sleeve having two sets of oppositely-extending ratchet-teeth thereon, a pulley loosely mounted on said sleeve driven from the engine to be governed, pawls secured to said pulley engaging, respectively, the two sets of teeth on said ratchet-wheel, means for controlling the valve mechanism of the engine to be governed, and means actuated by the longitudinal movement of said pulley on said shaft, caused by a variation in the speed of the controlling-engine and the engine to be governed, for throwing into operation said controlling means.

4. In a steam-engine governor, the combination with a governing-engine and a shaft rotated thereby having screw-threads thereon, of a sleeve having internal screw-threads thereon meshing with the screw-threads on said shaft, a ratchet-wheel secured to said sleeve having two sets of oppositely-extending ratchet-teeth thereon, a pulley loosely mounted on said sleeve driven from the engine to be governed, pawls secured to said shaft engaging, respectively, the two sets of teeth on said ratchet-wheel, means for controlling the valve mechanism of the engine to be governed, means actuated by the longitudinal movement of said pulley on said shaft, caused by a variation in the speed of the controlling-engine and the engine to be governed, for throwing into operation said controlling means, and means for disengaging said pawls from said ratchet-teeth when said pulley has reached the limit of its movement in one direction or the other.

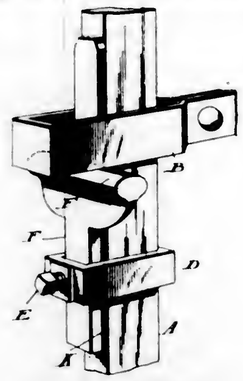
5. In a steam-engine governor, the combination with a controlling-engine and a shaft rotated thereby having screw-threads thereon, of a sleeve having internal screw-threads thereon meshing with the threads on said shaft, a ratchet-wheel secured to said sleeve having two sets of oppositely-extending teeth thereon, a hollow pulley loosely mounted on said sleeve and driven from the engine to be governed, spring-actuated pawls engaging, respectively the two sets of teeth on said ratchet-wheel, and having lateral projections, a disengaging-ring for said pawl embracing said ratchet-wheel and adapted to engage the lateral projections on said pawls, controlling means for the valve mechanism of the engine to be governed, and means actuated by the longitudinal movement of said pulley on said shaft, caused by a variation in the speed of the governing-engine and the engine to be governed, for throwing said controlling means into operation and for releasing the pawls which are in engagement with the teeth on said ratchet-wheel when said pulley has reached the limit of its longitudinal movement in one direction or the other.

6. In a steam-engine governor, the combination with a governing-engine, a shaft rotated thereby, a sleeve on said shaft, a pulley on said sleeve driven by the engine to be governed, and means thrown into operation by a variation in the speed of said governing-engine and the engine to be governed for causing the longitudinal movement of said pulley and sleeve on said shaft, of a controlling-engine for the valve mechanism of the engine to be governed, a pitman connected to the stem of the valve of said controlling-engine, a lever attached to said rotary shaft and pivoted to said pitman, and a lever fulcrumed upon a fixed part pivoted at one end to said lever and connected, with provision for a small degree of lost motion, with the piston-rod of the piston of said controlling-engine, as and for the purpose set forth.

644,984. LOOM ATTACHMENT. PETER LAMBERT, Fall River, Mass. Filed Dec. 19, 1899. Serial No. 740,897. (No model.)

Claim.—1. In combination with the picker-stick of a loom a slide, a collar passed about said slide and stick, and a set-screw for holding the same to the stick, the upper end of the slide having an elongated head with its upper end curved, a picker-strap surrounding said stick and resting on said head of the slide, as shown and described.

2. In combination with a picker-stick of a loom, the collar, the set-screw mounted therein, a slide having a head which is recessed on one side, a leather or other strap seated in said recess and held between the slide and the picker-stick and the picker-strap adapted to rest on the head of said slide, as shown and described, and for the purpose set forth.



644,985. HOOK. WALTER V. LAWTON, Providence, R. I., assignor to Mary D. T. Lawton and Mary T. A. Bowen, same place. Filed Nov. 23, 1898. Serial No. 697,223. (No model.)



Claim.—1. A hook device for the purpose stated, comprising a body member having fixed spurs at the lower end, and an opening; a movable spur member adapted to project above the upper end of the body member, said movable spur member being slidably held on the back of the said body to move in a plane parallel therewith and having an opening adapted to be moved into register with the opening in the body member; an arm hinged to the front face of the body member, having a heel portion movable thereon, opening in the said bottom member and to project into the opening of the sliding spur member to engage therewith and lift the said sliding spur member, substantially as shown and described.

2. As a new article of manufacture; a hook for the purposes stated, comprising a body having fixed spurs at the lower end; and having portions slitted and bent rearward and horizontally toward each other to form guides and also having slitted portions bent downward to form ears; an arm hinged between the said ears and having a heel portion projected through the opening formed therebetween and a slide member having its upper end spar-shaped movable on the rear face of the body between the horizontal guides and having an opening or seat to receive the heel of the hinged arm, all being arranged substantially as shown and for the purposes described.

644,986. FALSE WORK FOR CENTERING CONCRETE OR OTHER FLOORS. JEFFERSON L. LEONER, Allegheny, Pa. Filed Dec. 18, 1899. Serial No. 740,696. (No model.)



Claim.—1. In improved false work, floor-sustaining stringers adapted to be supported at the ends by beams, each stringer being composed of two longitudinal overlapping sections, one section being slotted longitudinally, and the other section carrying transverse clamping-bolts which move in the slot, substantially as shown and described.

2. In improved false work, a plurality of stringers adapted to reach from beam to beam and be supported thereby, and horizontal angles or wings carried by the stringers, the angles or wings of adjacent stringers meeting to form a substantially-unbroken floor, substantially as shown and described.

3. In improved false work, a plurality of stringers adapted to reach from beam to beam and be supported thereby, horizontal angles or wings carried by the stringers, with the angles or wings of adjacent stringers meeting to form a substantially-unbroken floor, and cross-bars sustained by adjacent stringers immediately beneath said angles or wings, substantially as shown and described.

4. In improved false work, a stringer adapted to be sustained at the ends by the beams, the stringer being composed of two overlapping sections and each section comprising two longitudinal members, the members of one section lying close together and slotted longitudinally, the members of the other section slightly separated to overlap the outer sides of the slotted section, transverse clamping-bolts uniting the sections and movable in the slotted member, and an outwardly-projecting angle or wing carried by each member of each section, the wings of the slotted section overlapping the wings of the other section, substantially as shown and described.

5. In improved false work, a stringer adapted to be sustained at the ends by the beams, the stringer being composed of two overlapping sections, each section comprising two longitudinal members, the members of one section lying close together and the members of the other section separated to overlap said closely-lying members, the sections being adjustable longitudinally on each other, means for securing them in desired adjustment, and an outwardly-projecting angle or wing carried by each member of each section, the angles or wings of the closely-lying members overlapping the wings of the other members, substantially as shown and described.

6. In improved false work, a stringer, jacks at the ends of the stringer, and a vertical succession of beam-engaging points on each jack, substantially as shown and described.

7. In improved false work, a stringer, jacks at the ends of the stringer, and a vertical succession of beam-engaging notches in each jack, substantially as shown and described.

8. In improved false work, a stringer, jacks vertically adjustable on the stringer, each jack being provided with a vertical succession of beam-engaging points, substantially as shown and described.

9. In improved false work, stringers, beam-engaging jacks secured to the stringers and adapted to stand either vertical or at an angle to the plane of the stringers, and boards for molding the inner faces of the floor-haunches adapted to be sustained by the jacks, substantially as shown and described.

10. In improved false work, a stringer, and a reversible jack removably secured to the stringer, one edge of the jack being adapted to be sustained by a beam, and its opposite edge provided with a spike projection, substantially as shown and described.

11. In improved false work, stringers, supporting-jacks, and haunch-molding boards adapted to unite and brace adjacent stringers against each other, substantially as shown and described.

12. In improved false work, stringers each formed of overlapping sections adjustable longitudinally on each other, overlapping laterally-projecting angles or wings on the stringers forming floor-sections, and jacks secured to the stringers, each jack having a succession of beam-engaging points, substantially as shown and described.

13. In improved false work, a stringer adapted to be sustained at the ends by floor-beams, the stringer being composed of two overlapping sections and each section comprising two longitudinal members, means for securing the overlapping sections together in proper adjustment, and an outwardly-projecting angle or wing carried by each member of each section, substantially as shown and described.

14. In improved false work, bay-spanning members, and haunch-molding boards supported by adjacent members and bracing the latter against lateral strains, substantially as shown and described.

15. In improved false work, bay-spanning members, and molding-boards adjustable to form either straight or tapered haunches, substantially as shown and described.

644,987. HARP. GUSTAVE F. LYON, Paris, France. Filed May 19, 1899. Serial No. 717,513. (No model.)



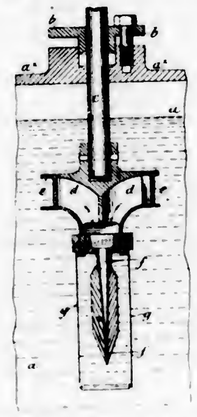
Claim.—1. In a harp, the combination with the sounding-board, the back frame, and the strings pulling on the sounding-board, of springs interposed between the sounding-board and back frame and having a tension to counteract the traction exerted by the strings on the sounding-board, substantially as described.

3. In a harp, the combination with the sounding-board, the strings pulling on the sounding-board, and the back frame, of a series of spiral springs connected to said back frame and sounding-board and having a degree of tension to counteract the traction of the strings upon the sounding-board, substantially as described.

3. In a harp, the combination of a sounding-board, a series of strings attached to said sounding-board, a back frame, and spiral springs attached at one end to the back frame and having their other ends secured to the sounding-board, said springs being under a proper tension to counteract the traction of the strings on the sounding-board.

4. In a harp, the combination with a sounding-board of strings attached at one end thereto, spiral springs having one end attached to the back frame and the other ends passed through openings in the sounding-board formed parallel with the strings, and milled nuts turned on the threaded ends of said springs to regulate their tension, substantially as described.

644,988. APPARATUS FOR DYEING. JAMES MAJOR, Bocles, England. Filed Feb. 28, 1899. Serial No. 707,174. (No model.)



Claim.—1. Apparatus for dyeing or otherwise treating with liquor cops of spun yarn, consisting of means for rapidly revolving each individual cop on its own axis, and means for admitting liquor to the interior of the cop, whereby the liquor is forced by centrifugal force from the inside to the outside of the cop and the yarn is loosened or opened, substantially as described.

2. Apparatus for dyeing or otherwise treating with liquor cops of spun yarn consisting of means for rapidly revolving each individual cop on its own axis in a vertical and inverted position and means for admitting liquor to the interior of the cop from above, whereby the liquor is forced by gravity and centrifugal pressure from the inside to the outside of the cop and the yarn of the cop is loosened or opened, substantially as described.

3. Apparatus for dyeing or otherwise treating with liquor cops of spun yarn, consisting of means for rapidly revolving each individual cop on its own axis, with the yarn of the cop unconfined, and means for admitting liquor to the interior of the cop, whereby the liquor is forced by centrifugal force from the inside to the outside of the cop and the yarn is loosened or opened, substantially as described.

4. Apparatus for dyeing, &c., cops of yarn or the like, consisting of inverted rotatable vertical cop-carriers on which the cops are individually mounted, vessels containing the liquor, means for admitting the liquor from above to the interior of the individual cops and means for centrifugally forcing the dye liquor through the cops, as and for the purpose set forth.

5. Apparatus for dyeing cops of yarn or the like, consisting of vertical inverted cop carriers on which the cops are mounted, a vessel containing the liquor, means for admitting the liquor from above through the inverted vertical cop-carriers to the interior of the cop and means for revolving each cop-carrier on its own individual axis substantially as described.

6. Apparatus for dyeing, &c., cops or spools of spun yarn consisting of a centrifugal spindle, a tank in which it revolves said spindle having at its lower end a cop-carrier, in combination with a centripetal fan or turbine adapted to introduce the dye liquor into the interior of the cop, substantially as described.

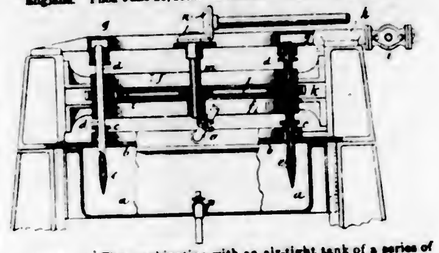
7. Apparatus for dyeing, &c., cops or spools of spun yarn consisting of a centrifugal spindle, a tank in which it revolves, said spindle having at its lower end a cop-carrier, in combination with a centripetal fan or turbine adapted to introduce the dye liquor into the interior of the cop and a casing *e* surrounding the fan, as and for the purpose set forth.

8. Apparatus for dyeing, bleaching, or otherwise treating with liquids "cops" or "spools" of spun yarn, comprising a separate vertical spindle for each individual cop or spool, a tank with a cover, in which each spindle is mounted so as to be capable of revolving, each spindle being provided above the tank with means for rotating the same, and at its lower end inside the tank, provided with an open or perforated cop or spool carrier through which liquor is admitted to the interior thereof and is driven by the centrifugal force developed by its revolution outward through the cop.

9. Apparatus for dyeing, &c., cops or spools of spun yarn consisting of a vertical centrifugal spindle, a tank in which it revolves said spindle having at its lower end a perforated cop-carrier, in combination with a centripetal fan or turbine adapted to introduce the dye liquor from above downward into the interior of the cop, substantially as described.

10. Apparatus for dyeing, &c., cops or spools of spun yarn consisting of a vertical centrifugal spindle, a tank in which it revolves, said spindle having at its lower end a perforated cop-carrier, in combination with a centripetal fan or turbine adapted to introduce the dye liquor from above into the interior of the cop and a casing *e* surrounding the fan, as and for the purpose set forth.

644,989. APPARATUS FOR DYEING, &c. JAMES MAJOR, Bocles, England. Filed June 20, 1899. Serial No. 721,269. (No model.)



Claim.—1. The combination with an air-tight tank of a series of hollow vertical spindles such as *d* passing through stuffing-boxes in the cover of each tank, such spindles being fed with the dye or other liquid through a trough or channel such as *g* at the top and means for rapidly revolving the spindles on their individual axes, the lower ends of the said spindles below the cover being each provided with a perforated or other open cop-carrier such as *e* for passing the dye or other liquor into the interior of the cop or spool, the tank being so arranged that it can be raised up and lowered as required and provided with means for exhausting the air and drawing off the liquor.

2. Apparatus for dyeing or otherwise treating cops of yarn, consisting of vertical spindles carrying cops of yarn, means for revolving the several spindles on their individual axes, and a tank in which said cops are suspended, in combination with a cover and means for separating the cover and spindles from the tank to allow of removing or replacing cops of yarn upon said spindles.

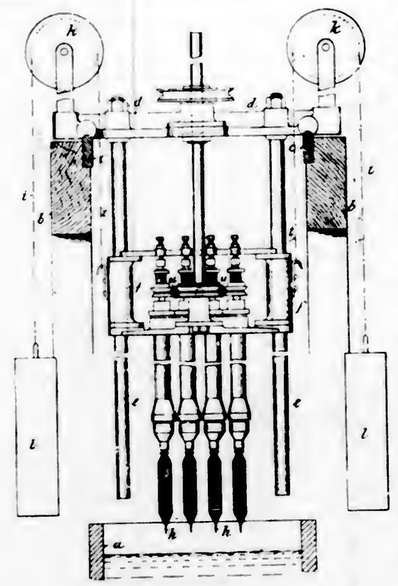
3. Apparatus for dyeing or otherwise treating cops of yarn, having a tank, hollow spindles adapted to have the cops mounted thereon, a source of dye-liquor supply connected to the spindles, and means to revolve the spindles on their individual axes, substantially as described.

644,990. APPARATUS FOR DYEING, &c. JAMES MAJOR, Bocles, England. Filed Sept. 9, 1899. Serial No. 729,963. (No model.)

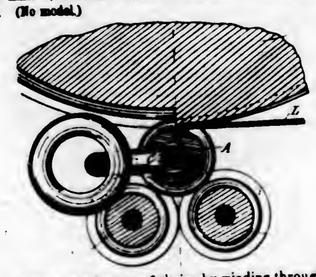
Claim.—1. An apparatus for dyeing, bleaching or otherwise treating with liquids cops of yarn, that is constructed by a combination of any convenient number of open vats or cisterns as *a* arranged in juxtaposition under a framing as *b* that is provided with rails, a movable carriage thereon as *d* with depending guide-rods supporting a frame as *f* carrying a group of spindles with their cop-carriers and means for revolving and raising or lowering the same, and a centripetal fan or pump with curved blades on each of said spindles all substantially as and for the purpose hereinbefore described.

2. In apparatus for dyeing bleaching or otherwise treating with liquids cops of yarn, the combination with a frame as *b* and carriage *d* of a frame as *f* carrying a group of spindles placed in parallel rows, whose upper ends are fitted with grooved pulleys and revolved by means of an endless band passing between said pulleys and around

driving-pulleys at either end of the aforesaid parallel rows of spindles said band being provided with an adjustment to take up stretch substantially as described and shown on the drawings.

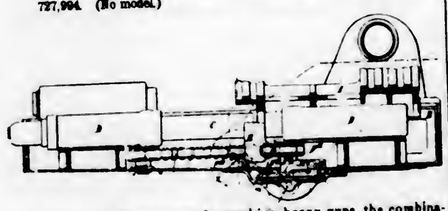


644,991. MECHANISM FOR MANUFACTURING CHAINS. ALFRED MARION, Brussels, Belgium. Filed Nov. 17, 1899. Serial No. 737,870. (No model.)



Claim.—In the manufacture of chains by winding through a ring or link, laminæ or strips of metal, the combination of a winding-roller in two parts recessed for the insertion of a link, guiding-rollers and a compressing cylinder or roller having in its periphery a groove of varying sectional outline, as and for the purpose described.

644,992. APPARATUS FOR WORKING ORDNANCE. ROBERT MATTHEWS, Manchester, England. Filed Aug. 21, 1899. Serial No. 727,994. (No model.)



Claim.—1. In apparatus for working heavy guns, the combination of means for enabling the recoiling part of the mounting to be run out by auxiliary gearing in the event of the power by which the gun is ordinarily run out to its firing position becoming inoperative, and of trip-gear adapted to maintain the gun in its run-out position at any angle of elevation and to release the same and permit it to recoil on shock of discharge.

2. In apparatus for working heavy guns, the combination of means for enabling the recoiling part of the mounting to be run out by auxiliary gearing in the event of the power by which the gun is ordinarily run out to its firing position becoming inoperative, and of trip-gear carried by a recoiling part of the mounting and adapted to engage with a non-recoiling part of the said mounting for the purposes specified.

3. In apparatus for working heavy guns, the combination of means for enabling the recoiling part of the mounting to be run out by auxiliary gearing in the event of the power by which the gun is ordinarily run out to its firing position becoming inoperative, and of trip-gear, in the form of a spring-pawl, carried by the recoiling part of the mounting and adapted to engage with projections or recesses of a non-recoiling part of the mounting for the purposes specified.

4. In apparatus for working heavy guns, the combination of means for enabling the recoiling part of the mounting to be run out by auxiliary gearing in the event of the power by which the gun is ordinarily run out to its firing position becoming inoperative, of a spring-pawl carried by the recoiling part of the mounting, and of a sprocket-chain forming part of the auxiliary gearing and having projections or recesses for engagement with the said pawl substantially as and for the purposes described.

5. In apparatus for working heavy guns, the combination with the auxiliary gearing, the spring-pawl and the endless sprocket-chain forming part of the auxiliary gearing, of projections on said chain to engage with the said pawl, the distance apart of the said projections being such that when the gun is in either its run-out position or its run-in position the said pawl will engage with one of the said projections substantially as and for the purposes specified.

6. In apparatus for working heavy guns, the combination with the auxiliary gearing, and the spring-pawl, of projections on the non-recoiling part of the mounting such projections having inclined faces and of an inclined nose on said pawl to engage with said inclined faces substantially as and for the purpose specified.

7. In apparatus for working heavy guns the combination with the auxiliary gearing, the spring-pawl and the endless sprocket-chain having projections to engage with the pawl and forming part of the said auxiliary gearing, of a bracket on the recoiling part of the mounting through which bracket the said chain passes and by which it is supported against the pressure of the spring-pawl substantially as and for the purpose specified.

8. The combination with the trip-gear, of auxiliary gearing comprising a toothed pinion which is carried by an axle on a part of the mounting which moves about the axis of the gun-trunnions in elevating the gun and which pinion imparts forward movement to the recoiling part of the mounting, a wheel adapted to operate the auxiliary gearing and mounted on an axle which is carried by a part of the mounting that does not participate in the movements of the gun in its elevation, of intermediate gearing for operatively connecting together the said toothed pinion and the axle of the aforesaid wheel, and of a sliding shaft carrying said intermediate gearing, which shaft permits the relative position of the aforesaid two axles to change in accordance with the variation in the angle of elevation of the gun substantially as and for the purpose specified.

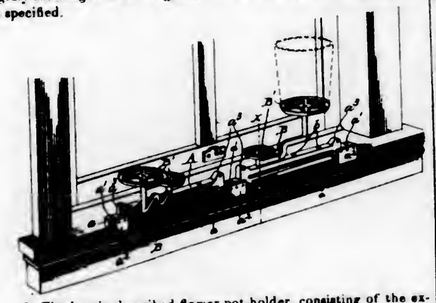
9. In apparatus for working heavy guns the combination with the means for enabling the recoiling part of the mounting to be run out by auxiliary gearing in the event of the power by which the gun is ordinarily run out to its firing position becoming inoperative, of a pair of spring-pawls adapted to maintain the gun in its run-out position at any angle of elevation and to release the same and permit it to recoil on shock of discharge, and of a transverse lever pivoted to the recoiling part and adjustably supporting the springs of the said pawls as and for the purpose specified.

644,993. FLOWER-POT HOLDER. VIRGINIUS I. MERTON, Norfolk, Va., assignor of one-half to John R. Burke, same place. Filed June 24, 1899. Serial No. 721,774. (No model.)

Claim.—1. The herein-described flower-pot holder, consisting of the extended bar or girder, one or more horizontally-extending flower-pot-supporting arms or brackets having vertical journal portions rotatably engaging bearings in said bar or girder, flanged cups or seats for the flower-pots rotatably secured to said arms or brackets, and means located below the horizontally-extending portions of said arms or brackets for rigidly securing the bar or girder to a suitable support, substantially as specified.

2. The herein-described flower-pot holder, consisting of the bar or girder, the downwardly-offset girder-elevating lugs thereof, the flower-pot-supporting arms or brackets having journal portions engaging bearings in said bar, the flanged cups or seats, and means for

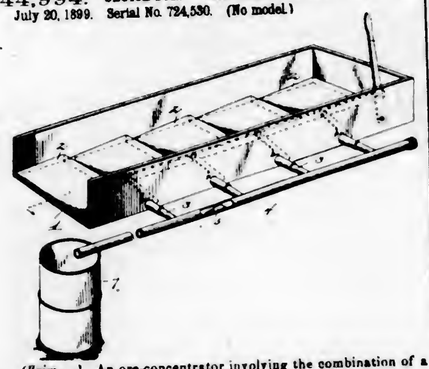
rigidly securing said bar or girder to a suitable support, substantially as specified.



3. The herein-described flower-pot holder, consisting of the extended bar or girder, one or more horizontally-extending flower-pot-supporting brackets having vertical journal portions rotatably engaging bearings in said bar, flanged cups or seats upon upwardly-extending arms of said brackets, and means below the horizontally-extending portions of said brackets for rigidly securing said bar or girder to a suitable support, substantially as specified.

4. The herein-described flower-pot holder, consisting of the bar or girder formed in two horizontally-separated portions, the narrow slot in each of said portions, the downwardly-offset girder-elevating lugs, the flower-pot-supporting brackets rotatably engaging bearings in said bar, and the cups or seats, substantially as specified.

644,994. SLUICE-BOX. JOHN MILAN, Missoula, Mont. Filed July 20, 1899. Serial No. 724,530. (No model.)

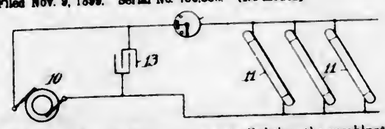


Claim.—1. An ore-concentrator involving the combination of a main sluice having riffles and having pipes or passages projecting laterally from one side of the sluice at the head of the riffles, an auxiliary sluice or spout having iron riffles and pipes or passages adapted to telescope with the pipes projecting from the main sluice, and laterally and upwardly swinging gates or valves for opening and closing the passages, substantially as described.

2. In concentrating apparatus, the combination of a main sluice having riffles and having pipes or passages leading from one side at the head of the riffles, an auxiliary sluice or spout having pipe connections adapted to telescope with the pipe connections of the main sluice and having iron riffles, means for cutting in and cutting out the auxiliary spout, and a cap for closing one end of the auxiliary spout, substantially as described

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644,995. VACUUM-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Nov. 9, 1899. Serial No. 736,336. (No model.)



Claim.—1. In a system of vacuum-tube lighting, the combination with the tubes to be excited, of an alternating-current generator in direct conductive or inductive connection therewith, and organized as described to produce an alternating impressed electromotive force of abruptly-changing value.

2. In a system of vacuum-tube lighting, the combination with the tubes or lamps containing a rarefied gas, of an exciting-dynamo having a rotor composed of a revolving mass of iron having unwound radially-extending polar projections and an exciting-coil surrounding the axis on which the rotor revolves, and having a stator the iron of which is extended around to the opposite end of the rotor to complete the magnetic circuit as and for the purpose described.

3. A vacuum-tube lighting apparatus comprising lamps consisting of glass tubes or other forms of receptacle containing rarefied air or other gas provided with conducting caps or electrodes and an alternating-current dynamo-electric machine for exciting said lamps to luminosity, said machine having a rotor and stator whose polar teeth or projections have their opposing faces proportioned as described to give a constant magnetic flux in the machine.

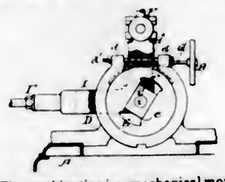
4. In a system of vacuum-tube lighting the combination with the tubes to be excited, of an exciting alternating-current dynamo-machine whose revolving element has unwound polar teeth or projections and which is constructed as described to generate an alternating electromotive force of abruptly-changing value while maintaining an approximately-constant total magnetic flux.

5. A vacuum-tube lighting apparatus comprising in combination an alternating-current dynamo whose rotating element consists of a mass of iron terminated in unwound polar projections or teeth which in their rotation act upon suitable generating-coils, and lamps consisting of glass tubes or other forms of receptacle containing only rarefied air or other gas and provided with exterior conducting caps or electrodes connected directly or indirectly with the generating-coils of the machine, as and for the purpose described.

6. An electric-lighting apparatus comprising an alternating dynamo whose rotor consists of a revolving mass of iron terminating in unwound polar teeth or projections which operate upon fixed generating-coils, a transformer whose primary is joined to the said generating-coils, and a secondary for said transformer joined to lamps which consist of sealed glass tubes or other forms of receptacle containing rarefied air or other gas and provided with exterior conducting caps or electrodes.

7. In an electric-lighting apparatus, the combination of an alternately-current dynamo, electric lamps consisting of sealed glass tubes or other forms of receptacle containing rarefied air or other gas and provided with conducting caps or electrodes, the lamps being connected directly or indirectly with the dynamo so as to be excited by the alternating electromotive force thereof, and an adjustable inductance connected to the circuit of the machine and lamps.

644,996. MECHANICAL MOVEMENT. JOHN W. MOORE and JOSEPH A. WHITE, Philadelphia, Pa. Original application filed Mar. 30, 1896, Serial No. 585,522. Renewed Nov. 12, 1898, Serial No. 696,315. Divided and this application filed Dec. 6, 1898. Serial No. 698,461. (No model.)



Claim.—1. The combination in a mechanical movement, of a bearing having two segmental portions, a slotted circular guide adapted to the bearing, a block in the guide, a link secured to the block, means for imparting a lateral movement to the link, and means for drawing the segmental portions of the bearing toward each other, whereby the guide is held rigidly in its adjusted position, substantially as described.

2. The combination of a bearing having two segmental portions, a slotted circular guide adapted to the bearing, means for clamping the guide to the bearing, a block mounted in the slotted guide, a link to which the block is pivoted, the two arms of the link being at right angles to one another, mechanism for imparting motion to the link, and an extension on the link to which is attached the mechanism to be vibrated, substantially as described.

3. The combination of a bearing, a slotted guide adapted to the bearing, means for adjusting the slotted guide in the bearing, a right-angled link, with eccentric mechanism connected to one arm of the link, the other arm of the link being connected to the mechanism to be vibrated, substantially as described.

4. The combination of a bearing, a slotted guide adapted to said bearing, means for adjusting the guide in the bearing, a forked link extending on each side of the bearing, a block adapted to the slot in the guide, a pivot-pin secured to the forked link and passing through the block, means for imparting lateral motion to the link, and an extension on the link connected to the mechanism to be vibrated, substantially as described.

5. The combination of a bearing, a slotted circular guide adapted to the bearing, a screw or worm for moving the guide circumferentially in the bearing, means for clamping the guide in the bearing, a link having a block adapted to the guide, and means for imparting movement to the link, substantially as described.

6. The combination of a bearing, a slotted circular guide adapted to the bearing, means for adjusting the guide in the bearing and means for clamping the bearing to the guide, a link, a block carried by the link adapted to the slotted guide, a driven shaft, an eccentric on the driven shaft, an eccentric-rod connected to the link by which a lateral motion is given to said link, an extension on the link connected to the mechanism to be vibrated, and means for increasing or decreasing the speed of the driven shaft, substantially as described.

644,997. BOX FOR TRAVELERS. THOMAS MCCARTHY, New Bedford, Mass. Filed Dec. 1, 1899. Serial No. 738,932. (No model.)

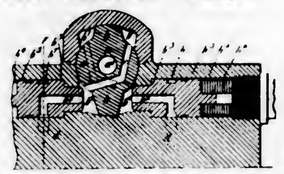


Claim.—1. A box for travelers, or like small articles, having an inside bead at or below the edge of the box, as and for the purpose set forth.

2. A box for travelers, or like small articles, having a cover with a finger-opening at one side, an inclined and rounded bottom leading up to the said opening, and an inside bead at or below the edge of the box at the finger-opening, as and for the purpose set forth.

3. A box for travelers, or like small articles, having an attaching-flange, and a hinged cover with an opening for a single finger at one side, an inclined and rounded bottom leading up to the finger-opening, and an inside bead at or below the edge of the box at the finger-opening, as and for the purpose set forth.

644,998. ROCK-DRILL. JAMES MCCULLOCH, Hogan, England. Filed Sept. 30, 1899. Serial No. 732,179. (No model.)



Claim.—1. In a rock-drill the combination with the cylinder and valve-chest, of a rotary distributing-valve provided with a central longitudinal inlet-port coincident with its axis of rotation and into one end of which the motive fluid enters, and exhaust-ports formed in said valve at opposite sides of its said central longitudinal inlet-port, substantially as described for the purpose specified.

2. In a rock-drill the combination with the cylinder and valve-chest, of a rotary distributing-valve provided with a central longitudinal inlet-port coincident with its axis of rotation and into one end of which the motive fluid enters, and with exhaust-ports formed within the body of said valve at opposite sides of its said central longitudinal inlet-port, and means for maintaining said valve in its correct position when working at an angle, substantially as described for the purpose specified.

3. In a rock-drill, the combination with a cylinder, and a drill-piston, of a valve-chest having a longitudinal valve-receiving bore and a lateral wing-chamber leading from the latter, a rotary distributing-valve provided with a central longitudinal inlet-port coincident with its axis of rotation and into one end of which the motive fluid enters, a lateral port from said longitudinal port to convey the motive fluid to the cylinder, a wing extending from the body of the valve into said wing-chamber, and exhaust-ports formed within the body of said valve at opposite sides of its said central longitudinal port, substantially as and for the purpose specified.

4. In a rock-drill the combination with the cylinder and valve-chest, of a rotary distributing-valve provided with a central longitudinal inlet-port, exhaust-ports on either side of said inlet-port, and an annular recess at the fluid-pressure-inlet end which annular recess communicates with the said inlet-port; and a conical pivot on the valve-casing engaging with a corresponding recess in that end of the distributing-valve which is remote from the fluid-pressure inlet, substantially as described for the purpose specified.

5. In a rock-drill, the combination with a cylinder, and a piston therein, of a valve-chest having a valve-receiving bore, and fluid-tight lateral wing-chambers leading from said bore, a rotary distributing-valve constructed with opposite wings, a central longitudinal inlet-port coincident with its axis of rotation and into one end of which the motive fluid enters, and exhaust-ports formed within the body of said valve at opposite sides of its said central longitudinal inlet-port, substantially as and for the purpose specified.

6. In a rock-drill, the combination of a rotary distributing-valve, wings or vanes on opposite sides of said valve, a casing for said valve having fluid-tight recesses or chambers in which said wings oscillate, means whereby the opposite sides of said wings are alternately opened to the fluid pressure and exhaust by the working piston, and spring-buffers for cushioning said wings, substantially as described.

7. In a rock-drill the combination of a rotary distributing-valve having transverse crossed passages therein, wings or vanes on opposite sides of said valve, a casing for said valve having fluid-tight recesses or chambers in which said wings or vanes oscillate and the sides of each one of which chambers or recesses are respectively connected with the opposite sides of the other chamber or recess by the said crossed passages in the valve, a working cylinder provided with a central passage leading to the exhaust and side passages which respectively connect the sides of one of the said fluid-tight recesses or chambers with the sides of the working cylinder, and a working piston provided with an annular recess for alternately putting one of said side passages to exhaust while the other of said side passages is open to the fluid-pressure in the cylinder, substantially as described for the purpose specified.

8. In a rock-drill the combination of a rotary distributing-valve provided with a central longitudinal inlet-port, an exhaust-port on either side of said inlet-port, and transverse crossed passages; wings or vanes on opposite sides of said valve, a casing for said valve having fluid-tight recesses or chambers in which said wings or vanes oscillate and the sides of each one of which chambers or recesses are respectively connected with the opposite sides of the other chamber or recess by the said crossed passages in the valve, means for cushioning the valve-wings, a working cylinder provided with a central passage leading to the exhaust and side passages which respectively connect the sides of one of the said fluid-tight recesses or chambers with the sides of the working cylinder, and a working piston provided with an annular recess for alternately putting one of said side passages to exhaust while the other of said side passages is open to the fluid-pressure in the cylinder, substantially as described for the purpose specified.

9. In a rock-drill the combination of a rotary distributing-valve provided with a central longitudinal inlet-port, an exhaust-port on either side of said inlet port, transverse crossed passages, and an annular recess at the fluid-pressure-inlet end which annular recess communicates with the said inlet-port; a conical pivot on the valve-casing engaging with a corresponding recess in that end of the distributing-valve which is remote from the fluid-pressure inlet, wings or vanes on opposite sides of said valve, a casing for said valve having fluid-tight chambers or recesses in which said wings or vanes oscillate and the sides of each one of which chambers or recesses are respectively connected with the opposite sides of the other chamber or recess by said crossed passages in the valve, spring-buffers for cushioning the valve-wings provided with annular recesses and having passages connecting said annular recesses with one of the valve-wing chambers, a working cylinder provided with fluid-tight chambers in which said spring-buffers slide and having a central passage leading to exhaust and side passages which respectively connect the annular recesses in the spring-buffers with the sides of the working cylinder, and a working piston provided with an annular recess for alternately putting one of said side passages to exhaust while the other of said side passages is open to fluid-pressure in the cylinder, substantially as described for the purpose specified.

644,999. SWIVEL-PLOW. FRANKLIN H. NICHOLS, Chetek, Wis., assignor of one-half to George Hewitt, same place. Filed Feb. 24, 1898. Serial No. 671,544. (No model.)



Claim.—1. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share, and pivoted to the landside, a telescopic connection between the plow-beam and the moldboard, the outer ends of the telescopic members being pivotally connected to the beam and the moldboard, respectively, and a locking device carried by one of the members and having a locking engagement with the other member, in the opposite adjusted positions of the moldboard.

2. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share and pivoted to the landside, a sheath having one end pivoted to the plow-beam, a slide mounted upon the sheath and having one end pivoted to the moldboard, and a latch carried by the sheath, and having a locking engagement with the slide in the opposite adjusted positions of the moldboard.

3. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share and pivoted to the landside, a longitudinally-slotted sheath, having one end pivoted to the plow-beam, a slide mounted within the sheath and provided with a lateral pivot-pin projecting transversely through the slot in the sheath, and pivotally connected to the moldboard, and means for locking the slide and the sheath against movement.

4. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share and pivoted to the landside, a sheath provided with a longitudinal slot, and having its inner end pivoted to the plow-beam, a latch pivoted to the sheath and projecting through the slot and into the interior of the sheath, and a slide mounted within the sheath and having its outer end pivotally connected to the moldboard, the latch having a lateral engagement with the slide, in the opposite adjusted positions of the moldboard.

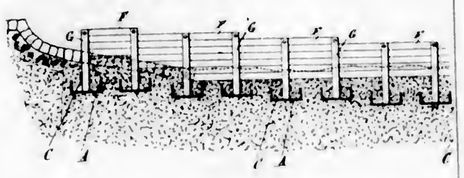
5. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share and pivoted to the landside, a sheath having its inner end pivoted to the plow-beam, a slide mounted within the sheath and having its outer end pivotally connected to the moldboard, and a latch carried by the sheath, and having a locking engagement with the outer extremity of the slide, in the opposite adjusted positions of the moldboard.

6. The combination with a plow-beam, of a landside carried thereby, a moldboard having a share, and pivoted to the landside, a sheath having its inner end pivoted to the plow-beam, and also provided with a longitudinal slot, a latch pivoted to the sheath, and having a head normally projecting inwardly through the slot, and a slide mounted within the sheath, and having its outer end pivotally connected to the moldboard, the outer end of the slide being located within the sheath in the opposite adjusted positions of the molboard, and the head of the latch fitting against said outer end of the slide.

7. The combination with a plow-beam, having an arm extending rearwardly therefrom, of a landside carried by the beam and located below the arm, a moldboard pivoted to the landside, a locking and bracing device having its opposite ends pivoted respectively to the moldboard and the rearwardly-extending arm, and a pair of handles secured to the beam, extending rearwardly therefrom and embracing the arms, and a fastening device securing the handles to the arms.

8. The combination with a plow-beam, having its rear end provided with front and rear branch members, of a landside comprising opposite plates embracing the branch members, one of the plates having upper and end flanges, the other plate fitting snugly between the flanges, fastenings passing through the plates and the respective branches, the end flanges projecting beyond the plates, and a heel-plate fitted between said end flanges.

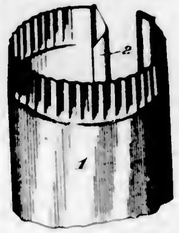
645,000. APPARATUS FOR FIXING PILES IN FORESHORES. JAMES L. NORRIS, Washington, D. C., administrator of Edward Case, deceased, assignor to Eleanor Maria Lansdown Case. Filed Nov. 6, 1899. Serial No. 736,063. (No model.)



Claim.—1. A shore groin, or screen, comprising a series of boxes having each a pair of spaced uprights secured therein, said boxes having open tops whereby they may be filled with a suitable material for anchoring them, and a series of superposed planks inserted edgewise in the spaces between adjacent pairs of uprights, substantially as described.

2. As a shore groin or screen the combination of box A top cross-bars C, C bottom transverse bar D, uprights G bolted on either side thereof, in gage for reception of planks F on edge (superposed) as specified.

645,001. RESTABLE STOVEPIPE. ASTON OBENHEIM, Quincy, Ill., assignor to the Excelsior Stove and Manufacturing Company, same place. Filed Oct. 7, 1899. Serial No. 732,855. (No model.)



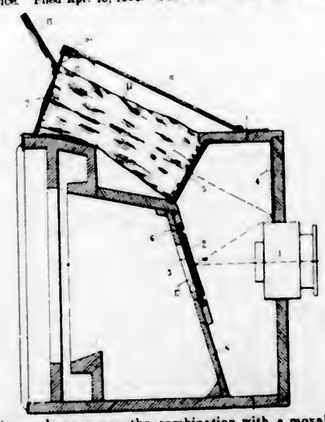
Claim.—A pipe-section having interlocking edges to form a seam, said section having one of the edges cut away at the end thereof to receive the coincident corner of the opposing tongue when lapped thereover, substantially as described.

645,002. RAIL-JOINT. GEORGE W. PALMER, McKee's Rocks, Pa., assignor of one-half to Stephen Newburn, Bellevue, Pa. Filed Mar. 9, 1898. Renewed Jan. 15, 1900. Serial No. 1,480. (No model.)



Claim.—In a rail-joint, the combination, with abutting rail ends, of oppositely-located joint members provided with vertical sides adapted to bear against the head and web of the rails, projecting teats on one of the sides adapted to enter holes in the rail-web, lateral base portions adapted to embrace the upper and lower faces of each rail-flange and meeting centrally of the rail-web, a downwardly-projecting tapering undercut socket formed longitudinally in one of the members, a correspondingly-tapered tongue in the other member adapted to enter such socket longitudinally, the socket and tongue occupying a position substantially central of the rail when assembled, and a connecting-pin passing through both members, substantially as set forth.

645,003. PHOTOGRAPHIC CAMERA. PAUL PÉRAUX, Paris, France. Filed Apr. 15, 1898. Serial No. 677,723. (No model.)



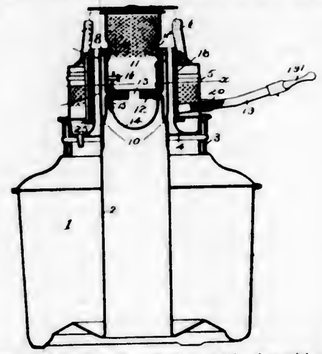
Claim.—In a camera, the combination with a movable shutter interposed between the lens and plate, of a mirror fixed on said shutter and moved thereby, a mirror arranged in the front of the camera in front of the shutter, said shutter being arranged at an angle so as to cause its mirror to reflect the image onto the mirror in the front of the camera, a ground glass arranged in an aperture in the camera at an angle to receive the image cast thereon by the mirror in the front of the shutter, and a knock-down or folding casing surrounding the ground glass, substantially as described.

645,004. VALVE-CUP. MARQUIS T. PEW, Parker's Landing, Pa. Filed Mar. 1, 1899. Serial No. 707,306. (No model.)



Claim.—A packing-cup or analogous device shaped to provide a flaring wall inturned at its reduced end around an opening therethrough, and having the body portion partly composed of a fibrous wrapping located mainly near the enlarged terminal and provided with an outer coating of rubber substance and a lining of textile fabric, the fibrous wrapping being spirally disposed, and the outer portion of the inturned part of the wall having a metallic ring embedded therein.

645,005. LAMP-BURNER. JOHN M. PFAUDLER, Rochester, N. Y., assignor of three-fourths to William M. Mallett and Thomas P. Hill, same place. Filed July 29, 1898. Serial No. 687,231. (No model.)



Claim.—1. In a lamp-burner, the combination with the outer wick-tube, the central air-tube having an interior projecting portion, and the movable extinguisher-tube, of the air-distributer fitting the central air-tube resting on the projection and having the spreader at its upper end with which the extinguisher-tube engages, and the spring-catch coöperating with the projection in the central tube for holding the spreader against vertical movement in the tube when engaged by the extinguisher-tube.

2. In a lamp-burner, the combination with the spreader, of the casing, the removable extinguisher-frame secured therein and separate from the chimney-support, and the extinguishing-tube vertically movable on said frame.

3. In a central-draft-lamp burner, the combination with the spreader, of the movable extinguisher-tube adapted to coöperate with the spreader, the removable extinguisher-frame separate from the chimney-support and having the spring-arms for guiding the extinguisher-tube.

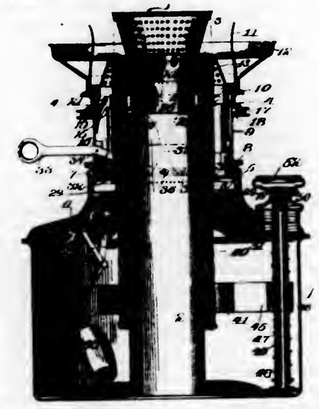
4. In a central-draft-lamp burner, the combination with the spreader, of the burner-casing, the ring removably secured therein having the upwardly-extending spring-arms, said ring being separate from the chimney-support, and the vertically-movable extinguisher-tube guided by said arms and adapted to coöperate with the spreader.

5. In a central-draft-lamp burner, the combination with the spreader, and the casing, of the ring-frame detachably connected to the interior of the casing, having the upwardly-extending arms, the vertically-movable extinguisher-tube guided by said arms, and the lever having a loose connection with said extinguisher-tube for operating it.

6. In a central-draft-lamp burner, the combination with the spreader, the casing, and the ring separate from the casing and removably connected thereto and having the spring-arms, of the vertically-movable extinguisher-tube guided by the arms and arranged to coöperate with the spreader, and the pivoted lever having a loose pivotal connection with the extinguisher-tube for moving the latter vertically.

7. In a central-draft-lamp burner, the combination with the central tube having the annular rib, the distributer therein supported on the rib, having the spreader thereon, and the detachable connection between said tube and distributer, of the extinguisher-tube surrounding the wick and adapted to coöperate with the spreader and the lever connected thereto and having the outwardly-extending end for moving the tube freely up or down.

645,006. LAMP. JOHN M. PFAUDLER, Rochester, N. Y., assignor of part to William M. Mallett, Thomas P. Hill, Augustus H. Daniels, and Bernard Felock, same place. Filed Aug. 3, 1899. Serial No. 726,048. (No model.)



Claim.—1. In a lamp the combination with a stationary burner-casing, of a vertically-movable and rotatable chimney-gallery supported thereon having an annular plate projecting within the casing and provided with a series of spirally-arranged cam-slots and stationary pins located upon the interior of the casing in the said slots and means mounted upon the exterior of the casing for revolving the gallery.

2. In a lamp the combination with a stationary burner-casing, of a vertically-movable chimney gallery or support mounted thereon having an annular ring or plate provided with spiral cam-slots and having vertical ways or guides, pins upon the casing engaging in the spiral slots and a revoluble ring mounted upon the casing and provided with pins or projections engaging the vertical ways.

3. In a lamp the combination with a burner-casing having the revoluble external ring mounted thereon, of a vertically-movable chimney-gallery provided with a series of vertical ways and a series of spiral cam-slots, the latter engaging with stationary pins arranged within the casing and the former coöperating with pins or projections arranged upon the revoluble ring and operating through slots or apertures in the casing.

4. In a lamp-burner the combination with the burner-casing having the stationary inwardly projecting pins and the revoluble ring mounted thereon and provided with the pins, of a chimney-gallery arranged upon the casing and capable of vertical movement having an annular plate provided with the series of vertical and spiral ways or cam-slots coöperating with the pins arranged on the casing and ring, the latter slots having the horizontal portions at their lower ends adapted to rest upon the stationary pins in the casing and to sustain the chimney-gallery when the latter is in the elevated position.

5. In a lamp the combination with the burner-casing having the inwardly-extending pins and the revoluble ring mounted thereon and provided with the pins, of a vertically-movable chimney-gallery having an annular plate provided with the series of alternate vertical and spiral ways or cam-slots coöperating with the pins arranged on the casing and ring, the latter slots having the vertical portions at their lower extremities, and having openings at the lower sides thereof extending parallel to the vertical ways to permit their withdrawal from the pins and the removal of the gallery from the burner when desired.

6. In a lamp the combination with a support surrounding the wick having a finger or guide operating in vertical ways located in the fount and also provided with an extension or arm carrying a threaded nut, of a removable threaded post adapted when rotated to cause the vertical movement of the support and members arranged upon opposite sides of the support and extending parallel with and engaging the wick above the support.

7. In a wick-raising mechanism the combination with a lamp-fount having the draft-tube, the wick surrounding the latter and the burner-tube surrounding the upper end of the wick, of a vertically-

movable support, having the finger operating in the guide on the side of the fount the threaded portion coöperating with the threaded post accessible from the exterior of the fount, and the wings arranged upon the support extending parallel with the wick and adapted to be held in engagement therewith by the burner-tube.

8. In a wick raising mechanism the combination with the lamp-fount having the wick-tube, the wick mounted thereon and the burner-tube surrounding the latter and holding the wings or members in engagement therewith, of the vertically-movable support carrying said engaging members the finger thereon sliding in the guide on the fount, the threaded nut on the support and the threaded post coöperating therewith capable of removal from the nut through an aperture in the fount, said aperture being normally closed by a cap mounted upon the post.

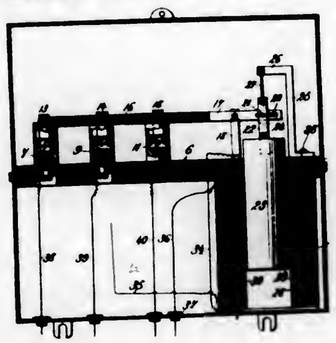
9. In a lamp the combination with the inner wick-tube, the burner having the outer wick-tube, and the spreader extending over the former and latter, of a vertically-movable extinguisher mounted upon the outer wick-tube having the broad ring at the top coöperating with the spreader and the narrow band upon its lower extremity and the spring-arms extending between them.

10. In a lamp the combination with the inner wick-tube, the burner having the outer casing and the outer tube surrounding the wick and the spreader located above and extending over the latter, of a vertically-movable extinguisher-tube mounted upon the outer wick-tube, said extinguisher-tube having portions cut away from the sides thereof forming a broad band at one end, and a narrow ring upon the other, and the spring-arms extending between the two and adapted to engage the wick-tube to sustain the extinguisher in engagement with the spreader when in the operative position, the pins arranged upon opposite sides at the bottom of the extinguisher and the lever pivoted upon the burner-casing and having the inner bifurcated arms engaging the pins.

11. In a lamp the combination with a fount, the burner having the wick-tube mounted upon the base provided with the flanged edge threaded upon its exterior for engagement with the fount, and having the screw-thread upon its interior, the exterior perforated ring or burner-casing provided with stationary pins upon its inner surface and a revoluble ring surrounding the casing near its top and secured thereto by means of inwardly-projecting pins carried upon the ring and operating through slots or apertures in the casing, of a vertically-movable chimney-gallery mounted upon the casing, having the downwardly-extending spiral camways engaging the stationary pins and the vertical ways coöperating with the pins upon the revoluble ring.

12. In a lamp the combination with the fount, the burner having the wick-tube mounted upon the base secured to the fount and said base having the upwardly-extending flanged edge threaded upon its inner surface, the threaded ring provided upon the bottom of the exterior ring or burner-casing and adapted to secure the latter to the base, the stationary projections upon the interior of the casing and pins carried upon the revoluble ring, the vertically-movable chimney-gallery having the downwardly-extending spiral camways and engaging the stationary projections and the vertical ways coöperating with the pins upon the revoluble ring, of the extinguisher-ring vertically movable upon the wick-tube having the spring-arms engaging the latter, and an operating-lever pivoted to the burner and provided with the bifurcated ends, the pins or projections arranged upon the opposite sides of the extinguisher-ring and adapted to be engaged by the lever.

645,007. PROTECTIVE SYSTEM AND APPARATUS FOR HIGH-TENSION ELECTRIC CURRENTS. LYMAN C. REED, New Orleans, La. Filed July 17, 1899. Serial No. 724,066. (No model.)



Claim.—1. In a system of electrical distribution, a circuit-breaker, a ground-circuit from one leg of said system, and a solenoid-transformer for throwing said circuit-breaker into operation, the primary of which is in said ground-circuit.

2. In a system of electrical distribution, in which a neutral distributing-conductor is employed, a circuit-breaker, a ground-circuit from said neutral conductor, and a solenoid-transformer for throwing said circuit-breaker into operation, the primary of which is in said ground-circuit.

3. In a system of electrical distribution, a normally-grounded neutral, a circuit-breaker therein for cutting out the ground, and a solenoid transformer for actuating said circuit-breaker, the primary of which is connected with said neutral.

4. In a three-wire system of electrical distribution having the neutral leg thereof grounded, a switch therein, and a solenoid-transformer for operating said switch to cut out the ground, the primary of which is connected with the ground from said neutral leg.

5. In a three-wire system of electrical distribution, a house-circuit having the neutral leg thereof grounded, a circuit-breaker for cutting out the house-circuit and the ground, and a solenoid-transformer for actuating said circuit-breaker, the primary of which is connected with the ground from said neutral leg.

6. In a three-wire system of electrical distribution, a house-circuit, a switch controlling the same, a solenoid-transformer for operating the switch, and a grounded circuit from the neutral leg of the house-circuit through the primary of said transformer.

7. In an automatic electric-circuit breaker, installed in a three-wire low-tension system of electrical distribution, a switch, and a solenoid-transformer adapted to open said switch, the neutral leg of said system being grounded through said solenoid-transformer, whereby said switch will be actuated by a high-tension current to cut out the ground.

8. In an automatic electric-circuit breaker installed in the house-circuit of a three-wire low-tension system of electrical distribution, a switch, and a solenoid-transformer adapted to open said switch, the neutral leg of said circuit being grounded through said solenoid-transformer, whereby said switch will be actuated by a high-tension current to disconnect said house-circuit and cut out the ground.

9. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer for operating said switch, a grounded circuit through the primary of said solenoid-transformer, and connections between the grounded circuit and the service-circuit, through said switch.

10. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a core therefor operatively connected to said switch, a grounded circuit through the primary of said solenoid-transformer, and connections between said grounded circuit and the service-circuit, through said switch.

11. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a core therefor operatively connected to said switch, a fuse connected to said core for normally holding said switch closed, and a grounded circuit through the primary of said solenoid-transformer connected with the service-circuit, through said switch.

12. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a heavy core therefor operatively connected to said switch, a fuse supporting said core in raised position for normally holding said switch closed, and a grounded circuit through the primary of said solenoid-transformer connected with the service-circuit, through said switch.

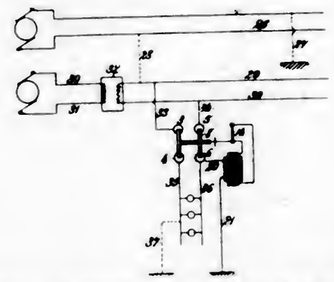
13. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a core therefor operatively connected to said switch, a fuse for normally holding said switch closed, a grounded circuit through the primary of said solenoid-transformer connected with the service-circuit, through said switch, and a closed circuit including said fuse and the secondary of said solenoid-transformer.

14. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, an iron core therefor operatively connected to said switch, and a supporting-fuse for said core normally holding said switch in its closed position, the said solenoid-transformer comprising a primary coil in a grounded circuit and connected with the service-circuit through said switch, and a secondary coil of a comparatively-small number of turns, in inductive relation with said primary coil, the circuit through said secondary being closed through said supporting-fuse, whereby, with a high-tension direct current, the primary coil alone acts to exert a pull on the core and break said fuse mechanically, opening the switch by combined magnetic and gravity action, and whereby with a high-tension alternating current, both primary and secondary coils act together to produce a transformer of low efficiency, inducing a current of large volume and small voltage in the secondary coil by which said fuse is melted without arcing, and permitting gravity to open switch by weight of core, to which force is added simultaneously the magnetic pull exerted by the untransformed energy flowing through the primary coil.

15. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a core therefor operatively connected to said switch, a fuse for normally holding said switch closed, a grounded circuit through the primary of said solenoid-transformer connected with the neutral wire of service-circuit through said switch, and a closed circuit including said fuse and the secondary of said solenoid-transformer.

16. In an automatic electric-circuit breaker, the combination with a box or casing and a base-plate of insulating material therein, of contacts arranged in pairs on said base-plate, conducting strips or bridges for the members of each pair of contacts, an insulated bar secured to said strips, a lever secured to said bar having a slot therein, a solenoid-transformer, an iron core therefor whose stem is provided with a slot through which said lever passes, a transverse pin in said stem extending through the slot in said lever, a support, a fuse secured to said support and to the stem of said core for supporting the latter and normally holding said strips or bridges in engagement with said contacts, a service-circuit leading to one set of said contacts, and from the other, a grounded circuit leading from the neutral wire on the other set of said contacts, through the primary coil of the solenoid-transformer, and a circuit through the secondary coil of said solenoid-transformer normally closed through and by said fuse.

645,008. PROTECTIVE SYSTEM OF ELECTRIC DISTRIBUTION. LYMAN C. REED, New Orleans, La. Filed July 17, 1899. Serial No. 724,067. (No model.)



Claim.—1. In a two-wire system of electrical distribution, a circuit-breaker, a ground-circuit from one of the legs of said system, and a solenoid-transformer for throwing said circuit-breaker into operation, the primary of which is in said ground-circuit.

2. In a two-wire system of electrical distribution, a ground-circuit from one of the legs thereof, a circuit-breaker controlling said ground-circuit, and a solenoid-transformer for throwing said circuit-breaker into operation, the primary of which is in said ground-circuit.

3. In a two-wire system of electrical distribution having house-circuits leading therefrom, a circuit-breaker controlling each of said house-circuits, a ground-circuit from one leg of each of said house-circuits, and a solenoid-transformer for throwing said circuit-breaker into operation the primary of which is in said ground-circuit.

4. In a two-wire system of electrical distribution having house-circuits leading therefrom, a ground-circuit from one leg of each of said house-circuits, a circuit-breaker controlling said house and ground circuits, and a solenoid-transformer for throwing said circuit-breaker into operation, the primary of which is in said ground-circuit.

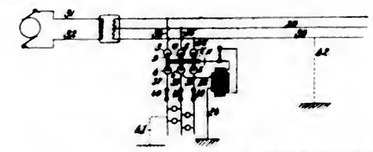
5. In a two-wire system of electrical distribution, a ground from one of the legs thereof, a circuit-breaker controlling the same, and a solenoid-transformer for throwing said circuit-breaker into operation.

6. In a two-wire system of electrical distribution, a house-circuit, a switch controlling the same, a solenoid-transformer for operating the switch, and a grounded circuit from one of the legs of the house-circuit through the primary of said transformer.

7. In a two-wire low-tension system of electrical distribution, a switch, and a solenoid-transformer adapted to open said switch, one leg of said system being grounded through said solenoid-transformer, whereby said switch will be actuated by a high-tension current to cut out the ground.

8. In a two-wire low-tension system of electrical distribution, a house-circuit, a switch in said house-circuit, and a solenoid-transformer adapted to open said switch, one leg of said house-circuit being grounded through said solenoid-transformer, whereby said switch will be actuated by a high-tension current to disconnect said house-circuit and cut out the ground.

645,009. SYSTEM OF ELECTRICAL DISTRIBUTION. LYMAN C. REED, New Orleans, La. Filed July 17, 1899. Serial No. 724,068. (No model.)



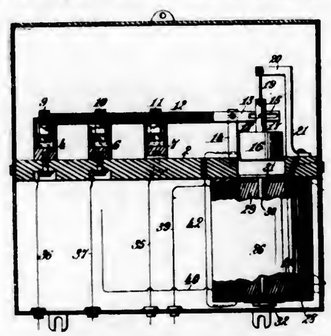
Claim.—1. In an isolated, low-tension, alternating system of electrical distribution, a service-circuit, one leg of which is permanently grounded, fuses in said circuit, and means, independent of said fuses for cutting out said circuit, the said means being thrown into operation by a current of insufficient volume to blow said fuses.

2. In an isolated, low-tension, alternating system of electrical distribution, a service-circuit, one leg of which is permanently grounded, fuses in said circuit, and means, independent of said fuses, for cutting out said circuit, the said means being thrown into operation by an accidental ground on the leg of the service opposite that which is permanently grounded which permits a flow of current of insufficient volume to blow said fuses.

3. In an isolated, low-tension, alternating system of electrical distribution, a service-circuit, one leg of which is permanently grounded, fuses in said circuit, a switch also in said circuit, and means, independent of said fuses, for operating said switch, the said means being thrown into operation by an accidental ground on the leg of the service opposite that which is permanently grounded, which permits a flow of current of insufficient volume to blow said fuses.

4. In an isolated low-tension alternating system of electrical distribution, a service-circuit, fuses in said circuit, a switch controlling said circuit, and a solenoid-transformer for operating said switch, one leg of said circuit being grounded through the primary thereof, the said solenoid-transformer being thrown into operation to actuate said switch by an accidental ground on the leg of the service opposite that which is grounded therethrough, which permits a flow of current of insufficient volume to blow said fuses.

645,010. ELECTRIC-CIRCUIT BREAKER. LYMAN C. REED, New Orleans, La. Filed Aug. 5, 1899. Serial No. 726,294. (No model.)



Claim.—1. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a stationary core therefor, an armature for said core operatively connected to said switch, a grounded circuit through the primary of said solenoid-transformer, and connections between said grounded circuit and the service-circuit through said switch

2. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a stationary core therefor, an armature operatively connected to said switch, a fuse connected to said armature for normally holding said switch closed, and a grounded circuit through the primary of said solenoid-transformer connected with the service-circuit through said switch.

3. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a stationary core therefor, a weighted armature operatively connected to said switch, a fuse supporting said armature in raised position for normally holding said switch closed, and a grounded circuit through the primary of said solenoid-transformer connected with the service-circuit through said switch.

4. In an automatic electric-circuit breaker, a switch, a service-

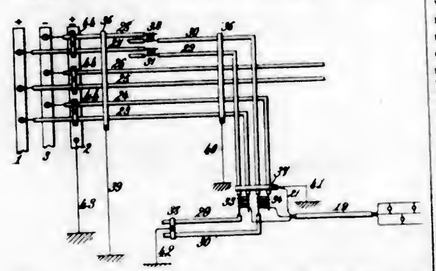
circuit through said switch, a solenoid-transformer, a stationary core therefor, an armature connected to said switch, a fuse for normally holding said switch closed, a grounded circuit through the primary of said solenoid-transformer, connected with the service-circuit through said switch and a closed circuit including said fuse and the secondary of said solenoid-transformer.

5. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a core therefor, an iron weight serving as an armature operatively connected to said switch, and a supporting-fuse for said armature normally holding said switch in its closed position, the said solenoid-transformer comprising a primary coil in a grounded circuit and connected with the service-circuit through said switch, and a secondary coil of a comparatively-small number of turns in inductive relation with said primary coil, the circuit through said secondary being closed through said supporting-fuse whereby with a high-tension direct current, the primary coil alone acts magnetically through said core to exert a pull on said armature and break said fuse mechanically opening the switch by combined magnetic and gravity action, and whereby with a high-tension alternating current both primary and secondary coils act together to produce a transformer inducing a current of large volume and small voltage in the secondary coil by which said fuse is melted without arcing and permitting gravity to open said switch by the weight of said armature, to which force is added simultaneously the magnetic pull exerted by the untransformed energy flowing through the primary coil.

6. In an automatic electric-circuit breaker, a switch, a service-circuit through said switch, a solenoid-transformer, a stationary core therefor, an armature operatively connected to said switch, a fuse for normally holding said switch closed, a grounded circuit through the primary of said solenoid-transformer connected with the neutral wire of the service-circuit through said switch, and a closed circuit including said fuse and the secondary of said solenoid-transformer.

7. In an automatic electric-circuit breaker, the combination with a box or casing and a base-plate of insulating material therein, of contacts arranged in pairs on said base-plate, conducting strips or bridges for the members of each pair of contacts, an insulated bar secured to said strips, a lever secured to said bar, a solenoid-transformer, a stationary core therefor, an iron weight serving as an armature connected to said lever, a support, a fuse secured to said support and to said armature for supporting the latter and normally holding said strips or bridges in engagement with said contacts, a service-circuit leading to one side of said contacts and from the other, a grounded circuit leading from the neutral wire on the other side of said contacts through the primary coil of the solenoid-transformer, and a circuit through the secondary coil of said solenoid-transformer normally closed through and by said fuse.

645,011. UNDERGROUND SYSTEM OF ELECTRICAL DISTRIBUTION. WARREN B. REED and LYMAN C. REED, New Orleans, La. Filed Aug. 21, 1899. Serial No. 728,010. (No model.)



Claim.—1. A three-wire system of electrical distribution comprising a plurality of sets of positive and negative conductors, metallic coverings for said conductors insulated therefrom, and a common neutral formed by the bonded coverings of the different sets of positive and negative conductors.

2. A three-wire system of electrical distribution comprising a plurality of sets of positive and negative conductors, metallic coverings for said conductors insulated therefrom, and a common neutral formed by the bonded and grounded coverings of the different sets of positive and negative conductors.

3. A three-wire system of electrical distribution in which the various neutral cables are eliminated, comprising several sets of positive and negative conductors in metallic-sheathed cables, and a common neutral formed by the bonded sheathings of the various positive and negative conductors.

4. A three-wire system of electrical distribution in which the neutral cable is eliminated, comprising positive and negative feeders and mains in metallic-sheathed cables and a neutral conductor formed by the grounded sheathings of said cables, the sheathings of the various sets of positive and negative feeder-cables being bonded electrically, to form a common neutral feeder.

5. A three-wire system of electrical distribution in which the neutral cable is eliminated, comprising positive and negative feeders and mains in metallic-sheathed cables, and a neutral conductor formed by the grounded sheathings of said cables, the sheathings of the various sets of positive and negative main cables being electrically bonded to form one common neutral main.

6. A three-wire system of electrical distribution in which the neutral cable is eliminated, comprising positive and negative feeders and mains in metallic-sheathed cables, the sheathings of the various sets of positive and negative feeder and main cables being electrically bonded and permanently grounded at different points to form one common neutral.

7. A three-wire system of underground electrical distribution in which all the neutral feeder and main cables are eliminated, comprising a plurality of positive and negative feeders and mains, and a common neutral practically equivalent to one of infinite capacity, whereby all unbalanced currents may be neutralized at all points of the system, leaving only the resultant excess on the common neutral.

8. A three-wire system of underground electrical distribution in which the several neutral cables are eliminated, comprising a plurality of sets of positive and negative conductors in metallic-sheathed cables, a common neutral formed by the bonded and grounded sheathings of the various positive and negative conductors, and house-circuits leading therefrom, the positive and negative wires of which are respectively connected to the positive and negative conductors, and the neutral wire of which is connected to said common neutral, and thereby grounded.

9. A three-wire system of underground electrical distribution in which the several neutral cables are eliminated, comprising a plurality of sets of positive and negative conductors in metallic-sheathed cables, the sheathings of the various cables being electrically bonded and permanently grounded, a common neutral formed by said sheathings, and house-circuits, the positive and negative wires of which are respectively connected to the positive and negative conductors, and the neutral wire of which is connected to said common neutral.

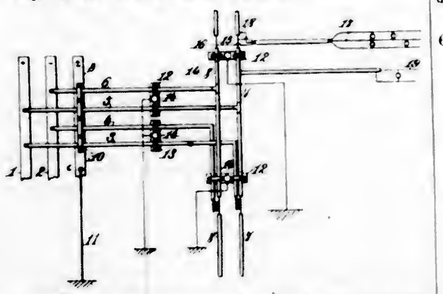
10. A three-wire system of underground electrical distribution in which the several neutral cables are eliminated, comprising positive, negative and neutral busses, at source of supply, the neutral bus being permanently grounded, a plurality of sets of positive and negative feeders in metallic-sheathed cables leading respectively from the positive and negative busses, the sheathings of the various cables being electrically bonded and metallically connected to the neutral bus, metallic-sheathed main cables connected with said feeders and a common neutral formed by the bonded sheathings of the various feeder and main cables.

11. A three-wire system of underground electrical distribution in which the neutral cable is eliminated, comprising positive, negative and neutral busses at source of supply, the neutral bus being permanently grounded, positive and negative feeders in metallic-sheathed cables leading respectively from the positive and negative busses, the sheathings of the feeder-cables being electrically bonded and metallically connected to the neutral bus, positive and negative mains connected with said feeders, in metallic-sheathed cables, the sheathings of the main cables being bonded and permanently grounded at different points, and a common neutral formed by the bonded and grounded sheathings of the feeder and main cables.

12. A three-wire system of underground electrical distribution in which the neutral cable is eliminated, comprising positive, negative and neutral busses at source of supply, the neutral bus being permanently grounded, positive and negative feeders in metallic-sheathed cables leading respectively from the positive and negative busses, the sheathings of the feeder-cables being electrically bonded and metallically connected to the neutral bus, positive and negative mains connected with said feeders, in metallic-sheathed cables, the sheathings of the main cables being bonded with each other and with the sheathings of the feeder-cables, and permanently grounded, at different points, and a common neutral formed by the bonded and grounded sheathings of the feeder and main cables.

13. A three-wire system of underground electrical distribution in which the neutral cable is eliminated, comprising positive, negative and neutral busses at source of supply the neutral bus being grounded, a plurality of positive and negative feeders and mains leading respectively from the positive and negative busses, and a common grounded neutral for all of said feeders and mains, connected with the neutral bus, whereby the different currents of opposite polarity may be neutralized at their sources and the resultant excess may be taken from said neutral bus.

645,012. SYSTEM OF OVERHEAD ELECTRICAL DISTRIBUTION. WARREN B. REED and LYMAN C. REED, New Orleans, La. Filed Sept. 13, 1899. Serial No. 730,368. (No model.)



Claim.—1. A three-wire system of overhead electrical distribution comprising a plurality of sets of positive and negative conductors in metallic coverings which are insulated therefrom, metallic poles or supports for maintaining said conductors in elevated position, the coverings of the different sets of conductors being electrically bonded to each other and to said poles, through which they are also grounded, and a common neutral formed by said coverings.

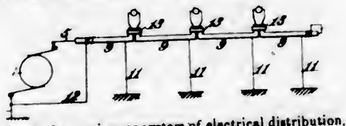
2. A three-wire system of overhead electrical distribution comprising a plurality of sets of positive and negative conductors in metallic coverings which are insulated therefrom, metallic poles or supports for maintaining said conductors in elevated position, the coverings of the different sets of coodnctors being electrically bonded to said poles and to each other through said poles, and a common neutral formed by said coverings.

3. A three-wire system of overhead electrical distribution comprising a plurality of sets of positive and negative conductors in metallic-sheathed cables, metallic poles or supports for maintaining said cables in elevated position, the sheathings of the different sets of cables being electrically bonded to each other and to said poles through which they are also permanently grounded, and a common neutral formed by said sheathings.

4. A three-wire system of overhead electrical distribution comprising a plurality of sets of positive and negative conductors in metallic-sheathed cables, metallic poles or supports for maintaining said cables in elevated position, the sheathings of the different sets of cables being electrically bonded to each other and to said poles through which they are also permanently grounded, a common neutral formed by said sheathings, and house-circuits, the positive and negative wires of which are respectively connected to said positive and negative conductors and the neutral wire of which is connected to said common neutral.

5. A three-wire system of overhead electrical distribution, comprising positive, negative and neutral busses at the source of supply, a plurality of sets of positive and negative feeders and mains leading respectively from the positive and negative busses, metallic coverings for said feeders and mains which are insulated therefrom, grounded metallic poles or supports for maintaining said feeders and mains in elevated position, the coverings of the different sets of feeders and mains being electrically bonded to each other and to said poles, and a common neutral for all of said feeders and mains formed by said coverings which are connected with the neutral bus, whereby the different currents of opposite polarity may be neutralized at their source and the resultant excess may be taken from the neutral bus.

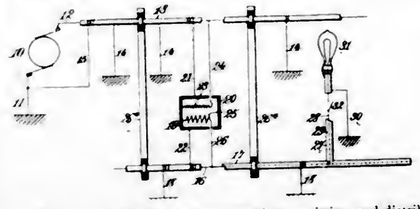
645,013. SERIES-ARC SYSTEM OF ELECTRICAL DISTRIBUTION. WARREN B. REED and LYMAN C. REED, New Orleans, La. Filed Sept. 15, 1899. Serial No. 730,623. (No model.)



Claim.—1. In a series-arc system of electrical distribution, a conductor, translating devices in series with said conductor and a metallic covering for said conductor insulated therefrom, made in sections electrically bonded at said translating devices and constituting the return-conductor.

2. In a series-arc system of electrical distribution, a generator having one side grounded, a conductor leading from the other side, translating devices in series with said conductor, and a metallic covering for said conductor, insulated therefrom, made in sections electrically bonded at said translating devices, grounded throughout the distribution and at the generator, and constituting the return-conductor.

645,014. SYSTEM OF ELECTRICAL DISTRIBUTION. WARREN B. REED and LYMAN C. REED, New Orleans, La. Filed Oct. 6, 1899. Serial No. 732,815. (No model.)



Claim.—1. A high-tension system of transmission and distribution of alternating electric current in which one wire or cable as a separate conductor is eliminated, comprising one or more conductors in metallic coverings which are insulated therefrom, and another conductor formed by said coverings, in combination with a transformer, and a low-tension system leading therefrom comprising one or more conductors in metallic coverings which are insulated therefrom, and another conductor formed by said coverings, the coverings of the conductors of the high and low tension systems being bonded independently of said transformer, as and for the purpose set forth.

2. A high-tension system of transmission and distribution of alternating electric current in which one wire or cable as a separate conductor is eliminated, comprising one or more conductors in metallic coverings which are insulated therefrom, and another conductor formed by said coverings, in combination with a transformer, and a low-tension system leading therefrom, comprising one or more conductors in metallic coverings which are insulated therefrom, and another conductor formed by said coverings, the coverings of the conductors of the high and low tension systems being bonded independently of said transformer and grounded, as and for the purpose set forth.

3. A high-tension system of transmission and distribution of alternating electric current, in which one wire or cable as a separate conductor is eliminated, comprising one or more conductors in metallic-sheathed cables, and another conductor formed by the sheathings of said cables, in combination with a transformer, and a low-tension system leading therefrom comprising one or more conductors in metallic-sheathed cables, and another conductor formed by the sheathings of said cables, the sheathings of the cables of the high and low tension systems being bonded independently of said transformer and grounded, as and for the purpose set forth.

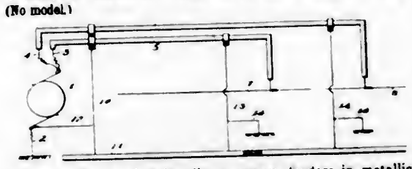
4. The combination of a high-tension and a low-tension system of distribution of alternating electric current, each comprising one or more conductors in metallic-sheathed cables and another conductor formed by the grounded sheathings of said cables, a transformer, the primary coil of which is connected with the inner conductor of the high-tension system, the secondary coil of which is connected with the inner conductor of the low-tension system, and both coils of which are connected with the grounded metallic sheathings of the cables of both of said systems and a bond, independent of said transformer, between the sheathings of the conductors of the high and low tension systems.

5. The combination of a high-tension and a low-tension system of distribution of alternating electric current, each comprising one or more conductors in metallic-sheathed cables and another conductor formed by the grounded sheathings of said cables, a transformer consisting of a metallic shell or casing electrically connected to the sheathings of the cables of both the high and low tension systems, the primary coil of said transformer being connected to said shell and to the interior conductor of the high-tension system, and the secondary coil of said transformer being connected to said shell and to the interior conductor of the low-tension system, and a bond, independent of said transformer, between the sheathings of the conductors of the high and low tension systems, as and for the purpose set forth.

6. The combination of a high-tension and a low-tension system of distribution of alternating electric current, in which one wire as a separate conductor is eliminated, each comprising one or more conductors in metallic-sheathed cables and another conductor common to both systems, formed by the bonded and grounded sheathings of the cables of both systems, a transformer between the high and low tension systems, a house-circuit leading from the low-tension system and translating devices therein, the said house-circuit comprising one or more conductors in metallic-sheathed cables, and another con-

ductor formed by the sheathings of said cables, the said sheathings being grounded, and leading from the translating devices to the sheathings of the conductor-cables of the low-tension system, and the bonds between the sheathings of the cables of the high and low tension systems being independent of said transformer, as and for the purpose set forth.

645,015. ELECTRIC RAILWAY. WARREN R. REED and LYMAN C. REED, New Orleans, La. Filed Oct. 16, 1899. Serial No. 733,781. (No model.)



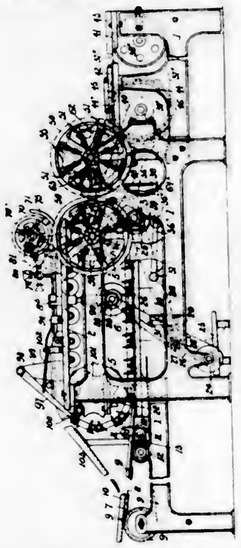
Claim.—1. In an electric-railway system, feeders in metallic-sheathed cables, the sheathings of which are bonded to each other and constitute a common return-feeder, trolley-wire sections fed from said feeders, and metallic rails bonded to each other and to the bonded sheathings of the feeder-cables.

2. In an electric-railway system, feeders in metallic-sheathed cables, a generator for supplying current to said feeders having one side grounded, trolley-wire sections connected with said feeders, and metallic rails, the sheathings of said cables being grounded and connected with said rails.

3. In an electric-railway system, feeders in metallic-sheathed cables, a generator for supplying current to said feeders having one side grounded, trolley-wire sections connected with said feeders, and metallic rails, the sheathings of said cables being bonded and grounded and connected to the grounded side of said generator and to said rails.

4. In an overhead electric-railway system, grounded metallic poles, feeders in metallic-sheathed cables supported thereby and having their sheathings bonded to said poles, trolley-wire sections supplied from said feeders, and rails bonded together and to said poles, as and for the purpose set forth.

645,016. WRAPPING-MACHINE. HENRY ROSE, Gainsborough, England. Filed Sept. 13, 1899. Serial No. 730,362. (No model.)



Claim.—1. In a machine for inclosing in wrappers washing-blue, black-lead, soap or other substance, the combination of an endless chain of holders in which the wrapping is effected, means for imparting a continuous traveling motion to the said chain of holders and means for feeding the wrapper toward the holders, a gripping device on each of the holders to receive the wrappers and carry them into position to receive the blocks of substance to be inclosed therein and means for opening and closing the gripping devices at the required periods, substantially as hereinbefore described.

2. In a machine for inclosing substances in wrappers, the combination with an endless chain of holders in which the wrapping is effected, means for imparting a continuous traveling motion to the said chain of holders, and means for feeding the wrapper toward the holders, a gripping device on each of the holders to receive the wrappers and carry them into position to receive the blocks of substance to be inclosed therein, means for opening and closing the gripping devices at the required periods and mechanism for applying adhesive material to the wrappers as they are moving into position to receive the blocks of substance, all substantially as described.

3. In a machine for the purpose hereinbefore described, the combination with a continuously-traveling chain of holders in which the wrapping is effected, means for feeding the wrappers into position to receive the blocks of substance, a trough along which the blocks of substance to be inclosed by the wrappers pass, a stop, and means for operating it so as to prevent more than one block at a time from entering the trough, a drum having projections on its periphery by which the blocks of substance are moved from the trough into position to be pushed into the holders, plungers fitted to slide radially in the drum and means for operating them to push the blocks into the holders as they come into position to receive them, substantially as hereinbefore described.

4. In a machine for inclosing substances in wrappers, the combination with a continuously-traveling chain of holders, means for feeding the wrappers into position, a trough for the blocks, a stop and means for operating it to prevent more than one block at a time from entering the trough, a wheel or drum having projections on its periphery by which the blocks are moved from the trough to be pushed into the holders, plungers fitted to slide radially in the drum, slides fitted to move radially in one of the drums around which the chain of holders travels and means for operating the said slides to cause them to move outward at the requisite periods to engage between the slides and plungers the blocks of substance, while said blocks are being inserted in the holders, all substantially as described.

5. In a machine for the purpose hereinbefore described, a continuously-rotating folding device carrying a pivoted folding-blade or pivoted folding-blades for folding onto the blocks of substance one of the ends of each wrapper, which are caused to stand up above the block when a block and wrapper are forced into a holder, a weight connected to each folding-blade to normally maintain the blade in a vertical position, a stationary surface with which the weight comes into contact so as to cause the blade to turn on its pivots and press one of the upstanding ends of the wrappers down onto the blocks of substance as the holders containing the blocks of substance pass beneath the said folding device, substantially as hereinbefore described.

6. In a machine for inclosing substances in wrappers, a continuously-rotating folding device carrying a pivoted blade or blades for folding into the block, one of the ends of the wrapper, which are caused to stand up above the block, when a block and wrapper are forced into a holder, a weight to normally maintain the blade in a vertical position, a stationary surface with which the weight comes into contact to turn the blade, in combination with a roller beneath which the holders pass, the said roller pressing the remaining upstanding end of the wrapper down onto the previously-folded end, substantially as described.

7. In a machine for the purpose hereinbefore described, the combination with means for surrounding with a wrapper four sides of a block of substance, of a continuously-rotating folding device having one or more pairs of fingers to act simultaneously on the upper portions of the opposite laterally-projecting ends of a wrapper so as to fold the said upper portions against the ends of the block, an independent shaft on which the said folding device is mounted and means for imparting continuous rotation to the shaft, substantially as described.

8. In a machine for the purpose hereinbefore described, the combination with mechanism for surrounding with a wrapper four sides of a block of substance and for folding the upper parts of the laterally-projecting ends of the wrapper against the ends of the block of material, of continuously-rotating folder-arms carrying yielding folding-blocks for folding one side of each projecting end of the wrapper against the ends of the block of substance, an independent shaft for each folding device and means for rotating the folders, substantially as described.

9. In a machine for the purpose hereinbefore described, the combination with a continuously-traveling chain of holders in which the blocks of substance are inclosed in wrappers, of a device for ejecting the inclosed blocks from the holders, the said ejecting device comprising a forked lever, a stud located above the chain of holders on which stud the forked lever is mounted, a cam for operating the lever at the requisite periods to cause it to engage the two ends of each packet as it comes into position and lift the said packet from the holder into a suitable receptacle, and a spring for retaining the lever in contact with the cam, substantially as hereinbefore described.

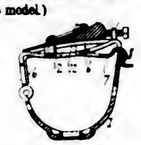
10. In a machine for the purpose hereinbefore described, the device for folding one of the upstanding ends of the wrappers down onto the blocks of substance to be inclosed, the said device comprising four pairs of arms such as 72 fast on a continuously-rotating spindle 70×, a folding-blade such as 73 pivoted between each pair of arms, a weight such as 74 attached to each folding-blade to normally maintain it in a vertical position and a stationary surface against which the weight on each folding-blade comes into contact in succession so as to cause each folding-blade to depress an upstanding end of a wrapper as the blocks partly surrounded by wrappers pass beneath the said folding device, substantially as hereinbefore described.

11. In a machine for the purpose hereinbefore described, a device for folding the top portions of the laterally-projecting ends of the wrapper in which blocks of substance are partially inclosed, the said device comprising four pairs of arms 79 fast on a constantly-rotated horisontal shaft 80, a folding-blade such as 82 hinged to each arm so as to be capable of turning outward on its hinge, a spring such as 83 connecting together the folding-blades of each pair of folding-blades, the said springs tending to draw the said folding-blades inward and stops such as 84 to limit the inward movement of the said folding-blades, each pair of the said folding-blades, as the shaft rotates, depressing the top portions of the two projecting ends of each partially-inclosed block of substance as they travel in succession beneath the device, substantially as hereinbefore described.

12. In a machine for the purpose hereinbefore described, folding devices for folding inward one side of each projecting end of each wrapper in which a block of substance is partially inclosed, each folding device comprising two arms 86 fast on a continuously-rotated vertical spindle, a folding-block such as 92 fitted on the outer end of each arm and capable of sliding thereon, a spring such as 93 tending to force the folding-block outward and a stop to limit the movement of the said folding-block, the rotation of the folding devices being timed so as to cause the folding-blocks to act on the wrappers of each partially-inclosed block of substance as they pass in succession between the folding devices, substantially as hereinbefore described.

13. In a machine for inclosing in wrappers washing-blue, black-lead, soap or other substances, the combination of a continuously-traveling chain of holders in which the wrapping is effected, a continuously-traveling endless band with projections thereon for feeding forward the wrappers, a pair of rollers between which the wrappers pass from the feeding-band, a gripping device on each holder and means for automatically opening and closing the gripping devices so as to receive and engage the wrappers as they leave the rollers and carry the said wrappers into position to receive the blocks of substance to be inclosed therein, means for applying adhesive material to each wrapper as it is being carried into position to receive a block of substance, a continuously-traveling endless band or endless bands for feeding the blocks of material forward into position to be fed into the holders, a rotating feeding-drum having on its periphery projections by which the blocks of substance are carried from the feeding band or bands into position to be pushed into the holders, plungers arranged to slide radially in the drum and means for operating the plungers to push the blocks of substance and wrappers into the holders as they are brought in succession into position to receive them, radially-arranged slides or plungers in one of the drums around which the chain of holders travel, and means for operating the slides so as to cause them to engage the blocks of substance as the said blocks are being pushed from the feed-drum into the holders so as to guide the blocks into the said holders, a folding device rotating in a vertical plane and acting on each wrapper in succession, to fold one of the upstanding ends of each wrapper onto the block of substance which is partially inclosed therein when being pushed into the holder, a roller by which the other upstanding end of each wrapper is folded down onto the partially-closed blocks as they pass beneath the said roller, a folding device on each side of the chain of holders for folding down the top portions of the laterally-projecting ends of the wrappers, the said folding devices being caused to continuously rotate in a vertical plane and so timed as to act on each wrapper in succession as they pass beneath them, a folding device on each side of the chain of holders for folding inward one side of each laterally-projecting end of each wrapper, the said folding devices being caused to rotate continuously in a horizontal plane and timed to act on each wrapper in succession as they pass between them, stationary folders arranged on each side of the continuously-traveling chain of holders for folding the remaining unfolded side of each laterally-projecting end of each wrapper as they pass between the said folders, double-inclined surfaces on each side of the continuously-traveling chain of holders by which the bottom tabs or last part of the laterally-projecting ends of the wrappers are folded against the blocks of substance as they pass between the said double-inclined surfaces, and a forked lever and means for operating it so as to cause it to engage the completed packets in succession and remove them from the holders, the whole being constructed, arranged and timed to operate substantially in the manner hereinbefore described.

645,017. SAFETY-RAZOR. AUGUST W. SCHEUBER, New York, N. Y., assignor to Mary Zinn, same place. Filed July 6, 1899. Serial No. 722,984. (No model.)



Claim.—1. A comb or blade support combined with a spring blade-retainer made to force the blade backward, and a rigid or unyielding stop for limiting the backward motion of the blade substantially as described.

2. A comb or blade support combined with a spring blade-retainer made to force the blade backward, and an adjustable stop or screw made to sit against the blade-back substantially as described.

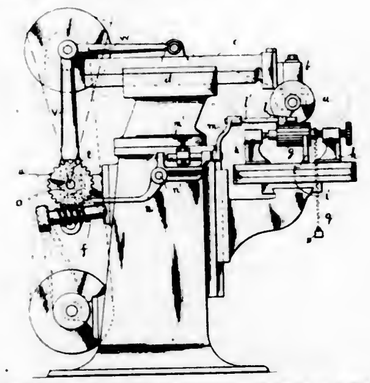
3. A comb-plate and a spring blade-retainer secured at the front of the plate, combined with lugs at the back of the comb-plate clear of the retainer, and stops in said lugs substantially as described.

4. A comb or blade support combined with a spring blade-retainer and a blade-stop, said retainer having a finger-piece for enabling the retainer to be moved from and to engaging position substantially as described.

5. A blade-support, a spring blade-retainer and a blade-stop, said retainer having a finger-piece for enabling the retainer to be raised to release the blade, said finger-piece when raised being made to spring or rest on the support to remain or automatically lock itself in releasing position substantially as described.

6. A rigid or unyielding blade-support, and a rigid or unyielding back-stop, combined with a spring blade-retainer for forcing a blade down onto the support and back against the stop so that said blade will be in fixed position or positive adjustment during use substantially as described.

645,018. MACHINE FOR GRINDING MILLING-CUTTERS. FRIEDRICH SCHMALTZ, Offenbach-on-the-Main, Germany. Filed Sept. 12, 1898. Serial No. 690,787. (No model.)



Claim.—1. In a machine for automatically grinding milling-cutters and the like, the combination of a movable slide having an adjustable head; a grinding-disk mounted on said head to move therewith; a stationary support for the cutter to be ground; and means for reciprocating the slide and therewith the head and the grinding-disk over the cutter; substantially as hereinbefore described.

2. In a machine for automatically grinding milling-cutters and the like, the combination of a movable slide having an adjustable head; a grinding-disk mounted on said head to move therewith; a stationary support for the cutter to be ground; fingers on said head to hold the cutter while it is being ground; and means for reciprocating the slide and therewith the head, and the fingers and grinding-disk, over the cutter; substantially as hereinbefore described.

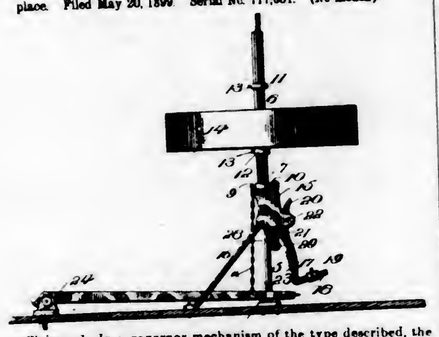
3. In a machine for automatically grinding milling-cutters and the like, the combination of a movable slide having an adjustable head; a grinding-disk mounted on said head to move therewith; a stationary support for the cutter to be ground; fingers on said head

to hold the cutter while it is being ground; means for reciprocating the slide and therewith the head, and the fingers and grinding-disk over the cutter; and means for turning the cutter to bring a fresh portion thereof under the action of the grinding-disk; substantially as hereinbefore described.

4. In a machine for automatically grinding milling-cutters and the like, the combination of a movable slide having an adjustable head; a grinding-disk mounted on said head to move therewith; a stationary support for the cutter to be ground; fingers on said head to hold the cutter while it is being ground; a lever V connected by a link W to the movable slide; a crank-disk having its pin *e* engaging said lever to oscillate it and to thereby reciprocate the slide and therewith the head, fingers and grinding-disk over the cutter; worm-gear *f* to drive said crank-disk; and a pawl *l* adapted to be actuated through levers *m n* by a cam-disk *o* mounted on the same shaft as the aforesaid crank-disk, to turn the cutter; substantially as hereinbefore described.

5. In a machine for automatically grinding milling-cutters and the like, having a stationary support for the cutter to be ground, and a movable support for the grinding-disk; the combination with the fingers for holding the cutter while it is being ground, of means for turning said cutter to bring a fresh portion thereof under the action of the grinding-disk, a weighted cord *q* adapted to be wound on said cutter as it is turned; and a spring-pawl *l* adapted to retain the cutter against backward turning until the fingers have engaged the teeth of said cutter, substantially as hereinbefore described.

645,019. GOVERNOR MECHANISM FOR WINDMILLS. ALBERT T. SCOTT, Defiance, Iowa, assignor of one-half to John W. Riley, same place. Filed May 20, 1899. Serial No. 717,631. (No model.)



Claim.—1. In a governor mechanism of the type described, the combination with the lever for controlling the movements of the regulating-valve, of a float controlled in its movements by the change of level of the water in the tank, a support for the float provided with upper and lower stops between which the said float has a limited movement and a flexible connection between the said support and lever, as and for the purpose set forth.

2. In governor mechanism of the character specified, the combination with the lever for controlling the movements of the regulating-valve, of a float controlled in its movements by the change of level of the water in the tank, a vertical guide, a support for the float slidably mounted upon the guide, upper and lower stops adjustably connected with the said support and limiting the movements of the float with reference to its support, and a flexible connection between the said support and lever, as and for the purpose set forth.

3. In a governor mechanism of the character described, the combination with the lever for controlling the movements of the regulating-valve, and a weighted lever adapted to interlock with and hold the valve-controlling lever in an operative position, of a float, a support for the float operatively connected with the valve-controlling lever and provided with upper and lower stops between which the float has limited play, and an arm applied to and movable with the said support and adapted to release the weighted lever from the valve-controlling lever, as and for the purpose set forth.

4. In governor mechanism of the type specified, a valve-controlling lever, an interlocking lever, a float, a support for the float, upper and lower stops having adjustable connection with the support for limiting the relative movements of the float, a positive connection between said support and the valve-controlling lever, and an arm carried by the said support and adapted to release the said interlocking lever, substantially in the manner set forth and for the purpose described.

6. In governor mechanism of the class set forth, a valve-controlling lever, an interlocking lever, a vertically-disposed rod, a tube slidable upon said rod and prevented from turning thereon, a float movable upon the tube, stops applied to the tube and limiting the movements of the float with reference thereto, a connection between the valve-controlling lever and tube, and an arm carried by the tube and adapted to release the interlocking lever, as and for the purpose set forth.

6. In governor mechanism of the class specified, a valve-controlling lever, an interlocking lever, a vertically-disposed rod, a tube slidable upon the rod and provided with spaced stops, a cap applied to the tube and cooperating with the rod to prevent relative turning of the tube thereon, a float mounted upon the tube and having free play between the stops thereof, a connection between said cap and valve-controlling lever, and an arm applied to the said cap and adapted to effect a release of the interlocking lever, substantially as specified.

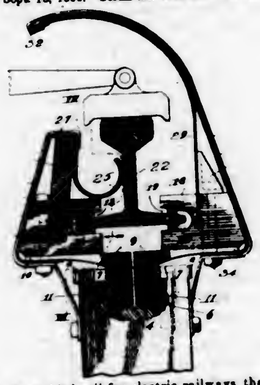
7. In valve mechanism of the class set forth, the valve-controlling lever, a vertically-disposed rod, a head secured to said rod, a tube slidable upon said rod and connected with the valve-controlling lever and provided with spaced stops, a float mounted upon said tube and movable between the stops thereof, an interlocking lever pivoted to the aforesaid head, and an arm applied to the said tube and adapted to operate through the head and effect the release of the interlocking lever, substantially as set forth.

8. In governor mechanism of the character described, the combination with the valve-controlling lever, a vertically-disposed rod, and a tube slidable upon said rod and connected with the valve-controlling lever and provided with spaced stops, of a head secured to the said rod, an interlocking lever pivoted to said head, an arm applied to the said tube and movable therewith and adapted to release the interlocking lever, and a float mounted upon the tube between the stops thereof, as and for the purpose set forth.

9. In governor mechanism of the character described, the combination with the valve-controlling lever, the vertically-disposed rod, a tube slidable upon the rod and provided with spaced stops and operatively connected with the valve-controlling lever, and a float mounted upon the tube between the stops thereof, of a head secured to the aforesaid rod, an interlocking lever pivoted to the said head and provided with an upper extension and an inner lower protuberant portion, and an arm carried by the said tube and adapted to effect a release of the said interlocking lever, substantially as described.

10. A governor mechanism constructed substantially as set forth and comprising a valve-controlling lever, a vertically-disposed rod, a tube slidable upon said rod, a cap applied to said tube and constructed to prevent relative turning thereof upon the rod, a connection between said cap and the valve-controlling lever, upper and lower stops adjustably connected with the tube, a float mounted upon the tube between the adjustable stops, a head secured to the rod, a lever pivoted to the said head, and having an upper extension, an inner lower protuberant portion, a toothed part and an extension upon which a weight is adjustably mounted, and an arm pivotally connected with the aforesaid cap and provided at its lower end with a roller disposed to cooperate with the protuberant portion of the weighted lever, substantially as and for the purpose set forth.

645,020. THIRD-RAIL ELECTRIC RAILWAY. BENJAMIN C. SEATON, St. Louis, Mo., assignor of one-half to Benjamin Bleeman, same place. Filed Sept. 18, 1899. Serial No. 730,819. (No model.)



Claim.—1. In a third rail for electric railways, the combination with a series of supports, of a conductor carried by and insulated from said supports, guards extending between the supports on one side of the conductor, shields extending between the supports on the opposite side of said conductor, and sheets of insulating material covering the meeting ends of the guards and shields; substantially as specified.

2. In a third rail for electric railways, a series of supports, a pair of blocks arranged on each support, a conductor held by and insulated from said blocks, guards extending between the blocks on one side of the conductor, shields extending between the blocks on the opposite side of the conductor, and sheets of insulating material covering said blocks and the meeting ends of said guards and shields; substantially as specified.

3. In a third rail for electric railways, the combination with a series of supports, of pairs of blocks carried by said supports, insulators held in said blocks, a conductor held between said insulators, a continuous insulating-guard on one side of the conductor, and a continuous shield on the opposite side of said conductor, substantially as specified.

4. In a third rail for electric railways, the combination with a series of supports, of pairs of blocks carried by said supports, insulators held in said blocks, a conductor held between said insulators, insulating-guards between the blocks on one side of said conductor, and a shield between the blocks on the opposite side of the conductors, substantially as specified.

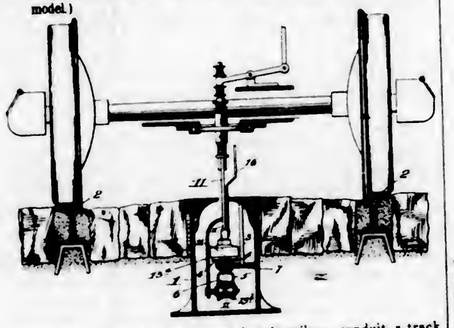
5. In a third rail for electric railways, a series of supports, a pair of oppositely-arranged blocks carried by each support, in the adjacent faces of which blocks are formed grooves, insulators positioned in said blocks, in the exposed portions of which insulators are formed grooves, and a flanged conductor, the flanges of which occupy the grooves in the insulators, substantially as specified.

6. In a third rail for electric railways, a series of supports, a pair of oppositely-arranged blocks carried by each support, in the adjacent faces of which blocks are formed grooves, insulators positioned in said blocks, in the exposed portions of which insulators are formed grooves, a flanged conductor, the flanges of which occupy the grooves in the insulators, a continuous insulating-guard on one side of the conductor, and a continuous shield on the opposite side of said conductor, substantially as specified.

7. In a third rail for electric railways, a series of supports, a pair of brackets upon each support, a pair of oppositely-arranged blocks held by said brackets, insulators held in said blocks, a conductor held between said insulators, guards arranged between the blocks on one side of the conductor, a sheet of insulating material covering the meeting ends of said guards, shields arranged between the blocks on the opposite side of the conductor, and a sheet of insulating material covering the meeting ends of each pair of said shields, substantially as specified.

8. In a third rail for electric railways, the combination with a block having a groove formed in one of its side faces and a recess in its under side, of a block of insulating material located in said recess, substantially as specified.

645,021. UNDERGROUND ELECTRIC RAILWAY. GEORGE W. SMITH, Dallas, Tex. Filed Aug. 23, 1899. Serial No. 728,301. (No model.)



Claim.—1. In an underground electric railway conduit, a track therein, contact-shoes arranged in said track, which shoes are insulated from said track and from each other, a conductor suspended beneath the shoes, means carried by the car-body for bringing the conductor into contact with the shoes, a trolley carried by the car and riding upon the track and brushes surrounding the contact portion of the trolley substantially as specified.

2. In an underground electric railway a conduit, a track therein, contact-shoes arranged in said track, which shoes are insulated from said track and from each other, a conductor suspended beneath the shoes, means carried by the car-body for bringing the conductor into contact with the shoes, a trolley carried by the car and riding upon the track, brushes surrounding the contact portion of the trolley, and means whereby said brushes are elevated independent of the trolley, substantially as specified.

3. In an underground electric railway a conduit, a track therein contact-shoes arranged in said track, a conductor suspended beneath the shoes, means carried by the car-body for bringing the conductor into contact with the shoes, a trolley carried by the car and riding upon the track, a plurality of casings surrounding said trolley and alternately-arranged metallic and insulating plates, the same forming brushes, and which are carried in the casings substantially as specified.

4. In an underground electric railway the combination with a trolley of a plurality of brushes surrounding said trolley, substantially as specified.

5. In an underground electric railway the combination with a trolley of a plurality of brushes surrounding said trolley, which brushes comprise alternately-arranged metallic and insulating plates, substantially as specified.

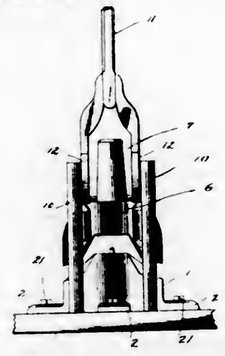
6. In an underground electric railway the combination with a trolley of a plurality of brushes surrounding said trolley, and means whereby said brushes are elevated independent of the trolley, substantially as specified.

7. In an underground electric railway the combination with a trolley of a plurality of casings surrounding the trolley, which casings are united, a plurality of alternately-arranged metallic and insulating plates positioned in said casings, and means whereby the casings are elevated independent of the trolley, substantially as specified.

8. In an underground electric railway, the combination with a plurality of contact-shoes, the under sides of which are concaved, of a longitudinally-extending feed-wire oval in cross-section and horizontally arranged immediately beneath said contact-shoes, and means for bringing said feed-wire and contact-shoes into contact; substantially as specified.

9. In an underground electric railway, the combination with a continuous flexible hanger of a plurality of contact-shoes arranged in the upper portion of said hanger, the under sides of which shoes are concaved, a feed-wire oval in cross-section and horizontally arranged and held by the hanger immediately beneath said contact-shoes, and means whereby said feed-wire is brought into contact with the concaved under sides of the contact-shoes; substantially as specified.

645,022. MACHINE FOR SETTING OR FORMING SCRAPER-BLADES. JESSE B. SMITH, Alexander City, Ala. Filed Oct. 18, 1899. Serial No. 734,008. (No model.)



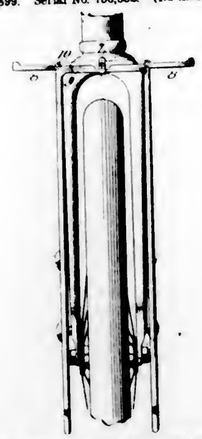
Claim.—1. A machine for forming, or setting, scraper-blades, consisting of an anvil, having a stud projecting from the face thereof; a sliding female die, having ears, or lugs, projecting laterally therefrom; an operating-lever, provided with cams, and cam-grooves on the inner faces of said cams to accommodate the ears or lugs on the female die, said lever being pivoted to a guideway within which the female die slides, substantially as described.

2. In a machine of the class described, a rigid anvil or die; a sliding female die, mounted to move toward and from the anvil within a guideway, and an adjustable guide, or former, designed to be secured at the sides of the anvil in adjusted position to vary the contour, or shape, of the ends of the scraper-blade, substantially as described.

3. In a machine of the class described, the anvil, 1, within the guides, 10, 10; the female die, 6, mounted to slide within said guides; cam-lever, 11, 12, for moving the female die from and toward the

anvil; the stud, 4, on the anvil, and the aperture, 9, in the female die, substantially as described.

645,023. BICYCLE-SUPPORT. CHARLES W. H. SMITHERS, Fond du Lac, Wis., assignor of one-half to Anthony A. Kelly, same place. Filed Nov. 13, 1899. Serial No. 736,852. (No model.)



Claim.—1. In a bicycle-support, the combination with the front fork, of upper and lower studs applied to the lower end portions of the forked sides, and a folding support consisting of a frame of approximately U form having its side bars embracing the fork sides and pivotally and slidably mounted upon the lower studs, the extremities of the said side bars being engaged with and disengaged from the upper studs by a vertical movement of the frame, substantially as described.

2. In a bicycle-support, the combination with the front fork, of an approximately U-shaped frame pivoted to the fork sides and adapted to be turned so as to form a support, lateral extensions connected by a rule-joint to the cross-bar of the frame and having projections at their ends to form guards and rests in the manner set forth, and a clip applied to the fork-crown to hold the frame and the pivoted lateral extensions folded, substantially as set forth.

3. In a bicycle-support, the combination with the front fork, upper and lower studs applied to the fork sides and having their outer ends flanged or headed, and roller-sleeves on the studs, of a U-shaped frame having its side bars longitudinally slotted to receive the aforesaid lower studs upon which the frame is slidably and pivotally mounted, and having the end portions of the said bars curved to engage with the upper studs, substantially as set forth.

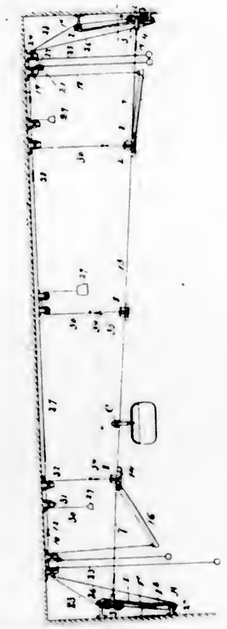
4. In a bicycle support, the combination with the front fork, upper and lower studs applied to the fork sides and having their outer ends flanged or headed, and roller-sleeves on the studs, of a U-shaped frame having its side bars longitudinally slotted to receive the aforesaid lower studs upon which the frame is slidably and pivotally mounted, and having the end portions of the said bars curved to engage with the upper studs, lateral extensions connected by rule-joints with the cross-bar of the frame and having projections at their ends to form guards and rests, and a clip applied to the fork-crown to hold the frame and the pivoted lateral extensions thereof folded, substantially as specified.

645,024. STORE-SERVICE APPARATUS. GUSTAV STAIB, New York, N. Y. Filed Mar. 24, 1899. Serial No. 710,326. (No model.)

Claim.—1. A store-service apparatus comprising a conveyer wire or rail, means for supporting it at its ends, means for changing its direction of inclination, carrier-receiving rails pivotally connected with the ends of the conveyer wire or rail, and means for operating the receiving-rails to cause a carrier to travel to the conveyer wire or rail, substantially as described.

2. A store-service apparatus comprising a conveyer wire or rail, guides near opposite ends thereof, movable devices connected with the wire or rail to travel along said guides, means for simultaneously raising one of said devices and lowering the other of said devices to alter the direction of inclination of the wire or rail, and carrier-receiving rails movably connected with the conveyer wire or rail, substantially as described.

3. A store-service apparatus comprising a conveyer wire or rail, means for supporting it at its ends, means for connecting its ends for simultaneously raising one end and lowering the other end, and carrier-receiving rails connected with the conveyer wire or rail near its ends and adapted to have movement independent of said wire or rail, substantially as described.



4. A store-service apparatus comprising a conveyer wire or rail, guides near its ends, frames or cars to travel up and down said guides, means for connecting the conveyer wire or rail with said frames or cars, a connection between said frames or cars, means also connected with said frames or cars for moving one to cause that to transmit motion to the other and carrier-receiving rails movably connected with the conveyer wire or rail, substantially as described.

5. A store-service apparatus comprising a conveyer wire or rail, receiving-rails pivotally connected therewith, means for raising and lowering said rails, and means connecting the ends of said conveyer wire or rail for simultaneously raising one end and lowering the other end of said conveyer wire or rail, substantially as described.

6. A store-service apparatus comprising a conveyer wire or rail, a pair of wires connected therewith near each end and located on opposite sides of the line thereof, means connected with said pairs of wires for raising and lowering the same, and carrier-receiving rails movably connected with the conveyer wire or rail, substantially as described.

7. A store-service apparatus comprising a conveyer wire or rail, a pair of wires connected therewith near each end and located on opposite sides thereof, frames or cars connected with said pairs of wires, guides therefor, means for raising and lowering said frames or cars, and carrier-receiving rails movably connected with the conveyer wire or rail, substantially as described.

8. A store-service apparatus comprising a conveyer wire or rail, a pair of wires connected therewith near each end and located on opposite sides thereof, frames or cars connected with said pairs of wires, guides therefor, a rail pivotally connected with said wire or rail at each end thereof, means for raising and lowering said rails, and means for raising and lowering said frames or cars, substantially as described.

9. A store-service apparatus comprising a conveyer wire or rail, guides near the ends thereof, said guides inclining upwardly and toward each other, frames or cars to travel on said guides, means for connecting the wire or rail with said frames or cars, means for raising and lowering the latter, and carrier-receiving rails movably connected with the conveyer wire or rail, substantially as described.

10. A store-service apparatus comprising a conveyer wire or rail, guides near the ends thereof, said guides at the lower part being substantially vertical and inclining toward each other above said vertical parts, frames or cars to travel on said guides, means for connecting the wire or rail with said frames or cars, and means for raising and lowering the latter, substantially as described.

11. A store-service apparatus comprising a conveyer wire or rail, guides near the ends thereof, frames or cars to travel on said guides, yokes connected with said frames, wires extending from said yokes and connected with the conveyer wire or rail, and means for raising and lowering said frames or cars, substantially as described.

12. A store-service apparatus comprising a conveyer wire or rail, guides near the ends thereof, frames or cars to travel on said guides, yokes connected with said frames, bridges or frames connected with said conveyer-wire, and means connecting the bridges with the yokes, substantially as described.

13. A store-service apparatus comprising a conveyer wire or rail, bridges or frames connected therewith, guides near the ends thereof, devices to travel on said guides and connected with said bridges, and means for changing the direction of inclination of the conveyer wire or rail, substantially as described.

14. A store-service apparatus comprising a conveyer wire or rail, bridges connected therewith, carrier-receiving rails pivotally supported in line with the conveyer-wire, guides near the ends of the latter, and frames or cars connected with said bridges and adapted to travel on said guides, substantially as described.

15. A store-service apparatus comprising a conveyer wire or rail, vertically-movable bridges connected therewith, guides near the ends of said conveyer wire or rail, frames or cars to travel on said guides and connected with said bridges, and means for changing the direction of inclination of said conveyer wire or rail, substantially as described.

16. A store-service apparatus comprising a conveyer wire or rail, bridges, a bar pivotally connected with each bridge and attached to the conveyer-wire, rails pivotally connected with said bars, guides near the ends of the conveyer wire or rail, frames or cars to travel on said guides, and means for connecting said bridges with said frames or cars, substantially as described.

17. A store-service apparatus comprising a conveyer wire or rail, bridges connected therewith, said bridges extending on each side of the connection with the conveyer wire or rail, wires extending from the sides of said bridges, frames or cars connected with said wires, guides for said frames or cars, and means for operating the latter, substantially as described.

18. A store-service apparatus comprising a conveyer wire or rail, bridges connected therewith and extending on opposite sides thereof, wires extending from said bridges, yokes connected with said wires, frames or cars pivotally connected with said yokes, guides for said frames or cars, and means for operating the latter, substantially as described.

19. A store-service apparatus comprising a conveyer wire or rail, bridges connected therewith, said bridges having an opening for the passage of a carrier and extending on opposite sides of the conveyer-wire, yokes connected with said bridges, frames or cars connected with said yokes, guides for said frames or cars, and means for operating the latter, substantially as described.

20. A store-service apparatus comprising a conveyer wire or rail, means for supporting the same and for changing its direction of inclination, and weights connected with said conveyer wire or rail adapted to assist in supporting the weight thereof, substantially as described.

21. A store-service apparatus comprising a conveyer wire or rail, bridges connected therewith, means for supporting and for raising and lowering said conveyer-wire, and weights connected with said bridges, substantially as described.

22. In a store-service apparatus a bridge for supporting a conveyer-wire, said bridge having an opening for the passage of a carrier, combined with a bar connected with said bridge, a support for said bar, and means for adjusting the position of said support in connection with said bar, substantially as described.

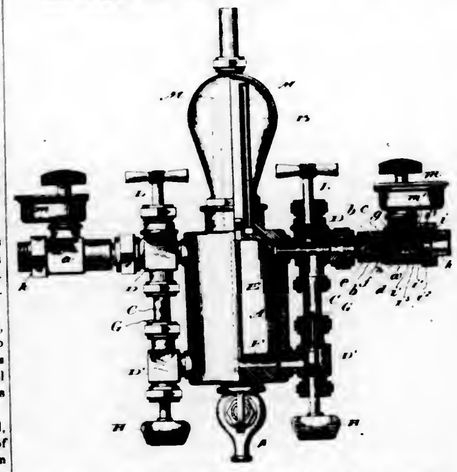
645,025. BELT-BUCKLE. MARGARET LA GORCE STERETT, Washington, D. C. Filed Oct. 20, 1899. Serial No. 734,246. (No model.)



Claim.—1. A buckle having a suitable frame, and composed of a twisted wire member forming a pivoted tongue, and a twisted wire member forming an anchor pointing in the same direction as the tongue and pivoted to the latter.

2. In a belt-buckle, the combination, with a suitable frame, of the pivoted tongue composed of two wires twisted together, one end of the wires forming the tongue-teeth and the other ends terminating in eyes, and the anchor composed of two wires twisted together, one end of the wires forming the anchor-teeth and pointing in the same direction as the tongue-teeth, and the other ends terminating in pintles which extend through the said eyes and are pivoted to the said frame.

645,026. LUBRICATOR. HUGH WOODS, Chicago, Ill., assignor to the Nathan Manufacturing Company, New York, N. Y. Filed Oct. 26, 1896. Serial No. 610,100. (No model.)



Claim.—1. In a lubricating apparatus provided with suitable boiler, cylinder and equalizing pipe connections, and in combination with the lubricator and the steam chest or cylinder, a duct connecting the same containing a minimum-supply choked passage, a relatively larger by-passage, separate and distinct from the minimum-supply choked passage, and a valve for controlling said by-passage automatically operated by variations in pressure within the duct at the times and in the manner substantially as hereinbefore set forth.

2. In a lubricating apparatus provided with suitable boiler, cylinder and equalizing pipe connections, a casing communicating with the delivery end of the lubricator, provided with a choked or very small permanently-open passage for continuous flow of steam and oil in restricted quantity from the lubricator to the steam-chest, and with a valve-controlled by-passage separate and distinct from the minimum-supply passage, for permitting an increased flow of steam and oil from the lubricator through the casing into the steam-chest, substantially as hereinbefore set forth.

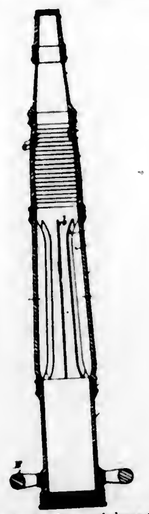
3. In a lubricator having suitable boiler, cylinder and equalizing pipe connections, the combination with a valve-seat, of a differential valve longitudinally movable in said seat, having its larger area at its cylinder end, and provided with a constantly-open restricted port for the passage of the minimum supply of oil and steam from the lubricator, and with additional ports, separate and distinct from the constantly-open minimum-supply port, opened only when the piston-valve is operated by the back pressure from the cylinder, and communicating at this time with the lubricator, substantially as and for the purposes hereinbefore set forth.

4. In a locomotive-lubricator having suitable boiler, cylinder and equalizing pipe connections, the combination with the casing *a*, provided with one or more passages *b*, recess or cavity *c*, and partition *n*, of the piston *d* seated and longitudinally movable in said casing, having the port *e* for a continuous current of steam and oil, and the additional ports *f* for an intermittent current of steam and oil, substantially as and for the purposes hereinbefore set forth.

5. In a locomotive-lubricator, the combination of the casing *a* having recess *c* and passages therefrom to the lubricator, and partition *n*, the piston *d* seated and longitudinally movable in said casing and provided with ports *e* and *f*, the spring *h'* and its holder or cage *i* and the cap *k*, substantially as and for the purposes hereinbefore set forth.

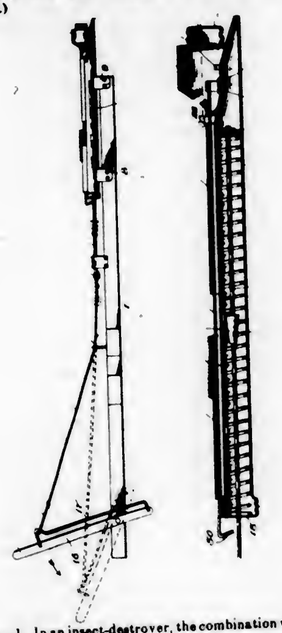
6. In a locomotive-lubricator, the combination with the casing *a* and the piston *d*, seated and longitudinally movable in said casing and provided with ports *e* and *f* as described, of the hand-oiler mounted on the casing and communicating with the interior thereof at a point beyond the cylinder end of the piston *d*, substantially as and for the purposes hereinbefore set forth.

645,027. PLAY-PIPE FOR FIREMEN'S HOSE. JAMES M. BAKER, Providence, R. I. Filed Oct. 26, 1899. Serial No. 734,851. (No model.)



Claim.—In a play-pipe for firemen's hose the combination of the nozzle with the body portion provided with the series of longitudinal ribs, and the circumferential grooves having the intervening abrupt edges, which act frictionally upon the stream, substantially as described.

645,028. INSECT OR WORM DESTROYER. WILLIAM J. BARBER, Honeoye Falls, N. Y. Filed Nov. 17, 1899. Serial No. 737,335. (No model.)



Claim.—1. In an insect-destroyer, the combination with a handle of a casing having a discharge or spray nozzle, a spring-actuated plunger contained within the casing, a powder-containing receptacle in communication with the nozzle, an operating device for the plunger, a connection between the latter and the operating device, and means for tripping or releasing the latter at a point in the movement of the operating device.

2. In an insect-destroyer, the combination with a handle, of a casing having a discharge or spray nozzle, a spring-actuated plunger contained within the casing, a powder-containing receptacle in communication with the nozzle, a lever mounted upon the handle, an operating connection between the plunger and the lever, and means for tripping or releasing the operating connection at a point in the movement of the lever.

3. In an insect-destroyer, the combination with a handle, of a casing having a discharge or spray nozzle, a spring-actuated plunger contained within the casing, a powder-containing receptacle in communication with the nozzle, a lever mounted upon the handle, a guide carried by the lever and provided with a seat, and an operative connection, having one end secured to the plunger, and its opposite end loosely engaging the seat of the guide, slidable longitudinally upon the latter, and to be released from the seat, at a point in the movement of the lever.

4. In an insect-destroyer, the combination with a handle, of a casing having a discharge or spray nozzle, a spring-actuated plunger working in the casing, a powder-containing receptacle in communication with the nozzle, a lever mounted upon the handle, a yoke-shaped guide-rod provided upon the lever, having a straight intermediate portion, and one end being bent outwardly forming a seat, an operative connection, having one end secured to the plunger, and its opposite end loosely engaging the bend or seat of the guide-rod, slidable longitudinally upon the latter, and to be disengaged from the seat at a point in the operation of the lever.

5. In an insect-destroyer, a spray-nozzle, means for producing an air-blast through the nozzle, a powder-receptacle in communication with said nozzle, a valve normally closing such communication, and a trip device for the valve, said trip-device being located in operative relation to the means for producing the air-blast, and adjacent to the forward limit of the movement thereof.

6. In an insect destroyer, the combination with a handle, of a spray-nozzle carried thereby, means for producing an air-blast through the spray-nozzle, a powder-receptacle provided with a valve-port communicating with the nozzle, a slide-valve for the port and located within the powder-receptacle, a stop to limit the forward movement of the slide-valve, a trip-rod carrying the valve, guides loosely receiving the trip-rod and provided upon the handle, a spring holding the valve normally closed, and a trip-shoulder carried by the means for producing the air-blast, the trip-rod being located on the path of said shoulder, and operated thereby.

7. In an insect-destroyer, a casing, having a spray-nozzle, a powder-receptacle in communication with the nozzle, a plunger working within the casing, a supporting-handle formed in sections, the contiguous ends of the latter having longitudinally-disposed overlapping tongues, sleeves embracing the latter, and a screw-eye passing through one of the sleeves and both of the tongues, operating means mounted upon the handle, and an operative connection between the operating means and the plunger, and also passing loosely through the guide formed by the screw-eye.

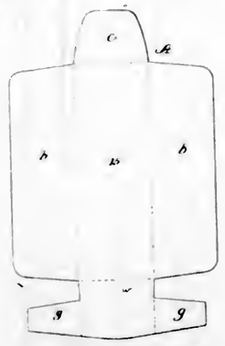
8. In an insect-destroyer, the combination with a casing having a spring-actuated plunger, and a discharge-nozzle, of a powder-receptacle, a slide-valve controlling the communication between the nozzle and the powder-receptacle, and working entirely within the latter and forming an agitator for the powder, operating means for the plunger, and means for automatically tripping the valve by the movement of the plunger.

9. In an insect destroyer, the combination of a casing, having a discharge-nozzle, a spring actuated plunger working within the casing and forming an air-blast through the nozzle, a plunger-rod, a conical trip-shoulder carried by the plunger-rod, normally located within the casing, and movable to a position exteriorly of the latter, a powder-receptacle in communication with the nozzle, a valve for controlling such communication, a trip-rod carrying the valve, and provided with an inclined trip-head, located exteriorly of the casing and in the path of the trip-shoulder, and having a lateral movement away from the latter, and means for operating the plunger-rod.

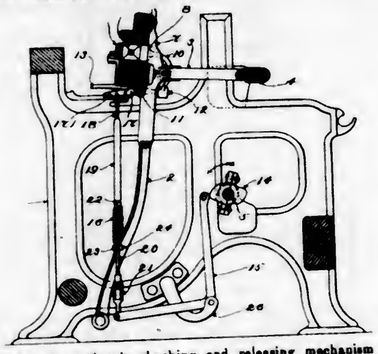
10. In an insect-destroyer, the combination with a handle, of a spray-nozzle carried thereby, a plunger operating to form an air-blast through the nozzle, an operating-plunger rod, a powder-receptacle in communication with the nozzle, a valve normally closing said communication, a trip-rod connected to the valve, a trip-shoulder carried by the plunger-rod, the trip-rod being located in operative relation to the trip-shoulder and adjacent to the forward limit of the movement thereof.

645,029. DOCUMENT ENVELOP OR FOLDER. WILLIAM D. BRADFORD, Boston, Mass. Filed Feb. 27, 1899. Serial No. 707,067. (No model.)

Claim.—As an improved article of manufacture, an envelop or folder provided with side and top flaps to cover its contents, and formed on its remaining edge with a neck *w* having side tongues *g. g* spaced from the side flaps and disconnected at their free ends from the body, the said neck *w* forming a well-defined bottom and the tongues *g. g*, the sides of a pocket B covered by said flaps, substantially as set forth.



645,030. SHUTTLE CHECKING AND RELEASING MACHANISM FOR LOOMS. HENRY I. HARRIMAN, New York, N. Y. Filed Nov. 18, 1899. Serial No. 737,455. (No model.)



Claim.—1. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a rotating cam, a lever in operative relations with the said cam, and a spring in operative relations with the said lever and swell or binder, whereby force is transmitted in a yielding manner through the spring from the lever to the swell or binder to cause the latter to act upon the shuttle in completing its flight, and the pressure is relieved prior to the next pick.

2. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with said finger, a rotating cam, a lever in operative relations with the said cam, and a spring in operative relations with the said lever and arm, whereby force is transmitted in a yielding manner through the spring from the lever to the swell or binder to cause the latter to act upon the shuttle in completing its flight, and the pressure is relieved prior to the next pick.

3. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a protector-finger, a protector-shaft, an arm on the protector-shaft, a rotating cam, a lever in operative relations with the said cam, and a spring in operative relations with the said lever and arm, whereby force is transmitted in a yielding manner through the spring from the lever to the swell or binder to cause the latter to act upon the shuttle in completing its flight, and the pressure is relieved prior to the next pick.

4. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with said finger, a rotating cam, a lever in operative relations with said cam, and an extensible connection between said lever and arm having its members combined with each other by means of a spring.

5. A shuttle checking and releasing mechanism for looms comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with said finger, a rotating cam, and a lever in operative relations with said cam, and a spring interposed between and in operative relations with the said lever and arm, the arm having provisions for connecting the spring therewith at different distances from the center of motion of the arm.

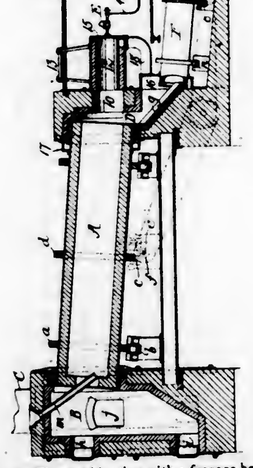
6. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with said finger, a rotating cam, a lever in operative relations with said cam, and an extensible telescoping connection between said lever and arm having its members combined with each other by means of a spring.

7. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with the said finger, a rotating cam, a lever in operative relations with said cam, and an extensible connection between said lever and arm having its members combined with each other by means of a spring and also having the shackle adjustably combined with one of the said members.

8. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a finger to act against the swell or binder, an arm moving in unison with the said finger, a rotating cam, a lever in operative relations with said cam, and an extensible connection between said lever and arm comprising telescoping members, a connecting-spring, and a collar on one member engaging with the other member to limit the relative movements of the members and thereby determine the normal length of the connection.

9. A shuttle checking and releasing mechanism for looms, comprising, essentially, a swell or binder, a lever, a spring in operative relations with the said lever and swell or binder, and a rotating cam in operative relations with the said lever and constructed to occasion the greatest amount of tension in said spring and corresponding compression at the swell or binder first and then gradually diminish the said compression.

645,031. APPARATUS FOR BURNING PULVERIZED FUEL. EDWARD H. HURRY, Bethlehem, and HARRY J. SEAMAN, Catasauqua, Pa., assignors to the Atlas Portland Cement Company, Northampton, Pa. Filed Feb. 12, 1896. Serial No. 579,049. (No model.)



Claim.—1. The combination with a furnace having an elongated combustion-chamber, of means for injecting axially thereinto a jet of air of high pressure and small volume, means for feeding to such air-jet pulverized carbonaceous fuel which is carried by and with the air-jet into the furnace in a long and relatively-compact stream of less cross-section than the combustion-chamber, and means for supplying an additional volume of air to the furnace whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

2. The combination with a furnace having an elongated combus-

tion-chamber, of means for injecting axially thereinto a jet of air of high pressure and small volume, means for feeding to such air-jet pulverized carbonaceous fuel which is carried by and with the air-jet into the furnace in a long and relatively-compact stream of less cross-section than the combustion-chamber, means for supplying around said air-jet on its way to the furnace an additional volume of air, and means for supplying a further volume of air to the furnace, whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

3. The combination with a rotary cement-furnace having an elongated combustion-chamber, of means for injecting axially thereinto a jet of air of high pressure and small volume, means for feeding into the path of said air-jet pulverized carbonaceous fuel suspended in air so as to form a fuel-cloud of uniform or substantially-uniform density, which is carried by and with the air-jet into the furnace in a long and relatively-compact stream of less cross-section than the combustion-chamber, and means for supplying a further volume of air to the furnace, whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

4. The combination with a rotary cement-furnace having an elongated combustion-chamber, of means for axially injecting thereinto a jet of air of high pressure and small volume, means for feeding into the path of said air-jet pulverized carbonaceous fuel suspended in the air so as to form a fuel-cloud of uniform or substantially-uniform density which is carried by and with the air-jet into the furnace in a long and relatively-compact stream of less cross-section than the combustion-chamber, means for supplying around said air-jet on its way to the furnace an additional volume of air and means for supplying a further volume of air to the furnace whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

5. The combination with a rotary cement-furnace having an elongated combustion-chamber, of means for feeding material to be treated therein at one end thereof, a conduit connected with the other or delivery end through which the material discharged from the furnace passes, means for axially injecting into the delivery end of the furnace a jet of air, means for feeding to said air-jet pulverized carbonaceous fuel which is carried by and with the jet into the furnace, and a stack or draft device connected with the feed end of the furnace by which air is drawn into the furnace through the discharge-conduit in contact with the heated material therein, whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

6. The combination with a rotary cement-furnace having an elongated combustion-chamber, of means for feeding material to be treated therein at one end thereof, a conduit connected with the other or delivery end through which the material discharged from the furnace passes, means for injecting axially into the delivery end of the furnace a jet of air of high pressure and small volume, means for feeding to said air-jet pulverized carbonaceous fuel which is carried by and with the jet into the furnace in a long and relatively-compact stream, and a stack or draft device connected with the feed end of the furnace by which air is drawn into the furnace through the discharge-conduit in contact with the heated material therein, whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

7. The combination with a rotary cement-furnace having an elongated combustion-chamber, of means for feeding material to be treated therein at one end thereof, a conduit connected with the other or delivery end through which the material discharged from the furnace passes, means for injecting axially into the delivery end of the furnace a jet of air of high pressure and small volume, means for feeding to said air-jet pulverized carbonaceous fuel which is carried by and with the jet into the furnace in a long and relatively-compact stream, means for supplying around said jet on its way to the furnace a further volume of air to support combustion in the furnace, and a stack or draft device connected with the feed end of the furnace by which air is drawn into the furnace through the discharge-conduit in contact with the heated material therein, whereby a core of pulverized fuel in combustion surrounded by air to support combustion is produced in the furnace to uniformly heat the walls of the furnace by radiation without impinging thereupon.

8. The combination with a rotary cement-furnace having at one end a draft device or stack and means for feeding material to be burned into the furnace, and at the other end a delivery-opening for the discharge of the material, of means for axially injecting into the delivery end of the furnace a jet of air and means for feeding to said jet pulverized carbonaceous fuel, whereby a core of pulverized fuel in combustion is produced in the furnace to by radiation and without impingement thereupon uniformly heat the walls of the furnace and the material passing therethrough.

9. The combination with a rotary cement-furnace, of means for axially injecting into its delivery end a jet of air, means for feeding to said jet pulverized carbonaceous fuel which is carried by and with the air-jet axially into the furnace, and means for supplying around the jet or stream of air and pulverized fuel additional air to support combustion, whereby a core of pulverized fuel in combustion is produced in the furnace to by radiation and without impingement thereupon heat the walls of the furnace.

10. The herein-described means for feeding pulverized fuel to a burner, consisting of means for continuously supplying determined uniform quantities of pulverized fuel, means for receiving and violently mechanically agitating such received uniform quantities of said fuel into a fuel-cloud and for simultaneously positively conveying the fuel-cloud onward toward the burner.

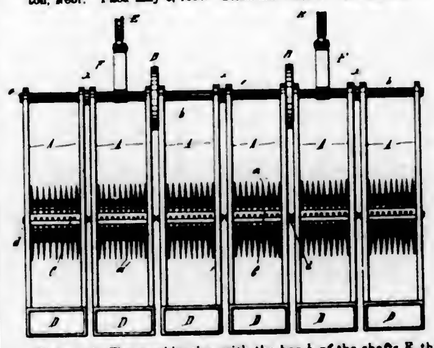
11. The herein-described means for feeding and burning pulverized fuel, consisting of means for continuously supplying determined uniform quantities of pulverized fuel, means for receiving and violently mechanically agitating such received uniform quantities of said fuel into a fuel-cloud and for simultaneously positively conveying the fuel-cloud onward, a vertical conduit down which the fuel-cloud passes, and an injector for directing high-pressure air across the downward-passing fuel-cloud to convey it to the place of combustion, as set forth.

12. The combination with a pulverized-fuel burner, of a pulverized-fuel feed therefor, consisting of a small primary conveyer for continuously feeding limited compact quantities of pulverized fuel, a longer secondary conveyer receiving said fuel from the primary conveyer and positively conveying it to the burner, and means for rotating the secondary conveyer at a speed to violently agitate the fuel and deliver it in a cloud to the burner, as set forth.

13. The combination with a pulverized-fuel burner, of a fuel-feed therefor, consisting of a hopper having an opening, a worm conveyer in said opening to convey a limited compact quantity of pulverized fuel from the hopper, a secondary conveyer to receive such fuel to positively carry it forward to the burner, and means for rotating the secondary conveyer at a speed to violently agitate the fuel as it is carried forward, as set forth.

14. The combination with a pulverized-fuel burner, of a fuel-feed therefor, consisting of a hopper having a plurality of vertical tubes, a worm conveyer mounted vertically in each tube to convey limited compact quantities of fuel from the hopper, a driver for said worm conveyers having means for connecting and disconnecting one or more of the worm conveyers therefrom, and a secondary conveyer receiving the fuel from said worm conveyers to carry it forward to the burner, as set forth.

645,082. AGRICULTURAL SPIDER. CHARLY JOHANSON, Arlington, Nebr. Filed May 6, 1899. Serial No. 715,876. (No model.)



Claim.—1. The combination with the bar *b*, of the shafts E, the wheels B supporting said bar *b*, the sills A, A, extending from said bar *b*, the receptacles D, each receptacle uniting two of said sills A, A, the shafts *c*, there being one shaft for each two sills to connect the same, and the cylinders C, there being one cylinder upon each of said shafts *c*, each cylinder being provided with a plurality of pins *a*, as and for the purpose set forth.

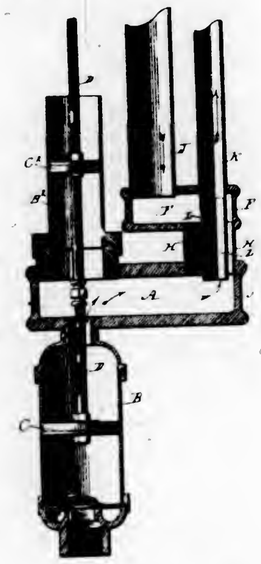
2. The combination with a wheeled support, of a plurality of frames movably secured to and extending from said support, a weight-box secured to each frame, and a cylinder revolubly held within each frame provided with a plurality of projecting pins, all arranged substantially as and for the purpose set forth.

645,033. COMPOSITION FOR MAKING FLOORS, ROOFS, OR THE LIKE. CHARLES W. KANE, New York, N. Y., assignor of one-half to Francis Dannbacher, same place. Filed Aug. 5, 1899. Serial No. 726,270. (No specimens.)

Claim.—1. A composition of the character described consisting of calcined magnesite, pulverized dolomite, fibers, silicate of magnesium, muriate of ammonia, chlorid of magnesium, and water.

2. A composition of the character described consisting of calcined magnesite, pulverized dolomite, asbestos and other fibers, silicate of magnesium, muriate of ammonia, chlorid of magnesium, and water.

645,034. LIFT AND FORCE PUMP. SAMUEL H. KERFOOT, Des Moines, Iowa, assignor, by mesne assignments, to Katherine Kerfoot, same place, and Elenor S. Gump, Chicago, Ill. Filed Oct. 14, 1898. Serial No. 693,573. (No model.)



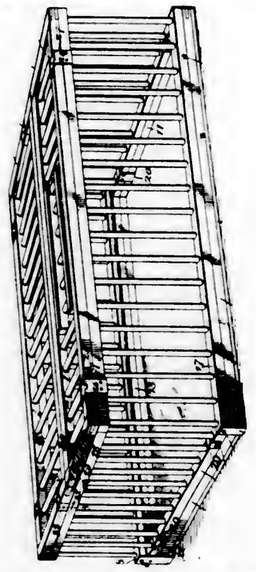
Claim.—In a pump the combination of the water-chamber A of materially-greater transverse than vertical dimension, the cylinder B located below and communicating with one end portion of the bottom of the water-chamber A, the cylinder B^1 located above and communicating with one end portion of the top of the water-chamber in alinement with the cylinder B, the adjacent end portions of the cylinders being spaced apart a distance at least equal to the depth of the water-chamber, pistons C, C^1, mounted for conjunctive reciprocation in the cylinders, a pipe H mounted in, communicating with and rising from the opposite end portion of the top of the water-chamber and open at both ends, an air-chamber F, of materially-greater dimension transversely than vertically, mounted on the upper end of the pipe H and communicating therewith, an air-pipe J mounted on and communicating with and rising from the end portion of the top of the air-chamber adjacent the cylinder B^1 and closed at its upper end, and a discharge-pipe traversing the air-chamber F and pipe H and extending at its lower end into the water-chamber A, the said lower end of the discharge-pipe being entirely free and spaced apart from the walls of the pipe H and water-chamber.

645,035. METHOD OF MAKING FIREPROOF PULPBOARD. FRANK E. KEYES, New York, N. Y., assignor of one-half to Addison B. Poland, Paterson, N. J. Filed June 28, 1899. Serial No. 722,201. (No specimens.)

Claim.—1. The herein-described method, consisting in grinding wood in the presence of a fireproofing liquid.

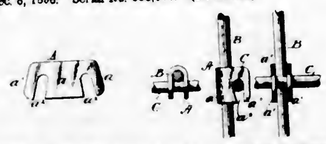
2. The herein-described method consisting in grinding wood in the presence of a fireproofing liquid, separating the slivers from the pulp held in the fireproofing liquid and then forming the pulp into the desired shape.

645,036. FOLDING CRATE. THOMAS A. KILLMAN, Liberty, Tenn., assignor of one-half to James T. Turney, same place. Filed Dec. 3, 1898. Serial No. 698,182. (No model.)



Claim.—A crate, comprising a bottom having end flanges of a common depth, side flanges equal in depth to the end flanges, and a second side flange of greater depth, end walls comprising upper and lower sills and connecting-slats, adapted to stand upon the end flanges and to move bodily therefrom and inwardly and lie upon the bottom and within the closure of said flanges, hinge connections between the end walls and their respective flanges, each of said hinges consisting of an element disposed between an end flange and the bottom, and a second element pivotally connected therewith and extending upwardly and over the bottom sill of the adjacent end piece when the latter is upon its flange, side walls of different depths pivotally mounted upon the side flanges with the wall of lesser depth upon the flange of greater depth, and the wall of greater depth upon the flange of lesser depth, the top-wall sections pivotally connected with their respective side walls, one of said side walls being adapted to lie with its top-wall sections upon the end flanges, the other side wall with its top-wall sections being adapted to lie upon the first-named side and top wall sections.

645,037. WIRE-CLAMP. MELVIN D. KILMER and MINARD A. POSSONS, Cleveland, Ohio; said Possons assignor to said Kilmer. Filed Dec. 8, 1898. Serial No. 698,677. (No model.)



Claim.—1. A mesh-wire-fence fabric consisting of vertical wires B and horizontal wires C crossing each other, the clamp secured to the wires where they cross, such clamp having a middle portion *a* which snugly fits one wire, ends *a'*, *a'* and between the middle portion and the ends the notches a^2 a^2 which extend obliquely inward toward the wire B, such notches being smaller at their mouths than the diameter of the wire where the parts are compressed after being drawn together, as set forth.

2. A mesh-wire-fence fabric, consisting of vertical wires B, and horizontal wires C crossing each other, the clamp secured to the wires where they cross, such clamp having a middle portion *a* which snugly fits one wire, ends *a'* and between such ends and middle portion the notches a^2 in which rests the other wire, such notches being smaller at their mouths than the diameter of the wire, whereby the clamp securely holds the two wires together.

645,088. LAST ATTACHMENT. TIMOTHY F. LYONS, Randolph, Mass., assignor of one-fourth to M. F. Cunningham, same place. Filed July 1, 1899. Serial No. 722,559. (No model.)



Claim.—1. A last having a series of sockets in its bottom, combined with a series of pins adapted to be detachably inserted in said sockets and formed to penetrate an inner sole, the pins being of sufficient length to project through the inner sole and enable their outer ends to be grasped to withdraw the pins from the sockets.

2. A last having a series of sockets in its bottom provided with locking members, combined with a series of pins adapted to be detachably inserted in said sockets and having sole-penetrating outer ends, and complemental locking members, said pins being of sufficient length to project through the inner sole and outside of its outer face.

3. A last having a series of sockets in its bottom, combined with a series of pins formed to enter said sockets and to project through and outside of the outer face of an inner sole, the pins and sockets having complemental locking devices, and provisions for disengaging said devices by a rotary movement of the pins.

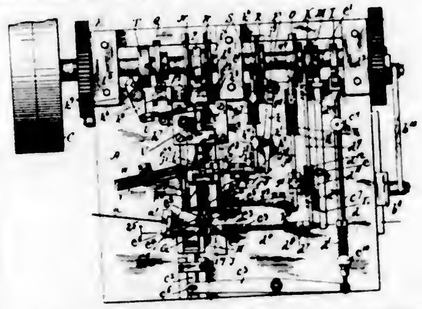
4. A last having a series of sockets in its bottom, each having a spring-tongue, combined with a series of pointed pins adapted to be inserted in the sockets and formed to project through and outside of the outer face of an inner sole, each pin having a notch formed to engage one of said tongues, the notch being formed in one side of the pin, whereby a rotary movement of the pin causes displacement of the tongue.

5. An inner-sole-holding pin having a sole-penetrating outer portion formed to be grasped and turned, and a locking member adapted to engage a complemental locking member in a last.

645,089. MACHINE FOR MAKING CURB-CHAINS. WILLIAM I. MACOMBER, Norwood, R. I., assignor to Regnell, Bigney & Co., Attleborough, Mass. Filed Dec. 5, 1898. Serial No. 698,330. (No model.)

Claim.—1. In a chain-machine, the combination of the bed or table, the winding-mandrel located above the table, the sleeve for holding the mandrel, the pinion secured to the sleeve below the table, the gear engaging with the pinion, and ratchet means for rotating the gear, with the revolving cutter above the table, and means for moving the cutter toward and from the mandrel, for cutting off the wire coil in timely relation to the rotation of the mandrel, substantially as described.

2. In a chain-machine, the combination of the intermittently-rotated winding-mandrel, the revolving cutter for severing the wire of the coil, and means for moving the cutter toward and from the mandrel in timely relation to the rotation of the mandrel, with the grooved sliding carrier-jaws provided with the cross-bar and adjusting means, the separate pivoted holding-guides for the carrier-jaws, means for operating the pivoted holding-guides to cause the transfer of the severed coil from the mandrel to the link closing and twisting mechanism, and means for causing the forward movement of the sliding carrier-jaws within the holding-guides, at the completion of their forward and backward pivotal movements, substantially as described.



3. In a chain-machine, the combination of the intermittently-rotated winding-mandrel, a cutter for severing the wire of the coil, and means for moving the cutter toward and from the mandrel, with the pivotally-actuated sliding carrier-jaws, means for operating the same, the turning jaws, the intermediate holding-jaws, and means for operating the said holding and turning jaws, substantially as described.

4. In a chain-machine, the combination of the intermittently-rotated mandrel, a cutter for severing the wire coil, and reciprocating and rotative means for spreading the severed ends of the coil upon the mandrel, substantially as described.

5. In a chain-machine, the combination of the sliding carrier-jaws, the closing and turning jaws, and the intermediate holding-jaws, with means for causing the transfer of the open link from the carrier-jaws to the turning jaws, and for presenting the link so held to the holding-jaws, and means for twisting the link between the turning and holding jaws, substantially as described.

6. In a chain-machine, the combination of the intermittently-rotated winding-mandrel, the cutter for severing the wire of the coil, and reciprocating and rotative means for spreading the ends of the previously-severed coil upon the mandrel, with the sliding carrier-jaws, the pivotally-held holding-guides for the sliding carrier-jaws, means for imparting pivotal movement to the holding-guides and the carrier-jaws, to cause the removal of the spread coil from the mandrel and to present its opened end to the previously-formed closed and twisted link held in the turning jaws, and the turning jaws adapted to present the completely-formed twisted link for engagement with the opened wire coil held in the pivotally-operated carrier-jaws, substantially as described.

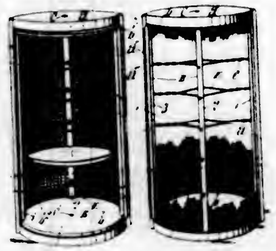
7. In a chain-machine, the combination of the intermittently-rotated winding-mandrel, the revolving cutter for severing the wire of the coil, means for spreading the severed ends of the end coil while held upon the mandrel, the pivotally-held sliding carrier-jaws adapted to remove the spread coil from the mandrel and present its opened end to the previously-formed twisted link held in the turning jaws, and means for causing the pivotal turning movement of the sliding carrier-jaws, with the opposite turning jaws adapted to present the completely-formed twisted link for engagement with the spread wire coil held between the carrier-jaws, means for causing the release of the completed link from the turning jaws, means for causing the subsequent engagement of the turning jaws with the spread wire coil held between the carrier-jaws and for closing the ends of the wire coil between the turning jaws, and means for withdrawing the sliding carrier-jaws from the closed link, substantially as described.

8. In a chain-machine, the combination of the sliding carrier-jaws adapted for pivotal movement, and the turning jaws adapted for sliding and rotative movement, with the intermediate pivotally-operated holding-jaws adapted to seize the end of the closed link after its release from the carrier-jaws, means for rotating the turning jaws to cause the twisting of the link between the holding and turning jaws, and means for opening and closing the holding and turning jaws, substantially as described.

9. In a chain-machine, the combination of the pivotally-operated sliding carrier-jaws, and the turning jaws, with the intermediate holding-jaws arranged transversely of the hollow shaft for pivotal movement, and a sliding rod arranged within the hollow shaft, and provided with an inclined end for actuating the movable holding-jaw in the plane of its pivotal movement, to seize the end of the link released from the sliding carrier-jaws, substantially as described.

10. In a chain-machine, the combination of the intermittently-operated winding-mandrel, with the pivoted holding-guides, the sliding carrier-jaws arranged between the holding-guides, the slide provided with the engaging brackets for actuating the carrier-jaws, and means for operating the slide, substantially as described.

645,040. PIE-RACK. WILLIAM H. MAYO, Los Angeles, Cal. Filed Nov. 4, 1898. Serial No. 695,505. (No model.)

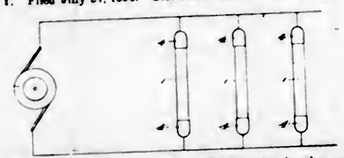


Claim.—1. A pie-rack comprising a stationary case composed of a base and top connected by two uprights, and a semicylindrical screen extending between and fastened to the said uprights on one side of the case and leaving the other side of the case open; a rotatable rack fitted in the case and pivoted to the top and base thereof to rotate in said stationary case, and with relation thereto, and comprising a bottom piece, a top piece, a plurality of uprights connecting the bottom piece and the top piece; a semicylindrical screen extending around one side of the rack and leaving the other side of the rack open, a stop being provided near one edge of the screen to engage the uprights of the case and means being provided on the uprights of the rotatable rack for supporting the pies.

2. The combination of the stationary case having a top and base united by uprights, with a semicylindrical screen fastened to the uprights substantially flush with the inner face thereof and inclosing one side of the case; a rotatable rack fitted in the case and pivoted to the top and base thereof to rotate in said stationary case, and with relation thereto, and comprising a bottom piece and a top piece, a plurality of uprights connecting the bottom piece and the top piece, and a semicylindrical screen extending around one side of the rack close to the semicylindrical screen of the case and leaving the other side of the rack open; and means being provided on the uprights of the rack for supporting pies.

3. In a pie-rack, the combination, with two semicylindrical cases, one pivotally secured within the other at its ends and each provided with a screen extending from end to end, and the inner case being provided with three uprights; of a series of open frames secured in the wire case, each frame comprising three wires, one of which is longer than the other two and has its central portion bent out of line from its ends, and each of the shorter wires having its ends bent out of line with its central portion, two of the ends of the shorter wires being twisted together and the remaining end of each shorter wire being twisted with the respective end of the longer wire, and said twisted portions extending to and engaging with the respective uprights.

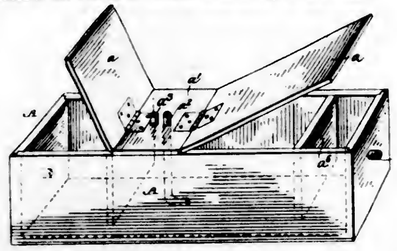
645,041. VACUUM-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York N. Y. Filed July 27, 1899. Serial No. 725,239. (No model.)



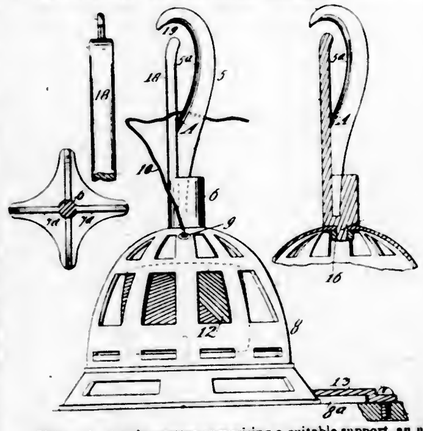
Claim.—As a means for producing illumination by the agency of electricity, the combination substantially as described of vacuum-tube lamps having terminals of the character described and an alternating-current dynamo connected directly to said terminals and exciting said lamps to luminosity by the uninterrupted or continuous application of the alternating electromotive force generated by said dynamo as and for the purpose set forth.

645,042. APPARATUS FOR HEATING MILK FOR STOCK. CHARLES H. MOWER, Quigley, Iowa. Filed Aug. 28, 1899. Serial No. 728,770. (No model.)

Claim.—An apparatus for heating milk preparatory to its being fed to stock comprising in its construction a suitable box or trough provided with an inlet for milk and an outlet for milk, the latter being higher than the former, a vertically-arranged baffle-plate or station located within the box near its discharge end with a space between the lower end of the said plate and the bottom of the box for the passage of the heavy milk thereunder, another vertically-arranged baffle-plate or station similarly constructed with a space between its lower end and the bottom of the box, a pipe for admitting steam into the interior of the box which pipe is located between the baffle-plates and extends almost to the bottom of the box and is turned toward the discharge end thereof, an exhaust for steam, and a draw-off pipe located in the bottom of the box, substantially as described.



645,043. TWINE-CUTTER. GEORGE A. MCCARTNEY, Denver, Colo. Filed June 27, 1899. Serial No. 722,052. (No model.)



Claim.—1. A twine-cutter comprising a suitable support, an upwardly-projecting knife, and a guard or shield located in front of the knife-edge, but terminating below the upper extremity of the knife, which curves above the guard, leaving a twine-entering space between the top of the guard and the curved point of the knife.

2. In a device of the class described, the combination with a suitable supporting base or column, of an upright knife provided with a shank, adapted to fit into a socket formed in the support, and a suitable guard, located in front of the knife-edge, for the purpose set forth.

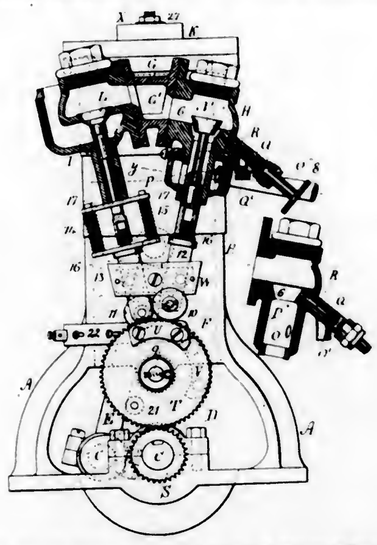
3. The combination of a suitable base provided with an upright projection or column, having a socket, a knife provided with a shank adapted to fit into said socket, and a guard-arm projecting upward in front of the knife-edge.

4. The combination with a suitable supporting-base, of an upwardly-projecting part detachably connected with said base, and provided with a socket, a knife-blade having a shank adapted to fit into said socket, and a guard-arm extending upwardly from the said socket part.

645,044. GAS-ENGINE. ALBERT T. OTTO, Chicago, Ill., assignor to Robert L. Stevens, Hoboken, N. J. Filed Dec. 26, 1895. Renewed Nov. 29, 1898. Serial No. 697,801. (No model.)

Claim.—1. The cylinder of a gas-engine having a hollow projection and port at one side with inclined faces, in combination with valve-chests attached to the opposite inclined faces of the hollow projection and valves in such chests, substantially as set forth.

2. The cylinder of a gas-engine having a hollow projection and port at one side, in combination with valve-chests at opposite sides of the hollow projection, valves in such chests, a crank and crank-shaft, connecting-rod and piston, a wheel and cams at opposite sides for actuating the inlet and exhaust valves, substantially as set forth.

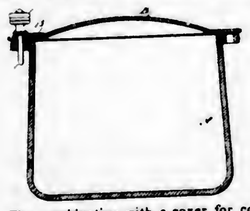


3. In a gas-engine, the cylinder having an integral hollow projection and one port for both the inlet and the exhaust to pass through, and a head at one end of the cylinder and a cylindrical deflector upon the head extending into the cylinder adjacent to the port and against which the gases impinge, substantially as set forth.

4. The combination in a gas-engine, of a cylinder having a lateral hollow projection and port with side faces inclined in opposite directions, induction and eduction valves and chests connected upon the inclined faces of the hollow projection and inclined to each other on radial lines or nearly so extending to the actuating-wheel, a gear on the crank-shaft and a second gear driven by the same and forming the actuating-wheel, cams upon such actuating-wheel, rollers and slides for opening the respective valves and springs for closing such valves, substantially as set forth.

5. The combination with the cylinder-piston and crank-shaft in a gas-engine having a lateral hollow projection and port, of valve-chests connected with the said lateral hollow projection and at opposite inclinations, valves and their rods in such chests and in a plane perpendicular to the crank-shaft, a wheel and cams for actuating the valves, a cylinder-head and an annular deflector within the cylinder and adjacent to the lateral port, substantially as set forth.

645,045. LID FOR COOKING UTENSILS. JAMES H. SWIFT, Punta Gorda, Fla. Filed Feb. 20, 1899. Serial No. 706,144. (No model.)



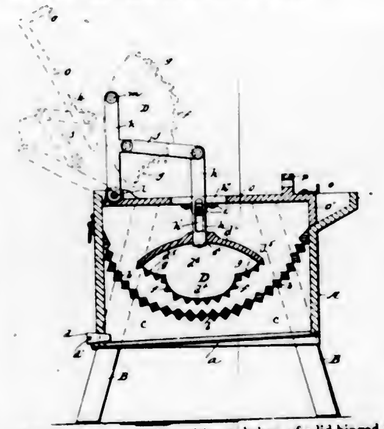
Claim.—1. The combination with a cover for cooking utensils and the like, of a pin passed through the cover near its periphery and projecting from the inner face thereof to form a pivot, and a staple secured to the outer end of the pin and having the ends of its members passed through openings in the cover and secured therein on the inner face of the cover, substantially as described.

2. In a culinary or other vessel a cover, a pivot-pin passed through the cover near its margin, a handle secured to the upper portion of the pin, and a strengthening device secured to the outer end of the said pin and to the outer surface of the cover at a point near the said pin, as set forth.

3. The combination with a cover for cooking utensils and the like, of a pin passed through the cover near its periphery and projecting from its inner and outer faces, a staple secured to the pin and having its terminals passed through the cover and bent down into engagement with the inner face of the same, and a handle on the outwardly-projecting end of the pin, substantially as described.

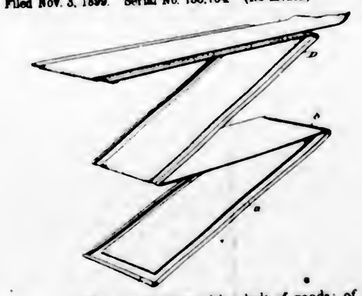
4. The combination with a vessel having oppositely-arranged and outwardly-projecting apertured ears at its upper margin, of a detachable cover provided with a pin passed through it near its periphery and projecting from its inner and outer faces, the inner end of the pin being adapted to be inserted in the aperture of either ear of the vessel and free to be removed therefrom and its outer end provided with a handle, whereby the cover may be pivotally connected to either side of the vessel to swing horizontally or to be removed from the vessel, as set forth.

645,046. WASHING-MACHINE. WILLIAM J. ALEXANDER, Pittsburg, Pa., assignor of one-fourth to James S. Alexander, same place. Filed Aug. 4, 1898. Serial No. 687,715. (No model.)



Claim.—The combination, with a suds-box, of a lid hinged thereto at one end and provided in its intermediate portion with two parallel slots, of a rubber in the suds-box, a substantially U-shaped stirrup secured to said rubber, the arms of which are slotted longitudinally and project through the top of the rubber near its ends and also project through the slots in the lid, a bearing upon the under surface of the lid extending through the slotted arms of the stirrup, a handle pivotally secured to the hinge of the lid, and links connecting the handle with the upper ends of the stirrup.

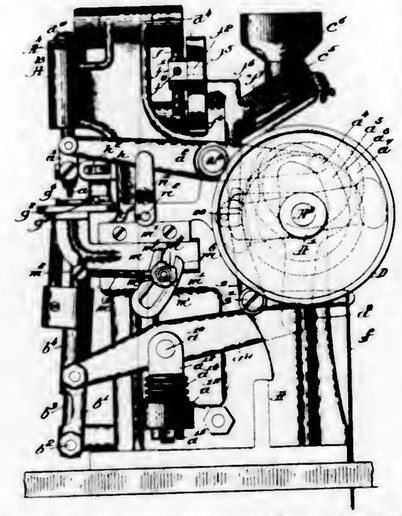
645,047. SAMPLE-HOLDER. HERBERT J. BREER, Port Huron, Mich., assignor of one-half to Henry P. Riemenschneider, same place. Filed Nov. 3, 1899. Serial No. 735,704. (No model.)



Claim.—1. The combination with a bolt of goods; of a sample-holder, removably arranged in the bolt and disposed lengthwise thereof; the said holder being formed of a continuous strip of material, and comprising a plurality of superposed folds, and having the bights of the alternate folds arranged at the opposite ends of the holder, and a sample having folds arranged in the folds of the holder, and an end portion arranged at the outside of the holder, whereby the sample may be drawn from the holder as used without removing said holder from the bolt, substantially as specified.

2. As a new article of manufacture, the sample-holder described made in one piece of sheet metal and having a plurality of superposed folds, formed by bending the piece of sheet metal upon itself whereby the bights of the alternate folds are arranged at opposite ends of the holder, and also having the lip *c* at one of its ends, substantially as specified.

645,048. EYELETING-MACHINE. LORENZO C. EMERSON, Grafton, Mass. Filed May 27, 1897. Serial No. 638,322. (No model.)



Claim.—1. In an eyeleting-machine, the following instrumentalities, viz: a top set, a bottom set; means to actuate them; a work-support slotted for the said top and bottom set to enter therein, said support having an attached edge-gage and presser-foot; combined with means for feeding the work relatively to the work-support, means connected with the presser-foot to lift it when the eyelet-piece has to be fed with relation to the work-support; and means to move the work-support with its attached edge-gage and presser-foot laterally at the proper times to position the eyelet-piece held between said foot and said work-support, that eyelets may be set at varying distances back from the edge of the eyelet-piece, substantially as described.

2. In an eyeleting-machine the following instrumentalities, viz: a punch, means to operate it, a top and bottom set, means to actuate them, a slotted work-support having an edge-gage and a presser-foot, and means to move the work-support with its edge-gage and presser-foot laterally at the proper times between said top and bottom sets, to so position the work held by the said presser-foot on the said work-support that eyelets may be set farther back from the edge of an eyelet piece, substantially as described.

3. In an eyeleting-machine, a slotted work-support having attached to it an edge-gage and a presser-foot, means to move the said work-support laterally to enable the eyelets to be set in the material under the presser-foot at different distances back from the edge of the said material, means to clamp and unclamp the material, and a top set, combined with means to feed the material over said work-support when the said presser-foot is raised to unclamp the material, substantially as described.

4. A slotted work-support having an attached edge-gage and a presser-foot, and a top and a bottom set; combined with a shaft m^7, connections between it and said work-support, a ratchet-plate attached to said shaft, and means to actuate said ratchet-plate intermittingly to thereby control step by step the position of the work-support and effect the spacing of the eyelets back farther from the edge of the eyelet-pieces, substantially as described.

5. The work-support having an attached shank and connected link m^3, the rock-shaft m^7 having an arm m^6 with which the said link is adjustably connected, the ratchet-plate attached to said shaft, a pawl-carrier and two pawls carried thereby, combined with a link connecting said pawls, and means for moving said link to put one and then the other of said pawls into operative position with relation to said ratchet-plate, to operate, substantially as described.

6. A top set, means to actuate it to effect the feeding of the material from one to the next eyelet-hole, a bottom set, its carrier, a pivoted sleeve in which said bottom-set carrier is mounted loosely, means to move said carrier vertically in said sleeve, a raceway, a lever, a cam to move said lever, connections between said lever and said sleeve to move it positively backward and forward to enable the bottom set to enter the endmost eyelet of the raceway and carry it into position in line with the top set preparatory to setting the eyelet to operate substantially as and for the purpose set forth.

7. In an eyeleting-machine, the following instrumentalities, viz: a top set, means to actuate said top set to effect the feeding of the work from one to the next eyelet-hole, a bottom set, a carrier for said bottom set, means for operating said bottom set, a punch, means to reciprocate it vertically, a punch-block, a pivoted standard carrying said punch-block, means to move said standard and punch-block horizontally back and forth for a uniform distance, combined with a slotted work-support having attached to it an edge-gage and a presser-foot, and means to automatically move said work-support variably to place it and the work thereon under the work on said punch that the latter coöperating with said punch-block may work automatically to cut holes in the eyelet-piece at different distances back from its edge, substantially as described.

8. In an eyeleting-machine the following instrumentalities, viz: pivoted sleeve b^4, a bottom-set carrier mounted in said sleeve and provided with a bottom set; means to move said bottom-set carrier in said sleeve; a punching-block *g* also carried by said sleeve, a punch, means to move it vertically; a top set, means to move it vertically and laterally; a raceway, a lever c' carrying said raceway, a lever b^7 and connections between said lever and said sleeve and the lever carrying the raceway, and means to operate the said lever b^7 to vibrate said sleeve at the proper times, substantially as described.

9. The pivoted sleeve b^4, the under-set carrier b^3 mounted therein and provided with an under set, means to vibrate said sleeve, a lever a^6, connections between it and said bottom-set carrier, a spring to support the fulcrum of said lever, and means to actuate said lever, the said spring yielding to any unnatural obstructions which may be encountered by the bottom set, substantially as described.

10. In an eyeleting-machine, a work-support having an attached edge-gage, and a presser-foot, a lever connected with the shank of said presser-foot, combined with means to move said lever to raise and lower said presser-foot, and with means to at times change the position of the said work-support its edge-gage and presser-foot laterally, as when eyelets are being set or spaced back farther from the edge of the eyelet-piece, substantially as described.

11. The sleeve d^3, the top-set carrier or bar located therein and provided with a top set, a rock-shaft supporting said sleeve and provided with an arm *f*, a block having a stud and adjustable on said arm, said stud having mounted on it loosely a slide-block, a lever provided with a block having a groove f^4, and means to move said lever whereby the top set may be moved laterally to effect the feeding of the material after the setting of an eyelet therein, substantially as described.

12. In an eyeleting-machine the following instrumentalities, viz: a punch, means to actuate it, a top and bottom set, means to actuate them, a slotted work-support having an attached slotted edge-gage, automatic means to gradually move the work-support with its attached edge-gage laterally at the proper time with relation to said punch and top and bottom set, to thereby position the work resting on the said work-support with its edge against said edge gage, that holes may be punched and eyelets may be set at any desired distance back from the edge of the eyelet-piece in which holes are to be punched and the eyelets set, substantially as described.

13. In an eyeleting-machine, the following instrumentalities, viz: a top set, a bottom set, means to actuate them a work-support, having a longitudinal and a lateral slot in which may work the said top and bottom sets, and an edge-gage attached to said work-support, combined with automatic means to gradually move said work-support and its edge-gage to place the edge of the eyelet-piece in changed position with relation to the said sets, that the said eyelet-piece may receive eyelets therein at different distances from its edge, substantially as described.

14. In a machine for setting eyelets, rivets, and the like, the combination with the setting devices; of a gage for determining the position of the stock with relation thereto; an automatic device for progressively shifting the position of said gage between successive setting operations; and thereby causing the line of work to deviate from a course parallel to the edge of the stock; and means whereby said device is caused to operate during a portion only of a series of operations of the setting devices, the position of said gage with relation to the setting devices remaining unchanged during the remainder of the series, substantially as described.

15. The combination with the stock-feeding device, of a gage for the stock, actuating mechanism for said gage to produce a movement thereof with relation to the said feeding device, said actuating mechanism being normally disconnected from said gage, and means for connecting said gage with its actuating mechanism to produce a movement thereof, substantially as described.

645,049. LOCK. ALAN B. FERGUSSON, New York, N. Y., assignor to the Fergusson Lock Company, of New Jersey. Filed May 31, 1899. Serial No. 718,872. (No model.)



Claim.—1. The combination with two casings, of a shaft mounted in one casing, a recessed head on said shaft and adapted to enter the other casing, a locking-bar in the last-mentioned casing and adapted to enter the recessed head and means for rotating said shaft to release the head thereon from the locking-bar.

2. The combination with two casings, of a locking-bar mounted in one casing, a head carried by the other casing and adapted to enter the first-mentioned casing, said head constructed to receive the locking-bar and when turned, to move it out of engagement therewith to permit the separation of said casings, and means for turning said head to effect the disengagement of the locking-bar therefrom.

3. The combination with two casings, of a locking-bar mounted in one casing, a head carried by the other casing and adapted to enter the first-mentioned casing, said head constructed to receive the locking-bar and when turned, to move it out of engagement therewith to permit the separation of said casings, means for turning said head to effect the disengagement of the locking-bar therefrom and means for maintaining the locking-bar withdrawn until the head enters the casing in which said locking-bar is located.

4. In a lock, the combination with a revoluble tumbler and a locking-bar, of a shaft to which said tumbler is secured, a head fixed to said shaft and having a groove or recess for the reception of the locking-bar, means for maintaining the locking-bar withdrawn when the head is unlocked and removed therefrom, said means arranged to be actuated by said head to release the locking-bar and permit it to enter the groove or recess in said head.

5. As an article of manufacture, a lock comprising a revoluble shaft, a tumbler secured on the shaft, a head or enlargement on said shaft having a groove or recess therein, and a locking-bar adapted to be disposed in said groove or recess to lock the parts together.

6. In a lock, the combination with a frame, of a shaft revolubly mounted in the casing and carrying a tumbler, a recessed or grooved head or enlargement on the shaft, and a spring-pressed locking-bar adapted to engage said recessed or grooved head or enlargement to lock the parts together.

7. In a lock, the combination of two frames, one frame carrying a revoluble shaft, a tumbler on said shaft and an enlarged recessed head on one end of the shaft, and the other frame carrying a locking-bar adapted to spring into the recessed head on the shaft, and means for operating said locking-bar.

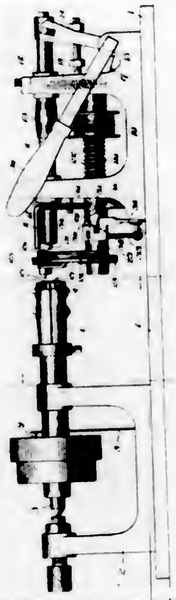
8. In a lock, the combination with a frame, of a shaft revolubly mounted therein, an enlarged recessed head on the shaft, a revoluble tumbler secured to the shaft, a spring secured respectively to the shaft and frame and projections on the tumbler adapted to limit the movement of the shaft, and means for engaging said recessed head to lock two parts together.

9. In a lock, the combination of a revoluble recessed headed shaft, a locking-bar adapted to engage the recessed head, a block normally holding said bar in its unlocked position, an L-shaped pivoted lever connected at the end of its long arm to the locking-bar, a disk on the end of the short arm of said lever and a spring disposed between the disk and block to press said locking-bar forward and at the same time to hold the block in the path of the locking-bar.

10. In a lock, the combination of a locking-tumbler, projections on said tumbler to mesh with cut-out portions in a key, and another projection on the tumbler adapted to abut against the key, when inserted, to limit its inward movement.

645,050. MACHINE FOR MAKING BUTTONS. ABRAHAM GARBELL, Philadelphia, Pa., assignor to Garbell Bros., same place. Filed Dec. 21, 1899. Serial No. 741,089. (No model.)

Claim.—1. In a button-making machine, the combination with a blank-holder, of mechanism movable axially toward and from said holder for turning a socket or depression in the blank, means for moving said mechanism into and out of operative position in respect to the blank, mechanism movable laterally and axially in respect to the holder for drilling a hole or holes in said blank, and means for moving the last-named mechanism into and out of operative position when the first-named mechanism is inactive, substantially as described.



2. In a button-making machine, the combination with a blank-holder, of a spindle provided with a turning tool, means whereby said tool is rendered operative or inoperative in respect to the blank-holder, as desired, a shaft, a drill-support thereon, means for revolving the drill in said support, and means for moving said support laterally and longitudinally in respect to the blank-holder, substantially as described.

3. In a button-making machine, the combination with a blank-holder, of a spindle in alinement with said holder, provided with a turning-tool, means for longitudinally moving said spindle and tool toward and from the holder, a shaft, a drill-support thereon, means for revolving the drill in said support, and means for moving said support forward and shifting it longitudinally toward the blank-holder, substantially as described.

4. In a button-making machine, the combination with a blank-holder, of a shaft, means for driving the same, a sleeve on said shaft provided with an arm, a tool-holder on said arm, gearing between said tool-holder and the shaft, and means for partially turning and longitudinally moving said sleeve, substantially as described.

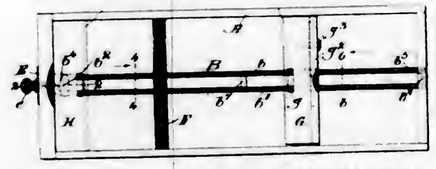
5. In a button-making machine, the combination with a blank-holder, of a shaft, means for driving the same, a sleeve on said shaft provided with a cam-surface and with an arm, a tool-holder on said arm, gearing between said tool-holder and the shaft, a cam on said shaft cooperating with the cam-surface on the sleeve, means for turning said cam and sleeve as a unit, a guide device, and means on the sleeve for coacting with said device to impart a longitudinal movement to said sleeve, substantially as described.

6. In a button-making machine, the combination with a blank-holder, of a shaft, means for driving the same, a sleeve on said shaft provided with a cam-surface and with an arm, a tool-holder on said arm, gearing between said tool-holder and the shaft, a cam on said shaft cooperating with the cam-surface on the sleeve, means for turning said cam and sleeve as a unit, a guide device, means on the sleeve for coacting with said device to impart a longitudinal movement to said sleeve, and means for returning said sleeve and cam to normal position, substantially as described.

7. In a button-making machine, the combination with a blank-holder, of a shaft, means for driving the same, a sleeve on said shaft provided with a cam-surface and with an arm, a tool-holder on said arm, gearing between said tool-holder and the shaft, a cam on said shaft cooperating with the cam-surface on the sleeve, means for turning said cam and sleeve as a unit, a vertically-adjustable guide-bracket, and means on the sleeve for coacting therewith to impart a longitudinal movement to said sleeve, substantially as described.

8. In a button-making machine, the combination with a blank-holder, of a shaft, means for driving the same, a sleeve on said shaft provided with a cam-surface and with an arm, a tool-holder on said arm, gearing between said tool-holder and the shaft, a cam on said shaft cooperating with the cam-surface on the sleeve, means for turning said cam and sleeve as a unit, and an adjustable stop for limiting the rotary movement of said cam, substantially as described.

645,051. HOLDER FOR CARD-INDEXES. DAVID E. HUNTER, Cambridge, Mass. Filed Nov. 30, 1896. Serial No. 613,887. (No model.)



Claim.—1. A card-holder for receiving therein cards having apertures, and a locking-rod for entering the apertures, said rod being movable longitudinally and laterally in the apertures

2. A card-holder for receiving therein cards having apertures, and a pair of locking-rods for entering the apertures, one of the rods being movable longitudinally and being also movable laterally toward and away from the other rod.

3. The combination with a card-holder, of a laterally and longitudinally movable rod adapted to lock the cards thereio, and means to move said rod laterally by its movement longitudinally.

4. The combination with a card-holder, of a longitudinally-movable locking member adapted to lock the cards therein, said locking member presenting a less-effective width in one position than it does in another position and means to move said locking member longitudinally, said locking member being shifted from one to the other of its said positions by said longitudinal movement.

5. The combination with a card-holder, of a locking member for card-indexes, comprising two longitudinally-movable parts, connections between said parts permitting said parts to move toward and from each other, and means to move said parts.

6. The combination with a card-holder, of an expansible and longitudinally-movable locking member for card-indexes, means to expand the same, and means to lock said member in expanded position.

7. A card-holder for receiving therein cards having apertures, combined with a horizontally-pivoted link or plate, a pair of parallel rods pivoted to said plate, and means at one end of said card holder for turning said pivoted plate, thereby causing the spreading or bringing together of the parallel rods.

8. A card-holder, combined with a locking member for the cards, comprising a pair of parallel rods, and means for spreading and contracting said rods, said means including a link or plate centrally pivoted in the holder and connected at opposite sides of its pivot with said two rods, the turning of said plate on its pivot serving to spread or contract the rods.

9. In a card-holder, horizontally-pivoted plates at the front and rear of the holder, a pair of parallel rods pivoted to said plates, and means at the front of the holder for turning the front pivoted plate.

10. The combination with a card-holder, of a movable locking member, an aperture in the end of said holder, and a knob loosely connected with said locking member and adapted to be interlocked with said aperture, when interlocked said knob maintaining said locking member in fixed locking position.

11. The combination with a card-holder, of a movable locking member, an aperture in the end of said holder, and a knob having limited longitudinal movement on the said locking member, and means to lock said knob in said aperture.

12. The combination with a card-holder, and locking member therefor, of a follower-block, and a spring clamp mounted on said block and having cooperating opposite spring-jaws to engage said locking member.

13. The combination with a card-holder, and a laterally-movable locking member therefor, of a follower-block, and a clamp movably mounted on said block and engaging said locking member, said clamp being freely movable laterally with the locking member relatively to the block and holding said block against longitudinal movement on said locking member.

14. In a card-holder, an end supporting-block for the cards, having a sloping face, said sloping face being cut away adjacent its lower edge or provided with an undercut portion.

REISSUES.

11,811. WATERPROOFING COMPOUND. WILLIAM A. HALL, Bellows Falls, Vt. Filed Nov. 17, 1899. Serial No. 737,373. Original No. 609,200, dated Aug. 16, 1898.

Claim.—1. A composition for giving an insoluble, porous coating to wall-surfaces, paper, &c., composed of a solution of casein, a retarding agent, to prevent too-rapid setting of the coating and to insure its porosity, and formaldehyde, (CH_2O.)

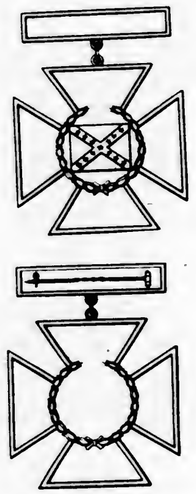
2. A composition for giving an insoluble, porous coating to wall-surfaces, paper, &c., composed of casein, an alkali, a retarding agent, to prevent too-rapid setting of the coating and to insure its porosity, and formaldehyde. (CH_2O.)

3. A composition for giving an insoluble, porous coating to wall-surfaces, paper, &c., composed of casein, an alkali, a mineral base, to act as a retarding agent and give porosity to the coating, and formaldehyde, (CH_2O.)

4. The method of producing an insoluble composition for coating wall-surfaces, paper, &c., which consists in dissolving casein in an alkali solution, adding a mineral substance to said solution to serve as a base and retarding agent and to give porosity to the coating, and then infusing formaldehyde (CH_2O) into the compound thus formed.

DESIGNS.

32,303. MEDAL. CHARLES WEIR CRANKSHAW, Atlanta, Ga. Filed Nov. 29, 1899. Serial No. 738,730. Term of patent 7 years.



Claim.—The design for a medal, as herein shown and described.

32,304. BADGE OR SIMILAR ARTICLE. JOSEPH T. BAILEY, Philadelphia, Pa. Filed Feb. 2, 1900. Serial No. 3,754. Term of patent 14 years.



Claim.—The design for a badge or similar article, substantially as shown and described.

32,305. SPOON-HANDLE. ERNEST W. CAMPBELL, Providence, R. I., assignor to William H. Manchester, same place. Filed Feb. 7, 1900. Serial No. 4,410. Term of patent 3½ years.



Claim.—The design for a spoon-handle as herein shown and described.

32,306. KNIFE-HANDLE. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed Feb. 12, 1900. Serial No. 5,024. Term of patent 7 years.



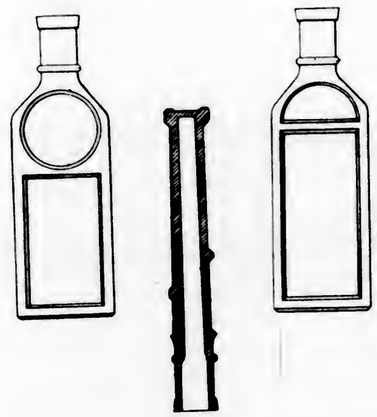
Claim.—The design for a knife-handle, as herein shown and described.

32,307. BOTTLE. KARL KIEFER, Cincinnati, Ohio. Filed Jan. 5, 1899. Serial No. 701,298. Term of patent 7 years.



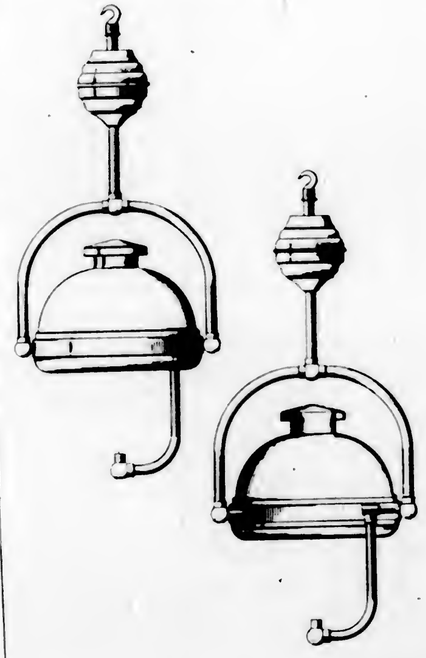
Claim.—The design for a bottle herein shown and described.

32,308. BOTTLE. IRVIN C. SOUDERS, Dayton, Ohio. Filed Feb. 12, 1900. Serial No. 5,020. Term of patent 14 years.



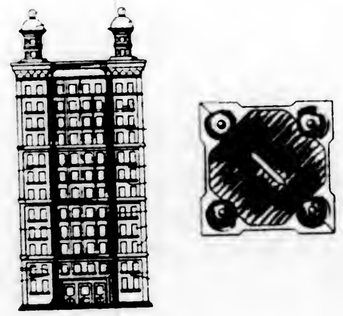
Claim.—The design for a bottle, as herein shown and described.

32,309. LAMP-BODY. MICHAEL M. SWEETMAN, Kansas City, Mo. Filed Feb. 9, 1900. Serial No. 4,696. Term of patent 7 years.



Claim.—The design for a lamp-body substantially as shown and described.

32,310. TOY BANK. ADAM C. WILLIAMS, Ravenna, Ohio. Filed Feb. 3, 1900. Serial No. 3,904. Term of patent 7 years.



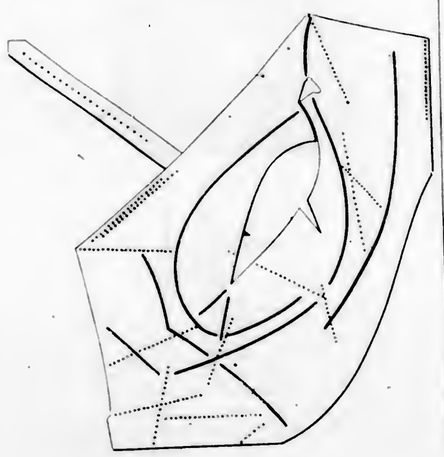
Claim.—The design for a toy bank, substantially as herein shown and described.

32,311. TABLET. BENJAMIN F. DE KLYN, New York, N. Y. Filed Oct. 11, 1899. Serial No. 733,321. Term of patent 7 years.



Claim.—The design for a tablet substantially as herein shown and described.

32,312. TAILOR'S DRAFTING-CHART. ABE N. ROSENBLOOM, Boston, Mass. Filed Dec. 29, 1899. Serial No. 741,998. Term of patent 7 years.



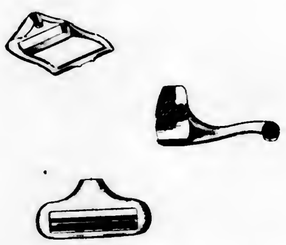
Claim.—The design for a tailor's drafting-chart, substantially as herein shown and described.

32,313. MENU-COVER. MAX BECK and ROBERT O. ZIMMERMANN, New York, N. Y. Filed Feb. 10, 1900. Serial No. 4,827. Term of patent 3½ years.



Claim.—The design for a menu-cover as herein shown and described.

32,314. BUCKLE-FRAME. HENRY KNOELL, New York, N. Y. Filed Jan. 17, 1900. Serial No. 1,800. Term of patent 7 years.



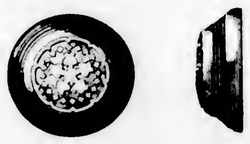
Claim.—The design for a buckle-frame, as herein shown and described.

32,315. FASTENING-EYE. ELIZABETH STEWART, New York, N. Y. Filed Jan. 27, 1900. Serial No. 3,060. Term of patent 7 years.



Claim.—The design for a fastening-eye, as herein shown and described.

32,316. KNOB FACE OR CAP. LOUIS H. WALES, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Feb. 7, 1900. Serial No. 4,403. Term of patent 7 years.



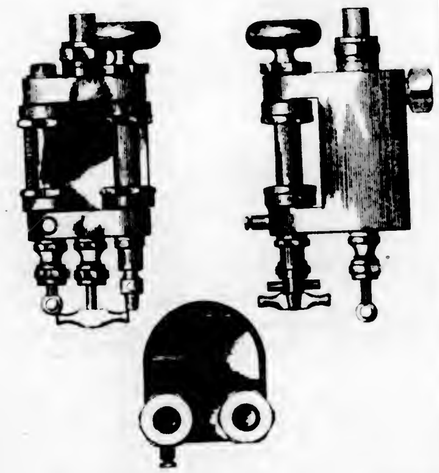
Claim.—The design for a knob face or cap, as herein shown and described.

32,317. DOOR-ESCUTCHEON. LOUIS H. WALES, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Feb. 7, 1900. Serial No. 4,404. Term of patent 7 years.



Claim.—The design for a door-escutcheon, as herein shown and described.

32,318. SIGHT-FEED LUBRICATOR. EDMUND H. LUNKEN, Denver, Colo., assignor to the Lunkenheimer Company, Cincinnati, Ohio. Filed Feb. 1, 1900. Serial No. 3,648. Term of patent 14 years.



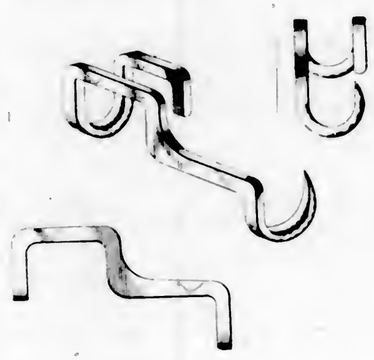
Claim.—The design for a sight-feed lubricator as herein shown and described.

32,319. FOUNDER'S CORE-SUPPORTING SHELL. ALEXANDER SELKIRK, Albany, N. Y., assignor to Burdick & Son, same place. Filed Feb. 8, 1900. Serial No. 4,566. Term of patent 14 years.



Claim.—The design for a founder's core-supporting shell as herein shown and described.

32,320. MEAT-HOOK. JEREMIAH R. KNAPP and FRANK J. BOWEN, Norwalk, Ohio. Filed Feb. 2, 1900. Serial No. 3,749. Term of patent 7 years.



Claim.—The design for a meat-hook substantially as shown and described.

32,321. STOVE BACK. FRANKLIN KING CHASE, Taunton, Mass. Filed Dec. 18, 1899. Serial No. 740,831. Term of patent 14 years.



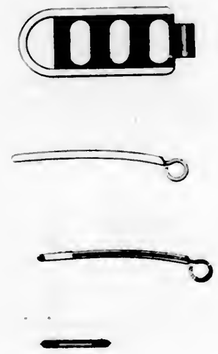
Claim.—The design for a stove-back, substantially as shown and described.

32,322. REIN-SUPPORT. CARL J. SWANSON, Galesburg, Ill. Filed Jan. 18, 1900. Serial No. 1,940. Term of patent 7 years.



Claim.—The design for a rein-support, substantially as herein shown and described.

32,323. HASP-PLATE. CARL WIGHT and WILLIAM R. DIPPERT, Des Moines, Iowa. Filed Jan. 15, 1900. Serial No. 1,566. Term of patent 14 years.



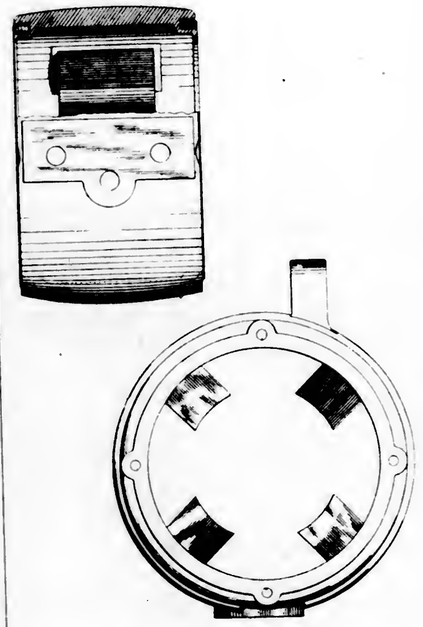
Claim.—The design for a hasp-plate, substantially as herein shown and described.

32,324. TIRE. EDWIN J. BURROWS, Buffalo, N. Y., assignor of one-half to James R. Baynes, same place. Filed Nov. 16, 1899. Serial No. 737,247. Term of patent 14 years.



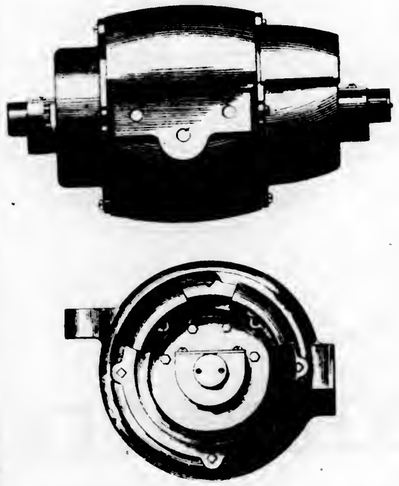
Claim.—The design for an elastic tire, substantially as shown and described.

32,325. FIELD RING OR FRAME FOR ELECTRIC MOTORS. CHARLES A. LINDSTROM, Chicago, Ill. Filed Dec. 1, 1899. Serial No. 738,927. Term of patent 14 years.



Claim.—The design for a field ring or frame of an electric motor as herein shown and described.

32,326. AUTOMOBILE ELECTRIC-MOTOR CASE. CHARLES A. LINDSTROM, Chicago, Ill. Filed Jan. 26, 1900. Serial No. 2,921. Term of patent 7 years.



Claim.—The design for an automobile electric-motor case, as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 6, 1900.

34,271. GAME-BOARDS. MATTIE H. EVELETH, Boston, Mass. Filed Oct. 28, 1899.

FILIPINO

Essential feature.—The word "FILIPINO." Used since October 6, 1899.

34,272. SHOULDER-BRACES, CORSETS, CORSET-WAISTS, AND SPINAL SUPPORTERS. AMALIA SCOTT, New York, N. Y. Filed Feb. 6, 1900.

ADRIENNE

Essential feature.—The word "ADRIENNE." Used since February 1, 1899.

34,273. ARTIFICIAL DECORATIVE PLANTS AND FLOWERS. FRANK NETSCHERT, West Hoboken, N. J. Filed Jan. 31, 1900.



Essential feature.—A wreath of flowers and the letters "NET." Used since January 1, 1900.

34,274. UMBRELLAS. B. M. SHAINE & Co., New York, N. Y. Filed Feb. 5, 1900.

FARMER'S FRIEND

Essential feature.—The words "FARMER'S FRIEND." Used since June 1, 1899.

34,275. ELECTRIC BELTS OR BANDS FOR BODY WEAR. ROBERT H. HASELER, Indianapolis, Ind. Filed Feb. 7, 1900.

ELECTROFLEX

Essential feature.—The word "ELECTROFLEX." Used since December 25, 1899.

34,276. METALLIC EYELETS FOR SHOES. LA MANUFACTURE FRANÇAISE DE PORTE-PLUMES ET GRILLETS METALLIQUES (ANCIENNE MAISON G. BAC,) Paris, France. Filed Sept. 9, 1899.



Essential feature.—The representation of a lion passant, on a bar or chevron, supporting a scroll or shield. Used for about twenty-two years.

34,277. REMEDY FOR CERTAIN NAMED DISEASES. CHARLES M. HILDRETH, Paterson, N. J. Filed Jan. 29, 1900.



Essential feature.—A photographic or other picture of the registrant and a facsimile of his signature. Used since August 1, 1899.

34,278. DETERGENTS. THE CARPETTO SYNDICATE, LIMITED, London, England. Filed Jan. 23, 1900.



Essential feature.—The representation of a young woman holding in her outstretched hands a strip of carpet, a tablet, and a cloth, the carpet being represented as partly cleaned. Used since April 29, 1899.

34,279. PREPARATION FOR DISINFECTING. HARRY E. FIELD, New York, N. Y. Filed Dec. 5, 1899.

34,279.

Sultar

Essential feature.—The word "SULTAR." Used since April 15 1899.

34,280. TONICS. FREDERICK AUGUST LUTTIER, St. Louis, Mo. Filed Feb. 5, 1900.

MANOLA

Essential feature.—The word "MANOLA." Used since April, 1899.

34,281. BRANDY. AMÉLIE AUGIER, VEUVE DE DE BOURDONVILLE, Cognac, France. Filed Nov. 15, 1899.



Essential feature.—A representation of a coat of arms composed of a shield surmounted by a helmet, with conventionalized branches extending to the right and left of the helmet and downward upon each side of the shield. Used since 1643.

34,282. IRISH WHISKY. THE DUBLIN DISTILLERS COMPANY, LIMITED, Dublin, Ireland. Filed Feb. 6, 1900.

GR

Essential feature.—The letters "G" and "R." Used since May 17, 1889.

34,283. IRISH WHISKY. THE DUBLIN DISTILLERS COMPANY, LIMITED, Dublin, Ireland. Filed Feb. 6, 1900.



Essential feature.—The combination of the letter "J" and a diamond. Used since May 17, 1889.

34,284. CERTAIN NAMED GROCERIES. W. J. QUAN & Co., Chicago, Ill. Filed Feb. 6, 1900.

MAGPIE

Essential feature.—The word "MAGPIE." Used since January 1, 1895.

34,285. CERTAIN NAMED GROCERIES AND CIGARS. W. J. QUAN & Co., Chicago, Ill. Filed Feb. 6, 1900.

HAWTHORN

Essential feature.—The word "HAWTHORN." Used since January 1, 1896.

34,286. DOMESTIC AND IMPORTED CIGARS AND CIGARETTES. DAVID F. WEYL, New York, N. Y. Filed Feb. 6, 1900.

HAVVAH

Essential feature.—The word "HAVVAH." Used since January 15, 1900.

34,287. COFFEE, TEAS, AND SPICES. THE AMERICAN IMPORTING COMPANY, Chicago, Ill. Filed Feb. 6, 1900.

AIC

Essential feature.—The letters "AIC." Used since January 24, 1900.

34,288. MILK AND CREAM, CRUDE, CONDENSED, OR STERILIZED. ANGLO-SWISS CONDENSED MILK COMPANY, New York, N. Y. Filed Nov. 22, 1899.

Imperial

Essential feature.—The word "IMPERIAL." Used since May, 1894.

34,289. CURED SHOULDERS OF PORK. HORATIO T. MOLLOY, Hoboken, N. J. Filed Feb. 3, 1900.

BABY

Essential feature.—The word "BABY." Used since September, 1898.

34,290. BUTTER. HILMER & BREDHOFF, San Francisco, Cal. Filed Feb. 12, 1900.

POPPY

Essential feature.—The word "POPPY." Used since April 1, 1898.

34,291. WHEAT-FLOUR. ROBERT EVERETT, Boston, Mass. Filed Jan. 30, 1900.

JASMINE.

Essential feature.—The word "JASMINE." Used since July, 1884.

34,292. WHEAT-FLOUR. WARBURN, CROSBY COMPANY, Minneapolis, Minn. Filed Feb. 10, 1900.

FORIMEL

Essential feature.—The word "FORIMEL." Used since January 20, 1900.

34,293. ROLLED OATS. BUTLER-BREED COMPANY, Boston, Mass. Filed Jan. 15, 1900.

Butternut

Essential feature.—The word "BUTTERNUT." Used since December 1, 1899.

34,294. GRASS, CLOVER, AND FIELD SEEDS AND SEED-GRAINS. THE ALBERT DICKINSON COMPANY, Chicago, Ill. Filed Feb. 12, 1900.

CRESCENT



Essential feature.—The word "CRESCENT and the crescent-shaped symbol inclosing the letter "D." Used since October 1, 1897.

34,295. GRASS, CLOVER, AND FIELD SEEDS AND SEED-GRAINS. THE ALBERT DICKINSON COMPANY, Chicago, Ill. Filed Feb. 12, 1900.

SUN



Essential feature.—The word "SUN" and the sun-shaped symbol inclosing the letter "D." Used since October 1, 1897.

34,296. CERTAIN NAMED SEEDS. LUDWIG TEWELES, Milwaukee, Wis. Filed Feb. 5, 1900.



BADGER

Essential feature.—The word "BADGER" and the representation of a badger. Used since December 1, 1899.

34,297. CERTAIN NAMED TOILET PREPARATIONS. SAMUEL M. SEAT, Waco, Tex. Filed Jan. 23, 1900.

ARTESIA

Essential feature.—The word "ARTESIA." Used since January 1, 1897.

34,298. PERFUMERY. JOHN LIPSCOMB GROSSMITH, London, England. Filed July 6, 1899.



Essential feature.—The representation of a bouquet consisting of a rose, shamrock-leaves, and thistle-blossoms. Used since March, 1899.

34,299. WRITING-INKS. THE CARTER'S INK COMPANY, Boston, Mass. Filed Jan. 29, 1900.

AMERICAN

COURT HOUSE

Essential feature.—The words "AMERICAN COURT HOUSE." Used since August 1, 1899.

34,300. PRINTERS' INKS. RANDALL INK MANUFACTURING CO., New York, N. Y. Filed Oct. 31, 1899.



Essential feature.—The figure of a man seated before an open book holding a pen in his hand, which rests upon said book. Used since August 1, 1899.

34,301. SHELLAC-GUM. BERRY BROS., LIMITED, Detroit, Mich. Filed Jan. 18, 1900.



Essential feature.—Two triangles and the letter "B." Used since January 1, 1899.

34,302. CEMENT. W. R. GRACE & COMPANY, New York, N. Y., and San Francisco, Cal. Filed Feb. 3, 1900.

FEDERAL

Essential feature.—The word "FEDERAL." Used since January 15, 1900.

34,303. TRANSITS. BUFF & BUFF INSTRUMENT MANUFACTURING CO., Boston, Mass. Filed Feb. 8, 1900.

B & B

Essential feature.—The letters and character "B & B." Used since November 2, 1899.

34,304. APPARATUSES FOR FILTERING WATER. FRANK E. BACHMAN, Buffalo, N. Y. Filed Feb. 10, 1900.

IDEAL

Essential feature.—The word "IDEAL." Used since November 9, 1899.

34,305. CERTAIN NAMED ELECTRICAL APPARATUS AND SUPPLIES. CLEMENT & GHARKY, Philadelphia, Pa. Filed Feb. 6, 1900.



Essential feature.—A representation of the sun. Used since January 30, 1900.

84,806. COTTON-BUFF WHEELS. F. L. & J. C. CODMAN, Boston, Mass. Filed Feb. 1, 1900.

Champion

Essential feature.—The word "CHAMPION." Used since February, 1894.

84,807. PACKING MATERIALS. RICHARD KLINGER, Gumpoldskirchen, Austria-Hungary. Filed Feb. 5, 1900.

Klingerit

Essential feature.—The word "KLINGERIT." Used since March 15, 1898.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WELLS v. PACKER.

Decided January 6, 1900.

1. INTERFERENCE—MOTION TO DISSOLVE—DISCLOSURE OF FACTS RELIED UPON FOR DISSOLUTION.

It is not necessary that the facts upon which a motion to dissolve is based be stated in any case where the only facts relied upon are disclosed in the record. A fair presumption is that where the moving party does not state any additional facts he considers that the record discloses sufficient to warrant the dissolution of the interference, and that he does not wish to refer to anything not thus disclosed. (*Law* v. *Woolf*, 55 O. G., 1527, construed.)

2. SAME—SAME—SAME.

Where a motion to dissolve an interference is based upon facts not disclosed in the record, the motion should make a showing of the facts outside of the record, so that there would be no surprise nor any necessity for delay in the proceeding.

3. SAME—SAME—MATTER TO BE CONSIDERED BY THE PRIMARY EXAMINER.

On the hearing of a motion to dissolve an interference nothing should be considered by the Primary Examiner outside of the facts disclosed by the record, unless a showing of such additional facts accompanies the motion to transmit to the Primary Examiner.

3. SAME—SAME—SAME—DISCOVERY OF NEW FACTS.

In case of the discovery of new facts after granting the motion to transmit to the Primary Examiner he may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve.

APPEAL from Examiner of Interferences.

PULP-STRAINER.

Application of Wells filed March 6, 1899, Serial No. 707,951. Application of Packer filed February 2, 1899, Serial No. 704,251.

Messrs. Pennie & Goldsborough for Wells.
Messrs. Munn & Co. for Packer.

DURELL, *Commissioner:*

This is an appeal by Packer from the decision of the Examiner of Interferences granting the motion made by Wells to transmit to the Primary Examiner for determination his motion for dissolution of the above-entitled interference.

The ground of appeal is thus stated:

This appeal is taken upon the ground that the Examiner of Interferences erred in deciding that it was not necessary for the motion to state the facts upon which the issue was claimed to be not patentable.

The grounds upon which dissolution of the interference is sought are thus stated:

1. That there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority.
2. That the issues as drawn by the Examiner are not patentable, in view of the state of the art.
3. That there is no conflict between the claims of the interfering applications; and
4. That there is no interference in law or in fact between the applications.

There is no dispute but that the motion was brought in due time; but it is urged that there are no facts set forth upon which the legal conclusion is based that no interference in law or in fact exists and that it does not disclose any matters or facts whereby Packer may determine whether the issues were unpatentable in view of the state of the art.

In *Law* v. *Woolf* (55 O. G., 1527) it was held that—

there is no rule which requires that the facts upon which the motion to dissolve is based should be stated in the motion. Undoubtedly if any facts were relied upon other than those disclosed by the record, it would be necessary to state them, in order that they should receive consideration. A motion to dissolve, setting up one or more of the grounds mentioned in Rule 122, does not bring into the controversy any facts except those which the record discloses. Such a motion is, however, sufficient as against a motion to dismiss.

In view of this decision I do not consider that it is necessary that the facts upon which the motion to dissolve is based be stated in any case where the only facts relied upon are disclosed in the record. A fair presumption is that in the present case Wells considers that the record discloses sufficient to warrant the dissolution of the interference and that he does not wish to refer to anything not thus disclosed. The decision from which quotation has been made is the one relied upon by the Examiner of Interferences in granting the motion; but that decision clearly does not go so far as to hold that facts not disclosed by the record can be called to the attention of the Primary Examiner upon the hearing of the motion to dissolve. Manifestly it would be unjust to the party opposing the motion to dissolve the interference to be met at the hearing with a different showing as to the state of the art than that disclosed by the record. He would be clearly entitled in such an event to a postponement of the hearing, and that would lead to unnecessary delay. I am clearly of the opinion that where a motion to dissolve an interference is based upon facts not disclosed in the record the motion should make a showing of the facts outside the record relied upon, so that there would be no surprise nor any necessity for delay.

My conclusion therefore is that on a hearing of a motion to dissolve an interference nothing should be considered by the Primary Examiner outside of the facts disclosed by the record unless a showing

of such additional facts accompanies the motion to transmit to the Primary Examiner, but that where a moving party relies upon the record it is unnecessary for him to state in the motion the facts upon which the motion for dissolution is based.

In case of the discovery of new facts after granting the motion to transmit the Primary Examiner may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve.

In the present case the presumption that the moving party relies solely upon the disclosure made in the record may be incorrect. Therefore in order to avoid the delay incident to making a new motion before the Examiner of Interferences to transmit the Primary Examiner is advised that he may consider any additional showing, provided such showing is served upon Packer by Wells five days before the hearing of the motion.

The decision of the Examiner of Interferences is affirmed.

EX PARTE TOURNIER.

Decided January 24, 1900.

1. DESIGNS—EXPERIMENTAL USE—PUBLIC USE.
   The doctrine of experimental use does not apply to design inventions; but any use of a design in public for whatever purpose is public use.
2. SAME—MEANING OF THE WORD "USEFUL."
   The word "useful" in the design law has reference to appearance rather than to the mechanical function of the device. The design must not be vicious or have a tendency to corrupt, but its usefulness resides in the pleasing and attractive appearance produced by it. (*Westinghouse Co.* v. *Triumph Co.*, 97 Fed. Rep., 99.)
3. SAME—SAME—HAS NO REFERENCE TO MECHANICAL FUNCTION.
   The utility of a design invention for the performance of a mechanical function is not of the essence of the invention, since two articles may clearly be so different in shape as to properly constitute subject-matter for two separate design patents although they perform the same mechanical function in exactly the same way, and two articles may be so nearly alike as to constitute the same design, but may at the same time perform entirely different mechanical functions.
4. SAME—EXPERIMENTAL USE—MECHANICAL AND DESIGN INVENTIONS DISTINGUISHED.
   The only purpose of experimental use of mechanical inventions is to determine whether or not the device is so constructed as to satisfactorily perform the mechanical functions intended; but since the mechanical function of the device forms no part of a design invention experimental use of a design is not necessary.
5. SAME—INCOMPLETE DESIGNS.
   Since the subjects of design patents are form or contour and surface ornamentation, it is physically impossible for a design to exist in an incomplete condition; but if it has been produced at all it is complete and entitles the producer to a patent at that time.
6. SAME—REDUCTION TO PRACTICE.
   The production of a design is what corresponds to the reduction to practice of a mechanical invention, since its utility within the meaning of that term as applied to designs is apparent upon mere inspection.

APPEAL from Examiners-in-Chief.

DESIGN FOR ATTACHING PLUGS.

Application of Julius C. Tournier filed November 30, 1898, No. 697,920.

Mr. Albert G. Davis for the appellant.

GREELEY, *Assistant Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief affirming the rejection by the Primary Examiner of the following claim:

The design for an attaching-plug for electric circuits, as herein set forth.

The ground of rejection is that the device had been in public use for more than two years before the application was filed, as shown by the evidence in an interference (*Tournier* v. *Seymour*) in which this application was involved. That evidence shows, and it is admitted on behalf of the appellant, that the device was in fact put in use in the shops of the General Electric Company at Schenectady, N. Y., sometime prior to November 30, 1896. This application was filed November 30, 1898. The appellant contends, however, that the use prior to November 30, 1896, was experimental and not public use within the meaning of the law, and therefore that is the sole question to be decided in this case.

The Examiner says after discussing the question and citing authorities in support of his position:

But it is not believed that the doctrine of experimental use pertains to design inventions.

The Examiners-in-Chief held that the use in the present case was public and not experimental use, but that—

it is conceivable that there may be cases in which experimental use of a design is possible.

The device in this case comes under the provision of section 4929 of the Revised Statutes, that a patent may be obtained upon—

any new, *useful*, and original shape or configuration of any article of manufacture—

and the appellant contends that in order to determine the utility of the device experimental use is necessary, just as it is with mechanical inventions. He calls attention to the fact that the design statute does not specifically make two years' public use a bar to the grant of a patent, but that such provision has been held to be imported into it by reason of section 4933 of the Revised Statutes, which provides that—

all the regulations and provisions which apply to obtaining or protecting patents for inventions or discoveries not inconsistent with the provisions of this title, shall apply to patents for designs.

He argues that since the rule in regard to public use is imported into the design law from the law in regard to mechanical patents the meaning given that law in reference to mechanical inventions in regard to what constitutes public use should also be imported into it and that therefore experimental use of design inventions should be permitted. He states that it is improper and a hardship upon inventors to import the restrictions in the law in regard to mechanical inventions without also importing the liberal construction given by the courts to those restrictions. For instance, it is said that the present device might have been covered by a mechanical application at the same time that the present design application was filed and that in such case the use prior to November 30, 1896, would have been held experimental use and no bar in so far as the mechanical application was concerned, but public use and an absolute bar in so far as the design application was concerned, which holding,

it is urged, would be inconsistent and unfair, since the contrary holdings would be based upon exactly the same use.

In this contention, however, the appellant seems to have lost sight of the fact that the two applications would cover entirely different things in so far as the monopoly sought is concerned and that therefore what is a bar for one may not be a bar for the other. The fact that both kinds of patents can be granted on one device shows this. As stated in *ex parte Jones*, (84 O. G., 1281:)

A design patent and a mechanical patent are, however, subjects of two distinct monopolies, and the grant of one does not therefore preclude the grant of the other.

See also *Flomerfelt* v. *Newwitter*, (85 O. G., 458.)

In reference to applying the doctrine of experimental use to designs it is noted that section 4933 of the Revised Statutes makes applicable only such rules in regard to mechanical invention as are "not inconsistent with the provisions of this title." In determining what laws and rulings are inconsistent the nature of the monopoly intended to be conferred by the design law must be kept in mind. There is no difficulty whatever in determining that the bar of two years' public use is not inconsistent with anything in the design law and is therefore applicable and it has been repeatedly so held; but the question whether or not there can be experimental use of a design presents more difficulty.

In regard to the nature of design patents it was stated by the Supreme Court in *Gorham* v. *White*, (14 Wallace, 511:)

The law manifestly contemplates that giving certain new and original appearances to a manufactured article may enhance its salable value, may enlarge the demand for it, and may be a meritorious service to the public. It therefore proposes to secure for a limited time to the ingenious producer of those appearances the advantages flowing from them. Manifestly the mode in which those appearances are produced has very little, if anything, to do with giving increased salableness to the article. It is the appearance itself which attracts attention and calls out favor or dislike. It is the appearance itself, therefore, no matter by what agency caused, that constitutes mainly, if not entirely, the contribution to the public which the law deems worthy of recompense.

It was also said in *Theberath* v. *The Rubber and Celluloid Co.* (23 O. G., 1121) in reference to design patents:

They differ from patents for inventions or discoveries in this respect, that they have reference to appearance rather than utility. Their object is to encourage the arts of decoration more than the invention of useful products.

These rulings have been substantially reiterated and approved in numerous other and later decisions, and it appears from them that the utility of the device for the performance of a mechanical function is not of the essence of the invention. Two articles may clearly under the law be so different in shape or configuration as to properly constitute subject-matter for two separate design patents, and at the same time they may perform the same mechanical function in exactly the same way. On the other hand, two articles may be so nearly alike in appearance that one will be mistaken for the other, and thus in the sense of the design law will be the same design, but at the same time they may perform entirely different mechanical functions. It is apparent, therefore, that in the case of two designs the utility may be the same and the designs different and the designs may be the same when the utility is different.

It is true that the law in regard to designs of the character here in controversy provides that they shall be useful, and the appellant calls attention to the fact that this provision was placed in the statute after the decision in *Gorham* v. *White*, above cited, and that under the present law, as stated by the Supreme Court in *Smith* v. *Whitman Saddle Co.*, (148 U. S., 674:)

Where a new and original shape or configuration of an article of manufacture is claimed its utility may be also an element for consideration. (*Lehnbeuter* v. *Holthaus*, 105 U. S., 94.)

In that decision, however, the Court did not clearly define what was meant by "useful" in reference to designs, and while holding that invention as well as novelty was necessary did not change or modify the previous holdings that the test of infringement is the appearance rather than the use of the device. It was specifically so held by the Court of Appeals in the recent case of *Westinghouse Co.* v. *Triumph Co.*, (97 Fed. Rep., 99,) wherein the meaning of the word "useful" in the statute referred to was under consideration. In referring to the decision in *Smith* v. *Saddle Co.*, above cited, the court said:

We should think it very doubtful whether the word "useful" introduced by revision of the patent laws into the statute, is to have the same meaning as it has in the section providing for patents for useful inventions. The whole purpose of Congress, as pointed out by Mr. Justice Strong, speaking for the Supreme Court, in the case of *Gorham Co.* v. *White*, (14 Wall., 511,) was to give encouragement to the decorative arts. It contemplated not so much utility as appearance. * * *

This decision was rendered at a time when the statute of 1861 was in force. By that statute a design patent was provided for "any new and original shape or configuration of any article of manufacture." The word "useful" did not appear in this phrase. It did, however, appear in another part of the same section, to wit, "any new and useful pattern, or print, to be either worked into or worked on, or printed, or painted, or cast, or otherwise fixed on any article of manufacture." By the act of 1870, which was a revision as well as amendment of the patent laws, the word "useful" was transferred from the office of qualifying patterns and prints to that of qualifying shapes or configurations of matter. (12 Rev. Stats., 246.) We cannot infer from the transfer of a single word from one phrase to another, where both are in *pari materia*, that thereby, as to one of the classes of designs protected by the statute, the whole purpose of Congress, as pointed out by the Supreme Court, was changed. We must infer that the term "useful" was inserted merely out of abundant caution, to indicate that things which were vicious and had a tendency to corrupt, and in this sense were not useful, were not to be covered by the statute. As already said, the statute is a revision, and the presumption of the legislative intention to change the meaning by a change of language is by no means so strong as when the sole object of the statute is to amend. We concur in the opinion of Mr. Commissioner Hall in *ex parte Schulze-Berge*, (42 O. G., 993,) in which he says:

"There can be no doubt that an invention, to be the subject of a mechanical patent, must possess utility or usefulness; but it is a usefulness which relates to mechanics,—the modification or control of physical forces. On the other hand, the subject of a design may also be useful in an entirely different sense or direction, and I think the word 'useful,' in the statute, (sec. 4929, Rev. Stats.,) is employed in a different sense. The subject of invention, so far as form or shape or configuration is concerned, must be useful in the sense that it tends to promote pleasure, refinement, comfort, depending upon the sense of the beautiful. It must be useful in the sense that it must not be mischievous, obscene, or tending to produce evil or wicked reflections. Invention in this field of art relates to the intangible, and its power consists in its ability to awaken pleasant and agreeable sensation, conceptions, and thoughts, and the usefulness involved is that which brings about these results."

Since the utility of the design under this decision does not reside in its mechanical function, there would appear to be no necessity for experimental use of it to determine its utility. The only purpose of experimental use of mechanical inventions is to determine whether or not the device is so constructed as to satisfactorily perform the mechanical functions intended, and it is necessary and is encouraged because the function and purpose of the device constitute a material part of the invention. The same reasons do not apply to designs,

where, as above noted, the purpose and utility of the device is merely to produce a pleasing and attractive appearance.

Commissioner Hall held in *ex parte Carty* (44 O. G., 570) that a caveat could not properly be filed covering a design for the reason that—

as is well understood, the subjects of design patents are form or contour and surface ornamentation, and it is physically impossible for any entity of that character to exist in an incomplete condition.

Upon exactly the same reasoning experimental use of a design is not possible. If the design has been produced at all, it is complete and entitles the producer to a patent at that time. Its utility within the meaning of that term as applied to designs is apparent upon mere inspection. The production of the design is what corresponds to the reduction to practice of a mechanical invention, and any subsequent use of it in public is not experimental use, but is public use.

The facts of the present case show that even if experimental use of designs was possible the use which actually occurred was public and not experimental use.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

CARY MANUFACTURING COMPANY *v.* NEAL *et al.*

Decided December 7, 1899.

1. INVENTION—BOX-FASTENERS.
Design Letters Patent No. 28,142, granted to Spencer C. Cary on January 11, 1898, for a box-fastener, consisting of a metal strap, which differs in construction from the one described in a prior mechanical patent to the same patentee only in omitting a corrugation along the edges, making the strap plain, does not disclose invention, and is void.

2. DESIGN PATENTS—VALIDITY—INVENTION.
Originality and the exercise of the inventive faculty are as essential to the validity of a design patent as a mechanical patent.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

Mr. A. G. N. Vermilya for the appellant.

Mr. Robert Stewart for the appellees.

SHIPMAN, *J.:*

This is an appeal from a decree of the Circuit Court of the United States for the Southern District of New York, which dismissed a bill in equity for the infringement of Letters Patent No. 28,142, applied for on October 15, 1894, and issued on January 11, 1898, to Spencer C. Cary, for a design for a box-fastener. (90 Fed. Rep., 725.) On April 21, 1891, the same Cary obtained Letters Patent No. 450,753 for a box-fastener as an article of manufacture. The invention was a very narrow one and was described in the claim as follows:

As an article of manufacture, a box-strap composed of a metal plate or strip, the end edges of which are curved in outline, and having a corrugation which is continuous at, along, and upon the side edges, and said end edges and tongues at or near the strap ends cut from the strap-body within the line of said edge corrugation, and bent at an angle to the face of the strap which is opposite to the corrugated face thereof, substantially as and for the purpose set forth.

The limited character of his invention is apparent from the following excerpt from the specification of the patent:

I am aware that box-straps have been heretofore formed with tongues cut from the strap-body, and bent at an angle to the face thereof, and hence I make no claim thereto, broadly, herein. I am also aware that box-straps have been formed with their end edges curved in outline, and therefore I make no claim to such form of the said edges, broadly, herein; and I am also aware that box-straps have been corrugated along and upon their side edges and have been given corrugations extending laterally of the strap; but in such latter case the lateral corrugations have not been at and upon the said end edges.

His design patent consisted—

in a box-fastener having ends bounded by curved lines and upwardly or downwardly extending prongs, with openings in the material, the main surface of which is plain, and the essential features are a plain, flat body bounded at the sides by substantially-straight lines and at each end by a curved line, having near each end openings in the face, and prongs extending from the sides of the openings at substantially right angles to the surface of the main body of the fastener.

The invention of the mechanical patent had a continuous corrugated edge which extended along and upon the edges of the fastener. The design patent has a plain flat body. This is the only difference between them as disclosed in the specification of either patent, and the question in the case is whether the omission of the corrugated edge is patentable.

Section 4929 of the Revised Statutes provides that any person who by his own industry, genius, efforts, and expense has invented and produced any new and useful original shape or configuration of any article of manufacture may obtain a patent therefor. It has been clearly stated that to entitle an inventor to the benefit of the section in regard to design patents—

there must be originality, and the exercise of the inventive faculty. Mere mechanical skill is insufficient. There must be something akin to genius—an effort of the brain, as well as the hand. (*Smith v. Saddle Co.*, 148 U. S., 674, 679; 13 Sup. Ct., 770; 37 L. Ed., 606.)

In this case the patentee had simply omitted from his own box strap the corrugation along the edges and made a plain strap. We can see nothing of an inventive character, nothing akin to genius, in this change. It was simply the work of the mechanic, without an apparent effort of the brain, for the purpose of increasing the simplicity, and therefore the utility, of the strap. There was a preëxisting flat box-strap; but it is not necessary to analyze the differences between it and the device shown in the patent in suit, for the line of distinction between the old and the new at the date of the patented improvement is shown upon the face of the two Cary patents.

The decree of the circuit court is affirmed, with costs.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Changes in Classification.

(ORDER No. 1,333.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 6, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

DIVISION XII.—Class 74, Machine Elements, establish the following subclasses:

56. Gear-casings.
Gearing—
57. Interchangeably-locked—
58. Slidable gears.
59. Slidable keys.
Pawls and ratchets—
60. Noiseless.

Class 57, Hoisting, establish the following subclasses:

Lifting-jacks—
118. Heads.
119. Rim-engaging devices.

Class 228, Ladders, abolish subclass 8, Reel, jointed sections, and establish a new subclass with the following title:

Flexible—
31. Jointed sections.

C. H. DUELL,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 31, 1900.

SIR: The Secretary of the Interior has ordered that Hampton E. Milliken, of Bowling Green, Ky., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 31, 1900.

SIR: The Secretary of the Interior has ordered that Thomas C. Rolliston, of Cincinnati, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED MARCH 13, 1900.

Labels.

7,397.—Title: "KNIGHT'S FINE PERFUMES." (For Perfumery.) *Knight Manufacturing Co.*, Cleveland, Ohio. Application filed January 31, 1900.

7,398.—Title: "TRIPLETS." (For Cigars.) *Orr, Hume & Co.*, Nashville, Tenn. Application filed February 9, 1900.

7,399.—Title: "REINOLA." (For Cigars.) *Upmann & Wilcox*, Chicago, Ill. Application filed February 19, 1900.

7,400.—Title: "ESCAPERNONG." (For Wine in Bottles.) *Paul Garrett*, Weldon, N. C. Application filed February 3, 1900.

7,401.—Title: "BLOSSOM NECTAR HONEY." (For Honey.) *William A. Selser*, Jenkintown, Pa. Application filed January 23, 1900.

7,402.—Title: "PURE WHITE CLOVER EXTRACTED HONEY." (For Honey.) *William A. Selser*, Jenkintown, Pa. Application filed January 23, 1900.

7,403.—Title: "PARIS ICE CREAM." (For Ice-Cream.) *John Economopoulos*, New York, N. Y. Application filed February 6, 1900.

7,404.—Title: "FERMENTED MILK FOOD." (For a Food.) *Melkon Lavon Arabelian*, New York, N. Y. Application filed April 12, 1899.

7,405.—Title: "VERIBEST." (For Flour.) *Whiteman & Patterson*, Wilkes-Barré, Pa. Application filed February 5, 1900.

7,406.—Title: "BEECHAMS COUGH SYRUP." (For a Medicine.) *John H. Wilcox*, Chicago, Ill. Application filed February 19, 1900.

7,407.—Title: "ROSE AND CUCUMBER JELLY." (For a Lotion.) *Charles Wright Company*, Detroit, Mich. Application filed February 5, 1900.

7,408.—Title: "LEATHERINE." (For a Leather-Preserver.) *W. E. & J. W. Sudlow*, New York, N. Y. Application filed February 9, 1900.

7,409.—Title: "AGATE NICKEL STEEL WARE." (For Agate Nickel-Steel Ware.) *Lalance & Grosjean Manufacturing Company*, New York, N. Y. Application filed November 18, 1899.

Print.

211.—Title: "ORDER GENUINE MACHETES OF COLLINS & CO. THE BEST ARE THE CHEAPEST." (For Machetes.) *The Collins Company*, Collinsville, Conn. Application filed February 8, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 6, 1900.

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149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 14	Feb. 21	120
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Feb. 10	Feb. 21	80
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Feb. 9	Feb. 21	173
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Feb. 9	Feb. 20	313
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 8	Feb. 23	97
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 8	Feb. 23	
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Feb. 8	Feb. 2.	98
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Feb. 8	Feb. 20	137
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 7	Feb. 23	113
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Feb. 7	Feb. 21	113
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 7	Feb. 21	125
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 7	Feb. 21	74
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 7	Feb. 20	122
102	XIX. Stoves and Furnaces	Feb. 7	Feb. 20	213
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Feb. 7	Feb. 20	144
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 7	Feb. 20	209
123	XXIV. Sewing-Machines, Apparel, and Toilet.	Feb. 7	Feb. 20	149
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 7	Feb. 20	166
93	XXI. Textiles, etc	Feb. 7	Feb. 20	154
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 7	Feb. 20	196
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Feb. 7	Feb. 17	215
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Feb. 7	Feb. 10	173
	Between one and two months.			
246	I. Tillage and Fences	Feb. 6	Feb. 21	119
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 6	Feb. 20	104
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 5	Feb. 21	208
253	X. Carriages and Wagons	Feb. 5	Feb. 19	155
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Feb. 5	Feb. 17	207
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 2	Feb. 21	109
248	XVIII. Steam-Engineering, etc	Feb. 2	Feb. 17	156
30	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Jan. 29	Feb. 20	143
25	XXVIII. Pneumatics, Air and Gas Engines, etc.	Jan. 13	Jan. 25	227

Total number of applications awaiting action.....5,401

Applications Under Examination—Continued.

Under one month.			
*Designs	Mar. 1	Mar. 2	22
†Trade-Marks	Mar. 1	Mar. 3	40
‡Labels and Prints	Mar. 6	Mar. 6	....

ISSUE OF MARCH 13, 1900.

Patents	486—No. 645,052 to No. 645,537,	inclusive.
Designs	26—No. 32,327 to No. 32,352,	inclusive.
Trade-Marks	19—No. 34,308 to No. 34,326,	inclusive.
Labels	13—No. 7,397 to No. 7,409,	inclusive.
Prints	1—No. 211.	
Reissues	1—No. 11,812.	
Total issue	546	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Arizona Territory	1		New Hampshire	2	
Arkansas	5		New Jersey	28	
California	14		New Mexico Territ'y	1	
Colorado	9		New York	62	6
Connecticut	11	2	North Carolina	1	1
Delaware	1		North Dakota	1	
District of Columbia	8		Ohio	37	1
Florida	1		Oklahoma Territ'y	2	
Georgia		1	Oregon	2	
Hawaii	1		Pennsylvania	45	4
Idaho	2		Rhode Island	8	
Illinois	44	3	South Carolina		
Indian Territory			South Dakota		
Indiana	13	2	Tennessee	6	1
Iowa	13		Texas	4	
Kansas	2		Utah		
Kentucky	5		Vermont	1	
Louisiana	6	1	Virginia	4	1
Maine			Washington		
Maryland	7		West Virginia	3	
Massachusetts	28		Wisconsin	8	
Michigan	20	1	Wyoming	1	
Minnesota	8		U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	17		Total to citizens of the United States	448	24
Montana	1				
Nebraska	3				

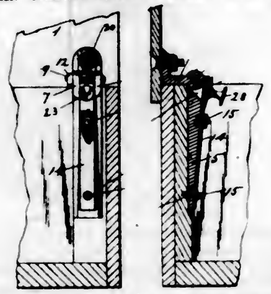
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	2	
Australia			Jamaica		
Austria-Hungary	3		Mexico	1	
Barbadoes			Netherlands		
Belgium			Newfoundland		
Bermuda			New South Wales	1	
Brazil			Peru		
Canada	9		Norway		
Chili			Queensland		
China			Russia	3	
Costa Rica	1		Scotland	1	1
Cuba			South African Republic		
Denmark		1	South Australia	1	
Ecuador			Spain		
England	19	1	Sweden		
Finland			Switzerland	1	
France	7	1	Victoria	2	
Germany	13	5	Western Australia		
Guatemala			Total to citizens of foreign countries	64	9
Haiti					
India					
Ireland					

PATENTS

GRANTED MARCH 13, 1900.

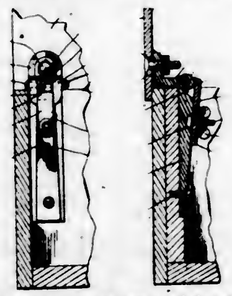
645,052. HINGED DASHBOARD. ALFRED H. ALEXANDER and THOMAS A. REYNOLDS, West Hoboken, N. J., said Reynolds assignor to said Alexander. Filed Nov. 22, 1899. Serial No. 737,851. (No model.)



Claim.—1. A hinge for vehicle-dashes, consisting of two members, one secured to the vehicle-body, and the other to the dash; a projecting toe on one member and a pivoted latch on the other member for bearing against the toe and holding the dash in two positions, substantially as described.

2. A hinge for vehicle-dashes, consisting of two members, a pivoted latch on one member and a toe on the other member, and a thumb-nut for holding the latch against opposite sides of the toe for securing the dash in two positions, substantially as described.

645,053. HINGED DASHBOARD. ALFRED H. ALEXANDER and THOMAS A. REYNOLDS, West Hoboken, N. J.; said Reynolds assignor to said Alexander. Filed Nov. 22, 1899. Serial No. 737,852. (No model.)



Claim.—1. A hinge for dashboards consisting of two members, one of which is attached to the vehicle-body and the other to the dash, a projecting toe on one member and a spring-catch on the other member, designed to bear at opposite points on the toe for holding the dash in two positions and a knob or handle on the spring for operating it, substantially as described.

2. A dashboard-hinge consisting of a plate or shank secured to the vehicle-body and having at its upper end spaced lugs, and forming one member of the hinge, the other member consisting of a plate having an ear secured to the dash, and at the opposite end a boss, a pintle passing through perforations in the lugs and boss, a toe projecting from the boss, and a spring-catch having a knob for operating it, said spring having a metal piece at its upper end designed to bear at opposite points on the toe for holding the dash in two positions, substantially as described.

645,054. REGISTER-DIAL. GEORGE H. ALTON, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Nov. 24, 1899. Serial No. 738,127. (No model.)



Claim.—1. A register or indicator comprising a plurality of progressively-shifting indicating devices mounted to display changing groups of indications, and a movable screen operated by the register to cover any indication of the group when the next following indication enters the field of vision.

2. A register or indicator, comprising a plurality of progressively-shifting indicating devices mounted to display changing groups of indications, and a movable screen for each indicating device exposing an indication for a determinate range of movement and covering it when the next enters the field.

3. A register or indicator in which a plurality of indications are progressively exposed to view, comprising a fixed screen having an opening to display the shifting indication for a determinate time, and a movable screen provided with an opening normally exposing an indication on entrance to the field of vision, means for moving the latter screen with the indication, and a retractile agency for quickly shifting it to uncover the next following indication on coming into the field.

4. A counter or register comprising a wheel-train, a plurality of digit or numbering wheels, a cover provided with openings to subtend two adjacent digits, a screen for each opening, and means for shifting it over a digit when the next digit enters the field of vision.

5. A counter or register comprising a wheel-train, a plurality of digit or numbering wheels, a cover provided with openings to subtend two adjacent digits on each wheel, and a screen for each digit-wheel released to cover the digit when the digit adjacent to it enters the field.

6. A counter or register comprising a wheel-train a plurality of digit or numbering wheels operated thereby, to number progressively from units upward, a cover for the digits provided with openings to subtend two adjacent digits on each wheel, a screen before such opening displaying a single digit, and means operated by each digit-wheel for shifting the screen to cover the advance digit and uncover the next following digit when its indication should be made.

7. A counter or register comprising a series of digit-wheels, a movable screen for each wheel uncovering a single digit, and means operated by each wheel to shift its screen to cover the digit and uncover the next following digit at a determinate time.

8. A counter or register comprising a series of digit-wheels, a pivoted screen for each wheel uncovering a single digit, for a definite time, a retractile agency for the screens, and a trip operated by each digit-wheel for releasing the screen, thereby covering the advance digit and uncovering the next following digit.

9. A counter or register comprising a series of digit-wheels, a pivoted retractible screen for each wheel uncovering a single digit at a time, a detent connecting each wheel and its screen during a definite angular movement, adapted to be tripped at the end of such angular movement.

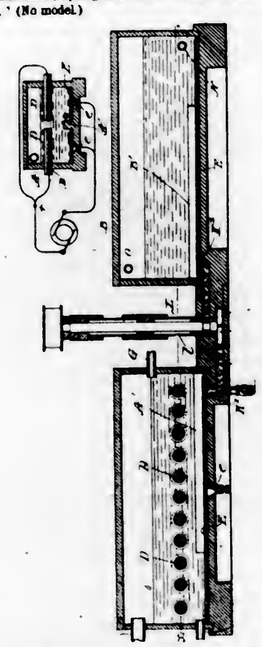
10. A counter or register comprising a series of digit-wheels operated by a wheel-train, a freely-pivoted retractile screen for each wheel, uncovering a single digit, and eccentrically mounted relatively to its wheel, a detent on the screen, and a plurality of teeth or stops on the wheels corresponding in angular displacement to the digits.

11. A counter or register comprising a series of digit-wheels operated by a wheel-train, a freely-pivoted retractile screen for each wheel uncovering a single digit and eccentrically mounted relatively to its wheel, a ratchet on each wheel, and a pin on the screen engaging the ratchet and adapted to be shifted and released thereby.

12. A counter or register comprising a series of digit-wheels, a pivoted gravitative screen provided with an opening to uncover a single digit, said screen being eccentrically mounted relatively to its wheel, a ratchet on each wheel, a pin thereof engaging the teeth on the screen, and a stop-pin 7 for the screen to determine its releasing-point.

645,055. APPARATUS FOR PRODUCING CAUSTIC SODA.

HENRY S. ANDERSON, Springfield, Mass. Filed Feb. 23, 1899. Serial No. 706,440. (No model.)



Claim.—1. In an electrolyzing apparatus in combination an electrolyzing-vat having an anode of an electric circuit and a fluid metal cathode, a second vat the floor of which is at a higher level than that of said first vat, connections to convey said metal between said vats, and means to convey said metal from said vat through one of said connections to said second vat.

2. In an electrolyzing apparatus in combination an electrolyzing-vat having an anode of an electric circuit and a fluid metal cathode, a second vat, a connection to convey said metal between said vats, a pump therein, an overflow-pipe connected to said pump between it and said second vat.

3. In an electrolyzing apparatus in combination an electrolyzing-vat having an anode of an electric circuit and a fluid metal cathode, a second vat, a connection to convey said metal between said vats having a depression therein, a pump in said depression, and an overflow-pipe in communication with said connection beyond said pump.

4. In an electrolyzing apparatus in combination an electrolyzing-vat having an anode of an electric circuit and a fluid cathode, a washing-chamber, a connection to convey said fluid between said vat and washing-chamber, a pump to force said fluid through said connection into said washing-chamber and an overflow-pipe joined to said connection between said pump and washing-chamber.

645,056. PROCESS OF TREATING LEATHER.

RICHARD B. ARTHUR, Ballarat, Victoria. Filed Aug. 30, 1899. Serial No. 728,990. (No specimens.)

Claim.—An improved process for treating leather and similar substances consisting of tanning the leather in the ordinary way and then placing it in a rotating chamber containing a solution of alum, chalk, glue, and water in the approximate proportions specified, then draining and almost drying out, then placing it in a rotating chamber heated to a suitable temperature with a solution also heated as before described consisting of asphaltum, india-rubber dissolved in turpentine or other solvent to which is added paraffin-wax, beeswax and sugar of lead dissolved in oil and of the approximate proportions specified, then finishing in the ordinary way all as and for the purposes hereinbefore specified.

645,057. HANGER FOR ELECTRIC CEILING-FANS.

WILLIAM H. AYERS, West Hoboken, and EMIL GROTH, Union Hill, N. J. Filed July 20, 1899. Serial No. 724,458. (No model.)



Claim.—1. A hanger for electric ceiling-fans comprising an inverted cup and a means for securing the same in place, a cup connected thereto, a yielding support within the cup, a hook for the ceiling-fan, a stem connected therewith and passing through the cup and the yielding device, and having a supporting-plate connected to the end above the yielding support, substantially as set forth.

2. A hanger for an electric ceiling-fan comprising an inverted interiorly-threaded cup and a means for rigidly connecting the same to a floor-beam at the ceiling, a cup exteriorly threaded in part and adapted to screw into the inverted cup, a yielding support within said cup having a central opening, a suspending-hook and integral stem passing through the cup and the yielding device and a plate and clamping-nut screwed to the threaded end of the stem and resting upon the upper surface of the yielding support, substantially as set forth.

3. A hanger for an electric ceiling-fan comprising an inverted interiorly-threaded cup and a means for rigidly connecting the same to a floor-beam at the ceiling, a cup exteriorly threaded in part and adapted to screw into the inverted cup, a yielding support within said cup having a central opening, a suspending-hook and integral stem passing through the cup and the yielding device and a plate and clamping-nut screwed to the threaded end of the stem and resting upon the upper surface of the yielding support, and pins passing through the base of the cup up into the yielding support at opposite sides of the stem of the hook and other pins connected to the said plate and passing down into the yielding support at opposite sides of the stem of the hook and intermediate to the pins passing through the cup, substantially as and for the purposes set forth.

645,058. LEVEL.

JOSEPH W. BROWN, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed Mar. 7, 1898. Serial No. 673,003. (No model.)



Claim.—1. In a track level or inclinometer the combination of the block C, adapted to rest on the rails of a railroad-track and having a spirit-level at the center and an inclinometer of the usual construction inserted on one side with the scale suitably marked; an auxiliary block F, pointed at each end having a spirit-level F' thereon, and scales at each end thereof to show its adjustment; a suitable thumb-nut for adjusting the same and an adjustable bolt G, having a scale thereon below the center of the block C, for the purpose specified.

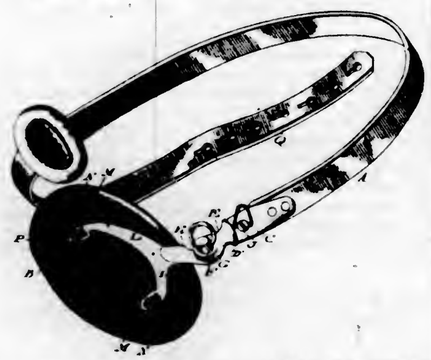
2. The combination of a main block C, and a centrally-located adjustable measure on the under side thereof, and an auxiliary block pivoted to one side thereof having a suitable pointer and scale to show its adjustment, and having a spirit-level at its center for the purpose specified.

3. The combination of a main block C, an auxiliary block F, with

level therein; the block C having a suitable scale to indicate the adjustment of the level, an inclinometer on the opposite side of the block C, suitable scale for the same, which inclinometer may be adjusted to indicate the degree of the curvature of the track for certain inclination of the railroad so that one shall check the other for the purpose specified.

645,059. HERNIAL TRUSS.

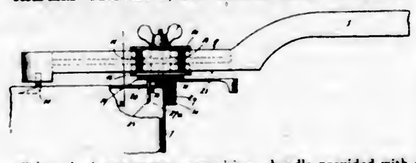
HERMAN BECKER, Philadelphia, Pa. Filed Apr. 26, 1899. Serial No. 714,490. (No model.)



Claim.—A spring and a strap, in combination with the socket C, the stem D having the neck H thereon, the same occupying said socket, the screw J which passes through the wall of said socket and enters said neck, the serrated plate E connected with said stem, the serrated plate G engaging said serrated plate E, the tightening-screw F for said plates, the shank K attached to the plate G, the arms L extending from said shank, the slots M in said arms, the pad B, the screws N passing through said slots into said pad, and means on said pad for connecting said strap therewith.

645,060. CAN-OPENER.

AUGUSTIN T. BUCKLEY, Iroquois Farm, Costa Rica. Filed June 26, 1899. Serial No. 721,963. (No model.)



Claim.—1. A can-opener, comprising a handle provided with a shank, a longitudinally-movable frame mounted thereon, a plate pivotally supported beneath said frame, a blade connected with said plate, and rollers suspended from said plate adjacent to said blade, substantially as shown and described.

2. A device of the class described, comprising a handle provided with a shank having a longitudinal slot or opening, and rabbet-grooves at the top and bottom thereof, a frame mounted on said shank and movable longitudinally thereof, pins mounted in said frame at each side of the center thereof, and provided with rollers movable in said rabbet-grooves, a rotatable plate mounted beneath said frame and provided with a handle, a blade depending therefrom, and guide-rollers mounted transversely of the bottom of said plate adjacent to said blade, substantially as shown and described.

3. A device of the class described, comprising a handle provided with a shank, a frame longitudinally movable on said shank, a blade-supporting plate rotatably connected with the bottom of said frame, a cutting-blade detachably connected with said plate adjacent to one side thereof, a handle radially connected with said plate adjacent to the opposite side, and guide-rollers suspended beneath said plate between said handle and said blade, substantially as shown and described.

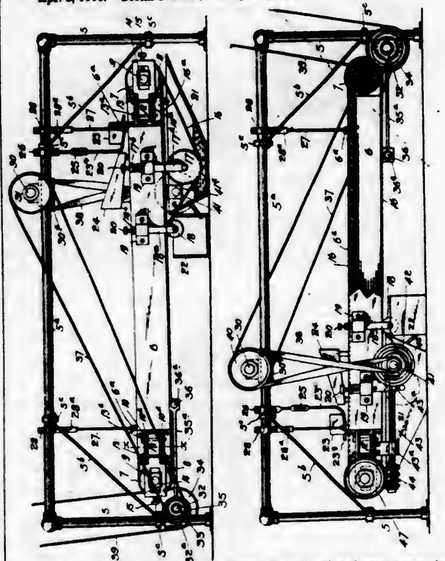
4. A device of the class described, comprising a handle provided with a shank, an angular pin or prong connected with the end of said shank, a frame mounted on said handle and longitudinally movable thereon, a blade-supporting plate, a shaft passing upwardly through said plate and through said frame, and the shank of the handle, a thumb-nut on the upper end of said shaft, a blade connected with said blade-supporting plate, and guide-rollers connected with said plate adjacent to said blade, substantially as shown and described.

5. A device of the class described, comprising a handle provided with a shank having a longitudinal slot or opening, and rabbet-grooves communicating with said opening longitudinally thereof at the top and bottom of said shank, top and bottom rollers mounted in said frame and movable in said rabbet-grooves and adapted to bear on the opposite side walls thereof, a blade-supporting plate below said frame, a shaft passing upwardly through said plate and through said frame and through the shank of the handle on which the frame is mounted, said blade-supporting plate being provided adjacent to one side of the bottom thereof with a detachable blade, and at the opposite side with the radial handle, and depending guide-rollers connected with said plate between said handle and said blade, substantially as shown and described.

6. A device of the class described, comprising a handle provided with a shank, a frame longitudinally movable on said shank, a plate rotatably supported beneath said frame, a blade connected with the bottom of said plate near one side thereof, a radial handle connected with the opposite side of said plate, and depending guide-rollers suspended beneath said plate between said handle and said blade, substantially as shown and described.

645,061. VANNER.

HARRISON T. BENSON, Denver, Colo. Filed Apr. 3, 1899. Serial No. 711,574. (No model.)



Claim.—1. In an ore-concentrator, an oscillating frame, comprising rolls at the ends thereof, and a traveling belt or apron passing around said rolls, bearing-blocks for said rolls, hinged supports for said blocks having elongated slots therein in which said blocks are adjustable, and means for locking said supports to maintain said blocks normally in operative position, substantially as set forth.

2. In an ore-concentrator, an oscillating frame, comprising rolls at the ends thereof, and a traveling belt or apron passing around said rolls, bearing-blocks for said rolls, plates secured to said frame having flanges thereon, supports for said blocks lying between said flanges and pivoted thereto, and a locking-pin extending through said flanges and engaging the outer surfaces of said supports, substantially as set forth.

3. In an ore-concentrator, the combination with a stationary frame, of a suspended vanner thereon, means for oscillating said vanner, an apron made of heavy ducking thoroughly saturated with asphalt varnish and moved by friction of rolls 18 and 18^b, adjustable hangers for said vanner, adjustable hangers for the roll 17 and for the rolls 18 and 18^a, the said rolls 18 and 18^b being covered with canvas to form a yielding surface, and being turned in opposite directions by means of sprocket-chains passing between and engaging the sprocket-wheels on said rolls, the said sprocket-chains passing around the rear roll 7, engaging sprocket-wheels thereon, and engaging sprocket-wheels on front roll 7^a, and sprocket-wheels on the front roll 7^a rotated by worm-gear attached to shaft 9 of roll 7^a, substantially as set forth.

4. In an ore-concentrator, the combination with a frame, of an

oscillatory vanner-box suspended therefrom, rolls located at the end of said vanner-box, a tank 21, a roll 17 therein, an apron surrounding the vanner-box and its end rolls and passing under roll 17, and rolls 18 and 18ª adapted to draw said apron between them by friction, said rolls being provided at their ends with sprocket-wheels 18ᵇ, and adapted to be rotated in opposite directions by the sprocket-chains 18ᶜ passing between and engaging said sprocket-wheels, substantially as set forth.

5. In an ore-concentrator, the combination with a frame of an oscillatory vanner-box suspended therefrom, rolls located at the ends of said vanner-box, the shafts of said rolls passing through bearing-blocks 14 which are adjustable back and forth in recesses in the supports 12 by set-screws 15, plates 10 provided with flanges 10ᵃ to which the rear ends of the supports 12 are hinged by hinge-bolts 13ᵃ passing through eyes in flanges 10ᵃ and eyes in the rear ends of said supports, bolts 13 extending through eyes in the flanges 10ᵃ adapted to hold the supports 12 against the side rails 6, strips 10ᵇ adapted to lie between the flanges 10ᵃ and the top and bottom edges of the supports 12 to adjust the height of said supports, a tank 21, a roll 17 therein, and a traveling apron surrounding the vanner-box and its end rolls and passing under roll 17, substantially as set forth.

645,062. RAILROAD-TIE. HARVEY W. BLAUCH, Palmyra, Pa. Filed Dec. 12, 1899. Serial No. 740,088. (No model.)



Claim.—1. A railway-tie comprising a hollow supporting portion, openings in the supporting portion, clamping-plates having bolts passed therethrough and into the openings, nuts upon the inner ends of the bolts, and additional plates within the hollow supporting portion and lying against the faces of the nuts, said plates being attached to the top and the bottom of the hollow supporting portion to support the top.

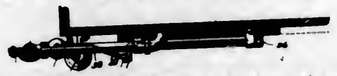
2. A railway-tie comprising a plurality of hollow sections adapted to receive rails, means for adjusting the sections, each of said sections comprising a bottom and sides formed integral, a cover-plate fixed to the edges of the side and end blocks at one end of the body portion, means connected with the end blocks for adjusting the body portions toward and away from each other, and a cover hinged to the outer end of each body portion to permit access thereto at times and to prevent ingress of ballast when the bodies are adjusted.

3. A railway-tie comprising a hollow supporting portion, openings in the supporting portion, clamping-plates having bolts passed therethrough and into the openings, nuts upon the inner ends of the bolts, and plates within the hollow bearing portion and lying against flat faces of the nuts.

4. In a railway-tie, the combination with a hollow body portion having openings therein, of a clamping-plate having openings alining with the openings of the body portion, clamping-bolts passed through the alining openings and having nuts at their inner ends, hand-holes in the body portion, and means for engagement with the nuts to hold them from rotation.

5. A hollow tie comprising a bottom and sides formed integral, a cover-plate fixed to the edges of the sides, an end block at one end of the body portion, and a cover hinged to the opposite end of the body portion to close the tie.

645,068. SMOKE-CONSUMER FOR STEAM-BOILER FURNACES. HERKIAH S. BOWLER, Gloversville, N. Y., assignor of two-thirds to James F. Murray, same place, and Michael D. Murray, Johnstown, N. Y. Filed May 19, 1899. Serial No. 717,457. (No model.)

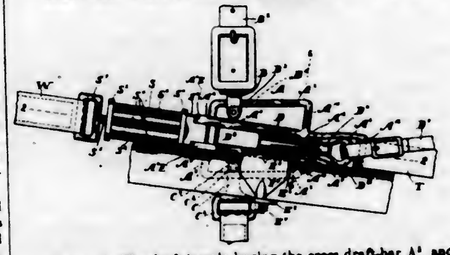


Claim.—1. The combination with a boiler-front and a combustion-chamber, of an air-supply box attached to the boiler-front on the inside thereof and supplied with air through the series of ports in said boiler-front, a steam-distributing pipe housed within the air-box on a plane below the air-ports thereto, a series of air-pipes attached to said box, a series of distributer-heads secured removably to the air-pipes and each head having a sloping upper wall, jet-nozzles arranged longitudinally within the air-pipes and coupled to the steam-distributing pipe, and slotted sprayer-caps fixed to the jet-nozzles and arranged within the chambers of the distributing-heads, substantially as described.

2. The combination with a boiler-front and a combustion-chamber, of an air-supply box attached to the boiler-front on the inside thereof, air-ports in the boiler-front communicating with the said box, a steam-distributing pipe housed within the air-box in a plane below the air-ports, a series of air-pipes attached to the box in axial alinement with the air-ports, a series of distributer-heads removably secured to the air-pipes and each head having a sloping upper wall, jet-nozzles arranged longitudinally within the air-pipes and at the lower sides thereof and coupled to the steam-distributing pipe, and slotted sprayer-caps fixed to the jet-nozzle and arranged within the chamber of the distributer-heads, substantially as described.

3. The combination with a boiler-front and a combustion-chamber, of an air-supply box attached to the boiler-front on the inside thereof, ports opening through the boiler-front and into the box for supplying air thereto, a steam-distributing pipe within the air-box and below the air-ports, a series of air-pipes attached to said box, a series of distributer-heads removably secured to the air-pipe and each head having a sloping upper wall, jet-nozzles arranged longitudinally within the air-pipes and at the lower sides thereof and coupled to the steam-distributing pipe, slotted sprayer-caps fixed to the jet-nozzles and arranged within the chambers of the distributer-heads, a valve in the steam-pipe, a lever connected with the valve, and a fire-door for the furnace adapted to operate said lever to actuate the valve.

645,064. SHAFT AND HARNESS BUCKLE. JOHN R. BOYD, Cincinnati, Ohio. Filed Apr. 19, 1897. Serial No. 633,737. (No model.)



Claim.—1. The draft-buckle having the cross draft-bar A^3, and the rear holding-bar A^{13}, and the rear extensions A^6, A^7, A^{12}, substantially as and for the purposes specified.

2. The combination of the latch-catch, body D, D^4, lugs E, E, and bar E^3, having detents, within the lugs, and a tooth or teeth for engaging the shaft, substantially as and for the purposes specified.

3. The combination of the latch-catch, body D, D^4, lugs E, and bar E^3, engaging the lugs and having depression E^{16}, and the tooth or teeth on its side next the shaft, substantially as and for the purposes specified.

4. The combination of the body D, D^4, having the latch-catch, lugs E, bar engaging said lugs, and a device for engaging said shaft, and preventing the catch, &c., from slipping on the shaft, and a suitable clamp, substantially as and for the purposes specified.

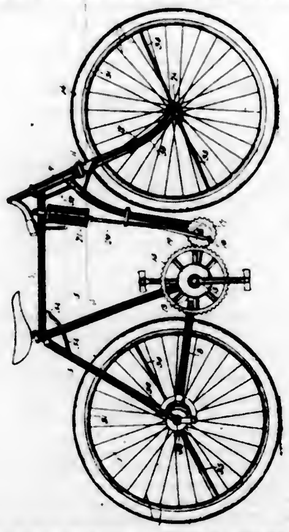
5. The combination of the body D, D^4, having the catch with latch, lugs, bar-engaging lugs and having shoulders E^{15} and part for engaging the shaft, and tooth, substantially as and for the purposes specified.

645,065. DRIVING MECHANISM FOR BICYCLES. AARON A. BROWN, Rawlins, Wyo. Filed July 31, 1899. Serial No. 725,658. (No model.)

Claim.—1. The combination with a vehicle-frame, of a motor carried thereby, and wheels rotatably mounted upon the frame, each of said wheels having a resilient and elastic tire comprising inlet and outlet passages, compression-chambers within the tire and connected with the passages, and connections between the outlet-passages and the motor for delivering energy thereto.

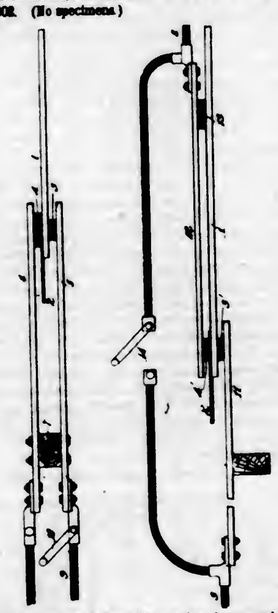
2. The combination with a vehicle-frame, and a motor carried thereby, of a wheel rotatably mounted in the frame, connections between said wheel and motor for communicating motion from one to the other, and an elastic and resilient tire for the wheel comprising a base portion having passages therein, compression-chambers within the tire, valved inlet-openings for the chambers from one of the passages, valved outlet-openings from the chambers to the second passage, and connections between the last-named passage and the motor.

3. A bicycle-tire comprising a thickened base portion, and a tread portion, passages within the thickened portion, openings leading to the passages, a plurality of compression-chambers within the tire, additional openings connecting the passages with each of the compression-chambers, and a valve in each of said last-named openings.



4. A bicycle-tire comprising a thickened base portion and a tread portion, an inlet-passage and an outlet-passage within said base portion, perforations communicating with the inlet-passage and the inclosure of the tire and having valves opening outwardly from the passage, similar valved openings for the outlet-passage, the valves of which open inwardly of the passage, and a plurality of compression-chambers within the tire and having communication with said valved openings.

645,066. METHOD OF ELECTRIC WELDING. ROBERT P. BROWN and FRANKLIN B. MOSES, New York, N. Y. Filed Mar. 16, 1896. Serial No. 674,002. (No specimens.)



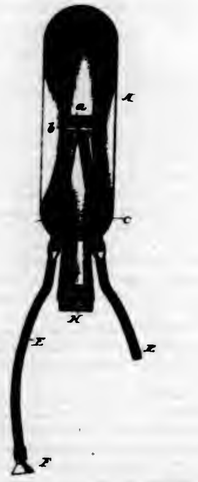
Claim.—1. The method of welding or brazing together flatwise metal pieces, having different characteristics, which consists in holding the pieces together at the seam or joint, and concentrating heat from two external heat sources upon the metals at opposite sides of the joint, the relative thermal intensities at the point of concentration being so proportioned that the metals of the parts shall be brought to their respective welding or brazing temperatures at approximately the same time.

2. The method of welding or brazing together flatwise metal pieces, having different characteristics, which consists in holding the pieces together at the seam or joint between two electrodes, passing an electric current from one electrode to the other across the joint, the electrodes being so arranged and constructed that the current passing through them is made to impart different degrees of heat to the two electrodes, whereby the metal pieces at the joint are made to attain their respective welding or brazing temperatures by conduction of heat from the electrodes, substantially as described, and of maintaining pressure upon the pieces after the heating-current is turned off and until the joint is sufficiently cooled.

3. The method of welding or brazing together metal pieces having different characteristics, which consists in holding the pieces together at the seam or joint between two electrodes, and passing an electric current from one electrode to the other across the joint, shunting a portion of the current through one of the pieces, around the other piece and one of the electrodes, whereby that electrode receives less heating-current than the other, and of maintaining pressure upon the pieces after the heating-current is turned off, and until the joint is sufficiently cooled.

4. The method of welding or brazing together metal pieces having different characteristics, which consists in holding the pieces together at the seam or joint between two electrodes, passing an electric current from one electrode to the other across the joint, shunting a portion of the current through one of the pieces, around the other piece, and one of the electrodes, whereby that electrode receives less heating-current than the other, providing means for varying and regulating the amount of current passing through the shunting-circuit, and of maintaining pressure upon the pieces after the heating-current is turned off and until the joint is sufficiently cooled.

645,067. SOUND-FINDER. FRANK BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed Dec. 6, 1898. Renewed July 31, 1899. Serial No. 725,691. (No model.)



Claim.—1. The within-described sound-finder consisting of a receiver A provided with a transverse tube *a*, having a central partition, earpieces F, F, and tubular connections between the earpieces and the separate ends of the tube *a*, substantially as described.

2. The combination of the receptacle A, transverse tube *a*, open at the opposite ends and closed in the center, tubes *c c* communicating with the different sections of the tube *a*, and flexible tubes communicating with the tubes *c* and provided with earpieces, substantially as set forth.

3. The combination of the hollow receptacle provided with a neck and stopper, the tubes *c* extending through the receptacle and closed at the center, and earpieces, and tubular connections between the latter and the ends of the tube *a*, substantially as set forth.

4. The combination of the receptacle A, tube *a* having a central partition and flaring outward at the opposite ends, and earpieces communicating with the different sections of the tube *a*, substantially as and for the purpose described.

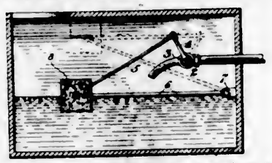
645,068. BOOT OR SHOE. WILLIAM N. BUTTON, Providence, R. I., assignor to the Joseph Banigan Rubber Company, same place. Filed Mar. 30, 1899. Serial No. 711,071. (No model.)



Claim.—1. A rubber boot or shoe, having the interior surface of the foot portion of the boot or shoe lined with a fleecy material, provided with a separate inner lining consisting of a sole and uppers united together to inclose the foot of the wearer and secured to the inside of the boot or shoe at the upper portion only, and a fleecy material covering the outer surfaces of the sole and uppers forming the separate lining; whereby an air-space is maintained between the outer and the inner portions of the boot or shoe.

2. In a rubber boot or shoe, the combination with the insole and the uppers and quarters of the boot or shoe, lined on the inner surface with textile material, of an additional insole and additional uppers and quarters cemented together along their edges and lined on the outer surface with textile material; whereby the textile material of the two sets of insoles and uppers forms an air-space and retards the conduction of heat from the foot of the wearer, as described.

645,069. AUTOMATIC CUT-OFF. GODFREY CHRISTENSEN, Hampton, Nebr. Filed Dec. 30, 1899. Serial No. 742,164. (No model.)

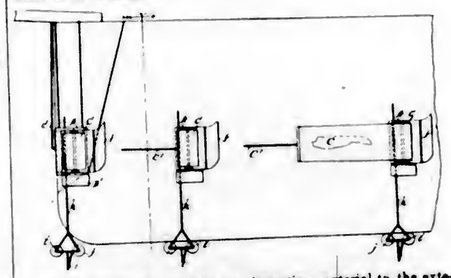


Claim.—1. The combination with a stock tank or trough, of a faucet or cock arranged to deliver water thereto, a rotary valve in said faucet for controlling the flow of water, said valve being provided with an upwardly-extending arm, a rod connected to the upper end of said arm and extending downwardly within the tank, another rod pivoted at its inner end to the tank and at its outer end to the outer end of the upper rod, and a float applied to the two rods, whereby, upon the water rising in the tank, the lower or outer end of the upper rod will be raised, and said rod and the arm connected thereto, and the valve will be forced backward and the outer end of the lower rod will be raised and the flow of water will be cut off, and, upon the water in the tank lowering, the reverse movements of the parts will be made, and the water will be supplied to the tank, substantially as described.

2. The combination with a stock tank or trough, of a faucet or cock arranged to deliver water thereto, a rotary valve in said faucet for controlling the flow of water, said valve being provided with an upwardly-extending arm, a rod connected to the upper end of said arm, the said arm being so arranged that it will be practically at a right angle to said rod in its various movements, a lower rod connected at its inner end to the tank and at its outer end to the lower end of the upper rod, and a float applied to the meeting ends of the upper and lower rods by means of a short rod passing through the float and through the connections of the rods, substantially as described.

645,070. EXTERNAL LEAK-STOPPER FOR VESSELS. ANTOINE COLOMER, St. Etienne, France. Filed Dec. 22, 1899. Serial No. 741,323. (No model.)

Claim.—1. Apparatus for applying an obturating material to the exterior surface of the hull of a vessel to close leaks therein, consisting of a frame, a carriage mounted in said frame, obturating material carried by the carriage, means actuated by the resisting action of the water for propelling the carriage to move the same out of the frame and along the hull of the vessel to apply the obturating material to the leak.



2. Apparatus for applying an obturating material to the exterior surface of the hull of a vessel to close leaks therein, consisting of a frame, a buoyant carriage mounted in said frame, obturating material carried by the carriage, means actuated by the resisting action of the water for propelling the carriage to move the same out of the frame and along the hull of the vessel, and means for guiding the carriage along the line of the leak whereby the obturating material is applied thereto.

3. In apparatus for applying an obturating material to the exterior surface of the hull of a vessel to close leaks therein, consisting of a frame, a carriage mounted in said frame, a sheet of obturating material attached at one end to the carriage, means actuated by the resisting action of the water for propelling the carriage to move the same out of the frame and along the hull of the vessel, and a line passing from the deck through an opening in the frame and attached to the other end of the sheet of obturating material.

4. Apparatus of the kind described consisting of a frame adapted to engage the prow of the vessel and to be lowered along the same to a fixed submerged position, in the line of the leak, a buoyant carriage mounted on said frame, obturating material carried by the carriage, means on the carriage adapted to be acted upon by the resisting action of the water for moving the carriage out of the frame and propelling it along the hull of the vessel to bring the obturating material over the leak, and a vertically-adjustable guide for causing the carriage to travel in the line of the leak.

5. Apparatus of the kind described consisting of a frame formed in two parts hinged together and adapted to conform to the angle of the prow of the vessel and adapted to engage on opposite sides thereof, means for lowering said frame along the prow of the vessel to a fixed submerged position in line with the leak therein, carriages, one mounted in each part of the frame, a reel or roller mounted on each carriage, a sheet of obturating material on each roller, lines, one secured to the outer end of each of said sheets and passing through an opening in the frame, flaps or fins one pivoted on each carriage and normally secured together at their free ends at the prow of the vessel, means for disconnecting the ends of said flaps, and stops acting to limit the movement of the flaps upon the opening of the same.

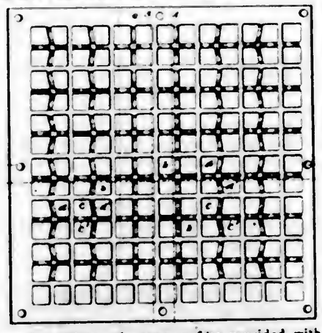
6. Apparatus of the kind described consisting of a frame formed in two parts hinged together and adapted to conform to the angle of the prow of the vessel and to engage on opposite sides thereof, means for lowering said frame along the prow of the vessel to a fixed submerged position in line with the leak therein, buoyant carriages one mounted in each part of the frame, a reel or roller mounted on each carriage, a sheet of obturating material on each roller, lines, one secured to the outer end of each of said sheets and passing through an opening in the frame, flaps or fins, one pivoted on each carriage and normally secured together at their free ends at the prow of the vessel, means for disconnecting the ends of said flaps, stops acting to limit the movement of the flaps upon the opening of the same, rods secured in vertical openings in the carriages, and a frame carrying rollers adapted to run along the keel of the vessel and to which frame said rods are hinged.

645,071. JEWELRY-FASTENING. BERNARD COHLAN, Newark, N. J. Filed Nov. 29, 1899. Serial No. 738,625. (No model.)



Claim.—The combination in a jewelry-fastening in the form of a padlock, of a body member including an arc-shaped locking-arm, terminating so as to leave an opening between its end and the main portion, with a hinged member forming a part of the arc-shaped locking-arm the body member having a protuberance and corresponding indentation cooperating with the hinged member substantially as and for the purposes described.

645,072. SCREEN. GEORGE W. CROSS, Carbondale, Pa. Filed Aug. 4, 1898. Serial No. 687,686. (No model.)



Claim.—1. An integral screen-surface provided with substantially-quadrilateral interstices, four of said interstices being bounded by webs lying in substantially the same plane but separated from each other by webs extending above that plane, substantially as set forth.

2. An integral screen-surface having substantially-quadrilateral interstices, each interstice being bounded by four webs, two, adjoining and connecting, webs of said four being arranged above the plane of the other two, substantially as set forth.

3. An integral screen-surface provided with substantially-quadrilateral interstices bounded by longitudinal and transverse webs, the alternate webs of each description being arranged in the plane of the working surface, while the remaining webs of each description are undulatory or sinuous in form, substantially as set forth.

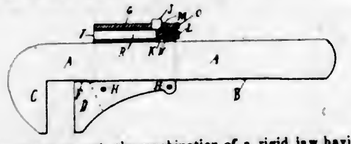
645,073. QUAD-FORMING ATTACHMENT FOR LINOTYPE-MACHINES. WILLIAM H. DOOLITTLE, Philadelphia, Pa., assignor of two-thirds to Frank L. Patterson and Samuel S. White, same place. Filed Dec. 19, 1899. Serial No. 740,879. (No model.)



Claim.—1. A quad-forming attachment for linotype-machines, comprising a mold-disk, a mold consisting of a body adapted to be removably secured to said mold-disk, and a cap adapted to be removably secured to the body, the contiguous faces of said cap and body being provided with a series of channels or grooves corresponding in width to that of the quads to be formed, vise-jaws located adjacent to one face of said mold and means adapted to form a backing for said mold, substantially as and for the purposes described.

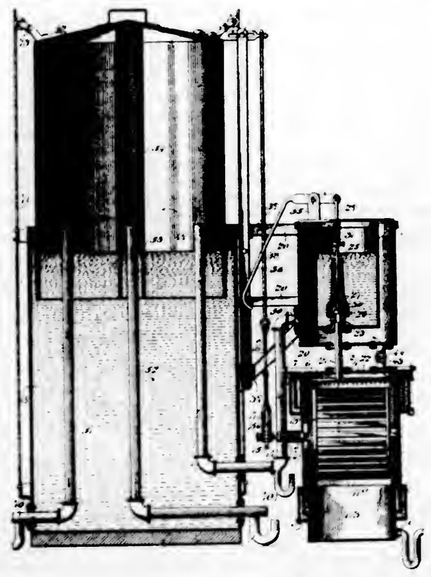
2. In a quad-forming attachment for linotype-machines, a mold-disk, a quad-mold comprising a body removably secured to the disk and a cap removably secured to the body, the contiguous faces of the body and cap being provided with channels or grooves of a width corresponding to that of the quads to be produced, vise-jaws located adjacent to the front face of said mold, and means for clamping said jaws together, said means forming a backing for said mold, substantially as and for the purposes described.

645,074. WRENCH. CLARENCE C. ENGLISH, Hood River, Oreg. Filed Apr. 4, 1898. Serial No. 676,496. (No model.)



Claim.—In a wrench the combination of a rigid jaw having a shank toothed along one edge, with a sliding jaw provided with teeth adapted to engage the teeth of said shank, with a roller-cam seated between the back of the sliding jaw and the upper edge of the shank of the rigid jaw extending longitudinally along the back of said shank, having a spiral spring N, on the spindle K, one end of said spiral spring being inserted in the aperture O, of lever J, and bent around the side of said lever and wound around the spindle K, the other end of said spring being fastened to the projection O, substantially as described.

645,075. GAS-GENERATOR. JOSEPH E. EVANS, Bedford, Ind. Filed Oct. 19, 1898. Serial No. 693,983. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with a generator having a carbid-receptacle, of an elevated water-tank, a valve fixed therein and having a prolonged guide-stem, a water-pipe leading from the valve and connected to a sprayer within the generator, a valve-stem guided by the guide-stem and carrying a spring-pressed collar, a valve-lever fulcrumed on the water-tank and connected to the stem and having an inclined arm, a gas-bell, a slide-rod attached to the gas-bell and an actuating-pin carried by the slide-rod and arranged to impinge against the inclined arm of the valve-lever, substantially as described.

2. In an acetylene-gas apparatus, a generator having a receptacle for the spent carbid, and a moisture-trap connected with said receptacle and provided with a filtering agent, substantially as described.

3. An acetylene-gas generator comprising a tank having within its chamber the oppositely-located bearings, one of said bearings being in communication with an external stuffing-box, 9, a revoluble carbid-drum provided with trunnions which are fitted in and removable from said bearings, one of said trunnions having a socket in the plane of the stuffing-box, an operating-shaft passing through the stuffing-box and fitted detachably to the socketed drum-trunnion, a ratchet fixed to the protruding end of the operating-shaft, the oppositely-inclined levers fitted loosely at their inner ends on the operating-shaft, the alternately-operative pawls carried by said levers in engagement with opposite sides of the ratchet, a reciprocating bell-actuated rod, and links connecting said rod to the outer ends of the pawl-levers, substantially as described.

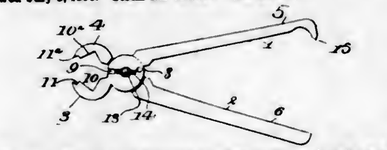
4. An acetylene-gas generator comprising a chamber provided with a carbid-container, an elevated gas-circulating tank, a water-cistern having an open upper end to expose the water to atmospheric pressure and fitted in said tank, and united at its upper end thereto, to form with the tank an intermediate space for the circulation of gas which is adapted to impinge against the cooled walls of the cistern for condensation of the aqueous vapors in the gas, a water-pipe leading from the bottom of the cistern, across the gas-space of the tank, and connected to the generator-chamber, a valved branch connection from the generator-chamber to the circulating-chamber of

the elevated tank, a gas-pipe coupled to the tank to communicate with the gas-circulating space therein, and a trip-actuated valve mechanism for controlling the flow of water from the cistern to the water-pipe, substantially as described.

5. An acetylene-gas generator comprising an open-ended shell provided at its upper end with an externally-offset flange forming a seal-chamber, a flanged cover fitted to the upper open end of the shell for its flange to enter the seal-chamber thereof, means for removably connecting said shell and cover together, a waste-receptacle having an external flange also forming a seal-chamber and fitted to the lower open end of the shell for the latter to enter said seal-chamber, a carbid-drum mounted in the shell between the sealed cover and the sealed waste vessel, a water-pipe attached to the cover, and a gas-pipe also connected to the lever, substantially as described.

6. An acetylene-gas apparatus comprising a gasometer, a closed generator-tank equipped with a revoluble carbid-drum, an operating-shaft journaled on said generator-tank and coupled to said drum, a bracket-arm fixed to the generator-bell to travel vertically therewith, a vertical slide-bar guided on the gasometer-tank and attached to said bracket-arm to travel with the bell, a drum-rod also attached to the bracket-arm to move in unison with the bell and slide-bar, a ratchet-feed mechanism operatively connecting the drum-rod with the shaft of the carbid-drum, a source of water-supply, a valved water-inlet between the water-supply and the generator-tank, and trip devices between the slide-bar and the valve of the water-inlet to open the latter after the carbid-drum shall have been rotated by the ratchet-feed mechanism, substantially as described.

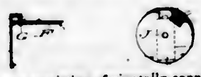
645,076. WIREWORKING-TOOL. BARTON B. FELTON, Boolcoomatta Station, Mingary, South Australia. Filed Aug. 6, 1898. Renewed July 5, 1899. Serial No. 722,867. (No model.)



Claim.—1. A wireworking-tool, consisting of two handle members 1 and 2, having the wire-receiving hole 8, the two jaws 3 and 4 formed respectively, with the angular recesses 10, 11 and 10^a, 11^a, the opposing wire-cutting notches 9 at the junction of the jaws with the handle members, and devices for detachably pivoting the handle members together and rigidly clamping them in fixed relation with the jaws open or separated for use as a spanner, substantially as and for the purpose described.

2. A wireworking-tool, comprising two handle members 1 and 2, having the wire-receiving hole 8, the two jaws 3 and 4, formed respectively with the angular recesses 10, 11, and 10^a, 11^a, and the opposing wire-cutting notches 9 at the junction of the jaws with the handle members, substantially as and for the purposes described.

645,077. FASTENER FOR DRESS-SHIELDS. GEORGE W. FERGUSON, Philadelphia, Pa. Filed July 22, 1899. Serial No. 724,739. (No model.)



Claim.—1. A fastener consisting of pivotally-connected members adapted to open and close forwardly, devices on the inner sides of said members to engage material situated between the same when the members are closed, and a rotary locking device mounted upon one member adapted to engage and lock the other member when the members are closed.

2. A fastener consisting of pivotally-connected members adapted to open and close forwardly, devices on the inner sides of said members to engage material situated between the same when the members are closed, and a rotary locking device mounted upon one member adapted to engage and lock the other member when the members are closed, said locking device being provided on its inner side with devices for engaging the material held by said fastener.

3. A fastener consisting of a member having a projecting portion, a member pivotally mounted upon said projecting portion, whereby said members are adapted to open and close forwardly, devices on the inner sides of said members to engage material situated between the same when the members are closed, and a rotary locking device mounted upon the second-mentioned member and adapted to engage said projecting portion of the other member when the members are closed.

4. A fastener consisting of a member having a projecting portion, a member pivotally mounted upon said projecting portion, whereby said members are adapted to open and close forwardly, devices on the inner sides of said members to engage material situated between the same when the members are closed, and a rotary locking device mounted upon the second-mentioned member, said locking device having a recess to receive said projecting portion and with a projection to engage the same.

5. In a fastener, a plurality of plates, one of the same having spurs attached thereto and being provided with a deflected portion, having a bar pivotally attached thereto, a plate rotatably mounted upon said bar and provided with a recess therein, the terminals of said recess being deflected so as to form locking devices.

6. As an improved article of manufacture, a fastener consisting of a plate having spurs attached thereto, a portion of said plate being deflected so as to form a bearing for a bar movably attached thereto, said bar carrying a spar, a plate rotatably mounted upon said bar and provided with a recess therein, the terminals of said recess being deflected so as to form a locking means for said plate when the latter is turned in either direction into the desired position.

645,078. VALVE. FREDERICK F. FIELD, Providence, R. I. Filed Apr. 12, 1899. Serial No. 712,704. (No model.)



Claim.—1. In a valve, the combination with the valve-casing, a valve-seat in the valve-casing, a cylindrical valve, and means for moving the valve through a limited distance, of a chamber extending from the valve-seat to a point beyond the traverse of the valve, the end of the chamber opposite the valve-seat being closed to form an air-chamber, and openings in the sides of the chamber, controlled by the cylindrical portion of the valve, whereby the flow of liquid is cut off during the opening and closing of the valve.

2. In a self-closing valve, the combination of the following instrumentalities: a valve-casing, a valve-seat in the casing, an inverted cup or chamber extending from the valve-seat to a point beyond the movement of the valve, openings in the sides of the chamber, a cylindrical valve closely fitting the interior of the chamber and mechanism for raising the valve off its seat; whereby the valve is protected against the impact of the water-hammer, as described.

3. In a valve, an inverted cup or chamber extending from the valve-seat beyond the traverse of the valve, openings extending laterally through the walls of the chamber forming the sole discharge-openings, and a cylindrical valve controlling the discharge of the liquid through the lateral openings, as described.

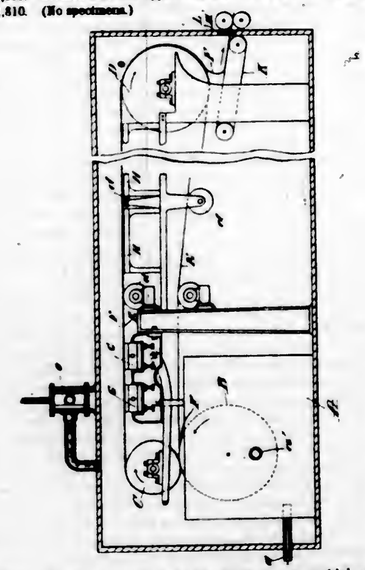
4. The combination in a self-closing valve of an inverted cup or chamber closed at one end, lateral openings in the peripheral wall of the chamber forming the sole outlet for the liquid and a cylindrical valve fitting the interior of the chamber; whereby the discharge of the liquid is controlled by the valve and the impact of the water-hammer on the valve prevented, as described.

645,079. COLLAR-BUTTON. JOHN H. FIRLEY, Morgantown, Ky. Filed July 22, 1899. Serial No. 724,817. (No model.)



Claim.—In a separable button, the combination with a shank having a cylindrical bore, the lower end of which is contracted, a bushing within the upper end of the bore of the shank, aligning screw-threaded perforations in the shank and bushing, a screw removably engaging the perforations to hold the bushing in place, a spring within the shank and bearing at one end upon the lower contracted portion of the shank, a follower between the upper end of the spring and the bushing, and a head having a stem adapted to enter the bushing and provided with projections adapted to enter bayonet-slots formed in the bushing, said stem being adapted for engagement with the follower to hold the pins in the slots, and said aligning perforations being adapted to receive screws of different lengths interchangeably, to hold the parts against movement or to permit movement of the stem in the bushing.

645,080. PROCESS OF PAPER MANUFACTURE. FRANK A. FLETCHER, Watertown, N. Y., assignor to the Aerated Paper Company, New York, N. Y. Original application filed Apr. 20, 1899, Serial No. 713,999. Divided and this application filed June 26, 1899. Serial No. 721,810. (No specimens.)



Claim.—1. The process of manufacturing paper which consists in forming a sheet of moist paper in a substantially-closed space and rarefying and heating the air in said space to drive off some of the moisture from said sheet, thereby producing a soft and porous paper.

2. The process of manufacturing paper which consists in forming a sheet of moist paper-pulp in a rarefied atmosphere and heating the same to drive off some of the moisture therefrom to substantially dry said strip without substantial compression, thereby producing a soft and porous paper.

3. The process of manufacturing paper which consists in forming a strip of moist paper-pulp in a rarefied atmosphere and heating the same to assist in driving off the moisture from said strip, and substantially drying said paper without substantial compression of the same, thereby producing a soft and porous paper.

4. The process of manufacturing paper which consists in forming a strip of moist paper-pulp in a rarefied atmosphere, applying heat to the same to drive off some of the moisture therefrom, and passing said sheet back and forth through said heated and rarefied atmosphere to substantially dry said strip without substantial compression of the same, thereby producing a soft and porous paper.

5. The process of manufacturing paper which consists in forming a continuous strip of moist paper-pulp in a rarefied atmosphere, extracting by suction some of the moisture from said strip, applying heat to said strip to drive off some of the moisture therefrom, and passing said strip through said heated and rarefied atmosphere until the same is substantially dry, without substantial compression of the same, thereby producing a soft and porous paper.

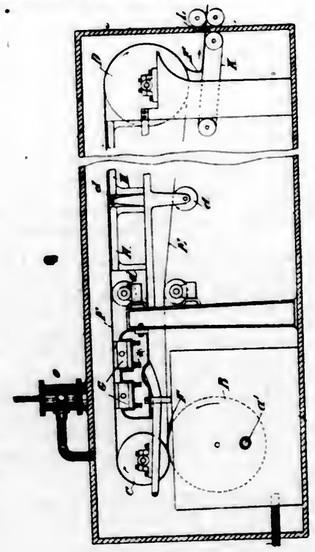
645,081. PAPER MANUFACTURE. FRANK A. FLETCHER, Watertown, N. Y., assignor to the Aerated Paper Company, New York, N. Y. Filed Apr. 20, 1899. Renewed Feb. 6, 1900. Serial No. 4,261. (No model.)

Claim.—1. In a paper-machine, a chamber, means to form a sheet of moist paper-pulp in said chamber, means to rarefy and heat the air in said chamber to drive off moisture from said sheet.

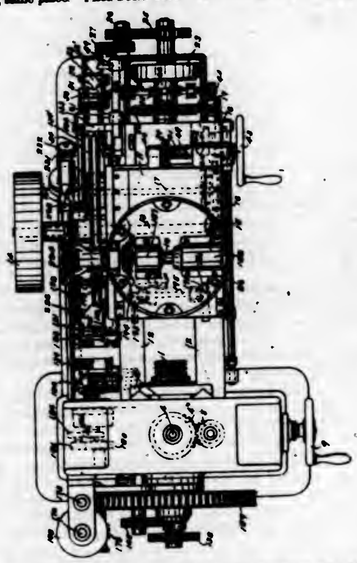
2. In an apparatus for the manufacture of paper, a chamber, a pulp-vat in said chamber, means to remove pulp from said vat and form the same into a sheet in said chamber, and means to rarefy and heat the air in said chamber to drive off moisture from said sheet and thereby produce a soft and porous paper.

3. In an apparatus for the manufacture of paper, a chamber, a movable belt therein, means to apply a paper-pulp to said belt at a point in said chamber to form a strip thereon, means to rarefy the air therein, and means to substantially dry said strip while in said chamber and before it is compressed.

4. In a paper-machine in combination a substantially-closed chamber, a pulp-vat therein, a roll in said vat, an endless belt of wire-gauze passing over said roll and adapted to pick up said pulp and form the same into a strip thereon, said belt extending through said chamber, means to heat said chamber, means to rarefy the air therein, and means to carry said strip through said chamber so that the same may be dried whereby the porosity of the paper is increased without substantially subjecting the same to pressure, and an air-lock exit for said paper from said chamber.



645,082. GEAR-CUTTING MACHINE. CHARLES R. GARDNER, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Dec. 2 1898. Serial No. 698,095. (No model.)



Claim.—1. In a spiral-gear cutter, the combination of a blank-support, a reciprocating cutter-carriage, a cutter supported thereon, mechanism for so rotating the blank-support during the cutting that a spiral groove is cut in the blank, and mechanism for moving one of

said supports to throw the blank and cutter out of cutting relation on the return of the cutter-carriage, substantially as described.

2. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, means for automatically reciprocating one of said supports parallel to the axis of the blank, means for rotating the blank during the cutting, whereby a spiral groove is cut in the blank and means for automatically moving the cutter out of cutting relation during the non-cutting movement of the reciprocating support, substantially as described.

3. In a spiral-gear cutter, the combination of a blank-support, a reciprocating cutter-carriage, a cutter supported thereon, mechanism for so rotating the blank-support during the cutting that a spiral groove is cut in the blank, and mechanism for moving the cutter out of cutting relation on the return of the cutter-carriage, substantially as described.

4. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for automatically reciprocating one of said supports, mechanism for rotating the blank-support during the action of the cutter, mechanism for moving one of said supports to throw the blank and cutter out of cutting relation during the non-cutting movement of the reciprocating support, and means for varying the ratio between the rotation of the blank-support and the advance movement of the reciprocating support, substantially as described.

5. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for throwing the blank and cutter out of cutting relation during the return of the cutter-carriage, and means for varying the ratio between the movements of the cutter-carriage and blank-support, substantially as described.

6. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for moving the cutter out of cutting relation during the return of the carriage, and means for varying the ratio between the movements of the cutter and blank-support, substantially as described.

7. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, mechanism for moving the cutter out of cutting relation on the return of the reciprocating support, and mechanism for indexing the blank-support without disconnecting the mechanism for rotating said support, substantially as described.

8. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, mechanism for throwing the blank and cutter out of cutting relation, and mechanism for indexing the blank-support without disconnecting the mechanism for rotating the same, substantially as described.

9. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, mechanism for moving the cutter out of cutting relation during the non-cutting movement of the reciprocating support, and mechanism for indexing the blank-support, substantially as described.

10. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, and mechanism for indexing the blank-support provided with means for varying the indexing for gears of differing pitch, substantially as described.

11. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, and mechanism for indexing the blank-support provided with means for varying the indexing for gears of different pitch, substantially as described.

12. In a spiral-gear cutter, the combination of a blank-support, a reciprocating cutter-carriage, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for moving the cutter out of cutting relation during the return of the cutter-carriage, and mechanism for indexing the blank-support, substantially as described.

13. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a cutter-carriage, a rotary cutter-spindle supported by said carriage, mechanism for reciprocating said carriage parallel to the axis of the blank, mechanism for rotating the blank during the advance of the cutter-carriage, and means for adjusting the cutter-spindle about an axis passing through the axes of said spindles at right angles thereto, substantially as described.

14. In a spiral-gear cutter, the combination with a spindle for supporting the blank, a rotary cutter-spindle, mechanism advancing one of said spindles parallel to the axis of the blank-spindle, mechanism for rotating the blank-spindle during said advance movement, and means for adjusting the cutter-spindle about an axis passing through the center of the cutter at right angles to the axis of the cutter-spindle, substantially as described.

15. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a spindle for supporting the cutter, mechanism for automatically reciprocating one of said spindles parallel to the axis of the blank, mechanism for rotating the blank-spindle during the cutting mechanism for automatically throwing the blank and cutter out of cutting relation during the non-cutting movement of the reciprocating spindle, and means for varying the angle between the spindles, substantially as described.

16. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a cutter-carriage, a rotary cutter-spindle supported by said carriage, mechanism for reciprocating said carriage parallel to the axis of the blank, mechanism for rotating the blank during the advance of the cutter-carriage, mechanism for automatically throwing the cutter and blank out of cutting relation during the return of the cutter-carriage, and means for varying the angle between the axes of said spindles, substantially as described.

17. In a spiral-gear cutter, the combination of an adjustable spindle for supporting the gear-blank, a spindle for supporting the cutter, mechanism for automatically reciprocating one of said spindles parallel to the axis of the blank, mechanism for rotating the blank during the cutting, mechanism for automatically throwing the blank and cutter out of cutting relation during the non-cutting movement of the reciprocating spindle, and means for varying the angle between the axes of said spindles, substantially as described.

18. In a spiral-gear cutter, the combination of an adjustable spindle for supporting the blank, a reciprocating cutter-carriage, mechanism for automatically reciprocating the same, a rotary cutter-spindle carried by said carriage, mechanism for rotating the blank during the cutting, mechanism for automatically throwing the cutter and blank out of cutting relation during the return of the cutter-carriage, and means for adjusting the cutter-spindle to vary the angle between the axes of said spindles, substantially as described.

19. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating said carriage, a rotary cutter-support on said carriage having its axis at an angle to the axis of said blank-support and not intersecting the same, mechanism for driving said cutter-support, mechanism for rotating the blank-support during the advance of the cutter-carriage, and mechanism for moving one of said supports to throw the blank and cutter out of cutting relation during the return of the cutter-carriage, substantially as described.

20. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support having its axis at an angle to the axis of the blank-support and not intersecting the same, mechanism for driving said cutter-support, mechanism for reciprocating one of said supports parallel to the axis of the blank, mechanism for rotating the blank during the cutting, and means for automatically moving the cutter out of cutting relation during the non-cutting movement of the reciprocating support, substantially as described.

21. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the same, a cutter-spindle thereon having its axis at an angle to the axis of the blank-support and not intersecting the same, mechanism for driving the cutter-spindle, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for moving the cutter out of cutting relation on the return of the cutter-carriage, substantially as described.

22. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support having its axis at an angle to the axis of the blank and not intersecting the same, mechanism for driving said cutter-support, mechanism for automatically reciprocating one of said supports, mechanism for rotating the blank-support during the action of the cutter, mechanism for moving one of said supports to throw the blank and cutter out of cutting relation during the non-cutting movement of the reciprocating support, and means for varying the ratio between the rotation of the blank-support and the advance movement of the reciprocating support, substantially as described.

23. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, a rotary cutter-spindle on said carriage having its axis at an angle to the axis of the blank-support and not intersecting the same, mechanism for driving the cutter-spindle, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for throwing the blank and cutter out of cutting relation during the return of the cutter-carriage, and means for varying the ratio between the advance movement of the cutter-carriage and the rotation of the blank-support, substantially as described.

24. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, a rotary cutter-spindle on said carriage having its axis at an angle to the axis of the blank-support and not intersecting the same, mechanism for driving said cutter-spindle, mechanism for reciprocating the cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for moving the cutter out of cutting relation during the return of the reciprocating support, and means for varying the ratio between the advance movement of the cutter-carriage and the rotation of the blank-support, substantially as described.

25. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support having its axis at an angle to the axis of the blank-support and not intersecting the same, mechanism for reciprocating one of said supports parallel to the axis of the blank-support, mechanism for rotating the blank-support during the advance of the reciprocating support, mechanism for throwing the cutter and blank out of cutting relation on the return of the reciprocating support, and a train of gearing including a series of change-gears for indexing the blank-support, substantially as described.

26. In a spiral-gear cutter the combination of a blank-supporting spindle, a reciprocating cutter-carriage, a worm-wheel connected with said blank-spindle, a worm engaging the same, gearing for rotating said worm during the advance of the cutter-carriage, and mechanism for turning the worm to index the blank-spindle, substantially as described.

27. In a spiral-gear cutter, the combination of a blank-supporting spindle, a reciprocating cutter-carriage, a worm-wheel connected with said blank-spindle, a worm engaging the same, gearing for rotating said worm during the advance of the cutter carriage embodying two gears in axial alinement, a frame carrying a gear engaging said gears, and means for turning said frame to index the blank-spindle, substantially as described.

28. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a rotary cutter-spindle arranged with its axis at an angle to the axis of the blank-spindle and not intersecting the same, mechanism for driving the cutter-spindle, mechanism for reciprocating one of said spindles parallel to the axis of the blank-spindle, mechanism for rotating the blank-spindle during the advance of the reciprocating spindle, means for varying the angle between said spindles, and means for varying the ratio between the advance movement of the reciprocating spindle and the rotation of the blank-spindle, substantially as described.

29. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a cutter-carriage, a rotary cutter-spindle supported by said carriage with its axis at an angle to the axis of the blank-spindle and not intersecting the same, mechanism for reciprocating the cutter-carriage parallel to the axis of the blank-spindle, mechanism for rotating the blank-spindle during the advance of the cutter-carriage, means for varying the angle between the axes of the cutter and blank spindles, and means for varying the ratio between the advance movement of the cutter-carriage and the rotation of the blank-spindle, substantially as described.

30. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a swivel-head, a rotary cutter-spindle mounted thereon with its axis at an angle to the axis of the blank-spindle and not intersecting the same, mechanism for reciprocating one of said spindles parallel to the axis of the blank-spindle mechanism for rotating the blank-spindle during the advance of the reciprocating spindle, and means for varying the ratio between the advance of the reciprocating spindle and the rotation of the blank-spindle, substantially as described.

31. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support, mechanism for driving said cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, and mechanism for indexing the work-support provided with means for varying the indexing for gears of differing pitch, substantially as described.

32. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, a cutter-spindle mounted thereon, mechanism for driving said spindle, mechanism for reciprocating said cutter-carriage, mechanism for rotating the blank-support during the advance of the cutter-carriage, mechanism for moving the cutter out of cutting relation during the return of the cutter-carriage, and mechanism for indexing the blank-support, substantially as described.

33. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support, mechanism for driving said cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank during the cutting, mechanism for moving the cutter out of cutting relation on the non-cutting movement of the reciprocating support, and mechanism for indexing the blank-support, substantially as described.

34. In a spiral-gear cutter, the combination of a blank-support, a rotary cutter-support, mechanism for driving said cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support during the cutting, mechanism for throwing the blank and cutter out of cutting relation on the return of the reciprocating support, and mechanism for indexing the blank-support without disconnecting the mechanism for rotating said support during the cutting, substantially as described.

35. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a cutter-carriage, a swivel-head carried by said carriage, a rotary cutter-spindle mounted on said head, mechanism for reciprocating said carriage, mechanism for rotating the blank during the advance of the cutter-carriage, and mechanism for automatically throwing the cutter and blank out of cutting relation during the return of the cutter-carriage, substantially as described.

36. In a spiral-gear cutter, the combination of a spindle for supporting the blank, a cutter-carriage, a reciprocating saddle mounted on said carriage, a swivel-head on said saddle, a rotary cutter-spindle on said head, mechanism for reciprocating said cutter-carriage, mechanism for rotating the blank during the advance of the cutter-carriage, and mechanism for operating said reciprocating saddle, substantially as described.

37. In a spiral-gear cutter, the combination of a blank-support, a cutter-support, mechanism for reciprocating one of said supports, mechanism for rotating the blank-support in either direction during the cutting, and mechanism for throwing the cutter and blank out of cutting relation during the non-cutting movement of the reciprocating support, substantially as described.

38. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, a rotary cutter-spindle thereon, mechanism for reciprocating said cutter-carriage, mechanism for rotating said blank-support in either direction during the advance of the cutter-carriage, and mechanism for throwing the cutter and blank out of cutting relation during the return of the cutter-carriage, substantially as described.

39. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage parallel to the axis of the blank-support, gearing connecting said carriage and the blank-support arranged to rotate said blank-support during the cutting in a definite ratio to the advance of the cutter-carriage, substantially as described.

40. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage parallel to the axis of the blank-support, gearing connecting said cutter-carriage and blank-support through said reciprocating mechanism arranged to rotate said blank-support during the cutting in a definite ratio to the advance of the cutter-carriage, substantially as described.

41. In a spiral-gear cutter, the combination of a blank-support, a cutter-carriage, mechanism for reciprocating the cutter-carriage parallel to the axis of the blank-support, a driving-shaft geared to said cutter-carriage, mechanism for reversing the direction of rotation of said shaft, and gearing connecting said shaft and blank-support arranged to rotate said blank-support during the cutting, substantially as described.

42. In a gear-cutter, the combination of a cutter-carriage, a nut thereon, a screw-rod engaging said nut, a rotary shaft geared to said rod in advance of said nut, oppositely-moving drivers, and mechanism controlled by the movement of the carriage for alternately connecting said drivers to said shaft, substantially as described.

43. The combination with a carriage, of a shaft geared thereto, oppositely-moving drivers for said shaft, a clutch for alternately connecting said drivers to said shaft, cams for operating said clutch, and mechanism controlled by the carriage for intermittently rotating said cams, substantially as described.

44. The combination with a reciprocating carriage, of mechanism for reversing the movement of said carriage including rotary cams, a clutch connected to drive said cams, a cam carried by said clutch, an abutment for engaging said cam and holding said clutch out of operation, and mechanism controlled by the carriage for withdrawing said abutment, substantially as described.

45. The combination with a reciprocating carriage, of mechanism for reversing the movement of said carriage including rotary cams, a clutch for driving said cams, a cam carried by said clutch, an abutment for engaging said cam and holding said clutch out of operation, a catch for withdrawing said abutment, and a rocker operated by the carriage for operating said catch, substantially as described.

46. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a catch for withdrawing said abutment, a spring-operated slide carrying said catch, means for operating said slide to withdraw said abutment, and means for positively returning said slide, substantially as described.

47. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a slide, a catch carried by said slide and engaging said abutment, a rocker for operating said slide to withdraw said abutment, and a rocking cam for returning said slide, substantially as described.

48. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a reciprocating slide, a latch carried thereby for engaging said abutment, mechanism for reciprocating the slide, means for disengaging the catch, and means for positively returning said catch into position to engage said abutment, substantially as described.

49. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a reciprocating catch for withdrawing said abutment, and means carried with said clutch for disengaging said catch, substantially as described.

50. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a slide, a catch carried by said slide for engaging said abutment, a rocker for operating the slide, and means carried with said clutch for disengaging said catch, substantially as described.

51. The combination with a clutch, of a cam carried thereby, an abutment for engaging said cam and holding said clutch out of engagement, means for withdrawing said abutment, a lever engaging said abutment, and a cam carried by said clutch for engaging said lever and returning said abutment, substantially as described.

52. The combination with a clutch, of a cam carried thereby, a pin for engaging said cam and holding the clutch out of operation, means for withdrawing said pin, and means operated by the movement of the clutch for returning said pin into the path of said cam, substantially as described.

53. The combination with a clutch, of a cam carried thereby, a spring-operated pin for engaging said cam and holding the clutch out of operation, means for withdrawing said pin, and means operated by the movement of the clutch for returning said pin into the path of said cam, substantially as described.

54. The combination with a reciprocating carriage, of mechanism for reversing said carriage including a clutch, a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a catch for withdrawing said abutment, mechanism operated by said carriage for operating said catch to withdraw said abutment, and means for disengaging the catch and returning said abutment, substantially as described.

55. The combination with a reciprocating carriage, of mechanism for reversing said carriage including a clutch, a cam carried thereby, an abutment for engaging said cam and holding said clutch out of operation, a catch for withdrawing said abutment, a slide carrying said catch, a rocker engaging said slide, a reversing-bar connected with said rocker, and operated by said carriage, and means for disengaging the catch and returning said abutment, substantially as described.

56. The combination with a clutch-sleeve, of a cam carried thereby, an abutment for engaging the cam and holding the clutch-sleeve out of operation, means for withdrawing and returning said abutment, an interrupted gear connected with said sleeve, a gear driven by said interrupted gear, a disk connected with said driven gear provided with segmental recesses, and a segment connected with said sleeve for engaging said recesses substantially as described.

57. The combination with a cutter-carriage, of a saddle thereon, a cutter-spindle carried by said saddle, and mechanism for rocking said saddle on said carriage to carry the cutter into and out of cutting relation, substantially as described.

58. The combination with a cutter-carriage provided with segmental guides, of a saddle provided with a segmental shoe engaging said guides, a cutter-spindle on said saddle, and mechanism for rocking said saddle in said guides to carry the cutter into and out of cutting relation, substantially as described.

59. The combination with a cutter-carriage, of a saddle thereon a cutter-spindle carried by said saddle, bearing-surfaces on said saddle, blocks engaging said surfaces and eccentrics for operating said blocks, substantially as described.

60. The combination with a cutter-carriage, of a saddle thereon, a cutter-spindle carried by said saddle, mechanism for reciprocating the carriage, and mechanism controlled by the movement of the carriage for rocking said saddle on said carriage to carry the cutter into and out of cutting relation, substantially as described.

61. The combination with a cutter-carriage, of a saddle thereon a cutter-spindle carried by said saddle, bearing-surfaces on said saddle, blocks engaging said bearing-surfaces, eccentrics for operating said blocks to rock said saddle, and mechanism for intermittently operating said eccentrics, substantially as described.

62. The combination with a reciprocating cutter-carriage, of a saddle mounted on said carriage, a cutter-spindle carried by said saddle, mechanism for raising and lowering said saddle, and mechanism for reversing the carriage connected with said raising and lowering mechanism, substantially as described.

63. The combination with a reciprocating cutter-carriage, of a saddle on said carriage, a swivel-head on said saddle, a cutter-spindle on said head, mechanism for driving said spindle, and mechanism for rocking said saddle on the carriage, substantially as described.

64. The combination with a blank-supporting spindle, of mechanism for indexing the same including, a clutch, a cam on said clutch, an arm carrying an abutment for engaging said cam and holding said clutch out of operation, a spring-pressed locking-arm for locking said clutch, said locking-arm being arranged to be engaged by the abutment-arm as the abutment is withdrawn, substantially as described.

65. The combination with a blank-spindle, of indexing-gearing connected therewith, a driver for said gearing, mechanism for intermittently rotating said driver, and mechanism connecting said driver and said gearing for starting said gearing with a gradually-accelerated motion and gradually decreasing the speed of said gearing at the end of the indexing, substantially as described.

66. The combination of a blank-spindle, a worm-wheel connected therewith to rotate the same, a worm engaging said worm-wheel, a system of change-gears connected with said worm, mechanism for starting said gearing with an accelerated speed and stopping said gearing with a retarded speed, and an intermittently-rotating driver for operating said gearing at intervals, substantially as described.

67. The combination of a blank-spindle, a worm-wheel connected therewith to rotate the same, a worm engaging said worm-wheel, a system of change-gears connected with said worm, mechanism for starting said gearing with an accelerated speed and stopping said gearing with a retarded speed, a clutch for driving said mechanism, and means for throwing said clutch into action at intervals, substantially as described.

68. The combination of a blank-spindle, indexing-gearing connected therewith, a shaft connected with said gearing, mechanism for starting said shaft with an accelerated speed and bringing said shaft to a state of rest at the end of a single revolution with a retarded speed, substantially as described.

69. The combination of a blank-spindle, indexing-gearing connected therewith, a shaft connected with said gearing, a driving-shaft which makes a plurality of revolutions in giving said former shaft a single revolution, and mechanism connecting said shafts for starting said former shaft with an accelerated speed and bringing said shaft to a state of rest at the end of a single revolution with a retarded speed, substantially as described.

70. The combination with a blank-spindle, of indexing-gearing connected therewith, mechanism for driving said gearing at a constant speed during the greater part of the indexing, and mechanism for gradually starting and stopping said gearing, substantially as described.

71. The combination with a blank-spindle, of indexing-gearing connected therewith, a gear for driving said gearing, a rotary pinion for driving said gear, means for starting said gear with a gradually-increasing speed and engaging said gear and pinion when both are moving at the same speed, and means for disengaging said gear and pinion and gradually bringing said gear to a state of rest, substantially as described.

72. The combination with a blank-spindle, of indexing-gearing connected therewith, a gear for driving said gearing, a mutilated gear connected therewith, a cam-tooth connected with said mutilated gear, a pinion engaging said mutilated gear, two abutments rotating with said pinion and arranged to engage opposite sides of said cam-tooth, and means for intermittently rotating said pinion, substantially as described.

73. The combination with a blank-spindle, of indexing-gearing connected therewith, a gear for driving said gearing, a gear connected therewith and having a blank space, a pinion for driving said latter gear, two diametrically-opposite abutments rotating with said pinion and arranged in line with the pitch-surface of said pinion, and a cam-tooth connected with said latter gear and arranged to lie between said abutments when the pinion is opposite the blank space in said gear, substantially as described.

74. The combination with a blank-spindle, of indexing-gearing connected therewith, a gear for driving said gearing, a gear connected therewith provided with a blank space, a pinion for driving said latter gear, two diametrically-opposite abutments rotating with said pinion and arranged in line with the pitch-surface of said pinion, a cam-tooth connected with said latter gear and arranged to be engaged by said abutments, a driver for said pinion, and means for intermittently throwing said driver into operation and for throwing said driver out of operation when the cam-tooth lies between said abutments, substantially as described.

75. The combination with a blank-spindle, of indexing-gearing connected therewith, a gear for driving said gearing, a gear connected therewith provided with a blank space, a pinion for driving said gear, two diametrically-opposite abutments arranged in line with the pitch-surface of said pinion and moving therewith, a cam-tooth connected with said pinion and arranged to be engaged by said abutments, a constantly-rotating shaft, a clutch for coupling said pinion to said shaft, means for engaging said clutch, and means for disengaging said clutch when said latter gear has made one revolution, substantially as described.

76. The combination with a blank-spindle, of index-gearing connected therewith, and means for driving said gearing comprising, a pinion 260, a gear 261, having a blank space 271, a cam-tooth 266 connected with gear 261 and having the flanks 267 and 268 and the faces 269 and 270, two abutments 264 and 265 for engaging said tooth connected with pinion 260, a constantly-running shaft and a clutch for coupling said shaft with said pinion, and means for disengaging said clutch when the cam-tooth 266 is between abutments 264 and 265, substantially as described.

77. The combination with a blank-supporting spindle, of gearing for rotating the same comprising two gears in axial alinement, a frame mounted to rotate about the axis of said gears, one or more gears mounted on said frame and connecting said former two gears, and means for intermittently rotating said frame, substantially as described.

78. The combination with a blank-supporting spindle, of gearing for rotating the same comprising a shaft geared to said spindle, a second shaft in line with said former shaft, gears on the adjacent ends of said shafts, a frame pivoted concentric with said shafts, one or more gears on said frame and connecting said gears, and gearing for intermittently rotating said frame, substantially as described.

79. The combination with a blank-supporting spindle, of gearing for rotating said spindle comprising a shaft geared to said spindle, a second shaft in line therewith, gears on the adjacent ends of said shafts, a frame journaled on said shafts, one or more gears carried by said frame and connecting said former gears, a worm-wheel on said frame, and an intermittently-operated worm engaging said worm-wheel, substantially as described.

80. The combination with a blank-supporting spindle, of two trains of gears for rotating said spindle in the same direction, and means for connecting either train of gears with said spindle and disconnecting the other, substantially as described.

81. The combination with a blank-supporting spindle, of a rotary cutter-spindle, mechanism for reciprocating one of said spindles, gearing connecting said reciprocating mechanism and the blank-supporting spindle for rotating the same, said gearing including two trains of gears, and means for connecting either train of gears with said blank-spindle and disconnecting the other train, substantially as described.

82. The combination with a blank-supporting spindle, of gearing for rotating said spindle including change-gears for varying the rotation of said spindle, two trains of gears leading between said change-gears and said spindle, and means for connecting either train of gears with said spindle and disconnecting the other train, substantially as described.

83. The combination of a blank-supporting spindle, a cutter-carriage, a shaft connected with said spindle to rotate the same, a train of gearing for driving said shaft during the advance of the cutter-carriage, a second train of gearing for driving said shaft in the same direction and at a reduced speed during the advance of the cutter-carriage, and means for connecting either of said trains of gearing to said shaft, substantially as described.

84. The combination of a blank-supporting spindle, a cutter-carriage, a shaft for advancing said cutter-carriage, a train of gearing for connecting said shaft with said spindle to rotate the same, a second train of gearing for connecting said shaft with said spindle to rotate the same in the same direction at a reduced speed, and means for throwing either train of gearing into operation, substantially as described.

85. The combination of a blank-supporting spindle, a cutter-carriage, a shaft for advancing said cutter-carriage, a system of change-gearing driven by said shaft, a train of gearing for connecting said change-gearing with said spindle for driving said spindle during the advance of the cutter, a second train of gearing for connecting said change-gearing with said spindle for driving said spindle in the same direction at a reduced speed, and means for throwing either of said trains of gearing into action, substantially as described.

86. The combination of a blank-supporting spindle, a cutter-carriage, a shaft for advancing said carriage, a system of change-gearing driven by said shaft, a shaft 157 connected with said spindle for rotating the same, a gear 156 on said shaft and driven from said change-gearing, a worm-wheel 161 on said shaft driven from said change-gearing at a reduced speed and in the same direction as gear 156, and a clutch 160 for connecting either gear 156 or worm-wheel 161 to said shaft, substantially as described.

87. The combination with a reciprocating carriage, of mechanism for reversing said carriage including a reciprocating part, means for returning said part to its normal position, and means for preventing successive movements of said reciprocating part in the same direction, substantially as described.

88. The combination with a reciprocating carriage, of mechanism for operating said carriage, a reversing-bar for controlling said operating mechanism normally held in mid-position, and means for preventing successive movements of said bar in the same direction, substantially as described.

89. The combination with a reciprocating carriage, of mechanism for reversing the carriage including a reversing-bar, dogs on said bar arranged to be engaged by the carriage, and means for preventing the operation of the reversing mechanism until the carriage has moved away from said dogs, substantially as described.

90. The combination with a reciprocating carriage, of mechanism for operating said carriage, a reversing-bar for controlling said operating mechanism, dogs for preventing the movement of said bar in either direction, and means for alternately rendering said dogs operative, substantially as described.

91. The combination with a reciprocating carriage, of mechanism for operating said carriage, a reversing-bar for controlling said operating mechanism, dogs for preventing the movement of said bar in either direction, and a cam connected with said bar for alternately operating said dogs, substantially as described.

92. The combination with a reciprocating carriage, of mechanism for reversing said carriage including, a clutch, a cam connected with said clutch, an abutment for engaging said cam and holding said clutch out of operation, a catch for engaging said abutment, means for disengaging said catch, mechanism for operating said catch including a reversing-bar, dogs on said bar engaged by the carriage, and means for preventing successive movements of said bar in the same direction, substantially as described.

93. The combination of a reciprocating part, dogs for preventing the movement of said part in either direction, and mechanism for alternately rendering said dogs operative, substantially as described.

94. The combination of a reciprocating part, dogs for preventing the movement of said part in either direction, a cam connected with said reciprocating part for operating said dogs, substantially as described.

95. The combination of a reciprocating part dogs for preventing the movement of said part in either direction, a plate for engaging said dogs, and a cam connected with said reciprocating part for reciprocating said plate, substantially as described.

96. The combination with a blank-support and mechanism for indexing the same, of a reciprocating cutter-carriage and mechanism independent of the blank-support for automatically stopping the cutter-carriage after a predetermined number of reciprocations, substantially as described.

97. The combination with a blank-support, of a reciprocating cutter-carriage, mechanism controlled by the carriage for indexing the blank-support, and mechanism independent of the blank-support for automatically stopping the cutter-carriage after a predetermined number of reciprocations, substantially as described.

98. The combination with a blank-support and mechanism for indexing the same, of a reciprocating cutter-carriage, mechanism for driving the same, a stop for preventing the operation of said driving mechanism, and mechanism independent of the blank-support and controlled by the reciprocation of the carriage for throwing said stop into operation, substantially as described.

99. The combination with a reciprocating carriage, of an adjustable trip, mechanism for advancing said trip a step at each reciprocation of the carriage, and mechanism controlled by said trip for stopping the carriage, substantially as described.

100. The combination with a reciprocating carriage, of mechanism for reciprocating said carriage, including a clutch, an adjustable trip, mechanism for advancing said trip a step at each reciprocation of the carriage, and a stop controlled by said trip for preventing the operation of said clutch, substantially as described.

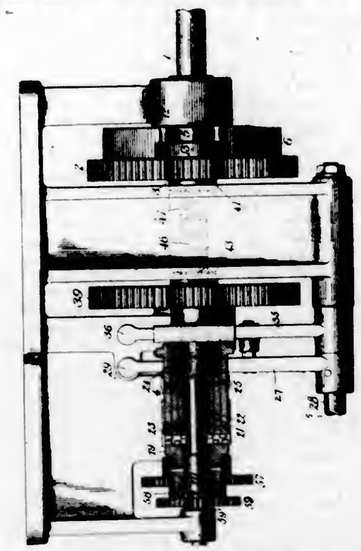
101. The combination with a reciprocating carriage, of mechanism for operating the same, a stop for holding the operating mechanism out of action, a trip for controlling said stop, a pawl-and-ratchet mechanism for advancing said trip, and mechanism for operating said pawl-and-ratchet mechanism at each reciprocation of said carriage, substantially as described.

102. The combination with a driving mechanism, of a stop for preventing the operation of said driving mechanism, a trip for controlling said stop, a pawl-and-ratchet mechanism for operating said trip, said trip being adjustable in relation to said pawl-and-ratchet mechanism, substantially as described.

103. The combination with a driving mechanism, of a stop for preventing the operation of said driving mechanism, a tripping-plate for controlling said stop, two pawls carried by said plate, a stationary rack engaged by one pawl and a reciprocating ratchet-bar engaged by the other pawl, substantially as described.

104. The combination with a reciprocating carriage, of two oppositely-moving drivers for driving said carriage, a clutch for connecting said drivers with said carriage, a clutch-shifter, a stop for preventing the movement of said shifter, a catch for holding said stop out of operation, a trip for operating said catch, and a pawl-and-ratchet mechanism for advancing said trip, said trip being adjustable in relation to said pawl-and-ratchet mechanism, substantially as described.

645,083. MECHANICAL MOVEMENT. CHARLES R. GABRIEL, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Feb. 23, 1899. Serial No. 706,445. (No model.)



Claim.—1. The combination of a driven gear, of a driving-gear, a cam-tooth connected with said driven gear, and two diametrically-opposite abutments rotating with said driving-gear and arranged to simultaneously engage opposite sides of said cam-tooth.

2. The combination of a driven gear, a driving-gear, a cam-tooth connected with said driven gear, and two abutments having cylindrical simultaneously-engaging surfaces for engaging opposite sides of said cam-tooth, the centers of said engaging surfaces being arranged diametrically opposite each other and in the pitch-surface of said driving-gear.

3. The combination of an unmutilated driving-gear, a driven gear having a blank space, means for starting said driven gear with a gradually-increasing speed and engaging said gears when both are moving at the same speed, and means for gradually bringing said driven gear to a state of rest when said gears are disengaged.

4. The combination of a driven gear, a cam-tooth connected therewith having flanks parallel to radial lines of said gear, a driving-gear, two abutments rotating with said driving-gear, and having cylindrical engaging surfaces the centers of which are diametrically opposite each other and in the pitch-surface of said driving-gear.

5. The combination of a gear 2 provided with blank space 14, a gear 3 for engaging gear 2, a cam-tooth 5 connected with gear 2 and extending beyond the center of gear 3, and pins 11 and 12 connected with gear 3.

6. The combination of a gear 2 provided with blank space 14, a gear 3 for engaging gear 2, a cam-tooth 5 having flanks parallel to radial lines of the gear 2, and pins 11 and 12 having their centers in the pitch-surface of gear 3 and connected with said gear.

7. The combination of a driven gear provided with a blank space, a driving-gear which makes a plurality of revolutions for each revolution of the driven gear, a cam-tooth connected with said driven gear, and two abutments rotating with said driving-gear for engaging opposite sides of said cam-tooth.

8. The combination of a driven gear provided with a blank space, a driving-gear, two diametrically-opposite abutments having their centers in the pitch-surface of said driving-gear and rotating therewith, a cam-tooth connected with said driven gear and arranged to lie between said abutments when the blank space is opposite the driving-gear.

9. The combination of a driven gear, a driving-gear which makes a plurality of revolutions for one revolution of the driven gear, means for starting said driven gear with an accelerated speed and engaging said gears when both are at the same speed, and means for stopping said driven gear at the end of a single revolution with a retarded speed when said gears are disengaged.

10. The combination of a driven gear, of a driving-gear which makes a plurality of revolutions for one revolution of the driven gear, two abutments rotating with the driving-gear, said driven gear having two engaging surfaces connected therewith for coacting with said abutments in gradually starting said driven gear and gradually stopping said driven gear at the end of each revolution.

11. The combination of a driven gear 2, a cam-tooth 5, connected therewith having flanks 7 and 8 rounded off at their outer ends, a driving-gear 3, pins 11 and 12 connected therewith and arranged to engage the flanks 7 and 8.

12. The combination of a driven gear 2, a cam-tooth 5 connected therewith having flanks 7 and 8 and faces 9 and 10, a driving-gear 3, pins 11 and 12 connected therewith and arranged to engage the said flanks and faces.

13. The combination of a driven gear 2, a cam-tooth 5 connected therewith having flanks 7 and 8, rounded off at their outer ends, a driving-gear 3, pins 11 and 12 connected therewith and arranged to engage said flanks, a clutch for driving-gear 3, a cam on said clutch, an abutment for engaging said cam and disengaging said clutch, and means for tripping said abutment.

14. The combination of a driven gear, a cam-tooth connected therewith, a driving-gear, two abutments rotating with said driving-gear arranged to simultaneously engage the opposite sides of said cam-tooth, and an intermittently-operating driver for said driving-gear.

15. The combination of a driven gear, a cam-tooth connected therewith, a driving-gear, two abutments rotating with said driving-gear arranged to engage opposite sides of said cam-tooth and means for stopping the rotation of said driving-gear after each revolution of said driven gear.

16. The combination of a driven gear, a cam-tooth connected therewith, a driving-gear, two abutments rotating with said driving-gear arranged to engage opposite sides of said cam-tooth, a driver for said driving-gear, means for intermittently throwing said driver into operation, and means for throwing said driver out of operation when the cam-tooth lies between said abutments.

17. The combination of a driven gear, a cam-tooth connected therewith, a driving-gear, two abutments rotating with said driving-gear arranged to engage opposite sides of said cam-tooth, a constantly-running shaft, a clutch for coupling said driving-gear to said shaft, a cam on said clutch, an abutment for engaging said cam and disengaging said clutch, and means for tripping said abutment.

18. The combination of a constantly-running shaft, a second shaft, a clutch for coupling said shafts together, a cam on said clutch, an abutment for engaging said cam and disengaging said clutch, a driving-gear secured to said second shaft, two diametrically-opposite abutments arranged in line with the pitch-surface of said gear and carried by said second shaft, a driven gear engaged by said driving-gear having a blank space, a cam-tooth connected with said driven gear and arranged to be engaged by said abutments.

19. The combination of a driven gear, a cam-tooth connected therewith, a driving-gear; two diametrically-opposite abutments rotating with said driving-gear and arranged to engage opposite sides of said cam-tooth, the flanks of said cam-tooth being rounded off at their outer ends, so that said abutments may move through a short arc without moving said driven gear, a clutch for driving said driving-gear, a cam on said clutch, an abutment for engaging said cam and disengaging said clutch, and means for tripping said abutment.

20. The combination with a shaft, of devices for starting said shaft with an accelerated speed and stopping said shaft at the end of a plurality of revolutions with a retarded speed, and gearing for driving said shaft at a substantially-constant speed between the starting and stopping.

21. The combination with a shaft, of two gears loosely mounted thereon, a driving-shaft, a gear thereon meshing with one of said gears, devices for starting the other gear with an accelerated speed and stopping said gear with a retarded speed, devices for coupling either of said gears to the shaft and uncoupling the other.

22. The combination with a shaft, of two gears loosely mounted thereon, a driving-shaft, a gear thereon meshing with one of said loose gears, a second gear thereon for engaging the second loose gear, a cam-tooth connected with said second gear, two abutments rotating with said driving-shaft and arranged to engage opposite sides of said cam-tooth, and means for coupling either of said loose gears to the driven shaft and uncoupling the other.

23. The combination with a driven shaft, of two gears loosely mounted thereon, a driving-shaft, a gear thereon meshing with one of said loose gears, a second gear thereon for engaging the second loose gear, a cam-tooth connected with said second gear, two abutments rotating with said driving-shaft and arranged to engage opposite sides of said cam-tooth, a coupling-bolt connected with said driven shaft and arranged to engage either of said loose gears, and means for shifting said bolt from one gear to the other when both are in motion.

24. The combination with a driven shaft, of two gears loose thereon, means for driving one of said gears at a constant speed, means for starting the second gear with an accelerated speed and stopping said gear with a retarded speed, means for coupling one of said gears to said driven shaft and uncoupling the other when both are in motion.

25. The combination with a driven shaft, of two gears thereon, means for driving one of said gears at a constant speed, means for starting the second gear with an accelerated speed and stopping said gear with a retarded speed, a bolt connected with said driven shaft and arranged to engage either of said gears, and means for shifting said bolt from one gear to the other when both are in motion.

26. The combination with a driven shaft, of two gears loose thereon, means for driving one of said gears at a constant speed means for starting the second gear with an accelerated speed and stopping said gear with a retarded speed, a bolt connected with said driven shaft and arranged to engage either of said gears, cam-lugs on said bolt and a laterally-movable abutment arranged diametrically opposite the starting and stopping point of said second gear.

27. The combination with a driven shaft, of two gears loose thereon, means for driving one of said gears at a constant speed, means for starting the second gear with an accelerated speed and stopping said gear with a retarded speed, a bolt connected with said driven shaft and arranged to engage either of said gears, cam-lugs on said bolt, a laterally-movable abutment arranged diametrically opposite the starting and stopping point of said second gear, and a cam for controlling the position of said abutment.

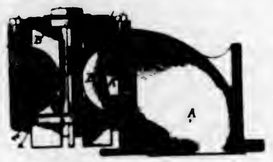
28. The combination with a driven shaft, of two gears loose thereon, means for driving one of said gears at a constant speed, means for starting the second gear with an accelerated speed and stopping said gear with a retarded speed, a bolt connected with said driven shaft and arranged to engage either of said gears, cam-lugs on said bolt, a laterally-movable abutment arranged diametrically opposite the starting and stopping point of said second gear, and a series of cams for controlling the position of said abutment.

29. The combination with a driven shaft, of two gears loose thereon, a driving-shaft, a gear thereon meshing with one of said loose gears, a second gear on said driving-shaft for engaging the second loose gear, a cam-tooth connected with said second loose gear, two abutments rotating with said driving-shaft and arranged to engage opposite sides of said cam-tooth, a bolt connected with said driving-shaft, and means for shifting said bolt from engagement with one of said loose gears into engagement with the other loose gear while both are in motion.

30. The combination with a driven shaft, of two gears 2 and 39 loose thereon, means for driving gear 39 at a constant speed, means for starting gear 2 with an accelerated speed and stopping said gear with a retarded speed, a bolt 45 for connecting either of said gears to said shaft, an abutment 48 for operating said bolt, a cam-drum 55 for operating said abutment provided with a series of varying cam-grooves, and a pin 60 for rendering any of said cam-grooves operative.

31. The combination with a driven shaft 1, of two gears 2 and 39 loose thereon, a driving-shaft 4, carrying the gears 3 and 38, a cam-tooth 5 connected with gear 2, abutments 11 and 12 carried by shaft 4, a constantly-driven shaft 20, a clutch for connecting shafts 4 and 20, a cam on said clutch, a movable abutment for engaging said cam and holding the clutch out of action, means for coupling either gear 2 or 39 to the shaft 1, and uncoupling the other, and means for holding the movable abutment out of the path of the said cam while gear 39 is coupled to said shaft.

645,084. THROTTLE-VALVE. GEORGE H. GOODELL, St. Paul, Minn., and PIERRE L. LOREE, Wilmerding, Pa. Filed Aug. 4, 1899. Serial No. 726,113. (No model.)

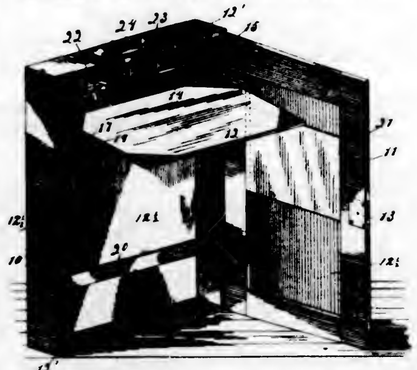


Claim.—1. The combination in a throttle-valve, of a valve-casing, a valve-body or stem, an inwardly-opening valve carried by said body or stem, an outwardly-opening valve also carried by said body or stem, and a valve-seat for said outwardly-opening valve removably secured to said valve-casing.

2. The combination in a throttle-valve, of a valve-casing, a valve body or stem, an inwardly-opening valve carried by said body or stem, an outwardly-opening valve also carried by said body or stem, one of said valves being removable from said body or stem, and a valve-seat for said outwardly-opening valve removably secured to said valve-casing.

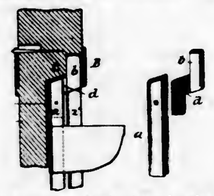
3. The combination in a throttle-valve, of a valve-casing, a valve body or stem, an inwardly-opening valve carried by said body or stem, an outwardly-opening valve removably secured to said body or stem, and a valve-seat for said outwardly-opening valve removably secured to said valve-casing.

645,085. PORTABLE SECRETARY. CALEB GOODWIN, Evanston, Ill. Filed June 2, 1899. Serial No. 719,070. (No model.)



Claim.—In a portable secretary, the combination of the case, 10, constructed substantially as described, and having the grooves, 15, 15, formed in the sides of the case near its top: the door, 11, hinged to the front edge of one side of the case, its top flush with the lower surface of the top of the case, and its bottom flush with the lower end of the case, so as to make the desk self-supporting when open; the shelf, 14, secured in the grooves, 15, 15; the leaf, 12, hinged to the lower side of the shelf near its outer edge; and the two adjustable brackets, 17, 17, secured to the case by any suitable, well-known means beneath the leaf, so as to support the same; substantially as and for the purpose specified.

645,086. NEWSPAPER-FILE. BERNARD R. GREEN, Washington, D. C. Filed Dec. 6, 1899. Serial No. 739,434. (No model.)



Claim.—1. A newspaper-file having a longitudinal channel with end steps or bearings above the bottom of the channel, and a plurality of retaining bars or blades, the ends of all of which are supported on said bearings, while the body portions of one series of bars are below those of the other series, substantially as set forth.

2. A newspaper-file consisting of a staff with a longitudinal channel having elevated bearings at the ends, a plurality of series of retaining-bars, all resting on said bearings, the bodies of one series below those of the other, and a single retaining device at each end for securing and releasing the bars, substantially as set forth.

645,087. TRACK-GAGE. JOHN D. GREEN, Toledo, Ohio, assignor to Warren J. Willits and Edward B. Linsley, Three Rivers, Mich. Filed May 27, 1899. Serial No. 718,606. (No model.)

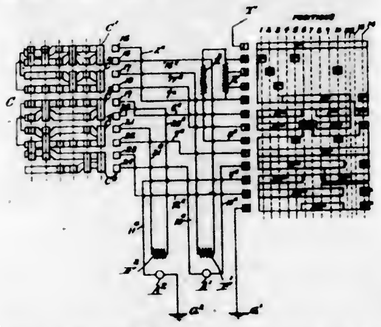


Claim.—1. A railway-gage of sheet metal, U-shaped in cross-section, forked at B, B, said forks having shoulders B' B' joined together by cross-piece, B", a shoulder C at the other end, and a block fitting into the hollow portion to which the sheet-metal shell is secured, substantially as shown and described.

2. In a railway-gage made up of sections A, A', formed of sheet metal U-shaped in cross-section and a block E, fitting into the hollow side of the same and holding the sections a little separated so that they shall be insulated from each other, for the purpose specified.

3. A railway-gage of sheet metal made up of a section A, which is forked at B, B, on its outer end having gage shoulders or blocks thereon, and a section A', having a gage-shoulder C, at its outer end and a block resting within the hollow side to retain the parts in their appropriate positions, for the purpose specified.

645,088. ELECTRIC-MOTOR CONTROL. WELLS R. HAMLEN, Johnstown, Pa., assignor to the Johnson Company, of Pennsylvania. Filed Apr. 19, 1899. Serial No. 713,691. (No model.)



Claim.—1. The method of accelerating a plurality of electric motors, which consists in starting with the motor elements all in series with each other and with external resistance, gradually reducing and finally cutting out the resistance while maintaining the series relation, then connecting one element of each motor in multiple with the corresponding element of the other motor, and finally connecting the motors as a whole in parallel.

2. The method of accelerating a plurality of electric motors which consists in starting the motors with their elements all connected in series, then cutting out one element of each motor, then connecting one element of each motor in multiple with the corresponding element of the other motor or motors, with the other elements in series, then again cutting out one element of each motor, and finally connecting the motors as a whole in multiple.

3. The method of accelerating a plurality of electric motors, which consists in starting the motors with their elements connected in series, then placing a shunt resistance in parallel with their fields, then connecting the two armatures in multiple and removing said shunt, then again shunting said fields, and finally connecting said fields in parallel with said shunt removed.

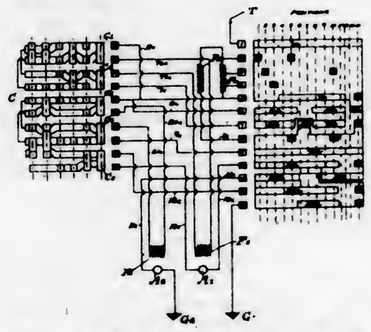
4. The method of shifting two motors from series to parallel relation which consists in placing a shunt-resistance in parallel with their fields, then connecting one element of each motor in multiple with the corresponding element of the other motor, and the other elements in series with each other, and cutting out the resistance, then again shunting the fields, and finally removing the field-shunt and connecting the two motors in parallel, substantially as specified.

5. The method of accelerating two electric motors, which consists in starting them with their elements all connected in series with each other and with an artificial resistance, then rheostatically accelerating them by gradually cutting out said resistance and subsequently connecting said resistance in shunt with the fields, then short-circuiting one field and one armature, then connecting the fields in series and the armatures in parallel, then again introducing resistance in shunt with the fields, next successively cutting out the resistance, the armature of one motor and the field of the other, and finally connecting the motors as a whole in parallel.

6. The method of operating a pair of electric motors which consists in starting with the two fields and the two armatures in series, then connecting one pair only of said elements in multiple, and finally connecting the motors as a whole in multiple and preparatory to each of said changes, introducing resistance in parallel circuit with the series-connected elements of the motors.

7. The method of accelerating a pair of electric motors, which consists in first gradually reducing the resistance of the motor-circuit as the counter electromotive force increases, then bringing the motors to a relation wherein one element of each motor is in series with the corresponding element of the other motor, and the other elements are in multiple to each other, subsequently weakening the fields of the motors, and finally connecting the motors in parallel.

645,089. APPARATUS FOR CONTROL OF ELECTRIC MOTORS. WELLS R. HAMLEN, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Original application filed Apr. 19, 1899, Serial No. 713,691. Divided and this application filed Sept. 12, 1899. Serial No. 730,207. (No model.)



Claim.—1. The combination with a plurality of electric motors, and external resistance for connection in circuit therewith, of a controlling-switch having groups of contacts and electrical connections whereby the motor elements may be first connected all in series with each other and with the said resistance, and which, by further movement of the operating-lever will gradually remove the resistance from circuit while maintaining the series connection of the motor element, and subsequently thereto, connect one element of each motor in multiple arc with the corresponding element of the other motor or motors and then connect the two motors as a whole in multiple arc.

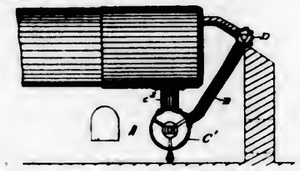
2. The combination with a plurality of electric motors, of a controlling-switch and connections for shifting said motors from series to parallel relation, said switch having contacts arranged relatively to said connections to first cut out one element of each motor and then connect one element of one in parallel with the corresponding element of the other or others, and other contacts to successively cut out one element of each motor, and then connect said motors as a whole in multiple.

3. The combination with two motors and artificial resistance for connection in circuit therewith, of a controller-switch adapted to shift said motors from series to parallel relation, said switch having a group of contacts arranged to connect said resistance in circuit with the motors in series therewith and also as a shunt to the motor-fields, other contacts arranged to connect one element of one motor in parallel with the corresponding element of the other motor and at the same time maintain the series connection of the other elements of the motors, and other contacts arranged to subsequently connect the said other elements in multiple.

4. The combination with a plurality of motors, and artificial resistance for connection therewith, of a controlling-switch adapted to change said motors from series to parallel relations, and having four groups of contacts which are electrically disconnected each group from the other, together with electrical connections, one of said groups being arranged to control the connection in circuit of the resistance, and of the first field, the second group arranged to control the connection of the second field, and the third group to control the connection of the first armature, and the fourth group to control the connection of the second armature.

5. The combination with two electric motors, of a controlling-switch therefor, comprising a series of brushes connections between said brushes and the working circuit, connections between pairs of said brushes and the fields of the two motors, and with one of the armatures, a connection between another of said brushes and the other armature, which is permanently grounded, and groups of contacts on said switch for engagement with said brushes, and arranged to connect the brushes in various ways to thereby connect the motor elements in series, or in multiple, or with an element of one motor in series with the corresponding element of the other motors, and the other elements in multiple.

645,090. STEAM-GENERATOR. EDWARD T. HANNAH and JOHN A. BECHTEL, Cincinnati, Ohio. Filed Nov. 10, 1899. Serial No. 736,458. (No model.)



Claim.—1. The combination in a steam-generator, of a series of water-tubes inclined upwardly and rearwardly through the curved belt assumed by the products of combustion at the rear of the boiler; a connection between the tubes and a low point of the boiler; and one or more connections between the tubes and a high point of the boiler whereby water is taken from a low part of the boiler and discharged into a higher part, substantially as and for the purpose set forth.

2. The combination in a steam-generator, of a series of water-tubes arranged in the combustion-chamber and inclined upward from a position beneath the boiler to a position in the rear of the boiler; a connection between the tubes and a low point of the boiler; and one or more connections between the tubes and a high point of the boiler whereby water is taken from a low part of the boiler and discharged into a higher part, substantially as and for the purpose set forth.

3. The combination in a steam-generator, of a series of upwardly-extending water-tubes arranged in the combustion-chamber; a connection between the tubes and a low point of the boiler; one or more connections between the tubes and a high point of the boiler whereby water is taken from a low part of the boiler and discharged into a higher part; and a boiler dead-plate supported by the water-tubes, substantially as and for the purpose set forth.

4. The combination in a steam-generator, of a water-drum in the combustion-chamber below the boiler; a water-drum higher in the combustion-chamber; a series of water-tubes connecting the drums; a connection between the lower drum and a low point in the boiler; and pipes connecting the upper drum and a higher point in the boiler; and a boiler dead-plate supported by the pipes, substantially as and for the purpose set forth.

5. The combination in a steam-generator, of a water-drum in the combustion-chamber below the boiler; a water-drum in a higher part of the combustion-chamber; a series of water-tubes connecting the drums; a connection between the lower drum and a low point in the boiler; one or more connections between the upper drum and a higher point in the boiler whereby water is taken from the lower part of the boiler and discharged into a higher part; and one or more openings in the upper drum through which the tubes and pipes connected therewith may be cleaned, substantially as and for the purpose set forth.

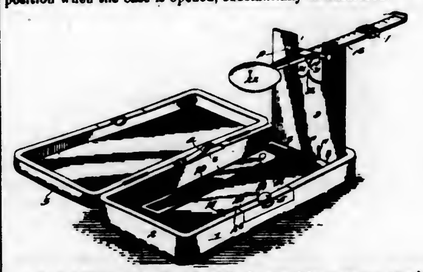
6. The combination in a steam-generator, of a water-drum in the lower part of the combustion-chamber and connected with a low point of the boiler; a water-drum in a higher part of the combustion-chamber; a series of straight water-tubes connecting the drums; one or more pipes connecting the upper drum with a high point of the boiler; and one or more openings in the upper drum through which the pipes connected therewith may be cleaned, substantially as and for the purpose set forth.

7. The combination in a steam-generator, of a water-drum in the combustion-chamber below and connected with a low point of the boiler; a water-drum in a higher part of the combustion-chamber in the rear of the boiler; a series of straight water-tubes connecting the drums and passing through the curved belt of products of combustion at the rear of the boiler; one or more pipes connecting the upper drum with a high point of the boiler; and one or more openings in the upper drum through which the pipes connected therewith may be cleaned, substantially as and for the purpose set forth.

8. The combination in a steam-generator, of a water-drum in the combustion-chamber below and connected with a low point of the boiler; a water-drum located at the top of the rear wall and partially outside of the combustion-chamber; a series of straight water-tubes connecting the drums and passing through the curved belt of products of combustion at the rear of the boiler; one or more pipes connecting the upper drum with a high point of the boiler; a dead-plate supported by the pipes connecting the upper drum with the boiler; and one or more openings in the exposed portions of the upper drum whereby the pipes connected therewith may be cleaned, substantially as and for the purpose set forth.

645,091. POCKET PRESCRIPTION-SCALE. ROBERT W. HARMON, Lockhart, Miss. Filed Dec. 5, 1898. Serial No. 739,230. (No model.)

Claim.—1. A device of the class described comprising a case, a standard hinged to the case and arranged to fold within the same, a scale-beam pivoted to the standard and arranged to fold against the same, and a spring arranged to throw the standard in an upright position when the case is opened, substantially as described.



2. A device of the class described comprising a case, a standard hinged to the case at one end thereof, a spring engaging the standard and adapted to spring the same upward, when the case is opened, and a scale-beam fulcrumed on the standard and adapted to fold downward with the same, substantially as described.

3. A device of the class described comprising a case, a standard hinged within the case at one end thereof, a spring disposed on the pintle of the standard and arranged to swing the latter upward, and a scale-beam pivoted to the standard and having its pivot arranged parallel with the pintle of the said standard, substantially as and for the purpose described.

4. A device of the class described comprising a case, a spring-actuated standard hinged to the case, a scale-beam pivoted to the standard, a locking device arranged within the case in position for engaging the standard, and a catch for holding the case closed, said catch being arranged to release the locking device, substantially as and for the purpose described.

5. A device of the class described comprising a case having an automatically-opening lid, a catch for holding the lid closed, a spring-actuated standard hinged to the case, a scale-beam pivoted to the standard, and a locking-lever fulcrumed between its ends and provided with a lug arranged to engage the standard to hold the same in its folded position, said locking-lever being arranged to be engaged by the catch, substantially as described.

645,092. SNAP-SWITCH. GERALD W. HART, West Hartford, Conn. Filed Apr. 21, 1899. Serial No. 713,846. (No model.)



Claim.—1. In a snap-switch, a tilting operating part, an independently-mounted spring-frame, a stationary support, a link connected to said operating part and guided by said support, notches in said spring-frame, the free end of said link alternately engaging in said notches, and a spring engaging said operating part and said spring-frame.

2. In a snap-switch, a tilting operating part, a pivotal support therefor, a spring-frame pivoted thereon, a locking device carried by one of said parts and engaging the other, a spring engaging the operating part and the spring-frame, and an independent swinging contact-blade controlled by said spring-frame, said contact-blade mounted eccentrically of said operating part and spring-frame.

3. In a snap-switch, a tilting operating part, a spring-frame mounted independently thereof, supporting means for said parts, a link carried by said operating part and cooperating with the spring-frame to lock and unlock the same and a spring engaging said operating part and said spring-frame.

4. In a snap-switch an operating part, a spring-frame mounted coocentrically therewith but independently thereof, a link connected to one of said parts and engaging the other part to lock and unlock the same, and a spring engaging said operating part and spring-frame.

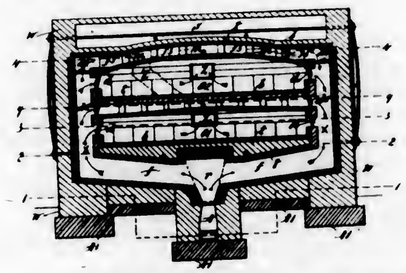
5. In a snap-switch a tilting operating part, a spring-frame mounted independently thereof, supporting means therefor, a link connected to said operating part, means to guide the end of said link, notches in said spring-frame, the free end of said link alternately engaging in said notches, and a spring.

6. In a snap-switch a tilting operating part, a spring-frame, pivotal supporting means for said parts, a locking device carried by one of said parts and engaging the other, a spring for engaging said spring-frame and operating part, and a contact-blade pivoted eccentrically of said spring-frame, an operating part and connecting means between the spring-frame and said contact-blade whereby the movement of one of said parts will be transmitted to the other part.

7. In a snap-switch, an operating part and a spring-frame independently mounted thereof, a spring engaging said parts, locking-notches in one of said parts, a link controlled by one of said parts and adapted to engage with said locking-notches, and an intermediate notch between said locking-notches.

8. In a snap-switch, an operating part and a spring-frame independently mounted thereof, a spring engaging said parts, locking-notches in one of said parts, a link, controlled by one of said parts and adapted to engage with said locking-notches, an intermediate notch between said locking-notches and a guide for the locking end of said link.

645,093. BAKER'S OVEN. THOMAS HITCHEN, Sydney, New South Wales. Filed Oct. 22, 1897. Serial No. 656,059. (No model.)



Claim.—1. The herein-described baking apparatus, comprising an oven-furnace, having a fire-box in the bottom thereof, a plurality of sets of horizontal flues arranged within said furnace, the number of said sets of flues being always odd, an oven arranged between each of said horizontal sets of flues, uptakes Y Y provided with dampers d and d^3, an outlet Z provided with a damper d^2, substantially as and for the purpose described.

2. The herein-described baking apparatus, comprising an oven-furnace, having a fire-box in the bottom thereof, a plurality of sets of horizontal flues arranged within said furnace, the number of said sets of flues being always odd, and the number of flues in each set being also odd, an oven arranged between each of said horizontal sets of flues, and uptakes Y Y, an outlet Z, said uptakes being provided with dampers d and d^3, and said outlet with dampers d^4, said uptakes being in communication with the fire-box and with said flues and ovens, substantially as shown and described.

3. The herein-described baking apparatus, comprising an oven-furnace, having a fire-box in the bottom thereof, a plurality of sets of horizontal flues arranged within said oven-furnace, said sets being always odd in number, an oven arranged horizontally between each of said sets of flues, uptakes at each end of said furnace-chamber and in communication with said horizontal sets of flues and with said ovens, said uptakes being provided with dampers which control said communications, and an outlet Z provided with a damper d^2, whereby the products of combustion may be conducted through, over or beneath said ovens, substantially as shown and described.

4. The herein-described baking apparatus, comprising an oven-furnace having a fire-box in the bottom thereof, said furnace being provided with a plurality of sets of flues arranged horizontally, said sets of flues being always odd in number, an oven arranged horizontally between each of said sets of flues, uptakes at the ends of the furnance forming a communication between the fire-box and said oven and flues, said uptakes being provided with dampers, whereby said communications are controlled, outlets having dampers, whereby the hot gases or products of combustion are made to pass, under, through, between or over each of said ovens, substantially as shown and described.

5. The herein-described baking apparatus, comprising an oven-furnace having a fire-box in the bottom thereof, said furnace being provided with a plurality of sets of flues arranged horizontally, said sets of flues being always odd in number, an oven arranged horizontally between each of said sets of flues, uptakes at the ends of the furnace forming a communication between the fire-box and said oven and flues, said uptakes being provided with dampers, whereby said communications are controlled, outlets having dampers, whereby the hot gases or products of combustion are made to pass, under, through, between or over each of said ovens, the flues in each of said horizontal sets being also odd in number, substantially as shown and described.

6. The herein-described baking apparatus, comprising an oven-furnace having a fire-box in the bottom thereof, said furnace being provided with a plurality of ovens arranged one above another, the upper ovens being provided with a door at one end, and the lower ovens with a door at the opposite end on a different level from that of the doors of the upper ovens, said ovens being also separated by spaces which are odd in number and provided with flues, said flues being also provided with uptakes in communication with the fire-box, and outlets which form a communication between the furnace and the interior and exterior of said ovens, said uptakes and outlets being provided with escape flues or passages, and dampers, whereby the hot gases or products of combustion are passed through, over or beneath said ovens, and to the chimney of the furnace, substantially as shown and described.

645,094. DOOR-HANGER. LOUIS A. HOERR, St. Louis, Mo. Filed Mar. 27, 1899. Serial No. 710,583. (No model.)



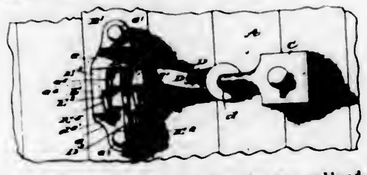
Claim.—As an improved article of manufacture, a car-door hanger comprising, a housing closed at its ends and formed with horizontal slots d^8 d^{10} extending through its sides and terminating short of its ends, an attaching-arm depending from one side of the housing and having a vertical slot d^9 opening at its upper end into the middle of the slot d^8, lugs d^{11} depending from the opposite side of the housing and having rounded lower ends to serve as runners upon the breaking of the sheave-trunnions; the lugs being spaced apart by a vertical slot d^{14} opening at its upper end into the middle of the slot d^{10} and a traveling sheave within the housing with its trunnions in the slots d^8, d^{10}, substantially as described.

645,095. SLIDING DOOR. LOUIS A. HOERR, St. Louis, Mo. Filed Mar. 27, 1899. Serial No. 710,634. (No model.)



Claim.—The combination with a car having a portion of the flooring thereof extending through the doorway beyond the side of the car, of a sliding door adapted to be held out of contact with the side of the car by said flooring, a weather-strip secured to said car and consisting of a base-plate and a flange, and a similar weather-strip secured to said door and adapted to cooperate with said first-named weather-strip.

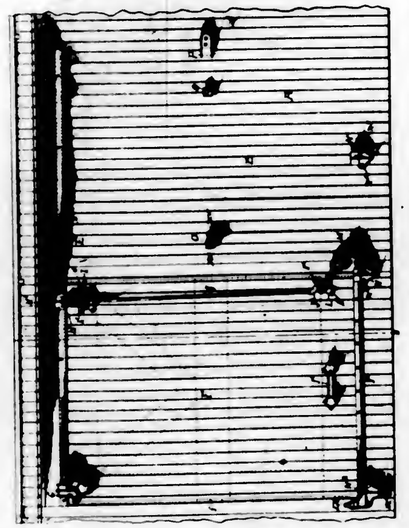
645,096. SEAL-LOCK. LOUIS A. HOERR, St. Louis, Mo. Filed Apr. 7, 1898. Serial No. 712,186. (No model.)



Claim.—1. In a seal-lock, a hasp having an inturned head, a backwardly-extending wing carried by said head, a forwardly-extending wing also carried by said head, a keeper having two outwardly-turned members, a forwardly-extending wing carried by one of said outwardly-turned members, and a rearwardly-extending wing carried by the other of said outwardly-turned members, said wings cooperating with the wings carried by said head.

2. In a seal-lock, a hasp having an inturned head, a keeper having a forwardly-opening slot for engaging with said inturned head, a forwardly-projecting member carried by said keeper, said forwardly-projecting member being provided with a seal-wire opening and acting as a stop to limit the movement of said hasp, and a downwardly-projecting member carried by said hasp and provided with a seal-wire opening adapted to register with the said first-mentioned seal-wire opening.

645,097. CAR-DOOR. LOUIS A. HOERR, St. Louis, Mo. Filed July 10, 1899. Serial No. 723,343. (No model.)



Claim.—1. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, a link connecting said door to said hanger, a longitudinally-movable rod, and a second and independently-movable link connecting said rod to said hanger.

2. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, a bracket carried by said door, a link connecting said bracket and hanger, a rod slidingly carried by said bracket, and a link connecting said rod and hanger.

3. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, a bracket carried by said door, a link connecting said hanger and bracket, a longitudinally-movable rod, a second and independently-movable link connecting said rod and hanger, said latter link being shorter than the link connecting the bracket and hanger, and means for actuating said rod.

4. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, a link connecting said hanger and door, a longitudinally-movable rod, a link connecting said rod and hanger, a lever pivoted to said door to move parallel therewith and pivoted to said rod, and means for locking said lever in position.

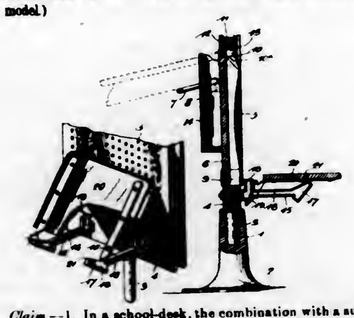
5. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, two links connecting said hanger with said door, a third link situated between said first-named links and pivoted to said hanger, and a longitudinally-movable rod pivoted to said third link.

6. The combination with a car, of a door set into the side thereof, a track, a hanger moving on said track, a bracket carried by said door, two links connecting said hanger and bracket, a third link pivoted to said hanger between said first-named links, a longitudinally-movable rod provided with an inturned head carried by said bracket, and a pocket in said bracket for the reception of said inturned head.

7. The combination of a car; a car-door; a car door track; a hanger on said track; means linking the door to the hanger; a bar having an end movable upward and downward; means linking the bar to the hanger; means limiting the outward movement of the portion of the bar linked to the hanger; a bell-crank lever, with arm substantially parallel to the car-door; means pivotally connecting it to the door; means connecting one arm of said lever to said bar; and means for fastening the other arm of said lever to the car-body.

8. The combination in a freight-car of a rail E, a flush door; a forward hanger suspending the forward part of the door from said rail; a rear hanger H; means linking said rear hanger to a plate I, means fastening said plate to said door; a loop projecting from said plate; a bar J passing through said loop; means linking the upper end of said bar to said hanger H so that a vertical plane passing through the center of the connection to said bar would be inside of a similar plane passing through the centers of the connection to said plate of the means linking it to said hanger H; the casting L, having the pivot l projecting therefrom; means fastening it to said door; a bell-crank lever K, having the disk K' and plate K^2; and fulcrumed at the pivot; means pivotally connecting the lower end of said bar J to the short arm of said lever; and a pin attached to the car-body for engaging said lever-disk, substantially as described.

645,098. SCHOOL-DESK. MOSES M. HOLLMAN and ELIJAH B. FIELDS, Bedford, Ind. Filed Apr. 20, 1898. Serial No. 678,257. (No model.)



Claim.—1. In a school-desk, the combination with a supporting-frame, of a rearwardly-extending swinging stirrup having a horizontal cross-bar spaced from the plane of the frame, means for limiting the downward swinging movement of said stirrup, and a desk-top having its front edge mounted for limited upward and downward sliding movement upon the frame, and adapted, when approximately parallel with the frame, to fit between the plane thereof and said cross-bar of the stirrup, and also adapted, when its front edge is at the limit of its upward movement, to rest at an intermediate point upon said cross-bar of the stirrup, substantially as specified.

2. In a school-desk, the combination of a supporting-frame having parallel guides, slides mounted for limited upward and downward movement upon said guides, a swinging stirrup extending rearwardly from the supporting-frame and having a cross-bar spaced from the plane of said frame, means for limiting the downward swinging movement of the stirrup and a desk-top pivotally mounted at its front edge upon said slides, and adapted, when the slides are elevated to the limit of their movement, to rest at an intermediate point upon said cross-bar of the stirrup, the interval between said cross-bar and the plane of the frame being sufficient to receive the desk-top when the slides are depressed, substantially as specified.

3. In a school-desk, the combination of a centrally-open desk-frame having parallel side bars forming guides, opposite channeled slides mounted upon said guides for limited vertical movement, a swinging stirrup extending rearwardly from the side bars of the frame, and having a cross-bar spaced from the plane thereof, means for limiting the downward swinging movement of the stirrup and a desk-top pivotally mounted upon said slides, and adapted to bear at an intermediate point upon said cross-bar of the stirrup when the slides are at the limit of their upward movement, the interval between said cross-bar and the plane of the frame being sufficient to receive the desk-top when the slides are depressed, substantially as specified.

4. In a school-desk, the combination with a supporting-frame, of seat-supporting arms slotted horizontally and provided with front and rear offset seats communicating with the slots, and a seat provided with shoes fitted to slide in the slots of the supporting-arms for engagement with either of the terminal seats, substantially as specified.

5. In a school-desk, the combination with a supporting-frame, of seat-supporting arms extending in approximately-horizontal positions from said supporting-frame, provided with front and rear offset seats connected by longitudinal slots, the front seats being inclined to the plane of the supporting-arms, and a seat provided at a point contiguous to its rear edge with shoes for engagement with said seats,

and adapted to slide in said slots in passing from one set of seats to the other, the supporting-arms being provided at their front ends with upwardly-extending bearing-points 21 to form front rests for the seat when in its operative position, substantially as specified.

645,099. LAMP. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Nov. 27, 1899. Serial No. 738,246. (No model.)



Claim.—1. In combination, a lamp having a casing, a lens at one side thereof, a removable reflector-carrier at the other side thereof, a reflector, and a holder for said reflector located on said carrier and including a spring-pressed push-pin extending outside of said casing and a plurality of forwardly and radially extending arms adapted to retain said reflector in place and release the same when said pin is pressed forward.

2. In combination, a lamp having a casing, a lens at one side thereof, a removable reflector-carrier at the other side thereof adapted, when removed, to expose the interior of the casing from the outside, a reflector, a spring-holder for said reflector located on said carrier and provided with means extending outside of said carrier for releasing said reflector from the outside of said carrier.

3. In a lamp in combination a reflector-carrier, a reflector, and a holder for said reflector provided with spring-pressed means extending rearwardly of said reflector and outside of said carrier, said means being forwardly movable from the outside of said carrier to release said reflector from said carrier.

4. In combination, a lamp having a casing, a lens at one side thereof, a removable reflector-carrier at the other side thereof, a reflector and a glass protector for the same, a holder for said glass located on said carrier and including a spring-pressed push-pin extending outside of said casing and a plurality of forwardly and radially extending arms adapted to retain said glass in place and release the same when said pin is pressed forward.

5. In combination, a lamp having a casing, a lens at one side thereof, a removable reflector-carrier at the other side thereof adapted, when removed, to expose the interior of the casing from the outside, a reflector and a glass protector for the same, a spring-holder for said glass located on said carrier and provided with means extending outside of said carrier for releasing said glass from the outside of said carrier.

6. In a lamp in combination a reflector-carrier, a reflector and a glass protector therefor, and a holder for said glass provided with spring-pressed means extending rearwardly of said reflector and outside of said carrier, said means being forwardly movable from the outside of said carrier to release said glass.

645,100. ROPE-FASTENING DEVICE. FRANK P. HOWARD, Sherman, Tex. Filed Nov. 17, 1899. Serial No. 737,323. (No model.)



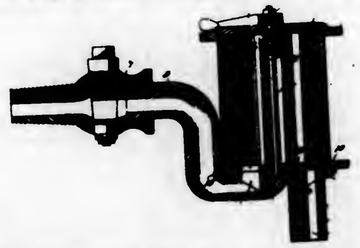
Claim.—1. A rope-fastening device, comprising a metallic socket, having a tapering bore, and a rope received within the bore, and provided with a wrapping of wire, the latter adapted to bind against the walls of the bore and also protect the rope.

2. A rope-fastening device, comprising a metallic tubular socket, having a tapering bore, a rope received within the bore, and a wire, having one end formed into a prong, which is driven through the rope, and the remaining portion of the wire being formed into a spiral, to tightly embrace the rope and bind upon the walls of the bore.

3. The combination with a snap-hook, of a tubular socket, located opposite the bill of the snap-hook, and extending longitudinally thereof, said socket having a tapering bore, which decreases in diameter from the inner end of the socket, a rope received within the bore of the socket, and a wire wrapped upon the rope, and adapted to bind upon the walls of the bore.

645,101. MEASURING-FAUCET. DAVID R. JACKSON, Pine Bluff, Ark. Filed July 20, 1899. Serial No. 724,535. (No model.)

Claim.—1. A measuring-faucet comprising a base, a horizontally and downwardly extending inlet-tube connected with the base and opening therethrough, an annular depression in the base, a transparent hollow cylinder seated in the depression and having a scale marked thereon, a cap for the cylinder, connections between the cap and base for holding said element in position, an outlet-opening in the base opposite the inlet-opening, a rotatable shaft journaled in the cap and base, a disk carried by and rotatable with the shaft in contact with the base and having a perforation adapted to aline with the openings of the base alternately to permit filling and emptying of the cylinder, yieldable means for holding the disk in contact with the base, and means for rotating the shaft.



2. A measuring-faucet comprising a base, a laterally and upwardly extending tube connected with the base and opening therethrough, an annular depression in the base, a transparent cylinder seated in said depression, said cylinder being hollow, a cap for the cylinder, connections between the cap and base for holding said elements in position, a second opening in the base, an extensible tube connected with said opening, a shaft journaled in the cap and the base, a disk carried by the shaft in contact with the base and having a perforation adapted to aline with the openings of the base alternately, yieldable means for holding the disk in contact with the base and means for rotating the disk.

645,102. COMBINED CHAIR AND TABLET. OSCAR S. JENNINGS, Danby, N. Y. Filed Sept. 19, 1898. Serial No. 731,009. (No model.)



Claim.—1. A combined chair and tablet comprising a chair having a back, and a rod secured transversely thereto, a tablet having a slotway in its lower face adapted to engage said rod, and means for holding the tablet in substantially a horizontal plane out of alinement from an imaginary line running vertically to the seat of the chair.

2. A combined chair and tablet, comprising a chair having a back, said back being provided with an opening in its upper end, and a rod secured transversely therein, a tablet having a slotway on the lower face, adapted to engage said rod, and uprights pivoted to the chair and tablet, as set forth.

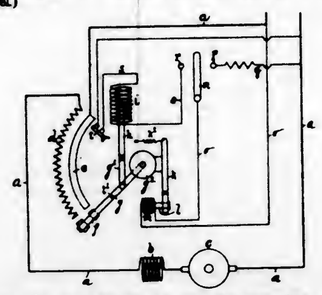
3. A combined chair and tablet, comprising a chair having a back provided with an opening in its upper end, a rod secured transversely therein, a tablet having a strip secured to its lower face, and provided with a slotway, said slotway being adapted to engage the rod and said strip being so constructed as to fit the opening in the upper end of the back, and means for locking it therein, as set forth.

4. A combined chair and tablet, comprising a back, said back being provided with a transverse rod, a bracket secured to the lower face of the tablet, one end of which is adapted to form with the lower face of the tablet a slotway, in which slotway the rod is adapted to travel, and uprights pivoted to the chair and the opposite end of said bracket.

5. A combined chair and tablet comprising a chair having an upright or back, a rod secured transversely thereto, a bracket secured to the lower face of the tablet adapted to form with the lower face of the tablet a slotway, in which slotway the rod is adapted to travel, and means for holding the tablet in substantially a horizontal plane out of alinement from an imaginary line running vertically to the seat of the chair.

6. A combined chair and tablet, comprising a back, said back being provided with a transverse rod, a bracket secured to the lower face of the tablet, one end of which is adapted to form with the lower face of the tablet a slotway, in which slotway, the rod is adapted to travel, and an upright or support pivoted at one end to the chair or back, and the opposite end to the tablet.

645,103. ELECTRIC-CIRCUIT CONTROLLER. BENJAMIN H. JONES, Orange, N. J. Filed July 21, 1899. Serial No. 724,605. (No model.)



Claim.—1. An electric-circuit controller comprising a movable circuit-controlling contact, an electromechanical device to move the same, a brake to cooperate with said contact, an electromechanical device to operate said brake, a switch included with the last-named electromechanical device in one leg of an electric circuit, a contact for said switch connected directly to the other leg of said circuit, and a second contact for said switch connected to the second leg of said circuit through the first-named electromechanical device, substantially as shown and described.

2. An electric-circuit controller comprising a movable circuit-controlling contact, a solenoid having its core connected to said contact to move the same in one direction, a brake to cooperate with said movable contact, a second solenoid having its core operatively connected with said brake, an electric switch and connections therefrom to said solenoids whereby their electrical condition may be controlled by the movement of said switch, substantially as shown and described.

3. An electric-circuit controller comprising a circuit-controlling arm, a solenoid having its core connected to said arm to move the same in one direction, a brake to cooperate with said arm, a second solenoid having its core operatively connected with said brake, an electric switch and connections therefrom to said solenoids whereby their electrical condition may be controlled by the movement of said switch, substantially as shown and described.

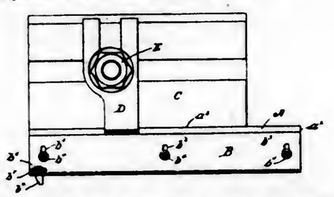
4. An electric-circuit controller comprising a circuit-controlling arm movable in a vertical plane, a solenoid having its core connected to said arm to lift the same, a brake to cooperate with said arm and check its downward movement, a second solenoid having its core operatively connected with said brake, an electric switch and connections therefrom to said solenoids whereby their electrical condition may be controlled by the movement of said switch, substantially as shown and described.

5. An electric-circuit controller comprising a circuit-controlling arm movable in a vertical plane, a solenoid having its core connected to said arm to lift the same, a brake to cooperate with said arm and check its downward movement, a second solenoid having its core operatively connected with said brake, a spring acting in opposition to the solenoid to apply the brake, an electric switch and connections therefrom to said solenoids whereby their electrical condition may be controlled by the movement of said switch, substantially as shown and described.

6. An electric-circuit controller comprising a movable circuit-controlling contact, a solenoid having its core operatively connected to said contact, a brake to cooperate with said movable contact, a second solenoid having its core operatively connected with said brake, a switch included with the second solenoid in one leg of an electric circuit, a contact for said switch connected directly to the other leg of said circuit and a second contact for said switch connected to the second leg of said circuit through the first-named solenoid, substantially as shown and described.

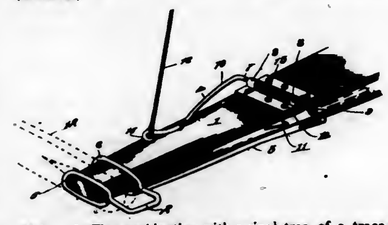
645,104. GAGE. WINFRED H. JOHNS, Rochester, N. Y. Filed May 17, 1899. Serial No. 717,214. (No model.)

Claim.—1. A gage consisting of a plate A, having on the surface thereof a graduated scale; of a plate B, having formed integral therewith a flange *b* of a depth equal to the thickness of plate A; a laterally-adjustable arm secured to said plate B, and means for securing said plates A and B one upon the other in such relation to each other that the edge a^2 of plate A, extends beyond the edge of plate B, the proper distance for setting a knife at its highest cutting-point, and in such manner that the edge of such flange *b*, is on a level with the surface of said plate A, and of equal distance to the edge thereof, for the purpose of adjusting said knife on the surface of plate A, to cut at the required depth, substantially as described.



2. A gage consisting of the plates A, and B, of equal width; of a graduated scale on the surface of said plate A; of a flange formed integral with said plate B, and of a depth equal to the thickness of said plate A; of a laterally-adjustable arm secured to said plate B, and means for adjustably securing said plates A, and B, one upon the other, so that the edge of said flange *b*, is on a level with the surface of said plate A, substantially as described.

645,105. TRACE-LOCK. CICERO I. KIRKSEY and FOUNTAIN P. BOWDEN, Russellville, Ark. Filed Dec. 28, 1899. Serial No. 741,554. (No model.)



Claim.—1. The combination with a singletree, of a trace-shifting frame, having an inner guide slidably embracing the singletree, an outer trace-stop, a trace-receiving loop connecting the guide and the stop, and means for reciprocating the frame upon the singletree.

2. The combination with a singletree, of a trace-shifting frame, having outer and inner alined guide-eyes slidably embracing the singletree, the outer guide-eye forming a trace-stop, a trace receiving loop connecting the guide-eyes, and operating devices for reciprocating the trace-shifting frame longitudinally upon the singletree.

3. The combination with a singletree, of a trace-shifting frame mounted to slide longitudinally thereon, a spring-actuated bell-crank-operating lever mounted transversely upon the singletree, one arm of the lever extending transversely across one edge of the singletree and also connected to the trace-shifting frame, a stop carried by the singletree and arranged in the path of the arm, to check the movement of the lever in one direction, and the opposite arm of the lever being arranged for contact with the singletree to check the movement of the lever in the opposite direction.

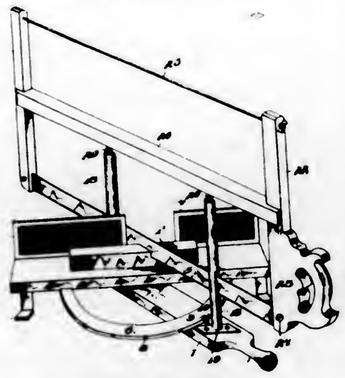
4. In a trace-shifting device for singletrees, a trace-shifting frame, consisting of a substantially U-shaped trace-receiving loop, the inner side of which is formed into a guide-eye, and the outer side into a stop, and a connecting-rod extending outwardly from the guide-eye.

5. In a trace-shifting device for singletrees, a trace-shifting frame formed from a single length of wire, and comprising a substantially-straight connecting-rod, one end of which is bent into a laterally-disposed U-shaped trace-receiving loop, the opposite sides of the latter being bent into eyes, which are alined longitudinally of the rod.

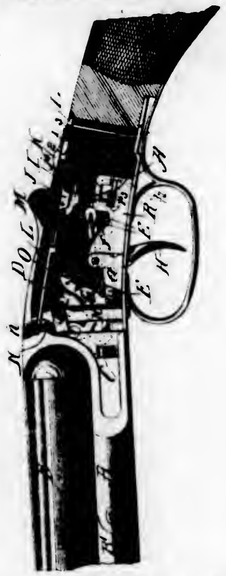
645,106. MITERING-MACHINE. CHARLES LEHIFER, Allegheny, Pa. Filed Jan. 17, 1899. Serial No. 702,414. (No model.)

Claim.—In a mitering-machine, the combination of a table or box adapted to receive the material to be cut, an operating-handle pivotally connected to the underneath face thereof and provided with an L-shaped opening in one end thereof, a pair of vertically-extending hollow saw-guides provided with interior screw-threads, one of

the said guides mounted near each end of the said handle and each provided at their lower end with an elongated slot, a saw-frame, an adjustable saw-blade secured to the said frame and operating through the said slots, a pair of screw-threaded stop-rods engaging in the said guides, a brace 26 carried by the said saw-frame provided in its underneath face with an elongated groove in which operate the said stop-rods for limiting the downward movement of the said saw-frame, an L-shaped stop-pin mounted in the L-shaped opening of the said handle, a plate secured to the underneath face of the said handle for supporting the L-shaped stop-pin, a spring mounted on the said plate and operating against the said pin for retaining the same in a locked position, a finger-catch formed integral with the said pin, and a segmental rack-bar secured to the said table or box and provided on its outer edge with a series of notches adapted to be engaged by the said stop-pin, substantially as described.



645,107. **SINGLE-TRIGGER MECHANISM.** WILLIAM M. LEVY, St. Louis, Mo. Filed Sept. 5, 1899. Serial No. 729,499. (No model.)



Claim.—1. The combination with a plurality of firing mechanisms, of a single trigger therefor, tumblers interposed between said trigger and firing mechanisms, a shiftable device in engagement with the trigger and normally out of engagement with the tumblers, and means for moving said device into a position to engage one or the other of said tumblers; substantially as described.

2. The combination with a plurality of firing mechanisms in which are included hammers and sears, of a single trigger common to all of said mechanisms, independently-operable tumblers for operating the different sears, and means for engaging the single trigger successively with the different tumblers; substantially as described.

3. The combination with a plurality of firing mechanisms in which are included hammers and sears, of a single trigger common to all of said mechanisms, tumblers coöperating with said sears and said trigger, and a manually-operable device for engaging said trigger with, or disengaging said trigger from, one or all of said firing mechanisms; substantially as described.

4. The combination with a plurality of firing mechanisms, of a single trigger common to all of said mechanisms, devices interposed between said single trigger and said mechanisms, and manually-operable means designed to coöperate with the trigger and said devices whereby, when said means are in one position the successive operations of the trigger will successively operate the different firing mechanisms, said means in another position causing the engagement between said trigger and but one of said firing mechanisms through said devices; substantially as described.

5. The combination with a plurality of firing mechanisms, of a single trigger common to all of said mechanisms, independently-operable tumblers common to the respective firing mechanisms, and to the single trigger, and a manually-operable device in engagement with the trigger for engaging said trigger with one of said tumblers, whereby, when the trigger is operated, the engaged tumbler only is moved; substantially as described.

6. In a breakdown gun, the combination with the breech-locking mechanism, of a slide which may be controlled or thrown out of control of the breech-locking mechanism, a depending stud or projection carried by said slide, a plurality of independently-movable tumblers formed with shoulders and recesses, which coöperate with said depending stud or projection, and a single trigger for engaging and coöperating with said depending stud or projection and with said tumblers; substantially as described.

7. In a breakdown gun, the combination with a plurality of firing mechanisms, of a single trigger for operating all of said mechanisms independently of each other, a plurality of tumblers common to said single trigger, but operable independently thereby, said tumblers forming part of the several firing mechanisms, a notched tang, a slide arranged therebeneath and provided with a tooth for engaging notches in the tang to hold said slide and its associate parts in different positions, a rocking frame mounted on said slide, a spring-pressed stud carried by said frame for causing successive engagements between the trigger and the tumblers, and a slide-bar extending from the breech-operating mechanism into position to shift the slide and its carried parts when said slide is in a forward position upon the breaking of the gun; substantially as described.

8. The combination in a breakdown gun, of a breech-locking mechanism, an independent slide operated thereby and having a locked position to the rear of the position where it is engaged by the breech-locking mechanism, a depending stud on said slide, a tumbler which engages the slide-stud in its rear position, and a trigger for operating said stud; substantially as described.

9. In a breakdown gun, the combination with a breech-locking mechanism and a plurality of firing mechanisms which include independently-operable tumblers, a single trigger common to all of said tumblers, a slide which is movable from one of its positions by the breech-locking mechanism, a device carried by said slide and in engagement with the trigger, which device is adapted to engage one of said tumblers or all of said tumblers successively, and an externally-arranged thumb-piece connected to said slide and designed to be manually operated, said thumb-piece coöperating with indexes, whereby the position of said slide and its carried parts relative to the tumblers may be determined; substantially as described.

10. The combination with a plurality of firing mechanisms, of a single trigger common to all of said mechanisms, tumblers interposed between said trigger and mechanisms, a slide, a frame pivoted to said slide, a spring-pressed rod carried by said frame, an extension on the trigger which is engaged by the lower end of said rod, and lateral projections extending from the lower end of said rod and coöperating with shouldered recesses in the tumblers, substantially as described.

11. The combination with a hammer carrying a lifting projection, of a sear, a tumbler for disengaging the sear from the hammer, the lifting projection of the hammer holding the sear out of engagement with the tumbler when said hammer is tripped, a spring for holding the tumbler in an elevated position after the sear trips the hammer whereby the connecting-stud may pass from engagement with the tumbler, a trigger coöperating with said tumbler and a connecting medium between the trigger and the tumbler; substantially as described.

12. The combination with a trigger provided with an extension, of a spring-pressed stud slidingly arranged on said trigger extension, a yielding rocking frame in which said stud is slidingly mounted, a slide which carries said frame, lateral projections on the lower end of said stud, primary and secondary tumblers provided with shouldered recesses for coöperating with said lateral projections, sears which are designed to be engaged by said tumblers, hammers which are tripped by said sears, and a lifting projection on the hammer tripped by the sear of the primary tumbler; substantially as described.

13. The combination with the tang, of a slide J arranged therebeneath, a spring-pressed rocking frame J' mounted on said slide, means for arresting the movement of said frame in one direction, a stud slidingly fitted in a bore in said frame, a roller carried by the lower end of said stud, lateral projections extending from the lower end of said stud, tumblers, with which said lateral projections coöperate, a trigger provided with an extension for receiving the stud-roller, and a spring interposed between the rocking frame and the stud for holding said roller in engagement with the trigger extension and said trigger in a forward position; substantially as described.

14. The combination with a firing mechanism, of a trigger, a tumbler common to said trigger and said firing mechanism, and a movable slide carrying a stud with a projection for causing the engagement of said trigger with said tumbler, said tumbler being provided with recesses q', q^2, and q^3, for coöperating with the projection on the slide-stud; substantially as described.

15. The combination with a firing mechanism, of a trigger for operating the same, a tumbler common to said trigger and said firing mechanism, and a slide carrying a stud with a projection for causing engagement between said trigger and tumbler, said tumbler being provided with recesses r', r^2 and r^3, for coöperating with stud projection; substantially as described.

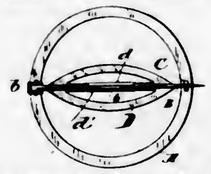
16. The combination with the primary tumbler provided with recesses q', q^2, and q^3, and a secondary tumbler, provided with recesses r', r^2 and r^3, of a slide carrying a stud with a projection for coöperating with said recesses, a single trigger for coöperating with said stud, and operating one or the other of said tumblers therethrough, and independent firing mechanisms which are operated by said tumblers; substantially as described.

17. The combination with a plurality of firing mechanisms including hammers and sears, of means for holding at least one of said sears, after its associate mechanism has been released, in a position different from that occupied by said sear before its connected mechanism was released, so that another firing mechanism can be operated only after the sear reaches its last-mentioned position, a single-trigger mechanism common to all of said firing mechanisms and independently-operable devices interposed between said trigger and sears for connecting or disconnecting said trigger with and from said sears respectively; substantially as described.

18. The combination with a plurality of firing mechanisms including hammers and sears, of independently-operable tumblers, movable with the different sears, means for holding one of said sears and its coöperating tumbler in a position, after the release of the firing mechanism controlled thereby, different from that occupied by said sear and tumbler before said mechanism was released, whereby the other mechanism can be fired only after the sear and tumbler first mentioned, are operated, and their position changed, and a single trigger coöperating with said tumblers and their associate sears; substantially as described.

19. The combination with a plurality of firing mechanisms, of separately-operable releasing devices therefor, primary and secondary tumblers coöperating with said releasing devices, a single trigger coöperating with said tumblers, and means for holding the releasing devices of the firing mechanisms first operated, in a position different from that which it occupied before operation, that is, the primary tumbler is moved out of operative relation with respect to the trigger, permitting the establishment of operative relation between the trigger and secondary tumbler; substantially as described.

645,108. **JEWELRY.** GEORGE LIPOKA, Jersey City, N. J. Filed May 24, 1899. Serial No. 717,997. (No model.)



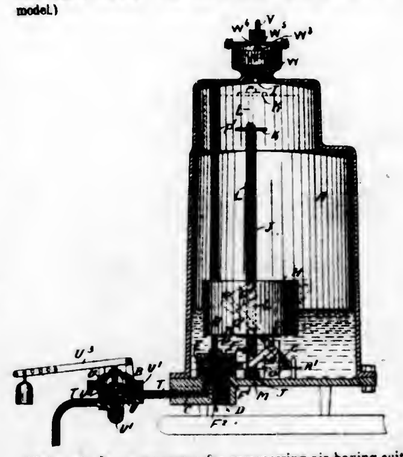
Claim.—1. The combination with an article of jewelry and its pin, of a detachable supplemental piece pointed at its opposite ends to facilitate its passage through the hair, and means for retaining said supplemental piece against turning when in position on the pin.

2. The combination, with an article of jewelry, of a hinged pin having a tongue, means for securing the free end of the pin and a detachable supplemental piece provided with a groove with which said tongue engages.

3. The combination, with an article of jewelry, of a hinged pin provided with a detachable supplemental piece, means for holding said supplemental piece from turning when in position on the pin, and a catch for locking the pin.

4. The combination, with an article of jewelry, of a hinged pin having a tongue, a detachable supplemental piece in which said tongue works, and a catch for locking the pin.

645,109. **HYDRAULIC AIR-COMPRESSOR.** NORMAN J. LOCKYER, Lenzie, Scotland. Filed Nov. 3, 1898. Serial No. 610,972. (No model.)



Claim.—1. In an apparatus for compressing air having suitable air inlet and outlet, and also suitable water inlet and outlet, a piston-valve controlling both water-openings and the air-inlet, a tumbler-lever connected with said valve, and a float adapted, when it arrives near the upper end of its course, to operate said lever and thus cause the valve to close the water-inlet and open the air-inlet and water-outlet, and when said float arrives near the lower end of its course, to open the water-inlet and close the air-inlet and water-outlet, substantially as set forth.

2. In apparatus for compressing air, the combination with an air-chamber having suitable water and air inlet and outlet pipes, of a valve controlling the water inlet and outlet, a float, a slotted tube J along which the same moves, rod L moving in said tube and adapted to engage with the float and having a slotted portion M, and bell-crank lever N actuated by said slotted portion and adapted to operate aforesaid valve, substantially as set forth.

645,110. **PROCESS OF PREPARING REMEDIAL SUBSTANCES FROM SWINE-BLOOD.** GUSTAV LORENZ, Darmstadt, Germany, assignor to the Rothlauf Serum Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Filed July 6, 1898. Serial No. 685,267. (No specimens.)

Claim.—1. The method of preparing a permanent preparation containing in determined proportions the white corpuscles of the blood of swine immuned against swine fever consisting in purifying the serum with a concentrated solution of chlorid of calcium, allowing the serum to stand a short time, then precipitating the same fractionally with sulphate of ammonia in such proportion that the first precipitate will include only the fatty compounds and albuminous substances, which interfere with the subsequent solution of the residue containing the white corpuscles, and then precipitating the white corpuscles by the further addition of sulphate of ammonia.

2. The method of preparing a permanent preparation containing in determined proportions the white corpuscles of the blood of swine immuned against swine fever consisting in purifying the serum with a concentrated solution of chlorid of calcium, allowing the serum to stand a short time, then precipitating the same fractionally with sulphate of ammonia in such proportions that the first precipitate will include only the fatty compounds and albuminous substances, which interfere with the subsequent solution of the residues containing the white corpuscles, and then precipitating the white corpuscles by the further addition of sulphate of ammonia, drying the precipitate containing the white corpuscles upon plates and then dissolving the same

in a fluid composed of water, glycerin, salicylate of soda, carbonate of soda, and carbolic acid in the proportions substantially as described.

645,111. WRITING-TABLET BINDER. JOHN F. MALETTE, Rochester, N. Y. Filed June 29, 1899. Serial No. 553,741. (No model.)



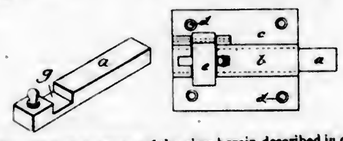
Claim.—In a ready-made device for bookbinding, a writing-tablet-binder, which consists in an article constructed of three parts, the first part A, being material in size and make suitable for a tablet or book cover or lid, attached at one edge to one edge of the second part B, which is a strip of binders' cloth or other material cut in suitable pattern and size to fit and bind the back of the tablet, this strip having been made and coated with the third part C, which is a flexible adhesive, to be moistened before using, the device thereby being made ready for immediate use, and is then adapted by reason of the moistened adhesive, and through such combination of its three parts, by the one operation, both to bind a tablet, and also to be securely attached as a permanent cover thereto, as hereinbefore fully described.

645,112. DICE. VICTOR MAPES, New York, N. Y., assignor of one-half to Oakleigh Thorne, Millbrook, N. Y. Filed Jan. 21, 1899. Serial No. 702,890. (No model.)



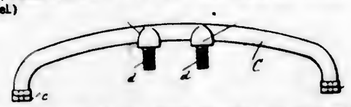
Claim.—An improved set of five dice for playing games, each being in the form of a dodecahedron carrying the representations and designations of the fifty-two cards, and provided with means for preventing the exposure of a blank or unoccupied facet, substantially as set forth.

645,118. WINDOW-FASTENER. ARTHUR T. R. MARKHAM, Bexley Heath, England. Filed Feb. 20, 1899. Serial No. 706,204. (No model.)



Claim.—In sash-fasteners of the class herein described in combination, a socket-piece, attached to one sash, a bolt sliding therein provided with two recesses, a catch-piece pivotally connected to said socket-piece, and so balanced, as after being raised, to fall; said catch-piece being adapted to engage in the recess formed in said bolt, a socket attached to the other sash for the reception of the end of the sliding bolt for the purpose of locking or securing the two sashes, substantially as described, and illustrated herein, and for the purpose set forth.

645,114. BODY-HANGER FOR VEHICLES. HERBERT C. MARTELL, Columbus, Ohio. Filed Aug. 5, 1899. Serial No. 726,306. (No model.)

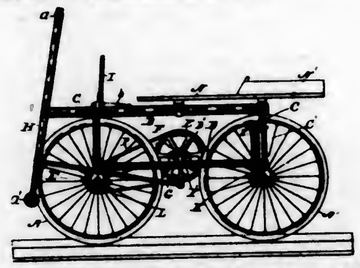


Claim.—1. A vehicle-body hanger provided with an imperforate middle portion having integrally-formed studs for connecting it to the spring, and having attachments for the vehicle-body at its ends, substantially as set forth.

2. A vehicle-body hanger provided with an imperforate middle portion having a bearing-surface and integrally-formed studs for connecting it to the spring, and having attachments for the vehicle-body at its ends, substantially as set forth.

3. A vehicle-body hanger provided with an imperforate middle portion having downwardly-projecting screw-threaded studs formed integral with it for connecting it to the spring, and having attachments for the vehicle-body at its ends, substantially as set forth.

645,115. RAILWAY-VELOCIPEDE. JOHN G. MATTHEWS, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed June 16, 1899. Serial No. 720,773. (No model.)

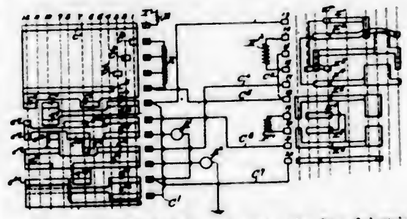


Claim.—1. In a railway-velocipede, the combination of the main frame consisting of the top rib B, U-shaped pieces C, C, at each end with side pieces D, connected thereto; brackets on said side pieces D; a shaft F, resting in said brackets and having cranks F', F', at each end; a sprocket-wheel E, on said shaft; a sprocket-wheel E', on the axle of the driving-wheel; levers H, pivoted to the front of said frame; pitmen G, connecting said levers to the cranks; foot-rests *d'*, at the bottoms of said levers; handles *e*, at the top and an arm supporting a guide-wheel to rest on the opposite rail, coacting for the purpose specified.

2. In a railway-velocipede, the combination of a frame having a top rib B, and U-shaped cross-piece in front; a lever with a bearing to embrace said U-shaped section; a bracket-shoe pivoted to the front end of said lever and a spring *b*, connected to the upper part of said lever to hold it normally out of engagement for the purpose specified.

3. In a railway-velocipede, the combination of the main frame; wheels beneath the same, the forward one of which is the driving-wheel; a lateral arm carrying a guide-wheel; a driving-shaft supported in the main frame just back of the driving-wheel; a sprocket-wheel on the driving-shaft; and a sprocket-wheel on the axle of the driving-wheel; a sprocket-chain connecting the same; a crank on the driving-shaft; a lever pivoted to the front of the frame having a foot-rest at the bottom and handle at the top; and a connecting-link from said lever to the crank on the driving-shaft, all coacting, for the purpose specified.

645,116. ELECTRIC-MOTOR CONTROL. FRANK A. MERRICK, Johnstown, Pa., assignor to the Johnson Company, of Pennsylvania. Filed Apr. 19, 1899. Serial No. 713,690. (No model.)



Claim.—1. The method of accelerating a plurality of electric motors, which consists in shifting them from series to parallel relation by first connecting one element of each in multiple with the corresponding element of the other or others with the remaining elements in series, and then reversing such relation by circuit changes wherein the multiple-connected elements are coupled in series and the series-connected elements are coupled in parallel, and finally coupling the two motors as a whole in parallel.

2. The method of accelerating a plurality of electric motors, which consists in starting with the motors connected in series, then connecting the fields in parallel with the armatures in series, then reversing this relation by connecting the fields in series with the armatures in parallel, and finally connecting the motors as a whole in parallel.

3. The method of accelerating a plurality of electric motors, which consists in starting them in series, then cutting out one motor, and subsequently again connecting it in circuit with its field in parallel with that of the other motor, and its armature in series with that of the other motor, then reversing this relation by circuit changes whereby the two fields are connected in series with the two armatures in parallel, and finally connecting the two motors as a whole in parallel.

4. The method of accelerating a plurality of electric motors, which consists in starting them in series, then connecting their fields in parallel with their armatures in series, then successively cutting out the elements of one motor, and reconnecting them in circuit with the two fields in series and the armatures in parallel, then again successively cutting out the elements of one motor, and finally connecting the two motors as a whole in parallel.

5. The method of accelerating a plurality of electric motors, which consists in starting them in series, then cutting out one motor, and reconnecting its elements in circuit with the other motor with the two fields in multiple and the two armatures in series, then again cutting out one motor, and subsequently reconnecting its elements in series with the other motor with the two fields in series and the two armatures in parallel, then again cutting out one motor, and finally connecting the two motors as a whole in parallel.

6. The method of shifting two motors from series to parallel, which consists in short-circuiting and then cutting out one motor, then connecting in its armature in series with the armature of the other motor, and its field-windings in parallel with those of the other motor, then again gradually cutting out one motor, and subsequently again connecting it in circuit with the other motor with the two fields in series and their armatures in multiple, then again gradually cutting out one motor and finally again connecting it in circuit with the two motors as a whole in parallel.

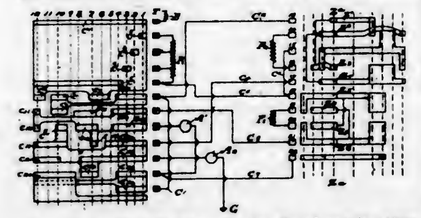
7. The method of accelerating a plurality of electric motors, which consists in starting them in series with each other and with external resistance, gradually cutting out said resistance, then effecting circuit changes by which one element is connected in parallel with the corresponding element of the other motor or motors, with the other elements in series then reversing this relation by effecting circuit changes to couple the series-connected elements in parallel and the parallel-connected elements in series and finally connecting the two motors as a whole in parallel.

8. The method of accelerating a pair of electric motors which consists in starting them in series with each other and with artificial resistance, then gradually cutting out the resistance, then effecting circuit changes to connect the two fields in parallel with the two armatures in series, then effecting further changes to connect the two fields in series and the two armatures in multiple, and finally connecting the two motors as a whole in parallel.

9. The method of accelerating a pair of electric motors, which consists in starting them in series, then effecting circuit changes by which the fields are connected in parallel and the armatures in series, then reversing the relation by changes which connect the fields in series and the armatures in parallel, and finally connecting the two motors as a whole in parallel, one motor intermediate of each of said changes being momentarily cut out of circuit.

10. The method of accelerating a pair of electric motors, which consists in starting them all in series, then cutting out one motor and reconnecting its elements in circuit with the field-coils of the two motors in parallel and their armatures in series with each other and with the fields, then again cutting out one motor and reconnecting its elements in circuit with the field-coils in series and the armatures in parallel, then breaking the circuit through the armature of one motor, and subsequently the circuit through one field, and finally connecting the two motors as a whole in parallel.

645,117. ELECTRIC-MOTOR CONTROL. FRANK A. MERRICK, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Original application filed Apr. 19, 1899, Serial No. 713,690. Divided and this application filed Aug. 11, 1899. Serial No. 726,924. (No model.)



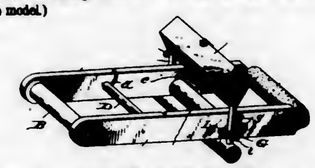
Claim.—1. The combination with a plurality of electric motors, of a controlling-switch having electrically-disconnected groups of contacts and connections arranged in different positions of the switch to connect the motors in series, the armatures in series and the fields in parallel, or the fields in series and the armatures in parallel, and also to remove or cut out of circuit one or more of the motor elements in passing from one of said connections to another.

2. The combination with a plurality of electric motors, of a controlling-switch having electrically-disconnected groups of contacts and connections arranged in different positions of the switch to connect the motors in series, the armatures in series and the fields in parallel; or the fields in series and the armatures in parallel; or the motors as a whole in parallel.

3. The combination with a plurality of electric motors, of a controlling-switch having electrically-disconnected groups of contacts and connections arranged in different positions of the switch to connect the motors in series, the armatare in series, and the fields in parallel, or the fields in series and the armatures in parallel, or the motors as a whole in parallel, and also to short-circuit and cut out either motor or either element thereof.

4. The combination with a plurality of motors, and external resistance, of a switch having electrically-disconnected groups of contacts and connections, said contacts and connections being arranged to connect the motors in series with and without the external resistance, to connect the corresponding pairs of motor elements in both series and parallel relation to each other, and to connect the motors as a whole in parallel.

645,118. APPARATUS FOR HANGING WALL-PAPERS. THOMAS R. MOFFITT, Bathgate, N. D. Filed June 20, 1899. Serial No. 722,290. (No model.)

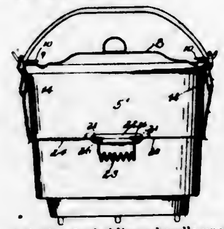


Claim.—1. An apparatus for hanging wall-papers, comprising the longitudinal side pieces, a supporting-roller and guide-rollers journaled between the side pieces on a line with each other, a paste-distributing pipe or trough located under one of the guide-rollers, a reservoir located above the frame, and feed-pipes connecting the reservoir to the distributing pipe or trough, substantially as shown and for the purpose set forth.

2. An apparatus for hanging wall-papers, comprising the longitudinal side pieces, a guide-roller at one end of the side pieces and a smoothing-roller at the other end of the same, a removable paper-supporting roller located between the side pieces adjoining the guide-roller, and a guide-roller located between the paper-supporting roller and smoothing-roller, a distributing-pipe beneath the last-mentioned guide-roller, a reservoir located above said guide-roller, and feed-pipes connecting the reservoir to the distributing-pipe, substantially as shown and for the purpose set forth.

3. An apparatus for hanging wall-papers, comprising the longitudinal side pieces, a guide-roller at one end of the side pieces and a smoothing-roller at the other end of the same, a removable paper-supporting roller located between the side pieces adjoining the guide-roller, and a guide-roller between the paper-supporting roller and smoothing-roller, a reservoir located above said guide-roller, and a distributing-pipe located below the same, feed-pipes connecting the reservoir with the distributing-pipe, and springs forcing said guide-roller upon the distributing-pipe, substantially as shown and for the purpose set forth.

645,119. TIPPING-HANDLE AND COVER HOLDER FOR KETTLES. ELIJAH MORRISON, Haverhill, Mass., assignor of one-half to Edward G. Morrison and Burton R. Morrison, same place. Filed Dec. 8, 1899. Serial No. 739,635. (No model.)



Claim.—1. A device for holding a handle upon the side of a kettle, consisting of a spring-wire adapted to encircle the body of said kettle, a handle fast to said spring-wire, a spring-clamp formed to embrace one of the bail-ears on said kettle and a wire connecting said spring-wire and spring-clamp.

2. A device for holding a cover to a kettle and for holding a handle upon the side of said kettle, consisting of a spring-clamp formed to embrace one of the bail-ears on said kettle and having a spring-ear formed thereon to engage the upper surface of a cover placed on said kettle; a spring-wire adapted to encircle the body of said kettle, a handle fast to said spring-wire, and a wire connecting said spring-wire and said spring-clamp.

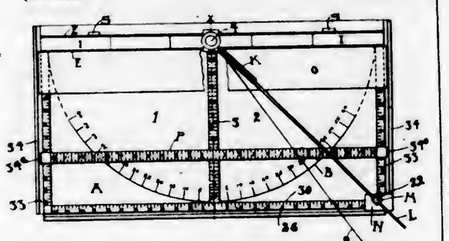
3. A device for holding a cover to a kettle, consisting of a spring-clamp formed to embrace one of the bail-ears on said kettle, a spring-ear formed thereon to engage the upper surface of a cover placed on said kettle, and spring-clamp hooks depending therefrom, the free ends of said spring-clamp hooks formed to bear against the side of said kettle.

4. A device for holding a handle upon the side of a kettle, consisting of a spring-wire adapted to encircle the body of said kettle, hooks formed upon the free ends of said spring-wire, a plate attached to said spring-wire by said hooks and a handle fast to said plate.

5. A device for holding a cover to a kettle, and for holding a handle upon the side of said kettle, consisting of a spring-clamp formed to embrace one of the bail-ears on said kettle, a spring-ear formed thereon to engage the upper surface of a cover placed on said kettle; spring-clamp hooks depending therefrom; a spring-wire adapted to encircle the body of said kettle, a handle fast to said spring-wire and a wire connecting said spring-clamp and spring-wire.

6. A device for holding a cover to a kettle and for holding a handle upon the side of said kettle, consisting of a spring-clamp formed to embrace one of the bail-ears on said kettle, a spring-ear formed thereon to engage the upper surface of a cover placed on said kettle and spring-clamp hooks depending therefrom; a spring-wire adapted to encircle the body of said kettle, a handle fast to said spring-wire, a connecting-wire formed of a single wire having an eye at one end engaging said spring-wire, hooks at the opposite end engaging said spring-clamp hooks and a twisted central portion.

645,120. **DOUBLE MITER-BOX AND CALCULATOR.** PATRICK F. MCDONALD, Dunmore, Pa. Filed Oct. 13, 1899. Serial No. 733,499. (No model.)



Claim.—1. In a miter box or machine, the combination with the base, a longitudinally-slotted guide-post mounted thereon, and means for securing said post in different rotary and angular adjustments, of a saw-guide consisting of two independent plates secured to the post, said guide being adjustable bodily along the post, and also angularly in the plane of the slot.

2. In a miter box or machine of the kind described, the combination with the adjustable post having two longitudinal slots formed therein at right angles to each other, of a saw-guide consisting of independent plates arranged within one of said slots, set-screws extending through the other slot and connected to said guide-plates, friction-plates embracing the post, and nuts upon said set-screws adapted to bear against the friction-plates, substantially as described.

3. In a miter box or machine, the combination with a rectangular base having a saw-guide post arranged at the center of one of its sides, and a scale-line 30 extending along the opposite side and having indicating-numerals reading in either direction from the central line, of a set-slide movable along said scale-line, a radial arm secured to the post and a guide upon said arm, said guide being pivotally mounted in the set-slide and centered over said scale-line.

4. In a miter box or machine, the combination with a rectangular base having a guide-post arranged at the center of one of its sides, a scale-line extending along the opposite side of said base, and a guideway adjacent to said scale-line of a set-slide having a flange fitting within the guideway, a guide pivotally mounted in said set-slide and centered over the scale-line, and a radial arm connected to the saw-guide post and extending through the center of the pivoted guide, substantially as described.

5. In a miter box or machine, the combination with a rectangular base having a saw-guide post arranged at the center of one of its sides and a scale-line 30 extending along its opposite side, of a guideway adjacent to and parallel with said scale-line, a set-slide having a circular aperture whose center is over the scale-line, and a flange fitting within the guideway, a guide having a stud fitting within said aperture, and a radial arm connected to the saw-guide post and extending centrally through said guide.

645,121. **INK-WELL.** ERNST OLDENBURGH, Weehawken, N. J., assignor to Kronheimer, Oldenbuch & Co., New York, N. Y. Filed Aug. 12, 1899. Serial No. 726,976. (No model.)



Claim.—In an ink-well the combination of an ink-cup, a collar provided with cut-out socket-bearing lugs and a cap having a laterally-curved portion provided with pivots.

645,122. **AUTOMATIC CUT-OFF FOR ENGINES.** JOHAN P. OPSAHL, Cleveland, Ohio. Filed June 24, 1899. Serial No. 721,797. (No model.)



Claim.—1. In an engine, the combination with the cylinder having ports therein in proximity to its heads and the piston and piston-rod, of the steam-chest surrounding said cylinder, a rotary slide-valve located therein having exhaust and admission ports, the cut-off rings provided with ports also located in said steam-chest and surrounding and closely fitting said valve and means for actuating the valve and ring, substantially as described.

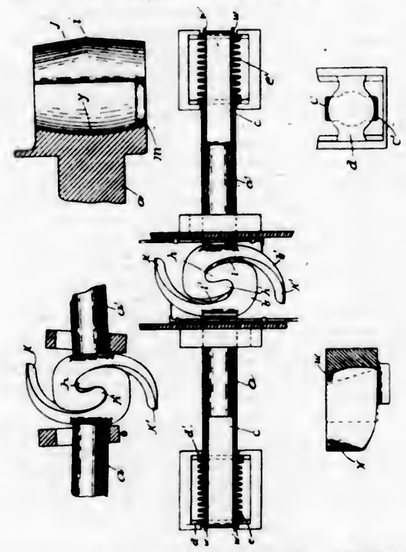
2. In an engine, the combination with the cylinder having ports in the wall thereof in proximity to its heads and a piston and rod of a steam-chest surrounding said cylinder, rotary slide-valves located in said chest and surrounding the cylinder, a cut-off ring fitted to each of said valves and inclosing the same, a gear-ring having a bearing on said cylinder, means for rotating said gear and connection leading from the gear to each valve for rotating the same.

3. In an automatic cut-off high-speed engine, in combination the cylinder, the piston and piston-rod suitably connected to the shaft, the steam-chest surrounding the cylinder and provided with a suitable inlet-pipe, the circumferentially-alined holes in the cylinder in proximity to the heads thereof, the rotary slide-valves provided with the exhaust-recesses and admission-openings, the cut-off ring provided with corresponding openings, all openings or recesses being equidistantly arranged, the annular exhaust-rings at the ends of the cylinder provided with suitable exhaust-pipes, the passage-ways leading from the exhaust-recesses in the slide-valve to the annular exhaust-rings, the gear-ring having a bearing on the cylinder, the lugs extending radially from the rotary slide-valve rings, the rods extending through such lugs and the gear-ring, and the spindle and gear-pinions by which such ring derives a rotary movement from the main shaft as and for the purpose specified.

4. The combination with the cylinder having the circumferential openings at the end, the rotary slide-valve having the exhaust and inlet openings, the gear-ring, the main shaft, and the spindle having the pinion meshing with the gear-ring, of the beveled pinion meshing with the beveled pinion on the main shaft, the key on the spindle, the coacting arc-shaped keyway in the bevel-pinion on the spindle and the hand-wheel on the spindle as and for the purpose specified.

5. The combination with the cylinder having the end circumferential openings, the rotary slide-valve having suitable inlet and exhaust openings, the cut-off ring having the segments affixed thereto and the operating-spindle having segments meshing with the aforesaid segments as and for the purpose specified.

645,123. **CAR-COUPLING.** EDWARD F. PENDEXTER, Milford, Mass. Filed May 2, 1899. Serial No. 715,347. (No model.)



Claim.—1. In an automatic car-coupling device, a swinging draw-bar capable of rotary movement about its axis having a draw-head provided with a hook to engage the hook of the coöperating draw-head, and having a triangular projection on its under side at one side of a vertical line passing through the center of the draw-bar formed with a flat face to present a seat *f*, *f'*, whereby said draw-bar is free to rock in one direction only, and a frame having a seat *g*, *g'* on which the seat *f*, *f'* rests and upon which the draw-bar is free to slide and rock, substantially as described.

2. In an automatic car-coupling device, a swinging draw-bar capable of rotary movement about its axis having a draw-head provided with a hook to engage the hook of the coöperating draw-head and having a triangular projection at one side of a vertical line passing through the center of the draw-bar which is formed with a flat seat *f*, *f'*, one side of which terminates abruptly and the opposite side of which terminates at the curved surface of the cylindrical draw-bar, and a frame having a seat *g*, *g'* on which the seat *f*, *f'* rests and upon which the draw-bar is free to slide and rock, substantially as described.

3. In an automatic car-coupling device, a swinging draw-bar capable of a rotary movement about its axis having a draw-head provided with a hook at one side and a guard at the opposite side of the center, and having a projection on its under side which is disposed at the same side of a vertical line passing through the center of the draw-bar as the guard is disposed and having a seat *f*, *f'*, said projection permitting the draw-bar to be freely rocked in one direction and restrained from rocking in the opposite direction, and a frame having a seat *g*, *g'* on which the seat *f*, *f'* rests and upon which the draw-bar is free to slide and rock, substantially as described.

4. In an automatic car-coupling device, a swinging draw-head capable of rotary movement about its axis having a hook *k*, *k'* made wider at the upper end than at the lower end, and having its striking-face inclined as at *j* with relation to the axis of the draw-head, and also having a guard *k*, *k'* terminating substantially flush with the striking-face of the hook and having its inner side wall inclined to the vertical plane of the draw-bar, substantially as described.

5. In an automatic car-coupling device, a swinging draw-head capable of a rotary movement about its axis having a hook and a loop-like strap attached to the rear end of the draw-bar, combined with followers embraced by said strap having curved bearing portions for said strap, substantially as described.

6. In an automatic car-coupling device, a swinging draw-head capable of rotary movement about its axis having a hook, and a loop-like strap attached to the rear end of the draw-bar, combined with followers embraced by said strap having curved portions both above and below on a radius to the axis of the draw-bar, substantially as described.

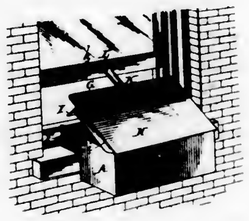
7. In an automatic car-coupling device, a draw-head capable of rotary movement about its axis having a hook, and a loop-like strap attached to said draw-bar, combined with followers loosely embraced by said strap having curved portions permitting rotary movement of the draw-head, substantially as described.

8. In an automatic car-coupling device, a swinging draw-head capable of a rotary movement about its axis having a hook made wider at its upper end than at its lower end, and provided on its striking-face with a substantially-conical boss, the apex of which is at one side of the longitudinal center of the draw-head, substantially as described.

9. In an automatic car-coupling device, a swinging draw-head capable of a rotary movement about its axis, having a hook provided on its striking-face with a boss made substantially conical and having formed in the recess back of said hook a depression to receive the boss on the striking-face of the coöperating draw-head, substantially as described.

10. In an automatic car-coupling device, a swinging draw-head capable of a rotary movement about its axis having a hook made wider at the top than at the bottom which engages the top of the hook of the coöperating draw-head, and having a guard terminating substantially flush with the striking-face of the hook, the lower end of which engages the lower end of the hook of the coöperating draw-head to assist in rotating it, substantially as described.

645,124. **WINDOW PROVISION-BOX.** HENRY G. PLUMB, New York, N. Y. Filed June 29, 1899. Serial No. 722,221. (No model.)



Claim.—1. In a window provision-box the combination of a box adapted for rigid attachment to the window-sill, with a lid hinged to the box and having the inner end or that next to the window free to move, with an adjustable sliding connection between the said lid and the window-sash, whereby the raising of the sash also raises the lid of the box.

2. In a window provision-box the combination of a box adapted for attachment to the window-sill, with a lid hinged to the box having the inner end or that next to the window free to move, and provided with a guideway directed toward the inner end with an adjustable connection between the said lid and the window-sash whereby the raising of the sash also raises the lid of the box, the said connection comprising a sliding bar guided in the guideway on the lid and having its forward end provided with an adjustable connection with an eye or hinge adapted for attachment to the window-sash.

3. In a window provision-box the combination of a box structure formed with an upper part adapted to rest upon the window-sill proper and having a downwardly-extending or deeper portion projecting downward beyond the window-sill, a lid hinged to the body portion at its outer and upper edge and having the forward end extended beyond the box portion so as to reach substantially to the window-sash, and an adjustable device for connecting the lid with the window-sash whereby the raising of the latter will lift the lid.

4. In a window provision-box the combination of a box structure formed with an upper part adapted to rest upon the window-sill proper and having a downwardly-extending or deeper portion projecting downward beyond the window-sill, a lid hinged to the body portion

at its outer and upper edge having the forward end extended beyond the box portion so as to reach substantially to the window-sash, and further provided with a guideway directed toward the said forward end and an adjustable device for connecting the lid with the window-sash whereby the raising of the latter will lift the lid, the said adjustable connection comprising a sliding bar guided in said guideway on the lid and having a jointed connection at its outer or free end adapted for attachment to the window-sash.

5. The combination of a box structure A having the upper compartment B and the lower compartment C adapted to rest upon and overhang the window-sill and in which the forward part of the box is provided with projecting means for securing it to the wooden window-frame, a hinged lid H hinged at the rear of the box and having its forward end projecting beyond the box and toward the window-sash and further having downwardly-extending flanges for making a close joint with the box, and an adjustable connection for connecting the lid to the window-sash whereby the latter raises the lid when the window-sash is elevated.

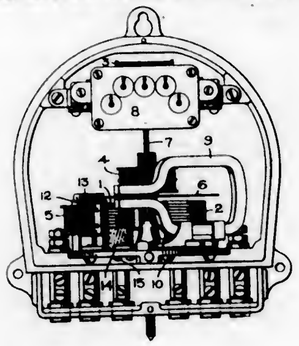
6. The combination of a box structure A having the upper compartment B and the lower compartment C adapted to rest upon and overhang the window-sill and in which the forward part of the box is provided with projecting means for securing it to the wooden window-frame, a hinged lid H hinged at the rear to the box and having its forward end extending toward the window-sash and further having downwardly-extending flanges for making a close joint with the box, and an adjustable connection for connecting the lid to the window-sash whereby the latter raises the lid when the window-sash is elevated said connection consisting of the bar K guided in a suitable guideway J on the lid and having a jointed or hinged connection at its free end adapted for attachment to the window-sash.

7. In a window provision-box a box structure made with a compartment which directly rests upon the window-sill and a deeper part extending downward beyond the window-sill, in combination with a hinged lid adapted to cover the upper portion of the box, means for attaching the box permanently to the window structure, and an adjustable device for maintaining a connection between the hinged lid and the window-sash whereby when the latter is raised the lid is also raised so as to expose the interior of the box.

8. In a window provision-box a box structure made with a compartment which directly rests upon the window-sill and a deeper part extended downward beyond the window-sill, and sliding shelves arranged in the deeper part of the box in line with the bottom of the shallow compartment, in combination with a hinged lid adapted to cover the upper portion of the box, means for attaching the box permanently to the window structure, and an adjustable device for maintaining a connection between the hinged lid and the window-sash whereby when the latter is raised the lid is also raised so as to expose the interior of the box.

9. In a window provision-box a box structure made with a compartment which directly rests upon the window-sill and a deeper part extending downward beyond the window-sill, in combination with a hinged lid adapted to cover the upper portion of the box, means for attaching the box permanently to the window structure, and an adjustable device for maintaining a connection between the hinged lid and the window-sash consisting of a bar adapted to be hinged to the window-sash and having a sliding connection with the hinged lid, whereby when the sash is raised the lid is also raised so as to expose the interior of the box.

645,125. ALTERNATING-CURRENT METER. WILLIAM H. PRATT, Lynn, Mass., assignor to the General Electric Company, of New York. Filed June 7, 1899. Serial No. 719,704. (No model.)



Claim.—1. An alternating-current motor having a registering device operated by an induction-motor, and an auxiliary torque-producing device for overcoming the friction of the parts inductively independent of the primary motor-circuits.

2. An alternating-current motor having a register operated by an induction-motor, the primary circuits of which are in shunt and series relation to the work-circuit respectively, and an independent starting-coil in the shunt-circuit for overcoming the friction of the parts.

3. In an alternating-current motor, recording mechanism, an induction-motor fed with current proportional to the load operatively related to the recording mechanism, a starting-coil for overcoming the friction of the parts in shunt to the mains, and a shading device adjustable with relation to the pole of the starting-coil for varying its torque.

4. An electric meter for alternating currents, provided with a register, an induction-motor for operating the same, the primary circuits of which are essentially in series and shunt relation to the work measured by the meter, and an auxiliary motive device for counterbalancing the friction of the mechanism in the shunt-circuit and of low reactance relatively to the aggregate reactance of said circuit.

5. In a meter for alternating-current circuits, a series winding, a shunt-winding, an auxiliary winding, and means in cooperative relation with said auxiliary winding for producing a creeping or shifting magnetic field.

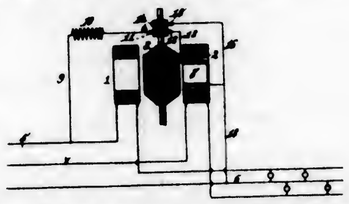
6. In a meter for alternating-current circuits, a winding in series with the mains, a winding in shunt to the mains, means for giving the shunt-circuit a large reactance, and an auxiliary torque-producing device having a small reactance in series with said shunt-winding.

7. In a meter for alternating-current circuits, a winding in series with the mains, a winding in shunt to the mains, means for giving the shunt-circuit a large reactance, an auxiliary winding having a small reactance in series with said shunt-winding, and means in cooperative relation with said auxiliary winding for producing a shifting or creeping field.

8. An electric meter for alternating currents having an induction-armature connected with the recording device, two circuits inductively related thereto, one in series and the other in shunt with the work, and a starting-coil of small reactance acting upon the recording device and provided with an adjustable magnetic shading device to produce a shifting polar field.

9. An electric meter for alternating-current circuits, having an induction-armature connected with a recording device, two circuits having windings inductively related to said armature, one a series circuit of low reactance and the other a shunt-circuit of high reactance, a starting-winding of low reactance in said shunt-circuit, and an adjustable shading device in cooperative relation with said starting-winding.

645,126. ELECTRIC METER. LYMAN C. REED, New Orleans, La. Filed July 10, 1899. Serial No. 723,380. (No model.)



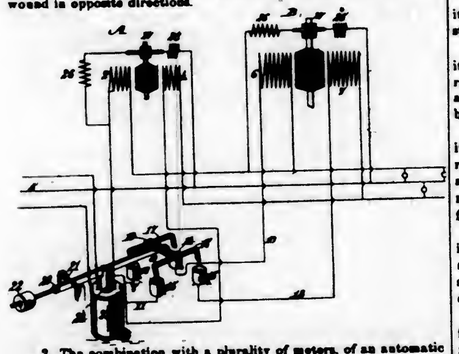
Claim.—1. In an electric meter, a commutator, a starting-coil in a normally-closed circuit through said commutator, a shunt-circuit around said starting-coil, and a contact-brush in said shunt-circuit, independent of said closed circuit, and adapted to engage said commutator as and for the purpose set forth.

2. In an electric meter, a starting-coil, a rotating commutator, a closed circuit through said coil and commutator, a shunt-circuit around said coil, a brush in the shunt-circuit, and a contact-piece on said commutator adapted to engage said brush, as and for the purpose set forth.

3. In an electric meter, a starting-coil, a rotating commutator, a closed circuit through said coil and commutator, a projecting lug on one of the bars of said commutator, a brush adapted to be engaged by said lug, and a shunt-circuit around said coil and including said brush, as and for the purpose set forth.

645,127. SYSTEM OF ELECTRIC METERING. LYMAN C. REED, New Orleans, La. Filed July 10, 1899. Serial No. 723,381. (No model.)

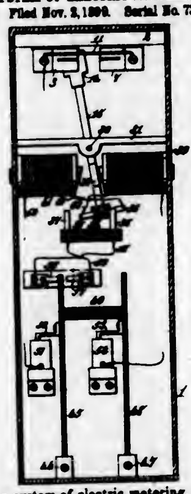
Claim.—1. The combination with a plurality of meters, of an automatic switch for coupling the same, the said switch comprising a lever, contacts carried thereby, and a solenoid for actuating the lever made up of coils of the positive and negative service-wires wound in opposite directions.



2. The combination with a plurality of meters, of an automatic switch for coupling the same, the said switch comprising a lever fulcrumed at a point intermediate its ends, contacts carried by said lever at one end, an adjustable weight on said lever at its opposite end, and a magnet for actuating said lever in opposition to said weight.

3. The combination with a plurality of meters of different capacities, installed in a three-wire system of electrical distribution, the small meter being in the service-circuit and the large meter in a normally-open branch therefrom, of a switch for closing said branch, the same comprising a lever, contacts carried thereby, an adjustable counterbalance-weight thereon, a solenoid made up of coils of the positive and negative service-wires wound in opposite directions, and a core for the solenoid connected to said lever, the said solenoid being adapted, upon the passage of a current of a greater strength than the capacity of the small meter, to actuate said lever in opposition to said weight and thereby close said branch circuit.

645,128. SYSTEM OF ELECTRIC METERING. LYMAN C. REED, New Orleans, La. Filed Nov. 3, 1899. Serial No. 735,606. (No model.)



Claim.—1. In a system of electric metering, the combination of a plurality of meters, and means actuated by the quantity of current flowing for separately cutting said meters into the circuit.

2. In a system of electric metering, the combination of a plurality of meters, a switch, and means actuated by the quantity of current flowing for operating said switch to separately cut said meters into the circuit.

3. In a system of electric metering, the combination of a plurality of meters, a switch for separately cutting said meters into the circuit, and electromagnets for actuating said switch independently energized by means controlled by the quantity of current flowing.

4. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, and an automatic circuit-controller actuated by the quantity of current flowing for separately cutting said meters into said circuit.

5. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, and a thermostatic circuit-controller for cutting said meters into said circuit.

6. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, electromagnets for actuating said switch and shunt circuits through said magnets controlled by the quantity of current flowing.

7. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and an automatic circuit-controller therefor actuated by the quantity of current flowing.

8. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, actuating means for said switch, and an automatic circuit-controller therefor, actuated by the quantity of current flowing.

9. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, actuating means for said switch, and a thermostatic circuit-controller for said actuating means.

10. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a thermostatic circuit-controller for said shunt-circuits.

11. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets and a thermostatic circuit-controller in said service-circuit for closing said shunt-circuits.

12. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets and a thermostatic circuit-controller in said service-circuit, the same comprising two thermostatic elements composed of strips of dissimilar metals, an insulator connecting said elements, and contacts in said shunt-circuits, through which and one of said thermostatic elements said shunt-circuits are adapted to be separately closed.

13. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a thermostatic circuit-controller in said service-circuit, the same comprising two thermostatic elements composed of strips of dissimilar metals, an insulator connecting said elements, and contacts in said shunt-circuits, through which and one of said thermostatic elements said shunt-circuits are adapted to be separately closed.

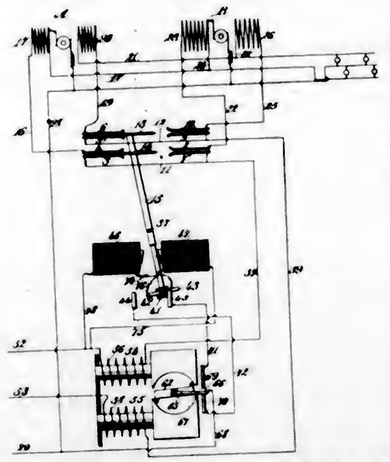
14. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a thermostatic circuit-controller in said service-circuit, the same comprising two thermostatic elements composed of strips of dissimilar metals, an insulator connecting said elements, and fixed contacts in said shunt-circuits, adapted to be engaged by one of said thermostatic elements, as and for the purpose set forth.

15. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, including a switch-lever, an armature carried by said lever, an insulating-block also carried by said lever, contacts 35, 36 on said block, electromagnets on opposite sides of said armature for actuating said lever, contacts 37, 38 with which the contacts 35, 36 are adapted to respectively engage, contacts 56, 57 connected with the contacts 38 and 37, respectively, a shunt-circuit through one of said magnets including the contacts 56, 38 and 36, a shunt-circuit through the other of said magnets including the contacts 57, 37 and 35 and a thermostatic circuit-controller in said service-circuit, the same comprising two thermostatic elements 45, 48, composed of strips of dissimilar metals, one of which elements is adapted to engage the contacts 56 and 57, and an insulating connection between said elements, as and for the purpose set forth.

645,129. SYSTEM OF ELECTRIC METERING. LYMAN C. REED, New Orleans, La. Filed Nov. 3, 1899. Serial No. 735,722. (No model.)

Claim.—1. In a system of electric metering, the combination of

a plurality of meters, a service-circuit through said meters and an electromagnetic circuit-controller for separately cutting said meters into said circuit.



2. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and an electromagnetic circuit-controller for said shunt-circuits.

3. In a system of electrical metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and an automatic, electromagnetic circuit-controller for said shunt-circuits actuated by the quantity of current flowing.

4. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for separately cutting said meters into said circuit, actuating means for said switch, and an electromagnetic circuit-controller for said actuating means.

5. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and an electromagnetic circuit-controller in said service-circuit for closing said shunt-circuits.

6. In a system of electric metering, the combination of a plurality of meters, and an electromagnetic circuit-controller in series with said meters for separately cutting said meters into the circuit.

7. In a system of electric metering, the combination of a plurality of meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and an electromagnetic circuit-controller in series with said meters for separately closing said shunt-circuits.

8. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising an electromagnet in the service-circuit, a contact-point operated thereby, and contacts in said shunt-circuits, through which and said contact-point, said shunt-circuits are adapted to be separately closed.

9. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising an electromagnet in the service-circuit, an armature therefor, a contact-point operated by said armature, and contacts in said shunt-circuits, through which and said contact-point said shunt-circuits are adapted to be separately closed.

10. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising an electromagnet in the service-circuit, a rotary armature therefor, an arm connected with and operated by said armature, a contact-point carried by but insulated from said arm, and contacts in said shunt-circuits, through which and said contact-point said shunt-circuits are adapted to be separately closed.

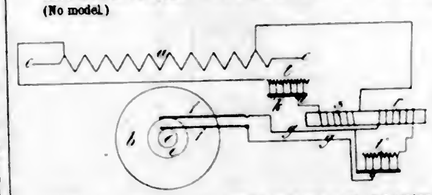
11. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising an electromagnet in the service-circuit, a rotary armature therefor, an adjustable spring for controlling the movements of said armature, a contact-point operated by said armature, and contacts in said shunt-circuits, through which and said contact-point said shunt-circuits are adapted to be separately closed.

12. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising a double-pole electromagnet, the cores of which are surrounded by helices connected, respectively, with the positive and negative service-wires, an armature for said magnet, a contact-point operated by said armature and connected with the service neutral, and contacts in said shunt-circuits through which and said contact-point said shunt-circuits are adapted to be separately closed.

13. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, electromagnets for actuating said switch, shunt-circuits through said magnets, and a circuit-controller for said shunt-circuits, comprising a double-pole electromagnet, the cores of which are surrounded by helices connected, respectively, with the positive and negative service-wires, a rotary armature movable between the poles of said magnet, a spring for controlling the movements of said armature, an arm carried by said armature, a contact-point secured to but insulated from said arm and connected to the service neutral, and contacts in said shunt-circuits through which and said contact-point said shunt-circuits are adapted to be separately closed.

14. In a system of electric metering, the combination of a plurality of meters, a service-circuit through said meters, a switch for cutting said meters into said circuit, including a switch-lever, an armature carried by said lever, contacts 42, 43, also carried by said lever, electromagnets on opposite sides of said armature for actuating said lever, contacts 44, 45, which the contacts 42, 43, are adapted to respectively engage, contacts 69, 70, connected with the contacts 45 and 44, respectively, a shunt-circuit through one of said magnets including the contacts 43, 45, and 69, a shunt-circuit through the other of said magnets including the contacts 42, 44, and 70, and a circuit-controller for said shunt-circuits, comprising an electromagnet in said service-circuit, and a contact-point operated thereby adapted to engage the contacts 69 and 70 for separately closing said shunt-circuits, the shunt-circuit which is closed thereby being almost immediately broken between the contacts 42 and 44 or 43 and 45.

645,180. ALTERNATING-CURRENT MOTOR. WILLIAM G. RHODES, Salford, England. Filed Nov. 22, 1899. Serial No. 737,888. (No model.)

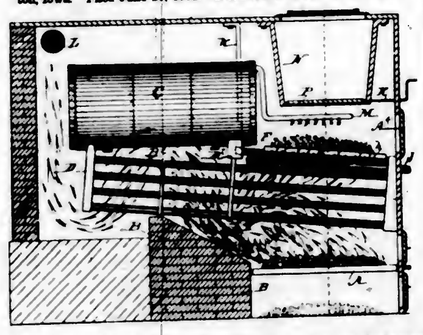


Claim.—1. The combination with an alternate-current motor of the induction type, of means whereby there can be impressed upon the rotor-winding at starting, a counter electromotive force derived directly or indirectly from the main supply-circuit and which will reduce, prevent or counteract lagging displacement of phase of the currents induced in the rotor-winding by the stator.

2. In an alternate-current motor of the induction type, the combination with the stator and rotor windings of variable contact devices whereby the said rotor-winding can be connected with different points of the stator-winding between which points there is a difference of potential.

3. In an alternate-current motor of the induction type, the combination with the motor-circuit and rotor-winding, of a switch and electrical connections whereby portions of the motor-circuit can be successively tapped so as to impress a gradually-decreasing counter electromotive force on the rotor-winding when starting the motor.

645,181. APPARATUS FOR GENERATING STEAM AND DESTROYING AND UTILIZING GARBAGE, &c. JOSEPH T. ROBISON, Newton, Iowa. Filed June 29, 1891. Serial No. 397,709. (No model.)



Claim.—1. In a furnace, a closed chamber, a grate in the bottom of the chamber, a magazine supported in the chamber and over the grate, a deflector extending downward at the rear end of the grate, a series of boiler-tubes under the grate, and a second grate under the sectional boiler arranged and combined as and for the purposes stated.

2. In a furnace, a horizontal grate at the bottom and front portion of a furnace-wall, a series of boiler-tubes supported above said grate, a second grate supported over the said boiler-tubes, a closed chamber above the said upper grate, and an air superheater and distributer under the upper grate, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a furnace, a horizontal grate at the bottom and front portion of a furnace-wall, a series of boiler-tubes supported above said grate, a second grate supported over the said boiler-tubes and a closed chamber above the said upper grate, an air-superheater under said upper grate, and a steam superheater and distributer above the upper grate, arranged and combined to operate in the manner set forth for the purposes stated.

4. An apparatus for generating steam, and destroying and utilizing garbage, &c., comprising a furnace-wall, a grate extending rearward from the front and lower portion of the wall, a bridge at the rear end of the grate extending backward and upward therefrom, a series of boiler-tubes above the said grate and said bridge-wall, a second grate above the front portion of the said boiler-tubes, a closed chamber above the upper grate, a magazine supported in said chamber and above the upper grate and a boiler in rear of said closed chamber communicating with the said boiler-tubes, a steam superheater and distributer above the upper grate and an air superheater and distributer under the upper grate, all arranged and combined to operate in the manner set forth for the purposes stated.

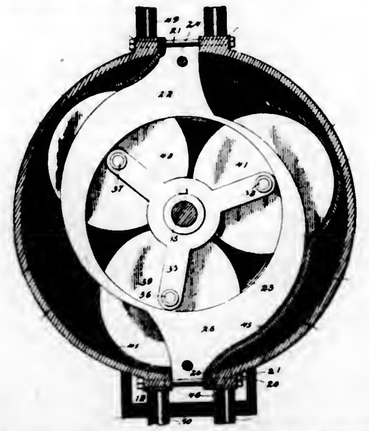
5. In an apparatus for generating steam and destroying and utilizing garbage, &c., a furnace-chamber having a grate in its bottom and closed above the grate to direct the products of combustion down through the grate, a magazine supported from the closed top of the chamber and over the grate and provided with a cover and a pivoted bottom and means for operating the bottom, a deflector at the rear end of the grate, tubes for generating steam located under the grate and a second grate located under the said tubes, an opening in rear of the lower grate and under the deflector projecting down in rear of the upper grate for the rearward discharge of the products of combustion liberated from fuel on the two grates, and means for admitting air to the fuel on the grates, arranged and combined to operate in the manner set forth for the purposes stated.

6. In a furnace, a chamber having a grate situated near its center, a grate in its lower portion and an opening for the discharge of products of combustion in its rear wall between the two grates the upper grate having means for supplying air to support combustion thereat, and to permit of a downdraft therethrough and the lower grate having means for feeding air below the same so as to permit of an updraft of the air between the bars.

7. In a downdraft-furnace, the combination of an air conveyer, superheater and distributer with a grate and means for directing the products of combustion downward through the grate to mingle with the hot air distributed immediately under the grate by the said conveyer superheater and distributer located under the grate for the purposes stated.

645,182. ROTARY ENGINE. MAJOR J. ROBINSON, Los Angeles, Cal. Filed Nov. 29, 1899. Serial No. 738,731. (No model.)

Claim.—1. A rotary engine comprising a cylinder, a shaft in the cylinder, a tapered passage in the cylinder, a pressure-receiving body adapted to traverse the passage and project thereinto to varying extents, and means for supplying pressure to said body.



2. A rotary engine comprising a cylinder having a shaft and provided with a tapered passage, means for supplying pressure to the passage, a pressure-receiving body adapted to project into the passage to varying degrees, a flexible sheet adapted to lie against the wall of the passage and the pressure-receiving body, and means for supplying pressure to the passage.

3. A rotary engine comprising a cylinder having a shaft therein, plates disposed in the cylinder and separated from the walls thereof by tapered interspaces forming passages, a flexible sheet in each passage adapted to lie upon the plates at one side of the passage, and pressure-receiving bodies adapted to project into the passages and in engagement with the sheets, said bodies being adapted for movement longitudinally of the passages to vary their degrees of projection.

4. A rotary engine comprising a cylinder having a shank concentric therewith, a plurality of pressure-receiving bodies mounted upon the shaft and rotatable therewith, plates within the cylinder and having curved edges eccentric to the cylinder and forming tapered passages, flexible sheets fixed to the plates at the minor ends of the passages, and means for admitting fluid under pressure to the minor ends of the passages.

5. A rotary engine comprising a cylinder, a plurality of plates disposed in the cylinder and separated by interspaces, said plates having curvilinear outer faces and separated by interspaces, a shaft in the cylinder, spiders mounted upon the shaft, arbors carried by the arms of the spiders, disks rotatably mounted upon the arbors, flexible sheets fixed in the cylinders and adapted to lie upon the edges of the plates and of the disks, a steam-inlet communicating with the cylinder between the wall thereof and the sheet, and a steam-outlet.

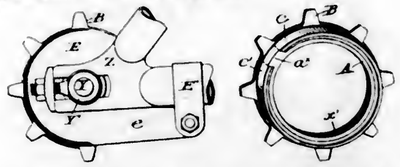
6. A rotary engine comprising a cylinder, a plurality of plates disposed in the cylinder and separated by interspaces, a tapering steam-passage between the plates and the periphery of the cylinder, a shaft in the cylinder, rotatable pressure-receiving bodies carried by the shaft and adapted to successively pass into and out of the passage, a flexible sheet fixed in the cylinder and adapted for engagement with the plate and the pressure-receiving bodies, said sheet lying in the passage, and steam inlet and outlet openings communicating with the passage.

7. A rotary engine comprising a cylinder, plates disposed in the cylinder and separated by interspaces, tapering passages between the edges of the plates and the inner wall of the cylinder, a shaft mounted in the cylinder, spiders fixed to the shaft, arbors mounted in the arms of the spiders, rotatable disks carried by the arbors, a flexible sheet in each passage fixed to the cylinder, said sheet being adapted to lie upon the edges of the plates and of the disks, a steam-inlet communicating with the narrowed end of each passage, and a steam-outlet communicating with the broadened end of each passage.

645,188. BACK-PEDALING BRAKE. ALBERT F. ROCKWELL, Bristol, Conn., assignor to the New Departure Bell Company, same place. Filed July 28, 1898. Serial No. 686,587. (No model.)

Claim.—1. In combination with the driving-wheel of a bicycle provided with a suitable hub, a sleeve or bushing applied to the sprocket end of said hub, said sleeve having an inclined part for en-

gagement therewith of one end of the brake-ring, and a sprocket-wheel on said sleeve having a limited rotary movement thereon, means for rotating said sprocket, a stationary case or drum inclosing said sleeve, a split ring interposed between said sleeve and case having an engagement by one end with said sleeve and sprocket and having its free end engaging the inclined part of said sleeve, whereby when said ring is expanded for brake action against said case, its said free end is moved on said inclined part into frictional contact with said case in advance of the contact therewith of the other parts of the ring, and whereby the contact of all of said ring with said case is effected, substantially as set forth.



2. In a bicycle-brake, the combination with the wheel-hub, of a fixed lug or projection carried by said hub, the plane of the rear edge forming an acute, and that of the forward edge an obtuse, angle with the circumferential surface of the hub; a split brake-ring mounted on said hub and having its ends butting against opposite sides of said lug or projection, the edges of said ends being beveled complementary to the beveled edges of said lug; a wheel-driving element loosely mounted on the hub and connected with one end of said brake-ring; and a fixed brake member with which said brake ring is brought into engagement by means of said connection, so that in forward propulsion the forward end of the split brake-ring will butt against the lug and advance the wheel and by means of said complementary beveled edges be forced inward, out of connection with the fixed brake member and into firm engagement with the lug, and upon back-pedaling the free end will advance upon the inclined forward edge of the lug and thus the whole of the circumferential surface of said brake-ring will be brought into frictional contact with the said fixed brake member, substantially as described.

3. In a bicycle-brake, the combination with the hub and a fixed brake member, of a sleeve carrying a lug screwed to said hub and arranged to rotate therewith, said lug having its forward and rear edges beveled, the plane of the rear edge forming an acute, and that of the forward edge an obtuse, angle with the circumferential surface of the sleeve, a split brake-ring mounted upon and supported by said sleeve and butting against opposite sides of said lug, said ends being beveled complementary to the beveled edges of said lug, said ring having a lateral projection for engagement with an aperture in the web of the wheel-driving element, the edges of said aperture and of the projection being beveled complementary to each other and in an opposite direction to the beveled edges of the lug, so that by forward pressure upon the wheel-driving element the rear edge of the aperture in its web will advance upon the corresponding edge of the projection upon the end of the brake-ring, and by a backward pressure upon the wheel-driving element the forward edge of the aperture in the web will advance under the corresponding edge of the projection upon the lug, and the free end of the brake-ring will be forced to advance upon the corresponding edge of the lug to cause the entire circumferential surface of the brake-ring to come into frictional contact with the braking-surface of the fixed brake member, substantially as described.

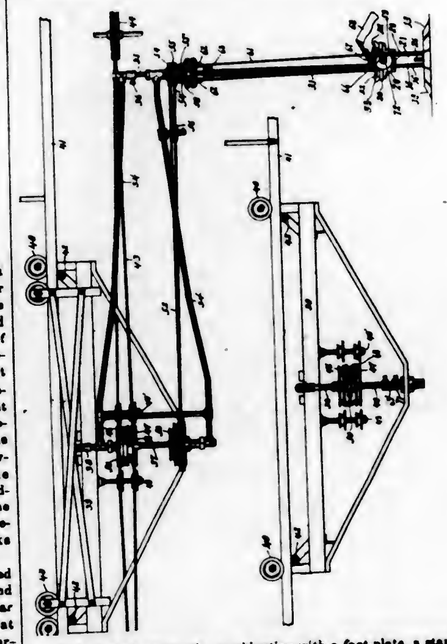
645,134. CLOTH-CUTTER. ARON G. SABERG, ALBERT H. BENSON, and EDVIN G. SABERG, Racine, Wis. Filed Jan. 3, 1899. Serial No. 701,060. (No model.)

Claim.—1. In a cloth-cutter, a foot-plate comprising a substantially-flat horizontally-disposed main plate, means supporting the main plate portably, and marginal plates hinged to the main plate at and about its edge forming a margin and continuous smooth surface normally inclining downwardly from said main plate.

2. In a cloth-cutter, a foot-plate comprising a flat main plate, means supporting the main plate above and so as to be readily movable on a table, downwardly-inclined plates forming an encircling margin to the main plate and so hinged to the main plate that their outer free edges normally adjust themselves freely to and travel on a supporting-table in the plane of the support of the foot-plate.

3. The combination in a foot-plate of a cloth-cutter, of a circular main plate having a top surface at a distance above its base or support, and segmental marginal plates hinged in a normally-inclined position to the main plate and so as to form a flexible sloping way from the plane of the base or foot of the plate up to the top surface of the main plate.

4. In a cloth-cutter, the combination with a plate, and an upright cutter-carrying standard thereon provided with a terminal head-block 20 at its upper end, of an opposite head-block 30, means connecting said last-enumerated head-block to a supporting device, and means for locking the standard head-block to the second-enumerated head-block detachably.



5. In a cloth-cutter, the combination with a foot-plate, a standard thereon provided with a head-block, an endless cutter mounted in the standard, and disks on the shaft of the cutter-driving wheel, of a post head-block secured detachably to the standard head-block, driven disks or clutches mounted in the post head-block, and means for putting the driven disks into engagement with the disks on the shaft of the cutter-driving wheel.

6. In a cloth-cutter, the combination with a cutter carrying and driving wheel provided with hubs having terminal disks, of opposite complementary driven disks mounted and movable endwise in their bearings, tilting cams adapted to be pressed against the ends of the axles of the driven disks and force them into clutch with the wheel-disks.

7. In a cloth-cutter, the combination of a horizontally-disposed swinging arm, cutting mechanism connected to and movable with the free extremity of the swinging arm, two loose pulleys mounted in the free extremity of the swinging arm, an idle pulley on the swinging arm medially, a belt running on and driven by a pulley at the hinged extremity of the swinging arm, and on and severally about said two pulleys at the free extremity of the swinging arm, and about the single idle pulley mounted on the swinging arm medially, and means connecting said two pulleys operatively to the cutting mechanism.

8. In a cloth-cutter, the combination with a carriage, a track on which the carriage is supported and is reciprocable, an endless belt stretched and running in the line of the travel of the carriage, two pulleys on the carriage on each of which a line of the belt runs driving said pulleys in opposite directions, a driven belt adapted to run on either or both of said pulleys, a swinging frame pivoted on the carriage in the line of the axis of said two pulleys carrying cutting mechanism, a bell-crank lever pivoted on a pin on the swinging frame, one arm of which lever straddles said driving-belt and the other arm of which is held against swinging movement by a finger on the carriage, whereby by the swinging of the frame the driven belt is shifted to one or the other or both of said reversely-running pulleys.

9. In a cloth-cutter, the combination with a swinging arm 34, a pintle 35 fixed thereto, a double pulley 54, 54' provided with an interpulley-hub loose on the pintle, and a second double pulley 55, 55' running on the hub of the other double pulley 54, 54', a single belt 52 one line of which runs on the first-named double pulley 54 and the other line of which runs on the other double pulley 55 rotating them in reverse directions, other belts running severally on the double pulleys 54' 55' mentioned and thence to shafts in a common axis, said shafts, and cutting mechanism connected operatively thereto.

10. In a cloth-cutter, the combination with a track and a carriage reciprocable thereon and provided with cutting mechanism, of a double line of belting stretched and running in opposite directions in the line of travel of the carriage, two loose pulleys mounted in the carriage on which said two lines of belting run respectively, idle wheels on the carriage in front and at the rear of said pulleys on which said lines of belting ran adapted to hold the belting against the pulleys, and means for holding one or the other or both said pulleys to cause corresponding pull of the lines of belting on said pulleys for moving or stopping said carriage.

11. The combination with a horizontally-disposed swinging arm 34 provided with a vertical pintle 35 in its free extremity, of a foot-plate below and attached to said arm and adapted to travel on a table conformably with the movement of the free extremity of said swinging arm, cutting mechanism mounted on said foot-plate and swiveled on said pintle, and belting from a source of power carried on said swinging arm and connected to said cutting mechanism.

645,135. ADVERTISING-BOMBSHELL. JOSEPH SCALONA, Philadelphia, Pa. Filed Aug. 8, 1899. Serial No. 726,497. (No model.)

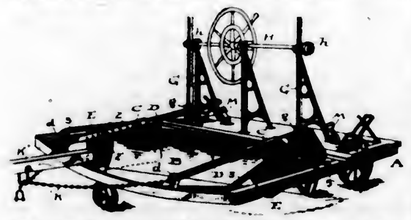


Claim.—1. An advertising-bombshell or the like, comprising two members screw-threaded and turning on each other, the outer member provided with an internal chamber adapted to contain an exploding material with a fuse and a space around about said chamber for receiving and holding advertising or other matter and the inner member provided at the base with a cap into which extends the fuse of said outer member, substantially as and for the purposes described.

2. An advertising-bombshell or the like, comprising two cylindrical members screwing onto each other, the outer member provided with a chamber adapted to contain explosive material with a fuse and the inner member provided with an ignitible or explosible cap with which is connected the fuse of the outer member, substantially as and for the purposes described.

3. An advertising-bombshell or the like, comprising two separable threaded members screwing onto each other, one of said members provided with a double-walled chamber adapted to contain explosive material and the space between the walls of said chamber packed with sawdust or the like, a fuse connected with the stem of said internal chamber and extending into a cap located at the base of the other member of said shell, substantially as and for the purposes described.

645,136. ROAD-SCRAPER. BENJAMIN F. SHUART, Oberlin, Ohio. Filed May 15, 1899. Serial No. 716,870. (No model.)



Claim.—1. In a scraper of the variety described, the main frame having front and rear carrying wheels, an adjustable scraper-blade set at an inclination to the line of draft across said frame and having its ends within the sides of the frame, and adjustable means to keep the blade down to work, substantially as described.

2. The scraper-frame and the blade and means to adjust the ends of the blade back and forth in respect to each other to incline the blade more or less to the line of draft, and sharp-edged rolling members to hold the machine in the line of draft, substantially as described.

3. The main frame and front and rear wheels carrying the frame, a scraper-blade arranged transversely to the line of draft between the sides of the frame, drag-bars on which the blade is adjustable back and forth independently at each end and means to raise and lower said blade, substantially as described.

4. The main frame and the scraper-blade, a drag-bar for each end of the blade, and connecting-bars adjustable on the drag-bar and secured to the said blade, substantially as described.

5. The main frame and the scraper-blade, the drag-bars pivoted at their front on the main frame and connecting-bars intermediate of the said drag-bars and the scraper-blade and independently adjustable on the drag-bars, substantially as described.

6. The scraper-blade, connecting-bars pivotally secured to the rear thereof, drag-bars carrying the said connecting-bars and vertically adjustable at their rear ends, and the main frame on which the drag-bars are secured at their front ends, substantially as described.

7. The main frame and drag-bars thereon having a series of transverse holes, connecting-bars adjustably supported on said bars by bolts through said holes, the scraper-blade having a jointed union with said connecting-bars, and mechanism to adjustably fix the elevation of the said bars and blade in respect to the main frame, substantially as described.

8. The main frame and the pivotally-supported scraper-blade, and a roller on the said frame to engage the end of the blade, substantially as described.

9 The main frame and the transversely-inclined scraper-blade therein, and vertically-adjustable rolling colters in rear of said blade, bifurcated standards carrying said colters and brackets engaging the spindles of the colters, substantially as described.

10. The main frame, rolling colters therein and segmentally-curved standards carrying said colters, and segmentally-slotted brackets swung as guides for the colters, substantially as described.

11. The main frame and the rolling colters, curved standards carrying said colters and adjustable on said frame, brackets in which the spindles of the colters are engaged and draw-rods connected with the ends of the said spindles, substantially as described.

12. The main frame and the rolling colters, the standards for the colters, slotted brackets in which the colters have their bearing, and draw-rods connected with the ends of the colter-spindles, substantially as described.

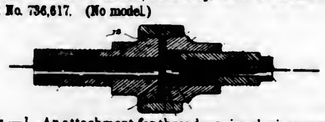
13. The main frame and the scraper-blade, fenders at the ends of the blade, and means to hold either fender horizontally up out of working relation, substantially as described.

14. The main frame and the scraper-blade, draw-bars for said blade supported at their ends from said frame, and draft connections directly with the front ends of said bars and apart from the main frame, substantially as described.

15. The main frame and the scraper-blade, draw-bars on which the blade is pivotally supported, and means to adjust the vertical inclination of the blade comprising lugs on the drag-bars in position to engage the top edge of the blade, substantially as described.

16. In a road-scraper, the main frame and the scraper-blade, a fender for said blade and a set of links supporting the fender on said frame, substantially as described.

645,137. THREAD-WAXING DEVICE FOR SEWING-MACHINES. WALTER K. SHULTZ, Ponca City, Okla. Filed Nov. 11, 1899. Serial No. 736,617. (No model.)



Claim.—1. An attachment for thread-waxing devices comprising a wax-pot having an opening through a vertical wall thereof, a steam-chest surrounding the said pot and having a tapped opening in line with the opening in the wax-pot, a double-flanged member with a screw-threaded portion mounted in the said tapped opening of the steam-chest and having its inner end fitted close to the opening in the wax-pot, a threaded tube having an opening therethrough flared at its inner extremity, a wiper-disk interposed between the outer and inner extremities of the flanged member and the said threaded tube respectively, a threaded member in which said tube is mounted and a coupling member for connecting the said threaded member and the flanged member, the wiper-disk being clamped near its peripheral edge between the said members and provided with a transverse thread-opening surrounded by the inner flared end of the opening through the tube.

2. A thread-waxing device, consisting of a sectional thread-guide having its members separably coupled together in substantially-longitudinal alinement and comprising an adjustable tube with one extremity of the opening therein flared, and a wiper-disk clamped near its peripheral edge between certain of the said members and provided with a transverse thread-opening, the said wiper-disk being in a plane at right angles to the members of the guide, the end of the tube at

the flared portion of the opening being arranged to press forcibly against said disk around the thread-opening therein and against a bearing-surface afforded by another member of the guide.

645,188. CAN-CLEANING MACHINE. CHARLES W. SLEEPER, Lancaster, N. H., assignor to the Sleeper Machine Company, of Maine.

Filed Nov. 15, 1899. Serial No. 737,043. (No model.)



Claim.—1. A machine for cleaning cans consisting of an inclined hollow cylinder terminating at its lower end in a screen, with means for rotating the same, means for feeding cans into the cylinder, means for feeding sawdust, or other similar absorbent material, into said cylinder, and means for conveying such absorbent material after it has passed through the cylinder to said feeding mechanism last mentioned, substantially as described.

2. In a machine for cleaning cans an inclined hollow cylinder terminating at its lower end in a screen with means for rotating the same, in combination with a chute opening into the upper end of said cylinder, means for feeding the cans into said chute and means for feeding sawdust into the same, substantially as described.

3. In a machine for cleaning cans an inclined hollow cylinder terminating at its lower end in a screen, with means for rotating the same, in combination with means for removing the sawdust falling from the lower end of the cylinder and feeding the same into the upper end of the cylinder, substantially as described.

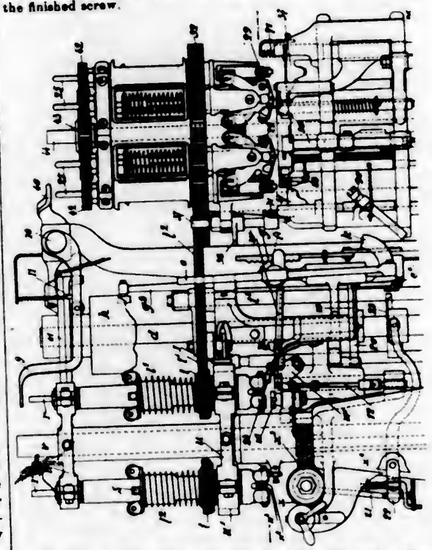
4. In a machine for cleaning cans, in combination with an inclined hollow cylinder terminating at its lower end in a screen, with means for rotating the same, the sawdust-elevator B consisting of the elevator-trough *b*, *b* having its upper horizontal limb open on its lower side over the chute b^4, endless elevator-chains b^3, buckets b^3, sprocket-wheels b', chute b^4, and means for operating said chains, substantially as described.

5. In a machine for cleaning cans, in combination with an inclined hollow cylinder, terminating at its lower end in a screen, with means for rotating the same, the sawdust-conveyer D and elevator B consisting of the hopper d^{11}, conveyer-trough *d*, endless chains d^3, bars d^4, sprocket-wheels d^4, elevator-trough *b*, *b*, endless elevator-chains b^3, buckets b^3, sprocket-wheels b', chute b^4, and means for operating said conveyer-chains and elevator-chains, the several parts being so constructed and arranged with reference to each other that when in operation the sawdust dropping from the screen c^3 is carried by the conveyer D into the elevator B and thence into the upper end of the cylinder C, substantially as described.

645,189. MACHINE FOR MANUFACTURING WOOD-SCREWS. THOMAS J. SLOAN, Paris, France. Filed Apr. 23, 1897. Serial No. 633,510. (No model.)

Claim.—1. In a screw-making machine, the combination of a cross-head, a pair of chucks carried upon the said cross-head, a head-forming tool and a head-nicking tool in operative relation to the said chucks so as to form and nick the head of a screw, a procession of chucks for carrying screw-blanks, a series of tools with means for causing the same to operate upon the screw-blanks carried by the chucks and a screw-transporting mechanism comprising in its structure means for performing the following operations, to wit: seizing a screw-blank from a source of supply, transporting the same to the head-forming mechanism, removing the blank with the finished head and inserting the rough blank into the head-forming mechanism, thereupon executing a swing to bring the transporting mechanism into coöperative relation with the chucks for holding the screw-blanks to be threaded, seizing the finished screw from the chuck and inserting the screw-blank head first into the said chuck and thereupon transporting the finished screw to and dropping the same into a receptacle provided for the purpose.

2. In a screw-making machine, the combination of head-forming apparatus, of chucks, with means for moving the same in procession past thread-cutting tools and returning the said chucks to an initial normal position, of a transporting mechanism for transporting the screw-blanks, comprising in its structure a double nipper with means for imparting to the said double nipper the following movements, to wit: a rectilinear movement to seize a rough screw-blank from a receptacle, a swinging movement to bring the double nipper opposite the head-forming apparatus, a rectilinear movement to cause the double nipper to seize a screw-blank from the head-forming apparatus, a movement of retraction and another movement to effect the insertion of a rough screw-blank into the head-forming apparatus, a swinging movement to bring the double nipper opposite the chuck containing the finished screw, a movement toward the said chuck to seize the finished screw therefrom, and another movement toward the said chuck to deliver the headed screw-blank thereto and a swinging movement away from the said chuck to a receptacle provided for the finished screw.



3. In a machine of the character described, the combination of a plurality of traveling chucks presenting a screw-blank successively to a series of screw-thread-cutting tools, a series of thread-cutting tools located along the path of movement of the chucks, successive tools operating in the cut of the preceding tool, a common means for simultaneously traversing all of the said thread-cutting tools along the length of the screw-blank and independent tool-advancing means for advancing the individual tools into the work and a common operating means for operating the tool advancing means.

4. In a machine for making screws, the combination of a series of blank-carrying chucks with means for effecting rotary motion of the said chucks and for effecting a movement of translation of the said chucks, a series of screw-thread-cutting tools to which the chucks bring up the blanks successively, each successive tool operating in the cut of its predecessor, a common means for producing a movement of translation of the said cutting-tools along the stem of the screw-blank and a series of templets one for each tool, for determining the profile of the cut.

5. In a machine of the character described, the combination of head turning and nicking tools, of a series of chucks for holding the blanks during the head-turning and nick-cutting operations, a series of traveling chucks presenting blanks in succession to a series of thread-cutting and screw-pointing tools, means for bringing the chucks in succession to the thread-cutting and screw-pointing tools and a carrier or transporting apparatus for transporting the screw-blanks one by one from the chuck coöperating with the head-turning tool to a chuck coöperating with the blank-pointing tool, substantially as described and for the purposes set forth.

6. In a screw-cutting machine, the combination of a series of traveling chucks carrying blanks in procession in front of a series of tools, a series of independent thread-cutting tools mounted in the path of movement of the blanks, the successive tools working in the same cut or thread, a common means for traversing the said tools along the length or stem of the blank and means local to each tool for causing the said tools to make progressively-deepening cuts, substantially as described and for the purposes set forth.

7. In a screw-making machine, the combination of head-forming mechanism and thread-cutting mechanism, comprising means for carrying the blanks in procession before a plurality of thread-cutting tools and for causing the said thread-cutting tools to operate one after the other to produce the thread, of a transporting mechanism for transporting the screw-blanks from the head-forming mechanism to the thread-cutting mechanism, substantially as described and for the purposes set forth.

8. In a machine for making screws, the combination of head-forming mechanism and a plurality of chucks with means for moving the same in a procession and bringing them back to a given point and a transporting mechanism for transporting the headed blanks from the head-forming mechanism to the chuck standing in the initial position and containing the finished screw.

645,140. DEVICE TO BE WORN ON THE HEADS OF HORNLESS CATTLE TO PREVENT FIGHTING AND BUTTING, &c. STEPHEN A. SMITH, Blue Springs, Nebr. Filed Dec. 16, 1899. Serial No. 740,618. (No model.)

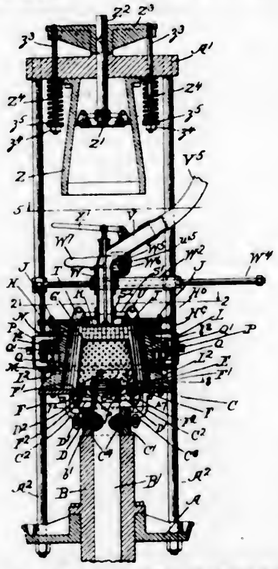


Claim.—1. In a device of the character described, a barbed plate, consisting of substantially-rectangular base having spurs bent up at right angles thereto along the sides of the base and perforations in said base, substantially as described.

2. In a device of the character described, a halter comprising a face-strap, a neck-strap attached thereto, side braces connecting the face-strap with the neck-strap, nose-straps connecting the front end of face-strap to the ends of the neck-strap, and a barbed plate secured to said face-strap, substantially as described.

3. In a device of the character described, a halter comprising a face-strap, a neck-strap attached thereto, side braces connecting the face-strap with the neck-strap, a cross-strap connecting the side braces near their front ends and connected at its middle point to the face-strap, a rivet-plate extending along the face-strap and forming the means of connection between said face-strap and the cross-strap and side braces respectively, nose-straps connecting the front of the face-strap with the ends of the neck-strap, and barbed plates secured to the under side of the face-strap above and below the rivet-plate, substantially as described.

645,141. MACHINE FOR MAKING VESSELS OF FIBROUS PULP. ANDREW STARK, Chicago, Ill. Filed Apr. 20, 1899. Serial No. 713,716. (No model.)



Claim.—1. In a compressing-mold, a reducible jacket comprising radially-movable staves and top and bottom plates between which the staves are retained endwise and in which the ends of the staves are guided in the radial movement, and means for giving the staves equal simultaneous radial movement.

2. In a press for molding vessels, which comprises a radially-reducible jacket composed of staves which are radially movable; a bottom plate having an annular portion of its upper face occupied by radial grooves and intervening ribs, and the inner portion of its said surface located in the plane of the bottom of the grooves; a top plate having corresponding grooves on its lower face, the staves being guided in said grooves at top and bottom and having lips which extend to the plane of the bottom of the groove and arranged thereby to sweep the inner portion of the upper surface of the bottom plate as the staves move inward.

3. In a compressing-mold, a reducible jacket comprising radially-movable staves and a radially-reducible head which is embraced by the ends of the staves and reduced by their inward movement, top and bottom plates having radial grooves in which the ends of the staves are guided, and means for giving the staves equal simultaneous radial movement.

4. In a press for molding vessels, which comprises a radially-reducible jacket composed of staves and a radially-reducible head which is embraced by the ends of the staves and reduced by their inward movement, top and bottom plates having radial grooves in which the ends of the staves are guided, and means for giving the staves equal and simultaneous radial movement.

5. In a press for molding vessels, which comprises a radially-reducible jacket composed of staves and a radially-reducible head which is embraced by the ends of the staves; a bottom plate having an annular portion of its upper face occupied by radial grooves and intervening ribs, and the inner portion of said surface located in the plane of the bottoms of the grooves, the top plate having corresponding grooves on its lower face; the staves guided in said grooves at top and bottom, and having lips which lap each other successively in circumferential order, such lips extending to the plane of the bottom of the grooves, and arranged thereby to sweep the inner portion of the upper surface of the bottom plate as the staves move inward.

6. In a reducible jacket consisting of a complete circular series of radially-movable staves having lips or flanges at their inner edges, which successively lap each other in circumferential order, such staves having their inner edges cut away at one side and such lips being formed of angularly-folded sheet metal having one flange or wing lodged on the cut-away portion of the side of the rib and the other flange or wing constituting the lapping lip of the stave.

7. In a reducible jacket consisting of a complete circular series of radially-movable staves having lips or flanges at their inner edges which successively lap each other in circumferential order, such staves having their inner edges beveled at one side and such lips being formed of angularly-folded sheet metal having one flange or wing seated on and secured at the beveled surface of the stave, and the other flange or wing extending transversely past the inner edge of the stave, and constituting the lapping lip thereof.

8. In a reducible mold, a reducible head comprising an inner and outer plate rigidly connected, slides lodged between the plates and radially guided on one of them, alternate slides having on the face toward the other plate, lips or flanges which project over the intervening slides and are adapted to meet edge to edge when the slides are thrust radially inward.

9. In a reducible mold, a reducible head comprising a rigid portion and radially-movable slides guided therein, the guideways of such slides terminating at their inner ends in a chamber and said chamber being open at the outer side to permit the escape of any matter which may be forced in by the slides.

10. In a reducible mold, a reducible head comprising a rigid portion and radially-movable slides guided therein, springs which tend to hold the slides outward, and stop-lugs on the slides engaging the rigid portion to limit positively and definitely said outward movement.

11. In a press for molding vessels, a reducible mold comprising a complete circular series of radially-movable staves having flanges at their inner edges; a table on which said staves are supported, and means for advancing the table and staves axially with respect to the mold, the staves having sloping shoulders at their outer edges, and fixed annular plates or rings which are encountered by the cam slopes of the staves as the latter are moved longitudinally, whereby inward radial movement of the staves is caused; suitable means for guiding the staves radially, and springs attached to one of the annular plates or rings, and connected to the staves respectively to yieldingly resist their inward movement and to retract them.

12. In combination with the table and the staves supported thereon and having the sloping exterior shoulders, the fixed rings which said shoulders encounter as said table is advanced; springs mounted on one of the rings, and links from the springs to the staves respectively, the springs being arranged to resist the inward movement of the staves and to retract them, and the links being of suitable length

to accommodate the longitudinal movement of the grooves; substantially as set forth.

13. In a reducible mold, a reducible head comprising two members which are rigidly united, the outer of said members being in the form of a spider having a hub by means of which it is united with the other member, and an annulus connected with said hub by open-spaced arms; radially-movable slides operated between said two members and guided on the annulus of the outer member and having lapping flanges facing the opposite member.

14. In a press for molding vessels, in combination with the reducible mold comprising a compressing-jacket and a removable head, a second jacket above such mold; a frame by which such head is carried; mechanism for moving the head vertically in the frame while the frame remains fixed with respect to the jacket, and supports on which such frame is adapted to slide laterally to withdraw and carry the head out of the path of the vessel from the lower to the upper jacket.

15. In a machine for molding vessels by compression, a reducible jacket and a reducible head for the same; a table on which the reducible jacket is carried, and means for advancing the table and for closing up the jacket as the table advances; a support for the head adapted to resist the advance of the latter while the table and jacket are advanced; mechanism for withdrawing the head vertically by movement with respect to such support to cause it to clear the jacket, a central portion of the table being movable independently of the remainder, the remainder being disengageable to permit it and the jacket carried thereby to withdraw, leaving the central portion and the molded body thereon advanced and in position to be further advanced, the support for the movable head being itself laterally movable after the vertical movement of the head with respect thereto to withdraw it and the head carried thereby out of the path of the advance of the table.

16. In combination with the press frame having posts or strain-rods, and molding devices mounted and guided therein and comprising the movable reducible head of the mold, horizontal bars W^4 secured on the strain-rods or posts and extending beyond the same at one side; a frame mounted on said rods and adapted to slide thereon to a position outside the posts, said frame having a supporting and guiding bearing for the movable head, and mechanism mounted on such sliding frame for raising and lowering said movable head to clear it of the mold.

17. In a machine for molding vessels by pressure, in combination with the main frame, a reducible mold comprising a jacket, and a head embraced between the staves of the jacket; suitable means for advancing the jacket longitudinally with respect to the main frame and thereby reducing such jacket radially; a supplemental frame in which the head is supported during such advancing and reducing movement of the jacket, such supplemental frame being supported on the main frame, and means for raising and lowering the head with respect to the supplemental frame, while said frame is fixed with respect to the main frame, and means for locking the head rigidly with respect to the supplemental frame to prevent such movement of the head relatively thereto.

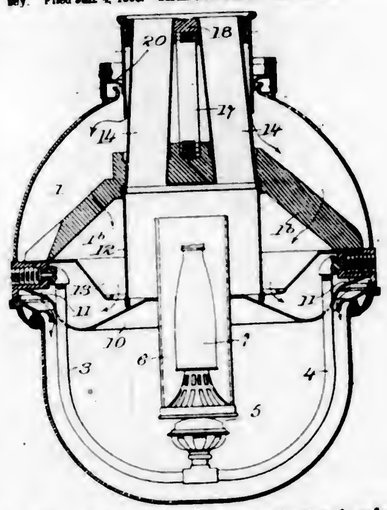
18. In combination with the reducible head having a stem, the frame comprising the casting W, through which said stem extends and in which it is guided; the crank-shaft W^5 in said frame and having a crank which engages the stem, said stem having a lug V^4 having an aperture v^4 in which the crank operates to raise and lower the stem and lock it at the extreme of such movement; substantially as set forth.

19. In a machine for forming vessels from pulp, in combination with a reducible mold for the same having a tubular stem and suitable fixed guide for such stem, the stem being extended without deflection to a point which is above the fixed guide at the lowest position of the head and deflected beyond such point, and having a supply-pipe connected to it beyond such deflection; a valve seating inwardly at the inner end of the tubular stem, and having its stem emerging from the latter at the bend or deflection thereof, and suitable means exterior to the stem for operating the valve and holding it seated.

20. In a machine for making vessels of pulp, in combination with the reducible mold and a removable head for the same, a frame in which said head is sustained and guided in proper relation to the mold; a tubular stem for such head extending through such guiding and sustaining frame and deflected beyond the latter and connected to a supply-pipe, the valve seating inwardly at the inner end of the tubular stem and emerging from the latter at the deflection, and means for moving the head axially with respect to such guiding and sustaining frame, and means for moving the frame to carry the head in a direction transverse to the axis away from the mold.

21. In a machine for making vessels of pulp, in combination with a jacket and an inner form, between which the body of the vessel may be compressed, a reducible head adapted to support the inner form and enter the jacket, and a reducible upper head within the jacket; a stem extending from such upper head through a fixed guide; a cross-head on said stem above the guide, links from opposite ends of such cross-head extending back through the fixed guide, adjustable stops on the lower ends of said links, and springs interposed between the stops and the guide; substantially as set forth.

645,142. GAS-LAMP. MERTON P. STEVENS, East Orange, N. J., assignor to The Safety Car Heating and Lighting Company, of New Jersey. Filed Jan. 4, 1898. Serial No. 665,508. (No model.)

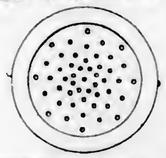


Claim.—1. In a lamp structure, the combination of a reflector, a gas-burner located below the reflector, an incandescent mantle located over said burner and projecting through the reflector, and a translucent shield surrounding the upper portion of the mantle.

2. In a lamp structure, the combination of a reflector, a gas-burner located below the reflector, an incandescent mantle located over said burner and projecting through the reflector, a chimney arranged over said burner and mantle and projecting through the reflector, and a translucent shield surrounding said chimney and extending from the top of the reflector to a point above the top of the chimney.

3. In a lamp structure, the combination of a reflector, a gas-burner located below the reflector, an incandescent mantle located over said burner and projecting through the reflector, a chimney arranged over said burner and mantle and projecting through the reflector, a translucent shield surrounding said chimney and extending from the top of the reflector to a point above the top of the chimney, means for conveying the products of combustion from the lamp, and means for conveying highly-heated air to the interior of the lamp.

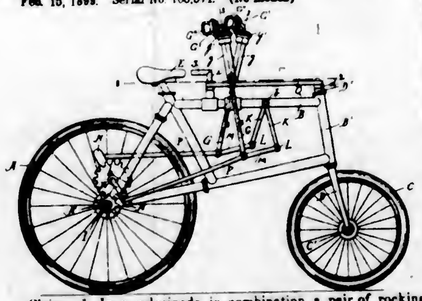
645,143. MOISTENING DEVICE. SAMUEL W. TAYLOR, Baltimore, Md., assignor of one-half to R. H. MacClernan, Philadelphia, Pa. Filed Nov. 9, 1899. Serial No. 736,433. (No model.)



Claim.—1. A moistening device comprising a casing, housing or receptacle, an apertured non-absorbent member movable in respect to the casing, an absorbent and elastic pad or sponge completely filling the space between the member and the bottom of the receptacle and a fastening device for securing the casing to the clothes, substantially as described.

2. A moistening device comprising a casing, housing or receptacle, an apertured non-absorbent member movable in respect to the casing, an absorbent and elastic pad or sponge completely filling the space between the member and the bottom of the housing, and a flanged ring detachably fitted to the casing, substantially as described.

645,144. VELOCIPEDE. THOMAS TOLSON, Boston, Mass. Filed Feb. 15, 1899. Serial No. 705,571. (No model.)



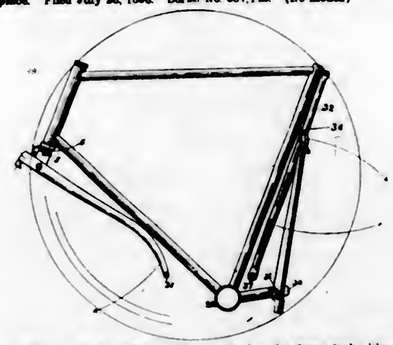
Claim.—1. In a velocipede, in combination, a pair of rocking hand-levers G, G sleeves g, g journaled on said levers, bevel-gears g', g' secured to said sleeves, bevel-gears G', G' journaled on the upper ends of the levers G, G and intermeshing with the gears g', g' and having handles G", G" and links Q Q pivotally connected by means of projections R, R to the sleeves g, g and a projection or lever on the fork-spindle of the forward wheel substantially as and for the purpose set forth.

2. In a velocipede, the combination of a driving-wheel, a pinion secured thereto, a crank-actuated gear-wheel meshing in said pinion, two pivoted hand-levers, connecting mechanism between said hand-levers and crank gear-wheels, a cross-bar fixed on the steering-fork, sleeves loosely fitted on the upper ends of the hand-levers, intermediate connections between each sleeve and one end of the said cross-bar, and means for turning the sleeve to oscillate the cross-bar, substantially as described and for the purpose specified.

3. In a velocipede, the herein-described driving mechanism, consisting of a driving-wheel, pinions secured thereto, gears meshing with said pinions, cranks secured to said gears and provided with internal racks at their outer ends, mutilated pinions meshing with said racks and movable radially relatively to said gears, link driving mechanism connected to said mutilated pinions, and end caps removably fitted on the ends of said racks to permit the ready insertion and removal of the pinions, substantially as and for the purpose specified.

4. In a velocipede, the combination with two pivoted hand-levers and driving mechanism actuated thereby, of sleeves rotatably fitted on the upper ends of said levers, a cross-bar rigid on the steering-fork, links pivotally connected to the opposite ends of the cross-bar, projections on the sleeves engaging said links, means for turning the sleeves to oscillate the cross-bar, and an auxiliary steering device consisting of a spindle s journaled in the velocipede-frame and having a handle S, and a cross-bar S' rigid on said spindle and slotted at its opposite ends, the rear ends of the said links being pivoted in the slotted ends of the cross-bar S', substantially as described and for the purpose specified.

645,145. FOLDING BICYCLE. HENRY L. TREBERT, Syracuse, N. Y., assignor, by mesne assignments, to R. C. Stearns & Co., same place. Filed July 23, 1898. Serial No. 687,142. (No model.)



Claim.—1. In a folding bicycle frame, the front forks hinged to swing back against the lower diamond tube, and the upper and lower rear forks hinged to swing forward against the main post, when the wheels are removed, and means to engage with the upper ends of the front forks to hold them in operative position.

2. In combination, in a folding bicycle-frame, the front forks hinged to swing back against the lower diamond tube, a spring-latch to hold them in operative position, and upper and lower rear forks hinged to swing forward against the main post when the wheels are removed.

3. In a folding or knockdown bicycle-frame, the combination of the steering-stem with depending legs, the front forks connected by an integral arch and pivotally secured to said legs, and a spring latch secured to the lower end of said stem for engaging with a bolt-hole in said arch and holding the parts in operative position.

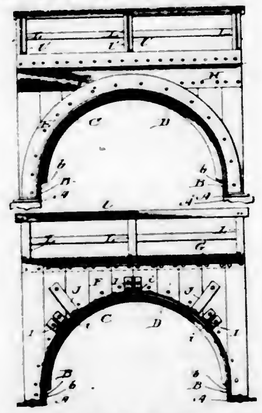
4. In combination, in a folding or knockdown bicycle, the steering-stem with integral depending legs, the front forks pivotally connected to said legs, an integral arch connecting said forks and rearwardly cut out to fit around said stem when swung into position, a spring-latch secured to the front of said stem and engaging with a bolt-hole in a lug on the front of said arch.

5. In combination in a folding or knockdown bicycle-frame, the steering-stem with integral depending legs forming an inverted U, the front forks pivotally secured to the outer face of said respective legs, an integral arch connecting said forks and formed on its inner face to fit around said stem when swung into position, a forwardly-projecting lug on the lower end of said stem, a corresponding forwardly-projecting lug on the front face of said arch, a spring-latch secured to one of said lugs and engaging with the bolt-hole formed in the other.

6. In combination, in a folding or knockdown bicycle-frame, the front forks hinged to swing back against the lower diamond tube, a spring-latch to hold them in operative position, and upper and lower rear fork sides hinged to swing forward against the main post when the wheels are removed, said front and rear forks being slotted at their lower and outer ends to receive the axles.

7. In a folding or knockdown bicycle frame, in combination, the steering-stem with integral fork-crown and depending legs, the front forks connected by an integral arch and pivotally secured to said legs, a substantially-horizontal arm secured to the rear of the crank-hanger and having rearwardly-extending legs, lower rear forks pivotally secured to said rear legs, and an integral arch connecting said rear forks and formed to fit the lower surface of said arm when the forks are in operative position.

645,146. CULVERT. MAURICE C. TRUMBULL, Savona, N. Y. Filed June 15, 1899. Serial No. 720,717. (No model.)



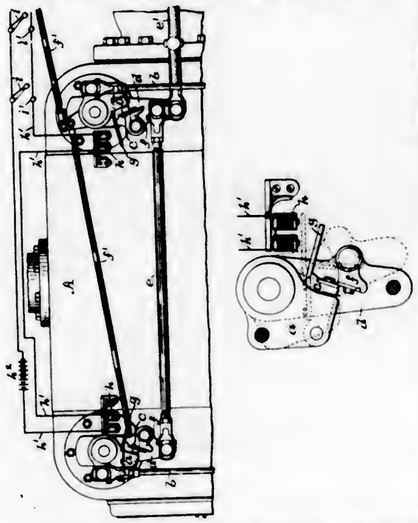
Claim.—1. In a culvert of the character described, the combination, of the longitudinal angle-beams B, longitudinally-curved plates C forming the body of the arch and resting at their ends on the base-flanges of said angle-beams against the flanges thereof, curved rails on the under side of the arch at the juncture of the body-plates, curved angle-beams at the ends of the arch with their ends resting upon the base-flanges of the longitudinal angle-beams, vertical plates forming the end walls of the culvert, and tie-rails extending longitudinally along the upper side of the arch and connected to the body-plates and to the end walls, the vertical plates of the end walls being secured to the flanges of the curved angle-beams, substantially as shown and described.

2. In a culvert of the character described, the combination, of

the longitudinal angle-beams B' bolted to the sill-plates which rest upon the abutment, longitudinally-curved plates forming the body of the arch and resting at their ends upon the base-flanges of the angle-beams against the vertical flanges thereof, curved T-rails on the under side of the arch at the juncture of the body-plates to which they are connected by U-bolts, curved angle-beams upon the ends of the arch with their ends resting upon the base-flanges of the longitudinal angle-beams, vertical plates forming the end walls of the culvert and connected together by a flat metal strip and by an angle-beam at their upper ends, and T-rails extending along the upper side of the arch and connected to the body-plates by the U-bolts and to the end walls of the culvert, the parts being constructed and arranged as herein shown and described, and for the purpose set forth.

3. In a culvert of the character described, the combination with the longitudinal angle-beams at the top of the end walls, of the vertical standards or T-rails L having the flanges extended and bent in opposite directions forming feet by which they are connected to the angle-beams, a top rail attached to the bent flanges at the upper ends of the standards, and an intermediate rail secured to the flat side of said standards, substantially as shown and described.

645,147. VALVE-GEAR STEAM-ENGINE. DAVID VALENTINE, Pawtucket, R. I., assignor of one-half to Edmund R. Richardson, same place. Filed Oct. 7, 1899. Serial No. 732,869. (No model.)



Claim.—1. In a steam-engine, the combination with a moving member of the valve-operating mechanism, of a segment connected with the valve, a latch member pivoted to said segment, an armature secured to said latch member, an electromagnet, an open electric circuit connected with the magnet, and switches in the circuit located at a distance from the prime motor, whereby the closing of one of the switches closes the circuit, energizes the magnet and arrests the segment when the armature passes into the field of influence of the magnet, as described.

2. In a prime motor, the combination with a segment connected with the valve, a latch member pivotally supported on the segment, an armature secured to the latch member, and means for operating the valve through the segment, of an electromagnet, an open electric circuit connected with the magnet, and switches in the circuit located at a distance from the prime motor, whereby the closing of the circuit energizes the magnet and arrests the movement of the segment when the armature passes into the field of influence of the magnet, as described.

3. In a steam-engine, the combination with the swinging arm *d*, the heel-piece *f* on the swinging arm, the segment *a* connected with the valve of the steam-engine, and the member *c* pivoted to the segment *a*, of the armature *g* on the member *c*, the electromagnets *h*, the electric conductors *k' k'*, the battery k^2, and the switches *i i* adapted to close the circuit; whereby, on the closing of the circuit, the member *c* is held out of engagement with the heel-piece *f* to stop the supply of steam to the engine and arrest the same, as described.

645,148. NUT-WRENCH. WILLIAM S. VARKIRK, Middlesborough, Ky. Filed Dec. 24, 1898. Serial No. 700,253. (No model.)



Claim.—1. In a wrench of the kind described, the combination with the shank and hub, together with means for moving said hub, of a plate carried by the hub and having guide arms or bars, a flanged plate carried also by the hub and a movable plate adjustable upon the guide arms or bars adapted to be moved to and from the flanged plate, substantially as shown and described.

2. In a wrench of the kind described, the combination with the shank and hub, and means for moving the hub within the shank, of the plate having the guide arms or bars, and a depending guide-leg, a flanged plate in which the ends of the guide-bars are secured, a movable plate adapted to slide upon said guide arms or bars and having a depending threaded portion, and an adjusting-screw working through the said depending portion and adapted to move the plate along the guide arms or bars to and from the flanged plate, substantially as shown and described.

3. In a wrench of the kind described, the combination of the shank, of the flanged hub arranged in said shank, the reversible spring-actuated pawl carried by the shank and adapted to engage the ratchet-faced flange of the hub, a plate secured to the hub and having guide-arms extending across the hub, and also having a depending threaded portion, a flanged plate secured to the hub and in which the ends of the guide arms or bars are secured, and the movable plate adapted to move upon the guide arms or bars and having a threaded depending portion, and the adjusting-screw working in said threaded portion for the purpose of adjusting the plate along the guide bars or arms, substantially as shown and described.

645,149. WATCH-CHAIN. SAMUEL H. WARREN, Keosaugua, Iowa. Filed May 11, 1899. Serial No. 716,391. (No model.)



Claim.—A compound hook for a watch-chain &c., comprising a headed pin extending centrally and longitudinally through the knob portions and serving as a pivot therefor, and to secure said parts together, oppositely-extending similar snap-hooks, and inner knobs on said hooks, substantially as described.

645,150. PRESSURE GAS-VALVE. CONRAD A. WEBER-MARTI, Zurich, Switzerland, assignor to the Gesellschaft für Acetylen Gesticht, Basel, Basle, Switzerland. Filed Oct. 4, 1899. Serial No. 732,554. (No model.)

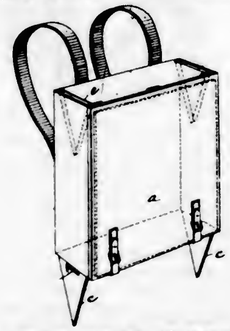


Claim.—1. In apparatus for opening and closing low-pressure conduits from a distant point of actuation, in combination, a conduit for the gas or other fluid or liquid to be controlled, a chamber *b'* intercepting the conduit-throughway and always communicating at one of its ends with such throughway, by means of a duct b^3 made in the upper wall of the chamber, a piston C serving to close such throughway and having a flow-through channel *c* serving to open such throughway and adapted to work hermetically in the chamber *b'* crosswise of the conduit, and means in connection with the other end of the chamber to that lastly referred to for forcing air or other fluid or liquid thereinto and exhausting the same therefrom so as to operate the piston, as set forth.

2. In apparatus for opening and closing conduits from a distant point of actuation, in combination, a conduit for the gas or other fluid or liquid to be controlled, an open-ended chamber *b'* intercepting the conduit-throughway and always communicating at one of its ends therewith, by means of a conduit b^3 made in the upper wall of the chamber, a packed cap b^4 serving to close such end of the chamber, a packed coupling b^5 serving to close the other end of the chamber, a piston C serving to close the conduit-throughway and having a flow-through channel *c* serving to open such throughway and adapted to work hermetically in the chamber *b'* crosswise of the conduit, and means in connection with the coupling-fitted end of the chamber for forcing air or other fluid or liquid thereinto and exhausting the same therefrom so as to operate the piston, as set forth.

3. In combination in a gas-burner regulated from a distance, a conduit for gas, a chamber *b'* intercepting the gas-throughway and always communicating at one of its ends with the outlet part thereof, by means of a passage b^3 made in the upper wall of the chamber, a piston C serving to close such throughway and having a flow-through channel *c* serving to open such throughway and adapted to work hermetically in the chamber *b'* crosswise of the conduit, means in connection with the other end of the chamber to that lastly referred to for forcing air thereinto and exhausting the same therefrom so as to operate the piston, and a conduit b^3 leading from the supply part of the conduit-throughway and having a gas-nozzle.

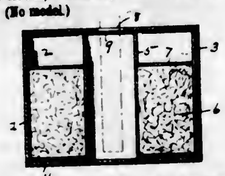
645,151. KNAPSACK. LEO WEISENBURGER, Mount Vernon, N. Y. Filed Aug. 31, 1899. Serial No. 729,093. (No model.)



Claim.—1. A knapsack provided with spurs along one edge adapted to be forced into the ground to support it in an upright position and sockets along the opposite edge adapted to receive the spurs of another knapsack, for the purpose set forth.

2. A knapsack provided with bullet-proof armor and spurs along one edge adapted to be forced into the ground to support it in an upright position, and sockets along the opposite edge adapted to receive the spurs of another knapsack whereby the knapsack may be used as a temporary fortification.

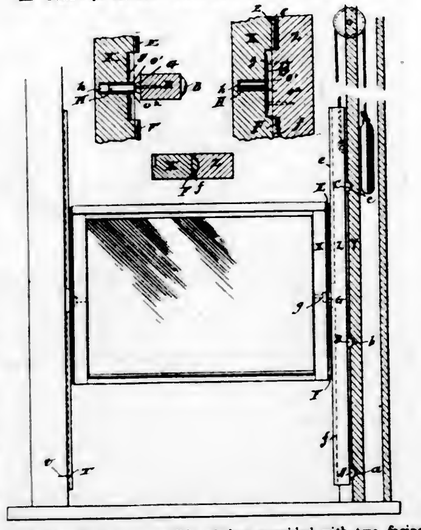
645,152. HOLDER FOR CALCIUM CARBID. EDWIN L. WHITE, New York, N. Y., and WILLIAM M. GILBERT, Waterbury, Conn., assignors to George H. Clowes, Waterbury, Conn. Filed Apr. 28, 1898. Serial No. 679,082. (No model.)



Claim.—1. A receptacle consisting of a body having an annular chamber for holding calcium carbid, a centrally-located, tubular core extending upwardly from the bottom thereof, and an annular disk surrounding said core which is adapted to rest upon the carbid in said chamber, and to retain its position thereon while the said carbid is expanding, said body having a removable cover which is provided with a central opening, said opening being closed by an easily-punctured closure, substantially as described.

2. A receptacle comprising the body 1 having the lining 2, tubular core 5, and disks 4 and 7, and the cover 3 having the opening 8 and easily-punctured closure 9, substantially as set forth.

645,153. REVERSIBLE WINDOW. HIRAM K. WHITNER, Chicago, Ill. Filed Sept. 23, 1899. Serial No. 731,906. (No model.)



Claim.—1. In a reversible window provided with two facing stiles held in engagement on each side of the sash by means of a pivotal union, the combination, a side stile having two radial beads and a journal-channel adapted to interlock with a thrust-stile, a thrust-stile having two longitudinal channels and a pivotal bead whereby the upper radial bead of said side stile may be supported in a vertical plane by said pivotal bead of said thrust-stile, and means whereby said alternate beading and channeling may be held in engagement, substantially as and for the purpose set forth.

2. In a reversible window provided with two facing stiles held in engagement on each side of the sash by means of a pivotal union, the combination, a side stile having a beaded edge adapted to engage with a thrust-stile, a thrust-stile having a channeled edge facing said side stile and provided with three buttons fixed at irregular intervals on the edge facing the pulley-stile, said buttons being adapted to engage with said pulley-stile, a pulley-stile provided with three recesses adapted to engage with said buttons at a predetermined point, and means whereby said sash may be moved up and down in sashways, substantially as and for the purpose set forth.

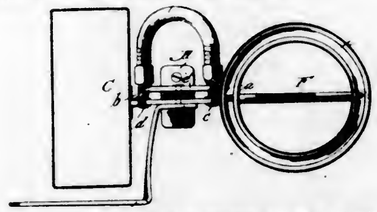
3. In a reversible window provided with two facing stiles held in engagement on each side of the sash by means of a pivotal union, the combination, a side stile having two radial beads and a journal-channel adapted to interlock with two longitudinal channels and a pivotal bead in a thrust-stile, a thrust-stile having two longitudinal channels and a pivotal bead adapted to engage with said side stile and provided with three buttons fixed adjustably at irregular intervals in the edge facing the pulley-stile and adapted to engage with said pulley-stile, a pulley-stile provided with three recesses at relative irregular intervals and adapted to engage with said three buttons at a predetermined point, and means whereby said sash may be moved up and down in sashways, substantially as and for the purpose set forth.

4. In a reversible window provided with two facing stiles held in engagement on each side of the sash by means of a pivotal union, the combination, a side stile X having two radial beads E and F and a journal-channel *g* provided with a journal-socket *h* adapted to engage with a thrust-stile, a thrust-stile Z having two longitudinal channels *e* and *f* and a pivotal bead G provided with a pivot-pin H, three buttons A, B, C adjustably fixed to said thrust-stile Z at irregular intervals adapted to engage with a pulley-stile, a pulley-stile Y provided with three recesses adapted to engage with said buttons at a predetermined point and means whereby said sash may be moved up and down in sashways, substantially as and for the purpose set forth.

5. In a reversible window provided with two facing stiles held in engagement on each side of the sash by means of a pivotal union, the combination, a side stile X having two radial beads E and F and provided with a socket *h* and rabbet *g'* adapted to engage with a thrust-stile, a thrust-stile Z having two longitudinal channels *e* and *f* and provided with a pivot H bearing base G' adapted to engage with said rabbet in said side stile and means whereby said channeling and

beading may be held in engagement, substantially as and for the purpose set forth.

645,154. OIL-STOVE. WILLIAM H. WILDER, Gardner, Mass. Filed Mar. 14, 1899. Serial No. 709,052. (No model.)



Claim.—1. In an oil-stove, an oil-chamber having a maintained oil level, a burner and means for moving both of said parts in unison but in reverse direction, substantially as described.

2. In an oil stove, an oil-chamber having a maintained oil-level, a burner, means for moving said parts in unison but in opposite directions and a swiveled pipe connection between the parts, substantially as described.

3. In an oil-stove, an oil-chamber having a maintained oil-level and a burner, one of said parts being vertically movable, an oil-supply pipe connected with said burner at two points, said pipe being inclined from one side to the other so as to perfectly drain the burner and a suitable pipe connection between the end of the pipe and the oil-chamber, substantially as described.

4. In an oil-stove, an oil-chamber, a burner, said parts being movable and parallel bars pivotally connected to said parts, the oil-chamber being in communication with the burner, substantially as described.

5. In an oil-stove, an oil-chamber, a burner, said parts being movable, parallel bars pivotally connected to said parts and an offset oil-duct having swiveling connections with the oil-chamber and burner, substantially as described.

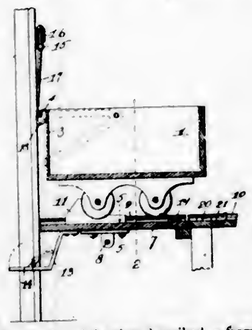
6. In an oil-stove, an oil-chamber, a burner, said parts being movable and in communication with each other, parallel bars connecting the parts and a supporting-standard for the parallel bars, substantially as described.

7. In an oil-stove, an oil-chamber having a maintained oil-level, a burner, and an offset oil-duct having swiveled connections therewith, substantially as described.

8. In an oil-stove, an oil-chamber having a maintained oil-level, a burner, and an oil-duct between, having swiveled connection therewith, substantially as described.

9. In an oil-stove, an oil-chamber, a burner, and a connection between the parts comprising a straight bar and an oil-duct, substantially as described.

645,155. AUTOMATIC CAR-TIPPLE FOR MINES. CHARLES H. WILLIAMS, Coffeen, Ill. Filed May 8, 1899. Serial No. 716,051. (No model.)



Claim.—1. In a device of the class described, a framework with a descending cage, a platform arranged to be tilted into the side of the framework in which the cage operates, in combination with a car adapted to occupy said platform, said car having a door normally closing one end thereof and hinged thereto, a hook whereby said door is engaged and opened when the car and platform are tilted, an arm carried by the under side of said platform to be engaged by the descending cage for tilting said platform, substantially as specified.

2. In a device of the class described, having a descending cage operating in the framework, a tilting platform arranged at one side of said framework, rails provided with stops mounted upon said platform, a car occupying the rails of said platform and provided with a door hingedly secured to said car and provided with a hook, said hook constructed to engage a hook swinging from the framework and when engaged to open said door when the car is tilted, an arm secured to the under side of said platform and engaged by the descending cage for tilting said platform, substantially as specified.

3. In a device of the class described, the combination of a hoisting-cage operating in a framework, a tilting platform arranged at one side of said framework and provided with rails for the admission of a car, a door forming one end of said car, said door hinged to the sides of said car and provided with a hook, said hook arranged to come in communication with a swinging hook secured to the framework, said hooks opening the door of said car when the platform and car are tilted, an L-shaped arm secured to one side of the under surface of said platform to be engaged by the descending cage for tilting said platform and car, stops mounted upon the rails of said platform, which engage the front wheels of the car for supporting the same when in a tilted position, substantially as specified.

645,156. WHEEL FOR RAILWAY HAND-CARS. WARREN J. WILLIS, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed May 27, 1898. Serial No. 718,604. (No model.)



Claim.—1. In a wheel for use on railways, the combination of the rim formed of sheet metal having a flange B' on its outer side; a tread; a peripheral groove in said tread; a pneumatic tire on the outside of said rim resting in said groove and a retaining-flange projecting beyond the pneumatic tire to serve its purpose as a flange on a railway, and at the same time protect the tire when off the rails, for the purpose specified.

2. In a wheel for use on railways, the combination of a wheel with a tread, containing a peripheral groove; a pneumatic tire on the outside of said rim resting in said groove and a flange on the wheel projecting beyond the tire to serve its purpose for retaining the wheel on the track and to protect the tire when off the rails, as specified.

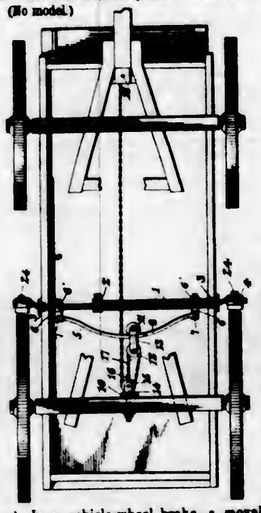
645,157. WASHING-MACHINE. JORDAN S. WILSON, Lamart, Ill. Filed Sept. 11, 1899. Serial No. 730,073. (No model.)



Claim.—1. In a washing-machine, the combination with a suitable tub and cover, of a revolving standard mounted upon the cover, a vertically-reciprocating rod guided in the standard, a series of pounders supported by the bottom of the rod, a segment pivoted in the standard, intermeshing teeth upon the rod and segment and a suitable handle for oscillating the segment to reciprocate the rod; substantially as described.

2. The combination with a suitable tub and cover, of a bearing-plate upon the cover, a standard, vertically pivoted in the bearing-plate and having arms adapted to rest upon the latter to take the strain from the bearing, a rod vertically and non-rotatably guided in the standard, a spider upon the rod, a series of washing-funnels upon the spider, a segment pivoted upon the standard, teeth upon the rod and segment adapted to mesh with each other and a handle for oscillating the segment; substantially as described.

645,158. VEHICLE-WHEEL BRAKE. GEORGE H. WIEBLE, Frazier's Bottom, W. Va., assignor of one-half to James Howard Donnally and James R. Byers, same place. Filed Dec. 8, 1899. Serial No. 739,683. (No model.)



Claim.—1. In a vehicle-wheel brake, a movable brake-beam carrying brake-shoes and a yieldable traveler-rod fast with the beam, in combination with brake connections having a sliding and self-adjusting connection with said yieldable traveler-rod, substantially as specified.

2. In a vehicle-wheel brake, a movable brake-beam provided with a yieldable traveler-rod, in combination with a traveler, and a brake connection attached to said traveler, substantially as set forth.

3. In a vehicle-wheel brake, a movable brake-beam provided with a yieldable traveler-rod having an intermediate bowed portion, in combination with an equalizing-traveler to which the brake-operating devices are connected, substantially as set forth.

4. In a vehicle-wheel brake, a movable brake-beam provided with a bowed traveler-rod, in combination with a traveler adapted to be deflected by the bowed rod toward the central portion of the beam, and a brake connection attached to said traveler, substantially as set forth.

5. In a vehicle-wheel brake, a movable brake-beam provided with a spring traveler-rod, in combination with a traveler, and a brake connection attached to said traveler, substantially as set forth.

6. In a vehicle-wheel brake, a spring-retracted brake-beam provided with a traveler-rod, in combination with a traveler, and a brake connection attached to said traveler, substantially as set forth.

7. In a vehicle-wheel brake, a movable brake-beam, and a traveler-rod made fast with said beam within the end portions thereof, in combination with a traveler comprising a traveler-wheel, a pulley, and a connecting-frame, and a brake connection attached to said traveler, substantially as set forth.

8. In a vehicle-wheel brake, a movable brake-beam provided with a traveler-rod, in combination with a traveler, a flexible brake connection attached to said traveler, and a set of power-multiplying pulleys for said flexible connection, substantially as set forth.

9. In a vehicle-wheel brake, a longitudinally-extensible brake-beam comprising a plurality of telescopically-assembled sections, and means for relatively fixing said sections, in combination with oscillatory bearings in which the brake-beam is loosely mounted for swinging movement therewith and extensible adjustment therein, and brake connections having slidable engagement with said beam, substantially as set forth.

10. In a vehicle-wheel brake, a longitudinally-extensible brake-beam comprising a plurality of telescopically - assembled sections, means for relatively fixing said sections, and a traveler-rod connected with the beam in such manner as to admit of said beam being extended or contracted in length, substantially as specified.

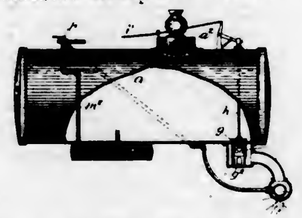
11. In a brake, the combination of oscillatory bearings, a brake-beam, brake-operating devices having a self-adjusting and yieldable connection with the beam, and a repressing-spring for holding the beam in a non-applied position.

12. In a brake, the combination of oscillatory bearings, a brake-beam, loose brake-operating devices having a self-adjusting and yieldable connection with said beam, and a repressing-spring operatively associated with the beam and the loose brake-operating devices to take up the slack in the latter and hold the beam in a non-applied position.

13. In a brake, the combination of an extensible brake-beam, a traveler-rod clamped to individual sections of said beam, and brake-operating devices having self-adjusting connection with said traveler-rod.

14. In a brake, an extensible beam, a traveler-rod, and means for clamping the end portions of the traveler-rod to separate members of said beam, combined with brake-operating devices having self-adjusting connection to the traveler-rod.

645,159. STREET-SPRINKLER. EDWARD BALF, Hartford, Conn. Filed Feb. 20, 1899. Serial No. 706,107. (No model.)



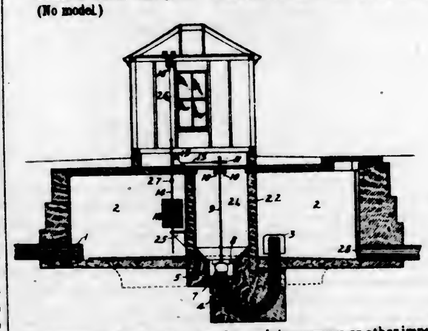
Claim.—1. In combination in a street-sprinkler, a water-tank with sprinkler-pipe, an air-pump carried and driven by the forward movement of the vehicle, an air-reservoir connected to the pump, pipes connecting the air-reservoir and a perforated pipe located within the sprinkler-pipe, pipes connecting the air-reservoir and the water-tank, means common to both systems of pipes and adapted to control the pressure of either, and a variable valve adapted to control the flow of water from the water-tank to the sprinkler-pipe.

2. In combination in a street-sprinkler, a water-tank, a delivery-pipe, a variable valve controlling the flow of water into the delivery-pipe, a perforated sprinkler-pipe, a perforated air-tube located within the sprinkler-pipe, connections between the perforated air-tube and between the water-tank, and a compression-tank, and means common to both sets of connections adapted to control and vary the relative pressures of the water and air as they are delivered.

3. In combination in a street-sprinkler, a water-tank, a delivery-pipe, a variable valve having a perforated body with a series of ports of different size, a perforated sprinkler-pipe, a perforated air-tube located within the sprinkler-pipe and means for controlling the flow of air and water respectively.

4. In combination in a street-sprinkler, a water-tank, a delivery-pipe, a perforated sprinkler-pipe, a perforated air-tube located within the sprinkler-pipe with the openings registering with the openings of the sprinkler-tube, means for forcing air through the air-tube and a variable valve controlling the flow of water into the delivery-tube, and a valve mechanism adapted to vary the relative pressures of the air and water at the opening of the sprinkler-pipe.

645,160. APPARATUS FOR APPLYING SEWAGE TO FILTER-BEDS. FRANK A. BARBOUR, Brockton, Mass., assignor of one-half to Frank H. Snow, same place. Filed Apr. 27, 1899. Serial No. 714,731. (No model.)



Claim.—1. In an apparatus for applying sewage or other impure liquids to purification-beds, the combination of a distributing-tank which receives the raw sewage, an automatic siphon leading from said tank, a plurality of distribution-passages leading to several beds,

a single gate which controls said passages, and apparatus actuated by the rise and fall of the liquid in the tank to operate said gate so as to open said passages one at a time and close all the others, substantially as described.

2. In an apparatus for applying sewage or other impure liquid to purification-beds, the combination of a distributing-tank of a capacity equal to the size of dose required, an automatic siphon which intermittently discharges the liquid from said tank, a single gate which controls a plurality of discharge-passages to the several beds, and apparatus actuated by the rise and fall of the liquid in the tank to operate said gate to successively open the passage to one of said beds and close the passages to the other beds, substantially as described.

3. The combination of a distribution-tank, an automatic siphon leading from said tank, a cylindrical chamber into which said siphon discharges, and having a series of outlets therefrom, an intermittently-revolving cylindrical gate within said chamber, said gate having an opening which registers successively with each of said outlets, a float in the distribution-tank which rises and falls with the liquid, and connection between said float and said gate whereby the gate is revolved by the movement of the float to open successively one outlet and close the others, substantially as described.

4. The combination of a distribution-tank, an automatic siphon leading from said tank, a cylindrical chamber into which said siphon discharges, and having a series of outlets therefrom, an intermittently-revolving cylindrical gate within said chamber, said gate having an opening which registers successively with each of said outlets, a float in the distribution-tank which rises and falls with the liquid, and a rope-and-pulley connection between said float and said gate whereby said gate is revolved by the movement of the float to successively open one outlet and close the others, substantially as described.

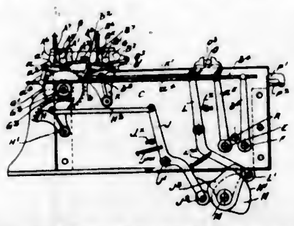
5. In combination with a tank, a float which rises and falls with the liquid in said tank, a cylindrical chamber having a series of side outlets, a cylindrical gate revolving within said chamber and having an opening which registers successively with said outlets, one at a time, and closes the other outlets, connection between said cylindrical gate and the float whereby when the float rises the gate will revolve until its opening registers with one of said outlets, and mechanism which prevents backward rotation of the gate when the float falls, substantially as described.

6. In combination with a cylindrical chamber having a series of side outlets, a cylindrical gate revolving within said chamber, and having an opening which registers successively with said outlets one at a time, and closes the other outlets, a stem connected with said gate and mechanism connected with said stem which automatically turns said gate intermittently, substantially as described.

645,161. ADHESIVE COMPOUND. VICTORIEN M. BOUTHILLIER, Montreal, Canada. Filed Oct. 13, 1899. Serial No. 733,540. (No specimens.)

Claim.—A glue consisting of gelatin or isinglass, potash and alum and reduced to the form of a powder, and soluble in cold water, substantially as hereinbefore described.

645,162. PAPER-FEEDING MACHINE. WILLIAM BRIDGEWATER, Leicester, England. Filed Mar. 30, 1899. Serial No. 711,134. (No model.)

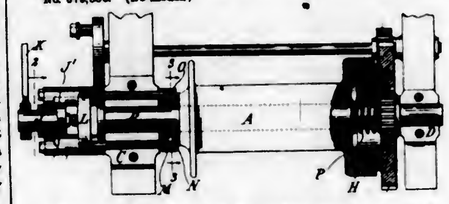


Claim.—1. The combination in a paper-feeding machine of a revolvable roller A stationary at times upon the front edge of a pile of sheets, a roller B, revolvable by mechanism actuated by a cam, in contact with the top sheet of the pile to form a loop or buckle across the said sheet between the said rollers, mechanism actuated by a cam for operating the roller A and a bar O and means actuated by a cam for lowering and raising same, whereby the whole of the top sheet of the pile of sheets rear of the front edge pressed upon by the roller A is moved forward by the roller B revolving in contact therewith, after which the roller B is stationary upon the top sheet and the bar O is lowered upon the pile rear of the top sheet and the roller A is next raised to release the front part of the top sheet to allow the loop or buckle to straighten out, after which the said roller A is again lowered upon and revolved in contact with the top sheet to discharge it clear of the pile, the roller B meanwhile being clear of the pile, substantially as set forth.

2. In a paper-feeding machine, in combination the rollers A B gears for revolving the roller B bar O and the means for raising and lowering the roller A of gears to revolve the said roller A so as to discharge the top sheet clear of the pile, operating substantially in the manner hereinbefore set forth.

3. In a paper-feeding machine, the rollers A B gears for revolving the said rollers, means for raising and lowering the roller A and means for raising the roller B so as to discharge the top sheet clear of the pile substantially as hereinbefore set forth.

645,168. FRICTION-DRUM. COLIN CAMPBELL, Newark, N. J., assignor to Joseph S. Mundy, same place. Filed Apr. 28, 1898. Serial No. 679,056. (No model.)



Claim.—1. The combination in a hoisting-machine of a shaft, a friction-drum loosely mounted upon said shaft, a friction device for engaging the drum, a two-armed thrust-pin, a collar adapted to be moved horizontally on the shaft by said pin, and an operating means bearing against the rear of said pin for moving the latter to engage the drum with the friction device.

2. The combination in a hoisting-machine of a shaft, a friction-drum loosely mounted on said shaft, a two-armed thrust-pin, a collar adapted to be moved horizontally on the shaft by said pin, an operating means bearing against the rear of said pin for moving it to engage the drum with the friction device and a series of balls located between said collar and drum, substantially as described.

3. The combination in a hoisting-machine of a bearing, a shaft, a friction-drum loosely mounted on said shaft, a two-armed thrust-pin passing through said bearing, a bracket secured to said bearing and straddling said pin, an operating-lever, a cam moved by said lever, a cam formed upon the bearing of said lever, said cams operating to force the thrust-pin forwardly to engage the drum with the friction device, and a series of balls located between said collar and the drum, substantially as described.

4. The combination in a hoisting-machine of a shaft, a friction-drum loosely mounted upon said shaft, an operating-pin comprising a body portion and two arms formed integrally therewith, a collar adapted to be moved on the shaft, by said pin, said arms engaging the rear of said collar, a bearing for the shaft, a cam formed on said bearing, an operating-pin, a cam carried by said operating-pin, and an operating-lever rotating said operating-pin, substantially as described.

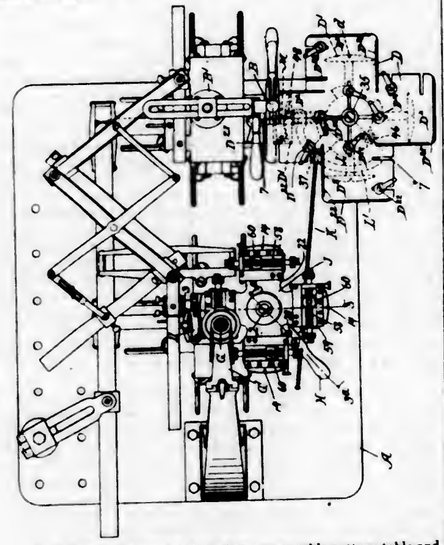
645,164. ENGRAVING-MACHINE TABLE. NICHOLAS DEDRICK, Manitowoc, Wis. Filed Jan. 16, 1899. Serial No. 702,333. (No model.)

Claim.—1. In a pattern-controlled machine, a rotatable pattern-table, and a rotatable work-table having a like plurality of pattern-holding and work-holding seats similarly disposed about the axis of rotation of the tables respectively; locking devices constructed and arranged to lock the tables in their paths of rotation, and mechanical connections communicating the angular or fractional rotary motion of one table to the other.

2. In a pattern-controlled machine, a rotatable pattern-table and a rotatable work-table having a like plurality of pattern-holding and work-holding seats each bounded in two directions by fixed stops, said stops being disposed at angular intervals which are respectively equal on the two tables, in combination with locking devices constructed and arranged to lock the tables at a plurality of positions corresponding in number to the number of pattern-holding and work-holding seats on the tables respectively, and at intervals in their rotation corresponding to the angular intervals between the stops.

3. In a machine of the class indicated, a rotatable table, an oscillating lever and devices by which it engages the table to rotate it positively in one direction and yieldingly in the opposite direction; a stop which arrests the table in the last-mentioned direction, and a lock operated by the lever when moving on in the same direction to lock the table positively against movement away from the stop.

4. In a machine of the class indicated, a rotatable table, an oscillating lever and devices by which it engages the table positively to rotate it in one direction and frictionally to rotate it in the opposite direction; a stop which arrests the table in the last-mentioned direction, and a lock operated by the lever when moving on in the same direction to lock the table positively against movement away from the stop.



5. In a pattern-controlled machine, a rotatable pattern-table and a rotatable work-table having a like plurality of pattern-holding and work-holding seats disposed about the axes of rotation of the tables, respectively; levers similarly fulcrumed with respect to the tables respectively and provided with devices for engaging positively in one direction the respective tables at a plurality of points on each table corresponding in number and angular separation to the pattern-holding and work-holding seats, and provided with devices for engaging the table to actuate it yieldingly in the opposite direction; a stop associated with each table arranged to arrest the rotation of the table in the direction in which it is moved yieldingly, and a lock operated by each lever when moving in said last-mentioned direction to lock the table positively against movement in the opposite direction, and a mechanical connection between said levers, whereby the movement of one lever is communicated to the other.

6. In a pattern-controlled machine, a rotatable pattern-table and a rotatable work-table having a like plurality of pattern-holding and work-holding seats disposed about the axes of rotation of the tables, respectively; levers similarly fulcrumed with respect to the tables respectively and provided with devices for engaging positively in one direction the respective tables at a plurality of points on each table corresponding in number and angular separation to the pattern-holding and work-holding seats, and provided with devices for engaging the table frictionally in the opposite direction; a stop associated with each table arranged to arrest the rotation of the table in the direction in which it is moved frictionally, and a lock operated by each lever when moving in said direction, to lock the table positively against movement in the opposite direction, and a mechanical connection between said levers whereby the movement of one lever is communicated to the other.

7. In a pattern-controlled machine, in combination with a rotatable pattern-table; a lever for rotating it, and devices by which the lever engages the table to rotate it yieldingly in one direction and positively in the reverse direction; a stop limiting the rotation of the table in the first-named direction; a lock which engages it positively at the position at which it is so stopped; and connections from the lever to said lock, which release the latter when the lever is moved in the direction for positively engaging the table; the positively-engaging device being constructed and arranged to allow a free movement of the lever sufficient to operate the lock before positively engaging the table.

8. In a machine of the character indicated, in combination with a rotatable table; a lever having devices which engage it frictionally to rotate it in one direction, and having an abutment which engages the table positively to rotate it in the opposite direction; a dog constructed and arranged to lock the table positively when engaged therewith; a connecting-rod extending from the dog the lever having a cam which engages said connecting-rod and operates to disengage the dog at the initial part of the lever's movement in the direction to positively engage the table and before such engagement occurs.

9. In a pattern-controlled machine, a rotatable pattern-table and a rotatable work-table having a like plurality of pattern-holding and work-holding seats similarly disposed about the axis of rotation; levers and connections therefrom to the tables respectively, adapted to be oscillated to engage and rotate the tables respectively through angular distances corresponding to the angular intervals between their said seats; a rod which connects said levers to cause one lever to transmit movement to the other, said rod being adjustable at its connection with one of said levers; and suitable devices for securing the rod as adjusted.

10. In a pattern-controlled machine, a rotatable pattern-table and a rotatable work-table having a like plurality of pattern-holding and work-holding seats similarly disposed about the axis of rotation; levers, and connections therefrom to the tables respectively adapted to be oscillated to engage and rotate the tables respectively through angular distances corresponding to the angular intervals between their said seats; a rod which connects said levers to cause one lever to transmit movement to the other, said rod being adjustable at its connection with one of said levers; devices for locking the rod as adjusted, said locking devices being provided with springs tending to unlock the rod, and a lever arranged to be operated at will to hold them in locking position, whereby each table is normally free to be moved independently of the other.

11. In combination with the chuck-table, the dog which locks it; the slide-bar which actuates the dog having an abutment 16, the handle-lever having the spring-dog 18 provided with the seat 19 for said abutment constructed and arranged to cause the reaction of the spring-dog against the abutment to move the lever to bring the abutment fully into its said seat, whereby said reaction of the spring-dog brings the table accurately to position when locked.

12. In a punch and matrix-cutting machine, the work-holding chuck having clamping devices adapted to engage under the article to be clamped and operate upwardly, and having suitable stops against which the article thus engaged is clamped, in combination with a punch-holder adapted to occupy the position of the work between such upwardly-operating clamp and the stops, such punch-holder having at one exterior side a downwardly-facing shoulder arranged to afford engagement for said upwardly-operating clamping device of the chuck.

13. In a punch or matrix-cutting machine, a work-holding chuck having at the upper side lips against which the work-block may be set upwardly, the clamping-jaw having bell-crank-lever wings 70; the cam 77; the worm-pinion rigid therewith and the work-shaft for rotating the same.

14. In a punch or matrix-cutting machine, a work-holding chuck having the clamping-jaw provided with the bell-crank-lever wings, and mounted on the wall opposite said jaw a cam 77 and means for operating it, in combination with a punch-holder having suitable means for locking a punch-blank therein, and having upon opposite exterior walls downwardly-facing shoulders adapted to be engaged respectively by the cam and by the bell-crank-lever wings of the clamping-jaw.

645,165. TOOL-GRINDER FOR ENGRAVING-MACHINES. NICHOLAS DEDRICK, Manitowoc, Wis. Filed Jan. 16, 1899. Serial No. 702,334. (No model.)

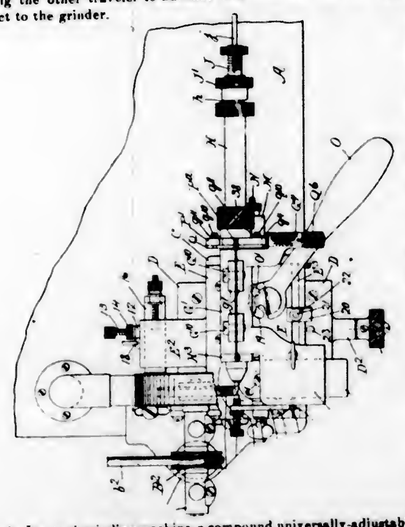
Claim.—1. In a tool-grinding machine, in combination with the grinder, a tool-carriage; a traveler on which the carriage is swiveled; means for adjusting the carriage angularly at the swivel-pivot; means for moving the traveler to advance and withdraw the tool with respect to the grinder; and adjustable stops to limit the range of such movements.

2. In a tool-grinding machine, in combination with the grinder; a tool-carriage; a traveler on which the carriage is swiveled; means for adjusting the traveler to advance and withdraw the tool with respect to the grinder; means for oscillating the carriage about its swivel-pivot, and adjustable stops to limit the range of such oscillation.

3. In a tool-grinding machine, in combination with the grinder; a traveler; a two-part tool-carriage having one part swiveled on the traveler and means for adjusting it about the swivel-axis, the other part having the tool-seat and being adjustable on the swivel part radially with respect to the swivel-axis; and means for moving the traveler to advance and withdraw the tool with respect to the grinder.

4. In a tool-cutting machine, a compound universally-adjustable tool-carriage support consisting of a primary and a secondary traveler movable in directions transverse to each other; a two-part tool-car-

riage of which one part is swiveled on the secondary traveler, and the other part is radially adjustable on the swiveled part; means for adjusting one of the travelers in its line of movement, and means for moving the other traveler to advance and withdraw the tool with respect to the grinder.



5. In a tool-grinding machine, a compound universally-adjustable tool-carriage support consisting of a primary and secondary traveler movable in directions transverse to each other; a tool-carriage swiveled on the secondary traveler and adapted to be oscillated about its swivel-pivot; means for adjusting the primary and secondary travelers in their respective lines of movement, and adjustable stops to limit the range of oscillation of the swiveled carriage.

6. In a tool-grinding machine, a compound universally-adjustable tool-carriage support consisting of a primary and a secondary traveler movable in directions transverse to each other; suitable means for adjusting said travelers in their respective lines of movement; a tool-carriage swiveled on the secondary traveler, and suitable means for adjusting and securing it axially about its swivel-axis; means for moving said secondary traveler at will in its line of movement to advance and withdraw the tool with respect to the grinder, and stops to limit the range of such movement.

7. In a tool-grinding machine, in combination with the grinder; a two-part tool-carriage, one part being swiveled on its support and the other part having the tool-seat being adjustable radially with respect to the swivel-axis; suitable means for adjusting said second part with respect to the first; means for oscillating the entire carriage about its swivel-axis, and adjustable stops to limit its range of oscillation.

8. In a tool-dressing machine, in combination with the grinder, a compound support for the tool consisting of a fixed base and transversely-operating primary and secondary travelers, the tool-seat being mounted on the secondary traveler; means for adjusting one of the travelers in its line of movement; a yielding stop for such adjustment; means for moving the other traveler to advance the tool with respect to the grinder, and a cooperating cam and abutment, one on said traveler and the other on the fixed base; whereby the tool is swerved from the line of movement of said traveler.

9. In a tool-dressing machine, in combination with a grinder, a compound support for the tool consisting of a base and transversely-operating primary and secondary travelers; a tool-carriage swiveled and angularly adjustable on the secondary traveler; means for adjusting one of the travelers in its line of movement; a yielding stop for such adjustment; means for moving the other traveler to advance and withdraw it with respect to the grinder, and a cooperating cam and abutment, one on said traveler and the other on the fixed base, by which the tool is swerved from the line of movement of said traveler.

10. In a tool-dressing machine, in combination with a grinder, a compound support for the tool consisting of a fixed base and transversely-operating primary and secondary travelers, a two-part tool-carriage, and one part being swiveled and angularly adjustable on the first movable radially with respect to the swivel-axis.

11. In a tool-dressing machine, in combination with the grinder, a compound support for the tool consisting of the fixed base, and transversely-operating primary and secondary travelers; the tool-seat being mounted on the secondary traveler; means for adjusting the primary traveler in its line of movement, and a yielding stop for such adjustment and means for moving the secondary traveler to advance and withdraw the tool with respect to the cutter; and a cooperating cam and abutment, one supported on the fixed base and the other on the secondary traveler, whereby the tool is swerved from the line of movement of said traveler.

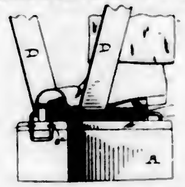
12. In a tool-dressing machine, in combination with the grinder, a compound support for the tool consisting of a fixed base and transversely-operating primary and secondary travelers, the tool-seat being mounted on the secondary traveler; a screw-shaft threaded through the base, and suitable cooperating stops on the shaft and on the primary traveler to cause the shaft to adjust said traveler, one of said stops being yielding in one direction; a cooperating cam and abutment, one on the secondary traveler and the other stopped longitudinally with respect to said screw-shaft, said cam and abutment being constructed and arranged to become engaged by the movement of the secondary traveler, whereby such movement causes the primary traveler to be moved in the direction permitted by said yielding stop.

13. In a tool-dressing machine, in combination with the grinder, a compound support for the tool consisting of a fixed base and transversely-operating primary and secondary travelers, the tool-seat being mounted upon the secondary traveler, the screw-shaft 1, threaded through the fixed base, abutments on said screw-shaft and on the primary traveler constructed and arranged to cause the shaft to adjust the traveler fore and aft; a sleeve 12 on the screw-shaft; a cooperating cam and abutment, one on the secondary traveler and the other on said sleeve; and the adjusting-screw 13 for adjusting the sleeve with respect to the screw-shaft.

14. In a tool-dressing machine, in combination with the tool-carriage, the tool chuck-holder seated therein; a collar on such holder non-rotatable with respect thereto and having a plurality of series of peripheral notches, the several series consisting of different numbers of notches; a blinder or shoulder-washer adjacent to said collar having a similar plurality of series of notches, the relative disposition of the several series of notches on the washer being different from the relative disposition of the corresponding series on the collar, whereby when one series on the collar corresponds with one series on the washer, the other series on the two parts do not coincide

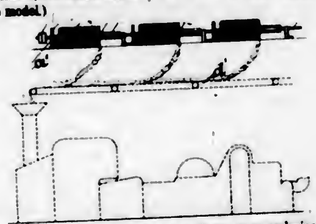
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645,166. SHOE-POLISHING DEVICE. George B. Dubb, Worcester, Mass. Filed Oct. 4, 1899. Serial No. 732,598. (No model.)



Claim.—The combination of the box, with a foot-rest on its lid, the rod extending along the rest in general conformity to the lines of the foot, but removed therefrom, the rear end bent downward, secured to the lid and to the body of the box and forming a hinge; the forward end bent downward to snugly engage the body of the box, substantially as described.

645,167. APPARATUS FOR UNRAILING AND BLENDING RAW COTTON. Samuel Roberts, Cheriton-cum-Hardy, and Howard E. Marsden, Didsbury, England. Filed Sept. 12, 1899. Serial No. 730,270 (No model.)

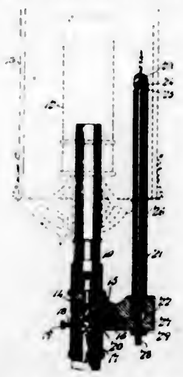


Claim.—1. In a machine for removing cotton endwise from coiled bales, the combination of supporting devices for a plurality of bales with gearing acting on the said supporting devices for rotating the latter in the direction opposite to that of winding and a traveling conveyer arranged to receive the cotton from the ends of the rolls and transport the same in a mixed condition for further treatment, sufficient open space being left at the delivery end of each coiled bale to permit the convenient drawing off of the cotton without obstruction by the frame or other part of the machine the bales being all adapted to feed onto the same apron substantially as set forth.

2. In combination with plates adapted to support bales of coiled cotton in an upright position, mechanism for rotating the said plates, drawing-off rollers arranged in pairs for drawing the sheet from each bale, means for rotating the said rollers in opposite directions and a traveling conveyer adapted to receive the sheets from all of the rollers and transport the same in a mixed condition for further treatment, substantially as and for the purpose set forth

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645,168. AUTOMATIC CUT-OFF PILOT-BURNER. John P. Farmer, Portland, Oreg., assignor of one-half to Charles F. Adams, same place. Filed Nov. 12, 1898. Serial No. 696,268. (No model.)



Claim.—1. The combination with a main burner having a by-pass, an adjacent pilot-burner having a shell communicating with the by-pass, a controlling device for the pilot-burner comprising a valve and a seat, and a thermostatic element connected with one member of the controlling device and extending into the zone of heat of the main burner to be energized to operate the controlling device.

2. The combination of a main burner having a communicating by-pass, an adjacent pilot-burner having a thermostatic shell communicating with said by-pass and extending into the zone of heat of the main burner to be energized thereby, a valve-seat carried by the shell, and a fixed valve adapted to seat and unseat with respect to said valve-seat as the shell contracts and expands to control the by-pass.

3. The combination of a main burner having a communicating by-pass, an adjacent pilot-burner communicating with said by-pass and having a thermostatic shell extending into the zone of heat of the main burner to be energized and carrying a valve-seat, and a fixed outlet-controlling valve arranged in operative relation with said seat, substantially as specified.

4. The combination with a main burner, of a by-pass in permanently-open communication with the supply-channel of the main burner, an adjacent pilot-burner having a thermostatic shell in communication with said by-pass and having a valve-seat, said shell extending into the zone of heat of the main burner to be energized, and a valve arranged in operative relation with said seat carried by the shell, substantially as specified.

5. A main burner having a supply valve or key and a lateral by-pass uncontrolled by the key, a pilot-burner having a thermostatic shell carried by the main burner in communication with said by-pass, said shell extending into the zone of heat of the main burner to be energized, and a controlling-valve arranged in operative relation with a seat in said thermostatic shell, substantially as specified.

6. The combination with a main burner having a supply valve or key and a by-pass, of an adjacent pilot-burner supported by the main burner in communication with said by-pass and having a thermostatic shell extending into the zone of heat of the main burner to be energized, controlling-valve mechanism actuated by said thermostatic shell, and a regulating-valve for the by-pass, substantially as specified.

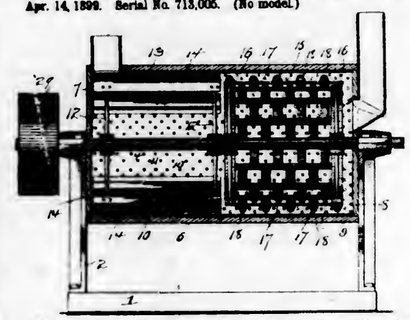
7. The combination with a main burner having a supply valve or key and a by-pass, of an adjacent pilot-burner supported by the main burner in communication with said by-pass and having a thermostatic shell extending into the zone of heat of the main burner to be energized, controlling-valve mechanism actuated by said thermostatic shell, and a regulating-valve for said by-pass, having a threaded terminally-exposed stem, substantially as specified.

8. The combination with a main burner having a supply valve or key and a by-pass, of an adjacent pilot-burner supported by the main burner in communication with said by-pass and having a thermostatic shell extending into the zone of heat of the main burner to be energized, controlling-valve mechanism actuated by said thermostatic shell, said by-pass terminating in a valve-seat in the wall of the main-burner feed-channel, and a regulating-valve having an adjustable stem fitted in the wall of the main-burner feed-channel for axial movement to vary the position of said regulating-valve with relation to the terminal valve-seat of the by-pass, substantially as specified.

9. The combination of a main burner having a lateral bracket, a supply valve or key controlling the gas-supply channel, and a by-pass communicating with said supply-channel and uncontrolled by said valve or key, a pilot-burner having a thermostatic shell fitted in a recess in said bracket in communication with the by-pass, and provided with a valve-seat adjacent to its burner-orifice, and a valve arranged in operative relation with said seat, and having its stem extending through the shell and an alined guide in said bracket, and terminally exposed for adjustment, substantially as specified.

10. The combination with a main burner having a supply valve or key and a by-pass, of an adjacent pilot-burner having a thermostatic shell in communication with said by-pass, and also provided with a controlling-valve seat, a valve arranged in operative relation with said controlling-valve seat, and a valve-stem for the controlling-valve threaded in a fixed guide and terminally exposed for adjustment, and locking devices for securing said stem at the desired adjustment, substantially as specified.

645,169. DELINTING-MACHINE. James J. Faulkner, Memphis, Tenn., assignor of one-third to W. S. Brian, same place. Filed Apr. 14, 1899. Serial No. 713,005. (No model.)



Claim.—1. In a delinting-machine, the combination with an abrading-cylinder and a supporting-frame therefor, of a shaft revolubly mounted in said cylinder and an agitator on said shaft comprising a series of curved rubbing-strips and brushes adjacent to and in rear of said strips.

2. In a delinting-machine, the combination with an abrading-cylinder and a supporting-frame therefor, of a shaft revolubly mounted in said cylinder, a rubbing-cylinder in said abrading-cylinder and secured to said shaft, said rubbing-cylinder comprising wheels, a series of slats connecting said wheels and a series of abrading-blocks secured on each pair of slats the abrading-blocks of each series alternating with those of the adjacent series.

3. In a delinting-machine, the combination with an abrading-cylinder and a supporting-frame therefor, of a shaft revolubly mounted in the abrading-cylinder, an agitator on the shaft having curved strips and brushes thereon cooperating with the abrading-cylinder as described and a rubber also secured on said shaft.

4. In a delinting-machine, the combination with an abrading-cylinder and a supporting-frame therefor, of a shaft revolubly mounted in said cylinder, an agitator and a rubbing-cylinder secured to said shaft, a suction-pipe communicating with one end of said cylinder for carrying off lint and draft-regulators at the other end of the cylinder to regulate the passage of air through the cylinder.

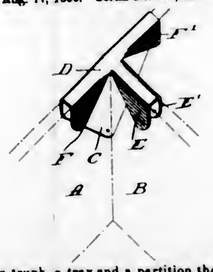
5. An abrading block for a delinting-machine comprising a detachable three-sided receptacle, a filling of abrading material in said receptacle and projections on the receptacle for conveniently securing the receptacle to the abrading-machine.

6. A delinting-machine, comprising a stationary abrading-cylinder, perforated throughout its entire circumference, a shaft extending through said cylinder, a series of brushes secured to said shaft within one part of the cylinder and a series of rubbers of abrading

material secured to the shaft in another part of the cylinder and longitudinal slats spaced apart on the perforated cylinder.

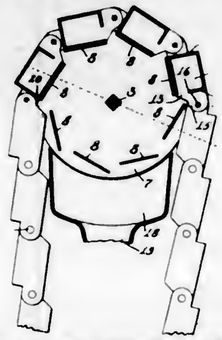
7. In a delinting-machine, the combination with a stationary cylinder provided interiorly with abrading material and exteriorly with slats spaced apart, of a revoluble shaft in the cylinder, an annular series of brushes secured to said shaft and a curved rubbing-plate secured to each brush.

645,170. TRUNK-FIXTURE. DAVID GOLDSMITH, New York, N. Y. Filed Aug. 17, 1899. Serial No. 727,481. (No model.)



Claim.—In a trunk, a tray and a partition therefor, a fixture for said partition comprising a T-shaped top plate, ears depending at right angles from one arm thereof and straddling said partition, supplemental ears depending at right angles from the other arms of the said T-shaped top plate and bearing against the inner side of the tray, a face-plate depending at right angles from the outer edge of said top plate and bearing against the outer side of the tray, said face-plate and supplemental ears being located in planes parallel with respect to each other and at right angles with respect to the plane of the first-mentioned ears.

645,171. BUCKET-CHAIN PUMP. COLUMBUS HEFFNER, Middletown, Ohio, assignor, by mesne assignments, to himself and Theodore C. Simpson, same place. Filed Dec. 15, 1899. Serial No. 740,375. (No model.)



Claim.—1. In a pump, the combination, substantially as set forth, of a top wheel having inclosing side walls and cross-plates forming a wheel with a central chamber and peripheral outlets between contiguous cross-plates, a pan disposed below the wheel and adapted to receive water flowing from said central chamber, and a chain of buckets supported by the wheel and adapted to dump their contents into the central chamber of the wheel through the spaces between the cross-plates thereof.

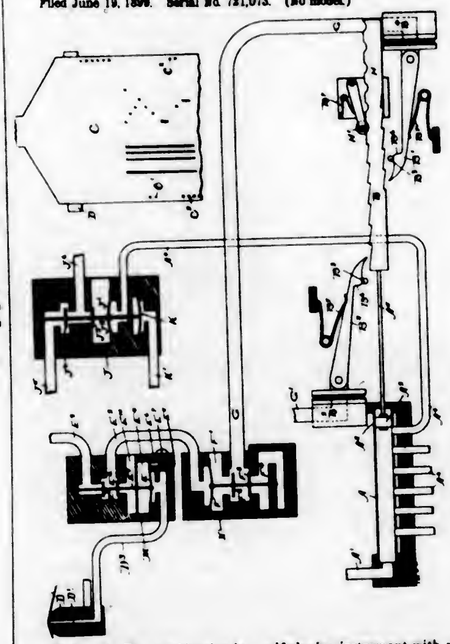
2. In a pump, the combination, substantially as set forth, of the side flanges forming inclosing side walls of the top wheel, cross-plates between the flanges and arranged to produce spaces between contiguous plates and leading to the central chamber of the wheel, a chain of buckets engaging the wheel and arranged to discharge their contents inwardly to the central chamber of the wheel, bucket-tops covering the outer portion of the tops of the buckets, and a pan disposed below the wheel.

3. In a pump, the combination, substantially as set forth, of the side flanges forming inclosing side walls of the top wheel, cross-plates disposed between the flanges and arranged to produce spaces between the contiguous plates and leading to the central chamber of the wheel, the advance end of each plate being nearer the axis of the wheel than is the trailing end of the plate, a chain of buckets engaging the wheel and arranged to discharge their contents inwardly to the central chamber of the wheel, bucket-tops covering the outer portion of the tops of the buckets, and a pan disposed below the wheel.

4. In a pump, the combination, substantially as set forth, of a top wheel having a closed central chamber with peripheral passages, a series of buckets forming a chain of buckets supported by said wheel and having outlets registering with said passages, intermembering ears at the tops and bottoms of the buckets, pivots uniting the ears of contiguous buckets, and a pan disposed below the wheel.

5. In a pump, the combination, substantially as set forth, of a top wheel having a central closed chamber with peripheral passages, a series of buckets forming a chain of buckets supported by said wheel, pivots uniting the contiguous buckets of the series, the axes of the pivots being disposed outwardly beyond the centers of the tops of the buckets and inwardly beyond the centers of the bottoms of the buckets whereby the bodies of the buckets are normally inclined from the perpendicular, and a pan disposed below the wheel.

645,172. SELF-PLAYING INSTRUMENT. EMORY C. HISCOCK, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed June 19, 1899. Serial No. 721,073. (No model.)



Claim.—1. The combination in a self-playing instrument with a series of stop-actions, of a device for successively putting all or any number of said actions into or out of service, means for giving said device a step-by-step movement, and means whereby the music-sheet controls said actuating means, substantially as specified.

2. The combination in a self-playing instrument, of a device for causing crescendo and diminuendo effects, a double rack-bar for actuating said device, spring-pawls moving said rack in opposite directions, and pneumatics for actuating said pawls, substantially as specified.

3. The combination in a self-playing instrument, of a device for causing crescendo and diminuendo effects, a double rack-bar for actuating said device, spring-pawls moving said rack in opposite directions, pneumatics for actuating said pawls, and a music-sheet controlling said pneumatics, substantially as specified.

4. The combination in a self-playing instrument, of a device for causing crescendo and diminuendo effects, a double rack-bar for actuating said device, spring-pawls moving said rack in opposite directions, pneumatics for actuating said pawls, a music-sheet, and means whereby said sheet controls said pneumatics, substantially as specified.

5. The combination with a crescendo and diminuendo device consisting of the cylinder A and piston A^5, of the rack-bar attached to the piston, the pawls engaging the bar and moving the piston in opposite directions, pneumatics actuating said pawls, and means for inflating said pneumatics, substantially as specified.

6. The combination with means for producing crescendo and diminuendo effects having an operating device such as the piston A^5, of racks and pawls for actuating said device, pneumatics moving the pawls, and a music-sheet and pneumatic-actions for controlling said pneumatics, substantially as specified.

7. The combination with the piston and its actuating devices, of a friction device for preventing overstrokes by the piston, &c., substantially as specified.

8. The combination with the piston and its actuating devices, of the extension H having a corrugated surface, and a spring-pressed roller riding on such surface, substantially as specified.

9. In a pneumatic-action, a screw E^7 having a bleeding-passage formed in it, substantially as specified.

10. In a pneumatic-action, a screw E^7 having a right-angled portion E^8 of a bleeding-passage formed in it, substantially as specified.

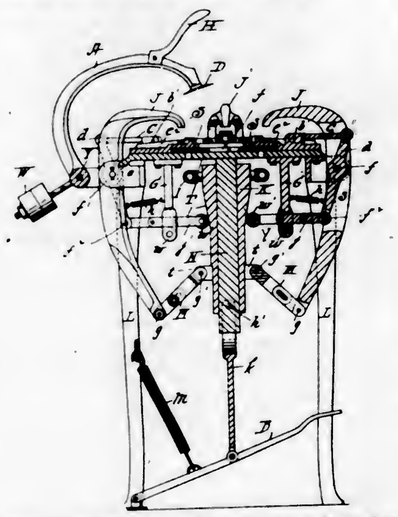
11. The combination in a self-playing instrument, of a crescendo and diminuendo producing device controlled by the music-sheet, and means operable at will for preventing the operation of such device, substantially as described.

12. The combination in a self-playing instrument, of a crescendo and diminuendo producing device controlled by the music-sheet, and means for rendering the stops independent of such device, substantially as specified.

13. The combination in a self-playing organ, of a crescendo and diminuendo device or stop, a music-sheet controlling said device and provided with a row of perforations for putting said device into action and another row of perforations for putting said device out of action, tracker-ducts corresponding to said perforations, and pneumatic means for operating said device, substantially as specified.

14. The combination in a self-playing organ, of a series of stop-actions, a device for throwing all or a portion only of said actions into and out of service, and pneumatic means for operating said device, said means embracing the music-sheet and tracker-range, of which the former is provided with two rows of perforations and the latter with two ducts adapted to cause the operation of said device and to regulate the extent of its operation, substantially as specified.

645,173. FOLDING-MACHINE. OLIVER LANDRY, Troy, N. Y. Filed June 30, 1899. Serial No. 722,473. (No model.)



Claim.—1. The finger-folder *f* having its inner or front end provided with a beveled folding edge, having its outer front corner cut away in a vertical plane to form a notched edge, and provided with a pivot-hole near its rear end, substantially as described and for the purposes herein specified.

2. The operating-cam K having lugs *t* and cam-ribs *l l'* above the lugs, the rib *l'* being longer than the rib *l*.

3. In a collar-folding machine, the combination with the supporting-frame, and the folders mounted thereon, of pivot or fulcrum pins at the sides of the supporting-frame, pressure-levers adapted to bear upon the folders mounted on said pivot-pins and having longitudinal slots, folder-operating levers mounted on the fulcrum-pins within the longitudinal slots of the pressure-levers, and means for actuating all said levers.

4. In a machine of the character described, the combination of a base-plate, a finger-folder resting against the edge of the base-plate, a slidable end-folder plate mounted on said base-plate and bearing against the edge of the finger-folder and thereby adapted to actuate said finger-folder, and suitable operating mechanism.

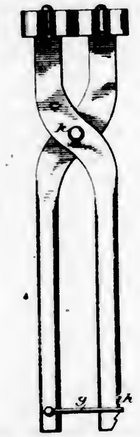
5. The combination of a base-plate, a finger-folder resting against the edge of said plate, a slidable folder-plate mounted on the base-plate and bearing against the edge of the finger-folder, a cap-plate secured on the said folder-plate and projecting over the end of the finger-folder, and suitable operating mechanism.

6. The combination of a finger-folder, an end-folder plate, a spring holding the finger-folder in its normal position, a plunger having a pin-and-slot connection with the end-folder plate, a system of levers connected to the finger-folder and adapted to be engaged by the plunger, and means for reciprocating the said plunger.

7. The combination with the table and a base-plate thereon, of a slidable end-folder plate mounted on the base-plate, a finger-folder resting loosely on the table against the edge of the base-plate, a spring holding the finger-folder normally against the edge of the base-plate, a system of levers fulcrumed on the base-plate and having a pivotal engagement with the outer end of the finger-folder, a plunger having a pin-and-slot connection with the end-folder plate and provided with a notch in its side edge adapted to engage the end of the lever system and actuate the same during a portion of its movement, and means for reciprocating the plunger.

8. The combination of the side and end folders, levers connected therewith, a vertically-reciprocating slide having cam-faces arranged in pairs of unequal length, pitmen connected to said levers and bearing against the said cam-faces, pressure-levers, and links pivoted to the pressure-levers and to the slide below the cam-faces.

645,174. THREAD-CUTTER. JOHN W. LANE, Guthrie, Okla. Filed Oct. 31, 1899. Serial No. 736,441. (No model.)



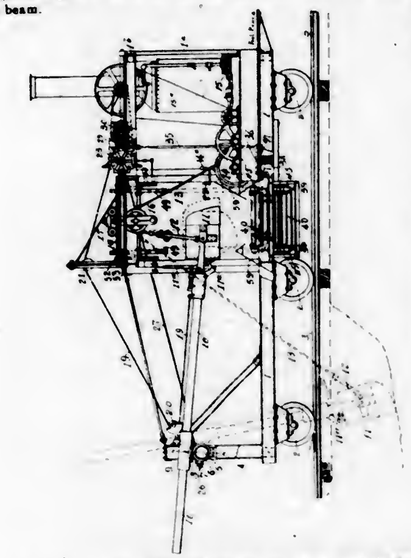
Claim.—A thread-cutter comprising two levers pivoted together a locking-clasp pivoted to the end of one arm and engaging the adjacent end of the other arm; rotatable die-blocks adjustably pivoted on the opposite adjacent ends of said levers, said die-blocks having corresponding halves of screw-cutting apertures in their peripheries adapted to register and grooves on their under sides adapted to engage ribs on the ends of said levers to hold the die-blocks in locked registering position.

645,175. EXCAVATING-MACHINE. JOHN H. W. LIBBE, Toledo, Ohio. Filed Apr. 7, 1899. Serial No. 712,128. (No model.)

Claim.—1. In an excavating-machine, a horizontal beam at the front of the machine, a dipper and dipper-arm mounted upon said beam and means for shifting the dipper-arm laterally along said beam.

2. In an excavating-machine, a dipper and dipper-arm, a horizontal beam at the front of the machine, connections between the dipper-arm and the beam, and means for moving said dipper-arm longitudinally and transversely on said horizontal beam.

3. In an excavating-machine, a horizontal beam at the front of the machine, a dipper and dipper-arm, a swiveled connection between the beam and dipper-arm, means for reciprocating the dipper-arm longitudinally, and means for shifting the dipper-arm bodily along the beam.



4. In an excavating-machine, a cylindrical beam along the front of the machine, a sleeve loose thereon, a dipper-arm, a sleeve loose on the dipper-arm, swiveled connections between said two sleeves, means for tilting and sliding said first-mentioned sleeve on the beam, and means for sliding the dipper-arm in its sleeve.

5. In an excavating-machine a beam extending along the front of the machine, a plurality of dippers and dipper-arms operatively mounted upon said beam, and means for actuating said dipper-arms.

6. In an excavating-machine, a beam extending along the front of the machine, a series of dippers operatively mounted upon said beam and adapted to cut toward the machine, a traveling apron or carrier running parallel with said beam, and means for swinging said dippers above the carrier and for dumping their contents upon the carrier.

7. In an excavating-machine, a traveling apron or carrier, a series of dippers arranged parallel therewith, arms or handles for said dippers, means for projecting and retracting said arms, means for shifting said arms laterally, means for swinging said arms in vertical planes, means for swinging the dippers above the carrier, and means for dumping the contents of the dippers upon the carrier.

8. In an excavating-machine, a dipper and dipper-arm, a series of clutches adapted and arranged to control the movements of said dipper and dipper-arm, a tilting platform for the operator, and connections between said platform and one of said clutches.

9. In an excavating-machine, an apron or carrier comprising a series of trough-like sections pivoted or hinged together at their straight meeting edges, a plate secured to each end of each of said trough-like sections, a wheel for each of said plates, two tracks, one above the other, for said wheels, sprocket-wheels to propel said carrier, combined with excavating mechanism adapted to discharge upon said carrier and means for controlling said carrier and said excavating mechanism.

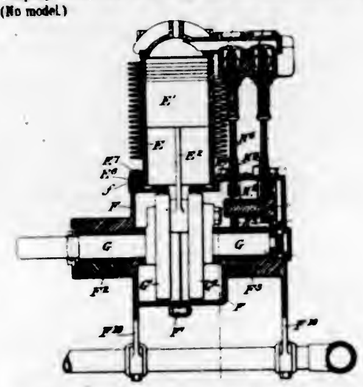
10. In an excavating-machine, a frame having mounted at the rear thereof the engines and gearing, an endless apron or carrier, two tracks one above the other for the support of the carrier, said tracks leading from end to end of the frame, a series of dippers adapted to discharge upon said carrier, and a series of dipper-arms for said dippers operatively supported at the front of said machine, said supports being arranged in parallel relation with the carrier.

645,176. SUPPLEMENTAL VEHICLE-SEAT. NELSON MARSH, Bernardston, Mass. Filed Dec. 18, 1899. Serial No. 740,757. (No model.)

Claim.—A supplemental seat for a vehicle comprising a single detachable skeleton frame constructed with a horizontal part adapted to rest, and to be supported, on a cushion, having, at its inner end, a downwardly-extending hooked part adapted to receive the inner edge of the cushion, and a flat foot adapted to rest on the seat beneath the cushion, and, at its outer end, an upwardly-extending front part, a horizontal top part, and a downwardly-inclined rear part, having a flat foot secured to the lower horizontal part, the cross-bar secured beneath and to the outer end of the lower horizontal part, and adapted to rest, and to support the frame, on the front part of the cushion, and a seat proper secured to the horizontal top part of the frame



645,177. VALVE-GEAR FOR EXPLOSIVE-MOTORS. HIRAM P. MAXIM, HARRY M. POPE, and HERBERT W. ALDEN, Hartford, Conn., assignors, by mesne assignments, to the Columbia and Electric Vehicle Company, Jersey City, N. J. Filed July 26, 1898. Serial No. 686,913. (No model.)



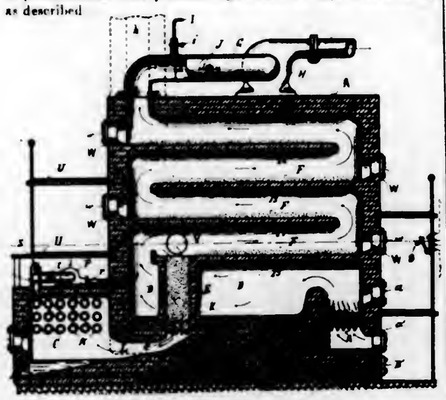
Claim.—In a motor, the combination with a crank-shaft, cylinder, valve-box and valve-rods, of a casing inclosing the crank-shaft and having an opening, a plate removably secured to the casing to cover said opening and forming a continuation of the casing, said plate having guide-openings for the passage of the valve-rods, a counter-shaft mounted in a bearing carried by said plate and having a gear meshing with a gear on the crank-shaft, and valve-gear carried by said shaft, substantially as shown and described.

645,178. PROCESS OF REDUCING EASILY-OXIDIZABLE METALS. CASPER W. MILES, Cincinnati, Ohio. Filed Dec. 28, 1898. Serial No. 700,493. (No specimens.)

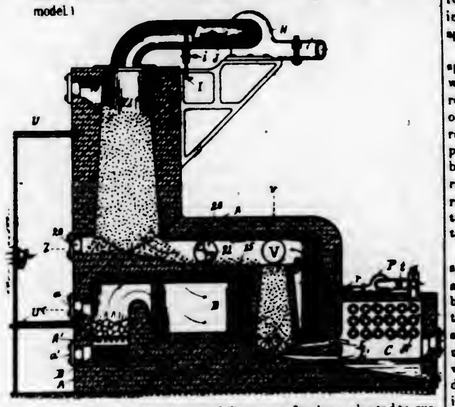
Claim.—1. The process of reducing zinc ore which consists in supplying air to a body of fuel, passing the products of combustion around a mass of the ore and carbon, subdividing the current of said products of combustion, passing a portion thereof through said mass of ore and carbon, cooling the vapor so produced and thereby condensing the metallic fumes, mixing the uncondensed residual gas with the remaining portion of the current of the products of combustion, and conveying them in contact with the raw ore, substantially as described.

2. The process of reducing zinc ore which consists in supplying air to a body of fuel, passing the products of combustion around a mass of ore and carbon, subdividing the current of said products of combustion, passing a portion thereof through said mass of ore and carbon, cooling the vapor so produced, and thereby condensing the metallic vapor, substantially as described.

3. The process of reducing zinc ore which consists in supplying air to a body of fuel, heating a column of zinc ore and carbon by external means, then passing through said column of mixed ore and carbon a portion only of the products of combustion, cooling the vapor so produced and thereby condensing the metallic vapor, substantially as described



645,179. APPARATUS FOR REDUCING ZINC. CASPER W. MILES, Cincinnati, Ohio. Filed Sept. 28, 1899. Serial No. 731,548. (No model.)



Claim.—1. In a metallurgical furnace a fire-box adapted to sustain a body of combustible material; a reduction-chamber spanning the offtake from said fire-box and communicating therewith; means substantially as described for feeding a charge of ore and carbon to the reduction-chamber; and means for drawing a regulated fractional quantity of the products of combustion from said fire-box through the charge of ore in said reduction-chamber and an offtake-flue for the remaining products of combustion, substantially as specified.

2. In a furnace for reducing zinc, a fire-box adapted to sustain a body of combustible material; a reduction-chamber spanning the offtake from said fire-box and adapted to be externally heated by the products of combustion therefrom; communication from said offtake to one end of said reduction-chamber; means substantially as described for feeding a charge of ore to said reduction-chamber and removing the spent portion of the charge; a condensing-chamber communicating with the opposite end of said reduction-chamber, and means substantially as described for drawing a fractional portion of the products of combustion from said offtake through the reduction-chamber and condensing-chamber and an offtake-flue for the remaining products of combustion, substantially as specified.

3. In a metallurgical furnace, a fire-box adapted to sustain a body of combustible material and an offtake-flue for the products of combustion, a reduction-chamber spanning the offtake from said fire-box and communicating therewith at one end; means for feeding a charge of ore and carbon at the inlet of said reduction-chamber, and means for removing the spent charge at the opposite end of said reduction-chamber, a condensing-chamber communicating with said reduction chamber; a port for drawing off the metal; condenser-tubes spanning said condenser-chamber; means substantially as described for drawing a portion of the products of combustion from the offtake-flue through the reduction-chamber; and a controlling-valve, whereby said circulation may be temporarily interrupted, and means for carrying off the remaining portions of the products of combustion, substantially as specified.

4. In a furnace for reducing zinc a fire-box adapted to sustain a body of combustible material and an offtake-flue for the products of combustion, a reduction-chamber communicating with the offtake from said fire-box, means for feeding a charge of ore at the inlet of said reduction-chamber; and means for removing the spent charge at the opposite end of said reduction-chamber, a condensing-chamber communicating with said reduction-chamber; a port for drawing off the metal; condenser-tubes spanning said condenser-chamber, and a flue leading from one end of said condenser-tubes to the fire-box; means substantially as described for drawing a portion of the products of combustion through the reduction-chamber and condenser-chamber, and a controlling-valve, whereby said circulation may be temporarily interrupted, substantially as specified.

5. In a metallurgical furnace a fire-box adapted to sustain a body of combustible material, a reduction-chamber communicating at one end with the offtake-flue from said fire-box; an opening in the wall of said flue through which said reduction-chamber may be charged; a passage near the opposite end of said reduction-chamber through which the spent charge may be removed; means substantially as described for drawing a fractional portion of the products of combustion through said reduction-chamber; and a controlling-valve for temporarily interrupting the circulation through said reduction-chamber; an offtake-flue above said reduction-chamber through which the remainder of the products of combustion pass, said flue being formed into a roasting-compartment, wherein the ore may be roasted by the spent gases from the reducing-furnace, and the ore fed in a heated state direct to the reduction-chamber, substantially as specified.

6. In a metallurgical furnace a fire-box; a reduction-chamber spanning the offtake therefrom, and communicating at one end therewith; an opening in the wall of the offtake-flue through which said reduction-chamber may be charged; a passage near the opposite end of said reduction-chamber through which the spent charge may be removed; means substantially as described for drawing a fractional portion of the products of combustion through said reduction-chamber; an offtake-flue above said reduction-chamber through which the remainder of the products of combustion pass, said flue forming a roasting-compartment; and means substantially as described for controlling the circulation through said roasting-compartment, substantially as specified.

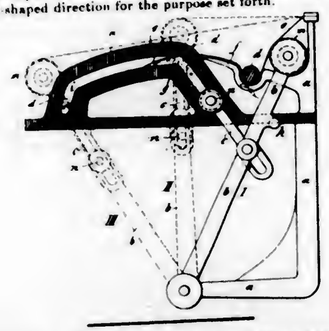
7. In a metallurgical furnace a fire-box; a reduction-chamber spanning the offtake-flue and communicating at one end therewith; an opening in the wall of said flue through which said reduction-chamber may be charged; a passage near the opposite end of said reduction-chamber through which the spent charge may be removed, means substantially as described for drawing a fractional portion of the products of combustion through said reduction-chamber; a controlling-valve for temporarily interrupting the circulation through said reduction-chamber; an offtake-flue above said reduction-chamber forming a roasting-chamber, one or more roasting-shelves formed in said roasting-chamber, and a door opposite each of said shelves, whereby the ore is successively roasted and reduced at one heat and in a single apparatus substantially as specified.

8. In a metallurgical furnace a fire-box; a zigzag flue leading from said fire-box; a reduction-chamber spanning one section of said offtake-flue, and communicating with the succeeding section of the flue; a door in the wall of said flue through which the reduction-chamber may be charged a passage near the opposite end of said reduction-chamber for the removal of the spent charge; a condenser-chamber communicating with said reduction-chamber; an exhaust-fan and valve-controlled pipe for circulating a portion of the products of combustion through said reduction and condensing chambers; a series of shelves located in the flue above said reduction-chamber; feeding-doors opposite said several shelves; and means substantially as described for regulating the circulation over said roasting-shelves, whereby the ore is first fed upon the upper shelf, and from there successively over the several shelves, where it is subjected to a gradually-increased temperature and roasted, and finally mixed with carbon and fed in its heated state to the reduction-chamber and reduced in one continuous operation in a single apparatus, substantially as specified.

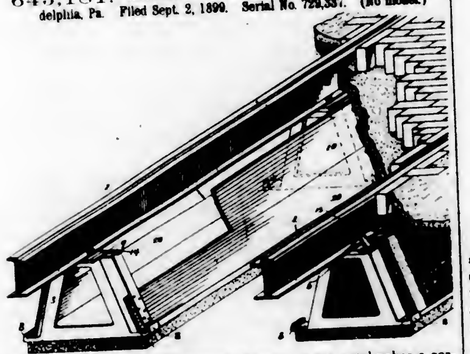
645,180. MACHINE FOR FINISHING AND SHAPING CIGARS. PAUL MÜHLBOCK, Berlin, Germany. Filed July 29, 1898. Serial No. 687,234. (No model.)

Claim.—In a machine for finishing cigars, the combination of the pair of levers *b*, the shaping-roller *m* carried thereby, the plate *f* and the apron thereon which is adapted to be rolled over the bunch by roller *m*, the levers *c* pivoted to levers *b* and carrying at their free

ends a shaft provided with knives, said shaft being guided in an inverted-U-shaped direction for the purpose set forth.



645,181. RAILWAY CONSTRUCTION. HENRY R. NICHOLS, Philadelphia, Pa. Filed Sept. 2, 1899. Serial No. 729,337. (No model.)



Claim.—1. The combination of two or more metal yokes, a correspondingly-shaped monolithic cement stringer extending between and embedding said yokes, and a rail adjustably secured to the yokes and supported by said yokes and stringer, substantially as described.

2. The combination with two or more metal yokes each having a flat top and sloping sides, of a correspondingly-shaped monolithic cement stringer extending between and embedding said yokes, and a rail adjustably secured to the yokes and supported by said yokes and stringer, substantially as described.

3. The combination with a rail of a railway-track, of a monolithic cement stringer supporting said rail, and a metal yoke embedded in said stringer, said yoke having an upwardly-extending brace and slotted holes in its top for adjustably securing said rail to the yoke, substantially as described.

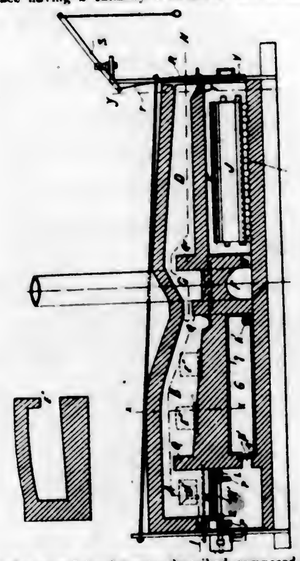
4. The combination with two or more metal yokes, each having a flat top and sloping sides and provided with an upwardly-extending brace, of a correspondingly-shaped monolithic cement stringer extending between and embedding said yokes, and a rail adjustably secured to said yoke and brace and supported by said stringer, substantially as described.

5. The combination with a rail of a railway-track, of a monolithic cement stringer supporting and partly embedding said rail, and a metal yoke embedded in said stringer and adjustably secured to said rail, said yoke having sloping sides provided with outwardly-projecting lugs, and means engaging in said lugs for correspondingly shaping the sides of the stringer, substantially as described.

6. In combination with a rail of a railway-track, a monolithic cement stringer supporting and partly embedding said rail, two or more metal yokes having sloping sides embedded in said stringer and arranged at suitable distances apart, an upwardly-projecting brace and laterally-projecting lugs formed integral with said yoke, means for adjustably securing the rail to said yoke and brace, and a temporary restraining-wall for the cement arranged between the yokes and engaging said lugs, substantially as described.

645,182. REVERBERATORY FURNACE. HENRI PARAUT, Touille, France. Filed Aug. 10, 1898. Serial No. 688,277. (No model.)

Claim.—1. A furnace of the character described, composed of a fire-box, a furnace or oven communicating therewith, a second furnace or oven communicating with the first named, a rear furnace or oven communicating with the second, and a fourth furnace or oven placed below and connected with the rear furnace just named, said fourth furnace having a chimney connection, substantially as set forth.

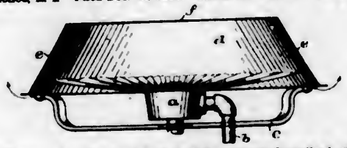


2. A furnace of the character described, composed of a fire-box, a furnace or oven communicating therewith, a second furnace communicating with the first named, a third furnace communicating with the second, bridges extending transversely between said ovens, and a fourth oven below the third oven and communicating therewith by a vertical aperture, and provided at the bottom with an opening into the chimney, all of said furnaces being provided with suitable openings and doors therefor, substantially as set forth.

3. A furnace of the character described, composed of a fire-box, a furnace or oven communicating therewith, a second furnace communicating with the first, a third furnace communicating with the second, a fourth furnace below the third furnace and communicating therewith and with the chimney, an ash-box below the fire-box, a chamber for heating the air for combustion in the rear end of and communicating with said ash-box, and means for introducing air into said chamber, substantially as set forth.

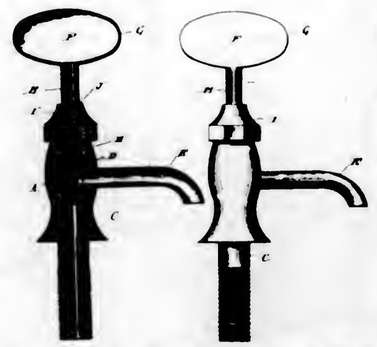
4. A furnace of the character described, composed of a fire-box a furnace communicating therewith, a second furnace communicating with the first, a third furnace communicating with the second, a fourth furnace below the third and communicating therewith and with the chimney, an ash-box below the fire-box, a chamber for heating the air for combustion, in the rear end of and communicating with said ash-box, a damper for controlling the outflow of air from said chamber, and means for introducing air into said chamber, substantially as set forth.

645,188. BURNER FOR GAS-STOVES. HORATIO PHINNEY, Providence, R. I. Filed Dec. 15, 1897. Serial No. 661,944. (No model.)



Claim.—In a heating device of the nature described, the combination with a cylindrical gas-burner having a series of radially-disposed peripheral openings for the discharge of the gas, of an inverted dished deflector having the closed flat top *f* and the inclined annular sides *e*, the plane of the peripheral openings in the burner being on a plane with the lower edges of the inclined annular sides of the deflector; whereby the series of streams of gas discharged horizontally and radially from the burner may readily mix with the air at the high temperature maintained in the inverted dished deflector, as described.

645,184. CONICAL WATER-COCK. EDWARD A. POHLMAN, New York, N. Y. Filed Apr. 14, 1899. Serial No. 713,068. (No model.)



Claim.—1. A water-cock containing a conical-shape metallic core or valve A its largest end being attached to a tubular stem B and its smallest end being downward in a waterway C adapted to its form or shape, the core or valve A having longitudinal chamber F through its center, and an opening D on one side for the passage of water to spigot E and firmly held downwardly on the waterway C by the spring H, thereby overcoming the effects of heat expansion and a self-tightening water-cock without the use of washers, substantially as shown and described.

2. A combination of a conical-shape metallic core or valve A having a central longitudinal chamber F and an opening D on its side for the passage of water to spigot; a tubular hollow stem B, a hollow handle G, waterway C cut out and adapted to the shape of core or valve A, and spring H holding and pressing the core or valve A in its seat in waterway C thereby without the use of washers making a self-tightening water-cock substantially as shown and described.

3. A combination of a conical-shape metallic core or valve which does not leave its seat in waterway C which is corresponding in shape, being firmly held therein by the spring H operating with a downward pressure, having a central longitudinal opening or chamber F an opening on its side D for the passage of water to spigot when water is turned on, and when the water is turned off the opening D is brought in close contact with the blank shell or barrel of cock, thus forming a self-tightening water-cock substantially as shown and described.

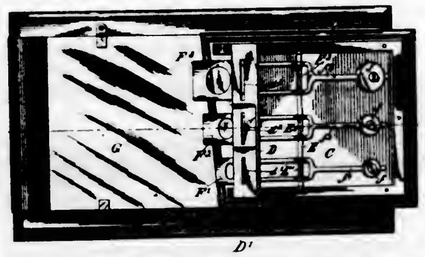
4. A combination of a conical-shape metallic core or valve A which does not leave its seat in waterway C, a tubular hollow stem B; a hollow handle G; a central longitudinal air-chamber F forming an air-cushion above opening D to inside of shell of handle G substantially as shown and described, thereby preventing concussion or water-hammering and the effects of heat expansion.

5. A combination of a metallic conical-shape core or valve; tubular hollow stem and handle coötaining a central longitudinal air-chamber having no vent, extending from bottom of core or valve A to inside of shell of handle; a spring around the tubular hollow stem B between core or valve A and handle G, held in position by a bonnet I attached to water-cock, substantially as shown and described to prevent rupture or fracture of water-pipes by concussion or water-hammering.

6. A combination of a conical-shape core or valve A with its small end in a waterway C; its largest and upper end being attached to stem D, it having a central longitudinal opening, and an opening on one of its sides D; a tubular hollow stem B; a hollow handle G; a waterway C cut out and adapted to the shape of core or valve A; a central longitudinal air-chamber F extending through core or valve and tubular stem to inside of shell of handle, forming an air-cushion above opening D in core or valve; a spring H around the stem B between core or valve A and handle G, held in position by bonnet I, having a downward pressure upon the core or valve A, and holding it firmly in its seat in the waterway C, substantially as shown and described, forming a water-cock which without the use of washers is self-tightening, prevents concussion or water-hammering and overcomes the effects of expansion and contraction produced by cold or heat.

7. A combination of a waterway C in shape adapted to a conical core or valve A; a conical core or valve A having a central longitudinal opening F, and an opening D on one side of core or valve A for the passage of water when turned on; a hollow tubular stem B; a hollow handle G, thereby forming an air-chamber from the bottom of core or valve A to inside of shell of handle G, thereby to prevent concussion or water-hammering in cock or water-pipes.

645,185. COIN-DETECTOR. THOMAS I. PORTER, Chicago, Ill., assignor to the Rand, McNally & Company, same place. Filed Aug. 17, 1899. Serial No. 727,500. (No model.)



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Claim.—1. In a coin-detector, the combination of a beam, a fulcrum therefor, a depressible coin-rest carried by the beam on one side of the fulcrum, and a weight carried by the beam on the other side of the fulcrum and adapted to prevent the depression of the rest by a coin of insufficient weight while permitting its depression by a coin of proper weight, said coin-rest having means for supporting the coin on edge in a substantially-vertical plane parallel with the axis of oscillation of the beam, means for preventing the coin from rolling off of the side of the beam, and means for discharging the coin sidewise at the end of the beam when the coin-rest is depressed, substantially as set forth.

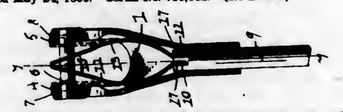
2. In a coin-detector, the combination of a beam, a fulcrum therefor, a depressible coin-rest carried by the beam on one side of the fulcrum, and means for preventing the depression of the rest by a coin of insufficient weight, said rest having a seat for the coin disposed substantially parallel with the axis of oscillation, a rear wall for supporting the coin on edge, and a low front wall over which the coin falls sidewise when the rest is depressed, substantially as set forth.

3. In a coin-detector, the combination of a beam, a fulcrum therefor, a depressible coin-rest carried by the beam on one side of the fulcrum, and means for preventing the depression of the rest by a coin of insufficient weight, said rest having a seat curved to conform to the periphery of the coin and disposed substantially parallel with the axis of oscillation, a substantially-vertical rear wall adapted to support the coin on edge in a substantially-vertical plane parallel with the axis of oscillation, and a low front wall sloping toward the seat, substantially as set forth.

4. In a coin-detector, the combination of a beam, a fulcrum therefor, a depressible coin-rest carried by the beam on one side of the fulcrum, means for preventing the depression of the rest by a coin of insufficient weight, said rest having means for supporting the coin on edge and in a plane parallel with the axis of oscillation, while the rest is in initial position, and means for discharging the coin sidewise when the rest is depressed, a sounding-board arranged to receive the coin after it is discharged, and means carried by the rest for flipping the coin, substantially as set forth.

5. In a coin-detector, the combination of a beam, a fulcrum therefor, a depressible coin-rest carried by the beam on one side of the fulcrum, said rest having a seat for the coin disposed substantially parallel with the axis of oscillation of the beam, a rear wall for supporting the coin on edge, and a low front wall sloping toward the seat, a sounding-board adapted to receive the coin as it falls, and a curved projection forming an extension of the front wall of the rest, substantially as set forth.

645,186. TROLLEY-HEAD. EDGAR J. RAUCH, Brookton, Mass. Filed May 24, 1899. Serial No. 718,002. (No model.)

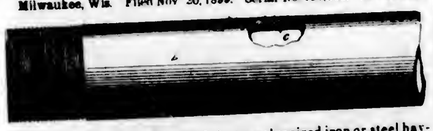


Claim.—1. In a trolley-head, the harp-casting bifurcated to receive the trolley-wheel, the stem inserted in the lower end thereof, having parallel saw-cuts therein, adapted to receive metal contact-strips, substantially as shown and described.

2. In a trolley-head a bifurcated harp-casting supporting a rotating trolley-wheel between the bifurcated ends thereof, a stem inserted in the lower end of the harp-casting, parallel saw-cuts in the stem, strips of sheet metal adapted to be inserted in the saw-cuts, said strips having an intermediate bent portion to permit the unobstructed rotation of the trolley-wheel, and a flat portion to contact with the hub of a trolley-wheel substantially as shown and described.

3. In a trolley-head the harp-casting 1, the stem 9, the saw-cuts 10 and 11, the contact-strips 12 and 13; having the flat contact portion 15, the curved portion 16, and the flat end 17, substantially as shown and described.

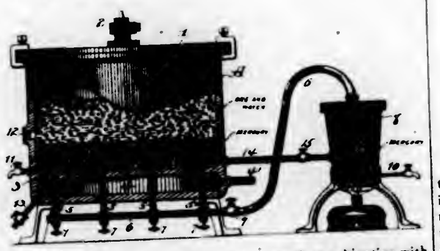
645,187. WIRE-CONDUIT TUBING. CORTLANDT D. RICHMONDT, Milwaukee, Wis. Filed Nov 20, 1899. Serial No. 737,568. (No model.)



Claim.—1. A manufactnre of electrogalvanized iron or steel having a flexible, non-corrosive and insulating coating adherent on the zinc.

2. An electrogalvanized iron or steel tubing having a flexible, non-corrosive and insulating coating adherent on the zinc

645,188. SEPARATOR FOR GOLD AND SILVER BY AMALGAMATION. FRANK A. RIDER, Vekol, Ariz., assignor to the Detroit Reduction Company, Cripple Creek, Colo. Filed Apr. 27, 1898. Serial No. 679,021. (No model.)



Claim.—1. In an amalgamating apparatus, the combination with a tight vessel adapted to contain a body of mercury and means for applying heat under the body of mercury, of a series of jet-pipes adapted to discharge upwardly from the surface of said body of mercury, a valve in each jet-pipe, a pipe common to all of said jet-pipes and a mercurial-vapor generator communicating with said common pipe, substantially as set forth.

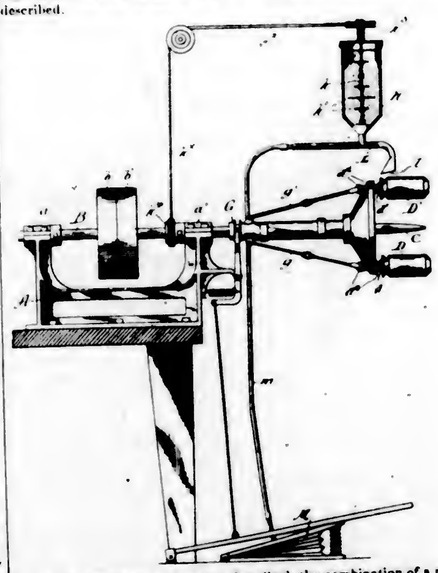
2. In an amalgamating apparatus, the combination with a tight vessel having a steam-chamber in its bottom, said vessel being adapted to contaio a body of mercury immediately above the steam-chamber and mixed water and ore above the mercury, of a series of jet-pipes projecting up through the bottom of the vessel and adapted to terminate at or near the surface of the body of mercury, a separate mercurial-vapor generator, and a pipe communicating with said separate generator and with the jet-pipes, substantially as set forth.

3. In an amalgamating apparatus, the combination with a vessel having a false bottom whereby to form a steam chamber in the bottom of the vessel, said vessel being adapted to contain a body of mercury above the false bottom and a mixture of water and ore above the mercury, a series of jet-pipes projecting into the vessel and adapted to terminate at or near the surface of the body of mercury therein, a separate vessel adapted to contain mercury, a pipe connecting said vessels, means for heating the separate vessel, a pipe communicating with the top of the separate vessel and with the series of jet-pipes and a check-valve in said pipe, substantially as set forth.

645,189. MACHINE FOR FORMING BOTTLE-NECKS. ALEXANDER J. RUDOLPH, Chicago, Ill. Filed Aug. 8, 1896. Renewed July 27, 1899. Serial No. 725,331. (No model.)

Claim.—1. In a machine of the class described, the combination of a rotatable spindle, a forming-plug mounted in one end thereof, a forming roll or rolls eccentrically mounted with regard to the spindle, means for moving the rolls inwardly and outwardly, an advancing sleeve adapted to surround the forming-plug and be moved backwardly and forwardly to curl up a bottle-lip and finish the front end thereof, and means for moving the advancing sleeve forwardly and and backwardly, substantially as described.

2. In a machine of the class described, the combination of a rotatable spindle, a forming-plug mounted in one end thereof, a forming roll or rolls adapted to move inwardly and outwardly and thus form a bottle-neck, an advancing forming-sleeve surrounding the plug adapted to curl up the lip of a bottle-neck and finish the front end thereof, and means for moving the sleeve forwardly when the forming roll or rolls are in contact with the bottle-neck, substantially as described.



3. In a machine of the class described, the combination of a rotatable spindle, a forming-plug mounted in one end thereof, an inclined plane connected with the spindle, a forming roll or rolls mounted upon such inclined plane, an operating-sleeve longitudinally movable on the spindle, and rods connecting the longitudinally-moving sleeve with the forming-rolls to move them inwardly and outwardly in a substantially parallel manner, substantially as described.

4. In a machine of the class described, the combination of a rotating spindle, a forming-plug in one end thereof, a forming roll or rolls eccentrically mounted with regard to the spindle, a longitudinally-movable sleeve for moving such rolls inwardly and outwardly, an advancing sleeve surrounding the spindle and forming-plug so as to curl up the lip of a bottle-neck, a longitudinal extension on the rolls-operating sleeve provided with a rack, a rearward extension provided with a rack on the advancing sleeve, a pinion intermediate and engaging such racks for transmitting power and motion from one to the other, and means for moving the advancing sleeve forwardly and backwardly and thus causing the operations of the advancing sleeve, substantially as described.

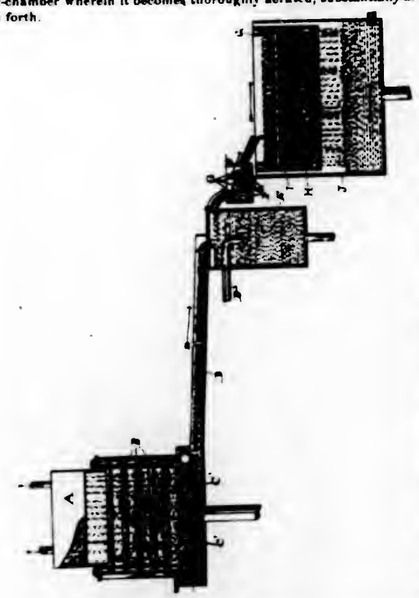
5. In combination with a machine of the class described, a charcoal-feeding mechanism comprising a receptacle, means for keeping the charcoal in such receptacle in an agitated condition, a supply-pipe leading to the point of use, mechanism for supplying air under pressure, and a pipe or passage connecting such air-supply mechanism with the supply-pipe to feed the charcoal forward to the desired point in a finely-divided condition, substantially as described.

6. In combination with a machine of the class described, a charcoal-feeding mechanism comprising a receptacle, means for keeping the charcoal in such receptacle in an agitated condition, a supply-pipe leading to the point of use, mechanism for supplying air under pressure, a pipe or passage connecting such air-supply mechanism with the supply-pipe to feed the charcoal forward to the desired point in a finely-divided condition, and power-transmitting mechanism connecting the charcoal-feeding and bottle-forming mechanism together to operate both simultaneously, substantially as described

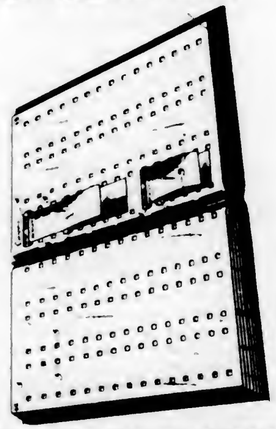
645,190. METHOD OF PURIFYING WATER. ADAM SCHAPTS, Dayton, Ohio. Filed Dec. 11, 1899. Serial No. 739,888. (No specimens.)

Claim.—1. The method of purifying water containing mineral salts, consisting in rapidly heating the water while in a spray or shower, in precipitating said heated spray or shower onto beds of boulders which are heated thereby and maintained at a high temperature, in agitating the water after it falls on said boulders, and in passing the water while in said agitated condition through a shallow gutter having its bottom lined throughout with boulders and gravel, whereby the heavier mineral substances are separated from the water, substantially as set forth.

2. The method of purifying water containing mineral salts consisting in subjecting the water in a form of continuous spray or shower, to contact with hot bodies whereby a high temperature is quickly given said water, in subjecting said water in heated showers, to contact with boulders whereby said boulders are given a high temperature and are so maintained, in agitating said water by means of jets of steam after contact with the boulders, in passing said water through a shallow gutter containing boulders and gravel and in contact with the air, during which period the heavier impurities are separated, in heating said water to a boiling-point as it discharges from said gutter, and in finally delivering said water, at the last-named temperature, onto a filter-bed through which it passes to an air-chamber wherein it becomes thoroughly aerated, substantially as set forth.



645,191. SCRAP-BOOK. CHARLES E. SCHWARTZ, Carthage, Mo. Filed Aug. 8, 1899. Serial No. 726,559. (No model.)



Claim.—1. In a book, the combination of a number of leaves, having parallel lines of openings therein, and holders adapted to contain reference matter, having reduced ends removably inserted in the said openings.

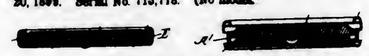
2. In a book, the combination of a number of leaves having a series of lines of openings therethrough, arranged in parallel relation and holders having opposite ends removably fitted in the said openings, to which clippings are fastened, whereby the said clippings may be removed and withdrawn or their positions changed within the book.

3. The combination with a book having the leaves with a series of openings therein, arranged in parallel lines, of holders having opposite reduced ends to removably engage the said openings, the length of the holders longitudinally between the points of conjunction of the reduced ends therewith being equal to the distance between the openings.

4. The combination with a book having a series of leaves with openings therethrough, arranged in parallel lines, of a holder having opposite reduced ends to removably engage a part of said openings and also provided with an adhesive substance on a portion thereof, to which is secured a clipping or other matter and another holder similarly mounted in other openings and adapted to hold a folded or tucked up portion of the clipping carried by the first-mentioned holder.

5. The combination with a leaf having lines of openings therein, arranged in parallel relation, of holders having opposite reduced ends to engage the said openings and having applied to the surface of one side thereof a covering of adhesive substance.

645,192. BUTTON. EUGENE W. SILSBY, Chicago, Ill. Filed Apr. 20, 1899. Serial No. 713,718. (No model.)



Claim.—1. A button having a cupped or flanged and apertured back shell, a tuft-disk adapted to protrude at the aperture, a suitable filling; a face-disk, and a peripheral binder of non-metallic plastic sheet material which spans the flange of the back shell and forms a bead over the edge of the flange and is clenched onto the back of the shell.

2. A button having a cupped or flanged and apertured back shell, a filling disk or wad lodged in the shell and a tuft-disk inclosed between the wad and the back of the shell; a face-disk, and a peripheral binder of non-metallic plastic material which spans the flange of the cupped back shell and forms a bead over the upper edge of the flange and is clenched onto the back of the shell, the shell having an exterior outwardly-facing shoulder against which the rear edge of the binder is clenched.

3. A button having a cupped or flanged and apertured back shell, a filling disk or wad lodged in the shell, a tuft-disk inclosed between the filling disk and the back of the shell, and a face-disk over the filler; a peripheral binder of non-metallic plastic sheet material which spans the flange of the cupped back shell and forms a bead over its upper edge, the back shell having an annular rabbet or recess in which the edge of the peripheral binder is seated at the back.

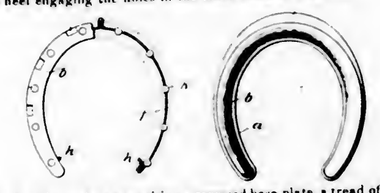
4. A button having a cupped or flanged and apertured back shell, a filling disk or wad lodged in the shell, a tuft-disk inclosed between the back of the shell and the filling-disk; a cloth-face disk and a peripheral binder of non-metallic plastic material which spans the flange of the cupped back shell and forms a bead over its forward edge and is clenched onto the back of the shell; the filling-disk being recessed or beveled at the margin on its forward face just within the flange of the back shell, and the peripheral binder having its forward edge clenched down upon the cloth in said recess of the filling-disk whereby the parts are bound together and the cloth-face disk is radially stretched over the filler.

5. A button having a cupped or flanged and apertured back shell, a filling disk or wad lodged in the shell, a tuft-disk inclosed between the back of the shell and the filling-disk; a cloth-face disk; and a peripheral binder of non-metallic plastic material which spans the flange of the cupped back shell and forms a bead over its forward edge and is clenched onto the back of the shell; the filling-disk being recessed or beveled at the margin on its forward face just within the flange of the back shell, the cloth extending over the edge of the back shell, and the peripheral binder having its forward edge clenched down upon the cloth in said recess of the filling-disk whereby the parts are bound together and the cloth-face disk is radially stretched over the filler.

6. A button having a cupped or flanged back shell, a suitable filler and a face-disk of cloth, and a peripheral binder of plastic sheet material which spans the flange of the cupped back shell and forms a bead over its upper or forward edge, the face-disk being extended over such upper edge of the flange and interposed between the same and the bead of the peripheral binder to reinforce the latter and protect it from the edge of the flange.

645,193. CUSHION-HORSESHOE. ALLEN SIMMONS, Boston, Mass. Filed June 3, 1899. Serial No. 719,204. (No model.)

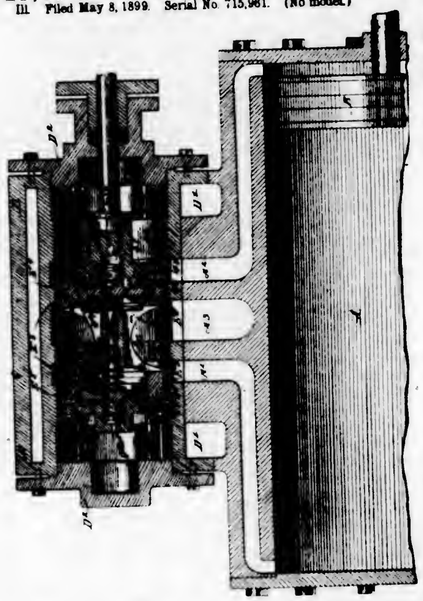
Claim.—1. A horseshoe embodying in its construction a recessed base-plate adapted to be nailed to the foot of a horse and provided at the heel with holes in the inner controuting walls of the recess, and a tread filling the recess of the bed-plate and composed of yielding material having a wire incorporated therein, with projections at the heel engaging the holes in the inner walls of the recess.



2. A horseshoe comprising a recessed base-plate, a tread of yielding material occupying the recess, a wire incorporated in said yielding material and engaging the base plate to secure the tread, and pins in the nature of calks engaged with said wire and protruding from the tread, substantially as described.

3. A horseshoe embodying in its construction a recessed base-plate adapted to be nailed to the foot of a horse, and a tread composed of yielding material having a wire incorporated therein provided with projections adapted to extend into recesses formed in the base-plate, combined with pins connected with the said wire and extending through the tread, substantially as described.

645,194. STEAM-ENGINE VALVE. ANTONE TANDLER, Chicago, Ill. Filed May 8, 1899. Serial No. 715,961. (No model.)



Claim.—1. In a steam-engine valve, in combination, a steam-chest having steam-ports and an exhaust-port communicating with the interior of the steam-chest; a reciprocatory valve-spider therein, having an auxiliary port in each of its ends; and a valve for each of said auxiliary ports, one of which valves has a stem fixed thereto adapted to actuate the other valve, which said stem is of such length that one of said valves is opened when the other valve is closed.

2. In a steam-engine valve, in combination, a steam-chest having steam-ports and an exhaust-port communicating with the interior of the steam-chest; a valve-spider having a longitudinal opening therein, and being provided with an auxiliary steam-port at each of its ends; and a valve for each of said auxiliary ports, each of which valves has a stem fixed thereto, adapted to lie within the longitudinal opening in said valve-spider, which stems are of such length as to engage each other and cause one of said valves to be opened when the other is closed.

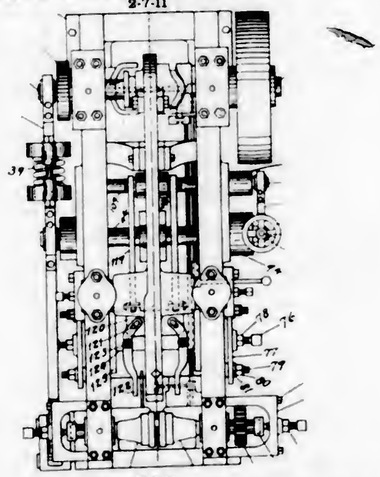
3. In a steam-engine valve, in combination, a steam-chest having steam-ports and an exhaust-port communicating with the interior of the steam-chest, a reciprocatory valve-spider having an auxiliary port at each end of said spider, a valve for each of said auxiliary ports, one of which valves is adapted to have an engagement with the other valve, and a piston-head for each end of said spider, each of which piston-heads has an opening extending from its periphery to a point in its face.

4. In a steam-engine valve, in combination, a steam-chest having steam-ports and an exhaust-port communicating with the interior of the steam-chest, a reciprocatory valve-spider having an auxiliary port at each of its ends and a longitudinal opening, a valve for each of said auxiliary ports, each of which valves has a stem adapted to extend within the longitudinal opening in said spider and an oppositely-extending piston, and a piston-head secured to each end of said spider, each of which piston-heads has an opening extending from its periphery to a point in its face, and a cylinder-opening for the reception of the piston on one of said valves.

5. In a steam-engine valve, in combination, a steam-chest having steam-ports and an exhaust-port communicating with the interior of the steam-chest, a reciprocatory valve-spider having an auxiliary port at each end of said spider, also having a longitudinal central opening, a valve for each of said auxiliary ports, each of which valves has a stem adapted to lie within the opening in said valve-spider and an oppositely-extending piston, a spring for each of said valve-stems, and a piston-head secured to each end of said valve-spider, each of which piston-heads has a circumferential groove, an opening extending from said circumferential groove to a point in its face, a cylinder-opening for the reception of the piston of one of said valves, and an opening communicating between the interior of said cylinder-opening and the interior of said steam-chest.

645,195. SPIKE-MACHINE. GEORGE E. VANDEGRIFT, Joliet, Ill. Filed Sept. 18, 1899. Serial No. 730,808. (No model.)

2-7-11



2-7-11

Claim.—1. In a spike-machine, the combination with a die, of a gripping-lever, a cam, a member pivotally mounted on said gripping-lever for cooperating with said cam to actuate said lever, and means for adjusting said pivotally-mounted member to vary the time of the operation of said gripping-lever.

2. In a spike-machine, the combination with a die, of a gripping-lever, a cam, two arms pivotally mounted on said gripping-lever, a roller carried between the ends of said arms for cooperating with said cam, and means for adjusting said arms to vary the time of operation of said gripping-lever.

3. In a spike-machine, the combination with a die, of a gripping-lever provided with trunnions, rigid supports for said trunnions, and means for yieldingly holding said trunnions up to said rigid supports, whereby said trunnions recede from said rigid supports under an abnormal pressure.

4. In a spike-machine, the combination with a die, of a gripping-lever provided with trunnions, rigid supports for said trunnions, springs yieldingly holding said trunnions up to said rigid supports, and means for adjusting the tension of said springs.

5. In a spike-machine, the combination with a die, of a gripping device, a heading device, a rock-shaft, for actuating said heading device, a main shaft for actuating said rock-shaft, a connecting-rod between the said main shaft and rock-shaft, and a spring interposed in said connecting-rod.

6. In a spike-machine, the combination with a die, of a gripping device, a heading device, a rock-shaft for actuating said heading device, a main shaft for actuating said rock-shaft, a connecting-rod between the said main shaft and rock-shaft, a spring interposed in said connecting-rod, and means for adjusting the tension of said spring.

7. In a spike-machine, the combination with a die, of gripping devices, a header, means for reciprocating said header, an arch-bar carrying said header, and means for adjusting said header laterally in said arch-bar.

8. In a spike-machine, the combination with a die, of gripping devices, a header, means for reciprocating said header, an arch-bar carrying said header, and means for adjusting said arch-bar laterally.

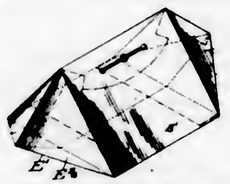
9. In a spike-machine, the combination with a die, of gripping devices, a header, an arch-bar carrying said header, means for adjusting said header laterally in said arch-bar, and means for adjusting said arch-bar laterally.

10. In a spike-machine, the combination with a feeding device, of a die-block, a gripping-lever to grip the heated blank from which the spike is to be formed, a header-tool for forming the head upon the spike, nippers for placing the blank in position, a kicker for removing the spikes, an auxiliary kicker for removing short ends, and means for operating said kickers.

11. In a spike-machine, the combination of a feeding attachment; die-block; gripping-lever to grip the heated blank from which the spike is to be formed; a header-tool for forming the head upon the spike; an arch-bar, nippers for placing the blank in position; and means for taking up the wear in the upper bearings of the arch-bar 62, consisting of a replaceable half-box tapered upon the bottom, fitting to a like taper within said arch-bar.

12. In a spike-machine, the combination with a die, of a gripping-lever, a cam for operating said gripping-lever, said cam being arranged to become disengaged from said gripping-lever at one point in its travel, and means for moving said cam laterally.

645,196. SEALED FOLDING HOLLOW BODY. FREDERICK A. WALTER, Philadelphia, Pa. Filed Oct. 6, 1899. Serial No. 732,709. (No model.)



Claim.—1. A sealed folding wedge or tent shaped hollow body or receptacle made of one piece of flexible material having protuberant pointed triangular ends, containing an opening through which offerings may be passed and lying under said opening an integral flap or extension forming an internal guard, said internal guard containing a suitable hole bisecting said opening.

2. A sealed folding wedge or tent shaped hollow body or receptacle made of one piece of flexible material having when inflated the triangular ends of said body or receptacle protuberant, each of said protuberant ends terminating in a point, said body or receptacle containing nine distinct external surfaces, having an opening through which offerings may be passed and lying under said opening an internal guard containing a suitable hole bisecting said opening.

3. A sealed folding wedge or tent shaped hollow body or receptacle made of one piece of flexible material having when inflated the triangular ends of said body or receptacle protuberant, each of said protuberant triangular ends containing three distinct external surfaces terminating in a point, having an opening through which articles may be passed and lying under said opening an integral flap or extension forming an internal guard, said internal guard containing a suitable hole bisecting said opening.

4. A sealed folding wedge or tent shaped hollow body or receptacle made of one piece of flexible material having a triangular end of said body or receptacle protuberant, said protuberant end terminating in a point, having an opening through which offerings may be passed and lying under said opening an internal guard containing a suitable hole bisecting said opening.

645,197. PROCESS OF PRODUCING METAL FOIL OR LEAF. GEORG ALEXELD, Darmstadt, Germany, assignor to the Pharmazeutisches Institut Ludwig Wilhelm Gans, Frankfort-on-the-Main, Germany. Filed Feb. 21, 1899. Serial No. 706,361. (No specimens.)

Claim.—1. The within-described process of producing metal foil or leaf, which consists first in covering a suitable plate with a substance that is soluble and adapted to be burned into the plate, and firing the same upon the plate to form a bed; second in applying thereto a ceramic-luster preparation of the desired metal and again firing; third, subjecting the whole to the action of a solvent which will attack the bed but not the desired metal; and finally peeling off the desired sheet or leaf from the plate

2. The within-described process of producing metal foil or leaf, which consists first in covering an acid and heat resisting plate with a ceramic luster of an ordinary (non-precious) metal and firing the same upon the plate to form a bed; second in applying thereto a ceramic-luster preparation of the desired metal and again firing; third, subjecting the whole to the action of a solvent which will attack the bed but not the desired metal, and finally peeling off the desired sheet or leaf from the plate.

3. The within-described process of producing metal foil or leaf, which consists first in covering an acid and heat resisting plate with a ceramic luster of an ordinary (non-precious) metal and firing the same upon the plate to form a bed; second in applying thereto a ceramic-luster preparation of the desired metal and again firing; third, covering the same with a tough varnish, such as collodion; fourth, subjecting the whole to the action of a solvent which will attack the bed but not the desired metal; and fifth, peeling off the desired metal sheet or leaf from the plate.

4. As a new article of manufacture detached cohesive foil or leaf of those metals which from lack of ductility or malleability, or both, cannot be reduced to foil or leaf form by hammering or rolling.

5. As a new article of manufacture, detached cohesive foil or leaf of the metal osmium, substantially as hereinbefore specified.

645,198. PROCESS OF PRODUCING INCANDESCENT MATERIALS SUITABLE FOR ELECTRIC LIGHTING. GEORG ALEXELD, Darmstadt, Germany, assignor to the Pharmaceutisches Institut Ludwig Wilhelm Gans, Frankfort-on-the-Main, Germany. Filed Feb. 21, 1899. Serial No. 706,362. (No specimens.)

Claim.—1. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering a suitable bed with a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning the same in; second, detaching the resultant metallic film from the bed by the action of solvents which will attack the bed and not the film; and third, forming the said metallic film into the desired shape.

2. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering a suitable bed with a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning the same in; second, covering the metallic film so produced with a tough protective varnish; third, detaching the resultant metallic film from the bed by the action of solvents which will attack the bed and not the film; and fourth, forming the said metallic film into the desired shape.

3. The within-described process of producing bodies suitable for incandescent electric lighting which consists: first, in wholly or partially covering an acid and heat resisting plate or matrix with a ceramic lustrous preparation of one or more of the unnoble metals and burning the same in; second, laying upon this coating of unnoble metallic oxid a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning it in; third, detaching the resultant film of the said highly-infusible metal by the action of a solvent which will attack the unnoble metallic oxid but not the highly-infusible metal film, and lastly forming the detached film of the highly-infusible metal into the desired shape.

4. The within-described process of producing bodies suitable for incandescent electric lighting which consists: first, in wholly or partially covering an acid and heat resisting plate or matrix with a ceramic lustrous preparation of one or more of the unnoble metals and burning the same in; second, laying upon this coating of unnoble metallic oxid a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning it in; third, covering the metallic film so produced with a tough protective varnish; fourth, detaching the resultant film of the said highly-infusible metal by the action of a solvent which will attack the unnoble metallic oxid but not the highly-infusible metal film and lastly forming the detached film of the highly-infusible metal into the desired shape.

5. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering a suitable bed with a lustrous preparation of one or

more of the highly infusible metals of the platinum group and burning the same in; second, detaching the resultant metallic film from the bed by the action of solvents which will attack the bed and not the film; third, forming the said metallic film into the desired shape; and fourth, coating said so-formed metallic film with ceramic resin luster of one or more of the luminous earthy metals and burning the same in.

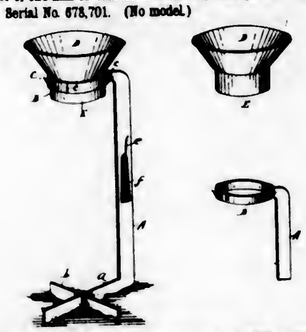
6. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering an acid and heat resisting plate or matrix with a ceramic lustrous preparation of one or more of the unnoble metals and burning the same in; second, laying upon this coating of unnoble metallic oxid a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning it in; third, detaching the resultant film of the said highly-infusible metal by the action of a solvent which will attack the unnoble metallic oxid but not the highly-infusible metal film; fourth, forming the detached film of the highly-infusible metal into the desired shape; and lastly, coating said so-formed metallic film with ceramic resin luster of one or more of the luminous earthy metals and burning the same in.

7. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering a suitable bed with a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning the same in; second, covering the metallic film so produced with a tough protective varnish; third, detaching the resultant film from the bed by the action of solvents which will attack the bed and not the film; fourth, forming the said metallic film into the desired shape; fifth, removing the tough protective varnish from the metallic film by means of a solvent or by burning, using either fire or the electric current, and sixth, coating the metallic film with ceramic resin luster of one or more of the luminous earthy metals and burning the same in.

8. The within-described process of producing bodies suitable for incandescent electric lighting, which consists: first, in wholly or partially covering an acid and heat resisting plate or matrix with a ceramic lustrous preparation of one or more of the unnoble metals and burning the same in; second, laying upon this coating of unnoble metallic oxid a lustrous preparation of one or more of the highly-infusible metals of the platinum group and burning it in; third, covering the metallic film so produced with a tough protective varnish; fourth, detaching the resultant film of the said highly-infusible metal by the action of a solvent which will attack the unnoble metallic oxid but not the highly-infusible metal film; fifth, forming the said metallic film into the desired shape; sixth, removing the tough protective varnish from the metallic film by means of a solvent or by burning, using either fire or the electric current; and seventh, coating the metallic film with ceramic resin luster of one or more of the luminous earthy metals and burning the same in.

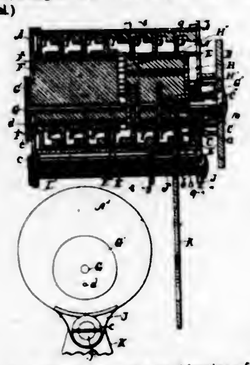
9. As a new article of manufacture an incandescent body adapted to incandescent electric lighting, consisting of a core of one or more of the highly-infusible metals of the platinum group, provided with a glass-like coherent and adherent exterior coating of luminous earthy metal as produced by burning in a ceramic resin luster of the same.

645,199. BAG-HOLDER. FREDERICK H. BROOKS, Detroit, Mich., assignor of one-half to Walter E. Jennison, same place. Filed Apr. 25, 1898. Serial No. 678,701. (No model.)



Claim.—In a bag-holder, the combination of the vertical standard comprising a flat metallic bar having its lower end bent edgewise at a right angle, forming of said bent portion the base-piece *a* comprising a thin flat bar of considerable width whose sides stand vertically and whose thin edge is presented downwardly, the base-piece *b* also comprising a thin flat bar united to and crossing said base-piece *a* edgewise at right angles with its edge presented downwardly, said base-pieces standing with their lower edges in the same horizontal plane, said vertical standard at its upper end having a portion bent horizontally, and an integral ring formed in said bent portion at the upper end of the standard projecting horizontally above said base, said ring having pins adapted to receive and hold the mouth of the bag.

645,200. CYCLOMETER OR REGISTERING MECHANISM. LEO J. BURDICK, Sturgis, Mich. Filed Aug. 24, 1897. Serial No. 649,406. (No model.)



Claim.—1. In a cyclometer the combination of the main shaft F, with cam-shaped grooves therein; a suitable casing surrounding the same and supported by said shaft; number-wheels I, I, I, I, formed of sheet metal having internal gear-teeth and projecting hubs; springs *e*, with movable teeth thereon resting on said hub to be actuated by the same during their rotation to transfer from a lower to a higher number-wheel; a series of number-wheels D, having internal gear-teeth and projecting hubs which hubs are also provided with gear-teeth, in which there is an open space; actuating setback-gears supported within the main shaft and adapted to mesh with the gears on the hubs of said number-wheels D, the said gears also having an open space and suitable means of actuating the inner gears for the purpose of turning the number-wheels back to the initial position; a star-wheel to actuate the register mechanism and connections from said star-wheel to actuate the total, and single-trip mechanism for the purpose specified.

2. In a cyclometer or register mechanism the combination of the main shaft F, with cams formed thereon; a casing supported by said shaft; number-wheels I, I, I, I, formed of sheet metal having internal gear-teeth and projecting hubs; springs *e*, with movable teeth thereon resting on said hubs to be actuated by the cams during their rotation on the shaft to transfer from the lower to the higher number-wheels; the series of number-wheels D, having internal gear-teeth and projecting hubs which hubs are provided with gear-teeth on their edges in which there is an open space: setback-gears supported within the main shaft and adapted to mesh with the gears on the hubs of said number-wheels D, said setback-gears also having open spaces; and a suitable means of actuating the setback-gears for the purpose of turning back the number-wheels to the initial position for the purpose specified.

3. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon for registering total amounts; a group of register-wheels thereon for registering smaller amounts the said second group of number-wheels having internal gear-teeth on their hubs each of which hubs having a vacant space in its gear-teeth; an actuating means connected to both groups of number-wheels setback gear-wheels, each having a vacant space, supported within said main shaft the gears thereon being adapted to engage the gear-teeth on said hubs; means of actuating said setback-gears to move all of the number-wheels to the point of beginning; and means of locking the said setback-wheels with their vacant spaces at the point of mesh with the gear-teeth of the hubs so that the number-wheels will act independent thereof for the purpose specified.

4. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon for registering total amounts; a group of number-wheels thereon for registering smaller amounts, the said second group of number-wheels having internal gear-teeth each of which gears has a vacant space; an actuating means connected to both groups of number-wheels, setback gear-wheels supported within said main shaft with gears thereon adapted to engage the gear-teeth on said number-wheels which also have a vacant space; means of actuating said setback-gears to move all of the number-wheels to the point of beginning; and means of locking the setback-wheels with their vacant spaces at the point of mesh with the gear-teeth of the number-wheels so that the number-wheels will act independent thereof for the purpose specified.

5. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon for registering total amounts; a group of number-wheels thereon for registering smaller amounts, the said second group of number-wheels having internal gear-teeth each of which internal gears has a vacant space; an actuating means connected to both groups of number-wheels, setback gear-wheels adapted to engage the gear-teeth on said number-wheels which setback-gears each also have a vacant space: means of actuating said setback-gears to move all of the number-wheels to the point of beginning; and means of locking the said setback-wheels with the vacant spaces at the point of mesh with the gear-teeth of the number-wheels so that the number-wheels will act independent thereof for the purpose specified.

6. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon; each of which has internal gear-teeth on its hub each internal gear containing a vacant space; means of actuating said number-wheels for registering purposes; setback gear-wheels supported within said main shaft with gears thereon adapted to engage the gear-teeth on said number-wheels which setback-gears each also has a vacant space; means of actuating said setback-gears till they move the number-wheels to the point of beginning; a means of locking said setback-gears with their vacant space at the point of mesh of the gear-teeth of the number-wheels so that the number-wheels will act independent thereof for the purpose specified.

7. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon, each of which has internal toothed gears containing a vacant space; means of actuating said number-wheels for registering purposes; setback gear-wheels supported within said main shaft with gears thereon adapted to engage the gears on said number-wheels which setback-gears also have a vacant space; means of actuating said setback-gears till they move the number-wheels to the point of beginning; a means of locking said setback-gears with their vacant space at the point of mesh of the gear-teeth of the number-wheels so that the number-wheels will act independently thereof for the purpose specified.

8. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon; each of which has internal gear-teeth on its hub each of which gears contains a vacant space; means of actuating said number-wheels for registering purposes; setback gear-wheels to engage the gear-teeth on said number-wheels which setback-gears also have a vacant space: means of actuating said setback-gears till they move the number-wheels to the point of beginning; a means of locking said setback-gears with their vacant space at the point of mesh of the gear-teeth of the number-wheels so that the number-wheels will act independent thereof for the purpose specified.

9. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon having internal gears on their hubs each containing an open space; an actuating means to operate said number-wheels for registering purposes setback gear-wheels supported within said main shaft having vacant spaces the gears thereon adapted to engage the gear-teeth of said number-wheels; and a means of actuating said set back-gears to move all the number-wheels to the point of beginning for the purpose specified.

10. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon having internal gears each containing an open space; an actuating means to operate said number-wheels for registering purposes; setback gear-wheels supported within said main shaft having vacant spaces, the gears thereon adapted to engage the gear-teeth of said number-wheels; and a means of actuating said setback-gears to move all the number-wheels to the point of beginning for the purpose specified.

11. In a cyclometer or register mechanism the combination of the main shaft; a group of number-wheels thereon having internal gears on their hubs each containing an open space; an actuating means to operate said number-wheels for registering purposes; setback gear-wheels having vacant spaces, the gears thereon adapted to engage the gear-teeth of said number-wheels; and a means of actuating said setback-gears to move all the number-wheels to the point of beginning for the purpose specified.

12. In a cyclometer or register mechanism the combination of a number-wheel having a projecting hub with a slot therein; a shaft with a cam formed therein to support said number-wheel and a spring clasping said hub with a movable tooth projecting through the slot in the same to be actuated by the cam as specified.

13. In a cyclometer or register mechanism the combination of the number-wheel made of sheet metal having a projecting hub with a slot formed therein by turning a lip *n* out therefrom and a guideway formed opposite said slot by tongue N' struck out from the face of the wheel and bended opposite lip *n*, a spring embracing said hub with a tooth thereon resting in the guideway with a portion projecting through the hub for the purpose specified.

14. In a cyclometer or register mechanism a register-wheel having a projecting hub with a slot therethrough in combination with a suitable guideway; and a spring supported by said hub and provided with a tooth in said guideway a portion thereof projecting through the slot in the hub for the purpose specified.

15. In a cyclometer or register mechanism the combination of a main shaft with number-wheels thereon having internal gear-teeth; suitable transfer mechanism between the same; a ring E, on said shaft having internal gear-teeth formed by slots therethrough and portions from the slots as *f*, *f'*, turned outwardly; a spring E', embracing said ring and having an outwardly-projecting tooth E", with a base projecting over one of the open slots in the ring E, the said tooth and base being engaged by the outwardly-projecting portions *f*, *f'*, and retained in a fixed relation to the ring E, a hunting-tooth external gear with a projecting tooth engaging the internal gear formed by said ring so that the projecting tooth shall force the tooth E", outwardly to engage and actuate the number-wheels at proper intervals for the purpose specified.

16. In a register mechanism for cyclometers the combination of the casing having ears projecting therefrom; a screw revolubly mounted in said ears; a bracket fitting the casing between the ears, screw-threaded to fit said ears and adjustable by said screw for the purpose specified.

17. In a register mechanism, the combination of a number-wheel formed from sheet metal having a projecting hub having an opening therein; a guide formed by turning outwardly a portion of the metal struck from said hub; and a spring clasping said hub having a bend at its end forming an inwardly-projecting tooth the end of which extends through the hub-opening, the outer end of which is guided and supported by the said guide, as specified.

18. In a register mechanism, the combination of a number-wheel formed from sheet metal with a projecting hub having an opening therein; a guide formed by turning outwardly a portion of the metal struck from said hub, and a lip struck from the face of the wheel and parallel to each other and a spring clasping said hub having a bend at its end forming an inwardly-projecting tooth the end of which extends through the hub-opening, the outer end of which is guided and supported by the said guide, as specified.

645,201. CYCLOMETER. LEO J. BURDICK, Sturgis, Mich. Filed Mar. 30, 1898. Serial No. 675,823. (No model.)



Claim.—1. In a cyclometer or register mechanism, the combination of a main central shaft of comparatively-large diameter, having transverse zigzag cam-grooves K thereon and having transverse kerfs; a casing surrounding the same having heads secured to said shaft; number-wheels having projecting hubs with gear-teeth one of which is cut away, supported on said shaft, and having gear-teeth within the outer rim on one side; a spring secured to the web of each of said wheels outside the hub having a laterally-projecting tooth and an inwardly-projecting pin extending through the hub to engage within the zigzag cams; setback-wheels supported in the kerfs and adapted to engage the teeth formed in the hubs of the number-wheels; a shaft with ratchet connection extending through said setback-wheels with proper means of locating the same to rotate the setback-wheels to set the number-wheels at zero, for the purpose specified.

2. In a cyclometer or register mechanism, the combination of a main shaft having transverse zigzag cams formed therein; number-wheels having teeth within their outer rims and a spring secured to the web of each of said number-wheels having a laterally-projecting tooth to engage the teeth of the next higher number-wheel; and an inwardly-projecting pin extending through a slot in the hub to engage in the zigzag cams, coacting together for the purpose specified.

3. In a cyclometer or register mechanism, the combination of a suitable shaft; transverse cam-grooves formed within; number-wheels a movable tooth carried by each number-wheel to engage the next higher number-wheels at intervals and a pin extending from said movable teeth into the transverse cams to be actuated thereby on the rotation of the number-wheels, for the purpose specified.

4. The combination of a shaft, zigzag transverse cams; movable

teeth and connections to engage the zigzag cams, coacting together for the purpose specified.

5. In a cyclometer the combination of a central shaft having kerfs therein; independent setback-wheels within said kerfs; suitable means of engaging the setback-wheels to rotate the same and number-wheels having internal gears with an open space to be engaged by said setback-gears to enable the turning of the cyclometer to zero, for the purpose specified.

6. In a bracket for supporting cyclometers, the combination of a projecting portion for adjustment to the bicycle, and a tubular portion opened at the top with the edges slightly outturned; tapering nuts for insertion into the square tubular portion and a screw to draw the same together to expand the outturned portion into engagement with suitable lugs on the cyclometer.

7. The combination, in a bracket for supporting a cyclometer of a tubular portion opened at one side with outwardly-turned engaging parts; tapering nuts for insertion into the tubular portion and a screw or bolt for drawing the same together for expanding the tube into engagement with a suitable side of the cyclometer for the purpose specified.

645,202. CHAIN. ROBERT A. CARTER, Pittsburg, Pa. Filed Feb. 3, 1899. Serial No. 704,374. (No model.)

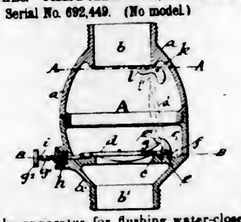


Claim.—1. In a chain the combination of closed engaging or interlocking links of uniform size and shape provided with internal concave grooves or seats for holding the balls within the links and balls interposed between the ends of such links, substantially as set forth.

2. The combination of a chain consisting of closed links of uniform size and shape, balls interposed between the ends of the engaging or interlocking links and means for retaining the balls in operative positions, substantially as set forth.

3. The combination in a chain of a series of engaging links, each provided with a concave seat at one end and shoulders or abutments at the ends of the seat, and balls located in said seats and forming antifriction-bearings between the links, substantially as set forth.

645,203. SILENT FLUSHING APPARATUS FOR WATER-CLOSETS OR URINALS. JOSEPH CHALLENDER, Manchester, England. Filed Oct. 1, 1898. Serial No. 692,449. (No model.)



Claim.—1. In apparatus for flushing water-closets, urinals and the like, in combination with a water-cistern *n* a float *m* having an air-escape tube *m'* formed with side holes m^2, and a seating *o'* for the latter to operate upon, the said seating having lateral holes *g* which permit the water to run from the cistern *n* into the flush-pipe *o* while the float *m* rests on the seating *o'*, all substantially as and for the purpose set forth.

2. The combination of the cistern *n*, the flush-pipe *o*, the valve-box A in the flush-pipe below the cistern, the valve *d* in the valve-box, the valve-operating push-rod *g* passing into the said valve-box, the valve-retaining catch *l* pivoted to the interior of the box above the valve *d*, all substantially as set forth.

3. In combination, the cistern *n* having a float *m*, the valve-box A containing a valve *d*, raised by a push-rod *g*, *g'* and retained by a weighted catch *l* subjected to the action of the column of water in the flush-pipe *o*, which valve-box is inserted into the latter, all substantially as and for the purpose set forth.

645,204. MANUFACTURE OF INCANDESCENT OR OTHER LAMP GLOBES. WALTER C. FUERER, Allegheny, Pa. Filed Dec. 9, 1899. Serial No. 739,859. (No specimens.)

Claim.—1. The herein-described method for providing an incandescent or other lamp bulb, globe or chimney with a reflector, shade and a protecting-covering, which consists first in applying a coating of nitrate of silver to the outer face of said bulb, globe or chimney, second applying a coating of aluminium to the first-named coating, and third applying a coating of metallic paint to the said coatings, substantially as set forth.

2. The herein-described method for providing an incandescent or other lamp bulb, globe or chimney with a reflector, shade and protecting-covering, which consists first in applying a coating of nitrate of silver to the outer face of said bulb, globe or chimney, second applying a coating of aluminium to the first-named coating, third applying a coating of metallic paint to the said coatings, and fourth baking the bulb, globe or chimney with the said coatings thereon, substantially as forth.

3. The herein-described method for providing an incandescent or other lamp bulb, globe or chimney with a reflector, shade and a protecting covering, which consists in applying a coating of suitable metallic reflecting material to the outer face of said bulb, globe or chimney, second applying a coating of aluminium to the first-mentioned coating, third applying a coating of metallic paint to the said coatings, and fourth suitably baking the said bulb, globe or chimney with the said coatings thereon, substantially as set forth.

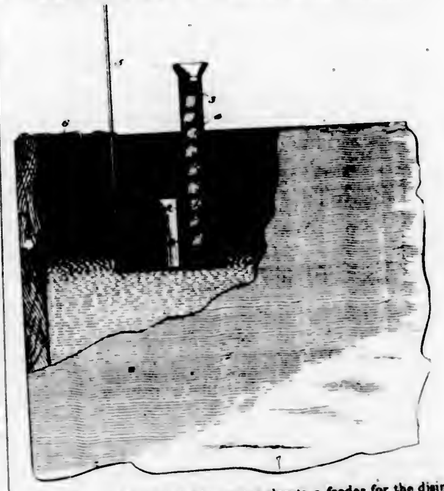
645,205. PROCESS OF REFINING IRON. FREDERICK W. HAWKINS, Detroit, Mich., assignor of one-fifth to Thomas A. E. Weadock, trustee, same place. Filed May 6, 1899. Serial No. 715,859. (No specimens.)



Claim.—1. A method of refining iron consisting in first atomizing or breaking up into minute particles and scattering of the molten metal, and in then filtering the separate particles through a bed of comminuted basic material.

2. The herein-described method of refining iron consisting in first atomizing or breaking up and scattering the molten metal into minute particles by a blast and in then filtering the separate particles through a heated bed of comminuted basic material.

645,206. FLOAT ATTACHMENT FOR AUTOMATICALLY FEEDING DISINFECTANTS TO WATER-CLOSETS. HOWARD F. JOHNS, Wilson, N. C. Filed June 19, 1899. Serial No. 721,098. (No model.)



Claim.—1. For disinfecting water-closets, a feeder for the disinfectant consisting of an open-walled tube, closed at its lower end, a float fixed to the lower end of the tube and means carried by the float for immersing the lower end of said tube a depth equal to the immersion of the float.

2. A float device having a tube rising from its bottom, open at the bottom and an open-walled or mesh tube closed at its lower end and fastened to the inner walls of the outer tube, as a means for containing a disinfectant in solid form, and adapted to float in the supply-tank of a water-closet to immerse the disinfectant in parts for disinfecting the water.

3. For disinfecting water closets the herein-described float device consisting of a cup having an imperforate tube rising therein and opening at the bottom of the cup, an open-walled tube for containing the disinfectant, closed at the bottom, open at the top, fixed to the inner walls of the cup-tube, extending from the bottom thereof above its top, and of less diameter than the cup-tube, whereby water entering the bottom opening of the latter immerses and enters the lower end of the inner tube and thereby brings its contained disinfectant in separate and distinct bodies in direct contact with the water.

4. For disinfecting water-closets, a tube of wire mesh closed at its lower end for containing separate balls of disinfectant—one loosely upon the other in vertical column, a float through which said mesh-tube passes having an imperforate tubular holder for said mesh-tube of greater diameter than the latter and open at the bottom of the float, whereby the latter will cause the bottom of the mesh-tube to be immersed in water and insure the certain successive feed of the balls contained therein as they are dissolved.

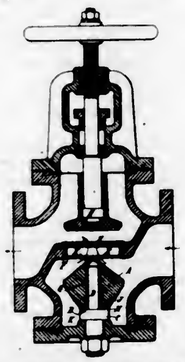
5. For disinfecting water-closets, a cup-float having an imperforate tube rising therein and opening at the bottom of the cup, an open-walled tube for containing the disinfectant, closed at the bottom, open at its top, fixed to the inner walls of the imperforate tube, of less diameter than the latter and having a height greater than the float, in combination with means for connecting the float to the tank, whereby the feed-tube is maintained upright.

645,207. KILN. JOSEF LEDEBOHR and CHRISTIAN LEDEBOHR, Porz, Germany. Filed Nov. 12, 1897. Serial No. 658,335. (No model.)



Claim.—In kilns for burning earthenware, and the like, the vault B; openings O; a valve R in each opening O; and a cowl H surrounding each opening O, substantially as set forth.

645,208. AUTOMATIC STOP-VALVE. ISIDOR MAYER and JOSEF HÜBNER, Vienna, Austria-Hungary. Filed Oct. 9, 1899. Serial No. 732,996. (No model.)



Claim.—1. In an automatic stop-valve, the combination with a valve-case, having a horizontally-arranged valve-seat, of a fusiform valve-body, truncated at its bottom end, the said valve-body being located below the said valve-seat, and adapted to move toward it, a cylindric stud arranged below the base of the valve-body, and adapted to support the said valve-body, and a passage or passages extending from the top of the valve-body to its base, substantially as and for the purpose described.

2. In an automatic stop-valve, the combination with a valve-case, having a horizontally-arranged valve-seat, of a fusiform valve-body, provided with an axial bore and truncated at its bottom end, the said valve-body being located below the said valve-seat, and adapted to move toward it, a cylindric stud arranged below the truncated bottom end of the valve-body and adapted to support the said valve-body, and a rod extending from the top surface of the said stud into the axial bore of the valve-body, the said rod being of such a diameter as to form with the sides of the axial bore of the valve an annular free space, substantially as and for the purpose described.

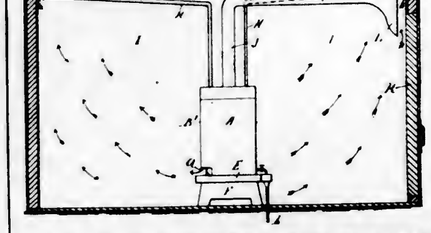
3. In an automatic stop-valve, the combination with a valve-case, adapted to have the steam flowing through it from below upward, and having the valve-seat arranged horizontally, of a fusiform valve-body, truncated at its bottom end, the said valve-body being located below the said seat and adapted to move toward it, a cylindric stud arranged below the truncated bottom end of the valve-body, the said stud being adapted to support the said valve-body and being of larger diameter than the base of the valve-body so as to extend a little beyond said base, and a passage or passages extending from the top of the valve-body to its bottom, substantially as and for the purpose set forth.

4. In an automatic stop-valve, the combination with a valve-case, having a horizontally-arranged valve-seat, a fusiform valve-body with a central opening, the valve truncated at its bottom, the valve-body being located below said valve-seat, and adapted to move toward it, a stud fixed to the case below the valve and extending upwardly into said opening and but partially filling the opening, the upper end of the opening being in communication with the space above the top of the valve and with a space or slit under a part of the valve-body, whereby the suctional action of fluid flowing by the top of the valve increases the pressure required to close the valve, as set forth.

645,209. PHOTOGRAPHIC FILM. OSWALD MOH, Görlitz, Germany. Filed Dec. 3, 1898. Serial No. 698,206. (No specimens.)

Claim.—A process for producing light sensitive films, consisting in applying to a sheet of paper, a layer of caoutchouc, then applying on the caoutchouc a layer of collodion, and finally on the collodion a layer of gelatin serving as a carrier for the silver salt, whereby the grain of the paper is imparted to the caoutchouc layer which adheres to the collodion and gelatin layers.

645,210. REFRIGERATOR. HORACE B. MURDOCK, Detroit, Mich., assignor of three fourths to Peter A. Joyce, Frank T. Joyce, and Frank J. Peddle, same place. Filed May 10, 1899. Serial No. 716,209. (No model.)



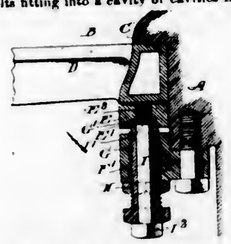
Claim.—In a refrigerator for meat-boxes, the combination of the case having a wall crossing said case transversely from side to side forming an ice-chamber therein at one end and a cooling-chamber adjacent to the ice-chamber, a covering for the top of said cooling-chamber, a pipe having a flaring opening leading from a point adjacent the door of the ice-box and entering the top of the cooling-chamber, the wall of said cooling-chamber having an opening therethrough at the bottom communicating with the exterior of the case for the discharge of the cooled air.

645,211. ADJUSTING DEVICE. GUSTAV R. PETSCHE, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed July 31, 1897. Serial No. 646,640. (No model.)

Claim.—1. The device for adjusting the bearing-faces of relatively-reciprocating devices, such as cross-heads and their bearings, which consists of a supporting-lug, as F, having threaded bolt-holes formed therein in combination with a guide or bearing-strip, as E, lying opposite to the bolt-holes in lugs F and adjustable, both angularly and to and fro, with regard to said lug, said strip having threaded bolt-holes formed in it, abutment-bolts screwing into the holes in the lug F and bearing against the back of the strip E and another set of bolts, as I, screwing into the threaded holes in the back of strip E, and arranged, as described, to draw it against the abutment-bolts.

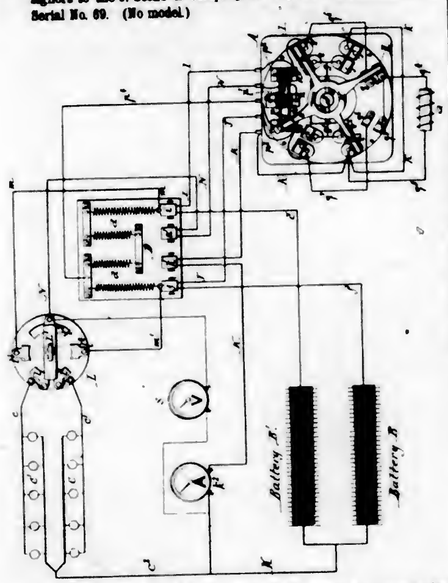
2. The device for adjusting the bearing-faces of relatively-recip-

rocating devices, such as cross-heads and their bearings, which consists of a supporting-lug, as F, having threaded bolt-holes formed therein, in combination with a guide or bearing-strip, as E, lying opposite to the bolt-holes in the lug F and adjustable, both angularly and to and fro, with regard to said lug, said strip having threaded bolt-holes formed in it and one or more unthreaded cavities, as E', also formed in its back, abutment-bolts screwing into the holes in the lug F and bearing against the back of the strip E and another set of bolts, as I, screwing into the threaded holes in the back of strip E and arranged as described to draw it against the abutment-bolts, one or more of said bolts fitting into a cavity or cavities E'.



3. The device for adjusting the bearing-faces of relatively-reciprocating devices, such as cross-heads, which consists of a supporting-lug, as F, having threaded bolt-holes formed therein, in combination with a guide or bearing-strip, as E, lying opposite to the bolt-holes in the lug F and adjustable, both angularly and to and fro, with regard to said lug, said strip having threaded bolt-holes formed in it, tubular abutment-bolts screwing into the holes in the lug F and bearing against the back of the strip E around the threaded perforations formed therein, and another set of bolts, as I, passing through the tubular bolts screwing into the threaded holes in the back of strip E and arranged as described to draw it against the abutment-bolts.

645,212. ELECTRIC-LIGHTING APPARATUS FOR RAILROAD-CARS. EDWIN J. PRESTON and ARTHUR R. GILL, London, England, assignors to the J. Stone & Company, same place. Filed Jan. 2, 1900. Serial No. 69. (No model.)



Claim.—1. The combination with the dynamo, two storage batteries, a translating device, and a resistance interposed between the dynamo and the translating device, of a hand-switch interposed between the translating device and the resistance and provided with contacts and connections arranged to cut out the resistance and connect the dynamo with both batteries when the translating device is cut out, substantially as set forth.

2. The combination with the dynamo, two storage batteries, a translating device, and a resistance interposed between the dynamo and the translating device, of a hand-switch interposed between the translating device and the resistance and provided with a resistance-contact connected with the dynamo through the resistance, a translating-device contact, two battery-contacts connected with the batteries directly, without the intervention of the resistance, and a switch-lever which in one position connects the resistance-contact with the translating-device contact and in the other position breaks this connection and connects both battery-contacts, substantially as set forth.

3. The combination with the dynamo, two storage batteries, a translating device, and a resistance interposed between the dynamo and the translating device, of a switch-circuit connecting the batteries with the resistance at a point between the ends thereof, and a switch arranged in said circuit, which switch is closed when the dynamo is rendered inoperative, thereby cutting out part of the resistance and leaving the remaining part included in the connection extending from one battery to the other, substantially as set forth.

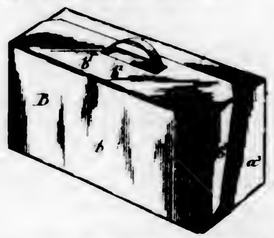
4. The combination with the dynamo, two storage batteries, a translating device, and a resistance interposed between the dynamo and the translating device, of a hand-switch interposed between the translating device and the resistance and provided with contacts and connections arranged to cut out the resistance and connect the dynamo with both batteries when the translating device is cut out, and a switch-circuit connecting the batteries with the resistance at a point between the ends thereof, and a switch arranged in said circuit and arranged to be closed when the dynamo is rendered inoperative, substantially as set forth.

645,213. SASH-LOCK. HENRY U. PRINDLE, Woodland, Cal., assignor of one-half to John W. Guthrie, Sacramento, Cal. Filed Mar. 29, 1899. Serial No. 711,041. (No model.)



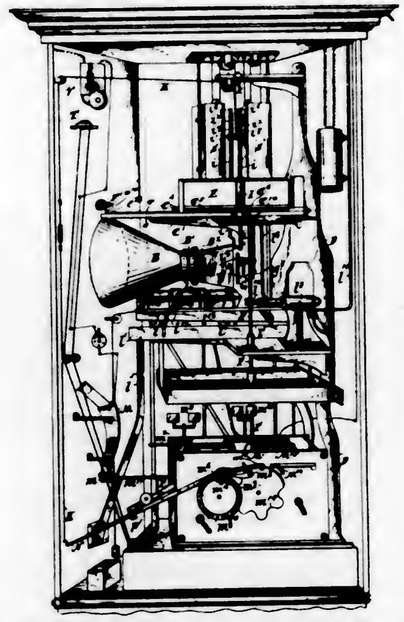
Claim.—In a sash-lock of the character described; the combination with the sash having a grooved edge and the vertically-disposed slide-rod secured thereto; the lock-casing having an open front edge and an integrally-formed sheath or loop projected over said front edge, and adapted to engage the sash-groove and form a fixedly-held guide for the sash and to hold the same from engagement with the clamp device; a pair of opposing clamp members pivotally mounted within the casing—a tumbler means for adjusting the clamps to a released position, said clamps having elongated apertures for the slide-rod, and a coiled spring held about the rod between the apertured ends of the clamps, all being arranged substantially as shown and for the purposes described.

645,214. PACKING-CASE. RAPHAEL J. PERIN, Chicago, Ill. Filed Sept. 25, 1899. Serial No. 731,576. (No model.)



Claim.—A case comprising a body in the form of an open-topped box, one of whose sides is provided with a handle, and a closure consisting of a top and a flap, the latter provided with a closed slot within the area of its body portion through which the handle passes as the case is opened or closed.

645,215. AUTOMATIC PHOTOGRAPHING APPARATUS. JOSEPH F. RADEMS, New York, N. Y., assignor, by direct and mesne assignments, to the Automatic Photograph Machine Company, of West Virginia. Filed July 19, 1899. Serial No. 556,496. (No model.)



Claim.—1. In an automatic photographing apparatus, the combination of a plate-carrier, a bath for holding the liquids in which the plate is to be immersed, means for producing a relative movement between the plate-carrier and the bath, and a gripping device supported by the carrier comprising pieces moved lengthwise of each other by the initial movement of the carrier, and jaws operated by such movement to grasp a plate, substantially as specified.

2. In an automatic photographing apparatus, the combination of a plate-carrier, a bath for holding the liquids in which the plate is to be immersed, a plate-magazine, a shaft supporting cams for producing a vertical movement of the plate-carrier and a horizontal movement of the bath, and for also producing an intermittent movement of the plate-magazine, and a motor for rotating said shaft, substantially as specified.

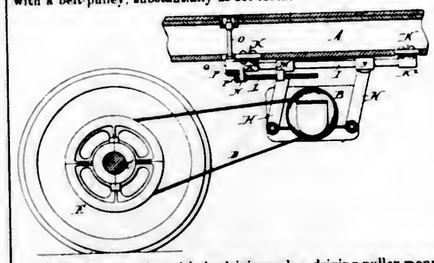
3. In an automatic photographing apparatus, the combination of a plate-carrier, a bath for holding the liquids in which the plate is to be immersed, a valve-controlled passage-way supplying water to the compartments in said bath, a shaft supporting cams for producing a vertical movement of the plate-carrier and a horizontal movement of the bath, and a motor for rotating said shaft, substantially as specified.

4. In an automatic photographing apparatus, the combination of a plate-magazine, means for producing an intermittent movement of the same, means for controlling the time-exposure of a sensitized plate, a support for sustaining the plate during the exposure, a bath for holding the liquids in which the plate is to be immersed, a plate-carrier for dipping the plate in the various liquids, a gripping device supported upon said plate-carrier for grasping the plate upon an initial movement of the carrier and comprising lengthwise-movable pieces and supported jaws, and means for producing a relative movement between the bath and the plate-carrier to bring the various liquids under the plate in succession, substantially as specified.

5. A bath for a photographing apparatus, having compartments for liquids, and a compartment to receive the finished plate, combined with means for imparting a rectilinear movement to the bath and ejecting the plate from the compartment, substantially as specified.

645,216. ELECTRIC-LIGHTING APPARATUS FOR RAILROAD-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, New York, N. Y. Filed Nov. 16, 1899. Serial No. 737,154. (No model.)

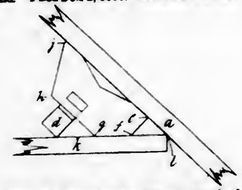
Claim.—1. The combination with the driving-axle, a driving-pulley mounted thereon and a driving-belt, of a carriage which is adjustable toward and from the driving-axle, suspension-links pivoted to said carriage, and a dynamo supported by said links and provided with a belt-pulley, substantially as set forth.



2. The combination with the driving-axle, a driving-pulley mounted thereon and a driving-belt, of a carriage which is adjustable toward and from the driving axle, suspension-links pivoted to said carriage, a dynamo supported by said links and provided with a belt-pulley, and a longitudinal adjusting-screw engaging with said carriage, substantially as set forth.

3. The combination with the driving-axle, a driving-pulley mounted thereon and a driving-belt, of longitudinal guideways arranged underneath the car-frame, a carriage movably mounted on said guideways, suspension-links pivoted to said carriage, a dynamo supported by said links and provided with a belt-pulley, and a longitudinal adjusting-screw engaging with said carriage, substantially as set forth.

645,217. DRAWING-BOARD REST. HARRY W. ROBERTS, Newmarket, England. Filed Dec. 2, 1899. Serial No. 739,061. (No model.)



Claim.—In a drawing-board rest a block attached to the under side of a drawing-board; a screw turning in the said block; a cross-piece below the under side of the said drawing-board and receiving the point of the said screw; side pieces on the upper part of which rests the under side of the drawing-board, the said side pieces having sloped ends and being attached to the said cross-piece; and rubber bands surrounding the ends of the said cross-piece, the whole substantially as described and illustrated.

645,218. MIRROR-HINGE. JAMES ROCHE, Terryville, Conn., assignor to the Eagle Lock Company, same place. Filed Dec. 20, 1899. Serial No. 740,974. (No model.)

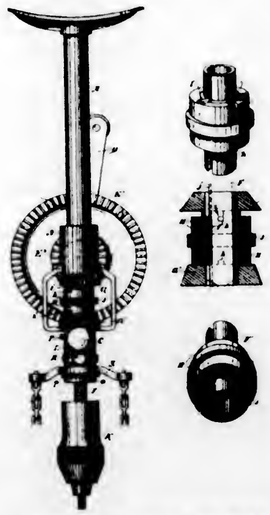


Claim.—A mirror-hinge, comprising a pintle, a strap bent around said pintle and forming two leaves, and a lip formed on the perpendicular or upright edge of one of the leaves to embrace the edge of the mirror or standard, substantially as described.

645,219. BORING-DRILL. CHARLES S. STAFFORD, San Francisco, Cal. Filed July 1, 1899. Serial No. 722,563. (No model.)

Claim.—1. In a boring-tool, a stock, a screw-threaded spindle loosely turnable within the stock, with means for securing the boring-tool in line therewith, a sleeve loosely mounted on said spindle having a longitudinal slit and its central outer portion threaded, a beveled gear journaled and turnable upon the side of the stock having outer and inner teeth, corresponding beveled pinions loosely turnable upon the ends of the sleeve, having lugs upon their adjacent faces, a two-part sliding collar loosely fitting the sleeve between the pinions, having slots in its outer ends adapted to engage either of the lugs upon the pinions, a feather movable in a keyway in the spindle and means for advancing the two-part sliding collar in either direc-

tion to engage with one of the pinions and disengage it from the other.



2. In a boring-tool, a stock, a threaded drill-spindle turnable therein, a sleeve loosely mounted on the spindle having a longitudinal slit and its central portion threaded, a gear-wheel journaled and turnable upon the stock having outer and inner rows of teeth, pinions loosely turnable upon the ends of the sleeve and engaging the outer and inner teeth of the wheel, a two-part sliding collar interposed between the pinions having a length less than the distance between the pinions, a milled disk turnable with relation to the collar, having the interior screw-threaded and fitting corresponding threads upon the central part of the sleeve, lugs projecting from the adjacent faces of the pinions, corresponding slots in the outer ends of the two-part collar, so that one pinion will be engaged and the other disengaged by the advance of the collar along the spindle.

3. In a boring-tool, a stock, a drill-spindle turnable therein, a sleeve mounted on the spindle, a driving-gear journaled and turnable upon the stock, and having outer and inner rows of teeth, pinions turnable upon the sleeve, the teeth of one engaging the outer and the other the inner teeth of the gear, a two-part collar loosely fitting the sleeve between the pinions having slots in the ends adapted to engage corresponding lugs upon the inner faces of the pinions, a key or feather slidable in a keyway in the spindle having its ends upturned to engage the two parts of the collar and unite them so that they become one and move in unison, a disk turnable upon the sleeve between the inner ends of the two-part collar having screw-threads fitting corresponding threads on the sleeve whereby the collar may be advanced to engage either of the pinions and be disengaged from the other.

4. In a boring-tool, the combination of a stock, a drill-spindle turnable therein and mechanism by which it is rotated, a sleeve forming the lower end of the stock and an internally-threaded collar loosely turnable within the sleeve, having its inner end formed with an exterior annular groove and its lower end provided with an anti-friction-bearing for the sleeve, a screw or pin passing through the inner end of the sleeve and engaging the annular groove in the collar, to prevent end movement of said collar, a brake-piece loosely seated in the sleeve and a screw for operating the same, a yoke loosely seated on the outer end of the sleeve below the said brake-screw and a means carried by the yoke for engaging the work to be drilled.

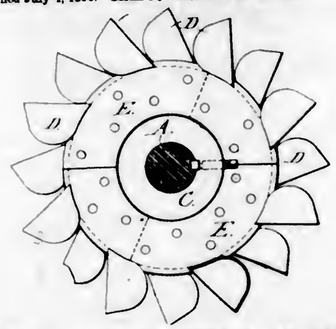
645,220. BENCH-PLANE. JUSTUS A. TRAUT, New Britain, Conn. Filed Dec. 10, 1897. Serial No. 661,391. (No model.)



Claim.—1. In a plane, the combination, with a plane-body comprising a sole and a pair of side walls, said sole having rigid with the inner face thereof a U-shaped slide-supporting guide the side walls of which extend in parallelism with the body side walls and have their upper edges inclined and recessed to form ways, and connected at their outer ends by an end wall having an internally-threaded opening; a slide mounted on said guide and recessed at its edges to coöperate with said ways, and provided at its under side with an internally-threaded depending lug working intermediate said side walls and on its upper side with a longitudinally-extending centrally-located rib having a transversely-extending rib or projection; a knife adapted to be clamped on said rib and provided with a plurality of transversely-extending recesses for the reception of said transverse rib to locate the knife in position; an adjusting-screw of different diameters working in said guide and slide and having two sets of similar threads of different pitch; and means for clamping the knife in position on said slide.

2. In a plane, the combination, with a plane-body comprising a sole and a pair of side walls, said sole having rigid with the inner face thereof a slide-supporting guide the side walls of which extend in parallelism with the body side walls and have their upper edges inclined, and which walls support at their outer ends a member having an internally-threaded opening; a slide mounted on said guide and provided at its under side with an internally-threaded depending lug working intermediate said side walls and on its upper side with a longitudinally-extending centrally-located rib; a knife adapted to be clamped on said rib, said knife and rib having, one a projection, and the other recesses coöperating with said projection to locate said knife in position; an adjusting-screw of different diameters working in said guide and slide and having two sets of similar threads of different pitch; and means for clamping the knife in position on said slide.

645,221. WATER-WHEEL. STEPHEN J. TUTTHILL, Oakland, Cal., assignor to the Tutthill Water Wheel Company, San Francisco, Cal. Filed July 1, 1899. Serial No. 722,575. (No model.)



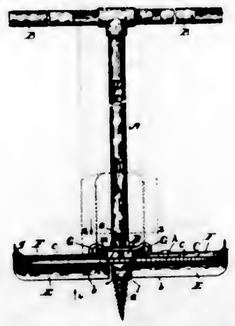
Claim.—1. A water-wheel consisting of a disk and hub and a shaft to which they are secured, segments bolted flatwise against the sides of the disk and each formed with a plurality of buckets said segments having their ends abutting directly against each other to make substantially a continuous plate whereby the strain upon any securing-bolt is equally distributed throughout the segments and the securing-bolts thereof.

2. A water-wheel consisting of a disk and hub and a shaft to which they are secured, vertically-disposed segments bolted flatwise against the vertical sides of the disk and having radially-disposed ends abutting directly against each other to form substantially a continuous plate on each side of the disk whereby the strain upon the bolts is equally distributed said segments each formed integral with a plurality of buckets with the buckets on one side of the disk occupying spaces between those on the other side of the disk.

3. In a water-wheel, a shaft, a divided disk and divided hub fitted thereto said hub extending outwardly along the line of the shaft, vertically-disposed segments fitted flatwise against the vertical sides of the disk and each formed with a plurality of buckets said segments occupying substantially the space between the rim of the disk and the hub with the ends of one segment abutting directly against the ends of a companion segment whereby each segment directly resists the strain brought upon the other, and the strain upon the securing-bolts is equally distributed.

4. In a water-wheel, the combination of a shaft, a hub and vertically-disposed disk fitted to said shaft, vertically-disposed segments bolted flatwise against the sides of the disk and occupying the space between the periphery of the disk and the hub, each of said segments formed with a plurality of buckets and each having inwardly-extending flanges adapted to embrace and protect the periphery of the disk.

645,222. POST-HOLE AUGER. CHARLES L. TUTTLE, Rochester, N. Y. Filed Dec. 4, 1899. Serial No. 739,153. (No model.)



Claim.—1. A post-hole auger comprising a shaft with handles, a head and head-bar held by said shaft, and two pairs of independent quadrantal sections secured to said head-bar, the diametrically-opposite sections of one pair forming cutters and those of the other pair carriers, the adjacent edges of the sections overlapping and turned in opposite directions and the carrier-sections hinged to the upper side of the head-bar, and means for limiting the downward movement of the carrier-sections, as set forth.

2. A post-hole auger comprising a shaft with handles, a head and a head-bar held by said shaft, and two pairs of quadrantal sections secured to the said bar each independently of each other with the diametrically-opposite sections of one pair forming cutters and those of the other pair forming carriers, the adjacent edges of the sections overlapping and turned in opposite directions and the carrier-sections hinged to the upper face of said bar and having their edges adjacent the hinges extended beneath the adjacent edges of the cutter-sections to limit the downward movement of the carrier-sections, as set forth.

3. A post-hole auger comprising a shaft provided with handles, and a head removably connected with the shaft, consisting of a head cross-bar, and two pairs of independent sections in the same plane and together forming a circle, one section of each pair being radially adjustable in the plane of the head, and the other section of each pair being adapted to turn out of said plane, the adjacent edges of the sections being overlapped and turned in opposite directions, substantially as specified.

4. A post-hole auger comprising a shaft with handles therefor, a cross-bar on the shaft, cutter-sections secured to the under face of the cross-bar, and carrier-sections hinged to the upper side of the cross-bar, and fastening-bolts for the cutter-sections and the cross-bar, the cutter-sections having slots inclined to the cross-bar to receive said fasteners, substantially as shown and described.

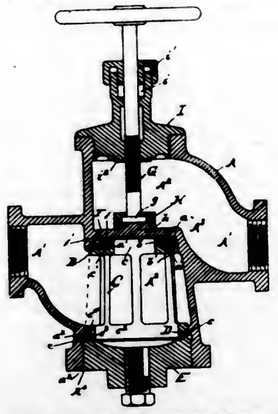
645,223. VALVE. WILLIAM B. M. BASHLINE, Meadville, Pa., assignor to the Bashline & Company, Warren, Pa. Filed Feb. 8, 1899. Serial No. 704,942. (No model.)

Claim.—1. In a valve, the combination with the valve-chamber having a projection, A^3, in which is the valve-opening, and on which is an annular projection, *a*, having a downwardly-extending lip, *a'*, of the valve-seat, B; and means for pressing said seat against and onto the lip, *a'*.

2. In a valve, the combination with the valve-chamber having a projection, A^3, in which is the valve-opening, and on which is an annular projection, *a*, having a downwardly-extending lip, *a'*, of the valve-seat, B; means for pressing said seat against and onto the lip, *a'*; and a valve provided with means for forming a secondary seat on the upper surface of the projection *a*.

3. In a valve, the combination with the shell containing the valve-chamber, a partition, A^3, having the valve-passage, and an opening, A^4, with the shoulder, a^3; means for carrying the valve-seat having the ring, c^3, thereon with an annular notch on its outer periphery, said notch being arranged to come above the bottom of the shoulder, a^3; and the gasket D, arranged in said notch.

4. In a valve, the combination with the shell containing the valve-chamber, a partition, A^3, having the valve-passage, and an opening, A^4, with the shoulder, a^3; means for carrying the valve-seat having the ring, c^3, thereon, with an annular notch on its outer periphery, said notch being arranged to come above the bottom of the shoulder, a^3; the gasket, D, arranged in said notch; and a plug, E, having the annular lip, *e*, arranged to come into contact with the gasket, D.

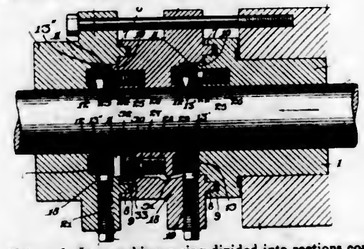


5. In a valve, the combination with the shell containing the valve-chamber, and having the partition, A^3, in which is the opening for the valve-passage, and on which is the annular projection, *a*, having the downwardly-extending lip, *a'*; the gasket and valve-seat, B; a follower, C, having the ring, *c*, and gasket-surface, *c'*; and means for exerting pressure on the follower, C.

6. In a valve, the combination with the shell, A, containing the valve-chamber, A^3, and having the partition, A^3, therein, through which is the valve-passage around which is arranged the projection, *a*, having the downwardly-extending lip, *a'*, said shell also having an opening, A^4, in which is a shoulder, a^3; a gasket and valve-seat, B, having the upper flange, *b*, and gasket portion, *b'*; the follower, C, having the ring, *c*, gasket-surface, *c'*, ring, c^3, having the downwardly-extending lip, c^4, and annular notch, c^5; the gasket, D, arranged in the notch, c^5; and the plug, E, having the annular rib, *e*, arranged to come into contact with the gasket, D.

7. In a valve, the combination with the shell, A, containing the valve-chamber, A^3, and having the partition, A^3, therein, through which is the valve-passage around which is arranged the projection, *a*, having the downwardly-extending lip, *a'*, said shell also having an opening, a^4, in which is a shoulder, a^3; a gasket and valve-seat, B, having the upper flange, *b*, and gasket portion, *b'*; the follower, C, having the ring, *c*, gasket-surface, *c'*, ring, c^3, larger in diameter than the ring, *c'*, and gasket, *b'*, having the downwardly-extending lip, c^4, and annular notch, c^5; the gasket, D, arranged in the notch, c^5; and the plug, E, having the annular rib, *e*, arranged to come into contact with the gasket, D.

645,224. PACKING. HENRY BOEHLING, Philadelphia, Pa. Filed Nov. 14, 1899. Serial No. 736,925. (No model.)



Claim.—1. In a packing, a ring divided into sections connected by double lap-joints having bearing-surfaces substantially at right angles to each other, each section having an outer lap and an inner lap, in combination with plungers acting substantially at right angles to each other for pressing said sections together on said bearing-surfaces, as specified.

2. In a packing, in combination with a piston-rod, a follower, a ring divided into sections connected by double lap-joints having a bearing-surface transverse to said piston-rod, and a bearing-surface parallel thereto, each of said sections having an outer lap and an in-

ner lap, plungers for pressing said sections against said piston-rod and together on said bearing-surfaces parallel thereto, and plungers for pressing said sections against said follower and together on said transverse bearing-surfaces.

3. In a packing, in combination with a piston-rod, a follower, a soft-metal ring seated in said follower, a ring divided into sections connected by double lap-joints having a bearing-surface transverse to said piston-rod, and a bearing-surface parallel thereto, plungers for pressing said sections against said piston-rod and together on said surfaces parallel thereto, and plungers for pressing said sections against said soft-metal ring and together on said transverse bearing-surfaces.

4. In a packing, in combination with a piston-rod and a follower, a channel at the joint of said follower, a valve opened by fluid-pressure and automatically closing communication with said channel, and a passage leading from said valve, substantially as specified.

5. In a packing, a follower, a second follower joined thereto, a channel between said followers, a valve located in said second follower, and communicating with said channel, and a passage leading from said valve, substantially as specified.

6. In a packing, in combination with a piston-rod, a follower, a second follower joined thereto, a channel between said followers, a valve in said second follower communicating with said channel, a passage leading from said valve, and a second channel communicating with said passage, substantially as specified.

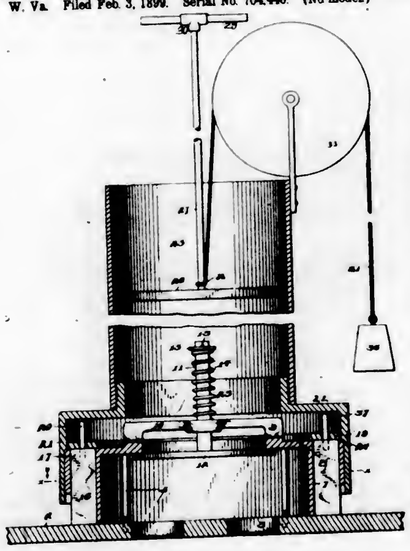
7. In a packing, in combination with a piston-rod, a follower, a second follower joined thereto, a channel between said followers in communication with said piston-rod, a passage through said second follower, a valve-port connecting said channel and passage, and a spring-controlled valve having a stem which reciprocates in said port.

8. In a packing, in combination with a piston-rod, a follower, a second follower joined thereto, a channel between said followers in communication with said piston-rod, a sectional packing-ring in said channel, a passage through said second follower, a valve-port connecting said channel and passage, a valve for controlling said port, a second channel in communication with said passage and said piston rod, and a sectional packing-ring in said second channel, substantially as specified.

9. In a packing, in combination with a piston-rod, a follower, a second follower joined thereto, a channel between said followers in communication with said piston-rod, a sectional packing-ring in said channel, a third follower joined to said second follower, a channel between said second and third followers, a sectional packing-ring in said second channel, a passage connecting said channels, and a valve for controlling said passage, substantially as specified.

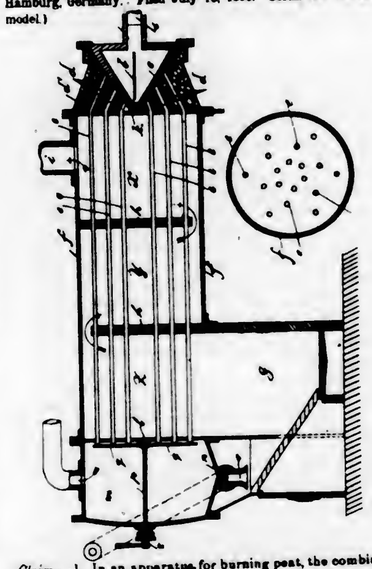
10. A sectional packing-ring consisting of a hard-metal shell and a soft-metal body, said sections being connected by double lap-joints, the frictional contact between the joints of the sections involving the bearing of a hard-metal surface on a soft-metal surface, substantially as specified.

645,225. BOAT-PUMP. MATHEW M. CULLEN, New Cumberland, W. Va. Filed Feb. 3, 1899. Serial No. 704,446. (No model.)



Claim.—In a boat-pump, the combination of a hollow cylindrical valve-casing, an inwardly-extending flange formed integral with the top thereof, a transversely-extending guide secured at each end to the said flange, a disk valve for closing said casing adapted to be normally in engagement with the underneath face of the said flange, a valve-stem operating through the said guide formed integral with the said valve, a coil-spring mounted upon the said stem and adapted to engage the said guide, a series of radially-extending partitions formed integral with the periphery of the valve-casing, a collar connected to the said partitions and surrounding a portion of the said casing forming an inlet-chamber, a concentric ring mounted on the top of the said inlet-chamber for closing the same and forming an inlet-valve, an upwardly-extending guide for the said inlet-valve secured to a pair of the said partitions, a cap supported by the said guides and adapted to surround the said collar, an upwardly-extending flange formed integral with the said cap, a piston-chamber secured to the said flange, a piston operating therein, and means connected to the said piston for operating the same thereby operating the said valves alternately, substantially as described.

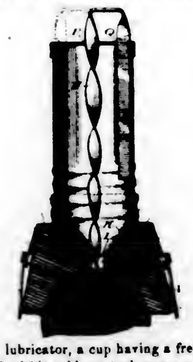
645,226. APPARATUS FOR BURNING PEAT. GEORG GERCKE, Hamburg, Germany. Filed July 18, 1899. Serial No. 724,381. (No model.)



Claim.—1. In an apparatus for burning peat, the combination of an outer casing having a feeding end and a discharge end, a combustion-chamber arranged below the discharge end and extended horizontally therefrom to near the feeding end, said combustion-chamber being divided to form a tortuous passage for gases of combustion, a plurality of parallel tubes traversing said combustion-chamber, a revoluble feeding-hopper having a slot, means for forcing the raw peat through said tubes, a rotary cutter contiguous the termini of said tubes, an automatic device for feeding the dry peat to the combustion-chamber and an outlet for the steam generated from the moisture in the peat, substantially as and for the purpose set forth.

2. In an apparatus for the purpose specified, the combination of an outer casing having a feeding end and a discharge end, a combustion-chamber arranged below the discharge end and extended horizontally therefrom, to near the feeding end, the walls *A A* dividing said combustion-chamber into drying-chambers X, Y, Z, an upper passage connecting chamber Z with chamber Y and a lower passage connecting the latter chamber with chamber X and a chimney *i* leading from said last chamber; a plurality of parallel tubes traversing said chambers, the casing *d'* having a conical cavity, the obliquely-extended channels *d* forming continuations of said tubes; a revoluble feeding-hopper mounted in said cavity, having a lateral slot, a plunger adapted to reciprocate in said hopper to force the peat forward in the tubes, a rotary cutter *q* contiguous the termini of said tubes, adapted to shear the dried peat as it is discharged from said tubes, the fuel-feeding device *o* and an outlet for the steam generated from the moisture in the peat, substantially as described and for the purpose set forth.

645,227. GREASE-CUP OR LUBRICATOR. CHARLES F. KELLOM, Delair, N. J. Filed May 13, 1899. Serial No. 716,626. (No model.)



Claim.—1. In a lubricator, a cup having a freely-rotatable cap, and a finger situated within said cup and near one side thereof, said cap and finger being suitably connected, whereby the latter can be rotated by the former.

2. In a lubricator, a cup having a freely-rotatable cap, and an agitator situated within said cup, said cap and agitator being suitably connected, whereby the latter can be rotated by the former.

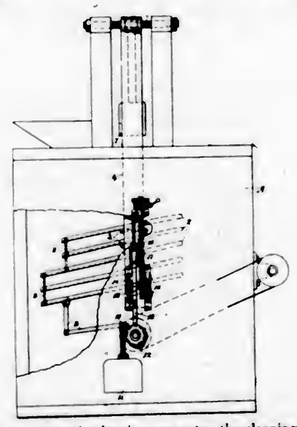
3. In a lubricator, a cup having a freely-rotatable cap, and a stem and a finger situated within said cup, said finger being situated near one side of the cup and suitably connected with said cap to be rotated thereby.

4. In a lubricator, a cup having a rotatable cap provided with a finger extending into said cup from one side thereof and situated adjacent to and practically parallel with the inner face of the side wall thereof.

5. In a lubricator, a cup provided with a rotatable cap, having central and side openings, a stem passing freely through said central opening and resting at its lower end upon the rotatable part to be lubricated, and a finger connected with said stem and passing freely through said side opening.

6. In a lubricating device, a cup threaded at its lower portion and provided with a base portion having an opening therethrough, a socket provided with projecting walls and fastening devices for the reception of said cup, a rotatable cap mounted on said cup and having openings therein, and an agitator mounted in said openings and adapted to be moved in unison with said cap, said agitator having depending limbs within said cup of different lengths, the inner limb being helical or spiral and the other or outer limb being located in proximity to the interior of said casing.

645,228. SELF-LEVELING GRAIN-CLEANER. JOHN M. LARSWELL, San Miguel, Cal. Filed Nov. 7, 1899. Serial No. 736,090. (No model.)



Claim.—1. In a grain-cleaning apparatus, the cleaning-screens, a shaft passing transversely across each screen at a point about midway between the ends, and upon which the screen is fulcrumed to tilt longitudinally, a crank-arm journaled in the sides of the machine and connected with one end of the screens, and weights depending from the ends of the shaft and adapted to tilt and correspondingly move the screens about their central transverse axis when the machine is tilted longitudinally.

2. In a grain-cleaning apparatus, a casing, cleaning-screens supported upon horizontal shafts, a weighted crank-shaft connected with the end of the screens and movable in unison with the tilting of the machine, vertically-slidable side bars in which the screens are supported, a transverse centrally-fulcrumed bar, to the ends of which the vertical side bars are connected, and a transverse swinging weight connected with the fulcrum-shaft of the transverse bar whereby the latter is oscillated and the screens are tilted transversely in unison with the side tilting movements of the machine.

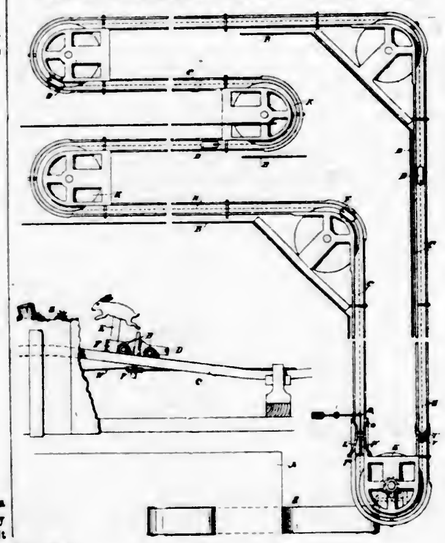
3. In a grain-cleaning apparatus, a casing, a transversely-fulcrumed arm having a weight connected with its shaft whereby the arm is tilted by the swinging of the weight, vertical bars extending downward from the ends of said arm, horizontal shafts having their ends bent at right angles and journaled to and turnable in the vertical arms, cleaning-screens centrally supported upon the transverse shafts and movable by the action of the swinging weight, a crank-shaft extending across the end of the machine having weights suspended from the shaft ends so as to swing when the machine is tilted longitudinally, and a connection between the crank-shaft and the screens whereby the latter are moved in unison with the swinging of the weight and the crank-arm.

4. In a grain-cleaning apparatus, the combination of cleaning-screens, fulcrumed at points between their ends whereby the ends move in opposite directions when the screens are tilted longitudinally, a shaft having a depending weight and means connecting the shaft with one end portion of the screens, a longitudinal shaft having a depending weight, and connections between the longitudinal shaft and the screens, said screens having their axes mounted in and carried by the connections from the longitudinal shaft.

5. In a grain-cleaning apparatus, transversely and longitudinally tiltable screens, correspondingly-swinging weights and connections between the screens and the weights, a screen-shaking mechanism consisting of an adjustable fulcrumed lever, a serpentine cam with which one end of the lever engages, means connecting the lever with the screens, and means for moving the fulcrum whereby the amount of shake is regulated.

6. In a grain-cleaning apparatus, transversely and longitudinally tiltable screens, correspondingly-swinging weights, connections between the weights and the screens, a fulcrumed lever connected with the screens and a serpentine cam with which the lever engages, a slide upon which the fulcrum is carried and a guide upon which it is movable, in combination with a screw and worm-gear whereby the fulcrum is moved to lengthen or shorten the stroke of the lever.

645,229. TRAVELING TARGET. HERMAN L. MÖLLER, San Francisco, Cal. Filed July 6, 1899. Serial No. 722,938. (No model.)



Claim.—1. A movable-target mechanism consisting of a tortuous track, an endless traveling rope moving coincidently with the line of track, carriages with means for attaching targets thereto, and means including spring-pressed grips for detachably connecting the carriages with the carrier-rope.

2. In a movable-target apparatus, a tortuous line of track, an endless traveling rope following the line of the track, cars adapted to travel upon the track, means for attaching targets thereto and spring-pressed grips carried by the cars adapted to grasp the rope or to be released therefrom.

3. In a movable-target mechanism, an endless tortuous track, cars fitted to move thereon, a traveling rope following the line of the track, grips upon the cars adapted to engage the rope, and means whereby they may be automatically released therefrom.

4. In a movable target, a tortuous undulating line of track, cars adapted to move thereon, an endless traveling rope moving along the line of the track, and spring-pressed grips upon the cars adapted to close and connect the cars with the rope or to be opened to allow the cars to be disconnected therefrom.

5. In a movable-target mechanism, a tortuous line of track extending from the shooting-stand to a distance therefrom thence backward and forward across the range, thence returning to a position near the shooting-stand, cars adapted to move on the track, an endless traveling rope following the line of track, grips including spring-pressed members by which the cars are connected with or disconnected from the rope.

6. In a movable-target apparatus, the line of track with target-carrying cars movable thereon, an endless traveling rope following the line of the track, spring-pressed grips upon the car by which the rope is seized, so that the car is moved along the line of the track and parallel bars between which the grip-levers normally pass, and a means for closing the bars together so as to engage the grip-levers and disengage them from the rope and stop the car.

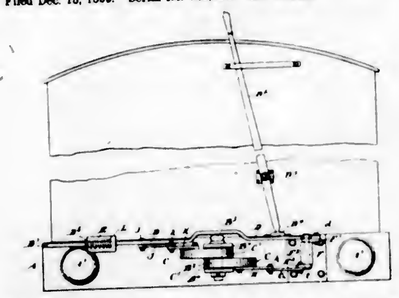
7. In a movable-target apparatus, the endless track carrying cars movable thereon, an endless traveling rope with grips mounted upon the cars adapted to clamp the rope, so as to move the cars, a frame consisting of bars parallel with the line of travel of the cars, and the grip-levers thereon, a yoke and connecting foot-lever by which said bars are movable in one direction, and a returning-spring therefor-levers with which the rear ends of the bars are connected so that a longitudinal movement of the device in one direction closes the bars so that they will contact with the car grip-levers as the latter pass between them, and thus disengage the grips from the rope, and allow the car to stop.

8. A movable-target mechanism consisting of a tortuous line of track, cars running thereon and adapted to carry targets, an endless traveling rope following the line of the track-grips by which the cars are connected with or disengaged from the rope, and a belt traveling in unison with the rope adapted to transfer the targets from the car to the shooting-stand.

9 A movable-target mechanism consisting of cars, a track and a movable driving-rope, said cars having sockets formed for the reception of the standards of the targets, and spring-plates fitting the sides of the slots so as to grasp the target-standards when the latter are introduced.

10. A traveling target with hinged support to allow it to fall when struck, stationary guides between which it subsequently passes and by which it is restored to its normal position, and one or more brushes in the line of travel of the target by which marks upon the target are obliterated.

645,280. CAR-COUPLING. WILLIAM MCBRIDE, Jersey City, N. J. Filed Dec. 18, 1899. Serial No. 740,624. (No model.)



Claim.—1. A draw bar and head, a pair of horizontally-swinging hooks carried thereby one above the other and facing toward the center line of said draw-bar, springs tending to move each of said hooks in such direction, a bar extending transversely of said hooks, fixed guides for said bar and connections to the latter from said hooks, and a spring serving as an abutment for said bar, thereby yieldingly limiting the said inward movement of said hooks, all combined and arranged to serve with a corresponding mechanism in coupling cars, substantially as herein specified.

2. The draw-bar B and draw-head B^1, pin B^3 in the latter and two horizontally-swinging hooks centered on said pin one above the other, springs C^3 C^3 urging each of said hooks toward the center line of said draw-bar, the transverse bar D, shaft F connected to said bar, the arm F^3 on said shaft, and the links J, K and G, H extending from said bar and arm to said hooks, all combined and arranged to serve with a corresponding mechanism in coupling cars, substantially as herein specified.

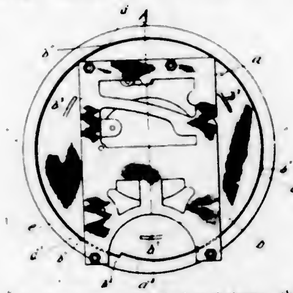
3. The draw-bar B and draw-head B^1, pin B^3 in the latter and two horizontally-swinging hooks centered one above the other on said pin, springs C^3 C^3 urging each of said hooks toward the center line of said draw-bar, the transverse bar D connected to said hooks, the housing E and spring L therein tending yieldingly to limit such inward movement of said hooks all combined and arranged to serve with a corresponding mechanism in coupling cars, substantially as herein specified.

4. The draw-bar B and draw-head B^1, pin B^3 in the latter and two horizontally-swinging hooks C C, C C centered one above the other on said pin, springs C^3 C^3 urging said hooks toward the center line of said draw-head, the transverse bar D arm F connected to said bar and carried by the shaft F, arm F^3 on said shaft, links G and H from said arm F^3 to one of said hooks, and links J, K from said bar to the other of said hooks, all combined and arranged to serve with a corresponding mechanism in coupling cars, substantially as herein specified.

5 The draw-bar B and draw-head B^1, pin B^3 in the latter and two horizontally-swinging hooks C C, C C centered one above the other on said pin, springs C^3 C^3 urging said hooks toward the center line of said draw-head, the transverse bar D, the shaft F and arm F thereon connected to said bar, the arm F^3 on said shaft, and links G and H from said arm F^3 to one of said hooks, and links J and K from said bar to the other of said hooks, the housing E, spring L therein, and collar D^3 on said bar, all combined and arranged to serve with a corresponding mechanism in coupling cars, substantially as herein specified.

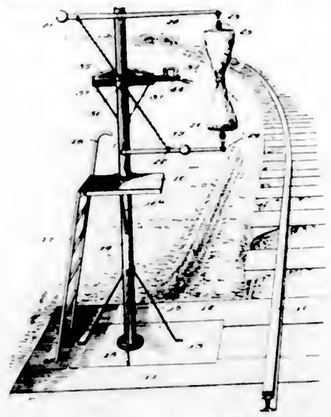
6. The draw-bar B and draw-head B^1, pin B^3 in the latter and two horizontally-swinging hooks C C, C C centered one above the other on said pin, springs C^3 C^3 urging said hooks toward the center line of said draw-head, the transverse bar D, the shaft F and arm F thereon connected to said bar, the arm F^3 on said shaft, and links G and H from said arm F^3 to one of said hooks, and links J and K from said bar to the other of said hooks, the housing E, spring L therein, and collar D^3 on said bar, and means as the slots g' and j' in the said links G and J and the pivots h and k on said links H and K received in said slots to afford the play required in separating the hooks in the act of coupling, all combined and arranged to serve substantially as and for the purposes herein specified.

645,231. CLOCK-CASE. THOMAS W. R. MCCABE, Winsted, Conn., assignor to the William L. Gilbert Clock Company, same place. Filed June 15, 1899. Serial No. 720,635. (No model.)



Claim.—In combination: the clock-work-frame; the plate provided with the peripheral projections, with the peripheral locking-indentation and with the springs struck from the material of said plate; the cylinder provided with the bayonet-joint mortises and with the tongue adapted to coöperate with said indentation; the dial-mat; and the dial, all substantially as described and for the purposes set forth.

645,232. MAIL-BAG CATCHER AND DELIVERER. FRED H. MCDAVITT and ARTHUR W. MCDAVITT, La Plata, Mo. Filed Oct. 14, 1899. Serial No. 733,648. (No model.)



Claim.—1. In a mail-bag catcher and deliverer, a suspending-hook consisting of a flat body having a longitudinal notch and provided with means for connecting it to the crane-arms, in combination with a spring secured to the flat body and normally projecting through the notch, substantially as described.

2. In a mail-bag catcher and deliverer, a platform secured on the projecting ends of the ties and a metal tubular post mounted thereon and braced thereto, in combination with an upper platform secured and braced to the post, a step-ladder connecting the two platforms, and a projecting pole of the ladder extending above the upper platform and forming a hand-rail, substantially as described.

3. In a mail-bag catcher and deliverer, the combination with a post of a semicircular bar secured thereto in a horizontal position and having a stop at each end, an arm pivotally mounted on the post and supported by said bar, means for locking the arm to the bar and a bag-catching hook at the outer end of the bar, substantially as described.

4. In a mail-bag catcher and deliverer, the combination with a post of a semicircular bar secured thereto in a horizontal position, an arm pivotally mounted on the post and supported by said bar, a hook at the end of the bar, a trigger to engage the bar to hold it against turning on the post, and a spring-actuated arm pivoted to the semicircular bar and normally holding the trigger in position, said bar being in the path of a bag entering the throat of the hook, substantially as described.

5. In a mail-bag catcher and deliverer, the combination with a post of an arm pivoted thereon, a hook at the outer end thereof, an elbow-lever trigger having its vertical arm adapted to hold the bar against turning and a bar holding the trigger in position and located in the path of a mail-bag entering the throat of the hook, substantially as described.

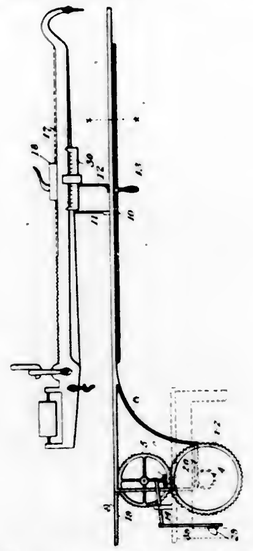
6. In a mail-bag catcher and deliverer, a hook for catching the bags provided with a lug on its outer side a pin in said lug and a spring-bar having its central portion coiled about the pin, the outer end of the spring-bar beating against the outside of the outer arm of the hook and the inner end against the inner side of the inner arm of the hook, substantially as described.

7. In a mail-bag catcher and deliverer, the combination of a vertically slidable and rotatable bar mounted in the car-door and having its upper and lower ends bent at right angles forming arms upon which to suspend a mail-bag of a keeper or latch adapted to lock the arms extended when weighted with mail-bag, and a spring adapted to raise the arms above the keeper when released of the weight of the bags, substantially as described.

8. In a mail-bag catcher and deliverer, the combination of a vertically slidable and rotatable bar mounted in the car-door and having its upper and lower ends bent at right angles forming arms upon which to suspend a mail-bag, of a keeper and latch adapted to lock the arms extended when weighted with a mail-bag, a spring for normally holding the arms raised above the keeper and latch, and a spring with a normal tendency to turn the arms into the car, substantially as described.

9. In a mail-bag catcher and deliverer, the combination of three staples or eyes secured to the car in a vertical line, a vertical bar slidably and rotatably mounted therein, suspending-arms projecting at right angles from the ends of the vertical bar, a stop-arm projecting from the vertical bar at right angles to the suspending-arms, a collar on the vertical arm, a latch or keeper secured to the door and having a horizontal and vertical arm, a spring coiled about the vertical bar about a staple and below the collar, and a second spring coiled about the vertical bar having one end secured to the car and the other to the stop-arm, substantially as described.

645,238. MACHINE FOR REGISTERING AND RECORDING WEIGHTS. PHILIP C. PALMER, Kansas City, Kans. Filed Aug. 16, 1898. Serial No. 688,727. (No model.)



Claim.—1. The combination with a weighing-scale of a wheel provided with peripheral numbers corresponding to the numbers on the scale-beam, an arm arranged to reciprocate parallel with the poise, a connection carrying said arm and geared to said wheel, and adapted when the arm is adjusted with relation to the previously-positioned scale-beam poise to rotate said wheel, said arm being unconnected with and entirely independent of said poise, a guide-rod extending parallel with the scale-beam, and means mounted slidingly on said rod and adapted to engage and move said connection and thereby effect the adjustment of said arm, substantially as described.

2. The combination with a weighing-scale, of a wheel provided with peripheral numbers corresponding to the numbers on the scale-beam, a hammer, a bar geared to said wheel, a stationary guide-rod arranged parallel with said bar, a catch mounted slidingly on said rod and adapted to engage and move said bar with relation to the previously-positioned scale-beam poise and thereby cause the number of the wheel corresponding to the position of the poise of the scale-beam to occupy a certain position with relation to the hammer, substantially as described.

3. The combination with a weighing-scale, of a wheel provided with peripheral numbers corresponding to the numbers on the scale-beam, a bar geared to said wheel and provided with a notch, a stationary guide-rod, and a sliding catch mounted thereon and adapted to engage the notch of said bar to move the same back and forth with relation to the scale-beam, substantially as described.

4. The combination with a weighing-scale, of a wheel provided with peripheral numbers corresponding to the numbers on the scale-beam, a reciprocatory bar geared to said wheel and provided with an upright arm and with a notch, and a sliding catch suitably guided provided with a pin adapted for engagement with said notch and provided also with a handle whereby said bar may be adjusted to cause its arm to occupy a certain position with relation to the scale-beam poise, substantially as described.

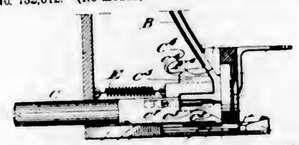
5. The combination with a weighing-scale provided with a graduated poise, and a secondary poise upon the graduated poise, of a wheel peripherally numbered to correspond with the numbers on the scale-beam, a second wheel peripherally numbered to correspond with the numbers on the poise, a notched bar geared to the first-named wheel,

a companion notched bar geared to the other numbered wheel, a catch adapted to slide parallel with and between said bars and embodying a handle and a reciprocatory pin to engage a notch of one bar or the other, substantially as described.

6. The combination with a weighing-scale provided with a graduated poise, and a secondary poise upon the graduated poise, of a wheel peripherally numbered to correspond with the numbers on the scale-beam, a second wheel peripherally numbered to correspond with the numbers on the poise, a bar geared to the first-named wheel provided with a notch, a companion parallel bar geared to the other numbered wheel and provided with a plurality of notches, and a catch adapted to slide with and between said bars and embodying a handle and a reciprocatory pin to engage the notch of one bar or a notch of the other, substantially as described

7. The combination with a weighing-scale, of a numbered wheel, a bar geared thereto and adjustable with relation to the scale-beam poise, a toothed wheel geared to said numbered wheel, a spring-retracted V-toothed lever, a spring-actuated lever carrying a hammer, a spring-actuated lever provided with a hook to engage the hammer-lever and hold the hammer away from the numbered wheel a rock-shaft connected to the toothed lever and provided with an arm bearing against the hook-lever, and means to operate said rock-shaft, substantially as and for the purpose described.

645,234. COIN-CONTROLLED APPARATUS. ULYSSE PERRIER, New York, N. Y., assignor, by direct and mesne assignments, to the General Automatic Delivery Company, same place. Filed Sept. 29, 1899. Serial No. 732,012. (No model.)



Claim.—1. In a coin-controlled apparatus, a movable operating part, a carrier, a gate on said carrier, a plurality of bearing-points on said carrier and gate, a bearing-point on said operating part and means to operate said gate.

2. In a coin-controlled apparatus, a movable operating part, a carrier, a gate on said carrier, a plurality of bearing-points on said carrier and gate, a bearing-point on said operating part and means carried by said operating part to operate said gate.

3. In a coin-controlled apparatus, a movable operating part, an incline thereon, a carrier, a gate on said carrier, an incline on said gate to be engaged by said first-mentioned incline, a plurality of bearing-points on said carrier and gate, and a bearing-point on said operating part.

4. In a coin-controlled apparatus, a movable operating part, a carrier, a gate on said carrier, a plurality of bearing-points on said carrier and gate, and a bearing-point on said operating part intermediate of the bearing-points on the gate-carrier and gate.

5. In a coin-controlled apparatus, a movable operating part, a carrier, a gate thereon, means carried by the operating part to move said gate, bearing-points to engage a coin and means to dislodge said coin from engagement with said bearing-points after the carrier has been advanced.

6. In a coin-controlled apparatus, a movable operating part, a carrier, a gate thereon, means carried by the operating part to move said gate, bearing-points to engage opposite sides of the coin, and an incline in the path of said coin to dislodge said coin from engagement with a bearing-point on one side thereof after the carrier has been advanced.

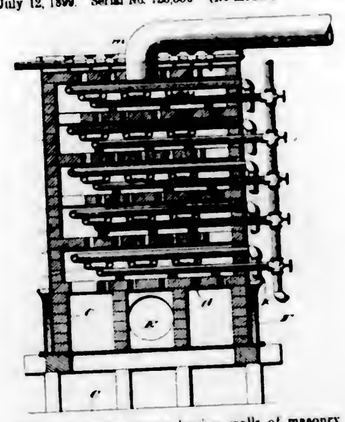
7. In a coin-controlled apparatus, a movable operating part, a carrier, means to hold said gate-carrier in a normally-retracted position, a gate on said carrier, bearing-points on said gate and carrier and operating part to engage a coin of the proper denomination and cause the advance of said carrier.

8. In a coin-controlled apparatus, a movable operating part, a slide therefor, a second slide, bearing devices carried by said second slide to engage one side of a coin, means carried by the operating part to engage the other side of a coin, and means whereby the position of one or more of said bearing devices shall be moved out of engagement with a piece other than a coin of suitable denomination.

9. In a coin-controlled apparatus, a movable operating part, a carrier, means for detachably engaging said gate-carrier in its retracted position, a gate on said carrier, bearing points carried by said carrier, a pin carried by said gate, a bearing-pin carried by said operating part and means whereby the gate may be moved by the operating part.

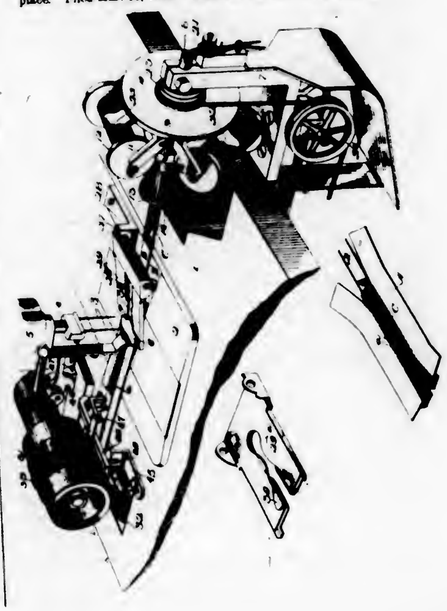
10. In a coin-controlled apparatus, a movable operating part, a carrier, a gate carried thereby, bearing-points on said carrier and gate, means for detachably holding said carrier in the retracted position, a bearing-point carried by said operating part, and means to eject a coin by freeing it from engagement with one or more of said bearing-points after the carrier has been advanced.

645,235. ACID-COOLING TOWER. CONSTANTIN RUGGABER, Richmond, Va., assignor of one-half to Howard Harlan, same place. Filed July 12, 1899. Serial No. 723,556. (No model.)



Claim.—A cooling-tower having walls of masonry with outer sheathing of lead and mounted on a suitable platform, a series of alternately-arranged perforated shelves supported on the inner walls of the tower, a water-cooling jacket surrounding the portion of tower below the bottom of said shelves, the inlet-pipe passing water-tight through the walls of said jacket and sheathing, and the coils between each shelf, the outlet end of each coil being downwardly disposed and positioned to discharge into said cooling-jacket, all as shown and described and for the purpose set forth.

645,236. MACHINE FOR MAKING TRIMMINGS. CHARLES P. SCHLEGEL, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Mar. 10, 1899. Serial No. 708,577. (No model.)



Claim.—1. In a machine for making trimmings, the combination with a support, means for feeding a tape along one side of the support, of mechanism for winding continuous strands of fibrous material around the support and tape, and sewing mechanism for uniting the loops of the strands to the tape, as it is fed forward.

2. In a machine for making trimmings, the combination with a support and feeding devices for moving a tape along one side of the support, of means for winding continuous strands of fibrous material around the support and tape, a fabric-guide and sewing mechanism for sewing the fabric, tape and the loops of the strands together as they are fed forward.

3. In a machine for making trimmings, the combination with means for feeding forward two separated tapes, of mechanism for winding continuous strands of fibrous material around the tapes, two sewing mechanisms for sewing the loops of fibrous material to the tapes as they move forward, and a cutting device for severing the fibrous material between the tapes.

4. The combination with the rotary twister-head, the blade or former, and a sewing mechanism arranged at one side of the end of the blade.

5. The combination with the rotary twister-head, the blade or former, and a tape-guide at one side thereof, of a sewing mechanism arranged at one side of the end of the blade.

6. The combination with the rotary twister-head, of two separated tape-guides and sewing mechanism arranged in line with each of the tape-guides.

7. The combination with the rotary twister-head, of the two separated tape-guides, the two fabric-guides in line with the tape-guides, and two sewing mechanisms in line with the tape and fabric guides.

8. The combination with the rotary twister-head, of the two separated tape-guides, the two fabric-guides, the two sewing mechanisms, and a cutting mechanism arranged between the planes of the tape and fabric guides.

9. The combination with the twister-head, of the two separated tape-guides, sewing mechanisms in line with the tape-guides, feeding devices for the tapes, and a cutting mechanism arranged to sever material extending between the tapes.

10. The combination with the twister-head, the two separated tape-guides, two fabric-guides, and sewing mechanisms in line with the fabric and tape guides, of a feeding device for the tapes and fabrics, and cutting mechanism arranged to sever the material extending between the tapes.

11. The combination with the tape-guides, two sewing mechanisms in line therewith, of feeding devices for the tapes, means for twisting strands of fibrous material around the tapes and means for severing the strands between the tapes.

12. The combination with two sewing mechanisms, means for feeding two separate parallel tapes longitudinally past the sewing mechanisms, and means for twisting continuous strands of fibrous material around the tapes before reaching the sewing mechanisms.

13. The combination with two sewing mechanisms, means for feeding two separate tapes longitudinally past the sewing mechanisms, means for twisting continuous strands of fibrous material around the tapes before they reach the sewing mechanisms, and devices for severing the fibrous material between the tapes.

14. The combination with two sewing mechanisms, means for feeding two separate tapes longitudinally past the sewing mechanisms, means for twisting continuous strands of fibrous material around the tapes before they reach the sewing mechanisms, means for guiding strips of fabric upon the tapes at the sewing mechanisms, and devices for severing the fibrous material between the tapes.

15. The combination with the feeding-rollers, of the guide having the supporting-bar, the removable top bar, and the spring-tongue thereon.

16. The combination with the feeding-rollers, of the guide having the supporting-bar, the hinged top bar, the catch for securing it, and the curved spring-tongue.

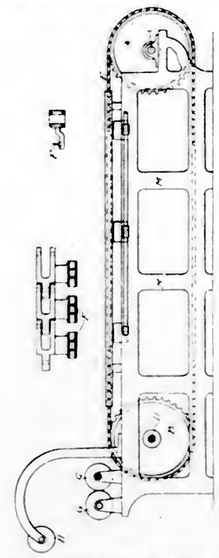
17. The combination with the twisting-head, the blade or support, having the tape-guides at the side, and the portion extending beyond the guide, of the sewing mechanism arranged at the end of the tape-guide.

18. The combination with the twisting-head, the blade or support having the tape-guides, at the sides, and the central portion extending beyond the guides, of two sewing mechanisms arranged at the ends of the guides.

19. The combination with the twisting-head, of means for guiding two separate tapes, a fabric guiding and turning or hemming device in line with each tape and sewing mechanisms, one for each tape adapted to secure the tapes and fabrics together.

20. The combination with the twisting-head, the blade and the tape-guides, of the pivoted double fabric-hemmer, and sewing mechanisms in line with the tape-guides.

645,237. PROCESS OF FIXING THE FINISH ON COTTON PIECE GOODS. MILTON S. SHARP, Heckmondwike, England. Filed Aug. 26, 1898. Serial No. 689,597. (No specimens.)



Claim.—The process of fixing the luster on cotton piece goods consisting in damping and folding the fabric along with damped press-papers, and subjecting them to pressure, then wrapping the fabric in a fold of dry cotton cloth and subjecting them to heat and pressure in the manner substantially as herein described.

645,238. FILTER. CHARLES I. SIMPSON, Nampa, Idaho. Filed Nov. 13, 1899. Serial No. 736,825. (No model.)

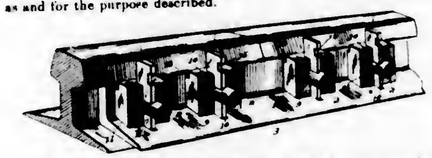


Claim.—A filter comprising a casing having an inlet-opening at one end, a hollow porous filtering-body disposed within the casing, a cap upon the body and having projections engaging the end of the casing, a cap in threaded engagement with the casing and adapted to impinge the filtering-body and clamp it with its cap against the end of the casing, and an outlet-pipe engaged with the cap of the casing and communicating with the interior of the filtering-body.

645,239. RAIL-JOINT. RICHARD V. WALLACE, Marvell, Ark. Filed June 22, 1899. Serial No. 721,474. (No model.)

Claim.—1. In a device of the class described, the combination with a rail, a fish-plate arranged at one side of the rail, and a block or plate located at the opposite side of the rail, of a bolt passing through the said parts and provided at one end with a head and hav-

ing a slot at the other end, and a key passing through the slot of the bolt and having its upper end arranged at the tread of the rail, whereby it is adapted to be engaged by the wheels of a train, substantially as and for the purpose described.



2. In a device of the class described, the combination of a bolt having a slot, a block provided with a lower inclined edge and having a recess at its inner face adjacent to its upper edge to receive the head of a rail, said block being provided with a bolt-opening and having a groove intersecting the same, and a key passing through the slot of the bolt and arranged in the groove of the block, substantially as described.

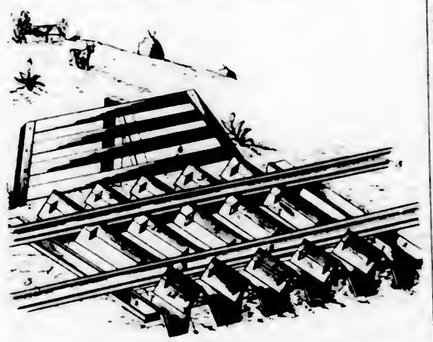
3. In a device of the class described, the combination with a rail, of a bolt passing through the same and provided with a slot, a block arranged on the bolt and having a vertical groove, and a key passing through the slot and arranged in the groove, said key having its upper end arranged to be engaged by the wheels of a train, substantially as described.

4. In a device of the class described, the combination with a rail, a fish-plate arranged at one side of the rail, and a block located at the opposite side of the rail and provided with a vertical groove having an inclined portion at the bottom, a horizontal bolt passing through the fish-plate, the rail and the block and provided with a slot, and a vertically-disposed wedge-shaped key arranged in the groove of the block and passing through the slot, said key being adapted to be engaged by the wheels of a train, whereby its lower end is upset against the bottom of the rail, substantially as described.

5. In a device of the class described, the combination of a rail, fish-plates located at opposite sides of the rail, one of the fish-plates being provided with slots, blocks mounted on the slotted fish-plates and provided with grooves, horizontal bolts passing through the fish-plates, the rail and the blocks, and vertical keys arranged in the grooves of the blocks, passing through the slots of the bolts and having their upper ends arranged to be engaged by the wheels of a train, whereby their lower ends are upset or bent against the bottom of the rail, substantially as described.

6. In a device of the class described, the combination with a rail, and a bolt having a slot, of a grooved block, and a key arranged in the groove of the block and passing through the slot of the bolt, said key being provided with a removable cap having its top arranged to be engaged by the wheels of a train, whereby the key is forced into position, substantially as and for the purpose described.

645,240. CATTLE-GUARD. RICHARD V. WALLACE, Marvell, Ark. Filed Oct. 28, 1899. Serial No. 735,122. (No model.)

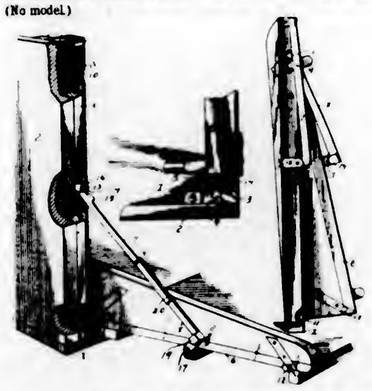


Claim.—1. In a device of the class described, the combination with the cross-ties, and rails, of transverse troughs located between the cross-ties, transverse guards forming covers for the cross-ties, and the spacing-blocks located beneath the rails and interposed between the cross-ties, substantially as described.

2. In a device of the class described, the transverse guards forming caps for the cross-ties and provided with hinged leaves or sections, substantially as described.

3. In a device of the class described, the combination of the troughs arranged between the cross-ties, and the transverse guards composed of upper portions or caps secured to the cross-ties, and the lower hinged leaves or members overlapping the sides of and extended into the troughs, substantially as and for the purpose described.

645,241. END-GATE. ORLA H. WATKINS, Clinton, Iowa, assignor to J. K. Milner & Co., same place. Filed Jan. 23, 1900. Serial No. 2,526. (No model.)



Claim.—1. In a device of the class described, the combination with a wagon-body provided at its bottom with an open bearing and having a slot at its top, of an end-gate having studs or projections arranged to engage the said open bearing and slot, a link pivoted at its inner end to the end-gate, a lever fulcrumed at its inner end on the wagon-body and pivotally connected to the outer end of the link, and means for locking the lever against outward movement when it is swung upward, whereby the end-gate will be lifted out of the lower bearing and will be supported by the pivot at the outer end of the link, substantially as described.

2. In a device of the class described, the combination with a wagon-body provided with an open bearing at its bottom and having a slot at its upper portion, of an end gate provided with studs or projections for engaging the open bearing and the slot, a link pivoted to the end-gate, and a lever fulcrumed on the wagon-body and pivotally connected at a point between its ends to the link, said lever and link being provided at their inner ends with lips located at the opposite edges of the parts when their inner ends are together, substantially as and for the purpose described.

3. In a device of the class described, the combination of a wagon-body provided with an open bearing at its bottom and having a slot at its top, an end-gate having upper and lower studs or projections arranged to engage the bearing and the slot, a link provided at its inner end with an ear pivoted to the end-gate, a lever having an angularly-disposed ear at its inner end fulcrumed on the wagon-body, said lever being pivotally connected to the link at the outer end thereof, and a locking device arranged to engage the lever when the same is swung upward to the top of the wagon-body, substantially as described.

4. In a device of the class described, the combination of a wagon-body provided with ways, a slide arranged in the ways and having an offset flange provided with a lower open bearing and an upper slot, an end-gate having upper and lower studs or projections arranged to engage the open bearing and the slot, a link pivoted at one end to the end-gate, a lever pivoted between its ends to the other end of the link and fulcrumed at its inner end on the slide, and means for locking the lever when the same is swung upward to the top of the wagon-body, substantially as described.

5. In a device of the class described, the combination of a wagon-body having an upper slot and a lower bearing, an end-gate having studs or projections for engaging the slot and bearing, a lever fulcrumed on the wagon-body and provided at its inner and outer ends with lips or projections, the inner end of the lever being also provided with a perforated ear arranged at an angle, and a link pivoted at one end to the lever, at a point between the ends thereof, the other end of the link being provided with an ear, and a lip and being pivoted to the end-gate, substantially as described.

645,242. CREAM-SEPARATOR. HENRY WHITLOCK, Farmington, Iowa. Filed Oct. 6, 1899. Serial No. 732,800. (No model.)

Claim.—1. A cream-separator, comprising a receptacle, a baffle-plate located within the interior of the receptacle, and intermediate of the top and bottom thereof, and means for discharging a liquid into the interior of the receptacle and below the baffle-plate.



2. A cream-separator, comprising a receptacle, a substantially-horizontal baffle-plate located within the interior of the receptacle and adjacent to the bottom thereof, and also provided with a central opening, and a funnel supported upon the upper edge of the receptacle, and having its spout extending through the central opening in the baffle-plate and discharging below the latter.

3. A cream-separator, comprising a receptacle, a substantially-horizontal baffle-plate located within the interior of the receptacle and adjacent to the lower end thereof, and an inlet-tube extending downwardly through the baffle-plate, and having its discharge end located below said baffle-plate.

4. A cream-separator, comprising a substantially-cylindrical receptacle, having a substantially V-shaped bottom, the vertex between the oppositely-inclined sides thereof forming a gutter, which is inclined transversely of the receptacle, and the upper edge of the device also being inclined, a substantially horizontal baffle-plate removably resting upon intermediate portions of the opposite inclined edges of the bottom, and diametrically-opposite lugs provided upon the interior of the receptacle, located immediately above the respective points of contact between the edges of the bottom and the baffle-plate, said points of contact forming a pivotal support for the baffle-plate, and a faucet located at the lowermost end of the gutter.

645,243. COMBINED REIN AND WHIP HOLDER. JOHN E. WILLIAMS, Philadelphia, Pa. Filed Apr. 18, 1899. Serial No. 713,450. (No model.)



Claim.—1. A device of the class described, comprising a casing provided at its top with a whip-opening and having a transverse slot or opening to receive the reins, a whip-socket arranged within the casing and composed of two approximately-semicylindrical sections arranged beneath the opening of the top of the casing, a rein-holder located within the casing and composed of sections located at the transverse slot or opening and adapted to clamp the reins, an operating element mounted within the casing and extending through the same and connected with and adapted to actuate the sections of the whip-socket and the rein-holder to cause the same to grip and release a whip and reins, and means for locking the operating element against movement, substantially as described.

2. A device of the class described, comprising a casing, a vertical whip-socket mounted within the casing and composed of two approximately-semicylindrical sections, a rein-holder arranged within the casing and composed of two sections adapted to clamp the reins between them, an operating-lever fulcrumed within the casing and extending through the same and connected with the whip-socket and the rein-holder and adapted to actuate the sections thereof to grip and release a whip and reins, and a pivotally-mounted arm located within the casing and interposed between the same and the lever and adapted to lock the latter against movement, substantially as and for the purpose described.

3. A device of the class described comprising a casing, a whip-socket having approximately-semicylindrical sections, a rein-holder located at a point beneath the whip-socket and having upper and lower sections, the upper section being movable, a horizontal operating-lever fulcrumed at one end on the casing and extending through the same and connected with the whip-holder and adapted to actuate the sections thereof, a rod extending from the lever to the upper section of the rein-holder, and means for locking the lever against movement, substantially as described.

4. A device of the class described comprising a casing, a whip-socket composed of approximately-semicylindrical sections, a horizontal lever fulcrumed at one side of the casing and extending through the opposite side thereof and adapted to actuate the sections of the whip-socket, a rein-holder composed of upper and lower sections, the upper section being movable, a rod connecting the upper section of the rein-holder with the lever, and an arm pivotally mounted on the lever and arranged to engage the casing, whereby the lever is locked against movement, substantially as described.

5. A device of the class described comprising a casing, a whip-socket mounted in the casing at the top thereof and composed of sections, a rein-holder located below the whip-socket and having a movable section, a horizontal lever fulcrumed within the casing and connected with the sections of the whip-socket, and a vertical rod depending from the lever and connected with the movable section of the rein-holder, substantially as described.

6. In a device of the class described, the combination of a casing having a horizontal opening, a rein-holder mounted within the casing and composed of sections having engaging faces arranged in alinement with the opening of the casing, one of the sections being movable, means for operating the movable section of the rein-holder, and the projections or flanges 1ª mounted on the casing at opposite sides thereof and located adjacent to the said opening and adapted to enable the reins to be readily guided into the same, substantially as described.

7. In combination, a casing having a slot for the reception of the reins, cooperating jaws for gripping the reins, an expansible whip-socket, an operating-lever having the movable jaw of the rein-holder connected therewith, a clamping device movable with the operating-lever and adapted to contract the whip-socket, and a locking device for securing the operating-lever when moved to a position to secure the whip and reins against forcible displacement, substantially as set forth.

8. In combination, a casing having a rein-receiving slot, cooperating jaws located within the casing opposite said slot, an expansible whip-socket located within the casing and accessible through an opening formed in said casing, an operating-lever for actuating the parts comprising the whip-socket and rein-holder, a hand-operated locking device for securing the operating-lever when moved to a position for actuating the parts of the whip-socket and rein-holder, and a key-operated locking device for securing the operating-lever against surreptitious movement, substantially as described.

9. In combination, a casing having a rein-receiving slot and subdivided by a horizontal partition, cooperating jaws located in the lower compartment opposite the rein-receiving slot, a whip-socket arranged in the upper compartment and mounted upon the said partition, an operating-lever fulcrumed at one end within the casing and having its opposite end portions projecting through a slot in a side of the casing; a rod connecting the operating-lever with a movable jaw of the rein-holder and operating in an opening formed in the said partition, a hand-operated pivoted dog for engagement with the movable end of the operating-lever, a clamp-band carried by the operating-lever and cooperating with the whip-socket, and a key-operated locking-arm pivotally mounted upon the said operating-lever and adapted to secure it and the parts actuated thereby against surreptitious displacement, substantially as and for the purpose set forth

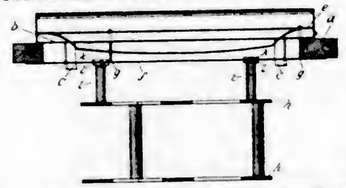
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645,244. CLOCK-FRAME. JAMES G. WOODRUFF and THOMAS W. R. MCCABE, Winsted, Conn., assignors to the William L. Gilbert Clock Company, same place. Filed June 15, 1899. Serial No. 720,807. (No model.)

Claim.—1. In combination, the clock-case front with opening therein, the ring overlapping said opening and the margin thereof on the face of said clock-case front, the extensions from said ring through said opening, the screws adapted for adjusting said ring in its central relation to said opening, the clock-dial, and means for attaching said dial to said ring, all substantially as described and for the purposes set forth.

2. In combination, the clock-case front with suitable opening therein, the ring overlapping said opening and the margin thereof on the face of said clock-case front, the ring overlapping said opening and the margin thereof on the back of said clock-case front, the extensions from the ring first mentioned projecting through mortises in the ring last mentioned, the screws adapted for adjusting both of said rings in their central relation to said opening, the clock-dial, and

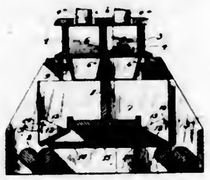
means for attaching said dial to said ring first mentioned all substantially as described and for the purposes set forth.



3. In combination, the clock-case front with suitable opening therein, the ring overlapping said opening and the margin thereof on the face of said clock-case front, the ring overlapping said opening and the margin thereof on the back of said clock-case front, the extensions from the ring first mentioned projecting through mortises in the ring last mentioned, the screws adapted for adjusting both of said rings in their central relation to said opening, the clock-dial, and the screws extending from said dial to said ring last mentioned, all substantially as described and for the purposes set forth.

4. In combination, the clock-case front with suitable opening therein, the ring overlapping said opening and the margin thereof on the face of said clock-case front, the ring overlapping said opening and the margin thereof on the back of said clock-case front, the extensions from the ring first mentioned projecting through mortises in the ring last mentioned, the screws adapted for adjusting both of said rings in their central relation to said opening, the clock-dial the screws extending from said dial, to said ring last mentioned, the clock-movement frame, the screw-threaded posts extending from said frame through the ring last mentioned, and the nuts upon said posts, all substantially as described and for the purposes set forth.

645,245. FEED MECHANISM FOR ROLLER GRINDING-MILLS. AUGUST H. BOELTER, Ewing, Ill. Filed Jan. 28, 1898. Serial No. 668,366. (No model.)



Claim.—In a feed mechanism for grinding-mills, the combination of a casing provided at the top with a receiving-chamber and having a central partition therein and provided with adjustable gates pivotally mounted at opposite sides of the central partition and extending vertically from the top to the bottom of the said chamber, grinding-rolls arranged in pairs at the bottom of the casing, an oscillating tray suspended by straps or hangers within the casing and provided with a central vertical partition and having upwardly-extending ribs or flanges at opposite sides of it, the adjustable inclined distributing-boards mounted on the tray and located above the grinding-rolls, an arm extending from the tray, a cam located at one side of the casing on the exterior thereof and mounted on the shaft of one of the rolls, and a lever fulcrumed between its ends and pivoted at one end to the said arm and having its other end connected with the cam, whereby the tray is vibrated, substantially as described.

645,246. BICYCLE-BRAKE. WILLIAM S. BUBLER, Philadelphia, Pa. Filed Mar. 11, 1899. Serial No. 708,728. (No model.)

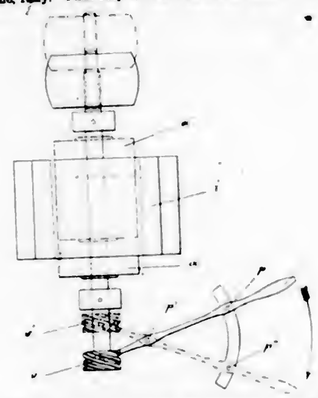


Claim.—1. In a brake for bicycles and other vehicles, the combination with the axle, of an inner and an outer sleeve, said inner sleeve being formed with an elongated slot; a brake comprising plates or leaves hinged together at their inner edges and having their opposite ends projecting through said slot, one of said plates or leaves being secured to said inner sleeve and the other plate or leaf being secured to the outer sleeve, and a driving member mounted on the inner sleeve.

2. In a brake for bicycles and other vehicles, the combination with an axle, of a hub comprising an inner and an outer sleeve, said inner sleeve being formed with an elongated slot, a two-part brake-band comprising plates or leaves extending through said slot and having one plate or leaf secured to the inner sleeve and the other plate or leaf secured to the outer sleeve and a driving member mounted on the inner sleeve.

3. In a brake for bicycles or other vehicles, the combination with an axle, of a hub comprising an inner and an outer sleeve, the inner sleeve being formed with an elongated slot, a brake-band concealed within the hub, and comprising two hinged plates or sections provided with projecting lugs and flanges, and secured respectively one to each of the sleeves forming the hub and a driving member mounted on the inner sleeve.

645,247. METHOD OF STARTING ASYNCHRONOUS AND SYNCHRONOUS MONOPHASIC ELECTRIC MOTORS. EUGENIO CANTONO, Rome, Italy. Filed July 7, 1899. Serial No. 723,067. (No model.)



Claim.—A new method of starting asynchronous and synchronous monophase electric motors, consisting in drawing out the armature, while in its position of rest, from the space which it should occupy in the normal movement, and utilizing the return movement of the armature, when attracted back, in the moment of feeding the starting-current, for producing rotation by transforming this simple movement of translation into a helicoidal movement and thus causing a very energetic rotary movement of the armature, in order to produce the necessary driving torque to keep it going, substantially as set forth.

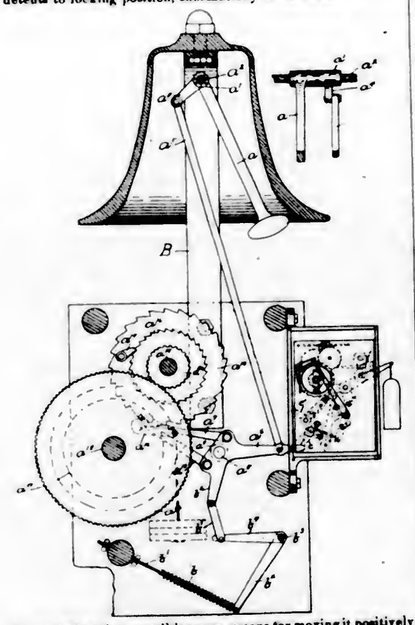
645,248. FIXATIVE VARNISH FOR DRAWINGS. LUIGI CHIALIVA and JULES DUPONT, Ecouen, France. Filed Dec. 19, 1899. Serial No. 740,923. (No specimens.)

Claim.—A neutral fixative for drawings made with crayons, charcoal crayon, and pencils of all kinds (with the exception of fatty pencils) said fixative consisting of chemically-pure casein dissolved in distilled water saturated with borax, the solution being mixed with pure alcohol, free of acetone, and then decanted after having been left to rest for a certain time, substantially as hereinbefore described.

645,249. BELL-STRIKER. FREDERICK W. COLE, Newton, Mass., assignor to the United States Fire and Police Telegraph Company, Boston, Mass. Filed June 10, 1899. Serial No. 720,009. (No model.)

Claim.—1. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever and a toothed wheel driven by a power-propelled train for operating said locking device to release said actuating-lever, substantially as described.

2. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever, a toothed wheel driven by a train for operating said locking device to release said actuating-lever, a let-off for said train and means for positively moving it in both directions for returning said actuating-lever into engagement with said locking device and returning said detents to locking position, substantially as described.



3. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, a train-controlled mechanism for operating said detents at predetermined times to release the striking-arm, and means operated by the said striking-arm for winding up the motive power of said train, substantially as described.

4. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, a train-controlled mechanism for operating said detents at predetermined times to release the striking-arm, and means operated by the said striking-arm when moving in both directions for winding up the motive power of said train, substantially as described.

5. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever, a toothed wheel driven by a train for operating said locking device to release said actuating-lever, means operated by the striking-arm when moving in both directions for returning said actuating-lever into engagement with said locking device and returning said detents to locking position, and means also operated by said striking-arm when moving in both directions for winding up the motive power of said train, substantially as described.

6. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, toggle-levers connected with said detents for operating them to release the striking-arm, an actuating-lever for said toggle-levers, a locking device for said actuating-lever and means for operating said locking device to release said actuating-lever, substantially as described.

7. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, toggle-levers connected with said detents for operating them to release the striking-arm, an actuating-lever for operating said toggle-levers, a locking device for said actuating-lever, a toothed wheel driven by a train for operating said locking device to release said actuating-lever, a let-off for said train and means for positively moving it in both directions to start and stop the train at will, substantially as described.

8. In a bell-striker, a striking-arm, means for operating it, train-controlled locking mechanism for said striking-arm, a let-off for said train-controlled locking mechanism, a polarized electromagnet for operating said let-off, a generator for the circuit of said polarized electromagnetand a pole-changing switch, substantially as described.

9. In a bell-striker, a striking-arm, means for operating it, locking mechanism for said striking-arm, a turning device controlling said locking mechanism, a let-off for said timing device, a polarized electromagnet for operating said let-off, a generator for the circuit of said polarized electromagnet and a pole-changing switch, substantially as described.

10. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, a detent for locking it after each movement, train-controlled mechanism for operating said detents at predetermined times to release the striking-arm, a let-off for said train, a polarized electromagnet for operating it, a generator for the circuit of said polarized electromagnet and a pole-changing switch, substantially as described.

11. In a bell-striker, a striking-arm, means for operating it, a detent for locking said striking-arm, an actuating-lever therefor, a locking device for said actuating-lever, a train for operating said locking device to release said actuating-lever, a let-off for said train, a polarized electromagnet for operating it, a generator for the circuit of said polarized electromagnet and a pole-changing switch, substantially as described.

12. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, detents c, c', one or the other of which locks it after each movement, a spring-actuated lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said spring-actuated lever and means for operating said locking device to release said spring-actuated lever, substantially as described.

13. In a bell-striker, a striking arm, means for moving it positively in each direction to strike a blow, detents c, c', one or the other of which locks it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever, means for operating it to release said actuating-lever, an arm o connected with and operated by the striking-arm for engaging a coöperative part of the detent-actuating mechanism when moving in both directions to return said actuating-lever into engagement with its locking device, substantially as described.

14. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, detents c, c', one or the other of which locks it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever, means for operating it to release said actuating-lever, the toggle-joint o^3, o^3, connected with and operated by said striking-arm, the pivoted arm o operated by said toggle-joint to engage a coöperative part of the detent-actuating mechanism when moving in both directions to return said actuating-lever into engagement with its locking device and return said detents to locking position, substantially as described.

15. In a bell-striker, a striking-arm, means for moving it positively in each direction to strike a blow, detents c, c', one or the other of which locks it after each movement, an actuating-lever connected with and adapted to operate said detents to release the striking-arm, a locking device for said actuating-lever, a train for operating it, the arm o connected with and operated by the striking-arm for winding up the motive power of said train, substantially as described.

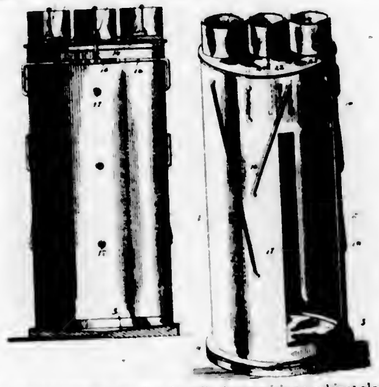
16. In a bell striker, a bell having its oscillating hammer contained within it and pivoted adjacent the crown of the bell, the short arm a^4 and the longitudinally-reciprocating rod a^5 connected at one end to said short arm a^4, the vibrating arm a^6 to which the opposite end of said rod a^5 is connected, the rocking cradle a^7 bearing said arm a^8, pawls carried by said cradle, and a power-propelled ratchet-wheel for operating said pawls to rock said cradle, substantially as described.

17. In bell-striker, a bell having its oscillating hammer, contained within it and pivoted adjacent the crown of the bell, the short arm a^4 and the longitudinally-reciprocating rod a^5 connected at one end to said short arm a^4, the vibrating arm a^6 to which the opposite end of said rod a^5 is connected, the rocking cradle a^7 bearing said arm a^8, pawls carried by said cradle, and a power-propelled ratchet-wheel for operating said pawls to rock the cradle, the balancing-spring b for the bell-hammer, a bell-crank lever, one arm b^3 of which is connected to said spring and the other arm b^4 of which is connected by a toggle-joint with said cradle, substantially as described.

645,250. BATH-CABINET. JOSEPH R. CROSS, Brattleborough, Vt. Filed May 23, 1899. Serial No. 717,922. (No model.)

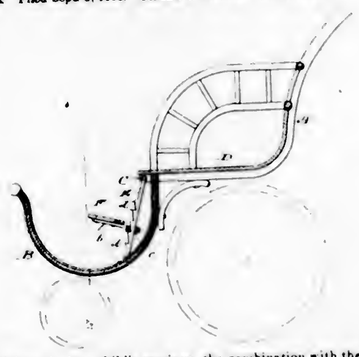
Claim.—1. An apparatus of the class described comprising a cabinet closed at the top and sides, receptacles arranged on the exterior of the cabinet and supported upon the top thereof, a shallow horizontal casing arranged within the cabinet and suspended from the top thereof and connected with the said receptacles, spraying devices

arranged on the inner faces of the walls of the cabinet, and distributing-tubes extending from the edges of the shallow casing to the spraying devices, substantially as described.



2. An apparatus of the class described comprising a cabinet closed at the top and sides and provided with a door, a central mixing-receptacle mounted upon the top of the cabinet, the receptacles 7 and 8 also arranged upon the top of the cabinet and located at opposite sides of the mixing-receptacle and communicating therewith, a short pipe depending from the mixing-receptacle and extending through the top of the cabinet, a shallow horizontal casing supported by the short pipe and arranged within the cabinet, and spraying devices connected with the said casing, substantially as described.

645,251. CHILD'S CARRIAGE. CHARLES F. DITTMAR, Milwaukee, Wis. Filed Sept. 5, 1899. Serial No. 729,468. (No model.)



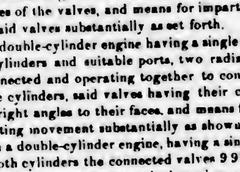
Claim.—1. In a child's carriage, the combination with the body thereof, of a pair of inclined rack-bars or stepped supports, and an adjustable step or foot-rest provided with transverse strips formed with oblique-walled slots through their projecting rear ends for travel upon said rack-bars and engagement with the steps thereof.

2. In a child's carriage, the combination with the body thereof, of a pair of stationary inclined rack-bars, secured one at each side of said carriage-body, a step arranged transversely to said rack-bars; and a pair of strips secured, one at each end, to said step, and having rearwardly-projecting ends formed with oblique-walled slots therethrough for adjustable engagement with said rack-bars.

645,252. HOSE-SUPPORTER. ANDREW M. ERICKSON, Chicago, Ill., assignor of one-half to Robert A. Schoenfeld, same place. Filed Aug. 28, 1899. Serial No. 728,656. (No model.)

Claim.—1. The combination in a garment or hose support, of a band provided at one of its ends with an extension-band and a metallic loop or clip provided with a central longitudinal slot having its greatest width adjacent to said webbing band, a resilient button rigidly secured on the outer side of the clip, and a button, stud or post secured on said extension-band and adapted to be inserted through said slot to engage the resilient button on the clip.

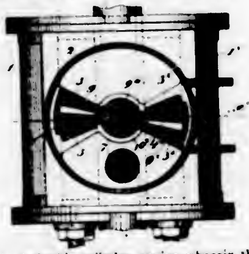
2. The combination in a garment or hose supporter of a band provided with an extension-band and a metallic loop or clip provided with a central longitudinal slot which is widest adjacent to said band, a resilient button secured on the outer side and lower end of said clip with its edge extending over the end of the slot and a resilient button mounted on a stud on the extension-band, adjacent to said clip and adapted to be inserted in said slot, and acting to engage the resilient button on the clip.



3. The combination in a garment or hose supporter of a band provided with an extension-band and a metallic loop or clip provided with a central longitudinal slot which is widest adjacent to said band, a resilient button secured on the outer side and lower end of said clip with its edge extending over the end of the slot and a button mounted on the extension-band, adjacent to said clip and adapted to be inserted in said slot, acting to engage the resilient button on the clip

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645,253. STEAM-ENGINE. JAMES H. FOGARTY, New York, N. Y. Filed Jan. 9, 1899. Serial No. 701,543. (No model.)



Claim.—1. A double-cylinder engine wherein the pistons move in opposite directions simultaneously, having a single steam-chest common to both cylinders, plane-faced oscillating valves controlling the ports of the respective cylinders said valves being connected and operating together and means for imparting the oscillating movement of said valves substantially as set forth.

2. A double-cylinder engine, having a single steam-chest common to both cylinders and suitable ports and oscillating plane-faced valves controlling the ports of the respective cylinders, said valves being connected together at a common center, a rocking arbor being connected centrally to said valves and extending out through the casing of the steam-chest and means for rocking said arbor and through it imparting a rocking oscillating movement to the two plane-faced valves simultaneously in opposite directions, substantially as set forth.

3. A double-cylinder engine wherein the pistons move in opposite directions simultaneously, having a single steam-chest common to both cylinders, oscillating radial sliding valves controlling the ports of the respective cylinders, said valves being connected and operating together and having their common axis of oscillation at right angles to the faces of the valves, and means for imparting oscillating movement to said valves substantially as set forth.

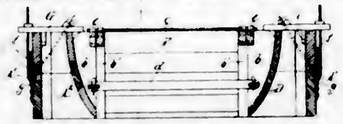
4. A double-cylinder engine having a single steam-chest common to both cylinders and suitable ports, two radial sliding valves centrally connected and operating together to control the ports of the respective cylinders, said valves having their common axis of oscillation at right angles to their faces, and means for imparting thereto an oscillating movement substantially as shown and described.

5. In a double-cylinder engine, having a single steam-chest, common to both cylinders the connected valves 9 9^{x} grouped radially on two sides of a common center and adapted to swing thereon, and the induction and exhaust ports for the respective cylinders in juxtaposition with said valves, all in combination with a reciprocating stem 10^{a} attached to said valves, substantially as and for the purposes shown and described.

6. A double-cylinder engine having a single steam-chest common to both cylinders, the induction and exhaust ports for the respective cylinders, grouped radially at the respective opposite sides, of a rocking arbor 10, the said rocking arbor, mounted in bearings and protruding from the chest, and two valves, 9 and 9^{x}, integrally connected through a boss 9^{a}, and coupled to said arbor through said boss, substantially as set forth.

7. In a double-cylinder engine having a single steam-cheat, common to both cylinders, the combination with the connected valves 9 9^{x} having in their common boss the slot 9^{b} to receive the rocking arbor 10, and the said arbor having a journal 10^{x} at its inner end and a flattened portion 10^{c}, which engages the slot 9^{b} in the boss of the valves substantially as set forth.

645,254. MOLD FOR WATER-TANKS. D E. FORKER, Redford, Mich. Filed July 7, 1899. Serial No. 723,081. (No model.)



Claim.—1. In a mold for tanks, the combination with an outer mold, of a collapsible inner mold composed of side and end walls, inclined outwardly from the bottom up and having an open bottom, said mold having two of its opposite walls vertically divided into sections and intermediate sections removably secured between said sections.

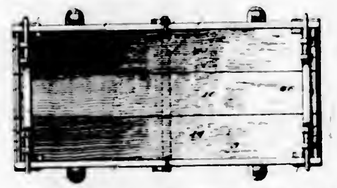
2. In a mold for tanks, the combination with an outer mold, of an inner mold composed of sides and ends vertically divided into intermediate and end sections and forming an open bottom with the walls inclined outwardly from the bottom up, said mold being collapsible by means of intermediate sections removably secured between the end sections and having pivotal connections therewith whereby said intermediate sections may be swung inwardly before removing them.

3. In a mold for tanks, the combination of an outer mold composed of superimposed sections, the upper section having side boards hinged to the side boards of the lower section and end boards removably supported in vertical guides on the side boards, tie-rods detachably connecting the ends of the side boards of each section, a collapsible inner mold having an open bottom and outwardly-curved walls from the bottom up, cross-bars extending transversely over the top of the inner and outer mold, and means for securing the ends of said cross-bars to the side boards of the lower section of the outer mold.

4. In a mold for tanks, the combination with an outer mold, of an inner collapsible mold having an open bottom and walls outwardly curved from the bottom up, said inner mold being formed with sides and ends composed of four corner-sections and intermediate sections formed with vertical abutments at their adjacent ends and means for detachably connecting each intermediate section between the adjacent corner-sections.

5. In a mold for tanks &c., the combination with an outer mold, of an inner mold composed of side and end walls vertically divided into four corner-sections, said mold being made collapsible by means of intermediate sections removably secured between the corner-sections and having pivoted connections therewith at their upper ends and locking means at their lower ends.

645,255. WAGON-BOX. THOMAS FORSTNER, Sigel, Minn. Filed Oct. 5, 1899. Serial No. 732,865. (No model.)



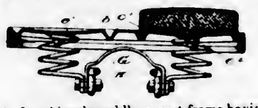
Claim.—1. In a wagon-box, the combination with the bottom boards and side-boards, of an end-board adapted to be pivotally connected to the bottom boards, latch-plates secured on and projecting above the side-boards and provided with a curved notch in the upper edges, and locking-levers provided with horizontal arms parallel with and journaled upon the top of the end-board, and adapted to engage in said notches, the locking-levers being also provided with radial arms adapted to be turned down outside of the latch-plates, substantially as described.

2. In a wagon-box, the combination of the bottom boards, irons transversely placed on them provided with outer vertical end flanges and openings in their inner faces, side-boards resting on the bottom boards and supported by the end flanges, an end-board, and vertical straps secured thereto having outwardly-turned hooks at their lower ends adapted to engage in said openings, substantially as described.

3. In a wagon-box, the combination of the bottom boards, irons transversely placed on them provided with outer vertical end flanges and openings in their inner faces, side-boards resting on the bottom boards and supported by the end flanges, an end-board, and vertical straps secured thereto having outwardly-turned hooks at their lower ends adapted to engage in said openings, and upper ends bent over and secured to the upper edge of the end-board, and angular locking-levers journaled in the upper ends of the straps and provided with radial arms adapted to be turned down outside of the end-board, substantially as described.

4. In a wagon-box, the combination with end and side boards, of latch-plates secured upon the outside of the side-boards having projecting upper edges with central curved notches and downwardly inclined outwardly from said notches, of angular locking-levers having horizontal headed arms journaled on the top of the end-board and adapted to rest in said notches and with radial arms adapted to be turned down outside of the side-boards and latch-plates, substantially as described.

645,256. BICYCLE-SADDLE. ARTHUR L. GARFORD, Elyria, Ohio, assignor to the American Bicycle Company, New York, N. Y. Filed Apr. 22, 1898. Serial No. 678,522. (No model.)



Claim.—1. In a bicycle-saddle, a seat-frame having a portion or panel on each side of an axial line formed in said frame raised above the level of the immediately-adjacent surrounding portions of the frame, said raised portions corresponding in outline to the shape of the cushioned pads adapted to be provided thereon, the walls forming said outlines of said raised portions being substantially abrupt and two cushioned pads one provided upon each raised portion having downwardly-projecting flanges on the outlines of their bases, said flanges adapted to impinge upon the abrupt walls of said raised portions, substantially as described.

2. In a bicycle-saddle, a seat-frame having a portion or panel on each side of an axial line raised above the level of the immediately-adjacent surrounding portions of the frame, said raised portions corresponding in outline to the shape of the cushioned pads adapted respectively to be provided thereon, the walls forming said outlines of said raised portions being substantially abrupt and two cushioned pads one provided upon each raised portion having depending flanges on the outlines of their bases, a reinforcing-plate provided in the base of each pad and means for clamping said plates and pads upon said raised portions, substantially as described.

3. In a bicycle-saddle, a seat-frame having a portion or panel on opposite sides of the center integral with the frame, raised above the level of the immediately-adjacent surrounding portions of the frame, said raised portions corresponding in outline to the shape of the cushioned pads adapted respectively to be provided thereon, the walls forming said outlines of said raised portions being substantially abrupt, and a cushioned pad provided upon each raised portion having depending flanges on the outlines of their bases adapted to impinge about the abrupt walls of said raised portions, a reinforcing-plate located above the bottom piece of each of said pads or cushions and securing-bolts provided through said plates and seat-frame for securing said plates and pads upon said frame, substantially as described.

4. In a bicycle-saddle, the combination of a rigid base having in its top surface and on opposite sides of the center two endless grooves which bound and form two raised panels and two pads having downwardly-projecting flanges adapted to said grooves which said pads nest upon and are clamped to said panels, substantially as described.

5 In a bicycle-saddle, the combination of a rigid base, having in its top surface and on opposite sides of the center, two endless grooves which bound and form two raised panels, two cushioned pads having a reinforcing-plate provided in their bases which pads nest upon said panels and are clamped thereon through the medium of a securing-bolt passing through said reinforcing-plates and frame of the saddle, substantially as described.

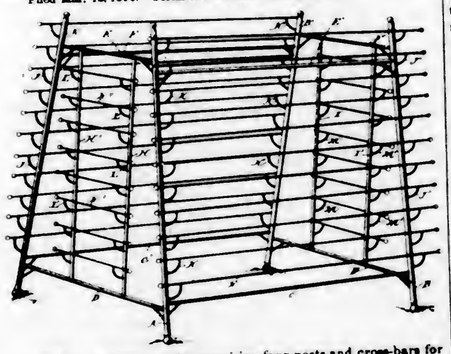
6. In a bicycle-saddle, the combination of a rigid seat-base having, on opposite sides of the center, two panels raised above the level of the immediately-adjacent surrounding portions of the frame, with pads, each of which consists of a bottom leather having downturned edges, a clamping-plate resting thereon, a cup-shaped top leather, felt or other suitable material inclosed between said top leather and clamping-plate, the depending edges of said two leathers being stitched together and a bolt cooperating with each clamping-plate for fastening the pad upon its panel, substantially as specified.

7. In a bicycle-saddle, a frame provided with suitable shoulders, cushions having downwardly-projecting flanges on the outlines of their

bases, a reinforcing-plate having a deflected edge adapted to extend between the flanges of the cushion-cover, the said deflecting edges and flanges adapted to bear against the shoulders formed on the frame, substantially as described.

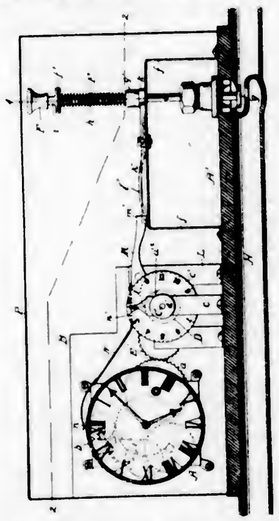
8. In a bicycle-saddle, a seat-frame provided with suitable shoulders, cushions having downwardly-projecting flanges on the outlines of their bases, a reinforcing-plate having a deflected edge adapted to extend between the flanges of the cushion-cover, the said deflecting edges and flanges adapted to bear against the shoulders formed on the frame, and a bolt riveted to said reinforcing-plate and adapted to pass through the frame and be secured thereto, substantially as described.

645,257. DISPLAY-RACK. HERMAN M. GREENER, Streator, Ill. Filed Mar. 12, 1898. Serial No. 673,586. (No model.)



Claim.—A display-rack comprising four posts and cross-bars for connecting them together, the end cross-bars being at a distance from the top, uprights between the top and bottom cross-bars at the ends, upwardly-curved brackets secured to the posts and uprights, and horizontal rods for connecting the respective ends of the brackets, the rods at the sides of the rack extending above and the rods at the ends terminating below the top end cross-bars, whereby a space is formed at the top of the rack, the ends of which are open and unobstructed.

645,258. TIME AUTOMATIC CUT-OFF AND LIGHT-EXTINGUISHING APPARATUS. HARRY L. GROOME, Philadelphia, Pa. Filed Mar. 12, 1898. Serial No. 673,569. (No model.)



Claim.—1. The combination of a clock-work mechanism, an auxiliary train of gears operated thereby, a shaft on which one of such gears is mounted, friction devices for holding the gear-wheel to its shaft, a notched disk, an indicating-dial and a turning-knob all secured to said shaft, a stationary pointer in front of said dial, a lever having a toothed end adapted to said notched disk and mechanism connecting said lever to the device to be controlled, substantially as specified.

2. The combination of the clock-work mechanism, a shaft C, a gear-wheel held frictionally thereto, gearing connecting said gear-wheel to the initial gear of the clock mechanism, a dial c', a notched disk D and a turning-knob d' all rigidly secured to said shaft C, a lever M having a toothed end adapted to said notched disk, and mechanism connecting said lever to the device to be controlled, substantially as specified.

3. The combination of the clock-work mechanism, a shaft C mounted in an auxiliary frame, a gear-wheel E loosely mounted on said shaft, a friction-disk D', secured to the shaft at one side of and in contact with the gear-wheel, a ring D^2 also secured to the shaft at the opposite side of the gear-wheel, spring-arms d carried by said ring and adapted to force the gear-wheel into contact with the friction-disk, a notched disk D, a dial c', and a turning-knob d' all rigidly secured to the shaft C, a lever M having a toothed end adapted to said notched disk, and mechanism connecting the lever to the device to be controlled, substantially as specified.

4. The combination of the valve, its stem, a collar on said stem, an actuating-spring adapted to move said stem, pivoted arms having jaws adapted to be closed and opened to hold or release the valve-stem, a lever M controlling the movement of said jawed arms, and a rotatable disk for actuating said lever, with means for adjusting said disk.

5. The combination of the valve, a spring-pressed valve-stem, a collar on said stem, pivoted arms adapted to be opened or closed to release or hold said stem, a lever M adapted to enter between the opposite ends of said arms, an adjustable notched disk for actuating said lever, and clock-work mechanism for rotating said disk, substantially as specified.

6. The combination of the valve, a spring-pressed stem carrying the same, a guiding-frame f' for said stem, a knob F' and a collar g secured to the stem, a block i adapted to slide on the frame to hold the stem in an elevated position, pivoted arms having jaws adapted to engage and release said stem, and mechanism for opening and closing said arms, substantially as specified.

645,259. ELECTRIC THIRD-RAIL SYSTEM. GEORGE C. HICKS, Chicago, Ill. Filed July 10, 1899. Serial No. 723,304. (No model.)



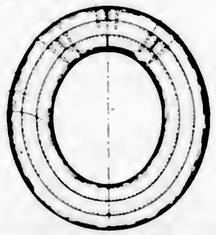
Claim.—1. In an electric third-rail system, the combination with the conduit containing the current-supply conductor, of the normally-dead sectional third rail, a contact-frame supported in said conduit normally out of electrical contact with said rail and connected with said conductor, and a magnet supported to act through said rail upon said frame to attract it into electric contact with said rail, substantially as and for the purpose set forth.

2. In an electric third-rail system, the combination with the conduit containing the current-supply conductor, of the normally-dead sectional third rail having contacts projecting from it into the conduit, a spring contact-frame supported on brackets in the conduit normally out of engagement with said contacts and electrically connected with said conductor, and a magnet supported to act through said rail upon said frame and attract it, against its recoil resistance, into engagement with said contacts, substantially as and for the purpose set forth.

3. In an electric third-rail system, the combination with the conduit containing the current-supply conductor, of the normally-dead sectional third rail, insulating-brackets supported at intervals in the conduit, contact-frames supported in inclined position in bearings in said brackets normally out of electrical contact with said rail and connected with said conductor, and a magnet supported to act through said rail upon the frames to attract them into electric contact with the rail, substantially as described.

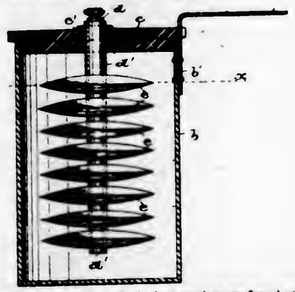
4. In an electric third-rail system, the combination with the conduit containing the current-supply conductor, of the normally-dead sectional third rail having contacts projecting from it into the conduit, insulating-brackets supported at intervals in the conduit, contact-frames F each composed of springy metal bent upon itself to form four sides with a return-bend forming the supplemental frame F', at the section c' of which it is supported on said brackets to maintain the frame in inclined position normally separated from said contacts, and a magnet supported to act through said rail upon the frames to attract them into electric contact with the rail, substantially as described.

645,260. CLOSET-SEAT. BERNHARD HOLZ, Buffalo, N. Y., assignor to Mathias Deutcher, same place. Filed Apr. 13, 1898. Serial No. 677,437. (No model.)



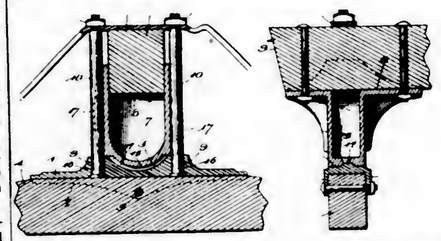
Claim.—A closet-seat comprising a substantially-oval inner portion provided with a peripheral longitudinal groove, which is deepened at the meeting ends of said inner portion, a thin strip inserted in the deepened portion of said groove, a middle portion provided on one side with a tongue adapted to seat in the groove in the inner portion and on the other with a groove, a short locking portion interposed between the ends of the middle portion and having a groove corresponding to the groove in the middle portion, and an outer section having a tongue adapted to seat in the groove in the middle portion and the short locking portion, the whole being firmly secured together by screws and a suitable cement.

645,261. BATTERY-ELECTRODE. FRANK K. IRVING, Newark, N. J., assignor of one-half to Andrew G. Vogt, same place. Filed May 2, 1899. Serial No. 715,312. (No model.)



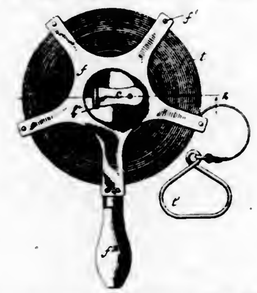
Claim.—The herein-described plate or element for a battery, composed of lead and mercury, in the proportion of five pounds of lead to twelve ounces of mercury, and zinc, in the proportion of one part of zinc to six parts of the lead and mercury compound, substantially as and for the purposes set forth.

645,262. SLEIGH-KNEE. KIRBEY JONES, Janesville, Wis. Filed Jan. 13, 1899. Serial No. 702,073. (No model.)



Claim.—In a device of the class described, the combination with a runner, and a rave, of a runner-plate secured to the runner and provided with sockets or thimbles terminating at the upper face of the runner and having their lower ends enlarged, the rigid upright rods having their lower ends arranged within the thimbles or sockets of the runner-plate and provided with heads fitting in the enlarged portions thereof and abutting against the upper face of the runner, whereby they are rigidly connected with the latter without perforating the same, said rods being secured at their upper ends to the rave, and a knee mounted on the runner-plate and loosely arranged between the rods and provided with grooves for the reception of the same, substantially as described.

645,263. TAPE-REEL. WILLIE L. R. KRUPPEL, Hoboken, N. J. Filed Dec. 22, 1899. Serial No. 741,221. (No model.)



Claim.—1. In a tape-reel a frame consisting of two spiders secured together by any suitable means, each spider being provided with a central circular aperture the periphery of which is provided with an outwardly-projecting flange made integral with the spider, the two flanges on the spiders forming a broad bearing for the tape-drum placed within them.

2. In a tape-reel, a tape-drum consisting of three plates, two external plates each provided with inwardly-projecting annular flanges and an internal plate, the internal plate being secured to one external plate by an axial post and screw and to the other external plate by struck-up peripheral lugs projecting from its annular flange.

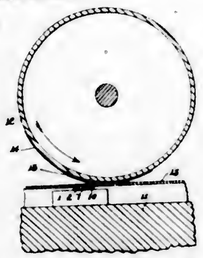
3. In a tape-reel, an internal drum-plate provided with an axial post adapted to be secured to one external drum-plate, and with struck-up ears adapted to form bearings for the crank-pintle and projecting through a suitable aperture in the second external drum-plate, the two external drum-plates being provided with inwardly-projecting annular flanges.

4. In a tape-reel, the combination with a frame made of two spiders and means for holding them firmly apart, of a tape-drum consisting of three plates, two external plates each provided with inwardly-projecting annular flanges adapted to lie in close contact, and a third internal plate secured to one external plate by struck-up lugs made integral therewith and to the other external plates by a uniting axial post.

645,264. SHEET-PERFORATOR FOR PRINTING-PRESSES. HOWARD K. KING, Philadelphia, Pa., assignor to the Chambers Brothers Company, same place. Filed Jan. 12, 1899. Serial No. 701,965. (No model.)

Claim.—1. A punch for perforating papers or the like, having an externally-tapering end and having a concavity therein the sides of which meet the said end of the punch to form a cutting edge, the

line of said sides bisecting the major axis of the punch, substantially as and for the purpose set forth.



2. A punch for cutting circular holes in sheets of paper or the like, whose end is in the form of a frustum of a cone and having a conical concavity therein concentric with said frustum, the sides of which concavity meet the end of the frustum to form a cutting edge, substantially as and for the purpose set forth.

3. In a device of the character and for the purpose set forth, the combination of the block, the screw-threaded punch socketed therein, the nut on said punch, and a binding-screw or the like, for normally maintaining the nut and punch fixedly in position, substantially as and for the purpose described.

4. In a device of the character and for the purpose set forth, the combination of the block, the punch mounted therein, means for adjusting the extent of projection of said cutting edge beyond the surface of the block, and means for preventing rotative shifting of the punch, substantially as described.

5. In a device of the character and for the purpose set forth, the combination with the block, the punch, freely mounted therein and having the notched cutting edge, means for adjusting the extent of projection of said cutting edge above the plane of said block, and the groove and feather for preventing rotation of the punch, substantially as and for the purpose described.

6. In a device of the character and for the purpose recited, the combination of the block, the screw-threaded punch freely mounted therein and having the notched-out cutting edge, the adjusting-nut on said punch, and the groove and feather for preventing rotation of the punch, substantially as specified.

7. In a detachable sheet-perforating device of the character described, adapted for use in a printing-press, the counter-plate secured to a tape or the like, whereby said plate is adapted to be connected to and readily detached from the tympan-sheet of a printing-press by pasting said tape thereon, substantially as and for the purpose set forth.

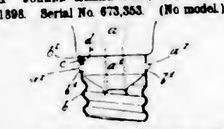
645,265. RATCHET-WRENCH. CANDIDE KINGSLEY, Montreal, Canada. Filed Sept. 16, 1899. Serial No. 730,766. (No model.)



Claim.—1. A ratchet-wrench, comprising a handle, two sets of spaced arms pivotally supported upon said handle; a lever pivotally secured to one set of said arms and operatively connected with the other set of said arms; a wrench-head rotatably secured between said arms; and means for rotating said wrench-head in either direction, substantially as described.

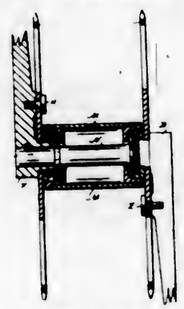
2. A ratchet-wrench, comprising a handle; a wrench-head rotatably secured upon said handle; means for rotating said wrench-head in either direction, said wrench-head being constructed in two sections connected together by a hinge-joint; adjustable gripping-jaws mounted in said wrench-head; a spring-catch carried by one of said sections and adapted to engage a notch in the other of said sections; and a cam-disk mounted in said wrench-head adjacent to said catch, whereby the catch is held in its locked position, substantially as described.

645,266. FASTENING DEVICE FOR HEADS OF ELECTRIC GLOW-LAMPS. JOHANN KREMENEZKY, Vienna, Austria-Hungary. Filed Mar. 10, 1898. Serial No. 673,353. (No model.)



Claim.—The combination with an incandescent lamp-bulb having teats projecting radially from opposite points of its neck; of a socket provided with seats into which said teats may be sprung, one or both seats forming the terminal of a longitudinal slot extending to the edge of the open end of the socket, a metallic plate straddling the slot between it and the neck of the lamp and a button of soft solder applied to the socket and plate to close said slot, substantially as and for the purpose set forth.

645,267. BICYCLE. STEPHEN LOUNSBERRY and WILLIAM J. WINN, Milton, Canada. Filed June 10, 1899. Serial No. 720,090. (No model.)



Claim.—In a bicycle, driving sprocket-wheels, cranks on the axle of the sprocket-wheels, said sprocket-wheels secured to the inner sides of the said cranks, rear sprocket-wheels in line with said driving sprocket-wheels, a concentric slot in one of said driving sprocket-wheels, one of said cranks removable, a screw to pass through said slot and into the removable crank to secure the sprocket-wheel to the crank, lugs on the slotted sprocket-wheel and at each side of the removable crank and screws through said lugs to engage the sides of said removable crank to rotarily adjust the sprocket-wheel, as described.

645,268. POTATO-FORK ATTACHMENT. ROBERT M. MICHAEL, Lapeer, Mich. Filed Nov. 13, 1899. Serial No. 734,807. (No model.)



Claim.—1. The combination with a potato-fork comprising a handle, and a fork proper, of a fulcrum attachment, having a transversely-adjustable connection with the fork.

2. The combination with a potato-fork, of a fulcrum attachment, which is adjustable toward and away from the fork.

3. The combination with a potato-fork, comprising a handle, and a fork proper, of a fulcrum attachment, having perforations receiving respective prongs of the fork, and also having a connection with the handle of the implement.

4. The combination with a potato-fork, comprising a handle, and a fork proper, of a substantially U-shaped fulcrum attachment, having its opposite sides provided with perforations receiving the respective prongs of the fork, and a rearwardly-extending shank detachably connected to the under or rear side of the handle of the implement.

5. A fulcrum attachment for a potato-fork, comprising a substantially U-shaped body, the opposite sides of which are disposed in a substantially-horizontal plane, and are provided with corresponding perforations, and a bowed shank, extending rearwardly from an intermediate point of the transverse portion of the body, and provided at its rear end with a perforation, and a fastening fitting in said perforation.

6. The combination with a potato-fork, having tines, of a fulcrum attachment, having a plurality of corresponding openings or perforations adjustably receiving respective tines of the fork.

645,269. PLUMB-LEVEL. BENNETT C. MORGAN, Connellsville, Pa. Filed Apr. 19, 1899. Serial No. 713,646. (No model.)



Claim.—1. A combination plumb and level comprising a stock having a central opening, a graduated band arranged within the said opening, said band having oppositely-disposed ears for fastening the band within the stock, and oppositely-disposed arms, the arbor or shaft journaled in the said arms, and the pointer or indicator depending from the said arbor, substantially as shown and described.

2. As a new article of manufacture, a gage-band for plumb-levels, comprising an elongated graduated strip, on the respective ends of which are oppositely-disposed ears, oppositely-disposed ears intermediate the ends of said strip and oppositely-disposed arms positioned between the center and each end, substantially as described.

645,270. ROLLER-SKATE. LEVANT M. RICHARDSON, Chicago, Ill. Filed May 22, 1899. Serial No. 717,734. (No model.)



Claim.—1. In a roller-skate, the combination with the foot-plate of a roller-hanger consisting of a transverse axle portion having an arm extending upward therefrom and articulated at its upper end with the foot-plate, and having a lug projecting from the side opposite said arm, a cushion interposed between the lug and the foot-plate, and means for retaining said parts in position and directing the movements thereof, said means being rigidly connected with the foot-plate and loosely connected with the lug and cushion, whereby the lug is free to move longitudinally of said retaining means to permit the contraction and expansion of the cushion.

2. In a roller-skate, the combination with the foot-plate, of a roller-hanger consisting of a transverse axle portion, an arm extending upward therefrom and articulated with the foot-plate at its upper end, a lug projecting from said axle portion on the side opposite such arm, a cushion interposed between the lug and the foot-plate, and a retaining-screw for uniting said parts and directing their movements, said screw being rigidly attached to the foot-plate and loosely connected to said lug, whereby said lug is free to move longitudinally of said screw to permit the contraction and expansion of the cushion.

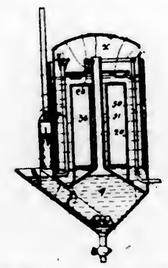
3. The combination in a roller-skate with the foot-plate, of the forward and rear roller-hangers each consisting of a transverse axle portion having an arm extending therefrom toward the nearest end of the foot-plate and articulated therewith, and having a lug projecting from the side thereof opposite said arm, said lug having formed therein a longitudinally elongated and widened opening, a cushion interposed between said lug and plate, a screw extended up through the opening in said lug and through said cushion and rigidly secured to said foot-plate at its upper end.

4. In a roller-skate, the combination with a foot-plate having a stud projecting from the under side thereof, of a roller-bracket comprising a transverse axle portion, an arm extending upward therefrom to the foot-plate and loosely articulated therewith, a lug projecting from said axle portion in the side opposite said arm, said lug being provided with a longitudinally-elongated slot, a cushion interposed between the lug and the stud on the foot-plate, and a headed screw secured at its upper end to said foot-plate and extending downward through said cushion and the slot in the lug, whereby said lug is free to move longitudinally of said screw to contact the cushion, its range of movement being limited by the length of the slot in the lug.

5. The combination in a roller-skate with the foot-plate having studs projecting from the under side thereof of the forward and rear roller-hangers each consisting of a transverse axle portion having an arm extending therefrom toward the nearest end of the foot-plate and articulated therewith, and having a lug projecting from the side thereof opposite and in alinement with said arm, said lug having formed therein a longitudinally elongated and widened opening, a cushion interposed between said lug and plate, a screw extended up through the opening in said lug and through said cushion into the adjacent stud of the plate, said screw, cushion and stud being arranged in alinement at a suitable vertically-disposed angle to the vertical plane of the axis of the rollers, and said rollers.

6. In a roller-skate, the combination with the foot-plate, of a roller-hanger suitably articulated thereto at one side of the roller-axis, said roller-hanger having a lug projecting from the other side thereof, a vertically-disposed cushion placed between the foot-plate and lug as upper and lower retaining members, respectively, and a screw passing through the cushion rigidly attached to one of said members, and loosely connected to the other of said members.

645,271. ACETYLENE-GAS GENERATOR. WILLIAM ROSS, Montreal, Canada. Filed July 11, 1898. Serial No. 685,653. (No model.)



Claim.—1. An acetylene-gas apparatus comprising a generating-chamber containing water and consisting of a pair of truncated cones located one above the other and connected together and hermetically sealed at their bases; a lateral passage through which calcium carbid can be supplied to the water in said chamber; a gas-conducting pipe connected at one end to the truncated apex of the upper cone; and means for discharging the contents of the lower cone, for the purpose set forth.

2. An acetylene-gas apparatus comprising a generating-chamber containing water and consisting of a pair of truncated cones located one above the other and connected together and hermetically sealed at their bases; means comprising an inclined lateral conducting-passage and a horizontally-arranged traveling belt adapted to conduct predetermined quantities of calcium carbid to said conducting-passage, for supplying calcium carbid to the water in said chamber; a gas-conducting pipe connected at one end to the truncated apex of said upper cone; and means for discharging the contents of said lower cone, for the purpose set forth.

3. An acetylene-gas apparatus comprising a cylindrical body portion, a generating-chamber consisting of a pair of truncated cones connected together, and to the lower end of said body portion at their bases and constructed to contain a body of water; means for supplying calcium carbid to the water in said generating-chamber; a dome of less diameter than and taking into said cylindrical body portion, a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; and a draw-off cock connected to the truncated apex of the outer cone, substantially as and for the purpose set forth.

4. An acetylene-gas apparatus comprising a cylindrical body portion, a generating-chamber consisting of a pair of truncated cones connected together, and to the lower end of said body portion at their bases; and constructed to contain a body of water, means comprising a horizontally-arranged traveling belt, having a series of partitions projecting at right angles thereto, and a conducting-passage for supplying calcium carbid to the water in said generating-chamber; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; and a draw-off cock connected to the truncated apex of the outer cone, substantially as and for the purpose set forth.

5. An acetylene-gas apparatus comprising a generating-chamber, a removable perforated diaphragm extending transversely of said chamber a short distance above the bottom thereof for supporting the calcium carbid, a lateral inclined opening or passage to said chamber and means for removing said perforated diaphragm through such lateral opening substantially as described.

6. In an acetylene-gas apparatus comprising a generating-chamber, having a lateral inclined opening or passage, a drawer for containing calcium carbid and adapted to be slid into said chamber through said passage; means for sealing the opening through which said drawer slides and said drawer having its inner end formed of wire mesh and arranged at an angle to the vertical, substantially as and for the purpose set forth.

7. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together, and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

8. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together, and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm, said drawer having its inner end formed of wire mesh or the like; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

9. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together, and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm, a drawer adapted to be slid into the passage formed by said openings and diaphragm, a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

10. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

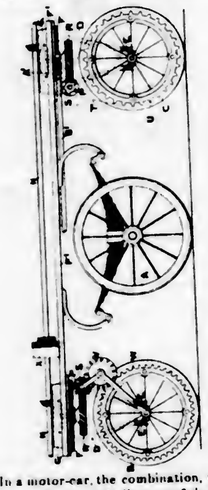
11. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm said drawer having its inner end formed of wire mesh or the like; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a core located in said cylindrical body portion and consisting of a cylindrical drum having a longitudinal opening therethrough of slightly-greater diameter than and adapted to take over said gas-conducting pipe, means for supporting said core a short distance above the inner cone; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

12. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together, and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm, said drawer having its inner end formed of wire mesh or the like; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe; and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

13. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a core located in said cylindrical body portion and consisting of a cylindrical drum having a longitudinal opening therethrough of slightly-greater diameter than and adapted to take over said gas-conducting pipe; means for supporting said core a short distance above the inner cone; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe, and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

14. An acetylene-gas apparatus comprising a cylindrical body portion, a pair of truncated cones connected together and to the lower end of said body portion, at their bases; registering openings cut through said body portion and the inner cone, the edges of said openings being connected by a diaphragm; a drawer adapted to be slid into the passage formed by said openings and diaphragm, said drawer having its inner end formed of wire mesh or the like; a dome of less diameter than and taking into said cylindrical body portion; a water seal in said body portion and sealing the lower end of said dome; a gas-conducting pipe connected at its lower end to the truncated apex of said inner cone and leading through said seal to a point above the surface thereof; a core located in said cylindrical body portion and consisting of a cylindrical drum having a longitudinal opening therethrough of slightly-greater diameter than and adapted to take over said gas-conducting pipe; means for supporting said core a short distance above the inner cone; a gas-flow pipe leading from a point above the water seal in the dome downwardly through said seal and out of the body portion; a float resting upon the surface of said seal, a short stand-pipe carried by said float and having its lower end maintained thereby constantly a short distance above the surface of said seal, a flexible tubular connection between the upper ends of said stand-pipe and flow-pipe, and a draw-off cock connected to the truncated apex of the outer cone, for the purpose set forth.

645,272. MOTOR-CAR. WILLIAM SCHEU, Leeds, England. Filed May 8, 1899. Serial No. 715,955. (No model.)



Claim.—1. In a motor-car, the combination, with a frame, and a pair of wheels journaled at the middle part of the frame one on each side thereof; of two combined driving and steering wheels B and C pivoted on substantially vertical axes one at each end of the frame under the middle part thereof, driving mechanism operating to revolve the wheels B and C simultaneously, and separate driving mechanism operating to turn the wheels B and C on their axes simultaneously, substantially as set forth.

2. In a motor-car, the combination, with a frame, and a casing secured to the frame and provided with a central sleeve; of a turn-table journaled concentric with the said sleeve, antifriction devices interposed between the said turn-table and casing, a single combined driving and steering wheel supported by the said turn-table, a driving-shaft passing through the said sleeve, driving mechanism operating to revolve the said wheel from the said shaft, and means for moving the said turn-table and wheel on the axis of the said sleeve, substantially as set forth.

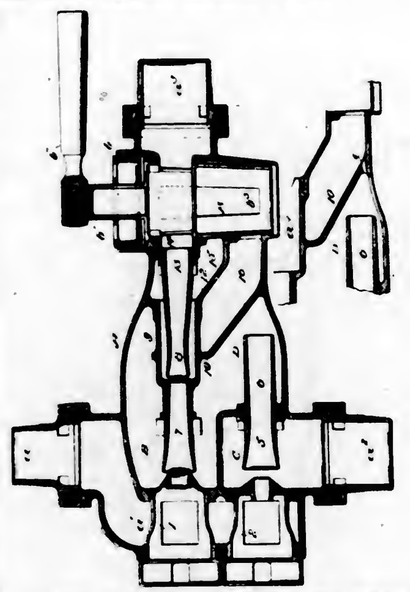
3. In a motor-car the combination of the fixed casing G, having a central sleeve K, the central driving-spindle M, the skew gear-wheels R and S (or like mechanism), the pinion P, the toothed turn-table F carrying the driving-wheel bracket D, the antifriction-rollers H, the split collar L, and the chain T, with chain-wheel U (or equivalent device), all arranged and operated substantially as, and for the purposes, shown and described.

645,273. STEAM-INJECTOR. FRADUS STICKEL, New York, N. Y., assignor to Julius C. Druckluh and Charles A. Druckluh, same place. Filed Nov. 20, 1899. Serial No. 737,681. (Model.)

Claim.—1. In a lifting and forcing injector, the forcer combining-tube having a spill-chamber, a supplemental overflow passage-way leading from such chamber, and means for positively closing such passage-way, substantially as set forth.

2. In a lifting and forcing injector, the forcer combining-tube formed in sections and having a chamber for receiving the spill of such tube, a supplemental overflow passage-way leading from such chamber, and means for positively closing such passage-way, substantially as set forth.

3. In a lifting and forcing injector, the forcer combining-tube formed with a spill-chamber, a supplemental overflow passage-way leading from such chamber, and a cock having a slot designed to coincide with such passage-way, substantially as set forth.



4. A lifting and forcing injector having a primary overflow for the forcer, an auxiliary overflow for the lifter, the forcer combining-tube having a spill-chamber, a supplemental overflow leading from such chamber, and means for closing all of said overflows, substantially as set forth.

5. A lifting and forcing injector having a primary overflow for the forcer, an auxiliary overflow for the lifter, the forcer combining-tube having a spill-chamber, a supplemental overflow leading from such chamber, and a single cock having a slot common to all of said overflows, substantially as set forth.

6. A lifting and forcing injector having a primary overflow in communication with the delivery-tube of the forcer, and an auxiliary overflow for the lifter, the forcer combining-tube formed in sections, a chamber for receiving the spill from such combining-tube, a supplemental overflow leading from such chamber, and a cock for positively closing all of said overflows, substantially as set forth.

7. A lifting and forcing injector, comprising a casing having an overflow-opening, a wall in the discharge-chamber of the lifter extending above the tubes of the forcer, forming an auxiliary overflow passage-way leading to said overflow-opening, the forcer combining-tube having a spill-chamber opening at one end into a passage-way leading to said overflow-opening, and a cock fitted in said overflow-opening and having a slot for coinciding with said passage-ways, substantially as set forth.

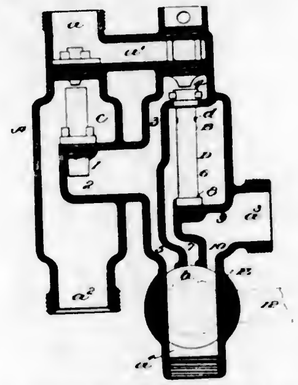
8. A lifting and forcing injector, comprising a casing, a wall in the discharge-chamber of the lifter extending above the tubes of the forcer, an auxiliary overflow for the lifter on the side of such wall away from the lifter, the combining-tube of the forcer having a spill-chamber, a second wall forming a supplemental overflow leading from said chamber, and means for positively closing both of said overflows, substantially as set forth.

9. A lifting and forcing injector, comprising a casing having an overflow-opening extending therethrough, the forcer having a primary overflow in communication with its delivery-tube leading into said overflow-opening and also having its combining-tube provided with a spill-chamber, a supplemental overflow passage-way leading from such chamber into said overflow-opening, and a wall in the discharge-chamber of the lifter extending upwardly therein above the tubes of the forcer and forming an auxiliary overflow passage-way, for the lifter, leading to said overflow-opening, and an operating-cock fitted in said overflow-opening and having a slot designed to coincide with each of said overflows, substantially as set forth.

10. In a lifting and forcing injector, the forcer combining-tube formed in sections, one of which has a cylindrical enlargement inclosing the other section, and an overflow passage-way leading from such enlargement, substantially as set forth.

11. The combination with the casing having a boiler-outlet, an overflow-opening, the forcer and lifter sets of tubes, and primary, supplemental and auxiliary overflow passage-ways leading to said overflow-opening, of a cock fitted in said overflow-opening having two vertical slots either one of which is designed to coincide with all of said overflow passage-ways simultaneously, the other slot being in line with the boiler-outlet, and a large transverse port leading through said cock in line between the forcer-tubes and boiler-outlet, substantially as set forth.

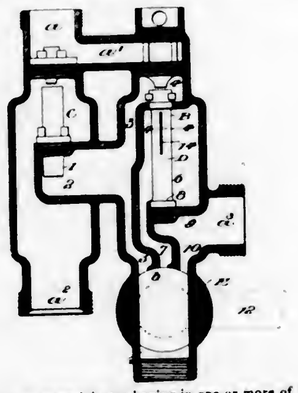
645,274. STEAM-INJECTOR. FRANCIS STICKER, New York, N. Y., assignor to Julius C. Drucklieb and Charles A. Drucklieb, same place. Filed Jan. 13, 1900. Serial No. 1,309. (Model.)



Claim.—1. A steam-injector having a lifter and forcer, an auxiliary overflow for the lifter and a supplemental and a primary overflow for the forcer, and a cock intersecting said overflows and having a single port therein, as set forth.

2. A steam-injector having a lifter and a forcer, and an auxiliary overflow for the lifter and supplemental and primary overflows for the forcer, the said forcer having spill-holes in its combining-tube opening into a spill-chamber from which leads the supplemental overflow, and a cock intersecting said overflows having a single port therein, as set forth.

645,275. STEAM-INJECTOR. FRANCIS STICKER, New York, N. Y., assignor to Julius C. Drucklieb and Charles A. Drucklieb, same place. Filed Feb. 1, 1900. Serial No. 3,574. (Model.)

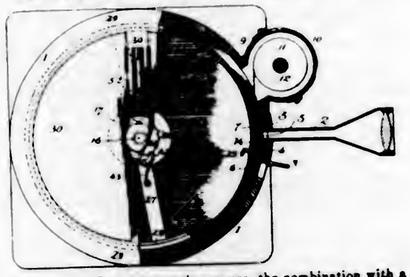


Claim.—1. A steam-injector having in one or more of its tubes or nozzles longitudinal lateral escape-passages, as set forth.

2. A steam-injector having in one or more of its tubes or nozzles a lateral escape passage or passages, extending longitudinally of the tube, on a straight line, as set forth.

3. A steam-injector having in one or more of its tubes or nozzles a narrow longitudinal slot or slots forming a lateral escape passage or passages, as set forth.

645,276. PANORAMIC CAMERA. NICHOLAS THOMAS, Burlington, Wis. Filed July 15, 1899. Serial No. 723,968. (No model.)



Claim.—1. In a panoramic camera, the combination with a revolving lens-carrier and film-holder, of a revolving film-receiving drum, said lens-carrier and drum turning in the same direction and at different speeds, substantially as described.

2. In a panoramic camera, the combination with a revolving lens-carrier and film-holder, of an internal film-receiving drum revoluble at a greater speed than the lens-carrier and traveling in the same direction therewith, substantially as described.

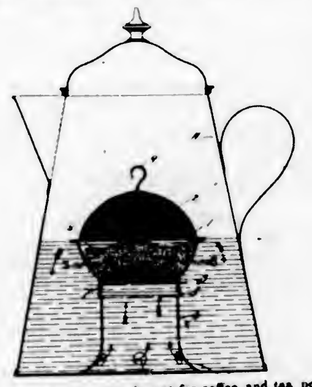
3. In a panoramic camera, the combination with a revolving camera-case carrying a lens-holder and a film-holder in its rotation, of a film-receiving drum rotatable in the same direction with the camera-case and at a different speed therefrom, substantially as described.

4. In a panoramic camera, the combination with a revolving lens-carrier and film-holder, of a revolving film-receiving drum adapted to travel in the same direction and at a different speed from the lens-carrier, and a governor for regulating the speed, substantially as described.

5. In a panoramic camera, the combination of the revolving camera-case carrying a lens-holder and a film-holder, a revolving film-receiving drum, pinions of different diameters connected one with the camera-case and the other with the film-receiving drum, means for operating said pinions to cause the camera-case and film-receiving drum to travel in the same direction and at different speeds, clutch mechanism whereby the film-drum is driven positively in one direction and permitted to turn backward without unwinding the film therefrom, and means for regulating the speed of rotation of the parts, substantially as described.

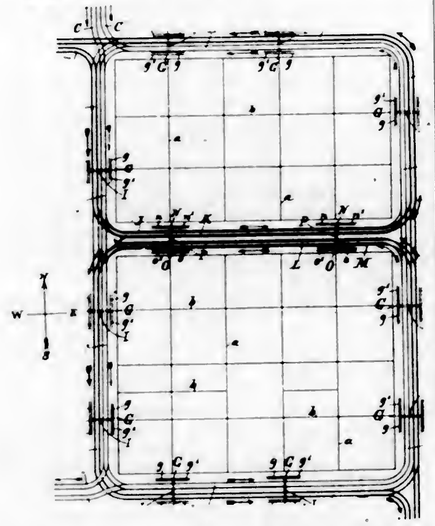
6. In a panoramic camera, the combination with a revolving lens-carrier, of a film-carrier, and means for moving the film in the same direction as the lens and at a faster speed than the lens-carrier, substantially as described.

645,277. PERCOLATOR FOR COFFEE OR TEA POTS. CHARLES B. TOURVILLE, St. Louis, Mo., assignor of one-half to Ellen M. Osborn, same place. Filed Dec. 9, 1899. Serial No. 739,790. (No model.)



Claim.—A percolator attachment for coffee and tea pots, comprising a receptacle having inclined walls, a wire hood for the same, a hook carried by the outer face of the hood, a circular neck at the base of the receptacle, a tube adapted to be coupled to said neck and having formed thereon a bead for the support of the lower edge of the neck, a wire screen at the adjacent end of the tube forming a support for the ground coffee or tea-leaves, and a flaring base for the tube, the base having a series of openings formed therein for the free circulation of the water, substantially as set forth.

645,278. LOOP SYSTEM FOR STREET-RAILWAYS. ALFRED J. TERRIS, Chicago, Ill. Filed Jan. 12, 1900. Serial No. 1,226. (No model.)



Claim.—1. A loop system for street-railways, comprising a railway-track arranged in the form of a loop, a plurality of separate railway-lines tapping said loop at different points, the trains thereof all traversing said loop in the same direction, and a pair of transversely-arranged tracks bisecting said loop and having switch-controlled connections with the main track of the loop, whereby the original single loop may at any time be converted into two adjacent independent loops, thereby practically doubling the capacity of the separate lines, substantially as described.

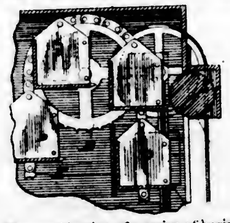
2. A loop system for street-railways, comprising a plurality of parallel railway-tracks arranged in the form of a loop, a plurality of separate railway-lines tapping said loop at different points, and transversely-arranged tracks bisecting said loop and having switch-controlled connections with the main tracks of the loop, whereby the original loop may at any time be converted into two adjacent independent loops, thereby practically doubling the capacity of each of the separate lines, substantially as described.

3. A loop system for street-railways, comprising a plurality of parallel railway-tracks arranged in the form of a loop, a plurality of separate railway-lines tapping said loop at different points, the trains thereof all traversing said loop in the same direction, and transversely-arranged tracks bisecting said loop and having switch-controlled connections with the main tracks of the loop, whereby the original loop may at any time be converted into two adjacent independent loops, thereby practically doubling the capacity of each of the separate lines, substantially as described.

4. A loop system for street-railways, comprising a pair of parallel railway-tracks arranged in the form of a rectangular loop, a plurality of separate railway-lines tapping said loop at the corners thereof, and transversely-arranged tracks bisecting said loop and having switch-controlled connections with the two main tracks of the loop, whereby said transversely-arranged tracks may be thrown into or cut out of the system at will, substantially as described.

5. A loop system for street-railways, comprising a pair of parallel railway-tracks arranged in the form of a rectangular loop, a plurality of separate railway-lines tapping said loop at the corners thereof, transversely-arranged tracks bisecting said loop and having switch-controlled connections with the two main tracks of the loop, whereby said transversely-arranged tracks may be thrown into or cut out of the system at will, and a series of transfer-stations located at intervals along both the main and the transversely-arranged tracks of the loop, substantially as described.

645,279. CASE FOR BOOKS, &c. CHARLES A. TUCKER, New York, N. Y. Filed Sept. 27, 1899. Serial No. 731,809. (No model.)



Claim.—1. The combination of a series of horizontally-disposed book-shelves connected together to form an endless carrier, sprocket-wheels on which the same are mounted, a roller journaled in front of said shelves, and means for rotating said roller to press back projecting books, substantially as described.

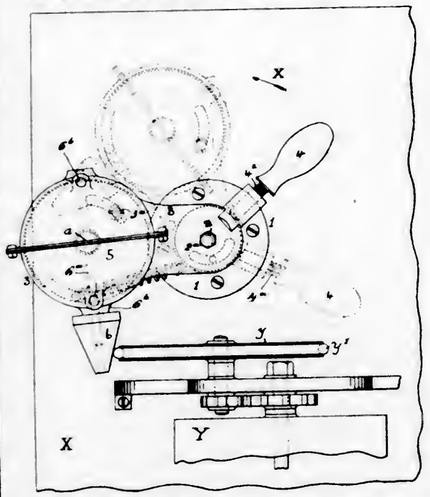
2. The combination of a series of horizontally-disposed book-shelves connected together to form an endless carrier, sprocket-wheels on which the same are mounted, a roller journaled in front of said shelves having longitudinal ribs or flanges, and means for rotating said roller to press back projecting books, substantially as described.

3. The combination of a series of horizontally-disposed book-shelves connected together to form an endless carrier, sprocket-wheels on which the same are mounted, a roller journaled in front of said shelves having longitudinal ribs or projections and arms on said shelves adapted to strike against projections on said rollers to turn the same, substantially as described.

4. The combination of a series of horizontally-disposed book-shelves connected together to form an endless carrier, sprocket-wheels on which the same are mounted, and a roller in front of said shelves to press back the books as the shelves rise, substantially as described.

5. In a book-case, the combination of a series of shelves supported by an endless carrier, means for moving said carrier, and means for automatically moving into proper position any books which project too far in front of the shelves, substantially as described.

645,280. MECHANICAL DRIVER. INGLIS M. UPPEROU, New York, N. Y., assignor to the Neostyle Company, of New Jersey. Filed July 31, 1899. Serial No. 725,713. (No model.)



Claim.—1. A driving mechanism, comprising a fixed base, a carriage mounted movably on said base, a motor carried by said carriage and adjustably mounted thereon, a driving-wheel operated by said motor and means whereby said driving-wheel is brought in contact with the driven wheel of a machine to be operated, by the movement of the motor on the carriage, substantially as shown and described.

2. A driving mechanism comprising a fixed base, a carriage mounted movably on said base, a motor carried by said carriage and adjustably mounted thereon, the pivotal axis of said motor about

which it is adjusted being at right angles to the plane of the carriage, a driving-wheel operated by said motor and means whereby said driving-wheel may be brought in contact with the driven wheel of a machine to be operated, substantially as shown and described.

3. A driving mechanism, comprising a fixed base, a carriage mounted movably thereon, a motor carried by said carriage, a driving-wheel, having a shaft longitudinally fixed with relation to said motor and operated by said motor, said driving-wheel being adapted to be brought in contact with a driven wheel one of said wheels being conical, and means by which the driving-wheel may be moved across the face of the other, whereby the speed of the driven wheel is varied, while the speed of the driving-wheel remains constant, substantially as shown and described.

4. A driving mechanism, comprising a fixed base, a carriage mounted movably thereon, a motor carried by said carriage, a driving-wheel secured to a shaft longitudinally fixed with relation to said motor and operated by said motor, said driving-wheel being adapted to be brought in contact with a driven wheel, and means whereby said driving-wheel may be placed in contact with a driven wheel, substantially as shown and described.

5. A driving mechanism, comprising a fixed base, a carriage mounted movably on said base, a motor pivotally mounted on the carriage, a driving-wheel operated by the motor, the axis of said driving-wheel being at right angles to the pivotal axis of the motor and means whereby said driving-wheel may be brought in contact with the driven wheel of a machine to be operated substantially as described.

6. A driving mechanism, comprising a fixed base, a carriage pivotally secured to said base, a motor adjustably mounted on the carriage, a driving-wheel operated by the motor, the axis of said driving-wheel being at right angles to the pivotal axis of the carriage and means whereby said driving-wheel may be brought in contact with the driven wheel of a machine to be operated substantially as described.

7. A driving mechanism, comprising a fixed base, a carriage pivotally mounted on said base, a motor mounted pivotally on said carriage, a conical driving-wheel driven by said motor and means whereby said driving-wheel may be placed in peripheral contact with the driven wheel of a machine to be operated substantially as shown and described.

8. A driving mechanism, comprising a fixed base, a carriage pivotally mounted on said base, a motor pivotally mounted on said carriage, a conical driving-wheel operated by said motor, means whereby said driving-wheel is placed in contact with the periphery of a driven wheel of a machine to be operated and means by which the point of contact of the periphery of the driven wheel on the conical surface of the driving-wheel may be varied substantially as shown and described.

9. A driving mechanism, comprising a fixed base, a carriage mounted movably on said base, a motor mounted movably on said carriage, a conical driving-wheel operated by said motor, means whereby said driving-wheel may be placed in contact with the periphery of a driven wheel of a machine to be operated and means by which the point of contact between the surface of the conical driving-wheel and the periphery of the driven wheel may be varied substantially as shown and described.

10. A driving mechanism, comprising a fixed base, a carriage mounted on said base, rotary motor carried by said carriage, a driving-wheel carried by a shaft longitudinally fixed with relation to said motor and operated by said motor and means whereby said driving-wheel may be placed in yielding contact with the driven wheel of a machine to be operated substantially as shown and described

11. A driving mechanism, comprising a fixed base, a carriage pivotally mounted on said base, a motor mounted pivotally on said carriage, a driving-wheel, a spring adapted to hold said driving-wheel in working contact with a machine to be driven, and means whereby the carriage may be held in operative position substantially as shown and described.

12. In a driving mechanism, the combination with a base, of the carriage mounted pivotally on said base, the motor 5 pivotally mounted on said carriage, the driving-cone 6 of said motor the spring 7 connecting the motor-base with the carriage and handle 4, of the carriage, substantially as set forth.

13. In a driving mechanism, the combination with a base of the carriage adjustably mounted on said base, the motor 5 adjustably mounted on said carriage, the driving-cone 6 of said motor with means whereby the said cone may be held in contact with a machine to be driven substantially as shown and described.

645,281. FIREMAN'S HELMET. WILLIS C. VAJEN, Indianapolis, Ind. Filed Aug. 7, 1896. Serial No. 602,010. (No model.)

Claim.—1. The combination, in a fireman's smoke-protector, with the casing, of the earpieces, said earpieces being composed of tubular projections, screw-caps covering said projections and having numerous perforations therein, and sounding-plates within said caps immediately under said perforations, substantially as shown and described.

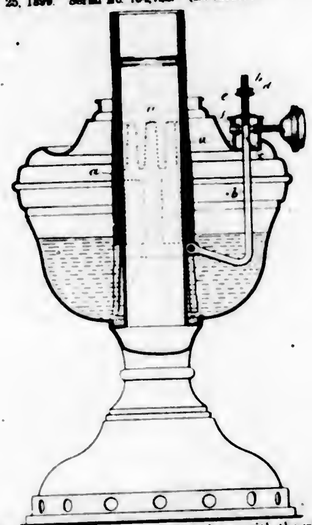


2. In a fireman's smoke-protector, the combination, with the casing, A, forming the head-covering of the lining A^1 adapted to fit closely over the shoulders of the wearer, and the flexible fold A^2 adapted to be secured around the neck of the wearer, said lining and said fold being composed of sheepskin tanned with the wool on, the wool being upon that surface arranged to come in contact with the person of the wearer, all substantially as shown and described.

3. The combination, with a fireman's smoke-protector, and its air-supplying cylinder, of a valve structure containing the ingress-valve c' at one end, the egress-valve c^2 at the other end, and a regulating-valve c^3 located in the path leading from the valve c^2 toward the interior of the headpiece of the smoke-protector, said several parts being arranged and operating substantially as set forth.

4. The combination, with a fireman's smoke-protector, and its air-supplying cylinder, of a valve structure containing ingress and egress valves provided with double seats, the second seat being in each case arranged to prevent any escape of air around the valve-stem while the valve is open, and a regulating-valve in the path of the egress-valve, all substantially as shown and described.

645,282. WICK RAISING AND CONTROLLING DEVICE FOR LAMPS. FREDERICK B. WAIBEL and HENRY METTROTT, New York, N. Y., assignors to the Manhattan Brass Company, same place. Filed Oct. 25, 1899. Serial No. 734,722. (No model.)



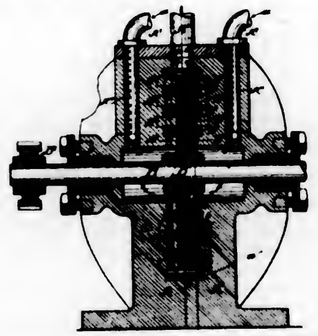
Claim.—1. The combination in a lamp with the wick-raiser, the rod connected therewith and the means for raising and lowering the rod, of an adjustable device movable longitudinally on the said rod, devices for stopping the said rod in its vertical movement and regulating and controlling the extent of the vertical movement of the wick so as to prevent the same being raised or lowered too far, substantially as set forth.

2. The combination in a lamp with the wick-raiser a and the rack-rod b connected therewith and the pinion and shaft engaging the rack-rod for raising and lowering the same and the wick-raiser, of an adjustable device upon and connected to the upper end of the said rod and fixed stops against which the said adjustable device strikes as the said rod is raised and lowered, substantially as set forth

3. The combination in a lamp with the wick-raiser a and the rack-rod b connected therewith and the pinion and shaft engaging the rack-rod for raising and lowering the same and the wick-raiser, of the nut e on the threaded upper end of the rod b, the tubular guide f through which the rack-rod passes, a rod d having a vertical portion connected to the lamp and having a horizontal portion through which the upper end of the rack-rod passes, substantially as and for the purposes set forth

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645,283. TURBINE STEAM-ENGINE. JOHN YOUBE, Newark, N. J. Filed Apr. 13, 1896. Serial No. 677,423. (No model.)



Claim.—1. In a rotary engine of the character described, a motor-wheel comprising alternate narrow and wide independent ring-sections fitted together to serve as a unit and presenting on opposite faces a series of concentric ribs, the latter having oblique perforations, substantially as herein specified.

2. In a rotary impact steam-engine of the character described, the construction of the revoluble wheel in rings having oblique perforations and formed separately and fitted rigidly together to serve as a unit, in combination with a fixed inclosing casing the inner faces of which are provided with rings formed separately from each other and from the body portions of the casing, having perforations inclined oppositely to those of the wheel-rings and adapted to serve therewith when subjected to strong currents of steam, substantially as herein specified.

3. In a rotary impact steam-engine, a wheel having concentric rings formed in independent sections and projecting on both faces and perforated obliquely, in combination with a casing having closely-fitted rings formed independently of each other and of the supporting portions and with perforations oppositely inclined, provided with the steam-passages A^{15}, A^{16}, extending radially of the casing on each side, the two pipes A^{5}, A^{6}, connected thereto, the annular steam-passage a' at the periphery, the passage a^2 and the single pipe A^{11}, connected thereto, all arranged for joint operation substantially as herein specified.

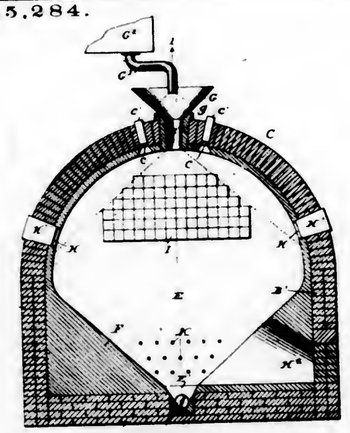
4. In a rotary engine of the character described, a wheel having concentric rings projecting on both faces and perforated obliquely as indicated by a, the rings being separately formed and fitted together to serve as a unit, in combination with a closely-fitted casing in two parts having rings to match and provided with apertures b, inclined in the opposite direction relatively to the radius, the rings of each casing part being also separately formed and fitted to serve as a unit, substantially as herein specified.

645,284. METHOD OF ELECTRICALLY TREATING MATERIALS. EDWARD G. ACHESON, Buffalo, N. Y. Filed May 23, 1899. Serial No. 717,994. (No specimens.)

Claim.—1. The method substantially as hereinbefore described of treating materials for the purpose set forth, which consists in continuously supplying the material to be treated to the apex of a pile having sides of the natural gravity slope, and heating the same by passing all portions of the material between electrodes the working faces of which are within the slope of the pile.

2. The method substantially as hereinbefore described of treating materials for the purpose set forth, which consists in continuously supplying the material to be treated to the apex of a pile having sides of the natural gravity slope, heating the same by passing all portions of the material between electrodes the working faces of which are within the slope of the pile, and delivering the treated material from the base of the pile.

645,284.



645,285. METHOD OF MANUFACTURING GRAPHITE. EDWARD G. ACHESON, Buffalo, N. Y. Filed Sept. 30, 1899. Serial No. 732,202. (No specimens.)

Claim.—1. The method herein described of making graphite, consisting in treating an aggregation of pieces or particles of carbonaceous material of which the said pieces or particles respectively contain inherent impurities capable of forming carbids but less in amount than enough to convert the whole of the respective pieces or particles into said carbids and naturally distributed with substantial uniformity in the piece and which can be heated to a charring temperature without destroying the relative positions of the carbon and such associated impurities, by heating said material to a high temperature and continuing such heating until the individual pieces have been progressively converted into graphite in greater proportion than would be produced by decomposition of the relatively-small amount of fixed carbid capable of being formed by the impurities naturally present in said pieces, substantially as described.

2. The method herein described of making graphite which consists in heating to a high temperature while protected from atmospheric influence, an aggregation of pieces or particles of non-caking coal, of which the said pieces or particles contain inherent impurities capable of forming carbids but less in amount than enough to convert the whole of the respective pieces or particles into said carbids and naturally distributed with substantial uniformity in the piece and which can be heated to a charring temperature without destroying the relative positions of the carbon and such associated impurities, without previously changing the natural ash content thereof and thereby converting the pieces into graphite, substantially as described.

3. The method herein described of making graphite, which consists in heating non-caking coal, the pieces or particles of which contain inherent impurities capable of forming carbids, but less in amount than enough to convert the whole of the respective pieces or particles into said carbids and naturally distributed with substantial uniformity in the piece and which can be heated to a charring temperature without destroying the relative positions of the carbon and such associated impurities, to a high temperature by passing electricity through said coal and thereby generating electrically within the same the heat necessary for making the graphite, substantially as described.

4. The method herein described of making graphite, which consists in heating non-caking coal, the pieces or particles of which contain inherent impurities capable of forming carbids but less in amount than enough to convert the whole of the respective pieces or particles into said carbids and naturally distributed with substantial uniformity in the piece and which can be heated to a charring temperature without destroying the relative positions of the carbon and such associated impurities, to a high temperature by passing electricity through a conductor of less resistance than said coal, and in contact therewith, and thereby generating electrically by the aid of said conductor the heat necessary for making the graphite, substantially as described.

645,286. FIREMAN'S MASK. WILLIAM BADER, Indianapolis, Ind., assignor to Willis C. Vajen, same place. Filed Aug. 10, 1896. Serial No. 602,285. (No model.)

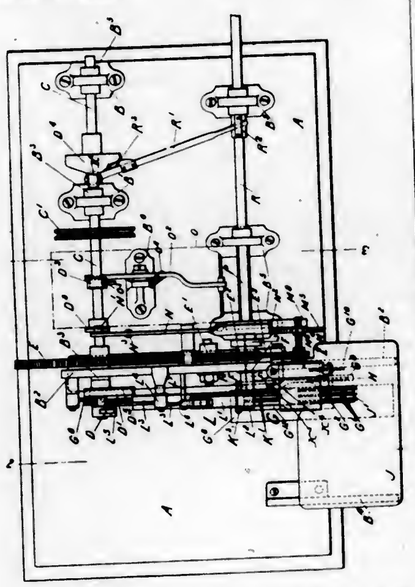
Claim.—1. A fireman's smoke-protector in which the casing is

composed of two thicknesses, the outer thickness being substantially fireproof and impermeable to smoke and gas, and the inner thickness being porous or absorbent.



2. A fireman's smoke-protector having a helmet formed of two casings one within the other, the outer casing being substantially fireproof and impermeable to smoke and gas and the inner casing being porous or absorbent, and means for securing said casings together.

645,287. CIGARETTE-MOUTHPIECE-APPLYING MACHINE. JOSEPH S. BERMAN, London, England. Filed June 7, 1898. Serial No. 682,850. (No model.)



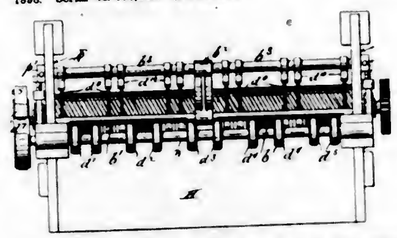
Claim.—1. A machine for applying mouthpieces to cigarettes comprising a support or retainer for the strips, means for imparting a reciprocating movement thereto, combined with an interworking-finger device, K, for lifting the strips from said retainer, and means for wetting the retainer.

2. A machine for applying mouthpieces to cigarettes comprising a support or retainer for the strips, means for rotating said retainer and for imparting a reciprocating movement thereto, combined with an interworking-finger device K for lifting the strips from said retainer, and means for wetting the retainer.

3. A machine for applying mouthpieces to cigarettes comprising a support or retainer for the strips, means for rotating said retainer and for imparting a reciprocating movement thereto, combined with an interworking-finger device K for lifting the strips from said retainer, a revoluble holder for the article to which the strip is applied, and a finishing device for smoothing the strip after its application to the article carried by the revoluble holder.

4. In a machine for the purpose described, the combination of a reciprocating frame, a revolving support or retainer carried by said frame, means for limiting the rotary movement of said retainer, an interworking-finger lifting device K controlled by the movement of said frame for lifting the strips from the retainer, means for supplying a coating to the strips, a revolving holder for the article to which the strip is applied, and a finishing device for smoothing the strip after it is applied to the article, substantially as set forth.

645,288. ROLLER COTTON-GIN. JAMES K. CHEESMAN, New York, N. Y., assignor to the Cheesman Cotton Gin Company. Filed Sept. 3, 1898. Serial No. 690,246. (No model.)



Claim.—1. In a roller cotton-gin, a stripper divided longitudinally into a series of parts, in combination with mechanism by which the changes in the reciprocating motions of the separate stripper parts are made successively and not simultaneously.

2. In a roller cotton-gin, a stripper divided longitudinally into a series of parts, each part being rigid from driving end to operating edge, in combination with mechanism by which the changes in the reciprocating motions of the separate stripper parts are made successively and not simultaneously.

3. In a roller cotton-gin, the combination of a stripper divided longitudinally into separate parts, such parts operating independently of each other and each part being rigid from the driving end to the operating edge, with rear braces for such parts pivoted at one end upon the frame of the machine and at the other end upon the stripper.

4. In a roller cotton-gin, the combination of a stripper rigid from the driving end to the operating edge, and rear braces for the same, pivoted at one end upon the frame of the machine and at the other end upon the stripper.

5. In a roller cotton-gin, the combination of a stripper, rigid from driving end to operating edge, eccentrics to operate the same, and braces for the same, pivoted at one end upon the frame of the machine, and at the other end pivoted upon the stripper, at such a distance from the stripper edge, that the combined motion of the eccentrics and pivoted braces causes the stripper edge to take an elliptical course.

6. In a roller cotton-gin, the combination of a stripper divided longitudinally into separate parts operating independently of each other, each part rigid from driving end to operating edge, and rear braces for the same, pivoted at one end upon the frame of the machine, and at the other end pivoted upon the stripper parts at such a distance from the stripper edge, that the combined motion of the eccentrics and pivoted braces causes the stripper edge to take an elliptical course.

7. In a roller cotton-gin, the combination of a stripper divided longitudinally into separate parts, said parts operating independently of each other, rear braces for each of such parts pivoted at one end upon the frame of the machine and at the other end upon the stripper, and rubbing-plates for each of such stripper parts attached thereto at their adjoining edges near the operating edge thereof.

8. In a roller cotton-gin, the combination of a ginning-roller, a stripper rigid from driving end to operating edge, braces for the same pivoted at one end upon the frame of the machine, and at the other end pivoted upon the stripper, and a guard so rigid from end to end and so supported in the frame, that it will not recede from the roller.

9. In a roller cotton-gin, the combination of a ginning-roller, a stripper rigid from driving end to operating edge, eccentrics to operate the same, braces for the same pivoted at one end upon the frame of the machine, and at the other end pivoted upon the stripper at such a distance from the stripper edge, that the combined motion of the eccentrics and pivoted braces causes the stripper edge to take an elliptical course, and a guard so rigid from end to end and so supported in the frame that it will not recede from the roller.

10. In a roller cotton-gin, the combination of a ginning-roller, a stripper, braces for the same pivoted at one end upon the frame of the machine, and at the other end upon the stripper, and a guard so rigid from end to end and so supported in the frame that it will not recede from the roller.

11. In a roller cotton-gin, the combination of a stripper adjustable up and down with reference to the edge of the guard and rear braces therefor, pivoted at one end upon the frame of the machine and at the other end upon the stripper, such rear braces being adjustable to and fro with reference to the edge of the guard.

12. In a roller cotton-gin, the combination of a stripper adjustable up and down with reference to the edge of the guard, rear braces for the same pivoted at one end upon the frame of the machine and at the other end upon the stripper, the ends pivoted upon the frame of the machine, being in boxes adjustable up and down.

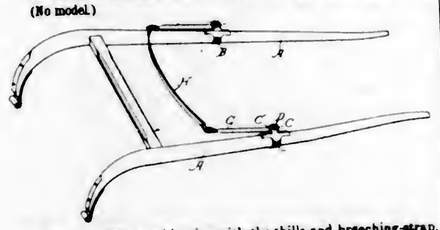
13. In a roller cotton-gin, the combination of a stripper and rear braces for the same pivoted at one end upon the frame of the machine in boxes which are adjustable up and down within such frame, the braces themselves being adjustable to and fro with reference to the edge of the guard.

14. In a roller cotton-gin, the combination of a stripper adjustable up and down with reference to the edge of the guard, rear braces for the same pivoted at one end upon the frame of the machine and at the other end upon the stripper, such braces having their rear ends in boxes which are adjustable up and down within the frame of the machine, and such braces being themselves adjustable to and fro with reference to the edge of the guard.

15. In a roller cotton-gin, the combination of a stripper, and braces for the same pivoted at one end upon the frame of the machine, and at the other end upon the stripper, such braces having their rear ends adjustable up and down within the frame of the machine.

16. In a roller cotton-gin, the combination of a stripper divided longitudinally into separate parts operating independently of each other, braces for the separate parts pivoted at one end upon the stripper parts, and at the other end pivoted upon a longitudinal piece whose ends are adjustable up and down in the frame of the machine.

645,289. SHAFT ATTACHMENT FOR BREECHING-STRAPS OF HARNESS. CHARLES E. CORLETT, Aurora, Ill., assignor of one-half to Charles M. Costa, same place. Filed Nov. 16, 1899. Serial No. 737,191. (No model.)



Claim.—1. The combination with the thills and breeching-strap, of clips each consisting of two sections which are shaped so as to conform to the curvature of and embrace the thills and have their opposing longitudinal edges on one side thereof jointed, and which are provided with corresponding lugs projecting from their opposite longitudinal edges, an arm having one end secured by and between said lugs to the other end of which said breeching-strap is attached, and a bolt extended through said lugs and the ends of said arm for clamping the same together.

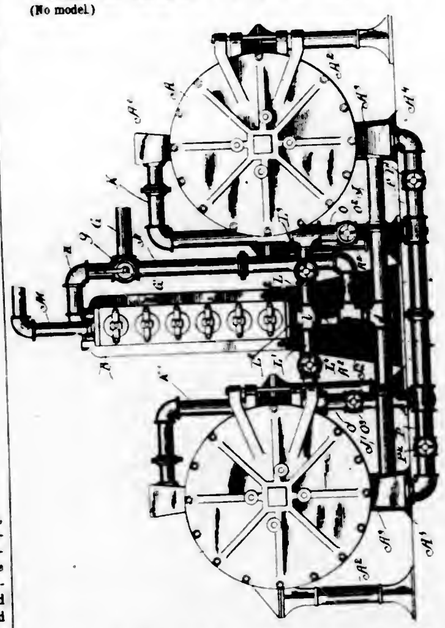
2. The combination with the thills and breeching-strap, of clips each consisting of two sections which are shaped so as to conform to the curvature of and embrace the thills and have their opposing longitudinal edges on one side thereof jointed, and which are provided with corresponding lugs projecting from their opposite longitudinal edges, an adjustable arm having one end pivoted by and between said lugs to the other end of which said breeching-strap is attached, and a bolt extended through said lugs and the ends of said arm for clamping the same together.

3. The combination with the thills and breech-strap, of clips each consisting of two sections which are shaped so as to conform to the curvature of and embrace the thills and have their opposing longitudinal edges on one side thereof jointed and which are provided with corresponding lugs projecting from their opposite longitudinal edges the inner opposing surfaces of which are dished to produce annular edges therefor which are recessed or depressed which when said lugs are secured together form a segmental slot, a transverse bolt securing said lugs together and an adjustable arm one end of which is inserted through said slot and pivoted on said bolt.

4. The combination with the thills and breeching-strap, of clips each consisting of two sections which are shaped so as to conform to the curvature of and embrace the thills and have their opposing longitudinal edges on one side jointed, and which are provided with corresponding concavo-convex lugs projecting from their opposite longitudinal edges, a locking-core inclosed between said lugs, an arm having one end retained by said core at a suitable angle between said lugs, and to the other end of which said breeching-strap is attached, and a bolt extending through said lugs said core and said arm for clamping the same together.

5. The combination with the thills and breeching-strap, of clips each consisting of two sections which are shaped to conform to the transverse curvature of and embrace the thills and have their opposing longitudinal edges on one side thereof jointed, and which are provided with corresponding concavo-convex lugs projecting from their opposite longitudinal edges, a locking-core having a diametrically-extending groove across one of its flat sides and the dowel-pin projecting from the opposite side thereof into a suitable opening in one of said lugs, an arm having one end seated in said groove and having said breeching-strap attached to its other end, and a bolt extended through said lugs said core and arm for clamping the same together.

645,290. APPARATUS FOR DEFECATING LIQUIDS. EUGENE W. DENNIS, New Orleans, La. Filed May 5, 1899. Serial No. 715,700. (No model.)



Claim.—1. In a defecating apparatus, the combination with a heat-absorber and a plurality of digesters, of pipes connecting the same to permit said absorber to be used with said digesters separately or in series and with either of the said digesters as the initial heater.

2. In a defecating apparatus, the combination of a heat-absorber and a plurality of digesters, of a pipe in communication with the induction end of both of said digesters, a pipe leading from said absorber to the digester-pipe, a three-way valve between said absorber and digester-pipes, a second pipe in communication with the induction ends of said digesters, pipes leading from the eduction ends of said digesters to the absorber and provided with branch pipes which lead to said second digester-pipe, and valves in said discharge and branch pipes and second digester-pipe, whereby the absorber may be used with said digesters either separately or in series, and in the latter case with either of said digesters as initial heater.

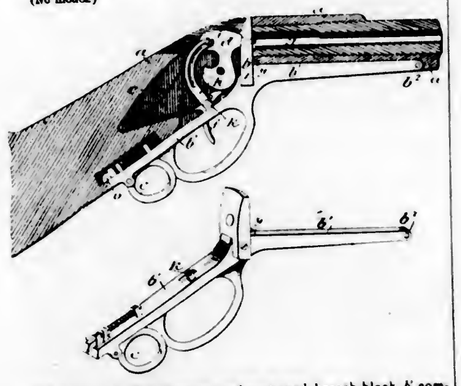
3. In a defecating apparatus, the combination with a heat-absorber and a plurality of digesters, of a pipe in communication with the induction ends of both of said digesters, a pipe leading from said absorber to the digester-pipe, a three-way valve between said absorber and digester-pipes, a second pipe in communication with the induction ends of said digesters, valves in said pipe near said digesters, pipes leading from the eduction ends of said digesters to the absorber and provided with branch pipes leading to said second digester-pipe, valves in said discharge-pipes between said branch pipes and absorber, and valves in the branch pipes.

4. In a defecating apparatus, the combination with a heat-absorber and a digester, of a pipe leading to the induction end for cold solution of said absorber, a pipe leading from the eduction end thereof to the digester, a branch pipe connected at one end with said delivery-pipe and in communication at its other end with a pipe which leads from the absorber to the digester, a valve between said branch and delivery pipes, and a pipe leading from the eduction end of the digester to the absorber.

645,291. COLORING LEATHER. SAMUEL K. FELTON, Jr., Philadelphia, Pa., assignor to William M. Norris, Princeton, N. J. Filed Dec. 23, 1899. Serial No. 741,433. (No specimens.)

Claim.— The within-described process of coloring tanned leather which consists in subjecting said leather first to the action of a staining or coloring solution, then to a "fat liquor," then to a solution of permanganate of potash, and then to the final coloring agent or agents, substantially as specified.

645,292. RAPID-FIRE BREECH-LOADING FIREARM. JOHN J. GREENOUGH, Washington, D. C. Filed July 27, 1899. Serial No. 725,331. (No model.)



Claim.—1. A plano-convex wedge-shaped breech-block *b'* combined with the chamber *a'* into which it slides and wedges as and for the purposes specified.

2. In a breech-loading firearm a hammer and mainspring in a recess in rear of the breech-block as described, combined with a lever of the second class by a pin or projection on the side of the hammer and a link attached to the lever moving the hammer in conjunction with the breech-block as and for the purposes set forth in the description.

3. In a breech-loading firearm the combination of a hammer its mainspring an operating-lever a breech-block carried by said operating-lever and a connection between the hammer and the said lever comprising a segmental arm or bridle pivoted to the operating-lever with a slot therein in which a pin carried by the hammer works concentric with the journal of the hammer substantially as herein described.

4. In a breech-loading firearm the combination of the breech-block with an operating-lever as described by which it is rendered adjustable to compensate for expansion and contraction substantially as and for the purposes set forth.

5. The combination of the toggle-joint *n* and spring *s* with the shell-extractor *m* and lever *b'* as and for the purposes described.

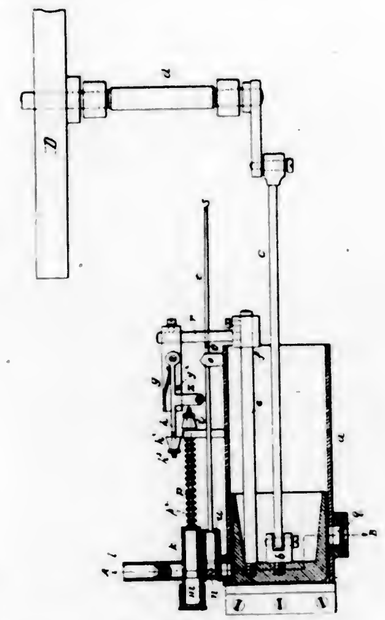
6. The toggle *n* in combination with a shell-extractor for forcing out a shell after it is exploded.

645,293. GAS-ENGINE. ALBRECHT HEIL, Frankfort-on-the-Main, Germany, assignor to A. Wolf, Jr., & Co., same place. Filed May 24, 1899. Serial No. 718,029. (No model.)

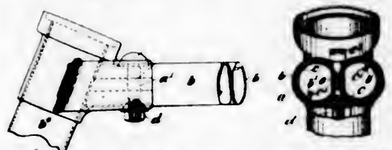
Claim.—1. In a gas-engine, the combination of the cylinder, working piston, valve controlling the admission of the explosive mixture to the cylinder, a rod *e* connected directly to the piston to move therewith and projecting beyond the end of the cylinder, a spring-pressed hinged rod *h* connected to the rod *e* to move therewith, a rod *p* extending from the valve, a spring normally tending to seat the valve, catches carried respectively by the rods *h* and *p* and arranged to engage each other on the outstroke of the piston to open the valve, and means to lift the rod *h* to disengage the catches at a predetermined point of the stroke, substantially as set forth.

2. In a gas-engine, the combination of the cylinder, working piston, valve controlling the admission of the explosive mixture to the cylinder, a rod projecting from the piston, a spring-pressed hinged rod A connected to the rod on the piston, a rod *p* extending from the valve, a spring p^2 normally tending to seat the valve, catches A^2 and *i* carried respectively by the rods A and *p* and adapted to engage on the outstroke of the piston, a projection *o* on the cylinder, and an arm *x* on the rod *h* to engage said projection and thereby lift the arm A and disengage the catches A^2 and *i*, substantially as set forth.

645,298.



645,294. JOINT FOR TUBES. WILLIAM HILLMAN, Coventry, England. Filed July 31, 1899. Serial No. 725,649. (No model.)



Claim.—1. In a joint for jointing or connecting up double parallel tubes, the combination of a lug having two parallel intersecting cylindrical sockets bored to fit such tubes, a hole bored through such lug and tubes intermediate of the two sockets, a countersunk end to such hole, a bolt passed through such hole having a narrow head to fit the groove in the lug between the sockets, and a nut having a conical head to fit the end of the countersunk hole and adapted to screw onto the bolt to thereby compress the sockets about the tubes, substantially as set forth.

2. In a joint for jointing or connecting up double parallel tubes, the combination of a lug having two parallel intersecting cylindrical sockets bored to fit such tubes, liners soldered in the ends of such tubes, a hole bored through such lug, tubes and liners intermediate of the two sockets, a countersunk end to such hole, a bolt passed through such hole having a narrow head to fit the groove in the lug between the sockets, and a nut having a conical head to fit the end of the countersunk hole and adapted to be screwed onto the bolt to thereby compress the sockets about the tubes, substantially as set forth.

3. In a joint for jointing or connecting up double parallel tubes made from a single sheet of metal and having internal webs, the combination of a lug having two parallel intersecting cylindrical sockets bored to fit such tubes, liners having webs and soldered in the ends of said tubes, a hole bored through such lug, tubes and liners intermediate of the two sockets, having a countersunk end, a bolt passed through such hole and having a narrow head to fit the groove in the lug between its sockets, and a nut having a conical head to fit the countersunk end of the hole and adapted to be screwed onto the bolt to thereby compress the sockets about the tubes, substantially as set forth.

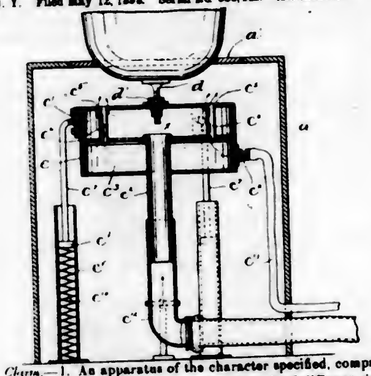
645,295. SEWING-MACHINE. WENZEL HLAVÁČEK, Meissen, Germany. Filed June 7, 1898. Serial No. 682,833. (No model.)



Claim.—1. In combination, the feed mechanism comprising a feed-dog, the vertical shaft, the lever connected to said dog, the lever operated by said shaft, and a link connecting said levers, a fulcrum for said link and means for shifting said fulcrum, substantially as described.

2. In combination, the feed mechanism comprising the feed-dog, the lever connected thereto, the rotatable shaft, a second lever operated by the same, a link having a pivotal connection at one end to the first lever and a pivotal connection to the end of the second lever, an extension of said link to the rear of said second connection, fulcrum-points on said link intermediate of its pivotal connection and on said extension and a shiftable bearing adapted to engage the points between the pivots or said extensions.

645,296. ELECTROTYPER'S FURNACE. BENJAMIN F. JACKSON, Cambridge, Mass., assignor, by direct and mesne assignments, to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 12, 1898. Serial No. 680,443. (No model.)



Claim.—1. An apparatus of the character specified, comprising a frame having provisions for supporting vessels of different sizes, a yieldingly-supported burner, and means interposed between a vessel and the burner, for maintaining said burner at a predetermined distance from said vessel.

2. An apparatus of the character specified, comprising a frame having provisions for supporting vessels of different sizes, a yieldingly-supported burner, a spacing member connected with said burner and adapted to engage a vessel to maintain the burner at a predetermined distance from said vessel, and means for adjusting said member to vary that distance.

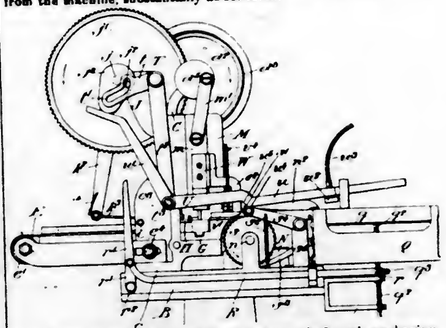
3. An apparatus of the character specified, comprising a frame having provisions for supporting vessels of different sizes, a yieldingly-supported gas-burner, means connected with said burner and adapted to engage a vessel to maintain the burner at a predetermined distance from said vessel, and conduits connected with the burner for supplying air and gas thereto.

4. An apparatus of the character specified, comprising a vessel-supporting frame and a burner below it, one of said parts being yieldingly supported relatively to the other, and means for cooperating with a vessel resting on said frame to maintain a predetermined distance between the burner and the bottom of the vessel.

645,297. STAMP-AFFIXING MACHINE. WILLIAM R. LANDFEAR, New York, N. Y., assignor of one-half to Benjamin Adriance, same place. Filed Feb. 21, 1898. Serial No. 671,045. (No model.)

Claim.—1. In a stamp-affixing machine, a drive-shaft and mechanism under the control of the drive-shaft; for feeding the boxes into the machine; for applying gum to the boxes; for advancing the boxes laterally into position adjacent to the stamp-feeding mechanism; for feeding stamps into the positions over the gummed portions of the boxes and for applying the stamps to the boxes, substantially as set forth.

2. In a stamp-affixing machine, a drive-shaft and mechanism under the control of the drive-shaft for feeding the boxes into the machine, for applying gum to the boxes, for advancing the boxes laterally into position adjacent to the stamp-feeding mechanism, for feeding stamps into position over the gummed portions of the boxes, for applying the stamps to the boxes and for removing the stamped boxes from the machine, substantially as set forth.



3. In a stamp-affixing machine, a drive-shaft and mechanism under the control of the drive-shaft comprising means for feeding the boxes into the machine, a gumming mechanism, means for feeding the boxes one by one thereto, a stamp-feeding mechanism, means for advancing the boxes laterally from the gumming mechanism to the stamp-feeding mechanism and means for affixing the stamps to the boxes, substantially as set forth.

4. In a stamp-affixing machine, a drive-shaft and mechanism under the control of the drive-shaft comprising means for feeding the boxes into the machine, a gumming mechanism, means for feeding the boxes one by one thereto, mechanism for feeding strips of stamps, means for advancing the boxes laterally from the gumming mechanism to the stamp-strip-feeding mechanism and means for severing the advance stamp from the strip and applying it to the advance box, substantially as set forth.

5. In a stamp-affixing machine, a drive-shaft, an auxiliary shaft driven thereby and mechanism for feeding strips of stamps of the machine comprising a rocking lever having one arm connected to the said auxiliary shaft, a second lever hinged to the other arm of the first-named lever, a suction device carried by the rearwardly-extended arm of the second-named lever and a cam carried by the auxiliary shaft in position to engage the other arm of the second-named lever for causing the suction device to engage and disengage strips of stamps, substantially as set forth.

6. In a stamp-affixing machine, a main drive-shaft, an auxiliary shaft driven thereby and stamp-feeding mechanism comprising a rocking lever having one arm and connected with the shaft whereby the lever is rocked, a second lever hinged to the free end of the other arm of the first-named lever, a suction device carried by the rearwardly-extended arm of the second-named lever, a cam carried by the auxiliary shaft in position to engage the forwardly-extended arm of the second-named lever and a support along which the rearwardly-extended arm travels as the first-named lever is rocked, the said support permitting the rearwardly-extended arm of the second-named lever to cause its suction device to engage the strip of stamps to be fed only at the limit of the rearward movement of the said arm, substantially as set forth.

7. In a stamp-affixing machine, a driving mechanism, a carrier for conveying the boxes into the machine, a track to the rear of the carrier and independent means under the control of the driving mechanism for feeding the boxes from the carrier onto the track one by one, substantially as set forth.

8. In a stamp-affixing machine, a drive-shaft, a carrier for conveying the boxes into the machine, a track to the rear of the carrier and means for feeding the boxes from the carrier onto the track one by one comprising a rocking lever operated by the shaft, a spring-actuated feeding-finger carried by the lever in position to engage the advance box and force it positively onto the track as the lever is operated, substantially as set forth.

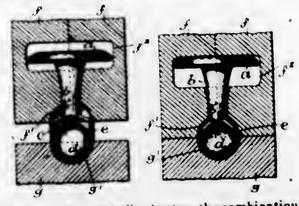
9. In a stamp-affixing machine, a drive-shaft, a carrier for conveying the boxes into the machine, a track to the rear of the carrier, means for feeding the boxes one by one from the carrier onto the track comprising a rocking lever operated by the drive-shaft, a spring-actuated feed finger carried by the lever in position to engage the advance box and force it positively onto the track and a detent arranged in position to present one box at a time to the feeding-finger and prevent the rearward movement of the said box as the finger is drawn back in position to engage the same, substantially as set forth.

10. In a stamp-affixing machine, a drive-shaft, a vertically-reciprocating plate operated thereby, a gumming mechanism under

the control of the said plate comprising a gum-trough, a gum-roll therein, a rocking arm hinged to the rear of the gum-trough, a rocking lever mounted on the gum-roll shaft and connected to the plate and a gum-pad-carrying bar secured to said rocking arm and rocking lever, substantially as set forth.

11. In a stamp-affixing machine, a drive-shaft, a track, means for feeding boxes onto the track, and means for sliding the boxes along the track to the stamp-affixing mechanism, comprising a rocking lever having a push-plate for engaging the boxes and a tailpiece for preventing the further feeding of boxes onto the track as the boxes are being slid along the same, substantially as set forth.

645,298. COLLAR-BUTTON. WILLIAM A. LOCKE, Providence, R. I. Filed Jan. 26, 1900. Serial No. 2,869. (No model.)

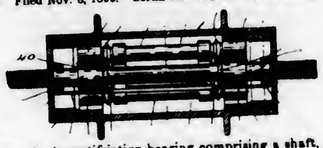


Claim.—1. In a collar or similar button, the combination with the shoe and the split end of the shank, of a plug of soft metal, a member having the form of the interior of the button-head, and a button-cover secured by closing the edge of the same around the shank and interior member and compressing the soft-metal plug, as described.

2. A button having a shoe and a shank formed in one piece, the end of the shank formed into dovetails, and a button-head consisting of the button-cover, a member in the cover, and soft metal in and between the adjacent parts, as described.

3. In a button, the combination with the shoe *a*, the shank *b*, and the spread-out split ends *b' b'*, of the plug *c* of soft metal, the member *d*, and the cover *e* secured to the end of the shank by compressing the cover and the plug of soft metal, as described.

645,299. ANTIFRICTION-BEARING. ISIDOR MOSS, Waltham, Mass. Filed Nov. 8, 1899. Serial No. 736,237. (No model.)



Claim.—1. An antifriction-bearing comprising a shaft, a casing, a series of rollers bearing against the shaft and casing, roller-separators between the rollers, and the axes of the same being within a circle intersecting the axes of the rollers, and each two of the latter serving to hold the intermediate separator against outward movement, and independent means to hold said separators against inward movement.

2. An antifriction-bearing comprising a shaft, a casing, a series of rollers bearing against the shaft and casing, roller-separators between the rollers, and the axes of the same being within a circle intersecting the axes of the rollers, and each two of the latter serving to hold the intermediate separator against outward movement, and independent means rotative with the casing to hold said separators against inward movement.

3. An antifriction-bearing comprising a shaft, a casing, a series of rollers bearing against the shaft and casing, the roller-separators, between the rollers, and the axes of the same being within a circle intersecting the axes of the rollers, and each two of the latter serving to hold the intermediate separator against outward movement, and caps fitted within the casing, to support said separators and to hold the same against inward movement.

4. An antifriction-bearing comprising a shaft, a casing, a series of rollers bearing against the shaft and casing, roller-separators between the rollers, and the axes of the same being within a circle intersecting the axes of the rollers, and each two of the latter serving to hold the intermediate separator against outward movement, caps fitted within the casing provided with annular sleeves through which said shaft passes and which support the ends of the separators.

5. An antifriction-bearing comprising a casing and a shaft, the rollers bearing against the shaft and casing, roller-separators for the rollers, projections upon the rollers and shaft touching at points in line with the planes of contact between the rollers and the shaft and such points and planes of contact being the same radial distance from the axis of the shaft, and means operative with the casing to support the roller-separators.

6. An antifriction-bearing comprising a casing, a shaft extending into said casing, a series of rollers mounted for movement upon the shaft, projections upon the rollers and shaft touching at points in line with the planes of contact between the rollers and the shaft and such points and planes of contact being the same radial distance from the axis of the shaft.

7. An antifriction-bearing comprising a casing, a shaft extending into said casing, a series of rollers mounted for movement upon the shaft, projections upon the rollers and shaft touching at points in line with the planes of contact between the rollers and the shaft, and roller-separators engaging the rollers and having projections in contact with those of the rollers at points in line with the planes of contact between said rollers and roller-separators.

8. An antifriction-bearing comprising a casing, a shaft, a series of rollers mounted for movement upon the shaft, projections upon the rollers and shaft, the projections of one of said series of parts having rounded faces, while the faces upon the other series of parts are beveled upon straight lines, and the series of projections upon the rollers being adapted to bear against those upon the shaft, at points in line with the planes of contact between the rollers and shaft.

9. An antifriction-bearing comprising a shaft, a casing, a series of rollers bearing against the shaft and casing, roller-separators between the rollers, the rollers serving to hold the intermediate separators against movement in one direction, and independent means to hold said roller-separators against movement in the opposite direction.

645,300. OFFICE-INDICATOR. CLIFTON V. B. REEDER, San José, Cal. Filed Dec. 5, 1899. Serial No. 739,638. (No model.)



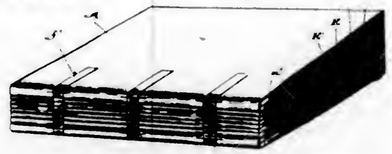
Claim.—1. In an office-indicator, the combination with a casing having a slit therethrough, of a horizontally-movable slide having a portion which projects through the slit beyond the casing, a face-plate having a sight-aperture, an inscription-carrying roll mounted on a horizontally-supported shaft so as to be positioned rear of the sight-opening, the horizontally-movable plate and lower wall of the sight-opening partially covering the roll, substantially as shown.

2. In an office-indicator, the combination of a casing having a sight-opening, a plate movably supported rear of said sight-opening, a roll rear of the sight-opening and movable plate a dial on the face-plate and means for actuating hands or pointers which are movable over the dial, substantially as shown.

3. The combination in an office-indicator, of a casing having an opening, a horizontally-movable slide having a portion which projects through the opening, a face-plate having a sight-opening, a roll or cylinder maintained so that its center will be below the lower edge of the slide and above the lower edge of the sight-opening, a dial on the face-plate and independently-movable hands connected to gearing which is operated from opposite sides of the casing, substantially as shown and for the purpose set forth.

645,301. BINDING BOOKS. CHARLES E. SCARSE, Birmingham, England. Filed July 20, 1899. Serial No. 684,420. (No model.)

Claim.—As a new article of manufacture, a book embracing in its construction a cover, first and last signatures adjacent to the cover, intermediate signatures between the first and last signatures, end papers for the first and last signatures, each end paper of a greater width than the book, the back portion of each end paper folded over and secured to the back of its respective first or last signature, and to the back of the adjacent intermediate signature the body portion of each end paper secured to the inner side of the adjacent cover, and binding-tapes located outside the folds of the end papers sewed to the back of all the signatures and through the end papers, substantially as specified.

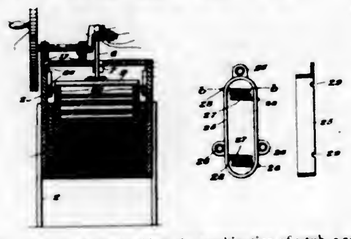


645,302. BROOCH. JOHN W. SIMMONDS, Attleborough, Mass., assignor to the J. M. Fisher & Company, same place. Filed Aug. 21, 1899. Serial No. 727,885. (No model.)



Claim.—In a brooch, the combination with the circular rim *a*, the flange *a'*, the circular crystal *b*, and the spring-ring *b'*, of the cover *c* the edge of which enters the annular recess in the rim, the annular recess a^2, the hinge *c'* securing one edge of the cover, the snap-latch c^2 on the cover arranged to snap over the edge of the rim, and the pin *d* pivotally secured to the cover and engaged with the hook d^2 on the cover; whereby the fastening-pin is supported by the cover and covered by the brooch, as described.

645,303. WASHING-MACHINE. ANDREW J. SMITH, Cincinnati, Ohio. Filed July 28, 1899. Serial No. 725,394. (No model.)



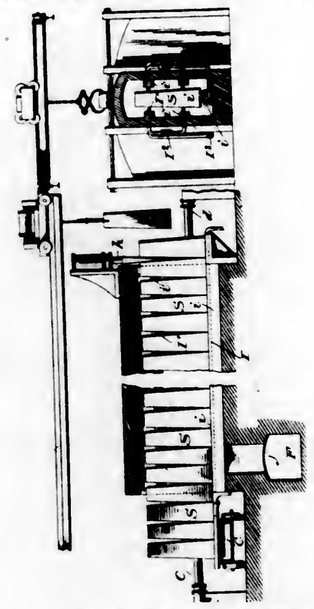
Claim.—In a washing-machine, the combination of a tub, a cover hinged thereon, a lower rubber, an upper rubber having driving devices and pivot-pins, bracket-bearings secured in the cover and having vertical guideways to receive the pivot-pins of the said upper rubber, and also provided with recesses in their rear edges, and coil-springs arranged at the lower ends of the guideways in position to be engaged by the pivot-pins of the upper rubber when the cover is lowered onto the tub, said coil-springs having their end portions extended outward and held in the recesses of the bracket-bearings, between said bearings and the walls of the cover, substantially as set forth.

645,304. CAR-COUPLING. JAMES TIMMS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Dec. 20, 1899. Serial No. 741,042. (No model.)



Claim.—In a car-coupling, the combination with a draw-head having a socket therein around its pivot-bolt hole and a groove communicating with said socket, a knuckle and a pivot-bolt connecting said knuckle and draw-head, of a spring disposed in the socket in the draw-head and around the pivot-bolt and having one end disposed in said groove, said knuckle having a recess thereon open at its rear end for the reception of the upper portion of the spring and a shoulder on said knuckle against which one end of the spring bears.

645,305. HEATING-FURNACE. SAMUEL T. WELLMAN, Cleveland, Ohio, FRED H. DANIELS, Worcester, Mass., and CHARLES H. WELLMAN, Cleveland, Ohio. Filed June 30, 1899. Serial No. 722,455. (No model.)



Claim.—1. A heating-furnace for heating cast-steel ingots of a length and interior height and width to receive the ingots in upright position and in a row, and provided with interal guides which support the bases and sides of the ingots as they move through the furnace from one end thereof to the other leaving within the furnace a clear space around the top, bottom and sides of the ingots for the passage of the flame therethrough, combined with means for pushing the line of ingots through from one end of the furnace, and with retarding means at the opposite end of the furnace for retaining the ingots in upright position and preventing them from tipping endwise as they are shoved along, substantially as and for the purposes hereinbefore set forth.

2. The heating-furnace adapted to receive a line or row of upright ingots, in combination with pushing mechanism at the charging end of the furnace and retarding and cut-off mechanisms at the opposite or discharging end of the furnace—these elements being arranged and adapted to operate conjointly, substantially as and for the purposes hereinbefore set forth.

3. The heating-furnace adapted to receive a line of upright ingots in combination with pushing mechanism at the charging end of the furnace, retarding and cut-off mechanisms at the discharging end of the furnace, a roller table or conveyer and a tilting receiver and operating appliances therefor whereby the end ingot pushed out from the furnace may be taken by said receiver and transferred therefrom onto the conveyer, substantially as and for the purposes hereinbefore set forth.

4. The combination with the heating-furnace adapted to receive a line of upright ingots and means for advancing said ingots through the furnace, of a tilting receiver arranged at the discharge end in position to receive the ingot discharged from said end, and adapted to be bodily tipped so as to lower the ingot from vertical to horizontal position and discharge the same, and operating means for said tilting receiver, substantially as hereinbefore set forth.

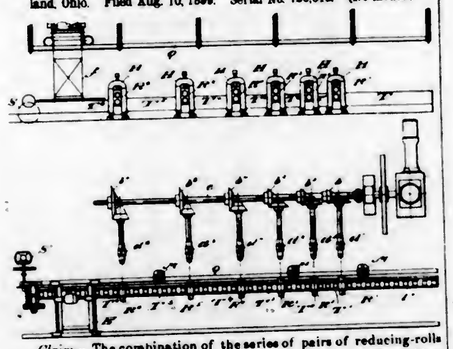
5. The furnace having a longitudinal heating-chamber of a width and height to receive ingots placed in vertical position and in line one

after the other, and provided at its bottom and sides with longitudinal water-pipes for the support and guidance of the ingots, substantially as and for the purposes hereinbefore set forth.

6. A heating-furnace for steel ingots of a length, and interior height and width, to receive the ingots in upright position and in a row, there being a flame-space entirely around the ingots, and provided at its bottom and sides with longitudinal supports for holding the ingots in an upright position, combined with means for moving the ingots longitudinally through the furnace, substantially as and for the purposes hereinbefore set forth.

7. A heating-furnace for steel ingots having a longitudinal heating-chamber of a width and height to receive ingots placed in vertical position and in a line one after another and provided with longitudinal water-pipes for guiding or supporting the ingots, such pipes being made in relatively-short sections, suitably supported in the walls of the furnace, substantially as and for the purposes hereinbefore set forth.

645,806. ROLLING-MILL. SAMUEL T. WELLMAN, Cleveland, Ohio, FRED H. DANIELS, Worcester, Mass., and CHARLES H. WELLMAN, Cleveland, Ohio. Filed Aug. 10, 1899. Serial No. 726,818. (No model.)



Claim.—The combination of the series of pairs of reducing-rolls provided each with reducing grooves or passes r', r^2, the roller-tables, twisting-guides for turning the product during its second passage through the rolls, and means for transferring the partly-reduced product back to the front of the mill, these elements being constructed and arranged together for joint operation, substantially as and for the purposes hereinbefore set forth.

645,807. CUFF-BUTTON. CHARLES H. ALLEN, Attleborough, Mass., assignor to the Charles H. Allen & Company, same place. Filed Dec. 13, 1899. Serial No. 740,165. (No model.)



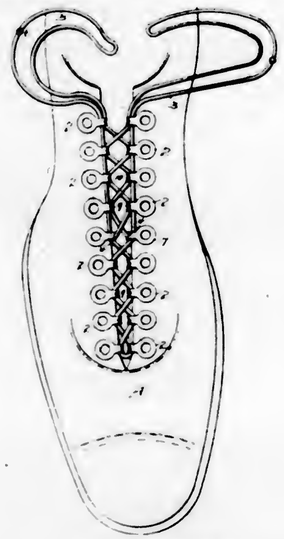
Claim.—1. In a cuff-button, the combination with the heads, of a flat link-bar extending from near the forward end of one head to near the forward end of the other head and provided with an extension having a post centrally secured to the heads, whereby the strain on the heads is resisted by the centrally-secured link, as described.

2. In a cuff-button, the combination with the heads b b, of the link c, the extensions c' c' on the ends of the link, and the projecting posts c^2 c^2 on the extensions; whereby the obliquely-placed heads are secured together at or near their center, as described.

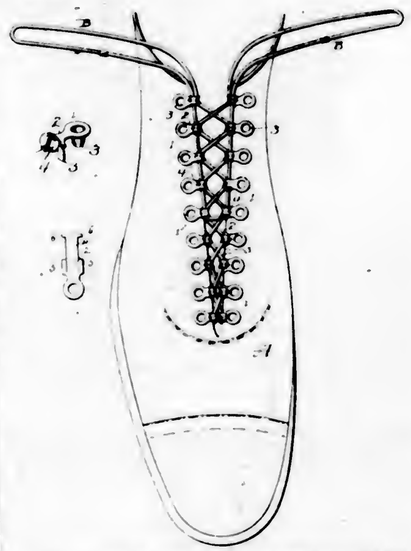
645,308. FASTENING FOR BOOTS, SHOES, &c. ALVIN O. CARMAN and ISAIAH S. MORRIS, Belding, Mich. Filed Apr. 28, 1899. Serial No. 714,897. (No model.)

Claim.—1. In a fastening device, the combination with two members to be fastened and series of studs or eyes on the adjacent edges of the respective members, of a lacing-cord having an intermediate portion passing alternately through a lower portion of the respective series of studs and then up successively through the studs or eyes of the respective series, said cord having its two ends laced down alternately through the upper studs or eyes of the respective series and having their free extremities fixed to diametrically-opposite studs at the upper end of the lower alternate lacing.

2. In a fastening device, the combination with two members to be fastened and series of studs or eyes at the edges of the respective members, of a single lacing-cord having an intermediate portion laced alternately through a part of the two series of studs or eyes; its ends laced alternately through the remaining studs or eyes and having their free extremities secured to intermediate studs or eyes of the respective series and the remaining portions of said cord forming two closed loops.

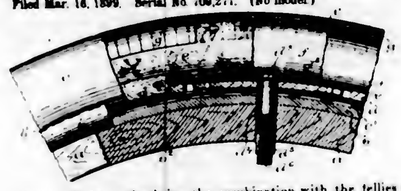


645,809. SHOE-FASTENING. ALVIN O. CARMAN and ISAIAH S. MORRIS, Belding, Mich. Filed Oct. 20, 1899. Serial No. 734,227. (No model.)



Claim.—An eyelet consisting of a body portion provided at one end with means for securing the eyelet to a support, jaws or fingers at the other end of said body portion and adapted to embrace the edge of said support, a tongue between said jaws or fingers bent to form an eye or loop, the free ends of said tongue projecting between said fingers or jaws and provided with laterally-projecting lugs secured thereto.

645,810. WHEEL-TIRE. WILLIAM CORLISS, Providence, R. I. Filed Mar. 16, 1899. Serial No. 709,277. (No model.)



Claim.—1. In a wheel-tire, the combination with the fellies of the wheel, a metal rim having flanges extending on each side beyond the fellies, a flexible, non-elastic cover, an expansible bolster bearing on the cover and supported on the outwardly-extending flanges of the metal rim, a flexible, textile, non-expansible tube, an air-tube, and a spring-steel hoop interposed between the cover and the textile tube; whereby the pneumatic textile tube of flattened cross-section is supported by the rim and bolster, as described.

2. In a wheel-tire, the combination of the following instrumentalities, a flexible, non-expansible textile tube, an elastic air-tube in the non-expansible tube, a steel hoop encircling the textile tube to hold it in the flattened condition, and an expansible bolster forming the support across the width of the flattened textile tube; the whole adapted to form the pneumatic support of the wheel and load, as described.

3. In a wheel-tire, in combination, a flexible, non-expansible tube, an air-tube and connections for inflating the same, a steel hoop having the margins divided into plates by transverse cuts the central portion acting to hold the tube in the flattened condition, a bolster forming the support of the flattened, pneumatic tube across, practically, its width, a metallic rim having flanges extending on each side beyond the fellies, and a flexible cover inclosing the pneumatic tube and secured between the flanges of the rim and the bolster; whereby a pneumatic tire having a broad tread is supported along its opposite sides on the rim and the lateral swaying of the vehicle is avoided, as described.

4. In a wheel-tire, in combination, a flexible, non-elastic tube, an expansible air-tube within the same, a spring-steel hoop surrounding the non-expansible tube, plates formed by transverse cuts made into the margins of the spring-steel hoop, inwardly-projecting, longitudinal grooves in the central portion of the spring-steel hoop, and an expansible bolster forming a support of practically the whole width of the flattened, non-expansible air tube; the whole adapted to form the pneumatic support of the tire and protection against puncturing of the air-tube, as described.

5. In a wheel-tire, the combination with the flexible, non-expansible tube, the expansible air-tube, the steel hoop having the margins separated into plates by transverse cuts, and the expansible bolster supporting practically the whole width of the flexible, non-expansible tube, of the fellies of the wheel, the rim, the central groove in the rim, the upwardly-curved flanges projecting on each side beyond the fellies forming the side supports of the tire, and the flexible cover secured together by lacings and to the rim by the expansible bolster; whereby the pneumatic tire is supported practically across its whole width and a lower air-pressure may be used to support a given load, as described.

6. In a pneumatic tire, the combination with the non-expansible tube and the bolster supporting the tube, of loops secured to the tube and extending around the bolster, as described.

7. In a pneumatic tire, in combination, a non-expansible tube containing an air-tube, a bolster supporting the non-expansible tube, a wheel-rim, and loops secured to the non-expansible tube and extending around the bolster; whereby the loops are secured between the bolster and the rim and the tube is held against creeping, as described.

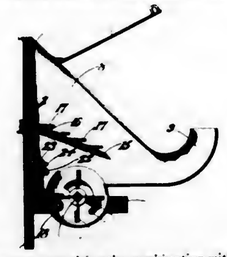
8. In a pneumatic tire, the combination with the non-expansible tube c, of the bolster d, and the holes d' d' in the bolster; whereby the non-expansible tube is held against creeping, as described.

645,311. BLOWER FOR THRESHING-MACHINES. JOHN D. DILLER, Pandora, Ohio. Filed May 26, 1899. Serial No. 718,400. (No model.)

Claim.—1. In an apparatus adapted to be connected with a grain-separating machine, the combination with a frame comprising a hood, of a fan, an oscillatory bar, and independently-movable plates, projecting in a slanting direction above and beyond the fan, substantially as set forth.

2. An apparatus comprising the combination with a hooded frame, an oscillatory bar and plate, of a fan carried on the frame, a shell about the fan, and a tail-board extension in proximity to the shell, substantially as set forth.

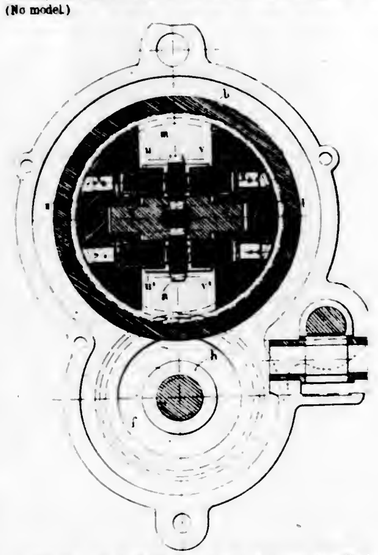
3. An apparatus comprising the combination with a hooded frame and a plate, of a fan carried on the frame, a shell about the fan, and an adjustable tail-board extension, substantially as set forth.



4. An apparatus comprising the combination with a hooded frame, oscillatory bar, and plate, of a fan carried on the frame, and a shell adjustable about the fan, independently of the frame, substantially as set forth.

5. An apparatus comprising the combination with a hooded frame, oscillatory bar, and plate, of a fan carried on the frame, an adjustable shell about the fan, and an adjustable tail-board extension, substantially as set forth.

645,312. FRICTION-CLUTCH. ALBERT DE DION and GEORGES BOUTON, Puteaux, France. Filed June 17, 1899. Serial No. 721,001. (No model.)

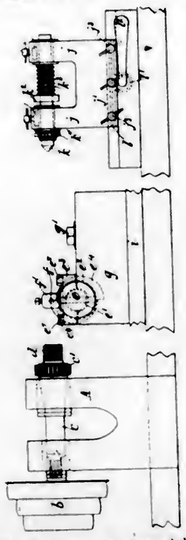


Claim.—1. In a friction-clutch of the character described, a shaft having arms recessed to form diametrically-opposite shoulders, and arms at right angles to the recessed arms to engage segments, combined with sleeves loose upon said shaft, pinions fast upon the sleeves, segments within the sleeves, a rotatable shaft carrying the segments, pinions, a double rack, and connections between the segments and the axles of said pinions for transmitting motion to the shaft, substantially as specified.

2. The combination with the shaft and the shaft movable within the same and having a double rack, and arms recessed as described, of the sleeves loose upon said shaft, segments mounted on arms of the movable shaft, and disposed within said sleeves, pinions having bearings in recesses in arms of said shaft, and adapted to engage the said rack, and means connecting the segments and the axles of said pinions for transmitting motion from the pinions frictionally to the shaft, as set forth.

645,313. LATHE. JAMES F. DOWDING, London, England, assignor of one-half to Harry Orme Mascall, same place. Filed Nov. 6, 1899. Serial No. 736,040. (No model.)

Claim.—1. In a lathe, the combination of a central driving-spindle, a toothed wheel fixed thereon, idler-pinions, auxiliary spindles having toothed wheels receiving motion from the idler-pinions, a tool-bar, a pivoted frame carrying said tool-bar and mounted on the bed of the lathe capable of being used in line with the bed of the frame or at right or other angles thereto, substantially as shown and described.



2. In a lathe, the combination of a central driving-spindle, auxiliary spindles, toothed wheels on said spindles, and idler-wheels for conveying motion from the main to the auxiliary spindles, with a tool-bar mounted in bearings, a thrust-ratchet fixed on said tool-bar, a pivoted frame carrying said bearings, and set-screws to hold the tool-bar, substantially as shown and described.

3. In a lathe, the combination of a central driving-spindle, auxiliary spindles, toothed wheels on said spindles, and idler-wheels for conveying motion from the main to the auxiliary spindles, a rotatable tool-bar, a frame carrying said tool-bar and pivoted to the bed of the machine, and a puppet-head having a number of spring-spindles corresponding to the number of chuck-spindles, substantially as set forth.

4. In a lathe, the combination of a central driving-spindle, auxiliary spindles, toothed gearing for communicating motion from the main to the auxiliary spindles, a horizontal rotating tool-bar carrying one or more rows of tools mounted in a pivoted frame, a puppet-head, a number of spring-spindles mounted therein, a rack attached to said puppet-head, a pinion engaging said rack for moving said puppet-head, and a number of set-screws to retain the same in position, substantially as set forth.

5. In a lathe, the combination of a central driving-spindle mounted in the head-stock, a toothed wheel on said spindle, a detachable frame, a number of auxiliary spindles mounted in said frame, toothed wheels on said auxiliary spindles, and idler-pinions carried by said frame to communicate motion from the driving-spindle to the auxiliary spindles, substantially as herein set forth.

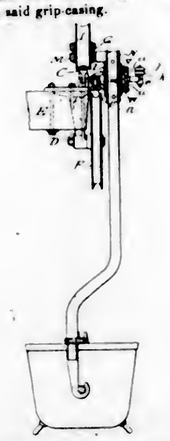
645,314. CABLE-TRAMWAY. WILLIAM DUERDAU, New York, N. Y. Filed May 6, 1899. Serial No. 715,875. (No model.)

Claim.—1. In a carriage for cable-tramways, the combination of a body portion, formed of a single casting provided with two arms at each end thereof; fixed axles extending across between the ends of said arms; and a sheave-wheel mounted upon each of said axles intermediate the arms.

2. A carriage for cable-tramways, comprising a body formed of a single casting provided with two arms at each end, a cross-web I, and a journal-bearing M; and sheave-wheels mounted upon fixed axles intermediate said arms.

3. In a cable-tramway, the combination of a carrying-cable; a traction-cable located to one side of and at a slight distance below the level of the carrying-cable; and a relatively-large supporting-sheave for the traction-cable, whereby the cables may move or swing in vertical planes without interfering with each other.

4. In a cable-tramway, the combination of a carrying-cable; a traction-cable located to one side of and at a slight distance below the level of the carrying-cable; a relatively-large supporting-sheave for the traction-cable; a carriage mounted on the carrying-cable; a grip-casing suspended from the carriage; and a gripping device rotatably mounted in said grip-casing.



5. In a cable-tramway, the combination of a carrying-cable; a traction-cable located to one side of and at a slight distance below the level of the carrying-cable; a relatively-large supporting-sheave for the traction-cable; a carriage mounted on the carrying-cable; a grip-casing suspended from said carriage; a bucket suspended from said grip-casing, said bucket being directly beneath the carrying-cable; and a gripping device rotatably mounted in the grip-casing.

6. In a cable-tramway, the combination of a carrying-cable; a carriage mounted thereon; a grip-casing connected to said carriage; an interlocking shell rotatably mounted within said casing; and a gripping device carried by said shell.

7. In a cable-tramway, the combination of a carrying-cable; a carriage mounted thereon; a grip-casing connected to said carriage; an interlocking shell rotatably mounted within said casing; gripping-levers pivotally mounted within said shell; and adjustable means for operating said levers.

8. In a cable-tramway, the combination of a carrying-cable; a carriage mounted thereon; a grip-casing suspended from said carriage; and a gripping device carried by said casing, said gripping device being provided with suitable guide-rollers m adapted to bear upon the upper face of the traction-cable, substantially as described.

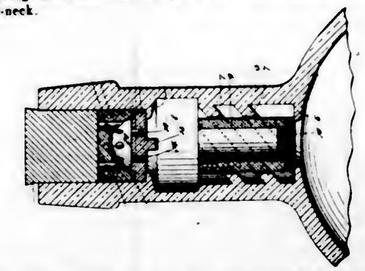
9. In a cable-tramway, the combination of a carrying-cable; a carriage mounted thereon; a frame connected to said carriage; an opening extending laterally through said frame; ways or channels Q formed in said frame adjacent to the opening; a shell P provided with lugs R rotatably mounted within said opening in the frame, substantially as described; and gripping mechanism carried by said shell.

10. In combination with shell or casing P; levers V, W, pivotally connected thereto; a cross-head; links *a*, *b*, pivotally connected to said cross-head and to the outer ends of said levers; guide-rods *f* connected to said cross-head; and means for varying the position of said cross-head with relation to the rods.

11. In combination with shell or casing P; levers V, W, pivotally connected thereto; a cross-head *c*; links *a*, *b*, pivotally connected to said cross-head and to the outer ends of said levers; and guide-rods *f* provided with threaded ends *g* mounted in said cross-head.

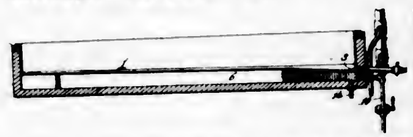
645,315. BOTTLE. WILLIAM J. ES EARL, Salida, and OSCAR B CRITCHLOW, Grand Junction, Colo., assignors of one-half to Carl B. Herzinger, Salida, and Lucian P. Curtis, Denver, Colo. Filed June 21, 1899. Serial No. 721,342. (No model.)

Claim.—1. A bottle, having its neck formed with an interior annular flange at the lower end of the neck, and with a spiral thread directly above the flange, the neck being also formed with a cavity located above the thread and with a second interior annular flange above the cavity, a valve comprising a tubular body with an elastic part, said part bearing on the first-named flange, a protector formed of an upper and a lower section, the lower section being disk-shaped and provided at its bottom with an upwardly-projected lug to limit the upward movement of the valve, the lower section of the protector being provided at its upper side with a notch and the upper section of the protector being cylindrical in form and provided with a lug fitted in the notch of the lower section, the upper section of the protector being also provided with recesses in its side, the recesses matching with recesses in the neck of the bottle, and the protector-sections being formed with vertical passages out of alinement with each other, and springs fitted in the matching recesses of the protector and the bottle-neck.



2. A non-refillable bottle, having a valve seated in the lower portion of the neck thereof and a protector seated in the upper portion of the neck thereof, the protector being formed of two sections with an interlocking recess and lug, the upper section having a cavity in its lower portion and the two sections having passages formed therein, the passages being out of registry with each other, the protector further having recesses in its side walls, the recesses registering with recesses in the neck of the bottle, and springs fitting in the registering recesses to hold the protector in place.

645,316. APPARATUS FOR HEATING MILK. NOAH ERNST, Green Village, Pa. Filed Jan. 29, 1900. Serial No. 3,187. (No model.)



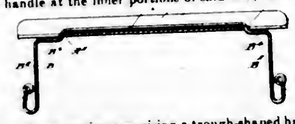
Claim.—1. In an apparatus for heating milk, the combination with a pan or receptacle for the milk, of a heating-chamber beneath the same having a partition therein dividing the same into two compartments communicating with each other at one end, an inlet-pipe for the heating medium entering one of said compartments, an escape-pipe communicating with the other of said compartments, a branch pipe connecting said inlet and escape pipes outside the heating-chamber, and means for controlling the passage of the heating medium through said inlet and branch pipes.

2. In an apparatus for heating milk, the combination with a pan or receptacle for the milk, of a heating-chamber beneath the same having a partition therein dividing the same into two compartments communicating with each other at one end, an inlet-pipe for the heating medium entering one of said compartments, an escape-pipe communicating with the other of said compartments, a branch pipe connecting said inlet and escape pipes outside the heating-chamber, and means for controlling the passage of the heating medium through said inlet and branch pipes, each of said compartments being provided with drip or escape openings for water of condensation adjacent to the points of connection of said inlet and escape pipes therewith.

3. In an apparatus for heating milk, the combination with a pan or receptacle for the milk, having its bottom inclined from one end to the other and provided with a central depression extending from one end to the other, and a discharge-pipe leading from the central portion of the lower end of said pan, of a heating-chamber beneath said pan having a partition therein dividing the same into two compartments which communicate with each other at one end, an inlet-pipe for exhaust-steam leading into one end of one of said compartments, an escape-pipe leading from the corresponding end of the other of said compartments, a branch pipe connecting said inlet and escape pipes, and a two-way valve at the point of connection of said inlet and branch pipes, each of said compartments being provided with a drip or escape opening for water of condensation at the end thereof adjacent to the respective points of communication of said inlet and escape pipes therewith.

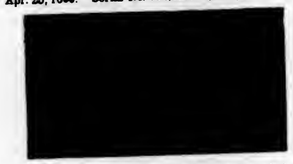
645,317. PACKAGE-HANDLE. HENRY H. FLANDERS, Boston, Mass. Filed Aug. 1, 1899. Serial No. 725,742. (No model.)

Claim.—1. A package-handle, comprising a trough-shaped handle formed at its ends with longitudinal slits terminating at their inner ends in apertures, and a wire yoke approximately U-shaped and extending with its middle portion on the upper surface of the bottom of the trough-shaped handle, the sides passing through said apertures to depend from the handle a distance from the ends thereof, the lower ends of said sides terminating in upwardly-extending hooks, and said sides being formed in their upper ends with horizontal offsets underlying the handle at the inner portions of said slits, as set forth.



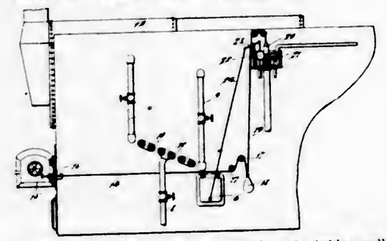
2. A package-carrier comprising a trough-shaped handle having slits extending longitudinally from its ends and terminating in enlargements or apertures, and a yoke having a central member extending on the upper surface of the trough between the said apertures, then passing downward through said apertures and having horizontal offsets underlying the slitted portions of the handle, and hooked end members extending downwardly from said offsets.

645,318. WOVEN FABRIC. MAUD R HARTS, Richmond, Va. Filed Apr. 25, 1899. Serial No. 714,437. (No specimens.)



Claim.—A woven fabric, comprising warp-threads in combination with weft-threads, the latter being bristles, the butts of which all extend in the same direction.

645,319. FURNACE. WILLIAM C. JOHNSON, Memphis, Tenn. Filed Feb. 23, 1899. Serial No. 706,577. (No model.)



Claim.—1. In a furnace, the combination of a bridge-wall having a passage therein communicating with the atmosphere and discharging into the fire-box, a closure for said passage, a fire-door, a water-tank comprising a valve commanding the tank, and a float sustained by the water in the tank and commanding the water supply, a connection between the float and the closure, and a connection between the valve and the fire-door.

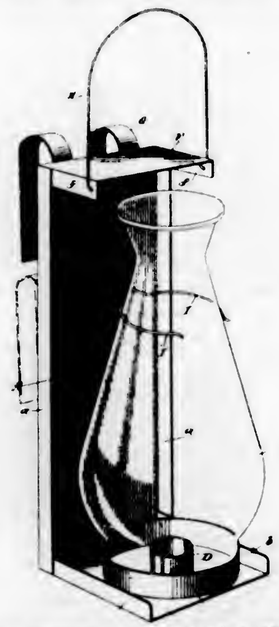
2. A furnace having a passage therein for supplying atmospheric air to the furnace, a closure for said passage, a fire-door, a water-tank comprising a valve and a float, the float commanding the water-supply, a connection between the closure and the float, and a connection between the fire-door and the valve.

3. In a furnace, the combination with the feed and draft doors, of a water-tank, a valve commanding the water-tank, a weight having connection with the valve to raise the same, a connection between the weight and the feed-door to raise the weight, as the feed-door is opened, a float mounted in the tank and commanding the water-supply, and a connection between the float and the draft-door.

645,320. LANTERN. CHARLES H. KOSTER, New York, N. Y. Filed Aug. 16, 1899. Serial No. 727,401. (No model.)

Claim.—1. A lantern comprising a frame having an integral back and base, the base being provided with means for removably holding a lamp-chimney and an illuminating device, the back acting as a reflector, pliable hooks secured to said back, whereby the lantern may

be secured to any convenient object, a support for the upper portion of the lamp-chimney carried by the back, and a shelf extending forwardly from the top of the back and adapted to project over the lamp-chimney to form a wind break or shield, substantially as described



2. A lantern comprising a frame having a base constructed to removably support an illuminating device and a lamp-chimney, a back extending upward from said base, and a shelf extending forwardly from the top of the back and adapted to project over the top of the lamp-chimney to form a wind break or shield, the said back, base and shelf portions of the frame having flanges at the side edges, substantially as shown and described.

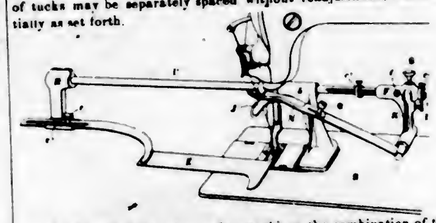
3. A lantern comprising a unitary frame consisting of a back, a base and a shelf projecting forwardly from the top of the back the base having sockets thereon for receiving a lamp-chimney and a candle, the back serving as a reflector, and the shelf forming a wind break or shield and projecting over the top of the lamp-chimney, and arms projecting forwardly from the front side of the back and adapted to form a support and clamp for the upper portion of the lamp-chimney, substantially as described.

4. A lantern, comprising a base having sockets thereon for receiving a lamp-chimney and a candle, a back secured thereto and acting as a reflector, a shelf projecting forwardly from the back just over the top of the lamp-chimney and adapted to form a wind break or shield, hooks secured to the rear side of said back whereby the lantern may be secured to any convenient object, and two arms projecting forwardly from the front side of the back and adapted to form a support and clamp for the upper portion of the lamp-chimney, substantially as described.

5. A lantern comprising a frame having an integral back and base, the base having sockets thereon, for removably supporting a lamp-chimney and an illuminating device, the base and back having flanges at the sides and the back acting as a reflector, a shelf projecting forwardly from the back over the top of the lamp-chimney and adapted to form a wind break or shield, and a bail or handle connected with the shelf, substantially as described.

645,821. TUCKING-GUIDE FOR SEWING-MACHINES. ALEXANDER LAUBSCHER, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed July 14, 1899. Serial No. 723,878. (No model.)

Claim.—1. In a tuck-folder for sewing-machines, the combination of the adjustable tuck-gage, a space-gage operatively mounted between separately-adjustable stops, and means for supporting said gages in proper position whereby both individual tucks and clusters of tucks may be separately spaced without readjustment, substantially as set forth.



2. In a tuck-folder for sewing-machines, the combination of the adjustable tuck-gage, a space-gage operatively mounted between independently-adjustable stops whereby both individual tucks and clusters of tucks may be separately spaced without readjustment, a set-screw for securing said gage as against displacement, and means for supporting said gages in proper position, substantially as set forth.

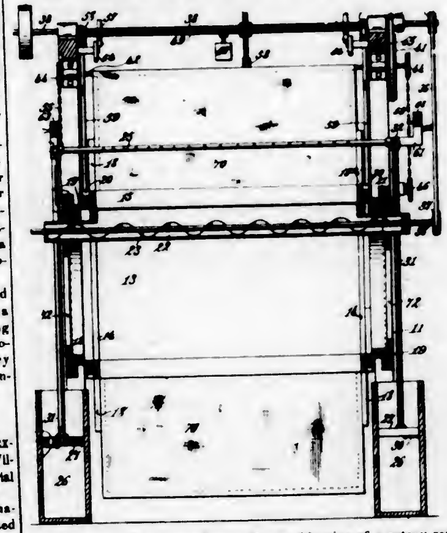
3. In a tuck-folder for sewing-machines, the combination of the adjustable tuck-gage, a space-gage operatively mounted between independently-adjustable stops and carrying an auxiliary resilient guide adapted to bear upon the surface of the fabric, and means for properly supporting said gage, substantially as set forth.

4. In a tuck-folder for sewing-machines, the combination of a rod carrying at one end an adjustable tuck-gage, a space-gage mounted on the opposite end of said rod between independently-adjustable stops whereby both individual tucks and clusters of tucks may be separately spaced without readjustment, and means for supporting said rod in proper position, substantially as set forth.

5. In a tuck-folder for sewing-machines, the combination of a rod carrying at one end an adjustable tuck-gage, a bracket or slide mounted on the opposite end of said rod between independently-adjustable stops for the purpose specified, the space-gage pivotally connected to said slide and held in normal position upon the fabric by a spring, and means for supporting said gage-carrying rod in proper position, substantially as set forth.

6. In a tuck-folder for sewing-machines, the combination of a space-gage operatively mounted between independently-adjustable stops, the tuck-gage provided with an adjustable stop whereby said gage may be returned to a predetermined adjusted position after having been withdrawn to permit of the unobstructed feeding of the fabric, a set-screw for securing said tuck-gage in its adjusted position, and means for supporting said gages in proper position, substantially as set forth.

645,822. DUST-COLLECTOR. JOHN E. MITCHELL, St. Louis, Mo. Filed Dec. 23, 1899. Serial No. 741,487. (No model.)



Claim.—1. In a dust-collector, the combination of a rotary reel provided with radially-arranged dust-collecting and air-filtering chambers, a traveling blast device for dislodging dust from the porous walls of said chambers, mechanism for moving said blast device in a radial direction between successive dust-collecting and air-filtering chambers, mechanism for imparting intermittent rotation to said reel, and means for controlling said reel-operating mechanism from the traveling blast device, substantially as described.

2. In a dust-collector, the combination of a rotary dust-collecting medium comprising a series of radially-arranged dust-collecting and air-filtering chambers, a cut-off chamber for shutting off the dust-laden air from one or more of said chambers in succession, and a radially-movable blast device extended lengthwise of the machine and adapted to be operated in a radial direction for dislodging or removing dust from the porous walls of one or more air-filtering chambers from which the dust-laden air is excluded, substantially as described.

3. In a dust-collector, the combination of a rotary reel comprising a number of radially-arranged dust-collecting and air-filtering chambers having porous walls, a cut-off chamber, and a traveling blast device operating in a radial direction between the porous walls of adjoining air-filtering chambers, successively, substantially as described.

4. In a dust-collector, the combination of a reel provided with a number of radially-arranged air-filtering chambers, means for imparting intermittent rotation to said reel, a cut-off chamber, a traveling blast device extended lengthwise of the reel for cleaning the porous walls of the air-filtering chambers in succession while said chambers are at rest over the cut-off chamber, and mechanism for operating said traveling blast device in a radial direction, substantially as described.

5. In a dust-collector, the combination of a reel provided with a number of radially-arranged air-filtering chambers, means for imparting intermittent rotation to said reel, a cut-off chamber, air pumps or compressors provided with valved pistons, a traveling blast device directly connected with the pistons of said air pumps or compressors, so as to move therewith and deliver a blast over the surfaces of the air-filtering chambers in succession, and mechanism for operating said blast device and air pumps or compressors together, substantially as described.

6. In a dust-collector, the combination of a rotary reel comprising a number of removable radially-arranged air-filtering chambers each having an open inner end adapted to communicate with a central space inclosed by the reel, a cut-off chamber mounted in the central portion of said reel to shut off air from one or more of said radially-arranged air-filtering chambers, means for imparting intermittent rotation to said reel, and a traveling blast device operating between two air-filtering chambers while the same are at rest over said cut-off chamber, substantially as described.

7. In a dust collector the combination of a rotary reel, a number of radially-arranged air-filtering chambers carried by said reel, each of said air-filtering chambers comprising rigid bifurcated end walls connected by cross slats and having porous or cloth side walls, means for detachably securing said air-filtering chambers to the reel with the inner open end of each chamber in communication with a central space inclosed by the reel, a cut-off chamber mounted in said central portion of the reel to exclude air from one or more of said air-filtering chambers while the same are at rest above said cut-off chamber, means for imparting intermittent rotation to said reel, and the traveling blast device arranged to operate between the porous walls of two contiguous air-filtering chambers while the same are at rest above the cut-off chamber, substantially as described.

8. In a dust-collector, the combination of a rotary reel provided with spokes, a number of radially-arranged air-filtering chambers detachably secured to said spokes and each having an open inner end in communication with a central space inclosed by said reel, a cut-off chamber mounted in said central portion of the reel to exclude air from one or more of said air-filtering chambers, means for imparting intermittent rotation to the reel, a traveling air-blast to dislodge dust from one or more air-filtering chambers while at rest over said cut-off chamber, an air pump or compressor, rigid connections between the blast device and the piston of the air pump or compressor, and mechanism for operating the blast device and the pump or compressor together, substantially as described.

9. In a dust-collector, the combination of a stationary framework and a rotary reel mounted in said framework, a number of radially-arranged air-filtering chambers closed at their outer ends and having their inner ends open to communicate with a central space in the reel for inlet of dust-laden air to the air-filtering chambers, a cut-off chamber mounted within the reel and provided with a conveyer, and a vertical traveling blast device operating between the porous walls of adjoining air-filtering chambers to dislodge dust from the air-filtering chambers in succession and deposit the same in said cut-off chamber to be removed thence by the conveyer, substantially as described.

10. In a dust-collector, the combination of a stationary framework, a rotary reel mounted in said framework with air-inlet openings at each end, a number of radially-arranged air-filtering chambers carried by said reel and having open inner ends to communicate with the interior of the reel, a stationary cut-off chamber mounted in the reel to exclude air from one or more of said air-filtering chambers, a blast-pipe adapted to be operated in the space between two air-filtering chambers while at rest over the cut-off chamber, said blast-pipe having perforations in its opposite sides to direct a blast against the walls of two contiguous chambers, air pumps or compressors at opposite ends of the machine, valved pistons for said air-pumps, rigid pipe connections between said pistons and the opposite ends of said blast-pipe and through which the blast-pipe is in communication with said air pumps or compressors, mechanism for moving the air-blast pipe inward and outward between the walls of two air-filtering chambers and for operating the air pumps or compressors through the rigid pipe connection between said air-blast pipe and the pump-pistons, and lever mechanism through which the driving mechanism for intermittently rotating the reel is controlled from the blast-pipe, substantially as described.

11. In a dust-collector, the combination of a stationary framework, a rotary reel mounted in said framework and carrying a number of radially-arranged air-filtering chambers each of which is bifurcated in its outer portions to provide extended filtering-surfaces, a cut-off chamber, an air-blast pipe extended lengthwise of the reel to operate in a radial direction between the porous walls of contiguous air-filtering chambers, in succession, air pumps or compressors at opposite ends of the machine, rigid pipe connections between the ends of said blast-pipe and the valved pistons of said air pumps or compressors, sprocket mechanism mounted at each end of the machine on opposite sides of said blast-pipe, means for connecting said sprocket mechanism with said blast-pipe, a driving-shaft for actuating said sprocket mechanism, mechanism for imparting intermittent rotation to the reel, and levers controlled from the blast-pipe for throwing the reel-driving mechanism into operation, substantially as described.

12. In a dust-collector, the combination of a framework, a rotary reel mounted in said framework and provided with a number of radially-arranged air-filtering chambers each closed at its outer end and having an open inner end, a cut-off chamber, a conveyer in said cut-off chamber, a laterally-perforated air-blast pipe extended lengthwise of the reel and adapted to be moved radially inward and outward between the porous walls of two contiguous air-filtering chambers, in succession, air pumps or compressors at opposite ends of the machine, rigid pipe connections between the opposite ends of said blast-pipe and the valved pistons of said air pumps or compressors and through which said blast-pipe and air pumps or compressors are in communication, mechanism connected with opposite ends of the blast-pipe to cause it to travel inward and outward between the radially-arranged air-filtering chambers and at the same time to operate said air pumps or compressors, a shaft for imparting intermittent rotation to said reel through intermediate pawl-and-ratchet connections, and lever mechanism controlled by the traveling blast-pipe for throwing said shaft into and out of operation, substantially as described.

13. In a dust-collector, the combination of a rotary reel provided with radially-arranged dust-collecting and air-filtering chambers, a traveling blast device for dislodging dust from the walls of said chambers, operating mechanism for causing said blast device to move radially inward and outward between said dust-collecting and air-filtering chambers of the reel, and mechanism for imparting intermittent motion to said reel, said mechanism being controlled by the traveling blast device, substantially as described.

14. In a dust-collector, the combination with a rotary reel comprising a number of radially-arranged dust-collecting and air-filtering chambers having porous walls, of a traveling blast device operating inward and outward in a radial direction between the porous walls of adjoining air-filtering chambers, successively, substantially as described.

15. In a dust-collector, the combination of a rotary dust-collecting medium comprising a number of chambers, a traveling blast-cleaner for dislodging dust from the walls of said chambers, mechanism for causing said blast device to move radially between adjoining chambers, an air-compressor, and direct and rigid connections between the piston of said compressor and the traveling blast device, whereby the said piston and traveling blast device are caused to move together, substantially as described.

645,828. METAL-PUNCHING APPLIANCE. FRANK MCCARTY, Martin's Ferry, Ohio. Filed Dec. 23, 1899. Serial No. 741,374. (No model.)

Claim.—1. An appliance for the purposes described, comprising a frame having a base portion adapted to rest upon an anvil or other like support and having an arm extended over the base portion the

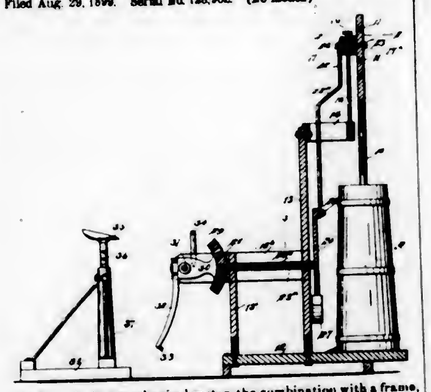
outer end of which terminates in a vertical barrel; a punch-holder held within the barrel and adapted to freely move down through the barrel by hammering it, said punch and barrel having coacting portions operating to impart a slight rotary motion to the punch when it is driven down by hammering and to quickly cause the said punch to rise up out of the barrel when it, the punch, is rotated by external force, as specified.



2. An appliance of the character described, comprising a supporting-frame having a base portion provided with a tang to fit the ordinary anvil and having an integral part 1^x, bent over the base portion, and a member 2, forming a continuation of the part 1^x, said member 2 being detachably secured upon the member 1^x and having a vertical and longitudinal adjustment thereon, the outer end of the member 2, terminating in a vertical barrel, said barrel having an internal-projecting member and a punch-holder having an external-spiral groove, said holder being freely movable vertically within the barrel and adapted to engage the internal projection in the barrel, said external spiral groove of the punch being of such pitch as to permit of a free vertical movement of the punch as it is driven upon by hammering, as hereinbefore described.

3. An improved metal-punching appliance, comprising a frame consisting of a base member, the outer end of which terminates in a die-receiving socket, the inner end of which is bent upon itself, and the extremity thereof formed with longitudinally-extending slots, the detachable member having a portion adapted to engage with the slotted end of the other member and having elongated slots adapted to register with the slots in the fixedly-held frame portion, said slots being projected at right angles to the slots in the said fixedly-held portion; the bolts and nuts for securing the two members together; the outer end of the adjustable portion terminating in a barrel, and a punch-holding stock vertically movable in the said barrel, all being arranged substantially as shown and for the purposes described.

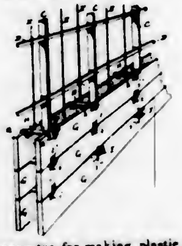
645,324. FOOT-POWER. ZEB MCCUBE, West Alexander, Pa. Filed Aug. 29, 1899. Serial No. 728,902. (No model.)



Claim.—1. In a mechanical motor, the combination with a frame, of a rock-shaft mounted therein, means for transmitting from the shaft the movement thereof, a bevel-pinion fastened to the rock-shaft, two beveled segmental racks mounted in the frame in planes at right angles to the plane of the pinion and meshing therewith at opposite sides thereof, and a treadle attached to each rack, the treadles being projected downward from the racks into proximity to the plane of the base of the frame, permitting the treadles to be rocked in opposite directions to drive the rock-shaft.

2. In a mechanical motor, the combination with a frame, of a rock-shaft mounted thereon, a crank attached to one end of the rock-shaft, a pitman attached to the crank, a cross-head connected with the pitman, means on the frame for guiding the cross-head, the cross-head serving to transmit movement from the motor, a beveled pinion fastened to the rock-shaft, two beveled segmental racks mounted in the frame in planes at right angles to the plane of the pinion and meshing therewith at opposite sides thereof, and a treadle attached to each rack, the treadles being projected downward from the racks into proximity to the plane at the base of the frame, permitting the treadles to be rocked in opposite directions to drive the rock-shaft.

645,825. APPARATUS FOR MAKING PLASTIC OR CONCRETE WALLS. JAMES MCHARDY, Cambridge, Mass. Filed July 21, 1899. Serial No. 724,609. (No model.)

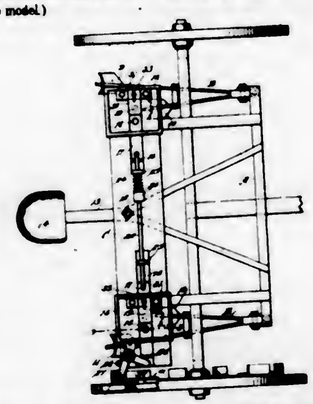


Claim.—1. An apparatus for making plastic or concrete walls, comprising two parallel series of superimposed boards, the boards of one series being connected to the boards of the adjacent series by removable transverse clips arranged between the meeting edges of the boards and constructed to engage the outer sides of the boards, substantially as described.

2. An apparatus for making plastic or concrete walls, comprising two parallel series of superimposed boards, the boards of one series being connected to the boards of the adjacent series by removable transverse clips arranged between the meeting edges of the boards and each consisting of a metallic strap provided at one end with two lateral lips projecting in opposite directions and at its opposite end with a transverse removable pin, substantially as described.

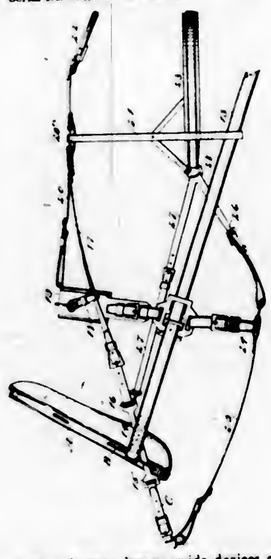
3. In an apparatus of the character described, a clip comprising a metallic strap provided at one end with two lips bent in opposite directions at right angles to the strap, and provided at its opposite end with a transverse removable pin, substantially as described and for the purpose specified.

645,826. PLANTING ATTACHMENT FOR CULTIVATORS. SAMUEL W. NELSON, Munday, Tex. Filed June 10, 1899. Serial No. 720,090. (No model.)



Claim.—A planting attachment for cultivators, consisting of a board or plate adapted to be secured to a cultivator-frame and having a groove or channel produced in each end, and an outlet-opening leading from the bottom of each groove through the plate or board, a chute secured to the under side of the board or plate, a seedbox on each end of the plate or board over the grooves thereof, the said plate or board forming the bottom of the end boxes, apertured seed-slides in the grooves of the board or plate, one of the said slides being provided with a flange at its outer end, a rod connecting the said slides and working in guides on the board or plate, a spring coiled on the rod between one of the guides and a stop on the rod, a bell-crank lever pivoted on one end of the board or plate and having one member engaging the flange of the said slide, and a band adapted to be secured to the inner face of one of the ground-wheels of the cultivator, and provided with a series of operating-plates projecting outwardly and inwardly therefrom, the inwardly-projecting members of the plates being inclined so as to engage the member of the bell-crank lever which is out of engagement with the seed-slide, substantially as described.

645,327. HARNESS. CARL B. OLSEN, Canby, Minn. Filed Sept. 16, 1899. Serial No. 730,712. (No model.)



Claim.—1. In a harness, hames, guide devices carried by the hames, traces, means for attaching the traces to the guide devices, a breast-strap, a back-strap, guide-straps attached to the back-strap and led to the front at each side of the animal, and sliding bars passed through the guide devices and connected with the guide-straps and the breast-strap.

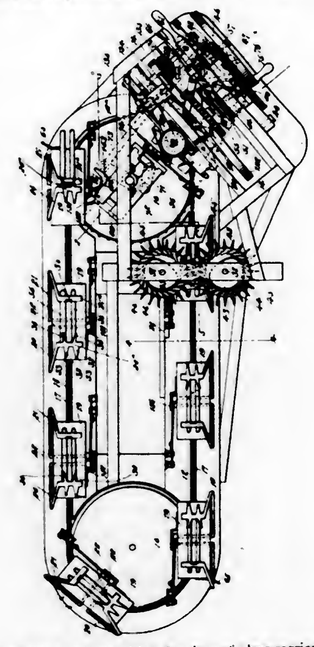
2. In a harness, a back-strap, guide-straps attached to the back-strap at a point near the crupper, each guide-strap being provided with a bar capable of sliding upon the hames of the harness and adapted for attachment to the breast-strap of a harness.

3. In a harness, the combination, with hames having staples provided with three sections, the central section being adapted to receive traces, a breast-strap and a back-strap, of guide-straps secured to the back-strap and extending forwardly from their point of attachment, each guide-strap being provided with a bar at its forward end, which bars are arranged to slide through either the upper or the lower sections of the said hame-staples, their forward ends being adapted for attachment to the breast-strap of the harness.

4. In a harness, the combination, with a saddle, the hames, staples secured to the hames, having several sections formed therein, traces attached to the intermediate section of the said staples, guide-loops carried by the saddle, a neck-yoke, a breast-strap connected with the neck-yoke, a martingale, and under and upper breeching-straps connected with each other and with the breeching, the lower breeching-straps being connected with the martingale, of a back-strap, guide-straps attached to the back-strap and passed through the guide-loops of the saddle, sliding bars attached to the guide-straps, which bars pass through the sections in the said hame-staples and are connected with the breast-strap, the upper breeching-straps being connected with the rear end portions of the said sliding bars, as described.

645,328. SACK-TYING MACHINE. JESSE W. PRIDGO, Harrodsburg, Ind. Filed May 20, 1899. Serial No. 717,653. (No model.)

Claim.—1. In a bag-tying machine, the combination of bag-holding devices grasping the mouth of the bag and holding it closed during the tying operation and bag-tying devices comprising means carrying the thread to wrap the same in loops around the mouth of the bag, and also comprising means for disposing the thread and for drawing on the same to contract the loops and form the knot.



2. The combination with a framing, of a bag-carrier mounted to move thereon, means for closing the mouth of the bag, and means for wrapping and tying a thread around the mouth of the bag, the bag-carrier moving first to the closing means and then to the wrapping and tying means.

3. The combination with a framing, of an endless connection mounted to move thereon, a bag-carrier attached to the connection and driven thereby, means for closing the bag, and means for wrapping and tying a thread around the mouth of the bag, the carrier moving the bag first to the closing means and to the then wrapping and tying means.

4. The combination with a framing adapted to have bags moved over the same, of means for crimping and closing the mouths of the bags, and means for wrapping and tying a thread around said mouths, the bags being moved first to the closing means and then to the tying means.

5. The combination with a framing, of a bag-carrier adapted to move thereon, two opposing parts, one of which is a movable arm pivoted to the carrier and adapted to engage the mouth of a bag, means mounted on the framing for crimping the mouth of the bag, means for throwing the arm of the carrier to hold the mouth of the bag in crimped or closed form, and knotting devices for tying the bags.

6. The combination with a framing, of a bag-carrier mounted to move thereon, two opposing parts one of which is a swinging arm mounted on the carrier, crimping devices adapted to engage the mouth of the bag, to crimp the same, and means for throwing the said movable arm to hold the mouth of the bag crimped.

7. The combination with a framing, of a bag-carrier adapted to be moved over the same, wheels geared with each other to turn in unison and between which the mouth of the bag is passed, and teeth mounted to swing on the wheels and to engage the mouth of the bag, to crimp the same.

8. The combination with a base, of a bag-carrier adapted to be moved over the same, arms extended upward from the carrier and adapted to swing on the carrier to hold the mouth of the bag between them, additional arms respectively in connection with the first-named arms, and cam-surfaces mounted on the framing and engaged by the said additional arms, to throw the said first-named arms.

9. The combination with a framing, of two wheels mounted thereon and adapted to have the mouth of a bag passed between them and teeth mounted loosely on the wheels and projecting therefrom to

mesh with each other, the teeth serving to crimp the mouth of the bag to close the same.

10. The combination with a framing, of means for carrying a bag, arms mounted on said means and adapted to compress the mouth of the bag between them, and means for crimping the mouth of the bag so that the bag when crimped, is compressed between the arms.

11. The combination with a framing, of crimping devices mounted thereon, a bag-carrier adapted to move the bag to said crimping devices, arms mounted to move on the bag-carrier, and means for moving the arms to close the mouth of the bag immediately upon the crimping thereof.

12. In a knotting apparatus, the combination of two fingers adapted to turn oppositely upon a common center, and a combined knife and clamp adapted to engage one end of the thread, to sever the same and to draw it through a loop formed by the fingers, whereby to tighten the knot.

13. In a knotting device, the combination of two fingers adapted to turn on a common center, the fingers moving oppositely to wrap the thread around the article to be tied, and means for drawing one end of the thread through a loop formed by the fingers to tighten the knot.

14. In a knot-tying device, the combination of two fingers adapted to turn oppositely on a common axis, to wrap a thread around the article to be tied, and means for tightening the thread to complete the knot.

15. In a knotting device, the combination of means for holding the article to be tied, such means comprising two fingers each with an upwardly-projected lug thereon, two fingers adapted to turn oppositely on a common axis to wrap the thread around the article to be tied, the lugs of the first-named fingers serving to engage one of the loops formed by the thread-fingers, a combined knife and clamp serving to sever one end of the thread and to draw the same through said loop, and means for disengaging the said end from the clamp.

16. In a knotting apparatus, the combination of means for holding the article to be tied, such means comprising a lug, thread-carrying fingers adapted to turn oppositely on a common axis to wrap a thread around the article to be tied, the thread-carrying fingers serving to engage one loop on the thread with the said lug, a combined knife and clamp serving to sever one end of said thread and to draw the same through the said loop, and means for disengaging the said end from the clamp.

17. In a knotting apparatus, the combination of two thread-carrying fingers adapted to turn oppositely to wrap a thread around the article to be tied, and means for drawing one end of the thread through a loop thereof to tighten the knot.

18. In a knotting device, the combination of two fingers adapted to move oppositely to wrap a thread in loops around the article to be tied, and means for drawing one end of the thread through one of said loops to tighten the knot.

19. In a binding and tying apparatus, the combination of a swinging finger serving to carry the thread and turning around the article to be tied, to wrap the thread in loops around and bind the same, and means for drawing one end of the thread through one of the loops formed by the finger.

20. In a binding and tying apparatus, the combination of swinging means adapted to carry the thread and to turn around the article to be tied to wrap the thread in loops around and bind the same, a clamp adapted to engage the thread and draw one end of the same through one of the loops to bind the knot, and means for disengaging the clamp.

21. In a knotting apparatus, the combination of a means carrying the thread swinging around the article to be tied to wrap the thread in loops around the same, and means for drawing on the thread to contract the loops thereof and form the knot.

22. In a knotting device, the combination of a swinging finger adapted to turn completely around the article to be tied and to wrap the end of the thread in loops around the same, a knife serving to sever the standing part of the thread after the end is wrapped around the article to be tied, and means for drawing on the thread to contract the loops thereof and form the knot.

23. In a bag-tying apparatus, the combination with a frame and with knotting devices, of two rock-shafts, a toggle in connection with one of the rock-shafts, a shaping-plate in connection with the toggle, means for imparting movement to the toggle to operate the shaping-plate, a connection between the two shafts to drive the second shaft from the shaft with which the toggle is connected, a crank on the said second shaft, and a second shaping-plate in connection with the crank and operated thereby simultaneously with the first-named shaping-plate.

24. In a bag-tying apparatus, the combination with a frame and with knotting devices, of two shaping-plates juxtaposed to the knotting devices and adapted to engage opposite sides of the bag, and means for operating said plates simultaneously.

25. In a bag-tying machine, the combination with bag closing and tying devices, of two shaping-plates mounted on the machine and adapted to engage opposite sides of the bag to shape the same, and means for operating the plates simultaneously.

26. The combination with a frame, of two shaping-plates adapted to engage a bag to shape the same, a toggle connected with one plate to move the same, a shaft with which one member of the toggle is connected, means for operating the toggle, a second shaft, a connection between the two shafts, a crank attached to the second shaft, and a connection between the crank and one of the said shaping-plates.

27. The combination of a rotary shaft, a mutilated gear fast thereon, a second rotary shaft, a gear mounted on the second shaft and coacting with the mutilated gear to be periodically turned thereby, a cam attached to the first-named shaft and turning therewith, a pawl tending to lock the second gear, and a connection between the pawl and said cam for controlling the pawl, the cam being timed to release the pawl as the mutilated gear meshes with the gear on the said second shaft.

28. In a feed mechanism for knotting and tying machines, the combination of a swinging arm, an annulus carried thereon and moved thereby, a hollow slotted knotter-shaft, a sleeve mounted loosely in the annulus and having limited sliding movement on the shaft, and gripping-dogs mounted in the sleeve and working in the slotted knotter-shaft and engaging the annulus to lift the sleeve and dogs with the annulus and to cause the dogs to move together to grip the thread.

29. The combination of a hollow slotted knotter-shaft through which the thread is passed, a sleeve mounted loosely on the shaft, a dog mounted in the sleeve and adapted to engage with the thread through the slot in the knotter-shaft to clamp the thread, an annulus loosely encircling the sleeve and engaging the shank of the dog to actuate the dog, and means for raising and lowering the annulus.

30. The combination with a hollow slotted knotter-shaft through which the thread is adapted to be passed, of a member mounted to slide thereon, a dog carried by said member and moving through the slot in the knotter-shaft to coact with the thread, a second member relatively movable with the first and engaging the dog to actuate the same, and means for raising the two members, such means engaging the second member.

31. The combination of a hollow knotter-shaft, a thread-finger attached to said shaft, the thread passing through the knotter-shaft and being engaged with the finger, and a take-up device working on the knotter-shaft.

32. The combination of a hollow knotter-shaft through which the thread is passed, a thread-arm attached to and turning with the shaft and having the thread engaged therewith, a take-up device sliding on the shaft and the shaft having a slot therein permitting the take-up to engage with the thread, and means for operating the take-up in time with the operation of the thread-finger.

33. The combination of a hollow knotter-shaft, knotting devices in connection therewith, the thread being passed through the knotter-shaft, a take-up device mounted on the shaft and the shaft having a slot therein permitting the take-up device to engage with the thread in the knotter-shaft, means in connection with the take-up to raise the same, and a cam-rim driven in the vicinity of the said means and engaging the same to operate the take-up.

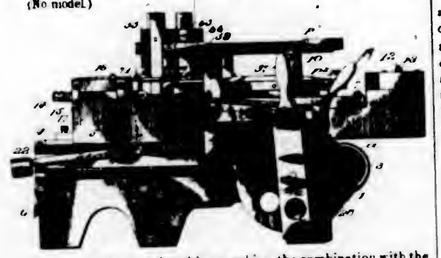
34. The combination of two thread-carrying fingers adapted to turn oppositely, one finger having an eye through which the thread is passed, a clamp mounted on the other finger, means for operating the clamp to engage and release the thread, and a combined knife and nipper adapted to sever one end of the thread and to draw the same through a loop formed by the fingers to tighten the knot.

35. The combination of two thread-carrying fingers adapted to turn oppositely to wrap the thread loosely around the article to be tied, a clamp mounted on one of the fingers, an arm in connection with the clamp to transmit operative movement thereto, two levers mounted in the vicinity of the fingers and having projections adapted to engage with the arm of the clamp automatically to operate the clamp, means for operating said levers and means for engaging one end of the thread, to draw the same through a loop formed by one of the fingers, whereby to tighten the knot.

36. The combination of two fingers adapted to turn and to carry the thread in loops around the article to be tied, a clamp mounted on one of the fingers to hold the thread, means for automatically operating the clamp, and a combined knife and nipper adapted to sever one end of the thread and to draw the same through a loop formed by one of the fingers.

37. In a knotting apparatus, means for severing and drawing the thread, comprising a shaft, a member mounted eccentrically on the shaft to turn therewith, two nipper-sections, one being pivoted to the said member, a cam on the said member with which the other section engages, and a knife carried by the one of the nipper-sections and working against the other section of the nipper, the said two sections forming a clamp to engage and hold the thread.

645,329. **WOODWORKING MACHINE.** LAWRENCE PLATT, Patton, Pa., assignor to Luther M. Patterson, Benjamin F. Wise, Samuel Worrell, Annie Minnick Worrell, and John Boyce, same place, and William Boyce, Brisbin, Pa. Filed Feb. 9, 1898. Serial No. 669,720. (No model.)



Claim.—1. In a woodworking-machine, the combination with the bed, of a cutter-frame pivotally secured thereto, said frame comprising a block formed at its forward end with vertical guideways, guide-rods movable in said ways, a cutter-shaft revolubly mounted in the block, a plurality of cutter-heads carrying knives loose on said shaft, and yokes secured one to each cutter-rod and engaging one of the cutter-heads, substantially as described.

2. In a woodworking-machine, the combination with the bed, of a cutter-frame pivotally secured thereto, said frame comprising a block formed at its forward end with vertical guideways, guide-rods movable in said ways, a cutter-shaft revolubly mounted in the block, a plurality of cutter-heads carrying knives loose on said shaft, yokes secured one to each cutter-rod and engaging one of the cutter-heads, and an alinement-block movably supported by the cutter-frame, substantially as described.

3. In a woodworking-machine, the combination, with the bed and the main shaft journaled therein, of two cutter-frames pivotally secured to the bed and each carrying a cutter-shaft, a plurality of cutters loosely placed on the shaft, means for automatically adjusting the cutters, one of said cutter-frames being longer than the other so as to bring the respective sets of cutters into contact with the blank at points diagonally opposite, thereby enabling the cutters to assist in maintaining the alinement of the blank during the operation of the machine, substantially as described.

4. In a woodworking-machine, the combination, with the bed and a carriage movable thereon, said carriage carrying a blank to be operated upon, of cutter-frames carrying a plurality of cutters arranged in sets, means for independently adjusting each cutter of each set, and an alinement-block carried by each cutter-frame for maintaining a correct position of the blank during the operation of the machine.

5. In a woodworking-machine, the combination, with the bed and a carriage movable thereon, said carriage carrying a blank to be operated upon, of cutter-frames carrying a plurality of cutters arranged in sets, means for independently adjusting each cutter of each set, an alinement-block carried by each cutter-frame, and means for adjusting the blocks automatically.

6. In a woodworking-machine, the combination, of a bed, a carriage supported by and movable on the side strips of the bed, the side strips of the carriage being cut out for a considerable portion of their length, the pattern-frames carrying a plurality of independently-removable patterns adjustably secured in said cut-out portions, whereby the configuration of the finished article may be altered without removing the pattern by a simple adjustment of either pattern-frame, substantially as described.

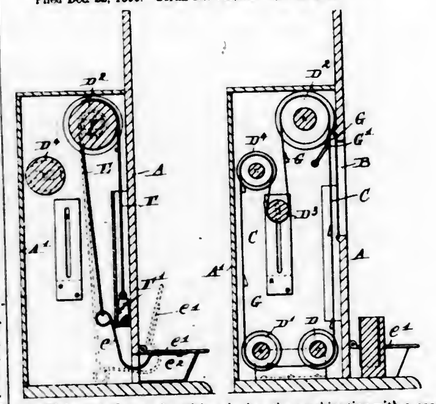
7. In a woodworking-machine, a bed, a carriage movable on and supported by the bed, a screw-shaft carried by the bed and adapted to actuate a follower carried by the carriage, a friction-roller projecting from the main shaft, a double friction-wheel mounted in a suitable frame pivoted to the bed, and having gearing in mesh with gearing on the screw-shaft, said double friction-wheel frame being so pivoted as to permit either friction-surface of the double friction-wheel to be forced into contact with the friction-pulley on the main shaft, whereby the operator may control the speed and direction of travel of the carriage.

8. In a woodworking-machine, in combination with a bed with a carriage movable thereon, said carriage carrying a blank to be operated upon, of a centering-block secured to the bed near its front end, said block being formed with a throat having an adjustable cover, as and for the purposes stated.

9. In a woodworking-machine, the combination, with a bed and a main shaft journaled therein, of a carriage, a head-clutch and a tail-clutch mounted on the carriage at opposite ends thereof, lever mechanism operated by hand-lever for moving the head-clutch, the lower end of the hand-lever being formed with a series of serrations, and means carried by the bed to engage the serrations on and actuate the hand-lever in the forward movement of the carriage, whereby said head-clutch is automatically withdrawn from the blank.

10. In a woodworking-machine, the combination, with a bed and a main shaft journaled therein, of a carriage, a head-clutch and a tail-clutch mounted on the carriage at opposite ends thereof, lever mechanism operated by hand-lever for moving the head-clutch, the lower end of the hand-lever being formed with a series of serrations, and a weighted lever pivoted to the bed and formed with a series of serrations to engage the serrations on the hand-lever in the forward movement of the carriage, whereby said head-clutch is automatically withdrawn from the blank.

645,330. **ADVERTISING DEVICE.** EDWIN A. POWELL, North Fitzroy, Victoria, assignor to John Johnston, Melbourne, Victoria. Filed Dec. 22, 1899. Serial No. 741,332. (No model.)



Claim.—1. In an advertising device, the combination with a casing having an opening in the front wall thereof, of a belt or apron containing advertising matter movable behind said opening, a roller around which said belt or apron passes and by means of which its progressive movement is imparted, a cord wound upon said roller in one direction, a receptacle outside said casing, a lid therefor having an arm thereon connected to said cord a second cord wound upon said roller in a direction opposite the other cord and having a weight upon its lower end, and means for preventing the backward movement of said belt or apron when said roller is actuated by the cord carrying said weight, as and for the purpose set forth.

2. In an advertising device, the combination with a casing having an opening in the front wall thereof, of a belt or apron containing advertising matter movable behind said opening, a roller around which said belt or apron passes and by means of which its progressive movement is imparted, a cord wound upon said roller in one direction, a receptacle outside said casing, a lid therefor, having an arm thereon connected to said cord, a second cord wound upon said roller in a direction opposite the other cord and having a weight upon its lower end, a plurality of stops on the rear surface of said belt or apron, and a detent adapted to engage said stops for preventing the backward movement of said belt or apron when said roller is actuated by the cord carrying said weight.

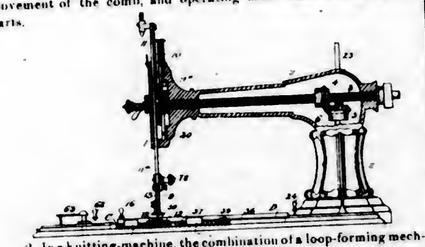
645,331. **COMPOSITION OF MATTER.** WILLIAM PRAMPOLINI, San Luis Potosi, Mexico. Filed Dec. 2, 1899. Serial No. 739,037. (No specimens.)

Claim.—A new composition of matter for use as a substitute for india-rubber consisting of the gummy matter of the shrub called "*Synantherocas-Mexicanas*," known also by the Indian names of "*Yule*," "*Ospalin*," "*Yerba del Negro*," "*Guayule*," "*Jiguhite*" and "*Hule*," said gummy matter being combined with the residual oil of a volatile hydrocarbon solvent substantially as herein described.

645,332. **KNITTING-MACHINE.** FERDINANDO ROSATI, Milan, and CORRADINO PETRINI and RUGGIERO PETRINI, Chieti, Italy, assignors to the Berliner Taxameter Gesellschaft, Francke & Co., Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Filed Mar. 27, 1896. Serial No. 585,136. (No model.)

Claim.—1. In a knitting-machine, the combination with the nee-

dle, of a movable toothed comb adapted to hold the loops, a loop-catcher adapted to place the loops formed by the needle on that tooth of the comb which precedes the needle in the direction of the movement of the comb, and operating mechanism for the several parts.



2. In a knitting-machine, the combination of a loop-forming mechanism comprising a needle, a movable toothed comb and two loop-catchers, operating means for the needle, means for moving the comb, mechanism for operating either loop-catcher, and means for reversing the movement of the comb and throwing one loop-catcher out of and the other into action.

3. In a knitting-machine, the combination with the needle, a reciprocating comb, loop-catchers, and their operating mechanism, of a reversing mechanism comprising stops or reversing-teeth movable with the comb and spaced a distance apart substantially equal to the width of work to be knitted, and means operated by said teeth for reversing the comb-feed mechanism and for throwing one loop-catcher out of and the other into action.

4. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a movable toothed comb, and two loop-catchers for placing said loops on the teeth of said comb, operating mechanism for the needle, means for actuating one of said loop-catchers while the other remains inactive, and mechanism for throwing out the active and bringing into action the inactive loop-catcher.

5. In a knitting-machine, the combination of the loop-forming mechanism comprising a needle, a movable toothed comb for holding said loops, and two loop-catchers, means for operating the needle, means for actuating either one of said loop-catchers, means for moving said comb, and means for reversing the movement of the comb without throwing out of action the active loop-catcher.

6. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a toothed comb for holding the loops, and a loop-catcher for placing the loops on said comb-teeth, means for operating said needle, a lever fulcrumed on a fixed pivot and on which said loop-catcher is pivoted, means mounted independently of said lever for moving the same on its pivot, and a device for engaging said loop-catcher for turning it on its pivot, substantially as described.

7. In a knitting-machine, the combination of a loop-forming mechanism comprising a needle, a toothed comb for holding the loops, and a loop-catcher for placing the loops on the comb-teeth, means for operating said needle, a lever fulcrumed on a fixed pivot and on which said loop-catcher is pivoted, means mounted independently of said lever for moving the same on its pivot, a stop on the machine, and an arm or projection on said loop-catcher adapted to engage said stop whereby the loop-catcher is turned on its pivot, substantially as described.

8. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a toothed comb for holding said loops, and two similar loop-catchers for placing said loops on the comb-teeth, operating means for the needle, a lever on which said loop-catchers are pivoted, means for moving said lever on its fulcrum to bring one of said loop-catchers into active position, means for changing the position of said lever to bring the other loop-catcher into active position on the movement of the lever, and devices, adapted to engage the active loop-catcher and turn it on its pivot.

9. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a toothed comb for holding said loops, and a loop-catcher for placing the loops on said comb-teeth, a lever on which said loop-catcher is pivoted, operating means for the needle, a reciprocating bar operated from the drive-shaft of the machine provided with an inclined face adapted to engage a portion of said lever to move it on its fulcrum, and a device adapted to strike said loop-catcher and turn it on its pivot.

10. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a toothed comb for holding the loops, and two loop-catchers for placing the loops on the comb, a lever carrying said loop-catchers and fulcrumed to a fixed part of the machine, operating means for the needle, a reciprocating bar, operating means therefor, a device movably secured to said bar having oppositely-inclined faces one of which faces in one position of the device is adapted to engage the loop-catcher-carrying lever and the other of which faces is adapted to engage said lever in another position of said device.

11. In a knitting-machine, the combination of a movable toothed comb for holding the loops, a rack carried by the comb, a lever pivoted to the machine-frame, a pawl carried by said lever, a reciprocating bar, means for operating the same, and a device carried by said bar and adapted by the movement thereof to engage said lever and move the same to carry the pawl into engagement with the rack to move the latter.

12. In a knitting-machine, the combination with a movable toothed comb for holding the loops, a rack carried by said comb, a bent lever fulcrumed to the machine-frame, a double-ended pawl pivoted intermediate its ends to one arm of said lever, a reciprocating bar, a device movably secured to said bar having two oppositely-inclined surfaces one of which in one position of the device engages the other arm of said bent lever and the other of which inclined surfaces in another position of the device engages the said bent lever-arm, for the purpose described, and means for shifting said device on the bar.

13. In a knitting-machine, the combination with a movable toothed comb, a rack carried thereby, a double pawl for moving said rack and comb in opposite directions, a bent lever to which said pawl is pivoted, a reciprocating bar, means for reciprocating the same, a device pivoted to said bar having an arm on each side extending laterally beyond the bar and a pointed end adapted to engage said bent lever, a rock-shaft below said reciprocating bar, a substantially U-shaped piece secured to said rock-shaft and straddling said bar, and means for rocking said shaft to bring either of said arms of said U-shaped piece in the path of one arm of said device carried by the reciprocating bar, substantially as and for the purpose set forth.

14. In a knitting-machine, the combination of the loop-forming mechanism comprising a needle, a toothed comb, and two similar loop-catchers, means for operating the needle, a lever on which said loop-catchers are pivoted, means for turning said loop-catchers on their pivots, a reciprocating bar, a device pivoted to said bar having on each side an arm extending beyond the side of the said bar and a pointed end adapted to engage said lever, a rock-shaft below said reciprocating bar, a fork secured to said shaft straddling said bar, and means for rocking said shaft to bring either arm of said fork into the path of one arm of said device carried by the reciprocating bar, substantially for the purpose set forth.

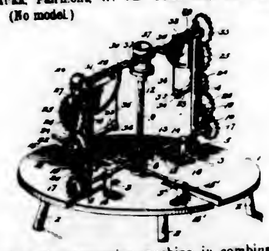
15. In a knitting-machine, the combination of loop-forming mechanism comprising a needle, a movable toothed comb, and two loop-catchers, means for operating the needle, a lever carrying the loop-catcher, a rack carried by said comb, a double pawl for moving said rack and comb, a lever carrying said pawl, two reciprocating bars one above the other, means for reciprocating the same, similar devices one pivoted on each of said bars provided each with arms projecting to the sides of said bars, a rock-shaft adjacent said bars, a fork secured to said rock-shaft straddling said bars each arm carrying a projection or pin, and means for rocking said shaft to bring one of said fork-arms and projections in the path of one arm of each of said devices, substantially for the purpose set forth.

16. In a knitting-machine, the combination with a movable comb, and mechanism for operating the same, including a reciprocating bar, of mechanism for reversing the movement of the comb comprising a rock-shaft, means operated by said rock-shaft for changing the position of parts of the comb-operating mechanism, an arm secured to the rock-shaft, a lever fulcrumed to the machine-frame provided with a projection engaging said arm, a second lever having a loose connection with said first-mentioned lever, a handpiece for initially moving said second lever, a projection carried by said reciprocating bar having an inclined surface adapted to move said second lever.

17. In a knitting-machine, the combination with a needle, means for operating the same, a movable toothed comb, mechanism for moving the comb in either of two directions, two loop-catchers, and mechanism for actuating one of said loop-catchers during the movement of the comb in one direction and the other loop-catcher in the movement of the comb in the other direction, of a regulator comprising a rotary disk, means for rotating the same, one or more stops adjustably secured to said disk, a shaft rotatably mounted in the machine, a star-wheel thereon adapted to be engaged by said stop or stops to rotate said shaft, a rock-shaft, an arm thereon in proximity to said rotary shaft, a star-wheel on the latter adapted to engage said arm and rock said rock-shaft, means actuated by the rock-shaft for reversing the movement of the comb and throwing into action the inactive loop-catcher.

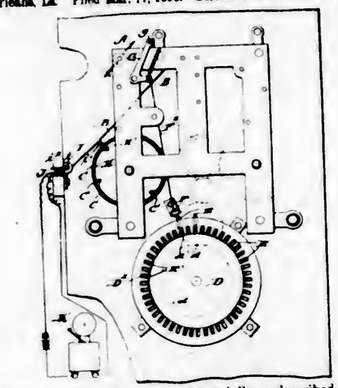
18. In a knitting-machine, the combination with loop-forming mechanism, of a toothed comb, a loop-catcher for placing the loops on the comb, a loop-lifter yieldingly supported in proximity to said comb-teeth and movable independently of the needle, a reciprocating member provided with an inclined plane for moving said loop-lifter, and mechanism for driving the several parts.

645,333. ENGRAVING-MACHINE FOR GLASSWARE. GUSTAV SCHUFFRAUER, Fairmont, W. Va. Filed May 25, 1899. Serial No. 718,205. (No model.)



Claim.—In a glass-engraving machine, in combination, the radially-slotted table 1, the vertical axial bearing 6; the shaft 9 and collar 8 journaled in said bearing, the worm-gear 13 mounted on said shaft 9; the horizontal shaft 15, the worm-screw fixed on said shaft and in mesh with the worm-gear 13, the spur-gears 17 adjustably mounted near the ends of the shaft 15; the standards 4, 4 screw-threaded at their lower ends and secured in the radial slots 3, 3 of said table 1 by the clamping-nuts 5, 5 to render said standards both vertically and radially adjustable with relation to said slotted table 1 and the centrally-disposed standard 9; the shafts 22, 28 and 30 operatively connected to said spur-gears 17; the universal joint 29, connecting the shafts 28 and 30; the segmental plate 31; the face-plate 34 carried by shaft 22, the eccentric wrist-pin fixed in said face-plate 34; and the vertical arm 36 connecting the wrist-pin and segmental plate 31, substantially as and for the purpose set forth.

645,334. TIME-ALARM MECHANISM. CHARLES SCHMIDT, New Orleans, La. Filed Mar. 17, 1899. Serial No. 709,471. (No model.)



Claim.—1. In an apparatus substantially as described, the main wheel having peripheral openings and radial notches corresponding therewith, the pins movable in and out in said peripheral openings and having arms operating in the radial notches and protruding at their outer end to serve as handles and having stop extensions at their inner ends and projections on the wheel for engagement by said stop extensions, substantially as set forth.

2. An apparatus substantially as described comprising the main wheel having peripheral openings and radial notches corresponding to said openings, the pins movable radially in said openings and having arms operating in the radial notches and serving as handles by which to protrude and withdraw the pins, means for holding the pins in any desired adjustment, the clock-train geared with the main wheel, a lever arranged for operation by the projected pin of the main wheel, a second lever connected with the said first lever, the usual striking mechanism having its fly-wheel arranged to be held and released by the said second lever, the special alarm, and means whereby said special alarm may be operated by the ordinary striking mechanism, substantially as set forth.

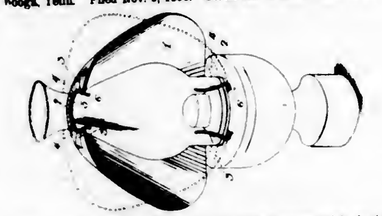
3. In an apparatus substantially as described, the combination with the alarm-wheel having notches and provided with the surface composed of a series of cams, the special-alarm mechanism, and an arm or lever arranged at one end to operate the special-alarm mechanism and at its other end to ride upon the cams of the alarm-wheel, substantially as set forth.

4. In an apparatus substantially as described, the combination of the usual mechanism having a fly-wheel and the series of cams on its striking-wheel, the special-alarm-operating lever I arranged to be operated by said cams, a stop movable into and out of the path of the fly-wheel, a main wheel having movable pins or parts arranged to be projected, and intermediate devices between said main wheel and the stop for the fly-wheel, whereby the parts on the main wheel when projected may be caused to adjust the stop out of the path of the fly-wheel substantially as set forth.

5. An apparatus substantially as described comprising the clock-train, the main wheel driven thereby and having parts arranged to be projected, a lever arranged for operation by the projected parts of the main wheel, a second lever connected with the first lever, the fly-wheel arranged to be held and released by the said second lever, the special-alarm mechanism, and means whereby the special alarm may be operated by the ordinary striking mechanism substantially as set forth.

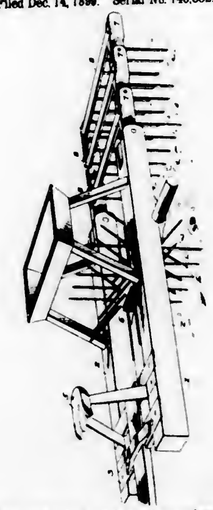
6. In an apparatus substantially as described, the combination of the clock mechanism having a fly-wheel and striking-wheel, the special-alarm mechanism arranged for operation by the striking-wheel, the main wheel having parts arranged to be projected, stop devices movable into and out of the path of the fly-wheel, and devices connected with said stop devices and arranged for operation by the projected parts of the main wheel substantially as set forth.

645,335. REFLECTOR FOR LAMPS. GEORGE SHANNON, Chattanooga, Tenn. Filed Nov. 9, 1899. Serial No. 736,326. (No model.)



Claim.—In a reflector for lamps, the combination with the body portion thereof bent inwardly to form a flange 2, said flange 2 having portions cut away intermediate its terminals to form V-shaped notches 3 having tongues 4 between them; and the open clamping-wire 6 supported in integral eyes 5 at the ends of said tongues 4, substantially as specified.

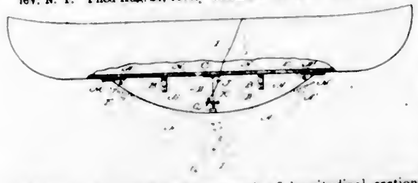
645,886. CLOD CRUSHER AND PULVERIZER. WILLIAM F SNOUP, Derrick City, Pa., assignor of one-half to Seth Gurganious, Red Rock, Pa. Filed Dec. 14, 1899. Serial No. 740,332. (No model.)



Claim.—In a combined clod crusher and pulverizer, the combination with the main frame and a spiked cylinder arranged therein:

of the drag-frame pivoted to the rear end of the main frame and consisting of drag-shoes the rear ends of which are forked and the sides of which are tapered toward the forward ends, said drag-shoes being pivoted together and each set being connected by a cross-piece provided with spikes, substantially as and for the purpose set forth.

645,337. CENTERBOARD FOR BOATS. CHARLES J. SMITH, Holley, N. Y. Filed Aug. 21, 1899. Serial No. 727,975. (No model.)

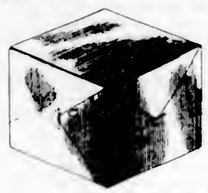


Claim.—1. A centerboard composed of longitudinal sections hinged together, tongues at their outer ends adapted to removably enter sockets on the boat, a spring adapted to act upon the sections so as to withdraw the tongues from the sockets and thereby detach the board, and means for holding and releasing the sections, substantially set as forth.

2. A centerboard composed of longitudinal sections hinged together, tongues at their outer ends adapted to removably enter sockets on the boat, a spring interposed between the sections adapted to withdraw the tongues from the sockets, a hook and eye on the sections for locking the same, and means for releasing the hook, substantially as shown and described.

3. A centerboard composed of longitudinal sections hinged together, tongues at their outer ends adapted to removably enter sockets on the boat, a spring adapted to act upon the sections so as to withdraw the tongues from the sockets, means for holding and releasing the sections, the laterally-extending braces B B to bear against the bottom of the boat, reinforcing dowel-pins D D, supporting-clip G and dowel-pin L at the lower meeting corners of the sections, substantially as shown and described.

645,338. MILLINER'S BOX. LULU M. SUTTON, St. Clairsville, Ohio. Filed July 14, 1899. Serial No. 723,824. (No model.)



Claim.—A box formed from a blank of sheet material comprising a bottom, a front, back, sides, a top, and interlocking flaps, the latter being of triangular form and terminating in engaging heads, certain of the flaps appearing at corresponding edges of the inclosing sides, other flaps being disposed at opposite edges of the front, and a single flap at the outer edge of the top, the back and sides having slits at right angles to their folding-creases, and the front having a slit parallel with its folding-crease, the several slits being adapted to receive the said engaging heads of the interlocking flaps and the back having a pair of spaced slits, substantially as described.

645,339. EYEGLASSES. FRANK M. THOMPSON, Wilmington, Del., assignor of one-half to William G. Bryan, same place. Filed June 3, 1899. Serial No. 719,335. (No model.)



Claim.—1. A bridge for eyeglasses, the bridge having each end portion bent to form two loops, the one projected upwardly and the other projected downwardly, the loops permitting the adjustable attachment of the bridge to the lenses, the downwardly-projecting loop having its lower end constructed to bear against the nose of the wearer, and a plate mounted at each end of the bridge to form additional bearing-surfaces.

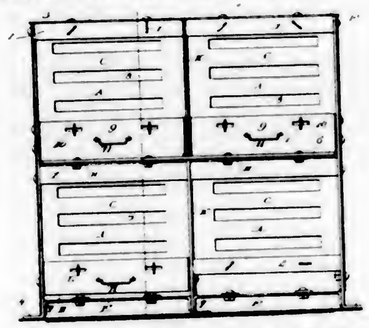
2. A bridge for eyeglasses, the bridge being formed of an integral length of material and having each end portion bent to form a loop permitting the adjustable attachment of the bridge to the lenses, the loop projecting downwardly and having its lower end constructed to bear against the nose of the wearer, thus forming the connection for the lenses and the bearing for the nose of the wearer, and means attached to each end of the bridge to form additional bearings.

645,340. LAMP-BURNER. WILLIAM R. THOMPSON, Nevada, Mo. Filed Jan. 2, 1900. Serial No. 111. (No model.)



Claim.—In combination with the body of the burner, the cap D, having a central elongated aperture with an upright flange about same, and two elongated apertures on opposite sides of said central aperture, the cap K, having an elongated aperture registering with the flanged aperture in cap D, oppositely-disposed elongated apertures N, N, in the convexed surface of the cap K, arranged substantially as shown and for the purpose set forth.

645,341. HEN'S NEST. SAMUEL A. TWYMAN, Flanagan, Ill. Filed Feb. 17, 1899. Serial No. 706,939. (No model.)



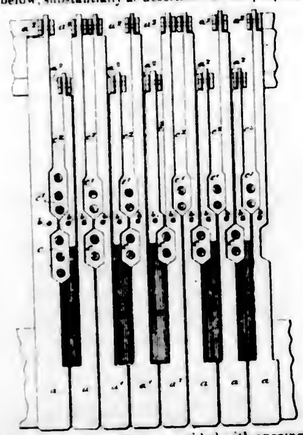
Claim.—1. In a hen's nest, the combination with a frame structure having a plurality of compartments or nests open at the front and rear thereof, of transverse cross-bars extending entirely across the open ends of the compartments and spaced above the bottoms thereof, turn-buttons provided upon the outer sides of the cross-bars, and removable drawers, slidable within the compartments and beneath the respective cross-bars, and provided with front ends fitting against the outer sides of the cross-bars, and having slots to receive the turn-buttons substantially as shown and described.

2. In a hen's nest, the combination with a frame structure, comprising corner posts or uprights, and transverse cross-bars connecting the posts, of turn-buttons provided upon the outer sides of the cross-bars, and a removable back having slots to receive the turn-buttons, and capable of being fitted to opposite sides of the structure, substantially as and for the purpose set forth.

3. In a hen's nest, a frame structure having a plurality of compartments or nests open at the front and rear ends thereof, and comprising corner posts or uprights, cross-bars connecting the posts and located at the upper and lower sides of the respective compartments, other cross-bars spaced immediately above the bars at the bottoms of the compartments, turn-buttons provided upon the outer sides of the cross-bars, removable backs for each compartment, and provided with slots to receive the turn-buttons, and removable drawers supported upon the cross-bars at the bottoms of the compartments, slidable beneath the bars immediately above the former cross-bars, and having wide front ends fitting against the outer sides of the respective spaced bars, and provided with slots receiving the turn-buttons, substantially as shown and described.

645,342. PIANOFORTE. JOHN C. WARD, London, England. Filed Dec. 27, 1897. Renewed Dec. 31, 1898. Serial No. 700,857. (No model.)

Claim.—1. A keyboard for pianofortes provided with unobstructed openings extending vertically therethrough and located above wrest-pins below, substantially as described for the purpose specified.



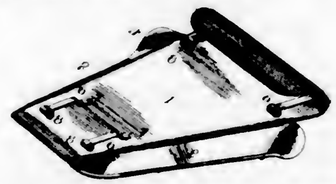
2. A keyboard for pianofortes provided with openings such as *c* and *c'* formed in and located between adjacent keys, substantially as described for the purpose specified.

3. In a pianoforte in which the strings, and the appliances for sounding the same are on both sides of the frame, and the keys are above, the combination of a wrest-plank placed approximately in a horizontal position on the top of the frame, with a keyboard provided with openings for giving access to the wrest-pins; substantially as herein described and shown.

4. In a pianoforte the combination of a frame, a wrest-plank placed in or approximately in a horizontal position on the top of said frame, strings at both sides thereof, appliances for sounding said strings, and a keyboard constructed with openings adapted to afford access to the wrest-pins, substantially as described.

5. In a pianoforte in which the strings and the appliances for sounding the same are on both sides of the frame and the keys are above, the combination of a wrest-plank placed approximately in a horizontal position on the top of the frame with auxiliary levers b^2, b^2, each reduced in width for a portion of its length adjacent to the wrest-pins whereby the implement employed for tuning may be conveniently engaged with the corresponding wrest-pins, substantially as described.

645,343. PROTECTOR AGAINST INSECTS FOR HORSES. CHAS. WELLER and GEORGE F. LACHENMYER, Mount Pulaski, Ill. Filed July 27, 1899. Serial No. 725,308. (No model.)



Claim.—As an improved article of manufacture, an insect-protector to be applied to the lower jaw of an animal and adapted to be removably attached to the bridle without requiring the loosening of a single strap, the same consisting of a rigid body having side flanges forming guards and stiffeners, a rear roll constituting a transverse stiffener and housing, and a pair of loop-shaped spring-fastenings at the front and at the rear of the said body and secured at their rear ends thereto and having their front ends loose and held against the body by spring action, and having the rear set of fastenings housed by the roll, substantially as described.

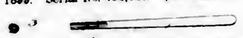
645,344. FRUIT-BASKET. WILLIAM O. WHITE, Memphis, Tenn. Filed Apr. 25, 1899. Serial No. 714,387. (No model.)

Claim.—1. A basket or receptacle, made in a single piece from open-work material, bent to form integral bottom and sides, and bent upwardly and outwardly from the bottom beyond the ends forming integral resilient cushions, and a wire extending through said ends having its terminals bent or coiled through said cushions for retaining the latter in operative position.



2. A basket or receptacle for fruit or the like, comprising a body made in one piece from open-work material, having integral resilient cushions extending from the bottom outside the ends, a partition intermediate the ends of the body, and a wire extending through said partition and said ends, and having its terminals bent or coiled through said cushions for retaining the latter in operative position, and for preventing the separation of said partition from said body.

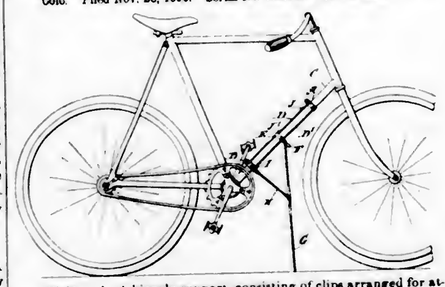
645,345. DENTAL BROACH. LUTHER A. YOUNG, St. Louis, Mo. Filed Oct. 5, 1899. Serial No. 732,649. (No model.)



Claim.—1. A broach comprising a wire, and a metal handle formed with a groove in its side at one end, said wire being inserted in said groove and clamped therein by the compression of the walls of the groove around said wire, substantially as and for the purpose set forth.

2. A broach comprising a wire roughened at one end, and a metal handle formed with a groove in its side at one end, said wire being inserted in said groove and clamped therein by the compression of the walls of the groove around said wire, substantially as and for the purpose set forth.

645,346. BICYCLE-SUPPORT. FREDERICK BARRY, Silverton, Colo. Filed Nov. 28, 1899. Serial No. 738,519. (No model.)



Claim.—1. A bicycle-support, consisting of clips arranged for attachment to a bicycle-frame, rods extending from one clip to the other and connecting said clips, a runner having ears bent around said rods whereby it is fitted to slide on the same, supporting-rods pivotally secured to said runner, and links pivotally secured to the lower clip and the supporting-rods, as set forth.

2. A bicycle-support, comprising a guideway for removable attachment to the lower brace of a bicycle-frame, a runner mounted to slide on the guideway, a supporting-rod pivotally connected with said runner, a link pivotally connecting said supporting-rod with said guideway, and a plurality of catches secured at intervals on said guideway, to lock the runner in either an uppermost or lowermost position, the said runner sliding over and being frictionally held by said catches, substantially as shown and described.

3. A bicycle-support, comprising clips arranged for attachment to a bicycle-frame, rods connecting said clips, a runner in the form of a band having ears bent around two of said rods whereby it is fitted to slide thereon, supporting-rods pivotally secured to said runner, links pivotally secured to said supporting-rods, and to one of said clips, and spring-catches secured on said rods in the path of said runner, whereby to hold the supporting-rods in closed and open position, as set forth.

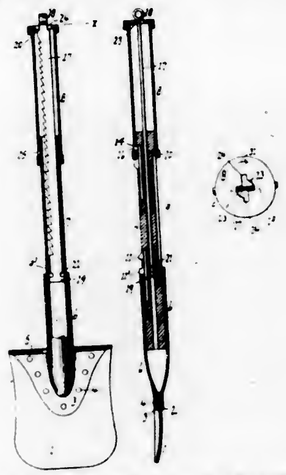
645,347. PNEUMATIC TIRE. HANNIBAL BUCHIGHANI, Lexington, Ky. Filed Oct. 10, 1899. Serial No. 733,164. (No model.)

Claim.—The combination with the rim having sockets in its outer periphery; of a plate secured to said rim and having holes registering with said sockets, a tire having a row of apertures along the slit in its outer tube, and a metallic fastening-plate having studs that project through the holes in said tire and into the sockets in said rim, substantially as and for the purpose set forth.

645,847.



645,848. SHOVEL. JACOB COLOGNATI, New York, N. Y., assignor to Joseph Lurch, same place. Filed July 20, 1899. Serial No. 724,532. (No model.)



Claim.—1. A shovel having a hollowed handle provided with a rotary locking-sleeve, and a sliding tool in the handle having opposite shoulders made to be engaged by the sleeve to lock the tool in operative or in inoperative position substantially as described.

2. A shovel having a hollowed handle provided with a rotary locking-sleeve, a sliding tool in the handle having opposite shoulders for engaging the sleeve, and a catch or spring for locking the sleeve substantially as described.

3. A shovel having a hollowed handle provided with a rotary locking-sleeve, and a sliding tool in the handle having opposite shoulders for engaging the sleeve, said sleeve being slidably mounted on the handle to form an extension substantially as described..

4. A shovel having a hollowed handle provided with a rotary and sliding rocking sleeve, a sliding tool having opposite shoulders for engaging the sleeve, and catches or springs for locking the sleeve in extended and closed position substantially as described.

5. A shovel having a hollowed handle provided with a rotary locking-sleeve, a sliding tool having opposite locking-shoulders made to be engaged by the sleeve, and a carrier for said shovel comprising a trough-shaped rim 28 and releasable holding-strap, said carrier having a snap hook or attachment for connecting to a belt or the like substantially as described.

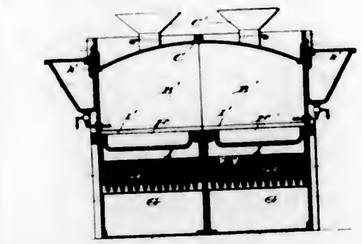
6. A shovel having a hollowed handle provided with a rotary locking-sleeve, and a sliding tool having locking-shoulders made to be engaged by the sleeve, said sleeve and handle being connected by a bayonet-joint for allowing the sleeve to be rotated and moved along the handle substantially as described.

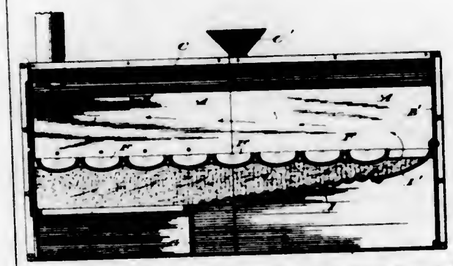
7. A shovel-blade having oppositely-located reinforcing-plates riveted to one another and to the blade, one of the plates being bent about the other plate and the blade and said plates having handle extensions 6 substantially as described.

645,849. REFUSE-BURNER OR CREMATORY FOR BURNING GARBAGE. JOSEPH COSLEY, Mound City, Mo. Filed Mar. 6, 1899. Serial No. 707,954. (No model.)

Claim.—1. In a refuse-burner or garbage-crematory constructed substantially as shown, of two series of garbage-receptacles within the crematory, hoppers positioned above said receptacle, and tanks attached to the sides of the crematory and provided with pipes for conveying fluid from the tanks to the garbage-receptacles, for the purpose set forth.

2. In a refuse-burner or garbage-crematory, a series of garbage-receptacles, hoppers positioned above the same, tanks supported above the level of the receptacles, substantially as shown, whereby the garbage-receptacles serve to receive the solid garbage from the hoppers and the liquid refuse from the tanks.





3. In a refuse burner or garbage-crematory, the combination with a furnace having a series of concavo-convex garbage-receptacles, together with hoppers carried by the top of the crematory and positioned over the garbage-receptacles, whereby the solid garbage may be fed onto the said receptacles from the hoppers, of fluid-receptacles attached to the exterior vertical walls of the furnace, said receptacles having means for conveying fluid therefrom to the garbage-receptacles, substantially as shown.

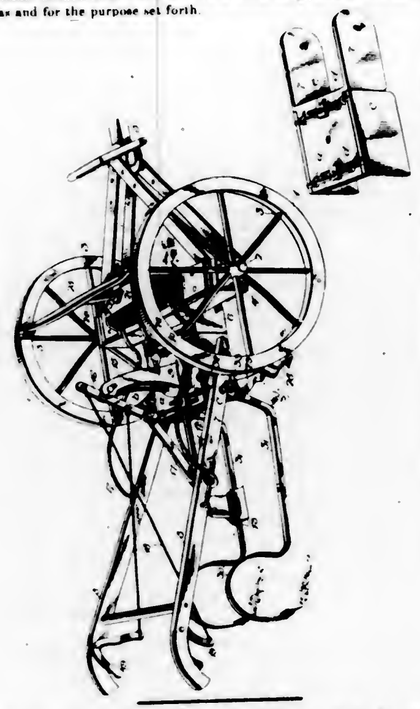
4. In a refuse-burner, the combination with the sheet metal side walls and top, of a vertical longitudinal wall which divides the lower portion of the structure into two sections, grate-bars, ash pits, a pair of transversely-corrugated plates which extend from the ash-pits rearward and upward, longitudinal series of concavo-convex garbage-receptacles which are of a greater width than depth journaled upon the dividing-wall and in the side walls, hoppers carried by the top wall of the furnace and positioned above the garbage-receptacle, and liquid-receiving tanks attached to the side walls and provided with pipes which lead from said tanks through the side walls to the garbage-receptacles, substantially as shown and for the purpose set forth.

645,850. COTTON-CHOPPER. DANIEL C. DAVIS, Cascade, Ark. Filed Nov. 29, 1899. Serial No. 738,647. (No model.)

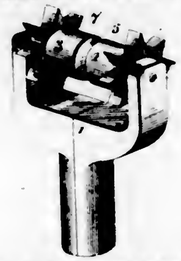
Claim.—1. In a cotton-chopper, the combination with the wheel-frame, a yoke-frame supported thereby; of an oscillating chopper-head, means for oscillating said head, means for adjusting the degree of oscillation of said head, and means for varying the degree of oscillation, one means being independent of the other, substantially as and for the purpose set forth.

2. In a cotton-chopper, the combination with the supporting-wheels provided with trip-blocks; of a frame journaled on the axle of said supporting-wheels, a yoke-frame connected to the first-named frame and provided with an oscillating plate formed with a bifurcated extension, a shaft journaled in said first-named frame and provided with a T-head adapted to be actuated by the trip-blocks, a crank-arm extending from said shaft and engaging the bifurcated extension of the oscillating plate, a disk mounted to turn with the oscillating plate and provided with a sleeve, chopping-blades provided with a shank extending through said sleeve, and means for moving said shank within said sleeve, substantially as and for the purpose set forth.

3. The combination with the drive-wheels provided with trip-blocks; of a frame mounted on the axle of the drive-wheels, a shaft vertically adjustably supported in brackets secured to said frame and provided with a T-head adapted to be engaged by the trip-blocks, a yoke-frame connected to the first-named frame, an oscillating plate provided with a bifurcated extension, a crank-arm secured to the adjustable shaft and engaging said bifurcated extension, and chopping-blades connected to oscillate with the oscillating plate, substantially as and for the purpose set forth.



645,851. TROLLEY. THOMAS DENNIS, New Castle, Pa. Filed July 22, 1899. Serial No. 724,788. (No model.)



Claim.—A trolley-head comprising in its construction a harp formed of two equal sections secured together, a shaft or axle journaled in the said harp, said shaft or axle being of greater diameter at the central portion than at its journaled ends, a roller mounted for rotation upon the larger portion of said shaft or axle and of the same width as the said enlarged portion of the said shaft or axle and provided with a centrally-arranged peripheral groove, a toothed wheel mounted for rotation upon the smaller portion of the said axle at each side of the said roller and within the harp, and a washer mounted upon the smaller portion of the said shaft or axle between the said roller and each of the toothed wheels and between each of the toothed wheels and the inner face of the upper ends of the harp, substantially as described.

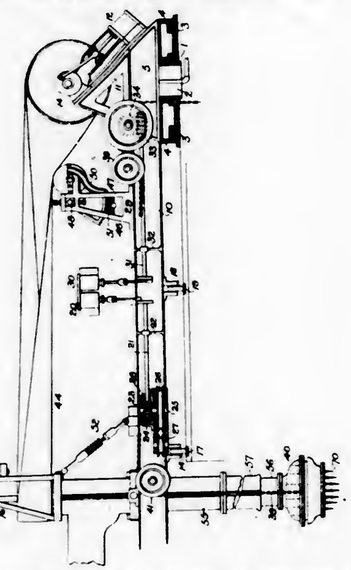
645,852. STOPPER-FASTENING. PETER DEVLIN, Baltimore, Md., assignor of one-half to J. C. McKennie, Charlottesville, Va. Filed June 26, 1899. Serial No. 721,921. (No model.)

Claim.—1. In a stopper-fastener, the combination with a disk to fit upon the stopper, provided with radially-disposed flexible lugs having openings therethrough; of a separate metallic strip to encircle the bottle-neck, having tongues formed by lapping portions thereof, arranged to engage the openings in said lugs, substantially as described.



2. In a stopper-fastener, the combination with a disk to fit upon the stopper, provided with oppositely-disposed flexible lugs having openings therethrough; of a band to encircle the bottle-neck composed of a bent metallic strip having tongues formed by lapping portions thereof, said tongues being arranged to engage the openings in said lugs when the parts are applied to the bottle, substantially as described.

645,853. DREDGING-MACHINE. LAURENCE C. EISENUT, New York, N. Y. Filed Jan. 6, 1899. Serial No. 701,388. (No model.)



Claim.—1. A dredging-machine provided with a foundation or bed plate having axial and peripheral bearing surfaces or zones with lubricating grooves or ducts and a frame constructed to move directly upon said bearing-surfaces and be lubricated throughout such movement.

2. A dredging-machine provided with a foundation or bed plate having separate bearing surfaces or zones with lubricating grooves or ducts and a frame supported directly by said bearing-surfaces, said plate having a tubular center passing through said frame to retain the same in position upon said bearing-surfaces, whereby said frame is lubricated throughout the movement thereof.

3. A dredging-machine provided with a foundation or bed plate having a tubular center, a frame upon said plate, an excavator connected with said frame, hoisting mechanism above said frame and devices attached to said excavator and passing around said mechanism so that the free ends of said devices depend through said frame and bed-plate and are kept taut and straight.

4. A dredging-machine provided with a foundation or bed plate having a tubular center and axial and peripheral bearing surfaces or zones, a turn-table held upon said bearing-surfaces by said center passing therethrough, engines upon said turn-table and a pipe constructed to supply the actuating medium to said engines throughout the entire movement of said parts.

5. A dredging-machine provided with a foundation or bed plate, a turn-table thereon and carriage-frames having adjustable connection with said turn-table.

6. A dredging-machine provided with carriage-frames and carriage-beams connected to said frames so as to provide for the automatic vertical adjustment between said parts.

7. A dredging-machine provided with carriage-frames having attaching-flanges whereby the same are secured in position, carriage-

beams within said frame and a shaft connecting the frames and beams so that the latter are provided with automatic vertical adjustment in relation to the former.

8. A dredging-machine provided with carriage-frames carriage-beams movably connected therewith and devices carried by the free portion of said beam to support the latter throughout the movement thereof.

9. A dredging-machine provided with carriage-frames having lateral flanges, the lower flange being secured to a support and inclined engine-frames upon the upper flange constructed to support engines or motors.

10. A dredging-machine provided with carriage-frames having a lower and upper attaching-flange, the former being constructed for connection with the support, equilateral engine-frames secured upon said upper flanges and engines or motors mounted upon both of said frames and binding the same together.

11. A dredging-machine provided with a revoluble turn-table having axial and peripheral bearing-surfaces, carriage-frames mounted thereon and inclined engine-frames upon the latter supporting a driving-shaft, and engines or motors, said parts being constructed to revolve without interruption of the action of the same.

12. A dredging-machine provided with a foundation or bed plate, a turn-table thereon, a rectangular carriage-frame upon the latter, triangular engine-frames and engines or motors secured upon both the engine-frames and carriage-frame.

13. A dredging-machine provided with a foundation or bed plate, a turn-table mounted thereon, carriage-frames upon the turn-table, carriage-beams adjustably connected with the former and means for movably supporting the free end of said beams.

14. A dredging-machine provided with a foundation or bed plate, a turn-table mounted thereon, carriage-frames upon the turn-table and carriage-beams adjustably connected with the former.

15. A dredging-machine provided with a foundation or bed plate, a turn-table revolubly mounted thereon, carriage-frames upon the turn-table, carriage-beams adjustably connected with the carriage-frames and truck or trucks carried by the free portion of said beams constructed to travel upon suitable supports to maintain the proper horizontal position of said beams.

16. A dredging-machine provided with revoluble carriage-frames, carriage-beams connected with said frames, a motor carried by said beams constructed to operate a device connected with the deck or platform and said beams to actuate the same laterally.

17. A dredging-machine provided with carriage-beams, a worm-shaft supported by said beams, a worm-wheel constructed to engage with the worm on said shaft and means connected with said worm-wheel to operate a device attached to the deck or platform to move said beams laterally.

18. A dredging-machine provided with carriage-beams, a worm-shaft supported by said beams, a worm-wheel constructed to engage with the worm on said shaft and a chain-gear wheel operated by said worm-wheel to actuate a chain or cable connected with the deck or platform to move said beams laterally.

19. A dredging machine provided with carriage-beams, a worm-shaft supported by said beams, a worm-wheel constructed to engage with the worm on said shaft, a chain-gear wheel operated by said worm-wheel to actuate a chain or cable attached to the deck or platform to move said beams laterally and guide or sheave wheels mounted adjacent to said gear-wheels to retain said chain or cable in engagement with the latter.

20. A dredging-machine provided with carriage-beams a worm-shaft supported by the latter, a worm-wheel constructed to engage the worm on said shaft, a chain-gear wheel operated by said worm-wheel to actuate a chain, or cable attached to the deck or platform to move said beams laterally, guide or sheave wheels mounted adjacent to said gear-wheels to retain said chain or cable in engagement with the latter and an engine or motor carried by said beams to actuate said shaft.

21. A dredging-machine provided with carriage-beams a worm-shaft attached to said beams, a worm-wheel constructed to be operated by said worm and means actuated by said worm-wheel to operate a chain or cable connected with an excavating device.

22. A dredging-machine provided with carriage-beams, a worm-shaft connected therewith, a worm-wheel operated by said worm, a chain-gear wheel actuated by said worm-wheel, an excavator and means connected with the latter and with said chain-gear wheel for raising or lowering the excavator.

23. A dredging-machine provided with carriage-beams, chain-gear wheels, means for operating the latter, guide or sheave wheels adjacent to said gear-wheels, an excavator and a chain or cable connected therewith and passing over said guide-wheels, and said chain-gear wheels.

24. A dredging-machine provided with carriage-beams a worm-shaft attached thereto, a worm-wheel actuated by said worm, chain-gear wheels operated by said worm-wheel, guide or sheave wheels adjacent to said chain-gear wheels, an excavator, and a chain or cable connected therewith and passing over said guide-wheels and said chain-gear wheels.

25. A dredging-machine provided with a carriage, a worm-shaft mounted therein, chain-gear wheels mounted adjacent to said carriage and constructed to be operated through the mediation of said worm, guide or sheave wheels adjacent to said chain-gear wheels, chain guide or sheave wheels mounted near the free end of said carriage, an excavator adjacent to the last-mentioned guide-wheels, a chain passing over said guide-wheels and operated by said chain-gear wheels and a motor or engine carried by said carriage to actuate said worm-shaft.

26. A dredging-machine provided with carriage-beams, an excavator mounted between the free ends of said beams so as to have vertical and horizontal movement in respect thereto.

27. A dredging-machine provided with carriage-beams, a rocking frame having swivel connection therewith, so as to have an oscillating movement between said beams and an excavator supported by said frame.

28. A dredging-machine provided with carriage-beams and an excavator supported by a frame mounted between said beams, whereby said excavator is provided with a universal oscillating movement.

29. A dredging-machine provided with carriage-beams, a rocking frame movably connected therewith, a frame upon said rocking frame carrying an excavator, whereby the latter is provided with a universal oscillating movement.

30. A dredging-machine provided with a carriage, carrying a drive-wheel, an excavator having a band-wheel belted to said drive-wheel and a yielding brace between said carriage and excavator to counteract the pull of said belt.

31. A dredging-machine provided with a carriage, a rocking frame journaled therein, and an excavator provided with trunnions mounted in bearings in said frame, whereby universal movement is provided for said excavator.

32. A dredging-machine provided with a carriage, engines or motors mounted thereon, an excavator supported by said carriage actuating connections between said motors and excavator, and means for elastically supporting the excavator.

33. A dredging-machine provided with an excavator having lateral movement and means for elastically preventing the deflection of the latter.

34. A dredging-machine provided with a carriage, an excavator movably mounted therein and extending thereabove and a device between said carriage and the upper end of said excavator to elastically maintain the latter in an approximately-vertical position.

35. A dredging-machine provided with a carriage having a band-wheel, an excavator-shaft supported by said carriage and carrying a band-wheel operated by the first-mentioned band-wheel and an extensible and contractible device between the carriage and shaft-bearing to prevent the deflection of the latter by the action of the band connecting said band-wheels.

36. A dredging-machine provided with a rectangular carriage having a drive-wheel an excavator supported in the free end thereof carrying a band-wheel belted to said drive-wheel and a tensionizer between said wheels.

37. A dredging-machine provided with a rectangular carriage supporting a drive-wheel, an excavator supported in the outer end thereof carrying a band-wheel belted to said drive-wheel, a tensionizer adjustably mounted upon said carriage provided with a wheel having adjustable bearings and constructed to bear against said belt.

38. A dredging machine provided with a counterweighted excavator-shaft to relieve the pressure upon the bearing thereof.

39. A dredging-machine provided with a casing, an excavator-shaft and means supported by the former to counterbalance the latter.

40. A dredging-machine provided with a carriage, an excavator-casing supported therein, a shaft within said casing and means within said casing to counterbalance said shaft.

41. A dredging-machine provided with a carriage, an excavator-casing supported thereby, an excavator-shaft within said casing a frame upon said casing carrying a guide or sheave wheel and means connected with said excavator-shaft and passing over said wheel to support the former.

42. The combination in a dredging-machine of an excavator having grate-like discharge-openings to separate the material passing therethrough, and a discharge-head revolubly mounted upon said excavator over said opening.

43. A dredging-machine provided with an excavator having a grated discharge-opening and a discharge-head movably connected with said excavator so that the opening therein registers with said grated opening.

44. A dredging-machine provided with a carriage an excavator supported by universal connection therewith having a plurality of telescopic sections and means for extending or shortening the excavator.

45. A dredging-machine provided with a carriage, an excavator mounted therein having a plurality of telescopic sections, an excavator-shaft carrying a conical winged piston, a band-wheel having slidable connections with said shaft and means for operating said wheel to rotate said piston.

46. An excavator provided with a working head having obliquely-inclined passages formed therein to convey water from above upon the material worked.

47. An excavator provided with serpentine passages constructed to receive water from above and discharge the same in converging streams upon the material worked.

48. A dredging-machine provided with a foundation or bed plate having a tubular center and axial and peripheral bearing surfaces or zones, elevated above the main portion thereof, a turn-table mounted upon said bearing-surfaces and held thereon by said center, engines upon said turn-table and a pipe passing through said center constructed to provide a constant supply of actuating medium to said engines throughout the movement of the parts.

49. A dredging-machine provided with a turn-table and a carriage connected therewith, said carriage being so constructed as to provide for the automatic adjustment between said parts.

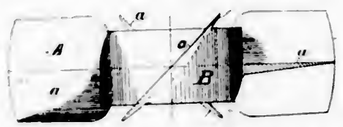
50. A dredging-machine provided with a pump constructed to operate directly within the material worked and means inclosing the extremity of the latter while admitting liquid thereto.

51. A dredging-machine provided with a pump-casing extending into the material worked and provided with inlets for the introduction of liquid within the casing and a pump within the extremity of said casing, constructed to operate directly upon and within the material worked.

52. A dredging-machine provided with a pump-casing having an enlarged working head, a pump within the latter having a conical winged piston constructed to force the material up through said casing in a spiral direction, and means upon said casing to deflect the spiral movement of the material.

53. A dredging-machine provided with a pump-casing having an enlarged working head, a pump within the latter having a conical winged piston constructed to force the material up through said casing in a spiral direction and ribs or vanes upon the casing to deflect the spiral movement of the material.

645,354. PROPELLER FOR STEAMSHIPS. CHARLES R. BERICH, Norfolk, Va. Filed June 22, 1899. Serial No. 721,446. (No model.)



Claim.—1. A propeller for steamships and the like, having a plurality of blades, the driving-face of each blade being substantially a surface of revolution formed by a straight line passing through a given point in the axis of the propeller-shaft and guided by a true helix, substantially as described.

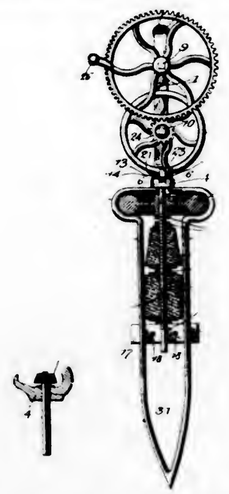
2. A propeller for steamships and the like, having a plurality of blades, the driving-face of each blade being substantially a surface of revolution formed by a straight line passing through a given point in the axis of the propeller-shaft and guided by a true helix, whose angle of pitch is forty-five degrees, or approximately forty-five degrees, substantially as described.

3. A propeller for steamships and the like, having a plurality of blades symmetrically disposed about the hub, the driving-face of each blade being substantially a surface of revolution formed by a straight line having one of its ends terminating for all the blades in a common point in the axis of the propeller-shaft, and its opposite end guided for each blade by a separate helix, all the helices having a common pitch-angle, substantially as described.

4. A propeller for steamships and the like, having a plurality of blades symmetrically disposed about the hub, the driving-face of each blade being substantially a surface of revolution formed by a straight line having one of its ends terminating for all the blades in a common point in the axis of the propeller-shaft, and its opposite end guided for each blade by a separate helix, all the helices having a common pitch-angle of approximately forty-five degrees, substantially as described.

5. In a propeller for steamships and the like, the combination with a ribbed hub, of a plurality of blades having flanges meeting together to form a hollow cylinder inclosing said hub, lugs projecting from said flanges between said ribs, and tapered bolts with nuts thereon securing said ribs and lugs together, substantially as described.

645,855. GRINDING-MACHINE. FRANK FAUCETT, Saybrook, Ill. Filed July 25, 1899. Serial No. 725,100. (No model.)



Claim.—1. In a machine of the class described, a frame-stock having at one end a grip or handle, and carrying at its opposite end a frame member provided with a terminal rest-foot, a rotary spindle supported by the frame-stock and its frame member, and carrying an abrading element or elements, and operating devices supported by the stock between its ends and geared with the spindle, substantially as described.

2. In a machine of the class described, a frame provided at one end with a grip and at the opposite end with a foot, a revoluble spindle arranged longitudinally of the frame wholly between the terminal grip and foot, said spindle carrying an abrading element or elements, and operating devices for communicating rotary movement to the spindle, substantially as described.

3. In a machine of the class described, a frame-stock having a bearing and provided at one end with a grip or handle and at its opposite end with spaced side bars extended into a foot, a separate bearing spanning the space between and connecting the said side bars, a spindle journaled in both of said bearings and carrying an abrading element, and operating devices for the spindle, substantially as described.

4. In a machine of the class described, a frame-stock provided with a grip or handle, and at one end thereof with a pair of sockets, a pair of frame side bars terminally secured at one end in said sockets, a bearing-clamp connecting the frame-bars, a spindle journaled in the bearing-clamp and the frame-stock, said spindle carrying abrading elements and operating devices for the spindle, substantially as described.

5. In a machine of the class described, a frame provided with laterally-offset clearance-bends, a spindle revolubly supported by the frame and carrying an abrading element, and a balance-wheel also mounted on said spindle and operating within the working space formed by said clearance-bend, substantially as described.

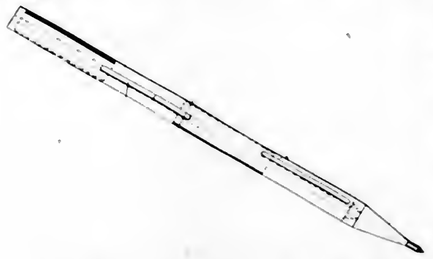
6. In a machine of the class described, the combination of a frame, a revoluble operating-spindle arranged longitudinally of the frame and carrying the abrading element or elements, a balance-wheel also mounted on said spindle, contiguous to one end thereof, and drive-gearing supported beyond the spindle and geared to one end thereof, substantially as described.

7. In a machine of the class described, the combination of the frame, a revoluble operating-spindle supported by the frame and carrying the abrading element, drive-gearing supported by the frame and geared with said operating-spindle, and a balance-wheel mounted on the operating-spindle between the abrading element and the drive-gearing, substantially as described.

645,356. LEAD-PENCIL. ALDRED B. FOSTER, Oakland, Cal. Filed July 27, 1899. Serial No. 725,291. (No model.)

Claim.—1. An improved lead-pencil of the class described, comprising a stem or body having a longitudinal bore adapted to contain

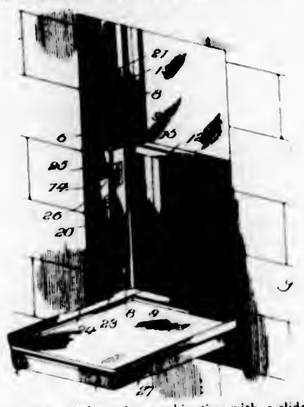
a lead core, and intersected by slots extending through the walls of the stem and arranged on a longitudinal plane, in combination with clamping devices adapted to engage the lead core and prevent backward movement of the same, substantially as and for the purpose set forth.



2. An improved lead-pencil of the class described, comprising a stem or body having a longitudinal bore adapted to contain a lead core, and intersected by slots extending through the walls of the stem and arranged on a longitudinal plane, in combination with a clamping device contained within the bore of the pencil and adapted to bear against the lead core, substantially as and for the purpose set forth.

3. An improved lead-pencil of the class described, comprising a stem or body having a longitudinal bore adapted to contain a lead core and intersected by the slots extending through the walls of the stem and arranged on a longitudinal plane, said bore having an enlargement forming an interior recess in the stem, in combination with a clamping device formed by plates seated in said recess and having downwardly projecting inwardly-convergent spring-arms adapted to embrace the lead core, substantially as and for the purpose set forth.

645,357. WINDOW. MICHAEL HÄBERLE, New York, N. Y. Filed July 5, 1899. Serial No. 723,168. (No model.)



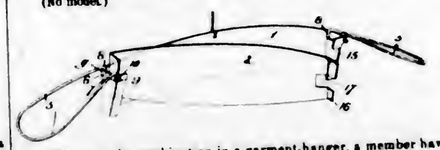
Claim.—1. In a window, the combination with a slide, a sash pivotally connected with the slide, a block slidably mounted upon the slide, a link connecting said block with the sash, and a counterbalance connected directly with the aforesaid block to hold the slide at any elevation and the sash open at any desired angular adjustment, substantially as set forth.

2. In a window, the combination with a slide and a sash pivotally connected with the slide, of a block slidably mounted on the slide and adapted to have a counterbalance connected directly therewith, and a link pivotally connected at one end with said block and at its opposite end with a sash, the latter being recessed to receive the said link when the sash is closed, thereby enabling a close joint being obtained between the slide and sash, substantially as specified.

3. In a window, the combination with a slide having a vertical slot and a sash pivotally connected with said slide, of a block slidably mounted in the slot of the slide and having spaced T projections at its rear side, a link connecting said block with the sash, and a weighted cord connected with one of the said T projections, substantially as described.

4. In a window, the combination with the casement having an inner extension applied to the outer facing of the jamb and formed with spaced vertical grooves, upper and lower screens having projecting pins to travel in said grooves, slides applied to the jambs of the casement and having projecting shoulders in line with their outer edge portions, the outermost slides being thicker than the innermost slides, sashes pivotally connected to corresponding slides and adapted to close against the shoulders thereof, means for holding the sashes closed, and counterbalancing means for the slides, the parts being disposed and arranged for operation substantially in the manner set forth.

645,858. GARMENT-HANGER. WILLIAM F. HALL and WALTER DONALDSON, Washington, D. C. Filed Apr. 23, 1899. Serial No. 714,573. (No model.)



Claim.—1. In combination in a garment-hanger, a member having a laterally-exposed receiving-face for the garment, guides overhanging said face and open at their upper and lower ends, a clamping-piece movable in said guides in clamping the garment and means for suspending the hanger said means being attached to one member which member holds the other member from falling away therefrom by means of the open guides, substantially as described.

2. A garment-hanger comprising two members, one of which has end walls with flanges overhanging the receiving-face, which receiving-face extends from one end wall to the other under the flanges and in the same plane throughout and a second member movable in the guides formed by the end walls and flanges, substantially as described.

3. In combination, the two members and guiding means between the members whereby one may be slid over the other to clamp a garment, said guiding means being notched whereby the members may be superimposed before the sliding or clamping action takes place, substantially as described.

4. In combination in a garment-hanger, the two members sliding one over the other, guides at each end of the two members, the guides at one end of the members being notched and those at the other end being intact, substantially as described.

5. In combination in a garment-hanger, two members having clamping-faces, and guiding means between the members whereby one member may be slid over the other member to clamp the garment with means whereby the clamping-faces are superimposed before the sliding action takes place, substantially as described.

6. In combination in a garment-hanger, the two members having faces between which the garment is clamped, and guiding connections between the members by which one of them may be slid over the face of the other member, one of said members having a projecting portion intermediate of its ends forming a continuation of the clamping-face and overlapping the clamping-face of the other member before the sliding movement takes place, said continuation being in the same plane with the clamping-face and the said guiding connections comprising inclined parts overhanging the clamping-face and forming passages open at all points from the clamping-face to the inclined parts to permit the clamping member to slide in contact with the goods throughout its adjustment, substantially as described.

7. In combination in a garment-hanger, the two members having clamping-faces, guiding means between them open at all points from the clamping-face to the guiding means to permit the clamping member to slide on the goods, one of said members having a curved projection in the same plane with and forming a continuation of its clamping-face overlying the clamping-face of the other member whereby the members may be superimposed before the clamping is effected, substantially as described.

8. In combination in a garment-hanger, the two members one of which has coat-supports and one of which slides over the other, and guides between the members, each of said members having the upper edge thereof curved in a longitudinal direction upwardly from the ends toward the center whereby a coat may be supported so as to retain its shape, and whereby also the clamping member will overlap the other member before entering the guides thereof, substantially as described.

9. In combination, means for supporting the trousers comprising front and back plates, and wire-loop coat-supports detachably secured to the back plate, said coat-supports forming longitudinal continuations of the trousers-supporting means and the rear limb of each loop being in front of the plane of the face of the back plate of the supporting means, substantially as described.

10. In combination in a garment-hanger, the two members, guides connecting the members to permit one member to slide over the face of the other, and coat-supporting extensions secured to said guides extending beyond the same and supported by the walls thereof, said extensions being in the form of wire loops having angular bent ends to engage the guide-wall, substantially as described.

11. In combination the two members, guides connecting them to permit one member to slide over the face of the other and wire-loop coat-supporting extensions detachably secured to said guides, the said guides bearing a right-angular relation to the face of the members, substantially as described.

12. A garment-hanger comprising members having bearings, and coat-supports extending from the ends of the member and forming longitudinal continuations or extensions thereof, said coat-supports being formed of resilient material sprung into engagement at their inner ends with the bearings on the member and held by said resilience, the said inner ends in connection with bearings on the member also holding the supports against downward movement.

13. In combination in a garment-hanger, a member, and wire-loop extensions projecting from the ends of the member in opposite directions, said wire loops being sprung into connection with the member at their inner ends and wholly supported by said inner ends and held in place by the resilience thereof, substantially as described.

14. A garment-hanger comprising a member having openings and extensions having laterally-exteeding studs or pins sprung into said openings and having bearings engaging the member to resist downward pressure, said extensions forming longitudinal continuations of the member and being supported wholly by their inner ends, substantially as described.

15. A garment-hanger comprising the member having lateral openings and extensions having downwardly-bent ends with lateral studs or pins engaging the openings, the said extensions having bearings at the upper edge of the member to resist downward pressure, substantially as described.

16. A garment-hanger comprising a member having guideways at its ends, a member movable in said guideways, and wire-loop extensions resting on the upper edges of said guideways and having bent ends extending downward within the guideways with laterally-projecting pins or studs engaging openings in the walls, substantially as described.

17. In combination, the member 1 having guideways with offset portions, the wire-loop extensions held in said offset portions of the guideways and a second member movable in the guideways, substantially as described.

18. In combination the member 1 having guideways, wire-loop extensions sprung into engagement with said guideways and a member movable in said guideways, substantially as described.

19. In combination, the member 1 having guideways, wire-loop extensions sprung into engagement with said guideways and a member movable in said guideways, said member being tapered to avoid contact with the ends of the wire loop, substantially as described.

20. A garment-hanger comprising a member having guides at its ends, a second member to slide in said guides, and folding coat-supporting extensions pivoted at the guides and arranged to fold against the first member, substantially as described.

21. In combination, the back-piece having guides at its ends with its receiving-face extending in the same plane from end to end and under the guides, the said guides having walls extending outwardly from the back-piece with flanges overhanging the receiving-face and inclined in relation thereto, and a clamping member movable in said guides, substantially as described.

22. In a garment-hanger, the combination of a part having guides with overhanging flanges struck up and inclined in relation to the surface below the said flanges, a second part movable in the guides and suspending means, substantially as described.

23. A garment-hanger comprising a member with guides thereon and a sheet-metal member having wedge-shaped portions struck up therefrom substantially at right angles to the body of the member to engage the guides, substantially as described.

24. A garment-hanger comprising a plate of thin material of the same thickness throughout, having its ends turned up and over to form guideways overhanging the receiving-face of the plate and a second plate movable in said guides to clamp the garment, substantially as described.

25. A garment-hanger comprising a member with guides thereon and a sheet-metal plate having its ends turned up to present wedge-shaped edges substantially at right angles to the body of the member, substantially as described.

26. A garment-hanger comprising two members having lateral sliding movement in relation to each other, and wedge-shaped guiding means between them with means whereby the clamping-faces of the members can be moved toward and from each other while in superimposed position and before one member engages or slides in the guide of the other member, substantially as described.

27. A garment-hanger comprising two members, one arranged to slide over the face of the other, means for holding the members in engagement at one end and preventing longitudinal displacement and means at the other ends of the members for holding them together detachably, one of said members being arranged to move directly toward and from the clamping-face of the other member to get into position for interlocking while overlying the same and while the members at one end remain in engagement, substantially as described.

28. In combination, the member having wedge-shaped guide means at its ends, and a member movable in said guides across the face of the first member with means whereby the members may have a movement toward and from each other at one end to clamp or unclamp the garment while the other ends are held pivotally and while the members are in superimposed relation, substantially as described.

29. In combination, the member having guides thereon and a second member arranged to slide therein with means whereby said second member may move toward the clamping-face of the first member and may engage the guideways intermediate of its ends while the clamping-faces of the members are in superimposed relation, substantially as described.

30. In combination, the two members having lateral sliding movement in relation to each other and guideways with means whereby one member may engage or disengage the guideway at one end intermediate of its ends while overlying the face of the other member and while held pivotally by the other guideway at the other end of the member, substantially as described.

31. In combination in a garment-hanger, a member having a laterally-exposed face for receiving the garment, a clamping member movable upwardly in relation to the first member in clamping the garment, guiding means on the first member and suspending means connected with the clamping member, substantially as described.

32. In combination in a garment-hanger, a member having a laterally-exposed face for receiving the garment, a clamping member movable upwardly in relation to the first member in clamping the garment, tapered guides on the first member and suspending means connected with the clamping member tending to draw said clamping member upwardly, substantially as described.

33. In combination in a garment-hanger, a member having a laterally-exposed face for receiving the garment with tapered guides at the ends of said face, a wedge member movable in said guides upwardly in clamping the garment and suspending means connected with the wedge member, said wedge member supporting the first member when the hanger is empty, substantially as described.

34. In combination in a hanger, a member having a laterally-exposed receiving-face for the garment, guides overhanging said face and open at their upper and lower ends, a clamping member movable in said guides upwardly in clamping the garment and means for suspending the hanger connected to the clamping member, substantially as described.

35. In combination, a member having guides and a laterally-exposed face, a clamping member movable in said guides and supporting the first member when the hanger is empty and suspending means connected with the clamping member substantially as described.

36. In combination, a member having a laterally-exposed receiving-face with means at the end of said face for connecting a clamping member to the first member, a clamping member and suspending means connected therewith, substantially as described.

37. A garment-hanger comprising a member having a receiving-face exposed laterally thereof with guides at the ends of said face, a clamping member held by said guides across said face and removable therefrom, and suspending means on the clamping member, substantially as described.

38. In combination in a garment-hanger, a member having the laterally-exposed receiving-face, a clamping member extending across said face, and suspending means on the clamping member, said first member having extensions of a length and shape to hold the coat or other garment, substantially as described.

39. In combination, a member having the guides with the central laterally-exposed receiving-face and the wedge member adapted to said guides and movable therein across the receiving-face, and suspending means thereon, said first member having extensions of a form and length to support the coat or other garment, substantially as described.

40. In combination in a garment-hanger, a member having guides, with a clamping-face extending between the guides and the clamping member with a clamping-face having a continuation projecting therefrom intermediate of the ends and arranged to extend over the clamping-face of the other member in advance of the engaging ends, substantially as described.

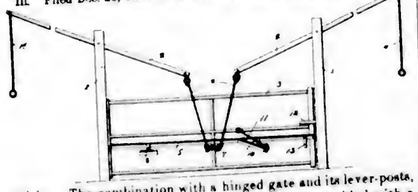
41. A garment hanger comprising a member, wire-loop coat supports pivoted to the member, the limbs of the wire loops being in front of the plane of the surface of the member and adapted to fold across the said surface, substantially as described.

42. In combination, a member, a second member arranged to

slide laterally in relation to the first member, and coat-supporting extensions pivoted to the first member and folding across the face of the first member, substantially as described.

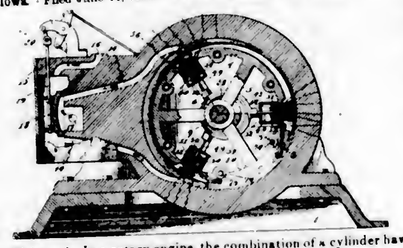
43. In combination, the two members, one of which has guides in which the other member slides and one of the members having a continuation projecting from its clamping-face intermediate of its ends whereby the clamping-faces can be superimposed before the sliding action takes place.

645,359. GATE. WALLACE HATFIELD and JOHN P. TARR, Augusta, Ill. Filed Dec. 28, 1899. Serial No. 741,833. (No model.)



Claim.—The combination with a hinged gate and its lever-posts, of a rock-shaft journaled between said posts and provided with a weighted arm, a crank and a diagonal arm, a link connecting the diagonal arm to the gate, operating-levers pivoted to said posts, links connecting the inner ends of the operating-levers to the crank-arm, a block secured to one of the said posts, and a pin projecting laterally from the rock-shaft and adapted to engage said block and limit the movement of the rock-shaft in the closing of the gate to retain the diagonal arm and the link connecting it to the gate at a dead-center to the path of movement of said gate, substantially as and for the purpose set forth.

645,360. ROTARY ENGINE. EDWIN J. HERCHERT, Garnavillo, Iowa. Filed June 11, 1898. Serial No. 683,199. (No model.)



Claim.—1. In a rotary engine, the combination of a cylinder having an interior eccentric rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder with its ribs arranged upon opposite sides of the cylinder-rib, the inner sides of said piston-ribs being in contact with the cylinder-rib, one of the piston-ribs being axially adjustable toward and from the other, means for securing said piston-rib at the desired adjustment, and piston-wings yieldingly held in contact with the inner eccentric surface of the cylinder-rib, substantially as described.

2. In a rotary engine, the combination of a cylinder having an interiorly-eccentric rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder, the contiguous side faces of said cylinder and piston ribs being bereled and the peripheries of the ribs being in contact with the cylinder-wall, radially-movable piston-wings yieldingly held in contact with the eccentric interior surface of the cylinder-rib and having rocking caps, and valve mechanism operatively connected with the piston, substantially as specified.

3. In a rotary engine, the combination of a cylinder having an interiorly-eccentric rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder with its ribs arranged upon opposite sides of and in contact with the cylinder-rib, one of the piston-ribs being axially adjustable toward and from the other, means for securing said piston-rib at the desired adjustment, radially-movable piston-wings yieldingly held in contact with the inner eccentric surface of the cylinder-rib, and valve mechanism operatively connected with the piston, substantially as specified.

4. In a rotary engine, the combination of a cylinder having an interiorly-eccentric rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder with its ribs arranged upon opposite sides of the cylinder-rib, one of said piston-ribs being carried by a ring fitted for axial adjustment upon a sleeve forming an element of the body portion of the piston, collar-bolts threaded at their inner ends into the body portion of the piston and fitted in smooth openings in said ring, with their outer ends provided with wrench-seats, clamp-nuts threaded upon the outer ends of said collar-bolts to secure said ring at the desired adjustment, radially-movable piston-wings mounted upon the piston and yieldingly held in contact with the eccentric interior surface of the cylinder-rib, and valve mechanism operatively connected with the piston, substantially as specified.

5. In a rotary engine, the combination of a cylinder having an interiorly-eccentric cylinder-rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder with its ribs arranged upon opposite sides of the plane of the cylinder-rib, and in steam-tight contact with the side surfaces thereof, radially-movable piston-wings mounted upon the piston and yieldingly held in contact with the eccentric interior surface of the cylinder-rib, each piston-wing consisting of a radially-movable body portion provided with a knuckle axially parallel with the piston, and a cap having a socket fitted upon said knuckle and adapted for rocking movement, and valve mechanism operatively connected with the piston, substantially as specified.

6. In a rotary engine, the combination of a cylinder having an interiorly-eccentric cylinder-rib, a rotary peripherally-ribbed piston mounted concentrically in the cylinder with its ribs arranged upon opposite sides of the plane of the cylinder-rib, and in steam-tight contact with the side surfaces thereof, radially-movable piston-wings mounted upon the piston and yieldingly held in contact with the eccentric interior surface of the cylinder-rib, each piston-wing consisting of a radially-movable body portion provided with a knuckle axially parallel with the piston, and a cap having a socket fitted upon said knuckle and adapted for rocking movement, the cap being flanged to fit in seats in the outer end of the body portion to break joint therewith, and valve mechanism operatively connected with the piston, substantially as specified.

645,361. BRIQUET. CHARLES F. HOOD, Connellsville, Pa., assignor to Maria L. Hood, same place, and John B. Booth, Sewickley, Pa. Filed Nov. 6, 1899. Serial No. 735,967. (No specimens.)

Claim.—1. A binder for briquets, consisting of molasses, starch and water in substantially the proportions stated.

2. A binder for briquets, consisting of molasses, starch, water and an antifermenting material in substantially the proportions stated.

3. A binder for briquets, consisting of molasses, starch, lime, water, in substantially the proportions stated.

645,362. HAT OR CAP RACK. EDWARD J. KIRK, Bracebridge, Canada. Filed Nov. 11, 1898. Serial No. 696,167. (No model.)



Claim.—1. As a hat and cap rack, two rods connected by cross-bars in combination with a series of wire frames bent to form hooks, and also eyes or loops by means of which they are strung upon the said rods; and wires connecting the said frames and the cross-bars, substantially as and for the purpose specified.

2. As a hat and cap rack two rods A, connected by the cross-bars B, in combination with a series of wire frames C, each bent to form the hooks D, the cross-bar E, and the eyes or loops F; and one or more wires G, connecting the said frames and cross-bars, substantially as and for the purpose specified.

3. As a hat and cap rack two rods A, connected by the cross-bars B, in combination with a series of wire frames C, each bent to form the hooks D, the cross-bar E, the eyes or loops F, and hooks H; and one or more wires G, connecting the said frames and cross-bars, substantially as and for the purpose specified.

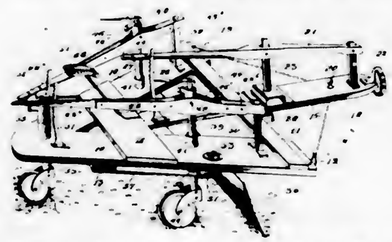
4. A display-rack substantially such as described comprising a series of end-supported rods arranged parallel to each other, in the same transverse plane, and forming a supporting-shelf, and a series of hanger-frames applied to said rods, each hanger-frame having a pair of hooks connected by an intermediate bar and said hooks extended in opposite directions from the respective sides of the supporting-shelf formed by the rods, said hanger-frame also provided with oppositely-facing hooks disposed below and within the first-named hooks, as and for the purposes set forth.

5. A display-rack, substantially such as described comprising a series of parallel rods forming a supporting-shelf, means connected to end portions of said rods for holding the same, and a series of hanger-frames applied to said rods and each having the cross-bar, the upper pair of hooks, the downwardly-converging branches, and the lower pair of oppositely-facing hooks disposed within the upper hooks; the cross-bar of each hanger-frame lying substantially in the transverse plane of the shelf-forming rods and the upper pair of hooks extended in opposite directions from the respective sides of the shelf afforded by said rods, as and for the purposes described.

6. A display-rack, substantially such as described, comprising straight cross-bars, a series of rods attached thereto in the same transverse plane and forming a supporting-shelf, and a series of hanger-frames having cross-bars spanning the spaces between the rods and constituting a part of the area of the shelf, each hanger-frame being also provided with a plurality of hooks, two of which are prolonged beyond the opposite sides of the shelf afforded by the rods and certain other hooks disposed below the shelf, as set forth.

7. A rack comprising parallel rods suitably supported, in combination with frames strung thereon and each made of a single length of wire bent to form a cross-bar with terminal eyes to receive the rods, and hooks beyond the eyes, the terminals of the wire being extended toward each other to form other hooks which project in opposite directions and lie between the planes of the rods, substantially as and for the purpose specified.

645,363. ROAD-GRADING MACHINE. ELIJAH B. KIRKENDALL, Leando, Iowa. Filed May 4, 1899. Serial No. 715,581. (No model.)



Claim.—1. In a road-grader, the combination with a frame, of a scraper-blade free from pivotal connection with the frame, curved slotted arms secured firmly to the blade to project above the upper edge thereof and applied against said frame, and clamping-bolts to fasten the slotted arms to said frame and connect the blade firmly thereto, said arms being adjustable on the frame to vary the pitch of the scraper-blade with relation to the plane of the frame, substantially as described.

2. In a road-grader, the combination of a frame, a scraper-blade fastened thereto for adjustment in a direction to vary the pitch of said blade, the keepers fixed to the frame and depending therefrom, and stay-links pivoted to said blade and having the notched free ends, said notched ends of the stay-links fitted slidably in the keepers and normally engaging, by gravity, therewith to hold the links against endwise movement, substantially as described.

3. In a road-grader, the combination with a frame, and a scraper-blade carried thereby, of a tongue-keeper secured to the frame and having a horizontal opening, a draft-tongue fitted in said keeper and removable therefrom and from the frame by an endwise movement, draft-eyes secured to the front part of the frame at the sides thereof, a loop fixed to the draft-tongue, a draft-chain connected to said draft-eyes and passing through the loop of the draft-tongue, and a coupling-bolt passing through the tongue and the loop and engaging with a link of the chain, substantially as described.

4. In a road-grader, the combination with a frame and a scraper-blade mounted thereon, of a draft-tongue connected to said frame, a stay-chain attached to the tongue and the frame and affording a flexible connection between the tongue and the frame to permit adjustment of the tongue in a vertical direction, a vertical spindle slidably mounted in the tongue and having a bearing-wheel at its lower end, and a lever fulcrumed on the frame and connected with the spindle for adjusting the latter vertically, substantially as described.

5. In a road-grader, the combination with a frame, a scraper-blade, and a draft appliance, of vertical spindles connected to said frame and carrying bearing-wheels, means for holding the spindles in positions for the bearing-wheels to lie obliquely to the line of draft, and means for adjusting the spindles and bearing-wheels vertically, substantially as described.

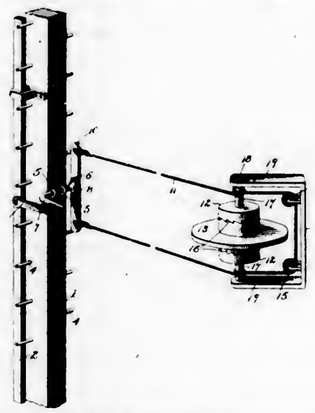
6. In a road-grader, the combination with a frame, a scraper thereon, and a draft appliance, of bearing wheels connected with said frame for adjustment on vertical axes to lie obliquely to the line of draft, and means for locking the said bearing-wheels in their adjusted positions, substantially as described.

7. In a road-grader, the combination with a frame, a scraper, and a draft appliance, of spindles connected with said frame and provided with ratchet devices, a bearing-wheel mounted on each spindle for adjustment therewith, and a sleeve supported in operative relation to the ratchet of the spindle and carrying a locking-pawl for holding the spindle in its adjusted position, substantially as described.

8. In a road-grader, the combination with a frame, a scraper thereon, and a draft appliance, of vertical spindles fitted to the frame and provided with bearing-wheels, a lever fulcrumed on the frame adjacent to each spindle, a sleeve connected to said lever and embracing a ratchet on the spindle, and a locking device supported by the sleeve and engaging with the ratchet, substantially as described.

9. In a road-grader, the combination with a frame, a scraper thereon, and a draft appliance, of vertical spindles connected to the sides of the frame and adjustable axially and vertically thereon, and another spindle supported by the frame in line with the draft appliance and in rear of the first-named spindles, each spindle having a bearing-wheel at its lower end, substantially as described.

645,364. MECHANICAL MOVEMENT. ALBERT KRESEN, FRANK LEASMAN, and ANDY LEASMAN, Buffalo Lake, Minn., assignors of one-third to John C. Riebe, same place. Filed Apr. 20, 1897. Serial No. 633,035. (No model.)

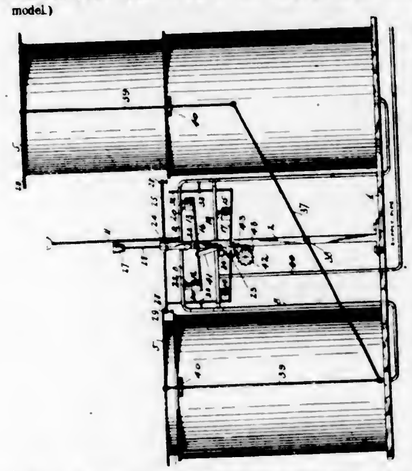


Claim.—In a windmill, the combination of a reciprocating pump-rod, a rock-shaft provided with a pair of arms one of the arms being connected with the pump-rod, an oscillating bar carried by the other arm, a frame, a pulley 32 mounted therein, ratchet-wheels located at opposite sides of the pulley, adapted to engage the same and provided with sleeves, guide-pulleys arranged within the frame, and a

cord passing around the guide-pulleys, engaging the said sleeves and connected with the oscillating bar, substantially as described.

645,865. GAS-METER. THEODOR H. J. LEOKRAND, Adair, Iowa.

Filed Dec. 7, 1898. Renewed Aug. 28, 1899. Serial No. 728,765. (No model.)



Claim.—1. The herein-described cut-off for changing the flow of gas or the like consisting of depending sleeves connected to the service-pipes and having partition-walls therein, in combination with pivotally-mounted sealing-cups and means to move the same, as specified and for the purpose set forth.

2. In an automatic cut-off for gas, the combination with a pair of telescoping holders and suitable pipe connections therefor, said pipe connections having depending sleeves provided with partition-walls therein, of pivotally-mounted members carrying sealing-cups adapted to coöperate with said sleeves and a pivotally-mounted weighted lever and a link connection between said lever and the rim of the holder whereby the downward movement of the holder will actuate said lever and change the position of the sealing cups, as specified and for the purpose set forth.

3. In a gas measuring machine, the combination with a pair of telescoping holders pivotally secured together, as specified, of the herein-described automatic cut-off or switch for changing the flow of the gas in the supply-pipe from the full holder to the empty holder without disturbing the supply for the burner, consisting of depending sleeves connected to the supply-pipes and having a partition-wall therein; sealing-cups pivotally held in position in coöperation with said sleeves and means located intermediate the holder and said cups whereby the downward movement of the holder will divert the flow of the gas from the full holder to the empty holder, as specified and for the purpose set forth.

4. The combination with a burner and suitable pipe connections therefor, of the herein-described automatic switch for changing the flow of gas, consisting of a pair of pivoted levers, each carrying a seal upon its free end, all of which are in coöperation with a sealing-sleeve extending from the service-pipes; a link pivotally secured to said levers in such a manner that the movement thereof will be opposite to each other whereby the flow of gas to the burner from the feeding-bell will be cut off at the instant said bell is emptied, and the flow of the gas from the full reservoir directed to said burner, and also that the flow of the gas from the supply-pipe will be turned into the empty bell, all arranged as specified and for the purpose set forth.

5. The herein-described measuring-machine for gas or the like consisting of a pair of telescoping holders, each provided with a suitable service-pipe and sleeve, said service-pipes being connected to each other and with the burner, as specified; depending sleeves in connection with the service-pipe; a pair of pivoted levers each carrying a sealing-cup designed to coöperate with said sleeves and suitable means intermediate said levers designed to utilize the downward movement of each bell, all arranged as specified and for the purpose set forth.

6. In a gas-measuring machine, the herein-described switching device for changing the flow of gas consisting of depending sleeves formed upon the supply-pipes and a sealing-cup adapted to coöperate with said sleeves and means to simultaneously move said cups in such position as will insure that the flow of gas to the burner from the empty bell will be cut off and the flow of gas from the full bell simultaneously established with said burner, as and for the purpose set forth.

7. The herein-described device for checking and restoring the flow of gas consisting of a sleeve depending from the service-pipe, said sleeve being provided with a diaphragm or partition-wall of shorter reach than said sleeve, and a sealing-cup designed to receive the lower end of said sleeve and contact with said partition when in an elevated position or permit the flow of the gas to pass under the partition when said seal is in a lowered position, as specified and for the purpose set forth.

8. In a measuring-machine for gas, the combination with suitable telescoping reservoirs, of supply-pipes communicating therewith and extending upward between the same; an auxiliary pipe establishing communication between them at a point below the upper end thereof, depending open-ended sleeves having partition-walls, carried by said end and auxiliary pipes, and sealing-cups adapted to receive the open ends of said sleeves and suitable means for utilizing the downward movement of the empty reservoir to so change the position of said cups that the flow of gas from the emptying reservoir to the burner will be cut off and the flow of the gas from the filled reservoir will be established with said burner, and the flow of gas from the supply-pipe directed into the empty reservoir, all operatively combined in the manner and for the purpose specified.

9. In a gas-measuring machine, the herein-described balanced sealing-cups; suitable sleeves carried by the supply-pipes in communication with said cups; counterpoises carried by the supports of said cups whereby the upward or downward movement of the cups will be rendered positive and a controlling-lever having a centrally-disposed counterpoise and adjusting screws at each end, the latter designed to contact with the projecting rim of the empty reservoir and means connecting the end of said controlling-lever with said cups whereby the seals will be opened and closed in such a way as to cut off the flow of gas from the empty reservoir with the burner and at the same instant direct the flow from the full reservoir to the burner and from the supply-pipe to the empty reservoir as specified and for the purpose set forth.

10. The herein-described sealing device for gas-machines, consisting of a body-section provided with communicating bores or openings and with supply and discharge apertures; sealing-sleeves having a partition-wall of less extent coöperating with said bores and movable sealing-cups designed to coöperate with said sleeves; a movable bell or holder having an extension or arm, and means located intermediate said arm for coöperating with said movable cups whereby said parts will be automatically controlled to regulate the flow of gas, as specified and for the purpose set forth.

11. The herein-described sealing device for gas consisting of the body-section 45 having a series of communicating bores substantially as specified, a series of depending sleeves in communication with said bores, each sleeve being provided with a partition of less extent than itself, in combination with a pivoted frame or platform located below said body and means carried by said frame to automatically close the open ends of said sleeves whereby the flow of the gas will be controlled in the manner specified and for the purpose set forth.

12. As an improvement in gas-meters a sealing device consisting of the body-section having a series of communicating bores and feeding and exit apertures in communication therewith, all formed in one piece, a frame-section pivotally mounted in position below said body-section; a series of sealing-cups carried by said frame-section and a series of depending open-ended sleeves having partition-walls secured to said body-section and in communication with the bores thereof whereby said sleeves will be effectually closed when said cups are depressed, all operatively combined in the manner specified and for the purpose set forth.

645,366. DRYING APPARATUS. CHARLES MALLISSON, Liverpool, England. Filed Aug. 19, 1898. Serial No. 689,001. (No model.)



Claim.—1. In an apparatus for drying grain or other material, the combination of two upright trunks provided with internal heating-pipes; a hot-air chamber intermediate and common to said trunks; openings extending from said chamber into the trunks; and exhaust-passages connected to the outer sides of the trunks, substantially as described.

2. In an apparatus for drying grain and the like, the combination of two upright trunks; a series of heating-pipes extending down therethrough; a series of deflecting-plates mounted within said trunks for causing the grain to pass back and forth across the trunks; a hot-air chamber intermediate and common to said trunks and communicating therewith; and exhaust-passages connected to the outer sides of the trunks.

3. In an apparatus for drying grain and the like, the combination of the trunks A and B; a series of heating-pipes mounted within the trunk A; a series of heating-pipes having reduced lower ends mounted within the trunk B; a hot-air chamber intermediate the trunks and communicating therewith; exhaust-passages connected to the opposite sides of said trunks; and a cold-air space communicating with the lower end of the trunk B, substantially as and for the purpose described.

4. In an apparatus for drying grain and the like, the combination of the trunks A and B; a series of heating-pipes mounted in trunk A; a series of heating-pipes having reduced ends mounted within trunk B; deflector-plates mounted within said trunks for causing the grain to pass back and forth across the trunks in contact with the pipes; a hot-air chamber intermediate the trunks; means for causing the heated air therefrom to pass up and through the trunks; and a cold-air space at the lower end of the trunk B, substantially as described.

645,367. TIRE-TIGHTENER. FRANK M. MARNEY, Vincennes Ind. Filed Jan. 31, 1900. Serial No. 3,472. (No model.)



Claim.—The combination with a felly the ends of which are spaced apart; of a tire the ends of which have a sliding engagement with each other, angular plates secured to the ends of said tire and having their ends projecting downward between the spaced-apart ends and formed with alined apertures, a bolt extending through said apertures and provided with an adjusting-nut, and a coil-spring placed upon said bolt and confined between its head and one of the downturned ends of the angular plates, substantially as and for the purpose set forth.

645,368. ANIMAL-BLANKET-RETAINING MEANS. FLETCHER H. MITCHELL, Cerrillos, N. Mex. Filed June 29, 1898. Serial No. 684,709. (No model.)



Claim.—1. A retaining device for horse-blankets, &c., consisting of a weight having attaching means whereby it may be secured to the side portions of a blanket or like article, so as to lie beneath and out of contact with an animal, substantially as described.

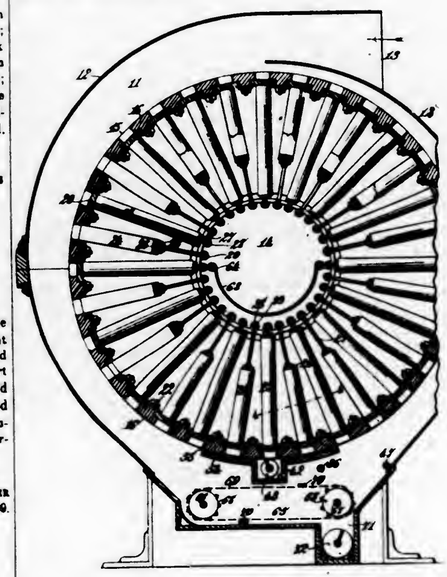
2. A retaining device for horse-blankets, &c., consisting of a weight having attaching means, whereby it may be secured to a blanket or like article, so as to lie under and out of contact with an animal, and adjustable connections adapted to be interposed between the weight and blanket.

3. A horse-blanket or net retaining device, consisting of a weight in the form of a sack constructed to provide a compartment in which a heavy filling material is placed, said weighted sack or receptacle having attaching portions, whereby it may be secured to the blanket, substantially as described.

4. A horse-blanket or net retaining device, consisting of a weight in the form of a flexible sack or receptacle comprising a plurality of compartments, each having an independent filling of heavy, loose material, said sack or receptacle being provided with attaching portions for the reception of the suspending connections, substantially as described.

645,369. DUST-COLLECTOR. JOHN R. MITCHELL, St. Louis, Mo. Filed Sept. 15, 1899. Serial No. 730,615. (No model.)

Claim.—1. In a dust-collector, the combination of a scroll-shaped casing composed of upper and lower sections and having an air-inlet in one side of the upper section, a rotary reel mounted in said casing, alternating series of radially-arranged long and short air-filtering tubes carried in said reel, the inner ends of each of said tubes being closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession when in its lowermost position, a cut-off chamber in air-tight contact with the lowermost portion of the reel, a conveyer in said cut-off chamber, a settling-chamber below the cut-off chamber, and conveyer mechanism in said settling-chamber, whereby the comparatively-light dust and the heavy dust are separately collected, substantially as described.



2. In a dust-collector, the combination of a scroll-shaped casing having an air-inlet in one side of its upper part, a settling-chamber in the lower part of said casing, sweeps or drag-bars mounted in the settling-chamber to remove deposits of dust therefrom, a conveyer-box below one side of the settling-chamber to receive the dust removed therefrom by said drag-bars, a rotary reel mounted in the scroll-shaped casing above the settling-chamber, radially-arranged air-filtering tubes carried in said reel, the inner end of each of said tubes being closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession when in its lowermost position, a cut-off chamber in air-tight contact with the lowermost portion of the reel, and a conveyer in said cut-off chamber, whereby provision is made for separate collection of the comparatively-light dust and the heavier dust, substantially as described.

3. In a dust-collector, the combination of a scroll-shaped casing having an air-inlet in one side of its upper part and provided at its ends with vertical heads having enlarged circular openings therein, a rotary reel mounted in said circular openings, packing secured in said openings and closely surrounding the rims of the reel, adjustable bands for clamping said packing in air-tight contact with the reel-rims, a series of radially-arranged air-filtering tubes carried in said reel, the inner end of each of said tubes being closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession, a cut-off chamber in air-tight contact with the lowermost portion of the reel, a settling-chamber below the reel and cut-off chamber, and conveyer mechanisms in the cut-off chamber and settling-chamber, for separate collection of the comparatively-light dust and the heavier dust, substantially as described.

4. In a dust-collector, the combination of a scroll-shaped casing

composed of upper and lower sections and having an air-inlet in one side of the upper section, said casing being provided with heads having enlarged circular openings therein, a frame supporting the lower section of said casing, a rotary reel mounted in the circular openings of the casing-heads, adjustable packing secured in said openings around the rims of the reel, a series of radially-arranged air-filtering tubes carried in said reel, the inner end of each of said tubes being closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession, a cut-off chamber having shields provided with packing in close air-tight contact with a portion of the reel periphery, a conveyer in said cut-off chamber, a settling-chamber below the reel and cut-off chamber, and conveyer mechanism in said settling-chamber, whereby the comparatively light dust and the heavier dust are separately collected, substantially as described.

5. In a dust-collector, the combination of a scroll-shaped casing having an air-inlet in one side of its upper part and provided at its ends with vertical heads having enlarged circular openings therein, a frame supporting said casing, a rotary reel mounted in said casing and comprising rims and hubs at each end connected by radial arms and longitudinally-extended slats carried by said rims, stationary semicircular bearings for the reel-hubs, a series of radially-arranged air-filtering tubes carried by said reel, the inner end of each tube being closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession, a cut-off air-chamber having a conveyer therein, a settling-chamber located below the reel and cut-off air-chamber, drag-bars or sweeps mounted in said settling-chamber, and a conveyer to which settlings are carried by said sweeps or drag-bars, all the parts of the machine being arranged for separate collection of the comparatively-light dust and the heavier dust, substantially as described.

6. In a dust-collector, the combination of a scroll-shaped casing having an air-inlet in one side of its upper part, a rotary reel mounted in said casing and provided with peripheral air-tight packing at each end, a series of radially-arranged air-filtering tubes carried by said reel, each of said tubes being closed at its inner end and having its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittingly, knocker mechanism for jarring each series of air-filtering tubes in succession, a cut-off air-chamber in close air-tight contact with a lowermost portion of the reel periphery, a conveyer in said cut-off chamber, a settling-chamber located in the lower part of the casing below the reel and cut-off air-chamber, drag-bars or sweeps mounted in said settling-chamber, and a conveyer to which settlings are carried by said sweeps or drag-bars, the comparatively-light dust being collected through the cut-off chamber and the heavier dust being separately collected through the settling-chamber, substantially as described.

7. In a dust-collector, the combination with an outer casing provided with an inlet for dust-laden air, of a rotary reel mounted in said casing and comprising detachable radially-arranged long and short air-filtering tubes disposed in alternating series, all of said tubes being of the same diameter throughout their entire length and so set in the reel that the tubes in each series will alternate with and dodge the tubes in adjoining series, whereby said long and short air-filtering tubes may be placed closely together without contact with each other, each of said tubes having its inner end closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating said reel intermittently, a cut-off chamber in close air-tight contact with a lower portion of the reel periphery, and means for automatically collapsing and stretching each series of air-filtering tubes in succession while in perpendicular position over the cut-off chamber, the dust being thereby dislodged from the perpendicular walls of said air-filtering tubes without having to slide over an inclined surface, substantially as described.

8. In a dust-collector, the combination with an outer casing having in one side at its upper part an inlet for dust-laden air, of a rotary reel mounted in said casing and comprising long and short radially-arranged porous air-filtering tubes that are all of the same diameter throughout their entire length, said long and short tubes being disposed in alternating series and the tubes in each series being so set in the reel as to alternate with and dodge the tubes in adjoining series to permit said tubes being placed closely together without contact with each other, each of said tubes having its inner end closed and its outer end open and in communication with the interior of the surrounding casing, mechanism for rotating the reel intermittently, a cut-off chamber in close air-tight contact with a lower portion of the reel periphery, a conveyer in said chamber, and means for automatically collapsing and stretching the perpendicular walls of each series of said long and short tubes in succession while in perpendicular position over the cut-off chamber so that the dust will be dislodged from the walls of said air-filtering tubes without having to slide over an inclined surface, substantially as described.

9. In a dust-collector, the combination with an outer casing, of a rotary reel mounted in said casing and provided with outer circular rims and radially-slotted hubs or internal rings connected with said rims by radial arms, said outer rims being connected with each other by longitudinally-extended slats, detachable boards seated longitudinally between said slats and each provided with a series of circular openings, a series of radially-arranged air-filtering tubes having outer open ends secured in said openings of the boards and communicating with the interior of the surrounding casing, heads closing the inner ends of said air-filtering tubes, longitudinally-extended bars to which said heads are secured, a series of longitudinally-extended rods engaged in the radial slots of the reel-hubs, eyebolts connecting said rods and bars, stationary circular guides for said rods, mechanism for rotating the reel intermittingly, knocker mechanism to strike in succession each supporting-rod of a series of said tubes to dislodge dust therefrom, a cut-off chamber, and a conveyer in said chamber substantially as described.

10. In a dust-collector, the combination with an outer casing, of a rotary reel mounted in said casing and provided with outer circular rims and radially-slotted hubs or internal rings connected with said rims by radial arms, said outer rims being connected with each other by longitudinally rabbeted or recessed slats, detachable boards seated longitudinally in the rabbeted portions of said slats and each provided with a series of circular openings, alternating series of radially-arranged long and short air-filtering tubes having open outer ends secured in the openings of said boards and communicating with the interior of the surrounding casing, heads closing the inner ends of said air-filtering tubes, longitudinally-extended bars to which said heads are secured, a series of longitudinally-arranged rods connected with said bars and engaged in the radial slots of the reel-hubs, stationary circular guides for said rods, the bars that carry the heads of the short air-filtering tubes being notched to engage the radial arms in the ends of the reel, mechanism for rotating the reel intermittingly, knocker mechanism to strike in succession each supporting-rod of a series of said tubes to dislodge dust therefrom, a cut-off chamber, and a conveyer in said chamber, substantially as described.

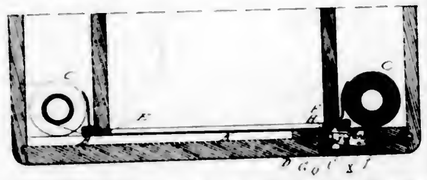
11. In a dust-collector, the combination with an outer casing, of a rotary reel mounted in said casing, a series of radially-arranged air-filtering tubes carried in said reel and having inner closed ends and outer open ends in communication with the interior of the casing surrounding the reel, boards detachably mounted in the periphery of the reel and provided with series of circular openings in which the open outer ends of the air-filtering tubes are secured, thumb-nuts and bolts for detachably securing said boards, a series of longitudinally-arranged rods connected with the closed inner ends of the air-filtering tubes and loosely engaged with the hubs of the reel, knocker mechanism to strike in succession each of said rods, guideways for said rods, means for rotating the reel intermittingly, and a cut-off chamber, substantially as described.

12. In a dust-collector, the combination of an outer casing, a rotary reel mounted in said casing and provided with radially-slotted hubs, a series of radially-arranged air-filtering tubes carried by said reel and having inner closed ends and outer open ends in communication with the interior of the casing surrounding the reel, a series of longitudinally-arranged rods connected with the closed inner ends of the air-filtering tubes and loosely engaged in the radial slots of the reel-hubs, guideways for said rods, hammers or knockers to alternately engage and release each of said rods and strike forcibly against each rod in succession, supporting-arms for said hammers, weighted sprocket mechanism by which said hammer-arms are carried, an arm projecting from said sprocket mechanism, roller-trips to act on said arm, and a gear carrying said roller-trips, substantially as described.

13. In a dust-collector, the combination of a casing having circular openings in its ends and an air-inlet in the upper part of one side, a rotary reel comprising outer rims mounted in said circular openings of the casing, and having internal rings connected with said rims by radial arms, packing between said reel-rims and the casing, a series of radially-arranged long and short air-filtering tubes carried in the reel and each provided with a closed inner end and an open outer end in communication with the interior of the surrounding casing, said long and short series of air-filtering tubes being alternated with each other to secure compactness of structure, a dust-pan removably supported in the center of the reel, a cut-off chamber in close contact with a lower peripheral portion of the reel, packing between said chamber and reel, a conveyer in said cut-off chamber, a settling-chamber in the lower part of the outer casing, and means for removing settlings from said chamber, substantially as described.

14. In a dust-collector, the combination of an outer casing having an air-inlet in the upper part of one side, a rotary reel mounted in said casing, a series of radially-arranged straight and porous air-filtering tubes detachably mounted in said reel, mechanism for rotating the reel intermittingly, knocker mechanism for automatically collapsing and stretching each series of air-filtering tubes in succession, a cut-off chamber, a settling-chamber in the lower part of the casing, means for removing deposits from the cut-off chamber and from the settling-chamber, whereby the comparatively-light dust and the heavier dust are separately collected, and a dust-pan in the center of the reel, substantially as described.

645,370. REGISTERING MECHANISM FOR CAMERAS. ARTHUR W. McCURDY, Washington, D. C. Filed Apr. 25, 1899. Serial No. 714,408. (No model.)



Claim.—1. In a camera or roll-holder, the combination of a suitable indicating device; a lever for actuating the same; and a spring for moving said lever across the path of travel of the film and by said movement causing a positive actuation of the indicator, substantially as described.

2. In a camera or roll-holder, the combination of a suitable indicating device; a lever for actuating the same, said lever having a movement out into the path of travel of a film, and means for yieldingly holding said lever in contact with the film, and causing it to pass through openings in the film and by said movement to actuate the indicator, substantially as described.

3. In a camera or roll-holder, the combination of a film-support; an indicating device; a lever for actuating said indicating device; and means for moving said lever toward said film-support, across the path of travel of the film and by said movement actuating the indicator.

4. In a camera or roll-holder, the combination of a suitable indicating device, and means adapted to actuate the same extending out into the path of travel of a film, said means being so arranged and adapted that it will normally rest on one surface of the film and hold the indicating mechanism out of action, but will move and actuate the same when released by the film, substantially as described.

5. In a camera or roll-holder, the combination of a film-support; and a registering device projecting toward said support, across the path of travel of a film, said device being adapted to be moved back from said support by a perforated film, substantially as described.

6. In a camera or roll-holder, the combination of a film-support; an indicating device; a lever for actuating said indicating device, movable toward and from said support, across the path of travel of the film; a spring for throwing said lever toward the film-support and thereby actuating the indicator; and means substantially such as described for holding the indicator against backward rotation.

7. In a camera or roll-holder, the combination of a film-support; an indicating device; a lever for actuating the same, said lever being movable toward and from said support, across the path of travel of the film; a spring for throwing said lever toward the support and thereby actuating the indicator; and a dog or detent for holding the indicating device in opposition to the backward movement of the lever.

8. In a camera or roll-holder, the combination of a film-support; an indicating device; a lever, said lever being provided with a nose K at its outer end; a spring for actuating said lever and throwing its nose across the path of travel of the film; a pawl carried by said lever for actuating the indicating device as the nose of said lever is thrown across the path of travel of the film; and a dog or detent for holding the indicating device in opposition to the rearward movement of the pawl.

9. In a camera or roll-holder, the combination of a film-support; a lever provided with a nose K; a spring for throwing said lever in one direction and projecting its nose across the path of travel of a film; a ratchet-wheel; an indicating-plate connected to said ratchet-wheel; a pawl Q connected to the lever and adapted to move the ratchet-wheel in one direction as the nose of the lever is projected across the path of travel of the film; and a dog or detent serving to hold the ratchet in its adjusted position.

10. In a camera or roll-holder, the combination of a suitable film-support; a lever provided with a nose K adapted to pass across the path of travel of a film and toward said film-support; a spring M for actuating said lever; a ratchet-wheel; an indicating-plate carried by said wheel; a spring actuated pawl Q carried by said lever for actuating the ratchet-wheel as the nose of the lever is thrown across the path of travel of the film; and a locking dog or detent V for holding the ratchet-wheel against rearward movement.

11. In combination with an indicating device; a setting-lever, and a spring for actuating the same; and a film movable relatively to the lever and adapted to come into direct operative relation therewith, said film being provided with openings, whereby the lever is thrown back by the film and is permitted to move forward under the force of the spring and thereby to actuate the indicating device when an opening of the film comes opposite the lever.

12. In combination with an indicator; a spring-actuated pawl for moving the same; and a traveling perforated film adapted to throw the pawl back to its engaging position and to permit its forward or actuating movement when an opening of the film comes to a predetermined position.

13. In a camera or roll-holder, the combination with means for supporting and advancing a perforated film; of an indicator; an operating device therefor, said device being supported independently of the film supporting and advancing means; connections intermediate the operating device and the indicator; and means for normally pressing said device toward the film so that it will pass into the perforations therein as they come into registration therewith, and by said movement, into the perforations, to directly actuate the indicator, substantially as described.

14. In a camera or roll-holder, the combination with means for supporting and advancing a perforated film, of an indicating device; a lever; and means for normally pressing said lever toward the film and causing it to pass into the perforations therein, and by said movement to actuate the indicator, substantially as described.

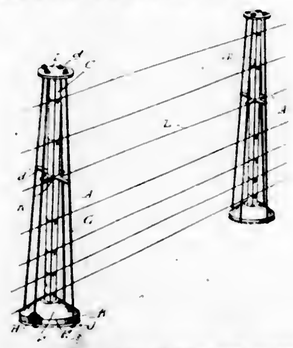
15. In a camera or roll-holder, the combination with means for supporting and advancing a perforated film, of an indicating device; a lever supported independently of the film supporting and advancing means; and means for normally pressing said lever toward the film and causing it to pass into the perforations therein, and by said movement to actuate the indicating device, substantially as described.

645,371. OVEN-THERMOMETER. ROBERT L. NOURSE, Hailey, Idaho. Filed Oct. 10, 1899. Serial No. 733,207. (No model.)



Claim.—In combination with the oven-door provided with the orifice, *a*, and bolt-holes, *b* and *b'*, the casing formed with the bolt-holes, 2^2 2^3 and 2^4, and the parallel flanges, 3 3, the thermometer-tube having its bulb arranged on one side of the door and its graduated stem on the other, the cap, 5, the curved guard-plate, 6, and the bolts, B and B', substantially as shown and described.

645,372. FENCE-POST. JOSEPH D. PALDI, Brockway, Mich. Filed May 1, 1899. Serial No. 715,159. (No model.)



Claim.—1. A fence-post formed in two parts, comprising a lower section or base terminating at one end in a solid point, and at the opposite end in a cone-shaped overhanging head having a socket or recess formed centrally in its upper face, and an upper section in the form of a standard mounted upon the base within the socket, and means for maintaining the standard in an erect position upon the

base, comprising a ring adapted to be freely engaged over the lower section beneath the head, and stay-wires connecting the ring with the standard-top, said wires terminating at their lower ends in outwardly-turned hooks engaging the ring beneath the head and bearing against the lower face of said head, substantially as described.

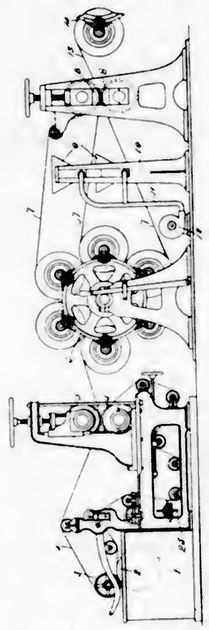
2. A fence-post comprising a lower section or base, consisting of a solid cylindrical shank provided with an overhanging conical head, an upper section in the form of a standard mounted upon the base, and means for maintaining the standard in an erect position upon the base, consisting of a solid ring adapted to be engaged over the cylindrical shank of the lower section, said ring being of greater internal diameter than the diameter of the cylindrical shank to permit of the insertion between said ring and said shank of securing-hooks, stay-wires connected at their upper ends to the standard-top, and outwardly-turned hooks upon the lower ends of the stay-wires engaging the ring and bearing against the shank and the under face of the overhanging shank-head.

645,378. DETERGENT. JEAN PIRARD, Chicago, Ill. Filed Sept. 29, 1899. Serial No. 732,025. (No specimens.)

Claim.—1. The herein-described cleaning compound, consisting of the ingredients and the proportions as follows: benzin, two hundred and eighty parts; water, forty-two parts; soap, twenty-one parts; gum-arabic, fifteen parts; glycerin, thirty-six parts; ammonia, thirty parts; chloroform, twenty-five parts; sulfuric ether, thirty parts; sodium chlorid, thirty parts; linseed-oil, forty parts.

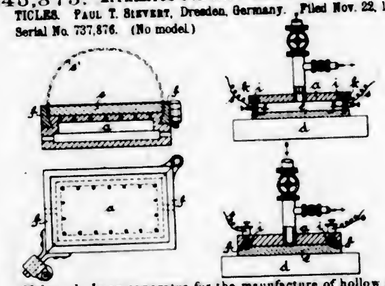
2. A cleaning compound consisting of benzin, water, soap, gum-arabic, glycerin, ammonia, chloroform, sulfuric ether, sodium chlorid, and linseed-oil.

645,374. PROCESS OF FORMING PAPER-BOARD. KNIGHT R. ROGERS, Manchester, Conn. Filed May 14, 1898. Serial No. 680,743. (No specimens.)



Claim.—The process of forming paper-board, which consists in beating and mixing ordinary paper-stock, collecting and couching this stock into thin continuous webs, then dusting dry, finely-powdered cementing material which is soluble in water and which hardens by heat between continuously-moving undried webs, pressing together the webs thus dusted with dry powder and subjecting the compound web thus powdered and united to heat and pressure to form the moisture of the pulp and the powder between the webs into a strongly-adhering paste and solidify the paste and dry and harden the board, substantially as specified.

645,375. APPARATUS FOR PRODUCING HOLLOW GLASS ARTICLES. PAUL T. SIEVERT, Dresden, Germany. Filed Nov. 22, 1899. Serial No. 737,876. (No model.)



Claim.—1. In an apparatus for the manufacture of hollow glass articles, the combination of a slab or plate adapted to receive a layer of plastic glass and perforated for the passage through it of an elastic pressure medium for blowing out said layer, and a heating-frame conforming to the outline of the base or walls of the article to be produced for giving shape to said article and at the same time applying heat thereto along or around said outline, substantially as herein described.

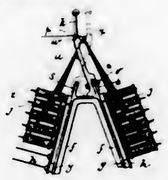
2. In an apparatus for the manufacture of hollow glass articles, the combination of a slab or plate adapted to receive a layer of plastic glass and perforated for the passage through it of an elastic pressure medium for blowing out said layer, a frame for holding said layer to the slab or plate along suitable outlines, and means for applying heat to said frame during the blowing out of the said layer for heating said layer along said outlines independently of heat applied to or residing in other parts of said layer, substantially as herein described.

3. In an apparatus for the manufacture of hollow glass articles, the combination of a slab or plate adapted to receive a layer of plastic glass and perforated for the passage through it of an elastic pressure medium for blowing out said layer, a frame for holding said layer to the slab or plate along determined outlines, and electrical connections with said frame for heating the same and keeping it heated during the blowing out of said layer, substantially as herein described.

4. In an apparatus for the manufacture of hollow glass articles, the combination of a slab or plate adapted to receive a layer of plastic glass and perforated for the passage through it of an elastic pressure medium for blowing out said layer, a frame partly embedded in said slab or plate and insulated therefrom for holding the said layer thereto along determined outlines, and electrical connections with said frame for heating the same and keeping it heated during the blowing out of said layer, substantially as herein described

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645,376. CREEL FOR WARPING-MACHINES. CHARLES SLINGLAND and GEORGE F. KUETT, Paterson, N. J. Filed Aug. 12, 1899. Serial No. 726,985. (No model.)



Claim.—1. In a creel-frame, the combination of a suitable supporting-frame having both sides thereof sloping or inclined from the vertical and provided with bobbin or spool supporting spindles or skewers, brackets detachably mounted on said frame, a reed carried by said brackets, a guide-bar also carried by said brackets and disposed above and between the two series of spool or bobbin supporting spindles and at a substantially-uniform distance from each to direct the yarn from one or both sets of spools or bobbins.

2. In a creel-frame, the combination of a suitable supporting-frame having both sides thereof sloping or inclined, and provided with bobbin or spool spindles, brackets mounted above the creel-frame and carrying a reed and gnide-bar adjacent each other, the latter being disposed above the center of the creel-frame, and provisions for changing the relative position of the reed and guide-bar.

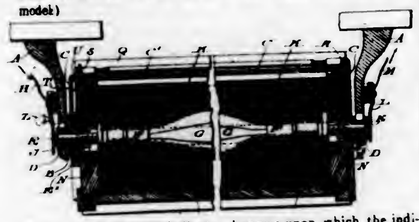
3. In a creel frame, the combination of a suitable supporting-frame having its sides sloping or inclined, and provided with bobbin or spool spindles, brackets surmounting said frame and carrying a reed and guide-bar adjacent each other, the latter being disposed substantially over the center of the creel-frame, and means for adjusting the brackets upon the frame to change the reed to opposite sides of the guide-bar.

4. In a creel-frame, the combination of a suitable supporting-frame having its sides sloping or inclined, and provided with bobbin or spool supporting spindles, brackets surmounting said frame and carrying a reed and guide-bar, devices for detachably connecting the brackets to either side of said frame, whereby they may be changed to shift the reed to either side of the guide-bar.

5. In a creel-frame, the combination of a suitable frame having the sides thereof sloping or inclined and provided with spool or bobbin supporting spindles or skewers, the sides of said frame being provided with upwardly-extending projections, brackets carrying a reed and guide-bar and having their ends bifurcated to engage either of the said projections, and means for securing said brackets to either of said projections

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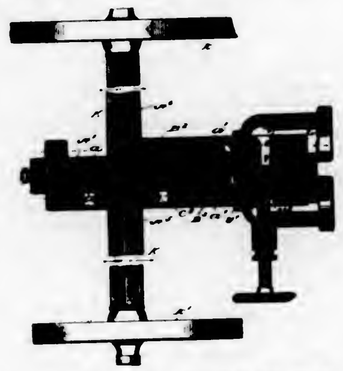
645,377. ELECTRICAL STREET-INDICATOR. GEORGE W. STEVENSON, Cramer's Hill, N. J., assignor to Theodore Lega, Camden, N. J. Filed Dec. 7, 1898. Renewed Dec. 20, 1899. Serial No. 741,050. (No model.)



Claim.—1. In a street-indicator, hangers upon which the indicator-casing is rotatably mounted, said casing being provided with end pieces having frames attached thereto, said frames being provided with outwardly-projecting insulated sleeves rotatably mounted in said hangers, rods passing through and projecting beyond the ends of said sleeves and having lamps in electrical connection therewith, brushes mounted upon said hangers and bearing on the ends of said rods, a spring-actuated plunger suitably supported, and sockets in said end frames to receive said plunger.

2. In a street-indicator, hangers, a casing having trunnions of non-conducting material rotatably mounted upon said hangers, rods passing through said trunnions and connected with suitable conductors exterior thereto, electric lamps within said casing, clamping-rings having screw-threaded connections with said rods within the casing, and conductors having one end secured between said clamping-rings and the other ends connected with said electric lamps.

645,378. MOTOR-VEHICLE. WILLIAM O. WORTH, Chicago, Ill., assignor of two-thirds to William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battle Creek, Mich. Filed June 9, 1899. Serial No. 719,938. (No model.)



Claim.—1. In a vehicle, the combination of the sectional axle, the similar gears keyed on the meeting ends of the axle, and means for driving said gears by fluid-pressure so as to permit one to move independently of the other in turning, for the purpose and substantially as described.

2. The combination of the sectional shaft or axle, similar gears keyed on the meeting ends thereof, similar independently-movable gear-pistons mounted in a common working chamber and meshing with said gears, and means for actuating said pistons, for the purpose and substantially as described.

3. The combination of a sectional axle or shaft, similar gears on the meeting ends thereof fitted within an annular chamber, similar independently-movable gear-pistons within a common working chamber respectively meshing with said gears, and means substantially as described, for actuating said gear-pistons by fluid-pressure, for the purpose and substantially as described.

4. The combination of the motor-casing, the working chambers thereof, the pairs of independently-rotatable gear-pistons in each working chamber, the pair of similar gears located in a chamber intermediate the working chambers and meshing with said gear-pistons, and the shaft-sections having their inner ends respectively attached to said gears, substantially as and for the purpose described.

5. The combination of the motor-casing, the working chambers thereof, the pairs of independently-rotatable gear-pistons in each working chamber, a pair of similar gears located in a chamber intermediate the working chambers and meshing with said gear-pistons, and the shaft or axle sections having their inner ends respectively attached to said gears; with means for admitting an operative fluid into said working chambers so as to rotate the gear-pistons therein, for the purpose and substantially as described.

6. The combination with a sectional shaft of self-compensating propelling mechanism therefor comprising similar gears fixed on the meeting ends of the shaft-sections, and similar gear-pistons meshing with said gears independently mounted within the same working chamber, whereby one of said gears and gear-pistons may be retarded while the other is accelerated, for the purpose and substantially as described.

7. In a motor-vehicle, the combination of the sectional rear axle; with self-compensating propelling mechanism therefor, comprising similar gears fixed on the meeting ends of the axle-sections, similar gear-pistons independently mounted within the same working chambers and meshing with said gears, whereby one of said gears and gear-pistons may be retarded while the other is accelerated, in rounding curves, for the purpose and substantially as described.

8. The combination of the motor-casing having opposite laterally-projecting sleeves, and shaft-sections journaled in said sleeves, the large gears fast on the inner ends of said sections, the working chambers at opposite sides of said gears, and pairs of independent similar gear-pistons mounted in the working chamber; with fluid-chambers above and below each working chamber, and mechanism substantially as described, whereby fluid may be admitted into one set of chambers and discharged from the others, for the purpose and substantially as described.

9. The combination of the motor-casing having opposite laterally-projecting sleeves, the shaft or axle sections journaled in said sleeves, the large gears on the inner ends of said sections, the working chambers at opposite sides of said gears, pairs of independent similar gear-pistons mounted in the working chamber, the fluid-chambers above and below each working chamber, the valve-chamber, passages for conducting fluids from said valve-chamber to and from each of said fluid-chambers, and valve mechanism substantially as described whereby fluid may be admitted into either set of chambers and discharged from the other set so as to reverse the motor at the will of the operator, substantially as and for the purpose described.

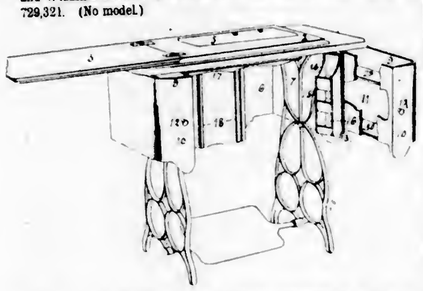
10. In a motor-vehicle, the combination of the sectional rear axle, and self-compensating propelling mechanism therefor, comprising similar gears fixed on the meeting ends of the axles, the similar independently-rotatable gear-pistons mounted within the same working chamber and meshing with said gears; with the fluid-chambers above and below the working chamber, the fluid-passages and valve mechanism whereby the fluid may be directed into one chamber and out of the other, substantially as and for the purpose specified.

11. In a motor-vehicle, the combination of the sectional rear axle, and self-compensating propelling mechanism therefor, comprising similar gears fixed on the meeting ends of the axles, and pairs of similar loose gear-pistons meshing with said gears mounted in working chambers, whereby in rounding curves, one of said gears and gear-pistons may be retarded while the other is accelerated; with fluid-chambers above and below each working chamber, the fluid-passages connecting said chambers and valve mechanism whereby the fluid may be directed into one set of chambers, or vice versa, substantially as and for the purpose set forth.

12. The combination of two independent line-shafts, means for driving said shafts by fluid-pressure so as to permit one to move independently of the other and whereby equal power is uniformly transmitted to both shafts at all times

13. In a motor, the combination of two independent line-shafts, fluid-motor for driving said shafts at the meeting end thereof, and means for supplying fluid under pressure to said motors whereby equal power is uniformly transmitted to both shafts whether they are moving at equal or variable speeds.

645,379. SEWING-MACHINE CABINET. ALFRED C. ABRAMSON and WILLIAM PERSON, Rockford, Ill. Filed Sept. 2, 1899. Serial No. 729,321. (No model.)



Claim.—1. A sewing-machine cabinet composed of a top and ends, a single pair of guides supported by each end, one guide located directly above the other, a combined drawer and pocket for each end supported to slide between the guides, said drawer being provided with two separated bottoms to provide two compartments, one open at the top and the other open at the inside of the drawer next to the end of the cabinet, substantially as described.

2. A sewing-machine cabinet composed of a top and ends, said top extending beyond the ends, guides supported on the outside of each end, a combined drawer and pocket for each end supported to slide between the guides, each drawer being provided with two separated bottoms to provide two compartments, one open at the top and the other open at the inner side, said open portions of the drawers being covered by the top and ends respectively of the cabinet when the drawers are closed, substantially as described.

3. In a sewing-machine cabinet, the combination with a top having a leaf hinged thereto adapted to fold outward and be supported in a horizontal plane, of vertical guideways secured to the back of the cabinet on the interior thereof, a cross-head movable between and supported at its opposite ends by said guideways, brackets carried by the cross-head and arranged to support a sewing-machine, a grooved roller journaled centrally on the cross-head, a second grooved roller journaled on a fixed pivot above, and slightly to one side of the roller on the cross-head, and a cord or chain connected at one end to the hinged leaf and at the other end to a fixed part adjacent to the second-named roller, said cord or chain passing over the roller on the fixed pivot and under the roller on the cross-head, substantially as described.

645,380. NEWSPAPER-FILE. JOHN AHRENDS, Dearborn County, Ind. Filed Mar. 4, 1899. Serial No. 707,770. (No model.)

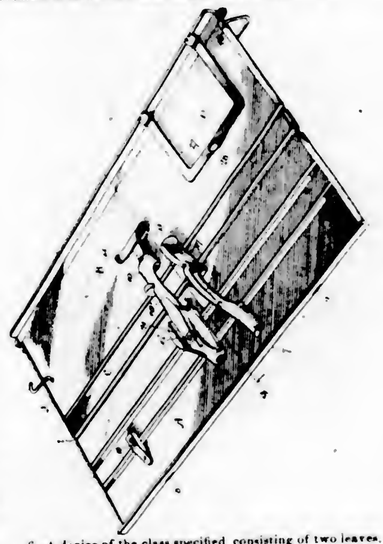
Claim.—1. A device of the class specified, consisting of two leaves, a strip located between said leaves, hinges connecting the strip and leaves respectively, and a hasp on one of the leaves adapted to engage the other leaf and serving to hold both leaves open, substantially as described.

2. A device of the class specified, consisting of two leaves, a strip located between said leaves, hinges connecting the strip and leaves respectively, a hasp on one of the leaves adapted to engage the other leaf thereby to lock said leaves open, and an independent device for locking said leaves closed, substantially as described.

3. A device of the class specified, consisting of two leaves, a strip located between and hinged to said leaves, a hasp carried by one of the leaves and having a notch or groove, and said hasp being adapted to engage the other leaf to lock both of them open, a bail carried by said other leaf, and adapted to be sprung into the notch or groove in the hasp, and means for limiting the motion of said hasp, substantially as described.

4. A device of the class specified, consisting of two leaves, a strip intermediate of and hinged to said leaves, a hasp on one of the leaves and adapted to engage the other leaf and said hasp having a cut-away portion, a handle secured to that leaf which carries the hasp and adapted to lap over the other leaf and also having a cut-away portion, a bail carried by one of the leaves and adapted to engage over the other leaf, and to fit in notches in the hasp and handle respectively, substantially as described.

5. A device of the class specified, consisting of two leaves, a strip intermediate of and hinged to said leaves, a hasp on one of the leaves and adapted to engage the other leaf and said hasp having a cut-away portion, a handle secured to that leaf which carries the hasp and adapted to lap over the other leaf and also having a cut-away portion, a bail carried by one of the leaves and adapted to engage over the other leaf, and to fit in notches in the hasp and handle respectively, and stops secured to that leaf which carries the bail for limiting the movement of said bail, substantially as described.



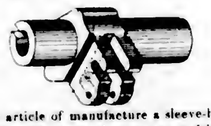
6. A device of the class specified, consisting of two leaves, a strip intermediate of and hinged to said leaves, a hasp on one of the leaves and adapted to engage the other leaf and said hasp having a cut-away portion, a handle secured to that leaf which carries the hasp and adapted to lap over the other leaf and also having a cut-away portion, a bail carried by one of the leaves and adapted to engage over the other leaf, and to fit in notches in the hasp and handle respectively, stops secured to that leaf which carries the bail for limiting the movement of said bail, a flange extending along the outer edge of one of the leaves, and clips secured to said flange and projecting inwardly therefrom, substantially as described.

7. A device of the class specified, consisting of two leaves, a strip intermediate of and hinged to said leaves, a hasp on one of the leaves and adapted to engage the other leaf and said hasp having a cut-away portion, a handle secured to that leaf which carries the hasp and adapted to lap over the other leaf and also having a cut-away portion, a bail carried by one of the leaves and adapted to engage over the other leaf, and to fit in notches in the hasp and handle respectively, stops secured to that leaf which carries the bail for limiting the movement of said bail, a flange extending along the outer edge of one of the leaves, clips secured to said flange and projecting inwardly therefrom, a second flange secured to the other leaf and projecting in a direction opposite to the first-mentioned flange, and a spring-clip secured to said last-mentioned flange and adapted to hold writing materials upon the under side of the device, substantially as described.

8. A device of the class specified, consisting of two leaves one of which is provided with a hook and both of which have metal reinforcing-strips along the upper and lower edges thereof, a strip located between and hinged to said leaves, a hasp on one of the leaves adapted to frictionally engage the other thereby to lock the leaves open, a handle secured to that leaf which carries the hasp, stops for limiting the movement of the hasp, a bail secured to said other leaf and adapted to be sprung into notches in the hasp and handle respectively, substantially as described.

645,381. SLEEVE-BEARING. CHARLES H. BAYLEY, Boston, Mass. Filed Dec. 5, 1899. Serial No. 739,290. (No model.)

Claim.—1. As a new article of manufacture a sleeve-bearing for rotary longitudinally-adjustable shafts, the same comprising cylindrical end portions and an open-side intermediate connecting portion of enlarged interior diameter, substantially as and for the purpose described.



2. As a new article of manufacture a sleeve-bearing for rotary longitudinally-adjustable shafts, the same comprising cylindrical end portions and an open-side intermediate connecting portion of enlarged interior diameter, together with a laterally-projecting attaching portion, substantially as and for the purpose described.

3. As a new article of manufacture a sleeve-bearing for rotary longitudinally-adjustable shafts, the same comprising cylindrical end portions and an open-side intermediate connecting portion of enlarged interior diameter, together with a laterally-projecting attaching portion having right-angle bifurcations, substantially as and for the purpose described.

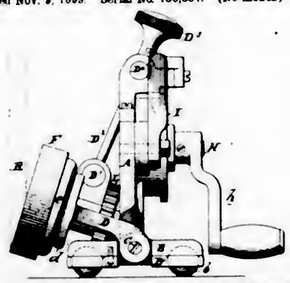
4. As a new article of manufacture a sleeve-bearing for rotary longitudinally-adjustable shafts, the same comprising cylindrical end portions and an enlarged open-side portion having a semicylindrical interior wall of larger diameter than the bores of the cylindrical end portions together with a laterally-projecting attaching portion, substantially as described.

5. As a new article of manufacture, a sleeve-bearing for rotary longitudinally-adjustable shafts, the same comprising a cylindrical portion and an adjoining open-side portion of enlarged interior diameter, together with a laterally-projecting attaching portion.

6. As a new article of manufacture, a sleeve-bearing comprising a cylindrical portion and a laterally-projecting attaching portion with right-angle bifurcations, substantially as and for the purpose described.

7. As a new article of manufacture, a sleeve-bearing comprising a cylindrical portion and a laterally-projecting attaching portion bifurcated transversely of the cylindrical portion, the material of the bearing being reduced in thickness along the lines of juncture of the bifurcated portion with the main portion of the bearing and provision being made for adjusting the bifurcation by springing its members on such reduced junctures.

645,382. GRINDING-MACHINE. SAMUEL BROWN, Philadelphia, Pa. Filed Nov. 9, 1899. Serial No. 736,337. (No model.)



Claim.—1. In a portable grinding-machine, the combination of a main frame provided with universally-movable supporting-bearings therefor, one or more obliquely-arranged grinding-disks journaled in supports carried by said main frame, and hand-operating means for rotating the said disks.

2. In a portable grinding-machine, the combination of a main frame provided with universally-movable supporting-bearings therefor, one or more obliquely-arranged grinding-disks journaled in adjustable supports carried by said main frame, means for adjusting the adjustable supports relatively to the main frame, and hand-operated means for rotating the said disks.

3. In a portable grinding-machine, the combination of a movable main frame, an adjustable frame pivoted to the main frame, means to adjust the adjustable frame upon the main frame one or more grinding-disks journaled in the adjustable frame, and hand-power devices for rotating said disks.

4. In a portable grinding-machine, the combination of a movable main frame, an adjustable frame pivoted to the main frame, means to adjust the adjustable frame upon the main frame, one or more grinding-disks journaled in the adjustable frame, hand-power devices for rotating said disks journaled in the main frame, and gearing between the hand-power devices on the main frame and the grinding-disks on the adjustable frame.

5. In a portable grinding-machine, the combination of a main frame provided with adjustable supporting base-plates or feet, one or more obliquely-arranged grinding-disks carried by and adjustable with the main frame upon the base-plates or feet, and means on the main frame for rotating the grinding-disks in all portions of adjustment relatively to the base-plates or feet.

6. In a portable grinding-machine, the combination of base-plates or feet, a movable main frame pivoted to the base-plates, an adjustable frame pivoted relatively to the main frame, means to adjust the adjustable frame relatively to the main frame connecting the said frames, one or more grinding-disks journaled in the adjustable frame, hand-power devices for rotating said disks.

7. In a portable grinding-machine, the combination of a main frame provided with universally-movable supporting-bearings therefor and also provided with handles wherewith to move it, one or more obliquely-arranged grinding-disks journaled in supports carried by said main frame, means to adjust the grinding-disks, and hand-operated means for rotating the said disks.

8. In a portable grinding-machine, the combination of a main frame having a supporting base structure, a frame pivoted relatively to the main frame, one or more grinding-disks journaled in the pivoted frame, a crank or main frame, gearing between the crank and the grinding-disks, and an adjusting-screw for adjusting the pivoted frame relatively to the main frame without interfering with the gearing.

645,383. MATTRESS. JAMES W. CASE, Ypsilanti, Mich., assignor of one-half to Almeron Crandall, same place. Filed Dec. 1, 1899. Serial No. 738,907. (No model.)



Claim.—1. A mattress comprising a body formed of a series of longitudinal sections flexibly connected at their contiguous top edges, ventilating-heads at the ends of said sections, and pads partly inclosing the ventilating-heads, substantially as described.

2. A mattress comprising a body formed of a plurality of independent sections each provided with padded ends, and perforated ventilator-heads arranged in and partly inclosed by the padded ends for communication with the mattress-sections, substantially as set forth.

3. A mattress comprising a body formed of a plurality of independent sections each of which is provided with padded ends, and ventilator-heads within the padded ends of each section of the body, said ventilator-heads conforming to the cross-sectional shape of the sections and provided with ventilating-openings, substantially as set forth.

4. A mattress comprising a body formed of a plurality of independent parallel sections having covering-flaps extended from their ends, and ventilating-heads fitted within the opposite ends of each section of the body and adapted to have said cover-flap folded upon and secured to their outer sides, substantially as set forth.

5. A mattress comprising a body having a series of independent sections, each provided at the opposite ends thereof with a plurality of covering-flaps forming extensions of the covering for the sections, and ventilating-heads fitted within the opposite ends of each section, and adapted to have the covering-flaps folded down and secured to their outer sides, certain of said covering-flaps being padded to form end cushions for the body-sections, substantially as set forth.

645,384. RAIL-JOINT-TESTING APPARATUS. ROGER W. COBAFT, Boston, Mass. Filed Nov. 13, 1899. Serial No. 736,747. (No model.)

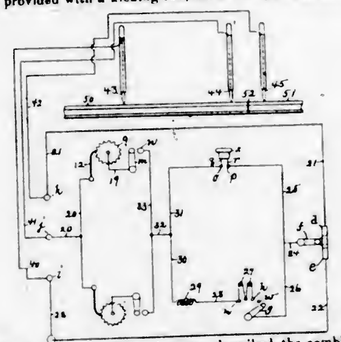
Claim.—1. In an apparatus of the character described, the combination with two independent metallic circuits having a conductor common to both, and a telephone-receiver in the common conductor, substantially as and for the purpose specified.

2. In an apparatus of the character described, the combination with two independent metallic circuits having a conductor common to both, a telephone-receiver and a circuit-interrupter in the common conductor, substantially as described.

3. In an apparatus of the character described, the combination with two independent metallic circuits having a conductor common to both, a telephone-receiver and a circuit-interrupter in the common conductor, and a switch in circuit with said telephone cooperating with both of said independent circuits, substantially as described.

4. In an apparatus of the character described, the combination

with two independent circuits having a conductor common to both, a telephone-receiver in the common conductor, a shunt-circuit for said telephone provided with a kicking-coil, substantially as described.



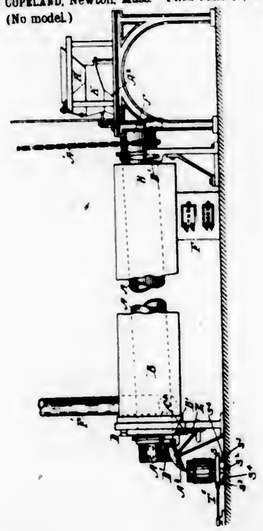
5. In an apparatus of the character described, the combination with two independent circuits having a conductor common to both, a telephone-receiver in the common conductor, a shunt-circuit for said telephone provided with kicking coil, and with a resistance, and a switch in said shunt controlling said resistance.

6. In an apparatus of the character described, the combination with two independent circuits having a conductor common to both, a telephone-receiver in said common conductor, a break-wheel in said common conductor, and a motor mechanism to operate said break-wheel, and means to control the said motor mechanism, substantially as and for the purpose specified.

7. An apparatus for measuring electrical resistances by a comparison of sounds produced in a circuit including the resistance to be measured with sounds produced in a circuit including a known resistance, it comprising movable terminals adapted to make contact with the resistance to be measured, conductors connected to said terminals, a telephone connected to one of said conductors, a third movable terminal adapted to be connected with a known resistance and connected with the conductor to which the telephone is connected, the said third movable terminal being movable toward and away from the terminal for the telephone, substantially as described.

8. In an apparatus of the character described, the combination with a telephone-receiver, a circuit-breaker in the telephone-circuit, a shunt-circuit for said telephone between the telephone and said circuit-breaker, and a kicking-coil in said shunt to intensify the sound at the telephone, substantially as described.

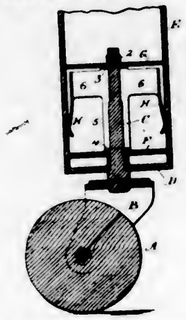
645,885. APPARATUS FOR CEMENT-COATING AND PACKING NAILS. IRA COPELAND, Newton, Mass. Filed June 13, 1898. Serial No. 683,371. (No model.)



Claim.—1. In an apparatus for cement-coating nails, an agitator running in a heated chamber, and regulatable devices for proportionally feeding nails and cement to the said agitator; substantially as and for the purposes set forth.

2. In an apparatus for cement-coating nails, a self-delivering agitator running in a heated chamber, regulatable devices for proportionally feeding nails and cement to the said agitator, a chute adapted to receive the cement-coated nails from the agitator and deliver the same to the keg, and a nail-packing device; substantially as and for the purpose set forth.

645,886. CASTER. ALBERT B. DIBB, New York, N. Y. Filed May 15, 1899. Serial No. 716,798. (No model.)



Claim.—1. The combination with the caster-wheel, jaws, pintle and bottom plate or disk, of two independent disks perforated for the passage of the pintle, the disks passing into and corresponding substantially with the interior diameter of the tubular leg, means for holding and securing the disks in position to and directly upon the pintle, and a spring acting between the disks and connected to the pintle for applying friction within the tubular leg to hold the caster to such leg, substantially as set forth.

2. The combination with the caster-wheel, jaws, pintle and bottom plate or disk, of two independent disks perforated for the passage of the pintle, the disks passing into and corresponding substantially with the interior diameter of the tubular leg, means for holding the disks in position to and directly upon the pintle and a band and eyes surrounding the pintle and intervening between the disks to determine the distance between such disks, substantially as set forth.

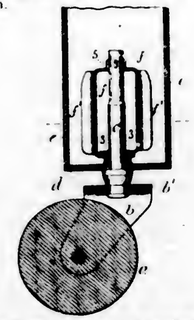
3. The combination with the caster-wheel, jaws, pintle and bottom plate or disk, of two independent disks perforated for the passage of the pintle, the disks passing into and corresponding substantially with the interior diameter of the tubular leg, means for holding the disks in position to and directly upon the pintle, central transverse arms extending across the pintle and springs carried by such arms for applying friction to hold the caster in position upon the leg, substantially as set forth.

4. The combination with the caster-wheel, jaws and pintle, of a plate surrounding the pintle and upon which the tubular leg rests, disks or supports perforated for the passage of the pintle and passing into the tubular leg, and means for holding such disks or supports in position, eyes surrounding the pintle and a connecting-plate between the eyes and between the upper and lower disks and a spring supported by such eyes and acting to apply a friction within the tubular leg to hold the caster in position, substantially as set forth.

645,887. CASTER. ALBERT B. DIBB, New York, N. Y. Filed May 25, 1899. Serial No. 718,133. (No model.)

Claim.—1. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of a spring-frame spanning the pintle within the tubular leg and adjacent to its respective ends and acting outwardly against the inner surface of the tubular leg to maintain the same centrally in position and the caster frictionally to the tubular leg, said spring-frame having openings at the upper and lower portions for the pintle and means for securing the spring-frame to the pintle substantially as set forth.

2. The combination with the caster-wheel, jaws and pintle, and the plate or disk surrounding the pintle and on which the tubular leg rests, of a spring-frame spanning the pintle and having two portions parallel with each other and with the said pintle and integral wings with said parallel portions and ends having elongated holes and a center having a round hole through which the pintle passes, substantially as set forth.

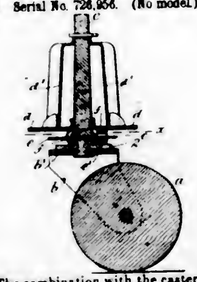


3. The combination with the caster-wheel, the jaws and pintle and a plate or disk surrounding the pintle and upon which the tubular leg rests, of a spring-frame *f* spanning the pintle and provided with four wings *f'* integral with the parallel portions of the frame and formed at obtuse angles thereto and radial to the pintle, the center of the frame having a round hole for the pintle and the respective ends of the frame having elongated holes for the pintle and lapping over one another, the vertical edges of the wings taking a bearing upon the inner surface of the tubular leg and the lower portion of said spring-frame yielding as the same is inserted into the tubular leg to hold the caster central and frictionally in place, substantially as set forth.

4. The combination with the caster-wheel, jaws and pintle and a disk surrounding the pintle and upon which the tubular leg rests, of a centering-frame stamped out of sheet metal and comprising a narrow central portion and narrow ends with holes, and wide intermediate adjacent portions, and bent up to shape with the wide portions parallel and the end portions lapping and parallel with the central portion, the pintle passing through the several holes and means for securing the frame to the pintle, substantially as set forth.

5. The combination with the caster-wheel, jaws and pintle, and a disk surrounding the pintle and upon which the tubular leg rests, of a centering-frame stamped out of sheet metal and comprising a narrow central portion and narrow ends with holes and wide intermediate adjacent portions and bent up to shape with the wide portions parallel and the end portions lapping and parallel with the central portion, the pintle passing through the several holes and means for securing the frame to the pintle, and means for holding the caster frictionally in place in the tubular leg, substantially as set forth.

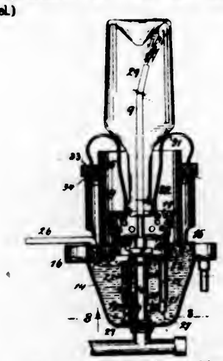
645,888. CASTER. ALBERT B. DIBB, New York, N. Y. Filed Aug. 12, 1899. Serial No. 726,956. (No model.)



Claim.—1. The combination with the caster-wheel, the jaws and pintle and the disk surrounding the pintle and upon which the caster-leg rests, of a cage-plate comprising a ring with integral radial inturned arms, and the hollow balls upon said arms and to which said arms become pivots or axes, substantially as set forth.

2. The combination with the caster-wheel, the jaws and pintle and the disk surrounding the pintle and upon which the caster-leg rests and the disk 2 above the jaw-top, of a cage-plate stamped out from sheet metal and comprising a flat ring with integral radial inturned arms in the same plane, the points of the said arms being adjacent when the ring is in place to the surface of the pintle, the hollow balls passed over the said arms and to which the said arms become pivots or axes, the balls bearing upon the upper surface of the disk 2 and the under surface of the disk surrounding the pintle and upon which the caster leg rests, substantially as set forth.

645,889. BOTTLE-WASHER. CHARLES H. FISCHER and HENRY R. FISCHER, Cincinnati, Ohio. Filed Feb. 4, 1899. Serial No. 704,459. (No model.)



Claim.—1. In a bottle-washer the combination of a vessel which contains the scouring medium, a pipe passing through the same for conveying the medium which carries and propels the scouring medium, said pipe being provided with lateral openings, to admit the scouring medium, closing means for controlling the passage through these openings, being supported in a manner to have a lateral movement with reference to these openings and whereby they are carried either past these latter, or caused to lie across them, and a bottle-rest adapted to support a bottle in an inverted position above the end of the pipe discharging the scouring-currents.

2. In a bottle-washer the combination of a vessel which contains the scouring medium, a pipe passing through the same for conveying the medium which carries and propels the scouring medium, said pipe being provided with lateral openings, through which the scouring medium is drawn by suction, closing means for these openings consisting of a membrane adapted to yield to the suction when in front of these openings, thereby closing them, means for operating these closing means whereby they may be carried to the position mentioned or to one in which they leave the passage through these openings free, and a bottle-rest adapted to support a bottle in inverted position above the pipe discharging the cleaning-currents.

3. In a bottle-washer, the combination of a vessel which contains the scouring medium, a pipe passing through the same for conveying the medium which carries and propels the scouring medium, said pipe being provided with lateral openings to admit the scouring medium, closing means for controlling the passage through these openings, means to operate these closing means, providing a rotary motion whereby they may be carried across these openings with capacity to be stopped in front of them and a bottle-rest adapted to support a bottle in inverted position above the pipe discharging the cleaning-currents.

4. In a bottle-washer, the combination of a vessel which contains the scouring medium, a pipe passing through the same for conveying the medium which carries and propels the scouring medium, nipples projecting from this pipe through which the latter is drawn in by suction, slits provided in these nipples to prevent formation of a vacuum, and a bottle-rest which supports a bottle in inverted position above the pipe discharging the cleaning-currents.

5. In a bottle-washer the combination of a pipe adapted to discharge alternately a scouring and rinsing current and having its discharge-nozzle bent at an angle and a bottle-rest capable of rotation and adapted to support a bottle in inverted position above the angular discharge end of the pipe mentioned.

6. In a bottle-washer, the combination of a pipe adapted to discharge the cleaning-currents, a bottle-rest to hold the bottles, while being washed and means to rotate the bottle-rest which latter is removably supported on these rotating means.

7. In a bottle-washer, the combination of a pipe adapted to discharge the cleaning currents, a rotary bottle-rest adapted to hold an inverted bottle above the end of such pipe and a ball-bearing on which the bottle-rest is supported.

8. In a bottle-washer the combination of a pipe adapted to discharge the cleaning-currents, a bottle-rest to hold a bottle in inverted position above the end of such pipe and a strainer supported below the mouth of the inverted bottle being of cup shape, having a closed bottom and perforations in its side wall through which the discharge from the bottle passes.

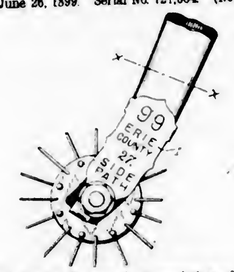
9. In a bottle-washer, the combination of a pipe adapted to discharge the cleaning-currents, a bottle-rest which holds a bottle in inverted position above the end of such pipe by supporting the same at

the shoulder thereof and is provided with downwardly-projecting branches which converge to embrace the neck of the bottle for the purpose of centering the same with reference to the pipe first mentioned, the lower ends of these branches being free to yield for the purpose of admitting bottle-necks of various diameters.

10. Bottle-washers arranged in series, each consisting of a pipe adapted to discharge alternately a scouring and rinsing current into and against the interior of the bottle, a bottle-rest for each pipe to hold a bottle in position to receive these currents, said bottle-rests being operatively connected for rotation, and means whereby such rotation is obtained.

11. Bottle-washers arranged in series and each consisting of a pipe adapted to discharge alternately a scouring and a flushing current, operating-levers whereby this alternating action is controlled and which are all connected so as to be manipulated together and a stop located between two adjoining levers, adapted to limit the motion of one of them in one direction and of the other in the other direction all as shown and for the purpose described.

645,390. BICYCLE LICENSE-TAG. JOSEPH E. FISHER, Buffalo, N. Y. Filed June 26, 1899. Serial No. 721,884. (No model.)

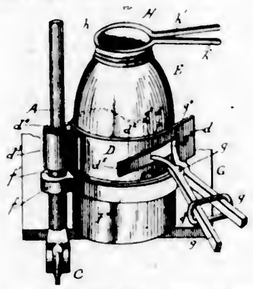


Claim.—1. A bicycle license-plate consisting of a plate having prongs or arms bent around the fork side of the bicycle to embrace the same, and having its lower end secured by the nut on the axle of the bicycle.

2. A bicycle license-plate consisting of a plate having prongs or arms bent around the fork side of the bicycle to embrace the same, and provided with an aperture through which the axle of the bicycle-wheel passes, said plate having the axle-nut bearing thereagainst.

3. A bicycle license-plate consisting essentially of the plate 1, having the prongs 2 at its upper end for engagement with the fork side of a bicycle and the lower end of said plate being formed by a return-bend and provided with holes 3 and 5, which register with each other and are adapted to receive the front axle of the bicycle, the openings 3 and 5 being on opposite sides of the fork-side, substantially as shown and described.

645,391. FRUIT-JAR HOLDER. LEWIS E. GOWER, Independence, Mo. Filed Dec. 8, 1899. Serial No. 739,729. (No model.)



Claim.—1. In combination with a clamping-band having free ends, a standard, a loop connecting said band with said standard means for imparting tension to the free ends of the band and a ring beneath said band and a non-rotating device connecting said ring with said standard.

2. A holder for jars, &c., comprising a clamping-band having free ends, a standard, means for imparting tension to the free ends of the band, a non-rotating device connecting the band with the standard, and a non-rotating ring upon said standard.

3. The combination with a clamping-band having free ends, of a standard, a loop connected with the said band, and means substantially as described for preventing the rotation of the loop upon said standard.

4. The combination with a clamping-band having free ends, of a standard, a loop connecting said band with said standard, and a ring upon said standard beneath said loop having separate adjustable parts, and a non-rotating device connecting said ring with said standard.

5. The combination with a clamping-band having free ends, of a standard having shoulders and elongated in cross section, means for securing said standard in position, a loop having an elongated opening connecting said band with said standard, a ring beneath said band, and a loop upon said ring having an elongated opening connecting said ring with said standard, one of the free ends of the said band having a slot therein and the other having a tapered portion to enter said slot, and a tension-imparting implement connected with the free ends of said band.

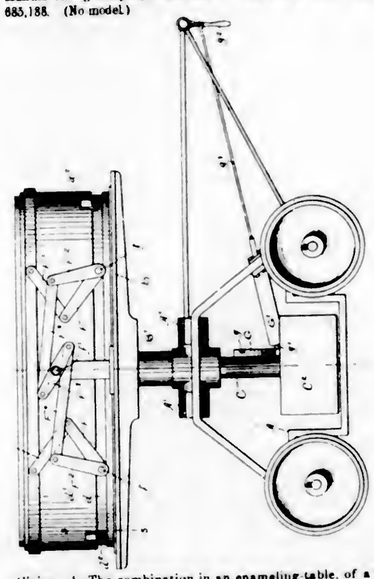
645,392. COMPOSITION FOR MANUFACTURING ARTIFICIAL STONE. WENZL HEINL, JOHN HEINL, and CHARLES BEYERL, Etna, Pa. Filed Nov. 6, 1899. Serial No. 736,012. (No specimens.)

Claim.—1. The herein-described composition of matter for the manufacture of artificial stone, consisting of sand, cement, distilled water, carbonic acid, saltpeter, alcohol and potash, substantially as described.

2. The herein-described composition for the manufacture of artificial stone, consisting of four parts river-sand, one part cement, sufficient distilled water to bring the same to a pasty substance, thirty-two drams of carbonic acid, thirty-four drams saltpeter, thirteen drams of alcohol, twenty-one drams of potash, and five quarts distilled water, substantially as set forth.

3. The new and useful composition for the manufacture of artificial stone, consisting of sand, cement, water, acid, saltpeter, alcohol and potash combined in about the proportions herein specified.

645,393. ENAMELING TABLE OR MACHINE. EDWARD C. HOELSCHER and JOHN CLIFFORD, Chicago, Ill., assignors to the L. Wolff Manufacturing Company, same place. Filed July 5, 1898. Serial No. 685,188. (No model.)



Claim.—1. The combination in an enameling-table, of a folding extensible or collapsible case or muffler adapted to surround and protect the outside of the heated vessel or article to be enameled, substantially as specified.

2. The combination with an enameling-table, of a telescopic case or muffler, substantially as specified.

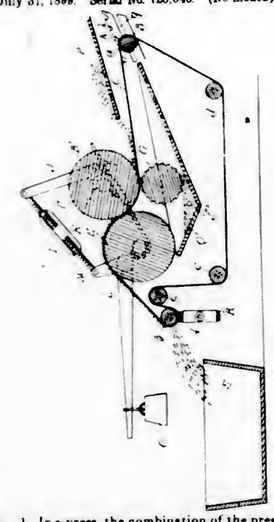
3. The combination with an enameling-table, of a case or muffler composed of telescopic sections connected together by toggle links or levers, and means for simultaneously operating the toggle links or levers, substantially as specified.

4. The combination with the enameling-table B, of a telescopic case or muffler D composed of a fixed section *d* and a movable section *d'*, toggle-links F F', arms F^2, operating-lever F^3 and connecting-links F^4, substantially as specified.

5. The combination with the enameling-table B, of a telescopic case or muffler D composed of a fixed section *d* and a movable section *d'*, toggle-links F F', arms F^2, operating-lever F^3, and connecting-links F^4, the toggle-links F on opposite sides of the case being secured to a common shaft, substantially as specified.

6. The combination with a rotating swinging enameling-table, of a telescopic case or muffler, and mechanism for opening and closing the parts or sections of said case, substantially as specified.

645,394. WINE-PRESS. WILLIAM H. HOMMEL, Sandusky, Ohio. Filed July 31, 1899. Serial No. 725,646. (No model.)



Claim.—1. In a press, the combination of the pressing and crushing mechanism comprising two pressure-rollers, and a grooved or corrugated roller arranged in operative relation with one of said pressure-rollers, a tension mechanism for the pressure-rollers, comprising sliding bearings for the journals of one of said rollers, operating-levers for the bearings, bell-crank levers, adjustable connections between the bell-crank and operating levers, an operating device for the bell-crank levers, and an endless carrier passing between the rollers, substantially as and in the manner set forth.

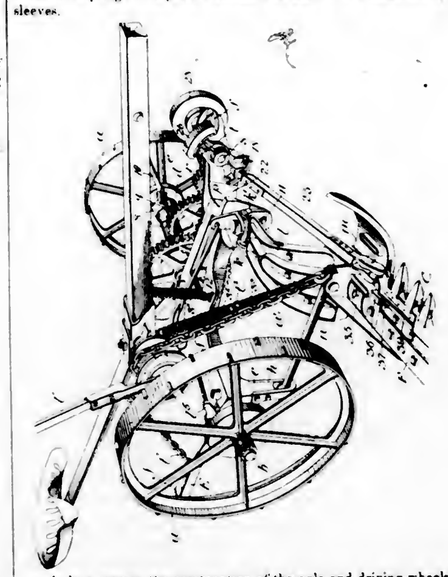
2. In a press, the combination with the pressing and crushing mechanism, comprising two pressure-rollers and a grooved or corrugated roller arranged in operative relation with one of the pressure-rollers, spring-bearings for the corrugated roller, adjustable tension mechanism for the pressure-rollers comprising sliding bearings for the journals of one of said rollers, operating-levers fulcrumed in the framework and connected to the bearings, weighted bell-crank levers, and adjustable links connecting the operating and bell-crank levers, and an endless carrier passing between the rollers, substantially as and for the purpose described.

645,395. MOWING-MACHINE. HARVEY L. HOPKINS, Moline, Ill., assignor of two-thirds to Charles H. Pope, same place, and Merwin D. Hopkins, West Eaton, N. Y. Filed Jan. 23, 1899. Renewed Jan. 29, 1900. Serial No. 3,231. (No model.)

Claim.—1. In a mower, the combination with the driving-wheels and axle, of a gear on the axle for driving the cutter-operating gearing, a sleeve fixed on the axle, a clutch-half rigid with the driving-gear, an intermediate sleeve loose on the axle interlocking with the first-mentioned sleeve and having a clutch-half at the end next the driving-gear, and means for moving the intermediate sleeve to throw the cutter drive-gear into and out of operation.

2. In a mower, the combination with the driving-wheels and axle, of a gear on the axle for driving the cutter-operating gearing, said drive-gear having a clutch-half, a sleeve fixed on the axle, and an intermediate sleeve loose on the axle, said sleeve having a clutch-half at one end, and an extensible interlocking connection with the fixed sleeve at the other.

3. In a mower, the combination with the driving-wheels and axle, of a gear on the axle for driving the cutter-operating gearing, said drive-gear having a clutch-half, a sleeve fixed on the axle, an intermediate sleeve loose on the axle having a clutch-half at one end, and an extensible interlocking connection with the fixed sleeve at the other, and springs interposed between the ends of the interlocking sleeves.



4. In a mower, the combination of the axle and driving-wheels, the gearing-frame, the sleeve *w*, the disk *d*, the thimble 8, the washer *c*, the pin 1, and the brace 10 connected to the thimble and extending diagonally forward and connected to the tongue.

5. In a mowing-machine, the combination of a pair of oppositely-facing clutch-halves, a clutch-shifting lever having wedging-cams on opposite sides, peripheral flanges on the clutch-halves, and annular grooves between the clutch-teeth and the outer edge of the flanges to receive the wedging-cams on the lever.

6. In a mower, the combination of the gearing-frame, the cutting apparatus connected thereto so as to rock or tilt, a longitudinally-adjustable bar connected at its front end with the cutting apparatus and having a slot at its rear end, a frame stud or bolt passing through said slot, an eccentric foot-cam pivoted in the end of the lever, and reacting between the lever and the stud on the frame, said cam being free to be moved in either direction by the foot.

7. In a mower, the combination of the gearing-frame, the cutting apparatus connected thereto so as to rock or tilt, a longitudinally-adjustable bar connected at its front end with the cutting apparatus and having a slot at its rear end, a frame stud or bolt passing through said slot, an eccentric foot-cam pivoted in the end of the bar, and having its edge provided with notches or serrations to engage the stud on the frame, and a spring to prevent the accidental disengagement of the cam.

8. In mowers and reapers, the combination of the tongue-frame, the gearing-frame, a hinge-jointed connection between said frames, a hand-lever, a foot-lever behind the hand-lever, and a flexible connection between said levers, said foot-lever having an extension forward of its fulcrum that is adapted to contact with the frame to limit the forward movement of both levers.

9. In mowers and reapers, the combination of the gearing-frame, the cutting apparatus hinge-jointed thereto, the tongue-frame hinge-jointed to the gearing-frame, a hand-lever on the tongue-frame with a lifting connection to the cutting apparatus, a foot-lever pivoted on the gearing-frame in proximity to the axle, and a flexible connection between the levers, said foot lever having an extension forward of its pivot abutting against the gearing-frame and serving to limit the forward movement of the hand-lever.

10. In a mower, the combination of the gearing-frame sleeved on the axle, the cutting apparatus hinge jointed to said frame, the tongue-frame hinge-jointed to the gearing-frame, and a counterbalance-spring connection between the cutting apparatus and the tongue-frame, said connection consisting of a plurality of springs linked or loosely connected together.

11. In a mower, the combination of the gearing-frame sleeved on the axle, the cutting apparatus hinge-jointed to said frame, the tongue-frame hinge-jointed to the gearing-frame, and the jointed counterbalance-spring connecting the inner shoe with the tongue-frame.

12. In a cutting apparatus for mowers and reapers, the combination with the cutter-bar head having a vertical tongue or rib along its rear edge, of a holder having a groove in which the tongue works, and a supplemental tongue or rib on the head which works against the front edge of the holder.

13. The combination with a revolving shaft, of a crank-head provided with a plurality of arms having sockets for the connection therewith of a pitman, and a cap for securing the pitman in either of the sockets.

14. The combination with a revolving shaft, of a crank-head provided with arms of different lengths, duplicate sockets in said arms for attaching a pitman to the head, a cap for securing the pitman in either of the sockets, and a detachable counterbalance adapted to be attached to either arm.

15. The combination with a revolving shaft, of a crank-head provided with a plurality of arms having sockets for the connection therewith of a pitman to either of said arms, a cap for securing the pitman in either of the sockets, and a detachable counterbalance adapted to be attached to the arm opposite the one to which the pitman is connected, said cap and counterbalance being interchangeable.

16. In a cutter-bar-driving mechanism for mowers and reapers, the combination of a revolving shaft, a crank on the shaft rotating in a plane transverse to the cutter-bar, an arm pivoted at its inner end and carrying the inner shoe at its opposite end, and a pitman or rod connected at one end to the cutter-bar and at the other to the crank without intermediate support between said bar and crank.

17. In a cutter-bar-driving mechanism for mowers and reapers, the combination of a revolving shaft, a crank on the shaft rotating in a plane transverse to the cutter-bar, and a pitman or rod connected at one end to said cutter-bar and at the other to the crank, the reaction of the cutter-bar being endwise on the shaft through the intermediacy of the pitman.

18. In mowers and reapers, the combination of the driving-wheels and axle, a revolving shaft for driving the cutter-bar, said shaft having a fixed relation with the axle, a cutter-bar having a variable relation with the axle, a crank revolving in a plane transverse to the cutter-bar, a spur-pinion on the crank-shaft, a spur-gear on the axle, intermediate driving connections between said pinion and gear, and a pitman or rod connected at one end to the crank of the shaft and at its other to the cutter-bar without intermediate support between said crank and bar.

19. In mowers and reapers, the combination of the driving-wheels and axle, the gearing-frame hung on the axle so as to rise and fall at its outer end, a revolving shaft journaled in said frame parallel with the axle, a spur-pinion on the shaft adapted to be driven from a spur-gear on the axle, a crank on the shaft revolving in a plane transversely to the cutter-bar, and a pitman or rod connected at one end to the crank and at the other to the cutter-bar, without intermediate support between said crank and bar.

20. In mowers and reapers, the combination of the driving-wheels and axle, the gearing-frame hung on the axle so as to rise and fall at its outer end, a revolving shaft journaled in said frame parallel with the axle, a spur-pinion on the shaft, a spur-gear on the axle, intermediate spur-gears on the frame, between said gear and pinion, a cutter-bar having a connection with the gearing-frame so as to tilt or rock automatically, a crank on the shaft revolving in a plane transverse to the cutter-bar, and a pitman connected at one end to the crank and at the other to the bar, said pitman extending only lengthwise the shaft and bar and having no other support than its connections with the bar and the crank, the connection being as described, viz., so that the reaction of the cutter-bar comes endwise on the crank-shaft lengthwise through the pitman.

21. In mowers and reapers, the combination of the driving-wheels and axle, the gearing-frame hung on the axle so as to rise and fall at its outer end, a revolving shaft journaled in said frame parallel with the axle, a spur-pinion on the shaft, a spur-gear on the axle, intermediate spur-gears on the frame between said gear and pinion, a cutter-bar having a connection with the gearing-frame so as to be rocked or tilted, a crank on the shaft revolving in a plane transverse to the cutter-bar, and a pitman connected at one end to the crank and at the other to the bar, said pitman extending only lengthwise the shaft and bar and having no other support than its connections with the bar and the crank, the connection being as described, viz., so that the reaction of the cutter-bar comes endwise on the crank-shaft lengthwise through the pitman.

22. The combination of a revolving crank-shaft, a rod or pitman connected at one end to the crank and extending in the general direction of the shaft so as to have a gyratory motion imparted thereto, a device connected to the opposite end of the pitman out of line with the crank-shaft whereby said device is adapted to be reciprocated in a direction lengthwise of the crank-shaft by the pitman, and means for adjusting the device to be reciprocated toward and from the line of the crank-shaft; whereby the longitudinal throw of the pitman may be varied.

23. In mowers and reapers, the combination of a revolving cutter-driving crank-shaft extending in the general direction of the cutter-bar, a pitman extending in the same general direction and connected at one end to the crank and at the other to the cutter-bar, and mechanism for raising and lowering the cutting apparatus; whereby the movement of the cutter-bar may be stopped by lifting the cutter-bar from the ground without disconnecting any of the moving parts.

24. The combination of a revolving shaft, a balance or fly wheel journaled on and having a normally-frictional engagement therewith, and means for causing the wheel to positively engage the shaft on the stoppage or retardation of said shaft.

25. The combination of a revolving shaft, a balance or fly wheel journaled on and having a normally-frictional engagement therewith whereby it is driven by the shaft, and a positive engagement therewith whereby it is adapted to drive the shaft by its own momentum.

26. In mowers and reapers, the combination of the cutter drive-shaft, a balance or fly wheel loosely journaled thereon so as to revolve independently of the shaft in one direction only, a disk fixed on the shaft adjacent to the wheel, a spring holding said wheel and disk yieldingly together whereby the wheel is driven by the shaft and disk, a projection on the wheel, and an abutment on the disk against which said projection is adapted to strike and to drive the shaft and disk only when the wheel revolves faster than the shaft, and permitting the parts to slip when the shaft revolves faster than the wheel.

27. In mowers and reapers, the combination of the cutter drive-shaft, a balance or fly wheel loosely journaled thereon, a disk fixed on the shaft adjacent to said wheel, a spring for holding the wheel and disk normally together, opposite inclines on the adjacent faces of the wheel and disk whereby the wheel is driven yieldingly by the disk and shaft, a square shoulder on the wheel, and an opposing shoulder on the disk against which the wheel's shoulder is adapted to strike so that the shaft and disk may be positively driven by the wheel by its own momentum.

28. The combination of a revolving shaft, a balance or fly wheel journaled thereon so as to revolve independently of the shaft in one direction only, and having a spring held in frictional engagement therewith whereby said wheel is yieldingly revolved by and with the shaft, and an abutment on the shaft against which the wheel strikes only when the speed of the shaft is reduced below that of the wheel, whereby said wheel is permitted to slip by the abutment on the shaft when the shaft revolves faster than the wheel, and whereby the wheel becomes positively engaged with the abutment and drives the disk and shaft when the wheel revolves faster than the shaft.

29. The combination with a revolving shaft, of a crank-head provided with a plurality of arms having sockets for the connection therewith of a pitman, and a cap for securing the pitman to either socket, the said sockets being placed and revolving in different planes, so that changing the pitman from one socket to another changes the location of its throw.

30. In mowers and reapers, the combination of the driving-wheels and axle, a gearing-frame, a transverse crank-shaft journaled in and supported by said frame and driven by gearing from the axle, a cutting apparatus freely movable vertically with respect to the gearing-frame, and a pitman or rod connected at one end to the cutter-bar and at the other to the crank of the shaft without intermediate support between said bar and crank.

31. In mowers and reapers, the combination of the driving-wheel and axle, a gearing-frame hung on the axle so as to rise and fall at its outer end, a transverse crank-shaft journaled and supported in said frame and driven by gearing therefrom, a cutting apparatus freely movable vertically with said gearing-frame, and a pitman or rod connected at one end to the cutter-bar and at the other to the crank of the shaft without intermediate support.

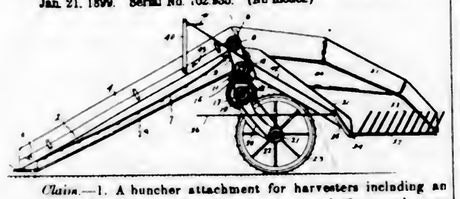
32. In mowers and reapers, the combination of the driving-wheels and axle, a gearing-frame, a revolving shaft journaled in the gearing-frame, an automatically-tiltable cutting apparatus, a crank on the shaft revolving in a plane transverse to the cutter-bar, and a pitman or rod connected at one end to the cutter-bar and at the other to the crank without intermediate support between said bar and crank.

33. In mowers and reapers, the combination of the driving-wheels and axle, a gearing-frame, a cutting apparatus adapted to be lifted bodily, a revolving shaft journaled in bearings in the gearing-frame, a crank on said shaft rotating in a plane transverse to the cutter-bar, and a pitman or rod connected at one end to the cutter-bar and extending from the inner shoe across the intervening space between the shoe and the gearing-frame and connected at the other end to the crank of the shaft without intermediate support between said bar and crank.

34. In mowers and reapers, the combination of the driving-wheels and axle, a gearing-frame extending forward of the main axle, a revolving shaft journaled in said frame and having a crank rotating in a plane transverse to the cutter-bar, a cutting apparatus the inner shoe of which is approximately in line with the inner wheel, and a pitman or rod connected at one end to the cutter-bar and extending from the inner shoe across the intervening space between the shoe and the gear-frame and connected to the crank without intermediate support between said bar and crank.

35. In mowers and reapers, the combination of the driving-wheels and axle, a gearing-frame, a revolving shaft journaled in said frame, a crank on the shaft rotating in a plane transverse to the cutter-bar, an arm pivoted at its inner end and carrying the inner shoe at its opposite end, and a pitman or rod connected at one end to the cutter-bar and at the other to the crank without intermediate support between said bar and crank, and said pitman being detachable from the cutter-bar in all positions of the crank.

645,396. HARVESTING-MACHINE. JOHN W. HULL, Indianapolis, Ind., assignor of one-half to Anderson Bruner, same place. Filed Jan. 21, 1899. Serial No. 702,935. (No model.)



Claim.—1. A huncher attachment for harvesters including an elevator leading rearward from the cutter-bar, a platform at the rear end of the elevator that slopes downward from the elevator to one side of such platform, and means for holding the hay or straw on the platform until a bunch accumulates.

2. A huncher attachment for harvesters including an elevator leading rearward from the cutter-bar, a platform at the rear end of the elevator which slopes downward to the rear, a guard-board on the outer edge of the platform that extends obliquely to the point of delivery at one side of the platform whereby the hay or straw is deflected to the delivery side of the platform, and means for holding the hay or straw on the platform until a bunch accumulates.

3. A huncher attachment for harvesters including an elevator leading rearward from the cutter-bar of the machine, means for actuating the elevator, a platform at the rear end of the elevator with the discharge to one side thereof and which slopes downward to said point of discharge, and a stop device at the discharge end of the platform.

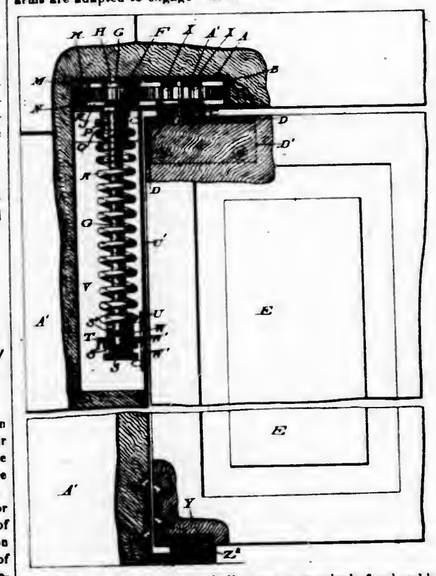
4. A huncher attachment for harvesters including an elevator leading rearward from the cutter-bar of the machine, means for actuating the elevator, a platform at the rear end of the elevator with the discharge to one side thereof and which slopes downward to said point of discharge, a stop device at the discharge end of the platform, a separating device to separate the bunch of hay or straw on the platform from the portion on the elevator, and means for simultaneously operating both the stop and separating devices.

5. A huncher attachment for harvesters including an elevator-frame secured behind the cutter-bar of the harvester and leading rearward, a wheel for supporting the rear of said frame in an elevated position, an elevator mounted in said frame, means connected with said wheel for driving said elevator, a platform at the rear end of the elevator with the discharge to one side thereof and which slopes downward to said point of discharge, and a stop device at the discharge end of the platform.

6. A huncher attachment for harvesters including an elevator-frame adapted to be secured immediately behind the cutter-bar of a harvester, an elevator mounted therein, means for driving the elevator, a platform at the rear end of the elevator with the discharge to one side and which slopes downward to said point of discharge, a stop device at the discharge end of said platform, a crank secured thereto whereby it may be oscillated into a closed or open position, means connected with the harvester for actuating said crank, a separating device consisting of a bar extending across the elevator with its ends bent and pivoted to the sides of the elevator-frame, fingers secured to the horizontal portion of said bar, and a link connecting said bar with the crank on the stop device whereby they will act simultaneously.

645,397. SPRING-HINGE. JAMES JACKSON, Philadelphia, Pa., assignor of two-thirds to Charles Z. De Young, same place. Filed July 27, 1899. Serial No. 725,223. (No model.)

Claim.—1. A spring-hinge having a spindle, a spring, means for coupling said spring through intermediate mechanism with opposite ends of said spindle, gearing adapted to be operated by the opening of a door and impart torsion or twisting to one end of said spring, fixed and loose arms on said spindle, pins on a member of said gearing projecting in opposite directions therefrom for coupling it with said arms and stops on a fixed point adjacent to said gearing with which said arms are adapted to engage when at rest.

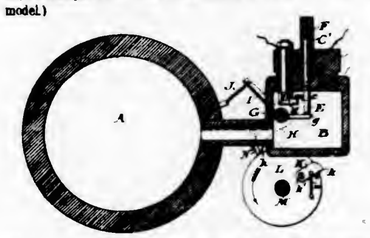


2. In a spring-hinge, a spindle, arms respectively fixed and loose thereon, a gear-wheel adapted to be coupled with either of said arms, a spring connected with said spindle and the loose arm, a gear-wheel adapted to be connected with a door to be rotated by the same and meshing with the first-named gear-wheel whereby said spring is twisted and stops on the first-named gear-wheel for said arms.

3. In a spring-hinge, a spindle, arms respectively fixed and loose therein, the loose arm having a sleeve thereon freely encircling said spindle, a sleeve fixed to said spindle opposite to said loose arm, a spring attached to said sleeves, a pinion loose on said spindle, oppositely-projecting pins on said pinion adapted to couple the latter with either of said arms, and a gear-wheel connectible with a door and meshing with said pinion.

4. In a spring-hinge, a spindle, a spring thereon, a pinion secured to said spindle, a gear-wheel connectible with a door, and meshing with said pinion, reversely-operating arms respectively fixed and loose on said spindle, said spring being secured to the loose arm and the spindle, means for coupling said spring with the opposite ends of said spindle, and means on said pinion for coupling the same with said arms.

645,398. IGNITER FOR EXPLOSIVE-ENGINES. LEWIS JONES, Jr., Philadelphia, Pa. Filed June 22, 1899. Serial No. 721,501. (No model.)



Claim.—1. In an igniter for an explosive-engine, the combination with a gas-chamber, having a screw-threaded aperture in its wall, of a screw-threaded plug, fitted to said aperture, an electrical terminal mounted in said plug, in eccentric relation with said thread, an elec-

trical terminal mounted to slide in said plug in concentric relation with said thread, and a rock-shaft having a tappet within said chamber, arranged in concentric relation with said screw-thread, to operate said concentric slidable terminal, substantially as set forth.

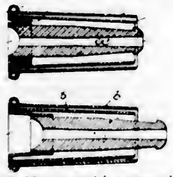
2. In an igniter for an explosive-engine, the combination with a gas-chamber, having an aperture in its wall, of a plug fitted to said aperture, an electrical terminal mounted in said plug, in eccentric relation therewith, an electrical terminal mounted to slide in said plug, in concentric relation therewith, and a rock-shaft having a tappet arranged in concentric relation with said plug, to operate said concentric slidable terminal, substantially as set forth.

3. In an igniter for an explosive-engine, the combination with a gas chamber, of an igniter-plug entered in the wall of said gas-chamber, in removable relation therewith, an electrical terminal fixed in said plug, an electrical terminal mounted to slide in said plug, a rock-shaft provided with a tappet within said chamber, in operative relation with said slidable terminal, a tappet fixed upon said rock-shaft exterior to said chamber, a rotary cam-disk arranged to oscillate said tappet, and means, adjustably mounted upon said exterior tappet, arranged to vary its oscillation, substantially as set forth.

4. In an igniter for an explosive-engine, the combination with a gas-chamber, having a screw-threaded aperture in its wall, of a screw-threaded plug fitted to said aperture, an electrical terminal fixed in said plug in eccentric relation with said thread, means to insulate said eccentric terminal from said plug, an electrical terminal mounted to slide in said plug in concentric relation with said thread, a tubular extension of said plug, exterior to said gas-chamber, inclosing said slidable terminal, a spring, arranged in said tubular extension to thrust said slidable terminal inwardly, a rock-shaft provided with a tappet extending within said chamber, in registry with said concentric termiual, a spring, operatively related to said shaft, to normally uplift said concentric terminal, by means of said tappet, and means to oscillate said rock-shaft and thereby effect the connection, and disconnection, of said terminals, substantially as set forth.

5. In an igniter for an explosive-engine, the combination with a gas-chamber, having a screw-threaded aperture in its wall, of a screw-threaded plug fitted to said aperture, an electrical terminal fixed in said plug in eccentric relation with said thread, means to insulate said eccentric terminal from said plug, an electrical terminal mounted to slide in said plug in concentric relation with said thread, a tubular extension of said plug, exterior to said gas-chamber, inclosing said slidable terminal, a spring, arranged in said tubular extension to thrust said slidable terminal inwardly, a rock-shaft provided with a tappet extending within said chamber, in registry with said concentric terminal, a spring, operatively related to said shaft, to normally uplift said concentric terminal, by means of said tappet, a second tappet upon said rock-shaft, exterior to said gas chamber, an adjustable supplemental bearing member, pivoted upon said exterior tappet, a rotary cam-disk, a cam-piece eccentrically pivoted upon said cam-disk, in operative relation with said exterior tappet, a stop upon said cam-disk, and a spring to normally maintain said cam-piece against said stop, substantially as set forth.

645,399. CIGAR OR CIGARETTE HOLDER. WILLIAM H. KING, Newark, N. J. Filed Nov. 17, 1899. Serial No. 737,329. (No model.)



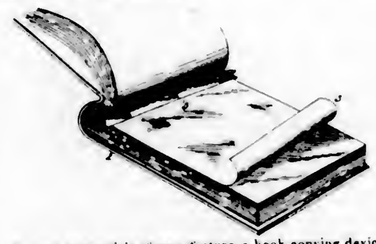
Claim.—1. A cigar-holder comprising a mouthpiece, tubular sections adapted to slide telescopically upon one another, and stops limiting said sliding, substantially as set forth.

2. A cigar-holder comprising telescopic sections arranged one within another and a mouthpiece lying in the inner section, the rear end of each section being formed to prevent the complete withdrawal of the inclosed member, and a stop at the forward end of the outer section, substantially as set forth.

3. A cigar-holder comprising a mouthpiece flaring at its end and a flaring tubular section, the flaring end of the mouthpiece lying in the tubular section and being of greater diameter than the smaller end of said section, substantially as set forth.

645,400. CARBON-SHEET HOLDER. IRA MACFARLAND, New York, N. Y. Filed May 27, 1899. Serial No. 718,495. (No model.)

Claim.—1. As a new article of manufacture, a book-copying device, consisting of a narrow, thin and straight strip of metal, a sheet of carbon-paper fastened at one of its ends to said strip of metal, and one or more clamps attached to said strip of metal for holding a letter-sheet upon the non-carbonized surface of said sheet of carbon-paper, substantially as described.



2. As a new article of manufacture, a book-copying device consisting of a narrow, thin and straight strip of metal, a sheet of carbon-paper fastened at one of its ends to said strip of metal, one or more clamps attached to said strip of metal for holding a letter-sheet upon the non-carbonized surface of said sheet of carbon-paper, and means applied to said strip of metal and to said clamp or clamps for opening and closing the latter, substantially as described.

3. A sheet of carbon-paper, a strip of stiffening material applied to one edge of said sheet of carbon-paper and adhesive material applied to the surface of said strip of stiffening material which corresponds to the non-carbonized surface of the said sheet of carbon-paper, in combination with a narrow, thin and straight strip of metal, to which the said carbon-sheet is connected by the said adhesive material applied to said stiffening-strip, substantially as described.

4. The plate 5 having clamps and the means for operating the same at its upper surface, in combination with a strip 6 applied to said plate, and a sheet of carbon-paper 3 applied to said strip 6, substantially as described.

645,401. CORKSCREW REGISTER. HENRY MASEK, Chicago, Ill. Filed Sept. 27, 1899. Serial No. 731,795. (No model.)



Claim.—The combination of a corkscrew having a laterally-extending indicating-arm, and a cork stopper having on its upper face a series of figures with which the indicating-arm is adapted to register, substantially as described.

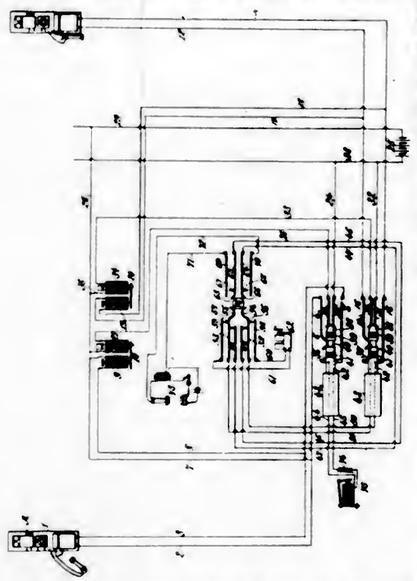
645,402. TELEPHONE-EXCHANGE SYSTEM AND APPARATUS. JOHN Z. MILLER, Erie, Pa., assignor of one-half to Peter H. Adams, same place. Filed Dec. 12, 1899. Serial No. 740,082. (No model.)

Claim.—1. In a telephone-exchange system, a call-drop, a busy-signal drop movable in front of the same, and means thrown into operation by the act of connecting together two subscribers for actuating said busy-signal drop.

2. In a telephone-exchange system, a call-drop and a busy-signal drop for each subscriber, and means thrown into operation by the act of connecting together two subscribers for actuating the busy-signal drops of said subscribers and moving the same in front of the call-drops thereof.

3. In a telephone-exchange system, a call-drop, a busy-signal drop movable in front of the same, and means for automatically throwing said busy-signal drop into operation when two subscribers are connected together.

4. In a telephone-exchange system, jacks connected respectively with the different subscribers, annunciators for each subscriber having call-drops and busy-signal drops, the latter movable in front of the former and adapted to cover the same, plugs and cords for connecting together two subscribers, and means actuated by the insertion of said plugs into said jacks for throwing into operation the busy signal drops of the corresponding subscribers' annunciators.



5. In a telephone-exchange system, jacks connected respectively with the different subscribers, annunciators for each subscriber having call-drops and busy-signal drops, the latter movable in front of the former and adapted to cover the same, plugs and cords for connecting together two subscribers, and means actuated by the insertion of said plugs into said jacks for throwing into operation the busy-signal drops of the corresponding subscribers' annunciators and for maintaining said drops in operative position until said plugs are removed.

6. In a telephone-exchange system, jacks connected respectively with the different subscribers, annunciators for each subscriber having call-drops and busy-signal drops, the latter movable in front of the former and adapted to cover the same, means actuated from the subscribers' stations for throwing said call-drops into operation, plugs and cords for connecting together two subscribers, and means actuated by the insertion of said plugs into said jacks for throwing into operation the busy-signal drops of the corresponding subscribers' annunciators.

7. In a telephone-exchange system, jacks connected respectively with the different subscribers, annunciators for each subscriber having call-drop sand busy-signal drops, the latter being located in front of the former, means actuated from the subscribers' stations for throwing said call-drops into operation, plugs and cords for connecting together two subscribers, and means actuated by the insertion of said plugs into said jacks for throwing into operation the busy-signal drops of the corresponding subscribers' annunciators and for returning the call-drops of the corresponding subscribers' annunciators to their normal positions.

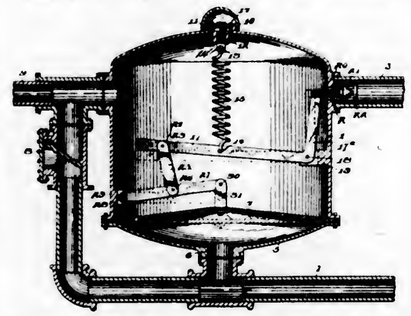
8. In a telephone-exchange system, jacks connected respectively with the different subscribers, annunciators for each subscriber having call-drops and busy-signal drops, the latter movable in front of the former, magnets in multiple with the line-circuits for actuating the call-drops, magnets in a circuit from a local battery for actuating said busy-signal drops and covering the call-drops thereby, the local-battery circuits being normally open through said jacks, and plugs and cords for connecting together two subscribers, said plugs, when inserted in said jacks, being adapted to close the circuits of the local battery through the busy-signal-drop-actuating magnets of the corresponding subscribers' annunciators, as and for the purpose set forth.

9. In a telephone-exchange system, an annunciator comprising two magnets, one of which is connected with the line-circuit and the other with a circuit from a local battery, a call-drop, a busy-signal drop movable in front of said call-drop, a detent controlled by the magnet in said line-circuit for maintaining said call-drop in its normal position, and connections between the armature of the magnet in said local circuit and said busy signal drop for exposing the latter when said magnet is energized.

10. In a telephone-exchange system, an annunciator having a designating number or character thereon, a call-drop adapted, when in its normal position, to cover said number, a normally-covered busy-signal drop adapted to be moved in front of said call-drop and containing a number or character corresponding to the number or character on said annunciator, but distinguishable therefrom, a detent for maintaining said call-drop in its normal position, a magnet in the line-circuit for releasing said detent and allowing said call-drop to fall, a magnet in a circuit from a local battery, an armature therefor, and connections between said armature and said busy-signal drop for moving said drop into exposed position, as and for the purpose set forth.

11. In a telephone-exchange system, an annunciator having a designating number or character thereon, a call-drop adapted, when in its normal position, to cover said number, a normally-covered busy-signal drop adapted to be moved in front of said call-drop and containing a number or character corresponding to the number or character on said annunciater, but distinguishable therefrom, a magnet in the line-circuit, a pivotally-mounted armature therefor, a rod or bar connected to said armature and adapted to engage a shoulder on said call-drop for maintaining the latter in its normal position, a magnet in a normally-open circuit from a local battery, a pivotally-mounted armature therefor, and a rod or bar connected to the latter armature engaging said busy-signal drop for moving the same into exposed position in front of said call-drop and adapted to engage said call-drop for returning said call-drop to its normal position when said busy-signal drop is actuated.

645,403. GAS-REGULATOR. SYLVESTER L. MCADAMS, Beaver Falls, Pa. Filed Aug. 3, 1899. Serial No. 725,960. (No model.)

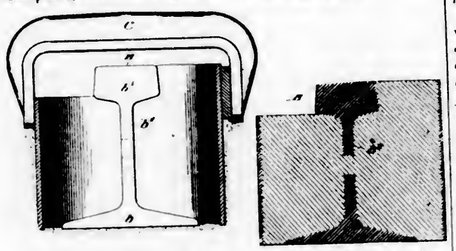


Claim.—In a gas-regulator, the combination with the casing provided near its upper end with a gas-inlet and a gas-outlet oppositely arranged, a diaphragm secured in said casing near the bottom thereof, and a gas-escape pipe arranged at the bottom of the casing and communicating therewith beneath the diaphragm, of a screw-threaded hanger arranged centrally in the top of said casing, an adjusting-nut mounted on said hanger and engaging the top of said casing, a hood secured to the casing and inclosing said adjusting-nut, a substantially L-shaped lever pivotally secured to the inner face of said casing above the diaphragm and having its shorter arm extending in a vertical position, its longer arm extending in a horizontal position and provided with a series of openings, a resistance-spring connected at its lower end to the center of said horizontal arm and at its upper end to said hanger, a yoke secured to the center of said diaphragm and extending above the same, a horizontally-extending lever-arm 27 pivotally connected at one end to said yoke and at its opposite end to the inner face of said casing, a vertically-extending bifurcated arm pivotally connected at one end to the center of said lever 27 and at its opposite end adapted to be adjustably connected to one of the openings of the said longer arm of the L-shaped lever, a valve-stem operating through the said casing into the gas-inlet and pivotally connected at its inner end to the vertical arm of the L-shaped lever, a valve suitably connected to the outer end of said valve-stem, and a concentric guide secured to the outer end of said valve and of greater diameter and adapted to assure the seating of the valve when operated by the pressure of the gas, substantially as set forth.

645,404. RAILWAY-RAIL JOINT. EMERY M. MCVICKER, Milwaukee, Wis. Original application filed Sept. 29, 1899, Serial No. 732,052. Divided and this application filed Jan. 22, 1900. Serial No. 2,409. (No model.)

Claim.—1. A rail-joint composed of metal plates arranged on op-

posite sides of opposing rail ends with spaces between them open above and below, and cast metal fused with and uniting said rail ends and plates, substantially as and for the purposes set forth.

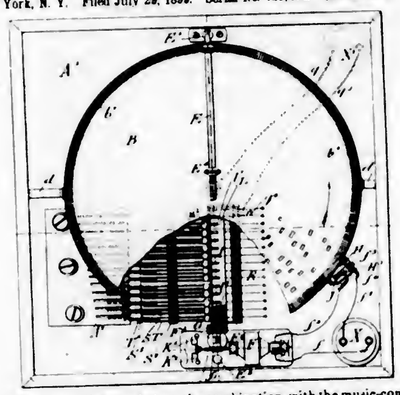


2. A rail-joint composed of metal plates extending downward on opposite sides of opposing rail ends approximately to the bottom of their base-flanges and forming therewith cavities or receptacles which are open at the top, and cast metal filling said cavities or receptacles and fused with and permanently uniting said rail ends and plates, substantially as and for the purposes set forth.

3. A rail-joint composed of metal plates arranged on opposite sides of opposing rail ends and forming therewith cavities or receptacles which are open at the top, and cast metal filling said cavities or receptacles and fused with and permanently uniting said rail ends and plates, substantially as and for the purposes set forth

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645,405. ELECTRICAL MUSIC-BOX. JOSEF NATTERER, Jersey City, N. J., assignor to the Symphonion Manufacturing Company, New York, N. Y. Filed July 29, 1899. Serial No. 725,474. (No model.)



Claim.—1. In a music-box, the combination, with the music-comb, the tune-sheet, and means for moving the same, of a set of pivoted hammers, a set of dampers, cooperating with and arranged alternately with the hammers, both sets being located in a plane under the said tune-sheet and extending out opposite the comb, and intermediate actuating mechanism controlled by the tune-sheet for operating the hammers and dampers, substantially as set forth.

2. In a music-box, the combination, with the music-comb, the disk-shaped tune-sheet, and means for turning the same; of a set of pivoted hammers, a set of pivoted dampers, alternating and cooperating with the same, both sets being located in a plane under the said tune-sheet and extending out opposite the comb, a source of electricity, and intermediate actuating mechanism connected with the latter, the circuit through which mechanism is established by the tune-sheet so as to effectuate the operation of the hammers and dampers, substantially as set forth.

3. In a music-box, the combination, with the sound-emitting device, the tune-sheet, and means for moving the tune-sheet, of a source of electricity, electromagnets, contact-pins, circuit connections, means operated by the tune-sheet, through said contact-pins, for completing the electric circuit through the electromagnets, armatures, a set of hammers, and a set of dampers, alternating with the hammers and operating therewith, substantially as set forth.

4. In a music-box, the combination, with the sounding-board, the sound-emitting device, the tune-sheet, and means for moving the latter; of a source of electricity, electromagnets, spring-actuated contact-pins, circuit connections, means for closing the circuit through the medium of the tune-sheet and contact-pins, armatures passing through the sounding-board, means for guiding said armatures, and impact devices operated by said armatures, substantially as set forth.

5. In a music-box, the combination, with the sound-emitting device, the tune-sheet, and means for moving the latter; of a source of electricity, a metallic support, electromagnets, contact-pins, circuit connections, means operated by the contact-pins tor closing the circuit through said support and magnets, armatures provided with projecting toes, and impact devices operated by the toes of said armatures, substantially as set forth

6. In a music-box, the combination, with the sound-emitting device, the tune-sheet, and means for moving the latter: of a source of electricity, electromagnets, circuit connections, contact-pins engaged by the tune-sheet, armatures, springs interposed between the latter and said pins, means operated by the contact-pins for closing the circuit, and impact devices operated by said armatures, substantially as set forth

7. In a music-box, the combination, with the sounding-board, the sound emitting device, the tune-sheet, and means for moving the latter. of a source of electricity, electromagnets arranged under the sounding-board, circuit connections, spring-actuated contact-pins, spring-actuated armatures passing through said sounding-board, means for guiding said armatures, means for closing the circuit through the action of the tune-sheet on said contact-pins, and impact devices for the sound-emitting device, operated by the armatures, substantially as set forth.

8. In a music-box, the combination, with the sound-emitting device, tune-sheet, and means for moving the latter; of a source of electricity, electromagnets, a metallic support arranged on the sounding-board, contact-pins, armatures, said pins and armatures being guided rectilinearly in said support, and said contact-pins being adapted to close the circuit when depressed by the tune-sheet, and impact devices operated by said armatures, substantially as set forth.

9. In a music-box, the combination, with the sound-emitting device, tune-sheet, and means for moving said tune-sheet; of a source of electricity, electromagnets, a metallic support arranged between the tune-sheet and sounding-board, spring contact-fingers, circuit connections, contact-pins, guided in said support and adapted to operate said fingers to complete the circuit, armatures passing through the sounding-board and guided in said support, and impact devices operated by said armatures, substantially as set forth.

10. In a music-box, the combination, with the sound-emitting device, a disk-shaped tune-sheet, and means for turning the tune-sheet; of a source of electricity, electromagnets, a support on the sounding-board extending along the same, laterally from the axis of the tune-sheet, and provided with transverse guideways, circuit connections, contact-pins guided in said ways and adapted to complete the circuit through said support, armatures, and impact devices operated by the latter, substantially as set forth.

11. In a music-box, the combination, with the sound-emitting device, tune-sheet, and means for moving the tune-sheet; of a source of electricity, electromagnets, a support provided with transverse guideways, circuit connections, contact-pins guided in said ways, and adapted to complete the circuit through said support, armatures guided also in said ways, and impact devices operated by the armatures, substantially as set forth.

12. In a music-box, the combination, with the sound-emitting device, the tune-sheet, and means for moving the latter, of electromagnets, means controlled from the tune-sheet for sending an electric current through said magnets, hammers, dampers, the tail ends of the dampers being normally in advance of the tail ends of the hammers, and armatures each provided with means for engaging successively the tail end of a damper and the corresponding hammer, substantially as set forth.

13. In a music-box, the combination, with the sound-emitting device, tune-sheet, and means for moving the latter; of bar electromagnets, a bearer for said magnets, which magnets project alternately in opposite directions, means controlled from the tune-sheet for sending an electric current through said magnets, armatures, and impact devices operated by the armatures, substantially as set forth.

14. In a music-box, the combination, with the sound-emitting device; of pivoted hammers, pivoted dampers, the tail ends of which are arranged in advance of the tail ends of the hammers, all of the tail ends being free and arranged in juxtaposition and a single actuating device for each pair of dampers and hammers for successively engaging the tail ends of the dampers and hammers, substantially as set forth.

15. In a music-box, the combination, with the sound-emitting device; of hammers, dampers, a support to which the same are pivoted on a common axis alongside each other, and means for operating the hammers and dampers, substantially as set forth.

16. In a music-box, the combination with the sound-emitting device; of hammers, dampers composed of sections, one of which is in frictional engagement with the dampers, and means for operating the hammers and dampers, substantially as set forth.

17. In a music-box, the combination, with the sound-emitting device, of hammers, jointed dampers, friction pieces or springs between the sections of the dampers, and operating means, substantially as set forth.

18. In a music-box, the combination, with the sound-emitting device, of hammers, dampers, composed of pivoted sections, the sections of said dampers being in frictional connection with each other, and suitable operating means, substantially as set forth.

19. The herein-described damper, consisting of sections, and a frictional connection between the sections, substantially as set forth.

20. The herein-described damper, consisting of sections, one section having a friction-spring engaging the other section, substantially as set forth.

21. In a music-box, a center-pin for the tune-sheet, provided with a snap, substantially as set forth.

22. In a music-box, a center-pin for the tune-sheet, provided with a snap and a spring, in the center-pin, acting on said snap, substantially as set forth.

23. In a music-box, a center-pin provided with a loose disk thereon, and a spring-actuated snap separated from the disk a sufficient distance to enable the snap to engage the tune-sheet, substantially as set forth.

24. In a music-box, the combination, with the tune-sheet provided with a corrugated peripheral portion, of means for engaging said corrugated peripheral portion to turn the tune-sheet, substantially as set forth.

25. A tune-sheet for music-boxes, the same having a corrugated peripheral portion, substantially as set forth.

26. In a music-box, the combination, with the tune-sheet having a corrugated peripheral portion, of the driver, and the tune-sheet holder provided with a roller cooperating with said driver, said roller and driver being peripherally serrated, substantially as set forth.

27. In a music-box, the combination, with the tune-sheet having a corrugated peripheral portion, of the driver, the tune-sheet holder, and a yielding roller on said holder, said driver and roller being peripherally serrated, substantially as set forth.

28. In a music-box, the combination of the tune-sheet, and means for moving the same, comprising a source of electricity, a motor, a switch consisting of a cooperating pair of levers and an intermediate coacting rocking piece, circuit connections, and means for acting on said switch for automatically breaking the circuit, substantially as set forth.

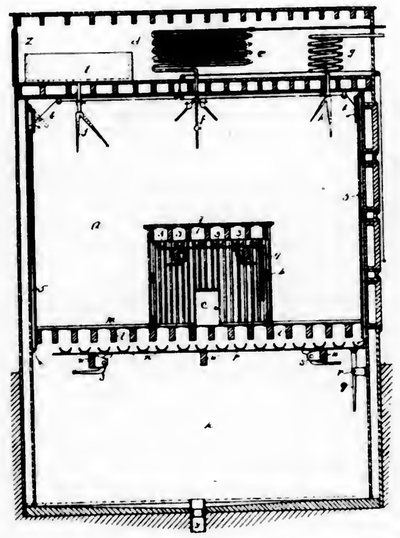
29. In a music-box, the combination of the tune-sheet, a motor therefor, a source of electricity, a starting-lever, a stopping-lever for engaging the same, circuit connections, and a rocking piece between and engaged by the said levers, substantially as set forth.

645,406. WASHING-GLOVE. DEVOLOO POTTER, Pittsburg, Pa. Filed May 29, 1899. Serial No. 718,727. (No model.)



Claim.—As a new article of manufacture, a fingerless washing-glove composed entirely of rubber of an equal thickness throughout the glove with the exception of the palm portion thereof which is corrugated on its outer face and is of an increased thickness projecting outwardly beyond the plane of the glove whereby the corrugated projecting portion alone comes in contact with the material when the glove is used, substantially as set forth.

645,407. COLD-STORAGE APPARATUS OR SYSTEM. ARTEMUS J. TIBBITS, Southfield, Mich. Filed June 30, 1899. Serial No. 722,410. (No model.)



Claim.—1. In a cold-storage system, the combination of an ice-chamber, the cooling-chamber therebelow communicable one with the other, and a series of horizontally-reciprocatory troughs beneath the base of the ice-chamber, substantially as set forth.

2. In a cold-storage system, the combination of an ice-chamber, a cooling-chamber therebelow communicable the one with the other, and a series of troughs to control said communication reciprocatory in vertical and in horizontal planes and means to simultaneously reciprocate said troughs, substantially as set forth.

3. In a cold-storage system, the combination of an ice-chamber, a cooling-chamber therebelow, an open floor between said chambers, and a series of vertically and horizontally reciprocatory troughs to control said communication, substantially as set forth.

4. In a cold-storage system, the combination of an ice-chamber, an apartment therebelow, a water-distributing device located in said apartment and communicating with said ice-chamber, a cooling-chamber beneath the ice-chamber and communicating therewith, joists located between the cooling-chamber and the ice-chambers, troughs located below said joists to control said communication, and means to reciprocate said troughs horizontally and vertically, for the purpose described.

5. In a cold-storage system, the combination of an ice-chamber, a cooling-chamber therebelow communicable the one with the other, an apartment above the ice-chamber, a water-distributing device in said apartment and communicating into the ice-chamber, a series of horizontally-adjustable troughs to control the communication of the ice-chamber with the cooling-chamber, a flue opening at one end into the cooling-chamber and at the other end into the ice-chamber, whereby an air circulation between said chambers may be effected, and means to control said air circulation, substantially as set forth.

6. In a cold-storage system, the combination of two chambers provided with joists therebetween, and the one communicable with the other, a series of troughs located below said joists to control said communication, and a laterally-reciprocatory slide connecting said troughs, substantially as set forth.

7. In a cold-storage system, the combination of an ice-chamber, a refrigerating-chamber located therewithin provided with an open top communicable with the ice-chamber, and a series of vertically-adjustable troughs reciprocatory in a horizontal plane to govern the communication of the refrigerating-chamber through the top thereof with the ice-chamber, substantially as set forth.

8. In a cold-storage system, an ice-chamber, a cooling-chamber therebelow communicable the one with the other, troughs to control said communication whereby dry or wet storage may be secured in the cooling-chamber at the will of the operator, said troughs being simultaneously reciprocatory in lateral and in vertical planes, substantially as set forth.

645,408. FIREMAN'S HELMET. WILLIS C. VAJEN, Indianapolis, Ind. Filed Mar. 14, 1898. Serial No. 673,859. (No model.)

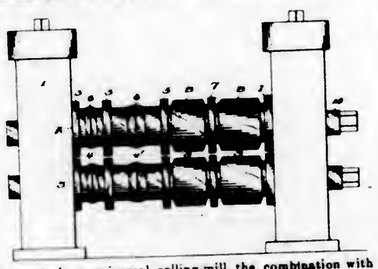


Claim.—1. The combination, in an eyepiece for a head-shield or helmet, of a suitable framework, stationary transparent plates mounted therein, a shaft mounted to revolve in a central perforation in said plates, a wiper carried on the inner end of said shaft and bearing across the inner surface of the inner plate, whereby by revolving said shaft said wiper is carried around to wipe said surface, substantially as set forth.

2. The combination, in an eyepiece for a head-shield or helmet, of a suitable frame, a transparent plate carried by said frame and having a central perforation therein, a shaft mounted in said perforation having a suitable flange upon one side and a nut upon the other, a bar carried by the inner end of said shaft faced with soft material which comes in contact with the inner side of said transparent plate, and flexible washers interposed between the flange on the shaft and the plate on one side, and between the bar and the plate on the other side, whereby the passage of air or gases is prevented while the revolution of the shaft is permitted, substantially as set forth.

3. The combination, in an eyepiece for head-shields or helmets, of the base or ring 1 secured to the body thereof, the ring 2 provided with the grating-bars 8 and 9 and secured to the ring 1, the interposed transparent plates 3 and 4, the washers 5, 6 and 7, the revolving shaft 10, the bar 11 faced with a soft material 12 and carried by said shaft, the washer 13 interposed between said plates 3 and 4, and the washers 14 and 15 mounted on said shaft outside said plates and in contact therewith.

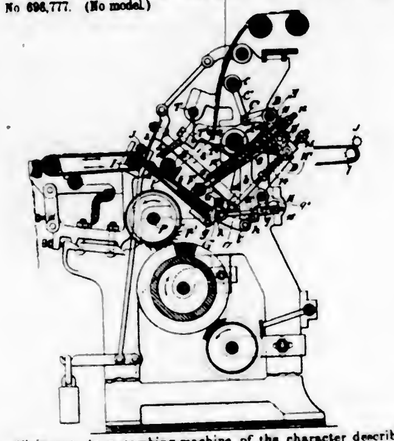
645,409. ROLLING-MILL. PETER M. WEBER, Homestead, Pa. Filed Sept. 22, 1899. Serial No. 731,284. (No model.)



Claim.—1. In a universal rolling-mill, the combination with a housing having a pair of cogging-rolls mounted therein, of a housing having an upper and lower pair of vertical adjustable bearings mounted therein, a horizontal roll journaled in each pair of said bearings and each adjusted toward one another by the said bearings, means for adjusting the said bearings, a casing secured to each side of said housing and arranged between each pair of adjustable bearings, a longitudinally-operating bearing arranged in each of the said casings and provided on their inner face with a semicircular recess in which is mounted a series of roller-bearings, a retaining-plate secured to the inner end of said longitudinally-operating bearings and provided with a rectangular opening, a vertical roll mounted in each of the said recesses, frictionally engaging said roller-bearings, projecting partly through the said opening and retained in position by said plate, and means connected to each of said longitudinally-operating bearings adapted to operate the same simultaneously, substantially as described.

2. In a universal rolling-mill, the combination with a pair of cogging-rolls, a pair of vertically-adjustable universal rolls and a pair of simultaneously-operating longitudinal bearings arranged in relation to said universal rolls, of a pair of finishing-rolls provided between the same with a series of horizontally-arranged passes for finishing I-beams and preventing a fin forming upon the feet thereof, said passes formed by providing each of the said rolls at the first pass with a horizontally-alining collar with tapering sides, an alining collar at each side of the first-mentioned collar and provided with straight sides and so arranged as to form a horizontal portion upon the rolls between the collars, providing the upper of said rolls at the second pass with a collar having each side thereof tapering and terminating in an annular shoulder and further providing said roll with a horizontal portion at the side of each shoulder; providing the lower of said rolls at the second pass with a collar in horizontal alinement with the collar of the upper roll and having its sides tapering and terminating in a horizontal portion in alinement with the annular shoulders of the upper collar, further providing said lower roll at the second pass at the end of each of the horizontal portions with a collar of greater diameter than the alining collar and which operate at the side of each of the annular shoulders of the upper roll; providing the lower of said rolls at the third pass with a collar having each side tapering and terminating in an annular shoulder and further providing said roll with a horizontal portion at the side of each of the said collars, providing said upper roll at the third pass with a collar in horizontal alinement with the collar of the lower roll and having tapering sides which terminate in a horizontal portion in alinement with the annular shoulders of the lower collars, further providing said upper roll at the third pass at the end of each horizontal portion with a collar of greater diameter than the alining collar and which operate at the side of each of the annular shoulders of the lower roll at the third pass, substantially as described.

645,410. COMBING-MACHINE. ALFRED WENNING and CHARLES H. GESAUFF, Mulhouse, Germany, assignors to the Société Alsacienne de Constructions Mécaniques, same place. Filed Dec. 9, 1898. Serial No. 698,777. (No model.)



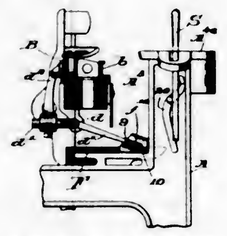
Claim.—1. In a combing-machine of the character described, the combination with the picking-comb, the nipper, and mechanism for operating said comb and nipper, of a sliding plate *l*, beneath the lower jaw of said nipper, and mechanism for operating said plate, said operating mechanism comprising a set of jointed levers carried by the nipper and connecting said sliding plate to a fixed shaft in the frame, whereby the said plate is protruded from under said lower jaw of the nipper in position to support the tuft to be combed, substantially as set forth.

2. In a combing-machine of the character described, the combination with the picking-comb, the nipper, mechanism for operating said comb and nipper, and the sliding plate *l*, under the lower jaw of the nipper, of the mechanism for operating and controlling the movements of the plate *l*, said mechanism comprising the elbow-lever N, fulcrumed in the carrier A^3, the said carrier, a link C^9, coupling one arm of said lever to a fixed point C in the machine-frame, the rock-shaft G, having arms G', coupled to the sliding plate *l*, and an arm *d*, the joint-piece D, carried by an arm of the lever N, the rod *b*, coupled at its lower end to the arm *d*, and loosely mounted at its upper end in the piece D, the nuts 15 on said rod, and the cushion-spring 14, also on said rod, substantially as set forth.

3. In a combing-machine of the character described, the combination with the picking-comb and the reciprocating nipper, of a sliding plate *l*, to support the tuft at the picking-point, said plate being situated under the lower jaw of the nipper, and a rock-shaft carried by the nipper, said shaft having arms coupled to said supporting-plate and also an arm actuated by the movement of the nipper, whereby the said plate *l*, has imparted to it a movement with the nipper and also a movement independent of that of the nipper, substantially as set forth.

4. In a combing-machine of the character described, the combination with the picker-comb, the nipper, and the mechanism for operating the same, of the rock-shaft G, carried by the nipper and provided with arms G', an arm *d*, and an arm K, the sliding supporting-plate *l*, under the lower jaw of the nipper and coupled to the arms G', the rod *b*, coupled to the arm *d*, and extending through a joint-piece D, carried by the elbow-lever N, the said joint-piece, the nuts and spring on the rod *b*, the coupling *q*, on an arm on the rock-shaft H, which is actuated by the picker-comb, the rod 17, coupled at one end to the arm K, and the nuts and spring on said rod, substantially as set forth.

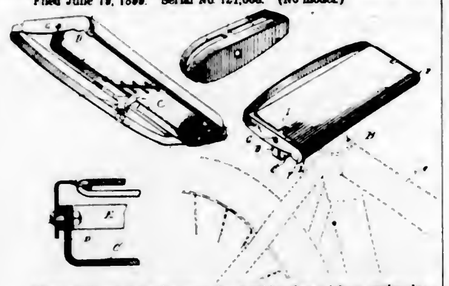
645,411. PROTECTOR MECHANISM FOR LOOMS. FRED A. WHITNOEE, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Aug. 17, 1899. Serial No. 727,476. (No model.)



Claim.—1. In protector mechanism for looms, a shuttle-binder, a dagger operatively connected therewith and movable into operative position when the shuttle is improperly boxed, a sliding frog, and a frog-lift thereon having a shouldered face to be engaged by the dagger, the shoulder being located above the fulcrum of the frog-lift, whereby the point of the dagger will be lifted when the frog-lift is tilted and the pressure upon the binder thereby reduced.

2. In a loom, the protector-rod and its controlling-spring, a dagger and a binder-finger fast thereupon, a shuttle-binder held in engagement with the finger by said spring, a sliding frog, and a frog-lift thereon having a shoulder above its fulcrum, engagement of the dagger with the frog-lift tilting the latter and raising the point of the dagger, to rock said rod against its spring and thereby retract the finger, relieving the binder from pressure.

645,412. CYCLE-SEAT. THOMAS D. WILSON, Conover, Ohio. Filed June 19, 1899. Serial No. 721,068. (No model.)



Claim.—1. In a cycle-seat, the combination with a spring-bar, adapted to be adjustably connected to a cycle, of a guard adapted to be secured to the ends of said spring-bar, and a pair of end blocks also secured to the ends of said bar, said end blocks each having a pair of slots therein with a partition between them, a leather seat proper slit inward from each end, such ends being adapted to pass through the slots in the respective end blocks, and a lace adapted to secure together the meeting ends of said seat proper, all substantially as shown and described.

2. In a cycle-seat, the combination with a cross-bar having its ends upturned, of a guard having one of its ends secured to each of said upturned ends, end blocks also secured to said ends, said end blocks having their inner upper edges beveled or bent downward and inward, a pair of slots in said bent-inward portions separated from each other by a partition or cross-piece, and a leather seat proper slit inward from each end, such slitted ends being adapted to extend through the slots in said blocks and be laced together, all substantially as shown and described.

645,413. DENTAL SEPARATOR. EDWARD WIBHART, Waterford, Pa., assignor to James W. Ivory, Philadelphia, Pa. Filed Dec. 1, 1899. Serial No. 738,869. (No model.)

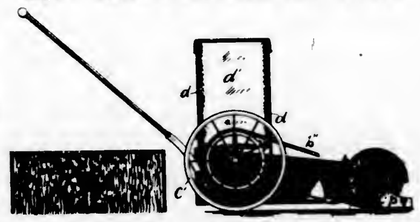


Claim.—1. In a dental separator, a frame, jaw members on the limbs thereof, sliding sleeves on said limbs jaw members on the ends of said sleeves adjacent to the other jaw members, and screws fitted to said jaw members parallel with said sleeves for moving the said jaws in opposite directions parallel to each other.

2. In a dental separator, a frame, jaw members mounted thereon, sliding sleeves on said frame, jaw members on said sleeves opposite to the jaw members of the frame, screws fitted to said jaw members parallel with said sleeves to move the same in opposite directions parallel to each other, and means for laterally adjusting said frame.

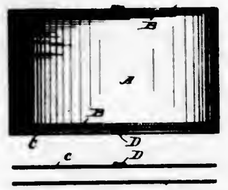
3. In a dental separator, a frame, a jaw on the end of a limb thereof, a sliding sleeve on said limb, a jaw on said sleeve opposite to the jaw on the frame, and a screw passing through one jaw and engaging the other and being parallel with said sleeve.

645,414. HAND STREET-SWEEPER. FRED D. WRIGHT, Syracuse, N. Y. Filed Dec. 14, 1899. Serial No. 740,265. (No model.)



Claim.—A street-sweeper comprising a shell having a removable dust-pan in its rear end, its forward end enlarged and rotating brushes mounted therein, and means for rotating said brushes by the movement of the street-sweeper, the inner end of said brushes being mounted upon a knuckle-joint arm, and means for raising and lowering said brushes, and a scraper mounted within the shell, and means for raising and lowering its forward end, its rear end resting on the forward end of the removable dust-pan, substantially as described for the purposes set forth.

645,415. BAKING VESSEL OR MOLD. WILLIAM R. WRIGHT, Marquette, Mich. Filed Nov. 18, 1897. Renewed June 27, 1899. Serial No. 722,072. (No model.)

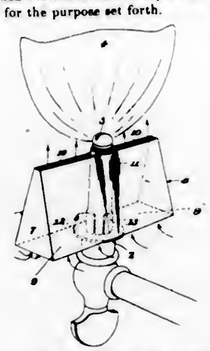


Claim.—A baking-mold comprising a body in the form of a closed ring of stiff paper, and detached stiff-paper ends inserted in the opposite ends of the ring for closing the two open ends of said body, whereby is provided a completely-closed baking-mold and air-excluding retaining-receptacle substantially as described.

645,416. ATTACHMENT FOR GAS-BURNERS. THOMAS J. BUSH, Lexington, Ky. Filed June 16, 1899. Serial No. 720,773. (No model.)

Claim.—1. A draft attachment for a gas-burner producing a so-called "flat" flame, the same consisting in a body or hood adapted to be placed centrally upon the burner beneath the mouth thereof and provided with one or more draft-chambers, a narrow elongated opening leading from said draft-chamber through the top of the hood at opposite sides of the burner to lie in the plane of the flame and beneath the same when adjusted upon the burner, substantially as and for the purpose set forth.

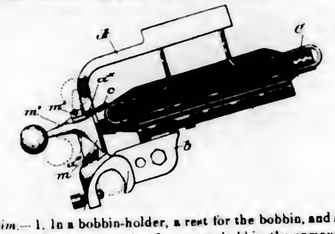
2. A draft attachment for a gas-burner producing a so-called "flat" flame, the same consisting in a body or hood provided with one or more upwardly-converging draft-chambers and having a substantially-central opening for the burner to extend through, a narrow elongated draft-opening in the top of said hood upon opposite sides of the central burner-opening and communicating with said draft-chamber and adapted to lie in the same plane as the gas-flame and beneath the same when the attachment is adjusted upon the burner, substantially as and for the purpose set forth.



3. A draft attachment for a gas-burner producing a so-called "flat" flame, the same comprising a hood having upwardly-converging long sides and closed at its ends and having a broad opening at the base and a comparatively-narrow elongated opening along the top for the exit of the draft, a substantially centrally located opening for the passage of the burner said draft-opening lying upon two opposite sides of said burner-opening and adapted to stand in the same plane with the flame when the attachment is adjusted on the burner, substantially as and for the purpose set forth.

4. A draft attachment for a gas-burner producing a so-called "flat" flame, the same comprising a hood A-shaped in cross-section and having a wide opening at the base and a narrow opening along the top, the ends of the hood being closed, the central portion of the hood being slightly bowed out on the two opposite sides for receiving a cylindrical burner, and a collar or holder mounted centrally within the hood for the passage of the burner, substantially as and for the purpose set forth.

645,417. BOBBIN-HOLDER. GEORGE A. CLARK, Lowell, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Dec. 11, 1899. Serial No. 739,891. (No model.)



Claim.—1. In a bobbin-holder, a rest for the bobbin, and a back-stop having a discharge-opening for a spent bobbin, the unwound bobbin being maintained by the yarn thereupon out of alinement with the opening.

2. In a bobbin-holder, a rest for the bobbin, a back-stop having a discharge-opening for a spent bobbin, the yarn maintaining a bobbin out of alinement with the opening till unwound, and a movable closure for the opening.

3. In a bobbin-holder, a rest for the bobbin, an upturned, overhanging arm forming a back-stop at the rear of the rest and provided with a discharge-opening for a spent bobbin, the unwound bobbin being maintained by the yarn thereupon out of alinement with the opening, and a swinging gate to normally close said discharge-opening.

4. In a bobbin-holder, a rest for the bobbin, a back-stop having a discharge-opening for a spent bobbin, the yarn maintaining a bobbin out of alinement with the opening till unwound, and a pivotally-mounted, normally-closed gate for said opening.

5. In a bobbin-holder, a rest or pan, and an upturned back-stop at the rear end thereof having a discharge opening to permit the passage therethrough of a spent bobbin, the upper edge of the opening extending across the path of an unwound bobbin and preventing its discharge.

6. In a bobbin-holder, a bracket, a rest or pan for the bobbin, and an upturned back-stop, both mounted on the bracket, said back-stop having a discharge-opening therein, the yarn on a bobbin maintaining it out of alinement with the said opening.

7. In a bobbin-holder, a rest for the bobbin, a back-stop having a discharge-opening at the rear end of the rest, and a self-shutting gate to normally close said opening.

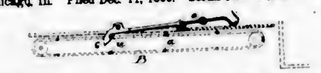
8. In a bobbin-holder, a rest for the bobbin, an upturned back-stop at the rear end thereof having a discharge-opening for a spent bobbin, a gate obliquely fulcrumed adjacent and to close the opening, and a weighted arm on the gate, to normally maintain the latter shut.

9. A spooling-machine having a series of bobbin-holders each provided with a bobbin-rest and a back-stop having a discharge-opening for a spent bobbin, and a chute located below the bobbin-holders and having its open top arranged to receive spent bobbins when ejected through the discharge-openings of the holders.

10. A bobbin-holder having a rest for the bobbin, and means to permit ejection of the spent bobbin when moved longitudinally upon the rest toward the back of the latter.

11. A bobbin-holder having a rest for the bobbin, a discharge-outlet for the passage of the spent bobbin when engaged and moved longitudinally by an incoming fresh bobbin, and means to prevent accidental ejection of a bobbin.

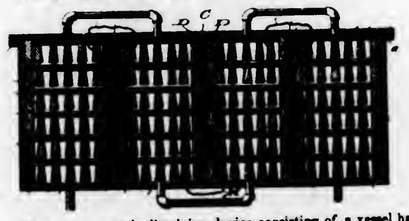
345,418. HOG-SCRAPING MACHINE. GEORGE W. CONSTANTINE, Chicago, Ill. Filed Dec. 11, 1899. Serial No. 739,988. (No model.)



Claim.—1. In a hog-scraping machine, the combination with a slotted table and a chain or carrier mounted beneath the same, of a "hooking-on hook" adapted to be placed within the slot of the table and provided with a vertically-extending lug or ear having lateral supports for maintaining said hook in position with its front or hooked end in the path of the chain or carrier whereby it is automatically engaged thereby.

2. In a hog-scraping machine, the combination with a slotted table and a chain or carrier mounted beneath the same, of a "hooking-on hook" to be placed in the slot of the table and having a hook-shaped front end and an opposite end adapted to engage a jaw-hook, said "hooking-on hook" having a vertically-extending lug or ear provided with a lateral projection or support extending beyond the plane of the side walls of the slot and adapted to prevent the hook dropping through said slot and to hold it operatively in position for automatic engagement with the chain or carrier.

645,419. SCALE DISSOLVER AND PREVENTER. HENRY C. DAVIS and HENRY STRASBURGER, Washington, D. C., assignors of one-third to Abraham H. Strasburger, same place. Filed June 26, 1899. Serial No. 721,967. (No model.)



Claim.—1. A scale-dissolving device consisting of a vessel having a plurality of compartments, a communication between the compartments, a plurality of frames in each compartment embodying a positive plate, a plurality of negative plates supported upon the positive plates and within said frames, a wire connecting the plates of each compartment with those of the next, an inlet at one end and an outlet at the other, substantially as specified.

2. A device of the character described, consisting of a vessel having a plurality of compartments, a series of negative and positive elements in each compartment, partitions between the compartments provided at alternately-opposite ends with openings, a wire connecting the plates of each compartment with those of the next through said openings, an inlet at one end and an outlet at the other, substantially as and for the purpose specified.

3. An element for a device of the character described, the same comprising a fixed support and a rotatable body mounted axially upon said support and having a portion adapted to be acted upon and rotated by the action of the water thereupon, as set forth.

4. An element for a device of the character described, consisting of a fixed support, and a body of zinc loosely mounted upon said support which passes entirely therethrough and having projecting portions whereby the action of the water will rotate said body, as and for the purpose specified.

5. An element for a device of the character described, consisting of a fixed support, and a plurality of bodies sleeved loosely thereupon and having projecting portions whereby said bodies are adapted to be revolved by the action of the water thereagainst, as set forth.

6. The combination with a frame, of a plurality of copper rods supported therein, and a plurality of independent zinc bodies loosely sleeved upon each of said rods, substantially as and for the purpose specified.

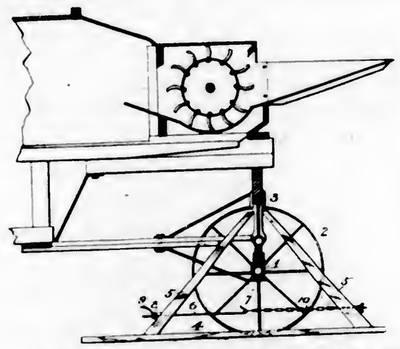
7. An element for a device of the character described, the same consisting of a frame, copper rods supported therein, and zinc bodies rotatably mounted on said rods and provided with wings, substantially as and for the purpose specified.

8. A device for the purposes specified, consisting of a vessel with a rubber lining, and divided into a plurality of compartments, a plurality of positive and negative elements one of which is rotatably mounted upon the other in each of said compartments, an inlet and an outlet pipe and means for causing the water to flow in a circuitous path from one end of the vessel to the other, alternately in opposite directions, substantially as specified.

9. A device of the character described, consisting of a rubber-lined vessel divided into a series of compartments provided with a rubber lining, a series of positive and negative elements one of which is rotatably mounted upon the other in each compartment, a connection between the elements of each two adjacent compartments, an inlet at one end an outlet at the other, and means for causing the water to flow in a circuitous and alternately-opposite passage through the device, as set forth.

10. An element for the purposes specified, comprising a rod of copper and a zinc body through which said rod passes, the zinc body having portions projecting beyond its surface, of like material, and adapted to be acted upon by the water to rotate the said body, as set forth.

645,420. BRACE FOR THRESHING-MACHINES. WILHELM HEIDECKER, New Hampton, Iowa. Filed Aug. 21, 1899. Serial No. 727,949. (No model.)

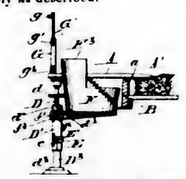


Claim.—The herein-described jack and brace consisting of the inclined bars, disconnected at their upper and lower ends, a screw-rod passing through one of said bars and having a hook at its inner end, the bar and crank, and the chain connected with the other bar and with the hook on the rod, substantially as described.

645,421. ATTACHMENT FOR INVALID-BEDSTEADS. EDWIN A. LIBBY, Keene, N. H. Filed June 17, 1899. Serial No. 720,896. (No model.)

Claim.—1. An attachment for beds, comprising a substantially-triangular seat or saddle A, provided along its inner longer side with a flange A' to rest on the edge of the bedding, the upper face of the seat or saddle being concaved, grooves or corrugations a^4 leading outwardly from said concaved portion to a discharge a^5 at the outer edge of the saddle or seat, and means for supporting the saddle or seat; substantially as described.

2. An attachment for beds, comprising a saddle or seat adapted to rest at its inner edge on the side of a bed, and having its upper surface provided with grooves or corrugations leading to a discharge a^4 at the outer edge, a standard on which the outer portion of the saddle is supported, a shelf on the standard below the saddle, and a vessel mounted on shelf under the discharge a^4 and provided with a hooded portion F^3 projecting above the discharge edge of the seat or holder, substantially as described.



3. The combination with the saddle or seat having braces to pass down along the inner side of the bed-rail, hooked springs to connect the saddle with the lower edge of bed-rail and an extensible support to support the outer edge of saddle from the floor.

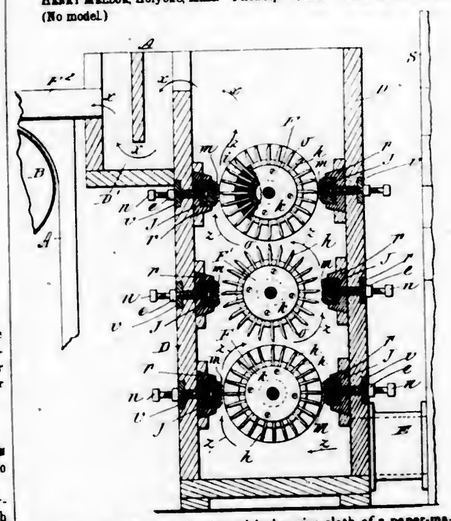
4. The combination with the saddle or seat having means to connect its inner side with a bed-rail, and a vertically-extensible support for its outer side, of a holder mounted on said outer support and extending under the saddle or seat to hold a receptacle.

5. The combination with the saddle or seat having an inclined flange along its inner side to rest on the bedding and springs and braces to engage the bed-rail, of an outer adjustable standard to support the saddle or seat from the floor.

6. An attachment for beds, comprising a seat or saddle adapted to rest at its inner edge upon the bed and provided on the under side of its outer portion with a socket, a standard D^2 having a vertically-adjustable member D' provided in its upper end with a nut d', a screw D provided with an operating hand-wheel d and mounted in said nut, the upper rounded end of the screw engaging said socket, and a receptacle-supporting shelf or holder below the saddle and having a clamp adjustable on the standard member D'; substantially as described.

7. An attachment for beds comprising a saddle or seat having a brace to pass down along the inner side of a bed-rail, a hooked spring to connect the saddle or seat with the lower edge of said rail, and a support for the outer edge of the saddle or seat; substantially as described.

645,422. PAPER-PULP DRESSING AND EVENING DEVICE. HENRY MELLOR, Holyoke, Mass. Filed Apr. 7, 1899. Serial No. 712,123. (No model.)



Claim.—1. The combination with the wire-cloth of a paper-machine and screen-box therefor, of a box located between said wire-cloth and screen-box, a conduit between the latter and the bottom of said box, a series of rolls mounted one above the other in said box, radial blades on said rolls, knife-bars set adjustably in close proximity

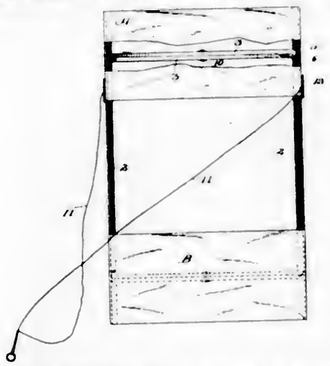
to the edges of said blades, means for rotating contiguous rolls of said series in opposite directions, whereby pulp passing up through said box is made to take a circuitous direction, and an outlet from said box above the surface of said wire-cloth, substantially as described.

2. In combination with the wire-cloth of a paper-machine, and a screen-box for the latter, pulp dressing or evening devices comprising a box located between said wire-cloth and screen-box, through which wet paper-pulp passes on its way to, and before reaching said machine, knife-bars set horizontally in the inner wall of said box, several revoluble rolls supported in said box in parallelism with said bars for simultaneous rotary movements, certain ones thereof rotating in opposite directions to others, each of said rolls having a series of radially-disposed longitudinal blades, those on one roll being parallel with, and on the next inclined to, the axis of said rolls, whereby pulp in passing between the latter will be given a direction of movement diagonal to said rolls, and means for imparting said rotary movements to the rolls, substantially as described.

3. In combination with the wire-cloth of a paper-machine, and a screen-box for said machine, of pulp dressing or evening devices comprising a box located between said wire-cloth and said screen-box through which pulp passes in an upward direction on its way to said machine, knife-bars set horizontally in the inner wall of said box, several revoluble rolls supported in said box in parallelism with said bars for simultaneous rotary movement, certain ones of said rolls rotating in opposite directions to others, each of said rolls having a series of radially-disposed longitudinal blades, means for imparting said rotary movements to said rolls, whereby said pulp is made to take a circuitous direction through said box and between the several rolls, and an overflow-outlet from the latter above the said wire-cloth, substantially as described.

4. In combination with the wire-cloth of a paper-machine, and a screen-box for said machine, of pulp dressing or evening devices comprising a box located between said wire-cloth and said screen-box through which pulp passes in an upward direction on its way to said machine, several revoluble rolls supported in said box for simultaneous rotary movements, certain ones of said rolls rotating in opposite directions to others, each of said rolls having a series of radially-disposed longitudinal blades, a series of knife-bars supported on the inner walls of said box, and adjustable toward and from said rolls, means for imparting said rotary movements to said rolls, whereby said pulp is made to take a circuitous direction through said box and between the several rolls, and an overflow-outlet from the latter above the said wire-cloth, substantially as described.

645,428. **KITE.** EDWARD B. MERRIMAN and FRANK W. MERRIMAN, Boston, Mass. Filed May 3, 1898. Serial No. 679,586. (No model.)

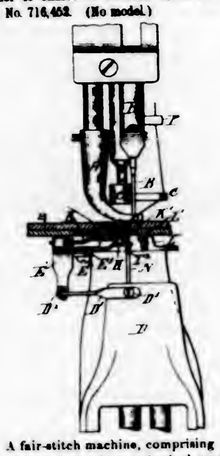


Claim.—1. A knockdown box-kite comprising in combination four corner-stays having sails secured thereto, and two or more pairs of intersecting, diagonal braces each pivoted at one end only to one of said stays and provided at its free end with a U-shaped clip for detachably engaging the opposite stay, each pair of said braces being pivoted together at the point of their intersection, for the purpose set forth.

2. In a kite, a bridle-adjuster comprising a wire secured to the kite-frame and provided with means for retaining the bridle at predetermined points along its length.

3. In a kite, a bridle-adjuster comprising a wire adapted to be secured at its ends to the kite-frame, and bent to form a series of corrugations, for the purpose set forth.

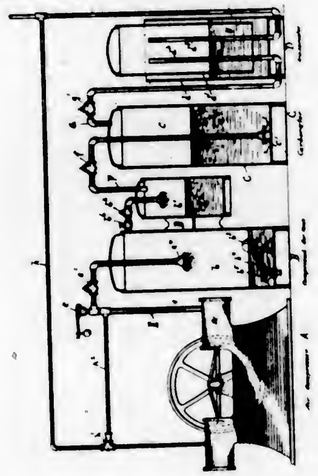
645,424. **FAIR-STITCH MACHINE.** EDWIN F. MOWER, Boston, Mass., assignor to Charles P. Stanbon, Lynn, Mass. Filed May 11, 1899. Serial No. 716,452. (No model.)



Claim.—1. A fair-stitch machine, comprising an awl adapted to puncture the stock; a presser-foot; a barbed needle adapted to pass through the puncture made by the said awl, and to draw the thread, doubled so as to form a loop, through the stock, and mechanism for operating the awl and needle; a loop-placer adapted to take the loop from the needle and place it in the path of motion of the loop-retainer; a loop-retainer adapted to engage with and prevent the doubled thread from being drawn back through the puncture in the stock; a mechanically-moved rocker-arm adapted to give motion to the said loop-placer and loop-retainer; and a thread-carrier adapted to place the thread in the barb of the needle, and also to draw the thread back to the under surface of the stock after the needle has taken it through and beyond the said surface, and a tension mechanism whereby a stitch-like ornament is formed, substantially as and for the purpose set forth.

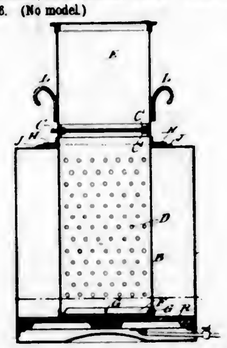
2. A fair-stitch machine, comprising an awl, a barbed needle, a thread-carrier, and mechanism for operating said awl, needle and thread-carrier; in combination with a loop-placer, and a loop-retainer, both connected to and operated by a rocker-arm; and said rocker-arm, and mechanism for operating the said arm; substantially as and for the purpose set forth.

645,425. **PROCESS OF CARBURETING.** EDGAR A. MCALLISTER, Baltimore, Md., assignor, by mesne assignments, to the McAllister Gas-Light, Heat and Power Company, of West Virginia. Filed Aug. 29, 1899. Serial No. 728,830. (No specimens.)



Claim.—The process of carbureting aeriform fluid consisting in compressing and cooling the fluid to eliminate the humidity and then subjecting the compressed and cooled fluid to hydrocarbon while it is expanding.

645,426. **APPARATUS FOR TREATING CALCIUM CARBID.** JULIUS VON ORLOWSKY, St. Petersburg, Russia. Filed Dec. 29, 1898. Serial No. 700,656. (No model.)



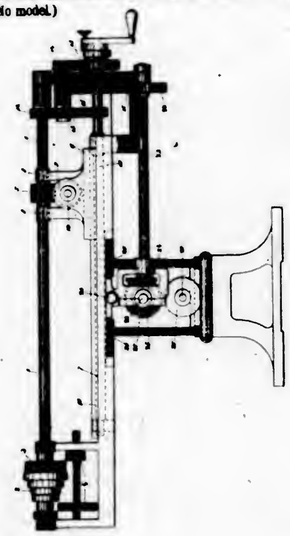
Claim.—1. An apparatus for treating calcium carbid, consisting of an air-tight outer casing, a reservoir removable from said casing, and constructed with two compartments, the upper of which is air-tight and the lower of which is perforated, and a door for shutting off or connecting said compartments, substantially as set forth.

2. An apparatus for treating calcium carbid, consisting of an air-tight outer casing having a perforated or grated false bottom, a reservoir removable from said casing, and having two compartments, the upper of which is air-tight and the lower of which is perforated, and a door between said compartments, substantially as set forth.

3. An apparatus for treating calcium carbid, consisting of an air-tight outer casing, a reservoir removable from said casing and having a movable bottom, said reservoir having two compartments, the upper of which is air-tight and the lower of which is perforated, and a door between said compartments, substantially as set forth.

4. In an apparatus for treating calcium carbid, a reservoir having two compartments and provided with a movable bottom, the upper compartment being air-tight and the lower compartment being perforated, and a door between the compartments, substantially as set forth.

645,427. **MACHINE FOR MILLING CONE-SCREW WHEELS.** SUZKBIUSZ POLADOWSKI, Lodz, Russia. Filed Dec. 21, 1897. Serial No. 662,839. (No model.)

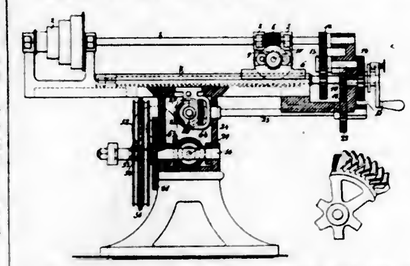


Claim.—1. In a machine for milling bevel-wheels so as to produce or finish helically-arranged teeth the combination of a worm-wheel, carrying the cone-disk to be machined, a cutter rotatable about its longitudinal axis and movable in the direction of its axis and at right angles to it, means acting simultaneously upon the said cutter and the said worm-wheel in such a manner, as to rotate the said cutter, to move it at right angles to its longitudinal axis and to impart a slow partial rotation to the said worm-wheel, and means of adjusting the said cutter in the direction of its longitudinal axis, substantially as described.

2. In a machine for milling bevel-wheels so as to produce or finish helically-arranged teeth the combination of a worm-wheel, carrying the cone-disk to be machined a cutter rotatable about its longitudinal axis and movable in the direction of its axis and at right angles to it, means acting simultaneously upon the said cutter and the said worm-wheel in such a manner, as to rotate the said cutter to move it at right angles to its longitudinal axis, and to impart a slow partial rotation to the said worm-wheel, means of adjusting the said cutter in the direction of its longitudinal axis and means of adjusting the said worm-wheel with regard to the said cutter, substantially as described.

3. In a machine for milling bevel-wheels so as to produce or finish helically-arranged teeth the combination of the worm-wheel carrying the cone-disk to be machined, a cutter rotatable about its longitudinal axis and movable in the direction of its axis and at right angles to it, means acting simultaneously upon the said cutter and the said worm-wheel in such a manner as to rotate the said cutter to move it at right angles to its longitudinal axis and to impart a slow partial rotation to the said worm-wheel, means of adjusting the said cutter in the direction of its longitudinal axis and means of adjusting the said worm-wheel with regard to the said cutter, vertically, horizontally, and rotating about a vertical axis, substantially as described.

645,428. **MACHINE FOR MILLING ANGULAR-TOOTHED BEVEL-WHEELS.** ELIZEBIUSZ POLANOWSKI, Lodz, Russia. Filed May 11, 1898. Serial No. 680,414. (No model.)



Claim.—1. In a machine for milling bevel-wheels with angular teeth the combination of means carrying the cone-disk to be cut, a cutter rotatable about its longitudinal axis and movable in the direction of its axis at right angles to it and means of rotating the said cutter, of moving it at right angles to its longitudinal axis and of imparting a slow partial rotation to the said worm-wheel first in one direction, until the said cutter has reached the middle of the bevel-surface of the cone-disk, and then in the other direction, comprising a star-wheel 54 rotating always in the same direction and a pin-wheel 55 which gears with the said star-wheel, is capable of shifting along its shaft 56 and is provided on each side of its row of pins along its periphery with a groove 57, these two grooves returning into each other at two adjacent places on the pin-wheel, thus forming a continuous groove with two turning-points, in which groove engages the end of the shaft, that carries the star-wheel 54 substantially as described.

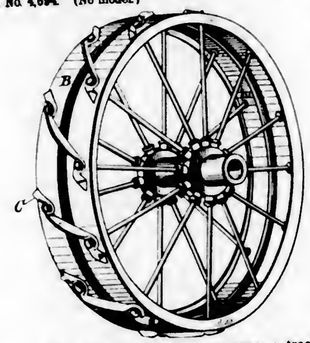
2. In a machine for milling bevel-wheels with angular teeth the combination of means carrying the cone-disk to be cut, a cutter rotatable about its longitudinal axis and movable in the direction of its axis at right angles to it, means of adjusting the said cutter in the direction of its longitudinal axis and means of rotating the said cutter, of moving it at right angles to its longitudinal axis and of imparting a slow partial rotation to the said worm-wheel first in one direction until the said cutter has reached the middle of the bevel-surface of the cone-disk, and then in the other direction, comprising a star-wheel 54 rotating always in the same direction and a pin-wheel 55 which gears with the said star-wheel, is capable of shifting along its shaft 56 and is provided on each side of its row of pins along its periphery with a groove 57, these two grooves returning into each other at two adjacent places on the pin-wheel, thus forming a con-

tinuous groove with two turning-points, in which groove engages the end of the shaft, that carries the star-wheel 54, substantially as described.

3. In a machine for milling bevel-wheels with angular teeth the combination of means carrying the cone-disk to be cut, a cutter rotatable about its longitudinal axis and movable in the direction of its axis at right angles to it, means of adjusting the said cutter in the direction of its longitudinal axis, means of adjusting the said worm-wheel with regard to the said cutter and means of rotating the said cutter, of moving it at right angles to its longitudinal axis and of imparting a slow partial rotation to the said worm-wheel first in one direction, until the said cutter has reached the middle of the bevel-surface of the cone-disk, and then in the other direction, comprising a star-wheel 54 rotating always in the same direction and a pin-wheel 55 which gears with the said star-wheel, is capable of shifting along its shaft 56 and is provided on each side of its row of pins along its periphery with a groove 57, these two grooves returning into each other at two adjacent places on the pin-wheel, thus forming a continuous groove with two turning-points, in which groove engages the end of the shaft, that carries the star-wheel 54, substantially as described.

4. In a machine for milling bevel-wheels with angular teeth the combination of means carrying the cone-disk to be cut, a cutter rotatable about its longitudinal axis and movable in the direction of its axis at right angles to it, means of rotating the said cutter, of moving it at right angles to its longitudinal axis and of imparting a slow partial rotation to the said worm-wheel first in one direction, until the said cutter has reached the middle of the bevel-surface of the cone-disk, and then in the other direction, comprising a star-wheel 54 rotating always in the same direction, a pin-wheel 55, which gears with the said star-wheel, is capable of shifting along its shaft 56 and is provided on each side of its row of pins along its periphery with a groove 57, these two grooves returning into each other at two adjacent places on the pin-wheel, an arm 58 fixed on the shaft 56, and two levers 59 and 60, which are connected together and of which one engages at the periphery, and the other at the hub of the pin-wheel 55, substantially as described.

645,429. TRACTION-WHEEL FOR AGRICULTURAL MACHINES. CHARLES A. A. RAND, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Jan. 17, 1898. Renewed Feb. 9, 1900. Serial No. 4,694. (No model.)



Claim.—1. As a new article of manufacture, a traction-wheel for agricultural machines and the like, having a metallic rim with a broad flat face adapted to travel on the ground without the interposition of a tire, the edges of said rim having flanges *b* turned inwardly toward the hub of the wheel, a circumferential groove *b'* extending around the rim, and transverse lugs secured to the outer face of the rim and spanning the groove.

2. As a new article of manufacture, a traction-wheel for agricultural machines and the like, having a metallic rim with a broad flat face adapted to travel on the ground without the interposition of a tire, the edges of said rim having flanges *b* turned inwardly toward the hub of the wheel at an angle oblique to the face of the rim, a circumferential groove *b'* extending centrally around the rim, transverse lugs C secured to the outer face of the rim and spanning the groove, and spokes secured in and to the rim on opposite sides of the groove.

645,430. FRUIT-JAR CLOSURE. ANGELINE SHELKER, North Star, Ohio, assignor of one-third to Mary M. Mehring, Indianapolis, Ind. Filed Sept. 11, 1899. Serial No. 730,133. (No model.)

Claim.—1. A jar-closure comprising a neck provided with an internal annular sloping face extending downwardly and inwardly from the top of the neck, so as to form in transverse section substantially one-half of a vertically-divided V-shaped groove; a support for a lid at the bottom of the sloping face; a lid provided with an external annular sloping face extending upwardly and inwardly from the bottom of the lid, at the periphery thereof and embracing the whole of the periphery of the lid, so as to form in transverse section substantially one-half of a vertically-divided V-shaped groove; a sealing-ring bearing against both of the sloping faces only at the portions thereof intermediately of their extremities; and a retaining-ring bearing upon the upper side of the sealing-ring; whereby a triple contact-joint is provided.

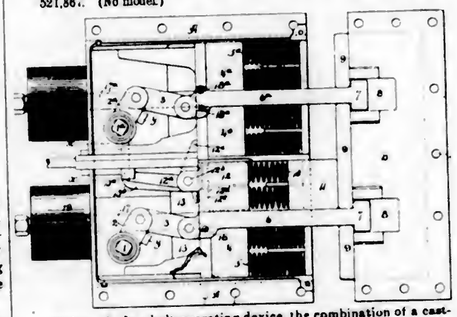


2. In a jar-closure, the combination of the neck and the lid provided each with an oppositely-disposed sloping face forming one-half of a V-shaped annular groove parting centrally at the bottom thereof, a support for the bottom of the lid, a sealing-ring having a contact with the sides of the groove intermediate the tops and bottoms thereof, and the retaining-ring bearing upon the top of the sealing-ring transversely centrally.

3. In a jar-closure, the combination of the neck having the external lid-securing devices and the internal sloping annular face, the lid-support, the lid having the sloping peripheral face extending from the bottom of the lid upwardly, the sealing-ring bearing against said sloping faces, the retaining-ring having the securing devices corresponding to the securing devices upon the neck, the parallel portion at the upper part of the neck above such securing devices, the continuous annular groove in the upper part of the retaining-ring registering with said parallel portion and having milling or serrations transversely therein, and the depressed flange removed from such annular groove and bearing upon the top of the sealing-ring in a plane below the top of the neck.

4. In a fruit-jar, a closure comprising the neck and the lid, the annular groove parted centrally at the bottom thereof on a vertical line, a sealing-ring seated against the opposing sides of said groove intermediate of the tops and bottoms thereof only whereby bottom clearance is effected, and the retaining-ring bearing upon the upper side of the sealing-ring transversely central thereof, substantially as set forth.

645,431. AUTOMATIC BOLT-OPERATING DEVICE. HERBERT C. STOCKWELL, Los Angeles, Cal., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Aug. 31, 1894. Serial No. 521,867. (No model.)



Claim.—1. In a bolt-operating device, the combination of a casting power, a primary retracting power, a stump carried thereby, a lever connected to the casting power and adapted to engage the stump for holding the casting power to its work, an auxiliary retracting power, and an arm 12ª connected to said lever and supported in the path of the auxiliary retracting power and adapted to be moved thereby for disconnecting the casting power when the boltwork is retracted, substantially as described.

2. In a bolt-operating device; the combination of the casting power consisting of suitable springs; the front and rear carriages upon which said springs operate; a lever on the rear carriage; a primary retracting device having a stump normally engaged by the lever and through it holding the casting power to its work; the laterally-projecting arm connected to the lever and adapted to throw it out of engagement with the stump; and an auxiliary or reserve retracting power operating independently of the primary retracting power and located to engage said laterally-projecting arm in the movement of retraction, substantially as and for the purpose set forth.

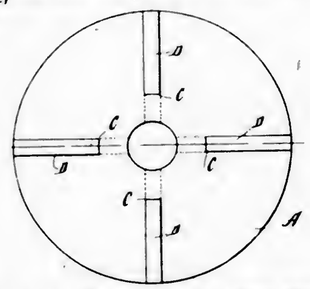
645,432. COLLAPSIBLE TUBE. FRANZ STONE, Vienna, Austria-Hungary. Filed June 9, 1899. Serial No. 720,000. (No model.)



Claim.—1. As a new article of manufacture, a flask composed of gelatin having a neck and a gelatin disk closing the end of the neck, substantially as described.

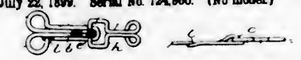
2. As a new article of manufacture, a flask composed of gelatin having a neck and a gelatin disk applied to the neck and a separable closing means for compressing the neck below the disk-closure, substantially as described.

645,433. MAGNETIC PAD. JOHN F. STRANGE, New Bedford, Mass., assignor of two-thirds to William Croft and William Clinton Sheehy, same place. Filed Aug. 24, 1899. Serial No. 728,280. (No model.)



Claim.—A magnetic pad consisting of a hollow truncated cone of sheet-rubber in combination with a series of two or more permanent bar-magnets inserted in the sides of said cone, substantially as described.

645,434. HOOK AND EYE. SAMUEL F. SULLIVAN, Pittsburg, Pa. Filed July 22, 1899. Serial No. 724,860. (No model.)

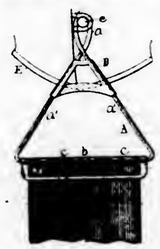


Claim.—1. In a hook-and-eye connection, a frame formed of but a single thickness of metal and which is disconnected or separated upon one side, and having a tongue that is formed of two thicknesses of material, so as to be more rigid than the frame, and which is provided with a hook upon its outer end, the frame being adapted to be depressed when the two parts are brought together to be connected, substantially as shown.

2. In a hook-and-eye fastening device the hook member comprising a tongue having a hook, and a surrounding frame, said tongue being composed of a double strand bent upward from the back and then curved downward and inward with the tip or bill toward the back of the tongue and within the frame, said frame being composed of a single strand extending on both sides and around the hook end of the tongue, being disconnected on one side back of the hook and serving as a support for the eye member to slide upon.

3. In a hook-and-eye fastening device, the hook member comprising a tongue having a hook, and a surrounding frame on the same plane, said tongue being composed of a double strand bent upward from the back and then curved downward and inward with the tip or bill toward the back of the tongue and within the frame, said frame being composed of a single strand extending continuously from one sewing-loop parallel with the tongue, around the hook end, to the other sewing-loop, thus serving as a support for the eye member to slide upon.

645,435. GARMENT-SUPPORTER. JEROME SULZBACHER, New York, N. Y. Filed Dec 21, 1899. Serial No. 741,065. (No model.)



Claim.—1. A hose-supporter adapted to be attached to the front fastener of a corset consisting of a rigid, non-yielding supporting-frame, provided with means for detachably connecting it to said front fastener, and a strap attached to said frame opposite said means, substantially as set forth.

2. A hose-supporter adapted to be attached to the front fastener of a corset consisting of a rigid, non-yielding supporting-frame, provided with means for detachably connecting it to said front fastener, and adapted to extend below the corset's lower edge, whereby it serves as a lever forcing the corset inward, and a strap attached to said frame opposite said means, substantially as set forth.

3. A hose-supporter adapted to be attached to the front fastener of a corset consisting of a rigid, non-yielding supporting-frame, provided with means for detachably connecting it to said front fastener and adapted to extend below the corset's edge, a connecting-piece secured to the supporting-frame, and a strap secured to the connecting-piece, substantially as set forth.

4. A hose-supporter consisting of a rigid, non-yielding supporting-frame provided with means for detachably connecting it to a front stud or button of a corset or other garment, a connecting-piece hinged to the supporting-frame, and a strap secured to the connecting-piece, substantially as set forth.

5. A hose-supporter consisting of a rigid, non-yielding supporting-frame adapted to extend over the lower edge of a corset and provided with a flattened eye or loop for detachably connecting said frame to the front button or stud of a corset or other garment, and a strap attached to said frame opposite to said eye or loop, substantially as set forth.

6. A lady's hose-supporter, consisting of a supporting-frame provided with a loop-shaped eye at its upper end, a connecting-brace below said eye, a connecting-piece hinged to the lower portion of the supporting-frame, elastic straps attached to said connecting-piece, and fastening-loops at the lower ends of said straps, substantially as set forth.

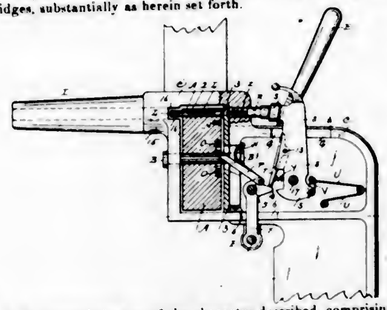
7. In a lady's hose-supporter, a supporting-frame provided with an eye at its upper end, a brace below said eye, and a hinged connecting-piece applied to the lower horizontal portion of the same, said connecting-piece being provided with parallel slots and prongs between said slots for attachment of the ends of the elastic straps to said connecting-piece, substantially as set forth.

8. A lady's hose-supporter, consisting of a supporting-frame, having an eye at its upper end, and a connecting-piece hinged to its lower portion, said connecting-piece being provided for attachment of elastic strap, with two horizontal parallel slots and prongs struck up from the intermediate portion of the connecting-piece, between said slots, and in a line parallel therewith, substantially as set forth.

645,436. RAPID-FIRE PYROTECHNIC GUN. WALTER TEALE, Hamilton, Canada. Filed Aug. 28, 1899. Serial No. 728,721. (No model.)

Claim.—1. A pyrotechnic gun of the character described, comprising a circular cartridge-holder having a series of open cartridge-chambers around its periphery and a circular series of corresponding sockets in the rear side thereof and a corresponding number of ratchet-teeth circularly arranged on said same side, a casing having a pin for

said holder to revolve on, a hopper attached to said casing and capable of allowing cartridges to fall consecutively into said open chambers, a side operating-lever pivoted to a pin through said casing, an arm hung from said pin and connected to the extended end of the operating-lever to operate mechanism connected therewith to revolve and to stop the cartridge-hbIder and to continuously discharge said cartridges, substantially as herein set forth.

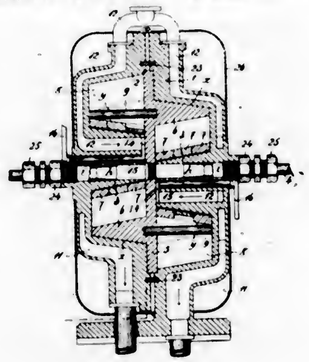


2. A pyrotechnic gun of the character described, comprising a circular cartridge-holder having open cartridge-chambers around its periphery, a corresponding number of sockets in the rear side of the holder to receive a stop-pin, a corresponding number of ratchet-teeth on the said rear side to receive the end of a pawl to revolve said holder on a center-pin through the casing thereof, a side operating-lever, pivoted to a through-pin of the casing, a connecting-arm provided with said pawl pivoted thereto and hung from said pin and connected to the lower end of said operating-lever, and mechanism therewith to revolve and to continuously feed and discharge the cartridge-holder, substantially as set forth.

3. In a pyrotechnic gun the combination of the circular cartridge-holder having open cartridge-chambers on its periphery, a corresponding number of sockets to receive a stop-pin in the rear side of the holder, a corresponding number of ratchet-teeth on said rear side to receive a pawl to revolve said holder on a center-pin in the casing thereof, said pawl connected to a side operating-lever by a lower arm hung from the pivotal center of said operating-lever, the lower end of said arm connected to the lower extended end of the operating-lever by a through-pin having an arm to operate said stop-pin, a hammer pivoted to said casing and to engage the strike-pin and connected to said operating-lever by mechanism, substantially as set forth.

4. The combination of the circular cartridge-holder having a number of open cartridge-chambers on its periphery, a corresponding number of stop-pin sockets, in the rear side thereof, a corresponding number of ratchet-teeth on said rear side of said cartridge-holder to revolve the same on a center pin of the casing by a pawl engaging said teeth, actuated by a side operating-lever connected to said pawl, a stop-pin, an arm connected to the lower through-pin of said operating-lever to operate said stop-pin, a hammer pivoted to said casing to engage the strike-pin, and connected to said operating-lever by mechanism to revolve and to stop the cartridge-holder, and to continuously feed and discharge the same, as set forth.

645,437. ROTARY ENGINE. KARL THOMANN, Halle, Germany. Filed Nov. 9, 1898. Serial No. 695,980. (No model.)



Claim.—1. A rotary motor comprising a driving-shaft, a casing having a feed-passage, a discharge-passage, a core formed with an extension to the feed-passage and with a segmental recess at its inner end with which the extension communicates and located eccentrically on the driving-shaft and an annular chamber located eccentrically to the driving-shaft, the shaft extending through the core provided with a segmental slide located in the segmental recess, a rotary disk having feed-passages in its face, and an annular ring located concentrically to the driving-shaft, and dividing the annular chamber into sickle-shaped working chambers located within and without the annular ring, the slides working radially through the annular ring and the slide-rings loosely mounted on the core; each slide-ring being connected with a slide; substantially as described.

2. A rotary motor compriaing a driving-shaft, a casing having feed-passages, discharge-passages, cores each formed with an extension to the feed-passage, and with a segmental recess at its inoer end with which the extension communicates, and located eccentrically on the driving-shaft and to each other and annular chambers located eccentrically to the driving-shaft and to each other, the shafts extending through the cores each provided with a segmental slide located in the segmental recess, a rotary disk having feed-passages on its faces, and annular rings located concentrically to the driving-shaft and dividing the annular chambers into sickle-shaped working chambers located within and without the annular rings, the slides working radially through the annular rings and the slide-rings loosely mounted on the cores: each slide-ring being connected with a slide; substantially as described.

3. A rotary motor comprising a driving-shaft, a casing, a feed-passage, a trough-shaped passage, a transfer-passage, a transmission-passage, a discharge-passage, a core formed with an extension to the feed-passage therethrough, and located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, a rotary disk having feed-passages in its face, and an annular ring located concentrically to the driving-shaft, and dividing the annular chamber into sickle-shaped working chambers located within and without the annular ring, the slides working radially through the annular ring, and the slide-rings loosely mounted on the core; each slide-ring being connected with a slide; substantially as described.

4. A rotary motor comprising a driving-shaft, a casing, a feed-passage, a trough-shaped passage, a transfer-passage, a trough-shaped transmission-passage, a discharge-passage, a core formed with an extension of the feed-passage therethrough and with a segmental outlet-recess, and located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, a rotary disk having feed-passages in its face, and an annular ring located concentrically to the driving-shaft and dividing the annular chamber into sickle-shaped working chambers located within and without the annular rings, the slides working radially through the annular ring, the slide-rings loosely mounted on the core, each slide-ring being connected with a slide, the shaft extending through the core, having, at its inner end a segment-slide located in the segmental recess, and at its outer end a setting-lever; substantially as described.

5. A rotary motor comprising a driving-shaft, a casing having a feed-passage, a discharge-passage, a core located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, a rotary disk having feed-passages in its face and an annular ring located concentrically to the driving-shaft, and dividing the annular chamber into sickle-shaped working chambers located within and without the annular ring the oscillating bolts having slots and mounted in the annular ring, the slides working through the slots in the oscillating bolts and through the annular ring, and the slide-rings loosely mounted on the core; each slide-ring being connected with a slide; substantially as described.

6. A rotary motor comprising a driving-shaft, a casing having two parts adjustable toward each other on the driving-shaft, and having feed-passages, discharge-passages, cone-shaped cores located eccentrically on the driving-shaft and to each other, and annular chambers, cone-shaped in radial section and located eccentrically to the driving-shaft and to each other, a rotary disk having feed-passages on its faces and annular rings cone-shaped in radial section and located concentrically to the driving-shaft and dividing the annular chambers into sickle-shaped working chambers located within and without the annular rings, the slides working radially through the annular rings, the cone-shaped slide-rings loosely mounted on the cores; each slide-ring being connected with a slide, and a packing-ring fitting in the annular grooves of the two parts of the casing; substantially as described.

7. A rotary motor comprising a driving-shaft having conical projections, the bearing-bushes adjustable on the conical projections, a casing having feed-passages, discharge-passages, cores located eccentrically on the driving-shaft and to each other, and annular chambers located eccentrically to the driving-shaft and to each other, a rotary disk having feed-passages on its faces and annular rings located concentrically to the driving-shaft and dividing the annular chambers into sickle-shaped working chambers located within and without the annular rings, the slides working radially through the annular rings and the slide-rings loosely mounted on the cores; each slide-ring being connected with a slide; substantially as described.

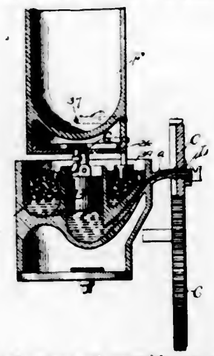
8. A rotary motor comprising a driving-shaft, a casing formed in two parts mutually displaced diametrically in such a way that they stand eccentrically vertically to one another, each part having a feed-passage, a discharge-passage, a core provided with an eccentric extension to the feed-passage and located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, a rotary disk, having feed-passages in its faces and annular rings located concentrically to the driving-shaft, and dividing the annular chambers into sickle-shaped working chambers located within and without the annular rings, and the slides working through the annular rings and each having a slide-ring loosely mounted on its core; substantially as described.

9. A rotary motor comprising a driving-shaft, a casing formed in two parts mutually displaced diametrically in such a way that they stand eccentrically vertically to one another, each part having a feed-passage, a discharge-passage, a core provided with an eccentric extension to the feed-passage and located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, plain rings providing an inner wall to each annular chamber, means for adjusting the plain rings, a rotary disk having feed-passages in its faces and annular rings located concentrically to the driving-shaft, and dividing the annular chambers into sickle-shaped working chambers located within and without the annular rings, and the slides working through the annular rings, and each having a slide-ring loosely mounted on its core; substantially as described.

10. A rotary motor comprising a driving-shaft, a casing formed in two parts mutually displaced diametrically in such a way that they stand eccentrically vertically to one another, each part having a feed-passage, a discharge-passage, a core provided with an eccentric extension to the feed-passage and located eccentrically on the driving-shaft, and an annular chamber located eccentrically to the driving-shaft, a rotary disk having feed-passages in its faces and annular rings located concentrically to the driving-shaft, and dividing the annular chamber into sickle-shaped working chambers located within and without the annular rings, means for adjusting the annular rings radially, and the slides working through the annular rings, and each having a slide-ring loosely mounted on its core; substantially as described.

11. A rotary motor comprising a driving-shaft, a casing having a feed-passage, a discharge-passage, a core formed with an extension to the feed-passage and with a segmental recess at its inner end with which the extension communicates and an annular chamber, the shaft extending through the core provided with a segmental slide located in the segmental recess, a rotary disk having feed-passages in its face, and an annular ring, and the slides working radially through the annular ring; substantially as described.

645,438. LINOTYPE-MACHINE. JOHN S. THOMPSON, Chicago, Ill., assignor to the Mergenthaler Linotype Company, of New York. Filed Feb. 2, 1899. Serial No. 704,268. (No model.)



Claim.—1. A linotype-mold, comprising cap and body portions and a wedge connecting said members and arranged to effect and to positively limit their separation.

2. A linotype-mold, comprising a base portion, a top portion, and a wedge connected by sliding joints to said members, the connection to one member being in a line oblique to the mold-slot and that to the other member being parallel with said slot, and means for controlling the longitudinal adjustment of said wedge.

3. In a linotype-mold, the base portion, the adjustable cap having legs to enter the base portion, and the longitudinally-movable wedge having its upper side connected by a slot joined to said legs and its lower side connected by a sliding joint to the body of the mold.

4. In a linotype-mold, the combination of a body portion and a vertically-adjustable cap portion having a transverse rib or shoulder 10, seated in a groove in the body, whereby the vertical adjustment of the cap is permitted and the end of the mold-slot closed under the different adjustments.

5. In a linotype-machine, matrices, each having two independent characters of different heights, in combination with a mold having two alining grooves or shoulders, 20 and 21, a vertically-adjustable cap, and means for effecting the said adjustment; whereby the mold is adapted to cooperate with either of the two characters, notwithstanding their difference in size.

6. In a linotype-machine, the combination of the metal-pot, an auxiliary melting-pot, and a valve arranged to operate in front of the opening in the auxiliary pot, substantially as described and shown.

7. A metal-pot feeder comprising an independent auxiliary melting-pot made separable from the machine and attachable thereto; an independent heating device carried by said auxiliary metal-pot; a valve comprising a swinging lever arranged to work against the face of the melting-pot so as to open and close an aperture formed therein; a float arranged for introduction into the metal in the metal-pot; a link connecting the float and the lever comprising the valve; and a guide for said link.

8. In a metal-pot feeder, the combination with the auxiliary melting-pot having an opening through which the metal can flow, of a valve arranged to work back and forth in front of said outlet, so as to open and close the same, and provided with means whereby it can be adjusted to vary the closeness of its contact with the face of the melting-pot.

9. In a metal-pot feeder, the combination with the auxiliary melting-pot having an opening through which the metal can flow, of a valve arranged to work back and forth in front of said outlet, so as to open and close the same; and a spring tending to normally hold the valve in closed position.

10. In a type-casting machine, the movable jaws for determining the length of the printing edge of the slug, provided with a removable slide bearing a fixed printing-form.

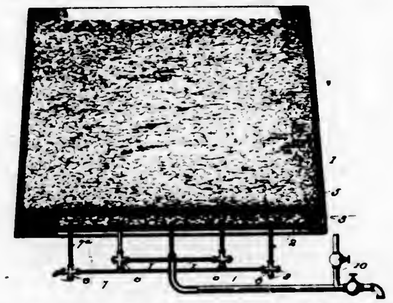
11. In a linotype-machine and in combination with a mold, a movable jaw adapted to act endwise against and confine the matrices, said jaw recessed in its front face and adapted to maintain a special or supplemental matrix in front of the mold in the absence of the ordinary matrices.

12. In an adjustable knife-block the combination of a movable knife, and a shiftable wedge having a positive connection with said knife.

13. An adjustable knife-block comprising fixed and movable knives; a shiftable wedge positively connected with the movable knife; and mechanism for shifting the wedge.

14. In a linotype-machine, the combination of a movable knife, a longitudinally-movable wedge, having a sliding connection with the movable knife, an abutment, having a similar connection with the wedge, a lever for actuating the wedge, and means for holding the same in predetermined position, whereby the knife may be positively adjusted to trim the slugs to the various thicknesses demanded.

645,439. VAT FOR LEACHING BARK. JOHN B. THOMS, Knoxville, Tenn. Filed May 1, 1897. Renewed Jan. 16, 1900. Serial No. 1,686. (No model.)

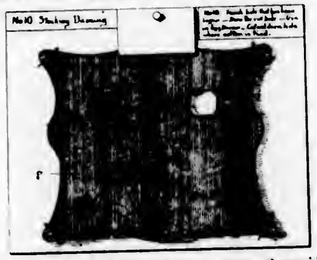


Claim.—1. The combination of a vat having a perforated false bottom providing in connection with the vat a base-chamber for the re-

sultant liquid and a body-chamber in which the bark is immersed in liquid and held in suspension, the discharge-pipe, and the draw-off pipes provided with cross-couplings for cleaning purposes and connected with the discharge-pipe, having their inlets evenly distributed throughout the base-chamber and their combined areas in cross-section equal in capacity to the area in cross-section of the discharge-pipe; substantially as described

2. The combination of a vat having a perforated false bottom providing in connection with the vat a base-chamber for the resultant liquid and a body-chamber in which the bark is immersed in liquid and held in suspension, the discharge-pipe extending into the body-chamber and the pendent draw-off pipes connected with the discharge-pipe and extending through the false bottom having their inlets evenly distributed throughout the base-chamber and their combined areas in cross-section equal in capacity to the area in cross-section of the discharge-pipe; substantially as described.

645,440. EDUCATIONAL APPLIANCE. MYRRA THRUSTON, Dayton, Ohio. Filed Dec. 16, 1899. Serial No. 740,593. (No model.)



Claim.—An educational device, comprising a card provided with suitable instructions for needle-work, said card having mounted thereon a piece of material with a series of steps worked out in said material illustrating the various steps in the needle-work comprised in the instructions on the card, substantially as described.

645,441. SASH-LOCK. URIAH TRAMMER, Minsi, Pa., assignor of one-third to Theodore B. Drake, East Stroudsburg, Pa. Filed Sept. 20, 1899. Serial No. 731,115. (No model.)



Claim.—In a sash-fastener, the combination of a rack, a pinion in mesh therewith, a casing inclosing the pinion, a face-plate for the casing, and provided with a pair of opposite openings, a stem slidable through one of the openings, and provided with teeth in detachable engagement with the pinion, and an operating-lever connected to the stem, and having a fulcrum-lug received within the other opening in the face-plate, and provided with a notch embracing one edge of said opening, substantially in the manner shown and described.

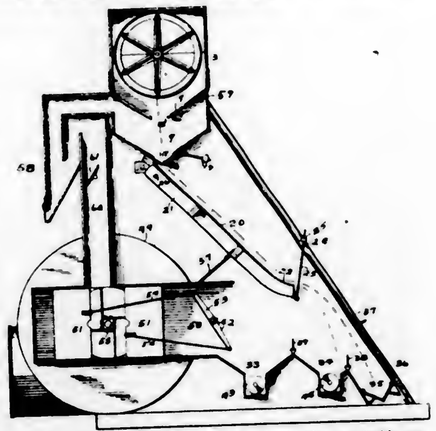
645,442. GRAIN-CLEANER. SENECA H. THOMANHAUSER, Minneapolis, Minn., assignor to the Niagara Cleaner Company, same place. Filed June 11, 1898. Serial No. 683,178. (No model.)

Claim.—1. A grain-separator, comprising in combination, an inclined plate whereon static electricity is generated by the movement of the grain, and means for feeding grain or material in a thin sheet upon the upper end of said plate, substantially as described.

2. A grain-separator, comprising in combination, a suitable frame or casing, an inclined glass plate arranged therein, means for feeding the grain or material in a thin sheet onto the upper end of said plate, means for creating a current of air transversely through the stream of grain falling from the lower end of said plate, and separating hoppers or troughs arranged beneath said plate, substantially as described.

3. A grain-separator, comprising in combination, a suitable frame or casing, an inclined plate whereon static electricity is generated by the movement of the grain, said plate being slightly curved near its lower end, means for feeding the grain or material in a thin sheet onto the upper end of said plate, and a suction device provided beneath said plate, as and for the purpose specified.

4. A grain-separator, comprising in combination, an inclined plate hinged at its upper end whereon static electricity is generated by the movement of the grain, means for adjusting the inclination of said plate, a suction-fan adapted to create a transverse current of air through the material falling from the lower end of said plate, and separating hoppers or troughs beneath said plate and traversed by said current of air, substantially as described.



5. A grain-separator, comprising in combination, a suitable casing, a frame hinged therein at its upper end, a glass plate arranged in said frame, means for adjusting the inclination of said frame and plate, said casing having an adjustable front wall or partition, and a suction device to create a current of air beneath the lower end of said plate, substantially as described.

6. The combination, with the frame or casing, of the inclined plate arranged therein whereon static electricity is generated by the movement of the grain, the feed-hopper above said plate, means for feeding grain or other material into said hopper in a thin stream or sheet, and means for creating a current of air across said hopper and beneath the lower end of said inclined plate, substantially as described.

7. A grain-separator, comprising in combination, an inclined glass plate, whereon static electricity is generated, as described, and means for feeding grain or material in a thin sheet upon the upper end of said plate, substantially as described.

8. A grain-separator, comprising an inclined glass plate, whereon static electricity is generated, in combination, with means for feeding the grain in a thin sheet onto the upper end of said plate, and a fan or suction device arranged in a trunk at the lower end of said plate and adapted to create a downward and backward current of air through the material as it falls from the lower end of said plate, substantially as described.

9. A grain-separator, comprising an inclined and slightly-curved glass plate having a smooth surface, and whereon static electricity is generated, as described, in combination, with means for feeding the material in a thin sheet onto the upper end of said plate, substantially as described.

10. A grain-separator, comprising in combination, an inclined glass plate having a smooth upper surface, means for feeding the grain, seeds and material mixed therewith, in a thin sheet onto the upper surface of said plate, whereby the passage of the grain and other material over the surface of said plate generates static electricity which tends to separate the lighter material by bringing it beneath the grain and closer to the surface of the plate, and suitable conveyers or receptacles below said plate to receive the grain and the lighter material separated therefrom.

11. A grain-separator, comprising an inclined glass plate 20, having a smooth upper surface whereon static electricity is generated by the movement of the grain, in combination, with the machine-frame wherein said plate is supported, the air-trunk in the lower part of the machine-frame beneath the lower end of said plate 20, the grain outlet openings or hoppers in the lower and forward part of said trunk, the fan, the trunk 50 leading from the trunk below said plate to said fan, a trough or hopper in the lower part of the trunk beneath said plate, and means for feeding the material in a thin sheet onto the upper end of said plate, substantially as described.

12. The combination, with the frame or casing, of the inclined plate arranged therein, the adjustable hinge devices for leveling the upper end of said plate, means for feeding material in a thin sheet upon the upper end of said plate, and means for creating a current of air below the lower end of said plate, substantially as described.

13. The combination, with the frame or casing, of the inclined plate arranged therein, and the eccentric adjustable hinges for said plate, substantially as described.

14. The combination, with the frame or casing, of the inclined plate arranged therein, the eccentric adjustable hinge whereon said plate is supported, the rotary reel arranged above said plate, the hopper provided beneath the same, and having a weighted valve or door, and a suction-trunk beneath the plate, substantially as described.

15. The combination, with the frame or casing, of the inclined plate arranged therein whereon static electricity is generated by the movement of the grain, the screen arranged above said plate, the hopper beneath said screen and wherefrom the grain is fed in a thin stream upon said plate, and means for creating a current of air through said hopper and beneath the lower end of said plate, as and for the purpose specified.

16. A grain-separator, comprising in combination, a casing, having an opening in its front wall, a pivotally-supported plate arranged within said casing whereon static electricity is generated by the movement of the grain, means for tilting said plate, a hopper above said plate wherefrom the material is fed in a thin sheet upon said plate to slide down over the surface of the same, a fan-casing, a fan provided therein, and an air-trunk leading from the space beneath and in the rear of said plate to said fan-casing, whereby as the material falls from the lower end of said plate it will be subjected to a current of air, for the purpose specified.

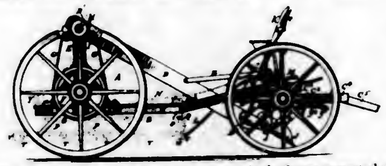
17. A grain-separator, comprising in combination, a casing, a pivotally-supported plate arranged therein, means for tilting said plate, a hopper above said plate wherefrom the material is fed in a thin sheet to slide down over the surface of said plate whereon static electricity is generated by the movement of the material, said hopper having an air-inlet opening in its wall, a sieve arranged above said hopper wherefrom the material falls into said hopper, a fan-casing and fan arranged therein, an air-trunk leading from said hopper to said fan-casing to permit a preliminary cleaning of the material as it falls from said screen and before it is deposited upon said plate, substantially as described.

18. A grain-separator, comprising an inclined pivotally-supported glass plate having a smooth upper surface, in combination, with the machine-frame wherein said plate is arranged, means for feeding material in a thin stream upon the upper end of said plate to permit it to slide down over the surface of the same, an adjustable part or section provided in the front wall of said machine-frame, the grain troughs or conveyers provided beneath the lower end of said inclined plate, a fan-casing, a fan arranged therein, and an air-trunk leading from the space beneath said plate to said fan-casing, substantially as described and for the purpose specified.

19. The combination, with the frame or casing, of the feed device therein, the curved glass plate arranged at an incline in said frame beneath said feed device, the eccentric hinges for said plate at or near its upper end and independently adjustable, adjustable means supporting the lower end of said plate, the hopper below said plate, and means for creating a current of air beneath said plate, substantially as described

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645,443. SELF-LOADING EXCAVATOR. JOHN W. WEAVER, Toledo, Ohio. Filed Jan. 3, 1899. Serial No. 701,080. (No model.)



Claim.—1. In a self-loading excavator, a body-frame mounted on front and rear wheels, adapting it to be moved over the ground like a wagon, comprising side beams rigidly connected by a plurality of connections, the rear connection being an arched beam having axle-journals secured to its vertical sides upon which the rear wheels are journaled, and forming an arched opening in the frame between the rear portions of the side beams for receiving a dumping-cart or other receptacle for excavated soil, having means of attachment to the frame, in combination with a conveyer-frame pivotally attached at its rear end to the arch-beam of the body-frame and inclined forward and downward therefrom, and having its front end free and adapted to be raised or lowered independently of the body-frame and provided with a plow, means to raise or lower the front end of the conveyer-frame and therewith the plow, a conveyer attached to the conveyer-frame, and means to operate the conveyer by the movement of the rear wheels, substantially as and for the purpose described.

2. In a self-loading excavator, a body-frame mounted on front and rear wheels, the front wheels being journaled on an axle centrally pivoted to the front end of the frame and provided with a tongue, adapting the frame to be moved over the ground like a wagon, comprising side beams rigidly connected by a plurality of connections, the rear connection being an arched beam having axle-journals secured to its vertical sides upon which the rear wheels are journaled, and forming an arched opening in the frame between the rear portions of the side beams for receiving a dumping-cart or other receptacle for excavated soil, having means of attachment to the frame, in combination with a conveyer-frame pivotally attached at its rear end to the arch-beam of the body-frame and inclined forward and downward therefrom and having its front end free and adapted to be raised or lowered independently of the body-frame, and provided with a plow pivotally secured thereto and adapted to a limited horizontal rotation independently of the conveyer-frame, means to raise or lower the front end of the conveyer-frame and therewith the plow, means to turn the plow horizontally with and as the front axle turns independently of the conveyer-frame, a conveyer attached to the conveyer-frame, and means to operate the conveyer by the movement of the rear wheels, substantially as and for the purpose described.

3. In a self-loading excavator, the combination of the frame B, having the arch E, coupling-bars C, C, and bearings C^3 and C^3, and provided with wheels adapting it to be moved over the ground, with conveyer-frame D, provided with an endless-sprocket-chain conveyer, pivoted at its upper end to arch E of frame B, and having its lower end free and provided with braces Z, Z, and rack-post *b*, plow J, pivoted to frame D and its rack-post *b*, and having guide *g* provided with eyebolt g^4, means to raise and lower the free end of frame D and with it plow J, and means to operate the conveyer to carry the excavated soil away from the plow by the forward movement of frame B on its wheels, substantially as and for the purpose set forth.

4. The combination of an excavator-frame, mounted on front and rear wheels adapting it to be moved over the ground like a wagon, comprising side beams having a plurality of rigid connections, the rear connection being an arched beam having axle-journals secured to its vertical sides upon which the rear wheels are journaled and forming an arched opening in the frame between the rear portions of the side beams, a dumping-cart adapted to enter the arched opening between the sides of the frame, provided with means for attaching it to the frame and with detachable shafts and means carried by the frame to excavate soil and load it into the cart by the forward movement of the excavator-frame on its wheels, substantially as and for the purpose set forth.

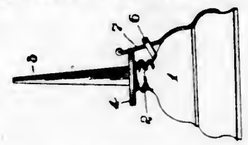
645,444. CORSET STAY OR STIFFENER. JOHN P. F. WHITE and SAMUEL S. RIDER, Washington, D. C. Filed June 10, 1899. Serial No. 720,043. (No model.)



Claim.—1. A garment stay or stiffener formed from a single piece of wire capable of being flexed in all directions, and comprising a series of flattened loops or convolutions overlapping one another, said stay or stiffener being bent longitudinally between its edges, whereby the said overlapped portions of the convolutions are brought into more intimate contact with each other and the stay or stiffener rendered more rigid, substantially as described.

2. A garment stiffener or stay formed from a single piece of wire and comprising a series of flattened loops or convolutions successively overlapping one another, said stay or stiffener for a portion of its length only being bent longitudinally from edge to edge, whereby the lapped portions of the bent convolutions are placed in intimate frictional contact with one another and the stay or stiffener rendered more rigid, substantially as described and for the purpose specified.

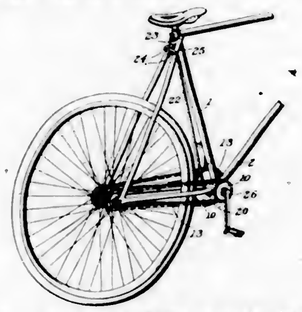
645,445. OIL-CAN. JAMES K. WORRELL, Rensselaer, Mo. Filed June 26, 1899. Serial No. 721,896. (No model.)



Claim.—As an article of manufacture, a lubricator comprising a body 1 having integral therewith the threaded neck 2, a duct 3 threaded into the neck 2, a disk 4 integral with the lower end of said

duct, there being a plurality of notches 5 in the periphery of said disk, a spring 7 rigidly secured to the body 1 and adapted to engage in the notches 5 and a loop 6 for holding the said spring from lateral movement, substantially as specified.

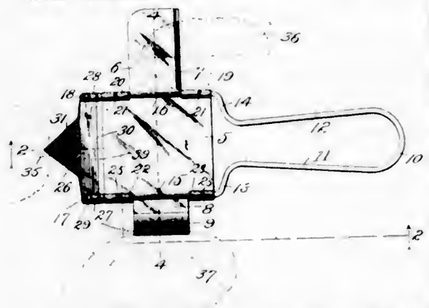
645,446. CHANGEABLE GEARING FOR BICYCLES. GIDEON S. ADAMS, Camden, N. J., assignor of one-third to W. W. Armstrong, same place. Filed Oct. 14, 1899. Serial No. 733,638. (No model.)



Claim.—1. In a changeable gear for bicycles, the combination with a crank-hanger, of bushings secured in and closing the ends of said crank-hanger and provided with protruding flanges and with ball-races in the outer end faces thereof, different-sized sprocket-wheels revolubly mounted on the flanged bushings and each having on its inner face a ball-race disposed in registration with the complemental ball-race of an adjacent bushing, a crank-axle passing loosely through the end bushings and the sprocket-wheels, two series of bearing-balls each series of which engages with one axle, a bushing and a sprocket-wheel, and pedal-cranks carried by the axle and shiftable individually into clutching relation to said sprocket-wheels, substantially as described.

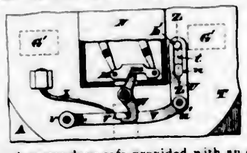
2. In a changeable gear for bicycles, the combination with a crank-hanger, of bushings secured in and closing the ends of said crank-hanger and provided, at their outer ends, with annular flanges which protrude beyond the crank-hanger, an endwise-shiftable crank-axle passing through said bushings, different-sized sprocket-wheels encircling the crank-axle and disposed in opposing relation to the end bushings, the offstanding coupling-rings fast with the respective sprocket-wheels and engaging circumferentially and laterally with the flanges of the bushings to connect the sprocket-wheels directly and revolubly thereto, pedal-cranks fast with the axle, clutch members on the opposing faces of the pedal-cranks and the sprocket-wheels, and means for shifting the axle endwise, substantially as described.

645,447. PARING AND SLICING KNIFE. JAMES W. ALLEN, St. Louis, Mo. Filed Sept. 29, 1898. Renewed Oct. 16, 1899. Serial No. 733,826. (No model.)



Claim.—In a device of the class described, the plate 5, the flat blade 6 projecting from one side of said plate 5 and having the edge 7, the curved blade 8 projecting from the opposite side of said plate 5 and having the edge 9, a suitable handle attached to said plate, the plate 26 mounted at an angle relative to said plate 5 and having the edges 30 near one edge of said plate 5 and forming the space 39 between the plate 5 and the plate 26, substantially as specified.

645,448. SCREW-DOOR SAFE. CHARLES R. RIECHSCHMIDT, Bellevue, Ky., assignor to the Victor Safe and Lock Company, Cincinnati, Ohio. Filed Dec. 4, 1899. Serial No. 739,109. (No model.)



Claim.—A screw-door safe provided with an oscillator that automatically advances and retracts a set of bolts, in the manner described, a timer shifting-bar M *m*; a trigger W operated by said bar, a lever V *v*, wherewith said trigger engages, a spring X, that operates said lever; a slotted link U *u*, connected to said lever; and a pin *k* projecting from said oscillator, and traversing said slot *u*, all as herein shown, and set forth.

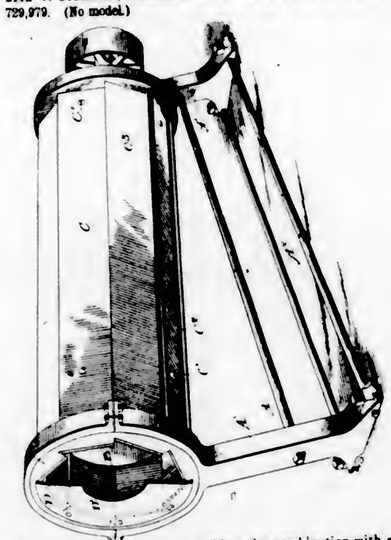
645,449. BROW-BAND-ATTACHING DEVICE. CHARLES BLUME, Chicago, Ill. Filed Apr. 5, 1899. Serial No. 711,777. (No model.)



Claim.—1. As an improved article of manufacture, an attaching device for brow-bands, comprising a disk or plate, having a securing device, projecting from one of its sides, and a dividing portion extending from the disk intermediate the legs of the securing device, and extended laterally therefrom, substantially as described.

2. In a brow-band-attaching device, the combination with a disk or plate having a securing device projecting from one side thereof, of a dividing portion projecting from the disk or plate and intermediate the legs of the securing device and extended laterally therefrom, a brow-band having a slot and opening to receive the securing device and the said dividing part, and a crown-piece provided with two straps or billets located in the securing device, one of said straps on each side of the dividing part of said securing device, substantially as described.

645,450. MACHINE FOR ASSORTING TOBACCO-TAGS. JENETTA V. BOHANNAN, Baltimore, Md. Filed Sept. 9, 1899. Serial No. 729,979. (No model.)



Claim.—1. In an assorting-machine, the combination with a rotatable cylinder, of a surrounding casing spaced therefrom and turning therewith and provided with openings to permit the discharge of imperfect tags, substantially as specified.

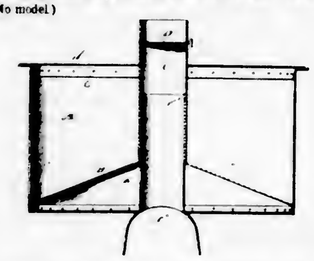
2. In an assorting-machine, the combination with a rotatable cylinder, of a surrounding casing spaced therefrom and turning therewith and provided with longitudinally-extending slots, substantially as specified.

3. In an assorting-machine, the combination with a rotatable inclined cylinder, of a surrounding casing adjustably spaced from said cylinder and having a series of independent polygonally-disposed faces spaced apart to provide longitudinal slots through said casing, substantially as specified.

4. In an assorting-machine, the combination with an inclined cylinder closed at its upper end, of a surrounding casing composed of opposite heads having polygonal faces and slats secured thereto and spaced apart to provide longitudinal spaces, and screws passing through said slats and into said cylinder, substantially as specified.

5. In an assorting-machine, the combination with a cylinder, of a surrounding casing spaced therefrom at a distance substantially equal to the length of a prong upon a tag, said casing being provided with slots of less diameter than the length of said prong, substantially as specified.

645,451. TANK-HEATER. GEORGE W. BOLL and PASCHAL R. WILHITE, Mount Hope, Kans. Filed Oct. 18, 1899. Serial No. 734,024. (No model.)



Claim.—In a watering-tank, the combination, with the side, having strengthening means at its upper edge, of a conical bottom forming a chamber thereunder, a furnace within said chamber, a flue extending from the bottom to a point above the upper edge of the side, a chimney to the furnace projecting into the flue, a damper in said flue, and a cover, substantially as described.

645,452. MOLD FOR VULCANIZING TIRES. FRANK H. BOLTE, Peoria, Ill., assignor to the Peoria Rubber and Manufacturing Company, same place. Filed Oct. 29, 1898. Serial No. 694,868. (No model.)



Claim.—1. For vulcanizing tires, a mold having an internal bore, grooves in the mold within the bore wherein to seat the material to be vulcanized, and an expanding shell therein adapted to force the material into the grooves and there hold it during the vulcanizing process.

2. In a device for forming and vulcanizing tires, a mold having a tapering bore, a spirally-cut groove within the bore wherein to seat the material to be vulcanized, and means within the bore of said mold for compressing the material and holding it during the vulcanizing process substantially as set forth.

3. In a device for forming and vulcanizing tires, a mold, a tapering bore therein, a spirally-cut groove within the bore wherein to seat the material to be vulcanized, a split shell within the bore adapted to compress the material in the groove and a tapering plug adapted to be drawn into the shell to expand the same for the purposes set forth.

4. For vulcanizing tires, a mold consisting of one section having an internal tapering bore, a spiral groove within the bore, the convolutions thereof rising one above another, whereby the convolutions of the tire placed therein for vulcanization are all of the same circumference substantially as described and shown and for the purposes set forth.

5. A mold for forming and vulcanizing tires, comprising a one-piece body having an internal tapering bore and grooves in the latter wherein to seat the tire to be vulcanized and a tapered plug adapted to be drawn into the bore for the purposes set forth.

6. A mold for vulcanizing vehicle-tires consisting of a one-piece body having a tapering bore of smaller diameter than the wheel on which the finished tire is to be placed, a spiral groove within the bore, each successive convolution of such groove being larger than the preceding one, to conform with the constantly-increasing size of the bore, and a plug adapted to be drawn into the mold for the purposes set forth.

7. A mold for vulcanizing tires consisting of the body A having a tapering bore, the grooves *b* therein conforming in size to the said tapering bore, the split shell B having the lip C on its top edge for the purposes set forth, a hollow plug D adapted to enter the said shell to force the latter against the interior of the mold and the tire placed therein, and means for drawing said plug into such shell all for the purposes set forth.

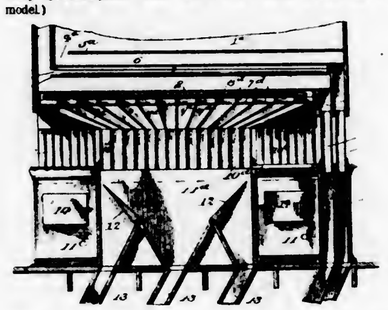
8. A mold for vulcanizing tires consisting of the body A having a tapering bore, the grooves *b* therein conforming in size to the said tapering bore, the split shell B having the lip C on its top edge for the purposes set forth, a hollow plug D adapted to enter said shell to force the latter against the interior of the mold and the tire placed therein, a bolt F passing through the plug, a yoke H at the bottom of the mold and having said bolt passing through it, and the nut G for tightening the bolt for drawing the plug into its seat as set forth.

9. In a tire-mold, the mold A of one piece having an internal bore, grooves cut in the bore adapted to receive the tire-sections for vulcanization, a shell seated in such bore to force the said tire-sections into place in the grooves and a plug adapted to be drawn within the shell for expanding same for the purposes specified.

10. In a tire-mold, the mold A of one piece having a tapering bore, a spirally-arranged groove within the bore adapted to receive a tire for vulcanization, substantially as described, a shell for the bore for forcing the tire into place and a plug adapted to be drawn into the shell for expanding the same substantially as and for the purposes set forth and described.

11. In a mold for vulcanizing tires, a mold of one piece having an internal bore, grooves in the bore of the desired form of cross-section, an expansible shell within the bore, for the purposes set forth, a ring on the top of the mold for sustaining the shell, a plug adapted to enter the shell, a bolt passing longitudinally through the plug, a yoke bearing against the bottom of the mold, through which said bolt also passes, and tightening means on the bolt, having bearing on the yoke, for drawing the plug down to expand the said shell as set forth and for the purposes specified.

645,453. SIFTING, SCALPING, AND GRADING MACHINE. WILLIAM L. BURNER, Columbus, Ohio, assignor to the Case Manufacturing Company, same place. Filed Feb. 1, 1898. Serial No. 668,764. (No model.)



Claim.—1. A bolter comprising a shaking-screen having vertical longitudinal partitions dividing the screen into longitudinal outer and inner sieve-compartments, the upper bottom located beneath the outer

sieve-compartment and inclined toward the side of the screen, the lower bottom located beneath the inner sieve-compartment and partly beneath the upper bottom and inclined toward the side of the screen, the vertical transverse partitions dividing the bottoms beneath the longitudinal sieve-compartments into outer and inner series of compartments providing chutes, the outer series of spouts inclined longitudinally of the screen, and connected with the outer chutes, the inner series of spouts inclined longitudinally of the screen and connected with the inner chutes, an outer receptacle, flexible sleeves whereby the outer series of spouts are connected with the outer receptacle, an inner receptacle, flexible sleeves whereby the inner series of spouts are connected with the inner receptacle, outer and inner end receptacles, outer and inner end spouts into which the tailings of the outer and inner sieves are discharged, and flexible sleeves whereby the end spouts are connected with the end receptacles.

2. A bolter comprising a shaking-screen having a vertical longitudinal partition dividing the screen into longitudinal inner and outer sieve compartments, the inner bottom inclined beneath the inner and outer sieve-compartments, toward the side of the screen, the outer bottom located partly over the inner bottom and inclined beneath the outer sieve-compartment toward the side of the screen, the vertical transverse partitions dividing the bottoms beneath the longitudinal sieve-compartments into inner and outer series of transverse compartments providing cut-offs, the inner series of spouts with which the inner cut-offs are connected, the outer series of spouts with which the outer cut-offs are connected, an inner receptacle, flexible sleeves whereby the inner series of spouts are connected with the inner receptacle, an outer receptacle, flexible sleeves whereby the outer series of spouts are connected with the outer receptacle, the lower and upper sieves located in the longitudinal sieve-compartments, the lower transverse tailing-spouts into which the lower sieves discharge, the upper transverse tailing-spouts into which the upper sieves discharge, the vertical inner and outer corner-receptacles, the flexible sleeves connecting the lower transverse tailing-spouts with an inner and outer corner-receptacle respectively, and the flexible sleeves connecting the upper transverse tailing-spouts with the other inner and outer corner-receptacles respectively; substantially as described.

3. The combination, with a sieve, and a cleaning-brush; of means for reciprocating the said brush comprising a pivoted pawl, and a bar having a surface, with which the said pawl engages to move the brush, and provided with means located at the ends of the said surface, whereby the pawl is automatically reversed at the end of each journey of the brush in either direction; substantially as described.

4. The combination, with a sieve, and a cleaning-brush; of means for reciprocating the said brush; comprising ways on which the brush is adapted to slide, a pivoted pawl, and a bar having a surface with which the said pawl engages to move the brush, and provided with means, located at the ends of the said surface, whereby the pawl is automatically reversed at the end of each journey of the brush in either direction; substantially as described.

5. The combination, with a sieve and a cleaning-brush; of means for reciprocating the said brush comprising a pivoted pawl, and a bar having a surface, with which the said pawl engages to move the brush, and provided with depressions located at the ends of the said surface, for permitting the automatic reversal of the pawl at the end of each journey of the brush in either direction; substantially as described.

6. The combination, with a sieve, and a cleaning-brush; of means for reciprocating the said brush comprising a pivoted pawl, a curved bar having a surface, with which the said pawl engages to move the brush, and provided with means, located at the ends of the said surface, whereby the pawl is automatically reversed at the end of each journey of the brush in either direction, and links connecting the brush with the sieve, whereby a parallel movement is imparted to the brush; substantially as described.

7. The combination, with a sieve, and a cleaning-brush; of means for reciprocating the said brush, comprising a pivoted pawl and a bar having a toothed surface, with which the said pawl engages to move the brush step by step and provided with means, located at the ends of the said surface, whereby the pawl is automatically reversed at the end of each journey of the brush in either direction; substantially as described.

8. The combination, with a sieve, and cleaning-brushes; of means for reciprocating the said brushes, comprising a fixed bar secured to the said sieve, a pivoted pawl supported by the said fixed bar, and a bar carrying the brushes, having a surface, with which the said pawl engages to move the brushes, and provided with means located at the ends of the said surface, whereby the pawl is automatically reversed at the end of each journey of the brushes in either direction; substantially as described.

9. A bolter comprising a sieve, a reciprocating cleaning-brush, means on which the brush is carried back and forth, an automatically reversing pawl, and a notched bar, with which the pawl is adapted to engage to operate the brush, having depressions at the ends of the notched part in which the pawl reverses at the end of each journey of the brush; substantially as described.

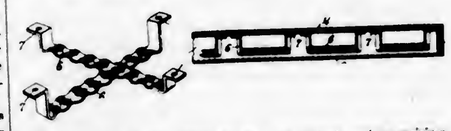
10. In combination with a cleaning brush and a flour-bolt, to which it is relatively movable, an automatically-reversing pawl engaging a part fixed relatively to the bolt and transmitting the vibratory motion of the bolt as a reciprocating impelling movement to the brush; substantially as herein explained.

11. In combination, with a flour-bolt and its cleaning-brush, an automatically-reversing pawl, carried by one of said parts and an elongated track having a surface with which the pawl engages carried by the other of said parts.

12. The combination of a shaking-sieve, a brush, means whereby the brush is loosely supported in contact with the sieve so as to permit it to slide relatively to the sieve, a pawl, and a notched bar having means at the ends thereof for the automatic reversal of the pawl; one member of the pawl and notched device being connected with the brush and the other member of the pawl and notched device being connected to the machine to cause the brush to be moved automatically and intermittently back and forth or vice versa against the sieve; by the movement of the sieve; substantially as described.

13. The combination of a shaking-sieve, a cleaning-brush, a pawl, and a notched bar having a depression at the end thereof into which the pawl may be free to move for reversing the pawl; the pawl and notched bar being adapted to impart a progressive movement to the brush; substantially as described.

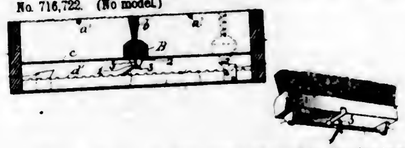
645,454. FLOUR-BOLT. WILLIAM L. BURNER, Columbus, Ohio, assignor to the Case Manufacturing Company, same place. Filed Feb. 2, 1899. Serial No. 704,282. (No model.)



Claim.—1. A bolting-sieve having a sieve-cloth, and comprising a series of fixed disintegrating attachments secured within the sieve adjacent to the sieve-cloth, and moving bodily with the sieve and consisting of vertical parts which are arranged to depend into the material being treated and horizontal parts which are arranged so as to be embedded in the said material; substantially as described.

2. A bolting-sieve having a sieve-cloth and comprising fixed depending abutments secured to the cover of the sieve, and a network secured to said abutments adjacent to the sieve-cloth; substantially as described.

645,455. FLOUR-BOLT-BRUSH OPERATING MECHANISM. WILLIAM L. BURNER, Columbus, Ohio, assignor to the Case Manufacturing Company, same place. Original application filed Feb. 1, 1898, Serial No. 668,764. Divided and this application filed May 13, 1899. Serial No. 716,722. (No model.)

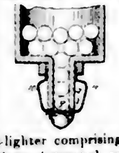


Claim.—1. The combination, with a sieve and its cleaning-brush; of a device for effecting a reciprocating movement of the brush, comprising an impelling-pawl and an elongated track with which the pawl engages carried by the respective parts, and trips located at points to engage and reverse the pawl as the brush approaches the limits of its movement; substantially as herein explained.

2. The combination, with a sieve and its cleaning-brush; of a device for effecting a reciprocating movement of the brush comprising an impelling-pawl carried by one of said parts, an elongated track with which the pawl engages carried by the other of said parts, fingers connected with the pawl, and trips which engage the respective fingers and reverse the pawl as the brush reaches the limits of its movement.

3. The combination, with a sieve and its cleaning-brush; of a device for effecting a reciprocating movement of the brush, comprising a pawl carried by a shaft trunnioned on one of the parts, reversing-fingers projecting from said shaft, and a track with which the pawl engages carried by the other part and having at its respective ends, and in different planes, trips which engage the respective fingers as the brush approaches the limits of its movement.

645,456. POCKET-LIGHTER. CHARLES M. CAMPBELL, Washington, D. C. Filed Dec. 7, 1899. Serial No. 739,561. (No model.)



Claim.—1. A pocket-lighter comprising a receptacle provided with an exterior, normally-unobstructed conduit, the outer end of which is provided with means for holding a pellet-shaped match before and during ignition and with means for closing said conduit to separate the forward match from its fellows.

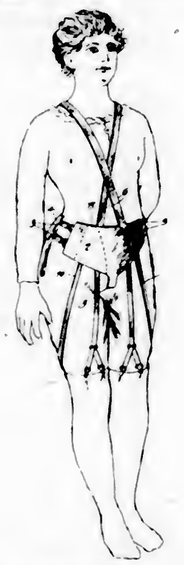
2. A pocket-lighter comprising a receptacle provided with an exterior conduit in continuous communication therewith, the outer end of which is provided with means for rigidly holding a pellet-shaped match before and during ignition, and means for separating the forward match from its fellows.

3. A pocket-lighter comprising a receptacle provided with a conduit, the outer end of which is provided with a holder for a pellet-shaped match, and a gate within the conduit for separating said match from its fellows before and during ignition.

4. A pocket-lighter comprising a receptacle provided with a conduit, the outer end of which is provided with a holder for a pellet-shaped match before ignition, and a gate for engaging with said match and forcing it into the holder and separating it from its fellows.

5. A pocket-lighter comprising a receptacle which is perforated and provided with a holder externally thereof, said holder being in communication with the interior of the receptacle through said opening, a cut-off closing the entrance to the holder, and means exteriorly of the receptacle for operating the cut-off.

645,457. APPLIANCE FOR WOMEN'S WEAR. CHESTORA C. CARR and JOHN H. CARR, Hillsdale, Mich. Filed May 26, 1899. Serial No. 718,441. (No model.)

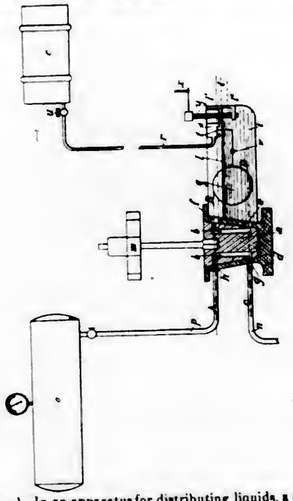


Claim.—1. In a body appliance of the character described, the combination with a body member, comprising shoulder-straps having eyeleted ends arranged at the back of the wearer, of hooks and eyes, the respective parts of which are detachably secured to the eyeleted ends of said straps and to a garment, said hook being arranged to receive the folds of one or more articles of apparel, and the eye being adapted to engage with the folds within the hook, substantially as set forth.

2. In an appliance of the class described, the combination of the body-harness including an abdominal supporter, and garters, and provided with shoulder-straps having the free ends thereof arranged at the back of the wearer, and a garment-supporting device suspended from said free ends of the shoulder-straps, substantially as set forth.

3. In an appliance of the class described, the combination of a body-harness provided with shoulder-straps having eyeleted ends arranged at the back of the wearer, and a garment-supporting device having hooks detachably suspended from the eyeleted ends of said straps, substantially as set forth.

645,458. OIL-DISTRIBUTING MEANS FOR OIL-ENGINES, &c. LOUIS CHARON and FRÉDÉRIC MANAUT, Paris, France. Filed June 8, 1899. Serial No. 719,274. (No model.)



Claim.—1. In an apparatus for distributing liquids, a casing having two sets of ports, a plug snugly fitting said casing and moving therein, said plug having channels adapted to aline with said two sets of ports, an oil-tank in communication with one set of ports whereby said channels will be filled with liquid to the same level as the tank, a compressed-air supply connected with one port of the other set and an oil-pipe leading from the other port and means for varying the level in the tank to control the amount of liquid fed by the apparatus, substantially as described.

2. In an apparatus for distributing liquids, a casing having two sets of ports, a plug snugly fitting said casing and moving therein, said plug having channels adapted to successively aline with said two sets of ports, an oil-tank in open communication with one set of ports whereby the channels will be filled to the same level as the oil-level in the tank, means for varying the oil-level in said tank, a compressed-air supply connected with one port of the other set and an oil-feed pipe leading from the other port, substantially as described.

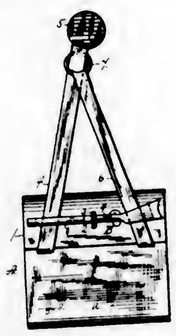
3. In an apparatus for distributing liquids, a casing having two sets of lateral ports, a plug rotatably mounted therein, means for imparting to said plug an intermittent rotary movement, said plug having a plurality of vertical cells terminating at top and bottom in lateral passages adapted to successively aline with said ports, an oil-tank in open communication with one set of ports whereby said channels will be successively filled to the level of the oil-level in the tank, a compressed-air supply and oil-feed pipe in connection with the other set of ports, a valve-casing, a valve therein, a float pivotally mounted in the tank and connected with the valve, means for raising and lowering said valve-casing to control the action of the valve and float and an oil-supply connected with said valve-casing, substantially as described.

645,459. METHOD OF RENDERING LEAVES OF BLANK-BOOKS FLEXIBLE. LINCOLN CLARK, Chicago, Ill. Filed Jan. 19, 1900. Serial No. 2,052. (No specimens.)

Claim.—The method of rendering the leaves of blank-books flexible in the zone of flexure, consisting in subjecting such zones thereof to the action of a mild sand-blast for the removal of the calendered surface and thinning of the paper, substantially as specified.

645,460. POCKET-BOOK. JOSEPH DAVIDSON, Forrestville, Md. Filed June 9, 1899. Serial No. 719,946. (No model.)

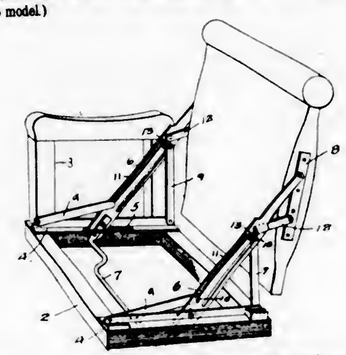
Claim.—The combination with the pocket-book and straps having the ring and disk secured at their upper end of the bar constructed with the long and short slots to receive said straps the longer slot, adapted to give sufficient lengthwise play to the bar in manipulating said bar and ring in fastening and unfastening the book, all arranged as herein shown and described.



645,461. LEATHER-DRESSING. ADELBERT R. DAWLEY, Rome, N. Y. Filed Sept. 6, 1899. Serial No. 729,655. (No specimens.)

Claim.—The herein-described compound of substances, consisting of saponified red oil, Humbolt blue, ivory-black, paraffin, West Virginia black oil and beeswax, prepared substantially as described.

645,462. WALK-OVER CAR-SEAT. ARTHUR C. DEVERELL and JULIUS J. LAKE, St. Paul, Minn. Filed Nov. 20, 1899. Serial No. 737,595. (No model.)



Claim.—1. In a walk-over car-seat, the combination, with a swinging bar and a seat-back thereon, of a swinging link having a stud sliding in said bar, and whereon said bar is supported when at the limit of its backward movement, substantially as described.

2. In a walk-over car-seat, a bar swinging on a fixed pivot, a seat-back carried by said bar, links also swinging on fixed pivots upon opposite sides of said bar and having pivotal sliding connections therewith and said links, respectively, supporting said bar when at the limit of its forward-and-backward movement, substantially as described.

3. In a walk-over car-seat, bars swinging on fixed pivots, a seat-back carried by said bars, links also swinging on fixed pivots upon opposite sides of said bars and having pin-and-slot connections therewith and supporting said bars and said seat-back when at the limit of their forward-and-backward movement, substantially as described.

4. In a walk-over car-seat, a bar swinging on a fixed pivot, a seat-back carried by said bar, a link also swinging on a fixed pivot and having a sliding pivotal connection with said bar and supporting the same when at the limit of its backward stroke, forming at that point with said bar and with its base or support a triangular bracing-frame that is collapsed when said bar is swung to its forward position, substantially as described.

5. In a walk-over car-seat, bars swinging on fixed pivots near the ends of the seat, a seat-back carried by said bars, links also swinging on fixed pivots upon both sides of said bars and having sliding pivotal connections therewith, respectively, and supporting the same when at the limit of their backward-and-forward stroke, forming at those points with said bars and with their base or support triangular bracing-frames that are alternately expanded and collapsed as said bars are swung backward and forward to change the seat, substantially as described.

6. The combination, with a seat, of the swinging bars thereon, a seat-back carried by said bars to swing therewith, and links pivotally supported upon said seat and having a sliding pivotal connection with said bars, for the purpose specified.

7. The combination, with a seat, of the bars swinging on fixed pivots and having guides, a seat-back pivotally supported by said bars, means preventing the tilting of said seat-back, links swinging on fixed pivots near the front and rear of said seat and having their free ends slidable in the guides in said bars and whereby the travel of said bars in either direction is controlled, substantially as described.

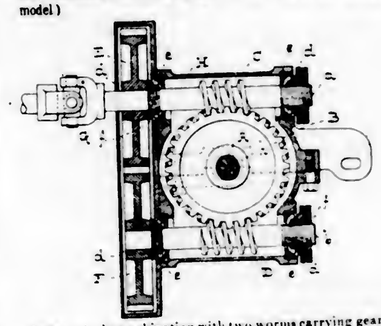
8. The combination, with a seat, of bars G pivotally supported thereon and having guides, the short links pivotally supported near the front and rear of said seat, and having T heads or pins movable in the guides in said bars G and a seat-back pivotally supported on said bars G, substantially as described.

9. The combination, with a car-seat, of the bars G pivoted thereon and having guides, the seat-back pivoted on said bars, the links 12 pivoted to said seat-back and slidable in the guides on said bars and the guiding and supporting links 9 9 pivoted on said car-seat and sliding in guides in said bars, substantially as described.

10. The combination, with the car-seat, of the bars G pivoted thereon and having guide-slots 11, the seat-back 8 pivoted on said bars, means preventing said seat-back from turning on its pivot when in its normal position, and the links 9 9 pivoted on said car-seat and having T-heads slidable in said slots 11, for the purpose specified.

11. In a walk-over car-seat, the combination with a swinging back of swinging bars at opposite ends thereof, joined, and supporting the said back, and side links having sliding connections with one of said swinging bars at one end of said back, and the length of said links being less than the distance between the pivot of the swinging bar and the highest point of travel thereon of said links, substantially as described.

645,463. MECHANICAL MOVEMENT. JOHN K. E. DIFFENDERFFER, Baltimore, Md. Filed Aug. 31, 1899. Serial No. 729,020. (No model.)

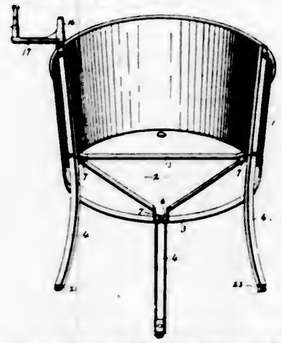


Claim.—1. In combination with two worms carrying gear-wheels which are in mesh with each other so that the worms will rotate in opposite directions, a shaft having thereon a worm-wheel the teeth of which are in mesh with the threads of the worms, the said worm-wheel being susceptible of adjustment longitudinally of the worms, whereby the threads of the two worms will bear with a common strain against the teeth of the worm-wheel, substantially as specified.

2. In combination with two worms carrying gear-wheels in mesh with each other so that the worms will rotate in opposite directions, a worm-wheel the teeth of which are in mesh with the threads of the worms, a driven shaft which is tight in the said worm-wheel, and bearings for the said shaft which are elongated so that the said shaft and worm-wheel will have some self-adjustment and thereby allow of the teeth of the said wheel bearing equally against the threads of both worms, substantially as specified.

3. In combination with two worms connected by gear-wheels meshed together so that one worm will effect the rotation of the other in an opposite direction, a driven shaft having thereon a tight worm-wheel the teeth of which are in gear with the threads of the worms, and a casing for the whole having elongated holes through which the worm-wheel shaft passes to admit of the self-adjustment of the worms with reference to the said worm-wheel in order that the threads of the said worms may bear equally against the teeth of the worm-wheel, substantially as specified.

645,464. WASHING-MACHINE. CYRUS A. DODGE and WALTER J. ZUILL, Syracuse, N. Y.; said Dodge assignor to said Zuill. Filed May 15, 1899. Serial No. 716,867. (No model.)

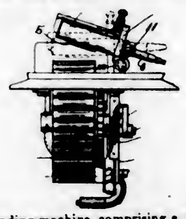


Claim.—1. As a new article of manufacture a washing-machine support for sustaining the tub of thin metal and the pounder, having in combination three supporting-legs of channel-steel arranged with their concave sides in contact with the outer surface of the tub, extending upwardly to about the upper edge of the tub and downwardly and outwardly below the tub, said legs being secured together about midway of their length by metallic bars extending diagonally across the bottom of the tub in contact therewith from one leg to the others, plates fitted in the lower end of said legs on their concave sides, jaws integral with each of said plates, said jaws being arranged at different angles to their respective plates, so that the axes of the three pairs of jaws are parallel, and rollers journaled in said jaws, substantially as set forth.

2. As a new article of manufacture, a washing-machine support for sustaining the tub of thin metal and the pounder, having three supporting-legs of channel-steel arranged each with its concave side adjacent to the outer surface of the tub, said legs extending upwardly and downwardly below the tub and being secured together about midway of their length by metallic bars set on edge, extending diagonally across the bottom of the tub in contact therewith, and in combination therewith a single standard having an upwardly-extending post for the pounder and an integral downwardly-extending pair of jaws, the inner jaw of the pair fitting the inner surface of the tub and the outer fitting the outer surface of the tub and arranged within the concave upper end of one of said legs.

3. In combination in a washing-machine, a metallic tub, three legs of channel-iron extending downwardly and slightly outwardly from the bottom of the tub forming a support therefor, and extending upwardly along the sides thereof, said legs having their concave faces arranged adjacent to the tub, a continuous strap bent in a triangular form with flattened points set on edge inside of the chime of the tub with its points arranged adjacent to the legs, and a single bolt through each of said flattened ends, said leg and the portion of the chime arranged therebetween.

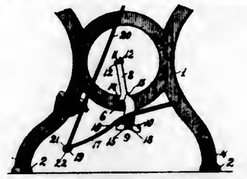
645,465. CIGAR-BRANDING MACHINE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed June 24, 1899. Serial No. 721,758. (No model.)



Claim.—1. A branding-machine comprising a table, a vertical plunger slidable on the table, a hinged upper section having a joint connecting it with the upper end of the plunger, and a branding device secured to the upper section; substantially as described.

2. A branding-machine comprising a table, a vertical plunger slidable on the table, a hinged upper section having a joint connecting it with the upper end of the plunger, and a branding device adjustably secured to the upper section; substantially as described.

645,466. TREADLE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed June 24, 1899. Serial No. 721,760. (No model.)



Claim.—1. A treadle mechanism comprising a pair of detachable uprights providing stays each having lips at their upper ends extending in line therewith and adapted to engage an upper brace-rod of a machine-frame, and wedge thereunder and a treadle-plate pivoted to the lower parts of the uprights; substantially as described.

2. A treadle mechanism comprising a pair of uprights, means for detachably connecting them to a machine-frame, a downwardly-projecting hook near the middle part of each upright, whereby the treadle mechanism may be supported on an upper brace-rod of the machine-frame in an elevated position; substantially as described.

3. A treadle mechanism comprising a pair of uprights, each having lips at their upper ends, and a downwardly-projecting hook near its middle part; substantially as described.

645,467. SHOE. HERVEY W. FOWLER, Chicago, Ill. Filed June 28, 1899. Serial No. 722,194. (No model.)



Claim.—A shoe comprising a vamp and counter and a quarter secured thereto, said quarter being composed of a front section and a flexible rear section permanently secured at its base to the counter, the said rear section forming the back of the quarter and being of a width at its base which permits of its being readily bent back adjacent to its point of connection with the counter to form an unobstructed rear opening into the shoe from the counter to the top thereof, and fastening devices at the side edges of the rear section and coöperating fastening devices at the rear edges of the front section for securing the adjacent edges of the two sections together substantially throughout their length, whereby the shoe when fastened upon the foot is free from unsecured overlapping edges and from overlapping portions and fastening devices at the extreme rear of the quarter, substantially as described.

645,468. FASTENING FOR SHOES. HERVEY W. FOWLER, Chicago, Ill. Filed Oct. 9, 1899. Serial No. 733,023. (No model.)

Claim.—1. The combination of a hook for a shoe having its point *e* rounded as shown, a space *a* for the string of the shoe, an opening *c* in the shank of said hook to one side of the hook proper, an eyelet *d* through said opening having its flange bent so as to clasp the edge of said opening *c* and secure the eyelet to the hook whereby the inner curved edge of said flange and said point *e* are substantially in a vertical line, thus partially closing the string-space *a*, substantially as described.

2. As an article of manufacture a hook for a shoe, with rounded outer edges, having an opening *c* therein, a string-space *a*, a rounded point *e*, and an eyelet for securing it to the shoe, by passing said eye-

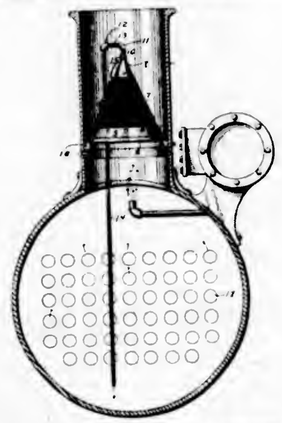
let through the opening *c*, and fastening it in the usual manner, the inner edge of said eyelet and the rounded point *e* being substantially in a vertical line so as to partially close the string-space *a*, substantially as described.



3. As an article of manufacture a hook for a shoe, made from a piece of substantially round wire, bent to form a loop *c* adapted to be engaged by an eyelet, the two ends of the wire extending therefrom and lying substantially parallel and bent upward to form the hook, and finally recurved in a vertical plane to produce a rounded end, substantially as described.

4. As an article of manufacture a hook for a shoe, made from a piece of substantially round wire bent to form a loop *c* adapted to be engaged by an eyelet, the two ends of the wire extending therefrom and lying substantially parallel and bent upward to form the hook, and finally recurved in a vertical plane to produce a rounded end, the ends of the wire contacting with the upper part of the hook, substantially as described.

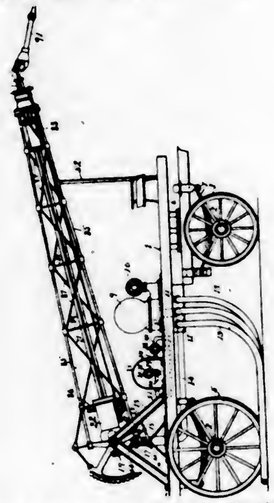
645,469. SPARK-ARRESTER. JOHN R. GOODIER, Galveston, Ind. Filed Dec. 23, 1899. Serial No. 741,450. (No model.)



Claim.—1. A spark-arrester comprising a base-ring, a foraminous frusto-conical portion connected with the ring, a cap connected with the foraminous portion and having a discharge-opening, and a conveyer-pipe connected with the cap and leading from the discharge-opening, said pipe being passed inwardly through a wall of the foraminous portion and outwardly through the base-ring.

2. The combination with a smoke-stack having an interior flange, of a spark-arrester removably disposed upon this flange, said arrester comprising a body portion having a lower inlet-opening and an upper outlet-opening, and a conveyer-pipe connected with the discharge-opening exteriorly of the foraminous portion, said pipe being passed inwardly of the foraminous portion through a wall thereof and outwardly through the inlet-opening, said pipe terminating below the stack.

645,470. PORTABLE WATER-TOWER. HENRY H. GORTER, San Francisco, Cal., assignor to Mary R. Gorter, same place. Filed Jan. 11, 1899. Serial No. 701,871. (No model.)



Claim.—1. In a water-tower, the combination of a pivoted frame, a main tube carried therein, a receiver, a conduit and flexible coupling for connecting the receiver with the main tube, means for supplying pressure-water to the receiver from fire-hose, a water-wheel and an operative connection therefrom to the frame to swing the same on its pivot, and a feed or branch pipe from the receiver to the water-wheel to supply pressure-water thereto to operate the same, substantially as described.

2. In a water-tower, the combination of a pivoted frame, a main tube carried therein, a receiver, a conduit and flexible coupling for connecting the receiver with the main tube, means for supplying pressure-water to the receiver from fire-hose, two oppositely-rotating water-wheels and a shaft on which both of said wheels are mounted, operative connections from the shaft to the frame to swing the same on its pivot, a feed or branch pipe from the receiver, and a reversing-valve directing the water from said pipe to one or the other of the wheels, substantially as described.

3. In a water-tower, the combination of a horizontally-pivoted tower, a shaft parallel to the pivotal axis of the tower, a motor on said shaft for driving the same, and longitudinal shafts, each operatively connecting one end of said tower-axis with the corresponding end of the motor-shaft, said longitudinal shafts being rotated in opposite directions by said motor, substantially as described.

4. In a water-tower, the combination of a horizontally-pivoted tower-frame, a main tube carried thereby, a downwardly-extending pipe movably jointed to said main tube, a stationary stand-pipe for supplying water, and a connecting-pipe extensible from one of said pipes to the other, and a coupling for the latter pipe and the connecting-pipe, substantially as described.

5. In a water-tower, the combination of a horizontally-pivoted tower-frame, a main tube carried thereby, a downwardly-extending pipe movably jointed to said main tube, a stationary stand-pipe for supplying water, a tube at the upper end of said stand-pipe, vertically movable relative thereto, and means for coupling said tube and downwardly-extending pipe, substantially as described.

6. In a water-tower, the combination of a horizontally-swinging tower-frame, a main tube carried therein, a stationary stand-pipe for supplying water, a tube vertically movable in said stand-pipe, a spring normally depressing said tube, coupling-sections carried by said tube and the swinging tower-frame, and a lever for raising said tube to bring said sections together, substantially as described.

7. In a water-tower, the combination of a horizontally-swinging casing, a main tube carried therein, a globular chamber discharging into said tube and pivoted on trunnions extending inwardly from the casing, a pipe extending downward from said chamber, and ties extending downward from the outside of the casing to the bottom of said pipe and having pivotal connections with said casing, substantially as described.

8. In a water-tower, the combination of a main tube, a hollow mast telescoping over the main tube, a nozzle mounted on the end of said mast, a rack on the outside of said mast, a shaft and means for actuating the rack extending parallel with the main tube and mast, means for rotating the mast around its axis, said means carrying also the upper end of said shaft, and means for simultaneously rotating the lower end of said shaft about the main tube, whereby said shaft is maintained parallel with the mast and tube, substantially as described.

9. In a water-tower, the combination of a main tube, a hollow mast telescoping over the main tube, means for rotating said mast on its axis, a nozzle mounted on the upper end of said mast, a rack on the outside of said mast, a shaft extending parallel with the main tube and mast, a ring revoluble around the main tube and supporting the lower end of said shaft, a ring mounted around the hollow mast and revoluble therewith supporting the upper end of said shaft, a worm on the upper end of said shaft, and means for rotating said shaft, substantially as described.

10. In a water-tower, the combination of a main tube, a hollow mast telescoping over the main tube, a rack on the outside of said mast, a nozzle pivotally mounted on the upper end of said mast, a hollow shaft extending parallel with the main tube, a worm on the upper end of said shaft engaging said rack, a second hollow shaft within the first shaft, a rod within said second shaft extensible therefrom and rotating therewith, a worm on the upper end of said rod, a worm-gear carried by the nozzle and engaged by said worm, and means for rotating the said shafts, substantially as described.

11. In a water-tower, the combination of a main tube, a hollow mast telescoping over the main tube, a rack on the outside of said mast, a nozzle pivotally mounted on the upper end of said mast, a hollow shaft extending parallel with the main tube, a worm on the upper end of said shaft engaging said rack, a second hollow shaft within the first shaft, a rod within said second shaft extensible therefrom and rotating therewith, a worm on the upper end of said rod, a worm-gear carried by the nozzle and engaged by said worm, a driving-shaft, and means for operatively connecting said driving-shaft with either of the hollow shafts, substantially as described.

12. In a water-tower, the combination of a frame, a main tube mounted thereon, a hollow mast telescopically connected with the main tube, a nozzle pivotally connected with the end of said mast, shafts for extending said mast and rocking said nozzle, a ring revolubly mounted on the upper end of the frame, and apertured to permit the passage therethrough of said mast and shafts, and means for rotating said ring, substantially as described.

13. In a water-tower, the combination of a frame, a main tube mounted therein, a hollow mast telescopically connected with the main tube, a nozzle pivotally carried on the end of said shaft, shafts for extending said mast and rocking said nozzle, a ring revolubly mounted on the upper end of the frame, and apertured to permit the passage therethrough of said mast and shafts, an antifriction-roller mounted on said ring and abutting against said mast, and means for rotating said ring, substantially as described.

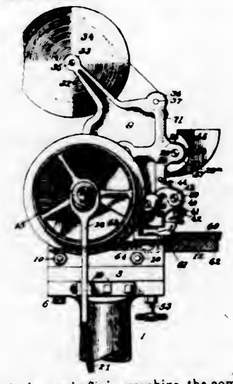
14. In a water-tower, the combination of a frame, a main tube mounted therein, a hollow mast telescopically connected with the main tube, a nozzle pivotally carried on the end of said mast, shafts for extending said mast and rocking said nozzle, a ring revolubly mounted on the upper end of the frame and apertured to permit the passage therethrough of said mast and shafts, an antifriction-roller mounted on said ring and abutting against said mast, means for rotating said ring, a second ring limiting the upward movement of said mast, and an antifriction-roller on said second ring, substantially as described.

15. In a water-tower, the combination of a frame, a main tube mounted therein, a hollow mast extensible therefrom, a nozzle pivotally carried on the end of said mast, shafts for extending said mast and rocking said nozzle, a ring revolubly mounted on the upper end of the frame, the mast and shafts being rotated therewith, a ring at the lower end of the frame supporting said shafts, and means for simultaneously rotating both of said rings, substantially as described.

16. In a water-tower, the combination of a frame, a main tube mounted therein, a hollow mast extensible therefrom, a nozzle pivotally carried on the end of said mast, a hollow shaft mounted in the frame extending the length of the main tube, means for rotating the shaft from its lower end, a rod in said shaft, rotating therewith and extensible therefrom, and coöperative gears on said nozzle and the end of said rod for rocking the nozzle from the rotation of said shaft, substantially as described.

17. In a water-tower, the combination of a main tube, a hollow mast extensible therefrom, a shaft and means carried thereon for extending said mast, a curved section in the upper end of said mast having a globular end, a conical nozzle diametrically pivoted on said globular end, a segmental gear secured on the said nozzle at one end of its pivotal axis, a rotarily-driven shaft inside the first-named shaft, and a worm on the end of the inner shaft engaging said gear to rock said nozzle, substantially as described.

645,471. MACHINE FOR SEALING NEWSPAPERS, &c. CLAUDE VAN NUYS HOLLAND, Dallas, Tex. Filed June 30, 1898. Serial No. 684,827. (No model.)



Claim.—1. In a seal-affixing machine, the combination of a frame or housing provided with a throat which is closed on three of its sides and open on its other side for the introduction therein of the work, a reciprocating feed device movable in the plane of the throat and adapted to carry the work therein, an intermittent feed mechanism for supplying a seal across the open side of the throat and in the path of said work-feed device, and a seal-pressing mechanism operating transversely of the throat to firmly press the seal upon and around the work as the latter is thrust with the seal into the throat and between the members of the pressing device, substantially as described.

2. In a seal-affixing machine, a frame or housing provided with a throat having an open side for the introduction thereinto of the work, and a seal forming and pressing mechanism embracing a die and a reciprocating plunger spaced relatively to each other within the throat for the introduction therebetween of the work and a seal, said plunger being movable positively and intermittently with relation to the die and transversely of the throat, in combination with a reciprocating work-feed mechanism movable in the plane of the throat to introduce the work therein, and a seal-feeding mechanism arranged to interpose a seal across the open side of the throat and in the path of feed of the work to said throat and the seal-pressing mechanism, substantially as described.

3. In a seal-affixing machine, the combination of a frame or housing provided with a throat having an open side, a seal folding and pressing mechanism with its members spaced relatively to each other within said throat with one member reciprocating transversely of the throat, a reciprocating work-feed device for thrusting the work into said throat and between the members of the seal folding and pressing mechanism, an intermittent seal-feeding mechanism arranged to introduce a seal across the open side of the throat in the intervals between the presentation of the work by the work-feed device to the throat, and a cutter mechanism actuated alternately to the feed of the seal-feeding mechanism for severing the seal, substantially as described.

4. In a seal-affixing machine, the combination of a throat open at one side thereof, a seal folding and pressing mechanism operating transversely of the throat and having its members situated within said throat and spaced relatively one to the other for the introduction therebetween of the seal and the work to which the seal is to be affixed, a reciprocating work-feed mechanism movable toward the throat for thrusting the work through the open side thereof and into the same, an idle supply-spool, a seal-feeding mechanism actuated in the intervals between the presentation of the work to the throat for drawing a seal-web from the spool and introducing the web in the space across the open side of the throat, and an intermittent cutter device contiguous to the throat and movable across the path of feed of the seal thereto, substantially as described.

5. In a seal-affixing machine, a seal folding and pressing mechanism having a relatively-stationary die and a plunger operating transversely of the throat and normally in spaced relation to the die to form therebetween an opening or space for the introduction of the work and a seal, and means for positively moving the plunger at intervals toward the die, combined with a reciprocating work-feed table movable in the plane of the space in the seal folding and pressing mechanism and adapted to force the work and seal therein, an intermittent seal-feeding mechanism arranged at one side of the work-feed table to introduce a seal in the path of feed of said table, a cutter device operative in unison with the seal-feeding mechanism to sever the seal subsequent to its interposition in the path of the work-feed table, a supply-spool adjacent to the seal-feed mechanism, and a pasting mechanism, substantially as described.

6. In a seal-affixing machine, the combination with a reciprocating work-feed plate or table, of a pair of seal-pressing members arranged on opposite sides of the path of said feed-plate one of said members being stationary, and the other mounted to reciprocate transversely of the plane in which said feed plate or table moves, and actuating means for the feed-plate and transversely-operating seal-pressing member.

7. In a seal-affixing machine, the combination with a supply-spool, of a seal-folding throat open at one side thereof and closed on its remaining sides, an intermittent work-feed mechanism movable in the plane of the open side of said throat, a seal-feeding mechanism to introdnce a seal across the open side of the throat and in the path of the work-feed mechanism, a driving-shaft for positively actuating the work-feed mechanism and the seal-feed mechanism, a cutter mechanism adjacent to a throat and geared to the driving-shaft to be actuated thereby, and a paste-pot suspended between the seal-feed mechanism and the cutter mechanism for its spout to be presented to the paper seal-web at a point between said seal-feed mechanism aod a cutter, substantially as described.

8. In a seal-affixing machine, the combination of a seal folding and pressing mechanism embodying a relatively-stationary die and a reciprocating plunger which are in spaced relation to each other to provide therebetween a space or opening for the introduction of the work and a seal, an intermittent feed mechanism for placing a seal across the space between said die and plunger, a work-feed mechanism, a vibrating cutter-shaft having a controlling-finger, and a cam-shaft provided with cams, one of which controls the finger of the cutter-shaft and the other serves to positively actuate the plunger of the seal folding and pressing mechanism, substantially as described.

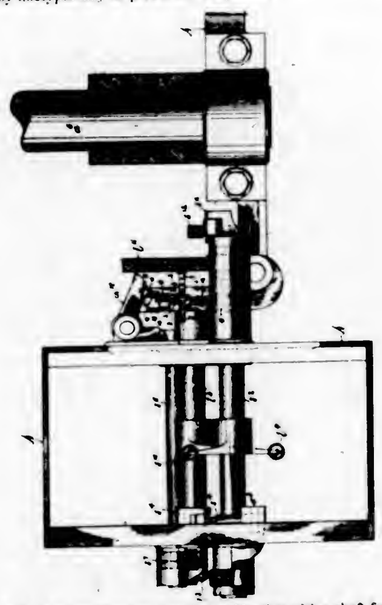
9. In a seal-affixing machine, a frame or housing provided with a throat which is open on one side for the introduction of the work therein, a seal folding and pressing mechanism having a plunger reciprocating transversely of the throat and a die-block situated within said throat and spaced relatively one to the other, in combination with a spring for normally sustaining the plunger in an elevated position relatively to the die-block, a cam-shaft to positively depress the plunger toward the die-block, a work-feeding device movable in the plane of the open side of the throat and adapted to force the work and seal therein, and a seal-feeding mechanism, substantially as described.

10. In a seal-affixing machine, the combination of a frame or housing provided with a throat which is open on one side thereof, a seal folding and pressing mechanism having its members situated within said throat and normally in spaced relation to each other for the introduction therebetween of the work, a driving-shaft carrying a cam, a reciprocating work-feed table movable in the plane of the open side of the throat and impelled away from the same by the action of the cam thereon, a retractor to advance the work-feed table toward the throat and force the work and seal therein, a seal-feeding mechanism for introducing a seal across the path of the work-feed table, and a cutter mechanism operative in unison with the seal-feed mechanism and the work-feed table, substantially as described.

11. In a seal-affixing machine, the combination of a frame or housing having a throat open on one side thereof, a reciprocating work-feed table adapted to carry the work and seal into the throat and provided with guides for the work and having a projecting arm, a driving-shaft having a cam to ride against said arm of the table, a spring to normally draw the table toward the open side of the throat in said frame, a seal-feed mechanism for introducing a seal across the path of the work-feed table, and a cutter mechanism operative in unison with the seal-feed mechanism and the work-table, substantially as described.

645,472. CASTING MECHANISM FOR LINOTYPE-MACHINES. CHARLES HOLLIWELL, Broadheath, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Sept. 9, 1899. Serial No. 729,966. (No model.)

Claim.—1. In combination with a linotype-machine, an automatic supplementary mechanism, acting to prevent the shifting of each matrix-line until a second linotype has been cast therefrom, whereby linotypes may be produced in duplicate.



2. In a linotype-machine, and in combination with a shaft from which the casting and matrix-distributing mechanism are driven, a supplemental mechanism, also driven from said shaft and constructed to prevent every alternate action of the matrix-distributing devices, whereby each line of matrices is left in position for the casting of a second linotype therefrom.

3. In a linotype-machine having matrix-distributing mechanism arranged to operate normally after each casting operation, a supplemental automatically-operating mechanism, to prevent every alternate action of the line-shifting mechanism; whereby the machine may be caused to automatically produce linotypes in duplicate.

4. In a linotype-machine, a supplemental mechanism adapted to be thrown into and out of action at will, and acting when in use to cause the retention of each matrix-line in operative position until a second linotype has been cast therefrom and thereafter automatically releasing the distributing mechanism.

5. In a linotype-machine and in combination with the shifting-levers and actuating mechanism therefor, the rotary notched stop driven by the machine and acting to hold the levers out of action periodically as described, whereby the casting of duplicate linotypes from each matrix-line will be effected.

6. In a linotype-machine, automatically-actuated mechanism, restraining the distribution of the matrix-line until a second linotype has been cast therefrom, and thereafter permitting the action of the distributing mechanism.

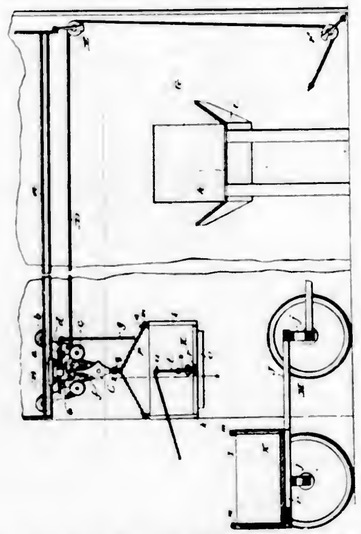
7. In a Mergenthaler linotype-machine, the combination of the line-shifter lever *i'*, the rotatable notched stop to arrest the action of said lever, and driving connections, substantially as shown, for imparting an intermitting rotation to said stop.

8. In a Mergenthaler linotype-machine, the combination of the rotary cam, provided with projection 1, the notched wheel 2, driven thereby, the notched stop 5, and the shifter-lever, having a projection 8 to encounter said stop, said parts timed and arranged as described to hold the shifter-lever at rest until the machine has completed two cycles and produced two linotypes from the one line of matrices.

645,478. WAGON ATTACHMENT. HENRY M. KELLY, Ottawa, Ill. Filed Oct. 20, 1899. Serial No. 734,233. (No model.)

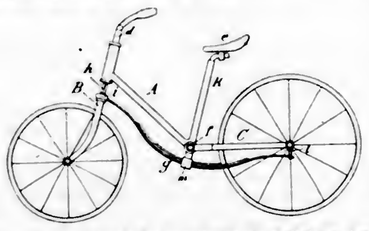
Claim.—1. A wagon equipped with an open, rectangular frame, and a removable box arranged on said frame, and having a hinged bottom and a catch for securing the same in its closed position, and also having cleats at the under side of the hinged bottom, arranged within the frame and engaging the inner sides of the bars thereof so as to hold the box against displacement, substantially as specified.

2. A wagon equipped with an open, rectangular frame, and removable, rectangular boxes arranged end to end on said frame, and having hinged bottoms and catches for securing the same in their closed positions, and also having strengthening-cleats at the under side of the bottoms arranged to engage the inner sides of the bars of the frame whereby the boxes are enabled to hold each other against casual movement and displacement, substantially as specified.



3. An attachment for wagons comprising an open, rectangular frame, and removable, rectangular boxes arranged end to end on said frame, and having hinged bottoms, and catches for securing the same in their closed positions, and also having strengthening-cleats at the under side of the hinged bottoms arranged to engage the inner sides of the bars of the frame whereby the boxes are enabled to hold each other against casual movement and displacement, substantially as specified.

645,474. BICYCLE. KARL KIEFER, Cincinnati, Ohio. Filed May 22, 1896. Serial No. 592,676. (No model.)



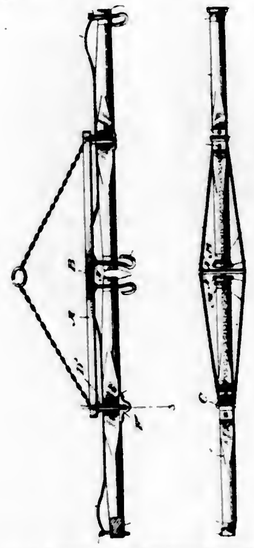
Claim.—1. In a bicycle the combination of a main frame A, containing bearings for the handle-bar tube *d*, bearings for the rear fork C, bearings for the crank-shaft *f*, the spring *g* rigidly attached to the main frame A, a front fork B movable longitudinally in the handle-bar tube *d*, and being engaged by the spring, a rear fork C, having its fulcrum concentric with the crank-shaft *f*, and linked to the spring *g* near the rear-wheel axle, substantially as described.

2. In a bicycle the combination of a frame A, connected to which are all parts coming in contact with the rider, said frame rigidly attached near the crank-bearings to the approximate center of a spring *g*, the latter bearing on the front fork by means of yoke n and collar i and connected to the rear fork by suitable means.

3. In a bicycle the combination of a front fork movable in the steering-head, and a rear fork, a spring extending from the rear axle to the front fork, and bearing on both, and having rigidly attached over the approximate center of said spring a frame containing the seat for the rider, bearings for the crank-shaft and for the handle-bar.

4. In combination, in a bicycle-frame, a handle-bar stem rotatably journaled in the steering-head, a sliding piece movable longitudinally in said stem and having means to prevent its rotation relative to the head, a fork-stem loosely projecting into and yieldingly held in relation to the steering-head and connected to said sliding piece by a universal joint, substantially as described.

645,475. COMBINED SINGLETREE AND SPREADER. ROBERT F. KING, Bozeman, Mont. Filed Aug. 16, 1899. Serial No. 727,394. (No model.)



Claim.—1. A combination singletree and spreader-bar, consisting of opposite longitudinal members spaced apart at their middle portions by a transverse rod, singletree-clevices pivoted to each end of said bar, singletrees to which said clevices are connected, and crotch-chains secured to the ends of said bar, as set forth.

2. In combination with the spreader-bar, having a rod secured to the longitudinal portions of the bar to hold same at a given distance apart, the clevis members having their contracted ends pivoted to said bar, and provided with recesses, the crotch-chains mounted on the pin on which the clevices are pivoted, and in said recesses, as set forth.

3. In combination with the spreader-bar, the clevis member D having a contracted end which is recessed, and pivoted to the end of the spreader-bar, the singletree and channeled plate secured thereto, in which plate said singletree has a bearing, the upwardly-extending projections of said plate being bent over the bearing portion of the clevis, as set forth.

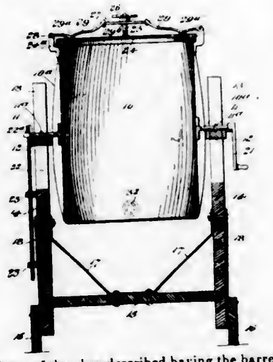
4. The combination with a spreader-bar, of a clevis having a recessed lug disposed between the members of said bar, a pivot-pin passing through said bar and lug, a crotch-chain secured to said pin within the recess of said lug, and a singletree extending through said clevis, as set forth.

645,476. CHURN. BERNIE KINGSLEY, South Vancouver, Canada. Filed June 17, 1899. Serial No. 720,966. (No model.)

Claim.—1. A churn comprising a closable vessel of barrel form, said vessel being provided with concaved flutes or grooves arranged with their planes parallel to each other and parallel to the axis of the vessel; trunnions projected from the sides thereof; a supporting-frame for the vessel; two bearings vertically adjustable upon the said frame, and a vertically-adjustable detent adapted to engage with one of the trunnions of the vessel and hold it in different positions as specified.

2. A churn compriaing a closable vessel having flutes down each side forming convexed ridges on the inner opposite sides; and a closure for such vessel having an annular groove therein to receive the open end of the vessel; diametrically-oppositely-arranged levers hinged at their outer ends to the fluted sides of the vessel, said levers having their adjacent or inner ends turned upward to form hook members and near their outer ends bent to form fulcrums 29ª; a bar

loosely fixed upon a stud projected up centrally from the closure, said bar having its ends engaging the adjacent ends of the levers and adapted when pressed down to force the levers tightly against the closure, and means for pressing the said bar down, all being arranged substantially as shown and described

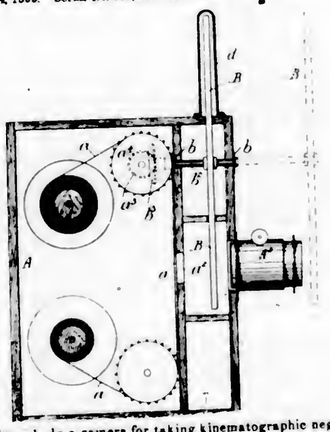


3. In a churn of the class described having the barrel form, parallel flutes on opposite sides thereof which form convex swells or ribs on the inner sides, trunnions fixed at the center of said flutes, conical ridges on said trunnions, bearings arranged in forks having grooves for receiving the conical ridges, means for adjusting the bearings vertically, consisting of straps 20 embracing the bearings and the forks and set-screws taking through the straps and engaging one side of the forks all substantially, as and for the purposes set forth.

4. In combination with a rigidly-braced frame having forked uprights and adjustable bearings arranged therein, a vessel having fluted sides suitably mounted on trunnions which journal in said bearings, a vertical slidable holder 22 of elastic material having an angled opening at its upper end for receiving the angled end of one of the trunnions for holding the churn at rest at any desired position

5. In a churn of the character described, the combination with the churn-body; means for rotating it, and means for holding the said churn in different positions; a cover for the open end and means for hermetically sealing the said cover upon the said ends; of a vent-nipple connected with the vessel near the end opposite the cover, said nipple having a removable cap provided with a vent; an elastic washer within the said cap, said cap, washer and vent in the said cap being so arranged that when the cap is screwed home the vent will be cut off from the nipple and when screwed outward to remove the elastic packing from the nipple the vent is brought into communication with the nipple, all being arranged substantially as described.

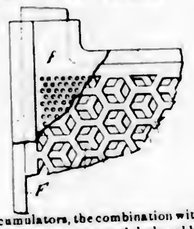
645,477. KINETOGRAPHIC CAMERA. FREDERICK M. LEE, Walton-upon-Thames, and EDWARD R. TURNER, London, England. Filed Oct. 14, 1899. Serial No. 733,671. (No model.)



Claim.—1. In a camera for taking kinematographic negatives a color screen or shutter placed between the object and the sensitized surface and carrying a plurality of colored glasses of the primary colors respectively, and means for moving the screen or shutter synchronously with the movements of the sensitized surface.

2. In a camera for taking kinematographic negatives, a color screen or shutter placed between the object and the sensitized surface, and consisting of a disk carrying a plurality of glasses of the primary colors respectively, and mounted upon an axis, and gearing for rotating the said disk synchronously with the movements of the sensitized surface.

645,478. ACCUMULATOR. HENRY LEITNER, London, England, assignor to the Electrical Undertakings, Limited, same place. Filed Mar. 25, 1898. Serial No. 675,203. (No model.)



Claim.—1. In accumulators, the combination with peroxid plates, separating-pieces of highly-elastic material placed between the said plates, and encircling parts encircling the plates and binding them firmly together, of zinc plates having a core of insulating material and distance-pieces or blocks carried by the said core and clear of the zinc, the zinc plates being placed between the resilient separating-pieces, substantially as described and for the purposes specified.

2. In accumulators the combination with peroxid plates adapted to expand transversely, separating-bars of highly-elastic material placed between the said plates, and bands of elastic material uniting the plates together, of zinc plates having a core of celluloid and distance-pieces or blocks carried by the said core and clear of the zinc, the zinc plates being placed between the resilient separating-bars, substantially as described and for the purposes specified.

3. In accumulators the combination with peroxid plates formed from two grids and adapted to expand transversely, separating-bars of resilient material placed between the said plates, and bands or binding parts also of resilient material inclosing the plates, zinc plates having a core of insulating material extending completely across the same, leaving a clear portion of the core at the center, and separating-blocks or distance-pieces fitted to the projecting parts of the core, the zinc plates being held between the peroxid plates substantially as described.

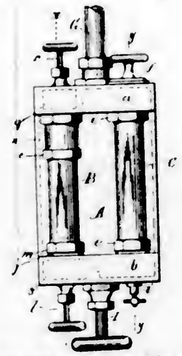
4. In accumulators of the kind described, peroxid plates having a resilient case formed by a rim of resilient material surrounding the plates, perforated sheets of the same material fixed on the rim at each side and inclosing the plate and resilient bars attached at each end to the frame, the whole forming a resilient case adapted to take up any side expansion of the plate and to return the plate to its normal shape on the contraction taking place, substantially as and for the purposes specified.

5. In accumulators the combination of negative peroxid plates, having a resilient case formed by a rim of resilient material surrounding the edges of the plates and protecting the contact, perforated sheets having an unperforated rim covering the edges of the lead grids and fixed to the rim, and resilient bars on both sides of the said plates fixed at their ends only to the case, with positive plates placed between the negative and separated by the resilient bars and bands of resilient material binding the block of plates together, substantially as described and shown and for the purposes specified.

645,479. LUBRICATOR. EDMUND H. LUNKEN, Denver, Colo., assignor to the Lunkenheimer Company, Cincinnati, Ohio. Filed Dec. 17, 1897. Serial No. 662,346. (No model.)

Claim.—1. In a lubricator, an oil-reservoir having at its front at top and bottom multiple fitting projections cast integral therewith, said lubricator having channels cast integral therewith and communicating with the oil-reservoir and exit-pipe, combined with a plurality of oil-exhibiting tubes arranged with suitable connections between said multiple fitting projections, and suitable connections for controlling the admission of water of condensation and the feeding of the oil, substantially as described.

2. In a lubricator, the combination of the reservoir A provided with a flattened front, the glass-tube-supporting multiple fitting projections *a* and *b* cast integral with said lubricator and extending along the upper and lower parts of said flattened front, said lubricator being provided with the channels *g*, *h*, *q* and *s*, the oil-supply pipe E communicating with the said channel *s*, the feed-water pipe H, and the sight-glass B and gage-glass C secured between the projections *a* and *b*, substantially as described.



3. In a lubricator, the combination of the reservoir A composed of an integral casting having a flattened front with integral multiple fitting projections *a* and *b* at the top and bottom thereof, said lubricator being provided with the channels *g*, *h*, *q* and *s* cast therein, the pipe E extending from the top of the reservoir and communicating with the said channel *s*, the feed-water pipe H, and the sight-feed glass B and the gage-glass C secured between the said projections *a* and *b*, substantially as described

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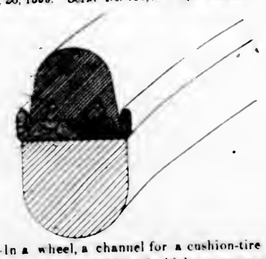
645,480. FIRE-KINDLER. LIZZIE MATTHIAS, New York, N. Y. Filed June 27, 1899. Serial No. 722,056. (No model.)



Claim.—1. In a kindler, the combination of a gauze burner having an absorbent material therein, a broad upper surface, inwardly-tapered sides, and a standard secured as described to each end of the burner, substantially as described.

2. A burner comprising a wire-gauze casing having a broad upper surface and inwardly-tapered sides, a standard secured by means of oppositely-bent warp-wires to each end of the burner, and an absorbent material within the burner, substantially as described.

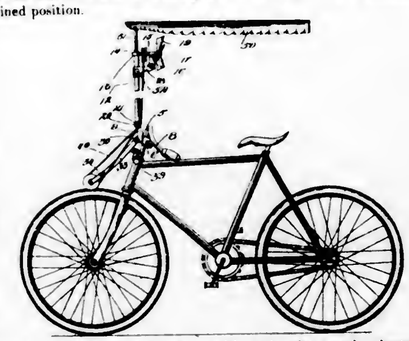
645,481. CUSHION-TIRE. STEPHEN S. MILLER, Akron, Ohio. Filed Nov. 20, 1899. Serial No. 737,663. (No model.)



Claim.—In a wheel, a channel for a cushion-tire having a flat bottom and flanges the inner sides of which are perpendicular to that bottom, grooves *b'* adjacent the flanges in the bottom of said channel having their inner sides inclined to the perpendicular sides of the flanges, combined with a solid rubber tire having a flat bottom to fit upon the bottom of the channel and lips or wings *c'* projecting from the corners of said tire and entering said grooves and sloping from the perpendicular sides of the flanges, substantially as shown and described.

645,482. FAN ATTACHMENT FOR BICYCLES. JOHN A. MILLS, Gainesville, Tex., assignor of two-thirds to John D. Nance and Samuel J. Kennerly, same place. Filed Aug. 30, 1899. Serial No. 728,982. (No model.)

Claim.—1. An attachment for bicycles, comprising a bracket, arms carried by the bracket, a yoke pivotally connected with one of the arms and having a roller journaled therein, a support carried by a second arm, connections between the support and bracket a fan carried by the support, means for transferring motion from the roller to the fan, and means for holding said roller yieldably in a predetermined position.

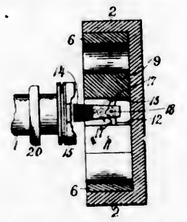


2. A bicycle attachment, comprising a bracket, a yoke pivotally connected with the bracket, a roller rotatably mounted in the yoke, a support pivotally connected with the brackets, guide-pulleys mounted upon the pivot of said support, a fan rotatably mounted upon the support, a shaft for the fan, a pulley mounted upon said shaft and a belt connecting the pulley in the yoke with the fan-pulley and adapted to transfer motion from one to the other.

3. A device of the class described, comprising a bracket, an arm carried by the bracket, a support having ears inclosing the arm, alining perforations in the ears and arm, a bolt passed through said perforations and adapted to clamp the arm and support in fixed relation, guide-rollers carried by the bolt, a fan having a shaft supported by the support, a pulley carried by the shaft, a yoke pivotally connected with the bracket, a pulley rotatably mounted in the yoke, and a belt disposed upon said pulleys and adapted to transmit motion from the yoke-pulley to the fan-pulley.

4. A device of the class described, comprising a bracket having a collar adapted to receive and hold the stem of the handle-bar, an arm upon the bracket, a tubular support having ears inclosing said arm, alining perforations in the ears and arm, a bolt passed through said perforations, set-nuts in threaded engagement with the ends of said bolt and adapted to engage the ears and clamp them against the bracket arm, guide-pulleys rotatably mounted upon portions of said nuts, a fan-shaft carried by the support and adapted for adjustment to lie at different angles thereto, a fan carried by said shaft, a pulley carried by the shaft, a yoke pivotally connected with the bracket, a roller journaled in said yoke, means for holding said yoke yieldably at one limit of its motion, and a belt engaging said roller and pulleys and adapted to transmit motion from one to the other.

645,483. FRICTION-CLUTCH. JAMES MONKHOUSE, Honolulu, Hawaii. Filed Oct. 27, 1898. Serial No. 694,712. (No model.)



Claim.—1. A friction-clutch comprising two concentrically-arranged members, one of which is split to adapt it to be moved into contact with the other, and is provided upon its opposed faces at the split with ledges, and a controlling member carrying knuckle-jointed dogs sliding upon the opposed faces of the split into engagement with the ledges thereof expanding under continued movement of the controlling member, to force the split member into contact with the concentric member for establishing frictional contact between the two latter.

2. A friction clutch comprising a rim, a concentrically-arranged friction-ring formed with a hub and spokes and divided into a plu-

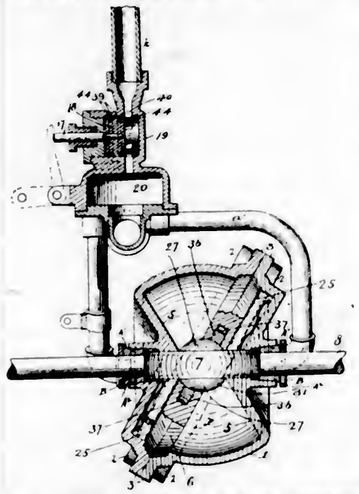
rality of peripheral sections, each connected at one end by a spoke with the hub, and provided on its free end with an abutment opposed to a spoke connecting the adjacent section, ledges formed on the opposed faces at each split, the knuckle-jointed toggle-dogs having means for sliding them upon the said opposed faces into engagement with the ledges, and expanding them substantially as and for the purposes set forth.

3. In combination with the expansible split rim of a friction-clutch, the ledges located on the opposed faces of said split, an expanding-yoke movable longitudinally upon the shaft, and sliding toggle-dogs carried by said yoke, which enter between the sections of the rim at the points of separation and expand them as the yoke is forced toward the rim; substantially in the manner and for the purposes set forth.

4. In a friction-clutch, the combination of the rim 2, having hub 3, the ring 6 divided diametrically into two sections, hub 7 connected by spokes 9 with corresponding ends of the respective ring-sections, abutments 11 carried by the free ends of the respective ring-sections and opposed to the spokes 9, ledges 12 and 13 formed respectively upon the abutments 11 and spokes 9, the yoke 14 provided with hub 15 which permits it to slide upon the shaft 1, and knuckle-jointed dogs 17 pivoted in the ends of the yoke 14 and entering between and sliding upon abutments 11 and spokes 9 into engagement with the ledges 12 and 13; all substantially as and for the purposes set forth.

5. In a friction-clutch, the combination of the rim 2, formed with hub 3, the pulley 5 keyed to the hub 3, the friction-ring 6 provided with the hub 7, shaft 1 keyed to said hub 7, expanding-yoke 14 provided with hub 15 sliding upon shaft 1, knuckle-jointed dogs 17 mounted in the respective ends of the yoke 14; said ring 6 being diametrically divided into two peripheral sections whereby it is expansible into frictional contact with the rim 2, and each of said sections being connected at one end by a spoke 9 with the hub 7 and carrying at its other end an abutment 11 opposed to an adjacent spoke, and said knuckle-jointed dogs sliding upon the opposed abutments and spokes, substantially in the manner and for the purposes set forth.

645,484. ROTARY ENGINE. RICHARD G. V. MYTTON, Meridian, Miss. Filed Aug. 2, 1899. Serial No. 725,890. (No model.)



Claim.—1. A rotary engine having a shaft, and a casing concentric with the shaft, and divided into halves on a plane oblique to the said shaft, each section having a beveled countersink along the meeting edge, whereby said countersinks combine to form a shallow V-shaped groove where the sections meet.

2. A rotary engine having a shaft, a casing concentric therewith and divided into halves on a plane oblique to said shaft, each section having a countersink along the meeting edge, the outer wall of said countersink being beveled, and a disk mounted obliquely on the shaft and having a double-beveled edge to enter said countersink, whereby said shaft and disk can be withdrawn from said casing without being themselves separated.

3. The combination with a shaft of a casing having a groove in a plane oblique to the shaft, a disk rotatable in said groove and having a diametrical slot with concave edges, a piston carried by the shaft and traversing said slot and strips pivoted centrally on each side of the piston and having curved outer faces fitting the slot in the disk.

4. The combination with a shaft of a casing, having a groove in a plane oblique to the shaft, a disk rotatable in the said groove, and having a diametrical slot with concave edges, a piston carried by the shaft, with wings traversing said slot, strips pivoted centrally on each side of the said piston and fitting the slot, and a spherical enlargement or filling-piece at the center of the piston.

5. In a rotary engine, a casing shaped like the central zone of a sphere, with ends having shallow internal cylindrical recesses and piston-heads adapted to rotate in and projecting beyond said recesses, having their inner faces conical.

6. In a rotary engine, with a casing having shallow internal cylindrical recesses in its ends, a shaft passing centrally through said ends, and piston-heads free to move axially on said shaft and in said recesses, and having their inner faces conical.

7. A rotary engine, having a casing shaped like the central zone of a sphere with ends having shallow internal cylindrical recesses terminating in plane faces, annular grooves in said faces, and central exterior projections with a bore tapering toward the interior of engine, and ports upon the outer walls of said casing terminating in grooves upon the interior walls.

8. A rotary engine having conical, diametrically-grooved piston-heads terminating in short cylinders, a shaft having a spherical enlargement at its center grooved upon opposite sides axially to the shaft, and loose piston-wings fitting into said grooves and those in the conical piston-heads.

9. In a rotary engine, the combination with a shaft, of conical piston-heads capable of moving axially thereon but secured to same as regards rotary motion, a spherical enlargement at the center of the piston, and oppositely-placed piston-wings fitting neatly into grooves but capable of radial motion therein, in said conical heads and spherical enlargement.

10. The combination of a shaft, piston-heads carried by said shaft, and capable of a slight movement axially thereon, said piston-heads having inner, conical, and outer plane faces, with a casing concentric with the shaft having shallow cylindrical recesses adapted to receive said piston-heads and provided with annular packing-rings whereby joints are made between said piston-heads and casing.

11. The combination with a shaft, of a casing concentric with the shaft, and divided into halves in a plane oblique to the shaft, internally grooved around the line of joint, a diametrically-slotted disk capable of rotating in said groove, piston-wings capable of slight radial motion, traversing said slot in disk, piston-heads having their inner faces conical, grooved to receive said piston-wings and terminating in short cylindrical portions with plane faces, said cylindrical portions fitting into recesses in the ends of the casing adapted to receive them, annular packing-rings in grooves in said ends of casing, and means for packing them toward the outer plane faces of the piston-heads.

12. The combination with a shaft, of a casing concentric with the shaft, a diametrically-slotted disk capable of rotating in a groove in the casing in a plane oblique to the shaft and tangent to the conical faces of piston-heads carried by and axially movable upon the shaft, a spherical enlargement at the center of the piston, radially-movable piston-wings carried in grooves in said piston-heads and spherical enlargement, filling-pieces at the outer corners of the piston-wings and means for packing the piston-heads against the disk, and the piston-wings against the walls of the casing.

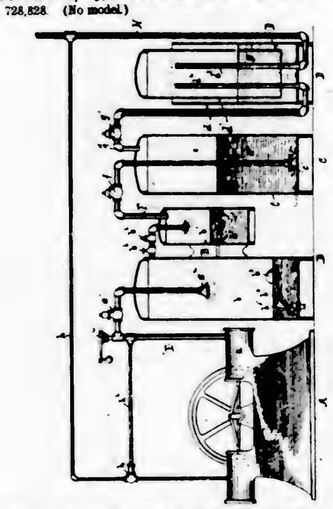
13. A rotary engine having a casing shaped like the central zone of a sphere with ends having shallow cylindrical recesses therein terminating in plane faces, annular grooves forming a continuation of the walls of said recesses, and smaller concentric annular grooves in said plane faces, ports in the casing leading from said plane faces to the bottom of said grooves and ports leading from the annular spaces inclosed between the concentric grooves, to the exterior of the casing.

14. The combination with a shaft and a casing concentric with the shaft provided with ports for admission and exhaust upon its outer walls terminating in grooves on its interior, other ports leading to the ends of the casing from branch pipes leading from the source of pressure supply to points inclosed within annular spaces between annular packing-rings in the heads of the casing, piston-heads having outer annular plane faces adapted to rotate against said packing-rings, and otherwise cored out to form chambers to contain pressure supplied from branch pipes aforesaid, ports leading from said chambers, to grooves upon inner conical faces of said piston-heads into which are free to slide radially sector-shaped piston-wings, traversing a slot in a disk capable of rotating in a groove in the casing oblique to the shaft, and tangent to the conical faces of the piston-heads, and a packed universal joint between the piston and shaft as a whole, and the aforesaid rotatable disk; substantially as specified.

15. In a rotary engine, the combination with a shaft of a casing concentric with the shaft and having bearings in its heads to carry said

shaft, formed of pieces shaped as frustums of cones bored to receive said shaft divided into halves through their horizontal axes and fitting into tapering cavities in said casing-heads and prevented from turning therein by feathers set in the walls bounding said cavities, and glands bearing against the outer plane faces of said frustums of cones, and means to apply pressure inward against the glands whereby the bearings are closed against the shaft to keep same in proper alinement.

645,485. CARBURETER. EDGAR A. MCALLISTER, Baltimore, Md., assignor, by mesne assignments, to the McAllister Gas-Light, Heat and Power Company, of West Virginia. Filed Aug. 29, 1899. Serial No. 728,828. (No model.)



Claim.—1. In an apparatus for carbureting aeriform fluids, the combination of a carbureter; an air-compressor; and a compressed-air tank having means for removing the water of condensation therefrom.

2. In an apparatus for carbureting aeriform fluids, the combination of a carbureter; an air-compressor; a compressed-air tank; and an automatically-controlled discharge-valve for removing the water of condensation from the said tank.

3. In an apparatus for carbureting aeriform fluids, the combination of an air-compressor; a compressed-air tank having means for removing the water of condensation therefrom, an auxiliary tank communicating with the compressed-air tank; and a carbureter.

4. In an apparatus for carbureting aeriform fluids, the combination of an air-compressor; a compressed-air tank having means to remove the water of condensation therefrom; a regulating-valve between the compressor and compressed-air tank; and a carbureter.

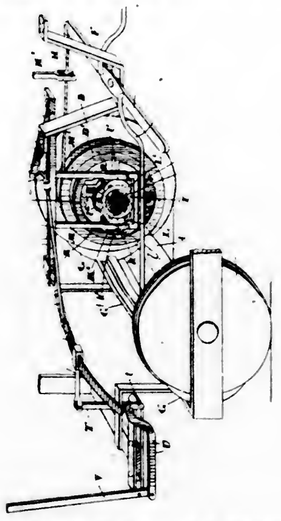
5. In an apparatus for carbureting aeriform fluids, the combination of an air-compressor; a compressed-air tank having means to remove the water of condensation therefrom; a regulating-valve between the compressor and compressed-air tank; a carbureter; and a regulating-valve between the compressed-air tank and the carbureter.

6. In an apparatus for carbureting aeriform fluids, the combination of an air-compressor; a compressed-air tank having means for removing the water of condensation therefrom; a carbureter; a gasometer; and a regulating-valve between the carbureter and gasometer.

7. In an apparatus for carbureting aeriform fluids the combination of an air-compressor; a compressed-air tank having means for removing the water of condensation therefrom; a regulating-valve between the compressor and compressed-air tank; a carbureter; a regulating-valve between the compressed-air tank and carbureter; a gasometer; and a regulating-valve between the carbureter and gasometer.

645,486. CAR-BRAKE. JAMES H. K. MCCOLLUM, Toronto, Canada, assignor of two-thirds to Remigius Elmsley and William Henry Brouse, same place. Filed Feb. 11, 1899. Serial No. 705,311. (No model.)

Claim.—1. The combination with a brake-shoe, brake-lever and connecting-rods, of a sheaf secured to the axle, a strap completely encircling the sheaf and permanently of greater diameter than the sheaf and expanding means adapted to be moved outwardly to engage the strap frictionally, and a cable connecting the strap to the brake-lever, substantially as described.



2. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, the strap loosely mounted on same, the cable connecting the strap to the brake-lever, the loose collar I, means for frictionally engaging the sheaf with the strap and means for retarding the rotation of the loose collar as and for the purpose specified.

3. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, the strap loosely mounted on same, the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same and provided with a recess, the rocking bar exteoding into such recess and means on the sheaf operated by the rocking bar for frictionally connecting the sheaf to the strap as and for the purpose specified.

4. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle and the strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same and provided with a recess, the rockiug bar extending into such recess and the arc-shaped lever pivoted to the sheaf extending over the rocking arm and provided with a frictional contacting braking-surface designed to come in contact with the strap and means for retarding the rotation of the loose collar as and for the purpose specified.

5. The combination with the brake-shoes, brake-lever and connecting-rod, the axle, the sheaf secured thereto, the strap mounted on said sheaf, the brake-lever, the cable connection between the same and the strap, the collar moving with the sheaf, the loose collar mounted thereon, the rocking bar, the pivoted lever, a brake-shoe carried thereby adapted to engage said strap and a connection between the lever and the loose collar for actuating said brake-lever to apply said brake-shoe, substantially as described.

6. The combination with the brake shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, and strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf, provided with a frictional contacting-surface, and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever and means for retarding the rotation of the collar as and for the purpose specified.

7. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, and strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf, provided with a frictional contacting-surface, and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever, the shoes suitably supported in proximity to the loose collar

and means for throwing them against the said collar as and for the purpose specified.

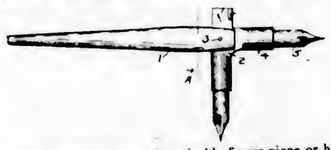
8. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, and the strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf, provided with a frictional contacting-surface, and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever, the minor shoes, the hangers both pivotally connected to the shoes and one pivotally supported at the top, the bottom bar connecting both hangers at the bottom and means for drawing the hangers together to apply the shoes as and for the purpose specified.

9. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle and strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf, provided with a frictional contacting-surface, and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever, the shoes, the hangers both pivotally connected to the shoes and one pivotally supported at the top, the bottom bar connecting both hangers at the bottom, means for drawing the hangers together to apply the shoes and a suitable spring-actuated device for separating the hangers to release the shoes as and for the purpose specified.

10. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, and strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf and provided with a frictional contacting-surface and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever, means for retarding the rotation of the collar, the ratchet-wheel formed on the face of the strap, the pawl engaging therewith and means for releasing such pawl as and for the purpose specified.

11. The combination with the brake-shoes, brake-lever and connecting-rods, of the sheaf secured to the axle, and the strap loosely mounted on same and the cable connecting the strap to the brake-lever, the collar attached to or forming part of the sheaf, the loose collar mounted on same, the arc-shaped lever pivoted on the sheaf provided with a frictional contact-surface, and designed to engage with the strap, means connected to the loose collar for tilting the arc-shaped lever, the minor shoes, the hangers, the double bar forming a support for the pivoted hanger and a guide for the loose hanger, means for connecting the hangers at the bottom and means for drawing such hangers together to apply the brake as and for the purpose specified.

645,487. HOLDER FOR PENS, BRUSHES, OR THE LIKE. ALBERT OGLE, Muncie, Ind., assignor of one-half to Jordan D. Williams same place. Filed Nov. 27, 1899. Serial No. 738,566. (No model.)



Claim.—1. The combination of a suitable finger-piece or handle having a longitudinal slot at its end, and a double holder for pens, brushes and the like pivotally mounted in said slot.

2. The combination of a suitable finger-piece or handle having a longitudinal slot at its end, a double holder for pens, brushes and the like pivotally mounted in said slot, and stops for limiting the oscillatory movement of said holder.

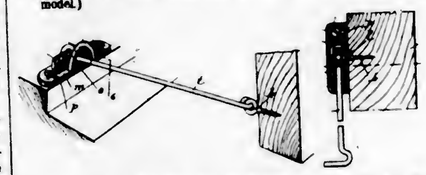
3. The combination of a suitable finger-piece or handle having a longitudinal slot in its end, and a holder for pens, brushes and the like pivoted in said slot so as to be horizontally movable, said holder having two pen or brush holding ends at right angles to each other and two extensions in line with such pen or brush holding ends and a stop on each of said extensions for limiting the oscillatory movement of the holder when one of the pen or brush holding ends is in line with the finger-piece or handle.

645,488. SHIRT. EVA G. OSGOOD, Malden, Mass. Filed Mar. 23, 1899. Serial No. 710,261. (No model.)

Claim.—As an article of manufacture, a garment having the shoulder part from the neck to the arm and the contiguous portion of the sleeve open or slitted, and supporting-tapes depending in the garment, having their ends passing through the garment near the shoulder portion on opposite sides of the slits in said shoulders and a detachable connection between the ends of said tapes.



645,489. FASTENER FOR STORM-WINDOWS. JOHN H. FRASER, Cedar Rapids, Iowa. Filed Oct. 30, 1899. Serial No. 735,296. (No model.)



Claim.—1. A fastening for storm-sash, &c., comprising a hook and means for pivotally connecting it to a sash, so that it may swing vertically and sidewise, and a bracket adapted to be secured to the window-frame and provided with an arch and a flange beyond the arch, said flange and arch being separated, so that the hook may be locked to the flange in its extended position and may lie between the flange and arch in its folded position, whereby the sash may be locked in its open position or in its closed position.

2. A fastening for storm-sash, &c., comprising a hook adapted to be pivotally connected to a sash, and a catch adapted to be removably secured to a window-frame and provided with a closed loop through which said hook works and a flange or projection beyond the loop and terminating below the highest point thereof.

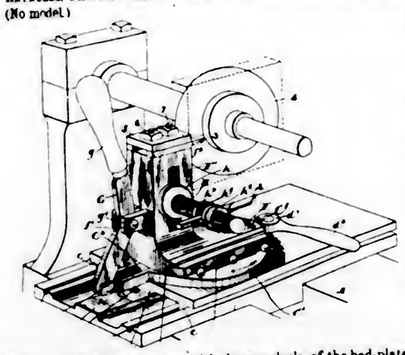
3. A fastening for storm-sash, &c., comprising a hook adapted to be attached to a sash, and a catch adapted to be fastened to a window-frame and provided with an upright arch or loop and a flange beyond the loop or arch, this flange terminating below the loop or arch and extending beyond one side of the same, the free end of the hook working through the loop and on the flange.

4. A fastening for storm-sash, &c., comprising a hook and means for pivotally connecting it to a sash, and a bracket adapted to be attached to a window-frame and provided with an upright arch and an upright flange beyond the arch, said flange being separated from the arch and having one end projecting beyond one side of the arch and the other end connected to the other side of the arch, substantially as and for the purposes set forth.

645,490. HUMID PROCESS OF EXTRACTING THE METALS BISMUTH OR ANTIMONY FROM THEIR SULFID ORES. JOHN RANALD, London, England. Filed May 9, 1899. Serial No. 716,124. (No specimens.)

Claim.—The process of extracting bismuth or antimony from its sulfid ores consisting in crushing the orp to be treated and bringing a solution of ferric chlorid to or about boiling temperature and introducing the crushed ore into the said solution while at the said temperature, separating the liquor from the tailings and then precipitating from the liquor the bismuth or antimony by means of metallic iron, then converting the ferrous chlorid thus produced to ferric chlorid and metallic iron in quantities the same as those originally used and repeating the operation with another charge of crushed ore using the same ferric chlorid and metallic iron for this charge and so on with each charge of ore.

645,491. TURNING ATTACHMENT FOR LATHES. GEORGE REYNOLDS, Toronto, Canada. Filed Oct. 7, 1899. Serial No. 732,927. (No model.)



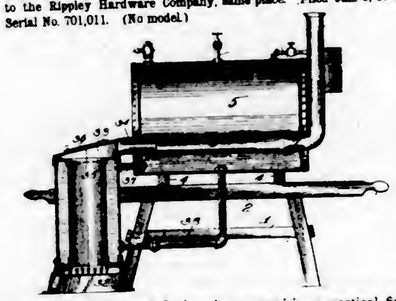
Claim.—1. The combination with the mandrels, of the bed-plate adjustably supported, the annular guiding-ring on the same, the circular plate provided with a groove to fit the ring and guiding-ribs on the bed-plate, the standard-plate and standard fitting within ribs on the circular plate, the tools supported in the plate and the lever pivoted to lugs in the standard and connected by links to a lug on the circular plate as and for the purpose specified.

2. In a machine of the class described, the combination with the standard, of the bolding-spindle extending through a vertical opening thereof and suitably secured in position and provided with a longitudinal slot and threaded outer end, and the collars fitting on the threaded end of the spindle and designed to hold the tool in position as and for the purpose specified.

3. In a machine of the class described, the combination with the standard and vertical opening therein, of the spindle provided with a flange intermediate of its length and a threaded end provided with a slot and a reduced end extending into the opening, a bolt extending through the opposite side of the opening into the reduced end, and the tool extending through a slot and the adjustable collars all arranged as and for the purpose specified.

4. The combination with the standard and two tools extending one on each side of the block and suitably held on the standard, of the circular plate provided with guiding-ribs and a circular groove at the bottom and the bed-plate provided with a circular projection fitting the aforesaid groove and the lever suitably connected to the standard and designed to rotate and move the same longitudinally as and for the purpose specified.

645,492. FEED-COOKER. FRANK RIPPLEY, Grafton, Ill., assignor to the Rippley Hardware Company, same place. Filed Jan. 3, 1899. Serial No. 701,011. (No model.)



Claim.—The improved feed-cooker, comprising a vertical fire-box for receiving the fuel, a cap or cover 33 located above the said box, the said cap or cover having an inclined top for guiding the products of combustion to the flue, a downwardly-pending collar integral with said cap and encircling the water-drum around the fire-box, and a laterally-extending sleeve or tube integral with said cover and projecting into the main water-tank, substantially as specified.

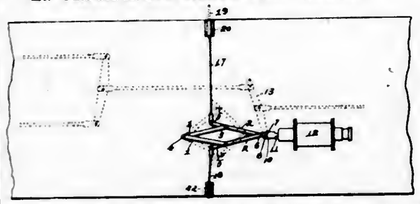
645,493. EYELET. LEWIS A. ROBERTS, Carbondale, Pa. Filed May 24, 1899. Serial No. 718,046. (No model.)

Claim.—1. In a lacing-eyelet for shoes, made relatively long and narrow having a flange around its upper edge, and an arm or projection extending out transversely from approximately the center of the flange on one of the long sides, said arm or projection being provided at its end with a penetrating tooth or point.



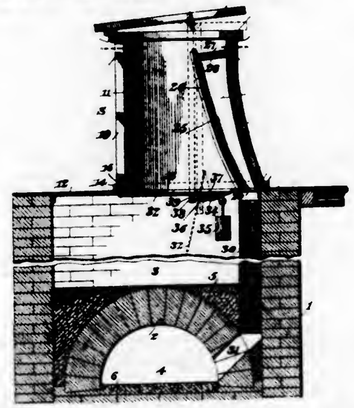
2. In a lacing-eyelet for shoes, made relatively long and narrow having a flange around its upper edge, and an arm or projection extending ont transversely from approximately the center of the flange on the long sides said arms or projections being provided at the ends with penetrating teeth or points.

645,494. BRAKE-INDICATOR. WILLIAM D. ROGERS, St. Louis, Mo. Filed Oct. 23, 1899. Serial No. 734,535. (No model.)



Claim.—In a brake-indicator, operating-rods, indicators composed of flexible material carried on the ends of said rods, which indicators are of such character as that they will bend when they come in contact with other objects, an indicating-scale on said indicators, guide-caps carried by the under side of the car in which caps the said flexible indicators are held when not in use, substantially as specified.

645,495. DRY-AIR CLOSET. GEORGE R. SCATH, Knoxville, Tenn. Filed Nov. 27, 1899. Serial No. 738,433. (No model.)



Claim.—1. In a dry-air closet, a vault provided with parallel flues arranged longitudinally of the vault and cut off from communication one with the other, combined with a hopper having communication with one of said flues, a normally-open vertical liquid-duct extending through the hopper and in communication only with the other flue, and means for establishing a circulation through the individual and non-communicating flues of the vault, substantially as set forth.

2. In a dry-air closet, the combination of a drying-vault provided with longitudinal flues cut off from communication one with the other, a hopper surmounting the vault and having valved communication with only one of the flues, a vertical liquid-duct extending through and below the hopper and in communication at its lower end with the other of said flues only, the upper end of said liquid-duct being normally open and disposed in close relation to the hopper-seat to effect the initial separation of the liquid from the solid matters, and means for establishing a circulation through the individual and non-communicating flues, substantially as set forth.

3. In a dry-air closet, the combination of a drying-vault pro-

vided with the non-communicating flues arranged close together and extending longitudinally of the vault, the series of hoppers surmounting the vault and each having a valved discharge-opening in communication with but one of said flues, a vertical liquid-duct extending from the upper part of each hopper and in communication at its lower end directly with the other evaporating-flue, and a heater and a stack in communication with opposite ends of the non-communicating evaporating-flues, substantially as set forth.

4. In a dry-air closet, the combination of a vault having separate upper and lower non-communicating flues arranged parallel one to the other and longitudinally of the vault, a vent-shaft in communication with both the flues at one end thereof, a vertical drain-pipe communicating directly with the lower evaporating-flue only, a hopper surmounting the vault and provided with a valved discharge-opening in communication with the upper evaporating-flue only, and a vertical liquid-duct communicating at its lower end with said drain-pipe and having a normally-open upper and screened end disposed contiguous to the hopper-seat, substantially as described.

5. In a closet, the combination of the base-plate provided with an opening therein, and an upstanding rest-flange surrounding said opening and having at intervals offset socket portions, and a hopper surmounting the base-plate and having its lower edge registering within said seat-flange and provided with a plurality of peripheral attaching-feet engaging in said socket portions, and a closure for automatically covering and uncovering said opening in the base-plate, substantially as set forth.

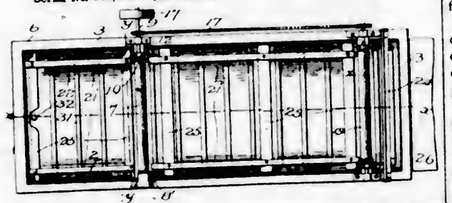
6. In a closet, a hopper comprising the complemental members united together and forming the front thereof, a part of an inclosing wall for a vertical liquid-duct, and a separate wall-plate fitted between said hopper members in opposing relation to the meeting front part thereof and thereby completing the aforesaid liquid-duct, as and for the purposes described.

7. In a closet, a hopper comprising the complemental cross-sectionally-curved members meeting each other at the front and forming, in part, the inclosing wall for a vertical liquid-duct, a separate wall-plate fitted between, and in opposing relation to the meeting front portion of, said members and thereby completing said liquid-duct, and means for detachably holding said wall-plate in position within the hopper, substantially as described.

8. In a closet, a hopper provided with convergent front side portions and having projected from opposite sides thereof longitudinally-arranged retaining-flanges, a detachable wall-plate removably fitted within the hopper against said flanges and having its edges meeting the opposite front side portions of the hopper to close in a liquid-duct extending longitudinally thereof, substantially its full height, substantially as set forth.

9. In a closet, a hopper consisting of separate duplicate sections, detachably held together at their meeting edges, a detachable wall-plate removably arranged within the front portion of the hopper to close in a longitudinal liquid-duct, and a guard-screen removably fitted within the upper end of said liquid-duct, substantially as set forth.

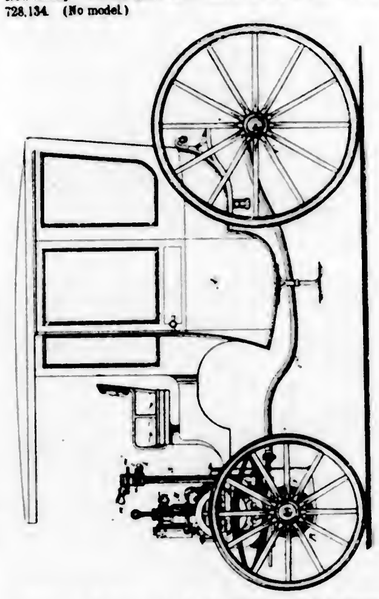
645,496. MEANS FOR WATERPROOFING COMPO-BOARD. WILLIAM H. SPRINGER and CHARLES J. JOHNSON, Minneapolis, Minn., assignors to Charles Axel Smith, same place. Filed Mar. 28, 1898. Serial No. 675,368. (No model.)



Claim.—1. The waterproofing-machine, comprising the tank, suitably supported, in combination, with downwardly-curved guides in said tank, the driving-rolls provided with depending bearings or hangers, the wringing or wiping rolls, means for driving said rolls, and the scrapers, substantially as described.

2. The combination in a machine for waterproofing compo-board, of the tank or vat of sufficient length to take in a board, with the curved guides removably arranged within said vat and whereby the boards are held while passing through the vat, the submerged driving-rolls provided in and near one end of said vat, the hanger-bearings for said rolls, the chain passing down within the vat to drive the lower roll, said rolls being geared together, the pressing-rolls arranged at the other end of said vat and above the surface of the composition therein, the belt for driving said pressing-rolls, and the wipers comprising the yielding strips to engage opposite sides of the board, substantially as described.

645,497. MOTOR-VEHICLE. HUGO STOMMEL, Plainfield, N. J., assignor to the United States Standard Motor Vehicle Company, of New Jersey. Filed Aug. 5, 1898. Renewed Aug. 22, 1899. Serial No. 728,134. (No model.)



Claim.—1. In motor-vehicles, the combination of a counter-shaft having friction-drum gears for varying the speed by a shifter as described, with a compensating clutch consisting of a drum and eccentric with a friction-roller, all arranged as and for the purpose set forth.

2. In motor-vehicles the counter-shaft E, provided with the gear-wheels a, a', a'', having friction-drums, in which are placed circular springs G, that are operated by a sliding piece F and pivoted dogs g, g and by means of a sliding rod E', having projections h, h', h'', in combination with a gear-wheel a''' and a projection h''' for reversing the action of the vehicle, as specified.

3. In motor-vehicles, a friction-clutch consisting of a drum containing a spring that is acted on by a collar secured to the shaft, and provided with a sliding piece actuating the pivoted dogs against said spring and operated as a toggle-joint in the manner shown and specified.

4. In motor-vehicles, the combination of a front axle with a counter-shaft provided with friction-drum gears, meshing with gears on said axle, and operated by a sliding shifter, having projections, in combination with a sliding piece in a collar secured to the shaft and provided with dogs and a spring, as and for the purpose set forth.

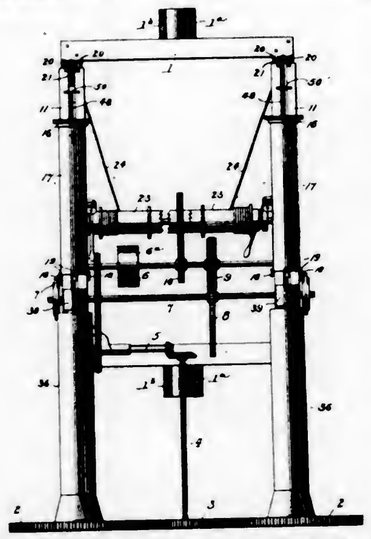
5. In a motor-vehicle, the combination of a fifth-wheel and a gear meshing therewith and operated by a handle with catch on a vertical shaft, with the compensating clutch, consisting of a drum containing an eccentric and friction-roller, all arranged as shown and specified.

6. The motor-vehicle described, consisting of an engine, connected by gearing to a counter-shaft, having friction-drum gears, the front axle having wheels, provided with compensating clutch consisting of a drum containing an eccentric and friction-roller, in combination with a fifth-wheel and gear, all arranged and operated as shown and set forth.

645,498. PIPE-MOLDING MACHINE. HARRY J. TAYLOR, Burlington, N. J. Filed Apr. 15, 1899. Serial No. 713,189. (No model.)

Claim.—1. In a machine of the class described, the combination with a hollow cylindrical ramming device, of a plurality of hinged bits at the periphery of said device, so as to be capable of rocking or swinging laterally.

2. In a machine of the class described, the combination with a flask and a pattern therein having a hub or head, of a mold-rammer adapted to enter the flask around the pattern, and a plurality of bits hinged to the periphery of said mold-rammer and adapted to rock or swing laterally.



3. In a machine of the class described, the combination with a flask, and a pattern therein, of a sand-box having pins fitted in the end of the pattern and supported above the same.

4. In a machine of the class described, the combination with a flask, and a pattern therein, of a sand-box having an annular discharge-opening in its bottom, and pins on said box which are removably received in pockets in the end of the pattern, whereby the box is supported above the pattern.

5. In a machine of the class described, the combination with a flask, and a pattern therein, of a sand-box of approximately the diameter of the pattern, rigidly supported above the same, having a discharge-opening for delivering the sand into the flask, and a hollow ramming or packing cylinder adapted to reciprocate in and out of the flask and to receive the pattern and sand-box during its entry in the flask.

6. In a machine of the class described, the combination with a rotary flask and pattern, of a sand-box supported on the pattern and adapted to turn therewith, and a stationary agitator in the sand-box.

7. In a machine of the class described, the combination with a sand-box having a discharge-opening in its bottom, of an agitator having a horizontal cross-bar disposed adjacent the bottom, and means for accomplishing relative rotation of the sand-box and agitator.

8. In a machine of the class described, the combination with a sand-box having a discharge-opening in its bottom, of an agitator comprising a shaft, stepped in the bottom, and a horizontal cross-bar and upright braces and agitating-rods connecting the bar with the shaft, and means for accomplishing relative rotation of the sand-box and agitator.

9. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a movable lifting-box, a pawl on said box adapted to engage the rack, and a tappet adapted to alternately raise the box and release it so that it may fall by gravity.

10. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a lifting-box having a cam-track, a pawl pivoted to the box and adapted to engage the rack when the box is raised, and a tappet adapted to alternately strike and travel on the cam and raise the box, and release it.

11. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a lifting-box, a pawl pivoted thereto adapted to engage the rack when the box is raised, a trip adapted to engage the pawl and release it from the rack when the box has been raised a predetermined height, and means for intermittently raising the box.

12. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a lifting-box, a pawl pivoted thereto adapted to engage the rack, an abutment on the box for supporting the toe of the pawl, a limit device on the box for limiting the movement of the heel of the pawl, a trip adapted to engage the heel of the pawl and disengage the latter from the rack when the box has reached a predetermined height, and means for intermittently raising the box.

13. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a lifting-box having an inclined cam-track, a pawl for engaging the rack when the box is raised, and a tappet-wheel having tappet-arms provided with antifriction-rollers adapted to strike the cam-track and travel thereon.

14. In a machine of the class described, the combination with a slide having a rack, and a ramming device connected to the slide, both adapted to drop by gravity, of a lifting-box, means thereon for engaging the rack, means for intermittently raising the box, a catch on the box, and a movable sustaining-catch adapted to support the box out of operative position when engaged with the aforesaid catch thereon.

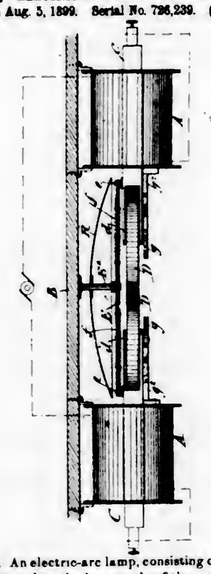
15. In a machine of the class described, the combination with a guide-casing having a slot in its side, of a slide movable in and guided by the casing, a rammer hung from a bracket which is connected to the slide and moving in the slot, means for automatically releasing it so that it will fall by gravity, cables connected to the slide, and weights connected to the cables which partially counterbalance the slide and rammer.

16. In a machine of the class described, the combination with a guide-casing having guides on its opposite sides and a slot in its front, of a slide movable in the casing, a rammer hung from a bracket which is connected to the slide and moves in the slot, counterbalancing-weights slidable in the guides at opposite sides of the casing, cables connecting the weights to the slide, and means for automatically raising and releasing the slide.

17. In a machine of the class described, the combination with two independent sets of ramming mechanism consisting of a slide and a rammer connected thereto, of independent windlasses, independent cables connecting the respective windlasses to the slides, and means for operating one windlass at a time or both simultaneously.

18. In a machine of the class described, the combination with two independent sets of ramming mechanism, whereby two molds may be formed simultaneously, each set comprising a gravity-rammer and automatic means for alternately lifting and releasing the same, of independent stop devices for rendering either of said automatic lifting mechanisms inoperative on the completion of the mold.

645,499. ELECTRIC-ARC LAMP. WILLIAM VOGEL, New York, N. Y. Filed Aug. 5, 1899. Serial No. 726,239. (No model.)



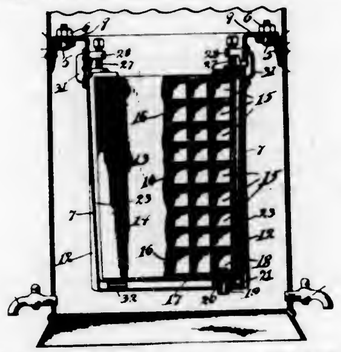
Claim.—1. An electric-arc lamp, consisting of a pair of solenoids, carbon disks pivoted to the inner ends of the cores of the solenoids,

means for intermittently rotating said carbon disks, so as to successively bring new points of the circumferences of the disks to the arc, a stationary central point, and a spring-actuated mechanism connecting the stationary central point with the cores of the solenoids, so that a controlled motion of both carbon disks is obtained, substantially as set forth.

2. An electric-arc lamp, consisting of two solenoids, carbon disks pivoted to the inner ends of the cores of the solenoids, means for intermittently rotating said carbon disks when the cores are drawn in to form the arc, and spring-actuated lazy-tongs pivoted to a stationary center-post and at the ends to the cores, substantially as set forth.

3. An electric-arc lamp, consisting of two solenoids, carbon disks pivoted to the inner ends of the cores of the solenoids, a pawl-and-ratchet mechanism applied to the shafts of the carbon disks so as to impart an intermittent rotary motion to the same, and spring-actuated lazy-tongs, the outer ends of which are pivotally connected with the cores of the solenoids, while the center of the same is applied to a stationary point located vertically above the point of contact of the carbon disks, substantially as set forth.

645,500. FILTER. JOHN F. ZIEGLER, Toledo, Ohio. Filed June 24, 1899. Serial No. 721,683. (No model.)



Claim.—1. In a filter, a filter-shell, having a basket suspended therein intermediate of its height, grooves formed in the basket into which are adapted to be inserted filter-blocks, in parallel relation, and means for clamping the blocks in the basket, substantially as described.

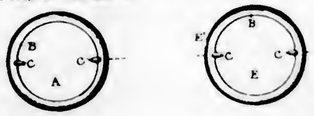
2. In a filter, a rectangular angle-iron frame secured to the filter-shell, a basket hung thereon, grooves formed in the basket, filter-blocks having ridges on the sides thereof adapted to enter the grooves, elastic cushions upon which the blocks seat, and clamping devices to cause the filter-blocks to press upon the elastic cushions, substantially as described.

3. For employment in a filter, a filter-block, consisting of a flat rectangular brick, having on the interior thereof a plurality of approximately-spherical cells, connected by passages; a frame in which the brick is secured having side pieces, on which are formed longitudinal ridges, a tube forming a passage for water from the interior of the brick, an elastic cushion, surrounding the tube and serving as a packing therefor and also as a cushion for the block, substantially as described.

4. A clamp for securing a filter-block in a filter, having a hooked extension designed to enter openings in the sides of the filter-basket and engage the edge of the opening, a screw threaded into the body of the clamp having a rounded end to enter the rounded recess in the frame of the filter-block substantially as shown and described.

5. The tube for conducting the water from the interior of the filter-block consisting of the portion 19 having the rubber packing thereon surrounded by the metal band 21, substantially as shown and described.

645,501. LAPEL-BUTTON. MAX R. BRUECKE, Bloomfield, N. J., assignor to Silas Swarts, New York, N. Y. Filed July 13, 1899. Serial No. 723,643. (No model.)



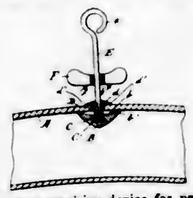
Claim.—1. A lapel or ornamental button consisting of a body, a flanged ring secured thereto, and said ring provided with teeth on opposite sides setting out from the back of the body and pointing toward each other, as and for the purposes set forth.

2. A lapel or ornamental button, consisting of a body, a flanged ring inclosing said body and secured thereto, and said ring provided with teeth on opposite sides setting out from the back of the body and pointing toward each other, as and for the purposes set forth.

3. A lapel or ornamental button consisting of a disk-shaped body a flanged ring secured thereto, and said ring provided with teeth on opposite sides setting out from the back of the body and pointing toward each other, as and for the purposes set forth.

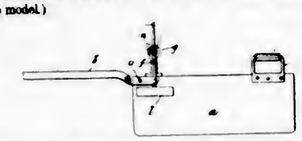
4. A lapel or ornamental button, consisting of a body, a flanged ring inclosing said body and secured thereto, and said ring provided with teeth on opposite sides setting out from the back of the body and pointing toward each other and another ring surrounding and retaining therein the toothed ring, as and for the purposes set forth.

645,502. REPAIR-PLUG FOR PNEUMATIC TIRES. LEWIS A. CARPENTER, Revere, Mass. Filed Oct. 28, 1898. Serial No. 694,803. (No model.)



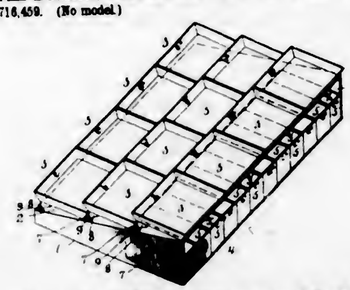
Claim.—A puncture-repairing device for pneumatic tires, comprising an imperforate plug of flexible or yielding material, a metallic shank having a head or flange thereon which is embedded in and inclosed by said plug, and a screw-threaded nut or washer cooperating with said shank.

645,503. CUTTER-GAGE FOR ICE-CREAM, &c. TIMOTHY F. CROWLEY, New York, N. Y. Filed May 11, 1899. Serial No. 716,338. (No model.)



Claim.—The herein-described instrument, comprising a knife-blade provided at either end with a handle, an upwardly-directed standard connected with the upper edge of said knife-blade, a laterally-directed graduated rod adjustably connected therewith, a downwardly-directed supplemental rod adjustably connected with said rod and provided at one end with a marker, and independent devices for securing said rod and supplemental rod in adjusted position, substantially as shown and described.

645,504. CONFECTIONERY DISPLAY AND DISPENSING CASE. FRED L. DAGGETT, Somerville, Mass. Filed May 11, 1899. Serial No. 716,459. (No model.)



Claim.—1. In a confectionery-case of substantially the character described, a base having an open back made up of sections with top and outer side walls and suitable supports for the inner sides of the top terminating short of the rear of the base, so that the rear openings in the sections will be uninterrupted by a partition when the sections are brought together; substantially as explained.

2. In a confectionery-case of substantially the character described, a base made up of sections each having a top and side walls supporting said top; the inner or adjacent side walls of the sections being terminated short of the back at the base, for the purpose set forth.

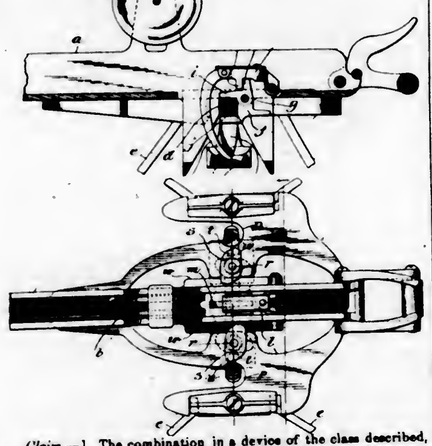
3. In a confectionery-case, a base made up of sections, each having top supporting-surfaces and sides supporting said tops, the inner supporting side walls of the end sections and both supporting side walls of the intermediate section or sections being terminated short of the rear of the base and thereby providing a continuous open space at the back of the base, substantially as explained.

4. In a confectionery-case, a base made up of sections, each having a top supporting-surface, side walls supporting said top surface, transverse walls 6 located at points between the front and back of the base; all of the side walls excepting those forming the end walls of the base being made to terminate at the transverse walls 6, for the purpose explained.

5. A confectionery-case comprising a base having a supporting-top flush with the upper edges of the walls thereof and providing a clear unobstructed surface, a series of trays having front legs and supported in approximately-horizontal steps independently of each other directly on the said top at their rear edges and at their front edges by the said legs, whereby a free and open accessible space is provided beneath each of the trays to facilitate the proper handling of the trays; and means for holding the legs in place and for preventing the displacement of the trays, substantially as described.

6. A confectionery-case comprising a base having a supporting-top flush with the upper edges of the walls thereof and providing a clear unobstructed surface, foot-rests secured to the top, and a series of trays having front legs and supported in approximately-horizontal steps, independently of each other, directly on the said top at their rear edges and at their front edges by the said legs bearing against the foot-rests; whereby a free and open accessible space is provided beneath each of the trays to facilitate the handling of the trays; substantially as described.

645,505. SAFETY-LOCK FOR PACKAGE-CARRIERS. EMANUEL C. GIPS, Chicago, Ill., assignor of three-fourths to Felix J. Griffen, same place, George W. Tassell, Waukesha, Wis., and Henry L. Gios, Elmhurst, Ill. Filed Mar. 2, 1899. Serial No. 707,582. (No model.)

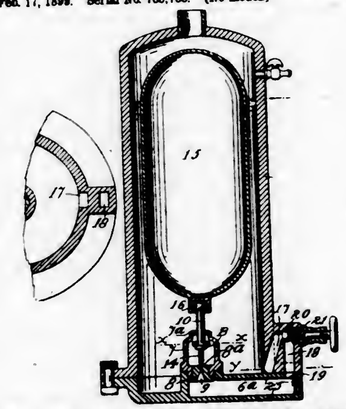


Claim.—1. The combination in a device of the class described, of a car adapted to run upon a way, a detachable goods-carrying receptacle, primary and secondary automatic locks for locking the two together, one of said locks being upon the car and the other upon the suspending plate of the goods-receptacle, and a lifting-stirrup for raising and lowering the goods-receptacle, said lifting-stirrup being adapted to engage both of said locks and to actuate the same when said stirrup is raised and lowered by the operator, substantially as described.

2. In a device of the class described, the combination of a car adapted to run upon a way, a detachable goods-carrying receptacle having a plate adapted to be engaged by a primary lock, a primary automatic lock mounted upon the car, a stirrup suspended from a cord or cords for raising and lowering said receptacle and actuating said primary lock, one or more buttons pivotally mounted upon said plate adapted to assume engaging positions with relation to the frame of said car when said plate is lifted into contact with the latter, and a depending auger-shaped extension connected with each of said buttons, said extensions being adapted to be engaged by slots in said stirrup and to be actuated thereby, substantially as described.

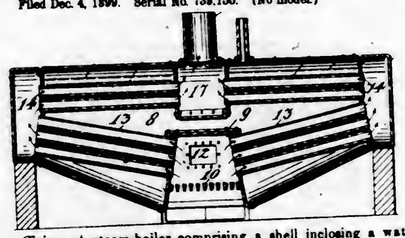
3. In a device of the class described, the combination of a car, a detachable goods-carrying receptacle, having a plate adapted to be engaged by a primary lock, a primary automatic lock mounted upon the car, a stirrup suspended from a cord or cords for raising and lowering said receptacle and actuating said primary lock, one or more buttons pivotally mounted upon said plate adapted to assume engaging positions with relation to the frame of said car when said plate is lifted into contact with the latter, a depending auger-shaped extension connected with each of said buttons, said extensions being adapted to be engaged by slots in said stirrup and to be actuated thereby, and springs for holding said buttons in normal positions respectively, substantially as described.

645,506. STEAM-TRAP. HENRY HELLING, Denver, Colo. Filed Feb. 17, 1899. Serial No. 705,783. (No model.)



Claim.—In a steam-trap, the combination with a receptacle connected with a steam system and arranged to receive the water of condensation therefrom, means for automatically discharging the water from the receptacle, whereby a water seal is normally maintained in the receptacle to prevent the escape of steam, said receptacle being provided with a passage leading from its bottom upwardly, and thence downwardly to an outlet-opening, and a valve located at the upper extremity of the said passage.

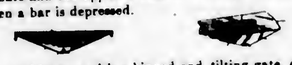
645,507. STEAM-BOILER. ERNEST HUMPHREY, Denver, Colo. Filed Dec. 4, 1899. Serial No. 739,155. (No model.)



Claim.—A steam-boiler comprising a shell inclosing a water-chamber, a fire-box located in the lower transverse central portion of the chamber, tubes leading therefrom in opposite directions to chambers formed at the extremities of the water-chamber, and tubes leading from the auxiliary end chambers to a chamber formed in the upper central portion of the boiler and communicating with the smoke-stack.

645,508. GATE. ALEXIS LINDQUIST, De Land, Fla. Filed June 2, 1899. Serial No. 719,120. (No model.)

Claim.—1. The combination with a hinged and tilting gate, of a tilting fulcrum-step on which the gate is slidingly mounted, pressure-bars arranged at a distance from the gate, and the connections between said bars and the opposite ends of the step, whereby the step is tilted when a bar is depressed.



2. The combination with a hinged and tilting gate, of a tilting fulcrum-step on which the gate is slidingly mounted, an operating-bar arranged at a distance from the gate and adapted to be depressed when weight is placed thereon, a lever actuated by said bar, and a flexible connection between said bar and step, substantially as described.

3. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, and a hinge pin or rod for the gate having a sliding engagement with said step.

4. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, and a hinge pin or rod for the gate, said pin being mounted to bear upon and slide lengthwise of the step.

5. The combination with a hinged gate, of a tilting fulcrum-step therefor having a slot in its upper side, and a hinge pin or rod for the gate having its lower end arranged to work longitudinally in said slot.

6. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, means for tilting said step, and a hinge pin or rod for the gate, said pin or rod having its upper end held stationary, and its lower end bearing upon the step and arranged to slide thereon.

7. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, a hinge pin or rod for the gate having a sliding engagement at its lower end with said step, an operating-bar arranged at a distance from the gate, a lever connected at one end to said bar, and a connection between said lever and one end of the fulcrum-step, substantially as described.

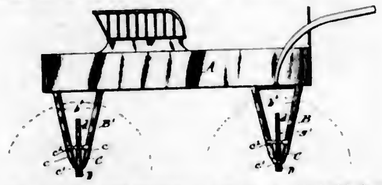
8. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, a hinge pin or rod for the gate having a sliding engagement at its lower end with said step, operating-bars arranged on each side of the gateway at a distance therefrom, and connections between said bars and step for tilting the latter.

9. The combination with a hinged gate, of a keeper mounted on one of the gate-posts and comprising a spring-arm rigidly connected at one end to the post and lying in a groove therein, and provided at its free end with a laterally-extending nose or engaging portion which works in a recess of the post, an operating-bar located at a distance from the gate, a lever connected at one end to said bar, and a flexible connection between said lever and keeper, substantially as described.

10. The combination with a hinged and tilting gate, of a tilting fulcrum-step therefor, a hinge pin or rod for the gate having a sliding engagement with said step, a keeper mounted on one of the stationary gate-posts and adapted to engage the free end of the gate, an operating-bar arranged at a distance from the gate, and connections between the operating-bar and the step and the keeper, whereby both the step and the keeper are simultaneously operated, substantially as described.

11. The combination with a swinging gate, of a pivoted latch on the free end of the gate, a pair of spring-keepers on one of the gate-posts for engaging said latch and between which the latch is adapted to lie, operating-bars arranged on opposite sides of the gate when closed, and connections between said bars and keepers, whereby the depression of either bar will operate both keepers for releasing the gate.

645,509. SPEED-WAGON. BISHOP S. MORDEN, Buffalo, N. Y. Filed July 25, 1899. Serial No. 725,084. (No model.)



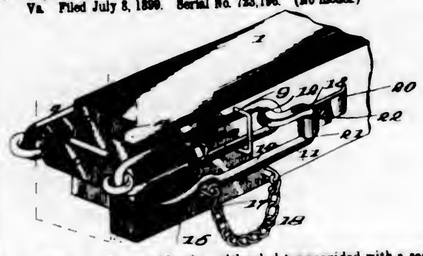
Claim.—1. The combination with an axle provided with depending end portions or members forming the side-bars of a spindle-bracket, a connection uniting the lower ends of said side-bars, a bridge-piece connecting said side-bars above said connection, said connection and bridge-piece being provided with openings or sockets, and an axle-spindle having an upright shank which is secured in the openings of said connection and bridge-piece, substantially as set forth.

2. The combination with an axle provided with depending end portions or members forming the side-bars of a spindle-bracket, a connection uniting the lower ends of said side-bars, a bridge-piece connecting said side-bars above said connection, said connection and bridge-piece being provided with openings or sockets, an axle-spindle provided at its inner end with an upright shank capable of vertical adjustment in the openings of said connection and bridge-piece, and means for adjustably securing said shank in the bracket, substantially as set forth.

3. The combination with an axle provided at its end with a depending bracket composed of downwardly-converging side-bars united at their lower ends by a transverse connection and near their upper ends by a bridge-piece, said connection and bridge-piece being formed integral with the side-bars and each provided with an opening or socket, and an axle-spindle having an upright shank which is secured in the openings of said connection and bridge-piece, substantially as set forth.

4. The combination with an axle composed of a pair of arched transverse tubes arranged one in front of the other, of upright brackets arranged at the ends of the axle and each composed of a pair of downwardly-converging side-bars secured at their upper ends to the depending ends of the axle-tubes, a connection uniting the lower ends of said side-bars and a bridge-piece connecting the upper portions thereof, and axle-spindles each provided at its inner end with an upwardly-extending shank which is secured in the connection and the bridge-piece of the adjacent bracket, substantially as set forth.

645,510. LOGGING-CAR. GEORGE A MOUNTCASTLE, Arringdale, Va. Filed July 8, 1899. Serial No. 723,196. (No model.)



Claim.—1. The combination with a bolster provided with a seat for the standard, of a yoke for confining the standard in said seat and pivoted at one end, a locking-slide loosely connected with the free end of the yoke, a keeper for engagement with the slide, and a catch independent of said keeper for locking the slide.

2. The combination with a bolster provided with a seat for the standard, of a yoke for confining the standard in said seat, a locking-slide in engagement with the free end of the yoke, a catch pivoted upon the side of the bolster for engagement with the locking-slide, and an arm for moving the catch toward and from said slide.

3. The combination with a bolster provided with a seat for the standard, of a yoke for confining the standard in said seat, a locking-slide in engagement with the free end of the yoke, a catch pivoted upon the side of the bolster for engagement with the locking-slide, an arm for moving the catch toward and from said slide, and means for securing the arm against displacement.

4. The combination with a bolster having a seat, and a yoke for closing the open side of the seat, of a locking-slide having loose connection with the yoke, a projection for directing the slide in its sliding movements, and means for securing the slide, substantially as specified.

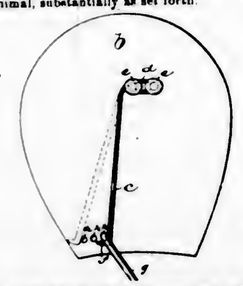
5. The combination with a bolster having a seat, and a yoke for closing the open side of the seat, of a locking-slide having loose connection with the yoke, a projection for directing the slide in its sliding movements, a keeper, a pivoted catch, an arm, a staple for passing through a slot of the arm, and a locking device cooperating with the staple to hold the arm in place, substantially as described.

645,511. HEEL-SPREADER FOR HORSES. JAMES MCDONOUGH, Montclair, N. J. Filed June 12, 1899. Serial No. 720,151. (No model.)

Claim.—1. The improved heel-spreader for horses, comprising a supporting-plate and a single independent resilient prong to press against the abnormal heel, substantially as set forth.

2. The improved heel-spreader for horses, comprising a leather plate adapted to be interposed and held between the horse's shoe and foot and an independent spreading-spring fastened to said plate at one end and having a tooth at its opposite free end, substantially as set forth.

3. The improved heel-spreader for horses, comprising a supporting-plate and conforming in general outline to the foot of the animal, and a spring fastened to the fore part of said plate and extending back toward the heel portion thereof, where it is free to engage the heel of the animal, substantially as set forth.

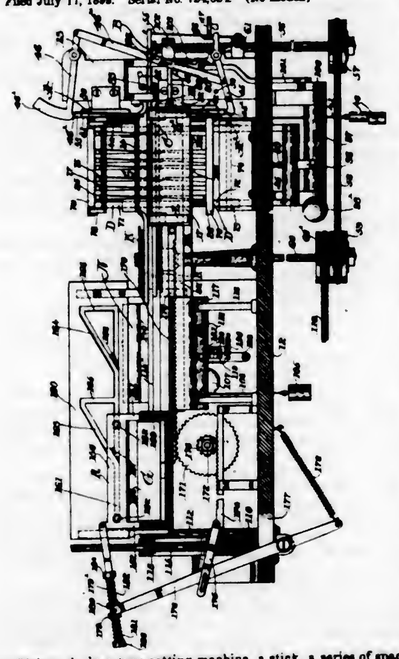


4. The improved heel-spreader, comprising a plate, a spring slotted at one end and having a lateral tooth at the opposite free end, and rivets for holding said spring to said plate, substantially as set forth.

5. The improved heel-spreader, comprising a plate having a series of holes, a spring slotted at one end and having a tooth at the other, fastening means and a key, all arranged and adapted to operate, substantially as set forth.

6. The improved heel-spreader, comprising a spreading-spring, and a lock for holding said spring out of spreading relation to the heel, substantially as set forth.

645,512. TYPE-SETTING MACHINE. PATRICK H. MCGRATH, Randolph, Mass., assignor of one-half to Edward O. Ely, Boston, Mass. Filed July 17, 1899. Serial No. 724,024. (No model.)



Claim.—1. In a type-setting machine, a stick, a series of spaces each consisting of two disconnected wedges each slidable and movable upon the other, and means for introducing the spaces into the line transversely of the bodies of the type.

2. In a type-setting machine, a stick, a series of spaces, each consisting of two disconnected wedges, means for introducing the spaces into the line, means for shifting the line, and means for driving the respective members of the spaces farther into place in opposite directions to justify the line before it is shifted.

3. In a type-setting machine, a stick, a series of spaces each consisting of two wedges slidable upon each other, means for introducing the spaces into the line, and means operative after the primary introduction of the spaces for driving the wedges in opposite directions.

4. In a type-setting machine, a stick, means for introducing wedge-spaces into the line transversely of the type, and means for subsequently alining the type and spaces by turning one relative to the other.

5. In a type-setting machine, a series of spaces consisting each of two wedges slidable one upon the other, means for introducing said spaces into the line, means to move the type and partially-inserted spaces laterally, and a series of drivers to act against the respective wedges and further drive the same in opposite directions between the type before shifting the line, and means to subsequently shift the justified line.

6. In a type-setting machine, a stick, a series of spaces each consisting of two wedges slidable upon each other, means for introducing the spaces into the line transversely of the bodies of the type and for shifting the line, two independent drivers for the respective wedges serving to force the same in opposite directions, and a power-transmitting member located for operation by one of said drivers, and serving to actuate the other.

7. In a type-setting machine, a stick, a series of spaces each consisting of two disconnected wedges slidable upon each other in opposite directions, means for introducing the spaces into the line and for shifting the same, line markers or stops, driving means adapted to force the wedges of the respective pairs oppositely after the introduction of the line markers or stops, means for transferring the line, and means for alining the type and spaces and for transferring the line after the removal of said line-markers.

8. In a type-setting machine, a stick, a series of spaces each consisting of two disconnected wedges slidable upon each other in opposite directions, and transversely of the bodies of the type, means for introducing the spaces into the line and for shifting the latter, driving means for the respective wedges, manually-controlled means for normally holding the driving means in the ineffective position thereof, means for transferring the line of type with the spaces therein, and means for alining the spaces and type.

9. In a type-setting machine, a stick, a series of spaces each of which consists of two disconnected wedges each adapted to be moved into the line of type in opposite directions, and means for introducing the wedges into the line of type and for subsequently shifting the justified line.

10. In a type-setting machine, wedge-spaces for separating the words of a line, and each consisting of two parts, drivers located to act against the two parts of the wedge-spaces and each having a rack, a pinion intermediate and adapted to mesh with the racks, and an actuating member connected to one of the drivers.

11. In a type-setting machine, means for introducing wedges in pairs into the line under composition, drivers located to act against the wedges and operatively connected for simultaneous movement, an actuating member connected to one of the drivers, and means for holding said actuating member in its ineffective position.

12. In a type-setting machine, means for introducing wedges in pairs into the line under composition, drivers located to act against the wedges and operatively connected for simultaneous movement, an actuating member connected to one of the drivers, a shaft provided with an arm serving to uphold said actuating member, and a hand-lever on said shaft.

13. In a type-setting machine, two channels, wedges disposed in said channels and coöperative in pairs, a feed device active against each set of spaces, two levers mounted to introduce the foremost wedges into the line, and drivers adapted to drive the wedges farther into their seats after they have been introduced by said levers, thereby to justify the line.

14. In a type-setting machine, two channels, wedges disposed in said channels and coöperative in pairs, a feed device active against each set of spaces, two levers mounted to introduce the foremost wedges into the line, and drivers adapted to drive the wedges farther into their seats after they have been introduced by said levers, thereby to justify the line, a link uniting the two levers to cause the operation of the same in unison, and a key secured to one of the levers.

15. In a type-setting machine, means for introducing spaces transversely into the line of type, and means to thereafter change the relative position of the spaces and type by turning one relative to the other to aline the spaces and the type.

16. In a type-setting machine, a stick, means for introducing wedge-spaces into the line from opposite sides thereof, and means for afterward driving the spaces farther into the line at the place where the line is composed, to justify the same.

17. In a type-setting machine, means for introducing the spaces into the line, a pusher for advancing the type and the spaces, means including a spring for effecting the operation of the pusher, and a device adapted to act against said spring to thereby put the same in its ineffective position.

18. In a type-setting machine, a stick including a shiftable member with which the line of type is adapted to travel, a locking device cooperative with and adapted normally to hold the shiftable member in its primary position, driving means for the spaces, located beyond the point at which the latter are introduced, and means for throwing the space-driving means into action and for releasing said locking device.

19. In a type-setting machine, a stick including a shiftable member with which the line of type is adapted to travel, a locking device cooperative with and adapted normally to hold the shiftable member in its primary position, driving means for the spaces, located beyond the point at which the latter are introduced, means for throwing the space-driving means into action and for releasing said locking device, and means for advancing the shiftable member of the stick with the line of type therewith.

20. In a type-setting machine, means for introducing the spaces into the line, two operative drivers for the spaces, an actuating device connected to one of the drivers, a shaft having an arm adapted to engage said actuating device and provided with a hand-lever, means including a latch for holding the line in position until it is justified, and a tripping device for said latch connected with said shaft.

21. In a type-setting machine, a stick, a series of spaces each consisting of two wedges slidable upon each other, means for introducing the spaces into the line, and means to engage all the spaces at the same time and to drive them oppositely at the place where the line is composed.

22. In a type-setting machine, means for introducing wedges in pairs between the words in a line under composition and means for subsequently driving said pairs of wedges oppositely.

23. In a type-setting machine, means for introducing spaces into the line, and means for cutting off portions of the spaces.

24. In a type-setting machine, means for introducing spaces into a line, and means for cutting off the spaces above and below the line.

25. In a type-setting machine, means for introducing wedges into the line in opposite directions and transversely of the type, and means for cutting off the wedges at opposite sides of said line.

26. In a type-setting machine, means for introducing spaces into the line, and rotative means for cutting off portions of the spaces.

27. In a type-setting machine, means for introducing spaces into the line, to justify the same and for subsequently shifting the line, and cutting mechanism for the spaces operative during the travel of the line.

28. In a type-setting machine, means for introducing spaces into the line, and for transferring the justified line, and a saw located in the path of and adapted to cut off portions of the spaces.

29. In a type-setting machine, means for introducing the spaces into the line to justify the same, two rotative saws located above and below the line of type, and a single shaft for supporting said saws.

30. In a type-setting machine, means for introducing spaces into the line and for subsequently driving the spaces farther into place, and mechanism located to cut off portions of the spaces.

31. In a type-setting machine, means for introducing spaces into the line, and means for nicking said spaces while in the machine.

32. In a type-setting machine, means for introducing spaces into the line, means for justifying the line, and means for nicking the spaces.

33. In a type-setting machine, means for introducing spaces into the line, means for justifying the line, and means for nicking the spaces above and below the line.

34. In a type-setting-machine, means for introducing spaces into the line, and space cutting and nicking devices operative in unison.

35. In a type-setting machine, means for introducing spaces into the line, a shaft, means for rotating said shaft, and space cutting and nicking devices in different planes connected to said shaft.

36. In a type-setting machine, means for introducing spaces into the line, and means for shifting the line, and space cutting and nicking devices operative upon the spaces during the shifting movement of the line.

37. In a type-setting machine, means for introducing spaces into the line from opposite sides thereof, two space-cutters, and two nicking devices located between the space-cutters.

38. In a type-setting machine, means for introducing spaces into the line and for shifting the line bodily with the spaces therein, and means for cutting off portions of the spaces during shifting movement.

39. In a type-setting machine, means for introducing wedges into the line from opposite directions, and for shifting the line after justification, a shaft, two cutters carried by said shaft at opposite sides of the line, and two nicking devices also carried by said shaft and located intermediate said cutters and disposed respectively above and below the line of type.

40. In a type-setting machine, means for introducing spaces into the line transversely of the type, and means for alining the type and spaces by turning one relative to the other.

41. In a type-setting machine, means for introducing spaces into the line, means for cutting off portions of the spaces, and means for alining the type and spaces.

42. In a type-setting machine, means for introducing spaces into the line transversely of the type, means for shifting the line, and means for tilting the type to throw them into alinement with the spaces.

43. In a type-setting machine, means for introducing spaces into the line, means for shifting the line with the spaces therein, means for cutting off portions of the spaces and for also nicking the same, and means for alining the type and spaces.

44. In a type-setting machine, means for introducing spaces into the line, and means for cutting off the spaces, the cutting means being so organized that sufficient portions of the spaces will be removed to prevent the said spaces projecting beyond the faces of the type when the type and spaces are alined.

45. In a type-setting machine, means for introducing spaces into the line, means for cutting off the spaces, the cutting means being so organized that sufficient portions of the spaces will be removed to prevent the said spaces projecting beyond the face of the type when the type and spaces are alined, and means for alining the spaces and type.

46. In a type-setting machine, a stick, a series of spaces, each consisting of two wedges slidable one upon the other, means for introducing the spaces into the line, and means for cutting off predetermined portions of the spaces.

47. In a type-setting machine, a stick, a series of spaces, each consisting of two wedges slidable one upon the other, means for introducing the spaces into the line of type and for tilting one of said series of parts relatively to the other to bring the two into alinement.

48. In a type-setting machine, means for introducing a series of spaces into a line made up of a series of type, and means operative for simultaneously tilting all of the members of one of said series to bring both series into alinement.

49. In a type-setting machine, means for introducing spaces into the line, line-markers disposed at the ends of the line, means for alining the type, and independent means for removing the line-markers automatically.

50. In a type-setting machine, means for introducing spaces into the line, line-markers disposed at the ends of the line, and automatic mechanism for simultaneously removing the line-markers and alining the spaces and type.

51. In a type-setting machine, means for introducing spaces into the line, line-markers disposed at the ends of the line, space-cutting mechanism, and means for automatically removing the line-markers at a predetermined point.

52. In a type-setting machine, means for introducing spaces into the line, line-markers disposed at the ends of the line, space-cutting mechanism, and means for automatically removing the line-markers and for also alining the spaces and type.

53. In a type-setting machine, a stick, a series of spreading-spaces, means for introducing the spreading-spaces into the line to effect the justification of the same, means for transferring the line and for alining the spaces and type, a galley, and means for moving the line into position to be pushed into said galley.

54. In a type-setting machine, means for introducing spaces into the line and for shifting the line bodily with the spaces therein, means for cutting off portions of the spaces and for subsequently alining the type and spaces, a galley, and means for moving the line into position opposite the entrance to the galley.

55. In a type-setting machine, means for introducing spaces into the line, mechanism for shifting the line bodily with the spaces therein and for subsequently stopping the line, a galley, a line-transferring device operable between the place at which the line is stopped and the entrance to the galley, and provided with projections, and a plate having main and branch channels to receive said projections, and means for operating the line-transferring device.

56. In a type-setting machine, means for introducing spaces into the line, mechanism for shifting the line bodily with the spaces therein and for subsequently stopping the line, a galley, a line-transferring device operable between the place at which the line is stopped and the entrance to the galley, and means for operating said line-transferring device, controlled in part by the movement of the line.

57. In a type-setting machine, means for introducing spaces into the line, mechanism for shifting the line bodily with the spaces therein, and for cutting off predetermined lengths of the spaces during the travel of the line, a galley, a line-transferring device operable to shift the line into position opposite the entrance of the galley, and a pusher for entering the line in the galley.

58. In a type-setting machine, means for introducing spaces into the line, means for transferring the line with the spaces therein, including a carrier provided with line-markers, devices for removing the line-markers and devices for alining the spaces and type, driving mechanism for the said devices, and means controlled by the carrier for throwing the driving mechanism into action to operate said two devices.

59. In a type-setting machine, means for introducing spaces into the line, means for transferring the line with the spaces therein including a carrier provided with line-markers, devices for removing the line-markers and devices for alining the spaces and type, driving mechanism for the said devices, means controlled by the carrier for throwing the driving mechanism into action to operate said two devices, a galley, and means for transferring the line of type and spaces to the galley.

60. In a type-setting machine, means for introducing spaces into the line, means for transferring the line with the spaces therein, including a carrier provided with line-markers one of which is spring-actuated, means for alining the type and spaces, and independent means for removing the line-markers.

61. In a type-setting machine, means for introducing spaces into the line, a line-carriage having line-markers, a device for removing the line-markers, actuating mechanism for the line-marker-removing device, and means controlled by the carriage for holding the actuating mechanism normally in its ineffective position.

62. In a type-setting machine, means for introducing spaces into the line, a line-carriage having line-markers, a device for removing the line-markers, actuating mechanism for the line-marker-removing device, a locking device located to engage the actuating means thereby to hold the same in its ineffective position, and a tripping device for the latch operated by the carriage.

63. In a type-setting machine, means for introducing spaces into the line, a carriage provided with line-markers and adapted to advance the line bodily with the spaces therein, a device for removing the line-markers, a device for alining the type and spaces, common actuating means for both the devices, and means operated by the carrier for releasing the locking device.

64. In a type-setting machine, means for introducing spaces into the line, means for shifting the line bodily with the spaces therein, including a carriage provided with line-markers, devices for removing the line-markers and for alining the spaces and type, actuating mechanism for said two devices, a galley, means including a pusher for moving the type into the galley, and mechanism controlled by the actuating means for said two devices for throwing the pusher into action.

65. In a type-setting machine, means for introducing spreading-spaces into the line, independent means to drive the spaces farther into position to justify said line, and means for cutting off predetermined portions of the spaces.

66. In a type-setting machine, means for introducing spreading-spaces into the line, independent means to drive the spaces farther into position to justify said line, means for cutting off portions of the spaces, and means for alining the spaces and type.

67. In a type-setting machine, means for introducing spreading-spaces into the line, means for cutting off portions of the spaces, means for nicking said spaces, and means for alining the spaces and type.

68. In a type-setting machine, a stick, means for introducing spaces into the line, and mechanism operable at different times for removing portions of the spaces and for alining the type and spaces.

69. In a type-setting machine, a stick, means for introducing spaces into the line to justify the same, means for removing portions of the spaces after the justification of the line, and mechanism for subsequently alining the type and spaces.

70. In a type-setting machine, a stick, means for introducing spaces into the line to justify the same, means for removing portions of the spaces after the justification of the line, mechanism for subsequently alining the type and spaces, a galley, and mechanism for transferring the justified line to the galley.

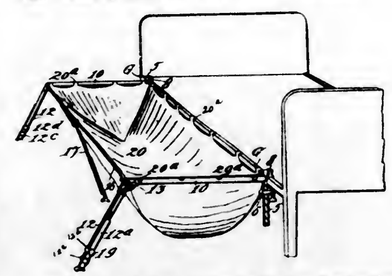
71. In a type-setting machine, a stick, means for introducing spaces into the line transversely of the type to justify the same, and means for alining the type and spaces by turning one relative to the other after the justification of said line by the spaces.

72. In a type-setting machine, a stick, means for introducing wedge-spaces into the line during its composition, a galley, and means for transferring the line to the galley with the spaces therein which were introduced during the composition of said line, said spaces being maintained in said line.

73. In a type-setting machine, a stick, means for introducing spaces into the line during its composition transversely of the type, a galley, means for transferring the line to the galley with the spaces therein which were introduced during the composition of said line, and means for alining the type and spaces before they reach the galley.

74. In a type-setting machine, a stick, means for introducing spaces into the line during its composition, a galley, means for transferring the line to the galley with the spaces therein, and independent devices operable after the justification of a line and before it reaches the galley, to remove portions of the spaces and to aline the spaces and type.

645,513. PORTABLE BATH-TUB. JAS. W. MCGREGOR, Brighton, Colo. Filed Aug. 22, 1899. Serial No. 728,137. (No model.)



Claim.—1. In a folding portable bath-tub the combination with a flexible water-receptacle, of a supporting-frame comprising clamping-bars adapted to be attached to the side rail of a bed, end bars detachably connected with the clamping-bars, a folding side bar detachably connected with the end bars and suitable means for supporting the side and end bars.

2. In a portable bath-tub the combination with a flexible water-receptacle, of a supporting-frame therefor comprising vertical clamping-bars adapted to be attached to the side rail of a bed and provided with a series of openings, end bars having bifurcated extremities forming spring-jaws provided with studs adapted to enter the openings of the clamping-bars, thumb-screws for closing the jaws of the end bars, a side bar detachably connected with the end bars and suitable legs for supporting the side and end bars.

3. In a folding portable bath-tub the combination with the flexible water-receptacle, of a supporting-frame comprising clamping-bars adapted to be attached to the side rail of a bed, end bars detachably connected with the clamping-bars and provided with folding legs, and a folding side bar detachably connected with the end bars, and also provided with a folding leg.

4. In a folding portable bath-tub the combination with a flexible water-receptacle, of a supporting-frame therefor comprising clamping-bars having hooked extremities adapted to engage the side rail of a bed, each being provided with an adjustable shoe carrying a bolt arranged to coöperate with the hooked end of the bar, end bars detachably connected with the clamping-bars, and provided with folding extensible legs and a folding side bar adapted to be connected with the end bars, and provided with a folding extensible leg.

5. In a folding portable bath-tub the combination of two clamping-bars having hooked extremities adapted to engage the side rail of a bed, and each provided with an adjustable shoe carrying a bolt arranged to coöperate with the hooked end of the bar; two end bars suitably connected with the clamping-bars, a side bar connected with the end bars, and suitable supporting-legs.

6. In a folding portable bath-tub the combination of two clamping-bars, each being notched on opposite sides, a shoe having an opening for the bar, said opening having inclined walls, whose upper and lower extremities respectively engage the notches in the opposite edges of the bar, a bolt engaging a threaded opening in the shoe, end bars having bifurcated extremities adapted to engage the clamping-bars, a side bar having hooked extremities engaging sockets in the end bars, and suitable legs supporting the side and end bars.

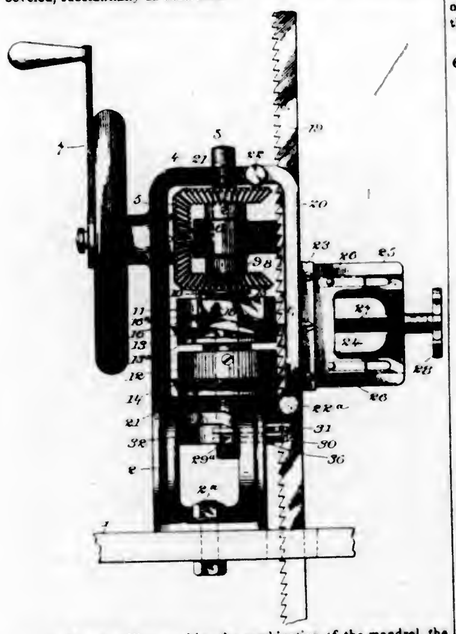
645,514. SAW-FILING MACHINE. OLIVER C. PENDLETON, New York N. Y. Filed Jan. 19, 1899. Serial No. 702,645. (No model.)

Claim.—1. In a saw-filing machine, the combination of a cylindrical file-holder, a spiral file mounted thereon, said file tapering longitudinally, means for feeding a saw-blade in a line parallel to the axis of the file-holder, and means for rotating said file-holder in a direction such that the smaller end of the file first engages the saw.

2. In a saw-filing machine a curved file tapering longitudinally, combined with means for rotating said file in such direction that the smaller end of the file will first engage the saw-tooth, and an adjustable pivoted guide-section between the ends of the file and completing with it one revolution of a spiral, substantially as described.

3. In a saw-filing machine the combination of a curved file form-

ing part of the circumference of a circle, and an adjustable guide-section forming the remainder of said circumference, the free end of said guide-section and the adjacent end of the file being correspondingly beveled, substantially as described.



4. In a saw-filing machine the combination of the mandrel, the curved file thereon, bent into the arc of a circle, the uninclosed arc of the mandrel circumference being cut away on the plane of the chord of said arc, a guide-section pivoted at one end to abut against one end of the file, and means for clamping the guide-section in different positions along the flattened surface of the mandrel so as to produce varying degrees of inclination to the plane of the file, substantially as described.

5. In a saw-filing machine the combination of the mandrel, the curved file thereon bent into the arc of a circle, the uninclosed arc of the mandrel circumference being cut away on the plane of the chord of said arc, a guide-section pivoted at one end to abut against one end of the file, and a slotted extension to the guide-section and a set-screw for clamping the guide-section in different positions along the flattened surface of the mandrel so as to produce varying degrees of inclination to the plane of the file, substantially as described.

6. In a saw-filing machine the combination of one or more rotating files, a shaft which rotates one of said files, cams on said shaft, and a pair of oppositely-acting levers actuated by said cams to set the teeth of the saw while being filed, together with pivot-bearings for said levers adjustable toward and away from the cam-shaft, substantially as described.

7. In a saw-filing machine the combination of one or more rotating files, a shaft which rotates one of said files, cams on said shaft, and a pair of oppositely-acting levers actuated by said cams to set the teeth of the saw while being filed, together with attachments to said levers adjustable toward and from each other whereby the amount of set given the saw-teeth may be varied, substantially as described.

8. In a saw-setting mechanism the combination of the guide for the saw-blade, the rotating cam-shaft, and the oppositely-acting levers operated thereby arranged to press adjacent saw-teeth in opposite directions, together with a pivot for said levers adjustable toward and away from said cam-shaft.

9. In a saw-setting mechanism the combination of the guide for the saw-blade, the rotating cam-shaft, and the oppositely-acting levers operated thereby arranged to press adjacent saw-teeth in opposite directions, together with the pivot-pin adjustable toward and away from said cam-shaft and the journal-bearings for said levers adjustable lengthwise of said pivot-pin, substantially as described.

10. In a saw-setting mechanism the combination of the guide for the saw-blade, the rotating cam-shaft, and the oppositely-acting levers operated thereby arranged to press adjacent saw-teeth in opposite directions, together with the adjustable pivot-pin for said levers, the externally-screw-threaded sleeve for said pivot-pin, the threaded journal-bearing thereon of one of the levers, and the adjustable nut on said sleeve which forms the journal for the other lever, substantially as described.

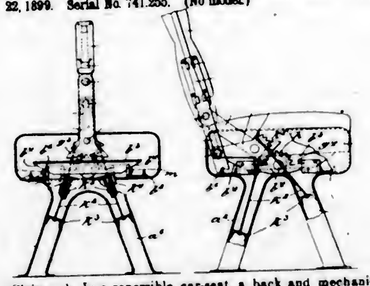
645,515. CORN-HUSKER. JOSEPH A. RAMSEY, Beatrice, Nebr., assignor of one-half to Charles C. Farlow, same place. Filed Mar. 1, 1899. Serial No. 707,252. (No model.)



Claim.—1. A corn-husker comprising the transversely-disposed straps arranged to encircle the palm and the wrist of the operator, the plate or body connecting the straps, the curved arm 4 mounted on the palm-strap and connected with the plate or body and arranged to extend over the upper edge of the hand, and the hook adjustably mounted on the rear portion of the plate or body and adapted to be adjusted toward or from the thumb of the operator, substantially as described.

2. A corn-husker comprising the transversely-disposed palm and wrist straps, the longitudinal plate or body connected with said straps and provided with a curved series of perforations, the adjustable hook pivoted at the rear end of the shank and provided with a perforation and adapted to be moved toward and from the thumb of the operator, the locking-plate mounted at its rear end on the pivot of the hook and provided at its front end with a stud arranged to engage the perforations of the hook and the plate or body, and a nut mounted on the pivot and securing the locking-plate in its adjustment, substantially as described.

645,516. REVERSIBLE CAR-SEAT. WILLIAM L. SCHELLENBACH, Philadelphia, Pa., assignor to Henry S. Hale, same place. Filed Dec 22, 1899. Serial No. 741,255. (No model.)



Claim.—1. In a reversible car-seat, a back and mechanism for reversing the same, a supporting-frame, consisting of two end standards each formed of two converging channeled legs, a cross-beam adapted to slide up and down in each leg of a standard, and a cord or chain connecting each cross-beam with the mechanism for reversing the back of the car-seat, substantially as and for the purposes described.

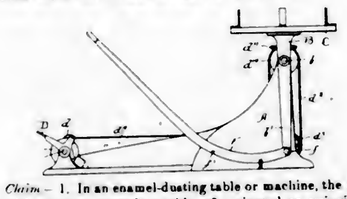
2. In a reversible car-seat, a back, a lever connected to either end of said back, and having a slotted end, a sector-arm connected at one end to the slotted end of said lever, a bridge-piece supported by the frame of the seat and having a toothed sector in mesh with the toothed end of the sector-arm, and a connecting-arm in pivotal connection at one end with said lever and at its other end with the bridge-piece, said sector-arm being pivoted to said connecting-arm at a point intermediate of its pivoted ends, substantially as and for the purposes described.

3. In a reversible car-seat, a back, a lever connected to one end of said back and having a slotted end, a sector-arm connected at one end to the slotted end of said lever, a supporting-frame, consisting of two converging inclined channeled legs and horizontally-arranged channeled beams connecting said legs, a cross-beam adapted to slide up and down in each of said legs, chains or ropes connecting said sector-arms with said cross-beams, a bridge-piece connecting the horizontal channeled beams and having a toothed sector in mesh with the sector-arm, and a connecting-arm pivotally connected at one end to said lever and at its other end to said bridge-piece, said sector-arm being pivoted to said connecting-arm at a point intermediate of its pivoted ends, substantially as and for the purposes described.

4. In a reversible car-seat, a back and seat, mechanism adapted to reverse said back and tilt said seat, a supporting-frame, consisting of two end standards each formed of two converging channeled legs, a cross-beam adapted to slide up and down in each leg of a standard, and a cord or chain connecting each cross-beam with the mechanism for reversing the back and tilting the seat, substantially as and for the purposes described.

5. In a reversible car-seat, rails and an adjustable leg or cricket adapted to be seated and clamped to any position on said rails, substantially as and for the purposes described.

645,517. ENAMELING-TABLE. CHRISTIAN A. SIEVERT, Chicago, Ill., assignor to the L. Wolff Manufacturing Company, same place. Filed July 5, 1898. Serial No. 685,170. (No model.)



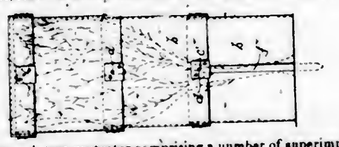
Claim.—1. In an enamel-dusting table or machine, the combination with a rotary enameling-table, of a pivoted or swinging frame or support on which the enameling-table is mounted, a foot-lever or treadle, and connections from the same to the shaft of the rotary table for rotating the table, substantially as specified.

2. In an enamel-dusting table or machine, the combination with a rotary enameling-table, of a pivoted or swinging frame or support in which the enameling-table is mounted, a foot-lever or treadle, connections from the same to the shaft of the rotary table for rotating the table, and a notched lever or bar for changing the inclination of the swinging frame or support, substantially as specified.

3. The combination with a rotary enameling-table having a shaft furnished with a bevel-gear, a swinging frame upon which the enameling-table is mounted, a shaft upon which the swinging frame is pivoted, and provided with a bevel-gear meshing with the gear on the shaft of the rotary table, a treadle, and mechanism for communicating motion from the treadle to said last-mentioned shaft, substantially as specified.

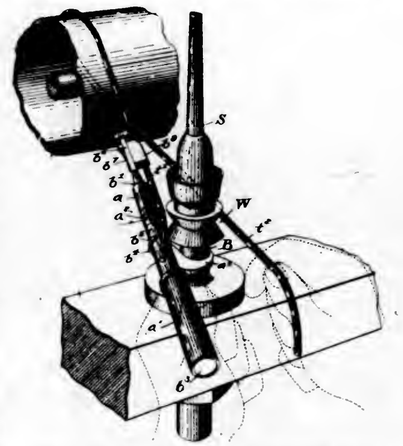
4. The combination with a rotary enameling-table having a shaft furnished with a bevel-gear, a swinging frame upon which the enameling-table is mounted, a shaft upon which the swinging frame is pivoted, and provided with a bevel-gear meshing with the gear on the shaft of the rotary table, a treadle, and mechanism for communicating motion from the treadle to said last-mentioned shaft, said mechanism comprising a pawl and ratchet and sprocket gears and chains, substantially as specified.

645,518. TREE-PROTECTOR. WILLIAM WATT, Boston, Mass., assignor to the Thompson & Norris Company, New York, N. Y. Filed Dec. 30, 1898. Renewed Jan. 15, 1900. Serial No. 1,541. (No model.)



Claim.—A tree-protector comprising a number of superimposed, overlapping tubular sections of sheet material, and a lid of the same, brought together as set forth to form an envelop, and fasteners, for joining the contiguous edges of said sheets, each fastener consisting of a perforated, doubly-recurved, clip, as set forth, and a pin passing through the said clip and also through the sheet material clasped thereby, all combined substantially as specified.

645,519. END-HOLDER FOR SPINDLE-BANDS. WILLIAM H. BRAGEWELL, Fiskdale, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Jan. 20, 1899. Serial No. 702,762. (No model.)



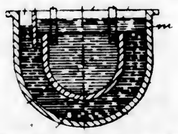
Claim.—1. An end-holder for spindle-bands, comprising relatively-movable members, clamping-jaws carried by one member and adapted to engage the band end and an open hook on the other member, to be temporarily held by a fixed object, and a yielding connection between said members, the relative movement of said members being determined by the pull or strain of the band.

2. An end-holder for spindle-bands, comprising a member having a rigidly-attached, laterally-extended hook adapted to engage a spindle-base, a coöperating member movable longitudinally, a clamping device thereon to engage the band end, a spring connecting said members and resisting their relative longitudinal movement, and means mounted on the movable member to adjust the tension of the spring.

3. An end-holder for spindle-bands, comprising a tubular member having a hook extended laterally therefrom, a coöperating member extended through and longitudinally movable in the tubular member at one end thereof, clamping-jaws on the movable member, and a spring at the other end and connecting said members and adapted to resist their relative longitudinal movement.

4. An end-holder for spindle-bands, comprising relatively-movable members, one of said members having a laterally-extended hook thereon, an open head on the other member, clamping-jaws mounted on said head to swing within it and extended laterally beyond it, a spring connecting and adapted to resist relative movement of said members, and means to measure the extent of such movement.

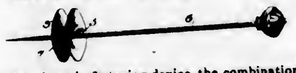
645,520. PROCESS OF GALVANIZING METALS. EDWARD I. BRADDOCK, Winchester, Mass., assignor to the New Process Coating Company, Portland, Me. Filed Dec. 23, 1899. Serial No. 741,394. (No specimens.)



Claim.—1. The method of galvanizing iron or steel strips, plates, wires, &c., which consists in first passing the said strip, &c., into a bath of lead or its alloys, passing said strip out therefrom through a layer or substantially-shallow bath of zinc or its alloys, resting on a portion only of said lead-bath, and reducing to a minimum the amount of dross through which the iron or steel strip, &c., is passed by continuously removing the dross from the surface of contact of the zinc and lead substantially as fast as formed, substantially as described.

2. The method of galvanizing iron or steel strips, plates, wires, &c., which consists in passing the said strip, &c., into a bath of lead and tin; passing said strip out therefrom through a layer or substantially-shallow bath of zinc and tin resting on a portion only of the bath of lead and tin; and reducing to a minimum the amount of dross through which the iron or steel strip, &c., is passed by continuously removing the dross from the surface of contact of the zinc and lead substantially as fast as formed, substantially as described.

645,521. HAT-FASTENER. FREDERICK W. CAMMANN, Denver, Colo., assignor of one-sixth to Charles M. Rice, same place. Filed July 16, 1898. Serial No. 686,163. (No model.)



Claim.—In a hat-pin-fastening device, the combination with the pin, of a funnel-shaped guide having a bottom opening to allow the pin to pass therethrough, a thimble attached to the guide exteriorly and surrounding the pin-opening therein, a piece of elastic substance pressed into the thimble and arranged to maintain its position therein by its elasticity, said substance normally closing the opening in the bottom of the guide, which is located inside the hat, the thimble being passed through the hat fabric, its outer extremity being open, a washer applied to the thimble extremity outside the hat, the thimble protruding through the opening in the washer, its extremity being slotted, turned outwardly and bent down on the washer to hold the latter in place.

645,522. TOBACCO-PIPE. THOMAS G. CLIFFORD, Hoboken, N. J., assignor of one-half to John H. Repper and Martin Mager, Jr., Middle Village, N. Y. Filed Dec. 20, 1899. Serial No. 740,966. (No model.)



Claim.—The combination, in a tobacco-pipe comprising a bowl and a stem and an independently-formed mouthpiece, said stem and mouthpiece provided with longitudinal passages, and each internally threaded at its end, of a longitudinally-split tube adapted to enter the passages in the stem and mouthpiece, and formed with shoulders against which the inner ends of the stem and mouthpiece abut, and also formed with external threads on opposite sides of said shoulders with which the threads in the stem and mouthpiece engage, whereby the stem and mouthpiece are conected and the members of the tube clamped together, substantially as described.

645,523. BRUSH. FRANK G. FARNHAM, Honesdale, Pa. Filed Mar. 19, 1898. Serial No. 674,508. (No model.)



Claim.—1. A polishing-brush comprising a hub, confining side rings, core-sections, a series of layers of fiber glued in place between the confining side rings and separating rings or disks between the layers and glued in place therewith, substantially as described.

2. A polishing-brush comprising a hub, core-sections, a ring or gasket between the sections, outer confining-rings, interposed layers of fiber and disks interposed between the layers, substantially as described.

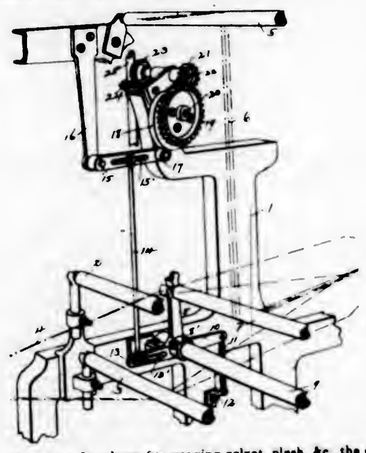
645,524. COLLAPSIBLE TRUCK. CASPER T. GREEN and MILO P. ELLIOTT, Dublin, Ind. Filed Sept. 18, 1899. Serial No. 730,940. (No model.)



Claim.—1. The combination in a folding truck of the end frames, inwardly and downwardly inclined main bars pivotally connected to the upper ends thereof, crossing each other and pivoted at the crossing, the ends projecting beyond the crossing, feet at the ends of the bars at right angles thereto, and bars pivotally connecting the lower ends of the main bars with the lower ends of the opposite end frames, substantially as described.

2. The combination in a folding truck, of end frames, bars leading downwardly and inwardly therefrom, crossing each other, pivotally secured at the crossing and extended beyond it, straight bars or links pivotally connecting the inner end of one cross-bar with the opposite end frame, downward-bent bars or links connecting the other bars with the opposite end frames, an axle fixed at the angle of the bent bars, wheels thereon, and casters at the lower end of the opposite end frame, substantially as described.

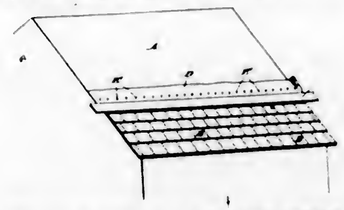
645,525. LOOM. GEORGE F. HUTCHINS, Worcester, Mass. Filed June 25, 1898. Serial No. 684,470. (No model.)



Claim.—1. In a loom for weaving velvet, plush, &c., the combination of a rock-shaft, arms connected thereto, a tension-regulating rod for the pile-warp carried by said arms, a second arm carried by the rock-shaft, a spring connected to said second arm and tending to normally turn the rock-shaft in one direction, and means for moving the rock-shaft against the tension of said spring, comprising a cam, a pivoted arm carrying a roll traveling on said cam and a rod connecting the pivoted arm and rock-shaft.

2. In a loom for weaving velvet, plush, &c., the combination of a rock-shaft, arms connected thereto and carrying a tension-regulating rod for the pile-warps, a second arm carried by the rock-shaft, a spring acting on said arm to normally turn the rock-shaft in one direction, and means for turning the rock-shaft against the tension of said spring comprising a cam, a pivoted slotted arm carrying a roll traveling on said cam, a slotted arm secured to the said rock-shaft and a rod connecting said arms and adjustable in the slots thereof.

645,526. ROOFING. JOHN T. JOSLIN, Lakeview, Mich. Filed Jan. 8, 1900. Serial No. 709. (No specimens.)



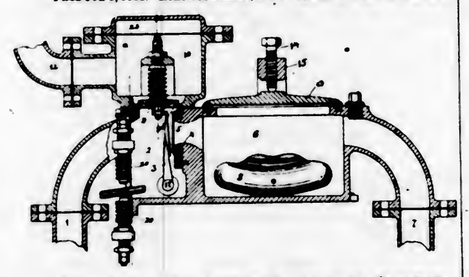
Claim.—A roof composing an earthy cement applied in a plastic form in courses, with paper or some similar material between the roof-boards and cement, and between the different courses of cement and the whole held in place by nails driven part of their length into the roof-boards, and the rest of their length inclosed in the cement, and each course cut up into sections, or slats, for the purpose and in the manner substantially as set forth.

645,527. MUSIC-STAND. JOSEPH LATOURELL and EDWARD A. FISCHER, Sterling Centre, Minn. Filed June 15, 1898. Serial No. 720,686. (No model.)



Claim.—A music-stand involving the combination of a hollow staff having an enlarged socket and a bayonet-slot at one end and an inwardly-projecting stud at the other end, a detachable collapsible or folding stool having a knob or body to fit the enlarged socket, and a stud for engaging the bayonet-slot, a concentric adjustable tube provided with bayonet-slots telescopically connected with the staff for engagement with the inwardly-projecting stud, a folding or collapsible music-holder attached to the tube, and a tip or ferrule adapted to fit within the staff provided with a bayonet-slot for engagement with the inwardly-projecting stud, substantially as described.

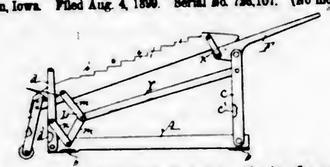
645,528. SIPHON-ELEVATOR. JULES LEMOINE, Paris, France. Filed Oct. 3, 1898. Renewed Jan. 23, 1900. Serial No. 2,510. (No model.)



Claim.—1. In a siphon device for elevating water, the combination of a suction-pipe and a discharge-pipe, with a suction-chamber and a discharge-chamber into which the two pipes enter, said chambers being separated by a valve, the discharge-chamber containing an elastic sack filled with air or other gas.

2. In a water-siphon apparatus, the combination of a suction-pipe and a discharge-pipe with two chambers located between their upper extremities, the suction-pipe emptying into one and the discharging-pipe emptying the other, said chambers being separated by a valve, the discharge-chamber containing an elastic sack filled with air or other gas, with a third superelevation-chamber which is closed and connected with the suction-chamber by means of a valve, said valve adapted to be opened by the momentum of water flowing into the suction-chamber, the superelevation-chamber being provided with a superelevation discharge-pipe.

645,529. SELF-LOCKING WAGON-JACK. OBED LOWE, Marshalltown, Iowa. Filed Aug. 4, 1899. Serial No. 726,107. (No model.)

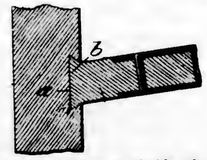


Claim.—A wagon-jack comprising a straight bar for a base, an upright pivotally connected with each end portion of said bar, a lever of the first order pivoted to the top of the front upright, a toggle-jointed lever connected with the rear upright, a straight bar stepped in its top edge linked to the short arm of the lever of the first order and pivotally and slidingly connected with the rear upright, and a straight bar pivotally connected with the center of the toggle-jointed lever and the top portion of the front upright, arranged and combined to operate in the manner set forth and for the purposes stated.

645,530. VEHICLE-REACH COUPLING. DUDLEY J. MARSTON, Amesbury, Mass., assignor of one-half to the Amesbury Pneumatic Gear Company, same place. Filed Jan. 6, 1900. Serial No. 609. (No model.)

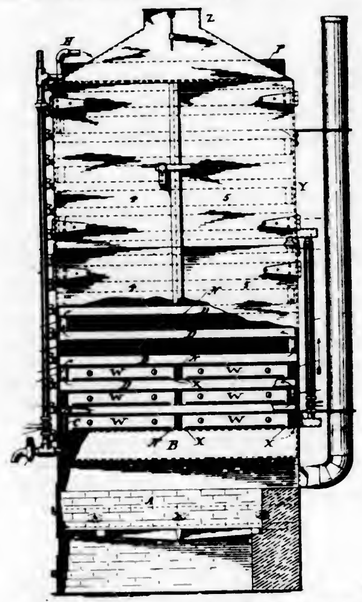
Claim.—1. A coupling for vehicle-reaches, consisting of a dovetail mortise and a dovetail head fitting therein, substantially as and for the purpose set forth.

2. In a vehicle-reach coupling, a suitable axle having a dovetail mortise, and a reach and a shank suitably connected thereto, said shank having a dovetail head adapted to fit in the dovetail mortise in the axle, substantially as and for the purpose described.



3. In a vehicle-reach coupling, a suitable axle having a dovetail mortise, a tubular reach, and a shank fitting therein and secured thereto, said shank having a mortise-head adapted to fit the mortise in the axle, substantially as and for the purpose specified.

645,531. EVAPORATOR. ALBION P. MERRILL, San Francisco, Cal., assignor of one-half to Noble Hamilton, same place. Filed June 17, 1897. Serial No. 641,155. (No model.)



Claim.—1. The combination of a plurality of superimposed steam-pans connected in series, a boiler below the same, a steam connection from said boiler to the lowermost pan, a substantially-flat water-pan above the topmost steam-pan, a connection from the latter to said water-pan, a connection from said water-pan direct to the boiler, and a steam connection from the boiler to one of said intermediate steam-pans, substantially as described.

2. The combination of a plurality of separated heating-shelves forming separated evaporating-spaces therebetween, supports for the shelves, a casing inclosing the shelves and forming therewith separated evaporating-compartments between the shelves closed by the casing at opposite sides, said casing being spaced from the shelves at one end to form a flue between the same and the shelves with which the evaporating-compartments independently connect, and means for causing a draft through said flue, substantially as and for the purpose set forth.

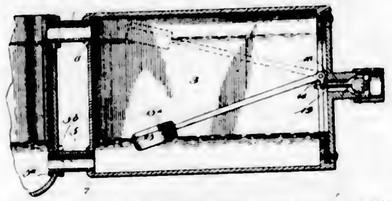
3. The combination of a plurality of superimposed steam-pans connected in series, a boiler below the same, a steam connection from said boiler to the lowermost pan, a substantially-flat water-pan above the topmost steam-pan, a connection from the latter to the said water-pan, and a connection from said water-pan to said boiler, substantially as and for the purpose set forth.

4. The combination of a plurality of separated heating-shelves forming evaporating-spaces therebetween, means for supporting the

shelves, a casing inclosing the shelves and forming therewith separated evaporating-compartments between the shelves closed by the casing at two opposite sides, said casing being spaced from the opposite ends of the shelves to form flues between the same and the shelves with which said compartments independently connect, and means for causing a draft through said flues, substantially as and for the purpose set forth.

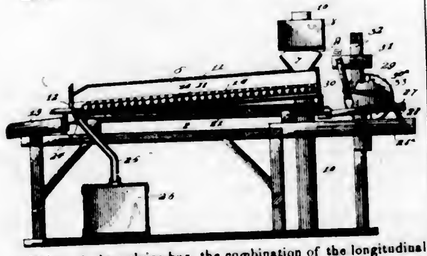
5. The combination of a series of superimposed steam-pans, a steam-supply therefor, corner supporting-posts for supporting said pans and holding the same separated to form evaporating-spaces therebetween, and an inclosing casing surrounding said pans and contacting with the opposite sides of the same to form separated evaporating-compartments between the pans closed at the opposite sides, said casing being spaced from said pans at the opposite ends thereof so as to form between the same and said pans, flues with which said evaporating-compartments independently connect, and means for causing a draft through said flues substantially as and for the purpose set forth.

645,532. WATERING-TROUGH. GEORGE H. MOTT, West Union, Iowa. Filed Feb. 21, 1899. Serial No. 706,353. (No model.)



Claim.—A device of the class described, comprising a drinking-receptacle having two lobes to form a double drinking-trough, a chamber or casing, upper and lower short lengths of pipes connecting the central portion of the rear of the said receptacle to the front end of the casing, a plate detachably secured to the rear end of the said chamber or casing and having an outwardly-extending horizontally-disposed tubular arm arranged at the center thereof and having a rear valve-seat, a cap removably mounted on the arm over the valve-seat and having a strainer-covering at its rear end, a valve movably mounted in the seat and having a stem projecting through the arm and adapted to be shifted longitudinally, and a bell-crank lever fulcrumed to the inner side of the plate above the plane of the opening through the arm communicating with the chamber or casing and having a distinctly-short arm connected to the front end of the valve-stem and provided on its long arm with a float.

645,533. CONCENTRATOR. JOHN MAULDIN, Sacramento, Cal., assignor of two-thirds to Henry E. Kleinsorge and William E. Kleinsorge, same place. Filed Feb. 16, 1899. Serial No. 705,663. (No model.)



Claim.—1. In a sluice-box, the combination of the longitudinal ribs 19, the transverse bars 20 and the riffle-plates 16 formed with riffles 17 presented with their vertical faces against the flow of water, overlapped with spaces 18 between them and secured upon the cross-bars 20 between the ribs 19, and wedges 22 inserted between the overlapped portion of said plates, above said cross-bars; substantially in the manner and for the purposes set forth.

2. In a riffle-tray, the combination of the cross-bars 20, the riffle-plates 16 provided with downturned end flanges and each having its lower end flange resting upon a cross-bar and with its upper end flange overlapping the next higher riffle-plate with interposed wedges maintaining openings at the bases of the riffles, and presented against the flow of water, and screws 23 passing through the overlapped ends of the riffle-plates impinging the wedges, and securing the plates to the cross-bars; substantially in the manner and for the purpose set forth.

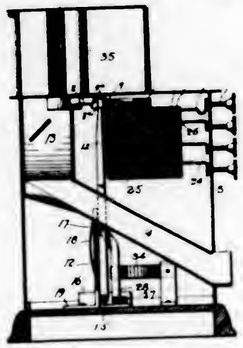
3. In a riffle-tray, the combination of a suitable supporting means, the riffle-plates mounted upon said supporting means with their ends overlapped substantially as described, the wedges 22 for defining the openings between the overlapped ends of the riffle-plates, and the screws 23, all arranged substantially as and for the purposes set forth.

4. In an apparatus for separating gold from sand or like deposits, the combination of a water-tight sluice-box having a riffle-tray with openings at the bases of the riffles and provided with chambers above and below the riffle-tray, a tailings-opening above the tray through which the upper chamber discharges, and a tightly-closed receptacle having water-tight communication with the chamber beneath the tray; substantially as and for the purposes set forth.

5. In an apparatus for separating gold from sand or like deposits, the combination of a sluice-box having a riffle-tray with riffles presented with their vertical faces against the flow of water and openings at the bases of the riffles and provided with chambers or passages above and below the riffle-tray, a tailings-opening through which the passage above the tray discharges, an outlet communicating with a tightly-closed receptacle with which the lower passage communicates, and means for imparting longitudinal vibration to the sluice-box: substantially as and for the purposes set forth.

6. In a concentrator the combination of a vibrating sluice provided with a riffle-tray with riffles presented with their vertical faces in opposition to the flow of water with openings at the bases of the riffles and with a tight chamber below the tray and a chamber above the tray having a tailings-discharge, a tight valve-box below the sluice and a tight communication between the lower tight sluice-chamber and the tight valve-box.

645,534. COIN-DELIVERY DEVICE. JAMES M. BUTCHER, Denver, Colo., assignor of seven-eighths to William B. Redmond, agent, Garrett Brown, Harry C. Clark, and Julian S. Boullemet, same place. Filed Mar. 24, 1899. Serial No. 710,353. (No model.)



Claim.—1. In a coin-delivery device, the combination with coin-receptacles, of coin-ejecting tongues adapted to enter said receptacles, sliding keepers upon which the tongues are pivotally mounted, and lever-arms engaging and adapted to actuate the tongues.

2. In a coin-delivery device, the combination with coin-receptacles, of coin-ejecting tongues adapted to enter said receptacles, sliding keepers upon which the tongues are pivotally mounted, a series of lever-arms adapted to actuate the tongues, and a series of superposed slides adapted to actuate the lever-arms.

3. The combination with coin-receptacles, of oscillating arms adapted to eject coins therefrom, superposed slides adapted to actuate said arms, an inverted-U-shaped rod engaging said arms and having its extremities journaled in a suitable support, and a leaf-spring engaging said rod from the rear and adapted to retract the lever-arms and their engaging slides.

4. The combination with coin-receptacles, of coin-ejecting lever-arms, reciprocating slides engaging said arms, and suitable means common to all the lever-arms for returning said arms and the slides to their normal position after each rearward thrust, said means comprising a swinging, inverted-U-shaped, spring-actuated rod, engaging the arms from the rear.

5. The combination with coin-receptacles, of coin-ejecting lever-arms, reciprocating slides engaging said arms, and suitable means common to all the lever-arms for returning said arms and the slides to their normal position after each rearward thrust, said means comprising an inverted-U-shaped rod, whose extremities are journaled

in a suitable support, the said rod engaging all the lever-arms, and an adjustable leaf-spring engaging the central portion of said rod on the side opposite the lever-arms.

6. The combination with coin-receptacles, of coin-ejecting tongues adapted to enter said receptacles, sliding keepers on which the tongues are pivotally mounted, the tongues being provided with depending arms, and lever-arms adapted to actuate the tongues, and projecting into slots formed in the keepers in front of the tongues.

7. The combination with coin-receptacles, of sliding keepers, tongues having the shape of bell-cranks, fulcrumed on the keepers, which are slotted, and lever-arms projecting into the slots of the keepers whereby the lever-arms first act on the tongues and raise their forward extremities to the plane of the lowermost coins.

8. The combination with coin-receptacles, of sliding keepers, tongues mounted on the keepers and adapted to enter the coin-receptacles, lever-arms engaging the tongues and adapted to actuate the keepers, superposed slides engaging the lever-arms, push-keys connected with the slides, and means for simultaneously returning all of said parts to their normal position after each rearward or coin-ejecting thrust.

9 The combination with coin-receptacles, of slotted, sliding keepers, tongues movably mounted on the keepers and having the shape of bell-crank levers, one arm of each tongue projecting into the slot of its keeper, lever-arms projecting into slots of the keepers and engaging the tongues, reciprocating slides, each of which is adapted to actuate one or more lever-arms, push-keys for operating the slides, and a yieldingly-retained rod for simultaneously returning the said parts to their normal position after each rearward or coin-ejecting thrust.

10. The combination of upright, coin-ejecting lever-arms mounted to move independently of each other, slides arranged one above another for actuating the lever-arms, each slide being constructed and arranged to operate one or more lever-arms according to the number of coins to be ejected at a single thrust, push-keys for operating the lever-arms, an endwise-movable rock-bar having auxiliary arms rigidly attached thereto, projecting upwardly adjacent the coin-ejecting arms and in the path of the reciprocating slides, and means for imparting the endwise movement to the rock-bar whereby one of the auxiliary arms is made to interlock with a lever-arm, whereby an additional coin is delivered for each thrust of a slide.

11. The combination of upright, coin-ejecting lever-arms mounted to move independently of each other, slides arranged one above another for actuating the lever-arms, each slide being constructed and arranged to operate one or more lever-arms according to the number of coins to be ejected at a single thrust, push-keys for operating the lever-arms, an endwise-movable, yieldingly-retained rock-bar having auxiliary arms rigidly attached thereto, projecting upwardly adjacent the coin-ejecting arms and in the path of the reciprocating slides, and means for imparting the endwise movement to the rock-bar whereby one of the auxiliary arms is made to interlock with a lever-arm, whereby an additional coin is delivered for each thrust of a slide.

12. The combination of upright coin-ejecting lever-arms mounted to move independently of each other, slides arranged one above another for actuating the lever-arms, each slide being constructed and arranged to operate one or more lever-arms according to the number of coins to be ejected at a single thrust, push-keys for operating the lever-arms, an endwise-movable rock-shaft having auxiliary arms rigidly attached thereto, projecting upwardly adjacent the coin-ejecting arms and in the path of the reciprocating slides, and means for imparting the endwise movement to the rock-bar whereby one of the auxiliary arms is made to interlock with the lever-arm, said means comprising a rock-shaft, a crank-arm attached to said shaft and engaging one of the auxiliary arms, and another crank-arm terminating in a push-key for operating said shaft.

13. The combination of coin-receptacles, a stationary transversely-slotted top plate located below said receptacles, sliding keepers bridging said slot and having both extremities supported by the said plate, coin-ejecting, bell-crank tongues fulcrumed on the keepers and adapted to enter the coin-receptacles, and levers adapted to act on one arm of each bell-crank tongue.

14. The combination of coin-receptacles, a stationary transversely-slotted top plate located below said receptacles, sliding, slotted keepers bridging said slot and having both extremities supported by the said plate, coin-ejecting bell-crank tongues fulcrumed on the keepers, one arm of each tongue projecting into the slot of its keeper, said keepers being recessed to allow the tongues to pass below the coin-supporting ledges at the bottom of the receptacles, whereby the retraction of the tongues is not materially retarded by the weight of the superimposed coins, and levers adapted to act on one arm of each bell-crank tongue.

15. The combination of coin-receptacles, a stationary transversely-slotted top plate located below said receptacles, sliding, slotted keepers bridging said slot and having both extremities supported by the said plate, coin-ejecting, bell-crank tongues fulcrumed on the keepers, one arm of each tongue projecting into the slot of its keeper, a space being normally left in the rear of each of said arms to allow the tongue proper ejecting movement, said keepers being recessed to allow the tongues to pass below the coin-supporting ledges at the bottom of the receptacles, whereby the retraction of the tongues is not materially retarded by the weight of the superimposed coins, and lever-arms for actuating the keepers whereby the tongue extremities are raised to the plane of the coins to be ejected.

16. The combination with coin-receptacles, of a plate provided with centrally-slotted crescent-shaped ledges forming the bottoms of said receptacles, keepers slidingly mounted on the plate, bell-crank, coin-ejecting tongues mounted on the keepers and adapted to travel in the slots of the coin-supporting ledges, and levers engaging the depending arm of each tongue.

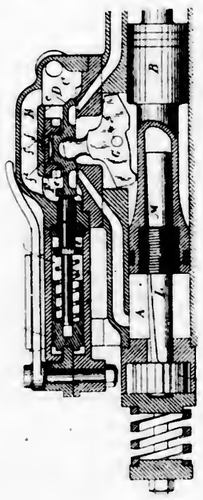
17. The combination with coin-receptacles, of coin-ejecting tongues adapted to enter said receptacles, sliding keepers on which the tongues are pivotally mounted, the tongues being provided with depending arms, lever-arms adapted to actuate the tongues and projecting into slots formed in the keepers in front of the tongues, a hopper located in the rear of the machine and adapted to receive the ejected coins, and a downwardly-projecting, forwardly-extending chute leading from the said hopper, and whose forward extremity protrudes through an opening formed in the front of the casing below the push-keys.

18. A coin-delivery machine comprising coin-receptacles, coin-ejecting tongues adapted to enter said receptacles, sliding keepers on which the tongues are pivotally mounted, the tongues being provided with depending arms, lever-arms adapted to actuate the tongues and projecting into slots formed in the keepers in front of the tongues, reciprocating, horizontal slides engaging the lever-arms, slide-actuating push-keys protruding from the front wall of the case, a coin-hopper located in the rear part of the case, and a downwardly-extending, forwardly-projecting chute whose forward extremity protrudes through an opening formed in the front wall of the case below the push-keys.

645,535. PROCESS OF ROASTING MALT WITH COFFEE. FRITZ LINDE, Dortmund, Germany, assignor to the Kathreiner's Malzkaffee-Fabriken, Gesellschaft mit Beschrankter Haftung, Munich, Germany. Filed Dec 18, 1899. Serial No. 740,787. (No specimens.)

Claim.—The process which consists in macerating green malt in water until it has absorbed from sixty to sixty-three per cent. of water and then roasting the same together with coffee, whereby the saccharification of the green malt takes place in the first stage of the roasting and at the same time the malt receives the aromatic vapor from the coffee and loses its disagreeable burned taste.

645,536. ENGINE FOR ROCK-DRILLS. PATRICK H. REARDON, San Francisco, Cal. Filed June 29, 1899. Serial No. 722,333. (No model.)



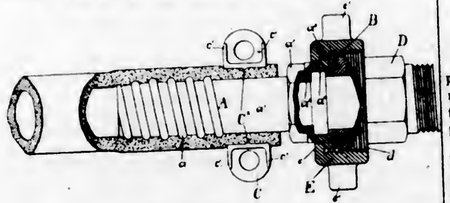
Claim.—1. In a rock-drill, a cylinder, a piston therein and a suitable valve controlling the actuating fluid, whereby the piston is reciprocated, means adapted to control said valve whereby the stroke of the piston is lengthened or shortened at will, in combination with means for relieving the pressure on said fluid-controlling valve.

2. A rock-drill comprising a cylinder, a fluid-actuated piston therein and a slide-valve in a suitable valve-chamber adapted to control said fluid, a tappet interposed between said piston and the slide-valve to operate the latter by the motion of the former whereby said piston is reciprocated, a pressure-relieving device on said slide-valve consisting of a stationary surface between which and the valve-seat, the valve is located and a loose plate socketed on the back of the valve bearing against said surface and means for varying the stroke of said piston substantially as described.

3. A rock-drill comprising a cylinder, a fluid-actuated piston therein and a valve controlling the actuating fluid, suitably arranged to be operated by the piston and an adjustable buffer with means adapted to effect the engagement of said buffer with the valve, whereby the valve is moved in one direction by the piston through the intervention of said buffer and means for relieving the pressure on said valve.

4. A rock-drill comprising a cylinder, a fluid-actuated piston therein and a slide-valve controlling the actuating fluid, provided with a pressure-relieving device and a rock-arm interposed between said valve and piston, whereby the valve is moved by the motion of the piston in one direction directly and a spring adapted to move the valve in the opposite direction.

645,537. HOSE-COUPLING. PATRICK H. REARDON, San Francisco, Cal. Filed Sept. 20, 1899. Serial No. 731,073. (No model.)



Claim.—1. A coupling having a shank adapted to enter a hose with a portion of its length provided with non-angular threads, said shank provided with means comprising a circumferentially broken or faceted surface or flange adapted to engage with and be turned by an independent wrench.

2. A coupling having a shank with a portion of its length provided with non-angular threads, said shank provided with means comprising a circumferentially broken or faceted surface or flange adapted to engage with and be turned by an independent wrench and having a portion of its length between said means and the non-angular threads plain, whereby said threads act as a projecting collar to prevent the withdrawal of an exterior hose, a two-part clamp with suitable compression devices and an internal rib adapted to be compressed into the exterior surface of the hose.

3. A hose-connection device comprising a suitable coupling having a shank adapted to enter a hose, and a two-part clamp adapted to embrace said hose having projecting flanges c, with ribs c' and an inwardly-projecting rib C^3, raised above the normal interior surface of the clamp.

4. A hose-connection device comprising a suitable coupling having a shank adapted to enter a hose and a two-part clamp adapted to embrace said hose having projecting flanges c, with ribs c' and an inwardly-projecting rib C^3 raised above the normal interior surface of the clamp and each member of the clamp provided with a shoulder c^3 to prevent the turning of the bolts.

5. A coupling comprising the shank A with its non-angular threads a extending a portion of its length and having a threadless portion a', the angular flange a^2 adapted to be engaged by an exterior wrench and having the angular interior socket a^3 adapted to be engaged by an interior wrench, the exterior flange a^4, a shank D having an exterior thread d', a coupling-ring provided with an interior thread to fit the thread d and an inwardly-projecting flange to engage with the shoulder a^2 and having exterior bosses adapted to engage with and be operated by a spanner-wrench.

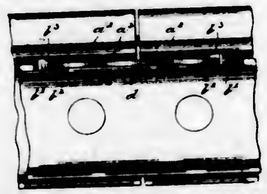
6. A coupling having a tapering shank adapted to enter a hose having a limited portion of that part which enters the hose provided with non-angular threads, said shank provided with means comprising a circumferentially broken or faceted surface or flange adapted to engage with and be turned by an independent wrench and a suitable clamping device on the hose circumscribing the plain portion of the shank.

7. A hose-connection device comprising a suitable coupling having a tapering shank adapted to enter a hose and a two-part clamp adapted to embrace said hose having projecting flanges c with ribs c' and an inwardly-projecting rib C^3 raised above the normal interior surface of the clamp.

8. A coupling having a tapering shank adapted to enter a hose and having means adapted to be turned by an independent wrench comprising a circumferentially broken or faceted surface or flange and provided with non-angular threads extending a portion of its length, the remainder of said shank being plain and a compression device adapted to compress the hose upon the plain portion of the shank, whereby the threads form a shoulder to resist the withdrawal of the shank.

REISSUES.

11,812. RAIL-BOND. CHARLES J. MAYER, Philadelphia, Pa., assignor to the Protected Rail Bond Company, same place. Filed Feb. 12, 1900. Serial No. 5,027. Original No. 642,564, dated Jan. 30, 1900.

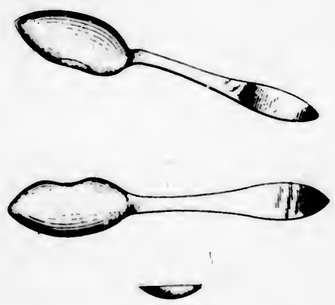


Claim.—1. In a rail-bond for girder-rails, a terminal stud comprising a pillar and a base, said pillar projecting from said base at right angles to its lower face and said base having an upper inclined face, a lower horizontal face and cut away or beveled at its inner periphery or outline, substantially as and for the purposes described.

2. In a rail-bond, the combination with a girder-rail having a laterally-projecting tram, the upper face of which tram is horizontal and the under face inclined, of a terminal stud comprising a pillar adapted to enter the tram and a base having an upper inclined face adjacent to and parallel with the under inclined face of the tram, and a lower horizontal face, said pillar projecting at right angles to the lower horizontal face of the base and said base being beveled at that part of its periphery adjacent to the web of the rail, substantially as and for the purposes described.

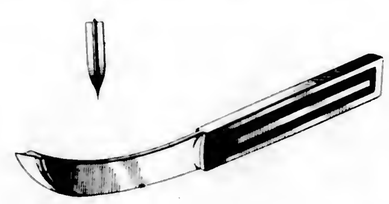
DESIGNS.

32,327. SPOON. WILLIAM T. COGHLAN, Morristown, N. J. Filed Feb. 6, 1900. Serial No. 4,288. Term of patent 7 years.



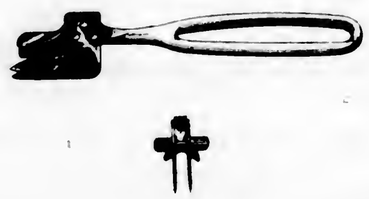
Claim.—The design for a spoon, substantially as shown and described.

32,328. ORANGE-KNIFE. MARY ESTELLE BAILEY, Washington, D. C. Filed Feb. 6, 1900. Serial No. 4,285. Term of patent 7 years.



Claim.—The design for an orange-knife, as herein shown and described.

32,329. FISH-CLEANING KNIFE. WILLIAM JOSEPH IRWIN, New York, N. Y. Filed Feb. 12, 1900. Serial No. 5,023. Term of patent 7 years.



Claim.—The design for a fish-cleaning knife, as herein shown and described.

32,330. WATCH-PLATE. WEBSTER C. BALL, Cleveland, Ohio. Filed Nov. 1, 1899. Serial No. 735,538. Term of patent 14 years.



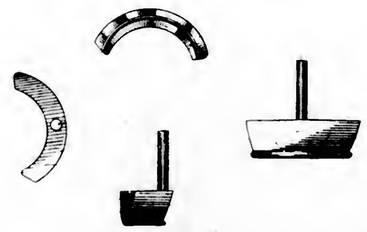
Claim.—The design for a watch-plate, as herein shown and described.

32,331. SILVERSMITHS' STOCK. SETH H. LEAVENWORTH, Cincinnati, Ohio, assignor to the Homan Silver Plate Company, same place. Filed Feb. 2, 1900. Serial No. 3,755. Term of patent 3½ years.



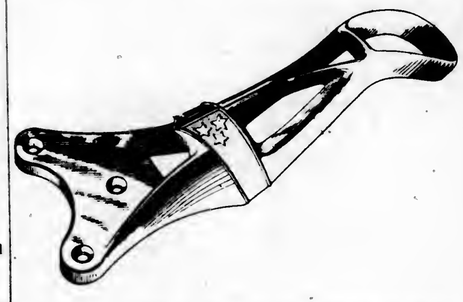
Claim.—The design for silversmiths' stock, substantially as herein shown, and described.

32,332. GOFFERING-TOOL. LINA PRAGER WEBER, New York, N. Y. Filed Feb. 7, 1900. Serial No. 4,405. Term of patent 14 years.



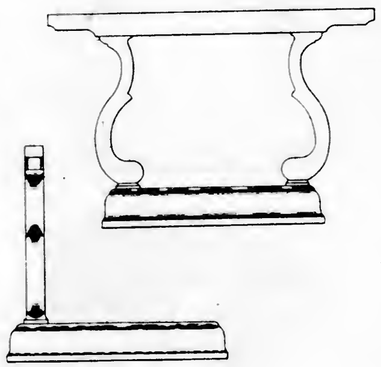
Claim.—The design for a goffering-tool, substantially as herein shown and described.

32,333. FLAGSTAFF-SOCKET. WALTER HART, New York, N. Y. Filed Feb. 8, 1900. Serial No. 4,564. Term of patent 14 years.



Claim.—The design for a flagstaff-socket, substantially as shown and described.

32,334. SCALE-FRAME. JOACHIM JUNGWIRTH, Detroit, Mich., assignor to Walter F. Stimpson, same place. Filed Feb. 9, 1900. Serial No. 4,696. Term of patent 14 years.



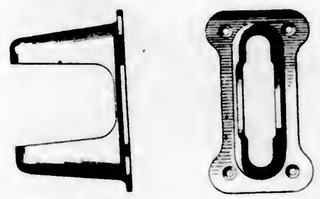
Claim.—The design for a scale-frame, substantially as herein shown and described.

32,335. PICTURE-EXHIBITING CABINET. LEO CANDA, Cincinnati, Ohio. Filed Feb. 10, 1900. Serial No. 4,826. Term of patent 3½ years.



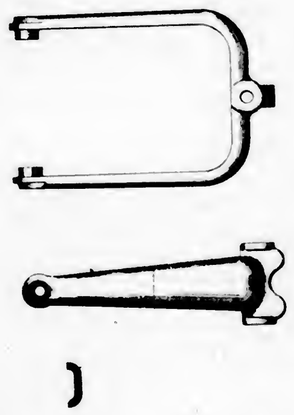
Claim.—The design for a picture-exhibiting cabinet, substantially as shown and described.

32,336. WALL-BRACKET. EDWARD CLIFF, Newark, N. J., assignor to the Cliff & Gulbert Company, New York, N. Y. Filed Feb. 12, 1900. Serial No. 5,015. Term of patent 14 years.



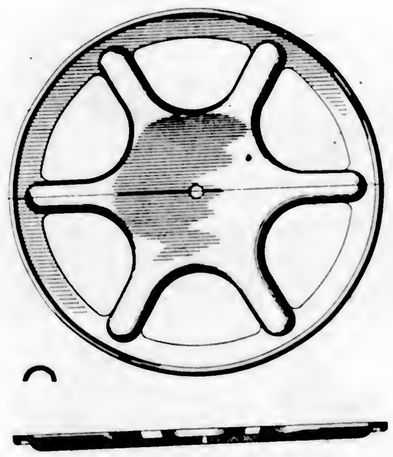
Claim.—The design for a wall-bracket, substantially as shown and described.

32,337. BRACKET FOR HOSE-REELS. EDWARD CLIFF, Newark, N. J., assignor to the Cliff & Gulbert Company, New York, N. Y. Filed Feb. 12, 1900. Serial No. 5,014. Term of patent 14 years.



Claim.—The design for a bracket for hose-reels, substantially as shown and described

32,338. END DISK FOR HOSE-REELS. EDWARD CLIFF, Newark, N. J., assignor to the Cliff & Gulbert Company, New York, N. Y. Filed Feb. 12, 1900. Serial No. 5,016. Term of patent 14 years.



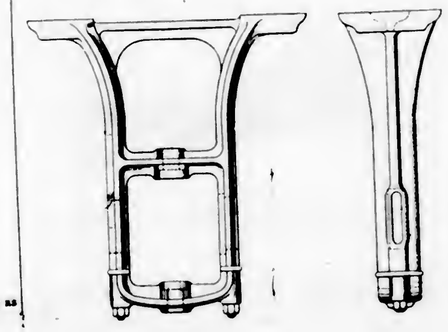
Claim.—The design for an end disk for hose-reels, substantially as shown and described.

32,339. CLEARER FOR DRAWING-ROLLS. WILLIAM E. KRACH, Fitchburg, Mass. Filed Feb. 12, 1900. Serial No. 5,019. Term of patent 14 years.

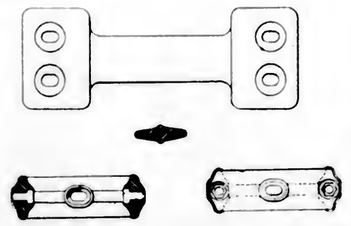


Claim.—The design for a clearer for drawing-rolls, as herein shown and described.

32,340. FRAME FOR SHAFTING-HANGERS. ALFRED P. SLOAN, Jr., New York, N. Y. Filed Oct. 19, 1899. Serial No. 734,141. Term of patent 14 years.

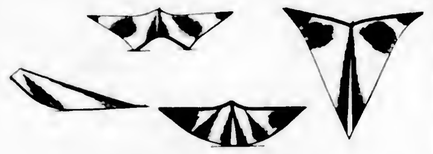


32,340.



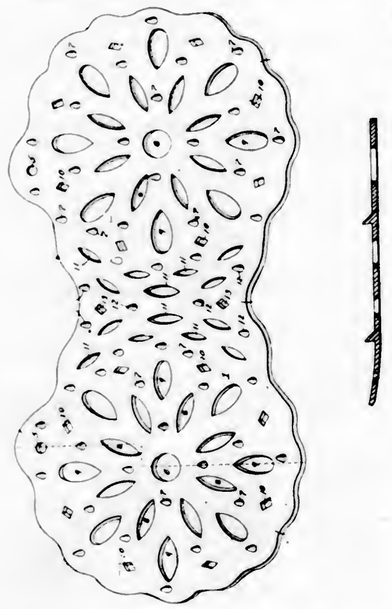
Claim.—The design for frame for shafting-hanger, substantially as herein shown and described.

32,341. GRAIN-DRILL POINT OR SHOVEL. HENRY FUNK, Pana, Ill. Filed Feb. 12, 1900. Serial No. 5,026. Term of patent 14 years.



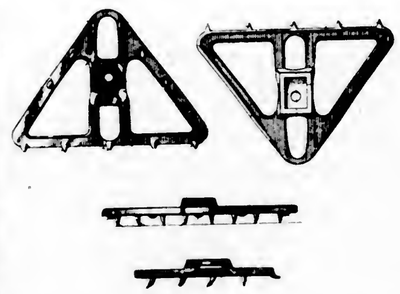
Claim.—The design for a drill point or shovel, substantially as herein shown and described.

32,342. CARPET-STRETCHING PLATE. ROBERT J. WRIGHT and FRED WRIGHT, Coldwater, Mich. Filed Feb. 13, 1900. Serial No. 5,118. Term of patent 14 years.



Claim.—The design for a carpet-stretching plate, as herein shown and described.

32,343. STRETCHER-PLATE FOR CARPET-TACKING DEVICES. CHARLES P. KNAPP, Deposit, N. Y. Filed Feb. 12, 1900. Serial No. 5,022. Term of patent 7 years.



Claim.—The design for a stretcher-plate for carpet-tacking devices, herein shown and described.

32,344. HORSESHOE-CALK. WILLIAM EDWARD COTTRELL, Tipton, Iowa. Filed Feb. 12, 1900. Serial No. 5,025. Term of patent 14 years.



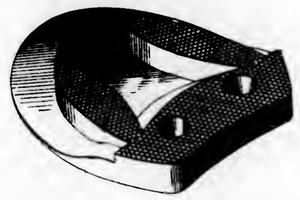
Claim.—The design for a horseshoe-calk, herein shown and described.

32,345. HORSESHOE-CALK. WILLIAM EDWARD COTTRELL, Tipton, Iowa. Filed Feb. 16, 1900. Serial No. 5,537. Term of patent 14 years.



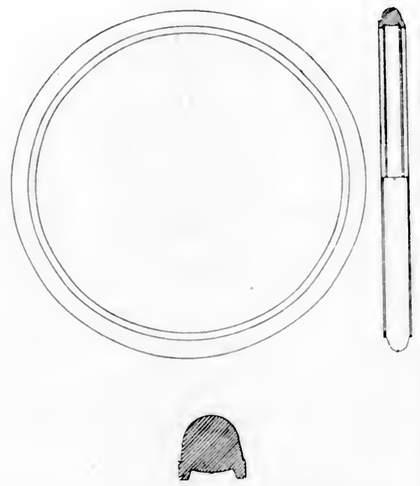
Claim.—The design for a horseshoe-calk, herein shown and described.

32,346. HORSESHOE-PAD. JACOB KRONENBERG, New York, N. Y. Filed Jan. 23, 1900. Serial No. 2,546. Term of patent 7 years.



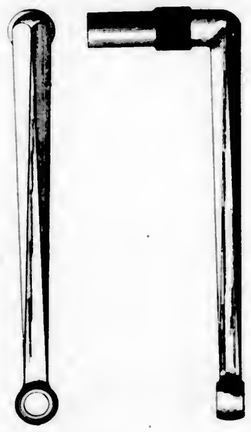
Claim.—The design for the horseshoe-pad, as herein shown and described.

32,347. RUBBER TIRE. STEPHEN S. MILLER, Akron, Ohio. Filed Feb. 14, 1900. Serial No. 5,224. Term of patent 7 years.



Claim.—The design for a rubber tire substantially as herein shown and described.

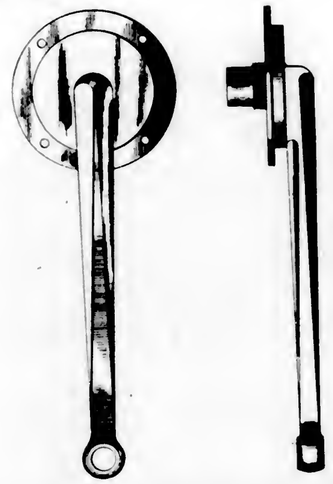
32,348. CRANK-ARM FOR VELOCIPEDES. ALBERT M. PRICE, Chicago, Ill., assignor to William H. Fauber, same place. Filed Feb. 12, 1900. Serial No. 5,029. Term of patent 7 years.



Claim.—The design for a crank-arm for velocipedes, substantially as herein shown and described.

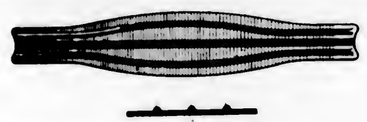
32,349. CRANK-ARM AND SPROCKET-WHEEL FLANGE FOR VELOCIPEDES. ALBERT M. PRICE, Chicago, Ill., assignor to William H. Fauber, same place. Filed Feb. 12, 1900. Serial No. 5,030. Term of patent 7 years.

32,349.



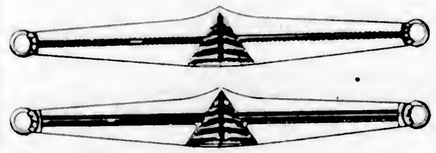
Claim.—The design for a crank-arm and sprocket-wheel flange for velocipedes, substantially as herein shown and described.

32,350. BODY PORTION FOR BELTS. LOUIS SANDERS, New York, N. Y. Filed Jan. 29, 1900. Serial No. 3,238. Term of patent 3½ years.



Claim.—The design for the body portion of a belt herein shown and described.

32,351. BELT-BODY. JULIA LIVINGSTON, New York, N. Y. Filed Feb. 16, 1900. Serial No. 5,536. Term of patent 3½ years.



Claim.—The design for a belt-body, substantially as herein shown and described.

32,352. ARTIFICIAL FLOWER. LINA PRAGER WEBER, New York, N. Y. Filed Feb. 7, 1900. Serial No. 4,406. Term of patent 3½ years.



Claim.—The design for an artificial flower, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 13, 1900.

84,308. CERTAIN NAMED EMBROIDERY MATERIALS. HALSEY R. PHILBRICK, Hartford, Conn. Filed Feb. 8, 1900.

PRISCILLA

Essential feature.—The word "PRISCILLA." Used since May, 1899.

84,309. COTTON FABRICS. SIEMSSEN & Co., Hamburg, Germany. Filed Feb. 15, 1900.



Essential feature.—The representation of a boy mounted on a dragon. Used since December 5, 1899.

84,310. COTTON FABRICS. SIEMSSEN & Co., Hamburg, Germany. Filed Feb. 15, 1900.



Essential feature.—The representation of a flying phœnix and a woman mounted on the same. Used since December 5, 1899.

84,311. COTTON FABRICS. SIEMSSEN & Co., Hamburg, Germany. Filed Feb. 15, 1900.



Essential feature.—The representation of a frog. Used since December 5, 1899.

84,312. COTTON FABRICS. SIEMSSEN & Co., Hamburg, Germany. Filed Feb. 15, 1900.



Essential feature.—The representation of a joss. Used since December 5, 1899.

84,313. CERTAIN NAMED FABRICS AND WEARING-APPAREL MADE THEREFROM. CARL HERMANN CONNICHAU, Silkeborg, Denmark. Filed Sept. 23, 1899.

Essential feature.—A head representing a fisherman or pilot. Used since June 1, 1898.

84,314. BAGS AND TWINE WITH WHICH TO SEW SAME. FULTON BAG AND COTTON MILLS, Atlanta, Ga. Filed Jan. 26, 1900.



Essential feature.—The representation of an eagle carrying a bag in his talons. Used since June, 1890.

84,315. CREAM FOR TOILET USE. MARTHIE M. DIETRICHSON, Mount Pleasant, Iowa. Filed Feb. 14, 1900.

34,315.

Sinnita

Essential feature.—The word "LINNITA." Used since January 1, 1897.

34,316. OINTMENTS AND LOTIONS. BENJAMIN GOLDSTEIN, Allegheny, Pa. Filed Feb. 12, 1900.

BEM-TOF

Essential feature.—The compound word "BEM-TOF." Used since September 19, 1898.

34,317. LOTION. LECARON & FILS, Paris, France. Filed Feb. 15, 1900.

GENOTHRIX

Essential feature.—The word "GENOTHRIX." Used since October 17, 1899.

34,318. MEDICINE FOR CERTAIN NAMED PURPOSES. THE FIRM OF E. MERCK, Darmstadt, Germany. Filed Feb. 8, 1900.

EUMENOL

Essential feature.—The word "EUMENOL." Used since April, 1897.

34,319. CURE FOR RUPTURE. WILLIAM S. RICE, Adams, N. Y. Filed Feb. 16, 1900.

LYMPHOL

Essential feature.—The word "LYMPHOL." Used since November 1, 1897.

34,320. REMEDY FOR BOTTS, COLIC, AND LOCKJAW. ALEXANDER MITCHELL, Monroe, La. Filed Feb. 6, 1900.

B.C.L.S.

Essential feature.—The letters "B. C. L. S." Used since January 11, 1898.

34,321. CERTAIN NAMED MALT LIQUORS. J. & R. TENNENT, Glasgow, Scotland. Filed Sept. 22, 1899.



Essential feature.—The letter "T" and the facsimile signature "J. & R. TENNENT." Used since August 14, 1861.

34,322. SYRUP AND SUGAR. ABRAM LYLE & SONS, LIMITED, London, England. Filed Feb. 9, 1900.



Essential feature.—The representation of a dead lion. Used since October, 1884.

34,323. WOOD STRENGTHENER AND PRESERVATIVE. PETER C. REILLY, Indianapolis, Ind. Filed Feb. 15, 1900.

KREODONE

Essential feature.—The word "KREODONE." Used since February 12, 1900.

34,324. INCANDESCENT GAS-MANTLES. CONSOLIDATED INCANDESCENT LIGHT COMPANY, New York, N. Y. Filed Feb. 15, 1900.

THE CONQUEROR.

Essential feature. The words "THE CONQUEROR." Used since January 6, 1900.

34,325. TIN AND TERNE PLATE. SOUTHERN RAILWAY SUPPLY COMPANY, Richmond, Va. Filed Feb. 16, 1900.

OCRACOKE

Essential feature.—The word "OCRACOKE." Used since May, 1897.

34,326. CERTAIN NAMED TOOLS. ARMSTRONG BROS. TOOL COMPANY, Chicago, Ill. Filed Jan. 5, 1900.



Essential feature.—The representation of a human arm and hand and a hammer, the arm being bent and the hammer being in the grasp of the hand. Used since September 1, 1897.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE SORLLE.

Decided December 28, 1899.

1. COPENDING APPLICATIONS—INTERFERENCE—AFFIDAVIT UNDER RULE 75.

Where some of the claims of an application interfere with claims in a patent granted on a copending application, *Held* that an interference should be declared without first requiring the applicant to overcome that patent as a reference for the claims which do not interfere by an affidavit under Rule 75.

2. INTERFERENCE—PRELIMINARY QUESTIONS—NON-INTERFERING CLAIMS.

Where an interference exists between claims in an application and a patent, the question as to the patentability of the applicant's non-interfering claims over that patent is not a preliminary question, but is one which may be determined by the interference proceedings, since the evidence may show which was the prior inventor of that matter and take the place of the affidavit under Rule 75.

3. AFFIDAVIT UNDER RULE 75—INTER PARTES PROCEEDINGS.

The only reason for accepting in any case an *ex parte* affidavit as sufficient to overcome a patent cited as a reference is that an interference cannot be declared between the parties by reason of the fact that there are no interfering claims. If the matter can be settled in *inter partes* proceedings, that is obviously the better way of determining it.

ON petition.

GRAIN-CAR.

Application of Martin Sorlle filed July 10, 1899, No. 723,359.

Mr. James J. Sheehy for the applicant.

GREELEY, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner refusing to declare an interference between this application and an unexpired patent cited as a reference until the applicant has overcome that patent as a reference for certain claims which do not interfere with any made by the patentee.

It appears that this application was filed before the patent referred to issued and contains certain claims which interfere with claims made by the patentee and also contains other claims which do not interfere, but which in the Examiner's opinion apply to matter shown and described but not claimed by the patentee. The applicant has filed an affidavit that he made the invention embodied in his application prior to the date of filing of the patentee's application, although since the two applications were pending concurrently no such affidavit was necessary in order to justify the declaration of the interference. (*Ex parte Tizley*, 89 O. G., 2259.) Notwithstanding the existence of the interfering matter, however, the Examiner has insisted upon his rejection of the claims which do not interfere on the disclosure in the patent and has stated that the interference will not be declared until the applicant has filed a satisfactory affidavit under Rule 75 overcoming the patent as a reference for them or until the question as to their patentability has been otherwise determined.

The Examiner properly holds that a patent granted subsequently to an applicant's filing date, but on an application filed prior thereto, is a proper reference to be cited against the claims of the application, provided the patent shows and describes but does not claim the applicant's invention, and in such case in order to overcome the patent as a reference the applicant must file the affidavit required by Rule 75. (*Ex parte Eddleblute*, 52 O. G., 751.) That rule requires that he shall show—

a completion of the invention in this country before the filing of the application on which the domestic patent issued.

The only reason for accepting an *ex parte* showing as sufficient in such case is that an interference cannot be declared between the parties by reason of the fact that the patentee does not claim the invention. If the matter could be settled in *inter partes* proceedings, that would obviously be the better way of determining it.

In the present case it is clear that neither the interfering nor the non-interfering claims can be allowed to the applicant until he has in some manner overcome the patent cited as a reference, and therefore the only question is as to the time and manner in which this shall be done. The Examiner argues, as above noted, that as to the non-interfering claims this should be done *ex parte* prior to the declaration of the interference in view of Rule 95, which requires that—

before the declaration of interference all preliminary questions must be settled by the Primary Examiner.

In support of his position he also calls attention to *ex parte Boyer*, (49 O. G., 1986.)

In *ex parte Boyer*, however, the reference cited was not the interfering patent itself, but was a foreign patent. In the present case, furthermore, it can hardly be said that the question as to whether or not the patent is a reference for the non-interfering claims is a preliminary question within the meaning of Rule 95. The proposed interference proceeding will probably establish which party

was the first inventor of the device disclosed, as well as of the particular combinations in interference, and will therefore determine whether or not the applicant is entitled to the non-interfering claims. It is manifestly better to have that matter determined by *inter partes* proceedings than by an *ex parte* affidavit. The records and proofs presented by the applicant in that interference will take the place of and correspond to the affidavit required by Rule 75. (*Ex parte Keller*, 61 O. G., 1790.) The question is therefore not preliminary to, but is a part of, the question which will be determined by the interference proceeding.

It is held, therefore, that the interference should not be delayed, but that the requirement for an affidavit under Rule 75 should be postponed until after the interference is determined and that the record of the interference should then be considered in determining whether or not the requirement should then be made.

The petition is granted.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Sixth Circuit.

C. & A. POTTS & CO. *v.* CREAGER *et al.*

Decided October 23, 1899.

1. POTTS—CLAY-DISINTEGRATOR—VALID—INFRINGED.

Patent No. 322,393, granted July 14, 1885, to Clayton and Albert Potts for an improvement in clay-disintegrators, which consists in a rotating cylinder carrying cutting-bars fixed in longitudinal grooves and projecting beyond the surface of the cylinder, acting in combination with a vibratory plate mounted on a shaft opposite the cylinder and moved automatically toward the cylinder in operation so as to continue to press the clay against it as the successive portions are cut away by the cutting-bars, *Held* not anticipated by the prior art, valid, and infringed as to claim 6.

2. SAME—SAME—NON-INVENTION—VOID.

Claims 1 and 2 of Letters Patent No. 368,898, granted August 23, 1887, to Clayton and Albert Potts for an improvement in clay-disintegrators, such as shown in Letters Patent No. 322,393, the improvement consisting of the substitution of a smooth roller for the vibratory plate shown in the patented device improved upon, *Held* not to disclose patentable invention and to be void.

APPEAL from the Circuit Court of the United States for the Southern District of Ohio.

STATEMENT OF THE CASE.

This is an appeal from a decree dismissing a bill for the infringement of a patent. The case has a somewhat peculiar history. The complainant, Potts & Co., an Indiana corporation, filed its bill against the firm of Jonathan Creager's Sons, of Cincinnati, to restrain the infringement of Patent No. 322,393, issued July 14, 1885, to Clayton Potts and Albert Potts, for a clay-disintegrator, and also of a patent issued August 23, 1887, to the same inventors, for an improvement upon the prior patent. Issues were made up by the filing of an answer and replication, and the circuit court after a hearing upon the merits dismissed the bill. (44 Fed. Rep., 680.) The plaintiff then appealed to the Supreme Court, and that Court after a full hearing found the patent to be valid, found the defendants to have infringed it, reversed the decree of the circuit court, and directed a decree for the complainant. (*Potts & Co.* v. *Creager*, 70 O. G., 494; 155 U. S., 597; 15 Sup. Ct., 194.) Upon the coming down of the mandate and the entry of the interlocutory decree finding the issues for the complainant and directing a reference the defendants filed a petition for rehearing on the ground of newly-discovered evidence. The petition was allowed to be filed, and after an examination of the evidence the circuit court set aside the decree for the complainant and entered a new decree dismissing the bill. (71 Fed. Rep., 574; 77 Fed. Rep., 454.) The complainant then had recourse to a proceeding in mandamus in the Supreme Court to compel the circuit court to comply with the decree of the Supreme Court. On this application the Supreme Court held that the action of the circuit court in setting aside the decree entered in accordance with the mandate was irregular and void; that a petition for rehearing in such a case could properly be addressed only to the Supreme Court or to the circuit court after leave had been obtained from the Supreme Court to file such a petition in the circuit court and directed the writ to issue. Thereupon the circuit court restored the decree, which it had, without authority, set aside, and the defendants applied to the Supreme Court for leave to file a petition for rehearing on the same ground already irregularly presented to the circuit court. Leave was granted. A petition for rehearing was filed in the circuit court, and the circuit court, Judge Sage presiding, upon a rehearing set aside the former decree and again dismissed the bill. The present appeal is from the second decree dismissing the bill upon the petition for rehearing.

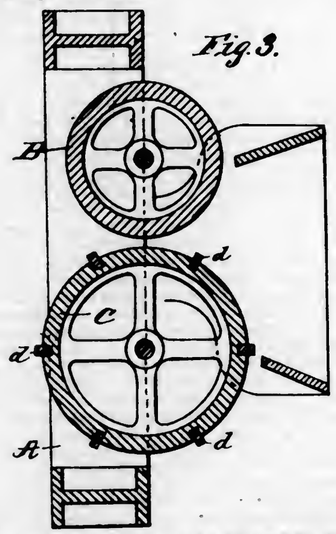
The substance of the two patents upon which the bill is founded is stated by Mr. Justice Brown for the Supreme Court in 70 O. G., 494; 155 U. S., 597, 15 Sup. Ct., 194, as follows:

In the first patent, No. 322,393, the patentees stated the object of their invention to be "to disintegrate the clay by means of a revolving cylinder, which shall remove successive portions from a mass of clay which is automatically pressed against the cylinder." This was accomplished by a cylinder containing a series of steel bars, fitted into longitudinal grooves in the periphery of the cylinder, where they were secured by flush screws at each end, by means of which they were adjusted, so as to present a sharp corner, projecting above the surface of the cylinder. Opposite the cylinder was a strong vibratory plate, mounted on a shaft, so as to swing in its bearings, by the aid of an eccentric wheel. The opposed sides of the cylinder and the upper and central portions of the plate formed a trough, one side of which approached and receded from the other at intervals, and which had at the bottom a narrow opening of constant width. In the operation of the machine, the plate was swung back, so as to leave as large an opening as possible, and the moist, untempered clay was thrown into the trough between the cylinder and the upper portion of the plate. By a rapid revolution of the cylinder, successive portions of the clay were removed from the mass, carried through the narrow opening by means of the scraping-bars, and at the same time the upper portion of the plate moved slowly toward the cylinder; thus keeping the mass of clay in close contact with the cylinder, as successive portions were removed. The only claim alleged to be infringed was the sixth, which reads as follows: "6. In a clay-disintegrator, the combination with cylinder, A, having a series of longitudinal grooves, of the scraping-bar, c, and adjustably secured in said grooves for the purpose specified." In the second patent, No. 368,898, which was for an improvement upon the first, there was substituted in lieu of the swinging plate, shown by the first patent, as coöperating with the revolving cylinder, a plain cylinder set opposite the cutting-cylinder, and revolving therewith in close proximity, so that the raw clay might be fed, shredded, and discharged in an even and continuous manner, in readiness to be taken directly to the pug or other mill. The patentees further stated in their specifications: "The machine shown in our Letters Patent No. 322,393 was provided with a swinging or vibrating plate to coact with the cutting-cylinder in effecting the shredding of the clay which was fed between them. In such machine the abutting surface of the vibrating plate furnished a rest or bearing for the clay in presenting the same to the action of the cutter-knives. This abutting surface was limited in extent and unchanging in position, so that it became rapidly worn. By substituting the revolving roll for the vibrating plate, this objection is greatly lessened. The roll constantly presents new surfaces to the cutters, so that the wear is even and regular throughout its circuit. If any inequalities exist in the roll at the outset, these become rapidly reduced, so that by use the cylinder wears more and more true, and acts thus with constantly better effect. Aside from cheapness in construction, the revolving roller or cylinder machine will work wet or sticky clays with perhaps one-third of the power necessary in treating such clays in the vibratory-plate machine. Such plate tends constantly to crowd or squeeze the passing clays, whereas the revolving roll yields continuously, so that clogging is less apt to occur at the same time that the clay is

finely and evenly shredded; the cutter-cylinder moving, by preference, more rapidly than the companion feed-roll, in order to accomplish this effect. Prior to our invention, it has been very common to employ, in clay-mills, sugar-mills, and the like, a set of rolls between which the material passed as the rolls were revolved; but in such machines the operation of the rolls was merely to break up the clogs of clay, and squeeze or crush the same, whereas, by our invention, the clay is positively cut into fine shreds or clippings, in much better condition to be tempered and molded than by the old forms of disintegrating-machines."

The following drawing illustrates the main features of the machine, so far as the same are material to the present case:

Fig. 3.



Defendants were charged with infringing the first and second claims of this patent, which read as follows:

1. In the supporting-frame of a clay-disintegrator, a rotating cylinder longitudinally grooved, and carrying cutting-bars in and projecting beyond the grooves, in combination with a smooth-faced rotating cylinder adapted to carry and hold the clay against the cylinder having the cutting-bars thereon, which latter cut or shred the clay, and pass the same between the cylinders, substantially as set forth.

2. In clay-disintegrators, the combination, with the main supporting-frame and with a rotating cylinder fixed therein, and having longitudinal cutting-bars projecting beyond the face thereof, of a positively-revolving companion cylinder fixed opposite thereto in said frame, and having a smooth face or surface, with which said cutting-bars directly coöperate to shred or clip the clay, as the same is fed by and passed between said cylinders, substantially as described.

The art and the relation of the inventions to the art are described by Mr. Justice Brown as follows:

Beds of clay are composed of different strata; and the first step necessary to be taken in the manufacture of such clay is a thorough mixing of the strata, and the reduction of the clay to a suitable condition. Otherwise, the product will contain laminations, will shrink unevenly, and check in burning, scale or peel off in use, and be less valuable than products made of clays which are first thoroughly mixed and tempered, and reduced to a homogeneous mass, before being manufactured into the product. Prior to the Potts inventions, various methods seem to have been employed to secure this result. The clay had been sometimes spaded up in the autumn, subjected to the action of the frost during the winter, and then to the operation of the old-fashioned grinding-pit. A mud-wheel had also been used. The "soak-pit" was another means used to accomplish the same result; the clay being deposited in a pit of water, and allowed to remain until the soaking process had reduced it to the desired condition. These methods were slow and expensive. Both grinding-machines and crushing-rolls had been adopted in comparatively recent years. Their action was simply to crush the clay, the different strata being pressed together and made more compact, and the clay discharged from the rolls in cakes or sheets—a condition that made the tempering very difficult, as the clay thus treated would not readily receive or absorb the water. The object of the Potts inventions was not to crush the clay as had been previously done, but to disintegrate and pulverize it, leaving it in a loose condition, fitted to absorb the water readily. Their machines consisted substantially of a cylinder moving at a high speed, having longitudinal bars fixed in its periphery with sharp projecting corners, and a fixed abutment in close proximity thereto—in the first patent a swinging plate, in the second a smooth cylinder—and a positive feeding device, by which the clay was forced between the main cylinder and the abutment. The longitudinal bars thus operated to strike the mass of clay quick, sharp blows, in rapid succession, and cut or shred small portions therefrom, which were deposited beneath the machine, thoroughly mixed in their different strata, and with rough, torn, or ruptured edges—a condition best adapted to receive or absorb water and be easily and thoroughly tempered.

Mr. Justice Brown in the opinion examined eight prior patents cited as anticipations of the Potts patent—one to Robert Butterworth for an improvement in machines for grinding apples—a cylinder with adjustable cutting knives or blades on its periphery having serrated edges and cutting or grinding the apples against a plate; one to Ennis for a machine used in the preparation of paper-pulp and consisting of a revolving cylinder armed with longitudinal knives and a stationary plate, also armed with knives, mounted beneath it in close proximity thereto; a patent to Frost for a grinding-cylinder for paper-engines and consisting of a skeleton cylinder armed with sharp cutting-blades secured adjustably, so as to be moved out from the axis of the cylinder as they wear; a patent to Van Name for a roller for grinding-mills, provided with blades arranged in longitudinal grooves around the surface parallel with the axis, made alternately of hardened steel and soft iron, so that in use the soft material will wear more rapidly than the hard and produce a corrugated roller; one to Peabody for a cotton-seed huller, exhibiting a rotary cylinder armed with knives set in grooves, each having a chisel-shaped cutting edge and adjustable for the purpose of increasing or diminishing the cut; one to Mayfield for a grinding-mill adapted for general use among farmers, consisting of a cylinder provided with knives or plane-bits set in longitudinal grooves; one to J. W. Smith for the purpose of preparing wheat for grinding, in which a cylinder is employed similar to that of the Mayfield patent, with a series of plane-bits projecting from the periphery and adjustably bolted to the cylinder, and one to Rudy for an improvement in clay-pulverizers, consisting of the pulverizing-roller, in combination with separate concave springs or an elastic bed for supporting the clay while the roller revolves therein. In this last machine the clay falls through a sieve and descends to a second cylinder and then to a third. The rollers are fluted and cast in a series of sections. Of the Rudy patent the Court said that the process employed was rather a grinding than a disintegrating process and that such a machine would be inoperative, except, perhaps, where the clay was dry and of light consistency and that the cylinder evidently operated upon a wholly different principle from that of the Potts patents. In addition to these the Court considered two patents for improvements in the making of bricks—one, a patent to Alexander, wherein the clay was passed between double spiral-toothed grinding and crushing rollers and then between plain cylindrical rollers, and one to Alsip and Drake which had a fluted or corrugated cylinder, in combination with a smooth-faced companion cylinder, between which the clay was passed and crushed. Other patents for straw-cutters, machines for pressing tobacco, pulp-engines, peat-machines, feed-boxes for roller-mills, and machines for removing hair from hides were before the Court, and also a machine known as the "Creager wood-polishing machine," having a cylinder provided on its periphery with a series of projecting strips or bars of glass not differing materially in form from plaintiff's scrapers and, like them, fitted into longitudinal grooves. The machine was used for polishing boards, which were run between the cylinder and a support and pressure-roller journaled underneath and connected with an automatic adjustable contrivance.

The Court said that if the Creager machine had been used for an analogous purpose it would evidently have been an anticipation of the Potts cylinder, since the substitution of steel for glass strips would not of itself have involved invention. The Court then considered how far there might be the exercise of the faculty of invention in the transfer from one art to another of a device for accomplishing a different purpose and held that such a transfer might involve invention where the arts were not analogous or nearly related, the question being more or less dependent on the amount of change required to adapt the device as found in the one art to the other. Mr. Justice Brown states the conclusion of the Court as follows:

> As a result of the authorities upon this subject, it may be said that, if the new use be so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use; but if the relations between them be remote, and especially if the use of the old device produce a new result, it may, at least, involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use. Applying this test to the case under consideration, it is manifest that, if the change from the glass bars of the Creager wood exhibit to the steel bars of the Potts cylinder was a mere change of material for the more perfect accomplishment of the same work, it would * * * not involve invention. But not only did the glass bars prove so brittle in their use for polishing wood that they broke and were discarded after half an hour's trial, but they would undoubtedly have been wholly worthless for the new use for which the Potts es required them. Not only did they discard the glass bars, and substitute others of steel, but they substituted them for a purpose wholly different from that for which they had been employed. Under such circumstances, we have repeatedly held that a change of material was invention. * * * None of the cylinders to which our attention has been called resembled the Potts cylinder so closely as does this. None of them were used for the purpose of disintegrating, as distinguished from crushing or grinding, clay. The result appears to have been a new and valuable one; so much so that, within a short time thereafter, defendants themselves obtained a patent upon a machine of their own to accomplish it.

The Court then proceeds to the question of infringement and holds that the operation of the defendants' machine is the same as that accomplished by the Potts machine and that it accomplishes the same results. The Court in support of its conclusion as to the operation of the patented device quotes from the trade circular of the defendants advertising their own machine as follows:

> Unlike the ordinary roller process, the action of the disintegrator is to remove small portions, by cutting from the clay fed into the hopper on the same principle as shaving and whittling, and does not roll the clay into sheets, thus making it unfit for proper manipulation. The past season we have put out many of these machines in difficult clays, and made it an obligation to work the clay, both wet and dry, and each machine has done its work well, and to the entire satisfaction of the purchasers.

The defendants on rehearing introduced a good many other patents prior to the complainant. One was issued to Thomas Mills and George Mills for granulating or disintegrating the kernels of cocoanuts and other like substances by the combined action of a toothed cylinder, a grooved plate, and a toothed roller. The kernels of the cocoanut are fed first to the feed-roller, which in turn feeds them and maintains them in contact with the teeth of the cylinder, holding them in position to be acted on by the teeth of the cylinder, and the combined action carries them forward to be acted on by the teeth of the cylinder against the grooves of the plate. Another is the Gregg patent, of 1879, for an improvement in disintegrating devices for pulverizing clay for brick-making. The apparatus consists of a pair of crushing-rollers, combined with a rotating brush or shaft armed with a series of flexible blades which is placed beneath the rollers, so as to act upon the clay passing between them, as set forth. The roller shown in the drawing is tapered or conical and smooth; but the specification states that cylindrical rollers may be employed. The rotating brush consisted of a series of elastic metallic blades or beaters secured radially and mounted immediately beneath the line of contact of the rollers, and is rapidly rotated by means of the gearing apparatus. The specification says that the action of the rapidly-rotating brush-blades upon the clay, which falls upon them from the rollers above, completes and perfects the crushing operation, breaking up the bands and strips which may be produced by the rollers when the clay is plastic and reducing it to a thoroughly-comminuted state. The evidence of complainant's witnesses was that the wet clay would soon clog up the rotating brush, and that it would then become only a smooth roller. It was further in evidence that the machine never was operated and that the patent for it was sold with many other patents at auction for $25. The Dodson patent for a disintegrating-machine was also produced at the rehearing. It was issued in 1883 and showed a rotary part and a fixed abutment consisting of sections between which the material to be disintegrated was operated upon. The rotary part had V-shaped circumferential ribs or projections and the abutment had corresponding V-shaped grooves. The material was subjected to the crushing or disintegrating action of the movement of the rotary part in the abutment. The patent suggests that by adjusting the abutment the degree of fineness of disintegration could be varied. This patent is not shown to have ever been used in the trade.

The Newell patent, also introduced at the rehearing, issued in 1878, for a certain new and useful improvement in grinding-mills, consisted of two rollers running together at different speeds, so that the grinding was effected by the material passing between them, and at a speed at least equal to that of the more slowly-moving roller in order that the material could not be heated by the mill becoming choked. Each cylinder had a series of angular rings on its surface, which rings had shallow teeth meshing with the teeth of the opposing cylinder. The cylinders revolved at different speeds. The triangular teeth or corresponding cavities tapered in depth and width from the base outward, the intention being to hold the material with the slow roller and to cut and crush it with the fast one without having the cavity that forms the tooth or detent large enough to permit the material to escape unground in its passage between the rotating rollers.

In addition to these patents evidence was introduced of prior uses of clay-disintegrators, one known as the "Moore disintegrator," which was used at Elizabethport, N. J., in 1878 and for five years thereafter. It was provided with two sectional rolls of equal size. Each section had a set of teeth along its entire circumference equidistant from the sides and had also a smooth surface. The width of the teeth was one-half the width of the section, the remaining portion of which constituted the smooth surface. The teeth of each roll meshed against the smooth surface of the other roll, leaving a space of three-eighths of an inch between the smooth surface and the end of the teeth. One of these rolls was made smaller than the other in order to obtain a differential speed. As the clay passed through the machine it was cut in shreds about an inch wide and three-eighths of an inch thick and about two inches long. The clay then went through a pug-mill into the brick-machine. The same witness (Rossi) testifies to the use of a disintegrator which he himself constructed. There was in his factory a pair of smooth rollers to grind the clay, through which the lumps did not feed well. The witness ordered grooves to be cut on each roller and inserted steel bars, so that as they struck the lumps of clay they kept them from sliding back. The grooves were cut so that the bars were extended spirally across the face of the roller. The clay is said to have been cut into shreds, and from the rolls it went into the pug-mill. It was used for about six months and was then sold at auction for old iron. The difference in revolution between the wheels in the Moore and the

Rossi machines was as seventy-five to ninety per minute. It further appeared that the machine was used to break up the large clods or lumps before putting the clay into the soak-pit, where it was left to absorb water and disintegrate, after which it was run through smooth rolls to separate or crush the stones, then through a pug-mill, and thence to a brick-machine. It appeared that the machine was discarded and another machine substituted. The same witness testified to another machine for disintegrating, built in 1881, called the "Watson machine." It differed from the Moore machine in that the teeth were round and set in rows projecting about an inch beyond the face of the roll, the rows on one roll working between the rows of its companion roll, the cylinder between the rows forming the abutment. The witness stated that after the clay was passed through the Watson machine it was run through a pair of small rolls, then through a pug-machine, and then into the brick-machine; that one of the rolls was made to run only seventy-five revolutions in a minute and the other about ninety, and that the machine was discarded and replaced by other machines.

Another alleged prior use is what is known as the "Archenbroon apple-grinder." It does not differ from the Butterworth apple-grinder, a patent for which was before the Supreme Court in the original case. It is said that the Archenbroon machine suggested to one John S. Smith the construction of the clay-disintegrator on the principle of the apple-grinder. Application was made for a patent by Smith, which was declared to be in interference with the Potts application. The Potts firm bought Smith's interest for $300 and obtained from him a concession of priority, and the interference proceedings were dismissed. It appears that in the practical operation of Potts's second patent the revolutions of the smooth roller are about two hundred a minute and of the grooved roller are seven hundred and fifty a minute.

Before TAFT, LURTON, and THOMPSON, Judges.

Mr. W. H. H. Miller and *Mr. Chester Bradford* for the appellant.

Mr. Edward Boyd and *Mr. E. E. Wood* for the appellees.

TAFT, J., (after stating the facts:)

Judge Sage held that the prior uses and the patents introduced in the supplementary proceedings, which were not before the Supreme Court, showed that the clay-disintegrator, like that of the Potts machine, could not be a pioneer invention, because the disintegration of clay, as distinguished from crushing it and pulverizing it, was not a new result. He found in the opinion of the Supreme Court ground for the inference that the conclusions of the Supreme Court as to the validity of the Potts patent were based on the assumption that it effected wholly a new result in the art of the treatment of clay for the manufacture of brick, and as the new evidence in his view showed that the disintegration was an old result, or at least had been accomplished in prior machines, patented and unpatented, the discovery of the roller of Potts in his first machine did not involve the exercise of invention. No new evidence was introduced upon the subject of infringement, and we may assume from the decision of the Supreme Court, as well as from the evidence before us, that the defendants' machine is so like the plaintiff's that the only question now presented to us is of the validity of the complainant's patent. The supplemental record disclosed a great many more machines than were before the Supreme Court for crushing, pulverization, and disintegration of clay in its preparation for the brick-machine; but we do not find from the evidence that the operation of any of these machines for the disintegration of clay was so successful as to lead to their general adoption by the trade or to work a change in the older and more laborious methods in preparing clay for brick-machines graphically described by Mr. Justice Brown in his opinion. It is clearly established by the evidence that the Potts machine is a success. Nearly all the witnesses who testified to the contrary are prejudiced by their general interest in the litigation, and, as infringers of complainant's patents, are contradicted by their conduct. The weight of such evidence, moreover, is much impaired by the trade circulars issued by the defendants showing the success of machines which infringe and resemble in every way the Potts machine. The operation of the Potts machine described by Mr. Justice Brown shows that it embraces the rapid revolution of the cylinder with longitudinal blades upon it arranged with reference to the mass of clay to be disintegrated, so that the knives upon the surface of the cylinder shall strike with hard blows the mass of clay and clip off or tear off from the mass presented to the cylinder bits of the clay and carry them into a receptacle below. In the first patent the element which fed the clay to the cylinder was a vibrating plate. In the second patent a slow-moving smooth roll was substituted for the vibrating plate, and this smooth roll slowly moved and fed the clay to be struck by the knives upon the rapidly-revolving cylinder. Now it may be that the other machines called "disintegrators" accomplish the same result, but they accomplish it by the use of two cylinders, each armed with cutting, crushing, or disintegrating projections, which intermesh and which effect the disintegration in the same general method as crushing is effected by smooth rollers. The speeds with which the two rollers are operated differ but little in the Moore, Rossi, and Watson machines, and while they may have effected disintegration they certainly did not do it in the same way and upon the same principle as that seen and employed in the Potts devices. Conceding that disintegration of the clay sufficiently complete to introduce it at once into the pugging-mill or the brick-machine without having recourse to the soak-pit was accomplished before the Potts invention, we are nevertheless of opinion that the operation of the Potts device is so different from that of the prior devices and is so much more efficient than they are shown to be that it is still entitled to the reward of a limited monopoly. It is difficult at first to distinguish between the pulverizing and crushing operation and that of disintegrating. In a wide sense "disintegration" necessarily takes place in the operation of crushing and pulverizing. The Supreme Court uses the term, however, in the sense of tearing apart, piece by piece, or shred-

ding. In no clay-machine but the Potts do we find this kind of disintegration. It is true that the Moore, Rossi, and Watson machines are described as shredding the clay, but on cross-examination it was made quite apparent that the machines as operated would not tear the clay piece by piece, for the differential speed of the two rollers was not great enough for this. Moreover, the product was afterward subjected to the "soak-pit," an indication that the clay was not in the desired condition, for it was to make the soak-pit unnecessary that the Potts machine was invented. We do not think that the disintegration of apples or of cocoanut-kernels is so analogous to the disintegration of wet clay that the ingenuity shown in the adoption of the device for disintegrating clay can be minimized by reference to these other arts. We are justified in this conclusion by the fact that the Supreme Court did not find that the Butterworth patent for disintegrating apples, which was quite as near in operation and principle to the Potts device as either the Mills or the Archenbroon mill, was a reason for depriving Potts of the right to a patent. The Gregg patent, it is quite clear, was impracticable, and though it professes to comminute the clay it is shown by the evidence to have probably been a complete failure and never to have gone into use at all. The Dodson patent was an instance of the intermeshing of projections on the surface of an abutment with corresponding projections on the surface of a cylinder. It is not shown to have produced disintegration of the clay and is one of those wrecks and failures of inventive genius that are constantly found lining the path of the successful inventor who takes the last step which wins.

We think Judge Sage erred in his conclusion that the Supreme Court's decision rested wholly on the pioneer or primary character of the Potts machine in accomplishing an entirely new result, and even if that were the ground of the decision it does not at all follow that the Supreme Court would not have reached the same conclusion because of the difference in the means or method employed and greater efficiency thereby secured in the Potts machine over any shown in the preceding art. If, as contended by counsel for defendants, the Newell machine will disintegrate clay better with its intermeshing surfaces on the face of two rollers than the Potts machine, the defendants have the right to use the Newell machine.

In reaching our conclusions of fact in this case we have not been unmindful of the abuses which the strict rules enforced in the allowing of the rehearings were adopted to prevent. Where an elaborate opinion of the Court of last resort upon the evidence is published and the weaknesses of the losing side are clearly brought out and the defeated party is thereafter given an opportunity to strengthen the defects of his case by evidence as to transactions long past and machinery long since cast into the scrap-heap, there is great danger that the exigencies of the case may lead witnesses to round out evidence beyond that which exact truth would permit. Such evidence must be taken with great caution and weighed in the light of this danger.

Objection is made by the defendants that the sixth claim of the complainant's patent is simply for a cylinder with longitudinal grooves and scraping-bars adjustably secured in a groove and that the other elements shown in the patent cannot be read into it in order to make it a combination patent. We understand the Supreme Court in its decision to have treated this as a combination claim, or at least to have held that it was for the element in the clay-disintegrating machine to be used in combination with the opposing and other elements necessary to secure disintegration of the clay by the methods specified in the patent. The Supreme Court intimates in its opinion that the substitution for the vibrating plate of a smooth roller did not involve invention, and therefore the second patent was not valid as an improvement over the first. It supports, however, the validity of the first patent and the sixth claim thereof, as for the element in a disintegrating-machine of the cylinder constructed according to the claim, in combination with a vibrating plate or the equivalent thereof, which shall feed the mass of clay to the armed cylinder and hold it to be clipped off or disintegrated piece by piece by the rapid revolution of the cylinder. It is impossible, therefore, to determine the validity of the claim in the light of the prior art without considering the other parts of the old machines with which the alleged anticipatory cylinder coöperates in them. We have therefore felt justified, as the Supreme Court did, in looking at the combination in each of the old patents to determine whether the revolving cylinder with its peculiar functions in the Potts patent had been anticipated. We hold, therefore, that the first Potts patent is valid and is infringed, but that the second Potts patent is invalid because it shows no patentable improvement over the first. Other questions have been made by appellant, but in view of our conclusion it is not necessary for us to consider them. The decree of the circuit court is affirmed in so far as it dismisses the bill on the second Potts patent and is reversed in so far as it dismisses the bill on the first Potts patent, with directions to enter a decree finding the validity of the first Potts patent and ordering a reference for damages. The costs of appeal are taxed against the appellees.

Patents No. 645,538 to 645,929.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Protection of Patents, Trade-Marks, Etc., in Territory Subject to Military Government by United States Forces.

CIRCULAR No. 38.—DIVISION OF CUSTOMS AND INSULAR AFFAIRS.

WAR DEPARTMENT,
Washington, D. C., March 9, 1900.

The following is published for the information and guidance of all concerned:

So much of Circular No. 34*, Division of Customs and Insular Affairs, as rescinded the provisions of Circular No. 21†, same series, relating to fees, is hereby revoked.

Said circulars, except so much of Circular No. 34* as is hereby revoked, shall on and after this date be given full force and effect in Cuba, Puerto Rico, and the Philippine Islands.

G. D. MEIKLEJOHN,
Acting Secretary of War.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 1, 1900.

SIR: The Secretary of the Interior has ordered that William J. Haynes, of Paris, Tenn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents

CERTIFICATES OF REGISTRATION ISSUED MARCH 20, 1900.

Labels.

7,410.—Title: "SAGE DANDRUFF CURE AND HAIR TONIC." (For a Toilet Preparation.) *Henry Ittel, Jr.*, St. Louis, Mo. Application filed January 26, 1900.

7,411.—Title: "COKE HAZEL-BAY." (For a Toilet Preparation.) *Charles E. Matthews*, Chicago, Ill. Application filed February 10, 1900.

7,412.—Title: "PETER'S PINE-TAR TABLETS." (For a Medicine.) *Peter Chemical Co.*, Henderson, Ky. Application filed February 1, 1900.

7,413.—Title: "DIPHTHERENE." (For a Medicine.) *Boussingault Medicine Company*, Rochester, N. Y. Application filed February 23, 1900.

7,414.—Title: "MEADLER'S FAMOUS COUGH DROPS." (For Cough-Drops.) *John W. Meadler*, Poughkeepsie, N. Y. Application filed December 15, 1899.

7,415.—Title: "EINSIEDLER-BALSAM DROPS." (For a Medicine.) *Swiss Medicine Importing Co.*, Chicago, Ill. Application filed February 15, 1900.

7,416.—Title: "MARIA-EINSIEDLER MAGENTROPFEN." (For a Medicine.) *Swiss Medicine Importing Co.*, Chicago, Ill. Application filed February 15, 1900.

7,417.—Title: "OREGON BLACK-LEG CURE." (For a Medical Compound.) *Frank Spike*, Echo, Oreg. Application filed February 27, 1900.

7,418.—Title: "CUTIMOL." (For a Lotion.) *J. N. Mackenzie*, Waukegan, Ill. Application filed February 12, 1900.

7,419.—Title: "AUTOMATIC FINGER CUSHION PAD." (For Rupture-Trusses.) *Charles David Speagh*, Dayton, Ohio. Application filed February 26, 1900.

7,420.—Title: "DIXIE." (For Cigars.) *J. H. Fred Wenzel*, Austin, Tex. Application filed February 13, 1900.

7,421.—Title: "GERMANIA." (For Cigars.) *J. H. Fred Wenzel*, Austin, Tex. Application filed February 24, 1900.

7,422.—Title: "EXPANSION CLUB WHISKEY." (For Whisky.) *Schlesinger & Bender*, San Francisco, Cal. Application filed February 5, 1900.

7,423.—Title: "GRAPE JUICE." (For Wines and Liquors.) *The Golden Gate Wine Co.*, Baltimore, Md. Application filed February 23, 1900.

7,424.—Title: "CERVEZA EXTRA." (For Beer.) *The Consumers Brewing Company*, Philadelphia, Pa. Application filed February 24, 1900.

7,425.—Title: "CERVEZA EXTRA." (For Beer.) *The Consumers Brewing Company*, Philadelphia, Pa. Application filed February 24, 1900.

7,426.—Title: "AMERICAN APOLLINARIS NATURAL MINERAL WATER." (For Mineral Water.) *Robert M. Dillon*, Philadelphia, Pa. Application filed February 27, 1900.

7,427.—Title: "UANDI TEA." (For Tea.) *Uandi Tea Company*, Chicago, Ill. Application filed February 21, 1900.

7,428.—Title: "SCHWEIZER'S ANTI-DYSPEPSIA HOME MADE POTATO BREAD." (For Bread.) *William F. Schweizer*, Philadelphia, Pa. Application filed February 24, 1900.

7,429.—Title: "F. Z. STOVE ENAMEL." (For Stove-Polish.) *Frank Zeller*, Chicago, Ill. Application filed February 10, 1900.

Print.

212.—Title: "COLLINS & CO.'S PLOWS ARE THE BEST IN THE WORLD." (For Plows.) *The Collins Company*, Collinsville, Conn. Application filed February 23, 1900.

*See OFFICIAL GAZETTE, October 3, 1899, Vol. 89, No. 1.
†See OFFICIAL GAZETTE, June 27, 1899, Vol. 87, No. 13.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 13, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Mar. 8	Mar. 5	22
240	VII. Velocipedes, Games, and Toys.	Mar. 6	Mar. 5	115
250	VIII. Furniture, Beds, Store Furniture, etc.	Feb. 28	Mar. 5	166
38	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Feb. 26	Mar. 3	108
106	II. Farm Stock, Products, etc.	Feb. 26	Feb. 28	158
246	I. Tillage and Fences	Feb. 19	Feb. 28	122
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Feb. 17	Mar. 1	87
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Feb. 16	Feb. 28	23
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Feb. 16	Feb. 27	117
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 15	Mar. 1	142
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Feb. 15	Feb. 28	104
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Feb. 15	Feb. 27	148
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 15	Feb. 26	199
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Feb. 15	Feb. 21	213
39	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 14	Mar. 2	126
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 14	Mar. 1	92
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 14	Feb. 28	153
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Feb. 14	Feb. 28	104
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 14	Feb. 28	120
98	XXI. Textiles, etc.	Feb. 14	Feb. 28	168
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 14	Feb. 28	209
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Feb. 14	Feb. 27	141
102	XIX. Stoves and Furnaces	Feb. 14	Feb. 27	226
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 14	Feb. 27	201
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 14	Feb. 27	163
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Feb. 14	Feb. 27	235
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Feb. 14	Feb. 26	205
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 14	Feb. 26	131
248	XVIII. Steam-Engineering, etc.	Feb. 14	Feb. 28	156
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Feb. 14	Feb. 28	181
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 8	Feb. 28	127
	Between one and two months.			
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Feb. 12	Feb. 27	140
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Feb. 9	Feb. 17	236
253	X. Carriages and Wagons	Feb. 6	Feb. 27	140
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 2	Feb. 26	110
35	XXVIII. Pneumatics, Air and Gas Engines, etc.	Jan. 22	Jan. 29	348

Total number of applications awaiting action.....5,633

Applications Under Examination—Continued.

Under one month.			
*Designs	Mar. 7	Mar. 9	53
†Trade-Marks	Mar. 8	Mar. 10	99
‡Labels and Prints	Mar. 13	Mar. 13	....

ISSUE OF MARCH 20, 1900.

Patents	362—No. 645,226 to No. 645,699, inclusive.	
Designs	25—No. 28,253 to No. 28,277, inclusive.	
Trade-Marks	27—No. 34,227 to No. 34,253, inclusive.	
Labels	30—No. 7,410 to No. 7,439, inclusive.	
Prints	1—No. 212.	
Reissues	1—No. 11,813.	
Total issue	466	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	1	....
Arkansas	5	1	New Jersey	13	....
California	2	....	New Mexico Territ'y	1	....
Colorado	17	3	New York	80	10
Connecticut	....	1	North Carolina	1	....
Delaware	4	1	North Dakota	3	....
District of Columbia	1	....	Ohio	23	4
Florida	3	....	Oklahoma Territ'y	1	....
Georgia	....	....	Oregon	....	1
Hawaii	....	....	Pennsylvania	40	5
Idaho	....	....	Rhode Island	2	1
Illinois	55	7	South Carolina	1	....
Indian Territory	3	....	South Dakota	....	....
Indiana	9	2	Tennessee	5	....
Iowa	3	....	Texas	7	2
Kansas	7	....	Utah	1	....
Kentucky	8	1	Vermont	2	....
Louisiana	4	....	Virginia	1	....
Maine	1	....	Washington	3	....
Maryland	2	1	West Virginia	3	....
Massachusetts	25	1	Wisconsin	5	1
Michigan	5	....	Wyoming	....	....
Minnesota	4	1	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	13	3	Total to citizens of the United States	366	45
Montana	1	....			
Nebraska	3	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Italy	....	....
Australia	....	....	Jamaica	1	....
Austria-Hungary	1	1	Mexico	....	....
Barbadoes	....	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	Peru	....	....
Canada	7	....	Norway	....	....
Chili	....	....	Queensland	....	....
China	....	....	Russia	....	....
Costa Rica	....	....	Scotland	....	....
Cuba	....	....	South African Republic	1	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	8	....	Sweden	....	....
Finland	....	....	Switzerland	1	....
France	3	....	Victoria	....	....
Germany	9	....	Western Australia	....	....
Guatemala	....	2	Total to citizens of foreign countries	31	3
Haiti	....	....			
India	....	....			
Ireland	....	....			

PATENTS

GRANTED MARCH 20, 1900.

645,588. SEWING-MACHINE HEMMER. EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Dec. 6, 1898. Serial No. 698,421. (No model.)



Claim.—A hemmer presser-foot provided with a needle hole or aperture, a turning scroll in front of said needle hole, and a yieldingly-mounted tongue extending within and cooperating with said scroll, said foot having also, rearward of said needle-hole, a narrow, yielding or spring-pressed section arranged in line with said tongue and which is adapted to yield independently of the presser-foot to form a slight groove in the bottom of the latter for the easy passage of the hem.

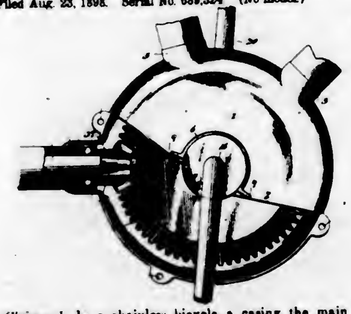
645,589. GUIDING AND PILE-CONTROLLING DEVICE FOR CARPET-SEWING MACHINES. EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed June 26, 1899. Serial No. 721,963. (No model.)



Claim.—1. A pile-controlling apparatus for carpet-sewing machines consisting of the combination with a stationary saddle-guide for the carpet edges, and which guide is provided with a centrally-placed dividing-plate or divider, of a reciprocating piler working astride the said dividing-plate or divider, and a reciprocating saddle astride said piler and movable therewith.

2. A pile-controlling apparatus for carpet-sewing machines consisting of the combination with the stationary saddle-guide C provided with a centrally-placed dividing-plate or divider, of a reciprocating piler comprising the thicker and shorter forward part *g* and the thinner and longer rearward part *g'*, and the saddle A astride the said part *g'* of the piler and attached thereto so as to reciprocate therewith.

645,540. CHAINLESS BICYCLE. ELLE K. BAKER, Paris, Tex. Filed Aug. 23, 1898. Serial No. 689,324. (No model.)



Claim.—1. In a chainless bicycle, a casing, the main body of which is integral throughout and the lower portion of one side is removable, both sides being provided with registering openings, and the line of separation between the removable and the integral portions diverging upward from below the center of the opening upon that side, the casing upon the other side being provided with a recess below the opening, combined with removable bearing-cups in the openings, and a one-piece crank through said cups, the central portion of which crank is provided with a gear-wheel rigidly secured thereto, substantially as described.

2. In a chainless bicycle, a crank-hanger having its main body and the sides thereof made in a single piece and provided with an annular threaded bushing on one side and on its opposite side with an opening, 2, said main body also provided on one side with a segmental flange which is internally threaded and terminates at its ends in lugs, and a removable section fitted to the opening, 2, of the hanger and formed with a threaded segmental flange having lugs and arranged to lie coincident with said segmental flange to complete an annular bushing on the divided side of the hanger, in combination with bearing-cups screwed into the annular and divided bushings, bolts or screws which unite the section to the hanger and the segmental flanges which form the divided bushing, a single-piece driving-crank, a gear fast with said crank at the middle thereof and housed within said hanger, and bearing-cones fitted to said driving-crank and contained within the bearing-cups, substantially as described.

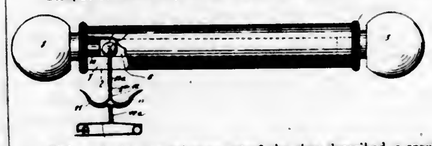
3. In a chainless bicycle, a crank-hanger comprising the main body having the two sides integral therewith and provided with registering openings in said sides, one of the sides of said hanger having its lower part divided on lines which diverge upwardly from below the center of the hanger, a removable section conforming to the division of said side of the hanger, and means for clamping the removable section firmly and detachably to the divided side of the hanger, combined with bearing-cups fitted in the openings of the integral and divided sides of the hanger, one of said bearing-cups being clamped in place by the removable section, a one-piece crank supported in said bearing-cups, and a gear fast with said crank and removable therewith through the open side of the hanger, substantially as described.

645,541. NECKTIE-HOLDER. WILLIAM L. BARTH, Battle Creek, Mich. Filed May 23, 1899. Serial No. 717,969. (No model.)



Claim.—A necktie-holder consisting of a wire bent with portions C to extend within the collar, connected together by the portions C' above, and portions D extending up outside the collar to clasp the same in conjunction with portions C, and joined together at their upper ends by the downwardly and outwardly curved portion D' which serves to engage the band of a necktie, coacting for the purpose specified.

645,542. SUPPORT FOR CURTAINS. LOUIS F. BERGMAN, New York, N. Y. Filed July 7, 1899. Serial No. 723,008. (No model.)



Claim.—1. In a curtain-support of the class described, a securing device composed of a single piece of bent wire, the ends of which are formed into a spring-clasp, said wire being doubled together above

said clasp and again separated to form a pair of projecting hooks, substantially as shown and described.

2. In a curtain-support of the class described, a rod provided with a longitudinal bore, and a longitudinal groove communicating therewith, and a securing device composed of a single piece of wire, the ends of which are formed into a spring-clasp, said wire being doubled and twisted together above said clasp, and separated thereabove to form two projecting hooks, doubled and twisted together above said hooks and thence extended in a loop formed of straight parallel sides terminating in a head and a spherical bearing revolubly mounted upon said straight portion and provided with a countersunk portion in which said head is adapted to operate, said spherical bearing being adapted to operate within said bore, substantially as shown and described.

3. In a curtain-support of the class described, a securing device composed of a single piece of bent wire the ends of which are formed into a spring-clasp, said wire being bent above said clasp to form a pair of projecting hooks, and projected above said hooks in a parallel-sided loop provided at its end with a head or knob and a spherical body slidably mounted upon said loop and provided with a countersunk portion adapted to receive said head or knob, substantially as shown and described.

4. In a curtain-support of the class described, a securing device composed of a single piece of bent wire, the ends of which are formed into a spring-clasp, said wire being doubled together above said clasp, and again separated out to form a projecting hook and provided with a looped extension by means of which the entire device is suspended, substantially as shown and described.

645,543. TELESCOPIC SUPPORTER FOR CURTAINS, DRAPERIES, DISPLAY-CARDS, &c. JOSEPH G. BIRCH, Newton, Mass., assignor to the Phoenix Manufacturing Company, South Berwick, Me. Filed Oct. 14, 1899. Serial No. 733,608. (No model.)



Claim.—In an adjustable supporting device, the combination of an inner telescopic member having a head on its outer end; a head which has a shank for the other end of the device; an outer telescopic member within one end of which the inner telescopic member is received and within the other end of which said head-shank is received; an annular wedge slidable on the inner telescopic member, between the head of said inner member and the adjacent end of the outer member; and elastic means which keep the head on said shank normally distended in relation to said outer member which is provided with a mouth within which said annular wedge is received; said outer telescopic member being endwise movable, in either direction, between and in relation to said wedge and shank.

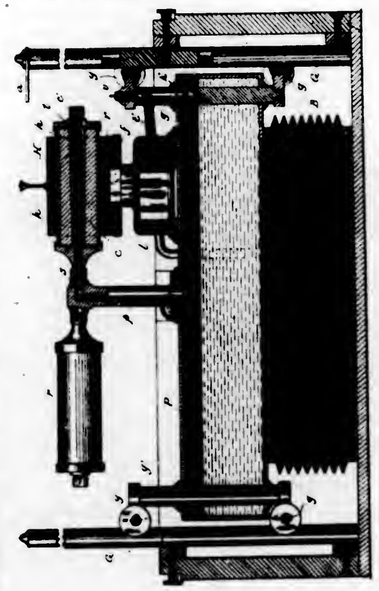
645,544. BAG-HOLDER FOR GRAIN-WEIGHING MACHINES. JOSEPH C. BISSELL, Sterling, Minn. Filed Apr. 22, 1899. Serial No. 678,538. (No model.)



Claim.—1. In a bag-holder for grain-weighing machines, the combination with a filling-spout, of a fixed supporting-bar adjacent to said spout, a pair of yieldable bag-holder members individually pivoted on the bar at points on opposite sides of the spout, each yieldable member having a long arm and a short arm connected by an intermediate coil, and fixed pivot-pins passing through the coils of said members and supporting the latter loosely for the short arms thereof to bind frictionally against the bar, substantially as described.

2. In a bag-holder for grain-weighing machines, the combination with a filling-spout, of a fixed supporting-bar adjacent to said spout and provided with a laterally-offset cleat, a pair of yieldable bag-holder members each having a short arm and a long arm connected by an intermediate coil, and pivot-pins fixed to the cleat on opposite sides of the spout and passing loosely through the eyes of said members to pivotally support the latter individually and in positions for the short arms thereof to bind against the supporting-bar, substantially as described.

645,545. GAS GENERATING AND STORING APPARATUS. WILLIAM BLACKIE, London, England. Filed Sept. 23, 1898. Serial No. 691,743. (No model.)

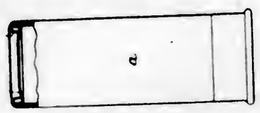


Claim.—1. In a gas generating and storing apparatus, suitable casing, a gas-bag arranged therein, a tank carried upon said bag, said tank serving as a platform, a post projecting upward from the platform, a turn-table fitted thereon, retorts carried by the turn-table, means of communicating between the retort, tank and bag, and a lamp for successively heating the retorts, as specified.

2. A gas generating and storing apparatus consisting of a suitable casing, a gas-bag located therein, a tank adapted to hold water resting upon said bag, means for guiding said tank vertically, a post projecting upward from the tank, the interior of which communicates therewith, a turn-table fitted upon the upper end of the post, a series of retorts connected with the turn-table, said retorts being adapted to receive gas-forming material in cylindrical shape, means of communicating between the retorts and the post, a lamp for generating gas from said material so located as to act upon one of the retorts at a time, and a hood for confining the heat of the lamp, as specified.

3. In a gas generating and storing apparatus the combination of a series of retorts, a turn-table to which said retorts are connected, tubes leading from the retorts to the interior of the turn-table, a hollow post upon which the turn-table is fitted and provided with inlet and outlet openings whereby gas formed in the retorts may be conveyed therethrough.

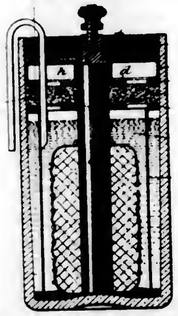
645,546. SHOT-CARTRIDGE. HERBERT J. ELLIOTT, London, England. Filed Nov. 6, 1899. Serial No. 736,013. (No model.)



Claim.—1. In a cartridge, the combination with the case provided interiorly adjacent to its open end with a chamfered portion forming a seat for the wad or stopper, of a closing wad or stopper adapted to engage said seat and provided on its outer face with a rounded annular bead onto which the edge of the case is adapted to be turned in, substantially as described.

2. A closing wad or stopper for a cartridge consisting of a disk having its edge portions bent upward rounded over and bent downward to form an annular rounded bead, substantially as described.

645,547. DRY GALVANIC ELEMENT. WILHELM BÖTZ, Ludwigshafen, Germany, assignor to The Firm of Columbus Electricitätsgesellschaft, Gesellschaft mit Beschränkter Haftung, same place. Filed Apr. 1, 1899. Serial No. 711,428. (No model.)



Claim.—1. A dry galvanic element having a fluid electrolyte and being closed by a seal, consisting of a porous substance impregnated with oil, whereby the element is completely closed to the passage of the electrolyte, while permitting gas to escape at ordinary pressure, substantially as described.

2. A galvanic element comprising a jar holding the electrodes and the electrolyte, rings arranged above the electrolyte, a seal consisting of a porous substance impregnated with oil supported in the rings, a wax closure to the jar, an air-tube through the closure, and an air-space between the seal and the electrolyte, substantially as described.

645,548. SCREW. JAMES M. BOWMAN and RICHARD S. HENRY, Pittsburg, Pa.; said Henry assignor to said Bowman. Filed June 29, 1898. Renewed Aug. 8, 1899. Serial No. 726,600. (No model.)



Claim.—A tie-bolt having a cone-shaped cavity in the end thereof, a threaded continuation thereof, the inner portion of which is contractingly tapered, and a nut having a cone-shaped portion contacting with said cone-shaped cavity and a split threaded shank integral with said cone and nut adapted to cooperate with said threaded cavity and be compressed and retained therein, substantially as described.

645,549. FOLDING BOOKCASE. MARTIN P. CARICO, Ursus, Va. Filed Aug. 2, 1899. Serial No. 726,205. (No model.)

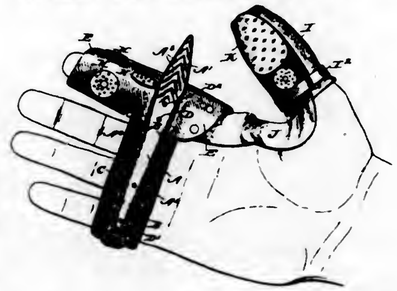


Claim.—1. A folding case comprising a base, a top, moldings hinged to the top, and corner-blocks removably connected with the top and having slots in which the adjacent ends of said molding are removably seated.

2. A folding case, comprising a base, a top, perforations in the top, moldings hinged to the top and having cut-away portions whereby they may lie upon the top and in a common plane, beads upon the ends of the moldings, and corner-blocks having slots adapted to receive said beads and having each a pin adapted to enter a perforation in the top.

3. A folding case comprising a base, a plurality of sections removably connected with the base and with each other, a top adapted for connection with each of the sections, moldings hinged to the top, and corner-blocks removably connected with the top and having slots in which the adjacent ends of said moldings are removably seated.

645,550. CORN-HUSKING DEVICE. RICHARD F. CLARK, Chicago, Ill. Filed Oct. 30, 1897. Serial No. 656,935. (No model.)



Claim.—1. A husking-pin channeled or grooved longitudinally combined with the clamping-ring bent within the channel of the pin and slidable upon said pin, and the loop-strap held by said ring, substantially as described.

2. A husking-pin grooved or channeled longitudinally and having edge notches or seats, combined with the clamping-ring fitted to engage in said notches or seats and having its free ends bent into the channel of the pin, and the loop-strap, substantially as described.

3. A husking-pin having a sheet-metal point provided with corrugations ranging diagonally from its center outward, substantially as described.

4. A husking-pin channeled or grooved longitudinally, having its edges turned over, and having its said turned-over edges corrugated or grooved transversely, forming notches or seats for the clamping-ring, and provided with the clamping-ring and loop-strap, substantially as described.

5. The husking-pin herein described, channeled or grooved longitudinally, having its point provided with corrugations ranging diagonally from its middle outward, and having its edges turned over and corrugated transversely, forming notches or seats for the clamping-ring, and provided with the clamping-ring and loop-strap, substantially as described.

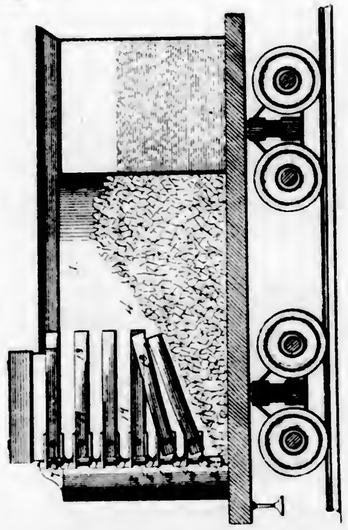
6. A husking-pin having a strap ranging longitudinally thereon, and a ring which embraces the pin and through which the strap passes, the pin having a series of notches in which the ring is adapted to be engaged to position it.

7. A husking-pin embodying a pin made concavo-convex in cross-section and pointed at one end, a hand-leather covering the convex side of said pin and secured thereto near its opposite ends, a securing-strap also secured to said pin near its opposite ends and a ring passing through the hand-leather and having a single opening embracing the pin on one side of the hand-leather and the securing-strap on the other side of said hand-leather; substantially as described.

8. A husking-pin embodying a pin sharpened at one end a finger-stall having its outer end in the form of a closed cylinder and its inner end opened on the rear side, one of the edges of said inner open end being secured to the pin near its point and a securing-strap fastened to the opposite edge of said open portion of the finger-stall at one end and its opposite end connected with the opposite end of the pin, and a ring encircling said securing-strap and pin at an intermediate point: substantially as described.

645,551. COAL-GATE FOR LOCOMOTIVE-TENDERS. JASPER N. CLOTTER, Lima, Ohio. Filed Mar. 11, 1899. Serial No. 708,663. (No model.)

Claim.—1. The combination with a vertical rod, of a series of brackets arranged thereon comprising a plate provided with two vertically-disposed bearings one of which has a depression 15, and the other a projection 16, and a series of bars or slats pivotally secured to said plates.



2. The combination with a vertical rod, of a series of brackets supported thereon, each bracket consisting of a plate formed with a stop-flange 16ª, a shorter flange 17, and two vertically-alined bearings; a bar pivotally secured to each of said plates, and an angle-bar against which the free ends of the bars bear.

645,552. COMBINED SLEEPER AND CONDUIT FOR ELECTRIC RAILWAYS. WILLIAM COURTENAY, New York, N. Y. Filed July 17, 1899. Serial No. 724,106. (No model.)



Claim.—1. A rail-support or sleeper of composite stone which is a non-conductor of electricity, said sleeper having a longitudinal passage for wires, and a separate surface groove in which the rail rests, substantially as described.

2. A rail-support or sleeper of non-conducting composite stone, having a longitudinal groove for the base of the rail, a separate longitudinal passage for electrical wire, and side passages from such longitudinal passage.

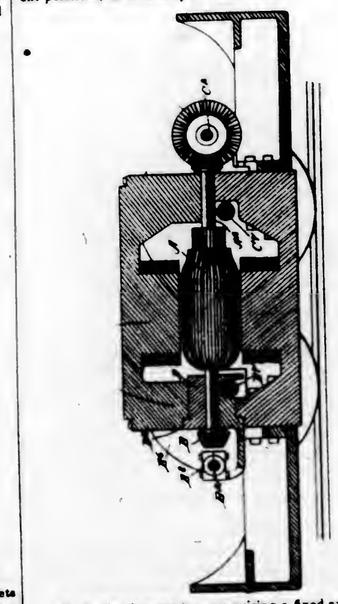
3. A rail-support of non-conducting composite stone having a grooved surface to support the rail-base, and a longitudinal passage for wires, said passage having a vitreous lining, substantially as described.

4. A sleeper for electric railways having its body composed of artificial granite of the character described, having a longitudinal groove in its upper face for a rail-seat, and having a longitudinal passage through its body and lined or coated with glass, substantially as described.

645,553. MINE-HAULAGE LOCOMOTIVE. CHARLES R. DAVIS, Chicago, Ill., assignor, by mesne assignments, to the Link Belt Machinery Company. Filed May 31, 1894. Serial No. 513,015. (No model.)

Claim.—1. A mine-locomotive comprising an armature and shaft, a fixed axle and a swiveled axle, said swiveled axle working in bearings rigidly attached to a cylindrical piece which acts as a bearing for one end of the armature-shaft and which moves with said axle substantially as described.

2. A mine-locomotive comprising a swiveled axle rigidly connected to a cylindrical piece through which the armature-shaft passes, a shaft supported by arms projecting from said cylindrical piece, a bevel gear and pinion on said shaft and the latter engaging a gear-wheel connected with the swiveled axle, whereby the motion of the armature-shaft is communicated to the swiveled axle in all its different positions, substantially as described.



3. A mine-locomotive, comprising a fixed axle and an axle movable in a vertical plane, a dynamo-electric machine having an armature-shaft operatively connected with said movable axle, said movable axle being at an angle with said armature-shaft and adapted to move around said armature-shaft as a center.

4. A mine-locomotive comprising two axles, one of said axles being swiveled so as to move with relation to the frame without varying the horizontal distance between the axles, two motors with series-multiple connections to the source of electrical supply, power-driving connections from each motor to the axles of the locomotive, and mechanical couplings between the axles.

5. A mine-locomotive comprising four wheels, the axle of one pair of wheels being swiveled so as to move with relation to the frame in a plane substantially perpendicular to said frame, side couplings between the different pairs of wheels comprising a connecting-rod provided at each end with a concave spherical-shaped surface adapted to work on the surface of a ball or sphere surrounding the wrist-pin that projects from the wheels, substantially as described.

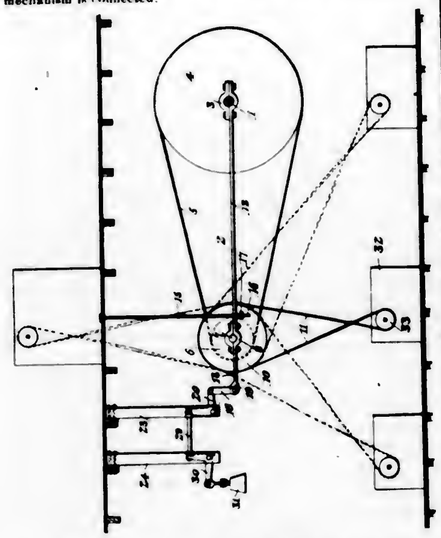
6. A mine-locomotive, comprising an armature-shaft, a fixed axle and a swiveled axle, said swiveled axle working in bearings rigidly attached to a cylindrical piece, a bearing in said cylindrical piece for the armature-shaft, said cylindrical piece movably mounted in the stationary part of the frame.

7. A mine-locomotive, comprising a dynamo-electric machine provided with an armature and suitable pole-pieces, a fixed axle and swiveled axle, said swiveled axle working in bearings rigidly attached to a cylindrical piece, a bearing in said cylindrical piece for one end of the armature-shaft, said cylindrical piece rotatably mounted in the frame of the dynamo-electric machine, and a connection between the armature-shaft and said swiveled axle.

645,554. PLANER ATTACHMENT. FRANK DIEHL, Sheboygan, Wis. Filed Oct. 10, 1899. Serial No. 733,179. (No model.)

Claim.—1. The combination with a power-shaft, of an automatically-adjustable jack mounted thereon and disposed in a normal horizontal position, said jack including in its organization a shaft at its extremity farthest from the power-shaft and having motion transmitted thereto from the said power-shaft, and adapted to be taken therefrom to other mechanism, and weight-controlled levers movably connected to the extremity of the jack having the motion-receiving shaft therein.

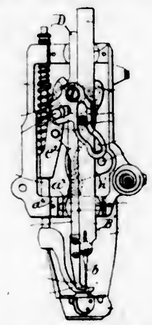
2. The combination with a line-shaft having a driving-pulley thereon of a horizontally-disposed jack movably attached to the said shaft and supporting a shaft with power receiving and conveying pulleys in connection therewith, the power-receiving pulleys having motion imparted thereto from the driving-pulley on the line-shaft, a counterpoise mechanism connected to the extremity of the jack opposite that attached to the line-shaft and suspending devices adjustably attached to the extremity of the jack to which the counterpoise mechanism is connected.



3. The combination with a shaft, of a jack having one extremity movably connected thereto and supported in a horizontal plane and having mechanism to receive and transmit driving power, and suspending-rods engaging the extremity of the jack farthest from said shaft.

4. The combination with a power-shaft having a driving-pulley thereon, of a jack movably connected to the said shaft and including in its organization a shaft at its freely-adjustable end having thereon power receiving and transmitting pulleys and operated by the said power-shaft, controlling mechanism comprising rock-shafts each having a lever thereon, the shafts and levers being mounted independently of the jack, means for connecting one of said levers with the jack, a counterpoise attached to the opposite lever, and means for connecting the levers to each other.

645,555. FEEDING MECHANISM FOR SEWING-MACHINES. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed June 3, 1899. Serial No. 719,182. (No model.)



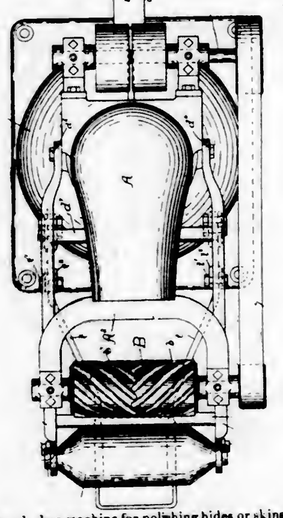
Claim.—1. In a needle-feed sewing-machine, the combination with a needle-bar provided with a pin or roller-stud, of a main presser-bar, a helper-bar or auxiliary presser-bar, a lever connecting said presser and helper bars and provided with a cam-slot entered by said roller-stud on said needle-bar, a horizontally-movable feed-slide block provided with an oscillating cheek-block embracing said needle and helper bars, a feed-lever having a pivotal connection with and being thus sustained by said feed-slide block, and a cam for operating said feed-lever.

2. In a needle-feed sewing-machine, the combination with the needle-bar and helper-bar and means for giving the same their vertical movements, of a horizontally-movable feed-block through which said needle and helper bars have their vertical movements, a feed-cam, a slotted feed-lever pivoted at one end to said feed-block and provided at its other end with means for positively engaging said feed-cam, and a swinging feed-regulating arm provided with a fulcrum-pin entering the slot in said feed-lever, so that by varying the position of said fulcrum-pin the feeding movements of the said needle and helper bars may be regulated.

3. In a needle-feed sewing-machine, the combination with the machine-head having a horizontal cross bar or portion, as a^4, provided with a slot or recess, of a horizontally-movable feed-block a portion of which extends into and is adapted to slide in said recess, a needle-bar and a helper-bar both of which are vertically movable through said feed-block, a feed-cam, a feed-lever pivotally connected with said feed-block and an adjustable fulcrum for said feed-lever.

4. In a needle-feed sewing-machine, the combination with a needle-bar, a helper-bar, a presser-bar and means for alternately raising and lowering said helper and presser bars and for operating said needle-bar, of a feed-slide block provided with an oscillating cheek-block embracing said needle and helper bars, a feed-lever pivotally connected with said feed-slide block and provided with a slot, a cam for operating said feed lever, and a swinging feed-regulating arm provided with an adjustable fulcrum-pin entering said slot in said feed-lever, so that by varying the position of said fulcrum-pin the feeding movements of the needle and helper bars may be regulated.

645,556. MACHINE FOR POLISHING LEATHER. WILLIAM H. DOWNS, Salem, Mass., assignor to Edward H. Brown, same place. Filed Apr. 15, 1899. Serial No. 713,163. (No model.)



Claim.—1. In a machine for polishing hides or skins, a positively-rotated polishing-roll having thereon two sets of helically-arranged "polishing-ribs" extended in opposite directions, such polishing-ribs being formed of hard unyielding material, and having smooth rounded engaging or contacting faces, substantially as described.

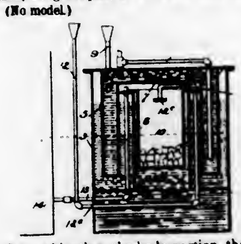
2. In a machine for polishing hides or skins, a bed-roll and a positively-rotated polishing-roll having thereon helically-arranged "polishing-ribs," said ribs being formed of hard non-absorbent material, substantially as described.

3. In a machine for polishing hides or skins, a bed-roll, a polishing-roll having thereon two adjacent sets of helically-arranged "polishing-ribs" extended in opposite directions, said ribs being formed of a hard and substantially-unyielding material, and means for positively rotating said polishing-roll, substantially as described.

4. In a machine for polishing hides or skins, a freely-revolving bed-roll, a swinging frame bearing it, a polishing-roll having thereon helically-arranged "polishing-ribs," said ribs being formed of hard material and having smooth rounded engaging or contacting faces, substantially as described.

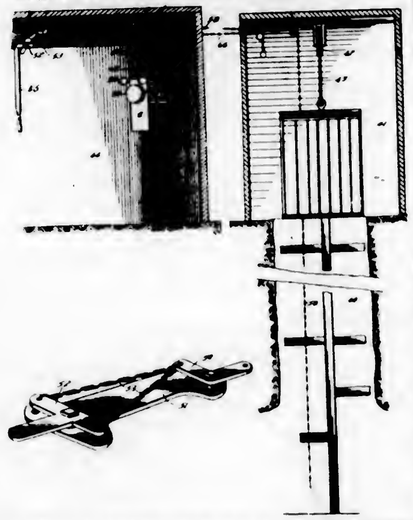
5. In a machine for polishing hides or skins, a freely-revolving bed-roll, a swinging frame bearing it, a polishing-roll having thereon two adjacent sets of "polishing-ribs" extended in opposite directions, said ribs being of hard non-absorbent material, and means for positively rotating said polishing-roll, substantially as described.

645,557. ACETYLENE-GAS GENERATOR. JOSEPH M. ERTS and JOHN MILLER, Poughkeepsie, N. Y. Filed June 19, 1899. Serial No. 721,075. (No model.)



Claim.—In combination, the body portion, the cover having an annular rim resting upon the upper edge of said body portion and having an annular water-chamber depending within said body portion, supports extending up within said annular water-chamber, a carbid-receptacle removably supported thereby and means for feeding water to said receptacle and withdrawing the gas, substantially as described.

645,558. MINE-SIGNAL. JOHN R. FALKENSTEIN and GEORGE A. FALKENSTEIN, Astoria, Ill., assignors of one-third to William Scripps, same place. Filed Nov. 17, 1899. Serial No. 737,365. (No model.)



Claim.—1. A mine-signal comprising a movable signal-board provided with a rack, a pivoted and bodily-movable dog adapted for engagement with the rack, means for moving the dog pivotally and then bodily to engage the rack and move the board, means for engaging the rack to hold the board in its adjusted position, and means for releasing the rack.

2. A signal apparatus comprising a movable signal-board, a pivoted and bodily-movable dog adapted to engage and move the signal-board, means for pivotally and bodily moving the dog to engage and move the board, means for holding the board at different points of its movement, and means for releasing the board.

3. A signal apparatus comprising a movable signal-board provided with a rack, a block slidably arranged adjacent the rack, a dog pivoted in the block, connections with the dog for moving it into engagement with the rack and for moving the block with the dog, means for engagement with the rack to hold the board at different points of its movement, and means for releasing the rack.

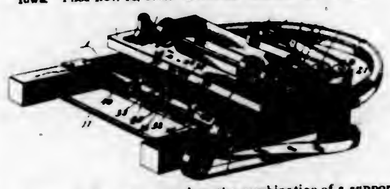
4. A signal apparatus comprising a base, frame-pieces mounted upon the base and having guideways, signal-boards slidably mounted in the guideways, additional guideways in the frame-pieces, blocks slidably mounted in the last-named guideway, dogs pivotally mounted in the blocks and adapted for movement into and out of engagement with the signal-boards, connections with the dogs to move them on their pivots into engagement with the signal-boards and subsequently raise them with the boards, means for holding the boards at different points of their movement, and means for releasing the boards.

5. A signal apparatus comprising a movable signal-board, a dog adapted to engage and move the board, means for holding the board at different points of its movement, means for releasing the board, and an alarm comprising an element extending into the path of movement of the board-engaging means to be operated thereby.

6. A signal apparatus comprising a movable signal-board, a pivoted and bodily-movable dog adapted to engage and move the signal-board, means for pivotally and bodily moving the dog to engage and move the board, a rock-shaft, a dog fixed upon the rock-shaft and adapted for movement therewith to engage and hold the board at different elevations, and means for operating the rock-shaft to disengage the dog and release the board.

7. A signal apparatus comprising a base, frame-pieces mounted upon the base, guideways in the frame-pieces, movable signal-boards mounted in the guideways and having racks thereon, additional guideways in the frame-pieces, movable blocks mounted in the last-named guideways, dogs pivoted in the blocks and adapted to engage and disengage the racks, means for moving the dogs into engagement with the racks and for subsequently raising the dogs to raise the racks, pawls adapted for engagement with the racks to hold them at different elevations, weighted arms connected with the pawls to hold them in operative positions, an alarm comprising elements lying in the paths of movement of the dogs for operation thereby, and means for operating the arms to release the racks.

645,559. STRAW-STACKER. FRIEDERICH FELDMANN, George, Iowa. Filed Nov. 18, 1899. Serial No. 737,473. (No model.)



Claim.—1. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft pivotally connecting the said frames, a drive-shaft mounted on the supporting-frame, a carrier-frame, a transverse shaft hinging the carrier-frame to the oscillating frame, an upper belt connecting the transverse shaft with the upper end of the vertical shaft, a lower belt connecting the lower end of the vertical shaft with the drive-shaft, and adjustable pulleys for regulating the tension of the belts, substantially as described.

2. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft forming a pivot for the oscillating frame, a drive-shaft journaled on the supporting-frame, a transverse shaft arranged on the oscillating frame, pulleys mounted on the said shafts, upper and lower belts supported by the oscillating and supporting frames and disposed longitudinally and transversely thereof, and guide-pulleys arranged in pairs at the angles of the belts and receiving the flights of the same, and capable of adjustment to regulate the tension, substantially as described.

3. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft forming the pivot of the oscillating frame, a drive-shaft mounted on the supporting-frame, a transverse shaft journaled in suitable bearings of the oscillating frame, pulleys mounted on the said shafts, the upper and lower belts arranged on the said pulleys and disposed transversely and longitudinally of the frames, guide-pulleys supporting the belts and capable of adjustment to regulate the tension of the same, a clutch-shaft mounted on the supporting-frame and provided with a pulley engaging one of the flights of the lower belt, and means for connecting the clutch-shaft with the oscillating frame, substantially as described.

4. In a straw-stacker, the combination of the supporting-frame, an oscillating frame, a vertical shaft forming a pivot for the oscillating frame, and provided at its upper end with a pulley, a transverse shaft mounted on the oscillating frame and having a pulley, an upper belt disposed transversely and longitudinally of the oscillating frame and arranged on the said pulleys, a pair of guide-pulleys arranged at the angle of the belt and receiving the flights of the same, and a vertically-adjustable pulley engaging the upper flight of the belt, substantially as described.

5. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft having a fixed clutch member, a pair of drums slidingly mounted on the clutch-shaft and adapted to engage the fixed clutch member alternately, flexible connections wound around the drums and attached to the oscillating frame, a shifting lever connected with the adjacent ends of the drums, and means for operating the lever, substantially as described.

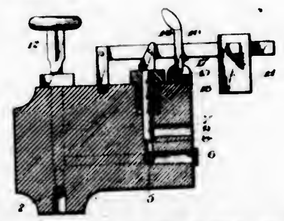
6. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft, a pair of drums adapted to engage the shaft alternately, flexible connections wound around the drums and attached to the oscillating frame, arms engaging the drums, a spring connecting the arms, and means for operating the drums, substantially as described.

7. The combination of a supporting-frame, an oscillating frame, a clutch-shaft, drums mounted on the clutch-shaft and adapted to alternately engage the same, flexible connections wound around the drum and attached to the oscillating frame, means for operating the drums, a pair of arms pivoted to the frame and provided with slots or bifurcations receiving the shaft and supporting the same, and means for yieldingly connecting the arms, whereby the same are held in engagement with the drums to form a brake, substantially as described.

8. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft, drums mounted on the clutch-shaft and adapted to engage the same alternately, flexible connections wound around the drums and attached to the oscillating frame, guide-pulleys arranged at the center of the supporting-frame and receiving the flexible connections, an arm depending from the oscillating frame and located between the flexible connections, and means for operating the drums, substantially as described.

9. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft mounted on the supporting-frame, and having a key, a pair of drums located at opposite sides of the key and provided with recesses for the reception of the same, a shifting lever having slots or bifurcations receiving the inner ends of the drums, flexible connections wound around the drums and attached to the oscillating frame, a spring connected with the lever, spring-actuated arms supporting the shaft and engaging the outer ends of the drums, and means for operating the lever, substantially as described.

645,560. VALVE. JOHN C. FOX, Dublin, Tex., assignor of one-half to G. H. Connell, same place. Filed May 20, 1896. Serial No. 592,341. (No model.)

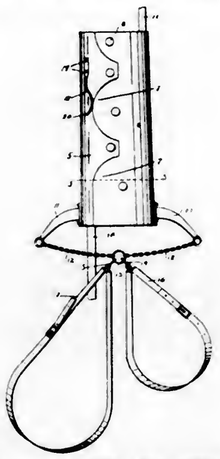


Claim.—In a valve for cotton-presses, the casting provided with a single inlet 1, a relief-port 7, and a discharge-port 6, the passage 2 connecting with the inlet-passage 1, and which passage 2 has its ends closed by means of plugs, the two valves 12 and 13, the two passages 3 and 4 connecting with the passage 2, and controlled by said valves 12, 13, the cross-passage 5, connecting with the passages 3, 4, and the valve 9, combined with the weighted lever 10 to which the valve 9 is connected, and the operating-lever 14 provided with a yielding arm 17 for catching under the lever 10, substantially as shown and described.

645,561. FIRE-ESCAPE. PAUL GRITTINGER, Cornwall, Pa. Filed Dec. 12, 1899. Serial No. 740,039. (No model.)

Claim.—1. A fire-escape, comprising a body consisting of two members which are pivotally connected adjacent their upper ends, and each provided with a plurality of pulleys which are arranged alternately upon the members, a suspension device connected with the lower ends of both of said members, and a rope which is passed about said pulleys, and adapted to be connected with a building or other structure, substantially as shown and described.

2. A fire escape, comprising a body consisting of two semitubular overlapping members which are pivotally connected adjacent their upper ends, and each provided with a plurality of pulleys which are arranged alternately upon the members, a suspension device connected with the lower ends of both of said members, and a rope which is passed about said pulleys and adapted to be connected with a building or other structure, substantially as shown and described



3. A fire-escape, comprising a body consisting of two semitubular overlapping members which are pivotally connected adjacent their upper ends, and each provided with a plurality of pulleys, said members being provided at the edges with projecting cheeks in which said pulleys are mounted, a suspension device connected with the lower ends of both of said members, and a rope which is passed about said pulleys and adapted to be connected with a building or other structure, substantially as shown and described.

4. A fire-escape comprising a body consisting of two members which are pivotally connected adjacent their upper ends, and each provided with a plurality of alternately-arranged pulleys, a suspension device connected with the lower ends of both of said members, said suspension device consisting of an arm connected with the lower end of each of said members, and slings detachably connected with said arms, and a rope which is passed about said pulleys and adapted to be connected with a building or other structure, substantially as shown and described.

645,562. INDICATOR MECHANISM FOR LOOMS. HARRY HARDWICK, Philadelphia, Pa. Filed May 1, 1899. Serial No. 715,082. (No model.)

Claim.—1. In weaving fabrics with a plurality of different-colored wefts, in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to bring the indicator corresponding to the weft to be thrown in a different plane from the remainder of the indicators.

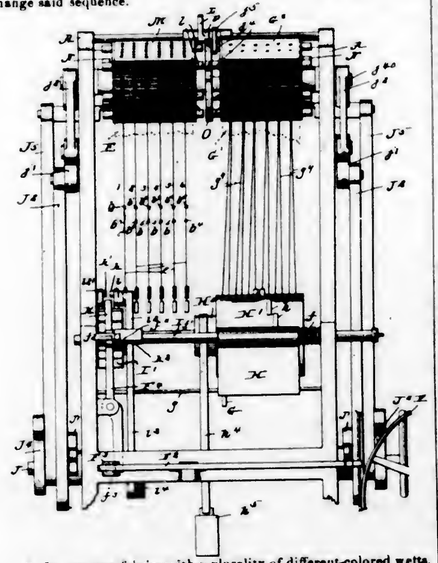
2. In weaving fabrics with a plurality of different-colored wefts, in combination, indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to bring the indicator corresponding in color to the weft to be thrown in a different plane from the remainder of the indicators.

3. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to bring a plurality of indicators in a prearranged sequence in a different plane from the remainder of the indicators.

4. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to bring a plurality of indicators in a prearranged sequence in a different plane from the remainder of the indicators.

5. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to bring a plurality of indicators in a prearranged sequence in a different plane from the remainder of the indicators and in successive operations of the jacquard to maintain or change said sequence.

6. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to bring a plurality of indicators in a prearranged sequence in a different plane from the remainder of the indicators and in successive operations of the jacquard to maintain or change said sequence.



7. In weaving fabrics with a plurality of different-colored wefts, in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to lift the indicator corresponding to the weft to be thrown.

8. In weaving fabrics with a plurality of different colored wefts, in combination, indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to lift the indicator corresponding in color to the weft to be thrown.

9. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to lift a plurality of indicators in a prearranged sequence.

10. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding in color to the different-colored wefts of the fabrics, a pattern mechanism connected with and adapted simultaneously to lift a plurality of indicators in a prearranged sequence.

11. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to lift a plurality of indicators in a prearranged sequence and in successive operations of the jacquard to maintain or change said sequence.

12. In weaving fabrics with a plurality of different-colored wefts in combination, indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted simultaneously to lift a plurality of indicators in a prearranged sequence and in successive operations of the jacquard to maintain or change said sequence.

13. In weaving fabrics, with a plurality of different-colored wefts in combination, a plurality of indicators corresponding to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to simultaneously lift a plurality of indicators in a prearranged sequence and in successive operation of the pattern mechanism to maintain or change said sequence, a stopping and starting mechanism for the loom, a pattern mechanism, connection between said pattern mechanism and the stopping and starting mechanism arranged and adapted to successively stop the loom according to a prearranged plan and means to prevent a shift of the indicator-controlling pattern mechanism until the loom-controlling pattern mechanism has operated to stop the loom a number of times equal to the sequence of indicators indicated by the indicator-controlling pattern mechanism.

14. In weaving fabrics, with a plurality of different-colored wefts in combination, a plurality of indicators corresponding in color to the different-colored wefts of the fabric, a pattern mechanism connected with and adapted to simultaneously lift a plurality of indicators in a prearranged sequence and in successive operation of the pattern mechanism to maintain or change said sequence, a stopping and starting mechanism for the loom, a pattern mechanism, connection between said pattern mechanism and the stopping and starting mechanism arranged and adapted to successively stop the loom according to a prearranged plan and means to prevent a shift of the indicator-controlling pattern mechanism until the loom-controlling pattern mechanism has operated to stop the loom a number of times equal to the sequence of indicators indicated by the indicator-controlling pattern mechanism.

645,563. POCKET-KNIFE. MARK L. HEATH, Jasper, Colo. Filed July 6, 1899. Serial No. 722,959. (No model.)



Claim.—1. A pocket-knife, provided with a bolt mounted to slide longitudinally in the knife-casing and adapted to engage the fulcrum end of the blade and lock the latter in either an open or closed position, and an abutment for said bolt and mounted to move at an angle to the bolt and adapted to engage the same and lock it against return movement, substantially as shown and described.

2. A pocket-knife provided with a casing, a blade pivoted therein and having two oppositely-arranged straight side edges at the fulcrum end, and a bolt mounted to slide longitudinally between the said casing and having a wedge-shaped end adapted to engage either of said side edges of the blade, as set forth.

3. A pocket-knife provided with a casing, a blade pivoted therein and having two oppositely-arranged straight side edges at the fulcrum end, a bolt mounted to slide longitudinally between the said casing and having a wedge-shaped end adapted to engage either of said side edges of the blade, and a spring-pressed abutment held to slide in said casing at an angle to said bolt and adapted to engage the latter and lock it against movement in the casing, as set forth.

4. A pocket-knife comprising a casing, a knife-blade pivoted therein and having at its fulcrum end two oppositely-arranged straight side edges, a bolt mounted to slide longitudinally in said casing at the back thereof, the bolt having a wedge-shaped end adapted to engage either of the knife-blade edges, a button on said bolt for shifting it longitudinally in the casing, and a spring-pressed abutment fitted to slide in the casing at a right angle to the bolt and adapted to engage the rear end of the bolt, to hold it against longitudinal movement in the casing, substantially as shown and described.

645,564. WASHBOARD. ROBERT R. LEVE, New York, N. Y. Filed July 27, 1899. Serial No. 725,293. (No model.)



Claim.—1. An improved washboard, comprising the rubbing-surface having a slot, a roller operating in said slot, and means for retaining a cake of soap in contact with said roller, substantially as set forth.

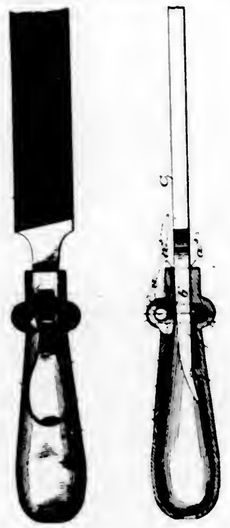
2. An improved washboard, comprising the rubbing-surface having a slot, a roller operating in said slot, and a pocket extending from said slot at the rear end of the washboard and adapted to retain a cake of soap in contact with said roller, substantially as shown and described.

3. An improved washboard, comprising the rubbing-surface having a transverse slot, the corrugated roller operating in said slot, and the pocket arranged at the back of the washboard and leading to the roller, said pocket having inclined walls between which a cake of soap is adapted to be retained in contact with said roller, substantially as set forth.

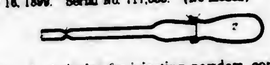
645,565. TOOL-HANDLE. EPHRAIM MASER, Chattanooga, Tenn., assignor to Peyton S. Griffith, same place. Filed Apr. 7, 1899. Serial No. 712,196. (No model.)

Claim.—1. In a tool-holder, the combination with a handle member adapted to receive the tool, of a clamping member pivoted to said handle and having a handle portion adapted to project beyond the handle member and over the tool to constitute a finger-rest, substantially as described.

2. In a tool-holder, the combination with a handle member adapted to receive the tool, and a reversible clamping member pivoted to said handle member, and having a handle portion, said clamping member adapted to clamp the tool with its handle portion extending rearwardly in line with the handle member, or with said handle portion projecting forwardly beyond the handle member over said tool to form a finger-rest, substantially as described.



645,566. DEVICE FOR INJECTING POWDERS INTO THE NASAL PASSAGES. CHARLES H. MURPHEY, Madisonville, Ky. Filed May 16, 1899. Serial No. 717,083. (No model.)



Claim.—1. A device for injecting powders, consisting of a tube having in its bore a contraction by which the passage of powder through the bore is prevented, without preventing the passage of air, and having a mouth larger than said contracted portion of the bore, so that the powder may be inserted in the end of the tube, and provided with means for forcing air through the tube, substantially as described.

2. A device for injecting powders, consisting of a tube, enlarged at one end for the reception of a compressible bulb, flanged to form a tight joint with said bulb, contracted near the other end to form a receptacle for the retention of powder, and having a mouth larger than the contracted portion of its bore, so that the powder may be inserted in said mouth, and a compressible bulb secured to the enlarged end of said tube, substantially as described.

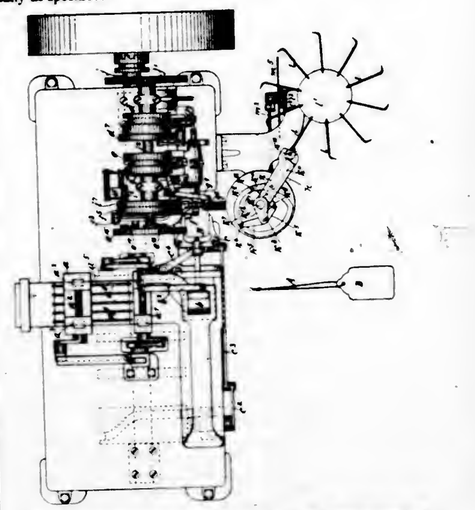
645,567. MACHINE FOR MAKING AND STRINGING TAGS. WALTER S. MCKIBBEY, Chicago, Ill., assignor to Joseph T. Kavenaugh, Philadelphia, Pa. Filed Apr. 7, 1899. Serial No. 712,144. (No model.)

Claim.—1. In a tag-machine, the combination of a reciprocating needle, with an oscillating gripper adapted to engage the string, a lever around which the string is looped by the gripper, means for bodily moving the gripper-jaws to draw out the string and elongate the loop, and means for moving the lever toward and away from the needle, substantially as specified.

2. In a tag-machine, the combination of a reciprocating hollow needle, with a plug for intermittently clamping the string to the needle, an oscillating gripper adapted to engage the string, a lever around which the string is looped by the gripper, means for moving the lever toward and away from the needle, means for cutting the string, and a knot-former for knotting the ends of the string, substantially as specified.

3. In a tag-machine, a gripper composed of an L-shaped sleeve, a pair of jaws, a longitudinally-movable plug within the sleeve, and means for converting the reciprocating motion of the plug into an opening and closing motion of the jaws, substantially as specified.

4. In a tag-machine, the combination of a rotatable sleeve with a sectional spring-plug having a conical head, a pin engaged by the plug, and a pair of jaws operatively connected to the pin, substantially as specified.



5. In a tag-machine, a knot-former composed of a tubular shaft, an inclosed longitudinally-movable and oscillating plug, a pair of jaws pivoted thereto and having hook-shaped ends, and a rotatable tube into and out of which the jaws are adapted to be projected, substantially as specified.

6. In a tag-machine, a knot-former composed of a tubular shaft, an inclosed longitudinally-movable and oscillatiug plug, a pair of jaws having oblique slots and hook-shaped ends, a pin engaging the oblique slots, and a rotatable tube into and out of which the jaws are adapted to be projected, substantially as specified.

7. In a tag-machine, a knot-former composed of a tubular sleeve, an inclosed longitudinally-movable and oscillating plug having a flattened end, a pair of jaws having oblique slots and pivoted to said flattened end, and a rotatable tube into and out of which the jaws are adapted to be projected, substantially as specified.

8. In a tag-machine, the combination of a lever i, for drawing out the loop, with a lever i^3, to which lever i, is pivoted, a stop-pin i^4, on lever i^3, and a spring for yieldingly holding lever i, against said pin, substantially as specified.

9. In a tag-machine, a paper-feed composed of a slide, a rock-shaft hung therein, eccentrics mounted upon the rock-shaft, a gripping-bar actuated by the eccentrics, and a second vertically-movable gripper adapted to engage the blank when released by the gripping-bar, substantially as specified.

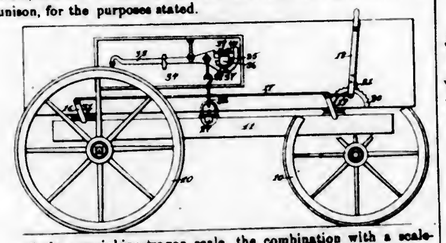
10. In a tag-machine, the combination of a crank-shaft, with a cam-actuated lever pivoted thereto, a stripper-arm pivoted to the lever, a hook pivoted to the stripper-arm, and means for opening and closing said hook, substantially as specified.

11. In a tag-machine, the combination of a paper-feed, with a punch, a carrier, a tubular needle, a plug for intermittently clamping the string, an oscillating gripper, a lever around which the string is looped by the gripper, means for bodily moving the gripper-jaws to draw out the string and elongate the loop, means for cutting the string, a knot-former, and a stripper adapted to draw the stringed tag off the knot-former, substantially as specified.

645,568. WEIGHING-WAGON. LUCIUS D. NORRIS, Madrid, Iowa. Filed Dec. 19, 1898. Serial No. 699,661. (No model.)

Claim.—1. In a weighing-wagon, the combination of a frame, a wagon-bed above the frame, two shafts rotatably mounted transversely of the frame, and each having two crank-arms therein, two forked levers each having in each end of the fork an elongated opening, two detachable pins passed through the levers at said openings, a metal loop for each of said crank-arms to encircle the inner pin of each of said forked ends and also the crank-arms, a straight lever having an elongated opening in one end, two detachable pins in said opening rectangular in cross-section, two metal loops attached to the inner end of said forked levers and to the inner one of said latter pins, and legs on the wagon-bed to rest upon the remaining ones of said pins, for the purposes stated.

2. In a weighing-wagon, the combination of a frame, a wagon-bed upon the frame, two shafts rotatably mounted transversely of the frame, and each having two crank-arms therein, two forked levers each having in each end of the fork an elongated opening, two detachable pins passed through the levers at said openings, a metal loop for each of the said crank-arms to encircle the inner pin of each of said forked ends and also the crank-arms, a straight lever having an elongated opening in one end, two detachable pins in said opening rectangular in cross-section, two metal loops attached to the inner ends of said forked levers and to the inner one of said latter pins, legs on the wagon-bed to rest upon the remaining ones of said pins, a crank-arm on the end of each of said shafts, a rod for connecting them, and a lever attached thereto whereby they may be moved in unison, for the purposes stated.



3. In a weighing-wagon scale, the combination with a scale-beam, of a screw-threaded rod on the end of the beam opposite the pivoted end, the sliding weight on said rod having a circumferential groove therein, a rod beneath the screw-threaded rod, a sliding block thereon, a projection on the block to enter said groove, an indicator on the block and a scale marked below the block and adjacent to the indicator, substantially as and for the purposes stated.

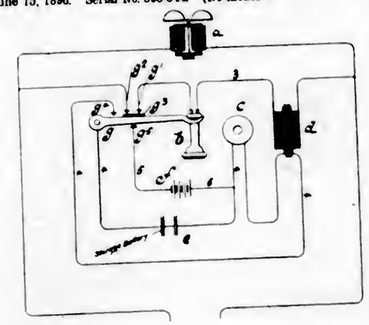
645,569. RECEPTACLE FOR STERILIZED PERISHABLE SUBSTANCES. ISAIAH L. ROBERTS, New York, N. Y. Filed Nov. 18, 1896. Serial No. 612,566. (No model.)



Claim.—1. A vessel or receptacle for preserving electrically-sterilized meats, fish, fruits and other articles of food, composed of a conducting material and provided with an interior insulated electrode with a connector extending therefrom through the wall of the receptacle, and a sealing device, as set forth.

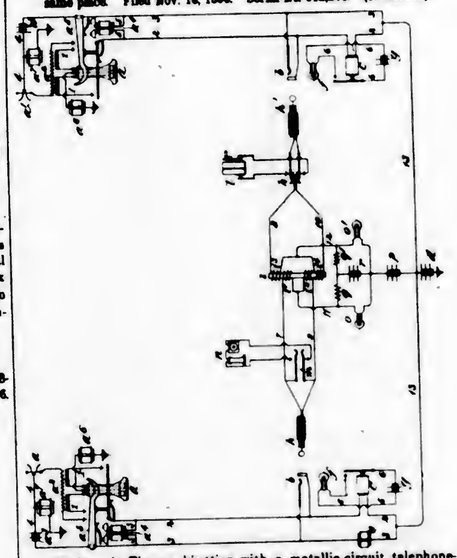
2. The combination with a can or vessel of conducting material having a depression in one of its walls, an insulated conductor extending through a perforation in said depression, an electrode within the can connected with said conductor, and a plate or cap for covering the depression and sealing up the can, as set forth.

645,570. TELEPHONE APPLIANCE. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 15, 1896. Serial No. 595,544. (No model.)



Claim.—The combination at a substation of a telephone-exchange of a transmitting-telephone of low resistance and a supply storage battery therefor, a primary battery, a circuit of the storage battery through the telephone, a circuit of the primary battery through the storage battery, and a telephone-switch adapted to break the connection of the primary battery with the storage battery and to close the circuit of the storage battery with the telephone, the normal electromotive force of the primary battery being substantially equal to the maximum electromotive force of the storage battery, substantially as described.

645,571. TELEPHONE-EXCHANGE APPARATUS. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 16, 1896. Serial No. 612,570. (No model.)



Claim.—1. The combination with a metallic-circuit telephone-line extending from a substation to a central office, of a source of current at the central office included in a branch from both limbs of the line in multiple to a return-conductor, a signal-controlling instrument included in one limb of the line at the central office, a local storage battery at the substation included in a branch from the other limb of the line to the return-conductor, and a switch at the substation for controlling the flow of current through the limb which includes the signal-controlling instrument, substantially as and for the purpose set forth.

2. The combination with a metallic-circuit telephone-line, of a central source of current in a circuit composed of both limbs of the line in multiple in conjunction with a return-circuit, a local storage battery at the substation of the line in the circuit, a signal-controlling instrument in one line conductor, said line conductor or signaling instrument being of high resistance, the other line conductor being of comparatively low resistance, whereby the operation of the signal-controlling instrument by the normal charging-current is prevented.

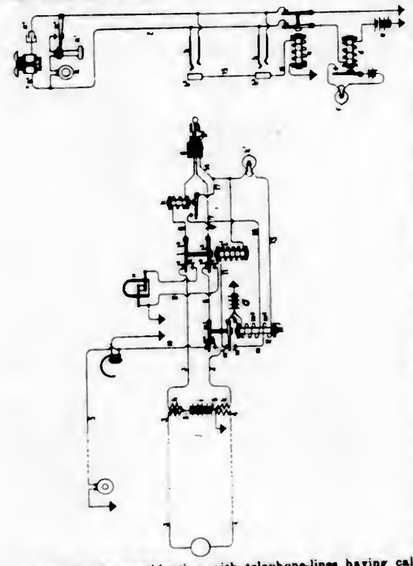
3. The combination with a metallic-circuit telephone-line, of a central source of current in a circuit formed of the line conductors thereof in multiple and a return-conductor, of a signal-controlling instrument and a conductor of high resistance in one of the line conductors, a local storage battery in the other of the line conductors, and a switch at the substation adapted to cut out the said conductor of high resistance, whereby the signal may be operated from the substation, as described.

4. The combination with a telephone-line connected with a source of current at the central office, including a signal-controlling magnet, and provided with a switch controlling the current in the line from the said source, and a terminal socket of the line, of a plug and cord for making connection with the line, a conductor terminating in the plug adapted to be brought into shunt of the magnet when the plug is in the socket, and a second source of current in the conductor of proper polarity and strength to produce a condition of no difference of potential between the terminals of the magnet when the said shunt is complete, substantially as described.

5. The combination with a metallic-circuit telephone-line and the telephone thereof at the substation, of a return-circuit for the line connected with the central point of the winding of the substation-telephone, and an impedance-coil in the return-circuit, a bridge of the line-circuit at the central office, a signaling instrument associated with the line to respond to current therein, and a source of current in the return-circuit for operating the said signaling instrument, as described.

6. The combination with a telephone-line and a switch controlling the continuity of the line at the substation, of a relay and a source of current in the line at the central office, a spring-jack connected with the line, a plug for making connection with the spring-jack, a conductor attached thereto adapted to be brought into parallel circuit with the relay when connection is made with the line, a source of current in that conductor of proper strength and polarity to reduce the difference of potential between the terminals of the relay to substantially zero, a supervisory-lamp signal in the conductor, a shunt about the signal and a source of current in the shunt adapted to reduce the difference of potential about the supervisory lamp substantially to zero, while the line-circuit is complete, as described.

645,572. AUTOMATIC CALLING APPLIANCE FOR TELEPHONE TRUNK-LINES. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 9, 1898. Serial No. 673,208. (No model.)



Claim.—1. The combination with telephone-lines having call-bells at their substations and switches for changing the resistance of the lines, and a terminal plug of a trunk-circuit for making connection with a line, of an electromagnet controlling a break in the trunk-circuit, said break being closed when the electromagnet is inert, a switch-spring actuated by the magnet adapted to connect a contact-piece of the terminal plug with a source of calling current, a second electromagnet responsive to current in the line produced by the operation of the switch at the station thereof, a local circuit and means for closing the same in the act of making connection with the line by means of said plug, the magnet-winding of said first-mentioned magnet being included in said local circuit, and switch-contacts of said second-mentioned electromagnet controlling the continuity of the local circuit; whereby said first-mentioned magnet applies calling current to a telephone-line with which connection is made, but is deprived of current and closes the break in the plug-circuit when the telephone at the called station is taken for use, as described.

2. The combination with telephone-lines, call-bells connected therewith, and switches at the stations thereof operated in the use of the telephones for diminishing the resistance in the line-circuit, of a trunk-line and the terminal plug thereof for making connection with any line, a calling appliance consisting of a magnet and a switch-spring actuated thereby normally closing a break in the trunk-circuit, and adapted, when actuated, to open the said break and connect a source of calling current with the terminal plug, a second electromagnet controlled by current through the subscriber's line when increased by the diminution of the line resistance, a local circuit including the magnet of said calling appliance closed in registering contact-pieces of the plug and the spring-jack of a line, and switch-contacts of said second-mentioned electromagnet normally completing said local circuit but adapted to break it when the magnet is excited, a local circuit for said second-mentioned electromagnet, and switch-contacts actuated by the electromagnet to close the local circuit thereof; whereby the trunk-line is interrupted and calling current is applied to a line when connection is made therewith, but the source of calling current is disconnected in the use of the telephone at the substation and remains disconnected thereafter during the use of the line, as described.

3. The combination with telephone-lines, each provided with a call-bell at its station and with a switch and means controlled thereby for changing the resistance of the line in the use of the telephone, with spring-jacks for making connection with the line, of a trunk-line and a terminal plug thereof, a magnetically-controlled calling switch and a magnetically-controlled telephone-switch, switch-contacts of the telephone-switch forming a normal break of the trunk-circuit and connecting the testing-contact of the terminal plug with the operator's telephone or testing appliance, switch-contacts of the calling appliance normally completing the conductor leading to said testing-contact but adapted, when the magnet is excited, to break such normal connection and apply one pole of a source of calling current to said contact; a local circuit including the electromagnet of said calling appliance and registering contacts of the plug and spring-jack adapted to complete the said local circuit, auxiliary switch-contacts of the telephone-switch adapted to break the circuit through the magnet of said calling appliance when the magnet of the telephone-switch is excited; means for exciting the magnet of the telephone-switch in response to increase of current in the line-circuit with which the plug is connected, a local circuit including a winding of the magnet of the telephone-switch, together with switch-contacts of the said switch closed when the magnet is excited, and means for breaking the said local circuit when the plug is withdrawn from the spring-jack, substantially as described.

4. The combination with a telephone-line having a high-resistance call-bell at its station and a switch for cutting out the call-bell in the use of the telephone, a spring-jack for the line, and a local-circuit conductor terminating in a contact-piece thereof, a trunk-line, a terminal plug therefor, and a relay in the trunk-circuit adapted to respond to current in the line when the said bell is cut out; of a magnetically-controlled calling switch having switch-contacts normally completing breaks in the different line conductors of the trunk-circuit, but adapted, when excited, to apply the poles of a source of calling current to the conductors leading to said terminal plug, a local circuit including the magnet of said calling switch, said local circuit terminating in a switch-contact of the plug adapted to make connection with the local circuit of a telephone-line to excite the magnet; a magnetically-controlled telephone-switch having a switch-spring normally forming a break in the conductor of the trunk-circuit leading to the test-contact of the terminal plug, and connecting the said test-contact with a telephone or other testing appliance, but adapted to close said break and disconnect the said telephone appliance, a branch of the local circuit closed between the plug and spring-jack including the magnet of said telephone-switch, said branch being controlled by the supervisory relay; other switch-contacts of said telephone-switch normally completing the circuit through the magnet of said calling switch but adapted to break the same when the magnet is excited; a local circuit including a winding of the magnet of said telephone-switch, said circuit being a branch of the local circuit closed between the plug and spring-jack, and switch-contacts controlled by the same magnet to complete the said circuit when the magnet is excited, substantially as described.

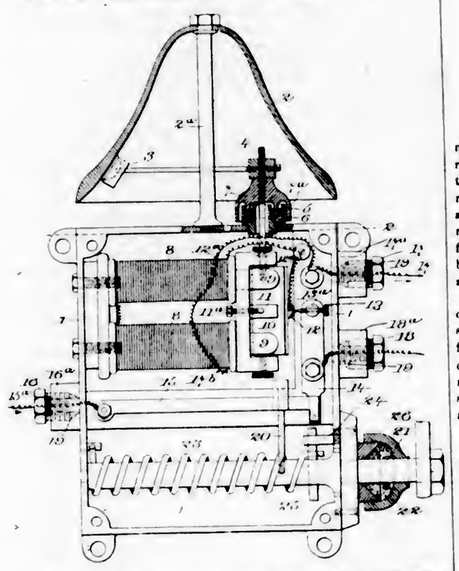
5. The combination with telephone-lines, each having a call-bell at its station and a switch for reducing the resistance of the line in the use of the telephone, a spring-jack for the line, a trunk-line and a terminal plug thereof for making connection with the spring-jack, a supervisory relay in the trunk-line and a supervisory signal associated with the terminal plug; of a magnetically-controlled calling switch having switch-contacts normally closing the different line conductors of the trunk-line, but adapted to break the said conductors and to connect the poles of a source of calling current with the line conductors to the terminal plug, a local circuit, contact-pieces of the plug and spring-jack adapted to complete the said local circuit, and a branch of the circuit including the magnet of said calling switch, a telephone-switch, switch-contacts thereof forming a normal break in the conductor of the trunk-circuit leading to the testing-contact of said plug, and connecting the said testing-contact with an operator's telephone or other testing appliance, said switch-contacts being adapted to sever the connection with the telephone and complete the connection with the trunk-circuit when the controlling-magnet is ex-

cited, a second branch of the said local circuit including the controlling-magnet of said telephone-switch, said second branch being controlled by the switch-contacts of the supervisory relay; other switch-contacts of the telephone-switch normally closing the branch of the local circuit through the magnet of the calling switch, but adapted to break the said circuit when the magnet of the telephone-switch is excited; a third branch of the local circuit including the supervisory signal, together with a winding of the magnet of the telephone-switch, controlled by switch-contacts of the telephone-switch closed when the magnet is excited, said winding being of comparatively-low resistance, substantially as described.

6. The combination with trunk-lines and terminal plugs thereof for use in multiple switchboards, of an electromagnetic appliance having a controlling-magnet in a local circuit closed in registering contacts of the plug and spring-jack, switch-contacts of the said appliance normally breaking the connection of the test-contact of said plug with the remainder of the trunk-circuit and connecting it with the operator's telephone for testing, substantially as described.

7. The combination with a trunk-line and a terminal plug therefor adapted for connection with multiple spring-jacks of the telephone-line, of calling and switching mechanism for controlling-magnets in a local circuit closed in registering contacts of the plug and spring-jack, said mechanism being adapted when inert to disconnect the testing-contact of the plug from the remainder of the trunk-line and to connect it with a terminal of the operator's telephone, and when excited to disconnect the operator's telephone and connect a source of calling current with the terminal plug, substantially as described.

645,573. ELECTRIC MINE-BELL. BARRY SEARLE, Montrose, Pa. Filed Aug. 7, 1899. Serial No. 726,465. (No model.)



Claim.—1. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, a movable member projecting through said casing and controlled by the magneto make-and-break mechanism, and a gas-tight liquid seal through which said member passes, substantially as described.

2. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, a shaft projecting through said casing, an annular mercury-cup surrounding the shaft, and a cap on the shaft partly immersed in the mercury, substantially as described.

3. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, a movable member projecting through said casing and controlled by the magneto make-and-break mechanism, and a gas-tight liquid seal through which said member passes, together with a hammer mounted on said member, and a bell against which said hammer strikes, substantially as described.

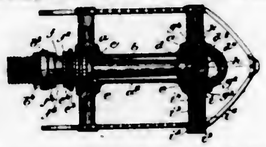
4. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, and a circuit-closer also in said casing, together with a movable member for operating said circuit-closer projecting through the casing, and a gas-tight liquid seal for said moving member, substantially as described.

5. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, a circuit-closer also in said casing, a movable member for operating such circuit-closer projecting through the casing, a gas-tight liquid seal for such moving member and a spring normally holding such member in such position as to open the circuit.

6. The combination with an automatic magnetic make-and-break mechanism, of a hermetically-closed casing for said mechanism, a circuit-closer also in said casing, a movable member for operating such circuit-closer projecting through the casing, a gas-tight liquid seal for such moving member and a spring normally holding such member in such position as to open the circuit together with means for attaching a pull-cord to said movable member.

7. The combination of an automatic magnetic make-and-break mechanism, a hermetically-closed casing for said mechanism, a movable member projecting through said casing and controlled by the magnetic make-and-break mechanism, a gas-tight liquid seal through which said member passes, a circuit-closer also in said casing, a movable member for operating said circuit-closer projecting through the casing, and a gas tight liquid seal for said circuit-closer-operating member.

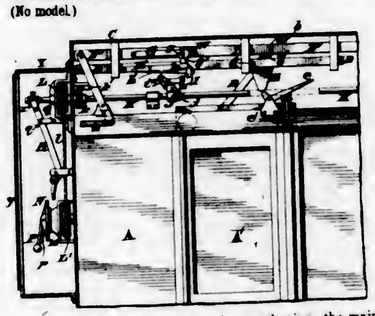
645,574. ADJUSTABLE BEARING. ARTHUR SIDWELL, Waltham, Mass. Filed Aug. 30, 1897. Serial No. 649,965. (No model.)



Claim.—1. In a bearing, the combination with the male and female bearing members, one of said members being adjustable with relation to the other and provided with one or more engaging portions; a support for said adjustable member; a locking device non-rotatably mounted on said support but movable with relation to said adjustable member; an annular shoulder on said locking device surrounded by a flange; a corresponding flange on said support, said flange fitting the flange of the locking device; and a spring inclosed by said flanges to hold said locking device in engagement with said adjustable member, substantially as described.

2. The combination with a female bearing member, of a dust-cap having a cylindrical shell to fit said member, a laterally-turned slot extending inward from the edge of said shell, a fixed projection from the bearing member to coöperate with said slot after the manner of a bayonet-joint, an opening in said shell, and a pin longitudinally movable with relation to the bearing member and arranged to enter said opening after the fixed pin has entered the groove, substantially as described.

645,575. JAIL. RICHARD C. STEWART, Jr., and WALLACE A. STEWART, Covington, Ky. Filed Dec. 28, 1899. Serial No. 741,846. (No model.)



Claim.—1. In a jail-door-operating mechanism, the main reciprocating bar F, provided with catch G *g g'*, the secondary reciprocating bar D, provided with the coupler H *k k'*, and appliances for opening, closing, locking and unlocking a door; the lifter I, for causing

said coupler to engage with said catch, and a device for bringing said lifter into action, substantially as described.

2. In a jail-door-operating mechanism including main and secondary reciprocating bars adapted to be coupled together, in the manner described; a rotary and longitudinally-shiftable shaft armed with a winged collar, that effects said coupling in the way explained.

3. In a jail-door-operating mechanism including main and secondary reciprocating bars adapted to be connected together by catches, couplers, lifters, and winged collars on a rotary and longitudinally-shiftable shaft, a dial attachment that indicates the angular position of each collar.

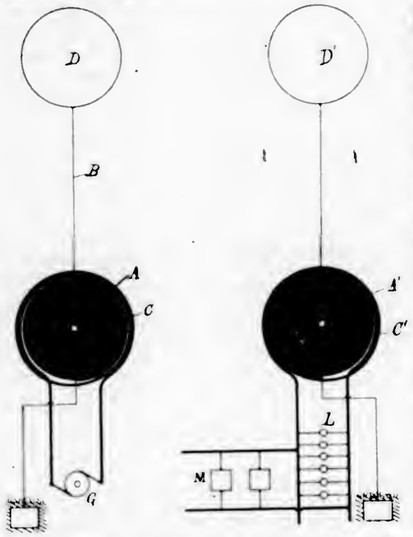
4. In a jail-door-operating mechanism including main and secondary reciprocating bars, catch, coupler, winged collar, and shaft, arranged as herein described, a stop-wheel on said shaft and a fixed detent that engages with said wheel.

5. In a jail-door-operating mechanism including a rotary and longitudinally-shiftable shaft armed with a winged collar; a sprocket-wheel on said shaft, a chain connecting said sprocket with another sprocket, and a dial attachment applied to the driving-sprocket.

6. In a jail-door-operating mechanism a shaft armed with a winged collar and sprocket-wheel L, a chain *l* connecting said wheel with another sprocket L', attached to a shaft *l'*; a disk or wheel O fastened to said shaft, and provided with an index *o*, perforation *o''*, spring-actuated handle P *p*, and a fixed dial N, having sockets or holes *n*, in line with its numbers.

7. The casing C, provided with perforated lugs U U', and a longitudinally-shiftable rod V, having bolts *v v'*, and the flap S, hinged to said casing, and provided with staples T, T', which, when said flap is closed, fit between said lugs and admit said bolts *v v'*.

645,576. SYSTEM OF TRANSMISSION OF ELECTRICAL ENERGY. NIKOLA TESLA, New York, N. Y. Filed Sept. 2, 1897. Serial No. 650,343. (No model.)



Claim.—1. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing at a generating-station a very high electrical pressure, causing thereby a propagation or flow of electrical energy, by conduction, through the earth and the air strata, and collecting or receiving at a distant point the electrical energy so propagated or caused to flow.

2. The method hereinbefore described of transmitting electrical energy, which consists in producing at a generating-station a very high electrical pressure, conducting the current caused thereby to earth and to a terminal at an elevation at which the atmosphere serves as a conductor therefor, and collecting the current by a second elevated terminal at a distance from the first.

3. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, a sufficiently high electromotive force to render elevated air strata conducting, causing thereby a propagation or flow of electrical energy, by conduction, through the air strata, and collecting or receiving at a point distant from the generating-station the electrical energy so propagated or caused to flow.

4. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, a sufficiently-high electromotive force to render the air strata at or near the elevated terminal conducting, causing thereby a propagation or flow of electrical energy, by conduction, through the air strata, and collecting or receiving at a point distant from the generating-station the electrical energy so propagated or caused to flow.

5. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, electrical impulses of a sufficiently-high electromotive force to render elevated air strata conducting, causing thereby current impulses to pass, by conduction, through the air strata, and collecting or receiving at a point distant from the generating-station, the energy of the current impulses by means of a circuit synchronized with the impulses.

6. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, electrical impulses of a sufficiently-high electromotive force to render the air strata at or near the elevated terminal conducting, causing thereby current impulses to pass through the air strata, and collecting or receiving at a point distant from the generating-station the energy of the current impulses by means of a circuit synchronized with the impulses.

7. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, electrical impulses of a wave length so related to the length of the generating circuit or conductor as to produce the maximum potential at the elevated terminal, and of sufficiently-high electromotive force to render elevated air strata conducting, causing thereby a propagation of electrical impulses through the air strata, and collecting or receiving at a point distant from the generating-station the energy of such impulses by means of a receiving-circuit having a length of conductor similarly related to the wave length of the impulses.

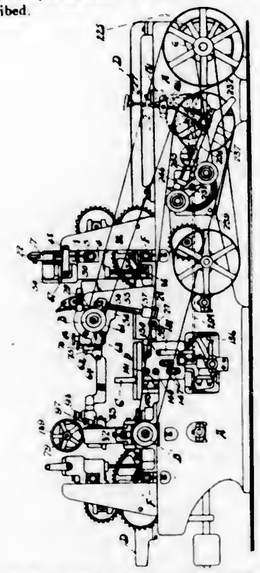
8. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in producing between the earth and a generator-terminal elevated above the same, at a generating-station, a sufficiently-high electromotive force to render elevated air strata conducting, causing thereby a propagation or flow of electrical energy through the air strata, by conduction, collecting or receiving the energy so transmitted by means of a receiving-circuit at a point distant from the generating-station, using the receiving-circuit to energize a secondary circuit, and operating translating devices by means of the energy so obtained in the secondary circuit.

9. The method hereinbefore described of transmitting electrical energy through the natural media, which consists in generating current impulses of relatively-low electromotive force at a generating-station, utilizing such impulses to energize the primary of a transformer, generating by means of such primary circuit impulses in a secondary surrounding by the primary and connected to the earth and to an elevated terminal, of sufficiently-high electromotive force to render elevated air strata conducting, causing thereby impulses to be propagated through the air strata, collecting or receiving the energy of such impulses, at a point distant from the generating-station, by means of a receiving-circuit connected to the earth and to an elevated terminal, and utilizing the energy so received to energize a secondary circuit of low potential surrounding the receiving-circuit.

645,577. PLANING-MACHINE. JOHN R. THOMAS, Cincinnati, and HARRY S. SPENCER, Bond Hill, Ohio, assignors to the J. A. Fay & Egan Company, Cincinnati, Ohio. Filed Apr. 24, 1899. Serial No. 714,273. (No model.)

Claim.—1. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for the cylinder for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure device, a standard therefor, means for adjusting the first-named cylinder-housing and means for adjusting the pressure device and firmly holding the same in adjusted position with relation to the frame, and a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection

with the pressure-device standard for forming a bearing for the stock between the first-named cylinder and the pressure device and between the vertical cutter-spindles firm with relation to the frame, substantially as described.



2. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for the cylinder for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure-plate and rigidly holding the same in adjusted position with relation to the frame, and a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, with means for holding the pressure-bar in firm relation with the first-named cylinder-bearings and the pressure-plate, substantially as described.

3. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for the cylinder for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure-plate, and a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, and a longitudinally-sliding connection for the pressure-bar, with means for holding the pressure-bar in firm relation with the first-named cylinder-bearings and the pressure-plate, substantially as described.

4. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure plate, and a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, and a positive lateral adjustment or adjustments for the bar, and constructed and arranged for holding the pressure-bar in rigid relation with the first-named cylinder-bearings and the pressure-plate after adjustment, substantially as described.

5. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure-plate, a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, and a positive vertical adjustment or adjustments for the bar, and constructed and arranged for holding the pressure-bar in rigid relation with the first-named cylinder-bearings and the pressure-plate after adjustment, substantially as described.

6. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure-plate, and a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, and a positive vertical adjustment or adjustments for the bar, and a positive lateral adjustment or adjustments for the bar, and constructed and arranged for holding the pressure-bar in rigid relation with the first-named cylinder-bearings and the pressure-plate after adjustment, substantially as described.

7. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a housing in which the cutter-cylinder is mounted adjustable on the frame, with bearings in the housing for the cylinder, a part on the housing for taking against the stock passing through the machine, means for adjusting the part with relation to the housing, vertical cutter-spindles, an oppositely-arranged cylinder, a pressure-plate opposite the latter cylinder for holding the stock thereagainst, means for adjusting the first-named cylinder-housing and means for adjusting the pressure-plate, a pivotally-hung pressure-bar between the vertical spindles extending from a connection with the housing for the first-named cylinder to a connection with the pressure-plate, a longitudinally-sliding connection for the bar, and a positive adjustment or adjustments for each end of the bar, and constructed and arranged for holding the pressure-bar in rigid relation with the first-named cylinder-bearings and the pressure-plate after adjustment, substantially as described.

8. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a presser-foot in rear of the cylinder, vertical cutter-spindles, a lower cylinder, a pressure-plate above the cylinder, means for adjusting the presser-foot and pressure-plate and rigidly holding the same in adjusted position with relation to the frame, and a hinged pressure-bar connecting the presser-foot and the pressure-plate between the vertical spindles, with means for holding the hinged pressure-bar in rigid relation with the presser-foot and the pressure-plate, substantially as described.

9. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a presser-foot in rear of the cylinder, vertical cutter-spindles, a lower cylinder, a pressure-plate above the cylinder, means for adjusting the presser-foot and pressure-plate and rigidly holding the same in adjusted position with relation to the frame, and a hinged pressure-bar between the vertical spindles connecting the presser-foot and the pressure-plate, and a lateral adjustment or adjustments for the bar, with means for holding the hinged pressure-bar in rigid relation with the presser-foot and the pressure-plate after adjustment, substantially as described.

10. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a presser-foot in rear of the cylinder, vertical cutter-spindles, a lower cylinder, a pressure-plate above the cylinder, means for adjusting the presser-foot and pressure-plate and rigidly holding the same in adjusted position with relation to the frame, a hinged pressure-bar connecting the presser-foot and the pressure-plate between the vertical spindles, and means for positively adjusting the pressure-bar vertically, with means for holding the hinged pressure-bar in rigid relation with the presser-foot and the pressure-plate after adjustment, substantially as described.

11. In a planing-machine, the combination of a main frame, a cutter-cylinder therefor, a work-support, a presser-foot in rear of the cylinder, vertical cutter-spindles, a lower cylinder, a pressure-plate above the cylinder, means for adjusting the presser-foot and pressure-plate and rigidly holding the same in adjusted position with relation to the frame, and a hinged pressure-bar connecting the presser-foot and the pressure-plate between the vertical spindles, means for positively adjusting the pressure-bar vertically, and means for positively adjusting the pressure-bar laterally, with means for holding the hinged pressure-bar in rigid relation with the presser-foot and the pressure-plate after adjustment, substantially as described.

12. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder, one or more vertical cutter-spindles, a hanger for each of the latter, a transverse guiding-bar for the same, a rock-shaft parallel thereto, a spiral gear splined to the rock-shaft, a screw-shaft on the hanger, a spiral gear on the screw-shaft meshing with the gear on the rock-shaft, constructed and arranged for clamping the hanger to the guiding-bar, substantially as described.

13. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder, one or more vertical cutter-spindles, a hanger for each of the latter, a transverse guiding-bar for the same, a rock-shaft parallel thereto, a spiral gear splined to the rock-shaft, a screw-shaft secured to the hanger, a slot in the guiding-bar for the screw-shaft, a saddle taking about the screw-shaft, ways in the guiding-bar for the saddle, the second spiral gear internally threaded meshing with the screw-shaft and the first gear, an annular groove in the first gear, and a fork on the saddle taking into the groove and guiding the gear sidewise with the movement of the hanger, substantially as described.

14. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder, one or more vertical cutter-spindles, a hanger for each of the latter, a transverse guiding-bar for the same, a rock-shaft parallel thereto, a spiral gear splined to the rock-shaft, a screw-shaft secured to the hanger, a slot in the guiding-bar for the screw-shaft, a saddle taking about the screw-shaft, ways in the guiding-bar for the saddle, the second spiral gear internally threaded meshing with the screw-shaft and the first gear, an annular groove in the first gear, and a fork on the saddle taking into the groove and guiding the gear sidewise with the movement of the hanger, and a ring extending from the saddle and taking about the shaft for steadying the same, substantially as described.

15. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle, a third pulley mounted thereon and located between the vertical plane of the main pulley and the vertical-spindle pulley, a transverse bar, a carriage for the bar, a screw-shaft connecting the carriage and the support, constructed and arranged for passing a belt over the vertical-spindle pulley, the third pulley on the support, and the main pulley, and for tightening the belt by the adjustment of the screw-shaft connecting the carriage and the support, and one or more connecting rods between the hanger and the support for guiding the transverse travel of the carriage by the position of the hanger, substantially as described.

16. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle and arranged to slide transversely of the machine, a third pulley mounted horizontally thereon and located between the vertical plane of the main pulley and the vertical-spindle pulley, a guiding-pulley rotatably mounted vertically on the support adjacent to the horizontal pulley to each side thereof between the vertical plane of the axis of the third pulley and the vertical spindle and rotating with its axis at substantially right angles to the axis of rotation of the third pulley and constructed for making contact with either edge of the belt passing with its flat face over the third pulley and thereby guiding the same thereon and transversely sliding the third pulley with its support, and guiding the transverse movement of the support by the position of the hanger, substantially as described.

17. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle and arranged to slide transversely of the machine, a third pulley mounted horizontally thereon and located between the vertical plane of the main pulley and the vertical-spindle pulley, a connection between the support for the third pulley and the vertical-spindle hanger, a guiding-pulley rotatably mounted vertically on the support adjacent to the horizontal pulley to each side thereof between the vertical plane of the axis of the third pulley and the vertical spindle and rotating with its axis at substantially right angles to the axis of rotation of the third pulley, and constructed for making contact with either edge of the belt passing with its flat face over the third pulley and thereby guiding the same thereon and transversely sliding the third pulley with its support, and constructed and arranged for guiding the transverse movement of the support by the position of the hanger, substantially as described.

18. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle, a third pulley mounted thereon and located between the vertical plane of the main pulley and the vertical-spindle pulley, a transverse bar, a carriage for the bar, a screw-shaft connecting the carriage and the support, a secondary yoke constructed and arranged for passing a belt over the vertical-spindle pulley, the third pulley on the support, and the main pulley, and for tightening the belt by the adjustment of the screw-shaft connecting the carriage and the support, and one or more connecting-rods between the hanger and the secondary yoke for guiding the transverse travel of the carriage by the position of the hanger, substantially as described.

19. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle, a transverse rod, an elongated opening in the support for the rod, a third pulley mounted on the support and located between the vertical plane of the main pulley and the vertical-spindle pulley, a transverse bar, a carriage for the bar, a screw-shaft connecting the carriage and the support, constructed and arranged for passing a belt over the vertical-spindle pulley, the third pulley on the support, and the main pulley, and for tightening the belt by the adjustment of the screw-shaft connecting the carriage and the support, and an extensible rod or rods connecting the hanger and the support for guiding the transverse travel of the carriage by the position of the hanger, substantially as described.

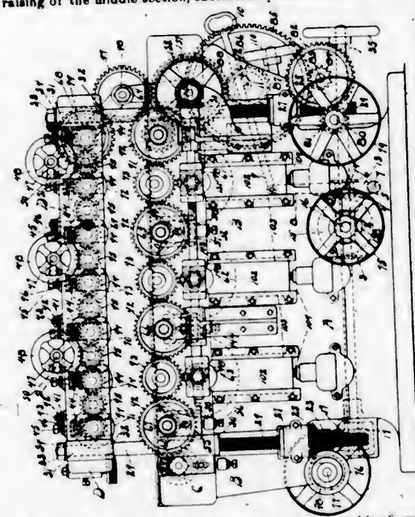
20. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical cutter-spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle, a third pulley mounted thereon and located between the vertical plane of the main pulley and the vertical-spindle pulley, a transverse bar, a carriage for the bar, a flaring opening therein and a pivotally-mounted nut for the support, a screw-shaft connecting the carriage and the nut, constructed and arranged for passing a belt over the vertical-spindle pulley, the third pulley on the support, and the main pulley, and for tightening the belt by the adjustment of the screw-shaft connecting the carriage and the support, and one or more connecting-rods between the hanger and the support for guiding the transverse travel of the carriage by the position of the hanger, substantially as described.

21. In a planing-machine, the combination of a main frame, a horizontal cutter-cylinder therefor, one or more vertical spindles, a hanger for each spindle, means for adjusting each hanger laterally, a pulley on each of the vertical spindles for driving the same, a main pulley, a support between the vertical plane of the main pulley and each vertical cutter-spindle, a third pulley mounted thereon between the vertical plane of the main pulley and the vertical-spindle pulley, a transverse bar, a carriage on the bar, a screw-shaft connecting the carriage and the support, constructed and arranged for passing the belt over the vertical-spindle pulley, the third pulley on the support, and the main pulley, and for the tightening of the belt by the adjustment of the screw-shaft connecting the carriage and the support, with one or more connecting-rods between the support and the hanger, with a guiding-pulley rotatably mounted vertically on the support adjacent to the horizontal pulley to each side thereof between the vertical plane of the axis of the third pulley and the vertical spindle, and constructed and arranged for making contact with either edge of a belt passing with its flat face over the third pulley and for guiding the transverse travel of the carriage by the position of the hanger, substantially as described.

22. In a planing-machine, the combination of a main frame, an upper cutter-cylinder, a lower cutter-cylinder, a pulley on each, a shaft, a pulley thereon for the upper cylinder, a swinging support on the frame, a slide thereon, a pulley for the lower cutting-cylinder mounted on the slide, means for adjusting the slide to and from the pulley on the lower cylinder, and an adjusting device for adjusting the support transversely of the axis of the pulley on the slide, substantially as described.

645,578. AERADING-MACHINE. JOHN R. THOMAS, Cincinnati, Ohio, assignor to the J. A. Fay & Egan Company, same place. Filed May 1, 1899. Serial No. 715,182. (No model.)

Claim.—1. In an abrading-machine, a main frame comprising a plurality of sections, a top section carrying the upper line of feed-rolls, a middle section carrying the lower line of feed-rolls, and a lower section carrying the abrading cylinder or cylinders, in combination with a plurality of screws geared together and connecting the lower with the top section, and operating simultaneously for first adjusting the top section for different thicknesses of stock to be worked, and, second, with a contact connection on each screw between the screw and the middle section for making contact connection with the middle section for raising the middle section to expose the cylinder or cylinders without intermediate retrograde movement of the screws between the completion of the adjustment for thickness of stock, and the raising of the middle section, substantially as described.



2. In an abrading-machine, a three-part abrading-machine frame, the lower part carrying the bearings for the abrading cylinder or cylinders, the middle carrying the table and the lower line of feed-rolls, and the top carrying the upper line of feed-rolls, in combination with a series of adjusting-screws connecting the lower with the top section, and geared to one of the frame parts, and movable longitudinally with relation to another frame part for part of their length, and a contact connection on each of the screws between the screw and the latter part for making contact connection therewith and carrying the middle frame part with them in their further movement, constructed and arranged for first adjusting the top frame part with relation to the middle frame part for feeding different thicknesses of stock, and, second, for raising the middle frame part with the top frame part by the contact connection on each screw making contact connection with that other frame part to expose the cylinder or cylinders without intermediate retrograde movement of the screws between the completion of the adjustment for thickness of stock and the raising of the middle section, substantially as described.

3. In an abrading-machine, the combination of a main frame divided into a plurality of sections, an upper section carrying an upper line of feed-rolls, a middle section carrying a lower line of feed-rolls, and a lower section carrying an abrading cylinder or cylinders, a series of adjusting-screws stationarily secured to the upper section, a part of the shanks of same moving past the middle section, leaving the middle section at rest, a threaded gear for each of the screws journaled in the lower section, screw-threads on the screws throughout another part of their length opposite the lower section, and a contact connection on each of the screws for the middle section between each screw and the middle section for making vertical contact connection with the latter and raising the same with the screws simultaneously moving longitudinally with relation to the lower section, substantially as described.

4. In an abrading-machine, the combination of a series of abrading-cylinders, a series of feed-rolls, and a series of power-driven pressure-rolls above the abrading-cylinders, with gearing or similar means for positively driving the feed-rolls and the pressure-rolls simultaneously at the same peripheral speed and in the same direction at their contact-point with the stock, substantially as described.

5. In an abrading-machine, comprising one or more abrading-cylinders, the combination of geared feed-rolls for each side of each abrading-cylinder positively revolving at a uniform peripheral speed, with a geared pressure-roll above each abrading-cylinder positively and simultaneously revolving at the same peripheral speed and in the same direction at their contact-point with the stock, substantially as described.

6. In an abrading-machine, the combination of a series of abrading-cylinders, a lower feed-roll and an upper feed-roll operating between each two adjacent abrading-cylinders, and a lower feed-roll and an upper feed-roll operating at each end of the series of abrading-cylinders, a pressure-roll above each abrading-cylinder, a shaft for each roll, gearing for operating the lower feed-rolls, with a gear attached to the shaft of each upper feed-roll, and a gear attached to the shaft of each pressure-roll, and an idler-gear between each two adjacent gears on the upper feed-roll and pressure-roll shafts and meshing therewith, constructed and arranged for positively driving the feed-rolls and the pressure-rolls simultaneously at the same peripheral speed and in the same direction at their contact point with the stock, substantially as described.

7. In an abrading-machine, the combination of one or more abrading-cylinders, a table, feeding-rolls adjustable with relation to the table, a secondary table at the feeding-in end of the machine, and adjusting-screws or similar means for vertically adjusting the secondary table with relation to the infeeding-cylinder in parallel vertical lines, substantially as described.

8. In an abrading-machine, the combination of one or more abrading-cylinders, a table, a feeding roll or rolls adjustable with relation to the table, an infeeding-table, a screw-shaft or similar means for vertically adjusting the latter with relation to the infeeding-cylinder, an infeeding-roll mounted in the infeeding-table, and vertical adjustment in the infeeding-table for the latter roll, substantially as described.

9. In an abrading-machine, one or more abrading-cylinders, in combination with feed-rolls to each side of each cylinder, and a pressure-roll above each cylinder, with gearing for driving the feed-rolls and the pressure roll or rolls at the same peripheral speed, a table through which the abrading cylinder or cylinders may project for abrading the stock passing over the table, and an infeeding-table vertically adjustable with relation to the former table, substantially as described.

10. In an abrading-machine, one or more abrading-cylinders, in combination with feed-rolls to each side of each cylinder, and a pressure-roll above each cylinder, with gearing for driving the feed-rolls and the pressure roll or rolls at the same peripheral speed, a table through which the abrading cylinder or cylinders may project for abrading the stock passing over the table, an infeeding-table vertically adjustable with relation to the former table, an infeeding-roll mounted in and adjustable with the infeeding-table, and independent vertical adjustment for the roll, with relation to the latter table, substantially as described.

11. In an abrading-machine, the combination of one or more abrading-cylinders, a shaft for each, an oscillator-shaft located beyond the end of the abrading-cylinder shaft or shafts, the axes of the several shafts being in substantially the same plane, an additional abrading-cylinder, a shaft therefor extending beyond the end of the oscillator-shaft and having its axis in substantially the same plane, an eccentric on the oscillator-shaft for each abrading cylinder shaft, and a connection with the latter, substantially as described.

12. In an abrading-machine, the combination of a plurality of abrading-cylinders with their shafts, and an oscillator-shaft for the latter rotatably mounted at right angles thereto beyond their ends in the same plane, with an additional abrading-cylinder, a shaft therefor extending beyond the end of the oscillator-shaft at right angles thereto and in the same plane, the oscillator-bearing 151 thereon, the ways 152 in the bearing, the slide 153, and the journal 154 received thereby and eccentrically mounted at the end of the oscillator-shaft, constructed and arranged substantially as and for the purpose specified.

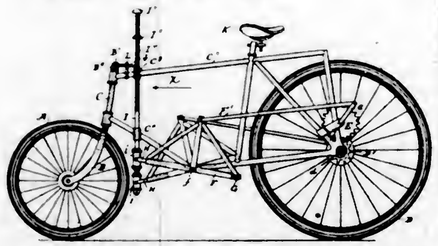
13. In an abrading-machine, the combination of one or more abrading-cylinders, with driven feed-rolls and a driven pressure-roll for each cylinder, means for positively rotating the driven feed-rolls and the driven pressure roll or rolls at the same peripheral speed, an oscillator-shaft extending at substantially right angles to the axis of the abrading cylinder or cylinders and rotating in substantially the plane of the axial line thereof, and an oscillator device for the cylinder or cylinders extending in substantially the axial line of the latter, substantially as described.

14. In an abrading-machine, the combination of one or more abrading-cylinders, with driven feed-rolls and a driven pressure-roll for each cylinder, means for rotating the rolls at the same peripheral speed, an adjustable infeeding-table, and an oscillator device for each of the cylinders extending in substantially the axial line thereof, substantially as described.

15. In an abrading-machine, the combination of one or more abrading-cylinders, with driven feed rolls and a driven pressure-roll

for each cylinder, means for rotating the rolls at the same peripheral speed, an adjustable infeeding-table, an infeeding-roll adjustable therewith and independently thereof, and an oscillator device for each of the cylinders extending in substantially the axial line thereof, substantially as described.

645,578. VELOCIPEDE. THOMAS TOLSON, Boston, Mass. Filed Mar. 18, 1899. Serial No. 709,614. (No model.)



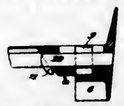
Claim.—1. In a velocipede, the combination of a pair of reciprocating handle-rods guided in bearings attached to the frame of the machine and having their lower ends universally connected to bell-crank or triangular rocking levers, pivotally connected to the frame and mounted on a fixed pivot on the driving mechanism of the rear wheel, and pedals connected to said rocking levers, substantially as and for the purpose set forth.

2. In a velocipede, the combination of a pair of reciprocating handle-rods guided in bearings attached to the frame of the machine and having their lower ends universally connected to bell-crank or triangular rocking levers pivotally connected to the frame and connected to the driving mechanism of the rear wheel, steering-rods attached to the handle-rods, and links pivotally connected to said steering-rods at their rear ends and pivotally connected at their forward ends to a cross-bar on the fork-spindle of the forward or steering wheel, substantially as and for the purpose set forth.

3. In a velocipede the herein-described steering device consisting in the combination of a pair of reciprocating handle-rods, steering-rods attached to said handle-rods, links pivotally connected to said steering-rods and to a cross-bar on the fork-spindle of the forward or steering wheel, and a slotted guide secured to the frame of the machine in which said links are guided and held from vertical movement substantially as and for the purpose set forth.

4. In a velocipede in combination a pair of reciprocating handle-rods, sleeves *i*, *i*, journaled on the same and held from longitudinal motion thereon, forks pivotally connected to said sleeves and having their rear ends guided in rocking pedal-levers, pivoted to the frame and suitably connected to the driving mechanism of the rear wheel substantially as and for the purpose set forth

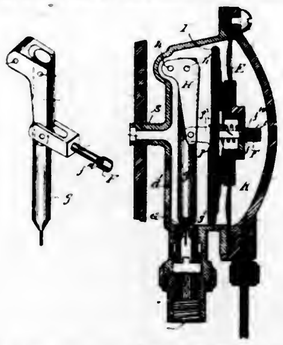
645,580. HORSESHOE. EDUARD TÜCHLER, Vienna, Austria-Hungary. Filed Dec. 9, 1899. Serial No. 739,761. (No model.)



Claim.—The combination with a horseshoe provided with two apertures extending vertically through the shoe and an aperture extending horizontally through the same, a plate of substantially I form located on the under side of the horseshoe adjacent to the vertical and horizontal apertures, a removable calk or grip provided with pins or projections of substantially hook shape adapted to enter the vertical apertures in the shoe, and a key or wedge adapted to enter the horizontal aperture of the shoe and to rest between the hooks of the calk-pins and the I-plate of the shoe, substantially as and for the purposes described.

645,581. TEMPERATURE-REGULATING APPARATUS FOR STEAM-HEATING SYSTEMS. CLARENCE R. VAN AUKEN, Chicago, Ill. Filed July 5, 1899. Serial No. 722,843. (No model.)

Claim.—1. In a temperature-regulating valve apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm, such casing divided by the diaphragm into two chambers, one of such chambers communicating with the radiator and being provided with means for communicating with a source of pressure less than the pressure of the steam used in the system and the other of such chambers being provided with means for communicating with a source of pressure greater than the pressure of such steam, a thermostatic valve controlling such means, such chambers provided with a communicating passage-way and a valve-seat, and a leaky valve coöperating therewith controlled by the diaphragm, and suitable connection between the first and last named valves; substantially as described.



2. In a temperature-regulating apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm in the casing dividing such casing into two chambers one of the chambers communicating with the radiator and being provided with an outlet having a valve-seat thereto, a valve coöperating with such valve-seat, mechanism by means of which such valve is extended to close on the seat and retracted to move from the seat, and the other of such chambers being provided with an inlet, means for holding the diaphragm yieldingly extended into the last-named chamber, a valve-seat and a leaky valve coöperating therewith controlled by the diaphragm, and a connection between the stem of such leaky valve and the mechanism on which the first-named valve is mounted; substantially as described.

3. In a temperature-regulating apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm in the casing dividing such casing into two chambers, one of such chambers communicating with the radiator and being provided with an outlet having a valve-seat thereto, a valve coöperating with such valve-seat, mechanism on which such valve is mounted and a connection between such mechanism and the diaphragm, such other chamber provided with a thermostatically-controlled opening for communicating with a source of air-supply of greater pressure than the pressure of the steam in the radiator, and such chambers provided with a communicating passage-way and a valve-seat, and a leaky valve coöperating with the valve-seat; substantially as described.

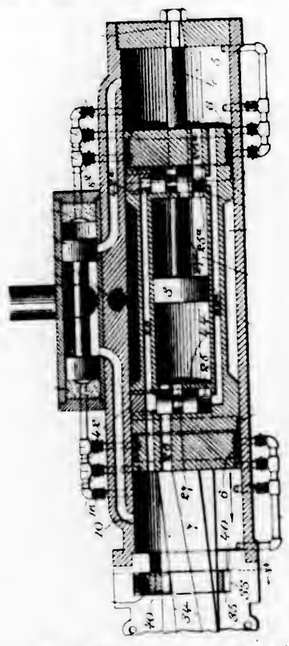
4. In a temperature-regulating apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm in the casing dividing such casing into two chambers, such chambers provided with an automatically-controlled communication therebetween, one of such chambers communicating with the radiator and being provided with an outlet having a valve-seat thereto, an expansible member expanding by heat to close the outlet, a valve coöperating with the valve-seat of the outlet, mechanism on which such valve is mounted and a connection between such mechanism and the diaphragm; substantially as described.

5. In a temperature-regulating apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm in the casing dividing it into two chambers, one of such chambers communicating with the radiator and being provided with an outlet having a valve-seat thereto, an expansible member expanding by heat to close the outlet, a valve cooperating with the valve-seat of such outlet, and the other of such chambers provided with an inlet, thermostatic means for controlling the quantity of air delivered into the chamber through such inlet, a communicating passage-way between the chambers and such communicating passage-way being provided with a valve-seat, a valve cooperating with such valve-seat, and a connection between the valves; substantially as described.

6. In a temperature-regulating apparatus for a steam-heating system, the combination of a casing provided with means for attaching it to a radiator, a diaphragm in the casing dividing it into two chambers, such chambers provided with a communicating passage-way having a valve-seat thereto in one of such chambers, a valve cooperating with the valve-seat, means for yieldingly holding the diaphragm extended into one of the chambers with the valve closed on

its seat, and thermostatic-controlled means for delivering air into the chamber to force the diaphragm into a retracted position opening the valve from its seat; substantially as described.

645,582. COMPOUND ENGINE. JAMES WATSON, near Johannesburg, South African Republic, assignor to Barry Searle, Montrose, Pa. Filed June 16, 1899. Serial No. 720,767. (No model.)



Claim.—1. In a compound reciprocating engine the combination of the exterior low-pressure cylinder, the high-pressure cylinder movable therein, the high pressure piston mounted on one end of a piston-rod, the other end of which is rigidly fastened in one head of the low-pressure cylinder, passage-ways in the high-pressure cylinder connecting its interior with the low-pressure cylinder, and with the high-pressure steam-chest, and valves controlling said passage-ways movable only at right angles to the line of travel of said high-pressure cylinder, an exhaust-valve connected with the low-pressure cylinder at either end, means whereby high-pressure steam may be caused to move said exhaust-valve, and a pipe for conducting said high-pressure steam, having a plurality of valve-controlled connections to the high-pressure steam-chest, whereby the stroke of the engine may be regulated.

2. In a compound reciprocating engine the combination of the exterior low-pressure cylinder, the high-pressure cylinder movable therein, the high-pressure piston mounted on one end of a piston-rod, the other end of which is rigidly fastened in one head of the low-pressure cylinder, passage-ways in the high-pressure cylinder connecting its interior with the low-pressure cylinder, and with the high-pressure steam-chest, and valves controlling said passage-ways movable only at right angles to the line of travel of said high-pressure cylinder, together with the working piston-rod extending through the other head of the low-pressure cylinder and connected to the high-pressure cylinder.

3. In a compound reciprocating engine the combination of the exterior low-pressure cylinder, the high-pressure cylinder movable therein, the high-pressure piston mounted on one end of a piston-rod, the other end of which is rigidly fastened in one head of the low-pressure cylinder, passage-ways in the high-pressure cylinder connecting its interior with the low-pressure cylinder, and with the high-pressure steam-chest, and valves controlling said passage-ways movable only at right angles to the line of travel of said high-pressure cylinder, together with the working piston-rod extending through the other head of the low-pressure cylinder and connected to the high-pressure cylinder, and means for partially rotating said working piston during one of its strokes.

4. In a compound reciprocating engine the combination of the exterior low-pressure cylinder, the high-pressure cylinder movable therein, the high-pressure piston mounted on one end of a piston-rod, the other end of which is rigidly fastened in one head of the low-pressure cylinder, passage-ways in the high-pressure cylinder connecting its interior with the low-pressure cylinder, and with the high-pressure steam-chest, and valve controlling said passage-ways, an exhaust-valve connected with the low-pressure cylinder at either end, means whereby high-pressure steam may be caused to move said exhaust-valve, and a pipe for conducting said high-pressure steam, having a plurality of valve-controlled connections to the high-pressure steam-chest, whereby the stroke of the engine may be regulated.

5. A combined high-pressure cylinder and low-pressure piston having its central portion of reduced diameter to form a steam-chest, annular grooves on its heads inside of the packing-rings, and a passage-way connecting each of said grooves with said steam-chest.

6. A combined high-pressure cylinder and low-pressure piston having its central portion of reduced diameter to form a steam-chest, annular grooves on its heads inside of the packing-rings, and a passage-way connecting each of said grooves with said steam-chest, together with valve-chambers and coöperating valves located in the piston-heads, and passage-ways connecting the steam-chest with said valve-chambers, one set of the ports of said valve-chambers opening into the high-pressure cylinder, and another set opening communication from the low-pressure cylinder to the high-pressure cylinder.

7. In a reciprocating engine, the combination of the cylinder and piston therein, an exhaust-valve therefor, a recess in the piston continuously supplied with motive fluid, passage-ways in the cylinder adapted to convey fluid from said piston-recess to reverse the exhaust-valve, said passage-ways having valve-controlled branches adapted to communicate with the piston-recess at different points in its stroke, whereby the length of stroke may be varied.

8. In a reciprocating engine, the combination of the cylinder and piston therein, an exhaust-valve therefor, a recess in the piston continuously supplied with motive fluid, passage-ways in the cylinder adapted to convey fluid from said piston-recess to reverse the exhaust-valve, said passage-ways having valve-controlled branches adapted to communicate with the piston-recess at different points in its stroke, whereby the length of stroke may be varied, together with inlet-valves for said cylinder, and means reversing them simultaneously with the reversals of the exhaust-valve.

9. In a reciprocating engine, the combination of the cylinder and piston therein, an exhaust-valve therefor, a recess in the piston continuously supplied with motive fluid, passage-ways in the cylinder adapted to convey fluid from said piston-recess to reverse the exhaust-valve, said passage-ways having valve-controlled branches adapted to communicate with the piston-recess at different points in its stroke, whereby the length of the stroke may be varied, together with inlet-valves for said cylinder, and passage-ways adapted to convey fluid from said piston-recess to reverse said inlet-valves, said passage-ways having corresponding valve-controlled branches adapted to communicate with the piston-recess at corresponding different points of its stroke.

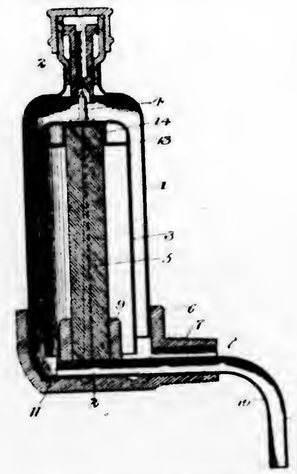
10. In a compound reciprocating engine the combination of the exterior low-pressure cylinder, the high-pressure cylinder movable therein, the high-pressure piston mounted on one end of the piston-rod, the other end of which is rigidly fastened in one head of the low-pressure cylinder, passage-ways in the high-pressure cylinder connecting its interior with the low-pressure cylinder, and with the high-pressure-steam chest, and valves controlling said passage-ways, an exhaust-valve connected with the low-pressure cylinder at either end, means whereby high-pressure steam may be caused to move said exhaust-valve, and a pipe for conducting said high-pressure steam, having a plurality of valve-controlled connections to the high-pressure-steam chest, whereby the stroke of the engine may be regulated, together with means for rotating said high-pressure cylinder at a rate varying as the length of the stroke given to it.

645,588. AIR-VALVE. SETH P. WATT, Chicago, Ill. Filed Nov. 20, 1899. Serial No. 737,669. (No model.)

Claim.—1. An air-valve for radiators comprising a casing having a valve-governed escape-port, and a passage communicating with the radiator, and a trough with its edges in close proximity and communicating between the casing and the radiator through said passage.

2. An air-valve for radiators comprising a casing having a valve-governed escape-port and a passage communicating with the radiator and a trough which has its upper portion or leg within the casing and its lower leg passing through said passage and extending downward, the edges of such trough being in close proximity.

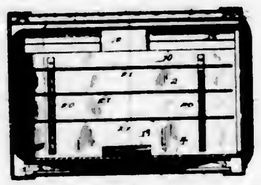
3. In an air-valve for radiators, the combination with the casing having a valve-governed escape-port and a nozzle communicating with the radiator, a tube within the casing carrying said valve on its upper end, a post of expansible material supported on the bottom of the casing, and a flanged cup secured to the top of such post and fitting in the upper part of such tube to assume the proper position of the post and valve.



4. In an air-valve for radiators, the combination with the casing 1 having an escape-port, a valve 4 governing such port, a nozzle 7 communicating with the reservoir and casing, a tube 3 carrying the valve 4 at its upper closed end, a post 5 of expansible material supported at the bottom of the casing and a guide for the post comprising a cup-shaped portion 14 receiving the upper end of the post and having a flanged rim 13 fitting closely within the tube.

5. As a liquid-draining device, a trough whose edges are arranged in close proximity whereby a liquid may flow by capillary attraction along such edges and thereby start a flow through such trough.

645,584. BAKE-OVEN. EDWARD T. WILDSMITH, Birmingham, Ala. Filed Dec 16, 1899. Serial No. 740,595. (No model.)



Claim.—1. An oven comprising an outer casing open at its bottom and provided at its top with openings, an inner casing spaced from the outer casing and having its upper edges terminating short of the top of the same to provide entrances for hot air, a horizontal top or plate 14 located above the inner faces, and the separate flues located in the intervening spaces between the inner and outer casings, and dividing the said spaces into independent flues or passages and communicating at their lower ends with the interior of the inner casing at the bottom thereof and having their upper ends communicating with the space above the top or plate 14, substantially as described.

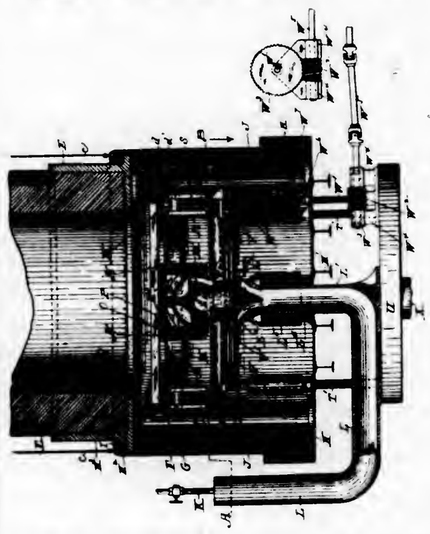
2. An oven comprising an outer casing open at the bottom an inner casing spaced from the outer casing and terminating short of the top of the same and provided at its bottom with openings, a horizontal top or plate 14 located above the inner casing, a horizontal partition interposed between the top or plate 14, and the top of the outer casing and provided with central openings, and flues located in the intervening spaces between the casings and dividing the said spaces into independent flues or passages and extending upward from the openings at the bottom of the inner casing to the space above the horizontal top or plate, substantially as described.

3. An oven comprising an outer casing provided at its bottom with inwardly-extending flanges, an inner casing spaced from the outer casing and having its upper edges terminating short of the top of the same, a bottom diaphragm secured to the lower face of the bottom of the inner casing, and provided with corner-openings, the horizontal top wall or plate 14, located above the inner casing, and the flues extending upward from the bottom of the inner casing to the top wall or plate 14, and dividing the spaces between the inner and outer casings into separate flues or passages, substantially as described.

4. An oven having its side and rear walls each provided with a plurality of separate and independent flues or passages, extending from the top to the bottom of the oven and arranged to convey hot air from the heating apparatus to the top of the oven, and adapted to carry the hot air from the oven at the bottom of the same to the top thereof and discharge it thereat, substantially as described.

5. An oven having its side and back walls each provided with a plurality of separate and independent flues or passages, one set being arranged to convey hot air from the heating apparatus to the top of the oven and deliver it into the latter at that point, the other set being arranged to carry the air from the oven at the bottom thereof to the top of the same and discharge it at such point, substantially as described.

645,585. AUTOMATIC GAS-PRODUCER. CARL W. BILDT, Worcester, Mass. Filed July 31, 1899. Serial No. 725,583. (No model.)



Claim.—1. The combination of a rotatory grate-frame carrying suitable grate-bars, a centrally-located pivot on which the grate-frame rests and turns, means for rotating said grate-frame and means for limiting the tilting motion thereof, said means being normally out of contact therewith, substantially as and for the purpose set forth.

2. The combination of a rotary grate-frame carrying suitable grate-bars, a centrally-located pivot on which the grate-frame rests and turns, means for rotating said grate-frame, a track for limiting the tilting motion thereof, said track being normally out of contact therewith, substantially as and for the purpose set forth.

3. The combination of a rotary grate-frame carrying suitable grate-bars, a centrally-located pivot on which the grate-frame rests and turns, means for rotating said grate-frame, a track carrying wheels mounted on the grate-frame for limiting the tilting motion of said grate-frame, said track being normally out of contact with said wheels, substantially as and for the purpose set forth.

4. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars and having means for turning it, also having supporting-hangers, provided with adjustable bearings in which are mounted wheels, adapted to travel upon a supporting-track, said rotary frame being adapted to turn upon a central pivot; said track, means for supporting it upon an elevator, the central pivot, also supported upon said elevator, and said elevator, adapted to be elevated and lowered, substantially as and for the purpose set forth.

5. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars and having means for turning it, also having bearings in which are mounted antifriction-wheels,

adapted to travel upon a supporting-track, said rotary frame being adapted to normally rest and turn upon a central pivot, with its wheels normally out of contact with the aforesaid supporting-track; said track, means for supporting it upon an elevator, the central pivot, also supported upon said elevator, and said elevator, adapted to be elevated and lowered, substantially as and for the purpose set forth.

6. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars, and having bearings in which are mounted wheels adapted to travel upon a supporting-track, also having mounted thereon a central frame or hub adapted to be clutched to the hub of a horizontal gear-wheel, provided with a central bearing adapted to rest and turn upon a central pivot, with the aforesaid wheels normally out of contact with the supporting-track; said track, means for supporting it, the central pivot, means for supporting it, the horizontal gear-wheel, having means whereby it may be clutched to the central frame or hub of the rotary frame, and means for turning said gear-wheel, substantially as and for the purpose set forth.

7. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars, and having supporting-hangers, provided with adjustable bearings in which are mounted wheels adapted to travel upon a supporting-track, said rotary frame also having mounted thereon a central frame or hub adapted to be clutched to the hub of a horizontal gear-wheel, provided with a central bearing adapted to rest and turn upon a central pivot; said track, means for supporting it, the central pivot, means for supporting it, the horizontal gear-wheel, having means whereby it may be clutched to the central frame or hub of the rotary frame, and means for supporting and turning said gear-wheel, substantially as and for the purpose set forth.

8. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars and having supporting-hangers, provided with adjustable bearings in which are mounted wheels adapted to travel upon a supporting-track, said rotary frame also having mounted thereon a central frame or hub adapted to be clutched to the hub of a horizontal gear-wheel, provided with a central bearing adapted to rest and turn upon a central pivot; said horizontal gear-wheel, having means for supporting it and whereby it may be clutched to the central frame or hub of the rotary frame, means for turning said gear-wheel; the track, means for supporting it upon an elevator; the central pivot, also supported upon said elevator, and the elevator, adapted to be elevated and lowered, substantially as and for the purpose set forth.

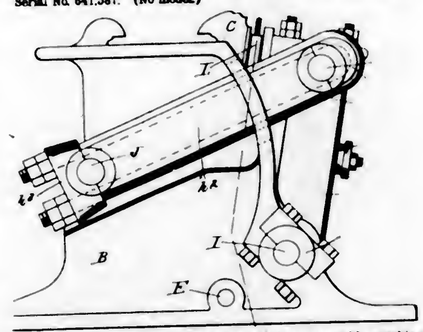
9. In a gas-producer, the combination of a horizontal, rotary frame, provided with suitable grate-bars, and having bearings in which are mounted wheels adapted to travel upon a supporting-track, also having mounted thereon a central frame or hub adapted to be clutched to the hub of a horizontal gear-wheel, provided with a central bearing adapted to rest and turn upon a central pivot; said gear-wheel, having means whereby it may be clutched to the frame or hub of the rotary frame, means for turning said gear-wheel; the track, means for supporting it, the blast-pipe having outlets under the grate, also adapted to support the gear-wheel and extended up to form the aforesaid central pivot for the rotary frame to turn upon, substantially as and for the purpose set forth.

10. In a gas-producer, the combination of a horizontal rotary frame adapted to rest and turn upon a central pivot also carrying suitable grate-bars and having wheels mounted thereon; a horizontal gear-wheel also adapted to rest and turn upon a central pivot and to be locked to the grate-frame; means for turning said grate-frame and gear-wheel; a track mounted on an elevator and carrying the aforesaid grate-frame, wheels for limiting the tilting motion of the grate-frame, said track being normally out of control with said wheels; said elevator, the blast-pipe mounted thereon whose inner terminal serves as the aforesaid central pivot for the grate-frame and gear-wheel, and suitable hoods attached at their upper ends to and surrounding the drive-shaft, track-supports and blast-pipe, said hoods being arranged over jackets which extend up from the bottom of a water-tank around said drive-shaft, track-supports and blast-pipe, substantially as and for the purpose set forth.

11. In a gas-producer, the combination of the horizontal, rotary grate-frame, having means for supporting and turning it, a central frame or hub mounted thereon and provided with a central bearing adapted to rest and turn upon a central pivot, said central frame or hub also being adapted to be clutched to the hub of a horizontal gear-wheel, said gear-wheel, having means whereby it may be clutched to the aforesaid central frame or hub, and the blast-pipe, adapted to support the gear-wheel, and extended up to form the aforesaid central pivot for the rotary frame to turn upon, substantially as and for the purpose set forth.

12. In a gas-producer, the combination of the horizontal, rotary grate-frame, having means for supporting and turning it, a central frame or hub, mounted thereon, and provided with a central bearing adapted to rest and turn upon a central pivot, said central frame or hub also being adapted to be clutched to the hub of a horizontal gear-wheel; said gear-wheel, having means whereby it may be clutched to the aforesaid central frame or hub; the hoods, fitted over the central pivot of the rotary frame, and the blast-pipe, adapted to support the gear-wheel, and extended up to form the aforesaid central pivot for said rotary frame to turn upon, substantially as and for the purpose set forth.

645,586. CRUSHING-MACHINE. MORTON G. BUNNELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed June 21, 1897. Serial No. 641,567. (No model.)



Claim.—1. A crushing-machine comprising a movable crushing-jaw; a reciprocating abutment backing and operating the said jaw; and a set of antifriction-rolls or the like arranged between the jaw and the said abutment.

2. A crushing-machine comprising a movable crushing-jaw; a pitman immediately backing and operating the jaw; and means for operating the pitman and thereby causing the same to slide up and down the flat rear surface of the jaw.

3. A crushing-machine comprising a movable crushing-jaw; a pitman backing and operating the jaw; means for operating the pitman and thereby causing the latter's flat forward surface to slide up and down the flat rear surface of the jaw; and one or more antifriction-rolls arranged between the jaw and pitman.

4. A crushing-machine comprising a suitably-operated pitman provided with a face which slides relatively to the pitman and which is adapted to serve as one of the crushing-jaws of a crushing-hopper.

5. A crushing-machine comprising a suitably-operated pitman provided with a face which slides relatively to the pitman and which is adapted to serve as one of the jaws of a crushing-hopper, and one or more antifriction devices arranged between the pitman and its sliding face.

6. In a crushing-machine, a crushing-hopper comprising a suitably-supported and movable crushing-jaw; a suitably-actuated pitman backing and operating the jaw; and one or more antifriction rolls or balls arranged between the jaw and pitman, whereby a relative sliding movement will occur between the jaw and pitman when the latter is actuated for the purpose of operating the former.

7. In a crushing-machine, a crushing-hopper comprising a movable crushing-jaw; a pitman backing and operating the jaw; antifriction rolls or balls arranged between the jaw and pitman, whereby a relative sliding movement will occur between the said jaw and pitman; and means for maintaining the jaw and pitman in a condition of parallelism.

8. A crushing-machine comprising a pitman having a sliding crushing-face arranged to provide one of the crushing-jaws of a crushing-hopper, the pitman and sliding crushing-face being connected to permit a relative sliding or longitudinal shifting movement during the operation of the machine, and the lines of relative longitudinal shift or travel of the pitman and its sliding face being at all times parallel and the same distance apart.

9. In a crushing-machine, a pitman operated by an eccentric or the like and provided with a sliding crushing-face arranged to form one of the jaws of a crushing-hopper, the pitman being also tied to an axis positioned to cause its crushing-face to have a forward and back and vibratory movement, and the lines of relative longitudinal shift or travel of the pitman and its sliding face being at all times parallel and the same distance apart.

10. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw, and a pitman immediately backing and operating the jaw and having therewith a sliding connection adapted to permit a relative sliding or longitudinal shifting movement between it and the jaw, the opposing or sliding surfaces of the jaw and pitman being at all times substantially parallel and the same distance apart.

11. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; a pitman immediately backing and operating the jaw and having therewith a sliding connection adapted to permit a relative sliding or longitudinal shifting movement between it and the jaw; and means for maintaining the jaw and pitman in a condition of parallelism, the two members being also maintained at a fixed distance apart.

12. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; a pitman immediately backing and operating the jaw and having therewith a sliding connection adapted to permit a relative sliding or longitudinal shifting movement between it and the jaw, the two members being maintained in a condition of parallelism and also at a fixed distance apart; and an eccentric operating the lower end of the pitman.

13. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; a pitman immediately backing and operating the jaw and having therewith a sliding connection adapted to permit a relative sliding or longitudinal shifting movement between it and the jaw, the lines of relative longitudinal shift or travel of the jaw and pitman being at all times substantially parallel and the same distance apart; an eccentric operating one end of the pitman; and a swinging connection between the other end of the pitman and the frame of the machine, said swinging connection being pivoted to the frame at a point forward of the said movable jaw.

14. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; a pitman immediately backing and operating the jaw and having therewith a sliding connection adapted to permit a relative sliding or longitudinal shifting movement between it and the jaw, the lines of relative longitudinal shift or travel of the two members being, by reason of the sliding connection, at all times substantially parallel and the same distance apart; an eccentric supporting the pitman and operating its lower end, and tension-links having their rear ends pivotally connected with the upper end of the pitman and their forward ends pivotally supported at points forward of the movable crushing-jaw.

15. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw, and a vertically-disposed pitman operating the jaw and having a sliding connection therewith so as to impart to the said jaw a forward-and-backward movement substantially in synchronism with the forward-and-backward motion of the pitman, and one or more antifriction-rolls interposed between the said jaw and pitman.

16. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; and a pitman-and-eccentric arrangement for operating the jaw, the eccentric being arranged to operate the lower end of the pitman, and the pitman having a sliding connection with the jaw so as to impart to the latter's lower end an extent of movement substantially equal to the throw of the eccentric, the flat forward surface of the pitman forming a backing for the flat rear surface of the jaw.

17. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw, a pitman immediately backing the jaw and having a sliding connection therewith, and an axis-link connected with the lower end of the jaw and arranged below the same in a position to cause the jaw to move bodily downward as it advances, and at the same time to allow its upper end to advance and recede independently of its lower end; and the said pitman and jaw having by such arrangement like and simultaneous vibratory and bodily forward-and-back movements, but having unlike or dissimilar up-and-down movements.

18. In a crushing-machine, the crushing-hopper comprising a crushing-jaw arranged for a bodily forward-and-back and vibratory movement; swinging supporting-links therefor having their upper ends pivotally connected with the lower end of the jaw and their lower ends pivotally supported at stationary points to the rear of their points of connection with the jaw for the purpose of causing the latter to move bodily downward as it advances and at the same time to allow its upper end to advance and recede independently of its lower end; and means for operating the jaw.

19. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; swinging supporting-links having their upper ends pivotally connected with the lower end of the movable jaw, and their lower ends pivotally supported below the jaw and to the rear of their points of connection therewith; a pitman backing and operating the jaw and having a sliding connection therewith; an eccentric operating the lower end of the pitman; and tension-links having their rear ends pivotally connected with the upper end of the pitman, and their forward ends pivotally supported at points forward of the movable crushing-jaw.

20. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw supported by suitable connection with the crusher frame or body; a pitman backing and operating the jaw; antifriction-rolls arranged between the jaw and pitman; and a holder carrying the antifriction-rolls and having a spring or elastic connection with the movable jaw, as set forth.

21. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw suitably supported from the crusher frame or body; a pitman backing and operating the jaw, and having a sliding connection therewith; and a tie-rod connecting the jaw and pitman and having a spring or elastic connection with the latter, as set forth.

22. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw having a shifting connection with the crusher frame or body; a pitman backing and operating the jaw and having a sliding connection with the same; a tie-rod connecting the jaw and pitman; and an elastic cushion confined between the rear of the pitman and a nut on the tie-rod.

23. In a crushing-machine, the crushing-hopper comprising a movable crushing-jaw; swinging supporting-links having their upper ends pivotally connected with the lower end of the jaw, and their lower ends pivotally supported below the same and to the rear of their upper ends; a pitman backing and operating the jaw; antifriction rolls or balls arranged between the jaw and pitman; an eccentric applied to the lower end of the pitman; and tension-links having their rear ends pivotally connected with the upper end of the pitman and their forward ends pivotally connected with the frame at points forward of the movable crushing-jaw.

645,587. DUMPING-CAR. WILLIAM A. CASWELL, Chicago, Ill., assignor to the Caswell Car and Improvement Company, same place. Filed Aug. 23, 1899. Serial No. 728,183. (No model.)

Claim.—1. The car having a dumping-door in its bottom supported at one side by hinges and at the other side by latches mounted on a support located outside the path of the door and below the bottom of the car, said latches setting under the free edge of the door and having a short movement past said edge in a direction away from both the free and the hinged edges of the door so that they are enabled to move instantly out from under the door and thereby avoid interference with it, substantially as specified.

2. The car having a dumping-door in its bottom supported at one side by hinges and at the other side by latches mounted on a support located outside the path of the door and below the bottom of the car, both the hinges and the support being directly sustained by floor-sills of the car, said latches setting under the free edge of the door and having a short movement past said edge in a direction away from both the free and the hinged edges of the door so that they are enabled to move instantly out from under the door and thereby avoid interference with it, substantially as specified.

3. The combination with the hinged dumping-door of a flat-bottomed car, of the latches having rollers in their upper ends, the rock-shaft supporting and operating the latches and the bearing-pieces be-

neath the door and having recessed seats for the rollers, substantially as specified.

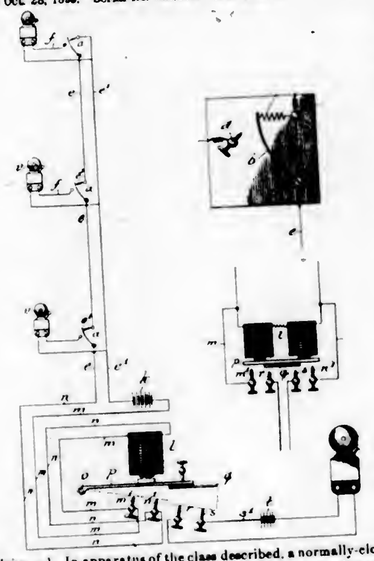
4. The combination with the hinged dumping-doors, of devices for supporting the doors in their closed position, and a shaft for operating said supporting devices, said shaft being made in sections coupled together, substantially as specified.

5. The combination with the hinged dumping-doors, of devices for supporting the doors in their closed position, and a shaft for operating said supporting devices, said shaft being made in separately-removable sections detachably coupled together, substantially as specified.

6. The combination with the rock-shaft for operating the door-supporting devices of a dumping-car, said shaft being made in sections detachably coupled together, of bearings for the shaft open at the top and headers made in two parts, substantially as specified.

7. The combination with the rock-shaft for operating the door-supporting devices, said shaft being made in sections, of coupling devices for uniting the sections and made open at the top, headers supporting said coupling devices and made in two parts, and bearings for the shaft intermediate of the headers and open at the top, substantially as specified.

645,588. FIRE-ALARM APPARATUS. ALBERT F. DODDRIDGE, Chicago, Ill., assignor of one-half to Morton M. Curry, same place. Filed Oct. 28, 1899. Serial No. 735,079. (No model.)



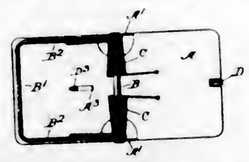
Claim.—1. In apparatus of the class described, a normally-closed primary circuit consisting of a fusible plug or cut-out, a relay-magnet adapted, when the circuit is broken, to start an independent alarm mechanism and a source of electrical energy; an alarm-bell adjacent to and so connected with said cut-out that when said fuse is burned out said bell is inserted in said circuit, and means for substantially simultaneously cutting said magnet out of said circuit, substantially as described.

2. In apparatus of the class described, a normally-closed primary circuit consisting of a series of fusible cut-outs or plugs, a relay-magnet, and a source of electrical energy; a normally-open secondary circuit consisting of a source of electrical energy and a large bell or other alarm apparatus; a small bell or other alarm apparatus adjacent to each fusible plug or cut-out, and means whereby when a fusible plug is burned out the secondary circuit is closed on the large bell and the small bell is substituted for the relay-magnet in the primary circuit, substantially as described.

3. In apparatus of the class described, the combination of a normally-closed primary circuit containing a relay-magnet adapted, when the circuit is momentarily broken, to operate independent alarm mechanism and means whereby when the circuit is so broken said magnet is short-circuited so as to render it inoperative, substantially as described.

645,589. ANIMAL-TRAP. IVAR ERICSSON, Chicago, Ill. Filed Oct. 30, 1899. Serial No. 735,337. (No model.)

Claim.—1. A trap comprising a platform and a lever pivoted thereto at one end and extending under the platform toward the other end; a spring-actuating fly fulcrumed on the platform arranged to tension this spring by being swung about its fulcrum toward the pivoted end of the platform, the lever having a catch-finger which protrudes above the platform at the pivoted end; whereby the lever takes the weight of the platform at one end, and the catch is disengaged by depressing that end of the platform.



2. In combination with a platform A, a lever D' pivoted thereto at one end and having an upstanding catch-finger D, the fly fulcrumed on the platform and the springs C C tending to hold said fly down upon the platform at the forward end of the latter, and adapted to be flexed or put under tension by rocking the fly about its fulcrum toward the opposite end, said fly and catch being relatively arranged so that the latter may engage the former when the fly is rocked over toward the rear end of the platform, and such engagement being effected by swinging the lever D' down from the platform at the forward end, whereby it takes the weight of that end when the catch is engaged.

3. In combination with a platform A having the lugs A' A' struck up from its web, the shaft extending between said lugs and the fly comprising the side bars B^2 B^2 and the cross-bar B' pivoted at the ends of said side bars on said shaft, the springs C C coiled about the shaft and stopped on the platform and engaging the side bars of the fly D, and tending to hold the cross-bar down on the platform at one end, the lever D pivoted to the opposite end of the platform and extending under the same to the end on which the fly is held by the springs, and having an upstanding arm at its pivoted end provided with a nose adapted to engage the fly when the latter is rocked back toward that end.

4. In combination with a platform, the fly fulcrumed thereon, the lever pivoted thereto at one end and having the catch, D, said lever extending under the platform toward the other end, and having the finger D^4 extending up through the platform and adapted to hold bait, whereby the weight of the animal on the platform and the force used to detach the bait both operate to disengage the catch.

5. In combination with a platform of sheet metal, a spring-actuating fly fulcrumed thereon and comprising a cross-bar and opposite side bars extending therefrom to the fulcrum, and arranged to be held by the spring lying along one end and the two adjacent sides of the platform, the platform having a tang A^5 struck up from its web at a point within the area encompassed by the fly and its axis and at a point remote from the three edges of the platform along which the fly extends; a catch to lock the fly when it is swung over to the opposite end of the platform, and suitable means for causing the catch to become disengaged when the platform is depressed.

6. In combination with the platform of sheet metal, the spring-actuating fly fulcrumed thereon, the lever pivoted to the platform extending under the same and having the catch-finger to engage the fly, a bait-holding tang struck up at a point remote from its edges, the lever having a guide-finger which protrudes through the slot formed by striking up such tang, specifically as set forth.

645,590. MACHINE FOR MAKING CALKS. CAMIL A. FILION, Whiting, Vt. Filed Oct. 4, 1899. Serial No. 732,466. (No model.)

Claim.—1. A machine for making calks, comprising a suitable frame; a plate secured to the front edge thereof; a flange formed on one side of said plate having a slot through which the metal bar is passed from which the calks are formed; a downwardly-extending groove formed in said flange and communicating with said slot, said groove being beveled and extending inwardly along said slot; a shaping and cutting die slidably mounted in said frame and provided with a shaping and cutting edge cooperating with the grooves of the said flange; a shaping-die slidably mounted in said frame and operatively connected with said shaping and cutting die, and an operating-lever, substantially as described.

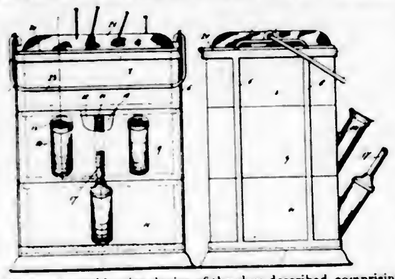
2. A machine for making calks, comprising a suitable frame; a shaping and cutting die slidably mounted therein; a shaping-die slidably mounted in said frame and operatively connected with said shaping and cutting die and provided with a shaping slot and groove, an adjustable plate mounted in said frame; a lug formed on said plate and having an inclined face adapted to coact with a beveled face formed on the said shaping-die; and a lever adapted to depress the said dies, substantially as described.



3. A machine for making calks, comprising a suitable frame, a lever pivoted therein, a shaping and cutting die slidably mounted in said frame and adapted to be depressed by said lever, a shaping-die slidably mounted in said frame and engaging said shaping and cutting die by a pin-and-slot connection; an adjustable plate mounted in said frame and provided with a shaping-lug adapted to coact with the shaping-die, the construction and arrangement being such that the initial movement of the cutting-dies forms the spur and severs the calk and the subsequent movement of the cutting and shaping dies finishes the calk, substantially as described.

4. A machine for making calks, comprising a suitable frame, a lever pivoted therein, a shaping and cutting die and a shaping die slidably mounted in said frame and having a loose connection with each other, the meeting faces of said dies being adapted to cut and shape the calk; an adjustable plate having a shaping-lug adapted to coact with the said shaping-die, substantially as described.

645,591. COMBINATION-INKSTAND. WILLIAM T. FITZPATRICK, New York, N. Y. Filed Apr. 17, 1899. Serial No. 713,388. (No model.)

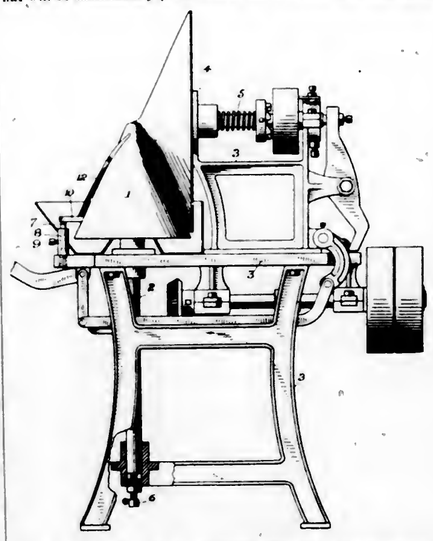


Claim.—A combination device of the class described, comprising a frame consisting of a base portion, three receptacles superimposed therein the lower of which is provided with an upwardly-directed nozzle in which fits a brush, the intermediate of which receptacles is transversely divided to form two reservoirs each of which is provided with an upwardly-directed nozzle and the uppermost of which receptacles is arranged to receive a sponge, a frame consisting of uprights connected with said base and between which said receptacles are superimposed said frame being provided with a top rim, to which is hinged a cover provided with a pincushion, and bail connected with said rim, substantially as shown and described.

645,592. HAT-CLEARING MACHINE. LEWIS R. HEIM, Danbury, Conn. Filed June 29, 1899. Serial No. 722,275. (No model.)

Claim.—1. In a machine for trenching out stiffening compounds from hats, the combination of a rotary cone-support for the hats, means cooperating with said support for accomplishing the trenching-out operation, and a knife lying lengthwise against the surface of said cone and capable of paring the hat therefrom during the rotation of said cone, substantially as set forth.

2. In a machine of the character described, the combination of the rotary cone-support for the hat, with the knife closely conformed to the surface of the cone substantially throughout its length and extending between the hat and cone whereby as the cone revolves the hat will be continuously pared therefrom, substantially as set forth.



3. In a machine of the character described, the combination of the rotary cone-support for the hat, with the stationary knife whose edge is in close contact with the cone substantially throughout the length of the latter and which extends between the hat and the cone at a predetermined point, whereby as the cone revolves the hat will be continually pared therefrom and the surface of the cone cleansed from the stiffening compound, substantially as set forth.

4. In a machine of the character described, the combination of the rotary cone-support for the hat carried by a vertical shaft capable of lengthwise adjustment, with the knife also capable of vertical adjustment and having its edge extending in close contact with said cone throughout substantially the length of the latter, substantially as set forth.

645,593. HAT-IRONING MACHINE. LEWIS R. HEIM, Danbury, Conn. Filed Sept. 16, 1899. Serial No. 730,733. (No model.)

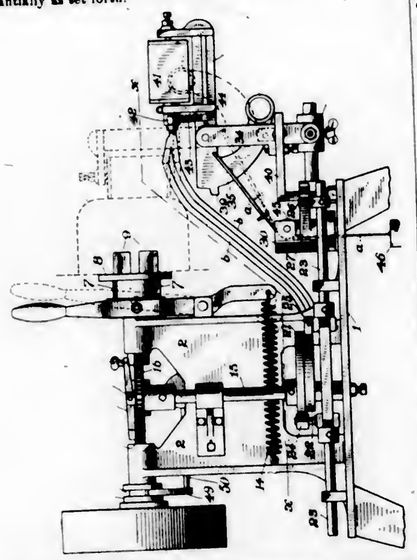
Claim.—1. In a hat-ironing machine, the combination of the hat-iron carriage, the rotary element which supports said carriage, the rod capable of lengthwise reciprocation and carrying friction-rolls, means for imparting rotary reciprocations to said element from said rod, the shaft carrying separate cams which are intermediate of said rolls and operate respectively against the same, and means for applying power to said shaft, substantially as set forth.

2. In a hat-ironing machine, the combination of the rotary carriage, the hat-iron suitably mounted thereon, the rod capable of lengthwise movements and carrying friction-rolls, means intermediate of said carriage and rod whereby the lengthwise reciprocations of the latter are converted into rotary reciprocations of the former, the shaft carrying separate cams which act respectively against said rolls, the worm-wheel carried by said shaft, and the power-shaft carrying a worm which engages said wheel, substantially as set forth.

3. In a hat-ironing machine the combination of the rotary carriage, the hat-iron suitably mounted thereon, the rod capable of lengthwise movements, the friction-rolls carried by said rod in different planes, means intermediate of said carriage and rod whereby the lengthwise reciprocations of the latter are converted into rotary reciprocations of the former, the shaft carrying similar cams one above the other and in abutment respectively with said rolls, and means for applying power to said shaft, substantially as set forth.

4. In a hat-ironing machine, the combination of the rotary post carrying a gear, the link carrying a gear which meshes with the first-named gear, the rod capable of lengthwise movements and loosely connected with said link, means for reciprocating said rod, the crank-pin extended from said post, the standard supported on said pin and capable of a rocking movement, and the iron-carrying frame pivoted to said standard, substantially as set forth.

5. In a hat-ironing machine, the combination of the rotary post carrying a gear and having the pulley journaled therein, the link carrying a gear which meshes with the first-named gear, the hat-iron carriage supported by and moving in harmony with said post, the weighted cord passed over said pulley and having its upper extremity secured to said carriage, and means for reciprocating said link, substantially as set forth.



6. In a hat-ironing machine, the combination of the rotary post carrying a gear and having the pulley journaled therein, the link carrying a gear which meshes with the first-named gear, the rod capable of lengthwise movements and loosely connected with said link, means for reciprocating said rod, the crank-pin extended from said post, the standard supported on said pin and capable of a rocking movement, the iron-carrying frame pivoted to said standard, and the weighted cord passed over said pulley and having its upper end secured to said frame, substantially as set forth.

7. The combination of the rotary post, the crank-pin extending therefrom, the standard pivoted around said pin, the spring-actuated latch-pin carried by said standard, the hat-iron lever pivoted to said standard and having a locking-lug capable of engaging with said latch-pin, and an abutment against which said pin strikes to effect the withdrawal of said latch-pin and the consequent dropping of the hat-iron, substantially as set forth.

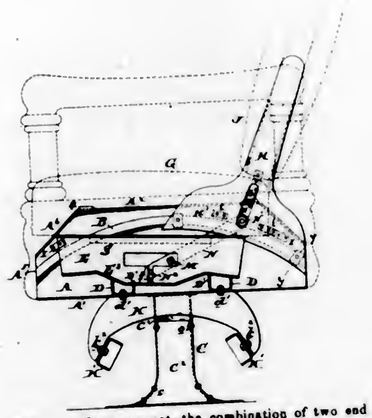
8. The combination of the vertical shaft carrying the operating-cams, the worm-wheel loose around the upper end of said shaft and provided with perforations in its upper face, and the locking-lever pivoted to the upper end of said shaft and provided with pins adapted to engage with said perforations, substantially as set forth.

9. The combination of the power-shaft carrying a worm, the vertical shaft having secured to its lower extremity two separate cams and having loose around its upper end the worm-wheel provided in its upper face with perforations and adapted to engage with said worm, the reciprocatory rod suitably supported and carrying friction-rolls which are engaged by said cams, the rotary system which supports and carries the hat-iron, connections between said rod and system whereby lengthwise reciprocations of the former are converted into rotary reciprocations of the latter, and the locking-lever pivoted to the upper end of said vertical shaft and provided with pins capable of engaging the perforations in said worm-wheel, substantially as set forth.

10. The combination of the power-shaft having the power-pulley loosely mounted thereon, the clutch device splined upon said shaft, the rod capable of lengthwise movements and carrying at one extremity a shoe which is suitably connected with said clutch device, the spring element whereby said rod is operated to normally effect the clutch engagement, the sleeve loose around said rod and having pins extending therefrom, the weight at the end of one of said pins, the worm carried by said power-shaft, the vertical shaft carrying at its upper extremity the worm-wheel adapted to engage with said worm, and the finger depending from said worm-wheel and adapted to strike against said weighted pin to withdraw the clutch from the power-pulley, substantially as set forth.

11. The combination of the power-shaft, the sleeve splined on the outer end thereof and having an annular groove, the operating-lever having connection with said groove, the jaws carried at the end of said shaft, the springs acting against said jaws to normally distend the same, the chuck-head having openings through which said jaws extend, and the wedge-shaped dogs against said jaws and having their extremities extended with said openings, substantially as set forth.

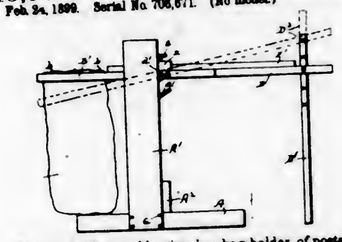
645,594. CAR-SEAT. GEORGE HENDERSON, Philadelphia, Pa., assignor to Henry S. Hale, same place. Filed Mar. 26, 1892. Serial No. 675,213. (No model.)



Claim.—1. In a car-seat, the combination of two end frames formed of sheet metal, two longitudinal metal bars bolted to said end frames, with shifting seat and back supported respectively by said bars and end frames, two depending independent sheet-metal frames extending below and directly connected to the longitudinal bars and each having two downwardly-spreading arms, and two longitudinal foot-rests formed of ribbed metal bars secured to said depending frames below the seat and having a flat surface presented upward.

2. In a car-seat, the combination of an end frame formed of sheet metal, longitudinal bars for securing the end frame in position, a pedestal formed of sheet metal secured to the lower part of the end frame for supporting it and having the inner upper portion cut away, a shifting seat-back supported by and guided on the end frame, a depending frame secured to the bottom of the end frame and close to the inner side of the pedestal and in the cut-away portion thereof, and foot-rest bars supported by the depending frame.

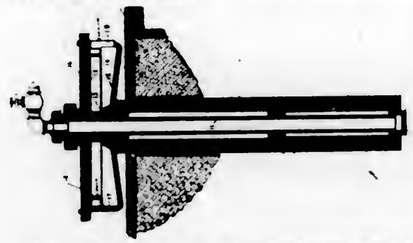
645,595. BAG-HOLDER. JOHN L. HESS, Lancaster, Pa. Filed Feb. 24, 1899. Serial No. 706,671. (No model.)



Claim.—1. The combination, in a bag-holder, of posts having vertical series of sockets therein, a pin removably inserted in a socket of each series, a lever located between the posts, trunnions on the lever and supported by said pins, jaws on the short arm of the lever, means for attaching a bag to the jaws, the long arm of the lever having a slot in its free end and being adapted to uphold the weight of said short arm and of the bag, and a leg hinged in said slot in the long arm of the lever, for the purpose specified.

2. The combination, in a bag-holder, of posts having vertical series of sockets therein, a pin removably inserted in a socket of each series, a lever located between the posts, trunnions on the lever and supported by said pins, jaws on the short arm of the lever, means for attaching a bag to the jaws, the long arm of the lever having a slot in its free end and being adapted to uphold the weight of said short arm and of the bag, a leg hinged in said slot in the long arm of the lever, a rail extending lengthwise of the lever, a weight adjustable lengthwise of said rail, and means for securing the weight in an adjusted position, substantially as and for the purpose specified.

645,596. OIL-SPRAYER FOR GAS-GENERATORS. JOHN P. JOHNSTON and EDWARD H. MORRELL, Oak Park, Ill. Filed Oct. 12, 1898. Serial No. 693,298. (No model.)

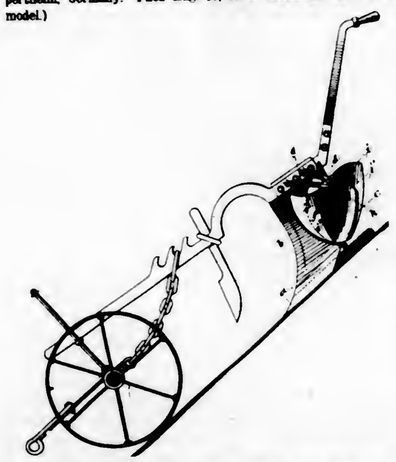


Claim.—1. In a gas apparatus, the combination with the generating or carbureting chamber thereof and an oil-supply pipe entering said chamber having a nozzle at one end, of fluid-pressure-operated mechanism at the supply end of said pipe for rotating it, and means for preventing the actuating fluid from entering said pipe and said chamber, substantially as described.

2. In a gas apparatus, the combination with the generating or carbureting chamber thereof, of an oil-supply pipe entering said chamber, a nozzle thereon, fluid-pressure-operated mechanism outside said chamber for rotating said nozzle, and means for preventing the actuating fluid from entering said pipe and said chamber, substantially as described.

3. In a gas apparatus, the combination with the generating or carbureting chamber thereof, of an oil-supply pipe entering said chamber and provided with a nozzle, a casing outside said chamber provided with inlet and exhaust passages for fluid under pressure, a rotary wheel mounted in said casing secured to said pipe, and provided with wings or blades adapted to be acted upon by the fluid entering said casing, and means for preventing said fluid under pressure from entering said supply-pipe and said chamber, substantially as described.

645,597. PLOW. FRIEDRICH KELLER and ANDREAS KEIL, Lampertheim, Germany. Filed Aug. 10, 1899. Serial No. 726,754. (No model.)



Claim.—In a field-plow, the combination of a plowshare a freely-movable screw-cultivator which acts as a moldboard for the plow and is rotated by the action of soil thereon to thoroughly disintegrate and mix the soil passing from the plowshare, said screw-cultivator comprising a plurality of concavo-convex blades rotatable around a shaft mounted at an angle of substantially thirty degrees to a horizontal plane, and arranged spirally around said shaft, each of said blades being tapered from the upper to the lower end thereof, substantially as and for the purposes specified.

645,598. KNEE-BRACE FOR BICYCLES, &c. OTTO KNEUSEL, Chicago, Ill. Filed Mar. 17, 1899. Serial No. 709,455. (No model.)

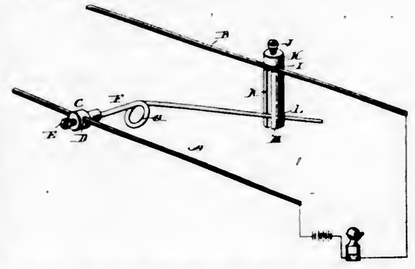


Claim.—1. In a device for preventing lateral deflection of the rider's knees, the combination with a velocipede of a pair of arms pivoted thereto and held against side deflection, said arms being movable in a vertical arc and means on said arms for embracing the knees of the rider and holding them against lateral movement with relation to the arms, substantially as set forth.

2. The combination of a velocipede of a pair of knee-braces attached thereto and consisting of a pair of pivoted arms, a pair of clips for embracing the knees and a sliding connection between said arms and clips, substantially as set forth.

3. The combination with a velocipede having a saddle-post, of the clip 3 clamped upon said post, pintles projecting from said clip, arms pivoted on said pintles respectively and projecting forwardly, knee-clips carried by said arms, and springs for returning said arms to a horizontal position, substantially as set forth.

645,599. AUTOMATIC FIRE-ALARM. CHARLES LAW, Pittston, Pa. Filed May 29, 1899. Serial No. 718,707. (No model.)



Claim.—1. In an automatic fire-alarm, a connector having a spring-arm integral therewith, a binding-post having a slot and notches, of the arm engaging the slot, and a fusible-metal plug in one of the notches adapted to compress the arm, substantially as shown and described.

2. In an automatic fire-alarm, a connector having a spring-actuated arm integral therewith, a binding-post having a slot and notches therein, of the arm engaging the slot, and a fusible-metal plug in one of the said notches adapted to retain the arm in a compressed position, substantially as shown and described.

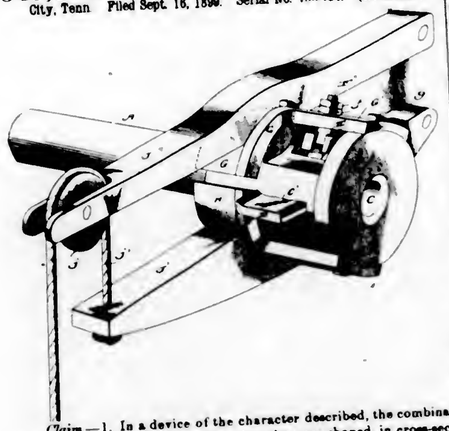
3. In an automatic fire-alarm, the combination, of a connector having a notch therein adapted to receive one of the terminals, a thumb-screw for retaining the said terminal in place and a spring-arm, of a binding-post having a notch approximately near each end, a longitudinal slot connecting the said notches, of a thumb-screw for securing the other terminal in the upper notch, of a fusible-metal plug in the lower notch, of the said arm engaging the said slot, and adapted to be held down by the said plug, substantially as shown and for the purpose set forth.

645,600. DETERGENT COMPOUND. AUGUST LUHN, Barmen, Germany. Filed May 6, 1895. Serial No. 548,267. (No specimens.)

Claim.—As an improved article of manufacture, the combination of a detergent composition comprising soap divided into flakes or shreds, and containing a cleansing auxiliary of a volatile nature, such as turpentine or sal-ammoniac, of a coating for the same comprising powdered soap adhered thereto, whereby pores of the flakes

or shreds are closed against the volatilization or evaporation of the turpentine or sal-ammoniac, substantially as described.

645,601. WOOD-TURNING MACHINE. HENRY MAYERS, Union City, Tenn. Filed Sept. 16, 1899. Serial No. 730,731. (No model.)



Claim.—1. In a device of the character described, the combination, with a chuck-head, of a bearing-plate arc-shaped in cross-section loosely secured to and partially embracing said head, a bit secured to the plate and projecting into a lateral passage in the chuck-head, and means normally mounted on and bearing upon said plate for imparting lateral movement thereto and to the bit while revolving, substantially as described.

2. In a device of the character described, the combination, with a chuck-head, of a plate arc-shaped in cross-section pivoted to, and partially embracing, said head, a tapered end to said plate, a bit secured to the plate and projecting into a lateral passage within the head, a spring intermediate said plate and the head, and means mounted on and bearing upon the tapered portion of the plate for compressing the same and forcing the bit inward during the operation of the chuck, substantially as described.

3. In a device of the character described, the combination, with a chuck-head, of a plate arc-shaped in cross-section pivoted to, and partially embracing, said head, a tapered end to said plate, a bit secured to the plate and projecting into a lateral passage within the head, a similar plate loosely secured to the opposite side of the chuck-head, springs intermediate the tapered ends of said plates and the head, and means mounted upon said tapered ends for compressing the plates and forcing the bit inward during the operation of the chuck, substantially as described.

4. In a device of the character described, the combination, with the chuck-head, of plates loosely mounted thereon at opposite sides thereof and adapted to inclose the head, rear end portions of said plates arc-shaped in cross-section and embracing the rear end of the chuck-head, a bit secured to one end of said plates and projecting into a lateral passage within the head, and a clamp as described bearing upon the arc-shaped portion of the plates and adapted to press the same, with the bit, inward, when desired, during the operation of the chuck, substantially as described.

5. In a device of the character described, the combination, with the chuck-head, of plates loosely mounted thereon at opposite sides thereof, rear end portions of said plates arc-shaped in cross-section and embracing the solid rear end of the chuck-head, springs intermediate said arc-shaped portions of the plates and the head, said arc-shaped portions tapered rearwardly, a bit secured to one of the plates and projecting into a lateral passage within the chuck-head, a clamp inclosing and bearing upon the tapered portion of the plates, and means for operating said clamp, whereby the plates and the bit are forced inward as desired during the operation of the chuck, substantially as described.

6. In a device of the character described, the combination, with a chuck-head having a socket or work-receiving recess and a solid rear portion, of plates arc-shaped in cross section and loosely secured, at one end, to said chuck-head, enlarged tapered ends to said plates adapted to inclose the solid portion of the chuck and forming a bearing for a clamp, as described, mounted thereon, and a bit secured to one of the plates and projecting into a lateral passage within the chuck-head, substantially as described.

7. In a device of the character described, the combination, with a chuck-head having arc-shaped plates loosely secured thereto at one end, springs between said plates and head, and a bit secured to one of the plates, of a clamp bearing upon said plates and comprising an upper and a lower cross-piece, pivoted as described, and means for operating said cross-pieces toward each other, substantially as and for the purpose described.

8. In a device of the character described, the combination, with a chuck-head, of arc-shaped plates loosely secured thereto at one end, springs intermediate the head and plates, an enlarged tapered end to each plate, a pivoted cross-piece mounted on said tapered end, and having a pulley therein, a second pivoted cross-piece bearing upon the lower tapered plate and a rope or cord secured to said cross-piece and mounted on the pulley, for the purpose and substantially as described.

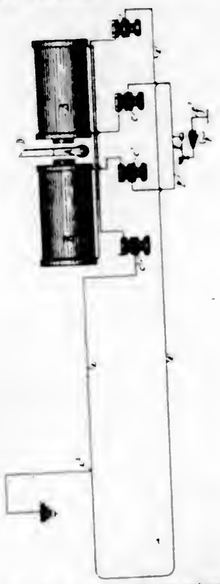
645,602. HORSESHOE-CALK. JOHN W. MILLER, Muhlenberg, Pa. Filed June 7, 1899. Serial No. 719,696. (No model.)



Claim.—1. In a device of the class described, the combination of a horseshoe having a smooth tapered opening, a calk having a round shank and having a shoulder, and a split compressible sleeve having smooth inner and outer faces and provided with a cylindrical bore or opening for the reception of the shank of the calk, said sleeve being exteriorly tapered to be driven into the tapering opening of the horseshoe and capable of being readily removed therefrom without detaching the said shoe, substantially as described.

2. In a device of the class described, the combination of a horseshoe having a tapered opening, a calk consisting of a head and a shank of less diameter than the head, and a split compressible sleeve having smooth inner and outer faces and receiving the said shank and being exteriorly tapered to engage the opening of the horseshoe, said sleeve being provided with a flange 9 projecting beyond the calk and having a boss at its inner or upper face, whereby it is offset from the horseshoe, substantially as described.

645,603. DEVICE FOR LOCATING GROUNDS ON ELECTRIC CIRCUITS. MATTHEW J. MYERS, Syracuse, N. Y. Filed June 17, 1898. Serial No. 596,912. (No model.)



Claim.—1. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator for determining the position of the ground, oppositely-acting magnetizing members for moving the indicator in different directions, said members being connected respectively to the branches or limbs of the circuit, and a source of electric energy connected to the ground and to both magnetizing members, substantially as and for the purpose described.

2. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator for determining the position of the ground, oppositely-acting magnetizing members for moving the indicator in different directions, said members being connected respectively to the branches or limbs of the circuit, a source of electric energy connected to the ground and to both magnetizing members, and an adjuster for varying the position of the indicator, substantially as and for the purpose specified.

3. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator, oppositely-acting magnetizing members for moving the indicator in different directions, means for respectively connecting the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, and means for connecting said source of electric energy to both magnetizing members and thereby passing a current through the same simultaneously, substantially as and for the purpose specified.

4. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator, oppositely-acting magnetizing members for moving the indicator in different directions, said members having corresponding ends connected together, means for respectively connecting the opposite ends of the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, and a switch connected to said source of electric energy and to the connection between said members, substantially as and for the purpose set forth.

5. In a device for locating an unknown ground on a metallic electric circuit, the combination of a scale, an indicator movable along the scale, oppositely-acting magnetizing members for moving the indicator in different directions, means for respectively connecting the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, and means for connecting said source of electric energy to both magnetizing members and thereby passing a current through the same simultaneously, substantially as and for the purpose described.

6. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator, an armature movable in a substantially-horizontal plane for actuating the indicator, magnetizing members, as magnets, arranged on opposite sides of the armature for moving the indicator in different directions, means for respectively connecting the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, and means for connecting said source of electric energy to both magnetizing members and thereby passing a current through the same simultaneously, substantially as and for the purpose set forth.

7. In a device for locating an unknown ground on a metallic electric circuit, the combination of an indicator, an armature movable in a substantially-horizontal plane for actuating the indicator, magnetizing members, as magnets, arranged on opposite sides of the armature for moving the indicator in different directions, means for respectively connecting the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, means for connecting said source of electric energy to both magnetizing members and thereby passing a current through the same simultaneously, and an adjuster for varying the position of the armature, substantially as and for the purpose described.

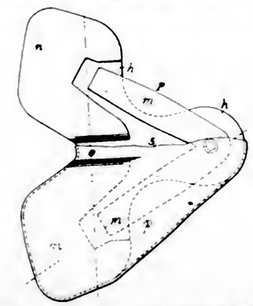
8. In a device for locating an unknown ground on a metallic electric circuit, the combination of a scale, an indicator movable along the scale, and having an armature fixed thereto, magnetizing members, as magnets, arranged on opposite sides of the armature for moving the indicator in different directions, means for respectively connecting the magnetizing members to the branches or limbs of said circuit, a grounded source of electric energy, and means for connecting said source of electric energy to both magnetizing members and thereby passing a current through the same simultaneously, substantially as and for the purpose set forth.

645,604. SADDLE OR SEAT. ROBERT PLATZ, Friedenau, and ARTHUR SPERLING, Berlin, Germany. Filed Aug. 7, 1899. Serial No. 726,459. (No model.)

Claim.—1. A seat comprising a seat-plate and flat arched springs mounted thereon to form bearings for the seat protuberances of a person, and so that said springs cannot be depressed below the upper face of the plate by the load imposed thereon and a suitable seat-cover, for the purpose set forth.

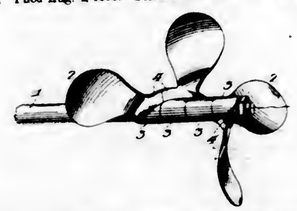
2. A seat comprising a seat-plate recessed centrally and longitudinally from its rear toward its forward end, and arched leaf-springs mounted on and diverging from the forward end of said plate so as to form bearings for the seat protuberances of a person and a suitable seat-cover, for the purpose set forth.

3. A seat comprising a seat-plate divided by a longitudinal recess and of reduced diameter toward its forward end, and provided with recesses *p*, in combination with flat arched springs connected to the forward end of the plate and extending over said recesses, and seat-blocks at the rear end of the plate one on either side of the aforesaid longitudinal recess, said blocks sloping toward the forward end of the plate, substantially as and for the purpose set forth.



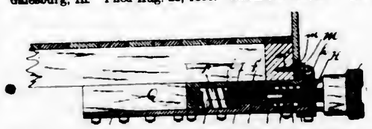
4. A seat comprising a seat-plate wider at its rear end than at its forward end, and provided with a recess *p* in its opposite edges, the rear wider portion of the plate constructed to form diverging wings with a depression or recess between them, forwardly-sloping non-elastic seat-blocks secured to said wings, and arched flat springs extending rearwardly from the forward end of the plate on opposite sides and partly bridging the aforesaid recesses and a suitable seat-cover, for the purpose set forth.

645,605. SCREW-PROPELLER. WILLIAM E. PUGSLEY, Lincoln, Nebr. Filed Aug. 4, 1899. Serial No. 726,082. (No model.)



Claim.— A propeller comprising a series of individual blades arranged to rotate in different planes and provided with independent hubs formed with spiral shoulders, the shoulder on the one hub forming a spiral continuation of the shoulder on the contignous hub or hubs and the reduced shank of each blade forming a continuation of its contiguous shoulder, substantially as shown and described.

645,606. DRAFT-GEAR FOR CAR-COUPLINGS. JOHN RAWLS, Galesburg, Ill. Filed Aug. 25, 1899. Serial No. 728,464. (No model.)



Claim.—1. The combination with a pair of parallel draft-arms secured to the frame of a car, of a draw-bar located between said draft-arms, springs arranged in the draft-arms, a key passing through the draft-arms between the springs therein and through the draw-bar, and means for simultaneously compressing the springs on opposite sides of the key, substantially as described.

2. The combination with a pair of parallel draft-arms secured to the frame of a car, of a pair of springs arranged within each of said arms, a plunger within each of said arms, a draw-bar supported between the arms and a key extending transversely through the two draft-arms and between the springs in each arm and through the plungers and rear end of the draw-bar, substantially as described.

3. The combination with a pair of draft-arms secured to the frame of a car, of a draw-bar supported between said draft-arms, a key passing transversely through the arms and the draw-bar, springs arranged on each side of said key and plungers operating in the draft-arms and connected with said key to compress the springs in front of the key when the draw-bar moves inward, and simultaneously compressing the springs in rear of the key, substantially as described.

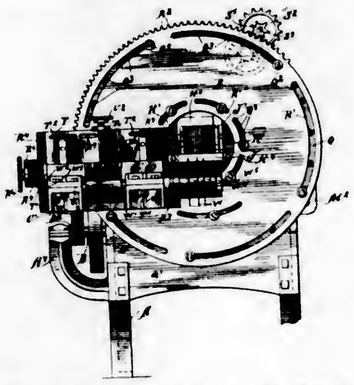
4. The combination with a pair of parallel draft-arms secured to the frame of a car, of a draw-bar supported between said arms, a key passing transversely through the arms and the draw-bar, springs arranged in the arms in front of said key and springs arranged within said arms behind the key and means connected with the key to simultaneously compress the front and rear springs when the draw-bar moves inward, substantially as described.

5. The combination with a pair of draft-arms secured to the frame of a car, of a draw-bar supported between said arms, front springs and rear springs located within the arms, plungers extending through the front springs and provided with links on their rear ends and a key passing through the draft-arms, the links and the draw-bar, substantially as described.

6. The combination with a pair of draft-arms secured to the frame of a car, of a draw-bar provided with a coupling-head and supported between said arms, lugs on said coupler-head, a key passing through the draft-arms and the draw-bar, springs arranged within the arms in front of the key and plungers extending through the front ends of the draft-arms in line with the lugs on the coupler-head and provided with collars to engage the springs within said arms, substantially as and for the purpose described.

7. The combination with a pair of draft-arms secured to the frame of a car, of a draw-bar supported between said arms, a plunger arranged within the forward end of each draft-arm, a link connected with each plunger, a key passing transversely through the draft-arms, the links and the draw-bar, a spring on each plunger and a spring at the rear end of each link, substantially as described.

645,607. SAWING-MACHINE. CHARLES E. SANDSTROM, Chicago, Ill. Filed Oct. 2, 1897. Serial No. 653,847. (No model.)



Claim.—1. In a feeding mechanism for a sawing-machine, the combination of the shaft, B, the belt-wheel, B', and the pinion, B^3, with the shaft, C, mounted in suitable bearings and carrying the gear-wheel, C', and the pinion, C^3, the shaft, E, mounted in suitable bearings and carrying the pinion, E', the frames, C^2 and E^2, mounted upon the shafts, C and E, respectively, and the shafts, F and G, mounted in the frames, C^2 and E^2, respectively, and carrying the pinions, F' and G', and the feed-rolls, F^3 and G^3, respectively, and the set-screws, C^7 and E^6, suitably mounted in connection with said frames, C^2 and E^2, substantially as and for the purpose described.

2. In a guiding mechanism for woodworking machinery, the plates J arranged side by side and capable of individual adjustment vertically to accommodate material of any desired cross-section, and capable of individual adjustment longitudinally to bring some of them close to the cutting-tool to support the material in immediate proximity thereto, with means for holding them in their adjusted positions.

3. In a guiding mechanism for woodworking machinery, the plates J arranged side by side and capable of adjustment in one direction to accommodate material of any desired cross-section, and in another direction to bring some of them close to the cutting-tool to support the material in immediate proximity thereto, and having their ends adjacent to said tool reduced, with means for holding them in their adjusted positions.

4. In a guiding mechanism for woodworking machinery, the plates J arranged side by side and capable of adjustment in one direction to accommodate material of any desired cross-section, and capable of longitudinal adjustment to bring some of them close to the cutting-tool to support the material in immediate proximity thereto, with means for holding them in their adjusted positions, and stops to limit their longitudinal adjustment to prevent too near an approach to the cutting-tool.

5. In a guiding mechanism for woodworking machinery, the plates J arranged side by side and capable of individual adjustment in one direction to accommodate material of any desired cross-section, and capable of individual longitudinal adjustment to bring some of them close to the cutting-tool to support the material in immediate proximity thereto, and having their ends adjacent to said tool reduced, with means for holding them in their adjusted positions, and stops cooperating with the shoulders formed by the reduced portions to limit the longitudinal adjustment of the plates to prevent too near an approach to the cutting-tool.

6. In a guiding mechanism for sawing-machines, the combination of the plates, J, capable of being adjusted to accommodate material of any desired cross-section, with means for holding said plates in their adjusted positions, and the plates, J', capable of adjusting themselves upon and being supported by the material, and the plates, J.

7. In a guiding mechanism for sawing-machines, the combination of the plates, J, capable of being adjusted to accommodate material of any desired cross-section, with means for clamping and holding said plates in any position to which they may be adjusted, the plates, J', supported by the material and by the plates, J, and mechanism for holding said plates, J', above the material and the plates, J, so as to permit of the vertical and independent movement of said plates, J', as may be desired.

8. In a machine of the class described, the combination of the cutting-tool, with a yielding support for the work in proximity thereto composed of a series of plates J arranged side by side and provided with means for automatically elevating them to accommodate them to material of any desired cross-section, and means for feeding the work over the yielding support and to the cutting-tool.

9. In a machine of the class described, the combination of the cutting-tool, with a yielding support for the work in proximity thereto, composed of a series of plates J arranged side by side and provided with means for automatically elevating them to accommodate them to material of any desired cross-section, together with the plates J' similar to the plates J but located above the work and capable of adjustment to accommodate them to the cross-section of the work passing beneath them, and means for feeding the work between the two series of plates, substantially as described.

10. In a guiding mechanism for sawing-machines, the combination of the guide-plates arranged side by side and capable of being adjusted to accommodate material of any desired cross-section, with the pivoted plates cooperating therewith and capable of automatically elevating said guide-plates, and means for holding said pivoted plates in a non-operative position.

11. In a guiding mechanism for sawing-machines, the combination of the guide-plates arranged side by side and capable of being adjusted to accommodate material of any desired cross-section, with the pivoted plates cooperating therewith and capable of automatically elevating said guide-plates, and the cam for holding said pivoted plates in their non-operative position and for releasing said plates.

12. In a guiding mechanism for sawing-machines, the combination of the plates, J, capable of being adjusted to accommodate material of any desired cross-section, with the plates, K and L, pivoted beneath said plates, J, and normally held in a non-operative position, the plates K and L, being so shaped that in this non-operative position the plates, L, are sustained by the plates, K, and means for holding the plates, K, in said non-operative position and for releasing said plates, K.

13. In a guiding mechanism for sawing-machines, the combination of the plates, J, the rods, H^4, for supporting said plates, with the elongated plates, K and L, pivoted beneath said plates, J, and means for holding said plates, K and L, in a non-operative position and for releasing said plates.

14. The guiding mechanism for a sawing-machine, comprising the plates, J, arranged side by side and capable of being adjusted to accommodate material of any desired cross-section, the cross-piece, H^3, cooperating with the guide-plates, J, to prevent their movement beyond a certain position, and the pins cooperating with apertures in said plates to hold them in another position, substantially as described.

15. In a guiding mechanism for a sawing-machine, the combination of the plates, J', with the yoke, P, having the jaws, P', cooperating with the plates, J', and means for clamping said jaws upon said plates consisting of the bolt P^3 passing through the sides of the yoke in proximity to the jaws P'.

16. In a guiding mechanism for a sawing-machine, the combination of the plates, J, with the yoke, P, having the jaws, P', cooperating with the plates, J', means for clamping said jaws upon said plates, consisting of the bolt P^3 passing through the sides of the yoke in proximity to the jaws P' and mechanism for raising or lowering said yoke as may be desired.

17. In a guiding mechanism for a sawing-machine, the combination of the plates, J', with the yoke, P, having the jaws, P', cooperating with the plates, J', means for clamping said jaws upon said plates, consisting of the bolt P^3 passing through the sides of the yoke in proximity to the jaws P' and mechanism for raising and lowering said yoke as may be desired comprising the hand-wheel, P^4, and the screw, P^5, cooperating with the lug, P^6, substantially as and for the purpose described.

18. In a sawing-machine, the combination of the guiding mechanism, with the saw angularly adjustable relative to said guiding mechanism, and the spreading-arm, Z, also angularly adjustable relative to said guiding mechanism and independently of the adjustment of the saw.

19. A sawing-machine comprising the feeding mechanism, having a pair of cooperating rollers, and means for adjusting said feeding-rollers in any desired position and at any desired distance apart; with the guiding mechanism adjustable to accommodate material of any desired cross-section, and the saw adjustable at any desired angle relative to said guiding mechanism.

20. A sawing-machine comprising the feeding mechanism, having a pair of cooperating rollers, and means for adjusting said feeding-rollers in any desired position and at any desired distance apart; with the guiding mechanism adjustable to accommodate material of any desired cross-section, and the saw adjustable at any desired angle relative to said guiding mechanism and tangentially relative to said angular adjustment.

21. A sawing-machine comprising the feeding mechanism, having a pair of cooperating rollers, and means for adjusting said feeding-rollers in any desired position and at any desired distance apart; with the guiding mechanism comprising a series of plates adjustable to accommodate material of any desired cross-section; and the saw adjustable at any desired angle relative to said guiding mechanism and radially relative to said angular adjustment.

22. A sawing-machine comprising the feeding mechanism, having a pair of cooperating rollers, and means for adjusting said feeding-rollers in any desired position and at any desired distance apart; with the guiding mechanism comprising a series of plates adjustable to accommodate material of any desired cross-section; and the saw adjustable at any desired angle relative to said guiding mechanism and radially and tangentially relative to said angular adjustment.

645,608. DENTAL PLUGGER. CHARLES SCHAKE, Jr., Davenport, Iowa. Filed Mar. 2, 1899. Serial No. 707,446. (No model.)



Claim.—1. In a dental plugger, the combination with a case, of a spring-returnable tool-holder, a spring-actuated hammer provided at its rear end with a blind bore, a rotary spindle having in its forward portion a spiral groove, said forward grooved portion extending into the bore of the hammer, devices carried by the hammer and extending through an aperture therein, which normally enter the groove in said spindle to raise the hammer, and means for releasing the hammer when raised, substantially as set forth.

2. The combination with a suitable case, of a tool-holder mounted in the forward end of the same, a non-rotary spring-actuated hammer having a blind bore in the rear end thereof, a rotary spindle having in its forward portion a spiral groove, said forward, grooved portion extending into the bore of the hammer, a pawl pivoted to the exterior of said hammer and having an inturned end extending through an aperture in the hammer and normally engaging the spiral groove, whereby the rotation of said spindle operates to retract the hammer, and means for releasing the pawl from engagement with the groove when the hammer is fully retracted, substantially as set forth.

3. In a dental plugger, the combination with a case and a tool-holder mounted therein, of a spring-actuated reciprocating hammer, means for directing its movements, a rotary spindle having a spiral groove therein, a two-armed pawl pivotally mounted on the hammer provided at the end with a nose normally engaging said spiral groove, whereby the rotation of the spindle operates to retract the hammer, and having its other arm free, and devices carried by the case arranged to engage the free arm of the pawl when the hammer is retracted, to depress the said free arm and release the hammer, substantially as set forth.

4. In a dental plugger, the combination with a case having a bearing-head near the rear end thereof, said head having its forward end inversely beveled, of a spring-returnable hammer mounted to reciprocate in the forward end of the case, a non-rotary, spring-actuated hammer having a recess in the rear end thereof, a rotary spindle journaled in said head and having a spiral groove in its forward end, said spindle extending into the recess in the hammer, a pawl pivotally mounted on the exterior of said hammer provided at its forward end with an inturned nose normally engaging the spiral groove in the spindle, whereby the rotation of the spindle operates to retract the hammer, and having its other arm extending rearwardly a sufficient distance to engage the beveled edge of the head when the hammer is fully retracted, whereby the nose of the pawl is disengaged from the groove and the hammer released, substantially as set forth.

5. The combination with a case, a guide-head in the rear end thereof, the forward end of which is inversely beveled and a tool-holder, of a spring-actuated reciprocating hammer having a bore in the rear end thereof, a rotary spindle journaled in said head the forward portion of which enters the bore in the hammer and has a spiral groove therein, a pawl pivotally connected to the exterior of the hammer, the forward inturned end of which enters and engages said groove to retract the hammer, and the rear end of which is extended a suitable distance beyond the hammer, and devices for holding said pawl out of engagement with said spindle to intermit the action of the hammer.

6. The combination with a shell A having a circumferentially-elongated slot *v* therein, a band *s* and suitable devices connected thereto which extend through said slot, a rotary spindle having a spiral groove in the forward portion thereof, a non-rotary spring-actuated hammer having a bore in its rear end into which the grooved end of the spindle extends, a spring-actuated pawl pivotally connected to the exterior of said hammer, the forward inturned end of which enters and engages the groove in the spindle to retract the hammer, and the rear end of which is extended longitudinally a suitable distance and is adapted to be engaged by devices carried by said band *s* and projecting through the slot *v*, and a spring-returnable tool-holder, substantially as set forth.

7. In a dental plugger, the combination with a case, of a hammer mounted therein, means for operating said hammer, means for limiting its range of movement, a tip connected with the case, a tool-holder carried by the tip, adjusting devices for adjusting said tip and tool-holder relative to the hammer and means for locking said tip in adjusted position, substantially as set forth.

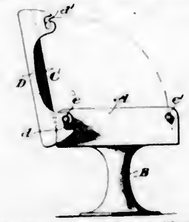
8. The combination with a suitable case, exteriorly and interiorly screw-threaded near its forward end, the portion between said threaded part and the end being exteriorly tapered and longitudinally slit, a suitably-shaped lock-nut engaging said threaded and tapered portions, a spring-actuated reciprocating hammer, and means for actuating the same, of a tip K having a tubular shank, a longitudinally-yielding tool-holder in said tip, a cap closing the end of the shank and provided with a guide-opening for the hammer, an adjusting-sleeve M surrounding the shank between said cap and a shoulder *m* on the tip, the rear end of which is exteriorly threaded to engage the interior screw-thread in the forward end of the shell; substantially as set forth.

9. In a dental plugger, the combination with a suitable shell, a guide-head in the rear end thereof having a bore therethrough the forward portion of which is increased in diameter and the forward end of which is inversely beveled, a revolving spindle journaled in

said head provided with a collar arranged adjacent to the bearing and within the enlarged bore, lock-nuts *d* on the spindle above said head, and a flexible connection D' connecting said spindle to a suitable engine-shaft, of a spring-actuated, reciprocating hammer and devices through the medium of which the said spindle actuates said hammer, and a spring-returnable tool-holder, substantially as set forth.

10. In a dental plugger, the combination with a suitable shell having an inwardly-projecting spline, *a*, a guide-head in the upper end thereof the lower end of which is inversely beveled, a revolving spindle journaled in said guide-head, having a spiral groove in the lower portion thereof, a cylindrical hammer F having a blind bore in the rear portion thereof and having guide-lugs projecting exteriorly therefrom on each side of said spline and having a central portion of increased diameter, a pawl G pivoted to the exterior of said hammer having its forward end inturned and extending through the adjacent wall of the same to normally enter and engage said groove, and the rear arm of which is extended longitudinally a suitable distance beyond the rear end of the hammer, a retaining-nut I, and a spring *h*, of a tip K adjustable longitudinally in the lower end of the shell having a tubular shank *k*, a cap J screwed over the upper end of said shank, and a spring-returnable, reciprocating tool-holder, in said tip, substantially as set forth.

645,609. REVERSIBLE SEAT. WILLIAM L. SCHELLENBACH, Philadelphia, Pa., assignor to the Hale & Kilburn Manufacturing Company, same place. Filed July 22, 1899. Serial No. 724,773. (No model.)



Claim.—1. In a seat structure, the combination of a seat-cushion frame, a reversible seat-back, fulcra and fulcrum-seats between one side of the cushion frame and one side of the seat-back, and independent fulcra and fulcrum-seats between the other side of the seat-cushion frame and the other side of the seat-back, the distance between the fulcra of one member being substantially equal to the distance between the fulcrum-seats of the other member, whereby in reversing the seat-back, it is supported upon one set of fulcra and fulcrum-seats until the other set of fulcra and fulcrum-seats are brought into engagement and the seat-back is thereby transferred directly from one set of fulcra and fulcrum-seats to the other.

2. In a seat structure, the combination of a seat-cushion frame, a reversible seat-back, a disconnectible pivotal connection between one side of the seat-cushion frame and one side of the seat-back, a hinge connection between that side of the seat-cushion frame and the opposite side of the seat-back, and a support for the end of said hinge connection at the other side of the seat-cushion frame adapted to support said hinge connection when the seat-back is reversed.

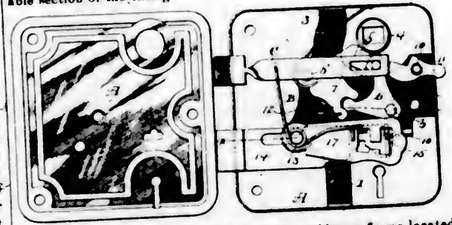
3. In a seat structure the combination of the seat-cushion frame, the seat-back, the pins *c* at the ends of the seat-cushion frame on one side, the notches *d* at one side of the seat-back adapted to engage the pins *c*, the links E between the pins *c* and the opposite side of the seat-back, and the lugs *g* on the seat-cushion adapted to support the links E.

4. In a seat structure the combination of the seat-cushion frame, the seat-back, the pins *c* at the ends of the seat-cushion frame on one side, the bayonet-notches *d* at one side of the seat-back and adapted to engage the pins *c*, the links E between the pins *c* and the opposite side of the seat-back and connected with the seat-back by a pin-and-slot connection, and the lugs *g* on the seat-cushion adapted to support the links E.

5. In a seat structure, the combination of the seat-cushion frame, the reversible seat-back, a disconnectible pivotal connection between one side of the seat-back and one side of the seat-cushion frame, links between the seat-cushion frame and the opposite side of the seat-back, and supports for said links adjacent to the other side of the seat-cushion frame.

645,610. LOCK AND LATCH. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Jan. 15, 1900. Serial No. 1,537. (No model.)

Claim.—1. The combination with a casing of a spider or skeleton frame bearing at intervals against the edges of the casing and provided with bent ends forming guides and abutments for the removable section of the casing.



2. The combination with a casing, of a spider or frame located within the casing, posts rigidly secured to the spider and riveted to the casing, the said spider or frame adapted to carry the working mechanism of the lock or latch.

3. The combination with a casing, of a spider or frame located within the casing and carrying the working mechanism of the lock or latch, the said spider or frame having bent ends which form guides and supports for the removable section of the casing.

4. The combination with a casing, of a spider or frame riveted to the casing and carrying the working mechanism of the lock or latch.

5. The combination with a stamped or struck-up casing, of a spider or frame riveted thereto and carrying the working mechanism of the lock or latch.

645,611. RADIATOR. OSCAR B. WAIT, Springfield, Vt., assignor of one-half to William H. H. Black, same place. Filed Feb. 26, 1899. Serial No. 706,814. (No model.)



Claim.—1. A radiator consisting of a casing having influent and effluent openings, a series of closely-arranged cross-tubes within said casing dividing the passage therethrough into two longitudinal passages and dampers at the effluent and influent ends adapted to close the passage on either side of said series of cross-tubes, substantially as described.

2. In a radiator, a cross-tube having a locked longitudinal seam, and a damper having a folded edge 18 locked within the said longitudinal seam, substantially as described.

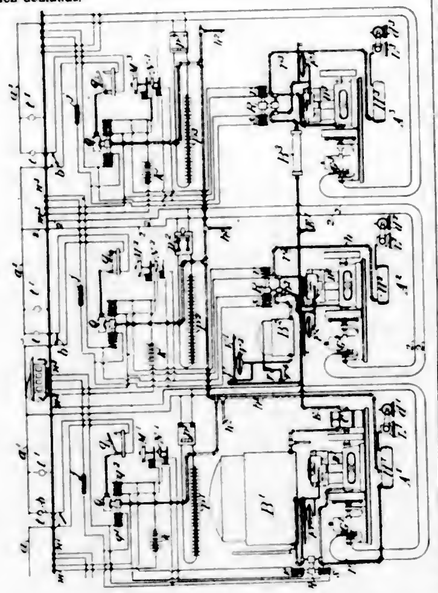
3. The combination of a radiator-casing having two longitudinal passages therethrough, with a damper centrally arranged at one end thereof and adapted to open one of said passages and close the other, and vice versa, substantially as described.

645,612. METHOD OF DISTRIBUTING ENERGY. GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Jan. 11, 1899. Serial No. 701,846. (No model.)

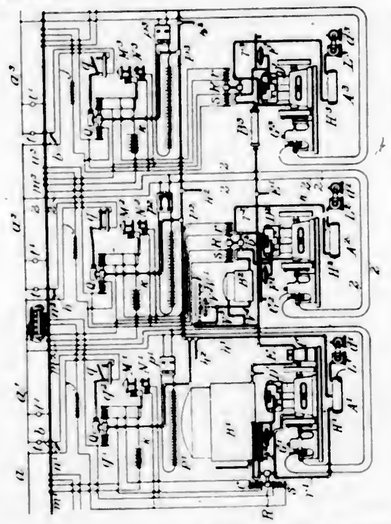
Claim.—1. The hereinbefore-described method of supplying electric current to subdivided electric circuits which consists in supplying locally-generated currents to the respective sections and temporarily supplying any section with currents through one or more adjacent sections when the demand for current upon such given section exceeds the normal output of the corresponding generator.

2. The method of operating a long-distance electric railway which consists in supplying electric current by local generators to different sections of the electric railway, automatically indicating at the said generators the electrical demands upon the several sections, and operating the said generators in correspondence to such demands.

3. The method of operating a long-distance electric railway, which consists in supplying electric current by local generators to different sections of the electric railway, conveying energy to the said generators from a common source of power, indicating at each generator the electrical demands upon the particular section which it supplies, and tapping the said power source in correspondence to such demands.



645,613. APPARATUS FOR DISTRIBUTING ENERGY. GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Nov. 13, 1899. Serial No. 736,768. (No model.)



Claim.—1. A combined gas and electric system of distribution for electric-railway service consisting of an electric-supply conductor for the railway, a series of electric generators located at intervals along the line of said railway, a gas-engine for driving each of said generators, a general gas-supply system for furnishing gas to all of said gas-engines, and indicating or signaling devices for indicating at the respective generators, the approach and departure of trains, upon the railway.

2. In a system of distribution, the combination at a subetation, for supplying electric energy to a portion of the system, of one or more electric generators, one or more gas-engines for driving the same, signaling-circuits extending from points upon the system in the vicinity of said substations for indicating at the substations when the demand for current exceeds and when it falls below predetermined limits, and local storage batteries and compressed-air reservoirs adapted to be charged by said generators.

3. In a system of distribution for electric railways, the combination of a main gas-supply station and substations for generating electricity, one or more gas-engines at each substation and corresponding electric generators actuated thereby; a signaling device leading from a point distant from each of said stations for indicating at the respective stations the approach of trains, a storage battery at each substation, means for charging the same from the corresponding electric generator and for utilizing the current therefrom to assist the generator in supplying the electric circuit, and a gas-supply station for furnishing gas to all of said substations.

4. A system of electric distribution comprising an electric-supply circuit, one or more gas-generating stations, electric generating-stations at intervals along the line of distribution, gas-distributing pipes leading from said gas-generating stations to the electric generating-stations, gas-engines and electric generators driven thereby at the electric generating-stations, and circuit connections therefrom to the main electric circuit, and means for connecting said generators with and disconnecting them from neighboring portions of the main electric circuit in accordance with the demand for current upon such portions of the circuit.

5. In a substation for electric distribution in a system comprising one or more main gas-generating stations and electric generating-substations, the combination of one or more gas-engines, one or more electric generators operated thereby, an air-compressor, a compressed-air reservoir, and means for starting the gas-engines by means of air from the compressed air reservoir.

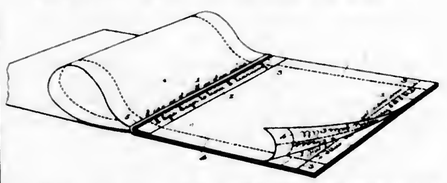
6. In a substation for electric distribution in a system comprising one or more main gas-generating stations and electric generating-substations, the combination of one or more gas-engines, one or more electric generators operated thereby, an air-compressor, a compressed-air reservoir, means for starting the gas-engines by means of air from the compressed-air reservoir, and means for operating the gas-engine after it is started by means of gas supplied from the main gas-generating station.

7. The combination of a main gas-supply station, a divided electric circuit, local electric generating-stations for supplying current to the respective divisions of the circuit, means for operating the several generating-stations by energy supplied from said main gas-supply station, and means for connecting and disconnecting the several divisions of said circuit with and from each other.

8. The combination of a main gas-supply station, a divided electric circuit, local generators for supplying electric current to the respective divisions of the circuit, local gas-engines for operating the respective local generators, gas-supply pipes for supplying gas from the gas-generating station to the respective gas-engines, a source of compressed air for starting the respective gas-engines, and means for starting the respective gas-engines through the instrumentality of air from said compressed-air source in advance of the demand for electricity from the corresponding electric generators.

9. In a system for the distribution of power, heat and light, the combination of a gas-generating plant, a high-pressure gas-distributing system, local gas-engines and power-stations, electric generators operated by such gas-engines, a circuit into which said generators feed, and indicating devices at the respective power-stations for showing the condition of the circuit in the neighborhood thereof.

645,614. COPY-BOOK. JAMES W. WILLIAMS and ROBERT J. TILFORD, Louisville, Ky.; said Tilford assignor to Mary E. Tilford, same place. Filed Oct. 30, 1899. Serial No. 735,252. (No model.)



Claim.—1. A copy-book the leaves whereof are hinged at their upper ends and at their lower ends are provided with copy running in reverse directions on their opposite sides and readable when the hinge is at the top of the page whereby the book can be written from either cover, one page of each leaf from one cover and the other page of each leaf from the other cover.

2. As an improved article of manufacture a copy-book the leaves whereof are hinged at their upper ends, their lower ends provided with a plurality of different styles of copy-forms each set running in reverse directions on the opposite sides and readable when the hinge is at the top of the leaf, the end copy of each leaf only being detachable, whereby each leaf and each page thereof is provided with different styles of copy from cover to cover.

3. A copy-book comprising the covers bound at their top edges their lower edges provided with the copy running in opposite directions on their outer sides, the lower edges of the leaves between the covers provided with the copy running in opposite directions on both sides and readable when the hinge is at the top of the page whereby the book may be written from either cover from end to end.

4. A copy-book the leaves whereof at the edges parallel to the binding are provided with the copy, in combination with a loop transversely secured at the binding edge for use in the way stated.

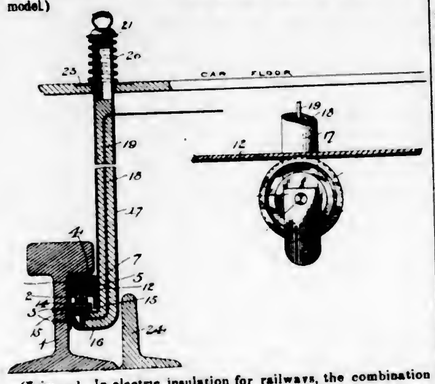
5. A copy-book ruled parallel with the binding the leaves whereof are provided at their lower edge with the copy running in reverse direction on their opposite sides and readable when the hinge is at the top of the page, in combination with means whereby the copy-leaf may be slidably held above the writing on the next succeeding page from either cover.

6. A copy-book the leaves whereof at the edges parallel to the binding are provided with the copy, their right-angled edges provided with a line of perforations, for the purpose stated.

7. As an improved article of manufacture the herein-described copy-book comprising the covers bound at their upper edges their lower edges provided with copy, the leaves between the covers provided with copy running in pairs in opposite directions on their opposite sides and readable when the hinge is at the top of the page and separated by a line of perforations, the side edges of each leaf provided with a line of perforations intersecting the transverse line of perforations.

8. A copy-book having its hinge or binding along its top and each edge of the leaves at right angles to the binding, provided with lines of perforations.

645,615. ELECTRIC INSULATION FOR RAILWAYS. JAMES E. WRIGHT, Omaha, Nebr. Filed Feb. 25, 1899. Serial No. 706,830. (No model.)



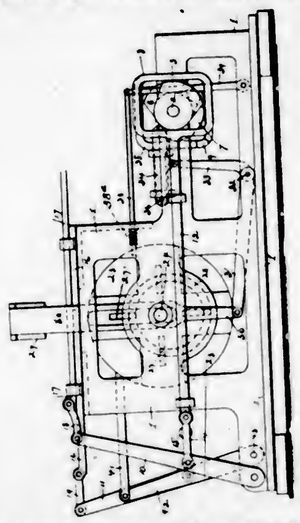
Claim.—1. In electric insulation for railways, the combination of the tread-rail provided with a housing in contact with the lower side of the tread, insulating members disposed within said housing, each member being provided with a registering recess, an electric feed-wire fitting said recess and supported thereby in combination with a trolley-wheel carried by a conveyer-tube, said tube being provided with means for keeping the trolley in contact with the electric wire, as set forth.

2. In electric insulation for railways, a housing attached to the web of the tread carrying an insulated electric feed-wire with its lower side exposed, a guard for the feed-wire and a conveyer having a trolley on its lower end normally in contact with said wire and extending between said guard and the tread of the wheel, all combined as set forth.

3. In electric insulation for railways, a trolley-wheel consisting of a hub of insulating material having a groove in its periphery, a metallic band or collar fitting said groove, said collar having a groove in its side near its periphery, as set forth.

645,616. BRICK-MACHINE. CHARLES J. ANDERSON, Pittsburg, Pa. Filed Feb. 28, 1899. Serial No. 707,236. (No model.)

Claim.—1. In a brick-machine, a suitable frame provided on the inner face of each of the sides with an eccentric groove, a shaft journaled in one end of the said frame, a series of cams 3, 4, 5, 6, and 7, mounted thereon, a rotating wheel carrying a series of molds mounted in the said frame and operated by one of the said cams, plungers operating in the said molds and operated by one of said cams, a movable bottom arranged in the said molds, and a discharging-bar adapted to operate the said bottom when the ends of the said bar engage in the said groove during the rotation of the wheel, substantially as described.



2. In a brick-machine, a suitable frame provided on the inner face of each of the sides with an eccentric groove, a shaft journaled in one end of the said frame, a series of cams 3, 4, 5, 6, and 7, mounted thereon, a pair of sliding plates provided with suitable openings operating upon the top of the said frame, connections between the cams 3 and 7 and the said plates for operating the same, a rotating wheel journaled in the said frame and carrying a series of molds adapted to be brought into alinement with the openings in the said plates, operating means for the said wheel, plungers operating in said molds and operated by one of said cams, a movable bottom arranged in the said molds, and a discharging-bar adapted to operate the said bottom when the ends of the said bar engage in the eccentric groove during the rotation of the wheel, substantially as described.

3. In a brick-machine, a suitable frame provided on the inner face of each of the sides with an eccentric groove, a shaft journaled in one end of the said frame, a series of cams 3, 4, 5, 6, and 7, mounted thereon, a pair of sliding plates provided with suitable openings operating on top of said frame, connections between the cams 3 and 7, and the said plates for operating the same, a rotating wheel journaled in said frame and carrying a series of molds adapted to be brought into alinement with the openings in the plates, operating means for said wheel, plungers operating in the said molds, a pair of vertically-movable standards suitably arranged in the said frame and connected to the said plungers, connections between one of the said cams and said standards for operating the same, a movable bottom arranged in each of said molds, and a discharging-bar adapted to operate the said bottoms when the ends of the said bar engage in the said eccentric groove, during the rotation of the wheel, substantially as described.

4. In a brick-machine, a suitable frame provided on the inner face of each of the sides with an eccentric groove, a shaft journaled in one end of said frame, a series of cams 3, 4, 5, 6, and 7 mounted thereon, a pair of sliding plates provided with suitable openings and operating on top of said frame, connections between the cams 3 and 7 and the said plates for operating the same, a rotating wheel journaled in said frame and carrying a series of molds adapted to be brought into alinement with the openings in the plates, means for retaining said wheel in a fixed position and operated by one of said cams, means for rotating said wheel when the retaining means is released, plungers operating in the said molds, a pair of vertically-movable standards suitably arranged in the said frame and connected to the said plungers, connections between one of said cams and said standards for operating the same, a movable bottom arranged in each of said molds, and a discharging-bar adapted to operate the said bottoms when the ends of the said bar engage in the said eccentric grooves during the rotation of the wheel, substantially as described.

645,617. ABRASIVE TOOL. GEORGE BOILEY, Troy, N. Y. Filed May 6, 1899. Serial No. 715,771. (No model.)



Claim.—In a grinding-tool the combination of an elongated cylindrical outer jacket or casing 3, a core 2 contained within said jacket, and an abrasive element 1, embedded in said core upon its outer end; substantially as described.

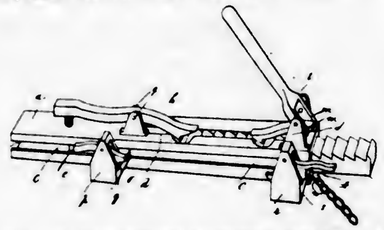
645,618. CONNECTING DEVICE. JOHN R. CARTER, Cincinnati, Ohio. Filed Jan. 19, 1899. Serial No. 702,654. (No model.)



Claim.—1. In a pitman-coupling, the combination with a shaft, of two arms or pitmen removably mounted at one end thereon, one arm or pitman having an open hook for the reception of the shaft and having shoulders at respective sides of the base of said hook, the other arm having a pair of open hooks mounted on the shaft and embracing the first-mentioned hook, said pair of hooks prevented from displacement by the shoulders on the arm having the single hook.

2. In a pitman-coupling, the combination with a shaft, of two arms or pitmen, one having a single open hook and the other having a pair of open hooks, the single hook disposed on the shaft with the open end up and the pair of hooks disposed on the shaft so as to embrace the single hook and V-shaped shoulders on the arm or pitman having the single hook, said shoulders located at the base of said single hook and adapted to receive said pair of hooks.

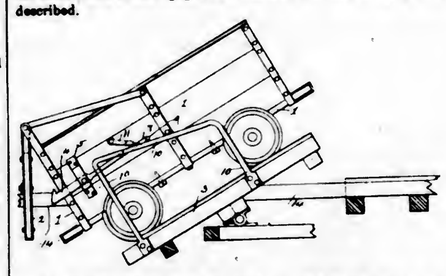
645,619. WIRE-STRETCHER. JOHN H. FELLOWS, El Dorado, Kans., assignor of one-half to John W. Morrison, same place. Filed May 3, 1899. Serial No. 715,404. (No model.)



Claim.—The herein-described wire-stretcher, comprising a chambered block, a ratchet-bar movably mounted therein, said block being provided with a longitudinal slot in the top thereof and also in the side thereof, a pawl pivoted to the top thereof and operating in connection with said ratchet-bar and through said slot in the top of said block, said ratchet-bar being provided with a clamping device connected therewith by a plate which passes through said slot in the side of said block, an operating-pawl pivoted to the top of said block at one end thereof and provided with a pivoted lever-handle, and adapted to operate in connection with said ratchet-bar through the slot in the top of said block, a clamping device secured to the side of said block at the end thereof adjacent said operating-pawl, and devices for securing said block to a post or other support, substantially as shown and described.

645,620. DUMP-CAR. JOSEPH H. GRAY, McDonald, Pa. Filed Oct. 14, 1899. Serial No. 733,623. (No model.)

Claim.—1. An automatically-operated mining-car latch consisting of the pivoted latch-levers 7, located at either side of the car, a horizontal bar 8, attached to the end-gate 2, adapted to engage with the said latch-levers, outwardly-extending portions 9, formed at the rear of the latch-bars 7, and inclined rails 10, located within reach of the same, in a manner that upon a forward movement of the car, the latches will be disengaged from the bar 8, as and for the purpose described.



2. In combination with the latch of a mining-car such as described, the locks 11 pivoted to the car above the latch-levers 7, the piece 13 resting upon the top of the said levers and the outwardly-extending portions 12, within reach of suitable inclined rails 10, by means of which the said locks are disengaged from the latch-levers by the forward movement of the car, as described.

645,621. MEASURING INSTRUMENT. EDWIN L. GILES, Lowell, Mass., assignor to the Lamson Store Equipment Company, Boston, Mass. Filed Feb. 27, 1899. Serial No. 706,998. (No model.)



Claim.—1. In a measuring-machine, the combination of an operating finger-piece, a zero-key and connections with the finger-piece for raising the key each time the finger-piece is moved, as described.

2. In a measuring-machine, the combination of a yards or other indicating bar, a finger-piece, a pawl operated by said finger-piece for engaging and moving said bar, and a zero-key protruded by the movement of said finger-piece, as described.

3. In a measuring-machine, the combination of a longitudinally-movable operating-bar, and a zero-key raised and lowered by the reciprocation of the operating-bar, as described.

4. In a measuring-machine, the combination of a longitudinally-reciprocating operating-bar having an incline and a vertically-movable zero-key engaged by said machine, as described.

5. In a measuring-machine, the combination of a yards-bar, a pawl for engaging and moving said bar, an operating finger-piece, zero-key and connections between the finger-piece and zero-key for protruding it and with the yards-bar for moving it, as described.

6. In a measuring-machine, the combination of a finger-piece, a movable yards-bar operated by the finger-piece and a stop for the yards-bar movable independent of the yards-bar to define its movement, as described.

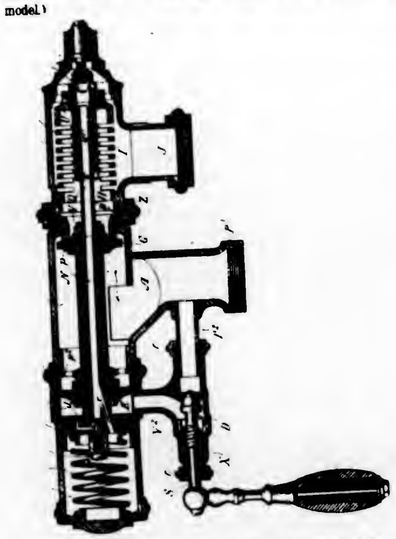
7. In a measuring-machine, the combination of a movable yards-bar, an operating-bar, an adjustable stop for the yards-bar and an index, as described.

8. In a measuring-machine, the combination of a movable yards-bar, a yielding stop for the yards-bar, an alarm and a pawl in connection with the stop for operating the alarm, as described.

9. In a measuring-machine, the combination of a movable yards-bar, a stop therefor, a longitudinally-movable bar and an alarm operated by the movement of the bar, as described.

10. In a measuring-machine, the combination of a movable yards-bar, an operating-bar and a pawl carried thereon and adapted to lock and engage with the yards-bar upon the movement of the operating-bar, as described.

645,622. HYDRAULIC FLUSHING-VALVE. WINFIELD E. HIBBARD, New York, N. Y. Filed Mar. 3, 1899. Serial No. 707,581. (No model.)



Claim.—1. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed, in combination with a valve-opening piston located in an independent operating-chamber and operatively connected by a hollow piston-rod with the valve; together with means for admitting water from the source of supply into the operating-chamber behind the piston and in such manner as to open the valve by the direct action of the water, the working area or surface of the piston being greater than the corresponding working area or surface of the valve acted upon by the outflowing or flushing water, the piston having an opening and a time-regulating screw-valve for gradually releasing the water behind it, substantially as described.

2. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed, in combination with a valve-opening piston located in an independent operating-chamber and operatively connected by a hollow piston-rod with the valve; together with means for admitting water from the source of supply into the operating-chamber behind the piston and additional means, in the nature of a spring, for restoring said piston and valve to their normal positions after each operation, the piston having an opening and a time-regulating screw-valve for gradually releasing the water behind it, substantially as described.

3. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed, in combination with a valve-opening piston located in an independent operating-chamber and operatively connected by a hollow piston-rod with the valve; together with a branch pipe and a valve-chamber operatively connecting the source of water-supply with the independent-operating-chamber; an operating-valve located in said valve-chamber and regulating means in the piston for regulating the time of the flow of water from the operating-chamber to and through the hollow piston-rod and to the fixture to be flushed, substantially as described.

4. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water supply and to the fixture to be flushed, in combination with a valve-opening piston located in an independent operating-chamber and operatively connected by a hollow piston-rod with the valve; together with a branch pipe and a valve-chamber operatively connecting the source of water-supply with the independent operating-chamber, an operating-valve located in said valve-chamber; means, as a spiral spring, located behind the piston for restoring it to normal position after each operation, the working area or surface of the piston being greater than the corresponding working area or surface of the valve and regulating means, in the nature of a valve-screw and an opening, in the piston for regulating the outflow of water from the operating-chamber to and through the hollow piston-rod and to the fixture to be flushed, all of said parts acting substantially as and for the purpose described.

5. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed, in combination with a valve-opening piston located in an independent operating-chamber and operatively connected with said valve, together with a branch pipe and valve-chamber containing an operating-valve, said pipe and valve being connected to the same source of water-supply and to the operating-chamber containing the piston; means operatively connected with the piston for regulating the time of each flushing action after the operating-valve has been released and an opening through the piston for admitting water behind the same in such manner as to act as a check thereto, substantially as described.

6. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed; in combination with a valve-opening piston located in an operating-chamber and operatively connected with the valve and to the source of water-supply by a branch pipe and valve-chamber connected to the operating-chamber at a point behind the piston-head; a hand-operated valve seated in said valve-chamber, an escape vent or opening and a time-regulating screw-valve for regulating the time of the discharge of the water from the operating-chamber; together with regulating means located between the flushing-valve and the fixture to be flushed for regulating the pressure and volume of water at the fixture, substantially as described.

7. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed; in combination with a valve-opening piston located in an operating-chamber and operatively connected with the valve and to the source of water-supply by a branch pipe and valve-chamber connected to the operating-chamber at a point behind the piston-head; a hand operating-valve seated in said valve-chamber, an escape vent or opening and a time-regulating screw-valve for regulating the time of the discharge of the water from the operating-chamber; together with means, as a strong spiral spring, for restoring the piston to its normal position and regulating means located between the flushing-valve and the fixture to be flushed for regulating the pressure and volume of water at the fixture, substantially as described.

8. A flushing device consisting of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed; in combination with a valve-opening piston located in an operating-chamber and operatively connected with the valve and to the source of water-supply by a branch pipe and valve-chamber connected to the operating-chamber at a point behind the piston-head; a hand-operated valve seated in said valve-chamber, an escape vent or opening and a time-regulating screw-valve for regulating the time of the discharge of the water from the operating-chamber; together with regulating means located between the flushing-valve and the fixture to be flushed and consisting of two slotted cylindrical parts one of which is permanently and the other adjustably secured to the outlet or flushing chamber, substantially as described.

9. In a flushing device, the combination of a valve and a valve-chamber, the latter being connected directly to a source of water-supply and to the fixture to be flushed; an independent operating-chamber; a valve-operating piston located in said chamber and connected to said valve; a connection between said operating-chamber and said valve-chamber behind said piston; a hand-operated valve seated in said connection; an escape vent or opening in said piston, and a time-regulating screw-valve carried by said piston for regulating the time of the discharge of the water from the operating-chamber, substantially as described.

10. In a flushing device, the combination with a main valve and a valve-chamber, the latter being connected directly to a source of supply and to a fixture to be flushed, of an independent operating-chamber, a valve-operating piston located in said chamber and connected to the main valve, a connection between said operating-chamber on the pressure-receiving side of the piston and the source of supply, a hand-valve seated in said connection, said piston being provided with passages therethrough one of which leads from the side of the operating-chamber opposite the pressure-receiving side of the piston to a point of discharge, and the other of which leads from the operating-chamber on the pressure-receiving side of the piston to a point of discharge, a time-regulating screw-valve in the latter of said passages, and means, such as a spiral spring, for restoring said piston to its normal position, substantially as described.

11. In a flushing device, the combination with a main valve and a valve-chamber, the latter being connected directly to a source of supply and to a fixture to be flushed, of an independent operating-chamber, a valve-operating piston located in said chamber and connected to the main valve, a connection between said operating-chamber on the pressure-receiving side of the piston and the source of supply, a hand-valve seated in said connection, said piston being provided with passages therethrough one of which leads from the side of the operating-chamber opposite the pressure-receiving side of the piston to a point of discharge, and the other of which leads from the operating-chamber on the pressure-receiving side of the piston to a point of discharge, a time-regulating screw-valve in the latter of said passages, and means, such as a spiral spring, for restoring said piston to its normal position, substantially as described.

645,623. PROCESS OF REFINING DISTILLED GREASE. JOHN HOPKINSON, Bradford, England. Filed Aug. 17, 1898. Serial No. 688,796. (No specimens.)

Claim.—1. The treatment of distilled grease containing unsaponifiable matter which consists in treating them with a solution of caustic alkali and ethyl or methyl alcohol, skimming off the residual products which rise and adding a little at a time with agitation to the remainder a solution of light hydrocarbon such as coal-tar benzol insoluble in methyl or ethyl alcohol and distilling each solution separately, substantially as described.

2. The process of obtaining soap from distilled or other grease containing unsaponifiable matter which consists in fully saponifying with caustic alkali adding methyl or ethyl alcohol whereby the residual products become insoluble in the soap and separating the residual products substantially as described, distilling off the spirits and finishing the soap.

3. The process of separating residual products from distilled grease which consists in fully saponifying the saponifiable matter in the grease, dissolving the same in methyl or ethyl alcohol whereby the greater portion of the residual products separate and float on the surface and can be skimmed off and separating the remainder of the residnal products by adding a light hydrocarbon such as benzol insoluble in dilute spirits a little at a time with agitation and skimming off, and separating the light residual products from the heavier ones by distillation whereby they can be used again in the first operation.

645,624. BALL-AND-SOCKET FASTENER. HERMAN KERNOOD, Baltimore, Md., assignor to the Electus Fastener Company, Hoboken, N. J. Filed Jan. 16, 1900. Serial No. 1,612. (No model.)



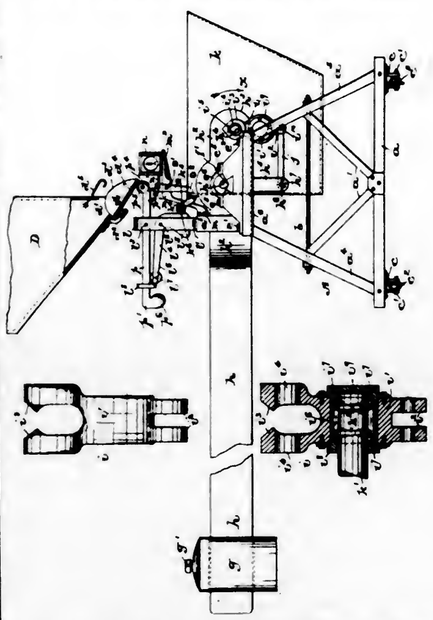
Claim.—1. A cap-and-socket portion for gloves and other articles, consisting of a tubular socket and cap secured to the material, said tubular socket having lateral alining slits, a rim with alining apertures on opposite sides thereof in alinement with said lateral slits, said apertures in said rim being formed by means of a recess having a curved end and a projection bent over said recess to inclose the open end thereof, locking-wires extending through said lateral apertures and through said recesses, and a casing inclosing the base of said tubular socket, and having a recess between its sides and the base of the tubular socket, in which are locked the ends of said wires, as and for the purpose set forth.

2. As an article of manufacture, a cap-blank for the socket part of a glove or other fastener, consisting of a tubular socket having lateral slits, and a flange formed with recesses at its ends having curved inner ends and outer corner projections longer than the width of said recesses, as and for the purpose set forth.

3. A cap-and-socket fastener for gloves and other articles, consisting of a tubular socket having lateral alining slits, a flange-base consisting of a turned-up flange forming a rim and having end recesses in alinement with said lateral slits, formed with curved lower ends and their upper ends closed by projections longer than the distance across the said recesses, locking resilient wires extending through said lateral slits and said end recesses, and a covering, or casing, with inclined sides inclosing said rim or turned-up flange, and having a space between said inclined sides and said rim, in which are located the projecting ends of said resilient locking-wires, and a cap secured to said tubular casing, said cap and said base clamping material to be fastened between them, as and for the purpose set forth.

4. A cap-blank for stud-and-cap fasteners consisting of a cap, provided with a lateral flange, said flange having in its edge two pairs of round-bottomed notches on each side of the cap, substantially as described.

645,625. WEIGHING-MACHINE. FREDERICK P. MEYER, Newark, N. J. Filed June 16, 1899. Serial No. 720,742. (No model.)



Claim.—1. In a weighing-machine, the combination, with a scale-beam, having a yoke portion, and a frame in which said beam is fulcrumed, of knife-bearings extending from the sides of said yoke portion, hangers suspended from said knife-bearings, a receiving-bucket journaled in said hangers, means rigidly connected with said yoke portion and with said hangers to prevent swinging of the same on said knife-bearings, and means connected with said frame for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, substantially as and for the purposes set forth.

2. In a weighing-machine, the combination, with a scale-beam, having a yoke portion, and a frame in which said beam is fulcrumed, of knife-bearings extending from the sides of said yoke portion, hangers suspended from said knife-bearings, a receiving-bucket journaled in said hangers, means rigidly connected with said yoke portion and with said hangers to prevent swinging of the same on said knife-bearings, and a pawl or dog pivotally connected with said frame, said pawl having its lower end normally in sliding and holding engagement with the inner edge of said bucket, for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals, when sufficiently filled, substantially as and for the purposes set forth.

3. In a weighing-machine, the combination, with a scale-beam, having a yoke portion, and a frame, of a pair of bearings in which said beam is fulcrumed, a pair of hangers pivotally connected with the arm portions of said yoke portion of said beam, a downwardly-extending post on each arm portion, perforated ears or lugs on said hangers, and connecting rods or links between said downwardly-extending posts and said lugs or ears, a receiving-bucket journaled in said hangers, and means connected with said frame for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, substantially as and for the purposes set forth.

4. The combination, with a hinged or pivoted gate of a goods-containing pocket, of an automatic weighing-machine, consisting, essentially, of a scale-beam, having a yoke portion, and a frame in which said beam is fulcrumed, a receiving-bucket journaled in said yoke portion of said beam, means connected with said frame, for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, and mech-

anism connected with said frame, constructed and arranged to automatically close the gate of said goods-containing pocket when the bucket is tilted, consisting, essentially of a bracket connected with said bucket, a roller or wheel arranged in said bracket, and a system of levers or arms l^4 and p pivoted on pins in a bearing-bracket connected with the frame in which the scale-beam is fulcrumed, and a roller or wheel on said arm or lever p arranged to actuate and close the said gate of the goods-containing pocket, substantially as and for the purposes set forth.

5. The combination, with a hinged or pivoted gate of a goods-containing pocket, of an automatic weighing-machine, consisting, essentially, of a scale-beam, having a yoke portion, and a frame, a pair of bearings on said frame, in which said beam is fulcrumed, a pair of hangers pivotally connected with the arm portions of said yoke portion of said beam, a receiving-bucket journaled in said hangers, means connected with said frame, for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, and mechanism connected with said frame, constructed and arranged to automatically close the gate of said goods-containing pocket when the bucket is tilted, consisting, essentially, of a bracket connected with said bucket, a roller or wheel arranged in said bracket, and a system of levers or arms l^4 and p pivoted on pins in a bearing-bracket connected with the frame in which the scale-beam is fulcrumed, and a roller or wheel on said arm or lever p arranged to actuate and close the said gate, substantially as and for the purposes set forth.

6. The combination, with a hinged or pivoted gate of a goods-containing pocket, of an automatic weighing-machine, consisting, essentially, of a scale-beam, having a yoke portion, and a frame, a pair of bearings on said frame, in which said beam is fulcrumed, knife-bearings extending from the sides of said yoke portion, a pair of hangers suspended from said knife-bearings, ball-bearings in each hanger, a receiving-bucket having journal-pins operatively arranged in said ball-bearings, a pawl or dog pivotally connected with said frame, said pawl or dog having its lower end normally in holding but sliding engagement with the inner edge of the back of said bucket for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, means rigidly connected with said yoke portion and with said hangers to prevent swinging of the same on said knife-bearings, and mechanism connected with said frame, constructed and arranged to automatically close the gate of said goods-containing pocket when the bucket is tilted, substantially as and for the purposes set forth.

7. The combination, with a hinged or pivoted gate of a goods-containing pocket, of an automatic weighing-machine, consisting, essentially, of a scale-beam, having a yoke portion, and a frame, a pair of bearings on said frame, in which said beam is fulcrumed, a pair of hangers pivotally connected with the arm portions of said yoke portion of said beam, ball-bearings in each hanger, a receiving-bucket having journal pins operatively arranged in said ball-bearings, means connected with said frame, for retaining said bucket in its upright position when empty, but permitting said bucket to swing on its journals when sufficiently filled, and mechanism connected with said frame, constructed and arranged to automatically close the gate of said goods-containing pocket when the bucket is tilted, consisting, essentially, of a bracket connected with said bucket, a roller or wheel arranged in said bracket, and a system of levers or arms l^4 and p pivoted on pins in a bearing-bracket connected with the frame in which the scale-beam is fulcrumed, and a roller or wheel on said arm or lever p arranged to actuate and close the said gate, substantially as and for the purposes set forth.

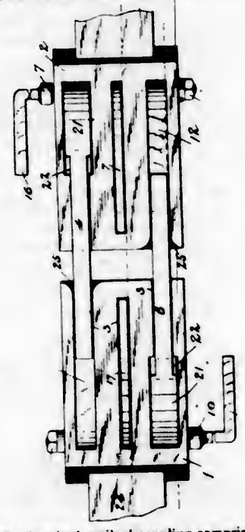
645,626. RECEPTACLE OR CAN. JOSEPH T. MILLS, New York, N. Y., assignor, by direct and mesne assignments, to Morton B. Jacobs and Maud Mills, same place. Filed May 1, 1899. Serial No. 715,219. (No model.)



Claim.—1. A frame for receptacles, consisting of a base having a central opening, an arched spring having its ends movably supported on the said base, a top section, slats connecting the base and top sections, and springs secured to the inner faces of the slats, said springs being inwardly curved at their centers and their extremities being arranged to engage with the said slats or stays, and means for attaching the frame to a receptacle, as described.

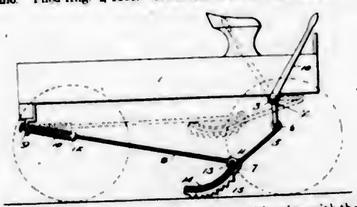
2. The combination, with a frame, consisting of a base, a spring mounted upon the base, the terminals of the spring being movable on the base, an upper section, slats connecting the base with the upper section, and strap-springs secured at their centers to the inner faces of the said slats or stays, the said springs being bowed inwardly at each side of their centers and the terminals of the springs being arranged for engagement with said slats, of a can, the outer surface whereof engages with the curved portions of the stay or slat springs, the bottom of the can resting upon the base-spring, and devices for securing the upper portion of the can to the upper portion of the frame, as described.

645,627. CAR-COUPLING. JAMES McCOMB, St. Charles, Mich., assignor of one-half to Thomas McPhail, same place. Filed Oct. 20, 1899. Serial No. 734,219. (No model.)



Claim.—The herein-described coupling comprising a pair of cooperating draw-heads, each provided with a hook adapted to extend into engagement with the opposite draw-head and having a controlling-shaft provided with a disengaging finger for the free end of the hook carried by the opposite draw-bar, in combination with auxiliary hooks designed to secure a link, all operatively combined in the manner specified and for the purpose set forth.

645,628. VEHICLE-BRAKE. LEVI L. PLETCHER, McConnelsville, Ohio. Filed Aug. 4, 1899. Serial No. 726,061. (No model.)

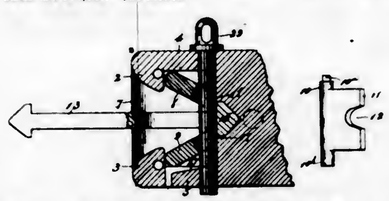


Claim.—1. In a brake mechanism, the combination with the crank-shaft, a fork pivoted thereto and carrying a drag-shoe, a rod having one end pivoted to said fork and its other end pivoted to slide in a suitable bearing, and a spring for controlling the movement of said rod, substantially as set forth.

2. In a brake mechanism, the combination with the spring-actuated crank-shaft, a fork pivoted to said shaft, a drag-shoe carried at the lower end of the fork, a rod having its forward end pivoted to said fork and its rear end supported to slide longitudinally through a bearing, and a spring for controlling the movement of said rod, substantially as specified.

3. In a brake mechanism, the combination with the spring-actuated crank-shaft and its operating-handle, of a fork pivoted to said shaft and formed with eyes intermediate its ends, a rod having an eye at its forward end, a pivot-bolt passed through the eyes of the rod and fork, a drag-shoe having a notch in its lower end to engage the bight of the fork, and a lip at its upper end to engage and partially embrace the eye at the forward end of the rod, a bracket supporting the rear end of the rod, an adjustable nut secured upon the rod, and a coil-spring carried by the rod and confined between the nut and the bracket, substantially as set forth.

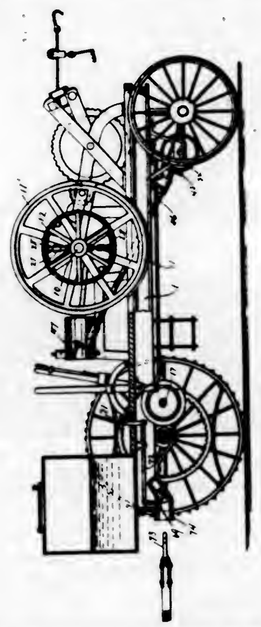
645,629. CAR-COUPLING. AMBROSE S. RAY, Bellefonte, Pa., assignor of one-half to Harry Keller, same place. Filed Nov. 22, 1898. Serial No. 697,149. (No model.)



Claim.—1. In a car-coupler, a removable side having a recess therein and operating-levers 16, 16 and 18 and springs 17 located in said recess, all arranged as set forth.

2. In a car-coupler, a removable side having a recess therein and operative parts located in said recess and a cover 20 therefor, all arranged as set forth.

645,680. TRACTION-ENGINE. CHARLES L. SCHULTE and ROBERT A. SCHULTE, Chicago, Ill. Filed Apr. 20, 1899. Serial No. 713,813. (No model.)



Claim.—1. In a traction-engine, a gasolene-engine having but one direction, a shaft connected with the piston-rod of said engine, a fly-wheel and a loose-pulley wheel on one end of said shaft, a sleeve on said shaft, a friction-clutch on said sleeve consisting of parallel outward-extending arms and through one of said fly-wheels, friction-shoes attached to the spokes of said fly-wheel and extending underneath the rim of said loose-pulley wheel, a lug hinged on the end of each of said arms adapted to cause said friction-shoes to engage the rim of said pulley-wheel and lock said wheel to the fly-wheel and shaft, a lever connected with said sleeve adapted to set and release said clutch.

2. In a traction-engine, a front axle consisting of two parallel bars joined at the ends and terminating in a fork, vertical stanchions pivoted between the prongs of said fork, a spindle projecting outward from the center of said stanchions, an ear projecting rearward from the same, a threaded shaft rearward of and parallel with said front axle, a nut similarly threaded to travel on said shaft, a tongue through the center of said axle extending rearward and pivotally attached to said nut, a joint in said tongue adjacent to said axle, a singletree attached to said tongue and having the ends connected by loose belts with the ears on said stanchions, two facing friction-plates on said threaded shaft, a tumbling-rod, a shiftable bearing for one end of said rod adjacent said friction-plates, a friction-wheel on the end of said tumbling-rod adapted to engage with either of said friction-plates or idle between them, a brake for said friction-plates adapted to act automatically, a lever for shifting the bearing of said tumbling-rod, means for imparting motion to said rod.

3. In a traction-engine, the combination with an engine having but one direction of a main shaft, a combined spur and bevel gear on said main shaft, a horizontal rotatable drum in bearings on the frame of said traction-engine provided with a spur-gear, a horizontal driven shaft rearward of and parallel with said drum provided with a pinion and a spur gear-wheel, the former to engage with the spur-gear on the drum, the latter to engage with a pinion on a second parallel shaft, a movable spur-gear on said second shaft adapted to engage the spur-gear of the combined spur and bevel gear-wheel on the main shaft, a threaded shaft forward of and parallel with said drum, a sleeve similarly threaded to travel on said shaft, a cruciform frame extending upward from said sleeve and the upper part hung on a guide-rod above said threaded shaft, a spool in each niche in said frame and adapted to carry a cable in winding on and off said drum.

4. A traction-shaft, a sleeve on said shaft, a pinion on the outward end of said sleeve to engage with the traction-wheel, a bevel gear-wheel on the inner end of said sleeve, a similar bevel-gear on the traction-shaft facing said bevel on the sleeve, a compensating gear on said traction-shaft between said facing bevels, a friction-brake to engage with the bevel-gear on the compensating gear, said brake consisting of two arms pivoted to the frame of the traction and provided with friction-shoes to engage said bevel-gear, a lever connected with said brake, a treadle to operate said lever, a tumbling-rod, a shiftable bearing for one end of said rod adjacent said double bevel-gear, a pinion on said rod adapted to engage either of said facing bevel-gears, a lever for shifting said bearing, means for imparting motion to said rod from a motor having but one direction as specified.

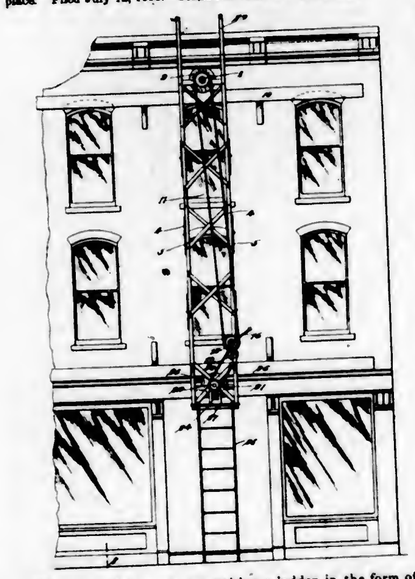
5. In a traction-engine steering-gear, a threaded shaft, a nut to travel on said shaft, a tongue connecting said nut with the center of the front axle in a manner to adapt itself to the movement of said nut on said threaded shaft, an axle for the front wheels of the traction-engine provided with pivotal bearings for said wheels, a singletree hung on said tongue and connected with said pivotal bearings, two facing friction-plates on said threaded shaft, a tumbling-rod, a friction-wheel on said tumbling-rod, a shiftable bearing for said rod, a brake for said friction-plates consisting of an arm extending on each side of the shiftable bearing of said tumbling-rod and provided with shoes to engage said friction-plates, a cam on one of said arms adapted to engage its opposing arm, said arms adapted to be released from engagement with said friction-plates by the shifting of the bearing of said tumbling-rod, a spring for said arms, a lever for said shifting bearing, means for imparting motion to said tumbling-rod substantially as specified.

6. In a traction-engine, the combination with an engine having but one direction of a main shaft, a fly-wheel and loose pulley on the end of said shaft, a movable sleeve on said shaft adjacent said fly-wheel, arms on said sleeve extending outwardly through said fly-wheel, flexible friction-shoes attached to the spokes of said fly-wheel and extending underneath the rim of said loose-pulley wheel, a lug hinged on the end of said arms adapted by the outward movement of said sleeve to impinge said friction-shoes against the rim of said loose pulley, a bevel gear-wheel on a sleeve on the opposite end of said main shaft, a traction-shaft, a sleeve on said traction-shaft, a pinion on one end of said sleeve to engage with the traction-wheel, a bevel-gear on the opposite end of said sleeve, a similar bevel-gear on said traction-shaft facing said bevel on said sleeve, a wheel on said traction-shaft between said facing bevels, the rim of which is provided with two facing bevel gear-wheels, a space between said bevel-wheels, a series of pinions journaled between the hub and rim of said wheel, each engaging both of said bevel-wheels, a shiftable tumbling-rod, a pinion on each

end of said rod, one of said pinions adapted to engage the bevel-gear on said main shaft, the other to engage with either of said facing bevels on the traction-shaft, a shiftable bearing for said rod adjacent said facing bevel gear-wheels, levers for moving the sleeves on the main shaft and means for imparting motion to said tumbling-rod.

7. In a traction-engine, the combination with a motor having but one direction of a main shaft provided with fly-wheels and a loose-pulley wheel on one end, a clutch for said pulley adapted to lock said pulley with its adjacent fly-wheel, a bevel-wheel mounted on a sleeve on said shaft, a clutch on said sleeve to lock said sleeve with the adjacent fly-wheel and with the shaft, a lever for operating each clutch, a tumbling-rod having a pinion on each end, one of which is adapted to engage with the bevel-wheel on the shaft, the other to be moved laterally, a traction-shaft provided with a compensating gear provided with a double bevel, each of which is adapted to be engaged by the shiftable pinion, a second tumbling-rod forward of the main shaft, having a pinion on one end and a friction-wheel on the other, the pinion adapted to engage the bevel-gear on the main shaft, the friction-wheel adapted to move laterally, a threaded shaft for a steering-gear for said engine provided with two facing friction-plates, each of which is adapted to be engaged by said shiftable friction-wheel, a nut to travel on said threaded shaft, a tongue connecting said nut with the center of the front axle to adapt itself to the movement of said nut, pivoted journals for the wheels on said axle, a singletree on said tongue attached to said journals, shifting-levers for said tumbling-rods substantially as described.

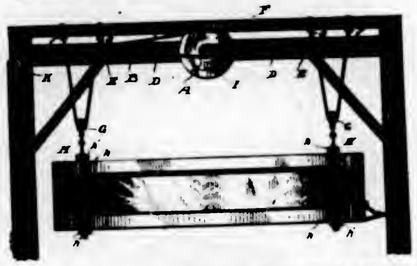
645,631. **FIRE-ESCAPE.** CHARLES H. SHIELDS and ALVIN SHAW, Spokane, Wash., assignors of one-half to Benjamin F. Shields, same place. Filed July 12, 1899. Serial No. 723,609. (No model.)



Claim.—1. A fire-escape, comprising a ladder in the form of a skeleton tube, a carrying-wheel mounted at each end of the ladder, the wheels being adapted to run on tracks attached to a building, a sprocket-wheel in connection with the upper carrying-wheel, a shaft mounted in the lower portion of the ladder, a sprocket-wheel attached to said shaft, a chain running between the two sprocket-wheels, means for driving the shaft, a third sprocket-wheel in connection with the lower carrying-wheel, a counter-shaft, a sprocket-wheel on the counter-shaft, chains passing between the sprocket-wheel of the counter-shaft and of the lower carrying-wheel, means for driving the counter-shaft from the first-named shaft, a platform attached to the lower end of the ladder adjacent to the first-named shaft and the driving means thereof, and an extension-ladder supported by the platform and capable of being raised and lowered therefrom.

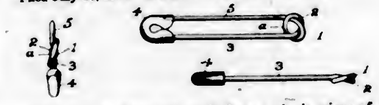
2. A fire-escape, comprising a ladder, carrying-wheels mounted thereon and adapted to run on tracks carried by a building, a platform attached to the lower end of the ladder and projecting outward transversely therefrom, an extension-ladder section hingedly mounted on an outward extremity of the platform and capable of swinging up and down thereon, and means for driving the carrying-wheels, such means extending down to the lower end of the ladder in proximity to the platform.

645,632. **APPARATUS FOR LIFTING WAGON-BODIES, &c.** WILLIAM F. STOUT, Coffee, Ind. Filed May 24, 1899. Serial No. 718,077. (No model.)



Claim.—The combination of a supporting-frame having a longitudinal horizontal timber F, a transverse shaft journaled on said frame, a drum on said shaft, pulleys E swiveled on said timber F one on each side of said shaft, a rope or ropes secured to said shaft and passing over said pulleys E then under pulleys G and secured at the ends to said timber F, a sling swiveled to and depending from each pulley G and each adapted to engage over and support one end of a wagon-body, and an operating-rope secured to said drum, substantially as described.

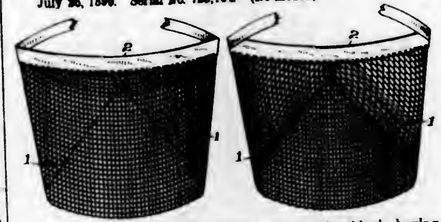
645,633. **SAFETY-PIN.** HENRY H. TAYLOR, Bridgeport, Conn. Filed July 26, 1899. Serial No. 725,163. (No model.)



Claim.—1. A safety-pin made from a single piece of wire the lower bar of which is formed into a coil at its end through which the pin-bar passes while the pin-bar is likewise formed at its end into a coil through which the lower bar passes, substantially as set forth.

2. A safety-pin having the lower bar 3 and pin-bar 5, the coils 1 and 2 made as a continuation of said pin and lower bars respectively, the pin-bar passing directly through the coil 2 while the lower bar passes directly through the coil 1, and the single wire a which is on the inside and which is common to both coils and which is inclined directly beneath said pin, substantially as set forth.

645,634. **BUSTLE.** HENRY H. TAYLOR, Bridgeport, Conn. Filed July 26, 1899. Serial No. 726,164. (No model.)

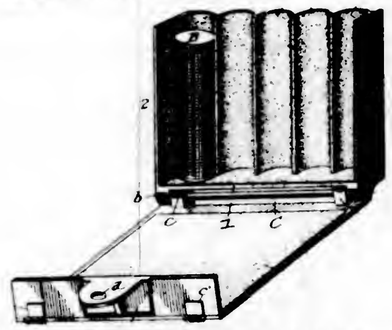


Claim.—1. A bustle made from a woven-wire blank having a long lower edge and a short upper edge and bias-cut sides between said edges, by folding the lower ends of said blank rearward into coincidence with the upper edge of the blank and uniting said coinciding edges, substantially as set forth.

2. A bustle formed from a woven-wire blank of substantially a triangular shape, by folding rearwardly the angular portions at the lower ends of the blank and securing said portions to the upper edge of the blank, whereby a bustle is formed which is open at the rear, substantially as set forth.

3. A bustle made from a blank of woven wire whose end flaps are folded rearwardly and secured to the upper edge of the blank, while a steel stay is inserted within a shirr-pocket extending from the top to the bottom of the bustle on the outside, substantially as set forth.

645,635. **COIN-BOX.** EDWARD L. THOMPSON, Washington, D. C. Filed Dec. 7, 1899. Serial No. 739,535. (No model.)

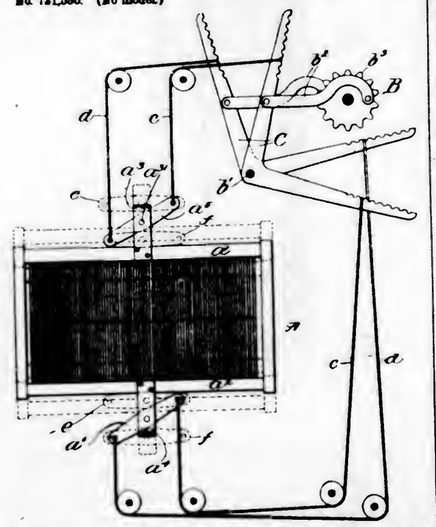


Claim.—1. A metallic coin-box consisting of a deep tray with semicylindrical grooves therein open at their upper and closed at their lower ends, in combination with a side lid secured thereto so as to turn against the tray, and a top lid hinged to the side lid so as to close the upper ends of the grooves, substantially as described.

2. A metallic coin-box consisting of a deep tray with semicylindrical grooves therein open at their upper and closed at their lower ends, in combination with a side lid secured thereto so as to turn against the tray and a top lid provided with a lug having a hole therethrough hinged to the side lid, substantially as described.

3. As a new article of manufacture a coin-box consisting of three parts made of cast metal, namely, a deep tray with semicylindrical grooves therein and lugs thereon for securing a side lid thereto; a side lid with lugs thereon for securing it to the tray and to a top lid, and a top lid with lugs thereon for securing it to the side lid and a lug for a handle; all these parts united substantially as shown and described in the form of a shallow rectangular-shaped box and lined throughout with cushioning material.

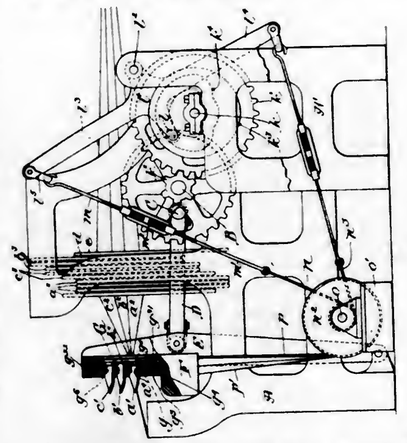
645,636. **SHEDDING MECHANISM FOR LOOMS.** CLIFTON ALVORD, Worcester, Mass., assignor, by mesne assignments, to the Preston Hose and Tire Company, of Maine. Filed June 23, 1899. Serial No. 721,590. (No model.)



Claim.—1. In a loom, the combination with a harness-frame, of a lever pivotally connected intermediate its ends with said frame, and jacks connected independently with said lever on opposite sides of its pivotal connection with the frame, fulcra for the levers being provided in its jack connections whereby the movement of the frame in one direction may be divided by alternate action of the jacks whereas simultaneous action of the jacks effects the full movement without division, substantially as described.

2. In a loom, the combination with a harness-frame, of levers pivotally connected intermediate their ends with said frame above and below the same, and jacks connected independently with said levers on opposite sides of their pivotal connections with the heddle, fulcra for the levers being provided in their jack connections whereby movement of the frame in either direction may be divided by alternate action of the jacks whereas simultaneous action of the jacks effects the full movement without division, substantially as described.

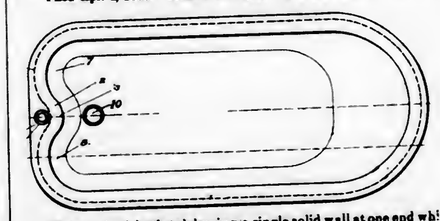
645,637. **LOOM.** CLIFTON ALVORD, Worcester, Mass., assignor, by mesne assignments, to the Preston Hose and Tire Company, of Maine. Filed July 19, 1899. Serial No. 724,342. (No model.)



Claim.—1. In a loom, the combination of a lever pivoted intermediate its ends, means for vibrating said lever, independent compound drums, strap connections between corresponding members of said drums and the opposite ends of said lever respectively, a reciprocatory shuttle-actuating slide, and straps connecting the same with the other members of said compound drums, respectively, substantially as described.

2. In a loom, the combination of one or more shuttle-actuating slides, straps connected with each slide, compound drums independently rotatable and having said straps connected respectively with corresponding members, a lever pivoted intermediate its ends, strap connections between the other corresponding members of the compound drums, respectively, and the opposite ends of said lever, and a wheel having a cam-groove occupied by a part of the lever, whereby the latter is vibrated, substantially as described.

645,638. **BATH-TUB.** WILLIAM BUSTING, Jr., New York, N. Y. Filed Apr. 1, 1899. Serial No. 711,353. (No model.)



Claim.—1. A bath-tub having a single solid wall at one end which is curved inwardly at the central portion thereof from the rim downwardly, forming a central vertical recess on the exterior of the tub, and two side recesses on the interior thereof, said central recess being of sufficient depth to permit an overflow-pipe to be located therein.

2. A bath-tub having a single solid wall at one end which is curved inwardly at the central portion and outwardly at each side thereof, and forming a central vertical recess on the exterior of the tub and two side recesses on the interior thereof, said central recess

being of sufficient depth to permit an overflow-pipe being placed within the line between the outer edges of the rim at the exterior outwardly-curved portions thereof.

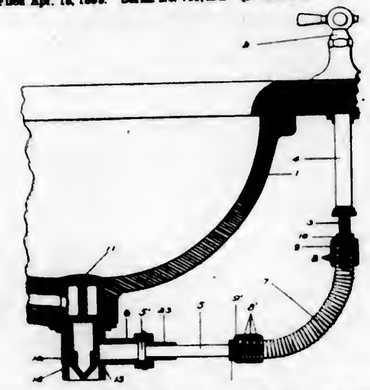
3. A bath-tub having a single solid wall at one end which is curved inwardly at the central portion from the top downwardly and forming a central vertical recess on the exterior of the tub, and two side recesses on the interior thereof, a shelf extending over the top of said exterior recess which is continuous with the rim of the tub.

4. A bath-tub having a single solid wall at one end which is curved inwardly at the central portion thereof and forming a central vertical recess on the exterior of the tub, and two side recesses on the interior thereof, a shelf extending over the top of said recess which is continuous with and on the same level as the rim of the tub, and a central aperture in said shelf which is adapted to permit the passage of the overflow pipe or valve-operating device therethrough.

5. A bath-tub having a single solid wall at one end which is of substantially the same thickness throughout and which is curved inwardly at the central portion thereof from the rim downwardly, forming a central, vertical recess on the exterior of the tub and two side recesses on the interior thereof, said central recess being of sufficient depth to permit an overflow-pipe to be located therein.

6. A bath-tub having an overflow-pipe located outside the walls thereof, the side of said tub directly adjacent said pipe consisting of a single solid wall which is of substantially the same thickness throughout and which is curved inwardly from the rim downwardly, forming a vertical recess on the exterior of the tub and two adjacent side recesses on the interior thereof, said overflow-pipe being located in said exterior recess, and said exterior recess being of sufficient depth to permit of the overflow-pipe being located inside a straight line drawn from the outer upper edges of the tub next adjacent said exterior recess, whereby the side of the tub including said recess may be placed against the wall of the room in which it is located.

645,639. WASHBASIN. William Boutins, Jr., New York, N. Y. Filed Apr. 18, 1899. Serial No. 713,434. (No model.)



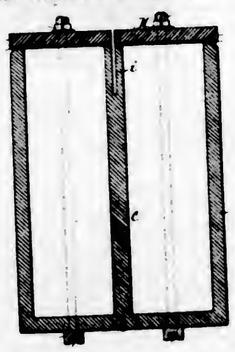
Claim.—1. The combination of a waste-plug having a downward projection, a recess therein, a rotatable shaft, an eccentric projection carried thereby, a spring for pressing said projection into engagement with said recess, but permitting its withdrawal therefrom, a second shaft carrying an operating-handle arranged at an angle to said first-named shaft, and a flexible shaft connecting the opposite ends of said above-mentioned shafts.

2. A receptacle having a waste-plug, a recess in said plug, a rotatable shaft having an eccentric projection which is adapted to engage said recess, said shaft being arranged so that said projection may be moved longitudinally into and out of engagement with said recess, an operating-shaft, and a flexible shaft 7 connecting the adjacent ends of said shafts, substantially as described.

3. A receptacle having a waste-plug provided with a depending portion having a recess in the side thereof, a rotatable and longitudinally-movable operating-shaft having a projection which is adapted to engage said recess and lift said plug, a spring for pressing said projection into engagement with said recess but permitting its withdrawal therefrom, said projection and recess being so formed as to prevent the withdrawal of said plug when said shaft is in its normal position.

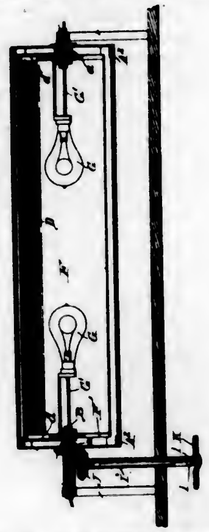
4. In a sanitary fixture a waste-plug having a depending stem in the waste-passage, a longitudinally-movable rotatable shaft, a projection carried thereby which is adapted to engage said stem and lift said plug when the shaft is rotated, an operating-shaft arranged at an angle to said first-named shaft and a coiled spring connecting the adjacent ends of said shafts, said spring being so arranged with respect to said shafts that it will normally hold the projection of said first-named shaft in position to engage said stem and yet permit the withdrawal of said projection from the waste-passage without disconnecting any of the parts.

645,640. STORAGE-BATTERY CELL. Reuben H. Chamberlain, Depew, N. Y., assignor to Charles A. Gould, Port Chester, N. Y. Filed Aug. 26, 1899. Serial No. 728,487. (No model.)



Claim.—A duplex or multiple cell having the partition which separates adjoining cells provided in its top with a depression, forming a trap for intercepting moisture, substantially as set forth.

645,641. ILLUMINATED SIGN. Gideon J. Finkenor, Olyphant, Pa. Filed June 5, 1899. Serial No. 719,456. (No model.)



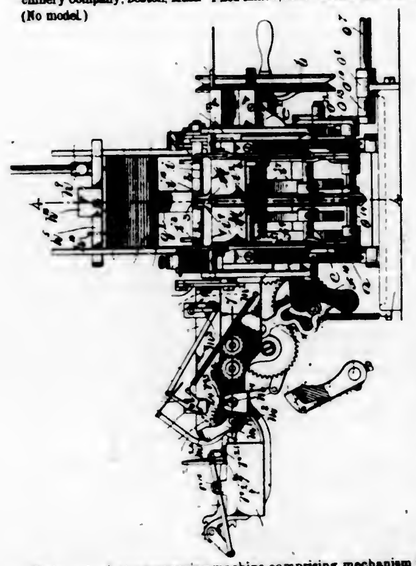
Claim.—1. In a sign of the character described, a rotatable frame composed of end pieces, and longitudinally-extending connecting-pieces, the latter being formed each of a single strip of sheet metal whose body portion is bent upon itself to form a hollow triangular prism, and whose edge portions are bent into positions parallel with the adjacent sides of the said prism to form therewith guides for the sign-plates, substantially as specified.

2. In a sign of the character described, a rotatable frame composed of end pieces, and longitudinally-extending connecting-pieces, the latter being formed each of a single strip of sheet metal whose body portion is bent upon itself to form a hollow triangular prism, and whose edge portions are bent into positions parallel with the adjacent sides of the said prism to form therewith guides for the sign-plates, together with interchangeable sign-plates fitted to be received in said guides, substantially as specified.

3. The combination with the rotatably-mounted sign-carrying frame, the end shafts on which it is mounted, and the bevel gear-wheel fixed to one end portion of said frame, of the hanger having its horizontal arm loosely sleeved on one of said end shafts adjacent to said bevel gear-wheel, the sleeve loosely mounted on the other arm of said hanger and carrying a gear-wheel which meshes with the first-named gear-wheel, means for turning said sleeve, and means for locking the sleeve against turning, substantially as specified.

4. The combination of the rotatable sign-frame, its end bearings, the bevel gear-wheel fixed to said frame, the hanger sleeved loosely on one of said bearings exteriorly of the said frame, the sleeve rotatably mounted on one arm of said hanger and having slots at one end portion, a gear-wheel on said sleeve which meshes with the gear-wheel on the frame, a hand-wheel movable on said sleeve and formed with projections which loosely engage its slots, and a washer-piece secured to the hanger and having notches therein, said hand-wheel having projections adapted for engagement with said slots, substantially as specified.

645,642. STRAP-COVERING MACHINE. Laburton A. Galr, Malden, Mass., assignor, by mesne assignments, to the Shawmut Machinery Company, Boston, Mass. Filed Mar. 8, 1899. Serial No. 707,890. (No model.)



Claim.—1. A strap-covering machine comprising mechanism for wrapping a strip of covering material around the strap, mechanism for feeding the strap, mechanism for severing portions of the strap of predetermined length, printing mechanism for marking the strap, said printing mechanism being separated from the wrapping mechanism by an unobstructed drying-space through which the freshly-printed portion of the strap passes without contact with the mechanism of the machine, the length of said space being substantially equal to the length of the severed portion of the strap, and connections for operating the several said mechanisms interdependently.

2. In a strap-covering machine, mechanisms for covering the strap, feeding the strap and severing portions of the strap of predetermined length, printing mechanism for marking the strap, said printing mechanism being separated from the wrapping mechanism by an unobstructed drying-space through which the freshly-printed portion of the strap passes without contact with the mechanism of the machine, the length of said space being substantially equal to the length of the severed portion of the strap, connections for operating the several said mechanisms interdependently, means for varying the length of strap severed, and means for varying the length of the drying-space.

3. In a strap-covering machine, mechanisms for covering the strap, feeding the strap, and severing portions of the strap of predetermined length, means for varying the length of strap severed, a printing mechanism for marking the strap, connections for operating the first said mechanisms and the printing mechanism interdependently, and means for adjusting the printing mechanism toward and from the first said mechanisms to locate the printed matter at the proper place on the severed portion of strap.

4. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap, a printing mechanism for marking the strap, means for adjusting said printing mechanism toward and from the covering, feeding, and severing mechanisms, a shaft connected with the last-said mechanisms for operating the printing mechanism, and a sliding spline connection between said printing mechanism and said shaft.

5. In a strap-covering machine, mechanisms for feeding and severing the strap, mechanisms for feeding a strip of covering material and wrapping the same around the strap, and a marker adapted to mark said covering-strip.

6. In a strap-covering machine, mechanisms for feeding and severing the strap, a support for a rolled strip of covering material, mechanisms for feeding said strip and wrapping the same around the strap, a marker adapted to rest on top of the roll of covering material, and a guide mounted on the roll-support and engaging said marker.

7. In a strap-covering machine, mechanisms for feeding and severing the strap, a support for a rolled strip of covering material, mechanisms for feeding said material and wrapping the same around the strap, vertical guide-rods attached to said support, and a marker adapted to rest on top of the roll of covering material, said marker comprising a bar recessed at its ends to engage the said guide-rods and having provisions for holding a marking member.

8. In a strap-covering machine, a paper-roll, supports therefor, a marker, and a guide for said marker comprising rods on either side of the roll, said rods being placed close to the roll and acting as a guide for the unrolling strip.

9. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and means for feeding the strip, said feeding means including a feed-roll and a presser-roll for engaging and advancing the strip, an arm carrying said presser-roll, and constructed as a spring, a fixed support, and a screw passing therethrough and engaging said spring-arm, whereby the pressure of said presser-roll on the strip may be varied.

10. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and mechanism for feeding the strip, said mechanism including a feed-roll and a presser-roll for engaging and advancing the strip, an arm carrying said presser-roll and constructed as a spring, a fixed support, and a screw passing therethrough and positively connected with the spring-arm, whereby the pressure of said presser-roll on the strip may be varied, and the presser-roll may be lifted clear of the feed-roll to allow the strip to be moved freely between the rolls.

11. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and an intermittently-acting feed mechanism for the strip, said mechanism including a feed-roll, means for pressing the strip against said roll, a revolving segment for driving said roll, and a brake for preventing movement of said roll during the non-action of the segment.

12. In a strap-covering machine, a former, means for guiding the strap beneath said former, a folding-bed provided with a groove or recess for the reception of said former, mechanism for moving the former vertically into and out of said groove, mechanism for feeding a strip of covering material transversely beneath said former, and a yieldingly-mounted strip-guide projecting upwardly from the bottom of said groove, said guide being displaced by the depression of the former.

13. In a strap-covering machine, mechanisms for feeding and severing the strap and doubling the severed portion, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap, and a paster made in two paste-depositing sections to apply paste to the cover at either side of the point at which the covered strap is subsequently creased in the doubling mechanism.

14. In a strap-covering machine, mechanisms for feeding and severing the strap and doubling the severed portion, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap, a paste-reservoir, paster-supporting arms, a paster attached to said arms and having alined straight portions and a middle portion bent upwardly out of line with said straight portions, whereby the paster applies paste to the cover at either side of the point at which the covered strap is subsequently creased in the doubling mechanism, and mechanism for actuating said paster-supporting arms.

15. In a strap-covering machine, mechanisms for feeding and severing the strap, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap,

a bracket on the machine-frame, a paste-reservoir, a separable connection between said bracket and reservoir, a paster having operating connections, and a separable fulcrum connection between said paster and the reservoir, the said construction permitting the reservoir to be independently removed from the machine.

16. In a strap-covering machine, mechanisms for guiding and feeding the strap, mechanisms for feeding a strip of covering material transversely beneath the strap, applying paste to said strip, severing the strip, and wrapping the severed and pasted portion around the strap to form a cover, and a reciprocatory presser for holding the pasted edges of the cover in contact after the wrapping mechanism has acted to wrap said cover.

17. In a strap-covering machine, mechanisms for guiding and feeding a strip of covering material transversely beneath the strap, applying paste to said strip, severing the strip, and wrapping the severed and pasted portion around the strap to form a cover, a rock-shaft, mechanism for oscillating the same, a presser-arm attached to said shaft, and a presser at the end of said arm composed of yielding material and adapted to hold the pasted edges of the cover in contact after the wrapping mechanism has acted to wrap said cover.

18. In a strap-covering machine, mechanisms for covering and severing the strap and doubling the severed portion, feed-rolls for advancing the strap to the severing and doubling mechanisms, intermeshing gears on the roll-shafts adjacent to the rolls, means for driving the rolls, and a stationary guard for preventing contact of the strap with the gears.

19. In a strap-covering machine, mechanisms for severing the strap, and doubling the severed portion, mechanisms for wrapping a strip of covering material around the strap, and applying paste to the cover, and feeding mechanism for advancing the covered strap to the severing and doubling mechanisms, said feeding mechanism including a feed-roll having relatively-deep recesses in its periphery for the purpose specified, and roughened tractive portions between said recesses.

20. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, a movable gage for adjusting the cover on the strap, said gage having an oscillatory arm, an oscillatory trip-arm and actuating means therefor, a catch on said trip-arm having an abrupt portion adapted on the forward stroke of the trip-arm to engage the gage-arm and release the same, and a beveled or inclined portion adapted to be engaged by said gage-arm, whereby the catch is displaced to pass the gage-arm, and a spring on the trip-arm engaging and normally projecting said catch.

21. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, a guide for supporting said portion in position to be doubled, a paste-reservoir at the end of said guide, a rock-shaft mounted in bearings on said reservoir, mechanism for oscillating said shaft, a paster for depositing paste or cement on the end of the portion of the strap to be doubled, a paste-lifter, and operating connections between said rock-shaft and said paster and paste-lifter.

22. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, means for supporting said portion in position to be doubled, a paste-reservoir, a paster for depositing paste or cement on the end of the portion of the strap to be doubled, a paste-lifter, a cam and means for revolving it, a lever having a roll engaged by said cam, and operating connections between said lever and said paster and paste-lifter.

23. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the severed portion, means for supporting said portion in position to be doubled, a paste-reservoir, a rock-shaft, a paster operatively connected with said rock-shaft and adapted to deposit paste or cement on the end of the portion of the strap to be doubled, a paste-lifter operatively connected with said rock-shaft, a pinion on the rock-shaft, a pivotal lever having a gear-segment engaged with said pinion, and means for vibrating said lever to operate the paster and paste-lifter.

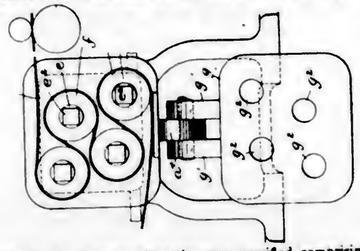
24. In a strap-covering machine, a paste-reservoir, a paster-arm carrying a paster, an oscillatory bearing having a socket in which said paster-arm slides, and mechanism for imparting a reciprocatory and oscillatory motion to said paster-arm.

25. In a strap-covering machine, a paste-reservoir, a paste-lifter arm carrying a paste-lifter arranged to operate inside of said reservoir, an oscillatory bearing having a socket in which said paste-lifter arm slides, and means for imparting a reciprocatory and oscillatory motion to said paste-lifter arm.

26. In a strap-covering machine, a paste-reservoir, a rock-shaft and means for oscillating the same, a paster-arm carrying a paster, a paste-lifter arm carrying a paste-lifter, oscillatory parts supporting and forming fulcrums for said arms, and arms secured to the rock-shaft and pivoted to the rear ends of the paster-arm and paste-lifter arm, whereby a reciprocatory and oscillatory motion is imparted to the latter when the rock-shaft is oscillated.

27. In a strap covering machine, a paste-reservoir, a paster-arm having a longitudinal socket or aperture in its end and having said end split and externally screw-threaded, a paster having a stem adapted to slide in and out of said socket, a jam-nut engaging the threaded end of the arm and adapted to pinch its split walls against the paster-stem to lock the latter to the arm, and means for actuating said paster-arm.

645,648. MACHINE FOR IRONING WEBBING. LAMBERTON A. GALE, Malden, Mass., assignor to the Shawmut Machinery Company, Boston, Mass. Filed July 12, 1899. Serial No. 723,537. (No model.)

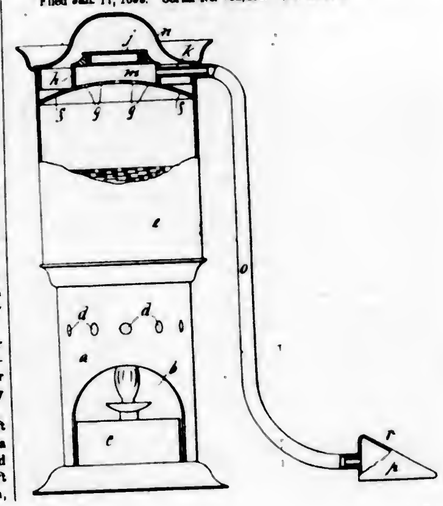


Claim.—1. A device of the character specified, comprising a casing inclosing a steam-space *c* and having an inlet and an outlet for the admission and exit of steam, a series of studs projecting laterally from and supported by the side wall of said casing and each having a central bore or recess *c'* open at one end to the steam-space *c*, a series of independently-movable rolls loosely surrounding said studs, and a retaining-plate mounted at the ends of the rolls opposite the side of the casing and serving to hold said rolls in place.

2. A device of the character specified, comprising a casing inclosing a steam-space, a series of hollow studs *e e* screwed into the side wall and having squared ends for the reception of a wrench, the interiors of the studs being open to the steam-space, a series of rolls loosely surrounding said studs, and a movable retaining-plate recessed to receive the squared ends of the studs and arranged to retain the rolls in place.

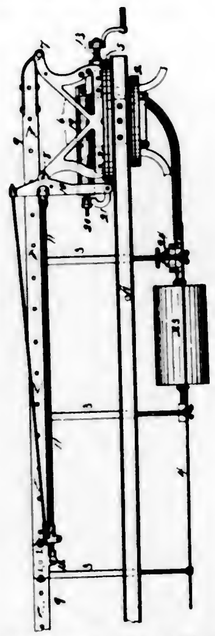
3. A device of the character specified, comprising a vertical casing inclosing a steam-space, a series of studs projecting horizontally from the side of said casing and supported thereby, said studs having internal steam-spaces communicating with the steam-space in the casing, a series of independently-movable rolls loosely surrounding said studs, and a retaining-plate mounted at the ends of the rolls opposite the casing and serving to retain said rolls in place, said plate being hinged to the casing and adapted to be swung outwardly therefrom to expose the rolls.

645,644. VAPORIZER. OLIN A. JOHNSTON, New York, N. Y. Filed Jan. 17, 1899. Serial No. 702,410. (No model.)



Claim.—In a vaporizer, the combination of a cylindrical steam-generator *e* formed with a curved diaphragm *f* provided with perforations *g* leading into a chamber *m* mounted upon said diaphragm, said chamber being adapted to contain a saturated sponge or towel for medicating the moist steam as it comes up through said perforations *g* in the diaphragm, a hollow wedge-shaped distributer *p* provided with perforations *r* to allow the escape of steam, the said distributer *p* being suitably connected by the hose *o*, the chamber *m* affording a means for the passage of the moist steam, and suitable means for generating steam in the aforesaid cylindrical generating-chamber, substantially as described.

645,645. AERIAL APPARATUS. JOHN KAISER, Seneca Falls, N. Y. Filed May 13, 1899. Serial No. 716,629. (No model.)



Claim.—1. The combination with an aerial apparatus supported at one end, of an extensible lifting-rod connected to said apparatus at a fixed point, and means to apply power to said rod at one end whereby its other end exerts a lifting force to raise said apparatus from substantially a horizontal position.

2. The combination with an aerial apparatus having one end supported, of a bell-crank one arm of which is automatically variable in length and is connected to said apparatus, and means to apply power to the other arm of said crank whereby said bell-crank exerts a lifting force upon said apparatus at said point of connection.

3. The combination with a turn-table front and rear bearings erected thereon, and a ladder mounted upon the front bearing of an angular lever mounted upon the rear bearing and having its rearwardly-extending arm connected to said ladder rearward of its pivot-mounting, an oscillating cylinder, a piston-rod therein, a link connecting said piston-rod to the downward arm of said lever and means to apply force to said piston-rod within said cylinder, whereby said lever is rocked, and the ladder is raised.

4. The combination with an apparatus to be raised upon one end, of a bell-crank having one arm sectional and automatically variable in length and connected to said apparatus, a cylinder having a piston connected to the other arm of said bell-crank, and means to apply power to said piston to rock said bell-crank and raise said apparatus.

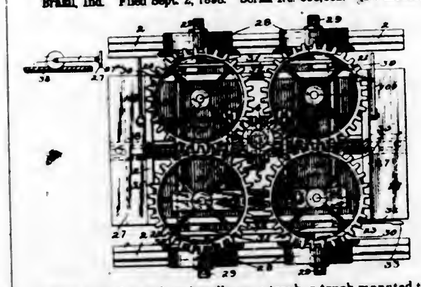
5. The combination with an apparatus to be raised upon one end, and a bell-crank having one arm connected to said apparatus, of a screw, a traveling nut thereon, a slide loose upon said screw, and a link connecting said slide to the other arm of said bell-crank.

6. The combination with an apparatus to be raised upon one end and a bell-crank having one arm connected to said apparatus, of a screw, a traveling nut thereon, a slide loose upon said screw, ways upon which said slide has a bearing, and a link connecting said slide to the other arm of said bell-crank.

7. The combination with an apparatus to be raised upon one end and a bell-crank having one arm connected to said apparatus, of a screw, a nut thereon, a slide loose upon said screw, ways upon which said slide has a bearing, a link connecting said slide to the other arm of said bell-crank, and a cylinder having a piston connected to said bell-crank arm.

8. The combination with a turn-table, an apparatus thereon to be elevated upon one end, and an elevating device, of a way across said turn-table upon the line of the length of said apparatus, a slide traversed upon said way actuated by the elevating device, and means to lock said slide, whereby said ways will support said apparatus in an elevated position.

645,646. ELECTRIC RAILWAY. EDMUND C. MORGAN, Chicago, Ill., assignor to the Electric Haulage and Manufacturing Company, Brazil, Ind. Filed Sept. 2, 1898. Serial No. 690,062. (No model.)



Claim.—1. In an electric railway, a track, a truck mounted thereon, feed-wheels carried by said truck, a supplemental rail arranged to be engaged by said wheels to move the truck along said track, a motor for rotating said wheels, and means for varying the angle of contact of said wheels with said supplemental rail, as and for the purpose set forth.

2. In an electric railway, a track, a truck mounted thereon, a motor carried by said truck, a pair of feed-wheels arranged to be actuated by said motor, in combination with a supplemental rail, the members of said pair of wheels arranged respectively on opposite sides of said rail to grip the same between them, and means for varying the angle of inclination of said wheels with respect to the supplemental rail, as and for the purpose set forth.

3. In an electric railway, a truck, crank-arms mounted therein, supporting-wheels journaled upon said crank-arms, and track-rails upon which said wheels operate, in combination with a supplemental rail, feed-wheels arranged to grip said rail, a motor for actuating said feed-wheels, and means for rocking said crank-arms whereby the angle of inclination of said feed-wheels with reference to said supplemental rail may be varied, as and for the purpose set forth.

4. In an electric railway, a truck, a rock-shaft mounted therein and having cranks, supporting-wheels journaled upon said cranks, and track-rails upon which said wheels operate, in combination with a supplemental rail, feed-wheels arranged to grip said supplemental rail, a motor for actuating said feed-wheels, and means for rocking said shaft, as and for the purpose set forth.

5. In an electric railway, a truck, supporting-wheels therefor, and a track upon which said wheels are mounted, in combination with a supplemental rail having a longitudinal groove or channel, an electric conductor arranged in said groove or channel, an electric motor carried by said truck, a contact device for conveying current from said conductor to said motor, and means actuated by said motor for engaging said supplemental rail, whereby said truck is moved along the track, as and for the purpose set forth.

6. In an electric railway, a truck, a track upon which said truck is mounted, a supplemental rail having a longitudinal groove or channel, an electric conductor arranged in said groove or channel so as to lie beneath or within the surface of said rail, an electric motor carried by the truck, a contact device for conveying current from the conductor to the motor, feed-wheels carried by the truck and arranged to grip said supplemental rail, and gearing actuated by the motor for rotating said wheels, as and for the purpose set forth.

7. In an electric railway, a truck, an electric motor carried by said truck, a supplemental rail of insulating material having a groove or seat formed longitudinally therein, a conductor seated in said groove so as to lie beneath or within the surface of said rail, a contact device carried by the truck and arranged to extend into said groove or seat to make contact with said conductor, whereby the circuit of said motor is completed, and feed-wheels carried by said

truck and arranged on opposite sides of said supplemental rail to grip the same between them, said feed-wheels having resilient engaging surfaces, as and for the purpose set forth.

8. In an electric railway, a truck, a track upon which said truck operates, a supplemental rail, a motor carried by the truck, feed-wheels carried by the truck and actuated by said motor, for engaging said rail, whereby the truck is moved, a conductor carried by said supplemental rail, and means carried by the truck for contacting with said conductor to complete the motor-circuit, and a brake carried by the truck and adapted to be thrown into or out of contact with said rail, as and for the purpose set forth.

9. In an electric railway, a track, a truck, supporting-wheels therefor, said wheels mounted on said track, a third or traction rail, gripping-rolls arranged in pairs, the members of each pair being respectively arranged on opposite sides of said rail, and adapted to grip said rail between them, swinging arms in which said wheels are mounted, means for simultaneously swinging all of said arms toward or away from said rail, and a motor for positively rotating said wheels, said third rail being grooved or channeled, and carrying a conductor in said groove or channel for supplying current to said motor, as and for the purpose set forth.

645,647. THIRD OR TRACTION RAIL FOR ELECTRIC RAILWAYS. EDMUND C. MORGAN, Chicago, Ill., assignor to the Electric Haulage and Manufacturing Company, Brazil, Ind. Filed Nov. 30, 1898. Serial No. 697,893. (No model.)



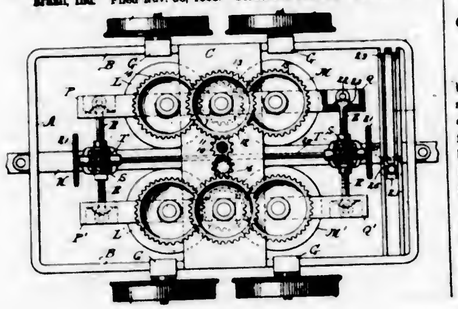
Claim.—1. An insulating third or traction rail for electric railways, having a longitudinal groove or channel adapted to receive a conductor, said rail having transverse openings formed therein at suitable intervals, and conductor-stretching devices arranged in said openings, as and for the purpose set forth.

2. A third or traction rail for electric railways, comprising a wooden sill adapted to be arranged parallel with the track-rails, in combination with a metal beam having flanges forming end portions and a connecting-web, said flanges extending at substantially right angles to the web, said web arranged to rest flatwise on the top of said sill and the flanges of the end portions bearing against the sides of the sill, and gripping feed-rolls arranged on opposite sides of said sill to grip the outer surface of said end portions between them, as and for the purpose set forth.

3. A third or traction rail for electric railways, having a longitudinal groove therein, in combination with a conductor seated in said groove, whereby said conductor lies wholly within and beneath the surface of said rail, gripping feed-rolls arranged to grip said rail between them without contact with said conductor, and a collector arranged to extend into said groove to contact with said conductor, as and for the purpose set forth.

4. A third or traction rail for electric railways, having a longitudinal groove formed in the side thereof, in combination with a conductor adapted to be seated in said groove, and means for securing the same in place, whereby said conductor lies entirely beneath or within the side surface of said rail, feed-rolls arranged on opposite sides of said rail to grip the side surfaces thereof between them without contact with said conductor, and a collector arranged to project into said groove to make contact with said conductor, as and for the purpose set forth.

645,648. ELECTRIC RAILWAY. EDMUND C. MORGAN, Chicago, Ill., assignor to the Electric Haulage and Manufacturing Company, Brazil, Ind. Filed Nov. 30, 1898. Serial No. 697,894. (No model.)



Claim.—1. In an electric railway, a track, a truck mounted thereon, a third or traction rail, gripping-wheels arranged to grip said rail, a motor mounted on said truck, gears actuated by said motor for positively rotating said wheels, swinging arms pivotally mounted concentric with the axis of rotation of said gears and carrying said wheels, and means for drawing said arms together or spreading them apart, as and for the purpose set forth.

2. In an electric railway, a track, a truck mounted thereon, a third or traction rail, gripping-wheels arranged on opposite sides of said rail, a motor for positively rotating said wheels, swinging arms in which said wheels are mounted, studs or bolts connected to the free ends of said arms and having threaded ends, a worm-gear arranged to receive the threaded ends of said studs, and means for rotating said worm-block, as and for the purpose set forth.

3. In an electric railway, a track, a truck mounted thereon, a third or traction rail, gripping-wheels arranged on opposite sides of said rail, a motor for positively rotating said wheels, swinging arms in which said wheels are mounted, studs or bolts loosely connected to the free ends of said arms and having threaded ends, a sleeve adapted to receive the threaded ends of said studs, and means for rotating said sleeve, as and for the purpose set forth.

4. In an electric railway, a track, a truck mounted thereon, a third or traction rail, gripping-wheels arranged on opposite sides of said rail and adapted to grip the same between them, a motor carried by the truck for positively rotating said wheels, pivotally-mounted arms on which said wheels are carried, studs or bolts yieldingly connected to the free ends of said arms and having threaded ends, a sleeve arranged to receive said threaded ends, and means for rotating said sleeve, as and for the purpose set forth.

5. In an electric railway, a track, a truck, a third or traction rail, gripping-rolls arranged in pairs, the members of each pair being respectively arranged on opposite sides of said rail to grip the same between them, a motor, gearing actuated thereby, for positively rotating said wheels, swinging arms in which said wheels are carried, the arms on the same side of said rail being pivoted about a common center, studs or bolts connected to the free ends of said arms and having threaded ends, a worm-block arranged to receive the ends of corresponding studs or bolts, and a shaft having worm-gears arranged to mesh with and rotate said worm-blocks, whereby when said shaft is rotated all of said wheels are simultaneously advanced toward or retracted from said rail, as and for the purpose set forth.

6. In an electric railway, a track, a truck mounted thereon, a third or traction rail, gripping-wheels arranged on opposite sides of said rail to grip the same between them, gearing for driving said wheels, a motor for actuating said gearing, a friction-wheel mounted on the shaft of said motor, brake-arms pivotally mounted and arranged to engage said friction-wheels on opposite sides, a rod connected at one end to the free end of one of said arms and having a lever pivotally mounted in the other end thereof, said lever provided with a cam-shaped head adapted to engage the free end of the other of said arms, as and for the purpose set forth.

7. In an electric railway, a track, a truck, a third or traction rail, gripping-wheels arranged to grip said rail, a motor, gearing actuated by said motor for driving said wheels, a conductor carried by said rail, a lever pivotally mounted on the truck, an arm pivotally mounted in the free end of said lever, a contact device carried by said arm, and a spring for maintaining said contact device in contact with said conductor, as and for the purpose set forth.

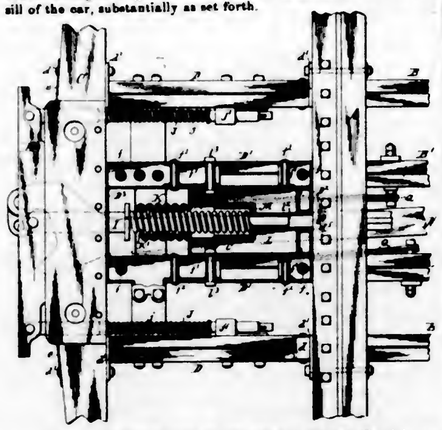
8. In an electric railway, track-rails, a truck-frame having side bars, castings secured to said side bars but insulated therefrom, said castings having studs or pintles, supporting-wheels sleeved upon said studs or pintles and adapted to operate on said track-rails, a tractice-rail, gripping-wheels arranged to grip said tractice-rail, and a motor carried by said truck for driving said-gripping-wheels, as and for the purpose set forth.

645,649. PLATFORM FOR RAILWAY-CARS. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Aug. 4, 1898. Serial No. 688,027. (No model.)

Claim.—1. The combination with the sills or subframe of the car-body, of metallic longitudinal beams secured to the under side of said sills or subframe and extending beyond the ends thereof, and each composed of a pair of channel-bars arranged side by side with their flanges facing inwardly, space-blocks arranged between said channel-bars, transverse bolts or rivets passing through said bars and space-blocks, and vertical bolts passing through said space-blocks and the sills of the car-body, substantially as set forth.

2. The combination with the sills or subframe of the car-body, of metallic longitudinal beams secured to the under side of said sills and each composed of a pair of channel-bars arranged side by side with their flanges facing inwardly, bolts or rivets connecting said bars, and separate cast-metal end pieces secured to the ends of said beams, substantially as set forth.

3. The combination with the longitudinal and end sills of the car-body, of metallic longitudinal beams secured to the under side of said longitudinal sills and extending forwardly beyond the end sill, a buffer-beam supported upon said longitudinal beams and metallic filling-beams arranged lengthwise between said buffer-beam and the end sill of the car, substantially as set forth.



4. The combination with the longitudinal and end sills of the car-body, of metallic longitudinal beams secured to the under side of said longitudinal sills and extending forwardly beyond the end sill, a buffer-beam supported upon said longitudinal beams, metallic filling-beams arranged lengthwise between said buffer-beam and the end sill of the car, and each composed of a pair of channel-bars arranged side by side with their flanges facing inwardly and bolts or rivets connecting said bars, substantially as set forth.

5. The combination with the longitudinal and end sills of the car-body, of metallic longitudinal beams secured to the under side of said longitudinal sills and extending forwardly beyond the end sill, a buffer-beam supported upon said longitudinal beams, metallic filling-beams arranged lengthwise between said buffer-beam and the end sill of the car, and each composed of a pair of connected channel-bars arranged side by side with their flanges facing inwardly, and cast-metal end pieces secured to the ends of said beams and connected with said end sill and buffer-beam, substantially as set forth.

6. The combination with the end sill of the car-body and the buffer-beam, of a metallic frame arranged centrally between said end sill and said buffer-beam and composed of longitudinal beams each consisting of a pair of connected channel-bars arranged side by side with their flanges facing inwardly, and transverse cast-metal end pieces having tenons or projections which are secured in the end portions of said beams, substantially as set forth.

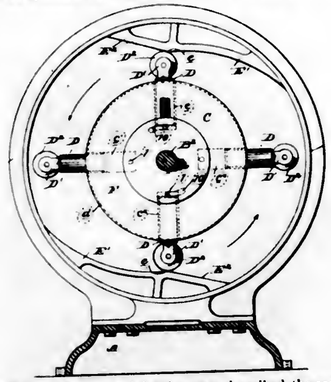
7. The combination with the end sill of the car-body and the buffer-beam, of a metallic abutment-block arranged between the end sill and the buffer-beam and composed of upright side and end walls, a socket arranged between said side walls and having an open lower side and a reduced socket or tube extending rearwardly from said front socket, substantially as set forth.

8. The combination with the sills or subframe of the car-body, of metallic longitudinal beams secured to the under side of said sills, side lugs or plates for the followers of the draft-springs secured to said metallic beams and provided on the outer sides of said beams with lugs or ears, and longitudinal tie-rods extending rearwardly from said ears, substantially as set forth.

9. The combination with the sills or subframe of the car-body, of metallic beams secured to the under side of said sills, abutments or hangers for the centering-springs of the draw-bar secured to an adjacent pair of said metallic beams, a transverse bolt connecting said hangers or abutments and inclined braces extending laterally from said hangers to the beams arranged on opposite sides of the supporting-beams of said hangers, substantially as set forth.

645,650. ROTARY MOTOR. JAMES B. SAMPLE, Columbus, Ga., assignor of one-half to William Ballinger, Chenoa, Ill. Filed Sept. 30, 1899. Serial No. 732,224. (No model.)

Claim.—1. In a rotary motor, the combination with a base, of a hollow frame mounted thereon, standards on the base, a shaft journaled in the standards, a cylinder-disk fixedly secured to the shaft and having a series of cylinders formed therein with supply and exhaust ports at their base, pistons working in the cylinder having brackets carrying antifriction-rolls, inclined tracks mounted in the frame in the path of the rolls and oppositely arranged, the inclined surfaces being divided into two sections having different inclinations, a steam-chest and an exhaust-chest mounted on opposite sides of the cylinder-disk and stationary means associated with the chests acted against directly by the steam entering thereinto for forcing the chests against the cylinder-disks, substantially as described.



2. In a rotary motor of the character described, the combination with the revolving cylinder-disk, and means for revolving the same, a steam-chest movable toward and from the disk, a fixed abutment, and a sliding hollow connection between the abutment and chest communicating with the latter, substantially as described.

3. In a rotary motor, the combination with a cylinder-disk, means for driving the same, of a steam-chest having movement toward and from the disk, a block having nipples extending therefrom into the chest having a sliding engagement with the chest and means for preventing the movement of the block in an outward direction, substantially as described.

4. In a rotary motor, the combination with a cylinder-disk and means for driving the same, of a steam-chest having a movement toward and from the disk, stuffing-boxes at the side of the chest, nipples projecting loosely through the stuffing-boxes into the side of the chest, a support for the nipples, a standard and a bearing against which the support rests, substantially as described.

5. In a rotary motor, the combination with a cylinder-disk having pistons, means for driving the same, of a steam-chest, an exhaust-chest having a steam-chest at the side thereof, and an abutment carrying nipples loosely passing through the walls of the said steam-chest on the exhaust side, substantially as described.

6. In a rotary motor, the combination with the base, standards on the base and a shaft journaled in the standards, of a disk fixidly mounted on the shaft having radial cylinders therein, provided with inlet and outlet ports at their bases, pistons mounted in the cylinders carrying antifriction-wheels at their outer ends, inclined planes fixedly secured in the path of the wheels and arranged opposite each other, the inclination of the planes being relatively different to form a propelling and replacing portion, steam-chests and means for causing the same to closely and yieldingly rest against the side of the cylinder-disk comprising a stationary abutment and hollow steam-conduit carried thereby entering the chest, substantially as described.

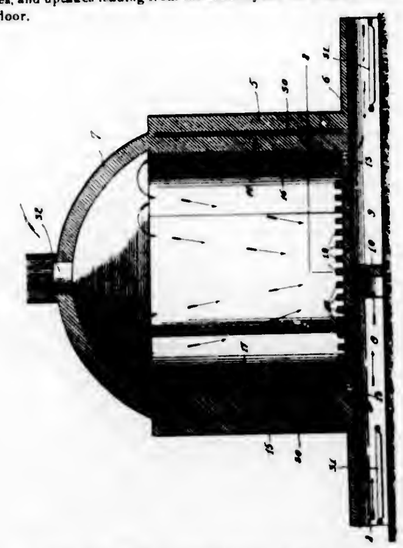
645,651. BRICK-KILN. JACOB SCHUDLE, Zone, Ohio. Filed Oct. 13, 1899. Serial No. 733,522. (No model.)

Claim.—1. A kiln comprising a baking-chamber having a floor, archways leading inwardly beneath the floor and having return portions, openings in the floor leading to the archways and their return portions, uptakes communicating with said openings and leading to the top of the chamber, stringers upon the floor separated by interspaces, and chimneys communicating with said interspaces below the floor.

2. A kiln comprising a baking-chamber having arc-shaped partitions at diametrically-opposite portions inclosing interspaces, a corrugated floor for the chamber, archways leading inwardly beneath the floor in opposite directions and having return portions, openings through the floor forming communications between the interspaces and the adjacent archways and their return portions, and chimneys communicating with the baking-chamber through the floor and at diametrically-opposite points thereof.

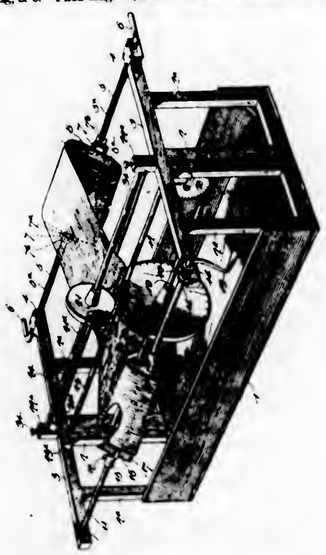
3. A kiln comprising a baking-chamber having a floor, archways leading inwardly beneath the floor, air-spaces between the outermost

archways and the wall of the chamber, stringers disposed transversely of the archways and extending beyond the outermost archways, said stringers being separated by interspaces which communicate at their end portions with the air-spaces, chimneys connected with the air-spaces, and uptakes leading from the archways to the chamber above the floor.



4. A kiln comprising a baking-chamber having an air-space in its walls concentric therewith, a floor within the chamber having stringers upon its upper surface separated by interspaces, said stringers projecting beyond the floor, piers supporting the ends of the stringers and separated by interspaces, an air-space connecting the interspaces of the piers, air-ducts connected with the air-spaces and leading to chimneys and connections between said ducts and the first-named air-chambers, archways leading inwardly beneath the floor of the kiln, and connections between said archways and the top of the kiln.

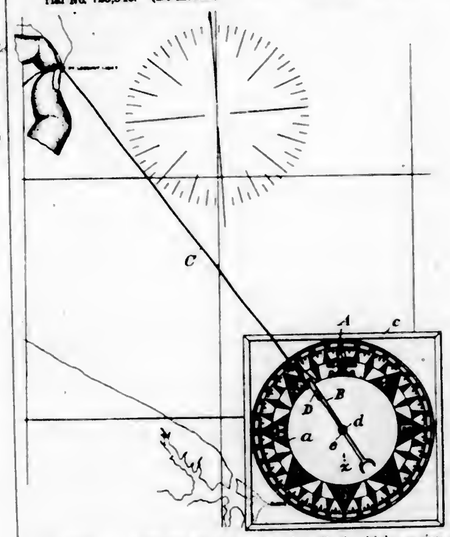
645,652. CLOTH-MEASURING DEVICE. OLIVER E. WEBBER, Manning, S. C. Filed Aug. 11, 1897. Serial No. 647,798. (No model.)



Claim.—1. A machine of the class described comprising a frame, a lower measuring-wheel located at the center of the frame, an upper friction-wheel, a pair of transverse shafts supporting the said wheels and journaled in suitable bearings of the frame, the transverse guide-rollers located in advance and in rear of the said wheels and arranged to engage the fabric at the lower and upper faces thereof, short transverse shafts arranged at one end of the machine and adapted to receive the bolt to be measured, an operating-shaft detachably mounted at the other end of the frame and arranged to receive the material as it is measured, a bracket arranged at one side of the machine and composed of two L-shaped members, a transverse shaft mounted on the outwardly-extending arms of the L-shaped members, a worm carried by the shaft upon which the measuring-wheel is mounted, a gear-wheel mounted on the short transverse shaft, adjacent to one of the members of the bracket and meshing with the said worm, a sleeve also mounted on the short shaft and interposed between the members of the bracket, a ratchet-wheel mounted on the sleeve at the rear end thereof, a graduated disk frictionally engaging the sleeve at the front end thereof, carried by the same and adapted to be rotated independently thereof by hand, a spring-actuated pawl mounted on the gear-wheel and engaging the ratchet-wheel, and a fixed pointer located adjacent to the front end of the short shaft, substantially as and for the purpose described.

2. In a machine of the class described, the combination of a transverse shaft provided at one end with a worm, a measuring-wheel mounted on the shaft, a bracket composed of a pair of L-shaped members, a short shaft secured to the outwardly-extending arms of the L-shaped members, a sleeve mounted on the short shaft, a gear-wheel also mounted on the short shaft and interposed between the rear end of the sleeve and the adjacent L-shaped member and meshing with the worm, a ratchet-wheel carried by the sleeve and arranged at the rear end thereof, a spring-actuated pawl pivoted to the gear-wheel and engaging the ratchet-wheel, a graduated disk frictionally engaging the front end of the sleeve and carried by the latter and adapted to be rotated independently thereof, by hand, and a fixed pointer supported by the shaft and interposed between the front member of the bracket and the graduated disk, substantially as described.

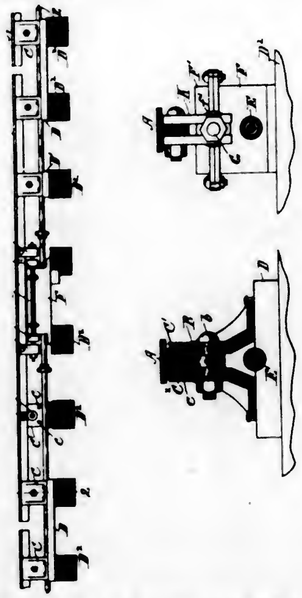
645,653. COURSE-FINDING INSTRUMENT FOR NAVIGATORS. CHARLES H. WHITE, Baltimore, Md., assignor of one-half to Charles M. Struven, same place. Filed Dec. 4, 1897. Renewed July 29, 1899. Serial No. 725,546. (No model.)



Claim.—1. A device for the purpose described, which consists of a card with the points of the mariners' compass inscribed thereon, combined with a revoluble pointer pivoted at the center of the card, an adjustable arm projecting from the pointer, and a cord which is attached to the pivot of the pointer, and passes through the adjustable arm, whereby the angle of the pointer with reference to the cord when the same is stretched, may be changed to suit the variation of the magnetic needle from the true north, substantially as specified.

2. A device for the purpose described, which consists of a card with the points of the mariners' compass inscribed thereon, combined with a revoluble pointer pivoted at the center of the card, an eyed arm pivoted to the said pointer, and a cord which is attached to the pivot of the pointer and passes through the eye of the arm, whereby the angle of the pointer with reference to the cord when the same is stretched, may be changed to suit the variation of magnetic needle from the true north, substantially as specified.

645,654. THIRD RAIL FOR ELECTRIC RAILWAYS. WILLIAM A. P. WILLARD, Jr., Hull, Mass. Filed July 13, 1899. Serial No. 723,648. (No model.)



Claim.—1. In a third-rail system, a contact-rail, a switch-box carrying a push-rod suitably connected thereto, in combination with a stationary switch member, a conductor connected thereto, a switch-lever and means substantially as described connecting said push-rod with said switch-lever, whereby a reciprocation of the push-rod in either direction will bring said switch member into electrical engagement, as set forth.

2. In a third-rail system, a contact-rail, a switch-box, a push-rod passing through said switch-box and connected to said contact-rail, a switch consisting of two members, one of which is movable, and means connecting said movable switch member with said push-rod, whereby the reciprocation of said contact-rail and said push-rod in either direction will cause electrical contact between said switch-lever and the other member of the switch, as set forth.

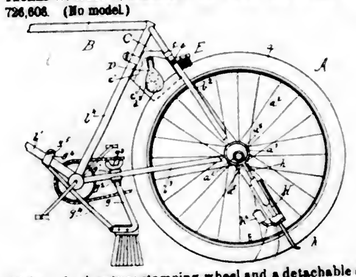
3. A switch-box adapted for use in third-rail systems having a freely-movable switch member and a stationary switch member and a horizontally-movable rod connected to said movable switch member and adapted to be connected to a movable third rail, and means for electrical connection between said stationary switch member and a source of electricity, as set forth.

4. In a switch-box, a switch-lever mounted on a horizontal shaft, a double scroll-lever connected thereto and a push-rod having two arms each capable of engagement with one of the arms of said scroll-lever, whereby the movement of the push-rod in either direction will cause the oscillation of the switch-lever in the one direction, in combination with a stationary switch member, all as set forth.

5. A third-rail-supporting chair consisting of two sides, one provided with lugs adapted to engage with the face of the other, and said chair carrying a friction-roll mounted thereon, as set forth.

6. In a third-rail system having a horizontally-movable contact-rail, in combination, a slotted contact-rail and two or more supporting-chairs each having a friction-roll upon which said rail rests, and a lug adapted to pass through a slot in said rail and limit its movement, as set forth.

645,655. STAMPING DEVICE FOR STREET-ADVERTISEMENTS. THOMAS W. WRIGHT, Rosedale, Kans. Filed Aug. 8, 1899. Serial No. 726,608. (No model.)



Claim.—1. A rotary stamping-wheel and a detachable strip connected with said wheel and stamping devices upon said strip adapted to imprint upon suitable surface, and means for imparting color to the said devices.

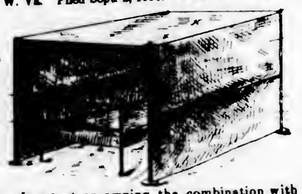
2. A rotary stamping-wheel and a detachable strip connected with the periphery of said wheel, and a strip of suitable material having stamping devices extending therefrom, and the outer edges of said strip reinforced substantially as described.

3. A rotary stamping-wheel, and separate strips connected with and extending in the direction of the circumference of said wheel, and connecting the stamping devices with the periphery of the wheel, and reinforcing-strips between the separate strips and near the outer edges of said strips.

4. A rotary stamping-wheel, stamping devices upon and extending beyond the surface of the periphery of said wheel, having the surface of the devices inclined and adapted to lessen the resistance in contacting with the surface of the pathway.

5. The combination with the frame of the bicycle and with one of the wheels of a pump, a receptacle having a valve connected with the pump, a plate connecting said pump with the axis of said wheel, and an eccentric upon the hub of said wheel, and a band extending around said eccentric and connected with the piston-rod of said pump.

645,656. CANOPY OR TENT. ADRIAN G. WYNKOOP, Charlestown, W. Va. Filed Sept. 2, 1899. Serial No. 729,394. (No model.)



Claim.—In a tent or awning, the combination with a series of bases and top, side and end pieces, of a post secured to each base, each end of each of said posts being reduced and shouldered exteriorly, and the intermediate portions being provided with staples, the reduced portion at the top being screw-threaded and projecting through the ends of said bars, a nut on said screw-threaded portion above the bars, cross-bars between the posts, each end of which is bent at an angle, and fits within the staples on the side of the posts, and curtains on the top and intermediate cross-bars, those on the intermediate bars being adapted to be rolled and secured thereto, substantially as described.

645,657. WATCH-REGULATOR. ENRIQUE AVILA, Toluca, Mexico. Filed Oct. 9, 1899. Serial No. 733,037. (No model.)

Claim.—1. In a watch-movement, the combination with a hair-spring, of a fixed regulator member provided with an arm having a guide-opening and having the free end of the hair-spring fixed to it, and a shiftable regulator member passing through the said guide-opening and slidably connected with the outer coil of the hair-spring, substantially as and for purpose described.

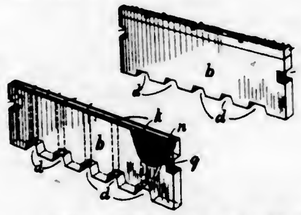
2. In a watch-movement, the combination with a hair-spring, of a fixed regulator member provided with arms having guide-openings, one of the arms having the outer end of the hair-spring fixed to it, a curved shiftable member mounted in the said guide-openings and extending beyond the fixed regulator member and slidably connected with the outer coil of the hair-spring, and means for moving the shiftable member lengthwise in a plane concentric with the hair-spring, substantially as described.

3. In a watch-movement, the combination with a hair-spring, of a fixed regulator member provided with arms having guide-openings, one of the arms having the outer end of the hair-spring fixed to it, the curved screw constituting the shiftable member of the regulator and mounted in the said guide-openings and slidably connected with the outer coil of the hair-spring, a nut located between the arms and engaging the screw and adapted to move the same lengthwise, and a clamping device swiveling the screw and securing the same in its adjustment, substantially as described.



4. In a watch-movement, the combination with a slotted bridge, and a hair-spring, of a fixed regulator member mounted on the bridge and provided with arms having guide-openings, the outer end of the hair-spring being secured to one of said arms, a curved screw mounted in the said guide-openings and slidably connected with the outer coil of the hair-spring, the grooved nut engaging the curved screw, and the clamping-screw projecting into the groove of the nut and swiveling the latter and securing the same in its adjusted position, substantially as described.

645,658. PRINTING-BAR. BEL V. BEALS, Boston, Mass. Filed Feb. 21, 1898. Serial No. 671,169. (No model.)



Claim.—1. A blank for composite printing-bars having notches at its opposite ends for the reception of means for controlling its movements in a machine for producing printing-bars.

2. A blank or foundation-piece for printing bars or slugs consisting of a body having a groove along one edge and apertures extending therethrough from said groove.

3. A blank or foundation-piece for printing bars or slugs consisting of a body having notches at one edge in which terminate apertures extending through said body.

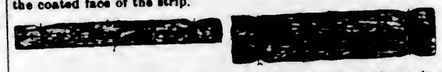
4. A printing bar or slug consisting of a foundation or main portion having a single groove along one edge and apertures extending therethrough from said groove, and an edge portion bearing the printing-faces to form a line, said edge portion extending into the grooved edge and apertures in said main portion.

5. A composite printing bar or slug having its base or main portion provided with apertures extending therethrough for the passage of soft or molten material to form thereon a character-bearing edge, said main portion being provided at one edge with notches in line with its openings for the reception of corresponding apertured projections at the mouth of a receptacle containing soft or molten material which passes directly from said projections through the apertures in the main portion of the printing-bar to the molding-chamber.

6. The herein-described printing-bar, comprising a blank or foundation-piece having notches at its opposite ends and provided with a groove along one edge, a series of notches in its opposite edge, apertures extending from the bottom of said notches to said groove, and an edge portion bearing printing characters to form an entire line molded upon said foundation-piece by forcing soft or molten material through the apertures therein into the molding-chamber, said blank or foundation-piece having an additional aperture for the passage of air while the edge piece is being molded thereon.

645,659. TREE-PROTECTOR. HARRY H. BELKNAP, Philadelphia, Pa., assignor to Charles S. Hirst, same place. Filed Aug. 4, 1899. Serial No. 726,123. (No model.)

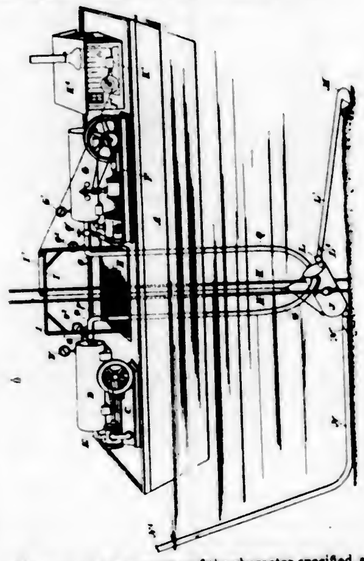
Claim.—1. The within-described strip of material for a tree-protector, the same consisting of a strip or band of paper or textile material having upon one face a coating of glutinous material and upon the other face a sheet of cotton-batting or other fibrous material secured to the backing-strip by a row of stitches adjacent to each edge, there being no projection of said cotton-batting transversely beyond the coated face of the strip.



2. The within-described tree-protector consisting of a strip or band of paper or textile material having glutinous material applied to one face of the same and having at each edge a strip or band of cotton-batting or other fibrous material secured thereto by a row of stitches, one of said strips or bands being folded back upon itself so that the fibrous material will project upwardly and downwardly beyond the central band.

3. A tree-protector consisting of a central strip or band of paper or textile material, having a coating of glutinous material upon its outer face, said strip or band having a strip or band of fibrous material secured to it at each edge by means of a row of stitches each edge portion of the said central strip or band being folded back upon itself so as to cause the fibrous strips to project upwardly and downwardly therefrom.

645,660. DREDGING. FRANK M. BELL, New York, N. Y. Filed Oct. 13, 1899. Serial No. 733,458. (No model.)

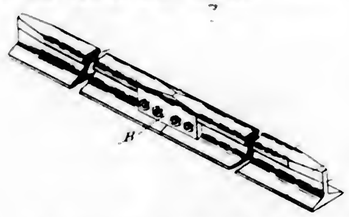


Claim.—1. In an apparatus of the character specified, a receptacle adapted to receive excavated matter, a vacuum-receptacle and a receptacle containing air under pressure; said receptacles being connected to the receptacle first mentioned, and valve mechanism for alternately placing said first-mentioned receptacle in communication with the vacuum-receptacle and the receptacle containing air under pressure whereby to cause the excavated matter to be drawn into said first-mentioned receptacle, and thence discharged therefrom, substantially as specified.

2. In an apparatus of the character specified, a submergeable receptacle adapted to receive excavated matter, intake and discharge pipes connected to said receptacle, check-valves arranged in said pipes, an air-compressing apparatus, a receptacle adapted to receive the compressed air connected to said compressing apparatus and the submergeable receptacle, an exhausting apparatus, a receptacle adapted to be exhausted connected to said exhausting apparatus and said submergeable receptacle, and valve mechanism for controlling the ingress and egress of fluids and matter to and from the submergeable receptacle, substantially as specified.

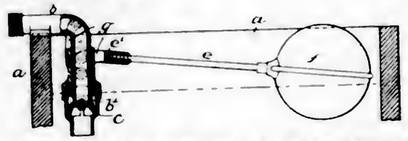
3. In an apparatus of the character specified, the combination with a suitable support, of a submergeable receptacle, means for raising and lowering the same, intake and discharge pipes connected to said submergeable receptacle, check-valves arranged in said pipes, an air-compressor and a receptacle adapted to receive the compressed air connected thereto disposed upon the support, a pipe connecting the compressed-air receptacle, and the submergeable receptacle, a valve and a gage arranged in said pipe, a vacuum-pump and a receptacle adapted to be exhausted connected thereto disposed upon the support, a pipe connecting said vacuum-receptacle and submergeable receptacle, a valve and a gage arranged in said pipe, and a relief-valve provided in the pipe leading from the compressed-air receptacle to the submergeable receptacle, and disposed intermediate said submergeable receptacle and the valve controlling the admission of air under pressure thereto, substantially as specified.

645,661. RAIL-JOINT. CHARLES R. BERRY, Louisville, Ky. Filed July 27, 1899. Serial No. 725,310. (No model.)



Claim.—In a rail-joint, the combination of the rails having the tread on each side beginning at the extremities of their meeting ends cut diagonally from the thickness of the web to the outside edges of the tread and forming a triangular-shaped recess on each side at the rail-joint when the rails are brought together, and fish-plates having their upper portions beveled off vertically to form triangular extensions which fit within and fill out the recesses in the tread to form a continuous tread-surface at the rail-joint, substantially as shown and described.

645,662. BALL-COCK. VICTOR J. EMERY, Wollaston, Mass., assignor to Henry H. Libbey, Boston, Mass. Filed Jan. 26, 1898. Serial No. 667,990. (No model.)



Claim.—1. A ball-cock comprising a pipe or casing having a valve-seat formed on its end, a sleeve sliding on said pipe and having an internally-arranged valve, links pivoted to the pipe or casing, a valve rod or lever fulcrumed at its bifurcated end in the free ends of the links, and pivoted to the sleeve, and means for limiting the lateral movement of the links when the valve is closed, substantially as set forth.

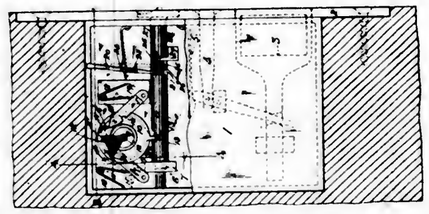
2. A ball-cock comprising a pipe or casing having a valve-seat formed on its end, a sleeve sliding on said pipe and having an internally-arranged valve, links pivoted to the pipe or casing, a valve rod or lever fulcrumed at its bifurcated end in the free ends of the links and pivoted to the sleeve, stops carried by the sleeve for limiting lateral movement of the links when the valve is closed, and a cup-packing interposed between the sleeve and the pipe or casing.

3. In a ball-cock the combination with a pipe or casing having a valve-seat formed on its end, of a sleeve sliding on said pipe and having an internally-arranged valve, curved links pivoted to the pipe or casing, a bifurcated valve rod or lever having its end bent and pivoted to the links, said rod being likewise pivoted to the sleeve and the pivots being all substantially in alinement when the valve is closed, and stops carried by the sleeve to limit the lateral movement of the curved links when the valve is closed.

645,663. DOOR-LOCK. CLARENCE B. HAND, St. Louis, Mo. Filed Nov. 22, 1899. Serial No. 737,891. (No model.)

Claim.—1. In a lock, a suitable bolt, means for imparting an initial movement thereto longitudinally by the turning of a key, means for imparting an additional or supplemental movement to said bolt, and devices for subsequently rotating the bolt about its longitudinal axis by a further turning of the key, substantially as set forth.

2. In a lock, a casing, a sliding bolt rotatable about its longitudinal axis mounted in said casing, a worm-disk having a peripherally-projecting arm engaging said bolt, said disk being adapted upon a partial turning thereof to force the bolt outwardly, and upon further turning to rotate the bolt about its longitudinal axis, substantially as set forth.



3. In a lock, a casing, a sliding bolt rotatable about its longitudinal axis mounted in said casing, a locking-head carried at the outer end of the bolt, a worm-disk having a peripherally-projecting arm engaging said bolt, the disk being rotatable by the insertion thereinto and turning of a key, and being adapted to drive the bolt longitudinally by a partial turn of the key, and to rotate the bolt by a further turn, substantially as set forth.

4. In a lock, a casing, a sliding bolt mounted within the same, means for imparting an initial longitudinal movement to the bolt upon the turning of a key, and a trigger for completely ejecting the bolt to the limit of its outward movement, substantially as set forth.

5. In a lock, a casing, a sliding bolt rotatable about its longitudinal axis mounted within the same, a rotatable worm-disk having a keyhole, an arm projecting radially from the periphery of the disk, a notch formed in the bolt for receiving said arm, spring-actuated pawls or tumblers for locking the disk in either of its extreme positions, the tooth of the key being adapted to release the tumblers in the turning thereof, the bolt being adapted to be pushed forward or advanced by the arm upon the turning of the disk, a trigger for imparting a final longitudinal movement to the bolt, a bolt-head carried at the free end of the bolt, a series of pegs arranged spirally along the periphery of the bolt and adapted to come into engagement with the peripheral grooves of the disk after the bolt has been pushed to its outward limit, whereby upon further turning of the disk rotation is imparted to the bolt, a peripheral groove formed in the bolt, a pivotal arm carried by the casing and having its free end engaging said groove, a trigger or spring-arm having a knob engaging said arm, the latter riding along said knob, a recess formed in the bolt in continuation of the groove, a finger engaging one of the longitudinal walls of the recess, and a block from which said finger projects engaging the opposite longitudinal wall of said recess for preventing the rotation of the bolt during its longitudinal movement, the parts operating substantially as and for the purpose set forth.

6. In a lock, a sliding, axially-rotatable bolt, spirally-arranged pegs carried by the same, a notch formed in the periphery of the bolt, a suitable worm-disk having terminal bosses about which the same is rotatable, an opening formed therein for the insertion of a key, annular shoulders formed about the bosses for the support of suitable tumblers, pins projecting from the opposite faces of the disk on either side of the center line of the recess for engaging the tumblers, peripheral spiral grooves formed in the disk, and an arm projecting radially from the disk between the adjacent ends of the terminal grooves, the parts operating substantially as set forth.

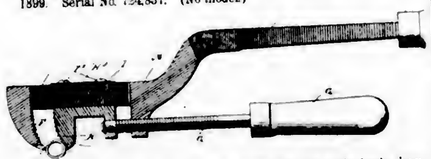
645,664. ANIMAL-POKE. WALTER B. HART, Duncan, Ind. Ter. Filed Nov. 1, 1899. Serial No. 735,496. (No model.)



Claim.—An animal-poke, comprising a split ring, formed of opposite duplicate substantially-semicircular ring-sections, which are free from intermediate projections, and have their contiguous ends overlapped and pivotally connected, the opposite free ends being terminally enlarged, and a poke proper, having an eye slidable upon the ring, of smaller diameter than the terminal enlargements thereof,

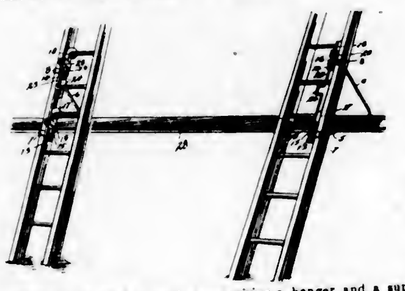
and normally embracing the overlapped portions of the ring-sections, and a hook pendent from the eye.

645,665. WRENCH. HENRY B. HARTFORD, Standish, Me., assignor to Orlando P. Weeks and Bion B. Whitney, same place. Filed July 22, 1899. Serial No. 724,837. (No model.)



Claim.—In a wrench, the combination with the main body, having a slot, the bar bent backward from the body, then downward in a different plane from the body forming a handle, the jaw integral with the top of the body having a curved toothed under face, an outer tooth formed on said jaw, an integral, forwardly-projecting lug, having a screw-threaded opening, of a vertical, movable jaw comprising the rearwardly-extending rib, a forwardly-extending jaw having a downwardly-extending, toothed upper face, a V slot or groove in the outer end of the same, an integral forwardly-extending lug having an opening therein, and an operating screw-threaded handle adapted to work in the screw-threaded opening of the above lug, the extreme upper end of the handle being smooth and swiveled in the opening in the lug of the movable jaw, all as described.

645,666. SCAFFOLD. AXEL N. HELSTROM, Tower, Minn. Filed Dec. 23, 1899. Serial No. 741,437. (No model.)



Claim.—1. A scaffold-bracket comprising a hanger and a support connected therewith and adapted to receive a clamp, hooks pivotally connected with the hanger and the support, said hooks lying in axial alinement for movement into and out of position to engage the rungs of a ladder.

2. A scaffold-bracket comprising a support, a hook pivotally and adjustably connected with the support, said support being adapted to receive a scaffold-plank, a hanger connected with the support, a second hook pivotally and adjustably connected with the hanger whereby said hooks may be moved toward and away from each other, and means connected with the hooks for moving them upon their pivots into and out of position to engage the rungs of a ladder.

3. A scaffold-bracket comprising a support, a hook pivotally and adjustably connected with the support, a hanger connected with the support, a second hook pivotally and adjustably connected with the hanger in axial alinement with the first-named hook, and means connected with both hooks for moving them pivotally into and out of position to engage the rungs of a ladder.

4. A scaffold-bracket comprising a support adapted to receive a plank, a hook pivotally connected to the support for engagement with a rung of a ladder, a hanger connected with the support, a hook pivoted to the hanger and adapted for engagement with a second rung of a ladder simultaneously with the engagement of the first hook, and a common means connected with the hooks for moving them upon their pivots into and out of said engagement.

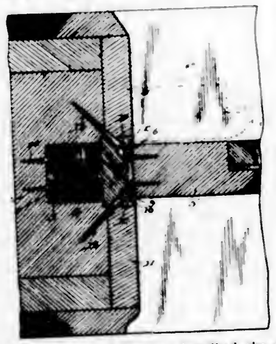
5. A scaffold-bracket comprising a support adapted to receive a plank, a hook pivotally and adjustably connected to the support for engagement with a rung of a ladder, a hanger attached to the support, a hook pivotally and adjustably connected to the hanger and adapted for engagement with a second rung of a ladder simultaneously with the engagement of the first hook, and a rod adjustably connected with the hooks and adapted to move them upon their pivots into and out of said engagement.

6. A scaffold-bracket comprising a support and a hanger mutually connected and disposed at an angle to each other, coaxial perforations in the support and hanger, bolts adjustably engaged with said perforations, hooks mounted upon the bolts for adjustment therewith, and a crank-rod adjustably connected with the hooks for turning them upon their pivots into and out of operative position.

7. The combination with a ladder, of a bracket comprising a support and a hanger mutually connected, the extremities of the support and hanger being bent laterally to form bearing-surfaces engaging a rail of the ladder, and hooks carried by the bent portions and engaged with the rungs of the ladder.

8. A scaffold-bracket, comprising a support and a hanger mutually connected and disposed at an angle to each other, coaxial hooks carried by the support and hanger and adapted for engagement with the rungs of a ladder, and a crank-rod connected with both hooks for moving them simultaneously into and out of operative positions.

645,667. CAR-WINDOW. WILLIAM E. HENDRICKS, Cairo, Ill. Filed Jan. 13, 1900. Serial No. 1,335. (No model.)



Claim.—1. In a device of the class described, the combination with a window-frame provided with a longitudinal recess, of a guide-bar mounted in the recess and provided at its inner face with a longitudinal tongue and having a recess at its outer face, said guide-bar being provided with a longitudinal groove located between the sides of the recess, a sash provided with a slide or strip fitting in the recess of the guide-bar and having a tongue arranged in the said groove, a guide-strip arranged in the recess of the window-frame and provided with a tongue, and a weight connected with the sash and interposed between the guide-strip and the guide-bar and provided with grooves receiving the tongue of the said guide-bar and guide-strip, substantially as described.

2. In a device of the class described, the combination of a window-frame having a recess, a guide-bar arranged in the recess and provided at its outer face with a longitudinal groove and having a recess beveled at its side walls, diverging fastening devices securing the guide-bar to the window-frame, and a window-sash having a beveled slide or strip fitting in the recess of the guide-bar and provided with a tongue to engage the said groove, substantially as described.

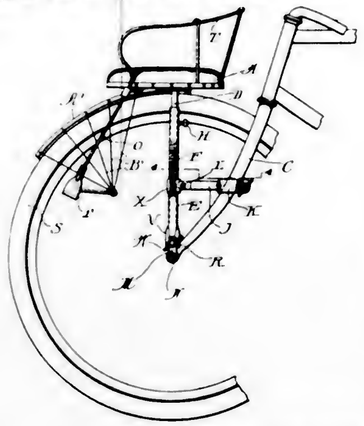
3. In a device of the class described, the combination with a window-frame, having face-pieces 11, and provided between the same with a longitudinal recess, of a guide-bar mounted within the recess and being of greater thickness than the face-pieces, said guide-bar being provided at its outer face with a recess, a sash guided in the recess of the guide-bar and spaced from the face-pieces, and a counterbalancing-weight also guided by the said bar and connected with the sash, substantially as described.

4. In a device of the class described, the combination of an outer guide-bar provided at its outer face with recesses and having tongues at its inner face, an inner guide-strip provided with tongues arranged opposite the said tongues, sliding weights interposed between the guide-bar and the guide-strip and provided with grooves receiving the said tongues, pulleys arranged at an angle, and sash cords connected with the weights passing over the pulleys, and designed to be attached to the sashes, substantially as described.

5. In a device of the class described, the combination of an outer guide-strip provided at its outer face with recesses adapted to be engaged by window-sashes, an inner guide-strip, sliding weights interposed between the guide-bar and the inner guide-strips and interlocked with the same, pulleys set at an angle, and sash-cords passing over the pulleys and connected with the weights and adapted to be secured to the sashes, substantially as described.

6. In a device of the class described, the combination of an outer guide-bar, provided at its inner face with a central recess and having recesses located at its outer face and offset from the plane of the central recess, sliding weights fitting in the central recess of the guide-bar, and pulleys set at an angle and adapted to receive sash-cords, substantially as described.

645,668. CHILD'S SEAT FOR BICYCLES. AXEL R. LENOON, Chicago, Ill. Filed Nov. 2, 1898. Serial No. 695,285. (No model.)

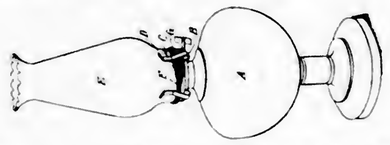


Claim. 1. The combination with the front wheel and fork of a bicycle, of a child's seat having supporting-standards, said supporting-standards detachably mounted upon the ends of the axle of said front wheel and supported thereon, and brace-arms connecting said standards to the arms of said front fork, said brace-arms being vertically adjustable on said arms and standards, whereby the inclination of said seat may be varied, as and for the purpose set forth.

2. The combination with the front wheel and fork of a bicycle, of a child's seat, supporting-standards secured to the under side of said seat and arranged on opposite sides of said front wheel, said standards detachably mounted on the ends of the axle of said front wheel, and brace-arms connected to said standards for vertical adjustment thereon, said brace-arms adjustably clamped to the arms of said front fork, whereby by vertically adjusting said arms the inclination of said seat may be adjusted, as and for the purpose set forth.

3. The combination with the front wheel and fork of a bicycle, of a child's seat, supporting-standards therefor secured to the under side of said seat and arranged on opposite sides of said wheel, clips mounted on the ends of the axle of the front wheel and having slotted upper ends, tubular posts arranged to be removably clamped in the slots in said clips, springs arranged in said posts, said standards adapted to be received in said posts and resting on said springs, and brace-arms for connecting said posts to the arms of the front fork, as and for the purpose set forth.

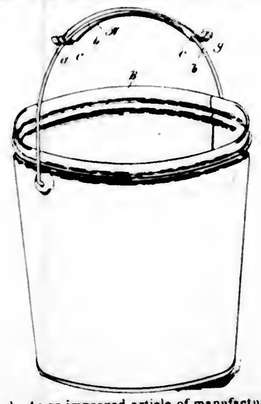
645,669. LAMP-CHIMNEY. JOHN F. MCHENRY, Hollister, Cal. Filed Sept. 28, 1897. Serial No. 653,321. (No model.)



Claim.—1. In a lamp-chimney, a suitable base, an integral continuous semicircular lip on said base on the external circumference thereof at a point about midway between the lower extremity of the base and the flaring part of the chimney, substantially as and for the purposes set forth.

2. In a lamp-chimney, a cylindrical base portion, a continuous semicircular lip on the exterior of said base homogeneous and integral therewith and situated at a point at or near the middle of said cylindrical base portion, substantially as and for the purpose set forth.

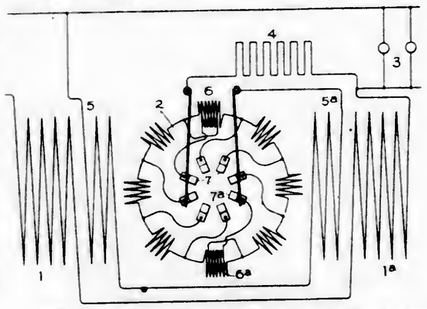
645,670. DETACHABLE BAIL-GUARD OR HANDLE FOR PAILS OR OTHER RECEPTACLES. AUGUSTUS W. OTTIGNON, Boston, Mass. Filed Dec. 27, 1899. Serial No. 741,723. (No model.)



Claim.—1. As an improved article of manufacture, a bail-guard or handle composed of a longitudinally-curved strip of resilient material having upturned ends, each provided with a slot or aperture for the reception of the bail, and with a longitudinal slit extending outwardly from said aperture to the end of the strip, forming a pair of upwardly-projecting spring-jaws for holding the handle in place upon the bail, substantially as described.

2. As an improved article of manufacture, a bail-guard or handle composed of a longitudinally-curved strip of resilient material of concavo-convex form in cross-section and having its ends upturned and provided with slots or apertures for the reception of the bail, and with longitudinal slits extending outwardly from said apertures to the ends of the strip and terminating in flaring mouths forming upwardly-projecting spring-jaws for holding the handle in place upon the bail, substantially as described.

645,671. ELECTRIC METER. EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 20, 1899. Serial No. 740,978. (No model.)



Claim.—1. An electric meter provided with an operating-motor having a starting-coil to compensate friction, and means for periodically cutting down the armature magnetization.

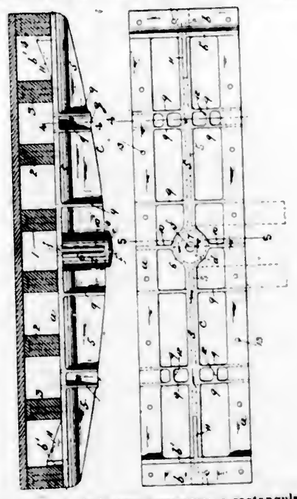
2. An electric meter provided with an operating-motor, an auxiliary starting-coil, and means for establishing a dead-point to neutralize the value of said coil during each revolution of the armature.

3. An electric meter comprising a field-magnet circuit in series with the translating devices, an armature-circuit in shunt thereto, an auxiliary starting-coil on the field-magnet in series with the armature, and means for neutralizing the effect of one or more armature-coils at determinate points in the path of rotation of the armature.

4. An electric meter comprising an operating-motor, a field-magnet coil in series with the translating devices, an armature in shunt relation thereto, an auxiliary starting-coil in circuit with the armature, and one or more demagnetizing-coils on the armature cut in when its commutator-segment engages its brush.

5. In an electric motor, means for establishing an opposing or neutralizing magneto-motive force in the armature at definite armature positions.

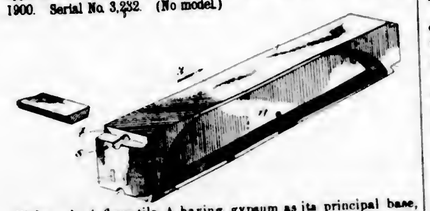
645,672. CAR BODY-BOLSTER. MORSE B. SCHAFFER, St. Louis, Mo., assignor to the American Steel Body Double Bolster Company, same place. Filed Dec. 26, 1899. Serial No. 741,590. (No model.)



Claim.—1. A car body-bolster comprising a rectangular-shaped frame having side and end plates arranged respectively at a suitable distance apart and united together in the same horizontal plane, and adapted at the top to bear against the under sides of the car-sills, vertical webs intersecting each other at right angles and united at their ends to the side and end plates respectively, the said webs having the center plate and the side bearings on their under sides, all the said parts being integral throughout, substantially as described.

2. A car body-bolster comprising a rectangular-shaped frame having side and end plates arranged respectively at a suitable distance apart and united together in the same horizontal plane, and adapted at the top to bear against the under sides of the car-sills, vertical webs intersecting each other at right angles and united at their ends to the side and end plates respectively, the said webs having the side bearings on their under sides and having a hollow enlargement, the said enlargement having the center plate on its under side and perforated centrally therethrough, all the said parts being integral throughout substantially as described.

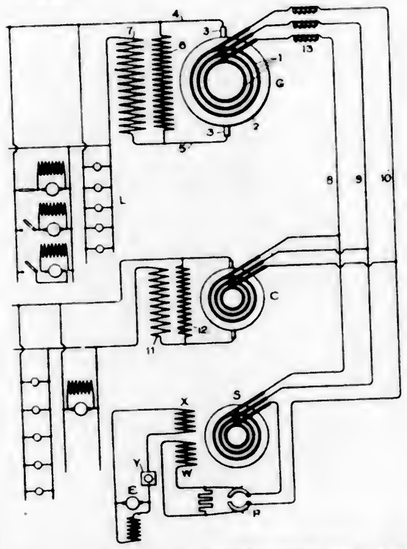
645,673. BUILDING-TILE. JAMES B. SEAGER, Chicago, Ill., assignor to the Mackolite Fireproofing Company, same place. Original application filed Jan. 15, 1898, Serial No. 666,834. Divided and this application filed Aug. 9, 1898, Serial No. 688,146. Renewed Jan. 29, 1900. Serial No. 3,252. (No model.)



Claim.—1. A floor-tile A having gypsum as its principal base, of substantially an I-beam cross-section, the recesses a^3 producing said I-beam cross-section being vaulted or arched longitudinally of the tile, said tile having non-arched upper and lower surfaces or flanges and being provided with end formations conforming to the sides of the steel I-beams of buildings upon the lower flanges of which it is adapted to rest, substantially as and for the purpose set forth.

2. A floor-tile of gypsum or the like extending from I-beam to I-beam and provided with ends conforming to the sides of the I-beams on the lower flanges of which the tile is supported, the ends lying partially in substantially a vertical cylindrical surface affording two diagonally-opposite rounded corners which serve to permit the tile to be introduced between the fixed I-beams at one angle and shifted to their permanent position, substantially as and for the purpose set forth.

645,674. REGULATION OF DYNAMO-ELECTRIC MACHINES. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 15, 1899. Serial No. 740,387. (No model.)



Claim.—1. The combination of a double-current generator, means for automatically compensating for the demagnetizing effect of the direct-current armature reaction, and separate means for compensating for the effects of the alternating-current armature reaction.

2. The combination of a double-current generator, means for compensating for the demagnetizing effect of the direct-current armature reaction, and separate means for compensating for the effects of the alternating-current armature reaction.

3. The combination of a double-current generator, means for compensating for the demagnetising effect of the direct-current armature reaction, and automatically-operating means for compensating for the effect of the alternating-current armature reaction.

4. The combination of a double-current generator, means for automatically compensating for the demagnetizing effect of the direct-current armature reaction, and for the effects of the alternating-current armature reaction.

5. The combination of a double-current generator having direct-current shunt and series field-windings and means connected to the alternating-current mains for automatically changing the phase displacement of the alternating current with change of load.

6. The combination of a double-current generator having direct-current, shunt and series field-windings, of distributing-conductors for the alternating current, inductance in said conductors, and a synchronous, dynamo-electric machine connected to said conductors.

7. The combination of a double-current generator having direct-current, shunt and series field-windings, of distributing-conductors for the alternating currents, inductance in said conductors, and a compound-wound rotary converter connected to said conductors.

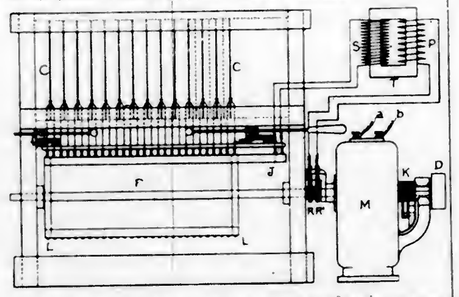
8. The combination of a double-current generator having direct-current shunt and series field-windings, of a rotary converter supplied from the alternating transmission-lines of said generator, and means for varying the field of the converter with variation of load.

9. The combination of a double-current generator having direct-current shunt and series field-windings, of a rotary converter supplied from the alternating-current-transmission lines of said generator, a series winding in said converter, and inductances in said transmission-lines.

645,675. HIGH-POTENTIAL APPARATUS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Dec. 26, 1899. Serial No. 741,541. (No model.)

Claim.—1. Means for generating high-potential electricity, comprising means for delivering intermittent electric current across a gap in a fluid non-conducting medium to a condenser connected in parallel, and means for dissimultaneously connecting the condenser-plates in series.

2. Means for generating high-potential electricity, comprising a source of pulsating electrical current, a continuously-rotating device, a plurality of condenser-plates, contacts carried by the rotating device for connecting the condenser-plates in parallel relation to the source of current, angularly-displaced contacts for dissimultaneously connecting the condenser-plates in series, and collecting-terminals for the points of maximum potential in the condenser.



3. Apparatus for generating high-potential electricity, comprising a source of current, a condenser, means for delivering low-frequency intermittent impulses of like sign to the condenser-surfaces in parallel from the source, and connectors for coupling the condenser-surfaces between the moments of current delivery in series.

4. Apparatus for generating high-potential electricity, comprising a source of current, a condenser, means for delivering intermittent impulses of like sign to the condenser-surfaces in parallel, a fluid-insulator in the gap between the points of delivery, and connectors for dissimultaneously coupling the condenser-surfaces in series.

5. Apparatus for generating high-potential electricity, comprising a source of current, a condenser, means for delivering intermittent impulses of like sign to the condenser-surfaces in parallel, connectors for dissimultaneously connecting the surfaces in series, and an air-gap between the points of commutation.

6. Apparatus for generating high-potential electricity, comprising a source of current, a condenser, a commutator for alternately charging the condenser in parallel from the source, and discharging it in series, a reservoir for high-potential discharges, a discharging-conductor, and a high-resistance connection between the reservoir and the discharger.

7. Apparatus for generating high-potential electricity, comprising a source of alternating current, a condenser, a selector for leading determinate parts of the waves to the condenser in parallel, and connections for discharging the condenser in series.

8. Apparatus for generating high-potential electricity, comprising a source of alternating current, a condenser, a selector for connecting the crests of like alternations successively with the condenser in parallel, and connections for discharging the condenser in series.

9. Apparatus for transmuting dynamic electrical energy into static, comprising a source of pulsating current, a step-up transformer, a condenser, means for leading impulses of like sign to the condenser in parallel, and connections for discharging the condenser in series.

10. Apparatus for transmuting dynamic electric energy into static, comprising a source of pulsating current, a step-up transformer, a condenser, a selector for leading increasing electromotive forces of like sign from the transformer to the condenser in parallel, and connections for discharging the condenser in series.

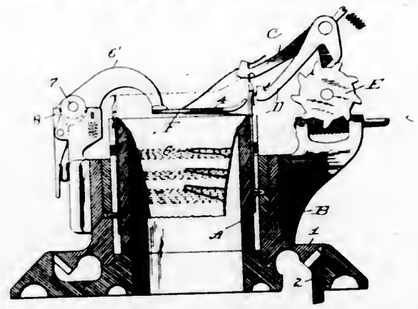
11. Apparatus for transmuting dynamic electric energy into static, comprising an alternating-current source, a step-up transformer, a condenser, a selector for leading increasing electromotive forces of like sign from the transformer to the condenser in parallel, and connections for discharging the condenser in series.

12. Apparatus for transmuting dynamic electric energy into static, comprising a source of pulsating current, a condenser, a commutator for alternately coupling the condenser with the source in parallel and discharging it in series through an air-gap, and a static reservoir to receive the discharge.

13. Apparatus for transmuting dynamic electrical energy into static, comprising a source of alternating current, a step-up transformer, a selector for leading waves of like sign to a condenser in parallel, connections for discharging the condenser in series, an air-gap through which the connection is maintained, and a reservoir to receive the static charge.

14. Apparatus for transmuting dynamic electric energy into static, comprising a source of pulsating electric current of high potential, a condenser, a commutator for alternately connecting the condenser-surfaces in parallel with the source and in series relation, a discharger moving synchronously with the commutator, and a static reservoir connected with the condenser by the discharger during the series connection.

645,676. CIRCULAR-KNITTING MACHINE. FRANK WILCOMB, Pawtucket, R. I., assignor to the Standard Machine Company, Philadelphia, Pa. Filed Sept. 1, 1898. Serial No. 690,055. (No model.)



Claim.—1. In combination with a circular-knitting machine having multiple feed devices, a thread-engaging device inside of the needle row to engage the inactive or floating thread extending from the fabric to the feed and hold it inside the needle circle until introduced to the needles, substantially as described.

2. In combination with a circular-knitting machine having multiple feed devices, a thread-engaging device having a scroll-like surface to engage the inactive or floating threads on the inside of the fabric, substantially as described.

3. In combination with a circular-knitting machine having multiple feed devices a thread-engaging device inside of the needle row and having a scroll-like surface to engage the inactive or floating threads, said surface extending approximately from the inner periphery of the cylinder to the center thereof, substantially as described.

4. In combination with a circular-knitting machine having multiple feed devices, a thread-engaging device inside the needle row to guide and hold the inactive floating threads extending from the fabric to the feed out of engagement with the needles and adapted to release the thread when it is introduced to the needles again, substantially as described.

5. In combination, the multiple feeds, the needle-cylinder, and a take-up device having an arm with one end near the inner side of the cylinder to engage the thread, said arm extending toward the center of the cylinder to draw the inactive thread toward the center and to release it when introduced again into the fabric, substantially as described.

6. In combination with a circular-knitting machine having multiple feed devices, a thread-engaging device inside of the needle row to engage the inactive or floating thread extending from the fabric to the feed and hold it inside the needle circle until introduced to the needle, said thread-engaging device having a laterally-open mouth, substantially as described.

7. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, and a device within the needle-cylinder adapted to catch and retain the thread when the carrier is out of operative position.

8. In a circular-knitting machine, in combination, a plurality of thread-carriers, and means to move one or more of said thread-carriers in and out of operative position, and a device within the needle-cylinder adapted to catch and retain the thread to the carrier out of operative position.

9 In a circular-knitting machine, in combination, a plurality of thread-carriers and means to move one or more of said thread-carriers in and out of operative position, and a device within the needle-cylinder adapted to catch and retain the thread of the carrier out of operative position, and means to cause the said device to travel with the thread-carrier

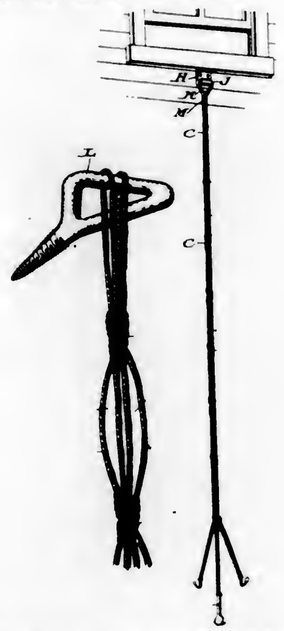
10. In a circular-knitting machine, in combination, a thread-carrier and means to move said thread-carrier in and out of operative position, a cam having a spiral face, the interior of said spiral face being in alinement with the thread of the carrier when out of action.

11. In a circular-knitting machine, in combination, a plurality of thread-carriers and means to move one or more of said thread-carriers in and out of operative position, a cam having a spiral face, the exterior of the said spiral face being in alinement with the carriers out of action.

12. In a circular-knitting machine, in combination, a plurality of

thread-carriers and means to move one or more of said thread-carriers in and out of operative position, of a cam having a spiral face, the exterior of the said spiral face being in alinement with the thread of the carrier out of action, and means to cause said cam to travel with the thread-carriers.

645,677. FIRE-ESCAPE. MARY J. J. WINGERT, Reading, Pa. Filed Oct. 4, 1899. Serial No. 732,452. (No model.)



Claim.—1. In a fire-escape, a rope formed of members, some of which are looped, and others passed straight through said loops and portions of all of the members being knotted together at the ends of said looped members.

2. In a fire-escape, a rope formed of a number of members, some of the same being separated at bottom into different lengths which are provided respectively with a hook and weight, portions of the members in the length of the rope being straight and portions of other members being deflected, producing loops through which the adjacent portions of the straight members are passed, the several members being knotted together at the ends of said loops.

3. In a fire-escape, a bracket with limbs and an eye provided with a cross-bar, and a securing-shank, said bar being adapted to be seated on said bracket between the limbs thereof.

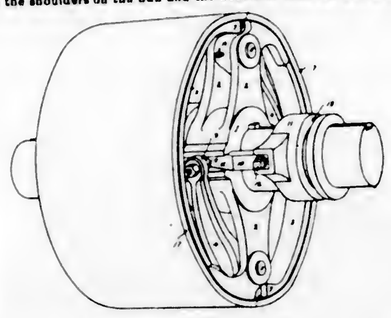
4. In a fire-escape, a bracket with limbs, and an eye provided with a cross-bar and a securing-shank, said bracket and eye having registering openings therein, and said cross-bar being adapted to be seated in said bracket.

5. A bracket with upturned limbs and a vertical recess between the sides thereof, and an eye with a cross-bar adapted to be seated within said limbs, the opening in said eye being adapted to register with the recess of said bracket, and a rope passed through said opening and secured to said cross-bar.

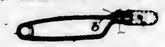
645,678. FRICTION-CLUTCH. CHARLES W. BOGART, Buffalo, N. Y. Filed Aug. 21, 1899. Serial No. 727,871. (No model.)

Claim.—1. In a friction-clutch, the combination, with a pulley, of a hub therein provided with diametrically oppositely arranged arms, each provided with a friction-ring, a lever pivotally secured to each arm, a spring connected with the lever and the free end of the opposite ring, and oppositely-located wedges for engaging with the levers and throwing the rings into engagment with the pulley.

2. In a friction-clutch, the combination, with a pulley, of a hub provided with diametrically oppositely located arms and shoulders, a friction-ring for each arm, a lever for operating the rings, a thrust-collar, and diametrically oppositely arranged wedges on the collar, the point of each of which is provided with a hook to engage one of the shoulders on the hub and the heel is of uniform thickness.



645,679. SAFETY-PIN. CHARLES A. BRYANT, Wakefield, Mass., assignor to the Consolidated Safety Pin Company, Bloomfield, N. J. Filed Aug. 12, 1899. Serial No. 726,967. (No model.)



Claim.—1. A safety-pin having a base part and a locking part adapted to receive the pin-point between them, and independent means to press said base part and locking part together upon the pin-point to lock the same between them, substantially as shown and described.

2. A safety-pin having its back member extended to form a loop for the reception of the pin-point and provided with independent means to press the parts of said loop together upon the pin-point to lock the same between them, substantially as shown and described.

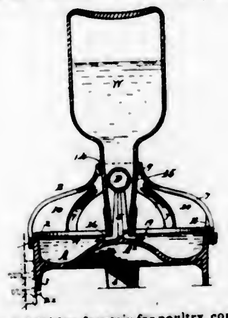
3. A safety-pin having its back member extended to form a loop for the reception of the pin-point and a hood or shield sliding upon said loop to press the parts thereof together upon the pin-point to lock the same between them, substantially as shown and described.

4. A safety-pin having its back member extended to form a loop for the reception of the pin-point and a hood or shield sliding upon said loop to press the parts together upon the pin-point, the forward end of the hood or shield having one side wall extended beyond the other to form a guide for the pin-point, substantially as shown and described.

5. A safety-pin having its back member extended to form a loop for the reception of the pin-point, one member of the loop being bent outwardly to form a cam-surface and inwardly to form an engaging toe or lock, and a hood or shield sliding upon said loop to press the parts together upon the pin-point, substantially as shown and described.

6. A safety-pin having its back member extended to form a loop for the reception of the pin-point and said pin-point formed with an offset and independent means to press the parts of said loop together upon the pin-point to lock the same between them, substantially as shown and described.

645,680. WATERING-FOUNTAIN FOR POULTRY. ALBERT H. CHAPMAN, Upton, Mass., assignor to the Chapman Manufacturing Company, same place. Filed Mar. 13, 1899. Serial No. 708,800. (No model.)



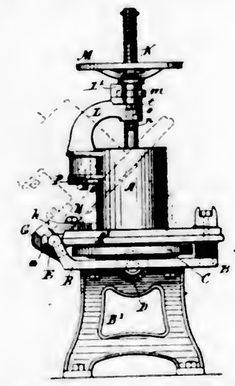
Claim.—1. A drinking-fountain for poultry, comprising, in combination as described, a drink-basin having an annular dip-channel and standing rim, a central upwardly-projecting rigid stem formed upon the bottom plate of said basin, an inverted air-tight reservoir having a neck adapted to pass over said stem, a free-ball stopper within the neck of said reservoir, and an open arched guard supporting said reservoir in upright inverted position.

2. In a water-fountain for poultry, the removable inverted-bottle reservoir having a tapered neck, and a free outwardly-closing stopper-ball within the neck-passage of said reservoir; in combination with an open-topped drinking-basin provided with the rigid upwardly-projecting longitudinally-grooved stem, with radial foot-lugs, rising from the basin-bottom and adapted for supporting and entering the neck of said reservoir and sustaining said ball when said reservoir is in normal position in relation to said basin, in the manner set forth.

3. A water-fountain for poultry, consisting of the iron basin having the annular dip-space and surrounding rim, the upwardly-arched bottom provided with the central upright stem integrally fixed thereon, with radial lugs at the base of said stem; and a covering-guard composed of the central ring portion, a lower outer ring fitting onto said basin-rim, and a series of bars integrally uniting said rings and having openings between; in combination, with the removable inverted-bottle reservoir having the tapered neck extending through said central guard-ring and fitting over said stem, its end resting on said lugs, and a free ball serving as a valve within said reservoir-neck, substantially as and for the purposes set forth.

4. In a water-fountain for poultry, the combination with the circular basin having the annular dip-channel and the upright-footed standing rim provided with outwardly-projecting lugs 12 on the exterior thereof, of the guard-cover composed of a central ring portion, an integrally-attached series of arched radial bars with intervening spaces between and the connecting outer ring adapted to fit over the periphery of the basin-rim, said guard provided with recesses 13 in the outer ring, and supporting-lugs 11 on its interior, substantially as set forth.

645,681. MACHINE FOR CUTTING BONES FOR POULTRY-FOOD. ALBERT H. CHAPMAN, Upton, Mass., assignor to the Chapman Manufacturing Company, same place. Filed May 17, 1899. Serial No. 717,144. (No model.)



Claim.—1. In a bone-cutting machine, the cutter-carrying plate having an integral raised circular center forming the cutter-space, and a flat annular top surface extending outwardly therefrom, and terminating with a downward peripheral ring, a downward cylindrical flange surrounding the cutter-space on its under side, an annular bearing-surface about said flange and the surrounding downward beveled gear-teeth, said cutter-carrying plate adapted for fitting into the end of the cylindrical feed-hopper and for overlying the bearing and drive-gear, substantially as shown and for the purpose set forth.

2. In a bone-cutting machine, the horizontal rotatable cutter-carrying plate having a raised circular center on which the cutters are disposed, and a flat annular top surface around said center, and provided on its under side with a downward-projecting circular flange and annular bearing-face, whereby said plate is centered and supported upon the bed, and having the row of downward bevel-gear teeth surrounding said bearing, said cutter-plate being provided with a rim-flange extending beyond the ends of the gear-teeth and encircled with an integral downward-projecting lip around the peripheral edge thereof; in combination, with the supporting-bed beneath said plate, the drive-pinion and its shaft, and the non-rotatable tiltable feed-hopper fitting around said raised circular center above the annular top surface of said cutter-carrying plate, substantially as shown and described.

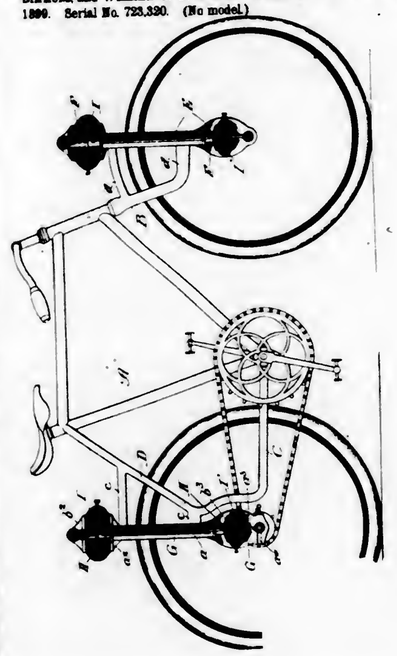
3. A bone-cutting machine comprising a supporting-frame and bed-plate having a central opening surrounded by a raised raceway having an annular groove cut therein, a continuous series of roller-balls filling said groove, a drive shaft and pinion mounted in a bearing on said frame at the side of said bed-plate, a cylindrical feed-hopper supported centrally over said opening by an integrally-attached base-flange hinged to said bed-plate, feed-forcing appliances carried on said hopper, and a rotatable under-geared cutter-carrying plate having an integral raised circular center portion fitting into the hopper-cylinder, with seats and slots for the cutting-blades thereon, its under side provided with an annular surface, and an integral downward ring-bearing fitting within the opening of the bed-plate, through which the cut material is discharged, said cutter-carrying plate extending beyond the hopper and bed-plate, and its teeth engaging the pinion, as shown; said cutter-gear plate being vertically removable when the hopper is tilted up.

4. In a bone-cutting machine comprising the frame or table, the rotating cutter-plate and a tiltable hopper-cylinder; the hinging connection consisting of the transverse roll E and the backwardly-projecting stop G formed integral with the table or frame, in combination with the inverted semicircular tongues *n* formed upon the cylinder base-plate, and the removable front stop or stay piece H attached to said cylinder-base and projecting over said roll, substantially as set forth.

5. In a bone-cutting machine comprising a cutting mechanism, a hopper-cylinder provided with internal splines, a feed presser-plate notched to said splines, and a laterally-movable supporting-head carrying the feed-screw nut above said cylinder; the combination, of the supporting-head provided with an internal groove *o*, and a feed-screw provided with a projecting spline-lug *n* adapted and disposed for entering said groove when the notched presser-plate is raised out of the cylinder, for the purposes set forth.

6. In a cutting-machine of the class specified, the combination with the hopper-cylinder, the feed-forcing devices and the laterally-swinging gooseneck carrying said feed-forcing devices mounted in a bearing upon the side of said cylinder; of the stop-plate P secured to the gooseneck-journal, and having the horns or projections that contact with the cylinder for arresting the swing of said gooseneck, substantially as set forth.

645,682. BICYCLE. MICHEAL FITZ-SIMMONS, WALTER J. FITZ SIMMONS, and WILLIAM B. FITZ SIMMONS, Chicago, Ill. Filed July 10, 1899. Serial No. 723,330. (No model.)

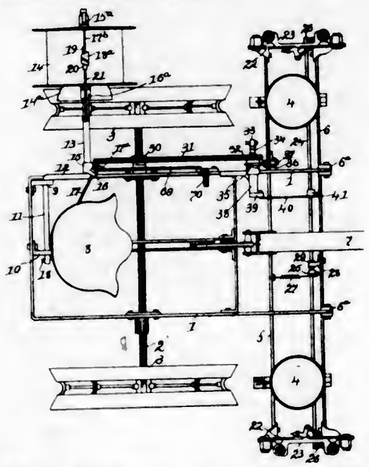


Claim.—1. In a bicycle, the combination with a frame provided with a fork, of a substantially-vertical inverted-U-shaped guide-head rigidly secured to said frame-fork and provided with a cushion-plate, an inverted-U-shaped guide-standard in which said guide-head moves, said guide-standard being provided with a cushion-plate and at its lower extremities with shaft-openings, and a pneumatic cushion confined between said plates, substantially as and for the purpose set forth.

2. In a bicycle, the combination of a frame A provided with rear forks C D having rigidly connected therewith a substantially-vertical inverted-U-shaped guide-head H, an inverted-U-shaped guide-standard G provided with guide-cylinders for the vertical members of said guide-head and with flattened lower ends supplied with shaft-openings, cushion-plates on said guide-standard and guide-head, and pneumatic cushions between said plates, substantially as and for the purpose set forth.

3. In a bicycle, the combination of a frame provided with a fork, a substantially-vertical inverted-U-shaped guide-head attached to said frame-fork provided at its web above the wheel with a top cushion-plate and provided near its lower extremities with side cushion-plates, an inverted-U-shaped guide-standard supported vertically from a wheel-shaft and provided at its web above the wheel and beneath the web of said guide-head with a cushion-plate and provided also at its lower extremities with side cushion-plates, and pneumatic cushions confined between their respective plates, substantially as and for the purpose set forth.

645,683. CORN-PLANTER. WILLIAM S. GRAHAM, Canton, Ill., assignor to the Parlin & Orendorff Company, same place. Filed Dec. 11, 1899. Serial No. 739,979. (No model.)



Claim.—1. The combination with a reel-shaft having two rectangular bends, of an adjustable brace-rod extending from one of the horizontal extensions to the vertical extension.

2. The combination with a reel-shaft having a supporting downward extension and a pivotal horizontal extension of an adjustable brace-rod extending from the upper end of the vertical extension to the pivotal extension.

3. The combination in a reel-frame of arms rising on opposite sides of the reel, a bar connecting the arms, a wire-guide mounted slidably on the connecting-bar and a shift-rod connected with the wire-guide and having a sliding bearing in one of the arms.

4. In drill mechanism for planters, the combination of a counter-shaft journaled on the front part of the rear frame, a crank-arm on the counter-shaft connected with the check-row shaft, a drive-wheel having a clutch connection with the counter-shaft and a clutch-shifter connected with the rear part of the front frame.

5. In drill mechanism for planters, the combination of a counter-shaft journaled on the front part of the rear frame, a crank-arm on the counter-shaft connecting with the check-row shaft, a sprocket-wheel on the counter-shaft having a clutch connection with the shaft, a clutch-separating collar mounted on the clutch between the wheel and a fixed bearing and a connection between the collar and the rear part of the front frame.

6. The combination in drill mechanism for planters, of counter-shaft 33 journaled in sleeve 38 on the front part of the rear frame, crank-arm 39 connecting with the check-row shaft clutch-teeth on the shaft, a sprocket-wheel 32 having sprocket-teeth to engage the teeth of the shaft, a spring 34 to hold the sprocket-wheel in clutch with the shaft, the clutch-separating collar encircling the clutch-teeth between the wheel and a fixed bearing of the sleeve and a rod 36 connecting the collar with the rear of the front frame of the planter.

7. The stay for the check-row shaft, comprising the bracket 28 slotted at 28^a and the bearing-block 29 having the side lugs 29^a, substantially as and for the purpose described.

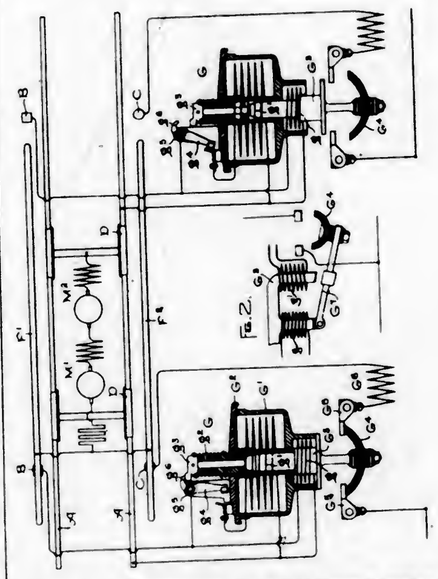
8. The combination in the first drop mechanism of a planter of a hopper-bottom having a central downward-extended circular boss and a prismatic stud extending below the boss, a seed-disk having radial projections on its edges, such disk being journaled on the boss of the hopper-bottom, a ratchet-ring having an internal rib and notches to receive the projections of the disk, a plate fitting over the prismatic stud against the seed-plate and the rib of the ratchet-ring and a bolt engaging the boss of the hopper and holding the parts in place.

9. In a check-row head, the combination of a fixed member, a swingable member pivoted to the fixed member and separable therefrom by longitudinal shift when the swing exceeds the ordinary wire-dumping motion, and a stop-sleeve held in position on the swingable member by one of the pulley-securing bolts thereof, substantially as described.

10. A planter-drop comprising a chute, a plate pivoted in the wall of the chute to swing upward in closing, an arm on the plate extending away from the chute, and a drop-bar connected pivotally with the arm of the plate with its lower end extended under the discharge of the chute, substantially as described.

11. A planter-drop comprising a chute, a plate pivoted in the front wall of the chute to swing upward in closing, an arm extending forward from the plate, a rock-arm pivoted in front of the chute above the discharge end thereof and a drop-bar pivoted at its upper end to the rock-arm, connected between its ends to the arm of the plate and having its lower end extended under the discharge end of the chute to form a closure therefor.

645,684. ELECTRICALLY-OPERATED SWITCH. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed [illegible] 30, 1898. Serial No. 700,711. (No model.)



Claim.—1. The combination with an electric switch which it is desired to move and to maintain for a time to the position to which it has been moved, of an electromotive device for controlling the movement of said switch, a circuit of large current capacity which energizes said device to move said switch and break its own continuity, and a circuit of less current capacity which energizes said device to maintain said switch in the position to which it has been moved.

2. In an electric-railway system, the combination with a feeder, of a sectional conductor, a switch in the circuit between the feeder and the sectional conductor, an electromotive device for controlling the movement of said switch, a circuit of large current capacity which energizes said device to move the switch, and a circuit of less current capacity which energizes said device to maintain the switch in the position to which it has been moved.

3. In a switch for a surface-contact railway, the combination of a plurality of coils of different powers, with means actuated by the coils for closing the switch, and an auxiliary switch operated by the closing of the main switch for opening the circuit of a coil of greater power.

4. The combination with a circuit to be magnetized, of a plurality of separate solenoids coacting to initially magnetize the circuit, with means for thereafter throwing a desired part of the solenoids out of action.

5. In a switch, the combination of a magnetic circuit with a plurality of coils in parallel and simultaneously magnetizing the circuit, and means for cutting out one of the coils after the initial energization.

6. The combination with a circuit to be magnetized, of means for overcoming the initial reluctance of the circuit, consisting of a plurality of windings, one of which may be kept permanently in circuit and the other of which is of capacity to carry a momentary rush of current greater than may be maintained with safety, and a device for opening the circuit of the larger winding.

7. The combination with a magnetic circuit of variable reluctance, of means for overcoming the initial reluctance of the circuit, means for maintaining the magnetization, and means for throwing out of operation the first-named means.

8. The combination with a switch having a magnetic circuit of variable reluctance, of a plurality of windings, one of low resistance, and the other of high resistance, means for passing current through both windings to close the switch, and means for holding the switch closed with the winding of high resistance only.

9. In a switch for a surface-contact railway, the combination of a magnetic circuit including the actuating part of the switch, with two shunt-coils one of which is of high resistance and the other of which is of size adapted to carry momentarily a large current, with device for cutting out the coil of larger size by the closing of the switch, leaving the high-resistance coil in circuit to hold the switch closed.

10. In a switch for a surface-contact electric railway, the combination of a solenoid having two coils, one of comparatively-large current capacity, and the other of smaller capacity, both acting upon a common core, switch-contacts operated by the core, an auxiliary switch in the circuit of the larger coil, and means for opening the auxiliary switch when the core is drawn up to close the contacts of the main switch.

11. In an electromagnetic switch for a surface-contact railway, the combination of contacts, a solenoid-core operating them, two coils one of which is larger than the other, connected in multiple to act upon the same core, a switch in the circuit of the larger coil, and a projection upon the core of the solenoid for opening the switch when the main contacts are closed.

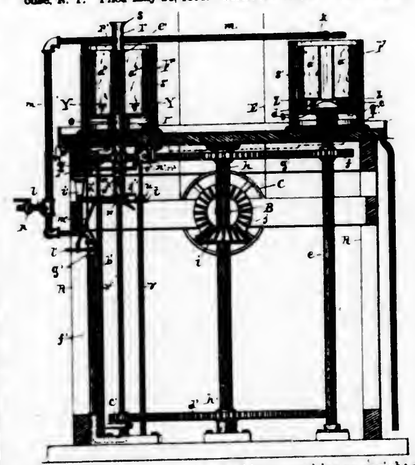
12. In an electric-railway system, the combination with a feeder, of a sectional conductor, car-motors, a switch which is adapted to connect the feeder with the sectional conductor, an electromotive device in shunt between the feeder and motors, for controlling said switch, a circuit of large current capacity which energizes said device to move said switch, and a circuit of less current capacity which energizes said device to maintain said switch in the position to which it has been moved.

13. In an electric-railway system, the combination with a feeder, of a sectional conductor, car-motors, a switch which is adapted to connect the feeder with the sectional conductor, an electromotive device in shunt between the feeder and motors for controlling said switch, a circuit of large current capacity which energizes said device to move said switch and break its own continuity, and a circuit of less current capacity which energizes said device to maintain said switch in the position to which it has been moved.

14. In an electric-railway system, the combination with a feeder, of a sectional conductor, car-motors, a switch which connects the feeder to a conductor-section, an electromotive device in shunt between the feeder and motors, a circuit of large current capacity which energizes said device to close the switch and a circuit of less current capacity which energizes said device to keep the switch closed.

15. The combination with a body which it is desired to move and to maintain for a time in the position to which it has been moved, of an electromotive device for controlling said body, a circuit of large current capacity which energizes said device to move said body and break its own continuity, and a circuit of less current capacity which energizes said device to maintain said body in the position to which it has been moved.

645,685. BOTTLE-WASHING MACHINE. LOUIS HOUSE, Syracuse, N. Y. Filed May 20, 1899. Serial No. 717,561. (No model.)



Claim.—1. A bottle-washing machine comprising an upright cylinder provided with a series of radial brushes extending part way lengthwise the cylinder for cleaning the lower portion of the exterior of the bottle, a cup located within the cylinder and secured to the bottom thereof, and provided with a transverse curved brush for cleaning the bottom of the bottle, a perforated coil of pipe located above the cylinder to supply water to said radial brushes and cup, and mechanism rotating said cylinder substantially as described.

2. In a bottle-washing machine, the combination of the main frame and main driving-shaft, of an upright rotary shaft journaled on the main frame, a primary cylinder connected to said latter shaft and provided with brushes for cleaning the lower portion of the outer sides of the bottle, and with a transverse brush in its bottom for cleaning the bottom of the bottle, a secondary cylinder provided with brushes for cleaning the upper portion of the outer sides of the bottle, a sleeve journaled on the main frame and connected to the latter cylinder, pinions secured to said sleeve and upright shaft, a gear-wheel connecting said pinions and receiving motion from the main driving-shaft, a hollow rotary shaft extending independently through said sleeve and secondary cylinder and provided at its upper end with a brush adapted to enter the bottle for cleaning the interior thereof, a pinion secured to said hollow shaft, a gear-wheel connected to said latter pinion and receiving motion from said main driving-shaft, and means for supplying the water to the cylinders, brushes and hollow shaft substantially as described.

3. In a bottle-washing machine, the combination with the main frame of an upright rotary cylinder supported thereon and provided with radial brushes for cleaning the exterior of the bottle, a suitably-journaled hollow rotary shaft extending centrally and longitudinally through the cylinder and provided at its upper end with a brush adapted to enter the bottle to clean the interior thereof, means for supplying water to the cylinder-brushes, a pipe communicating with the lower end of the hollow shaft for supplying water to its brush, a valve connected to said pipe means for operating said valve and mechanism rotating the aforesaid hollow shaft and cylinder substantially as described.

4. In a bottle-washing machine, the combination with the main frame of a vertical rotary sleeve journaled on the frame, a cylinder secured to said sleeve and provided internally with radial brushes, a hollow flaring plunger extending through said sleeve and cylinder, a hollow rotary shaft extending through said plunger and provided at its upper end with a brush, a pipe communicating with the lower end of the hollow shaft and supplying its brush with water, a valve connected to said pipe, suitable connections between said plunger and valve, a perforated coil of pipe above the cylinder supplying water to the aforesaid radial brushes, a second valve controlling the flow to said coil, and mechanism rotating the aforesaid cylinder and hollow shaft substantially as described.

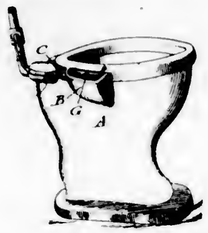
5. In a bottle-washing machine, the combination with the main frame, and main driving-shaft, a vertical rotary sleeve journaled on the main frame, an upright cylinder connected to said sleeve and provided internally with radial brushes, vertical stationary guide-rods supported on said frame below the sleeve, a horizontal plate movable vertically on said rods, a hollow plunger connected to the cen-

tral portion of said plate and passing through the aforesaid sleeve, a hollow shaft extending through said plunger and provided at its upper end with a brush, a horizontal pin projecting from said plate, a bar pivoted at one end to the main frame and formed at its opposite end with a fork engaging the aforesaid pin, a water-pipe communicating with the bottom of the hollow shaft and provided with a valve, a lever attached to said valve, an arm connecting said bar and lever, spring-actuated pulleys supported on the main frame, bands running on said pulleys and connected to the aforesaid plate, pinions secured to the aforesaid sleeve and hollow shaft and gears meshing with said pinions and deriving motion from the main driving-shaft substantially as described.

6. In the herein-described bottle-washing machine, the combination, of a vertically-movable hollow plunger, a horizontal plate connected to the lower end of said plunger, guide-rods for said plate, a hollow rotary shaft extending through said plunger and provided at its upper end with a brush adapted to enter the bottle, a water-pipe communicating with the lower end of said shaft, and provided with a valve, spring-actuated bands drawing said plate upward, a bar pivoted at one end to the main frame and formed at its opposite end with a fork engaging a pin projecting from said plate, a lever connected to said valve, an arm connecting said bar and lever, and means to rotate said hollow shaft substantially as described.

7. In a bottle-washing machine, the combination with the main frame and main driving-shaft, of a vertical rotary sleeve journaled on the main frame, an upright cylinder secured to said sleeve and provided internally with radial brushes, a hollow vertical plunger extending through said sleeve and cylinder, and having its upper end flared to receive the neck of the bottle, a hollow rotary shaft extending through said plunger and provided at its upper end with a brush to enter the bottle, a water-pipe communicating with the lower end of the hollow shaft, a valve connected to said pipe, suitable connections between said plunger and valve, mechanism rotating said sleeve and hollow shaft, and deriving motion from the main driving-shaft, and means automatically raising the plunger substantially as described.

645,686. CLOSET-BOWL. WILLIAM K. JOHNSON, Philadelphia, Pa. Filed Sept. 16, 1899. Serial No. 730,675. (No model.)



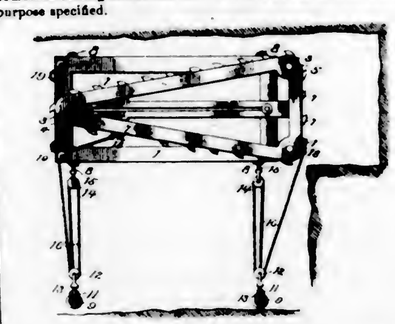
Claim.—1. A water-closet bowl and an open-top basin connected therewith, said basin being adapted to contain water for washing the person and provided with an inlet-port, an overflow, and an emptying-port, in combination with a supplementary pipe, which is intermediate of the inlet-port of said basin and the flushing-pipe of said bowl and connected therewith, a hand-controlled valve on said supplementary pipe and a hand-controlled stopper for said emptying-port.

2. A basin adapted to contain water for washing the person, the same being open at top, of gradually-increasing depth, having an inlet-port at the shallow end thereof, and an emptying-port at the deepest end thereof, in combination with a water-closet bowl to which said basin is attached, a supplemental pipe intermediate of said inlet-port and the flushing-pipe of said bowl and connected therewith, a hand-controlled valve on said supplemental pipe, and a hand-controlled stopper for said emptying-port.

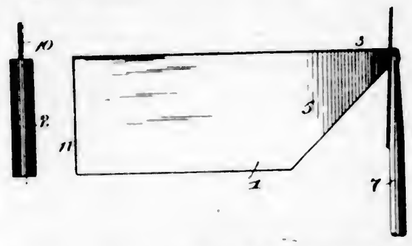
3. A water-closet bowl, in combination with a basin thereon adapted to contain water for washing the person, a flushing-pipe for said bowl, a supplemental pipe intermediate of said pipe and basin and connected therewith, a hand-controlled valve on said supplemental pipe, said basin being open at top, provided with an inlet-port to which the supplemental pipe is attached, an overflow and an emptying port, and a hand-controlled stopper for the latter-named port.

645,687. DEVICE FOR MOVING MINING-MACHINES. SANFORD F. LECHNER, Lindentree, Ohio. Filed Dec. 2, 1899. Serial No. 738,977. (No model.)

Claim.—The combination of a mining-machine provided with an endless carrier or chain having connected to said endless carrier or chain, combined cutting-blades and draft-hooks, pulleys 17 located upon the frame 1, pulley-blocks 12 and 14, ropes located around the pulley in the blocks and means for holding the ropes in a fixed position, and means for connecting the pulley-blocks, and ropes to the combined cutting-blades and draft-hooks, substantially as and for the purpose specified.



645,688. FIRE-CRACKER BODY. GEORGE LIEBHARD, New York, N. Y., assignor, by mesne assignments, to the Nordlinger-Charlton Fireworks Company, same place. Filed Aug. 4, 1898. Serial No. 687,731. (No model.)



Claim.—1. A fire-cracker body or shell comprising a band of paper folded upon itself to form a tubular bore, the concentric folds of which at one end completely close the bore except for the stem which is incased within such folds, substantially as described.

2. A fire-cracker body or shell comprising a band or strip of paper, having opposed parallel sides and one end of gradually-increasing breadth and disposed in convolute concentric folds upon itself to form a plug, the folds of the balance of the blank being likewise disposed and inclosing the said plug, substantially as described.

3. A fire-cracker body or shell comprising a blank of paper or the like, having a horn of gradually-increasing breadth at one end, the blank being disposed in convolute folds upon itself, the horn forming a plug of gradually-decreasing breadth at one end of the body, substantially as described.

4. A fire-cracker body or tube comprising a series of convolute folds of material, a plug closing the bore of the tube at one end formed by a concentric continuation of said folds, and a stem extending longitudinally into the bore and held therein, one or more of the convolutions forming the plug, substantially as described.

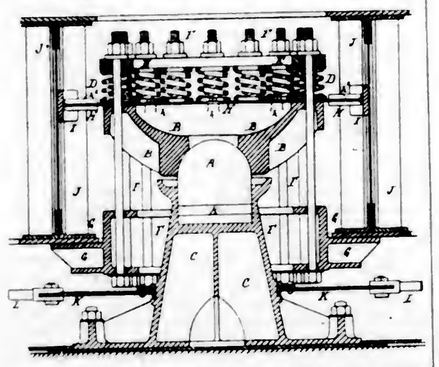
5. A blank for making fire-cracker bodies, comprising a sheet of paper or the like having opposed parallel sides and a pointed extension or horn at one end extending from one edge to the opposite parallel edge, substantially as described.

6. A blank for making fire-cracker bodies, comprising a rectangular sheet of paper, or the like, having a horn 5 converging to a point 4, forming an acute angle at one edge of the sheet, substantially as described.

7. A fire-cracker body or tube, having a bore, and a plug at one end formed of the material of the body, and by concentrically superposing the material at that end to increase its thickness, substantially as described.

8. A body for a fire-cracker or the like composed of a strip or band having parallel sides and a narrow extension at one end folded upon itself to form a bore that gradually increases from one substantially-closed end toward the other, substantially as described.

645,689. DRAWBRIDGE. ALBERT LOCUM, New York, N. Y. Filed Dec. 12, 1899. Serial No. 740,166. (No model.)



Claim.—1. In combination with a swing-bridge turn-table, an elastic pivotal bearing about which it revolves, and means for placing and retaining a predetermined portion of the whole weight of the swing-bridge upon said elastic pivotal bearing, substantially as and for the purposes set forth.

2. In combination with a swing-bridge turn-table, a pivotal bearing about which it revolves, and a cushion of predetermined compression located between said turn-table and said pivotal bearing, substantially as and for the purposes set forth.

3. In combination with a swing-bridge turn-table, a pivotal bearing about which it revolves, a central wearing-cap resting upon said pivotal bearing, a plurality of springs of predetermined compression acting upon said wearing-cap, and a plurality of adjusting-rods connecting said springs with the body of the turn-table, substantially as and for the purposes set forth.

4. In combination with a swing-bridge turn-table, a pivotal bearing about which it revolves, a central wearing-cap resting upon said pivotal bearing, a plurality of springs of predetermined compression acting upon said wearing-cap, a compound washer resting upon said plurality of springs, and a plurality of adjusting-rods connecting said compound washer and supporting-springs with the body of the turn-table, substantially as and for the purposes set forth.

5. In combination with a swing-bridge turn-table, a pivotal bearing about which it revolves, a central wearing-cap resting upon said pivotal bearing and provided with a plurality of slide projections wearing within associated guides attached to the body of the turn-table, a cushion of predetermined compression resting upon said wearing-cap, and a plurality of adjusting-rods connecting said cushion with said turn-table substantially as and for the purposes set forth.

645,690. SECTION-INSULATOR AND SWITCH THEREFOR. GEORGE R. MAIR, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 11, 1899. Serial No. 739,878. (No model.)

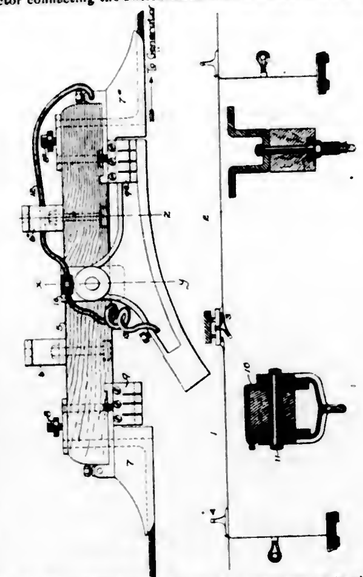
Claim.—1. A trolley-supply system, comprising a plurality of insulated trolley-sections, mechanically-operated switches controlled by the transit of the trolley for progressively cutting in the sections, and means for preventing an arc at the switch-points when the switch is thrown.

2. A trolley system for railways, comprising a plurality of insulated sections, switches operated by the transit of a car for progressively rendering the sections alive, and a branch connection from a trolley-section at a desired point to earth including a signaling device.

3. A trolley system for electric railways, comprising a plurality of insulated sections, switches operated by transit of a car for rendering the several sections alive, and ground branches including incandescent lamps connected with the several sections.

4. A trolley system for electric railways, comprising a plurality of insulated sections, insulated terminals therefor, a rocking switch-arm in the path of the trolley electrically connected with the terminal on the generator side, means for preserving the motor-circuit unbroken on transit of the trolley over said switch, and a contact cooperating with said switch electrically connected with the other terminal.

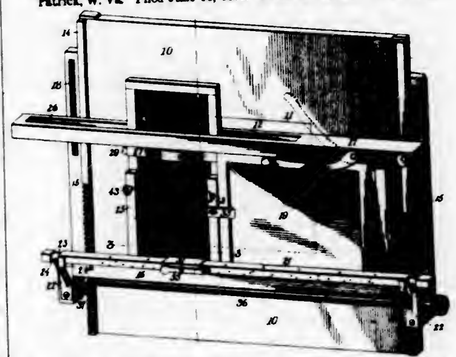
5. An overhead switch for trolley-wires, provided with a support of insulating material, clamps for the trolley-wires on the opposite sides of the center, switch-clips in conductive relation thereto, a switch-blade in the path of movement of the trolley, and a fixed conductor connecting the switch-blade and one of the wire-clamps.



6. An overhead switch for trolleys comprising an insulating-support, clamps for the trolley-wire on opposite sides of its center, and a rocking switch-blade between said clamps adapted to be shifted into engagement with switch-clips connected to the respective clamps, said switch-blade being mounted upon the insulating-support upon a long bearing.

7. An overhead switch for trolley-wires, comprising a support of insulating material, clamps for the trolley-wire on opposite sides of its center, switch-clips in conductive relation thereto, a yoke straddling the insulating-support and in fixed electrical connection with one of the clamps, and a rocking switch-blade in the path of the trolley mounted upon said yoke.

645,691. MULTIPLYING ATTACHMENT FOR CAMERAS. WILLIAM A. PETERS, Charleston, W. Va., assignor of three-fourths to Benjamin A. Caruthers, same place, and John R. Scott and John W. Dyer, Patrick, W. Va. Filed June 16, 1899. Serial No. 720,830. (No model.)



Claim.—1. A camera attachment having a camera back or base provided with means for attachment to a camera and reversible with relation to the same, tracks or guides on the said base, and a plate-holder rack slidably mounted upon said tracks or guides and provided with plate-holder guides arranged at right angles to said tracks or guides on the base, one of said plate-holder guides being adjustable with relation to the other to accommodate various sizes of plates, substantially as specified.

2. A camera attachment having parallel tracks or guides consisting of racks, a plate-holder rack mounted upon said tracks and provided with pinions meshing with the racks, said plate-holder rack having parallel plate-holder-guiding bars, of which one is longitudinally slotted and movable toward and from the other, and means for securing the movable bar in its adjusted positions, substantially as specified.

3. An attachment for cameras having parallel tracks or guides, a plate-holder rack mounted thereon and provided with end bars having slots and side bars connecting said end bars, one of the side bars being provided with means for engagement with said slots, whereby adjustment of the width of the rack may be attained, and means for maintaining the rack in its adjusted positions upon the tracks or guides, substantially as specified.

4. A camera attachment having a plate-holder rack mounted for transverse adjustment, and a yielding gage-bar mounted upon the rack parallel with its direction of adjustment, and provided with a plurality of spaced seats, and a pin or projection for engagement with said seats, said plate-holder rack being provided with parallel longitudinal plate-holder guides, substantially as specified.

5. An attachment for cameras having a plate-holder rack mounted for transverse adjustment and having parallel longitudinal bars between which a plate-holder may be arranged, a holding-spring carried by one of the bars for maintaining the adjacent portion of the plate-holder in its operative position, and a yielding gage-bar carried by the other longitudinal bar for contact with the adjacent portion of the plate-holder, substantially as specified.

6. An attachment for cameras having a plate-holder rack mounted for transverse adjustment, and having parallel longitudinal bars, a ground-glass holder mounted in said rack and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the rack, and an indicating device mounted upon the gage-bar and connected with the ground-glass holder, substantially as specified.

7. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the path of the ground-glass holder, and a traveler mounted upon said gage-bar and connected with the ground-glass holder, substantially as specified.

8. A camera attachment having a plate-holder rack mounted for transverse adjustment and having parallel longitudinal bars of which one is longitudinally slotted, a ground-glass holder having a reduced portion fitted in the slot of said longitudinal bar and bearing at its opposite end edge against the other bar, a catch carried by the ground-glass holder for engagement with the plate-holder, a holding-bar adjustably mounted upon the ground-glass holder for contact with the inner surface of said slotted longitudinal bar, a gage-bar arranged parallel with the path of movement with the ground-glass holder, and a traveler connected with the ground-glass holder and traversing the gage-bar, substantially as specified.

9. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the path of movement of the ground-glass holder and provided with series of sockets, a traveler mounted upon the gage-bar and connected with the ground-glass holder to receive motion therefrom, and a latch mounted upon the traveler and adapted to engage a notch in the gage-bar, substantially as specified.

10. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a prismatic gage-bar arranged parallel with the path of movement of the ground-glass holder, and capable of revoluble adjustment, said gage-bar being provided upon its sides with longitudinal series of sockets, a traveler mounted upon the gage-bar and connected with the ground-glass holder, and a latch on the traveler for engagement with said sockets, substantially as specified.

11. A camera attachment having a plate holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a prismatic gage-bar, supporting-springs having bearings in which journal portions of the gage-bar are mounted, said springs being provided with tongues for engagement with the flat faces of the gage-bar to maintain the latter in an adjusted position, and a traveler mounted upon the gage-bar, connected with the ground-glass holder, and provided with means for engaging the gage-bar at spaced points, substantially as specified.

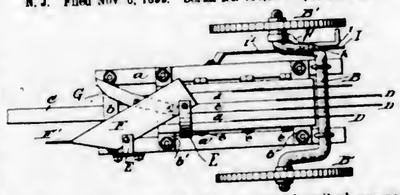
645,692. PIPE-UNION. SAMUEL RICHARDSON, New York, N. Y. Filed Nov. 14, 1899. Serial No. 736,932. (No model.)

Claim.—1. A pipe-coupling, comprising a body or middle member having an exterior angular or nut-shaped contour and interiorly provided with a flange projecting within its bore and forming an angular or nut-shaped opening, a connection member insertible through the body member and having at one end an angular or nut-shaped exterior insertible through the opening in the flange of the body and provided at its inner end with an exterior flange adapted to bear against the inner face of the body-flange, and another connection member having a threaded engagement with the bore of said body, and the inner end thereof being adapted to form a continuous opening or passage with the other connection member.



2. A pipe-coupling, comprising a body or middle member having an exterior angular or nut-shaped contour and interiorly provided with a flange projecting within its bore and forming an angular or nut-shaped opening, a connection member insertible through the body member and having at one end an angular or nut-shaped exterior insertible through the opening in the flange of the body and provided at its inner end with an exterior flange adapted to bear against the inner face of said body-flange and having a beveled face, and another connection member having a threaded engagement with the bore of said body and provided with a flaring or bevaled inner end adapted to bear against the corresponding face of the inner flange of the other connection member.

645,693. CORN-STUBBLE CUTTER. JOHN H. SHARP, Columbus, N. J. Filed Nov. 6, 1899. Serial No. 736,079. (No model.)



Claim.—1. A machine of the character described, composed of the narrow rectangular frame A provided with the front cutting-knife and guard, the series of rear cutting-blades, the vehicle pole and seat, and the segmental arm I arranged upon the side thereof, in combination with the crank-axle B, wheels B' and operating-lever H, substantially as specified.

2. A machine for cutting stubble, consisting of the rectangular frame A, pivoted at its rear end to the crank-axle B, provided with wheels B' and lever H; the said frame A being provided with the series of cutting-blades D secured at the rear of the machine between the central bar c and parallel bars d, the front cutting-blade F, and guard G, substantially as specified.

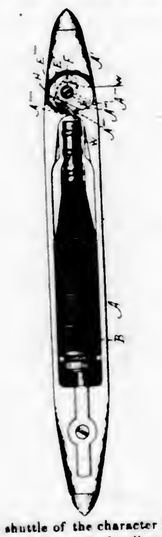
3. In a machine for cutting stubble, the cutting-blade F, secured diagonally across the front of the frame A in a nearly-flat position upon the lower ends of the adjustable standards E, and provided with an upwardly-curved projection or guard F', in combination with the guard-blade G arranged upon said frame in a reverse direction to that of said cutting-blade F, substantially as and for the purpose specified.

645,694. UNION GARMENT. JAMES M. TANNER and ADONIRAM R. WILLETT, Cape Girardeau, Mo. Filed Sept. 26, 1899. Serial No. 731,622. (No model.)



Claim.—A combination-garment, comprising a pair of trousers having a front vest extension connected to the upper body portion thereof and terminating at the side seams of the trousers, the rear extremities of the said extension being reduced in the form of straps which are unattached to the trousers except at the points where they connect with the opposite portions of the vest extension and adapted to be attached to each other above the rear upper edge of the trousers and provide a ventilating-opening between said edge of the trousers and the straps, the fly of the trousers being continued at the front upwardly in rear of and forming a part of the opposite sections of the said vest extension adjacent the points of connection of the latter, the said extension replacing the ordinary waistband at the front of the trousers and projecting above and below the location of the latter.

645,695. SHUTTLE FOR LOOMS. ZEPHIRIN THUOT, Fall River, Mass. Filed July 13, 1899. Serial No. 723,663. (N. model.)



Claim.—1. In a shuttle of the character described, the head of the shuttle provided with the vertical well or recess C; the wall A''' separating said well or recess from the bobbin-chamber and provided with the vertical slot R; the vertical drum D secured to the shuttle within said well or recess and provided at its upper end with the horizontal flange E of a partially-circular form but having the straight edge E'' at one side thereof, said flange and shuttle being so formed as to allow of a space between the latter and the circular edge of the former; the guiding horn or loop K extending upward from the lower portion of the forward side of the drum and of substantially the shape shown; and the guiding-horn H of the shape shown and described extending up from the lower portion of the rear side of the drum and into said slot R, the front wall of the shuttle being provided with the slot I' extending from the upper edge thereof under said flange to the thread-hole, substantially as set forth.

2. In a shuttle of the character described, the head of the shuttle provided with the vertical well or recess C; the wall A''' separating said well or recess and the bobbin-chamber and provided with the vertical slot R; the vertical drum C secured to the shuttle within said well or recess and formed with the flange E substantially circular in shape but provided with the straight edges E' and E'', the latter corresponding in shape with and fitting against the edge A'' making a part of the shuttle; the downward projection or rib E''' formed on the under side of said flange and extending into the notch A''' in the shuttle; and the horns K and K extending respectively from the rearward and forward sides of the drum, said shuttle being provided with the slot I' extending from the upper edge thereof to the thread-hole and being formed with the curved space S next the curved edge of said flange, substantially as described.

645,696. BLOW-OFF VALVE. CHARLES H. TOPP, Huntington, W. Va. Filed July 10, 1899. Serial No. 723,375. (No model.)

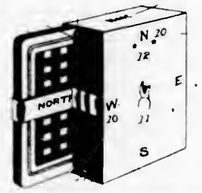
Claim.—1. A valve, comprising a casing having an inlet and an outlet passage, a removable gland having a valve-seat at its inner end, and detachably fitted within the outlet-passage, a coupling-ring swiveled upon the gland, and having a screw-threaded connection with the outlet-passage, and a substantially L-shaped discharge branch removably connected to the outer end of the gland, substantially as and for the purpose set forth.



2. A valve, comprising a casing having an inlet and an outlet passage, a substantially-conical gland having a smooth exterior and fitting the smooth interior of the outlet-passage, a coupling-ring swiveled upon the outer end of the gland, and having a screw-threaded connection with the exterior of the outlet-passage, and a substantially L-shaped discharge branch detachably connected to the outer end of the gland, substantially as and for the purpose set forth.

3. In a valve, the combination with a casing having an inlet and an outlet passage, of a gland detachably fitted within the outlet-passage, and having a valve-seat at its inner end, a coupling-ring swiveled upon the outer end of the gland, and having a screw-threaded connection with the outer end of the outlet-passage, a substantially L-shaped discharge branch removably connected to the outer end of the gland, and provided with an interiorly-threaded extension alined axially with the valve-seat, a valve-stem fitted within the extension, and a valve carried by the stem, located within the casing, and adapted to be seated upon the valve-seat, substantially as shown and described.

645,697. DUPLICATE-WHIST APPARATUS. WILLIAM E. WATKINS, Montclair, N. J. Filed Sept. 15, 1898. Serial No. 691,015. (No model.)



Claim.—1. A duplicate-whist apparatus comprising separate holders adapted to contain each hand of each deal each holder marked to indicate the player who is to play the hand contained therein, and additional markings whereby all the holders for the same deal may be identified with each other.

2. In a duplicate-whist apparatus, the combination with a board forming one of the sides of a single-compartment receptacle suitably marked to indicate the position in which it is to be placed for the play, of four separate holders detached therefrom adapted to contain the four whist hands of one deal and each holder marked to indicate the player who is to play the whist hand contained therein.

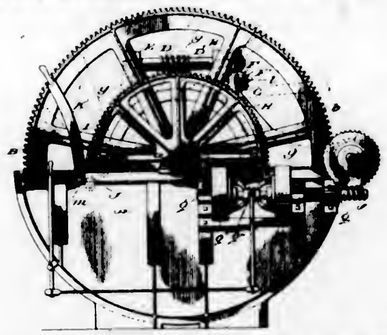
3. In a duplicate-whist apparatus, the combination with a board forming one of the sides of a single-compartment receptacle suitably marked to indicate the position in which it is to be placed for the play, additional marks to indicate the position of the players for the play, of four separate holders detached therefrom adapted to contain the four whist hands of one deal and each holder marked to indicate the player who is to play the whist hand contained therein, as shown by the marks on the board.

645,698. APPARATUS FOR MERCERIZING, &c. LEONARD WELDON, Amsterdam, N. Y. Filed Sept. 18, 1899. Serial No. 730,835. (No model.)

Claim.—1. The combination with the dye-tub, of a shaft, a pair of large wheels on the shaft carrying a series of yarn-sticks, a pair of smaller wheels on the shaft between the large wheels carrying the second series of yarn-sticks, and means for revolving the said small wheels simultaneously in one direction and relatively to the revolution of the large wheels, as set forth.

2. The combination with the dye-tub, of a shaft, a pair of large wheels on the shaft carrying a series of yarn-sticks, a pair of smaller wheels on the shaft between the large wheels carrying the second series of yarn-sticks, means for revolving the said small wheels simultaneously in one direction while the large wheels are rotated in the

opposite direction, and means to arrest the relative movement of the wheels during the continued revolution of said wheels, as set forth.



3. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in one direction, and gearing between the large wheels and the smaller wheels for rotating the latter wheels simultaneously and relatively to the large wheels, and means to arrest the relative movement of the wheels during the continued revolution of said wheels in one direction, as set forth.

4. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in one direction, and gearing between the large wheels and the smaller wheels for rotating the latter wheels simultaneously and relatively to the large wheels, a large spur-gear on the shaft in mesh with the gearing between the large and small wheels, and suitable braking devices to arrest the rotation of the said spur-gear to cause the relative movement of the large and small wheels, substantially as and for the purpose described.

5. The combination with the dye-tub, of a reel constituted by a pair of large wheels fixed on a revoluble shaft mounted in bearings on the tub, revoluble removable yarn-sticks between the outer rims of the wheels, a pair of smaller wheels loosely mounted on the said shaft between the large wheels, revoluble removable yarn-sticks between the outer rims of the small wheels, means to rotate the said reel, gearing mounted on the large wheels and adapted to rotate the small wheels relatively to the large wheels when the large wheels are rotated, and suitable means to regulate or control said relative movement of the wheels, substantially as described.

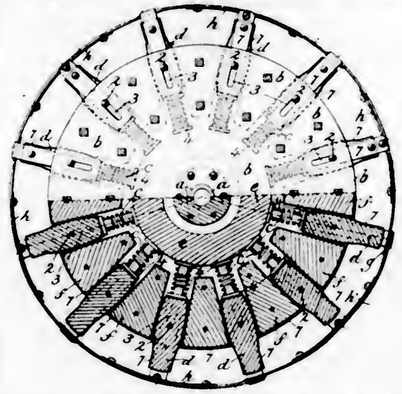
6. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in either and both directions, said smaller wheels having teeth on their peripheries to engage worms, worms on shafts journaled in bearings mounted on the large wheels, worm-gears on the worm-shafts, a cross-shaft having worms engaging said worm-gears, said cross-shaft also journaled in bearings on the large wheels, and means to operate the gearing between the two wheels when the large wheels are driven in either direction to cause the relative movement of the large and small wheels, as and for the purpose described.

7. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in either and both directions, said smaller wheels having teeth on their peripheries to engage worms, worms on shafts journaled in bearings mounted on the large wheels, worm-gears on the worm-shafts, a cross-shaft having worms engaging said worm-gears, said cross shaft also journaled in bearings on the large wheels, a spur-gear loosely mounted on the first-mentioned shaft near one end, a friction-wheel on one side of the said spur-gear, and a brake to engage the friction-wheel, substantially as and for the purpose described.

8. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in either and both directions, said smaller wheels having teeth on their peripheries to engage worms, worms on shafts journaled in bearings mounted on the large wheels, worm-gears on the worm-shafts, a cross-shaft having worms engaging said worm-gears, said cross-shaft also journaled in bearings on the large wheels, a spur-gear loosely mounted on the first-mentioned shaft near one end, a friction-wheel on one side of the said spur-gear, a pivoted brake-shoe to engage the periphery of the friction-wheel, and a pivoted lever having a cam-shaped surface to engage the brake-shoe, substantially as and for the purpose described.

9. The combination with the dye-tub, of a shaft mounted to turn in bearings on said tub, a pair of large wheels within the tub and secured to the shaft to turn therewith, a series of yarn-sticks carried by the said wheels, a pair of smaller wheels loosely mounted on the shaft between the large wheels, a series of yarn-sticks carried by the small wheels, gearing to rotate the large wheels in either and both directions, segments having gear-teeth secured on the periphery of one or both of said large wheels to form part of the gearing to rotate the large wheels, said smaller wheels having teeth on their peripheries to engage worms, worms on shafts journaled in bearings mounted on the large wheels, worm-gears on the worm-shafts, a cross-shaft having worms engaging said worm-gears, said cross-shaft also journaled in bearings on the large wheels, and means to operate the gearing between the two wheels when the large wheels are driven in either direction to cause the relative movement of the large and small wheels, as and for the purpose described.

645,699. SPRING-WHEEL FOR VEHICLES. JEAN L. ANCELLE, Peru, Ind. Filed June 26, 1899. Serial No. 721,993. (No model.)



Claim.—1. A wheel composed of a hub, a rim, a spring portion within the rim, and connections between said hub and said spring portion for communicating the pressure to the same spring in the same sense as well when it is above as when it is below the wheel's axis, substantially as described.

2. A spring-wheel having its hub supported from points between the spring portion of said wheel and the wheel's periphery, so that in running the pressure is in the same sense on a spring when the latter is above as when it is below the wheel's axis, substantially as described.

3. A wheel composed of a rim, springs within the rim, a floating abutment within the springs, and a hub supported from the upper ends of the springs as they pass above the wheel's axis, substantially as described.

4. A wheel composed of a sectional rim, a spring portion within the rim, and connections between said hub and said spring portion for communicating the pressure to the same spring in the same sense as well when it is above as when it is below the wheel's axis, substantially as described.

5. A wheel having a rim composed of sections hinged in the middle and loosely connected at the ends, substantially as described.

6. A spring-wheel having a rim composed of sections hinged in the middle to spring-supports and loosely connected at the ends, substantially as described.

7. A spring-wheel having a rim composed of sections hinged at the middle to one set of spring-supports and connected at the ends with another set of such supports, substantially as described.

8. A spring-wheel having a rim composed of sections bearing peripherally upon the spring portion of said wheel, and a hub which has also a peripheral bearing upon said spring portion, substantially as described.

9. A wheel composed of a rim, rim-supports, a floating abutment, springs between said supports and said abutment, and a hub having a slot-and-pin connection with said supports, substantially as described.

10. A wheel composed of a rim in sections, rim-supports with which said sections are loosely connected, a floating abutment, springs between said supports and said abutment, and a hub having a slot-and-pin connection with said supports, substantially as described.

11. A wheel composed of a rim in sections, a set of rim-supports hinged to the middle of said sections, a second set of rim-supports connected loosely with the ends of said sections, a floating abutment, springs between said supports and said abutment, and a hub having a peripheral bearing on said springs, substantially as described.

12. A spring-wheel composed of a rim, sliding rim-supports bearing peripherally on the spring portion of said wheel, and a hub carrying guides for said supports and bearing on said spring portion at points between the same and the wheel's periphery, substantially as described.

13. A wheel composed of a rim, springs within the rim, a floating abutment in the form of a ring within the springs, and a hub within said abutment supported from the upper ends of the springs as they pass above the wheel's axis, substantially as described.

645,700. SPRING-WHEEL FOR VEHICLES. JEAN L. ANCELLE, Peru, Ind. Filed Sept. 23, 1899. Serial No. 731,453. (No model.)

Claim.—1. A wheel composed of a hub portion, a rim portion, and a spring portion having butting or loose connections in the same direction with the hub and rim portions separately, so that these are movable relatively to each other from the mid-position in both directions and that such motion in each direction changes the form of the springs in the same sense, substantially as described.

2. A wheel composed of a hub portion, a rim portion, and a spring portion which both on the hub side and the rim side has butting or loose connections with the hub and rim portions separately, substantially as described.

3. A wheel composed of a hub portion, a rim portion which consists of an inner ring, a rim and spokes between the inner ring and the rim, and a spring portion which has butting or loose connections in the same direction with the hub portion and the inner ring separately, substantially as described.

4. A wheel composed of a hub portion, a rim portion which consists of an inner ring, a rim and spokes between the inner ring and the rim, and a spring portion which consists of two sets of springs one set outside and one inside of said inner ring, and which for both sets of springs has butting or loose connections for the same ends of the respective springs with the hub portion and the inner ring separately, substantially as described.

5. A wheel composed of a rim portion, a hub portion which consists of a hub with projections, and a spring portion which consists of springs guided by said projections and which at each end of the several springs has butting or loose connections with the rim portion and the hub portion separately, substantially as described.

6. A wheel composed of a rim portion, a hub portion which consists of a hub with projections and of a ring fastened to said projections, and a spring portion which both on the hub side and the rim side has butting or loose connections in the same direction with the rim portion and the hub portion separately, substantially as described.

7. A wheel composed of a rim portion which consists of an inner ring, a rim, and spokes between said inner ring and said rim, a hub portion which consists of a hub with projections, and a spring portion which consists of springs guided by said projections and which at each end of the several springs has butting or loose connections with the rim portion and the hub portion separately, substantially as described.

8. A wheel composed of a rim portion which consists of an inner ring, a rim, and spokes between said inner ring and rim, a hub portion which consists of a hub with projections, and a spring portion which consists of two sets of springs, one set inside and one outside of said inner ring, and which for each set has butting or loose connections in the same direction with the rim portion and the hub portion separately both on the rim side and on the hub side, substantially as described.

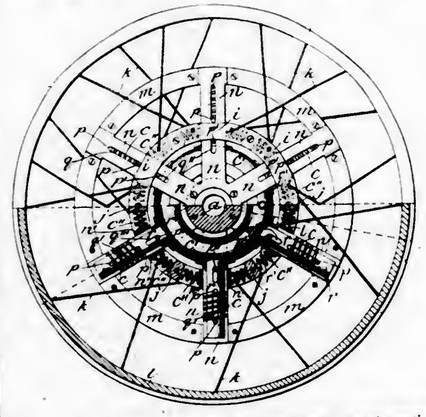
9. A wheel composed of a rim portion, a hub portion which consists of a hub with projections, and a spring portion consisting of one or more sets of springs guided by said projections, and provided with followers arranged to establish butting or loose connections with said hub portion by contact with portions of said projections, said spring portion having butting or loose connections with the rim portion of the wheel, substantially as described.

10. A wheel composed of a rim portion which consists of an inner ring, a rim, and spokes between said inner ring and rim, a hub portion which consists of a hub with projections, and a spring portion which consists of springs provided with followers arranged to establish butting or loose connections with the hub portion and the rim portion of the wheel separately by contact with portions of said projections and of said inner ring, substantially as described.

11. A wheel composed of a rim portion which consists of an inner ring, a rim, and spokes between said inner ring and rim, a hub portion which consists of a hub with projections and of a ring connecting the ends of said projections, and a spring portion having butting or loose connections with said inner ring and the hub portion of the wheel, separately, substantially as described.

12 A wheel in which the pressure from the axle is conveyed from the hub to the rim through an inner ring connected by spokes with the rim and also through two sets of springs arranged in circles around the hub, one set inside and the other set outside of said inner ring, substantially as described.

645,701. SPRING-WHEEL FOR VEHICLES. JEAN L. ANCELLE, Peru, Ind. Filed Jan. 23, 1900. Serial No. 2,473. (No model.)



Claim.—1. A wheel composed of a rim portion, a hub portion provided with projections, an elastic or pneumatic ring surrounding the wheel's axis and having butting or loose connections on the rim side thereof with both the said rim and the said hub portions, and an exterior circle of separate springs having connections with said rim and hub portions, substantially as described.

2. A wheel composed of a rim portion, a hub portion provided

with projections, an elastic or pneumatic ring surrounding the wheel's axis and having connections with the said rim and hub portions, and an exterior circle of separate springs having butting or loose connections at each end with both the said rim and the said hub portions, substantially as described.

3. A wheel composed of a rim portion, a hub portion provided with projections, an elastic or pneumatic ring surrounding the wheel's axis and having butting or loose connections on the rim side thereof with both the said rim and the said hub portions, and an exterior circle of separate springs having butting or loose connections at each end with both the said rim and the said hub portions, substantially as described.

4. A wheel composed of a rim portion, a hub portion provided with projections, an elastic or pneumatic floating ring surrounding the wheel's axis and having butting or loose connections on the rim side thereof with both the said rim and the said hub portions, and an exterior circle of separate springs having connections with said rim and hub portions, substantially as described.

5. A wheel composed of a rim portion, a hub portion, and an elastic or pneumatic floating ring surrounding the wheel's axis and having butting or loose connections on the rim side thereof with both the said rim and the said hub portions, substantially as described.

6. A wheel composed of a rim portion, a hub portion, a set of springs provided with butting or loose connections both on the rim side and the hub side thereof with both the said rim and the said hub portions, and another set, which is preferably in the form of an elastic or pneumatic ring, floating and being provided on the rim side thereof with butting or loose connections with both the said rim and the said hub portions, substantially as described.

7. A wheel composed of a rim portion, a hub portion provided with projections, a set of springs provided with butting or loose connections both on the rim side and the hub side thereof with both the said rim and the said hub portions, another set, which is preferably in the form of an elastic or pneumatic ring, floating and being provided on the rim side thereof with butting or loose connections with both the said rim and the said hub portions, and a third set peripherically arranged and having connections with said rim and hub portions, substantially as described.

8. A wheel composed of a rim portion, a hub portion provided with projections, a set of springs, which is preferably in the form of an elastic or pneumatic ring, floating and provided on the rim side thereof with butting or loose connections with both the said rim and the said hub portions, and another set peripherically arranged and having connections with said rim and hub portions, substantially as described.

9. A wheel composed of a rim portion, a hub portion provided with projections, an elastic or pneumatic ring surrounding the wheel's axis and having loose or butting connections on the rim side thereof with both the said rim and the said hub portions, and a set of springs peripherically arranged and having connections with said rim and hub portions, substantially as described.

10. A wheel composed of a rim portion, a hub portion provided with projections, an elastic or pneumatic ring surrounding the wheel's axis and having loose or butting connections on the rim side thereof with both the said rim and the said hub portions, an exterior circle of separate springs having connections with said rim and hub portions, and a set of peripherically-arranged springs also having connections with said rim and hub portions, substantially as described.

11. A wheel composed of a rim portion, a hub portion, and three sets of springs interposed between the said rim and hub portions, one of said sets being arranged peripherically and another being preferably in the form of an elastic or pneumatic ring, substantially as described.

12. A wheel composed of a rim portion having an inner ring, a hub portion provided with projections extending beyond said inner ring, a circle of springs arranged outside of said inner ring and provided with slot-and-pin connections with both the said inner ring and the said hub projections, and an elastic or pneumatic ring arranged between said inner ring and the wheel's axis and provided with means for transmitting its pressure to said inner ring, substantially as described.

13. A wheel composed of a rim portion having an inner ring, a hub portion provided with projections, an elastic or pneumatic ring, and followers resting against said elastic or pneumatic ring and having loose or butting connections with both said inner ring and said projections, substantially as described.

14. A wheel composed of a rim portion having an inner ring, a hub portion provided with projections, an elastic or pneumatic ring, a circle of springs exterior to said elastic or pneumatic ring, followers resting against said elastic or pneumatic ring and having loose or butting connections with both said inner ring and said projections, and means for establishing butting or loose connections at each end of said exterior springs with both the said inner ring and the said projections, substantially as described.

15. A wheel composed of a rim portion having an inner ring, a hub portion provided with projections, an elastic or pneumatic ring, a circle of springs exterior to said elastic or pneumatic ring, followers resting against said elastic or pneumatic ring and provided with butting or loose connections with both said inner ring and said projections, and means composed in part of extensions of said followers for establishing butting or loose connections at each end of said exterior springs with both the said inner ring and the said projections, substantially as described.

16. A wheel composed of a rim portion having an inner ring provided with openings therein, a hub portion provided with projections, and springs peripherically arranged in said openings and interposed between said ring and said projections, substantially as described.

17. A wheel composed of a rim portion having an inner ring provided with openings therein, a hub portion provided with projections, springs peripherically arranged in said openings and interposed between said ring and said projections, and either or both of the following, that is to say, a circle of separate springs having butting or loose connections both on the rim side and the hub side thereof with both the said inner ring and the said projections, and an elastic or pneumatic ring having butting or loose connections on the rim side thereof with both the said inner ring and the said projections, substantially as described.

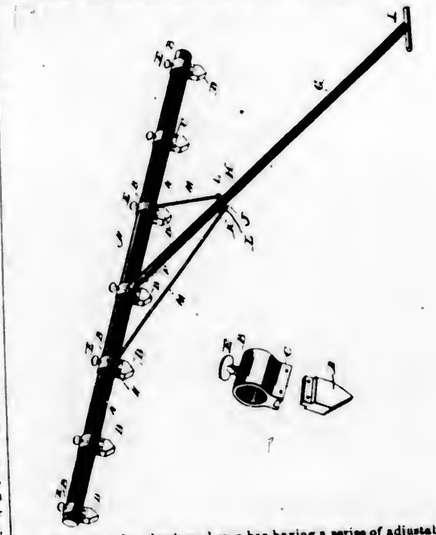
18. A wheel composed of a rim portion having an inner ring, a hub portion provided with projections, springs having butting or loose connections both on the rim side and the hub side with both said projections and said inner ring, and an elastic or pneumatic ring between said inner ring and said hub, substantially as described.

19. A wheel composed of a rim portion, a hub portion, an elastic or pneumatic ring, a circle of springs outside of said ring, followers intermediate the rim portion and said ring, and connections formed in part by extensions of said followers for communicating the pressure of said springs to the said rim and hub portions, substantially as described.

20. A wheel composed of a rim portion provided with an inner circle, a hub portion, a set of springs arranged outside of said circle between the said hub and rim portions, a second set of springs formed most advantageously of an elastic or pneumatic ring and arranged inside of said circle between said hub and rim portions, and followers provided with adjustable shoes for bearing upon the said second set of springs, substantially as described.

21. A wheel composed of a rim portion, a hub portion, an elastic or pneumatic ring interposed between the said hub and rim portions, and followers provided with adjustable shoes bearing upon said ring, substantially as described.

645,702. LAND-MARKER. LOUIS A. ARLAUD, Leavenworth, Kans. Filed Sept. 21, 1899. Serial No. 731,211. (No model.)

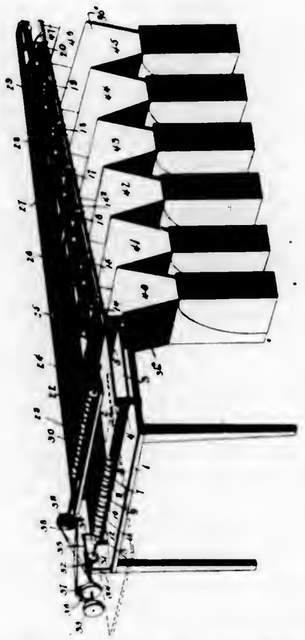


Claim.—1. In a land-marker, a bar having a series of adjustable sleeves mounted thereon, the said sleeves having thumb-screws and lugs, of teeth secured to the said lugs, of a handle secured to the central sleeve, and rods for bracing the handle, substantially as shown and described.

2. In a land-marker, a bar having a series of sleeves adjustably mounted thereon, thumb-screws and lugs upon the said sleeves, said lugs supporting teeth, a handle secured to the central sleeve, a sleeve upon the handle, rods connecting the sleeves upon the handle with the sleeves on the bar, substantially as shown and described.

3. In a land-marker, a bar having a series of sleeves adjustably mounted thereon, said sleeves provided with thumb-screws and lugs, said lugs supporting teeth, a handle detachably secured to the central sleeve, a sleeve adjustably secured on the handle, rods detachably secured to the sleeve on the handle and detachably connected to eyes in the sleeves on the bar, substantially as shown and for the purpose set forth.

645,703. APPARATUS FOR SORTING TOBACCO-LEAVES. BERENT O. DAHL, Viroqua, Wis. Filed Mar. 14, 1899. Serial No. 709,045. (No model.)



Claim.—1. In an apparatus for sorting tobacco-leaves, the combination with upper and lower parallel pairs of conveying-belts of different lengths for engaging the leaves, of an independent leaf-receiving compartment for each pair of belts.

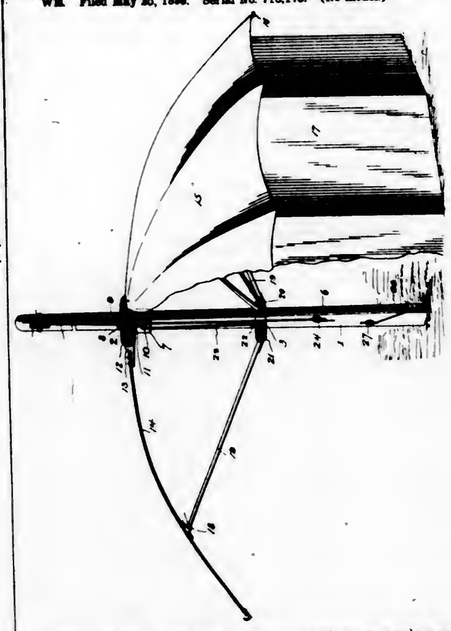
2. In an apparatus for sorting tobacco-leaves, the combination with an endless apron, of parallel conveying-belts of different lengths arranged one above the other, and supported upon rollers of different lengths, and a separate receiving-receptacle for each pair of belts.

3. In an apparatus for sorting tobacco-leaves, the combination with an endless apron, of two series of conveying-belts of different lengths arranged parallel to each other and to the apron, one series of belts being arranged above the other, and a series of independent leaf-receiving receptacles, each provided with a chute to direct the leaves downward.

4. In an apparatus for sorting tobacco-leaves, the combination with an endless apron, and with two series of conveyer-belts of different lengths, of leaf-receiving receptacles, and a table arranged adjacent to the apron and provided with a transverse strip or guide for the butts of the leaves.

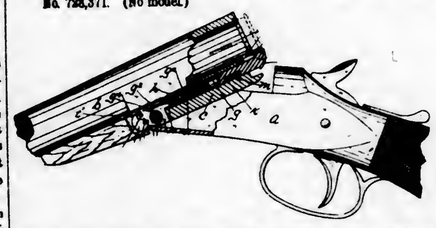
5. In an apparatus for sorting tobacco-leaves, the combination with a table, of an endless apron, two series of rollers one series being arranged above the other, belts of different lengths passing around said rollers, means for moving the rollers and belts, and a series of independent leaf-receiving receptacles, each communicating with a separate set or pair of belts.

645,704. UMBRELLA TENT. DUNCAN DOWIE, West Superior, Wis. Filed May 26, 1899. Serial No. 718,173. (No model.)



Claim.—A tent comprising in its construction a tent-pole provided with a double pulley near its top, an aperture in the said pole for the reception of the double pulley, an upper sliding collar mounted on the said pole and provided with radiating ears or lugs, ribs connected to the said ears for supporting the canvas of the tent, hooks on the ends of the said ribs, a lower fixed collar mounted on the said tent-pole and provided with radiating ears, brace-rods connected to the said ears for supporting the ribs in place when the canvas is spread brackets on the said ribs to which the brace-rods are pivotally secured ropes secured to the upper sliding collar on opposite sides of the tent pole, for raising and lowering the said collar, and a pulley near the ground end of the tent-pole, whereby an upward pull may be exerted upon the ropes to raise the sliding collar, the construction being such that when the upper sliding collar is raised to its uppermost position and secured in such position by means of the cleats, the tent will be folded or closed and when the sliding collar is in its lowermost position, the tent will be spread, substantially as described.

645,705. EJECTOR FOR BREAKDOWN GUNS. FRANK A. FOSTER, Norwich, Conn. Filed Jan. 17, 1898. Renewed Aug. 24, 1899. Serial No. 728,371. (No model.)

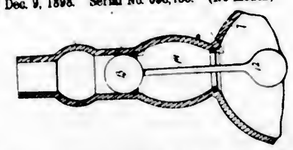


Claim.—1. In a breakdown firearm, in combination, a longitudinally-movable, spring-pressed ejector seated in the lower portion of the barrel and having its forward end terminating in a spring-hook as set forth, a pin in the barrel located in the path of said hook and adapted to be engaged by the latter when the arm is closed, and means for releasing said hook from said pin, substantially as and for the purpose specified.

2. In a breakdown arm, in combination, a longitudinally-movable, spring-actuated ejector seated in the lower portion of the bar-

rel and having its forward end terminating in a spring-hook as set forth, a pin fixed in the barrel and cooperating with the said ejector-hook when the arm is closed, and means for releasing said hook from said pin consisting of a pivoted trip, one end of which engages the frame and the other end engages the ejector-hook and forces the latter out of engagement with said pin when the arm is opened for reloading, all substantially as specified.

645,706. BOTTLE. ALEXANDER W. GRANT, Montreal, Canada. Filed Dec. 9, 1898. Serial No. 698,753. (No model.)

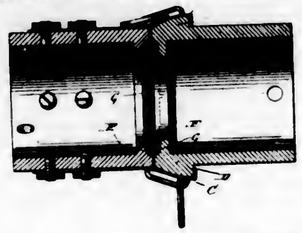


Claim.—1. A bottle having an enlargement in the neck near the mouth thereof, a valve-seat located near the inner end of said enlargement, a second valve-seat located at the line of jointure of said neck and the body of the bottle, and a dumb-bell valve having one valvular ball located outside of the outer valve-seat and the other valvular ball located inside of the inner valve-seat, the connecting-bar of the valve being of sufficient length to allow the outer valvular ball to rest in the said enlargement when the inner ball rests upon the inner seat substantially as and for the purpose set forth.

2. A bottle having an enlargement in the neck near the mouth thereof, a valve seat located near the inner end of said enlargement, a second valve-seat located at the line of jointure of said neck and the body of the bottle; a second enlargement of the neck located intermediate said valve-seats; and a dumb-bell valve having one valvular ball located outside of the outer valve-seat and the other valvular ball located inside of the inner valve-seat, the connecting-bar of the valve being of sufficient length to allow the outer valvular ball to rest in the enlargement near the mouth of the bottle when the inner ball rests upon the inner seat substantially as and for the purpose set forth

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645,707. HOSE-COUPLING. ED J. HANNOLD, Anderson, Ind. Filed Sept. 26, 1899. Serial No. 731,776. (No model.)



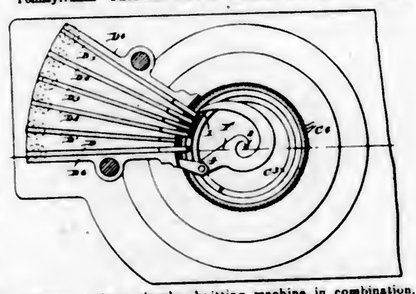
Claim.—1. In a hose-coupling, the sections to receive the hose having inside annular flanges near their ends to form a seat between the two flanges for a packing, one of said sections having an outside flange with abrupt inner side approximately at right angles to the sides of the couplings and an oblique or tapering outer wall, spring-hooks attached to the other section and adapted to engage said outside flange when the ends of the sections are brought together, and a packing located in the above-mentioned seat, substantially as described and shown.

2. In a hose-coupling, the sections to receive the hose having inside annular flanges near their ends forming a pair constituting a packing-seat, the flange of each pair nearest the side from which the pressure comes being the lower of the two for the purpose described, one of said coupling-sections having an outside flange with abrupt inner side approximately at right angles to the sides of the coupling-section and oblique tapering outer wall, spring-hooks attached to the other section and adapted to engage said outside flange when the ends of the sections are brought together, and a packing located in the seat formed by the inside flanges, substantially as described and shown.

3. In a hose-coupling, the sections to receive the hose having inside annular flanges near their ends forming a pair which constitute a packing-seat, one of said coupling-sections having an outside flange adjacent to its end having an inner abrupt and an outer sloping side, spring-hooks attached to the other section and adapted to engage said outside flange when the ends of the sections are brought together said springs having pulls, and a packing-ring in the seat at the joint, substantially as described and shown.

4. In a hose-coupling, the sections to receive the hose having inside annular flanges near their ends forming a pair which constitute a packing-seat, one of said coupling-sections having an outside flange adjacent to its ends with inner abrupt and sloping outer sides, spring-hooks attached to the other sections and adapted to engage said outside flange when the ends of the sections are brought together, pulls on the hooks consisting of elongated staples and rings loosely engaged by said staples, and a packing-strip in the seat at the joint of the coupling, substantially as described and shown.

645,708. CIRCULAR-KNITTING MACHINE. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to the Standard Machine Company, of Pennsylvania. Filed July 7, 1898. Serial No. 685,303. (No model.)



Claim.—1. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, both ends of said spiral face being free, the outer end being in alinement with the thread-carrier when out of action.

2. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, both ends of said spiral face being free, the outer end being in alinement with the thread-carrier when out of action, and means to rotate said cam with the thread-carrier.

3. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, both ends of said spiral face being free, one end being in alinement with the thread of the carrier when out of action and the other end being substantially central of the needle-cylinder.

4. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, both ends of said spiral face being free, one end being in alinement with the thread of the carrier when out of action and the other end being substantially central of the needle-cylinder, and means to rotate said cam with the thread-carrier.

5. In a circular-knitting machine, in combination, the thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, the outer end of said cam being in alinement with the thread of the carrier when out of action, said cam having an inner portion curved upon itself to form a pocket central of the cylinder.

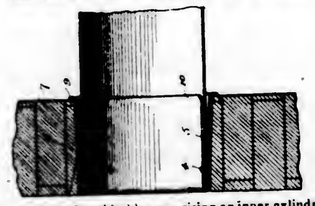
6. In a circular-knitting machine, in combination, the thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, the outer end of said cam being in alinement with the thread of the carrier when out of action, said cam having an inner portion curved upon itself to form a pocket central of the cylinder, and means to rotate said cam with the thread-carrier.

7. In a circular-knitting machine, in combination, a thread-carrier and means to move the thread-carrier in and out of operative position, a cam having a spiral face lying within the needle-cylinder, the outer end being free and in alinement with the thread of the carrier when out of action, and the other end being curved upon itself and terminating in a free end, inclosed by the body of the spiral, whereby a line projecting in any direction from a point on the inner end will intersect the body of the cam, substantially as described.

645,709.

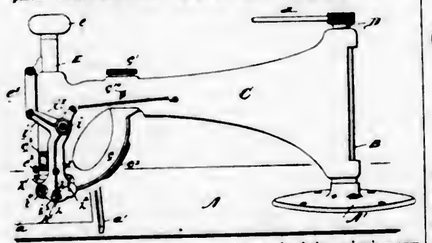
WITHDRAWN.

645,710. STOVEPIPE-THIMBLE. BENJAMIN F. LOGAN, Ottumwa, Iowa. Filed Mar. 29, 1899. Serial No. 710,978. (No model.)



Claim.—A stovepipe-thimble comprising an inner cylindrical section having its outer end contracted or tapered and having its inner end folded back on itself to provide an exterior annular flange and to fit against the interior of the stovepipe-opening of a chimney, the outer cylindrical section provided at its outer end with an annular flange to abut against the outer face of the chimney and having its inner end fitting within the annular groove of the inner section, the outer section being arranged at an angle to the inner section and forming a tapering space between them for the reception of a stovepipe, and the outer section being adapted to be forced into engagement with such chimney, by the stovepipe, and fastening devices connecting the inner ends of the sections and arranged adjacent to the annular groove and having their heads lying within the plane of the bent or folded end of the inner section, substantially as and for the purpose described.

645,711. LETTER-CANCELING MACHINE. FRANCIS C. OSBORN, Detroit, Mich., assignor to the Perfection Hand Stamp Company, same place. Filed Feb. 5, 1900. Serial No. 4,067. (No model.)



Claim.—1. In a canceling-stamp, the standard the swinging arm pivoted on the standard, the plunger arranged to move up and down in a way in the free end of the arm, swinging frames I pivoted on the free end of the arm a link connecting the plunger and the swinging frames above their pivots, and an ink-roll mounted in the lower end of the frames I, substantially as described.

2. The plunger-head and die having a dovetail connection, the cross-pin, the spring and the locking-lug, substantially as described.

3. In a canceling-stamp, the combination of the standard B, the arm C, pivoted on the standard, the hand-plunger E, mounted and arranged to move in a way in the free end of the arm C, the swinging frames I, pivoted to the arm C, and provided with the arm i' the link c^4, the ink-roll mounted between the swinging frames, the ink-pad c^3, and means for inking the pad, substantially as described.

4. In a canceling-stamp, the swinging arm pivoted on the vertical standard, the plunger and die the traveling ink-roll operated by and from the plunger, the ink-well in the arm and the ink-pad, substantially as described.

5. The arm, the plunger and die, the traveling ink-roll operated by and from the plunger, the ink-well entered in the arm and having an arc-shaped neck over which the roll travels and the pad located in the neck, substantially as described.

6. The arm, the plunger and die, the traveling ink-roll operated by and from the plunger, the ink-well having the arc-shaped neck, the pad located in the neck and the pressure-plate arranged to regulate the flow of ink, substantially as described.

7. In a canceling-stamp, the combination of the plunger, the swinging frames I, the ink-rolls, the frame carrying the ink-roll mounted between the swinging frames, and the removable shaft for the ink-roll, substantially as described.

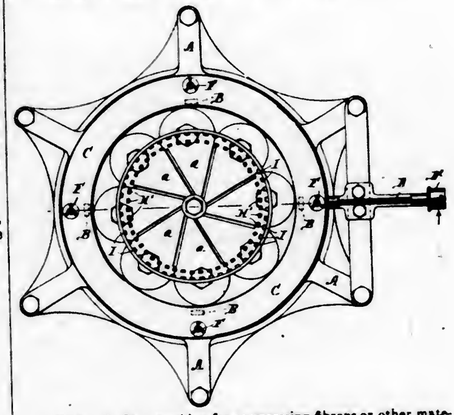
8. In a canceling-stamp, the arm the expanding standard and the tapering screw, substantially as described.

9. In a canceling-stamp, the plunger, the swinging frames provided with the openings i^4, the ink-rolls, the frame carrying the ink-roller mounted on trunnions between the swinging frames and the removable shaft for the ink-roll, substantially as described.

10. In a canceling-stamp, the supporting-frame, the vertically movable plunger mounted in the frame, the die, the swinging frames I mounted on the frame and operated by and from the plunger, the frame for the ink-roll provided with trunnions h^3 on which the frame is pivoted at the rear edges of the frame I, the ink-roll mounted in the forward end of the ink-roll frame, the ink-pad, a spring to hold the ink-roll against the die and pad, and the hooks h^5 extending through an opening in the frames I to limit the vertical swing of the ink-roll frame, substantially as described.

11. In a canceling-stamp, the combination of the traveling ink-roll, the die and the frame, said die and frame so interlocked as to break joints whereby the roll will run smoothly from one to the other, substantially as described.

645,712. HOPPER FOR PRESSES. JAMES A. BUTLER, Boston, Mass., assignor to the Planters Compress Company, of West Virginia. Filed Aug. 21, 1899. Serial No. 727,895. (No model.)



Claim.—1. In a machine for compressing fibrous or other material, the combination with a slotted cap-plate, of an independently-supported hopper arranged over such slotted cap-plate, and mechanism for rotating such hopper; substantially as and for the purpose set forth.

2. In a machine for compressing fibrous or other material, the combination with a slotted cap-plate and a forming-chamber, and mechanism for relatively rotating said cap-plate and forming-chamber, of an independently-revoluble feed-hopper, and mechanism for actuating the same; substantially as and for the purpose set forth.

3. In a machine for compressing fibrous or other material, the combination of a slotted cap-plate and a forming-chamber, and mechanism for rotating such forming-chamber, with a revoluble feed-hopper, and mechanism for causing the revolution of the same; substantially as and for the purpose set forth.

4. In a machine for compressing fibrous or other material, the combination of a slotted cap-plate and a forming-chamber, and mechanism for relatively rotating such cap-plate and forming-chamber, with a feed-hopper superposed with reference to the cap-plate, gear-teeth connected with the hopper, and outside gearing meshing with such gear-teeth and driving the same; substantially as and for the purpose set forth.

5. In a machine for compressing fibrous or other material, a chamber or holder for the compressed material, a slotted cap for one end of such chamber, a hopper superposed with reference to such cap-plate, an attachment to the hopper for suspending the same, anti-friction-rollers for supporting such attachment, said antifriction-rollers mounted upon a stationary part of the machine, and gearing for rotating the attachment and thus causing the revolution of the hopper; substantially as and for the purpose set forth.

6. In a machine for compressing fibrous or other material, a chamber for the compressed material, a slotted cap for one end of such chamber, and mechanism for relatively rotating such cap and chamber, an independently-supported slatted hopper superposed with reference to the cap-plate, and mechanism for revolving such hopper; substantially as and for the purpose set forth.

7. In a machine for compressing fibrous or other material, a chamber for the compressed material, a slotted cap-plate for one end of such chamber, means for relatively rotating said chamber and cap, a revoluble hopper, antifriction-rollers supported near the top of the machine, a ring connected with the hopper and provided with an an-

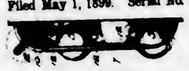
nular way or track, adapting such ring to revolve upon such anti-friction-rollers, and teeth forming an annular rack, in combination with the hopper and with mechanism engaging the teeth on the ring for revolving the same; substantially as and for the purpose set forth.

8. In a machine for compressing fibrous or other material, a chamber for the compressed material, a slotted cap-plate for one end of such chamber, means for relatively rotating such cap-plate and chamber, a hopper, a support for such hopper comprising an upper ring from which the hopper is suspended, a lower ring having a bearing or track adapting it to revolve, and standards or pillars connecting such rings, with rollers upon the main frame for supporting said last-mentioned ring, and mechanism for revolving the same; substantially as and for the purpose set forth.

9. In a machine for compressing fibrous or other material, the combination of a slotted cap plate and a chamber for the compressed material, and means for relatively rotating such cap-plate and chamber, with an independently-supported revoluble hopper, and mechanism for causing such revolution, connected with and actuated by the mechanism for giving relative rotation to the cap-plate and chamber; substantially as and for the purpose set forth.

10. In a machine for compressing fibrous or other material, the combination of a slotted cap-plate, a chamber for the compressed material, mechanism for relatively rotating said chamber and cap, a revoluble hopper superposed with reference to the cap-plate, and mechanism for giving movement to the same, with a stationary cage surrounding the lower end of such hopper; substantially as and for the purpose set forth.

645,718. RETAINER FOR BALL-BEARINGS. EDWIN F. CREAGER, Lancaster, Pa. Filed May 1, 1899. Serial No. 715,224. (No model.)

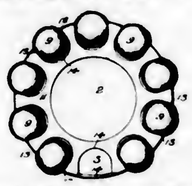


Claim.—1. A ball-bearing comprising a separator and retainer having perforations to receive balls, the perforations being substantially circular, with tangential extensions at opposite quarters, and tangs guarding and retaining the balls.

2. A ball-bearing comprising a retainer in the form of a peforated ring, having an extension lip or flange lying beyond the body of the retainer and parallel to the plane of rotation thereof, substantially as described.

3. A ball-bearing comprising a retainer substantially in the form of a segment of a hollow, perforated, oblate spheroid, having an extension lip or flange bent into the plane of rotation, substantially as described.

645,714. RETAINER FOR BALL-BEARINGS. EDWIN F. CREAGER, Lancaster, Pa. Filed May 1, 1899. Serial No. 715,225. (No model.)



Claim.—1. In a ball-bearing, the combination of a ball-retainer and balls, the ball-retainer comprising a ring having perforations to receive the balls, the space included within the circumference of a perforation being greater than the area included within the equator or circumference of a ball, and any point of contact between a ball and the wall of a perforation being a less distance from any other point of contact than the diameter of a ball.

2. In a ball-bearing, the combination of a ball-retainer and balls, the ball-retainer comprising a ring having openings to receive the balls, the circumference of an opening including a space of larger area than that included within the equator or circumference of a ball, the ring being bent so that all opposite points of contact of a ball in an opening are a less distance apart than the length of the diameter of a ball.

3. In a ball-bearing, the combination of a ball-retainer and balls, the ball-retainer comprising a ring bent to retain balls by diverging walls, and having perforations to receive the balls, the circumference of a perforation being greater than the equator or circumference of a ball, but the distance between the axial points being less than the diameter of a ball.

4. A ball-retainer comprising a ring having substantially-elliptical perforations to receive balls, the transverse diameter of a perforation being less than the diameter of a ball, the ring being bent substantially on the line of the transverse diameter of each perforation, so that the perforation may retain and yet permit a free movement of the balls.

5. The combination in a ball-bearing, of a cap, a cone, balls and a ball-retainer comprising a ring having walls in different planes constructed to fit between the cup and cone and having perforations to receive the balls, all the relative points of contact upon the wall of a perforation being a less distance apart than the length of the diameter of a ball.

6. A ball-retainer comprising a ring having ball-receiving perforations, each perforation to receive a ball, the walls of each perforation serving to retain in all directions and yet permit a free movement of a ball.

7. A ball-retainer, comprising a ring with a side wall which is cylindrical and an end wall and having perforations to receive and retain the balls, each perforation being divided between the walls of the retainer.

8. A ball-retainer, comprising a ring bent or curved to form a cyliadrical side wall and an end wall and provided with isolosed ball-receiving openings in its bend, each of greater length than width, the relative areas of the openings and the balls to be used being such that the balls may be sprung into the openings and held from accidental displacement in one direction by the side walls of said openings, and from displacement in the opposite direction by the end walls of the openings.

645,715. RETAINER FOR BALL-BEARINGS. EDWIN F. CREAGER, Lancaster, Pa. Filed May 1, 1899. Serial No. 715,226. (No model.)



Claim.—1. A ball-retainer, comprising a ring having approaching walls to guard balls in one direction and intermediate openings to receive and guard the balls in the opposite direction.

2. In a ball-bearing, the combination of a ball-retainer and balls, the ball-retainer comprising a ring bent to form opposite contact-lips a less distance apart than the length of the diameter of a ball, and having intermediate perforations of less diameter than the balls.

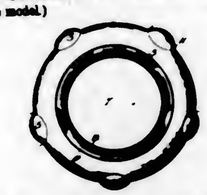
3. In a ball-bearing, the combination of a ball-retainer and balls, the ball-retainer comprising a ring bent to retain the balls by approaching walls and having perforations to receive the balls, the shortest diameter of a perforation being less than the diameter of a ball, but the circumference of a perforation including a larger area than that included within the equator or circumference of a ball, substantially as described.

4. A ball-retainer comprising a ring having a series of substantially oblong or elliptical perforations to receive balls, the ring being bent along the line of the short axis of each perforation to form approaching walls or portions to guard the balls.

5. A ball-retainer for ball-bearings comprising a ring bent to form diverging walls having their extremities bent to form approaching walls to retain balls and having perforations to receive balls, each perforation extending beyond the line of division between the diverging walls.

6. A ball-retainer, comprising a ring bent or curved to form a cylindrical side wall and an end wall and having inclosed ball-receiving openings in its bend of greater length than width to hold the balls from accidental displacement, the ring also having approaching walls spaced apart a less distance than the diameter of the ball to be used to retain the balls within the ring at its open side.

645,716. RETAINER FOR BALL-BEARINGS. EDWIN F. CREAGER, Lancaster, Pa. Filed May 1, 1899. Renewed Feb. 17, 1900. Serial No. 5,650. (No model.)



Claim.—1. A ball-retainer comprising a ring substantially in the form of a curved tubular annulus minus a segment so that it has two opposing walls to retain balls in one direction and perforations to receive and retain balls in the opposite direction.

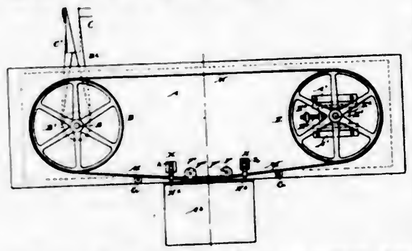
2. A ball-retainer comprising a ring substantially in the form of a curved tubular annulus minus a segment so bent that it has two opposite walls in different meridians to retain balls and perforations to receive and to retain balls in the opposite direction.

3. A ball-retainer comprising a ring substantially in the form of a tubular annulus having perforations to receive and retain balls in one direction and approaching circular walls of different diameters to retain its balls in the opposite direction.

4. A ball-retainer comprising a ring substantially in the form of a tubular annulus minus an interior segment, having perforations to receive and retain balls in one direction and continuous opposing walls to retain balls in the opposite direction.

5. A ball-retainer in the form of a hollow ring, open at its inner side and provided at its periphery with openings of a size to allow the balls to project only partially beyond the ring, the edges of the ring at its open side being spaced apart a less distance than the diameter of a ball to allow the balls to project through the open side and yet to retain them in the openings.

645,717. ABRADING-MACHINE. EDWIN J. FLETCHER, New York, N. Y., assignor to the Patent Case Company, same place. Filed Sept. 20, 1898. Serial No. 691,417. (No model.)



Claim.—1. The table A, pulleys D, E, and band M running thereon, in combination with the shaping-rollers F arranged within the band to strain the latter outwardly and cause it to assume a corresponding cross-sectional form, and the guides H arranged with said rollers between them, said guides being adjustable to and from the band to maintain the band in position and means acting on the opposite face of the belt independent of said rollers and guides, all substantially as herein specified.

2. The table A, pulleys D, E, and band M running thereon and having the face m coated with an abradant, in combination with the curved shaping-rollers F arranged within the band in contact with the latter on the uncoated face, and the rollers G running in contact with the coated face and the adjustable guides disposed between said shaping-rollers and the rollers, all substantially as herein specified.

3. The table A, pulleys D, E, and abradant band M running thereon, in combination with shaping-rollers F arranged within the band to strain the latter outwardly, and the pivotally-mounted vertically-adjustable shelf A^3 arranged with its upper end extending slightly above the upper face of the table in proximity to said rollers and means independent of the pivot of the upper end of the shelf for varying the angularity of said shelf relatively to said table and band, all substantially as herein specified.

4. The table A, pulleys D, E, and abradant band M running thereon, in combination with the shaping-rollers F arranged within the band to strain the latter outwardly, the pivotally-mounted vertically-arranged shelf A^3 arranged with its upper end extending slightly above the upper face of the table in proximity to said rollers and its adjusting means A^4, A^5, the segmental arms A^6 and fastening means A^7 for adjusting the angle of said shelf relatively to said table, all substantially as herein specified.

5. The combination with the table and the pulleys and endless belt, of a guide consisting of a pair of strips bent at one end to form hooks to inclose the edges of the belt, a spacing-block between said strips and provided with a slot, and a bolt extended through said slot and into the table, substantially as shown and described.

645,718. CASE OR BOX. EDWIN J. FLETCHER, New York, N. Y., assignor to the Patent Case Company, same place. Filed Sept. 20, 1898. Serial No. 691,418. (No model.)

Claim.—1. In a case or box of the character set forth, a hoop forming part of the body, a sheet stretched across the open upper face of said hoop and secured to the upper edge of the latter, and a top adapted to serve with the body and temporarily joined to said sheet by easily-broken bonds serving to hold said hoop and top relatively to each other while the adjacent abutting surfaces of each are shaped and a subsequently-applied covering on said hoop, all combined substantially as herein specified.



2. In a case or box of the character set forth, a hoop forming part of the body, a sheet stretched across the open upper face of said hoop and secured to the upper edge of the latter, and a top adapted to serve with the body and temporarily joined to said sheet by easily-broken bonds serving to hold said hoop and top relatively to each other while the adjacent abutting surfaces of each are shaped, the said sheet also serving as a finish for the lower face of said top in the completed case and a subsequently-applied covering on said hoop, all combined substantially as herein specified.

3. The hoop A′, the sheet A^4 stretched across the open upper face of said hoop with its edges attached directly to the upper edge of the hoop, the covering-sheet A^2 cemented to said hoop and to the portion of the said sheet upon the top edge of the hoop, and a top comprising an upper and a lower sheet with the edge of the upper sheet in contact with the said covering upon the top edge of the hoop.

4. The hoop A′ sheet A^4 stretched across the open upper face of said hoop and cemented to its edges, the covering-sheet A^2 cemented to said hoop and overlapping and cemented directly to the margins of said sheet and overlapping upon the latter, and the lining-strip A^1 within said hoop, in combination with a top B comprising the sheet B′, corrugated sheet B^2 thereon, sheet B^1 larger than the latter, the pad B^4, and covering-sheet B^3 drawn over said pad and cemented to the under face of said sheet B′, all substantially as herein specified.

5. The hoop A′, covering-sheet A^2 and flap A^3 forming a continuation of said covering-sheet, combined with a base, an independent reinforce extended beyond the lower edge of the hoop in both directions, a reinforce over the other edge of the hoop, and fastening means passed through the covering-sheet, reinforces and base, substantially as specified.

6. The hoop A′, lining-strip A^1, covering-sheet A^2 and flap A^3 forming a continuation of said covering-sheet, in combination with the reinforce L within said flap, the reinforce L′ extending from between said hoop and lining-strip, and the base C and line of stitches C^3 extending through said flap and reinforces into said base to form a hinge, and the stay M independent of said flap and extending from said base to said hoop, all substantially as herein specified.

7. The hoop A′, lining-strip A^1, covering-sheet A^2 and flap A^3 forming a continuation of said covering-sheet, in combination with the base C and wings C^4 cemented upon said flap, the line of stitches C^3 connecting said flap to said base to form a hinge, and the bed D secured to said base and concealing said wings and flap, all substantially as herein specified.

8. In a case or box, the bed D comprising the sheet D′, corrugated strip D^2 arranged with its corrugations vertical to said sheet and with its plane face outward, the covering D^4 secured to said plane face, and the strip D^5 covering the margins of said covering, substantially as herein specified.

9. In a case or box, a rest formed of corrugated paper bent to shape and cemented in place with its corrugations vertical to the base, and a guide of similar material similarly set, adapted to support an article inclosed in said case or box, in combination with said base and a covering-sheet concealing said rest and guide, all substantially as herein specified.

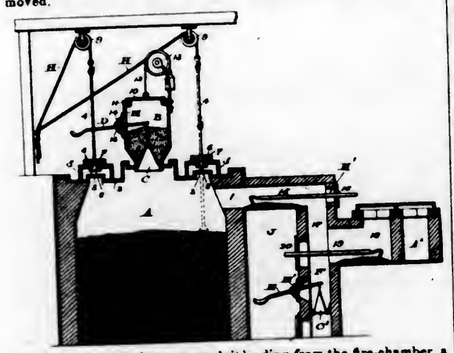
10. The base C, bed-sheet D′, block E′, arm E hinged to said block, spring E^2 attached to said arm and fixed stop E^3 on said bed-sheet, the rest F and guide F′ secured thereto, in combination with the covering-sheet D^3 inclosing and concealing said bed-sheet and the said parts thereon, all substantially as herein specified.

11. The top described, consisting of a foundation-sheet, a thickening-piece thereon smaller than said sheet, a shaping-sheet larger than said piece and lying upon the latter, and an enveloping sheet drawn tightly over the whole and attached at its margins to the under face of said foundation-sheet, all combined substantially as herein specified.

12. The foundation-sheet B′, thickening-piece B^3 smaller than said sheet, the shaping-sheet B^1 larger than said piece, the pad B^4, and envelop B^5, all combined substantially as herein specified.

645,719. GAS-PRODUCER. JOHN W. GAYNER, Salem, N. J. Filed Jan. 15, 1898. Serial No. 666,806. (No model.)

Claim.—1. In a gas-producer, a conduit leading from the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in the conduit into said chamber, and means for closing said chamber to form a compartment opening to the exterior from which the accumulations can be removed.



2. In a gas-producer, a conduit leading from the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in the conduit into said chamber, and a valve for closing said chamber to form a compartment opening to the exterior from which the accumulations can be removed.

3. In a gas-producer, a conduit leading from the fire-chamber, a chamber opening thereinto and to the exterior of the gas-producer, means for conveying accumulations in said conduit into said chamber, and a valve in said chamber dividing the same into compartments.

4. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

5. In a gas-producer, a conduit leading from the fire-chamber, a downwardly-extending compartment connected with the lower side of said conduit, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

6. In a gas-producer, a conduit leading from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

7. In a gas-producer, a conduit leading from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue below the lateral flue, means for conveying accumulations in said conduit into said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

8. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

9. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, a handle for said scraper passing through and fitting closely within an opening in a wall of the conduit, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

10. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, a socket in the wall of said conduit to receive said scraper when the same is not in use, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

11. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, a scraper in said conduit for removing the accumulations from the walls thereof and conveying the same to said compartment, a handle for said scraper passing through and fitting closely within an opening in a wall of the conduit, a socket in the wall of the conduit adjacent said opening to receive said scraper when the same is not in use, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

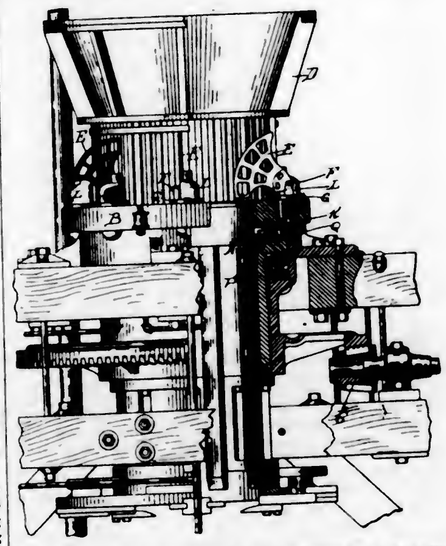
12. In a gas-producer, a conduit leading from the fire-chamber and comprising upright and lateral flues, a compartment connected with said upright flue, a scraper in said lateral flue for conveying the accumulations into said upright flue, a handle for said scraper extending through and fitting closely within an opening in the wall of the conduit opposite the end of the lateral flue, and means for closing the communication between said conduit and compartment, whereby the accumulations deposited within the latter can be removed.

13. In a gas-producer, a plurality of lateral flues communicating with a common flue, said flues leading from the fire-chamber, said common flue being provided with a normally-closed outlet-opening exterior to the gas-producer and into which the accumulations in said lateral and common flues can be conveyed, and means for opening and closing said outlet.

14. In a gas-producer, a conduit leading from the fire-chamber, a compartment connected with said conduit, means for conveying accumulations in said conduit into said compartment, and a valve controlling the communication between said conduit and compartment.

15. In a gas-producer, a conduit leading from the fire-chamber, a chamber connected with said conduit, means for conveying accumulations in said conduit into said chamber, and a valve situated within said chamber and upon which said accumulations are deposited, said valve dividing said chamber into compartments.

645,720. FEEDING DEVICE FOR PRESSES. WATSON M. HOLMES, Hoosic Falls, N. Y., and JAMES A. BUTLER, Wareham, Mass., assignors to the Planters Compress Company, Boston, Mass. Filed Sept. 1, 1899. Serial No. 729,248. (No model.)



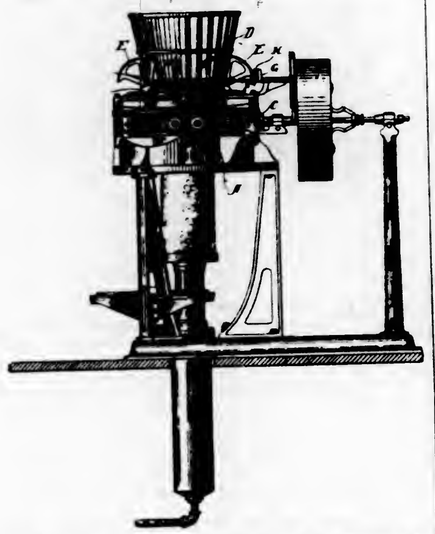
Claim.—1. A feeding device for presses, comprising a pivotally-mounted feed-arm having a gear on the hub thereof, a rod carrying a rack arranged to engage said gear, a spring normally operating to rock said arm into feeding position and means for projecting said rod against the action of said spring for withdrawing said arm, as and for the purpose set forth.

2. A feeding device for presses, comprising a pivotally-mounted feed-arm, carrying a gear, a rod carrying a rack arranged to engage said gear, a spring arranged to oppose said rod, a cap arranged to inclose these parts to protect the same from dust or the like, and means for projecting said rod, as and for the purpose set forth.

3. In a press, a chamber, a slotted head-plate therefor, and means for relatively rotating these parts in combination with a pivotally-mounted feeder-arm carrying a gear on the hub thereof, a rod carrying a rack arranged to engage said gear, a cam-track upon which said rod rests, said rod and cam-track respectively carried by said head-plate and chamber, as and for the purpose set forth.

4. In a press an open-ended chamber, means for rotating the same, and a stationary slotted head-plate, in combination with a feeder-arm pivotally mounted on said head-plate and carrying a gear, a rack arranged to engage said gear, a cam-track carried by said chamber and upon which said rack rests, and a spring arranged to oppose the movement of said rack, as and for the purpose set forth.

645,721. FEEDING DEVICE FOR PRESSES. WATSON M. HOLMES, Hoosic Falls, N. Y., assignor to the Planters Compress Comany, Boston, Mass. Filed Sept. 1, 1899. Serial No. 729,250. (No model.)



Claim.—1. In a cotton or other press, the combination with a slotted head-plate, of a feeding device, comprising a series of rock-shafts arranged around the head-plate and carrying feed-arms, said shafts being geared to each other, and means for rocking said shafts, whereby said feeder-arms are rocked or swung toward the press-chamber to feed or crowd the material to the slots in the head-plate, as and for the purpose described.

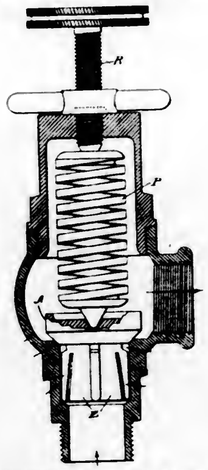
2. In a cotton or other press, a compressing chamber or holder, and a slotted head-plate therefor, in combination with a feeding device, comprising a series of rock-shafts suitably journaled and arranged around the receiving end of the press-chamber, intermeshing gears carried by said shafts, whereby said shafts are connected to rock in unison, a feeder-arm carried by each shaft, and means for rocking one of said shafts, as and for the purpose set forth.

3. In a press, a chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a series of rock-shafts, suitably journaled in bearings carried by the head-plate, said shafts being geared together, a feeder-arm carried by each shaft to rock or swing toward the surface of said head-plate and in the plane of the slot therein, and means for rocking one of said shafts, as and for the purpose set forth.

4. In a press, a chamber, a head-plate having a plurality of feed-slots therein, and means for relatively rotating said chamber and head-plate, in combination with a series of rock-shafts, journaled adjacent to the periphery of said head-plate, a feeder-arm carried by each rock-shaft, each feeder-arm arranged to swing or move toward or from and in substantially the same plane with a slot in the head-plate, and means for rocking said shafts, as and for the purpose set forth.

5. In a press, a chamber, a head-plate therefor, said head-plate provided with a plurality of slots, and means for rotating these parts, in combination with a plurality of feeder-arms pivotally mounted adjacent to the periphery of said head-plate, and means for rocking or swinging one or more of said arms toward the head-plate, and simultaneously therewith swinging one or more of said arms away from the head-plate, as and for the purpose set forth.

645,722. PRESSURE-RELIEF VALVE. WATSON M. HOLMES, Hoosic Falls, N. Y., assignor to the Planters Compress Company, Boston, Mass. Filed Oct. 10, 1899. Serial No. 733,201. (No model.)

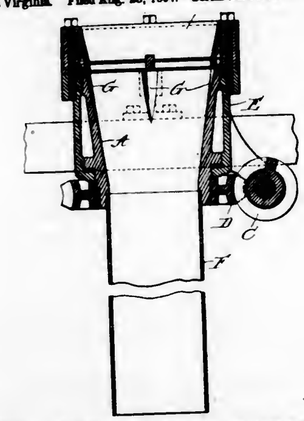


Claim.—1. A pressure-relief valve having wings or flanges, a casing for said valve, said wings or flanges arranged to bear yieldingly against the inner surface of said casing, as and for the purpose set forth.

2. A pressure-relief valve having wings or flanges, a casing for receiving said flanges or wings, and spring-actuated contacts between said wings or flanges and the inner wall of said casing, as and for the purpose set forth.

3. A pressure-relief valve having wings, and spring-flanges formed on said wings and adapted to yieldingly contact with the inner wall of the casing in which said valve is mounted, as and for the purpose set forth..

645,728. PRESS FOR COTTON, WOOL, HAIR, &c. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, of West Virginia. Filed Aug. 23, 1897. Serial No. 649,207. (No model.)

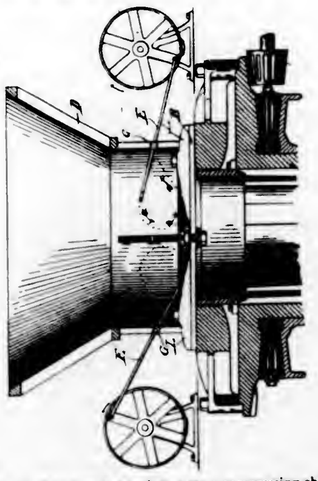


Claim.—1. In a cotton or other press, an open-ended chamber contracting in internal diameter from one end thereof to the other, and provided with suitably-spaced grooves or depressions in the interior surface thereof, said grooves or depressions being of decreasing depth and extending lengthwise of said chamber, a slotted cap-plate for one end of said chamber and means for relatively rotating said chamber and cap-plate, as and for the purpose set forth.

2. In a cotton or other press, an open-ended chamber provided with suitably-spaced recesses or depressions arranged lengthwise on the interior surface thereof, said recesses or depressions being of decreasing depth from one end of said chamber toward the other, a slotted cap-plate for the end of said chamber adjacent to the deeper

ends of said recesses or depressions, and means for relatively rotating said chamber and cap-plate, as and for the purpose set forth.

645,724. **FEEDING DEVICE FOR PRESSES.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed May 29, 1899. Serial No. 718,647. (No model.)



Claim.—1. In a cotton or other press, a compressing-chamber, a slotted head-plate, and means for relatively moving these parts, in combination with means arranged to operate in the plane of said slot for crowding the material into proximity to the slot in said head-plate, as and for the purpose set forth.

2. In a cotton or other press, an open-ended chamber or holder, means for rotating the same, and a slotted stationarily-mounted head-plate, in combination with means arranged to operate in the plane of the slot in said head-plate for pressing or crowding the material into proximity to said slot, as and for the purpose set forth.

3. A cotton or other press, comprising an open-ended chamber or holder, a slotted head-plate, means operating in the plane of the slot in said head-plate for presenting the material to be compressed into proximity to such slot, and means for relatively rotating said chamber and plate, as and for the purpose set forth.

4. In a machine for compressing fibrous material, and in combination with means for rotating a mass of compressed material, a slotted head-plate forming an abutment for said compressed material, and means operating in the plane of said slot for crowding or pushing loose material to be compressed into proximity to the slot in said head-plate, as and for the purpose set forth.

5. In a machine for compressing fibrous material, and in combination with means for rotating a mass of compressed material, a slotted head-plate forming an abutment for said compressed material, and a feeder operating in the plane of said slot for crowding the material to be pressed toward the slot in said head-plate, and means for moving said feeder toward and from said slot, as and for the purpose set forth.

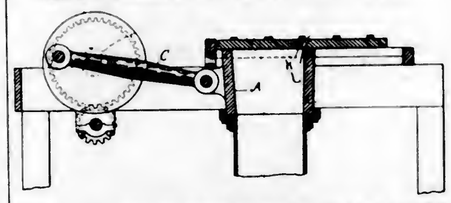
6. In a press for cotton or other material, a feeding device for the material comprising an arm, an actuating sheave or wheel to which one end of said arm is connected, and a stationary support for said arm intermediate its ends on which said arm is fulcrumed, as and for the purpose set forth.

7. A feeding device for presses, comprising an arm, a rotating sheave or wheel to which one end of said arm is eccentrically connected, and a pivoted support for said arm intermediate the ends thereof, and through which said arm slides, as and for the purpose set forth.

8. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a basket arranged over said head-plate and adapted to receive the material to be pressed, and means arranged to operate in said basket and in the plane of said slot for feeding or crowding the material into proximity to the slots in said head-plate, as and for the purpose set forth.

9. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a basket arranged over said head-plate and adapted to receive the material to be pressed, said basket provided with slots through the wall thereof, and feeder-arms arranged to project through the slots in said basket and into the plane of said slots in the head-plate, and means for actuating said arms, as and for the purpose set forth.

645,725. **PRESS FOR COTTON, WOOL, HAIR, &c.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed June 2, 1899. Serial No. 719,074. (No model.)



Claim.—1. In an apparatus of the class described, an open-ended chamber, contracting or tapering in internal diameter, a slotted cap-plate forming a closure for the larger end of said chamber, and means for relatively reciprocating said chamber and cap, as and for the purpose set forth.

2. In an apparatus of the class described, a chamber, open at both ends, said chamber contracting in internal diameter and a slotted cap-plate for one end of said chamber, and means for reciprocating said chamber relative to said cap, as and for the purpose set forth.

3. In an apparatus of the class described, an open-ended chamber, a slotted cap-plate or head for one end of said chamber, the slot in said cap extending substantially the dimension of the end of said chamber in one direction, and means for relatively reciprocating said chamber and cap to an extent corresponding to the dimension of the end of said chamber in the other direction, the inner surface of the chamber forming a counter-abutment to oppose the advance of the material therethrough, as and for the purpose set forth.

4. In a press, an open-ended chamber, an extension therefor, said chamber and extension being rectangular in cross-section, a slotted cap for one end of said chamber, the slot in said cap extending across the end of said chamber, and means for reciprocating these parts in a direction at right angles to the length of said slot, the inner surface of said chamber and extension forming a counter-abutment to oppose the advance of the material therethrough, as and for the purpose set forth.

5. In a press, an open-ended chamber, tapering in internal diameter, and having an extension at the smaller end thereof, a slotted cap for the larger end of said chamber, and means for relatively reciprocating these parts, as and for the purpose set forth.

6. In a press, an open-ended chamber, a cap for one end of said chamber, said cap provided with a slot, the walls of which are beveled or inclined outwardly or toward the outer surface of the cap, means for relatively reciprocating said chamber and cap, transverse to the length of said slot, and means for resisting the advance of the material through said chamber, as and for the purpose set forth.

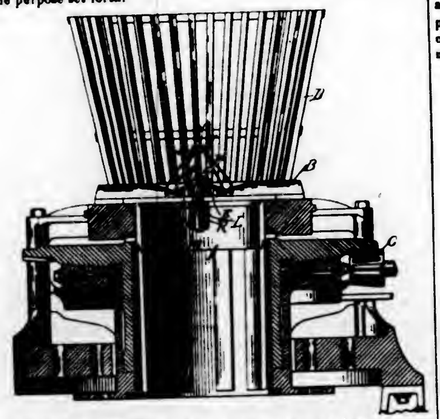
7. In a press, an open-ended chamber, a cap for one end of said chamber, said cap provided with a slot flaring in cross-section, a plate arranged to cover the inner end of such slot, and provided with a supplemental slot of smaller dimensions, means for relatively reciprocating said chamber and cap, and means for resisting the advance of the material through said chamber, as and for the purpose set forth.

8. In a press, an open-ended chamber, a cap for one end thereof, said cap provided with a slot of considerable area, and outwardly-flaring in cross-section, a thin plate arranged to cover the inner end of said slot, said plate provided with a slot of smaller dimensions and flaring inwardly, means for relatively reciprocating said chamber and cap, and means for resisting the advance of the material through said chamber, as and for the purpose set forth.

9. In a press, a framework, guides formed therein, a chamber, open at both ends, and contracting in internal diameter provided with flanges arranged to operate in said guides, a stationary slotted cap-plate for one end of said chamber, and means for reciprocating said chamber in said guides, as and for the purpose set forth.

645,726. **FEEDING DEVICE FOR PRESSES.** GEORGE A. LOWRY, Chicago, Ill., and JAMES A. BUTLER, Wareham, Mass., assignors to the Planters Compress Company, Boston, Mass. Filed June 5, 1899. Serial No. 719,367. (No model.)

Claim.—1. A feeding device for presses, comprising a head or cap, a plurality of feed-arms, said arms being radially arranged and pivotally mounted with respect to said head or cap, a rod connected to all of said arms for rocking the same about their pivots, and means for projecting said rod endwise through said head or cap, as and for the purpose set forth.



2. A feeding device for presses, comprising a head or cap, a series of castings or blocks pivotally mounted in said head or cap, and having gear-teeth formed thereon, feeder-arms connected to said castings or blocks, an endwise-movable rod carrying a rack arranged to engage said gear-teeth, and means for reciprocating said rod, as and for the purpose set forth.

3. In a press, a chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a stud arranged to pass through said head-plate at its axial center and clamped to said head-plate, a feeder-arm pivotally supported upon said stud, a longitudinally-movable rod arranged to pass through the bore of said stud and engage said arm, and means for reciprocating said rod, whereby said arm is rocked or swung toward or away from said head-plate, as and for the purpose set forth.

4. In a cotton or other press, an open-ended chamber, means for rotating the same, and a stationary slotted head-plate for one end of said chamber, in combination with a stud mounted centrally with respect to said head-plate, a series of arms pivotally supported upon said stud, a rod mounted to slide longitudinally through the bore of said stud and connected to said arms for rocking the same, and means for reciprocating said rod, as and for the purpose set forth.

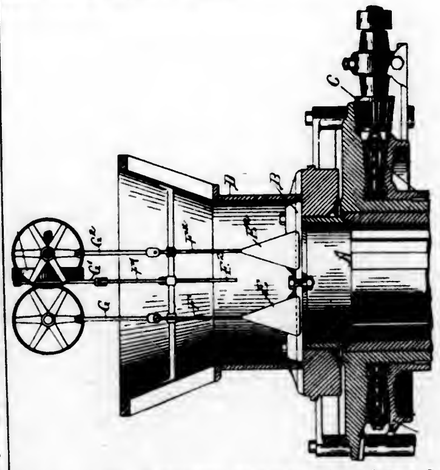
5. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a stud secured to said head-plate and passing centrally therethrough, a feeder-arm pivotally mounted upon said support above the head-plate, a rod passing longitudinally through said stud and engaging said arm for rocking the same, a gear supported upon said stud within the chamber and arranged to engage the material in said chamber, a cam actuated by said gear and arranged to engage said rod to reciprocate the same, as and for the purpose set forth.

6. In a cotton or other press, an open-ended chamber, means for rotating the same, and a stationary slotted head-plate for one end of such chamber, in combination with a stud adapted to be clamped to said head-plate and arranged to pass centrally therethrough, a feeder-arm pivotally supported upon said stud above the head-plate, a rod arranged to pass longitudinally through said stud and adapted to engage said arm, whereby when said rod is moved longitudinally said arm is rocked or swung toward or away from the surface of said head-plate, a gear rotatively supported upon the inner end of said stud and adapted to enter the longitudinal hole or opening in the mass of material contained in the chamber, a cam connected to said gear and arranged to engage said rod to move the same longitudinally, and a spring for maintaining the engagement of said rod with said cam, as and for the purpose set forth.

645,727. **FEEDING DEVICE FOR PRESSES.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed June 23, 1899. Serial No. 721,560. (No model.)

Claim.—1. In a cotton or other press, a press chamber or holder, a slotted head-plate therefor, and means for relatively moving these parts, in combination with one or more feeder-plates carried by said head-plate, and means for reciprocating said plates toward and from said head-plate and in the plane of the slot therein, as and for the purpose set forth.

2. In a cotton or other press, an open-ended chamber or holder, and a slotted head-plate, and means for for relatively rotating these parts, in combination with one or more pitmen mounted upon and arranged to reciprocate toward and from said head-plate, a feeder-plate carried by each pitman, said feeder-plate arranged in the plane of the slot of said head-plate, and means for reciprocating said pitmen, as and for the purpose set forth.



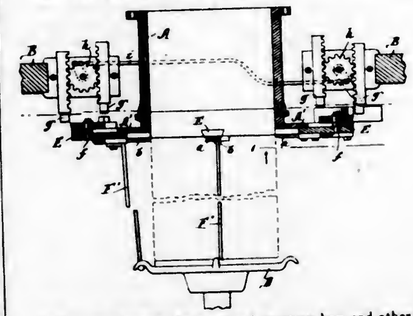
3. In a cotton or other press, and in combination with means for rotating a mass of compressed material, a stationary slotted head-plate, a feeder-plate having the edge thereof presented in a line parallel to the slot in said head-plate, and means for reciprocating said feeder-plate in the plane of said slot, as and for the purpose set forth.

4. In a cotton or other press, and in combination with means for rotating a mass of compressed material, a stationary slotted head-plate, a triangular-shaped feeder-plate having its base edge arranged parallel to the slot in said head-plate, and means for reciprocating said feeder-plate toward and from said head-plate and in the plane of said slot, as and for the purpose set forth.

5. A feeding device for presses, comprising a feeder-plate and means for reciprocating the same, and a side flap pivoted to said plate to swing at right angles to the line of reciprocation thereof, as and for the purpose set forth.

6. A feeding device for presses, comprising a feeder-plate and means for reciprocating the same, in combination with a side flap pivoted to said plate to swing at right angles to the line of reciprocation thereof, and a stop for limiting the outward swing of said flap, as and for the purpose set forth.

645,728. **APPARATUS FOR COMPRESSING COTTON OR OTHER FIBROUS MATERIALS.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, of West Virginia. Filed July 27, 1899. Serial No. 725,279. (No model.)



Claim.—1. In a press for compressing cotton, hay, and other materials; the combination with a mechanism for compressing the material endwise and in successive layers, of a mechanism for separat-

ing a sufficient length of compressed material to form a bale; substantially as and for the purpose set forth.

2. In a press for compressing cotton, hay or other material, the combination with a head provided with openings through which the material is fed, a holder in which the bale is formed, and means for relatively rotating the head and holder, of mechanism for separating a sufficient length of compressed material to form a bale; substantially as and for the purposes set forth.

3. In a press for compressing cotton, hay and other materials, the combination with a head provided with openings through which the material is fed, a holder in which the bale is formed and means for relatively rotating such head and holder whereby the material is compressed, of severing-blades adapted to be projected into the compressed material to separate a sufficient length to form a bale; substantially as and for the purpose set forth.

4. In a press for compressing cotton, hay and other materials, the combination with a head provided with openings through which the material is fed, a holder in which the bale is formed and means for relatively rotating such head and holder wherein the material is compressed, of severing-blades for separating a bale from such compressed material, and mechanism for operating such blades actuated by the relative rotation of the head and holder; substantially as and for the purposes set forth.

5. In a press for compressing cotton, hay and other materials the combination with a head provided with openings through which the material is fed, a holder in which the bale is formed, means for relatively rotating such head and holder, of severing-blades for separating a sufficient length of compressed material to form a bale, a mechanism actuated by the rotating part to reciprocate the severing-blades: substantially as and for the purpose set forth.

6. In a machine for compressing fibrous material, the combination with a holder in which the material may be compressed into a column, means for condensing the material in layers endwise upon each other to form such column, of means for separating a portion of such column of sufficient length to form a bale: as and for the purpose set forth.

7. In a machine for compressing fibrous material, the combination with the holder and means for compressing the material in superposed layers into a column in such holder, of severing-blades arranged to operate transversely of the length of such column between the layers thereof and means for advancing such blades into a column to separate a bale therefrom; substantially as and for the purpose set forth.

8. In a machine for compressing fibrous material, a holder, means for compressing the material in superposed layers in said holder and advancing such compressed material therein whereby a column of the same is produced, of a yieldingly-resisting support for the lower end of such column and means for severing a sufficent length of said column to form a bale; substantially as and for the purpose set forth.

9. In a machine for compressing fibrous material, the combination with a holder, means for compressing the material endwise in superposed layers in such holder, of means for severing a sufficient length of material to form the blade and preventing endwise expansion of such bale after separation; substantially as and for the purpose set forth.

10. In a machine for compressing fibrous material, including means for compressing the material endwise, in combination with means for separating a sufficient length of compressed material to form a bale and for holding or supporting the material remaining in the press and for preventing endwise expansion of the latter; substantially as and for the purpose set forth.

11. In a machine for compressing fibrous material, including means for compressing the material endwise, in combination with means for separating a sufficient length of compressed material to form a bale and for preventing endwise expansion of the severed bale; substantially as and for the purpose set forth.

12. In a machine for compressing fibrous material, including means for compressing the material endwise, in combination with means for severing a sufficient length of compressed material to form a bale and for preventing endwise expansion of the bale and the material left in the press; substantially as and for the purpose set forth.

13. In a machine for compressing fibrous material; including a holder and means for compressing such material endwise in said holder, in combination with severing-blades carried by such holder, and means for operating them to separate a bale; substantially as and for the purpose set forth.

14. In a machine for compressing fibrous material, including a head with openings therethrough, a holder and means for relatively rotating such head and holder in combination with means for severing a bale from the compressed material, a pivoted arm for each severing mechanism and a stop adapted to be engaged with such pivoted arm when one of these two parts is connected with a rotating part of the machine; substantially as and for the purpose set forth.

15. In a machine for compressing fibrous material, including a head having openings and a holder in which the bale is to be formed and a number of severing-blades for separating the bale in combination with a series of movable arms, the number of such arms corresponding with the number of the severing mechanisms and a corresponding number of stops adapted to be engaged with the movable arms when either the arms or the stops are connected with a rotating part of the machine; substantially as and for the purpose set forth.

16. In a machine for compressing fibrous material, including a head with openings and holder in which the bale is formed and a set of severing mechanisms for separating the bale and mechanism for relatively rotating the head and holder in combination with a set of pivoted arms and a set of stops for these arms adapted to engage the same and either the arms or stops being connected with the rotating part of the machine and connected means for joining all of the arms of all of the stops whereby the set may be operated simultaneously; substantially as and for the purpose set forth.

17. In a machine for compressing fibrous material, including a head with openings and a holder in which the material being compressed is formed and a series of severing-blades adapted to separate the bale, and a mechanism for relatively rotating the head and holder, in combination with a series of pivot arms mounted on the holder and a series of stops corresponding in number to the series of pivoted arms and connected together so as to be simultaneously actuated, and a means for throwing the stops into and out of engagement with the arms whereby the latter are actuated and caused to operate the severing mechanism; substantially as and for the purpose set forth.

18. In a machine for compressing fibrous materials, including a slotted cap-plate and a chamber or holder in which to form a column of compressed material, a mechanism for rotating such chamber or holder, and severing-blades carried by such chamber or holder, in combination with mechanism for operating such blades to sever a length of compressed material sufficient to form a bale after such length has emerged from the chamber or holder; substantially as and for the purpose set forth.

19. In a machine for compressing fibrous materials, a holder, means for compressing the material in said holder, and correspondingly advancing the compressed material therethrough, whereby the material emerges from such holder in a compressed column in combination with means for severing a length of such column to form a bale, and means for engaging the ends of such severed bale to hold the same against endwise expansion; substantially as and for the purpose set forth.

20. In a machine for compressing fibrous material, a holder, means for compressing the material in said holder, and correspondingly advancing the same through such holder whereby the material emerges from the holder in a compressed column, in combination with means for severing a length of such column to form a bale, and means arranged to engage the end of the column from which the bale is formed and hold the same against expansion; substantially as and for the purpose set forth.

21. In a machine for compressing fibrous material, a holder, means for compressing the material in and correspondingly advancing the same through said holder whereby the material emerges from the holder in a compressed column, severing-blades adapted to be projected into the column below the holder to sever a sufficient length thereof to form a bale and to sustain the remaining portion of the column in the holder and prevent expansion thereof endwise; substantially as and for the purpose set forth.

22. In a machine for compressing fibrous material, a holder, means for compressing the material in and correspondingly advancing the same through said holder whereby the material emerges from such holder in a compressed column a resisting support arranged to receive the end of the column as it emerges from the holder and support the same against expansion in combination with blades adapted to be projected into a column at the point to form the top of the bale and intermediately connected with the support for the lower end of such bale whereby when the said bale is separated said blades and support will prevent endwise expansion; substantially as and for the purpose set forth.

23. In a machine for compressing fibrous material, a holder, means for compressing the material in and correspondingly advancing the same through and beyond such holder whereby the material emerges from the holder in a compressed column, a resisting support arranged to receive the lower end of the compressed column as it emerges from the holder and adapted to support the same against expansion, in combination with a set of severing mechanisms connected to the holder and adapted to be projected into the column below the holder and another set of severing mechanisms adapted to be projected into the column below the holder, but capable of being detached from said holder with the bale and connected to the bale base or support; substantially as and for the purpose set forth.

24. In a machine for compressing fibrous material, the combination with a holder in which the material is compressed, a mechanism for advancing the compressed material through and beyond such holder of two independent sets of blades adapted to be projected into the column of compressed material and guided by ways in the holder, one set permanently connected with the holder and serving to prevent expansion of the material in such holder after the portion to form the bale has been detached, the other set adapted to clear the guiding-ways after the blades thereof are projected into the column of compressed material and connected to the bale base or support independently of the holder, whereby such set is adapted to prevent the expansion of the bale endwise; substantially as and for the purpose set forth.

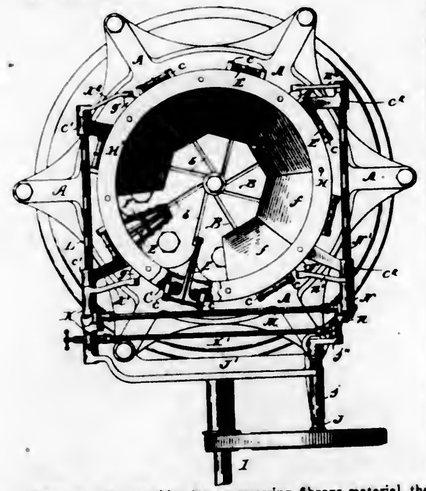
25. In a machine for compressing fibrous materials, the combination with a compressing mechanism including a slotted head and holder underneath the same, a mechanism for relatively rotating the head and holder with a bale base or support and a yieldingly-resisting means opposing the movements of such bale base or support away from the compressing mechanism, but free from the bale-support; substantially as and for the purpose set forth.

26. In a machine for compressing fibrous materials, the combination with a compressing mechanism including a slotted head, and a bale base or support, and mechanism for yieldingly opposing the receding action of such bale base or support, but loosely connected to and freely removable from the said base or support; substantially as and for the purpose set forth.

27. In a press for compressing cotton, hay and other material, the combination with the compressing mechanism, of a removable holder, in which the bale is formed, normally carrying a clamping mechanism independent of the compressing mechanism, which serves to grasp the upper end of the bale and prevent endwise expansion thereof after it is compressed; substantially as and for the purpose set forth.

28. In a machine for compressing fibrous materials, the combination with the base plate or support upon which the material being compressed rests, provided with a projection for attachment to a bale-stay, of severing-blades adapted to be projected into a column of compressed material, and bearing upon the upper end of the bale that is severed, and bale-stays connecting such severing-blades to the bale base or support; substantially as and for the purpose set forth.

645,729. COMBINED HOPPER AND FEEDER FOR PRESSES. GEORGE A. LOWRY and WATSON M. HOLMES, Boston, Mass., assignors to the Planters Compress Company, of West Virginia. Filed Aug. 24, 1899. Serial No. 728,378. (No model.)



Claim.—1. In a machine for compressing fibrous material, the combination with a slotted cap-plate and a holder for the compressed material, and means for relatively rotating such cap-plate and holder, of a hopper, and mechanism for moving such hopper toward and away from the slotted cap-plate, whereby such hopper acts as a feeder; substantially as and for the purpose set forth.

2. In a machine for compressing fibrous material, the combination with a slotted cap-plate, a holder for the compressed material, and means for relatively rotating such cap-plate and holder, of a hopper adapted to guide the material to the slotted cap-plate, and capable itself of being moved, and mechanism for giving a reciprocating movement to the hopper toward and away from the cap-plate; substantially as and for the purpose set forth.

3. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper provided with devices for directing and concentrating such fibrous material, and mechanism for reciprocating the hopper toward and away from the cap-plate, and for actuating the devices for concentrating the material; substantially as and for the purpose set forth.

4. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of pivoted sections, and mechanism for moving the hopper bodily toward and away from the cap-plate, and for moving the sections inwardly so as to concentrate the material while it is being fed downward to the slotted cap-plate; substantially as and for the purpose set forth.

5. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of pivoted sections and capable of being as a whole moved bodily toward and away from the slotted cap-plate, and mechanism for giving this movement to the hopper, and for contracting the hopper on its downward movement and expanding it upon its upward movement, substantially as and for the purpose set forth.

6. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper capable of being moved toward and away from the cap-plate, and provided with devices for pushing the material to the slots, including projections, to act upon the material near the outer end of such slots, and mechanism for reciprocating the hopper; substantially as and for the purpose set forth.

7. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper having pivoted sections and adapted to be moved toward and away from the cap-plate, and a loose connection for the pivot of such sections, whereby they may yield during the feeding operation, and mechanism for reciprocating such hopper with its sections; substantially as and for the purpose set forth.

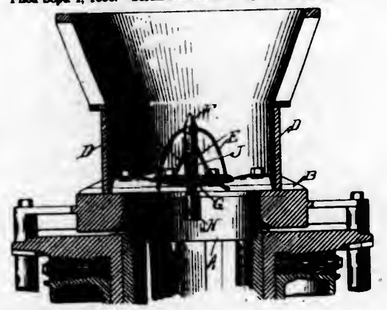
8. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper comprising an upper ring and a series of downwardly-depending sections pivoted to such ring, and mechanism connected to the ring to reciprocate the hopper bodily, and to the lower ends of the sections to reciprocate them inwardly and outwardly; substantially as and for the purpose set forth.

9. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of a ring and a series of downwardly-depending sections pivoted to such ring, and mechanism for reciprocating the ring in a vertical direction, and the sections inwardly and outwardly, and guides for the hopper supported by the main frame of the machine; substantially as and for the purpose set forth.

10. In a machine for compressing fibrous material, the combination with a slotted cap-plate, of a hopper composed of an upper ring and a series of depending sections pivoted to such upper ring, and mechanism for reciprocating the ring vertically, and the sections inwardly and outwardly, including cranks and connecting-rods, and latch connections whereby the connecting-rods may be readily detached; substantially as and for the purpose set forth.

11. In a machine for compressing fibrous material, the combination with a slotted cap-plate and the main frame of the machine, of a guiding-frame superposed above the main frame, and a hopper arranged to move on such guiding-frame, and provided with pivoted sides, and mechanism for reciprocating the hopper and moving its sides; substantially as and for the purpose set forth.

645,780. FEEDING DEVICE FOR PRESSES. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed Sept. 1, 1899. Serial No. 729,245. (No model.)



Claim.—1. In a cotton or other press, a press-chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with feed fingers or arms arranged to bear upon the surface of said head-plate, and means for imparting relative movement to said finger or arms and head-plate, for crowding or feeding the loose material to said slots, as and for the purpose set forth.

2. In a cotton or other press, a press-chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a series of spring arms or fingers held at one end and bearing at their free ends upon the surface of said head-plate, and means for imparting relative movement to said fingers or arms and head-plate, whereby the loose material supplied to said head-plate is crowded or fed to said slots, as and for the purpose set forth.

3. In a cotton or other press, an open-ended chamber, means for rotating the same, and a stationary slotted head-plate for one end of said chamber, in combination with a spindle mounted centrally with respect to said head-plate and carrying arms or fingers, the free ends of said arms or fingers bearing upon the surface of said head-plate, as and for the purpose set forth.

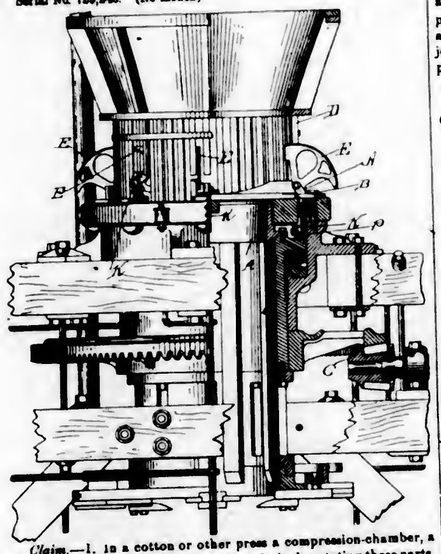
4. In a cotton or other press, an open-ended chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a spindle journaled in said head-plate and centrally with respect thereto, said spindle extending through said head-plate and engaging the material in the chamber, and spring-arms carried by the outer end of said spindle and having their free ends presented toward the surface of said head-plate, as and for the purpose set forth.

5. In a cotton or other press, and in combination with means for rotating a mass of compressed material, a slotted head-plate against which one end of said compressed mass bears, a spindle arranged to pass through said head-plate and engaging said compressed mass, and feeder arms or fingers carried by said spindle and projecting toward the surface of said head-plate, as and for the purpose set forth.

6. In a press, a press-chamber, a slotted head-plate therefor, and means for relatively rotating these parts, in combination with a sleeve carried by said head-plate, a spindle journaled in said sleeve, and feed arms or fingers carried by said spindle, as and for the purpose set forth.

7. A feeding device for presses, comprising a spindle, a cap carried thereby, and a series of feeder arms or fingers carried by said cap and operating to feed the material to the press, in combination with a press-chamber and a slotted cap, these parts being mounted for relative rotation, as and for the purpose set forth.

645,731. FEEDING DEVICE FOR PRESSES. GEORGE A. LOWRY, Chicago, Ill., and WATSON M. HOLMES, Hoosic Falls, N. Y., assignors to the Planters Compress Company, Boston, Mass. Filed Sept. 1, 1899. Serial No. 729,346. (No model.)



Claim.—1. In a cotton or other press a compression-chamber, a slotted head-plate or cap, and means for relatively rotating these parts, in combination with a feeding device comprising a pivotally-mounted feed-arm arranged to operate in the plane of the slot in said head-plate or cap, a rod connected thereto, and means for projecting said rod, as and for the purpose set forth.

2. In a press, a compression-chamber, a slotted head-plate or cap therefor, and means for relatively rotating these parts, in combination with a feeding device comprising a pivotally-mounted feed-arm, an operating-link connected thereto, a rod connected to said link and means for projecting said rod, whereby said feed-arm is rocked toward said head-plate or cap to crowd or feed the loose material into proximity to the slot therein, as and for the purpose set forth.

3. In a press, a compression-chamber, a slotted head-plate or cap therefor, and means for relatively rotating these parts, in combination with a feeding device comprising a pivotally-mounted feed-arm, a rod connected thereto, means for projecting said rod in one direction and a spring arranged to oppose said projecting movement, whereby said feed-arm is operated toward and from the head-plate or cap, to crowd or feed the material into proximity to the slot therein, as and for the purpose set forth.

4. In a press, a compression-chamber, a slotted head-plate or cap therefor, and means for relatively rotating these parts, in combination with a feeding device comprising a pivotally-mounted feed-arm, a link connected thereto, a rod connected to said link, a cam-track upon which said rod bears, whereby when said track and rod are relatively moved said rod is projected endwise and a spring for opposing the endwise projection of said rod, as and for the purpose set forth.

5. A feeding device for presses, comprising a supporting-plate, a pin or stud carried thereby, a feeder-arm pivotally mounted on said stud and a spring mounted on said stud and engaging at its ends respectively with said plate and arm, in combination with a rod connected to said arm and a cam-track for projecting said rod, as and for the purpose set forth.

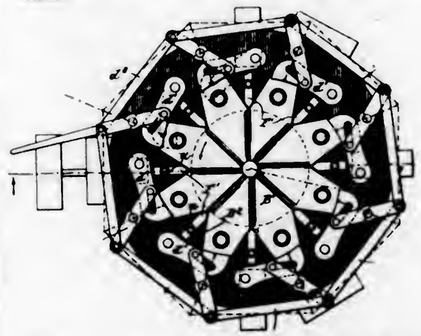
6. In a press a chamber, a slotted head-plate therefor and means for relatively rotating these parts, in combination with a pivotally-mounted feeder-arm, a rod connected thereto and a cam for projecting said rod, said rod and cam respectively connected to said head-plate and chamber, as and for the purpose set forth.

7. In a press an open-ended chamber, means for rotating the same and a stationary slotted head-plate therefor, in combination with a feeder-arm pivotally mounted on said head-plate, an operating-rod for said feeder-arm, and a cam-track carried by said chamber upon which said rod operates, as and for the purpose set forth.

8. In a press, a slotted head-plate and means for revolving a compressed mass of material thereagainst, in combination with a feeder-arm pivotally mounted with respect to said head-plate, an operating-rod therefor, and means actuated coincidently with the rotation of said compressed mass for projecting said rod, as and for the purpose set forth.

9. A feeding device for presses comprising a segment feeding-arm having a feed edge and a pointed tail or heel said arm being pivotally mounted in combination with a longitudinally-movable rod, a link connecting said rod and arm, and means for periodically projecting said rod endwise for rocking said arm toward and from the press, as and for the purpose set forth.

645,732. APPARATUS FOR COMPRESSING COTTON, HAY, &c. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, of West Virginia. Filed Oct. 10, 1899. Serial No. 733,174. (No model.)



Claim.—1. In a press for compressing cotton, hay and other materials, the combination with the compressing mechanism, of a removable holder, in which the bale is formed, composed of a base and side stays having their lower ends normally adapted to be hooked upon such base, and inturned upper ends adapted to engage the upper end of the bale, whereby such bale is prevented from endwise expansion while awaiting the wiring operation, and the parts of the holder may be separated so as to permit the removal of the bale after the wiring operation; substantially as and for the purpose set forth.

2. In a press for compressing cotton, hay and other materials, the combination with the compressing mechanism, of a single set of severing-blades, serving also to grasp and prevent endwise expansion at the upper end of the compressed bale, and connected with means for grasping the lower end of such bale and preventing expansion thereof; substantially as and for the purpose set forth.

3. In a machine for compressing cotton, hay and other materials, the combination with a rotatable head having guide-slots, and mechanism for rotating such head, of a holder carrying clamping mechanism for a bale, which is adapted to move through the slots for effecting such clamping action, and below the slots to enable the holder to be removed with the bale; substantially as and for the purpose set forth.

4. In a press for compressing cotton, hay or other material, the combination with a rotatable head provided with guide-slots, a holder having a bale base or support, and side walls detachably secured to such bale-base and adapted to move through the guide-slots to clamp the bale, or below the same to permit the holder to be removed from the material; substantially as and for the purpose set forth.

5. In a machine for compressing cotton, hay and other material, the combination with a rotatable head provided with guide-slots, of a holder having clamping means adapted to move in such guide-slots to clamp the bale, and below the same to permit the removal of the bale, and a plunger offering a resistance during the formation of the bale and capable of being retracted when the bale is completed, so as to admit of its separation from the incoming material and removal from the press; substantially as and for the purpose set forth.

6. In a machine for compressing cotton, hay and other material, the combination with a rotatable head provided with guide-slots, of a holder comprising a bale base or support and stays loosely connected to such bale-base, and having inturned upper ends, and adapted to move into the guide-slots or below the same; whereby the holder is adapted to form a chamber in which the bale may be formed, and with its stays to prevent endwise expansion of the bale in either direction after it is separated from the incoming material; substantially as and for the purpose set forth.

7. In a machine for compressing cotton, hay or other material, the combination with a rotatable head, of a holder carrying a set of clamping-knives adapted to sever the bale and then clamp it at the upper end of such bale, and a bale-base at the lower end of such holder adapted to freely move within the holder, but to be limited in its downward movement, whereby it will serve to prevent the lower end of the bale from expansion after such bale has acquired its proper length; substantially as and for the purpose set forth.

8. In a machine for compressing cotton, hay and other material, the combination with a rotatable head, of a holder carrying at its upper end mechanism adapted to sever and clamp the corresponding end of the bale, and at its lower end a freely-movable bale-base upon which the bale may rest, and be prevented from expansion at its lower end, when the desired length of bale has been produced, and a resisting-plunger adapted to oppose the downward movement of the bale-base until such base has reached its limit in the holder, and then to be retracted below the holder so that such holder may be removed with the bale; substantially as and for the purpose set forth.

9. In a press for compressing cotton, hay and other materials, the combination with a slotted head and mechanism for revolving the same, of a ring secured to such head and provided with vertical openings through its walls, and offsets or ledges formed in such walls, and severing-blades having heels adapted to be supported on the offsets of the walls, and mechanism for projecting such severing-blades inward through the vertical slots in the ring, and so as to cause the ends of such blades to sever the compressed material and the heels thereof to clear the offsets; substantially as and for the purpose set forth.

10. In a press for compressing cotton, hay or other material, the combination with a slotted head-plate and mechanism for revolving the same, of a ring provided with vertical apertures through the walls of the same, and horizontal offsets from such walls, and severing-blades normally resting within the apertures with the heels thereof over the ledges of the offsets, and means for adjusting the height of such severing-blades; substantially as and for the purpose set forth.

11. In a press for compressing cotton, hay or other material, the combination with a slotted head and mechanism for revolving the same, of a ring provided with vertical apertures in its walls and horizontal offsets, and severing-blades having the heels thereof projecting over the ledges of such offsets, and means for simultaneously adjusting vertically the severing-blades, comprising a circular plate and adjusting-screws; substantially as and for the purpose set forth.

12. In a press for compressing cotton, hay or other material, the combination with a slotted head and mechanism for revolving the same, of a ring provided with vertical apertures through its walls, and severing-blades adapted to be supported within such apertures, and provided with projections, and mechanism for engaging such projections and projecting the severing-blades into the compressed material; substantially as and for the purpose set forth.

13. In a press for compressing cotton, hay or other material, the combination with a slotted head and mechanism for revolving said head, of a ring provided with vertical apertures, severing-blades adapted to normally lie within such apertures, and provided with upwardly-projecting pins, of a series of pivoted arms adapted to engage the projecting pins, and links connecting such arms, whereby they will all be operated simultaneously; substantially as and for the purpose set forth.

14. In a press for compressing cotton, hay or other material, the combination with a slotted head, and mechanism for rotating the same, of a ring provided with supports and guides for severing mechanism, a bale base or support, severing mechanism supported and guided by the ring, and slats connected to the bale-base and extending to and connected with the top ring and severing mechanism; substantially as and for the purpose set forth.

15. In a machine for compressing fibrous materials, the combination with a compressing mechanism, of a bale base or support adapted to revolve or rotate about its own vertical axis, a carrier or support for such bale-base arranged to support the same below the compressing mechanism, whereby the bale may be readily revolved upon the bale-base in such a manner as to facilitate the wiring thereof; substantially as and for the purpose set forth.

16. In a machine for compressing fibrous materials, the combination with a compressing mechanism, of a movable carrier adapted to remove the bale from the compressing mechanism, and a bale-base mounted to revolve about its own vertical axis upon such carrier; substantially as and for the purpose set forth.

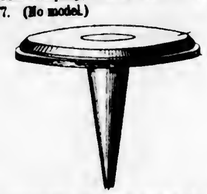
17. In a machine for compressing fibrous materials, the combination with the compressing mechanism, of a holder in which the bale is formed, having a bale-base, and a movable carrier for supporting such bale-base and bale, and provided with means adapted to permit the bale-base to revolve about its own vertical axis upon such carrier, whereby the wiring of the bale is facilitated.

18. In a machine for compressing fibrous materials, the combination with a compressing mechanism, of a turn-table provided with a circular track, and a bale base or support carrying antifriction-rollers and adapted to revolve about its own vertical axis on said track, to facilitate wiring the bale; substantially as and for the purpose set forth.

19. In a machine for compressing fibrous materials, the combination with the compressing mechanism, of a turn-table or carrier provided with a plurality of circular tracks, and a plurality of bale bases or supports adapted to revolve on such tracks about their own vertical axes; substantially as and for the purpose set forth.

20. In a machine for compressing fibrous materials, the combination with the compressing mechanism of a bale base or support provided with a central aperture and a number of slots radiating therefrom, substantially as and for the purpose set forth.

645,733. HEAD-PLATE FOR PRESSES. GEORGE A. LOWRY, Chicago, Ill., and WILLIAM B. P. MATTOX, Memphis, Tenn., assignors to the Planters Compress Company, Boston, Mass. Filed Oct. 23, 1899. Serial No. 734,577. (No model.)



Claim.—1. A cap or head-plate for presses having feed-slots and a central opening, in combination with a center pin arranged in said opening, and a washer carried by said pin and arranged to extend over the inner ends of said feed-slots, as and for the purpose set forth.

2. In a press, a cap or head-plate having feed-slots, and a chamber or holder, in combination with a center washer or disk arranged to extend over the inner ends of the feed-slots in the cap or head-plate, as and for the purpose set forth.

3. In a press, a chamber or holder, a slotted cap or head-plate for one end thereof, these parts being relatively movable, in combina-

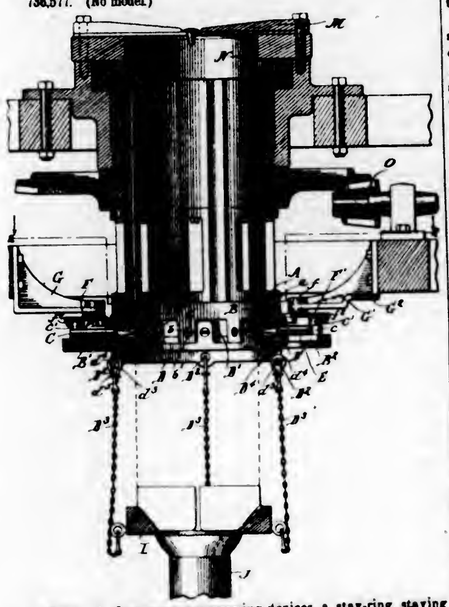
tion with a center pin and washer for said head-plate or cap, said washer arranged to extend over the inner ends of the slots in said head-plate, as and for the purpose set forth.

4. A cap or head-plate, having one or more feed-slots, and a central opening, in combination with a center pin arranged to project loosely through said opening, and a washer extending over the inner ends of said feed slot or slots, as and for the purpose set forth.

5. A slotted cap or head-plate for presses, having a central opening therethrough, in combination with a center pin arranged to project through said opening, a head for said pin, and a washer interposed between said head and the cap or head plate, said washer arranged to extend over the inner ends of the slots in said head-plate, as and for the purpose set forth.

6. A slotted cap or head-plate for presses, having a central opening therethrough, in combination with a centrally-perforated washer and head, and a centering-pin arranged to project loosely through said central opening and perforations, said washer arranged to project over the inner ends of the slots in said head-plate, as and for the purpose set forth.

645,734. BALE DETACHING AND STAYING DEVICE FOR PRESSES. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, of West Virginia. Filed Nov. 11, 1899. Serial No. 736,577. (No model.)



Claim.—1. In a press, compressing devices, a stay-ring, staying devices carried thereby, and adapted when in their retracted position to lock said ring to said compressing devices, means for advancing said staying devices to engage the end of the bale and to disengage said ring from said compressing devices, a bale-base, and connections between said bale-base and stay-ring, as and for the purpose set forth.

2. In a press, the combination with a relatively-moving cap or head and compression chamber or holder, of a stay-ring, staying devices carried thereby and adapted when in their retracted position to lock said ring to said compression-chamber, means for advancing said staying devices to engage the end of the bale and to free said ring from said chamber, a bale-base, and connections between said bale-base and ring, as and for the purpose set forth.

3. In a press, the combination with a slotted head or cap, a compressing-chamber and means for relatively rotating said chamber and cap, of a stay-ring, staying devices movably mounted thereon, and adapted when retracted to form a lock for locking said ring to said chamber, means for advancing said staying devices to detach said ring, a bale-base, and connections between said base and ring, as and for the purpose set forth.

4. In a press, a slotted head or cap, a compression-chamber, and means for relatively rotating these parts, in combination with a stay-ring, a bale-base, and flexible connections between said base and ring, as and for the purpose set forth.

5. In a press, the combination with compressing devices, of a stay-ring, a bale-base, and flexible connections between said base and stay-ring, as and for the purpose set forth.

6. In a press, the combination with compressing devices, and means for detaching a portion of the compressed material to form a bale, of a stay-ring for the detached bale, a bale-base, and flexible connections between said base and stay-ring, as and for the purpose set forth.

7. In a press, the combination with compressing devices, and means for detaching a portion of the compressed material to form a bale, of a stay-ring for the detached bale, a bale-base, and flexible devices connected at one end to said bale-base and detachably connected at the other end to said stay-ring, as and for the purpose set forth.

8. In a press, the combination with compressing devices and means for detaching a portion of the compressed material to form a baler of a stay-ring, staying devices mounted therein and adapted to be projected to engage the detached bale, guides engaged by said staying devices, a bale-base, and connections between the bale-base and ring, as and for the purpose set forth.

9. In a press, the combination with compressing devices, of a stay-ring, staying devices carried thereby and adapted to be projected into the compressed mass, guides for said staying devices, a bale-base, and connections between said base and staying devices, as and for the purpose set forth.

10. In a press, the combination with compressing devices, of a stay-ring, projections formed thereon and having guideways, staying devices carried by said ring and arranged to be projected into the mass of compressed material, lugs formed on said staying devices and arranged to operate in said guideways, a bale-base, and connections between said base and ring, as and for the purpose set forth.

11. In a press, and in combination with compressing devices, a carrier-ring, detaching devices carried thereby and provided with lugs or projections, a stay-ring, staying devices carried thereby and abutting against said detaching devices, whereby when said detaching devices are projected into the mass of compressed material the staying devices are simultaneously advanced, but said detaching devices are free to be retracted without retracting said staying devices, means for actuating said detaching devices and means arranged to coact with said staying devices to grasp and hold the bale, as and for the purpose set forth.

12. In a press and in combination with compressing devices and means for detaching a portion of the compressed material, of sufficient length to form a bale, of a stay-ring adapted to be applied to the end of the detached portion, a bale-base, and connections between the bale-base and stay-ring, as and for the purpose set forth.

13. In a press, and in combination with compressing devices, and means for detaching a portion of the compressed material, of sufficient length to form a bale, of a stay-ring detachably locked to said compression devices, a bale base or support, connections between said support, and means for detaching said stay-ring from said compressing devices, as and for the purpose set forth.

14. In a press, the combination with compressing devices, a carrier-ring connected thereto, a stay-ring detachably connected to said carrier-ring, a bale-base, connections between said base and stay-ring, means for detaching a portion of the compressed material, of sufficient length to form a bale, and means for detaching said stay-ring from said carrier-ring, as and for the purpose set forth.

15. In a press for compressing fibrous material, the combination with a carrier-ring, of a stay-ring adapted to be detachably locked thereto, a bale-base, and means connecting said bale-base and stay-ring, as and for the purpose set forth.

16. In a press, the combination with a carrier-ring, and bale-detaching devices carried thereby, of a stay-ring adapted to be detachably locked to said carrier-ring, and carrying means for engaging the end of the detached bale to hold the same against endwise expansion, as and for the purpose set forth.

17. In a press, a carrier-ring, bale-detaching devices carried thereby, a stay-ring, bale-staying devices carried thereby, said staying devices, when in their retracted position, forming a lock for locking said rings together, means for projecting said staying and detaching devices, whereby a bale is detached and its end engaged and said rings unlocked, and means for retaining said staying devices in engagement with the end of the bale, as and for the purpose set forth.

18. In a press, a carrier-ring having a flange, a stay-ring, staying devices carried thereby and arranged, when in their retracted position, to engage said flange to lock said rings together, a bale-base, connections between said base and stay-ring, and means for advancing said staying devices, thereby detaching said rings from each other, as and for the purpose set forth.

19. In a press, a carrier-ring having a flange, a stay-ring having projections, staying devices mounted in said projections and, when in their retracted position, engaging said flange to lock said rings together, means for advancing said staying devices to clear said flange and to engage the end of the bale and means coacting with said staying devices for confining the bale therebetween, as and for the purpose set forth.

20. In a press, a carrier-ring having a flange, said flange provided with openings therethrough, a stay-ring having projections or lugs arranged to project into or through said openings, staying devices carried by said lugs or projections and arranged when retracted to engage said flange to lock said rings together, and means for advancing said staying devices to engage the end of the bale and to disengage said flange and means coacting with said staying devices for confining the bale therebetween, as and for the purpose set forth.

21. In a press, a carrier-ring provided with a flange having passages or openings therethrough, a stay-ring having lugs or projections arranged to extend through said openings or passages, staying devices carried by said lugs or projections, and arranged when retracted to engage said flange to lock said rings together, means for advancing said staying devices to engage the end of the bale and to disengage said flange, a bale-base, and means for connecting said bale-base and stay-ring, as and for the purpose set forth.

22. In a press, a carrier-ring provided with a flange having passages or openings therethrough, detaching devices carried by said ring, a stay-ring having lugs or projections arranged to project through said openings or passages, and carrying staying devices, said staying devices arranged when retracted to engage said flange to lock said rings together, said detaching devices arranged to engage said staying devices to advance the latter, and means for advancing the detaching devices and means coacting with said staying devices for confining the bale, as and for the purpose set forth.

23. In a press, a carrier-ring, a stay-ring carrying staying devices, and adapted to be detachably locked to said carrier-ring, guides formed in said stay-ring, projections formed on said staying devices to engage said guides, and means for advancing said staying devices and unlocking said rings and means coacting with said staying devices for confining the bale, as and for the purpose set forth.

24. In a press, a carrier-ring having openings or passages, a ledge or offset formed at one edge of each of said passages, a stay-ring having lugs or projections arranged, when said rings are assembled, to project through said openings or passages, movable staying devices carried by said lugs or projections, said staying devices adapted, when in their retracted position, to engage said offsets or ledges, whereby said rings are locked together, and means for advancing said staying devices to clear said ledges or offsets and means coacting with said staying devices for confining the bale, as and for the purpose set forth.

25. In a press, a carrier-ring having openings or passages, a ledge or offset formed at one edge of each of said openings or passages, a stay-ring having lugs or projections arranged, when said rings are assembled, to project through said openings or passages, movable staying devices carried by said lugs or projections, and adapted when in their retracted position to engage said offsets or projections to lock said rings together, and means for advancing said staying devices to engage the end of a bale and to clear said offsets or projections, in combination with a bale-base, and connections between said bale-base and stay-ring, as and for the purpose set forth.

26. In a press, the combination with compressing devices, of a carrier-ring connected thereto and having lugs or projections, a stay-ring having oppositely-presented lugs or projections arranged, when said rings are assembled, to alternate with the lugs or projections on said carrier-ring, bale detaching and staying devices carried by said lugs or projections, and means for actuating said detaching and staying devices and means coacting with said staying devices for confining the bale, as and for the purpose set forth.

27. In a press, compressing devices, a carrier-ring connected thereto, a stay-ring arranged to be detachably locked to said carrier-ring, and carrying staying devices, means for advancing said staying devices and simultaneously unlocking said rings from each other, a bale-base, and means for connecting said base and stay-ring, as and for the purpose set forth.

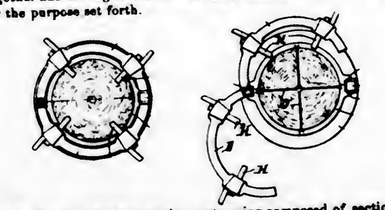
28. In a press, and in combination with compressing devices, a detaching device, a staying device arranged to be engaged thereby and advanced into the compressed material simultaneously with said detaching device, but detachable therefrom, said detaching device provided with a lug, a lever pivotally mounted, and provided with flanges to engage said lugs, whereby said detaching device is advanced or retracted, a bale-base, connections between said base and staying device, and means for actuating said lever, as and for the purpose set forth

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645,735. BALE-HOLDING DEVICE. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, of West Virginia. Filed Nov. 11, 1899. Serial No. 736,578. (No model.)

Claim.—1. A bale-holding device composed of hinged or pivoted sections and having means for engaging the ends of the bale, as and for the purpose set forth.

2. A bale-holding device composed of sections hinged or pivoted together and having means for engaging the ends of the bale, as and for the purpose set forth.



3. In a bale-holding device, a stay-ring composed of sections or segments hinged together and adapted to engage one end of the bale, in combination with means for engaging the other end of the bale, as and for the purpose set forth.

4. In a bale-holding device, a stay-ring adapted to open and close to permit the removal of the bale, in combination with means cooperating therewith to clamp the bale endwise, as and for the purpose set forth.

5. In a bale-holding device, a stay-ring carrying devices arranged to engage the end of the bale, said ring made in movable sections to open and close, in combination with means cooperating with said ring to clamp the bale endwise therebetween, as and for the purpose set forth.

6. In a bale-holder, an end ring, stays connected thereto, and a sectional stay-ring connected to the other end of said stays, as and for the purpose set forth.

7. In a bale-holder, an end ring, standards or stays connected thereto, an independent movable bale-base for one end of the bale, and means arranged at the opposite end of said standards or stays to engage the opposite end of the bale, as and for the purpose set forth.

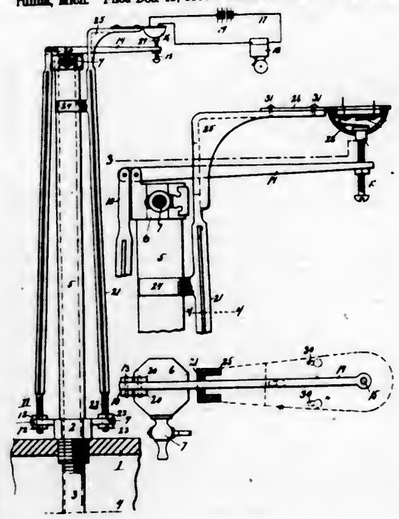
8. In a bale-holder, a frame comprising an end ring and standards or stays, and a stay-ring connected to the free ends of said standards or stays, said ring made in separable sections, as and for the purpose set forth.

9. In a bale-holder, a frame comprising an end ring and standards or stays, and a stay-ring connected to said standards or stays and adapted to clamp the bale between it and the end ring, said stay-ring made in pivoted sections, as and for the purpose set forth.

10. In a bale-holder, an end ring, standards or stays connected thereto, and a stay-ring composed of pivoted sections adapted to be locked together, as and for the purpose set forth.

11. In a bale-holder, an end ring, standards or stays connected thereto, a stay-ring connected to said standards or stays, and a bale-base movably mounted with respect to such rings, and arranged to be guided by said standards or stays, as and for the purpose set forth.

645,736. LOW-WATER ALARM. WILLIAM D. MCLAUGHLIN, Corunna, Mich. Filed Dec. 15, 1899. Serial No. 740,407. (No model.)



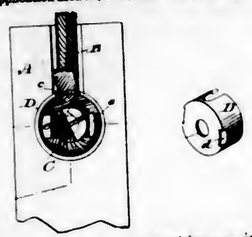
Claim.—1. In a low-water alarm, the combination with a boiler, of an expansible tube mounted upon the boiler and communicating with the interior thereof, a lever pivoted to the top of said expansible tube, a non-expansible rod standing adjacent to said tube and having said lever fulcrumed in its upper end, said rod being adjustable longitudinally, a second non-expansible rod standing adjacent to said tube and carrying a circuit-closer adapted to be actuated by the free end of said lever, and an electric circuit, including a signal, and said circuit-closer.

2. In a low-water alarm, the combination with a boiler, of a coupling mounted thereon, a pipe screwed into said coupling and depending within the boiler, an expansible tube mounted in said coupling and communicating with said pipe, a lever pivoted to the upper end of said expansible tube and a bracket projecting from said coupling, a non-expansible rod standing adjacent to said expansible tube, its lower end attached to said bracket and its upper end fulcrumed to said lever, a circuit-closer in the path of the free end of said lever and an electric circuit, including a signal and said circuit-closer.

3. In a low-water alarm, the combination of a boiler, a coupling therein, communicating with the interior of the boiler, an expansible tube, mounted in said coupling, having a lever pivoted to its upper end, a circuit-closer in the path of and adapted to be actuated by the free end of said lever, a longitudinally-adjustable rod carrying said circuit-closer, an electric circuit, including a signal and said circuit-closer, a non-expansible rod, having said lever fulcrumed in its upper end, the lower end of said rod being adjustably attached to said coupling.

4. In a low-water alarm, the combination with the boiler, of a coupling mounted therein communicating with the interior of the boiler, an expansible tube mounted in said coupling, a lever pivoted to the upper end of said expansible tube, an electric circuit, including a signal and a circuit-closer, said circuit-closer adapted to be actuated by the free end of said lever, a rod standing adjacent to said expansible tube, carrying said circuit-closer at its upper end and having its lower end adjustably connected to said coupling, a second rod, also adjustably attached to said coupling at its lower end and having said lever fulcrumed in the upper end thereof.

645,737. SASH-CORD FASTENER. MICHAEL W. HEUSER, Port Washington, Wis., assignor of one-half to Reinhard Stelling, same place. Original application filed Jan. 6, 1899, Serial No. 701,394. Divided and this application filed Sept. 18, 1899. Serial No. 730,822. (No model.)



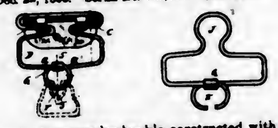
Claim.—A sash-cord fastener comprising a peripherally-notched annular shell having an apertured head, a bolt extending through a shell-head aperture, a nut run on the bolt in opposition to the shell-head, and a spring-metal yoke having its ends extended through other shell-head apertures and bent in to come between the bolt-head and a turn of sash-weight cord on the bolt within the shell.

645,738. BLACK SULFUR DYE. CHRISTOPHER RIS, Basle, Switzerland, assignor to John R. Geigy & Co., same place. Filed Sept. 9, 1899. Serial No. 729,943. (Specimens.)

Claim.—1. The new black coloring-matters obtained by melting a paramidophenol together with an oxyazo compound and with sulfur, to which mixture glycerin may be added, at a temperature of about 200° centigrade, then dissolving the mass in an alkali and evaporating to dryness, the said coloring-matter forming black pieces easily soluble in water with a dark bluish-olive color, precipitated by acids in brown flocks which become deep black by addition of a bichromate, scarcely soluble in alcohol, insoluble in ether and benzene, soluble in concentrated sulfuric acid with a dark-green color, and dyeing unmordanted cotton bluish-black shades which may be fixed by oxidation into a deep black of great fastness, substantially as described.

2. As a new article of manufacture, the herein-described black coloring-matter obtained from paramidophenol, oxyazobenzene and sulfur, which forms black pieces, easily soluble in water with a dark bluish-olive color, precipitated by acids in brown flocks which become deep black by addition of a bichromate scarcely soluble in alcohol, insoluble in ether and benzene, soluble in concentrated sulfuric acid with dark-green color, and dyeing unmordanted cotton blueish-black shades which may be fixed by oxidation into a deep black of great fastness, substantially as described.

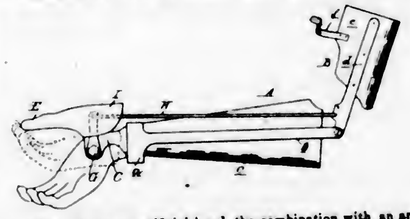
645,739. SUSPENDER-BUCKLE. MAX RUBIN, New York, N. Y. Filed Dec. 29, 1899. Serial No. 741,951. (No model.)



Claim.—1. A suspender-buckle constructed with a spring-wire frame, composed of a single and continuous piece of wire bent to form a top cross-piece, from the ends of which the wire at each end of the frame extends toward the center of the frame to form two arms below said cross-piece and substantially parallel with the same and from the inner ends of which arms the wire extends downward and outward and then downward and inward at each side of the frame to form a substantially-quadrilateral loop at the center of the bottom of which the ends of the wire cross, the said ends being curved below the crossing-point to form a separable spring-eye at the center of the bottom of the said quadrilateral spring-frame, the ends of the wire abutting at the lowest point of the spring-eye and a guide at the crossing of the curved ends of the wire for preventing separation laterally but permitting movement longitudinally in relation to each other of the two end parts of the wire, substantially as herein shown and described.

2. In a suspender-buckle the combination with a spring-wire frame composed of a single and continuous piece of wire bent to form a top cross-piece from the ends of which the wire extends downward and inward toward the center of the frame to form two arms below said cross-piece and substantially parallel with the same and from the inner ends of which arms the wire extends outward then downward and then inward at each side of the frame to form a substantially-quadrilateral loop at the bottom of which loop the ends of the wire cross each other and are curved below the crossing-point to form a separable spring-eye at the center of the bottom of the said quadrilateral frame, the ends of the wire abutting at the lowest point of the spring-eye and a clamping-plate hinged on the two arms below the cross-piece and provided on its top edge with clamping edges for clamping the webbing against the top cross-piece of the buckle, substantially as herein shown and described.

645,740. ARTIFICIAL HAND AND ARM. HENRY SCHENK, Sandusky, Ohio. Filed Apr. 19, 1899. Serial No. 713,630. (No model.)



Claim.—1. In an artificial hand, the combination with an arm-socket, of a rigid thumb secured thereto, and a palm member having permanently-hooked fingers movable toward or from said thumb.

2. In an artificial hand, the combination with an arm-socket of a rigid thumb secured thereto, permanently-hooked fingers pivotally secured to said socket, and means for moving said fingers differentially toward or from said thumb.

3. The combination, with the socket for the forearm and levers hinged thereto at the elbow upon opposite sides thereof, and secured to the upper arm, of a rigid thumb secured to said socket, two levers pivoted to and upon opposite sides of said thumb each bifurcated to form respectively the first and second and the third and fourth fingers of the hand, and rods connecting the opposite ends of said levers respectively to said opposite arm-levers.

4. An artificial hand comprising the head C, having the pin or shank *g* and the extension D forming the core of the thumb, the levers F F' pivoted to said head upon opposite sides thereof having hooked bifurcations and forming a skeleton for the palm and fingers of the hand, in combination with the socket A for the forearm in the end of which said pin *g* is swiveled, the upper arm-levers *d* pivoted to said socket at the elbow on opposite sides thereof, and rods H connecting said levers *d* respectively to the actuating-arms of the levers F and F'.

5. In an artificial hand, the combination with thumb and finger members one of which is movable in relation to the other, of a yielding elbow connection for operating said movable member to open and close the hand and a lock for holding the hand in its closed position against the action of said elbow connection.

6. In an artificial hand the combination with thumb and finger members one of which is movable in relation to the other, of a hook for locking said movable member, in the closed position of the hand, and flexible elbow-rods for normally operating said movable member by the elbow movement of the arm, said rods being adapted to spring laterally when said hook is in engagement.

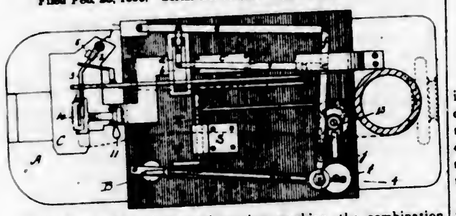
645,741. INHALER. WALTER W. WIRTON, Scranton, Pa. Filed June 5, 1899. Serial No. 719,365. (No model.)



Claim.—1. In an inhaler, the combination of a cylindrical case with a contracted end having an opening at said contracted end, and being internally screw-threaded at the other end and adapted to be closed by a screw-threaded plug, a screw-threaded plug having air-grooves cutting its threads transversely, a central shaft extending from the said plug lengthwise through said cylindrical case to the contracted end, and being there provided with a knob adapted to completely close the said contracted end simultaneously with the plug end when the plug is screwed home, and a medicine-receptacle axially mounted on said shaft and removable from the case therewith; substantially as specified and for the purpose set forth.

2. In a new article of manufacture an inhaler comprised in the combination of a cylindrical case having a contracted end with an opening therein, and being internally screw-threaded at the other end which is adapted to be closed by a screw-threaded plug having a central shaft extending from it to the contracted end, a knob on the farther end of said shaft adapted to close the contracted end simultaneously with the plug end when the plug is screwed home, and the said central shaft being further provided with a cylindrical medicine-receptacle axially mounted and slidable thereon, the cylindrical sides thereof being perforated to permit saturation, a lid rigidly secured to said central shaft being adapted to fix the location of said receptacle and close it when filled with medicament, all arranged for joint operation in the manner and for the purposes specified.

645,742. BUTTONHOLE-SEWING MACHINE. ARAKELIAN H. ARMEN, Troy, N. Y.; George H. Arakelian executor of said Armen. Filed Feb. 23, 1899. Serial No. 706,556. (No model.)



Claim.—1. In a buttonhole-sewing machine, the combination with the needle and stitch-forming mechanism; of a work-plate capable of universal movement in a plane perpendicular to the needle; a sprocket-chain; a sprocket driving-wheel and a guide-wheel both inclosed by said chain; a plurality of guides engageable with the exterior of said chain; between said chain-inclosed wheels; a pin mounted upon said chain and projecting therefrom at right angles to the plane of movement of the chain; operating connections between said pin and work-plate; and means for operating said sprocket-wheel, substantially as described.

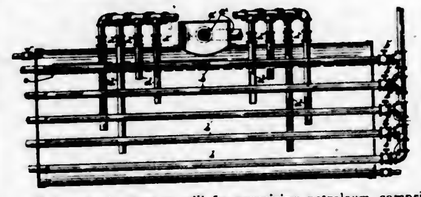
2. In a buttonhole-sewing machine, the combination with the needle and stitch-forming mechanism; of a movable work-plate; pattern mechanism comprising an endless movable carrier and a pin projecting therefrom at right angles to the plane of movement of the carrier; pantograph mechanism connecting said pin and work-plate; vibrating mechanism connected with said pantograph mechanism, means for intermittently operating said vibrating mechanism and pin-carrier, whereby zigzag movements are imparted to the work-plate along a general line indicated by the line of movement of said pin, substantially as described.

3. In a buttonhole-sewing machine, the combination with stitch-forming mechanism; the movable work-plate; a pin; and means for moving said pin along a path corresponding with the pattern of the work to be performed; of a frame having one end connected with said pin and carried thereby along the path of said pin; a lever; a fulcrum-support for said lever mounted upon said frame; a slotted connection between said pin and one arm of said lever; means for reciprocating said lever and a connection between said lever and work-plate, substantially as described.

4. In a buttonhole-sewing machine, the combination with stitch-forming mechanism; a movable work-plate; an endless carrier; a pin fixed upon said carrier; and means for moving the carrier so that the pin shall traverse a devious path corresponding with the pattern of the work to be performed and shall simultaneously turn on its axis; of a frame having one end pivotally connected with said pin and carried thereby along said devious path; a lever; a fulcrum-support for said lever rotatively mounted upon said frame with its axis parallel with said pin; an offset on the end of said pin; a slotted connection between said offset and said lever; means for reciprocating said lever; and a connection between said lever and work-plate, substantially as described.

5. In a buttonhole-sewing machine, the combination with a movable work-plate; an endless carrier; a pin fixed upon said carrier; and means for moving the carrier so that the pin shall traverse a devious path and shall simultaneously turn on its axis; of a frame having one end pivotally connected with said pin and carried thereby along said devious path, and its other end pivotally and reciprocatingly supported; an angle-lever M; a fulcrum-support P, for said lever rotatively mounted upon said frame on an axis parallel with said pin; a rotary and reciprocating sleeve Q, connected with one arm of said lever; an offset on the end of said pin; a slotted connection between said offset and the other arm of said lever; a connection between said lever and work-plate; a lever H, fulcrumed upon said frame and swiveled at one end upon the sleeve Q; a reciprocating rod G, connected at one end with the lever H; a transverse slideway on the other end of said rod G; a transverse slide-rod *r*, movable in said slideway; a crank-shaft having fixed bearings; a crank on said shaft connected with said rod *r* and movable approximately in line with the rod G; and means for operating the crank-shaft, substantially as described.

645,748. MINERAL-OIL STILL. FRIEDRICH BERG, Cleveland, Ohio. Filed Oct. 14, 1899. Serial No. 733,557. (No model.)



Claim.—1. A retort or still for vaporizing petroleum, comprising an oil-receiving tank having a vapor-outlet at the top, heating-coils arranged at different elevations, respectively, within the tank, means for supplying and controlling the supply of steam to the said coils, and means for discharging and controlling the discharge of live steam into the tank at different elevations, substantially as and for the purpose specified.

2. A retort or still for vaporizing petroleum, comprising an oil-receiving tank having a vapor-space above the oil-space and next below the upper wall of the chamber of the tank, a vapor-outlet leading from the vapor-space, heating-coils arranged at different elevations, respectively, within the oil-space, means for supplying and controlling the supply of steam to the said coils, a heating-coil arranged within the vapor-space near the aforesaid wall, means for supplying and controlling the supply of steam to the last-mentioned coil, and valved steam-pipes arranged to discharge live steam into the tank at different elevations, respectively, substantially as and for the purpose specified.

3. A retort or still for vaporizing petroleum, comprising an oil-receiving tank having a vapor-outlet at the top; several heating-coils arranged a suitable distance apart, vertically, within the tank; means for supplying and controlling the supply of steam to each coil, and means for discharging and controlling the discharge of live steam into the tank at different elevations, substantially as and for the purpose set forth.

4. A retort or still of the character indicated, comprising an oil-receiving tank having a vapor-outlet at the top, heating-coils arranged within and in planes extending transversely of the tank and a suitable distance apart vertically and one of the said coils being ar-

ranged in close proximity to the upper wall of the tank's chamber, and valved steam-pipes arranged to discharge downwardly into the tank at different elevations, respectively, substantially as and for the purpose set forth.

645,744. TREAD FOR STEPS. ANTON BISCHOFF, New York, N. Y. Filed Jan. 12, 1900. Serial No. 1,207. (No model.)



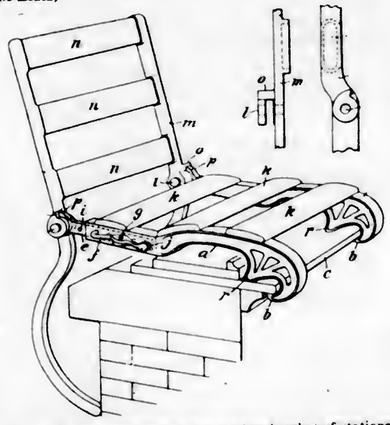
Claim.—1. In a tread for steps, the combination, of a frame having an opening, a tread portion fitted into said opening, a cushioning-spring for said tread portion, and means for connecting the cushioning-spring with the frame and tread portion, substantially as set forth.

2. In a tread for steps, the combination, of an oblong frame having an opening, a tread portion corresponding to and fitting movably in said opening, a cross-bar on the frame, cushioning-springs below said tread portion, and fastenings connecting the springs to the ends of the frame, the cross-bar and the tread portion, substantially as set forth.

3. In a tread for steps, the combination, of an oblong frame having an opening, a tread portion corresponding to and fitting movably in said opening, and suitable springs connected with the frame and acting upwardly on said tread portion, the springs at the front part of the tread being of greater combined strength than those at the rear part, substantially as set forth.

4. In a tread for steps, the combination of a frame having an opening, a tread portion fitting movably in said opening, main cushioning-springs for said tread portion, and auxiliary cushioning-springs arranged only at and acting upon the front part of the tread, substantially as set forth.

645,745. WINDOW-BRACKET. JOHN W. GIBSON, Jr., and CHARLES R. STRAUGHN, Lansdowne, Pa. Filed Apr. 21, 1899. Serial No. 713,994. (No model.)

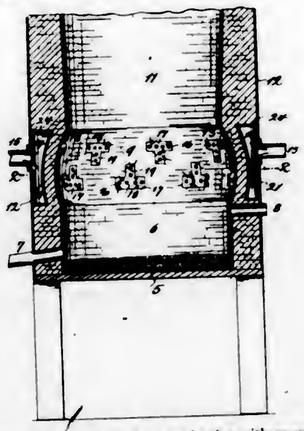


Claim.—1. The combination in a window-bracket of stationary arms furnished integrally at their inner ends with hooks adapted to engage the under side of the window-flange and projections adapted to engage the upper side of said flange and the outer ends of which are cored out, sliding arms, furnished with holes, adapted to be placed in the cored-out ends of said stationary arms, spring-actuated stops carried by the sides of said stationary arms adapted to pass through holes in said stationary arms and into holes in said sliding arms, movable arms pivoted to said sliding arms the lower ends of which are adapted to engage the wall beneath the window to support the outer end of said bracket and the upper ends of which form side rails for a back, stops carried by said sliding and movable arms adapted to engage to limit the movement of said movable arms, and slats forming a seat and back.

2. In a window-bracket, the combination of two relatively-stationary arms each provided in its lower edge, adjacent to one end, with a notch or recess adapted to receive the inner edge of a window-sill, slats or bars connecting said arms, supplemental arms *c* adjustably connected to said stationary arms and extending in line therewith to the outer edge of the sill, a back having side bars pivotally connected with said supplemental arms and extending downwardly from said pivotal connection to engage with the building-wall below the window-sill, and stops carried by said adjustable supplemental arms for limiting the movement of said back about its pivot in one direction.

3. In a window-bracket, the combination with a seat portion having at one end means for engaging with the inner edge of a window-sill, of a back having its side bars pivotally connected with the side bars of the seat portion and extending across one face thereof, lugs *o* on said side bars of the back extending across one edge of the bars of the seat portion, arms carried by the back and adapted to engage with the building below the window-sill, and stops arranged on the side bars of the seat portion in the path of the lugs *o* of the back for limiting the movement of the back in one direction.

645,746. CUPOLA. FREDERICK HARDERT, Cincinnati, Ohio. Filed Nov. 28, 1899. Serial No. 738,508. (No model.)



Claim.—1. In a cupola, the combination with upper and lower sections of its surrounding wall, of an intermediate section of such wall which is curved outwardly between its lower and upper ends, groups of twyers consisting each of a longitudinal and a vertical row of discharge-outlets, said groups all contained in the outwardly-curved wall and arranged therein with spaces between them in two annular rows, one above the other and further so arranged vertically that a group of twyers in one row alternates with a space in the other row, an air-chamber surrounding this curved section of the furnace-wall and means to supply air thereto.

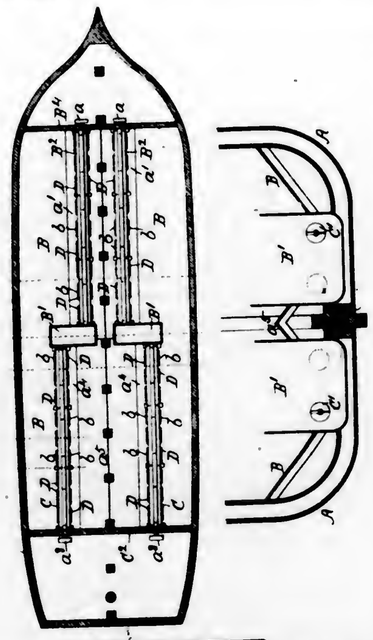
2. In a cupola, the combination of an inclosing jacket, an outwardly-curved shell 21 provided with openings and arranged concentrically within the former with a space between it and said jacket, which space forms an air-chamber, means to supply air thereto, twyer-blocks containing each a number of downwardly-inclined and converging air-passages attached to shell 21 and projecting inwardly therefrom, being located thereon so that said passages coincide in position with the openings in the shell and a brick lining built against this latter and filling out the space between the twyer-blocks.

3. In a cupola the combination of an inclosing jacket, an outwardly-curved shell 21 provided with openings and arranged concentrically within the former with a space between it and said jacket which space forms an air-chamber, means to supply air thereto, twyer-blocks containing each a number of downwardly-inclined and converging air-passages attached to shell 21 and projecting inwardly therefrom, being located thereon so that said passages coincide in position with the openings in the shell and arranged therein with spaces between them in two annular rows, one above the other and further so arranged vertically that a block of twyers in one row alternate with a space in the other and a brick lining built against this shell and filling out the space between the twyer-blocks.

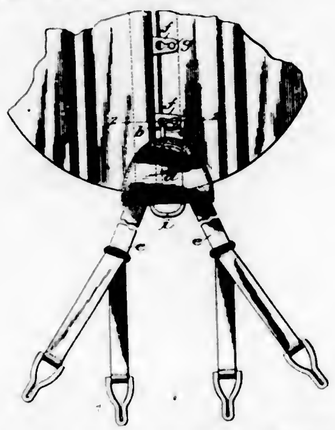
4. In a cupola, the combination with means for supplying an air-blast, of twyer-blocks supported in the wall thereof and containing each a number of air-passages arranged in a horizontal and vertical row, said blocks disposed in two rows around the furnace one row above the other one, and alternating so that in the upper row of blocks the vertical row of air-passages is below the horizontal one which disposition is reversed in the lower row.

645,747. HOPPER-BOTTOM GRAIN VESSEL. LEWIS HORMANN, Chicago, Ill. Filed Aug. 5, 1898. Serial No. 687,796. (No model.)

Claim.—The combination with a grain-carrying vessel, of a false hopper-bottom, the receiving-bins, the pair of screw conveyers located closely together and forward of said bins and adapted to discharge into the inner adjacent sides thereof, the pair of screw conveyers, set wide apart and located aft of the receiving-bins and discharging into their outer sides, the A-shaped bottoms between each pair of conveyers, the series of gates, inserted in the sides of the box conveyers, and means for opening and closing said gates from the deck of the vessel in regulating the flow of grain into said conveyers, substantially as described.



645,748. STOCKING-SUPPORTER. JAMES A. HUDSON, New York, N. Y., assignor to the I. B. Kleinert Rubber Company, same place. Filed Nov. 24, 1899. Serial No. 738,180. (No model.)

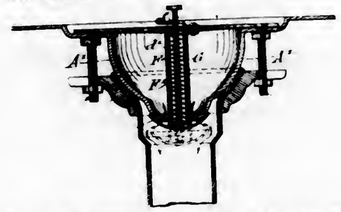


Claim.—1. A garment-supporting connection device, comprising a hook at its upper part adapted to be passed through and engage the loop or eye of a corset-clasp and having a lateral extension arranged to lie beneath the stud of the corset-clasp when said connection device is in normal operating position, and so prevent its accidental displacement; and provisions at its lower part for attachment thereto of garment-supporters.

2. In a duplex stocking-supporter, the combination with the clasps and webbings for a pair of stockings, of a suspension connection-piece having loops at its lower end for the attachment of the webbings thereto, and a hook at its upper part formed to engage with the loop or eye of the clasp of a corset and having a lateral retention extension arranged to lie beneath the stud of the corset-clasp, for the purpose set forth.

3. In a garment-supporter, the combination of a corset having a loop-and-stud fastener; a suspension connection-piece having a hook at its upper part with a laterally-extending point adapted to hook into the loop of the fastener of the corset with the lateral extension of the hook lying beneath the shank of the stud so as to retain the hook in the fastener-loop, and supporting connections for garments, as a pair of stocking-supporters, secured to the suspension connection-piece.

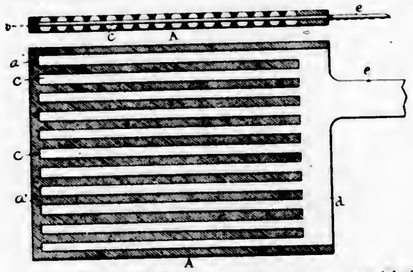
645,749. VALVE FOR SINKS OR STATIONARY WASH-STANDS. HANS C. G. KASSCHAU, New Rochelle, N. Y. Filed Sept. 21, 1899. Serial No. 731,158. (No model.)



Claim.—1. The combination, with a sink or basin provided with an outlet portion, of a fixed tube, a valve seating against the outlet portion, and provided with a valve-stem, a spring coiled around the valve-stem inside of said tube and acting to close said valve, and another tube, fixed to the valve and telescoping with the other tube, substantially as set forth.

2. The combination, with a sink or basin provided with an outlet portion, of an upwardly-seating automatic valve provided with a valve-stem projecting upwardly above the outlet portion, and a pivoted catch, said valve-stem being constructed to be engaged below its upper end by the said catch, for locking the valve in closed position and to be engaged over its upper end by the said catch, for locking the valve-stem in open position, substantially as set forth.

645,750. STORAGE BATTERY. PATRICK KENNEDY, New York, N. Y. Filed Mar. 16, 1899. Renewed Mar. 1, 1900. Serial No. 6,920. (No model.)



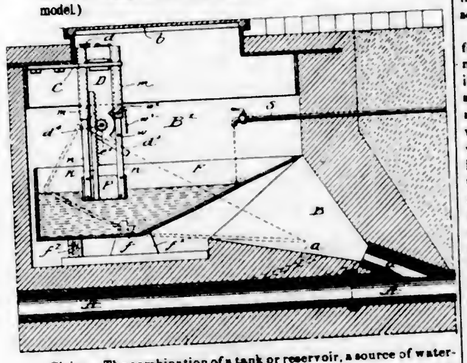
Claim.—1. A cellular plate for carrying the active material of a storage battery composed of a non-conducting and elastic or yielding material and having cells in the opposite sides and channels communicating with the inner ends of said cells and constructed and arranged for the insertion lengthwise of the bars of a conducting-grid, substantially as herein set forth.

2. A cellular plate for carrying the active material of a storage battery composed of non-conducting and elastic or yielding material and having cells in its opposite sides, channels communicating with the inner ends of the cells of the plate, and a transverse groove in the end of the plate and communicating with the adjacent ends of said channels, the channels and grooves being provided and arranged for the insertion of the bars and transverse head of an independently-formed conducting-grid, substantially as herein set forth.

3. The combination with a conducting-grid having parallel bars

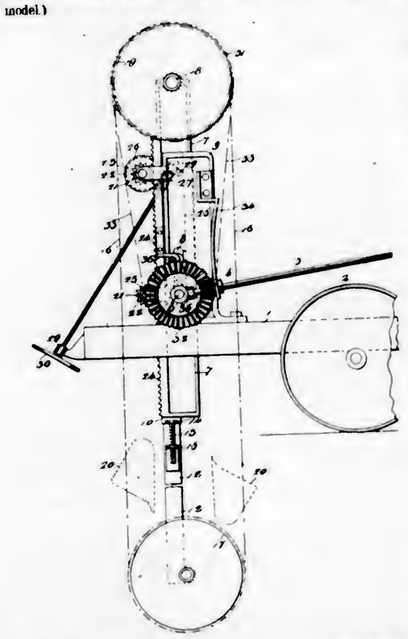
and a transverse head connecting said bars, with a cellular non-conducting plate having cells at its opposite sides, internal channels which communicate with said cells at their inner ends, and a groove which connects said channels at their outer ends, substantially as set iorth.

645,751. APPARATUS FOR PURIFYING SEWERS. JARED R. LEWIS, Philadelphia, Pa. Filed Apr. 10, 1899. Serial No. 712,572. (No model.)



Claim.—The combination of a tank or reservoir, a source of water-supply therefor, the said tank or reservoir being adapted to automatically discharge its contents when filled into a sewer or drain, a vessel containing a suitable disinfecting agent, a movable body closing the outlet from said vessel, a plurality of recesses or pockets of definite capacity in said body, and means controlled by the rise of water in said tank whereby said pockets or recesses are successively presented to the said outlet and then presented to the tank or reservoir, whereby a plurality of measured charges of the disinfecting agent may be emptied into the said tank during a single filling of the same.

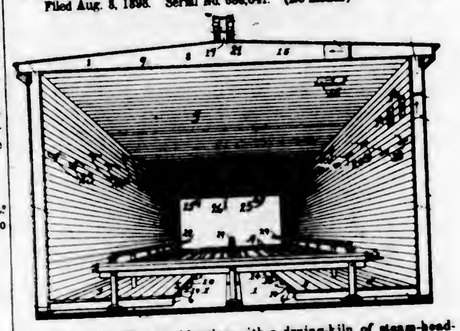
645,752. DITCHING OR EXCAVATING MACHINE. MICHAEL J. MACKEY, St. Louis, Mo. Filed Aug. 26, 1899. Serial No. 728,602. (No model.)



Claim.—1. An excavating-machine, comprising a suitable frame, an adjustable carriage guided by the latter, in a substantially-vertical position, shafts carried by the upper and lower ends of said carriage, sprocket-wheels fixed to said shafts, an endless conveyer and excavator passing over said sprocket-wheels, sprocket-wheels also fixed to the opposite ends of the upper shaft, a suitable power-shaft, sprocket-wheels fixed to the latter, sprocket-chains passing over the last-named sprocket-wheels, and the sprocket-wheel fixed to the ends of the upper shaft of said carriage, means for imparting motion to said power-shaft, and suitable mechanism for adjusting the carriage in respect to the frame of the machine, as and for the purpose described.

2. An excavating-machine, comprising a suitable frame, supports forming suitable guideways, a suitable carriage comprising parallel members, the upper ends of which are provided with suitable bearings, a shaft journaled in said bearings, sprocket-wheels fixed to said shaft, a guide carried by said parallel members of the carriage, a bar adjustably secured within said guide, the lower end of which is provided with suitable bearings, a shaft journaled in the latter, sprocket-wheels fixed to said shaft, an endless conveyer and excavator passing over said sprocket-wheels, suitable means for imparting motion to the upper shaft, a rack-bar formed on the said vertical parallel members of the carriage, shafts mounted in said supports, pinions fixed to said shafts, and meshing with said rack-bars, a worm-gear secured to one end of the upper shaft, an operating-shaft mounted in suitable bearings, a worm-pinion fixed to said operating-shaft, and meshing with said worm-gear, and means for imparting motion to said operating-shaft, as and for the purpose described.

645,758. DRYING-KILN. HORACE J. MORTON, Chicago, Ill. Filed Aug. 8, 1898. Serial No. 688,041. (No model.)



Claim.—1. The combination with a drying-kiln, of steam-headers and steam-pipes arranged in an upper and a lower series extending upward and outward from the steam-headers, such pipes being of varying lengths, and connecting spring-pipes joining the pipes of the upper series of header-pipes with the pipes of the lower series, the diameter of the connecting spring-pipes increasing correspondingly with the increase in length of the header-pipes joined thereby, whereby a restricted passage-way for steam between a pipe of the upper series to a pipe of the lower series is obtained and the force required to send steam from one header to the other will be substantially the same in each of the pipes extending out from such header; substantially as described.

2. In a drying-kiln having inlet and outlet passage-ways through the roof thereof and provided with openings through the ceiling into the outlet passage-ways at one end of the drying-kiln and through the inner walls thereof into the outlet passage-ways at the other end thereof, such openings through the ceiling successively approaching the inner side walls and those in the inner side walls successively located in a lower plane, the combination of steam-coils comprising headers located at the end of the drying-kiln having openings through the inner side walls to the outlet passage-ways, an upper and a lower series of header-pipes of varying lengths extending outward and upward from the headers, respectively, and connecting spring-pipes joining the header-pipes of the upper series with header-pipes of the lower series such joined header-pipes being in different vertical planes; substantially as described.

3. In a steam heating-coil for a drying-kiln, the combination of steam-headers, a series of header-pipes extending upward and outward from each of such headers, and connecting spring-pipes joining the header-pipes of the upper series with corresponding pipes of the lower series, the radiating-surface of the several pipes of such steam heating-coil being less at the joined ends of the header-pipes thereof than at the header ends of such header-pipes; substantially as described.

4. In a steam heating-coil for a drying-kiln, the combination of horizontally-extending headers placed in different planes, a series of header-pipes extending upward and outward from each of such headers and connecting spring-pipes joining the header-pipes in the upper series to the header-pipes in the lower series, means for equalizing the force required to send the steam from one header through connecting spring-pipes to the other header, and means for successively diminishing the radiating-surface of the several pipes of the steam-coil as the distance thereof from the headers increases; substantially as described.

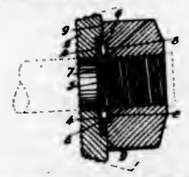
5. In a drying-kiln provided with alternate inlet and outlet passage-ways through the roof thereof communicating with horizontal passage-ways above the ceiling and provided with vertical passage-ways on the sides of the drying-room of the kiln communicating with such horizontal passage-ways, a ceiling, a floor and inner side walls, and a steam-coil supported above the floor, such drying-room provided with communicating openings therefrom to the outlet passage-ways above the steam-coil, such openings extending through the inner side walls at one end of the drying-room and through the ceiling at the other end thereof, and with communicating openings therefrom below the steam-coil to the inlet passage-ways; substantially as described.

6. In a drying-kiln having inlet and outlet passage-ways through the roof thereof, with openings through the ceiling into the outlet passage-ways at one end of the drying-kiln and through the inner walls thereof into the outlet passage-ways at the other end thereof, such openings in the ceiling successively approaching the inner side walls and those in the inner side walls successively located in a lower plane, the combination of inner and outer walls, a floor, a false floor extending to underneath the heating-coils of the drying-kiln, a ceiling and a roof, such roof having openings therethrough and such drying-kiln having passage-ways from the openings in the roof to underneath the heating-coils, between the ceiling and the roof, the inner and outer walls and the floor and false floor thereover; substantially as described.

7. In a drying-kiln, the combination of vertical studding, inner and outer walls secured to such studding rafters adjacent to the studding, a ceiling and a roof secured to the rafters, whereby a series of communicating vertical and horizontal passage-ways are obtained, such roof having openings therethrough, a steam heating-coil above the floor of the drying-room of the kiln, such drying-room provided with communicating openings therefrom to alternate passage-ways, such openings located above the plane of the steam heating-coil, and such drying-room provided with additional openings located below the plane of the steam heating-coil communicating with the remaining passage-ways; whereby alternate outlet and inlet passage-ways are obtained through the roof of the drying-kiln; substantially as described.

8. In a drying-kiln, the combination of vertical studding, inner and outer walls secured to such studding rafters adjacent to the studding, a ceiling and a roof secured to the rafters, whereby a series of communicating vertical and horizontal passage-ways are obtained, such roof having openings therethrough, with means for establishing communication between the drying-room of the kiln and the passage-ways communicating with alternate openings through the roof, whereby alternate outlet passage-ways are obtained through the openings in the roof, and with means for establishing communication between the drying-room and the remaining passage-ways from a lower plane of the drying-room, whereby alternate inlet passage-ways are obtained through the openings in the roof; substantially as described.

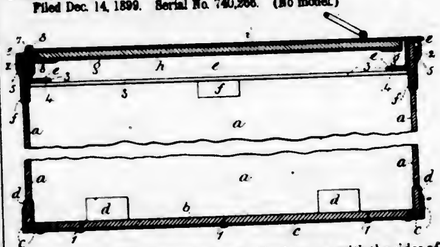
645,754. NUT-LOCK. FRED W. MCFARLAND, St. Louis, Mo., assignor of one-half to George M. Blair, same place. Filed Apr. 17, 1899. Serial No. 713,373. (No model.)



Claim.—1. In combination with a fish-plate having a rectangular depression formed in the outer surface of the same, and around the opening formed therein, a thin locking-washer adapted to be received by said depression substantially flush with the outer surface of said fish-plate, radially-arranged yielding tongues forming a part of said washer, and projecting in an inclined direction from one side of the same, the inner edges of said tongues forming an opening corresponding in size to the opening in the fish-plate, through which openings the ordinary bolt is adapted to be passed, a nut adapted to entirely cover the washer, the inner flat surface of which is provided with radially-arranged ratchet-shaped depressions, adjacent to, and surrounding the screw-threaded opening formed therein, with which depressions, the said tongues are adapted to coöperate, the said tongues and depressions differing in number, said yielding tongues adapted to be bent against the washer of which they form a part, by one of the walls forming said depressions when the same are brought in contact with the free ends of said tongues, when it is desired to remove the nut, substantially as described.

2. A nut-lock, comprising a thin locking-washer, radially-arranged yielding tongues forming a part of the latter, and projecting in an inclined direction from one side of the same, the inner edges of said tongues forming an opening through which the ordinary bolt is adapted to be passed, a nut adapted to coöperate with said washer, the inner flat surface of which is provided with radially-arranged ratchet-shaped depressions, adjacent to, and surrounding the screw-threaded opening formed therein, with which depressions the said tongues are adapted to coöperate, the said tongues and depressions differing in number, said yielding tongues adapted to be bent against the washer of which they form a part by one of the walls forming said depressions, when the same is brought in contact with the free ends of said tongues, when it is desired to remove the nut, and means for holding said washer, substantially as described.

645,755. SHIPPING-CASE. JAMES H. PRESTER, New York, N. Y. Filed Dec. 14, 1899. Serial No. 740,266. (No model.)



Claim.—1. The combination in a shipping-case with the sides of binders' board or similar material folded to shape, of the bottom, the metal edge frame secured to the end surface thereof and receiving the lower edges of the sides and extending outside of the said lower edges, and the tang-plates passing through the sides and beneath the metal of the said edge frame and soldered thereto, substantially as set forth.

2. In a shipping-case, the combination with the sides of binders' board or similar material folded to shape and a bottom secured at the lower edges of the sides, of a top frame formed of metal strips overhanging the upper edges of the sides and lapping at the corners and soldered together at the lapping corners, and means for connecting the same to the upper portion of the sides, substantially as set forth.

3. In a shipping-case, the combination with the sides of binders' board or similar material folded to shape, and a bottom and means for connecting the same to the lower edges of the sides, of the sheet-metal strips folded to straddle and overhanging the upper edges of the sides and of L shape within the top of the shipping-case with a folded edge on the outside at 2 and on the inside at 3, and with the respective corners of the frames lapping and soldered together and tang-plates formed of metal strips passing through the sides with the ends bent upwardly and passing beneath the inner and outer portions of the folded metal strip and soldered at 5 to the outer part of the said strips, and a cover secured to and folding down upon the upper edge of the said frame of strips, substantially as set forth.

4. The combination in a shipping-case with the sides of binders' board or similar material folded to shape, the bottom and the metal edge frame connecting the same to the sides and the frame extending over and connected to the upper edges of the sides, of a cover formed of a foundation of binders' board or similar material, a frame formed of U-strips inclosing the edges of the said foundation and lapping and soldered at the corners and a surface metal strip on the outside of the said foundation and means for connecting the same to the frame at the top edges of the shipping-case, substantially as set forth.

5. The combination in a shipping-case with the sides of binders' board or similar material folded to shape, a bottom and a metal edge frame for connecting the same at the lower edges of the sides, and a cover formed of a foundation-piece and a U-shaped metal frame surrounding the edges of the foundation-strip and lapping and soldered at the corners and a surface strip of metal above the same, of a frame at the upper edges of the sides and to which the cover is connected, said frame being formed of metal strips folded to straddle and overhang the top edges of the sides and with a flange at right

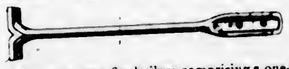
angles to the surface strip on the inside with folded edges outside at 2 and inside at 3, and the corners lapping and soldered together and tang-plates formed of strips of metal passing through the sides below the said frame with the ends bent upward and passing beneath the metal portions of the said frame and soldered thereto, substantially as set forth.

645,756. GARTER-FASTENER. EDWARD W. PUHLMANN, St. Louis, Mo., assignor of one-third to Eberhard Anheuser, same place. Filed Jan. 15, 1900. Serial No. 1,505. (No model.)



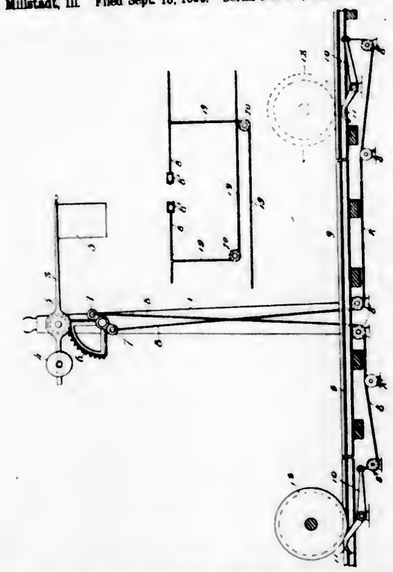
Claim.—A band, comprising a strip of elastic or other suitable material, a loop secured to one end of the same, and a fastener adjustably located upon said elastic and adapted to receive the free end of the elastic, after the same has been passed through the said loop, and folded back upon the remaining portion of the elastic, said fastener consisting of a single piece of metal having a flat medial portion, the opposite ends of which are bent toward one another, leaving a suitable space for the two thicknesses of the strip, but separated therefrom, forming a suitable space for the insertion of the said strip within the fastener, the terminal ends of said fastener, being bent in the opposite direction, and substantially parallel with the medial portion of the same, and the said opposite ends of the fastener being inclined toward said medial portion, as and for the purpose described.

645,757. BOILER-BRACE. FRANK R. SARTOR, Indianapolis, Ind. Filed Dec. 4, 1899. Serial No. 739,100. (No model.)



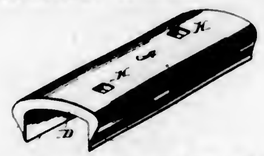
Claim.—A brace or stay for boilers comprising a one-piece body portion having double-convex sides forming sharp edges to afford a minimum surface for sediment to gather, a head formed by splitting one end of the body and spreading the split ends, the corners formed by the bends being thickened as shown, and a foot having a surface next to the boiler sides curved to conform to the curvature of the boiler and having marginal ribs, substantially as described and shown.

645,758. AUTOMATIC RAILROAD-SIGNAL. PHILLIP L. SEIB, Millstadt, Ill. Filed Sept. 15, 1899. Serial No. 730,653. (No model.)



Claim.—An automatic railroad-signal, comprising a suitable post, a flagstaff movably secured to the same, and carrying a suitable flag, a weight adjustably secured to one end of said staff, a pinion secured to the staff about its pivotal connection, a segmental gear also movably secured to said post below the pinion, and adapted to cooperate with the latter, legs forming a part of said segmental gear, levers secured adjacent to one of the track-rails at a suitable distance from the crossing, and adapted to be actuated by the wheels of the train, ropes, one end of which are attached to said levers having their opposite ends attached to the legs forming a part of the segmental gear, rollers over which the said ropes pass, a second set of levers movably secured adjacent to the opposite rail, at a suitable distance from the crossing, spindles upon which the levers are mounted, springs encircling said spindles, and bearing against the sides of said levers, said last-named levers having inclined faces with which the flanges of the wheels of the train cooperate, when moving in one direction, ropes, one end of which are attached to one end of the said levers, and having their opposite ends attached to the first-named ropes at a suitable distance along their length, and rollers over which the said ropes pass, as and for the purpose described.

645,759. RAILROAD-TIE PLATE. EDGAR M. SMITH, Boston, Mass. Filed June 23, 1899. Serial No. 721,590. (No model.)



Claim.—1. A tie-plate having arched upper and lower surfaces and edged side flanges having vertical inner sides and inclined outer sides.

2. A tie-plate having an arched upper and a lower surface and depending edged side flanges having vertical inner sides and reversely-curved outer sides.

3. A tie-plate having edged side flanges, an arched upper and a lower surface, the upper and lower surfaces rising near the outer end to form shoulders, the upper shoulder to retain the rail and the lower shoulder to bear against and lengthwise of the tie.

4. A tie-plate having an arched upper and a lower surface, depending edged side flanges, and a transverse row of longitudinal teeth at its outer end to enter the tie.

645,760. COMBINED REAMER AND DRILL. NAPOLEON B. SPENCER, Cincinnati, Ohio. Filed Nov. 20, 1899. Serial No. 737,610. (No model.)



Claim.—1. In a combined reamer and drill the combination of a cutter-head, a spindle attached thereto, a series of radial wings, a slot in each wing having a tapered seat, a cutter-blade in each slot, a recess in the side face of each blade parallel with the tapered seat, a holding device supported laterally by each wing engaging in said blade-recess, and means mounted on the spindle for adjusting the position of the cutter-blades, substantially as specified.

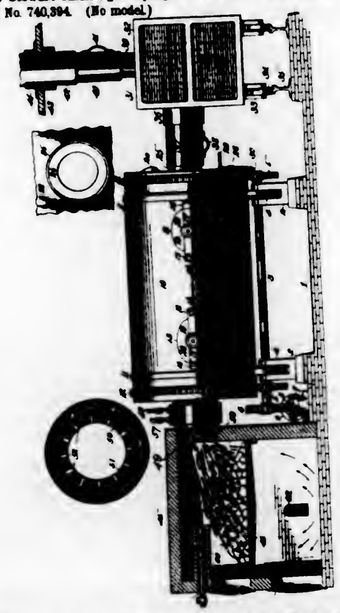
2. In combination with the double-threaded spindle A, provided with the adjusting-threads and a second series of threads with the cutter-head B having the radial slotted wings and a bore having a threaded engagement with the end of the spindle, a center-bit secured in said bore and the cutters C located in said wings and having an inner projection adjacent to the cutter-bit and the adjusting-nut engaging with said spindle and cutters, substantially as described.

3. In combination with the cutter-head of a combined reamer and drill, having a series of slotted radial wings, taper-seats at the base of said slots, a series of cutters provided with an inward projection forward of the bore of the cutter-head and a center-bit supported in the bore of said cutter-head adjacent to the inner face of the cutter, substantially as herein specified.

4. In a combined reamer and drill the combination of a cutter-head having a screw-threaded central bore, a series of radial wings on the cutter-head each having a radial slot, tapered seats in said slots, a cutter-blade in each slot, a spindle having a reduced screw-threaded end engaging the said bore, the adjacent larger spindle portion being also screw-threaded and having an adjusting-nut thereon, the end of the said larger spindle portion forming a shoulder abutting the inner end of the cutter-head, a recess in the face of each cutter-blade parallel to the taper of the seat, and means projected laterally from each radial wing engaging into said recesses, substantially as and for the purposes specified.

5. In a combined reamer and drill, the combination of a cutter-head having a spindle, a series of radial slots in said cutter-head, each having a tapered seat, a cutter-blade in each slot engaging the seat, a recess in the side of each blade parallel with the tapered seat, a screw passing through the cutter-head into the side of said slot and engaging the recess in the face of the blade seated in said slot, and means mounted on the spindle for adjusting the position of the cutter-blades, substantially as described.

645,761. APPARATUS FOR OXIDIZING OR ROASTING REFRACTORY ORES. ROBERT A. STEWART, Kansas City, Mo., assignor to the Stewart Oxidizing Company, of Colorado. Filed Dec. 15, 1898. Serial No. 740,394. (No model.)



Claim.—1. An apparatus of the character described, comprising a rotary ore-retaining cylinder having a neck-passage, and an exit-opening of smaller diameter than said neck-passage, a furnace communicating with said neck-passage, a steam-pipe for discharging steam through the furnace and said neck-passage into said cylinder, and means for discharging steam and air into said neck-passage at an angle to the first-named steam-pipe, substantially as described.

2. An apparatus of the character described, comprising a rotary ore-retaining cylinder having a neck-passage, and an exit-opening of smaller diameter than said neck-passage, a furnace communicating with said neck-passage, a steam-pipe for discharging steam through the furnace and said neck-passage into said cylinder, a chamber encircling and adapted to discharge steam and air under pressure into said neck-passage, and valves for regulating and controlling the supply of steam and air to said chamber, substantially as described.

3. An apparatus of the character described, comprising a rotary ore-retaining cylinder having a neck-passage communicating with its front end, and an exit-opening of smaller diameter than said neck-passage, a furnace communicating with said neck-passage, a steam-pipe for discharging steam through the furnace and said neck-passage into said cylinder, means for discharging steam and air into said neck-passage at an angle to the first-named steam-pipe, and an air-blast arranged to discharge into the furnace, substantially as and for the purpose described.

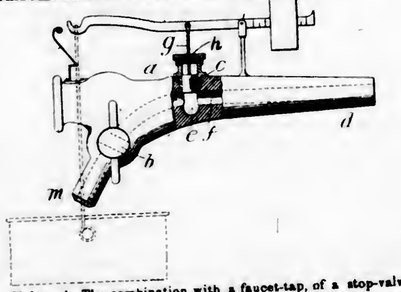
4. In an apparatus of the character described, a rotary ore-retaining cylinder having a neck-passage and an exit-opening, a furnace communicating with said neck-passage, means for discharging steam and air into the furnace, a door closing the rear end of the cylinder, and provided with an exit-opening, a stack connected to said exit-opening, and means for disconnecting said stack from said exit-opening in order that the door may be opened, substantially as and for the purpose set forth.

5. In an apparatus of the character described, a rotary ore-retaining cylinder having a neck-passage and an exit-opening, a furnace communicating with said neck-passage, means for discharging steam and air into the furnace, a door closing the rear end of the cylinder, and provided with an exit-opening, a movable stack, and a sliding sleeve carried by said stack and connecting the same with said exit-opening, substantially as described.

6. In an apparatus of the character described, a rotary ore-retaining cylinder having a neck-passage and an exit-opening, a furnace communicating with said neck-passage, means for discharging steam and air into the furnace, a door closing the rear end of the cylinder, and provided with an exit-opening and a surrounding neck, a stack comprising a vertical stationary portion and a movable portion, a pipe telescopically connecting the movable portion to the stationary portion and a pipe telescopically connecting the movable portion and said exit-opening neck, substantially as described.

7. In an apparatus of the character described, a rotary ore-retaining cylinder having a neck-passage, a furnace communicating with said neck-passage, means for discharging steam and air into the neck-passage, a door closing the rear end of the cylinder and provided with an exit-opening and a surrounding neck, a stationary track, and a stack consisting of a movable portion provided with wheels resting upon the said track and a stationary portion, the movable portion having pipes telescopically connected to the stationary portion and to the neck of the exit-opening, substantially as and for the purpose set forth.

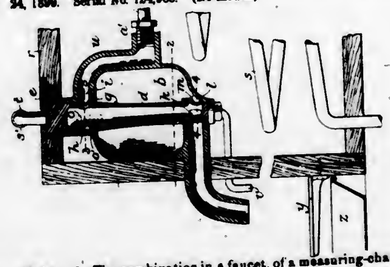
645,762. MEASURING-FAUCET. AUGUST SUNDE, Yonkers, N. Y. Filed June 24, 1899. Serial No. 721,749. (No model.)



Claim.—1. The combination with a faucet-tap, of a stop-valve and a counterpoised lever for operating said valve, said lever pivoted on a standard supported on the tap back of the valve and extending along over the tap suitably for holding the vessel under the nozzle for receiving the draft, and connected to the valve for automatically closing it by the weight of the predetermined quantity of the draft.

2. The combination with a faucet-tap, of a stop-valve, a counterpoised lever for operating said valve, said lever pivoted on a standard supported on the tap back of the valve and extending along over the tap suitably for holding the vessel under the nozzle for receiving the draft, and for automatically closing it by the weight of the predetermined quantity of the draft, and also for opening said valve, and the spring-catch on the front end of the tap for engaging the lever to hold the valve closed.

645,768. FAUCET. AUGUST SUNDE, Yonkers, N. Y. Filed July 24, 1899. Serial No. 724,963. (No model.)



Claim.—1. The combination in a faucet, of a measuring-chamber formed in an enlarged portion intermediate of the tap and the nozzle, and the tubular valve for controlling the drafts, said valve located within the chamber and having one set of induction and eduction

ports which when the valve is set in one position draw unmeasured quantities and another set of ports which when the valve is set in another position draw measured quantities.

2. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve, seated in the ends of the chamber respectively, said valve having ports for drawing directly through it independently of the measuring-chamber, and other ports for drawing through said chamber, said chamber having a suitable vent and said valve also having a vent.

3. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve seated in the upper and lower ends of the chambers respectively and controlling drafts through the chamber, a vent at the top of the chamber for filling and emptying, and a waste-pipe connected therewith and having its discharge end visible to the operator.

4. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve seated in the upper and lower ends of the chamber respectively and controlling drafts through the chamber, a vent at the top of the chamber for filling and emptying, and a waste-pipe connected therewith and having its discharge end located in proximity to the nozzle.

5. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve seated in the upper and lower ends of the chamber respectively and controlling drafts through the chamber and also independently of the chamber, a vent at the top of the chamber for filling and emptying, and a vent for the valve when emptying.

6. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow rotating plug-valve seated in the top of the chamber and also seated in the bottom of the chamber, and having two independent receiving-ports in its upper end, for respectively drawing directly through it and also drawing into the chamber, and also having at the lower end a port for drawing into the chamber, two ports for discharging from the chamber and another port discharging directly from the valve, said chamber and valve having suitable vents.

7. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve seated in the upper and lower ends of the chamber respectively, and controlling drafts through the chamber, and the vent-tube inserted in the valve through the lower end and communicating with the top of the chamber.

8. The combination in a faucet, of a measuring-chamber intermediate of the nozzle and the tap, a hollow valve seated in the ends of the chamber respectively, and controlling drafts through said chamber, and the vent-port in the upper valve-seat located so that when the valve is set emptying the chamber, it communicates with the inlet valve-port by which the chamber is filled, to vent the valve.

9. In a measuring-faucet having a measuring-chamber receiving the liquid at the top and discharging it at the bottom, the tap-stem for connection with the keg located below the top of the chamber with a passage extending upward therefrom to the inlet-port of the top of the chamber.

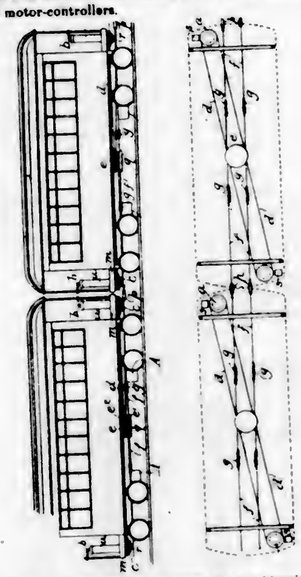
645,764. TRAIN-CONTROLLING APPARATUS FOR ELECTRIC CARS. AUGUST SUNDH, Yonkers, N. Y. Filed Aug. 17, 1899. Serial No. 727,531. (No model.)

Claim.—1. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car, and the motor-controller shafts of the respective cars connected with the train-rope pulleys thereof for actuating the train-ropes from any one of the controllers and thereby actuating the other controllers.

2. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car, said pulleys located in the centers of the horizontal planes of the cars respectively, and the motor-controller shafts of the respective cars connected with the train-rope pulleys thereof to operate the train-ropes from any one of the controllers and thereby actuate the other controllers.

3. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car, said pulleys located in the centers of the horizontal planes of the cars respectively, and the motor-controller shafts of the respective cars connected by ropes and pulleys with the train-rope pulleys thereof, to operate said train-rope pulleys from either one of the motor-controllers of a car and thereby operate the several motor-controllers, the two controllers of each car and the train-rope pulleys being connected by an endless rope coiled on the train-rope pulleys intermediately of the controller-pulleys.

4. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car under the car-bodies, said pulleys located in the centers of the horizontal planes of the cars respectively, and the motor-controller shafts of the respective cars extended through the platforms and connected by ropes and pulleys with the train-rope pulleys, to operate said train-rope pulleys from either one of the motor-controllers of a car and thereby operate the several motor-controllers.



5. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car, the motor-controller shafts of the respective cars connected with the train-rope pulleys thereof, for actuating the train-ropes from any one of the controllers and thereby actuating the other controllers, and an auxiliary motor to one or more controllers and geared therewith, to reinforce the power of the motorman for actuating the controlling apparatus.

6. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car, said pulleys located in the centers of the horizontal planes of the cars respectively, and said ropes having elastic coupling-joints, and the motor-controller shafts of the respective cars connected with the train-rope pulleys thereof, to operate the train-ropes from any one of the controllers and thereby actuate the other controllers.

7. In an electric-car-train system, the combination of train-ropes and pulleys connected from car to car by extensible and contractile couplings, said pulleys located in the centers of the horizontal planes of the cars respectively, and said ropes having elastic coupling-joints, and the motor-controller shafts of the respective cars connected with the train-rope pulleys thereof, to operate the train-ropes from any one of the controllers and thereby operate the other controllers.

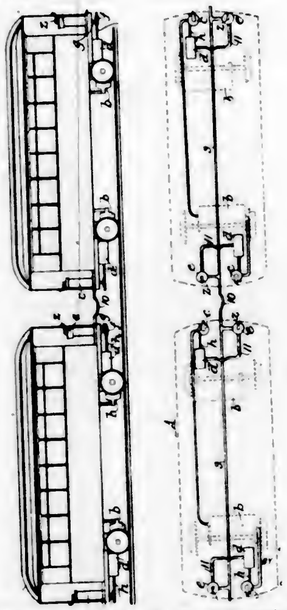
645,765. CONTROLLING APPARATUS FOR ELECTRIC CARS. AUGUST SUNDH, Yonkers, N. Y. Filed Aug. 26, 1899. Serial No. 728,548. (No model.)

Claim.—1. In an electric car, the combination with an electric motor and its barrel-switch controller, of a solenoid-motor mechanically geared with the barrel-switch for actuating it step by step in both forward and backward movements, and a governing-switch for the solenoid.

2. In an electric car, the combination with an electric motor and its barrel-switch controller, of a solenoid-motor mechanically geared with the barrel-switch for actuating it step by step in both forward and backward movements, a governing-switch for the solenoid, a magnet for actuating the controller-reversing switch, and a switch for controlling said magnet, said switch located in proximity to the governing-switch for the solenoid.

3. In an electric car, the combination with an electric motor and its barrel-switch controller, of a solenoid for actuating the barrel-switch, the core of said solenoid geared with the motor-controller shaft by a rack and pinion and adapted for operating the barrel-switch both forward and backward, a governing-switch for the solenoid, a magnet for actuating the reversing-switch of the motor-controller, and a switch in proximity to the solenoid-governing switch for controlling the reversing-switch magnet.

4. In an electric-motor-controlling system for electric cars, the combination with the motor and its barrel-switch controller, of a solenoid-motor for actuating the controller, said motor having a plurality of coils and being mechanically geared with the controller, and a governing-switch for the solenoid-motor having a plurality of contacts adapted for intermittently operating the solenoid-motor step by step in either direction.



5. The combination of a plurality of cars in a train, a plurality of electric motors and barrel-switch controllers for said motors, a plurality of solenoid-motors having a plurality of coils and mechanically geared with the barrel-switches for operating them, and a plurality of governing-switches having a plurality of contacts adapted for intermittently operating the solenoid-motors step by step in either direction, the wire systems of the several cars being coupled from car to car.

6. In an electric car, the combination with the motor and its controller, of a governing-switch, and mechanism controlled by the governing-switch and geared with the controller for actuating it, said mechanism detachably geared with the barrel-switch of the controller, to release the barrel for operating it by hand.

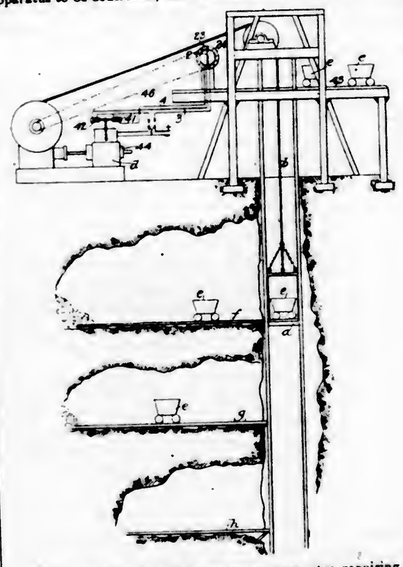
7. In an electric car, the combination with the motor and its controller, of the solenoid-motor and the governing-switch for operating the controller, said solenoid-motor geared with the controller-shaft, and said shaft detachably geared with the barrel, to release the barrel for operating it by hand.

8. In an electric car, the combination with the motor and its barrel-switch controller, of the solenoid-motor and governing-switch for operating the controller, said motor mechanically geared with the controller-shaft, and means for effecting retraction of the solenoid-core to the off position wherein the current is interrupted.

9. In an electric car, the combination with the motor and its barrel-switch controller, of the solenoid-motor and governing-switch for operating the controller, said motor mechanically geared with the controller-shaft, and a spring for affecting retraction of the solenoid-core to the off position when the current is interrupted.

645,766. CONTROLLING DEVICE FOR MECHANICAL APPARATUS. AUGUST SUNDH, Yonkers, N. Y. Filed Sept. 9, 1899. Serial No. 730,004. (No model.)

Claim.—1. The combination of a machine or apparatus requiring to be controlled, with an electric circuit; a circuit closer and breaker composed of two movable terminals, one manually adjustable for the purpose of moving it against and along the surface of the other to a predetermined setting-point and thereby more or less prolonging the duration of the closure of the circuit; means for mechanically operating the other terminal by motion derived from the machine or apparatus caused to be started by the current flowing through the closed circuit, and thereby effecting the automatic breaking of the circuit concurrently with the completion, by the mechanically-moved terminal, of a range of movement corresponding in length to the length of the range of previous movement of the manually-adjusted terminal but proportioned in time to the relative speeds of the machine or apparatus to be controlled, and the mechanically-operated terminal.



2. The combination of a machine or apparatus requiring to be controlled, with an electric circuit; a circuit closer and breaker composed of two movable terminals, one manually adjustable for the purpose of moving it against and along the surface of the other to a predetermined setting-point and thereby more or less prolonging the duration of the closure of the circuit; means for mechanically operating the other terminal by motion derived from the machine or apparatus caused to be started by the current flowing through the closed circuit; means for effecting the automatic breaking of the circuit concurrently with the completion, by the mechanically-moved terminal, of a range of movement corresponding to the range of previous movement of the manually-adjusted terminal; an indicating-scale for gaging the relative movements of the apparatus to be controlled and the terminal operated therefrom, and a pointer carried by said manually-adjustable terminal, said pointer having a path of movement in appropriate proximity to said scale.

3. In an electric controlling device, in combination with a machine or apparatus to be controlled, a main electric circuit; a rotatable face-plate; mechanical gearing for transmitting from said machine or apparatus motion to rotate said face-plate; two branch circuits with suitably-curved terminals carried on said face-plate; a manually-adjustable contact-stud for more or less prolonged contact with either of said curved terminals after having been manually rotated in either direction to and lodged in a predetermined setting-point on the face-plate for closing either one of said branch circuits according to the direction of its rotating movement and for maintaining such closure during the ensuing rotation of said face-plate, and means for automatically breaking such closed circuit concurrently with the completion by the face-plate of a range of rotative movement corresponding in length to the length of the range of the previous adjusting movement of said contact-stud but proportioned in time to the relative speeds of the machine or apparatus to be controlled, and the face-plate geared thereto.

4. In an electric controlling device, in combination with the machine or apparatus to be controlled, a main electric circuit; a rotatable face-plate geared to said machine or apparatus for being rotated by motion derived therefrom; two branch circuits having spirally-curved terminals carried on said face-plate; a contact-stud for engaging either of said terminals and thereby closing either of said branch circuits; a lever for carrying said contact-stud, the said lever rotatable in a plane parallel with the plane of said face-plate and vibratable in a plane perpendicular to the plane of said face-plate; a steady-pin on said lever for bearing upon the surface of said face-plate and thereby maintaining said contact-stud in engagement with either of said spirally-curved terminals during the period while said face-plate is

required to be mechanically rotated; a suitably-arranged recess or cavity, in the surface of said face-plate and a spring for pressing toward the face-plate the end of said lever to which said steady-pin is attached, whereby when said face-plate has completed a rotative movement corresponding to the rotative movement previously imparted to the manually-adjusted contact-stud said steady-pin will be forced into said recess by said spring and the contact-stud thereby tripped out of engagement with the terminal of the previously-closed branch circuit.

5. In an electric controlling device, in combination with a machine or apparatus to be controlled, a main electric circuit; a rotatable face-plate gearing for transmitting from said machine or apparatus motion to rotate said face-plate; two branch circuits electrically connected respectively with two spirally-curved and suitably-insulated metallic troughs carried on said face-plate; a manually-adjustable contact-stud electrically connected with the main supply-circuit for engaging either of said troughs and thereby closing either of said branch circuits; an endwise-yielding lever for carrying said contact-stud, the said lever rotatable in a plane parallel with the plane of said face-plate and vibratable in a plane perpendicular to the plane of said face-plate; means for maintaining said contact-stud in position to be engaged by either of said spirally-curved troughs during a predetermined range of movement of said mechanically-rotated face-plate, and means for tripping said stud out of such engagement concurrently with the completion by said face-plate of a range of rotative movement corresponding to the range of previous rotative movement of the manually-adjustable contact-stud.

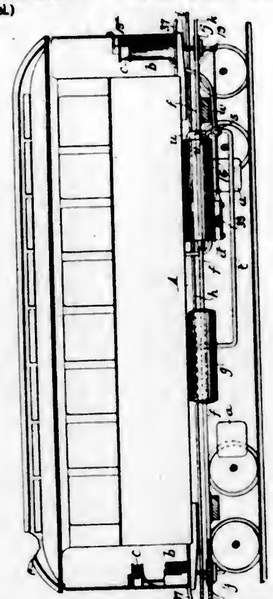
6. In an electric controlling device, in combination with a machine or apparatus to be controlled, a main electric circuit; a rotatable face-plate, gearing for transmitting from said machine or apparatus, motion to rotate said face-plate; two branch circuits electrically connected respectively with two suitably curved and insulated terminals carried on said face-plate; a manually-adjustable contact-stud electrically connected with the main supply-circuit for more or less prolonged engagement by either of said terminals; a lever for carrying said contact-stud, the said lever rotatable in a plane parallel with the plane of rotation of said face-plate and vibratable in a plane perpendicular to the plane of said face-plate; a manually-operative radius-arm rotative upon an axis coincident with the axis of rotation of said face-plate for controlling the rotative movement of said contact-stud-carrying lever, and means, such as latching devices, for holding said radius-arm stationary at prescribed points.

7. In an electric controlling device, the combination with the machine or apparatus to be controlled, a main electric circuit, a rotating face-plate geared with said machine to be actuated thereby; a branch circuit electrically connected with a spiral contact-trough carried on the face-plate; a contact-stud for engaging said trough; an endwise-reciprocable lever, for carrying said stud, pivotally and lengthwise movably mounted on an axial shaft of said face-plate, so that the contact-stud may be shifted around the face-plate and be set in a predetermined position and the trough may traverse the stud; a steady-pin on said lever bearing on the surface of the face-plate to maintain contact of said trough and stud; a recess in said face-plate for admitting said steady-pin and thereby breaking said contact according to a predetermined adjustment; a radius-arm loosely mounted on an axial shaft of the face-plate for controlling the lever; a latch for holding said radius-arm stationary and springs for longitudinally centralizing said endwise-reciprocable lever.

8. In apparatus for manually causing the starting of intermittently-working machines and concurrently prearranging for the greater or less duration of the ensuing working period and the automatic stopping of the machine at the expiration of the predetermined period; a manually-rotatable circuit-closer electrically connected with a main supply-circuit; a plurality of branch circuits provided with suitably-insulated terminals consisting of independent spiral metallic troughs carried upon a disk or face-plate rotatable in a plane parallel to the plane of rotation of said circuit-closer; means for transmitting, from said machine, motion to rotate said disk or face-plate in the same direction as that in which the said circuit-closer has been previously rotated, and means for effecting the breaking of the circuit concurrently with the completion, by the mechanically-moved terminal, of a range of movement corresponding to the range of previous movement of the said manually-operative circuit-closer.

9. Apparatus for manually effecting the starting, in either direction, of intermittently-working machines and concurrently prearranging for the greater or less duration of the ensuing working period and the automatic stopping of the machine at the expiration of the prearranged period, said apparatus consisting essentially of a manually-rotatable circuit-closer electrically connected with a main supply-circuit and two self-breaking branch circuits provided with rotatable terminals adapted for more or less prolonged engagement with said circuit-closer according to the prearranged duration of said working period; in combination with electrical and mechanical connections for effecting the starting into motion of said intermittently-working machine and mechanical gearing for transmitting motion from said machine to effect the rotating movement of said terminals in one direction or the other according to the direction of movement of said machine.

645,767. CONTROLLER FOR ELECTRIC-RAILWAY CARS. August Sundh, Yonkers, N. Y. Filed Sept. 26, 1898. Serial No. 731,508. (No model.)



Claim.—1. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch, means for controlling said actuator consisting of electromagnetic valve-opening mechanism and a governing-circuit closer therefor in the control of the motorman, and valve-closing mechanism, automatically actuated synchronously with the operation of the barrel-switch.

2. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch, consisting of a fluid-impelled reciprocating piston geared with the barrel-switch shaft, electromagnetic valve-opening mechanism and a governing-circuit closer therefor in the control of the motorman, and valve-closing mechanism automatically actuated synchronously with the operation of said barrel-switch.

3. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch consisting of a fluid-impelled reciprocating piston normally at rest intermediately of opposite ranges of movement for operating the barrel-switch reversely, and geared with the barrel-switch shaft, electromagnetic valve-opening mechanism, and a governing-circuit closer therefor in the control of the motorman and adapted for opening the valve to either side of said piston, and valve-closing mechanism automatically actuated synchronously with the operation of the barrel-switch.

4. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch consisting of a fluid-impelled reciprocating piston geared with the barrel-switch shaft, electromagnetic valve-opening mechanism and a governing-circuit closer therefor in the control of the motorman, and adapted to open the valve in several steps successively, and valve-opening mechanism automatically actuated synchronously with the operation of the barrel-switch and to close the valve after each opening step.

5. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch consisting of a fluid-impelled reciprocating piston, geared with the barrel-switch shaft, and normally at rest intermediately of opposite ranges of movement for operating the barrel-switch reversely, electromagnetic valve-opening mechanism and a governing-circuit closer therefor in the control of the motorman, valve-closing mechanism automatically actuated synchronously with the operation of the barrel-switch and springs to return the piston to the normal position.

6. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for the said switch, means for controlling said actuator consisting of a step-by-step vibratable electromagnetic motor, and a manually-operated governing-circuit closer therefor, and valve-closing mechanism automatically actuated synchronously with the step-by-step operations of the barrel-switch.

7. The combination in a step-by-step vibratable electromagnetic motor, of a pair of rotatory intermeshing toothed gears, a series of radially-disposed electromagnets on each gear so placed that the respective magnets of each gear meet successively in pairs in the line cutting the axes of the gears with their poles abutting in close proximity, a governing-switch closer and independent circuit-wires connecting the respective pairs of magnets and contacts for actuating the gears, said magnets wound for mutual attraction of the poles of the respective pairs of magnets.

8. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for said switch, a step-by-step vibratable electromagnetic valve-opening motor consisting of a pair of rotatory intermeshing toothed gears, a series of radially-disposed electromagnets on each gear so placed that the respective magnets of each gear meet successively in pairs in the line cutting the axes of the gears with their poles abutting in close proximity, a governing-switch closer and independent circuit-wires connecting the respective pairs of magnets and contacts for actuating the gears, said magnets wound for mutual attraction of the poles of the respective pairs of magnets.

9. In an electric car, the combination with the electric motor and barrel-switch, of a compressed-fluid actuator for said switch, a step-by-step vibratable electromagnetic valve-opening motor consisting of a pair of rotatory intermeshing toothed gears, a series of radially-disposed electromagnets on each gear so placed that the respective magnets of each gear meet successively in pairs in the line cutting the axes of the gears with their poles abutting in close proximity, a governing-switch closer and independent circuit-wires connecting the respective pairs of magnets and contacts for actuating the gears, said magnets wound for mutual attraction of the poles of the respective pairs of magnets, and valve-closing mechanism automatically actuated synchronously with the operation of the barrel-switch.

10. In an electric-car-train system, comprising a plurality of cars coupled together, the combination with the motor and barrel-switch, of a compressed-fluid actuator for the said switch, and electromagnetic valve-opening mechanism for the actuator, in each of the cars, a governing-switch closer in one or more of the cars, and circuit-wires connecting said closer or closers with the valve-opening mechanism in each car, and means in each car for automatically closing the valve.

11. In an electric-car-train system comprising a plurality of cars coupled together, the combination with the motor and barrel-switch, of a compressed-fluid actuator for the said barrel-switch and electromagnetic valve-opening mechanism for the actuator in each car, a governing-switch closer in one or more of the cars, circuit-wires connecting said closer or closers with the valve-opening mechanism and adapted to open the valve in several steps successively, and means in each car for automatically closing the valve in corresponding steps and successively to the opening steps respectively.

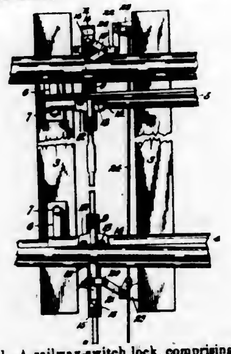
12. In an electric-car-train system comprising a plurality of cars coupled together, the combination with the motor and barrel-switch, of a compressed-fluid actuator for the said switch, and electromagnetic valve-opening mechanism for the actuator in each car, a governing-switch closer in one or more of the cars, circuit-wires connecting said closer or closers with the valve-opening mechanism and adapted to open the valve to either side of the piston for operating the controller reversely in several steps successively, and means in each car for automatically closing the valve successively to the opening steps respectively.

13. In an electric-car-train system comprising a plurality of cars coupled together, the combination with the motor and barrel-switch, of a compressed-fluid actuator for the said switch, a step-by-step vibratable electromagnetic valve-opening motor consisting of a pair of rotatory intermeshing toothed gears, a series of radially-disposed electromagnets on each gear so placed that the respective magnets of each gear meet successively in pairs in the line cutting the axes of the gears with their poles abutting in close proximity, in each car, a governing-switch closer in one or more of the cars, circuit-wires connecting said closer or closers with the valve-opening mechanism and adapted to open the valve to either side of the piston for operating the controller reversely, in several steps successively, and means in each car for automatically closing the valve successively to the opening steps respectively.

14. In an electric car, the combination with the motor and barrel-switch, of a compressed-fluid actuator for the said switch, a valve for controlling the said actuator, a series of magnets, and a governing switch or circuit closer for operating the magnets to open the valve, said magnets being respectively connected in separate circuits with the respective contacts of the governing-switch to be operated individually, and collectively connected with the valve for operating it successively.

15. The combination with the motor and motor-controller, of a compressed-fluid actuator for the controller, and an exhaust-pipe of the actuator provided with jet-orifices in relation to the motor-contacts for blowing out the arcs of the opening contacts by the exhaust-jets of the actuator.

645,768. AUXILIARY LOCK FOR RAILWAY-SWITCHES. Philip R. Walsh, Kansas City, Kans. Filed Sept. 9, 1899. Serial No. 729,929. (No model.)

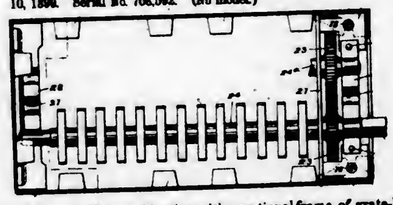


Claim.—1. A railway-switch lock, comprising a slide-bar underlying the track-rails and secured to the movable rails, a toggle-joint connecting said slide-bar with one of the stationary rails, and a similar toggle-joint connecting said slide-bar with the other stationary rail, one of said toggle-joints being expanded as the other is contracted, and means to contract or break the joint between the expanded toggle and to reëstablish the joint between or expand the companion toggle, substantially as described.

2. A railway-switch lock, comprising a bar underlying the track-rails, a pair of slide-bars connected to said first-named bar and bolted to the movable or switch rails, a toggle-joint connecting the outer ends of said slide-bars with the stationary track-rails, and means to contract or break the joint between the expanded toggle and to re-establish the joint between or expand the companion toggle, substantially as described.

3. A railway-switch lock, comprising a bar underlying the track-rails, a pair of slide-bars connected to said first-named bar and bolted to the movable or switch rails, a toggle-joint connecting the outer ends of said slide-bars with the stationary track-rails, a pair of bell-cranks suitably supported, links connecting said bell-cranks with the toggle-joints coincidently with the breaking-point of the latter, and a reciprocatory rod pivotally connecting said bell-cranks, substantially as described.

645,769. FIRE-BOX FOR STOVES, RANGES, &c. Henry J. Warren and Carl Nordell, Stamford, Conn., assignors to the Stamford Foundry Company, same place. Original application filed July 11, 1898, Serial No. 685,613. Divided and this application filed Mar. 10, 1899. Serial No. 708,592. (No model.)



Claim.—1. The combination with a sectional frame, of grate-bars suitably supported at the rear ends, and a removable hanger adapted to support the front end of the grate-bars and to space apart the side sections of the frame.

2. The combination with the frame having suitable side bars, a protective transverse bracket, and a removable hanger spacing apart the side bars of the frame, the protective bracket forming the front end of the frame, of the grate-bars suitably supported at their rear ends and with their front ends supported in the hanger, substantially as described.

3. The combination with the supporting-frame having suitable side bars, an upwardly-extending transverse bracket with inturned base-flanges to connect with and support the front ends of the side bars, a hanger connecting the base-flanges of the bracket and spacing apart the side bars of the frame, the said hanger and bracket forming the front end of the frame, and grate-bars suitably supported at one end and journaled in the hanger at the opposite end, substantially as described.

645,770. PROCESS OF MAKING PRESSED-WOOD CARVINGS. PAUL WEDEKIND, Görlitz, Germany, assignor, by mesne assignments, to the Willmer Wood Company, of New Jersey. Filed Sept. 23, 1897. Serial No. 652,792. (No specimens.)

Claim.—1. The process for making ornaments resembling wood-carving, which consists in impregnating the planks or blocks of wood with a solution of a tough cementitious matter such as glue, allowing them to dry, subjecting the surface to be stamped to the action of steam and immediately afterward pressing the same with great pressure between dies.

2. As a new article of manufacture, a pressed block of wood having its two outside surfaces formed with the fiber longitudinal and the interoal portion with the fiber transversely to the surface, the whole being thoroughly saturated with the cementitious matter such as glue.

3. The process for making ornaments resembling wood-carving, which consists in impregnating the entire body of the planks or blocks of wood with a boiling solution of a tough cementitious matter, such as glue, allowing them to dry, subjecting the surface to be stamped to the action of steam whereby the surface only is softened, and immediately afterward pressing the same with great pressure between dies.

4. The improvement in the process of making ornaments resembling wood-carving, which consists in forming the blocks of two layers of wood with the grain longitudinal, and a third layer of wood between cut across the grain, the whole being impregnated throughout with cementitious material and cemented together before the pressure is applied, substantially as described.

5. The improvement in the process of making ornaments resembling wood-carving which consists in impregnating the wood with a tough elastic material solid at ordinary temperatures, cooling, and then steaming the surface to be ornamented for a brief period (whereby the surface is softened while the body remains hard), and then immediately pressing between dies, substantially as described.

6. The improvement in the process of making ornaments resembling wood-carving from wood which consists in impregnating blocks of wood with glue, allowing them to dry, cool, and harden, then softening the glue in the surface to be ornamented and pressing the same while the glue near the immediate surface is still soft.

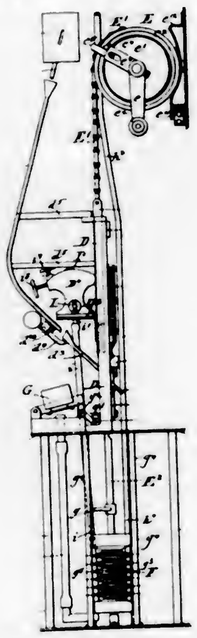
645,771. COIN-OPERATED TELESCOPE. OTTO WEISS, Jersey City, N. J. Filed June 6, 1899. Serial No. 719,523. (No model.)

Claim.—1. The combination of a telescope, a shutter mechanism in said telescope, a coin-operated latch mechanism, a crank mechanism for raising said latch mechanism, means for releasing the crank mechanism when the latch mechanism is raised, and means for pneumatically holding said shutter in open position during the return motion of the latch mechanism, substantially as set forth.

2. The combination of a telescope, a shutter mechanism in the same, a latch mechanism, a coin-chute for supplying a coin to said latch mechanism, a crank mechanism connected with said latch mechanism for raising the latter, means for releasing the crank mechanism when the latch mechanism is raised, a main bellows connected with the latch mechanism, and an auxiliary bellows connected with the main bellows and the shutter mechanism and adapted to hold the latter open during the return of the latch mechanism and main bellows to their normal positions, substantially as set forth.

3. The combination of a telescope, a shutter in the same, a latch mechanism, a coin-chute for supplying a coin to said latch mechanism, a crank mechanism for raising the latch mechanism, means for releasing the crank mechanism from the latch mechanism when the latter is raised so as to permit the return of the latch mechanism, and means for pneumatically holding the shutter in open position during the descent of the latch mechanism, substantially as set forth.

4. The combination of a telescope, a shutter in the same, a latch mechanism, a coin-chute for supplying a coin to said latch mechanism, a crank mechanism for raising the latch mechanism, means for releasing the crank mechanism when the latch mechanism is raised, a main bellows connected with the latch mechanism, an auxiliary bellows for operating the shutter, a pipe connecting the main bellows with the auxiliary bellows, and an air-escape valve for regulating the return motion of the latch mechanism and the main bellows and the period of time for which the shutter is held in open position, substantially as set forth.



5. The combination of a telescope, a shutter in the same, a coin-operated latch mechanism, a crank mechanism for raising the latch mechanism, means for releasing the crank mechanism from the latch mechanism when the latter is raised, means for pneumatically holding the shutter in open position during the return of the latch mechanism, and a valve mechanism for regulating the return motion of the latch mechanism and shutter-holding devices and the period of time for which the shutter is to be held in open position, substantially as set forth.

6. The combination of a telescope, a shutter in the same, a coin-operated latch mechanism, a crank mechanism for raising the latch mechanism, means for releasing said crank mechanism from the latch mechanism when the latter is raised, a main bellows connected with the latch mechanism, a valve operated by the latch mechanism so as to permit the expansion or collapse of the main bellows, an auxiliary bellows for operating the shutter, a pipe connecting the main bellows with the auxiliary bellows, and an air-escape valve for regulating the return motion of the main bellows, latch mechanism and shutter, substantially as set forth.

7. In a coin-operated telescope, the combination, with a latch mechanism composed of two independently-guided latch-plates having inclined coin-slots, and a latch having an angular coin-retaining arm, of a coin-chute composed of a drop-plate and an intermediate coin-tube, a coin-arresting device at the lower end of the intermediate coin-tube, a coin-tube on one of the latch-plates for receiving the coins from the intermediate coin-tube for delivery to the coin-slots, said coin-tube engaging the coin-arresting device, and an inclined deflecting-plate on the other latch-plate for delivering the coin after its release from the latch-plates, substantially as set forth.

8. In a coin-operated telescope, the combination, with a coin-chute, composed of a drop-plate and an intermediate coin-tube having a coin-arresting device at its lower end, of a latch mechanism composed of independently-guided latch-plates having inclined coin-slots and a latch having an angular coin-retaining arm, a coin-tube on the latch-plate adjacent to the intermediate coin-tube, and an inclined deflecting-plate on the other latch-plate and engaging the coin-arresting device at the end of said intermediate coin-tube, substantially as set forth.

9. In a coin-operated telescope, the combination, with a coin-chute composed of a drop-plate, an inclined coin-guide on the same, an intermediate coin-tube and a coin-arresting device at the lower end of said intermediate tube, of a latch mechanism, composed of independently-guided latch-plates having inclined coin-slots, a coin-tube on one of said latch-plates connecting the intermediate coin-tube with the coin-slots of the latch-plates, an inclined guide-plate on the other latch-plate and engaging the coin-arresting device at the end of the intermediate coin-tube, and a latch having a coin-retaining arm pivoted to said latch-plates sidewise of the deflecting guide-plate, substantially as set forth.

10. In a coin-operated telescope, the combination, with a coin-operated latch mechanism, of a crank mechanism, composed of a rotary crank-shaft, a fixed pulley on the same, a loose pulley sidewise of the fixed pulley, means for carrying along the loose pulley, a chain attached to said loose pulley and connected with the latch mechanism, and means for detaching the carrier mechanism of the pulleys so as to release them from each other and permit the return of the latch mechanism, substantially as set forth.

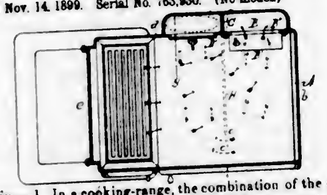
11. In a coin-operated telescope, the combination, with a coin-operated latch mechanism, of a crank mechanism consisting of a crank-shaft, a fixed pulley on the same, a spring-actuated and recessed finger guided on said pulley, a loose pulley adjacent to said fixed pulley, a laterally-projecting pin on said loose pulley adapted to be engaged by said finger, a chain attached to said pulley and connected with the latch mechanism, a stationary concave plate adapted to release the finger from the loose pulley so as to disconnect the same, and a spring-actuated cushioning device for the loose pulley, substantially as set forth.

12. In a coin-operated telescope, the combination, with a coin-operated latch mechanism, of a crank mechanism for operating the latch mechanism, consisting of a crank-shaft, a fixed pulley on the same provided with a guided and spring-actuated recessed finger, a loose pulley on said shaft sidewise of the fixed pulley, provided with a laterally-extending pin engaged by said finger, a chain connecting the loose pulley with the latch mechanism, and a stationary concave plate alongside of said pulleys and adapted to engage the finger and release it from the pin on the loose pulley when the crank-shaft is turned, substantially as set forth.

13. In a coin-operated telescope, the combination, with the crank mechanism, of a latch mechanism operated by the same, a chain connecting the crank mechanism with the latch mechanism, means for releasing the crank mechanism when the latch mechanism is raised, a main bellows, a rod connecting the latch mechanism with the main bellows, an air-tube connected with the lower part of the main bellows, a pivoted and weighted valve for opening or closing the upper end of said air-tube, and means actuated by the latch mechanism for opening or closing said valve and permitting the slow collapse of the main bellows, substantially as set forth.

14. In a coin-operated telescope, the combination, with the crank mechanism, of a latch mechanism, a chain connecting the crank mechanism with the latch mechanism, means for releasing the crank mechanism when the latch mechanism is raised, a main bellows, a rod connecting the latch mechanism with the main bellows, a telescope, a hinged shutter in said telescope, an auxiliary bellows connected with the frame of the shutter, a pipe connecting the main bellows with the auxiliary bellows, and a coin-carrying device for supplying the coin to the latch mechanism so as to produce the actuation of the bellows and holding open of the shutter in the telescope and the return of the shutter into closed position when the bellows are returned to their normally-collapsed position, substantially as set forth.

645,772. COOKING-RANGE. SAMUEL A. WILDE, Taunton, Mass. Filed Nov. 14, 1899. Serial No. 763,930. (No model.)



Claim.—1. In a cooking-range, the combination of the oven, the fire-box adjacent thereto, the sheet-flue extending from the fire-box over the top of the oven, the vertical downtake and uptake flues side by side at the rear of the range, provided with suitable dampers, the horizontal cross-flues beneath the oven communicating with each other at the front end and with the respective downtake and uptake flues at the rear ends, and the restricted flue A, at the side of the range opposite the fire-box, in communication with the top sheet-flue and horizontal flue E, but out of the main current, substantially as specified.

2. In a cooking-range, an oven surrounded by heating means on five sides thereof as follows: a fire-box at one side, a sheet-flue extending over the whole top, a flue-space at the rear divided by a vertical partition into two equal flues, one downtake and one uptake, each provided with a suitable damper, a flue-space at the bottom divided by a horizontal partition into two parallel flues communicating with each other at the front, and with the respective downtake and uptake flues at the rear, and a restricted flue-space covering the whole side of the oven opposite the fire-box, in communication with the top sheet-flue and with one bottom flue at the side thereof, substantially as specified.

645,778. VEHICLE-COVER. FREDERICK H. WOLFGANG, New York, N. Y. Filed Jan. 30, 1900. Serial No. 3,295. (No model.)



Claim.—1. A vehicle-cover, consisting of a front portion composed of longer middle sections and shorter side flaps, a rear portion, fastening devices for connecting the adjacent edges of the front and rear portions, and means for connecting the extended ends of the front portion with the dashboard of a vehicle, substantially as set forth.

2. A vehicle-cover, consisting of a front portion having side flaps and a dashboard-flap, a rear portion, fastening devices for connecting the upper edges of the front portion and side flaps with the upper edges and sides of the rear portion, and means for attaching the dashboard-flap of the main portion to the dashboard of a vehicle, substantially as set forth.

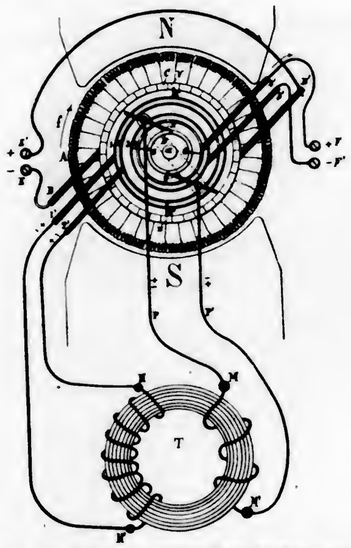
3. A vehicle-cover, consisting of a main portion composed of two middle sections and two side flaps, said middle sections being made longer than the side flaps and provided at their upper ends with neck-recesses, a rear portion provided with correspondiog recesses, fastening devices for connecting the upper edges of the middle sections and rear edges of the side flaps with the upper edge and sides of the rear portion, means for attaching the front ends of the middle sections of the front portion to the dashboard of a vehicle, a neck-covering, and means for attaching said neck-covering over one of the neck-openings formed by adjoining recesses of the cover, substantially as set forth.

4. A vehicle-cover, consisting of a front portion composed of longer middle sections and shorter side flaps, one of said middle sections being provided with a transverse slot for the reins, longitudinal slots in said front portion for the hands, a rear portion, fastening devices for connecting the adjacent ends of the front and rear portions, and means for connecting the extended ends of the middle sections of the front portion with the dashboard of a vehicle so as to form an overlapping flap, substantially as set forth.

645,774. CONTINUOUS-CURRENT TRANSFORMER. ALFRED WYDTS and GUSTAVE WEISSMANN, Paris, France. Filed May 12, 1899. Serial No. 716,568. (No model.)

Claim.—1. An electrical apparatus comprising a direct-current generator, stationary current-conveying devices, such as brushes, connected with said generator, field-magnets, a rotary armature consisting of coils and collector-sections the number of which is greater than that of said current-supply brushes, which are adapted to engage said sections, stationary collecting devices for taking an alternating current off the same collector-sections as they rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier operatively connected with the armature to move synchronously therewith, said rectifier consisting of a rotary ring divided into as many sections as there are pole-pieces of the field-magnets, stationary brushes connected with the secondary coil of the transformer and engaging said ring, a plurality of continuous rotary rings, one for each section of the divided ring and connected with said sections individually, and stationary collecting brushes engaging said continuous rings.

2. An electrical apparatus comprising a direct-current generator, stationary current-conveying devices, such as brushes, connected with said generator, field-magnets, a rotary armature consisting of coils and collector-sections the number of which is greater than that of said current-supply brushes, which are adapted to engage said sections, stationary collecting devices for taking an alternating current off the same collector-sections as they rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier operatively connected with the armature to move synchronously therewith, said rectifier consisting of a rotary ring divided into as many sections as there are pole-pieces of the field-magnets, stationary brushes connected with the secondary coil of the transformer and engaging said ring, a plurality of continuous rotary rings, one for each section of the divided ring and connected with said sections individually, and stationary collecting-brushes engaging said continuous rings, said transformer-brushes being secured to an adjustable support mounted to swing about the axis of rotation of the rectifier-rings.



3. An electrical apparatus comprising field-magnets, a rotary armature, stationary devices, such as brushes, for conveying a current to said armature, collecting devices for taking an alternating current off the same points of the armature as said points rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier consisting of a ring rotating with the armature and divided into as many sections as there are pole-pieces of the field-magnets, a number of continuous rings rotating with the armature and each connected with one of the sections of the divided ring, and stationary collecting devices, such as brushes, engaging the continuous rings and the section-ring respectively, one set of said collecting devices being connected with the transformer, and the other with the consumption apparatus, and a support carrying those collecting-brushes which engage the sectional ring, said support being mounted to turn, for adjustment, about the axis of the armature.

4. An electrical apparatus comprising field-magnets, a rotary armature, stationary devices, such as brushes, for conveying a current to said armature, a direct-current generator connected with said brushes, collecting devices for taking an alternating current off the same points of the armature as said points rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier operatively connected with the armature to move synchronously therewith, to convert the last-mentioned alternating current into a continuous one.

5. An electrical apparatus comprising field-magnets, a rotary armature, stationary devices, such as brushes, for conveying a current to said armature, a direct-current generator connected with said brushes, collecting devices for taking an alternating current off the same points of the armature as said points rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier consisting of a ring rotating with the armature and divided into as many sections as there are pole-pieces of the field-magnets, a number of continuous rings rotating with the armature and each connected with one of the sections of the divided ring, and stationary collecting devices, such as brushes, engaging the continuous rings and the sectional ring respectively, one set of said collecting devices being connected with the transformer, and the other with the consumption apparatus.

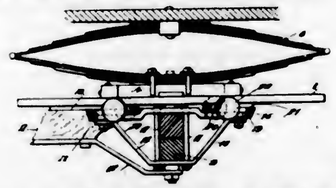
6. An electrical apparatus comprising field-magnets, a rotary armature, stationary devices, such as brushes, for conveying a current to said armature, collecting devices for taking an alternating current off the same points of the armature as said points rotate with the armature, a transformer for converting the said alternating current into one of different voltage, and a rectifier consisting of a ring rotating with the armature and divided into as many sections as there are pole-pieces of the field-magnets, a number of continuous rings rotating with the armature and each connected with one of the sections of the divided ring, and stationary collecting devices, such as brushes, engaging the continuous rings and the sectional ring respectively, one set of said collecting devices being connected with the transformer, and the other with the consumption apparatus, those collecting devices which engage the sectional ring being adjustable by turning them about the axis of the armature.

645,775. APPAREL-WAISTBAND. LOUIS ZASELLA, New York, N. Y. Filed Jan. 18, 1900. Serial No. 1,885. (No model.)



Claim.—As an improved article of manufacture, a waistband for juvenile pants, consisting of a front and a back section, pockets formed between the sections, the front section being provided with buttonholes produced therein, the edges of which are left raw or unworked, and protective strips of leather located at each buttonhole portion of the band, extending transversely across the inner face of the inner section of the band and transversely across the outer face of the outer section of the band, said protective strips being also provided with buttonholes which register with the buttonholes in the band, the protective strips being cemented to the band and additionally secured thereto by the lines of stitching forming the hem of the band and the pockets of the same.

645,776. FIFTH-WHEEL. AMBROSE R. ABBOTT, American Fork City, Utah, assignor of one-half to Huldah C. Hayler, Salt Lake City, Utah. Filed Oct. 20, 1899. Serial No. 734,217. (No model.)



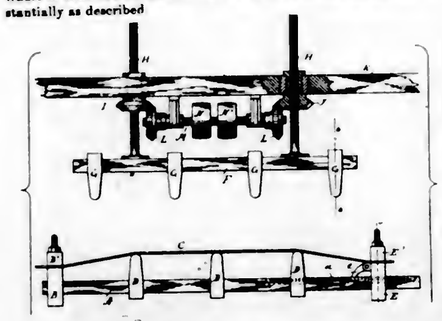
Claim.—1. A fifth-wheel, comprising a ring plate, to which a spring or springs is or are attached, segmental plates secured to the axle at opposite sides of the king-bolt, rollers mounted in depressions formed in opposite ends of the segmental plates, and heads on the ends of said rollers to prevent their displacement lengthwise, substantially as specified.

2. A fifth-wheel, comprising a spring-supporting frame, a ring-plate secured to the said frame, an axle, a king-bolt passing through said frame, segmental plates secured to the axle at opposite sides of the king-bolt, and rollers mounted to move longitudinally of the segmental plates in recesses formed in said plates, substantially as specified.

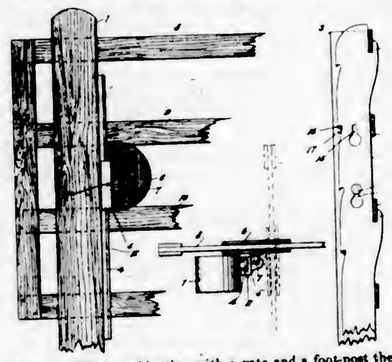
3. A fifth-wheel, comprising a ring-plate, an axle, segmental plates, braces extended from the axle to the ends of the segmental plates, fastening-bolts passing through said plates and through the braces, and headed rollers arranged in depressions in said segmental plates and upon which the ring-plate rests.

645,777. LEATHER-STRETCHING MACHINE. FRED H. ADAMS, Beverly, Mass., assignor of one-half to Edwin R. Stevens, Medford, Mass. Filed Nov. 26, 1897. Serial No. 659,780. (No model.)

Claim.—In a leather-stretching machine, the combination with a bed or base, of a series of cleats arranged on and adjustable longitudinally thereof, a pair of clamping devices one or both of which are longitudinally adjustable on said base, a frame or head, cleats arranged on and adjustable longitudinally thereof and alternately located relative to the cleats on the base, and means for moving said frame or head and its cleats to and from the base and its cleats, substantially as described



645,778. GATE. JAMES M. ADAMS, Deckertown, N. J. Filed Dec. 16, 1899. Serial No. 740,442. (No model.)



Claim.—1. The combination with a gate and a foot-post therefor, of a guide-rail secured to the foot-post, a head or block adjustable vertically on said rail, a perforated lug on the head or block, a gate-supporting roller, and a pintle extended from said roller and engaging with the lug, substantially as specified.

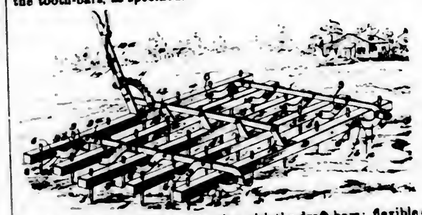
2. The combination with a gate and a foot-post therefor, of a roller adjustably mounted on the foot-post for supporting the gate, a supporting-post, and a supporting-plate adjustably mounted on the supporting-post, the said plate having portions for engaging the under sides of the rails of the gate, substantially as specified.

3. The combination with a gate mounted to slide and to swing and a supporting-post for the gate, of a supporting-plate for the gate, adjustably mounted on said post and provided with a series of openings, each opening being enlarged at the lower end, a headed stud on the supporting-post for engaging in either one of said openings, and means for preventing a rotary movement of the plate on the stud, substantially as specified.

645,779. HARROW. ANTON ANDERSON, Menomonie, Wis. Filed Dec. 1, 1899. Serial No. 738,891. (No model.)

Claim.—1. A harrow, comprising draft-bars, the front and rear ends of which have flexible draft connections with the front and rear tooth-bars; intermediate tooth-bars; hangers pivotally connected at their upper ends to the draft-bars, their lower ends forming runners; flexible draft connections joining the intermediate tooth-bars and the hangers and means for imparting an axial movement to the bars, whereby to turn them sidewise onto the runner members.

2. In a harrow, the combination with the tooth-bars; of the draft-bars, said draft-bars having their front and rear ends extended down in a plane with the tooth-bars; flexible connections joining the said front and rear ends of the draft-bar respectively with the front and rear tooth-bars; the hangers pivotally connected with the draft-bars; flexible connections joining the lower ends of the said hangers with the intermediate tooth-bars; and lever mechanism for adjusting the tooth-bars, as specified.



3. In a harrow, the combination with the draft-bars; flexible connections joining the front and rear tooth-bars with the draft-bars; of the intermediate tooth-bars, said intermediate bars each having independent pivotal hangers connected with the draft-bars; and lever-operated means for adjusting all of the tooth-bars in unison, for the purposes described.

4. The combination with the tooth-bars; and draft-bars, each tooth-bar having an independent flexible connection for joining each tooth-bar with the draft-bars, said tooth and draft bars lying in different horizontal planes; of lever mechanism connected with the draft-bars adapted to simultaneously shift the draft-bars and axially turn the tooth-carrying bars whereby to bring the rear sides of the tooth-bars and the draft-bars in close contact and hold the teeth in a horizontal plane as the harrow is transferred from place to place.

5. In a harrow; the combination with the tooth-bars; the draft-bars; the flexible connections joining the opposite ends of the draft-bars and the front and rear tooth-bars and the intermediate tooth-bars; of the hangers 9, pivotally connected with the draft-bars; the flexible connections joining the lower end of the said hangers with the front edges of the intermediate tooth-bars; the brackets 10, secured to the top of all of the tooth-bars; the lever-bar 2, pivotally connected with the said brackets; and a mechanism for holding the said lever 2 to its adjusted position, as specified.

6. The combination with the tooth-bars, each tooth-bar having an upwardly-projecting fixedly-attached bracket, and a lever-bar pivotally connected to the upper end of all of the brackets; of the draft-bars 1, said bars having their front and rear ends extended down in a plane with the front face of the front and rear tooth-bars; flexible connections joining the front and rear ends of the draft-bars with the front and rear tooth-bars; and the hangers 9 pivotally connected at their upper ends to the draft-bars, their lower ends forming horizontal extensions disposed in a plane with the axial line of the tooth-bars when the said bars are in an operative position; flexible connections joining the extremities of said portions of the hanger-bars and the intermediate tooth-bars, and a lever-and-rack mechanism for axially turning all of the tooth-bars in a plane above the extensions of the front and rear ends of the drag-bars and the lower extensions of the pivotal hangers, all being arranged substantially as shown and for the purposes described.

645,780. HOSE-PATCH. DAVID H. BENNETT, New York, N. Y. Filed May 19, 1899. Serial No. 717,430. (No model.)



Claim.—1. A temporary hose-patch, consisting of a split sleeve, a lever pivotally connected between its ends, directly to fixed lugs at one edge of the sleeve, and a hook or catch pivotally attached to the forward end of the lever and adapted to engage the sleeve near its other edge.

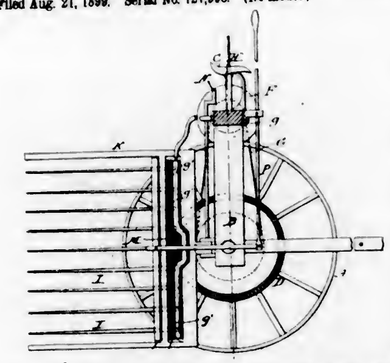
2. A hose-patch comprising a sheet-metal sleeve split longitudinally to present parallel edges, a lining within said sleeve, rigid lugs secured to said sleeve and projecting from one edge thereof toward the other edge, a lever disposed between said rigid lugs and pivoted at a point between its ends thereto, and a hook pivoted to one end of said lever and adapted to engage the sleeve near its opposite edge.

645,781. BLUISH-RED DYE AND PROCESS OF MAKING SAME. HEINRICH A. BERSTTRESER, Mannheim, Germany, assignor to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Dec. 27, 1897. Serial No. 663,716. (Specimens.)

Claim.—1. The process for the manufacture of a new coloring-matter of the rhodamin series by treating the mono-benzylated-di-alkylated rhodamin hereinbefore defined with fuming sulfuric acid, substantially as hereinbefore described.

2. As a new article of manufacture the acid dyestuff which can be derived from the mono-benzylated-di-alkylated rhodamin hereinbefore defined, and fuming sulfuric acid, which is a red powder, soluble in water, dyeing wool from an acid-bath, giving bluish-red shades with weak yellowish fluorescence, and which gives a yellow color in concentrated sulfuric acid, and is particularly characterized by its absorption spectrum in a weak acetic-acid solution, in that a band the center of which corresponds to the wave length of about 551 is absorbed.

645,782. COTTON-PICKER. LUDWIK BILAN, Lexington, Okla. Filed Aug. 21, 1899. Serial No. 727,998. (No model.)



Claim.—1. In a cotton-picker, the combination with a vehicle mounted on wheels, and provided with one or more suction-fans of frames having mounted thereon hollow rotary spindles arranged to contact with the cotton-bolls, and connected with the fan-cases by suitable tubes, said spindles being perforated on their sides and adapted to gather the cotton by atmospheric pressure, and to hold the same by winding or spinning substantially as described.

2. In a cotton-picker, the combination with a vehicle mounted on wheels, and provided with one or more suction-fans of a series of rotary perforated spindles communicating with the fan-cases, mechanism for rotating said fans and spindles so as to cause the latter to gather and hold the cotton, and means for removing the gathered cotton from the spindles, substantially as described.

3. In a cotton-picker, the combination with a vehicle mounted on wheels, and provided with one or more suction-fans, and one or more series of rotary, perforated spindles, communicating with the fan-cases, of frames upon which said spindles are mounted, said frames being adjustable, means for adjusting said frames to different positions, mechanism for rotating said fans and spindles from the axles of the vehicle and means for connecting the spindles to and disconnecting the same from the main driving mechanism, substantially as described.

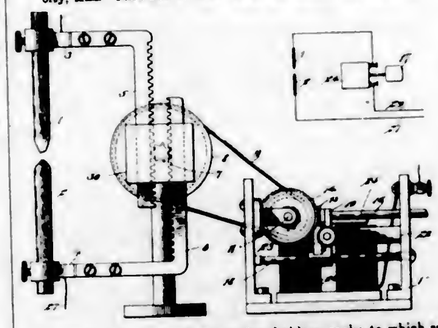
4. A cotton-picker, comprising a suitable vehicle mounted on wheels and a series of perforated, rotary spindles adapted to embrace the cotton-plants, in combination with a suction fan or fans, the cases of which communicate with the hollow spindles, and means for driving said fans and spindles, substantially as described.

645,783. APPAREL-CAP. SAMUEL M. BLUMENFIELD, New York, N. Y., assignor of one-half to Samuel Cohen, same place. Filed Nov. 18, 1899. Serial No. 737,452. (No model.)



Claim.—As a new article of manufacture, a cap consisting of a strip of foraminated woven fibrous material, spirally arranged and having the edges of its adjacent coils overlapped and secured together to form the sides and a portion of the crown, and a piece of fabric secured at its edge to the uppermost coil of the strip and forming the top portion of the crown, as set forth.

645,784. ELECTRIC-ARC LAMP. EDWARD L. BOWEN, McComb City, Miss. Filed Dec. 8, 1899. Serial No. 739,657. (No model.)



Claim.—1. In an arc-lamp, carbon-holders, racks to which said holders are attached, a pinion meshing with the racks for moving them in opposite directions, a rotary shaft having driving connection with the pinion, gear-wheels on said shaft, a laterally-swinging shaft, a pinion on said shaft adapted for engagement with either one of the gear-wheels on the rotary shaft, means for rotating the laterally-swinging shaft, an electromagnet arranged in the lamp-circuit and adapted to move the pinion-carrying shaft in one direction, and a spring for moving said shaft in the opposite direction, the strength of the electromagnet and spring being so related that when an arc is formed between the lamp-electrodes, the laterally-swinging shaft will be held in position to hold the pinion thereon out of engagement with both of the gear-wheels, substantially as specified.

2. A regulating device for an electric-arc lamp, consisting of a motor, a shaft rotated by said motor and adapted to swing laterally, a pinion carried by said shaft, another shaft arranged at right angles to the first-named shaft, gear-wheels on said other shaft with either one of which the pinion is designed to engage, an operating connection between said other shaft and electrode-carrying devices, an electromagnet arranged in the lamp-circuit and adapted to move the first-named shaft laterally in one direction, a spring for moving said shaft laterally in the opposite direction, an adjusting device for the spring, the strength of said spring and electromagnet being so related that when an arc is formed between the carbons of the lamp, the pinion will be held out of engagement with both of the gear-wheels, substantially as specified.

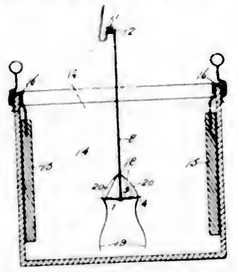
645,785. HOLDER FOR ELECTROPLATING. WILLIAM Y. BUCK, Bristol, Conn. Filed Sept. 22, 1899. Serial No. 731,246. (No model.)



Claim.—1. In a holdar for electroplating, a rack of wire, doubled and twisted together, closed into the general form of a parallelogram, and having two rows of angular meshes, formed between strands of such twisted wire, arranged in pairs, and separated from each other by portions of said twisted wire, in combination with a conductive handle, which is rigidly united with said rack, and is adapted to hold the same suspended in bath in a general horizontal position, substantially as and for the purpose specified.

2. In an electroplating-holder for flat ware, a flat rack, made of electrically-conductive wire, doubled and twisted together, and having angular meshes, formed by and between the separate strands of such twisted wire, and adapted to hold such ware unchangeably in any of several predetermined fixed positions, in combination with a similarly-conductive handle, which is rigidly and electrically united with such rack, and is adapted to hold the same suspended in bath, substantially as and for the purpose specified.

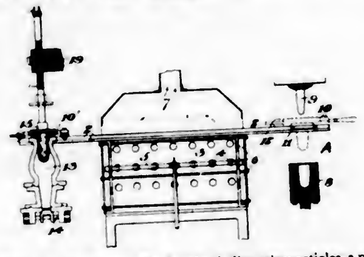
645,786. ART OF ELECTROPLATING. WILLIAM Y. BUCK, Bristol, Conn. Filed July 15, 1899. Serial No. 723,910. (No specimens.)



Claim.—1. That improvement in the art of electroplating which consists in holding between two anodes in an electrolytic bath two pieces of work facing toward and near each other, and in passing current from the anodes through the plating solution to the work held in that position, substantially as and for the purpose specified.

2. That improvement in the art of electroplating, as applied to articles having convex portions, which consists in holding between two anodes in a plating solution two articles of that kind with their convexities projecting toward said anodes respectively, and in passing current through the solution to the work so held, substantially as and for the purpose specified.

645,787. APPARATUS FOR MANUFACTURING HOLLOW GLASS ARTICLES. WILLIAM BUTTLER, Redkey, Ind. Filed May 29, 1899. Serial No. 718,628. (No model.)



Claim.—1. In apparatus for forming hollow glass articles, a pressing apparatus, a blowing apparatus, a movable mold-ring, transfer mechanism arranged to carry the mold-ring and blank from the pressing apparatus to the blowing apparatus, and a furnace in the path of the transfer mechanism, and arranged to reheat at least a portion of the blank before blowing; substantially as described.

2. In apparatus for forming hollow glass articles, a pressing apparatus, a blowing apparatus, a track extending between them, a mold-ring movable along the track, and arranged to transfer the pressed blank to the blowing apparatus, and a furnace intermediate of the length of the track, and arranged to heat at least a portion of the blank before blowing it; substantially as described.

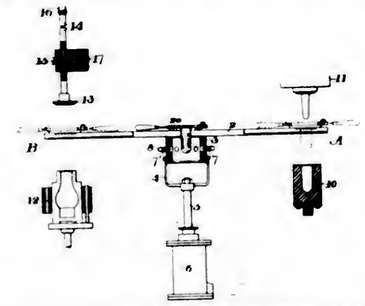
3. In apparatus for forming hollow glass articles, a track, a mold-ring movable upon the track, pressing apparatus at one point along the track arranged to press a blank and secure it to the mold-ring, mechanism for blowing the pressed blank located at another point along the track, and an intermediate slotted furnace through which the blank passes as the mold-ring is moved along the track; substantially as described.

4. In apparatus for forming hollow glass articles, a pressing apparatus, a blowing apparatus, a movable mold-ring, transfer mechanism arranged to carry the mold-ring and the blank from the pressing apparatus to the blowing apparatus, the blowing apparatus including a blow-head, mechanism for rotating the blow-head and mold-ring during the blowing operation, and a furnace in the path of the transfer mechanism and arranged to heat at least a portion of the blank before blowing; substantially as described.

5. The combination with a track, of a hollow slide movable thereon, and a mold-ring revolubly mounted on the slide; substantially as described.

6. The combination with a track, of a ring-shaped support movably thereon, a mold-ring revolubly mounted on the support, and a blow-head arranged to turn the mold-ring; substantially as described.

645,788. APPARATUS FOR MAKING HOLLOW GLASSWARE. WILLIAM BUTTLER, Redkey, Ind. Filed July 14, 1899. Serial No. 723,763. (No model.)



Claim.—1. In apparatus for forming hollow glass articles, a track a mold-ring movable along the track, and a furnace or heater movable toward and from the track, and arranged to heat at least a portion of the blank held in the mold-ring; substantially as described.

2. The combination with pressing apparatus and blowing apparatus, of a track extending between them, a mold-ring movable along the track, a furnace located below and in line with the track, and mechanism arranged to raise and lower the furnace; substantially as described.

3. The combination with a track, of a hollow slide movable thereon, and a two-part pivoted mold-ring having dovetailed revoluble connection with the slide; substantially as described.

4. The combination with a track, of a slide movable thereon, said slide having a hole with a side slot leading thereinto, and through which the article may be removed, and a mold-ring made in separable parts and revolubly mounted on the slide; substantially as described.

5. In apparatus for forming hollow glass articles, a pressing apparatus, a blowing apparatus, a movable mold-ring, transfer mechanism arranged to carry the mold-ring and the blank from the pressing apparatus, and a furnace in the path of the transfer mechanism, one of the two elements (the mold-ring and the furnace) being movable toward and from the other; substantially as described.

6. In an apparatus for forming hollow glass articles, a pressing apparatus, a blowing apparatus, a track extending between them, a mold-ring movable along the track, and a furnace located adjacent to the track between the pressing and blowing apparatus, one of the two elements (the mold-ring and the furnace) being movable toward and from the other; substantially as described.

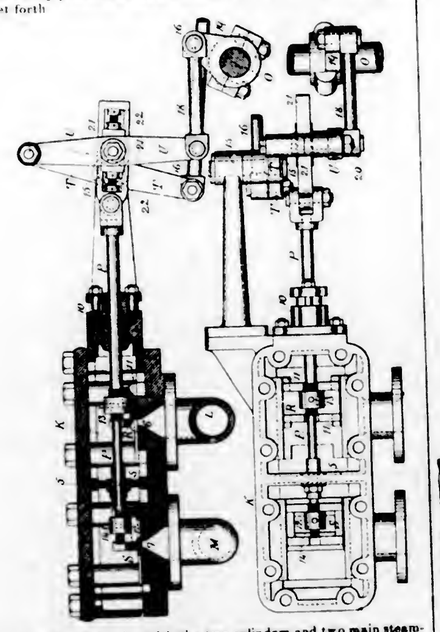
645,789. VALVE-MOTION FOR ENGINES. EZRA E. CLARKE, Springfield, Mass. Filed Jan. 25, 1899. Serial No. 703,354. (No model.)

Claim.—1. The combination with the two cylinders and two main steam-chests of a duplex engine, their cut-off-valve chests, valves, valve-gear and cross-heads, of rock-shafts moved by the respective cross-heads and connections from the respective cross-heads to the valve-rods of the respective engines, cut-off valves and primary and secondary cut-off levers and connections to the respective rock-shafts, the cut-off levers being pivoted together and the primary cut-off lever swinging on a fixed pivot, and the secondary cut-off levers having a connection to the rod of the cut-off, substantially as set forth.

2. The primary and secondary cut-off levers in combination with the two engine-cylinders, the two main steam-chests, their cut-off-valve chests, valves and valve-gear and the connections from the respective piston-rods to the cut-off levers and cut-off valves actuated by such primary and secondary cut-off levers, one of the valves being made with an opening in the middle to admit steam to the port and with front and back portions to cover such opening and the other valve being whole and acting at the rear side to cover the port in one direction and at the front side to cover the port in the other direction, substantially as set forth.

3. The combination with the two cylinders and two main steam-chests of a duplex engine, their cut-off-valve chests, valves, valve-gear and cross-heads, of rock-shafts moved by the respective cross-heads and connections from the respective cross-heads to the valve-rods of the opposite engines, primary and secondary cut-off levers and connections to the respective rock-shafts, the cut-off levers being pivoted together and the primary cut-off lever swinging on a fixed pivot and a valve-rod connected to the secondary lever and two cut-off valves upon the valve-rod and a steam-chest for the same with valve seats and ports to the respective engines and nuts or collars

upon the valve-rod to communicate motion to the horns of the respective valves, there being greater spaces between the horns than the thickness of the nuts, so that the valves remain stationary during the early portion of the movement of the valve-rod, substantially as set forth.



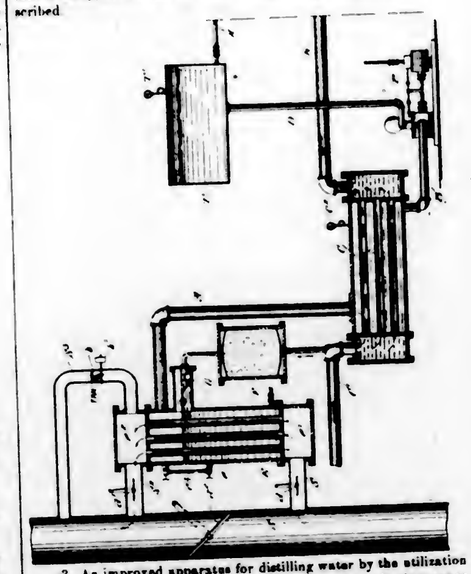
4. The combination with the two cylinders and two main steam-chests of a duplex engine, their cut-off-valve chests, valves and valve-gear, of a steam-pipe and throttle-valve, a branch and two throttle-valves, the cut-off-valve chest having a partition and pipes leading from the two throttle-valves to the cut-off steam-chest at opposite sides of the partition, ports and pipes leading to the respective engines, cut-off valves in the chest and one rod for the two cut-off valves, and mechanism for actuating the rod and valves, substantially as set forth.

5. The combination with the two cylinders and two main steam-chests of a duplex engine, their cut-off-valve chests, valves and valve-gear, of two rock-shafts, means for moving the same and the separate engine-valves, cut-off valves and a compound lever composed of a primary and secondary cut-off lever pivoted together and connected to the respective rock-shafts, a stationary pivot for the primary cut-off lever and a connection from the secondary cut-off lever to the rod of the cut-off valves, substantially as set forth.

645,790. APPARATUS FOR PRODUCING DISTILLED WATER. CHARLES F. CONOVER, New York, N. Y. Filed Aug. 10, 1899. Serial No. 726,800. (No model.)

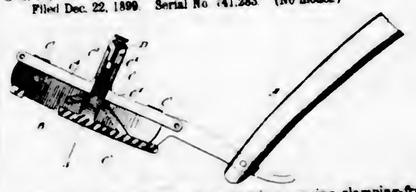
Claim.—1. In an apparatus for the purpose described, an evaporator adapted to utilize waste sources of heat, a feed-water pipe with which said evaporator is connected, a condenser also connected to said feed-water pipe and connected to the evaporator, filtering devices connected with said condenser, a storage-tank connected with said filtering devices, an air-compressor adapted to discharge air into said storage-tank, a scrubbing-tank interposed between the latter and said air-compressor, a cooling-coil interposed between the storage-tank and condenser, and a feed-water pipe leading from said condenser and supplying water to the scrubbing-tank, the said pipe having a branch pipe on which is a perforated pipe adapted to spray the cooling-coil, as set forth.

2. In an apparatus for producing distilled water, an evaporator, a connection therefrom to a suitable heat-supply, a condenser having a vapor-pipe connection with the evaporator, a storage-tank arranged to receive the condensed water from the condenser and provided with an aerating-pipe, a cooling-coil, interposed between the tank and the condenser, a water-supply pipe, connected to one end of the condenser and leading the condensing water therefrom to an air-washer, said latter pipe being provided with a branch which carries a spraying-pipe for the coil, and an air-washer serving to wash the air before it is supplied to the aforesaid aerating-pipe, substantially as described.



3. An improved apparatus for distilling water by the utilization of waste sources of heat, consisting of an evaporator having upper and lower chambers provided with pipes adapted to be connected to a smoke-stack or the like, a condenser having a vapor-pipe connection with one end of the evaporator, a storage-tank arranged to receive the condensed water from the condenser and provided with an aerating-pipe, a cooling-coil interposed between the tank and the condenser, a water-supply pipe connected to one end of the condenser, and leading the condensing water therefrom to an air-washer, said pipe being provided with a branch, a spraying-pipe on said branch and extending over the cooling-coil, and an air-washer, serving to wash the air before it is supplied to the aforesaid aerating-pipe, substantially as described.

645,791. RAZOR-GUARD. TERENCE F. CURLEY, New York, N. Y. Filed Dec. 22, 1899. Serial No. 741,283. (No model.)



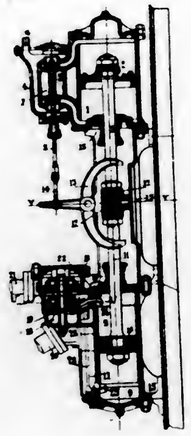
Claim.—1. A razor-guard, comprising a spring clamping-frame for removable connection with the razor-blade, a guard-bar mounted to slide on the frame, and a screw mounted to turn in said frame and screw in said guard bar to move the latter across the face of the blade, substantially as shown and described.

2. A razor-guard, comprising a guard-bar having an angular extension with a nut, a frame for removable connection with the razor-blade, a guideway on said frame for the extension to slide in, and a screw-rod mounted to turn in said guideway and screw in said nut, substantially as shown and described.

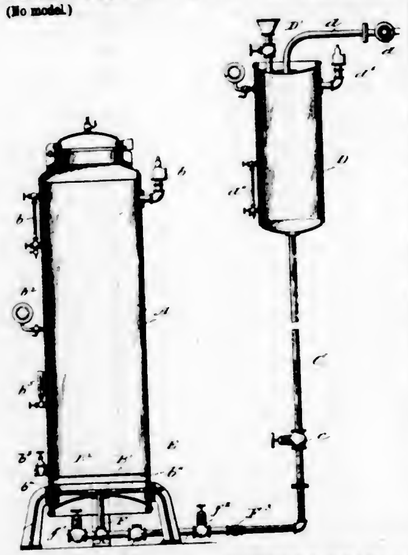
3. A razor-guard, comprising a spring clamping-frame having two longitudinally-extending spring-bars connected with each other at their middle by a cross-piece, and provided at their ends with lugs for resting on the back of the razor-blade, a guideway secured to said cross-piece, a guide-bar having an extension mounted to slide in said guideway, and a screw-rod mounted to turn in said guideway and screw in a nut on said extension, as set forth.

645,792. PUMPING APPARATUS AND COMPRESSOR. LOUIS M. G. DELAUNAY-BELLEVILLE, Neuilly, France. Filed Mar. 3, 1898. Serial No. 672,419. (No model.)

Claim.—In pumping apparatus and compressors, the combination with a clack-valve casing of two plates supported therein one above the other and each provided with a series of annular passages each of which affords between its upper circumferential edges a valve-seat, an annular housing or guide surrounding each annular passage and formed integral with said plate, an annular valve located and working in each annular housing or guide and having its lower edge formed to fit accurately in the seat formed by said annular passage, a guard for said lower set of valves formed integral with and depending from said upper plate, a cover for said casing, a guard for said upper set of valves formed integral with and depending from said cover, and a central bolt passed through the seats and guides of the upper and lower valves for holding said plates securely in place in the casing, substantially as described.

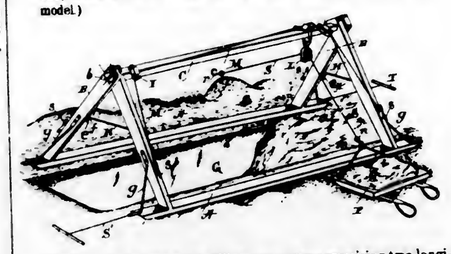


645,793. APPARATUS FOR PRESERVING WOOD. CHRISTOPHER J. DOYLE, Philadelphia, Pa. Filed June 3, 1899. Serial No. 719,327. (No model.)



Claim.—The combination of a vertically-disposed receiving-tank, an air-tight chamber located in the upper portion of said receiver, an air-cock for said chamber, a removable air-tight cap provided in the top of the receiver, a heating-chamber located in the bottom of the receiver, a perforated partition between the heating-chamber and the receiver proper adapted to support the material to be treated, a steam-coil located in the heating-chamber, a supply-reservoir arranged in close proximity to the receiver, a conduit for compressed air entering the top of said supply-reservoir, a feed-pipe connecting the supply-reservoir with the bottom of the receiver and cut-off valve located in the feed-pipe as and for the purposes specified.

645,794. DITCH OR PIT FILLING MACHINE. WALTER G. DUNGEY, Hemlock, Mich. Filed Nov. 2, 1899. Serial No. 735,599. (No model.)



Claim.—1. A ditch or pit filling apparatus comprising two longitudinal and parallel runners adapted to be placed at opposite sides of a ditch or pit, inwardly-extending standards having their upper ends in a vertical line over the said ditch or pit, a beam connected to the upper ends of the said standards and extending longitudinally of the said runners, a pulley or rope-guide longitudinally movable upon the said beam, and means operatively connected at the ends of said beam for moving the rope-guide or pulley upon the beam and holding it in its adjusted position, substantially as described.

2. A ditch or pit filling machine comprising two longitudinal and parallel extending runners adapted to be placed at opposite sides of a ditch or pit, inwardly and upwardly extending standards at the ends of said runners, a beam connecting the upper ends of the standards and extending longitudinally of the said runners and situated in a vertical line above the ditch or pit, a rope-guide or pulley longitudinally movable upon the said beam, a rope passing through the said guide or pulley and extending across the said ditch, a scraper connected with one end of the rope, the opposite end of the rope adapted to be drawn in a direction transverse the ditch for pulling the scraper thereover, rope-guides at opposite ends of the beam, ropes passing through the said guides and having their ends connected with the longitudinally-movable pulley or rope-guide, the parts adapted to operate substantially as described.

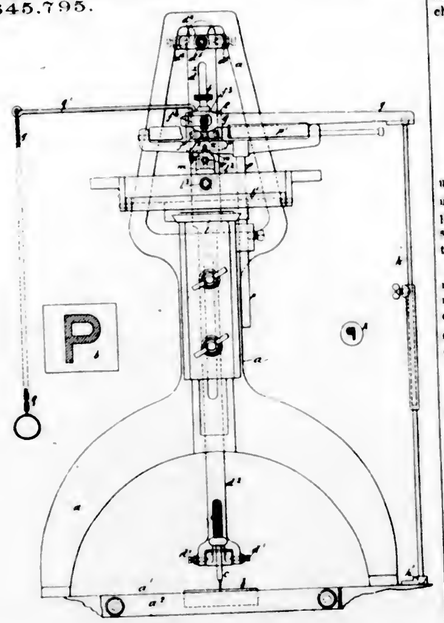
3. An apparatus for filling pits or ditches comprising standards having at their lower ends bases adapted to rest at opposite sides of a pit or ditch, the standards extending upwardly and inwardly over the said ditch or pit, a longitudinally-extending beam having its ends connected with the upper ends of the said standards, a traveling pulley or guide frame supported upon said beam, rope-guides loosely connected at opposite ends of the said beam and adapted to extend at either side thereof, ropes passing through the said rope-guides and having their ends connected respectively with the traveling guide or pulley whereby the pulley-frame can be drawn to any desired position upon the beam, substantially as described.

4. An apparatus for filling ditches or pits comprising standards having at their lower ends bases adapted to rest at opposite sides of the pit or ditch, the said standards extending upwardly and inwardly over the ditch or pit, a longitudinally-extending beam connected to the upper ends of the said standards, a traveling-pulley frame supported upon said beam, reversible pulleys at opposite ends of the said beam, ropes passing through the said pulleys and connected at their inner ends to the said pulley-frame, a reversible pulley connected with the traveling-pulley frame, a rope passing over the said pulley and having at each end a hook, a scraper adapted to be connected to the hook at one end of the rope and the opposite end of the rope adapted to be connected with a singletree, substantially as described.

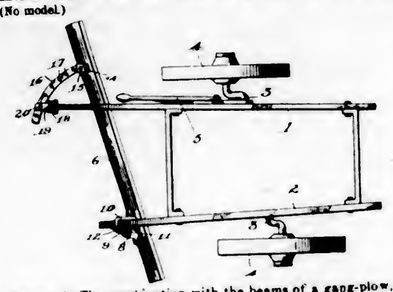
645,795. ENGRAVING-MACHINE. WILLIAM S. EATON, Sag Harbor, N. Y., assignor to the Eaton & Glover Company, New York, N. Y. Filed Dec. 21, 1899. Serial No. 741,119. (No model.)

Claim.—In an engraving-machine, the combination of a tracer with a freely-swinging lever actuated thereby, a forked arm adjustably clamped to said lever, a lever *g*, hung within said arm, a chuck, means for removably attaching the chuck to said lever *g*, a vertically-adjustable base-plate, a slide-rest supported thereon, an engraving-tool, means for adjustably securing said tool to the slide-rest, an upright secured to the base-plate, and having a pivoted rest which is adapted to engage the forked arm, substantially as specified.

645,795.



645,796. SCRAPER ATTACHMENT FOR GANG-PLOWS. NICHOLAUS ECKSTEIN, Wylie, Minn. Filed Nov. 28, 1899. Serial No. 738,564. (No model.)



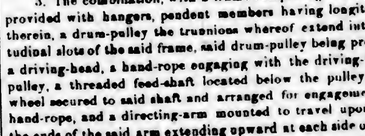
Claim.—1. The combination with the beams of a gang-plow, of a scraper, a shaft secured to one of said beams and pivoted to said scraper, and a segmental bar pivoted to said scraper and adjustably secured to the other of said beams.

2. The combination with the beams of a gang-plow, of a scraper, bearings secured to the rear side of said scraper, a shaft mounted in said bearings and secured at its upper and lower ends to one of said beams, flanged plates also secured to the rear side of said scraper, a segmental bar located between and pivoted to the flanges of said plates and provided with a series of openings, a coupling-piece secured to the other of said beams and provided with registering openings, and a securing device extending through the openings in said coupling-piece and through one of the openings in said bar.

645,797. SEWING-MACHINE. JOHN W. EBERLMAN, Jr., Reading, Pa. Filed June 30, 1899. Serial No. 722,441. (No model.)

Claim.—1. In a sewing-machine, the combination of a driving-shaft, sewing mechanism, gearing between the driving-shaft and sewing mechanism, a driven shaft operating a variable-speed device for feeding devices, and a yielding transmitting device between the driving and driven shafts.

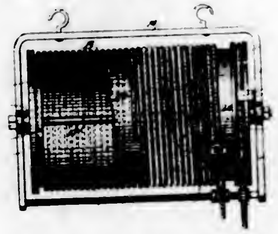
2. In a sewing-machine, the combination with a main shaft, another shaft spaced therefrom and feed mechanism driven at a variable speed by the latter shaft, of a sprocket-wheel on each shaft, a sprocket-chain connecting said sprocket-wheels and means for tightening said chain.



3. In a sewing-machine, the combination with a main shaft, an under shaft and a feed mechanism driven at a variable speed by the under shaft, of sprocket-wheels on each shaft, chains connecting each pair of sprocket-wheels and means for adjustably securing one of said sprocket-wheels to its shaft so as to permit said sprocket-wheel to be turned to tighten all of the chains.

4. In a sewing-machine, the combination with a main shaft, an under shaft and a feed mechanism driven at a variable speed by the under shaft, of two sprocket-wheels on each shaft, a sprocket-chain connecting each pair of sprocket-wheels, three of said sprocket-wheels secured to their shafts and means on the other sprocket-wheel for removably locking it to its shaft.

645,798. WELL-PULLEY. JAMES FOSTER, Gober, Tex. Filed June 3, 1899. Serial No. 719,241. (No model.)



Claim.—1. The combination, with a winding-drum and its frame, of a guide device for a rope adapted to guide the rope as it is wound upon and unwound from the drum, a feed-screw upon which the guide device is mounted to travel and a driving-wheel on said feed-screw, the winding-drum having vertical movement in its frame to gravitate into driving engagement with the driving-wheel of the feed-screw.

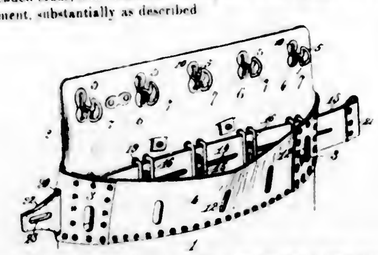
2. The combination, with a frame, a pulley mounted to revolve in the frame, the pulley being adapted to have vertical movement as well as rotary movement in the frame, a guide-arm for the pulley carried by the frame, and means, substantially as described, for imparting rotary motion to the pulley, of a feed-shaft carried by the frame and located below the pulley, the feed-shaft being exteriorly threaded, a directing-arm held to travel upon the threaded feed-shaft, a driving-wheel secured to the feed-shaft, and driven through the medium of the driving mechanism for the pulley, the directing-arm being arranged to extend upward at opposite sides of the pulley and arranged for engagement at its upper ends with a hoist-rope carried by the pulley, as and for the purpose specified.

3. The combination, with a frame comprising an upper member provided with hangers, pendent members having longitudinal slots therein, a drum-pulley the trunnions whereof extend into the longitudinal slots of the said frame, said drum-pulley being provided with a driving-head, a hand-rope engaging with the driving-head of the pulley, a threaded feed-shaft located below the pulley, a driving-wheel secured to said shaft and arranged for engagement with the hand-rope, and a directing-arm mounted to travel upon said shaft, the ends of the said arm extending upward at each side of the pulley, one end of the directing-arm being provided with an eye to receive the hoist-rope adapted to be carried by said pulley, for the purpose specified.

645,799. MAIL-BAG. ALONZO W. FRANK, Jamestown, N. Y. Filed June 6, 1899. Serial No. 719,609. (No model.)

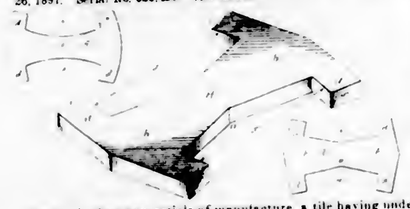
Claim.—1. The combination with a mail-bag, of a flap for closing the end thereof carrying a plurality of locking-studs, each of said studs comprising a flat shank having oppositely extending arms at one end riveted to the flap, and terminating at its other end in an apertured head, said heads being adapted to be projected through slots formed in the opposite edges of the mouth of the bag, a locking-strap disposed between the edges of the mouth of the bag and having key hole-slots for engaging the headed studs, and means for locking the strap against endwise movement, substantially as described.

2. The combination with a mail-bag, of a flap for closing the end thereof carrying a plurality of headed locking-studs arranged to be projected through slots formed in the attached edge of the flap and the opposite edge of the mouth of the bag, U-shaped clips riveted to the flap on opposite sides of the slots in the flap, a strap movably disposed within said clips and provided with keyhole-slots for engaging the headed studs, and means for locking said strap against endwise movement, substantially as described.



3. The combination with a mail-bag, of a flap for closing the end thereof carrying a plurality of headed locking-studs arranged to be projected through slots formed in the attached edge of the flap and the opposite edge of the mouth of the bag, a locking-strap movable endwise in guides fixed to the inner side of the flaps and provided with keyhole-slots for engaging the headed studs, metallic plates riveted to the rear side of said strap and each embracing the enlarged portion of one keyhole-slot and the end of the slitted portion of the adjacent keyhole-slot, and means for locking said strap against endwise movement, substantially as described.

645,800. TILE. FRANK FURNESS, Philadelphia, Pa. Filed Mar. 26, 1897. Serial No. 629,436. (No model.)



Claim.—1. As a new article of manufacture, a tile having undercut notches at each side forming heads at each end of the tile, the heads being beveled at each side, so that the head of one tile will fit the notch in the adjoining tile and interlock therewith, substantially as described.

2. A tile having a body portion narrower at the center than at the ends forming a waist, and having an undercut T-head at each end, the outer surface of each T-head having the same contour as the waist of the tile, so that a series of tiles of the same contour can be assembled and interlocked, substantially as described.

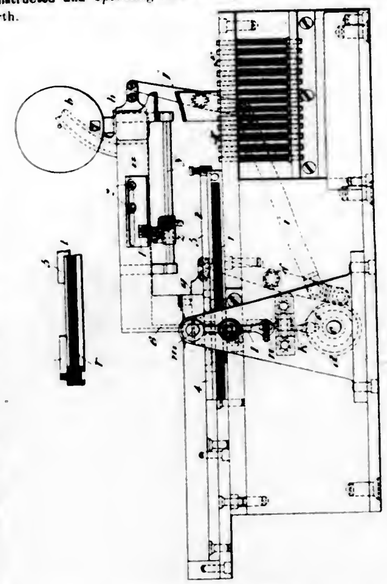
3. A tile having a body portion A, arms *d d* forming a T-head at each end, said arms being undercut, the ends *e* of the arms being of the same contour as the undercut portion and at right angles thereto so that they will interlock with the undercut arms of adjoining tiles, substantially as described.

4. A tile having an elongated body narrower at the center than at the ends, arms extending from each side at each end, said arms being undercut, substantially as described.

5. A tile having an elongated body narrow at the center and gradually increasing in width toward each end, arms extending from each side at each end, said arms projecting at an angle to a line drawn through the longitudinal center of the tile so as to form an undercut cavity in each side of the tile, the heads of the tile being of the same contour as the cavity, substantially as and for the purpose described.

645,801. APPARATUS FOR JUSTIFYING SET TYPE. HENRY J. S. GILBERT-STRINGER, London, and FREDERICK WICKS, Esher, England. Filed Oct. 12, 1899. Serial No. 733,422. (No model.)

Claim.—In combination with a type-setting machine and its indicators showing numbers of spaces and length of lines, a justifying apparatus comprising a set of finger-keys and spring stop-pins for a rack-slide with upwardly-projecting rib and for a second slide with rib, carried on the rack-slide, a shaft carrying a cam for working a pair of feeders in type-channels, and a cam causing a cross-head and spring-rod to reciprocate, the said rod having a blade adapted to pass through a slot of a type-channel and extrude space-types, and a tappet to meet the ribs of the slides, the said cross-head having connected to it a spring-pawl engaging with teeth of a ratchet-wheel, on the shaft of which is a pinion engaging the teeth of the rack-slide, constructed and operating substantially as and for the purpose set forth.



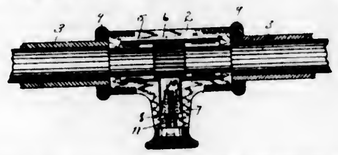
645,802. STREET-RAILWAY SWITCH. DAVID E. GILCHRIST, Pittsburg, Pa. Filed Nov. 28, 1897. Serial No. 659,776. (No model.)



Claim.—The combination with a tapering switch-tongue pivoted at its larger end adapted to be used in connection with the rails of a street-railway, of a tongue *h* pivotally secured near one end in the bed of a railroad-track and provided with chamfered sides extending from the free end of the said tongue to a point on a central line with the pivot of the tongue which is arranged in the larger end thereof, a guard *k* mounted at each side of the said chamfered tongue and consisting of an elongated strip of suitable material having a portion of each end bent at an angle so that each angle end of one guard will be in alinement with the angle end of the opposite guard, but not engaging each other, a casing arranged at the side of the railway-track opposite the switch and chamfered tongues, said casing having a hinged lid and provided in its side nearest the track with a pair of oblong slots *e*, *e'*, a flat elongated bar of less length than the said casing pivotally secured at its center to the bottom of the casing, the ends of the said bar being in alinement with the said oblong slots, a rod *d'* pivotally secured to one end of the bar *c* and operating through the slot *e*, a pin *f'* mounted in the outer end of the said rod *d'* adapted to be secured to the switch-tongue near the tapering end

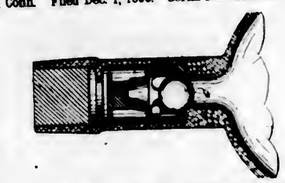
thereof, a rod *d* of greater length than the rod *d'* pivotally secured to the opposite end of the said bar *c* and operating through the slot *c'*, a pin *f* mounted in the outer end of said rod *d* adapted to be secured to the chamfered tongue near the pivoted point thereof, and an operating means for the said tongues suspended from a car-platform and consisting of a bell-crank *l*, a pair of hangers secured to the underneath face of the car-platform in which is journaled the said bell-crank, a downwardly-extending arm *m* formed integral with the said bell-crank, a shoe *m'* mounted on its lower end and adapted to engage the chamfered sides of the tongue A for operating the same, a foot-lever connected to the bell-crank *l*, for operating the same, and a pair of downwardly-extending curved guides secured to the underneath face of the car-platform and adapted to be engaged by the said arm *m* when in the operative position and hold the same in engagement with the tongue A, substantially as set forth.

645,803. BICYCLE HANDLE-BAR. WILLIAM R. GOOD, Dayton, Ohio. Filed July 22, 1899. Serial No. 724,768. (No model.)



Claim.—In an adjustable handle-bar, the combination of a box consisting of two parts 1 and 2 the latter being an integral part of the stem, the said box having a rearward extension 7 above and in line with the stem, a ratchet-wheel secured to the center of the handle-bar within said box, a dog housed within the rearward extension 7 in a horizontal plane with said ratchet-wheel and adapted to engage directly therewith, a screw engaging directly with said dog by penetrating the end thereof, and adapted to move it to and from the ratchet-wheel, and screw-caps 9 9 inclosing the ends of the box and holding the parts in rigid contact with the handle-bars, substantially as described.

645,804. NON-REFILLABLE BOTTLE. JOSEPH GOODMAN, New Haven, Conn. Filed Dec. 1, 1899. Serial No. 738,808. (No model.)

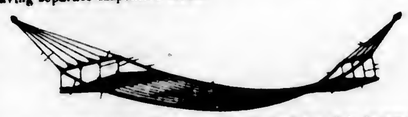


Claim.—1. A non-refillable bottle, comprising a bottle whose neck is formed on its upper edge with an annular recess surrounding the outlet-passage, a valve-cage carrying a valve and provided at its bottom with an outwardly-extending annular flange seated in said recess and a neck extension fitted upon and secured to said neck and formed with an inwardly-extending annular flange engaging the top of the flange at the bottom of the cage, whereby to hold the cage in place, as and for the purpose set forth.

2. A non-refillable bottle, comprising a bottle having a short neck and an extension of said neck secured thereto and provided with an inwardly-extending flange, a valve-cage having at its bottom an outwardly-extending annular flange on which the flange of the extension rests whereby to hold the cage in place, said cage being further provided with an apertured cylindrical portion above its flange, a hollow cone thereabove having closed sides and whose base forms an annular shoulder where it joins the top of the cylindrical portion, and a solid top closing the top of said hollow cone and forming a baffle-plate, a ball-valve having movement within the cylindrical portion of the cage, and of such a diameter that it will fit on the said annular shoulder when the bottle is inverted, and a locking-ball in said cage above the ball-valve and of a diameter approximately equal to the distance between said annular shoulder and the ball-valve in closed position, as set forth.

645,805. HAMMOCK. ROBERT S. GRAHAM, New York, N. Y., assignor to H. S. Martin. Filed Aug. 2, 1899. Serial No. 725,875. (No model.)

Claim.—1. A hammock comprising a main body, means for suspending said main body, and portions at the ends of said main body having separate suspension means.



2. A hammock having end portions formed out of the hammock-body, means for connecting the ends of said portions with the ends of the hammock-body, and means for holding the said portions suspended.

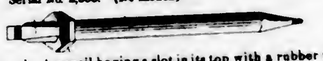
3. A hammock comprising a body portion, integral portions at the ends of the body portion, devices for detachably connecting together the ends of said portions and the hammock-body, and means for suspending said portions when disconnected from the hammock-body.

4. A hammock comprising a body portion, a spreader at each end of the hammock, integral portions at the ends of the hammock-body, spreaders for said portions, devices for detachably connecting together said spreaders, and means for holding suspended said portions when the spreaders are disconnected.

5. A hammock comprising a main body, means for its suspension, end portions formed out of the main body and extending substantially the width thereof, and separate means for holding the end portions suspended.

6. A hammock comprising a main body portion, suspension-cords attached thereto, end portions integral with the body portion and extending substantially the width thereof, and independent suspension-cords attached to the end portions.

645,806. PENCIL. SIMON GRIM, St. Philip, Ind. Filed Jan. 22, 1900. Serial No. 2,336. (No model.)

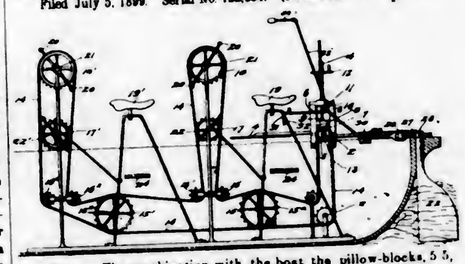


Claim.—1. A pencil having a slot in its top with a rubber therein, which rubber is formed with a flange containing apertures to receive the sides of said pencil, substantially as set forth.

2. The combination, of the pencil formed with a slot in its top, the rubber mounted in said slot and formed with a flange around its lower end containing segment-shaped apertures to receive the portions of the pencil on the sides of the slot, substantially as set forth.

3. In a pencil, the combination, of the pencil-body having a slot in its top, a rubber formed to fit in said slot, *a*, and having a flange around its lower end the edge of which is formed with angles and corners, apertures being formed in opposite sides of said flange to receive the portions of the pencil on each side of the slot, substantially as set forth.

645,807. BOAT-PROPELLER. HAMILTON D. GUFFEY, Elko, Mo. Filed July 5, 1899. Serial No. 722,831. (No model.)

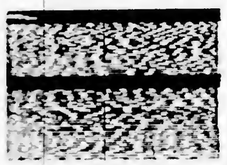


Claim.—The combination with the boat, the pillow-blocks, 5 5, formed with the knobs, 7 7, the elevating-screws, 10 10, mounted in stationary blocks fixed to the boat, the clamps, 8 8, connecting the pillow-block knobs, and elevating-screws, the paddle-wheel shaft journaled in said pillow-blocks, a sprocket-wheel fixed on said shaft, a series of crank-shafts and sprocket-wheels, and an endless sprocket-chain connecting said wheels, hand and foot cranks fixed to said wheels and adapted to impart a rotary motion to said paddle-wheel shaft, substantially as and for the purpose set forth

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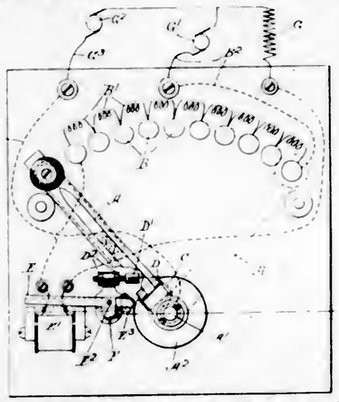
645,808. CANVAS, DUCK, OR LIKE WOVEN FABRIC. WILLIAM G. HALSEY, Philadelphia, Pa. Filed Nov. 15, 1898. Serial No. 696,501. (No specimens.)

Claim.—1. As an improved article of manufacture, canvas, duck, or the like fabric, having a series of warp-threads lubricated with wax or the like and woven in said fabric on predetermined lines only, the threads of the other portions of the fabric being devoid of the lubricant.



2. As an improved article of manufacture, canvas, duck, or the like fabric, having a series of warp-threads lubricated with wax or the like and arranged along the margin of the fabric, and a second series of similarly-lubricated warp-threads a predetermined distance from the former series, the threads of each series being woven in said fabric, and the threads of the other portions of the fabric being devoid of the lubricant.

645,809. CONTROLLING DEVICE FOR ELECTRIC SWITCHES. EDWARD W. HAMMER, Chicago, Ill. Filed Aug. 31, 1899. Serial No. 729,023. (No model.)



Claim.—1. A switch, comprising a movable arm, a part thereon, a friction-strap associated with said part, an electromagnet provided with an armature to which said strap is connected, the parts so arranged that the strap is moved to an operative position by the movement of said armature.

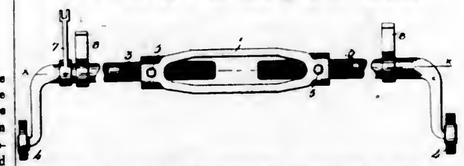
2. An electric switch, comprising a movable arm, a retracting device therefor, a part on said arm, a flexible strap associated with said part so as to engage the same, said strap connected with a suitable support, an electromagnet provided with an armature to which said strap is also connected, the parts so arranged that when the armature is attracted the strap will be moved so as to operatively engage the part on the arm and hold said arm in any desired position.

3. An electric switch, comprising a movable arm, a retracting device therefor, a part on said arm, a flexible strap associated with said part so as to engage the same, said strap connected with a suitable support, an electromagnet provided with an armature to which said strap is also connected, the parts so arranged that when the armature is attracted the strap will be moved so as to operatively engage the part on the arm and hold said arm in any desired position, and an adjusting device for adjusting the strap with relation to said part.

4. The combination with an electric motor of a movable arm for controlling the motor-circuit, having a frictional part connected therewith, a retracting device for said arm, an electromagnet associated with said arm, a strap associated with said frictional part and attached at or near one end to a suitable support, said strap being attached at or near the other end to the armature of said magnet, so that when the armature is attracted the strap will be moved to engage the frictional part on the arm and hold said arm in any desired position, the parts so arranged that, when the current in the magnet-circuit falls below a predetermined amount, the armature and strap are released so as to permit the retracting device to move said arm to its initial position.

5. A switch, comprising a movable arm, a retracting device therefor, a frictional part connected with said movable arm, a flexible strap associated with said frictional part and adapted to engage the same so as to hold the arm in any of its various positions, a fixed support to which said strap is attached, an electromagnet associated with said arm and provided with an armature movably connected with said support, one end of said strap connected with said armature so as to be controlled thereby.

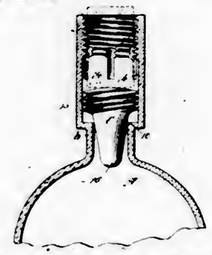
645,810. ADJUSTABLE BRAKE-BEAM. JOHN F. HENNESSY, St. Louis, Mo. Filed Sept. 7, 1899. Serial No. 729,754. (No model.)



Claim.—1. A brake-beam, comprising a turnbuckle, having screw-threaded openings formed in the opposite ends of the same, two sections having screw-threads formed thereon, and adapted to be received by said screw-threaded openings of the turnbuckle, binding-bolts carried by said turnbuckle adjacent to the opposite ends of the latter, the inner or contacting ends of which are provided with radially-arranged V-shaped cutting-teeth, and adapted to cut a cavity in the threads formed on said sections, as and for the purpose described.

2. A brake beam, comprising two sections, screw-threads formed on the adjacent ends of the same, a turnbuckle, having screw-threaded openings formed in the opposite ends of the latter, and adapted to receive the screw-threaded ends of the sections, and binding-bolts carried by the walls of the turnbuckle, forming the openings of the same, the inner ends of which are adapted to be brought in binding contact with the screw-threads formed on said sections, and form a cavity therein to prevent the sections from turning independently of one another, substantially as described.

645,811. NON-REFILLABLE BOTTLE. JAMES A. HIGGS, Bearspring, Tenn. Filed June 14, 1899. Renewed Feb. 15, 1900. Serial No. 5,384. (No model.)



Claim.—1. A non-refillable bottle provided with a neck formed into two diameters, the upper portion being the larger and having its upper end interiorly threaded, said neck being provided with interior channels extending below and crossing a portion of the said threaded surface, and a valve having a threaded section adapted to fit to the threaded surface of the neck, for the purpose described.

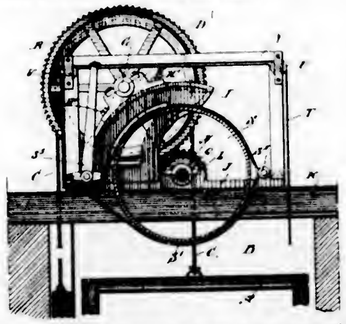
2. A non-refillable bottle having its neck made in two diameters, the upper portion being the larger and having its end interiorly threaded and provided with longitudinal channels extending across the lower threads of the threaded portion into the unthreaded portion, and a valve provided with a conical body and a threaded head, the upper surface of which is provided with oppositely-extending tapering grooves, substantially as herein shown and described.

645,812. DUMB-WAITER. CHARLES W. HOFFMAN, New York, N. Y. Filed Dec. 6, 1899. Serial No. 739,394. (No model.)

Claim.—1. A dumb-waiter or elevator frame having a set of alined fixed bearings, supports having segmental rims, the centers of which coincide with the axis of the said fixed bearings, a second set of bearings resting on said segmental rims, to maintain the same relative distance between the axes of the two sets of bearings upon shifting the second set of bearings on the segmental rims, and bolts for fastening said second set of bearings to the said rims, substantially as shown and described.

2. A dumb-waiter or elevator frame having a set of alined fixed

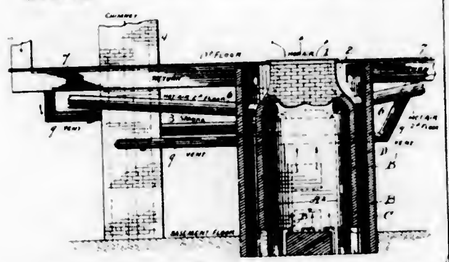
bearings, supports having segmental rims, the centers of which coincide with the axis of said fixed bearings, a second set of bearings resting on the said segmental rims to maintain the same relative distance between the axes of the two sets of bearings upon shifting the second set of bearings on the segmental rims, bolts for securing the second set of bearings in place on the rims, a brake-band attached to the said frame, and a brake-lever for the said brake-band and pivoted on the said frame, substantially as shown and described.



3. A dumb-waiter, comprising a frame having a set of alined fixed bearings for the driving-shaft, supports forming part of the frame and having segmental rims, the centers of which coincide with the axes of the said bearings, a second set of bearings for the driven shaft and secured to the said rims, a driving-shaft journaled in said driving-shaft bearings and carrying the usual working pulley, a pinion on the said driving-shaft, a gear-wheel in mesh with the said pinion, a driven shaft journaled in the bearings on the said rims, and carrying said gear-wheel, and a rope-pulley on said driven shaft, for carrying the rope connected with the cage and the counterbalancing-weight, the runs of said rope extending vertically from the pulley, to directly connect with the cage and the counterbalancing-weight, substantially as shown and described.

4. A dumb-waiter, comprising a frame having a set of alined fixed bearings for the driving-shaft, supports forming part of the frame and having segmental rims, the centers of which coincide with the axes of the said bearings, a second set of bearings for the driven shaft and secured to said rims, a driving-shaft journaled in said driving-shaft bearings and carrying the usual working pulley, a pinion on the said driving-shaft, a gear-wheel in mesh with the said pinion, a driven shaft journaled in the bearings on the said rims, and carrying said gear-wheel, a rope-pulley on said driven shaft, for carrying the rope connected with the cage and the counterbalancing-weight, the runs of said rope extending vertically from the pulley, to directly connect with the cage and the counterbalancing-weight, a brake-band wheel forming part of the working pulley, a brake-band for engagement with said brake-band wheel and attached to the fixed frame, and a brake-lever fulcrumed on the said frame and engaging the said brake-band for operating the latter, substantially as shown and described.

645,813. SYSTEM OF HEATING AND VENTILATION. WILLIAM H. HORNEL, Austin, Minn. Filed Mar. 17, 1898. Serial No. 674,216. (No model.)



Claim.—1. The herein-described system consisting of a heate inclosed by two concentric walls spaced apart to form an annular chamber between them, the inner wall forming an annular chamber around the heater, said inner wall having an annular series of ports or holes at its lower end connecting the outer annular chamber with the annular chamber surrounding the heater, means for conducting cool air to the upper end of the outer annular chamber and means for conducting heated air from the chamber surrounding the furnace.

2. The herein-described system of heating and ventilating consisting of a heater located below the lower floor of a building, a wall surrounding the heater so as to form an annular chamber surrounding the heater, said wall having an annular series of constantly-open holes at its lower end, the upper end of said wall forming a hot-air outlet and constituting the sole means for supplying heat to said lower floor, a second annular wall inclosing the first and spaced therefrom, return-flues communicating with rooms of the building and with the upper portion of the annular chamber formed by the two annular walls, and flues connecting the return-flues with the chimney, substantially as set forth.

3. The combination with a furnace, of a wall surrounding the same so as to form an annular chamber, an outer wall surrounding the first so as to form a second annular chamber in constant communication at the lower end with the first by means of an annular series of openings, said outer annular wall having a uniform diameter throughout and the upper end of the inner wall having a contracted diameter to enlarge the upper end of the outer annular chamber, return-flues communicating with said enlarged upper end of the outer annular chamber and hot-air flues communicating with the inner annular chamber, substantially as set forth.

4. The combination with a heater, of two concentric walls forming an inner chamber surrounding the heater and a chamber between said walls, an annular series of ports connecting the lower ends of said chambers, the upper end of the inner wall contracted and provided on its upper end with a register to supply heated air to the lower floor of a building and means for conveying cool air to the upper end of the chamber between the concentric walls.

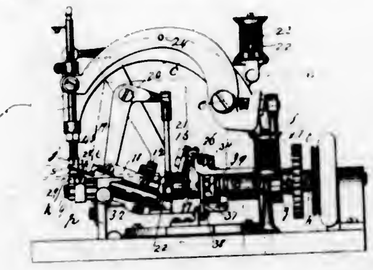
5. In a heating and ventilating system, a heater, two concentric walls surrounding said heater to form an inner and an outer chamber surrounding the heater, an annular series of ports connecting the lower ends of said chambers, means communicating with the inner chamber for conducting heat therefrom, ventilating-flues and cold-air-return flues communicating with the upper end of the outer chamber around the heater, the capacity of the cold-air-return flues being substantially equal to the capacity of the outer chamber surrounding the heater plus the capacity of the ventilating-flues, substantially as set forth.

645,814. COMBINED SPECTACLE-CASE AND PENCIL-HOLDER. EVANDER M. JOHNSON, Manly, N. C. Filed Jan. 11, 1900. Serial No. 1,110. (No model.)



Claim.—The combination with a spectacle-case having a vertically-disposed loop formed on its rear side; of a metallic strip seated in said loop and having its ends formed with eyes, fastening means engaged with said eyes, and transversely-disposed strips having loops struck up from their body portions through which the ends of the vertical strip project, and having their outer ends formed with alined spring-hooks to receive and support a pencil, substantially as and for the purpose set forth.

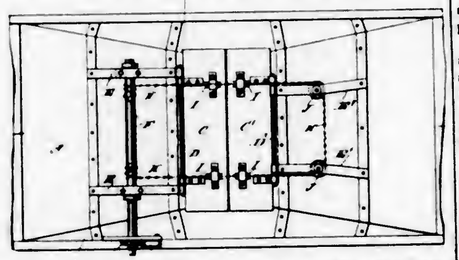
645,815. OVERSEAMING SEWING-MACHINE. HERMANN A. KLEMM, New York, N. Y. Filed June 5, 1899. Serial No. 719,475. (No model.)



Claim.—1. In an overedge sewing-machine, the combination with an upright needle and horizontal work-plate, feed mechanism, and means for operating the needle and feed mechanism, of the rotatory oscillating hook, the axis of which lies in a vertical plane of the needle and forms an obtuse angle with the needle whereby said hook is adapted to take a loop of the needle-thread from under the work obliquely upward past the edge of the work, and the reciprocating looper lying in a vertical plane of the needle and also at an obtuse angle thereto and adapted to pass through said needle-thread loop and deliver a loop of its thread to the needle over the work, also means for operating said hook and looper.

2. In an overedge sewing-machine, the combination with an upright needle and horizontal work-plate, feed mechanism, and means for operating the needle and feed mechanism, of the looper, and a rotatory oscillating hook, the axis of which hook lies in a vertical plane of the needle and forms with the needle-axis an obtuse angle such that the hook taking the needle-loop under the work will by its rotating motion clear the edge of the work in carrying said loop up to the looper, said looper adapted to deliver the looping-thread to the needle over the work, also means for actuating said hook and looper.

645,816. DUMPING-CAR. GEORGE H. LAWRENCE, Middletown, N. Y. Filed Oct. 27, 1899. Serial No. 734,943. (No model.)



Claim.—1. A dumping-car, provided with a winding-shaft located on the under side of the car and at one side of the dumping-doors, and an equalizing-chain arranged for winding at its ends on said shaft, the chain extending transversely across the dumping-doors and having a traveling connection with the car, to allow the chain to equalize, substantially as shown and described.

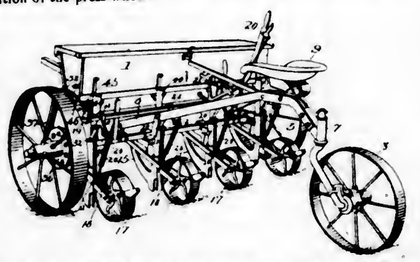
2. A dumping-car, provided with a winding-shaft on the under side of the car-body and at one side of the dumping-doors, an equalizing-chain arranged to wind at its ends on said shaft, the chain extending transversely across the dumping-doors and car-body, and pulleys on the car-body at the side of the doors opposite that at which the shaft is located, the chain passing over said pulleys, to allow the chain to equalize, substantially as shown and described.

3. A dumping-car, provided with a winding-shaft on the under side of the car-body and at one side of the dumping-doors, an equalizing-chain arranged to wind at its ends on said shaft, the chain extending transversely across the dumping-doors and car-body, pulleys on the car-body at the side of the doors opposite that at which the shaft is located, the chain passing over said pulleys, to allow the chain to equalize, and door-pulleys on the under side of the doors at or near the free ends thereof, and under which the chain passes from the winding-shaft to the car-body pulleys, substantially as shown and described.

4. A dumping-car, provided with a winding-shaft on the under side of the car-body and at one side of the dumping-doors, an equalizing-chain arranged to wind at its ends on said shaft, the chain extending transversely across the dumping-doors and car-body, pulleys on the car-body at the side of the doors opposite that at which the shaft is located, the chain passing over said pulleys, to allow the chain to equalize, and door-pulleys on the under side of the doors at or near the free ends thereof, and under which the chain passes from the winding-shaft to the car-body pulleys, the said car-door pulleys being located below the horizontal plane in which the said car-body pulleys and the said winding-shaft are located, substantially as shown and described.

645,817. SEEDING-MACHINE. ALEXIUS C. LINDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Jan. 12, 1900. Serial No. 1,195. (No model.)

Claim.—1. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of means for raising and lowering said parts, and means for adjusting the runner to vary the depth of planting, without materially altering the position of the press-wheel.



2. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of an adjusting device common to said parts and connected therewith, said adjusting device formed and arranged to move the runner and wheel vertically and adapted to adjust the runner without changing the position of the wheel.

3. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of springs acting thereon, means for raising and lowering the parts, and means for varying the pressure of the spring on the runner without varying the pressure of that on the press-wheel.

4. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of a rocking arm, a rod connecting said arm with the press-wheel and adapted, when the press-wheel is lowered, to extend in line with the arm, a second rocking arm fixed with relation to the first arm, and a rod connecting the same with the runner and adapted, when the press-wheel is lowered, to extend at an inclination to the second arm.

5. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of a rocking arm, a rod having a sliding connection with the arm and jointed to the press-wheel, a spring encircling the rod and acted on by the arm, a second arm, a rod having a sliding connection therewith and jointed to the runner, and a spring encircling said rod and acted on by the second arm.

6. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of rocking arms extending one in the rear of the other, means for rocking the arms, a connection between the front arm and the press-wheel, and a connection between the rear arm and the runner.

7. In a seeding-machine, the combination with a series of vertically-movable runners and vertically-movable press-wheels, of a rock-shaft thereover; a series of pairs of arms on said shaft, each pair comprising a front and a rear arm, a series of rods connecting the front arms respectively with the press-wheels, and a series of rods connecting the rear arms respectively with the runners.

8. In a seeding-machine, the combination with a vertically-movable runner and a vertically-movable press-wheel, of a movable frame in which the press-wheel is mounted, a rock-shaft above said parts, an arm fixed to the shaft and formed with a pivoted head, a rod extending through the head and jointed to the press-wheel frame, a spring encircling the rod and bearing on the head, a second arm fixed to the shaft and formed with a pivoted head, a rod extending through the head and jointed to the runner, and a spring encircling said rod and bearing on the pivoted head.

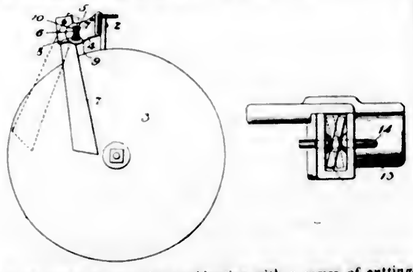
9. In a seeding-machine, the combination with the axle and its sustaining-wheels, of a depending guide-arm, a vertically-movable press-wheel frame comprising two arms extending at opposite sides of the guide-arm, a press-wheel journaled in the frame and means for raising and lowering the frame.

10. In a seeding-machine, the combination with the axle and ground-wheels, of a casting applied to the axle and formed with a depending guide-arm, a forwardly-extending arm, and a rear tubular extension, a runner pivoted to the forwardly-extending arm and formed with a seed-channel adapted to receive the tubular extension, a press-wheel frame comprising two bars extending at the sides of the runner and guide-arm and pivoted to the forwardly-extending arm, a press-wheel mounted in said frame and means for raising and lowering the press-frame and the runner.

645,818. DISK HARROW. AUGUST LINDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed Dec. 14, 1899. Serial No. 740,348. (No model.)

Claim.—1. In a disk harrow the combination with the frame of a series of rotary disks mounted thereon, a series of rocking blade-holders sustained by the frame, a series of scraper-blades each mount-

ed in a holder and movable independently thereof in the direction of the axes of the disks, and a series of springs, one mounted in each holder and bearing on the blade therein and tending to urge the same against its disk: whereby the blades are adapted to be moved in gang across the face of the disks from their centers to the peripheries and are each movable independently in its holder in the direction of the axes of the disks, subject to the action of the springs.



2. In a disk harrow the combination with a series of cutting-disks, of a series of swinging scraper-blades, means for swinging the blades in a gang across the faces of the disks between the centers and peripheries, said blades being each movable independently in the direction of the axes of the disks and also movable independently around the longitudinal axes of the blades, and springs acting on the blades and tending to hold the same in contact with the disks.

3. In a disk harrow the combination with a series of cutting-disks of a rocking bar above the same provided with a series of sockets, scraper-blades each with its upper end extending loosely in a socket, and fastening devices serving to suspend the blades loosely in the sockets.

4. In a disk harrow the combination with a series of rotary disks of a rocking bar thereover, means for rocking the bar, a series of holders on the bar having openings widest at the bottom, a series of scraper-blades having each its upper end extending and loosely secured in the socket, and springs mounted in the holders and bearing on the respective blades.

5. In a disk harrow the combination with a series of disks of a rocking bar thereover, a series of holders applied to the bar, each with an opening to receive a blade and formed each with a socket, a series of blades with their upper ends extending loosely and secured in the openings, and springs seated in the sockets and bearing on the blades.

6. In combination with a series of cutting-disks, a rocking bar thereover, means for rocking the bar, a series of blade-holders applied to the rear face of the bar each with a vertical opening having its sides diverging and inclined outward toward the respective disks, a series of scraper-blades, each with its upper end extending in an opening, fastening devices for the blades, and a series of springs mounted in the holders and bearing on the blades.

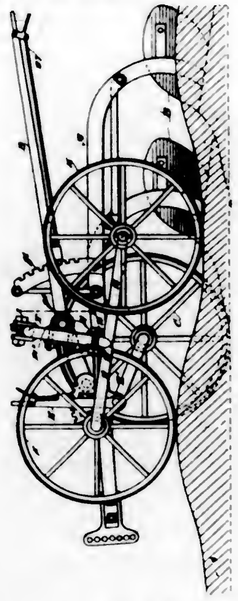
7. In a disk harrow the combination with a disk of a rocking bar thereover formed with a socket, a scraper-blade having its upper end extended in the socket, a fastening device for holding the same in the socket, said blade and socket formed relatively to permit the blade to move in the direction of the axis of the disk and also around its own longitudinal axis, and a spring bearing on the blade and tending to hold the same against the disk.

8. In a disk harrow the combination with a series of disks of a rocking bar thereover, a series of blade-holders fixed to the bar each being formed with a vertical opening to receive the blades, said openings being considerably larger than the thickness of the blades to permit them to move therein, a series of blades extending in said opening and each provided in its upper end with an enlarged hole, fastening-pins sustained by the holders and extending in the holes in the blades, and springs also sustained by the holders and bearing on the respective blades; whereby the rocking bar serves as the sole support for the blades which have an independent universal movement subject to the action of the springs.

645,819. LAND-WHEEL ATTACHMENT FOR SULKY-PLOWS. GEORGE A. LITKENHOUSE, Sunbeam, Ill. Filed Nov. 18, 1899. Serial 737,484. (No model.)

Claim.—1. A land-wheel attachment for sulky-plows, consisting of a frame having arms extending in opposite directions from opposite ends, wheels carried by the said arms, and a shaft arranged longitudinally of the frame and upon which the frame is loosely mounted, said shaft being adapted for connection with a plow or other implement to which the attachment is to be made.

2. In a land-wheel attachment for sulky-plows, an arched frame provided with horizontal arms, one of the said arms extending forwardly from the lower portion of a vertical member of the frame, the other arm extending horizontally rearward from the opposing vertical member of the frame, spindles carried by the said arms, wheels mounted on the said spindles, uprights carried by the frame, boxes adjustable upon the uprights, and a shaft mounted in the said boxes and upon which the frame swings, as described.



3. In a land-wheel attachment for sulky-plows and like machines, an arched frame, arms extending in opposite directions from the lower portions of the vertical members of the said frame, wheels carried by the said arms, adjustable standards carried by the body portion of the said frame, boxes adjustable on the said standards, a shaft mounted in the said boxes and upon which the frame swings, and means for connecting the said shaft with the plow or other implement, as set forth.

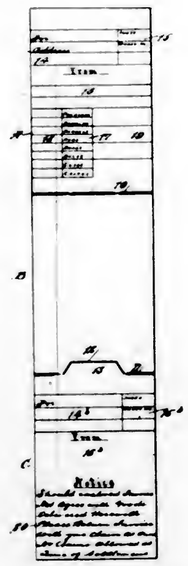
4. In a land-wheel attachment for sulky-plows, the combination with a wheeled frame having top and bottom bars, the wheels of said frame being arranged one in advance of the other, of uprights secured to the frame, boxes adjustably secured to the uprights, and a shaft mounted in the boxes and upon which the frame is free to swing, substantially as described.

5. In a land-wheel attachment for sulky-plows, the combination of an arched frame having wheel-carrying arms extending in opposite directions from the vertical end members of the frame, parallel bars secured to the lower ends of the vertical members of the frame, uprights, secured to the horizontal member of the frame, each upright consisting of two bars, the upper end of one bar extending in front of the said horizontal bar of the frame and the other in rear of the same, the said bars being provided with teeth on one face, boxes engaging the teeth of the bars of the uprights, clips securing the boxes to the uprights, and a shaft mounted in the boxes and upon which the frame swings, substantially as described.

645,820. INVOICE-SHEET. CHARLES LOEBMAN, New York, N. Y. Filed Dec. 20, 1899. Serial No. 740,998. (No model.)

Claim.—An invoice-sheet, comprising an envelop-section having a central projecting flap at its opening, a receipt-section connected with the envelop-section at the open end thereof at each side of said central flap, and a tag-section connected with the other or free end of the receipt-section, the three sections being of substantially the same length, and the receipt-section having an addressing-panel on its back, while the envelop-section and tag-section have on their front faces addressing-panels so located that when the sheet is folded, the three addressing-panels will be superposed, substantially as described.

645,820



645,821. DISINFECTING DEVICE. LEWIS F. LESSENGER, Lowell, Mass., assignor to Alberto Smithson and Charles Daggett, Dracut, Mass. Filed June 10, 1899. Serial No. 720,054. (No model.)



Claim.—1. A disinfecting body, comprising separable hollow sections adapted to contain a disinfectant, and a perforated tube arranged longitudinally in each section and opening through the end wall thereof, substantially as described.

2. A disinfecting body, comprising separable hollow sections adapted to contain a disinfectant, each section being provided with an apertured partition, and a perforated central tube in each section, each tube extending from the partition to the end of the section and opening through the same, substantially as described.

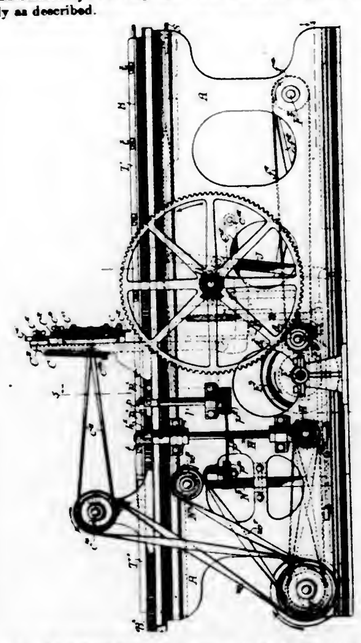
3. A disinfecting body, comprising separable hollow sections adapted to hold a disinfectant and provided with abutting partitions, one partition being provided with a recess and the other with a protuberance to enter said recess and a perforated tube leading through each section and opening through the wall thereof, substantially as described.

4. A disinfecting body, comprising two separable hollow sections having bottom-apertured partitions, one partition being depressed to form a recess and the other being formed into a projection to enter the recess, and perforated tubes arranged longitudinally in the sections and opening through the end walls thereof, substantially as described.

5. A disinfecting body, comprising separable hollow sections having abutting partitions and adapted to hold a disinfectant, said partitions being centrally apertured and tubes extending longitudinally through the sections and opening through the end walls thereof, the tubes having perforations therein and also projecting nipples, substantially as described.

645,822. BLIND-STILE-BORING MACHINE. HUGH L. MANNING, Philadelphia, Pa. Filed Apr. 22, 1899. Serial No. 714,045. (No model.)

Claim.—1. The combination in a machine for boring the stiles of blinds, of a frame, a table on which the stiles are mounted, drilling mechanism for boring the holes in the stiles, means for driving the drills, means for feeding the table forward intermittently the distance from one hole to another, independent means for feeding the table forward at the points where the cross-bars are located, and means for automatically returning the table to its original position, substantially as described.



2. The combination of a frame, drilling mechanism carried by said frame, a table on which are mounted the stiles to be bored, a sectional rack on the table, lugs on the table alternating with the racks, a feed-cam acting upon the racks to feed the table forward, and a lever acting in conjunction with the lugs on the table to throw the feed-cam out of gear, and mechanism for feeding the table forward while the feed-cam is out of gear, substantially as described.

3. The combination in a boring-machine, of a frame, a table adapted to travel thereon to which the stiles to be bored are secured, a frame in which the drill-spindles are mounted, means for intermittently raising and lowering said drill-frame, mechanism for intermittently feeding the table while the drill-frame is being raised, provision for adjusting said drill-frame both vertically and horizontally, and mechanism for moving the table at predetermined intervals independently of the intermittent feed of the latter, substantially as described.

4. The combination of the frame, a table thereon to which the stiles to be bored are secured, means for intermittently feeding the table forward, a vertically-movable drill-frame, drills carried thereby, means for rotating said drills, a driven shaft, cams on the driven shaft, levers connected to the drill-frame and actuated by the cam whereby the drills are presented to the stiles, independent means for raising the drill-frame and drills after the holes have been bored, and mechanism for moving the table at predetermined intervals independently of the intermittent feed of the latter, substantially as described.

5. The combination of a frame, a table adapted to travel thereon to which the stiles to be drilled are secured, means for intermittently feeding the table forward, a cross-head mounted on vertically-reciprocating rods, means for reciprocating said cross-head, a transversely-adjustable frame suspended from said cross-head, a vertically-adjustable frame carried thereby, drill-spindles mounted on the vertically-adjustable frame, means for driving said spindles, and mechanism for moving the table at predetermined intervals independently of the intermittent feed of the latter, substantially as described.

6. The combination in a boring-machine, of a frame, a table on which the stiles to be bored are secured mounted thereon, drilling mechanism mounted on the frame and arranged above the table, a bar having a depending portion secured to the under side of the table, a series of adjustable rack-sections secured to the depending portion of said bar, lugs adjustably secured to the under side of the table and alternating with the rack-sections, a feed-cam adapted to engage the teeth of the rack-sections, driving mechanism for said cam, a lever

engaged by said lugs and serving to shift the driving mechanism for the feed-cam to throw the latter out of action, and means for feeding the table forward when the feed-cam is out of action, substantially as described.

7. The combination in a boring-machine, of a frame, a longitudinally-movable table mounted thereon, drilling mechanism carried by the frame, adjustable rack-sections mounted on the under side of the table, a driven wheel, a projection forming a cam arranged on a portion of the periphery of said wheel, said projection adapted to engage the teeth of the rack-sections whereby the table will be moved intermittently, and means for holding said driven wheel out of action, substantially as described.

8. The combination of the frame, the table mounted thereon, drilling mechanism, a feed-rack on the under side of the table, and a driven wheel having a removable cam-section engaging the rack of the table whereby the latter is fed forward intermittently, substantially as described.

9. The combination in a machine for boring blind-stiles, of the frame, a table adapted to travel thereon, drilling mechanism, a toothed rack on the under side of the table, a feed cam-wheel engaging said rack to feed the table intermittently, lugs on the under side of the table, mechanism controlled by the lugs to throw the cam out of gear, toothed racks on one or both sides of the table, pinions engaging said racks, a series of shifting mechanisms for throwing the pinions into and out of gear, and mechanism connecting the several shifting devices so that the table will be moved by the racks and pinions when the cam-wheel is out of gear, substantially as described.

10. The combination in a boring-machine, of the frame, drilling mechanism, a table adapted to travel on the frame, ratchet-teeth on the under side of the table, a feed cam-wheel engaging said ratchet-teeth and adapted to feed the table forward intermittently, racks on the edge of the table, pinions engaging said racks, mechanism for rotating said pinions, a belt-shifter controlling the mechanism for rotating said pinions whereby they may be turned in opposite directions to move the table forward or back, means for actuating the belt-shifter, stops on the under side of the table, and reversing mechanism in operative engagement with the belt-shifter, whereby when the stops come in contact with the reversing mechanism, the pinions will be rotated so as to return the table to its original position, substantially as described.

11. The combination in a boring-machine, of the frame, drilling mechanism, a table adapted to travel on the frame, ratchet-teeth on the under side of the table, a feed cam-wheel engaging said ratchet-teeth and adapted to feed the table forward intermittently, racks on the edge of the table, pinions engaging said racks, mechanism for driving said pinions, a belt-shifter connected therewith whereby the direction of rotation of the pinions engaging the racks on the sides of the table, is controlled, stops on the under side of the table, and reversing mechanism for actuating said belt-shifter when said reversing mechanism is engaged by the stops whereby the table will be returned to its original position, substantially as described.

12. The combination of the frame, a table adapted to travel thereon, drilling mechanism, a cam-wheel for feeding the table forward intermittently, lugs on the table, mechanism controlled by the lugs to throw the cam-wheel out of gear, driving mechanism, means for reversing said driving mechanism so that it will either feed the table forward or backward, the driving mechanism being so connected with the reversing mechanism that it will be thrown into gear to drive the table forward when the cam-wheel is thrown out of gear, and a stop on the table adapted to reverse the motion of the feed mechanism, substantially as described.

13. The combination of a frame, a table mounted thereon, drilling mechanism, means for feeding the table forward intermittently, means for throwing this intermittent mechanism out of engagement, independent mechanism for feeding the table either forward or backward, shifting mechanism, and a shifting-bar in the bottom of the frame, with intermittent mechanism acting on the shifting-bar so as to reverse the table automatically and return it to its original position, substantially as described.

14. The combination in a blind-stile-boring machine, of the frame, a table, drilling mechanism, means for feeding the table forward, a clamp for the stiles consisting of three bars arranged side by side, the center bar being connected to the side bars by links and springs, and means for moving the center bar to clamp the stiles on the table, substantially as described.

15. The combination in a blind-stile-boring machine, of the frame, a table, drilling mechanism, means for feeding the table forward, a clamp for the stiles consisting of three bars arranged side by side, one of said bars being rigid, another bar adapted to be moved laterally but held against longitudinal movement, a third bar arranged between the other two and serving as the operating-bar, provision for connecting said bars together, springs connected to the bars for keeping the clamp in the retracted position, and a lever for moving the operating-bar longitudinally so as to bring the laterally-moving bar of the clamp into engagement with the stiles, substantially as described.

16. The combination in a blind-stile-boring machine, of the frame, a table, boring mechanism, means for feeding the table forward, a clamp for the stiles consisting of three bars arranged side by side, one of said bars being rigid, and means for holding one of the other bars against longitudinal movement, a third bar being the operating-bar and connected to the other two bars, springs also connected to the bars, and a lever for moving the operating-bar longitudinally, substantially as described.

17. The combination in a blind-stile-boring machine, of the frame, a table, means for intermittently feeding the table forward, means for returning the table, a shifter-bar serving to move into action the means for returning the table, and a lever connected to said shifter-bar and adapted to be acted upon by stops on the table, substantially as described.

18. The combination of the frame, a table B, sectional rack-plates b' and b^2 secured to the under side of the table, lugs b^3, b^4 and b^5 also secured to the under side of the table, a cam-wheel E having a section e adapted to engage the teeth of the rack-plates b' and b^2, a shaft E' on which the wheel E is mounted, a driven shaft D geared to the shaft E', means for driving said shaft D including suitable belts, belt-shifting mechanism, a floating lever G forming part of the actuating mechanism of the belt-shifter, a pin e' on the wheel E adapted to move the lever G, the upper end of said lever being adjacent to the path of the lugs b^3, b^4 and b^5, substantially as described.

19. The combination of the frame, a table B, rack-plates b' and b^2 on the under side of the table, lugs b^3, b^4 and b^5, also on the under side of the table, a driven shaft F^3 having fast and loose pulleys thereon, a belt-shifter g adapted to shift the belt from one pulley to another, a floating lever G connected to the shifter g, the upper end of said lever being adjacent to the path of the lugs, a shaft E' driven by the shaft F^3 and having a cam-wheel E thereon, the cam-section of said wheel engaging the teeth of the rack-sections, and a pin e' on said wheel adapted to move the lever G, substantially as described.

20. The combination of the frame, a table B, rack-plates on the under side of the table, lugs b^3, b^4 and b^5, arranged opposite the spaces between said rack-plates, a driving-shaft F, a drum-shaft F^3 belted to the driving-shaft, a shaft F^2 having fast and loose pulleys thereon and connected by belts to the drum-shaft F^3, a pinion on the shaft F^2, a shaft D having a gear-wheel thereon meshing with said pinion, a shaft E' at right angles to the shaft D and geared thereto by bevel-wheels, a cam-wheel on said shaft E', the cam of said wheel engaging the rack-teeth on the under side of the table, a belt-shifter for moving the belt that drives the shaft F^2, a floating lever connected to said belt-shifter, the upper end of said lever being adjacent to the path of the lugs on the under side of the table, a spring g^4 connected to said lever, and a pin e' on the cam-wheel acting upon the floating lever substantially as described.

21. The combination of the frame, a table B, a driven shaft D, a shaft E' geared to the shaft D, a feed cam-wheel on said shaft, racks on the under side of the table with which the cam-wheel engages to intermittently move the table forward, a drill-frame, drills carried thereby, pivoted levers G^3 connected to the drill-frame, cams on the shaft D for actuating the levers to draw the drill-frame down, with means for driving the drills carried by the drill-frame, substantially as described.

22. The combination of the frame, a table on which the stiles to be drilled are mounted, a drill-frame adapted to guides arranged above the table, drill-spindles carried by said frame, means for driving the spindles, adjustable rack-plates made in sections and secured to the under side of the table, lugs b^3, b^4 and b^5 also adjustable and secured on the under side of the table, a driven shaft D having cams e^3 at each side, levers e^5 pivoted to the frame and actuated by the cams, a connecting-rod e^6, slides e^4 connected to the rods and carrying the drill-frame, a longitudinal shaft E' geared to the shaft D, a cam-wheel E on said shaft E' having a cam-section e adapted to engage the teeth of the rack-plates on the under side of the table means controlled by the lugs b^3 for throwing the shaft D out of gear during certain portions of the movement, and independent mechanism for driving the table forward while the shaft D is out of gear, substantially as described.

23. The combination of the frame A, table B, means for intermittently feeding the table forward, means for throwing such intermittent feed out of action, racks on each side of the table, pinions engaging said racks, means for driving said pinions, and shifting mechanism for reversing the movement of the driving mechanism so that said mechanism will drive the table either forward or backward, substantially as described.

24. The combination of the frame, the table, racks on the under side of the table suitably spaced apart, lugs also on the under side of the table arranged opposite the spaces of the racks, mechanism

engaging said racks for feeding the table forward intermittently, mechanism controlled by the lugs for stopping the intermittent forward feed of the table, a rack secured to one side of the table, a pinion engaging said rack, means for rotating the pinion to drive the rack either forward or backward, reversing mechanism, and stops on the table for controlling said reversing mechanism, substantially as described.

25. The combination of the frame, a table, intermittent mechanism for driving the table forward, a shaft F^3, fast and loose pulleys on the shaft controlling the mechanism for feeding the table forward, a belt-shifter g for shifting the belt onto the fast or the loose pulley, independent means for driving the table either in the forward or reverse direction, a shaft connected to said mechanism, loose pulleys on said shaft and a shifter G' for throwing either of the loose pulleys into gear with the shaft, a lever g^4 connecting the two shifters, a cross-bar g^5 to which this lever is pivoted, a rope-drum, a lever N^3 controlling the position of said rope-drum so as to throw it into or out of gear with its shaft, a lever J controlling the reversing mechanism, a rope secured to the drum and connected to said lever J, and a longitudinal shifting-bar I having projections i, i', i^2 and i^3 coacting with and serving to move the shifters g and G', bar g^4 and lever N^3, said bar serving also to move the lever J which is pivotally connected thereto, substantially as described.

26. The combination of the frame, the table B, racks at the side of the table, pinions h^5 engaging said racks, shafts H', pinions h^4 meshing with the pinions h^5, a shaft H geared to the shafts H', loose pulleys on said shaft H driven in opposite directions, clutching mechanism for clutching either loose pulley to the shaft, a shifter G' controlling the position of the pulleys, with means for operating said shifter, substantially as described.

27. The combination of the frame, a table, means for intermittently feeding the table forward, means for throwing out said forward feed mechanism, a driven shaft H, loose pulleys on said driven shaft, means for throwing one or the other of the pulleys into engagement with the shaft, pinions driven by said shaft and adapted to racks on the table, a shifter-bar I, a pivoted lever J connected to said shifter-bar, a rope-drum, ropes secured to said drum and connected to the lever J, a shaft N' on which the rope-drum is mounted, clutch mechanism between the drum and the shaft, a lever N^3, a shaft P, a rope connected to the lever and passing around a pulley on said shaft, a toothed segment p on the shaft P adapted to engage the rack on the table so that when the table is reversed the segment will move a predetermined distance, shifting the rope-drum and throwing the intermittent feed into operative position, substantially as and for the purpose set forth.

28. The combination in a machine for boring the holes in blind-stiles, of a frame, a table adapted to travel thereon, a rack on each side of the table, pinions engaging said racks, a shaft H geared to said pinions, loose pulleys on the shaft, clutch mechanism by which either one of the pulleys can be thrown into gear, means for driving the pulleys in opposite directions, a pulley-shifter G', a rack on the under side of the table, a cam-wheel engaging said rack to feed the table forward intermittently, a shaft F^2 having fast and loose pulleys thereon and adapted to drive the cam-wheel, a pin on the cam-wheel, a floating lever G engaged by said pin, a belt-shifter g connected to the floating lever, lugs on the under side of the table adjacent to the path of the lever G, a driven shaft N', a rope-drum on said shaft, clutch mechanism therefor, a lever N^3 for throwing the drum into and out of engagement with its shaft, a toothed segment engaging one of the racks of the table, a shaft on which the segment is mounted, a rope-wheel on said shaft, and a rope extending from said wheel to a lever N^3, a lever J, a rope extending from the lever J to the rope-drum, a shifter-bar I to which said lever J is pivoted, a cross-bar g^5, a connecting-lever g^4 pivoted to the bar g^5 and engaging the belt-shifter g and a pulley-shifter G', projections on the shifter-bar I adapted to operate the belt-shifter g, the bar g^4, the pulley-shifter G' and the lever N^3 when the lever J is moved, and stops x, x, on the table for actuating the lever J, substantially as and for the purpose set forth.

645,828. COUPLING FOR AIR-BRAKES. ALBERT R. MARTIN, Beaver Falls, Pa. Filed Sept. 13, 1899. Serial No. 730,360. (No model.)



Claim.—1. In a flexible duct for railway-cars, a metallic or other rigid pipe, a single ball-and socket joint having one of its members fixed on an immovable support on the car and communicating with the train-pipe and its other member on said pipe, and a coupler mounted directly on the outer end of said rigid pipe by means of a single joint having a horizontal transverse axis, substantially as set forth.

2. In a flexible duct for railway-cars the combination, with the train-pipes, of metallic or other rigid pipes jointed with said train-pipes and extending downwardly and outwardly toward each other, supplemental pipes jointed with said rigid pipes, springs acting between said rigid and supplemental pipes to depress the latter, and coupling means uniting said supplemental pipes, substantially as set forth.

3. In a flexible duct for railway-cars the combination, with the train-pipes, of metallic or other rigid pipes, each jointed with its train-pipe to turn upon a vertical axis, and extending downwardly and outwardly toward each other, supplemental pipes jointed with said rigid pipes upon horizontal axes, detachable coupling means uniting said supplemental pipes, and springs acting on said supplemental pipes to turn the latter on their axes toward their coupled position, substantially as set forth.

4. As an attachment for the train-pipe of railway-cars, a metallic or other rigid pipe bent downwardly and outwardly, a single movable joint having a vertical axis by which said rigid pipe is connected directly with the train-pipe and on which it may be turned to extend back beneath the car, a supplemental pipe-section jointed with said rigid pipe upon a horizontal axis, and coupling means for uniting said attachment with the corresponding attachment of another car, substantially as set forth.

5. In a flexible duct for railway-cars the combination, with the train-pipes, of metallic or other rigid pipes, joined with said train-pipes by universal joints, and extending downwardly and outwardly toward each other, supplemental pipes joined with said rigid pipes, springs acting between said rigid and supplemental pipes to depress the latter, and coupling means uniting said supplemental pipes, substantially as set forth.

6. In a flexible duct for railway-cars the combination with the train-pipes, of metallic or other rigid pipes, each jointed with its train-pipe by a universal joint, and extending downwardly and outwardly toward each other, supplemental pipes jointed with said rigid pipes upon horizontal axes, detachable coupling means uniting said supplemental pipes, and springs acting on said supplemental pipes to turn the latter on their axes toward their coupled position, substantially as set forth.

7. As an attachment for the train-pipe of railway-cars, a metallic or other rigid pipe bent downwardly and outwardly, a single universal joint having a vertical axis by which said rigid pipe is connected directly with the train-pipe and on which it may be turned to extend back beneath the car, and coupling means for uniting said attachment with the corresponding attachment of another car, substantially as set forth.

8. As an attachment for the train-pipe of railway-cars, a metallic or other rigid pipe bent downwardly and outwardly, a single universal joint by which said rigid pipe is connected directly with the train-pipe and on which it may be turned to extend back beneath the car, a supplemental pipe-section jointed with said rigid pipe upon a horizontal axis, and coupling means for uniting said supplemental pipes, and springs acting on said supplemental pipes to turn the latter on their axes toward their coupled position, substantially as set forth.

9. The combination of a train-pipe, a metallic or other rigid pipe extending downward and outward from the train-pipe, said pipes having rigidly and inflexibly connected therewith the one a socket and the other a ball, to form a universal joint, a supplemental pipe jointed with said rigid pipe on a horizontal axis, and coupling means on said supplemental pipe, substantially as set forth.

10. The combination of a train-pipe, a metallic or other rigid pipe extending outward and downward from the train-pipe, said pipes having rigidly and inflexibly connected therewith, the one a socket and the other a ball to form a universal joint, a supplemental pipe jointed with said rigid pipe on a horizontal axis, a spring acting between said rigid and supplemental pipes to depress the latter, and coupling means on said supplemental pipe, substantially as set forth.

11. In a fluid-pressure coupling for railway-cars, the combination of a ball-and-socket joint, one member of which is rigid with the car, a horizontal transverse joint, a rigid pipe leading from the other member of said ball-and-socket joint to said horizontal joint, and a coupling means connected with the latter joint, substantially as set forth.

12. In a fluid-pressure coupling for railway-cars, the combination of rigid pipes jointed together on a horizontal axis, a supporting-joint for connecting one of said pipes with the train-pipe, an automatic uncoupling device carried by another of said pipes, and operated by turning the latter pipe to a certain angle, and means whereby the former pipe controls the latter pipe to turn it to the uncoupling po-

sition when the former pipe is actuated on its supporting-joint by the separation of the cars, substantially as set forth.

13. In a fluid-pressure coupling for railway-cars the combination of rigid pipes jointed together on a horizontal axis, a supporting-joint for connecting one of said pipes with the train-pipe, an automatic uncoupling device carried by another of said pipes and operated by turning the latter pipe to a certain angle, a stop whereby the former pipe controls the latter pipe to turn it to the uncoupling position when the former pipe is actuated on its supporting-joint by the separation of the cars, and a spring tending to turn the latter pipe to its coupled position, substantially as set forth.

14. In a fluid-pressure coupling for railway-cars, the combination of rigid pipes jointed together, a casing for one of said joints, a coupler carried by one of said pipes next to said casing and a spring inclosed within the casing and connected with the last-mentioned pipe and acting to press the same with its coupler into the coupled position, substantially as set forth.

15. In a fluid-pressure coupling for railway-cars, the combination of rigid pipes jointed together, a casing for one of such joints, a coupler carried by one of said pipes, a spring within the casing and connected with the last-mentioned pipe, to press the coupler to the coupled position, and means for changing the tension of said spring, substantially as set forth.

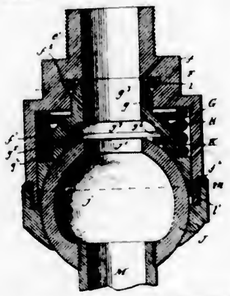
16. In a fluid-pressure coupling, the combination of a universal joint, one member of which is rigid with the car, a metallic or other rigid pipe leading outward from the other member of said joint, an automatic uncoupling device carried at the outer end of said rigid pipe and jointed thereto whereby it may be turned by hand to the uncoupling position, and a stop carried or operated by said rigid pipe for moving said coupling device into the uncoupling position when said rigid pipe is elevated by the separation of the cars substantially as set forth.

17. In a fluid-pressure coupling for railway-cars, the combination of the pipe M having the casing *m* formed with a tapering seat *m'*, the plug *n* fitting said seat and carrying a coupling device and the spring T acting upon the end of the plug, said parts forming a continuous duct, substantially as set forth.

18. In a fluid-pressure coupling for railway-cars, the combination of the pipe M, a casing *m* having a seat *m'*, a plug *n* fitting in said seat, and carrying a coupling device, and a stop S arranged at the end of said plug, and adjustable, whereby a lateral movement of the coupler is prevented from unseating said plug, substantially as set forth.

19. In a fluid-pressure coupling for railway-cars, the combination of the pipe M having a casing *m* formed with a seat *m'*, a plug *n* fitting in said seat and carrying a coupling device, and closed oil-chambers at the ends of said plug, substantially as set forth.

645,824. COUPLING FOR AIR-BRAKES. ALBERT R. MARTIN, Beaver Falls, Pa. Original application filed Sept. 13, 1899, Serial No. 730,360. Divided and this application filed Oct. 28, 1899. Serial No. 735,024. (No model.)



Claim.—1. In a joint for fluid-pressure ducts and other purposes, the combination of an interior or ball member having a through passage or chamber and adapted to be connected with a pipe, an external or socket member inclosing said ball and adapted to be connected with a pipe, said socket member comprising a casing having an internal shoulder, a supplemental socket-piece engaging said ball and secured to the casing, and a socket-piece fitting within the casing, movable longitudinally therein and having an external shoulder, and a spring interposed between said shoulders, substantially as set forth.

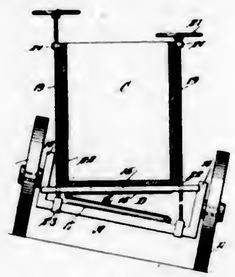
2. In a joint for fluid-pressure ducts and other purposes, the combination of an interior or ball member having a through passage or chamber and adapted to be connected with a pipe, an external or socket member inclosing said ball and adapted to be connected with a pipe, said socket member comprising a casing having two internal shoulders on different planes, a supplemental socket-piece engaging said ball and secured to the casing, and a socket-piece fitting within the casing, movable longitudinally therein and having two external shoulders opposing said shoulders of the socket-piece, a spring interposed between two of said opposing shoulders, and a ring I interposed between the other two of said opposing shoulders, substantially as set forth.

3. In a joint for fluid-pressure ducts and other purposes, the combination of an interior or ball member having a through passage or chamber and adapted to be connected with a pipe, an external or socket member inclosing said ball and adapted to be connected with a pipe, said socket member comprising a casing having an internal shoulder, a supplemental socket-piece engaging said ball and secured to the casing, and a socket-piece fitting within the casing, movable longitudinally therein and having an external shoulder and a seat g^4, a spring interposed between said shoulders, and a cleaning-washer K in said seat, substantially as set forth.

4. In a fluid-pressure coupling for railway-cars, the combination of the pipe M, and a ball-and-socket joint connected therewith, said joint comprising a casing, a movable socket-piece within said casing and having a seat g^4, a ball J, a supplemental socket-piece secured to said casing and cooperating with the first-mentioned socket-piece to hold the ball, and a cleaning-washer carried by the socket-piece above its seat and engaging the bearing-surface of the ball, substantially as set forth.

5. In a fluid-pressure coupling for railway-cars, the combination of a casing, having inclined walls f^4, a movable socket-piece therein having a seat g^4 and formed with a tapered end opposite said inclined walls, a ball engaging said seat, a supplemental socket-piece secured to said casing and engaging the ball, and a loose packing-ring between said inclined walls and the end of said socket-piece and adapted to follow the latter, substantially as set forth.

645,825. LEVELING ATTACHMENT FOR VEHICLES. JOHN NASH, Dayton, Wash. Filed Aug. 26, 1899. Serial No. 728,468. (No model.)



Claim.—1. In a vehicle, the combination with the running-gear and body, of a hinge-section pivoted at one end to the running-gear and at the other end to a portion on the body, and adjusting devices at each side of the body, substantially as specified.

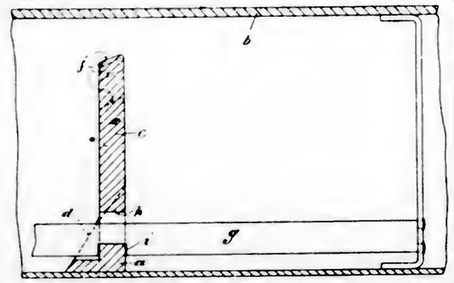
2. In a vehicle, the combination with the running-gear and the body, of a bolster on the running-gear, standards at the ends of the bolster, an adjusting-bar having sliding connection with the standards, a hinge-section connected at one end to the bolster and at the other end to the adjusting-bar, and screws for moving the body relatively to the running-gear, substantially as specified.

3. In a vehicle, a body, a cranked axle, an adjusting-bar connected to the body and having sliding connection with the upright portions of the axle, a hinge-section between the axle and bar, and screws for adjusting the body relatively to the axle, substantially as specified.

645,826. RETARDING DEVICE FOR BOILER-FLUES. GUILLAUME A. HUBBAUH, London, England. Filed Aug. 2, 1899. Serial No. 725,931. (No model.)

Claim.—1. A gas mixing, deflecting and retarding device for a steam-boiler flue, comprising a wide heavy base-piece having a wide convex lower side adapted to rest upon and fit closely against the bottom of the flue and an inclined front surface, substantially as described for the purpose specified.

2. A gas mixing, deflecting and retarding device for a steam-boiler flue, comprising a wide heavy base-piece having a wide convex lower side adapted to rest upon and fit closely against the bottom of the flue and bars carried by and extending from the upper portion of said base-piece transversely across the flue, substantially as described



3. A gas mixing, deflecting and retarding device for a steam-boiler flue, comprising a wide heavy base-piece having a wide convex lower side adapted to rest upon and fit closely against the bottom of the flue and bars carried by and extending from the upper portion of said base-piece transversely across the flue and having inclined front sides substantially as described for the purpose specified.

4. A gas mixing, deflecting and retarding device for a steam-boiler flue, comprising a wide heavy base-piece having a wide convex lower side adapted to rest upon and fit closely against the bottom of the flue and grid-like bars extending transversely of said flue from the upper portion of said base-piece, substantially as described.

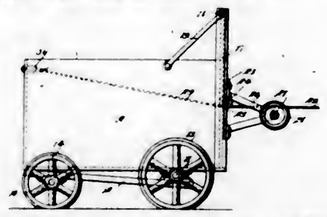
5. A gas mixing, deflecting and retarding device for a steam-boiler flue, comprising a wide heavy base-piece adapted to rest upon the bottom of a flue and upwardly-extending grid-like bars adapted to extend across said flue, the front side of said base-piece and bars being inclined, substantially as described for the purposes specified.

6. A gas mixing, deflecting and retarding device for a furnace-flue, comprising a wide heavy metal base-piece adapted to rest upon the bottom of a flue and having integral therewith a plurality of metal bars adapted to extend across the upper part of said flue, substantially as described.

7. A mixing, deflecting and retarding device for a furnace-flue comprising a metal base-piece having a wide convex lower surface and a plurality of parallel grid-like bars extending upwardly therefrom, substantially as described.

8. A gas mixing, deflecting and retarding device for a furnace-flue, comprising a wide heavy metal base-piece having a convex lower surface and an upwardly-inclined front surface and a plurality of parallel grid-like metal bars extending upward from and integral with said base-piece and of triangular section, substantially as described.

645,827. DUMPING-CAR. WILLIAM H. ORION, New Orleans, La. Filed Aug. 23, 1899. Serial No. 728,198. (No model.)



Claim.—1. In a dumping-car, a running-gear, a dumping-body mounted to tilt on the front end of said gear, a cable secured to the rear and free end of said body, stops adapted to engage with the car, and guide-wheels at the dumping end of the body, said wheels being adapted to limit the inclination of the body and restore the body to a carrying position after having been dumped.

2. A dumping-body provided with a sliding door in its dumping end, and a draft device secured to said body and connected with the door whereby to slide the latter, as set forth.

3. A dumping-body, a dumping-door for the body, a draft device connected with the body, said draft device serving also to operate the door and assist in inclining the body, and means for limiting the inclination of said body.

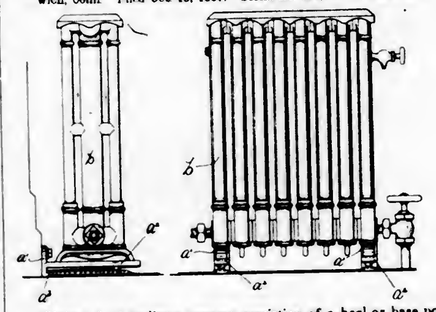
4. In a car, a dumping-body, a dumping-door, a stop for the supporting-wheels of the car, a draft-cable attached to the body and controlling the movement of the door, and guide-wheels at the dumping end of the body, arranged to limit the inclination of said body and restore the body to a carrying position after having been dumped.

5. In a car, the combination, with the running-gear, a body pivotally attached to the running-gear, a sliding door for said body, a roller carried by said door, and a draft-cable passed to an engagement with the said roller, and secured to the inner portion of said body, of stops or bumpers adapted for clamping engagement with the rails of a track and adapted for engagement with the wheels of the car, said stops or bumpers having inclined upper track-surfaces, and guide-wheels carried at the dumping end of the body, said guide-wheels being arranged for engagement with the rails of the track to limit the inclination of the body, said wheels being likewise adapted to travel upon the track-surfaces of the stops or bumpers and thus direct the body to dumping position.

6. In a dumping-car, a tilting dumping-body having a sliding door at its discharge end and a cable secured to said body for tilting the same, said cable being passed through the door, as and for the purpose set forth.

7. In a dumping-car, a tilting dumping-body having uprights at its discharge end, a door fitted to slide in said uprights and having a roller journaled therein, means for limiting the upward movement of said door, a cable secured to the dumping-body and passed under said roller, hangers extending out from the discharge end of the body, and guide-wheels carried at the outer end of said hangers, as and for the purpose set forth.

645,828. SUPPORT FOR RADIATORS. FRANK H. PATRICK, Norwich, Conn. Filed Oct. 15, 1898. Serial No. 693,575. (No model.)



Claim.—1. A radiator-support consisting of a heel or base portion, and a spring or elastic arm extending outwardly beyond it, combined with means applied to the under side of the arm, and which rests upon the floor when the weight of the radiator causes the arm to sag or drop, substantially as shown.

2. The radiator-support consisting of a heel portion a', an arm a^2 which rests upon the floor, and a second spring or elastic arm a^3 upon which the radiator is placed, and which arm a^3 extends outwardly beyond the lower one, combined with adjustable means applied to the outer end of the upper arm and which bears against the lower one, substantially as described.

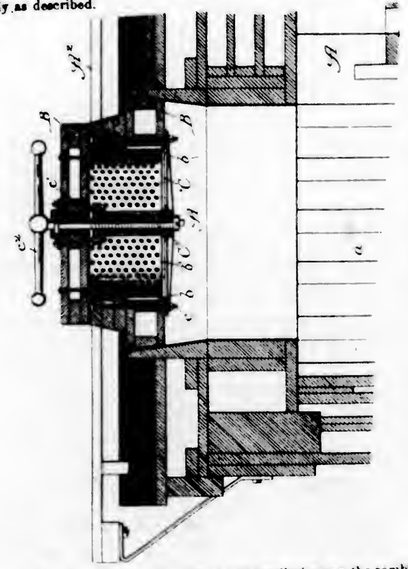
3. A radiator-support consisting of the heel portion a', an arm a^2 extending therefrom and resting upon the floor, and a second spring or elastic arm a^3 placed above the lower one, combined with an extensible portion provided with means upon its under side for resting upon the top of the arm a^3, so as to form a support for the extensible portion, substantially as set forth.

645,829. COMBINED REFRIGERATING AND VENTILATING CAR. JOHN PLAYER, Topeka, Kans. Filed Nov. 8, 1897. Serial No. 657,796. (No model.)

Claim.—1. In a combined refrigerating and ventilating car, the combination of a car-body provided with a hatch-opening in the roof thereof and a removable plug, consisting of an outer rim or body portion fitting the hatch-opening and having an air-opening within the rim or body and a second portion vertically movable on the rim or body portion and entering the air-opening thereof and a screen carried by one of said portions, whereby the plug as an entirety can be removed to open the hatch-opening and the central portion can be moved for the admission of air, substantially as described.

2. In a combined refrigerating and ventilating car, the combination of a car-body provided with an ice-tank at the end thereof and an ice-hole in the roof of the car over such ice-tank, a removable plug, consisting of an outer rim or body portion fitting the ice-hole and having a central air-opening and a central portion vertically movable on the rim or body portion and entering the air-opening of such portion to open and close the same and a screen on one of such portions, and means for moving the central portion, substantially as described.

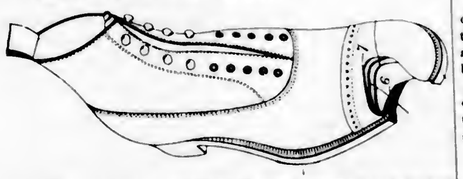
3. In a combined ventilating and refrigerating car, the combination of a car-body provided with an ice-tank at the end thereof and an ice-hole in the roof of the car over such tank, a removable plug for such ice-hole made in at least two portions—one portion fitting such ice-hole and the other portion vertically and movably secured to the same so as to open and close the air-opening, a screen in one of such portions to prevent the entrance of dirt or large bodies into the car when the air-hole is opened, and a casing for such plug adapted to completely inclose the projecting portion of the same, substantially as described.



4. In a combined refrigerating and ventilating car, the combination of a car-body provided with an ice-tank at each end thereof and an ice opening or openings in the roof of the car over such tanks, a removable plug in such ice-openings made in at least two sections, one section fitting the ice-opening and the other vertically and movably secured to the same so as to open and close an air-opening through the plug, a screen on one of such portions, and an inclosing case for such plug made of two semicircular portions adapted to rotate and one be inclosed by the other portion so as to present an opening for the plug in the desired direction, substantially as described.

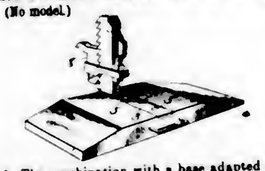
5. In a combined refrigerating and ventilating car, the combination of a car-body provided with an ice-tank at each end thereof, an ice opening or openings in the roof of the car over such tanks, a removable plug for each opening consisting of an outer rim or body portion having a central air-opening and a central portion vertically movable on the outer rim or portion entering the air-opening thereof, a rotating screw for operating the movable portion of the plug for opening and closing the air-opening therein, and a screen on one of the plug portions, substantially as described.

645,880. BOX-TOE. GEORGE L. PREBLE, Lynn, Mass. Filed Aug. 22, 1899. Serial No. 728,053. (No model.)



Claim.—A box-toe adapted to be placed beneath the tip of a shoe and formed of resilient, yet stiff and inherently waterproof material readily puncturable by a needle, and shaped to present a supporting-surface for the tip which will resume its original shape after having been distorted.

645,831. JACK-BLOCK. JAMES F. REED, WILLIAM R. BLOTCHER, and WILFRED G. O'ROURKE, Louisville, Ky., assignors of one-fourth to George David Rice Aikin, same place. Filed Apr. 22, 1899. Serial No. 714,104. (No model.)



Claim.—1. The combination with a base adapted to support a lifting-jack, of a toothed standard secured at one edge of said base, a bail loosely embracing said standard, an arm carried by said bail and having a series of teeth to engage the teeth of the standard and a shoulder to engage the rim of a car-wheel and a key disposed within said bail and between the cross-bar thereof and the rear face of the standard to retain all the teeth on said arm in mesh with a corresponding number of teeth on the standard.

2. The combination with a base adapted to support a lifting-jack, of a toothed standard secured at one edge of said base, a bail loosely embracing said standard and carrying an arm provided with teeth to engage the teeth of the standard said arm adapted to engage the rim of a car-wheel and a removable key having a flexible connection with the standard and entering the bail between the cross-bar and the rear face of the standard to retain the arm locked to the standard.

645,832. APPARATUS FOR STRIPPING FLATS IN CARDING-ENGINES. WRIGHT RHODES, Manchester, England. Filed July 25, 1899. Serial No. 725,090. (No model.)



Claim.—1. Apparatus for cleaning flats of carding-engines, consisting of a main shaft, rollers adapted to come into contact with the flats, shafts on which said rollers are mounted and adapted to revolve about the axis of the main shaft in combination with a comb mounted to revolve about the main shaft and adapted to clean the rollers of fibers substantially as described.

2. Apparatus for cleaning the flats of carding-engines, consisting of a main shaft, rollers adapted to clean the flats, shafts on which said rollers are mounted, adapted to revolve about the axis of the main shaft and pinions on the roller-shafts in combination with a comb mounted on a shaft adapted to revolve about the main shaft, and provided with a pinion, a pinion central with the main shaft, all said roller-shafts adapted to be revolved on their own axes through engagement of their pinions with the central pinion, substantially as described.

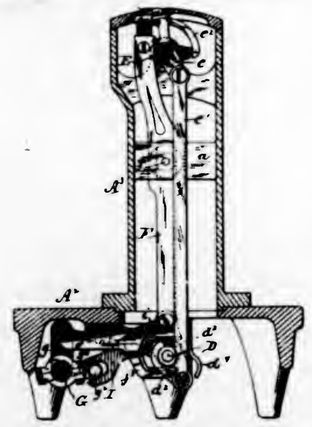
3. Apparatus for cleaning the flats of carding-engines consisting of a main shaft, rollers adapted to clean the flats and a comb adapted to clean the rollers, shafts on which the rollers and comb are mounted to revolve about the axis of the main shaft, gearing adapted to revolve the rollers on their own axes and adapted to revolve the comb on its axis at a greater speed than that of the rollers substantially as described.

4. Apparatus for cleaning the flats of carding-engines consisting of a main shaft, three shafts parallel to the main shaft and adapted to revolve both about the axis of the main shaft and on their own axes, the said shafts respectively carrying a stripping-roller, a bristle brush and a comb substantially as described.

5. Apparatus for cleaning the flats of carding-engines consisting of a stripping-roller and a roller carrying bristles spirally secured thereto, and means to cause said rollers to successively come into contact with the flats to be cleaned, substantially as described.

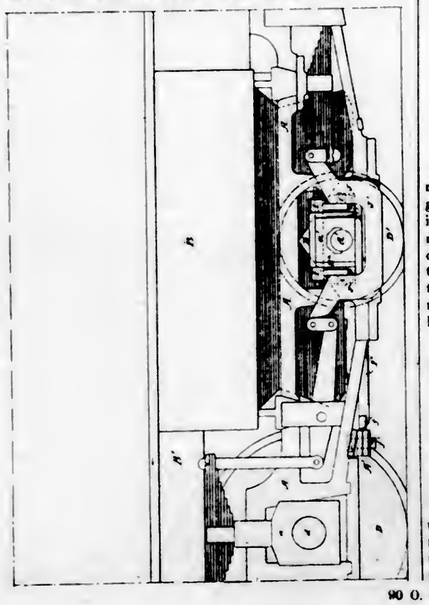
645,833. CHAIN-STITCH SEWING-MACHINE. ALBERT ROETTER, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Apr. 13, 1897. Serial No. 632,008. (No model.)

Claim.—1. In a sewing-machine, the combination with the framework thereof comprising a hollow standard, an overhanging arm and a bed-plate provided at its forward end with a vertical, hollow, work-supporting post, of a rocker located at the upper part of said post and provided with one or more double chain-stitch loopers, operative mechanism for said rocker, a take-up device for the looper thread or threads located at or near the base of said post and near the forward end of the said bed-plate, operating mechanism for said take-up device and connections between the latter and said loopers.



2. In a sewing-machine, the combination with a feeding mechanism comprising a feed-operating rock-shaft from which horizontal movements are imparted to the feed-bar, of a double chain-stitch looper, a rock-shaft from which movements are imparted to said looper, a take-up arm moving with said shaft and two take-up eyes between which said take-up arm operates, said eyes being carried by a movable part which is operated from said feed-operating rock-shaft so that the movements of said take-up eyes will be varied in accordance with the length of the feed, said eyes having a greater movement when the feed is longer and a lesser movement when the feed is shorter.

645,834. SWING-TRUCK FOR LOCOMOTIVES. KENNETH ROBERTSON, Philadelphia, Pa., assignor to Burnham, Williams & Co., same place. Filed Dec. 11, 1897. Serial No. 661,503. (No model.)



Claim.—1. The combination in a locomotive, of a frame, a rear truck pivoted thereto and capable of radial movement with relation to said frame, suspension-links on each side of the truck whereby it may be hung to said frame, said rear truck being disposed directly beneath the ash-pan of the locomotive, substantially as described.

2. The combination in a locomotive, of a rear truck made up of cross-bars extending from side to side of the same, yoke-frames at each side of said truck, said yoke-frames being secured to the cross-bars, a pivoted bar also secured to said cross-bars, and suspension-links pivoted to the yoke-frame whereby said truck is secured to the frame of the locomotive, substantially as described.

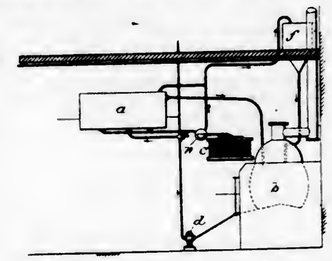
3. The combination in a locomotive, of the rear truck made up of two angle-bars extending from side to side of the same, yoke-frames at each side of said truck, said yoke-frames being secured to the angle-bars, a pivoted bar also secured to said angle-bars, and suspension-links pivoted to the yoke-frame whereby said truck may be secured to the frame of the locomotive, substantially as described.

4. The combination in a locomotive, of a fire-box, an ash-pan, a pivoted truck capable of radial movement with respect to the locomotive-frame arranged directly under the ash-pan, equalizing mechanism, and links connecting the truck with the equalizing mechanism, substantially as described.

5. The combination in a locomotive, of a frame, a fire-box, an ash-pan mounted under the fire-box, a truck-axle mounted under the ash-pan, boxes for said axle, a truck adapted to receive the boxes and having a forwardly-extending pivot-bar, said bar being pivoted to the frame of the locomotive so that the truck will be capable of radial movement with respect to said frame, and suspension-links whereby said truck is connected to the frame of the locomotive, substantially as described.

6. The combination in a locomotive, of a frame, a fire-box and ash-pan, a truck-frame under the ash-pan said frame having an extension pivoted to the frame of the locomotive so as to swing on a radius, pins on each end of the truck-frame, links suspended from each pin, blocks pivoted to the links, with equalizing-frames to which the blocks are secured, substantially as described.

645,835. PROCESS OF PRODUCING WORT FROM MALT-FLOUR. CORNELIUS SCHMITZ, Boppard, Germany, assignor to Deutsche Kapital-Versorgungs-Bank Köln-on-the-Rhine, Limited, Cologne, Germany. Filed Mar. 1, 1897. Serial No. 625,631. (No specimens.)



Claim.—The herein-described process of producing wort from malt-flour, consisting in mixing the mash with water of 35° centigrade gradually heating the same up to 65° or 66° centigrade; then drawing off a part of the wort, rich in diastase; gradually heating the remaining mash up to the boiling-point and then boiling the same; drawing off and then clarifying the fluid portion of the same at a temperature from 94° to 98° centigrade; then cooling the liquid down to 69° or 65° centigrade and then saccharifying the starch which still remains therein, by the addition of the fluid, rich in diastase, which has been previously drawn off from the mash, substantially as specified.

645,836. ROD AND FIXTURE FOR WAGON END-GATES. VALERY E. SIMMONS and ROBERT L. WILLIAMSON, Tarkington, Tex. Filed Nov. 9, 1898. Serial No. 695,994. (No model.)

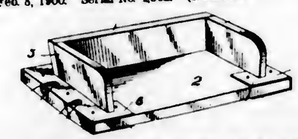


Claim.—1. The combination of a wagon-body provided with retainers attached to the inner sides of the body, said retainers having recesses adapted to receive the heads of threaded rods a screw-threaded turnbuckle engaging said rods and means to attach said rods to an end-gate, all arranged as set forth.

2. The combination of a wagon-body provided with inside retainers having interior recesses, threaded rods having heads fitting said recesses, and a threaded turnbuckle engaging said rods all arranged as set forth.

3. The combination of a wagon-body provided with inside retainers having interior recesses *b* terminating in deeper recesses *c*, threaded rods fitting said recesses *c* and a threaded turnbuckle engaging said rods, all arranged as specified.

645,837. VEHICLE-SEAT. DALLAS W. SMITH, Graham, Ind. Ter. Filed Feb. 8, 1900. Serial No. 4,502. (No model.)



Claim.—A seat consisting of the bottom, the side pieces, and the back secured to the bottom within its marginal edges, and metal plates bent around the ends of the bottom and riveted or otherwise secured thereto and provided with lateral extensions which project under the forward ends of the side pieces and under the corners formed by the rear ends of the side pieces and the back and secured in place; said bottom at its ends being formed with holes and said plates being formed with registering holes, whereby the seat may be secured in position by clips, substantially as set forth.

645,838. MICROMETER-GAGE. FRANK SPALDING, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Mar. 16, 1899. Serial No. 709,261. (No model.)



Claim.—In a micrometer-caliper, the combination with the barrel and the rotatable spindle in the barrel, of a sleeve secured in the end of the barrel and forming the support of the unthreaded portion of the spindle, an externally-screw-threaded shoulder on the sleeve, an annular conical seat in the end of the sleeve, a split ring of wedge-shaped cross-section, a spline on the split ring, a groove in the end of the sleeve for the reception of the spline, and an internally-screw-threaded cap; whereby the rotation of the spindle may be retarded and the spindle may be clamped in the adjusted position, as described

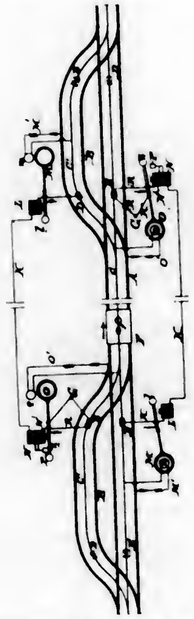
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645,839. SIGNAL FOR RAILWAYS. CLARENCE A. STIMPSON, Philadelphia, Pa. Filed Aug. 3, 1899. Serial No. 726,525. (No model.)

Claim.—1. In an electric signal for an electric railway, the combination of the main track and trolley-wire, of a signal-circuit extending between distant points on the railway one end of the circuit being connected with the trolley-wire and the other end with the ground or return circuit, a normally-closed switch connecting the signal-circuit with the trolley-wire and adapted to be opened on the passing of the trolley or current-collector of the car, an electromagnet and armature at the distant end of the signal-circuit adapted to control a danger-signal, a ground-switch controlled by the armature to open or close the signal-circuit, and means adjacent to the danger-signal operated by the trolley of the car for closing the said ground-switch and causing the danger-signal to be thrown to safety position.

2. In an electric signal for an electric railway, the combination of the main track and trolley-wire, of a signal-circuit extending between distant points on the railway one end of the circuit being connected with the trolley-wire and the other end with the ground or return circuit, a normally-closed switch connecting the signal-circuit with the trolley-wire and adapted to be opened on the passage of the trolley or current-collector of the car, an electromagnet and armature at the distant end of the signal-circuit adapted to control a danger-signal, a ground-switch controlled by the armature to open or close the signal-circuit, and means adjacent to the danger-signal operated by the trolley of the car for closing the said ground-switch and causing the danger-signal to be thrown to safety position consisting of an additional electromagnet energizing-coil for operating the armature of the ground-switch, a shunt ground-circuit and a magnetically-operated and normally-open switch operated by the trolley in passing to temporarily close the shunt ground-circuit.

3. In an electric signal for an electric railway, the combination of the main track and trolley-wire, of a signal-circuit extending between distant points on the railway one end of the circuit being connected with the trolley-wire and the other end with the ground or return circuit, a normally-closed home switch connecting the signal-circuit with the trolley-wire and adapted to be opened on the passage of the trolley or current-collector of the car, an electromagnet and armature at the distant end of the signal-circuit adapted to control a distant danger-signal, a ground-switch controlled by the armature to open or close the signal-circuit, means operated by the trolley or collector of the car for closing the said ground-switch and causing the danger-signal to be thrown to safety position, and an electromagnetically-operated home signal arranged adjacent to the normally-closed home switch.



4. In an electric signal for an electric railway, the combination of the main track and trolley-wire, of a signal-circuit extending between distant points on the railway one end of the circuit being connected with the trolley-wire and the other end with the ground or return circuit, a normally-closed home switch connecting the signal-circuit with the trolley-wire and adapted to be opened on the passage of the trolley or current-collector of the car, an electromagnetically-operated home signal arranged adjacent to the normally-closed home switch, an electromagnet and armature at the distant end of the signal-circuit adapted to control a distant danger-signal, a ground-switch controlled by the armature to open or close the signal-circuit, and means adjacent to the distant signal operated by the trolley of the car for closing the said ground-switch and causing the distant danger-signal to be thrown to safety position consisting of an additional electromagnetic energizing-coil for operating the armature of the ground-switch, a shunt ground-circuit including said coil and connecting with the line-circuit and a magnetically-operated and normally-opened switch operated by the trolley in passing to temporarily close the shunt ground-circuit.

5. In a single-track electric railway having turnouts at intervals, the combination of the main track and turnouts, and two systems of distant signals oppositely arranged and each consisting of a signal-circuit extending between distant points on the railway one end of the circuit being connected with the trolley-wire and the other end with the ground or return circuit, a normally-closed switch connecting the signal-circuit with the trolley-wire and adapted to be opened on the passage of the trolley or current-collector of the car, an electromagnet and armature at the distant end of the signal-circuit adapted to control a danger-signal, a ground-switch controlled by the armature to open or close the signal-circuit, and means operated by the trolley of the car for closing the said ground-switch and causing the danger-

signal to be thrown to safety position, the construction being such that the normally-closed trolley-interrupting switches are arranged in connection with the main-line trolley-conductor and turnout trolley-conductor so as to be operated only by the corresponding cars, and likewise the means operated by the cars for closing the ground-switch on the distant signal are also arranged to be actuated only by the corresponding cars.

6. In a block-signal system for railways, the combination of a line-circuit extending between two distant parts of the railway, a source of electric energy for supplying current to one end of the line-circuit, a normally-closed circuit interrupting switch adapted to be temporarily opened by the passage of a car on the railway, a ground connection for the line-conductor at the distant end thereof, an electromagnetically-operated distant signal energized by the current in the line-circuit, a ground-switch for interrupting the line-circuit and normally held closed by an electromagnetic device, and means under the control of the car in passing the distant signal for positively closing the ground-switch for the purpose of closing the line-circuit and throwing the distant signal to "safety."

7. In a block-signal system for railways, the combination of a line-circuit extending between two distant parts of the railway, a source of electric energy for supplying current to one end of the line-circuit, a normally-closed circuit-interrupting switch adapted to be temporarily opened by the passage of a car on the railway, a ground connection for the line conductor at the distant end thereof, an electromagnetically-operated distant signal energized by the current in the line-circuit, a ground-switch for interrupting the line-circuit and normally held closed by an electromagnetic device, means under the control of the car in passing the distant signal for positively closing the ground-switch for the purpose of closing the line-circuit and throwing the distant signal to "safety," and a home electromagnetically-operated signal energized by the current in the line-circuit and arranged adjacent to the normally-closed switch for connecting the line conductor and the source of energy.

8. In a block-signal system for railways, the combination of a line-circuit extending between two distant parts of the railway, a source of electric energy for supplying current to one end of the line-circuit, a normally-closed circuit-interrupting switch adapted to be temporarily opened by the passage of a car on the railway, a ground connection for the line conductor at the distant end thereof, an electromagnetically-operated distant signal energized by the current in the line-circuit, a ground-switch for interrupting the line-circuit and normally held closed by an electromagnetic device, and means under the control of the car in passing the distant signal for positively closing the ground-switch and thereby closing the line-circuit and throwing the distant signal to "safety," said means comprising an electromagnetic device for operating the ground-switch, a ground-circuit connecting with a source of energy on one side and the ground on the other and including the electromagnetic device, and a mechanically-operated circuit-closing switch moved by the passage of the car for temporarily closing the ground-circuit as the car passes the distant signal.

645,840. LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Nov. 4, 1899. Serial No. 735,802. (No model.)

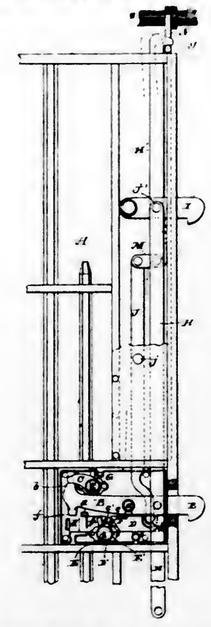
Claim.—1. The combination with a latch and a deadlocking-slide therefor, the said slide adapted to be locked in two positions, of gang locking and unlocking mechanism, means connecting said slide with said mechanism, and a lock adapted to lock the slide in its two positions.

2. The combination with a latch and a deadlocking-slide therefor, the said slide adapted to be locked in two positions, of gang locking and unlocking mechanism connected with the latch, a device connected with the slide for connecting and disconnecting parts of the gang locking and unlocking devices and a lock for moving the slide and for locking it in its two positions.

3. The combination with a latch and a deadlocking-slide therefor, the said slide adapted to be locked in two positions, of gang locking and unlocking mechanism, means connecting said slide with said mechanism, and a lock adapted to lock the slide in its two positions, the indicator or keyhole in the lock indicating visually the position of the slide or bolt.

4. The combination with a latch and a deadlocking-slide therefor, the said slide adapted to be locked in two positions, of a gang locking and unlocking mechanism connected with the latch, a device connected with the slide for connecting and disconnecting parts of the gang locking and unlocking devices, and a lock for moving the slide in its two positions, the indicator on the keyhole in said lock indicating visually the position of the slide or bolt.

5. In a lock the combination with a pivoted latch, of a longitudinally-movable slide for locking the latch against movement, a pin-lock for moving said slide and locking it in its two positions, a lever adjacent to the tail of the latch for disengaging the latch from its keeper and a lock for locking said lever.



6. In a lock the combination with a pivoted latch and a deadlocking-slide, of means for moving the slide in a position to lock the latch against movement, devices connecting said latch with gang locking and unlocking mechanism, and means connecting the slide and said gang-connecting devices so that when the slide deadlocks the latch the gang-connecting mechanism is disconnected from the gang locking and unlocking mechanism.

7. In a lock the combination with a latch a deadlocking-slide, and means connecting said latch with gang locking and unlocking mechanism, of a lock adapted to lock the slide in its two positions, the keyhole of the lock indicating the position of the slide or bolt.

8. In a lock, the combination with a latch, a deadlocking-slide, means connecting said latch with gang locking and unlocking mechanism, and means actuated by said slide for connecting and disconnecting that portion of said gang locking and unlocking mechanism carried by the door, to and from the gang-operating shaft, of a lock for locking the slide in its two positions, the keyhole of the lock indicating the position of the slide or bolt.

9. The combination with a latch, a deadlocking-slide therefor and a gang-operating shaft, of means connecting the latch and gang-operating shaft, and devices actuated by said slide for disconnecting the said connecting means between the latch and shaft from the gang-operating shaft when the latch is deadlocked.

10. The combination with a latch, a deadlocking-slide therefor and a gang-operating shaft, of a connecting-bar adapted to engage the gang-operating shaft and connected to the latch, and means connected with the deadlocking-slide for moving said connecting-bar into or out of engagement with the gang-operating shaft as the slide is moved.

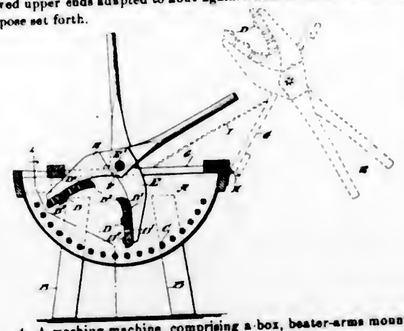
645,841. WASHING-MACHINE. CHARLES W. THOMPSON, Ontario, Cal. Filed Nov. 9, 1899. Serial No. 736,359. (No model.)

Claim.—1. A washing-machine having beaters and handled arms carrying the beaters, the fulcrum portion of the arms being reinforced, and bushings screwing into the reinforced parts, substantially as shown and described.

2. A washing-machine, comprising a box, an open frame hinged at the top of the box, a rod secured across said frame, bushings fitting on said rod, beater-arms formed with reinforcing-blocks and screwing on said bushings, one alongside of and close to the other, said arms being formed with handles and being mounted to swing independently of each other, and a beater carried by each arm, as set forth.

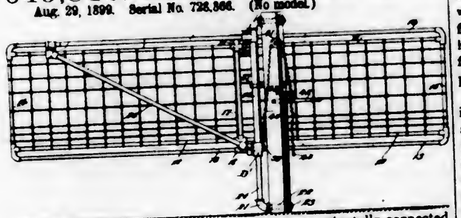
3. A washing-machine, comprising a box, an open frame hinged

at the top of the box, a rod extending across the opening in said frame, bushings mounted on said rod, beater-arms formed with reinforcing-blocks screwing on the bushings alongside of one another, said arms being provided with handles and being mounted to swing independently of each other, and a perforated beater secured to each arm, said beaters being formed with strengthening-ribs and inwardly-curved upper ends adapted to abut against each other, as and for the purpose set forth.



4. A washing-machine, comprising a box, beater-arms mounted to swing in said box independently of each other, and a perforated beater secured to each arm, said beaters being formed with inwardly-curved upper ends adapted to abut against each other, as and for the purpose set forth.

645,842. GATE. JOSHUA TENHAFT, Carson City, Mich. Filed Aug. 29, 1899. Serial No. 728,866. (No model.)

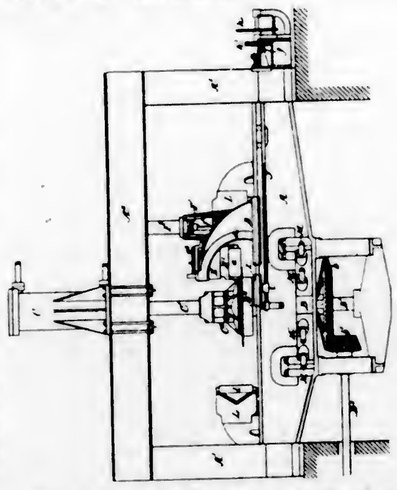


Claim.—1. In a gate, a swing-post, a crane pivotally connected with the said post and mounted for vertical movement upon its pivot, the said crane being of triangular form, each corner of the crane being provided with a fitting and each fitting provided with a guide, the upper fitting adjacent to the swing-post being provided with rollers, the upper fitting at the extreme outer end of the crane being also provided with a roller in its guide-section, and a gate provided with an upper and a lower auxiliary bar, the upper bar being passed through the guides in the upper fittings of the crane in engagement with the rollers therein, the lower auxiliary bar being passed through the guide of the lower fittings of the crane, for the purpose specified.

2. In a gate, the combination, with a swing-post, a pivot parallel with the post, a crane having a tubular section adjacent to the swing-post and mounted to slide and turn upon the pivot connected with the post, the said crane being provided with a fitting at its upper outer corner, its lower inner corner and its upper inner corner, each of the said fittings being provided with a downwardly-extending inverted-U-shaped guide, the upper fitting at the outer corner of the crane having spaced rollers mounted in its guide portion and the upper fitting at the inner end of said crane being provided with a single roller in its guide-section, and means, substantially as described, for raising and lowering said crane, of a gate, the frame of which consists of two upper and two lower bars, end bars connected with the upper and the lower bars, and a body-section extending from the innermost upper bar to the innermost lower bar, the upper bar of the gate-frame being passed through the upper fittings of the crane in engagement with the single roller of the inner fitting and between the rollers in the outer upper fittings of the crane, the lower bar of the said gate-frame being passed through the guide-section of the lower fitting of said crane, for the purpose described.

3. The combination of a swing-post, a triangular frame having vertical movement, mounted on the swing-post and provided at each end with a fitting having an offset guide, the guide being at one side of the crane, a single roller located in the offset guide of the forward upper fitting, a pair of rollers one above the other located in the upper rear fitting, and a gate, the top bar whereof passes through the guides of the said fittings of the crane, resting upon the single forward roller and passing between the rear double rollers, as set forth.

645,848. FLANGING-MACHINE. JOHN S. WORTH, Coatesville, Pa. Filed Oct. 25, 1897. Serial No. 656,200. (No model.)



Claim.—1. The combination in a flanging-machine, of means for clamping the plate to be flanged, a carriage having segmental guideways, a carrier adapted to the guideways, a head on the carrier, a flanging-roller carried by the head, with means for so adjusting the head and its roller that the radius of curvature of the bead of the flange can be varied on the carrier, substantially as and for the purpose described.

2. The combination in a flanging-machine, of means for clamping the plate to be flanged, a carriage having segmental guideways, a carrier adapted to the segmental guideways, a flanging-roller carried by the carrier, a segmental rack on the carrier, a cylinder having a piston, a rack attached to the said piston, a shaft having pinions, one engaging with the piston-rack and the other with the carrier-rack, and an adjustable stop to limit the movement of the piston-rack, substantially as described.

3. The combination in a flanging-machine, of a clamp for the plate to be flanged, a carriage, means for moving the carriage toward and from the clamp, said carriage having a segmental guideway, a roller, a carrier therefor adapted to the guideway, a fluid-pressure cylinder mounted on the carriage, a piston therein, gearing connecting the piston to the carrier so that when fluid under pressure is admitted to the cylinder the carrier will be traversed in its guideway, substantially as described.

4. The combination in a flanging-machine, of a head, a clamp, said head being undercut, an anvil-roller adapted to the undercut portion of the head and means for turning down a flange of a plate over the anvil, substantially as described.

5. The combination in a flanging-machine, of a clamp for the plate, a carriage having segmental guideways, a carrier adapted to the guideways and a flanging-roller carried by the carrier, a cylinder, piston therein and rod, a rack connected to the rod and meshing with a pinion, a shaft carrying said pinion, said shaft being geared to the carrier so that on moving the piston and its rack the carrier will be moved in the segment of a circle, a screw-threaded stop situated under the rack so as to limit its movement, a nut adapted to the screw, said screw being free to be raised and lowered by the nut, with means for turning the nut so as to raise or lower the screw-stop, substantially as described.

6. The combination in a flanging-machine, of the base-frame, clamps for holding the plate to be flanged, a carriage carrying the flanging-roller, means for moving the roller to flange the plate, a saddle, a roller-anvil carried by the saddle and over which the flange is formed, with two screw-shafts extending one on each side of the base-frame and screw-threaded lugs on the saddle through which they pass, and means for turning these screw-shafts in unison, substantially as described.

7. The combination in a flanging-machine, of the base-frame, clamps for holding the plate to be flanged, a carriage carrying the flanging-roller, means for moving the roller to flange the plate, a saddle, a roller-anvil carried by the saddle and over which the flange is formed, two screw-shafts extending along the frame of the machine and engaging with the saddle, means for turning these screw-shafts in unison, screw-shafts engaging with the carriage and gearing whereby the several screw-shafts are geared together so that they will turn in unison, substantially as described.

8. The combination in a flanging-machine, of a clamp for the plate, a flanging-roller, a saddle having a step-bearing, an anvil-roller over which the plate is flanged, the spindle of said roller extending into the saddle and resting upon the step-bearing, with a series of vertically-arranged rollers mounted between the spindle and the wall of the cavity in the saddle so that the roller will turn freely under side pressure, substantially as set forth.

9. The combination in a flanging-machine, of a head for supporting the plate, a clamp for clamping the plate to the head, flanging mechanism and three or more guides radiating from the center of the machine, carriages on each guide, arms extending from the carriages above the upper surface of the head so as to engage the plate, a rack on each carriage, a series of geared shafting and pinions meshing with the several racks, with a driving-shaft so that a uniform motion is imparted to the carriages whereby a plate placed on the head will be centered, substantially as described.

10. The combination in a flanging-machine, of a head for supporting the plate, a clamp for clamping the plate to the head, flanging mechanism and three or more guides radiating from the center of the machine, carriages on each guide, arms extending from the carriages above the upper surface of the head so as to engage the plate, a rack on each carriage, a series of geared shafting and pinions meshing with the several racks, a driving-shaft for imparting motion to the series of shafts, a rack, a pinion on the driving-shaft engaging with the rack, a fluid-pressure cylinder, a piston and piston-rod, said rod being connected to the rack, substantially as described.

11. The combination in a flanging-machine, of a head having a flat upper surface, a clamp having a concaved under surface, a central section adapted to be attached either to the head or the clamp and having a flat under surface and a convexed upper surface of substantially the same radius as the concaved surface of the clamp, substantially as described.

12. The combination in a flanging-machine, of the convexed head and a concaved clamp and a roller-anvil, with means for adjusting the head in respect to the anvil, and means for turning down the flange of a plate over the anvil, substantially as described.

13. The combination in a flanging-machine, of means for holding the plate to be flanged, a carriage adapted to be moved toward and from the clamping means, a carrier adapted to the segmental guideways in the carriage, a head adapted to the carrier, a flanging-roller carried by said head, two or more screws for adjusting the head in the carrier, a spring acting upon one of said screws so as to hold the head between two of the screws to prevent lost motion, substantially as described.

14. The combination in a flanging-machine, of a clamp for the plate, a flanging-roll, a head carrying said roll and a carrier adapted to travel in the arc of a circle, three screws for adjusting the head in the carrier, one screw having a thread in one direction and the other two screws having threads in the opposite direction, a spring on the first-mentioned screw tending to draw the head against the threads of the other screws, substantially as and for the purpose set forth.

15. The combination in a flanging-machine, of a head having thereon a convex section extending from the edge of the head, a concaved clamp adapted to clamp the sheet on the concaved section, a roller-anvil arranged on one side of the head and adapted to pass under the edge of the section thereon, with means for turning down the flange of the plate over the anvil, substantially as described.

16. The combination in a flanging-machine, of a frame, a carriage thereon, two screws engaging with the carriage, means for holding said screws against longitudinal movement, gear-wheels on the screws, and a driven shaft having a gear-wheel meshing with the gear-wheels on the screw-shafts and a hand-wheel on one of said screw-shafts, substantially as described.

17. The combination in a flanging-machine, of a frame, a saddle, a roller-anvil carried thereby, two screw-shafts adapted to the saddle, a cross-shaft, bevel-gears connecting the cross-shaft with the screw-shafts, a driven shaft geared to one of said screw-shafts, the cross-shaft having a head to which a crank-handle can be applied, substantially as described.

18. The combination in a flanging-machine, of a centering device having travelers, vertical rollers thereon, racks on the travelers, gear-wheels meshing with the racks, shafts on which the gear-wheels are mounted, bevel-gears gearing the several shafts together, a driving-shaft, a pinion thereon, and a rack meshing with the gear-wheel, substantially as described.

19. The combination in a flanging-machine, of a head, a clamp, an intervening section having one surface flat and the other surface convexed, the head and clamp conforming to the shape of the intervening section, substantially as described.

645,844. TIRE FOR VEHICLES. CALVIN T. ADAMS, New York, N. Y. Filed July 26, 1899. Serial No. 725,148. (No model.)



Claim.—1. A pneumatic or cushioned vehicle-tire having superposed component fabric plies inclosing therebetween an armoring layer of hard plates or heads, having shanks extending through both the outer and inner plies.

2. A pneumatic or cushioned vehicle-tire having superposed component fabric plies inclosing therebetween an armoring layer of hard plates or heads, having shanks extending through both the outer and inner plies and upset or expanded on or in the outer ply.

3. A pneumatic or cushioned vehicle-tire having superposed component fabric plies inclosing therebetween an armoring layer of hard plates or heads, having shanks extending through both the outer and inner plies and upset or expanded on or in the inner ply.

4. A tread-strip or outer tube for a vehicle-tire composed of two flexible plies inclosing therebetween a layer of hard plates having shanks extending through the outer and inner plies, and expanded or headed in the inner ply.

5. A tread-strip or outer tube for a vehicle-tire composed of two flexible plies inclosing therebetween a layer of hard plates having shanks extending through both the outer and the inner plies and expanded or headed in or on both the inner and outer plies.

645,845. BINDER FOR DOCUMENTS. STEPHEN D. BARNETT, Newark, N. J. Filed Apr. 4, 1898. Serial No. 676,333. (No model.)



Claim.—1. The combination with the tape, having the hook fastened at one end, of a clasp member *c*, A-shaped taken endwise, and having parallel bars *c'*, *c''*, *c'''*, substantially as set forth.

2. The combination with the tape, having a hook fastened at one end, of a clasp member A-shaped in end view and having parallel bars *c'*, *c''*, *c'''*, and a finger-piece projecting from one of said bars at an angle to the adjacent side of the clasp member, substantially as set forth.

645,846. METALLIC TELESCOPING ACCOUNT-BOOK HOLDER. BERRY A. BAXTER, Mansfield, Ohio. Filed Aug. 14, 1899. Serial No. 727,124. (No model.)



Claim.—1. In a metallic adjustable holding device, the combination of a series of partition-plates, bars with ends turned to form bearings and connected to both the top and bottom of said partition-

plates, an adjustable latticed chain, the ends of the links of said chain constructed to overlap each other and pivotally connected together and having holes placed at an angle therein, certain of said holes connecting the chain with the turned ends of the bars.

2. In a metallic adjustable holding device, the combination with a series of partition-plates, of bars connected thereto, an adjustable latticed chain, bars connected to the bottom of the end partition-plates and securely fastened in place to form a hinge.

3. In a metallic adjustable holding device, the combination of a series of partition-plates, bars with ends turned to form bearings and fitted to said plates, an adjustable latticed chain connected with said turned ends, bars fitted on the bottom of the rear and forward plates and bearings for the said bars, a bottom composed of two pieces telescoping each other with the end of the inner bottom turned in and resting on the end plate, and the bottom adapted for attachment to a pivot on a standard.

4. In a metallic adjustable holding device, the combination of a series of partition-plates, bars with ends turned to form bearings and fitted to said plates, an adjustable latticed chain connected with said turned ends, bars fitted to the end plates, bearings for said bars, a bottom composed of two pieces telescoping with one another, upright hinges or rests riveted to the end partition-plates and supporting end hinges.

5. In a metallic adjustable holding device, the combination of a series of partition-plates, bars with ends turned to form bearings and fitted to said plates, an adjustable latticed chain connected with said bars, bars fitted on the end plates and bearings for the latter the bottom composed of two pieces to provide for its adjustment, upright hinges or rests, end hinges, and locking-buttons pressed in the lower end partition-plates.

6. In a metallic adjustable holding device, the combination of a series of adjustable partition-plates, bars with ends turned to form bearings fitted thereto, an adjustable latticed chain connecting said plates with round bars having turned ends supported by bearings attached to the bottom, a flat tube with rounded edges, a notched bar with a series of notches cut on its edge.

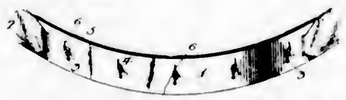
7. In a metallic adjustable holding device, the combination of a series of adjustable partition-plates, means for adjusting the said plates, an adjustable latticed chain, a flat tube having a recess cut in its edge, a bar having a series of notches cut on its edge, said bar telescoping with said tube, a locking-lever journaled on the side of the flat tube with its end bent to fit in the notches cut in the bar when the locking-lever is in a vertical position.

8. In a metallic adjustable holding device, the combination of partition-plates, bars fitted to said plates, an adjustable latticed chain connected with said bars, a telescoping bottom, a flat tube, a notched bar, a locking device, hooks riveted on the end partition-plates and a metallic standard used in connection with the metallic adjustable holding device, substantially as described.

9. In a metallic adjustable holding device, the combination of partition-plates, bars fitted to the ends of said plates, an adjustable latticed chain composed of a double row of links working in opposite directions and having holes placed in said links at an angle with each other giving a reciprocating movement to the holding device which provides for the adjustment thereof, the ends of said links being rounded and overlapping each other.

10. The combination of a series of partition-plates having bearings formed at opposite edges thereof, an adjustable latticed chain, the ends of the links of said chain constructed to overlap each other and pivotally connected together and having holes therein to receive the partition-bearings.

645,847. COMBINED WAIST-HOLDER AND SKIRT-SUPPORTER. GEORGE L. BLACKMAN, Whitesville, N. Y. Filed Oct. 10, 1899. Serial No. 733,231. (No model.)



Claim.—1. In a combined shirt-waist or basque holder and skirt-supporter, the combination with a metallic strip having two longitudinal rows of holes, the holes of one row being above those of the other; of hooks extending through said holes and interlocked with each other, the prongs of said hooks projecting in opposite directions, substantially as and for the purpose set forth.

2. In a combined shirt-waist or basque holder and skirt-supporter, the combination with the metallic strip having two longitudinal rows of holes, the holes of one row being above those of the other, of hooks extending through said holes, each of said hooks consisting of a prong and an eye which extend in opposite directions, the prongs of one set of hooks engaging the eyes of the other set of hooks, and the prongs of one set of hooks projecting in a direction opposite to that of the prongs of the other set of hooks, substantially as and for the purpose set forth.

645,848. ELECTRIC-LIGHT HANGER. DUNCAN BROWN, Vancouver, Canada. Filed Oct. 21, 1899. Serial No. 734,401. (No model.)



Claim.—1. An electric-light hanger having a reflector 1 with a boss and a hollow stem communicating with an aperture through the boss; in combination with arms 5 fixed to the stem and radiating beyond the outer rim of the reflector, a cap 6 over the boss and receiving the stem through an aperture therein and a nut threaded on the stem, and sockets fixed to the deflected ends of the arms 5 whereby the lights are held in a converged position on a plane in front of the lower plane of the reflector's rim.

2. In combination with a reflector having a hollow boss on its rear side and a stem communicating therewith, arms 5 radiating from said stem and passing outward and downward and lights secured to the deflected ends of the arms, and placed in a converging position on a plane in front of the plane of the reflector's rim, substantially as specified.

3. In an electric-light hanger having a reflector 1 with a hollow boss 2 on its rear side, in combination with radial arms 5 projecting beyond the rim of said reflector, said arms being to support incandescent bulbs *b* converging beneath or before the reflector so that their sockets *a* will not intervene between the reflector and the light radiated, as set forth.

645,849. BLASTING-FUSE. JOHN A. FUESSER, Manchester, Mo. Filed Oct. 30, 1899. Serial No. 735,302. (No model.)



Claim.—1. In a time-fuse, the combination with a waterproof section having one end split, of a second fuse-section disposed with one end in the split of the first section, said second section including a plurality of strands adapted to be twisted and untwisted, and a casing inclosing the connected portions of the fuse-sections and tightly encircling the second section to prevent untwisting thereof within the casing.

2. In a time-fuse, the combination with a waterproof fuse having one end split, of a cotton fuse-section having one end disposed in the split of the waterproof section, said cotton fuse-section comprising a plurality of strands adapted to be twisted to form a rope and to be untwisted, said cotton fuse-section being twisted at its connected end, and a casing inclosing the connected portions of the fuse-sections, said casing tightly encircling the cotton fuse-section to prevent untwisting thereof within the casing.

645,850. LETTERING-GUIDE. WILLIAM J. HANNEGAN, Victor, Colo. Filed Dec. 19, 1899. Serial No. 740,853. (No model.)



Claim.—1. A lettering-guide, comprising a pair of rulers held in the same plane, connections for adjustably joining the said pair of rulers whereby their contiguous edges can be separated, said connections including clamp devices for holding the rulers to their adjusted position, one of the ruler-sections having a segmental slot having spacing-marks upon its edges, all being arranged substantially as shown and for the purposes described.

2. A lettering-guide consisting of a pair of rulers held in the same plane, one of the said rulers having at each end a series of horizontally-disposed spacing-lines 7; a fixedly-held slotted member secured at each end of the other ruler, said slotted members projecting so their outer edges lie in a plane parallel with the spacing-lines 7, on the opposing ruler-sections, and set-screws fixedly connected with the opposing ruler-section engaging the aforesaid slotted members, as specified.

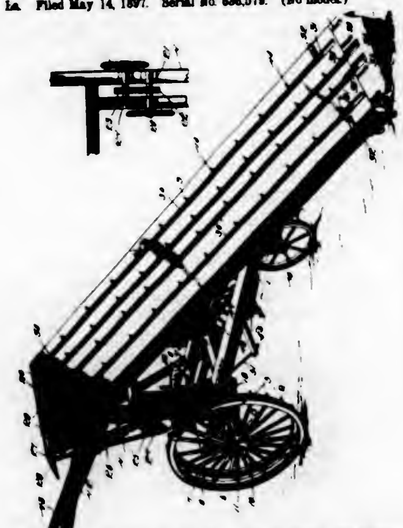
3. A lettering-guide; comprising a pair of rulers held in the same plane, and their contiguous edges having registering and spacing marks; a slotted guide secured to each end of one of the ruler-sections to project over the other section; the ruler carrying the slotted guides having a segmental slot having spacing-marks upon its edges; the other ruler-section having set-screws adapted to engage with the slotted plates, and having correspondingly-arranged spacing-lines 7, upon each end, substantially as shown and for the purposes described.

4. As a new article, a lettering-guide; consisting of two ruler-sections of like size held in the same plane; one of the sections having a scale on its outer edge, and a centrally-disposed segmental slot; a guide member projected at right angles over each end of the slotted ruler-section; said guide members being fixedly connected to the said ruler-sections, the contiguous edges of the two rulers having regular and registering spacing-marks; the non-slotted ruler-section having a series of horizontally-disposed spacing-lines 7, at each end; and a set-screw secured to each end of said ruler-section, adapted to engage the slotted members secured to the opposing ruler-section, all being arranged substantially as shown and for the purposes described.

5. A device for the purpose described, comprising a body formed of two separable flat members held in the same plane, one of such members having a longitudinally-extended guide-rod upon its upper surface; means for fixedly holding the head-block to any of its adjusted positions upon the rod; a head-block slidable upon the rod; and an arm connected at one end to the said block to move therewith, its outer end being projected over the contiguous edges of the two flat members.

6. A device for the purposes described, comprising a pair of rulers held in the same plane; adjustable connections joining said rulers, whereby the contiguous edges thereof can be separated to form an intervening lettering-space; a guide mounted lengthwise upon one ruler parallel with the lettering-space; the head-block 11, slidably mounted upon said rod; and the arm 12, pivotally connected to the head-block, all being arranged substantially as shown and described.

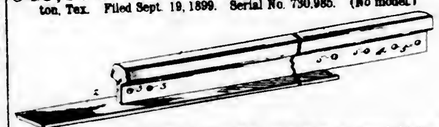
645,851. CANE-CART LOADER. ALBERT S. HEBERT, Plaquemine, La. Filed May 14, 1897. Serial No. 636,579. (No model.)



Claim.—1. The combination of carrying-wheels, a main supporting-frame mounted on said wheels, an elevator carried by the supporting-frame, rollers for carrying the front end of the frame, a steering-truck intermediate the rollers and carrying-wheels, and means operatively connected with the truck and frame for raising the forward end of the frame, substantially as described.

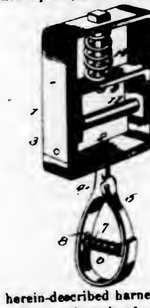
2. In cane-loaders, the combination of carrying and driving wheels, a main frame carried by said wheels, an inclined elevator carried by the main frame consisting of endless chains or belts, an adjustable extension connected with the lower end of the elevator, a roller journaled in the lower end of the main frame, and side rollers near the lower end of the elevator having grooves to permit the passage of the sprocket-chains.

645,852. RAILROAD-RAIL JOINT. SAMUEL M. HOPPING, Galveston, Tex. Filed Sept. 19, 1899. Serial No. 730,985. (No model.)



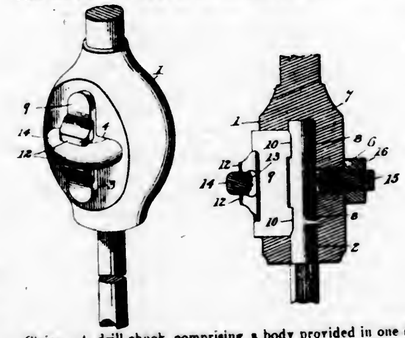
Claim.—A rail having a plain, flat base-flange, of equal thickness from end to end thereof, said flange extending beyond one end of the rail, the opposite end of said rail having the base-flange omitted for a distance equal to the length of the extending flange, in combination with a companion rail of like construction, the joint between the two rails being formed by placing the extending flange on one rail under that end of the companion rail which has the flange omitted, and a fish-plate of equal thickness throughout secured to the sides of said rail by through-bolts, said fish-plate covering both the rail-joint and the flange-joint, and having a downwardly-extending flange, bearing on the ties, substantially as described.

645,853. BREAST-STRAP SLIDE. THOMAS HUBERDEAU, Larimore, N. D. Filed Sept. 11, 1899. Serial No. 730,129. (No model.)



Claim.—The herein-described harness connection consisting of a frame comprising a U-shaped section 1 and a yoke 2 connecting the terminals of the side bars of said section 1, a snap-hook connected by a swivel-joint with the end bar of the yoke, a U-shaped slide fitted to the frame and directed in its movements thereby, a roller journaled to the ends of the slide, a spring interposed between the slide and the end bar of the section 1, and a headed screw passed loosely through an opening in the said end bar of the section 1 and having threaded connection at its inner end with the slide and adapted to vary the tension of the spring, substantially as specified.

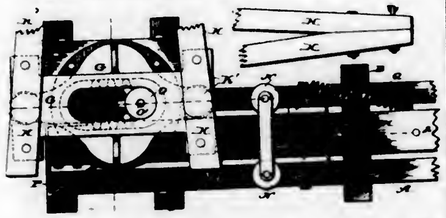
645,854. DRILL-CHUCK. THOMAS J. KITTO, Doe Run, Mo., assignor of two-thirds to G. C. Clements and Otto Lotz, same place. Filed Oct. 27, 1899. Serial No. 734,952. (No model.)



Claim.—A drill-chuck comprising a body provided in one side with intersecting slots and on the other side of its bit-socket with the cross sectionally-curved bearing-faces, 8, separated by an intermediate bolt-aperture, a key fitted in the longitudinal slot of the body

and provided on its inner side with the cross-sectionally-curved gripping-faces, 10, which are separated by an intervening transverse slot, 11, and are in opposing relation to the bearing-faces, 8, a bit-shank fitted in the socket, a single-shank bolt having an elongated eye arranged to span the socket and embrace the key and the bit-shank, and a single nut screwed on the shank of the eyebolt, whereby the strain of the bolt is distributed by the recessed key and the bit-shank is solidly clamped between the bearing and gripping faces only of the body and the key, respectively, as set forth.

645,855. HAY-PRESS HORSE-POWER. CHRISTIAN P. KOHLRUSS, Augusta, Ga. Filed Sept. 16, 1898. Serial No. 691,122. (No model.)

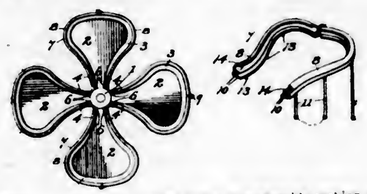


Claim.—1. In a horizontal rotary horse-power for presses, the combination with the stationary center post having teeth on one side, of the rotatable lever having the plate G secured thereto and provided with a slot that receives said center post, said slot being provided with teeth on opposite sides and the pitman coacting with the levers as shown and described.

2. In a horizontal rotary horse-power for presses, the combination with the block D and center post fixed thereon and having teeth on one side, of the levers H, the plate G having a slot provided with teeth on opposite sides as specified and adapted to rotate around said post, the rollers K′ and K² held pendent from said plate, and the pitman and retracting-spring, as shown and described.

3. In a horizontal rotary horse-power for presses, the combination with the block D and center post fixed thereon and having teeth on one side, of the levers H, the plate G having a slot provided with teeth on opposite sides as specified and adapted to rotate around said post, the rollers K′ and K³ held pendent from said plate, the pitman and retracting-spring, a guide for said pitman, and a stop for arresting its retractile movement, as shown and described.

645,856. SCREW-PROPELLER. ALEXANDER R. KOKERNOT, New Orleans, La. Filed Sept. 22, 1899. Serial No. 731,330. (No model.)



Claim.—1. A screw-propeller having an inflatable cushion on its active surface, as and for the purposes described.

2. A screw-propeller having its active surface provided with a pneumatic-cushion surface, as and for the purposes described.

3. A screw-propeller provided along an edge thereof with an inflatable cushion-surface, substantially as and for the purposes described.

4. A propeller-blade provided with a continuous inflatable cushion along the active edge thereof, substantially as described.

5. A screw-propeller provided on its active surface with a governable or adjustable inflatable cushion, substantially as described.

6. A propeller-blade having a cushion along its active edge, substantially as described.

7. A propeller having an inflated cushion on its active surface, in combination with a reflex air device in communication therewith, substantially as described.

8. A propeller having an inflated cushion on its active surface, in combination with a pair of reflex bellows, communicating therewith, substantially as described.

9. The combination with the blades of a propeller, of cushions on the active faces thereof, and an independent reflex bellows for each cushion, substantially as described.

10. The combination with the blades of a propeller, of air-cushions thereon, a driving-shaft on which the propeller is mounted, and reflex bellows mounted on said shaft, and communicating with the cushions, substantially as described.

11. The combination with the blades of a propeller, of air-cushions thereon, a driving-shaft, independent pipes for the respective cushions, extending longitudinally of said shaft, and inflating-valves connected with said pipes, substantially as described.

12. A propeller, and a yielding cushion on the active side thereof, in combination with attaching means for securing the cushion to the propeller, substantially as described.

13. A propeller, and a yielding cushion on the active side thereof, in combination with a cushion-encircling frame for binding the cushion against the propeller and holding it thereon, substantially as described.

14. A propeller, and a yielding cushion on the active side thereof, in combination with a driving-shaft, and a series of pipes located in longitudinal recesses in the shaft and communicating with the cushions, and having inflating means, substantially as described.

15. A propeller, and a yielding air-cushion on the active side thereof, in combination with a driving-shaft, pipes leading to said cushions and arranged in grooved seats extending longitudinally of the shaft, and retaining means surrounding the shaft and engaging the pipes, substantially as described.

16. A propeller, and a yielding air-cushion on the active side thereof, in combination with a driving-shaft, a pipe leading to the cushion and arranged in a grooved longitudinal seat in the shaft, a retaining-collar encircling the shaft and engaging the said pipe, and a pair of reflex bellows mounted on the shaft and communicating with said pipe, substantially as described.

17. A propeller, and a yielding cushion on the active side thereof, in combination with a driving-shaft, a pipe leading to the cushion and extending longitudinally of the shaft, a pair of bellows mounted on the shaft and communicating with said pipe, and an indicator attached to and actuated by the bellows, substantially as described.

18. A propeller having a hollow hub, and a yielding cushion on the active side thereof, in combination with a driving-shaft, a pipe extending longitudinally of the shaft, a reflex air device connected thereto, and a coupling within the hollow hub of the propeller connecting the pipe and cushion, substantially as described.

19. The combination with a propeller-blade, of a flexible air-cushion thereon, means for inflating said cushion, and springs for expanding the cushion, substantially as described.

20. The combination with a propeller-blade, of a flexible air-cushion mounted thereon, and circular springs extending circumferentially of the cushion for expanding the latter, substantially as described.

21. The combination with a propeller-blade, of a cushion extending around the edge thereof and having its extremities arranged adjacent to the propeller-hub, and an inflating-pipe extending into the hub, where it is branched and connected to the terminal portions of the cushion, substantially as described.

22. The combination with a propeller-blade, and a flexible air-cushion thereon, of a driving-shaft, a collar thereon having an internally-threaded eye, an exteriorly-threaded pair of reflex bellows screwed into said eye, a flange on said bellows adapted to be fastened to the eye, and a pipe leading from the bellows to the cushion, substantially as described.

645,857. LOCK SEAL FOR BOTTLES, JARS, &c. WLADYSLAW T. KOSIENSKI, New York, N. Y. Filed Jan. 8, 1898. Renewed Aug. 17, 1899. Serial No. 727,540. (No model.)



Claim.—1. The combination with a vessel of frangible material, as a bottle, having alined holes near the rim of its mouth, of a perforated clip fitted to one of said holes, a grooved flanged cap fitting the mouth of the bottle and having a sleeve connected with a screw-seat supported in said flanged cap, a flexible locking pin or key supported in the vessel-mouth and sleeve and deflected at its flexible portion against the exterior of the vessel, as set forth.

2. The combination with the mouth of a vessel of frangible material—as a bottle or jar—having diametrically-opposed holes in its rim, of a flanged cap having a central opening, a sleeve secured therein by a threaded hollow arm, a flexible locking-pin seated in the openings in the vessel-mouth and in the sleeve of the vessel-cap, a locking-screw seated in the threaded hollow arm and provided near its upper end with an encircling weakening groove to permit it to be broken off after having been turned to place, as set forth.

3. The combination with a bottle-mouth having alined holes in its rim, of a flanged bottle-cap having a central hollow angular threaded arm, a portion of which is seated in the bottle-cap, a flexible locking-pin fitting a portion of the locking-arm, and a grooved screw made breakable near its upper or headed end, substantially as specified.

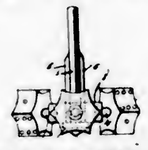
4. The combination with a vessel-mouth—as a bottle or jar—having alined holes near its rim, of a clip fitting one of said alined holes, a cap fitting the mouth of the vessel, a threaded arm seated in the cap and having a horizontally-disposed sleeve at its lower end, a flexible pin fitting the alined holes and sleeve, and a grooved binding-screw formed to be broken near its head, substantially as set forth.

5. The combination with the bottle-neck having alined holes near its mouth, of the cap, provided with a vertical threaded sleeve and a horizontal arm, of the flexible locking-pin and the binding-wire engaging a screw in the top of the cap, as set forth.

6. The combination with a bottle-cap or vessel-cap having a central opening therein, of a vertically-disposed threaded portion having a horizontally-disposed integral sleeve at its lower portion, of a tapered partly-flexible and partly-non-flexible locking pin or key, substantially as specified.

7. The combination with a bottle or vessel mouth having alined holes near its rim, of a bottle-cap or vessel-cap having an externally and internally centrally disposed threaded stem seated in said cap and having at its lower portion an integral sleeve disposed at right angles to said stem, of a headed locking-pin, rigid near its head, and tapered toward its point, and flexible throughout its tapered portion, as set forth.

645,858. GAME DEVICE. AUGUST KOCK, New York, N. Y., assignor of one-half to William Frederick Scholse, same place. Filed Aug. 15, 1899. Serial No. 727,332. (No model.)



Claim.—1. A game device, comprising a central pin provided with a block mounted thereon, and provided at its lower end with a pointed head, said block being provided with radial pins on which are loosely mounted dice-blocks, each of which is provided with a plurality of faces, substantially as shown and described.

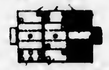
2. A game device, comprising a central pin, a block loosely mounted and adapted to slide thereon, said pin being provided at its lower end with a pointed head, and said block with a plurality of radial arms, each of which is provided with a dice-block which is loosely mounted thereon and provided with six faces, substantially as shown and described.

3. A game device comprising a central vertical pin, a block mounted thereon and adapted to slide thereon, said pin being provided at its lower end with a pointed head, and said block with a plurality of radial arms on which is revolubly mounted a dice-block, said blocks being each provided with six faces, and said faces being provided with spots from one to six in number, substantially as shown and described.

4. A game device, comprising a central pin, a block mounted thereon and provided with radial pins, and dice-blocks loosely mounted on said pins and provided with a plurality of faces having spots or characters thereon, substantially as shown and described.

5. A game device, comprising a central pin provided with radial arms or pins, and dice-blocks loosely mounted upon said radial pins and adapted to turn thereon when the game device is spun, substantially as shown and described.

645,859. GAME DEVICE. AUGUST KOCK, New York, N. Y., assignor of one-half to William Frederick Scholse, same place. Filed Aug. 15, 1899. Serial No. 727,333. (No model.)



Claim.—1. As a new article of manufacture, a game device adapted to be thrown or rolled along a surface from the hand of a player, and comprising a pin or rod and a plurality of blocks loosely mounted on said pin or rod, and adapted when the device is thrown or rolled to turn by friction with the surface on or along which the device is so manipulated, said blocks being mutually independent one of the other and being each provided with a plurality of polygonal faces on which are marked dice characters, substantially as shown and described.

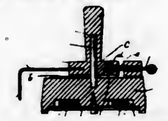
2. As a new article of manufacture, a game device comprising a pin or rod, and a plurality of hexagonal blocks loosely mounted thereon and adapted to turn thereon, and mutually independent, and provided with a plurality of separate faces bearing dice characters, substantially as shown and described.

3. As a new article of manufacture, a game device comprising a pin or rod, and a plurality of blocks loosely mounted thereon and adapted to turn thereon and mutually independent, and provided with a plurality of separate faces bearing dice characters, said faces being concave in form, substantially as shown and described.

4. A game device, comprising a pin having an integral projection upon one end thereof, a plurality of dice-blocks loosely mounted thereon and adapted to turn upon said pin, and mutually independent in their movement, and a removable cap or head screwed upon said pin for detachably holding said blocks in position, substantially as shown and described.

5. A game device, comprising a table, a rod ranging parallel with said table and pivoted at one end to the center thereof, its opposite end being free and provided with means whereby it may be turned or spun, and a plurality of dice-blocks loosely mounted upon said rod and adapted to turn thereon, substantially as shown and described.

645,860. GAME DEVICE. AUGUST KOCK, New York, N. Y., assignor of one-half to William Frederick Scholse, same place. Filed Nov. 2, 1899. Serial No. 735,563. (No model.)



Claim.—1. A game device, comprising a top provided with a plurality of revolving dice-blocks adapted to turn when the top is spun, and a normally-stationary base with which said top is connected, and with the upper face of which the dice-blocks frictionally contact whereby they turn.

2. A game device, comprising a base having an upwardly-ranging spindle, and a top or spinning-body centrally apertured to fit upon said spindle and provided with a plurality of radial arms, each bearing a loosely-mounted dice-block, whereby the spinning of the top causes the dice to turn.

3. A game device, comprising a base having an upwardly-ranging spindle, and a top or spinning-body centrally apertured to fit upon said spindle and provided with a plurality of radial arms, each bearing a revoluble dice-block, whereby the spinning of the top causes the dice to turn; said base being provided upon its upper face with an additional frictional surface to engage said blocks.

4. A game device, comprising a top or body adapted to spin, a plurality of radial arms pivotally connected to the said top whereby they are capable of vertical movement relatively thereto, and dice-blocks mounted upon the said spindles whereby they turn when the top is spun.

5. A game device, comprising a top provided with a plurality of dice-blocks adapted to turn when the top is spun, said top being adapted to be spun independently and being also provided with a central aperture; and a base having a central spindle adapted to receive the top thereon.

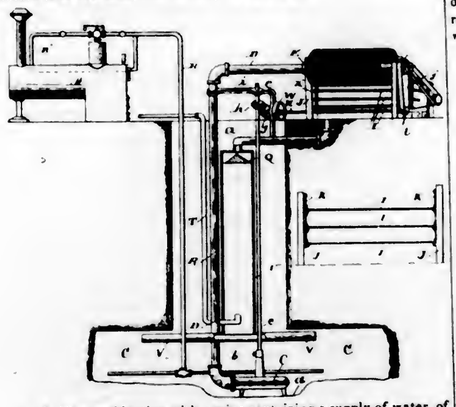
6. A game device, comprising a top provided with recesses and apertures therein, spindles passing through said apertures into the recesses, balls within said recesses upon said spindles, and dice-blocks mounted upon the spindles, whereby they will turn when the top is spun.

7. A game device, comprising a base, a top revolably mounted thereon and provided with a plurality of dice-blocks which turn as the top spins, and a pointer mounted upon the top; in combination with a game-board having its surface suitably marked, whereby the pointer indicates thereupon or with relation thereto.

645,861. MINING APPARATUS. JOSEPHUS A. LAYCOCK, Litchfield, Ill. Filed Mar. 18, 1898. Serial No. 674,368. (No model.)

Claim.—1. The combination with a mine containing a supply of water, of a steam-generator, a pipe connected at one end with the steam-generator and having its opposite end extending within the mine and delivering steam directly to the water therein, a pump in communication with the water contained within the mine, and a re-

turn-pipe receiving the water delivered by the pump and adapted to return it to the mine, substantially as described.



2. The combination with a mine containing a supply of water, of a heating device, a pipe having one end in communication with the heating device and the opposite end extending within the well and provided with an elongated horizontal portion for supplying the heat directly to the water within the mine, a pump in communication with the water, and adapted to deliver it outside of the mine, and a return-pipe in communication with the water delivered from the mine and adapted to return it thereto, substantially as described.

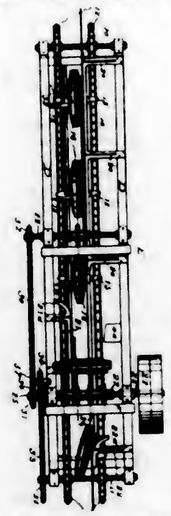
3. A mining apparatus comprising a heating device, a pipe extending therefrom and delivering heat within the mine, a water-supply, a pump situated within the mine and having a discharge-pipe thereabove, a separator, a water-delivery pipe having one end connected with the separator, a vertical chamber within the opening to the mine to which the opposite end of the water-delivery pipe communicates, and a pipe from the heating device delivering heating medium within the said chamber, the lower end of the chamber having exits within the mine, substantially as described.

4. An improved mining apparatus comprising a water-supply and heating device for the mine, a centrifugal pump situated within the mine and having an outlet outside of the mine, a rotating and reciprocating separator, the outlet-pipe being in communication with the rotating element of the separator, a vertical revolvable shaft connected with the centrifugal pump within the well and extending to a point above and outside of the well, and a horizontal shaft having one end operatively connected with the pump-shaft and the opposite end operatively connected with the reciprocating and rotating element of the separator, substantially as described.

645,862. FISH-CUTTING MACHINE. JAMES M. K. LETSON and FRANK W. BURPEE, Vancouver, Canada. Filed Feb. 2, 1899. Serial No. 704,231. (No model.)

Claim.—1. In a fish-cutting machine having a suitable bed and fish-cutting disks arranged thereover, chain belts arranged parallel and taking around wheels at opposite ends of the bed, yokes 15 secured to said chains at intervals, bearers 45 for supporting the chains or belts on a plane just below the upper side of the bed, a fence 19 passing beneath the bed, a frame 20 connecting with the said fence and supported by arms connecting with the rear side of the bed-frame D, and a groove 20^a in the outer upper side of the frame 20, in combination with fish-carrying receptacles 16 pivoted on the yokes 15, right-angled pieces 18 integral with the said receptacles having their outer edges depending, one downwardly-depending angle of which is received in the said groove 20^a in the frame 20, and the downwardly-depending edge of the other side of the angle is received in a groove 21^b in a frame 21 on the opposite side of the bed at a point to the rear of the frame 20, whereby the said receptacles are first passed for a distance over the bed lengthwise and then are turned at right angles thereto and passed along in that position, for the purposes specified.

2. In a machine for the purposes set forth having a suitable bed, belt-wheels mounted on opposite ends thereof, and belts taking around the same, yokes connecting the belts together at intervals, bosses on said yokes, fish-holding receptacles 16 pivotally arranged on said bosses and right-angled pieces 18 integral with said receptacles, fixed frames 21 and 22 on the opposite sides of the path of the said receptacles for engaging the right-angled pieces for holding the receptacles lengthwise for a distance over the bed and for turning and holding them at right angles to the same for a distance thereover, in combination with a rotating cutter 24 mounted on a shaft 23 over the path of the receptacles while in a lengthwise position and a plurality of rotating cutters 26 mounted on a shaft 25 over the bed at the point where the receptacles 16 are passed along at right angles to the bed.



3. In a fish-cutting machine having a bed with belts taking thereover and cutting-disks arranged in frames E and F a suitable distance above the bed, yokes 15 secured to the belts and connecting them together at intervals, bosses in said yokes, fish-holding receptacles pivoted or movably secured in apertures in said yokes, turning devices 18 integral with the said receptacles, which consist of right-angled pieces having their edges projected downward, as at 18^a, and fixed frames 20 and 21 arranged on opposite sides of the track of the fish-holding receptacles, and grooves 20^a and 21^a in said frames for receiving the downwardly-projected edges of the right angles 18, as specified.

4. In a machine of the class described, having a bed, wheels mounted at each end thereof, and a belt or belts 14 taking thereabout, a cutting-disk 24 arranged over the bed and a plurality of like cutting-disks 26 arranged over near the rear end of the bed and at approximately the same plane as the disk 24 with respect to the bed, and means for imparting a high speed to the disks 24 and 26 and a slower speed to the belts 14, in combination with fish-holding receptacles 16 secured in a pivotal manner to yokes connecting the said chains 14 together and right-angled pieces 18 secured beneath and integral with the said receptacles, of a fence 19 passing beneath the bed for engaging one of the sides on each of the angle pieces 18, and controlling the fish-holding receptacles in a lengthwise position, and a frame 20 having a groove 20^a connecting with the fence 19 and extending beneath the cutting-disk 24 and a frame 21 on the opposite side of the bed, having a cam 21^a for engaging the other side of each of the right-angled pieces, and for turning the fish-holding receptacles, and groove 21^a in said frame for holding them so while being passed beneath the cutting-disk 26, and a cam 22^a on a frame supporting the rear end of the fence for engaging said angle-pieces, as and for the purposes set forth.

5. A machine of the class described having a bed with wheels mounted at each end thereof and belts taking thereabout, bearers 45 for supporting the upper side of the belts on an even plane while passing over the bed, and frames 20 and 21 arranged diagonally from each other on each side of the bed and extending over the said belts the under sides of these frames 20 and 21 being on an even plane, and grooves 20^a and 21^b on the upper sides of the same, a frame 22 in line with the frame 20 and connected therewith by a fence 19 passing beneath the bed and cams 21^a and 22^a on the frames 21 and 22 respectively, yokes 15 connecting the belts together at intervals, fish-holding receptacles arranged in bosses on the yokes, which receptacles have right-angled members which engage in the grooves 20^a and 21^b alternately by means of the said cams 21^a and 22^a engaging the right-angled members, and widened or flattened portions 15^b on the opposite sides of the bosses on the upper surface of the yokes, which engage the under sides of the plane surfaces of the frames 20 and 21 alternately and respectively.

6. In a machine of the class described in combination with a rotary cutting-disk 24 secured on a shaft 23 suitably mounted in a frame, a biforked arm 41 lying on opposite sides of the said cutting-disk, the said forks having horizontal portions which act as cleaners for the disk, and a depending, movable arm 43 pivoted to a forwardly-projecting arm 42 integral with the biforked arm 41, said arm 43 being tapered and divided by a slot 43^a substantially as and for the purposes set forth.

7. In a machine for splitting and cutting fish and means of adjusting a plurality of cutting-disks 26 at various distances apart upon a shaft without removing same, consisting of distance-sleeves 26^a having openings on their sides for receiving the said shaft and pins 28 for holding them on said shaft on each side of the cutting-disks, substantially as and for the purposes set forth.

645,863. SADDLETREE. GEORGE LOHLOFF, Hellemans, Tex. Filed Jan. 14, 1898. Serial No. 666,672. (No model.)



Claim.—1. The combination with a saddletree and its fork, of a metallic horn-plate secured to the rearward face of the fork, and having its lower end located between the fork and ledges 7 on the tree, screws passing through the horn-plate into the fork, a bridge-plate within the fork extending transversely across the same, and a bolt passing through the horn-plate into the fork and anchored to the bridge-plate, substantially as set forth.

2. The combination with a saddletree and its fork, of a metallic horn, and horn-plate secured to the rearward face of the fork, a bridge-plate within the fork extending transversely across the same, a bolt passing through the horn-plate into the fork, and anchored to the bridge plate, substantially as set forth.

645,864. GOLD-SAVING DEVICE. ALEXANDER M. LYON, New Westminster, Canada. Filed Sept. 5, 1899. Serial No. 729,510. (No model.)



Claim.—A gold-saving dredging and sluicing device, consisting of a box open at both ends, having vertical sides sloping upwardly and rearwardly, a trap 11 extending across the rear part of the bottom, and the front part of the bottom being of crescent form; in combination with a grid or grizzly placed within the walls of the box with its front end resting on the bottom of the same and rigidly supported on a plane parallel with the top edges of the sides, as specified.

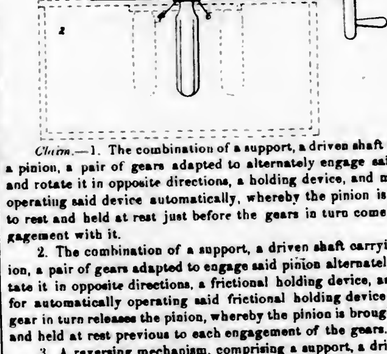
645,865. SADDLE. ERNEST K. MALLORY and CLINTON S. STONER, West Unity, Ohio, assignors of one-half to H. Cortes Miller and John Miller, same place. Filed Oct. 17, 1899. Serial No. 733,923. (No model.)

Claim.—1. In a saddle, the combination, with a bed-plate, of a seat having a slot in the bottom thereof, a bolt, secured to the bed-plate, projecting into said slot, and laterally-extending rollers secured to the bolt and bearing upon the upper surface of the bottom of said seat, substantially as described.

2. In a saddle, the combination, with the recessed bed-plate, of rollers mounted in said recesses, disks secured to said rollers and engaging with slots in the bed-plate, and a seat bearing upon the rollers and adapted to receive the edge of the disks, substantially as described.

3. In a saddle, the combination with the seat, of a double bottom thereto, springs mounted between said bottoms, slots in the lower bottom, a bed-plate, rollers intermediate the bed-plate and lower bottom and having radial flanges or disks, bolts secured to the bed-plate, and lugs formed therewith, said disks, bolts and lugs engaging with said slots, substantially as described.

4. In a saddle, the combination with the seat, of a bottom thereto, lips struck down from said bottom, a roller mounted therebetween, a slotted bed-plate, the lips and roller projecting through said slot, and a metal strip secured to the bed-plate and bearing upon said roller, substantially as described.

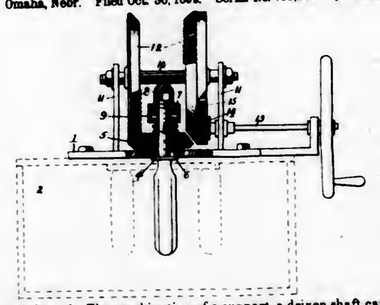


5. In a saddle, the combination, with the seat, of a bottom thereto having springs mounted therein, a second or lower bottom secured to the seat and slotted as described, lips struck up from the lower bottom and having a roller mounted therebetween, a bed-plate having a slot adapted to receive said lips and roller, a metal strip bearing upon the bed-plate and said roller, rollers interposed between the bed-plate and seat-bottom, disks or radial flanges on said rollers, bolts secured to the bed-plate and having laterally-extending rollers upon the inner ends thereof, and lugs formed with the bed-plate, said disks, bolts and lugs engaging with their respective slots in the seat-bottom, substantially as described.

6. In a saddle the combination, with a slotted plate, of a roller comprising a cylindrical portion and a radial flange or disk secured thereto at a point intermediate its ends, and contained within the slot of said plate, substantially as described.

7. In a saddle the combination with a plate having slots therein, of a guide-bolt secured to a bed-plate and comprising a bolt portion adapted to slide in said slots, and laterally-extending rollers mounted at one end thereof and adapted to engage said slotted plate, substantially as described.

645,866. MECHANICAL MOVEMENT. JAMES W. MARTIN, Omaha, Nebr. Filed Oct. 30, 1899. Serial No. 735,280. (No model.)



Claim.—1. The combination of a support, a driven shaft carrying a pinion, a pair of gears adapted to alternately engage said pinion and rotate it in opposite directions, a holding device, and means for operating said device automatically, whereby the pinion is brought to rest and held at rest just before the gears in turn come into engagement with it.

2. The combination of a support, a driven shaft carrying a pinion, a pair of gears adapted to engage said pinion alternately and rotate it in opposite directions, a frictional holding device, and means for automatically operating said frictional holding device as each gear in turn releases the pinion, whereby the pinion is brought to rest and held at rest previous to each engagement of the gears.

3. A reversing mechanism, comprising a support, a driven shaft carrying a pinion, a driving-shaft provided with gears adapted to alternately engage said pinion and rotate it in opposite directions, a spring-actuated, frictional holding device engaging said pinion, and a pressure device engaging said holding device and adapted to actu-

ate it as each gear in turn releases the pinion, whereby the pinion will be arrested and held against rotation until each gear in turn engages it.

645,867. STEP-LADDER. JOHN G. MILHIME, Chicago, Ill. Filed Apr. 21, 1899. Serial No. 713,930. (No model.)



Claim.—1. The combination with the side pieces of a ladder provided, respectively, with engaging members, of a supporting-frame comprising a pair of flaringly-disposed legs, and a pair of parallel legs working between the engaging members, respectively, the engaging members being so located as to receive and hold the legs only when they are set at an angle to the ladder, and means for fixing the legs at such an angle to the ladder as to compel the said engagement, substantially as set forth.

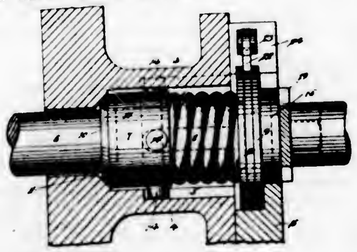
2. The combination with a ladder proper provided with engaging members, of a supporting-frame comprehending legs working between said engaging members, respectively, the engaging members being so located as to receive and hold the legs only when they are set at an angle to the ladder, a spreader-arm adapted to regulate said angle of the legs to the ladder, and spreader-regulating mechanism, substantially as set forth.

3. The combination with a ladder proper provided with engaging members, and a supporting-frame comprehending legs working between said engaging members, the engaging members being so located as to receive and hold the legs only when they are set at an angle to the ladder, of a sliding frame on the legs, a spreader-arm uniting said frame and the ladder proper, and spreader-regulating mechanism, substantially as set forth.

4. The combination with a ladder proper provided with engaging members, of a supporting-frame comprehending legs working between the engaging members, respectively, the engaging members being so located as to receive and hold the legs only when the supporting-frame is set at an angle to the ladder, a sliding frame on the legs, a collar pivotally united to the ladder, a spreader-arm uniting the sliding frame and collar, and means for adjustably connecting the collar and spreader-arm, substantially as set forth.

5. The combination with a ladder proper provided with engaging members, of a supporting-frame comprehending legs working between the engaging members, a sliding frame on the legs, a collar pivotally united to the ladder, a cam working in the collar, and a spreader-arm adjustably connecting the sliding frame and the collar through the aid of the cam, substantially as set forth.

645,868. PACKING. JOHN J. MOSS, Chicago, Ill. Filed May 26, 1899. Serial No. 718,384. (No model.)



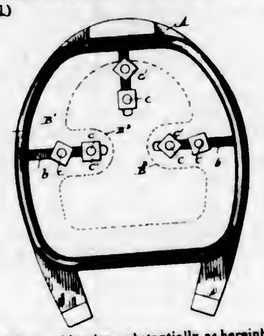
Claim.—1. In a packing, the combination with a stuffing-box having a groove formed longitudinally in the bore thereof, of a packing-sleeve comprising a collar with a stud sliding in the groove, a spiral, one end of which is attached to the collar, and a head attached to the other end of the spiral, a bearing attached to the stuffing-box and carrying the head, and a spanner connected with the head and with the bearing, whereby to turn the head for contracting and expanding the packing-sleeve.

2. In a packing, the combination of a packing-sleeve, a bearing, a spanner connected with the sleeve, a rod connection with the spanner, and a spring-packing between the bearing and the rod and serving to keep the spanner under pressure.

3. In a packing, the combination with a stuffing-box having a longitudinally-extending groove in the bore thereof, of a packing-sleeve comprising three parts, namely, a collar with a stud sliding in the groove of the stuffing-box, a spiral, one end of which is fastened to the collar, and a head to which the other end of the spiral is fastened, a spanner connected with the head, a rod attached to the spanner, a bearing carried on the stuffing-box and serving to hold the head, and a spring connection between the rod and the bearing, to maintain the rod under pressure.

4. In a packing, the combination with a stuffing-box, of a packing-sleeve, comprising a spiral, the sleeve having connection at one end with the stuffing-box, a spanner connected with the other end of the sleeve, and means bearing between the spanner and stuffing-box and serving continually to maintain the spiral under pressure.

645,869. ICE-CREEPER ATTACHMENT FOR HORSESHOES. JOHN M. MYERS, Louisville, Ky. Filed July 26, 1899. Serial No. 726,205. (No model.)



Claim.—The combination, substantially as hereinbefore set forth, of a horseshoe, having grooves in the upper side thereof, an ice-creeping rim, its supporting plate or ring interposed between the rim and shoe, fastening-clips connecting the plate or ring and shoe, and adjusting devices connecting the plate or ring and clips, for the purposes described.

645,870. BOILER-CLEANER. JOHN T. HORNE and JAMES R. SMITH, Raton, N. Mex. Filed Aug. 14, 1899. Serial No. 727,120. (No model.)

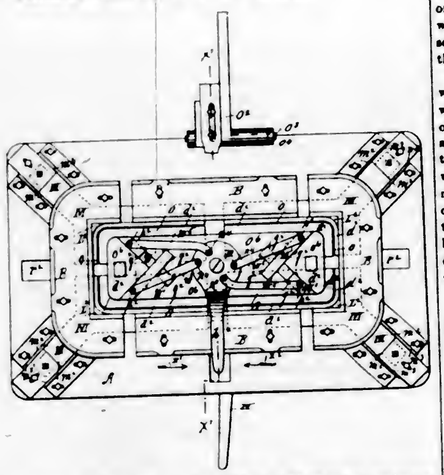


Claim.—1. A boiler-cleaner, comprising a plurality of perforated pipes, said pipes having one end made tapering, and the said tapering end formed with a plurality of inlet-openings gradually increasing inwardly and merging with the pipe, said pipes having induction-inlets from the tapering end to their exit end, the exit ends of said pipes having a union-coupling, and a blow-out head externally of the boiler connection with the said coupling as set forth.

2. A boiler-cleaner comprising two perforated pipes joined at one end to the common union-pipe, the free ends of the pipes extending in opposite directions about the fire-box, their extremities facing each other, said extremities having a tapering edge and inlets; and a perforated pipe-section connected with the union-pipe and extended into the sediment-inlets of the horizontal part of the boiler, the extremities of said pipe having tapering apertures, and a blow-off external of the boiler connected with one of the perforated pipe-sections.

3. A boiler-cleaner as described, comprising a plurality of pipes joined at one end to a common coupling member; a blow-off connected with said member, each pipe having a series of inlets, their edges tapering in the direction of the water out-flow, the extremities of said pipes being made wedge-shaped and having a pair of inlets 6^a, convergingly disposed inwardly with increasing diameters and merging with the pipe, all being arranged substantially as shown and described.

645,871. FOLDING-MACHINE. JAMES K. P. PIER, Lansingburg, N. Y., assignor to the United Shirt and Collar Company, Troy, N. Y. Filed Oct. 3, 1894. Serial No. 524,787. (No model.)



Claim.—1. In a machine for infolding cuff-blanks or analogous articles, the combination of a support for the blanks, a templet having expanding and contracting plates, edge portions of which are adapted to bear directly upon the blanks upon said support, and within edge portions of the blanks, infolders constructed to move inwardly and outwardly whereby the edge portions of the blanks may be folded over the edge portions of the templet, and means whereby the folds of the blanks may be pressed between the support and the infolders after withdrawal of the plates of the templet from the folds and thereby fixed with a sharp fold.

2. In an infolding-machine for blanks of a cuff or analogous article, the combination of a bed on which blanks are placed, infolders constructed to move inwardly and outwardly, a templet having expanding and contracting plates, edge portions of which are adapted to bear directly upon the blanks while they are supported upon said bed and inward of edge portions of the blanks, so that such edge portions of the blanks may be folded over the edge portions of the templet, means whereby the templet may be accurately positioned upon the blanks and removed therefrom, and means for producing a relative vertical movement between the bed and the infolders sufficient to produce a sharp fold in the blanks after withdrawal of the plates of the templet from beneath the infolders.

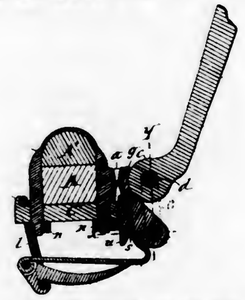
3. In an infolding-machine the combination with a bed; of a templet having laterally expanding and indrawing plates on its under surface; means whereby said templet is operated to descend onto, and rise from off a blank placed on said bed, and to have its plates in contact with the blank at their inner and outer edges when resting thereon, and to have its plates alternatingly moved outwardly and inwardly diagonally or cornerwise; infolders arranged on said bed; means to move said infolders inwardly to carry the subtending edges of the blank over the expanded edges of the templet-plates, and then to move outwardly; and means whereby the infolds thereby formed may be pressed between the infolders and the bed after the templet-plates are withdrawn therefrom, and before the infolders have been moved outwardly, substantially as shown and described.

4. In a machine for interning the edges of cuff-blanks or analogous articles, the following elements in combination, namely; a bed or table on which the blanks are placed in succession; infolders constructed to move inwardly and outwardly on all sides simultaneously; a templet provided with radially expanding and contracting plates on its under surface; means for accurately placing the templet vertically upon and raising it off from the blanks resting upon the bed or table; means for maintaining the bed in position beneath the templet and in proper relation to the infolders while the infolders are operating; and means for forcing the bed against the infolders after the templets are withdrawn, whereby by operating the several elements as and in the order specified a cuff or collar may be infolded on all sides at one operation and the infold fixed therein with a sharp fold by pressure, after the templet-plates have been withdrawn from the infolds, substantially as and for the purpose specified.

5. In an infolding-machine the combination with a bed on which the blanks are placed to be infolded; a templet having plates on its bottom which at the ends and sides of the templet are together laterally expansible and contractible with their inner and outer edges in contact with the blank being infolded; means for moving outwardly and inwardly said templet-plates; infolders having slideways on the machine-bed; means substantially as described for moving inwardly and outwardly said infolders; and means substantially as described for forcing the bed and infolders to engage independently of the templet-plates substantially as and for the purposes set forth.

6. The combination with a bed, of infolders provided with slideways, a templet provided with plates on its under surface; means whereby said templet may be operated to descend onto, and rise from off a blank placed on said bed and have its plates together expanded and drawn inwardly at the sides and ends of the templet at the same time with the inner and outer edges of the templet-plates in contact with the blank being infolded; means whereby said infolders may be moved inwardly and outwardly and when being moved inwardly to carry the subtending edges of the blank over the expanded edges of the templet-plates to form the infold; and means to press the latter between the bed and infolders after the templet-plates have been drawn from the infold, and before the infolders have been moved outwardly substantially as and for the purposes set forth.

645,872. THILL-COUPLING. WILLIAM F. SCHUBERT, Oneida, N. Y., assignor of one-half to Burton G. Foster, Verona, N. Y. Filed Aug. 18, 1899. Serial No. 727,628. (No model.)



Claim.—1. In combination with the shackle-ears of the axle, shackle-eye of the thill-iron, the coupling-pin formed with a downward extension, and the antirattler-jaw pivoted to said extension, a shoe formed on said jaw, and the actuating-spring passing through said shoe and fastened thereby to the jaw as set forth.

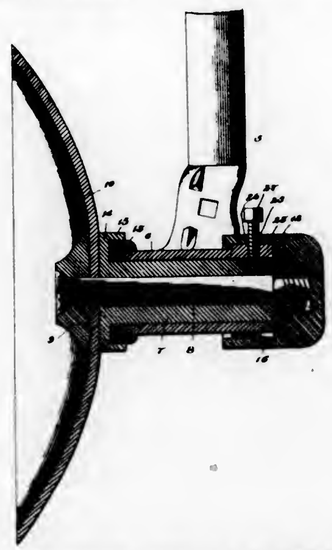
2. In combination with the shackle-ears of the axle, shackle-eye of the thill-iron, the coupling-pin formed with a downward extension, and the antirattler-jaw pivoted to said extension, a shoe formed on the back of said jaw in position to contact with the fulcrum of the jaw, and the actuating-spring passing through said shoe and fastened thereby to the jaw as set forth.

3. In combination with the shackle-ears of the axle, shackle-eye of the thill iron, the coupling-pin formed with a downward extension and the antirattler-jaw pivoted to said extension, a shoe formed of a ductile-metal wear-plate disposed at the rear of the jaw and attached thereto at one side thereof and the actuating-spring passing through said shoe and fastened therein by compression of the wear-plate toward the jaw as set forth.

645,878. DUST-CAP FOR DISK-BEARINGS. WESLEY SEBRING, Westmoreland, Kans. Filed Jan. 15, 1900. Serial No. 1,515. (No model.)

Claim.—1. In a disk cultivator, the combination with a beam having a journal-box connected therewith, said box having a peripheral flange at one end provided with slots disposed longitudinally of the box, of a disk having a support rotatably mounted in the box, said

support forming a closure for one end of the box, and a cap adapted to receive the opposite end of the box and having inwardly-directed fingers adapted to enter and pass through the slots of the flange upon the box and to move with the cap to lie behind the flange to prevent displacement of the cap.



2. The combination with a journal-box having a radial flange at one end, said flange having slots disposed longitudinally of the box, of a cap adapted to fit over the end of the box and having inwardly-directed fingers at one end adapted to enter and pass through the slots of the box, said cap being adapted for oscillation to move the fingers to lie behind the flange of the box, perforations in the box and cap, adapted for movement into and out of alinement as the cap is oscillated, and means adapted for engagement with the perforations to hold the cap against oscillation.

3. The combination with a beam and a journal-box at one end thereof and extending beyond the side faces of the beam, said box having a peripheral flange at one end provided with slots extending longitudinally of the box, of a cap having inwardly-directed fingers adapted to pass through the slots of said flange and to move into and out of registry with the slots as the cap is oscillated, a recess in one edge of the cap adapted to receive the beam and having its walls disposed to limit the oscillation of the cap, perforations in the box and cap adapted to move into and out of alinement as the cap is oscillated, the perforation in the box extending into the bearing thereof, and a screw adapted for engagement with the perforations to hold the cap from oscillation.

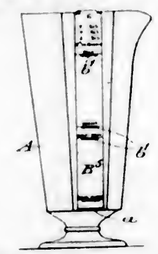
645,874. JEWELRY-FASTENING. CLARENCE E. SMITH, New Britain, Conn., assignor to the North & Judd Manufacturing Company, of Connecticut. Filed Jan. 26, 1900. Serial No. 2,842. (No model.)



Claim.—1. A fastening device, comprising a body formed of sheet metal, a hasp adapted to reciprocate therein, a lock-bar at the inner end of said hasp, said lock-bar being inclosed within said body at all times, a locking-nose rigidly formed in the body portion and projecting into the path of movement of said lock-bar.

2. A fastening device, comprising a body portion of sheet metal, a hasp adapted to reciprocate therein, a lock bar at the inner end of said hasp, said lock-bar being inclosed within said body portion, a stop device carried by said hasp, a locking-nose rigidly formed in the body portion and projecting into the path movement of said lock-bar.

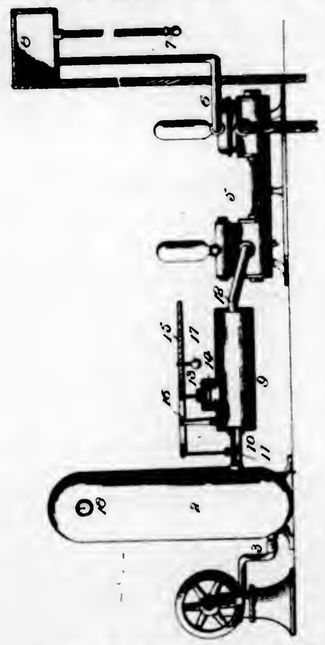
645,875. MILK-MODIFYING APPARATUS. ERNEST STRAUS, New York, N. Y., assignor of one-half to Albert Haas, same place. Filed May 2, 1899. Serial No. 715,290. (No model.)



Claim.—1. A milk-modifying apparatus comprising a vessel and a formula-bearing strip fitted to be removably attached to the said vessel, the said strip being provided with a plurality of slits corresponding to the different marks of the formula through which slits the surface of the contents of the vessel may be observed when opposite the said marks, substantially as set forth.

2. A milk-modifying apparatus comprising a transparent vessel having a vertical groove formed in its outer surface and a formula-bearing strip adapted to be seated within the said groove, the said strip having its upper end developed into a spring-hook arranged to embrace the top of the vessel for holding the strip snugly in its position within the groove in the vessel, substantially as set forth.

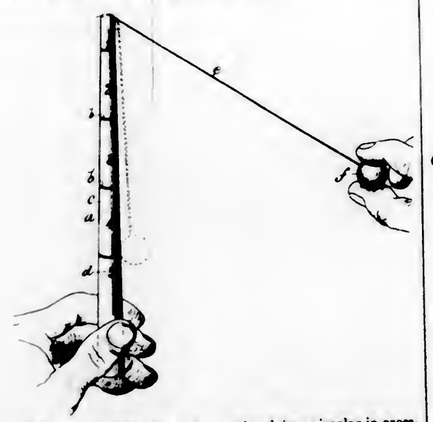
645,876. WATER-DISTRIBUTING SYSTEM. ABNER D. STRONG, Ashtabula, Ohio. Filed May 16, 1899. Serial No. 717,062. (No model.)



Claim.—1. An apparatus or system for elevating and distributing water, the same consisting of a service-pipe provided with faucets at desired points, a pump for lifting the water and charging the service-pipe, a compressed-air reservoir, means for charging said reservoir with air under pressure, and a pressure-reducing means between the compressed-air reservoir and the said pump, substantially as set forth.

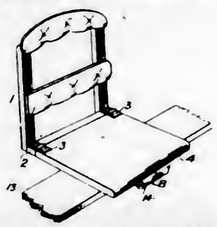
2. In a system or apparatus for elevating and distributing water by means of a service-pipe, a pump for effecting and charging the service-pipe, a compressed-air reservoir, means for charging said reservoir with air under pressure, a chamber in communication at opposite ends with, respectively, said reservoir and pump, a valve located in the connection between the chamber and reservoir and opening with the pressure from said reservoir and means operatively connected with the valve and controlled by the pressure of air within the said chamber to automatically reduce the effective pressure for actuating the pump, substantially as described.

645,877. TOY. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed June 13, 1899. Serial No. 720,396. (No model.)



Claim.—A toy comprising a bat or handpiece circular in cross-section and rounded off at one end, and having a plurality of distinctive circumferential marks or colors upon its surface dividing the said bat or handpiece into several spaces or sections, an elastic strip having one end secured to the extreme rounded-off end of the bat or handpiece, and a ball attached to the free end of the elastic strip, the construction being such as to permit a free movement of the elastic strip in all directions whereby the ball may strike the bat or handpiece on rebound as well as on advance movements during a single shot.

645,878. CAMP-CHAIR. JOHN W. TENNYSON, Opdyke, Ill. Filed Feb. 24, 1897. Serial No. 624,757. (No model.)



Claim.—1. The combination with a chair-back and a seat or bottom hinged thereto, of securing means upon the bottom of the chair, consisting of securing-arms, spirals, a bail and a grip mounted thereon, and a spring-clip comprising arms extending from the spirals and bent back to and connected by the bail on which the grip is secured, substantially as specified.

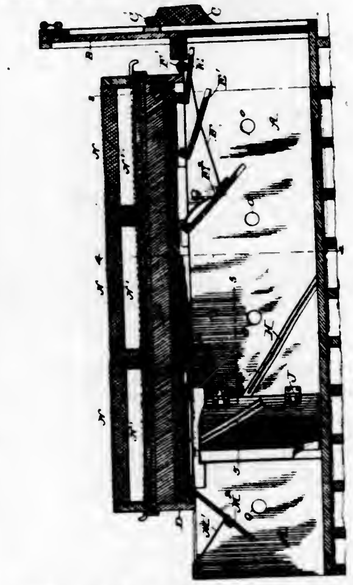
2. The combination with a chair-back and a folding seat or bottom hinged thereto, of securing means consisting of parallel supporting arms or clips secured to the chair-bottom and provided at one end each with a spiral, spring-arms extending from said spirals in a reverse direction to the supporting-arms and substantially parallel therewith, said spring-arms being rebent upon themselves to form bail-arms, and a bail connecting the ends of said rebent arms, substantially as and for the purpose specified.

645,879. SPECTACLE OR EYEGLASS MOUNTING. MYRON C. THOMAS, Waverly, N. Y., assignor of one-half to Frank R. Munn, same place. Filed Feb. 3, 1899. Serial No. 704,383. (No model.)

Claim.—A spectacle or eyeglass mounting, comprising a nose-bridge consisting of a plate having upwardly and rearwardly inclined arms at its ends, and arms at its ends extended downward at substantially right angles to the length of the bridge, all of said arms being integral with the bridge, perforated ears on the end of the bridge and integral therewith for engaging one side of the lenses, the said ears being formed between the adjacent ends of the arms substantially in line with the longitudinal center of the bridge, short ears on the ends of the bridge for engaging the opposite sides of the lenses, and curved strips on the ends of the bridge between the ears for engaging the edges of the lenses, said strips and short ears being of one piece of metal attached to the bridge, substantially as specified.



645,880. FLY-TRAP. CHARLES R. VARNUM, Vinland, Kans. Filed Oct. 21, 1899. Serial No. 734,352. (No model.)



Claim.—1. A fly-trap substantially as described comprising a chute having within it means for removing flies from cows and the like, a trap-compartment extending above said chute, and removable trap boxes or cages fitted on said compartment and having openings communicating therewith, and means for closing said openings at will substantially as set forth.

2. In a trap substantially as described the combination of a chute, a trapping-compartment above the same, a door controlling the entrance to said chute, and a hood in front of said door substantially as set forth.

3. In a trap substantially as described, a chute provided with adjustable shades to darken the chute substantially as set forth.

4. A trap comprising a chute and brushes at the opposite sides thereof and inclining rearwardly from their lower to their upper ends substantially as set forth.

5. The combination with the chute of the doors therein converging toward their rear ends and provided on their inner forward sides with brushes substantially as set forth.

6. The combination of the chute, the hinged shades therein, the inclined brushes, and the hinged converging doors provided with brushes substantially as set forth.

7. A trap substantially as described comprising the combination with a chute of doors hinged at their front edges and converging at their rear edges within said chute, provided on their front faces with brushes and having cut-away portions at the lower ends of their converging edges substantially as set forth.

8. The combination in a trap of the chute, inclined brushes and converging doors therein, a swinging light-shield in rear of said doors, and the trapping-compartment above the chute substantially as set forth.

9. In a trap substantially as described the combination of the chute, the trapping-compartment above said chute, and the trap boxes or cages mounted on said compartment and removable substantially as described.

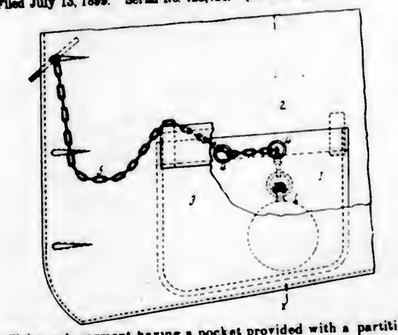
10. A trap substantially as described comprising a chute provided with means for removing flies from animals passing through the chute, and a trapping-compartment arranged above and extending lengthwise over the chute and trap boxes or cages fitted removably to said compartment and communicating therewith substantially as set forth.

645,881. VENEER-MACHINE. WILLIAM H. WILLIAMS, New York, N. Y. Filed Aug. 17, 1899. Serial No. 727,582. (No model.)



Claim.—The combination of a fixed bed-plate having a longitudinal front rib constructed with a vertical inner face and a longitudinal rear rib constructed with an undercut inner face, the knife-carrier block formed with an upward extension and constructed at the rear edge of its base portion with a rabbet having a curved face and at the front of its base portion with a vertical face fitting the vertical face of the said longitudinal front rib of the bed-plate, a veneer-cutting knife detachably secured to the vertical face of the upward extension of the knife-carrier block, said knife-carrier block constructed to turn in the arc of a circle out of engagement with the undercut rear rib of the bed-plate, and clamp-screws passing through the longitudinal front rib of the said bed-plate and directly engaging the knife-carrier block to rigidly hold it in the bed-plate while permitting it to be conveniently detached therefrom, substantially as described.

645,882. SAFETY-POCKET. LAZARUS ALMULY, Utica, N. Y. Filed July 13, 1899. Serial No. 723,721. (No model.)

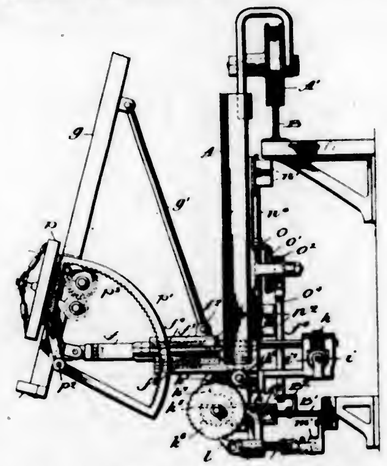


Claim.—A garment having a pocket provided with a partition secured at its sides and bottom and free at its top, forming two compartments both of which are on the same side of the body of the garment, the said partition being provided with a plurality of openings through which a flexible connection such as a chain or ribbon is interwoven, substantially as described.

645,883. APPARATUS FOR BEVELING GLASS. WILLIAM O. BAILEY, London, England. Filed Mar. 7, 1898. Serial No. 672,951. (No model.)

Claim.—1. In a glass-beveling machine, the combination with a traveling frame, of bars mounted to slide thereon, an easel pivoted to the bars, blocks mounted to slide on said bars, connections between said easel and said blocks, and means for moving said bars and blocks independently.

2. In a glass-beveling machine, the combination with a traveling frame, of bars mounted to slide in guides thereon, an easel pivoted to the bars, blocks mounted to slide on said bars, struts pivoted to said easel and to said blocks, and screw-shafts and worm-pinions for moving said bars and blocks independently.



3. In a glass-beveling machine, the combination with a stationary part and a cam thereon, of a traveling frame, bars mounted to slide thereon carrying an easel, a ratchet operating through suitable connections to move said bars, a pawl engaging said ratchet for operating it, and a bar carrying said pawl and adapted to engage said cam, as and for the purpose set forth.

4. In a glass-beveling machine, the combination with a stationary part, of a cam pivoted thereto, a stop for limiting the movement of said cam in one direction, a spring for resisting its movement in the opposite direction, a traveling frame, bars mounted to slide thereon carrying an easel, a ratchet connected through suitable gearing with said bars, a pawl engaging said ratchet for operating it, and a bar carrying said pawl and adapted to engage said cam, as and for the purpose set forth.

5. In a glass-beveling machine, the combination with a traveling frame, of gripping devices thereon, oppositely-movable strands of cable adapted to be engaged by said gripping devices, and means for throwing one of said devices into locking position and simultaneously releasing the other.

6. In a glass-beveling machine, the combination with a traveling frame, of gripping devices thereon, oppositely-movable strands of cable adapted to be engaged by said gripping devices, and means for automatically throwing one of said devices into locking position and simultaneously releasing the other.

7. In a glass-beveling machine, the combination with a traveling frame, of gripping devices thereon, oppositely-movable strands of cable adapted to be engaged by said gripping devices, a pair of stops on a stationary part, and tripping mechanism carried by said frame and adapted to engage said stops for throwing one of said devices into locking position and simultaneously releasing the other.

8. In a glass-beveling machine, the combination with a traveling frame, of two sets of gripping-jaws thereon, oppositely-movable strands of cable adapted to be engaged by said jaws, an oscillatory shaft provided with means for operating said jaws to simultaneously open one set and release the other, and means for automatically actuating said shaft.

9. In a glass-beveling machine, the combination with a traveling frame for supporting the glass, of two pairs of jaws thereon, a propelling rope or cable between the members of each pair of jaws, a shaft having right and left hand screw-threads engaging respectively the separate members of each pair of jaws, a pinion on said shaft, a gear-wheel meshing therewith, a pinion secured to said gear-wheel, a rack gearing with the latter pinion, and means for moving said rack.

10. In a glass-beveling machine, the combination with a traveling frame for supporting the glass, of two pair of jaws thereon, a propelling rope or cable between the members of each pair of jaws, a shaft having right and left hand screw-threads thereon engaging respectively the separate members of each pair of jaws, a pinion on said shaft, a gear-wheel meshing therewith, a pinion secured to said gear-wheel, a rack gearing with the latter pinion having an arm thereon, and fixed stops adapted to be engaged by said arm, as and for the purpose set forth.

11. In a glass-beveling machine, the combination with an easel and a clamping-board cooperating therewith, of spring-actuated buffers on one of said parts.

12. In a glass-beveling machine, the combination with an easel and a clamping-board cooperating therewith, of spring-actuated buffers extending through openings in said easel and opposing the movement of said clamping-board.

13. In a glass-beveling machine, the combination with an easel and a clamping-board cooperating therewith, of spring-actuated buffers extending through openings in said easel and means for locking a part of said buffers.

14. In a glass-beveling machine, the combination with an easel and a clamping-board cooperating therewith, of spring-actuated buffers extending through openings in said easel, and means for controlling the degree of penetration of said buffers through said openings.

15. In a glass-beveling machine, the combination with an easel and a clamping-board cooperating therewith, of a yielding buffer thereon comprising a rubber tip projecting through an opening in the easel, a stem secured thereto, a spring surrounding said stem, and a screw-nut upon the outer end thereof.

16. In a glass-beveling machine, the combination with an easel, of a series of yielding buffers thereon, stems on said buffers, and clamping devices for said stems.

17. In a glass-beveling machine, the combination with an easel, of a series of yielding buffers thereon, stems on said buffers, clamping devices for said stems, and means for actuating said clamping devices simultaneously.

18. In a glass-beveling machine, the combination with an easel, of spring-actuated buffers thereon, stems on said buffers, fixed gripping-surfaces, levers for clamping said stems against said surfaces, and means for operating said levers simultaneously.

19. In a glass-beveling machine, the combination with an easel, of spring-actuated buffers thereon, stems on said buffers, fixed gripping-surfaces, levers for clamping said stems against said surfaces, an internally-threaded bracket, a threaded shaft extending therethrough, a threaded rod swiveled to said shaft, collars on said rod adapted to engage said levers on one side, springs on said rod adapted to engage said levers on the other side, and adjusting-nuts for said springs.

20. In a glass-beveling machine, the combination with an easel, of a clamping-board cooperating therewith, the latter being provided with the straining-bolts v, the caps or plates v', the adjustable links v^2 and the webs w.

21. In a glass-beveling machine, the combination with an easel, of a clamping-board cooperating therewith, internally-toothed quadrants secured to said board and pivoted to said easel, gear-wheels mounted on a common shaft meshing with the teeth on said quadrants, and means for rotating said shaft.

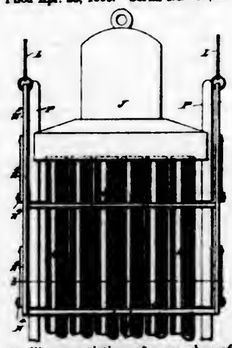
22. In a glass-beveling machine, the combination with an easel, of a clamping-board cooperating therewith, internally-toothed quadrants secured to said board and pivoted to said easel at its opposite ends, gear-wheels meshing with the teeth on said quadrants, means for rotating said gear-wheels, and a block or roller mounted on the edge of said easel for preventing inward straining of the quadrants or bowing of the clamping-board.

645,884. BICYCLE HANDLE-BAR. JAMES M. BLANCHFIELD, Jackson, Mich., assignor of one-half to Arthur R. Hilthorp, same place. Filed June 23, 1899. Serial No. 721,629. (No model.)



Claim.—In an adjustable handle-bar for bicycles, the combination of a central post provided upon its front face with integral ears projecting laterally and having annular flanges projecting forwardly therefrom and formed with seats, two outwardly bowed or curved handle-sections each provided at its inner end with a transverse tubular sleeve having its outer end internally threaded and its inner end provided with a stop-shoulder and a rearwardly-projecting cup receiving and inclosing the flange on the adjacent ear of the post, a pivot-bolt uniting the ear and the cup, a sliding bolt extending through the tubular sleeve and having at its inner end a locking projection to engage the seats in said flange and a shoulder to abut against the shoulder of the tube and at its outer end an operating device, a spiral spring surrounding the bolt and bearing at one end against the shoulder thereof, and a flanged screw-cap fitted into the said threaded outer end of the transverse tubular sleeve and bearing against the adjacent end of said spring, substantially as described.

645,885. PILING. WILLIAM R. BOSWELL and ROBERT F. SMITH, Macon, Ga. Filed Apr. 26, 1899. Serial No. 714,457. (No model.)



Claim.—1. A piling consisting of a number of metal tubes arranged side by side, a cap semicircular in cross-section fitted over the upper edges of the said piles, and transverse bolts extending through the lower edges of said cap and engaging the piles, as and for the purpose set forth.

2. A piling, consisting of a number of metal tubes arranged side by side, a cap fitted over the upper edges of the tubes and a series of bolts extending transversely through the lower edges of said cap and engaging sundry tubes whereby to hold the cap in place and stiffen the positions of the piles with respect to each other, as set forth.

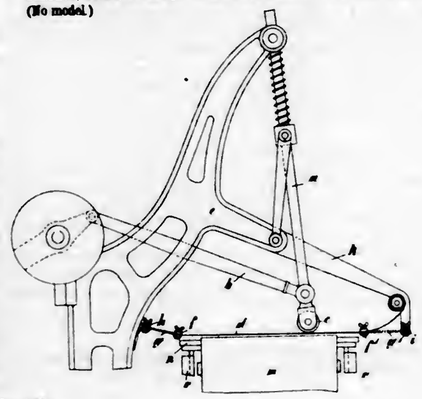
3. A piling, consisting of a plurality of metal tubes arranged one alongside the other, blocks for joining adjacent ends of successive tubes, each block having top and bottom offsets for entering the tubes, and shoulders for the edges of the tubes to rest on, substantially as shown and described.

4. A piling, consisting of a plurality of metal tubes arranged one alongside the other, blocks for joining adjacent ends of successive tubes, each block having top and bottom offsets for entering the tubes, and shoulders for the edges of the tubes to rest on, said offsets being beveled for receiving the expanding ends of the tubes, as set forth.

5. A piling, consisting of a plurality of metal tubes arranged one alongside the other, blocks for joining adjacent ends of successive tubes, each block having top and bottom offsets for entering the tubes, shoulders for the edges of the tubes to rest on, said offsets being beveled for receiving the expanding ends of the tubes, and an encircling band or sleeve fitted upon the block and the adjacent ends of the tubes, substantially as shown and described.

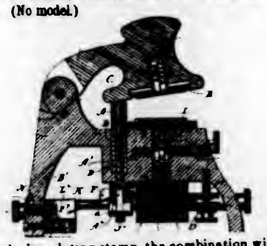
6. A piling, consisting of a plurality of metal tubes arranged one alongside the other, blocks for joining adjacent ends of successive tubes, each block having top and bottom offsets for entering the tubes, shoulders for the edges of the tubes to rest on, said offsets being beveled for receiving the expanding ends of the tubes, an encircling band or sleeve fitted upon the block and the adjacent ends of the tubes, and a bolt for securing said sleeve to the block, as set forth.

645,886. MACHINE FOR POLISHING LEATHER. FRANZ BREIDENBACH, Berlin, Germany. Filed Feb. 4, 1899. Serial No. 704,577. (No model.)



Claim.—In a machine for manipulating leather the combination of a band *d* of brass or other material swinging freely, and attached at both ends by means of spiral springs or elastic cords *g g'* to points of suspension *h i* and occupying a position immediately over the leather to be manipulated and close under and parallel to the stroke of the operating press-roller preventing direct contact between the surfaces of the roller and of the leather and obviating the objectionable form of the impressions made on the texture of the leather which results from the revolution of the roller substantially as described.

645,887. DATING-STAMP. HAROLD L. BROTHERTON, New Haven, and GEORGE W. LEE, Winsted, Conn. Filed Aug. 19, 1899. Serial No. 727,746. (No model.)



Claim.—1. In a dating-stamp, the combination with the spindles upon which the inked ribbon is wound, of two ratchet-wheels respectively located upon the said spindles, a plunger, a pawl-head located upon the said plunger, pawls carried by the said head and respectively adapted to be engaged with the said wheels, two springs mounted independently of the said pawl-head and coacting with the pawls for alternately cutting them into and out of operation, whereby they are alternately used for positively rotating the spindles in reversing the ribbon, and means for effecting the desired operation of the said springs.

2. In a dating-stamp, the combination with the spindles upon which the inked ribbon is wound, of two ratchet-wheels respectively located upon the said spindles, a plunger, a pawl-head located upon the said plunger, pawls carried by the said head and respectively adapted to be engaged with the said ratchet-wheel, two springs coacting with the pawls, and a spring-block in which both springs are mounted, and which is mounted independently of the said pawl-head and adapted to be shifted in position for retiring the pawls one at a time, whereby they are alternately cut into and out of operation for positively rotating the spindles in reversing the ribbon.

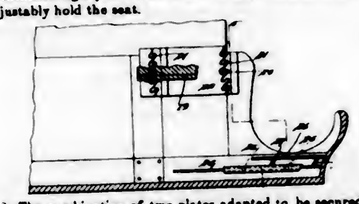
3. In a dating-stamp, the combination with the spindles upon which the inked ribbon is wound, of two ratchet-wheels respectively located upon the said spindles, a plunger, a pawl-head located upon the said plunger, pawls carried by the said head and respectively adapted to be engaged with the said ratchet-wheels, two springs respectively coacting with the said pawls, a spring-block in which both of the springs are mounted, and which is adapted to be shifted in position for alternately cutting the pawls into and out of operation, and supplemental tension devices carried by the said block, coacting with the spindles, and alternately cut into and out of operation in correspondence with the pawls.

4. In a dating-stamp, the combination with the spindles upon which the inked ribbon is wound, of two ratchet-wheels respectively located upon the said spindles, a plunger, a pawl-head located upon the said plunger, pawls carried by the said head and respectively adapted to be engaged with the said ratchet-wheels, two springs respectively coacting with the said pawls, a spring-block in which both of the springs are mounted, and which is adapted to be shifted in position for alternately cutting the pawls into and out of position, and two springs carried by the said block, coacting with the spindles for imposing tension upon them, and alternately cut into and out of operation in correspondence with the pawls by the shifting of the block.

5. In a dating-stamp, the combination with the spindles upon which the inked ribbon is wound, of two ratchet-wheels respectively located upon the said spindles, a plunger, a pawl-head located upon the said plunger, pawls carried by the said pawl-head and respectively adapted to be engaged with the said ratchet-wheels, two springs coacting with the pawls for alternately cutting them into and out of operation, a spring-block connected with the frame of the machine and independent of the said pawl-head, and carrying said springs, and adapted to be shifted in position for causing the springs to act in alternately cutting the pawls into and out of operation.

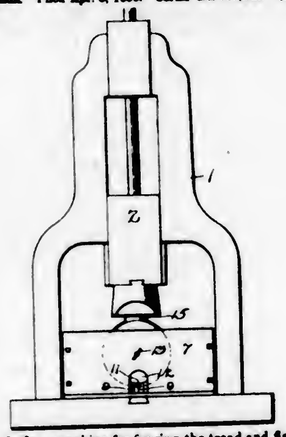
645,888. VEHICLE-SEAT. JAMES BURNS, Cincinnati, Ohio. Filed June 29, 1899. Serial No. 722,268. (No model.)

Claim.—1. The combination with a vehicle, of ratchet-plates attached to the side walls of the vehicle-body, inside thereof, a seat, and studs attached rigidly to the seat and working with the ratchet-plates to adjustably hold the seat.



2. The combination of two plates adapted to be secured at opposite sides of the vehicle and each plate having two rows of ratchet-teeth formed thereon, each plate also having flanges facing the respective rows of ratchet-teeth, and a seat having two studs at each end, the studs respectively working with the rows of ratchet-teeth to adjustably hold the seat.

645,889. DIE FOR FORGING CAR-WHEELS. SAMUEL CLARKE, Perth, Canada. Filed Apr. 3, 1899. Serial No. 711,543. (No model.)

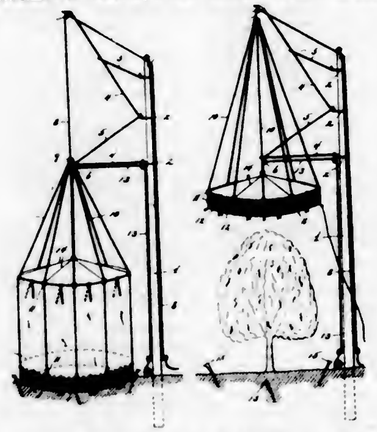


Claim.—1. In a machine for forging the tread and flange of car-wheels, the combination with the hammer-die, having a die projection, the face of which is formed in the segment of a circle corresponding to the finished wheel; of an anvil-die comprising a casing, said casing having a recess inclined toward its bottom; a removable sectional die located within said recess, said die extending entirely across the lower portion of said recess, the upper face of said die having an operating-surface formed in the segment of a circle corresponding to the finished wheel, said die being adapted to support and contact with the tread portion of said wheel in vertical position; and a recess formed within said removable die, said recess extending the entire length of said sectional die, said recess being adapted to receive the flange formed on said wheel, whereby the tread and flange portions will be supported on said anvil-die without binding and without tendency of lateral spreading of the wheel, substantially as described.

2. In a machine for forging the tread and flange of car-wheels, the combination with the hammer-die, having its face formed segmental to correspond with the circle of the finished wheel-tread; of an anvil die, comprising a casing; a recess formed therein, said recess being inclined toward its bottom; a removable sectional die located within said recess, said die extending entirely across the lower portion of said recess, the upper face of said sectional die having an operating-face formed in the segment of a circle corresponding to the finished tread portion, said die being adapted to support and contact with the tread portion of the wheel in vertical position during the forging; a longitudinal recess formed in said removable die, said recess extending the entire length of said sectional die, said recess being adapted to receive the flange formed on said wheel, whereby the tread and flange portions will be supported on said anvil-die without binding and without tendency of lateral spreading of the wheel; and a laterally-extending recess formed centrally on the upper face of said sectional die, said recess being adapted to afford access to means for turning said wheel within said die, substantially as described.

3. In a machine for forging the tread and flange of car-wheels, the combination with a hammer-die, having its face formed segmental to correspond with the circle of the finished wheel-tread; of an anvil-die, comprising a casing, having a recess inclined toward its bottom; a sectional die located within said recess, said die extending entirely across the lower portion of said recess, the upper face of said die having an operating-surface formed in the segment of a circle corresponding to the finished tread portion, said die being adapted to support and contact with the said portion of the wheel in vertical position during the forging; a longitudinal recess formed in said sectional die; said recess extending the entire length of said die, said recess being adapted to receive the flange formed on said wheel, whereby the tread and flange portions will be supported on said anvil-die without binding and without tendency of lateral spreading of the wheel; and a thumb-screw secured within said casing, said screw extending into the space formed above said removable die, said screw being adapted to hold the wheel against lateral movement within said casing, substantially as described.

645,890. TREE OR SHRUB PROTECTOR. JOSEPH A. CONRAD, De Land, Fla. Filed July 6, 1899. Serial No. 722,948. (No model.)



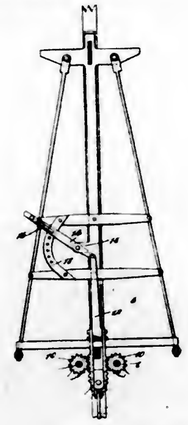
Claim.—A tree-protector involving the combination of a suitable mast or pole, a bracket having two supporting-arms connected with the pole one above another, a pulley or sheave in the extremity of each of the arms, a collapsible or foldable tent, a plurality of distending-hoops attached to the walls of the tent, a halyard connected with the top of the tent and leading around the sheave in extremity of the lower arm of the bracket for bodily raising and lowering the tent and for holding it in an elevated position, elevating-cords attached to the lower hoop, and a second halyard extending over sheave in the upper arm of the bracket for independently raising and lowering the lower end of the tent, substantially as described.

645,891. ELEVATOR-CONTROLLING APPARATUS. JOHN J. COOK, Butte, Mont., assignor of one-half to Walter W. Winbon, same place. Filed May 18, 1899. Serial No. 717,285. (No model.)

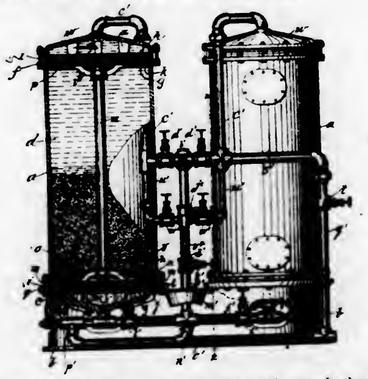
Claim.—1. The combination with an elevator-car and with a guide-rail past which the car moves, of shafts mounted on the car, a dog attached to each shaft and working with the guide-rail, a gear attached to each shaft, racks rigidly connected with each other and respectively meshed with the gears, a link to which the racks are fastened, a lever mounted on the car and pivoted to the link, a hand-latch mounted on the lever, and a quadrant mounted on the rack and coacting with the hand-latch to hold the lever in the desired position

2. The combination, with an elevator-car and with a member stationary with respect thereto, of a shaft mounted to turn on the car, a dog carried by the shaft, the dog working with the stationary member to hold the car, a gear fixed to the shaft, a rack meshed with the gear to drive the same, a link connected with the rack, and a hand-lever having connection with the link to impart movement thereto.

3. The combination with an elevator-car and with a vertically-disposed member stationary with respect thereto, of rock-shafts mounted on the car respectively on opposite sides of said stationary member, dogs carried by the rock-shafts and serving to engage said stationary member at opposite sides thereof, gears fast to the shafts, two racks situate between the rock-shafts and fastened rigidly with each other and sliding in unison, the racks respectively engaging the gears, and means for throwing the racks.



645,892. FILTER. GEORGE L. CUMMINGS, New York, N. Y. Filed Feb. 18, 1899. Serial No. 705,982. (No model.)



Claim.—1. In a filter, the combination of the seat in the lower water-receptacle for the lower diaphragm of the gravel-bed, said seat being smaller in diameter than the diameter of the cylinder, said diaphragm located in said seat; the annular seat for the upper diaphragm of said gravel-bed intermediate of said seat for the lower diaphragm and the cylinder, and said upper diaphragm secured to said intermediate seat independently of the cylinder.

2. In a filter, the combination of the seat in the lower water-receptacle for the lower diaphragm of the gravel-bed, said seat being smaller in diameter than the diameter of the cylinder, said diaphragm located in said seat; the annular seat for the upper diaphragm of said gravel-bed intermediate of said seat for the lower diaphragm and the cylinder, said upper diaphragm located on said intermediate seat, and the clamping-ring on the upper margin of said upper diaphragm, whereby said upper diaphragm is secured to its seat independently of the cylinder.

3. In a filter the combination of the cylinder, the lower gravel-bed secured within the cylinder removably without removing the cylinder, and the internal flange at the upper end of the cylinder for support of the upper gravel-bed, said flange having diametrically-opposite notches for permitting removal of said lower bed substantially as described.

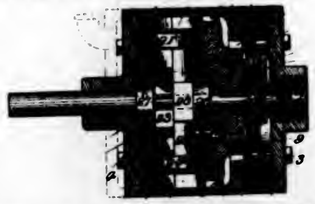
4. The combination with the upper and lower perforated diaphragms of a gravel-bed, and with the intermediate gravel, of a supplementary thin and finely-perforated diaphragm interposed between the upper surface of the gravel and the superimposed diaphragm substantially as described.

5. In a twin filter provided with the direct filtering system of pipes and valves comprising the inlet-pipe *a'*, branches *c'*, stop-valves *d'* in said branches, discharge-pipes *e'*, *f'* *g'* and *i'*, said pipe *f'* hav-

ing stop-valves l', and with the double-filtering system comprising the pipe o' connected to pipe f''; pipes q' and s' connecting pipe o' with the branch c' of one of the cylinders and having stop-valve t', of the washing-out attachment comprising discharge-pipes u' connected to inlet-pipes c' respectively, and provided with stop-valves w' and a discharge-nozzle v^3 substantially as described.

6. The combination with the gravel-beds and the stump-bearings of the covers for supporting the middle fields of the gravel-beds, of the spider-stands and their connecting-shaft interposed between the two beds to oppose inward pressure substantially as described.

645,893. **STEAM-ENGINE.** CYRUS S. DEAN, Fort Erie, Canada, assignor of one-half to Charles O. Rano, Buffalo, N. Y. Filed May 5, 1899. Serial No. 715,734. (No model.)



Claim.—1. In a steam-engine, a body or casing composed of separable sections having halves of steam-cylinders in their adjacent faces which form complete steam-cylinders having open outer ends when the sections are together, means for holding said sections together, and a shell on the casing which covers the open outer ends of all the cylinders and constitutes a head for them.

2. In a steam-engine, the combination with a body or casing composed of separable sections having halves of steam-cylinders in their adjacent faces which form complete steam-cylinders having open outer ends when the sections are together, of a shell composed of separable sections fitted on the sections of the casing end to end and closing the outer open ends of the steam-cylinders, and means for holding the body-sections and the shell-sections together.

3. In a steam-engine, the combination with a body or casing formed of separable sections of cylindrical shape which have the halves of steam-cylinders in their adjacent faces whereby complete steam-cylinders are formed when they are fitted together, said steam-cylinders having open outer ends and the respective body-sections having peripheral grooves, of a shell composed of separable cylindrical sections lying in the peripheral grooves in end-to-end disposition and closing the outer ends of the steam-cylinders, and means for holding the body-sections together, whereby the shell-sections are held in position.

4. In a steam-engine, a body composed of separable sections each having a plurality of sets of diametrically-disposed semicylinders in their adjacent faces which form steam-cylinders when the sections are connected together, a head covering the outer ends of said cylinders, independent double pistons in the respective sets of steam-cylinders, each of said double pistons consisting of piston-heads and a connecting-stem formed in a single integral piece, said double pistons having their stems adapted to play one across the other between the piston-heads, and a rotary shaft operatively connected to the stems.

645,894. **AUTOMATIC FEEDER FOR CLEANERS OR SCRAPERS FOR BOILER TUBES OR FLUES.** CYRUS S. DEAN, Fort Erie, Canada, assignor of one-half to Charles O. Rano, Buffalo, N. Y. Filed May 29, 1899. Serial No. 718,688. (No model.)



Claim.—1. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing adapted for movement through the tube or flue, of a feeder or propeller carried by the casing and movable relatively thereof toward and away from the interior surface of the flue, means for projecting said feeder out from the body by fluid-pressure and maintaining it in contact with the flue-surface thereby and means for rotating the propeller.

2. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing having a chamber and adapted for movement through the tube or flue, of a feeder or propeller slidable in the chamber, means for rotating the propeller, and means for applying fluid-pressure to said feeder or propeller to project it for engagement with the tube.

3. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing having a fluid-pressure chamber, of a slidable feeder or propeller having a piston movable in said chamber, and means for rotating the feeder.

4. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing having a cylinder-opening through its side and continued in a pressure-chamber at its inner end, of a feeder or propeller slidable in the main chamber and having a reduced stem provided with a piston slidable in the pressure-chamber, means for rotating the feeder, and a limit stop or pin interposed between the piston and the body of the feeder.

5. In an automatic feeder for cleaners for tubes or flues, the combination with a body, of a rotatable feeder or propeller carried thereby which is slidably mounted so as to be adapted for projection or retraction, and means for rotating said feeder and for projecting it.

6. In an automatic feeder for cleaners for tubes or flues, the combination with a body, of a rotatable feeder or propeller carried thereby which is slidably mounted so as to be adapted for projection or retraction, and means whereby said feeder is simultaneously rotated and projected by fluid-pressure.

7. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing, of a rotatable feeder or propeller having a worm-wheel, and a power-driven shaft having a worm meshing with said worm-wheel.

8. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing, of a rotatable feeder or propeller having a worm-wheel and carried thereby which is slidably mounted for projection or retraction, a power-driven shaft having a worm meshing with said worm-wheel, and means for projecting said feeder or propeller.

9. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing, of a rotatable feeder or propeller positioned with its axis coinciding with a chord or line of less length than the diameter of the body or casing, whereby only one portion of the propelling-surface of the feeder is maintained in contact with the tube or flue.

10. In an automatic feeder for cleaners for tubes or flues, the combination with a body or casing, of a rotatable feeder or propeller having its outer end rounded and constituting the propelling or feeding portion thereof, said feeder being positioned with its axis coinciding with a chord or line of less length than the diameter of the body or casing, whereby only one portion of the rounded end of said feeder contacts with the tube or flue.

11. In an automatic feeder for cleaners for tubes or flues, the combination with a body, of rotatable feeders or propellers arranged in pairs or sets and carried thereby, with the members of one pair disposed at an angle to those of another pair, and means for operating all the feeders or propellers.

12. In an automatic feeder for cleaners for tubes or flues, the combination with a body, of rotatable feeders or propellers arranged in sets or pairs with their ends projecting on opposite sides of the body, and the members of one set or pair being disposed at an angle to those of the other pair, and means for operating all the feeders or propellers.

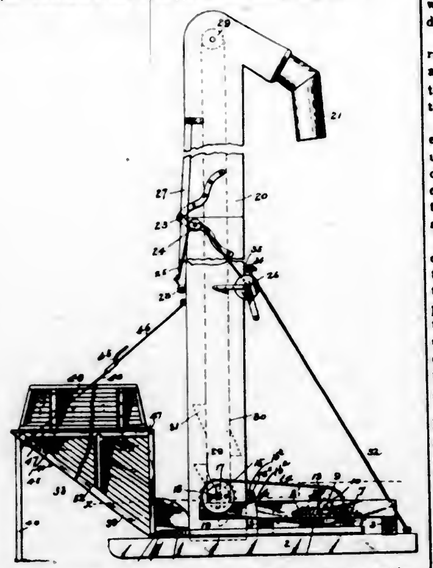
13. In an automatic feeder for cleaners for tubes or flues, the combination with a body, of rotatable feeders or propellers arranged in sets or pairs and each having a worm-wheel, and a power-driven shaft having a worm for each set or pair which meshes with their worm-wheels.

14. In an automatic feeder for cleaners for tubes or flues, the combination with a body composed of sections placed end to end and having steam or air chambers in their adjacent faces, and ports running through them which communicate with said chambers, of means for connecting to a source of fluid-supply at one end of the body, means for connecting to a motor at the other end of the body, and feeders or propellers carried by the different sections of the body and operated by the supplied fluid-pressure.

645,895. **GRAIN-ELEVATOR.** HALVOR EIELSON, Hatton, N. D., assignor of three-fourths to Martin D. Johnson and George Jurgens, same place. Filed June 19, 1899. Serial No. 721,091. (No model.)

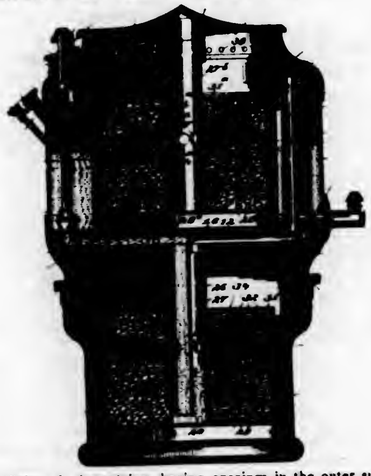
Claim.—1. In a folding elevator, the combination with the base, the lower section or leg hinged thereto, the upper section or leg, the brackets secured to the adjoining ends of said sections and hinged to each other, the pulleys carried by said brackets, the ropes passing thereabout, the windlass on the lower section and the levers pivoted to the upper section and to the free ends of which the other ends of said ropes are secured, of the endless elevator-belt, the buckets and means for operating said belt, substantially as described.

2. In a grain-elevator of the character described, the combination with an elevator, of the hopper provided with horizontal rods at one side, the hinge movable thereon, the leaf to which said hinges are secured, the adjustable boards pivoted to said leaf and the hinged support connected with the hopper, substantially as specified.



3. In a grain-elevator of the character described, the combination with an elevator, of the curved track, the hopper provided with wheels working on said track, the rope connected with said hopper, the lever connected therewith, the rod pivotally connected with said lever and with the lower section or leg and the hinged support for said hopper, substantially as specified.

645,896. **ACETYLENE-LAMP.** ALFRED C. EINSTEIN and CHARLES J. SCHNAUS, St. Louis, Mo., said Schnaus assignor to said Einstein. Filed Feb. 17, 1899. Serial No. 705,792. (No model.)



Claim.—1. A container having openings in the outer surface thereof for the escape of the gas generated therein, and constructed with a tubular body, an end cap, an end cap, and a central tube having a single series of perforations only, located, approximately, at the central part of the container for conducting liquid to the carbid-chamber; substantially as described.

2. A container having openings in the outer surface thereof for the escape of the gas generated therein, and constructed with a tubular body, an end cap, an end cap, a central tube formed with a circle of openings, a disk of absorbent material surrounding the circle of openings for conducting liquid to the carbid-chamber, and means whereby the disk is supported on the central tube; substantially as described.

3. A container comprising a tubular body, a cup having perforations, a cap having perforations, a central tube having perforations, a disk of absorbent material surrounding the perforations of the central tube, and the rings whereby the disk is supported on the central tube; substantially as described.

4. A container comprising openings in the outer surface for the escape of the gas generated therein, a tubular body, a lower cap, an upper cap, and a central tube having a single series of perforations only, located, approximately, at the central part of the container for conducting liquid to the carbid-chamber, and means whereby the central tube is adapted to be suspended within a container-chamber of a lamp; substantially as described.

5. A gas-generating device comprising a container-chamber, a container-body having a tube-opening, a liquid-reservoir located above the container-chamber, a central pendent tube on which the container-body is supported within the container-chamber, and having perforations for conducting liquid into the carbid-chamber of the container-body, a pendent liquid-conveying pipe located within the pendent tube and connected with the liquid-reservoir, a gas-chamber located above the liquid-reservoir, a gas-pipe extending from the container-chamber to the gas-chamber, and a pipe extending from the gas-chamber to the pendent tube; substantially as described.

6. A gas-generating device comprising a container-chamber, a liquid-reservoir located above the container-chamber, a gas-chamber surmounting the liquid-reservoir, a pendent liquid-conveying pipe connected with the liquid-reservoir, a pendent perforated tube surrounding the liquid-conveying pipe, a container supported on the pendent tube, a pipe extending from the container-chamber to the gas-chamber, and a pipe extending from the gas-chamber to the pendent tube; substantially as described.

7. A gas-generating device comprising a container-chamber, a casting having independent liquid and gas channels, a liquid-reservoir located above the casting and with which the liquid-channel connects, a gas-chamber surmounting the liquid-reservoir, a pipe extending from the container-chamber to the gas-chamber, a pipe extending from the gas-chamber to the gas-channel, a pendent liquid-conveying pipe connected with the outlet of the liquid-channel, a pendent perforated tube surrounding the liquid-conveying pipe and connected with the outlet of the gas-channel, and a container supported on the pendent tube; substantially as described.

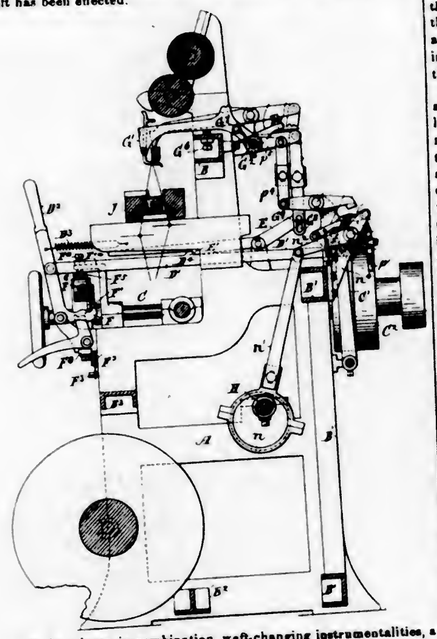
8. A gas-generating device comprising a container-chamber, a casting having independent liquid and gas channels, a liquid-reservoir located above the casting and with which the liquid-channel connects, a valve for controlling the inlet to the liquid-channel, a gas-chamber surmounting the liquid-reservoir, a pipe extending from the container-chamber to the gas-chamber, a pipe extending from the gas-chamber to the gas-channels, a pendent liquid-conveying pipe connected with the outlet of the liquid-channel, a pendent perforated tube surrounding the liquid-conveying pipe and connected with the outlet of the gas-channel, and a container supported on the pendent tube; substantially as described.

9. A gas-generating device comprising an outer casing, an inner cylinder concentric with the outer casing, and a partition-plate providing a liquid-reservoir, a hood providing a gas-chamber and inclosing the outer casing, the annular ring separating the liquid-reservoir chamber from the gas-chamber, the shell forming the upper part of the container-chamber, the cup forming the lower part of the container-chamber, the casting having a liquid-channel connected with the reservoir and a gas-channel, a valve controlling the inlet to the liquid-channel, a pendent liquid-conveying pipe connected with the outlet to the liquid-channel, a pendent perforated tube surrounding the liquid-conveying pipe and connected with the outlet to the gas-channel, a pipe extending from the container-chamber to the gas-chamber, and a pipe extending from the gas-chamber to the inlet to the gas-channel; substantially as described.

645,897. **WEFT-REPLENISHING MECHANISM FOR LOOMS.** ABRAM D. EMERY, Taunton, Mass. Filed Sept. 23, 1898. Serial No. 691,691. (No model.)

Claim.—1. In a loom, in combination, weft-changing instrumentalities, instrumentalities for occasioning a dwell in the regular working of the loom, tripping of the weft-changing instrumentalities into action to effect a change of the working weft-supply during such dwell, and restarting the loom under normal working conditions after such change has been effected, and a periodic tripper for tripping the said instrumentalities into action.

2. In a loom, in combination, the lay, weft-changing mechanism comprising essentially a holder for a reserve supply independent of the lay and means to feed therefrom to the lay, loom-driving mechanism having a shipper device to control the action thereof, a periodic tripper, and means under the control of the said periodic tripper for causing the said shipper device to be actuated to occasion a dwell in the regular working of the loom, the weft-changing mechanism to perform its operations, and the operative parts of the loom to be restarted under normal working conditions after the change of weft has been effected.



3. In a loom, in combination, weft-changing instrumentalities, a shaft by which said instrumentalities are actuated, a periodic tripper, means for rotating the said shaft under the control of the said tripper, and driving means for the loom having a shipper device to control the action thereof, the said shipper device being itself controlled from the said shaft.

4. In a loom, instrumentalities for temporarily bringing the operative parts of the loom to rest, instrumentalities adapted to act while the operative parts of the loom are thus at rest for automatically discharging the shuttle from the lay and introducing into the lay another shuttle, and then restarting the operative parts of the loom, in combination with a periodic tripper for effecting the tripping of said instrumentalities into action at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks.

5. In a loom, a shipper device, a trip device operating in connection therewith for temporarily bringing the operative parts of the loom to rest, instrumentalities adapted to act while the operative parts of the loom are thus at rest for automatically changing the working weft-supply and then restarting the operative parts of the loom, in combination with a periodic tripper for actuating the said trip device and effecting the tripping of said instrumentalities into action at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks, and weft-indicator devices operative upon failure of the weft to trip the said trip device and stop the operative parts of the loom without affecting said weft-changing and loom-restarting instrumentalities.

6. In a loom, in combination, weft-changing instrumentalities, a periodic tripper for effecting the tripping of said instrumentalities into action at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks, a shipper, a trip device therefor, and weft-indicator devices operative upon the failure of the weft to trip said trip device and stop the operative parts of the loom without affecting the weft-changing instrumentalities.

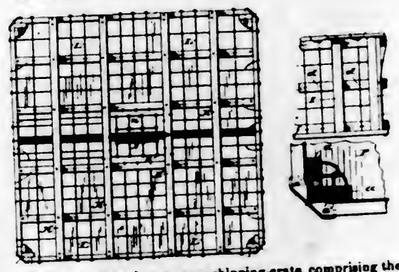
7. In a loom, instrumentalities for automatically discharging the shuttle from the lay and introducing into the lay another shuttle; a tripper for tripping said instrumentalities into action; a shaft making one revolution to each two beats of the lay; operative connections between said shaft and said tripper; a controller for normally preserving the discontinuity of said connections, and a periodic tripper for periodically tripping said controller from its controlling position and thereby permitting the establishment of continuity in said connections at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks.

8. In a loom, instrumentalities for temporarily bringing the operative parts of the loom to rest with the lay and shuttle in prescribed positions; instrumentalities adapted to act while the operative parts of the loom are thus at rest for automatically discharging the shuttle from the lay and introducing into the lay another shuttle, and then restarting the operative parts of the loom, in combination with a periodic tripper for effecting the tripping of said instrumentalities into action at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks.

9. In a loom, instrumentalities consisting of a belt-shifter, a brake and main trip-lever for temporarily bringing the operative parts of the loom to rest with the lay and shuttle in prescribed positions; instrumentalities adapted to act while the operative parts of the loom are thus at rest for automatically discharging the shuttle from the lay and introducing into the lay another shuttle and then restarting the operative parts of the loom, in combination with a periodic tripper for effecting the tripping of said instrumentalities into action at intervals, each corresponding to the time occupied by the loom in making a prescribed number of picks, and a fork-carrying lever independently connected to said main trip-lever and operative upon the failure of the weft to trip said main trip-lever and stop the operative parts of the loom without affecting said shuttle-changing and loom-restarting instrumentalities.

10. In a loom, a main driving-shaft for driving the operative parts of the loom; means including a spring-actuated belt-shifter for stopping the rotation of said main driving-shaft; shuttle-changing mechanism adapted to act when said main driving-shaft is at rest; a normally-stationary supplemental driving-shaft provided with a fast and a loose pulley; a supplemental cam-shaft geared to said supplemental driving-shaft and operative during a single revolution for driving said shuttle-changing mechanism; connections from said supplemental cam-shaft to said belt-shifter for restarting said main driving-shaft during the concluding portion of the operative revolution of said supplemental cam-shaft; a pawl for normally preventing the rotation of said supplemental cam-shaft while said main driving-shaft is in motion; a supplemental driving-belt adapted to bear upon said fast and loose pulleys and to run on said loose pulley when said supplemental cam-shaft is prevented from rotation by said pawl, and a periodic tripper for causing the release of said belt-shifter to the action of its spring and thus causing the stopping of the rotation of said main driving-shaft and for concurrently causing said pawl to be tripped and thereby allowing said supplemental driving-shaft to make one revolution at the conclusion of each interval corresponding to the time occupied by the loom in making a prescribed number of picks.

645,898. POULTRY-COOP. CHARLES N. FISHER, Warren, Tex. Filed Aug. 18, 1899. Renewed Sept. 6, 1899. Serial No. 729,859. (No model.)



Claim.—1. A poultry-coop or shipping-crate, comprising the corner-posts each made up of two pieces attached to each other at an angle, horizontal strips secured at their ends to the outer sides of said corner-posts, short wires passed through the strips and pieces forming the corner-posts and their ends twisted together and bent into the angle of the corner-posts; vertical battens secured to the inner sides of the horizontal strips to form panels, those at the ends of the crate terminating below the upper edges of the upper strips; wires extending around the sides of the crate, said wires being threaded through the pieces of the corner-posts and the ends at the inner side of one of said corner-posts twisted together; cross-strips forming the top of the crate and nailed at their ends to the top strips and vertical battens; and cross-wires extending across the top down the sides and attached at their ends to the lower horizontal strips, a doorway being left in the center of the top as shown; a wire door covering said doorway and provided with loops or eyes, and guide-wires upon which said door slides; together with the bottom-boards secured to the lower horizontal strips, corner-posts and vertical battens, as herein shown and described.

2. A poultry-coop or shipping-crate, comprising the corner-posts each made up of two pieces attached to each other at an angle, horizontal strips secured at their ends to the outer sides of the corner-posts, short wires passed through the strips and pieces forming the corner-posts and their ends twisted together and bent into the angle of the corner-posts; vertical battens secured to the inner sides of the horizontal strips to form panels, those at the ends of the crate terminating below the upper edges of the upper horizontal strips; cross-strips forming the top of the crate and attached at their ends to the top horizontal strips and vertical battens; wires extending around the sides of the crate through the piece of the corner-posts and twisted together at their ends at the inner side of one of said corner-posts, and wires extending across the top down the sides and attached to the lower horizontal strips; together with the bottom-boards secured to the lower strips, corner-posts and vertical battens, a reinforcing cross-piece for the bottom, and strengthening-wires across the under side of the bottom with their ends passed up through the lower horizontal strips and bent thereon, the wires of the crate being secured to the wooden parts by staples, all as herein shown and particularly described.

645,899. GRATE-BAR. JAMES FISHER, New Orleans, La. Filed Oct. 16, 1899. Serial No. 733,818. (No model.)

Claim.—1. A grate-bar comprising two longitudinal tubular portions, central ribs formed integral with and located between said tubular portions, a series of lugs projecting from each side of said grate-bar, apertures through the tubular portions of said grate-bar opening beneath said lugs, means for mounting the grate-bar in a furnace, and means for conducting a blast fluid to the said tubular portions, substantially as described.

2. A grate-bar comprising two longitudinal parallel tubular portions, a series of central cross-ribs transverse to said bar integral with and located between said tubular portions forming a central row of openings through said bar, a series of lugs formed on said grate-bar and projecting angularly above said tubular portions and from the sides of the grate-bar, apertures formed in said tubular portions directly beneath the angular face of said lugs, means for mounting the grate-bar in a furnace, and means for conducting a blast fluid to said tubular portions, substantially as described.

3. A grate-bar comprising two longitudinal parallel tubular portions, a series of curved central cross-ribs transverse to said bars integral with and located between said tubular portions forming a central row of openings through said bar, a series of lugs formed on said grate-bar and projecting angularly above said tubular portions and from the sides of the grate-bar, apertures formed in said tubular portions directly beneath the angular face of said lugs, a trunnion at each end of said bar, one of said trunnions being hollow, means provided upon the other trunnion for rotating said bar, and a chamber affording a communication from the hollow trunnion to the said tubular portions, substantially as described.

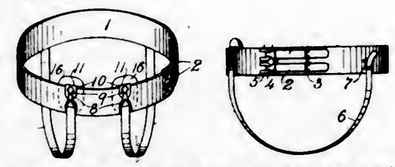
645,900. MANIFOLDING CARBON-SHEET. EDWIN S. FERASE, Oskaloosa, Ohio. Filed Dec. 5, 1899. Serial No. 739,236. (No model.)

Claim.—1. The sheet I provided with alternating carbon and non-carbon faces respectively on both sides, substantially as and for the purpose specified.

2. The combination of a carbon-sheet provided with alternating carbon and non-carbon faces respectively on both sides, and a sheet having obverse and reverse alternating face-sections, substantially as and for the purpose specified.

3. The sheet I provided with alternating carbon faces and non-carbon faces, the carbon and non-carbon portions of the sheet joined on the respective sides and their aggregate length equaling the length of the sheet, substantially as and for the purpose specified.

645,901. HERNIAL TRUSS. PATRICK MADDEN, Soldiers' Home, Los Angeles County, Cal. Filed Dec. 30, 1899. Serial No. 742,113. (No model.)



Claim.—1. The combination in a surgical truss of the belt, the downward straps having at the front ends hooks with a broadened point, the pressure-pads adjustably attached to the pad-plates, the pad-plates having a hooked portion to engage on the belt with serrated edges to prevent displacement, and the slots in the hooked portion of the pad-plates, said slots having a wide portion to receive the hooks on downward straps, substantially as specified.

2. The combination in a surgical truss of the belt, the pressure-pad, adjustably attached to the pad-plate by means of a pivoted rivet and a steady-pin to retain it at desired angle, the pad-plate having a hooked portion to engage on the belt, a vertical slot to receive the pivoted rivet, a radial slot to allow movement of the steady-pin, vertical slots to receive steady-pin, serrated edges to pad-plate to prevent displacement and a slot in hooked portion of pad-plate having a wide portion to receive a hook with a broad point attached to the downward straps, substantially as specified.

645,902. MOTOR-GEARING. ELMER A. SPERRY, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed Aug. 25, 1898. Serial No. 689,462. (No model.)



Claim.—1. In a motor-gearing, a shaft and first gear upon the shaft, a fourth gear mounted loosely upon the said shaft and a clutch upon the shaft coöperating therewith, a device for engaging and disengaging the clutch, a movable shaft, a second and third gear on said shaft, meshing in order numbered with the first and fourth gears on the first-mentioned shaft, means for swinging the movable shaft and an operating connection between the said means and the said device.

2. In a motor-gearing, a socketed shaft, a clutch upon the shaft, a gear mounted loosely upon the shaft, provided with a coöperating clutch, a device for engaging and disengaging the clutch, protruding beyond the end of the shaft from the socket, and a swinging lever, bearing a cam and operating connection between the cam and the device.

3. In a motor-gearing, a first gear suitably mounted, a fourth gear mounted loosely, a coöperating clutch for said fourth gear, a device for engaging and disengaging the clutch, a movable shaft, a second and third gear on the movable shaft, meshing with the first and fourth gears, means for swinging the movable shaft, an operating connection between the means and said device, and a socketed shaft for the said first and fourth gears and the clutch.

4. In a vehicle-motor gearing, a change-gear mechanism, an operating means extending to the mechanism, a controller for the motive power and an interlock between the means and the controller.

5. In a vehicle-motor gearing, a change-gear mechanism, an operating means, extending to the mechanism, a controller for the motive power and a device operated by the means for locking the controller out of action when the change-gear mechanism is in its disengaged position.

6. In a vehicle-motor gearing, a change-gear mechanism, an operating means extending to the mechanism, a power cut-off and an actuating device for the cut-off, operated by the means.

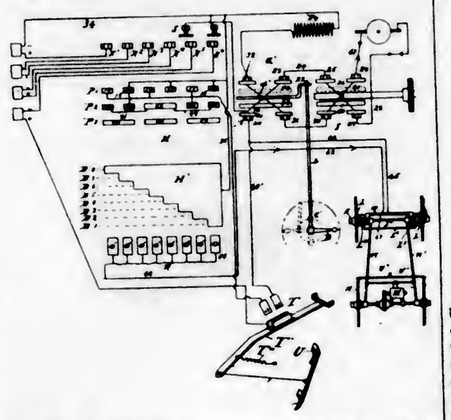
7. In a motor-gearing, a drive-wheel gear, a revolving source of power, an intermediate shaft between the source and the gear, having a pinion meshing with such gear and a gear which sustains the connection to the said source, the last-named gear being hollow and having an internal face, in combination with a brake organized for coöperation with the internal face of the gear.

8. In a motor-gearing, a revolving source of power, connected to the drive-wheel gear through an intermediate shaft, a large and small gear upon such shaft, the large gear being bored from one edge, offering an internal friction-surface, a non-rotatable friction member, cooperating with such surface and an operating means for such member.

9. In a motor-gearing, a shaft and first gear upon the shaft, a fourth gear mounted loosely upon said shaft, and a clutch upon the shaft cooperating therewith, a device for engaging and disengaging the clutch, a movable shaft, a second and third gear on said shaft meshing in the order numbered with the first and fourth gears on the first-mentioned shaft, means for swinging the movable shaft, an operating connection between the means and the device, and a locking device for the means.

10. In a motor-gearing, a shaft and first gear upon the shaft, a fourth gear mounted loosely upon said shaft, and a clutch upon the shaft cooperating therewith, a device for engaging and disengaging the clutch, a movable shaft, a second and third gear on said shaft meshing in the order numbered with the first and fourth gears on the first-mentioned shaft, means for swinging the movable shaft, an operating connection between the means and the device, and a three-position locking device for the means, whereby the same may be retained in its two operative and also in its inoperative positions.

645,903. MOTOR-VEHICLE BRAKE. ELMER A. SPERRY, Cleveland, Ohio. Original application filed Sept. 16, 1899, Serial No. 730,602. Divided and this application filed Oct. 30, 1899. Serial No. 735,163. (No model.)



Claim.—1. In an electric-motor vehicle, an electric-brake magnet for arresting the motion of a revolving vehicle-wheel, mounted rigidly upon an axle, a wheel loose upon said axle and means for retracting the magnet from the wheel.

2. In an electric-motor vehicle, an electric-brake magnet for arresting the motion of a revolving wheel, mounted rigidly upon an axle, a wheel loose upon said axle, a thrust-bearing between the wheel and axle and an elastic medium between the bearing and the axle.

3. In an electric-motor vehicle, an electric-brake magnet for arresting the motion of a revolving vehicle-wheel, mounted for non-rotation upon an axle, a wheel loose upon its axle, a revolving disk upon the wheel and a housing connecting the magnet with the axle, for inclosing the inner portion of the disk.

4. In an electric-motor vehicle, an electric-brake magnet for arresting the motion of a revolving vehicle-wheel, mounted rigidly upon an axle, a wheel loose upon said axle, a revolving disk upon the wheel, a housing connecting the magnet with the axle for inclosing the inner portion of the disk and a thrust-bearing between the wheel and axle within the housing.

5. In a vehicle, a swiveling steering-wheel, a braking-face attached to the wheel, a non-swiveling axis for the steering-wheel, a non-rotating axle-dash portion swiveling with the wheel and a cooperating brake mounted upon said axle-dash portion.

6. In a vehicle, a swiveling steering-wheel, a brake for the wheel, a non-swiveling axis for the steering-wheel, a non-rotating swiveling axle-dash portion for carrying the brake and means extending to a non-swiveling axle-dash portion for applying the brake.

7. In a vehicle, a swiveling steering-wheel, an axle therefor, a separate non-swiveling axle for the vehicle, a wheel thereon, retarding means for each wheel and means mounted upon the non-swiveling member for controlling the retarding means.

8. In a vehicle, a swiveling steering-wheel, an axle therefor, a separate non-swiveling axle for the vehicle, a wheel thereon, retarding means for each wheel and a common means for controlling the retarding means.

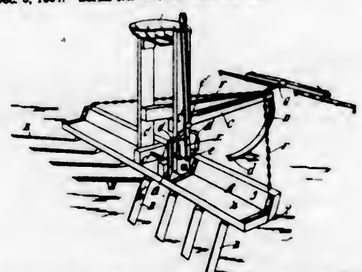
9. In a vehicle, a swiveling steering-wheel, a braking-surface for the wheel, a non-rotating swiveling portion, acting as a journal for the wheel, a swiveling pivot and an electric-brake magnet mounted upon the said portion between the wheel and the pivot.

10. In a vehicle, swiveling steering-wheels, an axle or axles therefor, brakes for such wheels, a separate non-swiveling axle and wheels therefor, means for retarding the last-named wheels, in combination with independent mechanical brakes applied to two of the vehicle-wheels.

11. In a vehicle, swiveling steering-wheels, an axle or axles therefor, brakes for such wheels, a separate non-swiveling axle and wheels therefor, means for retarding the last-named wheels, in combination with independent mechanical brakes applied to the driving-wheels of the vehicle.

12. In a vehicle, swiveling steering-wheels, brakes for such wheels, a separate non-swiveling axle and wheels therefor, means for retarding the last-named wheels, in combination with independent mechanical brakes applied to two of the vehicle-wheels and operating connections between the retarding means and the independent brakes, substantially as specified.

645,904. CULTIVATOR. ISAAC B. STOCKTON, Penrose, Cal. Filed Dec. 6, 1897. Serial No. 660,965. (No model.)



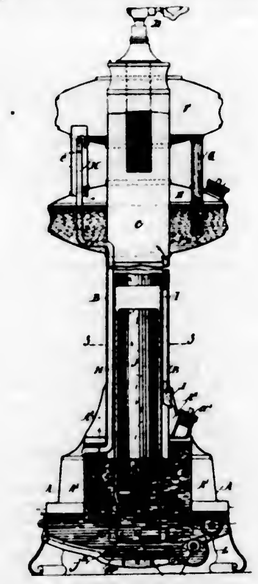
Claim.—1. A cultivator comprising a cross-beam, provided with blades and having its front portion sled-shaped; a seat-standard pivotally secured to the beam; a seat thereon; a short standard secured to the beam; a tongue and a rack rigidly secured to the seat-standard; a ratchet-lever connected with the short standard and pivotally secured to the seat-standard; a support for the front end of the tongue; and a draft connection secured to the ends of the beam and resting upon the tongue above its support.

2. A cultivator comprising a sled-shaped cross-beam provided with blades; a vertical seat-standard pivotally secured to the central portion of said beam, intermediate its front and rear edges; a tongue rigidly connected with the seat-standard; means for adjusting the position or angle of the beam relatively to the standard above the pivotal point; a support for the front end of the tongue; and draft connections secured to the ends of the beam and resting upon the tongue above the support.

645,905. ACETYLENE-GAS GENERATOR. ERNANUEL YVON-NEAU, Paris, France. Filed July 18, 1898. Serial No. 734,264. (No model.)

Claim.—1. An acetylene-gas-producing apparatus, having a generator to contain water to act on the carbid, said generator having two communicating compartments wherein the water assumes its proper level, one compartment containing the carbid and its gaseous atmosphere communicating with the consuming apparatus, the second, in the space above the water, being in communication with the air-space of a receiver containing a liquid, which thus forms a closed space inclosing a confined quantity of a gaseous fluid such as air, the said receiver being in communication with another receiver, in such a manner that the liquid driven back or compressed in the first of these receivers by reason of the compression of the confined gaseous body by the rise of water in the second compartment of the generator, rises into the second receiver and can return therefrom into the first when the compression, the cause of this flow, ceases, as above described and set forth.

2. An acetylene-gas-producing apparatus having a generator to contain water to act on the carbid, said generator having two communicating compartments wherein the water assumes its proper level, the first compartment containing the carbid and its gaseous atmosphere communicating with the consuming apparatus in combination with an automatic pressure-regulating means comprising a reservoir of liquid whose air-space part is in communication with the upper part of the said second compartment, while the liquid-space of said reservoir is open to the surrounding atmosphere, as and for the purpose described.



645,906. DIVIDED LAST. WILLIAM R. ARNOLD, Abington, Mass. Filed June 22, 1896. Serial No. 596,267. (No model.)



Claim.—1. A divided last having its toe and heel members provided with opposed hinge-recesses, combined with a hinge connecting said members, said hinge having laterally-extended locking end portions arranged within said recesses, the latter giving entrance to said laterally-extended end portions from the side of the last only, substantially as described.

2. A multipart last, having its parts movably joined by a connection, having adjacent its ends transverse lateral flanges embedded within the solid material of the respective parts of the last, said connection and its flanges having entrance to their said positions within the parts of the last solely by an edgewise movement transverse to the length of the last, substantially as described.

3. A transversely-divided last having three holes extended therein from one side thereof, the middle hole intersecting the line of said transverse division, slits respectively connecting the two outside holes with the part of said middle hole which is in the same part of the divided last, and a hinge having laterally-extended locking portions to enter said outside holes, the leaves of said hinge being received in said slits, substantially as described.

4. A multipart last containing a fore part, a heel part and a connecting-hinge having its two leaves provided each with a laterally-extended locking portion, said fore part and heel part having each a transverse opening extended therein from one side of said part to receive one of said hinge-locking portions, said transverse openings being connected with the adjacent ends of said parts by hinge-leaf-receiving slits also extended inwardly from the same side of said part, substantially as described.

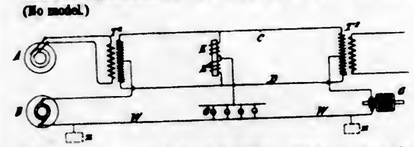
5. A divided last, having its toe and heel members provided with opposing hinge-recesses, combined with a hinge connecting said members, said hinge having enlarged end portions, and being located in said recesses, and pins inserted in the last and transversely through the hinge, substantially as described.

6. A multipart last, having its fore part and heel part connected by a hinge, one of said parts having a hinge-recess extending in from one side and one end wall, said recess terminating at its inner end parallel to said end wall in an offset portion, and the hinge having a leaf fitting said recess and having a lateral end portion locking against or into said offset part of the recess, the other part of the hinge being fastened in the other part of the last, substantially as described.

7. A multipart last, the fore part and heel part whereof are joined by a hinge, the leaves of which are respectively inserted in the fore part and heel part and formed each with a transverse rib or flange which projects outwardly from its leaf, substantially as described.

8. A multipart last, the fore part and heel part whereof are joined by an inserted hinge extending lengthwise of the last, and each leaf of which is formed with a transverse rib projecting outwardly from its leaf, the opposed ends of the fore part and heel part being cut away above the hinge to permit the last to shorten when the heel part is moved upwardly and forward, and also being formed with broad reciprocal bearing-surfaces between the hinge and the bottom of the last, substantially as described.

645,907. SYSTEM OF ELECTRICAL TRANSMISSION. FREDERICK BEDELL, Ithaca, N. Y. Filed July 5, 1899. Serial No. 722,799. (No model.)



Claim.—1. In a system for distributing energy by maintained electric currents, the method of transmitting maintained currents of different character over the same conductors which consists in applying at a point of given potential to conductors carrying a maintained current under constant potential a second electromotive force and withdrawing a second maintained current therefrom at a determined point of the same potential.

2. In a system for distributing maintained electric currents the method of transmitting both alternating and direct currents over the same conductors which consists in applying to conductors carrying either direct or alternating current at a constant potential a second electromotive force, either alternating or direct, at a point of given potential and withdrawing therefrom at a distant point of the same potential a second current corresponding to the applied electromotive force.

3. In a system for distributing maintained electric currents the method of transmitting currents of differing character over the same conductors which consists in applying jointly to the conductors of a constant-potential system a second electromotive force, deriving a second current from the said joint conductors at a receiving-point and returning it by an external conductor.

4. In a system for distributing maintained electric currents, the method of transmitting both alternating and direct currents over the same conductors which consists in applying a direct electromotive force to the conductors of an alternating constant-potential system acting jointly as a single conductor and at a receiving-station deriving a direct electromotive force from an intermediate point in inductive receiving apparatus connected to the conductors of said alternating system.

5. In a system for distributing maintained electric currents, the method of transmitting both alternating and direct currents over the same conductors which consists in applying a direct electromotive force to both conductors of an alternating constant-potential system and at a receiving-station deriving a direct electromotive force from an intermediate point in a coil bridging the two alternating conductors.

6. In a system for distributing energy by maintained electric currents of different character upon the same conductors, the method of avoiding the overmagnetizing effect of direct current on an alternating-current-translating apparatus which receives or delivers current of a maintained constant potential, which consists in transmitting a maintained direct current through two coils of said apparatus, the ampere-turns or magnetizing effects of said coils being equal and opposed to each other.

7. In a system for distributing maintained electric currents the method of transmitting both alternating and direct currents over the same conductors which consists in applying a direct electromotive force to the conductors of an alternating constant-potential system acting jointly as a single conductor and completing the circuit of the

direct electromotive force by the conductors of a second alternating constant-potential system acting jointly as a single return-conductor.

8. In a system for distributing energy by maintained electric currents of different character upon the same conductors, the method of neutralizing the overmagnetizing effect of direct current on an alternating-current transformer which receives electrical energy at a given constant potential and delivers it at any desired constant potential, which consists in applying the direct electromotive force to an intermediate point in the coils of said transformer whereby the said overmagnetizing effect is neutralized.

9. The method of transmitting both alternating and direct currents over the same conductors which consists in applying the direct electromotive force to an intermediate point of an alternating generating-coil and deriving the direct electromotive force from a corresponding intermediate point of an alternating coil at a receiving-point in the same system.

10. The method of transmitting both alternating and direct currents over the same conductors, which consists in applying a direct electromotive force to an alternating generating-coil differentially, so as to neutralize the magnetizing effect of the direct current on the iron core of the alternating coil and impress the same direct-current polarity on both terminals of said coil.

645,908. FRACTURE APPARATUS. CARL BOEGLE, Munich, Germany. Filed Nov. 10, 1899. Serial No. 736,525. (No model.)



Claim.—1. In a device for supporting the leg, the combination of a lower member comprising a band adapted to inclose the leg at the knee, an ankle portion, a plurality of bars separately attached by their upper extremities around the periphery of said band, the bars connected to one side of the band being jointed at their lower ends by a common pivot-joint to one side of said ankle portion, and the bars connected to the other side of said band being jointed at their lower ends by a common pivot-joint to the opposite side of said ankle portion, an upper member comprising a band adapted to inclose the thigh, a plurality of bars separately attached by their upper extremities around the periphery of said thigh-band, the said latter bars connected to one side of said thigh-band being jointed by their lower ends by a common pivot to one side of said knee-band, and the said latter bars connected to the other portion of said thigh-band being jointed at their lower ends by a common pivot to the opposite side of said knee-band, as set forth.

2. In a device for supporting the leg, the combination of a lower member comprising a flexible band detachably connected at its extremities and adapted to inclose the leg at the knee, a U-shaped ankle portion, a plurality of bars connected by their upper extremities around the periphery of said band, the bars connected to one side of the band being jointed at their lower ends by a common pivot-joint to one side of said ankle portion, and the bars connected to the other side of the band being jointed at their lower ends by a common pivot to the opposite side of said ankle portion, an upper member comprising a flexible band detachably connected at its extremities and adapted to inclose the thigh, a plurality of bars separately attached by their upper extremities around the periphery of said thigh-band, the said latter bars connected to one side of said thigh-band being jointed at their lower extremities by a common pivot to one side of said knee-band, and the said latter bars connected to the other portion of said thigh-band being jointed at their lower ends by a common pivot to the opposite side of said knee-band, substantially as described.

3. The combination in a device for supporting the leg, of a lower member comprising a flexible band detachably connected by its extremities and adapted to inclose the leg at the knee portion, an ankle portion, a plurality of bars connected to said band and having pivotal connection with said ankle portion, an upper member comprising a flexible band detachably connected at its extremities and adapted to inclose the thigh, and a plurality of bars connected to said thigh-band and having pivotal connection with said upper band of said lower member, substantially as set forth.

645,909. JEWELRY-MOUNTING. ALFRED A. BOSSLAUER, New York, N. Y. Filed Aug. 19, 1899. Serial No. 727,754. (No model.)



Claim.—1. A device of the class described, comprising a tube, a spindle passed therethrough and resiliently connected therewith, supporting devices connected with said spindle, and a stone or other piece of jewelry connected therewith, substantially as shown and described.

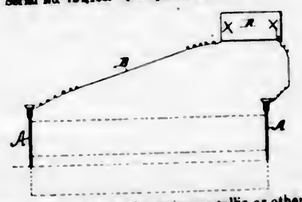
2. A device of the class described, comprising a tube, a spindle passed therethrough, a spring fixed to said spindle at one end and at the other end to said tube, supporting devices connected with both ends of said spindle and a stone or other piece of jewelry connected therewith, substantially as shown and described.

3. A device of the class described comprising a tube, a spindle passed therethrough, a spring connected with said spindle at one end, and at the other end with said tube, a supplemental tube passed about said first-named tube, and provided with closed ends with which the ends of said spindle are connected, and devices connected with said supplemental tube to which a stone or other piece of jewelry is secured.

4. In a device of the class described, comprising a tube having open ends and provided at one side with a projection, a spindle passed through said tube, a coiled spring passed about said spindle and connected at one end therewith and at the other with said tube, a supplemental tube provided with closed ends with which the ends of said spindle are connected, said supplemental tube being provided with a cut-away portion at its opposite sides within one of which said projection operates, substantially as shown and described.

5. In a device of the class described, a tube having open ends, a spindle passed through said tube, a spring connected at one end therewith and at the other end with said tube, and a supplemental tube passed about said first-named tube and having closed ends in which the ends of said spindle are secured, said supplemental tube being provided with a cut-away portion at one side, substantially as shown and described.

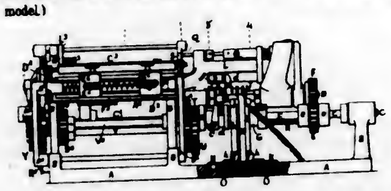
645,910. PROCESS OF LOCATING METALLIC MINERALS OR BURIED TREASURES. FRED H. BROWN, Chicago, Ill. Filed July 17, 1899. Serial No. 724,183. (No specimens.)



Claim.—1. The process of locating metallic or other conducting substances in the earth, which consists in establishing a circuit of alternating current through a definite distance of the earth, then measuring the resistance to such current, then establishing a circuit of similar current through the same distance of the earth at various other points in the same vicinity and measuring the resistance to such current at each point, and finally comparing such measurements, as and for the purpose set forth.

2. The process of locating metallic or other conducting substances in the earth which consists in establishing a circuit of alternating current through a definite distance of the earth, then measuring the resistance to such current, then establishing a circuit of similar current through the same distance of the earth at various other points in the same vicinity and measuring the resistance to such current at each point, then varying the distances through which such measurements are made and finally comparing such measurements, as and for the purpose set forth.

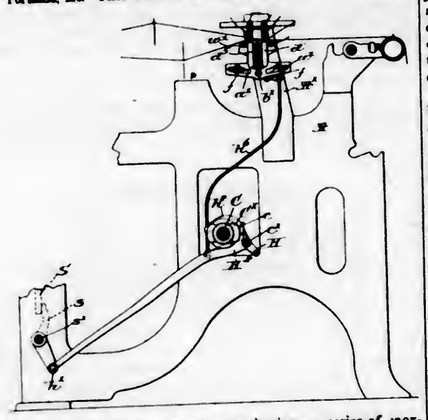
645,911. SEWING AND PLAITING MACHINE. ORANGE M. CHAMBERLAIN, Boston, Mass., assignor to James E. Whitney, same place. Filed Feb. 11, 1896. Renewed Feb. 28, 1899. Serial No. 707,225. (No model.)



Claim.—1. The combination in a box-plait sewing-machine, of the shaft having a rigid gear and screw-thread, and the shaft having a loose gear and a sliding sleeve having a projecting pin at one end adapted to secure said loose gear to its shaft, and the opposite end having a clutch adapted to engage with a separate shaft in line therewith, the swinging arm having a pin connecting with the sliding sleeve, and a pin adapted to engage with the screw-thread, whereby the arm is moved in one direction, and the cam to release the pin from the screw-thread, and the spring to return the arm to its former position, and the connected folding and stitching devices, substantially as described.

2. The combination in a box-plait sewing-machine having folding and stitching devices, as described, of the shaft having a rigid gear and screw-thread, and the shaft having a loose gear and a sliding sleeve having a projecting pin at one end adapted to secure said loose gear to its shaft, and the opposite end having a clutch adapted to engage with a separate shaft in line therewith, the swinging arm having a pin connecting with the sliding sleeve and a pin adapted to engage with the screw-thread, the eccentric cam P, pivoted arm I having at a right angle the frame I, and the spring catch-pin Q adapted to rest upon the vertical support, whereby the pin of the said swinging arm is held out of connection with the screw-thread of the main shaft during the movement of the swinging arm over the screw-thread, and the connected spring to return the arm to its former position, substantially as described.

645,912. WARP STOP-MOTION FOR LOOMS. ALVAN W. CLENEFF, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Dec. 22, 1899. Serial No. 741,260. (No model.)

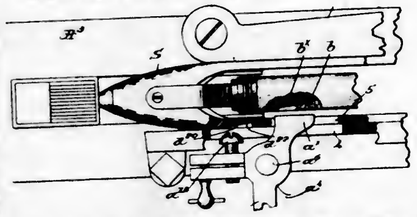


Claim.—1. In warp-stop-motion mechanism, a series of movable detectors maintained inoperative by normal warp-threads, a cooperating feeler, fixed straight guides therefor downwardly inclined toward the lower ends of the detectors, means to normally slide the feeler back and forth upon the guides, including a rock-shaft having an arm fast upon it, and a link connecting said arm and feeler, and stopping means operative by or through the feeler upon its engagement with a detector in operative position.

2. In warp-stop-motion mechanism, two series of movable detectors maintained inoperative by normal warp-threads, a cooperating feeler for each series, fixedly-mounted plane supporting-guides for the ends of the feelers, downwardly convergent and arranged at right angles to the length of the feelers, means to reciprocate the feelers on their guides, including a rock-shaft having oppositely-extended arms, and links connecting the arms with the feelers, and stopping means operated by or through arrest of a feeler when engaged by a detector in operative position.

3. In a loom, a shipper-lever, a knock-off arm therefor, a series of stop-motion detectors maintained inoperative by normal warp-threads, a cooperating feeler, fixed plane guides upon which the feeler slides toward and from the detectors, an actuating rock-shaft operatively connected with the feeler, to vibrate it, a rotatable shaft having a feeler-actuating cam and a tappet-cam thereon, a bunter-carrier operatively connected with the knock-off arm, a bunter pivotally mounted on the carrier and having a connected toe to be engaged by the feeler-actuating cam, and a link connected with the bunter and also connected eccentrically with the rock-shaft, to move the feeler in one direction, arrest of the feeler by a detector operating to effect engagement of the bunter and tappet-cam, to thereby move the knock-off arm.

645,913. LOOM. HENRY W. CRAY, May's Landing, N. J., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Jan. 4, 1900. Serial No. 376. (No model.)



Claim.—1. In a loom, a shuttle containing a supply of filling, filling-supplying mechanism, controlling means therefor, including an actuator operated by engagement with the shuttle-body, and a filling-feeler to govern the actuator and retain it inoperative until exhaustion of the filling to a predetermined extent, and means on the shuttle to prevent premature operation of the actuator due to the movement of the feeler when the shuttle is improperly positioned.

2. In a loom, a shuttle, a filling-carrier therein having a conical base and supporting a supply of filling, filling-supplying mechanism, controlling means therefor, including an actuator operated by engagement with the shuttle-body, and a filling-feeler to feel the filling adjacent the conical base of the filling-carrier and to govern the actuator and retain it inoperative until exhaustion of the filling to a predetermined extent, and means on the shuttle to prevent premature operation of the actuator upon undue movement of the feeler when the position of the shuttle presents an improper portion of the filling-carrier to the feeler.

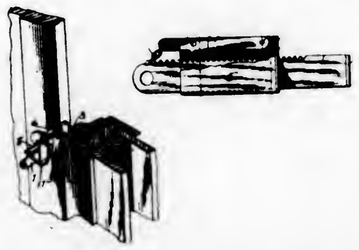
3. In a loom, a shuttle, a filling-carrier therein having a conical base and supporting a supply of filling, filling-supplying mechanism, controlling means therefor, including an actuator operated by engagement with the shuttle-body, and a filling-feeler to feel the filling adjacent the conical base of the filling-carrier and to govern the actuator and retain it inoperative until exhaustion of the filling to a predetermined extent, and an inclined face on the shuttle-body parallel to the side of the conical base of the filling-carrier, to be engaged by the actuator and prevent its premature operation upon undue movement of the feeler when the position of the shuttle presents an improper portion of the filling-carrier to the feeler.

4. In a loom, a shuttle provided with a feeler-slot and an adjacent recess having a longitudinally-beveled bottom, a filling-carrier having a conical base, the bottom of the recess being parallel thereto, filling-supplying mechanism, and controlling means therefor, including an actuator operated by engagement with the shuttle-body, and a filling-feeler to feel the filling through the slot in the shuttle and so govern the actuator, retaining it inoperative until predetermined exhaustion of the filling, presentation by the shuttle of an improper portion of the filling-carrier to the feeler to thereby cause premature operation of the actuator bringing such portion of the recess opposite the actuator as will retard the operation of the same.

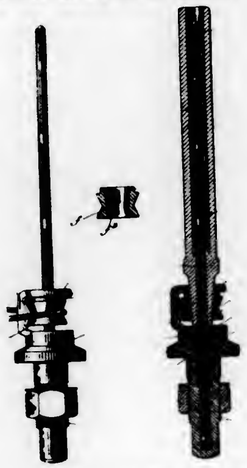
645,914. DOOR-FASTENER. JOHN W. DOTSON, Chicago, Ill. Filed Aug. 14, 1899. Serial No. 727,240. (No model.)

Claim.—In a door-fastener the combination comprising a holding-bar provided with a hook or flanged end adapted to be inserted

in a slot in the face of a door-jamb, and provided upon one edge with a series of teeth or notches, a slide fitted to slide upon said holding-bar, said slide provided with two flanges upon opposite sides at one end, one of which is adapted to press against a door to hold it closed, and the other or opposite one to rest against the door-jamb, a dog-bar pivotally attached to said slide, and provided with teeth adapted to mesh with the teeth upon said holding-bar; and a locking-pin adapted to lock said dog-bar thereto and to said slide substantially as and for the purpose set forth.



645,915. SPINNING APPARATUS. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Oct. 23, 1899. Serial No. 734,426. (No model.)



Claim.—1. A rotatable yarn-carrier, a fixed axial support therefor, and a loose annular whirl adapted to frictionally engage and rotate the yarn-carrier, said whirl having its internal bore of sufficient diameter to receive the end of the yarn-carrier.

2. A rotatable yarn-carrier having an externally-tapered base, a fixed axial standard therefor, and a whirl loosely surrounding the standard and adapted to be entered and frictionally engaged by the tapered base of the yarn-carrier, the said base at such time preventing engagement of the whirl and the standard.

3. In spinning apparatus, a fixed upright standard, a removable yarn-carrier having contained bearings to fit the standard, a whirl through which the base of the yarn-carrier is adapted to pass and frictionally engage, and a yielding support for the end of the yarn-carrier projecting below the whirl.

4. A standard, a yarn-carrier adapted to be rotated thereon, an annular whirl to engage and drive the yarn-carrier, and means to yieldingly sustain said yarn-carrier and whirl vertically.

5. A fixed standard, a whirl loose upon it, and a removable yarn-carrier adapted to engage and center the whirl and to provide a bearing therefor in contact with the standard.

6. An upright metal standard, a wooden yarn-carrier having contained bearing portions adapted to engage the standard with a running fit, and means to yieldingly support the yarn-carrier in vertical position on the standard.

7. A rotatable yarn-carrier having a tapering base, a fixed axial support therefor, a whirl having a tapering bore to receive the base of the yarn-carrier, and a support to peripherally sustain the whirl when disengaged from the yarn-carrier.

8. An upright, fixed standard, an annular whirl loose thereon, an exterior, eccentrically-located support therefor, and a removable yarn-carrier rotatable upon the standard and adapted to engage and support the whirl, and to center it upon the standard.

9. In spinning apparatus, an upright standard, a chambered holder therefor adapted to be attached to a supporting-rail, a spring-controlled step for the yarn-carrier in said chamber, an annular whirl loose on the standard, and a stop for the whirl.

10. In spinning apparatus, an upright fixed standard, a whirl loose thereupon, a removable yarn-carrier adapted to be rotated upon the standard when in frictional engagement with the whirl, and a ring-like stop for the whirl through which the yarn-carrier passes, said yarn-carrier being interposed between the whirl and the standard.

11. In spinning apparatus, a fixed upright standard, a whirl loosely surrounding it, and a guard for the whirl, having an overhanging stop portion and a support to sustain the whirl peripherally against the pull of the driving-band.

12. In spinning apparatus, an upright standard, a whirl loosely surrounding it and having an annularly-shouldered top, and a guard for the whirl, having an overhanging ring-like stop to engage the shouldered top of the whirl when lifted, and an external support to peripherally sustain the whirl at times.

13. A fixed standard and its holder, combined with a spring-controlled step supported independently of the standard and which yields as the yarn-carrier is applied to the standard.

14. A fixed standard, its holder, a loose whirl, and a stop to cooperate with the upper end of said whirl, combined with a spring-controlled step adapted to yield under the action of the lower end of the yarn-carrier as it is being forced onto the said whirl, the return of said stop into its normal position moving said yarn-carrier and whirl into operative position.

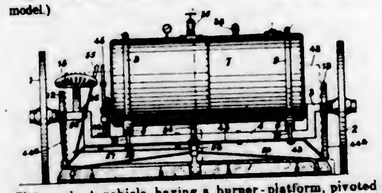
15. A fixed standard, its holder counterbored at its upper end, a step loosely surrounding the standard and located in the counterbored portion of the holder, and a yielding support for the step, independent of the standard.

16. A fixed standard, a holder for its lower end, said holder having a rising neck provided with a laterally-extended stop surrounding the said standard, combined with a loose whirl surrounding said standard and retained between the said stop and holder.

17. An annular whirl, a fixed standard, surrounded loosely by said whirl, combined with a yarn-carrier having a central bore or chamber surrounding said standard, the lower end of said yarn-carrier being shaped substantially as described to be forced into and entirely through the said whirl, between the latter and the standard, to thereby cause said yarn-carrier and whirl to adhere and insure the rotation of the former by a band on the latter.

18. A fixed standard and a holder for it, combined with a non-metallic yarn-carrier surrounding and running directly on the standard at its upper and lower ends, a loose ring-like whirl surrounding the standard and adapted to receive the lower end of the yarn-carrier and retain it frictionally within it, between the standard and the whirl, and means to prevent removal of the whirl from the standard when the yarn-carrier is doffed.

645,916. SNOW-MELTING MACHINE. CHARLES F. GUTLER and CHARLES J. POWER, Matteawan, N. Y., assignors of two-thirds to John L. Hall, same place. Filed Mar. 22, 1899. Serial No. 710,023. (No model.)



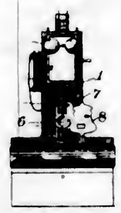
Claim.—1. A vehicle having a burner-platform, pivoted at its rear end, whereby it may be swung up so as to melt the snow in advance, and having also a burner-platform arranged in rear of the pivoted platform, and constructed to melt the snow beneath as the vehicle is moved along.

2. A snow-melting vehicle having at its front side a burner-platform and at its rear side a swiveled adjustable scraper for directing the flow of water to either side of the vehicle as it advances.

3. A snow-melting vehicle having at its front side a burner-platform and at its rear side a swiveled adjustable scraper, and a lever for adjusting the same.

4. The combination of a wheeled vehicle, a fuel-reservoir mounted thereon, a rigid burner-platform attached to said vehicle, a second burner-platform hinged to and in advance of the rigid one, and means for feeding the burners of both platforms from the fuel-reservoir.

645,917. TELEPHONE-CALL REGISTER. WILLIAM GRAY, Hartford, Conn., assignor to the Gray Telephone Pay Station Company, same place. Filed Oct. 12, 1898. Serial No. 693,357. (No model.)



Claim.—1. In a telephone-call register, in combination, a main register, a primary register, a register-operating device, and connections between said device and the registers for changing the characters on the primary register at each operation and those of the main register at a succeeding operation of the register-operating device.

2. In a telephone-call register, in combination, a main register and a primary register, a sound-signal, a register-operating device, and connections between the register-operating device and registers for changing the characters displayed on the primary register at each operation and for sounding the signal, and for changing the characters displayed on the main register at a succeeding operation of the register-operating device.

3. In a telephone-call register, in combination, a main register and a primary register, a rotary register-operating device directly connected with the main register and a reciprocating bolt connecting the register-operating device and the primary register for operating the latter upon a complete revolution of the operating device.

4. In a telephone-call register, in combination, a main register and a primary register, a signal-sounding device, a rotary register-operating device connected directly with the arbor of the main register and a reciprocating bolt connecting the register-operating device and the primary register for operating the latter, and for sounding the signal after the arbor of the main register has been moved a complete revolution.

5. In a telephone-call register, in combination, a main register and a primary register, a key-operated rotary register-operating device having an arm adapted to engage an arm on the cylinder of the main register, and a reciprocating bolt connected with the primary register and operated through the medium of the key which rotates the barrel of the register-operating device.

6. In a telephone-call register, in combination, a pair of registers, a lock having a rotary barrel, tumblers mounted in operative relation to said barrel, a reciprocating bolt, and a key controlled by said tumblers and adapted to operate the bolt and move one of said registers during the entire movement and the other during a partial movement of the key.

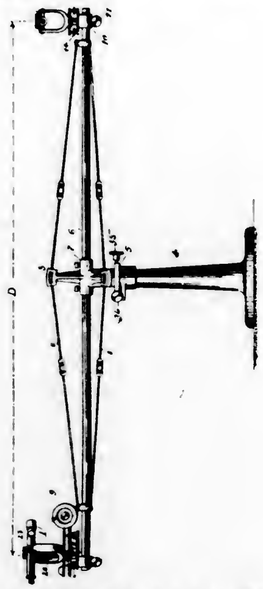
7. In a telephone-call register, in combination, a main register, and a primary register, a lock having a rotary barrel, rotary connections between said barrel and one of said registers, a reciprocating bolt adapted to operate the other register, tumblers mounted in operative relation to the lock-barrel, and a key controlled by said tumblers and adapted to operate the bolt upon the complete rotation of the key.

8. In a telephone-call register, in combination a main register and a primary register, a gong, a lock having a rotary barrel, interengaging connections between said barrel and one of said registers for operating the latter, a sliding bolt adapted to operate the other register and carrying a hammer adapted to strike the gong with a rebounding blow, tumblers operatively connected with the barrel of the lock and a key controlled by said tumblers and adapted to engage and move the bolt in one direction.

9. In a telephone-call register, in combination, a lock having a rotary barrel, a main register having its cylinder operatively connected with said barrel, tumblers operatively connected with the lock, a primary register, a reciprocating bolt for operating the primary register and a key controlled by said tumblers and adapted for engaging, moving and releasing actions with respect to the bolt.

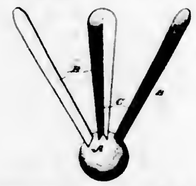
645,918. DISTANCE-MEASURING INSTRUMENT. JOHN G. HANKE, Oakland, Cal., assignor of one-fourth to Adolph Heilbron, Sacramento, and Adolph H. F. Schaar, San Francisco, Cal. Filed June 14, 1898. Renewed Aug. 28, 1899. Serial No. 728,764. (No model.)

Claim.—1. In a distance-measuring instrument, in combination, a supporting-stand, a trussed tubular beam centrally mounted and swiveling thereon, means for adjusting said beam to a fixed position and clamping it when adjusted, a telescope mounted in horizontal bearings at one end of said beam having its line of sight at right angles to the axis of the beam, a telescope at the other end of said beam mounted in horizontal bearings on a vertical swiveling spindle, means for bringing said spindle into true verticality, a counterweighted graduated sector-plate, accurately toothed upon its circumference, secured to said vertical spindle, a horizontal spindle with worm-gear intermeshing with said toothed sector-plate, means for holding said worm-gear elastically in mesh to prevent lost motion, and a circularly-graduated disk on the end of said horizontal spindle, for obtaining micrometer readings of the angular position of the sector-plate, substantially as specified.



2. In a distance-measuring instrument, in combination, a supporting-stand, a trussed tubular beam centrally mounted and swiveling thereon, means for adjusting said beam to a fixed position and clamping it when adjusted, a telescope in horizontal bearings adjustably and removably mounted on one end of said beam by clamping means, a telescope at the other end of said beam mounted in horizontal bearings on a vertical swiveling spindle, means for bringing said spindle into true verticality, a counterweighted graduated toothed sector-plate secured to said vertical spindle, a horizontal spindle with worm-gear intermeshing with said toothed sector-plate, and a circularly-graduated disk on the end of said horizontal spindle: said telescope, vertical spindle, means for obtaining verticality, counterweighted sector-plate, worm-gear spindle, and graduated disk, all mounted on an adjustable and removable clamping means, whereby they are secured to said beam, substantially as specified.

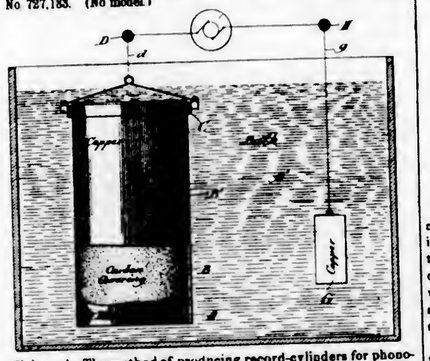
645,919. TOY. THOMAS HOLMES, New York, N. Y. Filed Nov. 15, 1899. Serial No. 737,091. (No model.)



Claim.—In a shuttlecock, a solid-rubber ball having dependent guiding-blades formed in a circular line thereon, the said guiding-

blades being creased in their centers, and having rounded ends, substantially as shown and described.

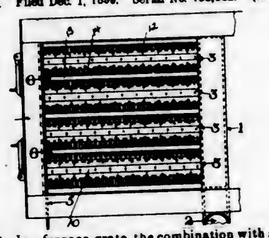
645,920. METHOD OF REPRODUCING PHONOGRAPH-RECORDS. THOMAS B. LAMBERT, Chicago, Ill., assignor of three-fifths to Brian F. Philpot and Joseph Powell, same place. Filed Aug. 14, 1899. Serial No. 727,183. (No model.)



Claim.—1. The method of producing record-cylinders for phonographs, which consists in first forming a record on a cylinder of wax or other relatively-soft material, rendering the surface of the wax cylinder electrically conductive and electrolytically depositing metal thereon, forming a matrix and then outwardly expanding under pressure within the matrix, a cylinder or tube of softened material sufficiently thick to maintain its shape during and after the act of disengagement from the matrix and finally removing the cylinder or tube by direct longitudinal movement, substantially as described.

2. The method of producing record-cylinders for phonographs which consists in first forming a record on a cylinder of relatively-soft material such as wax, then coating such cylinder with carbon or other electric conducting material, and electrolytically depositing metal thereon forming a matrix, then shrinking the soft cylinder to remove the electrically-formed matrix and backing such matrix to form a matrix-mold, then outwardly expanding under pressure a cylinder or tube sufficiently thick to maintain its shape after disengagement from the matrix and of softened material such as cellulose, within the matrix for the pressure to reproduce on the outer surface the counterpart of the indentations in the matrix, then allowing such cellulose cylinder or tube to harden within the matrix and removing the record cylinder or tube from the matrix and then drying and hardening the record-cylinder, substantially as described.

645,921. GRATE FOR FURNACES. ROBERT S. MAYER, Cincinnati, Ohio, assignor of two-thirds to Harrie D. Crane and Anton Mayer, same place. Filed Dec. 1, 1899. Serial No. 738,882. (No model.)



Claim.—1. In a furnace-grate, the combination with an air-chamber supported upon the bridge-wall of the furnace, of a series of hollow perforated grate-bars having their inner ends communicating with the air-chambers; open grate-bars alternating with the tubular bars; and a slide for closing the front ends of the hollow bars.

2. In a furnace-grate, the combination with an air-chamber, of a series of tubular perforated grate-bars, a series of open grate-bars alternating with the tubular bars, each of said grate-bars having its upper surface beveled or inclined in opposite directions; and a slide or damper at the front ends of the bars.

645,922. BUDDING-TOOL. JOHN STELZI, Louisville, Ky., assignor of one-third to Theodore P. Storey, same place. Filed Dec. 18, 1899. Serial No. 740,811. (No model.)

Claim.—1. A budding-tool, comprising a pair of pivoted jaws, means on one of said jaws for supporting a limb or twig laid transversely of said jaw, and a knife carried by the other jaw, said knife having a concavo-convex forward cutting edge extending approximately lengthwise of the limb or twig, substantially as described, whereby a longitudinally-curved section will be removed wholly from the side of said limb or twig, as specified.



2. A budding-tool, comprising a pair of pivoted jaws, a plate secured to one of said jaws and having projections at opposite sides of its upper end to engage the upper surface of a limb or twig laid across the jaw, and a knife carried by the other jaw, said knife having a concavo-convex forward cutting edge extending approximately lengthwise of the limb or twig and operating to remove wholly from the side of the limb or twig a section thereof between said projections, substantially as described.

3. In a budding-tool having a knife constructed to cut wholly through a limb or twig and remove a section wholly from the side thereof, a device to engage a side of said limb or twig and regulate the thickness of the section removed, said device being adjustable in a plane at right angles to the direction of movement of the knife, for the purpose specified.

4. A budding-tool, embodying a pair of pivoted jaws having handles for operating them, a concavo-convex knife secured to one of said jaws, and adjustable means secured to the other of said jaws and operating to regulate the depth of the cut made by said knife.

5. A budding-tool, comprising a pair of pivoted jaws, a concavo-convex knife having its end inserted in one of said jaws and adjustably fixed thereto, and a means attached to the other jaw to engage the limb or twig and regulate the depth of cut made by said knife.

6. A budding-tool, comprising a pair of pivoted jaws, a knife carried by one of said jaws, and a plate adjustably secured to the other of said jaws and having inwardly-extending flanges to engage the limb or twig, substantially as described and for the purposes set forth.

7. A budding-tool, comprising a pair of pivoted jaws, a knife carried by one of said jaws, a rubber cushion secured to the opposing jaw, and means carried by said opposing jaw and overhanging the adjacent edge of said cushion, for regulating the depth of cut, substantially as described.

8. A budding-tool, consisting of a pair of pivoted jaws having handles for operating them, a knife carried by one of said jaws and having a concavo-convex forward cutting edge, a rubber cushion secured to the inner face of the other jaw, and a plate adjustably fixed to the outer surface of said other jaw, said plate having flanges projecting inwardly from opposite ends of its upper end and overhanging the contiguous end of the cushion and also having side flanges engaged with the side edges of its jaw, substantially as described and for the purposes set forth.

9. A budding-tool, having a pivoted jaw, a knife-carrier adjustably fixed to said jaw, and a knife mounted on said carrier.

10. A budding-tool, having a pivoted jaw, a knife and a knife-carrier adjustably fixed to said jaw, and a plate secured to said jaw and covering said knife and carrier.

11. A budding-tool, having pivoted jaws, means on one of said jaws to engage the vine or twig and regulate the depth of cut, a carrier adjustably fixed to the other jaw, and a knife mounted on said carrier.

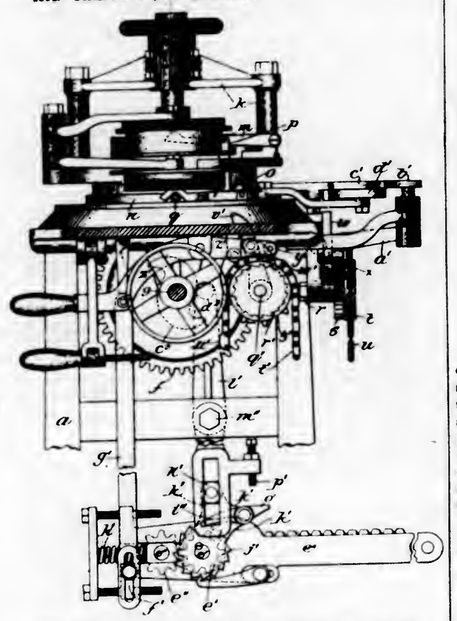
12. A budding-tool, having a pivoted jaw with a concave upper end formed with a longitudinal slot and a lug, a concavo-convex carrier adjustable in said upper end and having a lug projecting through said slot, a thumb-screw threaded through the lug of the carrier and held against longitudinal movement, a concavo-convex knife upon said carrier, and a plate engaging the upper end of said jaw and covering said knife and carrier, said plate having a thumb-screw to engage said knife.

645,923. DEVICE FOR EXTRACTING JUICES FROM FRUITS. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed Dec. 27, 1899. Serial No. 741,757. (No model.)

Claim.—In a juice-extractor of the class described, the combination with a base having a central opening and a hollow dome having circumferential apertures, of a cylindrical strainer removably secured in said dome and opening and extending over said apertures, substantially as described.



645,924. KNITTING-MACHINE. JAMES R. TUTTLE, Melrose, Mass., assignor to Charles F. Murphy, Boston, Mass. Filed Jan. 25, 1898. Serial No. 667,981. (No model.)



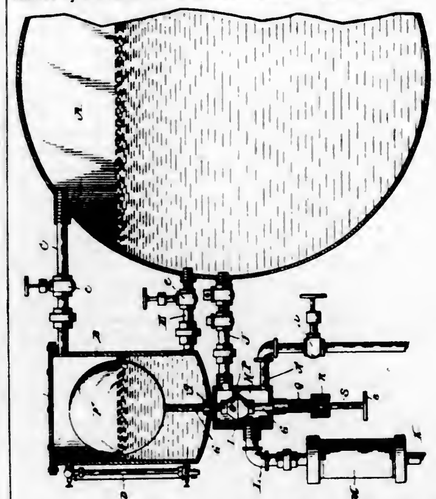
Claim.—1. The combination, with the cam-cylinder, needle-cylinder and needles, of a picker-dial toothed on its periphery to engage the needle-cylinder and to be rotated thereby, swinging pickers carried by the picker-dial to engage the needles and raise them, movable cams adapted to be raised into and lowered out of operative position with respect to said pickers, a revoluble ring *n*, and operative connections between the same and the movable cams to raise the latter without raising the ring.

2. The combination, with the cam-cylinder, needle-cylinder and needles, of a picker-dial toothed on its periphery to engage the needle-cylinder and to be rotated thereby, swinging pickers carried by the picker-dial to engage the needles and raise them, movable cams adapted to be raised into and lowered out of operative position with respect to said pickers, a revolable ring *n*, operative connections between the same and the movable cams to raise the latter without raising the ring, a shifting lever loosely connected at one end with the ring, and automatically-operated means at the other end of the lever to shift it at predetermined times.

3. The combination, with the picker-dial and its pickers, revoluble ring *n* provided with the cam *o* and antifriction-roller *q*, cams *m m'*, arranged in relationship to the said cam and antifriction-roller to adapt them to be acted upon thereby to raise the pickers and operative connections between the cams *m m'* and the cam *o* and antifriction-roller *q* on the ring.

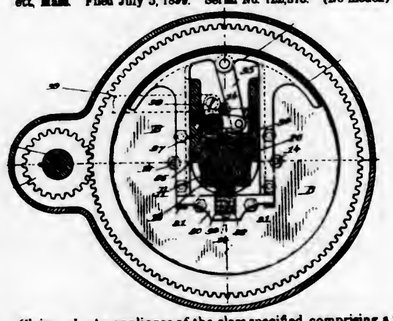
645,925. FEED-WATER REGULATOR. THEODORE E. BISHOP, HENRY R. WHITNEY, and JOHN SLOSIKER, Lima, Ohio. Filed Aug. 21, 1899. Serial No. 727,971. (No model.)

Claim.—1. The combination with the float-chamber and its connections with the boiler, and the float in said chamber with its stem extended through an opening in the bottom thereof into a valve-chamber, of the valve-chamber having a partition or diaphragm dividing the same into an upper and a lower compartment, an outlet above the diaphragm and a water-supply below the said diaphragm, and a diamond-shaped valve disposed in the lower compartment and carried by a float attached to the valve-stem, as set forth.



2. The combination with the float-chamber and a float therein, of a valve-chamber with diaphragm and inlet and outlet upon opposite sides thereof, a blow-off pipe connected with the lower portion thereof, a connection with the boiler upon one side of said diaphragm, a connection with the water-supply upon the other side of said diaphragm, a pipe extending from the bottom of said chamber provided with a stuffing-box, a valve in the valve-chamber having its stem connected with the float, and a rod threaded in said pipe and arranged to extend within the valve-chamber to engage the valve-stem, as and for the purpose specified.

645,926. BRAKE FOR VEHICLES. PERRY D. BLACKDEN, Everett, Mass. Filed July 5, 1899. Serial No. 722,815. (No model.)



Claim.—1. An appliance of the class specified, comprising a fixed axle, driving and driven members, the driven member being rotative on said axle, a wheel also rotatively supported on the axle and connected to said driven member, a casing surrounding said driving and driven members, a slide having a brake for one of said last-mentioned members and a guide for said slide fixed to said casing.

2. An appliance of the class specified, comprising a fixed axle, driving and driven members, the driven member being rotative on said axle, a wheel also rotative on said axle and connected to said driven member, a casing surrounding the driving and driven members, a yoke-shaped guide supported by the casing, a slide having two arms mounted for movement upon the respective branches of said guide and connected by a cross-bar and provided with a brake-shoe adapted to act against said driven member, a shaft disposed between the branches of the guide, connections between the shaft and the

brake-shoe for operating the latter, and a spring bearing against said cross-bar, to hold the brake-shoe normally in its ineffective position.

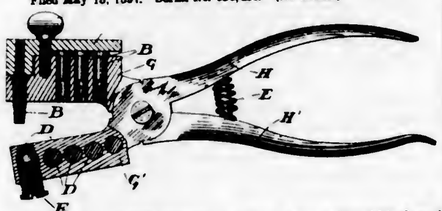
3. An appliance of the class specified, comprising a power-shaft provided with a driving member, a hollow driven member operable by the driving member, a casing surrounding the driving and the driven members and adapted to exclude dust from the same, a brake disposed within the hollow driven member and adapted to engage the inner surface thereof, and means for operating said brake.

4. An appliance of the class specified, comprising a power-shaft, a driven member connected therewith, a guide, a slide mounted upon the guide and provided with a brake-shoe, means adapted normally to hold the brake-shoe out of contact with the driven member, and means including a toggle, located to force the brake-shoe into contact with the said driven member.

5. An appliance of the class specified, comprising a power-shaft, a hollow driven member connected therewith, a guide, a slide supported by the guide, a spring active against the slide, a brake-shoe connected with the slide, a shaft having a crank-arm, means for operating said shaft, and a link jointed respectively to the crank-arm and to the brake-shoe.

6. An appliance of the class specified, comprising a power-shaft, having a gear, a hollow gear meshing with the first-mentioned gear, a casing inclosing both gears, a brake located in the said hollow gear, and adapted to engage and block the operation of the same, means serving to hold the brake normally in its ineffective position, and mechanism operable in opposition to said last-mentioned means and serving to throw the brake into engagement with the hollow gear.

645,927. BELT-PUNCH. FRANK L. HARMON, Beverly, Mass. Filed May 13, 1897. Serial No. 636,426. (No model.)



Claim.—1. In combination, a socket; a piece of rawhide forced into said socket, and held in a state of condensation in said socket; a thin keen cutter; means by which said thin keen cutter may be forced through a piece of material to be punched, and into said rawhide.

2. In combination, a socket; a piece of rawhide forced into said socket and held in a state of condensation in said socket; means by which said rawhide may be forced into and may be condensed in said socket; a thin sharp cutter; means by which said thin sharp cutter may be forced through a piece of material and into said rawhide.

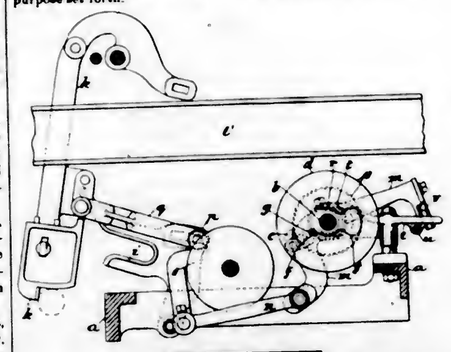
3. A punch comprising a socket G with a piece of rawhide D held in a state of condensation therein; the screw F; the cutter B; the lever H by which the thin sharp cutter B may be forced through leather and by which said cutter, and said rawhide are forced into contact with each other for the purposes set forth and described.

4. In combination, a socket; a piece of rawhide held in a state of condensation in said socket for the purposes set forth and described.

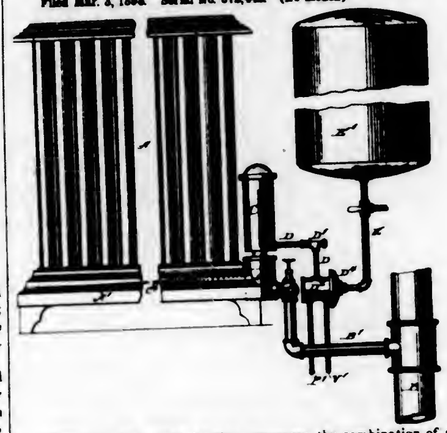
645,928. SELF-ACTING MULE FOR SPINNING. JAMES PICKFORD, Oldham, England. Filed Sept. 29, 1899. Serial No. 732,094. (No model.)

Claim.—1. In self-acting mules, the combination of the tin-roller shaft, the winding-on ratchet-wheel thereon, the winding-plate also on said shaft, the click on the winding-plate, and having the pin *g*, the cone A movable longitudinally of the tin-roller shaft and arranged to engage the pin on the click, the fork-lever for operating the cone, and a click locking and liberating lever pivoted on the tin-roller shaft and having a groove formed in its boss for the reception of the click-spring with its end terminating adjacent to the end of the fork-lever and provided with an incline on its end, the incline on said end for operating the fork-lever and means for operating the click-locking lever when the faller is locked, substantially as described.

2. In self-acting mules the winding-ratchet *c*, the winding-click, the click-locking lever *m* furnished with two projections or inclines *v*, *v*, and having an arm *w* with two bosses *w' w'* in combination with a rocking lever *y* and link *x*, the latter being adapted to connect the said click-locking lever with the said rocking lever on either side of the fulcrum of the latter so as to bring one or the other of the said projections or inclines into operation all substantially as and for the purpose set forth.



645,929. STEAM HEATING APPARATUS AND DEVICE FOR CONTROLLING ACTION THEREOF. EUGENE F. OSBORNE, Chicago, Ill., assignor to The Osborne Steam Engineering Company, same place. Filed Mar. 3, 1898. Serial No. 672,442. (No model.)



Claim.—1. In a steam heating apparatus, the combination of a radiator provided with an air-inlet, communicating with an air-supply having a pressure greater than the pressure of the steam used in the apparatus, a steam-supply pipe discharging into the radiator, a reduced-pressure pipe communicating with the radiator above the discharge end of the steam-supply pipe and at the end of the radiator opposite to such discharge end, automatic means for opening the air-inlet to the air-supply and closing the reduced-pressure pipe to the radiator, and when oppositely operated, for closing the air-inlet and opening the radiator to the reduced-pressure pipe, and an expansible member actuated, by heat, to close the opening from the radiator to the reduced-pressure pipe; substantially as described.

2. In a steam heating apparatus, provided with an air-supply having a pressure greater than the pressure of the steam in the system and an air-supply having a pressure less than the pressure of such steam, the combination of a radiator provided with passage-ways communicating with both such air-supplies, a steam-supply pipe communicating with the radiator, temperature-controlled means for closing the passage-ways between the radiator and both air-supplies and for opening the passage-way from one or the other of such air-supplies to the radiator, and additional temperature-controlled mechanism for closing the passage-way from the radiator to the air-supply having a pressure greater than the pressure of the steam, when the radiator is filled with air, and for closing the passage-way from the radiator to the air-supply having a pressure less than the pressure of such steam when the radiator is filled with steam.

3. In a steam heating apparatus, the combination of a radiator provided with an air-inlet communicating with an air-supply having a pressure greater than the pressure of the steam used in the apparatus, a steam-supply pipe discharging into the radiator, a reduced-pressure pipe communicating with the radiator above the discharge

end of the steam-supply pipe and at the end of the radiator opposite to the discharge end of the steam-supply pipe, automatic means for opening the air-inlet to the air-supply and closing the reduced-pressure pipe to the radiator, and, when oppositely operated, for closing the air-inlet and opening the radiator to the reduced-pressure pipe, and a thermostat device comprising a chamber provided with a passage-way to the shifting valve of the air-inlet and reduced-pressure pipes and also provided with a passage-way to the radiator, a diaphragm in such chamber, a valve moved by the movement of the diaphragm to open and close such passage way to the radiator, and expansible members, one thereof, in the chamber having the diaphragm therein, expanding to close, independently of the diaphragm, such passage-way to the radiator, and the other, in the steam-supply passage-way, expanding to open, independently of the diaphragm, such passage-way to the radiator; substantially as described.

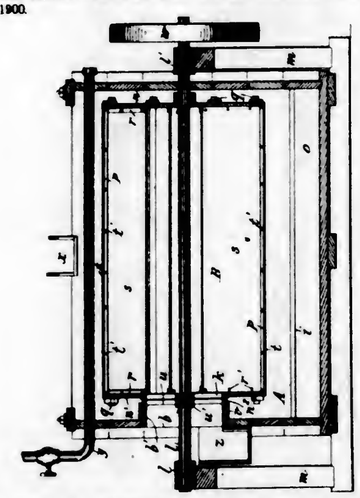
4. In a steam heating apparatus, a radiator, a reduced-pressure pipe and an air-supply pipe, a shifting valve arranged to alternately open and close such pipes, a steam-supply pipe, and a thermostat device comprising a chamber provided with a passage-way to the shifting valve of the air-inlet and reduced-pressure pipes and also provided with a passage-way to the radiator, a diaphragm in such chamber, a valve moved by the movement of the diaphragm to open and close such passage-way to the radiator, and expansible members, one thereof, in the chamber having the diaphragm therein, expanding to close, independently of the diaphragm, such passage-way to the radiator, and the other, in the steam-supply passage-way, expanding to open, independently of the diaphragm, such passage-way to the radiator; substantially as described.

5. A temperature-regulating device for heating systems, comprising a controlling device for connecting the radiator with either a source of air-supply or an exhaust device, said controlling device responsive to varying temperature in the apartment controlling the heating; and automatic means, independent of the temperature-controlled device, for controlling the exhaust or the admission of the air to the radiator, so as to limit the supply of air and steam thereto to the capacity of such radiator.

6. In a temperature-regulating device for heating systems, provided with a temperature-controlled air supply and exhaust apparatus, automatic means, independent of the temperature-controlled apparatus, for controlling the exhaust or admission of the air to the radiator as to limit the supply of air and steam thereto to the capacity of such radiator.

REISSUES.

11,813. APPARATUS FOR SEPARATING AND CLEANING PULP FOR PAPER-MAKING. FRED C. MICHAELIS, Ballston, N. Y. Filed Feb. 21, 1900. Serial No. 6,132. Original No. 641,131, dated Jan. 9, 1900.



Claim.—1. A screening-cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft, curved plates secured to the end plates and extending inwardly from the corners thereof to a point approximately midway between the center and the peripheries of the end plates and of screens secured to the end plates and composing together with the end plates the body of the cylinder.

2. A cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft, one of the end plates being provided with a flanged aperture located approximately in its center, of curved plates secured to the end plates and extending inwardly from the corners thereof to a point about midway between their centers and their peripheries, and of flat screens secured to the peripheries of the end plates and forming the body of the cylinder.

3. A screening-cylinder for separating and cleaning of pulp for paper-making, consisting of a shaft, polygonal end plates mounted on the shaft and having correspondingly-curved flanges extending from the corners of the end plates to a point about midway between their centers and their peripheries, curved plates secured to the flanges, ribs secured to the corners of the end plates and extending from one end plate to the other, and flat screens secured to the end plates and to the ribs.

4. The combination with a screening-cylinder consisting of a shaft, polygonal end plates mounted on the shaft and of screens secured to the end plates and forming together with the end plates the body of the cylinder, of curved end plates set in the cylinder and extending inwardly from the corners of the end plates to a point approximately midway between their centers and their peripheries.

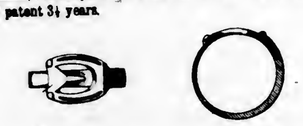
5. An apparatus for separating and cleaning of pulp for paper-making, consisting of a vat, having an aperture approximately in center of one side thereof, suitable standards, one on each end of the vat, a shaft passing longitudinally through the vat and mounted in bearings supported on the standards, a screening-cylinder mounted on the shaft within the vat and consisting of polygonal end plates secured to the shaft and provided with corresponding flanges extending between their centers and peripheries, curved plates secured to the flanges and extending from one end plate to the other, and of flat screens secured to the peripheries of the end plates, the screening-cylinder having a flanged aperture in its end plate, opposite the aperture in the vat, an inlet and an outlet trough conveying the pulp material into and from the apparatus, an outlet for discharge of the residue, and means for rotating the shaft.

6. An apparatus for separating and cleaning pulp for paper-making, consisting of a vat, having an aperture approximately in center of one side thereof, suitable standards, one on each end of the vat, a shaft passing through the vat and mounted in bearings supported on the standards; a polygonal screening-cylinder secured to the shaft within the vat, and having an aperture in its end plate, opposite the aperture in the vat, curved plates set in the cylinder from each corner thereof to a point about midway between its center and periphery, a collar, covering the joint between the edges of the aperture of the cylinder and the aperture of the vat, a perforated water-pipe set in the vat above the screening-cylinder to one side of the center thereof, an inlet and an outlet trough conveying the pulp material into and from the apparatus, an outlet for discharge of the residue, and means for rotating the shaft.

7. An apparatus for separating and cleaning pulp for paper-making, consisting of a vat, having a discharge-aperture approximately in center of one end side and another aperture in the longitudinal wall thereof, a trough provided in the bottom of the vat and alongside of its perforated longitudinal wall, a stand-pipe adjoining the vat and communicating therewith through the aperture, a partition-wall set in the stand-pipe extending from a point below its upper edge and down to its bottom, and provided with an aperture opposite the aperture in the wall of the vat, a slide-valve closing the aperture in the partition-wall, a culvert communicating with the stand-pipe, a trough connecting with the discharge-aperture of the vat, a straining-cylinder rotatably mounted in the vat, and having an aperture coinciding with the discharge-aperture of the vat, and means for rotating the cylinder in the vat.

DESIGNS.

32,353. FINGER-RING. CHARLES F. HAEBERLE and FREDERICK F. HAEBERLE, Philadelphia, Pa. Filed Dec. 20, 1899. Serial No. 741,067. Term of patent 3½ years.



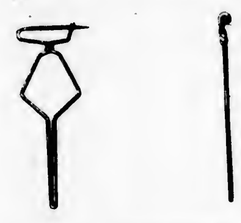
Claim.—The design for a finger-ring, as herein shown and described.

32,854. CANE OR UMBRELLA-HANDLE. WILLIAM HORACE SPEARS, New York, N. Y. Filed Feb. 6, 1900. Serial No. 4,284. Term of patent 3½ years.



Claim.—The design for a cane or umbrella-handle herein shown and described.

32,855. GARMENT-SUPPORTER. GEORGE W. RUSH, Altoona, Pa. Filed Jan. 11, 1900. Serial No. 1,153. Term of patent 14 years.



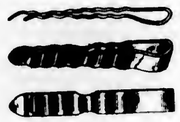
Claim.—The design for a garment-supporter, substantially as herein shown and described.

32,856. NECKTIE-HOLDER. JAMES S. GRAVES, Washington, D. C. Filed Jan. 26, 1900. Serial No. 2,923. Term of patent 14 years.



Claim.—The design for a necktie-holder, as shown and described.

32,857. CLASP. AVEDISS B. HERALD, Washington, D. C. Filed Feb. 8, 1900. Serial No. 4,565. Term of patent 14 years.



Claim.—The design for a clasp, as herein shown and described.

32,858. CLASP. BERNARD CONLAN, Newark, N. J. Filed Jan. 3, 1900. Serial No. 293. Term of patent 3½ years.



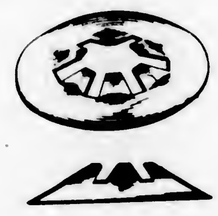
Claim.—The design for a clasp as herein shown and described.

32,859. HARNESS SNAP-HOOK. CLARENCE H. BALL, Webster City, Iowa. Filed Feb. 6, 1900. Serial No. 4,286. Term of patent 7 years.



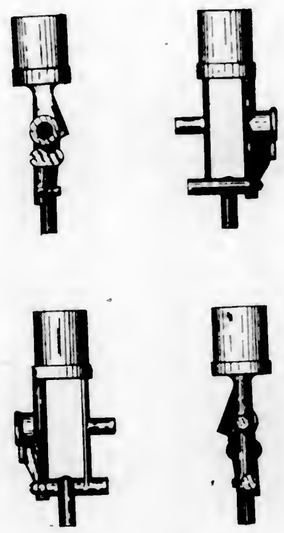
Claim.—The design for a snap-hook, as herein shown and described.

32,860. NUT-LOCK WASHER. CHARLES E. PIERCE, Avon, Wash., assignor of two-thirds to Will A. Lowman and W. T. Odlin, Anacortes, Wash. Filed Jan. 30, 1900. Serial No. 3,371. Term of patent 14 years.



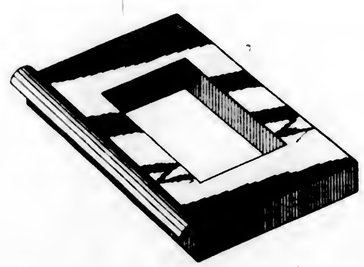
Claim.—The design for a washer of a nut-lock, herein shown and described.

32,861. INCANDESCENT VAPOR-BURNER FRAME. CLEARMONT V. BERR, Canton, Ohio. Filed Feb. 16, 1900. Serial No. 5,539. Term of patent 7 years.



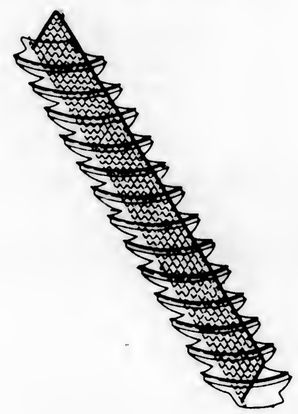
Claim.—The design for an incandescent vapor-burner frame, as shown and described.

32,862. CHIMNEY-CAP MEMBER. JOHN COOPER, New York, N. Y. Filed Jan. 24, 1900. Serial No. 2,690. Term of patent 14 years.



Claim.—The design for a chimney-cap member, as herein shown and described.

32,863. LAWN-RAKE HEAD. JOHN P. RADLEY, Colonia, N. Y., assignor to Charles H. Turner, Albany, N. Y. Filed Nov. 13, 1899. Serial No. 736,576. Term of patent 14 years.



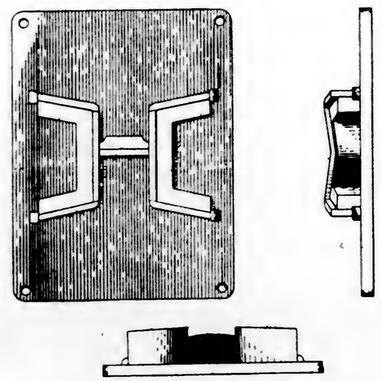
Claim.—The design for a lawn-rake head, as herein shown and described.

32,864. FORK-SOCKET. JAMES POWERS, Plattville, Ill., assignor of two-thirds to John Findley and Gamaliel Belfield, same place. Filed Dec. 30, 1899. Serial No. 742,176. Term of patent 7 years.



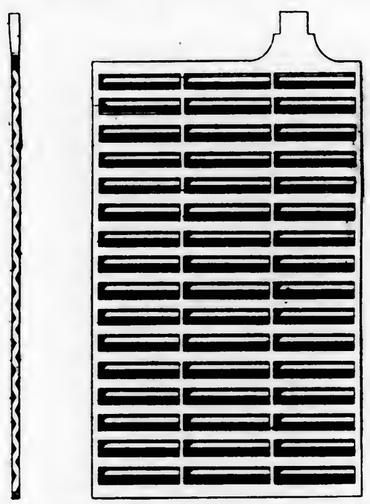
Claim.—The design for a fork-socket, substantially as herein shown and described.

32,865. DIE FOR STAMPING SHOVELS. FRANK FORSYTH, Havana, Ill. Filed Feb. 15, 1900. Serial No. 5,392. Term of patent 7 years.



Claim.—The design for a stamping-die herein shown and described.

32,866. STORAGE-BATTERY PLATE. JOHN B. CONRAD, Chicago, Ill. Filed Feb. 14, 1900. Serial No. 5,228. Term of patent 7 years.



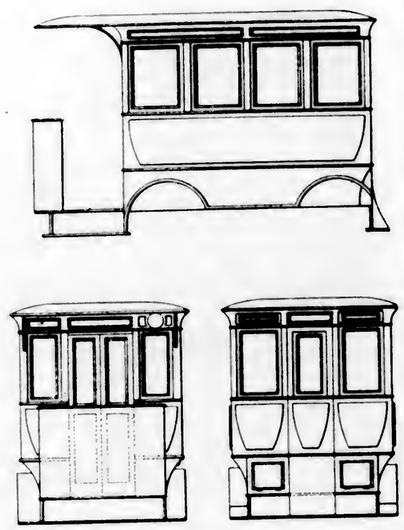
Claim.—The design for a storage-battery plate substantially as herein shown and described.

32,867. UNDERSLUNG BATTERY-FRAME FOR VEHICLES. HENRY SILL BALDWIN, Hartford, Conn., assignor to the Columbia and Electric Vehicle Company, same place and Jersey City, N. J. Filed Feb. 10, 1900. Serial No. 4,838. Term of patent 14 years.



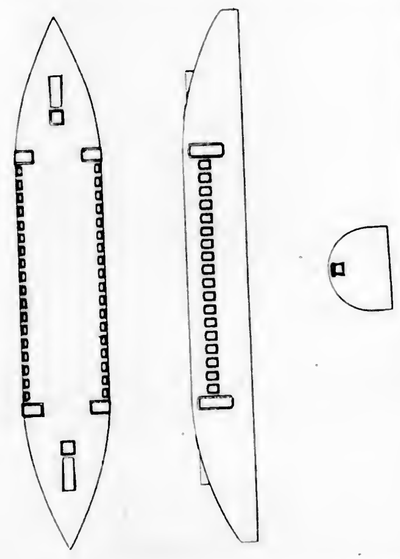
Claim.—The design for an underslung battery-frame for a vehicle, substantially as shown and described.

32,868. VEHICLE-BODY. WILLIAM E. SCHNEIDER, Washington, D. C. Filed Feb. 20, 1900. Serial No. 5,973. Term of patent 14 years.



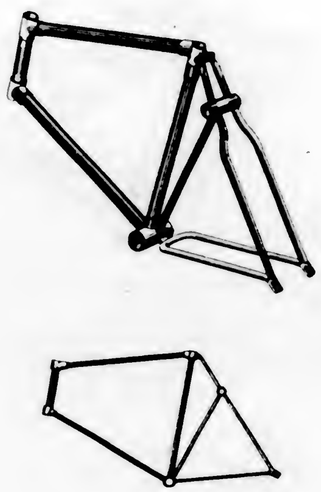
Claim.—The design for a vehicle-body, substantially as herein shown and described.

32,869. RAILWAY-CAR BODY. GEORGE J. CAPEWELL, Hartford, Conn. Filed Dec. 12, 1899. Serial No. 740,132. Term of patent 14 years.



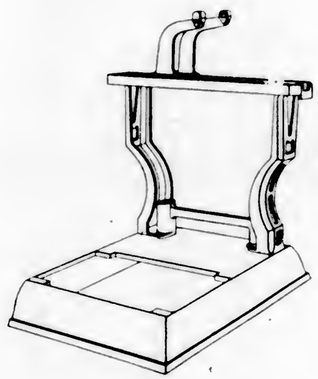
Claim.—The design for a car-body herein shown and described.

32,870. BICYCLE-FRAME. CHARLES O. E. MATTHERN, Chicago, Ill. Filed Feb. 19, 1900. Serial No. 5,864. Term of patent 14 years.



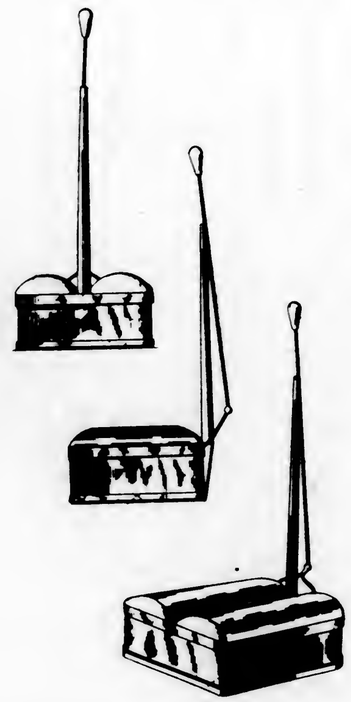
Claim.—The design for a bicycle-frame, substantially as herein shown and described.

32,871. SCALE-FRAME. JOHN W. CULBER, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed Feb. 21, 1900. Serial No. 6,114. Term of patent 14 years.



Claim.—The design for a scale-frame as herein shown and described.

32,872. CASING FOR CUSPIDORS OR SIMILAR ARTICLES. JACOB KESSELRING, Chesaning, Mich. Filed Dec. 26, 1899. Serial No. 741,700. Term of patent 3½ years.



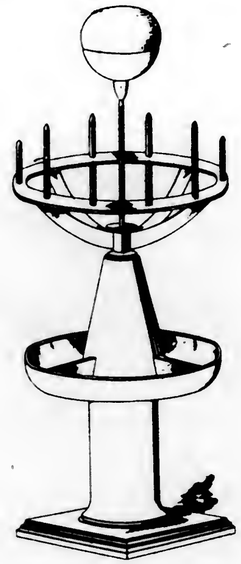
Claim.—The design for a casing for cuspidors, or similar article, substantially as shown and described.

32,873. UMBRELLA OR CANE HOLDER. FRANK A. SMITH, Chicago, Ill. Filed Jan. 29, 1900. Serial No. 3,334. Term of patent 14 years.



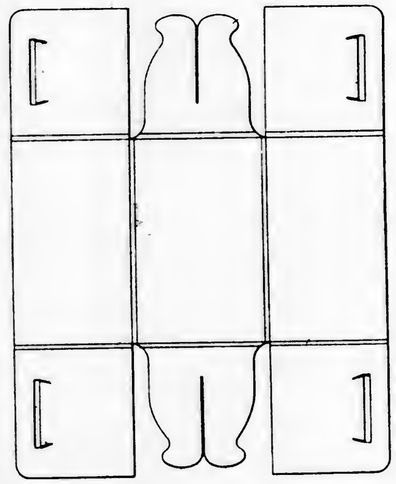
Claim.—The design for an umbrella or cane holder, as herein shown and described.

32,874. WORK-STAND. JAMES B. WALKER, Rush Springs, Ind. Ter., assignor of one-half to Robert J. Walker, Weir, Kans. Filed Feb. 15, 1900. Serial No. 5,386. Term of patent 7 years.



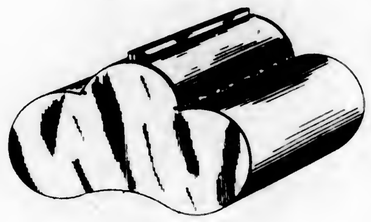
Claim.—The design for a work-stand, substantially as herein shown and described.

32,875. BOX-BLANK. EDWARD B. PINKERTON, Sioux City, Iowa. Filed Feb. 16, 1900. Serial No. 5,538. Term of patent 14 years.



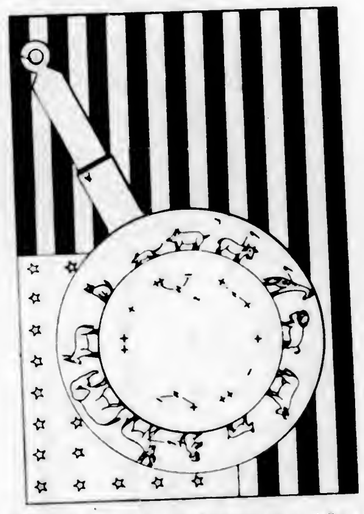
Claim.—The design for a box-blank, as herein shown and described.

82,876. MAIL-BAG. WILLIAM T. MCKINSTER, Mattie, Ky. Filed Feb. 15, 1900. Serial No. 5,385. Term of patent 7 years.



Claim.—The design for a mail-bag, as herein shown and described.

82,877. GAME-BOARD. ANNIE BAYLIS, Buffalo, N. Y. Filed Jan. 4, 1900. Serial No. 396. Term of patent 3½ years.



Claim.—The design for a game-board, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 20, 1900.

84,827. CERTAIN NAMED ARTICLES OF JEWELRY. B. A. BALLOU & Co., Providence, R. I. Filed Feb. 2, 1900.



Essential feature.—The representation of a five-pointed star with a capital "B" in the center thereof. Used since November 14, 1894.

84,828. CERTAIN NAMED CORD AND TWINES. ALEXANDER F. REID, New York, N. Y. Filed Feb. 10, 1899.

AJAX

Essential feature.—The word "AJAX." Used continuously since 1870.

84,829. CERTAIN NAMED CORDS AND THREAD. ALEXANDER F. REID, New York, N. Y. Filed Feb. 10, 1899.

HERCULES

Essential feature.—The word "HERCULES." Used since 1870.

84,830. COTTON FABRICS. SIEMSSEN & Co., Hamburg, Germany. Filed Feb. 15, 1900.



Essential feature.—The representation of a man carrying a fish. Used since December 5, 1899.

84,831. SHOES. STUBBS & WILSON, Indianapolis, Ind. Filed Jan. 30, 1900.



Essential feature.—The words "APPLE BLOSSOM" and the representation of an opossum. Used since January 1, 1900.

84,832. STARCH. JOSEPH ROCH MARQUETTE, New York, N. Y. Filed Nov. 21, 1899.



Essential feature.—The representation of an armored ship. Used since December 10, 1899.

84,833. CERTAIN NAMED PRODUCE. E. P. LOOMIS & Co., New York, N. Y. Filed Sept. 11, 1899.



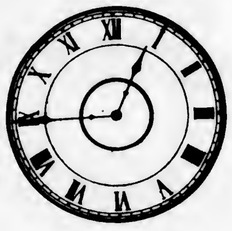
Essential feature.—The letter "L" inclosed in a diamond-shaped figure. Used since 1868.

84,884. CERTAIN NAMED GROCERIES. BEIB PRESERVING COMPANY, Buffalo, N. Y. Filed Feb. 17, 1900.

TAKHOMA

Essential feature.—The word "TAKHOMA." Used since December 1, 1899.

84,885. SYRUPS AND MOLASSES. THE TOWLE SYRUP COMPANY, St. Paul, Minn. Filed Feb. 23, 1900.



Essential feature.—The representation of a clock-face. Used since February 1, 1900.

84,886. GREEN COFFEE. KUHHARDT & Co., New York, N. Y. Filed Feb. 12, 1900.

G M M

Essential feature.—The letters "G M M." Used since January 1, 1899.

84,887. BEER, PORTER, AND ALE. WAUKESHA IMPERIAL SPRING BREWING COMPANY, Waukesha, Wis. Filed Oct. 10, 1899.



Essential feature.—The representation of a spouting spring. Used since March, 1896.

84,888. PREPARATIONS FOR THE TREATMENT OF THE SCALP AND HAIR. THE KILMER CO., New York, N. Y. Filed Jan. 18, 1900.



Essential feature.—The representation of a man's head upon a basket of flowers. Used since January 1, 1898.

84,889. THROAT AND LUNG SYRUP. COLONIAL MEDICAL Co., Pittsburg, Pa. Filed Feb. 21, 1900.

Essential feature.—The word "COLONIAL." Used since November 24, 1899.

84,840. ANTIPURULENT. RATTLE & Co., CHEMISTS' CORPORATION, St. Louis, Mo. Filed Feb. 13, 1900.

ECTHOL

Essential feature.—The word "ECTHOL." Used since August 1, 1898.

84,841. CURE FOR CAR OR SEA SICKNESS. BUSSKE MEDICAL Co., Coshocton, Ohio. Filed Feb. 20, 1900.

BON VOYAGE

Essential feature.—The words "BON VOYAGE." Used since October 1, 1899.

84,842. MEDICINE FOR THE CURE OF CERTAIN NAMED DISEASES. ARTHUR H. CHENEY, Plantsville, Conn. Filed Jan. 31, 1900.



Essential feature.—The representation of a disk with the letters "M B P" thereon and a double-headed arrow. Used since May 10, 1899.

84,843. LIQUID LOCAL ANESTHETIC. JOHN ALLEN JOHNSON, Smyrna, Del. Filed Jan. 26, 1900.

ANALGINE

Essential feature.—The word "ANALGINE." Used since January 22, 1900.

84,844. LINIMENT. GLADIATOR CHEMICAL COMPANY, Indianapolis, Ind. Filed Feb. 16, 1900.

ARBONIUM

Essential feature.—The word "CARBONIUM." Used since August 1, 1899.

84,845. CERTAIN NAMED MEDICINE. HERB MEDICINE Co., Springfield, Ohio. Filed Oct. 4, 1899.



Essential feature.—The pictorial representation of a harvest scene. Used since February, 1888.

84,846. CERTAIN NAMED CHEMICAL AND PHARMACEUTICAL PREPARATIONS. ALEXANDER KÖNIG, Vienna, Austria-Hungary. Filed Jan. 15, 1900.

ILLYRIN

Essential feature.—The word "ILLYRIN." Used since October 3, 1899.

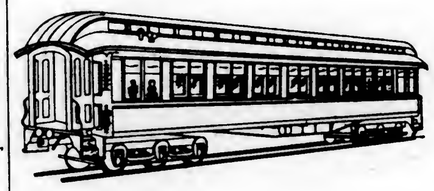
84,847. PRINTING-INK. SIEGMUND ULLMAN Co., New York, N. Y. Filed Feb. 17, 1900.

HERALD

Essential feature.—The word "HERALD." Used since March, 1898.

84,848. MIXED PAINTS IN LIQUID AND PASTE FORM. VARNISH-CALVERT PAINT COMPANY, St. Louis, Mo. Filed Feb. 5, 1900.

CAR



Essential feature.—The picture of a car in combination with the word "CAR." Used since January 1, 1894.

84,849. SOLDERING FLUID FOR METALS. HAVEN J. HILLIARD, Boston, Mass. Filed Feb. 23, 1900.

SOROSIS

Essential feature.—The word "SOROSIS." Used since October 1, 1898.

84,850. PNEUMATIC TIRES. MORGAN & WRIGHT, Chicago, Ill. Filed Feb. 24, 1900.

SPEED

Essential feature.—The word "SPEED." Used since December 15, 1899.

84,851. MOTORS, MOTOR-CARS, CARRIAGES, CYCLES, AND PARTS OF SAME. GOTTLIEB DAIMLER, Cannstadt, Germany. Filed Feb. 24, 1900.



Essential feature.—The name "DAIMLER" in facsimile signature. Used since November 1, 1884.

84,852. AUTOMATICALLY-PROPELLED WHEELED VEHICLES. WILLIAM R. SCHNEIDER, Washington, D. C. Filed Feb. 20, 1900.

AUTOCARETTE

Essential feature.—The word "AUTOCARETTE." Used since January 20, 1900.

84,858. CERTAIN NAMED STONE. THE CLEVELAND STONE COMPANY, Cleveland, Ohio. Filed Feb. 23, 1900.



Essential feature.—The word "CANYON" and the representation of a cañon. Used since February 1, 1900.

THE NORRIS PETERS CO. PHOTO-LITH WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MCBERTY *v.* COOK.

Decided February 13, 1900.

1. INTERFERENCE—BROADENING CLAIMS TO COVER DEVICE OF ANOTHER APPLICANT—ESTOPPEL.

Where in an interference between an application filed March 22, 1897, for the reissue of McBerty's patent, dated August 13, 1895, and an application of Cook filed July 29, 1896, it was contended that Cook's original application contained no claim to the invention of the issue, that not until five months thereafter and after the rejection of his claims in part did he amend by setting up the claims of the McBerty patent now in interference, and that consequently he is estopped, under *Beckman v. Wood*, 89 O. G., 2459, 2462, from claiming priority of invention as against McBerty's subsequent application for reissue, *Held* that the attitude of the parties is different from that shown in *Beckman v. Wood*. McBerty did not come into the Office originally after Cook, but before, and when he made his reissue application Cook's later claims had been made. He does not therefore stand in the situation of one who claims a specific invention with specification and claims that are not embraced in the original application of an earlier applicant, but which the latter seeks by subsequent amendment to dominate with claims that have no foundation in the original description of his invention.

2. SAME—SAME—SAME.

Held, further, that the amended claims of Cook are clearly shown and described in the specification of his original application and that his amendment constitutes no departure which would subordinate him to the claim of even an intervening applicant, as was the case in *Beckman v. Wood*.

3. SAME—DELAY IN APPLYING FOR PATENT.

Where Cook reduced the invention to practice in 1891 and 1892, but did not put it into commercial use or apply for a patent until 1896, *Held* that the delay of Cook in applying for a patent or making commercial use of his invention was not such as to indicate an intention to suppress or conceal his invention from the public that would subordinate his right to that of McBerty, who promptly applied for and obtained a patent.

4. SAME—SAME.

Delay is often a potent circumstance in aid of the determination in a case not otherwise clear of the question whether an invention has been successfully reduced to practice or has resulted in nothing more than an abandoned experiment (*Esty v. Newton*, 86 O. G., 799, cited.)

5. SAME—EQUIVALENT DEVICES.

A device embodying of two springs used to disrupt a telephone-circuit is substantially equivalent to a device embodying one spring for the same purpose.

6. SAME—DECISION OF COMMISSIONER AFFIRMED.

Held that there is no error in the decision of the Commissioner of Patents in *Cook v. McBerty*, 67 MS. Dec., 128, and that decision affirmed.

Mr. H. A. Seymour for the appellant.
Mr. Chas. C. Bulkley for the appellee.

SHEPARD, *J.*:

1. This is an appeal from the decision of the Commissioner of Patents in a case of interference.

The appellant, McBerty, holds a patent for an electrical device called a "strong-current arrester," issued August 13, 1895, No. 544,368, and the interference was declared between an application for a reissue thereof, filed March 22, 1897, and the original application of Cook, filed July 29, 1896.

The issue in controversy is defined as follows:

1. The combination with a heating-coil, of a small quantity of conducting material adapted to be fused by the heat of the coil, a switch-spring held under tension by said fusible conducting material, and an electric circuit including said heating-coil, fusible material and spring-switch in series, whereby the fusing of said fusible material permits the movement of said spring-switch to open the circuit.

2. The combination with a small resistance-coil, of a spool of good heat-conducting material upon which the coil is wound, a stem secured to said spool by easily-fusible solder, a spring adapted to move said stem out of contact with the spool when the solder is fused, and an electric circuit including said coil, spool, solder and stem in series; whereby the detachment of said stem from the spool effects the opening of the circuit.

The general object of the invention is to provide a ready and certain means for protecting the delicate apparatus of a telephone-circuit and the persons using the same from the injuries often produced by the encroachment of the dangerous currents of electric-light wires and wires conveying power to street-railways.

The contest for priority of this invention as it is defined in the issue aforesaid has been decided in favor of the appellee, Cook, by each tribunal of the Patent Office in succession.

2. The evidence so plainly supports the conclusions of those tribunals on the following points and has been so thoroughly discussed in their decisions that it would be idle to review it here. These are, first, that McBerty conceived the invention of the issue in June and followed it with reduction to practice in July, 1893, and, second, that Cook conceived his invention in 1891, made his first device in that year, made others in 1892, tested them in those years, and put them to such tests as amounted to a complete reduction to practice.

3. The leading contention of the appellant is that the inventions of the respective parties as originally made and embodied in their representative devices are different and distinct types of strong-current protectors, and hence that the reduction to practice by Cook, if conceded, was not a reduction to practice of the McBerty invention as defined in the issue.

It is claimed on one hand, and correctly, that the McBerty device in construction and operation is

specially designed to arrest abnormally-strong currents that may accidentally encroach upon the telephone-circuit by means of a break in that circuit of sufficient extent to absolutely prevent the formation of a persistent arc. To accomplish this effective disruption, the device is so constructed and arranged that upon the passage of the abnormal current through the heating-coil the heat created in the latter thereby being transmitted to the metallic spool upon which the coil is wound will promptly fuse the solder or other cement that secures the stem in place and maintains the circuit. This fusing of the solder or cement releases a spring, which withdraws the stem and breaks the circuit.

The separation of the former points of contact is so great that the current cannot leap the chasm.

On the other hand, it is claimed that the Cook devices of 1891 and 1892 constitute what are properly called "circuit-shunting protectors"—that is to say, protectors that do not operate by breaking the circuit, but by shifting or switching the current into connection with some low-resistance conductor, through which it will flow around the instruments to be protected.

In the original Cook devices as exhibited and explained the heating-coil when abnormally charged fuses the solder in the spool and releases from contact two springs opposed to each other and which in their retraction break the circuit, though to a much less extent than is the case in the McBerty device. At the end of the backward movement one spring touches a bar that makes a ground connection, through which the current flows. In the later device described in the application the other spring connects with a bar that operates a signal and enables the place of interruption to be located.

The foregoing contention has been considered at length and with apparent care by each of the expert tribunals of the Patent Office and has by each in turn been declared unfounded. For that reason alone it would require a clear and satisfactory showing of error to warrant us in reversing their decisions.

Having examined the specifications of Cook and all of the testimony relating to the conception, construction, and practical operation of his 1891 and 1892 devices in the light of the searching analysis of the same made by the counsel for the appellant on the argument, we are compelled to say that we have found no such error.

The first operation of the the device is to break the circuit through the fusion of the solder holding the springs in position. After this has been accomplished the formation of the new circuit or ground connection takes place through the contact for that purpose created by the retraction of one of the springs. That the disruption of the telephone-circuit is accomplished by the action of two springs instead of one, as in McBerty's device, seems to be of no practical importance. They are substantially equivalent.

Testimony was given by McBerty himself, who is an expert, tending to show that the disruption of the circuit which first takes place in Cook's device could not be and evidently was not relied on alone, because the gap made in the circuit is not sufficient to prevent the dangerous current from leaping it and maintaining the resulting arc, and the comparatively-slight separation that takes place is claimed to be a mere incident to the main object—namely, the shifting or shunting of the current by means of the new circuit arranged for the purpose. This opinion was controverted by evidence on behalf of Cook, and in connection therewith some testimony was offered to show that in some of the tests of the device it had operated successfully through breaking the circuit without establishing the new one.

Now it may be that the extent of the separation provided for, especially in the earlier device, would not in some instances of excessive abnormal currents be sufficient to stop their flow into the instrument or apparatus to be protected therefrom and that without the immediate establishment of the shunting or diverting circuit the injury to the apparatus could not be averted. But this exceptional condition, if well established, in our opinion, alters or impairs the effect of the fact that the disruption of the circuit, and consequent protection thereby, is an independent primary function of the device within the contemplation of the inventor. His conception seems clearly to have been what he now claims for it—a circuit-breaking arrester, with the additional feature of the shifting circuit.

4. An attempt has also been made to bring this case within the operation of the rule laid down in *Bechman* v. *Wood*, (89 O. G., 2459; D. C., *Idem.* 2462.)

The contention is that Cook's original application of July 29, 1896, contained no claim whatever to the invention of the issue; that not until five months thereafter and after the rejection of his claims in part did he amend by setting up the claims of the McBerty patent now in the issue, and that consequently he is now estopped or barred to claim priority of invention thereof as against McBerty's subsequent application for reissue.

In the first place it may be remarked in passing that the attitude of the parties is quite different from that shown in *Bechman* v. *Wood*. McBerty did not come into the Patent Office originally after his arrival, but before, and when he made his reissue application his rival's later claims had been made. He does not, therefore, stand in the situation of one who claims a specific invention, with specifications and claims that are not embraced in the original application of an earlier applicant, but which the latter seeks by subsequent amendment to dominate with claims that have no foundation in the original description of his invention.

We agree, however, with the Commissioner of Patents that the amended claims of Cook are clearly shown and described in the specifications of his original application and that his amendment constitutes no departure which would subordinate him to the claim of even an intervening applicant, as was the case in *Bechman* v. *Wood*.

Without setting out the original application, which is given in the record, the following extracts therefrom are sufficient foundation for our conclusion:

* * * Figures 12 and 13 are longitudinal sectional views of my improved heat-coil protector, respectively showing the position of the parts when connected and disrupted. * * *

* * * In carrying out my invention I provide heat-coil protectors, that is, an automatic circuit-breaker, operated initially by the heat-coil thereof, which are adapted to sever or disrupt the circuits under the influence of quantitative currents but approximately slightly in excess of the normal currents. * * *

When an abnormal quantitative current traverses the heat-coil 59, the fusible material 57 is melted and a separation is caused by the tension of the contact-springs, thus disrupting that circuit.

5. This brings us to the last proposition in the case important to be discussed. Here again we cannot agree with the appellant. In our opinion the delay of Cook in applying for a patent or in making commercial use of his invention was not such as to indicate an intention to suppress or conceal his invention from the public that would subordinate his right to that of McBerty, who promptly applied for and obtained a patent. It is not necessary to detail the evidence explanatory of the delay. That has been done in a satisfactory manner in the decision of the Commissioner. It is barely possible from the evidence that there may have been such public use as to amount to an abandonment to the public; but that question is not involved, and it is only a possible inference from the proof in regard to reduction to practice in the telephone system of Des Moines in 1891 or 1892.

The facts are not sufficient to bring the case within the rule enounced in *Mason* v. *Hepburn* (13 App. D. C., 86) and *Warner* v. *Smith*, (*Idem*, 111,) and that rule will not be extended to any case not coming clearly within it. The case falls rather within the governing principle of the later case of *Esty* v. *Newton*, (14 App. D. C., 50, 53.) As was said in that case, delay is often potent circumstance in aid of the determination in a case not otherwise clear of the question whether an invention had been successfully reduced to practice or had resulted in nothing more than an abandoned experiment. That point does not occur in the case at bar, because, as stated in the beginning, the evidence of actual and successful reduction to practice is ample.

The decision appealed from will be affirmed and this result certified to the Commissioner of Patents in accordance with law. It is so ordered.

Revision of Classification.

(ORDER No. 1,333.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 6, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

Division XXIX, class 143, Wood-Sawing, abolish all the subclasses and substitute the following subclasses and definitions in lieu thereof:

CLASS 143.—WOOD-SAWING.

16. Arc-saw machines.
17. Band-saw machines—
27. Automatic tension-regulators,
28. Catchers,
18. Centered-log,
19. Horizontal-saw,
20. Inclined,
21. Multiple idlers,
22. Multiple-saw,
Band-saw machines—
29. Pulley cleaners and lubricators,
30. Pulleys,
25. Reciprocating-carriage,
23. Retarded-idler,
31. Saw-lead adjustments,
26. Special-feed,
24. Tilting-frame.
32. Chain-saw machines.
33. Circular-saw machines—
35. Adjustable-saw—
36. Angular,
37. Lateral,
38. Angular—
39. Centered-log,
40. Auxiliary-saw,
49. Chain-feed,
41. Drop-saw,
42. Knife-disk,
50. Lathe-feed,
34. Pile-cutting,
43. Portable,
51. Pusher-feed,
52. Reciprocating-carriage—
53. Automatic-feed,
54. Mechanically-operated,
44. Rim-driven,
55. Roller-feed—
56. Gang,
57. Rotary-carriage,
48. Special-feed,
45. Successive,
58. Swinging-carriage,
46. Swinging-saw,
59. Tilting work-support,
47. Traveling-saw.
1. Combination-machines.
2. Hoop-pole machines—
3. Band-saw.
96. Log-deck blocks.
92. Log-transfers—
98. Pusher-blocks,
94. Trough-and-kicker.
97. Log-turners—
98. Bar-and-chain,
99. Bar and inclined pistons,
100. Bar and parallel pistons,
101. Bar-and-piston,
102. Endless,
103. Hook,
104. Hook-and-chain.
95. Log turners and deck blocks.
86. Miter-boxes—
87. Adjustable—
88. Biplane,
89. Swinging saw-guide,
90. Swinging work-guide.
6. Mitering-machines—
7. Reciprocating-saw.
60. Reciprocating-saw machines—
61. Drag—
62. Automatic-return,
63. Crank,
64. Lever,
65. Lever-and-bow,
66. Lever and gears,
67. Lever and lazy-tongs,
68. Motor,
69. Oscillatory,
79. Laterally-adjustable arm,
80. Piston-connected,
81. Roller-feed,
70. Scroll—
71. Frame,
72. Free-end saw,
73. Spring-return,
74. Swivel-saw,
75. Special-cut—
76. Pattern-guide,
77. Pivoted work-holder,
78. Tilting saw-frame,
81. Vibrated-saw—
82. Lever-driven,
83. Pivoted guides.
4. Resawing-machines—
5. Band-saw.
91. Saw-bucks.
158. Saw cleaners and oilers.
159. Saw-guards.
160. Saw-guides—
161. Back-disk,
162. Back-roller,
163. Drag,
164. Oilers,
165. Pivoted-arm,
166. Sliding-arm,
167. Work-engaging.
Saw-hanging—
155. Circular-saw.
156. Reciprocating-saw.
157. Sawing-machine appliances.
105. Sawmill-carriages—
106. Friction-feed—
107. Disk,
108. Motor-feed,
109. Offsetting—
110. Draft-operated,
111. Friction-operated,
112. Lever-operated,
113. Track-operated.
125. Sawmill-dogs—
126. Lever,
127. Lever-and-cam,
128. Lever and coöperating gears,
129. Lever, gear and rack,
130. Lever, pawl and rack,
131. Screw.
114. Sawmill set-works—
124. Appliances,
115. Automatic,
116. Direct-actuated,
117. End dogs,
118. Fluid-operated,
119. Pawl-and-rack,
120. Power-operated,
121. Spring-retracted,
122. Supplemental support,
123. Wedge.
133. Saws—
134. Bent,
135. Chain,
136. Dished,
137. Expansion-aperture,
138. Gumming-aperture,
139. Sectional,
140. Smoothing.
168. Saw-table gages—
169. Angular adjustment—
170. Vertical,
171. Curve-cutting,
172. Markers,
173. Roller,
174. Sliding—
175. Link,
176. Rack-and-pinion.
132. Saw-tables.
141. Saw-teeth—
142. Cross-cut,
143. Planer,
144. Reversible.
145. Saw-teeth, fastenings—
146. Bridge-plate,
147. Cap—
148. Separable-bit,
149. Key,
150. Key and locking-plate,
151. Locking-plate,
152. Spring-latch,
153. Wedge,
154. Wedge and locking-plate.
8. Shingle-machines—
10. Belt-feed,
11. Dog-and-step feed,
9. Reciprocating-saw,
12. Roller-feed,
13. Tilting-gage,
14. Tilting-table—
15. Rotary-carriage.
85. Tubular-saw machines.

CLASS 143.—WOOD-SAWING.

DEFINITIONS.

Class 143.

143. WOOD-SAWING. This class includes all patents for machines, parts and attachments therefor, in which the sole function is severing wood by means of saws; also, patents for saw-blades, whether for machines or handsaws. Patents for machines in which sawing is not the sole function, as well as those in which saws are used for dovetailing, gaining, or any other purpose than severing wood, are classified in class 144, WOODWORKING. Patents for handsaws in which the cutting part of the saw does not constitute the invention are classified in class 145, WOODWORKING-TOOLS.

Subclasses.

16. ARC-SAW MACHINES. The machines have one or more saws bent into arcs and designed to oscillate in the line of curvature of the saw.

17. BAND-SAW MACHINES. Sawing-machines of general utility in which the saws are endless bands traveling over a plurality of pulleys.

27. BAND-SAW MACHINES, AUTOMATIC TENSION-REGULATORS. Devices for automatically taking up slack in band-saws and so keeping the tension of the saws uniform.

28. BAND-SAW MACHINES, CATCHERS. Devices for catching band-saws when they run off the pulleys or for keeping them in position on the pulleys.

18. BAND-SAW MACHINES, CENTERED-LOG. The log is centered between chucks and rotated on an axis parallel to the line of travel of the saw.

19. BAND-SAW MACHINES, HORIZONTAL-SAW. The saw travels in a horizontal plane, though the kerf may be either vertical or horizontal.

20. BAND-SAW MACHINES, INCLINED. The line of travel of the saw is oblique to the line of travel of the work.

21. BAND-SAW MACHINES, MULTIPLE IDLERS. The saw is supported on two or more idler-pulleys.

22. BAND-SAW MACHINES, MULTIPLE-SAW. Machines having two or more band-saws which operate simultaneously.

29. BAND-SAW MACHINES, PULLEY CLEANERS AND LUBRICATORS. Scraping, washing, and oiling devices for the pulleys of band-saw machines.

30. BAND-SAW MACHINES, PULLEYS. Pulleys having features of construction which especially adapt them to use upon band-saw machines.

25. BAND-SAW MACHINES, RECIPROCATING-CARRIAGE. Band-saw machines in which the work is presented to the saw by a reciprocating carriage.

23. BAND-SAW MACHINES, RETARDED-IDLER. Devices to retard the idler-pulley of a band-saw machine when sudden strain is put upon the saw, and so taking up the slack caused by the strain.

31. BAND-SAW MACHINES, SAW-LEAD ADJUSTMENTS. Devices for inclining the pulleys or for adjusting the saw on the pulleys in order to prevent the pressure of the work from forcing the saw off the pulley.

26. BAND-SAW MACHINES, SPECIAL-FEED. Band-saw machines characterized by various forms of work-feeding mechanism.

24. BAND-SAW MACHINES, TILTING-FRAME. The frame supporting the saw-pulleys is designed to be tilted into various positions in order to vary the angle of the cut.

32. CHAIN-SAW MACHINES. Sawing-machines using chain-saws.

33. CIRCULAR-SAW MACHINES. Sawing-machines having none but circular saws.

35. CIRCULAR-SAW MACHINES, ADJUSTABLE-SAW. Circular-saw machines having adjustable saws.

36. CIRCULAR-SAW MACHINES, ADJUSTABLE-SAW, ANGULAR. Circular-saw machines whose saws are angularly adjustable.

37. CIRCULAR-SAW MACHINES, ADJUSTABLE-SAW, LATERAL. Circular-saw machines having the saws so mounted in the machine that they may be shifted laterally by appropriate means.

38. CIRCULAR-SAW MACHINES, ANGULAR. Circular-saw machines employing two or more saws set at angles to each other and operating simultaneously upon the same material.

39. CIRCULAR-SAW MACHINES, ANGULAR, CENTERED-LOG. Angular circular-saw machines in which the log is supported between centers and is rotated slightly after each cut.

40. CIRCULAR-SAW MACHINES, AUXILIARY-SAW. Machines having two circular saws, one set above the other, and designed for sawing material of thickness too great to be readily cut through by a single saw.

49. CIRCULAR-SAW MACHINES, CHAIN-FEED. The material to be sawed is conveyed to the saw by an endless chain or belt.

41. CIRCULAR-SAW MACHINES, DROP-SAW. Machines having saws, usually several, separately mounted in pivoted frames which permit the saw to be dropped below the table when not in use. In some machines the saws are above the table and have to be lowered into operative position.

42. CIRCULAR-SAW MACHINES, KNIFE-DISK. The ordinary circular saw is replaced by a disk knife which is caused to rotate at a high rate of speed.

50. CIRCULAR-SAW MACHINES, LATHE-FEED. The log is centered between two blocks and turned slightly after each cut. There is but one saw.

34. CIRCULAR-SAW MACHINES, PILE-CUTTING. Circular-saw machines for cutting off the tops of piles after they have been driven.

43. CIRCULAR-SAW MACHINES, PORTABLE. Machines designed for easy transportation either dismantled or set up.

51. CIRCULAR-SAW MACHINES, PUSHER-FEED. The work is pushed across the supporting frame or table into engagement with the saw.

52. CIRCULAR-SAW MACHINES, RECIPROCATING-CARRIAGE. The work is supported upon a carriage which is reciprocated by the operator.

53. CIRCULAR-SAW MACHINES, RECIPROCATING-CARRIAGE, AUTOMATIC-FEED. The position of the work on the carriage is automatically shifted at each reciprocation thereof in order to set the work for another cut.

54. CIRCULAR-SAW MACHINES, RECIPROCATING-CARRIAGE, MECHANICALLY-OPERATED. The carriage is reciprocated by mechanism which may have to be set in motion independently of the saw-driving mechanism or which may be operatively connected therewith and act automatically.

44. CIRCULAR-SAW MACHINES, RIM-DRIVEN. The saw is driven by means of power applied directly to the saw near the periphery instead of to the shaft. Most of the saws are annular in form and supported upon a plurality of rollers.

55. CIRCULAR-SAW MACHINES, ROLLER-FEED. Circular-saw machines in which the work is fed to the saw by means of positively-driven rolls; also, feed-rolls especially designed for sawing-machines.

56. CIRCULAR-SAW MACHINES, ROLLER-FEED, GANG. Roller-feed circular-saw machines having a number of saws mounted upon one shaft.

57. CIRCULAR-SAW MACHINES, ROTARY-CARRIAGE. A rotary carriage, which usually has several work-holders, presents the work to the saw.

48. CIRCULAR-SAW MACHINES, SPECIAL-FEED. Circular-saw machines characterized by special forms of feed mechanism different from those in other subclasses.

45. CIRCULAR-SAW MACHINES, SUCCESSIVE. Two or more saws mounted in a pivoted frame which permits only a single saw to be brought into operative position at once.

58. CIRCULAR-SAW MACHINES, SWINGING-CARRIAGE. The work is brought into contact with the saw by means of a swinging carriage.

46. CIRCULAR-SAW MACHINES, SWINGING-SAW. The saw is mounted in a swinging frame and is swung into operative position.

59. CIRCULAR-SAW MACHINES, TILTING WORK-SUPPORT. The work-table is mounted on pivots so that it may be set at different angles to the saw.

47. CIRCULAR-SAW MACHINES, TRAVELING-SAW. The work remains stationary and the saw travels forward while making its cut.

1. COMBINATION-MACHINES. Machines embodying in each two or more of the recognized types of sawing-machines.

2. HOOP-POLE MACHINES. Machines for sawing hoops from small poles.

3. HOOP-POLE MACHINES, BAND-SAW. Hoop-pole machines in which a band-saw is used.

96. LOG-DECK BLOCKS. Devices for preventng the rolling of logs from the log-deck to the carriage and for loading the logs upon the carriage.

92. LOG-TRANSFERS. Apparatus of various kinds for conveying logs from one part of a sawmill to another.

93. LOG-TRANSFERS, PUSHER-BLOCKS. Traveling blocks which shift the position of the log on the log-deck.

94. LOG-TRANSFERS, TROUGH-AND-KICKER. Apparatus for forcing the log out of the jack-trough and upon the log-deck of the mill.

97. LOG-TURNERS. Devices which turn the log on the log-carriage and which may serve to roll the log from the deck to the sawmill-carriage.

98. LOG-TURNERS, BAR-AND-CHAIN. Log-turners having toothed bars to engage with the log and chains to communicate movement to the bars.

99. LOG-TURNERS, BAR AND INCLINED PISTONS. Log-turners in which the turning-bar is actuated by two pistons set at an angle to one another.

100. LOG-TURNERS, BAR AND PARALLEL PISTONS. Log-turners consisting of a toothed bar operated by a pair of parallel pistons.

101. LOG-TURNERS, BAR-AND-PISTON. Log-turners consisting of a turning-bar driven by a single piston.

102. LOG-TURNERS, ENDLESS. Log-turners provided with a spurred chain running over sprockets or having one or more toothed wheels which engage with the log.

103. LOG-TURNERS, HOOK. Log-turners having a hook which engages the log and which is moved by various means.

104. LOG-TURNERS, HOOK-AND-CHAIN. Log-turners consisting of hooks to engage with the log and chains connected therewith for pulling the log over.

95. LOG TURNERS AND DECK BLOCKS. Devices embodying both turners and deck-blocks which are driven by the same mechanism.

86. MITER-BOXES. Devices for holding lumber and guiding an ordinary handsaw in the operation of cutting bevels.

87. MITER-BOXES, ADJUSTABLE. Miter-boxes in which the relative position of saw-guide and work-holder can be readily changed.

88. MITER-BOXES, ADJUSTABLE, BIPLANE. Miter-boxes capable of adjustment in both horizontal and vertical planes.

89. MITER-BOXES, ADJUSTABLE, SWINGING SAW-GUIDE. Miter-boxes having fixed work-guides and saw-guides which swing in one plane.

90. MITER-BOXES, ADJUSTABLE, SWINGING WORK-GUIDE. Miter-boxes which have fixed saw-guides and whose work-guides swing in one plane.

6. MITERING-MACHINES. Sawing-machines designed especially for cutting bevels or miters.

7. MITERING-MACHINES, RECIPROCATING-SAW. Miter-sawing machines having a reciprocating saw.

60. RECIPROCATING-SAW MACHINES. All sawing-machines not designed for sawing special articles or material in which reciprocating saws are used.

61. RECIPROCATING-SAW MACHINES, DRAG. Reciprocating-saw machines consisting of a crosscut or buck saw and a supporting-frame which guides the saw in its movement and which may or may not include devices for transmitting power to the saw.

62. RECIPROCATING-SAW MACHINES, DRAG, AUTOMATIC-RETURN. Drag-saw machines in which the return movement of the saw is assisted or brought about by means of a spring or weight.

63. RECIPROCATING-SAW MACHINES, DRAG, CRANK. Movement is imparted to the drag-saw by some form of crank mechanism.

64. RECIPROCATING-SAW MACHINES, DRAG, LEVER. Movement is imparted to the drag-saw by means of lever mechanism.

65. RECIPROCATING-SAW MACHINES, DRAG, LEVER-AND-BOW. The driving mechanism includes a lever and swinging bow carrying belts.

66. RECIPROCATING-SAW MACHINES, DRAG, LEVER AND GEARS. The drag-saw is driven by means of a lever and coöperating gears, usually segmental.

67. RECIPROCATING-SAW MACHINES, DRAG, LEVER AND LAZY-TONGS. The saw is driven by means of a lever and lazy-tongs.

68. RECIPROCATING-SAW MACHINES, DRAG, MOTOR. The saw is driven by some form of motor which is shown in combination with the saw.

69. RECIPROCATING-SAW MACHINES, DRAG, OSCILLATORY. The saw or the saw-frame oscillates upon a pivot.

79. RECIPROCATING-SAW MACHINES, LATERALLY-ADJUSTABLE ARM. The saws are capable of lateral adjustment in the saw frame or gate.

80. RECIPROCATING-SAW MACHINES, PISTON-CONNECTED. The saw or saw-frame is directly connected with a fluid-operated piston.

84. RECIPROCATING-SAW MACHINES, ROLLER-FEED. The work is presented to the saw by means of feed-rollers.

70. RECIPROCATING-SAW MACHINES, SCROLL. Machines characterized by a small light reciprocating saw adapted to sawing curved patterns in thin material, which is usually fed to the saw by hand.

71. RECIPROCATING-SAW MACHINES, SCROLL, FRAME. The saw is mounted in a frame which oscillates or reciprocates.

72. RECIPROCATING-SAW MACHINES, SCROLL, FREE-END SAW. One end of the saw is gripped by the operating-arm and the other is free.

73. RECIPROCATING-SAW MACHINES, SCROLL, SPRING-RETURN. The saw is drawn back by a spring after the cutting stroke.

74. RECIPROCATING-SAW MACHINES, SCROLL, SWIVEL-SAW. The saw is so mounted that it may be rotated on a longitudinal axis.

75. RECIPROCATING-SAW MACHINES, SPECIAL-CUT. The machines are designed to produce lumber of peculiar forms or to saw up irregular material.

76. RECIPROCATING-SAW MACHINES, SPECIAL-CUT, PATTERN-GUIDE. The cut of the saw is determined by a pattern-guide.

77. RECIPROCATING-SAW MACHINES, SPECIAL-CUT, PIVOTED WORK-HOLDER. The work is supported upon a pivoted work-holder and is so presented to the saw that the cut follows an arc of a circle.

78. RECIPROCATING-SAW MACHINES, SPECIAL-CUT, TILTING SAW-FRAME. The saw is supported in a frame which may be so inclined as to make the cut at an angle to the plane of the work-table.

81. RECIPROCATING-SAW MACHINES, VIBRATED-SAW. The saw is caused to vibrate in its own plane during its reciprocation.

82. RECIPROCATING-SAW MACHINES, VIBRATED-SAW, LEVER-DRIVEN. The saw receives its vibratory and reciprocatory motion from a pair of driving-levers.

83. RECIPROCATING-SAW MACHINES, VIBRATED-SAW, PIVOTED-GUIDES. The saw is made to vibrate during its reciprocations by means of the rocking of pivoted guides.

4. RESAWING-MACHINES. Sawing-machines designed for cutting sawed lumber into thinner pieces.
(Note.—Quarter-sawing machines are not included in this class, but with the various structural classes of sawing-machines.

5. RESAWING-MACHINES, BAND-SAW. Resawing-machines using a band-saw.

91. SAW-BUCKS. Supports, usually provided with gripping devices, for holding a log while being sawed.

158. SAW CLEANERS AND OILERS. Attachments to sawing-machines which clean and oil the saws.

159. SAW-GUARDS. Shields of various kinds which are intended to cover saws while in operation and prevent the receipt of injuries therefrom.

160. SAW-GUIDES. Devices for keeping the saw in its kerf and consisting usually of jaws between which the saw passes.

161. SAW-GUIDES, BACK-DISK. Saw-guides, usually for band-saws, which are provided with a disk, usually rotatable, against which the saw presses when it is forced back by the work.

162. SAW-GUIDES, BACK-ROLLER. Saw-guides, usually for band-saw machines, which have a rotating cylinder for the back of the saw to press against when forced back by the work.

163. SAW-GUIDES, DRAG. Saw-guides for common crosscut-saws to enable one man to operate the saw. Used mainly in felling trees.

164. SAW-GUIDES, OILERS. Saw-guides provided with devices for lubricating the saw-blade.

165. SAW-GUIDES, PIVOTED-ARM. Saw-guides having one or both arms mounted on pivots, so that the opening of the jaws may be varied at will.

166. SAW-GUIDES, SLIDING-ARM. Saw-guides having one or both jaws mounted upon sliding arms.

167. SAW-GUIDES, WORK-ENGAGING. Saw-guides which are adapted to engage with the work to hold or guide it while being sawed.

155. SAW-HANGING, CIRCULAR-SAW. Devices for attaching circular saws to their supporting-arbors, and in some instances devices supporting the arbor in the saw-frame.

156. SAW-HANGING, RECIPROCATING-SAW. Gripping and straining devices for reciprocating saws.

157. SAWING-MACHINE APPLIANCES. Miscellaneous devices designed for use upon or in connection with wood-sawing machines.

105. SAWMILL-CARRIAGES. Log-carriages for sawmills, together with driving means therefor and such attachments as are not otherwise classified.

106. SAWMILL-CARRIAGES, FRICTION-FEED. Sawmill-carriages to which power is applied through friction-gears.

107. SAWMILL-CARRIAGES, FRICTION-FEED, DISK. The feed mechanism involves a friction-disk.

108. SAWMILL-CARRIAGES, MOTOR-FEED. The feed mechanism involves some form of motor which is directly connected with the carriage.

109. SAWMILL-CARRIAGES, OFFSETTING. The carriage is provided with mechanism for giving it an offset from the saw on its backward movement.

110. SAWMILL-CARRIAGES, OFFSETTING, DRAFT-OPERATED. The offsetting mechanism is operated by reversing the strain upon the draft-bar of the carriage.

111. SAWMILL-CARRIAGES, OFFSETTING, FRICTION-OPERATED. The offsetting mechanism is set in operation by means of friction-clutches which are thrown into operative position by reversing the movement of the carriage.

112. SAWMILL-CARRIAGES, OFFSETTING, LEVER-OPERATED. The offsetting mechanism is actuated through a lever which is thrown by the operator.

113. SAWMILL-CARRIAGES, OFFSETTING, TRACK-OPERATED. The carriage is offset by means of a trip which engages with some portion of the track on the backward movement of the carriage.

125. SAWMILL-DOGS. Devices for holding the log upon the carriage of a sawmill.

126. SAWMILL-DOGS, LEVER. The gripping devices are actuated by means of a lever or system of levers.

127. SAWMILL-DOGS, LEVER-AND-CAM. The points are forced into operative position by means of a cam which is turned by a lever.

128. SAWMILL-DOGS, LEVER AND COÖPERATING GEARS. The dogs are actuated by coöperating gears which are driven by means of a lever.

129. SAWMILL-DOGS, LEVER, GEAR AND RACK. The dogs are thrown into engagement with the log by means of a rack which coöperates with a lever-driven gear.

130. SAWMILL-DOGS, LEVER, PAWL AND RACK. A lever operates a pawl-and-rack mechanism for forcing the dogs into the log.

131. SAWMILL-DOGS, SCREW. The points are forced into the log by means of a screw. The points may or may not be attached directly to the screw.

114. SAWMILL SET-WORKS. Devices for shifting the knees of a sawmill-carriage to move the log laterally on the carriage.

124. SAWMILL SET-WORKS, APPLIANCES. Clamping devices, gages, and other attachments for sawmill set-works.

115. SAWMILL SET-WORKS, AUTOMATIC. Sawmill set-works which are automatically advanced and retracted by the movements of the carriage.

116. SAWMILL SET-WORKS. DIRECT-ACTUATED. Sawmill set-works which are operated by means of mechanism acting directly upon the knees without the intervention of a set-shaft.

117. SAWMILL SET-WORKS, END DOGS. Sawmill set-works provided with dogs which grip the end of the log.

118. SAWMILL SET-WORKS, FLUID-OPERATED. The head-blocks are advanced and retracted by means of a steam or air driven piston.

119. SAWMILL SET-WORKS, PAWL-AND-RACK. The set-works are driven by simple pawl-and-rack mechanism.

120. SAWMILL SET-WORKS, POWER-OPERATED. Sawmill set-works driven by the same power which drives the sawmill-carriage.

121. SAWMILL SET-WORKS, SPRING-RETRACTED. The head-blocks are provided with springs which retract the blocks when they are thrown out of engagement with the driving devices.

122. SAWMILL SET-WORKS, SUPPLEMENTAL SUPPORT. Sawmill set-works provided with additional log-supporting devices between the head-blocks.

123. SAWMILL SET-WORKS, WEDGE. Sawmill set-works moved forward by one or more wedges.

133. SAWS. All saws in which the teeth are integral with the body of the saw.

134. SAWS, BENT. The saw is curved or bent at an angle, so that it will make a curved or angular kerf.

135. SAWS, CHAIN. Saws consisting of a number of connected links provided with cutting edges.

136. SAWS, DISHED. The saw is made concave on one side.

137. SAWS, EXPANSION-APERTURE. The saw has a series of openings so placed as to compensate for the unequal expansion of the saw while in use.

138. SAWS, GUMMING-APERTURE. The saws are provided with a series of openings near the teeth to prevent gumming.

139. SAWS, SECTIONAL. The saw is made up of a number of sections.

140. SAWS, SMOOTHING. Saws having planer-teeth for smoothing the sides of the kerf.

168. SAW-TABLE GAGES. Devices attached to the tables of sawing-machines for gaging the cut of the saw.

169. SAW-TABLE GAGES, ANGULAR-ADJUSTMENT. Gages which may be set at an oblique angle to the plane of the saw.

170. SAW-TABLE GAGES, ANGULAR-ADJUSTMENT, VERTICAL. Gages angularly adjustable in a vertical plane only.

171. SAW-TABLE GAGES, CURVE-CUTTING. Gages designed especially for sawing out curved patterns.

172. SAW-TABLE GAGES, MARKERS. Marking-gages attached to sawing-machines.

173. SAW-TABLE GAGES, ROLLER. Gages provided with a roller for contact with the lumber.

174. SAW-TABLE GAGES, SLIDING. The gages are slidably mounted upon the saw-tables and are for the most part shifted by hand.

175. SAW-TABLE GAGES, SLIDING, LINK. Sliding gages operated by link mechanism.

176. SAW-TABLE GAGES, SLIDING, RACK-AND-PINION. Sliding gages operated by a rack and pinion.

182. SAW-TABLES. Tables for sawing-machines and adjusting devices therefor.
(Note.—Tables for mitering and other special operations are classified with the machines performing those operations.)

141. SAW-TEETH. Detachable teeth for insertion into or attachment to saw-blades.

142. SAW-TEETH, CROSS-CUT. Teeth especially designed for cross-cut-saws.

143. SAW-TEETH, PLANER. Saw-teeth designed to cut and smooth a kerf simultaneously.

144. SAW-TEETH, REVERSIBLE. Saw-teeth having two cutting-bits and adapted to be reversed when one bit becomes useless.

145. SAW-TEETH, FASTENINGS. Means for attaching separable teeth to saw-blades.

146. SAW-TEETH, FASTENINGS, BRIDGE-PLATE. The tooth is mounted in a removable plate instead of being attached directly to the saw.

147. SAW-TEETH, FASTENINGS, CAP. The bodies of the teeth are integral with the saw-blade and the detachable portions are in the form of tips which are fitted over projections on the periphery of the saw.

148. SAW-TEETH, FASTENINGS, CAP, SEPARABLE-BIT. The cutting-bit is mounted in a cap which is fitted on a projection upon the periphery of the saw.

149. SAW-TEETH, FASTENINGS, KEY. The teeth are held in their recesses in the saw-blade by gibs, rivets, or screws.

150. SAW-TEETH, FASTENINGS, KEY AND LOCKING-PLATE. The key is retained in its position by means of a locking-plate and a key.

151. SAW-TEETH, FASTENINGS, LOCKING-PLATE. The tooth is held in its recess in the saw-blade by means of a locking-plate with or without gibs or rivets.

152. SAW-TEETH, FASTENINGS, SPRING-LATCH. The teeth are retained in the recesses by a spring-catch which may form a part of the base of the tooth.

153. SAW-TEETH, FASTENINGS, WEDGE. The teeth are held in recesses in the saw by means of a wedge which may operate between the tooth and saw-blade or which may expand the base of the tooth.

154. SAW-TEETH, FASTENINGS, WEDGE AND LOCKING-PLATE. A wedge serves to hold a clamping-plate in engagement with the removable bit.

8. SHINGLE-MACHINES. Machines especially designed for sawing shingles and not adapted for general use.

10. SHINGLE-MACHINES, BELT-FEED. The blocks are carried to the saw by means of an endless chain or belt.

11. SHINGLE-MACHINES, DOG-AND-STEP FEED. The blocks are set for each cut by dog-and-step mechanism, which alternately advances either end of the block, so that pieces thicker at one end than the other may be sawed.

9. SHINGLE-MACHINES, RECIPROCATING-SAW. The shingles are cut by means of a series of saws mounted in a reciprocating frame.

12. SHINGLE-MACHINES, ROLLER-FEED. The shingle-blocks are set for each cut by rolls so driven that each end of the block is alternately advanced.

13. SHINGLE-MACHINES, TILTING-GAGE. The shingle-blocks are forced against a vertically-pivoted tilting-gage plate which determines the thickness of the shingle.

14. SHINGLE-MACHINES, TILTING-TABLE. After each cut the shingle-blocks are allowed to drop upon a horizontally-pivoted tilting table to determine the thickness of the shingle.

15. SHINGLE-MACHINES, TILTING-TABLE, ROTARY-CARRIAGE. Tilting-table machines in which the block-holders are supported upon a rotating carriage.

86. TUBULAR-SAW MACHINES. Sawing-machines in which the saw is tubular in form.

C. H. DUELL,
Commissioner.

Patents No. 645,930 to 646,404.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Attorney—Notice of Charges Against.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 19, 1900.

Complaints against D. W. Bradford, formerly of Detroit, Mich., have been filed in this Office by John A. Buchanan, of Phœnix, Ala., Elbert R. Todd, of Detroit, Mich., and A. H. Laughlin, of Tariff, W. Va.

Letters containing copies of the complaints were sent to the said Bradford at his last known address by registered mail, but the Post-Office authorities have been unable to deliver them. The said Bradford is hereby notified that copies of the complaints may be obtained by him upon making application therefor to this Office. He is further notified that unless such application is made on or before April 21, 1900, it will be presumed that he does not desire to answer the complaints, and they will be acted upon accordingly.

C. H. DUELL,
Commissioner.

Changes in Classification.

(ORDER No. 1,336.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 19, 1900.

The following change in classification of inventions is hereby directed, to take effect this day:

Division III, class 22, Metal-Founding, establish a new subclass with the following title:
55. Metal molds—
Pumps and pots.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED MARCH 27, 1900.

Labels.

7,430.—Title: "AUSTRO SILK." (For Dry Goods.) *Wm. Simpson Sons & Co.*, Philadelphia, Pa. Application filed March 8, 1900.

7,431.—Title: "THE CLOTHING THAT MAKES ROCHESTER FAMOUS." (For Ready-Made Clothing.) *Solomon Bros. & Lempert*, Rochester, N. Y. Application filed February 26, 1900.

7,432.—Title: "THE HUB." (For Cigars.) *Samuel Paley*, Chicago, Ill. Application filed March 1, 1900.

7,433.—Title: "ILLINOIS CLUB." (For Whisky.) *The Burke Bros. Company*, Chicago, Ill. Application filed March 3, 1900.

7,434.—Title: "JEFFERSON RYE." (For Whisky.) *Richard Devine*, Philadelphia, Pa. Application filed March 1, 1900.

7,435.—Title: "O. P. S. SCOTCH WHISKEY." (For Whisky.) *Wittemann Bros.*, New York, N. Y. Application filed March 6, 1900.

7,436.—Title: "HIGHLAND O. P. S. SCOTCH WHISKEY." (For Whisky.) *Wittemann Bros.*, New York, N. Y. Application filed March 6, 1900.

7,437.—Title: "BRITANNIA OLD TOM LONDON GIN." (For Gin.) *Wittemann Bros.*, New York, N. Y. Application filed March 6, 1900.

7,438.—Title: "EAT SUN (RISE) ROLLED OATS FOR BREAKFAST." (For Rolled Oats.) *Samuel F. Butts*, Kansas City, Kans. Application filed March 5, 1900.

7,439.—Title: "MALT-OATS BREAKFAST FOOD." (For an Oat Cereal.) *The Malted Cereals Company*, Burlington, Vt. Application filed March 1, 1900.

7,440.—Title: "HUNT'S PERFECT BAKING POWDER." (For Baking-Powder.) *Philip B. Hunt*, Minneapolis, Minn. Application filed March 5, 1900.

7,441.—Title: "BERNHEIM'S GOLD COLORING SOLUTION." (For a Coloring Solution.) *Eugene Clayton Bernheim*, Northampton, Mass. Application filed February 15, 1900.

7,442.—Title: "SHAMROCK SHAMPOO." (For a Shampoo.) *Armsgost & Anderson*, Minneapolis, Minn. Application filed March 5, 1900.

7,443.—Title: "J. B. BAKER'S WORMWOOD LINIMENT." (For a Liniment.) *Joseph Briggs Baker*, Pascoag, R. I. Application filed March 2, 1900.

7,444.—Title: "MUNDY'S SPECIFIC COMPOUND." (For a Medicine.) *Bonsall, Atwell & Co.*, St. Louis, Mo. Application filed February 15, 1900.

7,445.—Title: "DR. FLORA'S REMEDY." (For a Medicine.) *George C. Cornelius*, Baltimore, Md. Application filed March 6, 1900.

7,446.—Title: "ACETOL." (For a Medicine.) *J. B. Smith*, Cuba, Ill. Application filed February 28, 1900.

7,447.—Title: "LAUGHLIN'S INFANT CORDIAL, THE, CHILD'S CURE WHEN TEETHING." (For a Cordial.) *John G. McLain*, Wheeling, W. Va. Application filed January 31, 1900.

Prints.

213.—Title: "CANFIELD." (For Dress-Shields.) *Seiter & Kappes*, New York, N. Y. Application filed July 8, 1898.

214.—Title: "TRIUMPHAL ARCH." (For Millinery Goods.) *James G. Johnson & Company*, New York, N. Y. Application filed February 20, 1900.

215.—Title: "ARGENTEUIL ASPARAGUS." (For Asparagus.) *Alfred Jouannet*, Mount Pleasant, S. C. Application filed February 28, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 20, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. •DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Mar. 20	Mar. 20	----
250	VIII. Furniture, Beds, Store Furniture, etc.	Mar. 7	Mar. 12	178
240	VII. Velocipedes, Games, and Toys.	Mar. 6	Mar. 8	154
88	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Mar. 5	Mar. 12	104
106	II. Farm Stock, Products, etc.	Mar. 5	Mar. 10	156
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Mar. 1	Mar. 6	115
246	I. Tillage and Fences	Feb. 26	Mar. 8	114
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Feb. 23	Mar. 8	164
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Feb. 23	Mar. 8	123
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Feb. 23	Mar. 6	27
98	XXI. Textiles, etc	Feb. 23	Mar. 6	155
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Feb. 22	Mar. 8	123
248	XVIII. Steam-Engineering, etc	Feb. 22	Mar. 2	183
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Feb. 21	Mar. 8	152
89	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Feb. 21	Mar. 8	112
238	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 21	Mar. 8	95
153	XX. Builders' Hardware, Safes,	Feb. 21	Mar. 7	79
258	Dentistry, Artificial Limbs, etc. VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Feb. 21	Mar. 7	312
95	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Feb. 21	Mar. 6	154
120	IX. Hydraulics, Fire-Extinguishers, etc.	Feb. 21	Mar. 6	158
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Feb. 21	Mar. 6	168
255	XII. Mechanical Engineering, Store-Service, etc.	Feb. 21	Mar. 6	230
215	XVII. Printing, Type-Writing Machines, and Linotyping.	Feb. 21	Mar. 6	126
109	XIX. Stoves and Furnaces	Feb. 21	Mar. 6	249
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Feb. 21	Mar. 6	215
111	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Feb. 21	Mar. 6	240
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Feb. 21	Mar. 6	189
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Feb 21	Mar. 6	178
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Feb. 21	Mar. 6	153
188	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 21	Mar. 3	138
	Between one and two months.			
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Feb. 20	Mar. 5	178
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Feb. 17	Mar. 2	132
253	X. Carriages and Wagons	Feb. 15	Mar. 1	127
242	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Feb. 9	Feb. 17	208
85	XXVIII. Pneumatics, Air and Gas Engines, etc.	Jan. 26	Feb. 5	226
	Between two and three months.			
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Jan. 18	Feb. 5	118

Total number of applications awaiting action.....5,787

Applications Under Examination—Continued.

Under one month.			
•Designs	Mar. 14	Mar. 17	4(
†Trade-Marks	Mar. 16	Mar. 19	48
‡Labels and Prints	Mar. 20	Mar. 20	----

ISSUE OF MARCH 27, 1900.

Patents	475—No.	645,980 to No. 646,404, inclusive.
Designs	42—No.	32,378 to No. 32,419, inclusive.
Trade-Marks	42—No.	34,354 to No. 34,395, inclusive.
Labels	18—No.	7,430 to No. 7,447, inclusive.
Prints	3—No.	213 to No. 215, inclusive.
Reissues	1—No.	11,814.
Total issue	581	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	----	Nevada	----	----
Arizona Territory	1	----	New Hampshire	1	----
Arkansas	1	----	New Jersey	17	3
California	16	1	New Mexico Territ'y	----	----
Colorado	4	----	New York	75	15
Connecticut	18	----	North Carolina	2	----
Delaware	----	----	North Dakota	----	----
District of Columbia	1	----	Ohio	20	2
Florida	2	----	Oklahoma Territ'y	1	----
Georgia	3	----	Oregon	3	----
Hawaii	----	----	Pennsylvania	38	6
Idaho	1	----	Rhode Island	7	1
Illinois	41	5	South Carolina	----	1
Indian Territory	----	----	South Dakota	2	----
Indiana	8	----	Tennessee	4	----
Iowa	11	----	Texas	13	1
Kansas	10	----	Utah	1	----
Kentucky	3	----	Vermont	2	1
Louisiana	6	----	Virginia	6	1
Maine	3	----	Washington	1	----
Maryland	7	2	West Virginia	1	1
Massachusetts	42	10	Wisconsin	6	2
Michigan	20	----	Wyoming	----	----
Minnesota	6	4	U. S. Army	1	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	13	5	Total to citizens of the United States	439	61
Montana	1	----			
Nebraska	3	----			

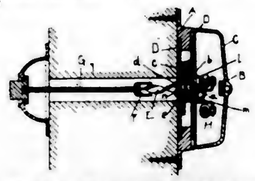
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	3	----
Australia	----	----	Jamaica	----	----
Austria-Hungary	6	----	Mexico	----	----
Barbadoes	----	----	Netherlands	1	----
Belgium	----	----	Newfoundland	----	----
Bermuda	----	----	New South Wales	1	----
Brazil	----	----	Peru	----	----
Canada	8	----	Norway	----	----
Chili	----	----	Queensland	----	----
China	----	----	Russia	5	----
Costa Rica	----	----	Scotland	----	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Ecuador	26	----	Spain	1	----
England	----	----	Sweden	3	----
Finland	8	----	Switzerland	----	----
France	26	2	Victoria	----	----
Germany	----	----	Western Australia	----	----
Guatemala	----	----	Total to citizens of foreign countries	88	2
Haiti	----	----			
India	----	----			
Ireland	----	----			

PATENTS

GRANTED MARCH 27, 1900.

645,930. BELL. AUGUST AREEN, New Britain, Conn., assignor to the P. & F. Corbin, same place. Filed Aug. 4, 1899. Serial No. 726,122. (No model.)



Claim.—1. In a bell, a base, a stationary plate projecting above the surface of the base, fastened thereto, and slotted to receive the flattened end of a spiral, a striking mechanism actuated by a spiral, said spiral having one end flattened to fit the slot in the stationary plate and capable of lengthwise movement therethrough, and means of imparting a lengthwise movement to the spiral.

2. In a bell, a base, a slotted stationary plate projecting above the surface of the base, the strikers, a gear held against lengthwise movement and slotted at its center, a spiral passing through the slot in the gear and having its flattened end pass through the slot in the stationary plate, said spiral being capable of a limited lengthwise movement, a connection between the strikers and the gear mounted on the spiral, and means for imparting motion to the spiral.

3. In a bell, the combination with the base A, the gong C, the strikers H, the spiral E and the slotted plate *b*, of a gear having a recessed hub slotted to receive the spiral, connections between said gear and the strikers, a shoulder on the spiral, means for imparting lengthwise movement to the spiral, and a spring arranged around the spiral between the shoulder and the stationary plate *b* to return the parts to their normal position, one end of said spring being located in the recessed hub of the gear.

4. A mechanism for operating the strikers of a bell, comprising a slotted stationary plate, a gear slotted at its center, a spiral having a stop and a flattened portion beyond said stop, said flat portion passing through the slot of the stationary plate and the spiral through the slot in the gear, connections between the gear and the strikers, and means for imparting motion to the spiral.

5. A mechanism for operating the strikers of a bell comprising a slotted stationary plate, a gear having a recessed hub slotted transversely, connections between the gear and the strikers, a spiral having a stop and a flattened portion beyond said stop, said flat portion passing through the slot of the stationary plate and the spiral through the slot in the gear, means for imparting motion to the spiral and means located in the recessed hub of the gear for returning the parts to their normal position.

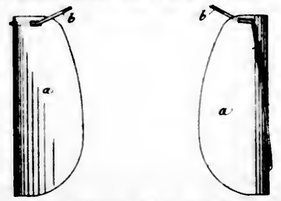
6. In a bell, a base having lugs diametrically opposite each other, plates extending between these lugs and attached to the bottom and top thereof; the operating mechanism for the strikers supported between said plates, a plate attached to the upper side of the lugs and having a slot through it, a spiral having a flat portion which passes through the slot in the said plate, a gear having a slot through which the spiral passes, and means for imparting to the spiral a lengthwise motion.

7. In an operating mechanism for bells, the strikers, a spiral capable of lengthwise movement having a flattened portion at one end passing through a slot in a stationary plate, a connection between the strikers and the spiral, one part of which is mounted on a recessed hub having a slot through which the spiral passes, a spring located in said recessed hub to return the parts to their normal position, and means for imparting lengthwise movement to the spiral to operate the parts as and for the purposes specified.

8. A rotary striker-bar for bells having a central portion, arms bent at an angle thereto and strikers attached to said arms, whereby said strikers may be adjusted toward or away from the gong.

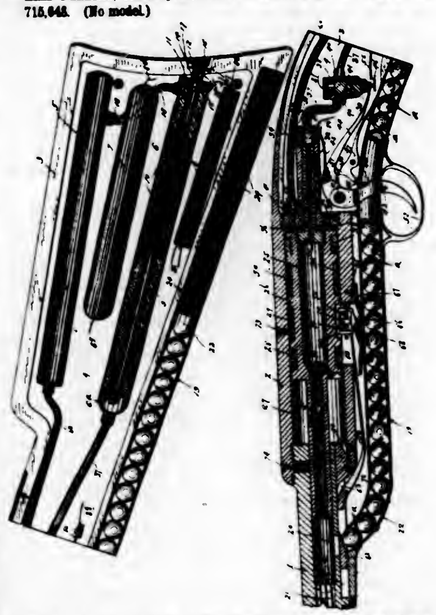
9. A rotary striker-arm for bells having offset portions at each end joined to the central portion by substantially right-angle bends, whereby the strikers may be adjusted toward or away from each other.

645,931. YARN-CONTROLLER. THOMAS ASHWORTH, Urmston, England, assignor to John Shaw Gaunt, Manchester, England. Filed Feb. 20, 1900. Serial No. 5,908. (No model.)



Claim.—The combination with a curved antiballooning shield of metal or other suitable substance, extending around the sides and back of each spindle spool or tube, of a wire or other split ring fixed thereto at or near the top thereof substantially in the manner and for the purposes hereinbefore set forth.

645,932. AUTOMATIC MAGAZINE-GUN. MICHAEL BECK and EMIL FERRANT, Minneapolis, Minn. Filed May 5, 1899. Serial No. 715,648. (No model.)



Claim.—1. In a gun, the combination with an explosion-chamber opening into the gun-barrel, of a magazine for the projectiles,

an escapement device operated by the recoil of the gun for controlling the feed of the projectiles into the gun-barrel, a valve controlling the supply of gas to the explosion-chamber, an electric igniter for exploding the charge of gas, and a trigger device for operating said valve and said igniter, substantially as described.

2. In a gun, the combination with an explosion-chamber opening into the gun-barrel, of a magazine for the projectiles, an escapement actuated by the recoil of the gun for controlling the delivery of the projectiles to the gun-barrel, a carbureter having a delivery connection to said explosion-chamber, a feed-valve in said delivery connections, a trigger for operating said valve, and an air-supplying device or connection leading to said carbureter and involving an air-pump which is actuated by the recoil of the gun, substantially as described.

3. In a gun, the combination with an explosion-chamber opening into the gun-barrel, of a magazine for the projectiles, an escapement actuated by the recoil of the gun and controlling the delivery of the projectiles into the barrel, a carbureter delivering into said explosion-chamber, an air-storage tank or receptacle delivering to said carbureter, an air-pump actuated by the recoil of the gun and delivering to said storage vessel, an electric igniter for exploding the delivered charge of gas, a valve in the passage between said carbureter and said explosion-chamber, and a trigger device for controlling said valve and said electric igniter, substantially as described.

4. In a gun, the combination with a movable recoil-plunger provided with an explosion-chamber opening into the gun-barrel, of a magazine for the projectiles, an escapement device actuated by said recoil-plunger and controlling the delivery of the projectiles, a receptacle containing an explosive fluid or basis thereof, connections for delivering the same to said explosion-chamber involving a feed-valve, an igniter for exploding the delivered charge, and a trigger device for controlling said feed-valve and said igniter, substantially as described.

5. In a gun, the combination with a recoil-plunger and a spring yieldingly holding the same forward, of an explosion-chamber formed within said plunger and opening into the gun-barrel, an escapement actuated by said plunger for controlling the delivery of the projectiles to the gun-barrel, a magazine containing said projectiles and provided with a spring-pressed follower, a carbureter with connections to said explosion-chamber, a feed-valve in said connection, an air-storage vessel with connections for delivering air to said carbureter, an air-pumping device actuated by said recoil-plunger and delivering to said air-storage vessel, an electric igniter for exploding the delivered charge of gas, and a trigger device controlling said valve and said igniter, substantially as described.

6. In a gun, the combination with a reciprocating recoil-plunger formed with an explosion-chamber opening into the barrel of the gun, of valve devices arranged to cause a fresh charge of air to enter said explosion-chamber when the said plunger is reciprocated, substantially as described.

7. In a gun, the combination with a cylindrical breech or block having the seat 27 provided with the inlet-valve 59, of the reciprocating plunger 26 provided with the explosion-chamber 25 delivery-neck 31, an inlet-valve 58, and a spring yieldingly holding the said plunger forward, the said valves 58 and 59 serving to produce a forced charge of fresh air into the explosion-chamber when the said plunger is reciprocated, substantially as described.

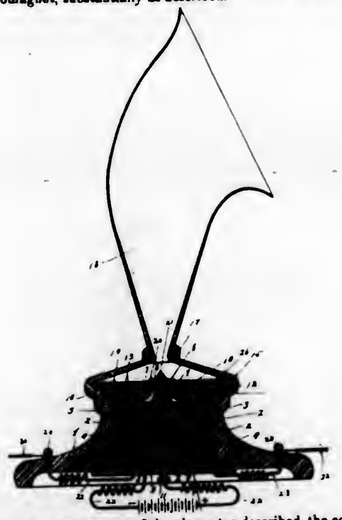
8. In a gun, the combination with the breech-block or cylinder 2 provided with the reversely-operating check-valves 56 and 57, of an air-containing receptacle receiving from said valve 57 through a suitable passage, and the reciprocating plunger 26 formed with an explosion-chamber opening into the gun-barrel, a carbureting device receiving the air pumped through said valve 57 and provided with connections for delivering the carbureted gas or air to said explosion-chamber, a valve in said gas-delivery connection, an igniter for exploding the delivered charge of gas, and a trigger device controlling said feed-valve and said igniter, substantially as described.

645,933. TELEPHONE. MICHAEL BECK and EMIL FEIRANT, Minneapolis, Minn. Filed July 18, 1899. Serial No. 724,215. (No model.)

Claim.—1. A telephone comprising in combination, a spiral contact, a diaphragm located adjacent to said spiral contact and having formed on its face a spiral contact of high resistance, positioned for a differential contact with said above-noted spiral contact, under the vibrations of said diaphragm, and suitable circuit connections to and from said spiral contacts, substantially as described.

2. In a transmitter, the combination with a spiral contact depressed at its central portion, of a diaphragm of non-conducting material positioned adjacent to said spiral contact and provided on its face with a spiral contact of high resistance, positioned for differential engagement with said above-noted spiral contact under vibrations of said diaphragm, and suitable circuit connections to and from said spiral contacts, said parts operating substantially as described.

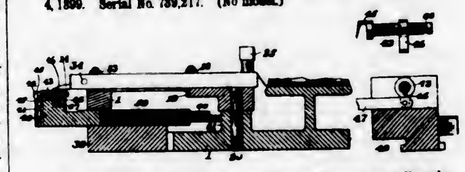
3. In a telephone system, the combination with the main circuit, of a plurality of instruments connected in said main circuit, each instrument involving a microphonic contact, an electromagnet both poles of which are arranged for action on said contact, and a reinforcing-battery located in the main circuit between the poles of said electromagnet, substantially as described.



4. In an instrument of the character described, the combination with the main circuit and a microphonic contact therein involving a movable armature, of an electromagnet in said circuit having concentric pole-pieces both arranged for action upon said armature, substantially as described.

5. In an instrument of the character described, the combination with the main circuit and a microphonic contact therein involving a vibrating armature, of an electromagnet having concentric cores and pole-pieces, both of said pole-pieces being positioned for action on said armature, and the said main-circuit wire being wound around both of said cores, and a battery in the main circuit between the coils on the said core-pieces, substantially as described.

645,934. SOLE ROUGH-ROUNDING AND CHANNELING MACHINE. JOSEPH E. BERTRAND, Boston, Mass., assignor to the Bay State Shoe Machinery Company, same place and Portland, Me. Filed Dec. 4, 1899. Serial No. 739,217. (No model.)

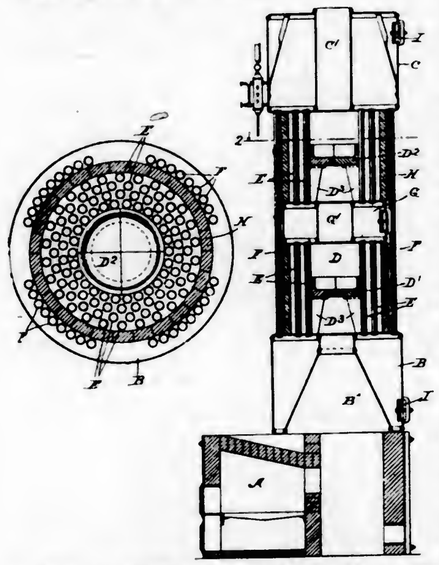


Claim.—1. In a machine for channeling and rough-rounding the soles of boots and shoes while on the last, the combination of a fixed anvil or cutting-block; a pair of vibratory and laterally-movable pressure feed-plates arranged one upon each side of said anvil; a horizontally reciprocating and a laterally-vibrating feed-point arranged to cooperate with one of said pressure feed-plates to feed the work; a horizontally-reciprocating and laterally-vibrating cutter arranged to cooperate with said anvil to trim a section of the edge of the sole after each forward lateral movement of the feed-point and said cutter.

2. In a machine for channeling and rough-rounding the soles of boots and shoes while on the last, the combination of the lever 7 provided with two fingers 8 and 9 each provided on its inner face with a presser feed-plate; a fixed anvil or cutting-plate located between said fingers 8 and 9; a yielding nosepiece and a gage-plate carried thereby and cooperating with said anvil to clamp the work; a reciprocating and laterally-vibrating feed-point arranged to cooperate with one of said pressure feed-plates to feed the work; a reciprocating and laterally-vibrating cutter arranged to cooperate with said anvil to trim a section of the edge of the sole after each forward vibratory movement of the feed-point; means for imparting intermittent reciprocations and lateral vibrations to said feed-point and cutter; and means for imparting oscillating and lateral movements to said lever 7, as set forth.

3. In sole channeling and rough-rounding machines the combination of the nosepiece 40 provided with the slot 66; the pressure-plate 41 secured to said nosepiece; the shaft 43 provided with the cutter 44 and with the groove 69; the slotted plate 67 engaging said groove; the arm 46 secured to said shaft 43 within the slot 66 by a spline and groove and means for imparting to said arm a vibratory motion to oscillate said cutter 44.

645,935. BOILER. RICHARD BOEHEM, Chicago, Ill. Filed Nov. 6, 1899. Serial No. 735,891. (No model.)



Claim.—1. A vertical water-tube boiler, comprising an upper and a lower chamber, each provided with a passage-way for the heating-gases, a series of upflow-tubes connecting said chambers and disposed about a central passage-way, a series of downflow-tubes connecting said chambers and a wall of heat-resisting material interposed between the two sets of tubes.

2. A vertical water-tube boiler, comprising an upper steam-chamber and a lower chamber, an intermediate chamber, all of said chambers provided with passage-ways for the heating-gases, a series of upflow-tubes connecting the upper and lower chambers with the intermediate chamber, said tubes arranged so as to form a passage-way for the heating-gases, and a series of outer downflow-tubes connecting the upper and lower chambers.

3. A vertical water-tube boiler, comprising an upper and a lower chamber, an intermediate water-chamber, all of said chambers provided with passage-ways for the heating-gases, a series of upflow-tubes connecting the upper and lower chambers with the intermediate water-chamber, said tubes arranged so as to form a passage-way for the heating-gases, two heat-deflectors located in the passage-way formed by said upflow-tubes, one located on each side of the intermediate chamber, and a series of outer downflow-tubes connecting the upper and lower chambers.

4. A vertical water-tube boiler, comprising an upper and a lower chamber, an intermediate water-chamber, all of said chambers provided with passage-ways for the heating-gases, a series of upflow-tubes connecting the upper and lower chambers with the intermediate water-chamber, said tubes arranged so as to form a passage-way for the heating-gases, two heat-deflectors located in the passage-way formed by said upflow-tubes, one located on each side of the intermediate chamber, a series of outer downflow-tubes connecting the upper and lower chambers, and a wall interposed between the two sets of tubes so as to protect the downflow-tubes from the heating-gases.

5. A vertical water-tube boiler, comprising an upper steam-chamber, a lower chamber and an intermediate chamber, the three chambers being separate from each other and provided with passage-ways for the heating-gases, a series of upflow-tubes connecting the upper and lower chambers with the intermediate chamber, the tubes above the intermediate chamber being substantially equal in length to the height of the steam-chamber, and a series of outer downflow-tubes, by means of which the upper and lower chambers are connected.

645,936. THRESHING-MACHINE SHOE. MADISON BOWMAN and JOHN BOWMAN, Toledo, Ill., assignors of one-third to Robert C. Willis, same place. Filed Dec. 5, 1899. Serial No. 739,271. (No model.)



Claim.—1. A shoe for threshing-machines, provided with a discharge-opening, a closing-slide for the opening, an operating crank-shaft, connections between the crank-shaft and slide, and a friction-spring engaging with the connections, substantially as specified.

2. A shoe for threshing-machines, provided with a discharge-opening, a closing-slide for the opening, an operating crank-shaft, a connecting-rod between said crank-shaft and slide, and a tension device acting on said rod to hold the slide in either position, substantially as specified.

3. A shoe for threshing-machines, provided with a discharge-opening, a closing-slide for the opening, an operating crank-shaft, rods connecting the crank-shaft and slide, and a spring cooperating with the rods for holding the slide in either position, substantially as specified.

4. A shoe for threshing-machines, provided with a discharge-opening in its bottom, a metal lining secured to the bottom and extending partly across the opening therein, a closing-slide housed between the bottom and lining, and operating means for said slide, substantially as specified.

5. A shoe for threshing-machines, provided with a discharge-opening in its bottom and having slots communicating with said opening, a closing-slide for the opening, an operating crank shaft, and rods connecting said crank-shaft and slide, the ends of said rods being terminally offset and connected with the slide to operate through the slotted bottom of the shoe, substantially as specified.

645,937. COTTON-CHOPPER. JOHN J. BROOKS, Grapeland, Tex. Filed Jan. 3, 1900. Serial No. 102. (No model.)



Claim.—1. In a cotton chopper and cultivator, the combination, with the frame, of the laterally-adjustable plow-bars 10, the plow-standards vertically and longitudinally adjustable on said bars, and the brace-bars 19 pivoted to said plow-standards, and adapted to be

secured to said plow-bars 10 at any desired vertical and longitudinal adjustment, and hence support the plow-standards at any desired inclination, substantially as described.

2. The combination, in a cotton chopper and cultivator, of the frame, the driving-shaft mounted therein and having the supporting-wheels and gear-wheels 26, 27, of unequal size, said gear-wheels being laterally adjustable on said shaft; the longitudinal shaft 30 journaled in bearings in said frame and carrying the chopping-hoes, and the gear-wheels 34, 35, on said shaft and adapted to be secured thereto at any desired adjustment, whereby either of said gear-wheels may be caused to engage either of the gear-wheels on the driving-shaft, to vary the speed of said shaft 30, for the purpose set forth, substantially as described.

3. In a cotton-chopper, the combination of the rectangular frame having the intermediate cross-bars 6, 7, the laterally-adjustable plow-bars 10, the plow-standard vertically and longitudinally adjustable on said bars, and having the brace-bars 19, the driving-shaft in the frame and having the supporting and gear wheels, and the longitudinal shaft 30, journaled in bearings in bars 6, 7, said shaft carrying the chopping-hoes and having a gear-wheel engaging the gear-wheel on the drive-shaft, substantially as described.

4. The chopping-hoes, comprising the slidable overlapping sections 40, and devices, substantially as set forth, to secure said sections together, and to an arm or standard, whereby said chopping-hoes may be varied in width, substantially as described.

5. The chopping-hoe, comprising the slidable overlapping sections 40, provided (one or both) with lateral slots 43 and clamping-bolts in said slots, substantially as described.

6. The combination, with the arm 37, of the chopping-hoe sections 40, overlapping each other, adapted to move laterally and disposed on opposite sides of said arm 37, and devices, substantially as described, to secure said sections 40 together and to said arm 37, at any desired lateral adjustment, whereby the width of said chopper may be varied, substantially as described.

645,938. **GAGE ATTACHMENT FOR FASTENER-SETTING MACHINES.** GEORGE W. BROWN, Quincy, Mass., assignor to the Tubular Rivet and Stud Company, Boston, Mass. Filed Jan. 5, 1900. Serial No. 415. (No model.)



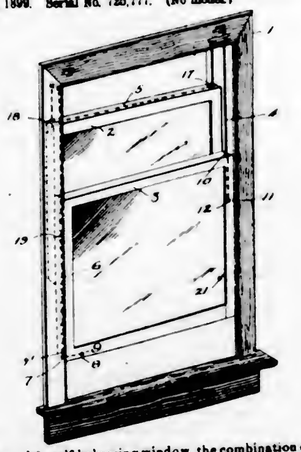
Claim.—1. A gage attachment for stud-setting machines comprising a supporting-plate constructed and arranged to embrace and be clamped to the clenching-anvil of said machine; a pendent gage-plate to determine the distance from the meeting edges of the boot-quarter at which the lacing-studs shall be set, said gage-plate being mounted at the rear of said anvil and adjustable to a greater or less distance therefrom; a gage-carrying bar secured, between its two ends, to said supporting-plate, at the rear of said anvil, and adjustable to a greater or less distance therefrom toward the rear; a gage adjustably mounted upon said bar at the right of said anvil for determining the distance from the top of the right boot-quarter for setting the upper stud; a gage adjustably mounted upon said bar at the left of said anvil, for determining the distance from the top of the left quarter for setting the lowermost stud; and another gage adjustably mounted upon said bar at the right of said anvil for determining the distance between two adjacent studs in either of the boot-quarters.

2. In a gage attachment for lacing-stud-setting machines, the combination of a supporting-plate constructed, and arranged to embrace and be secured to the clenching-anvil of said machine; the angularly-bent bar 7, and the gage-plate 9, both secured to said supporting-plate in the rear of said anvil and adjustable together to a greater or less distance from said anvil toward the rear; the gages 27, 32, and 34, carried by said bar 7 to determine the locations for setting the various studs in the two quarters of a boot or shoe; a pair of rectangular blocks, carried by said bar, and upon one or more faces of which are marked graduated scales indicating the different sizes of boots or shoes as set forth; and index-marks 37 and 38 connected respectively with the gages 32 and 34.

3. The combination of the bar 7; supporting-plate 10; stands 15 and 22; the revoluble blocks 18 and 25, mounted respectively in said stands 15 and 22, and revoluble therein; means for revolving the said blocks; and means for locking said blocks in the desired adjusted positions; the gages 32 and 34 carried by the clips 29 and 35 respectively, and index-marks upon said clips whereby said gages may be readily adjusted to the graduation-marks on said blocks 18 and 25, for the particular size and class of boot or shoe to be operated upon.

4. The combination in a gage attachment for stud-setting machines of a supporting-plate to be secured to the clenching-anvil; a gage-carrying bar secured between its ends to said supporting-plate, at the rear of said anvil, and adjustable to a greater or less distance therefrom; a clip carrying a gage for gaging the distance between the points of attachment of two adjacent studs, mounted upon said bar and adjustable thereon, and provided with an index-mark, a pair of rearwardly-projecting ears carried by said bar, one of which is provided with a locking-socket; a spindle mounted in bearings in said ears so as to be revoluble and movable endwise therein, and provided with a suitable head for operating the same; a multiple-sided block firmly secured upon said spindle and movable therewith and provided in one end with as many locking-pins, projecting therefrom, as there are sides to said block, arranged at equal distances from the axis of said spindle and from each other, and adapted to successively engage said locking-socket; and a spring arranged to press said block endwise and cause said pins to enter said socket, and lock said block.

645,939. **SASH-BALANCE.** HENRY P. CATOE, Osage, Tex. Filed Aug. 1, 1899. Serial No. 725,777. (No model.)



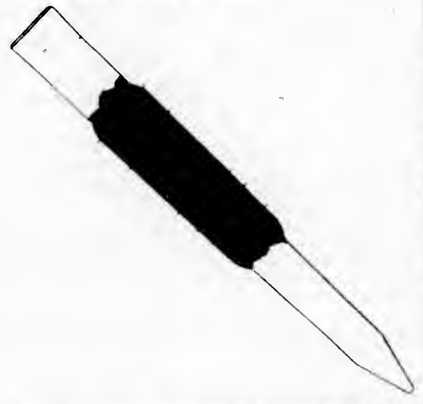
Claim.—In a self-balancing window, the combination of the frame 1, having triple pulleys 13, secured in each end of the upper rail, a sash 2, provided with a groove 5 in its upper rail, pulley 17, secured to the right-hand corner of the said sash and in the right-hand end of said groove; pulley 18, secured to the left-hand corner of said sash and in the left-hand end of said groove; sash 3, provided with a groove 10, in its upper right-hand corner and entering into the lower end of said groove a rope-hole 11, a groove 6, running the entire length of the left-hand rail of said sash, a short groove 7 in the left-hand end of the lower rail, and a knot-hole 8, entering into the end of said groove 7; a screw-eye 19, secured in the face of the window-frame and in a line with groove 6; a cord 4 secured to sash 3 at the hole 11 running thence up over pulley 14 against pulley 15, and down over pulley 16, in the right-hand end of the upper piece of the frame; thence down under pulley 17, thence along groove 5 and under pulley 18, thence up through pulley 13, thence down the left-hand side of the frame and through eye 19, along grooves 6 and 7 in sash 3, and its lower end having knots 9 and 9'; said cord de-

tachably secured in knot-hole 8'; substantially as shown and described and for the purposes set forth.

645,940. **PURIFICATION OF ALCOHOLIC LIQUIDS.** MARIE J. DE CHAPTÉRAC, Paris, and MARIE J. D. A. DE LA BAUME, Tourtour, France, assignors to la Société Civile pour l'Exploitation de Brevets d'Invention Concernant l'Industrie de l'Alcool, Paris, France. Filed Jan. 3, 1898. Serial No. 665,460. (No specimens.)

Claim.—The herein-described process of purifying alcoholic liquors, which consists in first treating such liquors with an alkaline substance such as carbonate of soda in quantity sufficient to neutralize the liquor, and subsequently with a tartrate and a hyposulfite in quantity sufficient to combine with the ill-flavored substance and form compounds capable of ready elimination.

645,941. **PILE.** GEORGE D. COLEMAN, Boston, Mass. Filed Aug. 12, 1899. Serial No. 727,010. (No model.)



Claim.—1. A pile or other portion of a wooden marine structure provided with a plurality of nails driven into the same with their heads projecting, and a protective covering of asphalt or other suitable plastic protective material, applied to the pile and anchored to the heads of the nails, substantially as described.

2. A pile or other portion of a wooden marine structure provided with a protective covering comprising a sheet-metal layer secured to the pile by nails, the heads of which project beyond the surface of the metal layers, and a covering of asphalt or other suitable plastic protective material applied to the pile over the metallic layer and anchored to the heads of the nails, substantially as described.

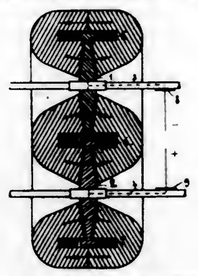
645,942. **GOLF-CLUB.** JAMES CRAN, Chicopee Falls, Mass., assignor to the A. G. Spalding & Bros., Jersey City, N. J.; Chicago, Ill., and New York, N. Y. Filed Nov. 29, 1899. Serial No. 738,639. (No model.)



Claim.—The combination with a golf-club head having a cavity therein and a slot through the rear wall of said cavity of a weight placed in said cavity and movable therein, and a set-screw traveling in said slot, and passing through the weight to bear against the opposite wall of the cavity, substantially as shown and described.

645,943. **DYNAMO-ELECTRIC MACHINE.** GUSTAF DALÉN and ARTHUR HULTQVIST, Stockholm, Sweden. Filed Oct. 5, 1899. Serial No. 732,692. (No model.)

Claim.—1. In a dynamo-electric machine, the combination of two or more rotating disks, which are in contact with one another at or near the periphery, and magnetic fields, in which said disks rotate, so arranged that electromotive force is generated in the direction from the center of one disk to the center of another disk, substantially as described and for the purpose set forth.



2. In a dynamo electric machine, the combination of two or more rotating disks, which are in contact with one another by means of their outer yielding rings, and magnetic fields, in which said disks rotate, so arranged, that electromotive force is generated in the direction from the center of one disk to the center of another disk, substantially as described and for the purpose set forth.

3. In a dynamo-electric machine the combination of two or more rotating disks, which are in contact with one another by means of their outer rifled rings, and magnetic fields, in which the disks rotate, so arranged, that electromotive force is generated in the direction from the center of one disk to the center of another disk, substantially as described and for the purpose set forth.

4. In a dynamo-electric machine the combination of two or more sets of rotating disks, which are in contact with one another at or near the periphery, magnetic fields, in which said disks rotate, so arranged, that the electromotive forces, generated within the several sets, are added, and a conductor between the sets of disks, rotating with the disks substantially as described and for the purpose set forth.

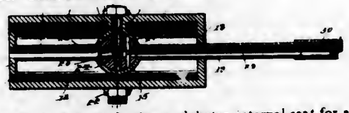
645,944. **GOLF-CLUB.** JAMES DALGLEISH, Chicopee Falls, Mass., assignor to the A. G. Spalding & Bros., Jersey City, N. J., Chicago, Ill., and New York, N. Y. Filed Nov. 29, 1899. Serial No. 738,648. (No model.)



Claim.—1. A golf-club head having upon its under side a rounded ridge extended rearwardly from the striking-face and a weight set into the rear side of the head in line with said ridge, substantially as shown and described.

2. A golf-club head having upon its under side a ridge extended rearwardly from the striking-face, a striking-block forming part of said ridge, a weight set into the rear side of the head in line with said ridge, and a plate secured to the under side of the head and covering said ridge with the striking-block and the weight, substantially as shown and described.

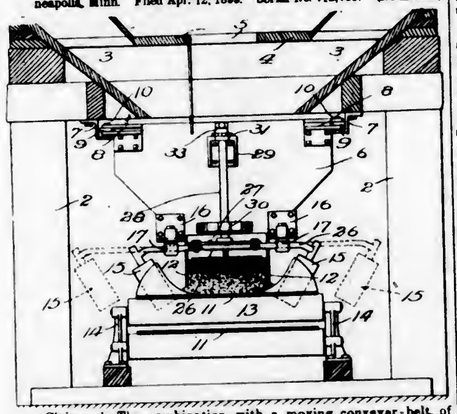
645,945. **TWYER FOR FORGE-FURNACES.** JEHU EASTEP, HARRY A. DEITERS, and OTTO BARTH, Spencer, W. Va. Filed Dec. 2, 1899. Serial No. 738,985. (No model.)



Claim.—1. A twyer having a globular, internal seat for a blast-regulator, blast inlet and outlet passages in said seat, a tube extending through the twyer from said seat, a chamber surrounding said seat, means for adding a cooling fluid to said chamber, a globular blast-regulator in said globular seat and having blast inlet and outlet passages, and an operating-stem attached to the regulator and passing through the tube, substantially as described.

2. A chambered twyer having an internal seat and blast inlet and outlet passages, a regulator fitted to the seat and having blast inlet and outlet passages, a tube extending through the twyer from the seat and having a valved outer end, and a stem attached to the regulator and passing through the tube, substantially as described.

645,946. CONCENTRATING-ROLLS FOR GRAIN-CONVEYER BELTS AND MEANS FOR OPERATING SAME. SCOTT F. EVANS, Minneapolis, Minn. Filed Apr. 12, 1899. Serial No. 712,703. (No model.)



Claim.—1. The combination, with a moving conveyer-belt, of concentrating-rolls arranged upon each side of said belt and adapted to elevate the edges of the same, and means for simultaneously moving said rolls into or out of engagement with said belt, substantially as described.

2. The combination, with a conveyer-belt, of a movable hopper, concentrating-rolls carried by said hopper upon opposite sides of said belt, and means for simultaneously moving said rolls into or out of engagement with said belt, substantially as described.

3. The combination, with a conveyer-belt, of a hopper supported upon a track above the same, concentrating-rolls carried by said hopper upon opposite sides of said belt, and means for simultaneously moving said rolls into or out of engagement with said belt, substantially as described.

4. The combination, with a conveyer-belt, of concentrating-rolls, rods 18 whereon said rolls are supported, swivels wherein said rods are slidable, the link 27 whereto said rods are connected and means for reversing the ends of said link to move said rolls into or out of engagement with said belt, substantially as described.

5. The combination, with a conveyer-belt, of a hopper movable above the same, rods slidable in swiveled supports upon said hopper, concentrating-rolls provided at the outer ends of said rods, a hollow shaft 28 having a squared upper end, a link carried by said shaft and whereto the inner ends of said rods are pivoted, and a key 35 fitting within said squared end and whereby said hollow shaft is revolved and said link 27 is reversed, substantially as described.

6. The combination, with a grain-bin, of a traveling hopper, the Z-bars whereon said hopper is supported, a conveyer-belt beneath said hopper, concentrating-rolls provided upon opposite sides of said belt, and means extending above said hopper for moving said rolls into or out of engagement with said belt, substantially as described.

7. The combination, with a grain-conveyer belt, of concentrating-rolls, revoluble supports whereon said rolls are slidably supported upon each side of said belt, and means for moving said rolls into or out of engagement with the edges of said belt, substantially as described.

8. The combination, with a grain-conveyer belt, of concentrating-rolls arranged upon each side of said belt, a lever mechanism operating in a horizontal plane for moving said rolls into or out of engagement with said belt, and means for locking said lever mechanism to hold said rolls in place, substantially as described.

9. The combination, with a grain-conveyer belt, of concentrating-rolls arranged upon each side of said belt and at an angle thereto and means for moving said rolls simultaneously into or out of engagement with the edges of said belt and means preventing the accidental disengagement of said rolls from said belt.

10. The combination, with a grain-conveyer belt, of concentrating-rolls supported upon each side of said belt at an angle thereto, a link-and-lever mechanism connected with said rolls and operating in a horizontal plane to move said rolls into or out of engagement with the edges of said belt, and means for locking said link-and-lever mechanism to hold said rolls in place, substantially as described.

11. The combination, with a conveyer-belt, of concentrating-rolls supported above the same and depending upon each side thereof, and means for moving said rolls into engagement with said belt to elevate the edges thereof, substantially as described.

12. The combination, with a grain-conveyer belt, of concentrating-rolls provided upon each side thereof and supported above the same, and means for moving said rolls in a horizontal plane into engagement with the said belt to elevate the edges thereof, substantially as described.

13. The combination, with a conveyer-belt, of concentrating-rolls supported above and depending upon each side of said belt at an acute angle to the plane thereof, and means for moving said rolls in a horizontal plane into engagement with said belt to elevate its edges, substantially as described.

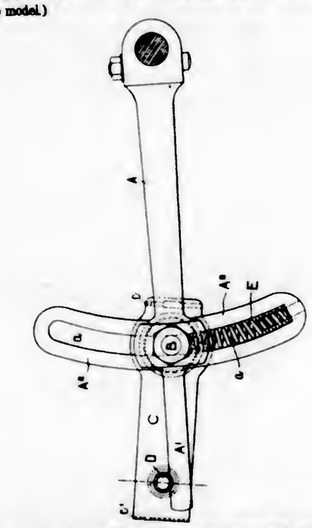
14. The combination, with a conveyer-belt, of concentrating-rolls supported above and depending upon each side thereof, and means for moving said rolls into engagement with said belt to elevate its edges or out of engagement with the same to permit it to return to its normal position.

15. The combination, with a grain-conveyer belt, of concentrating-rolls slidably supported upon each side of said belt at an acute angle thereto, and means for sliding said rolls toward or from said belt whereby the pitch or slant of said rolls with respect to the plane of said belt will be the same when they are at the limit of either their inner or outer stroke, substantially as described.

16. The combination, with a grain-conveyer belt, of concentrating-rolls slidably supported upon each side of the same, a mechanism for sliding said rolls toward or from said belt, and means for locking said mechanism when said rolls are at the limit of their stroke in either direction, substantially as described.

17. The combination, with a conveyer-belt, of a movable hopper, concentrating-rolls carried thereby upon the opposite side of the belt, a mechanism for moving said rolls toward said belt to elevate its edges, and means for locking said mechanism, substantially as described.

645,947. PEDAL DRIVING-GEAR FOR VELOCIPEDES. CHARLES I. FAULKNER, Escrick, England. Filed Aug. 8, 1899. Serial No. 726,602. (No model.)

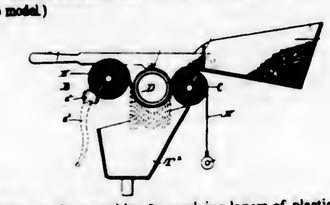


Claim.—1. A pedal driving-gear for velocipedes consisting of a crank having an extension beyond the point of attachment of the pie carrying the pedal, of a crank-pin so attached to the crank that it has a transverse movement with respect thereto which movement is controlled by a suitable spring, of a pedal mounted on the crank-pin and of a stop or projection mounted on the forward end of the pedal and adapted to engage the extension of the crank during the down or operative part of its stroke, as and for the purpose set forth.

2. A pedal driving-gear for velocipedes consisting of a crank having a radially-arranged slot across it and an extension beyond the said slot, of a crank-pin adapted to slide in the said slot, of a spring acting on the crank-pin so as to keep it against the upper end of the said slot, of a pedal mounted on the said crank-pin, of a stop or projection carried by the forward end of the pedal and adapted to engage the extension of the crank during the operative part of its stroke, as and for the purpose set forth.

3. A pedal driving-gear for velocipedes consisting of a crank having a radially-arranged slot across it and an extension beyond the said slot, of a crank-pin adapted to slide in the said slot, of a spring acting on the crank-pin to keep it against the upper end of the said slot, of a pedal mounted on the said crank-pin, of a spring-controlled stop or projection carried by the forward end of the pedal and adapted to engage the extension of the crank during the down or operative part and to pass by the said extension during the up or non-operative part of its stroke, as and for the purpose set forth.

645,948. MACHINE FOR COATING CORE-BARS. MORDECAI H. FLETCHER, Cincinnati, Ohio. Filed June 3, 1899. Serial No. 719,302. (No model.)



Claim.—1. In a machine for applying layers of plastic material to core-bars, the combination of a take-up roll, an idler or web suspending roll, a web secured to the take-up roll and passed over said suspending-roll, a weight on the free end of said web, catch mechanism for said weighted end of the web, and adjustably-mounted anti-friction roller-bearings located beneath a portion of said web, between and below the take-up roll and suspending-roll, for the reception and rotation of a core-bar to be placed on said web, substantially as set forth.

2. In a machine for applying layers of plastic material to core-bars, the combination of a frame, a take-up roll and a web-suspending roll mounted in said frame in the same horizontal plane, roller-bearings adjustably mounted on the end pieces of said frame between and below the take-up roll and suspending-roll, a web secured to the take-up roll and passed over said suspending-roll, a weighted bar attached to the free end of said web, and lever mechanism for holding down a core-bar placed on said web and roller-bearings, substantially as set forth.

3. In a machine for applying layers of plastic material to core-bars, the combination of a take-up roll, a web-suspending roll mounted in the same horizontal plane with said take-up roll, a web secured to the take-up roll and passed over the suspending-roll, a weight attached to the free end of said web, open socket-plates adjustably mounted below said rolls and provided between the same with anti-friction-rollers for reception and rotation of a core-bar to be placed on said web, and adjustable holding-down levers for securing the core-bar against the lifting tension of the web, substantially as set forth.

4. In a machine for applying layers of plastic material to core-bars, the combination of the take-up roll, the web-suspending roll, a web having one end secured to the take-up roll and its other end weighted and passed over said suspending-roll, the said take-up roll and suspending-roll being journaled in the same horizontal plane, adjustable roller-bearings mounted below and intermediate said take-up roll and web-suspending roll for reception and rotation of a core-bar, means for locking the weighted end of the web at any position, levers for holding down the core-bar on the said web and roller-bearings, and means for rotating the take-up roll, substantially as set forth.

5. In a machine of the character indicated, the combination of the take-up roll, the suspension-roll, the web having one end attached to the take-up roll and its other end depending from the suspension-roll, the weight-bar attached to the free end of said web, the toothed guideway to be engaged by said weight-bar, and means for moving the weight-bar into engagement with the teeth of the gnideway as a holding-catch for the web, substantially as set forth.

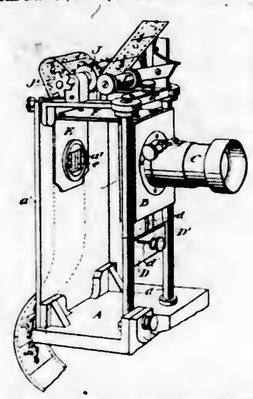
6. In a machine of the character described, the combination of the take-up roll and suspension-roll mounted in the same horizontal plane, the intervening adjustable roller-bearings for reception and rotation of a core-bar, a web secured at one end to the take-up roll and having its other end passed over the suspension-roll and provided with a weight-bar, means for locking said weight-bar at any position, the feed-trough discharging onto said web over the suspension-roll, and the catch-trough located below the web, substantially as set forth.

7. In a machine of the character indicated, the combination of the frame having end pieces provided with vertical toothed guide-slots, the take-up roll, the suspension-roll, a web secured to the take-up roll and passed over the suspension-roll and provided at its suspended end with a weight-bar, cams for acting on said weight-bar to engage it with the teeth of said guide-slots, and a hand-lever and connections for operating said cams, substantially as set forth.

8. In a machine of the character indicated, the combination of the take-up roll and idler-roll mounted in the same horizontal plane, a woven-wire web secured to the take-up roll and passed over the idler-roll, a weight-bar attached to the free end of said web-roller, bearings located below the web and between the take-up and idler rolls for reception and rotation of a core-bar, a feed-trough discharging on said web, and a catch-trough located below the web, substantially as set forth.

9. In a machine of the character indicated, the combination of the take-up roll and the idler-roll mounted in the same horizontal plane, an open-mesh web secured to the take-up roll and suspended over said idler-roll, roller-bearings intermediate said take-up roll and idler-roll for reception and rotation of a core-bar, a feed-trough discharging on said web, a catch-trough located below said web, and means for pulling the web in tension to press plastic material against the core-bar and squeeze out surplus moisture, substantially as set forth.

645,949. PROJECTION APPARATUS. JOHN J. FRAWLEY, Philadelphia, Pa., assignor to Siegmund Lubin, same place. Filed Apr. 17, 1899. Serial No. 713,302. (No model.)



Claim.—1. In a projection apparatus, in combination, a fixed framework, mechanism for feeding in succession to a selected exposure or projection point a series of film pictures, a lens carrying plate mounted on said frame-work in vertically movable relationship with respect to it and to the exposure or projection point of the pictures, a frame plate provided with an opening and also mounted on said framework in vertically movable relationship with respect to it and to the exposure or projection point of the pictures, and means for securing said plates in various positions of vertical adjustment with respect to their support and the exposure or projection point of the pictures, substantially as set forth.

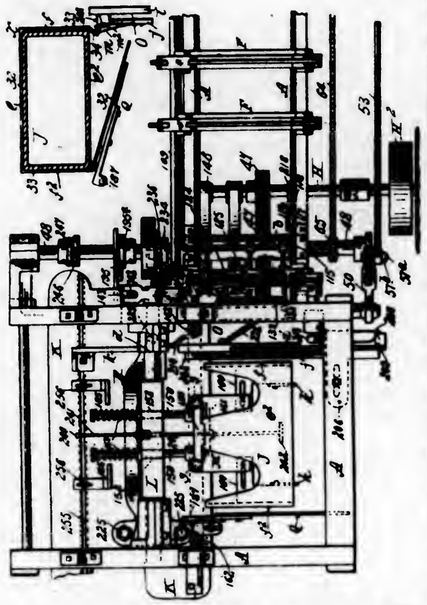
2. In a projection apparatus, in combination, a supporting frame, mechanism for feeding in succession to a selected exposure or projection point a series of film pictures, a lens carrying plate mounted on said frame in vertically movable relationship with respect to it and the exposure or projection point of the pictures, a frame plate, having a frame opening, mounted on said frame in vertically movable relationship with respect to it and the exposure or projection point of the pictures, a connection between said plates, and means for securing said plates in various positions of vertical adjustment with respect to the exposure or projection point of the pictures, substantially as set forth.

3. In a projection apparatus, in combination, a framework, mechanism for feeding in succession a series of film pictures, a lens carrying plate movable vertically with respect to the framework, a vertically movable frame plate rigidly connected with said lens carrying plate, and means whereby said lens carrying plate may be secured in various positions of vertical adjustment, substantially as set forth.

4. In a projection apparatus, in combination, a lens carrying plate adapted to move vertically, a frame plate adapted to move vertically, a connection between said lens plate and said frame plate, a link connected to one of said devices, a gage plate having an oblique slot, and a set screw passing through said slot and entered in said link, substantially as set forth.

5. In a projection apparatus, in combination with the framework, a lens carrying plate adapted to move vertically thereon, a frame plate having an opening and adapted to move vertically thereon, a rigid connection between said lens plate and said frame plate, a link connected to one of said devices, a gage plate having an oblique slot, and a set screw passing through said slot and entered in said link, substantially as set forth.

645,950. MACHINE FOR MAKING PAPER BOXES. CHAUNCEY W. GAY, Springfield, Mass. Filed May 2, 1899. Serial No. 715,330. (No model.)



Claim.—1. Means for scoring sheets or blanks of paper-stock longitudinally, in combination with a plurality of transverse-scoring dies, one member of each of which is movable toward or from the other, means for imparting a feeding movement of the stock through and subject to the action of the longitudinal-scoring means, and bringing it between the several transverse-scoring dies, and means for forcing the several movable die members toward their companion members, each at different instants, and means for separating said die members.

2. The combination with a device for scoring sheets or blanks of paper-stock longitudinally by imparting a step-like crease without removal of the stock consisting of separated stationary die-walls having the space between them stepped, substantially as described, of means for drawing the sheet through the said stepped space between said die-surfaces.

3. The combination with a support for a supply-roll of paper-stock, and a device for scoring the paper longitudinally by imparting a step-like crease thereto without removal of the stock, which consists of separated stationary die-walls having the space between them of step form, substantially as described, of means for drawing the paper through said stepped space of the longitudinal-scoring device.

4. The combination with a device for scoring a sheet or strip of paper longitudinally consisting of separated stationary die-walls having a stepped opening therebetween, of feed-rolls in advance of the longitudinal-scoring device, means for imparting intermittent rotational feeding movements to said rolls, and devices for regulating the extent of the successive rotations of the feed-rolls.

5. A longitudinal-scoring device for sheets or blanks of paper-stock consisting of separated stationary die-walls having a stepped opening therebetween, in combination with means for feeding a sheet forwardly through the scoring device, means for feeding forward a covering or finishing sheet together therewith, and for applying an adhesive to the surface of one of the sheets, and means for pressing said sheets together as they travel forwardly, substantially as described.

6. The combination with a support for a supply-roll of paper-stock and a support for a supply-roll of surface-finishing sheet material, of means for supplying an adhesive to the surface of one of said sheets, feed-rolls for drawing the said sheets together forwardly in unison, a device for overturning the edgewise portions of the finishing-sheet over the marginal portion of the body-sheet, and means interposed between the overturning device and the feed-rolls for pressing the overturned portions of the covering material against the bottom sheet.

7. The combination with supports for the supply-roll of strawboard or other like paper-stock, and for a supply-roll of a covering and surface-finishing paper, of a paste-roll over which one of the sheets runs in surface contact, pressure-rolls between which the two sheets pass, an overturning device comprising a plate with convergent overturning-lips 44, 44, the second set of presser-rolls in advance of the overturning device, feed-rolls in advance of the latter, and means for imparting rolling movements thereto.

8. The combination with supports for the supply-roll, of strawboard or other like paper-stock and for a supply-roll, of a covering and surface-finishing paper, of paste-roll over which one of the sheets runs in surface contact, pressure-rolls between which the two sheets pass, an overturning device comprising a plate with convergent overturning-lips 44, 44, the second set of pressure-rolls in advance of the overturning device and feed-rolls in advance of the latter and means for imparting rolling movements thereto, and a longitudinal scorer between the feed-rolls, and second set of pressure-rolls, for the purposes set forth.

9. The combination with supports for the supply-roll, of strawboard or other like paper-stock and for a supply-roll, of a covering and surface-finishing paper, of paste-roll over which one of the sheets runs in surface contact, pressure-rolls between which the two sheets pass, an overturning device comprising a plate with convergent overturning-lips 44, 44, the second set of pressure-rolls in advance of the overturning device and feed-rolls in advance of the latter, means for imparting rolling movements thereto, and a device between the feed-rolls and the forward pair of pressure-rolls for bending the marginal portion of the covered strip angularly to the main portion thereof.

10. The combination with the feed-rolls *b b* and means for imparting intermittent rotational movements thereto, of a supply-roll for the stock from which the blanks are produced, mechanism for marginally mitering the blank, a device through which the blank is drawn by the feed-rolls operating to bend the marginal portions of the blank angularly, and mechanism for severing the blanks.

11. In a blank-making machine, the combination with supports for supply-rolls of paper-stock and covering material, surface-pasting device and sticking device, an overturning and setting device for the covering marginally on the body-stock, means for scoring the blank longitudinally, means for bending the marginal longitudinal portion of the blank angularly, and transverse-scoring and mitering devices, means for feeding the stock forwardly intermittently, and means for operating the transverse-scoring devices successively, substantially as described.

12. In a scoring mechanism, the combination with lower bars or members provided with step-shaped scoring-dies, of upper scoring-dies and carriers therefor, an intermittently-operating paper-feed mechanism and means for moving several upper-die members toward the lower scoring-die at respectively succeeding instants, and means for retracting said dies, for the purposes set forth.

13. In a box-blank-making mechanism, the combination with upper and lower die members, one movable toward and from the other, and both provided with corresponding step-shaped creasing or scoring surfaces, and both also provided with male and female mitering-dies, of means for imparting motion of the one member toward and away from the other.

14. The combination with a series of combined transverse-scoring and mitering dies adjustably mounted to have their dispositions in parallel lines the one nearer to or farther from the other, as desired, and means for operating them successively, of feed-rolls for the paper strip, means for intermittently imparting rotational movements to said rolls and devices for regulating the extent of the feeding rotational movements thereof.

15. In a box-making mechanism, two or more sets of die members for operating on the blank each having one of the die members movable toward and from the other, paired normally-inclined link-connected levers for each movable die member, a rock-shaft 109, and means for imparting a rocking motion thereto, lever-arms provided on said rock-shaft and links connecting the rock-shaft lever-arms with one of each of the paired levers for the movable die members.

16. In a box-blank-making mechanism, two or more sets of die members for operating on the blank, each having one of the die members movable toward and from the other, and having combined therewith paired normally-inclined link-connected levers, for each movable die member, each set of die members and their levers being bodily adjustable for various relative dispositions, a rock-shaft 109, and means for imparting a rocking motion thereto, lever-arms provided adjustably lengthwise on said rock-shaft, and links connecting the rock-shaft lever-arms with one of each of the said levers for the movable die members.

17. In a box-blank-making mechanism, two or more sets of die members for operating on the blank, each having one of the die members thereof movable toward and from the other, and having combined therewith paired normally-inclined link-connected levers, a rock-shaft 109, lever-arms thereon, and links connecting the rock-shaft lever-arm with one of the levers of each pair of the movable die members, a rotary shaft, a cam thereon, a thrust-rod actuated by the cam and a lever on the rock-shaft with which the thrust-rod is connected substantially as described.

18. In a box-blank-making mechanism in combination, two or more sets of die members for operating on the blank, and a pair or set of severing-dies, each set having one of the members thereof movable toward and from the other, and having separating-springs, and having combined therewith paired normally-inclined link-connected levers for each movable die member, a rock-shaft 109, means for imparting rocking motion thereto, lever-arms provided on said rock-shaft, links connecting the rock-shaft lever-arms with one of each of the paired levers for the movable die members, and intermittently-operating feed-rolls for the paper strip.

19. In a box-blank-making mechanism, two or more sets of die members for operating on the blank, and a pair of severing-dies, each set having one of the members thereof movable toward and from the other, and having combined therewith, paired normally-inclined link-connected levers, for each movable die member, each set of die members and their levers being bodily adjustable for various relative dispositions, a rock-shaft 109, and means for imparting a rocking motion thereto, lever-arms provided adjustably lengthwise on said rock-shaft, and links connecting the rock-shaft lever-arms with one of each of the pairs of levers for the movable die members.

20. The combination with a framing or support comprising the parallel bars 68, 68, of a transverse support-bar 82 having detachable confining means for fastening the support-bar 82 adjustably on said parallel frame-bars, and provided with the paired separated upstanding cheeks 84, 86, at its opposite ends, a carrier-bar 92 having its ends movably guided between said upstanding cheeks and having the scoring or creasing step-shaped die member 79, a corresponding step-shaped die member 80 provided on said bar 82, springs 103 applied for elevating said carrier-bar 92, the levers 104, 105, intermediately pivotally mounted in the upper portions of said upstanding cheeks, and having the rollers 111 at their extremities, the link 114 connecting said levers, an arm 106 provided on one of said levers, and means for imparting intermittently a swinging motion to said arm 106.

21. The combination with a framing or support, of a transverse support-bar 82 mounted on said framing, and provided with the paired separated upstanding cheeks 84, 86, at its opposite ends, a carrier-bar 92, having its ends movably guided between said upstanding cheeks provided with the overhanging ledge 95, and having the scoring or creasing step-shaped die member 79 separately formed and arranged at the side of the bar 92, the adjusting-screws 97 passed through said ledge against the edge of the member 79, set-screws 93 for confining the said member in adjustment, a step-shaped die member 80 provided on said bar 82, springs 103 applied for elevating said carrier-bar 92, the normally-inclined levers 104, 105, intermediately pivotally mounted in the upper portions of said upstanding cheeks, and having the rollers 111 at their extremities, the link 114 connecting said levers, an arm 106 provided on one of said levers, and means for imparting intermittently a swinging motion to said arm 106.

22. The combination with a framing or support, of a transverse support-bar 82 mounted on said framing, and provided with the paired separated upstanding cheeks 84, 86, at its opposite ends, a carrier-bar 92, having its ends movably guided between said upstanding cheeks provided with the overhanging ledge 95, and having the scoring or creasing step-shaped die member 79, separately provided and arranged at the side of the bar 92, the adjusting-screws 97 passed through said ledge against the edge of the member 79, set-screws 93 for confining the said member in adjustment, a step-shaped die member 80 provided on said bar 82, springs 103 applied for elevating said carrier-bar 92, and means for imparting a forcing motion to the carrier 92.

23. The combination with a framing or support, of a transverse support-bar 82 mounted on said framing, and provided with the triangular female die-opening 98, and with the paired separated upstanding cheeks 84, 86 at its opposite ends, a carrier-bar 92, having its ends movably guided between said upstanding cheeks provided with the overhanging ledge 95, also with the male triangular die member 99, and having the scoring or creasing step-shaped die member 79, separately provided and arranged at the side of the bar 92, the adjusting-screws 97 passed through said ledge against the edge of the member 79, set-screws 93 for confining the said member in adjustment, a step-shaped die member 80 provided on said bar 82, springs 103 applied for elevating said carrier-bar 92, and means for imparting a forcing motion to the carrier 92.

24. In a mechanism for feeding a continuous supply-strip of paper-stock to the action of blank-making mechanism, the combination with a pair of feed-rolls, of a lever, means for imparting rocking reciprocatory motion thereto, a thrust-rod connected to said lever and a shaft having a ratchet-wheel loose thereon, and a pinion and united pawl-carrier fast thereon with which pinion a rack-provided portion of the thrust-rod engages, a pawl mounted on the pawl-carrier and engaging the ratchet-wheel, and means of driving connection between the ratchet-wheel and one of the feed-rolls, substantially as described.

25. In a mechanism for feeding a continuous supply-strip of paper-stock, the combination with a pair of feed-rolls, of a lever having the slot 51, means for imparting thereto an intermittent swinging reciprocatory movement, a sprocket-wheel affixed to one of the feed-rolls, another sprocket-wheel around which and the first sprocket, the sprocket-chain passes, a thrust-rod having adjustably the connection nearer or farther the center of swinging movement with said lever, a pinion rotatably mounted and rack-teeth provided on said thrust-rod, a wheel as one with the sprocket-wheel, and a pawl or forcing member as one with the pinion, arranged whereby the thrust movements of the said rod impart a step-by-step movement to the sprocket-chain.

26. In a mechanism for feeding a continuous supply-strip of paper-stock to the action of blank-making mechanism, the combination with a pair of feed-rolls, of a lever, means for imparting rocking reciprocatory motion thereto, a thrust-rod connected to said lever and a shaft having a ratchet-wheel loose thereon, and a pinion and a united pawl-carrier fast thereon with which pinion a rack-provided portion of the thrust-rod engages, a pawl mounted on the pawl-carrier, and engaging the ratchet-wheel, sprocket-wheels secured to the ratchet-wheel and to one of the feed-rolls, and a sprocket-chain running around said sprocket-wheel, substantially as described.

27. In a box-making machine, the combination with appliances for covering strawboard or like material with a finishing sheet material, mechanism for producing a blank from such covered material, constituting the sides of the box, of box-making mechanism, and mechanism for feeding separate box-bottom blanks in conjunction with the box-side blanks to the box-making mechanism.

28. The combination with means for intermittently feeding a strip of paper or like material from a continuous supply, of mechanism for scoring and mitering the strip and severing it to constitute a blank for the box sides, box-making mechanism to the action of which the blank is brought by said feeding means, comprising a former, and side-section-turning appliances, whereby the blank is caused to be automatically wrapped around the former.

29. In a machine for making a paper box from suitably-gummed blanks having a side stay-section and several bottom stay-sections deflected, as described, and separate bottom-blank, the other for constituting the bottom, the combination with a former, and means for bringing the box-side blank in relation to a side of the former, means for bringing a bottom-constituting section in relation to the bottom of the former, means for wrapping the first blank around the former and overlapping and setting its one end upon the side stay-section which is provided at the other end of said blank, and pressure mechanism for setting the bottom stay-sections and bottom-blank firmly together.

30. In a paper-box machine, means for feeding forward, scoring and mitering a strip of paper-board, means for applying gum to the uniting or stay sections of the strip, combined with a former and means for wrapping the blank around the former and setting the side stay-section, mechanism for placing a separate bottom-blank adjacent the former, and means for uniting the bottom stay-sections of the first-named strip to the bottom-blank, substantially as described.

31. In a paper-box machine, an impact-bed, and a former having a quadrantal movement relatively thereto, means for imparting to the former its quadrantal movement, and means for imparting thereto also a bodily forcing movement against said impact-bed, opposite parts between which the former has its quadrantal movement, serving as opposite side-section turners, one of said side-section turners, a front-side-section turner being bodily movable toward the front face of the inverted former for pressing and uniting the front-side section and the side stay-section, and means for imparting such movement thereto.

32. In a paper-box machine, an impact-bed, and a former having a quadrantal movement relatively thereto, means for imparting to the former its quadrantal movement, and means for imparting thereto also an independent bodily forcing movement against said impact-bed, opposite parts between which the former has its quadrantal movement, serving as opposite side-section turners, a front-side-section turner, and means for seasonably operating it, one of said side-section turners being bodily movable toward the front face of the inverted former for pressing and uniting the front-side section and the side stay-section which have overlapped relations, together, and means for imparting such movement thereto.

33. In a paper-box machine, means for feeding forward, scoring

and mitering, a strip of paper-board, means for applying gum to the uniting-sections of the strip, combined with a former, and an impact-bed relatively to which it moves, means for wrapping the blank around the former and setting the side stay-section, mechanism for placing a separate bottom-blank adjacent the former, and means for imparting a bodily motion of the former against the impact-bed to unite the bottoms tay-sections of the first-named strip to the bottom-blank.

34. The mechanism for automatically making a surface covered or finished box which consists in the combination of supports for supply-strips of body-board and surface-finishing sheet material, means for carrying the forward portions of said sheets forwardly, means for applying an adhesive to the surface of one of said sheets, means for pressing the sheets together, devices for longitudinally and transversely scoring the said covered sheets, and for mitering the same marginally, means for angularly deflecting the portion of the blank which comprises the stay-sections, means for applying an adhesive to the end portion of the blank, a former in relation to which the blank is fed, means for bending the blank around the former to have its end portions overlap, means for squeezing such overlapped portions, means for feeding a separate bottom-blank to bring it with its margins next to the deflected bottom stay-sections of the first blank, and mechanism for applying a squeezing pressure to said adjoining portions of the bottom-blank and stay-sections.

35. The combination in a box-making machine of mechanism for feeding transversely and longitudinally scoring, mitering and severing from a continuous supply-strip to constitute a blank having at one end a side stay-section and at its edge bottom stay-sections, a deflecting device for the bottom stay-sections, means for gumming the end portion of the blank, means for gumming the bottom stay-sections, box-making mechanism comprising a former, relatively to a side of which the blank is brought, means for causing the blank to be wrapped around the former and overlapped and set at the stay-section, means for feeding a bottom-blank with proximity to the bottom of the former, and provisions whereby a squeezing pressure is brought upon the bottom-blanks and bottom stay-sections at the bottom of the former.

36. In a machine for making a paper box from a blank having a side stay-section and several bottom-sections, and a bottom-blank, the combination with means for applying an adhesive to an end portion of the first blank, and means for applying gum to one of said blanks whereby the stay-sections and bottom-blank will be caused to adhere, of box-making mechanism comprising a former, in relation to the bottom of which the bottom-blank is to be brought, and means coöperating with the former for wrapping the first blank around the former sides with one end brought to overlapped relations to the side stay-section, a presser mechanism operating against the former for setting said overlapped portions and means for insuring a pressure on the bottom-blank toward the bottom of the former, substantially as described.

37. The combination in a box-making machine of mechanism for feeding transversely and longitudinally scoring, mitering and severing from a continuous supply-strip to constitute a blank having at one end a side stay-section and at its edge bottom stay-sections, a deflecting device for the bottom stay-sections, means for gumming an end portion of the blank, means for gumming the bottom stay-sections, box-making mechanism comprising a former, relatively to a side of which the blank is brought and means for causing the blank to be wrapped around the former and overlapped and set at the stay-section.

38. In a paper-box machine, the combination with a former, mounted for a rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable whereby by the abutment of projecting end portions of the blank against said parts, such portions of the blank are turned toward the opposite ends of the former and means for imparting rocking reciprocatory motions intermittently to the said former.

39. In a paper-box machine, the combination with a former, mounted for a rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable whereby by the abutment of projecting end portions of the blank against said parts, such portions of the blank are turned toward the opposite ends of the former, means for imparting rocking reciprocatory motions intermittently to the said former and means for causing when the former is withdrawn from between the said opposite parts a separation of the grippers from the former.

40. In a paper-box machine, the combination with a former, mounted for a rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable whereby by the abutment of projecting end portions of the blank against said parts, such portions of the blank are turned toward the opposite ends of the former, means for imparting rocking reciprocatory motions intermittently to the said former, and means for causing at about the time the former reaches the limit of its movement within the said parts, the automatic separation of the grippers from engagement with the former.

41. In a paper-box machine, the combination with a former, mounted for a rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable whereby by the abutment of projecting end portions of the blank against said parts, such portions of the blank are turned toward the opposite ends of the former, means for imparting rocking reciprocatory motions intermittently to the said former, means for causing when the former is withdrawn from between the said opposite parts a separation of the grippers from the former, and means for causing at about the time the former reaches the limit of its movement with said parts the automatic separation of the grippers from engagement with the former.

42. In a paper-box machine, the combination with a former, mounted for rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the side of the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable, for the purpose set forth, means for imparting rocking reciprocatory motions intermittently to the said former, a side-stay-section turner movably mounted and cooperating with the former and means for actuating it.

43. In a paper-box machine, the combination with a former, mounted for rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the side of the former, opposite parts between and relatively to which the said former and the blank gripped thereto are movable, one thereof being movably mounted comprising a side-stay-section deflector, means for imparting the rocking reciprocatory movements to the former, and means for imparting to the movable one of said opposite parts its movement to render operative the side-stay-section deflector.

44. In a paper-box machine, the combination with a former, mounted for a rocking motion, one or more automatically-closing grippers for holding the blank by an intermediate portion thereof against the side of the former, opposite parts between and relatively to which the said former and blank gripped thereto are movable, for the purpose set forth, means for imparting rocking reciprocatory motions intermittently to the said former, a side-stay-section turner movably mounted on one of said opposite parts, means for imparting to the one of said opposite parts, on which the stay-section turner is mounted a movement both rearwardly and inwardly toward the former, to insure the operation of the stay-section turner, and a pressure by the rear end of the so movable part against the front of the former adjacent its corner, for the purposes set forth.

45. In a paper-box machine, the combination with the former, of a gripper mounted to move bodily in unison with the former and adapted to have a gripping and releasing movement toward and from the side of the former, and means independent of the former for imparting such movements thereto, supplemental grippers mounted on the primary grippers adapted to have gripping and releasing movements toward and from the bottom end of the former, and means for imparting their movements thereto.

46. In a paper-box machine, the combination with the former, mounted and movable as described, and means for so moving it, of a gripper-carrier primarily supported on the former, and having one or more gripper members 160 movable toward and from the rear side of the former, one or more supplemental grippers mounted on the members 160 having members adapted for a gripping motion at the bottom of the former near its rear edge, means for releasing the primary grippers, and with them the supplemental grippers on the upswinging of the former, means for also releasing the supplemental grippers on the final movement of the former, relatively to the impact-bed

47. The combination with the former, mounted and movable as described, an abutment relatively to which it moves, means for imparting its movement, a gripper-carrying rod *g* supported on, and movable transversely relatively to the former, provided with a gripper member movable toward the side of the former, a spring for causing normally the closing of the gripper to the former, said rod being arranged to contact against said abutment on the upswinging of the former to force the gripper open.

48. The combination with the former movable as described, and the impact-bed relatively to which the former has a swinging movement, and an independent approaching-and-receding movement, means for imparting such movements to the former, a gripper member 160 mounted and movable as described on and relatively to the side of the former and having mounted thereon for a swinging movement and a bodily-sliding movement, the supplemental gripper A, provided with the angular member 165 adapted for a gripping action at the bottom of the former, for the purposes set forth.

49. The combination with the former movable as described, and the impact-bed relatively to which the former has a swinging movement, and an independent approaching-and-receding movement, means for imparting such movements to the former, a gripper member 160 mounted and movable as described on and relatively to the side of the former and having mounted thereon for a swinging movement and a bodily-sliding movement, the supplemental gripper A, provided with the angular member 165 adapted for a gripping action at the bottom of the former, and a part relatively to which the gripper device A is brought on the closing of the former and impact-bed, one toward the other for securing the swinging of the said device A whereby its angular member is moved from its position crosswise of the bottom of the former.

50. The combination with the former, and gripper 160 mounted and movable as described, and means for imparting their movements thereto, of the supplemental gripper A mounted for a swinging motion on the gripper 160, and having the member 165, and an abutment 185 with which the supplemental gripper has a cooperative action for its release, and a spring exerting a closing force on the said supplemental gripper A.

51. In a paper-box machine, the combination with the former, and main gripper member 160, of the supplemental gripper A having slot 164, gripper-finger 165 and lever member 166, the pivot-pin 163, the spring 167 and the gripper-releasing abutment 185.

52. In a paper-box machine, the combination with the former mounted for a quadrantal movement as described, and means for so moving it, of the abutment 162 above the former, the rods *g g* playing transversely through the former carrying at their lower ends the gripper members 160, 160, and having their oppositely-extended ends shouldered, between which and the former are gripper-closing springs, and means for imparting the aforesaid movement to the former.

53. In a paper-box machine, the combination with the former mounted for a quadrantal movement as described, and means for so moving it, of the abutment 162 above the former, the rods *g g* playing transversely through the former carrying at their lower ends the gripper members 160, 160, and having their oppositely-extended ends shouldered, between which and the former are gripper-closing springs, means for imparting the aforesaid movement to the former, and a mechanism for feeding a blank under the side of the former, leaving its ends projecting beyond the former ends.

54. In a paper-box machine, the combination with a former, of a gripper mounted to have a gripping and releasing movement toward and from the side of the former, means for imparting such movements thereto, supplemental grippers mounted on the primary grippers adapted to have gripping and releasing movements toward and from the bottom end of the former, and means for imparting their movements thereto, mechanism for automatically feeding long box-side blanks between the side of the former and the primary grippers, and means for feeding box-bottom blanks between the supplemental grippers and the bottom of the former.

55. In a paper-box machine, the combination with the former movable as described, and means for so moving it, of the device O having a step-shaped rear end, a cam for moving it rearwardly, cam-surfaces against which it impinges whereby in its rearward movement it also moves facewise, substantially as described.

56. In a paper-box machine, the combination with the former movable as described, of a part rearwardly diagonally toward the corner of the former, whereby its end comes to a pressure bearing on the front face of the former adjacent its corner, means for so moving it, a side-stay-section turner yieldingly mounted on the extremity of the said movable part, and adapted to recede within the plane of the side face of such part, substantially as and for the purposes set forth.

57. In a paper-box machine, the combination with the former movable as described, of a part rearwardly diagonally toward the corner of the former, whereby its end comes to a pressure bearing on the front face of the former adjacent its corner, means for so moving it, a side-stay-section turner yieldingly mounted on the extremity of the said movable part, and adapted to recede within the plane of the side face of such part, and the front-section turner and means for operating it.

58. In a paper-box machine of the character described, the side-turning and stay-section-setting device O comprising the plate i and the plate *j* arranged facewise thereon with its rear end forward of the rear end of the plate i and having a slot and set-screw adjustable engagement therewith, and the adjusting-screw j^3 threading through a part provided therefor on said plate i, and exerting a forcing action endwise against the plate *j*, substantially as described.

59. The combination with the former having the motions described, and means for imparting the motions thereto, opposite side-turners for the blank facewise past which the former has its swinging motion and a front side-section turner mounted for a swinging motion toward the former and a withdrawal therefrom and means for imparting such motion thereto.

60. In a paper-box machine, the front-side-section turner Q comprising a bar or arm, a spindle or shaft on which it is carried, mounted for a rocking motion and having the lever-arm 189, a slide-bar 194 provided with the angular extension 193 provided with a slot through which a stud which is carried by the lever-arm 189 engages, and a cam-actuated thrust-rod 195 for imparting an endwise-reciprocatory motion to said bar 194, substantially as described.

61. In a paper-box machine, the combination with the former, having the motions, and means for imparting same, substantially as described, of the device O comprising the stay-section turner and the stay-section-setting part, and the swinging reciprocatory front-side-section turner Q, and means for imparting a back-and-forth swinging motion toward and away from the front of the former.

62. In a paper-box machine, the combination with an impact-bed, opposite separated side-turning devices, a former, a support on which it is mounted for a rocking motion to and between said side-turners, and into proximity to the impact-bed, and for a withdrawal therefrom, means for imparting the rocking movement to the former, and means for securing as regards the former and impact-bed, a motion for squeezing action of the one in relation to the other.

63. In a paper-box machine, a former-carrier, mounted for a rotational movement, and means for imparting such movement at intervals thereto, a former mounted to swing bodily in relation to the former-carrier, and having an independent movement in relation to the carrier-springs for supporting the former on its carrier, as impact-bed and relatively to which the former is swung and means for forcing the former relatively to its carrier against the impact-bed.

64. In a paper-box machine, the combination with the impact-bed K, of a former-carrier mounted for a rocking movement above the former and having former-supporting bars or rods 150 playing through transverse sockets therein, and supporting the former, springs for sustaining the former and its supporting rods yieldingly on the former-carrier, means for imparting a rocking movement to said carrier, a horizontal vertically-movable bar under which the former is swung, and means for exerting a downward forcing movement to said bar for carrying the former against the impact-bed, substantially as described.

65. The combination with the former, the former-carrier on which the former is spring-supported, and means for imparting a rocking movement intermittently to the former-carrier, of the transverse bar R beneath which the former is swung, the impact-bed over which the former is swung, the rods 225 to which said bar R is connected, and the tie-bar or member 226, the cam-lever 227 pivotally mounted in the tie-bar, and provided with the cam-slot 229, the cam-engaging member 230 supported by the impact-bed, and means for imparting a swinging movement to said cam-lever 227, substantially as and for the purposes set forth.

66. In a box-making mechanism of the character substantially as described comprising a former J and means for imparting its movements thereto and blank turning and setting mechanism coöperating with the former, of a plunger playing through the former and adapted after the completion of the box by an endwise-thrust movement against the box-bottom to strip the box from the former, and means for imparting such thrust and a withdrawal thereafter to the plunger.

67. The combination with the former having a rocking movement, and means for imparting such movement thereto, of a plunger movably guided and extending within the former and carried bodily thereby, a sheave 244 movable in unison with the former, a lever 245, a flexible connection 243 secured to said lever and extending therefrom guided around said sheave to a connection with the plunger, means for imparting a swinging motion to said lever and a retracting-spring for the plunger.

68. In a box-making machine of the character described, the combination with the impact-bed, a vertically-movable horizontal bar R thereabove, the former-carrier L above said bar, and supports therefor in which it is adapted to have rocking movements, means for imparting intermittingly-rocking reciprocatory movements thereto, of the former J, the former-supporting rods 150 playing transversely through the former-carrier, and the supporting-springs 153 therefor, the rods *g g* carried bodily by and playing transversely relatively to the former at right angles to said former-supporting rods 150 and carrying grippers disposed adjacent the rear side of the former and the gripper-closing springs 159, the stationary abutment-bar 162 against which said rods *g* have endwise-forcing bearing when the former is swung into its horizontal position, and cam-actuated means operative to force said bar R downwardly when the former is swung thereunder, substantially as and for the purposes set forth.

69. In a box-making machine, the combination with the former having the rocking movement, and means for imparting such movement thereto, substantially as described, and grippers coacting with

the side and bottom of the former, and means for automatically operating them, of means for feeding a long blank comprising box-side sections, side stay-sections, and bottom stay-sections under the lower side of the upswung former, and means for feeding a bottom-blank in a plane at right angles to the side-constituting blank into place adjacent the bottom of the former.

70. In a paper-box machine, the combination with a former mounted for a rotational movement, and grippers opening and closing from and toward one side of the former, and the bottom thereof, and means for seasonably operating them, mechanism for feeding the blank longer than the former along one side of the former, means for feeding bottom-blanks next to the bottom of the former, and further means for feeding further bottom-blanks to superimpose the first bottom-blank and the bottom stay-sections which are provided on the long blank, and side and stay section turners for the said long blank.

71. In a paper-box machine, the combination with the former J mounted to have a rocking reciprocatory swinging movement whereby intermittently it is caused to assume a position with its bottom in a vertical plane, and thereafter a position with its bottom in a horizontal plane, means for feeding a box-sides blank under the horizontally-disposed side of the former, a support for a tier of bottom-blanks located above the former and means for pushing each bottom-blanks in the successive operations of the machine one at a time downwardly across the vertically-disposed end of the former.

72. In a paper-box machine, the combination with a former mounted to have intermittently-reciprocatory swinging movements and means for imparting such movements substantially as described, of means for feeding a box-sides blank along one side of the former, and means for feeding strip material in a continuous supply in relation to the bottom of the former, and a cutter for severing the portion to constitute the bottom-blank from the continuous-supply strip.

73. The combination with the former J and the impact-bed, relatively to which the former has a quadrantal swinging movement to bring the bottom of the former adjacent and parallel to the impact-bed, feed-rolls for feeding a strip from a continuous supply to present the forward end portion thereof between the bottom of the former and the impact-bed means for imparting intermittently-feeding rotation to said rolls and mechanism for severing the portion of the strip fed beneath the former from the continuous supply to the rear thereof, substantially as described.

74. The combination with the former mounted as described, and means for imparting intermittently its movements thereto, of feeding mechanism for moving a long box-sides blank adjacent a side of the former, means for feeding a box-bottom blank adjacent the end of the former, means for applying adhesive to both sides of the first-named blank, gripper devices coacting with the former for confining the said blanks to the side and bottom thereof, the impact-bed relatively to which the former and gripped blanks are moved, the stationary side-section-turning device N relatively to which the former is movable, and to which it is brought with its one end in proximity facewise thereto, mechanism for feeding strip material from a continuous supply beneath said part N and therebeyond to position under the former, means for severing the so-disposed portion of the strip from the continuous supply, means for releasing the grippers and means for causing the closing of the former and impact-bed, the one toward the other, for the purposes set forth.

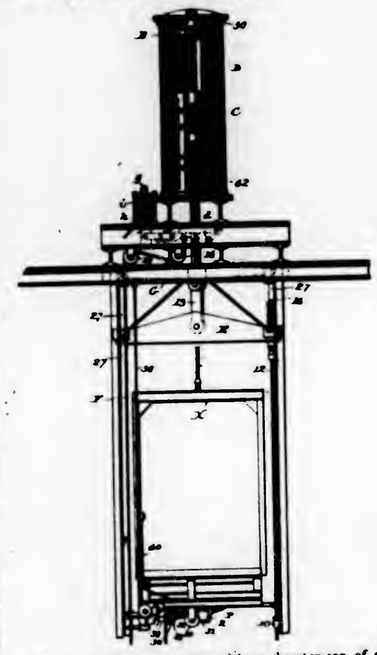
75. In a box-making machine of the character described, the combination with the impact-bed K and the side-section-turning upstanding plate N, of the former and a rocking carrier on which it is mounted for a swinging movement bodily therewith and for an independent movement toward the impact-bed, mechanism for feeding strip material from a continuous supply beneath said plate N and therebeyond to position under the former, a severing-blade mounted for a reciprocatory movement on said part N, the bar R ranging above the top of the former and arranged for a forcing downward movement against said severing-blade, and means for imparting the descending movement to said bar for depressing both the former and the blade and a part constituting the shear member below said blade and with which it coacts, and retracting means for the blade.

76. In a paper-box machine, the combination with means for feeding, for scoring, and for mitering a blank, of paste or gum rolls between which an edge portion of the blank is fed, and means for supplying an adhesive peripherally on both said rolls.

77. In a paper-box machine, the combination with the former J mounted for a rocking motion intermittently, and means for periodically giving it its rocking movement whereby it is sustained with its bottom in a vertical plane and thereafter swung downwardly to a position at right angles thereto, of the bottom-blank-feed mechanism comprising the blank-support 277, the upstanding plate near one end of said support with a recess vertically for the passage of blanks at the end of said plate downwardly, side cheek members 279, a spring-pressed follower 280, a reciprocating blade or pusher 286 and means for imparting thereto its reciprocatory motion.

78. In a paper-box machine, the combination with the former J mounted for intermittent swinging movements and means for periodically imparting the same thereto, whereby the former at one interval has a position with its bottom in a vertical plane and is thereafter swung downwardly to a position at right angles thereto, of the bottom-blank-feed mechanism comprising the blank-support 275, the upstanding plate 276, provided with the guideways 284, and so arranged relatively to the adjacent end of the said blank-support 275 as to leave an aperture 271 for the vertical passage therethrough of the blank successively, the supplemental section 277 adjustably mounted on the support 275 and adapted to have its extremity projecting more or less across said aperture, side guides for the blanks, a follower for the blanks, a carrier 285 movable in said guideways 284 having the blade or bar 286 and means for imparting a vertical reciprocatory motion to said carrier, substantially as described.

645,951. ELEVATOR. JOHN D. GRIFFEN, New York, N. Y. Filed Oct. 12, 1899. Serial No. 733,431. (No model.)



Claim.—1. The combination with an elevator-car, of a cylinder and piston, suspended cables connected to the piston and movable therewith, means for holding the piston in its normal position, grippers on the car to engage the cables, means to release the piston, and means to cause the grippers to engage the cables subsequent to the release of the piston, substantially as set forth.

2. The combination with an elevator-car, of a cylinder and piston, suspended cables connected to the piston and movable therewith, a balanced locking mechanism to support the piston and cables in their normal position, grippers on the car to engage the cables, means to trip the locking mechanism and release the cables and piston, and means to cause the grippers to engage the cables subsequent to their release, substantially as set forth.

3. The combination with an elevator-car, of a cylinder and piston, suspended cables connected to the piston and movable therewith, grippers on the car to engage the cables, and means to put the cables in motion prior to their being engaged by the grippers on the car, substantially as set forth.

4. The combination with an elevator-car, of a cylinder and piston, suspended cables connected to the piston and movable therewith, grippers on the car to engage the cables, and means to put the cables in motion prior to their being engaged by the grippers on the car, said means being brought into action automatically when the speed of the car exceeds the normal, substantially as set forth.

5. The combination with an elevator-car, of a cylinder piston and piston-rod, suspended cables connected to the piston-rod and movable therewith, a balanced locking mechanism engaging said piston-rod to hold it and the cables in their normal positions, a lanyard leading from the locking mechanism and extending down the elevator-well, means on the car to exert a pull on the lanyard to release the locking mechanism from the piston-rod, grippers on the car to engage the cables, and means to cause the grippers to engage the cables subsequent to the release of the piston-rod, substantially as set forth.

6. The combination with an elevator-car, of an air-cylinder and piston, suspended cables connected to and movable with the piston, grippers on the car to engage said cables, the said cylinder having a plurality of relief-openings, one of which is free and the others controlled by spring-pressed valves, substantially as set forth.

7. The combination with an elevator-car, of an air-cylinder and piston, suspended cables connected to and movable with the piston, grippers on the car to engage the cables, the said cylinder being provided with relief-openings in its side one in advance of the other, the opening nearest the head where the stroke ends being unobstructed, and the others normally closed by spring-seated valves, substantially as set forth.

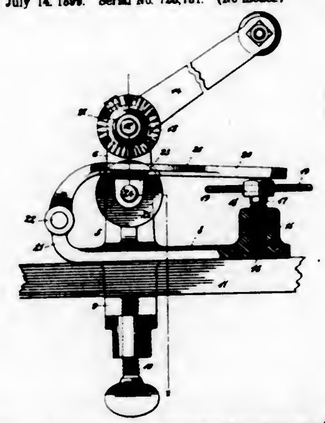
8. The combination with an elevator-car, of an air-cylinder and piston, suspended cables connected to and movable with the piston, and gripper on the car to engage said cables, the cylinder having relief-openings in its side, and an unobstructed opening in its head for the passage of air to relieve the vacuum behind the moving piston, substantially as set forth.

645,952. PHOTOGRAPHIC-PRINT FABRIC. JAMES A. HARVEY, Toronto, Canada. Filed Apr. 2, 1898. Serial No. 676,231. (No model.)



Claim.—As a new article of manufacture, a photograph-print fabric composed of a woven fabric of fine and uniform texture having one surface or side thereof coated with a pliable waterproof material or composition, and the opposite or reverse surface sensitized with a photographic solution, substantially as and for the purpose set forth.

645,953. CLOTH-CUTTER. ROBERT J. HEARNE, New York, N. Y. Filed July 14, 1899. Serial No. 723,781. (No model.)

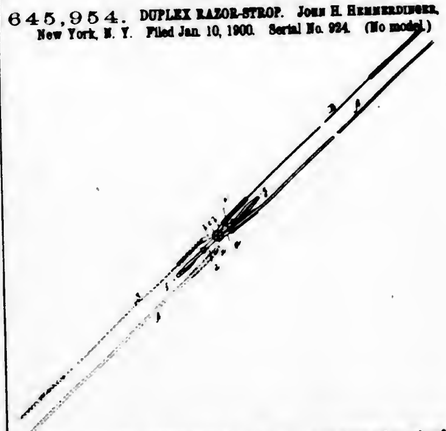


Claim.—1. In a rotary cutter-machine of the character described, the cutter-wheel, combined with the table 20 hinged at one end and having at its lower side the lugs 23, the shaft 24 mounted in said lugs, the anvil-wheel 25 on said shaft and between said lugs and extending upward within a slot formed in said table below said cutter, and means engaging the other end of said table for adjusting said table and anvil-wheel in their fixed vertical relation to one another, toward and from said cutter-wheel; substantially as set forth.

2. In a rotary cutter-machine of the character described, the bed-plate having at one end the raised hub 15 forming a threaded socket 16, the adjusting-screw 17 within said socket and having a head at its upper end, and the rotary cutter-wheel, combined with the table 20 hinged at one end and at its other end resting freely upon said head as an adjustable support therefor, and the anvil-wheel 25 in fixed relation to and carried by said table and extending a slight distance above the upper surface of said table; substantially as set forth.

3. In a rotary cutter-machine of the character described, the rotary cutter-wheel, the rotary anvil-wheel, and the movable table within a slot in which the lower one of said wheels projects and which lower wheel is always in fixed vertical relation to said table, combined with the shaft for said lower wheel, the bearings for said shaft connected with said table and being below said table, and means for adjusting said table and its wheel in their fixed vertical relation to one another and in unison toward and from the upper wheel; substantially as set forth.

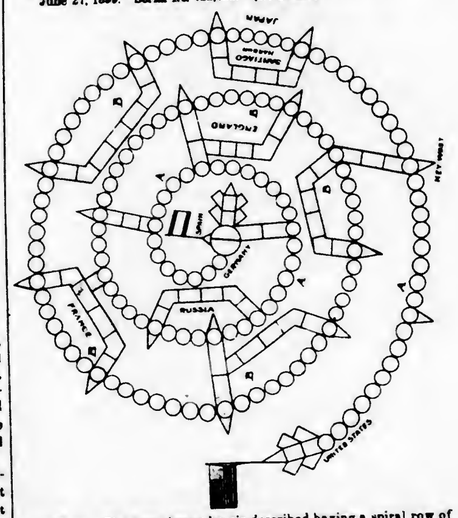
645,954. DUPLEX RAZOR-STROP. JOHN H. HENNERDINGER, New York, N. Y. Filed Jan. 10, 1900. Serial No. 924. (No model.)



Claim.—1. The combination in a duplex razor-strop, of a pair of strops, with a pair of pivoted bails, to which the strops are respectively secured, and a second pair of bails for suspending the strops in opposite positions, substantially as specified.

2. The combination, in a duplex razor-strop, of a tube, with a pair of pivoted suspending-bails, received thereby, a second pair of pivoted bails received by the tube between the suspending-bails, and a pair of strops secured to said second pair of bails, substantially as specified.

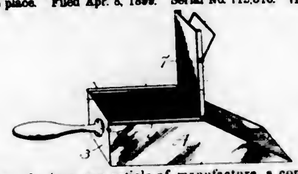
645,955. GAME. MARGARET J. HOTALING, Cleveland, Ohio. Filed June 27, 1899. Serial No. 722,653. (No model.)



Claim.—The game-board herein described having a spiral row of spots A A, beginning at the center and forming a pathway in helical

form and terminating near the border, intermediate spaces B B marked off in the helix by double radial and straight lines, the spaces between said lines divided into squares by cross-lines, substantially as shown and described.

645,956. COMBINED SHOVEL AND SIFTER. WILLIAM P. HYRONS, Philadelphia, Pa., assignor of one-half to Frank B. Greene, same place. Filed Apr. 8, 1899. Serial No. 712,310. (No model.)

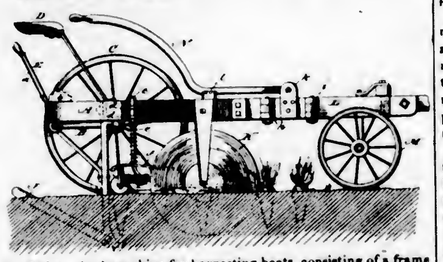


Claim.—1. As a new article of manufacture, a combined scoop and sieve, comprising a receptacle having a sieve or screen at its top and beveled at its front, the said top and beveled front end being of equal dimensions, a cover pivotally secured to the receptacle at the juncture of the sieve and beveled end and adapted to be swung so as to completely cover either the open end of the receptacle or the sieve and means for locking the cover in its two positions.

2. As a new article of manufacture, a combined scoop and sieve, comprising a receptacle having a beveled front end and a sieve in its top, the said beveled front end and top being of equal dimensions, a handle secured to the closed end of the receptacle, a cover hinged to the receptacle at the juncture of the sieve and beveled front end and adapted to completely cover either the sieve or the open front end of the receptacle and means for locking said cover in its two positions.

3. As a new article of manufacture, a combined scoop and sieve, comprising a rectangular receptacle having a beveled open end and a sieve secured in its top, flanges projecting laterally from the sieve portion, a cover pivotally connected to said receptacle and adapted to normally close the open inclined end thereof, a flexible sleeve, the enlarged end thereof being adapted to embrace the top or sieve portion of the receptacle and inclose said lateral flanges and a removable clamp for securing the sleeve over said flanges.

645,957. MACHINE FOR HARVESTING BEETS. JAMES I. JACKSON and AARON E. JACKSON, Grand Junction, Colo. Filed Jan. 8, 1900. Serial No. 696. (No model.)



Claim.—1. A machine for harvesting beets, consisting of a frame with means for rendering it vertically adjustable, colters, a topping-blade, and a plow, and an inclined grate connected thereto, substantially as and for the purpose set forth.

2. A machine for harvesting beets, consisting of a frame, colters carried thereby, a spring-actuated topping-blade, a shoe with guide-roller for the blade, and a plow, substantially as and for the purpose described.

3. A machine for harvesting beets, consisting of a frame, a double-jointed beam connected thereto and means for controlling said beam, colters, a topping-blade, and a plow connected to the frame, substantially as and for the purpose specified.

4. A machine for harvesting beets, consisting of a frame, colters connected thereto, a plow, a topping-blade, and a vertically-adjustable shoe, substantially as and for the purpose set forth.

5. A machine for harvesting beets, consisting of a frame, colters connected thereto, a vertically-adjustable shoe, a guide-roller connected thereto, a topper-blade, and a plow, and a grate connected thereto and disposed upon an incline, substantially as and for the purpose described.

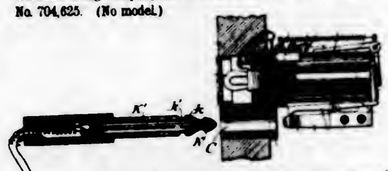
6. A machine for harvesting beets, consisting of a frame adapted for vertical adjustment, colters, a topping-blade, a shoe, and plow connected to the frame, and a double-jointed beam connecting with the frame, and means for operating the same, substantially as and for the purpose specified.

7. A machine for harvesting beets, consisting of a frame, colters connected thereto, a vertically-adjustable shoe, a guide-roller connected to the rear end of the shoe by arms, a spring-actuated topping-blade, and a plow, substantially as and for the purpose set forth.

8. A machine for harvesting beets, consisting of a frame provided with a crank-axle, wheels mounted upon the ends of the axle, a hand-lever connecting with the axle by which means the frame may be adjusted vertically, a double-jointed beam connecting with the frame and means for operating it, and colters, a shoe, a topping-blade, and a plow connected to the frame, substantially as and for the purpose described.

9. A machine for harvesting beets, consisting of a frame, colters connected thereto, an adjustable shoe, a spring-actuated topping-blade, a guide-roller therefor connecting with the shoe, and a plow provided with an inclined grate comprising a series of parallel bars or rods, substantially as and for the purpose specified.

645,958. TELEPHONE SYSTEM. ALBERT K. KELLER, Philadelphia, Pa., assignor to the International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Filed Feb. 6, 1899. Serial No. 704,625. (No model.)



Claim.—1. In a telephone-annunciator, the combination with an electromagnet, a signaling device controlled by the armature of said magnet, and line connections to said magnet, of a latch to engage said armature and control its movements, said latch standing in the path of movement of the operator's plug and operated during the insertion of the plug and again during the withdrawal of the plug.

2. In a telephone-annunciator, the combination with an electromagnet, a local circuit including a signal and controlled by the armature of said magnet, and line connections to said magnet, of a latch to engage said armature and control its movements, said latch standing in the path of movement of the operator's plug and operated during the insertion of the plug and again during the withdrawal of the plug.

3. In a telephone-annunciator, the combination with an electromagnet, a normally-open circuit including a signal and closed by the armature of said magnet when the latter is attracted, and line connections to said magnet, of a latch to engage said armature and retain it in its forward position, said latch standing in the path of movement of the operator's plug and operated during the insertion of the plug and again during the withdrawal of the plug to release said armature.

4. The combination with a telephone-circuit, a magnet included in said circuit, a normally-open circuit including the lamp and closed by the forward movement of the armature of said magnet, a latch to engage said armature and hold it in its forward position, said latch having a toe to cooperate with a shoulder on the operator's plug, whereby said latch is operated to release the armature and open said local circuit when the plug is inserted and again when the plug is withdrawn.

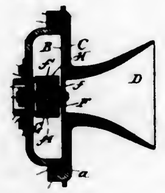
645,959. TELEPHONE-RECEIVER. ALBERT K. KELLER, Philadelphia, Pa., assignor to the International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Filed Feb. 6, 1899. Renewed Oct. 11, 1899. Serial No. 733,327. (No model.)



Claim.—1. In a telephone-receiver, the combination with a shell or casing and a magnet, of a sleeve or thimble secured to the shell or casing and encircling the central chamber, said sleeve or thimble being interiorly threaded and having an inwardly-turned flange, a carrier for the magnet exteriorly threaded to engage said sleeve or thimble and set-screws carried by said carrier and arranged to impinge against said flange, substantially as shown and described.

2. In a telephone-receiver, the combination with a shell or casing and a magnet, of a sleeve or thimble secured to the shell or casing and encircling the central chamber, said sleeve or thimble being interiorly threaded and having an inwardly-turned flange, a carrier for the magnet exteriorly threaded to engage said sleeve or thimble, set-screws in said carrier arranged to impinge against said flange, and a clamping block or holder for the magnet slotted to receive the arms of the magnet and formed to fit tightly within said carrier, substantially as shown and described.

645,960. TELEPHONE-TRANSMITTER. ALBERT K. KELLER, New York, N. Y., assignor to the International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Filed Nov. 23, 1899. Serial No. 738,526. (No model.)



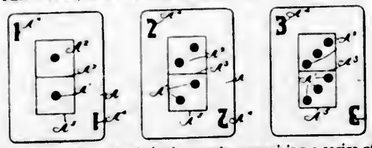
Claim.—1. In a telephone-transmitter, a rotatable carbon-holder having in its interior an eccentric recess, whereby the carbon is thoroughly loosened up by the rotation of the holder, substantially as shown and described.

2. In a telephone-transmitter, the combination with a casing, a diaphragm clamped thereto, and a carbon-holder carried by the diaphragm, of a carbon-holder extended through said casing and having a circumferential groove, and a clip secured to the casing and engaging said groove whereby the last-named carbon-holder can be rotated with respect to the first-named carbon holder, substantially as shown and described.

3. In a telephone-transmitter, the combination with a casing, of a carbon-holder extended through said casing and removably secured thereto, and an electrode adjustably mounted in said holder, substantially as shown and described.

4. In a telephone-transmitter, the combination with a casing and a diaphragm, of a cup-shaped holder secured to one of said parts and having a boss extended inwardly from its end wall, and a second holder secured to the other of said parts and projecting within the first-named cup and overlapping said boss, substantially as shown and described.

645,961. PLAYING-CARDS. JOHN F. KINGWILL, Chicago, Ill. Filed Feb. 11, 1898. Serial No. 669,940. (No model.)



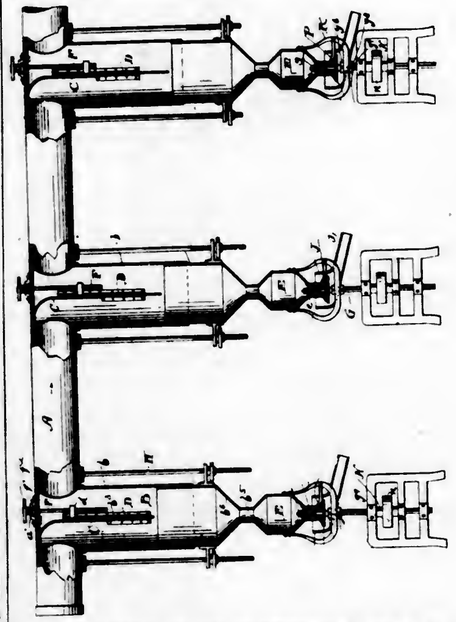
Claim.—1. A pack of playing-cards, comprising a series of suits provided with some distinguishing characteristic, each card of the suit provided with the picture of a double domino, the cards in each suit running consecutively from double one up to and including the highest card in the suit.

2. A pack of playing-cards, comprising a series of suits of six cards each, each card provided with the picture of a double domino and having a figure at the corner representing the number of said double domino, the cards in each suit running consecutively from double one to and including double six, and a distinguishing characteristic associated with each suit so that one suit may be distinguished from another.

3. A pack of playing-cards, comprising a series of suits of six cards each, said cards each provided with a picture of a double domino extending longitudinally of the card and having figures at two opposite corners representing the number of said double domino, the cards in each suit running consecutively from double one to and including double six, the cards of each suit being similar in color, the various suits being of different colors so that they may be distinguished one from the other.

645,962. PNEUMATIC SEPARATOR. CHARLES H. LANE, Cleveland, Ohio. Filed Feb. 17, 1899. Serial No. 705,894. (No model.)

Claim.—1. In a pneumatic separator, the combination of a substantially-horizontal suction-pipe, and a substantially-vertical settling-chamber connected in and hanging below said pipe and consisting of an upper section and a lower section which telescopes onto the upper section, with a dividing-partition which extends transversely across the pipe and the upper part of the settling-chamber, and means for vertically adjusting said lower section, substantially as and for the purpose specified.



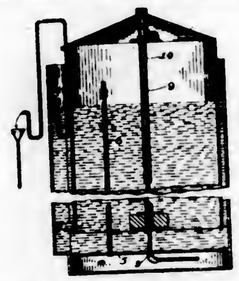
2. In a pneumatic separator, the combination of a substantially-horizontal suction-pipe, and a settling-chamber connected in and hanging below said pipe, and consisting of an upper section and a lower section which telescopes onto the upper section, means for vertically adjusting said lower section, a transverse dividing-partition across said pipe, and the upper section of said settling-chamber, and a vertically-adjustable gate in the upper section which is adapted to serve as a downward extension of said partition, substantially as and for the purpose specified.

3. In a pneumatic separator, the combination of a suction-pipe, a settling-chamber consisting of the upper section *b* which depends from and is in open communication with said pipe, a lower section *b'*, and means for adjusting the same vertically, said section having a contracted neck, a discharge-chamber secured to and in communication with said neck, which discharge-chamber has a cylindrical contracted discharge-neck, and means for controlling the flow of the settled particles through said neck, a yoke secured to said discharge-chamber, a vertical shaft passing through said yoke and into the neck of the discharge-chamber, a disk secured to said shaft below said neck, collars secured to the shaft above and below the yoke and a tubular vertical driving-shaft through which the shaft first named passes and with which it has a tongue-and-grooved connection, substantially as and for the purpose specified.

4. In a pneumatic separator, the combination of a suction-pipe, a settling-chamber which is connected in said pipe and hangs below the same, a transverse intercepting-partition extending across said pipe and down into said settling-chamber, said partition presenting a concave surface at its upper end toward the inlet of said pipe, and a lower section of said settling-chamber which telescopes with the upper section and is vertically adjustable with respect thereto, said lower section having a contracted discharge-opening at its lower end, and means for closing said opening to prevent the ingress of air, substantially as and for the purpose specified.

645,963. ACETYLENE-GAS GENERATOR. HARRY P. LEFTWICH and CHARLES H. REISNER, Indianapolis, Ind. Filed Dec. 9, 1898. Serial No. 698,706. (No model.)

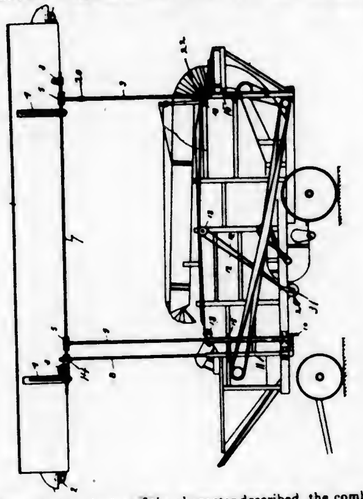
Claim.—1. The combination, in an acetylene-gas generator, of a carbid-holder, a suitable ingress-pipe for water connected thereto, a gasometer, a gas-pipe running from said holder thereto, a siphon formed with both its legs trapped and mounted on the gas-holder to be carried thereby with one of its legs inside the gasometer-casing and the other on the outside in position to discharge into the ingress-pipe of the carbid-holder, all substantially as described.



2. The combination of a carbid-holder having a suitable ingress for water, a gasometer, and a siphon connected to the movable portion of said gasometer and arranged to discharge into the ingress to the carbid-holder, said siphon having both its legs U-shaped, substantially as set forth.

3. The combination, in an acetylene-gas-generating apparatus, of a carbid-holder having a suitable ingress formed also to constitute a liquid-trap and having its receiving end directed upwardly, a gasometer having a siphon connected to the movable part thereof, the legs of said siphon being also formed to constitute liquid-traps and the discharging end thereof being arranged above the receiving end of the ingress to the carbid-holder, substantially as set forth.

645,964. ADJUSTABLE MACHINE-COVER. WM. B. LEONARD, Wallace, Ind. Filed Apr. 24, 1899. Serial No. 714,259. (No model.)



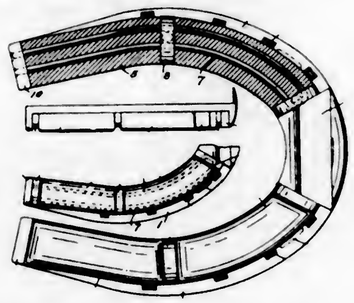
Claim.—1. In a device of the character described, the combination with the main cover, of sides for inclosing the same, pinions connected with said sides, a shaft carrying worms engaging said pinions and having a crank to rotate the same so as to elevate or lower the sides, curtains for inclosing the ends, and means for elevating or depressing said cover.

2. In a device of the character described, the combination with the main cover, of sides for inclosing the same, pinions connected with said sides, a shaft carrying worms engaging said pinions and having a crank to rotate the same so as to elevate or lower the sides, curtains for inclosing the ends, means for elevating or depressing the sides, and rods for supporting the same over the machine.

3. In a device of the character described, the combination with the main cover, of sides for inclosing the same, supporting-rods journaled on the machine, means for elevating said rods, a supplemental rod carrying a worm at its top, a pinion on the hinged sides of the top for engaging the worm on the rod, and joints formed in the rear rods, so that the same may be swung away from the machine, substantially as described.

4. In a device of the character described, the combination with the main cover, of hinged sides connected with the same, rods connected with the hinged sides, supporting-rods carried by the machine, bearings on the tops of said rods, said bearings supporting the rods of the sides, a pinion carried by the top, a vertical rod carrying a worm engaging with said pinion for the purpose of operating the sides, bearings formed on the machine for the supporting-rods, rollers on the ends of said rods, ropes passing within said vertical bearings and around the rollers on the rods, and a crank for operating said ropes to raise and lower the top.

645,965. CUSHIONED HORSESHOE. THOMAS J. LOVETT, Chicago, Ill., assignor to the Budd Doble Tire Company, New York, N. Y. Filed June 17, 1898. Serial No. 683,693. (No model.)



Claim.—1. A horseshoe having a base-plate, a stud secured to the base-plate, a cushion-block upon each side of said stud, and a wire passing through said stud and blocks, substantially as described.

2. A horseshoe having a base-plate, a stud secured to the base-plate at each side of the shoe, cushion-blocks on each side of each of said studs, and a wire passing through each stud and the adjacent blocks, substantially as described.

3. A horseshoe having a base-plate, a stud secured to the base-plate at each side of the shoe, cushion-blocks on each side of each of said studs, and a wire passing through each stud, and the adjacent blocks, said wire being secured to the base-plate at the heel and toe, substantially as described.

4. A horseshoe having a base-plate, a toe-calk, two cushion-blocks on each side of the shoe, a stud secured to the base-plate on each side of the shoe between the blocks, and a wire passing through the blocks and stud at each side of the shoe, said wire being secured to the base-plate at the heel and toe, substantially as described.

5. A horseshoe having a base-plate, a stud secured to the base-plate, a cushion-block on each side of said stud extending below said stud, and a wire passing through said stud and blocks, substantially as described.

6. A horseshoe having a base-plate, a toe-calk, heel-calks, a stud secured to the base-plate between each heel-calk and the toe-calk, cushion blocks between the heel-calks and studs, cushion-blocks between the studs and toe-calk, and wires passing through the blocks and studs, substantially as described.

7. A horseshoe having a base-plate, a toe-calk, heel-calks, a stud secured to the base-plate between each heel-calk and the toe-calk, cushion-blocks between the heel-calks and studs, cushion-blocks between the studs and the toe-calk, studs secured to the base-plate at the ends of the blocks adjacent to the toe-calk, wires looped through said latter studs and having their strands passing through the cushion-blocks and intermediate studs, substantially as described.

8. A horseshoe having a base-plate, two cushion-blocks on each side of the shoe, a stud secured to the base-plate on each side of the shoe between said blocks, a wire passing through the stud and blocks on each side of the shoe, and clips at the toe of the shoe outside the cushion-blocks, substantially as described.

645,966. CUSHIONED HORSESHOE. THOMAS J. LOVETT, Chicago, Ill., assignor to the Budd Doble Tire Company, New York, N. Y. Filed June 17, 1898. Serial No. 683,693. (No model.)

Claim.—1. A horseshoe provided with a base-plate, a cushion-block, provided with a strip of strengthening material embedded therein, and means underlying said strengthening-strip for holding said block to the base-plate, substantially as described.



2. A horseshoe provided with a base-plate, a cushion-block provided with a strip of strengthening material embedded therein, and one or more cross-pins secured to the base-plate and extending through said block under said strengthening-strip, substantially as described.

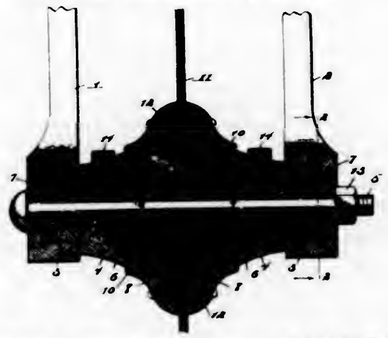
3. A horseshoe provided with a base-plate, a cushion-block provided with a strip of perforated strengthening material embedded therein, and one or more cross-pins secured to said base-plate and extending through said block under said strengthening material, substantially as described.

4. A horseshoe provided with a base-plate, a cushion-block, provided with a strip of perforated metal embedded therein, and one or more cross-pins secured to the base-plate and extending through said block under said metal strip, substantially as described.

5. A horseshoe provided with a base-plate, a cushion-block provided with a strip of woven wire embedded therein, one or more cross-pins secured to the base-plate, and extending through said block under said woven wire, substantially as described.

6. A base-plate having a channel, a cushion-block fitting said channel and provided with a strip of strengthening material embedded therein, one or more cross-pins secured to the base-plate and extending through said block under said strengthening material, substantially as described.

645,967. PLOW-COLTER. WILL S. METCALF, Flandreau, S. D. Filed Nov. 15, 1899. Serial No. 737,098. (No model.)

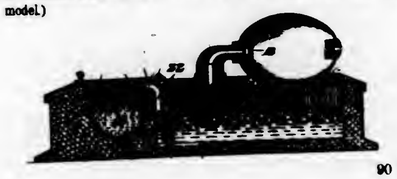


Claim.—1. The combination with colter-arms, formed with recesses on their inner sides; of non-revolvable bearings secured to said arms; a colter; a hub comprising oppositely-disposed sections formed with sleeve-journals, and annular flanges overlapping said bearings; and a securing-bolt.

2. The combination with colter-arms formed on their inner sides with recesses, of bearings formed with projections fitting said recesses and secured therein to prevent rotation of the bearings; a colter; hub-sections each provided with a sleeve-journal, and an annular flange; and a bolt, extending through the arms, bearings, hub-sections, and colter.

3. The combination with colter-arms having square recesses on their inner surface; of bearings having cylindrical seats and squared outer ends, and formed with oil-holes; a colter; hub-sections each provided with a sleeve-journal fitting the bearings, and an annular horizontal flange overlapping the bearings; and a securing-bolt.

645,968. COMBINED INK WELL AND RESERVOIR. JOSEPH H. MILLER, Oklahoma, Okla. Filed Jan. 17, 1900. Serial No. 1,783. (No model.)

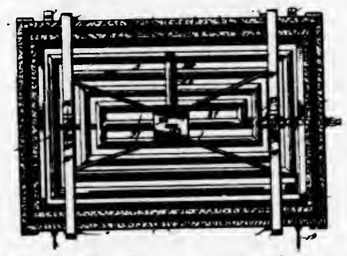


Claim.—1. The combination of a reservoir, a dip-well having a closed bottom and an open top, an ink-feed passage communicating with the reservoir and having the port arranged to open into the dip-well above the closed bottom thereof, and an air-forcing bulb separate from the reservoir, attached thereto, and communicating with the reservoir-chamber, substantially as described.

2. A combined ink well and reservoir comprising a body having a reservoir-chamber, an ink-well separated from said chamber by an intervening wall, a liquid-conduit formed in said wall and communicating at its lower end with a reservoir-chamber and discharging at its upper end into the upper part of the ink-well, and an air-forcing bulb coupled to the body and communicating with the reservoir-chamber, as and for the purposes described.

3. A combined ink well and reservoir comprising a body having a reservoir-chamber, an ink-well closed at its bottom and divided from said chamber by an intervening wall, a conduit in said wall to discharge into the upper part of the ink-well and communicating with the reservoir-chamber by passages inclined to the bottom thereof, a depression or seat in the top of the reservoir-chamber, an elbow coupled to the top of said reservoir-chamber, and a forcing-bulb united to the elbow and adapted normally to occupy the depression or seat, as set forth.

645,969. MILK-COOLER. JOHN J. MCAREAVY, Silver Creek, Iowa. Filed Dec. 5, 1899. Serial No. 739,286. (No model.)



Claim.—1. A milk and cream cooler, comprising a receptacle for containing the milk or cream, a reciprocatory pipe-coil located within the receptacle and receiving a liquid cooling agent, upright guide-rods extending from the coil, and removable guide-bars resting upon the upper edges of the receptacle and slidably receiving the guide-rods.

2. A milk and cream cooler, comprising a receptacle for containing the milk or cream, a reciprocatory pipe-coil located within the receptacle and receiving a liquid cooling agent, upright guide-rods extending from the coil, guides carried by the receptacle and slidably receiving the respective guide-rods, and springs connected to the guides and the guide-rods, supporting the coil above the bottom of the receptacle, and cushioning the said pipe-coil.

3. A milk and cream cooler, comprising a receptacle for containing the milk or cream, a reciprocatory pipe-coil located within the receptacle and receiving a liquid cooling agent, upright headed guide-rods extending from the coil, removable guide-bars resting upon the upper edges of the receptacle and slidably receiving the respective guide-rods, hooks at opposite ends of the bars and engaging the adjacent sides of the receptacle, and coiled springs encircling the respective guide-rods, bearing in opposite directions against the heads of the latter and the adjacent guide-bars, and yieldingly supporting the pipe-coil above the bottom of the receptacle.

4. A milk and cream cooler, comprising a receptacle, a pipe-coil located within the receptacle and receiving a liquid cooling agent, and provided with branch pipes connecting adjacent members of the coil, and a normally-closed discharge-opening located adjacent to one of the branch pipes.

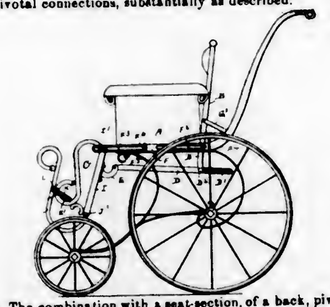
5. A milk and cream cooler, comprising a receptacle for containing the milk or cream, and having spaced packing-strips upon its upper edges, and a cover having spaced packing-strips provided upon its under side and fitting between the packing-strips of the receptacle.

645,970. CHILD'S CARRIAGE. GEORGE E. O'HEARN, Gardner, Mass., assignor to the Heywood Brothers & Wakefield Company, same place. Filed July 7, 1899. Serial No. 723,102. (No model.)

Claim.—1. The combination with a seat-section, of a back and a foot section pivotally secured to said seat-section, means for connecting said back and foot sections, whereby they are moved in unison, means for varying the relative position of said back and foot sections independently of their joint movement, substantially as described.

2. The combination with a seat-section and a back and a foot

section pivoted thereto, and links pivotally connecting said back and foot sections and means for varying the length of the links between their pivotal connections, substantially as described.



3. The combination with a seat-section, of a back, pivotally connected thereto, sliding push-rails supported by said seat-section, a handle-bar carried by said push-rails and means for connecting said back and sliding push-rails, whereby a rocking motion of said back will impart a sliding movement to said push-rails and vary the position of the handle-bar, substantially as described.

4. The combination with a seat-section and a back pivotally connected thereto, of a pair of sliding push-rails supported by said seat-section, links connecting said rails and said back and means for holding said rails from sliding, whereby said back is held at a desired angle with the seat-section, substantially as described.

5. The combination with a seat-section and a back pivoted thereto, of sliding push-rails supported by said seat-section and operatively connected with said pivoted back, whereby said rails and back move in unison, means for holding said push-rails from sliding and a handle-bar carried by said rails, substantially as described.

6. The combination with a seat-section, of a pair of push-rails connected by a handle-bar and supported by said seat-section, each of said push-rails having a horizontal section, capable of sliding on said seat-section in a horizontal plane, and means for adjustably attaching said push-rails to said seat-section, whereby the distance of said handle-bar from the seat-section is varied without changing the elevation of the handle-bar, substantially as described.

7. The combination with a seat-section, a pair of push-rails, adjustably attached to said seat-section, said rails being capable of sliding horizontally on said seat-section, whereby the length of the vehicle is varied, substantially as described.

8. The combination with a seat-section, of a pair of push-rails supported by said seat-section and capable of sliding thereon, a back pivotally attached to said seat-section, studs held by said push-rails and hooked links pivoted to said back and arranged to engage said studs, substantially as described.

9. The combination with a seat-section and a back pivotally attached thereto, of a pair of push-rails supported by said seat-section and capable of sliding thereon, means for adjustably attaching said push-rails to said seat-section, hooked links by which said push-rails and said back are detachably connected, substantially as described.

10. The combination with a seat-section and a back and a foot section pivoted thereto, of sliding push-rails supported by said seat-section and operatively connected with said back, whereby said rails and back move in unison, means for operatively connecting said back and foot section, whereby they move in unison and means for holding said rails from sliding, substantially as described.

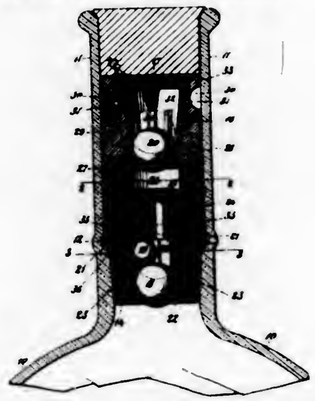
11. The combination with a seat-section, of a foot-section consisting of a frame 1 pivoted to said seat-section and a curved section or hood pivoted to said frame and means for adjusting the position of said hood relatively to said frame, substantially as described.

12. In a child's carriage, the combination of a seat-section, a back and movable push-rails, said back being pivotally connected to both the seat-section and the movable push-rails, whereby the inclination of the back will change the relative positions of the seat-section and push-rails, substantially as described.

645,971. NON-REFILLABLE BOTTLE. CHARLES B. OVERBAUGH, New York, N. Y. Filed July 12, 1899. Serial No. 723,545. (No model.)

Claim.—1. The bottle combined with the plug for preventing refilling, said plug comprising the parts 14, 15 and 16, and balls 18, 19 and 20, the part 14 having the valve-seat 22 for the ball 18, the part 15 being a cap adapted to receive the ball 19 and forming at its lower edges the shoulder 26 for restraining the ball 19, and the part 16 having the seat 28 for the ball 20 and outlet-passages above said ball; substantially as set forth.

2. The bottle, and the plug for preventing refilling, said plug being cylindrical in form and adapted to the inner walls of the neck of said bottle and having passages for the outflow of the liquid through the same, combined with the ball 18 adapted to the seat 22 at the lower end of said plug, the float ball-valve 20 adapted to the seat 28 formed within the upper portion of said plug, and the part 15 within said plug and intermediate the valve-seats 22, 28, and retaining the ball 18 in the lower portion of said plug; substantially as set forth.



3. The bottle combined with the plug for preventing refilling, said plug comprising the cylindrical part 14 having the valve-seat 22 and ribs 23, the intermediate part 15 inclosed within said part 14 and at its lower edges projecting inward beyond said ribs 23 to form the shoulder 26, the part 16 secured upon the upper edges of said part 14 and having the valve-seat 28, ribs 29, transverse apertures 31, annular groove 30 and vertical grooves 33, the ball 18 adapted to said seat 22, the ball 19 engaging said ball 18 and adapted to rest between said ball 18 and said shoulder 26, and the ball 20 adapted to said valve-seat 28; substantially as set forth.

4. The bottle and the plug for preventing refilling, said plug being adapted to enter the neck of said bottle and having the valved passages through it for the outflow of the liquid, and said neck having the annular groove 12 and below said groove being of smaller diameter than it is above said groove, whereby upon the application of cement to the lower portion of said plug and the insertion of said plug into said neck, a portion of said cement will, by meeting the lower portion of said neck, be moved back upon said plug and enter said annular groove 12; substantially as set forth.

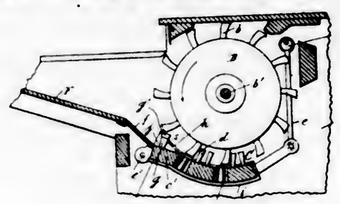
5. The bottle having the neck 11 formed with the annular groove 12 and below said groove being of reduced diameter, combined with the plug for preventing refilling, said plug having the valved passages through it and also having the annular groove 21 and packing-ring 35, the said plug and bottle-neck being so proportioned to one another that upon the application of cement to the lower exterior surfaces of the said plug and the insertion of said plug into said neck, a portion of said cement will, upon meeting the reduced diameter of said neck, be moved back to fill said annular grooves 12 and 21 and form, when hardened, a locking-bead to prevent the removal of said plug from the bottle-neck; substantially as set forth.

6. The bottle combined with the plug for preventing refilling, said plug comprising the parts 14, 15 and 16, and balls 18, 19 and 20, the part 14 having the valve-seat 22 for the ball 18 and ribs 23 above said seat, the part 15 being in the form of a cap adapted to receive the ball 19 and forming at its lower edges the restraining-shoulder 26 and also having the ribs 24 to engage the inner walls of said part 14, and the part 16 being upon the upper edges of said part 14 and having the seat 28 for the ball 20, the ribs 29 above said seat, the transverse apertures 31, the annular groove 30 and the vertical grooves 33, and said part 16 being closed at its upper end except at the said vertical grooves 33; substantially as set forth.

7. The bottle combined with the plug for preventing refilling, said plug comprising the part 14 having the valve-seat 22 and vertical ribs 23, the cap 15 within said part 14 and permitting the flow of the liquid around the same, the part 16 having the valve-seat 28, ribs 29, transverse apertures 31, and vertical grooves 33 communicating with the said apertures, the ball 20 confined within said part 16 and adapted to said seat 28, and the ball 18 within said part 14 and adapted to said seat 22; substantially as set forth.

8. The bottle combined with the plug for preventing refilling, said plug comprising the part 14 having the valve-seat 22 and vertical ribs 23 extending upward from about the upper edges of said valve-seat, the cap 15 within said part 14 and having its lower edges extending inward beyond the inner edges of said ribs 23 to form the annular shoulder 26, an upper part containing passages for the exit of the liquid passing by said cap 15, the ball 18 adapted to said seat 22, and the ball 19 adapted to pass into said cap 15 when the bottle is inverted, and when the bottle is in its upright position to pass below said shoulder 26 and against the ribs 23 and contact with the ball 18 at one side of the center thereof, whereby said ball 19 will retain said ball 18 against its seat 22 except when the bottle is inverted beyond a horizontal position and to a sufficient extent to send the ball 19 into the cap 15; substantially as set forth.

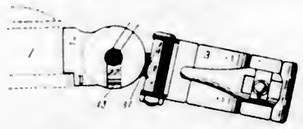
645,972. THRESHING-MACHINE. ABRAHAM E. PRICE, Waynesborough, Pa. Filed Apr. 26, 1899. Serial No. 714,475. (No model.)



Claim.—1. The combination, with a threshing-cylinder, of concave-bearers provided with flanges having diverging portions at their front ends, toothed bars supported by the said flanges, and wedges for securing the front bar between the said diverging front portions of the flanges, substantially as set forth.

2. The combination, with a cylinder provided with threshing-teeth, of concave-bearers provided with upper flanges arranged substantially concentric with the cylinder, and lower flanges having rear portions parallel with the upper flanges and front portions arranged at an angle to said rear portions, concave-bars provided with threshing-teeth and carried by the rear portions of the said lower flanges, a front bar provided with retarding-teeth and carried by the front portions of the said lower flanges, and wedges for preventing the said front bar from rising, substantially as set forth.

645,978. LAMP-BRACKET. FRANK REHM, Bridgeport, Conn., assignor of one-half to The Bridgeport Brass Company, same place. Filed Jan. 6, 1900. Serial No. 535. (No model.)



Claim.—1. A lamp-bracket in two parts one of which is integral with or secured to the lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a relatively-narrow slot leading therefrom, the other part provided with a clamping portion adapted to engage with said lug in combination with means for clamping said lug and said clamping portion together said clamping means being provided with a retractable portion adapted to pass into said aperture in said lug when in its operative position and to be withdrawn therefrom to permit the disengagement of said lug and said clamping portion, substantially as described.

2. A lamp-bracket in two parts one of which is integral with or secured to the lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a relatively-narrow slot leading therefrom, the other part provided with a clamping portion adapted to engage with said lug in combination with a bolt and nut for clamping said lug and said clamping portion together, and a retractable portion adapted to pass into said aperture in said lug when in its operative position and to be withdrawn therefrom to permit the disengagement of said lug and said clamping portion, substantially as described.

3. A lamp-bracket in two parts one of which is integral with or secured to a lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a relatively-narrow slot leading therefrom, the other part provided with a clamping portion adapted to engage with said lug in combination with a retractable transverse bolt passing through said lug, a portion of said bolt being of a diameter greater than the width of said slot and adapted to pass into said aperture, substantially as described.

4. A lamp-bracket in two parts one of which is integral with or secured to the lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a relatively-narrow slot leading therefrom, the other part provided with clamping portions adapted to embrace said lug in combination with a retractable clamping-bolt adapted to secure said clamping portions upon said lug said bolt being adapted in its operative position to substantially fill said aperture and in its retracted position to pass said slot, substantially as described.

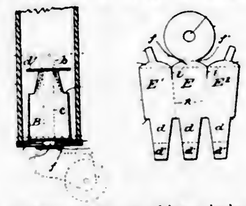
5. A lamp-bracket in two parts one of which is integral with or secured to the lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a relatively-narrow slot leading therefrom, the other part provided with clamping portions adapted to embrace said lug in combination with a retractable clamping-bolt adapted to secure said clamping portions upon said lug said bolt being provided with a shoulder adapted to substantially fill said aperture and with a body portion adapted to pass said slot, substantially as described.

6. A lamp-bracket in two parts one of which is integral with or secured to a lamp-body, the other adapted to engagement with a cycle or other vehicle, one of said parts being a lug provided with an aperture and a slot leading therefrom the other part provided with clamping portions adapted to embrace said lug at least one of said clamping portions being provided with an integral inturned tongue adapted to enter said slot in combination with means for clamping said portions upon said lug, substantially as described.

7. In a lamp-bracket in combination a lug provided with a central aperture and a relatively-narrow slot leading therefrom, a pair of clamping-plates adapted to embrace said lug, a bolt having threaded engagement with one of said plates, passing through said lug and through the other of said plates and having a body portion of a diameter corresponding to the width of said slot and a diameter corresponding to the diameter of said central aperture and a pair of vehicle-engaging jaws adjustably connected with said clamping-plates, substantially as described.

8. In a lamp-bracket in combination a lug provided with a central aperture and a relatively-narrow slot leading therefrom, a pair of clamping-plates adapted to embrace said lug and provided one or both with integral inturned tongues adapted to enter said slot, a bolt having threaded engagement with one of said plates, passing through said lug and through the other of said plates and having a body portion of a diameter corresponding to the width of said slot and a shoulder of a diameter corresponding to the diameter of said central aperture and a pair of vehicle-engaging jaws adjustably connected with said clamping-plates, substantially as described.

645,974. CASTER-SOCKET. HARRY D. REED, Indianapolis, Ind. Filed July 12, 1899. Serial No. 723,546. (No model.)



Claim.—1. A caster-socket comprising a body portion formed from a plate-blank having sections connected at their sides and bent over at the vertical divisional lines of the sections whereby vertically-disposed bearing-ribs are provided, and folded on horizontal lines near the bottoms of the connected sections to form exterior horizontal flanges whereby the bottom of the body portion is stiffened laterally; a base for the body portion whereby to support the same upon a caster; and arms projecting above the body portion whereby a caster-shank may be engaged.

2. A caster-socket comprising a truncated body portion triangular in cross-section throughout its length and formed from a plate-blank comprising sections connected at their sides and bent over whereby vertically-continuous ribs are formed wherewith to engage a tubular post, a base having a circular caster-shank bearing, and flanges formed at the exterior of the bottom of the truncated body portion and attached to the base and reinforcing and connecting the same with the body portion.

3. A caster-socket formed of a blank comprising side sections each of which has a projecting arm at one end and two of which have each at the opposite end a projecting finger and the third section of which has a circular base.

4. A caster-socket consisting of a truncated body portion triangular in cross-section and integrally connected at two of the vertical corners thereof and the third corner thereof formed by the two abutting edges of the converging sides, vertical arms projecting above the body portion and converging toward the top, and a base having a central bearing, all formed integrally from a sheet-metal blank.

5. A caster-socket formed from a blank plate comprising foldable sections integrally connected at the side edges thereof each of which sections is partially circular at one end and at the opposite end has a projection detached from adjacent sections, and one of which sections has a circular base connected thereto by a neck-piece extending from the partially-circular portion.

6. In a caster-socket, the combination of the shank, the tubular leg, the body portion formed of folded-over sections of a bent plate to provide vertical bearing-corners, vertical projecting arms bearing against the shank, and a base connected integrally with the body portion at one side thereof and by means of bent-over fingers at other sides of the body, substantially as set forth.

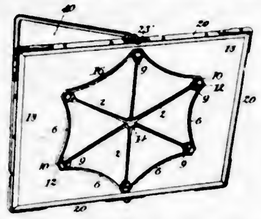
7. The combination of the tubular post, the caster, the caster-socket comprising a truncated body formed from a sheet having foldable sections each of which is semicircular at one end and provided at the opposite end with a projection, said foldable sections being folded on longitudinal lines dividing the sections one from the others whereby longitudinally-continuous corners are provided, one of such corners being formed by the two abutting side edges of the sheet and the corner sthat are formed by the folding of the sheet being slitted at the lower end of the corner, the flanges formed from the semicircular ends, and the base attached to such flanges.

8. A caster-socket formed of a single sheet comprising the sections E, E', E^2 each having the projecting arm at the top thereof, the flanges at the exterior of the bottom of the said sections, and the base integrally connected by a neck-section to one of said flanges, substantially as shown and described.

9. The combination with a tubular post and a caster, of a socket composed of a body portion cut from sheet metal and bent to form exterior vertical ribs and also exterior flanges at the bottom of the body portion between the ribs, the projecting arms at the top of the body portion, and a base attached to the exterior flanges and having a central hollow bearing provided with the reinforcing-flange.

10. A sheet-metal caster-socket blank composed of an annular base part having a substantially-circular periphery, body-sections having each an end adjacent to the base part of partially-circular contour at the edge thereof and corresponding to the peripheral curvature of the base part, and an arm projecting centrally from the opposite ends of each of the body-sections.

645,975. DESK FOR HOTEL-REGISTERS. GEORGE P. ROSE, Jr., Dubuque, Iowa. Filed June 3, 1899. Serial No. 719,325. (No model.)



Claim.—1. A desk for hotel-registers consisting of a turn-table provided with a hub in the center, arms branching outward from said hub, sockets in said arms, feet secured in the sockets and projecting slightly below the arm, wheels pivoted within the outer ends of the arms, a desk pivoted in the hub of the turn-table, and adapted to turn upon the wheels in the arms of said turn-table, and an advertising-board adjustably pivoted to said desk, as and for the purposes shown.

2. A desk for hotel-registers consisting of a turn-table provided with branching arms, having sockets in the outer parts of said arms, feet secured in said sockets, wheels secured within the outer ends of said arms, a desk pivoted to said turn-table, a grooved bar attached to the desk by an adjustable pivot at the opposite ends of said desk, and a board secured in said bar, all combined as and for the purposes shown.

3. A desk for hotel-registers consisting of a turn-table, a desk pivoted upon said turn-table, an advertising-board, and means for adjustably pivoting said board to the desk, consisting of a plate attached to the desk, a pin loosely pivoted in, and adapted to vertical adjustment within the plate, and a strap attached to said board and pivoted to said pin, all combined as and for the purposes shown.

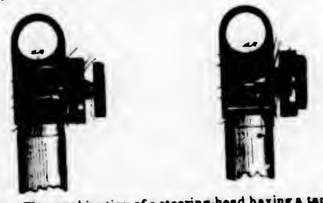
4. A desk for hotel-registers consisting of a turn-table provided with branching arms, sockets in the outer ends of said arms, feet secured in said sockets, wheels pivoted within the outer ends of said arms, a desk pivoted upon said turn-table, an advertising-board, and means for pivoting said board to the desk, consisting of a plate 23, attached to the desk, a pin loosely pivoted in, and adapted to vertical adjustment within the plate, and a strap attached to said board, and pivoted to said pin, all combined as and for the purposes shown.

5. A desk for hotel-registers consisting of a turn-table 1, a desk pivoted to said turn-table, and an advertising-board having a bar 42 and a board 40 secured in said bar, and adjustably pivoted to said desk, by the plate 23, pin 26 and straps 35, all combined to operate, as and for the purposes shown.

645,976. METALLIC COMPOUND FOR PROJECTILES. GEORGES ROTH and CHARLES KRNKA, Vienna, Austria-Hungary. Filed June 17, 1898. Serial No. 683,729. (Specimens.)

Claim.—A mantleless projectile consisting of a malleable alloy of copper, nickel and at least ten per cent. of tungsten.

645,977. HANDLE-BAR FOR VELOCIPEDES. CHARLES J. SHIELDS, Chicago, Ill. Filed Sept. 16, 1899. Serial No. 730,763. (No model.)



Claim.—The combination of a steering-head having a taper plug, a handle-bar having a thimble provided with a taper socket to receive said plug, a boss carried by said thimble, said boss having external and internal screw-threads, a locking-screw fitted in said boss, said screw having a head at its outer end, a lock-nut fitted on the screw-threads of said boss, and a lateral socket in said steering-head, said screw being adapted to register with said lateral socket, substantially as described.

645,978. SECONDARY BATTERY. WILLIAM L. SILVEY, Dayton, Ohio. Filed Nov. 20, 1899. Serial No. 737,604. (No model.)

Claim.—1. The process of making plates for a secondary battery, which consists in uniting a conductor-plate, finely-divided metallic lead, a metallic sulfate, and water, then drying the whole to remove the water and form an adherent mass and sulfate the finely-divided metallic-lead particles, and, finally, forming the metallic-lead particles and the sulfate of lead into oxid of lead by charging them with an electric current, as set forth.

2. The process of making the oxygen element for a secondary battery, which consists in mixing finely-divided metallic lead and sulfate of soda, then adding a liquid, and then drying the whole to extract the liquid and form an adherent mass, as specified.

3. The process of making an element for a secondary battery, which consists in mixing finely-divided metallic lead, an alkali sulfate, and a liquid to form a paste, then applying the paste to a metallic conductor, then extracting the liquid to convert the metallic lead and the sulfate into a strongly-coherent mass, then immersing the mass in a liquid to extract the soluble sulfate and leave the metallic particles in a porous condition.

4. The process of making an element for a secondary battery, which consists in mixing finely-divided metallic lead, an alkali sulfate, and a liquid, then removing the liquid by evaporation, then immersing the element in a liquid to extract the metallic sulfate and convert the metallic particles into a porous condition, and then immersing the element in a solution of sulfuric acid and hardening it, as set forth.

5. The process of making an element for a secondary battery, which consists in mixing finely-divided metallic lead, sulfate of soda, and a liquid, then extracting the liquid, then immersing the element in a liquid and extracting the soluble sulfate and converting the metallic particles into a porous condition, then immersing the element in a solution of sulfuric acid and water and charging it with an electric current.

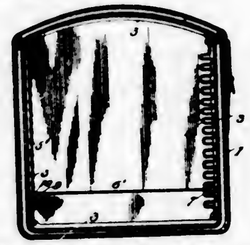
645,979. TRUNK-TRAY. SARA B. SMITH, Livermore, Cal. Filed Mar. 29, 1899. Serial No. 711,007. (No model.)

Claim.—1. The combination with a trunk, of a tray having upper and lower skeleton frames rigidly connected together, and having a bottom and sides of woven fabric and a central partition, with flaps attached to the upper frame and having fastenings at their free ends adapted to meet over the partition, substantially as described.



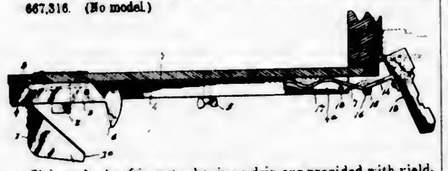
2. A trunk-tray having a skeleton frame provided with a catch 6 having one end connected to said skeleton frame and a tooth 7, and loop 8 at its other end, the tooth being adapted to engage a suitable fastening-eye and the loop to receive the finger of the operator, substantially as described.

645,980. TRUNK. SARA B. SMITH, Livermore, Cal. Filed Mar. 29, 1899. Serial No. 711,008. (No model.)



Claim.—The combination in a trunk, of the vertical supports 4 and 5, a tray having one side adapted to be set in a substantially-horizontal notch in the support 4, and means on the other side coacting with the support 5 to hold said tray in position, substantially as described.

645,981. DRIP-CUP ATTACHMENT FOR REFRIGERATORS. CYRUS G. SPALDING, Springfield, Mass. Filed Jan. 20, 1898. Serial No. 667,316. (No model.)



Claim.—1. A refrigerator having a drip-cup provided with yielding actuating devices for maintaining it in its normal position, a movable apron or skirting section mounted upon the refrigerator-casing, and releasing connections between the apron and the drip-cup, whereby when the apron is actuated the cup is moved a limited distance and is then released for automatic return to its normal position, substantially as specified.

2. A refrigerator having a drip cup provided with yielding actuating devices for maintaining it in its normal position, a hinged molding or skirting section mounted upon the refrigerator-casing, and a draw-rod permanently connected at its front end with the molding-section and having a releasing connection with the drip-cup, to move the latter a limited distance and then release the same, substantially as specified.

3. A refrigerator having a drip-cup provided with yielding actuating devices for maintaining it in its normal position, a draw-rod provided with a suitable grip whereby it may be operated, and a releasing connection between the draw-rod and the drip-cup, whereby when the draw-rod is actuated, it moves the drip-cup a limited distance and then releases the same for automatic return to its normal position, substantially as specified.

4. A refrigerator having a drip-cup provided with yielding actuating devices for maintaining it in its normal position, a movable apron mounted upon the refrigerator-casing, a draw-rod connected at its front end with the apron and having at its rear end a releasing connection with the drip-cup, and means for frictionally engaging and temporarily holding the apron in its adjusted position, substantially as specified.

5. A refrigerator having a drip-cup provided with yielding actuating devices for maintaining it in its normal position, an apron mounted to swing upon the refrigerator-casing, a draw-rod connected at its front end with the apron and having a releasing connection at its rear end with the drip-cup, and a holding device consisting of a bearing-pin arranged in the path of a bowed offset in the draw-rod, for frictionally holding the apron in its adjusted position, substantially as specified.

6. A refrigerator having a drip-cup provided with yielding actuating devices for maintaining it in its normal position, a draw-rod provided at its front end with a handle or grip and having at its rear end a releasing connection with the drip-cup, and means for frictionally engaging and temporarily holding the draw-rod in its adjusted position, substantially as specified.

7. A refrigerator having a drip-cup hinged at one end, a deflector or guard disposed contiguous to the free end of the cup, and means for actuating the drip-cup, substantially as specified.

8. A refrigerator having a drip-cup hinged at one end for depression at the opposite end, the wall at the free end of the drip-cup being slightly depressed, a deflector or guard arranged in the path of overflow escaping over the depressed portion of the wall of the drip-cup, and means for actuating the drip-cup, substantially as specified.

9. A movable drip-cup for refrigerators, in combination with a spring-actuated, drip-cup-operating arm, and a draw-rod having a releasing connection with said arm, whereby, when the rod is actuated, it moves said arm a limited distance to discharge the contents of the drip-cup and then releases it for automatic return to its normal position, substantially as specified.

10. A refrigerator having a drip-cup, means, including a movable arm, for discharging the contents of the drip-cup, said arm being automatically returnable to its normal position when released, and a draw-rod having a releasing connection with said arm, substantially as specified.

11. A refrigerator having a tilting drip-cup, means, including a movable arm, for tilting the drip-cup to discharge its contents, said arm being automatically returnable to its normal position when released, and a draw-rod having a releasing connection with said arm, substantially as specified.

12. A refrigerator having a drip-cup, a spring-actuated, drip-cup-operating arm, and a draw-rod provided with an offset having a releasing engagement with said arm, substantially as specified.

13. A refrigerator having a drip-cup mounted for swinging movement, and having a rigid operating-arm attached thereto and swinging therewith, and a draw-rod mounted to slide in a plane parallel with said arm, and tangential to the path thereof, and provided with a lateral offset in the path of which said arm is normally arranged, the arm being adapted to swing out of the path of the offset, substantially as specified.

14. A refrigerator having a pivoted drip-cup provided with an arm, yielding means for actuating said arm, and an operating-rod having a lateral offset in the path of which said arm is normally arranged, substantially as specified.

15. A drip-cup attachment for refrigerators, the same having a base-plate or strip and means for removably attaching the same to a refrigerator-casing, and a drip-cup and operating devices mounted thereon, substantially as specified.

16. A drip-cup attachment for refrigerators having a chanoeled base-plate or strip provided contiguous to one end with an opening for a refrigerator drip-tube, a drip-cup hingedly mounted upon said plate or strip, a draw-rod mounted to slide in a channel of the plate or strip, and operating connections between the rear end of the draw-rod and the drip-cup, substantially as specified.

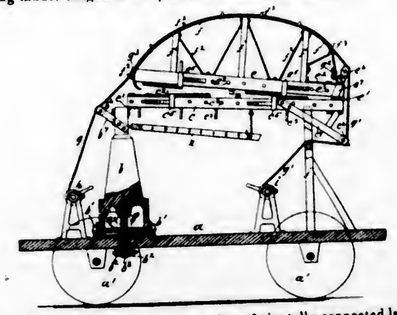
17. The combination of the drip-cup, the spring-hinge supporting the same, connecting-rod supported in guide-bearings beneath the refrigerator, and the skirting hinged to the base of the refrigerator and to which the connecting-rod is pivotally secured, substantially as specified.

18. The combination of the drip-cup, the spring-hinge supporting the same in position, the loop or bail at the bottom thereof, the rod formed with the hook-shaped end, the skirting to which said actuating-rod is pivotally secured and the stop for holding the skirting in its raised position, substantially as specified.

19. The combination with a drip-cup, a spring-hinge supporting the same, a connecting-rod supported in guide-bearings beneath the refrigerator, a skirting hinged to the base of the refrigerator, and to which the connecting-rod is pivotally secured, and a stop for holding the skirting in its raised position, substantially as specified.

645,982. FIRE-ESCAPE. HENRY SPERLING, Jersey City, N. J. Filed Dec. 30, 1899. Serial No. 742,068. (No model.)

Claim.—1. A fire-escape comprising a slotted platform, a post having an arm that extends through the slot, rollers on the post and arm that engage the upper and lower sides of the platform, a screw engaging the post and adapted to move the same laterally, and a folding ladder hinged to the post, substantially as specified.

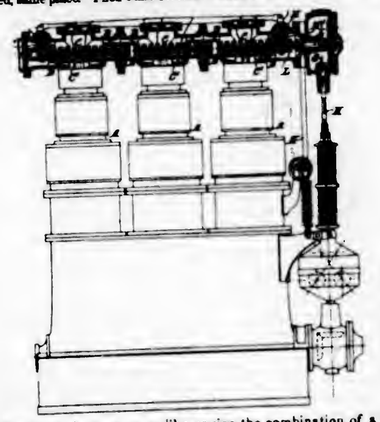


2. A fire-escape comprising a number of pivotally-connected ladders, means for supporting the lowermost ladder, a segmental arch on the uppermost ladder, a pair of ropes secured to opposite ends of the arch, and a pair of winches engaging the ropes, substantially as specified.

3. A fire-escape comprising a platform, a laterally-movable post projecting upwardly therefrom, a set of ladders hinged to said post, an arch on the uppermost ladder, a pair of ropes engaging the arch and secured to opposite ends thereof, and a pair of winches engaging the ropes, substantially as specified.

4. A fire-escape comprising a platform, a laterally-movable post projecting upwardly therefrom and having a forwardly-projecting roller b^3, a lower ladder c, hinged to the post and having rearwardly-projecting roller c^4, an upper ladder c, hinged to ladder c, and having arch f, eyes f^1, and rearwardly-projecting roller c^4, a pair of ropes engaging the rollers and eyes, and a pair of winches engaging the ropes, substantially as specified.

645,983. STEAM OR OTHER ELASTIC-FLUID ENGINE. JOHN H. STREET, Rugby, England, assignor to the Willans & Robinson, Limited, same place. Filed June 17, 1899. Serial No. 720,936. (No model.)



Claim.—1. In a steam or like engine the combination of a segmental recess or valve seat in the steam-chest, a continuously-rotating cylindrical admission-valve seated therein, one or more inclined ports formed in the segmental valve-seat, one or more inclined recesses formed in the circumference of a rotating valve, which as the valve rotates are brought over the ports and are at the same time open to the steam in the steam-chest and allow steam to pass to the ports, and means for shifting the rotating valve endwise by the action of the engine-governor to vary the cut-off according to the speed of the engine.

2. The combination of a steam-chest, a segmental recess or valve-seat therein, a continuously-rotating cylindrical valve seated in the segmental recess, ports formed in the segmental recess and recesses formed in the circumferential face of the cylindrical valve, which as the valve rotates are brought over or opposite the ports and are at the same time open to the steam in the steam-chest and allow steam to pass to the ports, and means for shifting the rotating valve endwise by the action of the engine-governor according to the speed of the engine.

3. The combination of two steam or valve chests arranged end to end and connected by a circular passage constituting a bearing for cylindrical valves and having respectively at their outer ends similar bearings, segmental valve-seats located within the chests and between said bearings, two continuously-rotating cylindrical valves seated in the respective segmental valve-seats and turning in said bearings, an interlocking connection between the abutting ends of the two valves, means for continuously rotating both valves applied at the end of one of them, one or more ports formed in each segmental valve-seat, one or more recesses formed in the circumferential surface of each cylindrical valve, and means for shifting the two valves simultaneously by the action of the governor to vary the cut-off according to the speed of the engine.

4. The combination of two steam or valve chests arranged end to end and connected by a circular passage constituting a bearing for cylindrical valves and having respectively at their outer ends similar bearings, segmental valve-seats located within the chests and between said bearings, two continuously-rotating cylindrical valves seated in the respective segmental valve-seats and turning in said bearings, an interlocking connection between the abutting ends of the two valves, means for continuously rotating both valves applied at the end of one of them, one or more ports formed in each segmental valve-seat, one or more recesses formed in the circumferential surface of each cylindrical valve, two pivoted levers mounted to exert endwise pressure at the outer ends of the respective valves to shift them axially in either direction, a cross-bar connecting the outer ends of said levers, a governor and operative connections between the governor and levers to rock them in either direction and shift the valves endwise in either direction.

5. The combination of two steam or valve chests arranged end to end and connected by a circular passage constituting a bearing for cylindrical valves and having respectively at their outer ends similar bearings, segmental valve-seats located within the chests and between said bearings, two continuously-rotating cylindrical valves seated in the respective segmental valve-seats and turning in said bearings, an interlocking connection between the abutting ends of the two valves, means for continuously rotating both valves applied at the end of one of them, one or more ports formed in each segmental valve-seat, one or more recesses formed in the circumferential surface of each cylindrical valve, a governor and operative connections interposed between the governor and the respective outer ends of the two continuously-rotating valves whereby they may be shifted axially in either direction.

645,984. ELECTRICAL SWITCH. JULIUS C. TOURTELLOT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Sept. 26, 1898. Serial No. 731,537. (No model.)



Claim.—1. In a socket for an electric lamp, the combination with an insulating-support, of a yielding line-terminal mounted thereon, a conducting lamp-retainer secured to said support and adapted to conduct current to the lamp, a contact-maker mounted within the insulating-support and adapted to engage with said line-terminal, and means whereby said contact-maker can establish electrical communication with said lamp-retainer, and then move forward toward the latter.

2. A socket, which comprises an insulating-support, a screw-threaded conducting-sleeve secured to said support, a contact maker and breaker, and a strip of different metal from that of the sleeve and contact-maker, which is secured between said sleeve and said support.

3. In an electric-lamp socket, the combination with a contact-maker, of a conducting-spring adapted to be engaged by said contact-maker, and an unyielding conductor adapted to engage with a lamp-terminal and with said spring-contact, and to serve as an abutment for the spring-contact when the latter is engaged by the contact-maker.

4. In a lamp-socket, the combination with a rigid conductor adapted to make contact with a lamp-terminal, of a conducting-spring, and a contact-maker adapted to cause the said spring to abut against said conductor.

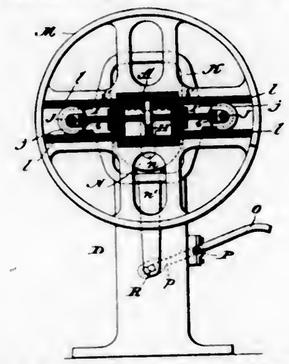
5. In an electric-lamp socket, the combination with an insulating-support carrying a conductor adapted to support a lamp and engage a terminal thereof, of a contact-maker, and a conducting-piece composed of a material different from that of the contact-maker and secured between the said insulating-support and the said conductor.

6. In a socket for an electric lamp, the combination with an insulating-support, of a screw-threaded conducting-sleeve having a flange by which it is secured to said support, said sleeve being adapted to receive a screw-threaded lamp-base, a contact-maker mounted within said support, and means whereby said contact-maker can move toward the flange of said sleeve after it has established electrical communication with said sleeve.

7. In a socket for an electric lamp, the combination with an insulating-support, of a conducting lamp-retainer secured thereto, a contact-maker, and a yielding conductor secured between the said insulating-support and said lamp-retainer.

8. In a socket for an electric lamp, the combination with a rigid conductor adapted to engage with a lamp-terminal, of a separate conducting-spring secured to said conductor, and a contact-maker adapted to cause said spring to abut against said conductor, whereby said spring is compressed between the conductor and contact-maker.

645,985. ENGINE. NICHOLAS J. VERBRY, Little Rock, Ark., assignor of two-thirds to Henry H. Samstag and Charles H. Ross, same place. Filed June 14, 1899. Serial No. 720,560. (No model.)



Claim.—1. In an engine, the combination, of a revolving cylinder, a piston reciprocating in the cylinder, rods projecting from the piston through the cylinder, a fly-wheel inclosing the cylinder and piston-rods, yoke-frames connected to the ends of the rods, and cams or eccentrics around which the yoke-frames revolve; together with valve mechanism for the cylinder, substantially as shown and described.

2. In an engine, the combination, of a cylinder revolving with a shaft, a piston reciprocating in the cylinder, rods projecting from the piston through opposite ends of the cylinder, a fly-wheel inclosing the cylinder and piston-rods, yoke-frames connected to the piston-rods, and cams or eccentrics around which the yoke-frames revolve; together with valve mechanism for the cylinder, substantially as shown and described.

3. In an engine, the combination, of a cylinder revolving with a shaft, a piston reciprocating therein and having rods extending through opposite ends of said cylinder, transverse shafts at the outer ends of said rods, yoke-frames connecting the ends of the shafts, rollers mounted on the transverse shafts, a fly-wheel embracing the cylinder and having ways against which the rollers bear, and cams or disks located within the yoke-frames and around which said yoke-frames revolve; together with valve mechanism for the cylinder, substantially as shown and described.

4. In an engine, the combination, of a cylinder, shafts projecting from opposite sides thereof, one of the shafts presenting a hub having ports which lead into the cylinder, a piston reciprocating in the cylinder and having rods projecting through the ends of said cylinder, transverse shafts connected to the ends of the piston-rods and carrying antifriction-rollers, yoke-frames connecting the ends of the rods, and cams or disks located within the yoke-frames and around which said yoke-frames revolve; together with a chest fitted upon the hub and having chambers which communicate alternately with the ports in said hub, substantially as shown and described.

5. In an engine, the combination, of a cylinder revolving with the shaft, a piston reciprocating in the cylinder and having piston-rods extending through said cylinder, yoke-frames connected to the outer ends of the piston-rods and positioned on opposite sides of the cylinder, said yoke-frames having transverse openings or slots therein, cams movable in the openings or slots of the yoke-frames, and means for adjusting said cams; together with valve mechanism for the cylinder, substantially as shown and described.

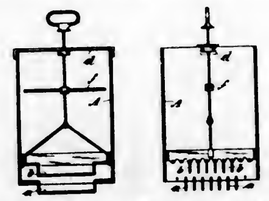
6. In an engine, the combination, of a cylinder revolving with a shaft, a piston reciprocating in the cylinder and having rods extending through said cylinder, a fly-wheel embracing the cylinder and presenting surfaces against which the piston-rods bear, yoke-frames connected to the outer ends of the piston-rods and positioned on opposite sides of the cylinder, said yoke-frames having transverse slots or openings therein, cams or disks movable in the openings or slots of the yoke-frames, and means for adjusting said cams; together with valve mechanism for the cylinder, substantially as shown and described.

7. In an engine, the combination, of a cylinder having shafts projecting from opposite sides thereof, one of said shafts being enlarged forming a hub in which are located ports leading into the cylinder and out through opposite sides of the periphery of said hub, a piston reciprocating in the cylinder and having rods extending through opposite ends of said cylinder, transverse shafts carried by the outer ends of said piston-rods and having antifriction-rollers, yoke-frames connecting the outer ends of the transverse shafts, disks or cams located in the yoke-frames and around which said yoke-frames revolve, and a fly-wheel embracing the cylinder, said fly-wheel having guide-plates against which the rollers bear; together with a chest fitting the hub and having chambers which communicate with the ports in said hub, substantially as shown and described.

8. In an engine, the combination with a cylinder, shafts projecting from opposite sides thereof, one of said shafts being enlarged and tapered from the cylinder to provide for ports leading from opposite sides of the tapered enlargement into the cylinder, a piston reciprocating in the cylinder and having piston-rods extending through said cylinder, transverse shafts at the outer ends of the piston-rods, yoke-frames connected to the ends of the transverse shafts and having transverse openings or slots, cams or disks located in said openings or slots and movable therein, and a fly-wheel embracing the cylinder and having guide-plates upon which the rollers carried by the piston-rods travel or slide, substantially as shown; together with a chest fitting the tapered hub of the cylinder and provided with chambers communicating with the ports in said hub, substantially as set forth.

9. In an engine, the combination, of a cylinder revolving with a shaft, a piston reciprocating in said cylinder and having rods extending through the ends of the cylinder, transverse shafts at the ends of the piston-rods carrying rollers, yoke-frames connected to the ends of the rods, and cams or disks around which the yoke-frames revolve; together with a fly-wheel embracing the cylinder and having radial openings or spaces in which the piston-rods play, guide-plates forming the sides of said openings or spaces, and means for adjusting the guide-plates, substantially as shown and described.

645,986. MEANS FOR FILLING MOLDS. PAUL WERNICKE, Elsenburg, Germany. Filed June 26, 1899. Serial No. 721,895. (No model.)



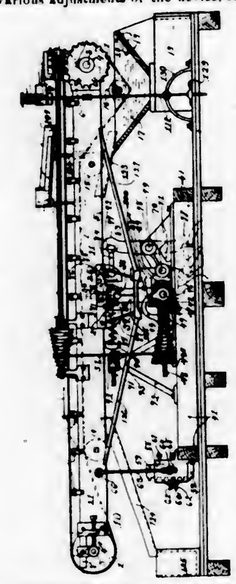
Claim.—1. A box for filling molds having at the bottom a profiled grate or sieve, to correspond to the various thicknesses of the ware to be subsequently pressed in the manner and for the purpose substantially as described.

2. A box for filling molds having a fixed grate at the bottom and a movable grate to pass between the bars of the said fixed grate, said grates having a profile corresponding to the various thicknesses of the ware to be subsequently pressed, in the manner and for the purpose substantially as described.

3. A box for filling molds having a fixed profiled grate at the bottom and a vertically-movable grate to fit into said fixed grate when lowered, and means in connection with the said movable grate to move the same up and down in the manner and for the purpose substantially as described.

645,987. ORE-CONCENTRATOR. WILLIAM E. WILD, Denver, Colo. Filed Nov. 17, 1898. Serial No. 696,730. (No model.)

Claim.—1. The combination with the concentrating-belt and table and their oscillating support and main driving-shaft, of means for varying and maintaining any desired angle of longitudinal inclination of the belt and table while under their operative reciprocal movement comprising a toothed rack-bar vertically supported in a suitable guide-casing, a pinion journaled in said casing and in mesh with said toothed rack-bar, means for rotating said pinion to raise and lower said rack-bar, an arm pivoted at one end to said toothed rack-bar and at the opposite end to said table and means for clamping said toothed rack-bar to said casing after adjustment, and with the belt-driving mechaniam, comprising the rope-cones, one of which is suspended from the other, a yoke or bracket journaled at one end to support said suspended cone and at its opposite end journaled to said main driving-shaft, whereby the relative position of cones is maintained in the various adjustments of the device, substantially as described.



2. The combination with any suitable concentrator-belt and suitable belt-supporting pulleys and a supporting-table or framework for said belt and pulleys, of a suitable foundation or bed-plate of timbers adapted to form the base of said concentrator, journal-boxes secured to opposite sides of said bed-plate, a vertically-disposed supporting-frame pivotally journaled in said boxes and arranged transversely across said belt and table and at the central portions of their length and having trunnions on its opposite ends, a saddle-plate secured transversely across the bottom of said belt-supporting frame or table and a box secured on one side of said saddle and arranged to adjust itself independent of the movements of said table, to one of said trunnions of said vertical frame and a box on the opposite side of said saddle supported in vertical guideways formed in said saddle and bearing on the opposite trunnion of said supporting-frame, a screw threaded to said saddle and arranged to bear on said box, and means including a check-nut for securing said screw in an adjusted position, substantially as described.

3. The combination with the concentrator-belt and table of the ore-hopper having an amalgamating-plate in its bottom, a distributing-table extending from said hopper and provided with a raised floor, a plurality of partitions extending across said floor and diverging from the discharging-outlet of said hopper across the width of said distributing-table, whereby a plurality of independent water-channels are formed from the hopper across the distributing-table, a trough along the edge of said distributing-table lower than said raised floor and a plurality of discharge-slots through the bottom of said trough opposite to and registering with the discharge ends of said water-channel, substantially as described.

4. The combination with the concentrator-belt, its supporting-table, the pivotal oscillating support and the belt differential-speed driving mechanism, with the ore-hopper, the amalgamating-plate therein and the ore-distributing table, and with a water-hopper supported above said belt and arranged to be raised and lowered to and from said belt and containing a row of water-discharging pipes which depend from it and extend above the floor of the hopper within it and each having a diametrical slot cut in its end and along its length above the floor of said hopper of an area substantially equal to the area of each pipe, a water-supply pipe leading to said water-hopper and a valve for controlling said supply, whereby the volume of water flowing through said discharge-tubes is gaged substantially as described.

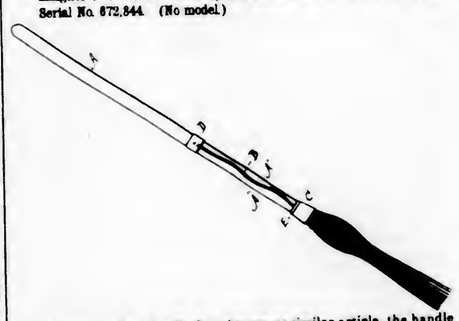
5. The combination with the belt and the table the oscillating support and the driving mechanism, of a water-supply pipe extending up on each side of said belt and table and supported independent of said belt and table and extending transversely across said belt, a water-hopper adjustably secured to and arranged to be lowered to and from said belt, a plurality of tubes arranged to discharge water transversely across and onto said belt from said hopper and means including a diametrical slot in each tube for predetermining the flow of water through each tube, substantially as described.

6. The combination with the endless belt and its supporting-table, of a water-supply supported on opposite sides of said belt and table and independently of them and extending above and transversely across said belt, a water-supply hopper supported by said water-supply pipe, a water-inlet from said pipe into said hopper and means for lowering and raising said hopper between said pipe and belt comprising a bracket secured to each end of said hopper and extending above it, a slot in said bracket through which said pipe passes, a block slidable in said slot and partially embracing said pipe and a hand operating-screw threaded through the top of said bracket and bearing on the top of said block whereby by turning said screw said hopper may be moved toward or from said belt or pipe and means including a row of tubes depending from said hopper and containing vertical slots for distributing water across said belt, substantially as described.

7. The combination with the belt, the table, the saddle and the pivotal oscillating yoke, of the driving-shaft journaled in the pivotally-journaled end of said pivotal oscillating support, the eccentric movement thereon; a cross-head arranged to embrace and to be oscillated on a pivotal bearing by the rotative movement of said eccentric, and an adjustable removable shoe secured to said cross-head to receive the wear of said eccentric, an extension depending from said cross-head, a pivotal bearing in the end of said extension and a lever journaled at one end in said pivotal bearing and at its opposite end pivotally journaled to one end of a walking-beam, substantially as described.

8. The combination in an ore-concentrator, the belt with a differential driving mechanism for said belt comprising a grooved rope-belt conical pulley, a rope belt for said grooved pulley, a second oppositely-disposed conical grooved pulley suspended by said rope belt from said first-named pulley, a shaft carried by said suspended cone, a driving-shaft, means including a yoke-shaped bracket for pivotally connecting the free end of said cone-shaft to said driving-shaft, means for driving said suspended cone from said driving-shaft and means including a shaft for driving said belt from said cones, substantially as described.

645,988. BROOM-HANDLE. JOHN W. WILLARD, Pittsford, Vt., assignor to the Nu Broom Company, Boston, Mass. Filed Mar. 7, 1898. Serial No. 672,844. (No model.)

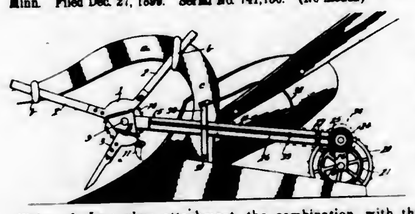


Claim.—1. In a handle for a broom or similar article, the handle proper, provided with a saw-kerf or slit dividing the lower end of said handle longitudinally into two parts A′ and A″, the part A″ being thicker at and near said lower end than the part A′ by reason of the kerf at said end being located at one side of the center thereof; and a ferrule or band applied to and around the handle at said lower end, said ferrule or band being provided on its inner surface with one or more inwardly-projecting ribs F extending into said thicker portion A″ only, substantially as set forth.

2. In a handle for a broom or similar article, the handle proper provided with a saw-kerf or slit dividing the lower end of said handle longitudinally into two parts A′ and A″, the part A″ being thicker at and near said lower end than the part A′ by reason of the kerf at said end being located at one side of the center thereof; and a ferrule or band applied to and around the handle at said lower end, said ferrule or band being provided on its inner surface with one or more inwardly-projecting ribs F extending into said thicker portion A″ only, said ribs being arranged longitudinally of the ferrule and being thicker, that is, extending farther into said portion A″, at the lower end of the ferrule and growing gradually thinner at the upper end thereof, substantially as described.

3. In a handle for a broom or similar article, the handle proper provided with a saw-kerf or slit extending from the lower end thereof to a suitable point intermediate of said ends, whereby said handle is divided substantially longitudinally at and near its lower end into two parts; and a ferrule or band applied to and around that portion of the handle provided with the kerf, said ferrule being rigidly secured to one of said portions and being provided internally with a recess next the other of said portions, whereby the last-named portion is free to move toward and from the portion first named within said recess, substantially as set forth.

645,989. PLOW ATTACHMENT. CAESAR WILSON, Litchfield, Minn. Filed Dec. 27, 1899. Serial No. 741,756. (No model.)



Claim.—1. In a plow attachment, the combination, with the colter case or frame, having the radial arms adapted to be secured to a plow-beam, of the revoluble colter, in said case or frame, the trail-frame hinged on the axle of the colter, the traction-wheel mounted in said trail-frame, and connections between said traction-wheel and said colter, to revolve the latter, substantially as described.

2. In a plow-colter, the longitudinally-movable cutter-arm, in combination with a tension-spring, to extend said arm, and a support for said arm and spring, substantially as described.

3. In a plow attachment, the combination with a relatively-fixed guiding-arm, or cutter-bar, of a revoluble colter and means to rotate said colter, substantially as described.

4. In a plow attachment, the supporting case or frame, adapted to be secured to a plow, and having a downwardly-inclined arm, in combination with a revoluble colter mounted in said case or frame, and a traction device, and connections to rotate said colter, substantially as described.

5. The combination, with the case or frame, adapted to be secured to a plow, and having the revolving colter, of the trail-frame connected to said colter case or frame, and having the traction device, and connections to rotate the colter, substantially as described.

6. In a plow attachment, the combination, with the colter case or frame, of the revolving colter supported therein, the trail-frame, the traction and connecting actuating devices to rotate the colter, and the sprtng, or equivalent device, bearing downward on said trail-frame for the purpose set forth, substantially as described.

7. In a plow attachment, the trail-frame, formed of a single bar of material, and comprising the longitudinal arm 14, having the offset 28, and the downturned arm 16 bent to form the lateral offset 17 and vertical arm 18, for the purpose set forth, substantially as described.

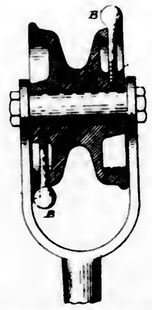
8. In a plow attachment, in combination with a supportiug frame or case, having the yielding cutter bar or arm 4, and the rigid cutter 11, in rear thereof, the revoluble colter in said support or frame, and means to rotate said colter, substantially as described.

645,990. TROLLEY-WHEEL. RICHARD S. WIELSON, Alexandria, Va. Filed July 18, 1899. Serial No. 724,237. (No model.)

Claim.—1. A trolley-wheel provided with arms or projections, which extend from opposite sides and from opposite edges of the wheel and which are out of line with each other, and which arms or projections catch the wire as it is leaving the groove in the wheel and return it to position, substantially as shown.

2. A trolley-wheel provided with a single arm or projection placed upon opposite sides of the wheel, and projecting from opposite edges, and which arms or projections catch the wire as it is leaving the groove in the wheel and return it to position, substantially as described.

3. In a trolley-wheel, two arms or projections extending from opposite edges and from opposite sides of the wheel, and which arms or projections have inwardly-inclined surfaces so as to catch the wire when it is leaving the groove and return it to position, substantially as set forth.

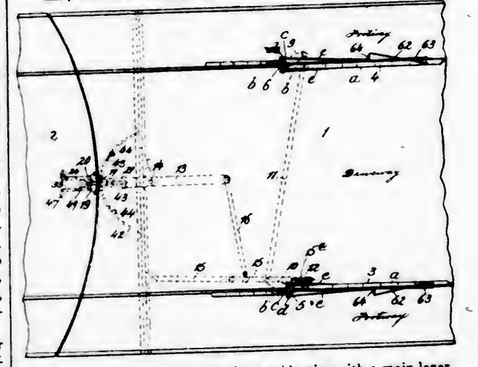


4. A trolley-wheel provided with arms or projections, which extend from opposite sides, and from opposite edges of the wheel, combined with flanges formed upon the edge of the wheel, and which serve to brace the arms or projections in position, substantially as shown.

5. In a trolley wheel, an arm or projection which extends from each edge of the wheel, but from opposite sides thereof and which arms or projections have suitable shanks which pass through the edges of the wheel, and which are fitted into sockets formed upon the hub to receive them, substantially as described.

6. A trolley-wheel having projecting from its opposite sides and from opposite flanges thereof, two arms or projections provided with inwardly-inclined surfaces, and which serve to catch the wire as it is leaving the groove of the wheel and return it to position, substantially as set forth.

645,991. DRAWBRIDGE-GATE. HENRY W. YERRINGTON, Oceanic, N. J. Filed Oct. 5, 1899. Serial No. 732,607. (No model.)



Claim.—1. In a drawbridge the combination with a main lever, provided with a bifurcated lever and a cushioning device, of a pair of toggle-levers, a pair of pivoted gates, cranks and a connecting-rod connecting said toggle-levers and gates, and a projecting piece attached to the draw for engaging the bifurcated lever to open and close the gates, substantially as described.

2. A main lever for operating the gates of a drawbridge, provided with an auxiliary bifurcated lever consisting of a pair of jaws adjustably secured to the auxiliary lever which is adapted to engage with a cushioning device, a cushioning device consisting of a spring secured to the main lever, and a stop for limiting the vibrations of said bifurcated lever, substantially as shown and described.

3. A main bifurcated lever provided with a locking-lever having a bolt adapted to engage a locking-band for holding said main lever in position, and a parallel-lever frame pivoted to the jaws of main lever and carrying a double wedge adapted to operate the locking-lever, substantially as shown and described.

4. A main lever for operating the gates of a drawbridge provided with a locking-lever having a locking-bolt adapted to engage a suitable stop or recess, an auxiliary bifurcated lever having pivoted to it a lever-frame carrying a wedge adapted to actuate said locking-lever, and a cushioning device interposed between said main and

auxiliary bifurcated levers, substantially as shown and for the purposes set forth.

5. A main lever provided with a locking-lever having a locking-bolt, and a bifurcated lever carrying a movable wedge and adapted to be acted on by a projecting piece secured to the draw for actuating the locking-lever, substantially as shown and described.

6. A main lever provided with a spring secured to it, a stop-pin, and an auxiliary lever provided at one end with a pair of adjustable jaws and notched at its other end to engage the spring of the main lever and having a slot to engage the stop-pin of main lever, substantially as shown and described.

7. A main lever provided with a bolt-hole, a stop-pin, a socket, a spring secured in said socket, a lever pivoted to said socket and having a locking-bolt, auxiliary bifurcated lever having a bolt-hole, a slot to embrace the stop-pin of main lever and notched at its end to engage the spring of main lever and adjustable jaws provided with a parallel-lever frame carrying a double wedge, all arranged and operating substantially as shown and described.

8. A main lever provided with a spring, a locking-lever having a locking-bolt, and an auxiliary bifurcated lever having its jaws integral and provided each with a double outward bend, and a parallel-lever frame provided with a double wedge, substantially as shown and for the purposes set forth.

9. A main lever provided with a spring, a locking-lever having a locking-bolt, and an auxiliary bifurcated lever having adjustable jaws each of which is provided with a double outward bend, and a parallel-lever frame, fulcrumed to said jaws and provided with a wedged surface, substantially as shown and for the purposes set forth

10. A main lever provided with a spring, a locking-lever having a bolt, and an auxiliary lever adapted to engage said spring and allow passage of said bolt and provided with a pair of adjustable jaws each having at its end a double outward bend forming surfaces adapted to engage a projecting piece carried by the draw, and a parallel-lever frame fulcrumed to said jaws and consisting of a pair of levers projecting somewhat beyond the straight portion of said jaws and connected at their other ends by a link provided with a double wedge, substantially as shown and for the purposes set forth.

11. The combination with a main lever provided with a locking-lever having a locking-bolt, an opening for the passage of said bolt, and an auxiliary lever having an opening adapted to register with bolt-opening in main lever, of a band provided with notches adapted to receive the locking-bolt, and means connected with said auxiliary lever for operating the locking-lever, substantially as shown and described.

12. The combination with a main lever provided with a locking-lever having a locking-bolt, an opening for the passage of said bolt, and an auxiliary lever having an opening adapted to register with the opening in main lever for passage of the bolt, of a band provided with stops and notches to receive the bolt, of a double wedge carried by a lever-frame fulcrumed to said auxiliary lever and a projecting piece carried by the draw adapted to operate said lever-frame, substantially as shown and for the purpose set forth.

13. In a drawbridge the combination with the gates, of a main lever provided with a spring, a locking-lever having a bolt, an opening for said bolt, a stop-pin, a lug, an auxiliary lever adapted to engage the spring and provided with an opening for a bolt, a slot to embrace stop-pin of main lever and adjustable jaws having each a double outward bend at its end and provided with a parallel-lever frame carrying a double wedge, a locking-band provided with notches and stops, a pair of toggle-levers connected with the gates and said main lever, and a projecting piece carried by the draw for engaging said auxiliary lever to open and close the gates, substantially as described.

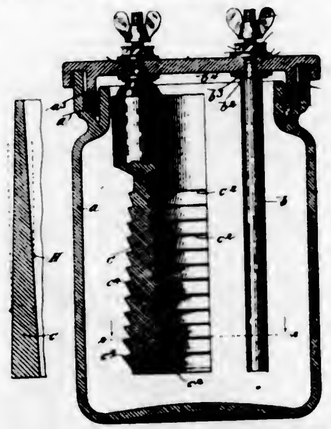
14. A guard or protector for a closed gate, consisting of a flexible member attached to a gate near its end and extending in front of said gate and connected to a fixed portion of the bridge so as to inclose an angular space in front of the gate when closed, and adapted to be moved out of the way by the gate in opening.

15. A gate-guard consisting of a pair of flexible bent levers pivoted to each other at their bent ends, and to the gate and a fixed portion of the bridge respectively at their other ends so as to leave a space behind them in front of said gate, and adapted to be folded out of the way by the gate in opening.

16. A gate-guard consisting of a pair of flexible levers pivoted to the gate and to the bridge respectively and having each a short bend, the levers being pivoted together at the end of said bends, one of the levers having a stop at the bend adapted to engage the bend of the opposite lever, when said levers are extended in line and the gate is closed, and adapted to be folded out of the way by the gates in opening.

17. A gate-frame consisting of a pivot-post, a pair of hubs secured at suitable distances apart on said post, each of said hubs having a pair of oppositely-projecting lugs, adapted each to be attached to a rail of the gate, and a second pair of lugs intermediate of the first-mentioned pair adapted to retain the ends of stay-rods, a pair of rails secured to the first-mentioned pair of lugs, stay-rods connecting said rails with the second pair of lugs, and suitable uprights connecting the rails, substantially as shown and for the purpose set forth.

645,992. PRIMARY BATTERY. FRANCIS B. RADT, Chicago, Ill. Filed Apr. 4, 1898. Serial No. 676,358. (No model.)



Claim.—1. A negative electrode for a primary battery, said electrode being thicker at the bottom than at the top, so that its sides are inclined at an angle to the vertical, the surface of said electrode being corrugated horizontally, such corrugations being in the form of upwardly-projecting ledges having sharp edges, substantially as and for the purpose described.

2. In a primary battery of the class in which the electrolyte is a salt solution, the combination with a jar, of a removable cover therefor, said cover having an annular rib on its under surface, an annular trough formed about the mouth of said jar in which the said rib is adapted to be seated, positive and negative electrodes having stems passing through and secured to the cover, said negative electrode being thicker at the bottom than at the top and having its surface corrugated horizontally, forming upwardly-projecting ledges upon said electrode, and rubber packings above and below the cover around said stems to render the joints air-tight, substantially as shown and described.

3. An electrode for batteries, made thicker at the bottom than at the top and provided with transverse corrugations, substantially as described.

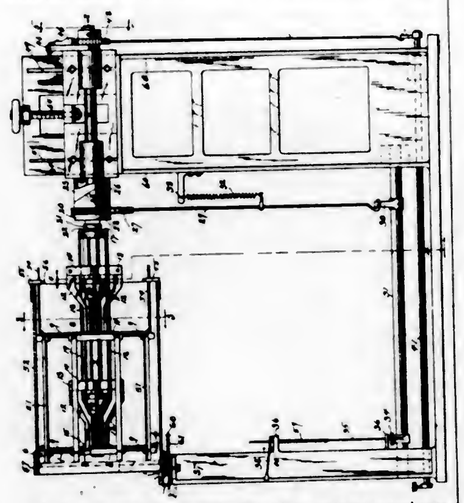
645,993. MACHINE FOR ATTACHING LINING-HOOPS. MARCUS J. BARTLETT, Chicago, Ill., assignor to the International Package Machine Company, same place. Filed Aug. 21, 1899. Serial No. 727,912. (No model.)

Claim.—1. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing and expanding said drum, a stop for fixing the position of the packages longitudinal of the drum, an anvil for abutting the under surface of the outer end of said package, and means for rotating said drum, substantially as described.

2. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing and expanding said drum, an adjustable stop on said drum for engaging the inner end of a veneer package, an anvil for abutting the under surface of the outer end of said package, and means for rotating said drum, substantially as described.

3. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing and expanding said drum, an adjustable stop on said drum for engaging the inner end of a veneer package, an anvil for abutting the under surface of the outer end of said package, a stop on said anvil and means for rotating said drum, substantially as described.

4. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing said drum, an adjustable stop on said drum for engaging the inner end of a veneer package, an anvil for abutting the under surface of the outer end of said package, a stop on said anvil for engaging the outer end of the drum, and means for rotating said drum, substantially as described.



5. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing and expanding said drum, an adjustable stop on said drum for engaging the inner end of a veneer package, an anvil for abutting the under surface of the outer end of said package, and means for rotating said drum, said shaft and anvil being relatively vertically adjustable, substantially as described.

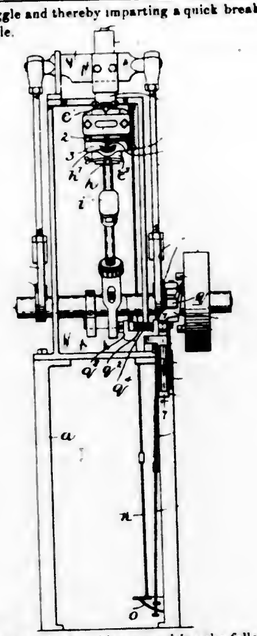
6. The combination of a supporting-frame, a shaft journaled on said frame, a collapsible drum mounted on said shaft and rotatable therewith, a cone or wedging member mounted on said shaft and slidable longitudinally thereof for expanding said drum, a loose collar on said shaft abutting the wedging member and having a cam-face on its opposite side, an oppositely-formed face rigid on the frame and abutting said cam-face, a lever for turning said loose collar, a grip for setting said collar at any part of its movement, a ratchet-wheel rigid on said shaft, and a lever and pawl acting on said ratchet-wheel for rotating same, substantially as described.

7. The combination of a supporting-frame, a shaft journaled on said frame, a pair of spiders rigid on said shaft, a series of drum-segments having rigid thereon the inwardly-projecting arms slidingly secured to said spiders, the arms 14 rigid on said shaft, the levers 12 pivoted to said arms with their free ends under said inwardly-projecting arms, and the cones for actuating said levers, substantially as described.

8. In a machine for attaching lining-hoops to veneer packages, the combination of a supporting-frame, a shaft supported at one end on said frame, and having its other end free therefrom, a collapsible drum mounted on said shaft, means for collapsing and expanding said drum, an anvil having a concave upper surface for abutting the under surface of the outer end of said package, a stop movably secured to said anvil, arranged to normally project over said concave surface, and adapted to be turned to a position free from same, and means for rotating said drum, substantially as described.

645,994. HEEL-BREASTING MACHINE. ALBERT G. BREWER, Hopkinton, Mass., assignor to the United Shoe Machinery Company Boston, Mass. Filed Apr. 27, 1899. Serial No. 714,671. (No model.)

Claim.—1. In a heel-breasting machine comprising the following instrumentalities, namely, a work-support, a carrier positively reciprocated toward and from the support, a knife-holder located between the carrier and support and having a breasting-knife, a toggle connecting the carrier and knife-holder, means for supporting the toggle against a breaking movement in one direction, whereby the toggle is enabled to impart positive movement to the knife-holder, and a gage movable with the knife-holder; the combination with said instrumentalities, of means for imparting movement from the gage to one end of the toggle and thereby imparting a quick breaking movement to said toggle.



2. In a heel-breasting machine comprising the following instrumentalities, namely, a work-support, a carrier positively reciprocated toward and from the support, a knife-holder located between the carrier and support and having a breasting-knife, a toggle connecting the carrier and knife-holder, means for supporting the toggle against a breaking movement in one direction, a yielding gage movable with the knife-holder and arranged to abut against the work; the combination with said instrumentalities, of means intermediate the gage and one end of the toggle, whereby contact of the gage with the work is caused to impart a quick breaking movement to the toggle.

3. A heel-breasting machine comprising a work-support, a carrier positively reciprocated toward and from the support, a knife-holder located between the carrier and support and having a breasting-knife, a toggle connecting the carrier and knife-holder, means for supporting the toggle against a breaking movement in one direction, an arm pivoted to the knife-holder and provided at its swinging end with a gage, and a stud affixed to one member of the toggle and adapted to be partially rotated to break the toggle by contact with said arm.

4. A heel-breasting machine comprising a work-support, a carrier positively reciprocated toward and from the support, a knife-holder located between the carrier and support and having a breasting-knife, a toggle connecting the carrier and knife-holder, an adjustable stop on the knife-holder adapted to support the toggle against a breaking movement in one direction, and automatic means for imparting a breaking movement in the opposite direction to said toggle.

5. A heel-breasting machine comprising a work-support, a carrier positively reciprocated toward and from the support, a knife-holder located between the carrier and support and having a breasting-knife, a toggle connecting the carrier and knife-holder, means for supporting the toggle against a breaking movement in one direction, an arm pivoted to the knife-holder, a gage adjustably mounted on the swinging end of the arm, means for adjusting the gage relatively to the arm, and a stud affixed to one member of the toggle and adapted to be partially rotated by contact with said arm.

6. A heel-breasting machine comprising a work-support, a knife-holder movable toward and from the support and having a breasting-knife, a guide having a swinging connection with the knife-holder and adapted to bear on the top lift of a heel on the work-support.

7. A heel-breasting machine comprising a work-support, a knife-holder movable toward and from the support and having a breasting-knife, a guide having a swinging connection with the knife-holder and adapted to bear on the top lift of a heel on the work-support, and means for pressing the guide against the heel.

8. A heel-breasting machine comprising a work-support, a knife-holder movable toward and from the support and having a breast-

ing-knife, a guide composed of a plate or block adapted to bear on the top lift of a heel, an arm to which said guide is pivoted, said arm being pivoted to the knife-holder, and means for exerting downward pressure on said arm.

645,995. THILL-REINFORCE. ANTHONY G. BRUNEMAN, Cincinnati, Ohio. Filed May 27, 1899. Serial No. 718,483. (No model.)



Claim.—1. In combination with the thill having a bent end the reinforce consisting of the thill-iron, the brace-plate, the brace-rod coupling the thill-iron and the brace-plate, and the cross-rod connecting the brace-rod and the shaft between the thill-iron and the brace-plate to strengthen and support the brace-rod, substantially as shown and described.

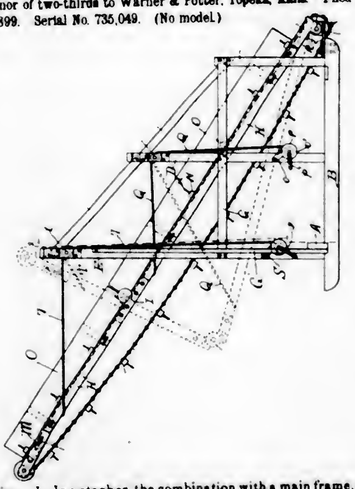
2. In combination with the thill having a bent end the reinforce consisting of the thill-iron, the brace-plate, the brace-rod coupling said iron and said plate, the clip for embracing the thill, and the clip-bar with a downwardly-projecting boss perforated to receive the brace-rod, substantially as shown and described.

3. In combination with the thill having the bent end the reinforce consisting of the thill-iron, the brace-plate, recessed bosses upon the under sides of the thill and the plate, the brace-rod supported in said bosses, a clip to embrace the shaft, and the clip-bar with a perforated boss to receive the brace-rod, substantially as shown and described.

4. In combination with the thill having a bent end the reinforce consisting of the thill-iron, the brace plate, recessed bosses projecting from the under side of said iron and said plate, pins supported between the sides of the bosses, the brace-rod the ends of which hook over said pins, the clip to embrace the shaft, and the clip-bar from the under side of which projects a rod terminating in a boss to receive the brace-rod, substantially as shown and described.

5. A reinforce for bent shafts or thills consisting of the thill-iron, the brace-plate, the brace-rod coupling said thill and plate and a cross-brace sleeved upon said rod and having a clip-bar upon its upper end to be connected to a clip to be secured to the curve of the shaft, substantially as shown and described.

645,996. HAY-STACKER. ALFONSO BUCHEY, Maple Hill, Kans., assignor of two-thirds to Warner & Potter, Topeka, Kans. Filed Oct. 28, 1899. Serial No. 735,049. (No model.)



Claim.—1. In a stacker, the combination with a main frame, comprising uprights secured at their lower ends to horizontal supports, of brackets secured to said supports; an elevator-frame pivotally secured at its lower end to said brackets; and comprising hinged sections; means for raising the lower section of the elevator; and independent means for raising the adjacent section as the lower section is lowered to effect the folding of the elevator-frame.

2. In a stacker, the combination with a main frame, comprising uprights secured to parallel runners; of brackets projecting from said runners; an elevator-frame consisting of hinged sections and provided with a transverse shaft pivotally connecting the brackets on the runners with those on the elevator-frame; an endless carrier passing over said shaft in close proximity to the ground; means for raising the lower pivoted section of the elevator-frame, and independent means for raising the adjacent section to fold the elevator-frame.

645,997. BRICKMAKER'S HOUSING. WILLIAM H. CARY, Mechanicsville, N. Y. Filed Nov. 29, 1899. Serial No. 738,743. (No model.)



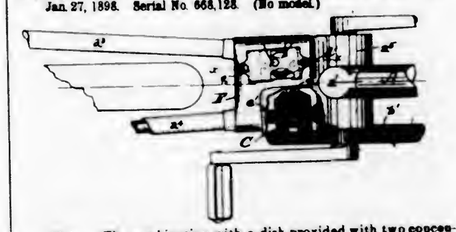
Claim.—1. In a brickmaker's housing, the combination of a front wall having inclined lateral ends, and a roof supported at the forward end by the front wall of said housing, and at the rear end by the top of a bank of earth, substantially as shown and described.

2. In a brickmaker's housing, the combination of a front wall having inclined lateral ends and a series of uprights, and a roof having a series of truss-beams arranged in line with the uprights of the front wall, substantially as shown and described.

3. In a brickmaker's housing, the combination of a front wall having its lateral ends inclined upward from its lower end, a roof supported at its forward end by said front wall, and at its rear end by the top of a bank of earth, and means for moving said wall and roof inward, substantially as shown and described.

4. In a brickmaker's housing, the combination of a front wall having its lateral ends inclined upward, and a roof supported at its forward end by said front wall and at its rear end by the surface of the bank of earth, and having lateral ends extending beyond the greatest width of the front wall, substantially as shown and described.

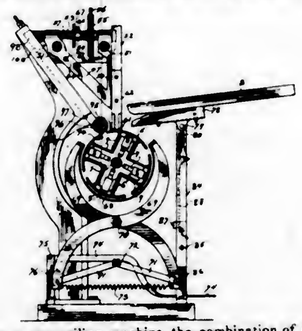
645,998. BICYCLE. EDWIN H. FISHER, Cincinnati, Ohio. Filed Jan. 27, 1898. Serial No. 668,128. (No model.)



Claim.—The combination with a disk provided with two concentric rows of teeth, of a gear upon the transmitting-shaft adjustable to engage either of said rows of teeth, a sliding shifter carried in the frame of the bicycle and perforated to receive an operating-eccentric, an eccentric working in the opening in the shifter, a rod carrying said eccentric and extended outward to a convenient position on the frame and a handle upon said rod adapted to be turned to engage over the upper brace, substantially as and for the purpose specified.

645,999. VENEER COILING AND MAILING MACHINE. GEORGE A. GAGE, Chicago, Ill. Filed July 3, 1899. Serial No. 722,688. (No model.)

Claim.—1. In a veneer-coiling machine, the combination of a suitable frame therefor; a rotary shaft journaled in said frame; a series of radial guide-arms 6 arranged in pairs and rigid on said shaft; a series of drum-segments having, rigid thereon, inwardly-projecting arms each slidingly seated between one of said pairs of guide-arms; the spring on each side of each of said pairs, normally urging the segments inwardly; a sleeve on said shaft, longitudinally movable thereon and secured against relative rotation; a series of rods secured to said sleeve, extending along said shaft, and having cam-faces acting on said inwardly-projecting arms, whereby and through the longitudinal movement of said sleeve, said segments are moved toward or from said shaft; and means for rotating said shaft.



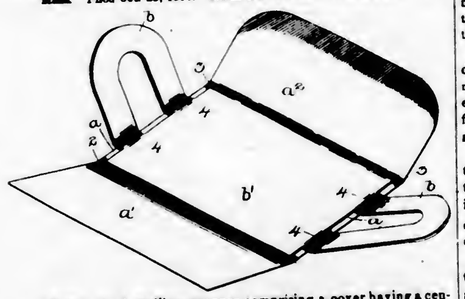
2. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; a pair of arms movably secured to the frame and extending, one on each side of said drum; a pressure band or apron having its ends attached to said arms, and extending along and part way around said drum; a spring normally urging said arms upwardly and toward said drum; and means for simultaneously lowering and spreading said arms.

3. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; the levers 69 fulcrumed on the frame; the apron 68 supported by the upper arms of said levers part way around said drum; the arms 71 pivoted together and to the lower arms of said levers; a spring normally urging said lower arms toward each other; and a lever fulcrumed on the frame and acting on the arms 71 for depressing same against the action of said spring, whereby the upper arms of the levers 69 are simultaneously lowered and spread apart to release the apron from the drum.

4. In a veneer-coiling machine the combination of a suitable frame therefor; a collapsible drum journaled on said frame; a hoop-guiding trough movably secured to said frame, and normally disposed near the upper surface of the drum, and means for urging said hoop-guide into normal position.

5. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; an arm pivoted to said frame and carrying a series of adjustable hoop-guiding troughs normally near the upper surface of the drum; and a spring acting between the frame and said arm urging the guides into said normal position.

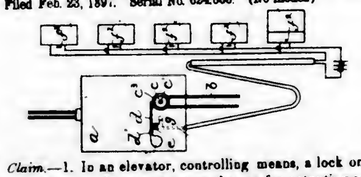
646,000. WRAPPER OR ENVELOP. JESSE GEARING, Salem, Mass. Filed Oct. 25, 1899. Serial No. 734,746. (No model.)



Claim.—1. A mailing-wrapper comprising a cover having a central portion and foldable flaps, and stops separate from and attached to the cover and adapted to be folded across the ends of an article inclosed in the cover with the creases of said stops within the margin of the edges of the cover, said stops being formed to expose portions of the inclosed article to view through the end openings of the cover without unfolding said stops.

2. A mailing-wrapper comprising a cover having a central portion and foldable flaps, a supplemental sheet or strip *b'* secured to the inner surface of said central portion, and stops on the ends of said supplemental sheet adapted to be folded across the ends of an article inclosed in the cover with the creases of said stops within the margin of the edges of the cover, said stops being formed to expose portions of the inclosed article to view through the end openings of the cover without unfolding said stops.

646,001. ELEVATOR. CHARLES A. HARKNESS, Providence, R. I. Filed Feb. 23, 1897. Serial No. 624,668. (No model.)



Claim.—1. In an elevator, controlling means, a lock on the car for said means, an electromagnet on the car for actuating said lock, a door, and an electric circuit for energizing the electromagnet to actuate said lock when said door is open.

2. In an elevator, controlling means, a lock on the car for said means, an electromagnet on the car for actuating said lock, a door, an electric circuit for energizing the electromagnet to actuate said lock when said door is open, and a circuit-breaker normally closing the circuit and constructed to be manipulated to break the circuit temporarily, and to return to its normal position automatically.

3. In an elevator, controlling means, a lock on the car for said means, an electromagnet on the car for actuating said lock, a door, an electric circuit for energizing the electromagnet to actuate said lock when said door is open, and means controlled by said door for breaking the circuit when the door is closed whereby the said lock is free from said controlling means when the said door is closed.

4. In an elevator, controlling means for shifting the controlling parts of the motor, a corridor-door, and means including an electric circuit adapted to be closed by the opening of said door for actuating the controlling means to stop the travel of the car.

5. In an elevator, controlling means for controlling the movements of the motor, a series of horizontally-movable corridor-doors, and means between the doors and the said motor-controlling means for operating said motor-controlling means to bring it to a neutral position and stop the car irrespective of its position in the hatchway when any one of said doors is open.

6. In an elevator, controlling means, a lock for said means, a series of horizontally-movable corridor-doors, and means operated by the opening of any one of said doors for causing the lock to actuate the controlling means to bring the car to a state of rest irrespective of its position in the hatchway.

7. In an elevator, motor-controlling means, a series of corridor-doors, and means including an electric circuit adapted to be closed by the opening of one of said doors, for operating said motor-controlling means to bring it to a neutral position and stop the travel of the car, irrespective of the position of the car in the hatchway.

8. In an elevator, motor-controlling means, a series of corridor-doors, an electric circuit including an electromaguet and make-and-break devices controlled by the doors, and means actuated by said magnet when one of the doors is open, for operating the motor-controlling means to bring it to a neutral position and stop the travel of the car irrespective of the position of the car in the hatchway.

9. In an elevator, motor-controlling means, a series of corridor-doors, a lock on the outside of the car for locking the controlling means thereto against movement and an electric circuit including an electromaguet, and adapted to be closed by opening one of the doors, for causing said electromagnet to actuate the lock to hold the car against movement.

10. In an elevator, motor-controlling means including a line relatively to which the car travels, a lock on the car for locking the line thereto, and an electric circuit closed by opening one of the doors and including an electromagnet which actuates the lock, whereby when one of the doors is opened, the line is locked to the car to bring said car to a state of rest.

11. In an elevator, motor-controlling means including a line relatively to which the car travels, and an electrically-actuated lock adapted to lock the line to the car, and thrown into operative position by the opening of a corridor-door, which lock, upon locking the line to the car, brings the car to a state of rest.

12. In an elevator, motor-controlling means including a line relatively to which the car travels, a lock mounted on the car and consisting of two members adapted to engage the line between them, and an electromagnet, the circuit through which is closed by opening one of the corridor-doors, for causing said members to engage the line to stop the travel of the car, upon one of the doors being open.

13. In an elevator, motor-controlling means including a line rela-

tively to which the car travels, a lock mounted on the car, and consisting of a stationary member and a movable member adapted to clamp the line between them, a sliding bar to which the last said member is pivoted, toggle-levers pivoted to the car and to the said sliding bar, a stop to limit the movement of the toggle-levers, and means for actuating said toggle-levers.

14. In an elevator, motor-controlling means including a line relatively to which the car travels, a lock mounted on the car and consisting of a stationary member and a movable member adapted to clamp the line between them, toggle-levers for actuating said movable member, and an electromagnet controlled by the doors leading into the hatchway, for operating said toggle-levers, whereby when one of said doors is open said electromagnet is energized and the line is locked to the car to stop the travel of the latter.

15. In an elevator, controlling means, an electrically-actuated lock for said means, an electric circuit arranged to be closed by the opening of a door for operating the lock, and a circuit-breaker normally closing the circuit and arranged to be manipulated to break the circuit temporarily and to return to its normal position automatically.

16. The combination of an elevator-car, a landing-door, a controlling-rope, magnetic gripping mechanism on the car adapted to grip the controlling-rope, a contact device actuated by the door, and wires connecting the contact device with the gripping mechanism so that as soon as the door is opened, the contact will be made and the gripping-jaws closed on the rope.

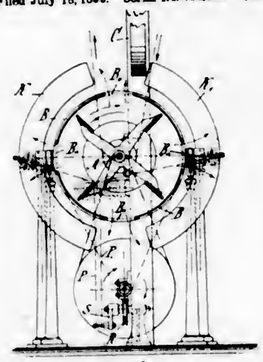
17. In an elevator, motor-controlling means, a series of corridor-doors, and means including an electric circuit adapted to be closed by the opening of any one of said doors for operating said motor-controlling means to bring them to a neutral position and stop the travel of the car.

18. In a safety device for elevators, the combination with the controlling devices for the motor, of mechanism for operating said controlling devices so as to move said controlling devices to an inactive position to prevent movement of the motor, said mechanism being normally inactive to allow the controlling devices to be freely operated from the car, a series of horizontally-movable doors, and a connection between said mechanism and said doors, whereby the opening of any one of said doors will cause said mechanism to operate and move the controlling devices to an inactive position so as to stop the motor.

19. A safety device for elevators, comprising means normally retracted from the elevator-controlling mechanism but adapted to engage and move the same to an inactive position, an electromagnet for controlling said means, a safety-circuit for said magnet and a circuit breaker or closer controlled by a door adjacent to the elevator-shaft.

20. In an elevator, controlling means, a lock on the car for said means, an electromagnet on the car for actuating said lock, a door, an electric circuit including make-and-break devices for energizing the electromagnet to actuate the lock when the door is open, and a switch for cutting out the make-and-break devices.

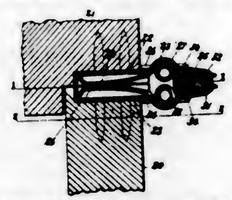
646,002. VENTILATING-FAN. HEINRICH KLEIN, Pirmasens, Germany. Filed July 18, 1899. Serial No. 724,308. (No model.)



Claim.—1. A ventilator rotating with great velocity in a slowly-rotating drum which on its circumference has a number of equally-distributed, slit-shaped apertures for the escape of the air, the air which has been expelled being replaced by air from without which enters in the direction of the drum-shaft, substantially as described.

2. A number of crescent-shaped fan-blades, resembling Venetian blinds, movable on vertical pivots and placed along the two longer sides of the drum and means to put them in oscillatory motion by transmission-gear driven by the ventilator-shaft, substantially as described.

646,008. DOOR CHECK AND CLOSER. GUSTAV G. LAURETSEN, New York, N. Y., assignor of two-thirds to Charles F. Simes and Henry C. Tum Suden, same place. Filed July 26, 1899. Serial No. 725,118. (No model.)



Claim.—1. A hinge comprising the leaves and the pintle connecting the same, combined with a cam or arm projection extending from each of said leaves beyond said pintle, resistance-plates against which said projections act when they turn from or toward one another during the opening and closing of the door, and means for yieldingly maintaining the firm contact of said projections and plates during the movement of the door and arranged to close the door; substantially as set forth.

2. A hinge comprising the leaves and pintle, combined with a cam or arm projection extending beyond said pintle, a yielding plate against which said projection acts during the opening and closing of the door, and a spring retaining said projection and plate in firm contact with one another and arranged to close the door; substantially as set forth.

3. A hinge comprising the leaves and pintle, combined with a cam or arm projection extending beyond said pintle, a plate adapted to have a pivotal action and afford contact-surfaces for said projection, and a coiled spring whose tension is exerted to maintain the contact of said projection and plate with one another; substantially as set forth.

4. A hinge comprising the leaves, the pintle, and the cam or arm projection extending beyond said pintle, combined with the resistance-plate against which said projection acts during the opening and closing of the door, and means for yieldingly maintaining the firm contact of said projection and plate during the movement of the door and arranged to close the door, the said plate and projection being normally in substantially-close parallel relation to one another with the facing sides of same in contact with one another, whereby when the door is reaching its closed position the longer leverage of said projection will be acted upon by said plate, and as the door opens the said projection will approach an angular relation to said plate and thus vary the direction of pressure on the door; substantially in the manner and for the purposes set forth.

5. A hinge comprising the leaves and pintle, combined with a cam or arm projection extending from each of said leaves beyond said pintle, and yielding resistance-plates against which said projections act when they turn from or toward one another during the opening and closing of the door; substantially as and for the purposes set forth.

6. A hinge comprising the leaves and pintle, combined with a cam or arm projection extending from each of the said leaves beyond said pintle, yielding plates against which said projections act when they turn from or toward one another during the opening and closing of the door, and springs acting against said plates to yieldingly retain them in firm contact with said projections; substantially as set forth.

7. A hinge comprising the leaves and pintle, combined with a cam or arm projection extending from each of said leaves beyond said pintle, yielding resistance-plates adapted to have a pivotal action and afford contact-surfaces for said projections during the opening and closing of the door, and coiled springs acting against said plates to maintain the contact of the same with said projections and to close the door; substantially as set forth.

8. A hinge comprising the leaves and pintle, said leaves being formed with the knuckles to receive said pintle and having beyond said knuckles the cam or arm projections, combined with the pivotally-mounted plates furnishing at their outer portions contact-surfaces for said projections, and coiled springs whose pressure is exerted to maintain said surfaces against said projections, and whose pressure is increased during the opening of the door by the movement imparted to said plates by said projections; substantially as set forth.

9. A hinge comprising the leaves and pintle, said leaves being

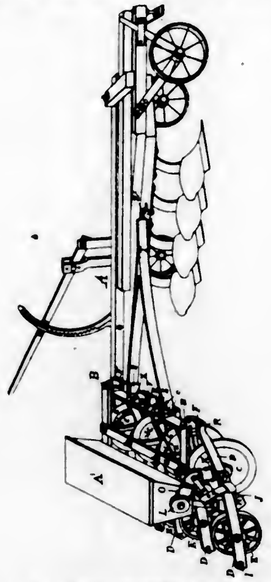
formed with the knuckles for said pintle and also with the cam or arm projections extending beyond said pintle, combined with the pivotally-mounted plates interlocked upon said leaves and whose axes are independent of said pintle, and springs for maintaining the outer portions of said plates in contact with the said projections; substantially as set forth.

10. The hinge comprising the leaves and pintle, combined with the cam or arm projections extending from each of said leaves and beyond said pintle, the yielding resistance-plates against which said projections act when they turn from or toward one another during the opening and closing of the door, and the coiled springs housed in curved sections of said leaves and said plates and exerting their force to maintain said plates against said projections; substantially as set forth.

11. The hinge comprising the leaves and pintle, said leaves being of box-like form where they engage the door and door-casing, combined with the cam or arm projections extending from each of said leaves and beyond said pintle, and the yielding resistance-plates against which said projections act when they turn from or toward one another during the opening and closing of the door, the outer portions of said plates furnishing contact surfaces for said projections, and the inner portions of said plates being adapted to enter the box-like portion of the said leaves when the door is closed; substantially as set forth.

12. The hinge comprising the leaves having the arms 29 which afford the bearings for the pintle and form the cam or arm projections 31 extending beyond said pintle, and the pintle for connecting said leaves, combined with the yielding resistance-plates having the curved sections 33 to correspond with similar curved sections 30 of said leaves, and also having the openings intermediate said curved sections 33 through which the said arms 29 may be passed in assembling the parts of the hinge; substantially as set forth.

646,004. SEEDING ATTACHMENT FOR GANG-PLOWS. ALBERT J. MALEHARY, Stockton, Cal., assignor to Christopher Coulthard, Emmett, Cal. Filed Feb 9, 1898. Serial No. 669,707. (No model.)



Claim.—1. In a seeding attachment for gang plows or cultivators the pivoted bars B B and cross-bar U carrying the seedbox A' in combination with the pivoted head-pieces F, carrying the furrow-openers, seed-conductors and furrow-closing devices, all substantially as described.

2. In a seeding attachment for gang plows or cultivators, the combination of a frame having longitudinal parallel pivoted bars, B, B, connected pivotally by a cross-bar U, a seedbox A' mounted on the longitudinal bars B, B, a series of furrow-openers pivotally connected to the cross-bar U, and seed-conductors loosely interposed between the seedbox and the furrow-openers substantially as described.

3. In a seeding attachment for gang plows, or cultivators, the combination of a frame, a seedbox mounted upon pivots upon said frame for permitting the entire seeding device to swing around in turning corners, a series of seed-planting devices mounted at their front ends to the frame, and pivoted to swing laterally at the rear therefrom, and a brace for connecting said planting devices rigidly with the frame when desired substantially as described.

4. In a seeding attachment for gang plows or cultivators, the bar, or arm W, for keeping the seeding attachment at a proper distance laterally from the plow, said bar having at one end a flexible connection with the left-hand timber of the plow, near its rear end, and the other end of said bar has a flexible connection with the seeding device, near the left-hand end of the bar Q, substantially as described.

5. In a draft mechanism for a seeding device, the combination of lugs S, a double tongue T, pivoted to swing vertically on said lugs, and means for securing said tongue rigidly in said lugs when desired, substantially as described.

6. In a seeding device the combination of a frame pivoted to swing laterally, having a series of laterally-swinging caster-arms D, pivoted at their front ends to bar Q of said frame, a furrow-opener and a seed-conductor mounted on each pivotally-swung pair of caster-arms, supports extending upwardly from each pair of arms, on which supports the bar U of the frame is pivotally mounted, and a seedbox carried on the frame substantially as described.

7. In a seeding device a series of laterally-swinging caster-arms pivoted at their forward ends to the bar Q of the frame, said caster-arms carrying furrow-openers, seed-conductors and furrow-closers, laterally-turning pivots connecting the frame with its braces and supports, and pivots connecting the seedbox with the frame, the brace for connecting the pivoting-arms and frame rigidly when desired, the sheave or wheel upon the furrow-opener, over which runs the chain for driving the sheave or wheel located upon the outer end of the shaft extending through the seedbox, for driving any suitable seed-discharging mechanism within the seedbox, substantially as described.

8. In a draft mechanism for a seeding device, the combination of lugs S, a double tongue T pivoted to swing vertically on said lugs, and means for securing said tongue rigidly to said lugs when desired, substantially as described.

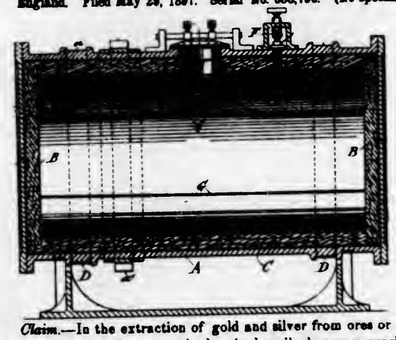
646,005. LADY'S DRAWERS. JOSEPH MARCOUX, Troy, N. Y., assignor of one-half to Jonas M. Barnet, Gates Barnet, and Ferdinand M. Aubesser, Albany, N. Y. Filed Feb. 11, 1898. Renewed Nov. 27, 1899. Serial No. 738,452. (No model.)



Claim.—1. An improved article of manufacture consisting of ladies' drawers made of two similar parts secured together at the waist and provided with a comparative fullness in the back, each part comprising leg, body and back-flap portions made of a single piece of slitted tubular fabric, substantially as described.

2. An improved article of manufacture consisting of ladies' drawers made of two similar parts secured together at the waist and provided with a comparative fullness in the back, each part comprising a fashioned leg, body and back-flap portion integral with each other substantially as described.

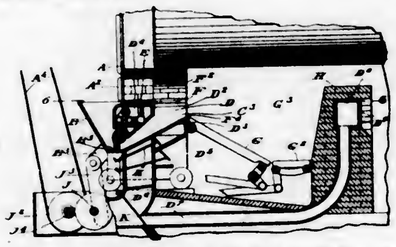
646,006. TREATMENT OF GOLD AND SILVER ORES, &c. JOHN C. MONTGOMERIE, Stair, Scotland, and HENRY PARKES, London, England. Filed May 29, 1897. Serial No. 638,796. (No specimens.)



Claim.—In the extraction of gold and silver from ores or compounds containing the same, the herein-described process consisting

in treating the ore or compound with a cyanid of an alkali metal, caustic alkali and barium dioxid in conjunction with ammonium sulfate substantially as set forth.

646,007. MECHANICAL DRAFT AND UNDERFEED STOKER. ROBERT M. MCBETH, Cincinnati, Ohio. Filed July 1, 1898. Serial No. 684,963. (No model.)



Claim.—1. An underfeed stoker with the longitudinal axes of the fuel-magazine feeder and retort of the same placed across the front of the fire-chamber of a furnace and arranged to feed fuel into the retort transversely to the axis of the retort, and causing the fuel after it enters the retort to overflow the retort broadside into the fire-chamber, and in the direction of the draft of the furnace, and giving an evenly-distributed bed of incandescent fuel between the side walls of the fire-chamber and from the retort at the front of the fire-chamber back to the bridge-wall, substantially as and for the purposes specified.

2. In a furnace, the combination of a retort and an underfeed thereto consisting of a cylinder provided with an exterior tooth, and a curved wall, and an abutment adjoining said wall, the cylinder and its tooth arranged so that in its oscillation it will crush any coal too large to enter the retort against the abutment, and convey all of the crushed coal to the retort, substantially as and for the purposes specified.

3. In a furnace, the transverse underfeed, a retort and an agitator, adapted to agitate the fuel as it rises into the retort, and to assist in feeding it toward the rear of the furnace, substantially as and for the purposes specified.

4. In a furnace, the transverse underfeed, and a retort and an agitator, adapted to agitate the fuel as it rises into the retort, and to assist in feeding it toward the rear of the furnace, and twyers located in the coking portion of the retort, for supplying fresh air to the fuel, while being agitated by the agitator, substantially as and for the purposes specified.

5. In a furnace, an underfeed, and a retort and an agitator, adapted to agitate the fuel as it rises into the retort, and to assist in feeding it toward the rear of the furnace, and twyers located at the coking portion of the retort, for supplying fresh air to the fuel, while being agitated by the agitator, an air-chamber supplied with an air-blast, and embracing the agitator for keeping the agitator cool, and supplying the upper portion of the coking-chamber with air, substantially as and for the purposes specified.

6. In a furnace, an underfeed, and a retort and twyers located in the coking portion of the retort, for supplying the fresh air necessary for the coking process, and thoroughly distributing the same through the fuel from the bottom thereof, and upper twyers or air-blast in connection with the upper portion of the coking-chamber for supplying the latter with fresh air, substantially as and for the purposes specified.

7. The combination of a retort, whose mouth is long and narrow, in combination with a long fuel-feeder, substantially parallel thereto, and crusher of cylindrical form having a projecting tooth whose face is about equal in length to the retort and retort-mouth and parallel thereto, and feeding the fuel direct from the magazine through the retort-mouth and into the retort, substantially as and for the purposes specified.

8. The combination of a retort, and a magazine, and an underfeeder for feeding the fuel from the magazine to the retort, parallel to each other, the retort and magazine outer walls, ends and bottoms being closed and connected, the inside wall of retort, which forms the partition between the retort and magazine having a long narrow mouth, below the fire-line, and the feeder being located at that mouth, and adapted to feed the fuel into the mouth transversely from the magazine to the latter, substantially as and for the purposes specified.

9. The combination of the retort having a long mouth, and twyers, located along each side of the retort, and wind-boxes under the twyers for supplying air to the same, and a magazine, parallel to each other, the magazine being connected to the mouth of the retort, and a long fuel-feeder acting abreast of the mouth of the retort, and transversely feeding the fuel into the mouth of the retort, substantially as and for the purposes specified.

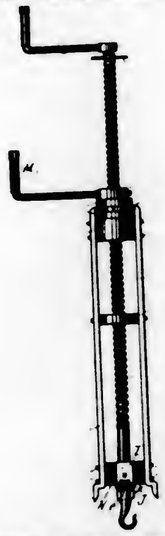
10. The combination of the retort and magazine with sides, ends and bottom closed, an inside partition-wall between the retort and magazine, having a long mouth below fire-line, and a magazine parallel to same, and connected to the mouth of the retort, and a fuel-feeder acting abreast of the mouth of the retort, and adapted to feed the fuel into the retort transversely to the length of the latter, substantially as and for the purposes specified.

11. In a retort with a long narrow mouth, located at the bottom of the side of the retort, and extending throughout the length of its side, an oblong fuel-magazine along the side of and parallel with the retort, and connected at the bottom thereto, with the bottom side or edge of the mouth of the retort, a transverse fuel-feeder B' and B² located at the bottom of the magazine and abreast of said retort-mouth, feeding the fuel from the bottom of the magazine into the retort-mouth, and adapted to move the fuel from the magazine into the retort in a direction transverse to the length of the magazine and the retort, and after the fuel enters the retort, the movement is from the bottom upward to the fire-level at the top of the retort, substantially as and for the purposes specified.

12. The combination of a retort with a long side opening or mouth at the bottom of the same, a fuel-magazine lying alongside of the retort-opening, and connected at its bottom, with the retort at the bottom edge of the side opening or mouth of the retort, a transverse underfeeder located at the bottom of magazine and abreast of the said side opening or mouth, feeding the fuel into the retort through the side opening or mouth, and by successive charges forcing the fuel in the retort to move from the bottom upward until it reaches the twyers located at each side of the coking portion of the retort, substantially as and for the purposes specified.

13. In a transverse underfeeding stoking-machine, a retort and magazine placed side by side, the outside walls of the same being connected at the bottom and the walls of one side of the retort forming a partition between the magazine and retort and a long narrow mouth (which I call the "retort-mouth") at the bottom of the said partition-wall through which fuel is fed broadside or transversely from the magazine into the retort by means of a cylinder with a fixed projecting tooth, the cylinder having an oscillating or reciprocating movement and so arranged that when in motion said tooth alternately closes and opens the retort-mouth, substantially as and for the purposes specified.

646,008. BRUSH-MAT QUILTER. DAVID NEALE, Fort Calhoun, Nebr. Filed May 6, 1899. Serial No. 715,872. (No model.)

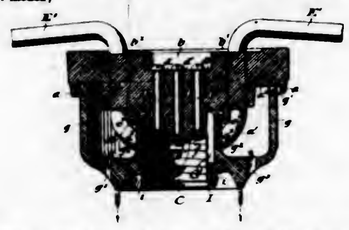


Claim.—1. The combination with a suitable supporting-frame, of a threaded sleeve revolubly held within one end of said frame, a screw revolubly held within said sleeve adapted to project beyond the lower end of said frame and provided with a suitable hook, means to rotate said screw and an operating-handle secured to said sleeve, as and for the purpose set forth.

2. The combination with an open-ended supporting-frame, of a guide-collar intermediately positioned within said frame, a threaded sleeve revolubly held within the upper end of said frame, a handle secured to said sleeve to rotate the same, a screw passing through said threaded revolubly-held sleeve and through said guide-collar, a hook secured to the lower end of said screw, and means to rotate said screw.

3. The combination with a suitable supporting-frame, of guide-pulleys within the lower end of said frame, a sleeve revolubly held within the upper end of said frame, a screw revolubly held within said sleeve adapted to project beyond the lower end of said frame, and means to rotate said screw, all arranged substantially as and for the purpose set forth.

646,009. DEVICE FOR ELECTRICAL CONNECTIONS. MATHIAS PFATTISCHER, Philadelphia, Pa. Filed Nov. 24, 1899. Serial No. 738,138. (No model.)



Claim.—1. In a device for electrical connections, the combination, with a base; of a terminal, fixed with respect to said base; a conductor; and a conductor-inlet in said base, arranged to direct an inserted conductor in a bight depending below said terminal, in extension between said inlet and said terminal, substantially as set forth.

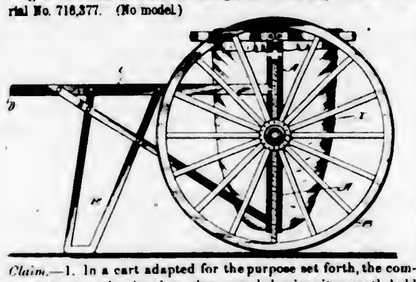
2. In a device for electrical connections, the combination, with a base; of a terminal fixed with respect to said base; a conductor-inlet in said base; and a flexible electrical conductor extending through said inlet, flexed in a bight below said terminal and secured, beyond said bight, to said terminal, substantially as set forth.

3. In a device for electrical connections, the combination with a casing, comprising a base and a removable cover for the same; of a plurality of terminals fixed in said casing; means to secure the ends of flexible conductors to said terminals; conductor-inlets in said casing respectively adjacent to said terminals; flexible conductors entered through said inlets, depending in drip-discharging bights within said casing and below the respective terminals to which they are connected; and a drip-outlet in said casing, substantially as set forth.

4. In a receptacle for electric lamps, the combination of a base having a downwardly-depending boss and provided with suitable inlets for the admission of conductors, &c.; of a cap fitting upon said base and having an upwardly-projecting flange which surrounds the boss, said cap being provided with a drip-hole; and means for holding said cap in position against said base, substantially as described.

5. The combination, with the base, A, having a downwardly-depending flange, a', forming an elongated inclosure therein; of the boss arranged within said inclosure; the cap, G, fitting upon the base and having an inner flange, g^2, surrounding the boss, said cap being provided with a drip-hole; and means, substantially as set forth, whereby said cap may be secured in position.

646,010. BAG-CARRYING CART. JAY R. RHODES, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed May 11, 1899. Serial No. 716,377. (No model.)



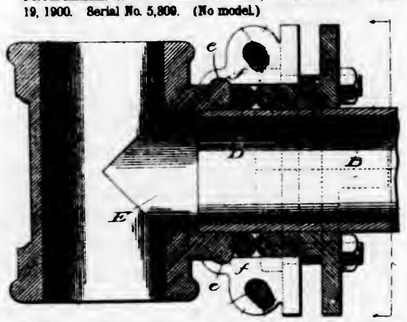
Claim.—1. In a cart adapted for the purpose set forth, the combination of an annular band or ring, a sack having its mouth held open by said ring or band, and a pair of oppositely-arranged and swinging clasps which are adapted to clamp the marginal portion of the sack against the annular band or ring and which are provided with spring-bends for the purpose set forth.

2. In a cart for the purpose set forth, the U-shaped frame having a ring or annular band secured to the upper ends of its side portions, and a pair of swinging clasps or clamps which are pivoted to brackets on the frame and which are adapted to clamp the edge portion of a sack against the said ring.

3. A cart comprising a body-frame provided with a ring or annular band adapted for holding open a bag or sack, and a couple of hinged and oppositely-arranged spring clasps or clamps adapted for clamping the edge portion of a bag or sack against the ring or annular band when the bag or sack is applied substantially as described, said clasps or clamps being bail-shaped and formed with spring-bends for the purpose set forth.

4. A cart comprising a U-shaped frame having the upper ends of its side portions provided with an open frame portion adapted for holding open a bag or sack substantially as set forth, and oppositely-arranged spring clasps or clamps adapted for clamping against such open frame portion the marginal portion of a bag or sack having the material at its open end lapped over the open frame portion.

646,011. APPARATUS FOR PREVENTING PIPE CONNECTIONS FROM LEAKING. WILLIAM J. STERLING, Portsmouth, Va. Filed Feb 19, 1900. Serial No. 5,809. (No model.)



Claim.—1. An apparatus for preventing pipe connections from leaking, comprising, in combination with the fitting having a beaded end, a pipe connected to said fitting, a clamping member held about the pipe, a gland inserted between the clamping member and the circumference of said pipe, a gasket interposed between the end of said gland and the end of the fitting, and means for forcing the gland against the gasket and compressing the latter, as set forth.

2. An apparatus for preventing pipe connections from leaking, comprising in combination with the fitting having an annular bead about its end, a pipe connected to said fitting, a clamping member having an annular recess in its inner wall adapted to engage said bead, a gland fitted between said clamping member and the outer circumference of the pipe, a gasket interposed between the end of the gland and the end of the fitting, and studs passing through registering apertures in flanges in said clamping member and gland, as set forth.

3. An apparatus for preventing pipes from leaking, comprising in combination with a fitting having a bead about its end, the pipe connected to said fitting, two complemental clamping members having annular recesses in their inner walls designed to fit over said bead, screws passing through flanges on said members, for holding the latter to the bead, flanged gland-sections interposed between the inner circumferences of the clamping members and the outer circumference of said pipe, and studs passing through registering threaded apertures in flanges of the clamping members and gland-sections, as shown and described.

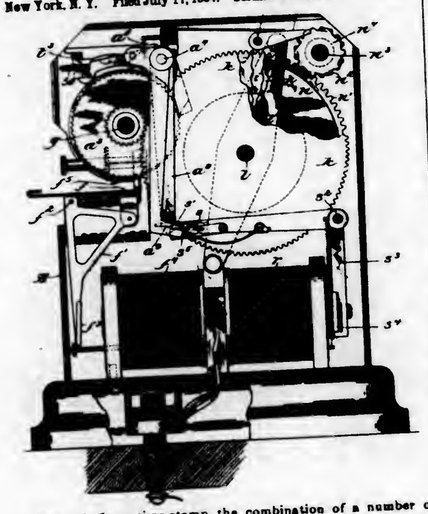
646,012. DISPLAY-CABINET. JOHN L. STROW and CLARENCE D. STROW, Fort Dodge, Iowa. Filed Apr. 12, 1898. Serial No. 677,361. (No model.)



Claim.—A device of the class described comprising a horizontal rod, and a series of clips arranged at intervals on the rod, each clip consisting of a substantially U-shaped loop disposed approximately in a vertical plane and located in advance of the rod and extending above and below the same, and the arms 23 fixed to the rod and extending upward above the same to the upper ends of the sides of the

loop, and cooperating with the rod to form seats to receive the inner or lower edge of the bowl of a spoon, and provided with shoulders adapted to throw the bowl of the spoon back upon the rod, the bottom of the loop being arranged to receive and support the handle of the spoon and the bends of the arms being adapted to be opened and closed to change the position of the bottom of the loop with relation to the rod, whereby a series of spoons may be supported in different positions and at different inclinations and may be readily adjusted to display them to the greatest advantage, substantially as and for the purpose described.

646,013. AUTOMATIC TIME-STAMP. NATHAN H. SUREN, Newton, Mass., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed July 17, 1897. Serial No. 644,939. (No model.)



Claim.—1. In a time-stamp, the combination of a number of printing-wheels, releasing devices therefor, a spring-impelled shaft, a number of driving-gears mounted loosely on said shaft and adapted to operate said printing-wheels, and devices independently connecting said gears with said shaft, substantially as described.

2. In a time-stamp, the combination of a number of printing-wheels, releasing devices therefor, a number of driving-gears for said printing-wheels, a spring-impelled shaft on which said driving-gears are mounted and by which they are indepeodently operated when their respective printing-wheels are released, substantially as described.

3. In a time-stamp, the combination of a number of printing-wheels, an escape-wheel and pallet for each printing-wheel, and pallet-operating devices, and means for moving the said wheels forward consisting of a rotatable shaft, an impelling-spring therefor, and means operatively connecting said rotating shaft with each of said printing-wheels independently, substantially as described.

4. In a time-stamp, the combination of a number of printing-wheels, an escape-wheel and pallet for each of said printing-wheels, periodically-operated releasing devices for said pallets, a rotating shaft, an impelling-spring therefor, and devices operatively connecting each of the printing-wheels with said rotating shaft whereby they may be rotated independently when released, substantially as described.

5. In a time-stamp, the combination of a number of printing-wheels, escape-wheels and pallets therefor, and pallet-operating cams moving in unison with said printing-wheels for operating the pallets of the adjacent printing-wheels, a periodically-operated releasing device for one of said cam-bearing printing-wheels, and means for moving said printing-wheels forward consisting of a rotatable driving-shaft, main actuating-spring therefor and means operatively connecting said rotating shaft with each of said printing-wheels independently, substantially as described.

6. The combination with a spring-actuated printing-wheel, its escape-wheel and pallet having an arm connected thereto provided with a laterally-projecting stud, a pivoted arm formed with a shoulder adapted to be moved out of and back into the path of movement of said stud, a spring-pressed finger pivoted to said arm having its end projecting slightly beyond said shoulder, and an electromagnet and armature for operating said arm, substantially as described.

7. In a time-stamp, the combination of a spring-actuated printing-wheel, an escape-wheel moved by it, a pallet for said escape-wheel, and an arm secured to and operated by said pallet, a releasing-lever for it, and means for periodically operating said releasing-lever, substantially as described.

8. In a time-stamp, the combination of a spring-actuated printing-wheel, escape-wheel moved by it, a pallet for said escape-wheel, an arm secured to and operated by said pallet, a stud projecting from said arm, a releasing-lever formed with a shoulder adapted to be engaged by said stud, a spring-pressed finger pivotally mounted on said releasing-lever, and an electromagnet for operating said releasing-lever, substantially as described.

9. In a time-stamp, the combination of a series of printing-wheels one of which has on it thirty-one printing characters, means for operating it step by step to present the printing characters thereon successively to printing position, an auxiliary device for controlling the operating mechanism for said printing-wheel, and automatic means for controlling the operation of said auxiliary device, having as a cooperative part of it a rotating cam having twelve divisions corresponding to the twelve months of the year, means for adjusting one of said divisions and a controlling-lever operated by said cam, substantially as described.

10. In a time-stamp, the combination of a series of printing-wheels, one of which has on it thirty-one printing characters for the days of the month, and one of which has on it printing characters representing the months of the year, means for operating said printing-wheels step by step, an auxiliary device for controlling the mechanism for operating said day-printing wheel, which is operated by said day-printing wheel, and means for controlling the operation of said auxiliary device which is operated by said month-printing wheel, substantially as described.

11. In a time-stamp, the combination of a series of printing-wheels comprising a day, a month and a year printing wheel, means for operating said wheels, an auxiliary device for controlling the mechanism for operating the day-printing wheel operated by said day-printing wheel and controlled by said month and year wheels, whereby to automatically provide for variations in the number of days in the different months of a number of years, substantially as described.

12. In a time-stamp, the combination of a day-printing wheel, escape-wheel and pallet therefor, means for operating said pallet, a pivoted lever operatively connected with said pallet, pivoted bell-crank levers of different lengths, means for moving said pivoted lever into and out of cooperative relation with one or more of said bell-crank levers, and means for successively operating said bell-crank levers, substantially as described.

13. In a time-stamp, the combination of a series of printing-wheels, escape-wheels and pallets therefor, and pallet-operating cams moving in unison with the printing-wheels for operating the pallet of adjacent wheels, means operatively connected with and controlled by the month and year wheels operated by the cam of the day-wheel for automatically presenting a different number of printing characters of the day-wheel at the printing-point to correspond with the printing character presented by the month and year wheels, substantially as described.

14. In a time-stamp, the combination of the day-printing wheel, actuating device therefor, a bell-crank lever t, having an extension t^3 pivoted thereto, and operatively connected with the actuating device of said day-printing wheel, and means for controlling and operating said bell-crank lever and its extension, substantially as described.

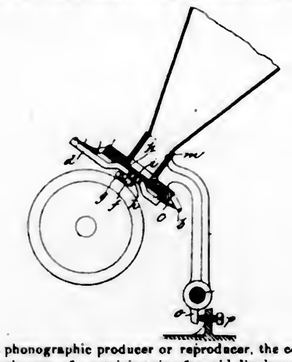
15. In a time stamp, the combination of the day-printing wheel, actuating device therefor, the bell-crank lever t having an extension t^3 pivoted thereto, and operatively connected with the releasing device of said day-printing wheel, means for moving said bell-crank lever t on its pivot, and devices operated by said day-printing wheel for operating the extension t^3, substantially as described.

16. In a time-stamp, the combination of the day-printing wheel, actuating device therefor, the bell-crank lever t having extension t^3 pivoted thereto, and operatively connected with the actuating device of said day-printing wheel, three bell-crank levers having arms of different lengths adapted to engage said extension t^3, a cam moving in unison with said day-printing wheel, for successively operating said bell-crank levers, and means for moving the extension of the lever t into and out of cooperative relation with the arms of said bell-crank levers, substantially as described.

646,014. PHONOGRAPH. PHILIPP VON WOUWERMANS, Vienna, Austria-Hungary, assignor of nineteen twenty-fifths to Theodor Fischer, Max Raphael Kaldegg, and Ignaz Pulay, same place. Filed Sept. 25, 1897. Serial No. 653,023. (No model.)

Claim.—1. In a phonographic producer or reproducer, the combination with the diaphragm, of a parallel motion, a stylus or reproducing point connected with said parallel motion and the diaphragm, substantially as set forth.

2. In a phonographic producer or reproducer, the combination with the diaphragm, of a parallel motion, a lever pivoted to one member of said parallel motion and connected to the diaphragm, and a stylus or a reproducing-point on said lever, substantially as set forth.



3. In a phonographic producer or reproducer, the combination with the diaphragm, of a retaining-ring for said diaphragm, a parallel motion pivoted to said ring, a lever pivoted to the member of the parallel motion opposite said ring, one end of said lever connected to the diaphragm and a stylus or a reproducing-point carried by said lever, substantially as set forth.

4. In a phonographic producer or reproducer, the combination with the diaphragm, of a weight having motion parallel thereto, a stylus or reproducer carrying said weight and means for connecting said stylus to the diaphragm, substantially as set forth.

5. In a phonographic producer or reproducer the combination with the diaphragm, of a weight adapted to have motion in parallel directions, a lever pivoted to and adapted to support said weight and connected to the diaphragm, and a stylus, or reproducing-point on said lever, substantially as set forth.

6. In a phonographic producer or reproducer, the combination with the casing, the diaphragm and its retaining-ring, of a parallel motion connected to said ring, a pair of perforated ears diametrically opposite on said ring, a recessed perforated bar, links pivoted to the ends of said bar and in the ears, a lever pivoted in the recess of said bar, a stylus or reproducer on said lever, and means for connecting the lever to the diaphragm, substantially as set forth.

7. In a phonographic producer or reproducer, the combination with the diaphragm, of a parallel motion, a stylus, a reproducing-point connected with said parallel motion, and means for adjusting said parallel motion to vary the pressure on the stylus or reproducing-point, substantially as set forth.

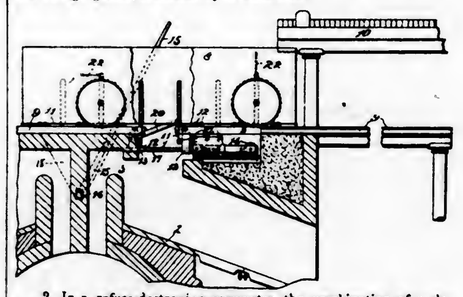
8. In a phonographic producer or reproducer, the combination with the revoluble cylinder, the diaphragm and a lever carrying the producing or reproducing point connected with said diaphragm; of a weight to which said lever is fulcrumed, and links pivotally connecting said weight with the diaphragm-support to form a parallelogram of levers, for the purpose set forth.

9. In a phonographic producer or reproducer, the combination with the revoluble cylinder, the diaphragm and a lever carrying the producing or reproducing point connected with said diaphragm; of a weight to which said lever is fulcrumed, and links pivotally connecting said weight with the diaphragm-support to form a parallelogram of levers, and means for varying the distance between the diaphragm and revoluble cylinder, for the purpose set forth.

10. In a phonographic producer or reproducer, the combination with the revoluble cylinder, the diaphragm, its holder and a two-armed lever to the longer arm of which said holder is secured, and an adjusting-screw impinging upon the short arm of such lever to prevent rotation on its fulcrum toward the cylinder; of a lever carrying the producing or reproducing point, connected with said diaphragm, a weight to which said lever is fulcrumed, said weight linked to the diaphragm-holder to form a parallelogram of levers, substantially as and for the purpose set forth.

646,015. REFUSE-DESTRUCTOR. HENRY P. BOULNOIS and JOHN A. BRODIE, Liverpool, England. Filed Dec. 22, 1897. Serial No. 663,146. (No model.)

Claim.—1. In a refuse-destroying apparatus, the combination of a raised dump-platform, a destructor-furnace arranged at a lower level than said platform and having a charging-opening in its top, a door closing said charging-hole, a track extending longitudinally below said platform and above said furnace, a truck divided by transverse partition into a series of compartments each having a movable bottom, said truck being mounted to move endwise on said track so that its compartments can be moved in succession below the discharging end of said platform and brought over said charging-hole, means for opening the door of said charging-hole, and means for opening the movable bottom of each compartment when brought above said charging-hole, substantially as described.



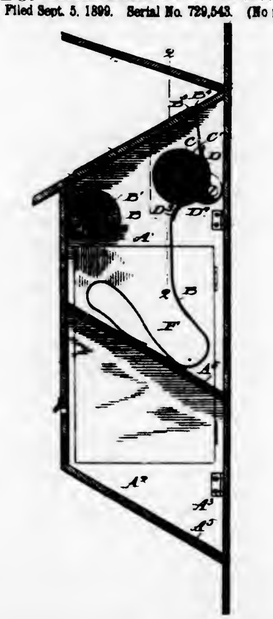
2. In a refuse destroying apparatus, the combination of a destructor having a charging-hole, a truck supported above the destructor and divided into a series of compartments, each of these compartments having a movable bottom and the truck being movable so as to bring the compartments in succession over the charging-hole, a door closing the charging-hole, and means whereby the opening of said door automatically opens the movable bottom of the truck-compartment registering with the charging-hole, substantially as described.

3. The combination of a furnace having a charging-opening, a door for closing the same, a movable truck above the charging-opening and having a movable bottom, means for preventing the opening of the bottom until it registers with the charging-opening, and devices for simultaneously opening the bottom and the charging-door when the truck-compartment registers with the charging-opening, substantially as described.

4. The combination of the truck having hinged doors 11, rollers 12, hinged rails 13 and bearing-rollers 21 carried by the door 4, substantially as described and illustrated.

5. The combination of the truck having hinged doors 11, rollers 12 and rail 13' carried by the door 4, substantially as described and illustrated.

646,016. LETTER OR ORDER BOX. PARK A. BRADFORD, Lowell, Mass. Filed Sept. 5, 1899. Serial No. 729,543. (No model.)

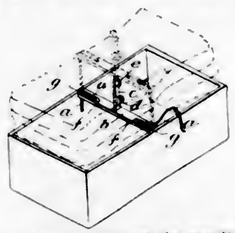


Claim.—1. In a message-cabinet, a feed-roll, a spring-pressed friction-shoe in engagement therewith, a paper strip between said roll and shoe, and a pawl carried by said shoe to engage a ratchet upon said roll, substantially as specified.

2. In a message-cabinet, a feed-roll and means to revolve the same, a pressure-shoe to engage said roll and formed of spring metal with a slitted portion to comprise a pawl, a ratchet on said roll, and a paper strip between said roll and shoe, substantially as specified.

3. In a message-cabinet, a desk pivoted at one side to a back board and provided with independent compartments therein, an autographic strip carried by a stock-roll and passed over the upper surface of said desk, an elastic feed-roll for said strip, a pressure-shoe formed of spring material to engage said feed-roll and having a slitted portion to provide a pawl, and ratchet-teeth on said roll adapted to be engaged by said pawl, substantially as specified.

646,017. **TRUNK FASTENING OR LOCK.** ARTHUR R. COLBURN, Washington, D. C. Filed Sept. 7, 1898. Serial No. 690,422. (No model.)



Claim.—1. The combination with the receptacle of a telescope valise of a fastening projection adapted to pass up through the top of the valise, a rigid, transverse, adjustable stay giving substantially-firm support to and guiding the same, means for removably and adjustably connecting the stay to the receptacle, said stay being adapted to transmit the lifting force to the said connecting means at the sides of the valise and vertically above the same, and means for connecting said projection to the top of the valise; substantially as described.

2. The combination with the receptacle of a telescope valise of a fastening projection, a rigid, adjustable, detachable, transverse stay giving substantially-firm support to said projection in vertically-adjustable position and guiding the same laterally, and adapted to prevent the walls of said receptacle from receiving the lifting force laterally, means for connecting said transverse stay in vertically-adjustable position with variable tension to the sides of said receptacle and for transmitting the lifting strain thereto vertically, a perforated plate on the top of the valise adapted to receive said projection, and to support the handle so as to relieve the ordinarily-flexible top from the lifting strain, and means for securing said projection to said plate; substantially as described.

3. The combination with a telescope valise of a rigid stay adjustably secured to and spanning the receptacle portion of said valise, a fastening device carried by said stay, and devices carried by the cover of the valise for engaging said securing device, substantially as described.

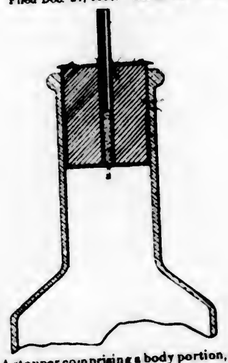
4. The combination with a telescope valise of a rigid stay adjustably secured to and spanning the receptacle portion of the valise by means adapted to tighten the same in position in varying degree at will, a vertical projecting portion of a fastening device, rigidly fixed to the center of the stay and adapted to project through the top of the valise, a perforated plate in the top of the valise adapted to receive the same and carrying the handle, and means for fastening the said projection, substantially as described.

5. The combination with a telescopic case of a transverse, adjustable, rigid stay adapted to span the receptacle portion of the case and to rest upon the sides thereof in recesses countersunk for that purpose, and means for connecting the ends of said stay thereto, adjustably, with readily-variable degree of tightness, substantially as described.

6. The combination in a telescope valise of a transverse, rigid, adjustable, detachable stay removably connected to the walls of the receptacle portion thereof, of sufficient length to span said valise from side to side and to rest upon the sides thereof in countersunk recesses, a hasp centrally located on said stay, adapted to pass into the top of the valise and to hold the stay firmly, throughout its length, up against the top, a perforated plate in the top adapted to receive the hasp, and means for securing the hasp in place, substantially as described.

7. The combination in a telescope valise of a rigid, adjustable, detachable stay of sufficient length to extend from side to side within the top thereof, means for adjustably connecting its ends to the receptacle portion of the valise with readily-varied tension, guides upon said stay for controlling said connecting means, a fastening projection centrally located upon said stay whereby the projection is automatically guided into proper position for fastening by reason of the sides of the valise-top touching against the ends of the stay, a fastening device carried by the top for receiving and securing said projection and affording support for the same, whereby the stay is firmly held up against the top of the valise, and the lifting tension is communicated vertically to the sides of the receptacle, substantially as described.

646,018. **SPRINKLING-STOPPER.** FREDERICK W. COOK, Jr., San Antonio, Tex. Filed Dec. 27, 1899. Serial No. 741,759. (No model.)



Claim.—1. A stopper comprising a body portion, a passage through the body portion, and a coating and filling for the surface and passage of the body portion respectively applied thereto in a molten state.

2. A stopper comprising a body portion having a central passage, a tube in the passage, and a coating for the body portion, and a filling for the tube applied thereto in a molten state.

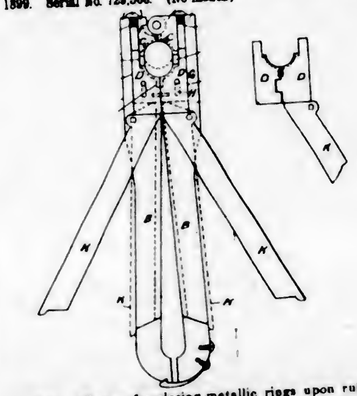
3. A stopper comprising a body portion, a passage through the body portion, and a coating and filling of wax for the surface and passage of the body portion respectively, applied thereto in a molten state.

4. A stopper comprising a body portion having a central passage, a tube in the passage, and a filling and coating of wax for the tube and the surface of the body portion, respectively, applied thereto in a molten state.

646,019. **MANUFACTURE OF GAS.** ETTORE DE FAZI, Rome, Italy. Filed May 10, 1898. Serial No. 680,306. (No specimens.)

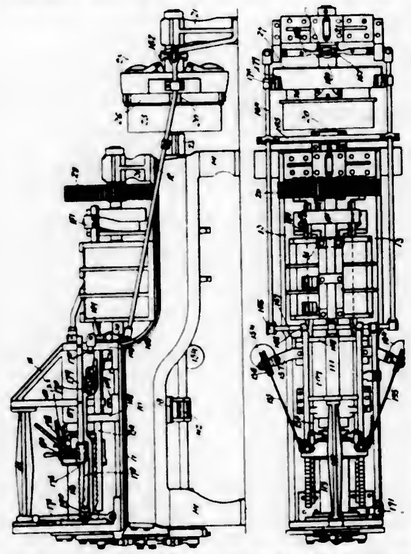
Claim.—The herein-described process consisting in mixing calcium monoxid, bitumen and calcium carbid and treating the mixture with water.

646,020. **NIPPERS FOR CLOSING METALLIC RINGS UPON RUBBER TUBING.** WILLIAM DEWAR, Glasgow, Scotland. Filed Sept. 5, 1899. Serial No. 729,568. (No model.)



Claim.—Nippers for closing metallic rings upon rubber tubing comprising a pair of hand-grips hinged together at the top, dies carried by said hand-grips adapted to be brought together, sliding dies also carried by these hand-grips and lever-arms for actuating the sliding dies substantially as and for the purpose set forth.

646,021. **STOVEPIPE-ELBOW-MAKING MACHINE.** ALFRED N. FAIRMAN, Montreal, Canada, assignor of one-half to James Cooper, same place. Filed Apr. 19, 1899. Serial No. 713,677. (No model.)



Claim.—1. In a machine for making stovepipe-elbows, the combination with means for holding the pipe to be crimped, of a rectilinearly-reciprocating crimping portion; a pair of oscillating crimping portions; means for operatively connecting said oscillating crimping portions to said rectilinearly-reciprocating crimping portion, and means for acting upon said oscillating crimping portions and causing said oscillating crimping portions to actuate the rectilinearly-reciprocating portion all of said crimping portions to act simultaneously upon the pipe substantially as described and for the purpose set forth.

2. In a machine for making stovepipe-elbows, the combination with means for holding the pipe to be crimped, of a rectilinearly-guided crimping portion; a pair of main segmental crimping portions; means for reciprocating said segmental crimping portions, means for operatively connecting said main crimping portions to said rectilinearly-guided portion whereby said oscillating crimping portions will actuate the rectilinearly-reciprocating portion; and means for guiding said segmental portions to cause same to oscillate and act upon the pipe simultaneously with said rectilinearly-reciprocating portion.

3. In a machine for making stovepipe-elbows, the combination with means for holding the pipe to be crimped, of a rectilinearly-guided crimping portion; a pair of main segmental crimping portions; means for reciprocating said segmental crimping portion means for operatively connecting said main crimping portions to said rectilinearly-guided portion whereby said oscillating crimping portions will actuate the rectilinearly-reciprocating portion; and adjustable means for guiding said segmental portions to cause same to oscillate and act upon the pipe simultaneously with said rectilinearly-reciprocating portion.

4. In a machine for making stovepipe-elbows, the combination with means for holding the pipe to be crimped; of a rectilinearly-guided crimping portion; a pair of segmental crimping portions; means for pivotally connecting one end of each of said segmental crimping portions to said rectilinearly-guided portion; a rectilinearly-guided cross-head; means for reciprocating said cross-head; means for connecting said cross-head to the free ends of said segmental crimping portions; and means for guiding the movement of said segmental crimping portions, for the purpose set forth.

5. In a machine for making stovepipe elbows, the combination with means for holding the pipe to be crimped; of a rectilinearly-guided crimping portion; a pair of oscillating crimping portions; means for pivotally connecting one end of each of said segmental crimping portions to said rectilinearly-guided portion; a rectilinearly-guided cross-head; means for reciprocating said cross-head; means for connecting said cross-head to the free ends of said segmental crimping portions; and adjustable means for guiding the movement of said segmental crimping portions, for the purpose set forth.

6. In a machine, substantially as described, for making stovepipe-elbows, the combination of the frame; means for holding the pipe to be crimped; a rectilinearly-guided crimping portion; a pair of segmental crimping portions; means for pivotally connecting one end of each of said segmental crimping portions to said rectilinearly-guided portion; a rectilinearly-guided cross-head; means for connecting said cross-head to the free ends of said segmental crimping portions; means for guiding the movement of said segmental crimping portions; a shaft mounted in the frame; a crank-disk mounted rigidly upon one end of said shaft; a pitman connecting said crank-disk to said cross-head; a pinion mounted rigidly upon said shaft; a stub-shaft mounted adjacent to said shaft; a pair of pinions rigidly connected together and mounted loosely upon said stub-shaft, one of the pinions of said pair intermeshing with said before-mentioned pinion and the other pinion of said pair being constructed with a segmental block; a third shaft having a disk mounted rigidly thereon one half of the periphery of said disk being plane and the other half gear-toothed and intermeshing with the last-mentioned pinion of said pair; and means for rotating said last-mentioned shaft, substantially as and for the purpose set forth.

7. In a machine, substantially as described, for making stovepipe-elbows, the combination of the frame; means for holding the pipe to be crimped; a rectilinearly-guided crimping portion; a pair of segmental crimping portions; means for pivotally connecting one end of each of said segmental crimping portions to said rectilinearly-guided portion; a rectilinearly-guided cross-head; means for connecting said cross-head to the free ends of said segmental crimping portions; adjustable means for guiding the movement of said segmental crimping portions; a shaft mounted in the frame; a crank-disk mounted rigidly upon one end of said shaft; a pitman connecting said crank-disk to said cross-head; a pinion mounted rigidly upon said shaft; a stub-shaft mounted adjacent to said shaft; a pair of pinions rigidly connected together and mounted loosely upon said stub-shaft, one of the pinions of said pair intermeshing with said before-mentioned pinion and the other pinion of said pair being constructed with a segmental block; a third shaft having a disk mounted rigidly thereon one half of the periphery of said disk being plane and the other half gear-toothed and intermeshing with the last-mentioned pinion of said pair; and means for rotating said last-mentioned shaft substantially as and for the purpose set forth.

8. In a stovepipe-elbow-making machine, a crimper consisting of an intact segmental body portion having a series of knife-edged segmental sections secured rigidly to the inner edge thereof.

9. In a stovepipe-elbow-making machine, a crimper consisting of a segmental body portion having its inner edge formed with a series of transverse dovetail grooves, and a series of segmental sections having their inner edges knife-edged and their outer edges formed with radial dovetail projections to take into said dovetailed grooves, and a series of keys for securing said segmental sections to the body portion, substantially as described and for the purpose set forth.

10. In a stovepipe-elbow machine, a stationary mandrel; a reciprocating sleeve supported by and inclosing said mandrel; a rigid head carried by said reciprocating sleeve; a compressor-head pivotally carried by said rigid head; means for crimping portions of a pipe length between said rigid and folder heads; means for oscillating said folder-head to and from said rigid head; means for reciprocating said sleeve; and means for feeding the pipe length over said heads, substantially as described and for the purpose set forth.

11. In a stovepipe-elbow machine, a stationary mandrel; a reciprocating sleeve supported by and inclosing said mandrel; a rigid head carried by said reciprocating sleeve and having a circular groove in its outer face; a folder-head pivotally carried by said rigid head; means for crimping portions of a pipe length between said rigid head and folder-head; means for oscillating said folder-head to and from said rigid head; means for reciprocating said sleeve; and means for feeding the pipe length over said heads, substantially as described and for the purpose set forth.

12. A stovepipe-elbow-making machine comprising a frame having its forward half formed with a bed-plate and its rear half downwardly offset; a mandrel-support consisting of a body portion in the form of a sleeve having a forwardly-projecting rigid mandrel-sleeve, and formed with legs bolted to the bed-plate near the rear thereof; a sleeve taking over and supported by said mandrel-sleeve; a slotted head carried rigidly by the outer end of said outer sleeve and formed with a circumferential peripheral extension of slightly-greater diameter than that of the exterior of the outer sleeve and the outer end of said head being diminished in diameter; a folder-head formed with a circular recess in the rear side to receive the diminished end of said rigid head, and slotted at right angles to the slot in the rigid head; an inverted-L-shaped retainer secured rigidly to the outer end of said

rigid head and projecting through and overlapping the lower portion of said folder-head; means for oscillating said folder-head to and from the rigid head and means for reciprocating said rigid head; means for holding the pipe to be crimped; and means for crimping portions of the pipe between said heads, substantially as described and for the purpose set forth.

13. A stovepipe-elbow-making machine comprising a frame having its forward half formed with a bed-plate and its rear half downwardly offset; a mandrel-support consisting of a body portion in the form of a sleeve having a forwardly-projecting rigid mandrel-sleeve, and formed with legs bolted to the bed-plate near the rear thereof; a sleeve taking over and supported by said mandrel-sleeve a slotted head carried rigidly by the outer end of said outer sleeve and formed with a circumferential peripheral extension of slightly-greater diameter than that of the exterior of the outer sleeve and the outer end of said head being diminished in diameter; a folder-head formed with a circular recess in its rear side to receive the diminished end of said rigid head, and slotted at right angles to the slot in the rigid head; an inverted-L-shaped retainer secured rigidly to the outer end of said rigid head and projecting through and overlapping the lower portion of said folder-head; a shaft supported at its forward end in a bearing set in the rear end of the bed-plate and at its rear end in a pillow-block bolted upon the rear end of the frame; a pair of cams mounted rigidly upon said shaft adjacent to said bed-plate; a pair of rods carrying trundle-rolls to take into cam-grooves in the peripheries of said cams and extending forwardly and connected to the rigid head and folder-heads respectively; means for holding the pipe to be crimped, and means for crimping portions of the pipe between said heads substantially as described and for the purpose set forth.

14. In a stovepipe-elbow-making machine, a pipe-feeding carriage comprising a rigid ring and an expansible clamping-ring located within said rigid ring, said rings receiving the pipe end between them, and means for expanding said expansible ring.

15. In a stovepipe-elbow-making machine a pipe-feeding carriage comprising a rigid ring and an open clamping-ring located within said rigid ring, said rings receiving the pipe end between them; a wedge carried by the carriage and taking between the ends of said rings and a cam-lever for moving said wedge, as described.

16. In a stovepipe-elbow-making machine, a pipe-feeding carriage and means for moving said carriage intermittently toward the front of the machine, comprising a pair of feed-bars; a cross-piece rigidly connecting said bars together near their rear ends; a trundle-roll carried upon said cross-piece; a shaft; a cam-disk mounted rigidly upon said shaft and having a peripheral cam-groove receiving said trundle-roll; means for rotating said shaft; and feed-dogs carried by the carriage and engaging the notches in the feed-bars, substantially as described.

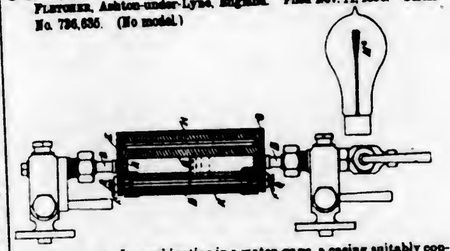
17. A stovepipe-elbow-making machine comprising a pipe-feeding carriage for holding the pipe to be operated upon; means for intermittently moving said pipe-feeding carriage toward the front of the machine comprising a feed-bar; means for crimping portions of the pipe; means for folding over and flattening the crimped portion; means for driving the machine, comprising a driving-shaft a continuously-driven pulley mounted loosely upon said shaft; a friction clutch-pulley mounted rigidly upon said shaft; means for causing said friction clutch-pulley to automatically engage and be disengaged from said driving-pulley, consisting of a lateral projection upon the carriage; a suitably-supported slidable bar extending parallel to the line of travel of the carriage and offset at its forward end to intersect the path of said lateral projection; a pawl adapted to engage a notch in the feed-bar and held out of engagement therewith by the rear end of said bar; a bar mounted transversely of the machine and having a pair of downwardly-projecting rigid lever-arms, and an upwardly-projecting rigid lever-arm; a rod carrying the above-mentioned pawl, and pivotally connected at its rear end to the said upwardly-projecting lever-arm; a pair of bars pivotally connected at their forward ends to said downwardly-projecting lever-arms; means for steadying the rear portions of said bars; means for operatively connecting the rear ends of said last-mentioned bars to the friction-clutch whereby, by the extreme forward movement of the carriage, the clutch-pulley will be disengaged from the driving-pulley, substantially as described and for the purpose set forth.

18. A stovepipe-elbow-making machine comprising a pipe-feeding carriage for holding the pipe to be operated upon; means for intermittently moving said pipe-feeding carriage toward the front of the machine comprising a feed-bar; means for crimping portions of the pipe; means for folding over and flattening the crimped portions; means for driving the machine, comprising a driving-shaft a continuously-driven pulley mounted loosely upon said shaft; a friction clutch-pulley mounted rigidly upon said shaft and having its rim beveled; means for causing said friction clutch-pulley to automatically engage and be disengaged from said driving-pulley, consisting of a lateral projection upon the carriage; a suitably-supported slidable bar extending parallel to the line of travel of the carriage and offset at its forward end to intersect the path of said lateral projection; a pawl adapted to engage a notch in the feed-bar and half out of engagement therewith by the rear end of said bar; a bar mounted transversely of the machine and having a pair of downwardly-projecting rigid lever-arms, and an upwardly-projecting rigid lever-arm; a rod carrying the above-mentioned pawl and pivotally connected at its rear end to the said upwardly-projecting lever-arm; a pair of bars pivotally connected at their forward ends to said downwardly-projecting lever-arms and having brake-shoes mounted thereon in close proximity to said clutch-pulley means for steadying the rear portions of said bars; means for operatively connecting the rear ends of said last-mentioned bars to the friction-clutch, whereby by the extreme forward movement of the carriage the clutch-pulley will be disengaged from the driving-pulley and the brake-shoes moved into engagement with the inclined rim of the clutch-pulley substantially as described and for the purpose set forth.

19. In a stovepipe-elbow-making machine, the combination, with the pipe-feeding carriage and means for returning the carriage after the completion of an elbow, of adjustable stationary means for automatically varying the extent of the return movement of said carriage, for the purpose set forth.

20. In a stovepipe-elbow-making machine, the combination with the pipe-feeding carriage and means for returning the carriage after the completion of an elbow, of an adjustable stationary stop for varying the extent of return movement of the carriage, substantially as described and for the purpose set forth.

646,022. WATER-GAGE. JAMES A. FLETCHER and SAMUEL FLETCHER, Ashton-under-Lyne, England. Filed Nov. 11, 1899. Serial No. 736,636. (No model.)

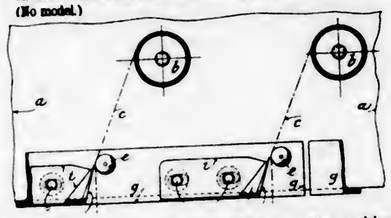


Claim.—1. In combination in a water-gage, a casing suitably connected to the boiler or the like, a sight-plate therein and an illuminating-tube extending longitudinally of the casing within the same and means for illuminating the tube.

2. In combination in a water-gage, a casing suitably connected to the boiler or the like, a sight-plate therein and a tube means for illuminating the same extending longitudinally of the tube within the same, said tube being removable, and packing around the ends of said tube to prevent leakage, substantially as described.

3. In combination in a water-gage connected to the boiler or the like, and a tube extending longitudinally of the gage within the same, said tube being removable, and fitted with an artificial light, and packing around the ends of the said tube to prevent leakage, substantially as described.

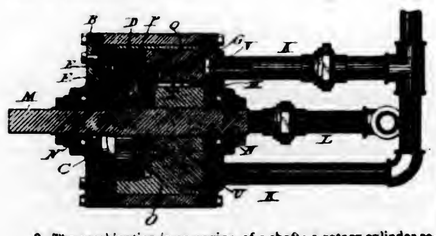
646,023. YARN-CLEARER FOR WINDING-MACHINES. HENRY M. GIRDWOOD, Salford, England. Filed Sept. 9, 1899. Serial No. 729,999. (No model.)



Claim.—In a yarn cleaner the combination with a stud having a rounded surface over which the yarn passes, of a cutting-blade arranged tangentially to said rounded surface, substantially as described.

646,024. FLUID-PRESSURE ENGINE. HOWARD R. GODDART, Reading, Pa., assignor of one-half to John J. Fulmer and Allen John Biehl, same place. Filed Dec. 11, 1899. Serial No. 739,996. (No model.)

Claim.—1. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; a double cam-ring located on the outer cylinder-head; and means for preventing the rotation of the pistons in the piston-chambers; in substance as set forth.



2. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers arranged parallel with the said shaft; reciprocating pistons movable in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring located on the outer cylinder-head; in substance as set forth.

3. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring, D, located on the outer cylinder-head and having its edge in a circle corresponding to a circle described by a radius which extends from the center of the shaft to the center of an antifriction-roller; in substance as set forth.

4. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers arranged parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring located on the cylinder-head; the inner surface of the said inner cylinder-head adjacent the inlet-ports being grooved or recessed, as at I', whereby the motive fluid is gradually admitted to the piston-chambers; in substance as set forth.

5. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring located on the cylinder-head; the inner surface of the said inner cylinder-head adjacent the exhaust-ports being grooved or recessed, as at J', whereby the motive fluid is gradually exhausted from the piston-chambers; in substance as set forth.

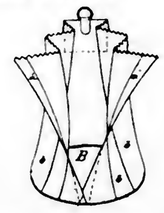
6. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring located on the outer cylinder-head; said rotary cylinder having at one end a disk, as U, provided with openings, V; in substance as set forth.

7. The combination in an engine, of a shaft; a rotary cylinder secured to the shaft and having chambers parallel with the said shaft; reciprocating pistons in the chambers and each piston provided with an antifriction-roller; an outer cylinder-head; an inner cylinder-head having inlet and exhaust ports therein arranged alternately in a series; and a double cam-ring located on the outer cylinder-head; said shaft being supported in adjustable bearings, whereby the rotary cylinder can be shifted by means of the threaded nuts upon the shaft and thereby held in frictional contact with the inner cylinder-head; in substance as set forth.

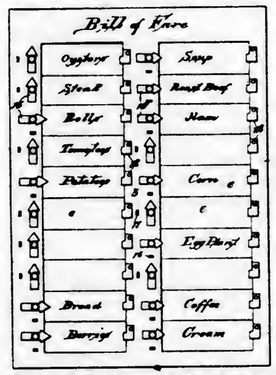
8. The combination in an engine, constructed substantially as set forth, of a cylinder having piston-chambers, a ring, S, and pistons provided with recesses, T, adapted to fit the outer circumference of the ring.

646,025. PAPER BAG. OCTAVIA G. GOODMAN, Goshen, Va. Filed Jan. 26, 1897. Serial No. 620,773. (No model.)

Claim.—The bag herein described, having central vertical and top mouth-openings in open relation and formed of folded plaits ranged on either side of said vertical opening, to form a closure of overlapping and dovetailing members, which when brought into folded closed position will comprise several thicknesses of paper at a point where it is fastened, substantially as described.



646,026. BILL-OF-FARE INDICATOR. FRITZ A. HERTNER, Jacobsville, Mich. Filed Sept. 14, 1899. Serial No. 730,451. (No model.)



Claim.—1. An indicator of the class described comprising a body having a card-receiving recess provided at one side with a longitudinal groove adapted to engage one end of each card, a series of locking devices pivotally mounted at the opposite side of the recess and adapted to extend over the same to engage the other end of each card, whereby the said cards will be detachably mounted on the body, and a series of yieldingly-mounted indicating devices pivoted between their ends and provided at their rear ends with means for engaging the body, whereby they are locked against movement, substantially as described.

2. An indicator of the class described comprising a body, a pointer arranged flat against the body and detachably interlocked therewith, said pointer being provided with a tubular handle and having a perforation located at the inner end of the handle and of less diameter than the same, a spring housed within the handle and engaging the pointer and adapted to force the same against the body, and a pivot fixed to the body and arranged within the handle and passing through the perforation, said pivot being provided at its outer end with a head of the same diameter as the interior of the handle to form a bearing for the outer end of the spring, substantially as described.

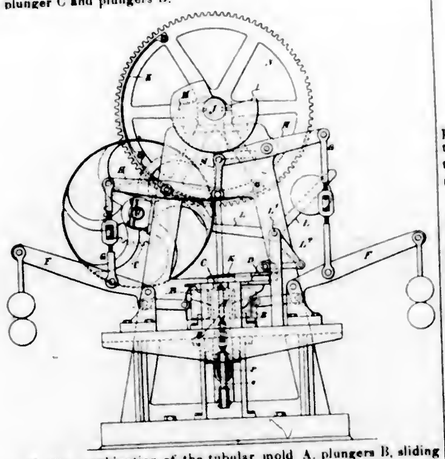
3. An indicator of the class described comprising a body having a recess adapted to receive a series of cards and provided at one side with a longitudinal groove arranged to engage one end of each card, a series of movable locking devices mounted on the body at the opposite sides of the recess and extending over the latter to engage the other end of each card, whereby the said cards may be readily changed, and a series of movable indicating devices mounted on the body adjacent to the longitudinal groove and adapted to extend toward and from the cards, substantially as described.

646,027. MACHINERY FOR PRESSING BRICKS OR THE LIKE. RALPH T. HUGHES, Saltburn, England. Filed Nov. 6, 1899. Serial No. 735,964. (No model.)

Claim.—1. The combination of the tubular mold A fixed vertically, the two plungers B working to and fro through openings in two opposite vertical sides of the mold, the inclined sliding block D, the fixed inclines E below which the ends of the block pass when the block is closing the top of the mold and the rising-and-falling discharging-plunger C which serves to close the bottom and to discharge the bricks after they have been compressed.

2. The combination of the tubular mold A, sliding block D, fixed

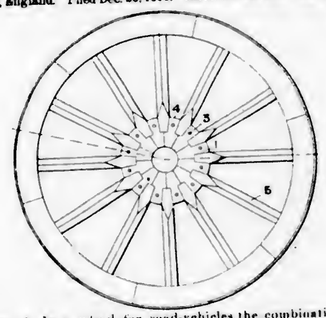
inclines E, discharging-plunger C, plungers B, weighted levers F for thrusting the plungers toward one another and cams upon a continuously-revolving cam-shaft for controlling the movements of the block D, plunger C and plungers B.



3. The combination of the tubular mold A, plungers B, sliding block D, discharging-plunger C and cams upon a continuously-revolving cam-shaft to first lower the plunger C to the bottom of the mold, then move the block D into position to close the top of the mold, then cause the plungers B to be simultaneously thrust inward and make indents in the sides of a brick inclosed in the mold and finally withdraw the block D and plungers B and cause the discharging-plunger C to rise and discharge from the mold the now compressed brick.

4. The combination of a continuously-revolving cam-shaft J, a tubular mold A, plungers B, sliding block D, discharging-plunger C situated below each end of this shaft and cams upon the cam-shaft for controlling the movements of both sets of plungers and sliding blocks.

646,028. WHEEL FOR ROAD-VEHICLES. JARRATT LIVERSIDGE, London, England. Filed Dec. 26, 1899. Serial No. 741,632. (No model.)



Claim.—1. In a wheel for road-vehicles the combination of a hub formed of double wedge-shaped segments having their lower wedge-shaped halves contiguous to each other, spokes adapted to fit in the spaces between the upper wedge-shaped halves of said segments and flange-plates securing said segments and spokes together, substantially as set forth.

2. In a wheel for road-vehicles the combination of a hub formed of double wedge-shaped segments having their lower halves contiguous and provided with recesses in their shoulders adapted to come opposite each other thus forming larger recesses at the bottoms of the spaces between the upper halves of said segments, spokes adapted to fit into said spaces and provided with cross-tenons at their feet which fit into said recesses, flange-plates securing said segments and spokes together, and bolts or rivets passing through said flange-plates and segments, substantially as set forth.

3. In a wheel for road-vehicles the combination of a hub built up of segments, dished spokes fitted into said hub, flange-plates securing said spokes and hub together and beveled to correspond to the dish of said spokes, substantially as set forth.

646,029. SOFT-TREAD HORSESHOE. MICHAEL LONG, Tyrone, Pa. Filed Dec. 23, 1899. Serial No. 741,459. (No model.)



Claim.—1. A horseshoe, having opposite removable soft-tread portions, and a hard-tread portion overlapping the adjacent ends of the soft-tread portions, secured to the horseshoe, holding the soft-tread portions in place and cushioned thereby, and both tread portions being exposed for contact with the ground.

2. A horseshoe, having separate soft-tread portions fitted to opposite sides of the shoe, and a metallic toe-plate fitting against the opposite inner ends of the soft-tread portions, holding the latter in place and also cushioned thereby, and each tread portion being exposed for contact with the ground.

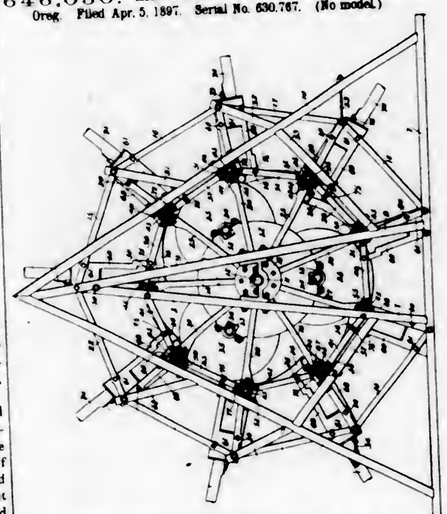
3. A horseshoe, having opposite soft-tread portions separated by an interspace at the toe of the shoe, and a metallic toe-plate fitting against the opposite inner ends of the soft-tread portions, spaced away from the shoe proper, and cushioned by the soft-tread portion.

4. A horseshoe, having separate soft and elastic strips secured to the under side of the shoe and separated by an interspace at the toe of the shoe, a metallic toe-plate fitted upon the adjacent ends of the elastic strips and spaced away from the shoe proper, and fastenings passing loosely through the toe-plate and fixedly engaging the shoe proper.

5. A horseshoe, comprising a metallic shoe proper, having outer and inner marginal flanges, soft elastic strips seated between the flanges and separated by an interspace at the toe of the shoe, countersunk fastenings securing the heel ends of the strip to the shoe, and the toe ends of the strips being beveled inwardly and downwardly, a metallic toe-plate having oppositely-beveled ends fitting against the beveled portions of the elastic strips, and fastenings passing loosely through the toe-plate and fixedly engaging the shoe proper.

6. A horseshoe, having opposite cushioning-strips separated by an interspace at the toe of the shoe, a metallic toe-plate fitting against the opposite inner ends of the strips, securing the latter in place, and provided with a sharp calk, and heel-calks fitting against the respective strips, and fastenings connecting the calks to the shoe and also common to the respective strips.

646,030. AIR-COMPRESSOR. JAMES D. MCKINNON, Portland, Oreg. Filed Apr. 5, 1897. Serial No. 630,767. (No model.)



Claim.—1. The combination with a frame, of a plurality of air-compressors mounted thereon and held in a circular line, each compressor having a piston arranged to be separately actuated, a shaft centrally located to said circular line, two plates fixed and spaced apart on the shaft, and a wheel carried between and extending slightly

beyond the plates and moving with the same to operate the pistons of the air-compressors independently and successively.

2. The combination with a frame, of a plurality of cylinders arranged circularly thereon, a revoluble shaft mounted in the frame and centrally with reference to the line of cylinders, two plates fixed on the shaft, a wheel revolubly mounted between the plates and projecting beyond the same, pistons within the cylinders, and means held by the frame and in connection with the pistons, such means being successively and independently engaged by the wheel as it turns within the plates, whereby to operate the pistons, substantially as described.

3. The combination of a revoluble shaft, two plates fixed thereon, a wheel revolubly mounted between the plates and projecting beyond the same, a fixed cylinder, a piston working in the cylinder, and a pivoted arm the free portion of which is in connection with the piston, the said arm being arranged in the path of the wheel, so that as the wheel moves orbitally around the shaft the wheel will engage with the arm and move the same outward, whereby to operate the piston, substantially as described.

4. The combination of a revoluble shaft, a wheel eccentric to the shaft and carried by the shaft so as to move orbitally around the shaft, a fixed cylinder, a piston working in the cylinder, and a pivoted arm the free portion of which is in connection with the piston, and the arm being in the path of the wheel so that as the wheel swings around the shaft the wheel will engage the arm and move the same outward to operate the piston, substantially as described.

5. In an air-compressor, a series of cylinders arranged in an endless line, an arm rigidly attached to each cylinder and projecting inward to a central point, means for rigidly joining the inner ends of the arms, two endless lines of braces respectively attached to the outer and inner ends of the cylinders and to the arms, whereby to rigidly hold the cylinders, and main beams to which the arms and braces are attached and by which they are supported, substantially as described.

6. The combination with a shaft and a series of devices to be operated, of two disks secured to said shaft and a series of wheels having their journals mounted in the peripheral portions of said disks, all the wheels of said series of wheels cooperating with each device of the series of devices to be operated and arranged to operate said devices successively.

7. The combination with a series of cylinders, a piston in each cylinder and a shaft mounted intermediate of the cylinders, of a series of disks secured to said shaft, a series of wheels mounted in the peripheral portions of said disks, each of said wheels cooperating successively with all the pistons to independently force each of them outwardly through the cylinders.

8. The combination with a series of cylinders, a plunger in each cylinder and a shaft intermediate of said cylinders, of a series of pivoted arms connected with the plungers, a series of disks secured to said intermediate shaft, and a series of wheels disposed between said disks and having their journals mounted in the peripheral portions thereof, each of said wheels adapted to successively move all of said pivoted arms to operate the plungers in the cylinders.

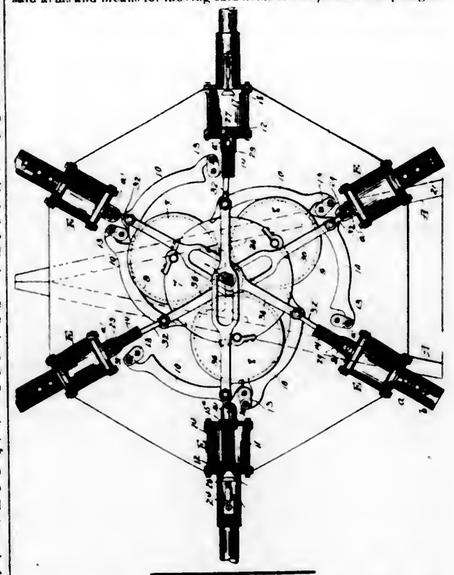
9. The combination with framework and an annular series of compressors secured to said framework, of a centrally-located driving-shaft, a series of disks secured to said shaft, and a series of wheels having their journals mounted in the peripheral portions of said disks and projecting beyond the same, each of said wheels operating to actuate said compressors successively and independently.

646,081. AIR-COMPRESSOR. JAMES D. MCKINNON, Portland, Oreg. Filed Mar. 17, 1899. Serial No. 709,491. (No model.)

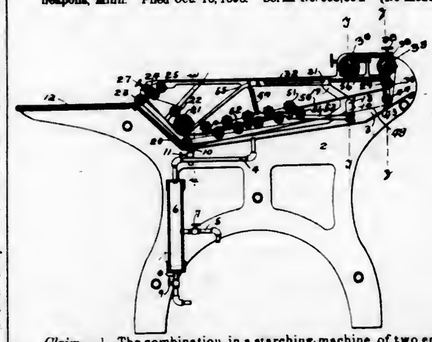
Claim.—1. In an air-compressor, the combination with a frame, an annular series of cylinders mounted therein, inlet and outlet valves for each cylinder and a plunger in each cylinder, of a shaft mounted centrally in said frame, pitmen connecting the plungers in pairs, each pitman having a slot centrally between its ends for the accommodation of said shaft, an annular series of wheels carried by said shaft, a series of arms, one for each plunger, each arm pivotally connected at one end with the frame and pivotally connected near the other end to one of said pitmen in position to be actuated by said wheels to reciprocate the pitmen and operate the plungers connected therewith.

2. The combination of two parallel plates, a circular series of cylinders secured between said plates, inlet and outlet valves at both ends of each cylinder, plungers in said cylinders, pitmen connecting the plungers in pairs, a shaft mounted centrally in said plates, two wheels disposed between said plates and secured to the driving-shaft, a series of wheels having their bearings in the peripheries of said first-mentioned wheels, and pivoted arms connected with the plungers in the cylinders and operated by said series of wheels.

3. The combination with two parallel plates, of cylinders secured between said plates, plungers in said cylinders, blocks secured between said plates, arms pivoted at one end to said blocks and near the other end to the plungers in the cylinders, said blocks constituting stops for said arms and means for moving said arms to reciprocate the plungers.



646,082. STARCHING-MACHINE. WILLIAM A. NEWTON, Minneapolis, Minn. Filed Oct. 18, 1898. Serial No. 693,884. (No model.)



Claim.—1. The combination, in a starching-machine, of two endless belts to receive the articles between them, a starch-vat through which said belts pass and circumferentially-corrugated driving-rolls engaging said belts, said driving-rolls being suitably separated, substantially as described and for the purpose set forth.

2. The combination, in a starching-machine, of the two endless conveyers or aprons, means for saturating said conveyers or aprons, and circumferentially-corrugated driving-rolls engaging said conveyers or aprons and driving the same without squeezing the moisture or starch therefrom or from the goods carried between said conveyers or aprons, for the purpose set forth.

3. The combination, in a starching-machine, of the two endless belts to receive the articles between them, a starch-vat through which said belts pass, carrying-rolls for said belts, and a driving-roll around which the engaged portions of the two belts pass, said driving-roll being circumferentially corrugated to prevent the squeezing of the starch from said belts, substantially as described.

4. The combination, in a starching-machine, of the two endless belts or aprons to receive the articles between them, with a starch-vat through which said belts pass, the carrying-rolls for said belts, and the circumferentially-corrugated driving-rolls 30 and 44 over which said belts pass, and said driving-rolls being separated and the engaged portions of the two belts passing over and around the roll 30, as and for the purpose specified.

5. The combination, in a starching-machine, of the starch-vat, with two endless belts or aprons to receive the articles between them,

the driving-rolls for said belts, the working rolls operating upon the engaged parts of said belts within said vat, the circumferentially-grooved roll 21 provided in said vat, and the deflecting-roll 22 for the upper belt, whereby a starch-pocket is formed above said roll 21, as and for the purpose specified.

6. The combination, of the two endless belts or aprons, with means for saturating the same with starch, the crowned carrying-rolls for said belts, means for adjusting and alining said crowned rolls, and the circumferentially-corrugated driving-roll over which the engaged parts of the two belts pass, and suitable rubbing or working means operating upon the engaged parts of said belts, substantially as described.

7. The combination, in a starching-machine, of the tank or vat, with the two endless belts or aprons provided therein and between which the articles are carried, the driving-rolls, the pivoted frame carrying said belts and rolls, and the reciprocating working frame having parts operating upon the engaged parts of said belts and within said pivoted frame, and the spring or springs 54 substantially supporting the weight of said reciprocating frame and its parts within said pivoted frame, as and for the purpose specified.

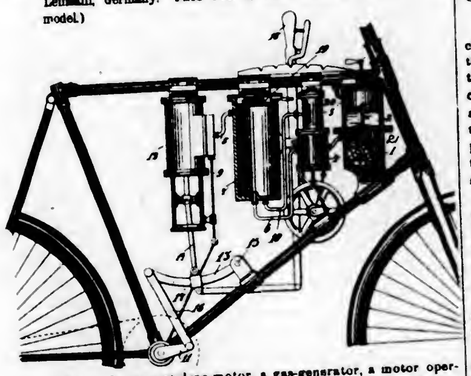
8. The combination, with the frame and the vat therein, of the two endless belts or aprons, the driving and carrying parts therefor within said vat, the working devices provided within said vat to operate upon the engaged parts of said belts, the pivoted frame carrying said working parts, and the carrying parts for said belts whereby all thereof may be lifted from said vat, the auxiliary frame, the smoothing-plate 56 provided therein, and the rods provided in said pivoted frame beneath the upper part of the upper belt, substantially as described.

9. In a starching-machine, the combination, with the vat, of the endless belts having engaged parts operating in the same direction, working devices, a starch-pocket formed between said belts and interposed between said working devices and the receiving end of said belts, and the circumferentially-corrugated roll further interposed between said working devices and said starch-pocket and having corrugations of different lengths as described, and for the purpose set forth.

10. The combination, with the vat, of the two endless belts operating therein, and between which the articles are carried and by which they are delivered upon the upper part or stretch of the upper belt, the frame for said belts, and the upper part of said frame being provided with ledges 58 whereon said upper stretch laps, said frame being also provided with a cross rod or rods to additionally support said upper stretch, substantially as described.

11. In a starching-machine for collars and cuffs, the combination, with the frame, of the vat, the circumferentially-corrugated driving-rolls 30 and 34 arranged within said vat, the crowned guiding-roll 33, arranged above the same, the gears 47 and 48 connecting said driving-roll 30 and said guiding-roll 33 and arranged within the vat, the gears connecting the driving-rolls 30 and 44 upon the exterior of the vat, the two endless belts supported and guided in said vat by said crowned roll and other like rolls therein, said belts passing over said rolls 30 and 44 and being driven thereby, substantially as described.

646,088. ACETYLENE-MOTOR FOR CYCLES. CARL H. OTTEN, Lemsahl, Germany. Filed Feb. 1, 1899. Serial No. 704,121. (No model.)

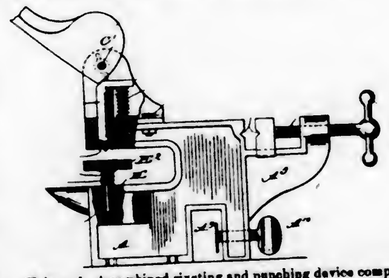


Claim.—In an acetylene-motor, a gas-generator, a motor operated by the gas from the generator, an air-pump piston on the extended end of the piston-rod of the motor, an explosion-chamber connected with the air-pump and with the exhaust of the motor-cylinder, a main motor driven by the pressure from the explosion-chamber and connection from the main motor to the driving mechanism of the vehicle, as and for the purpose described.

646,084. PROCESS OF MAKING MEDICINAL PRODUCTS. HEINRICH OPPENHAEN, Bernburg, Germany. Filed Jan. 23, 1899. Serial No. 703,060. (No specimens.)

Claim.—A process for producing non-volatile combinations of chloral having antiseptic properties, which consists in dissolving milk-sugar in glycerine to the point of saturation, heating the mixture to drive off the water, cooling the hot mixture to 40° centigrade, and then stirring in the chloral, substantially as set forth.

646,085. COMBINED RIVETING AND PUNCHING MACHINE. HENRY C. POMEROY, Chicago, Ill., assignor of one-fourth to Fred H. Smith, same place. Filed July 27, 1898. Serial No. 687,085. (No model.)



Claim.—1. A combined riveting and punching device comprising a frame provided with an apertured neck and recessed base, a plunger slidingly mounted in said aperture, means for depressing said plunger, a stationary post located in the recess formed in the base of the frame and provided with a flat upper face, and a work-support having a socket to fit said post and adapted to contact with said base; substantially as specified.

2. A combined riveting and punching device comprising a frame provided with an apertured neck, a plunger slidingly mounted therein, means for depressing said plunger, a stationary post located in the base of the frame, and a die-block provided with a punch-receiving opening and a recess to fit the upper end of said post; substantially as specified.

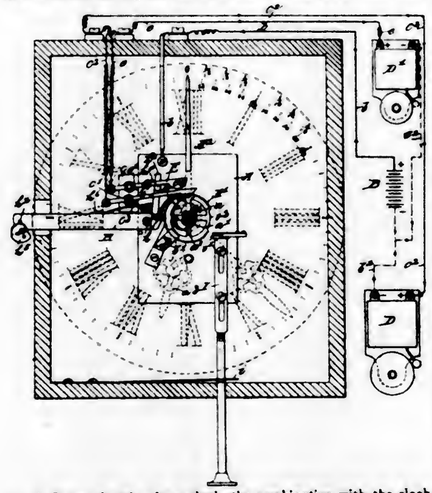
3. A combined riveting and punching device comprising a frame provided with an apertured neck and a recessed base, a plunger located in said aperture, a cam-lever for depressing said plunger, a removable pivot for said lever, a post located in the recess in the base of the frame beneath said plunger, a die-block provided with a lateral opening, a punch-receiving opening, and a recess to fit the upper end of said post; substantially as specified.

646,086. ELECTRIC TIME-ALARM. HANS REICH, Bonen, Austria-Hungary. Filed Oct. 11, 1898. Serial No. 693,262. (No model.)

Claim.—1. In an electric alarm-clock, the combination with the clock mechanism, an electric contact revoluble synchronously with the hour-hand, a movable contact in the path of and displaced by the revoluble contact, a third contact in the path of said movable contact, an electric circuit including the three contacts, and a local and distant alarm-bell, and means for setting the revoluble contact to close the electric circuit through the other two contacts at any predetermined time; of means for varying the interval of time between the closure of the circuit through the local alarm and the closure of the circuit through the distant alarm, for the purpose set forth.

2. In an electric alarm-clock, the combination with the clock mechanism, an electric contact revoluble synchronously with the hour-hand, a second contact in the path of said revolable contact, an electric circuit including said contacts and an alarm-bell, and means for setting the revoluble contact to close the electric circuit through said second contact at any time during a revolution of the hour-hand; of means for returning the revoluble contact to its starting-point and means for preventing such return without closing the electric circuit, for the purpose set forth.

3. In an electric alarm-clock, the combination with the clock-case, the clock mechanism, an electric contact revoluble synchronously with the hour-hand, a second contact in the path of said revoluble contact, said parts contained within the clock-casing, means for locking said casing, an electric circuit including the aforesaid contacts and an alarm-bell, and means for setting the revoluble contact to close the electric circuit through said second contact at any time during a revolution of the hour-hand, also within the clock-case; of means operated from without the clock-case for returning the revoluble contact to its starting-point, and means for preventing such return without closing the electric circuit, for the purpose set forth.



4. In an electric alarm-clock, the combination with the clock-case and means for locking the same, the clock mechanism, an electric contact revolvable synchronously with the hour-hand, a movable contact in the path of and displaced by said revoluble contact, a third contact in the path of the movable contact, said parts contained in the clock-casing, an electric circuit including the three contacts and a local and distant alarm-bell, means within the clock-case for setting the revoluble contact to close the electric circuit through the other two contacts at any predetermined time, and means likewise within the clock-case for varying the interval of time between the closure of the circuit through the local alarm and the closure of the circuit through the distant alarm; of means operated from without the clock-case for returning the revoluble contact to its starting-point only after closure of the electric circuit through the local alarm, for the purpose set forth.

5. In an electric alarm-clock, the combination with the hour-hand arbor of a clock, the hour-hand thereon, an electric contact mounted on the hour-hand sleeve to revolve therewith and independently thereof, said contact provided with a lock notch or slot intermediate of its ends and a second contact in the path of the revoluble contact; of a pointer or hand movable over the clock-dial and connected with the revoluble contact to revolve the same on the hour-hand sleeve, and a locking lever constructed to engage the notch or slot in the revoluble contact, for the purpose set forth.

6. In an electric alarm-clock, the combination with the hour-hand arbor of a clock, the hour-hand thereon, a wheel mounted on the sleeve of the hour-hand to revolve therewith and independently thereof, a pointer or hand movable over the clock-dial secured to said wheel, a contact-ring arranged concentrically with said wheel to revolve therewith and independently thereof, a contact projecting from the ring and having a lock notch or slot in its contact-face; of a hand-operated locking-lever constructed to engage said notch, for the purpose set forth.

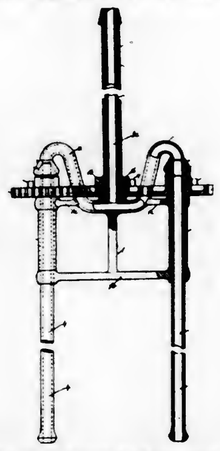
7. In an electric alarm-clock, the combination with the hour-hand arbor of a clock, the hour-hand thereon, the mutilated wheel A′ mounted on the sleeve of the hour-hand to revolve therewith and independently thereof, the pointer A^2 movable over the clock-dial and secured to wheel A′, the contact-ring a^3 arranged concentrically on one of the faces of said wheel to revolve therewith and independently thereof, said ring provided with the notched or slotted contact a^7; of the spring-controlled push-bar I provided with a pawl *i* at its upper end for engagement with the teeth of the wheel A′, substantially as and for the purpose set forth.

8. In an electric alarm-clock, the combination with the hour-hand arbor of a clock, the hour-hand, an electric contact revoluble with and independently of said hour-hand, a resilient contact in the path of and displaced by the movable contact, and a second resilient contact in the line of displacement of the first resilient contact; of a lever provided with an arm having a laterally-projecting pin on which said third contact has bearing, and a hand-operated graduated cam having bearing on a pin at the free end of said lever for graduating the distance between the two resilient contacts, for the purpose set forth.

9. In an electric alarm-clock, the combination with the hour-hand arbor of a clock, the hour-hand, the mutilated wheel A′ mounted on the hour-hand sleeve to revolve therewith and independently thereof, a pointer or hand revolvable over the clock-dial and secured to said wheel, the contact-ring a^3 having slotted or notched contact a^7, said ring mounted on one of the faces of wheel A′ to revolve therewith and independently thereof, and the spring-held contact-levers C and E arranged relatively to each other and the contact a^7, as described; of the lever H provided with the arms A′ and A^2, the former constructed for engagement with the notch or slot in contact a^7, and the latter A^2 provided with a stud on which contact-lever E has bearing, the hand-operated cam A^3 having bearing on a pin at the free end of lever H, and the push-bar I having pawl i^2 for engagement with the teeth on wheel A′, substantially as and for the purpose set forth.

10. The combination with the hour-hand tube, the toothed wheel A′ mounted thereon to revolve therewith and independently thereof, and provided with a hiatus i^3, the contact a^7 carried by said wheel and the spring-actuated push-bar I provided with a pawl i^2 at its upper end adapted to engage the teeth of said wheel when said bar is moved against the stress of its spring; of a contact-lever in the path of contact a^7, and an alarm-circuit including both contacts, substantially as and for the purpose set forth.

646,087. GATHERING-IRON. DANA F. RICHARDSON, Toledo, Ohio. Filed Nov. 24, 1897. Serial No. 659,720. (No model.)



Claim.—1. In a gathering-iron for glass-working, a central rod, a hollow rotatable spindle fitted over the central rod, rotatable gathering-irons supported from the central rod, and operative connection between the hollow spindle and the gathering-irons whereby the said irons may be turned simultaneously by turning the hollow spindle, substantially as described.

2. In a gathering-iron for glass-working, a frame having fixed thereto a central rod, two or more gathering-irons carried by said frame and adapted to be rotated relatively thereto, a hollow rotatable spindle fitted over said central rod, and operative connection between the hollow spindle and the several gathering-irons whereby said irons are rotated simultaneously by turning the hollow spindle, substantially as described.

3. The combination of a frame having two or more tubular gathering-irons carried thereby, each gathering-iron being rotatable upon its own axis, a central tubular rod, suitable connections between the central rod and each of the tubular gathering-irons whereby air blown into the central tubular rod will pass simultaneously out of the tubular gathering-irons, and means for simultaneously rotating the gathering-irons.

4. The combination of a frame, a blowpipe, hollow gathering-irons, and hollow connections between the blowpipe and the gathering-irons to admit air therethrough, substantially as described.

5. The combination of a frame, a blowpipe, rotatable hollow gathering-irons, hollow connections between the blowpipe and the gathering-irons, gears fixed upon the gathering-irons, and a central gear meshing with the gears upon the gathering-irons whereby the

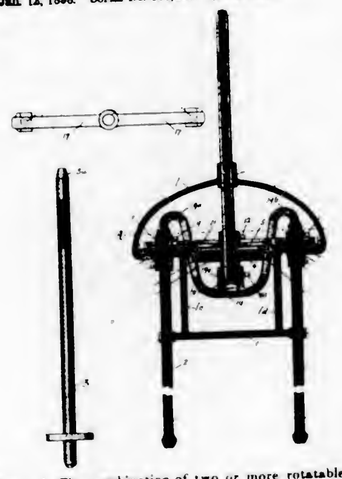
gathering-irons are simultaneously rotated by turning the central gear, substantially as described.

6. The combination of a central rod, a rotatable spindle thereon, a central gear on said spindle, gathering-irons, and gears upon the gathering-irons meshing with the central gear, substantially as described.

7. In a gathering-iron for glass-working, a frame having fixed thereto a central rod, two or more rotative gathering-irons carried by said frame, a gear fixed to each of the gathering-irons, a hollow rotatable spindle fitted over the central rod, and a gear fixed to said hollow spindle and meshing with the several gears fixed to the several gathering-irons, substantially as described.

8. In a gathering-iron for glass-working, a frame having fixed thereto a tubular central rod, two or more rotative hollow gathering-irons carried by the frame, pipes making connection between the tubular central rod and the hollow gathering-irons, gears fixed to each of the hollow gathering-irons, a hollow rotatable spindle fitted over the tubular central rod, and a gear fixed to the hollow spindle and meshing with the several gears fixed to the gathering-irons whereby the said gathering-irons may be turned simultaneously by turning the hollow spindle, substantially as described.

646,038. GATHERING-IRON. DANA F. RICHARDSON, Toledo, Ohio. Filed Jan. 13, 1898. Serial No. 666,465. (No model.)



Claim.—1. The combination of two or more rotatable hollow gathering-irons adapted to be rotated simultaneously, a frame upon which said gathering-irons are journaled, a blowpipe adapted to be rotated relative to the frame, air connections between the blowpipe and the several gathering-irons, and a driving connection between said blowpipe and the gathering-irons whereby the gathering-irons are simultaneously rotated by turning the blowpipe.

2. The combination of a frame, two or more rotatable gathering-irons journaled therein, a rotatable shaft journaled upon the frame, and a disk fixed to the shaft and loosely clamped to the frame whereby the shaft is capable of a rotative movement, and driving connection between the shaft and the several gathering-irons.

3. The combination of a frame, two or more rotatable hollow gathering-irons adapted to be rotated relatively thereto, of a rotatable blowpipe, connections between the blowpipe and the gathering-irons, to form an air-passage, said connections being provided with a connection-piece into which the blowpipe projects, and operative connection between the blowpipe and the gathering-irons.

4. The combination of two or more rotative hollow gathering-irons, a frame upon which the gathering-irons are journaled, said frame being provided with a hollow nipple, a rotatable blowpipe projecting into said nipple, a pipe provided with a connection-piece forming an air-tight connection with said nipple, the said pipe communicating with the gathering-irons, a disk fixed to the blowpipe, a plate secured to the frame and engaging the disk to allow a rotative movement, and operative connection between the blowpipe and the gathering-irons whereby said irons will be rotated simultaneously by turning the blowpipe.

646,039. RAILWAY-SWITCH. IRA ROBBINS, Camden, N. J. Filed Aug. 3, 1897. Serial No. 725,969. (No model.)

Claim.—1. In a railway-switch, the combination of switch-moving devices, a depressible part operatively connected therewith, and a retarding mechanism for controlling the return movement of said part, as set forth.



2. In a railway-switch, the combination of switch-moving devices, a depressible part arranged to be depressed by the wheel of a car, a retarding mechanism, and connections between said depressible part and the switch-moving devices and also with the retarding mechanism, as set forth.

3. In a railway-switch, the combination of switch-moving devices, a depressible part operatively connected therewith, a retarding mechanism, operatively connected with the depressible part, and a connection between the retarding mechanism and the switch-moving devices as set forth.

4. In a railway-switch, a rock-arm mounted for vertical movement and also for movement in the arc of a circle, and a retarding mechanism arranged to cooperate with the rock-arm in either of its movements, as set forth.

5. In a railway-switch, a rock-arm mounted for vertical depression and also for pivotal movement, switch-moving devices operatively connected with said rock-arm, and a retarding mechanism for cooperation with the rock-arm whether it be depressed or moved on its pivot, as set forth

6. In a railway-switch, a rock-arm mounted for vertical depression and also for pivotal movement, a switch-moving device arranged to be actuated by the depression of the rock-arm and inoperative when the rock-arm is moved on its pivot, as set forth.

7. In a railway-switch, a rock-arm mounted for vertical and pivotal movements, a switch-moving device mounted and connected to be actuated as the rock-arm is depressed, and inoperative as the rock-arm is moved on its pivot, and a retarding mechanism arranged to serve with the rock-arm in both of its movements to retard its return movement, as set forth

8. In a railway-switch, a rock-arm mounted for vertical movement and also movable upon a pivot, a link connected with said rock-arm, a retarding mechanism operatively connected with said link, and a switch-moving mechanism, all substantially as specified.

9. In a railway-switch, a rock-arm mounted for pivotal and vertical movement, a link pivotally connected therewith, a lever to which said rock-arm is pivoted, a rack movable by said link, a retarding mechanism operatively connected with said rack, and a switch-moving rod actuated by the movement of said lever, as set forth.

10. In a railway-switch, a depressible part, a lever operatively connected therewith, a switch-moving rod operatively connected with said lever, and a retarding device operatively connected with the depressible part, as set forth.

11. In a railway-switch, a depressible part, a lever upon which it is mounted, a retarding mechanism operatively connected with said lever, a switch-moving rod operatively connected with the lever, and means for actuating said rod and the retarding mechanism to move the switch and hold the depressible part against return movement, substantially as specified.

12 In a railway-switch, a depressible part, a pivoted lever on which it is mounted, a train of gears comprising a retarding device, racks carried by said lever for controlling said gears, a switch-moving rod and interposed devices embodying a pinion meshing with one of said racks, as and for the purpose specified.

13. In a railway-switch, the combination of a depressible part, a pivoted lever on which it is mounted, a sliding rod carrying a rack and actuated by the movement of said depressible part, a retarding mechanism actuated by said rack, and a switch-moving rod operatively connected with and actuated by the movement of said lever substantially as specified.

14. In a railway-switch, the combination of a switch-moving device, a vertically-movable and pivotally-mounted part operatively connected therewith, a retarding mechanism, pivotal connection between the same and the said part, and a connection between the retarding mechanism and the switch-moving device, substantially as and for the purpose specified.

15. In a railway-switch, the combination of a slide, means for actuating the same, a switch-lever pivoted on the slide, slides movable at right angles to said slide and operatively connected to move together, and a connection between one of said transverse slides and the switch, as set forth.

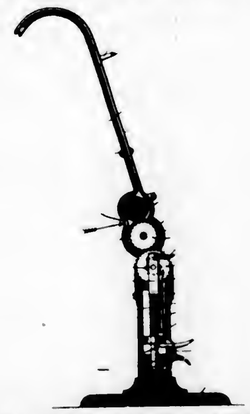
16. In a railway-switch, the combination of the slide, the pivoted switch-lever thereon, the double-beveled pin in position to be engaged by the end of the switch-lever, and a slide having inclined surfaces and operatively connected with the switch, as set forth.

17. In a railway-switch, the combination of a slide, means for actuating the same, a switch-lever pivoted on the slide, a double-beveled pin in position to be engaged by the end of the switch-lever, slides movable at right angles to the first-mentioned slide and having oppositely-disposed inclined surfaces, means connecting the two transverse slides to cause them to move in unison, and a connection between one of the said slides and the switch, as set forth.

18. In a railway-switch, the combination of a depressible part and a slide operatively connected therewith, of a switch-lever pivoted on said lever and having its ends doubly pointed, a double-beveled pin in position to be engaged by one end of said lever, and a switch mounted to be actuated by the movement of said slide and said switch-lever, as set forth.

19. In a railway-switch, the combination of a depressible part and a slide operatively connected therewith, of a switch-lever pivoted on said slide and having its ends doubly pointed, a double-beveled pin in position to be engaged by one end of said lever, slides movable at right angles to the first-mentioned slide and having inclined surfaces, and a switch operatively connected with and actuated by the movement of one of the transverse slides, as set forth.

646,040. COPY-HOLDER. GEORGE M. SCARBOROUGH, Waco, Tex. Filed June 19, 1899. Serial No. 721,096. (No model.)

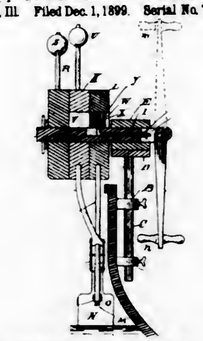


Claim.—1. In a copy-holder, the combination with a pedestal a hollow upright thereon; and a cap rotatively mounted upon said upright; of a frame mounted upon said cap; a pair of adjacent horizontal rollers mounted in said frame, for receiving and advancing a sheet of paper; guides for the paper on said frame; and means to rotate said rollers directly; of a trigger and means situated within said upright and said cap operated through said trigger, to intermittently rotate said rollers, substantially as described.

2. In a copy-holder, the combination with a hollow upright and a cap rotatably mounted upon said upright; of a frame mounted upon said cap, rollers for advancing the paper mounted in said frame, and guides for the paper, a trigger pivoted in said upright, a ratchet and pawl operated thereby and gearing connected to said ratchet meshing with one of said rollers for driving the latter, substantially as described.

3. In a copy-holder, the combination with a hollow upright; a cap mounted rotatably thereon; of a frame pivoted upon said cap; guides for the paper on said frame; rollers for advancing the paper mounted in said frame; a gear on one of said rollers; a gear mounted in said cap; and meshing with the gear on said roller; a ratchet connected to said latter gear; a trigger mounted in said upright and a pawl operated by said trigger for engaging and rotating said ratchet substantially as described.

646,041. BOW-FACING ROWING MECHANISM. DANIEL R. SHEEN, Peoria, Ill. Filed Dec. 1, 1899. Serial No. 738,828. (No model.)



Claim.—1. A rowing apparatus comprising a shaft mounted on the boat, a paddle-arm adapted to move with the shaft, a paddle pivoted to such arm, a partially revoluble member on the shaft for connection with said paddle for closing the latter, a crank on the inner end of the shaft, for moving the shaft, and means for locking the paddle in its open position for purposes set forth.

2. In a rowing apparatus a suitable shaft journaled on the gunwale of the boat, means for imparting a revoluble movement thereto, a paddle-arm adapted to move with the shaft, a paddle on the free end thereof, an operating-arm adapted to have a partial rotary movement about the shaft, means between the free end thereof and the paddle for swinging the latter on its pivot, a weight for moving said operating-arm whereby a rocking movement thereof on the shaft causes the closing of the paddle when same is passing out of the water and the opening thereof as it passes into the water all for the purposes set forth.

3. In a rowing apparatus a shaft mounted horizontally on the boat and adapted for both rotary and rocking movements, a paddle-arm moving therewith, a paddle carried on the arm, means for closing the paddle against wind-pressure, a crank pivoted to the shaft at one end, for rocking the shaft, by swinging movement thereof, said crank adapted to be raised for locking the paddle in an open position and to receive a rotary movement whereby the paddle moves through a circular path and reverses the direction of movement of the boat, substantially as set forth.

4. In a bow-facing rowing apparatus adapted for use in both forward and rearward rowing of the boat, a shaft suitably journaled on the boat, a paddle-arm moving with the shaft, a paddle pivoted to the free end of the arm, a partially-revoluble member on the shaft, a paddle-operating arm secured to such member, adapted for moving said paddle for opening and closing the same, a weight for swinging the arm for the purposes described, a depending crank for imparting a rocking movement to the shaft, said crank being on same side of the shaft as the paddle-arm for a forward rowing movement and adapted to be raised so as to be opposite the said paddle-arm whereby a revoluble movement thereof will revolve the paddle to move the boat in a rearward direction, depending on the direction of rotation imparted thereto as set forth.

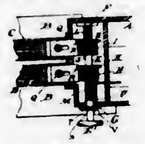
5. In a bow-facing rowing apparatus, a shaft journaled on the side of the boat, a plate secured thereto, a paddle-arm secured to the plate, a paddle pivoted to the arm, a second plate loosely mounted on the

shaft adjacent to the fixed plate, a paddle-operating arm secured thereto and indirectly connected with said paddle whereby a partial movement of said loose plate on the shaft will open and close the paddle, a weight on the said loose plate adapted to operate the said arm and paddle by force of gravity, means for locking the said loose and fixed plates together and a crank for imparting both a revoluble and rocking movement to the shaft to drive the boat in a forward or rearward direction as desired.

6. In a bow-facing rowing apparatus, a shaft journaled to the side of a boat, a plate secured thereto, a paddle-arm secured to the plate a paddle pivoted to the arm, a second plate loosely mounted on the shaft adjacent to the fixed plate, a paddle-operating arm secured thereto and indirectly connected with said paddle whereby a partial movement of said loose plate on the shaft will open and close the paddle, a weight on the said loose plate adapted to operate the said arm and paddle by force of gravity, means for locking the said loose and fixed plates together, a crank for imparting both a revoluble and rocking movement to the shaft to drive the boat forward and rearward as desired, and a counterbalance for the paddle-arm adapted also to assist in the operation of opening and closing the paddle, substantially as described.

7. In a boat-rowing apparatus of the character described, a shaft mounted at the side of the boat, a fixed plate thereon, a paddle-arm affixed to the plate, a paddle on the arm, a loose plate on the shaft adjacent to the affixed plate, a paddle-operating arm secured to the loose plate for opening and closing the paddle, a weight on the said plate for accomplishing this operation, means for locking the paddle in its open position which consists in a block adapted to lock the said fixed and loose plates together, a pin adapted to move longitudinally within the shaft and carry the said block, a crank pivoted to one end of the shaft and adapted to move the pin and block for the purposes set forth, and a spring on said pin adapted to release the plates by removing the block, and weight for counterbalancing the paddle and its parts and assisting in the operation of opening and closing said paddle all substantially as set forth.

646,042. COMBINED SASH-BALANCE, LOCK, AND ANTIRATTLER. DANIEL R. SHEEN and JAMES A. PHILBRICK, Peoria, Ill. Filed Sept. 23, 1899. Serial No. 731,434. (No model.)



Claim.—1. In a combined sash-balance, lock and antirattler for the same, the casing A, shaft E therein, a fixed and a loose gear-wheel on the latter, substantially as set forth, the upper sash adapted to engage with the fixed gear, the lower sash adapted to engage with the loose gear, a rack-bar on each sash to engage such gears as set forth, a groove on each rack-bar, revoluble wheels for engaging the grooves, springs on the shaft for engaging the gears at one end and the casing, or other stationary part at the other end and means for locking each sash separately or conjointly substantially as set forth.

2. In a sash-balance a shaft located within the window-casing, a fixed gear-wheel thereon for engaging the upper sash, a loose gear thereon for the lower sash, a rack-bar on each sash for engaging said gears, springs surrounding the shaft and secured at one end to the gears and at the other to the stationary casing substantially as and for the purposes described.

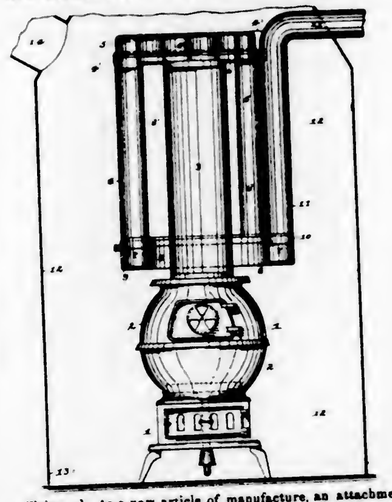
3. In a lock for window-sashes, a shaft E, a loose and a fixed gear thereon, sashes C and D, adjustable rack-bars thereon for engaging the gears, a ratchet-wheel G on the shaft, a pawl for engaging it, a pin U for locking the gear H all substantially as and for the purposes specified.

4. In a sash-balance, lock and antirattler, the upper sash having a downwardly-projecting rack-bar, the lower sash having an upwardly-projecting rack-bar both adapted to pass each other at the juncture of said sashes, a horizontal shaft within the window-casing, a gear-wheel on the shaft for engaging the bar of the upper sash and a gear-wheel on the shaft for engaging the bar of the lower sash as set forth.

5. In a sash-balance and lock, an upper sash having a rack-bar thereon projecting below the bottom thereof, a lower sash, a rack-bar thereon projecting above its top, a horizontal shaft at each side of the window-frame and projecting therethrough, the same being in line with the junctures of the sashes, gear-wheels on each shaft for engaging the rack-bars, beveled wheels on each shaft, a groove in each rack-bar for receiving the bevels of said wheels, springs surrounding the shaft, stationarily held at one end and connected at the other with the revoluble wheels and adapted to be tightened or relaxed by the movement of said sash substantially as set forth.

6. For window-lock, rack-bars on the upper and lower sashes, a shaft within the casing at the juncture of the sashes, gear-wheels on the shaft for engaging the rack-bars, springs on the shaft adapted to be tightened and relaxed by a movement of the sashes, a series of apertures in one end of the gear-wheels and an adjustable pin adapted to enter said apertures, such pins being parallel with the shaft and adapted to be moved by the hand for locking the window substantially as set forth, a ratchet-wheel on the shaft outside of the casing and a pawl adapted to engage such ratchet substantially as described.

646,043. HEATING ATTACHMENT FOR STOVES. ROBERT S. STEPHENSON, Allegheny, Pa., assignor of one-half to John S. Graham, same place, and Samuel R. Baldwin, New Castle, Pa. Filed Nov. 13, 1899. Serial No. 696,224. (No model.)



Claim.—1. As a new article of manufacture, an attachment to be applied to stoves, comprising an upper chamber adapted to be seated on the stovepipe or the exit-flue of a stove, a series of pipes leading downwardly from said chamber and opening into a lower annular chamber extending around the stovepipe or a portion of the stove and of such internal diameter as to leave a space for the passage of air between it and said stovepipe or stove portion, and an exit-flue extending from said attachment and adapted to be connected directly to the chimney or to a pipe leading thereto.

2. As a new article of manufacture, an attachment to be applied to stoves, comprising an upper chamber adapted to be seated on the stovepipe or the exit-flue of a stove, a series of pipes leading downwardly from said chamber and opening into a lower annular chamber extending around the stovepipe or a portion of the stove and of such internal diameter as to leave a space for the passage of air between it and said stovepipe or steve portion, said lower annular chamber having an exit-flue opening adapted for connection to the chimney or to a pipe leading thereto.

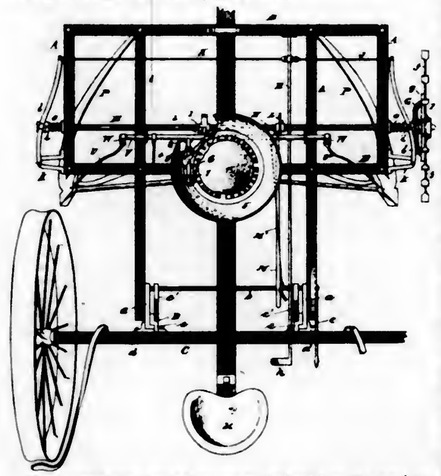
646,044. MANUFACTURE OF VISCOSE. EDOUARD THOMAS, JEAN BONAVITA, and MAURICE OLIVIER, Paris, France. Filed Oct. 14, 1899. Serial No. 733,668. (No specimens.)

Claim.—1. The process for the manufacture of a new industrial product consisting in incorporating suitable proportions of sodium sulfite and zinc oxid with the substance viscose, as set forth.

2. The process for the manufacture of a new industrial product consisting in adding to alkali cellulose twenty-five to thirty per cent. of sodium sulfite and about thirty per cent. of zinc oxid calculated on the cellulose contained in the alkali cellulose and then treating the mixture with carbon bisulfid as in the ordinary preparation of viscose.

646,045. CORN-PLANTER. PRESTON W. THOMSON, Yates City, Ill., assignor of two-thirds to Frank D. Thomson and Preston W. Thomson, Jr., Galesburg, Ill. Filed May 15, 1899. Serial No. 716,906. (No model.)

Claim.—1. A corn-planter whose runners are inclined from the usual vertical position to a slanting or angling position throughout their entire height, substantially as set forth.



2. A corn-planter having its runners inclined from the usual vertical position and its wheels also inclined from the vertical position but in an opposite direction to that of the said runners substantially as and for the purposes set forth and described.

3. In a corn-planter, the combination of the usual runners inclined from the customary vertical position, the carrying or covering wheels inclined in the opposite direction, the wheels following the runners, whereby the corn is deposited and covered as described, mechanism for dropping the seed, and means for operating such mechanism for the purposes set forth.

4. In a corn-planter, the combination of the usual runners inclined from the customary vertical position, the carrying or covering wheels inclined in the opposite direction, whereby the corn is deposited and covered as described, mechanism for dropping the seed, and means for operating such mechanism, such operating means adapted for movement by contact with the ground substantially as set forth.

5. In a corn-planter, a seed-dropping mechanism consisting of the combination of the runners P inclined at an angle from the vertical position, a recess R in the shank of each runner, a seed-conduit T entering each recess, a spring S in the recess for holding the seed, plungers U entering the recesses and opening the springs to drop the seed, a shaft V for operating the plungers, a shaft E, a trip 3 thereon for moving the shaft V, a spring 4 for the latter, a wheel F at each end of the shaft E adapted to engage with the ground for driving the latter shaft substantially as set forth and described.

6. In a corn-planter, a seed-dropping mechanism consisting of the combination of the runners P inclined at an angle from the vertical position, a recess R in the shank of each runner, a seed-conduit T entering each recess, a spring S in the recesses for holding the seed, plungers U entering the recesses and opening the springs S to drop the seed, a shaft V for operating the plungers, a shaft E, a trip 3 thereon for moving the shaft V, a spring 4 for the latter, a wheel F at each end of the shaft E adapted to engage with the ground for driving the latter shafts, and means for engaging and disengaging the said wheels and shaft, consisting of a toothed face *g* on the inner side of each of said wheels, a yoke G on the shaft adjacent to the said toothed face and having corresponding toothed faces, such yoke adapted to have a longitudinal movement on the shaft but fixed against rotary movement except with such shaft, a lever *l* pivoted to the yoke, said lever connected at one end to the planter-frame, the other end controlled by suitable means for disengaging the yokes from the wheels F, and springs O for reëngaging the parts substantially as set forth.

7. In a corn-planter, a seed-dropping mechanism consisting of the combination of the runners P inclined at an angle from the vertical position, a recess R in the shank of each runner, a seed-conduit T entering each recess, a spring S in the recess for holding the seed, plungers U entering the recesses and opening the springs S to drop the seed, a shaft V for operating the plungers, a shaft E, a trip 3 thereon for moving the shaft V, a spring 4 for the latter, a wheel F at each end of the shaft E adapted to engage with the ground for driving the latter shaft and means for engaging and disengaging the said wheels and shaft, consisting of a toothed face *g* on the inner side of each of said wheels, a yoke G on the shaft adjacent to the said toothed face and having corresponding toothed faces, such yoke adapted to have a longitudinal movement on the shaft but fixed against rotary movement except with such shaft, a lever *l* pivoted to the yoke, said lever connected at one end to the planter-frame, a shaft H at right angles to the shaft E, a footpiece *k* at one end, arms I thereon, rods J and K connecting the said arms I and the levers *l* substantially as set forth and for the purposes described.

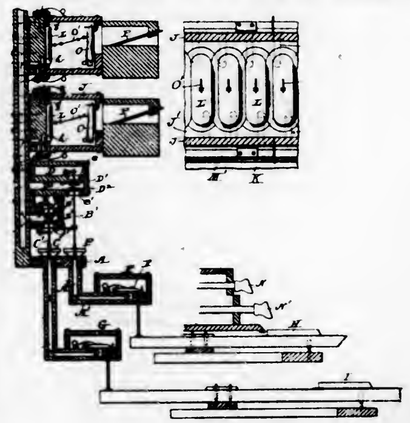
8. A corn-planter having a force-drop within the runner-shank, consisting of a plunger U operated to move vertically therein, a shaft V for operating the plunger in each shank, a shaft E for imparting movement to such shaft V, a wheel F on each end of the shaft E, means for engaging and disengaging the said wheels and shaft, and means for moving the shaft in its bearings, to bring the planted rows into register, which consists of a plate L secured to the said shaft, a lever M having bearings on the shaft adjacent to said plate L, a lever N pivoted to such lever M and having a pin *o'* for binding the said plate L, a rod M' for operating the lever N and a spring for releasing the said lever and plate for the purposes set forth and described.

9. In a corn-planter, a force-feed mechanism consisting of a main shaft E adapted to be operated from the ground, the runners P P, recesses R therein, springs S in the recesses seed-conduits opening into the recesses, plungers U entering the recesses and adapted to open the spring, a shaft V for operating the plungers, said shaft V receiving its movement from the shaft E, a seedbox for supplying grain to the runners through the conduits, a rod 7 having the pawl 6 for operating the seed-plate in the seedbox, and a spring 4 for returning the shaft V and plungers U to their normal positions after each forced movement substantially as set forth.

10. The combination of a planter-frame A, B, a transverse shaft E journaled thereto, a two-arm trip 3 on said shaft adapted for operating the seed-dropping mechanism, a spoked wheel F, loosely mounted on each end of the shaft to engage with the ground, a serrated or toothed wheel *g* secured to each of the latter, and shifting sleeves on the shaft for carrying the yokes G adapted to engage said wheels *g*, said yokes adapted to turn with the shaft and slide longitudinally thereon, a spring O on the shaft between said sleeve and the shaft-bearings which normally keep the said yokes and toothed wheels in engagement, brackets *k* on the frame A, levers *l* pivoted thereto and adapted to shift the said sleeves and yokes to release them from the drive-wheels F to stop the dropping of seed, a rock-shaft H journaled on the frame at right angles to the shaft E, arms *l'* on the shaft at diametrically-opposite sides thereof, rods J and K attached to the arms and levers, substantially as set forth and a footpiece on the said rock-shaft for rocking the latter, substantially as described and shown.

11. In a corn-planter, the combination of the main frame A, B, the I-beam secured to the rear transverse beam B, the tongue 15 connected therewith, the beam 18 having sliding connection with the said I-beam and having pivotal connection with the axle C, a vertical rack and guide secured to the axle, a sliding portion *a*, for the guide, a shaft *b* carried in the said sliding portion, a toothed sector *c'* on such shaft, for engaging the rack, and a lever on the shaft for operating the parts to raise and lower the planter substantially as set forth.

646,046. REED OR PIPE ORGAN. MORRIS S. WRIGHT, Worcester, Mass. Filed Oct. 15, 1898. Serial No. 693,590. (No model.)



Claim.—1. In a reed or pipe organ, the primary channel-board, having branches upon which are mounted the key wind-chests and their valves, with which the keys for playing the instrument are connected, said channel-board and its branches, also having a separate channel to each primary pneumatic; said primary pneumatics, arranged in pairs on said primary channel-board; the secondary channel-board and double wind-chest, having double, connecting-channels, one for each primary pneumatic of each pair, and two, double, cut-off or switch valves, for each double wind-chest, each separately connected with the primary pneumatics of each pair; in combination with the tone-chambers, each containing a series of separate, secondary pneumatics and reed-valves, one of each for each pair of primary pneumatics and each reed or pipe—the channel-board of each of said tone-chambers being also provided with two, double channels and cut-off valves for each secondary pneumatic, controlled by two "stops" for each tone-chamber, substantially as and for the purpose set forth.

2. In a reed or pipe organ, the combination of the secondary channel-board, having two channels for each reed or pipe, with the tone-chambers, each containing a series of separate, secondary pneumatics and reed-valves, one of each for each pair of primary pneumatics and each reed or pipe, and said valves connected with said secondary pneumatics—the channel-board of said tone-chamber being also provided with two, double channels and cut-off valves for each secondary pneumatic, controlled by two "stops" for each tone-chamber, substantially as and for the purpose set forth.

3. In a reed or pipe organ, the pairs of primary pneumatics, the double wind-chests, their double cut-off or switch valves and the secondary channel-board, said wind-chests and channel-board each having two separate, connecting-channels for each pair of primary pneumatics, and said cut-off or switch valves connected with said primary pneumatics, in combination with the tone-chambers, having two "stops" for each, and each containing a series of secondary pneumatics and valves, one of said valves for each pair of primary pneumatics and each reed or pipe, and connected with said secondary pneumatics, the channel-board of said tone-chamber being also provided with two, double channels for each valve in the tone-chamber, and each reed or pipe; the flexible and "stop," cut-off valves, arranged over the outer openings of said double channels in the tone-chamber channel-board, and the secondary pneumatics, arranged over the inner openings thereof, substantially as and for the purpose set forth.

646,047. CONSECUTIVE-NUMBERING MACHINE. OSWALD G. BARTUSCH, New York, N. Y., assignor to the New York Stencil Works, same place. Filed Feb. 23, 1899. Serial No. 706,558. (No model.)



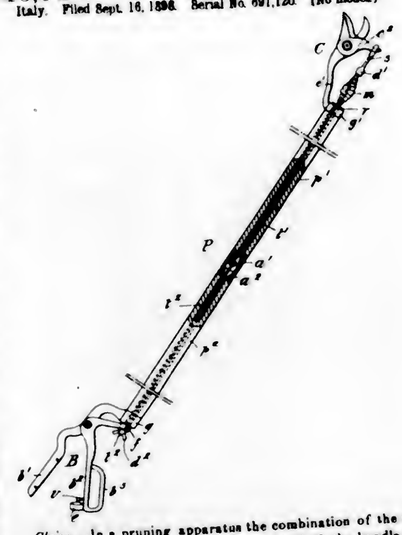
Claim.—1. In a numbering apparatus, the combination with a case or frame, of two numbering-wheels one of which has a groove therein, the groove having an inwardly-extended portion and a type mounted to move on the other wheel independently thereof and having a part running in the cam-groove of the first-named wheel, the said type being automatically moved inward by the bend in the groove.

2. In a numbering apparatus, the combination with the case or frame, of two numbering-wheels, the one having a circular groove therein, a type mounted to move on each wheel independently thereof, the movable type of the grooved wheel having a groove capable of registering with the groove of the said wheel, and the movable type of the second wheel having a part running in the grooves of the first wheel and its movable type, and means for automatically moving the movable type of the first wheel independently of its wheel.

3. In a numbering apparatus, the combination with a case or frame, of three numbering-wheels, the one of which has a cam-groove therein, and the second of which has a groove therein, and a movable type mounted on each of the second and third wheels, the movable type of the second wheel having a groove capable of registering with that of the second wheel, and said movable type of the second wheel having a part running in the cam-groove of the first wheel to automatically move said type, the movable type of the third wheel having a part running in the groove of the second wheel and in the groove of the movable type on said second wheel.

4. In a numbering apparatus, the combination with the case or frame thereof, of a numbering-wheel, a pawl for driving the same, a lever fulcrumed on the case and having a connection with the pawl to drive the pawl, the connection including an antifriction-roller, a plunger mounted in the case, and two antifriction-rollers attached to and moving with the plunger and bearing respectively on opposite sides of the lever to drive the same.

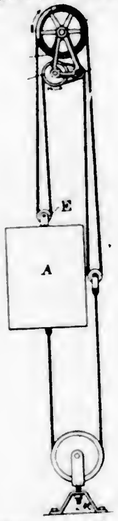
646,048. PRUNING IMPLEMENT. DON S. DONNELLA, Dogliani, Italy. Filed Sept. 16, 1898. Serial No. 691,120. (No model.)



Claim.—In a pruning apparatus the combination of the screw-coupled tubular rods p', p^3, the linked rods ℓ, ℓ^1, the handle B, the spring m, the shears C and the connecting-link s, substantially as described

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646,049. ELEVATOR. STRELBERT M. FRASER, San Francisco, Cal., assignor, by mesne assignments, to the Otis Elevator Company, of New Jersey. Filed Nov. 27, 1896. Serial No. 613,668. (No model.)

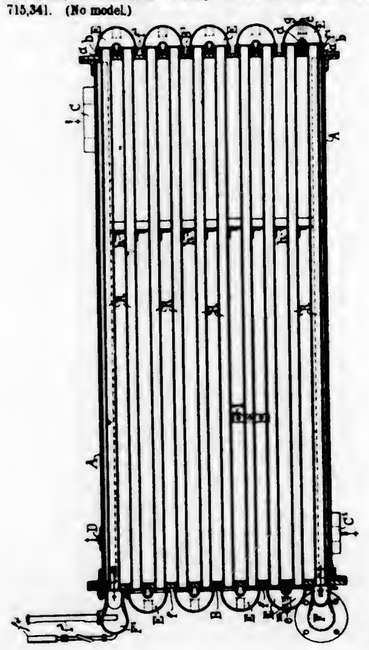


Claim.—1 The combination in an elevator of two driving-pulleys which are capable of being driven at the same and also at different relative rates of circumferential speed, a load that is to be raised or lowered, an endless cable that passes around both of said driving-pulleys and has therein bights or loops, two traveling pulleys the first of which pulleys is attached to the load and is carried in one of said loops or bights of the endless cable and the second of which is carried in another of the loops or bights of the endless cable, a stationary friction-pulley, and a cable that is attached at one of its ends to the load and from thence passes downward to and around the said stationary friction-pulley and returning upward is attached at its other end to the said second traveling pulley so as to hold the endless cable taut and prevent its slipping on the driving-pulleys, all of said parts being so arranged and combined that the said driving-pulleys and said endless cable will each run continuously in one direction, and the said load will remain stationary when the said driving-pulleys are running at the same relative rate of circumferential speed but will move either upward or downward when the relative rates of circumferential speed of the driving-pulleys are changed so that one of them will run either faster or slower than the other, all substantially as herein set forth and described.

2. The combination in an elevator of two driving-pulleys which are capable of being driven at the same and also at different relative rates of circumferential speed, a load that is to be raised or lowered, and an endless cable that passes around both of said driving-pulleys and which is connected with said load so as to control its actions, with an additional idler-pulley for increasing the frictional adhesion of the endless cable to the driving-pulleys, all of said parts being so arranged and combined that the said driving-pulleys and said endless cable will each run continuously in one direction and the said load will remain stationary when the driving-pulleys are running at the same relative rate of circumferential speed but will move either upward or downward when the relative rates of circumferential speed of the driving-pulleys are changed so that one will run either faster or slower than the other, all substantially as herein set forth and described.

3. The combination in an elevator of a car, cage, or platform with a traveling friction-pulley at its upper part for lifting it, two driving-pulleys that are capable of being driven at the same and also at different relative rates of circumferential speed, an endless cable running around said traveling pulley and around both of said driving-pulleys, another traveling pulley that is carried in the bight of said endless cable that is beyond the driving-pulleys from said car, cage, or platform, a cable that connects the second of said traveling pulleys with the bottom of said car, cage, or platform and passes around another friction-pulley that is stationary and located opposite to the said driving-pulleys, the said stationary friction-pulley, and a tightening apparatus, all being combined and arranged substantially as herein described and set forth, and so that the driving-pulleys and endless cable will each run continuously in one direction and the car, cage, or platform will remain stationary when the driving-pulleys are running at the same relative rates of circumferential speed but will move either upward or downward when the relative rates of circumferential speed of the driving-pulleys are changed so that one of them will run either faster or slower than the other.

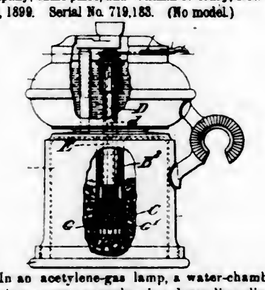
646,050. HEATING APPARATUS FOR SUGAR JUICES. LUDWIG HIRT, Grevenbroich, Germany. Filed May 2, 1899. Serial No. 715,341. (No model.)



Claim.—1. In a heating device for saccharine juices or other liquid, the combination of a casing A having tube-plates B B′ at its ends, horizontal tubes adapted to be heated contained within the said vessel and expanded in one tube-plate B and passing through the other tube-plate B′, means for connecting the pairs of superadjacent tubes outside of the casing comprising bends or elbows of the same form and size or cross-section as the tubes and means for packing the tubes in the tube-plate B′ consisting of an elastic ring for each tube, plates b resting upon the said rings, studs c c' passing through the said plates, nuts d threaded upon the studs and serving to hold the plates b in place and nuts g g' likewise threaded on the said studs and serving to hold the bends or elbows in place, substantially as described and for the purposes set forth.

2. A heating apparatus for saccharine juice or other liquid consisting of a casing A, tubes R having removable joints and passing therethrough arranged in rows and adapted to be heated from the interior of the vessel, all the tubes of each row being connected in series, a header connecting the inlet ends of all of the rows of tubes R for simultaneous admission of the liquid and a header connecting the outlet ends of all the rows of tubes R for the simultaneous escape of said liquid the said headers being provided with valves for shunting or entirely cutting out one or more rows of superposed tubes from connection with the said headers for admission and escape of the fluid to be heated.

646,051. ACETYLENE-GAS LAMP. WILLIAM C. HOMAN, Meriden, Conn., assignor, by direct and mesne assignments, to the Edward Miller & Company, same place, and William P. Crary, New York, N. Y. Filed June 3, 1899. Serial No. 719,183. (No model.)



Claim.—1. In an acetylene-gas lamp, a water-chamber, a gas-generating chamber, a water-supply pipe depending directly from said water-chamber, an elongated valve controlling an opening in said water-supply pipe, a valve-seat in said opening adjustably mounted in line with said valve, and a water-distributing pipe around said valve and valve-seat and within said generating-chamber.

2. In an acetylene-gas lamp, a water-chamber, a gas-generating chamber, a water-supply pipe, a valve controlling an opening in said supply-pipe, a valve-seat adjustably mounted with respect to said opening, and in line with said valve, and a slitted water-distributing pipe around said valve and valve-seat and within said generating-chamber.

3. In an acetylene-gas lamp, a water-chamber, a gas-generating chamber, said chamber being made up of a plurality of sections, a water-distributing pipe carried by one of said sections, a water-supply pipe projecting into said distributing-pipe and connected with the water-chamber, an outlet in said supply-pipe, a valve for controlling said outlet and a valve-seat to cooperate with said valve.

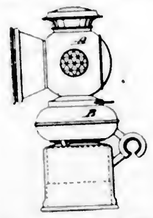
4. In an acetylene-gas lamp, a water-chamber, a gas-generating chamber, the casing for which is formed in sections, a water-distributing pipe having slots in its side, said pipe being bulged adjacent said slots and means to feed water from the water-chamber into said distributing-pipe.

5. In an acetylene-gas lamp, a water-chamber, a gas-generating chamber, the casing for the latter being separable, a distributing-pipe having openings in the sides thereof projecting into said generating-chamber, a water-supply pipe projecting into said distributing-pipe and means for controlling said water-supply comprising a longitudinally-adjustable valve and a controlling-handle therefor attached directly to said valve, and a graduated holding-rack for said controlling-handle.

6. In an acetylene-gas lamp, a gas-generating chamber and a distributing-pipe projecting into said chamber, said distributing-pipe being provided with slots and being bulged adjacent said slots, in combination with a water-supply and means for regulating the same.

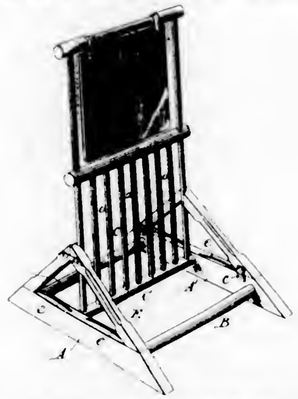
646,052. ACETYLENE-GAS LAMP. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed June 9, 1899. Serial No. 719,873. (No model.)

Claim.—1. In a gas-lamp, a carbid-holder, a generator-casing, the side walls of said carbid-holder being graduated, means for securing the carbid-holder within the generator-casing and simultaneously closing the open end of said generator-casing.



2. An invertible carbid-holder for an acetylene-gas lamp consisting of two cups arranged to telescope one within the other, one of said cups being provided with an imperforate bottom, the other cup being provided with gas outlets or perforations near its top and also being provided with indicating-marks around its circumference so arranged that said cup may contain different determined amounts of carbid between said marks and the perforated end.

646,053. **BICYCLE-RACK.** WILLIAM H. HUMPHREY, New York, N. Y. Filed Aug. 26, 1899. Serial No. 728,532. (No model.)



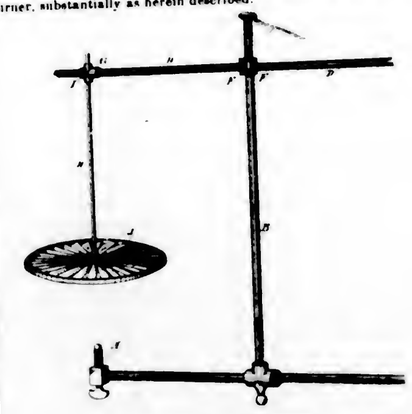
Claim.—1. The combination, in a portable bicycle-rack, of the base, the side brackets, and the hinged frame, the brackets being hinged to the base, provided with springs, and arranged to bear upon the frame in upturned or in downturned position, substantially as shown and described.

2. The herein-described portable bicycle-rack comprising the base, the frame having the parallel bars and the hinged sign-board, the recessed side brackets hinged upon the base, and springs bearing upon the brackets and base, all substantially as shown and described.

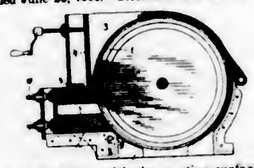
646,054. **SOOT-DISPERSING ATTACHMENT FOR BURNERS.** JOHN C. LORMEYER, San Francisco, Cal. Filed Apr. 18, 1899. Serial No. 713,499. (No model.)

Claim.—1. A device for dispersing soot and smoke from a lighting-burner consisting of a wheel including angularly-placed vanes, said wheel having its center in line with the burner and its periphery sufficiently removed from the line of the burner so as to be substantially outside of the plane of the ascending gases, a vertical rod in line with the burner and having the center of the wheel rotatively connected with its lower portion, a sleeve in which the rod is vertically adjustable, and a horizontal rod fitted to the drop tube or fixture and having said sleeve adjustably fitted to it.

2. The combination with a gas-fixture and the burner thereof, of a split sleeve embracing the fixture and means for securing it thereto, said sleeve having radially-extending horizontal arms, a second sleeve slidably mounted on said arms and having a vertical socket, a vertical rod fitting the vertical socket and a single screw passing into the socket and clamping the vertical rod, and also clamping said rod against the companion horizontal arm, and a wheel rotatively mounted on the lower end of the vertical rod and including angularly-arranged vanes, said wheel having its center in line with the burner, substantially as herein described.



646,055. **APPARATUS FOR PULPING POTATOES.** FRANCIS MALINSKY, Ronov, and JAROSLAV PROKOP, Pardubice, Austria-Hungary. Filed June 29, 1899. Serial No. 722,328. (No model.)



Claim.—In combination with the grating-surface, a plurality of logs arranged with a space between them in which a log of the grated material forms, and means for supplying water to the grated surface at a point below the logs, substantially as described.

646,056. **BEER-FAUCET.** LEE R. MITCHELL and ALEXANDER D. MCKINNON, Boston, Mass. Filed Dec. 12, 1899. Serial No. 740,050. (No model.)

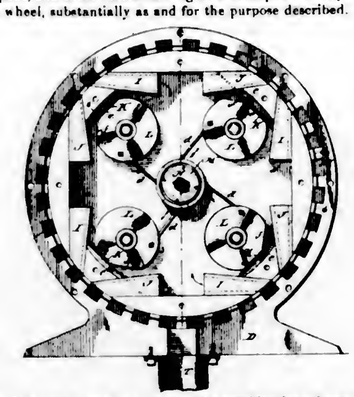


Claim.—The herein-described improved beer-faucet, comprising the body portion formed with an internal shoulder or valve-seat; a vertically-sliding tubular valve formed with a port on one side adapted to be moved into coincidence with the supply-pipe, the tubular portion of said valve extending below the lower end of the faucet; the lever H pivotally secured to the faucet and swinging vertically on one side thereof; and the link K pivotally connected at its opposite ends with said lever and tubular portion, substantially as set forth.

646,057. **ROTARY ENGINE.** WILLIAM T. MOONEY, Coalville, Va. Filed Aug. 10, 1899. Serial No. 726,808. (No model.)

Claim.—1. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel provided with an enlarged central steam or other motive-fluid space, and short nozzles leading from said space to the periphery of the wheel, substantially as and for the purpose set forth.

2. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery having concave faces, with a wheel provided with an enlarged central steam or other fluid space, and short nozzles leading from said space to the periphery of the wheel, substantially as and for the purpose described.



3. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel provided with a central steam or other fluid space and two sets of nozzles provided with valves extending into the same and leading from said space, substantially as and for the purpose specified.

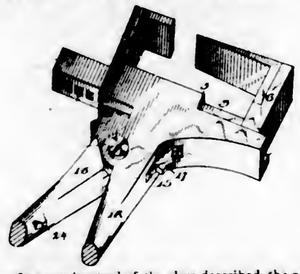
4. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel having a central steam or other fluid space, two sets of nozzles leading from said space to the periphery of the wheel, valves in each of the nozzles, and means for simultaneously opening one set of valves and closing the other set, substantially as and for the purpose set forth.

5. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel having a central steam or other fluid space, and two sets of ports or nozzles leading from said space to the periphery of the wheel, valves in the ports or nozzles, means for moving them simultaneously, and means for locking them in position, substantially as and for the purpose described.

6. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel having a central steam or other fluid space, two sets of ports or nozzles leading from said space to the periphery of the wheel, valves in the ports or nozzles, plates having two faces for locking the same and connected to the valves, and means for operating them, substantially as and for the purpose specified.

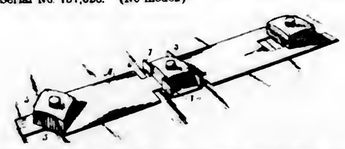
7. In a rotary engine or motor, the combination of a wheel provided with a central steam or other fluid space, ports leading therefrom to the periphery of the wheel, with valves in the ports or nozzles, plates connected to the valves, rods connecting the plates to a disk or the reversing-shaft, a ratchet-wheel and a detachable lever for reversing the valves, substantially as and for the purpose set forth.

646,058. **HOOF-TRIMMER.** EDWARD MORGAN, Wilkinsburg, Pa. Filed Sept. 15, 1899. Serial No. 730,579. (No model.)



Claim.—In a cutting-tool of the class described, the combination of a head provided with a longitudinal passage-way through the same, an opening registering with the said passage and cut away upon one face forming thereby a shoulder 5 nearly centrally thereof, a rigid jaw formed integral with one end of said head opposite the cut-away portion, a sliding bar arranged within said passage-way and provided upon one face with a series of teeth, a jaw formed integral with one end of the said bar and provided with a shoulder upon its inner face, a cutting-knife secured to said jaw and mounted upon the said shoulder, a handle formed integral with the jaw-head and provided with an opening extending transversely therethrough, a pair of ears formed integral with said handle, a cog-segment pivotally secured to the said ears and operating within the opening in the head, longitudinal passage-way and opening in the said handle and adapted to have its teeth engaging and operating the sliding bar, and a handle suitably connected to the said segment for operating the same, substantially as described.

646,059. **NUT-LOCK.** JOHN W. STANLEY, Yuba City, Cal., assignor of one-half to Jay W. Ashley, same place. Filed Nov. 20, 1899. Serial No. 737,628. (No model.)

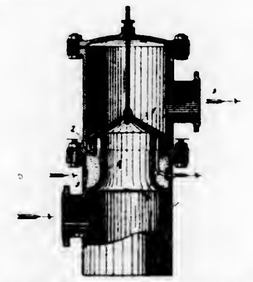


Claim.—1. A device for locking nuts, consisting of a plate having holes made therethrough to receive the bolt upon which the nut is afterward screwed, slots cut in the ends of the plate parallel with each other and with the side edges of the plate, and forming a plurality of independent tongues which are adapted to be turned up against the sides of the nut.

2. A locking device for nuts and the like consisting of a metal plate having holes made therethrough to receive the bolts upon which the nuts are afterward screwed, slots made transversely in from both edges of the plate, slots intersecting with the inner ends of the first-named slots, extending at right angles therewith and parallel with each other and with the edges of the plate whereby tongues are formed to be turned up upon the side nut.

3. A nut-locking device consisting of a soft-metal plate having one or more bolt-holes made therethrough, a plurality of tongues formed upon the ends of the plate by slots cut inward from the extremity of the ends and parallel with the sides of the plates, and other tongues formed upon the opposite sides of the plate by angular intersecting slots made transversely to the sides of the plate and parallel thereto and intersecting at right angles.

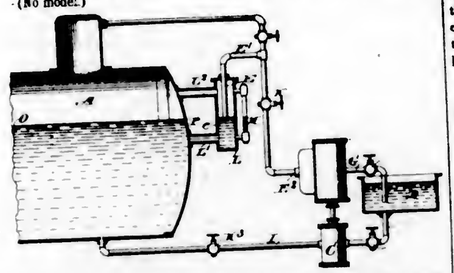
646,060. **VALVE FOR WATER-GAS GENERATORS.** HUGO STRACHE, Vienna, Austria-Hungary. Filed July 21, 1899. Serial No. 724,698. (No model.)



Claim.—1. A valve for water-gas generators having a valve-housing, an inverted cup forming the valve proper, an annular chamber to carry a sealing fluid and into which the lower rim of said cup dips when the valve is closed, an upwardly-extending throat within said annular sealing-fluid chamber, to form with the valve-housing an annular cooling-chamber within the sealing-fluid chamber and means for circulating a cooling fluid within said cooling-chamber in the manner and for the purpose substantially as described.

2. A valve for water-gas generators, having a housing, a downwardly-turned cup to form the valve proper, an annular chamber having an upwardly-extending rim located beneath said cup when the valve is closed, said chamber containing the sealing fluid, and an interior throat extending upwardly through the space within the annular sealing-chamber and having its upper edge reaching above the rim of the sealing-chamber and means for supplying cooling fluid to the exterior of the said throat and for conducting off the said cooling fluid at a level above the rim of the sealing-fluid channel substantially as described.

646,061. **SAFETY FEEDING DEVICE FOR BOILERS.** FRANZ J. WEISS, Basle, Switzerland. Filed Aug. 8, 1899. Serial No. 726,514. (No model.)



Claim.—1. In combination with a boiler, a feed-water pump adapted to work with either steam or water as a motive fluid, a main supply pipe connected at one end to the motor-cylinder of the pump and at the other end connected with the boiler, as described, and so as to have its inlet end flooded when the water in the boiler reaches a determined level, a portion of said supply-pipe being arranged to extend above its inlet end, a supplemental steam-supply pipe leading from a point above high-water level in the boiler and connecting with the motor-cylinder, a stop-cock in the supplemental supply-pipe and means for throttling the flow of fluid through the other fluid-conduits leading to or from the pump whereby the running away of the pump when the stop-cock in the supplemental supply-pipe is opened can be prevented without stopping its operation or flooding the motor-cylinder with water.

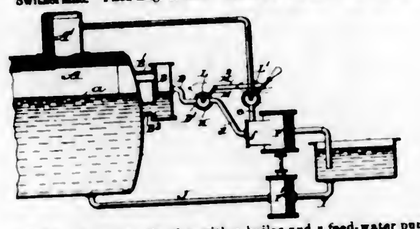
2. In combination with a boiler, a feed-water pump adapted to work with either steam or water as a motive fluid, a main supply-pipe connected at one end to the motor-cylinder of the pump and at the other end connected with the boiler as described and so as to have its inlet end flooded when the water in the boiler reaches a determined level, a portion of said supply-pipe being arranged to extend above its inlet end, a supplemental steam-supply pipe leading from a point above high-water level in the boiler and connecting with the motor-cylinder said supplemental feed-pipe connecting also with the main supply-pipe, a stop-cock in the supplemental supply-pipe and means for throttling the flow of fluid through the other fluid-conduits leading to or from the pump whereby the running away of the pump when the stop-cock in the supplemental supply-pipe is opened can be prevented without stopping its operation or flooding the motor-cylinder with water.

3. In combination with a boiler, a feed-water pump adapted to work with either steam or water as a motive fluid, a main supply-pipe connected at one end to the motor-cylinder of the pump and at the other end connected with the boiler as described and so as to have its inlet end flooded when the water in the boiler reaches a determined level, a portion of said supply-pipe being arranged to extend above its inlet end, a supplemental steam-supply pipe leading from a point above high-water level in the boiler to the main supply-pipe, a stop-cock in the supplemental supply-pipe and means for throttling the flow of fluid through the other fluid-conduits leading to or from the pump whereby the running away of the pump when the stop-cock in the supplemental supply-pipe is opened can be prevented without stopping its operation or flooding the motor-cylinder with water.

4. In combination with a boiler, a feed-water pump adapted to work with either steam or water as a motive fluid, a main supply-pipe connected at one end to the motor-cylinder of the pump and at the other end connected with the boiler as described and so as to have its inlet end flooded when the water reaches a determined level, a portion of said supply-pipe being arranged to extend above its inlet end, a supplemental steam-supply pipe leading from a point above high-water level in the boiler to the main supply-pipe, a stop-cock in the supplemental supply-pipe and a throttling device in the main supply-pipe in the rear of its connection with the supplemental pipe whereby the running away of the pump when the stop-cock in the supplemental supply-pipe is opened can be prevented without stopping its operation or flooding the motor-cylinder with water.

5. In combination with a boiler, a feed-water pump adapted to work with either steam or water as a motive fluid, a main supply-pipe connected at one end to the motor-cylinder of the pump and at the other end connected with the boiler as described and so as to leave its inlet end flooded when the water in the boiler reaches a determined level, a portion of said supply-pipe being arranged to extend above its inlet end, a supplemental steam-supply pipe leading from a point above high-water level in the boiler to the main supply-pipe, a stop-cock in the supplemental supply-pipe and a throttling device in the main supply-pipe in the rear of its connection with the supplemental pipe and means for throttling the flow of fluid also in the other fluid-conduit leading to or from the pump whereby the running away of the pump when the stop-cock in the supplemental supply-pipe is opened can be prevented without stopping its operation or flooding the motor-cylinder with water and without unduly contracting the conduits leading to and from the pump at any one point.

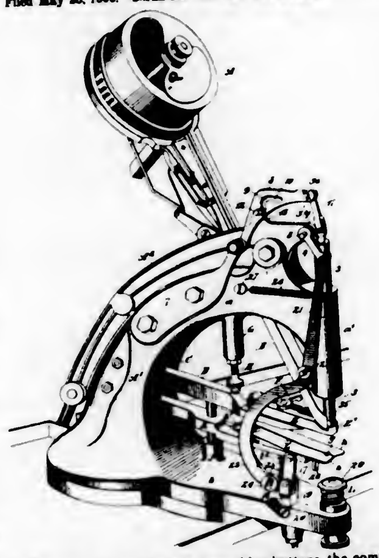
646,062. **BOILER-FEEDING DEVICE.** FRANZ J. WEISS, Basle, Switzerland. Filed Aug. 8, 1899. Serial No. 726,515. (No model.)



Claim.—1. In combination with a boiler and a feed-water pump adapted to work with either water or steam as a motive fluid, the motor-cylinder of said pump being connected with the boiler through conduits, one opening at or near the normal water-line of the boiler and the other at a point above such water-level, means arranged to alternately open and close said conduits said means being arranged as specified and so as not to close both conduits at the same time.

2. In combination with a boiler and a feed-water pump adapted to work with either water or steam as a motive fluid the motor-cylinder of said pump being connected with the boiler through conduits one opening at or near the normal water-line of the boiler and the other at a point above such water-level and both merging into a common conduit by which they connect with the pump, a valve-casing arranged at the junction of the conduits aforesaid and a valve working in said casing to alternately and reciprocally close and open the conduits leading to the boiler, said valve being formed and arranged as specified so it will not close both conduits at the same time.

646,068. **BUTTON-SETTING MACHINE.** FRANKLIN R. WHITE, Waterbury, Conn., assignor to the Patent Button Company, same place. Filed May 26, 1899. Serial No. 718,945. (No model.)



Claim.—1. In a machine for attaching buttons, the combination with a main frame or casting, of an operating-lever pivoted thereto, a hollow plunger linked to the forward end of said lever, a needle-bar reciprocating within said hollow plunger and having a needle or bodkin formed on or secured to the lower end thereof, a second lever provided with a cam-slot and pivoted at one end to said frame or casting and at its opposite end linked to said needle-bar, said second lever being operated by said operating-lever and controlling the movement of said needle, substantially as described.

2. In a machine for attaching buttons, the combination with a main frame or casting, of an operating-lever pivoted to said frame, a hollow plunger reciprocating within the forward end of said frame, and connected with the forward end of said operating-lever, a needle-bar and needle reciprocating within said hollow plunger, a second lever provided with a cam-slot and pivoted at one end to said main frame and at its opposite end linked to said needle-bar, said second lever being operated by said operating-lever and controlling the movement of said needle, and suitable mechanism for supporting the cloth during the upsetting of the fastener, substantially as described.

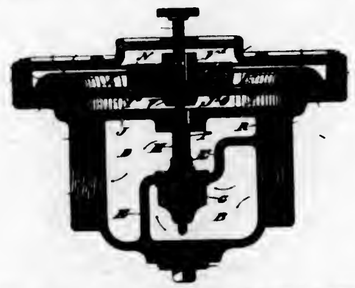
3. The combination with a main frame, of an operating-lever pivoted thereto, a hollow plunger reciprocating in said frame and connected with said lever, a needle-bar having a needle secured to one end thereof and reciprocating within said hollow plunger, a second lever provided with a cam-slot and pivoted to said frame and to said needle-bar, and a pin or lug on said operating-lever and traveling in the cam-slot in said lever for controlling the movement of the needle, substantially as described.

4. In a button-attaching machine, the combination with a frame and operating-lever pivoted thereto, of a support for the cloth, levers pivoted to said support and frame and to each other for locking said support in its horizontal position, and the lever 21 connected with said former levers and adapted to engage with and be tripped by said operating-lever, whereby said locking-levers are lowered and said support permitted also to be lowered after the cloth thereon has been punctured, substantially as described.

5. In a button-attaching machine, the combination with a frame and operating-lever pivoted thereto, of a movable support for the cloth or fabric pivoted to said frame, the links 17, 18 and 19 connected with said frame and support and arranged substantially as described for locking said support in its horizontal position, and the lever 21 pivoted to said frame and having its lower end connected with said links, and its upper end free, said upper end engaging with said operating-lever, and tripped thereby for the purpose of unlocking said support and permitting the same to be lowered, substantially as described.

6. In a machine of the character described, the combination with a main frame and an operating-lever pivoted thereto, of a hollow plunger pivoted to said operating-lever and reciprocating within said main frame, a needle or bodkin reciprocating within said hollow plunger, a lever pivoted to said main frame and connected with said needle or bodkin for operating the latter, a movable support for the cloth or fabric pivoted to said main frame, links connected with said frame and support for locking the latter in a horizontal position during the puncturing of said cloth by said needle or bodkin, and a lever connected with said links and with said frame, and adapted to be tripped by said operating-lever, whereby said links are lowered, and the support released, substantially as described.

646,064. **FLUID-PRESSURE REGULATOR.** ROBERT H. RAYLE, Englewood, N. J. Filed Sept. 26, 1899. Serial No. 731,735. (No model.)



Claim.—1. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and outlet, a controller for said valve, a stem between said valve and controller, and means to center and support said stem laterally when the valve is opened to its fullest extent, said means leaving said valve-stem laterally unsupported at other positions.

2. In a device of the character described, a diaphragm, a pressure-chamber on one side of said diaphragm, means controlled by said diaphragm partially dividing said chamber, a fluid-passage, a valve therefor controlled by said diaphragm, a laterally-yielding support for said valve, and a communication between said chamber and the space on the service side of said valve.

3. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a diaphragm controlling said valve, a laterally-yielding support for said valve, a reinforce for said diaphragm, a casing around said reinforced portion of said diaphragm forming a pressure-chamber on one side of said diaphragm, said chamber being partially divided by said reinforce, and in communication with the chamber on the service side of the valve.

4. In a device of the character described, a diaphragm, a pressure-chamber on one side of said diaphragm, a reinforce for said diaphragm, said reinforce partially dividing said pressure-chamber, a fluid-passage, a valve therefor controlled by said diaphragm, a laterally-yielding support for said valve and a communication between said pressure-chamber and the chamber on the service side of said valve.

5. In a device of the character described, a diaphragm, a pressure-chamber on one side of said diaphragm, means controlled by the diaphragm and partially dividing said pressure-chamber, a fluid-passage, a valve therefor controlled by said diaphragm, a laterally-yielding support for said valve and a restricted communication between said pressure-chamber and the chamber on the service side of said valve.

6. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet and means to utilize the fluid passing said valve to build up the service pressure.

7. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a controller therefor and means to utilize the fluid passing said valve to build up the service pressure.

8. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a controller therefor, a pressure-chamber on one side thereof, and means to utilize the fluid passing through said valve to lower the pressure in the pressure-chamber and thereby build up the service pressure.

9. In a device of the character described, a supply-inlet, a service-outlet, a valve, means to control said valve, a chamber on one side of said means in communication with the space on the service side of said valve, said communication being in the form of a restricted opening through which fluid may be drawn from the chamber by the action of the fluid passing through the regulator.

10. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a controller therefor, a pressure-chamber on one side of said controller, a means of communication between said pressure-chamber and the space on the service side of said valve, said means comprising a tube, the free end of which is loosely enveloped within the valve, or an extension therefrom.

11. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a valve-controller, a pressure-chamber at one side thereof, a valve-stem and means of communication between said pressure-chamber and the space on the service side of said valve, comprising a tube loosely surrounding said valve-stem, the free end of said tube loosely projecting into a recess in the service side of said valve, or an extension therefrom.

12. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, a valve-controller, a pressure-chamber at one side thereof, a valve-stem and means of communication between said pressure-chamber and the space on the service side of said valve, comprising a tube loosely surrounding said valve-stem, and flexibly mounted, the free end of said tube loosely projecting into a recess in the service side of said valve or an extension therefrom.

13. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, means to utilize the fluid passing through said valve to build up said service pressure and an auxiliary port to modify the building-up capacity of the aforesaid means.

14. In a device of the character described, a supply-inlet, a service-outlet, a valve between said inlet and said outlet, means to utilize the fluid passing through said valve to build up said service pressure and an auxiliary port to modify the building-up capacity of the aforesaid means, and an adjustable valve for said port.

15. In a device of the character described, a valve, a diaphragm-controller therefor, a pressure-chamber on one side of said controller and a reinforcing-plate carried by and extending laterally of said diaphragm and dividing said pressure-chamber into a plurality of compartments having a restricted communication with each other, a fluid-passage, and a communication between said pressure-chamber and the service side of the valve.

16. In a device of the character described, a casing, supply-inlet, a service-outlet, a partition between said inlet and outlet, a valve, a flexible controller, an annulus adjacent but inside the edge of said controller, a pressure-chamber below said controller and extending

below the plane of said annulus, and a reinforcing-plate carried by and extending laterally of the diaphragm to divide said chamber into a plurality of compartments connected with each other by a restricted opening.

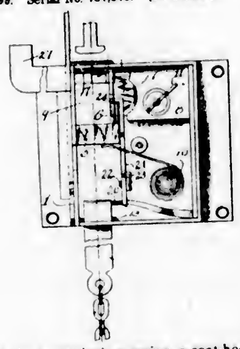
646,065. SHAVING DEVICE. SAMUEL L. BLIGH, Custard's, Pa. Filed Aug. 31, 1899. Serial No. 729,063. (No model.)



Claim.—1. A shaving device consisting of a roller having an abrading-surface and a central guide-groove, a frame to which the roller is journaled, a guide-loop extending over and on line with the guide-groove, and a suitable handle connected to the frame, substantially as and for the purpose set forth.

2. A shaving device consisting of a roller having a longitudinal groove or kerf adapted for the reception of the edges of a strip of paper or cloth having an abrading-surface to hold the same in place over the roller, said roller having a central groove, a suitable frame with handle to which the roller is journaled, and a guide-loop extending over the roller and on line with the central groove, substantially as and for the purpose specified.

646,066. COAT-LOCK. DAVID E. CATHRELL, Boston, Mass. Filed Nov. 20, 1899. Serial No. 737,575. (No model.)



Claim.—1. In a coat-lock, a casing, a coat-hook slide movable therein, a hook fast to said coat-hook slide, and means for keeping said coat-hook slide normally raised, a reciprocatory lock-bolt, means for moving said lock-bolt across the path of movement of said coat-hook slide, and a projection upon said coat-hook slide which stands in the path of movement of said lock-bolt when said coat-hook slide is raised.

2. In a coat-lock, a casing, a locking-lever pivoted to said casing, a chain, one end connected to said casing, the other end to said locking-lever, in combination with a lock-bolt and means for moving said lock-bolt across the path of movement of said locking-lever.

3. In a coat-lock, a casing, a coat-hook slide movable therein, a hook fast to said coat-hook slide, and means for keeping said coat-hook slide normally raised, a chain connected to said casing, and a locking-plate attached to said chain, in combination with a lock-bolt and means for moving said lock-bolt into engagement with said locking-plate and across the path of movement of said coat-hook slide.

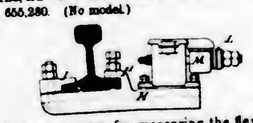
4. In a coat lock, a casing, a coat-hook slide movable therein, a hook fast to said coat hook slide, and means for keeping said coat-hook slide normally raised; a locking-lever pivoted to said casing, a chain, one end connected to said locking-lever, the other end to said casing; in combination with a lock-bolt and means for moving said lock-bolt across the paths of movement of said coat-hook slide and locking-lever.

5. In a coat-lock, a casing, a locking-lever pivoted to said casing, a chain, one end connected to said locking-lever, the other end attached to a locking-plate, in combination with a lock-bolt and means for moving said lock-bolt into engagement with said locking-plate and across the path of movement of said locking-lever.

6. In a coat-lock, a casing, a coat-hook slide, and means for keeping said coat-hook slide normally raised, a locking-lever pivoted to said casing, a chain, one end connected to said locking-lever, the other end attached to a locking-plate, in combination with a lock-bolt and means for moving said lock-bolt into engagement with said locking-plate and across the paths of movement of said coat-hook slide and locking-lever.

7. In a coat-lock, a casing, a coat-hook slide movable therein, and means for keeping said coat-hook slide normally raised; a locking-chain, one end connected to a locking-chain lever pivoted to said casing, the other end having a locking-plate attached thereto; and a locking-lever pivoted to said casing actuated by said locking-chain lever, in combination with a locking-bolt, means for moving said locking-bolt into engagement with said locking-plate and across the paths of movement of said coat-hook slide and locking-lever.

646,067. APPARATUS FOR RECORDING FLEXURE OF RAILWAY-RAILS, &c. JOSEPH E. COLAS, Creil, France. Filed Oct. 15, 1897. Serial No. 655,280. (No model.)



Claim.—1. An apparatus for measuring the flexure of railway-rails, comprising a lever having short and long arms, means for communicating the movement of flexure from the rail to the short arm, the long arm of the lever carrying a tracer, and mechanism for holding a record-sheet to receive the tracing therefrom.

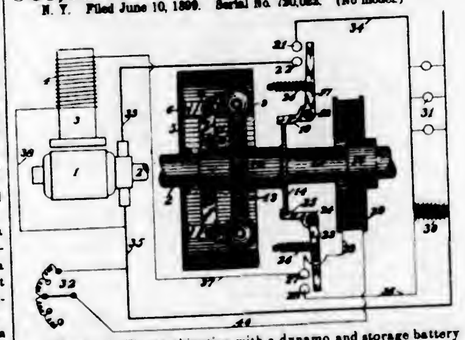
2. The combination of a pivotal axis E having a long lever-arm F and a short arm, means for communicating the movements of the rail to said short arm, and an interposed universal joint.

3. The combination with axis E and eccentric-pin G constituting a short lever-arm, of an arm L for communicating motion thereto, and an interposed universal joint comprising a box M fixed to said arm, a cylinder N inclosed therein, a cylindrical plug P on an axis substantially perpendicular to said cylinder N, said plug having a hole perpendicular to its axis for receiving said pin G.

4. The combination with axis E, long lever-arm F and a short lever-arm, and means for varying the length of said short arm, consisting of an interposed frame c having a mortise *d*, and means for clamping the short arm in said mortise, whereby it may be adjusted longitudinally thereof.

5. The described circuit-closer comprising a box D, an axis E passing through said box, means for connecting said axis to the rail whereby deflections of the rail cause an oscillation of said axis, contact-pieces R R' in said box, and contact-arms *x x'* fixed on said axis and movable thereby into or out of contact with said contact-pieces.

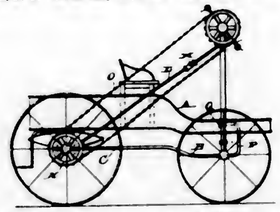
646,068. ELECTRIC SWITCH. JOHN L. CREVELING, New York, N. Y. Filed June 10, 1899. Serial No. 720,082. (No model.)



Claim.—1. The combination with a dynamo and storage battery to be charged thereby, in circuit with a centrifugally-actuated switch adapted to close and open said circuit, of means for adjusting the speed at which said switch shall close and open the circuit, said means comprising an electromagnet in a derived circuit from the battery to be charged, substantially as set forth.

2. The combination with a dynamo or generator, a storage battery and a centrifugally-actuated switch in circuit therewith, of means for adjusting the operation of said switch, said means comprising an electromagnet deriving current from the storage battery and means of adjusting the effect produced by said magnet, substantially as described.

646,069. HAND-POWER MOTOCYCLE. FRANCIS X. GOLATA, Dunkirk, N. Y. Filed July 28, 1899. Serial No. 725,434. (No model.)



Claim.—In combination with a four-wheeled wagon having two axles joined by a reach formed by the union of the hind bounds, after their meeting, in one piece, a front axle connected with the wagon by a king-bolt and fifth-wheel, an ordinary rectangular body, ordinary double seats and a step at the back to mount into the same, of two standards, rising, one on either side of said wagon-body, vertically from the front axle, a cross-bar supporting said standards and above and disconnected with the front axle of said wagon and rigidly secured to the bottom of the front spring of said wagon, braces in two parts connected by an interiorly right-and-left screw-threaded sleeve parallel to the body of said wagon extending from said standards to the rear axle of said wagon, a crank-shaft mounted in journal-boxes fixed on said standards, sprocket-wheels on the ends of said shaft, sprocket-wheels on the inner ends of the hubs of the rear wheels of said wagon, chains connecting the sprocket-wheels on each side of said body and guides secured to the front of the front axle of said wagon and extending outward and upward through slots in the floor of the body of said wagon and having foot-rests on the ends of said guides, substantially as shown and described.

646,070. FOUNTAIN-PEN. BYRON R. GOLDSMITH, New York, N. Y. Filed Jan. 21, 1898. Serial No. 667,432. (No model.)



Claim.—1. A fountain-pen provided with an ink-reservoir of thin rigid material, and a socket-mantle surrounding the same composed of a material and made of such thickness as to sustain and protect the reservoir and to shield it from the effects of the heat of the hand of the user, the reservoir fitting snugly within the bore of the mantle, projecting beyond the same to receive the pen and feed-plug and supported by the material thereof, substantially as described.

2. A fountain-pen provided with an ink-reservoir and a non-heat-conducting mantle having a bore part way through its length and snugly embracing the ink-reservoir, the latter projecting beyond the former to receive the pen and feed-plug, substantially as described.

3. A fountain-pen comprising an ink-reservoir consisting of a japanned tube closed by a plug at the inner end and at the outer end receiving and removably holding the pen and feed-plug, substantially as described.

4. A fountain-pen provided with a wooden mantle having a central bore extending through the greater part of its length but not entirely therethrough so as to leave a closed end, a tubular metal ink-reservoir seated in the mantle, and closely embraced thereby and a pen and feed-plug carried by the front end of the ink-reservoir, substantially as described.

5. A feed-plug for fountain-pens, consisting of a block provided with a combined air-and-ink duct extending longitudinally on one side of the block from its rear end to near the front end, and a separate narrow slot at the front end of the block, for conveying the ink from the ink-duct to the pen-nibs, extending rearwardly and opening into the ink-duct, substantially as described.

6. A feed-plug for fountain-pens, consisting of a block with a combined air-and-ink groove of such size as to constitute a subsidiary ink-reservoir and communicating directly with the main ink-reservoir, and a separate narrow slot in the front of the block, opening into the ink-groove, and arranged for conveying ink therefrom to the pen-nibs, substantially as described.

7. A feed-plug for fountain-pens, consisting of a block provided with a V-shaped air-and-ink duct and extending longitudinally on one side of the block from its rear end to near the front end and a separate narrow slot at the front end of the block, for conveying ink from the ink-duct to the pen-nibs, extending rearwardly and opening into the ink-duct, substantially as described.

8. A feed-plug for fountain-pens, consisting of a block with a longitudinal air-and-ink duct extending longitudinally on one side of the block from its rear end to near the front end, and a narrow slot for conveying ink from the duct to the pen-nibs, extending rearwardly at an angle to the ink-duct and opening into the latter, substantially as described.

9. A fountain-pen comprising a non-heat-conducting bored mantle, having a ferrule at its end, a tubular ink-reservoir fitting within the mantle and having a bead at its end and an ornamental sleeve surrounding a portion of the reservoir and held between the ferrule and bead, substantially as described.

10. The combination of a pen and feed-plug consisting of a block provided with a V-shaped ink-duct extending longitudinally on the top of the block and below the pen, from its rear end to near the front end and a separate narrow slot at the front end of the block for conveying ink from the ink-duct to the pen-nibs, substantially as described.

11. A fountain-pen consisting of a combination of a non-heat-conducting mantle having a bore part way through its length and an ink-reservoir consisting of a japanned tube closed by a plug at the inner end and at the outer end receiving and removably holding the pen and feed-plug.

646,071. PENHOLDER. BYRON R. GOLDSMITH, New York, N. Y. Filed Aug. 8, 1899. Serial No. 726,541. (No model.)



Claim.—1. A penholder having a strengthening-annulus surrounding the pen-socket and embedded in the material of the holder, substantially as described.

2. A vulcanized-rubber penholder having a strengthening-annulus surrounding the pen-socket and embedded and vulcanized into the material of the finger-hold, substantially as described.

3. A penholder having a finger-hold of comparatively-flexible material and a strengthening-annulus, surrounding the pen-socket, and embedded in the material of the finger-hold, substantially as described.

646,072. HOSE-PIPE. MILTON H. HART, Boston, Mass. Filed May 25, 1899. Serial No. 718,258. (No model.)

Claim.—1. In a hose pipe or nozzle, the combination of a body portion comprising sections A, B, and C; handle-bars D, D, and tube E, adapted to secure said sections together; a movable bar *e*, mounted in said tube; and means for locking said bar in adjusted position, substantially as described.

2. A hose pipe or nozzle having a movable support-engaging hook projecting therefrom adapted to occupy an extended operative position or a retracted inoperative position, substantially as described.

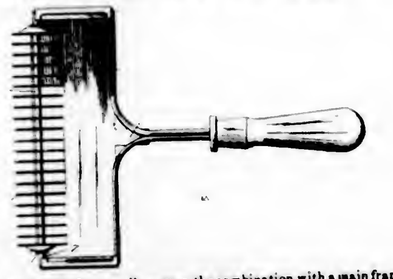
3. A hose pipe or nozzle having a movable support-engaging hook mounted thereon adapted to occupy an extended operative position, or a retracted inoperative position, and means for locking said hook in either position, substantially as described.

4. In a hose pipe or nozzle, the combination of sections A, B, and C, handle-bars D, D, tube E, bar *e*, means for locking said bar in ad-

justed position, hook *f*, and means for locking said hook in adjusted position, substantially as described.



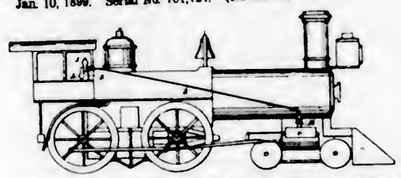
646,075. NOODLE-CUTTER. ALICE V. LACOMBE, Longmont, Colo. Filed June 29, 1899. Serial No. 722,273. (No model.)



Claim.—1. In a noodle-cutter, the combination with a main frame, of a revoluble shaft, carrying a series of cutting-disks, the arbor on the respective end disks in which are located bearings adapted to be engaged by said frame, a removable guard-plate adapted to lock said frame in engagement with the shaft and having forwardly-projecting teeth alternating with the said disks, substantially as described.

2. In a noodle-cutter, the combination with a substantially-rectangular main frame of a single piece of wire bent to form engaging ends at its forward end, of a revoluble shaft carrying a series of disks, arbors on the respective end disks in which are located bearings, adapted to be engaged by the engaging ends of the frame, a removable guard-plate locking said frame and shaft in operative engagement, substantially as described.

646,076. LUBRICATOR. JOHN F. LEWIS, Scranton, Pa. Filed Jan. 10, 1899. Serial No. 701,727. (No model.)



Claim.—The herein-described lubricating device consisting of an oil-reservoir and a condenser and means for conducting condensation-water into and oil out of said reservoir in combination with a small-bore pipe extending to a steam-chest, the entrance to said steam-chest being effected through a sleeve, the end of the pipe aforesaid being swaged and flattened so as to prevent its slipping out of said sleeve, and means for fitting the said sleeve to the said pipe for the purpose of making a secure and neat connection with the steam-chest and preserving a uniformity of the bore in the passage from the lubricator to the point of delivery, substantially as specified.

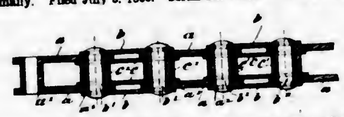
646,078. PESSARY. HENRY A. HEMPEL, Gotha, Fla. Filed July 17, 1899. Serial No. 724,037. (No model.)



Claim.—1. A pessary composed of a body having regular outlines and a plurality of like faces, each formed as a supporting depression or cavity, whereby the pessary can be inserted with either of its faces presented upward, substantially as set forth.

2. A pessary composed of a body having six like faces, each formed by a tapering depression or cavity extending toward the central portion or core of the body, substantially as set forth.

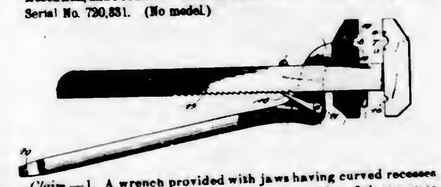
646,074. TRANSMISSION-CHAIN. PHILIPP HOEVEL, Pallien, Germany. Filed July 3, 1899. Serial No. 722,615. (No model.)



Claim.—1. A transmission-chain consisting of outer links arranged in pairs, intermediate links arranged likewise in pairs, an inner series of links, two series of concentric eyes and pins passing through these eyes as well as through the outer links, said links overlapping at the ends as shown and the said eyes being attached respectively to the inner links and the intermediate links, substantially as set forth.

2. A transmission-chain consisting of the outer links *b* arranged in pairs, the links *a* provided with eyes *a'* extending across the space between the said outer links, inner series of links *c* arranged in pairs, eyes *c'* connecting the ends of the said inner links of each pair and surrounding the eyes *a'* and pins *b'* which extend through the eyes *a'* and the openings in the ends of outer links *b* and are headed outside of the latter to hold all parts of the chain in place, substantially as set forth.

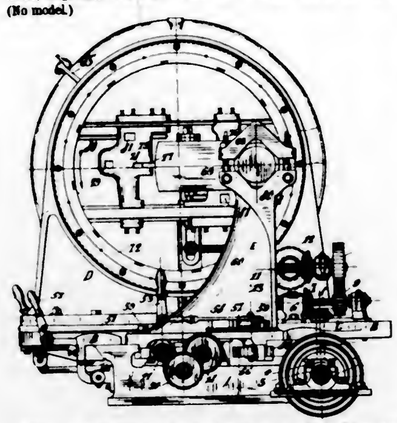
646,077. WRENCH. MARTIN D. MILLER, Kansas City, Mo., assignor, by direct and mesne assignments, to Edgar S. Miller, Maurice Rosenthal, and Frederick R. Stone, Omaha, Nebr. Filed June 16, 1899. Serial No. 720,831. (No model.)



Claim.—1. A wrench provided with jaws having curved recesses in their working faces and provided at opposite sides of the recesses with V-shaped notches, the outer walls of which are perpendicular and the inner walls oblique with respect to the working faces of the jaws, the inner oblique walls of the notches intersecting with and meeting the end walls of the recesses and forming on each jaw a pair of acute-angled teeth which are reversely inclined to each other, substantially as described.

2. A wrench, comprising a shank provided at its rear edge with teeth, a stationary jaw, a sliding jaw mounted on the shank, a lever having its outer portion bifurcated to form two arms, said arms extending entirely across the shank and pivotally connected with the sliding jaw in line with the engaging portions of the jaws, and a spring-actuated pawl or dog pivotally mounted within the bifurcation of the lever and having its pivot end arranged to engage the adjacent portion of the lever to form a stop, whereby the movement of the lever by the spring is limited, substantially as and for the purpose described.

646,078. LATHE FOR TURNING CRANK-SHAFTS. JOHANN MOLL, Augsburg, Germany. Filed July 1, 1899. Serial No. 722,502. (No model.)



Claim.—1. The improved lathe for turning crank-shafts, comprising a rotatable turning device, a regulating-plate carrying said turning device, a carriage carrying the regulating-plate, a bed-plate to support the carriage, supports secured upon said bed-plate, a device for actuating the turning device, means for automatically moving the carriage, means for moving said carriage by hand, and means for disengaging the automatic device when the turning apparatus is to be actuated by hand, substantially as set forth.

2. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate and suitable crank-shaft supports, in combination with an outer ring secured on the regulating-plate, a revoluble ring properly guided in said outer ring, adjustable tool-holders on the inner ring, means for feeding the tool-holders during the operation of the machine, means for rotating the inner ring, and means for actuating said carriage, substantially as set forth.

3. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate and crank-shaft supports, in combination with an outer relatively-stationary ring secured on said regulating-plate, a revoluble inner ring properly guided in said outer ring, cross-bars of suitable form on said inner ring, movable tool-holders on said cross-bars, means for automatically feeding the tool-holders on said cross-bars, means for rotating the inner ring, and means for feeding the said carriage, substantially as set forth.

4. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate and crank-shaft supports, in combination with an outer relatively-stationary ring secured on said regulating-plate, an inner revoluble ring properly guided in said outer ring, cross-bars of suitable form on said inner ring, tool-holders adapted to slide on said cross-bars and actuated by means of feed-screws, means for automatically actuating the latter, means for rotating the inner ring, and means for feeding the said carriage, substantially as set forth.

5. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate and crank-shaft supports, in combination with an outer relatively-stationary ring secured on said regulating-plate, an inner revoluble ring properly guided in said outer ring, movable tool-holders in said inner ring, screw-shafts engaging said tool-holders and means for turning said shafts as said inner ring is rotated, means for rotating the inner ring and means for feeding the said carriage, substantially as set forth.

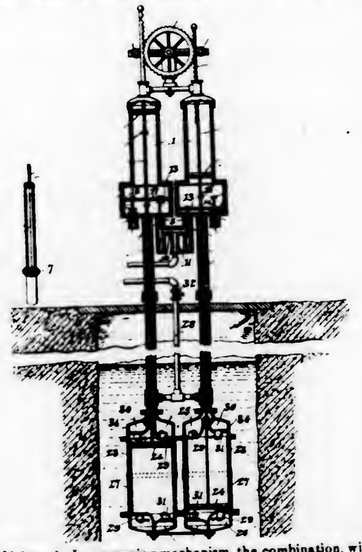
6. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate and crank-shaft supports, in combination with an outer relatively-stationary ring on said regulating-plate, an inner revoluble ring properly guided in said outer ring, movable tool-holders on said inner ring, feed-screws engaging said tool-holders, a double catch and ratchet device on said feed-screws and adapted to engage a stationary lug or equivalent as said inner ring is rotated, to automatically feed the tool-holders in either direction along their respective guideways, means for rotating said inner ring, and means for feeding the said carriage, substantially as set forth.

7. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate, a revoluble turning device, and crank-shaft supports, in combination with a detachable yoke housed in a box or casing under the carriage, a feed-screw engaging said yoke and serving to feed said carriage, means for actuating said feed-screw and means for rotating the said turning device, substantially as and for the purpose set forth.

8. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate, a revoluble turning device, and crank-shaft supports, in combination with a clutch device carrying an engaging wheel and an intermediate wheel, a system of levers for operating said clutch device, means for automatically feeding the carriage, and means for rotating the said turning device, substantially as set forth.

9. The improved lathe for turning crank-shafts, comprising a bed-plate, a carriage, a regulating-plate, a turning device, and crank-shaft support, in combination with a clutch device, a system of levers for operating said clutch device, means for feeding the carriage by hand, and means for rotating the said turning device, substantially as set forth.

646,079. PUMPING-ENGINE. GEORGE W. MCGILL, Kearney, Nebr. Filed May 1, 1899. Serial No. 715,187. (No model.)



Claim.—1. In a pumping mechanism, the combination, with two cylinders, one of which is provided with a valve-chamber and the other one is provided with two communicating chambers, of a tubular guide connecting said cylinders, and communicating with the two chambers of one of them, a piston-rod through the guide, a piston-head upon one end of the rod within one of the cylinders and a piston-head and tappets upon the other end of the rod, a tappet-bar in the valve-chamber in position to be operated by the tappets upon the piston-rod, an inlet-valve rigidly secured to the bar and an outlet-valve, the stem of which passes through the tappet-bar and is provided with tappets in position to be operated by said bar, and a distributing-pipe communicating with the tubular guide and provided with means for closing the same.

2. In a pumping mechanism, the combination, with two pairs of cylinders, the upper cylinders of one pair being each provided with a valve-chamber and the lower cylinders of the other pair being each provided with two communicating chambers, of a tubular guide connecting the upper and lower cylinders of each pair, each guide communicating with one of the chambers of the lower cylinder, a distributing-pipe common to and connected with said guides, a piston-rod through each guide and provided with a piston-head at each end and having a geared rack above the upper cylinder, a reversing-gear between said racks, valves within each valved chamber, and means of supplying each pair of cylinders with means for operating said mechanism.

3. The combination with a vertical cylinder, and a reciprocatory piston mounted therein, said piston having a rod provided with spaced tappets, of a pressure-supply pipe, feed and exhaust valves, of which the former controls a port in communication with said supply-pipe, a

tappet-bar fixed to and movable with the feed-valve and arranged in the paths of said tappets on the piston-rod, and an exhaust-valve stem having a tappet arranged in the path of said tappet-bar, and with respect to which exhaust-valve stem the tappet-bar is independently movable for a portion of the length of the stem, to operate the exhaust-valve subsequent to the operation of the feed-valve, substantially as specified.

4. The combination of reciprocatory pistons, and means for causing simultaneous movement thereof in opposite directions, said pistons having rods provided with spaced tappets, of a branched pressure-supply pipe, feed and exhaust valves, tappet-bars fixed respectively to said feed-valves and arranged in the paths of the tappets carried respectively by said piston-rods, and tappets on the exhaust-valve stems arranged in the paths of said tappet-bars, and with respect to which exhaust-valve stem the tappet-bar is independently movable for a portion of the length of the stem, to operate the exhaust-valve subsequent to the operation of the feed-valve, substantially as specified.

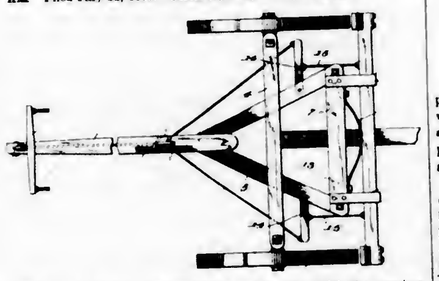
5. The combination with a piston-cylinder and piston, of a valve-casing, a pressure-supply pipe in communication by a feed-port with said valve-casing, a feed-valve, an exhaust-valve controlling an exhaust-port in communication with said casing, a tappet-bar arranged for reciprocatory movement in said valve-casing and having a fixed connection with the stem of the feed-valve, tappets carried by the piston-rod for alternate engagement with said tappet-bar, and an exhaust-valve stem extending through said tappet-bar and having a terminal tappet arranged in the path of movement in one direction of said bar for engagement to move it from its seat, substantially as specified.

6. In a pumping mechanism, the combination, with a cylinder provided with a valve-chamber, said chamber being provided with an inlet and an outlet port, the inlet-port being provided with a pocket, of a piston-rod in the cylinder provided with a head, interdependent valves in position to be operated by said rod, the area of the inlet-valve being greater upon one side than upon the other, and means for exposing the greater area of the valve to the action of the motive agent for positively closing the outlet-valve.

7. In combination, a cylinder, a piston operating therein, means for supplying a motive agent to the cylinder, valve-controlled inlet and exhaust ports, a pump-cylinder having independent terminal receiving and discharge chambers, the latter being in communication, valved openings between said chambers and the pump-cylinder, a tubular guide connecting the two cylinders and in communication with the said discharge-chambers of the pump-cylinder, a piston in the pump-cylinder, a rod passing through the tubular guide and connecting the two pistons, and a valved distributing-pipe connected with the said tubular guide, substantially as described.

8. In a pumping mechanism, the combination, with a cylinder provided with a valve-chamber, the inlet of said chamber being provided with a recessed portion opposite the entrance thereto and with a pocket below said recess, of a valve in said inlet provided with a piston, the head of the valve fitting within the recess and the piston fitting in the pocket, an outlet-valve, a bar for connecting said valves, a piston-rod provided with a head in the cylinder, and means for introducing a motive agent to the cylinder.

646,080. VEHICLE-BRAKE. HENRY G. SIMMONS, Albertville, Ala. Filed July 22, 1899. Serial No. 724,846. (No model.)

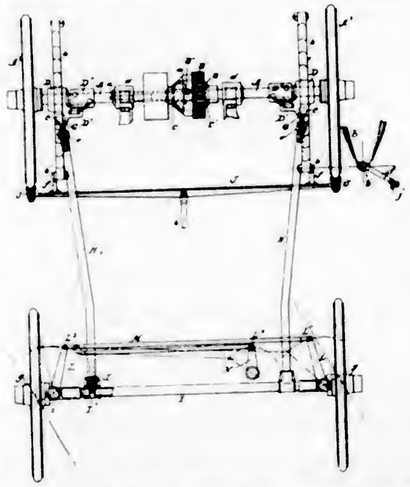


Claim.—1. In a wagon-brake the combination with the running-gear, of the traction-wheels journaled thereon, of a bowed spring secured to the rear of the running-gear and carrying a transverse brake-beam, two outwardly-projecting levers projecting from the running-gear and connected to the transverse brake-beam, by a linked rod, the two longer rods engaging the outwardly-extending ends of the levers and connected by a link and a pivoted lever secured to the tongue and engaging the link at the lower end thereof, a segmental rack on said tongue and a pawl carried by the lever and designed to engage the rack whereby the brake-shoes can be held in or out of engagement with the wheels, substantially as described.

2. In a wagon-brake, the combination with the hounds, a brake-beam loosely supported from the hounds, a bowed spring interposed between the beam and hound, of levers pivoted to each side of the hounds, a linked rod connecting each of said levers with the brake-beam, rods pivoted to and extending forward from said levers and secured together at their forward ends by a link, a lever pivoted to the pole of the wagon, the lower end of which is secured to said link, a pawl or dog secured to the upper end of said lever, and an operating-rod comprising a handle and a crank formed on the outer end of the said rod, secured to the upper end of the said lever, the dog or pawl being connected to the crank, a sector on said pole with which the dog is adapted to engage.

3. In a wagon-brake, the combination with the hounds, a brake-beam loosely supported therefrom, a bowed spring interposed between the beam and hound, levers pivoted to each side of the hound, and connected to the beam by linked rods, rods pivoted to and extending forward from said levers and secured together at their forward ends by a link, a lever pivoted to the pole of the wagon, the lower end of which is secured to said link, an operating-handle, a crank integral with the outer end of the same and loosely secured to the top of said lever, a pawl or dog connected to said crank and operating in guides on the lever, a sector secured to the pole, of a lever pivoted to the forward end of the pole, a rod connecting its lower end with the first-named lever and said rods extending from the hound and a neck-yoke secured to the upper end of the lever pivoted to the forward end of the pole.

646,081. GEARING FOR MOTOR-VEHICLES. ELMER A. SPERRY, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed Aug. 19, 1898. Serial No. 689,059. (No model.)



Claim.—1. An axle for a motor-vehicle, consisting of two independently-rotatable parts or elements, each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, and a single bearing for supporting the superstructure upon each element located near the wheel and between it and the joint.

2. An axle for a motor-vehicle consisting of two independently-rotatable parts or elements each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, a single bearing for supporting the superstructure upon each element located between the wheel and the joint, and a spring between the journal and the superstructure.

3. A driving-axle for a motor-vehicle, consisting of two independently-rotatable parts or elements, each supplied with a driving-wheel, a source or sources of power, power-transmitting connections from the source or sources to the elements, a joint between the elements, consisting of an elongated socket and tenon located between the wheels, a single bearing for supporting the superstructure, upon each element located between the wheels and the joint, whereby a divided driving-axle is rendered sufficiently rigid to sustain alinement.

4. In a motor-vehicle, an underframe and running-gear, comprising two axles, suitably connected, one of the axles constituting the driving-axle of the vehicle, same being compound and consisting of two independently rotating elements secured each to a driving-wheel, a source or sources of power, power-transmitting connections from the source to the elements, means consisting of an elongated socket within one element and a cooperating tenon extending from the other element of the compound axle, for rendering the axle self-supporting, journals upon the compound axle for supporting the superstructure, and an attachment between the journals and the connection, the said journals being located between the wheels and the socket and tenon, substantially as specified.

5. In a motor-vehicle, an underframe and running-gear, comprising two axles, connections between the axles, one of the axles constituting the driving-axle of the vehicle, same being compound and consisting of two independently-rotating elements secured each to a driving-wheel, a source or sources of power, power-transmitting connections from the source to the elements, means consisting of an elongated socket within one element and a cooperating tenon extending from the other element of the compound axle, for rendering the axle self-supporting, a single journal for each element of the compound axle for supporting the superstructure, and an attachment between the journal and the connection, the said journals being located between the wheels and the socket and tenon, substantially as specified.

6. A driving-axle for a motor-vehicle, consisting of two independently-rotatable parts or elements, each supplied with a driving-wheel, a source or sources of power, power-transmitting connections from the source or sources to the elements, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, whereby the divided driving-axle is rendered self-alining, in combination with a supporting means between the source or sources and the axle, consisting of a single journal for each element of the axle located between each wheel and the joint.

7. An axle for a motor-vehicle consisting of two independently-rotatable parts or elements each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, a single bearing for supporting the superstructure upon each element located between the wheel and the joint, in combination with means for securing the elements longitudinally.

8. An axle for a motor-vehicle, consisting of two independently-rotatable parts or elements each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, a single bearing for supporting the superstructure upon each element located between the wheel and the joint, in combination with a gear upon each of the elements and a power connection between them.

9. An axle for a motor-vehicle, consisting of two independently-rotatable parts or elements each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, a single bearing for supporting the superstructure upon each element located between the wheel and the joint, a gear upon each of the elements, a power connection between them, in combination with a housing or casing for the gears, in the form of a bonnet extending to the opposite faces of the gears and a gear upon the housing.

10. An axle for a motor-vehicle, consisting of two independently-rotatable parts or elements each supplied with a vehicle-wheel, a joint between the elements, consisting of an elongated socket and tenon, located between the wheels, a single bearing for supporting the superstructure upon each element located between the wheel and the joint, in combination with the gear upon each of the elements, a power connection between them, a housing or casing for the gears, and an attachment from the housing to a source of power.

11. In a vehicle, as an adjustment between the parts of the vehicle, a universal joint, consisting of a ball and case, a lug extending from the ball, which is eccentric thereto and a detachable connection between the lug and the connected vehicle part, substantially for the purpose specified.

12. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles.

13. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints.

14. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle at widely-separated points.

15. In a motor-vehicle, a running-gear, consisting of a front axle, a rotating rear axle, two reach-rods solid with the front axle and secured to journals upon the rear axle by universal joints in each rod between the axles.

16. In a motor-vehicle, a running-gear, consisting of a front axle, a rotating rear axle, two reach-rods solid with the front axle and secured to journals upon the rear axle by universal joints in each rod between the axles and body-supporting springs resting upon the journals.

17. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles and means for adjusting the length of the rods.

18. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles and means for adjusting the length of the rods located between the rods and the universal joint.

19. In a vehicle, a universal joint, consisting of a ball, provided with means for securing it to its cooperating part of the structure, a neck connecting this portion with the ball proper, smaller than the ball and an inclosing envelop of metal cast upon the ball, leaving an aperture about the neck larger than the neck and smaller than the ball.

20. In a vehicle, a universal joint, consisting of a ball, provided with means for securing it to its cooperating part of the structure, a neck connecting this portion with the ball-proper, smaller than the ball, an inclosing envelop of metal cast upon the ball, leaving an aperture about the neck, larger than the neck and smaller than the ball, the envelop being slit, and means for adjusting the width of the slit, substantially for the purpose specified.

21. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods, solid with the front axle and secured to the rear axle by universal joints in each rod between the axles, a connection from the body to the rear axle and an oscillator between the body and the front axle.

22. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles and springs between the body and the front axle, resting upon such axle at or near its ends.

23. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles, springs between the body and the front axle resting upon such axle at or near its ends and a loose or lost-motion device between an end of the spring and the axle.

24. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles, two springs supporting the forward end of the body and an oscillating joint between the springs.

25. In a motor-vehicle, a running-gear, consisting of a front axle, a rear axle, two reach-rods solid with the front axle and secured to the rear axle by universal joints in each rod between the axles, two bowed springs with their convex sides facing each other, supporting the forward end of the body and an oscillating joint between the springs.

26. In a motor-vehicle, a vehicle-body, two driving-wheels, a compound axle, consisting of two independently-rotating elements, secured each to a wheel, journals upon the axle for supporting the vehicle-body, a socket-and-tenon joint located midway in the length of the axle, consisting of an extended male portion on one element, stepped in two or more different diameters, smaller toward the end and a corresponding socket within the other element, bored with different diameters, fitting two or more of the steps of the tenon, for purpose of rendering the axle self-supporting, substantially as specified.

27. In a motor-vehicle, a vehicle-body, two driving-wheels, a compound axle, consisting of two independently-rotating elements, secured each to a wheel, journals upon the axle for supporting the vehicle-body, a socket-and-tenon joint located midway in the length of the axle, consisting of an extended male portion on one element, stepped in two or more different diameters, smaller toward the end and a cooperating element, having an enlarged end, the enlarged end being bored with different diameters, fitting two or more of the steps of the tenon, for purpose of rendering the axle self-supporting, substantially as described.

28. In a motor-vehicle, a running-gear including an axle, a spring-seat upon the axle, a body, a guide upon the spring-seat, a pin protruding from body through the guide and a spring connecting the spring-seat to the body.

29. In a motor-vehicle, a vehicle-body, springs, a body-hanger, connected with the springs, passing across the body and provided with longitudinally-protruding arms, secured to the edges of the body, for the purposes specified.

30. In a vehicle, a ball-joint, consisting of ball and casing therefor, with a lug extending from the ball, the axis of which is eccentric to the axis of the ball and a connection for the lug.

31. In a vehicle, a ball-joint, consisting of ball and casing therefor, with a cylindrical lug extending from the ball, the axis of which

is eccentric to the axis of the ball, a connection for the ball extending over the lug and means for clamping its cylindrical surface.

646,082. APPAREL-CORSET. ELIZA M. STEWARD, Ashville, Ohio. Filed Feb. 15, 1899. Serial No. 705,552. (No model.)

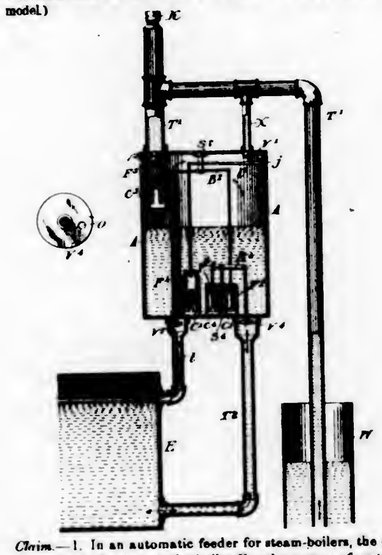


Claim.—1. A means for protecting a corset-stay consisting of a protector stamped from a single piece of sheet metal and consisting of a body adapted to be bent or folded upon itself into U shape in cross-section, a pair of prongs on one edge of the body and bendable inwardly upon one portion thereof for engagement with a corset fabric on one side, and another pair of prongs in closer relation on the opposite edge of the body and bendable inwardly therein for position between the plane of the first-named pair of prongs, all of the prongs lying inclosed within the limits of the folded body, substantially as described.

2. A protector for the tips of stays of corsets and the like, consisting of a metallic blank foldable between its ends to embrace opposite sides of the stay and fabric and extend over the end thereof, inner lips at opposite ends of the blank, prongs at the edge of one lip foldable inward at right angles to the fold of the blank and adapted to engage the fabric of the stay at one side, and other prongs at the terminals of the opposite lip foldable inward parallel with the fold of the blank and adapted to engage the fabric of the stay at the opposite side, substantially as specified.

3. A means for protecting a corset-stay consisting of a protector stamped from a single piece of sheet metal and consisting of a body adapted to be bent or folded upon itself into U shape in cross-section, a pair of prongs on one edge of the body and bendable inwardly upon one portion thereof for engagement with a corset fabric on one side, and another pair of prongs on the opposite edge of the body and bendable inwardly therein in a direction at right angles to the line of bend of the first-named pair of prongs, all the prongs lying within the limits of the folded body.

646,083. AUTOMATIC FEEDER FOR STEAM-BOILERS. EDWIN J. STRONG, Plover, Iowa. Filed Apr. 8, 1899. Serial No. 712,341. (No model.)



Claim.—1. In an automatic feeder for steam-boilers, the combination with the chamber A, the boiler E and a source of water-supply W of the steam-pipe t connecting the steam-space in said boiler E with said chamber A and extending vertically to near the upper end of said chamber A; the water-pipe T^3 connecting the lower end of said chamber A with the lower portion of said boiler E; the fulcrum s^3 depending from the lower face of the upper head of said chamber A; the lever B^3 pivoted in said fulcrum-s^3 and provided with a rod having a valve v^3 adapted to work in the enlarged upper end of said steam-pipe t; the lever l' provided with a valve v' for opening and closing the steam pipe x communicating with the inlet-pipe T'; the cage c' rising from the bottom of said chamber A; the weighted float F' connected with said lever l' and adapted to work in said cage c'; the lever B^4 supported on the fulcrum s^4; the perforated valve v^4 located in the upper end of the water-pipe T^3 and pivotally connected by a valve-rod with said lever B^4; the cage c^2 connected with the head of said chamber A directly below the inlet-pipe T', and the float F^2 provided with valve v^2 located in said cage c^2; substantially as specified.

2. In an automatic feeder for steam-boilers, a water-chamber A, a water-inlet pipe with a valve therefor, pipes t, T^3, connecting said chamber with the steam and water spaces of the boiler, a valve for each of said pipes, the valve in the water-pipe T^3 being provided with a leak-opening whereby the gradual leakage of water from the boiler into the chamber A will raise the pressure therein to the boiler-pressure, substantially as described.

3. In an automatic boiler-feeder for steam-boilers, the combination with the boiler of a chamber A having a water-inlet pipe T', water-pipe T^3 leading from the chamber to the boiler, steam-pipe t leading from the steam-space of the boiler to the chamber A and the steam-pipe x connecting the upper part of the chamber with the water-inlet pipe, a valve for each of these pipes the valve v^4 in pipe T^3 having a leak-opening o whereby the water is permitted to leak backward from the boiler into chamber A for the purpose set forth.

646,084. ATTACHMENT FOR INFANTS' CHAIRS. WILLIAM R. THOMPSON, Roseville, Mo. Filed July 15, 1899. Serial No. 723,921. (No model.)



Claim.—1. The combination with the table of a high-chair, an elongated slot formed in the same, dovetailed notches formed in the sides of and near the respective ends of said slot, of clamping-arms secured to the table and extending through the slot, shoulders formed of said arms adapted to engage said notches to hold them in an extended position, substantially as described.

2. The combination with the table of a high-chair, an elongated slot formed in the same, of a clamp comprising body portions secured together at their lower ends, semicircular grooved clamps secured at right angles to the body portions, a crimped or roughened surface formed on the body portions, and a loop or ring adapted to engage the crimped or roughened surface, and means for supporting the clamp in the elongated slot, substantially as described.

3. The combination with the table of a high-chair, an elongated slot provided with dovetailed notches formed in said table, of clamping members comprising body portions, secured together at their lower ends, crimped or roughened surfaces formed on the body portions, and semicircular grooved clamps secured at right angles to the body portions, a loop or ring adapted to engage the crimped surface on the body portions, and shoulders formed at the juncture of the body portion, and semicircular clamps, and supporting-arms, the upper ends of which are secured to the under side of the table, while the lower ends are secured to the lower ends of the body portions of the clamping members, substantially as described.

646,085. FISHING-REEL. WILLIAM TRAHER, Louisville, Ky., assignor of three-fourths to Robert W. Bingham and Ben Howe, same place. Filed July 22, 1899. Serial No. 724,837. (No model.)

Claim.—1. The combination with a fishing-rod and winding-reel, of a reciprocating handpiece on the rod, a spirally-grooved spindle having bearings in the rod, with the grooves of which a projection on the handpiece engages, to rotate said spindle, and a reel and connecting-gears by which said reel may be wound from said spindle, substantially as described.

2. In a fishing-reel mechanism, the combination of a hollow rod, a spirally-grooved spindle within the rod, a sleeve on the rod having a pin extending into the spiral groove in the rod, a reel, and gears connecting the spindle to said reel to operate the same, substantially as described.

3. In a fishing-reel mechanism, the slotted hollow rod, the spirally-grooved spindle within the rod having grooves of varying depth, the sleeve on the rod having a spring-pressed pin extending into the spindle-groove, and a reel and gears connecting to the said spindle, all combined.



4. In a fishing-reel mechanism, the slotted hollow rod, the spirally-grooved spindle journaled within the rod, the sleeve on the rod having a spring-pressed pin entering said groove in the spindle through the slot in the rod, the reel and gearing connecting it to the spindle, and means for disengaging said gears so the reel may run free, all combined substantially as described.

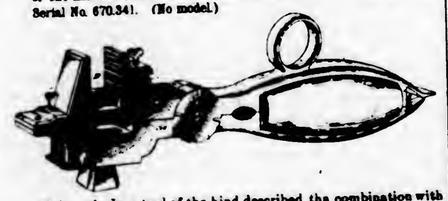
5. In a fishing-reel mechanism, the reel-casing pivotally connected to the rod, a gear and gear-operating mechanism on the rod and gears on the casing, and means for swinging the gears on the casing into or out of engagement with the gear on the rod, all combined substantially as described.

6. A fishing-rod, a reel-casing pivotally connected thereto, a slide on the rod having cam engagement with the reel-casing to swing the same on the pivot toward or from the rod, and gears on the rod and casing brought into or out of engagement by the operation of said slide, all combined.

7. In a fishing-reel, the casing and a winding-spool within the same, said spool having a ratchet-wheel or click, as common, a lever extending into the casing and having a thumb-piece outside, a spring directly connected to said lever and operating on said ratchet-wheel as a sounding-alarm when the lever is pressed a second spring extending within the casing and under control of the same lever, and operating on the ratchet-wheel when impelled by a sufficient movement of said lever, whereby an alarm and a variable drag may be simultaneously or successively brought into operation by various movements of the same lever, all substantially as described.

8. In a fishing-reel, the reel-shaft having a click, the thumb-lever carrying a spring-piece which may be moved into engagement with said click, a notched catch-plate connected to the thumb-lever, and a spring-catch engaging one of the notches in the catch-plate to control the spring-piece bearing on the click, all combined substantially as described.

646,086. WRENCH. JOSEPH T. VILES, St. Joseph, Ill., assignor of one-half to John V. Swearingen, same place. Filed Feb. 15, 1899. Serial No. 670,341. (No model.)



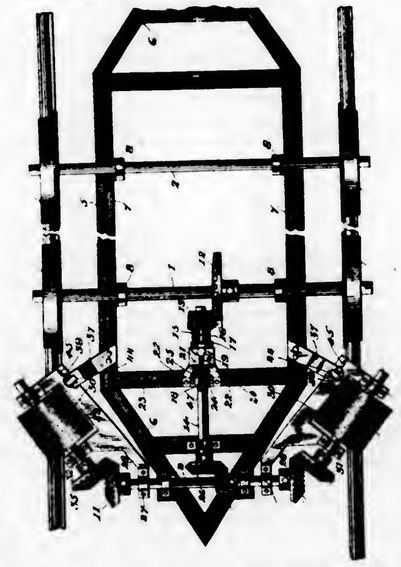
Claim.—1. In a tool of the kind described, the combination with a rigid jaw and a shank, of a longitudinally-arranged bar extending from said rigid jaw, above and parallel with the shank, a longitudinal rib between the bar and shank, a slidable jaw on said bar, and a clamping-block carried by said slidable jaw for engagement with the bar, substantially as described.

2. In a tool of the kind described, the combination with a rigid jaw and the shank, of a longitudinally-arranged bar projecting from the rigid jaw parallel with and above the shank, a rib or raised portion between the bar and shank, a slidable jaw mounted thereon, a rearwardly-extending projection or lug on the movable jaw, a screw mounted in said lug, and a clamping-block swiveled to the screw and designed to engage the above-mentioned bar to lock the movable jaw in any predetermined position, substantially as described.

3. In a tool of the kind described, the combination with a rigid jaw and its shank, a rearwardly-projecting bar connected at one end to the rigid jaw and having teeth on its top edge and projecting on each side of the rib and extending through the opening in the slidable jaw, a lug projecting from the rear face of the slidable jaw and a screw-pressed locking-block carried by said jaw for engaging the extended end of the bar, substantially as described.

4. In a tool of the kind described, the combination with the rigid jaw and the shank, of a rearwardly-projecting bar projecting from the said jaw and longitudinally of the shank, a slidable jaw having an opening through which the bar projects, a lug or projection on the movable jaw, a screw carried by the projection, and provided with a head at its lower end, a clamping-block for engagement with the projecting end of the bar and provided with a longitudinally-slotted groove whereby the screw is adapted to engage the block, substantially as described.

646,087. TRACK-SWEEPER. FRANK D. BRASCH, Decatur, Ill. Filed Dec. 14, 1899. Serial No. 740,314. (No model.)



Claim.—1. In a track-sweeper of the character set forth, the combination with a movable element, oppositely-disposed brushes adapted to be elevated, intermediate mechanism between the said brushes and the movable element operating the parts, a clutch throwing in or out the movable effect of said element, and means attached to said brushes and clutch for simultaneously disconnecting the clutch and elevating the brushes.

2. In a sweeper of the character set forth, the combination with operating mechanism, of adjustable frames normally disposed at a downward-and-rearward angle of inclination from their front elevated extremities and adapted to be simultaneously elevated, similarly-inclined brushes rotatably mounted in the outer portions of said frames, and flexible operating devices attached to portions of the said frames and operable from the platform of the car for simultaneously operating said brushes and frames.

3. In a sweeper of the character set forth, the combination with an operating element, of a motion-imparting mechanism connected to said element, brushes having a fulcrum-support on said motion-imparting element, and normally depressed at a rearward downward incline, operating devices between the motion-imparting mechanism,

and means for simultaneously elevating the brushes and throwing the operating element out of connection with the said motion-imparting mechanism.

4. In a sweeper of the character set forth, the combination with an operating element, of a motion-imparting mechanism movably connected to said element, brush-frames having fulcrum-supports on opposite portions of the said motion-imparting mechanism, brushes rotatably carried by the said frames and having operative connection with said motion-imparting mechanism, said brushes and frames being depressed and disposed at a downward rearward angle of inclination, yielding means for holding the rear portions of said frame depressed, and means for automatically elevating the said brushes and frames and disconnecting the motion imparting mechanism from the operating element.

5. In a sweeper of the character set forth, the combination of an axle having a gear thereon, a longitudinally-disposed shaft carrying a loose pinion in continual mesh with the said gear, a spring-actuated clutch connection between the said shaft and pinion, a transverse shaft in rotatable relation to the said longitudinal shaft, and having gears on opposite extremities thereof, brush-frames movably supported by said transverse shaft and carrying rotatable brushes having gears in mesh with those on the transverse shaft, devices for yieldingly holding the brush-frames and brushes in depressed angular position, and means for simultaneously elevating the brush-frames and brushes and unshipping the clutch from the said pinion.

6. In a sweeper of the character set forth, the combination with an operating element, of motion-imparting mechanism, intermediate operating mechanism between the said motion-imparting mechanism and the said element, brush-frames fulcrumed on opposite portions of the said motion imparting mechanism and having a normal downward-and-rearward inclination, brushes rotatably carried by the said frames, spring-actuated pins extending through the said frame, the said springs bearing upon the upper portion of the frame, and means for elevating the frame and brushes and throwing the intermediate mechanism out of operation with the motion-imparting mechanism.

646,088. APPARATUS FOR CONCEALING GRAVES. GUY J. CHAFFEE, Syracuse, N. Y. Filed Aug. 11, 1899. Serial No. 726,859. (No model.)



Claim.—1. A grave-concealing apparatus consisting of brink-sills, lid-sections connected to said sills movably from a standing position to a meeting position over the grave, means for limiting the movement of said lid-sections below said meeting position, and means for securing a concealing-cover to the outer surfaces of the lid-sections.

2. The improved grave-concealing apparatus consisting of brink-sills, lid-sections hinged to the inner top edges of said sills, stationary bars supporting said lid-sections in horizontal position and springs drawing the lid-sections into horizontal position as set forth.

3. In combination with brink-sills, lid-sections hinged to said sills and composed of longitudinal slats and transverse bars secured to said slats, means for securing ornamentation to said slats, and stationary bars disposed under the ends of the lid-sections and supporting the same in horizontal position as set forth.

4. In combination with brink-sills, lid-sections hinged to the inner top edges of said sills and provided in their hinged edges with notches for the insertion of the casket-supporting bars as set forth.

5. In combination with brink-sills, lid-sections hinged to said sills and composed of longitudinal slats and transverse bars secured to said slats, and wires extending lengthwise of the tops of the slats and fastened thereto as and for the purpose set forth.

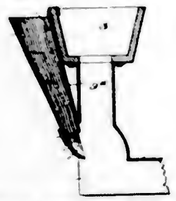
6. In combination with brink-sills, lid-sections hinged to said sills and composed of longitudinal slats fastened to transverse bars having the free ends curved outward to receive between them the projecting top of the casket or box, springs drawing the lid-sections into closed position, and stationary bars supporting the lid-sections horizontally in their closed position as set forth.

646,089. CORN-PLANTER ATTACHMENT. FRANK R. ERAL, Rolfe, Iowa. Filed Aug. 14, 1899. Serial No. 727,194. (No model.)

Claim.—1. An attachment for a corn-planter, comprising a tapered chute, spring-fingers and side guards depending from the lower end of the chute, substantially as, and for the purpose described.

2. An attachment for corn-planters, comprising a tapered chute having a depression in the lower end of its bottom, curved spring-fingers seated in said depression and side guards, said fingers and guards depending from the chute, substantially as, and for the purpose described.

3. An attachment for a corn-planter, comprising a tapered chute curved spring-fingers depending from and extending across the mouth of the chute and guards depending from the side of the chute, substantially as, and for the purpose described.



4. A potato-planter, comprising a tapering chute having a depression in the lower end of its bottom curved spring-fingers secured in said depression and depending therefrom, and extending upwardly a distance equal to the width of the chute, side guards depending from the sides of the chutes on each side of the spring-fingers and means for suspending the planter attachment, substantially as, and for the purpose described.

5. The combination with a corn-planter, having a hollow runner open at the back and a seedbox of an attachment comprising a chute, having a depression in its bottom, a series of curved spring-fingers secured in said depression depending from the same and extending upward a distance equal to the width of the chute, side guards depending from the sides of the chute, beside the spring-fingers and hooks pivoted near the top of the chute by means of which the attachment is suspended from the seedbox of the corn-planter, substantially as described.

646,090. GAS-BURNER. JOHN P. FARMER, Portland, Oreg. Filed May 23, 1899. Serial No. 717,836. (No model.)



Claim.—1. A burner having a valve casing provided with separate main-burner and pilot-burner feed-chambers, respectively in communication with a gas-supply chamber, concentric main and pilot burner tubes respectively in communication with said feed-chambers, and a main-burner disk centrally perforated and provided with elongated radial gas-orifices opening into the central perforation and resulting in the formation of fingers in frictional engagement with the pilot-burner tube, substantially as specified.

2. A burner having a valve-casing provided with separate main-burner and pilot-burner feed-chambers, respectively in communication with a gas-supply chamber, concentric main and pilot burner tubes respectively in communication with said feed-chambers, and a contractile burner-disk fitted upon the pilot-burner tube and provided with radial slits forming main-burner gas-orifices and resultant fingers engaged with the pilot burner tube, substantially as specified.

3. A burner having outer and inner main and pilot burner tubes in communication with a common gas-supply chamber, the pilot-burner tube being of thermostatic material and extending into the zone of heat of the main burner to be energized thereby to initially open the pilot-burner when the main burner is ignited, and having a burner tip or jet threaded upon the body portion of the tube for axial adjustment and provided with a burner-orifice, a valve-seat upon the tip, a lock-nut threaded upon the body portion of the pilot-burner tube for securing said burner tip or jet in its adjusted positions, and a valve arranged within the pilot-burner tube in operative relation with said valve-seat to engage and disengage the seat as the pilot-burner tube contracts and expands and regulate the flow of gas through the pilot-tube.

4. A burner having outer and inner main and pilot burner tubes in communication with a common gas-supply chamber, the pilot-burner tube being of thermostatic material and having a burner tip or jet threaded upon the body portion of the tube for axial adjustment and provided with a burner-orifice and a valve-seat upon the tip, a combined lock-nut and deflector threaded upon the body portion of the pilot-burner tube to secure said burner tip or jet in its adjusted position, and a valve arranged within the pilot-burner tube in operative relation with said valve-seat to engage and disengage the seat as the pilot-burner tube contracts and expands and regulate the flow of gas through the pilot-tube.

5. A burner having outer and inner main and pilot burner tubes in communication with a common gas-supply chamber, the pilot-burner tube being of thermostatic material and having a burner tip or jet threaded upon the body portion of the tube for axial adjustment and provided with a burner-orifice, a valve-seat upon the tip, a deflector or shield fitted upon the body portion of the pilot-burner tube for axial adjustment parallel with said burner tip or jet, and a valve arranged within the pilot-burner in operative relation with said valve-seat to engage and disengage the seat as the pilot-burner tube contracts and expands and regulate the flow of gas through the pilot-tube.

6. A burner having outer and inner main and pilot burner tubes in communication with a common gas-supply chamber, the pilot-burner tube being of thermostatic material and having a burner tip or jet threaded upon the body portion of the tube for axial adjustment and provided with a burner-orifice, a valve-seat upon the tip, a lock-nut threaded upon the body portion of the pilot-burner tube in operative relation with said adjustable tip or jet, and having a recessed under side to constitute a deflector or shield and a valve arranged within the pilot-burner in operative relation with said valve-seat to engage and disengage the seat as the pilot-burner tube contracts and expands and regulate the flow of gas through the pilot-tube, substantially as specified.

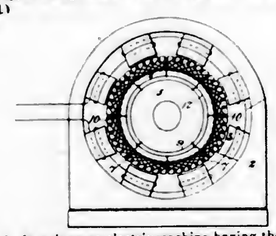
646,091. ROPE-THIMBLE. ROBERT A. HAMMOND, Sandwich, Mass. Filed May 1, 1899. Serial No. 715,238. (No model.)



Claim.—1. A rope-thimble in the form of a closed peripherally-grooved ring having pairs of clips projecting from its edges at opposite sides of a diametrical line to embrace the rope, and provided at the edges of its diametrically-opposite side with clips to embrace and protect the bend of the rope; substantially as described.

2. A rope-thimble formed from a blank having opposite side lips or ears at its middle, and similar lips near both ends; said blank being doubled longitudinally to form a channel or groove and then bent into the form of a ring with its ends contacting; said ears forming clips to embrace and protect the rope at its bend and thereabove; substantially as described.

646,092. DYNAMO-ELECTRIC MACHINE. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed June 30, 1899. Serial No. 722,360. (No model.)



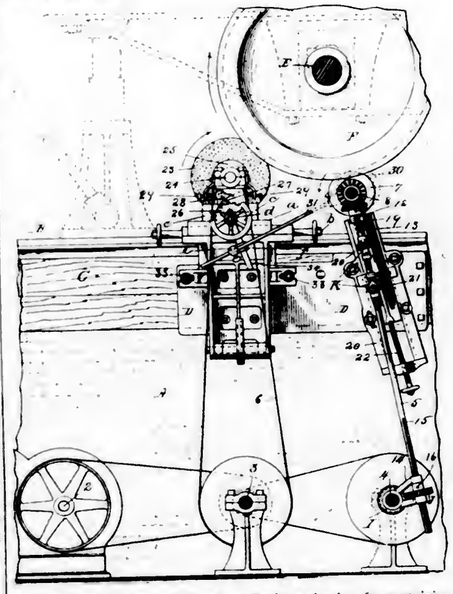
Claim.—1. In a dynamo-electric machine having the usual field-magnet and armature windings, means for balancing the magnetic circuits comprising an auxiliary armature-winding closed upon itself and having generating-conductors symmetrically located with reference to the field-magnet poles.

2. In a dynamo-electric machine having the usual field-magnet and armature windings, means for balancing the magnetic circuits comprising an auxiliary closed winding having one-half as many symmetrically-located generating-conductors as the machine has poles.

3. In dynamo-electric machines having the usual field-magnet and armature windings, a plurality of closed windings for balancing the magnetic circuits, each of which comprises a plurality of generating-conductors symmetrically arranged with reference to the field-magnet poles.

646,093. MACHINE FOR GRINDING CAR OR ENGINE WHEELS. WILLARD P. LESBURE, Springfield, Mass. Filed May 21, 1898. Renewed Sept. 1, 1899. Serial No. 729,261. (No model.)

Claim.—1. In a device of the class described, mechanism for sustaining the wheel of a car or analogous vehicle, and the end of an axle on which said wheel is carried in contact with the bearing thereof on said vehicle, and for imparting a rotary motion to said wheel and axle, comprising a shaft, a cylindrical element on said shaft for engagement with said wheel, means for imparting a rotary motion to said shaft and element, and for supporting said shaft and holding said element yieldingly against said wheel, and a grinding-wheel and supporting devices therefor movable in the axial line of said axle, and at right angles thereto, and supporting said wheel in contact with said vehicle-wheel, and means automatically inducing the movements of said grinding-wheel in the direction of said axial line, substantially as described.



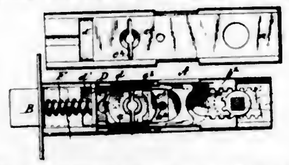
2. In a device of the class described, mechanism for sustaining the wheel of a car or analogous vehicle, and the end of an axle on which said wheel is carried in contact with the bearing thereof on said vehicle, and for imparting a rotary motion to said wheel and axle, comprising a shaft, a cylindrical element on said shaft for engagement with said wheel, means for imparting a rotary motion to said shaft and element and for supporting said shaft and holding said element yieldingly against said wheel, and a grinding-wheel, a frame carrying the last-named wheel, its shaft, and supports therefor, pivotally supported for a swinging movement whereby the grinding-wheel is swung from, and under said vehicle-wheel, means for holding the grinding-wheel in either position, and means for rotating the last-named wheel, substantially as described.

3. In a device of the class described, mechanism for sustaining the wheel of a car or analogous vehicle, and the end of an axle on which said wheel is carried, in contact with the bearing thereof on said vehicle, and for imparting a rotary motion to said wheel and axle, comprising the sliding carrier 19, means for adjusting said carrier vertically, a box-supporting yoke 17 having an arm entering a socket in said carrier, a spring yieldingly sustaining said yoke, a shaft-box 9, having trunnions engaging said yoke, and a yoke 12 having shaft-boxes thereon, combined with the shaft 8, supported in said boxes, a driving-shaft section 5, having a section 13 gear-connected with said shaft 8, and having the toggle connections K intermediate of said two sections, the car-wheel-engaging element 7, on said shaft 8, and means for rotating said shaft 5, substantially as set forth.

4. In a device of the class described, mechanism for sustaining the wheel of a car or analogous vehicle, and the end of an axle on which said wheel is carried, in contact with the bearing thereof on said vehicle, and for imparting a rotary motion to said wheel and axle, comprising the sliding carrier 19, means for adjusting said carrier vertically, a box-supporting yoke 17 having an arm entering a socket in said carrier, a spring yieldingly sustaining said yoke, a shaft-box 9, having trunnions engaging said yoke, and a yoke 12 having shaft-boxes thereon, combined with the shaft 8, supported in said boxes, a driving-shaft section 5, having a section 13 gear-connected with said shaft 8, and having the toggle connections K intermediate of said two sections, the car-wheel-engaging element 7, on said shaft 8, and means for rotating said shaft 5, the frame 34, the table c sliding on said frame, the shaft 24, and means for rotating the same and

the wheel 23 thereon, the table-actuating screw *d*, and mechanism interconnected between said shaft 8 and said screw *d* for intermittently rotating said screw and imparting sliding movements to said table, substantially as set forth.

646,094. COMBINED LOCK AND LATCH. LEVIN H. MULLIKIN, Trappe, Md. Filed Feb. 3, 1900. Serial No. 3,893. (No model.)



Claim.—1. A combined lock and latch, comprising a latch having an open middle portion, a shank in front thereof, and a knob-spindle yoke at its rear end, a projecting spring on said shank, a rotary key-operated locking-disk underlying the middle open portion of the latch and provided with a raised rib or projection adapted upon the rotation of said disk to rest against the forward end of said open portion of the latch and prevent its retraction, and said disk having notches at opposite points in its periphery, a retaining-dog comprising an apertured plate on the latch-shank, engaged by the rear end of said spring and provided with a toe or lug to snap into and be forced out of said peripheral notches upon the rotation of the locking-disk; substantially as set forth.

2. A combined lock and latch, consisting in the divided casing having recesses in its inner walls near its forward end, keyholes in rear thereof, bearings at the inner sides of the casing intersected by said keyholes and bearings at its rear end, a latch mounted in said casing and having a middle open portion, a forward shank and a yoke at its rear end, a knob-spindle sleeve mounted in the rear bearings to retract the latch, a spring on the shank to project the latch, a locking-disk having hubs turning in the middle bearings, a keyhole extending through the disk and its hubs to register with the casing-keyholes, and peripheral notches in its periphery and on a line at right angles to its keyhole, and a retaining-dog for the disk, comprising an apertured plate mounted on the shank in rear of the spring with its side edges in the forward recesses of the casing and provided with a toe or lug to snap into and be moved out of the peripheral disk-notches upon the rotation of the disk; substantially as described.

646,095. TRACE-EYE GUARD. WILLIAM P. MURPHY, San José, Cal. Filed Apr. 10, 1899. Serial No. 712,536. (No model.)

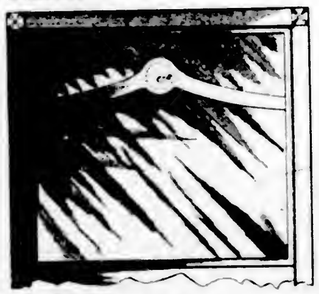


Claim.—1. The combination with a trace provided with an eye which communicates by means of obliquely-approaching walls with an opening of larger size than is the singletree-receiving opening of said eye, of a trace-eye guard comprising a body portion secured in and protecting the rear or wearing end of the eye, and spring-tongues extending from opposite ends of the said body portion toward the said opening, said tongues being each provided with a shoulder extending toward the shoulder of the opposite spring-tongue and serving to prevent accidental displacement of the singletree, the free ends of said tongues bearing against the said obliquely-approaching walls and having longitudinal movement thereon; substantially as described.

2. The combination with a trace provided with an eye which communicates by means of obliquely-approaching walls with an opening of larger size than is the singletree-receiving opening of said eye, of a trace-eye guard comprising a body portion secured in and protecting the rear or wearing end of the eye, and spring-tongues extending from opposite ends of the said body portion toward the said opening, said tongues being each provided with a shoulder extending toward the shoulder of the opposite spring-tongue and serving to prevent accidental displacement of the singletree, each of said tongues having flanges which overlie the edges of the said obliquely-approaching walls and serve to retain said tongues in position; substantially as described.

646,096. FLY-ESCAPE. VIOLA D. MILLEY, East Branch, Pa. Filed Oct. 11, 1898. Serial No. 693,213. (No model.)

Claim.—1. In a device of the kind described, a barrier arranged upon the face of a pane of glass comprising an inverted-V-shaped plate extending entirely across the pane and having an overlapping flange designed to be secured to the pane of glass and hold the plate a sufficient distance from the pane to permit the insects to enter the barrier from the under side thereof, an enlarged downwardly-projecting portion of the apex of said barrier, and a central opening in the pane at the apex of the barrier for the escape of the insects, substantially as described.



2. In a device of the kind described, the combination with a pane of glass having a central opening, of a barrier arranged upon the pane comprising an inverted-V shaped plate, having an overlapping flange at its top edge and an upwardly-projecting flange extending from said overlapping flange designed to be secured to the pane and hold the plate a sufficient distance from the pane to permit the insects to enter the barrier from the lower edge of the barrier, said barrier being enlarged at its apex to form a covering portion for the opening in the pane, substantially as described.

646,097. BUTTON. FRANKLIN G. HEUBERT, Waterbury, Conn., assignor to the Patent Button Company, same place. Filed Apr. 13, 1897. Serial No. 631,966. (No model.)

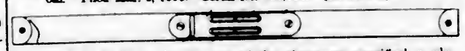


Claim.—1. A tack-fastened button, having a head, a hub and a solid anvil, and a spacer attached to the hub by engagement with that portion of the anvil which projects from the hub, substantially as described.

2. A button, having a head and a hub, a rivet arranged in the hub to form a solid anvil, and a spacer in which is spread that portion of the shank of the rivet or solid anvil which projects from the hub, to unite the button-hub and spacer, substantially as described.

3. A button, having a head and a hub, a rivet arranged in the hub to form a solid anvil and said rivet having a shank projecting from the hub and adapted to be spread, and a spacer secured to such spread end and thereby united with the button-hub, the said spread end of the rivet's shank or of the solid anvil serving to turn, upset or curl over the point of a fastening and the spacer serving to receive and contain such curled-over point, substantially as described.

646,098. LEVELING INSTRUMENT. MAGNUS NILSON, Oakland, Cal. Filed Mar. 6, 1899. Serial No. 707,981. (No model.)

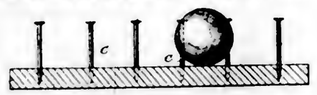


Claim.—1. In an instrument of the character specified, a plurality of companion levels having the same registering-point, whereby said levels serve to correct each other, substantially as described.

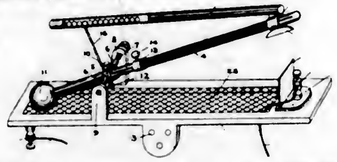
2. In an instrument of the character indicated, a body having a recess therein, a web fastened to said body and extending into said recess, a pivotal shaft provided with threaded ends extending through said web, a spirit-level tube pivoted upon said shaft at each side of said web, and thumb-screws upon the ends of said shaft, whereby the said spirit-level tubes can be clamped in position; substantially as described.

646,099. BALL-AND-TARGET GAME. WILLIAM R. PARK, Philadelphia, Pa. Filed June 3, 1899. Serial No. 719,336. (No model.)

Claim.—A target consisting of a suitable board having a series of circles arranged thereon in the form of a cross-nowy quadrant, and pegs secured within said circles, said pegs having heads for retaining a ball when thrown against the target, as specified.



646,100. THERMOSTAT. CHARLES B. ROGERS, Stevenson, Md. Filed Oct. 28, 1899. Serial No. 735,123. (No model.)



Claim.—1. The combination with an electric circuit of a balance tilting thermometer located in said circuit and adjustable longitudinally in its fulcrum, an adjustable weight depending from the fulcrum of said thermometer to raise and lower the center of gravity thereof, and an electrical contact at the outer end of said thermometer, which, by the tilting of the thermometer caused by the expansion of the fluid therein, closes the electric circuit, as herein set forth.

2. The combination with an electric circuit, of a balance tilting thermometer located in said circuit and adjustable longitudinally in its fulcrum, an adjustable weight depending from the fulcrum of said thermometer to raise and lower the center of gravity thereof, a compensating weight mounted on said thermometer and adjustable longitudinally, and an electrical contact at the outer end of said thermometer, which, by the tilting of the thermometer, caused by the expansion of the fluid therein, closes an electric circuit, as herein set forth.

3. The combination with an electric circuit, of a balance tilting thermometer located in said circuit, and adjustable longitudinally in its fulcrum, an adjustable weight depending from the fulcrum of said thermometer to raise and lower the center of gravity thereof, and an electrical contact at the outer end of said thermometer, which, by the tilting of the thermometer caused by the expansion of the fluid therein, closes the electric circuit, and an automatic shifting weight which holds said contact in closed position, as herein set forth.

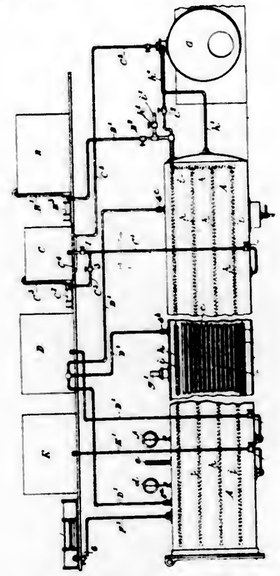
4. The combination with an electric circuit of a balance tilting thermometer adjustable longitudinally in its fulcrum and located in said circuit, and having an electric contact at its outer end located in said circuit, a tube mounted on said thermometer and located in said electric circuit, and carrying an automatically-shifting weight which holds said contact in closed position when the thermometer is tilted, said thermometer being provided with a scale and compensating weight mounted upon and adjustable longitudinally on said thermometer, as herein set forth

646,101. FIREPROOFING WOOD. HENRY V. SIMPSON, London, England. Filed June 13, 1898. Serial No. 683,355. (No specimens.)

Claim.—1. The described process of treating wood, which consists in subjecting it first to a preliminary treatment including steaming and subjection to a solvent adapted to dissolve out soluble and fermentable constituents, second, to an impregnating treatment by steaming, vacuum, applying a volatile solvent, and immersing in an impregnating solution, and third, to a hardening treatment by immersing in a solution of metallic salts adapted to harden and waterproof the surface of the wood.

2. The described process of treating wood, which consists in subjecting it first to a preliminary treatment by steaming, and applying an aqueous solvent under pressure, then expelling the solvent, second, to an impregnating treatment by steaming, vacuum, applying a volatile solvent, with steam under pressure, then applying vacuum, then immersing in an impregnating solution, and third, to a hardening treatment by immersing in a solution of metallic salts adapted to harden and waterproof the surface of the wood.

3. The described process of treating wood, which consists in subjecting it first to a preliminary treatment by steaming it, then subjecting it to vacuum, then to the action of an aqueous solvent in conjunction with a saponifying medium, then applying pressure, and then removing and expelling the solvent by heat and vacuum; second, to an impregnating treatment by steaming it, then subjecting it to vacuum, then to the action of carbon bisulphide, then applying steam-pressure, and then cooling to condense the steam and carbon bisulphide and produce a vacuum, then immersing in an impregnating solution of fireproofing ingredients, as phosphate of ammonia and sulphate of ammonia, then applying pressure to enforce the impregnation, and then removing and drying the wood; and third, to a hardening treatment by immersing in a solution of salts of zinc and alumina, and finally drying the wood.



4. In a process of treating wood, the described impregnating treatment, consisting in steaming it, then subjecting it to vacuum, then to the action of a volatile solvent, then removing the volatile solvent, and then immersing the wood in the impregnating solution, and removing and drying the wood.

5. In a process of treating wood, the described impregnating treatment, consisting in steaming it, then subjecting it to vacuum, then to the action of a volatile solvent, then applying pressure, then removing the volatile solvent, and then immersing the wood in the impregnating solution, and removing and drying the wood.

6. In a process of treating wood, the described impregnating treatment, consisting in steaming it, then subjecting it to vacuum, then to the action of a volatile solvent, then applying steam under pressure, then cooling to condense the steam and solvent, and then immersing the wood in the impregnating solution, and removing and drying the wood.

7. In a process of treating wood, the described impregnating treatment, consisting in steaming it, then subjecting it to vacuum, then to the action of carbon bisulphide, then to steam under pressure, then cooling to condense the steam and carbon bisulphide, and then immersing the wood in the impregnating solution, and removing and drying the wood.

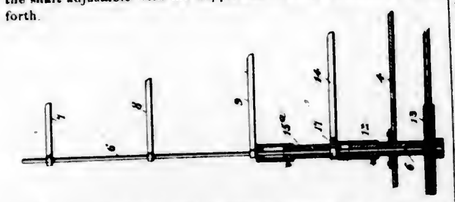
8. In a process of treating wood, the described impregnating treatment, consisting in steaming it, then subjecting it to vacuum, then to the action of a volatile solvent, then again to a vacuum, and then immersing it in an impregnating solution of fireproofing ingredients, as phosphate of ammonia and sulphate of ammonia, and then removing and drying the wood.

9. In a process of treating wood, the described treatment for hardening the wood after immersion in an impregnating solution, which consists in immersing it in a solution of a salt of zinc and a salt of alumina, and then drying the wood.

646,102. CORN-HARVESTER ATTACHMENT. JOHN P. DEGNAN, Chenoa, Ill. Filed June 18, 1898. Serial No. 683,851. (No model.)

Claim.—1. In a self-binding corn-harvesting machine, the combination with the horizontal deck or platform, and the vertical discharge-shaft rising above the deck or platform and carrying the discharge-arms, of a supplemental arm or sweep having adjustable connection with the discharge-shaft and carried thereby in a plane parallel with and relatively close to the deck or platform, said supplemental arm being adjustable to vary the distance between the same and the deck or platform, and an adjustable telescopic sleeve-housing for

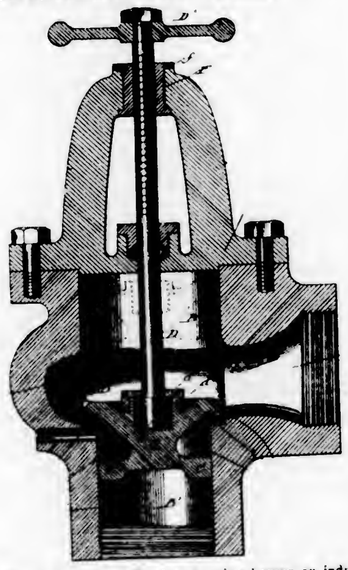
the shaft adjustable with the supplemental arm, substantially as set forth.



2. In a self-binding corn-harvesting machine, the combination with the horizontal deck or plattorm and the vertical discharge-shaft rising above the deck or platform and carrying the discharge-arms, of a supplemental discharge-arm connected with said shaft and arranged in relatively-close proximity to the deck or platform, said supplemental arm being adapted for vertical adjustment with respect to the platform and a sleeve-housing for the shaft extending above and below the plane of movement or sweep of the supplemental discharge-arm and independently of which housing the shaft is rotatable whereby said housing will prevent loose stalks and the like from wrapping upon the shaft, substantially as set forth.

3. In a self-binding harvesting-machine, the combination with the discharge-shaft and the arms carried thereby, of the vertical tubular bearing-standard for said shaft arising from the binder deck or platform, a separate supplemental discharge-arm having a detachable and adjustable connection at one end with said shaft, a telescopic spacing-sleeve fitted on the shaft between the supplemental discharge-arm and the arm immediately thereabove, and a telescopic cap-sleeve fitted on the bearing-standard below the supplemental arm, substantially as set forth.

646,103. BLOW-OFF VALVE. FRANK M. FABER, Chicago, Ill. Filed Nov. 13, 1899. Serial No. 736,837. (No model.)



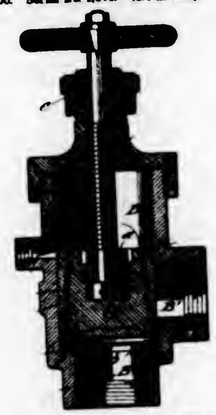
Claim.—1. In a blow-off valve, a casing having an induction-port, an eduction port, and a fluid-pressure passage, a valve-disk, and means for moving the disk to close the induction-port when the fluid-pressure passage is open and to close the fluid-pressure passage when the valve is fully seated, substantially as described.

2. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, substantially as described

3. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the induction-port, in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, and a valve-stem for moving the valve, substantially as described.

4. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the induction-port, in combination with a disk in the induction-port having an engaging face for the valve seat or packing and a circumferential channel or passage in its body communicating with the fluid-pressure passage and admitting pressure to the main-casing chamber for cleansing the parts, a valve-stem for moving the valve, and a cap carrying the valve-stem, substantially as described.

646,104. BLOW-OFF VALVE. FRANK M. FABER, Chicago, Ill. Filed Jan. 18, 1900. Serial No. 1,873. (No model.)



Claim.—1. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the chamber above the valve-seat, in combination with a disk traversing the chamber and having an engaging face for the valve-seat and operating to open and close the fluid-pressure passage and the induction-port for the admission of the fluid-pressure into the main casing to operate and cleanse the acting face of the disk and the valve-seat, substantially as described.

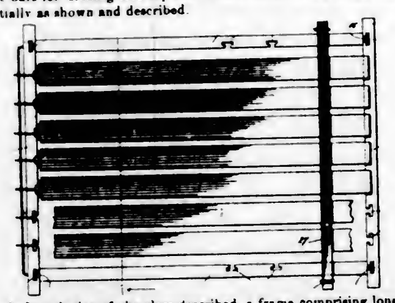
2. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the chamber, in combination with a disk traversing the chamber and opening and closing the fluid-pressure passage and the induction-port and provided with discharge openings or passages for the admission of fluid-pressure to act and cleanse the acting face of the disk and the valve-seat, substantially as described.

3. In a blow-off valve, a main casing or shell provided with a chamber, a valve-seat, an induction-port, an eduction-passage and a fluid-pressure passage leading into the chamber above the valve-seat, in combination with a disk traversing the chamber and opening and closing the fluid-pressure passage and the induction-port and having an engaging face for the valve seat or packing for the admitted fluid-pressure to act against the face of the disk and the valve-seat to cleanse the parts, a valve-stem for moving the disk, and a cap inclosing the valve-stem, substantially as described.

646,105. MATTRESS-FILLING FRAME. NELSON L. JOHNSON, Elizabeth, N. J. Filed May 16, 1899. Serial No. 716,979. (No model.)

Claim.—1. A device of the class described, consisting of a frame, composed of longitudinal side pieces and transverse end pieces detachably connected therewith, longitudinal bottom strips having flaps connected with one end thereof, and longitudinal top strips adapted to be connected with said flaps, one end of the frame being also provided with devices which are adapted to engage said flaps, substantially as shown and described.

2. A device of the class described, consisting of a frame, composed of longitudinal side pieces and transverse end pieces detachably connected therewith, longitudinal bottom strips having flaps connected with one end thereof, and longitudinal top strips adapted to be connected with said flaps, one end of the frame being also provided with devices which are adapted to engage said flaps, and transverse bars for binding said top and bottom strips to the frame, substantially as shown and described.

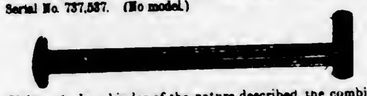


3. In a device of the class described, a frame comprising longitudinal side portions, transverse end portions detachably connected therewith, one of said end portions being provided with a rod having hooks or other fastening devices connected therewith, longitudinal bottom strips provided at one end with flaps or extensions with which said hooks or fastening devices are adapted to engage, and corresponding longitudinal top strips which are also adapted to be engaged with said flaps or extensions, substantially as shown and described.

4. A device of the class described, consisting of a frame composed of longitudinal side pieces and transverse end pieces detachably connected therewith, longitudinal bottom strips having flaps connected with one end thereof, and longitudinal top strips adapted to be connected with said flaps, substantially as shown and described.

5. A device of the class described, consisting of a frame composed of longitudinal side pieces and transverse end pieces detachably connected therewith, longitudinal bottom strips having flaps connected with one end thereof, and longitudinal top strips adapted to be connected with said flaps, one end of said frame being also provided with devices which are adapted to be connected with the bottom strips, substantially as shown and described.

646,106. EXTENSIBLE POST FOR TRANSFER-LEDGERS, &c. HARVEY P. JONES and HARRY S. JONES, Chicago, Ill., assignors to the Jones Perpetual Ledger Company, same place. Filed Nov. 18, 1899. Serial No. 737,537. (No model.)



Claim.—1. In a binder of the nature described, the combination with a base and a movable clamping-bar cooperating therewith provided with a perforation, of a post received by said perforation, comprising sleeve-sections jointed together and to the base, and a bolt passing through said sleeve-sections and serving to secure them together and bind them rigidly to the base, substantially as and for the purpose set forth.

2. In a binder, the combination with a lower bar A, and an upper bar A' provided with perforations, of posts, each comprising a sleeve-section jointed to said lower bar and provided with a socket, a sleeve-section provided at its lower end with an extension fitting into said socket and provided at its upper end with a socket, and a screw-bolt for securing said sleeve-sections firmly together and binding them to said lower bar, substantially as and for the purpose set forth.

3. In a binder, the combination with a lower bar A, and an upper bar A' provided with perforations, of posts each comprising a sleeve-section jointed to said lower bar and provided with a socket, a sleeve-section provided at its lower end with an extension fitting into said socket and provided at its upper end with a socket, and a screw-bolt for securing said sleeve-sections firmly together and binding them to said lower bar, said screw-bolt being provided at its upper end with an enlargement fitting into the adjacent socket of a sleeve-section, substantially as and for the purpose set forth.

4. In a binder, the combination of a bar provided with threaded bolt-sockets, sleeve-sections jointed to said bar at said sockets, sleeve-sections jointed together and to said first-named sleeve-sections, screw-bolts passing through said sleeve-sections and entering said threaded sockets, and a bar movably secured to the posts thus formed, substantially as and for the purpose set forth.

5. In a binder, the combination of a bar provided with internally-threaded projecting stubs, sleeve-sections fitting over said stubs and provided with sockets, sleeve-sections fitting into said sockets of said first-named sleeve-sections and themselves provided with sockets, and screw-bolts passing through said sleeve-sections and entering said stubs and provided at their upper ends with enlargements fitting the sockets of the upper tube-sections, substantially as and for the purpose set forth.

6. The combination with a bar A, of lower sleeve-sections connected therewith provided with sockets, tube-sections formed of outer and inner tubular members, said inner members projecting beneath the outer members to enter said sockets, and screw-bolts for securing said last-named sleeve-sections to said lower sleeve-sections, substantially as and for the purpose set forth.

646,107. CHAIR ADJUSTMENT. JULIUS KARPEN, Chicago, Ill. Filed Nov. 27, 1899. Serial No. 738,349. (No model.)



Claim.—1. The combination with a chair provided with a pivoted back, of rigid guides secured to the chair provided with perforations, and curved members a' passing through said perforations and frictionally engaging therewith and provided at their rear ends with means for engaging said chair-back, substantially as and for the purpose set forth.

2. The combination with a chair provided with arms and with a pivoted back, of rigid depending clips secured to said arms and provided with perforations, curved members a' passing through said perforations and frictionally engaging therewith, and a back-supporting web a^3 connecting the rear ends of said members and left free to move with relation to the chair-back, substantially as and for the purpose set forth.

646,108. APPARATUS FOR PURIFYING WATER. CARL L. KENNICOTT, Chicago, Ill., assignor of one-half to C. J. Blair, same place. Filed June 5, 1899. Serial No. 719,439. (No model.)

Claim.—1. In a water-purifying apparatus, the combination with the precipitating-tank, of a downwardly-flaring downtake-conduit within the tank, said conduit having at its upper end an inlet for the water to be purified and its contained precipitating agent or agents.

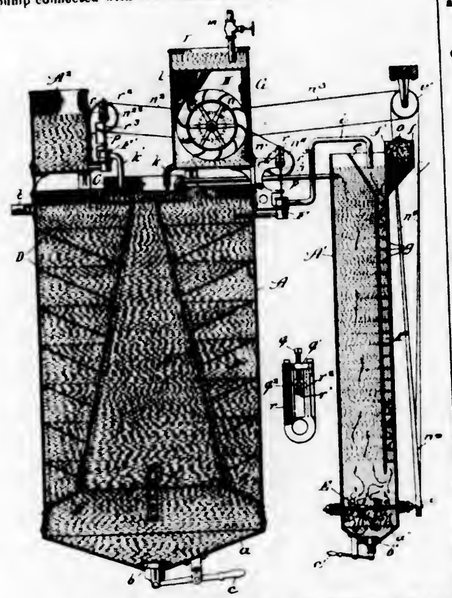
2. In a water-purifying apparatus, the combination with the precipitating-tank, of a downwardly-flaring downtake-conduit within the tank, said conduit having at its upper end an inlet for the water to be purified and its contained precipitating agent or agents, the area of the base of said conduit being equal or approximately equal to that of the annular space in the tank about said base for the purpose set forth.

3. In a water-purifying apparatus, the combination with the precipitating-tank of a downwardly-flaring conduit supported therein and through which the water to be purified and its contained precipitating agent or agents flow into the tank, and a mixing-pan surmounting said conduit, substantially as and for the purpose set forth.

4. In a water-purifying apparatus, the combination with the precipitating-tank of a downwardly-flaring conduit supported therein and through which the water to be purified and its contained precipitating agent or agents flow into the tank, and a series of perforated annular diaphragms surrounding said conduit and extending across the upward course of the water in the tank, substantially as and for the purpose set forth.

5. In a water-purifying apparatus, the combination with the precipitating-tank, of a conduit within the tank, said conduit having at its upper end an inlet for the water to be purified and its contained precipitating agent or agents, a mixing-tank adjacent to the precipitating-tank, a mixture-conducting pipe leading from the mixing-tank to the inlet of the conduit, a water-conducting pipe leading from the

upper end of the precipitating-tank to the mixing-tank, and a force-pump connected with the water-conducting pipe.



6. In a water-purifying apparatus, the combination with the precipitating-tank, of a downwardly-flaring downtake-conduit within the tank, said conduit having at its upper end an inlet for the water to be purified and its contained precipitating agent or agents, a motor adjacent to the tank said motor being driven by the water to be purified in its passage to the conduit-inlet, a precipitating-agent supplier and means actuated by the motor to regulate the supply of agent to the conduit-inlet.

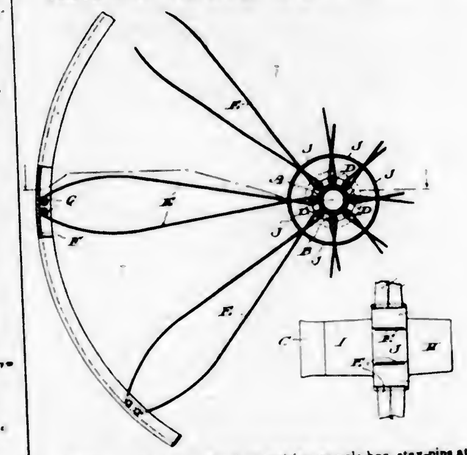
7. In a water-purifying apparatus, the combination with the precipitating-tank containing a conduit through which the water to be purified and its contained precipitating agent or agents flow into the tank, of a mixing-tank, a mixing-pan surmounting said conduit, a mixture conducting pipe leading from the mixing-tank into said pan, a power-chamber emptying into said pan and communicating with the supply of water to be purified, a water-wheel in said chamber, a water-conducting pipe leading from the mixing-tank into the precipitating-tank, and a force-pump connected with said water-conducting pipe and geared with said wheel to be actuated by it, substantially as and for the purpose set forth.

8. In a water-purifying apparatus, the combination with the precipitating-tank containing a conduit through which the water to be purified and its contained precipitating agents flow into the tank, of a mixing-tank A' communicating with said pan through a pipe A, a pipe i leading from the precipitating-tank into said mixing-tank and containing a force-pump F, a mixing-tank A^3 having a discharge-spout emptying into said pan and containing a force-pump F', a power-chamber emptying into said pan and communicating with the supply of water to be purified, and a water-wheel in said chamber geared with said pumps to actuate them, substantially as and for the purpose set forth.

9. A water-purifying apparatus comprising, in combination, a tank A containing a downwardly-flaring conduit B surrounded by the diaphragms D and surmounted by a mixing-pan C, a mixing-chamber A' discharging into said pan through a pipe A, a pipe i leading from the tank A into said mixing-tank and containing a pump F, a mixing-chamber A^3 discharging into said pan through a spout containing a pump F', a power-chamber G discharging into said pan and containing a reservoir I for the water to be purified, and a water-wheel H in said chamber, driven by the flow of water from said reservoir and geared with said pumps to actuate them, substantially as and for the purpose set forth.

10. In a water-purifying apparatus, the combination with the precipitating-tank, of a conduit within the tank, said conduit having at its upper end an inlet for the water to be purified and its contained precipitating agent or agents, a mixing-tank adjacent to the precipitating-tank, a mixture-conducting pipe leading from the mixing-tank to the conduit-inlet, a pipe leading from the upper end of the precipitating-tank to the mixing-tank to supply purified water to the latter, and means for controlling the purified-water supply.

646,109. VEHICLE-WHEEL. ANTON PALM, Milwaukee, Wis. Filed Feb. 5, 1900. Serial No. 3,925. (No model.)



Claim.—1. A vehicle-wheel comprising an axle-box, stay-pins at intervals circumferentially of the axle-box, curved spring-metal spokes that cross each other in pairs and have their inner ends bent to form eyes engaged by said pins, an annular rim having an inner groove engaged by the outer ends of the spokes also bent to form eyes, other stay-pins connecting the rim and outer eye ends of said spokes, sleeves concentric with said axle-box and having spoke-opposing flanges provided with right-angle extensions in the form of segmental plates constituting spacers between pairs of spokes, the plates of one flange being lapped on the opposite flange, and means for tightening said flanges against the aforesaid spokes.

2. A vehicle-wheel comprising an axle-box exteriorly screw-threaded at both ends, nuts engaging said ends of the axle-box, stay-pins arranged circumferentially of said axle box between the nuts, curved spring-metal spokes that cross each other in pairs and have their inner ends bent to form eyes engaged by said stay-pins, an annular rim having an inner groove engaged by the outer ends of the spokes also bent to form eyes, other stay-pins connecting the rim and outer eye ends of said spokes, and sleeves on the nuts having spoke-opposing flanges provided with right-angle extensions in the form of segmental plates constituting spacers between pairs of spokes, the plates of one flange being lapped on the opposite flange and said flanges tightened against the aforesaid spokes by means of said nuts.

646,110. AMMETER. PETER H. P. SPIES, Yonkers, N. Y., assignor to Charles G. Durfee, same place, and Louis A. Rodenstein and Neil Ambrose Flannery, New York, N. Y. Filed Aug. 18, 1899. Serial No. 727,616. (No model.)



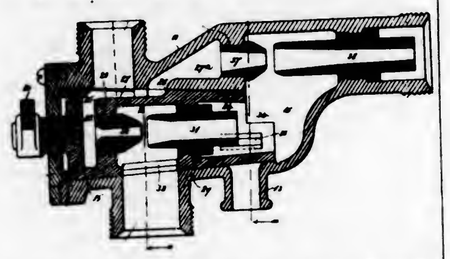
Claim.—1. In an ammeter, the combination of a current-carrying conductor, an iron part inductively influenced by the said conductor, the said iron part consisting of a shell having sloping ends substantially as described, and a movable iron part embraced by the said shell and beveled ends located in inductive relation to the said other shell and provided with an index for indicating the deflection.

2. In an ammeter, the combination of a current-coil, a sleeve or casing of magnetic material contained therein, having a sloping end or ends forming a free magnetic pole or poles and another body of magnetic material in inductive relation to the said first-named casing and operating a needle or other indicating device, substantially as described.

3. In an ammeter, the combination of a current-carrying coil or conductor and a plurality of shells of magnetic material under inductive influence of the said conductor, one of the shells being movable with respect to the other, the polar edges of the said shells being inclined with respect to each other, substantially as described and for the purposes set forth.

4. In an ammeter, the combination of a current-carrying conductor and a plurality of shells inductively influenced thereby, one of the said shells being movable with respect to the other, each of the said shells having its maximum polarity localized and having polar edges sloping away from the said point of localization, the polar edges of the two shells being inclined with respect to each other, substantially as described and for the purposes set forth.

646,111. INJECTOR. CHARLES S. TAYLOR, New York, N. Y. Filed Aug. 8, 1899. Serial No. 726,530. (No model.)



Claim.—1. An injector for steam-boilers, comprising a main casing provided at its inner end with a tubular discharge and with a hollow conical valve which is mounted in the outer end thereof, said casing being also provided in the top of the outer end with a steam-inlet and in the bottom thereof with a water-inlet, and water-overflow, the overflow being located between the water-inlet and the tubular discharge, said valve being also provided with three chambers which are separated by partitions having jets placed therein, the inner end of the inner chamber being open and the bottom wall thereof being provided with two ports or passages which are adapted to communicate with the overflow and the central chamber being provided with a port or passage which is adapted to communicate with the water-inlet, said casing being also provided above the valve with a steam-chamber, and at the inner end thereof with a water-and-steam chamber, said chambers being separated by a partition in which is placed a steam-jet and a discharge-jet being also provided with a main discharge, and said valve being cut out longitudinally of the top thereof to form a communication between the chamber in the end thereof and the steam-chamber in the top of the main casing, substantially as shown and described.

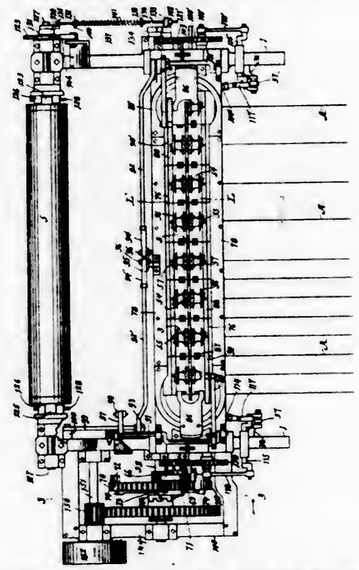
2. An injector for steam-boilers, comprising a main casing provided with a tubular discharge at one end, a main jet located therein, a hollow longitudinal valve mounted in the end of said injector opposite the discharge, a steam-chamber in said main casing over said valve, and a steam-and-water chamber between the discharge and the inner end of said valve, said valve being also provided with three chambers separated by partitions having injectors therein, and said main casing being also provided in the top of the outer end thereof with a steam-inlet and in the bottom thereof with a water-inlet and water-overflow and said valve with ports or passages which communicate with the water-inlet and the water-overflow and the inner end of said valve being open and in communication with the steam-and-water chamber, and the said valve being cut out at the top longitudinally to form a communication between the steam-inlet, the chamber in the outer end of said valve and the chamber in the top of the main casing, substantially as shown and described.

3. An injector of the class described provided with an operating-valve which is held in place by a detachable cap or head, said valve being provided with a shank which passes through said cap or head and with a crank or handle which is adapted to be connected with said shank from either side and means for limiting the movement of said crank or handle whereby the injector may be operated from either side, substantially as shown and described.

4. An injector of the class described, provided with a steam-inlet, a water-inlet and a water-overflow, and a single valve for controlling said inlets and said overflow, substantially as shown and described.

5. An injector of the class described, provided with a steam-inlet, a water-inlet and a water-overflow, and a single valve for controlling said inlets and said overflow and means for operating said valve from either side, substantially as shown and described.

646,112. WIRE-FENCE MACHINE. MILES D. TAYLOR, Janesville, Wis. Filed Nov. 24, 1899. Serial No. 738,190. (No model.)



Claim.—1. In a wire-fence machine, the combination with a frame and a plurality of vertically-disposed warp-wire guides mounted thereon, of a vertically-movable warp-wire-feed bar located below the guides, and means for lifting the feed-bar and its load and permitting it to fall back to its initial position.

2. In a wire-fence machine, the combination with a frame provided with vertically disposed ways thereon, of a warp-wire-feed bar mounted in the ways, means on the feed-bar for temporarily gripping the warp-wires thereto, and means for lifting the feed-bar and letting it fall back to its initial position.

3. In a wire-fence machine, the combination with a movable warp-wire-feed bar, of means for gripping a warp-wire thereto comprising a stud secured to the bar, a fixed grip-plate, a movable grip-block provided with a thereto-hinged stem, toggle-joint members hinged together and one member hinged to the stud, a spring bearing on the stem of the grip-block and a member of the toggle-joint, and means for actuating the toggle-joint.

4. In a wire-fence machine, a warp-wire-gripping device comprising a stud fixed on a feed-bar, a grip-plate, a movable grip-block opposite the grip-plate, a stem pivoted to the grip-block and passing movably through a toggle-joint member, toggle-joint members hinged together and one member hinged to the stud, a spring bearing against a toggle-joint member and acting on the stem and grip-block, and a screw and nut interposed between the spring and the toggle-joint member whereby the tension of the spring may be regulated.

5. In a wire-fence machine, means for actuating a device for gripping warp-wires to a feed-bar comprising a toggle-joint connecting-rod 20, a bell-crank 22, a pitman connecting said rod to said bell-crank, a link 27 pivoted to the bell-crank and taking movably into ways in a slide, the slide reciprocable in ways therefor on the frame, and means for reciprocating the slide.

6. In a wire-fence machine, means for actuating a grip-operating slide reciprocably comprising the slide 28, an inner tappet 30 and an outer tappet 31 secured detachably on the slide, a shaft 33, and cams 32, 34 on the shaft adapted alternately to contact respectively with the tappets and reciprocate the slide.

7. In a wire-fence machine, the combination of a vertically-reciprocable warp-wire-feed bar, wire gripping devices on the feed-bar, an oscillating lever 22 mounted on the feed-bar and connected operatively to the gripping devices and provided with a thereto-pivoted link having an elongated vertically-extending head, and a horizontally-reciprocable actuating-slide provided with a groove in which the head of said link reciprocates vertically and by which the link is held to horizontal movement with the slide.

8. In a wire-fence machine, the combination with a frame, and a warp-wire-feed bar reciprocable vertically in ways therefor on the frame, of means for intermittingly lifting the frame, comprising swing-

ing tappets 36 supported at one extremity on the frame and projecting into the path of wipers, a shaft, said wipers loose on the shaft, cams fixed on the shaft, dogs on the wipers adapted to engage the cams and hold the wipers to revolution therewith, and means for disengaging the dogs from the cams.

9. In a wire-fence machine, a vertically-reciprocable warp-wire-feed bar, a tappet pivoted medially to the feed-bar, a hanger suspended pivotally from the frame and hinged to the outer extremity of the tappet, an idle wheel 41 on the tappet-feed-bar pivot-bolt adapted to travel on ways therefor on the frame in the direction of the movement of the feed-bar, and means for lifting the tappet.

10. In a wire-fence machine, a means for lifting a feed-bar tappet comprising a shaft, a wiper loose on the shaft, a dog pivoted on the wiper, a spring adapted to hold the dog normally yieldingly in the path of a cam, the cam fixed on the shaft adapted to engage the dog, and a stop adapted to contact with the dog and disengage it from the cam.

11. In a wire-fence machine, a means for lifting a feed-bar tappet comprising a shaft, a wiper loose on the shaft, a dog provided with a beveled head pivoted on the wiper, a spring adapted to hold the dog normally yieldingly in the path of a cam, the cam fixed on the shaft adapted on engage the dog, and as top adapted to contact with the beveled head of the dog and disengage it from the cam, said stop being mounted adjustably in the arc of the circle of rotation of the dog whereby the extent of the lift of the feed-bar may be regulated.

12. In a wire-fence machine, a rotatable warp-wire guide provided with a bore for the passage through it of a warp-wire axially, a pair of woof-wire carriers respectively on opposite sides of the warp-wire guide, means for rotating the warp-wire guide and synchronously revolving the woof-wire carriers about the axis of the warp-wire guide, and other means for controlling and shifting the woof-wire carriers from the woof-wire guide tangentially in reverse directions and always continuously of the general direction of the rotation of the carriers and guide.

13. In a wire-fence machine, a pair of revoluble woof-wire carriers located opposite each other, means for revolving the pair of wire-carriers, and means for shifting the carriers of a pair tangentially in opposite directions always in continuation of the movement of their revolutions.

14. In a wire-fence machine, the combination with a wire-carrier, of an arbor, a spool rotatable on the arbor, a band about the hub of the spool, means for clamping the band adjustably to the hub, and means to contact with and prevent the rotation of the band with the spool.

15. In a wire-fence machine, the combination of a series of warp-wire guides arranged in a straight line, woof-wire carriers in pairs respectively on opposite sides of each alternate one of said guides, means for shifting the carriers of each pair in reverse directions tangentially from opposite one guide to opposite the next adjacent guides always in the direction of the revolution of the carriers about their woof-wire guides, and means for revolving the carriers about the axis of the guides.

16. In a wire-fence machine, the combination of warp-wire guides disposed in a continuous line, woof-wire carriers in pairs respectively on opposite sides of each alternate guide, means for shifting the carriers of each pair in opposite directions from one guide to the adjacent guides, means for revolving the wire-carriers once and a half around the axis of their newly-acquired companion guide, and means for shifting the carriers back to their initially-adjacent guide but at the opposite sides thereof.

17. In a wire-fence machine, the combination of a series of woof-wire carriers disposed in pairs opposite each other, a series of interposed warp-wire guides, pinions below and axially of the guides and the carriers, grooves and complementary tongues on the carriers and the pinions respectively holding the carriers to revolution with the pinions but permitting them to slide into and out of engagement with the pinions, means for rotating the pinions, and other means for shifting the carriers from the pinions.

18. In a wire-fence machine, the combination of a series of woof-wire carriers arranged in pairs opposite each other, means for revolving the carriers of each pair about their common axis, push-blocks in two lines in which the carriers are severally mounted movably revolubly, and means for advancing the lines of push-blocks intermittingly in opposite directions.

19. In a wire-fence machine, the combination of a series of warp-wire guides arranged in a line, two series of woof-wire carriers arranged normally opposite to and abutting movably against warp-wire guides, means for revolving the carriers about the axis of the guides, two lines of push-blocks supported slidably on a bed and severally encircling a warp-wire carrier, and means for advancing the two lines of push-blocks and the carriers in opposite directions simultaneously.

20. In a wire-fence machine, the combination with a frame and a bed thereon, of push-blocks arranged in two lines, a push-block way on the bed extending in adjacent parallel straight lines and continuously around at the ends, a series of warp-wire guides in a line between the straight lines of the push-blocks, woof-wire carriers mounted in the push-blocks in the two lines at the two sides of the guides, means for advancing the two straight lines of push-blocks concurrently, and other means for advancing the push-blocks severally around at the ends of the straight lines of travel and from one straight line to the other straight line.

21. In a wire-fence machine, the combination with a frame and a bed thereon having an elongated push-block way, of push blocks having woof-wire carriers mounted therein, the push-blocks being disposed and adapted to travel in adjacent parallel straight lines through a portion of their route, racks on the push-blocks, rock-shafts, pawls on the rock-shafts respectively engaging the racks on a line of the push-blocks, and means for oscillating the rock-shafts.

22. In a wire-fence machine, the combination with a frame and a bed thereon having an elongated push-block way, of push-blocks having woof-wire carriers mounted therein, the push-blocks being disposed and adapted to travel in adjacent parallel straight lines through a portion of their route, racks on the push-blocks, rock-shafts, pawls on the rock-shafts, pawl-blocks pivoted on the pawls engaging a plurality of teeth on a push-block or push-blocks, and means for oscillating the rock-shafts concurrently.

23. In a wire-fence machine having two lines of push-blocks adapted to be advanced intermittingly in reverse directions, means for advancing the push-blocks step by step in two lines in opposite directions comprising an actuating cranked rock-shaft 91 at one end of the lines of push-blocks, an actuated cranked rock-shaft at the other end of the lines of push-blocks pawls on the cranks of the rock-shaft engaging respectively the lines of push-blocks, a rod connecting the cranks of the two rock-shafts, and means for oscillating the actuating rock-shaft.

24. In a wire-fence machine, the combination with two lines of push-blocks adapted to be advanced intermittingly in reverse directions, of cranked rock-shafts one at each end of the lines of push-blocks, pawls on the cranks of the rock-shafts engaging respectively a line of the push-blocks, a rod connecting the cranks of said rock-shafts, said rod comprising principal members 92, 92', head members 94, 94' adjustable on the principal members, and an interposed swinging member 95 to which the head members are pivoted adjustably.

25. In a wire-fence machine, means for oscillating a rock-shaft adapted for advancing woof-wire carriers intermittingly, comprising a swinging lever 99, a rod connecting the swinging lever to a crank-arm on the rock-shaft, a rotatable shaft, a wiper 101 loose on the shaft, a cam fixed on the shaft, a dog on the wiper in the path of and adapted to be engaged by the cam, and a stop for releasing the dog from the cam.

26. In a wire-fence machine, the combination with a rock-shaft 91 provided with a crank-arm 97, of a swinging lever 99, a rod consisting of two members 98, 98' hinged together connecting the crank-arm to the lever, a shaft 33, a wiper 101 loose on the shaft, cams 45 fixed on the shaft, a dog with a beveled head pivoted on the wiper, a spring adapted to hold the dog normally yieldingly in the path of the cams, and a stop adapted to control the beveled head of the dog and push it out of engagement with the cams severally.

27. In a wire-fence machine, means for oscillating a rock-shaft 91 comprising a lever 99, a rod connecting the lever to a crank on the rock-shaft, a shaft 33, a wiper loose on the shaft, a cam fixed on the shaft, a dog on the wiper adapted to be caught by and released from the cam, and a second lever 107 in the path of the cam and connected operatively to the first-mentioned lever, whereby the rock-shaft is oscillated positively in both directions.

28. In a wire-fence machine, means for oscillating a rock-shaft 91, comprising a lever 99, a rod connecting the lever to a crank on the rock-shaft, a shaft 33, a wiper loose on the shaft, a cam fixed on the shaft, a dog on the wiper adapted to be caught by and released from the cam, a second lever 107 in the path of the cam and connected adjustably operatively to the first-mentioned lever, and a compensating spring 109 connected to a radial arm on the rock-shaft and to a fixed resistance.

29. In a wire-fence machine, means for revolving one or two woof-wire carriers comprising a pinion 63 provided with a transverse groove or grooves for receiving therein a tongue or tongues on the wire-carrier or wire-carriers, a double pinion 64' meshing with the grooved pinion, a beveled pinion meshing with the double pinion, a shaft on which the beveled pinion is fixed, and means for rotating the shaft intermittingly.

30. In a wire-fence machine, the combination with push-blocks carrying woof-wire carriers and adapted to travel in an elongated path on a bed, of pinions provided with fingers 110, 110' located respectively at the ends of the elongated path of the push-blocks, the fingers being adapted to catch onto the push-blocks and advance them severally in a semicircular direction, segmental racks meshing with the pinions, and means for oscillating the segmental racks.

31. In a wire-fence machine, the combination with push-blocks carrying woof-wire carriers and adapted to travel in an elongated path on a bed, of pinions provided with fingers 110, 110' located respectively at the ends of the elongated path of the push-blocks, the fingers being adapted to catch onto the push-blocks and advance them severally in a semicircular direction, segmental racks meshing with the pinions, doubly-cranked rock-shafts 115, 115' having crank connections to the segmental racks and to a cog-wheel, and a rotating shaft 66 provided with a pinion meshing with said cog-wheel.

32. In a wire-fence machine, a means for rotating woof-wire carriers intermittingly, comprising a counter-shaft 66 connected to the wire-carriers operatively by intermediate pinions, a pinion 69 on the counter-shaft, a main shaft, a mutilated cog-wheel on the main shaft provided with a flange projecting from its rim opposite the unmutilated portion of the rim, and a concave stop 71 fixed on the counter-shaft and adapted to bear against the rim-flange on the mutilated wheel and prevent rotation of the counter-shaft while opposite said flange.

33. In a wire-fence machine, a means for rotating a woof-wire carrier intermittingly, comprising a counter-shaft provided with a pinion, a main shaft, a mutilated cog-wheel on the main shaft with which the pinion meshes intermittingly, curved radial arms on the counter-shaft, and radial arms on the main shaft so disposed as to contact the arms on the counter-shaft as the teeth on the mutilated wheel come initially to the teeth on the pinion and insure the prompt rotation of the counter-shaft by the main shaft.

34. In a wire-fence machine, the combination with a counter-shaft provided with a pinion and radial arms, of a main shaft, a mutilated wheel on the main shaft meshing intermittingly with the pinion, and curved radial arms on the main shaft formed in two members, the outer member being adjustable on the inner member radially and forwardly, whereby the arms on the main shaft can be disposed to contact earlier or later in each revolution with the arms on the counter-shaft.

35. In a wire-fence machine, a woof-wire-carrier support and advancing device, consisting of a push-block of substantially-rectangular form provided with a semicircular recess in one edge thereof, a semicircular flange about the recess adapted to fit around the base of a wire-carrier, a longitudinal flange 80 with underturned edge on the under side of the block, a pin 113 projecting from said flange, and a toothed rack on the upper surface of the block.

36. In a wire-fence machine, the combination with a frame provided with an elongated bed, of push-blocks adapted to travel in an endless path in straight parallel lines with connecting semicircular ends, means for advancing the push-blocks, semicircular flanges on the push-blocks, and guides 86 secured to the frame and provided with semicircular concave ends adapted to receive therein the flanges on the push-blocks and guide the push-blocks in a semicircular direction when being advanced.

37. In a wire-fence machine, the combination of a frame, a hollow pedestal 51 fixed on the frame, a warp-wire guide supported and revoluble on the pedestal, a pinion 63 mounted and revoluble on the pedestal, a woof-wire carrier supported above and engaging and rotatable with said pinion, and means for rotating the pinion.

38. In a wire-fence machine, the combination of a frame, a hollow pedestal 51 fixed on the frame, a warp-wire guide supported and revoluble on the pedestal, a pinion 63 mounted and revoluble on the pedestal, a woof-wire carrier supported above and engaging and rotatable with said pinion, a block-actuating pinion 111 mounted on the pedestal and about the hub of the first-enumerated pinion, and means for rotating the pinions.

39. In a wire-fence machine, a fabric-carrying device, comprising an idle roll provided with a plurality of bands adjustable along the roll longitudinally thereof, said bands each having a considerable number of radially-projecting spikes adapted to pierce the fabric adjacent to warp-wires and guide and hold the fabric to proper position in its forward movement.

40. In a wire-fence machine, fabric-guiding devices, combining a roll provided with bands adjustable thereon longitudinally, the bands each having a considerable number of fabric-piercing spikes, and a guide-rod a little in front of the roll, and revolnble collars adjustable on the rod, the collars having spikes therein adapted to pierce the fabric alongside the woof-wires and guide the fabric in its forward movement.

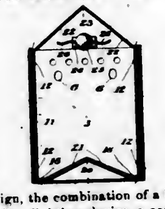
41. In a wire-fence machine, a fabric-coiling device, comprising a detachable roll provided with terminal tongues, mandrels with laterally-open sockets, means to secure the roll releasably in the sockets, a ratchet-wheel on one of the mandrels, a click engaging the ratchet-wheel and preventing the rearward rotation thereof, and means for rotating the roll intermittingly.

42. In a wire-fence machine, means for rotating a fabric-coiling roll, comprising a ratchet-wheel on the mandrel of the roll, a swinging lever provided with a pawl engaging the ratchet-wheel, a shaft, a cam on the shaft, a swinging arm in the path of the cam, and a rod connecting the lever to the swinging arm.

43. In a wire-fence machine, means for rotating a fabric-coiling roll, comprising a ratchet-wheel on the mandrel of the roll, a swinging lever provided with a pawl engaging the ratchet-wheel, a shaft, a cam on the shaft, a swinging arm in the path of the cam, means connecting the lever to the swinging arm including a head member 135 pivoted on the lever, parallel rods 137 provided with a cross-bar, a rod 139 movable through the cross-bar and provided with a cross-head through which the parallel rods pass movably, said rod telescoping with the parallel rods and being connected to the swinging arm, expansible springs about the parallel rods between the cross-head and the cross-bar, and stops limiting the swinging of the arm.

44. In a wire-fence machine, means for rotating a fabric-coiling roll, comprising a ratchet-wheel on the mandrel of the roll, a swinging lever provided with a pawl engaging the ratchet-wheel, a shaft, cams on the shaft, a swinging arm in the path of the cams, means connecting the lever to the swinging arm including a head member 135 pivoted and adjustable on the lever, parallel rods 137 provided with an adjustable cross-bar, a rod 139 movable through the cross-bar and provided with a cross-head through which the parallel rods pass movably, said rod telescoping with the parallel rods and being connected adjustably to the swinging arm, expansible springs about the parallel rods between the cross-head and the cross-bar, and stops limiting the swing of the arm.

646,118. SIGN. FRANK TOOMFARBER, Cincinnati, Ohio. Filed Dec. 7, 1899. Serial No. 739,456. (No model.)



Claim.—1. In a sign, the combination of a body formed of side frames and a back wall, a lighting device, a cover to close the bottom of the body and having a fastening device, the edges of said cover being formed with channels, and a reflector held on said cover and having its edges engaged in said channels, substantially as set forth.

2. In a sign, the combination of a body formed of side frames at angles to each other and converging toward the front of the sign, a back wall, a lighting device, a cover to close the bottom of the body, and a reflecting-plate carried by said cover and having its side portions formed into plane reflecting-surfaces inclined down forwardly and laterally, substantially as set forth.

3. In a sign, the combination of a body having opposite sides each formed with a sign-surface, a hood over the body, a lighting device in the hood, and two inclined reflecting-surfaces in the hood on opposite sides of the lighting device, the lighting device being not lower than the lower edges of said reflecting-surfaces and each of said reflecting-surfaces being arranged to throw the light from the lighting device upon the sign-surface at the opposite side of the body, substantially as set forth.

4. In a sign, the combination of a body having sides at an angle to each other and converging toward the front part of the sign and each formed with a sign-surface, a hood over the body, a lighting device in the hood, a plane reflecting-surface on the back wall of the body and arranged to throw light from the lighting device upon said sign-surfaces, an inclined reflecting-surface in the lower part of the body adjacent to each sign-surface and arranged to throw light from the lighting device through the same, and two inclined reflecting-surfaces in the hood on opposite sides of the lighting device, each of the last-named reflecting-surfaces being arranged to throw the light from the lighting device upon the sign-surface at the opposite side of the body, substantially as set forth.

5. In a sign, the combination of a body having opposite sides each formed with a sign, a hood over the body, a lighting device in the hood, and two inclined, plane reflecting-surfaces in the hood on opposite sides of the lighting device, each of said reflecting-surfaces having its lower edge adjacent to and parallel with the upper edge of one of the signs of the body and being arranged to throw the light from the lighting device upon the sign at the opposite side of the body, substantially as set forth.

6. In a sign, the combination of a body having sides at an angle to each other and converging toward the front part of the sign and each formed with a sign-surface, a hood over the body, a lighting device in the hood and two plane reflecting-surfaces in the hood each

with its lower edge adjacent to and parallel with the upper edge of one of the sign-surfaces of the body, said reflecting-surfaces being at an angle to each other and having their adjacent upper edges inclined upwardly from the front to the back of the hood, substantially as set forth.

7. In a sign, the combination of a body having sides at an angle to each other and converging toward the front part of the body and each formed with a sign-surface, a hood over the body, a lighting device in the hood, a plane reflecting-surface on the back wall of the body and arranged to throw the light from the lighting device upon said sign-surfaces, and two inclined reflecting-surfaces in the hood on opposite sides of the lighting device, each of said reflecting-surfaces in the hood being arranged over one of the sign-surfaces of the body and being adapted to throw a part of the light from the lighting device upon the sign-surface at the opposite side of the body and a part of said light upon the reflecting-surface on the back wall of the body, substantially as set forth.

646,114. PORTABLE ELECTRIC LAMP. ALEXANDER F. VETTER, New York, N. Y., assignor to the United States Battery Company, same place. Filed Oct. 11, 1899. Serial No. 733,373. (No model.)



Claim.—1. A portable electric lamp embracing an incandescent lamp, a metallic tube or casing and one or more battery-cells inclosed therein and circuit connections between the casing, the battery and the lamp; in combination with the body part of a carriage-lamp, said portable electric lamp being detachably supported by the downwardly-extending a pronor part of the carriage-lamp, substantially as described.

2. A portable electric lamp electrically connected with a metallic tube or casing and one or more battery-cells inclosed in said casing, with switching means for effecting circuit connections between the battery and the lamp; in combination with the body part of a carriage-lamp having a reflector; together with adjustable means for varying the location of the portable electric lamp with relation to the reflector, said portable electric lamp being detachably supported by the downwardly-extending apron or part of the carriage-lamp, substantially as described.

3. A portable electric lamp electrically connected with a metallic tube or casing and one or more battery-cells inclosed therein and switching means for effecting circuit connections between the battery and the lamp; in combination with the body part of a carriage-lamp having a reflector and a downwardly-extending apron or part, the portable electric lamp being provided with means for detachably connecting it to the downwardly-extending apron or part, substantially as described.

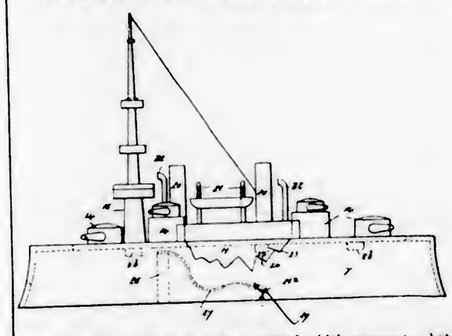
4. A portable electric lamp embracing an incandescent lamp, a metallic tube or casing, one or more battery-cells inclosed therein, yielding circuit connections between the battery and the lamp and switching means at the bottom of the inclosing tube or casing adapted to lift the batteries bodily, substantially as described.

5. A portable electric lamp embracing an incandescent lamp, a metallic tube or casing and one or more battery-cells inclosed therein, the incandescent lamp being detachably secured to a removable metallic cup screw-threaded to one end of the metallic casing; in combination with a second removable metallic cup screw-threaded to the other end of the tube or casing and switching means located in said cup adapted to move the battery bodily and connect it to or disconnect it from the lamp, substantially as described.

6. A portable electric lamp embracing an incandescent lamp, a metallic tube or casing inclosing one or more battery-cells, provided with yielding connections between the upper electrode of the battery and the incandescent lamp; in combination with means located at the bottom of the tube or casing for lifting the battery bodily and interrupting the circuit between it and the casing, substantially as described.

7. A portable electric lamp embracing an incandescent lamp electrically connected with a metallic tube or casing provided with a lining of insulating material; in combination with one or more battery-cells inclosed in said tube or casing, together with yielding circuit connections between one electrode of the battery and a switch-controlling plug located in one end of the metallic tube or casing, said plug being provided with means for causing the battery to be lifted bodily and in such manner as to interrupt the circuit between it and the metallic tube or casing, substantially as described.

646,115. TOY. CHARLES M. A. WICHMANN, Jacksonville, Fla. Filed Sept. 2, 1899. Serial No. 729,296. (No model.)



Claim.—1. A toy of the class described, which represents a battle-ship provided with a central detachable deck portion on which the turrets, masts, davits, and other deck-fixtures are loosely placed, and means upon and beneath said detachable deck portion for causing the representation of an explosion and the lifting of said detachable deck portion, substantially as shown and described.

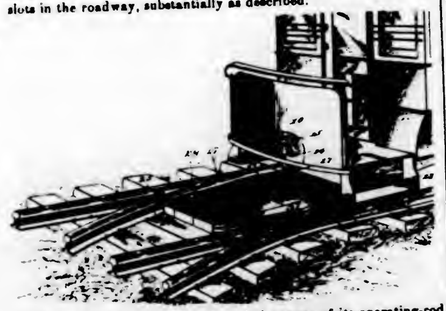
2. A toy of the class described, which represents a battle-ship provided with a detachable deck portion on which all the deck-fixtures are loosely placed, said central detachable deck portion being provided on the under side with a receptacle in which explosive material is placed, and a percussion-cap holder, and said hull being provided with a strong spring which is secured therein, and one end of which is free and adapted to be depressed and when released to explode said cap, substantially as shown and described.

3. A toy adapted to represent a battle-ship, said ship being provided with a central detachable deck portion, on which the deck-fixtures are loosely placed, a portion of the sides of the hull being also formed integrally with said detachable deck portion and means upon and beneath said detachable deck portion and the hull for causing an explosion and the lifting of the said deck portion, substantially as shown and described.

4. A toy adapted to represent a battle-ship, said ship being provided with a central detachable deck portion, on which the deck-fixtures are loosely placed, a portion of the sides of the hull being also formed integrally with said detachable deck portion and means connected with said detachable deck portion and the hull for causing an explosion and the lifting of the said deck portion, consisting of a receptacle secured to the bottom of said deck portion and adapted to receive explosive material and provided with a percussion-cap holder, and a strong spring secured in the hull, the free end of which is adapted to be depressed and when released to strike said cap-holder, substantially as shown and described.

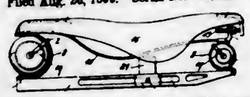
646,116. SWITCH-OPERATING DEVICE. FRANK WRIGHT, Henderson, Ky. Filed Nov. 11, 1899. Serial No. 736,667. (No model.)

Claim.—1. The combination with the switch-tongue pivoted at one end, of the operating-rod loosely secured to the tongue at one end and yielding and slidingly supported at the other end, and vertical arms secured to the rod and normally projected upward through slots in the roadway, substantially as described.



2. The combination with the switch-tongue of its operating-rod loosely secured at one end to the tongue, a pair of vertical arms, adjustably secured to the rod, and a spring secured at its outer end and provided with an inner upturned end having a hole in which the opposite end of the operating-rod is slidingly supported and normally held raised substantially as described.

646,117. SADDLE FOR BICYCLES. WILLIAM BAILEY, Newbury, England. Filed Aug. 26, 1899. Serial No. 728,522. (No model.)



Claim.—1. In a bicycle-saddle, a base portion, each end of which is provided with a vertically-arranged semicircular spring, pneumatic rings imposed in said springs and connected therewith, circular cores imposed within said pneumatic rings, and links passed through said cores and about said springs, substantially as shown and described.

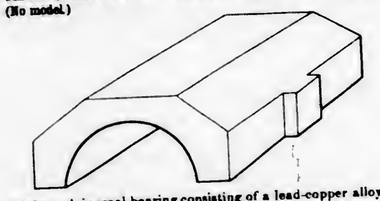
2. In a bicycle-saddle, a base portion, each end of which is provided with a vertically-arranged semicircular spring, pneumatic rings imposed in said springs and connected therewith, circular cores imposed within said pneumatic rings, and links passed through said cores and about said springs, said cores being peripherally grooved to form seats for said pneumatic rings, substantially as shown and described.

3. The herein-described support for bicycle and similar saddles, comprising curved spring elements, cores imposed therein, and separate links passed transversely through said cores and about said spring elements, substantially as shown and described.

646,118. PROCESS OF MAKING ALLOYS. GUILLIAN H. CLAMER and JOSEPH G. HENDRICKSON, Philadelphia, Pa. Filed Nov. 17, 1899. Serial No. 737,304. (No specimens.)

Claim.—The process of preventing segregation of a lead-copper alloy which consists in adding thereto a relatively-small proportion of nickel, substantially as described.

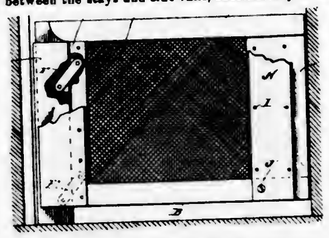
646,119. BEARING. GUILLIAN H. CLAMER and JOSEPH G. HENDRICKSON, Philadelphia, Pa. Filed Nov. 17, 1899. Serial No. 737,305. (No model.)



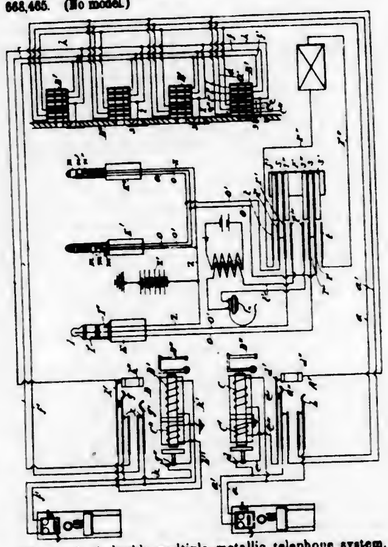
Claim.—A journal-bearing consisting of a lead-copper alloy containing a relatively-small proportion of nickel, substantially as described.

646,120. WINDOW-SCREEN. HENRY R. GALLAHER, Childs, Md., assignor of one-half to D. L. McCorkindale, same place. Filed July 23, 1899. Serial No. 725,380. (No model.)

Claim.—In a window-screen, the side top and bottom rails, a stay connecting the side, top and bottom rails, a swinging bar, links pivoted to the stay and the swinging bar, a stay fitted between the opposite ends of the top and bottom rails, side rails connecting the top and bottom rails one of said side rails being secured to the stay, a wire-netting attached to the top and bottom rails with its end extending between the stays and side rails, substantially as described.



646,121. DUPLEX MULTIPLE METALLIC TELEPHONE SYSTEM. FRED C. HUGHES, Detroit, Mich. Filed Jan. 29, 1898. Serial No. 668,465. (No model.)



Claim.—1. A double multiple metallic telephone system, each line of which is provided with an answering spring-jack, a circuit-breaker at said answering-jack, and an annunciator-circuit, a series of connecting spring-jacks for each line placed one on each board, each of said connecting spring-jacks having a double set of contacts and a double system connected therewith, a set of three plugs united by conductors and having a series of contact-surfaces thereon, one of said plugs being adapted to be inserted in the answering-jack, and each of the other of said plugs being adapted to be inserted in each of the multiple jacks of the board to connect with each of the two systems, respectively, which are connected with said jacks.

2. A multiple metallic telephone system each line of which is provided with a distinct answering spring-jack, an annunciator-circuit and an annunciator-circuit breaker in circuit with the answering spring-jack, a multiple of connecting spring-jacks for each line, said answering spring-jack, multiple connecting spring-jacks and annunciator, normally in circuit with the subscriber's instrument, the line from which the first passes to the answering spring-jack and thence to the connecting spring-jacks to the contacts of which latter jacks said line is permanently connected, a set of plugs carrying connecting-lines, and means for automatically breaking the lines at the answering spring-jacks only upon the insertion of the answering-plug therein to cut out the entire multiple portion of the board.

3. In a circuit-changer or switch, the combination of a series of insulated springs forming contact-terminals, said springs standing approximately parallel in the same plane, the rotary insulated sleeve carrying a series of insulated contact-arms, said arms comprising pairs which stand in separate planes, the arms of each pair being independent and insulated from each other, and means for moving said arms so as to bring each pair successively between the corresponding

spring-terminals so as to cross between said terminals and change the circuit therethrough.

4. In a telephone system, a spring-jack comprising an insulating-body having a socket therein, a removable hollow core of insulating material adapted to be seated in said socket, an aperture through the wall of said core, a contact having its end portion projecting through said aperture and lying within the hollow of said core, and its body portion confined between said core and the wall of said socket.

5. In a spring-jack, the combination of an insulating-body, of a hollow core of insulating material adapted to be seated in said body, said core having a series of apertures opening through the wall thereof and peripheral channels leading from said apertures, a series of contacts whose contact end portions project through said apertures into the interior of said core and whose body portions lie in said channels and are confined therein by the embracing wall of said insulating-body.

6. A spring-jack comprising an insulating-body having a socket therein, a removable hollow core of insulating material adapted to be seated in said socket, an aperture through the wall of said core, and a channel in the periphery of the core leading from said aperture, a contact having its end portion projecting through said aperture and lying within the hollow of the core and its body portion lying in said channel.

7. In a spring-jack, the combination of an insulating-body provided with a socket therein and having an opening through the base of said socket, a removable hollow core of insulating material adapted to be seated in said socket and whose interior opening registers with the aperture in the base of said socket, a contact having its end portion extending within the hollow of said core and its body portion confined between said core and the wall of said socket.

8. In a spring-jack, the combination of a hollow tube of insulating material having a longitudinal groove in the face thereof, a contact-spring formed with an eye at one end for attachment of a wire and provided at the opposite end with bent end portions describing the arc of a circle and standing at an angle to the body thereof, said bent portion being adapted to lie within the hollow of said tube and receive the plug when inserted in the jack, substantially as set forth.

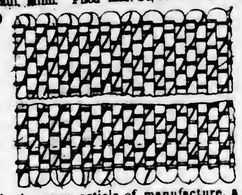
9. In a spring-jack, a spring formed by bending a wire upon itself to produce an eye at one end for attachment to a line-wire, the meeting opposite ends of said wire being bent at right angles and formed into a half-circle to embrace the contact-surface of the plug when inserted in the jack.

646,122. INK FOR MARKING CIGARS OR TOBACCO. EMANUEL KLEIN, New York, N. Y. Filed Aug. 15, 1899. Serial No. 727,281. (No specimens.)

Claim.—1. The process of producing a coloring composition, which consists in inspissating lanolin, mixing it in a liquid state with a pigment, and cooling the mixture, substantially as specified.

2. The process of producing a coloring composition, which consists in inspissating lanolin, subjecting carbonate of iron to a glow heat, mixing it with the inspissated lanolin, and cooling and grinding the mixture, substantially as specified.

646,123. WOVEN FABRIC. MARTIN KOECK, Oshkosh, Wis., assignor, by mesne assignments, to the Northwestern Grass Twine Company, St. Paul, Minn. Filed Mar. 21, 1898. Serial No. 674,657. (No specimens.)



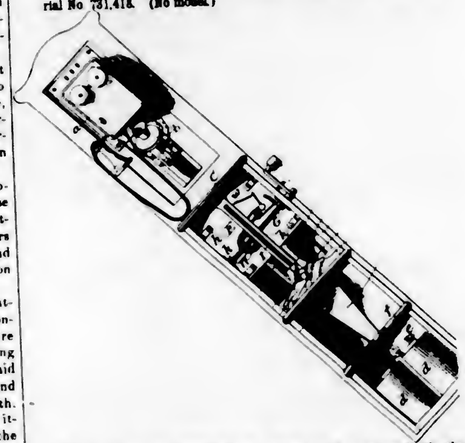
Claim.—1. As a new article of manufacture, a fabric composed of stalks of grass twisted together and sewed to form a continuous strand, said strand doubled back and forth upon itself, such doubled portions being held together by interwoven binding strands or stays, as and for the purpose set forth.

2. As a new article of manufacture, a fabric the body of which is composed of stalks of grass twisted together and spirally wrapped to form a continuous strand said strand bent or doubled back and forth upon itself and having interspersed throughout transverse binding stays or strands interwoven therewith, such binding strands or stays being duplicated along the edges of the fabric, as and for the purpose set forth.

3. As a new article of manufacture, a mat the body of which is composed of stalks of grass twisted together and spirally wrapped to form a continuous strand, said strand bent or doubled back and forth upon itself and having interwoven therewith binding-strands interspersed throughout such body portion, and a selvage-binding for the edges thereof, as and for the purpose set forth.

4. As a new article of manufacture, a fabric consisting of a main body portion formed of parallel layers or strands of twisted grass, each strand being encircled spirally by a thread in combination with transverse binding-threads traversing the entire body but alternately under and over adjacent parallel grass strands, as and for the purpose set forth.

646,124. COMBINED TELEPHONE AND VENDING-MACHINE. CHARLES H. KRAFT, Salt Lake City, Utah. Filed Sept. 23, 1899. Serial No. 731,418. (No model.)



Claim.—1. In a machine of the character herein set forth, the gong arranged to be struck by its hammer which is moved by connections with the rock-shaft, the rock-shaft, the coin-receiving plunger, the rod operated by said plunger and connected with the rock-shaft, and the check-delivering mechanism also connected with the said plunger, the parts being combined and arranged for operation at the times and substantially in the manner set forth.

2. In a machine of the character herein set forth, the gong and its striking mechanism, a rock-shaft connected with the latter, a coin-receiving plunger the rod operated by said plunger and connected with the rock-shaft, a check-delivering mechanism connected with the coin-receiving plunger, and a coin-arrester located in the path of the coin for the purpose of temporarily arresting it, the parts being combined and arranged for operation at the times and substantially in the manner set forth.

3. In a machine of the character herein set forth, the back board for sustaining the telephone, the casing, the interior plate anchored to the sides of the casing, a gong mounted on said plate and mechanism for striking the gong, a check-delivering mechanism, a coin-receiving plunger, and a lever connecting said plunger and check-delivering mechanism, the parts being combined and arranged for co-operation substantially in the manner and for the purposes set forth.

4. The combination in a machine of the character herein set forth of the rock-shaft actuated by a rod made movable by the deposited coin, and the coin-arresting pin, said pin being supplied with a returning-spring and connected with a lever arranged to contact with a latch operated by the said rock-shaft, substantially as shown and described.

5. The combination in a machine of the character herein set forth of the coin-receiving plunger, the toggle-joint for operating the said plunger, and the connecting-rod leading from an arm on the crank-shaft to the toggle-joint, substantially as shown and described.

6. In a machine of the character herein set forth, the rock-shaft actuated by the deposited coin, said shaft carrying arms for actuating the gong-sounding mechanism, for retracting the coin-arresting pin, and for engagement with a bearing connected with the discharging mechanism, all combined and arranged for operation substantially as shown and described.

7. In a machine of the character herein set forth, the connected and simultaneously-discharging plungers made movable by connections with the crank-shaft and coin-receiving plunger, an arm upon the coin-controlled rock-shaft engaging with a bearing on the discharging mechanism for the purpose of further turning the rock-shaft, springs on the rock-shaft, and tripping-fingers arranged to be

moved by said springs, and the gong-operating connections, the parts being combined and arranged for movement at the times and substantially in the manner specified.

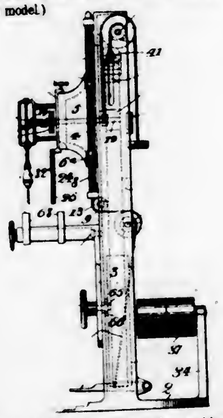
8. In a machine of the character herein set forth, the coin-receiving plunger mounted and made movable in a casing applied upon the top of the metallic plate, said plate bearing the gong as explained, connections for moving the said plunger from the exterior, the hinged tongue in the plunger, the rod operated by said tongue and connections from said rod through the rock-shaft to the gong-hammer, the said coin-receiving plunger being also connected with the discharging mechanism and the whole being sustained upon the back board, the parts being combined and arranged substantially as shown and described.

9. In a machine of the character herein set forth, the coin-chute extending down to a transparent plate and means for temporarily arresting the coin at this plate, a side channel leading from the bottom of the coin-chute to the coin-receiving box, the check-chute having the enlarged mouth and extending from beneath the two check-reservoirs down to an opening through the exterior casing and to a ledge beneath said opening, the coin-receiving plunger, the hinged tongue in the plunger, the rock-shaft with its arm and connections for moving the gong-hammer, the gong-hammer, and the check-delivering plungers and connections for operating the same, combined and arranged substantially as shown and for the purposes set forth.

10. The combination with the two check-discharging plungers, of the connecting cross-bar, the rod extending from said cross-bar to the end of the lever carrying the coin-receiving plunger, the exterior hand-crank, the crank-shaft, the connecting-rod, and the toggle for operating the said lever, all arranged to effect the reciprocation of the discharging-plungers, substantially as and for the purposes set forth.

11. In a machine of the character herein set forth, the plate bearing the gong and anchored to the sides of the exterior casing, the lever connected at one end with the coin-receiving plunger and at the other with the toggle operated from the exterior through the crank-shaft and connecting-rod and with the check-discharging mechanism, the said lever being hinged on the back of said plate, substantially as shown and described.

646,125. COMBINED MORTISING AND BORING MACHINE. GEORGE W. MERRYE, Boston, Mass. Filed June 24, 1899. Serial No. 721,796. (No model.)



Claim.—1. In a mortising-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, an endless chain saw carried by the head-stock, a yielding support for the head-stock, and operating to raise the latter and withdraw the saw from the work, and means for depressing the said support to permit the head-stock to feed down by gravity, substantially as described.

2. In a mortising-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, an endless chain saw carried by the head-stock, a yielding support normally operating to raise and hold elevated the head-stock, and means controlled by the operator for depressing said support to permit the head-stock to feed down by gravity to advance the saw to the work, substantially as described.

3. In a mortising-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, an endless chain saw carried by the head-stock, coiled springs on which the head-stock is supported, said springs operating to raise the head-stock and withdraw the saw from the work, and means for compressing the springs to permit the head-stock to feed down by gravity, substantially as described.

4. In a mortising-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, an endless chain saw carried by the head-stock, a yielding support normally operating to raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity and means for partially counterbalancing the head-stock, substantially as described.

5. In a mortising-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, an endless chain saw carried by the head-stock, a yielding support operating to normally raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity, and means for partially counterbalancing the head-stock adjustably to regulate the force of the gravity-feed, substantially as described.

6. In a mortising machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, an endless chain saw carried by the head-stock, coiled springs on which the head-stock rests, and a treadle connected with the upper ends of the springs and operating to compress the latter to permit the descent of the head-stock toward the table, substantially as described.

7. In a mortising-machine, the combination with a frame and a work-table supported thereon, of tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head stock vertically movable on said guides and provided with projections extending into the slotted portions of the guides, coiled springs arranged in the guides beneath the projections and operating to raise the head-stock, means for compressing the springs to permit the head-stock to feed down by gravity, and an endless chain saw carried by the head-stock, substantially as described.

8. In a mortising-machine, the combination with the frame and the work-table supported thereon, of two tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock provided with perforated lugs freely movable on said guides, pins carried by the lugs and projecting into the slotted portions of the guides, coiled springs arranged in the guides beneath said pins and operating to raise the head-stock, cords or cables connected at their upper ends with the upper ends of the springs, a treadle connected with the other ends of the cords or cables and operating to compress the springs to permit the head-stock to feed down by gravity, and an endless chain saw carried by the head-stock, substantially as described.

9. In a mortising-machine, the combination with the frame, and the work-table supported thereon, of tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock vertically movable on said guides and provided with projections extending into the slotted portions of the latter, coiled springs arranged in the guides beneath the projections and operating to raise the head-stock, cords or cables connected at their upper ends to the upper ends of the springs, a transverse shaft journaled in the frame, pulleys fixed on said shaft about which the lower ends of said cords or cables are wound, a drum on said shaft, a treadle, a cord or cable connected at one end to the treadle and wound at its other end about the shaft, and an endless chain saw carried by the head-stock, substantially as described and for the purpose specified.

10. In a mortising-machine, the combination with the frame and the work-table supported thereon, of tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock vertically movable on said guides and provided with projections extending into the slotted portions of the latter, coiled springs arranged in the guides beneath the projections and operating to raise the head-stock, cords or cables connected at their upper ends to disks seated on the upper ends of the springs, a treadle connected with the lower ends of the cords or cables and operating to compress the springs to permit the head-stock to feed downward by gravity and an endless chain saw carried by the head-stock, substantially as described.

11. In a mortising-machine, the combination with a vertically-movable frame having grooves in its vertical edges and carrying a driven sprocket-wheel at its upper end and two guide sprocket-wheels journaled on each side of the frame at its lower end, of an endless chain saw arranged to travel about said sprocket-wheels, the diameter of the driven sprocket-wheel being equal to the distance between the outer sides of the lower sprocket-wheels whereby the vertical portions of the saw are caused to travel in parallel lines, and lugs on the inner side of the chain saw arranged to travel in and be guided by the grooves in the edges of the frame, substantially as described.

12. In a mortising-machine, the combination with a vertically-movable frame carrying driven sprocket-wheels at its upper end and

guide sprocket-wheels at its lower end, said frame being grooved on its vertical edges, of an endless chain saw arranged to travel about the sprocket-wheels and comprising alternate double and single links pivotally connected together, each of said links consisting of a divided flat annulus provided with a tangentially-projecting saw-tooth, and each of said single links being provided on its inner side with a projecting lug arranged to travel in the grooves in the edges of the frame, substantially as described.

13. An endless chain saw for cutting mortises, comprising alternate double and single links pivotally connected together, each link consisting of a flat divided annulus one end of which is beveled to form a saw-tooth and is projected outward tangentially, substantially as shown and described.

14. In a mortising-machine, the combination with a vertically-movable frame carrying a driven sprocket-wheel at its upper end, of two sprocket-wheels journaled on each side of the lower end of the frame, and an endless chain saw arranged to travel about said sprocket-wheels, the diameter of the driven sprocket-wheel being equal to the distance between the outer sides of the lower sprocket-wheels, whereby the vertical portions of the saw are caused to travel in parallel lines, substantially as described.

15. In a mortising-machine, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table, a yielding support normally operating to raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity, a sprocket-wheel carried by the head-stock, an endless chain saw arranged to travel about the sprocket-wheel, a drive pulley and belt for driving the sprocket-wheels, and means for automatically taking up the slack of the belt as the head-stock is fed down by gravity, substantially as described.

16. In a mortising-machine, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table, a yielding support normally operating to raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity, a shaft journaled transversely in the head-stock, a driving sprocket-wheel fixed on the outer end of the shaft, a pulley fixed on the inner end of the shaft, a saw-supporting frame carried by the head-stock and carrying guide sprocket-wheels at its lower end, an endless chain saw arranged to travel about the said sprocket-wheels, a drive-pulley, a belt connecting said drive-pulley and the pulley on the shaft, and means for automatically taking up the slack of the belt as the head-stock is fed down by gravity, substantially as described.

17. In a mortising-machine, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, a shaft journaled transversely in the head-stock, a driving sprocket-wheel fixed on the outer end of the shaft, a pulley fixed on the inner end of the shaft, a saw-supporting frame carried by the head-stock and carrying guide sprocket-wheels at its lower end, an endless chain saw arranged to travel about the said sprocket-wheels, a drive-pulley, guide-pulleys journaled in a yieldingly-supported yoke above the pulley on the sprocket-wheel shaft, and a driving-belt passing about the driving-pulley and about the guide-pulleys and the pulley on the sprocket-wheel shaft, substantially as described.

18. In a mortising-machine, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, a shaft journaled transversely in the head-stock, a driving sprocket-wheel fixed on the outer end of the shaft, a pulley fixed on the inner end of the shaft, a saw-supporting frame carried by the head-stock and carrying guide sprocket-wheels at its lower end, an endless chain saw arranged to travel about the said sprocket-wheels, a drive-pulley, a shaft loosely passed through guide-slots in the sides of the frame, means for yieldingly holding said shaft elevated, a yoke suspended from said shaft, guide-pulleys journaled in said yoke and a driving-belt passing about the drive-pulley, the guide-pulleys, and the pulley on the sprocket-wheel shaft, substantially as described.

19. In a mortising-machine, the combination with the frame, of a vertically-movable head-stock arranged to be fed down by gravity toward the work, a shaft journaled transversely in the head-stock, a driving sprocket-wheel fixed on the outer ends of the shaft, a pulley fixed on the inner end of the shaft, a saw-supporting frame carried by the head-stock and carrying guide sprocket-wheels at its lower ends, an endless chain saw arranged to travel about the said sprocket-wheels, a drive-pulley, a shaft loosely passed through guide-slots in the sides of the frame, pinions fixed on the opposite end portions of said shaft, vertical racks on the frame in engagement with said pinions, a yoke suspended from said shaft, guide-pulleys journaled in the yoke, a driving-belt passing about the driving-pulley, guide-pulleys and the pulley on the sprocket-wheel shaft, and weighted cords or cables passing over pulleys supported above the yoke-shaft and each connected at one end to the latter, substantially as described.

20. In a mortising-machine, the combination with the frame, of a vertically-movable head-stock arranged to be fed down by gravity toward the work, a shaft journaled transversely in the head-stock, a driving sprocket-wheel fixed on the outer end of the shaft, a pulley fixed on the inner end of the shaft, a saw-supporting frame carried by the head-stock and carrying guide sprocket-wheels at its lower end, an endless chain saw arranged to travel about the said sprocket-wheels, a drive-pulley, a belt connecting said drive-pulley and the pulley on the shaft, means for automatically taking up the slack of the belt as the head-stock is fed down by gravity, a guide-pulley supported in the upper part of the frame, a cord or cable passing over the guide-pulley and attached at one end to the sprocket-wheel shaft, and a weight attached to the other end of the cord or cable, substantially as described.

21. In a machine of the class described the combination with the frame, of a vertically-movable head-stock arranged to be fed to and from the work, a shaft journaled transversely in the head-stock, a mortising-cutter arranged to be operated by said shaft, a pulley fixed on the inner end of said shaft, a drive-pulley, a vertically-movable shaft, pinions fixed on the opposite end portions of said shaft, vertical racks with which said pinions mesh, guide-pulleys carried by said vertically-movable shaft, a driving-belt passing about the driving-pulley, guide-pulleys and pulley on the transverse shaft, and weighted cords passing over idler-pulleys supported above the vertically-movable shaft and each connected at one end to the latter, substantially as described.

22. In a machine of the class described, the combination with the frame thereof, of a vertically-movable head-stock arranged to be fed to and from the work, a shaft journaled transversely in the head-stock, a mortising-cutter arranged to be operated by said shaft, a pulley fixed on the inner end of said shaft, a drive-pulley, a vertically-movable shaft, means for guiding said latter-named shaft in its movements, guide-pulleys carried by the vertically-movable shaft, a driving-belt passing about the drive-pulley, guide-pulleys and pulley on the transverse shaft, and weighted cords passing over idler-pulleys supported above the vertically-movable shaft and each connected at one end to said shaft, substantially as described.

23. In a woodworking-machine, the combination with the frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, a transverse shaft journaled in the head-stock, means for rotating said shaft, a mortising-cutter operatively connected to said shaft, a yielding support for the head-stock operating to raise the latter and withdraw the cutter from the work, and means for depressing the said support to permit the head-stock to feed down by gravity, substantially as described.

24. In a machine of the class described, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table, means for feeding said head-stock to and from the table, a shaft journaled transversely in the head-stock, a mortising-cutter arranged to be operated by said shaft, a pulley fixed on the inner end of the transverse shaft, a drive-pulley, a vertically-movable shaft 41, means for yieldingly holding said shaft elevated, a yoke suspended from said shaft, guide-pulleys journaled in said yoke, and a driving-belt passing about the drive-pulley, the guide-pulleys, and the pulley on the transverse shaft, substantially as described.

25. In a machine of the class described, the combination with the frame and the work-table supported thereon, of a vertically-movable head-stock arranged above the table, means for feeding said head-stock to and from the table, a shaft journaled transversely in the head-stock, a mortising-cutter arranged to be operated by said shaft, a pulley fixed on the inner end of the transverse shaft, a drive-pulley, a vertically-movable shaft, means for guiding said shaft in its movements and means for yieldingly holding said shaft elevated, guide-pulleys carried by the vertically-movable shaft, and a driving-belt passing about the drive-pulley, the guide-pulleys and the pulley on the transverse shaft, substantially as described.

26. In a machine of the class described, the combination with the frame and work-table supported thereon, of a vertically-movable head-stock arranged above the table, a yielding support normally operating to raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity, a mortising-cutter carried by the head-stock, a drive pulley and belt for rotating said cutter, and means for automatically taking up the slack of the belt as the head-stock is fed down by gravity, substantially as described.

27. In a machine of the class described, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, a mortising-cutter carried by the head-stock, a yielding support for the head-stock operating to raise the latter and withdraw the cutter from the work, and means for depressing the said support to permit the head-stock to feed down by gravity, substantially as described.

28. In a woodworking-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, a mortising-cutter carried by the head-stock, a yielding support normally operating to raise and hold elevated the head-stock, and means controlled by the operator for depressing said support to permit the head-stock to feed down by gravity to advance the cutter to the work, substantially as described.

29. In a woodworking-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, a mortising-cutter carried by the head-stock, a yielding support normally operating to raise and hold elevated the head-stock, means for depressing said support to permit the head-stock to feed down by gravity, and means for partially counterbalancing the head-stock, substantially as described.

30. In a woodworking-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, a mortising-cutter carried by the head-stock, springs on which the head-stock is supported, said springs operating to raise the head-stock and withdraw the cutter from the work, and means for compressing the springs to permit the head-stock to feed down by gravity, substantially as described.

31. In a woodworking-machine, the combination with a frame and a work-table supported thereon, of a vertically-movable head-stock arranged above the table, a mortising-cutter carried by the head-stock, a yielding support operating to normally raise and hold elevated the head-stock, means for depressing the said support to permit the head-stock to feed down by gravity, and means for partially counterbalancing the head-stock adjustably to regulate the force of the gravity-feed, substantially as described.

32. In a woodworking-machine, the combination with a frame and a work-table, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, a mortising-cutter carried by the head-stock, coiled springs on which the head-stock rests, and a treadle connected with the upper ends of the springs and operating to compress the latter to permit the descent of the head-stock toward the table, substantially as described.

33. In a woodworking-machine, the combination with a frame and a work-table supported thereon, of tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock vertically movable on said guides and provided with projections extending into the slotted portions of the guides, coiled springs arranged in the tubular guides beneath the projections and operating to raise the head-stock, means for compressing the springs to permit the head-stock to feed down by gravity, and a mortising-cutter carried by the head-stock, substantially as described.

34. In a woodworking-machine, the combination with the frame and the work-table supported thereon, of two tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock provided with perforated lugs freely movable on said guides, pins carried by the lugs and projecting into the slotted portions of the guides, coiled springs arranged in the guides beneath said pins and operating to raise the head-stock, cords or cables connected at their upper ends to the upper ends of the springs, a treadle connected with the other ends of the cords or cables and operating to compress the springs to permit the head-stock to feed down by gravity, and a mortising-cutter carried by the head-stock, substantially as described.

35. In a woodworking-machine, the combination with the frame, and the work-table supported thereon, of tubular slotted guides vertically arranged parallel to one another on the face of the frame, a head-stock vertically movable on said guides and provided with projections extending into the slotted portions of the latter, coiled springs arranged in the guides beneath the projections and operating to raise the head-stock, cords or cables connected at their upper ends to the upper ends of the springs, a transverse shaft journaled in the frame, pulleys fixed on said shaft about which the lower ends of said cords or cables are wound, a drum on said shaft, a treadle, a cord or cable connected at one end to the treadle and wound at its other end about the shaft, and a mortising-cutter carried by the head-stock, substantially as described.

36. In a mortising-machine, the combination with the frame, the vertically-movable head-stock supported thereon, and an endless chain saw carried by the head-stock of a work-table supported on the frame beneath the saw, and two centrally-slotted jaws loosely embracing the edges and top and bottom of the table and each provided at its lower end with a fixed nut, and hand-screws each engaging one of said nuts and journaled at its ends to the under side of the table, substantially as described.

37. In a woodworking-machine, the combination with a frame and a work-table, of a vertically-movable head-stock arranged above the table and fed toward the latter by gravity, a mortising-cutter carried by the head-stock, means for operating said cutter, a movable support for the head-stock normally acting to hold the same elevated, and means for moving said support away from the head-stock to allow the latter to feed down by gravity.

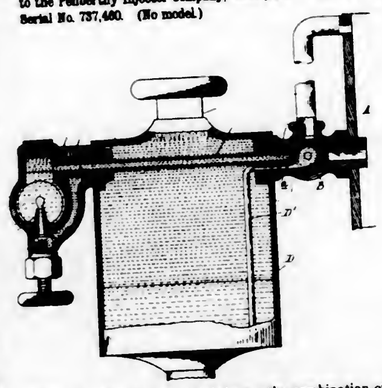
38. In a mortising-machine, the combination with a vertically-movable head-stock and an endless chain saw carried thereby, of vertically-movable saw-guards carried by the head-stock and inclosing the opposite edges of the saw, substantially as described.

39. In a mortising-machine, the combination with a vertically-movable head-stock and an endless chain saw carried thereby, of vertically-adjustable saw-guards carried by the head-stock and embracing the saw, graduations marked on the saw-frame, and an index-mark or pointer on one of the saw-guards, substantially as described.

40. In a mortising-machine the combination with a vertically-movable head-stock and an endless chain saw carried thereby, of vertically-adjustable saw-guards carried by the head-stock and comprising channeled plates embracing the opposite sides of the saw, substantially as described.

41. In a mortising-machine, the combination with a vertically-movable head-stock and an endless chain saw carried thereby, of a vertical plate U-shaped in cross-section attached to the head-stock and having a vertical slot, a saw-guard comprising a channeled plate vertically movable on the U-shaped plate and embracing one side of the saw, a set-screw passing through the saw-guard and the vertical slot in the said plate, and a nut screwed over the inner end of said set-screw and having flat sides engaged by the sides of the U-shaped plate, substantially as described and for the purpose specified.

646,126. LUBRICATOR. ELIJAH MCCOY, Detroit, Mich., assignor to the Penberthy Injector Company, same place. Filed Nov. 18, 1899. Serial No. 737,460. (No model.)



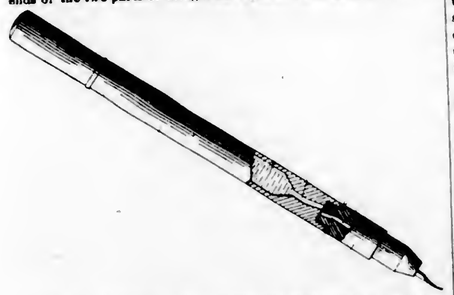
Claim.—1. In a sight-feed lubricator the combination of a cup having two openings at the top on diametrically-opposite points the support-arm connected into one opening, having a through oil-passage therein and a water-passage leading from an intermediate point thereon into the cup, a stand-pipe connected to the outer end of said passage and a tube connected to the inner end of said passage and extending to near the bottom of the cup, a single-piece sight-feed arm connected into the other opening having a controlled oil-passage leading from the cup to the bottom of the arm, through a sight-feed chamber and back into the cup, and a pipe connecting this oil-passage extending across the oil-cup and connecting into the oil-passage in the support-arm.

2. In a sight-feed lubricator, a sight-feed arm made in a single piece chambered and comprising a sight-feed-chamber casing having sight-openings on opposite sides thereof, a nipple at one side entering the top of the casing of said lubricator, there being an oil-passage in the sight-feed arm extending from the upper part of said nipple to the bottom of said sight-feed chamber, and an oil-passage leading from the top of said chamber through said nipple, and a valve controlling the oil-passage to the sight-feed chamber.

3. In a sight-feed lubricator, the cup having an opening at the top, a sight-feed device connected thereto comprising a nipple and a body or casing having therein a sight-feed chamber, and an oil-passage leading in through the nipple and to the bottom of the sight-feed chamber, and an opening leading from the top of the sight-feed chamber through the same nipple, a connection therefrom to the steam-pipe and a condensation-supply connection into the cup.

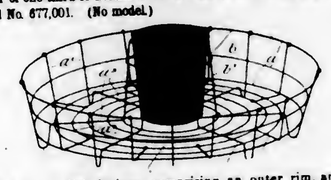
646,127. FOUNTAIN-PEN. WILLIAM R. MCKEE, Springfield, Mass. Filed May 25, 1899. Serial No. 718,276. (No model.)

Claim.—1. In a fountain-pen, an ink-reservoir, having an ink-chamber therein, and a duct or channel leading from the lower end of the chamber, the lower end of the duct being deflected from a straight line, combined with the tip-section having a duct extending therethrough, the upper end of the duct being also deflected from a straight line, and a washer placed between the reservoir and the tip-section; the tip-section and the reservoir being screw-threaded upon their connecting ends and adapted to be rotated so as to separate the ends of the two parts or bring them together, substantially as shown.



2. In a fountain-pen, the reservoir and tip sections thereof screw-connected for free reciprocally-rotary movements one upon the other, whereby their united ends approach and recede toward and from each other, an elastic packing interposed between said sections whereby the ink contained in said reservoir is there retained during said approaching and receding movements, and ink-ducts in said sections terminating at the adjoining extremities thereof eccentrically each to the other, but brought to interconnecting or to separated positions by a limited rotary movement of either said reservoir or tip, substantially as described.

646,128. DISH-DRAINER. MARIE L. PRICE, Chicago, Ill., assignor of one-third to Bertha A. Price, same place. Filed Apr. 9, 1898. Serial No. 677,001. (No model.)



Claim.—1. A dish-drainer, comprising an outer rim, an inner stand upwardly projected, a series of stays or braces extending laterally from the inner stand to the outer rim or body, a series of tie-strips for the stays or braces arranged to form therewith an open-work bottom having spaces adapted for the admission of the lower edges of dishes standing edgewise and so arranged that each dish rests against the adjacent stays or braces and will be supported against the inner stand or against the outer rim or body in an inclined position, and a support extending below the plane of the bottom to elevate the same and allow for the projection of the edges of the dishes below the bottom.

2. A dish-drainer comprising an outer rim or body, having an upper rail an intermediate rail and a lower rail, an inner stand, a series of stays or braces extending laterally from the inner stand to the outer rim or body, with plain smooth faces, a series of tie-strips for the stays or braces forming therewith an open-work bottom having spaces adapted for the admission of the lower edges of dishes standing edgewise and so arranged that the edge of each dish will rest on adjacent stays or braces and the dish will be supported in an inclined position either against the inner stand or against the upper rail of the rim or body, and a support beneath the bottom to elevate the same and form a space for the projection of the edges of the dishes below the bottom.

3. A dish-drainer comprising an outer rim or body, having an upper rail an intermediate rail and a lower rail, an inner stand, a series of stays or braces bent into a U shape and extending from the inner stand to the outer rim or body and forming supports for the stand and the rim or body, a series of tie-strips for the stays or braces forming therewith an open-work bottom having spaces adapted for the admission of the lower edges of dishes standing edgewise, and so arranged that the edge of each dish rests on adjacent stays or braces and will be supported by resting either against the inner stand or against the upper rail of the rim or body, and a support beneath the bottom to elevate the same and form a space for the projection of the edges of the dishes below the bottom.

4. A dish-drainer comprising an annular outer rim or body, a central annular or tubular standard upwardly projected, a series of stays or braces extending radially from the stand to the outer rim or body and bent to form a bottom portion and upright portions supporting the stand and the body, a series of tie-strips for stays or braces arranged parallel with each other and forming with the stays or braces an open-work bottom having spaces of a circular shape on the sides adapted for the admission of the lower edges of dishes standing edgewise and so arranged that each dish will rest on adjacent stays or braces and will rest in an inclined position either against the central stand or the outer rim or body, and legs projected below the bottom.

5. A dish-drainer comprising an annular outer rim or body formed of a plurality of wires located in planes one above the other, a central annular or tubular stand formed of a plurality of wires located in planes one above the other, a series of stays or braces bent to form a bottom portion and upright portions attached to and supporting the wires of the outer rim or body and the wires of the central stand, a plurality of tie-wires forming the radial stays or braces arranged parallel with each other and forming with the stays or braces an open-work bottom having spaces adapted for the admission of the lower edges of dishes standing edgewise and so arranged that the edge of each dish will rest on the faces of adjacent stays or braces and the dish will rest in an inclined position either against the outer rim or body or against the inner stand, and legs projecting below the bottom to elevate the same and permit the edges of the dishes to be entered through the spaces and extend below the bottom.

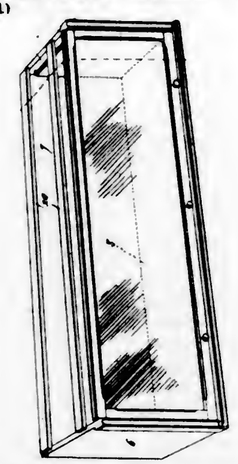
6. In a dish-drainer, the combination of an annular outer rim or body composed of a plurality of wires arranged in planes one above the other, a central annular or tubular stand formed of a plurality of wires arranged in planes one above the other, a series of radial stays or braces bent to have a bottom portion and an upright portion at each end of the bottom portion forming supports for the outer rim or body and the inner staud, with a number of such stays or braces downwardly bent at the outer end forming legs for supporting the drainer, and a series of annularly-arranged tie-wires for the stays or braces running parallel with each other and forming with the stays or braces curved spaces for receiving the lower edges of dishes standing edgewise and so arranged that the edge of each dish will rest on adjacent stays or braces and the body will rest against the stand or the outer rim or body with the edge projecting through the bottom into the raised space formed by the legs.

7. In a dish-drainer, the combination of an annular outer rim or body composed of a plurality of wires arranged in planes one above the other, a central annular stand composed of wires arranged in planes one above the other, a series of radial stays or braces each formed of wire bent into a U shape to have a bottom portion and upright end portions to form a support for the wires of the rim or body and the stand and having a number of such stays or braces provided with a downwardly-extending portion forming legs, a series of tie-wires for the radial stays or braces forming with the stays or braces curved spaces for receiving the lower edges of dishes for standing edgewise and so arranged that the edge of each dish will rest on adjacent stays or braces and the dishes will be inclined and rest either against the central stand or the outer rim or body, and a receptacle inserted within the central stand and adapted to receive spoons, knives and forks.

8. In a dish-drainer, the combination of an upwardly and outwardly inclined annular rim or body composed of a plurality of wires, a tapered annular central stand composed of a plurality of wires arranged in planes one above the other, a series of radial stays or braces each formed of a wire bent to have a bottom portion and end portions forming supports for the outer rim or body and the central stand, a series of tie-wires for the radial stays or braces forming with such stays or braces curved spaces adapted for the admission of the lower edges of dishes standing edgewise and so arranged that the edge of each dish will rest on adjacent stays or braces and will rest either against the central stand or the outer rim or body, supporting-legs formed by bending some of the radial stays or braces downwardly thereby elevating the bottom and leaving a space for the admission of the edges of the dishes, and a receptacle oppositely tapered to the taper of the central stand and inserted in said stand to furnish a receptacle for spoons, knives and forks.

9. In a dish-drainer, the combination of an annular rim or body composed of a plurality of wires arranged in planes one above the other, a central annular stand composed of wires arranged in planes one above the other, a series of radially-extending stays or braces each formed of a piece of wire bent to have an upward portion and end portions supporting the wires of the outer rim or body and the central stand, a series of tie-wires for the radial stays or braces forming with the stays or braces graduated curved spaces for receiving the lower edges of dishes standing edgewise and so arranged that the smaller dishes will enter the inner curved spaces and the larger dishes will enter the outer series of curved spaces, and the upper parts of the dishes will rest on the faces of adjacent stays or braces and on the central stand or the outer rim or body in an inwardly or outwardly inclined position, and legs formed by bending a number of stays or braces downwardly, thereby furnishing a space below the bottom for the projection of the edges of the dishes when entered into the curved spaces, substantially as described.

646,129. BOOKCASE, &c. IRVIN R. ROCKWELL, Chicago, Ill., and JAMES D. ADAMS, Wabash, Ind. Filed Oct. 12, 1899. Serial No. 733,860. (No model.)



Claim.—1. The combination, with a case or cupboard and a door or closure for the front thereof, of a door-support comprising fixed bars or rods adjacent to the upper corners of the compartment and affording slideways for the door, guides carried by the door and having lateral bearings against the fixed bars or rods, hinge members carried by the door, and stops at the outer ends of the slideways in position to engage said hinge members when the door is turned out and affording pivots on which the door may be swung, substantially as described.

2. The combination with a book or other case of a door-support comprising bars or rods secured adjacent to the end walls of the case, but separated therefrom to provide runways and affording on their upper surfaces slideways for the door, hooks attached to the door and adapted to move in said runways, to contact with the sides of said bars and to afford a hinge on which the door may be swung, substantially as described.

3. The combination with a book or other case and its door, of a door-support comprising metal rods or bars secured to the end walls of the case, but separated therefrom and providing therewith runways closed at their forward ends, and hooks attached to the ends of the door and adapted to travel within said runways whereby to guide the door and to form hinges on which the door may be swung, substantially as described.

4. The combination with a case or compartment, having slideways secured adjacent to its end walls, but separated therefrom to provide runways, of a door or closure having hinge members secured to its ends and projecting below its inner surface to permit the doors to contact with the slideways, said hooks being adapted to enter and be moved along the runways and being so positioned as to contact with the slideways to guide the door in its movements and also to provide hinges on which the door may be swung, substantially as described.

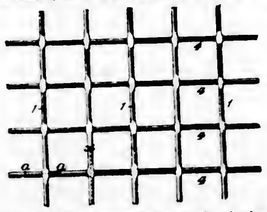
5. The combination with a casing or compartment having its end walls rabbeted or recessed at their upper ends to provide horizontal channels, slideways secured to the end walls within said channels but separated therefrom to provide runways, and a door having hooks secured to its ends and adapted to travel in said runways but without contact with the bottom wall of the groove or channel, substantially as described.

646,130. MATCH-BOX. JOSEPH SCHIFFMEDER, Sheboygan, Wis. Filed Nov. 18, 1899. Serial No. 737,411. (No model.)

Claim.—A match-box having an outlet at one end and an igniting-surface adjacent to the outlet, a cover for the otherwise-open opposite end of the box provided with grooves engaged by guide-flanges on said box, a strap connected at its ends to the inner side of the cover, a stay-pin arranged to come between the strap and said cover as a stop to prevent disconnection of box and cover, a match-pusher, and a spring arranged to resist withdrawal of a match through said outlet.



646,131. WIRE FABRIC. JOSEPH W. SHEPPARD, New York, N. Y. Filed June 7, 1899. Serial No. 719,730. (No model.)

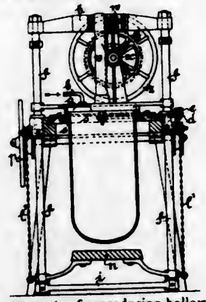


Claim.—A metal fabric formed of strands of wire of substantially-uniform diameter, the strands in one direction being perforated, and in the other direction passing through said perforations, the material of the imperforate strands being attenuated within the perforations, and the perforated strands compressed around the attenuations.

646,132. METHOD OF TREATING WOVEN WIRE IN MANUFACTURING WIRE-GLASS. JOSEPH W. SHEPPARD, New York, N. Y. Filed Dec. 30, 1898. Renewed Aug. 29, 1899. Serial No. 728,918. (No specimens.)

Claim.—The herein-described method of treating woven wire and manipulation thereof in the manufacture of wire-glass, that is to say; first coating the woven wire with lime, removing the lime by means of a suitable bath, drying the woven wire, and then embedding the said wire in the glass, substantially as set forth.

646,133. APPARATUS FOR MANUFACTURING HOLLOW GLASS ARTICLES. PAUL T. SIEVERT, Dresden, Germany. Filed Jan. 3, 1900. Serial No. 206. (No model.)



Claim.—1. An apparatus for producing hollow glass bodies out of a layer of plastic glass by means of an elastic-pressure medium, consisting in a plate *a* with an aperture *s*, a plate *n* for closing said aperture, a box *o* for covering the layer of plastic glass on said plates and for receiving the elastic-pressure medium, and means for removing said plate *n* and box *o* from the aperture in said plate *a*.

2. An apparatus for producing hollow glass bodies out of a layer of plastic glass, by means of an elastic-pressure medium, consisting in a divided plate *a* with an aperture *s* and means for moving the parts of said plate *a*, a box *o* open at one side, provided with an inlet for the elastic-pressure medium and means for lowering and raising said box *o*, a plate *n* for closing the aperture *s* in plate *a* and means for lowering and raising said plate *n*.

3. An apparatus for producing hollow glass bodies out of a layer of plastic glass by means of an elastic-pressure medium, consisting in

a plate *a*, provided with an aperture, a closing-plate *n* for said aperture, a box *o* and a divided form or mold *g* and means for moving the parts of mold *g*, the plate *n* and the box *o*.

646,134. BUTTON. EUGENE W. SILSBY, Chicago, Ill. Filed Mar. 5, 1898. Serial No. 672,702. (No model.)



Claim.—1. A button comprising an apertured shell or back element; a tuft which protrudes through the aperture of the shell; a suitable filling, and a face element in combination with a peripheral element of non-metallic plastic sheet material which is clenched upon the face and back; and constitutes means of uniting the several elements of the button together.

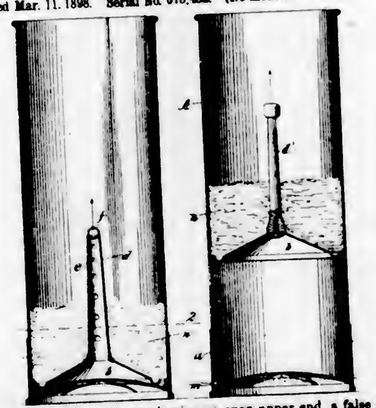
2. A button having a cloth face and a tuft back and a marginal edge formed of non-metallic plastic sheet material which is clenched down upon the cloth face and constitutes the means of binding the parts of the button together.

3. A button having an apertured back-shell; a suitably-hard disk, and a tuft-disk inclosed between the back-shell and the hard disk and adapted to protrude through the aperture of the back-shell; a cloth face applied over the hard disk, and a peripheral bead formed of non-metallic plastic sheet material which is clenched down upon the cloth face and upon the back-shell, and constitutes means of binding the parts together and of holding the cloth stretched on the face.

4. A button having a face composed of a cloth disk, and a peripheral bead made of non-metallic plastic sheet material inturned on the cloth face and having its inturned edge reversed and trending outward from the center of the button at its bearing on the cloth, whereby it tends to stretch the same radially outward and bind it in place.

5. A button having one surface covered with cloth and having a peripheral bead of non-metallic plastic sheet material, which is clenched down upon the margin of the cloth, its inturned or clenched edge being reversed and trending outward from the center of the button where it bears on the cloth, whereby it stretches the same radially outward and constitutes means of holding the cloth in place.

646,135. ROVING-CAN. ROBERT R. SMITH, New Hartford, Conn. Filed Mar. 11, 1898. Serial No. 673,482. (No model.)



Claim.—1. A roving-can having an open upper end, a false bottom fitted to slide within said can and having a peripheral recess to engage and support the roving, means for lifting or raising the false bottom, and provisions for admitting a free supply of air into the space beneath the false bottom.

2. A roving-can open at its upper end, and provided with a false bottom, having a peripheral recess, a hollow lifting-handle, opening into the space above and below the false bottom.

3. A roving-can, provided with a conical false bottom, provided with a hollow lifting-handle open at both ends and having perforations in its side walls, substantially as and for the purposes set forth.

4. A roving-can open at its upper end and provided with a conical false bottom having a peripheral recess, and a hollow lifting-handle for said bottom, said handle being open at both ends and having perforations in its walls, substantially as and for the purpose described.

646,136. LANTERN-LATCH. EDWARD R. SNOW, Altoona, Pa. Filed Sept. 30, 1899. Serial No. 732,157. (No model.)



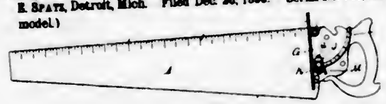
Claim.—1. In combination with a lantern having a base B and a ring C in which it turns said ring having detents, as *c*, formed in its inner face, a latching-bolt D^2 D^3 working in bearings secured to the bottom of the lantern and in the plane of the detents of the ring, an arm D' extending down from said bolt below the ring, a laterally-extending push-button D extending from said arm through the bottom of the lamp a short distance above its bottom edge and a spring acting to thrust the bolt and push-button outward.

2. In combination with a lantern having a sheet-metal base B and a ring C in which it turns said ring having detents, as *c*, formed in its inner face, a perforated bolt-bearing secured to the side of the sheet-metal base, a second bolt-bearing secured to the base in the rear of the first, a bolt moving in said bearings in the plane of the perforations of the ring, a spring acting to thrust th ebolt outward, a downwardly-extending arm secured to the bolt and a laterally-extending push-button extending from said arm through the sheet-metal base a short distance above its bottom edge.

3. In combination with a sheet-metal lantern-base B having a cylindrical portion B' and top B^3, a brace-plate secured to both the cylindrical and top portions of the base and having a bolt-bearing depending from it, an independent bolt-bearing secured to the base in front of the one depending from said plate, a spring-actuated bolt moving in said bearing and a push-button extending through the lower part of the lantern-base and connected to the bolt by an upwardly-extending arm.

4. In combination with a sheet-metal lantern-base B having a cylindrical portion B' and top B^3, a brace-plate E having separated lugs E^2 E^2 adapted to be secured to the cylindrical portion of the base, a flat portion E' adapted to be secured to the top of the base and a depending bolt-bearing E^3 lying opposite to the opening between lugs E^2 E^2, a separate bolt-bearing secured to the side of the base with its opening lying within the space between the lugs E^2 E^2, a spring-actuated bolt moving in said bearings and a push-button connected to said bolt and extending through the base below its cylindrical portion B'.

646,137. COMBINED SAW AND ADJUSTABLE SQUARE. JOHN R. SPATS, Detroit, Mich. Filed Dec. 26, 1899. Serial No. 741,555. (No model.)

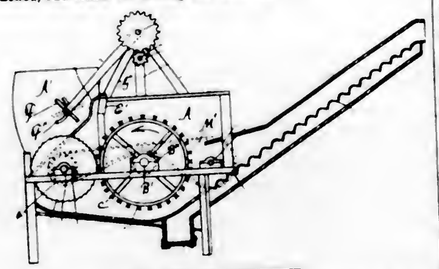


Claim.—In a combined saw and adjustable square, the combination with the saw proper having a straight-edge formed thereon constituting the saw-back and the stationary member of the square, the movable or adjustable square member comprising the arm pivoted upon the saw in operative relation to the back, a segment carried by the arm, and a clamp through which the segment passes for holding the latter in different positions relative to the straight-edge, substantially as described.

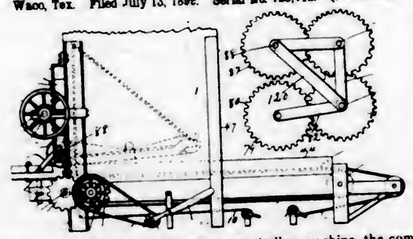
646,138. PICKING AND CLEANING MACHINE. CHARLES W. WHITE, Waco, Tex. Original application filed Jan. 15, 1898, Serial No. 667,888. Divided and this application filed Dec. 13, 1898. Serial No. 699,116. (No model.)

Claim.—1. In a picking and cleaning machine provided with a suitable frame; a shaft mounted in said frame, a series of saws mounted on said shaft, a bar mounted in said frame above and behind said saws, elastic bars attached to said bar and projecting down between said saws, said bars having the broad sides turned to said bar and then twisted so that the broad sides are turned to said saws and the narrow edges turned to the material as it is fed to the saws whereby said saws are made elastic enough and strong enough to permit the feeding of the machine without choking the same, a brush for taking the picked material from said saws, and means for driving said saws and brush.

2. In a picking and cleaning machine provided with a suitable frame; a shaft mounted in said frame, a series of saws mounted on said shaft, a bar mounted in said frame, elastic bars attached rigidly at the upper ends to said bar and having the other ends free and projecting down between said saws, said bars having the broad sides turned to said bar and then twisted so that the broad sides are turned to said saws and the narrow edges are turned to the material as it is fed to the saws whereby said bars are made elastic enough and strong enough to permit the feeding of the machine and to prevent the choking of the same, means for feeding material to said saws consisting of a vibrating bar having bearings in the sides of said frame, arms attached to said bar, and a crank-shaft to which said arms are attached, and means for driving said machine.



646,139. MATTRESS-FILLING MACHINE. CHARLES W. WHITE, Waco, Tex. Filed July 13, 1899. Serial No. 723,712. (No model.)



Claim.—1. In a mattress-making or similar machine, the combination with a mattress forming and compressing mechanism, of a frame projecting upward therefrom, a false bottom contained within said frame, triggers for supporting said bottom in position, and means for withdrawing the triggers from their supporting position, whereby, as a mattress is being formed and compressed, material for the formation of another mattress may be supplied above and supported by the said false bottom.

2. In a mattress-making or similar machine the combination with a mattress forming and compressing mechanism, of a box-like frame extending above the same and provided with a hinged bottom, triggers for supporting said bottom in position, means for withdrawing the triggers from their supporting position, and devices to automatically return the bottom to its closed positon after having dumped its load, whereby the operation of the machine is made continuous.

3. In a mattress-making machine provided with a collecting and cleaning box and compression-rollers; means for driving said rollers consisting of spur-gear, a gear-wheel on the shaft of each roller and intermediate spur gear-wheels for giving proper motion to said rollers, swinging arms forming a triangular frame for mounting and controlling the motion of said intermediate spur-gear, and a swinging arm for connecting said frame to the shaft of the lower roller, said frame being mounted on the shaft of the upper roller.

4. In a mattress-making machine, the combination with a box for cleaning and collecting material, traveling aprons adjacent thereto for compressing said material into the form of a mattress, an extension projecting from the lower part of the machine, and a traveling apron carried by said extension, whereby material may be arranged on said extension in the form of a mattress and then fed to the compression-aprons.

5. In a mattress-making machine provided with a cleaning and collecting box, compression-rollers, and a frame for mounting said box and rollers; said frame having E-shaped beams at the rear end, the lower compression-roller having fixed bearings, the upper compression-roller having movable bearings, brackets bolted to said E-shaped beams, a cross-bar mounted in said brackets, the bearings for said upper roller being bolted to said cross-bar, and means for raising and lowering said cross-bar.

6. In a mattress-making machine provided with means for cleaning and collecting and compression-rollers for compressing material into bats; one of said rollers being mounted in movable bearings and the other roller being mounted in stationary bearings, means for transmitting positive motion from said stationary roller to the movable roller consisting of spur-gear mounted on the shafts of said rollers and intermediate spur-gear, a swinging arm, and swinging arms forming a triangle for mounting and holding said gear in mesh.

7. In a mattress-making machine provided with means for compressing material into mattresses and forcing the same into ticks; means for arranging material for one or more mattresses outside of said machine consisting of an extension of the bottom part of said machine and one or more sections, one section being detachably connected to said extension and the other sections being connected to each other end to end, and means for operating said machine with the extension and said sections.

8. In a mattress-making machine provided with means for compressing material into mattresses and forcing the same into ticks; means for preparing material for one or more mattresses consisting of separate sections of said machine connected to said machine and to each other.

9. In a mattress-making machine provided with means for compressing material into mattresses and forcing the same into ticks; separate sections extending to said machine and on which material is prepared for one or more mattresses and means for shifting the material into said machine to be compressed into mattresses.

10. A mattress-making machine provided with means for compressing material into a mattress, a frame extending from the lower part of said machine, separate mattress-forming sections supported by said frame, and means for shifting the material from one section to another.

11. The combination with a mattress-making machine of one or more sections, a frame connecting said machine and said sections, a traveling endless apron for each section, and gearing whereby one or more or all of said sections may be driven from the power of said machine.

12. The combination with a mattress-making machine of one or more sections, a frame connecting said machine and said sections, a traveling endless apron for each section, slats extending out of said machine over said sections, and means for shifting material from one of said sections to another successively and from the last section to the said machine to be compressed into mattresses.

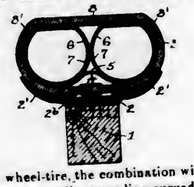
13. The combination with a mattress-making machine of one or more sections, and slats for carrying material from said sections to another successively and from the last section to said machine and means for moving the slats.

14. The combination with a mattress-making machine of one or more sections and slats for said sections, each section being provided with an endless traveling apron and auxiliary slats hinged to said first-named slats for the purpose set forth.

15. The combination with a mattress-making machine of one or more sections and slats extending over all of said sections and over the bottom of said machine, each multiple having an endless traveling apron, drums for mounting said aprons, sprocket-wheels attached to said drums, a sprocket-chain mounted on said sprocket-wheels and attached to said apron, and shifting driving-gear.

16. The combination of a mattress-making machine of a series of sections connected thereto, endless belts carried by each section, gearing for operating said belts to advance the material from one section to another, and means at the end of the series of sections for compressing the material into the form of a mattress.

646,140. WHEEL-TIRE. WILLIAM CORLISS, Providence, R. I. Filed Apr. 12, 1899. Serial No. 712,794. (No model.)



Claim.—1. In a wheel-tire, the combination with the rim 2 having the outwardly and upwardly extending curved flanges 2', of the bolster 5 curved to correspond with the curved flanges of the rim and the tubes 6, the non-elastic fabric tubes 6, the air-tubes 7 for expanding the fabric tubes 6, the armor-ring 8 and the cover 3; whereby two or more fabric tubes may be inclosed in one cover and a tire of any desired width produced, as described.

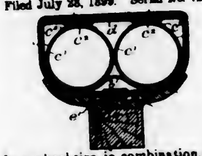
2. In a pneumatic wheel-tire, in combination, the two or more non-elastic fabric tubes, air-tubes within the non-elastic fabric tubes,

a bolster transversely curved to correspond with the tubular form of the non-elastic fabric tubes, an inclosing cover, and a metallic rim forming the support of the two or more non-elastic fabric tubes; whereby a pneumatic tire of any desired width may be constructed of a series of tubes of small diameter, as described.

3. In a wheel-tire, the combination with two or more flexible non-expansible tubes, the expansible air-tube, the steel ring having the margins separated into plates, and the bolster curved transversely to form a seat for each of the flexible non-expansible tubes, of the fellies of the wheel, the metal wheel-rim having a central groove and laterally-projecting flanges curved to correspond with the bolster and the flexible cover secured together by lacing; whereby the pneumatic tire is supported practically across its whole width by the series of flexible non-expansible tubes, as described.

4. In a pneumatic tire, the combination with two or more non-expansible textile tubes placed side by side and air-tubes inclosed in the non-expansible tubes, of a transversely-curved bolster-ring, forming the seat for the non-expansible textile tubes and the fastening for the cover, a metal tread-band extending across two or more of the textile tubes, and a cover inclosing the tread-band and the non-expansible tubes; whereby the tread of the tire is supported by the series of non-expansible tubes, as described.

646,141. PNEUMATIC WHEEL-TIRE. WILLIAM CORLISS, Providence, R. I. Filed July 28, 1899. Serial No. 725,387. (No model.)



Claim.—1. In a wheel-tire, in combination, a bolster-ring, forming the seat of the inflated non-elastic flexible fabric air tube or tubes, curved to correspond with a section or sections of the inflated non-elastic air tube or tubes, the non-elastic fabric air tube or tubes, a metal tread-band extending transversely across the width of the air tube or tubes, and means, whereby the tube or tubes, while being held against lateral movement on the tread-band, are free to move longitudinally on the same, as described.

2. In a wheel-tire, in combination, a bolster-ring transversely curved to form the seat or seats for the inflated non-elastic air-tube and conforming to the section of the inflated air tube or tubes, means for securing the ends of the bolster-ring, one or more non-expansible fabric air-tubes, a metal tread-band extending transversely across the whole width of the tube or tubes, and means, substantially as described, whereby the tube or tubes are restrained against lateral movement on the tread-band, as described.

3. In a wheel-tire, the combination with the flexible non-elastic air tube or tubes and a sheet-metal tread-band extending transversely across the whole width of the air tube or tubes, of a recess in the tread-band, and a projection on the tube or tubes; whereby the relations between the tube and the tread-band are maintained, as described.

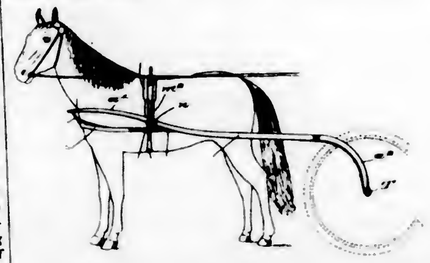
4. In a wheel-tire, in combination, a rim having a concave seat for the tire, a non-expansible fabric air-tube, a metal tread-band extending transversely over the width of the fabric air-tube, a flexible cover, a concavo-convex bolster-ring, and means, substantially as described, for securing the ends of the bolster; whereby the cover is clamped between the concave surface of the rim and the convex surface of the bolster, and the fabric air-tube is protected against puncturing without restricting the resilient action of the tube, as described.

5. In a wheel-tire, in combination, a rim, a concave seat in the rim, a non-expansible flexible fabric tube, an elastic air-tube, a concavo-convex bolster-ring, means for securing the ends of the bolster-ring, a tread-band extending transversely across the whole width of the fabric tube, an interlocking device by which the fabric tube, while free to yield independent of the tread-band, is held against lateral movement on the tread-band, and a cover extending over the tread-band and inclosing the fabric tube and bolster, as described.

6. In pneumatic wheel-tire, in combination, a non-elastic fabric tube, a ring, formed of a strip of steel the ends of which are secured together, secured to the fabric tube, a tread-band the ends of which are secured together to form a ring, and a recess in the tread-band for the reception of the ring on the fabric tube; whereby the tube and tread-band are held against independent lateral movement, as described.

646,142. DRAFT APPARATUS FOR VEHICLES. WILBUR G. DAVIS, Newton, Mass. Filed Oct. 16, 1899. Serial No. 733,714. (No model.)

Claim.—1. Vehicle-shafts, a cross-bar, and adjustable means to rigidly connect it and the shafts, whereby the distance between the latter may be varied.



2. Vehicle-shafts, a rearwardly-curved cross-bar, and an adjustable connection between the shafts and the cross-bar, whereby the distance between the rear ends of the shafts may be varied.

3. Vehicle-shafts, and means to adjustably and rigidly connect their rear ends whereby the distance between the rear ends of the shafts may be varied without substantially varying the distance between their tips.

4. Vehicle-shafts, a rearwardly-curved cross-bar between them, struck from a center substantially midway between the shaft-tips, and means to adjustably connect the cross-bar and shafts, whereby the distance between the rear ends of the latter can be varied.

5. Vehicle-shafts, a rearwardly-curved cross-bar, socketed members rigidly secured to the shafts, to receive the ends of the cross-bar, and adjustable devices connecting the shafts and cross-bar, whereby the distance between the shafts can be varied.

6. Vehicle-shafts, a rearwardly-curved cross-bar, members rigidly secured to the shafts and having expansible sockets to receive the ends of the cross-bar, means to clamp the sockets thereupon, and adjustable devices connecting the cross-bar and shafts, to vary the distance between the latter.

7. Vehicle-shafts, a rearwardly-curved cross-bar, brackets secured to the shafts and each having an inwardly-projecting, expansible socket to receive the ends of the cross-bar, means to clamp the sockets thereupon, and a rotatable and non-longitudinally-movable bolt extended through each shaft and into a threaded hole in the end of the cross-bar, rotation of a bolt varying the distance between the cross-bar and adjacent shaft.

8. Vehicle-shafts each having attached to it an inwardly-extended, expansible socket having an elongated base to rest upon and partly overlap the shaft, fore and aft braces between the base and the open end of the socket, a rearwardly-curved cross-bar whose ends enter the sockets, means to clamp the sockets on the cross-bar, and adjustable connections between the shafts and the cross-bar, seated in the overlapped portions of the socket-base and in the shaft.

9. Vehicle-shafts having their body portions in the same transverse plane, and upwardly bent therefrom to their tips, longitudinally-yielding draft members exterior to the shafts, and detachable connections between said members and the shafts, said connections being located at or near the front ends of the body portions of the latter.

10. Vehicle-shafts having their body portions in the same transverse plane and upwardly bent therefrom to their tips, longitudinally-yielding draft members exterior to the shafts, and connections between the draft members and the shafts, said connections being located at or near the front ends of their body portions.

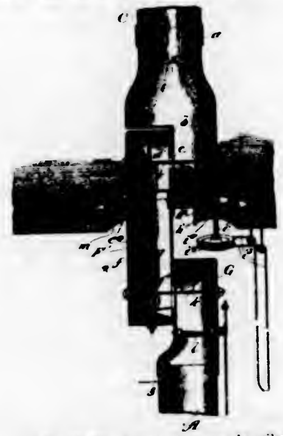
11. Draft apparatus for vehicles, comprising shafts upraised from the leading ends of their body portions to their tips, a tug-leather adjustable on the curved portion of each shaft, and short and longitudinally-yielding draft members wholly exterior to and connected with the shafts at or near the leading ends of their body portions.

12. Draft apparatus for vehicles, comprising shafts, rearwardly-open hooks on the under sides of the shafts at or near the leading ends of their body portions, and short, longitudinally-yielding draft members wholly exterior to the shafts and adapted at their other ends to detachably engage the hooks on the shafts.

13. In draft apparatus for vehicles, shafts, a hook on each at or near the leading end of its body portion, draft members each comprising a tubular portion with closed ends, a spring-support extended through one end and threaded at its exposed extremity, a draft-spring interposed between the inner end of the spring-support and the end of the tubular portion, an eye to engage the shaft-hook, an anchor extended transversely through the eye and adapted to screw upon the end of the spring-support and a locking device to prevent accidental relative rotation of said support and the anchor.

14. In draft apparatus for vehicles, a longitudinally-yielding draft member consisting of a tubular portion, a collar upon which one end of said portion is crimped and secured, a protective cap exteriorly applied to said end, a headed rod within the tubular portion and extended loosely through said collar and cap, a draft-spring interposed between the head and the collar, an anchor adapted to screw upon the exposed end of the rod, a flexible eye folded about the anchor, and a retaining-screw adapted to pass through the material of the eye and the anchor and into the rod, to prevent relative rotation of said rod and anchor.

646,148. METAL CHIMNEY. PAUL DICKINSON, Chicago, Ill. Filed June 24, 1899. Serial No. 721,723. (No model.)



Claim.—1. In a chimney of the character described, the combination of a stack and a roof-plate pivotally connected therewith to adapt the roof-plate to be adjusted to any desired angle, and means for rigidly securing the roof-plate and stack together in any position of such adjustment, substantially as described.

2. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building, comprising end pipe-sections respectively for the stovepipe and stack, an intermediate pipe-section pivotally connected with said end sections, and a cap on said intermediate section, substantially as described.

3. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building, comprising, in combination, end pipe-sections respectively for the stovepipe and stack, an intermediate pipe-section pivotally connected with said end sections, a cap on said intermediate section, and a ventilator on said cap, substantially as described.

4. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building comprising a flat-sided pipe-section for the stovepipe having an opening in its side, a pipe-section for the stack having an offset provided with an opening in its face, an intermediate flat-sided pipe-section having openings in its side near the opposite ends and pivotally fastened at said openings respectively at the openings in said stovepipe and stack sections, and a cap on said intermediate section, substantially as described.

5. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building, comprising end pipe-sections respectively for the stovepipe and stack, and an intermediate pipe-section pivotally connected with said end sections and formed of a cap and parts *d* and *f* fastened on said cap, substantially as described.

6. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building, comprising a section E having an offset *b* provided with an opening *c*, a section G provided with an opening *c'*, and a section F provided with an opening *f'* through which it is pivotally bolted to the section G at its opening and with an opening *d'* through which it is pivotally bolted to the section E at its opening, and a cap *e*, substantially as described.

7. As a new article of manufacture, a connection for coupling a chimney-stack with a stovepipe through the roof or wall of a building, comprising a section E having an offset *b* provided with an opening *c*, a section G provided with an opening *c'*, and a section F formed of the part *f* provided with an opening *f'* through which it is pivotally bolted to the section G at its opening, the part *d* provided with an opening *d'* through which it is pivotally bolted to the section E at its opening and the flanged-cap part *e* with which said parts *f* and *d* are connected and through which they are bolted together, substantially as described.

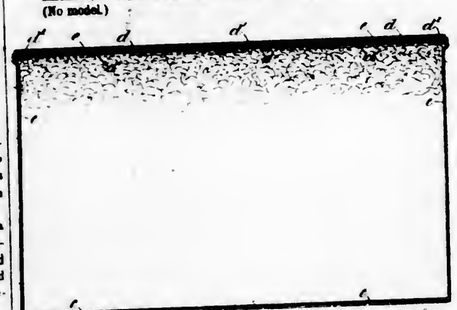
8. In a coupling connection for the purposes set forth, the combination of a roof-plate and an outwardly-projecting pipe flexibly connected with said roof-plate to be adjusted to any desired angle thereto, substantially as described.

646,144. LAST. EDWARD W. GERRISH, Lynn, Mass., assignor of one-third to Thomas W. Gardiner, same place. Filed Dec. 16, 1899. Serial No. 740,536. (No model.)



Claim.—A last comprising a fore-part section and a heel-section, the said sections being provided at their meeting faces with complementary pairs of screw-eyes, a coupling-bolt passed through said eyes, and a coiled spring surrounding said bolt and having oppositely-disposed legs arranged in seats in the sections, substantially as described.

646,145. CANISTER FOR PACKING EDIBLES. WILLIAM J HARRISS, Liverpool, England. Filed Apr. 11, 1898. Serial No. 677,186. (No model.)



Claim.—A metal can having an internal lining of enamel, a cover *c* of tin-plate soldered to the top of the can and a disk *d* substantially of the full diameter of the can and consisting of a metal plate coated on all sides with enamel said disk being loosely placed within the top of the can to touch the inner side thereof entirely around the disk and directly below the cover, substantially as described.

646,146. SNAP-SWITCH. GERALD W. HART, West Hartford, Conn. Filed June 21, 1899. Serial No. 721,303. (No model.)



Claim.—1. In a snap-switch, a base, fixed terminals thereon, a central pivot, a terminal mounted thereon so as to be capable of concentric rotative movement only, with respect to said central pivot, and rotatable means to lock and unlock said movable terminal, said means being carried eccentrically of the axis of rotation of said movable terminal.

2. In a snap-switch, a base, fixed terminals thereon, a movable terminal rotatable in either direction and adapted to make electrical connection with any of said fixed terminals, a central pivot upon which said movable terminal is mounted to hold the same against longitudinal movement, means to lock said movable terminal comprising a rotating piece located eccentrically of the central support for said movable terminal, and a spring to move the latter when it is unlocked.

3. In a snap-switch, a base, fixed terminals thereon, a rotatable terminal movable in either direction and adapted to make electrical connection with any of said fixed terminals, a central pivot therefor to prevent the longitudinal movement thereof, means for locking the movable terminal in its position of rest, comprising a rotating part located eccentrically of the axis of rotation of said movable terminal, and a spring for shifting said movable terminal, one end of which bears against said movable terminal, an operating part for engaging the other end of said spring and in engagement with said locking means.

4. In a snap-switch, a spring-actuated contact-carrier, a shoulder thereon, a stationary plate and a movable plate cooperating therewith and actuated by an operating part, said movable plate having projections adapted to detachably engage the shoulder on said carrier.

5. In a snap-switch, a centrally-mounted spring-actuated contact-carrier having a shoulder, an operating part, a pivoted rotatable plate of substantially-circular form having projections around its perimeter and moved by said operating part, a stationary plate having shoulders adapted to engage with said projections to rotate said plate as it is being advanced in either direction around the axis of the operating part.

6. In a snap-switch, a base, fixed terminals thereon, a pivotally-mounted contact-carrier having a shoulder depending therefrom, a plate having upwardly-directed shoulders, said plate being stationary, an intermediary between said contact-carrier and said stationary plate, said intermediary having projections adapted to pass through the spaces between the shoulders upon the stationary plate and engage with the shoulder upon the contact-carrier, and a contact-blade carried by said carrier.

7. In a snap-switch, a base, fixed terminals, a centrally-mounted rotary contact-carrier, a shoulder thereon, a locking device for engaging said shoulder comprising a substantially-circular plate carried upon a pivot located eccentrically of the axis of rotation of said contact-carrier said circular plate having projections thereon adapted to engage the shoulder on the contact-carrier, and means to cause the rotation of said plate.

8. In a snap-switch, a base, a stationary plate thereon having upwardly-directed shoulders, an operating part comprising a rotary shaft and carrying to one side of its axis of rotation a star-wheel, the teeth of which project through the openings between said shoulders, a contact-carrier having a depending shoulder, a post on said contact-carrier, a dog carried by said operating part, and a spring carried by said operating part and embracing the said dog and post.

9. In a snap-switch, a main operating part comprising a rotatable shaft, a rotatable contact-carrier loosely mounted thereon but incapable of longitudinal movement, said contact-carrier having an upwardly-projecting post, a dog carried by said operating part, a spring carried by said operating part and embracing said dog and said post, and a revoluble locking device to engage said rotatable contact-carrier, said locking device being mounted eccentrically of the axis of rotation of said contact-carrier.

10. In a snap-switch, a rotatable contact-carrier and a lock therefor, a central pivot for said contact-carrier to prevent longitudinal movement thereof, said lock comprising a stationary substantially-circular plate having projections thereon, a movable plate of substantially-circular form having teeth on the perimeter thereof, the movable plate being of substantially-less diameter than the stationary plate, and movable upon a pivotal support located eccentrically of the stationary plate, said pivotal support for said rotatable plate determining the path of movement thereof and said shoulders upon the stationary plate engaging successively with the teeth upon said movable plate to impart rotative movement to the latter.

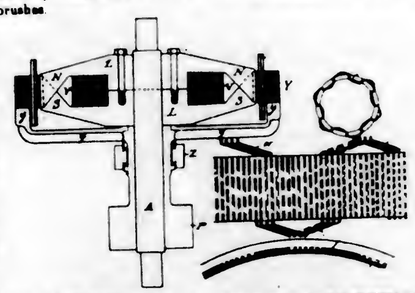
11. In a snap-switch, a stationary shouldered plate, a rotary operating part, a contact-carrier loosely pivoted thereon and having a depending shoulder, a locking means controlled by said operating part and carried eccentrically of its axis of rotation and cooperating with said stationary plate, a spring carried by said operating part, said spring having two projecting ends standing on opposite sides of a post carried by the contact-carrier, and a dog carried by said operating part.

12. In a snap-switch, a contact-carrier, a locking device therefor comprising a rotating piece having multiple projections, a shoulder in said carrier adapted to be engaged by said projections.

13. In a snap-switch, a locking means comprising a stationary plate, a rotatable piece having multiple projections coacting therewith, a rotatable contact device and means carried thereby adapted to be engaged by the projections upon said rotatable piece.

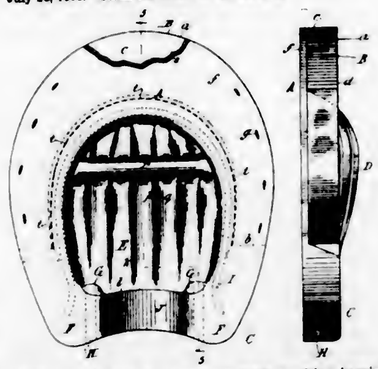
646,147. ELECTRIC MOTOR. HENRY F. JOEL, London, England. Filed Feb. 4, 1898. Serial No. 704,560. (No model.)

Claim.—1. In an electromotor, adapted to operate with continuous current and having interspaced multiple poles of alternate diverse polarity, an armature-core pierced with apertures parallel to axis of revolution, there being one more aperture than a multiple of the number of poles, cut sectional wires lying in such apertures, connected at side of armature to form a zigzag winding, crossing the armature as many times in one complete coil as there are poles, the spacing of the apertures between transverse wires being absolutely uniform, and causing each transverse part of such winding to approach poles step by step with perfect uniformity of succession, thus diminishing usual sparking from short-circuit at the commutator under the brushes.



2. In an electric motor for continuous currents an armature-winding connection, consisting of cut sections of wire, all of uniform length; iron-surrounded apertures in said armature parallel to the axis of rotation, receiving two or more of such cut lengths of wire; shortest and uniform connections between selected transverse wires, formed by the ends of such selected wires being bent wholly in the plane of revolution of such wires; and contiguous ends turned out perpendicularly to the armature, and connected by solder to form laterally-projecting annular flanges on either side of the armature, substantially as described.

646,148. HOOF-PAD. WILLIAM J. KENT, New York, N. Y., assignor to Elizabeth Kent and Roscoe R. Bell, same place. Filed July 26, 1899. Serial No. 725,176. (No model.)



Claim.—1. In hoof-pads, the combination with a bearing-strip for receiving the sole of the hoof, of a hollow central portion for covering the sole of the foot inwardly of such bearing-strip, and a reinforce on said bearing-strip extending around said hollow portion and having an open center.

2. In hoof-pads, a body for covering the sole of a hoof having a bearing-strip for contacting with the edges of the sole, a cavity under the center of the sole, and a leather reinforce on said bearing-strip extending around said cavity and having an open center.

3. In hoof-pads, a body for covering the sole of a hoof having a bearing-strip for contacting with the edges of the sole, a downwardly-projecting hollow center forming an air-chamber for protruding within and below the tread of a horseshoe, a heel-cushion crossing its rear, above the lower face of said protruding portion, and a frog-socket in said heel-cushion.

4. In hoof-pads, a body having an outer portion for contacting with the edges of the sole of a hoof, having a cavity surrounded by such portion, said cavity having a wall for extending below the shoe, an air-inlet leading to such cavity, and an automatic valve controlling flow through said inlet whereby in use said wall acts as a pump for forcing air through said valve.

5. In hoof-pads, a flexible body adapted to be fastened to the sole of a hoof, and having a pneumatic chamber open at its upper side beneath the hoof, and a ring-like leather attacher connected to and covering the outer edge of said body, and having an aperture opposite and of approximately the full area of said chamber whereby the air-chamber is in direct communication with the face of the hoof.

6. In hoof-pads, a body for contacting with the sole of a hoof, having an elastic downwardly-bulging portion beneath the center of the hoof, and a confined air-chamber open at top under the hoof and within such portion, and a ring-like leather attacher connected to and covering the outer edge of said body, and having an aperture opposite and of approximately the full area of said chamber whereby the hoof itself constitutes the sole top wall of said chamber.

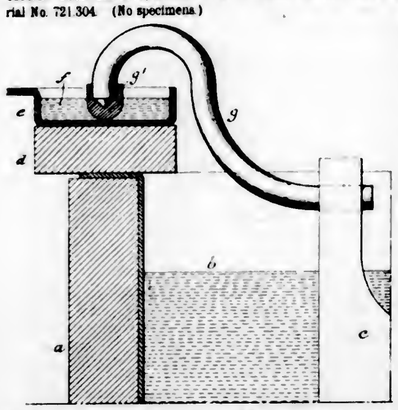
7. In hoof-pads, a body adapted to be attached to the sole of a hoof, having an elastic downwardly-bulging portion beneath the center of the hoof, and a stiffener carried by said body and surrounding said bulging portion for resisting lateral distortion of the hoof.

8. In hoof-pads, a body having a thin bearing portion for attachment between the sole of a hoof and a horseshoe, a heel-cushion at rear of such portion, a hollow downward centrally-projecting portion having an unobstructed opening at top and surrounded by said bearing portion and said cushion, and having inner and outer longitudinal ribs and grooves for projecting through the center of the shoe, and a ring-like fibrous member attached to said body along its bearing portion and having a central opening opposite and of approximately the same size as its hollow central portion.

9. In hoof-pads, a body having a bearing portion for passing between the sole of a hoof and the top bearing of a horseshoe, a heel-cushion at rear of said portion, a convexo-concave central wall for projecting downwardly through the center of such shoe, and a transverse rib *r* crossing said wall.

10. The improved hoof-pad, having the bearing *f* for contacting with the outer edges of the sole of a hoof, the heel-cushion C at rear of such portion, the central cavity E and walls, the central elastic protuberance D in its bottom face, the frog-socket J crossing said heel cushion, and the stiffener I embedded within said body.

646,149. METHOD OF PROTECTING ELECTRICAL CONNECTIONS. JOHN LANGTON, New York, N. Y. Filed June 21, 1899. Serial No. 721,304. (No specimens.)

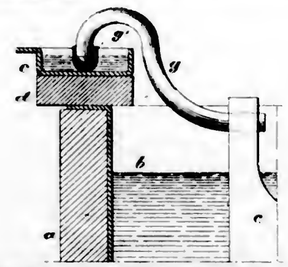


Claim.—The method of protecting electrical connections which are exposed to salts from any source, which consists in immersing the connection in a liquid capable of dissolving said salts, and holding the liquid around the connection to prevent deposit upon or adjacent to the contact-surfaces of the connection.

646,150. ELECTRICAL CONNECTOR. JOHN LANGTON, New York, N. Y. Filed Aug. 1, 1899. Serial No. 725,753. (No model.)

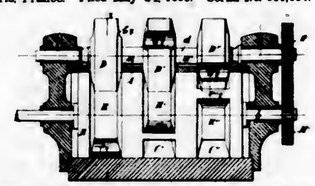
Claim.—1. The combination with an electrolytic cell, of an electrical connection therefor consisting of two conductors in mechanical contact with each other in such position as to be subject to corrosion by the action of the electrolyte, a vessel containing a liquid capable of dissolving salts that might be deposited upon, or adjacent to, the contact-surfaces of the connection, the abutting portions of said connection being immersed in the liquid.

2. In an electrolytic cell, the combination of an electrode and its connecting-lug, a tray containing a liquid capable of dissolving salts that may emanate from the cell or other source, and a line-terminal making mechanical connection with the connecting-lug of the electrode, the points of contact being submerged in the liquid of said tray, substantially as described.



3. In an electrolytic tank, the combination of an electrode and its connecting-lug, and a metallic tray having a line-terminal and containing a liquid capable of dissolving salts that may emanate from the cell or other source, the connecting-lug of the electrode projecting into said liquid and making contact with the bottom of the tray to maintain the circuit, substantially as described.

646,151. ROTARY ENGINE. LOUIS J. JEAN-BAPTISTE LE ROND, Paris, France. Filed May 24, 1898. Serial No. 681,637. (No model.)



Claim.—1. The combination with a cylindrical casing, of a rotatable motive cylinder fitting closely within the casing, said cylinder having about its peripheral surface a recess or groove of increasing width from its bottom outward, a diaphragm or partition across said recess or groove adapted to act as a piston, a circular abutment decreasing in thickness at its peripheral edge so that its lateral contour exactly corresponds to that of the groove or recess in the cylinder, said edge having a lateral notch therein in which the diaphragm or partition in the groove or recess is adapted to closely engage in passing said abutment as the cylinder and abutment are rotated together, the abutment being rotatable in bearings exterior to the cylindrical casing on an axis parallel to the axis of the cylinder, but projecting through and tightly fitting the edge of an opening in the casing and bearing in and making a tight joint with the wall of the recess or groove in the cylinder.

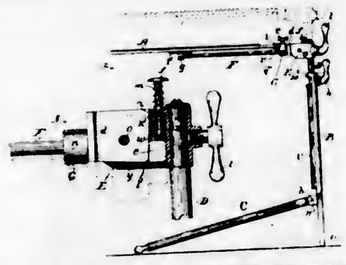
2. The combination with a cylindrical casing, of a rotatable motive cylinder fitting closely within the casing, said cylinder having about its peripheral surface a flaring recess or groove, a diaphragm or partition across said recess or groove adapted to act as a piston, a circular abutment tapering at its peripheral edge so that its lateral contour exactly corresponds to that of the groove or recess in the cylinder, said edge having a lateral notch therein in which the diaphragm or partition in the groove or recess is adapted to closely engage in passing said abutment as the cylinder and abutment are rotated together, the abutment being rotatable in bearings exterior to the cylindrical casing on an axis parallel to the axis of the cylinder, but projecting through and tightly fitting the edge of an opening in the casing and bearing in and making a tight joint with the wall of the recess or groove in the cylinder.

3. In a rotary multiple-expansion engine, the combination with a casing, of a motive cylinder fitting closely and rotatable within said casing, said cylinder having recesses or grooves extending about its periphery in different positions along the same, two diaphragms or partitions across each groove adapted to act as pistons, two circular abutments each rotatable on an axis parallel to the axis of the cylinder, said abutments closely engaging through openings in the casing and projecting into and tightly fitting the grooves in the cylinder respectively, inlet and exhaust ports for the grooves respectively, said ports being nearer together than the diaphragms in the grooves, so that no direct escape of fluid can take place from the inlet to the exhaust ports, and a passage connecting the exhaust-port of one groove with the inlet-port of the other.

4. In a rotary multiple-expansion engine, the combination with a casing, of a motive cylinder fitting closely and rotatably within said

casing, said cylinder having recesses or grooves extending about its periphery in different positions along the same, two diaphragms or partitions across each groove adapted to act as pistons, two circular abutments each rotatable on an axis exterior to the casing and parallel to the axis of rotation of the cylinder, said abutments being arranged at a suitable angle about the casing and projecting through openings in the casing and fitting in the grooves or recesses in the cylinders respectively and having lateral notches in their peripheries in which the diaphragms or partitions in the grooves are adapted to make tight joints as the cylinders and abutments are rotated together, inlet and exhaust ports for the high-pressure groove or recess whose angle is greater than the angle of the diaphragms or partitions, so that no direct escape of motive fluid can take place from the inlet to the exhaust ports, suitable inlet and exhaust ports for the low-pressure groove or recess, and a pipe or passage leading from the exhaust-port of the high-pressure recess to the inlet-port of low-pressure recess.

646,152. ADJUSTABLE FOLDING TABLE. HENRY MESSERLE, Rochester, N. Y. Filed Nov. 2, 1899. Serial No. 735,802. (No model.)



Claim.—1. A table comprising a top, a standard, a spindle in the standard provided with a head, a carrying-arm for said top pivotally connected with the head and having two faces the planes of which form an angle, movable means cooperating with said faces to form a lock and legs connected with the standard, said head adapted to revolve upon the spindle, substantially as described.

2. A table comprising a top, a standard, a head supported thereby, a carrying-arm for the top pivotally connected with said head and having two faces forming an angle, movable means cooperating with said faces to form a lock and legs connected with the standard, said top being adapted to have a swivel motion upon the carrying-arm in all positions of the latter, as set forth.

3. A table having a spindle, and a support therefor, a head upon the spindle, a carrying-arm held pivotally in said head, the end of said carrying-arm being inclined and at right angles to its under face, and a movable block in the head formed with an inclined surface to meet the inclined surface of the carrying-arm, substantially as described.

4. A table comprising a standard, a spindle in the standard provided with a head, a carrying-arm held by said head and adapted to occupy two positions thereon, and having two faces forming an angle and a top supported by said carrying-arm and mounted to turn thereon on a vertical pivot, substantially as shown and described, and movable means cooperating with said faces to form a lock.

5. A table having a standard, a spindle in the standard, provided with a head, a carrying-arm in said head, having two faces forming an angle and adapted to occupy two positions therein at right angles with each other, and a holder for said carrying-arm in either of its two positions and adapted to have a parallel bearing thereon, substantially as shown and described.

6. A table having a standard, a head supported by the standard, a carrying-arm held in said head, having two faces forming an angle, and a block adapted to engage either of said faces, substantially as shown and described.

7. A table comprising a standard, a head supported by the standard, a carrying-arm held upon a pivot in said head, the carrying-arm having two faces the planes of which form an angle, a block to engage either of said faces, the latter being equidistant from said pivot, substantially as described.

8. A table having a standard, a head supported by the standard and formed with a shoulder, a supporting-arm held by said head and formed with a face adapted to meet said shoulder, and a block to engage said face of the carrying-arm, substantially as and for the purpose specified.

9. A table comprising a standard, a hollow head supported by the standard, formed with a shoulder, a supporting-arm held pivotally in the head, formed with a face adapted to meet said shoulder, and a block in said head to engage another part of said face of the carrying-arm, and a spring-actuated holder to control said block, substantially as shown and described.

10. A table having a standard supporting a head, a carrying-arm pivotally held by said head, a top board supported by said carrying-arm and mounted to turn on a vertical pivot thereon, and holders for said top board, adapted to embrace the carrying-arm and engage the edge of the top and to turn on the carrying-arm, substantially as and for the purpose specified.

11. A table having a standard supporting a head, a carrying-arm held by said head, a top board supported by the carrying-arm and mounted to turn on a vertical pivot thereon, and a holder for the top board, upon the carrying-arm, adapted to embrace the carrying-arm and engage the edge of the top and to be made rigid with both said top board and the carrying-arm, substantially as shown and for the purpose specified.

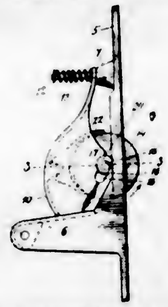
12. A table comprising a standard, and legs having a common head having an inclined face and connected foldably with said standard, and a block held by the standard to engage the inclined face of said head of the legs, substantially as shown.

13. A table comprising a standard, legs having a common head, a pivot in said standard passing through said head, the latter having two faces forming an angle, and a block held by the standard adapted to engage either of said faces of the head, substantially as shown.

14. A table-standard, a carrying-arm mounted to swing laterally and vertically upon a center beyond the edge of the top, and a top carried by said arm and mounted to turn laterally thereon upon a center within the boundary-lines of said top and to tilt, substantially as described.

15. A table having a top board or top mounted near its middle upon a swivel, and a holding-clamp adapted to engage and embrace said top at its edge, and said edge being concentric with the axis of the swivel and a support for said clamp, substantially as shown.

646,153. SASH-BALANCE. WILLIAM J. PARSONS, Montclair, N. J. Filed Mar. 15, 1899. Serial No. 673,918. (No model.)

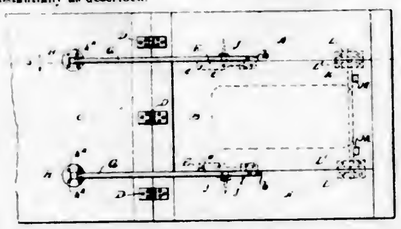


Claim.—1. In a roller sash-balance, the combination with a casing having a proper face-plate, of a lever fulcrumed upon said casing and provided with upper and lower axle bearing-cheeks integral therewith and forming slots placed obliquely with reference to said face-plate, a roller having its axle adapted to travel in said slots, a U-shaped brake-shoe articulated to the lever and having bearing-surfaces above and below its fulcrum adapted to coact with the roller, and means for enforcing simultaneous contact between said bearing-surfaces and the periphery of the roller, and between the cheeks on one side of said slots and the axle of the roller, substantially as set forth.

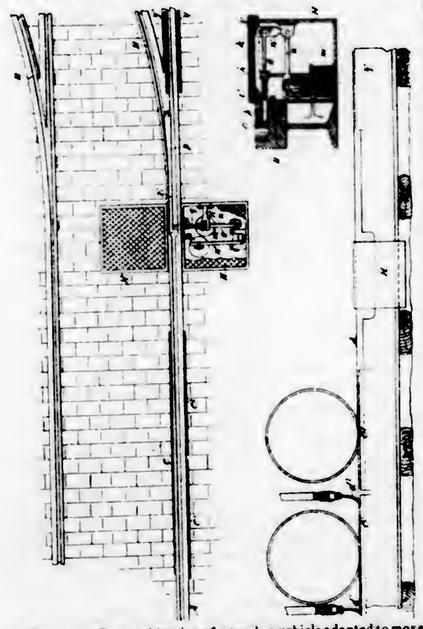
2. In a roller sash-balance, the combination with a casing having a proper face-plate of a lever fulcrumed upon said casing and provided with axle bearing-cheeks integral therewith and forming slots, a roller having its axle adapted to travel in said slots, and a brake-shoe adapted to engage with said roller; the bearing-surface on one of the cheeks in a pair of cheeks forming a slot being placed at a greater distance from the roller than the bearing-surface on the other cheek, substantially as set forth.

646,154. SEWING-MACHINE CABINET. FRANZ PATZACK, Chicago, Ill. Filed May 6, 1899. Serial No. 715,802. (No model.)

Claim.—In a sewing-machine cabinet, a table-top provided with a central opening, a sewing-machine base-board pivotally attached to the table-top and arranged to be swung into and out of the central opening in the table-top, castings secured on the under side of the base-board adjacent to the side edges thereof, such castings provided with slots therein, respectively, a leaf hinged to one edge of the table-top, levers pivoted, respectively, at one end thereof to the leaf, studs on the other ends of the levers with lugs extending out from one side of the studs, near the ends thereof, locking the studs in the slots in the castings when the slots and the levers are not extended in the same plane, and brackets secured to the table-top and arranged to form the fulcrums of the levers; whereby the base-board is automatically turned into and out of the central opening in the table-top by the opening and closing of the leaf, the base-board is held firmly in place in the central opening of the table-top by the leaf; substantially as described.



646,155. ELECTRICAL RAILWAY-SWITCH. PHILIP E. PERRY, Boston, Mass., assignor of one-half to Randolph C. Burbridge, Cambridge, Mass. Filed Aug. 17, 1899. Serial No. 727,512. (No model.)



Claim.—1. The combination of a track, a vehicle adapted to move thereon, a track-switch tongue, electrical means for moving said switch-tongue in one direction, located in box H, electrical means for moving the switch-tongue in the other direction, located in box H', contact-plates c, c', c^3, in the track-bed, contact-brushes d, d' d^3, carried on the vehicle, for forming contact with said contact-plates respectively, an independent electrical generator carried on the vehicle, in open circuit with said contact-plates, brushes, and means for moving the switch-tongue, a current-switch carried on the vehicle for closing the circuit through brushes d, d^3, contact-plates c, c^3, and the tongue-moving mechanism in box H, whereby the switch-tongue is positively moved to form a continuous main line, and for closing the circuit through brushes d, d', contact-plates c, c', and the tongue-moving mechanism in box H', whereby the switch-tongue is positively moved to form continuity with the branch line, substantially as specified.

2. The combination of a track, a vehicle adapted to move thereon, a movable switch-tongue, a push-pin unattached to said switch-tongue, electrical means for moving said push-pin and tongue in one direction, means for automatically locking said push-pin, means for automatically replacing said push-pin when released, electrical means for unlocking said push-pin, contact-plates c, c^3, y, y', in the track-bed, contact-brushes d, d^3, fixed on the vehicle, for forming contact with said contact-plates respectively, an independent electrical generator carried on the vehicle in open circuit with said contact-plates, brushes, means for moving the push-pin, and means for unlocking the push-pin, and a current-switch carried on the vehicle for closing the circuit through brushes d, d^3, contact-plates c, c^3, and the means for moving the push-pin, whereby the switch-tongue is operated and automatically locked, and for closing the circuit through brushes d, d^3, contact-plates y, y', and the means for unlocking the push-pin, whereby the switch-tongue is automatically replaced on the passage of the vehicle, substantially as specified.

3. The combination of a track, a track-switch with movable tongue, contact-plates in the track-bed, a push-pin unattached to the said switch-tongue, a solenoid with movable core connected with said push-pin, locking mechanism for holding said push-pin to its place, electrical means for releasing said locking mechanism, means for restoring the switch-tongue to its normal position when released, contact-brushes, a current-switch, and a source of electrical energy in circuit with said brushes, contact-plates, current-switch, and solenoid, substantially as specified.

4. The combination of a track, a track-switch with movable tongue, contact-plates in the track-bed, a push-pin unattached to the said switch-tongue, a solenoid with movable core connected with said push-pin, locking mechanism for holding said push-pin to its place, a solenoid for releasing said locking mechanism, means for restoring the switch-tongue to its normal position when released, contact-brushes, a current-switch, and a source of electrical energy in circuit with said brushes, contact-plates, current-switch, and solenoids, substantially as specified.

5. A switch mechanism consisting of a movable tongue, an unattached push-pin bearing against the side of the said tongue, a solenoid for operating the push-pin, means for locking the push-pin in position, means for retracting said push pin when released, and a solenoid for unlocking the push-pin mechanism, in combination with a traveling current-switch, and a source of electrical energy in circuit with said current-switch and solenoids, substantially as specified.

6. A switch mechanism consisting of a movable tongue, an unattached push-pin bearing against the side of said tongue, a solenoid for projecting the push-pin against the tongue to move the same, a spring for retracting the push-pin when released, a locking mechanism for holding the projected push-pin until released, a solenoid for releasing the locking mechanism, and electrical means under control for operating said solenoids, substantially as specified.

7. A switch-operating mechanism comprising a push-pin for moving the switch-tongue, operative connections for moving said push-pin, a rack, a spring-dog for engaging the teeth of said rack, means for operating and releasing said spring-dog and means for restoring the said pin and dog to their normal positions.

8. A switch-operating mechanism comprising a push-pin for moving the switch-tongue, operative connections for moving said push-pin, a rack attached to said pin, a spring-dog for engaging the teeth of said rack, a solenoid or long-pull magnet for releasing said spring-dog, and means for restoring said pin and dog to their normal positions.

9. In a switch-operating mechanism, a movable switch-tongue, an unattached push-pin for moving said tongue in one direction, a second unattached push-pin for moving the switch-tongue in the opposite direction, independent solenoids for operating each push-pin, automatic means for returning each push-pin, means for locking each push-pin, electrical means for unlocking each push-pin, an electrical generator carried on the vehicle in open circuit with said means for moving and unlocking the push-pins, a current-switch for closing the circuit to operate either push-pin, or to unlock either push-pin, and brushes and suitable track-plate connections in circuit with said current-switch, and generator, and electrical operating means, substantially as specified.

10. In a switch-operating mechanism, a movable tongue, an unattached push-pin for moving said tongue, a spring locking means for holding the push-pin and tongue in the advanced position, a solenoid for releasing the said locking means, a retractile spring for replacing the push-pin, and means for replacing the locking mechanism, substantially as specified.

11. In a switch-operating mechanism, a movable tongue, an unattached push-pin for moving said tongue, means for actuating said push-pin, means for locking said push-pin in the advanced position, a solenoid for releasing said locking means, means for replacing the push-pin when the said locking means is released, and means for replacing the locking mechanism, substantially as specified.

12. In a switch-operating mechanism, a movable tongue, an unattached push-pin for moving said tongue, means for actuating said push-pin, means for locking said push-pin in the advanced position, a solenoid for releasing said locking means, means for replacing the push-pin when the said locking means is released, means for replacing the locking mechanism, and a second unattached push-pin, independent of the former push-pin, for replacing the switch-tongue at any interval of time after the former push-pin has been replaced, substantially as specified.

13. In combination, a railway main and branch track, a vehicle adapted to move on said track, a movable switch-tongue in said track, electrical means for moving said switch-tongue in one direction, independent electrical means for moving the switch-tongue in the opposite direction, automatic means for replacing the switch-tongue, independent locking means for locking the switch-tongue in either position, duplicate independent electrical unlocking means for unlocking the switch-tongue in either position, contact-plates in the track-bed for forming a closed circuit through either operative means for moving the switch-tongue at will, and through either unlocking means, brushes in circuit borne on the vehicle, for making contact with said contact-plates, an electrical generator in circuit carried on the vehicle, and a current-switch for closing circuit at will through either switch-operating device, or through either tongue-unlocking mechanism, substantially as specified.

14. In combination, a railway main and branch track, a movable switch-tongue in said track at the intersection, a vehicle adapted to move on said track, an independent electrical generator borne on said vehicle fixed brushes on said vehicle, in circuit for forming two different closed circuits, track-plates in the track-bed for forming two different closed circuits in coöperation with said brushes, a current-switch on the vehicle for shifting the current through either closed circuit at will, and independent electromotors for moving the switch-tongue in opposite directions, one in each closed circuit, substantially as specified.

15. In combination, a main and branch track, a vehicle adapted to move on said track, an electrical generator on said vehicle, track-plates in the track-bed, a movable switch-tongue, an electromotor for moving the switch-tongue, fixed brushes on said vehicle adapted to register with two of the track-plates at once, and a current-switch on the vehicle, for forming a closed circuit through the generator, brushes, track-plates, and electromotor, thereby shifting the switch-tongue, substantially as specified.

16. In combination, a main and branch track, a vehicle adapted to move on said track, an electrical generator on said vehicle, a pair of track-plates in the track-bed, a movable switch-tongue, means for shifting the switch-tongue, means for locking the switch-tongue, means for replacing the switch-tongue when released, an electromagnet for unlocking the switch-tongue, fixed brushes on the vehicle registering with the two track-plates at once, and a current-switch on the vehicle for forming a closed circuit through the said generator, brushes, track-plates, and unlocking electromagnet, thereby permitting the switch-tongue to be replaced, substantially as specified.

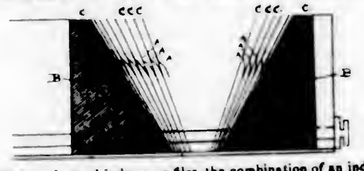
646,156. EASEL-SUPPORT. GEORGE A. PETERSON, San Francisco, Cal. Filed Apr. 17, 1899. Serial No. 713,321. (No model.)



Claim.—1. In an easel-support, the member A scored on a line B to form a line of flexure, and cut through to leave unflexed lugs C, C, integral with the attaching portion of the support, said attaching portion thus extending on both sides of the line of flexure, substantially as specified.

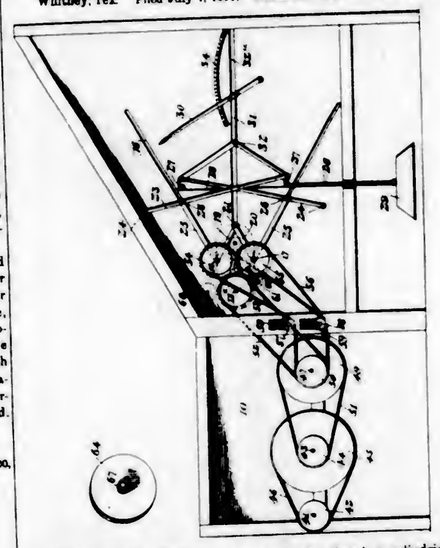
2. In an easel-support, the member A scored on a line B to form a line of flexure, cut through to leave unflexed fastening-lugs C, C, integral with the attaching portion of the support, and cut through to form the brace E, free from A except at one attached edge, said brace having its free end extending slightly beyond the line B, substantially as and for the purpose specified.

646,157. CARD-SEPARATING DEVICE. RUSSELL E. PROPER, New York, N. Y. Filed Dec. 29, 1898. Serial No. 700,679. (No model.)



Claim.—In card indexes or files, the combination of an index or reference card, and an attached projecting and depressible spring, made in any form and of any substance or material having elastic or resilient properties, and together operating to separate such card from an adjoining card, when used in filing cabinets, cases or drawers, all substantially as set forth, and for the purpose specified.

646,158. ROLLER COTTON-COMPRESS. LOUIS RABORN, Whitney, Tex. Filed July 7, 1899. Serial No. 722,070. (No model.)



Claim.—1. In a roller cotton-compress for forming cylindrical bales, a coreless compression mechanism including a set of three coacting rolls arranged in triangular relation, one of said rolls being mounted in fixed bearings relative to the point of feed and the two remaining rolls arranged for their axes to lie in a common vertical plane at one side of the first-named roll and also supported to travel in divergent paths, in combination with means for limiting the movable rolls to slidable travel relative to the stationary roll, positively-acting devices connecting said slidable rolls independently of the stationary roll and equalizing the travel of said slidable rolls with respect to each other and to the stationary roll, whereby the two slidable rolls are confined for their axes to lie in a common plane at all points of their adjustment, pressure devices independent of the equalizing device and connected operatively with the slidable rolls, and a driving mechanism for propelling each compression-roll, substantially as described.

2. In a roller cotton-compress for forming cylindrical bales, a coreless compression mechanism comprising a set of three rolls arranged in triangular relation, one of said rolls being mounted in fixed bearings relative to the point of feed and the remaining rolls limited to slidable travel in diverging paths with relation to the fixed roll, combined with pressure devices in active relation to the slidable rolls, means independent of the pressure devices for positively equalizing the travel of the slidable rolls, and a driving mechanism having operative connection individually with said compression-rolls, substantially as described.

3. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing a set of rolls arranged in triangular relation and with two of said rolls mounted to travel in divergent paths, the oppositely-inclined guideways in which the traveling rolls are slidably confined, an equalizing-bar confined for movement in a horizontal plane of the non-traveling roll devices connecting the traveling rolls operatively with the equalizing-bar, and tension devices to normally move the equalizing-bar and the traveling rolls toward the non-traveling roll, substantially as described.

4. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing the set of rolls arranged in triangular relation one of said rolls being mounted in fixed bearings and with two of said rolls mounted to travel in divergent paths, a guideway in the horizontal plane of the non-slidable roll, an equalizing-bar confined slidably in said guideway, links connecting the slidable rolls with said equalizing-bar, and tension devices for normally holding the slidable rolls in active relation to the fixed roll, substantially as described.

5. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing a set of rolls disposed in triangular relation and with two of said rolls arranged to recede from the remaining roll of the set, inclined guideways in which the slidable rolls are confined, another guideway between the inclined guideways and in the plane of the non-slidable roll, a horizontally-slidable bar confined in the last-named guideway and connected operatively with the slidable rolls to equalize the travel thereof, other bars fitted in the inclined guideways and connected with the slidable rolls, and tension devices connected with all of said bars to normally impel the slidable rolls toward the non-slidable rolls, substantially as described.

6. In a roller cotton-compress for forming cylindrical bales, the combination with a set of compression-rolls arranged to separate relative one to the other on the formation and enlargement of a bale, of a bat-detaining roll of less diameter than either of the compression-rolls and mounted for movement into or from the space between two of said rolls on the divergence thereof, said bat-detaining roll lying out of the baling-space formed by convergence of the compression-rolls during the initial formation of a bale, and means for automatically moving said bat-detaining roll into the path of a cotton-bat on the separation of the compression-rolls, as and for the purposes set forth.

7. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing a set of three coacting rolls, inclined guideways divergent from the axis of a non-slidable roll and receiving the shafts of the slidable rolls, the pressure-levers fulcrumed on the press-frame and having link connections with the shafts of the slidable rolls, a counterweight connected operatively with said pressure-levers, and a hand-lever connected with said pressure-levers, substantially as described.

8. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing a set of working rolls, two of which are mounted to travel in divergent paths, counterweighted pressure-levers having link connections with said slidable rolls, and a hand-lever linked to the pressure-levers for manually separating the slidable rolls previous to ejecting a bale, substantially as described.

9. In a roller cotton-compress for forming cylindrical bales, the combination of a set of coacting working rolls, two of which are slidably mounted to travel in divergent paths, the counterweighted pressure-levers having link connections with the slidable rolls, a cross-rod guide to travel in the horizontal plane of a non-slidable roll, links connecting said cross-rod with the pressure-levers, and a single hand-lever connected operatively with the cross-rod, substantially as described.

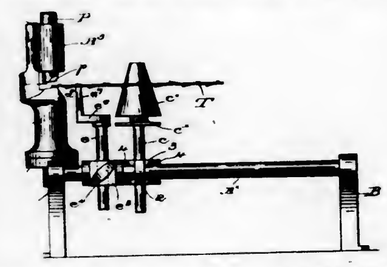
10. In a roller cotton-compress for forming cylindrical bales, the combination of a coreless compression mechanism embracing a set of three coacting rolls, two of which are mounted to travel in divergent paths relative to the axis of the non-slidable roll, and slidable end disks idly supported to travel in the horizontal plane of the non-slidable roll and free to rotate with an embryo bale by frictional contact therewith, substantially as described.

11. In a roller cotton-compress for forming cylindrical bales, the combination of a press-frame having horizontal guideways, a set of coacting working rolls, two of which are arranged to travel in divergent paths with respect to the axis of the guideways, and shiftable end disks slidably confined in said guideways and free to rotate on their axes by frictional contact with an embryo bale, substantially as described.

12. In a roller cotton-compress for forming cylindrical bales, the combination of a press-frame having horizontal guideways and metallic bearing-plates in the plane of said guideways, shiftable end disks having axles fitted slidably in the recesses to travel in a horizontal path therein during the enlargement of the embryo bale, and ball-bearings between the axles of said end disks and the bearing-plates, for the purpose described, substantially as set forth.

13. In a roller cotton-compress for forming cylindrical bales, the combination of a press frame having the horizontal recesses and the slots, a set of coacting working rolls, the shiftable end disks fitted in said recesses and provided with stub-axles which are slidably confined in the slots of the press-frame, the bearing-plates fixed to said press-frame, and the bearing-balls fitted in the stub-axles of the disks and arranged to ride against the bearing-plates, substantially as described.

646,159. SAW-SETTING APPARATUS. SAMUEL R. ROBINSON, Antrim, N. H. Filed July 10, 1899. Serial No. 723,376. (No model.)



Claim.—1. In an apparatus of the class described, an anvil, a coöperating setting member, a saw-support vertically movable and also movable toward and from the anvil, and a single means to control both movements of said support.

2. In an apparatus of the class described, a frame including horizontal guide members, a carriage movable thereon, a saw-supporting spindle vertically movable in the carriage, and common clamping means to maintain the spindle and carriage in adjusted position.

3. In an apparatus of the class described, a horizontally-movable carriage, a vertically-movable saw-support mounted thereon, and means to simultaneously clamp both the said support in vertical and the carriage in horizontal adjusted position.

4. In an apparatus of the class described, an anvil, a coöperating, spring-lifted setting-plunger, and an adjustable stop to limit the upward stroke of the plunger.

5. In an apparatus of the class described, an anvil, an upright bearing having a longitudinal slot, a reciprocable, spring-lifted setting-plunger having a lug to enter and slide in the slot, and an adjustable stop to limit the spring-impelled stroke of the plunger.

6. In an apparatus of the class described, a vertically and horizontally adjustable saw-support, and means including a single clamping-screw, to maintain said support in both vertical and horizontal adjustment.

7. A carriage, a support upon which it is horizontally adjustable, a sliding spindle vertically adjustable relatively to the carriage, and means to simultaneously clamp said spindle in vertical, and the carriage in horizontal, adjusted position.

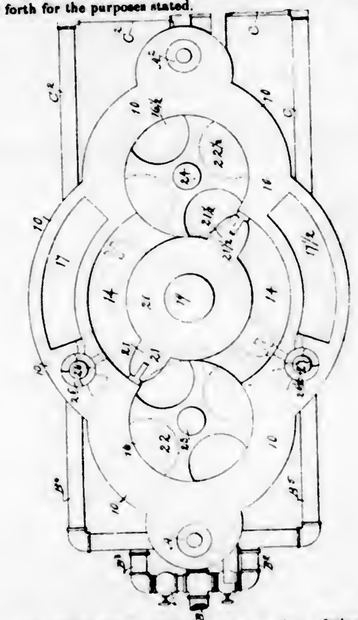
646,160. COMPOUND ROTARY ENGINE. ALFRED WATKINS, Des Moines, Iowa. Filed Nov. 21, 1898. Serial No. 697,112. (No model.)

Claim.—1. A cylinder-casing 10 having segmental chambers 17 and 17½ in its walls communicating at their ends with the chamber in the cylinder, circular chambers 16 and 16½ intersecting the cylinder-chamber, and communicating with the segmental chambers passages for steam leading from the exterior of the case into the circular chambers and means for regulating the flow of steam through said passage to operate upon a rotary hub and pistons in the cylinder in the manner set forth for the purposes stated.

2. In a rotary engine, two concentric cylinders, a main shaft journaled in the ends of the cylinders, a hub having radial extending pistons fixed to the shaft in each cylinder two circular chambers intersecting each cylinder, two segmental chambers in the wall of each cylinder, steam passage-ways leading from the cylinder to the ends of said segmental chambers steam passage-ways leading from the end of each segmental chamber to a cylinder, and passage-ways leading from the exterior into the circular chambers, to operate in the manner set forth for the purposes stated.

3. In a rotary engine, two concentric cylinders, a main shaft journaled in the end of the cylinders, a hub having radial extending pistons fixed to the shaft in each cylinder, two circular chambers intersecting each cylinder, two segmental chambers in the wall of

each cylinder, steam passage-ways leading from the end of each segmental chamber to a circular chamber, and passage-ways leading from the exterior into the circular chambers, rotary valves in said passages and means for automatically operating the valves in concert with rotary hubs and pistons in the cylinders to operate in the manner set forth for the purposes stated.



4. In a steam-engine, a cylinder-casing having a forked pipe B communicating with two parallel passages leading to a rotary plug-valve A fitted in a bore that intersects said parallel passages, a cylinder-chamber communicating with said valve, a circular chamber intersecting the cylinder-chamber, a rotary gate in the circular chamber, and two segmental chambers in the wall of the cylinder communicating at each end with the cylinder-chambers and means for regulating the passage of steam between the segmental chambers and the cylinder-chamber arranged and combined to operate in the manner set forth.

5. In a steam-engine, a cylinder-casing having a forked pipe B communicating with two parallel passages leading to a rotary plug-valve A fitted in a bore that intersects said parallel passages, a cylinder-chamber communicating with said valve a circular chamber intersecting the cylinder-chamber, a rotary gate in the circular chamber and two segmental chambers in the wall of the cylinder communicating at each end with the cylinder-chambers and means for regulating the passage of steam between the segmental chambers and the cylinder-chamber a rotary gate having concaves in its periphery fitted in each of the passage-ways leading from the cylinder-chamber to the segmental chambers in the wall of the cylinder arranged and combined to operate in the manner set forth.

6. In a rotary engine, two concentric cylinders each having two segmental chambers in its walls, passages leading from each end of each segmental chamber to the cylinder, rotary gates fitted in bores intersecting said passage-ways two circular chambers intersecting each cylinder-chamber, rotary gates fitted in said circular chambers steam-passages leading from the exterior to the said rotary gates, rotary plug-valves fitted in bores intercepting said passages leading to the circular valves, arranged and combined as shown and described for the purposes stated.

7. In a rotary engine, two concentric cylinders each having two segmental chambers in its walls, passages leading from each end of each segmental chamber to the cylinder, rotary gates fitted in bores intersecting said passage-ways two circular chambers intersecting each cylinder-chamber, rotary gates fitted in said circular chambers steam-passages leading from the exterior to the said rotary gates, rotary plug-valves fitted in bores intercepting said passages leading to the circular valves, rotatable hubs having radially-extending pistons fitted in the cylinders and means for operating all the rotary gates in concert with the hubs, arranged and combined as shown and described for the purposes stated.

8. In a rotary engine, a casing having two concentric cylinders, a main shaft in concentric position with the two cylinders, a hub in each cylinder fixed to said shaft and provided with pistons extending radially therefrom, two circular chambers intersecting each cylinder-chamber, a shaft in concentric position with each circular chamber, a rotary gate having concaves in its periphery in each circular chamber and connected at its end with the main shaft by means of gear-wheels, two segmental chambers in the wall of each cylinder communicating at each end with the cylinder-chamber, a rotary gate having concaves in its periphery fitted in a bore intersecting passage-ways leading from the segmental chambers to the cylinder-chamber fixed to shafts and connected therewith by means of gear-wheels on their ends and the wheels on the ends of the shafts extending through the circular chambers, and means for conveying steam from the exterior into one of the circular chambers, all arranged and combined to operate in the manner set forth for the purposes stated.

9. In a rotary engine, two concentric cylinders, each having two segmental chambers in its walls communicating with the cylinder-chambers, a steam-supply pipe communicating with the cylinder-chambers, rotary valves in the passages leading from the supply-pipes to the cylinders, pipes connected with the supply-pipe and the segmental chambers and means for regulating the passage of steam to and from the cylinders and segmental chambers shown and described to simultaneously introduce initial steam into distinct chambers for the purposes stated.

10. A compound rotary engine comprising a case, two cylinders in concentric position and each cylinder provided with two segmental steam-chambers in its wall, two circular chambers intersecting the chambers of the cylinder, a main shaft in concentric position with the cylinders, a hub having radial pistons in each cylinder fixed to said shaft, shafts extended through the circular chambers in parallel position with the main shaft and a rotary gate having concaves in its periphery in each circular chamber and fixed to one of said shafts, steam passage-ways leading from the cylinder-chambers to the segmental chambers, rotary gates having concaves in their peripheries in bores intersecting said passage-ways fixed to shafts, gear-wheels on the ends of each shaft, rotary valves fitted in bores in the case intersecting steam passage-ways from the exterior of the case to the circular chambers and cylinder-chambers, each valve provided with an arm and connected with a lever, an induction-pipe having branches communicating with the segmental chambers and cylinders, valves in said branch pipes and exhaust-pipes, all arranged and combined to operate in the manner set forth for the purposes stated.

646,161. HAND-POWER FOR BICYCLES. JOHN D. APKINSON, Seattle, Wash. Filed Aug. 24, 1899. Serial No. 728,408. (No model.)



Claim.—1. A driving-gear for bicycles comprising a driving-shaft, a ball or sphere rigidly mounted on said shaft, a yoke for mounting the driving-shaft on the steering-head of the bicycle, a transmitting means, bevel-gears mounted upon and having a pin-and-groove connection with said ball or sphere, with which the transmitting means meshes, substantially as described.

2. In a bicycle of the character described, the combination with a driving-shaft, a yoke secured to the head of the machine, said shaft being journaled in said yoke, a ball rigidly connected on said shaft, of a bevel gear-wheel mounted on said ball, and means connecting the ball to the gear-wheel whereby the gear may yield in every direction except in that of the rotation of the driving-shaft, and means for transmitting motion from said bevel gear-wheel to the driving-wheel.

3. In a machine of the character described, the combination with the head of the machine of a yoke rigidly connected to said head, a shaft having bearings in said yoke and terminating in crank-arms, a ball mounted on the shaft in the yoke and provided with two diametrically-opposite pins or studs, a bevel gear-wheel having a central opening with grooves, for the reception of the said ball, gears meshing with the said gear-wheel and having a suitable connection with the usual crank-shaft of a bicycle.

4. In a machine of the character described, the combination with the head of the machine, a yoke connected to said head, a shaft journaled in said yoke and terminating in crank-arms, a ball rigidly mounted on said shaft and provided with two studs, a bevel gear-wheel having a central opening in which said ball is secured, by means of said studs of rods connecting said power mechanism with the usual crank-shaft, of a collar secured to the frame of the machine, lugs extending upwardly from said collar and provided with rectangular openings, said tubular guides provided with inwardly-extending arms, the ends of which are bent upward at right angles and provided with screw-threaded openings, the set-screw engaging said openings, said tubular guides supporting the rods, while the arms of the guides slide in the rectangular openings in said lugs.

5. In combination with the ball rotatably mounted on the head of the bicycle, a beveled gear-wheel mounted on said ball and yielding in every direction except that of the rotation of the shaft, a gear of the character described, and rods or shafts carrying parts of said gear, a rod or shaft guide comprising a collar having upwardly-extending lugs provided with angular openings, sliding members, one end of each of which is provided with a tubular guide which receives one of the rods or shafts, while the other end is turned up at right angles and provided with a screw-threaded opening, said slide-leg members adapted to work in the openings of said lugs, and a set-screw adapted to connect the inner ends of said sliding members, as and for the purpose specified.

6. The combination with a bicycle having the usual chain and sprocket gear, of a bevel gear-wheel rigidly secured to the center of the crank-axle, bevel-gears meshing with said gear-wheel, of a bevel gear-wheel having a central opening in which is formed a groove, a ball working in said opening and mounted on pins which work in said groove, a yoke connected with the head of the machine in which said ball is journaled, crank-handles connected with said ball, beveled gears meshing with said gear-wheel, rods or shafts connecting the first-named gear-wheels with the latter, and guides for said rods connected to the frame of the machine; one of said guides being adapted to engage or disengage the beveled gears from the gear-wheel on the bevel-head of the machine.

646,162. APPARATUS FOR COOLING AND DISPENSING BEER OR OTHER LIQUIDS. WILHELM BACHNER, Stuttgart, Germany. Filed Sept. 20, 1898. Serial No. 691,433. (No model.)

Claim.—1. In an apparatus for cooling and dispensing beverages the combination with the sideboard substantially as set forth, the ice-containing vessel located in the upper smaller part of the sideboard, the beverage-containing vessel located in the lower larger part of the sideboard, of a second receptacle for ice located on top of said beverage-cooling vessel, means for conveying the water from the melting ice in the said upper ice-container to said latter ice-container, and means for passing the water from the melting ice in said latter ice-container through the said beverage-containing vessel and then out of the sideboard, substantially as set forth.

2. In an apparatus for cooling and dispensing beverages the combination with the sideboard substantially as set forth, of an ice-containing vessel located in the upper smaller part of the sideboard, the beverage-containing vessel located in the lower larger part of the sideboard, a U-shaped vessel extending downwardly into said beverage-containing vessel, a second receptacle for ice located on top of said beverage-containing vessel, means for conveying the water from the melting ice in said upper ice-container to said latter ice-container, and means for passing the water of melting from said latter ice-container through said U-shaped vessel, and then out of the sideboard, substantially as set forth.

646,163. GARBAGE-RECEPTACLE. WILHELM BACHNER, Stuttgart, Germany. Filed Oct. 2, 1899. Serial No. 732,396. (No model.)

Claim.—1. The combination of a bucket or similar receptacle, a bell adapted to be inverted over said bucket and entirely cover the bucket, lugs projecting outwardly from said bucket in proximity to its bottom, and said bell having suitable slots near its open end adapted to engage said lugs and detachably secure the bell to the bucket, substantially as set forth.

2. The combination of a bucket or similar receptacle, a bell adapted to be inverted over said bucket and entirely cover the bucket, and means for detachably securing the bell to the bucket, substantially as set forth.

3. The combination with a bucket or similar receptacle, and a bell adapted to be inverted over said bucket and entirely cover said bucket, of lugs projecting outwardly from said bucket in proximity to its bottom, and said bell having hook-shaped slots extending upward from the base of said bell and adapted to detachably engage said lugs, substantially as, and for the purposes set forth.

646,164. WOODEN DOWEL. JOSEF CATHREIN, Munich, Germany, assignor to Ignaz Friedinger, Oberthal, Austria-Hungary. Filed Aug. 5, 1899. Serial No. 726,313. (No model.)

Claim.—1. A dowel-pin having an axially-disposed slot that tapers from its outer extremity inwardly, a band encircling the dowel-pin near its outer extremity, and a wedge member for insertion in the said slot to cause the expansion of the inner extremity of the dowel-pin, substantially as and for the purpose set forth.

2. A cylindrical dowel-pin having an axially-disposed slot that tapers from its outer extremity inwardly, a band encircling the dowel-pin near its outer extremity, and a wedge member for insertion in the said slot to cause the expansion of the inner extremity of the dowel-pin, substantially as set forth.

3. A dowel-pin having an axially-disposed slot of wedge shape that extends from the outer extremity inwardly, a band encircling the dowel-pin near its outer extremity, and a wedge member for insertion in the said slot to cause the expansion of the inner extremity of the dowel-pin, said wedge member having a rectangular cross-section and parallel sides, substantially as set forth.

646,165. WHEEL. GEORGE H. CROSBY, Albion, Me. Filed Apr 12, 1899. Serial No. 712,791. (No model.)



Claim.—1. A vehicle-wheel comprising a hub provided with a series of fixed radial projections and packing compressing devices, a

rim, and a series of connected spokes, the inner ends of which are extended through said packing compressing devices and enter and slide in the bores of the hub with an air-tight piston fit.

2. A vehicle-wheel, comprising a hub provided with a series of fixed radial projections and packing compressing devices, a rim, and a series of connected spokes, the inner ends of which are extended through said packing compressing devices and enter and slide in the bores of the hub with an air-tight piston fit, and springs arranged in a suitable number of said bores, one end of each of said springs abutting the inner end of a spoke.

3. A vehicle-wheel, comprising a hub, spokes, and rim, the inner ends of the spokes being movable radially in said hub and immovable laterally therein, the outer ends of said spokes being yieldingly connected with said rim and the spokes being capable of flexing whereby the spokes may yield slightly at or near their junction with the rim to a blow given to the periphery of the wheel by an obstruction in the path of movement of the wheel.

4. A vehicle-wheel comprising a hub provided with a plurality of radial cylinders, a rim and spokes, said spokes having at their inner ends piston-like heads fitting within said cylinders, said spokes being resilient between their ends, substantially as described.

5. A vehicle wheel comprising a hub, spokes and rim, the hub having a plurality of radial cylinders, and the spokes sliding in said cylinders, said spokes being jointed to the rim and resilient between their ends, and certain of said cylinders containing springs bearing against the inner ends of said spokes, substantially as described.

6. A vehicle-wheel comprising a hub, spokes and rim, the hub having a plurality of radial air-tight cylinders, the spokes having piston-headed inner ends, jointed outer ends and being resilient between ends and sliding with a piston fit in said cylinders, certain of said cylinders containing springs bearing against the inner ends of said spokes, substantially as described.

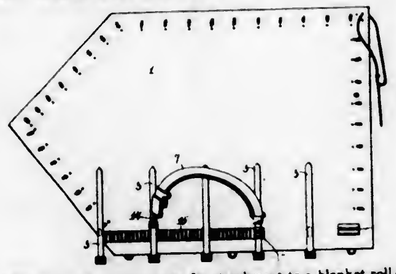
7. A vehicle-wheel composed of a hub, a rim, and a series of spokes united with the rim and slidably connected with the hub, said spokes having each a resilient flattened portion between its ends.

8. A wheel composed of a hub having a series of radial, independent bores open only at their outer ends, said bores being at right angles to the center of rotation of the hub, a rim, a series of spokes yieldingly attached to the rim at their outer ends, and having their inner ends entering the bores of the hub with an air-tight fit, whereby the inner ends of the spokes are maintained out of contact with the bottoms of said bores that the rim may yield to the weight of the load, and said rim due to its friction or to meeting an obstruction in the roadway may temporarily drag somewhat back, thus enabling the spokes to yield at their extremities where joined with the rim.

9. A vehicle comprising a hub, a rim, and a series of one-piece spokes having each a resilient portion between its ends, said spokes being freely movable in fixed radial passages of said hub, the inner ends of the spokes having a piston fit in said radial passages.

10. In a vehicle-wheel comprising a hub provided with a series of cylindrical radial bores at right angles to the axis of rotation of the hub and open only at their outer ends, suitably connected threaded open-centered packing compressing glands applied to the hub about each of said bores and controlling a packing, a rim, a series of spokes made resilient between their ends and connected yieldingly with said rim, the cylindrical piston-ended inner ends being extended through said glands and having a piston fit in said bores, whereby in the use of the wheel the blows to which the wheel is subjected may be taken up by a plurality of air-cushions at the inner ends of said spokes.

646,166. ACCOUTREMENT-SUPPORT. CHARLES DODGE, U. S. Army, assignor to Kate C. Dodge, Fort Douglas, Utah. Filed Dec. 24, 1897. Serial No. 663,398. (No model.)



Claim.—1. An accoutrement for attachment to a blanket-roll or the like and for imparting to the roll the described shape; the same comprising an elongated body of canvas or like material, the flat resilient shaping-plate which straightens out the accoutrement for application to the roll, and imparts the desired curvature to the roll when the ends of the roll are brought together, and straps distributed along the length of the accoutrement for securing it to the roll and for securing the ends of the roll together, substantially as herein explained.

2. An accoutrement for attachment to a blanket-roll or the like, and for imparting to the roll the described shape; the same comprising an elongated body of canvas or like material, the flat resilient shaping-plate which straightens out the accoutrement and imparts the desired curvature to the roll when the ends of the roll are brought together, binding-straps located at the respective ends of such resilient plate to hold the same to the roll and means for securing the ends of the roll together.

3. An accoutrement for attachment to a blanket-roll or the like and for imparting to the roll the described shape; the same comprising an elongated body of canvas or like material, the flat resilient shaping-plate which straightens out the accoutrement for application to the roll and imparts the desired curvature to the roll when the ends of the roll are brought together and straps distributed along the length of the accoutrement for securing it to the roll and for securing the ends of the roll together, said accoutrement also having tent-pole pockets and loops spaced apart lengthwise thereof to hold the tent-poles longitudinally on the leg of the roll.

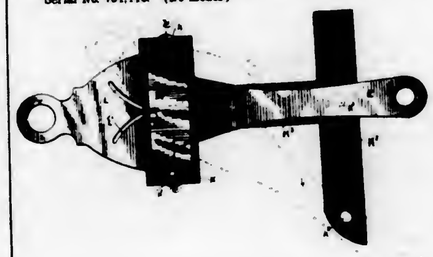
4. An accoutrement for attachment to a blanket-roll or the like, and for imparting to the roll the described shape, the same comprising an elongated body of canvas or like material bent upon itself at one end to form a loop 17, the flat resilient shaping-plate which straightens out the accoutrement for application to the roll and imparts the desired curvature to the roll when the ends of the roll are brought together, binding-straps located at the respective ends of the resilient plate to hold the same to the roll and a binding-strap 18 secured near one end of the accoutrement adapted to engage the loop 17 thereby securing the ends of the roll together.

5. An accoutrement for attachment to a blanket-roll or the like, and for imparting to the roll the described shape, the same comprising an elongated body of canvas or like material bent upon itself at one end to form a loop 17, the flat resilient shaping-plate which straightens out the accoutrement for application to the roll and imparts the desired curvature to the roll when the ends of the roll are brought together, binding-straps located at the respective ends of the resilient plate to hold the same to the roll and a binding-strap 18 secured near one end of the accoutrement adapted to engage the loop 17 thereby securing the ends of the roll together, and a shoulder-strap adjustably secured to one of the binding-straps.

6. An accoutrement for attachment to a blanket-roll or the like, and for imparting to the roll the described shape; the same comprising an elongated body of canvas or like material, a pocket formed in said body of canvas, the flat resilient shaping-plate removably held in said pocket whereby it may be reversed, adjusted and cleaned, and straps distributed along the length of the accoutrement for securing it to the roll and for securing the ends of the roll together.

7. An accoutrement for attachment to a blanket-roll or the like, and for imparting to the roll the described shape; the same comprising an elongated body of canvas or like material, a pocket formed in said body of canvas having a securing-flap, the flat resilient shaping-plate removably held in said pocket whereby it may be reversed, adjusted and cleaned, and straps distributed along the length of the accoutrement for securing it to the roll and for securing the ends of the roll together and an adjustable shoulder-strap secured to one of the said binding-straps.

646,167. SWINGING GATE. JAMES R. GIBBS, Bridgewater, Va., assignor of one-half to D. A. Eberle, York, Pa. Filed Sept. 20, 1899. Serial No. 731,113. (No model.)



Claim.—1. The combination with a gate-post, a gate, and a hinge connecting the lower rear end of the gate to the post, of two fulcrum

studs or pins mounted on and extending upwardly from the post, an operating-lever arranged between and adapted to engage with either of said fulcrum-studs, said lever being connected at one end with the gate and at its other end to two hand-operated devices arranged on opposite sides of the gate-post, and a guide-pin secured to the gate-post between said fulcrum-pins and extending through a slot in the lever, said slot having two curved portions each extending concentric with one of the fulcrum studs or pins.

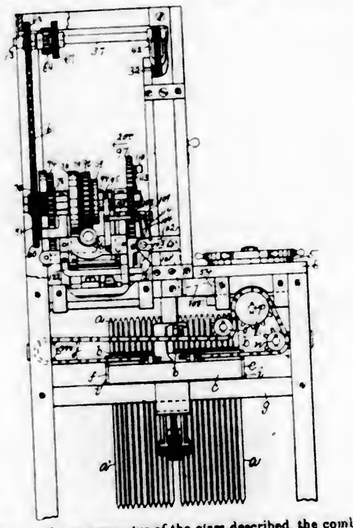
2. The combination with a gate-post, and a gate hinged thereto, of an operating-lever mounted on the upper end of the post and having two laterally-extending projections, a stationary fulcrum pin or stud arranged adjacent to each of said lateral lever extensions, said lever being connected with the gate above the aforesaid hinge of the latter and having two slots formed therein and extending concentric with said fulcrum-pins, a guide-pin extending upwardly from the post and into one of the guide-slots in the lever, and two hand-actuated devices arranged on opposite sides of the gate-post and each connected with the first said lever.

3. The combination with a gate-post, and a gate hinged thereto, of a cap-plate mounted on the post and having two upwardly-extending studs or pins thereon, an operating-lever arranged between said studs and having two laterally-projecting hook-shaped members each adapted to engage one of said studs, said lever having formed therein two curved slots which are connected at one end and which extend concentric with said studs, a stationary guide-pin extending into said slots, connections between said lever and the gate, draft devices connected to said lever and extending beyond opposite sides of the gate, and means carried by the cap-plate for engaging with said lever when the gate is open and acting to hold it in that position.

4. The combination with a gate, of an operating-lever in the forward end of which the upper rear corner of the gate is pivoted; two fixed fulcrum-pins on either of which the lever may turn; and a guide-pin cooperating, as said lever swings, with one branch or the other of a double-curved guide-slot.

5. The combination with a gate, and a gate-post, of a cap-plate mounted on the post, an operating-lever above the cap-plate, and hand-operated means for moving the operating-lever, said operating-lever and cap-plate being provided with two separated fulcrum-pins, a guide-pin, and a double-curved slot cooperating with said guide-pin as said lever swings on one or the other of said fulcrum-pins.

646,168. DISPLAY APPARATUS. THORVALD HANSEN, Everett, Mass., assignor to the Advertising Machine Company, Portland, Me. Filed May 11, 1899. Serial No. 716,400. (No model.)



Claim.—1. In an apparatus of the class described, the combination of the following instrumentalities, viz: a movable support or carriage, a plurality of frames supported thereby and movable therewith, lifting devices normally disengaged from said frames and removed from the path of movement of the same with said carriage, means to move said carriage freely with relation to said lifting devices to position a selected frame relative to the lifting devices while the latter remain inoperative, means to engage said lifting devices with said selected frame, and means to actuate said lifting devices, substantially as and for the purpose specified.

2. In an apparatus of the class described, the combination of the following instrumentalities, viz: a reciprocating support or carriage provided with side bars, a plurality of card-frames suspended between said side bars and supported thereon to move therewith, means to reciprocate said carriage and move the same freely, and means to lock said carriage in a selected position, substantially as described.

3. In an apparatus of the class described, the combination of the following instrumentalities, viz: a card-supporting frame, mechanism to elevate and lower said frame in the same vertical plane, a shaft rotatable in one direction, and intermediate mechanism actuated from said shaft to intermittently operate said lifting and lowering mechanism and elevate the card-frame, hold it in its elevated position and then lower it while the said shaft continues to rotate, substantially as and for the purpose specified.

4. In an apparatus of the class described, the combination of the following instrumentalities, viz: a card-supporting frame, mechanism to elevate and lower said frame in the same vertical plane, a shaft rotatable in one direction, and intermediate mechanism to actuate said elevating and lowering mechanism and comprising an oscillating gear connected with said elevating and lowering mechanism, a rack-bar meshing with said gear, a rotatable gear actuating said rack-bar, and means to rotate said gear, substantially as described.

5. In an apparatus of the class described, the combination of the following instrumentalities, viz: a card elevating and lowering mechanism, a continuously-rotatable shaft, a second shaft, a gear normally loose on said second shaft and driven from the first shaft, an oscillating gear or pinion connected with the card elevating and lowering mechanism, a clutch controlling the rotation of said second shaft, and an auxiliary clutch mechanism controlling the oscillation of the said gear or pinion and the operation of the elevating and lowering mechanism, and means to control said clutch mechanisms, substantially as described.

6. In an apparatus of the class described, the combination of the following instrumentalities, viz: a reciprocating support or carriage movable freely in opposite directions, a plurality of frames supported thereon and movable therewith, a rotatable selecting device, and mechanism to connect said selecting device with said carriage and means to engage said rotatable selecting device in predetermined position to lock the said carriage at predetermined points in its movement, substantially as described.

7. In an apparatus of the class described, the combination of the following instrumentalities, viz: a card-supporting frame, carriers to elevate and lower said frame in the same vertical plane, pivoted levers or supports for said carriers, mechanism to normally disengage said carriers from the card-supporting frame, and means to actuate said mechanism and engage said carriers with said supporting-frame, substantially as described.

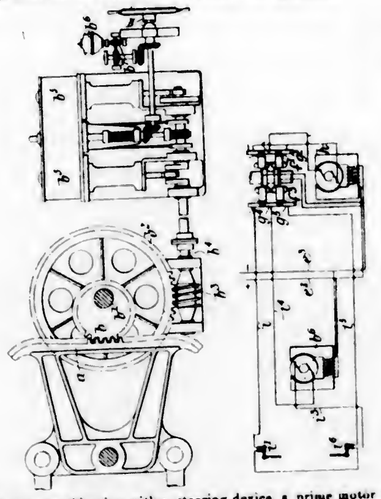
8. In an apparatus of the class described, the combination of the following instrumentalities, viz: a reciprocating carriage movable freely in a substantially-horizontal plane, a plurality of frames supported thereon, and mechanism normally out of the path of movement of said carriage but movable toward the same to engage a selected frame and elevate it from said carriage, hold it elevated a predetermined time, and then lower it again upon the said carriage, a motor mechanism to actuate said elevating and lowering mechanism, and means to control the action of the motor mechanism upon the elevating and lowering mechanism, substantially as described.

646,169. APPARATUS FOR ELECTRICALLY CONTROLLING ENGINES, ELECTROMOTORS, OR OTHER MACHINERY. WILLIAM H. HARFIELD, London, England. Filed Jan. 16, 1899. Serial No. 702,527. (No model.)

Claim.—1. In a controlling device, the combination with an electric motor and a circuit therefor, circuit-controlling devices in said circuit, including stationary and movable contacts, an operating device for said movable contacts, a second electric motor in said circuit, and operative connections between said second motor and said movable contacts for restoring them to their normal positions, whereby the first-mentioned motor will be caused to operate whenever the operating device is moved and will cease to operate the instant the operating device is stopped, substantially as described.

2. In a controlling device, the combination with an electric motor, a circuit therefor and connections between said motor and the mechanism to be controlled, of circuit-controlling devices for said motor, including stationary contacts and movable contacts normally out of contact with said stationary contacts, a hand-operated device connected with said movable contacts for moving them into contact with said stationary contacts, a second electric motor in said circuit operative connections between said second motor and said movable contacts for restoring them to their normal positions, whereby the first-mentioned motor will be caused to operate when the hand-op-

erated device is moved and will cease instantly to move when the hand-operated device is stopped, substantially as described.

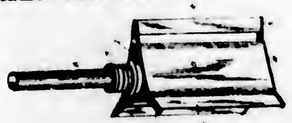


3. The combination with a steering device, a prime motor for operating the same and a control device for said prime motor, of an electromotor operatively connected with said control device, a circuit-controller having a stationary and a movable part, contacts on said stationary part connected with the said electromotor, contacts on said movable part to engage said stationary contacts, circuit-breakers in the circuit of said electromotor having operating parts in the path of a part of the said steering device to cut out said electromotor when the latter reaches its limit of movement in either direction, a hand-operated device for moving the movable part of said circuit-controller, a second electromotor operatively connected with said movable part for restoring it to its normal position, and independent contacts on said stationary and movable parts of said circuit-controller for operating said second electromotor, substantially as described.

4. The combination with a prime motor, and a control device therefor, of an electromotor operatively connected with said control device, a circuit-controller provided with a stationary part and a longitudinally-movable, revoluble shaft, provided with a screw, contacts on said stationary part and said shaft for controlling said electromotor, a hand-operated device for rotating said shaft, a revoluble wheel mounted in stationary bearings and provided with a central threaded aperture engaging the screw on said shaft, a second electromotor for driving said wheel and independent contacts on said stationary part of the controller and on said shaft for controlling said second motor simultaneously with said first motor, substantially as described.

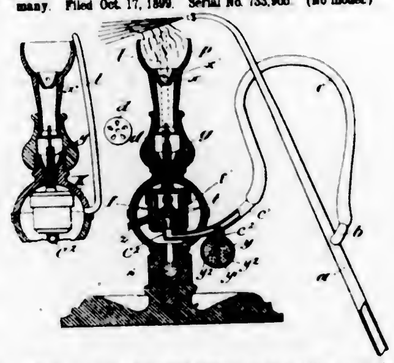
5. The combination with an electromotor, of a circuit-controller therefor having a stationary part provided with contacts connected with said motor, and a revoluble and longitudinally-movable shaft provided with a screw hand-operated mechanism for revolving said shaft, a wheel mounted in stationary bearings and provided with a threaded apertnre engaging said screw, a second electromotor operatively connected with said wheel, contacts on the stationary part of the circuit-controller connected with said motor and independent contacts on said shaft for engaging the aforesaid stationary contacts for controlling both of said motors simultaneously, substantially as described.

646,170. **CHURN-DASHER.** ASA HAZELTON, Middletown, Mo., assignor of one-half to William S. Boyd, Vandalia, Mo. Filed Aug. 29, 1899. Serial No. 728,898. (No model.)



Claim.—A device of the class described comprising a receptacle triangular in horizontal section and composed of side walls and upper and lower heads having radial arms extending outward from the angles of the receptacle, the upper head being provided with an opening and having a threaded annular flange surrounding the opening, the blades 4 mounted between the outer portions of the arms and spaced from the corners or angles of the receptacle, and a hollow dasher-stem provided at its lower end with a threaded flange detachably engaging the flange of the receptacle and forming a filling-tube, substantially as and for the purpose described.

646,171. **BLOWPIPE-LAMP.** JOHANN HEINL, Pforzheim, Germany. Filed Oct. 17, 1899. Serial No. 733,905. (No model.)



Claim.—1. In a blowpipe-lamp, a gas-controlling valve in combination with a blast-pipe, a cylinder communicating with the blast-pipe, a piston arranged to reciprocate within said cylinder, and means between the piston and the valve comprising a longitudinal connecting-rod secured to the piston, whereby the movement of the former actuates the latter.

2. In a blowpipe-lamp, a gas-controlling valve in combination with the blast-pipe, a cylinder communicating with the blast-pipe, a cup-shaped piston within said cylinder and a longitudinal rod connecting the piston with the valve.

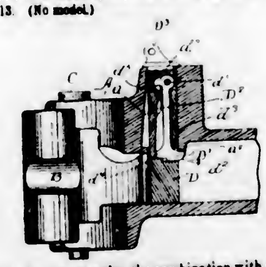
3. In a blowpipe-lamp, a gas-controlling valve in combination with a blast-pipe, a cylinder communicating with the blast-pipe, a piston within said cylinder, a longitudinal rod connecting the piston with the valve, and a funnel with inward-turned flanges at its mouth, forming the exit of the blast-pipe and arranged below the piston.

4. In a blowpipe-lamp, a gas-controlling valve and a blast-pipe for actuating the same in combination with a moisture-trap consisting of a bulb communicating with the blast-pipe and a diaphragm dividing the blast-pipe and extending entirely across the same and from the top thereof to a point near the bottom of the bulb.

5. In a blowpipe-lamp, a gas-controlling valve, and a blast-pipe for actuating the same in combination with a bulb filled with moisture-absorbent material, and a diaphragm dividing the blast-pipe and extending to a point near the bottom of the bulb.

6. In a blowpipe-lamp, a gas-controlling valve, and a blast-pipe for actuating the same in combination with a moisture-trap arranged on the blast-pipe, an air-cylinder connected with the blast-pipe and a piston within the same and a funnel with inward-turned flanges at its mouth forming an exit of the blast-pipe and arranged below the cylinder.

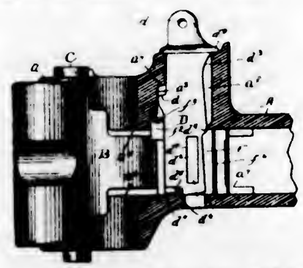
646,172. **CAR-COUPLING.** GUSTAF HERMANSON, Chicago, Ill., assignor to James Munton, Maywood, Ill. Filed Oct. 10, 1898. Serial No. 693,113. (No model.)



Claim.—1. In a car-coupler, the combination with a forked draw-head and pivoted knuckle, of a vertically-sliding gravity-lock provided with a movable latch or stop pivoted thereto and adapted to project out and engage the wall of the draw-head when the knuckle is closed and thus prevent creeping of the lock and to withdraw from such engagement to permit the lock to be lifted when uncoupling the cars, and a lifting pin or block D^2 having a sliding movement on said lock and adapted to engage said latch to withdraw it from engagement with the draw-head substantially as specified.

2. The combination with the draw-head and knuckle of a car-coupler, of a gravity-lock D, a movable latch or stop D', pivoted to said lock and having locking projection d^3, and operating-arm d^4, and lifting pin or block D^2 provided with projection d^5 engaging the operating-arm of the movable latch or stop, substantially as specified.

646,173. **AUTOMATIC COUPLING FOR RAILWAY-CARS.** GUSTAF A. HERMANSON, Chicago, Ill., assignor to James Munton, Maywood, Ill. Filed May 10, 1899. Serial No. 716,190. (No model.)



Claim.—1. The combination with a draw-head, knuckle and gravity-lock, of a pivoted shield or protecting-plate interposed between the lock and the tail of the knuckle and bearing against the upper wall of the draw-head, said draw-head having a projection or shoulder a^4 on the front wall and said lock having a projection on its front side adapted to fit under and engage said shoulder on the draw-head to prevent the lock from jumping, substantially as specified.

2. The combination with a pivoted knuckle of a draw-head having a lock passage-way furnished with a shoulder or projection on the front wall, of a gravity-lock having a shoulder or projection on its front side adapted to engage said shoulder on the draw-head to prevent the lock from jumping upward, said gravity-lock being made tapering in cross-section with its largest part toward the shoulder to aid in holding said shoulders in engagement, substantially as specified.

3. The combination with a pivoted knuckle, of a draw-head having a lock passage-way furnished with a shoulder or projection and an enlargement below the shoulder, of a gravity-lock having a shoulder or projection adapted to engage said shoulder in the draw-head to prevent the lock from jumping upward, the rear side of said lock having an offset and a curved or cam-shaped face, substantially as specified.

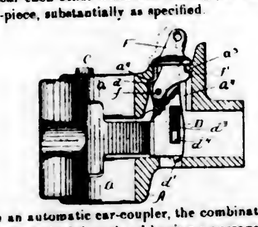
4. The combination with a pivoted knuckle, of a draw-head having a lock passage-way furnished with a shoulder or projection and an enlargement below the shoulder, of a gravity-lock having a shoulder or projection adapted to engage said shoulder in the draw-head to prevent the lock from jumping upward, the rear side of said lock having an offset and a curved or cam-shaped face, and a movable shield or protecting-plate interposed between the lock and the tail of the knuckle and bearing against the upper wall of the draw-head, substantially as specified.

5. In an automatic car-coupler, the combination with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end f fitting and abutting against a curved boss a^7 on the lower wall of the draw-head as a pivot, said shield or protecting-plate F having a fork or socket f' embracing a projection b' on the tail or rear arm of the knuckle, substantially as specified.

6. In an automatic car-coupler, the combination with a draw-head, of a pivoted knuckle, a gravity-lock and a shield or protecting-plate F having a curved rear end f fitting and abutting against a curved boss a^7 on the lower wall of the draw-head as a pivot, said shield or protecting-plate F having a fork or socket f' embracing a projection b' on the tail or rear arm of the knuckle, the tail or rear arm of the knuckle having a hook or projection b^2 for the limb f of said fork f' to fit against and thus prevent said shield or protecting-plate F from turning on its pivot when the knuckle is open, substantially as specified.

646,174. **AUTOMATIC COUPLING FOR RAILWAY-CARS.** GUSTAF A. HERMANSON, Chicago, Ill., assignor to James Munton, Maywood, Ill. Filed Oct. 30, 1899. Serial No. 735,154. (No model.)

Claim.—1. In an automatic car-coupler, the combination with a pivoted knuckle, of a forked draw-head having a passage-way for a gravity locking pin or block, furnished with a shoulder to engage a corresponding shoulder on the locking pin or block, a gravity locking pin or block having a shoulder adapted to fit under and engage said shoulder on the draw-head to prevent the lock from creeping, jumping or moving upward accidentally, and a pivotal lifting-piece hinged to the locking-block and serving by its pivotal or swinging movement to cause the shoulders on the locking-block and draw-head to clear each other when the locking pin or block is raised by the lifting-piece, substantially as specified.



2. In an automatic car-coupler, the combination with a pivoted knuckle, of a forked draw-head having a passage-way for a gravity locking pin or block, furnished with a shoulder to engage a corresponding shoulder on the locking pin or block, a gravity locking pin or block having a shoulder adapted to fit under and engage said shoulder on the draw-head to prevent the lock from creeping, jumping or moving upward accidentally, and a pivoted lifting-piece hinged to the locking-block and serving by its pivotal or swinging movement to cause the shoulders on the locking-block and draw-head to clear each other when the locking pin or block is raised by the lifting-piece, said lifting-piece being also provided with a shoulder or lip fitting under the shoulder on the draw-head when the lock is in its lowermost position, substantially as specified.

3. The combination with a forked draw-head and pivoted knuckle, of a locking pin or block and a lifting-piece pivoted thereto near its front side and serving, when the lock is suspended from the lifting-piece to cause the lower end of the lock to tilt forward over the corner of the knuckle, and thus support the lock in position for uncoupling, said draw-head having a passage-way for the locking-pin furnished with a shoulder, and said lifting-piece having a shoulder engaging the shoulder on the draw-head to prevent the lock from creeping upward, substantially as specified.

4. The combination in a car-coupler, with a forked draw-head having a vertical passage-way to receive a vertically-sliding locking pin, of a pivoted knuckle, a vertically sliding gravity locking-pin, a pivotal lifting-piece hinged at its lower end to said locking-pin near the front edge of said locking-pin, and provided with a lip or shoulder above its hinge-pivot and on the opposite side thereof from the hinge-pivot, the draw-head having a corresponding lip or shoulder engaging said shoulder on the pivotal lifting-piece to prevent the lock from creeping or moving upward accidentally, substantially as specified.

5. The combination with a forked draw-head and pivoted knuckle, of a locking pin or block and a lifting piece pivoted thereto near its front side and serving, when the lock is suspended from the lifting-piece to cause the lower end of the lock to tilt forward over the corner of the knuckle, and thus support the lock in position for uncoupling, the tail of said knuckle having a grooved projection b^3, and the lower end of the lock having a toe or projection d adapted to fit in said grooved projection on the knuckle-tail, said draw-head having a passage-way for the locking-pin furnished with a shoulder, and said lifting-piece having a shoulder engaging the shoulder on the draw-head to prevent the lock from creeping upward, substantially as specified.

6. The combination with a forked draw-head, pivoted knuckle and gravity-lock furnished with a shoulder adapted to fit under and engage a corresponding shoulder on the draw-head, and a lifting-piece pivoted to said lock and adapted by its swinging movement to cause the shoulders on the lock and draw-head to clear each other, substantially as specified.

646,175. **SLEEVE-BUTTON.** JAMES E. HILLS, New York, N. Y. Filed Apr. 26, 1899. Serial No. 714,606. (No model.)

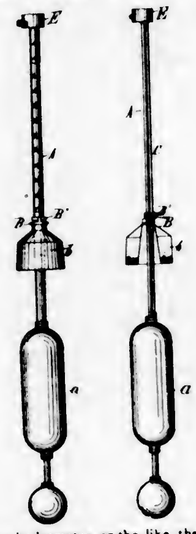


Claim.—1. In a cuff-button, a shank and shoe formed of a single piece of wire, bent to form a vertical portion with sides converging at the shoe, two eyes at an angle to said vertical portion and located on one side of said vertical portion, and a curved portion at an angle to said vertical portion and located upon the opposite side of said vertical portion.

2. A cuff-button formed of a single piece of wire, bent to form two horizontal semicircles, then to form a vertical portion with sides converging at the shoe, then to form two eyes at an angle to said vertical portion and located on one side of said vertical portion, and a curved portion at an angle to said vertical portion and located upon the opposite side of said vertical portion.

3. In a cuff-button, the combination of a shank and shoe formed of a single piece of wire, bent to form two horizontal semicircles, then to form a vertical portion with sides converging at the shoe then to form two eyes at an angle to said vertical portion and located on one side of said vertical portion, a curved portion at an angle to said vertical portion and located upon the other side of said vertical portion, and a head formed of a separate piece of metal.

646,176. SPECIFIC-GRAVITY APPARATUS. GOTTLOB HIMMEL, Tübingen, Germany. Filed Apr. 12, 1898. Serial No. 677,366. (No model.)

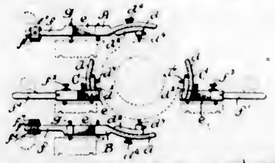


Claim.—1. In a hydrometer, or the like, the combination, with a buoyant scale, a float movable with relation thereto, and an indicator carried by said float, of a stop device acting on the indicator and arranged to lock it to the scale.

2. In a hydrometer, or the like, the combination, with a buoyant scale, and a revoluble flattened bar carried by the scale, of an indicator movable with relation to the scale, and clamp-jaws attached to the indicator and arranged to engage the revoluble bar when the latter is rotated in one direction and to release the bar when rotated in the other direction, whereby the indicator may be fixed to the scale at the desired point.

3. In a hydrometer, or the like, the combination, with a scale, a revoluble bar carried by the scale, and an indicator movable with relation to the scale, of means carried by the indicator and operated by the revoluble rod for locking the indicator with relation to the scale, a transversely-movable carriage arranged to rotate the rod, and a handle for operating the carriage.

646,177. DIAMOND-HOLDER FOR PANTOGRAPH ENGRAVING-MACHINES. JOHN HOPE and JOHN HOPE, Jr., Providence, R. I., assignors to the John Hope & Sons' Engraving and Manufacturing Company, same place. Filed June 13, 1898. Serial No. 683,253. (No model.)



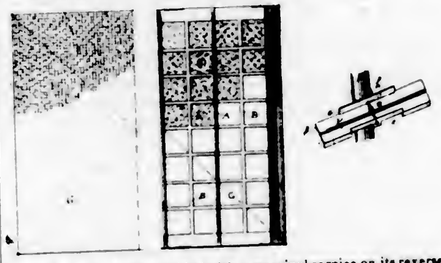
Claim.—1. In a diamond-holder for pantograph engraving-machines, the combination with the curved arm adapted to support the graver, the tailpiece and the pins supporting the holder, of the oblique arm, connecting the curved arm and the tailpiece, having the center of gravity of the material of the arm disposed to one side of a line from one pin to the other: whereby the holder is overbalanced on one side and the graver is held in contact with the work, as described.

2. In a diamond-holder for a pantograph engraving-machine, the combination with the holder, of supporting-pins projecting from the upper and lower surface of the holder, whereby the holder may be reversed, as described.

3. In a diamond-holder for pantograph engraving-machines, in combination, an oblique arm, supporting-pins, located on one side of the center of gravity of the holder, near the ends of the oblique arm, said pins projecting above and below the arm, a curved arm forming the support for the bolster carrying the graver, and a tailpiece; whereby the material of the oblique arm is disposed on one side of the supports so as to hold the gravers in contact with the roll to be engraved by the force of gravity exerted by the overweight of the oblique arm, as described.

4. In a diamond-holder for pantograph engraving-machines, in combination, a curved arm having a longitudinal slot and ways on the concave side of the arm, a bolster having a graver secured therein by a clamp-screw to project radially from the bolster, a tailpiece having a plate adjustably secured to regulate the contact with the rock-bar of the machine, two pins obliquely disposed to support the holder, and a connecting-bar having the material disposed to overweight the holder on one side of its support; whereby the graver is held in contact with the work by gravity, as described.

646,178. TILE AND MEANS FOR SECURING SAME IN PLACE. HENRI HUBERT, Detroit, Mich. Filed Apr. 13, 1898. Serial No. 677,458. (No model.)



Claim.—1. A tile provided with a marginal cornice on its reverse side, with two of the cornice-lines rabbeted and with recesses for the reception of a support, substantially as described.

2. A tile provided with a marginal cornice on its reverse side, and with grooved ribs crossing the tile, substantially as described.

3. A tile provided with a marginal cornice on its reverse side, with two rabbeted cornice-moldings, and with grooved ribs parallel to the rabbeted cornice-moldings, substantially as described.

4. The combination of a tile, with wires embedded therein crossing the tile diagonally, and projecting from the corners of the tile, substantially as described.

5. The combination of a tile, with wires embedded therein crossing the tile diagonally, projecting from the corners and provided with terminals adapted to engage supports, substantially as described.

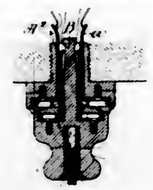
6. In combination with a tile, a ribbon of cushioning material secured to the edge of said tile, substantially as described.

7. A tile having an angular rabbet around its edge and a recess at each side of the tile adapted to receive a saddle, substantially as described.

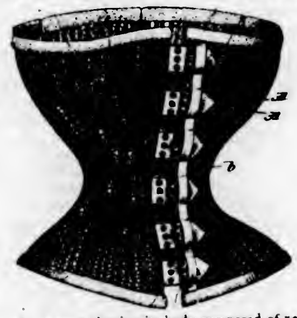
8. In combination with a tile provided with embedded wires having projecting ends, a saddle arranged with an opening to receive the projecting ends of said wire, substantially as described.

646,179. ELECTRIC COUPLING. ROBERT D. IRELAND, Winthrop, Mass. Filed Jan. 12, 1897. Serial No. 618,994. (No model.)

Claim.—An electric coupling comprising the socket A having resilient electric contacts extending upward therein, the plug H having toward its upper end a reduced portion and at said upper end an enlargement or head, and resilient electric contacts secured to and extending along said plug, and having their upper ends bent inward and adapted to lie in the reduced portion beneath said enlargement or head, whereby, when the plug is inserted into the socket said ends will be sprung beneath said enlargement or head by the engagement of the contacts of the plug with those of the socket, and be protected from contact with foreign substances, substantially as described.



646,180. APPAREL-CORSET. CÉLINA JULLIEN-BINARD, New York, N. Y. Filed Nov. 24, 1899. Serial No. 738,188. (No model.)

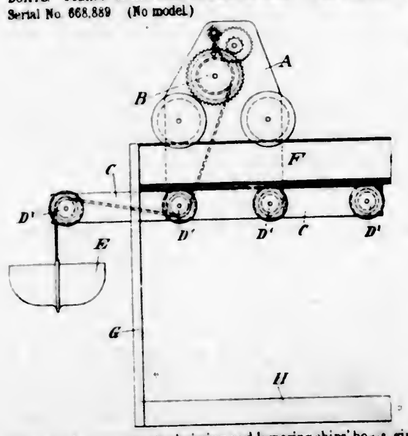


Claim.—1. A corset having its body composed of vertically-disposed flexible cords, united by a network of flexible non-elastic threads, the front vertical edges, and the top edges around the breast portion being stiffened by means of metal strips, substantially as described.

2. A corset having its main body composed of vertically-disposed cords united by a network of flexible non-elastic material, the cords adjacent to the front meeting edges being each provided with a parallel metal strip and a band or tape wrapped around said cord and strip and holding them together, substantially as described.

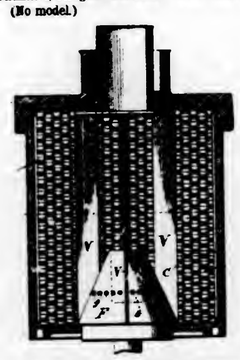
3. A corset comprising a series of vertically-disposed stiffened and wrapped cords, a network of threads uniting said cords, metal stiffening-strips secured to the said cords at each side of the front meeting edges, metal stiffening-strips engaging the upper ends of said cords adjacent to the breast portions of the corset and finishing-bands, inclosing the upper and lower ends of said cords, the upper band inclosing the stiffening-strips adjacent to said breast portions, substantially as described.

646,181. APPARATUS FOR HOISTING OR LOWERING SHIPS' BOATS. JOHANN H. KLENCKE, Bremen, Germany. Filed Feb. 2, 1898. Serial No. 668,889. (No model.)



Claim.—In apparatus for hoisting and lowering ships' boats, girders supported above the deck, a winch mounted on wheels and adapted to roll on said girders, outrigger-beams attached to the winch-frame below the girders and adapted to be extended outboard, pulleys on said outriggers, and a rope wound on the winch-drum and running on said pulleys and adapted to be attached to a boat to be lowered or hoisted, substantially as described.

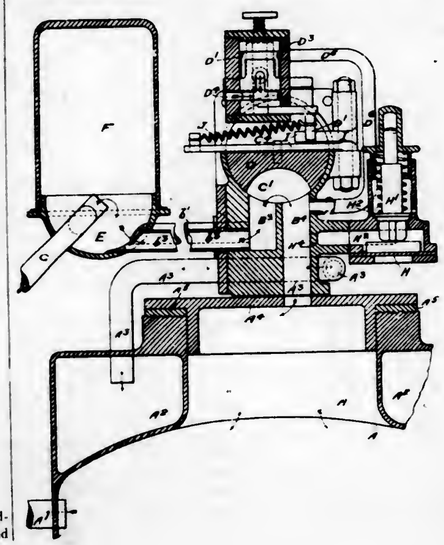
646,182. CENTRIFUGAL CREAMER. JOHN LAIDLAW and JAMES W. MACFARLANE, Glasgow, Scotland. Filed July 20, 1896. Serial No. 599,903. (No model.)



Claim.—1. A centrifugal machine for separating liquids of different densities comprising a drum, an annular liner built up of sectional flat plates having a large central opening and grooves or channels forming horizontal passages or ducts extending from the central opening to the circumference of the liner and providing complete involute curves to the radius, and the radial vanes, and the cone provided with holes and a central passage and located within the central opening of the liner, substantially as described.

2. A centrifugal machine for separating liquids of different densities comprising a drum, an annular liner built up of sectional flat plates, having a large central opening and grooves or channels forming horizontal passages or ducts extending from the central opening to the circumference of the liner and providing complete involute curves to the radius, the plain disks located between the plates; and the radial vanes, and a cone provided with holes and a central passage and located within the central opening of the liner; substantially as described.

646,183. MILKING APPARATUS. WILLIAM H. LAWRENCE and ROBERT KENNEDY, Glasgow, Scotland. Filed May 9, 1899. Serial No. 716,076. (No model.)



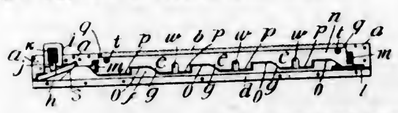
Claim.—1. In a milking-machine, the combination with pulsating apparatus operated by suction, of a milk-receptacle made with two compartments, one compartment A being connected to suction-producing apparatus and to a port B^5 in the pulsator and the other compartment A^2 connected to another port in the pulsator, and an air-admission valve H′ controlled by the vacuum so that in the compartment A^2 of the milk-receptacle a minimum degree of vacuum is maintained automatically by the action of the pulsator in conjunction with said air-admission valve.

2. In a pulsating apparatus operated by suction-producing apparatus at a distance therefrom, the combination of a cylinder B having in its four ports B', B^3, B^4, B^6 an inspection-cup E and maximum-vacuum chamber, the cylinder-ports being arranged in pairs and communicating one pair B^4, B^6 with the milk-pail and the inspection-cup E and the other pair B', B^3 with said cup E and with the minimum-vacuum storage A^2 and a piston C reciprocated by vacuum within said cylinder and having formed in it a recess C′ adapted to alternately connect the maximum and the minimum suction with the inspection-cup E.

3. In a milking apparatus operated by suction-producing apparatus at a distance therefrom, the combination with means for connecting the same with the teats of the animal to be milked, of a reversing-valve D formed with vertical grooves extending from annular grooves D', D^3 communicating one with a vacuum-chamber and the other with the atmosphere, the vertical grooves being so arranged that the pressure and vacuum act equally on all sides.

4. A teat-cup formed by a rubber sleeve M′ and a metallic cylinder M^3 through which the milk is drawn the sleeve M′ being fitted to slide upon the cylinder for adjustment to suit varying lengths of cows' teats.

646,184. PERFORATING-RULE. JULIUS A. LOFSTEDT, Yonkers, N. Y. Filed Aug. 4, 1899. Serial No. 726,142. (No model.)

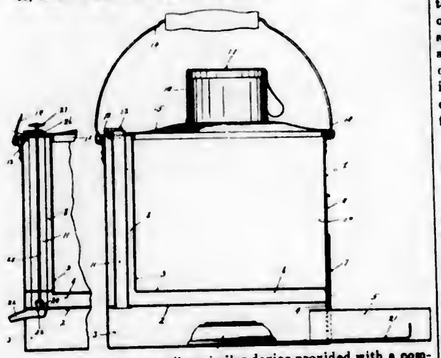


Claim.—1. In a peforating-ruler, the combination with the perforating-olade, *b n*, having the series of inclines *e* and facets *p* in its lower edge, and the lifting-bar *f* having the series of inclines *g* and facets *o* in its upper edge, and the incline extremity *s*, of the power-transmitting bar intermediate of the inclined extremity *s*, and the end spacing-piece, the push-stud and the retracting-spring, said stud adapted to act on said bar intermediate of its ends.

2. In a perforating-ruler, the combination with the perforating-blade, reciprocating blade-lifting bar, power-transmitting bar and retracting-spring, of the push-stud having the yielding plunger and compression-spring.

3. The combination with the side plates *c*, plate *n* and spacing-strip *d*, of the stud-screws *v* adapted to stay the side plates against compression, said plate *n* being notched for said stud-screws.

646,185. SELF-HEATING DINNER-PAIL. HARVEY L. MARLETT, Warner, S. D., and CHARLES MARLETT, Fargo, N. D. Filed July 13, 1899. Serial No. 723,662. (No model.)



Claim.—1. A dinner-pail or similar device provided with a combustion-chamber and an exhaust-flue opening therefrom, and a draft spout or box open at both ends and mounted for adjustment into and from said combustion-chamber through one wall thereof, substantially as described.

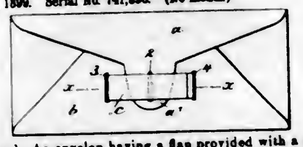
2. A dinner-pail provided with a combustion-chamber having an outlet passage or flue and the inlet-opening 4, and the draft spout or box 5, open at both ends and mounted for longitudinal adjustments through said inlet 4, to project the outer end thereof more or less from the side of the pail, substantially as described.

3. In a dinner-pail, the combination with the main compartment 10 and the combustion-chamber 3, of the coffee-compartment 8 extending under the entire bottom of said compartment 10 and up one side thereof, an inlet-opening to said chamber 3 and an outlet-flue 11 extended upward from said chamber 3 through the vertical portion of said compartment 8, substantially as described.

4. In a self-heating dinner-pail, the combination with a combustion-chamber and a coffee-compartment, of an outlet-flue opening through said coffee-compartment and a perforation or opening in the said coffee-compartment immediately adjacent to the said outlet-flue, whereby in melting the frozen liquid within the coffee-compartment, a vent is afforded, substantially as described.

5. In a dinner-pail, the combination with the body-section 1, having the combustion-chamber 3 with the inlet 4 and suitable outlet, of the draft spout or box 5 fitting said opening 4 and movable into said combustion-chamber, and the sliding door or gate for closing said opening 4, substantially as and for the purposes set forth.

646,186. ENVELOP. THEODALD W. T. MAXWELL, New York, N. Y., assignor to himself and Richard R. Vernon, Summit, N. J. Filed Dec. 29, 1899. Serial No. 741,890. (No model.)



Claim.—1. An envelop having a flap provided with a prolongation or tongue at its widest part with a slot in said tongue and parallel slots in the back of the envelop in line therewith, in combination with a sealing-strip of narrow paper or other suitable material adapted to be passed through the said slots with the ends lapping and connected by adhesive material, substantially as set forth.

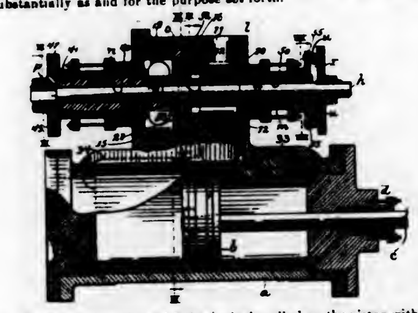
2. An envelop having a flap provided with a prolongation or tongue at its widest part with a slot in the said tongue transversely of the flap, and with slots in the back of the envelop parallel with the slot in the flap and in line with each other, in combination with a sealing-strip of narrow paper or other suitable material adapted to be passed through the said slots with the ends lapping and connected by adhesive material, substantially as specified.

3. An envelop having a flap provided with a prolongation or tongue at its widest part, with a slot in the said tongue transversely of the flap and with slots in the back of the envelop parallel with the slot in the flap in line therewith and in pairs at either side of the slot in the flap, in combination with a sealing-strip of narrow paper or other suitable material adapted to be passed through the pairs of slots and outside of the envelop and between the same with one end of the strip passed through the slot in the flap and with the ends lapped and connected by adhesive material, substantially as specified.

4. An envelop having a flap provided with a prolongation or tongue at its widest part with a slot in the said tongue transversely of the flap, and slots in the back of the envelop parallel with the slot in the flap and in line with each other and at each side of the slot in the flap, in combination with a sealing-strip of narrow paper or other suitable material adapted to be passed through the said slots in the back and one end through the slot in the flap with the free ends lapping and connected by adhesive material, substantially as and for the purposes set forth.

646,187. VALVE FOR ENGINES. JOAN H. MOORE, Cleveland, Ohio. Filed Nov. 15, 1899. Serial No. 737,115. (No model.)

Claim.—1. The combination, with the engine's cylinder; the piston within the cylinder, and the engine-shaft operatively connected with the piston, of a valve-casing having an exhaust-outlet and provided with a fluid-pressure inlet; a rotary valve within the valve-casing and having two ports formed therein diametrically opposite each other and arranged concentrically and extending one-fourth of the distance around the axis of the valve, which valve has one of the said ports in open relation with the exhaust-outlet of the valve-casing, and has the other port in open relation with the fluid-pressure inlet of the valve-casing; means adapted to rotate the said valve and operatively connected with the engine-shaft, and two ports formed in the valve-casing diametrically opposite each other and arranged concentrically and extending one-fourth of the distance around the axis of the valve and the said valve-casing ports being arranged as required to conduct fluid-pressure from the pressure-receiving port of the valve to the chamber of the cylinder during the operation of the engine, substantially as and for the purpose set forth.



2. The combination, with the engine's cylinder; the piston within the cylinder, and the engine-shaft operatively connected with the piston, of a valve-casing having a valve-accommodating and exhaust chamber and a fluid-pressure inlet; a suitably-operated rotary valve contained within the said chamber of the valve-casing and provided with two ports formed therein diametrically opposite each other and extending one-fourth of the distance around the axis of the valve, which valve has one of the said ports in open relation with the exhaust-chamber of the valve-casing, and has the other port in open relation with the fluid-pressure inlet of the valve casing, and has an aperture or perforation connecting the fluid-pressure-receiving port of the valve with the exhaust-chamber of the valve-casing; an annular seat for the valve formed internally of the valve-casing, and passage-ways establishing open relation between the different ports, respectively, of the valve and opposite ends, respectively, of the chamber of the cylinder, during the operation of the engine, substantially as and for the purpose set forth.

3. The combination, with the engine's cylinder; the piston within the cylinder, and the engine-shaft operatively connected with the piston, of a valve-casing arranged at the side of and parallel with the cylinder and having an exhaust-outlet and a fluid-pressure inlet; a rotary valve within the valve-casing, which valve has two ports formed therein, at opposite sides, respectively, of its axis, has one of the said ports in open relation with the exhaust-outlet of the valve-casing, and has the other port in open relation with the valve-casing's fluid-pressure inlet; a shaft bearing the said valve and arranged longitudinally of the path of the piston and operatively connected with the engine-shaft; an annular shoulder formed internally of the valve-casing and affording bearing for the valve, and two ports formed in the valve-casing at opposite sides, respectively, which valve-casing ports are in open relation, at one end, with opposite ends, respectively, of the chamber of the cylinder and have their opposite ends arranged as required to establish open relation between them and the different valve-ports, respectively, during the operation of the engine, substantially as and for the purpose set forth.

4. In an engine of the character indicated, the combination, with the fluid-pressure-receiving cylinder having two ports communicating with opposite ends, respectively, of the cylinder's chamber; the piston within the cylinder, and the engine-shaft operatively connected with the piston, of a suitably-supported valve-casing arranged at the side of and parallel with the cylinder and having an exhaust-chamber and provided with a fluid-pressure receiving chamber having an inlet; an annular valve-seat-forming wall formed between the last-mentioned chamber and the exhaust-chamber; two ports formed within opposite sides, respectively, of the said wall, which ports are in open relation with the different cylinder-ports, respectively, and extend to the surface of the aforesaid seat; a rotary valve operatively connected with the engine-shaft and having a face contiguous to the aforesaid seat; two ports formed within opposite sides, respectively, of the valve and arranged to register with the different ports, respectively, of the valve-casing during the rotation of the valve, one of the valve-ports being in open relation with the pressure-receiving chamber of the valve-casing, and the other valve-port being in open relation with the exhaust-chamber of the valve-casing, and the relative arrangement and length of the valve-ports and the valve-casing ports around the axis of the valve being such that, as soon as communication between the fluid-pressure-receiving port of the valve and one of the valve-casing ports shall be interrupted during the operation of the engine, communication shall have been established between the said fluid-pressure-receiving port and the other valve-casing port.

5. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder, and the engine-shaft operatively connected with the piston, of another shaft arranged parallel with the path of the piston; a rotary valve mounted upon the last-mentioned shaft and arranged in a plane at right angles to the path of the piston, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means adapted to rotate the said valve and operatively connected with the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine.

6. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; a rotary valve having an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine, of means for establishing operative connection between the valve and the valve-bearing shaft and arranged and constructed to permit a half-rotation of the valve independently of the valve-bearing shaft in the one or the other direction before causing the valve to rotate with the shaft, substantially as and for the purpose set forth.

7. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; a rotary valve having a sleeve loosely embracing the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine, of a pin or projecting member formed upon the valve-sleeve and revoluble with the rotation of the sleeve, and two stops formed upon and arranged at diametrically-opposite sides, respectively, of the valve-bearing shaft and arranged furthermore to limit the movement of the said pin or projecting member in opposite directions, respectively, independently of the valve-bearing shaft, substantially as and for the purpose set forth.

8. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; a rotary valve having a sleeve loosely embracing the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine, of a disk operatively connected with the valve-bearing shaft and having a slot or opening arranged concentrically of and extending half-way around the shaft, and a member engaging the said slot or opening and operatively connected with the aforesaid valve-sleeve, substantially as and for the purpose set forth.

9. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of

the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; a rotary valve having a sleeve embracing the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of a disk operatively connected with the valve-bearing shaft and having a slot arranged concentrically of and extending half-way around the shaft, and another disk operatively connected with the aforesaid valve-sleeve and provided with a pin engaging the aforesaid slot, substantially as and for the purpose specified.

10. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; a rotary valve having a sleeve embracing the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of a disk *p* operatively connected with the valve-bearing shaft and provided with the concentrically-arranged slot 45; another disk 41 operatively connected with the aforesaid valve-sleeve and provided with an annular flange or rim surrounding the slotted disk; a pin-forming stud engaging the aforesaid slot, and a nut upon the stud at the outer side of the slotted disk, substantially as shown, for the purpose specified.

11. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder, the piston within the cylinder, the engine-shaft operatively connected with the piston; another shaft; the rotary main valve operatively connected with the last-mentioned shaft; the valve-casing containing the said valve and provided with a seat for the valve, an exhaust-outlet and a fluid-pressure inlet; ports within the valve, valve-casing and cylinder having such arrangement that fluid under pressure shall be conducted through the valve and valve-casing into opposite ends of the cylinder alternately, and one end of the cylinder shall exhaust while the cylinder's other end is taking fluid under pressure, and a cut-off valve for regulating the supply of fluid under pressure through the main valve, and governor mechanism establishing operative connection between the cut-off valve and the valve-bearing shaft.

12. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve operatively connected with the last-mentioned shaft; the valve-casing containing the said valve and provided with a seat for the valve, an exhaust-outlet and a fluid-pressure inlet; ports within the valve, valve-casing and cylinder having such arrangement that fluid under pressure shall be conducted through the valve and valve-casing into opposite ends of the cylinder alternately, and one end of the cylinder shall exhaust while the cylinder's other end is taking fluid under pressure; of a cut-off valve mounted upon the valve-bearing shaft and arranged as required to render it capable of regulating the supply of fluid under pressure through the main valve, and governor mechanism establishing operative connection between the cut-off valve and the valve-bearing shaft, substantially as and for the purpose set forth.

13. The combination, with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve upon and operatively connected with the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of a cut-off valve mounted upon the valve-bearing shaft within the fluid-pressure-receiving chamber of the main valve and arranged and constructed as required to render it capable of regulating the supply of fluid under pressure through the main valve, and governor mechanism establishing operative connection between the cut-off valve and the valve-bearing shaft.

14. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve upon and operatively connected with the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of a cut-off valve mounted upon the valve-bearing shaft within the fluid-pressure-receiving chamber of the main valve and having the two oppositely-arranged heads 52 and 52, and governor mechanism establishing operative connection between the cut-off valve and the valve-bearing shaft, substantially as and for the purpose specified.

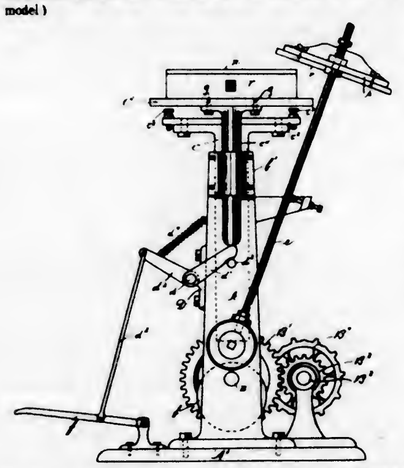
15. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve upon and operatively connected with the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of the cut-off valve mounted upon the valve-bearing shaft and arranged and constructed as required to render it capable of regulating the supply of fluid under pressure through the main valve and having a sleeve loosely embracing the valve-bearing shaft; two arms formed upon and projecting laterally from opposite sides, respectively, of the said sleeve; two weights supported from the valve-bearing shaft and arranged as required to render them capable of being moved apart by centrifugal force when an abnormally-high speed of the shaft obtains; such an operative connection between the weights and the sleeve of the cut-off valve as will render the cut-off valve operative during the operation of the weights by centrifugal force, and means acting to retain the weights in their normal position, substantially as and for the purpose specified.

16. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve operatively connected with the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve ports, respectively, during the operation of the engine: of a cut-off valve arranged within the main valve and provided with a sleeve that embraces the valve-bearing shaft; two weights supported from the valve-bearing shaft in such a manner as to render them capable of being moved apart when an abnormally-high speed of the shaft obtains; two arms formed upon opposite sides, respectively, of the sleeve of the cut-off valve and operatively connected with the different aforesaid weights, respectively, and means acting to retain the weights in their normal position, substantially as and for the purpose set forth.

17. The combination with the engine's cylinder having two ports communicating with opposite ends, respectively, of the chamber of

the cylinder; the piston within the cylinder; the engine-shaft operatively connected with the piston; another shaft; the rotary main valve operatively connected with the last-mentioned shaft, which valve has an exhaust-port and a fluid-pressure-receiving port formed therein, at opposite sides, respectively, of the valve-bearing shaft; means establishing operative connection between the valve-bearing shaft and the engine-shaft, and the valve-casing, for the aforesaid valve, having the following: a seat, internally of the casing, for the valve; an exhaust-outlet in open relation with the valve's exhaust-port; a fluid-pressure inlet in open relation with the valve's fluid-pressure-receiving port, and two ports connected with the different cylinder-ports, respectively, and arranged as required to simultaneously communicate with the different valve-ports, respectively, during the operation of the engine: of the cut-off valve *f* having the sleeve 50 and the two arms 55 and 55; the disk *r* having the radially-arranged slideways 60 and 60; the weights *w* and *w*; the links *u* and *u*, and the springs *s* and *s*, all arranged and operating substantially as shown, for the purpose specified.

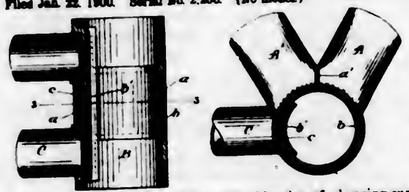
646,188. MACHINE FOR MAKING SAND MOLDS. WILLIAM MURCHEY, Detroit, Mich. Filed Mar. 6, 1899. Serial No. 707,862. (No model.)



Claim.—1. In a machine for making sand molds, in combination with a vertically-movable pattern-supporting table, a vertically-movable stripper-plate table, a swinging arm engaging under the stripper-plate table, arranged to lift, and then swing clear from its supporting position, and means for automatically returning the swinging arm to its supporting position, substantially as described.

2. In a machine for making sand molds, in combination with a pattern-table vertically movable, a stripper-plate also vertically movable, a swinging arm arranged to sustain the stripper-plate and means whereby the said swinging arm first lifts the said stripper-plate and then by a continuance of the same motion swings from under and allows the stripper-plate to drop, substantially as described.

646,189. BICYCLE-FRAME. NEFF R. PARISH, Cleveland, Ohio. Filed Jan. 22, 1900. Serial No. 2,260. (No model.)



Claim.—1. In a bicycle-frame, the combination of a bearing-support, with a single tube, said tube consisting of two angularly-arranged portions and an intermediate flattened portion forming a loop to support the bearing-support, in such a manner that the inner wall of said loop crosses the ends of the angular members, substantially as set forth.

2. In a bicycle-frame, the combination of a single tube consisting of two angularly-located relatively to each other, and having an intermediate double-walled flattened portion forming a loop, the inner wall of said loop crossing the ends of the angular members, and a bearing-support located in said loop, substantially as set forth.

3. In a bicycle-frame, the combination of a single tube consisting of two members angularly located relatively to each other, and having an intermediate double-walled flattened portion forming a loop, said double-walled portion longitudinally continuous, the inner wall of said loop crossing the ends of the angular member, and a bearing-support located in said loop, substantially as set forth.

4. In a bicycle-frame, the combination of a bearing-support with a single tube, said tube consisting of two angularly-arranged portions and an intermediate double-walled flattened portion forming a loop, the inner surface of said loop coinciding with the exterior surface of the bearing-support, substantially as set forth.

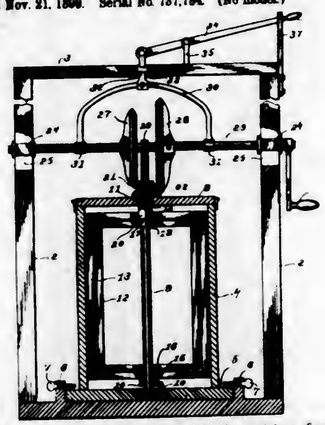
5. In a bicycle-frame, the combination of a single tube, said tube consisting of two angularly-arranged portions, and an intermediate portion forming a loop to support the bearing-support in such a manner that the inner wall of said loop crosses the ends of the angular members, said inner walls meeting around the bearing-support, and a bearing-support located in said loop, substantially as set forth.

6. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, their joining portion forming a bearing-support, a crank-hanger tube located in said support, and a fork secured to said tube intermediately of the latter and said support, substantially as set forth.

7. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, having a flattened intermediate portion forming a loop, a crank-hanger tube secured in said loop, and a fork having a flattened portion joining the two members thereof and secured to said tube intermediately of the latter and said loop, substantially as set forth.

8. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, having a flattened intermediate portion forming a loop, a crank-hanger formed with a circumferential and a longitudinal depression upon its outer surface, and a fork consisting of two members which are joined by a flattened portion, said loop secured in said circumferential depression and said flattened fork portion secured in said longitudinal depression intermediately of said tube and loop, substantially as set forth.

646,190. CHURN. JOSEPH A. PARKER, Dripping Springs, Tex. Filed Nov. 21, 1899. Serial No. 737,784. (No model.)



Claim.—1. In a churn, the combination with a frame, and a churn-body, having a dasher, of a vertically-movable and substantially-horizontal transverse drive-shaft, provided with a gear-wheel in operative connection with the dasher, a yoke-shaped bracket, having its opposite ends connected to the drive-shaft and at opposite sides of the gear-wheel, and a lever fulcrumed upon the frame, and connected to the yoke-shaped bracket.

2. In a churn, the combination with a frame, having vertically-slotted uprights, and an upper cross-bar connecting the uprights, of a churn-body located between the uprights, and provided with a dasher, a substantially-horizontal drive-shaft, having its opposite ends slidably mounted in the slots of the uprights, and also provided with a gear-wheel in operative connection with the dasher, a yoke-shaped bracket, having its opposite ends provided with bearing-sleeves receiving the drive-shaft, and located at opposite sides of the gear-wheel,

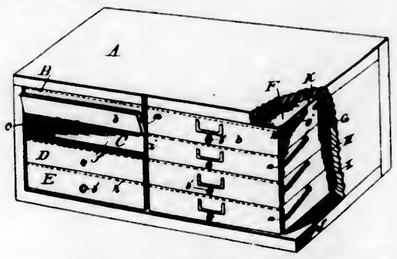
an upright link connected to the bracket and passing loosely through an opening formed in the upper cross-bar, a lever fulcrumed upon said cross-bar, and pivotally connected to the link, and a rack adjustably engaging the lever.

3. In a churn, the combination with a churn-body, having a cover provided with a central opening, of a non-rotatable dasher-rod extending through the opening in the cover, inner and outer dasher members mounted to turn independently upon the dasher-rod, a rotatable sleeve mounted upon the dasher-rod, projecting in opposite directions through the opening in the cover, provided at its lower end with an angular portion detachably fitting a similar angular opening in the inner dasher member, and having its upper end provided with a beveled gear, a second sleeve rotatable upon the first sleeve, having an angular portion detachably fitting an angular opening in the outer dasher member, and also provided with a beveled gear, and a drive-shaft, having beveled gears in mesh with the respective dasher-gears, and means for operating the drive-shaft.

4. In a churn, the combination with a frame, and a churn-body, having a rotatable dasher, of a non-rotatable dasher-rod projecting above the top of the churn, and a transverse drive-shaft, having an operative connection with the dasher, and means for operating the drive-shaft, the upper end of the dasher-rod engaging the drive-shaft and forming a bearing therefor.

5. In a churn, the combination with a frame, and a churn-body, of a vertically-disposed non-rotatable dasher-rod, extending above the top of the churn-body, and having its upper end provided with a fork, dasher members mounted to turn upon the dasher-rod, beveled gears mounted upon the dasher-rod and connected to the respective dasher members, a transverse drive shaft, having its intermediate portion seated in the fork of the dasher-rod, spaced gear-wheels carried by the drive-shaft, located at opposite sides of the dasher-rod, and in mesh with the respective dasher-gears, and means for operating the drive-shaft.

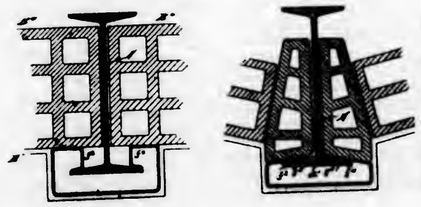
646,191. FILING-BOX CABINET. RALPH W. POPE, Elizabeth, N. J. Filed Feb. 11, 1899. Serial No. 705,247. (No model.)



Claim.—1. A filing-box provided with a front end door entirely closing the box and hinged on one edge, a helical spring attached to the box and to said door, and projections extending from the side of the box adjacent to the spring to a greater distance than the diameter of the spring and adapted to clear the spring so that it may move freely when said projections are in contact with an adjoining body.

2. A filing-case comprising a plurality of stationary sections each section or box having a hinged door entirely closing the front end of the box and a helical metallic spring attached to the door and to the side of the box and projections extending from said side of each box extending beyond the spring and adapted to free the spring when the projections are in contact with an adjoining box or body, and a case or frame inclosing and holding the sections comprising the filing-case.

646,192. BEAM-COVERING. CORYDON T. PURDY, New York, N. Y. Filed Sept. 10, 1898. Serial No. 690,636. (No model.)



Claim.—1. As a new article of manufacture, a channeled shield for the protection of flanges of beams from fire, having a width on the channeled side greater than that of the flange of the beam which it is designed to cover, and having edges turned inward, on both sides alike and carrying lugs or shoulders projecting internally therefrom and near the edges, the two lugs or shoulders being separated by a distance equal to the width of the flange of the beam, substantially as described.

2. The combination of a channeled shield for the protection of the flanges of beams, so shaped that it can be hooked over the flange and put in place without its form being changed in the operation, the beam to which the same is attached, and filling material adjacent thereto arranged to securely lock the shield in place without requiring the employment of other fastening elements, substantially as described.

3. The combination of a metal beam; filling material adjacent thereto; and a channeled shield, fashioned before use to an exact and unchangeable form, engaging and covering a portion of the beam, inclosing an open air-space, and locked fast in place by the filling material without other fastening elements; substantially as described.

4. The combination of a metal beam; a filling material adjacent thereto, forming a ceiling, protecting material under the ceiling and adjacent to the web of the beam, and a channeled shield, fashioned before use to an exact and unchangeable form and adapted to engage and cover the bottom flange of a beam, inclosing an open air-space on both edges and under the flange, and locked fast in place by the protecting material adjacent to the web of the beam without other fastening elements; substantially as described

5. The combination of a metal beam, protecting material on each side of the web thereof, and two channeled shields, each of which is fashioned before use to an exact and unchangeable form, each engaging and covering a flange of the beam inclosing open air-spaces on both edges and outside of the flanges of the beam, and locked fast in place by the protecting material adjacent to each side of the web of the beam, substantially as described.

6. A new article of manufacture consisting of the combination of a piece of incombustible material properly shaped, and inflexible angular metal parts fixed thereto, the whole shaped to an exact form before use, and adapted to protect ironwork in buildings from fire, substantially as described.

7. The combination with a flanged metal supporting member, of a protecting-shield therefor located relative to the flange to form an intervening air-space and having relatively-fixed securing and supporting edges bent inward, and arranged to rest on the outer edges of the flange.

8. As a new article of manufacture, a channeled shield for the protection of flanges of beams from fire, embracing the flange of the beam which it is designed to cover, and having edges turned inward, on both sides and carrying abutting lugs or shoulders projecting internally therefrom, substantially as described.

9. The combination with a flanged supporting member, of a protecting-shield therefor, having sides with interned securing portions, overhanging the edges of the flange the distance between the securing portion on one side and the diagonal opposite point of the interior of the shield being greater than the width of the flange, substantially as described.

10. As a new article of manufacture, a channeled shield for the protection of flanges of beams from fire, having a width on the channeled side greater than that of the flange of the beam which it is designed to cover, and having edges turned inward, on both sides alike, and carrying shoulders, near the edges, the said shoulders being separated by a distance equal to the width of the flange of the beam, substantially as described.

11. As a new article of manufacture, a channeled shield for the protection of the flanges of beams from fire, constructed with edges turned inward to embrace the flange of the beam which it is designed to cover, and having abutting shoulders separated by a distance equal to the width of the flange of the beam, substantially as described.

646,198. VEHICLE RUNNING-GEAR. ALEXANDER P. ROBINSON, Webster Grove, Mo. Filed Nov. 20, 1899. Serial No. 737,843. (No model.)

Claim.—A running-gear comprising a pair of I-beams converging inwardly from their forward ends diverging from their middle part, and parallel at their rear ends, the tie-straps and bolts whereby the I-beams are secured together at their forward ends while the tongue is supported by the upper and lower flanges of the forward ends, the transverse apertured block slipped onto the rear ends of the I-beams, the fifth-wheel ring supported on the I-beams having a cross-bar supported on the transverse block, the side bars acting as stays and supported from the fifth-wheel and transverse block, and

the angle-shaped cross-beams and cross-bar strapped to the side bars; substantially as described.



646,194. BED-ROBE FOR INVALIDS. MARY E. SIMS, San Angelo, Tex. Filed Sept. 30, 1899. Serial No. 732,182. (No model.)



Claim.—1. A bed-gown having its body portion divided into two longitudinal sections having their edges separably connected together, one line of division running entirely up the front and the other entirely up the back and each section carrying one of the sleeves of the garment, and a belt connected to the garment at the back, its free ends being adapted to be brought to the front and secured, as and for the purposes set forth.

2. A night-robe having its body portion divided longitudinally into two sections, the lines of division extending from the neckband to the lower end of the garment and one running centrally down the back and the other centrally down the front and each section carrying a sleeve, a row of fastening devices connecting the front edges and two fastening devices connecting the rear edges, one at the neckband and the other below the waist portion, and a belt consisting of two straps, one on each section, as and for the purpose set forth.

3. A bed-gown having its body divided longitudinally into two sections, the lines of division extending from the neckband to the lower end of the garment both down the front and down the back thereof and each section carrying a sleeve, fastening devices detachably connecting the edges of the sections, and a two-part belt, each part having one of its ends attached to one of the sections at the rear edge thereof, whereby the ends of the belt-sections may be brought around the body in opposite directions and secured together in front.

4. A bed-gown having its body portion divided longitudinally into two sections, the lines of separation extending from the neckband to the lower end of the garment, whereby the sections may be entirely separated and each section will carry one sleeve, fastening devices detachably connecting the front edges of the sections and two fastening devices connecting the rear edges thereof, one of these devices being located at the neckband and the other below the waist portion, and a belt secured to the garment at a point between said rear fastening devices.

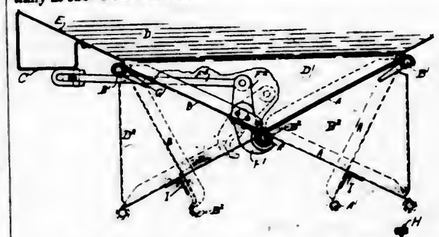
646,195. CAR-BOTTOM. EDGAR W. SUMMERS, Akron, Ohio. Filed June 28, 1899. Serial No. 722,177. (No model.)

Claim.—1. The combination, in a car-bottom, of doors with their outer ends hinged at or near the sides of car, and also hinged at the intersection of their inner ends, the axes of hinges being lengthwise of the car.

2. The combination in a car-bottom of one or more than one pair of doors, hinged at their inner and outer ends, and which may be released at their hinged ends.

3. The combination in a car-bottom, of doors hinged at their inner and outer ends with their sides upturned, and with fixed plates in the car-bottom extending downward, overlapping the upturned edges of doors.

4. The doors A and B with the hinges at their outer ends, and at the intersection of the doors, and the release mechanism, substantially as shown and described.



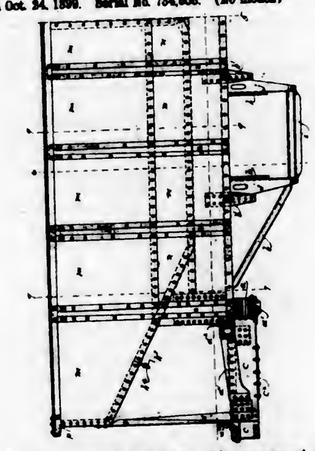
5. The combination in a car-bottom of doors hinged at two opposite edges, the axis of hinges being lengthwise of car and of a latch mechanism for releasing the doors at their hinged edges.

6. The combination in a car-bottom of doors in pairs, hinged at both their inner and outer edges, and of substantially-vertical plates extending crosswise of the car from the floor downward, between which plates the doors may open and close, the plates forming the sides of a chute which is adapted to convey the contents of the car out over the car-track rail.

7. The combination, in a car-bottom, of doors hinged at both their inner and outer ends, the axes of the hinges being lengthwise of the car, and of stops fixed under the doors in a position that will stop the lower end of doors when either the inner or outer end of door is released, holding the released end of door above the level of the top of the car-track rail.

8. The combination, in a car-bottom, of doors hinged at both their inner and outer ends, the axes of the hinges being lengthwise of the car, of floor-plates sloping in and down from the side of the car to the outer end of the doors.

646,196. METALLIC CAR. EDGAR W. SUMMERS, Akron, Ohio. Filed Oct. 24, 1899. Serial No. 734,658. (No model.)



Claim.—1. A car-body having its sides composed of plates of metal, the lower part of the side plate forming one side of a triangular member, the other sides being formed with plate *e* and plate *f*, substantially as and for the purpose set forth.

2. A car-body, having its sides composed of plates of metal, the plate at the upper edge of the car side being flanged outward and downward, the downturned edge being riveted to the outturned end of the stiffener, substantially as and for the purpose set forth.

3. In a car the floor-plates of metal being flanged downward at their intersection, riveted together through such flanges, the flanged joints extending crosswise of the car, the plates being flanged at their intersection with the car side and riveted through such flanges to the car side, the flanges being integral parts of the plate.

4. In a hopper-bottom car, the end floor-plate having its lower edge flanged downward, its upper edge turned up forming the end of the car, its sides flanged and riveted to the car sides, substantially as described.

5. In a car, metallic floor-plates flanged downward and such flanges riveted to the bolster for the purpose set forth.

6. In a car, metallic floor-plates flanged downward and such flanges riveted to transverse floor-beams.

7. A hopper-bottom car, having its floor composed of plates of metal, flanged downward at the intersection of the plates, such flanges extending crosswise of the car and riveted together through the flanges, the plates being flanged at their intersection with the car sides and riveted through such flanges to the car side, the flanges being integral parts of the plate.

8. The floor-plate *A*, with its upper portion at an inclination and in the plane of the floor, its lower portion substantially vertical and extending down to the closed position of the doors, the vertical portion being riveted to the side plate of the chute the said side plate being flared out or offset away from plate *A* far enough to admit the upturned flanges of the door between the two plates, substantially as and for the purpose set forth.

9. In a hopper-bottom car, the floor-plate *f*, forming the side sloping portion of the floor and extending under the end sloping portions of the floor, its upper edge flanged and riveted through such flange to the car side, its lower edge being riveted to plate *e*, substantially as and for the purpose described.

10. In a hopper-bottom car, a substantially-horizontal plate at each side of the lower edge of the car-body, extending longitudinally (with regard to the length of the car,) from bolster to bolster and connected thereto, its outer edge being flanged and riveted through such flange to the car side, its inner edge being riveted to plate *f*, substantially as and for the purpose set forth.

11. In a hopper-bottom car, a transverse horizontal girder, having its web-plate attached to the draw-beam and to the upper and lower parts of the bolster, being adapted to transmit the forces (caused by the draw-beam action) to the sides of the car, substantially as and for the purpose described.

12. In a hopper-bottom car, a transverse horizontal girder attached to the draw-beam, having its greatest depth near the longitudinal center line of the car, and tapering from the side toward the end of the car, to its shallowest depth near the side of the car, leaving a large open space between the ends of adjacent cars, substantially as set forth.

13. In a hopper-bottom car, a draw-beam extending from the bolster to the end of the car, the outer end of the draw-beam depending on the overhanging part of the car-body for its vertical support, substantially as described.

14. In a hopper-bottom car, a draw-beam, having its body of an inverted-trough-shaped section with its lower edges flanged outward, its inner end attached to the bolster, substantially as and for the purpose set forth.

15. In a hopper-bottom car, a body-bolster composed of an upper and a lower part, the upper and lower parts being flanged at their intersection and riveted through said flanges to each other and to the horizontal transverse girder, substantially as described

16. In a hopper-bottom car, a body-bolster, composed of an upper and a lower part, its upper part being riveted through its upper edge to the downturned flange of a floor-plate, its ends being flanged and such flanges being riveted to the car side, substantially as and for the purpose described.

17. In a hopper-bottom car, a body-bolster composed of an upper and a lower part, the upper part being riveted to the floor-plate, substantially as described.

18. In a hopper-bottom car, a body-bolster composed of an upper and a lower part, the lower part being bellied down, supporting the center bearing-plate on its under side, also being riveted to the end flanges of the draw-beam, substantially as described.

19. In a car, a transverse floor-beam, having its upper edge riveted to the downturned flange of a floor-plate, and its ends attached to the side plates for support.

20. In a hopper-bottom car, a transverse floor-beam, having its upper edge riveted to the downturned part of a floor-plate for the middle portion of the beam, and for the end portions to the horizontal plates *e*, substantially as and for the purpose set forth.

21. In a hopper-bottom car, the cross-strut *r*, being in cross-section of an oval shape with the plate of which it is made riveted together on one side of the strut, its ends flanged out for connection to the car sides substantially as shown.

22. In a metallic car the stiffeners for side plates of a substantially-triangular cross-section, flanged out at the base of the triangle for riveting to the side plates and curved to a small radius at the apex of the triangular cross-section for the purpose described.

646,197. MOTOR. HENRY T. VADNER, Philadelphia, Pa. Filed Dec. 7, 1899. Serial No. 739,528. (No model.)

Claim.—1. A motor having a plurality of cylinders provided with pistons connected with a common shaft, a valve-casing having a plurality of feed-ports communicating at all times with a common constant supply and a plurality of combined feed and exhaust ports communicating with said cylinders, a hollow valve in said casing rotatable with said shaft, said valve being also capable of a partial rotation relative to said shaft, teeth on said valve, a rotatable lever having a finger adapted to engage said teeth and rotate said valve, said valve being provided with a chamber, having a port communicating at all times with said feed-ports of the valve-casing, and a port communicating with said combined feed and exhaust ports, the latter ports of said chamber being of sufficient size to communicate at the same time with two of said combined feed and exhaust ports, and said valve being provided with an exhaust-chamber having a port communicating with said combined feed and exhaust ports and of sufficient size to communicate at the same time with two of said ports.



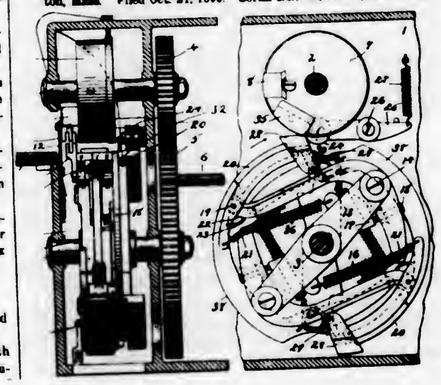
2. A motor having a plurality of cylinders provided with pistons connected with a common shaft, a valve-casing, a valve therein for controlling the feed and exhaust of said cylinders, means for causing said shaft and valve to rotate in unison, said valve being capable of a partial rotation relative to said shaft, teeth on said valve, and a lever pivotally mounted and adapted to engage said teeth and rotate said valve relative to said shaft.

3. A motor having a plurality of cylinders provided with pistons connected with a common shaft, a valve-casing, a valve therein for controlling the feed and exhaust of said cylinders, said valve having an annular projecting series of notches or teeth, means for causing said shaft and valve to rotate in unison, said valve being capable of a partial rotation relative to said shaft, and a lever pivotally mounted and having a finger normally out of engagement with said notches or teeth, said finger being adapted to be moved into engagement with said teeth so as to rotate said valve relative to said shaft.

4. In a motor, a shaft, a plurality of cylinders provided with pistons connected to said shaft, a valve-casing, a valve therein for controlling the flow of the motive fluid, an arm 28 on said shaft, faces 29 and 30 located within said valve, said faces being adapted to be in contact with said arm, and means for reversing said valve.

5. In a motor, a shaft, a plurality of cylinders provided with pistons connected to said shaft, a valve-casing, a valve therein for controlling the flow of the motive fluid, an arm on said shaft, faces 29 and 30 located within said valve, said faces being adapted to be in contact with said arm, teeth on said valve, a lever movably supported and means on said lever for engaging said teeth and actuating said valve.

646,198. ROTARY MARKING-STAMP. HENRY E. WAITE, Newton, Mass. Filed Oct. 21, 1899. Serial No. 734,200. (No model.)



Claim.—1. In a rotary marking-stamp, a printing-couple comprising a revolving marker and a revolving impression-pad, one of which is movable toward and from its center of revolution and yieldingly projected away therefrom so as to assume printing relation with the other member, a fixed support, a rejector yieldingly mounted on said support and engaging the said yielding printing member in each revolution of the latter, and displacing the same from printing relation with the other member when the yielding member is unlocked, and letter-controlled means revolving with the yielding member for locking the letter in printing position when a letter is present.

2. In a rotary marking-stamp, a printing-couple comprising a revolving marker and a revolving impression-pad, one of which is movable toward and from its center of revolution and yieldingly projected away therefrom so as to assume printing relation with the other member, a fixed support, a spring-held lever pivoted thereon and carrying a roller adapted to engage the said yielding printing member in each revolution of the latter and displace the same from printing relation with the other member when the yielding member is unlocked, and letter-controlled means revolving with the yielding member for locking the latter in printing position when a letter is present.

3. In a rotary marking-stamp, a printing-couple comprising a revolving marker and a revolving impression-pad, one of which is movable toward and from its center of revolution and yieldingly projected away therefrom so as to assume printing relation with the other member, a rejector engaging said yielding printing member in each revolution of the latter and displacing the same from printing position when the yielding member is not locked, a letter-controlled lock revolving with said yielding member and adapted to lock the latter in printing position when a letter is present, and yielding means normally retracting said lock or holding it out of locking position.

4. In a rotary marking-stamp, a printing-couple comprising a revolving marker and a revolving impression-pad, one of which is movable toward and from its center of revolution and yieldingly projected away therefrom so as to assume printing relation with the other member, a rejector engaging said yielding printing member in each revolution of the latter and displacing the same from printing position when the yielding member is not locked, a letter-controlled lock revolving with said yielding member and adapted to lock the latter in printing position when a letter is present, and a letter-engaging trip positively connected with said lock and adapted to carry the latter into locking position.

5. In a rotary marking-stamp, a printing-couple comprising a revolving marker and a revolving impression-pad, one of which is movable toward and from its center of revolution and yieldingly projected away therefrom so as to assume printing relation with the other member, a rejector engaging said yielding printing member in each revolution of the latter and displacing the same from printing position when the yielding member is not locked, a pivoted lock revolving with said yielding member, a letter-engaged trip secured to said lock and oscillating on the same pivot therewith and adapted to carry said lock into position to lock the yielding member in printing position when a letter is present, and yielding means normally retracting said lock or holding it out of locking position.

6. In a rotary marking-stamp, a revolving support, a member of a printing-couple pivotally mounted on said support eccentrically to the axis of revolution thereof, means for oscillating said member inwardly toward said axis out of printing position when no letter is present, and a letter-controlled lock adapted to support the free end of the member and hold said member in printing position when a letter is present.

7. In a rotary marking-stamp, two revolving supports held in fixed bearings on opposite sides of the letter-path, a lever pivotally mounted on one of said supports eccentrically to the axis of revolution thereof, a member of a printing-couple mounted on one end of said lever, a cooperating member mounted on the other support, and a spring connected with said lever and normally projecting outwardly the end which carries the first said member.

8. In a rotary marking-stamp, a revolving support held in fixed bearings, a lever pivotally mounted on said support eccentrically to the axis of revolution thereof, a spring yieldingly projecting one end of said lever outwardly, a member of a printing-couple pivoted to said end, a second spring of less force than the first spring normally holding the said member in printing position, means for displacing said member from printing position when no letter is present, and letter-controlled means for locking said member with respect to the lever when a letter is present.

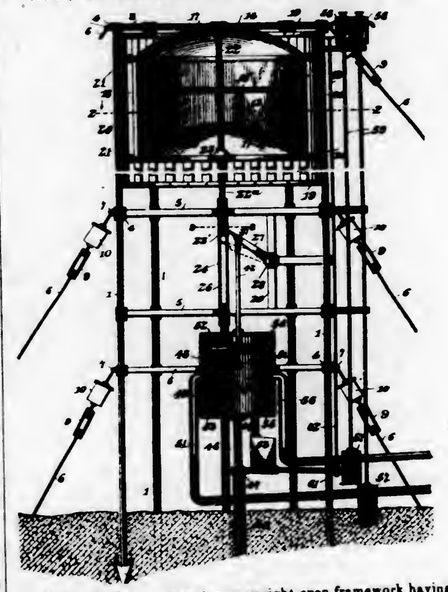
9. In a rotary marking-stamp, a revolving support held in fixed bearings, a segmental member of a printing-couple yieldingly mounted thereon, and a segmental carrying member yieldingly mounted on said support and forming a continuation of the carrying-surface of the first-said member and adapted to advance the letter after the first-said member has passed from engagement therewith.

10. In a rotary marking-stamp, two revolving supports held in fixed bearings on opposite sides of the letter-path, a lever pivotally mounted on one of said supports eccentrically to the axis of revolution thereof, a member of a printing-couple mounted on one end of said lever, a cooperating member mounted on the other support, a spring connected to said lever and normally projecting outwardly the end which carries the first-said member, and a segmental carrying member yieldingly mounted on the first-said support and forming a continuation of the carrying-surface of the first-said member.

11. In a rotary marking-stamp, a revolving support, a member of a printing-couple yieldingly mounted on said support, an opposed revolving support carrying a cooperating member, a lock adapted to lock the first-said printing member in position and carried by its support, a letter-engaging trip carried by said support and controlling said lock, and an abutment mounted on the opposed support and adapted to engage the opposite side of the letter from said trip, whereby the trip is operated.

12. In a rotary marking-stamp, a revolving support, a member of a printing-couple yieldingly mounted on said support, an opposed revolving support carrying a cooperating member, a lock adapted to lock the first-said member in printing position and carried by its support, a yielding stop adapted to arrest the letters, cooperating gripping members carried by the respective supports and located in advance of the printing members, said gripping members engaging the letter and advancing it past said stop, the gripping member on the support which carries the lock acting as a letter-engaged trip which controls said lock.

646,199. WAVE-MOTOR. JAMES C. WALKER, Waco, Tex. Filed Oct. 25, 1899. Serial No. 734,737. (No model.)



Claim.—1. In a wave-motor, an upright open framework having a plurality of standards, a series of guy-rods extending from each of the standards, each of said guy-rods having an adjusting and a spring compensating device, a float arranged to reciprocate within the framework, and power-transmitting mechanism associated with the float, substantially as set forth.

2. In a wave-motor, an upright open framework consisting of an annular series of standards, annular braces encircling the series of standards and coupled individually thereto, an open protective curb arranged within the framework, a float arranged to reciprocate within said curb, and power-transmitting mechanism associated with the float, substantially as set forth.

3. In a wave-motor, an upright open framework, a semicylindrical slatted protective curb arranged within the framework, a float arranged to reciprocate within said curb, and power-transmitting mechanism associated with the float, substantially as set forth.

4. In a wave-motor, an upright open framework, a protective curb fitted to the framework, consisting of an annular series of spaced slats, a float arranged to reciprocate within the curb, and power-transmitting mechanism associated with the float, substantially as set forth.

5. In a wave-motor, an upright open framework, a cylindrical protective curbing fitted to the framework and having a series of spaced triangular slats whose apices are disposed outwardly, a reciprocating float, and power-transmitting mechanism, substantially as set forth.

6. In a wave-motor, an upright open framework, a cylindrical protective curbing arranged inside of and fitted to the framework, said curb consisting of a plurality of annular ribs and a circular series of slats secured to said ribs, said slats being regularly spaced apart and triangular in cross-section with their apices disposed outwardly, a float mounted to reciprocate within the curb, and power-transmitting mechanism, substantially as set forth.

7. In a wave-motor, an upright open framework, a cylindrical protective slatted curb mounted within the framework, a plurality of track-rails fitted inside of the curb and extending longitudinally thereof, a reciprocating float carrying interior guide-rollers engaging with said track-rails, and power-transmitting mechanism, substantially as set forth.

8. In a wave-motor, a framework, a reciprocating float supported to work within the framework, a stem connected to and movable with the float, said stem being sectional and having a universal joint or coupling disposed at or about the center of the float, a power-translating mechanism, and a power-transmitting mechanism having a lever associated with the float-stem and operatively connected to a part of the power translating mechanism, substantially as set forth.

9. In a wave-motor, an upright framework, a vertically-reciprocating float provided with a joint-pocket extending inwardly from the top thereof to a point at or about the center thereof, a sectional stem connected to and movable with the float, said stem having a universal joint or coupling housed within the bottom portion of said pocket, and power-transmitting mechanism associated with said stem, substantially as set forth.

10. In a wave-motor, a framework, a reciprocating float working within the framework and carrying a single stem provided with a trip, power-transmitting mechanism including a lever having a tripping engagement with said stem, and means for automatically resetting the power-transmitting lever into the path of the stem-trip for operation thereby on each stroke of the stem, substantially as set forth.

11. In a wave-motor, the framework, a reciprocating float working within the framework and carrying a single stem provided with a trip, a power-transmitting lever having a tripping engagement with said stem, and also coupled with the driven element, and means for automatically resetting the power-transmitting lever to an operative position after disengagement from the stem on each stroke thereof, substantially as set forth.

12. In a wave-motor, the framework, a reciprocating float working within the framework and carrying a single stem, a power-transmitting lever coupled with the driven element and having a tripping engagement with the float-stem, and means for automatically resetting the power-transmitting lever in operative relation with the stem after it is released therefrom at the end of each sliding movement in one direction, substantially as set forth.

13. In a wave-motor, the framework, a reciprocating float carrying a single stem having tappets, a power-transmitting lever coupled with the driven element and having a tripping engagement with said tappets, and means for automatically resetting the power-transmitting lever in eparative relation to said tappets after disengagement therefrom at the end of each sliding movement in one direction, substantially as set forth.

14. In a wave-mbter, the framework, a reciprocating float carrying a stem having tappets, a power-transmitting lever coupled with the driven element and provided with a forked end having a tripping engagement with said tappets, and means for automatically resetting the fork end of the lever in operative relation to said tappets after disengagement therefrom at the end of each stroke of the driven element, substantially as set forth.

15. In a wave-motor, the framework, a reciprocating float carrying a stem having tappets, a forked lever coupled with the driven element and having a tripping engagement with said tappets, and an automatically-adjusted resetting-lever arranged to coöperate with the power-transmitting lever at the end of each stroke of the driven element, substantially as set forth.

16. In a wave-motor, the framework, the reciprocating float carrying a stem, the power-transmitting lever having a tripping engagement with said stem, the driven element having a reciprocating rod, a slotted link connection between said rod and the power-transmitting lever, and means for automatically resetting the power-transmitting lever in operative relation to the stem after disengagement therefrom at the end of each stroke, substantially as set forth.

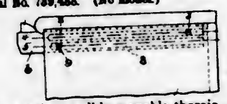
17. In a wave-motor, the framework, a stationary guide-tube mounted within the framework and having longitudinally-slotted side portions, a float carrying a stem working within the guide-tube and having tappet-lugs, a swinging power-transmitting lever having a forked end working over the guide-tube and having a tripping engagement with said lugs, the driven element having a reciprocating rod, a link loosely mounted on the power-transmitting lever and having an arcuate slot receiving the coupling or pivot pin of said reciprocating rod, and means for resetting the forked end of the lever in operative relation to said lugs after disengagement therefrom at the end of each stroke of the driven element, substantially as set forth.

18. In a wave-motor, the framework, the stationary slotted guide-tube mounted within the framework, the reciprocating float carrying a stem working within said guide-tube and having tappet-lugs, a forked power-transmitting lever coupled with the driven element and having a tripping engagement with the tappet-lugs, pivotal resetting-levers arranged respectively at the upper and lower limit of movement of the power-transmitting lever, each of said resetting-levers being forked at one end for engagement with said tappet-lugs and having their opposite ends arranged for contact with the power-transmitting lever, each of said levers being weighted to dispose their contact ends normally in the path of the power-transmitting lever, substantially as set forth.

19. In a wave-motor, the combination with the float and the power-transmitting mechanism, of the air-pump having air supply and delivery pipe connections therewith, a water-trap interposed in the line of the air supply and delivery pipes for the air-pump, and hand-operated pumps supported above the water-line and having section-pipe connections with the water-traps, substantially as set forth.

20. In a wave-motor, the combination with the float and the power-transmitting mechanism, of the air-pump having air supply and delivery pipe connections therewith, a water-trap interposed in the line of the air supply and delivery pipes for the air-pump, a valved water-drain pipe leading from the bottom of the pump-cylinder to one side of said water-traps, and a drain-trap interposed in the line of said water-drain pipe, substantially as set forth.

646,200. BOOKCASE, &c. FREDERICK E. ALLEN, Boston, Mass., assignor of one-half to Frank E. H. Gary, same place. Filed Dec. 7, 1899. Serial No. 739,488. (No model.)



Claim.—1. A casing, a slide movable therein, and antifrictional coupling members connecting said parts and comprising grooves formed in opposed surfaces of said parts, and balls projecting from each part into grooves in the other part, said balls and grooves coöperating both as side and end thrust bearings.

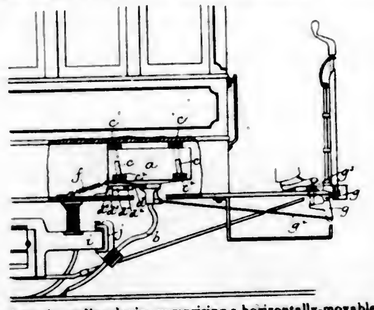
2. A casing, a slide movable therein and having grooves in its ends, substantially-horizontal grooves in the casing, the outer ends of the grooves constituting hinge members, balls carried by and projecting from the ends of the slide and entering said grooves, the balls coöperating as hinge members with the outer ends of the grooves when the slide is at the forward end of its horizontal movement, and balls journaled in the casing and entering the grooves in the slide, the casing-balls, and the slide-grooves constituting antifrictional means for preventing the slide from swinging when the slide-balls are separated from the outer ends of the casing-grooves, said balls and grooves coöperating both as side and end thrust bearings.

3. A casing, a slide movable therein, substantially-horizontal grooves in the casing, their outer ends constituting hinge members, slide-balls carried by and projecting from the ends of the slide and entering said grooves, the slide-balls coöperating as hinge members with the outer ends of the grooves when the slide is at the forward end of its movement, casing-balls supported by and projecting inwardly from the ends of the casing, said casing-balls being below and back from the hinge-member ends of the casing-grooves, and grooves in the ends of the slide receiving the said casing-balls, the slide-grooves and casing-balls coöperating with each other and with the casing-grooves and slide-balls in supporting the slide horizontally, the series of balls and grooves constituting antifrictional side and end thrust bearings.

4. A casing having substantially-horizontal guide-grooves, and balls arranged out of alinement with said grooves, combined with a slide having grooves arranged to engage the balls on the casing, and balls arranged to engage the grooves in the casing, substantially as described.

646,201. TRACK-SANDING DEVICE. FREDERICK E ALLEN, Boston, Mass., assignor of one-half to Frank E. H. Gary, same place. Filed Dec. 23, 1899. Serial No. 741,360. (No model.)

Claim.—1. A track-sanding device comprising a horizontally-movable receptacle, means for reciprocating it horizontally, a discharge-spout leading from the bottom of the receptacle, and means for controlling the escape of sand through said outlet.



2. A track-sanding device comprising a horizontally-movable receptacle, means for reciprocating it horizontally, and a flexible discharge-spout leading from the bottom of the receptacle and confined to a support below the receptacle.

3. A track-sanding device comprising a movable receptacle, means for agitating it, and a valve or gate in the outlet of the receptacle adapted to be opened and closed by movements of the receptacle.

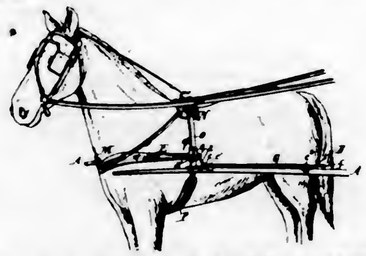
4. A track-sanding device comprising a horizontally-movable receptacle adapted to be horizontally reciprocated, a discharge-spout leading from the bottom of the receptacle, a spring which normally holds the receptacle at one extreme of its movement, and means for moving the receptacle from its normal position.

5. A track-sanding device comprising a movable receptacle, a spring which normally holds the receptacle at one extreme of its movement, means for moving the receptacle from its normal position, and a fixed valve or gate which closes the outlet of the receptacle when the latter is in its normal position and opens said outlet when the receptacle is moved from its normal position.

6. A track-sanding device comprising a horizontally-movable receptacle, adapted to be horizontally reciprocated, a discharge-spout leading from the bottom of the receptacle, a spring which normally holds the receptacle at one extreme of its movement, a bell-crank lever pivoted to a fixed support, a rod connecting one arm of said lever with said receptacle, and a pedal engaged with the other arm of the lever.

7. A track-sanding device comprising a receptacle, links suspended in pairs from fixed supports and pivoted to the receptacle, and means for reciprocating the receptacle.

646,202. SPRING-DRAFT DEVICE FOR VEHICLES. HARMON J. ASHLEY, Machias, N. Y. Filed Aug. 8, 1898. Serial No. 688,090. (No model.)



Claim.—1. In a draft attachment for vehicles, the combination with a thill having bearings or guide-lugs, of a longitudinal draft-rod capable of sliding and turning in said bearings and provided with a laterally-extending arm adapted to be attached to a harness, and a spring acting upon said draft-rod and arranged to turn the same outwardly in its bearings, for moving said arm away from the animal when the arm is detached from the harness, substantially as set forth.

2. In a draft attachment for vehicles, the combination with the thill having bearings or guide-lugs, of a rotary draft-rod journaled lengthwise in said bearings and capable of sliding and turning therein and provided at its front end with a laterally-extending arm adapted to be attached to a harness, and a torsional spring surrounding said rod and having one end thereof interlocked with one of said bearings and having its free portion engaged with said draft-rod, whereby the spring when strained tends to turn said rod in its bearings, substantially as set forth.

3. The combination with a draft-rod adapted to slide lengthwise on the thill, of a spiral spring surrounding said rod and having its ends confined against longitudinal movement with reference to the rod and having its central portion engaged with said rod so as to move lengthwise therewith, whereby the front portion of the spring is compressed and its rear portion extended when the rod is drawn forwardly, substantially as set forth.

4. The combination with a thill having bearings or guide-lugs, of a draft-rod capable of sliding lengthwise in said bearings, and a spiral spring detachably applied to said draft-rod and capable of being reversed thereon, end for end, and having its ends confined against longitudinal movement with raference to the rod and having its central portion engaged with the rod, so as to move lengthwise therewith, substantially as set forth.

5. The combination with a rotary draft-rod adapted to slide lengthwise on the thill and provided with an arm for connecting the same with the harness, of a spiral spring surrounding said rod and having its ends confined against rotary movement, and having its central portion engaged with the rod so as to turn therewith, the portions of the spring on opposite sides of its point of engagement with the draft-rod being wound in opposite directions, substantially as set forth.

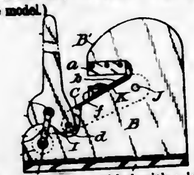
6. The combination with a rotary draft-rod adapted to slide lengthwise on the thill and provided at its front end with an arm for connecting the same with the harness and between its bearings or guides with a collar capable of rotary adjustment on the rod, of a spiral spring surrounding said rod and having its ends confined against rotary movement with reference to the rod and having its central portion engaged with said adjustable collar so as to turn therewith, substantially as set forth.

7. The combination with a thill, of a rotary draft-rod arranged to slide in bearings on the thill and provided with an arm for connecting the same with the harness, of a spring acting on said rod and tending to turn the same in the proper direction to move its arm outwardly or away from the horse, and stops which limit the rotary movement of said rod, substantially as set forth.

8. The combination with a thill having guides or bearings and a longitudinal stop-rail, of a rotary draft-rod sliding in said bearings and having an arm for connecting the rod with the harness and stops adapted to engage against opposite sides of said stop-rail, and a spring applied to the draft-rod and tending to turn the same in the proper direction to move its arm away from the horse, substantially as set forth.

9. The combination with the thills, a bearer and a draft-rod guided on the thills and having an arm which is provided with a button, of a spring applied to said rod and a metallic shield having end loops through which the bearer passes, studs projecting from the cross-bars of said loops and engaging with holes in the bearer and a slot coinciding with a corresponding slot of the bearer and having a raised marginal rim which extends into the slot of the bearer and forms a lining therefor, the slot of said shield being adapted to engage with the button on the arms of the draft-rod, substantially as set forth.

646,208. METAL-SHEARS. JAMES C. BURGESS, Columbus, Ind., assignor to Charles R. Saffell, same place. Filed Dec. 29, 1899. Serial No. 741,899. (No model.)



Claim.—1. A shearing-tool provided with a lever having a convex fulcrum-bearing and pivoted to the free end of the movable shear-blade arm, and a rolling fulcrum engaged by the convex fulcrum-bearing of the lever.

2. A shearing-tool having a pivoted arm supporting a shear-blade, a journaled roller situated near the end of the pivoted arm when in its open position, an operating-lever having a nose engaging the free end of the pivoted arm and provided with a convex fulcrum-bearing face engaging the journaled roller.

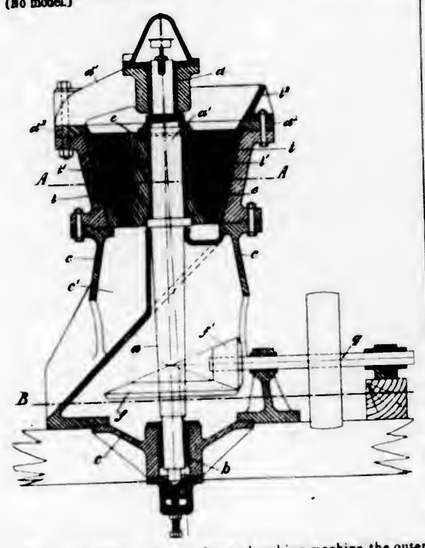
3. In a shears, the combination of the frame having a shear-blade head and provided with the bifurcated frame branch extending forwardly of the head, the roller journaled in the bifurcated branch, the stationary shear-blade, the arm pivoted at one end thereof in the frame, the shear-blade mounted on the arm, and the lever provided with the convex fulcrum-bearing surface working upon the journaled roller and having the nose engaging the free end of the pivoted arm.

4. In a shears, the combination of the frame, the stationary shear-blade, the pivoted arm, the shear-blade on the pivoted arm, the journaled roller, the lever provided with the convex fulcrum-bearing surface working upon the journaled roller and provided also with the bifurcated nose pivoted to the free end of the pivoted arm, and the link pivoted to the lever and also to the end of the roller-axle or equivalently, substantially as set forth.

5. In a shears, the combination with the frame having the table and the stationary and movable shear-blades, of the false tops for such table pivoted thereto and having each the stop-gage, substantially as set forth.

6. In a shears, the combination with the frame and the pivoted arm, of the bifurcated frame branch extending beyond the pivoted arm, the journaled roller in the bifurcated branch, the lever provided with the convex fulcrum-bearing surface and working upon the journaled roller and provided also with the bifurcated nose pivoted to the free end of such pivoted arm, and the link pivoted to the bifurcated branch and to the lever whereby the convex fulcrum-bearing surface is permitted to roll upon the roller and maintained in contact therewith, substantially as set forth.

646,204. ORE OR ROCK BREAKING MACHINE. EDWARD COMBERFORD, Liverpool, England. Filed Apr. 29, 1899. Serial No. 714,972. (No model.)



Claim.—In a rock, ore, or analogous breaking machine, the outer conical body having its axis vertical, an inner loosely-mounted crushing-barrel c, and a vertical operating-shaft d, having its bearing-axes at the upper and lower ends concentric with the axis of the body, and having an eccentric portion a' on which the said crushing-barrel c is mounted and free to revolve, with its axis inclined outward from the upper end toward the lower end, whereby the eccentricity of the lower part of said barrel-bearing portion a', is greater than the eccentricity of the upper part, substantially as set forth.

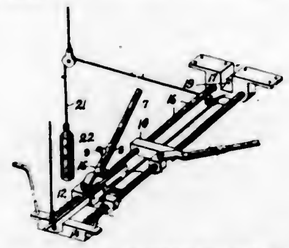
646,205. AUTOMATIC DOOR-OPENER. JOHN COMPTON, Atchison, Kans. Filed Dec. 30, 1899. Serial No. 742,091. (No model.)

Claim—1. An opener for double doors comprising a pair of levers adapted for attachment at their outer ends to the respective doors, suitable guides for the inner ends of said levers, and a latch for detachably connecting said inner ends.

2. In an automatic opener for double doors, the combination of connections through which the respective doors are moved, a latch for holding the operating ends of said connections together, a locking-latch for holding said ends in inner position, and means for releasing said locking-latch; as explained.

3. In an automatic opener for double doors, the combination of the operating connections for the respective doors, a latch for holding the inner ends of said connections together, and a tripping device for said latch.

4. In an automatic opener for double doors, the combination of the levers connected at their outer ends with the respective doors, sliding blocks to which the inner ends of said levers are connected, and which project one in front of the other so that one may move the other, and a latch for connecting said blocks together; substantially as set forth.



5. An automatic opener for double doors comprising two levers hinged respectively to the doors, sliding blocks to which the levers are respectively secured, a latch pivoted to one of said blocks and engaging the other, and a locking-latch also pivoted to one of said blocks and engaging a fixed point; substantially as set forth.

6. In an automatic opener for double doors, the combination of the levers adapted for hinging connection at their outer ends to the doors, blocks to which the inner ends of said levers are connected, guides upon which said blocks slide, a flexible connection operating said blocks outwardly upon their guides, a latch for holding said blocks in locked position, and means for operating said latch; substantially as set forth.

7. In an automatic opener for double doors, the combination of the levers adapted for hinging connection at their outer ends to the doors, blocks to which the inner ends of said levers are connected, guides upon which said blocks slide in the act of opening the doors, springs upon said guides compressed by the blocks in their inner position, and means for holding said blocks in their inner position in opposition to the said springs until said holding means is released; substantially as set forth.

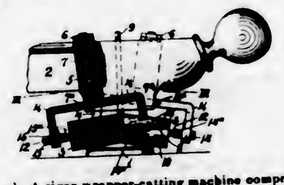
8. In an opener for double doors, the combination of the supports, the slide-rods having their ends secured in said supports, the blocks sliding on said supports and projecting one in front of the other, the rods each connected at one end to the door and at its other end to a block, and means for detachably securing the blocks together; substantially as set forth

9. In an automatic opener for double doors, the combination of the supports, the slide-rods secured in said supports, the blocks sliding upon said rods, levers connected at their inner ends to said blocks and at their outer ends to the doors, a latch for holding said blocks together, and a cam-face in one of the supports, engaging said latch for releasing it as the blocks approach the support; substantially as set forth.

10. In an automatic opener for double doors, the combination of the door-operating levers, the sliding blocks to which said levers are connected, the latch for holding said blocks together, and a cam for releasing said latch; substantially as set forth.

11. In an automatic opener for double doors, the combination of the door-operating levers, the sliding blocks to which the ends of the respective levers are connected, slide-rods upon which said blocks slide, a latch for holding the blocks in their locked position, and a support for the slide-rods which is engaged by said latch; substantially as set forth.

646,206. CIGAR-WRAPPER-CUTTING MACHINE. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed Dec. 8, 1899. Serial No. 739,700. (No model.)



Claim.—1. A cigar-wrapper-cutting machine comprising an arm having a bearing, a roller having a yoke supported from the bearing, and a horizontal elongated wiper, having a lower side edge adapted to rest upon the periphery of the roller, and provided with a loose sliding connection with the arm; substantially as described.

2. A cigar-wrapper-cutting machine comprising an arm having

bearings, a pair of rollers having yokes supported from the bearings, and a horizontal wiper, common to both rollers, having lower side edges adapted to rest upon the peripheries of the rollers and provided with a loose sliding connection with the arm between the bearings; substantially as described.

3. A cigar-wrapper-cutting machine comprising an arm having bearings, a pair of overlapping rollers having yokes supported from the bearings and a horizontal wiper, common to both rollers, having lower side edges adapted to rest upon the peripheries of the rollers and provided with a rod projecting upwardly from the wiper and loosely fitted in the arm between the bearings; substantially as described.

4. In combination with a pair of cutter-rollers of a cigar-wrapper-cutting machine; a wiper 8 common to both rollers having its lower side edges resting upon the peripheries thereof, and having an upwardly-projecting rod 9 and a socket in the mounting for the rollers located in the vertical dividing-plane between the rollers; substantially as and for the purposes set forth.

5. The herein-described wiper for cigar-wrapper-cutter rollers, consisting of the elongated flat body portion 8ª of suitable material, an upper plate 10 and the side recesses 10ª and side projections 10ᵇ and a lower plate 11, and the upwardly-extending rod 9 adapted for use, substantially in the manner and for the purpose herein set forth.

6. In a cigar-wrapper-cutting machine, a cutting-roller, a mounting for said roller, and an axle by which the roller is secured to the mounting and upon which the roller is moved axially, substantially in the manner and for the purpose set forth.

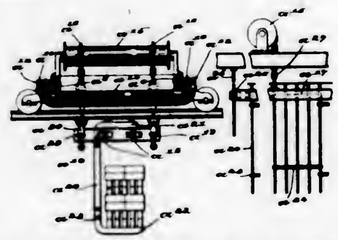
7. In combination with the cutter-roller for a cigar-wrapper-cutting machine, the axle upon which said roller is mounted, formed with a reduced portion upon which the roller is axially movable, and with a shoulder for limiting the axial movement of the roller, and a sleeve surrounding the reduced portion of the axle and likewise limiting the axial movement of the said roller, substantially in the manner and for the purpose set forth.

8. In a cigar-wrapper-cutting machine, the combination of the cutting-roller, the mounting for said roller, the axle fitted at one end in said mounting and formed with a reduced portion providing a bearing upon which the roller has axial as well as rotary movement, a shoulder for limiting the axial movement in one direction, a sleeve surrounding the reduced end of the axle and fitting in the mounting for the roller, and a set-screw for fixing the position of the sleeve upon the axle and the position of the axle in the mounting; substantially as herein explained.

9. In a cigar-wrapper-cutting machine, cutting-rollers, mountings for said rollers, and axles by which the rollers are secured to the said mountings, and upon which the rollers are moved axially; substantially as described.

10. In a cigar-wrapper-cutting machine, the combination of a cutting-die, and a pair of rollers axially movable on their axles inclined from their inner ends toward their outer ends and which project within the edges of the cutting-dies; substantially as and for the purposes set forth.

646,207. APPARATUS FOR HANDLING BRICKS. JONATHAN P. B. PERRY, Newton, Mass. Filed Nov. 27, 1899. Serial No. 738,352. (No model.)



Claim.—1. In an apparatus for handling bricks, a stacking-station having ledges spaced apart to correspond to the requirements of stacking, a lifting device having lifting-arms similarly spaced apart to enter between said ledges, and spacing-aliners secured to said station in alinement with said ledges, and extending vertically above the same at one end thereof, whereby the person stacking the bricks is enabled to place the top row of bricks in accurate alinement with said ledges to correspond with the spacing of said lifting device, substantially as described.

2. In an apparatus for handling bricks, a stacking-station having ledges spaced apart as required for stacking purposes, the intervals between said ledges being sufficient to permit the entrance therebetween into of lifting-arms, combined with spacing-aliners separated from each other to guide the stacker in placing the bricks, substantially as described.

3. In an apparatus for handling bricks, a stacking-station having ledges spaced apart to correspond to the requirements of stacking, said ledges being composed of I-beams and having vertical spacing-aliners extending flush with the edges of said I-beams, substantially as described.

4. In an apparatus for handling bricks, a stacking-station having ledges spaced apart to correspond to the requirements of stacking, said ledges being formed of I-beams and having angle-irons secured at the ends of said I-beams, said angle-irons presenting a flat alining face the same in width as said I-beams, substantially as described.

5. In an apparatus for handling bricks, a lifting device comprising a plurality of freely-projecting lifting arms or hooks spaced apart according to the requirements of the bricks, means for transporting said lifting device, and means connected with said lifting device and with said transporting means for raising and maintaining said lifting device steady and level when loaded, substantially as described.

6. In an apparatus for handling bricks, a lifting device comprising a plurality of freely-projecting lifting arms or hooks spaced apart according to the requirements of the bricks, means for transporting said lifting device, means for raising and maintaining said lifting device steady and level when loaded, and means for accurately leveling said lifting device, substantially as described.

7. In an apparatus for handling bricks, a lifting device comprising a series of separated hooks having freely-projecting lower ends to engage and lift the bricks, combined with front and rear lifting chains or cables, and means for adjusting the lower ends of said chains or cables laterally with relation to said lifting device, substantially as described.

8. In an apparatus for handling bricks, a lifting device comprising a series of freely-projecting arms spaced apart for engaging and lifting stacked bricks, a carriage, hoisting means on said carriage for raising said lifting device, trucks supporting said carriage, and means for shifting said carriage on said trucks, substantially as described.

9. In an apparatus for handling bricks, a lifting device comprising a series of freely-projecting arms spaced apart for engaging and lifting stacked bricks, a carriage, hoisting means on said carriage for raising said lifting device, said hoisting means including three or more chains or cables secured to said lifting device at separated points, whereby the lifting device is maintained level and steady in its movement, substantially as described.

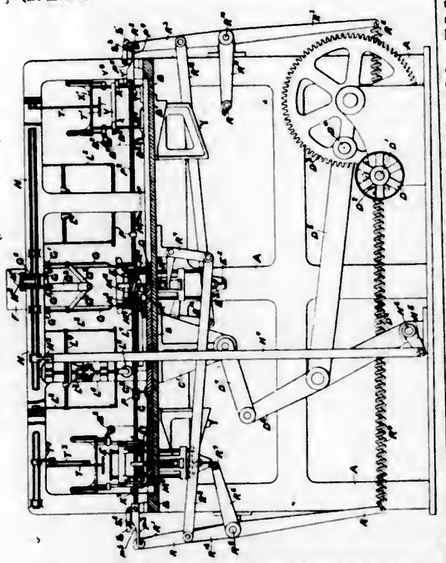
10. In an apparatus for handling bricks, a lifting device comprising a series of U-shaped lifting arms or hooks, said hooks being spaced apart for engaging and lifting stacked bricks, and having their lower ends projecting freely to engage the bricks, and their upper ends extending approximately parallel to said lower ends, and separated supporting-beams extending lengthwise of the lift and transversely of the upper ends of said hooks for lifting said hooks, combined with means for raising said lifting device, substantially as described.

11. In an apparatus for handling bricks, a lifting device comprising a series of U-shaped lifting arms or hooks, said hooks being spaced apart for engaging and lifting stacked bricks, and having their lower ends projecting freely to engage the bricks, and their upper ends extending approximately parallel to said lower ends, and a frame for carrying said series of hooks, said frame comprising longitudinal beams separated from each other and engaging the upper ends of said hooks each at two points, and cross-beams joining said longitudinal beams together, combined with lifting means, substantially as described

12. In an apparatus for handling bricks, a lifting device comprising a series of U-shaped lifting arms or hooks, said hooks being spaced apart for engaging and lifting stacked bricks, and having their lower ends projecting freely to engage the bricks, and their upper ends extending approximately parallel to said lower ends, and a frame for carrying said series of hooks, said frame comprising longitudinal beams separated from each other and engaging the upper ends of said hooks each at two points, and cross-beams joining said longitudinal beams together, and three or more chains or cables secured to said frame at separated points for lifting the same and maintaining the lifting device level and steady in operation, substantially as described.

13. In an apparatus for handling bricks, a lifting device comprising a series of U-shaped lifting arms or hooks, said hooks being spaced apart for engaging and lifting stacked bricks, and having their lower ends projecting freely to engage the bricks, and their upper ends extending approximately parallel to said lower ends, and separated supporting-beams extending lengthwise of the lift and transversely of the upper ends of said hooks for lifting said hooks, and three or more separated chains or cables secured to said supporting-beams for raising said lifting device and maintaining it level and steady in operation, substantially as described.

646,208. WRAPPING-MACHINE. ANDREW FORBES and FREDERICK GROVES, Leeds, England. Filed June 7, 1899. Serial No. 719,644. (No model.)



Claim.—1. A machine for wrapping cakes of soap or other blocks or bodies, consisting in the combination of a framework having longitudinal guides, a slide C capable of reciprocation in the guides, and mechanism for actuating the slide C, a vertical stationary feed-hopper to contain the blocks to be wrapped, fingers G pivoted to the feed-hopper for controlling the delivery of the lowermost block, and mechanism for operating the fingers at proper times to effect the release of the said block, a slab E, carried by the slide C, for receiving the wrapper and the block to be wrapped, vertical sliding rods passing through the slide C to carry the slab and mechanism for raising and lowering the slab at proper times, folding hinged side leaves J, J, adjacent to the slab E, brackets on the slide C to carry the said hinged leaves, and a rising fork K for turning up the leaves J, J, from their normal horizontal position into a vertical position, to fold the wrapper against the sides of the block, and mechanism for lifting the fork, end plates K^4, K^5 hinged to the fork-frame and means to close in the said plates immediately after the folding of the leaves J, J, to thereby fold up the under projecting ends of the wrapper, a U-section channel L and a blade M, and mechanism for bringing the channel L and blade M together from opposite directions, to grip the upstanding edges of the wrapper and fold the same into the channel, means for withdrawing the blade, means for axially revolving the channel through half a revolution to give the edges of the wrapper a second fold, and a roller B^3 to press and crease the folded edge as it is withdrawn from the channel L by the movement of the slide C, end wings J^4, J^4 and J^2, J^3 hinged onto opposite ends of the leaves J, J, means for retaining the latter leaves J, J in their folded vertical position when the forked support K is withdrawn, and tappet mechanism for turning in the end wings J^4, J^4 and J^2, J^3 to laterally fold in the second end folds of the wrapper at each end of the block, folding-fingers N^2, rollers N^3 carried by the said fingers to act upon and fold down the projecting ends of the wrapper as the slab E and block are raised and a swinging cranked lever T and means for operating the same for ejecting the wrapped block, as set forth.

2. An apparatus for wrapping cakes of soap or other blocks or bodies consisting of the combination with a frame A having a bed B thereon, the latter carrying a slide C receiving a reciprocating action through suitable mechanism, the slide C carrying slabs E each being provided with side leaves J, J, end wings J^2, J^3, and end plates K^4, K^5; of a hopper for feeding the blocks to be wrapped, mechanism for operating the slabs, side leaves, end wings, and end plates, means for forming the longitudinal fold, and means for forming the final end folds, substantially as set forth.

3. In an apparatus for wrapping cakes of soap or other blocks or bodies, the combination with the slide C and the slab E thereon for receiving the wrapper and the block to be wrapped, the hopper F for containing the blocks, and means for reciprocating the slide C and slab E and arresting the same with the slab beneath said hopper, of fingers G pivoted to and at opposite sides of said hopper, means for keeping said fingers in contact with the lowermost block and retaining the blocks in the hopper and means for releasing said fingers and allowing the lowermost block to pass upon the slab when the latter is stopped beneath said hopper, substantially as specified.

4. In an apparatus for wrapping cakes of soap or other blocks or bodies, the combination with the continuously-reciprocating slide C and the slab E thereon for receiving the wrapper and the block to be wrapped, of the hopper F for containing the blocks, pivoted fingers G at opposite sides of said hopper for retaining the blocks in the hopper, the vertical slide G^2, toggle-links G^3 pivoted to said slide and fingers, the rock-shaft H, ratchet-wheels G^4 loose on said shaft, the pawl-carrier H^2 secured to said shaft H, pawls H' pivoted to said carrier, the forked lever G^4 with its forked end in contact with said ratchet-wheels and its other end taking against a projection on the slide G^2 and means for rocking said shaft H and thereby releasing the fingers G, substantially as specified.

5. In an apparatus for wrapping cakes of soap or other blocks or bodies, the combination of a frame A with a bed B thereon, and a slide C carrying slabs E fitted with side leaves J, J, end wings J^4, J^4 and end plates K^4, K^5, the fork K and frame K^3 carried on the rod K', and suitable mechanism for actuating the said parts, substantially as set forth.

6. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and a slab thereon for receiving the wrapper and the block to be wrapped, of side leaves hinged to brackets upon said slide, wings hinged to the ends of said side leaves, springs for keeping said side leaves and end wings horizontal, and means for closing said side leaves and end wings into a box-like form, substantially as specified.

7. In apparatus of the type herein described, the rod P^3 carrying collars P, P' and hooked extensions P^6, P^4 having inclined portions P^5, P^5, the bracket C^5 mounted on the slide C, the pins R', R^2 situated on the ends of the levers R, R^3, the catches S, S' carrying projecting pins S^2, S^2, substantially as set forth.

8. In an apparatus for wrapping cakes of soap or other blocks or bodies, in which a continuously-reciprocating slab for holding the block to be wrapped is employed, the combination of a U-shaped channel situated on one side of the machine, and of a straight-edge on the opposite side of the machine, mechanism for bringing the U-shaped channel and the straight-edge together and for withdrawing the latter and turning over the U-shaped channel, all during the movement of the slide, substantially as set forth.

9. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, of side leaves hinged to brackets upon said slide, wings hinged to the ends of said leaves, the frame K^2 and end plates K^4, K^5 pivoted to the frame K^3, a platform K^1 at the upper end of the plate K^4 and means for closing the side leaves and end wing, and lifting the plates K^4 and K^5, substantially as specified.

10. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, of the hinged side leaves J, J, end wings, J^2 J^4 hinged to said side leaves, the rod K', a frame K^3 carried by said rod, plates K^4 and K^5 hinged to the plate K^3, the bell-crank lever R^3 for lifting the rod K', the shaft R^2, arm R^{13} and lever R connected to said shaft, a rod R^9 connected to the lever R^3 and arm R^{13}, a spring acting upon the end of the lever R, and a catch and release mechanism at the other end of said lever, substantially as specified.

11. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide and a slab thereon, for receiving the wrapper and the block to be wrapped, and means for giving the first and end folds to the wrapper, of the vertical spring-rods L^2 and M^4, the arms L^3 and M' pivoted at their upper ends, forks L^5 connected to the rod L^2 and arms L^3, forks M^3 connected to the rod M^4 and arms M', a straight-edge M and hook M^7 at the lower end of the arms M', the U-shaped channel L pivoted at the lower end of the arms L^3, the hook L^8 on the channel L, the rail L^7 and incline M^6 on the bed of the machine for raising the rods L^2 and M^4 and thereby causing the straight-edge to pass into the channel L and carry with it the two upstanding parts of the wrapper, and an angle-piece M^{10} also on said bed for causing the incline M^6 to collapse, substantially as specified.

12. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and a slab thereon for receiving the wrapper and the block to be wrapped, the spring-rods L^2 and M^4, the arms L^3 and M', the connections M^2 and L^5 between said rods and arms, the straight-edge and U-channel carried by the arms M' and L^3 respectively, and the inclines for actuating said parts, of a lever L^{12}, a cord L^9 wound upon the pivot of the U-channel L and connected to one end of said lever L^{12} and a cord L^{13} attached to the other end of said lever and also to the rod L^5, so that as the rod L^5 descends the cord is unwound from the pivot of the U-channel and returns said U-channel to its normal position, substantially as specified.

13. In an apparatus for wrapping cakes of soap or other blocks, in which a continuously-reciprocating slab for holding the block to be wrapped is employed, the combination of a U-shaped channel situated on one side of the machine, and a straight-edge on the opposite side of the machine, mechanism for bringing the U-shaped channel and the straight-edge together and for withdrawing the latter and turning over the U-shaped channel, and means for returning the U-shaped channel to its first position, all during the movement of the slide, substantially as specified.

14. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide and a slab thereon to receive the wrapper and the block to be wrapped, of an arm M^6 pivoted to said slide, a pawl M^8 pivoted to said arm, a pin M^{12} projecting from the arm M^6, and a spring-block against which the end of the pawl rests, said parts forming a collapsible incline, and an angle-piece M^{10} upon the bed of the machine against which the pin M^{12} contacts during the movement of the slide for causing the arm M^6 to drop and an incline M^{11} also on the bed of the machine for resetting the arm M^6, substantially as specified.

15. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, the side leaves J J, end wings J^2 and J^4 hinged to said side leaves, the said end wings J^2 having projections J^4 thereon, and means for raising said side leaves and end wings, of the rods V' V' suitably supported from the bed of the machine, tappets V^2 V^4 and fingers V^4 V^4 connected to said rods V' V', guide-rails V V at the upper ends of said rods V' V', and the stops V^2 V^3 on the slide C all arranged so that as the parts are carried in between the rails V V, the latter close the wings J^2 J^4 and the fingers V^4 V^4 close the wings J^4 J^4, substantially as specified.

16. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and a slab E thereon for receiving the wrapper and the block to be wrapped, means for forming the side folds, first end folds, longitudinal fold and second end folds, of the girders X between which the wrapped block passes, pivoted fingers N^2, rollers N^3 at the lower ends of said fingers, and means for lifting the slab and block and giving the final end folds to the wrapper by the rollers N^3 pressing down the projecting ends of the wrapper as said slab and wrapped block are lifted, substantially as specified.

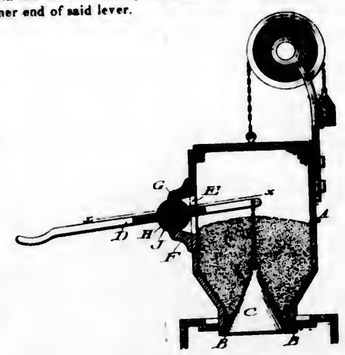
17. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab E thereon for receiving the wrapper and the block to be wrapped, the rods E' for supporting the slab E and the frame E^2 connecting the lower ends of the rods E', of the girders X between which the wrapped block passes as the same is lifted, the pendent fingers N^2, the rollers N^3 at the lower end of said fingers and the lever R^3 and arm R^{11} for lifting the slab E at the proper time and carrying the wrapper-block upward between the rollers N^3 and make the final end folds, substantially as specified.

18. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and the slab E for receiving the wrapper and the block to be wrapped, and means for giving the various folds to the wrapper, of the rock-shaft H, arms H^2 and T^2 connected to said rock-shaft, the pusher T pivoted at its upper end to the frame of the machine, a rod T^5 connecting the pusher T and arm T^2 and means for actuating the arm H^2 and thereby causing the pusher to eject the wrapped block from the machine, substantially as specified.

19. In an apparatus for wrapping cakes of soap or other blocks or bodies, the combination with the continuously-reciprocating slide C and slab E for receiving the wrapper and the block to be wrapped, and means for forming the side folds, first and second end folds and longitudinal locked fold of the wrapper, of the roller B^3 suitably supported and beneath which the wrapped block is carried and which rolls down the said locked fold of the wrapper, a cord, one end of which is wound upon a smaller portion B^4 of said roller, and the other end of which is connected to the slide C, so that said roller B^3 is rotated with a slightly-swifter surface motion than that of the slide C by the unwinding of the cord on the roller B^3, as the slide moves in one direction and the roller presses down the locked fold, and a coiled spring within said roller for winding up the cord on the roller B^3 as the slide moves in the reverse direction, substantially as specified.

646,209. VALVE-OPERATING DEVICE. JOHN W. GAYNER, Salem, N. J. Original application filed Jan. 15, 1898, Serial No. 666,806. Divided and this application filed Jan. 23, 1900. Serial No. 2,421. (No model.)

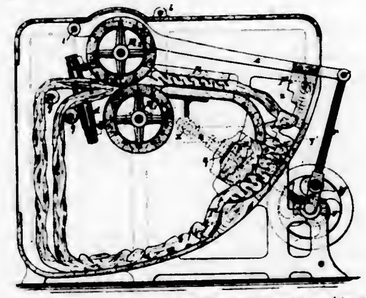
Claim.—1. A closed chamber having a valve-seat and provided with an opening in the wall thereof, a projecting box surrounding said opening and provided with an opening having concentric end walls and situated opposite the opening in the chamber, a lever provided with an axial boss having concentric faces, said lever being pivoted upon the box with its boss situated within and concentric with the walls of the opening therein, and a valve attached to the inner end of said lever.



2. A closed chamber having a valve-seat, an opening in the wall of said chamber, a box secured to said chamber and surrounding said opening, an opening in said box having concentric walls and situated opposite the opening in the chamber, a lever provided with an axial boss having concentric faces, said lever being pivoted upon the box with its boss situated within and concentric with the walls of the opening therein, and a valve attached to the inner end of said lever.

3. A closed chamber having a valve-seat, an opening in the wall of said chamber, a box secured to said chamber and surrounding said opening, a rectangular opening in said box situated opposite the opening in the chamber, the end walls of said opening in the box having concentrically-curved faces, a lever provided with a cylindrical axial boss, said lever being pivoted upon the box with its boss situated within and concentric with the opening therein, and a valve attached to the inner end of said lever.

646,210. MILLING AND FULLING MACHINE. ERNST GESSNER, Jr., Aue, Germany. Filed Nov. 12, 1898. Serial No. 696,216. (No model.)

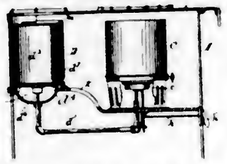


Claim.—1. In a milling and fulling machine, in combination, the milling-rollers M' M^2, the backboard T', the foot-stock T, the fulling-stock F facing said foot-stock, the fulling-stock F' facing said backboard and mechanism whereby said fulling-stocks F and F', respectively, are actuated against the cloth, substantially as described.

2. In a milling and fulling machine, in combination, the milling-rollers M', M^2, a backboard T', a fulling-stock F' facing said backboard, mechanism whereby said fulling-stock F' is actuated to hammer the cloth against said backboard, a foot-stock T, a fulling-stock F and mechanism whereby said fulling-stock F is actuated substantially parallel with said backboard T, substantially as described.

3. In a fulling-machine, in combination, a receptacle adapted for the passage of a rope of material, means whereby said rope is caused to travel round and round through said receptacle, two fulling-stocks F and F' and mechanism whereby the same are actuated to hammer the rope respectively in a longitudinal and transverse direction, substantially as described.

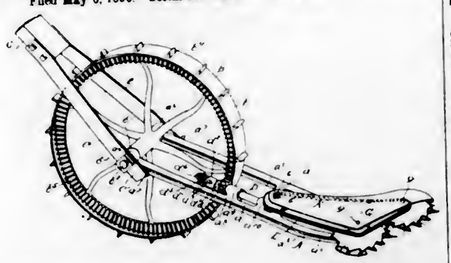
646,211. HYDROCARBON-BURNING STOVE. FRANK P. GLAZIER, Chelsea, Mich. Filed June 15, 1899. Serial No. 720,608. (No model.)



Claim.—1. In combination with the generating-trough of a hydrocarbon-burner, a lifting device provided with a forked hook engaging the burner, a bracket through which the stem of the forked hook reciprocates, and means for actuating the lifting device, substantially as described.

2. In a hydrocarbon-burning stove, a burner-supporting shelf bent upward to form an elevated tank-seat, said shelf being provided with a series of perforations *k*, bounding said tank-seat, substantially as described.

646,212. LAWN-MOWER. WILLIAM F. HALL, Raytown, Mo. Filed May 6, 1899. Serial No. 715,889. (No model.)



Claim.—1. A lawn-mower comprising a single driving-wheel and a bevel-gear upon one side of said wheel longitudinally-extended bars pivotally connected at their rear ends with the axis of said wheel, and the forward ends bent upwardly at an angle to the rear ends, webs connecting said bars, a horizontal guard-plate upon the forward ends of said bars and rotary grass-cutters journaled in said guard-plate, and sprocket-wheels upon the journals for said cutters, a stud upon the said bars in rear of said cutters, and a sprocket-wheel upon said stud, a bevel-gear upon said stud integral with the sprocket wheel, a cap-plate having bearings for the upper ends of said journals and stud, a sprocket-chain extending around said sprocket-wheels, a rotary driving-shaft journaled upon said bars in rear of said stud, and a bevel-gear upon one end of said shaft meshing with the bevel-gear on said stud, and a bevel-gear upon the other end of said shaft, meshing with the bevel-gear on said driving-wheel.

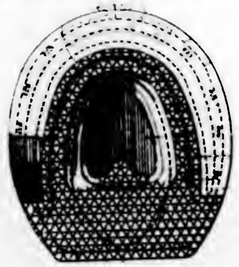
2. In a lawn-mower, a journal having an annular flange and a screw-threaded portion above said flange, a rotary cutting-plate having a screw-threaded opening adapted to be fitted to the screw-threaded portion of said journal, and a wheel having an internally-screw-threaded hub upon the threaded portion of said journal, adapted to be clamped upon the cutting-plate.

3. In a lawn-mower comprising forwardly-extended bars, unequal in length, having their forward ends bent upwardly at an angle to the rear ends of said bars, a main driving-wheel having its axis pivotally connected with the rear ends of said bars, a handle having a forked lower end, also pivotally connected with the axis of the main driving-wheel, and lugs upon the sides of said bars, a guard-plate connected with the forward ends of said bars and arranged at an angle thereto, and having teeth upon its forward edge the points of which lie in arcs of circles, circular grass-cutting plates having teeth in the circumference of said plate and journaled in said guard-plate, in proximity to the teeth in the guard-plate, and power-conveying devices substantially as described upon the main driving-wheel and said frame, and also upon the journals of said circular cutting-plates, actuating said cutting-plates.

646,213. HORSESHOE AND PAD. MICHAEL HALLAHAN, New York, N. Y. Filed June 21, 1898. Serial No. 684,041. (No model.)

Claim.—1. A foot-covering for horses and the like, comprising a leather shoe on the tread side, and a concaved back plate located on the hoof side and covering entirely the space between the members of the shoe.

2. A foot-covering for horses and the like, comprising a shoe formed of leather, a pad fitted in the space between the members of the shoe on the tread side thereof, and a back plate covering entirely the space between the members of the shoe on the hoof side thereof.

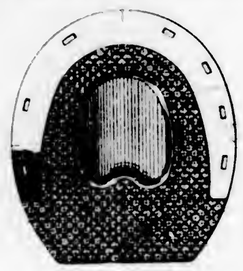


3. A foot-covering for horses and the like, comprising a shoe formed of leather, a pad fitted in the space between the members of the shoe on the tread side thereof, the pad and shoe having overlapped portions which are sewed together.

4. A foot-covering for horses and the like, comprising a back plate, a leather shoe sewed to the back plate, and a pad sewed to the back plate and having portions which are overlapped by the shoe and sewed to the latter.

5. A foot-covering for horses and the like, comprising a back plate of leather, a rubber pad having rabbeted lateral extensions, and a leather shoe sewed to the back plate, the shoe further overlapping the rabbeted extensions of the pad and being sewed thereto.

646,214. FOOT-COVERING FOR HORSES. MICHAEL HALLAHAN, New York, N. Y. Filed June 21, 1898. Serial No. 684,042. (No model.)



Claim.—1. A foot-covering for horses, provided with a pad having depressions at its central portion both upon the upper and the lower surface, to form between said depressions a diaphragm set back from the tread-surface.

2. A foot-covering for horses, &c., having an air-chamber which is open at the upper side and is closed at the bottom by a flexible diaphragm, and the diaphragm being surrounded by a ridge or bearing-surface projecting below the diaphragm.

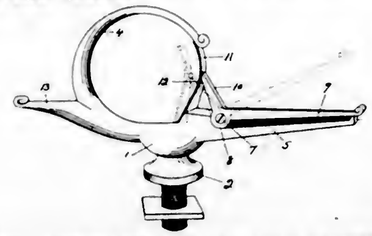
3. A foot-covering for horses, comprising a back plate and a yielding pad proper, the back plate being cut away to form an opening at about the center, leaving a clear space beneath the natural frog, and the yielding pad having a depression in its upper surface complementary to said opening, the lower side of the depression being closed by a diaphragm which is bodily flexible, the said flexible diaphragm being the only portion of the foot-covering beneath the natural frog.

4. A foot-covering for horses, comprising a back plate having an opening at about the center, and a pad having a depression complementary to said opening and having a rearwardly-extending duct leading from said depression below the back plate.

5. A pad for horses, having a central depression upon its lower or tread side and a protecting-ridge surrounding said depression, and an air-chamber in the hoof side above the said depression, the pad between said depression and air-chamber thus forming a diaphragm.

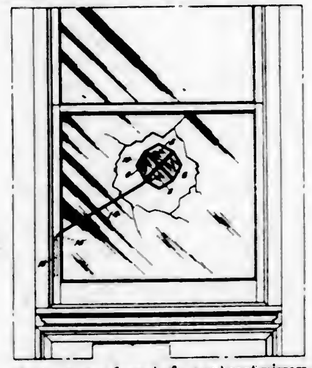
6. The combination of the back plate having a central opening with a pad having on its hoof side a depression or air-chamber whose outline coincides with that of the opening in the back plate, and a diaphragm below said air-chamber.

646,215. COMBINED CHECK-HOOK AND HARNESS-HANGER. GEORGE J. H. HENRICI, Overbrook, Kans. Filed Dec. 5, 1899. Serial No. 739,334. (No model.)



Claim.—A combined check-hook and harness-hanger comprising a body portion having a shank to engage the saddle, an upwardly-projecting hook, a spring mounted in the opening of said hook, and forwardly and rearwardly projecting arms, in combination with a pivoted lever mounted on said rearward arm and forming therewith a pair of gripping-jaws, and having a forward projection bearing against said spring, to hold said jaws in engagement, substantially as set forth.

646,216. REFLECTOR. OSCAR HILLSTROM, New York, N. Y. Filed Oct. 18, 1899. Serial No. 733,998. (No model.)

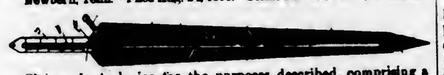


Claim.—1. A reflector, formed of a number of mirrors arranged in pyramidal form and having an opening in the apex, a web extending across the base of the reflector, a tubular socket formed on the web, the web having an opening in the center thereof, in alinement with the opening in the apex of the reflector, and a stopper removably fitted in the opening in the apex of the reflector.

2. A reflector, composed of a number of mirrors fastened together in the form of a tapering figure, a web extending between the mirrors at essentially the base of such figure, and means for supporting the reflector, such means passing through the web and having connection with the reflector at the apex thereof.

3. A reflector, composed of a number of mirrors fastened together in the form of a tapering figure, a web extending between the mirrors at essentially the base of such figure, a socket attached to the web, and means for supporting the reflector, such means being removably and loosely fitted in the socket to permit the adjustment of the reflector.

646,217. THERMAL TESTING-TUBE. JAMES L. HOLLINGSWORTH, Newbern, Tenn. Filed Aug. 24, 1899. Serial No. 728,313. (No model.)



Claim.—1. A device for the purposes described, comprising a tube having a perforated lower end, its upper end terminating in an outlet-seat; a thermometer secured to the said upper end having its bulb fitting the said seat, and a casing of non-heat-conducting material inclosing the tube at points between its inlet and outlet ends, all being arranged substantially as shown and described.

2. A new article for the purposes described, comprising a tube having an inlet at the lower end, an outlet at the upper end; a thermometer mounted upon said upper end and having its bulb fitting the seat of the outlet of the tube, said tube having a lateral at a point near its outlet end, said lateral having a closure member, all being arranged substantially as shown and described.

3. A device for the purposes described, comprising a tube having a tapering perforated inlet at the lower end, its upper end being open and having a seat; a thermometer having its bulb adapted to fit the said seat, said tube having a lateral communicating therewith at or near its outlet end, said lateral having a closure member, and a casing surrounding the tube formed of non-heat-conducting material, said casing being made tapering from the upper end downward and merging with the conical end of the tube, all being arranged substantially as shown and for the purposes described.

646,218. TOBACCO CURING AND ORDERING APPARATUS. JAMES L. HOLLINGSWORTH, Newbern, Tenn. Filed Aug. 26, 1899. Serial No. 728,475. (No model.)



Claim.—1. A tobacco-treating apparatus, comprising a suitable barn or housing means for detachably suspending the tobacco-bunches in clearly-defined horizontal and vertical rows; a disseminator for discharging air, smoke or moisture into the barn, said disseminator comprising a series of portable pipes consisting of longitudinal imperforated side sections and perforated transverse pipes, connecting the side sections; one of the side sections having an inlet and a generator, having means for alternately forcing hot, or moist air into the disseminator, substantially as shown and for the purpose described.

2. In a tobacco-treating apparatus, the combination with the barn; the means for distributing the smoke or air into the staple and means for suspending the staple substantially as described; of a generator having its discharge connected with the disseminator, comprising a heater provided with air-circulating pipes, said heater having a water-jacket connected with the air-offtake, and a smoke-offtake connected with the air-offtake, said air and smoke offtakes and the water-jacket offtake, having valves whereby to govern the flow of air, smoke or moisture, all being arranged substantially as shown and described.

3. An apparatus for the purposes described, comprising a barn or housing, having means for detachably and adjustably supporting the tobacco-bunches in clearly-defined rows; of a portable means for discharging the air or vapor in clearly-defined directions relatively to the suspended bunches, said means comprising a pair of side frames formed of pipe-tubing 4^a 4^b, one of said frames having an inlet 4^c, said tubing having its vertical members 4^b, formed with outlets, combined cuff and coupling members rotatably mounted over the outlets in said members 4^b, said coupling members having openings adapted to register with the outlets about which they rotate; a series of perforated tubular pipes having their ends adapted to seat in the rotatable cuff members; means for holding the said pipes secured to such members and means for forcing air, smoke or vapor into the disseminating-pipes, for the purposes specified.

4. As an improvement in treating tobacco, the combination with the barn or housing having a series of longitudinal cleats 2, on its inner sides; the disseminator adapted to be moved into the barn in its complete form, said disseminator comprising the side members composed of the imperforated pipes 4 4^a and 4^b; the perforated transverse pipes; means for detachably securing the said pipes to the pipes 4^b, of the side sections; one of the pipes 4, having an inlet 4^c, adapted to project through the side of the barn; the rods 3, detachably and adjustably held on the side cleats 2, and means for charging hot, or moist air into the inlet 4^c, all being arranged substantially as shown and described.

646,219. CORN-HARVESTER. WILSON HOWARD, Belvidere, Kans. Filed Feb. 1, 1900. Serial No. 3,599. (No model.)

Claim.—1. A corn-harvester, comprising runners, a platform carried by the runners, a spring-controlled frame held to slide between the runners and having a projecting arm over which the platform ex-

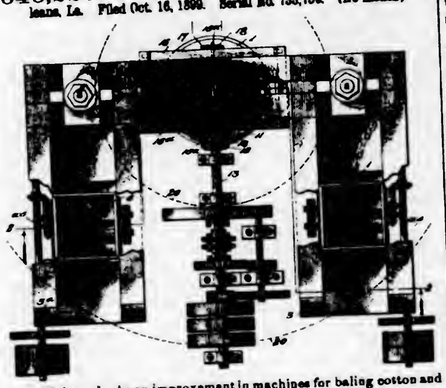
tends, and a knife secured to the said arms, the springs of the frame acting normally to draw the knife beneath the platform.



2. In a corn-harvester, runners, a platform carried by the runners, the platform being provided with a wing at one side having an inclined forward edge, a spring-controlled frame having limited and guided sliding movement on the runners, the said frame being provided with a diagonal extension adapted to extend beneath the wing of the platform, a blade secured to said extension, and a draft device connected to the forward portion of the frame, the springs of the frame acting to normally hold the blade beneath the wing of the platform.

3. In a corn-harvester, runners, a platform carried by the runners and having an extension beyond the outer side of a runner, a frame mounted to slide upon the said runners, a projection from the frame adapted to extend beneath the platform, a knife carried by the said extension, springs acting on the frame to normally hold the knife beneath the platform, a seat centrally placed on the platform, and a draft device connected with the forward end of the frame, the springs acting on the frame being of sufficient strength to require the full power of the draft-animal attached to the draft device and the added weight of the driver, before the said springs can be overcome and the knife be brought to cutting position.

646,220. COTTON-BALING PRESS. EDMUND M. IVENS, New Orleans, La. Filed Oct. 16, 1899. Serial No. 733,759. (No model.)



Claim.—1. As an improvement in machines for baling cotton and other fibrous material; the combination with the mechanism for exerting a final pressure on the cotton; of a plurality of independently-movable boxes or receiving-compartments mounted so as to be independently or in unison swung into position to coact with the final-pressure mechanism, and devices for each box for feeding and initially pressing the cotton into the same, for the purposes described.

2. An improved cotton-baling press; comprising a single pressure mechanism for imparting a final pressure on the cotton; of a plurality of independently-operating devices for compacting the cotton into a sheet and folding it under pressure; a press box or receiver for each of the aforesaid bat forming and folding devices, said boxes being relatively so arranged as to be independently or in unison swung over the final-pressure mechanism to coact therewith, for the purposes specified.

3. The combination with a plurality of compressing mechanism for compacting cotton into a bat or sheet, and folding the same in superposed layers; of a single mechanism common to all of the bat forming and folding mechanisms for exerting a final pressure on the cotton; a receiver for each of said bat forming and presser devices, said receivers being each independently supported so as to be independently or in unison swung over the final-pressure mechanism to coact therewith, for the purposes specified.

4. A baling-press, comprising a mechanism for effecting a final pressure on the cotton; a plurality of devices for compacting the cotton into a bat and folding same, one set of such devices being at each side of the final-pressure mechanism; of a swinging press-box for each of the bat forming and folding devices and mechanism permitting such press-boxes to be swung over the final-pressure mechanism to coact therewith, the several press-boxes having movement in a horizontal plane.

5. In a baling-press; the combination with a single mechanism for applying the final pressure; a plurality of pressure-folders and a yielding follower for each pressure-folder; of a press-box for each pressure-folder and yielding follower, the several press-boxes being supported relatively to the final-pressure mechanism, and mounted so that they can be independently or in unison swung over the said final-pressure mechanism, for the purposes described.

6. A baling-press of the character described; comprising a plurality of pressure-folders; a receding pressure-follower for each folder; a single mechanism for imparting a final pressure to the partially-compressed bales; a press-box for each pressure folder and follower mechanism, said boxes being mounted to swing in alternate directions independently or in unison over the final-pressure mechanism, as set forth.

7. In an organized machine for baling cotton; the combination of the following elements, to wit: means for forming the bale in independent sections and imparting an initial pressure to each section, said means including swinging press-boxes or receivers in which the bale-sections are formed, said boxes having independent movement; a mechanism for imparting a final pressure to the complete bale, said press-boxes being mounted to swing to bring the bale-sections in position to be simultaneously pressed into a single and completed bale by the final-pressure mechanism.

8. An improved cotton-baling apparatus, comprising in combination a pair of pressure-folder mechanisms, and a receding follower for each pressure-folder; a press-box for each pressure-folder and receding follower, said boxes being independently supported; and a mechanism for imparting a final pressure to the cotton in the press-boxes common to both boxes and disposed between the two pressure-folder and receding-follower devices, said press-boxes being arranged to be swung into position to be operated on by the final-pressure mechanism.

9. An improved cotton-press, comprising in combination; means for first forming a bale in independent sections; devices for separately imparting an initial pressure to the said independent sections, said devices including a swinging box for each bale-section, said boxes being adapted to swing in different horizontal planes; and a final-pressure mechanism common to all of the sectional bale-forming devices, said final-pressure mechanism being so disposed that the different boxes can be swung into a registering position thereover, whereby the contents of all of the boxes can be subjected to a simultaneous final pressure and form the sections into a single bale.

10. An improved cotton-press, comprising a pair of pressure folding mechanisms, and a receding follower for each of said mechanisms; a mechanism for exerting a final pressure on the bale; a set of press-boxes for each folder and receding follower, one set of boxes being in a different horizontal plane from the other, each set consisting of two boxes supported for independent swinging movement, but movable in the same horizontal plane, whereby as one box of each set is under the folder the other box can be swung over the final-pressure mechanism, substantially as shown and described.

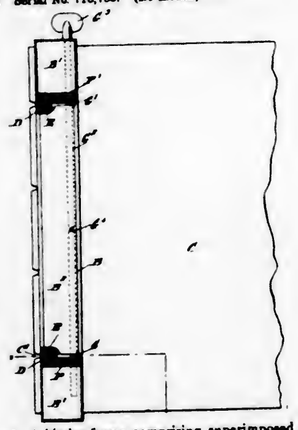
11. An improved cotton-press, comprising a pair of pressure folding mechanisms and a receding follower for each of said mechanisms; a mechanism for exerting a final pressure on the bale; a set of press-boxes for each folder and receding follower, one set of boxes being in a different horizontal plane from the other, each set consisting of two boxes supported for independent swinging movement, the set moving in the lowermost plane having a follower-bottom provided with the usual tie-grooves, the boxes of each set being supported to move in the same horizontal plane, whereby as one box of each set is under the folder the other box can be swung over the final-pressure mechanism, substantially as shown and described.

12. As an improvement in cotton-presses adapted for baling bat or sheet cotton; a plurality of mechanisms for folding and imparting an initial pressure to the cotton, each mechanism being arranged to form an independent section of the bale; a single mechanism for imparting a final pressure to the bale, and means for swinging the two partially-compressed bale-sections to a position to be simultaneously compressed into a single bale by the final-pressure mechanism.

13. As an improvement in cotton-baling presses of the class described; the combination with the centrally-disposed mechanism for effecting a final pressure on partially-pressed bales; of a pair of bat-forming, folder and initial-pressing mechanisms, projected, one at each side of the final-pressure mechanism; a king-post in line with each initial-pressure and folder mechanism; a pair of press-box sections pivotally connected with each king-post, one pair to swing in a plane below the other pair and the two boxes of each pair swinging in the same plane, said boxes being held for independent movement whereby as one box of each set is under its respective folder and initial-pressure mechanism the other can be swung over the final-pressure mechanism, and vice versa, for the purposes described.

14. As an improvement in cotton-baling presses of the kind described; the combination with the centrally-disposed mechanism for completing a final pressure to partially-pressed bales; of a pair of bat-forming folder and initial-pressing mechanisms, projected one from each side of the final-pressure mechanism; a king-post in line with each initial-pressure folder mechanism; a pair of press-box sections pivotally connected with each king-post; latch devices connected with the king-post and the press-boxes for locking the said boxes to their operative positions; one pair of said press-boxes being arranged to swing in a plane below the other pair, and the two boxes of each pair supported to swing in the same horizontal plane, said boxes being held for independent movement whereby as one box of each set is under its respective folder and initial-pressure mechanism the other can be swung over the final-pressure mechanism, and vice versa, for the purposes described.

646,221. BINDER-FRAME. HARVEY P. JONES, Chicago, Ill., assignor to the Jones Perpetual Ledger Company, same place. Filed Mar 28, 1899. Serial No. 710,785. (No model.)



Claim.—1. A binder-frame comprising superimposed clamping-bars for clamping leaves between them, posts carried by one of the bars, fixed guideways on the other or movable bar and located near one side thereof, the said posts extending through the movable bar and engaging the fixed guideways, a right and left hand screw-rod journaled in the movable bar and located near the opposite side thereof, and clamping-nuts screwing on said screw-rod and located at the outer sides of the posts, the said nuts being arranged to clamp the posts opposite said fixed guideways, substantially as shown and described.

2. A binder-frame comprising superimposed clamping-bars for clamping leaves between them, posts carried by one of the bars and extending loosely through the movable bar, fixed guideways on the movable bar arranged to engage the inner sides of the posts, a right and left hand screw-rod journaled in the movable bar, clamping-nuts screwing on said screw-rod and located at the outer sides of the posts, and arranged to simultaneously move in and out of clamping engagement with said posts, bearings for said nuts to slide in, said bearings being arranged on the ends of said movable clamping-bar, and means located at one end of the movable bar for turning said screw-rod, as set forth.

3. A binder-frame comprising clamping-sections for clamping leaves between them, posts carried by one of the sections and on which slides the other section, a right and left hand screw-rod journaled in the movable section, clamping-nuts screwing on said screw-rod and arranged to simultaneously move in and out of clamping engagement with said posts, means located at one end of the movable section and connected with the said screw-rod for turning the same, and means for preventing longitudinal movement of the screw-rod, substantially as described.

4. In a binder, the combination with the clamping-sections, of a post or posts secured to one of said sections, each post being adapted to pass through an opening in the other or movable section, a fixed guideway for each post on the movable section and located near one side thereof, a right and left hand screw-rod journaled in the movable section and located near the opposite side thereof, and a clamping-nut for each post arranged on said screw-rod and extending in line with the fixed guideway and arranged to clamp the post opposite the fixed guideway, substantially as described.

5. A binder-frame, provided with posts for receiving the leaves, each post being made in sections with one end of a section formed with a reduced portion having a central threaded bore, the other end of the section being hollow, and a screw-rod central in the hollow end to screw into the threaded reduced portion of the adjacent section, and which reduced portion fits into the hollow end, substantially as shown and described.

6. A binder-frame comprising clamping-sections for clamping leaves between them, a post secured to one of said sections and extending through an opening in the other or movable section, a fixed angular guideway located at said opening and having one of its members beveled, the guideway being provided with a recess for engaging one side of the said post, a clamping-nut having guided movement in the movable section and having a beveled portion corresponding with that of the guideway and an opposing recess for engaging the opposite side of the post, and a screw-rod engaging the nut for moving it in and out of clamping engagement with the post, substantially as described

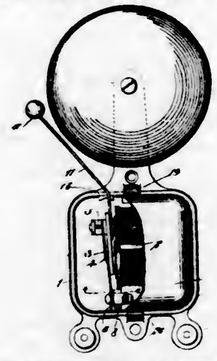
7 A binder-frame provided with clamping-bars, posts carried by one of the bars and extending loosely through the other or movable bar, fixed guideways on the movable bar arranged to engage the posts at one side thereof, bearings arranged on the movable clamping-bar, nuts mounted to slide in said bearings and adapted to engage the sides of the posts opposite the fixed guideways, a screw-rod journaled in said movable clamping-bar and having right and left hand screw-threaded portions on which screw the said nuts, to simultaneously move the nuts in or out of clamping engagement with said posts, and means located at one end of said movable clamping-bar for turning the screw-rod, substantially as set forth.

8. A binder-frame, provided with posts for receiving the leaves, each post being made in sections, one end of one section being hollow and having a screw-rod central in the hollow end, and one end of the other section being formed with a reduced portion having a central threaded bore, the said reduced portion being adapted to fit into the hollow end of the first-mentioned section and the central bore of said reduced portion receiving the said central screw-rod, substantially as described.

9. A binder-frame comprising superimposed clamping-bars for clamping leaves between them, posts carried by one of the bars and made in sections, the engaging ends of the sections of the posts being formed one with a reduced portion having a central threaded bore, the other being hollow and having a screw-rod central in the hollow end, a button removably held on the upper end of the uppermost section of said posts, the said posts extending through the other or movable clamping-bar, and means for locking the movable clamping-bar in position on the posts, substantially as described.

10. In a binder-frame, a sectional post, the engaging end of one section of the post being formed with a reduced portion having a central bore and the engaging end of the other section being hollow and having a central rod, for the purpose set forth.

646,222. ELECTRIC BELL. FRANCIS KEIL and HENRY F. KEIL, New York, N. Y. Filed Sept. 7, 1899. Serial No. 729,718. (No model.)



Claim.—1. In an electric bell; an electromagnet, an armature and a locking device, one section of said locking device being attached to the armature the other section being on a fixed support,

and a spring-yielding connection holding the two locking-device sections together and whereby the armature is permitted to turn transversely of the electromagnet, substantially as specified.

2. In an electric bell; an electromagnet, an armature coacting therewith, a locking-section attached to the armature and consisting of a radially-corrugated disk, another locking-section consisting of a radially-corrugated disk engaging with the first section, a support on one side of which the second-named locking-section engages, a spring-plate extended from said second-named locking-section to an engagement with the opposite side of the support, and a pin or bolt extended through said spring-plate, the support and the locking-sections, substantially as specified.

3. An electric device comprising an electromagnet, an armature coacting with the magnet, a spring-plate to which the armature is attached, the end of said spring-plate being provided with radial corrugations, a plate or locking-section transversely corrugated for engaging with the first-named corrugated portion, a support against one side of which the last-named corrugated plate engages, a spring-plate extended from the last-named corrugated plate and engaging with the opposite side of the support, and a pin passing from the support loosely through the two corrugated portions, substantially as specified.

4. In an electric bell, an electromagnet, an armature coacting therewith and mounted to turn, and automatic locking devices coacting with the armature, the locking devices normally holding the armature in the adjusted position and at all times exerting a tendency to lock the same, the said devices however yielding to a turning movement of the armature, substantially as specified.

646,223. DOOR-SPRING. FRANCIS KEIL and HENRY F. KEIL, New York, N. Y. Filed Aug. 31, 1899. Serial No. 729,083. (No model.)



Claim.—1. A door-spring, a block secured to one end thereof, a bracket in which the block is mounted to rotate, and a fastening-pin mounted to slide horizontally in a depending portion of the bracket, the said block having a series of perforations below the bracket adapted to receive a tool for adjusting the spring tension and also adapted to receive the fastening-pin.

2. A door-spring, a block secured to one end thereof, a bracket in which said block is mounted to rotate, the said block having perforations below the bracket, a lug extended downward from one side of the bracket and having a perforation, and a pin movable in said perforation and having an enlarged inner end to prevent its removal through said opening, the said pin being adapted to engage in either one of the perforations in the block, substantially as specified.

646,224. KEYBOARD MECHANISM FOR TYPE-WRITERS. EDWARD B. KIRBY, Denver, Colo. Filed Aug. 9, 1899. Serial No. 726,632. (No model.)

Claim.—1. In a keyboard mechanism, in combination, finger-keys, mechanism adapted to be mediately actuated thereby, and intermediate means connecting said mechanism with the keys but adapted to cease such engagement therewith before the depression of the keys is completed, substantially as described.

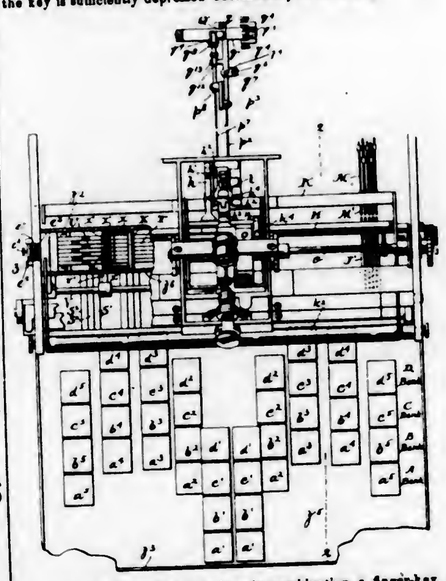
2. In a keyboard mechanism, finger-keys, and rock-shafts, combined with intermediate mechanism connecting the two which allows the key during part of its depression to actuate the rock-shaft and thereafter allows it to be freed therefrom, substantially as described.

3. In combination, a finger-key, a spring tending to elevate the same, mechanism which the key is adapted to actuate, said mechanism being adapted to be engaged when the key is actuated but adapted to move out of such engagement before the key reaches its limit of movement and thus leave the spring sustaining the thrust on the key's, substantially as described.

4. The combination of a finger-key, a stem depending therefrom, a spring tending to elevate said stem, a rock-shaft, an arm extending therefrom and adapted to be engaged when the key is depressed, a continued depression of the key releasing such engagement before the depression is completed, substantially as described.

5. The combination of a finger-key, a spring tending to elevate the same, an adjustable block carried by the key, a rock-shaft, an arm extending therefrom and adapted to engage said block and also adapted to pass out of such engagement before the actuation of the key is completed, substantially as described.

6. In combination, a finger-key, a forked stem depending therefrom, adjustable stops limiting the up-and-down movement of said stem, a spring tending to elevate said stem, an adjustable block carried by said key between the forks of the stem, an arm engaging with said block adapted to pass out of engagement therewith when the key is sufficiently depressed substantially as described.



7. In a keyboard mechanism, in combination, a finger-key, a stem depending therefrom, a plug r' screwing onto the end of said stem and extending through a frame-plate s' and having a shoulder adapted to engage with said plate and limit the movement of the stem in one direction, and a nut screwing onto said plug and adapted to engage with said frame-plate and limit the movement of the stem in the other direction, substantially as described.

8. In a keyboard mechanism, in combination, a series of combination-bars, a series of ratchet-bars carrying pawls adapted to engage with the combination-bars, a series of finger-keys, and suitable connections between them and the ratchet-bars whereby an actuation of the finger-keys moves the ratchet-bars, substantially as described.

9. A series of combination-bars, a series of ratchet-bars, individual pawls carried by the ratchet-bars adapted to engage the combination-bars, a keyboard, connection between the same and the ratchet-bars whereby the actuation of the keys moves the ratchet-bars, and means for releasing all the pawls simultaneously, substantially as described.

10. The combination of a system of notched combination-bars, a pair of systems of ratchet-bars, pawls carried by the ratchet-bars adapted to connect the ratchet-bars and combination-bars, two keyboards, each operating its corresponding set of ratchet-bars, and means for releasing the pawls from the combination-bars independently of the finger-keys, substantially as described.

11. The combination of a pair of keyboards, a double system of ratchet-bars, one system corresponding to each keyboard, a single system of combination-bars adapted to be shifted by either of said systems of ratchet-bars, mechanism for delivering movement to some certain lever of a system according to the position of the combination-bars, and mechanism actuated by said delivery mechanism for releasing the connection between the ratchet-bars and combination-bars, substantially as described.

12. The combination of a series of combination-bars, a series of ratchet-bars beneath them, a series of pawls carried by the ratchet-bars and adapted to engage with the combination-bars, a series of keys, connecting mechanism between the keys and the ratchet-bars, a rod extending across the pawls, and mechanism for depressing the same to move the pawls out of engagement with the combination-bars, substantially as described.

13. The combination of a series of combination-bars, a striking-frame, suitable connection between the combination-bars and the striking-frame whereby when rightly placed these bars release said frame, a series of finger-keys, a connection between them and the combination-bars whereby they move those bars, and mechanism actuated by the striking-frame to disengage the connection between the combination-bars and the finger-keys, substantially as described.

14. In a keyboard mechanism, in combination, two sets of keys, a common system of movable members adapted to be actuated by either set, an escapement mechanism, and means connecting the keys with the escapement mechanism, one set of keys giving the escapement a greater actuation than the other, substantially as described.

15. The combination of two sets of keys, two sets of rocking members, one set of keys operating one set of rocking members and the other set of keys operating both sets of rocking members, one of said sets of rocking members governing the actuation of a system of type-writer levers and the other independently governing an escapement mechanism, substantially as described.

16. The combination of a set of keys, a set of rock-shafts actuated thereby, a second set of keys, a set of sleeves surrounding the rock-shafts, a connection between said second set of keys and the sleeves, and a loose connection between the sleeves and rock-shafts, whereby the depression of one set of keys turns the rock-shafts and the other set turns both sleeves and rock-shafts, said sleeves and rock-shafts operating one to actuate the type-writer and the other to actuate the type-writer and the carriage-escapement independently, substantially as described.

17. In an escapement mechanism, in combination, an oscillating frame, a rigid and a movable pawl carried thereby, a notched member with which said pawls may alternately engage, a spring tending to move the movable pawl, means for limiting the amplitude of oscillation of the frame, means for varying the throw of the movable pawl without changing said amplitude of oscillation, two sets of keys each adapted to oscillate the frame substantially the same amount but one to change the throw of the movable pawl, substantially as described.

18. In an escapement mechanism, a stationary and a movable pawl, a member adapted to alternately engage therewith, and a spring tending to move said movable pawl, in combination with a member limiting such movement, and mechanism for moving such member away from the pawl and thus increasing the throw of the latter, substantially as described.

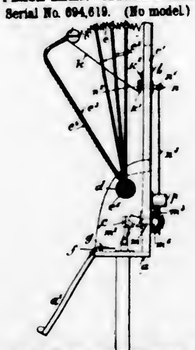
19. In an escapement mechanism, in combination, an oscillating frame, a rigid and a movable pawl carried thereby, a notched member with which said pawls may alternately engage, a spring tending to move the movable pawl, a block limiting such movement, a lever carrying said block, and a loose connection between said lever and frame whereby an actuation of the lever first withdraws the block from the path of the pawl and then oscillates the frame, substantially as described.

20. The combination with a series of movable members of a comb-spring having individual prongs bearing on said members, a pivoted block to which said spring is attached, and a screw for adjusting said block, substantially as described.

21. In a keyboard mechanism, a series of trussed bars adapted to reciprocate longitudinally combined with individual struts c' supporting said bars, substantially as described.

22. The combination of two sets of keys, common character-indicating mechanism adapted to be operated by either set, and means whereby one set indicates the character itself and the other set the same character plus a space.

646,225. FLASH LAMP. CHARLES KLARY, Paris, France. Filed Oct. 26, 1898. Serial No. 694,619. (No model.)



Claim.—1. In a flash-light apparatus, the combination with a receptacle for the flash-powder, of a hood whose upper end is secured to a stationary part above the receptacle at the rear end of the hood, while the lower end of the hood is pivoted so as to allow the hood to swing forward and downward when released the hood being constructed to fold into plaits, means for holding the lower end of the hood in a raised or set position, and means for releasing said lower end to allow the hood to drop into an operative position.

2. A flash-light apparatus, comprising a trough adapted to contain the flash-powder, a series of flat springs provided with percussion-blocks above the said trough, a series of hammers mounted on a common shaft to strike simultaneously the said corresponding springs and determine the ignition of the powder, in combination with a collapsible hood and catch devices for the igniting mechanism, substantially as described.

3. A flash-light apparatus comprising a support, an igniting device, a collapsible hood with a pivoted folding framework, an oscillating shaft carrying three arms, one of which is operated from the outside by a string, the second of which serves as a stop-catch for the igniting device, and a catch device connected with the third arm, in combination with spiral springs wound around the pivots of the folding framework of the said hood, and having a tendency to throw the hood down, a rod having a part or hook for holding the hood in its raised position, a shaft provided with two arms one of which engages the said hook and the other of which serves to suspend a chain having a weight adjustable thereon, the fall of the said weight being determined by the catch device of the igniting mechanism, and causing the hood to operate after a lapse of time which can be regulated at will according to the nature of the flash-powder and the time necessary for taking the view, by attaching the weight at different points of the chain, substantially as hereinbefore specified.

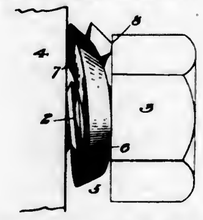
4. In a flash-light apparatus, in combination, a series of springs g having percussion-blocks g^6 arranged on a supporting-table a, directly above a trough f containing the flash-powder with igniting-caps, hammers h for exploding the caps, said hammers being mounted on a common shaft j, journaled in bearings on the table a, and able to rotate under the influence of two spiral springs j', wound around the ends of the said shaft; a catch device for holding the striking-hammers in the set position and comprising the arm j^3 of the said shaft j, and a shaft m having arms m', m^2, m^3, the string m^4, and the opposing spring m^5, a framework having pivoted arms c^4, spiral springs c^5 on the pivots of said arms, and a hood c constructed to fold after the fashion of an accordion and connected with said pivoted arms, a catch device for the curtain or hood c comprising the shaft n, having the arms n', n^2, the arm n' being provided with the chain n^3 having a weight n^4, which rests on a lever p, which engages the arm m^3 of the said catch device of the said striking-hammers, and the arm n^2 of the said shaft engaging a rod k, whereby the hood c is held folded, substantially as described.

5. In a flash-light apparatus, the combination with a receptacle for the flash-powder, of a folding hood one end of which is secured to a stationary part, pivoted arms connected with the other end of the hood, the hood being arranged to cover said receptacle and to retain the smoke, means for holding the hood in a set position, and means for throwing the hood into an operative position.

6. In a flash-light apparatus, the combination with a receptacle for the flash-powder, and mechanism for igniting said powder, of a folding hood arranged to cover said receptacle and to retain the smoke, said hood having one of its ends secured to a stationary part, pivoted arms with which is connected the other end of the hood, means for holding the hood in a set position, and mechanism for successively operating the igniting mechanism and the hood.

7. In a flash-light apparatus, the combination with a receptacle for the flash-powder, mechanism for igniting said powder, a movable hood for covering said receptacle and retaining the smoke, means for throwing the hood into an operative position, mechanism for normally holding the hood in an inactive position, a locking device for normally holding the igniting mechanism in a set position, a weight arranged to act upon said locking device and thus release the hood, means for normally supporting said weight, and mechanism for releasing said weight and the igniting mechanism.

646,226. NUT-LOCK. HENRY KLEMAN, Pittsburg, Pa., assignor of one-eighth to Harry J. Rose, Allegheny, Pa. Filed June 22, 1898. Renewed Nov. 4, 1899. Serial No. 735,842. (No model.)



Claim.—1. A helical spring-washer having a sharp inner edge arranged to engage the screw of the bolt and an outer biting-point; substantially as described.

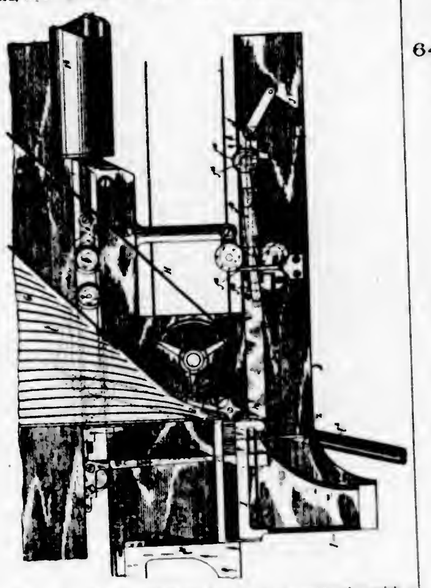
2. A nut-lock consisting of a helical spring-washer having an inner edge arranged to engage the screw-thread of the bolt, and biting-points at its ends; substantially as described.

3. A helical spring-washer, of triangular cross-section, having its inner edge arranged to engage the screw thread of the bolt, and biting-points at its ends; substantially as described.

4. A nut-lock, consisting of a helical spring-washer, having an inner biting-point located farther away from the center of the washer than its outer biting-point so as to give the nut a shorter lever-arm; substantially as described.

5. The combination with a bolt and nut, of a nut-lock consisting of a helical spring-washer of triangular cross-section, the base of the triangle being adjacent to the article through which the bolt passes, the washer having an inner sharp edge to engage the screw-thread of the bolt, and biting-points at its ends engaging the nut and the article respectively; substantially as described.

646,227. LINOTYPING-MACHINE. EDWARD G. LEONARD, Sheffield, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Dec. 31, 1897. Serial No. 665,023. (No model.)



Claim.—1. In a composing-machine and in combination with a resistant movable under the influence of the line being composed, a stop arranged to arrest said resistant before the composition of the line is completed.

2. In a composing mechanism, a resistant, movable under the influence of the line being composed, in combination with a stop to arrest the resistant when the line has reached the predetermined length, and a second stop arranged to arrest the resistant before the composition of the line is completed.

3. The combination in a composing-machine of the bar, moved step by step by the increasing length of the line being composed, a stepped indicator connected to said bar, and a stop with which the steps of said indicator engage.

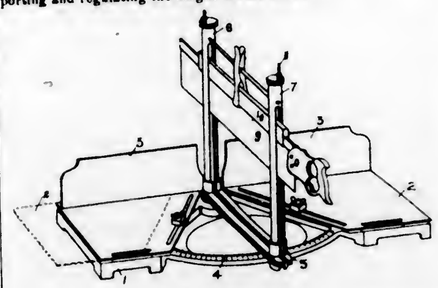
4. The combinatinn in a composing-machine or an indicator, provided with steps or shoulders, adapted to be moved step by step with the increasing length of the line being composed, and a stop with which the successive steps of said indicator engage.

5. The combination in a linotype-machine of the assembler bar or slide *j*, a stepped or shouldered indicator j^{11}, and a stop j^{19}.

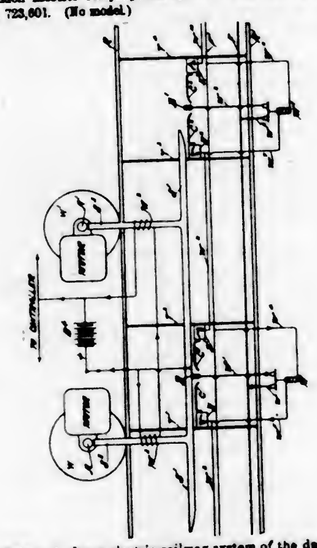
6. In a linotype-machine, the combination with the assembler-slide of means for arresting the same at predetermined points in its advance, prior to the completion of the line of composition.

646,228. MITER-BOX. SAMUEL LEVAN, Saginaw, Mich. Filed Mar. 20, 1899. Serial No. 709,769. (No model.)

Claim.—In a miter-box, means for regulating the depth of the saw-cut, comprising in combination, hollow saw-guiding standards, saw-supporting slotted blocks vertically movable within said standards, a guide-bar connecting said slotted blocks and pivotally connected therewith by means that permits independent vertical movement of each block, and means, substantially as described for supporting and regulating the height of said blocks.



646,229. SURFACE-CONTACT SYSTEM OF ELECTRIC RAILWAYS. ROBERT LUNDELL, New York, N. Y., assignor to the Johnson-Lundell Electric Company, same place. Filed July 12, 1899. Serial No. 723,601. (No model.)



Claim.—1. In an electric-railway system of the described type a current feeder or main; a series of sectional service-conductors and electromagnetic switching devices with relays for actuating said switching devices, in combination with means for causing each relay and switching device to connect to the main that sectional service-conductor next in advance to the one which is supplying current to the motor through the current-collecting shoe, so that it is made alive and ready for service before it has been reached by said shoe.

2. In an electric-railway system of the described type a current feeder or main, a series of sectional service-conductors normally disconnected therefrom; a series of relays and electromagnetic switching devices for connecting said sectional service-conductors with the current feeder or main in sequence; in combination with means for causing each relay and switching device to connect the corresponding service-conductors to the current feeder or main before the current-collecting shoe reaches it.

3. In an electric railway a current feeder or main including a source of electrical energy, a series of sectional service-conductors and electromagnetic switching devices for operatively connecting said service-conductors in sequence to the current feeder or main; means in the nature of a conducting contact-shoe carried by the car and adapted to bridge the space between the successive pairs of sectional conductors; in combination with two sets of stationary relays for operating said electromagnetic switching devices, said relays being so interconnected that when one of the sectional service-conductors is supplying current to the propelling-motor on board of the car the sectional service-conductor next in advance and not yet in contact with the contact-shoe is operatively connected with the current feeder or main, substantially as described.

4. In an electric railway a current feeder or main including a source of electrical energy, sectional service-conductors and electromagnetic switching devices for operatively connecting said sectional service-conductors in sequence to the current feeder or main; means carried by a car or vehicle for conducting current from said sectional service-conductors to and through an electric motor located therein, in combination with two sets of stationary relays for operating said electromagnetic switching devices, said relays being included in circuit with a separate or independent source of electrical energy and so interconnected that when one of the sectional conductors is operatively connected to and through the propelling-motor, the next sectional service-conductor in advance is operatively connected to the current feeder or main, thereby establishing a requisite time allowance to the electromagnetic switching devices as the car or vehicle advances, substantially as described.

5. In an electric-railway system of the described type, a current feeder or main including a source of electrical energy, in combination with sectional service-conductors normally disconnected therefrom; switching devices located in circuit with an independent source of electrical energy and adapted to close the circuit from the current feeder or main through the sectional service-conductors in sequence; means carried by the car for conducting the current from the sectional service-conductors to a propelling-motor on the car, said switching devices being so constructed and arranged that when the current is being conveyed from a given sectional conductor through the propelling-motor, the next sectional conductor adjacent thereto is operatively connected to the current feeder or main and before the current-carrying means comes into mechanical and electrical contact therewith, whereby a requisite time allowance is effected for the operation of the switching devices, substantially as described.

6. Means for establishing a magnetic field underneath a tram-car supported by magnetizable tram-rails, wheels and axles, consisting of a magnetizable shoe located substantially parallel with the tram-rails and in magnetic proximity to the axles of the vehicle; in combination with means for giving to said shoe magnetism of a definite polarity, together with magnetizable tie-rods connecting the tram-rails, the arrangement being such that magnetic lines of force are caused to flow through the shoe, the cross-ties, rails, wheels and axles of the vehicle, substantially as described.

7. Means for establishing a magnetic field underneath a tram-car supported by magnetizable tram-rails and wheels consisting of a magnetizable shoe located substantially parallel with the tram-rails, in combination with magnetizable tie-rods located in close proximity to said shoe and uniting the tram-rails; together with means for giving to the shoe magnetism of a definite polarity and to the wheels and rails upon which the car stands magnetism of a reverse polarity, substantially as described.

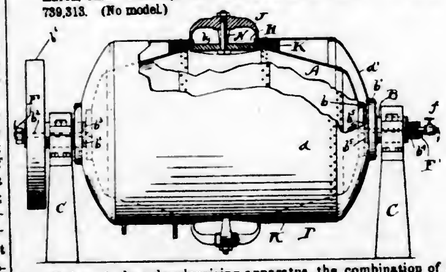
8. In an electric-railway system of the described type a current feeder or main including a source of electrical energy, in combination with sectional service-conductors normally disconnected therefrom; electromagnetic switching devices adapted to connect said sectional service-conductors to the current feeder or main in sequence; magnetic relays adapted to control the movements of the switching devices; together with means in the nature of a magnetizable shoe carried by the car and adapted to bridge the space between successive pairs of sectional service-conductors, said magnetizable shoe being provided with means for giving to it a definite magnetic polarity, and to the wheels and tram-rails which support the vehicle magnetism of opposite polarity, substantially as described.

9. In an electric railway of the described type a series of relays consisting of magnetizable needles pivotally supported in water-tight boxes in the road-bed, in combination with a magnetizable pole-piece or extension located in proximity to each of said needles for concentrating the magnetic lines of force and causing the needles to move with greater certainty of action, substantially as described.

10. In an electric railway of the described type a series of relays having each a magnetic needle inclosed in a non-magnetic box located in the road-bed, in combination with magnetizable pole-pieces or extensions located in a plane in the center of the road-bed and in proximity to said needles for concentrating the magnetic lines of force and causing the needles to move with greater certainty of action, substantially as described.

11. In an electric railway of the described type a current feeder or main including a source of electrical energy, sectional service-conductors normally disconnected therefrom, and electromagnetic switching devices for operatively connecting said sectional service-conductors in sequence with the current feeder or main; means, in the nature of a magnetizable shoe, carried by a car or vehicle for conducting current from said sectional service-conductors to and through an electric motor located on the car, stationary relays for operating said electromagnetic switching devices, said relays being included in circuit with a separate or independent source of electrical energy and consisting of magnetizable needles inclosed in water-tight boxes; in combination with magnetizable pole-pieces or extensions, one for each needle, located in proximity thereto, said needles and pole-pieces being located in close proximity to the magnetizable shoe; together with means carried by the car for giving to the magnetizable shoe magnetism of a definite polarity, all of said parts acting substantially as and for the purpose set forth.

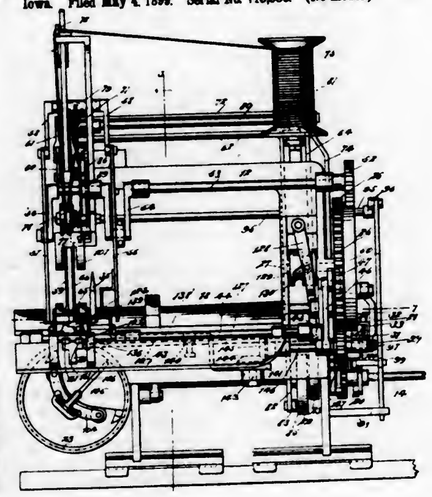
646,230. DEVULCANIZING APPARATUS. ARTHUR H. MARES, Akron, Ohio. Filed Apr. 14, 1899. Renewed Dec. 5, 1899. Serial No. 739,313. (No model.)



Claim.—1. In a devulcanizing apparatus, the combination of a jacket, and two shafts which extend through the ends of said jacket and have flanges to which said ends are rigidly secured, said shafts having ports which communicate with the interior of said jacket, and steam-pipes which are connected with the ends of said shafts by swivel connections, with a receptacle within the jacket which is secured at its ends to the said shafts, and strengthening-plates lying between and secured both to the inner receptacle and the jacket, the jacket, receptacle and plate having a manhole through them, and a cover for closing said manhole, substantially as specified.

2. In a devulcanizing apparatus, the combination of an outer jacket, shafts which pass through the ends of said jacket, and have flanges to which said ends are riveted and other flanges on their ends within the jacket, said shafts having also longitudinal ports and transverse ports which communicate with the interior of the jacket, with an inner receptacle which is of largest diameter at and near its middle and decreases in diameter toward each end, said receptacle being secured to the end flanges on the shafts, strengthening-plates fitted between and secured to said jacket and inner receptacle, said jacket, receptacle and plates having manholes through them, manhole-covers and their operating mechanism, bearings for said shafts, and steam-pipes connected with the ends of the shafts by swivel connections, substantially as specified.

646,231. GRAIN-BINDER. ALEXANDER G. MCINTOSH, Atalissa Iowa. Filed May 4, 1899. Serial No. 715,539. (No model.)



Claim.—1. In a grain-binder, the combination of packer-arms for advancing the grain, a divider or gavel-former, a needle, a shuttle working with the needle, a gavel-advancing arm serving to take the gavel from the divider or gavel-former and move the same forwardly to the tying position, and gearing for operatively driving the several parts.

2. In a grain-binder, the combination with means for forming the gavel, of a needle, a shuttle, means oscillating past each side of the needle to dispose the shuttle-threads, and gearing for operatively driving the several parts.

3. The combination, of a needle, a shuttle acting with the needle to tie the knot, a shuttle-thread-disposing device oscillating past each side of the needle, a swinging finger adapted to move the thread to tighten the knot, and gearing for operatively driving the several parts.

4. The combination, of a needle, a shuttle acting therewith to tie the knot, a shuttle-thread-disposing device mounted to oscillate from one side of the needle to the other, and gearing for operatively driving the several parts.

5. In a grain-binder, the combination, of a needle, a shuttle acting with the needle to tie the knot, a clamp adapted to hold the ends of the shuttle and needle threads, and gearing for operatively driving the several parts.

6. The combination, of a needle, a shuttle mounted to oscillate past each side of the needle and forming a double-hitch knot by two oscillations of the shuttle, a clamp serving to hold the ends of the shuttle and needle threads, and gearing for operatively driving the several parts.

7. In a grain-binding apparatus, the combination of means for forming the gavel, an advancing arm serving to move the gavel forwardly from said means, a needle, a shuttle acting with the needle to tie the knot, the shuttle and needle operating first to tie together the ends of the shuttle and needle threads, after which the gavel-advancing arm pushes the gavel forwardly of the needle and the needle and shuttle subsequently serving to again tie the threads to form the sheaf-band, and gearing for operatively driving the several parts.

8. The combination of means for forming the gavel, a needle, a shuttle acting with the needle to tie together the ends of the needle and shuttle threads, a gavel-advancing arm serving to move the gavel to the front of the needle after the ends of the threads have been tied, the needle and shuttle then serving to again knot the threads, and gearing for operatively driving the several parts.

9. In a grain-binding apparatus, the combination of a needle, a shuttle acting with the needle, a clamp serving to hold the ends of the shuttle and needle threads, a knife acting in unison with the clamp to sever the threads, a bar mounted adjacent to the clamp and movable to raise the threads from the clamp and knife, and gearing for operatively driving the several parts.

10. In a grain-binding apparatus, the combination of a needle, a shuttle acting with the needle to tie the knot, shuttle-thread-disposing devices, a clamp for holding the ends of the threads, a knife acting in unison with the clamp to sever the threads, a movable bar adjacent to the clamp and knife, to periodically raise the threads above the same, and gearing for operatively driving the several parts.

11. In a grain-binding apparatus, the combination with knotting devices, of a clamp, a knife, a movable bar serving periodically to raise the threads from the clamp and knife, and gearing for operatively driving the several parts.

12. In a grain-binding apparatus, the combination with a table, of a swinging leaf mounted at the rear thereof, a cam carried on said leaf, knotting devices comprising a clamp and knife, a swinging plate mounted on the table and engaged by the cam on said leaf, and a bar carried by the plate and serving periodically to raise the threads out of engagement with the clamp and knife.

13. In a knotter, the combination of a needle, a shuttle acting therewith, a shuttle-thread-disposing claw mounted to oscillate past each side of the needle and having a slot therein, a driving member for the claw, such member having a portion playing loosely in the slot, and gearing for operatively driving the several parts.

14. In a grain-binder, the combination with the primary or drive shaft, of a clutch, a shuttle, a needle, gavel forming and advancing devices, a presser-foot acting in time with the needle, gearing for driving the shuttle, the needle, the presser-foot and the gavel forming and advancing devices from the said clutch, and means comprising a trip-lever mounted on the presser-foot for throwing the clutch into gear, the trip-lever being moved with the presser-foot into the path of the gavel, to be tripped by the same.

15. In a grain-binder, the combination with a prime-mover shaft, of a clutch acting therewith, a needle, a shuttle, a presser-foot acting in time with the needle, gavel forming and advancing devices, the needle, the shuttle, the presser-foot, and the gavel forming and advancing devices being driven by gearing from the clutch, and means for throwing the clutch into gear, such means comprising a member carried on the presser-foot and actuated by the pressure of the gavel against the same.

16. In a grain-binding apparatus, the combination of a prime-mover shaft, a clutch acting with the same, a shuttle, a reciprocating needle, gavel forming and advancing devices, a vertically-reciprocating rod arranged parallel and actiug in time with the needle gearing driven from the clutch and serving to drive the needle, the shuttle, the gavel forming and advancing devices, and the said rod, a lever fulcrumed on and moving with the vertical rod and actuated by the pressure of the gavel against it, a link actuated by the lever, and a rocking crank-shaft with its crank attached to the link, the crank-shaft having connection with the clutch.

17. In a grain-binder, the combination with the knotter, of a prime-mover shaft, a clutch on the shaft, gearing for operating the knotter from the clutch, a swinging arm, a link connecting the arm with a member of said gearing for operatiug the knotter, a clutch-tripping arm mounted yieldingly on the said swinging arm, and means for periodically raising the tripping-arm independently of the said swinging arm.

18. In a grain-binding apparatus, the combination of a driven gear having a cam-slot therein, a rocking spider acting with the cam-slot and rocked thereby, a presser-foot shaft having linked connection with the spider and driven thereby, a divider-shaft, and a connection between the divider-shaft and the spider, to drive the divider-shaft.

19. In a grain-binding apparatus, the combination of a prime-mover shaft, a clutch thereon, a gear driven from the clutch and having a cam-slot therein, a swinging arm, a link connecting the arm with said gear, a clutch-tripping arm yieldingly mounted on the swinging arm, means for actuating the clutch-tripping arm, from the presence of the gavel, a pivoted spider having a part playing in the slot of the gear to drive the spider, a presser-foot shaft in connection with the spider and driven thereby, and a divider-shaft also in connection with the spider and driven thereby.

20. In a grain-binding apparatus, the combination with knotting devices, comprising a shuttle and a shuttle-thread-disposing claw, of a knotter-shaft, a cam on the knotter-shaft, a strap driven by said cam, a toothed sector in connection with the strap, a shuttle-shaft geared with the sector, and a claw-operating shaft geared with the shuttle-shaft.

21. In a grain-binding apparatus, the combination of a prime-mover shaft, a clutch mounted thereon, means for controlling the clutch from the pressure of the gavel, a needle-shaft, a needle driven therefrom, a presser-foot shaft, a presser-foot driven therefrom, links in connection with the presser-foot and needle-shafts, a sleeve mounted loose on the prime-mover shaft, means carried on the sleeve for driving the two links, and a connection between the clutch and sleeve to turn the sleeve with the prime-mover shaft when the clutch is in gear.

22. In a grain-binding apparatus, the combination with means for forming the gavel, of knotting mechanism comprising a shuttle and a needle serving to bind the gavel, the needle being movable to permit the passage of the gavel beyond the knotting mechanism, a gavel-advancing arm serving first to move the gavel from the means for forming the same to the knotting mechanism, and subsequently to move the gavel past the knotting mechanism, and means for driving the operative parts.

646,282. COMPOUND FOR COATING INCANDESCENT MANTLES. ALBERT S. NEWBY, Chanute, Kans. Filed Dec. 5, 1899. Serial No. 739,325. (No specimens.)

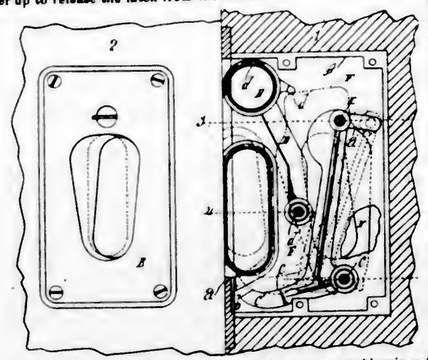
Claim.—1. As an improved article of manufacture, the coating liquid for incandescent mantles, composed of three ounces of gun-cotton, fifty-five ounces of sulferic ether, fifty ounces of wood-alcohol, and four ounces of glycerin, as specified.

2. The herein-described compound for coating incandescent mantles, said compound being a liquid consisting of ether, alcohol, gun-cotton and glycerin, in about the proportions specified.

646,283. SLIDING-DOOR LOCK. AUGUSTUS NEWELL, Pasadena, Cal., assignor to the Perfect Sliding Door Company, Los Angeles, Cal. Filed May 11, 1899. Serial No. 716,464. (No model.)

Claim.—1. An attachment for double sliding doors comprising a frame for the edge of one of the doors, a catch being formed of a part of the frame, to catch the latch of a lock on the other sliding door; such latch; a latch-releasing member in the frame normally below the catch; means for throwing the releasing member up to release the latch from the catch; and a pull pivoted in the frame with said latch mechanism and provided with a handle which normally projects from the frame to engage said other door thereby to be thrown into the frame.

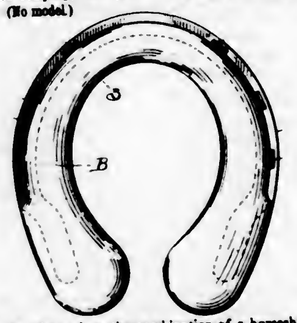
2. In an attachment for double sliding doors, the combination of a latch pivoted to one of the sliding doors; a frame for the edge of the other of the doors, a catch being formed of a part of said frame, to catch the said latch; a latch-releasing member in the frame normally below the catch; and means for throwing the releasing member up to release the latch from the catch.



3. In an attachment for double sliding doors, the combination of a frame for the edge of one of the doors, a catch being formed of a part of the frame to catch the latch of a lock on the other sliding door; such latch; a bent lever pivoted at its bend in the frame and with one arm extending to a point below the catch to move in the path of the latch of the other door to lift such latch from the catch; a pin in the upper end of the arm of the lever and extending beyond the side of the frame; and a handhold fastened at its upper end to such pin and pivoted at its lower end coaxially of the pivot of the lever.

4. In an attachment for double sliding doors, the combination of a frame for the edge of one of the doors; a pivoted latch on the other sliding door; a catch for the latch of said other door being at the lower part of said frame; a bent lever pivoted in the frame with a weighted arm normally held by gravity below the catch to be thrown up to lift the latch of the other door; the pivot for the lever extending through the sides of the frame; a pin in the upper arm of the lever and extending through the sides of the frame; ways being provided in the frame for said pin; and two handholds on the opposite sides of the frame respectively, and each being connected to the lever-pivot and to the projecting pin.

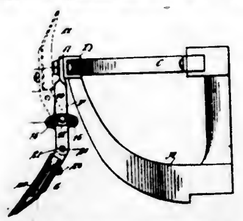
646,284. RUBBER-CUSHION HORSESHOE. HENRY PAAR, Canton, Ohio, assignor, by mesne assignments, to the Paar Double Cushion Horse-Shoe Company, same place. Filed Dec. 30, 1899. Serial No. 743,053. (No model.)



Claim.—In a horseshoe, the combination of a horseshoe-shaped metal frame having its rear ends bent inward and then rearward to form shoulders, with an elastic cushion having a downwardly-extended tread portion, an outwardly-extended flange, an external groove below the flange, and recesses in the ends of the cushion connecting with the ends of the groove, which recesses are curved inwardly and then rearwardly to form shoulders, substantially as and for the purpose specified.

646,285. LISTER ATTACHMENT FOR PLANTERS. JOHN L. PATE, Waunota, Kans. Filed Dec. 18, 1899. Serial No. 740,706. (No model.)

Claim.—1. An attachment to planters, consisting of a standard constructed in two sections pivotally and adjustably connected, the upper section being adapted for attachment to the frame of a planter and having a straight body the lower section being angular, the upper portion of said lower section being straight and the lower portion inclined downwardly, and a brace connecting with said standard where its parts are pivotally connected and adapted for attachment to the frame of the planter, substantially as described.



2. An attachment for planters, consisting of a standard constructed in two sections, an upper section adapted for attachment to a planter-frame and having a straight body, and a lower angular section having a straight upper portion and a downwardly-inclined lower portion, the upper straight portion of the lower section being bifurcated to receive the upper section, the members at the said bifurcated portion being provided with horizontally-elongated heads having a series of segmentally-arranged apertures therein, the outer faces of the said heads being roughened, a pivot-pin passed through registering apertures in the heads of the lower section and through the body portion of the upper section, a washer carried by the pivot-pin and provided with a roughened inner face adapted to engage with the roughened surface of one of the said heads of the lower section of the standard, and a share or shovel carried by the lower inclined portion of the lower section of the standard, substantially as described.

3. An attachment for planters, consisting of a standard constructed in two sections, an upper section adapted for attachment to a planter-frame and having a straight body, and a lower angular section having a straight upper portion and a downwardly-inclined lower portion, the upper straight portion of the lower section being bifurcated to receive the upper section, the members at the said bifurcated portion being provided with horizontally-elongated heads having a series of segmentally-arranged apertures therein, the outer faces of the said heads being roughened, a pivot-pin passed through registering apertures in the heads of the lower section and through the body portion of the upper section, a washer carried by the pivot-pin and provided with a roughened inner face adapted to engage with the roughened surface of one of the said heads of the lower section of the standard, a breakable connection between the two sections of the standard below their pivoted connection, a share or shovel carried by the lower inclined portion of the lower section of the standard and extending beyond the bottom of the runner of the planter to which the attachment is to be made, and a brace connecting said standard with the planter-frame, substantially as described.

4. The combination, with the front beam of a planter and its pole or tongue, of lister-standards attached to the said front beam near each of its ends and extending downwardly therefrom, each of said lister-standards being located in front of the runner of the planter and comprising an upper section rigidly secured to the said frame-beam, and a lower section having adjustable and pivotal connection with the upper section of the lister-standard, and likewise a breakable connection, and braces connected with the said standards where their parts are pivotally connected, which braces cross each other at their inner ends and are adjustably secured to the frame-beam beneath the tongue or pole of the planter, as described.

5. The combination with the front beam of a planter and the runners, of lister-standards attached to the said front beam near each of its ends, and extending downwardly therefrom, each of said standards being located in front of the corresponding runner of the planter and comprising an upper section having a straight body rigidly secured to the said beam of the planter, and a lower angular section having means for attachment to a share or shovel, the upper part of said lower section having adjustable and pivoted connection with the upper section, and braces connected at one end with the said standards and adjustably connected at their other ends with the said front beam of the planter, substantially as described.

6. The combination with a planter-frame provided with runners, of a standard adapted to carry a share or shovel and constructed in two sections pivotally and adjustably connected, the upper section being adapted for attachment at its upper end to the planter-frame, and a brace provided at one end with a flange through which the pivot-pin connecting the sections of the standard is adapted to pass.

to connect the brace to the standard, the other end of said brace being adjustably connected with the planter-frame, substantially as described.

646,286. BOX-CORNICE. CHRISTIAN M. PRUTSMAN, Lexington, Nebr. Filed Jan. 9, 1900. Serial No. 887. (No model.)

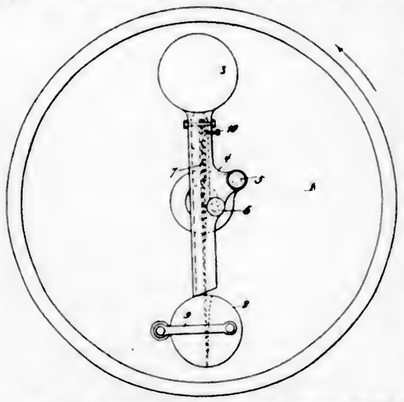


Claim.—1. A box cornice or trimming, comprising a rake-molding and an eave-molding, the moldings being of different width and the rake-molding being arranged for attachment to the side of the rafter and at an angle thereto, the eave-molding being arranged for attachment to the square end of the rafter, the moldings being joined at the corner in miter fashion, substantially as shown and described.

2. The combination with a rafter, of a box trimming or cornice for the rafter, and comprising a rake-molding and an eave-molding, the moldings being of different width, but approximately of the same ogee form, the eave-molding being secured flat against the square end of the rafter, and the rake-molding being provided with an angular nailing-flange resting against the side of the rafter for the molding to stand at an angle thereto, the moldings being jointed at the corner, substantially as shown and described.

3. The combination with the rafters and the roof-sheathing therefor, of a rake-molding and an eave-molding, the moldings being of different width and the rake-molding being provided with a nail-flange for attachment to the side of the rafter, to hold the rake-molding at an angle to the rafter and to join with the beveled outer edge of said sheathing, the eave-molding being secured flat against the rafter and to the flush lower edge of said sheathing, substantially as shown and described.

646,287. GOVERNOR. FRANCIS M. RITER, Ithaca, N. Y. Filed Apr. 1, 1898. Renewed Dec. 21, 1899. Serial No. 741,188. (No model.)



Claim.—1. In a governor, the combination, with a revoluble carrier, of a weight structure containing spring-connected primary and secondary weights mounted upon the carrier by a single pivot, and which when the carrier is revolved, or its speed changed, move with respect to each other and the pivot, inducing spring action tending to return the weight structure and the parts thereof to their initial positions, and an actuating member for operating a valve or other device, adjusted by the movement of the weight structure, substantially as described.

2. In a governor, the combination, with a revoluble carrier of a weight structure containing a primary weight, a secondary weight, and a spring connecting said weights, all mounted upon the carrier by a single pivot, the parts being so proportioned and arranged that when the carrier is revolved, or its speed changed, the weights move with respect to each other and to the pivot, thereby inducing spring action tending to restore the weight structure and the parts thereof to their initial positions, and an actuating member for operating a valve or other device, adjusted by the movement of the weight structure, substantially as described.

3. In a governor, the combination, with a revoluble carrier, of a weight structure containing a primary weight, a secondary weight, and a flexure-spring connecting said weights, all mounted upon the carrier by a single pivot, means for confining one of the weights to motion in a direction other than about said pivot, thereby causing flexure of the spring when the carrier is revolved, and an actuating member for operating a valve or other device, adjusted by the movement of the weight structure, substantially as described.

4. In a governor, the combination, with a revoluble carrier, of a weight structure containing a primary weight, a secondary weight, and a flexure-spring connecting said weights, all mounted upon the carrier by a single pivot, means for confining one of the weights to movement in a substantially-radial direction, thereby causing flexure of the spring when the carrier is revolved, and an actuating member for operating a valve or other device, adjusted by the movement of the weight structure, substantially as described.

5. In a governor, the combination, with a revoluble carrier, of a primary centrifugal and inertia weight, pivoted to the carrier, a flexure-spring secured to said primary weight, a secondary weight likewise secured to said spring and supported thereby from the primary weight, means for confining said secondary weight to motion in a direction other than about the pivot of the primary weight, and an actuating member for operating a valve or other device, adjusted by the movement of the weights, substantially as described.

6. In a governor, the combination, with a revoluble carrier, of a primary centrifugal and inertia weight, pivoted to the carrier, a flexure-spring secured to said primary weight, a secondary weight likewise secured to said spring and supported thereby from the primary weight, means for confining the secondary weight to motion in a substantially-radial direction, and an actuating member for operating a valve or other device, adjusted by the movement of the weights, substantially as described.

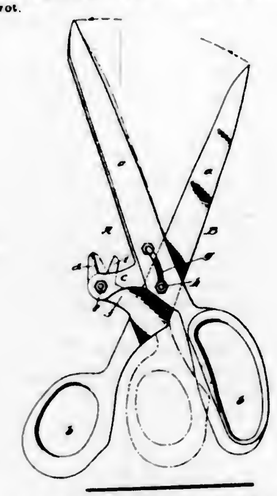
7. In a governor, the combination, with a revoluble carrier, of a primary centrifugal and inertia weight pivoted to the carrier, a flexure-spring secured at one end to said primary weight and having secured to its other end a secondary weight which is substantially opposite the primary weight and balances the same as to gravity about the pivot, means for confining the secondary weight to motion in a radial direction, and an actuating member for operating a valve or other device, adjusted by the movement of the weights, substantially as described.

8. In a governor, the combination, with a revoluble carrier, of a primary centrifugal and inertia weight pivoted to the carrier and having a channeled arm or extension, a flexure-spring within said channel and projecting from the end thereof, secured to the arm at the inner end of said channel and having secured to its outer end a secondary weight, substantially opposite the primary weight and which balances the same as to gravity about the pivot and rests upon the end of the arm of the primary weight, said arm being shaped to permit the secondary weight to roll thereon, a link pivoted to the secondary weight and to the carrier, and restricting the secondary weight to motion in a substantially-radial direction, and an actuating member for operating a valve or other device, adjusted by the movement of the weights, substantially as described.

9. In a governor, the combination, with a revoluble carrier, of a weight structure containing spring-connected primary and secondary weights mounted upon the carrier by a single pivot or equivalent device, and which when the carrier is revolved, or its speed changed, move with respect to the carrier and the pivot, inducing spring action tending to return the weight structure and the parts thereof to their initial positions, and a shifting eccentric adjusted by the movement of the weight structure, substantially as described.

646,288. SHEARS. JOHN T. SCHNORR, Sandusky, Ohio. Filed Oct. 11, 1899. Serial No. 733,267. (No model.)

Claim.—Shears, having two sections each comprising a blade and a handle, the blade and handle of each section being essentially in alinement, an arm or projection extended laterally from each section and situated at the bases of the blades, the arms being extended in the same direction and the sections being connected by a pivot-pin at the ends of the arms, and a nipper-blade attached to the end of each arm, the blades working with each other as the sections are moved on the pivot.



646,289. BUTTON FOR SLIDING DOORS. DANIEL SCHUYLER, San Diego, Cal., assignor to the Perfect Sliding Door Company, Los Angeles, Cal. Filed Apr. 3, 1899. Serial No. 711,600. (No model.)



Claim.—1. A locking-button for a sliding door pivoted to rotate freely and provided at its back with a concealed stop to prevent rotation except through a segment of a circle; and means for normally returning the button to bring the stop to one limit of such segment.

2. A locking-button for sliding doors pivoted to rotate freely and provided at its back with a concealed stop to prevent rotation except through a segment of a circle, one end of said button being lighter than the other and provided at the back with a pad to contact with the edge of the door.

3. In a locking-button for a sliding door, the combination of a face-plate provided with a central screw-threaded hole, and adapted to be fastened to a support; a centrally-perforated button; and a smooth-ended pivot-pin inserted through the perforation of the button and screw-threaded between the button and the smooth end, and screwed into the face-plate, and the smooth end projected beyond the inner face of the face-plate to seat in the support.

4. In a locking-button for a sliding door, the combination of a face-plate having a screw-threaded perforation, and means for fastening the plate to a support; a button; a pivot-pin inserted through the button and screwed into the face-plate; and a concealed quadrant-stop at the back of the button to limit the swing of the button.

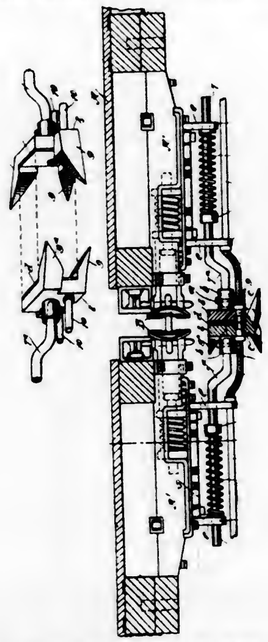
5. The combination of a face-plate provided with a pinway and a screw-threaded perforation; means for fastening the plate to a support; a button having a perforation and having a pin projecting into said pinway; and a pivot-pin inserted through the perforation of the button and screwed into the perforation of the plate.

6. The combination of a face-plate and means for fastening to a support; a button having a perforation; a pivot-pin pivoting the button to the face-plate, the faces of the plate and button fitting upon each other; a limited pinway being provided in one of said faces; and a pin projecting from the other face into said pinway, to stop against the end walls of the pinway.

7. In a door-holding button, a pivot-pin provided with a head, a pivot portion next the head, a screw-threaded portion of smaller diameter next the pivot portion to screw into a face-plate, and a smooth portion at the end and of smaller diameter than the screw-threaded portion, to project through the face-plate into the support to which the face-plate is secured.

646,240. AUTOMATIC AIR-PIPE COUPLING FOR CARS. JOHN W. SPURLOCK, Ty Ty, Ga. Filed Oct. 17, 1899. Serial No. 733,881. (No model.)

Claim.—1. The combination with a slidable and spring-pressed carrier-rod, of a coupling-head jointed to rock horizontally on the forward end of said rod and having three tapered or beveled prongs projecting therefrom, two of the prongs extending from the lower corners of the head and having their inner and upper faces beveled, and the other prong extending from an upper corner of the head and having its inner and lower face tapered or beveled, and an air conduit-pipe connected with the coupling-head, substantially as described



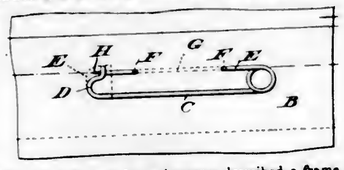
2. The combination with a slidable and spring-pressed carrier-rod having one end bent into gooseneck form, of a coupling-head in rectangular form, horizontally jointed upon the forward end of the gooseneck formation, two prongs tapered or beveled on their inner and upper faces and projecting from the lower corners of the coupling-head forwardly, a prong projected from the outer upper corner of the coupling-head and tapered or beveled on its inner and lower face, an elastic facing on the front face of the coupling-head, and an air-pipe having a flexible forward portion which is connected with a nipple secured in a perforation in the coupling-head.

3. The combination with a car-frame, a bracket-plate secured on the frame near its transverse center at the end thereof, and two spaced arms depending from the bracket-plate, each arm having a vertically-elongated aperture therein, of a spring-pressed carrier-rod loosely engaging said arms within their apertures, and having a gooseneck formation on the forward portion thereof, a rectangular coupling-head having three tapered prongs projecting from the corners thereof forwardly, two of the prongs being tapered or beveled on their upper and inner faces and the third one tapered or beveled on its inner and lower face, a horizontal hinge-joint connecting the gooseneck with the coupling-head, two supported and spaced air-pipes inserted in the coupling-head below the carrier-rod connection and having flexible portions at the forward ends and an elastic-joint facing-piece on the front end wall of the coupling-head.

4. In an air-pipe coupling, coupling-heads rectangular in shape and each provided with two prongs projecting from the lower corners of the head and having their inner and top faces beveled, one of the prongs being flush with the side thereof and the other extending beyond the side, and with a prong projecting from one upper corner of the head, said prong extending beyond the side of the head and having its inner and lower face beveled, substantially as described.

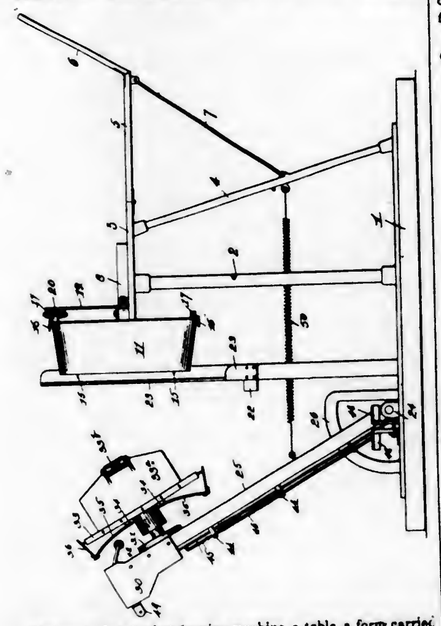
5. In an air-pipe coupling, the combination with a coupling-head having an opening therein, an elastic facing for the coupling-head formed with a tubular projection fitting in the opening of the said head, and an air-pipe having a nipple fitting in the opening of the head with its end projecting into the tubular projection of the facing, substantially as described.

646,241. SAFETY-PIN. MARY V. THORNDIKE, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,767. (No model.)



Claim.—In a device of the character described, a frame, a clasp at one end thereof, a pin at the other end thereof, an offset portion in said pin including substantial right-angle bends connected by a substantially-straight bar laterally of but substantially parallel with the pin, said offset portion being extended into a plane at right angles to the plane of the frame.

646,242. BASKET-WEAVING MACHINE. ENOS L. WALKER, St. Louis, Mo. Filed May 22, 1899. Serial No. 717,712. (No model.)



Claim.—1. In a basket-forming machine, a table, a form carried by said table, means whereby a basket-web is held in position against the face of said form, and means whereby a number less than the whole number of splints composing the sides and ends of said web are at one time bent against the side and ends of said form, substantially as specified.

2. In a basket-forming machine, a table, a form arranged in a vertical position at one end of said table, means whereby a basket-web is held in position against the face of said form, a bar hinged at its lower end so that its upper end swings backwardly and forwardly in front of the form, and means carried by the upper end of said bar for separately bending the sides and ends of the basket-web around the form, substantially as specified.

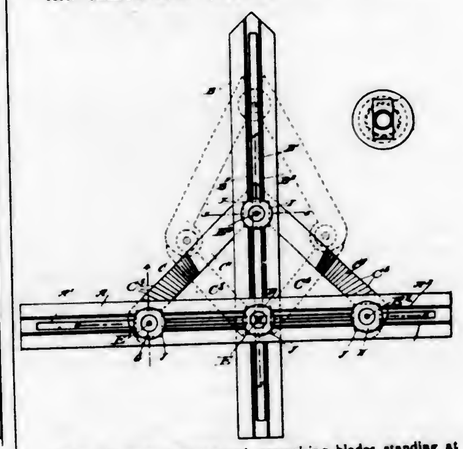
3. In a basket-forming machine, a table, a form arranged in a vertical position at one end of said table, means whereby a basket-web is held in position against the face of said form, a bar hinged at its lower end so that its upper end swings backwardly and forwardly in front of the form, means carried by said bar for bending the sides of the basket-web against the sides of the form, and means whereby a certain number less than the whole number of splints of the basket-web are bent over the end of the form at one time, substantially as specified.

4. In a basket-forming machine, a table, a form rotatably arranged upon one end of said table, means whereby a basket-web is held in position against the face of said form, a swinging bar hinged at its lower end, the upper end of which operates in front of the form, and means carried by the upper end of said bar and rotatably arranged thereon, for separately bending the sides and ends of the basket-web over the form, substantially as specified.

5. In a basket-forming machine, a rotatably-arranged form, means whereby said form is retained in a vertical position, means whereby a basket-web is held in position against the face of said form, a rotatably-arranged plate held to swing upwardly against the face of said form, wings carried by the side of said plate for engaging against the sides of the form, a plurality of spring-plates carried by the rear side of the first-mentioned plate, and plates secured to the outer ends of said spring-plates, which last-mentioned plates extend over the ends of the first-mentioned plate, substantially as specified.

6. In a basket-forming machine, a rotatably-arranged form, means whereby said form is retained in a vertical position, means whereby a basket-web is held in position against the face of said form, a rotatably-arranged plate held to swing upwardly against the face of said form, wings carried by the side of said plate for engaging against the sides of the form, a plurality of spring-plates carried by the rear side of the first-mentioned plate, plates secured to the outer ends of said spring-plates, which last-mentioned plates extend over the ends of the first-mentioned plate, and means whereby pairs of said spring-plates are alternately depressed, substantially as specified.

646,248. COMBINATION-TOOL. PATRICK H. WALSH, Scranton, Pa., assignor of one-half to Frank W. Filer, same place. Filed Sept. 2, 1899. Serial No. 729,289. (No model.)



Claim.—1. A combination-tool, comprising blades standing at right angles and slidable one relative to the other, and a triangle having its sides pivotally connected with each other, the hypotenuse being made in sections pivotally connected with each other and with the said blades.

2. A combination-tool, comprising blades slidable at right angles one relative to the other, a triangle having its sides pivotally connected with each other and having a pivot in the middle of its hypotenuse, and clamping-screws for connecting the triangle at its pivots to the said blades, substantially as shown and described.

3. A combination-tool, comprising blades slidable at right angles one relative to the other, a triangle having its sides pivotally connected with each other and its hypotenuse made in sections pivoted together, and clamping-screws on the pivots of the triangle and engaging said blades, substantially as shown and described.

4. A combination-tool comprising blades slidable at right angles one relative to the other, a triangle having its sides pivotally connected with each other and its hypotenuse made in sections pivoted together, and clamping-screws on the pivots of the triangle and engaging said blades, the clamping-screw at the pivot of the hypotenuse-sections engaging the blades at their junction, substantially as shown and described.

5. A combination-tool comprising blades at right angles, a triangle having a pivotal connection with the blades at the junction thereof, the pivot being at the middle of the hypotenuse of the triangle and the sides of the latter being graduated to indicate angles at the blades, substantially as shown and described.

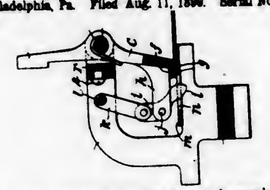
6. A combination-tool comprising a stock, blades slidable at right angles one relative to the other and to the stock, and a triangle having its sides pivotally connected with each other, the hypotenuse being made in sections pivotally connected with each other and with the said blades, substantially as shown and described.

7. A combination-tool comprising a stock, a protractor held immovable relative to the said stock, blades at right angles to each other and slidable one relative to the other and to the said stock, and a right-angle triangle having its sides pivotally connected with each other, the hypotenuse being made in sections pivotally connected with each other and with the center of said stock, substantially as shown and described.

8. A combination-tool comprising a stock, a protractor held immovable relative to the said stock, blades at right angles to each other and slidable one relative to the other and to the said stock, a right-angle triangle having its sides pivotally connected with each other, its hypotenuse being made in sections pivotally connected with each other and with the center of said stock, and means, substantially as described, for slidably connecting the pivots of the sections of the triangle with guideways in said blades, substantially as shown and described.

9. A combination-tool comprising a stock, blades at right angles to each other and slidable one relative to the other and to the stock, and a triangle having its sides pivotally connected with each other, the middle of the hypotenuse being connected to the center of said stock, the sides of the triangle being provided with graduations, substantially as shown and described.

646,244. CLAMP FOR TEXTILE FABRICS. CHARLES I. WEICHSELT, Philadelphia, Pa. Filed Aug. 11, 1899. Serial No. 726,961. (No model.)



Claim.—1. In a clamp for textile fabrics, in combination, a movable clamp or jaw, a table furnished with a slot as described, an arm carried by the movable jaw, a trigger pivoted between its ends to said arm, a link the lower end of which is pivoted to the upper end of said trigger and the upper end of which is pivoted to a fixed point.

2. In a clamp for textile fabrics, in combination, a movable clamp or jaw, a table furnished with a slot as described, an arm carried by the movable jaw, a trigger pivoted between its ends to said arm, a link the lower end of which is pivoted to the upper end of said trigger and the upper end of which is pivoted to a fixed point, and a spring for normally throwing said clamp or jaw downward.

3. In a clamp for textile fabrics, in combination, an arm having substantially a U shape, a movable clamp or jaw pivoted to the upper portion of said arm, a table carried by or forming part of the lower part of said arm and furnished with a slot as described, an arm carried by the movable jaw, a trigger pivoted between its ends to said arm, and a link the lower end of which is pivoted to the upper end of said trigger and the upper end of which is pivoted to a shaft or stud carried by the upper portion of said U-shaped arm.

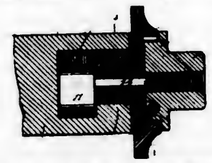
4. In a clamp for textile fabrics, in combination, a movable jaw furnished with a projecting arm, a stationary arm to which said jaw is pivoted, a trigger pivoted at or near its center to said projecting arm, and a link the upper end of which is pivoted to said stationary arm and the lower end of which is pivoted to the upper end of said trigger.

5. A movable jaw for engaging and holding a fabric in a tentering-machine the lower end of which is L-shaped and concaved on its bottom substantially as and for the purposes set forth.

6. In a clamp for textile fabrics, in combination, an arm having substantially a U shape, a table carried by or forming part of the lower part of said arm, a frame pivotally secured to the upper part of said arm, and a movable clamp or jaw pivotally carried on said frame.

646,245. HUB-ATTACHING DEVICE. JOHN A. WHITSEL and ULYSSES G. SMITH, Danville, Pa. Filed Jan. 3, 1900. Serial No. 256. (No model.)

Claim.—1. In a hub-attaching device, the combination of a collar having an annular flange formed thereon, and the flange being ratcheted, means for holding the collar in place, a head in connection with said means and mounted to turn on the collar, the head comprising a circular base which fits within the annular flange of the collar and an outer portion adapted to receive a wrench, and a pawl carried by the head and having a portion projected beyond the said outer portion of the head, the pawl working with the ratcheted flange of the collar.

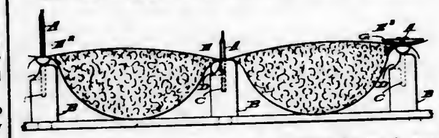


2. In a hub-attaching device, the combination of a collar, and means for holding the collar in position, such means comprising a head mounted to turn on the collar and having an angular portion to be engaged by a wrench, and a pawl carried in the head and working with the collar to hold the head, the pawl having a portion projected above the angular portion of the head to be engaged by the wrench, whereby to throw the pawl as the wrench is applied.

3. In a hub-attaching device, the combination of a collar having a ratcheted flange, and means for holding the collar in place, such means comprising a head turning on the collar and having an angular portion to be engaged by a wrench and a pawl mounted in the head and working with the ratcheted flange of the collar, the pawl having a portion projected from the angular portion of the head, whereby as the wrench is engaged with said angular portion of the head the pawl is actuated to disengage the ratched flange of the collar.

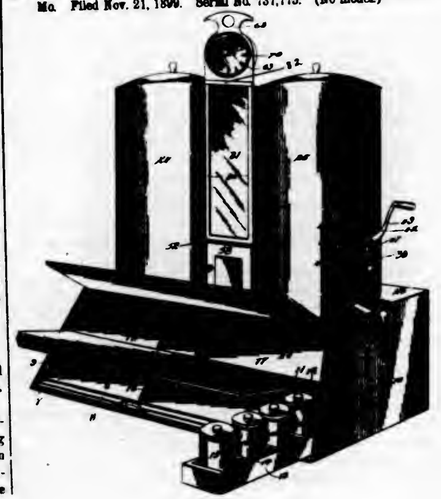
4. In a hub-attaching device, the combination of a collar and means for holding the collar in place, such means comprising a spindle extended centrally through the collar, a head attached rigidly to the spindle and having an angular portion to be engaged by a wrench, and a pawl carried by the head and engaging the collar to hold the head and flange, a portion of the pawl being projected from the angular portion of the head to be engaged by the wrench, whereby to operate the pawl.

646,246. BUTTON-FASTENER. FRANK B. WERSEL, Jr., Cincinnati, Ohio. Filed Apr. 14, 1899. Serial No. 712,979. (No model.)



Claim.—A button-fastener made in a U shape, having the upper ends twisted together and cut off on an angle, substantially as set forth.

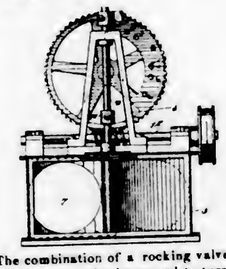
646,247. KITCHEN-CABINET. EDGAR WHEELER, Warrensburg, Mo. Filed Nov. 21, 1899. Serial No. 737,775. (No model.)



Claim.—1. A kitchen-cabinet comprising a compartment, a filling-opening for the compartment, guideways at the sides of the opening, and a clock-holding bracket comprising a vertical portion containing a clock, and a horizontal portion engaged with the guideways and covering the filling-opening, said guideways being disposed to stop the bracket with its vertical portion flush with the front of the compartment.

2. A kitchen-cabinet comprising a base, casings disposed upon the base, and separated by an interspace, a back secured to the casings and to the base, a front secured to the casings and to the base to form a compartment between the casings, a partition dividing the compartment, guideways on the front, a mirror engaging the guideways at its side and bottom edges, a filling-opening adjacent the mirror, guideways at the sides of the filling-opening, and a clock-holding bracket comprising a vertical portion adapted to receive a clock, and a horizontal portion adapted to enter the guideways and cover the filling-opening, and a strip upon the front of the bracket engaging the upper edge of the mirror.

646,248. VALVE-GEAR FOR PNEUMATIC COTTON-FEEDERS. GEORGE W. WILLIAMS, Waco, Tex., assignor to the Kellett-Chatham Machinery Company, same place. Filed Dec. 11, 1899. Serial No. 739,929. (No model.)



Claim.—1. The combination of a rocking valve stem or shaft two arms attached thereto, a wheel mounted to turn continuously in proximity to the shaft, a pin fastened permanently to the wheel and adapted to engage one of the arms on the stem, and a second pin adjustably mounted on the wheel and adapted to engage the other arm on the stem.

2. The combination of a rocking or oscillating valve, a wheel mounted to turn adjacent thereto, a pin mounted permanently on the wheel and adapted to actuate the valve in one direction, and a pin mounted adjustably on the wheel and adapted to actuate the valve in the other direction.

3. The combination of a rocking valve, a wheel having a number of openings formed therein, a pin permanently attached to the wheel, and a second pin capable of being adjustably secured in any one of the openings of the wheel, the said pins serving to drive the valve in the manner specified.

4. The combination of a rocking valve having two projecting parts, and a continuously-revolving member, the axis of which is situated intermediate the said projecting parts of the valve, the revolving member having means thereon arranged alternately to actuate the said projecting parts of the valve to rock the valve.

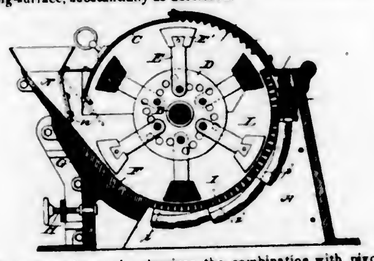
5. The combination of a rocking valve having two parts projecting therefrom, a wheel mounted adjacent to the valve with its axis intermediate the said projecting parts, and two pins attached to the wheel at different points thereon, the pins being adapted respectively to strike the said projecting parts of the valve, to operate the same.

646,249. CRUSHER AND PULVERIZER. MILTON F. WILLIAMS, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer Company, same place. Filed Mar. 22, 1897. Serial No. 628,566. (No model.)

Claim.—1. In a crusher and pulverizer, the combination with a suitable casing, of pivoted revolving hammers, a concentrically-arranged grinding-surface coöperating therewith, eccentrically-arranged runners or supports at the sides of said grinding-surface, and correspondingly-arranged supports on the casing for coöperating with said eccentrically-arranged runners, substantially as described.

2. In a crusher and pulverizer, the combination with a suitable casing, of pivoted revolving hammers, a concentrically-arranged grinding-surface composed of independently-movable sections, eccentrically-disposed runners at the sides of each section, and supports extending from the sides of the casing with which said runners coöperate, substantially as described.

3. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of a grinding-surface for coöperating with said hammers, and means coöperating with the rear end of the grinding-surface for yieldingly holding the same against the action of the hammers; said means permitting a limited concentric movement of the grinding-surface, substantially as described.



4. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of a grinding-surface for coöperating with said hammers, said grinding-surface being composed of sections arranged end to end, each of said sections having eccentrically-disposed runners, eccentrically-disposed guides or supports for said runners, and means for yieldingly holding said sections to their seats and against the action of the hammers; substantially as described.

5. In a crusher and pulverizer, the combination with pivoted, revolving hammers and means for adjusting the striking-points of said hammers, a dead-plate upon which the material is primarily crushed by the hammers, a concentrically-disposed grioding-surface forming a continuation of said dead-plate, and means for adjusting the dead-plate toward or from the hammers, which adjustment of the dead-plate moves the grioding-surface concentrically and adjusts said grinding-surface radially, substantially as described.

6. In a crusher and pulverizer the combination with pivoted revolving hammers, of an adjustable dead-plate, a concentrically-movable grinding-surface having its front end abutting against the dead-plate, and means for adjusting the dead-plate, which adjustment of the dead-plate effects a similar adjustment of the grinding-surface, relative to the hammers, substantially as described.

7. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of an adjustable dead-plate, and a grioding-surface composed of sections, each of said sections being provided with eccentrically-disposed runners which coöperate with corresponding supports on the frame of the machine, all of said sections abutting against each other, and the front section abutting against the dead-plate, whereby, when the dead-plate is adjusted inwardly, it moves said grinding-sections along their eccentrically-disposed supports, and in toward the axis of rotation of the hammers; substantially as described.

8. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of an adjustable dead-plate, a grinding-surface composed of sections, each of said sections being provided with eccentrically-disposed runners which coöperate with corresponding supports on the frame of the machine, all of said sections abutting against each other, and the front section abutting against the dead-plate, whereby, when the dead-plate is adjusted inwardly, it moves said grinding-sections along their eccentrically-disposed supports, and in toward the axis of rotation of the hammers, and means for holding said sections together and against the dead-plate; substantially as described.

9. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of an adjustable dead-plate, a grinding-surface composed of sections, each of said sections being provided with eccentrically-disposed runners which coöperate with corresponding supports on the frame of the machine, all of said sections abutting against each other, and the front section abutting against the dead-plate, whereby, when the dead-plate is adjusted iowardly, it moves said grinding-sections along their eccentrically-diuposed supports, and in toward the axis of rotation of the hammers, and a spring on the last section whose tension is exerted to hold all of said sections together and against the dead-plate; substantially as described.

10. In a crusher and pulverizer, the combination with pivoted revolving hammers, of means for adjusting the radial position of the striking-points of said hammers, an adjustable dead-plate, a concentrically-movable grinding-surface having its front end abutting against the dead-plate, and means for adjusting the dead-plate, which adjustment of the dead-plate effects a similar adjustment of the grinding-surface relative to the hammers, substantially as described.

11. In a crusher and pulverizer, the combination with a suitable casing comprising a frame and a cover, of a hopper arranged at the feed end of the machine, a valve hinged to the lower inner edge of said hopper, and adapted to coöperate with, and be limited in its

rearwardly-opening movement by the front edge of the cover, a shaft mounted in said casing, pivoted hammers carried by said shaft, a dead-plate tangentially arranged under the hopper, and a concentrically-arranged grinding-surface having its froot end touching against said dead-plate, substantially as described.

12. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of a dead-plate arranged at the feed end of the machine, a valve pivoted above said dead-plate for closing the feed end of the machine, said valve, when raised, acting as a deflecting-lip for the circulating air and material within the casing of the machine, and an adjustable extension on said valve; substantially as described.

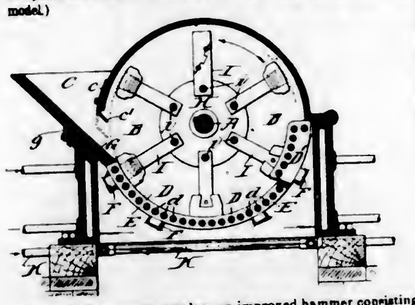
13. In a crusher and pulverizer, the combination with pivoted, revolving hammers, of means for adjusting the radial position of said hammers, an adjustable dead-plate arranged at the feed end of the machine, and an adjustable swinging valve, which, in a raised position, extends into the casing of the machine adjacent to the path of the hammers where it acts as a deflecting-lip; substantially as described.

14. In a crusher and pulverizer, the combination with pivoted, revolving hammers, and the casing in which said hammers are mounted, of a grinding-surface for coöperating with hammers, and a removable wear-plate arranged in said casing and forming a continuation of the grinding-surface to receive the material carried beyond the grinding-surface, said wear-plate permitting the concentric movement of the grinding-surface by being at a greater radial distance from the axis of rotation of the hammers than the grinding-surface, and means for moving said grinding-surface concentrically; substantially as described.

15. A crusher comprising a casing having a hopper-opening, a rotary shaft, and hammer-supports thereon, hammers pivotally mounted in said supports, an adjustable dead-plate inclined downwardly toward the hammers in their acting position to draw the material in, and with its inner edge directly adjacent to the path of the hammers, and a concave cage which, with said dead-plate, coacts with the hammers to crush said material.

16. In a crusher and pulverizer, the combination with a casing, pivoted revolving hammers and means for driving the same, of means for adjusting the radial position of the striking-points of said hammers, and a dead-plate coöperating with the adjustable striking-points of said hammers, and means for adjusting the dead-plate to vary its position relative to the path of the hammers, substantially as described.

646,250. CRUSHER AND PULVERIZER. MILTON F. WILLIAMS, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer Company, same place. Filed Sept. 2, 1898. Serial No. 690,072. (No model.)



Claim.—1. In a rotary crusher, an improved hammer consisting of a shank-bar having lateral projections, a slidable head having a hole for the shank-bar, and shoulders for engaging said projections, and yielding pieces separating the opposing shoulders and projections, substantially as described.

2. A rotary crusher comprising pivoted hammers, including shank-bars adapted to be pivoted at their inner ends, and provided with lateral projections at their outer ends together with heads having sockets or recesses matching with said lateral projections, rotary hammer-supports for said hammers, and adjunctive devices adapted to operate therewith, substantially as described.

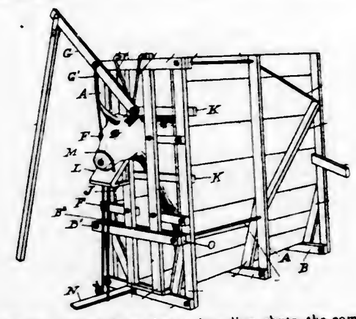
3. A crusher comprising a casing, a rotary shaft, a hammer-support secured on said shaft, hammers pivoted to said hammer-support, and consisting individually of a bar having a projection at its outer end, a head having a shoulder and slidingly mounted on said bar, and one or more interposed pieces between said shoulder and projection for adjustably limiting the outward movement of the head on the bar under centrifugal action, and opposing devices coöperating with said hammers, substantially as described.

4. In a crusher, the combination with a rotary shaft, a series of hammer-supports carried thereby, a series of hammers pivotally mounted in said supports, and adjustable to vary the distance of their outer ends from the center of said shaft, a casing, a removable concave, and supports thereror, whereby concaves of different radii may be used with said hammers, substantially as described

5. In a crusher, a rotary hammer comprising a bar provided with a projection near its outer end, a socketed head slidingly mounted on said bar having a shoulder at the socket's inner end, and one or more interposed pieces within said socket between the opposing parts of the bar and head, allowing an adjustment of the limit of outward movement on the head of the bar, substantially as described.

6. In a rotary crusher, the combination with a rotary shaft and hammer-supports thereon, of hammers including shank-bars adapted to be pivoted at one end to said supports and provided with projections on the outer ends, and heads having sockets or recesses matching said projections in either reversed position of one with respect to the other, a casing and means in the casing coacting with the hammers for effecting the pulverization of the material, substantially as described.

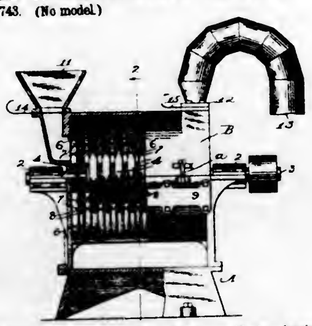
646,251. DEHORNING OR BRANDING CHUTE. WILLIAM S. YOUNG, McPherson, Kans. Filed Sept. 22, 1899. Serial No. 731,276. (No model.)



Claim.—1. In a dehorning or branding chute, the combination of the main frame, vertical stanchions set in slideways in said frame, pivoted links connecting said stanchions with the frame, an operating-lever fulcrumed on the frame, connecting-rods pivoted to the end of said lever and extending to said stanchions to impart thereto simultaneous vertical and lateral movement, substantially as set forth.

2. In a dehorning or branding chute, the combination of a main frame, laterally and vertically moving stanchions pivotally linked to said frame, removable cross-bars extending transversely of said stanchions, an inclined head-rest secured on one of said stanchions, and an adjustable loop extending vertically through openings in said head-rest to a foot-treadle, substantially as set forth.

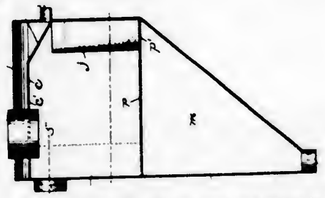
646,252. CENTRIFUGAL SHREDDING AND PULVERIZING MACHINE. FRANK ANDREE, Chicago, Ill. Filed Aug. 29, 1898. Serial No. 689,743. (No model.)



Claim.—In a machine of the kind specified, a horizontal cylindrical casing divided longitudinally into two sections hinged together, a shaft extending centrally through said casing and journaled in bearings carried by the end walls of the lowermost section, a plurality of parallel disks mounted upon said shaft within said casing, a plurality of pairs of parallel radial knives carried by each of said

disks, a plurality of rigid radially inwardly extending knives carried by said lowermost section and adapted to alternate with said knives on said disks, a hopper mounted upon one end of the uppermost section, a chute leading from said hopper to an opening in the end wall of said upper section adjacent the center thereof, a valve interposed between said hopper and said chute, an opening in the top of said upper section at its other end, a valve controlling said opening, and a pipe leading from said opening, substantially as described.

646,253. DUST COLLECTOR AND SEPARATOR. ARTHUR W. BANISTER, Boston, Mass. Filed Aug. 30, 1899. Serial No. 728,927. (No model.)



Claim.—1. A dust collector and separator comprising in its construction a casing having a plurality of divergent lateral inlets for the dust-laden current, a vertical flue with which one of said inlets is in direct communication, said flue opening at its lower end within the casing, one or more deflectors opposite the other inlet, a downward outlet from the casing for separated matter from both inlets, and a top air-outlet.

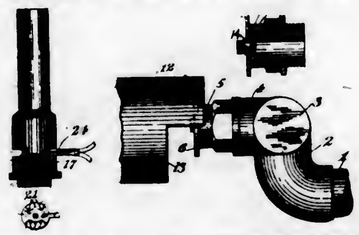
2. A dust collector and separator comprising a casing having a lateral inlet for dust-laden air and provisions for diverting the incoming current downwardly and laterally, together with open-top vertical flues to catch separated matter, a downward outlet for the latter from the casing, and a top air-outlet.

3. A dust collector and separator comprising a casing having a lateral inlet for dust-laden air, a downward deflector opposite said inlet, a lateral deflector forming an open-top vertical flue below said downward deflector to catch matter diverted thereby, a downward outlet from the casing for separated matter, and a top outlet for dust-free air.

4. A dust collector and separator comprising a casing having a lateral inlet for dust-laden air, a downward deflector opposite said inlet, lateral deflectors forming open-top flues of different heights below the said downward deflector to catch matter diverted thereby, a downward outlet from the casing for separated matter, and a top air-outlet.

5. A dust collector and separator comprising in its construction a casing having a plurality of divergent lateral inlets for the dust-laden current, a vertical flue with which one of said inlets is in direct communication, said flue opening at its lower end into the casing, a downward deflector opposite the other inlet, one or more lateral deflectors forming open-top vertical flues below the downward deflector to catch matter diverted thereby, a downward outlet from the casing common to the different flues, and a top outlet for dust-free air.

646,254. GAS-BURNER. JOHN F. BARKER, Springfield, Mass., assignor to the Gilbert & Barker Manufacturing Company, of Massachusetts. Filed June 30, 1899. Serial No. 722,384. (No model.)



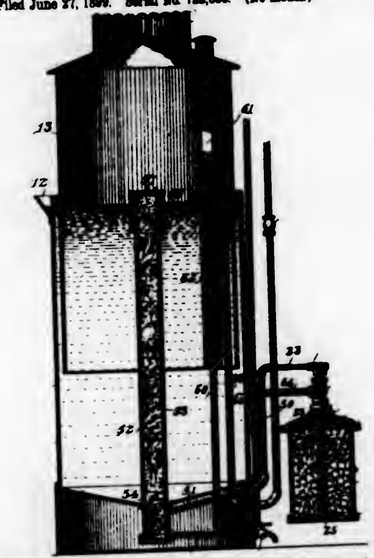
Claim.—1. In a gas-burner, the combination of a gas-inlet tube having an end which is perforated with a plurality of orifices arranged in one or more groups, a valve turning on said end and adapted to uncover all said orifices when in the open position and to leave one or more of said orifices uncovered when the valve is in the position of maximum closure, substantially as described.

2. In a gas-burner, the combination of a Bunsen tube and a gas-regulating device adjacent to the air-inductive openings of said tube, and said device consisting of a gas-inlet tube equipped with an end that is perforated with a plurality of orifices arranged in groups and of a spring-pressed valve turning on said end and provided with ports in number equal to the number of said groups of orifices and of such size and arrangement that each port registers with one entire group in the open position of the valve and that said valve leaves one or more orifices uncovered when said valve is in the position of maximum closure, substantially as described.

3. The combination in gas-burner, of a Bunsen tube, a gas-inlet tube equipped with an end that is perforated with a plurality of orifices arranged in groups, a valve turning on said end and provided with ports in number equal to the number of said groups of orifices and of such size and arrangement that each port registers with an entire group of orifices in the open position and that in the position of maximum closure said valve leaves one or more of said orifices uncovered, and a tongue on said valve adapted to be bent out through one of the air-inductive ports of said Bunsen tube for a handle, substantially as and for the purpose described.

4. In a gas-burner, the combination of a burner-tube and a gas-regulating device, and said device consisting of a gas-inlet tube equipped with an end that is perforated with a plurality of orifices arranged in groups, and of a valve turning on said end and provided with ports in number equal to the number of said groups of orifices and of such size and arrangement that each port registers with one entire group in the open position of the valve and that said valve leaves one or more orifices uncovered when said valve is in the position of maximum closure, substantially as described.

646,255. ACETYLENE-GAS GENERATOR. RODEN I. BECK, Malvern, Kans., assignor of one-half to Orren C. Williams, Jr., same place. Filed June 27, 1899. Serial No. 722,099. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with a gasometer, and a generator water-supply pipe, of a fixed supporting-bracket on the gasometer, a tiltable water-feed drum mounted in said bracket and provided on one side with a spout and on its opposite side with a counterweight which is fixed in place on said drum, a flexible tube attached to said drum and to the gasometer below the water-line therein, a lever fulcrumed independently of the drum and engaging loosely therewith, and a bell-actuated trip arranged to engage with said lever, substantially as described.

2. In an acetylene-gas apparatus, the combination with a gasometer-tank, a generator, and a trap-pipe connected with said generator, of a tiltable feed-drum mounted on the gasometer-tank in a plane approximately of the normal water-line therein, a flexible connection between said drum and the tank, means for normally holding the tank in a position to cut off the flow of water therefrom to the trap-pipe, and trip devices for positively turning the drum against the action of its retractor, substantially as described.

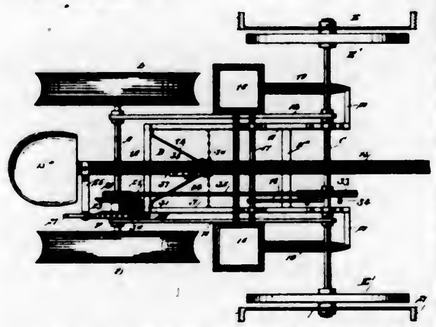
3. In an acetylene-gas apparatus, a generator having a removable cover, a perforated pipe fixed to the generator to pass loosely through the cover thereof, a coupling united to said perforated pipe, and a gasket seated on the cover around the pipe and engaging with the coupling to be compressed thereby, in combination with a pipe having connection with said coupling, means for admitting water to said pipe in regulated volumes, and a gasometer, substantially as described.

4. In an acetylene-gas apparatus, a gasometer provided with a vertical condenser-tube fixed to and extending below the bottom thereof, a generator having a pipe attached to the condenser-tube, a filling of metallic scraps within said tube and forming a condensing-surface of large area, a guard, 54, fixed to the condenser-tube adjacent to the point of attachment of the generator-pipe and extending laterally therefrom across the part formed thereby and arresting a tendency of the scrap filling from entering said pipe, and a drain attached to the lower protruding end of the condenser-tube, substantially as described.

5. In an acetylene-gas apparatus, the combination with a gas-pipe, 32, and a vent-pipe, of a three-way valve coupled to said gas-pipe and connected with the vent-pipe, a generator having a removable cover provided with an annular coupling-seat, a coupling having threaded connection with said valve and fitted to the seat of the generator-cover, and a perforated pipe fixed to the generator and having threaded engagement with the coupling, substantially as described.

6. In an acetylene-gas apparatus, a generator provided with a sealed chamber at the open end of its receptacle, a cover fitted in the sealed chamber and provided with a gasket-seat, a perforated pipe attached to the generator and passing through the cover thereof, and a coupling screwed on said pipe and adapted to the gasket-seat of the cover, in combination with a horizontal pipe, and a cock or valve attached to the pipe and having threaded engagement with said coupling, whereby the perforated pipe and coupling suspend the generator from the horizontal pipe and said coupling also confines the generator in place, substantially as described.

646,256. CHECK-ROW ATTACHMENT FOR CORN-PLANTERS. MARTIN B. BENNETT, Boyden, Iowa. Filed Jan. 16, 1900. Serial No. 1,637. (No model.)

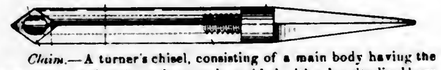


Claim.—1. In a check-row attachment for planters, a marker shaft or axle, a supporting-axle, bevel-gears loosely mounted on the supporting axle, means for holding one of the said gears stationary, a belt connection between the other gear and the marker axle or shaft, and a pinion carried by the main axle and meshing with the said gears, as set forth.

2. In a check-row attachment for planters, a frame provided with a main axle and a supporting-wheel, a forward axle journaled in the frame, longer than the rear axle, supporting-wheels loosely mounted on the forward axle, and markers secured to the outer ends of the said forward axle, bevel gears loosely mounted on the main axle, means for holding one of said gears stationary or for turning the said gear, a sprocket-wheel secured to the other gear, a belt connection between the said sprocket-wheel and the larger wheel on the forward axle, an arm extended from the main axle between the said gears, and a bevel-pinion loosely mounted on the said arm, engaging with the two gears on the main axle, as set forth.

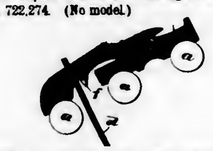
3. In a check-row attachment for planters, the combination, with a wheel-supported frame and seed-dropping mechanism, of a forward axle provided with supporting-wheels, the forward axle being longer than the main axle of the frame, supporting-wheels loosely mounted on the forward axle and markers secured to the outer ends of the forward axle, a plain gear having a bevel-gear upon its inner face loosely mounted on the main axle, a bevel-gear also loosely mounted on the main axle and provided with a sprocket-wheel, a larger sprocket-wheel secured on the forward axle, which larger sprocket-wheel is provided with trip-pins for engagement with the seed-dropping mechanism, a belt connection between the two sprocket-wheels, an arm secured to the main axle, and located between the gears, a bevel-pinion loosely mounted on the said arm, engaging with the bevel-gear on the rear axle, a worm-wheel in engagement with the main axle, and means for operating the worm-wheel.

646,257. TURNER'S CHISEL. LOUIS BERGER, Lausanne, Switzerland. Filed Oct. 24, 1899. Serial No. 734,637. (No model.)



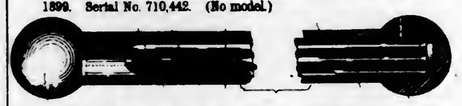
Claim.—A turner's chisel, consisting of a main body having the same cross-section throughout and provided with a longitudinal bore from end to end, and a handle secured to the main body, substantially as set forth.

646,258. TOP-ROLL SADDLE AND STIRRUP THEREFOR FOR SPINNING-MACHINES. JOHN BILSBOROUGH, Bristol, R. I., assignor of one-half to Joseph A. Prescott, Foxborough, Mass. Filed June 29, 1899. Serial No. 722,274. (No model.)



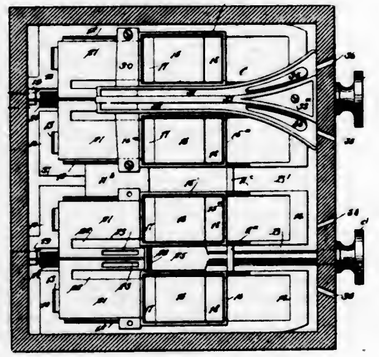
Claim.—The combination of a stirrup having a notch in its eye, and a top-roll saddle having a number of laterally-projecting lugs in staggered or zigzag relation, each designed to pass through the notch under a different relative adjustment of the stirrup and saddle, substantially as described.

646,259. NEWSPAPER-FILE. FRANK C. BLAISDELL, Newton, Mass., assignor to the Library Bureau, Boston, Mass. Filed Mar. 25, 1899. Serial No. 710,442. (No model.)



Claim.—A device of the class specified consisting of a tubular, longitudinal, cylindrical case or holder having a slot extending to the lower edge of the same and open at its lower end and closed at its upper end adjacent the upper end of the case, the latter also having an L-shaped slot leading into the first-mentioned slot, a spherical cap closing the upper end of the case and constituting a handle, a second cap detachably fitted over the lower edge of the case or holder and provided with a pin extending into the chamber thereof and adapted to successively pass into the different parts of the L-shaped slot thereby to retain the cap in place, and a series of three rods located within the case and held thereto by the caps and one of said rods being arranged behind the other two.

646,260. VENDING-MACHINE. GUSTAVUS F. BROWN, New York, N. Y., assignor to Henry J. Chapin, Montclair, N. J. Filed Dec. 12, 1899. Serial No. 740,033. (No model.)



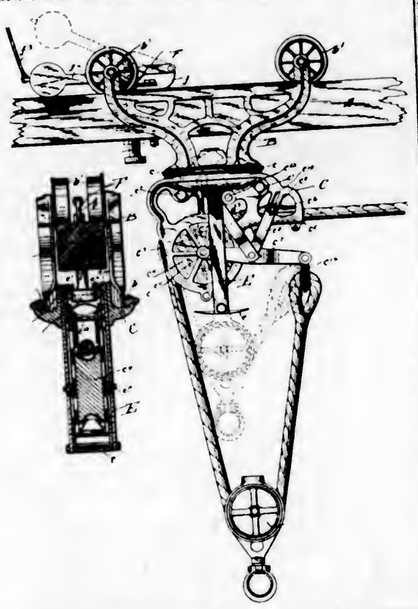
Claim.—1. In a vending-machine, two reservoirs for merchandise, plungers adapted to travel in said reservoirs, a pull-rod mounted to slide between the reservoirs, the said rod having recesses registering with openings in the plungers, and a chute for directing a coin to either one of said recesses and its alined opening, substantially as specified.

2. In a vending-machine, a pair of reservoirs for merchandise, supports for the said reservoirs, plungers mounted on the said supports, and adapted to travel through the said reservoirs, and a pull-rod mounted to slide between the said reservoirs, the said rod being provided with recesses at opposite sides and the plungers with openings registering with the recesses, as described.

3. In a vending-machine, the combination, with a pair of reservoirs for merchandise, supports for the said reservoirs, plungers mounted to slide on the supports and enter the reservoirs, a pull-rod mounted to slide between the reservoirs, the pull-rod being provided with an offset upon its upper face, and recesses at each side at the rear of the offset and adapted to register with openings in the plungers, all combined for operation, substantially in the manner specified.

4. In a vending-machine, the combination, with a pair of reservoirs for merchandise, plungers mounted to travel in the said reservoirs, and a rod mounted to slide between the reservoirs, the said rod having openings registering with openings in the plungers, the registering openings being adapted to receive a coin, of a chute adapted to conduct coin, the said chute being constructed in two divisions, each division having an outlet in communication with registering openings in the plungers and rod when the plungers and rod are in their normal position, as described.

646,261. HAY-CARRIER. JOHN H. BURKHOLDER, Ashland, Ohio, assignor to The Ney Manufacturing Company, Canton, Ohio. Filed Nov. 1, 1899. Serial No. 735,460. (No model.)



Claim.—1. A carrier having an upper and a lower frame swiveled together, the lower frame carrying a vertically-movable brake-shoe adapted to grip the draft-rope, a swinging latch journaled in the lower frame, and having a linked connection with a locking-lever journaled in said frame, and means for engaging said locking-lever with the lifting-rope, and a linked connection for said locking-lever with the brake-shoe, substantially as described and for the purpose set forth.

2. A carrier having an upper and a lower frame swiveled together, the lower frame carrying a vertically-movable brake-shoe adapted to grip the draft-rope, a swinging latch journaled in the lower frame, and having a linked connection with a locking-lever journaled in said frame, and means for engaging said locking-lever with the lifting-rope, a linked connection for said locking-lever with the brake-shoe, and a trip having a vertically-sliding engagement with the lower frame, and adapted to engage the swinging latch, substantially as described and for the purpose set forth.

3. A carrier having an upper and a lower frame swiveled together, the lower part thereof provided with a movable brake-shoe, a swinging latch journaled in said frame, means for connecting the same with the brake-shoe, and a vertically-sliding trip adapted to engage the swinging latch, substantially as described and for the purpose set forth.

4. A carrier having an upper and a lower frame swiveled together, the lower frame carrying a vertically-movable brake-shoe adapted to grip the draft-rope, a swinging latch journaled in the lower frame, and having a linked connection with a locking-lever journaled in said frame, a triple pulley mounted thereon, and a linked connection between the brake-shoe and the locking-lever, substantially as described and for the purpose set forth.

646,262. WOOD-PLANE. HERBERT M. COE, Phœnix, Ariz. Filed May 2, 1899. Serial No. 715,322. (No model.)



Claim.—A wood-plane, comprising a frame, a cross-block in said frame upon which the plane-bit is designed to be secured, a flexible bed-plate extended rearward from said cross-block and having at its front end a portion extended upward between the block and bit and secured between the same, a curved arm having pivotal connection with the rear end of the plate, a perforated lug on the frame through which said arm may move, and a clamping-screw in the lug, substantially as specified.

646,263. WRENCH. PHINEAS R. COLEMAN, Newark, N. J., assignor of one-half to Thomas Dunn English, same place. Filed Jan. 15, 1900. Serial No. 1,465. (No model.)



Claim.—1. A wrench consisting of two pivotally-connected clamping members terminating in jaws at their free ends, each clamping member at its jaw-section having an inclined longitudinal slot, the slots diverging at the jaws and converging at a point between the jaws and the pivot of the clamping members, plates located at opposite sides of the clamping members, a locking device for the plates, and ribs formed upon the plates, conforming to and entering the slots in the clamping members of the wrench, for the purpose described.

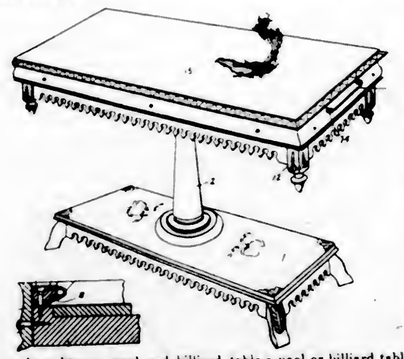
2. A wrench, comprising two jaws pivotally connected with each other and movable toward and from each other on such pivot, each jaw having a diagonally-disposed slot therein, and an adjusting device comprising a transversely-disposed plate mounted on the wrench and extending from one jaw to the other, such plate having ribs formed at its ends and respectively fitting loosely in the said diagonal slots of the jaws so that the movement of the locking device longitudinally of the wrench will cause the jaws to move toward or from each other.

646,264. LIBRARY, POOL, AND BILLIARD TABLE. SAMUEL W. COLLINS, Indianapolis, Ind., assignor to the Combination Table Company, same place. Filed Feb. 17, 1899. Serial No. 705,784. (No model.)

Claim.—1. In a library, pool and billiard table a rail, a cushion formed of a rubber strip with its edges secured thereto, the lower edge being secured between the top and bottom of the rail, and a cover for the rail and cushion.

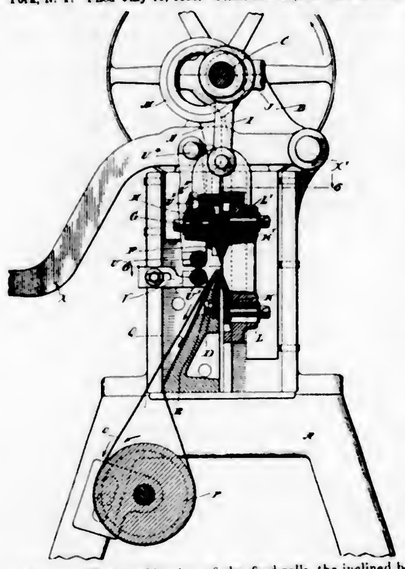
2. In a library, pool and billiard table a rail with two horizontal kerfs along its inner edge and between the bottom and top thereof, a cushion formed of a strip of rubber or similar material with its two edges fitted in said kerfs and its central portion extended some distance from the rail, and a covering for the rail and cushion.

3. A combined library, pool and billiard table including a pool or library table top provided with pool-pockets invisible from the outside, and a library-table top removably mounted on said pool and billiard table top.



4. In a library, pool and billiard table a pool or billiard table top with its corners beveled, rails that are cut off and beveled at each corner of the table, moldings extending about the table whereby a pocket is formed in each corner, and a means for so closing the bottoms of the pockets that the pockets will be invisible from the outside.

646,265. FUR-CUTTING MACHINE. JOHN DERBOHLAW, New York, N. Y. Filed July 19, 1899. Serial No. 724,389. (No model.)



Claim.—1. The combination of the feed-rolls, the inclined belt arranged in the rear of the feed-rolls, the cutting mechanism arranged adjacent to the upper end of the belt, and means for operating the feed-rolls, belt and cutting mechanism.

2. The combination of the feed-rolls, the inclined belt arranged in the rear of the same, the stationary guide arranged at the upper end of the belt to form a sharp angle therein, and the cutting mechanism adjacent to the upper end of the belt.

3. The combination of the cutting mechanism, the movable nap or hair support arranged on the feed side thereof to carry the hair away from the cutting mechanism and an operative connection between the cutting mechanism and the hair-support, so that both will move in unison.

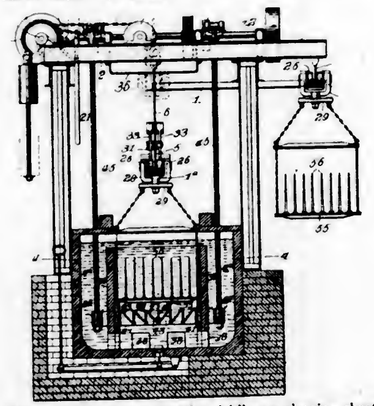
4. The combination of the cutting mechanism, the belt arranged immediately adjacent to the cutting mechanism on the feed side thereof, and means for moving the belt to carry the hair away from the cutting mechanism while the fur is being fed thereto.

5. The combination with the feed mechanism, of a stationary holder adjacent thereto, a movable holder adapted to reciprocate in registry with the stationary holder, and connected upper and lower knives arranged to reciprocate in unison adjacent to the holders.

6. The combination with the feed mechanism, of a stationary holder adjacent thereto, a movable holder adapted to reciprocate in registry with the stationary holder, and connected upper and lower knives arranged to reciprocate in unison adjacent to the holders, the movable holder and the knives being beveled on their opposite surfaces.

7. The combination of the feed-rollers, the inclined table adjacent thereto, the inclined belt projecting in the rear of the feed-rollers, the stationary holder in the rear of the said belt, a reciprocating holder arranged in registry with the stationary holder, and the reciprocating knives in the rear of the holders.

646,266. APPARATUS FOR PICKLING OR CLEANING METAL SHEETS. SAMUEL DIESCHER, Pittsburg, Pa. Filed July 26, 1899. Serial No. 725,131. (No model.)



Claim.—1. In an apparatus for pickling or cleaning sheets, the combination of an elevated track having a movable section, a trolley movable along the track, a lock carried by the track and arranged to engage the trolley as it moves to position on the section, a vat or tank arranged below the movable track-section, means for raising and lowering the track-section, and means actuated on the upward movement of the track-section to release the trolley-lock, substantially as set forth.

2. In an apparatus for pickling or cleaning sheets, the combination of an elevated track having a movable section, a winding-drum having a frictional connection to the driving-shaft, a stop for holding the drum as against rotation, a chain connecting the drum to the movable track-section, a trolley movable along the track and a vat or tank arranged below the movable track-section, substantially as set forth.

3. In an apparatus for pickling or cleaning sheets, the combination of a vat or tank, a frame for supporting the sheets to be treated, a plunger arranged below the frame, and means for reciprocating the plunger, whereby vertical currents are produced in the cleansing liquid between the sheets in the tank or vat, substantially as set forth.

4. In an apparatus for pickling or cleaning sheets, the combination of a tank or vat, a frame for supporting the sheets to be treated, and a reciprocating plunger operative on the cleansing fluid provided with valves or leaves arranged to be operated by fluid-pressure on the movement of the plunger, substantially as set forth.

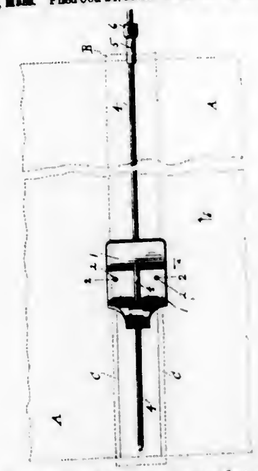
5. In an apparatus for pickling or cleaning sheets, the combination of a tank or vat, passages connected to the upper and lower ends of the tank or vat, a frame for supporting the sheets to be treated in the tank or vat between its upper and lower ends, and a reciprocating plunger operative on the cleansing liquid for causing an upward movement of the liquid in the tank or vat, substantially as set forth.

6. In an apparatus for pickling or cleaning sheets, the combination of a tank or vat, passages connected to the upper and lower ends of the tank or vat, a frame for supporting the sheets to be treated in the tank or vat between its upper and lower ends, a valved plunger operative on the cleansing liquid and means for reciprocating the plunger, substantially as set forth.

7. In an apparatus for pickling or cleaning sheets, the combination of a tank or vat, a plunger for effecting a movement of the liquid in the tank or vat said plunger being provided with valves arranged

to be operated by fluid-pressure on the movement of the plunger, and mechanism interposed between the power-shaft and the plunger whereby the latter is given a quick forward and a slow return movement while the shaft rotates at a uniform speed, substantially as set forth.

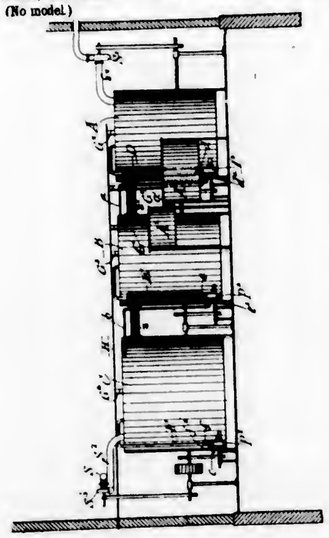
646,267. GUIDE FOR SEWING-MACHINES. CARROLL W. DODGE, Worcester, Mass. Filed Oct. 21, 1899. Serial No. 734,317. (No model.)



Claim.—1. The combination of a presser-foot of a sewing-machine having an elongated slot or groove in its bottom wall extended from the under surface thereof, a rod or bar provided with means near its opposite ends for attachment to the material to be stitched, said rod or bar being readily engaged and disengaged by the said slot or groove and adapted to be moved longitudinally therein.

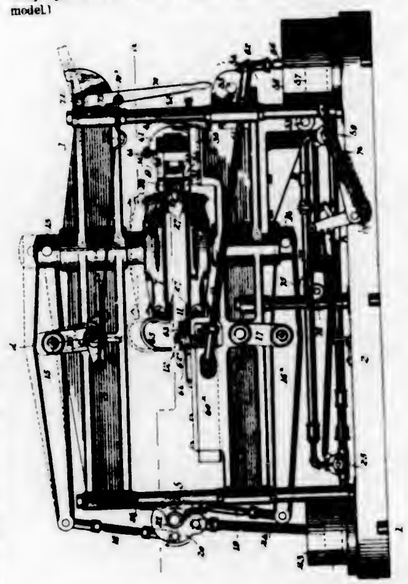
2. The combination with the presser-foot of a sewing-machine, having an elongated slot or groove therein to receive a guide rod or bar and provided with a needle-guide hole each side of the slot or groove, of a guide rod or bar pointed at one end, and provided with an adjustable collar or sleeve at its other end, with a projection or point thereon for attaching the rod to the material to be stitched, said rod adapted to travel in said groove, substantially as shown and described.

646,268. APPARATUS FOR MAKING BISULFITE OF LIME. VIGGO DREWSEN, New York, N. Y. Filed June 15, 1899. Serial No. 720,687. (No model.)



Claim.—The apparatus herein described for producing bisulfite of lime, consisting of a milk-of-lime tank, means for supplying milk of lime thereto, a cooler connected with said milk-of-lime tank, a circulating-pump connected with the cooler and tank, a monosulfite-tank, a pipe connecting said pump with the monosulfite-tank, a cooler connected with the monosulfite-tank, a circulating-pump connected with the monosulfite cooler and tank, a bisulfite-tank, a pipe connecting the monosulfite-pump with the bisulfite-tank, and pipes for supplying successively sulfurous-acid gas to the upper parts of the bisulfite, monosulfite and milk-of-lime tanks, substantially as set forth.

646,269. MACHINE FOR MAKING METAL WHEELS. EMIL EINFELDT, Davenport, Iowa, assignor to the Bettendorf Metal Wheel Company, of Iowa. Filed Nov. 10, 1899. Serial No. 736,479. (No model.)



Claim.—1. In a machine for making metal wheels, the combination with means for holding the spoke, of means for bending a strip to form the rim, and means for securing the spoke to the rim.

2. In a machine for making metal wheels the combination with means for holding the spoke, of means for progressively bending a strip to form the rim, and means for securing the spokes to the rim as the bending operation progresses.

3. In a machine for making metal wheels the combination with means for holding the spoke, of a bending mechanism acting by successive operations to progressively bend a strip to form the rim, and a spoke-fastening mechanism alternating in its action with that of the bending mechanism.

4. In a machine for making metal wheels the combination of means for holding the spoke, means for bending a strip progressively step by step, and means for securing the spokes to the strip as the bending operation progresses.

5. In a machine for making metal wheels the combination of means for holding the spoke, means for sustaining the hub, means for progressively bending a strip to form the rim, and means for simultaneously securing the spoke to the hub and rim as the bending operation progresses.

6. In a machine for making metal wheels the combination with a spoke-clamping device, of a bending mechanism adapted to bend the strip against the spoke-clamping device, and means for securing the spoke to the strip.

7. In a machine for making metal wheels the combination with spoke-clamping jaws provided with curved ends, of a bending mechanism adapted to act on the strip against the curved ends of the jaws, and a spoke-fastening device.

8. In a machine for making wheels the combination with clamping-jaws movable to and from each other in straight paths as distinguished from in the arcs of a circle of means for guiding the jaws in said movements, parallel operating-levers jointed at one end to the jaws and mounted between their ends on axes movable at right angles to the movement of the jaws, and means for moving the opposite ends of the levers to and from each other.

9. In a machine for making wheels the combination with clamping-jaws movable to and from each other, of operating-levers, an oscillating member, rods connecting the ends of the levers with said oscillating member respectively on opposite sides of its axis, a cylinder and a piston therein connected with the oscillating member beyond its axis.

10. In a machine for making metal wheels the combination of horizontal spoke-clamping jaws, vertical stems connected therewith and mounted in guides in the frame, horizontal operating-levers extending at right angles to the movement of the jaws and jointed to the stems and pivoted between their ends to links pivoted in turn to the frame, an oscillating member, means for oscillating the same, and connections between the member and levers.

11. In a machine for making metal wheels the combination with a spoke-clamping device, of a hub-clamping device operated thereby.

12. In a machine for making metal wheels the combination with spoke-clamping jaws, of a hub-clamping device carried by one of the jaws.

13. In a machine for making metal wheels the combination with a horizontal hub-support, of upper and lower spoke-clamping jaws movable vertically, and a hub-clamping device carried by the upper jaw and adapted to engage the hub when the jaw descends to clamp the spoke.

14. The combination with a hub-support, of a spoke-clamping jaw movable to and from the support parallel with the axis of the hub, and a hub-clamping arm carried by the jaw and formed to engage the opposite hub-bosses when the jaw is moved toward the support.

15. In combination with a spoke-clamp, a heading-tool movable to and from the same, a vibrating arm adapted to engage and move the heading-tool, a cylinder, a piston therein, and a rocking head connected with the piston and disconnected from the lever and adapted to engage and move the vibrating arm.

16. In combination with a spoke-clamp, a heading-tool movble to and from the same, a movable operating member disconnected from the heading-tool and adapted to engage the same, and means for actuating the operating member.

17. The combination with a spoke-clamp, of a heading-tool movable to and from the same, a vertical vibrating arm adapted to engage the heading-tool, a head mounted between its ends on a horizontal axis and arranged to engage the vibrating arm, a cylinder, and a piston therein connected with the rocking head.

18. The combination with a spoke-clamp of a heading-tool at one end, a second heading-tool at the other end, a rocking head adapted to operate one of the heading-tools, and a connection between the rocking head and the other heading-tool.

19. In a machine for making metal wheels the combination with spoke-clamping jaws, of means for operating the same to clamp the spoke, and means for moving one jaw away from the other independently of its clamping movement.

20. In combination with a hub-support, a spoke-clamp comprising upper and lower jaws movable to and from each other to clamp the spokes, and means for elevating the upper jaw to an inoperative position.

21. In combination with a movable clamping-jaw 7, an operating-lever connected therewith, means for actuating the lever to clamp the spoke, and means for elevating the lever bodily to raise the jaw to an inoperative position.

22. The combination with a lower clamping-jaw, of an upper clamping-jaw thereover, a vertical stem connected with the jaw, a horizontal operating-lever having a pivotal connection between its ends with the frame, and jointed at its forward end to the stem, means for rocking the lever, and means for elevating its pivotal connection with the frame.

23. In a machine for making metal wheels in combination with a lower spoke-clamping jaw, an upper clamping-jaw, a horizontal operating-lever having a jointed connection at one end with the jaw, a link pivoted at its upper end to the lever, a horizontal journal mounted in the frame and provided with an eccentric-pin on which the lower end of the link is loosely mounted, and means for turning the journal.

24. In a machine for making metal wheels the combination with a spoke-clamping jaw, of an operating-lever jointed thereto, a journal mounted in the frame, a link pivoted at one end to the lever and mounted at its other end eccentrically on the journal, a hand-lever pivoted to the frame, a rod connected at one end to the journal and at its other end with the hand-lever, and a stop to limit the upward movement of the hand-lever.

25. In a machine for making metal wheels the combination with a spoke-clamp, of a movable die adapted to act on the rim and provided with an opening, and a heading device adapted to act through the opening on the spoke.

26. In a machine for making metal wheels the combination with a spoke-clamp, of a movable die adapted to act on the rim, a heading-tool engaged by the die and movable with it, and means for moving the heading-tool independently of the die.

27. In a machine for making metal wheels the combination with a spoke-clamp, of a curved die movable to and from the same and adapted to act on the rim, and a movable heading-tool adapted to act on the spoke.

28. In a machine for making metal wheels the combination with a spoke-clamp having a curved end, of a curved die movable to and from the same, and provided with an opening therethrough, and a heading-tool adapted to act through said opening on the spoke.

646,270. METHOD OF MAKING METAL WHEELS. EMIL EINFELDT, Davenport, Iowa, assignor to the Bettendorf Metal Wheel Company, of Iowa. Filed Nov. 10, 1899. Serial No. 736,480. (No model.)

Claim.—1. In the method of making wheels, progressively bending a strip into circular form, and securing the spokes to the strip as the bending operation progresses.

2. In the method of making metal wheels, alternately bending a portion of a strip to form the tire, and securing a spoke to the strip.

3. In the method of making metal wheels, providing a strip having holes at intervals, inserting a spoke in a hole, bending the strip on opposite sides of the hole, and fastening the spoke to the strip.

4. In the method of making metal wheels, progressively bending a strip into circular form by successive operations, and securing a spoke to the strip between each bending operation.

5. In the method of making metal wheels, progressively bending a strip into circular form, and fastening the spokes to the hub and strip as the bending operation progresses.

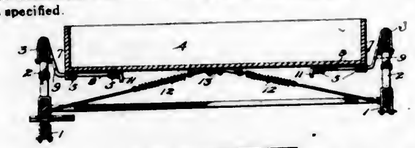
6. The method of making metal wheels which consists in progressively bending a strip into circular form, fastening the spokes to the hub and strip simultaneously as the bending operation progresses and as a final step securing the ends of the strip together.

7. The method of making metal wheels which consists in progressively bending a strip to form the rim, securing the spokes to the strip as the bending operation progresses, and as a final step securing the ends of the strip together.

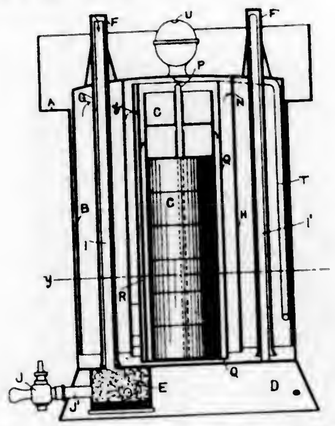
646,271. VEHICLE. ROBBERT H. ELROD, Jefferson, Ga. Filed Dec. 7, 1899. Serial No. 739,524. (No model.)

Claim.—In a vehicle, the combination with the vehicle-body and its end springs; of looped brackets secured to the lower face of the bottom of said vehicle-body near its lower corners; looped brackets 6 secured to the spring-bars 3, 3 near the ends of the latter; crank-hangers 7 connecting the looped brackets of said spring-bars to the looped brackets 5, 5 of the vehicle-body and having bent ends to prevent accidental withdrawal from said brackets; and coil-springs 12

connected to a plate 13 secured to the lower face of the vehicle-body and connected, also, to the running-gear of the vehicle; substantially as specified.



646,272. APPARATUS FOR GENERATING ACETYLENE GAS. EVAN EVANS, Llanrwst, England, assignor, by mesne assignments, to the Imperial S. C. Acetylene Gas Company, Limited, Manchester, England. Filed Dec. 9, 1897. Serial No. 661,280. (No model.)



Claim.—1. In an acetylene-generator, the combination of a series of superimposed carbid-holding trays; a removable chamber surrounding the same and provided with a vertical slit; a boxing surrounding said chamber, at a slight distance therefrom, and provided with a small orifice near the upper end thereof for the entrance of water; and a gasometer surrounding and supporting said chamber, substantially as described.

2. In an acetylene-generator, the combination of a generating chamber or cylinder Q provided with a long slotted orifice S; and a channel or way R provided with a small orifice *q* near its upper end, substantially as and for the purpose described.

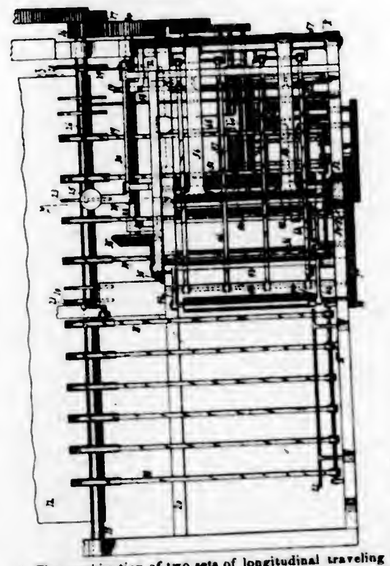
3. The combination with the chamber A, of a gasometer B and the siphon T extending down nearly to the bottom of the chamber and having one open end near the top of the gasometer, and the other extending through the top of the gasometer B to such an extant as to reach above the chamber A when the gasometer is down.

646,273. FOLDER. GEORGE P. FENNER, New London, Conn. Filed June 1, 1899. Serial No. 718,983. (No model.)

Claim.—1. The combination of two sets of longitudinal traveling tapes, for carrying two web-sections of paper, two sets of tapes arranged transversely above one set of said longitudinal tapes and traveling at right angles to the line of motion thereof, for superimposing said web-sections, and folding devices for folding the two superimposed web-sections at a point between the said two sets of transverse tapes, substantially as described.

2. The combination of a cutter for dividing a paper web-section into two web-sections, two sets of longitudinal traveling tapes for carrying the two web-sections, tapes arranged transversely above and traveling at right angles to the line of motion of one set of the longitudinal tapes for superimposing the two web-sections, feed-rollers for moving one web-section transversely onto said transverse tapes, and folding devices for folding the two superimposed web-sections at a point between the said two sets of transverse tapes, substantially as described.

3. The combination of two sets of longitudinal traveling tapes for carrying two separate web-sections of paper, two sets of tapes arranged transversely above and traveling at right angles to the line of motion of one set of the longitudinal tapes, two feed-rollers for moving one web-section transversely onto said transverse tapes to superimpose the two web-sections, mechanism for intermittingly rotating one of said feed-rollers, and folding devices for folding the two superimposed web-sections at a point between the said two sets of transverse tapes, substantially as described.



4. The combination of two sets of longitudinal traveling tapes for carrying two separate web-sections of paper, two sets of tapes arranged transversely above and traveling at right angles to the line of motion of one of said sets of tapes, two feed-rollers for moving one web-section transversely onto said transverse tapes to superimpose the two web-sections, mechanism for moving one of the feed-rollers toward and from the other, and folding devices for folding the two superimposed web-sections at a point between the said two sets of transverse tapes, substantially as described.

5. The combination of two sets of longitudinal traveling tapes for carrying two web-sections of paper, one set arranged in a plane below the other set, two sets of tapes arranged transversely above and traveling at right angles to the line of motion of the lowest set of longitudinal tapes, devices for moving the web-section transversely from the highest set of longitudinal tapes onto the said transverse tapes, for superimposing the two web-sections, a paster for applying a line of paste to the web-section carried by the lowest set of longitudinal tapes, and devices for folding the two web-sections at a point between the two sets of transverse tapes, substantially as described.

6. The combination of a shaft, two sets of longitudinal tapes passing around said shaft, a paste-disk mounted on said shaft, an oscillating paste-reservoir having a paste-roller in its bottom, a cam for alternately moving said reservoir to and from the paste-disk, gears caused to intermesh and rotate the paste-roller when the reservoir is moved to the paste-disk, and means for superimposing the two web-sections carried by the longitudinal tapes, substantially as described.

7. A shaft having carrier or tape sets, a cutter, a paste-disk and a gear on the shaft, combined with a paste-reservoir having a disk, a driving-gear for the reservoir-disk, a cam for moving the paste-reservoir toward and from the shaft and for moving the gear of the reservoir-disk into and out of engagement with the gear on the shaft, and a carrier for transferring a sheet portion from one of the first-named tape-sets to the other substantially as described.

8. A shaft having carrier or tape sets and a shaft 33 driven by the first-named shaft and provided with a cam, a paste-reservoir actuated by said cam, a shaft 36 placed transversely to and actuated by said shaft 33, rollers 40 and 41 actuated by said shaft 36, and a cam 45 on said last-named shaft for bringing one of the rollers into and out of action substantially as described.

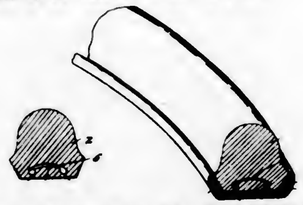
9. A shaft having carrier or tape sets and a shaft 33 driven by the first-named shaft and provided with a cam, a paste-reservoir actuated by said cam, a transverse shaft 36 actuated by said shaft 33, rollers 40 and 41 actuated by said shaft B6, a cam 45 on said shaft 36 for causing said rollers to act intermittently, and a folding-blade 62 actuated by said cam 45 substantially as described.

10. A shaft having carrier or tape sets and a shaft 33 driven by the first-named shaft and provided with cams 32 and 59, a paste-reservoir and a folding-blade 48 actuated by said cams, a transverse shaft 36 and a transverse carrier comprising intermittently-acting rollers 40 and 41 and tapes driven by said transverse shaft substantially as described.

11. A shaft having carrier or tape sets and a shaft 33 driven by the first-named shaft and provided with cams, a paste-reservoir and folding-blades 48 and 64 actuated by said shaft 33, a transverse shaft 36, and a transverse carrier and a folder 62 actuated by said transverse shaft substantially as described.

12. A shaft having carrier or tape sets, a carrier or tapes placed transversely to the first-named tapes, rollers 40 and 41 for feeding from the first-named tapes to the transverse tapes, a lever 42 44 forming a bearing for one of the rollers, and a cam for actuating the lever for moving said last-named roller out of and into action, substantially as described.

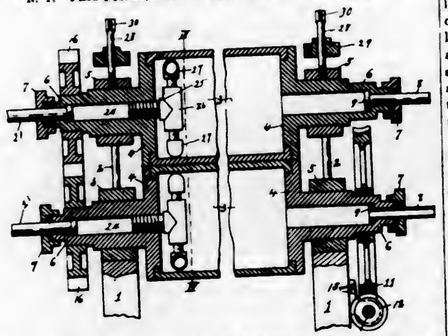
646,274. VEHICLE-TIRE. HARVEY S. FIRESTONE, Chicago, Ill. Filed Nov. 20, 1899. Serial No. 737,586. (No model.)



Claim.—1. The combination with a channeled rim having inclined side walls, of a rubber tire fashioned to fit the channel and having in its inner portion within the rim, a longitudinal passage having outwardly-arched upper and lower walls with a tubular passage at each edge thereof, and a metallic retaining-band fashioned to fit the passage and having beaded edges fitting in the tubular edge passages, substantially as set forth.

2. The combination, with a channeled metallic rim and a rubber tire seated therein, of a retaining band or strip having beaded edges, said edges being cut away at one end to form a tongue and the body of the strip being centrally cut away at the other end to form lateral flanges extending inward from the beaded edges, said tongue being united to said other end by riveting beyond the cut-away portion thereof, and by brazing between its lateral edges and the inwardly-extending lateral flanges of said other end, which flanges the edges of the tongue overlap, substantially as described.

646,275. ROTARY STEAM-PRESS. MICHEL J. FISHER, Utica, N. Y. Filed Feb. 20, 1899. Serial No. 706,161. (No model.)



Claim.—1. In a roller-press for fabrics and garments, the combination of rollers rotatably supported in suitable supports and having steam or hot-air inlet and outlet pipes at their respective ends for conducting steam or hot air through the rollers, means for rotating said rollers in opposite directions, parallel perforated steam-pipes suitably supported and arranged at a small distance from each other opposite the joint between said rollers, steam inlet and outlet pipes to said perforated steam-pipes, inclined supports carried on said roller-supports and extending rearwardly and upwardly therefrom, and a cloth-receiving roller resting on said inclined supports in contact with one of said steam-rollers by which it is frictionally rotated; substantially as described and shown.

2. In a roller-press for fabrics and garments, supporting-legs arranged in pairs at each end of the press, vertical parallel rods supported thereon, upper and lower boxes having circular openings fitted to said rods, steam-cylinders secured to perforated heads having trunnions fitted to rotate in the openings in said boxes and extending outwardly therethrough, steam-inlet pipes connected to said trunnions at one end and steam-outlet pipes to the trunnions at the opposite end for conducting steam through the cylinders, meshing gears secured to said trunnions at one end, a gear secured to one of said trunnions at the opposite end, means for communicating motion to said latter gear to rotate the cylinder, inclined supports secured to said upper boxes at each end of the press, extending rearwardly and upwardly therefrom, a cloth-receiving roller having shoulders at each end resting freely on said inclined supports and rotated frictionally by contact with said upper steam-roller; substantially as described and shown.

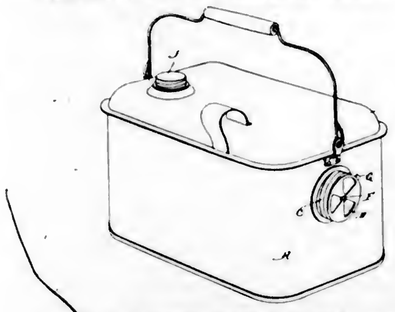
3. In combination, in a press for knit goods and similar fabrics, pairs of supporting-legs, pairs of parallel vertical rods arranged thereon, cross-heads connecting the upper ends of each pair of rods, square boxes vertically perforated to fit on said rods at each end, the upper resting on the one immediately below it, circular openings in said boxes, heads having hollow trunnions fitted to said openings, said heads supporting between them hollow cylinders forming rollers substantially in contact, steam-inlets secured in said hollow trunnions by packing-boxes with screw-caps screwed on the outer ends of trunnions, a gear keyed on one of said trunnions at one end, a worm meshing therewith, means for operating said worm, and at the opposite end of said press gears in mesh keyed on the trunnions of both the upper and lower rollers to communicate reverse motion from one to the other, a vertical pin on the upper box on each side extending up through a perforation in each cross-head, a lever pivoted on said cross-head at one side and bearing on said pin, an adjustable weight on said lever, inlet and outlet pipes to each of said rollers for the steam, parallel, perforated, steam-pipes supported on the frame a short distance from each other and in front of the line of contact between the rollers, and inlet and outlet pipes to said steam-pipes.

4. In a steam-press for fabrics and garments, the combination of a pair of steam-rollers, suitable supports therefor, inlet and outlet pipes for conducting steam therethrough to heat the rollers, outlets for the steam and hot water connected to the exhaust-opening within the rollers at one end, having in combination a pipe secured in said opening, a T connection secured to said pipe and short angle-pipes or L's secured in the opposite ends of said T connections with their open mouths arranged reversely, said L's extending in opposite directions adjacent to the inner surface of the rollers.

5. In combination, in a press for knit goods, garments and similar fabrics, a suitable supporting-frame consisting of pairs of legs with pairs of slender rods extending upwardly therefrom, boxes with circular perforations therein threaded on said rods, a pair of hollow rollers having their ends fitted to said perforations and arranged substantially in contact to compress the articles passed between them, means for rotating said rollers in opposite directions, inlets and outlets to said rollers for steam, perforated steam-pipes arranged in front of the joint between said rollers a short distance apart, inlets and outlets for the steam to said pipes, and outlets for the steam and water arranged in the interior of each of said rollers at the outlet end, consisting of a T connection screwed into the exhaust-opening and short angle connections secured to each end of said T connection, having their open ends reversely arranged adjacent to inner surface of the rollers.

6. In combination, in a press for knit goods and similar fabrics, pairs of supporting-legs, pairs of parallel vertical rods arranged thereon, cross-heads connecting the upper ends of each pair of rods, two square boxes vertically perforated to fit on said rods at each end, circular openings in said boxes, heads having hollow trunnions fitted to said openings, said heads supporting between them hollow cylinders forming rollers substantially in contact, steam-inlets secured in said hollow trunnions by packing-boxes with screw-caps screwed on the outer ends of trunnions, a gear keyed on one of said trunnions at one end, a worm meshing therewith, means for operating said worm, and at the opposite end of said press gears in mesh keyed on the trunnions of both the upper and lower rollers to communicate reverse motion from one to the other, a vertical pin on each of said upper boxes extending up through perforations in each cross-head, a lever pivoted on said cross-head at one side and bearing on said pin, an adjustable weight on said lever, inlet and outlet pipes to each of said rollers for the steam, a pair of parallel, perforated, steam-pipes supported on the frame a short distance from each other and in front of the line of contact between the rollers, inlet and outlet pipes to said steam-pipes, and in the interior of said rollers outlets for the steam and water of condensation consisting of T-pipes screwed in the steam-outlet, and short elbows with expanded mouths forming buckets on each end thereof secured to said T-pipe and extending radially with their mouths close to the inner surface of the respective rollers.

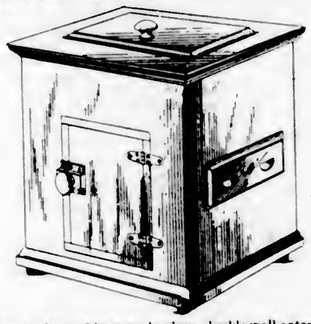
646,276. VENTILATED PAIL. WARREN T. FOLLWEILER, Tamaqua, Pa. Filed Jan. 10, 1900. Serial No. 982. (No model.)



Claim.—1. In combination with a pail of the character described, a ventilator consisting of a threaded collar so set as to correspond with an opening in the side of the pail, a correspondingly-threaded cap adapted to be secured upon said collar, said cap having radial openings therein, a valve also having radial openings therein pivoted to the cap so as to regulate the passage through the openings in the cap, and a screen secured over the inner end of the threaded collar, as specified.

2. As a new article of manufacture, a dinner-pail having an opening in the side thereof, a screen covering said opening, a threaded collar secured to the pail over said opening, a cap threaded upon the collar, said cap having openings therein, a valve-disk pivoted to the inside of the cap, and an offset projecting through a slot in said cap, whereby the valve may be regulated, as specified.

646,277. REFRIGERATOR. RUDOLPH FREY, New York, N. Y. Filed Sept. 6, 1899. Serial No. 729,595. (No model.)



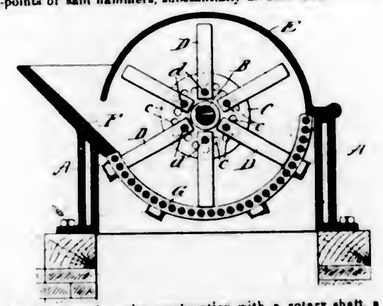
Claim.—1. In a refrigerator having a double wall extending from corner to corner, the combination with the ice-chest, of a drip-pan drawer arranged between the inner and outer members of said double wall and just below the bottom of the ice-chest, and a short drip-tube leading from the drip-trough of the chest through the inner member of the double wall into the top of said drawer.

2. In a refrigerator having a double wall, the combination with the ice-chest, of a drip-pan drawer located between the inner and outer walls just below the bottom of said chest, a drip-tube leading from the drip-trough of said chest through the inner wall to the top of the drawer, and a door to automatically close the drawer-opening when the drawer is removed.

3. In a refrigerator having a double wall, the combination with the ice-chest, of a drip-pan drawer located between the inner and outer walls just below the bottom of said chest, a drip-tube leading from the drip-trough to the drawer, a door to close the drawer-opening, and means causing said door to close on withdrawal of the drawer.

646,278. HAMMER-SUPPORT FOR CRUSHERS AND PULVERIZERS. EDWARD H. FRICKEY, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer Company, same place. Filed Sept. 2, 1898. Serial No. 690,068. (No model.)

Claim.—1. The combination with a rotary shaft, of hammer-supports arranged thereon, said supports having series of openings of gradually-increasing distances from the axis, hammers, and pivots for said hammers, which pivots coöperate with, or are adapted to fit in different openings in a series in said supports, to adjust the striking-points of said hammers, substantially as described.



2. In a crusher, the combination with a rotary shaft, a set of pivoted hammers and a dead-plate, of a hammer-support mounted on the shaft, consisting of a disk-plate having a series of holes arranged in a line of gradually-increasing distances from the axis, whereby the pivot-points of said hammers are adjustably located, substantially as described.

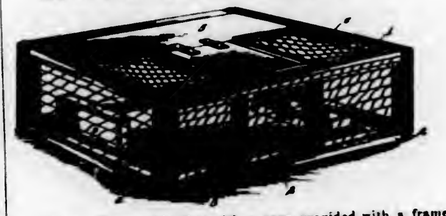
3. The combination with the casing, of a shaft, supports having series of openings of gradually-increasing radii, pivoted hammers whose pivot-points are adjustable in said series of openings, a grinding-surface, and an inclined dead-plate upon which the material is primarily crushed by the hammers, said hammers carrying the material back and reducing it on the grinding-surface, substantially as described.

4. A crusher, comprising a casing, a rotary shaft, a hammer-support on said shaft having separate fixed points of attachment for the hammers, which points of attachment are located at varying distances from the axis of rotation of said support, and hammers removably pivoted to said support, whereby the point of attachment of each hammer to said support is adjustable toward or from the axis of rotation of said support; substantially as described.

5. The combination with a hammer-support C, having two or more fixed points of attachment located at varying distances from the axis of rotation of said support, and a hammer removably pivoted to said support at one of said points of attachment; substantially as described.

6. A crusher comprising a casing, a rotary shaft, a hammer-support on said shaft, having separate points of attachment for the hammers and hammers adjustably pivoted separately and independently to said hammer-support to vary the reach of said hammers, substantially as described.

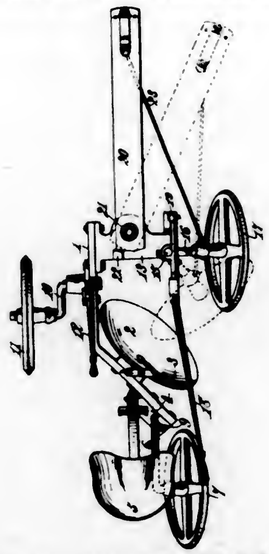
646,279. POULTRY-COOP. JAMES A. GRANT, Dry Creek, La. Filed Oct. 13, 1899. Serial No. 733,493. (No model.)



Claim.—The combination with a coop provided with a frame having a horizontal bottom bar located adjacent to the inner face of the woven wire or other material forming the sides of the coop, of a receptacle located within the coop and hingedly connected with the frame at the upper face of the bottom bar 10, adjacent to the outer edge of the same and capable of swinging upward and downward to arrange it in a horizontal position on the bottom of the coop, contiguous to the bottom bar 10 and to fold it against the side of the coop at a point directly above the said bar 10, whereby it will be out of the way and will not consume any of the floor-space of the coop, when it is not in use, substantially as described.

646,280. ROTARY PLOW. MILTON T. HANCOCK, Shreveport, La. Filed Jan. 23, 1900. Serial No. 2,489. (No model.)

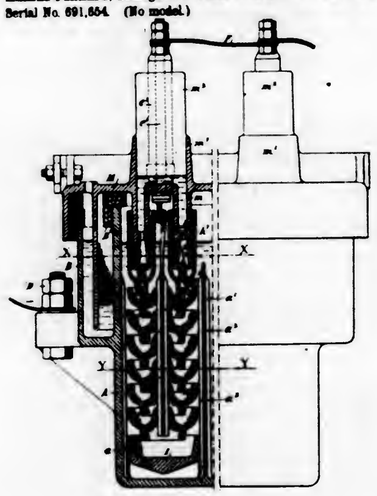
Claim.—1. A rotary plow provided with a laterally-swinging tongue, a front furrow-wheel mounted on a pivotal axle, and a draft-rod connecting the pivotal axle of said furrow-wheel with said swinging tongue, thereby permitting a short turn of the plow to the right by the natural draft of the team when pulled in that direction.



2. In a rotary plow, the combination of a main frame having a swinging tongue-section, a front furrow-wheel having its axle pivotally mounted on the plow-frame, and a draft-rod connecting the said axle of the furrow-wheel with said swinging tongue-section, whereby a short turn of the plow to the right is effected by the natural draft of the team when pulled in that direction.

3. In a rotary plow, the combination of the main frame having a bracket-arm projecting laterally to the right and provided with a vertical sleeve, the front furrow-wheel having its axle provided with a vertical arm pivotally mounted in said sleeve, a laterally-swinging tongue-section pivotally connected with the main frame, and a draft-rod connecting the said axle of the front furrow-wheel with said swinging tongue, to permit a short turn of the plow to the right by the natural draft of the team when pulled in that direction.

646,281. ELECTROLYTIC APPARATUS. LOUIS H. A. R. M. HAZARD-FLAMAND, Boulogne-sur-Seine, France. Filed Sept. 22, 1898. Serial No. 691,554. (No model.)



Claim.—1. In electrolytic apparatus for the production of gases, positive and negative electrodes, an annular gas-tight diaphragm separating the said electrodes, a deep channel around the upper part of the said diaphragm, said channel being partially immersed in the electrolyte, holes pierced through the base of said channel and connecting the electrolyte with a sealing liquid in the interior of the said channel, a cover having a prolongation projecting downward into said channel, and concentric therewith, communicating with a second channel on the top of the said cover, substantially as described.

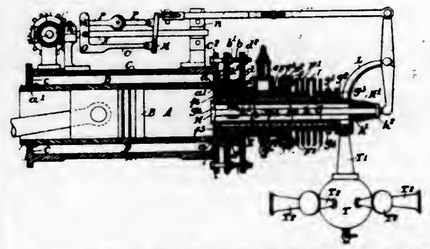
2. In electrolytic apparatus for the production of gases, a gas-tight diaphragm penetrable by the current, and also by the electrolyte, said diaphragm surrounded by a deep channel partially immersed in the electrolyte, holes in the base of the said channel leading to a hollow prolongation of the cover, so that the said channel is in liquid communication with a channel on the top of the said cover, substantially as described.

3. In electrolytic apparatus for the production of gases, containing electrodes surrounded by an annular gas-tight diaphragm, the combination with the upper part of the diaphragm of an annular channel H', having at its lower part holes h^3, the edge h' of said channel rising above the surface of the electrolyte, and combining with a prolongation m of the cover connected by means of holes m^3 with an annular receptacle m' upon the said cover.

4. In electrolytic apparatus for the production of gases, electrodes, a diaphragm separating the electrodes the combination of a cover provided with channels, hollow prolongations from said channels communicating with a deep annular channel around the upper part of the diaphragm separating the electrodes, said annular channel partially immersed in the electrolyte, and provided with orifices h^3, substantially as described.

5. In electrolytic apparatus for the production of gases, an electrode E, a diaphragm having a deep annular channel h' around the said electrode, and partially immersed in the electrolyte; the said channel h' providing liquid communication on the one hand with the electrolyte through orifices in its lower part, and on the other hand with the lid of the cover by means of a hollow prolongation of the said cover, in combination with the elongated rings H superposed so as to form a series of hydraulic joints.

646,282. HYDROCARBON-MOTOR. ERNEST T. HEADECH, Ashford, County of Kent, England. Filed May 22, 1899. Serial No. 717,819. (No model.)



Claim.—1. In a hydrocarbon-motor an oil-vaporizer comprising three tubes or cylinders arranged one within another so as form annular spaces between the cylinders the inner tube constituting a passage for the exhaust products of combustion the annular space between the innermost tube or cylinder and the next tube or cylinder surrounding it constituting the oil-vaporizing chamber, and the annular space between the outermost tube or cylinder and the next inner tube or cylinder constituting an air and vapor mixing chamber; means for admitting oil to the vaporizing-chamber; and for admitting air into the mixing-chamber; perforations or passages through which the vaporized oil can pass from the vaporizing-chamber into the mixing-chamber and passages from the said mixing-chamber to the motor-cylinder, substantially as hereinbefore described.

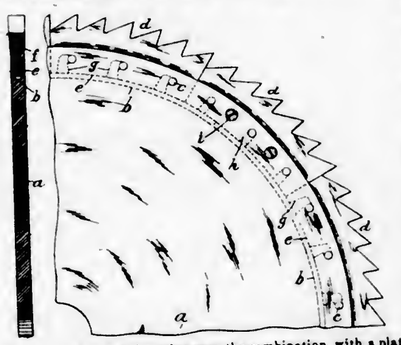
2. In a hydrocarbon-motor, the combination of the motor-cylinder with an oil-vaporizer, consisting of three tubes, one within the other and projecting into the motor-cylinder and forming annular spaces between the tubes, the inner tube for the exhaust, the annular space between the innermost tube and the next constituting the oil-vaporizing chamber, and the annular space between the outermost tube and the next inner tube constituting a mixing-chamber, the several tubes being fitted to each other and to the motor-cylinder with inclined contacting surfaces to form fluid-tight joints, means for admitting oil to the vaporizing-chamber, perforations through which the vaporized oil can pass to the mixing-chamber and passages from the latter to the motor-cylinder, all substantially as described.

646,283. ROASTIN OR BAKING PAN. FRANK T. HEATLY and MINNIE LEAVELL, Sterling, Ill. Filed Jan. 16, 1899. Serial No. 702,294. (No model.)



Claim.—A device of the class described comprising a bottom pan and a cover composed of two sections slidingly connected with the side edges of the bottom pan and adapted to be removed therefrom independently of each other, said sections being overlapped at their inner ends and provided at their outer ends with stops engaging the ends of the bottom pan, substantially as described.

646,284. METAL-CUTTING SAW. JAMES HILTON, Newark, N. J. Filed June 8, 1899. Serial No. 719,756. (No model.)



Claim.—1. In a metal-cutting saw, the combination, with a plate having peripheral groove with series of pins or rivets inserted transversely across the same, of a series of detachable segments having each a flange fitted to the groove and provided with bayonet-locks to fit several of such pins, the head of the locking-slot being extended toward the points of the teeth in all of such segments, whereby the cutting pressure upon the teeth holds the locks upon the securing-pins, and a locking-section being secured to the saw-plate to hold the remaining sections engaged with such pins, substantially as herein set forth.

2. In a metal-cutting saw, the combination, with a circular plate, of a series of toothed segments secured thereon by bayonet-locks and all engaged by peripheral movement in the same direction, and a locking-section fitted closely between the remaining sections, and provided with means for securing it to the saw-plate, for holding the remaining sections engaged by such bayonet-locks.

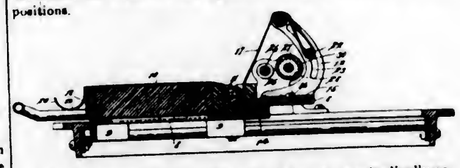
3. In a saw, the combination, with the plate having peripheral groove with series of pins or rivets inserted transversely across the same, of a series of detachable toothed segments having each a flange fitted to the groove and provided with bayonet-locks to fit several of such rivets and a locking-section being secured to the saw-plate to hold the remaining sections engaged with such pins.

4. In a saw, the combination, with the plate having peripheral groove with series of pins or rivets inserted transversely across the same, of a series of detachable toothed segments having each a flange fitted to the groove and provided with bayonet-locks to fit several of such rivets and a locking-section secured detachably upon the periphery of the plate to hold the remaining sections locked upon the rivets.

5. In a saw, the combination, with the plate having peripheral groove with series of pins or rivets inserted transversely across the same, of a series of detachable toothed segments having each a flange fitted to the groove and provided with bayonet-locks to fit several of such rivets, and a locking-section with flange having straight or radial grooves to fit the rivets, and removable pins inserted through the plate and such flange to hold the locking-section detachably in place.

646,285. CIGAR-BUNCHING MACHINE. JAMES H. HOEFFLER, Ashland, Ohio, assignor of one-half to Homer R. Davidson, Cleveland, Ohio. Filed Apr. 5, 1899. Serial No. 711,811. (No model.)

Claim.—1. A cigar-machine, having a bunch-disposing roller comprising a roll proper, heads mounted on the roll proper, one of which heads is loose, flexible rods extended between and carried by the heads, and means for locking the loose head in either one of two positions.



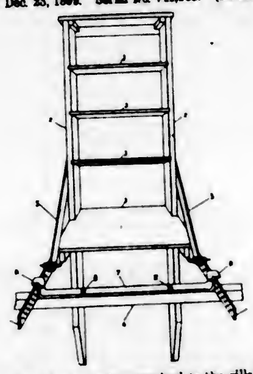
2. A roll for cigar-machines, the roll having longitudinally-extending flexible rods, and means for carrying the ends of the rods, such means being capable of holding the rods parallel with the roll or spirally with respect thereto.

3. A roll for cigar-machines, the roll having flexible rods extending longitudinally therewith, and means for holding the ends of the rods.

4. A roll for cigar-machines, comprising the combination of a roll proper, a head fast to one end of the roll proper, a second head loose on the other end portion of the roll proper, means for locking the loose head in either one of two positions, and flexible rods extending between and supported by the heads.

5. The combination of a base, a carriage mounted to slide thereon, a table held by the carriage, a mold mounted on the carriage alongside of the table, a spring held by the carriage and engaging the mold to push it against the table, bearings attached to the sides of the base, between which bearings the carriage passes, a bunch-forming roller mounted in the bearings and extending across the carriage to work on the table, arms attached to the carriage and extending upwardly above the bunch-forming roller, an apron attached to the carriage and supported by the arms, and a tension-roll movable longitudinally of the arms and having the apron passed around it, the tension-roll being carried by the arms.

646,286. WINDOW-SCAFFOLD. WILLIAM HOLTZAPPLE, Xenia, Ohio. Filed Dec. 23, 1899. Serial No. 741,335. (No model.)

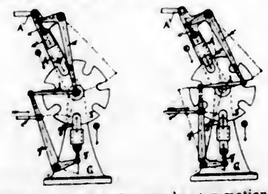


Claim.—1. In a device to be attached to the sills of windows to be used in supporting persons engaged at work on the outside of said windows an arrangement consisting of a ladder-like structure, having steps attached to the two side pieces of the ladder, the side pieces each having an iron strip attached to them and extending from them at an angle, a piece adapted to slip over said iron strips and having a flange on the lower edge adapted to fit under a window-sill, substantially as described and shown.

2. In a device to be attached to windows the combination of a ladder-like structure, two iron bars extending from said structure at an angle, and a strip adapted to slide over said bars and having a flange on the lower edge, substantially as described.

646,287. STEP-BY-STEP-MOTION MECHANISM. RUDOLF HUNDHAUSEN, Wilmersdorf, Germany. Filed July 31, 1899. Serial No. 725,711. (No model.)

Claim.—1. In mechanism for effecting step-by-step motion, the combination with an actuating device, means for reciprocating the same, a part receiving the said step-by-step motion, and a pair of pawls movably fastened to the actuating device and to the frame of the mechanism respectively and operating the receiving part as a stationary ratchet, of means for firmly locking said receiving part by means of said pawls always either with the actuating device or with the frame of the mechanism or with both.



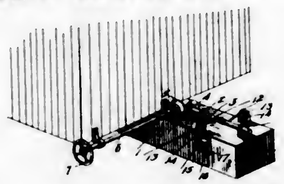
2. In mechanism for effecting step-by-step motion, the combination with, an actuating device, means for reciprocating the same, a part receiving the said step-by-step motion, and a pair of pawls movably fastened to the actuating device and to the frame of the mechanism respectively and operating the receiving part as a stationary ratchet, of means for firmly locking said receiving part by means of said pawls always either with the actuating device or with the frame of the mechanism or with both, and a second actuating device movably carried by the frame of the mechanism and positively connected with the pawl fastened to the said frame.

3. In mechanism for effecting a rotatory step-by-step motion, the combination with, an actuating device, means for reciprocating the same, a part receiving the step-by-step motion, and a pair of pawls, of means for alternately locking said actuated part by means of one of said pawls with the framing of the mechanism and relieving it therefrom, and a connecting-rod between the other pawl and the first, one pivot of which coincides with the geometric axis of the actuated part in the period in which the latter is relieved from the framing.

4. In mechanism for effecting a rotatory step-by-step motion, the combination with, an actuating device, means for reciprocating the same, a part receiving the step-by-step motion, and a pair of pawls, of means for alternately locking said actuated part by means of one of said pawls with the framing of the mechanism and relieving it therefrom, and a connecting-rod between the other pawl and the first, the pivots of which alternately coincide with the geometric axis of the actuated part.

5. In mechanism for effecting step-by-step motion the combination with, an actuating device, means for reciprocating the same, a part receiving the said step-by-step motion, and a pair of pawls movably fastened to the actuating device and to the frame of the mechanism respectively and operating the receiving part as a stationary ratchet, of means for firmly locking said receiving part by means of said pawls always either with the actuating device or with the frame of the mechanism or with both, and means for altering the amount of the step-by-step motion.

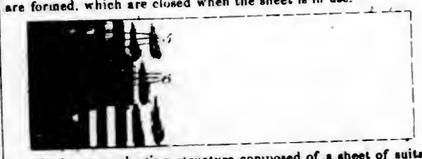
646,288. CAR-COUPLING. WILLIAM F. JOHNSON, High Hill, Miss. Filed Jan. 25, 1900. Serial No. 2,706. (No model.)



Claim.—In a car-coupling, the combination with the draw-head, spring-actuated jaws journaled in said head provided with inclined ends, a shaft journaled upon the upper side of the draw-head extending lengthwise thereof and provided with a beveled pinion, ropes or chains connected to said shaft and passing over guide-pulleys and through the side of the draw-head and connected to the jaws, and an operating-shaft secured to the end of the car and provided at one end with a hand-wheel and at the other end with a coacting beveled gear, substantially as set forth.

646,289. NON-CONDUCTING COVERING. JAMES JONES, New York, N. Y. Filed May 25, 1899. Serial No. 718,141. (No model.)

Claim.—1. As an element in a non-conducting covering, a sheet of suitable material having separate rows of short corrugations, the ends of the series of corrugations in any one row abutting against those of the adjacent rows, and the projections of any one row of corrugations being disposed in line with the depressions in the adjacent rows of corrugations, whereby a plurality of series of air cells are formed, which are closed when the sheet is in use.



2. A non-conducting structure composed of a sheet of suitable material having separate rows of short corrugations, the ends of the series of corrugations in any one row abutting against those of the adjacent rows, and the projections of any one row of corrugations being disposed in line with the depressions in the adjacent rows of corrugations, together with a flat sheet of material attached to one face of the corrugated sheet, whereby a plurality of series of closed air-cells are formed.

3. A non-conducting structure composed of a sheet of suitable material having separate rows of short corrugations, the ends of the series of corrugations in any one row abutting against those of the adjacent rows, and the projections of any one row of corrugations being disposed in line with the depressions in the adjacent rows of corrugations, together with a flat sheet of material attached to one face of the corrugated sheet, and a second sheet of similarly-corrugated material on the opposite side of said flat sheet, whereby a plurality of series of closed air-cells are formed.

646,290. PEW. W. H. KRATZ, Baltimore, Md. Filed Jan. 16, 1900. Serial No. 1,682. (No model.)

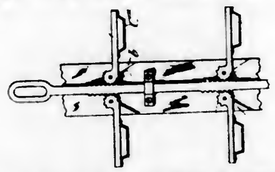


Claim.—1. A pew curved longitudinally and vertically and having top and bottom rails disposed in parallel vertical planes and an intermediate curved portion secured thereto, as set forth.

2. A pew having top and bottom rails curved longitudinally and disposed in vertical planes and provided upon their adjacent faces with channels, and an intermediate portion provided with a circumflex curvature and tenons secured in said channels, as set forth.

3. A pew having its back formed of a top and a bottom rail curved longitudinally but straight vertically in different vertical planes, and provided with channels, and an intermediate portion having a circumflex curvature vertically and curved longitudinally and provided with tenons disposed vertically and engaged in said channels, substantially as shown and described.

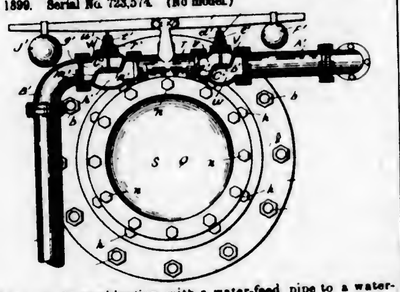
646,291. FIRE-ESCAPE LADDER. THEODORE F. KRUEGER, New York, N. Y. Filed Aug. 8, 1899. Serial No. 726,498. (No model.)



Claim.—A fire-escape ladder, consisting of a stationary upright, a slide-rod guided on the same, rungs pivoted to said upright and provided with mutilated pinions at their inner ends, meshing with

rack-teeth on said slide-rod, and abutments on said upright for supporting the rungs when in use, in horizontal position, substantially as set forth.

646,292. SAFETY-VALVE FOR WATER-FEED PIPES. NATHANIEL LOMBARD, Boston, Mass., assignor to the Lombard Water Wheel Governor Company, same place and Portland, Me. Filed July 12, 1899. Serial No. 723,574. (No model.)

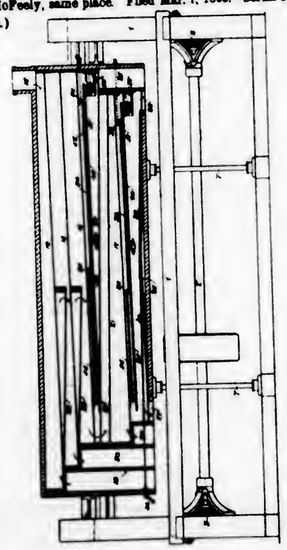


Claim.—1. In combination with a water-feed pipe to a water-wheel or other water-operating device having an opening at or near its end, of a valve to said opening, a piston connected to said valve of larger diameter in a cylinder or chamber, a pipe connected to and communicating with said water-feed pipe and the piston cylinder or chamber and valves in said communicating pipe for operation substantially as described.

2. In combination with a water-feed pipe to a water-wheel or other water-operating device having an opening at or near its end, of a valve to said opening, a piston connected to said valve of larger diameter, in a cylinder or chamber, a pipe connected to and communicating with said water-feed pipe and said piston cylinder or chamber, and two valves in said communicating pipe, one of which valves is of larger diameter than the other for operation substantially as described.

3. In combination with a water-feed pipe to a water-wheel or other water-operating device having an opening at or near one end of a valve to said opening, a piston connected to said valve of larger diameter in a cylinder or chamber, a pipe connected to and communicating with said water-feed pipe and said piston cylinder or chamber, two valves in said communicating pipe, one of which valves is of larger diameter than the other and a lever to each of said two valves each having a weight adjustable thereon for operation substantially as described.

646,298. GYRATING SIEVE OR BOLTING-MACHINE. CHARLES H. LOUTHENBIHER, Philadelphia, Pa., assignor to Walter Griscom and Thomas McFeely, same place. Filed Mar. 7, 1899. Serial No. 708,117. (No model.)



Claim.—1. The combination of a gyrating sieve-box, an upright crank-shaft, and a bracket mounted on the sieve-box and having a crank-pin bearing consisting of inner and outer segments, confining between them radially-adjustable blocks, which bear at their inner ends upon the crank-pin, substantially as specified.

2. The combination of a gyrating sieve-box, upright crank-shafts and crank-shaft bearings on the sieve-box, having laterally-adjustable blocks for taking up wear, whereby the longitudinal distance between the crank-shafts is not changed, substantially as specified.

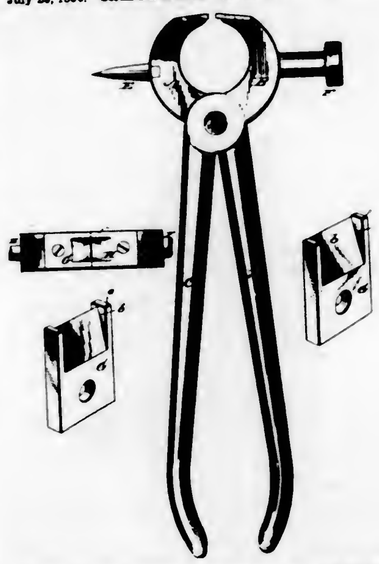
3. The combination of a gyrating sieve or bolting-machine with a reciprocating brush-frame, a weighted arm which is caused to rotate by the gyrating movement of the sieve-box, and means whereby the rotating movement of said arm is caused to impart reciprocating movement to the brush-frame, substantially as specified.

4. The combination in a gyrating sieve or bolting-machine, of a reciprocating brush-frame, a weighted arm which is caused to rotate by the gyrating movement of the sieve-box, an endless chain to which the reciprocating brush-frame is connected, and means whereby said chain is operated by the rotating movement of the weighted arm, substantially as specified.

5. The combination in a gyrating sieve or bolting-machine, of a reciprocating brush-frame, an endless belt presenting its edge to said brush-frame, connections between the brush-frame and belt, a shaft having a weighted arm which is caused to rotate by the gyrating movement of the sieve-box, and means whereby said shaft is caused to drive the endless belt, substantially as specified.

6. The combination in a gyrating sieve or bolting-machine, of a reciprocating brush-frame, an endless belt presenting its edge to said brush-frame, connections between the brush-frame and belt, a shaft having a weighted arm which is caused to rotate by the gyrating movement of the sieve-box, and means whereby said shaft is caused to drive the endless belt, the brush-frame, belt, weighted arm, and transmitting devices all being disposed in the space between the sieve and a directing-plate beneath the same, substantially as specified.

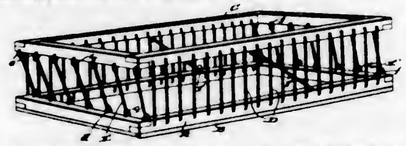
646,294. CUTTING-NIPPERS. ROBERT H. LOVE, Allen, Tex. Filed July 29, 1899. Serial No. 725,493. (No model.)



Claim.—A cutting-nippers provided with cutters having stationary gages extending out beyond the sides of the cutting-blade and very slightly above the cutting edge to form both gages and fenders, substantially as and for the purpose specified.

646,295. FOLDING FOWL-COOP. ALEX W. E. MAAS, New Orleans, La. Filed May 18, 1899. Serial No. 717,333. (No model.)

Claim.—1. A folding crate comprising a base-frame provided with a suitable bottom, and having a depression A in the upper side of one of its side bars, an upper frame, side rods interposed between the side bars of the base and upper frames and having their ends journaled and secured in said side bars, end links E loosely connected at their lower ends to the inner upper portion of one end bar of the base-frame and loosely connected at their upper ends to the outer lower portion of the corresponding end bar of the upper frame, end links E' loosely connected at their lower ends to the outer upper portion of the other end bar of the base-frame and loosely connected at their upper ends to the lower inner portion of the corresponding end bar of the upper frame, said side rods and end links being of such proportional lengths that the crate is held against collapsing in one direction, and a stay loosely connected to one side bar of the upper frame and adapted to be removably seated in the depression A of the base-frame, substantially as specified.



2. The herein-described folding crate comprising the base-frame provided with a bottom and having depressions A in the upper sides of its side bars, an upper frame, side rods having lateral end portions journaled in the side bars of the base and upper frames and terminating in angular arms at the inner sides thereof, staples arranged at the inner upper corners of one end bar of the base-frame, staples arranged at the outer lower corner of the corresponding end bar of the upper frame, staples arranged in the outer upper corner of the other end bar of the base-frame, staples arranged at the inner lower corner of the corresponding end bar of the upper frame, links E E' interposed between the end bars of the frames and having eyes at their ends loosely engaging the staples thereof, said side rods and end links being of such proportional lengths that the crate is held against collapsing in one direction, and stays loosely connected to the side bars of the upper frame and adapted to be removably seated in the depressions A in the side bars of the lower frame, substantially as specified.

646,296. BOX. FRED S. MACRONALD, Portland, Me., assignor to the Casco Paper Box Company, same place. Filed Oct. 20, 1899. Serial No. 734,154. (No model.)



Claim.—In a box, a cover having vertical walls and a top composed of an inner and outer part, the inner part countersunk below the top edges of the walls, and the outer part being flush with the top edges of the walls, the covering material of the walls being extended over the edges of the walls and partially across said inner part, and the covering of said outer part extending only to the edges thereof.

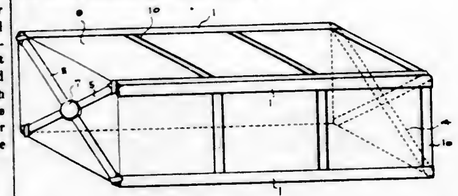
646,297. GAS-IGNITING PILL. ADOLF MARTINI, Berlin, Germany. Filed Dec. 29, 1899. Serial No. 742,012. (No specimens.)

Claim.—Process of manufacturing gas-ignition pills by aid of meerschaum, salts of the platinum class of metals and salts of the rare earths, the easily-soluble parts of meerschaum being removed and the remaining skeleton impregnated with a solution of salts of the rare earths, these latter being reduced into the oxids by aid of heat and the skeleton thoroughly lixiviated and impregnated with a solution of platinum salts, which are then reduced by aid of gases, this reduction being followed by a final treating with acids, steam and ammonia, substantially as set forth and described.

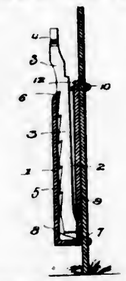
646,298. CRATE FOR FRAGILE BOXES. LORENZO L. MERRIMAN, Chicago, Ill. Filed July 8, 1899. Serial No. 723,236. (No model.)

Claim.—1. In a box-crate, the sheet-metal strip formed of a single piece, comprising the part 1 angular in cross-section, the part 5 bent at an angle to the part 1, the tongues 3 formed by cuts at the base of the part 5 and bent across each other and under the part 5, substantially as described.

2. The combination of a series of boxes placed end to end, with the detachable crate formed of the sheet-metal strips 1 angular in cross-section, having the extension 5 and tongues 3 bent across each other and under said extensions and means for connecting the free ends of the extensions 5; the parts of said crate being disposed upon said boxes, substantially as shown and described.

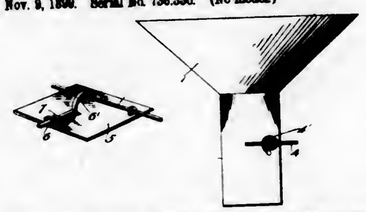


646,299. LIFTING-JACK. AUGUST J. F. MILLER, Centralia, Ill. Filed Aug. 29, 1899. Serial No. 728,887. (No model.)



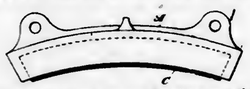
Claim.—A lifting-jack, comprising the tubular shank formed with a rigid tooth 6, near its upper end and a projection 12; a longitudinal lug and lateral trunnions; in combination with the jack-staff provided with the yoke 4, on its upper end, and formed with ratchet-shaped teeth 5; the hand-lever having bearings 8, 8, for the trunnions 7, 7, and provided with a pivoted link 10, adapted to engage and be disengaged from the projection 12, substantially as specified.

646,300. SCALE-PAN. WILLIAM G. MIXELL, Windsor, N. C. Filed Nov. 9, 1899. Serial No. 736,330. (No model.)



Claim.—A scale-pan provided with a hollow neck, a transverse shaft extending across said neck, a spring connected eccentrically to said shaft at one end and to the neck at the other, a valve-plate located within said neck and loosely connected to said shaft, and a bolt having one end secured eccentrically to said shaft by a spring, said bolt being supported in guides carried by the under side of the valve-plate and adapted to have its free end shot through an opening in the wall of said neck by the last-named spring and lock the valve-plate in horizontal position, substantially as and for the purpose set forth.

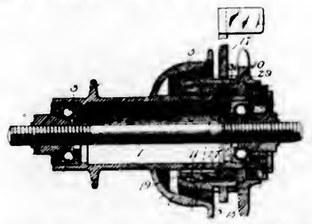
646,301. BRAKE-SHOE. JAMES F. MORRISON and ANDREW J. ALLEN, Chicago, Ill. Filed July 25, 1899. Serial No. 725,106. (No model.)



Claim.—1. A composition for brake-shoes, consisting of comminuted iron, asphaltum, and an ingredient for rendering the asphaltum impervious to oil, acid or any other substance tending to disintegrate the asphaltum, and to allow of subjecting the shoe to an increased temperature when in use.

2. A composition for brake-shoes, consisting of comminuted iron, asphaltum and sulfur intermixed in about the proportions specified.

646,802. BACK-PEDALING BRAKE. ALEXANDER P. MORROW, Elmira, N. Y., assignor of one-half to H. H. Fulton, same place. Filed Mar. 30, 1899. Serial No. 711,135. (No model.)



Claim.—1. A hub-braking mechanism for bicycles and like vehicles, comprising the hub having a braking-surface thereon, a sprocket-wheel loosely mounted on the hub, a non-rotative but laterally-movable brake-shoe and means loosely mounted on the hub for forcing the brake-shoe against said braking-surface, comprising a brake-ring having internal cams; a clutch-ring having cams coöperating with those on the brake-ring; and the sprocket-wheel provided with means for coöperating with the clutch-ring, and means for locking the sprocket, brake-ring and clutch-ring to the hub during forward driving, and for releasing the hub upon a reversal of motion of the sprocket.

2. Brake mechanism for bicycles and like vehicles, comprising a hub formed with an annular flaring brake-flange; a non-rotative brake-shoe coöperating with the flange on the hub, and means for moving the brake-shoe laterally, comprising a brake-ring provided with internal cam-surfaces, a clutch-ring arranged within the brake-ring and having cams coöperating therewith, and a sprocket-wheel provided with means for coöperating with the clutch-ring, and means for locking the sprocket, brake-ring and clutch-ring to the hub during forward driving thereof, and for releasing it upon a reversal of the motion of the sprocket.

3. Brake mechanism for bicycles and like vehicles, comprising a hub provided with a flaring brake-flange and an annular bead or boss, a brake-shoe capable of longitudinal movement on the hub, but held against rotary motion, a brake-ring arranged within the shoe and formed with internal cam-surfaces, and an exterior annular bead or rib adapted to bear against the brake; a clutch-ring formed at one side with edge cams, and at its opposite side with ratchet-teeth and with an internal annular incline; a sprocket formed with ratchet-teeth coöperating with the teeth of the clutch-ring, and means for supporting the sprocket-wheel upon the hub.

4. A braking mechanism for bicycles and like vehicles, comprising the wheel-hub formed with an overhanging and flaring annular brake-flange, a brake-shoe capable of a lateral movement disposed within the flange and formed with an arm arranged to engage the frame of the machine and hold the brake-shoe against rotation, a brake-ring on the hub having internal cams; a clutch-ring having cams coöperating with the brake-ring cams; a sprocket-wheel having means for coöperating with the clutch-ring; and means for locking the brake-ring, clutch-ring and sprocket-wheel to the hub during forward driving, and for releasing the hub by back-pedaling.

5. A braking mechanism for bicycles and like vehicles, comprising the wheel-hub formed with an overhanging annular flange, a brake-shoe disposed within the flange and held against rotation but capable of lateral movement, a brake-ring on the hub to engage the brake-shoe and provided with internal cams, a loosely-mounted ring on the hub formed with cams to engage the brake-ring and move it laterally, a sprocket-wheel loosely mounted on the hub formed with means to turn the adjacent ring when reversed and devices coöperating with the loosely-mounted ring for forward driving, substantially as specified.

6. A braking mechanism for bicycles and like vehicles, comprising the hub formed with a brake-flange, a laterally-movable brake-shoe arranged within the brake-flange, an arm secured to the brake-shoe and to the frame of the machine to hold the brake-shoe against rotation, a brake-ring mounted on the hub and formed with internal cam-surfaces, a clutch-ring on the hub having cams to engage those on the brake-ring, and ratchets on its outer edge, a sprocket-wheel on the hub reversely rotatable thereon and provided with ratchet-teeth to engage with the ratchet-teeth on the said clutch-ring, mechanism for forward driving, and means for taking up the right-hand thrust, substantially as described.

7. The brake for bicycles and similar vehicles herein described, comprising a hub formed with a brake flange or surface, a laterally-movable annular brake-shoe tapered to fit within the brake-flange and held against rotation, a brake-ring loosely mounted on the hub and having a rotary movement and limited longitudinal movement thereon and formed with internal plates having cam-surfaces on their outer ends, a clutch-ring loosely mounted on the hub and formed with cam-surfaces to engage the cams on the brake-ring, means for locking the clutch-ring to the hub when rotated forward, ratchet-teeth on the outer end or edge of the clutch-ring, a sprocket-wheel mounted loosely on the hub and formed with ratchet-teeth on its inner face to engage the ratchet-teeth on the outer end of the clutch-ring, and a device to take up the outward thrust of the sprocket-wheel whereby when the sprocket-wheel is reversed the clutch-ring is rotated and its inner cam-surfaces brought into contact with the brake-ring, and the brake and clutch mechanism for forward driving applied.

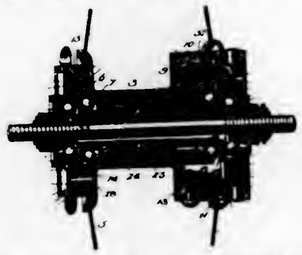
8. Brake and coasting mechanism for bicycles, comprising a hub formed with an annular overhanging brake-flange and an annular bead; a laterally-movable but non-rotative brake-shoe within said brake-flange, a brake-ring within the brake-shoe provided with internal cam surfaces; a clutch-ring formed with cam-surfaces coöperating with those on the brake-ring, with an internal incline to engage the bead on the hub, and on the outer end with ratchet-teeth; a sprocket-wheel formed with ratchet-teeth to engage those of the clutch-ring; and means for taking up the outward thrust of the sprocket-wheel.

9. The combination with a bicycle of combined coasting and brake mechanism applied to the rear hub, comprising an annular bead formed on the hub, a sprocket-wheel, means for locking said wheel and the hub for forward driving; means for releasing the sprocket when the movement of the pedals is stopped; and brake mechanism operated by back-pedaling, but not affected by the backward revolution of the rear wheel of the machine.

10. A bicycle brake mechanism, comprising a hub having a hollow body portion or sleeve; an annular flange projecting from the sleeve and overhanging the same laterally, a beveled projection or bead on said sleeve concentric with the flange; and laterally-movable brake mechanism coöperating with said flange and beveled projection.

11. A bicycle-hub, comprising a hollow body portion or sleeve, an annular flange projecting from the sleeve and overhanging the same laterally; and a beveled projection or bead on said sleeve concentric with the flange and adjacent to the end of the sleeve which is overhung by the flange, in combination with brake mechanism adapted to frictionally engage said flange, driving mechanism coöperating with the beveled projection or bead, and means for retaining the parts in their proper relative positions.

646,803. BACK-PEDALING BRAKE. ALEXANDER P. MORROW, Elmira, N. Y. Filed Mar. 30, 1899. Serial No. 711,136. (No model.)



Claim.—1. The combination with the rear-wheel hub and axle of a cycle, of a coasting device comprising a sectional sprocket-wheel and clutches, a brake device and clutch mechanism therefor and a coupling between the brake mechanism and one of the sections of the sprocket-wheel, comprising a sectional sleeve, one member of which is secured to the rim of the sprocket-wheel, the other member being secured by one of the cone-bearings.

2. The combination with the rear-wheel hub and axle of a cycle, of a coasting device comprising a sectional sprocket-wheel and clutches, a brake device and clutch mechanism therefor, and a coupling between the sectional sprocket-wheel and the brake mechanism comprising a sectional sleeve within the hub and a ring secured upon said sleeve and connected to the rim of the sprocket to revolve therewith.

3. The combination with a hub provided with an annular housing at one end, of a friction-ring within said housing, a sleeve or auxiliary hub located within the main hub, a coasting device located upon one end of the main hub, the outer member of the coasting device being coupled to the adjacent end of the sleeve, brake mechanism located upon the opposite end of the sleeve and coöperating with the friction-ring on the hub.

4. The combination with a hub provided at one end with an annular chamber or housing, of a friction-ring secured within the housing, coasting mechanism located upon one end of the hub, a sleeve arranged within the hub and coupled to the outer member of the coasting mechanism, a brake-ring secured to the frame of the machine against rotation, but capable of a limited lateral movement, a peripherally-grooved ring within the brake-ring, pins projecting from the brake-ring into the grooves of the grooved ring, and clutch devices for imparting a rotary movement to the grooved ring when the hub and sleeve are turned in a backward direction.

5. The combination with a hub provided at one end with coasting mechanism, and at its opposite end with a friction-ring, of a two-part sleeve arranged within the hub, one of said parts being connected to the outer member of the coasting mechanism, a brake-ring coöperating with the other part of the sleeve, and means operated by back-pedaling for moving said brake-ring laterally.

6. The combination with the hub, and coasting device secured thereto, of a sectional sleeve located within the hub, brake mechanism arranged on one end of said sleeve, and a coupling-ring secured upon the opposite end of the sleeve, and secured to the outer member of the coasting device to revolve therewith, said brake mechanism coöperating with the coasting devices, and adapted to be operated by back-pedaling.

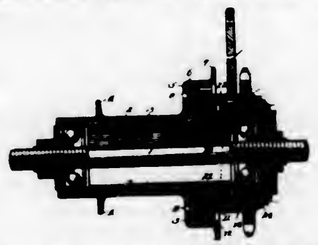
7. The combination with a hub provided at one end with a coasting device, and at its opposite end with a friction-ring, of a sleeve arranged within the hub and coupled at one end to the outer member of the coasting device, a brake-ring supported upon the opposite end of the sleeve, and having a non-rotatable but laterally-movable friction-ring coacting with the friction-ring on the hub, and means for applying and releasing the brake, comprising a ring fixed to the sleeve to revolve therewith, a peripherally-grooved ring fitting over the fixed ring, clutches between said rings and pins projecting from the inner surface of the brake ring into the grooves of the grooved ring.

8. The combination with the machine-frame, of a bracket secured thereto and provided with a socket or opening, a brake-ring provided with a lug or arm fitting loosely within said socket or opening, a hub provided at one end with coasting mechanism and at its opposite end with a friction-ring coöperating with the brake-ring, a sleeve within said hub, clutch mechanism for operating the brake, and means for moving the brake-ring laterally.

9. The combination with a hub provided at one end with a beveled friction-ring, and at its opposite end with coasting mechanism, of a sectional sleeve within the hub provided with a threaded extension, concentric clutch-rings carried by said threaded extension, a non-rotatable but laterally-movable brake-ring and means for causing the brake-ring to move laterally and engage the beveled friction-ring on the hub, and ball-bearings between the sectional sleeve and axle and between the sectional sleeve and hub.

10. The combination with the axle, of a hub provided at one end with an annular internal shoulder and coasting mechanism, and at its opposite end with a beveled shoulder and a friction-ring, a sectional sleeve within the hub provided at one end with a shoulder and flange, and at its opposite end with a shoulder and flange and a threaded extension, a non-rotatable but laterally-adjustable brake-ring coöperating with the friction-ring of the hub, ball-bearings between the sleeve and hub, adjustable cone-bearings on the axle, ball-bearings between said cone-bearings and the flanges of the sleeve, clutch mechanism for forward driving, and independent clutch mechanism for operating the brake-ring.

646,804. BACK-PEDALING BRAKE. ALEXANDER P. MORROW, Elmira, N. Y. Filed Sept. 19, 1899. Serial No. 730,986. (No model.)



Claim.—1. The combination with the rear hub of a bicycle provided with an annular projection, of a combined coasting and braking mechanism, comprising a brake-ring coöperating with said annular projection on the hub; a brake-flange on the hub; a non-rotatable but laterally-movable brake-shoe encircling the hub; a sprocket-wheel loosely mounted on the hub; segmental boxes or guides and rollers located on opposite sides of the brake-ring; cam-surfaces on either side of the brake-ring for engaging said roller, means for causing the brake-ring and sprocket to move in unison, and means for taking the right-hand thrust.

2. The combination with the rear hub of a bicycle, formed with a brake-flange and an annular rib or boss, of a combined coasting and braking mechanism comprising an internally-beveled brake-ring formed with teeth on either side thereof; a non-rotatable but laterally-movable brake-shoe; a sprocket-wheel loosely mounted on the hub, a retaining-ring, and clutch mechanism between the brake-ring and brake-shoe, and between the brake-ring and retaining-ring consisting of segmental boxes or guides and rollers interposed between the ends of the boxes or guides.

3. The combination with the rear hub of a bicycle, provided with a brake-flange, and an annular rib or projection, of a combined coasting and braking mechanism, comprising an internally-beveled brake-ring formed on both its inner and outer faces with inclined teeth or cam-surfaces, the cams on the inner and outer surfaces being of unequal length; a non-rotatable brake-shoe encircling the hub and adapted to move laterally; a sprocket-wheel; means for connecting said sprocket and brake-ring; clutch mechanism on opposite sides of the brake-ring consisting of segmental boxes or guides and rollers interposed between the ends of the boxes, and means for retaining the parts in their relative operative position.

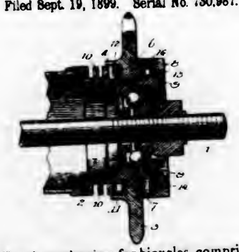
4. The combination with the rear hub of a bicycle provided with an annular brake-flange, and an annular friction rib or boss, of a combined coasting and braking mechanism comprising a brake-ring beveled to coöperate with said boss, and formed on its inner side with a plurality of cams, and on its outer side with a series of teeth; a non-rotatable brake-shoe having a vertical annular flange loosely mounted on the hub, adapted to move laterally; a sprocket-wheel and a retaining-ring therefor; means for connecting the sprocket and brake-ring so as to cause them to move in unison; clutch mechanism between the brake-ring and brake-shoe flange and between the brake-ring and retaining-ring, consisting of segmental guides into which the cams and teeth of the brake-ring extend, and rollers between the guides.

5. A bicycle-hub comprising a horizontal hollow body portion, an annular flange projecting vertically and laterally from one end of the body portion, and a sleeve securely fastened to said body portion, one end of said sleeve extending beyond the said annular flange, and provided with an annular bead or projection, in combination with braking mechanism adapted to frictionally engage said flange, driving mechanism coöperating with said annular bead or projection, and means for retaining the parts in proper relative position on the hub.

6. A bicycle-hub comprising a horizontal hollow body portion, an annular flange projecting vertically and laterally from one end of the body portion, and a sleeve securely fastened to said body portion, said sleeve extending beyond the said annular flange.

7. A bicycle-hub comprising a horizontal hollow body portion, an annular flange projecting vertically and laterally from one end of the body portion, a sleeve securely fastened to said body portion, one end of the sleeve extending beyond the said annular flange, said sleeve being provided with a projecting surface.

646,805. CLUTCH MECHANISM. ALEXANDER P. MORROW, Elmira, N. Y. Filed Sept. 19, 1899. Serial No. 730,987. (No model.)



Claim.—1. Clutch mechanism for bicycles, comprising an annular friction-surface on the hub, and loosely-mounted sprocket-wheel; segmental guideways; rollers separating said guideways; inclined teeth coöperating with said rollers; laterally-movable means for frictionally engaging said annular friction-surface and locking the sprocket to the hub, and means for resisting the lateral thrust of the sprocket.

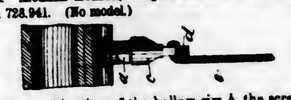
2. Clutch mechanism for bicycles comprising an annular friction-surface on the hub; a sprocket-wheel provided on one side with means for engaging said friction-surface, and on its opposite side with inclined teeth; a plurality of segmental boxes or guideways into which said teeth are adapted to project, a plurality of rollers interposed between the ends of said boxes or guides, and a retaining-ring.

3. Clutch mechanism for bicycles, comprising an annular friction-surface on the hub; a sprocket-wheel formed on its outer side with inclined teeth; means interposed between the friction-surface and sprocket for locking the latter to the hub; a retaining-ring; a plurality of segmental boxes or guides open at one side, between the sprocket and retaining-ring, and a plurality of rollers separating said boxes or guides.

4. Clutch mechanism for bicycles comprising an annular friction-surface on the hub; a sprocket-wheel formed on its outer side with inclined teeth and an annular groove; means between the friction-surface and sprocket for locking the latter to the hub; a retaining-ring provided with an annular flange projecting into said groove; segmental boxes or guides open at one side between the sprocket and retaining-ring; and rollers loosely supported between the ends of said boxes or guides.

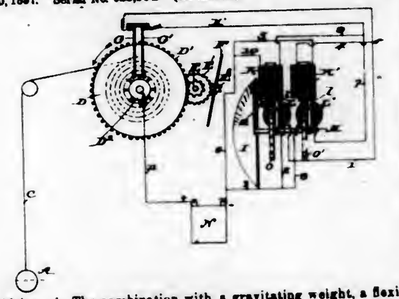
5. The combination with a bicycle-hub provided with an annular friction rib or flange; of a sprocket-wheel provided on its inner side with an annular flange, and on its outer side with inclined teeth and an annular groove; means located between the friction rib or flange and the sprocket for locking the latter to the hub; a flanged retaining-ring, and segmental boxes or guides between the sprocket and retaining-ring separated by interposed rollers.

646,306. DEVICE FOR FASTENING SPOKES TO RIMS OF WHEELS. RICHARD MÜLLER, Lemgo, Germany. Filed Aug. 30, 1899. Serial No. 728,941. (No model.)



Claim.—The combination of the hollow rim *b*, the screw-stem *a* having a head retained within the coating of the hollow rim and bearing against the outer wall thereof, a cylindrical neck fitting and rotating in an aperture in said outer wall of the hollow rim, an external square for the reception of a turning-key, and a screw-threaded extremity; the stirrup-piece *c* having an internal screw-thread to receive the threaded extremity of the stem and a slot *d*; and the spoke *e* having a bent and headed end retained in the slot *d* as shown and described.

646,307. VESSEL-INDICATOR. ARTHUR L. MCCORMICK, Port Huron, Mich., assignor to Byron J. McCormick, Flint, Mich. Filed Feb. 15, 1897. Serial No. 623,564. (No model.)



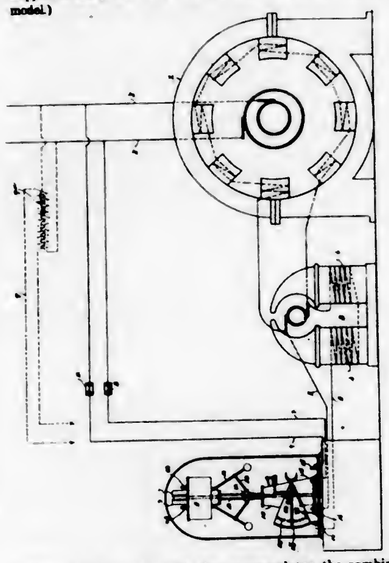
Claim.—1. The combination with a gravitating weight, a flexible connection, and a drum spring-actuated in one direction and having wound thereupon the flexible connection; of a commutator-wheel having radial teeth, said wheel being attached to and moving with the drum, two contact-springs G G' projecting down to range of contact with said teeth and bearng each an insulated face, the insulated face on one spring being on the opposite side to that of the other, so that the radial teeth will make electrical contact with one spring when turned in one direction, and with the other spring when turned in the other direction, an electrical indicator, and two separate circuits one of them connecting with the indicator through the commutator-wheel and one of the springs, and the other connecting with the indicator through the commutating-wheel and the other spring substantially as described.

2. The combination of a gravitating weight, a flexible connection, a drum spring-actuated in one direction and having wound thereupon the flexible connection, a commutating-wheel connected to and moving with the drum, two contact-springs bearing insulation on opposite sides to make alternate contact with the commutator-wheel according to the direction of the movement, a retarding fly-fan geared to the drum to reduce fluctuations, and a double-acting electrical indicator with circuits as described.

3. A double-acting electric indicator comprising a shaft with two rigid ratchet-wheels having teeth pointing in the opposite direction, and a pointer-arm, a pair of electromagnets for each wheel, and a compound pawl for each ratchet-wheel consisting of a radially-swinging member with an armature arranged to be acted upon by one of the magnets, and a second member jointed to the radially-swinging member and bearing a tooth engaging the ratchet-wheel, and an armature arranged to be acted upon by the other magnet to release the pawl substantially as described.

4. A double-acting electric indicator, comprising a shaft with two rigid ratchet-wheels having teeth pointing in opposite directions, and a pointer-arm, a pair of electromagnets for each wheel, a compound pawl for each ratchet-wheel consisting of a radially-swinging member with an armature arranged to be acted upon by one of the magnets and a second member jointed to the radially-swinging member and bearing a tooth engaging the ratchet-wheel, and an armature arranged to be acted upon by the other magnet to release the pawl, and electrical circuits as described acting simultaneously upon the actuating-magnet of one pair and the releasing-magnet of the other pair substantially as and for the purpose described.

646,308. AUTOMATIC REGULATOR FOR ALTERNATING DYNAMOS. GEORGE S. HEELEY, Pacific, Mo., assignor of one-half to Albert Koppitz, same place. Filed June 7, 1898. Serial No. 682,849. (No model.)



Claim.—1. In an automatic dynamo-regulator, the combination with a main working circuit, an auxiliary exciting-generator in circuit with the fields of the dynamo, and an induction-motor in a shunt from the main circuit, of a rheostat having its resistance and shiftable element in circuit with the fields of the auxiliary exciting-generator, and a governor mechanism connected with the induction-motor and the shiftable element of the rheostat, said governor mechanism and the rheostat arranged to break the regulator-circuit to the auxiliary exciting-generator under abeormal load of the main circuit, substantially as described.

2. In an automatic dynamo-regulator, the combination with a main working circuit supplied from the dynamo, an auxiliary exciting-generator in circuit with the fields of said dynamo, and an induction-motor in a shunt from the main circuit, of a regulator-circuit connected in series with the fields of the auxiliary exciting-generator, a rheostat having its resistance and the shiftable element in said regulator-circuit, and a governor mechanism having its revolubie element carried by the motor-armature and its slidable element connected mechanically with the shiftable element of the rheostat, said governor mechanism and the rheostat arranged to break the regulator-circuit to the auxiliary exciting-generator under abeormal load of the main circuit, substantially as described.

3. An automatic dynamo-regulator embracing an induction-motor in a shunt from a working circuit, a rheostat having its segment and arranged with its resistance and shiftable element in a

circuit including an auxiliary exciting-generator, a centrifugal governor mechanism controllable by the induction-motor, and a sectional link having its members controlled by a spring and connected respectively with a slidable element of the governor mechanism and the shiftable element of the rheostat, substantially as described.

4. In an automatic dynamo-regulator, the combination with an induction-motor, a centrifugal governor mechanism and an auxiliary exciting-generator, of a rheostat having its resistances and shiftable arm in circuit with the field-coils of the exciting-generator and also provided with an insulated section in the path of the shiftable arm, and with a removable device for arresting the movement of said shiftable arm before it reaches the insulated section in said rheostat and suitable mechanical connections between the governor mechanism and the shiftable arm of the rheostat, substantially as described.

5. An automatic dynamo-regulator embracing an induction-motor in a shunt from a working circuit, a centrifugal governor mechanism, a rheostat provided with an insulated segment and having its resistance and shiftable element in a circuit with the field of an auxiliary exciting-generator, a rock-shaft having yieldable link connections with a slidable element of said governor mechanism, and a sectional spring-actuated link between the shiftable element of the rheostat and the rock-shaft and operable by the expansive action of its spring to normally force the rheostat element toward the insulated segment, substantially as described.

6. In an automatic dynamo-regulator, an induction-motor comprising a relatively-stationary carrier which sustains the field-coils, and a revoluble armature, said carrier being adjustable with the field-coils relatively to said armature, in combination with an auxiliary exciting-generator, and a governor mechanism controlled by the armature of the induction-motor, substantially as described.

7. In an automatic dynamo-regulator, a brushless induction-motor comprising a rotatable armature and a carrier which sustains the field-coils concentric with said rotatable armature and is adjustable relatively thereto for varying the area of the field-coils exposed to the revolving secondary element on said armature, in combination with a shunt-circuit connected with said field-coils of the induction-motor and with a primary circuit supplied with energy from a dynamo, a governor mechanism, an auxiliary exciting-generator, and a rheostat controlled mechanically by said governor mechanism and included in circuit with the auxiliary exciting-generator, substantially as described.

8. In an automatic dynamo-regulator, the combination of a tubular column supporting a tubular motor-spindle, an induction-motor having its rotary armature sleeved upon said spindle and its stationary field-carrier supported on the spindle in operative relation to said armature, a shunt-circuit having certain lengths of its conductors carried through the hollow column and spindle and attached to the field-carrier for connection with the coils of said induction-motor, a governor mechanism, a rheostat mechanically connected with said governor mechanism, and an auxiliary exciting-generator having its field in circuit with the resistances of the rheostat, substantially as described.

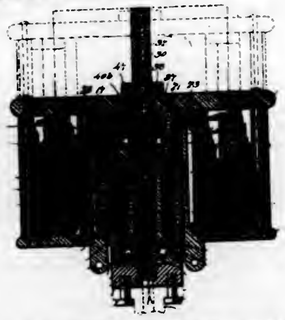
9. In an automatic dynamo-regulator, the combination with a column, an induction-motor supported thereby and a governor mechanism having its weighted arms carried by the rotary element of the induction-motor and a slidable collar guided by the column, of the rock-shaft having a link connection with the slidable governor-collar, an arm attached to said rock-shaft and a spring-controlled tension-rod operatively connected with the governor-collar, another spring-controlled tension-rod connected with the arm of the rock-shaft, and a rheostat having its shiftable arm or lever mechanically connected with the rock-shaft, substantially as described.

10. An automatic dynamo-regulator embracing an induction-motor in a shunt from a working circuit, a rheostat included in a circuit with the field of an auxiliary exciting-generator, a centrifugal governor mechanism controllable by the induction-motor, a rock-shaft having arms, spring-rod connections between one arm of the rock-shaft and a slidable element of the governor mechanism, and a sectional spring-controlled link connecting the shiftable element of the rheostat with said rock-shaft, substantially as described.

11. An automatic dynamo-regulator embracing an auxiliary exciting-generator, a rheostat in circuit with the field of said generator, an induction-motor comprising an armature revolable on a fixed axis and a shiftable field normally in a stationary operative relation to the armature, and said motor included in a shunt from a working circuit, and a governor mechanism controllable by the motor and connected with the shiftable element of the rheostat, said motor having its field shiftable relatively to the armature without derangement of the elements of the regulator system, substantially as described.

12. In an automatic dynamo-regulator, a rheostat comprising a base carrying a series of resistance-blocks and an insulated or dead segment at one end of said resistance-blocks, a shiftable arm mounted pivotally on said base and provided with manually-operative means by which it may be clamped firmly in its adjusted position, and a contact-shoe supported by the shiftable arm to traverse the resistance-blocks and electrically connect with the fulcrum of said shiftable arm, in combination with an auxiliary generator having its fields connected in circuit with the resistance-blocks and fulcrum of the shiftable arm, an induction-motor and a governor operatively connected with the induction-motor and the shiftable arm of the rheostat, substantially as described.

646,309. INDUCTION-MOTOR. GEORGE S. HEELEY, Ferguson, Mo., assignor of one-half to Albert Koppitz, Pacific, Mo. Original application filed June 7, 1898, Serial No. 682,849. Divided and this application filed Nov. 18, 1899. Serial No. 737,521. (No model.)



Claim.—1. In an induction-motor, the combination of a spindle, an armature-spider revolubie freely on the spindle, and a carrier mounted on said spindle concentric with the armature and supporting field-coils and their cores, said carrier being adjustably connected to the spindle for movement with the field-coils, substantially as described, for the purpose set forth.

2. In an induction-motor, the combination with a spindle, of an armature-spider fitted revolubly to the spindle and provided on its external surface with a series of short-circuited copper bars, a carrier fixed to said spindle for adjustment thereon and arranged concentric with the armature-spider and its short-circuited secondary element, and the field-coils supported within the said carrier and surrounding the short-circuited copper bars of the armature, said coils adjustable with the carrier relatively to the armature, substantially as described.

3. In an electric motor, an armature, a stationary spindle on which the same is idly mounted, a field-carrier adjustable on said spindle, and a centrifugal governor, revoluble with and connected to the armature, all combined and adapted to operate for the purpose set forth, substantially as described.

4. An induction-motor comprising an armature-spider having a sleeve-like hub and an outer shell, said sleeve-hub provided at one end with an external conical bearing-face and enlarged at its other end to form an internal conical bearing-surface, a spindle on which the sleeve-like hub of the spider is revolubly fitted, the bearing-cone and the cup in operative relation to the conical bearing-faces of said sleeve-hub, a field-carrier supported on the spindle, and field-coils supported by the carrier and enveloping the armature, substantially as described.

5. An induction-motor comprising a supporting means having a lubricant-reservoir, a fixed spindle carrying a bearing-cup and a bearing-cone, an armature-spider having an external shell and a sleeve-like hub, the latter fitting loosely on the spindle and entering the reservoir, said hub being also provided at its lower end with a conical bearing-face and with an enlarged upper end forming an internal conical bearing-face, bearing-balls confined between the armature-spider, the cup and the cone, a field-carrier supported by the spindle, and field-coils on said carrier and enveloping the armature-spider, substantially as described.

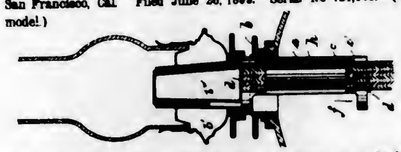
6. In an induction-motor, the combination of a central spindle, a lubricant-reservoir, an armature-spider having its sleeve-hub loosely fitted on the spindle within said reservoir and provided with a shell which is arranged externally to the reservoir and carries a series of short-circuited copper bars, ball-bearings fitted to the spindle for engagement with the sleeve-hub of the spider and situated within the reservoir to be constantly supplied with lubricant therefrom, an annular carrier supported on the spindle, and field-coils mounted on said annular carrier and enveloping the bars of said armature, substantially as described.

7. In an induction-motor, an armature-spider provided with a sleeve-hub having conical bearing-faces on its inner and outer surfaces and facing in a common direction, a cup contiguous to the ex-

ternal face, a cone opposite the internal face, and bearing-balls between the opposing faces of the parts, in combination with a spindle, a field-carrier, and coils mounted on the field-coils and enveloping the armature-spider, substantially as described.

8. In an induction-motor, an armature-spider having a sleeve-like hub enlarged at one end forming an internal conical bearing-face, a spindle fitted loosely in said hub, a bearing-cone adjustable on the spindle with relation to said internal face of the hub, and ball-bearings for said hub, in combination with a field-carrier mounted adjustably on the spindle, and field-coils supported by the carrier and enveloping the armature-spider, substantially as described.

646,310. DEVICE FOR CONVENIENT FILLING OF LAMPS. LEOPOLD PAGEL, Kattowitz, Germany, assignor to Nathan Goldtree, San Francisco, Cal. Filed June 26, 1899. Serial No. 721,979. (No model.)

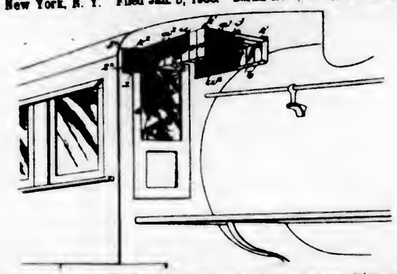


Claim.—1. A lamp-filler, consisting of a segment of a cylinder having circular ends, and provided with a seat for the burner, and a wick-guide arranged concentrically with the segmental portion, substantially as described.

2. The combination with a lamp, of a ring threaded into its neck, a segment of a cylinder having circular ends movable vertically in said ring, a wick-guide in said segment, and means for locking the segment in either its raised or its lowered position, substantially as described.

3. The combination with a lamp having a ring screwed into its neck, of a filling device movable vertically in said ring and consisting of a segment of a cylinder having circular ends, a burner mounted on the upper end of said filling device, and a wick-guide between the circular ends of the filling device and concentric with the latter the edges of said wick-guide being turned outward to meet the edges of the segmental portion of the wick-guide, said portion having vertical channels communicating with horizontal slots and engaging projections on the ring within which the filling device moves, substantially as described.

646,311. FOLDING SHIELD OR GUARD FOR LOCOMOTIVE-WINDOWS. HENRY M. PEMBERTON, Fayetteville, N. C., assignor of one-half to James R. Williams, same place, and Albert S. Williams, New York, N. Y. Filed Jan. 6, 1900. Serial No. 480. (No model.)



Claim.—1. A shield for the purposes described, comprising a series of telescopic sections, one of which is rigidly secured over the upper portion of the window or other opening, the remainder being of successively-increasing sizes, whereby they can be closed upon each other to rest upon the fixedly-secured section, each of the several sections consisting of parallel pendent sides, and a top or cross member, each of the pendent sides having a guide portion, said guide portions being arranged whereby they are slidably connected with each other and means operative from the inside of the window over which the shield is applied for closing or extending the said shield, as specified.

2. A shield for the purposes described, comprising a series of telescopic sections, one of which is adapted to be fixedly connected over the upper portion of the window or other opening to which it is to be applied, the remainder being of successively-increasing sizes, whereby they can be closed upon each other to rest upon the fixedly-secured section, the several sections having interlocking guide members at the lower end, and stops for limiting the outward movement of the sections; and means for opening and closing the said sections, substantially as shown and described.

3. A shield for the purposes described, comprising a series of telescopic sections of successively-increasing sizes, one of which, the smallest, is adapted to be fixedly secured over the window or other opening to which the shield is to be applied; the remaining sections being arranged to close upon each other and upon the fixedly-held section, each of the said sections consisting of pendent side members and a top or cross member, the lower ends of the side members terminating in turned beads *b*, the beads of the several members progressively increasing in diameter whereby they are adapted to be slidably connected with each other, and a pull-rod fixedly connected to the outermost section and projected through the upper rail of the window-casing, substantially as shown and for the purposes described.

4. A shield for the purposes described, comprising in combination with the window-casing, said casing having a guide-sleeve upon its inner side, and a registering aperture; a series of telescopic sections of successively-increasing sizes, the innermost one of which being the smallest, said innermost one being fixedly connected to the outside of the window-casing over the upper part of the window, said innermost section having suitable flanges for securing it to the window, the upper or cross flange having a sleeve held to register with the sleeve on the inside of the window-frame, the several sections, other than the fixedly-held one being movable upon each other and adapted to close upon the fixedly-held section; a horizontally-disposed rod slidable in the sleeves before mentioned, the outer end of said rod being fixedly connected to the top of the outermost one of the sections; and a fastening means for holding the rod to its adjusted positions, all being arranged substantially as shown and described.

5. As an improvement in shields for car-windows and the like; the combination with the window-frame; of a shield consisting of a series of telescopic sections of progressively-increasing sizes, the inner or smallest one of which is adapted to be fixedly connected to the outside of the window-casing over the opening, said inner section having suitable side and top securing-flanges; the remaining sections being slidable upon each other and adapted to all close over and be supported upon the fixedly-held section; a horizontally-disposed rod slidable through the window-casing at a point above the fixedly-held section, the outer end of said rod being fixedly secured to the top of the outermost one of the said sections, each of the sections having pendent sides, the lower ends of which terminate in beads, the said beads being of progressively-increasing sizes whereby the beads of the different sections will slide upon each other, said pendent members having stops and projecting lugs for limiting the outward movement thereof; and a toggle supporting-frame, the outer ends of which are connected to the top of the outermost one of the telescopic sections, and the inner ends of which are pivotally connected to the upper flange of the inner or fixedly-held section, all being arranged substantially as shown and for the purposes described.

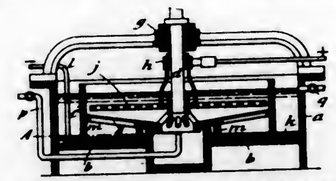
646,312. JOINTER FOR PLOWS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed Nov. 13, 1899. Serial No. 736,854. (No model.)



Claim.—In a plow-jointer, a beam-support comprising two yokes bolted together, the under yoke having ledges, extensions fitting the sides of the beam and at right angles thereto, the jointer proper being supported by said ledges removably, substantially as described.

646,318. APPARATUS FOR DECOMPOSING ALKALI SULFATES. JOHN G. A. RHODIN, Sale, England. Filed Mar. 14, 1899. Serial No. 709,573. (No model.)

Claim.—1. In apparatus for decomposing alkali sulfates for production of caustic alkali and copper sulfate, the combination of a vessel, a vessel concentric within the same and provided with a porous diaphragm, means for revolving the inner vessel, a terminal extending within the outer vessel, and a termical connected with copper anodes in the inner vessel above the porous diaphragm, as set forth.

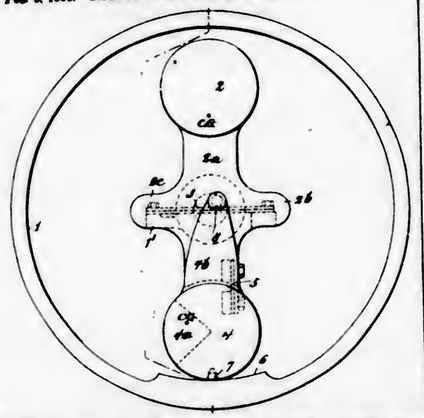


2. In an apparatus of the character described, an inner and an outer vessel, a porous diaphragm within the inner vessel, means for revolving the inner vessel, copper anodes suspended within the inner vessel and a terminal extending down to a mercury cathode in the outer vessel, as and for the purpose specified.

3. The combination with the outer vessel containing a mercury cathode and having ribs upon the upper surface of its bottom, of the inner vessel having depending ribs about its center and sloping perforated diaphragms above the same, means for revolving the inner vessel, and copper anodes suspended within the inner vessel and connected with the terminal of a source of electricity, as set forth.

4. An outer vessel with ribs, an inner vessel with depending ribs and inclined perforated diaphragm, means for revolving the inner vessel, suspended copper anodes within the inner vessel, connected with one terminal of a source of electricity and the other terminal extending down to a mercury cathode in the outer vessel, as and for the purpose specified.

646,314. GOVERNOR. FRANCIS M. RITES, Ithaca, N. Y. Filed Feb. 6, 1899. Serial No. 704,670. (No model.)



Claim.—1. In a governor, the combination, with a revoluble carrier, of spring-connected weights mounted upon said carrier and movable with respect thereto and to each other, and having in common means for supporting them from the carrier and for opposing movement of said weights due to revolution of the carrier, and an actuating device adjusted by the movement of said weights, substantially as described.

2. In a governor, the combination, with a revoluble carrier, of spring-connected and spring-supported weights mounted upon said carrier in substantial gravity-balance with one another, and movable with respect thereto and to each other, and an actuating device adjusted by the movement of said weights, substantially as described.

3. In a governor, the combination, with a revoluble carrier, of two spring-connected weights, one supported from the other and movable with respect thereto, means for supporting said weights and for opposing movement thereof, due to revolution of the carrier, and an actuating device adjusted by the movement of said weights, substantially as described.

4. In a governor, the combination, with a revoluble carrier, of swinging and rolling weights, the latter adapted to roll upon a suitable guide, means for securing them to the carrier and for opposing movement thereof due to revolution of the carrier, and an actuating device adjusted by the movement of the weights, substantially as described.

5. In a governor, the combination, with a revoluble carrier, of two weights, one arranged to swing about a suitable support and the other to roll upon a suitable guide, means for securing said weights to the carrier and for opposing movement thereof due to revolution of the carrier, and an actuating device adjusted by the movement of the weights, substantially as described.

6. In a governor, the combination, with a revoluble carrier, of two weights, one arranged to swing about a suitable support and the other to roll upon the rim of the carrier, means for securing said weights to the carrier and for opposing movement thereof due to revolution of the carrier, and an actuating device adjusted by the movement of the weights, substantially as described.

7. In a governor, the combination, with a revoluble carrier, of a weight structure containing spring-connected weights, having a common support, which move with respect to each other and the carrier when the speed of the carrier changes, inducing spring action tending to return the weight structure and the parts thereof to their normal positions, and an actuating device adjusted by the movement of said weights, substantially as described

8. In a governor, the combination, with a revoluble carrier, of a weight structure containing connected weights which are not pivotally connected to the carrier, but have a common spring-support, said weights being arranged to move with respect to each other and the carrier when the speed of the carrier changes, inducing spring action tending to return the weight structure and the parts thereof to their normal positions, and an actuating device adjusted by the movement of said weights, substantially as described.

9. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to revolution of the carrier, a secondary weight connected by a spring to the primary weight and movable with respect thereto and the carrier, and an actuating device adjusted by the movement of said weights, substantially as described.

10. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to the revolution of the carrier, a rolling secondary weight connected to the primary weight, and adapted to roll upon a suitable guide, and an actuating device adjusted by the movement of said weights, substantially as described.

11. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to the revolution of the carrier, a rolling secondary weight having a rolling contact with the carrier and connected by a spring to the primary weight, and an actuating device adjusted by the movement of said weights, substantially as described.

12. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to the revolution of the carrier, and a secondary weight having a rolling contact with the carrier and connected by a spring to the primary weight, and having an inwardly-extending arm carrying an actuating device which is adjusted by the movement of said weights, substantially as described.

13. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to revolution of the carrier, and a secondary weight supported from the primary weight and movable with respect thereto and to the carrier, but having also a connection with the carrier, and having an inwardly-extending arm carrying an actuating device which is adjusted by the movement of said weights, the point of connection of said weights to each other being between the said actuating device and the point of connection of the secondary weight to the carrier, substantially as described.

14. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to revolution of the carrier, a secondary weight in gravity-balance with the primary weight, and supported therefrom but movable with respect thereto, said secondary weight being loaded upon one side to make it effective as a centrifugal weight, and an actuating device adjusted by the movement of said weights, substantially as described.

15. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to revolution of the carrier, a secondary weight in gravity-balance with the primary weight, and connected thereto by a spring, said secondary weight being loaded upon one side to make it effective as a centrifugal weight, and an actuating device adjusted by the movement of said weights, substantially as described.

16. In a governor, the combination, with a revoluble carrier, of a primary weight and means for supporting the same and resisting movement thereof due to revolution of the carrier, a secondary

weight in gravity-balance with the primary weight, and movably connected thereto, and having a rolling contact with the carrier, and an actuating device adjusted by the movement of said weights, substantially as described.

17. In a governor, the combination, with a revoluble carrier, of a swinging and a rolling weight, the latter adapted to roll upon a suitable guide, means for securing the weights to the carrier and for opposing movement thereof due to the revolution of the carrier, means for preventing the rolling weight from slipping, and an actuating device adjusted by the movement of said weights, substantially as described.

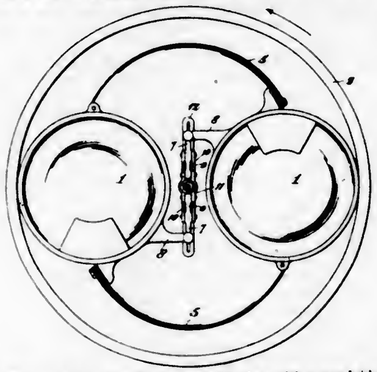
18. In a governor, the combination, with a revoluble car rier, of a primary weight which is spring-supported but not pivotally connected to the carrier, a secondary weight connected to said primary weight, and an actuating device adjusted by the movement of said weights, substantially as described.

19. In a governor, the combination, with a revoluble carrier, of a primary weight which is spring-supported but not pivotally connected to the carrier, a secondary weight in gravity-balance with the primary weight and connected thereto by a spring, and an actuating device adjusted by the movement of said weights, substantially as described.

20. In a governor, the combination, with a revoluble carrier, of a primary weight which is spring-supported but not pivotally connected to the carrier, a secondary weight in gravity-balance with the primary weight and connected thereto by a spring, and an actuating device carried by the secondary weight and adjusted by the movement thereof, substantially as described.

21. In a governor, the combination, with a revoluble carrier, of a spring-supported primary weight, a secondary weight in gravity-balance therewith, connected thereto by a spring, and having a rolling contact with the carrier, and an actuating device adjusted by the movement of said weights, substantially as described.

646,815. GOVERNOR. FRANCIS M. RITES, Ithaca, N. Y. Filed Mar. 8, 1898. Renewed Dec. 21, 1899. Serial No. 741,157. (No model.)



Claim.—1. In a governor, the combination, with a revoluble carrier having a guide for a rolling governor-weight, of a governor-weight which rolls upon said guide when the speed of the carrier changes, and is confined to motion in a definite path, a retractile device for said weight, and an actuating device adjusted by the movement of the weight, substantially as described.

2. In a governor, the combination, with a revoluble carrier having a guide for a rolling governor-weight, of a governor-weight which rolls upon said guide in a plane at right angles to the axis of revolution of the carrier, when the speed of the carrier changes, a retractile device for said weight, and an actuating device adjusted by the movement of the weight, substantially as described.

3. In a governor, the combination, with a revoluble carrier having a guide for a rolling governor-weight, of a governor-weight having a curved face in proximity to said guide, and having its mass so disposed that it rolls upon said guide under the influence of centrifugal action and inertia, when the speed of the carrier changes, said weight being restricted to motion in a definite path, a retractile device opposing the motion of the weight due to centrifugal action, and an actuating device adjusted by the movement of said weight, substantially as described.

4. In a governor, the combination, with a revoluble carrier having a guide for a rolling governor-weight, of a governor-weight having a curved face in proximity to said guide, the center of gravity of said weight not being in line with the center of rotation of the carrier and the point of contact of the weight with the guide, whereby when the speed of the carrier changes the weight rolls upon said guide under the influence of centrifugal action and inertia, said weight being restricted to motion in a definite path, a retractile device opposing the motion of the weight due to centrifugal action, and an actuating device adjusted by the movement of said weight, substantially as described.

5. In a governor, the combination, with a wheel revolubly mounted, of a governor-weight having a curved face in proximity with the inner rim of said wheel and free to roll upon said rim, the center of gravity of said weight not being in line with the center of rotation of the carrier and the point of contact of the weight with the rim, whereby when the speed of the wheel changes the weight rolls upon said rim under the influence of centrifugal action and inertia, said weight being restricted to motion in a definite path, a retractile device opposing the motion of the weight due to centrifugal action, and an actuating device adjusted by the movement of said weight, substantially as described.

6. In a governor, the combination, with a revolnble carrier having a guide for a rolling governor-weight, of a governor-weight which rolls upon said guide when the speed of the carrier changes, said weight being restricted to motion in a definite path, a retractile device for said weight, and means for transforming the motion of said weight with respect to said carrier into motion in line with the axis of the carrier, substantially as described.

7. In a governor, the combination, with a revolnble carrier having guides upon diametrically-opposite sides for rolling governor-weights, of two rolling governor-weights upon diametrically-opposite sides of said carrier, which roll upon said guides when the speed of the carrier changes, said weights being restricted to motion in definite paths, means for opposing the motion of the weights due to centrifugal action, and an actuating device adjusted by the movement of the weights, substantially as described.

8. In a governor, the combination, with a revolnble carrier having guides upon diametrically-opposite sides for rolling governor-weights, of two rolling governor-weights upon diametrically-opposite sides of said carrier, which roll upon said guides when the speed of the carrier changes, said weights being restricted to motion in definite paths, means for opposing the motion of the weights due to centrifugal action, connecting means between said governor-weights which keep the same diametrically opposite, and an actuating device adjusted by the movement of the weights, substantially as described.

9. In a governor, the combination, with a revolnble carrier having guides upon diametrically-opposite sides for rolling governor-weights, of two rolling governor-weights upon diametrically-opposite sides of said carrier, which roll upon said guides when the speed of the carrier changes, means for opposing the motion of the weights due to centrifugal action, toggles and links connecting said weights with an actuating device adapted to be moved in line with the axis of the carrier by the movement of said weights, and means for keeping the weights diametrically opposite, substantially as described.

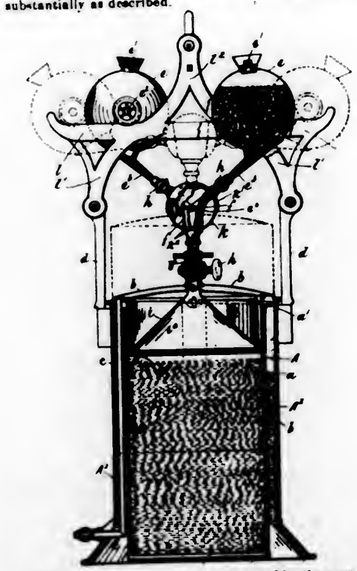
10. In a governor, the combination, with a revolnble carrier having guides for rolling governor-weights, of two rolling governor-weights which roll upon said guides when the speed of the carrier changes, a spring connecting said weights and attached thereto at points which move with respect to each other and place the spring under strain during the operation of the governor, and an actuating device adjusted by the movements of the weights, substantially as described.

646,816. ACETYLENE-GAS GENERATOR. JOHN H. ROSE, Aston, England. Filed Aug. 25, 1898. Serial No. 689,260. (No model.)

Claim.—1. In an acetylene-gas generator, the combination with a gas generating chamber, of a tilting carbid-container arranged above the gas-generating chamber, a discharge-pipe connected with the carbid-container, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-container to move the discharge-pipe toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off such feed, substantially as described.

2. In an acetylene-gas generator, the combination with a gas-generating chamber, of a tilting carbid-container arranged above the gas-generating chamber, a rigid discharge-pipe connected with the carbid-container, a flexible tube leading from said discharge-pipe and discharging into the generating-chamber, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-container to move the discharge-pipe toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off said feed, substantially as described.

3. In an acetylene-gas generator, the combination with a gas-generating chamber, of two tilting carbid-containers arranged above the gas-generating chamber, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-containers to move the discharge-pipes toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off such feed, substantially as described.



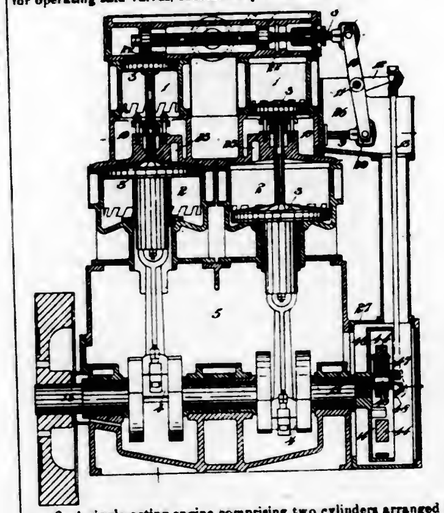
4. In an acetylene-gas generator, the combination with a gas-generating chamber and two tilting and rolling carbid-containers arranged above the gas-generating chamber and arranged to move toward and from each other on suitable guideways, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, means pivotally connecting together the ends of said discharge-pipes, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-containers to move the discharge-pipes toward and from a perpendicular position, substantially as described and for the purpose specified.

5. In an acetylene-gas generator, the combination with a gas-generating chamber, of parallel rails fixed above said chamber, two tilting and rolling carbid-containers provided with wheels arranged to travel on said rails, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, arms pivotally connected to the ends of the discharge-pipes and to each other, a slotted globular casing inclosing the said flexible tubes and the ends of the discharge-pipes, a vertically-movable gas-holder, and means connecting said holder and globular casing, substantially as described and for the purpose specified.

6. In an acetylene-gas generator, the combination with a gas-generating chamber and a bell or gas-holder, of a hollow displacer supported above the water-level in the generating-chamber and provided centrally with a conical recess or chamber open at both its upper and lower end, substantially as described and for the purpose specified.

646,817. STEAM-ENGINE. JAMES T. ROSSITER, London, England. Filed Apr. 12, 1899. Serial No. 712,895. (No model.)

Claim.—1. In a single-acting fluid-pressure engine two cylinders arranged in tandem with their pistons attached to a common piston-rod, a steam-receiver located between the adjacent ends of said cylinders, a passage whereby steam can exhaust from the outer end of the first cylinder into said receiver, a valve-chest and valve external to said first cylinder, said valve being adapted to control the passage of steam from said valve-chest to the outer end of the first cylinder and the exhaust of steam from such cylinder to said steam passage and receiver a second valve-chest connected to a second steam-passage that is in communication with the lower or inner end of the second cylinder and with an exhaust-pipe, a second valve adapted to control the communication between the outer end of the second cylinder and the receiver and the said second steam-passage, and means for operating said valves, substantially as described.



2. A single-acting engine comprising two cylinders arranged in tandem with their pistons attached to a common piston-rod, a steam-receiver between the adjacent ends of said cylinders, a valve-chest at the outer end of the first cylinder, an exhaust-passage whereby steam can pass from the outer end of the first cylinder into said receiver, a valve located in said valve-chest and adapted to place the outer end of said first cylinder alternately in communication with a steam-supply and with said steam-passage, a second valve-chest arranged to one side of the center line of said cylinders, a second exhaust-passage extending from said second valve-chest and in communication with the inner end of the second cylinder and with an exhaust-pipe, a second valve located in said second valve-chest and adapted to place the outer end of said second cylinder alternately in connection with said receiver and said second exhaust-pipe, and means for operating said valves, substantially as described.

3. In a steam-engine, two cylinders arranged in tandem with their pistons attached to a common piston-rod, a receiver located between the adjacent ends and in free communication with the inner end of said cylinders, of the high-pressure cylinder, a valve-chest arranged at right angles to the cylinders, a valve located in said valve-chest and adapted to control the supply of steam from said valve-chest to the outer end of the high-pressure cylinder and the exhaust of steam therefrom to the receiver, a second valve-chest arranged at right angles to the cylinders and in communication with said receiver and with an exhaust-passage leading to the inner end of the second or lower-pressure cylinder and to an exhaust-pipe, a second valve located in said second valve-chest and adapted to control the passage of steam from said receiver to said second cylinder and from that cylinder to said exhaust-passage, and means for operating said valves, substantially as described.

4. A single-acting engine comprising a high-pressure cylinder and a low-pressure cylinder arranged in tandem with their pistons attached to a common piston-rod, a steam-receiver between the adjacent ends of said cylinders, a valve-chest arranged adjacent to and transverse to the outer end of the high-pressure cylinder and having a steam-supply inlet, a port or passage between said valve-chest and the outer end of the high-pressure cylinder, an exhaust-passage connecting said receiver to said valve-chest, a valve adapted to place the upper end of said cylinder in communication with the steam supply and exhaust passages alternately, a second valve-chest in communication at one part with said receiver and at another part with a second exhaust-passage in connection with the inner end of the lower-pressure cylinder and with an exhaust-pipe, a port or passage between said second valve-chest and the outer end of the second cylinder, a second valve arranged to work in said second valve-chest and place the upper end of said second cylinder in communication with said receiver and said second exhaust-passage alternately, a lever connected to said valves and adapted to move them in opposite directions, and an expansion-governor connected to said lever, substantially as described.

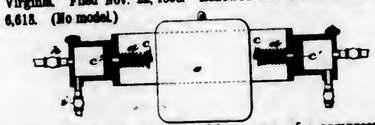
5. A single-acting steam-engine comprising parallel sets of cylinders, each set comprising high and low pressure cylinders arranged in tandem with a receiver between adjacent ends thereof and with their pistons attached to a common piston-rod, valve-chests arranged at right angles to the axes of the cylinders and each common to and adapted to be placed in communication with the outer ends of the cylinders of corresponding pressure, exhaust-steam passages connecting each steam-chest to the receiver located between the corresponding cylinder and the next adjacent cylinder, valves located in said steam-chests and each adapted to control the passage of steam from its steam-chest to one cylinder and from that cylinder to the corresponding exhaust-steam passage, the valves in each steam-chest being connected together and to a common rod, and means for operating said valves, substantially as described.

6. A single-acting steam-engine comprising high and low pressure cylinders with their pistons attached to a common piston-rod each of said cylinders being provided with a steam-inlet passage leading to its outer end, a steam-receiver located between the adjacent ends of said cylinders, a steam-chest, a steam-passage between the upper end of the high-pressure cylinder and said steam-receiver, a steam-passage between the said receiver and the lower or inner end of the lower-pressure cylinder and an exhaust-pipe, a valve adapted to control the passage of steam from said steam-chest to the outer end of the high-pressure cylinder and from that cylinder to the first-mentioned steam-passage, a second valve adapted to control the admission of steam from said receiver to the second cylinder and from that cylinder to said second steam-passage, and an expansion-governor for operating and controlling said valves, substantially as described.

7. A single-acting steam-engine comprising two or more parallel sets of high and low pressure cylinders arranged in tandem with the pistons of each set connected to a common piston-rod, a horizontally-arranged valve-chest adjacent to and common to each of the high-pressure cylinders, a steam-receiver between the lower ends of the higher-pressure cylinders and the upper ends of the lower-pressure cylinders of each set, a valve-chest between the lower ends of the higher-pressure cylinders and the upper ends of the lower-pressure cylinders and in communication with said steam-receiver and common to the cylinders of like and lower pressure, a set of connected valves arranged in each valve-chest and adapted to separately control the passage of steam to and from the corresponding cylinders, and means for operating said connected valves, substantially as described.

8. A single-acting engine comprising three sets of high and low pressure cylinders arranged side by side with the pistons of each set connected to a common piston-rod, valve-chests each common to the three cylinders of like pressure, those for the high and low pressure cylinders being each formed with an internal guideway and that for the intermediate-pressure cylinders with two internal guideways, a set of connected valves arranged in each valve chest for controlling the passage of steam to and from the corresponding cylinders, each set of high and low pressure valves having connected to and arranged between two of the valves of the set a piston or division arranged to slide in the guideway of the corresponding valve-chest and the set of intermediate-pressure valves having connected to and arranged between the three valves of the set two pistons or divisions arranged to slide in the two guideways of the corresponding valve-chest, and means for operating said valves and pistons or divisions, substantially as described for the purposes specified.

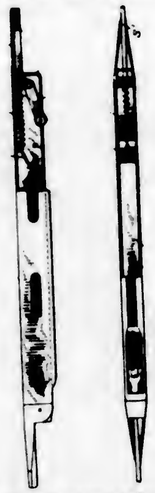
646,818. COMPRESSED-AIR MOTOR. BENJAMIN P. RYDER, New York, N. Y., assignor to the Model Marine Motor Company, of West Virginia. Filed Nov. 22, 1898. Renewed Feb. 24, 1900. Serial No. 6,618. (No model.)



Claim.—1. The combination with a vessel, of a compressed-air motor, comprising a frame, rigidly applied to the bottom of the hold of such vessel, a number of air-compressors mounted upon said frame and moving with it as it moves with the vessel, and a weight suspended within said frame and between the several piston-rods of the said compressors and adapted to actuate the said piston-rods by direct contact therewith as the frame moves about said weight, substantially as described.

2. A compressed-air motor, comprising a frame rigidly applied to an object, such as a ship, having a motion of its own and which is imparted to the frame, a number of air compressors or pumps mounted upon said frame and moving with it and having converging piston-rods, and a weight or ponderous body suspended within said frame and between the several piston-rods and actuating said piston-rods by direct contact therewith, all arranged to operate, substantially as and for the purpose described.

646,819. LOOM-SHUTTLE. DANIEL M. SEATON, New York, N. Y., assignor to the American Automatic Loom Company, same place. Filed Nov. 22, 1897. Serial No. 658,448. (No model.)



Claim.—1. A shuttle comprising a hollow shell, having fixed jaw members projecting from the ends thereof and forming substantially continuations of the back wall of the shell to leave shoulders 8' at the ends, said shell having an open face and movable jaw members pivoted intermediate of their length, said movable jaw members having outer arms extending parallel to the fixed members and having their inner arms bent forwardly in relation to the parallel arms, said inner bent arms extending to the open front of the shuttle and having rollers thereon projecting through the said open front, substantially as described.

2. A shuttle comprising a hollow shell or casing having an overhanging top wall and a bottom wall of less width, a pivoted jaw member within the shuttle and having one end extending beyond the edge of the bottom wall the said overhanging top wall forming a protection to the jaw member with its roller, substantially as described.

3. A shuttle comprising a body portion and nipping-jaws and a pin on one of the jaw members for straightening the yarn or thread the part of the jaw about said pin acting as the main gripping portion independent of the pin, substantially as described.

4. A shuttle comprising a body portion, a stationary jaw and a movable jaw, a pin on the movable jaw and a corresponding recess in the fixed jaw the part of the jaw about said pin acting as the main gripping portion independent of the pin, substantially as described.

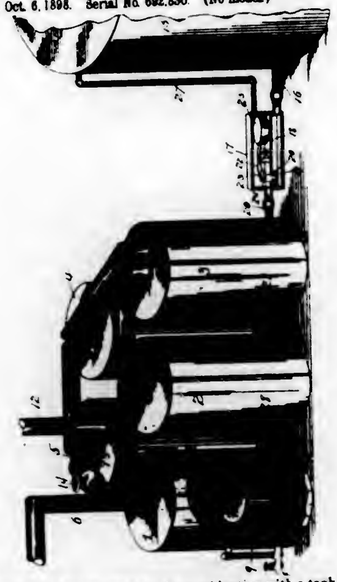
5. A shuttle comprising a metal shell, closed on three sides and partially open on the front, the edges of the front wall being out of line, a stationary jaw member at each end formed by an extension of the back plate, a movable jaw member at each end pivoted within the casing, the rear ends of the pivoted jaws protruding normally through the opening in the front wall, springs for keeping the movable jaws in contact with the stationary jaws and shoulders 8' formed by the ends of the body of the shuttle, substantially as described.

6. A shuttle comprising a hollow shell or casing having a longitudinal opening in one side, one wall of the said casing projecting outwardly beyond the other wall at said opening, a movable jaw member within the shuttle and having one end extending beyond the edge of the other wall.

7. A shuttle comprising a hollow casing having an opening on one side, one wall of said casing at said opening projecting outwardly beyond the opposite wall thereof, said projecting wall having beveled ends, and nippers at the opposite ends of the shuttle, substantially as described.

8. A shuttle comprising a hollow casing having a longitudinal opening on one side, the walls of the shuttle at said opening being bent inwardly, one of said walls projecting outwardly beyond the other, and nippers carried at the ends of said shuttle, substantially as described.

646,820. CARBURETER. JOHN R. SELSER, Morning Sun, Iowa. Filed Oct. 6, 1898. Serial No. 692,830. (No model.)



Claim.—1. In a carbureter, the combination with a tank, a single hollow body of a diameter appreciably less than that of the tank and located in the bottom thereof, the lower portion of the wall of said hollow body having perforations and the upper part of said hollow body forming a chamber without perforations, a pipe communicating with said chamber, a perforated ring encircling the hollow body above the perforated portion of the wall thereof and extending to the wall of the tank and an outlet-pipe communicating with the tank at a point above said hollow body.

2. In a carbureter, the combination of a tank, a distributer in the bottom of said tank having a perforated lower portion, a perforated ring encircling the distributer above the perforated portion thereof, an air-pipe communicating with the deflector, means for maintaining the level of oil in the tank below said perforated ring and a pipe communicating with the tank in the empty portion thereof above the distributer.

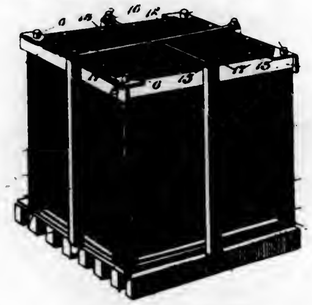
3. In a carbureter, the combination of a tank, a distributer in the bottom of said tank, said distributer having the lower portion of its vertical wall perforated and its upper portion closed and having a chamber in its upper portion, an air-pipe communicating with said chamber, a perforated ring encircling the distributer above the perforated portion thereof, means for confining the level of oil in the tank below the perforated ring, and an outlet-pipe communicating with the empty portion of the tank above the perforated ring.

4. In an apparatus for carbureting air, the combination of a series of tanks, a distributer in the bottom of each tank, each distributer having the lower portion only of its wall perforated, a perforated ring encircling each distributer above the perforated portion thereof, means for confining the level of oil in said tanks to points below said rings, an air-pipe communicating with the distributer in the first tank, pipes projecting into and connecting the empty spaces of the tanks with the distributers of the succeeding tanks from one end of the series to the other, and a valved pipe connecting the air-inlet pipe of the first tank with the last tank of the series.

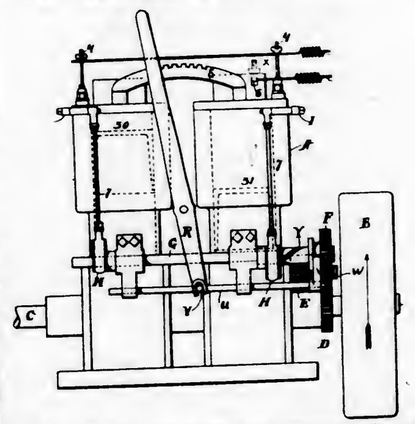
646,821. CORN-CRIB. CHARLES I. SIMPSON, Nampa, Idaho. Filed Oct. 20, 1899. Serial No. 734,763. (No model.)

Claim.—1. A corn-crib comprising a floor, bottom bars provided at their inner edges with fastening devices, inner and outer posts, the inner posts being arranged at the ends of the bottom bars, the side screens supported against inward and outward movement by the posts and having their lower edges detachably interlocked with the fastening devices at the inner edges of the bottom bars, and a top screen, substantially as described.

2. A corn-crib comprising a floor, corner-posts, angle-bars having overlapped ends detachably interlocked with the upper ends of the corner-posts, the side screens arranged on the corner-posts and having their upper ends detachably secured to the depending flanges of the angle-bars, a top screen arranged on and detachably secured to the upper faces of the horizontal flanges of the angle-bars, the outer posts extending above the screens, and the crossed rods extending over the top screen and detachably secured to the upper ends of the intermediate posts, substantially as described.



646,822. EXPLOSIVE-ENGINE. CLARK SIMTS, Grand Rapids, Mich., assignor to the Wolverine Motor Works, same place. Filed May 4, 1897. Serial No. 635,022. (No model.)



Claim.—1. In an explosive-engine, the combination with a cylinder, a piston moving therein, and an exploder, of an eccentric-shaft having a cam-groove therein and carrying an eccentric having connection with the exploder, a driven gear movable longitudinally on said eccentric-shaft and in engagement with the cam-groove therein, and lever mechanism to move said gear and thereby rock or shift the eccentric-shaft to control the operation of the exploder at any required position of the piston, substantially as described.

2. In combination with a piston, a pitman driven thereby, a pitman-crank and a shaft rotated by said crank, a gear-wheel upon said shaft, an eccentric-shaft provided with a movable gear, an intermediate gear between the gear on the driving-shaft and the gear on the eccentric-shaft, a cam-groove in the eccentric-shaft, means for shifting the gear on the eccentric-shaft for the purpose of setting the eccentric-shaft in any required position for the purpose of changing the relative times of explosions, substantially as described.

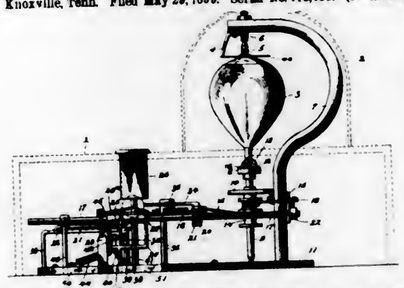
3. In combination with a piston, a pitman, a pitman-crank, a shaft revolved by the said crank, an eccentric-shaft provided with a groove therein, a gear provided with a tongue moving in the said groove, an eccentric-rod, an exploding device operated by said eccentric-rod, and means for shifting the eccentric-shaft and thereby changing the time of explosion with reference to the movement of the piston, substantially as described.

4. In an explosive-engine, the combination with a cylinder, a piston moving therein, and an exploder, of an eccentric-shaft carrying an eccentric having connection with the exploder, a gear longitudinally movable on said shaft and driven by the engine, and means actuated by said gear when the latter is moved longitudinally on said shaft for shifting the eccentric-shaft to control the operation of the

exploder at any required position of the exploder, substantially as described.

5. In an explosive-engine, the combination with a cylinder, a piston moving therein, and an exploder, of an eccentric-shaft carrying an eccentric having connection with the exploder, a gear longitudinally movable on said shaft and driven by the engine, means actuated by said gear when the latter is moved longitudinally on said shaft for shifting the eccentric-shaft to control the operation of the exploder at any required position of the latter, and means for shifting the said gear longitudinally on the shaft independently of its rotary movement communicated by the engine, substantially as described.

646,328. COIN-CONTROLLED APPARATUS. ROBT. W. SOWERS, Knoxville, Tenn. Filed May 29, 1899. Serial No. 718,735. (No model.)



Claim.—1. In a device of the class described, the combination of the upper and lower shafts having a clutch connection adapted to permit the lower shaft to rotate independently of the upper shaft in one direction, a rotary body carried by the upper shaft, a reciprocating bar connected with the lower shaft and adapted to rotate the same in one direction when it is moved forward, and capable of rotating the lower shaft in the opposite direction when it is moved backward, and coin-controlled mechanism for operating the said bar, substantially as described.

2. In a device of the class described, the combination of the upper and lower vertical shafts having a clutch connection between them, a drum mounted on the lower shaft, a reciprocating rod, a flexible connection centrally secured to the drum and having its terminals connected with the reciprocating rod, said flexible connection being arranged to be wound around the drum and unwound therefrom, whereby the drum is rotated by the reciprocation of the rod, and coin-controlled mechanism for actuating the rod, substantially as described.

3. In a device of the class described, the combination of the upper and lower vertical shafts, a horizontal ratchet-wheel fixed to the lower shaft, a pair of pawls mounted on the upper shaft and engaging the ratchet-wheel, a rotary body carried by the upper shaft, a reciprocating rod connected with the lower shaft and adapted to rotate the same, and coin-controlled mechanism for actuating the said rod, substantially as described.

4. In a device of the class described, the combination of the upper and lower vertical shafts having a flexible connection between them, a rotary body mounted on the upper shaft, a stationary indicator arranged adjacent to the rotary body, a reciprocating rod connected with and adapted to rotate the lower shaft, a spring connected with the reciprocatiug rod and adapted to move the same in one direction, and coin-controlled mechanism for moving the rod in the opposite direction, substantially as described.

5. In a device of the class described, the combination of a reciprocating rod having an arm, a sliding carrier mounted on the rod and adapted to receive a coin and hold the same in position for engaging the arm of the rod, and an operating rock-shaft having an arm arranged to actuate the carrier, substantially as described.

6. In a device of the class described, the combination of a reciprocating rod having an arm, a sliding carrier arranged to receive a coin and adapted to hold the same in position to engage the said arm, and a deflecting device bifurcated to receive the arm and arranged at an angle thereto, whereby the coin is thrown out of the carrier, substantially as described.

7. In a device of the class described, the combination of a reciprocating rod, a sliding carrier adapted to receive a coin and arranged to hold the same in position for actuating the rod, a ratchet, and a rock-shaft mounted on the carrier and having one arm arranged to engage the coin and provided with another arm engaging the ratchet, whereby the carrier is held against backward movement when a coin is in it, substantially as described.

8. In a device of the class described, the combination of a reciprocating rod, a sliding carrier arranged to receive a coin and adapted to hold the same in position for actuating a rod, a rock-shaft 29 having an arm and provided with a pawl or dog, a ratchet arranged to be engaged by the pawl or dog, and an actuating or operating rock-shaft having an arm arranged to engage the arm of the rock-shaft 29, whereby the carrier is actuated and the pawl or dog is held against the ratchet, substantially as described.

9. In a device of the class described, the combination of a reciprocating rod, a sliding carrier arranged to hold a coin in position for actuating the rod, the rock-shaft 29 provided with a pawl and having upwardly and downwardly extending arms and mounted on the carrier, the upwardly-extending arm being adapted to engage a coin, a ratchet arranged to be engaged by the pawl, and an operating rock-shaft arranged to engage the depending arm of the rock-shaft 29, substantially as and for the purpose described.

10. In a device of the class described, the combination of a reciprocating rod having an arm, a carrier provided with a lug, a rock-shaft 29 journaled on the carrier and having upwardly and downwardly extending arms and provided with a pawl, a ratchet arranged to be engaged by the pawl, a coin-chute located above the carrier, and an operating rock-shaft arranged to engage the depending arm of the rock-shaft 29, substantially as and for the purpose described.

11. In a device of the class described, the combination of a reciprocating rod, a sliding carrier adapted to receive a coin and arranged to hold the same in position for actuating the rod, a rock-shaft 29 mounted on the carrier, provided with a pawl and having an arm, a ratchet arranged to be engaged by the pawl, a spring for holding the pawl normally out of engagement with the ratchet, an operating rock-shaft arranged to engage the arm of the said rock-shaft 29, and springs connected with the rod and with the operating rock-shaft to return the same to their initial position, substantially as described.

646,324. CUFF-HOLDER. CHARLES E. SPEAKER, Louisville, Ky. Filed Dec. 4, 1899. Serial No. 739,173. (No model.)



Claim.—1. In a cuff-holder, the combination of a main body portion provided with means at one end thereof for attaching the holder to the sleeve of the wearer; a loop extending up from said body portion; and a spring-arm slidably mounted upon said main body, said arm being provided with locking devices adapted to pass through and engage with said loop, substantially as described.

2. In a cuff-holder, the combination of a main body portion provided with means at one end thereof for attaching the same to the sleeve of the wearer; a loop extending up from said main body portion; a spring-arm slidably mounted upon said main body and movable toward and from said loop; and locking devices formed upon the outer end of said spring-arm, adapted to pass through and engage with said loop, substantially as described.

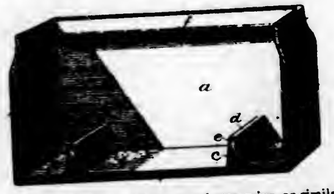
3. In a cuff-holder, the combination of a main body portion provided with means for attaching one end thereof to the sleeve of the wearer; a loop B extending up from said main body portion at or near the opposite end thereof, said loop being provided with inclined walls at its upper end; and a spring-arm slidably mounted upon said main body, and provided with a series of projections at its outer end, adapted and arranged to interlock with the loop when the same is passed therethrough, substantially as described.

4. In a cuff-holder, the combination of a suitable body portion provided with means at one end thereof for attaching it to the sleeve of the wearer; an upstanding loop or member B at the opposite end of said main body, said loop being provided with converging walls or faces C, C at its upper side; a spring-arm E slidably mounted upon said main body portion; and a series of locking projections F formed upon the outer end of said spring-arm, said projections being adapted and arranged to engage with the loop B, substantially as described.

5. In a cuff-holder, the combination of a main body portion A provided with means at one end thereof for attaching the same to the sleeve of the wearer; an upstanding loop B formed integral with said body portion; a finger D extending beyond the loop in the same plane with the body portion; and a spring-arm E slidably mounted upon said body portion, and provided with a series of locking projections F adapted to act in conjunction with said loop, substantially as described.

646,325. BATTERY JAR OR RECEPTACLE. ELMER A. SPERRY, Cleveland, Ohio. Filed Apr. 22, 1899. Serial No. 714,064. (No model.)

Claim.—1. As an article of manufacture, a battery jar or receptacle having body portions and crowning portions composed of vulcanized material of different composition, that composing the body portions being hard or practically non-elastic, and that composing the crowning portions being soft and pliable, substantially as described.



2. As an article of manufacture, a battery-jar or similar receptacle composed of vulcanized material, having hard or practically non-elastic walls and an elastic rim integrally united, substantially as described.

3. As a new article of manufacture, a battery-jar or similar receptacle composed wholly of vulcanized material, having hard or practically non-elastic walls and integral elastic or yielding interior projections or flanges, substantially as described.

4. The combination with a battery-jar or similar receptacle composed of vulcanized material, having hard or practically non-elastic walls and an elastic rim or opening forming an integral continuation of said walls, of a cover inserted within said rim or opening of a larger area than the normal area of said opening, substantially as described.

5. The combination of a battery-jar or similar receptacle composed of vulcanized material, having hard or practically non-elastic walls and an elastic rim or opening forming an integral continuation of said walls smaller in area than the sectional area of the jar, and a cover inserted within said opening larger than the normal area thereof, substantially as described.

6. A support for battery-plates consisting of a plurality of supporting projections connected together and composed of vulcanized material of different compositions, the crowning portions thereof being soft or yielding and the body portions hard or practically non-elastic, substantially as described.

7. A support for battery-plates consisting of a structure composed wholly of vulcanized material, having a plurality of supporting projections, the crowning portions of which are soft or yielding and the body portions hard or practically non-elastic, substantially as described.

646,326. PROCESS OF MAKING SOAP. JULIUS STOCKHAUSEN, Crefeld, Germany. Filed Aug. 25, 1897. Serial No. 649,430. (No specimens.)

Claim.—1. The process for the production of a soap of a gelatinous character, consisting in sulfonizing fats, oils, fatty acids or oleic acid, treating the obtained product with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance and heating the resulting product to boiling temperature, substantially as described.

2. The process for the production of a soap of a gelatinous character, consisting in sulfonizing fats, oils, fatty acids or oleic acid, treating the obtained product with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance, allowing the sulfate of soda contained in the mass to crystallize out and heating the remaining substance to boiling temperature, substantially as described.

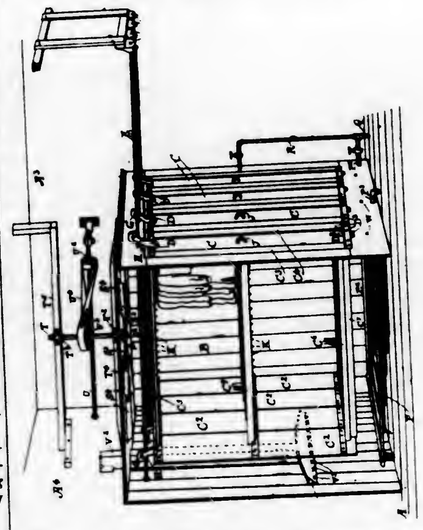
3. The process for the production of a soap of a gelatinous character, consisting in sulfonizing fats, oils, fatty acids or oleic acid, separating the sulfonated mass from the excess of sulfuric acid, treating the obtained product with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance, and heating the resulting product to boiling temperature, substantially as described.

4. The process for the production of a soap of a gelatinous character, consisting in sulfonizing fats, oils, fatty or oleic acid, separating the sulfonated mass from the excess of sulfuric acid by means of common salt, treating the obtained product with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance and heating the resulting product to boiling temperature, substantially as described.

5. The process for the production of a soap of a gelatinous character, consisting in treating sulfonized fats, oils, fatty acids or oleic acid with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance and heating the obtained product to boiling temperature, substantially as described.

6. The process for the production of a soap of a gelatinous character consisting in treating sulfonized fats, oils, fatty acids or oleic acid with a larger quantity of alkali than the one used in the preparation of Turkey-red oil, that is with a quantity of alkali amounting to at least six per cent. of the sulfonized substance, allowing the sulfate of soda to crystallize out and heating the remaining product to a boiling temperature, substantially as described.

646,827. DRYING-ROOM. JOSEPH H. THERIEN, San Francisco, Cal. Filed Jan. 3, 1899. Serial No. 701,089. (No model.)



Claim.—1. In a drying-room, the combination with a suitable casing, clothes-supporting racks therein, heating-coils extending around the bottom of the casing throughout substantially the whole extent thereof beneath the racks, a fan located at the top of the casing above the racks, and an exhaust at one side of the casing intermediate the heating-coil and the fan, substantially as described.

2. In a drying-room, the combination with a substantially-rectangular casing, clothes-supporting racks filling the central interior thereof, a horizontally-arranged fan above the racks in the top of the casing, and a heating medium directly beneath the racks in the lower part of the casing comprising a pipe constructed to form a substantially-rectangular coil corresponding to the contour of the casing in cross-section and extended to occupy substantially the whole of the space in the lower portion of the casing so that heat will rise therefrom throughout the entire interior of the casing and directly through the racks, substantially as described.

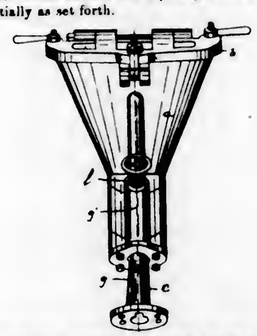
3. In a drying-room, the combination with a suitable casing, clothes-supports therein, a heating medium at the lower end thereof, means for causing a circulation of heated air through the clothes and a steam-inlet pipe R connected with the heating medium and projecting into one end of the casing at approximately the center thereof, and a controlling-valve in said pipe, substantially as and for the purpose described.

646,828. ASH-EJECTOR. CHESHAM W. THORNE, Greenport, N. Y. Filed July 27, 1899. Serial No. 726,264. (No model.)

Claim.—1. The improved ash-ejector comprising a hopper, having an extension and a duct conveying water into the upper part of said hopper, and a fluid ejecting nozzle in open communication with said extension and duct, substantially as set forth.

2. The improved ash-ejector, comprising a hopper having an extension *e*, in connection with the bottom thereof, a duct *g*, opening into the hopper and adapted to direct the fluid toward the bottom of the hopper and a fluid-ejector having a passage leading directly

into the hopper at the bottom and a passage connecting with said duct, substantially as set forth.

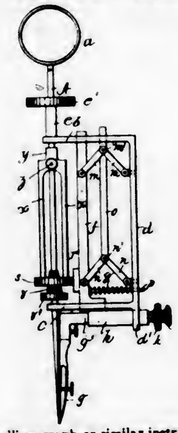


3. An ash-ejector comprising a hopper having an outlet-passage near its bottom, an ejecting-nozzle opening into the lower part of said hopper in line with the said outlet, said nozzle having a branch passage leading upward and opening into the upper part of the hopper, substantially as set forth.

4. An ash-ejector comprising a hopper having an outlet near its bottom, an ejecting-nozzle having a main passage leading into the lower part of the hopper and a branch passage leading upward and opening downwardly through the side wall of the hopper, and a valve for regulating the flow through said branch passage, substantially as set forth.

5. An ash-ejector comprising a hopper to receive the ashes, said hopper having an outlet near the bottom, a nozzle having a main duct entering the lower part of the hopper and a branch duct entering the upper part of the hopper, and a deflecting-plate arranged over the opening of said branch duct into the hopper, substantially as set forth.

646,829. ELLIPSOGRAPH. EMILE TIETJENS, Providence, R. I. Filed June 13, 1899. Serial No. 720,369. (No model.)



Claim.—1. In an ellipsograph or similar instrument, a fixed leg, a movable leg or member adapted to move about the fixed leg as an axis, a form of variable shape the guiding edge of which is bounded by an endless line, said form being adapted to guide the movable leg in its transit, and means for varying the shape of said form.

2. In an ellipsograph or similar instrument, a fixed leg, a movable leg or member adapted to move about the fixed leg as an axis, and a flexible form of variable shape the guiding edge of which is bounded by an endless line, said form being supported from a fixed leg adapted to guide the movable leg in its transit, and means for varying the shape of said form.

3. In an ellipsograph or similar instrument, a fixed leg, a movable leg or member adapted to move about the fixed leg as an axis, a flexible resilient form of variable shape, the guiding edge of which is bounded by an endless line, said form being supported from a fixed leg and adapted to guide the movable leg in its transit, and means for varying the shape of said form.

4. In an ellipsograph or similar instrument, a fixed leg, a movable leg or member adapted to move about the fixed leg as an axis, a form consisting of a resilient annulus or ring adapted to guide said movable leg in its transit, and means for elongating said annulus or ring.

5. In an ellipsograph or similar instrument a form consisting of a resilient annulus or ring, two blocks located within and bearing against opposite sides of said ring, a tapering screw engaging between the inner ends of the blocks for spreading the same and elongating the ring and a movable member or leg adapted to be guided in its transit by said form.

6. In an ellipsograph or the like the combination with a fixed leg or axis, and a movable leg, of a variable form consisting of a resilient ring, blocks located within and bearing against the ring, a sleeve on the fixed leg having an exterior tapered screw-thread engaging between the block for spreading the same to elongate the ring, and spring-arms secured to the fixed leg and supporting the blocks respectively.

7. In an ellipsograph or similar instrument, the combination with a fixed leg or axis, of a form of variable shape carried by the fixed leg, means for altering the shape of said form, a movable leg, means for rotating the same about the fixed leg and in contact with the form, and connections for maintaining the movable leg always in substantial parallelism with the fixed leg during such movement of rotation and whatever the shape of the form.

8. In an ellipsograph or similar instrument, the combination with a fixed leg or axis, of a form of variable shape carried by the fixed leg, means for altering the shape of said form, a movable leg consisting of an upright slide and a tracing-point adjustably secured thereto, means for rotating the movable leg about the fixed leg and in contact with the form, and connections for maintaining the movable leg always in substantial parallelism with the fixed leg during such movement of rotation irrespective of the shape of the form and adjustment of the tracing-point.

9. In an ellipsograph the combination with a fixed leg or axis, of a variable form carried thereby, means for changing the shape of said form, a frame pivoted on and adapted to turn about the fixed leg, said frame consisting of two arms embracing the fixed leg at their inner ends and connected by a bar at their outer ends, a movable leg consisting of an upright slide carrying a tracing-point and working in slots in the arms, two sets of toggle-links connecting the slide to the bar of the frame whereby the movable leg is always maintained in substantial parallelism with the fixed leg, and means for holding the movable leg in contact with the form by yielding pressure.

10. In an ellipsograph the combination with a fixed leg or axis, of a variable form carried thereby, means for changing the shape of said form, a frame pivoted on and adapted to turn about the fixed leg, said frame consisting of two arms embracing the fixed leg at their inner ends and connected by a bar at their outer ends, a movable leg consisting of an upright slide having a sleeve at its lower end and working in slots in the arms, a tracing-point having an arm slidingly engaging in said sleeve, a screw engaging said arm for adjusting the position of the tracing-point, connections between the slide and the bar of the frame whereby the movable leg is always maintained in substantial parallelism with relation to the fixed leg, and means for holding the movable leg in contact with the form by yielding pressure.

11. In an ellipsograph, the combination with a fixed leg, a variable form carried by said leg, said form consisting of a resilient ring, two spreader-blocks within and bearing against said ring at their outer ends, spring-arms secured to the fixed axis and supporting the blocks, a sleeve on the fixed axis having an exterior tapering screw-threaded surface engaging between the inner ends of the blocks, a frame consisting of two horizontal arms pivoted on the fixed axis at their inner ends and connected by a vertical bar at their outer ends, a movable leg sliding in ways in the horizontal arms, toggle connections between said movable leg and vertical bar, means for rotating the frame, and means—such as a spring—for yieldingly holding the fixed leg in contact with the form.

12. In an ellipsograph or similar instrument, a movable leg or member, and a form consisting of a resilient annulus or ring of varying dimensions in cross-section adapted to act as a guide for the movable leg in its transit.

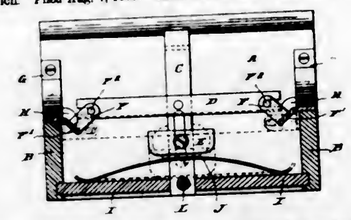
13. In an ellipsograph or similar instrument, a movable leg or member, and a form consisting of a resilient annulus or ring of varying thickness in a radial direction and adapted to act as a guide for the movable leg in its transit.

14. In an ellipsograph or similar instrument, a movable leg or member, and a form consisting of a resilient annulus or ring of greater thickness at the parts which constitute the sides of the ellipse than at the parts which constitute the ends thereof, and adapted to act as a guide for the movable leg in its transit.

15. In an ellipsograph or similar instrument, a fixed leg, a movable leg or member adapted to be moved about said fixed leg as an axis, means for steadying the instrument while in use, consisting of a third upright leg or brace connected at its upper end to the fixed leg by a flexible bar

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646,830. CARD-FILING CASE. FRED W. TOBEY, Grand Rapids, Mich. Filed Aug. 7, 1899. Serial No. 726,469. (No model.)



Claim.—1. In a card-filing device, the combination with a drawer, of card-retaining strips extending lengthwise of the drawer, a vertically-movable push-rod arranged substantially at right angles to said retaining-strips and constructed to operate the latter, and a spring arranged to urge the push-rod upward and normally hold it in its highest position with the retaining-strips in engagement with the cards in the drawer, substantially as described.

2. In a card-filing device, the combination with a drawer, of a vertically-movable push-rod arranged on the inside of the drawer front and having its upper end in juxtaposition to the top edge of said drawer front to be depressed by finger-pressure, movable card-retaining strips extending along the drawer sides, a spring arranged to urge the push-rod upward and normally hold it in its highest position, and means for moving the said retaining-strips from engagement with the cards when the push-rod is depressed, substantially as described.

3. In a card-filing device, the combination with a drawer, of pivoted card-retaining strips extending along the inside upper portions of the drawer sides to swing inward and engage and retain the cards in place, a vertically-movable push-rod arranged on the drawer front and connected with and serving to swing said retaining-strips, and a spring normally holding the push-rod in its raised position and the retaining-strips swung inward, substantially as described.

4. In a card-filing device, the combination with a drawer, of a vertically-movable push-rod arranged on the inside of the drawer front and having its upper end in juxtaposition to the top edge thereof to be depressed by finger-pressure, pivoted card-retaining strips extending along the top edge portions of the drawer sides, a spring arranged to normally hold the push-rod in its raised position, and means for swinging the retaining-strips in an outward direction to release the cards when the push-rod is depressed, substantially as described.

5. In a drawer adapted to hold cards, two retaining-strips, each strip provided with a crank connection with a cross-bar, a cross-bar rigidly connected with a push-rod, a push-rod and a spring with which said push-rod engages for depressing the same, said spring adapted to raise said push-rod when the pressure has been removed therefrom, and to return the retaining-strips to normal position, substantially as described.

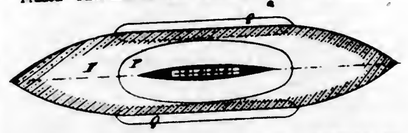
6. In combination with a drawer, of a card-retaining strip, cranks secured to said strips, a horizontal bar engaging with said cranks, a push-rod to which said cross-bar is rigidly attached, a spring placed below the push-rod and engaging with the lower end thereof, a handle provided with a shank extending through the front of the drawer and a button secured to the said shank and adapted when the handle is turned, to remove the retaining-strips from the cards, and to lock and hold the same in such position, substantially as described.

7. In a drawer for holding cards, the combination of the retaining-strips F F pivoted to the case, provided with the extensions or cranks F F, a push-rod C, a cross-bar D rigidly attached to the said push-rod, a spring J having its bearing against the bottom of the drawer, and adapted to be pressed downward by means of the push-rod C, said push-rod C at the same time swinging the retaining-strips out of operative position, substantially as described.

8. The combination with a drawer of two retaining-strips pivotally connected with the said drawer, each strip being provided with a lug F, said lug F being provided with pivots connecting the same with the cross-bar D, the cross-bar D rigidly secured to the push-rod C, the push rod C adapted to bear upon and operate a spring, a pull K provided with a shank, the button E secured to such shank, said button E adapted, when turned, to depress the spring and hold the same depressed, and at the same time to retain the retaining-strips out of operative position, substantially as described.

9. In a card-filing device, the combination with a drawer, of a push-rod on the drawer front, swinging card-retaining strips extending along the inside top edges of the drawer sides, metallic plates secured upon the top edges of the drawer sides and constituting bearings at their inner edges against which the card-retaining strips work, a spring for normally holding the push-rod elevated, and means for swinging the card-retaining strips outward when the push-rod is depressed, substantially as described.

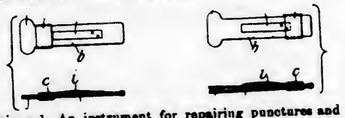
646,831. NAVIGABLE VESSEL. HENRI L. J. C. TURC, Castana, France. Filed Mar. 14, 1899. Serial No. 709,044. (No model.)



Claim.—1. A navigable vessel comprising a submerged spindle-shaped body forming the hull proper, and a float or group of floats which surmounts the hull proper and is arranged at the center of the hull and whose length is at most equal to about one-third of the length of the hull, while the width of the float or group of floats is from about one-half to about two-thirds of the width of the spindle-shaped hull, as and for the purpose described.

2. A navigable vessel comprising a submerged spindle-shaped body forming the hull proper, and a float or group of floats which surmounts the hull proper and is arranged at the center of the hull and whose length is at most equal to about one-third of the length of the hull, while the width of the float or group of floats is from about one-half to about two-thirds of the width of the spindle-shaped hull, in combination with a horizontal platform as at P over the said float or floats, substantially as described.

646,832. MEANS FOR REPAIRING PNEUMATIC TIRES. HERMAN S. VAN DER STEMPEL, Amsterdam, Netherlands. Filed Aug. 28, 1899. Serial No. 728,776. (No model.)



Claim.—1. An instrument for repairing punctures and slits in pneumatic tires, consisting of a pair of nippers or tweezers made of pliable and foldable sheet metal with extended inelastic, pliable jaws grooved on the inner sides, and a flat ring adapted to slide on the stem or body of the said nippers or tweezers, said pliable jaws susceptible of being folded or turned down, substantially as, and for the purposes, hereinbefore described.

2. An instrument for repairing punctures and slits in pneumatic tires, consisting of a pair of nippers or tweezers of flat flexible sheet metal with extended jaws grooved on the inner sides, a flat ring adapted to slide on the stem or body of the said nippers or tweezers, and a detent mounted on said nippers and adapted to engage with said ring when in its locking position, substantially as, and for the purposes, hereinbefore described.

3. An instrument for repairing punctures and slits in pneumatic tires, consisting of a pair of nippers or tweezers made of flat flexible sheet metal with extended jaws, pads of yielding material on said jaws, a flat ring sliding on the stem or body of said nippers or tweezers, and a spring-catch for engaging said ring, substantially as, and for the purposes, specified.

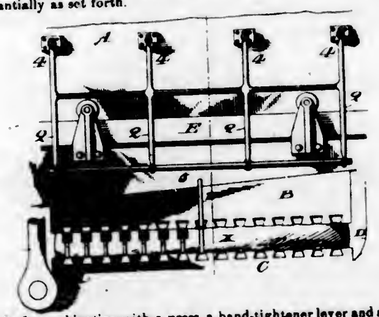
4. An instrument for repairing slits and punctures in pneumatic tires, comprising a pair of pliable and foldable inelastic jaws connected by pliable and foldable inelastic tweezer stems or bodies, and flat rings sliding on the said pliable stems or bodies, substantially as, and for the purposes, hereinbefore described.

646,833. BALE-BAND TIGHTENER. LUCIEN VOORHIES, New Orleans, La., assignor of two-thirds to C. H. Minge and George B. Penrose, same place. Filed Oct. 31, 1899. Serial No. 735,411. (No model.)

Claim.—1. The combination with a fulcrum or supporting bar, of a bale-band tightener consisting of a handle portion, a head with the edge of which the band engages, and an open fulcrum-socket, 9, between the handle and head, and a pivoted clamp having a head which overlies a portion of the edge of the head of the band-tightener, substantially as set forth.

2. The combination with a fulcrum-bar or support of a band-tightener lever consisting of a handle portion, 7, an open fulcrum-

socket, 9, and a head, 8, the latter having a face or edge substantially concentric with the fulcrum-socket, and a clamp, 11, pivoted to the head of the lever and formed with a head, 12, arranged opposite to a face or edge, *s*, of the head of the lever, and eccentric thereto, substantially as set forth.



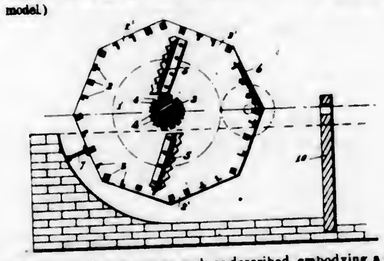
3. In combination with a press, a band-tightener lever and a support for the lever consisting of a bracket pivotally connected at its upper end to the press, and having near its lower end a fulcrum-support with which the lever engages, and bearing or supporting members adapted to rest against the press, whereby the said bracket is adapted to rest in working position with the said fulcrum bearing relatively close to the bale or article being compressed, and being also arranged to be swung upon its pivotal connections so as to carry the said bracket and its bearing upward and out of the way of the operatives, substantially as set forth.

4. In combination with a press, a support consisting of a plurality of brackets extending out from the side of the press and pivotally united therewith at their upper ends, a fulcrum-rod mounted in and connecting such brackets, and a band-tightener lever loosely supported on said fulcrum-rod, and arranged to be adjusted from one position to another as occasion may require, substantially as set forth.

5. In combination with a press, a support consisting of a plurality of brackets of substantially-triangular shape, pivoted at their upper portions to the press, and a fulcrum-rod supported in the lower portions of said brackets, and band-stretcher levers supported upon said fulcrum-rod, substantially as set forth.

6. In combination with a press having a movable wedge, E, for adjusting one of the platens, a support for a band-tightener, consisting of a frame pivoted to the press above said wedge, and provided with antifriction-bearings adapted to rest against the said wedge when the frame is in working position, substantially as set forth.

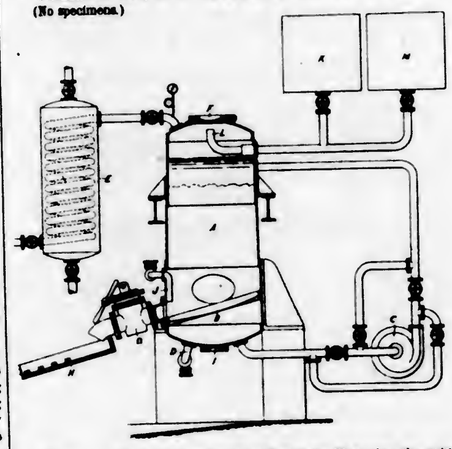
646,334. APPARATUS FOR BOSSING BARK. LEOPOLD WERTHEIM, Cassel, Germany. Filed Dec. 21, 1898. Serial No. 699,952. (No model.)



Claim.—1. An apparatus such as described, embodying a drive-shaft, a drum rigid thereon, having its periphery formed of diversely-shaped rods 2, with an opening for the introduction of the wood and a suitable closure therefor, agitators having serrated edges, arranged at either end of the drum, angular projections radiating from the shaft, and a water-supply located above the drum, substantially as described.

2. In a machine such as described, in combination, a shaft journaled in a suitable supporting-frame, a drum rigid thereon, said drum consisting of end disks and parallel and diversely-shaped rods 2 connecting the peripheries of the disks and having spaces between them for the passage of the bark, and an opening with a suitable closure therefor for the introduction of the wood, plates diversely arranged at either end of the drum and having outwardly-projecting serrated edges, U-shaped rods 4 mounted upon the shaft, a water-supply located above the drum, and means such as gate 10 for retaining the water about the drum, said drum having a revolving motion, substantially as described.

646,335. PROCESS OF TREATING GOLD ORES. CHARLES WETHERWAX, Bent, N. Y. Filed Jan. 19, 1898. Serial No. 667,166. (No specimens.)

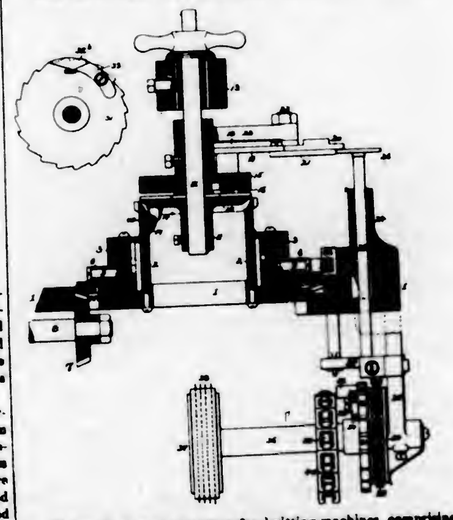


Claim.—1. In the treatment of gold ores for liberating the gold from its combination or association with other elements or compounds, the process which consists in digesting the ore under steam-pressure in a solution containing water-glass (sodium or potassium silicate) as specified.

2. The process of treating gold ores, which consists in digesting the ore under steam-pressure in a solution containing water-glass (sodium or potassium silicate) and caustic soda or caustic potash, substantially as specified.

3. The herein-described process of treating gold ores, which consists in subjecting the ore in a closed vessel, to the conjoint action of steam heat and pressure, and of a solution containing sodium or potassium silicate and caustic soda or caustic potash caused to circulate through the ore substantially as specified.

646,336. KNITTING-MACHINE. LOUIS H. D. WILLIAMS, Ashbourne, Pa., assignor of one-half to Robert W. Scott, Philadelphia, Pa. Filed Mar. 27, 1896. Serial No. 585,119. (No model.)



Claim.—1. A cam structure for knitting-machines, comprising inner and outer segments each carrying portions of the cams, an outer

rotating structure, and bolts whereby the segments are confined to said outer rotating structure.

2. The combination of the dial cam-plate, and its swinging cam, with an arm on the spindle of said swinging cam, a pair of reversely-disposed bell-crank levers, and links whereby said arm is connected to each of said levers.

646,337. NUT-LOCK. JOHN W. WILSON and JOHN F. WHITCOMB, Chicago, Ill. Filed May 24, 1899. Serial No. 718,102. (No model.)

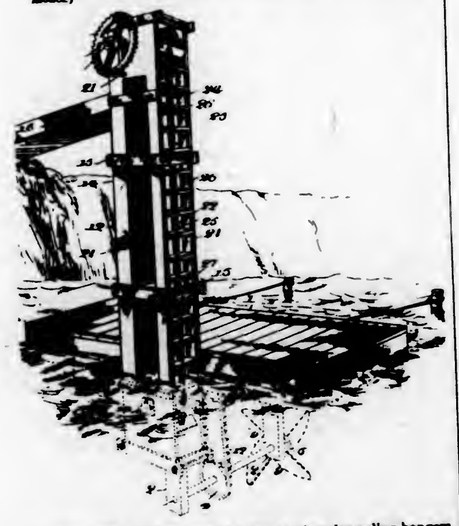


Claim.—1. A nut-lock, comprising in its construction a threaded bolt provided with a longitudinal groove, a nut provided on its under surface with notches, and a coiled-tension-spring washer which is formed with a slightly-raised and comparatively-thin end which end is formed with a projection or nib which engages the groove of the bolt and said end also being formed with an upwardly-extending tooth or pawl which engages the notches on the under side of the nut, substantially as described.

2. A nut-lock, comprising in its construction a threaded bolt provided with a longitudinal groove, a nut provided on its under surface with straight notches, and a stout coiled-spring-tension washer which is formed with a slightly-raised comparatively-thin end, said end being formed with a projection or rib which engages the groove in the bolt, and said end also being formed with an upwardly-extending tooth or pawl which engages the notches on the nut, the pawl being beveled or rounded, to permit the nut to be turned in either direction by the use of an ordinary wrench, substantially as described.

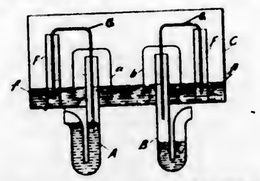
3. As an improved article of manufacture a spring-tension washer for a nut-lock, comprising in its construction, a piece of metal formed into a coil one end of which is comparatively thinner than the other and raised, said raised end being formed with an inwardly-extending nib or projection and also with an upwardly-extending tooth or pawl, substantially as described.

646,338. CURRENT-WHEEL. JAMES WIFFEN and ABRAM D. GILL, Landusky, Mont. Filed Feb. 11, 1899. Serial No. 705,204. (No model.)



Claim.—The combination of a float having depending hangers, a drive-shaft mounted in the lower end of said hangers, a current-wheel keyed to the projecting end of the shaft, a counter-shaft operated by the driving-shaft through suitable gearing, a frame projecting below the float, inclosed on three sides, to furnish one bearing for the counter-shaft and to form a still-water space or well and a water-elevator, as a chain-pump, leading from the still-water space or well, operatively connected with the counter-shaft, substantially as described.

646,339. SIPHON. SAMUEL H. ADAMS, Harrogate, England. Filed Apr. 24, 1899. Serial No. 714,308. (No model.)



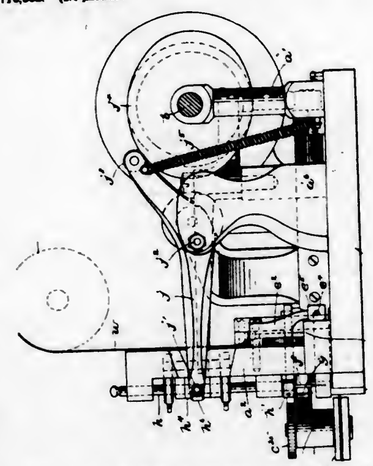
Claim.—1. The combination with a liquid-supply, of two separate and independent siphons, and deep traps in the outgo-legs, whereby when a discharge takes place through one siphon its deep trap is filled with liquid while that of the other siphon which has not discharged remains weakened and therefore will discharge first on the next occasion, so that an automatic alternate discharge is obtained, substantially as described.

2. The combination with a source of liquid, of two siphons arranged therein, and bent vent-pipes communicating with the interiors of the siphons and forming liquid seals, the whole arranged substantially as described, and for the purpose specified.

3. The combination, with a siphon having a trap in the outgo-leg, of a vent-pipe forming a communication between the interior of the siphon and the outer atmosphere, a bend at the inner end of said siphon, and an enlargement in said bend, substantially as described.

4. In combination with a liquid-supply, a pair of siphons each having a vent-pipe passing from the interior of the siphon to the exterior atmosphere, and constructed with a bend at the inner end, and an enlargement in said bend, substantially as described, and for the purpose specified.

646,340. MACHINE FOR APPLYING STIFFENING-PINS TO INNER SOLES. JOHN V. ALLEN, Weymouth, Mass., assignor of one-half to H. H. Stetson & Co., same place. Filed May 15, 1899. Serial No. 716,808. (No model.)



Claim.—1. In a machine of the character specified, the combination of a holder mounted to oscillate on a center or axis of oscillation, an awl and a driver affixed to said holder, means for imparting an oscillatory movement to said holder to alternately aline the awl and driver with the work, and means for imparting a reciprocatory movement to said holder at right angles to the plane of its oscillatory movement to produce the operative strokes of the awl and driver.

2. In a machine of the character specified, the combination of an awl, a driver, a bar supporting the two and having suitable guiding-bearings, means for oscillating said bar in its bearings to alternately aline the awl and driver with the work, and means for reciprocating said bar in its bearings to produce the operative strokes of the awl and driver.

3. In a machine of the character specified, the combination of an awl and driver supporting bar, a guide therefor, a lever connected with said bar and pivoted to oscillate in a plane parallel to the bar, means for oscillating said lever to impart a longitudinal reciprocatory movement to the bar, a second lever connected with the bar

and pivoted to oscillate in a plane at right angles to the bar, and means for oscillating said second lever to impart an oscillatory movement to the bar.

4. In a machine of the character specified, the combination of a feed-roll and a coöperating member adapted to receive the edge of an inner sole between them, means for intermittently rotating said feed-roll to feed the inner sole, an awl, and means for reciprocating said awl in a direction substantially at right angles with the plane of rotation of the feed-roll and into the space between it and the coöperating member, whereby a series of holes are made in the edge of the inner sole, parallel to the plane thereof.

5. In a machine of the character specified, the combination of a feed-roll and a coöperating member adapted to receive the edge of an inner sole between them, means for intermittently rotating said feed-roll to feed the inner sole, a driver, and means for reciprocating said driver in a direction substantially at right angles with the plane of rotation of the feed-roll and in alinement with the space between it and the coöperating member, whereby a series of pins may be forced into the edge of the inner sole, parallel to the plane thereof.

6. In a machine of the character specified, the combination of a feed-roll and a coöperating member adapted to receive the edge of an inner sole between them, means for intermittently rotating said feed-roll to feed the inner sole, an awl, means for reciprocating said awl in a direction substantially at right angles with the plane of rotation of the feed-roll and into the space between it and the coöperating member, whereby a series of holes are made in the edge of the inner sole, parallel to the plane thereof, means for bringing a pin into alinement with each hole after it is made, and means for driving said pin into the hole.

7. In a machine of the character specified, the combination of a roll and a coöperating member yieldingly pressed together and adapted to receive and support an inner sole between them, an awl arranged to drive a hole in the edge of the inner sole so supported, substantially in the plane of said sole, means for reciprocating said awl, and means for increasing the pressure of said roll and member on the sole during the operative stroke of the awl.

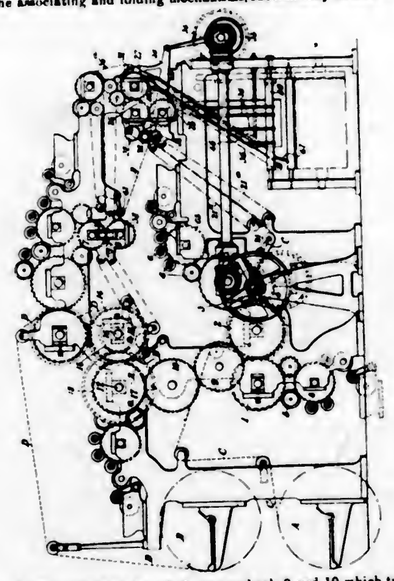
8. In a machine of the character specified, the combination of a roll and a coöperating member yieldingly pressed together and adapted to receive and support an inner sole between them, an awl arranged to drive a hole in the edge of the inner sole so supported, substantially in the plane of said sole, a driver arranged to drive a stiffening-pin into the hole made by the awl, means for reciprocating said awl and said driver, and means for increasing the pressure of said roll and member on the sole during the operative strokes of the awl and driver.

9. In a machine of the character specified, the combination of a roll and a coöperating member adapted to receive and support an inner sole between them, a spring connected with one of said parts and adapted to press the same yieldingly toward the other of said parts, a second spring connected with the first said part, an awl arranged to drive a hole in the edge of the inner sole supported between said parts, substantially in the plane of said sole, means for reciprocating said awl, and an intermittently-acting presser adapted to press against the said second spring during the operative stroke of the awl, thereby increasing the pressure of said roll and member on the sole during the operative stroke of the awl.

10. In a machine of the character specified, the combination of a feed-roll and a coöperating member yieldingly pressed together and adapted to receive and support an inner sole between them, a ratchet connected with the feed-roll, a pawl for rotating the same, a pawl-carrying lever, a lever carrying the feed-roll and provided with a spring-arm, a reciprocatory bar having provisions for engaging and oscillating the pawl-carrying lever, and for pressing against said spring-arm to increase the pressure of the feed-roll against the inner sole, and means for operating said bar.

646,841. WEB-PRINTING, ASSOCIATING, AND FOLDING MACHINE. ROBERT C. ANNAND, South Shields, England. Filed Aug. 18, 1899. Serial No. 727,621. (No model.)

Claim.—1. In a two-web rotary printing-machine having a lower printing mechanism and an upper printing mechanism, the combination of (*a*) the first stereo-cylinder and first blanket-cylinder of the lower printing mechanism, said cylinders being in the same horizontal plane, (*b*) the second stereo-cylinder and second blanket-cylinder of said printing mechanism in the same vertical plane and so disposed relatively to the first stereo and blanket cylinders that a line passing through the centers of said last-named cylinders touches the point of contact between said second stereo and blanket cylinders (*c*) the first stereo-cylinder and first blanket-cylinder of the upper printing mechanism said cylinders being in the same horizontal plane, (*d*) the second stereo-cylinder and second blanket-cylinder of said printing mechanism said cylinders being in the same horizontal plane but much lower than the plane of the first stereo and blanket cylinders of said upper printing mechanism and the second blanket-cylinder being immediately below the first blanket-cylinder of said printing mechanism (*e*) roll-carriers at one end of the combined machine (*f*) associating and folding mechanism at the other end of the machine and (*g*) means whereby the webs are carried from the roll-carriers to the two printing mechanisms respectively and from said mechanisms to the associating and folding mechanisms, substantially as set forth.



2. The combination with the gear-wheels 9 and 10 which transmit motion from a lower printing mechanism to an upper printing mechanism, of a gear-wheel 11 loose on the stereo-cylinder axle 12 of said upper printing mechanism and meshing with said wheel 10, a wheel 13 keyed on said axle 12, a wheel 14 loose on the blanket-cylinder axle 16 of said upper printing mechanism a wheel 15 also loose on said axle 16 and a bolt-hole in each of said wheels 11, 13, 14 and 15 whereby when a bolt is inserted into the holes of wheels 11 and 13 the two printing mechanisms run at the same speed and when a bolt is inserted into the holes 14 and 15 the upper printing mechanism runs at half the speed of the lower printing mechanism, substantially as set forth.

3. In a two-web rotary printing-machine, the combination with the two printing mechanisms, mechanisms for cutting the webs into sheets, means for conveying said webs from the respective printing mechanisms to the respective cutting mechanisms, an associating mechanism, means for conveying the webs to said associating mechanism, a longitudinal folding mechanism, and means for conveying the associated sheets to said folding mechanism, of means for causing the cutting mechanisms to act respectively upon the respective webs before association, and means for causing one of said cutting mechanisms to act upon the associated uncut webs, whereby the respective webs can either be associated in an uncut state, then cut together transversely and the cut and associated sheets be folded longitudinally, or the respective webs can be cut separately, the cut sheets be then brought together, associated and folded longitudinally, as required, according to the product to be obtained.

4. In a rotary web-printing machine the combination with the mechanism for cutting the printed web, of a cam 30 with two ends 31 and 32 operating the cutting mechanism, a cam 33 operating said cam 30 a cam-roller 34 working in said cam 33 and a bolt for securing said roller but capable of being removed and placed into the cam end 32 whereby said cam 30 can be made as required either inoperative or operative and the cutting-cylinder therefore caused either to cut and pass on each sheet or set of sheets singly without collecting or to collect the sheets or sets of sheets, substantially as described.

5. In the folding mechanism of a rotary web-printing machine, the combination with the fold-former the tapes which carry the sheets down said former and the drawing or folding rollers below said former, of tubular segments above the edges of said former and parallel therewith, said tapes passing over said tubular segments in their upward travel after passing around said drawing or forming rollers, substantially as and for the purpose set forth.

646,842. MATCH-BOX. JOSEPH ASHTON, London, England. Filed Oct. 31, 1898. Serial No. 695,061. (No model.)



Claim.—In a match-box having a receptacle for the matches, a lid, a spring-hinged wind-guard, a catch for holding said wind-guard closed and a spring-button for releasing it, the combination with the side of the match-receptacle of a flap spring-hinged to and forming part of the said side, said flap opening automatically, and exposing the matches on the wind-guard being opened, as described.

646,843. ROCK-DRILL. RUSSELL AVERY, Sausalito, Cal. Filed Sept. 26, 1899. Serial No. 731,754. (No model.)



Claim.—1. In a rock-drill and in combination, a casing through which the drill is guided and movable, a plate upon which the casing is turnable transversely and to which it may be clamped, a polygonal supporting-bar fixed transversely to the line of movement of the drill, a sleeve slidable but not turnable upon said bar, and clamping-jaws forming an extension of the drill-casing support, inclosing said sleeve and turnable in a plane at right angles with the axis of the sleeve to change the angle of the casing and line of movement of the drill.

2. In a rock-drill, and in combination, a polygonal supporting-bar, a sleeve fitting and slidable but not turnable upon the bar, a clamp composed of a cylindrical socket fitting a sleeve and having parallel plate extensions from one side thereof, a bolt passing through said plates forming a swivel connection about which the drill-casing and guide are turnable, and a nut by which the casing is locked to the plates, and the plates clamped upon the sleeve.

3. In a rock-drill and in combination, a drill-casing and guide-plates upon which the casing is turnably mounted, said plates having their opposite ends forming a cylindrical clamp, and a bolt and nut whereby said clamp is closed, and the casing is locked to the plates, a cylindrical sleeve upon which the clamp is fitted and around which it is turnable to allow any radial adjustment with relation to the sleeve, a polygonal bar upon which the sleeve is fitted and slidable but not turnable, a collar by which the sliding movement of the sleeve is limited, and set-screws by which the sleeve is locked to the bar.

4. In a manually-operated drill, and in combination, a casing through which the drill is guided and slidable, a ratchet-sleeve turnable within the casing and through which the drill passes, a ring turnable exterior to the ratchet-sleeve having a pawl by which it is engaged with the teeth of the sleeve in one direction, a slot made in the exterior casing, a pin projecting from the ring through said slot and a cord by which the pin is connected with the belt of the hammer-wielder whereby the ring and sleeve are turned by each backward swing of the body, and a spring contained within the casing and acting upon the ring so as to return it independent of the sleeve when the cord is relieved.

5. In a rock-drill and in combination, a casing through which the drill is axially guided and slidable, a ratchet-sleeve turnable upon a hub within the casing, a ring turnable exterior to the ratchet-sleeve having a pawl by which it is engaged with the teeth of the sleeve in one direction, a pin projecting radially from said ring through a slot in the casing, a cord by which the pin is connected with the belt of the hammer-wielder whereby the ring and sleeve are turned by the backward swing of the body, a return-spring connected with the ring, inclined teeth formed upon the end of the turnable sleeve, a fixed ring having similar teeth with which the first-named teeth engage, whereby the turning of the sleeve alternately retracts the drill and allows it to advance.

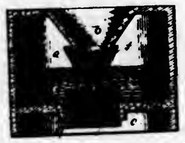
6. In a rock-drill and in combination, a casing through which the drill-shank is axially supported, mechanism for retracting and turning the drill and advancing it against the rock-face, a flattened surface on the exterior of the casing, a double plate upon which said flattened surface rests and is turnable in the plane of the plate, a hollow cylindrical clamp formed at the opposite ends of the plates, a cylindrical sleeve about which the clamp is turnable, a bolt and nut by which the clamp is closed and locked upon the sleeve, a polygonal supporting-bar extending axially through a correspondingly-shaped hole in the sleeve whereby the latter is slidable and not turnable upon the support, a collar to limit the movement of the sleeve in one direction, and a screw by which it is locked to the support.

7. In a rock-drill, the combination of a casing and a support therefor, a drill extending axially through said casing and guided thereby, a mechanism for intermittently turning the drill, and means for operating the mechanism including a flexible connection having one portion attached to said mechanism and another portion adapted for connection with a belt worn by the operator wielding the hammer whereby the drill is raised and turned at each swing of the body of the hammer-wielder in making the stroke.

8. In a rock-drill, the combination of a fixed support, a casing and guide through which the drill is axially movable, a pawl-and-ratchet mechanism whereby the drill is turned, a cord connecting at one end to said mechanism and having its opposite end provided with means for engaging a belt worn by the operator wielding the hammer whereby the swinging movements of the body of the operator in making the hammer-stroke act to raise and turn the drill between each stroke of the hammer.

9. In a rock-drill, a fixed support, a casing carried thereby, a sleeve within the casing through which the drill-shank passes, having a flange at one end with edge slots, a second sleeve to line therewith having arms engaging the slots, and a reduced portion provided with ratchet-teeth, a pawl engaging said teeth, and means for actuating it, teeth formed on the end of the larger part of the ratchet-sleeve, a fixed ring having similar teeth so that the turning of the ratchet-sleeve engages the teeth and moves the ratchet and the flanged sleeve back from the fixed ring, grips carried by the flanged sleeve to move the drill in unison with the sleeve, and a spring by which the parts are returned when the engaging teeth have passed each other.

646,844. INK-WELL. STEPHEN G. BALDWIN, Marion, Ind. Filed July 20, 1898. Serial No. 686,407. (No model.)



Claim.—1. An ink-well comprising the body having a depending pen-opening, an opening in the bottom of said well and a closure for said opening carrying a dip-well, as and for the purpose set forth.

2. An ink-well comprising the body, a depending pen-opening formed in the top thereof, an opening in the bottom of said well, a removable closure or stopper for said opening and a dip-well carried by said closure or stopper directly under said pen-opening, the said pen-opening and dip being arranged to extend one into the other having a space between them to receive a supply of ink from the body of the well by a slight upward throw or tilt of the well, substantially as described.

3. An ink-well having an inverted conical opening in its top, the bottom having an opening directly beneath said conical opening, said bottom being considerably above the outer edges of the body of the well, and the opening thereof having a bearing or flange wider than the bottom is thick, a stopple in said flanged opening and a dip-well carried by said stopple, substantially as described.

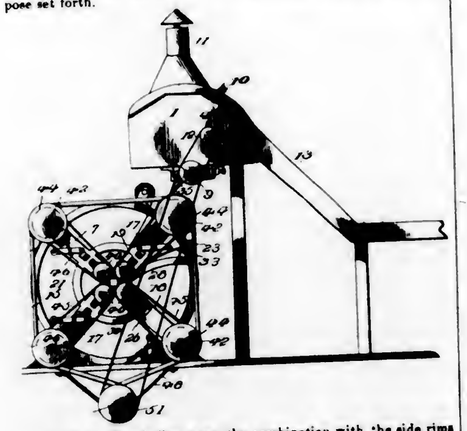
646,845. ROLLER BALING-PRESS. EDMOND F. EATER, Lloyd, Tex. Filed Aug. 26, 1899. Serial No. 728,596. (No model.)

Claim.—1. In a roller baling-press, the combination of the stationary side rims provided with three rigid arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, and means for rocking the pivoted frame to move its presser-roller from the others, whereby the finished bale may be released.

2. In a roller baling-press, the combination of the stationary side rims provided with three fixed arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, means for rocking the pivoted frame, and means for driving all of the presser-rollers in the same direction to form a coreless bale.

3. In a roller baling-press, the combination with the side rims mounted upon a suitable base and braced together, three fixed arms radiating from each of said rims to a common center, presser-rollers yieldingly journaled in the fixed arms, and a rockable frame, carrying a yieldingly-journaled presser-roller, pivoted to the side rims, of sprocket-wheels mounted in suitable bearings upon said side rims,

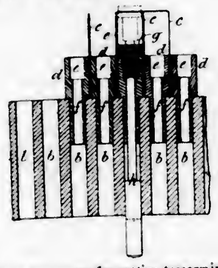
sprocket-wheels mounted on each end of the presser-rollers, sprocket-chains connecting the rim and presser-roller sprocket-wheels together, and means for driving the rim sprocket-wheels, as and for the purpose set forth.



4. In a roller baling-press, the combination with the side rims provided with three fixed arms radiating from a common center, presser-rollers yieldingly journaled in said arms, and a frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, of sprocket-wheels mounted on each roller and connected with oppositely-placed sprocket-wheels by suitable chains, tensioning devices for said chains, and means for driving said sprocket-wheels to rotate the presser-roller.

5. In a roller baling-press, the combination with the stationary side rims provided with arms radiating from a common center, presser-rollers yieldingly journaled in said arms, a rockable frame pivoted to the side rims and carrying a yieldingly-journaled presser-roller, of a stop for limiting the inward or downward movement of said frame and its presser-roller, and means for rocking the frame and roller away from the other presser-rollers, to release the completed bale.

646,846. MACHINE FOR CUTTING TESSERÆ FOR FLOOR-CLOTH. EDWARD BATTER, Kirkcaldy, Scotland. Filed Sept. 23, 1899. Serial No. 731,486. (No model.)

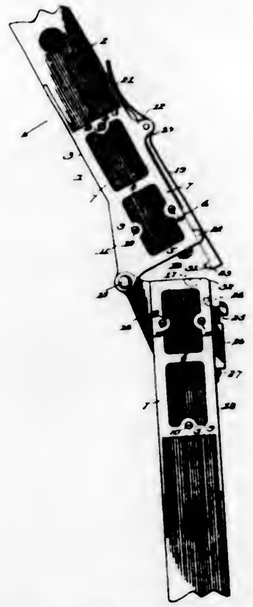


Claim.—1. In an apparatus for cutting tesseræ in the manufacture of Mosaic or inlaid floor-cloth, the combination with a suitable supporting-base having a plurality of openings extending therethrough, of headed plugs each having a socket fitting in said openings, and knives or blades arranged between the heads of the plugs and supported thereby, substantially as described.

2. In an apparatus for cutting tesseræ, the combination with a suitable base having a plurality of equidistant openings therethrough, of a hollow plug fitting in each of said openings in the base, cutting-blades arranged between and supported by the adjacent side faces of said plugs, and ejectors operating in the space between the cutting-blades, substantially as described.

3. In an apparatus for cutting tesseræ, the combination with a cylindrical supporting-base having a plurality of equidistant openings extending therethrough, of a hollow plug fitting in each of said openings, cutting-blades arranged between and supported by the adjacent sides of the plugs, ejectors located in the spaces between the blades, and operating-rods for the ejectors passing through the openings in the base and plugs, substantially as described.

646,847. FOLDING LADDER. THOMAS H. BETTY, Manchester, Va., assignor of one-half to D. Wiley Anderson, Richmond, Va. Filed Oct. 23, 1899. Serial No. 734,485. (No model.)



Claim.—1. In a folding ladder, the combination with the ladder-sections, of means for connecting and locking the same together detachably, comprising sockets or casings fitting the ends of the side bars, and hinged together at one side; a spring latch-bar pivotally secured to one of said sockets, and a spring-controlled dog on the other section adapted to engage said latch-bar.

2. In a folding ladder, the combination with the ladder-sections, of means for connecting and automatically locking the same together detachably, comprising sockets or casings fitting the ends of the side bars, and hinged together; a spring-latch pivotally secured to one of said sockets and provided with a rounded catch-lug adapted to contact with a rounded surface on the other socket, and to enter a recess below said rounded surface; and a sliding spring-controlled dog adapted to be depressed by said latch-bar, and to engage the latter to hold it in engagement with said recess.

3. In a folding ladder, the combination with sockets or casings fitting the ends of the side bars and hinged together at one side, of means for automatically locking the sockets or casings together, and means for preventing lateral and transverse play of said sockets consisting of a recess in one of the sockets and a projection from the other socket fitting said recess.

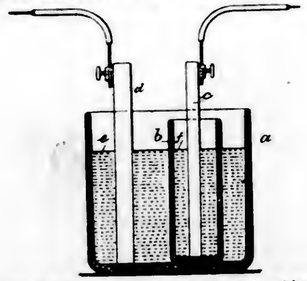
4. In a folding ladder, the combination with sockets or casings fitting the ends of the side bars, and hinged together at one side; of automatic locking devices for said sockets comprising a spring latch-bar pivoted on one side of one of the sockets and having a curved extension at one end, and a catch-lug at its opposite end; and a spring-dog on the other socket to engage said latch-bar.

5. In a folding ladder, the combination with the side bars of the ladder-sections, of sockets fitting said side bars; ears projecting from the sockets beveled in opposite directions to brace the ladder-joint, and hinged together; a spring latch-bar pivotally secured to one of the sockets; a sliding dog on the other socket to engage the latch-bar; and a connection between the meeting surfaces of the sockets consisting of a lug on one of the sockets fitting a recess in the other.

646,848. SECONDARY BATTERY. HENRY BLUMENBERG, Jr., and FREDERICK C. OVERBURY, New York, N. Y. Filed Dec. 1, 1898. Serial No. 697,998. (No model.)

Claim.—1. A secondary or storage battery containing two different electrodes and a porous partition, a solution of sulfuric acid for one electrode and a bisulfate of an alkali metal in solution for the other electrode, substantially as set forth.

2. A storage or secondary battery having different metallic electrodes and a porous partition between them, a solution of sulfuric acid and an alkali-metal bisulfate, such as bisulfate of soda for one electrode and a bisulfate of an alkali metal or alkaline-earth metal for the other electrode, substantially as set forth



3. A secondary battery having one electrode of lead and the other electrode of zinc, a porous partition between them, an electrolytic solution for the lead electrode of sulfuric acid and a sulfate of an alkali metal and a solution for the zinc electrode of bisulfate of soda, substantially as set forth.

646,849. SPRINKLER FOR BOTTLES. HARRY O. BRAWNER, Baltimore, Md. Filed Jan. 22, 1900. Serial No. 2,345. (No model.)



Claim.—1. A bottle-stopper and sprinkler consisting of a cork having formed therein a longitudinal opening contracted in diameter at the inner end so as to form an internal shoulder in the cork, and a stopper comprising a simple stem or shank with enlarged heads at the ends of the same, the stem of said shank occupying a contracted opening at the inner end of the cork and being slightly less in diameter than said opening, and the upper head of the stopper being adapted to seat upon the internal shoulder of the cork and to occupy the enlarged upper portion of the opening which is of greater diameter than said head whereby when the bottle is inverted and agitated a portion of the contents thereof will be sprinkled and the said contents sealed against discharge when the bottle is at rest, substantially as specified.

2. A bottle-stopper and sprinkler comprising a cork with central longitudinal opening contracted in diameter at the inner portion of the cork so as to form an internal shoulder in said cork, and a stopper comprising a stem or shank with enlarged heads at its opposite ends, said stem or shank occupying the contracted opening at the inner end of the cork and being of slightly-less diameter than said opening and the upper head seating upon the internal shoulder of the cork and being of less diameter than the enlarged upper portion of the opening in said cork and said heads having flat faces on the sides adjacent to the stem whereby when the bottle is inverted and agitated a portion of the contents thereof will be sprinkled and the said contents sealed against discharge when the bottle is at rest, substantially as specified.

3. A bottle-stopper and sprinkler comprising a cork with central longitudinal opening therein contracted at the inner end of the cork so as to form an internal shoulder in said cork, and a stopper comprising a central stem or shank with enlarged heads at its opposite ends, said stem occupying the contracted opening at the inner end of the cork and being of slightly less diameter than the same, and the upper head seating upon the internal shoulder of the cork and being of less diameter than the enlarged portion of the opening in said cork and also of less diameter than the head at the other end of the stem or shank of the stopper, whereby when the bottle is inverted and agitated a portion of the contents thereof will be sprinkled and the said contents sealed against discharge when the bottle is at rest, substantially as specified.

4. A bottle-stopper and sprinkler consisting of a cork having formed therein an opening, and a stopper comprising a simple stem with enlarged heads, the said stem occupying said opening and being sufficiently less in diameter than said opening to provide a dropping-orifice, whereby when the bottle is inverted and agitated a portion of the contents thereof will be sprinkled in drops through the said dropping-orifice, substantially as described.

646,850. PLAYING-BALL. ANTON R. BEKINI, Graslitz, Austria-Hungary. Filed Aug. 19, 1899. Serial No. 727,842. (No model.)



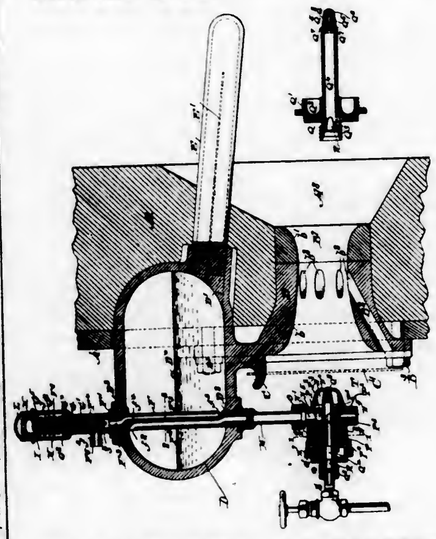
Claim.—1. A playing-ball consisting of a body composed of pieces of sponge, a wrapping of yarn or thread around said body, a covering of textile fabric over the yarn or thread wrapping, and a water-tight skin covering the textile fabric.

2. A playing-ball consisting of a body composed of pieces of sponge, a wrapping of yarn or thread around said body, a covering of textile fabric over the yarn or thread wrapping and a water-tight skin covering the textile fabric and a coating of oil or varnish such as described over the surface of the said skin for the purpose set forth.

646,851. PRODUCTION OF CELLULOSE SOLUTION FOR MANUFACTURING THREADS. EMILE BRONNERT, Mülhausen, Germany. Filed Oct. 7, 1899. Serial No. 732,930. (No specimens.)

Claim.—The herein-described process for producing cellulose solutions adapted for the manufacture of threads which consists in treating the clean cellulose with a concentrated caustic alkali lye, washing it with much water, treating it for two to four hours with a weak bleaching liquor, submitting it to centrifugal action and finally dissolving it while wet in an ammoniacal solution of cupric oxid.

646,852. MECHANISM FOR THROWING SPRAYS OF OIL INTO FURNACES. THOMAS R. BROWNE, Altoona, Pa. Filed Apr. 8, 1897. Serial No. 631,243. (No model.)



Claim.—1. An oil-spraying device comprising the receiving-nozzle B and the steam-box D attached rigidly together and having the steaming-tubes E extended from the steam-box in front of and above the nozzle, and an oil-spraying fixture supported on the steam-box in line with the nozzle, and in communication with the upper part of the steam-box, substantially as herein set forth.

2. The combination, with a furnace having front plate with opening formed therein for the injection of oil-spray, of the spray-receiving nozzle B inserted in such opening, the steam-box D formed integral with the nozzle B and supported outside of the furnace, an extension of the steam-box (as the steaming-tubes E) lying in front of and above the nozzle within the furnace, and an oil-spraying fixture connected with the bottom of the steam-box by pipe M and communicating with the upper part of the steam box by passage within the same, the whole arranged and operated as herein set forth.

3. The combination, with a furnace having front plate with opening formed therein for the injection of oil-spray, of the spray-receiving nozzle B inserted in such opening, the steam-box D formed integral with the nozzle B and supported outside of the furnace, an extension of the steam-box (as the steaming-tubes E) lying in front of and above the nozzle within the furnace, an oil-spraying fixture connected with the bottom of the steam-box by pipe M, and the double conduit F having the passage F^2 connecting the pipe M with the upper part of the steam-box, and the passage F^3 connecting the lower part of the steam-box with the feed-water parsage F^5, the whole arranged and operated substantially as herein set forth.

4. The combination, with a furnace having front plate with opening formed therein for the injection of oil-spray, of the spray-receiving nozzle B inserted in such opening, and having the converging portion *b* upon its outer end and the diverging portion *b'* upon its inner end with the converging air-passages B^3 entering around the margin of the portion *b*, and opening into the contracted portion of the nozzle, such nozzle being combined with the steam-box D and tubes E extended into the furnace, and with the spraying-fixture supported upon the steam-box in line with the nozzle, the whole arranged and operated substantially as herein set forth.

5. An oil-spraying nozzle having an external casing provided with a delivery-opening N^4 and lateral passages N' and N^3 for the admission and exhaust of steam, an oil-conduit in the center of the casing forming an annular steam-passage within the delivery-opening N^4 and having within the same the oil-passages Q^3 and the steam-channels Q^7 and Q^6, and a plug rotatable within the casing to supply steam around the oil-conduit, or to discharge it from the exhaust-opening N^5, as and for the purpose set forth.

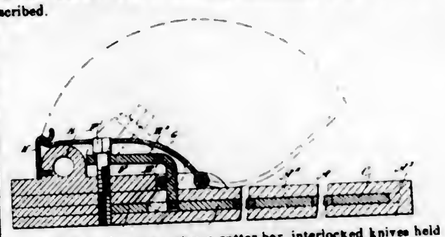
6. An oil-spraying nozzle having an outer casing N provided with a delivery-opening N^4 conical open-ended seat N^2, receiving-chamber N' and passage or passages N^6 leading from chamber N' to the chamber Q^2 in the rear of the casing in combination with the conical plug P having passage P^3 adapted to register with chamber N' and lead the impelling fluid into chamber N^3 formed in front of casing N, said plug P having also a central longitudinal perforation P^5, and the head Q adapted to be secured to the end of casing N and to form a chamber Q^2 in the rear of plug P, said head having attached to it the oil-conduit Q^4 adapted to extend through the perforation P^5 of the plug and into the orifice N^4 of the casing.

7. An oil-spraying nozzle having an outer casing N provided with a delivery-opening N^4 conical open-ended seat N^2, receiving-chamber N', slot N^5, and passage or passages N^6 leading from chamber N' to the chamber Q^2 in the rear of the casing in combination with the conical plug P having passage P^3 adapted to register with chamber N' and lead the impelling fluid into chamber N^3 formed in the front of casing N said plug P having also a central longitudinal perforation P^5 and handle P^6 extending through slot N^5, and the head Q adapted to be secured to the end of casing N and to form a chamber Q^2 in the rear of plug P, said head having attached to it the oil-conduit Q^4 adapted to extend through the perforation P^5 of the plug and into the orifice N^4 of the casing.

8. An oil-spraying nozzle having an outer casing N provided with a delivery-opening N^4 conical open-ended seat N^2 receiving-chamber N', exhaust-port N^5, slot N^5, and passage or passages N^6 leading from chamber N^6 to the chamber Q^2 in the rear of the casing in combination with the conical plug P having passage P^3 adapted to register with chamber N' and lead the impelling fluid into chamber N^3 formed in the front of casing N, said plug P having also a central longitudinal perforation P^5, peripheral longitudinal slot P^7 and handle P^6 extending through slot N^5, and the head Q adapted to be secured to the end of casing N and to form a chamber Q^2 in the rear of plug P said head having attached to it the oil-conduit Q^4 adapted to extend through the perforation P^5 of the plug and into the orifice N^4 of the casing.

646,358. SICKLE-BAR. WILLIAM H. BRUSMAN and OLIVER F. BRUSMAN, Elkhart, Ind. Filed July 13, 1899. Serial No. 723,661. (No model.)

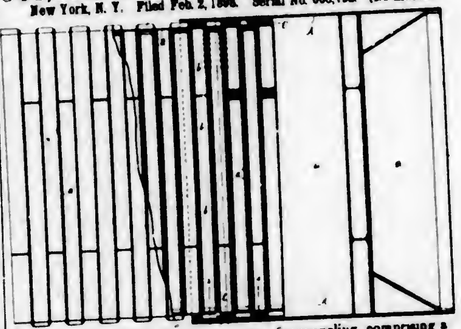
Claim.—1. A sickle-bar, provided with interlocking knives, and a lever, one end of which presses against one side of a knife and in the longitudinal direction of the bar, said lever having a spring extension held stationary, to allow said lever to yield upon expansion or contraction, or wear of the knives, substantially as shown and described.



2. In a cutting apparatus a cutter-bar, interlocked knives held on said bar, a lever fulcrumed on the bar and engaging with one end the side of the innermost loose knife, said lever being provided at its other end with a spring extension, and a bolt screwing in the bar and engaging said extension at the outer end thereof, substantially as shown and described.

3. In a cutting apparatus a cutter-bar, interlocked knives held on said bar, a lever fulcrumed on the bar and engaging with one end the side of the innermost loose knife, said lever being provided at its other end with a spring extension, a bolt screwing in the bar and engaging said extension at the outer and thereof, and a nut-lock for the said bolt, as set forth.

646,354. APPARATUS FOR TUNNELING. ALBERT W. BUEL, New York, N. Y. Filed Feb. 2, 1898. Serial No. 668,792. (No model.)



Claim.—1. An improved apparatus for tunneling, comprising a casing, a shield surrounding said casing and adapted to be advanced thereon, a packing between said casing and the surrounding shield, and guide devices extending on a longitudinal plane and projecting within the packing-space between the casing and shield, substantially as and for the purpose set forth.

2. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, and guide devices extending on a longitudinal plane and projecting within the space between the casing and shield, substantially as and for the purpose set forth.

3. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, a packing spreading on the surface of the casing in the space between the casing and the surrounding shield, and guide devices extending on a longitudinal plane within the packing-space between the casing and shield and projecting directly into said surface packing to divide the same on a longitudinal plane and retain it against displacement on a transverse plane, substantially as set forth.

4. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, devices extending on a longitudinal plane and projecting in the space between the casing and shield, and devices arranged on a transverse plane with respect to the longitudinally-arranged devices and projecting in the space between the casing and shield, substantially as and for the purpose set forth.

5. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, a packing spreading on the surface of the casing in the space between the casing and shield, devices extending on a longitudinal plane and projecting in the space between the casing and shield, and devices arranged on a transverse plane with respect to the longitudinally-arranged devices and projecting in the space between the casing and shield, said devices on longitudinal and transverse planes intersecting or projecting directly into the surface packing to divide the same and retain it against displacement, substantially as set forth.

6. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, devices arranged on a transverse plane and projecting in the space between the casing and shield, and devices extending on a longitudinal plane and projecting in the space between the casing and shield, one of said sets of devices having a greater degree of projection than the other, substantially as and for the purpose set forth.

7. An improved apparatus for tunneling, comprising a casing, a shield surrounding the same and adapted to be advanced thereon, a packing spreading on the surface of the casing in the space between the casing and shield, devices arranged on a transverse plane and projecting in the space between the casing and shield, and devices extending on a longitudinal plane and projecting in the space between the casing and shield, said devices on longitudinal and transverse planes intersecting or projecting directly into the surface packing to divide the same and retain it against displacement, and the devices on a longitudinal plane having a greater degree of projection than the devices on a transverse plane so that the former serve as a guide for the shield while the latter prevent movement of the surface packing in a longitudinal plane during the movement of the shield on said guide devices, substantially as set forth.

8. An improved apparatus for tunneling, comprising a casing having exteriorly-projecting longitudinally-arranged guide-bars at its surface, and a shield surrounding said casing and adapted to be advanced thereon upon said guide-bars, substantially as and for the purpose set forth.

9. An improved apparatus for tunneling, comprising a casing having exteriorly-projecting longitudinally-arranged guide-bars at its surface, a shield surrounding said casing and adapted to be advanced thereon upon said guide-bars, and a packing arranged between the casing and shield, substantially as and for the purpose set forth.

10. An improved apparatus for tunneling, comprising a casing having exteriorly-projecting longitudinally-arranged guide-bars at its surface and provided with transversely-arranged bars or washers projecting at its surface, a shield surrounding said casing and adapted to be advanced thereon, and a packing arranged between the casing and shield and in the spaces between said longitudinally-arranged and transversely-arranged projecting bars, substantially as and for the purpose set forth.

11. An improved apparatus for tunneling, comprising a casing embodying annular sections formed of segmental plates, guide-bars arranged in longitudinally-extending position at the joints between said segmental plates and projecting at the surface of the casing, and a shield surrounding said casing and adapted to be advanced thereon upon said guide-bars, substantially as and for the purpose set forth.

12. An improved apparatus for tunneling, comprising a casing embodying annular sections formed of segmental plates, guide-bars longitudinally arranged at the joint between said segmental plates and projecting exteriorly from the casing, annular rings or washers arranged at the joints between said casing-sections and projecting exteriorly from the casing, a shield surrounding the casing and adapted to be advanced thereon, and a packing between said casing and shield, substantially as and for the purpose set forth.

13. An improved apparatus for tunneling, comprising a casing consisting of sections or channel-bars connected at joints, a shield surrounding the sections of the casing and adapted to be advanced upon the forward end of the casing, and a packing covering the whole surface area of all the sections of the casing which are inclosed by the surrounding shield and filling the entire space between the casing and the surrounding shield, whereby a complete or thorough water-tight-joint space and protection of the entire surface area of the sectional casing within the shield is at all times maintained with relation to the advance of the shield upon the casing, substantially as set forth.

14. An improved apparatus for tunneling, comprising a casing consisting of sections or channel-bars connected together, a shield surrounding the sections of the casing and adapted to be advanced upon the forward end of the casing, projections within the space between the casing-sections and the surrounding shield and distributed in position at different points with relation to the entire surface area of the portion of the sectional casing inclosed by the shield, and a packing covering the surface area of the sections of the casing which are inclosed by the surrounding shield and filling the space between the casing and the surrounding shield and intersecting the projections which are distributed in position throughout said intervening space, whereby a complete or thorough water-tight-joint space and protection of the entire surface area of the sectional casing within the shield is at all times maintained with relation to the advance of the shield upon the casing, substantially as set forth.

15. An improved apparatus for tunneling, comprising a casing consisting of sections or channel-bars connected at joints, a shield surrounding the sections of the casing and adapted to be advanced upon the forward end of the casing, and a packing consisting of clay and a medium connecting and uniting the parts or particles of the clay, said packing covering the whole surface area of all the sections of the casing which are inclosed by the surrounding shield and filling the entire space between the casing and the surrounding shield, whereby a complete or thorough water-tight-joint space and protection of the entire surface area of the sectional casing within the shield is at all times maintained with relation to the advance of the shield upon the casing, substantially as set forth.

16. An improved apparatus for tunneling, comprising a casing consisting of sections or channel-bars connected at joints, a shield surrounding the sections of the casing and adapted to be advanced upon the forward end of the casing, projections extending from the joints or seams of the casing-sections and within the space between the casing-sections and the surrounding shield, and a packing covering the surface area of the shield-inclosed sections of the casing in the spaces between said joint projections and filling the space between the casing and the surrounding shield, whereby a complete or thorough water-tight-joint space and protection of the entire surface area of the sectional casing within the shield is at all times maintained with relation to the advance of the shield upon the casing, substantially as set forth.

17. An improved apparatus for tunneling, comprising a casing consisting of sections or channel-bars connected together, a shield surrounding the sections of the casing and adapted to be advanced upon the forward end of the casing, projections within the space between the casing-sections and the surrounding shield, and a packing covering the whole surface area of the shield-inclosed casing-sections in the spaces between said projections and filling the space between said surface area of the casing and the surrounding shield, whereby a complete or thorough water-tight-joint space and protection of the entire surface area of the sectional casing within the shield is at all times maintained with relation to the advance of the shield upon the casing, substantially as set forth.

646,355. BAG MAKING AND FILLING MACHINE. WILLIAM H. BUTLER and GEORGE R. WARD, New York, N. Y. Filed Sept. 8, 1898. Serial No. 690,477. (No model.)

Claim.—1. In a bag-making machine in combination, a frame having an aperture therein, a reciprocating form adapted to pass thereinto, means to feed a bag material thereto, means to fold said material around said form, and means to then pass said form and bag into said aperture and thereby compress the seams so formed, and means to withdraw said form from said bag.

2. In a bag making machine in combination, a frame having an aperture therein, a reciprocating shell adapted to pass into the same,

means to feed a bag material thereto, means to fold said material over said shell, means to move said shell and bag into said aperture thereby completing said bag, means to raise said shell from said bag, and a plunger reciprocating in said shell and adapted to hold said bag after said shell starts to rise.

3. In a bag-making machine in combination, a frame having an aperture therein, a reciprocating shell adapted to pass into the same, means to feed a bag material thereto, means to fold said material over said shell, and means to move said form and bag into said aperture, the sides of said aperture thereby completing said bag, and means to fill said bag through said shell.

4. In a bag-making machine in combination, a shell, means to feed a bag material over the end of same to form the bottom of the bag leaving the same projecting from two adjacent sides thereof, means to fold said projecting parts of said material against said two adjacent sides of said shell so as to leave an outside extension, and means to fold said outside extension against the outside of the bag, means to fill said bag through said shell and means to withdraw said shell from said bag.

5. In a bag-forming machine in combination, an elongated form having two sides opposite to each other and an intermediate side, means to feed a bag material over the end of said form leaving part of said material projecting from said three sides of said form, means to fold up against said opposite sides the parts of said material projecting from said opposite sides and also against the intermediate side, the edges of said portions overlapping on said intermediate side and leaving a triangular projection from said intermediate side at the end of said form, means to then fold said triangular piece against the outside of said bag, and means to complete said bag.

6. In a bag-making machine in combination, a shell, means to feed a bag material over the end of the same, means to hold part of said material fast over said end and means to fold another part of said material over the sides of said shell, and means to fill said bag through said shell.

7. In a bag-forming machine in combination, a frame having an aperture therein, a reciprocating shell adapted to pass into the same, means to feed a bag material to, and to hold it fast over, the end of said shell, means to fold said material over said shell, means to move said shell and bag into said aperture thereby completing said bag, and means to admit a filling material into said bag through said shell.

8. In a bag-making machine in combination, a reciprocating form, means to feed a bag material over the end of same leaving said bag material projecting from each side of said form, means to hold it thereto, pivoted plates adapted to be moved against said form and simultaneously fold said material against two adjacent sides thereof, and automatic means to fold the material projecting from the remaining sides of said form against said form to complete said bag.

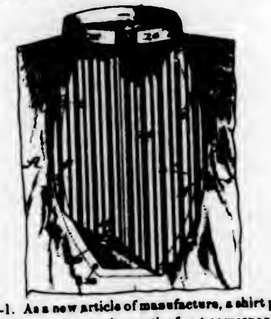
9. In a bag-making machine in combination, a frame having an aperture therein, a reciprocating form adapted to enter said aperture, means to feed a bag material over said aperture and between it and said form and a plate pivoted to said frame near said aperture and adapted to swing against said form above said aperture and fold said bag material around the same, said form adapted to enter said aperture and thereby complete said bag.

10. In a bag-making machine in combination, a form having two opposite sides, and a side intermediate between the same, means to feed a bag material to said form, means to apply a paste along more than one-half of one under edge thereof, means to fold said material over said opposite sides and intermediate side thereby producing a solid bottom and leaving a triangular projection at said intermediate side, the portions of said material overlapping on said intermediate side and fastened by said paste, means to fold said triangular projection up over said overlapped seam, and means to complete said bag.

11. In a bag-making machine in combination, a hollow shell having two opposite sides and a side intermediate between the same, means to feed a bag material to said shell, means to apply a paste along more than one-half of one under edge thereof, means to fold said material over said opposite sides and intermediate side thereby producing a bag having a solid bottom and a triangular projection at said intermediate side, the portions of said material overlapping on said intermediate side and fastened by said paste, means to fold said triangular projection up against said overlapped seam, means to separate said bag from said shell, a reciprocating plunger in said shell adapted to hold said bag in position when said bag and shell are separated, and means to complete said bag.

12. In a bag-making machine in combination, a form having two opposite sides and an intermediate side, means to feed a bag material over the end of said form, means to apply a paste along more than one-half of one under edge thereof, means to fold said material simultaneously over one of said two opposite sides and said intermediate side, means to fold another portion over the other of said two opposite sides and said intermediate side, said two portions overlapping on said intermediate side and fastened by said paste, thereby producing a bag having a solid bottom and a triangular projection at said intermediate side, means to fold said triangular projection up against said overlapped seam, and means to complete said bag.

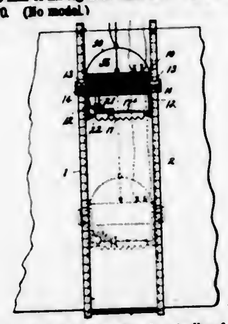
646,856. APPAREL-SHIRT. WILLIAM R. CHAPLAIN, Jr., Easton, Md. Filed Dec. 1, 1899. Serial No. 738,905. (No model.)



Claim.—1. As a new article of manufacture, a shirt provided with a body portion having an opening at the front corresponding approximately to the contour of a bosom, a neck band attached to the upper edge of said body portion and having free ends extending over the opening and forming tongues arranged for connection with each other, and a bosom arranged for detachable connection with the body portion of the shirt, said bosom being provided with sleeves secured to its upper edge and spaced from each other, the said sleeves being adapted to receive the tongues and the space between the sleeves allowing fastening means to be applied to the extremities of the tongues and the free ends of a collar, as set forth.

2. As a new article of manufacture, the herein-described shirt, comprising the body portion having a bosom-opening and buttons around the margin thereof, and a two-faced or reversible bosom adapted to lie over the bosom-opening and of such a size that its edges will overlap the buttons, said bosom having buttonhole-tabs along its side edges adapted to be turned under and engaged with the buttons whereby the buttons will be hidden when either side of the bosom is exposed, as and for the purpose set forth.

646,857. MACHINE FOR CLEANING HULLS OF VESSELS. THOMAS W. G. COOK and LEOPOLD H. STERR, New York, N. Y.; said Stern assignor of one-half of his right to said Cook. Filed Aug. 31, 1899. Serial No. 729,970. (No model.)



Claim.—1. In a machine for cleaning hulls of vessels, the combination of a flexible, channeled guideway or track adapted to be secured in position on the vessel-hull, a frame arranged to travel on the guideway or track, and having projections engaging with the channels therein, a cleaning-tool mounted on the carriage and confined by the guideway-channels in working relation to the surface of the vessel-hull, means for moving the frame on the guideway or track and means for operating the tool in contact with the hull, substantially as set forth.

2. In a machine for cleaning hulls of vessels, the combination of a flexible guideway or track comprising two chains of pivotally-connected channel-links and adapted to be secured in position upon the vessel-hull, a frame arranged to travel on the guideway or track, a cleaning-tool carried by the frame, confined by the guideway-channel in working relation to the surface of the hull and means for moving the frame on the guideway or track substantially as set forth.

3. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position on the vessel-hull, a frame or carriage adapted to travel on the guideway or track, a reciprocating cleaning-tool mounted in the frame or carriage and means for imparting to the cleaning-tool reciprocating motion relatively to the carriage and in contact with the surface of the hull, substantially as set forth.

4. In a machine for cleaning hulls of vessels, the combination of a pair of chains formed of pivotally-connected channel-links, means for securing said chains in parallel position on the vessel-hull, a cleaner frame or carriage mounted to move on the guideway formed by said chains, a cleaning-tool mounted to reciprocate in the movable frame or carriage and held by the channels in the links in operative position relatively to the surface of the hull, and means for imparting reciprocating movement to the tool, relatively to the carriage, substantially as set forth.

5. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, with a frame or carriage arranged to travel in the guideway or track, a reciprocating cleaning-tool mounted upon the frame or carriage, means for moving the frame or carriage on the guideway or track, and means for reciprocating the cleaning-tool transversely to the direction of movement of the frame or carriage, substantially as and for the purpose set forth.

6. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, a cleaning frame or carriage supporting a cleaning-tool and having supporting-arms rigidly secured to it, said arms engaging the guideway or track and extending from the frame or carriage at such an angle that the cleaning-tool will be automatically held against the hull to its work by the weight of the frame or carriage, substantially as set forth.

7. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, a gravitating cleaning frame or carriage supporting a cleaning-tool and having supporting-arms rigidly secured to it, said arms engaging the guideway or track and extending from the frame or carriage at such an angle that the cleaning-tool will be automatically held against the hull to its work by the weight of the frame or carriage, and an operating connection secured to the frame or carriage by which the frame or carriage can be lowered and raised, substantially as set forth.

8. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, a cleaning frame or carriage, a cleaning-tool supported upon a portion of the frame or carriage projecting inwardly toward the vessel-hull, arms rigidly secured to the frame or carriage and projecting inwardly therefrom and engaging the guideway or track, whereby the cleaning-tool will be automatically held against the hull to its work, substantially as set forth.

9. In a machine for cleaning hulls of vessels, the combination of a suitable frame arranged to be moved over the surface and a vessel-hull, a reciprocating cleaning-tool mounted in the frame, and means for reciprocating the cleaning-tool transversely to the direction of movement of the frame, substantially as set forth.

10. In a machine for cleaning hulls of vessels, the combination of a suitable frame arranged to be moved over the surface of a vessel-hull, a reciprocating cleaning-tool mounted in the frame, and comprising a knife or scraper and a brush, and means for reciprocating the cleaning-tool transversely to the direction of movement of the frame, substantially as set forth.

11. In a machine for cleaning hulls of vessels, the combination of a suitable frame or carriage arranged to move over the surface of the vessel-hull, a suitable motor mounted within the frame, guides formed on the frame, a reciprocating cleaning-tool mounted in said guides, and gearing between the motor and cleaning-tool, substantially as set forth.

12. In a machine for cleaning hulls of vessels, the combination of a suitable frame or carriage arranged to move over the surface of the vessel-hull, said frame or carriage being provided with guiding parts which engage the hull and slide or move thereover, and a reciprocating cleaning-tool mounted in the frame or carriage within the guiding parts in such relation thereto that the cleaning-tool will be held in working relation to the hull and will be prevented from injuring the surface thereof, substantially as set forth.

13. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, a cleaning frame or carriage supporting a cleaning-tool and having supporting-arms rigidly secured to it, said arms engaging the guideway or track and extending from the frame or carriage at such an angle that the cleaning-tool will be automatically held against the hull to its work by the weight of the frame or carriage, and a controlling device connected with the frame or carriage at a point eccentric to the point of attachment of the supporting-arms, whereby the cutting-tool can be disengaged from any obstruction, substantially as set forth.

14. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, a cleaning frame or carriage supporting a cleaning-tool and having supporting-arms rigidly secured to it, said arms engaging the guideway or track and extending from the frame or carriage at such an angle that the cleaning-tool will be automatically held against the hull to its work by the weight of the frame or carriage, an operating connection secured to the frame or carriage adjacent to the points of engagement of the supporting-arms with the guideway or track, and a controlling device connected with the frame or carriage at a point exterior and eccentric to the point of attachment of the supporting-arms with the frame or carriage, substantially as set forth.

15. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, with a frame or carriage arranged to travel in the guideway or track, a cleaning-tool carried by the frame or carriage, a traveling frame to which the guideway or track is suitably connected, star-wheels journaled in the traveling frame and in position to engage the vessel-hull, and suitable means for operating the star-wheels, as set forth.

16. In a machine for cleaning hulls of vessels, the combination of a flexible guideway or track adapted to be secured in position upon the vessel-hull, with a frame arranged to travel in the guideway or track, a cleaning-tool carried by the frame and confined in working relation to the vessel-hull by the guideway or track, means for operating the frame in the guideway or track, a traveling frame to which the flexible guideway or track is suitably connected, star-wheels journaled in the traveling frame in position to engage the vessel-hull, a driving-shaft journaled in the traveling frame and geared to the star-wheels for operating them, and means for operating said driving-shaft from the deck of the vessel, substantially as set forth.

17. In a machine for cleaning hulls of vessels, the combination of a guideway or track adapted to be secured in position upon the vessel-hull, with a frame or carriage arranged to travel in the guideway or track, a cleaning-tool carried by the frame or carriage, a traveling frame to which the guideway or track is suitably connected, star-wheels formed with V-shaped engaging teeth journaled in the traveling frame and adapted to engage the keel or other projection upon the vessel-hull, and means for operating the star-wheels for moving the frame and connected guideway or track, as set forth.

18. In a machine for cleaning hulls of vessels, the combination of a pair of chains of pivotally-connected channel-links forming guideways, a traveling U-shaped frame through which said chains pass and by which said chains are held in parallelism, star-wheels journaled in the traveling frame in position to engage the vessel-hull, means for operating said star-wheels for adjusting the frame and chains upon the vessel-hull, and a carriage mounted to operate in the guideway and carrying a hull-cleaning tool, substantially as set forth.

646,858. TYPE-SETTING MACHINE. PAUL F. COX, Manchester, Conn., assignor to the Unitype Company, same place. Filed Aug. 14, 1899. Serial No. 727,095. (No model.)

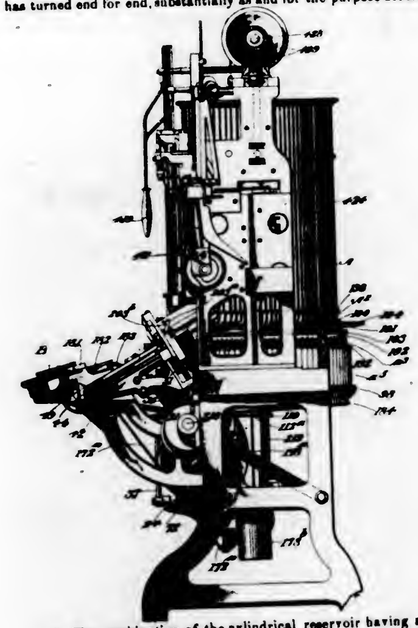
Claim.—1. The combination of the type-holding channel, means for ejecting type laterally therefrom, a type-guide slot beside the channel into which the ejected type are delivered having a curved rear wall extending from the rear to the front of the slot, and a type-arresting device or pin at the outer side of said slot and below the channel whereby the face end of the type is arrested in the passage of the type through the slot until the type has turned end for end, substantially as and for the purpose described.

2. The combination of the type-channel in which the type are placed face outermost, the carrier below the channel, a guide-slot for directing the type from the channel onto the carrier, said slot being disposed to one side of the channel and having a curved rear wall, and a pin or arresting device at its outer side, and means for ejecting a type laterally from the channel into said slot, whereby the type is turned end for end in dropping through the slot so that it will be delivered feet first onto the carrier.

3. The combination of the type-carrier, a type-holding channel above the same in which the type are arranged face outermost or toward the carrier, a type-guide slot for conducting the type from the channel onto the carrier, said guide-slot being arranged in line with, but to one side of, the type-channel and adapted to receive the type ejected laterally therefrom, said slot having a downwardly and outwardly curved rear wall and being widened at its lower end, and a pin across the outer edge of said slot just below the channel, whereby the type ejected laterally face outermost, from the channel into the slot, are turned end for end in dropping therethrough and delivered feet foremost onto the carrier.

4. The combination of the cylindrical reservoir having a series of type-holding channels, means for ejecting type laterally therefrom,

a casting below the reservoir having a series of type-guide slots beside the channels into which the ejected type are delivered, a rotary type-carrier below the casting, and type-arresting devices or pins at the outer sides of said slots whereby the onter or face end of the type is arrested in the passage of the type through the slot until the type has turned end for end, substantially as and for the purpose set forth.



5. The combination of the cylindrical reservoir having a series of type-channels in which the type are placed face outermost, the rotary carrier below the channel, a casting having a series of guide-slots for directing the type from the channels onto the carrier, said casting being arranged between the carrier and reservoir and having its slots disposed to one side of the channels, said slots having curved rear walls, and pins or arresting devices at the outer sides of said slots, and means for ejecting type laterally from the channels into said slots, whereby the type are turned end for end in dropping through the slots so that they will be delivered feet first onto the carrier.

6. The combination of the vertical type-holding channel in which the type are arranged face outermost, the type-guiding slot to one side of and below the type-channel, said slot having a downwardly and outwardly curved rear wall, and a pin across the outer face of the slot just below the channel, said pin and the curved rear wall of the slot serving to turn the type end for end as it passes through the slot, a carrier below the slot, and a pivoted pusher for ejecting a type laterally from the channel into the slots.

7. The combination of the type-reservoir having vertical type-holding channels in which the type are arranged face outermost, a casting below the reservoir having type-guiding slots disposed to one side of and below the type-channels, each of said slots having a downwardly and outwardly curved rear wall, and pins across the outer face of the slot just below the channel, said pins and the curved rear walls of the slots serving to turn the type end for end as they pass through the slot, a rotary carrier below the slotted casting, and a series of pushers pivotally supported on the casting and adapted to eject the type laterally from the channels into the slots, substantially as described.

8. The combination of the type-channel, a guide-slot to one side of and below the channel, the pivoted pusher 193 adapted to eject the type laterally from said channel into said slot, the bell-crank lever for operating said pusher, and connections for operating said bell-crank lever from the keyboard.

9. The combination of the type-channel, a guide-slot to one side of sud below the channel having a curved rear wall extending from the rear to the front thereof, the pivoted pusher adapted to eject the type laterally from said channel, the carrier below said slot, and a pin across said slot at the front side thereof whereby the type are turned end for end in passing through the slot from the channel to the carrier.

10. The combination of the reservoir having a series of type-channels, a casting below the reservoir having a series of guide-slots in its periphery, said slots being disposed to one side of the channels and having curved rear walls extending from the rear to the front thereof; the pivoted pusher adapted to eject the type laterally from said channel, and levers and connections for operating said pushers from the keyboard, the carrier below said slotted casting, and pins across said slots near the front sides thereof whereby the types are turned end for end in passing through the slots from the channel to the carrier.

11. The combination of the type-reservoir, the casting 100 having type-guide slots A′ disposed to one side of the channels of the reservoir, and means for ejecting the type laterally from said channels into said slots; with the rotatable carrier 101 having an annular gear 103 and the annular casting 102 attached to casting 100 and by which the carrier and its gear are supported.

12. The combination of the type-reservoir, the casting 100 below the same having guide-slots A′, the horizontally-movable type-pushers pivoted on casting 100 and adapted to eject type laterally from the type-channels into the guide-slots A′, slots A′ having curved rear walls extending from rear to front thereof and pins across the front ends of the slots adapted to turn the type end for end as they pass therethrough, the bell-crank levers for operating said pushers, a slotted plate on which the crank-levers are pivoted, and means for operating said crank-levers from the keyboard, substantially as described.

13. The combination of the type-reservoir, the casting 100 below the same having type-guide slots A′ in its periphery disposed to one side of the channels in the reservoir, the horizontally-movable type-pushers pivoted on casting 100 and adapted to eject type from the type-channels in the reservoir laterally into said slots, the bell-crank levers for operating said pushers, and means for operating said bell-crank levers from the keyboard with the annular carrier 101 provided with an annular gear 103 and the plate 102 attached to casting 100 on which the carrier is supported.

14. The combination of the type-reservoir, the casting 100 below the same the horizontally-movable type-pushers pivoted on casting 100 and adapted to eject type laterally from the type-channels in the reservoir into guide-slots A′ in the periphery of casting 100, slots A′ being adapted to turn the type end for end as they pass therethrough, the bell-crank levers for operating said pushers, a slotted plate suspended from casting 100 on which the crank-levers are pivoted, and means for operating said bell-crank levers from the keyboard, with the annular carrier 101 below the slots A′ provided with an annular gear 103 and the plate 102 attached to casting 100 on which the carrier is supported.

15. The combination of the setter having a shaft mounted in a rocking bearing, the casting suspended from the setter-shaft, the vertical shaft having its upper end journaled in said casting and its lower end journaled in a rocking bracket, gearing between said shafts, means for rotating said vertical shaft, and means for rocking said bearings, for the purpose and substantially as described.

16. The combination of the packing-cylinder, the bolt for locking the same, the movable bar, a spring-pressed lever on said bar engaging and supporting said bolt, substantially as described.

17. The combination of the packing-cylinder, the bolt for locking the same, the movable bar, a pivoted bell-crank lever on said bar having its short arm engaging said bolt and its long arm pressed outward by a spring, for the purpose and substantially as described.

18. The combination of the packing-cylinder, the vertically-movable cam-actuated bar, the bell-crank lever pivoted thereon having its longer arm pressed outward by a spring against a stop projection on said bar, and the bolt supported upon the short arm of said bell-crank lever, substantially as described.

19. The combination of the packing-cylinder, the vertically-movable cam-actuated bar 34, the bell-crank lever 16 pivoted thereon having its longer arm pressed outward by a spring against a stop projection on said bar, and the bolt mounted in an adjustable guide attached to the cylinder-casing and supported upon the short arm of said bell-crank lever, substantially as described.

20. The combination of the packing-cylinder, the movable bar, the spring-pressed lever pivoted thereon, and the bolt supported upon said lever, in combination with a setter for pushing type into the channels of the packing-cylinder, an eccentric journal for said setter-shaft, and connections between said setter and the bolt-actuating bar, whereby the setter is rocked away from the packer when the bolt is released, and is rocked toward the packer when the bolt is engaged therewith.

21. The combination of the packing-cylinder, the vertically-movable cam-actuated bar, the bell-crank lever pivoted thereon having its longer arm pressed outward, by a spring, against a stop projection on said bar, and the bolt supported upon the short arm of said bell-crank lever; in combination with a setter for pushing type into channels of the packing-cylinder, eccentric journals for said setter, and connections between said setter and the bolt-actuating bar whereby the setter is rocked away from the packer when the bolt is released, and is rocked toward the packer when the bolt is engaged therewith.

22. The combination of the channeled packer-cylinder, the followers therein, and the justifier-head for pushing said followers inward to eject a line of type from the packer-cylinder; with a movable retractor-bar lying above the justifier-head and having a hook on its inner end adapted to engage the outer end of the follower when the same has been pushed fully inward and to retract the latter when the justifier-head is moved back, said bar being actuated in one direction by the justifier-head and in the other direction by the bar, substantially as described.

23. The combination of the packer-cylinder 2, having a series of channels 2ª, the followers 7 in said channels, and the sliding justifier-head adapted to push said levers inward to eject a line of type from the packer-cylinder into a receiver; with a sliding retractor-bar 8 mounted in stationary guides and lying above the justifier-head and having a hook on its inner end adapted to engage a hook or notch on the outer end of a follower 7 when the latter has been pushed fully inward by the head, and to retract the follower from the receiver when the justifier-head is moved back, substantially as described.

24. The combination of the justifying-wedge and the yoke and cam for actuating said wedge; with a wedge-cushioning device comprising a pivoted lever adapted to be engaged by a pin on the wedge when the latter is elevated, and a cam whereby said bar is gradually lowered, thus cushioning the descent of the wedge.

25. The combination of the justifying-head, the wedge for operating the same, the yoke and cam for projecting said wedge, and a spring for retracting it; with a wedge-cushioning device comprising a lever pivoted beside the wedge and adapted to be engaged by a pin on the wedge when the latter is projected, and a cam-surface on the wedge-actuating cam whereby said bar is gradually lowered, thus slowing the descent of the wedge.

26. The combination of the justifying-wedge, the supporting-yoke 26 having the flange 26ª, the gear 24, the cam-disk having a pin 24ª adapted to engage said flange 26ª and operate the wedge, and the spring for depressing said wedge, for the purpose and substantially as described.

27. The combination of the wedge, the supporting-yoke 26 having the flange 26ª, the gear 24, the cam or wheel having a pin 24ª adapted to engage said flange 26ª and operate the wedge, and the spring for depressing said wedge; with a pivoted lever, the cam 22ª for raising and lowering said lever, and the pin 27ª on the wedge adapted to engage said lever whereby too-rapid descent of the wedge is prevented, for the purpose and substantially as described.

28. The combination of a shaft, a worm gear-wheel thereon, a continuously-driven worm mounted in a swinging bracket, a rock-shaft and links whereby said worm may be raised into engagement with said gear, a swinging latch adapted to engage a pin on the link when the worm is elevated so as to lock the worm in engagement with the gear, and a device on said gear adapted to force the latch out of engagement with the pin, thereby allowing the worm to drop and the worm-gear to cease rotating, substantially as described.

29. The combination of the shaft, the worm-gear thereon, the continuously-driven worm mounted in a swinging bracket, the rock-shaft and links whereby said worm may be raised into engagement with the worm-gear, a swinging latch adapted to engage a pin on the link when the worm is elevated so as to lock the worm in engagement with the gear, and an adjustable unlocking plate on said gear adapted to engage the lower end of said latch and force the same out of engagement with the pin, thereby allowing the worm to drop and the worm-gear to cease rotating, substantially as described.

30. The combination of the continuously-driven worm mounted in a swinging support, a link connected to said support, and means for causing said link to throw the worm upwardly; with a worm-gear above the worm adapted to be driven thereby when the worm is thrown upward, a swinging latch pivoted beside the worm-gear and link, and adapted to engage the link when the worm is thrown upward and thereby lock said shaft in engagement with the gear, and a device on the worm-gear adapted to engage the latch, when the worm-gear has made one revolution, and cause it to release the link thereby permitting the worm to be thrown out of engagement with the gear, substantially as described.

31. The combination of the continuously-driven worm mounted in swinging bearings, a link connecting said bearings to an arm on a rock-shaft, and a lever and connections for rocking said shaft so as to throw the worm upwardly; with a worm-gear above the worm adapted to be driven thereby when the worm is thrown upward, a swinging latch pivoted beside the worm-gear and link, and having a catch adapted to engage a lateral pin on the link when the worm is thrown upward and thereby lock said shaft in engagement with the gear, and an adjustable plate on the worm-gear provided with a pin or roller adapted to engage the lower end of the catch, when the worm-gear has made one revolution, and force the latch outward, substantially as and for the purpose described.

32. The combination of a channel in which the line of type is composed, a line-holder to one side of the composing-channel into which the composed lines of type are ejected, and means for ejecting the line of type from the channel into the holder and compressing the same in the holder lineally, thereby justifying the same, and means for removing the justified line from the holder, substantially as described.

33. The combination of a movable channel in which the line of type is composed, a line-holder to one side of the composing-channel into which the composed lines of type are ejected, a follower in said channel and means for actuating said follower so as to eject the lines of type therefrom into the holder, and compressing the same in the holder lineally, thereby justifying the same, and means for removing the justified line from the holder, substantially as described.

34. The combination of a channel in which the line of type is composed, a line-holder into which the composed lines of type are ejected, means for ejecting the lines of type from the channel into the holder and compress the line lineally, thereby justifying the line; with a type-receiving channel and means for moving the holder after a line is justified into position so that the justified line of type therein can be moved into said receiving-channel.

35. The combination of a movable channel in which the line of type is composed, a line-holder to one side of the composing-channel into which the composed lines of type are ejected, a follower in said channel, and means for actuating said follower so as to eject the lines of type therefrom into the holder and compress the same in the holder lineally, thereby justifying the line; with a type-channel leading to the galley-head and means for moving the holder after a line is justified into position so that the line of type therein can be moved into the channel leading to the galley.

36. The combination of the packer-cylinder, a movable justified-line holder beside the said cylinder into which the lines are ejected from said cylinder, and a type-receiving channel at one side of the line-holder, and means for ejecting a line of type from the holder into said channel, and means for moving said line-holder alternately into position to receive a line from the packer and to surrender the line to the receiving-channel.

37. The combination of the packer-cylinder, a vibrating justified-line holder beside the packer-cylinder, means for ejecting a line of type from the packer-cylinder into the holder and justifying the line therein by lineal compression; and a type-receiving channel at one side of the line-holder; with means for ejecting a type from the line-holder into said channel, and means for moving said line-holder alternately into position to receive a line from the packer and to surrender the line to the receiving-channel.

38. The combination of the rotary packer-cylinder having a peripheral series of channels in which the type-lines are successively composed, the followers in said channels, and means for causing said followers to eject a composed line of type from the packer-cylinder; with a justified-line holder at one end of the packer-cylinder, into which the composed lines of type are successively discharged from said cylinder, and means for removing the said line from the holder after justification thereof for the purpose and substantially as described.

39. The combination of the rotary packer-cylinder having a peripheral series of channels in which type-lines are successively composed, the followers in said channels, and means for actuating said followers so as to successively eject the composed lines of type from the packer-cylinder; with a justified-line holder at one end of the packer-cylinder into which the composed lines of type are successively discharged from the packer-cylinder by said followers and justified by lineal compression therein, a line-receiving channel beside the holder, and means for moving said holder so as to alternately receive a line from the packer-cylinder and to deliver the line to the receiving-channel and means for ejecting the line from the holder into said receiving-channel, substantially as described.

40. The combination of the justified-line holder having a line-receiving channel, a channel or slot at one side of the holder through which composed lines of type can be introduced into the holder, and the channel at the other end of the holder into which the justified lines can be removed, and means for moving the holder so as to alternately register it with the said slot and said channel; with means for composing a line of type and forcibly ejecting the same lineally into the said holder through said slot and compressing the same therein, and means for removing the justified line from said holder when it has moved into position to register with the receiving-channel.

41. The combination of the justified-line holder, and means for moving the holder so as to alternately register it with the receiving and delivery devices; with the sliding follower in said line-holder adapted to be forced out of the line-holder when the line is justified therein, the spring-actuated bar for controlling said follower, and means for holding said follower after a line has been ejected into the

holder until the holder has delivered the line to the receiving-channel or transferring device and returned to normal position.

42. The combination of the justified-line holder having a line-receiving channel, a channel or slot at one side of the holder through which composed lines of type can be introduced into the holder, and the channel at the other end of the holder from which the justified lines can be removed, and means for moving the holder so as to alternately register it with the said slot and said channel; with the sliding follower in said holder adapted to be forced out of the line-holder when the line is justified therein, the spring-actuated bar for controlling said follower, and means for holding said follower after a line has been ejected into the holder and until the holder has delivered a line to the receiving-channel or transferring device and returned to normal position.

43. The combination of a composing-channel in which a type-line is composed, a follower in said channel and means for actuating said follower so as to eject the composed lines of type from the channel; with a laterally-movable justified-line holder into which the composed line of type is discharged when the holder is in one position, and means for justifying the line in the holder; with a galley, and a line-transferring device adapted to take the justified line from the holder when it is in another position and deliver the same to the galley, substantially as described.

44. The combination of the channel in which the type-lines are successively composed, and means for ejecting the composed lines of type from the channel; with a justified line holder into which the composed lines of type are successively discharged; means for justifying the line in said holder, a channel leading to a galley, and means for moving said holder so as to alternately receive a line from the composing-channel and to deliver the line to a receiving-channel; with a galley, and the line-transferring device adapted to take the line from the holder and deliver the same to the galley, substantially as described.

45. The combination of the rotary packer-cylinder having a peripheral series of channels in which the type-lines are successively composed, the followers in said channels, and means for actuating said followers so as to eject the composed lines of type from the packer-cylinder; with a justified-line holder at one end of the packer-cylinder, into which the composed lines of type are successively discharged from the packer-cylinder; and means for moving said holder so as to alternately receive a line from the packer-cylinder and to deliver the line to a receiving-channel; with a galley, and the line-transferring device adapted to take the line from the holder and deliver the same to the galley, substantially as described.

46. The combination of the rotary packer-cylinder having a series of type-receiving channels and the followers in said channels, and mechanism substantially as described for causing said followers to forcibly eject the composed lines of type from said cylinder at the proper time when the channels therein register with the exit-slot in the cylinder-casing; with a justified-line holder having a type-receiving channel adapted to register with said exit-slot, a spring-actuated follower in said line-holder adapted to be ejected therefrom by the incoming line of type; with a type-receiving channel at the opposite end of the holder; means for moving said holder laterally so as to move the justified line into register with the type-receiving channel and means for moving the line from the holder into said receiving-channel, substantially as described.

47. The combination of the packer-cylinder having a series of type-receiving channels and the followers in said channels, and means for causing said followers to forcibly eject the composed lines of type from said cylinder; with a justified-line holder having a type-receiving channel adapted to receive the line from said packer-cylinder, and means for moving said holder laterally so as to move the justified line into register with a type-receiving channel, a galley at the end of said receiving-channel, and a line-transferrer adapted to take the line from the holder and move it through said channel into the galley.

48. The combination of the packer-cylinder having a series of type-receiving channels and the followers in said channels, and a sliding head for causing said followers to forcibly eject the composed lines of type from said cylinder at the proper time; with a justified-line holder having a type-receiving channel adapted to receive the lines from the packer-cylinder, and means for moving said holder laterally so as to move the justified line into register with a type-receiving channel, a galley at the end of the receiving-channel and a line-transferrer adapted to take the line from the holder and move it through said channel into the galley, said line-transferrer being actuated immediately from the sliding head by which the followers are caused to eject the lines of type from the packer-cylinder.

49. In a type-setting machine, the combination of a channel in which the line of type is composed, a follower in said channel, a sliding justifier-head for operating said follower so as to cause it to eject the composed line from the channel; a laterally-movable line-holder having a type-receiving channel adapted to receive the composed line, a galley at the end of said holder opposite the packer-cylinder, a channel leading into said galley, and a movable transferring device adapted to move the line from the holder into the galley when the channel in the holder is registering with the channel leading to the galley, and means whereby the holder is moved so as to alternately register with the composing-channel and with the galley-channel, substantially as described.

50. In a type-setting machine, the combination of means for composing type, a rotary packer-cylinder having a series of channels into which the lines of type are successively composed, a follower in each channel, a sliding justifier-head for operating said followers so as to cause them to successively eject the composed lines from the packer-cylinder when the channels register with the holder, and means for moving the packer-cylinder so as to successively bring the channels therein into register with the type-feed channel and with the holder; with a laterally-movable line-holder at one end of the packer-cylinder having a type-receiving channel adapted to receive the composed lines, a galley at the end of said holder opposite the packer-cylinder, a channel leading into said galley, and a movable transferring device adapted to move the line from the holder into the galley when the channel in the holder is registering with the channel leading to the galley, said line-transferrer being actuated indirectly from the mechanism which operates the justifier-head, and means whereby the holder is moved so as to alternately register with a packer-cylinder channel and with the galley-channel, substantially as described.

51. The combination of the laterally-movable line-holder, the sliding block supporting the same, the rock-shaft, the segment thereon engaging a rack on said block for operating said holder, and the cam connections for rocking said shaft, substantially as described.

52. The combination with the sliding plate, the line-holder removably attached thereto, the rock-shaft, the segment thereon engaging a rack on said block for operating said holder, means for rocking said shaft, and a spring-actuated follower adapted to operate in said holder.

53. The combination of the type-composing mechanism, the line-holder beside said mechanism into which the composed lines of type are successively ejected and justified by lineal compression, said holder being removable and interchangeable to accommodate lines of different lengths.

54. The combination of the type-composing mechanism, the line-holder beside said mechanism into which the composed lines of type are successively ejected and justified by lineal compression, a line-transferring mechanism at one side of said holder, and means for shifting said holder alternately into position to receive a line from the composing mechanism and to deliver a line to the transferring mechanism, said holder being removable and interchangeable to accommodate lines of different lengths.

55. The combination of the composing mechanism and means for ejecting composed lines therefrom, a type-receiving channel, and transferring mechanism for moving lines of type therein; with a type-line holder interposed between said channel and said composing mechanism, and means for moving said holder alternately into position to receive a line from the composing mechanism and into position to deliver the same to the transferring mechanism.

56. The combination of the composing mechanism and means for ejecting composed lines therefrom, a type-receiving channel, and a transferring mechanism for moving lines of type therein; with a removable and interchangeable type-line holder interposed between said channels and said composing mechanism and means for moving said holder alternately into position to receive a line from the composing mechanism and into position to deliver the same to the transferring mechanism, and means for compensating said channel to suit different-sized holders, substantially as described.

57. The combination of the composing mechanism and means for ejecting composed lines therefrom, a type-receiving channel, and means for moving lines of type therein; with a type-line holder interposed between said channels and said composing mechanism, said holder being removable and replaceable by a like holder of different length, and a removable and replaceable casting whereby the length of the type-receiving channel may be varied to suit the length of the line-holder casting.

58. The combination of the composing mechanism and means for ejecting composed lines therefrom, a type-receiving channel, and means for moving lines of type therein; with a type-line holder interposed between said channels and said composing mechanism, and means for moving said holder alternately into position to receive a line from the composing mechanism and into position to deliver the same to the transferring mechanism, said holder consisting of a movable plate upon which is supported a removable channeled casting, said casting being removable and replaceable by a like casting of different length; and a removable and replaceable channeled casting whereby the length of the type-receiving channel may be changed to suit the changed length of the line-holder.

59. The combination of the slide and rock-shaft and connections for operating said slide, a line-holder removably attached to said slide and interchangeable with like holders of different lengths, a type-channel into which the lines are ejected from the holder, and the removable block having a channel forming a continuation of the type-receiving channel and interchangeable with like blocks of different lengths whereby the holder can be adapted to receive different lengths of lines and the receiving-channel lengthened or shortened to suit the length of the line-holder.

60. The combination of a line-holder, a galley, a channel leading from the line-holder to the galley, and a line-transferrer adapted to traverse said channel and to move a line from the holder through a channel into the galley, said transferrer comprising an adjustable bar 81 adapted to straddle a line of type, and operated by means of a toothed slide mounted on a fixed guide, said slide being operated by amplifying gearing from a sliding rack-bar, substantially as described.

61. The combination of the composing-channel, a line-holder, a movable plunger for ejecting a line of type from the composing-channel into the holder, a slide for actuating said plunger, and a cam-actuated lever for operating said slide; with a galley, a channel leading from a point beside said holder to the galley, a line-transferrer operating in said channel adapted to move the line into the galley when the holder registers with the channel, a slide for operating said transferrer, a rack attached to said slide, a pinion meshing with said rack having a smaller pinion on its hub, a sliding rack meshing with said smaller pinion, and connections between said sliding rack and the said cam-actuated lever, for the purpose and substantially as described.

62. The combination of the packing-cylinder having a series of channels each adapted to receive a line-type as it is composed, a follower in each channel, a sliding head for causing said plungers to eject the type from the packer-cylinder, a cam-actuated lever for operating said head, a laterally-movable type-line holder into which the composed lines are ejected from the packing-cylinder, a channel at the end of said holder beside the packing-cylinder leading to a galley, a reciprocating line-transferrer moving in said channel, and a slide-bar for operating said line-transferrer, a pinion engaging said bar, a small pinion on the shaft of the large pinion engaging a reciprocating rack, and connections between said reciprocating rack and the actuating-lever for said head, and means for moving the line-holder from a position to receive the line from the packing-cylinder into position to deliver the same to the line-transferrer, all substantially as described.

63. The combination of a line-holder into which the type are moved and justified, means for justifying the line in the holder by lineal compression and the line-planer by which the type are pressed down upon their feet into alinement within the holder; with means for moving said holder laterally to transfer the line from the receiving to the discharging point, and means for moving said line-planer out of the way before the holder has moved.

64. The combination of means for composing type in a line, a line-holder into which the composed type are moved and means for justifying the line of type in the holder by lineal compression, and the line-planer by which the type are pressed down upon their feet into alinement within the holder and held during justification thereof; with means for moving said holder to transfer the line from the receiving to the discharging point, and means for moving said line-planer out of the way before the holder has moved, and for returning it to position prior to the entrance of a line.

65. The combination of the means for composing a line of type, a laterally-movable line-holder containing a channel into which the composed lines of type are moved and justified by lineal compression, and means for moving the type-lines into said holder and compressing the same lineally therein; with a movable planer adapted to press all of the type in the line down upon their feet during the justification thereof, and means for moving said holder out of the way

66. The combination of the means for composing type in line, a line-holder into which the type are moved and justified by compression and the line-planer by which the type are pressed down upon their feet into perfect alinement within the holder; with a rocking lever carrying said planer, the link connecting said rocking lever with a spring-controlled lever and cam for operating said spring-controlled lever so as to depress the planer at the proper time.

67. The combination of a packing-cylinder the movable line-holder, means for ejecting lines of type from the packing-cylinder into said holder, and means for removing the lines from the holder; with a movable line-planer adapted to force all the type in the line dows upon their feet as they enter a holder, means for moving the holder alternately into position to receive a line from the packer-cylinder and into position to deliver the justified line to a transferring device, and means whereby said planger is moved out of the way before the line-holder is shifted, substantially as described.

68. The combination of a packing-cylinder the movable line-holder, means for ejecting lines of type from the packing-cylinder into said holder and compressing the same lineally therein, and means for removing the justified lines from the holder; with a movable line-planer consisting of a straight line-bar provided with a series of rollers on its under side and mounted upon a rock-shaft and adapted to be depressed into position to force all the type in the line down upon their feet as they enter a holder, a cam-shaft, lever, and connections for moving the holder alternately into position to receive a line from the packer-cylinder and into position to deliver the justified line to the transferring device, and the connections whereby the planer is also operated from said shaft, said planer being moved out of the way before the line-holder is shifted, substantially as and for the purpose described.

69. The combination of the composing-channel, a space-holding channel communicating therewith, and means for ejecting the spaces from said space-holding channel; with an adjustable space-holding galley supported above said space-channel and communicating therewith, and means for locking said galley or reservoir when adjusted to bring any one of the channels therein to register with the space-holding channel until said channel is emptied, for the purpose and substantially as described.

70. In a type-setting machine the combination with a composing mechanism, of a space-feeding channel communicating therewith, a casting having a space-holding channel communicating with said space-feeding channel, means for ejecting spaces from said space-holding channel, a removable space galley or reservoir and an adjustable support for said galley attached to said casting, and adjustable transversely thereof so as to bring any one of the lines of spaces in said galley directly over the space-holding channel in said casting and means for locking said support when properly adjusted, substantially as described.

71. The combination of a casting provided with a space-holding channel, means for ejecting spaces singly from said channel and for conducting the same to the composing-point; with a sliding plate attached to said casting, a vertically-disposed space-galley-supporting bar attached to said plate and adjustable therewith, and a space reservoir or galley removably connected to said bar and adapted to be adjusted thereby so as to bring any one of the lines of spaces therein into register with the space-holding channels to supply the latter for the purpose and substantially as described.

72. The combination of a casting having a space-holding channel, and mechanism for ejecting spaces from said channel; with a sliding bar adjustably mounted on said casting, the space-galley-supporting bar attached to said sliding bar and having a bracing-foot and a removable longitudinally-channeled lead galley or reservoir, all substantially as and for the purpose described.

73. The combination of a casting having a space-holding channel, a guide-channel communicating with the latter channel and leading to the assembling-point, and mechanism for ejecting spaces from said channel; with a sliding bar 240 adjustably mounted in said casting, the space-galley-supporting bar attached to said sliding bar and having a foot 472ª and the galley-supports 473 and 472ᵇ, and a longitudinally-channeled lead galley or reservoir 471, all substantially as and for the purpose described.

74. The combination with the space channel or reservoir, a slide for ejecting the spaces therefrom, a cam and lever for actuating said slide, a continuously-driven friction-disk for driving said cam, and key-controlled locking mechanism whereby said cam is locked after each revolution thereof, for the purpose and substantially as described.

75. The combination of the space-holding channel, the ejector for discharging spaces therefrom, the ejector-operating cam and connections, and the continuously-driven friction-plate for operating said cam; with a latch-lever beside the cam adapted to lock the cam, a spring for throwing said latching-lever into position to engage the cam, and key-controlled mechanism for permitting said lever to release the cam.

76. The combination of a space-holding channel, the slide for ejecting the spaces therefrom, the levers and cam for operating said slide, and the continuously-driven friction-plate for operating said cam; with a double-armed latching-lever beside the cam having one arm adapted to engage and lock the cam, a spring for throwing said latching-lever into position to engage the cam, a dog for locking said lever in engagement with the cam, and key-controlled mechanism for causing said dog to release the lever, said latching-lever being immediately returned to locking position by the pin striking the upper arm thereof, for the purpose and substantially as described.

77. The combination of a space-holding channel, means for supplying spaces thereto, a slide for ejecting spaces laterally therefrom, a spring-pressed rocking lever for retracting said slide, and a cam for engaging said lever and causing it to operate the slide to eject a space; with a continuously-rotating friction-disk supporting and adapted to rotate said cam when permitted, an angular pivoted latch-lever beside the cam having one arm adapted to engage a pin thereon to lock the cam, said pin engaging the other arm of the latching-

lever and returning it to locking position when it has once been released, and connections for releasing said cam from a key, substantially as described.

78. The combination of a space-holding channel, means for supplying spaces thereto, a slide for ejecting spaces laterally therefrom, a rocking lever for retracting said slide and a cam for engaging said lever and causing it to operate the slide to eject a space; with a continuously-rotating friction-disk supporting and adapted to rotate said cam when permitted, an angular pivoted latch-lever beside the cam having one arm adapted to engage a pin thereon to lock the cam, said pin engaging the other arm of the latching-lever and returning it to locking position when it has once been released, a spring connected to said lever adapted to throw it out of locking position, a rock-shaft, a dog on said rock-shaft adapted to engage said latch-lever and lock it in position to stop the cam, and connections for operating said shaft from the keyboard, all constructed and arranged substantially as described.

79. The combination with the composing mechanism of a type-setting machine, and a movable bar adapted to be pushed outward by the type during composition thereof, a sliding rack actuated by said movable bar, a pinion meshing with said rack, a larger pinion connected to said smaller pinion and rotated therewith, and a line-indicating bar meshing with and operated by said larger pinion for the purpose and substantially as described.

80. The combination with the mechanism of a type-setting machine, and a movable bar adapted to be pushed outward by the type during composition thereof, a sliding rack actuated by said movable bar, a pinion meshing with said rack, a larger pinion connected to said smaller pinion and rotated therewith, and a line-indicating bar meshing with and operated by said larger pinion, said line-indicating bar having a dovetailed rib engaging a dovetail guide in the casing, and a coiled spring connected to the hub of the larger pinion and to the casing and adapted to return the parts to zero position, substantially as described.

81. The combination of a longitudinally-movable ratchet-bar contained in a casing, a spring for moving said bar in the direction in which its teeth point, and pivoted escapement-dogs engaging said ratchet-bar and adapted to permit a step-by-step movement thereof; with a key-controlled space-feeding mechanism, and connections between said mechanism and said escapement whereby the bar is permitted to move the distance of one tooth each time a space is ejected.

82. In an indicator the combination of a sliding ratchet-bar, a pair of pivoted dogs adapted to engage the ratchet, one of said dogs being thrown into and out of operative position by the other dog, a spring for throwing the latter dog into engagement with the ratchet, and means for intermittently disengaging the latter dog from the ratchet; with means for moving the ratchet in the direction of its teeth when permitted by the dogs, and means for returning the ratchet-bar to normal position.

83. The combination with the composing mechanism and a sliding bar adapted to indicate the extent of the line of a sliding space-indicating bar beside the line-indicating bar having a ratchet-face, a pivoted dog engaging said ratchet and pressed inward by a spring, a second dog pivoted beside the first dog and pressed inward by a spring upon the first dog, but thrown outward by the pawl of the first dog when the latter engages the ratchet, means for moving said ratchet-bar in the direction of its teeth; a space-feeding mechanism and connections between said mechanism and said escapement whereby the space-indicating bar is moved one tooth each time a space is ejected, for the purpose and substantially as described.

84. The combination with the composing mechanism of a type-setting machine, and a movable bar adapted to be pushed outwardly by the incoming type, a sliding rack actuated by said movable bar, a pinion meshing with said rack, a larger pinion connected to said smaller pinion and rotated therewith, and a line-indicating bar meshing with and operated by said larger pinion; with a longitudinally-movable ratchet-bar contained in a casing, a spring for moving said bar in the direction in which its teeth point, pivoted escapement-dogs engaging said ratchet-bar and adapted to give a step-by-step movement thereto; a key-controlled space-feeding mechanism, and connections between said mechanism and said escapement whereby the ratchet-bar is permitted to move the distance of one tooth each time a space is ejected.

85. The combination of the composing mechanism, the sliding bar adapted to be moved by the incoming type during the composition of a line, the rack-bar connected to said movable bar, a small pinion operated by said rack-bar, a large pinion on the hub of the smaller pinion engaging a sliding rack-bar, whereby a line is indicated, and means for returning said parts to normal position; with the space-indicating bar comprising a ratchet-bar beside the line-indicating bar, a double-dog escapement mechanism for said line-indicating bar, the space-feeding mechanism and the connections between said mechanism and said escapement whereby the latter is caused to permit the space-indicating bar to move one notch each time a space is ejected, and means whereby both said indicating-bars are thrown back to normal position upon the completion of a line substantially as described.

86. The combination of the composing mechanism, the line-holder in which the lines are justified, and a line-transferrer for removing the lines from said holder to the galley; with a galley having a vertically-movable rule and longitudinally-movable plunger between which the line is moved by the transferrer, said plunger being grooved or channeled to permit the transferrer to return toward the line-holder before the plunger is retracted.

87. The combination of the galley-head, the plunger and rule adapted to form a line-receiving channel when the rule is raised and the plunger retracted, the lead-box supported above the rule and plunger having an opening in its bottom directly over a rule, and the movable lead-ejecting plate connected to and operated by said rule; with the follower in said lead-box, the rock-segments engaging the follower-head and rule-head, and the cams and connections substantially as described for rocking said segments.

88. The combination of the galley-head, the plunger and rule adapted to form a line-receiving channel when the rule is raised and the plunger retracted, the lead-box supported above the rule and plunger, having an opening in its bottom directly over the rule, the movable lead-ejecting plate connected to and operated by said rule and the stripper-plate to prevent leads being elevated in the box when the rule ascends; with the follower in said lead-box, the weighted cord for actuating said follower; the rock-segments engaging racks on the follower-head and rule-head, and the cams and connections substantially as described for rocking said segments.

89. The combination of the composing mechanism, the line-holder in which the lines are justified and a sliding line-transferrer for removing the lines from said holder to the galley; with a galley, a vertically-movable rule and a longitudinally-movable plunger in the galley between which the line is moved by the transferrer, said plunger being grooved or channeled to permit the transferrer to return toward the line-holder before the plunger is retracted; substantially as described.

90. The combination of the composing mechanism, the line-holder in which the lines are justified and a sliding line-transferrer for removing the lines from said holder to the galley; a galley, a vertically-movable rule and longitudinally-movable plunger therein between which the line is moved by the transferrer, said plunger being grooved or channeled to permit the transferrer to return toward the line-holder before the plunger is retracted; with a lead-box above the plunger having an opening directly over the rule, the lead-ejecting plate connected to the rule-operating head so as to eject the lead in front of the line of type as the rule descends, and means for actuating the rule and plunger, substantially as described.

91. The combination of the bracket, the galley movably supported thereon, the vertically-movable rule, connected to a sliding head provided with a rack, an oscillating segment engaging the rack and the cam and connections for oscillating said segment; with the plunger for pushing the type down in said galley, the oscillating segment engaging said plunger and the spring-pressed rack-bar for oscillating said segment in one direction, and a cam for forcing said bar in the opposite direction, all substantially as and for the purpose described.

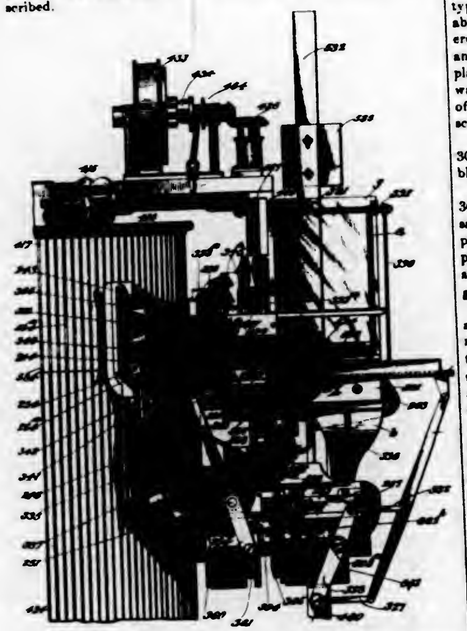
92. The combination of the bracket, the galley movably supported thereon, the vertically-movable rule, connected to a sliding head provided with a rack, an oscillating segment engaging the rack and the cam and connections for oscillating said segment, a plunger for pushing the type down in said galley, the oscillating segment engaging said plunger and the spring-pressed rack-bar for oscillating said segment in one direction, and a cam for forcing said bar in the opposite direction with a removable lead-box above the plunger having an opening directly over the rule, the lead-ejecting plate connected to and operated from the rule-head, the plunger in the lead-box, and the means for operating said plunger, all substantially as and for the purpose set forth.

93. The combination of a type-composing channel, and a setter for fowarding the types in said channel; with a smoother pivoted above the channel and adapted to be struck and thrown up by the incoming type and drop by gravity upon the type below it thus smoothing the type down in said channel, substantially as described.

94. The combination of the type-receiving channel, means for forwarding types thereto, and a rotary setter for pushing the types into said channel; with a line-smoother 121 pivoted above and projecting partially over the channel and adapted to be struck by an incoming type and to drop by gravity upon the type below it thus smoothing the type down in the channel, for the purpose and substantially as described.

646,859. SPACE AND LEAD DISCARDER AND DISTRIBUTER-LOADER. PAUL F. COX, Manchester, Conn., assignor to the Unitype Company, same place. Filed Aug. 30, 1899. Serial No. 728,966. (No model.)

Claim.— 1. The combination of a hinged galley-holder, a sliding plunger connected to the end thereof, and means for operating said plunger when said galley is in a vertical position, substantially as described.



2. The combination of a hinged galley-holder, a sliding plunger connected to the end thereof and movable therewith, a sliding plate below the holder and hinged to said plunger, and means for operating said plate, substantially as described

3. The combination of a hinged galley-holder, a plunger connected to the end thereof, a sliding plate for operating said plunger, hinged thereto, said plate being adjustable so as to bring the hinge or pivot of the plunger into line with the pivot or hinge of the galley when the galley is to be lowered, for the purpose and substantially as described.

4. The combination of the galley hinged at its lower end, a reciprocating plunger-guide in the lower end of the galley, said plunger forming the end of the galley when the latter is turned down and the movable bottom therefor when it is turned up, and means for reciprocating said plunger, substantially as described.

5. The combination of the galley hinged at its lower end, a reciprocating plunger guided in the lower end of the galley, adapted to eject lines of type therefrom, a reciprocating plate for operating said plunger and hinged thereto, and means for reciprocating said plate, said plunger forming the end of the galley when the latter is turned down and a movable bottom therefor when it is turned up.

6. The combination of the galley hinged at its lower end, a reciprocating plunger guided in the lower end of the galley, adapted to eject lines of type therefrom, means for operating said plunger hinged thereto, and detachable connections between said plunger and its operating devices whereby the plunger can be shifted so as to bring its pivots into line with the pivots of the galley when the galley is to be lowered.

7. The combination of the galley hinged at its lower end, a reciprocating plunger mounted in the lower end of the galley, adapted to eject lines of type therefrom, a reciprocating plate for operating said plunger and hinged thereto, means for reciprocating said plate, said plunger forming the end of the galley when the latter is turned down and a movable bottom therefor when it is turned up, and detachable connections between said plate and its operating devices, whereby the plate can be shifted so as to bring the pivots of the plunger into line with the pivots of the galley when the galley is to be lowered.

8. The combination of the hinged galley-holder, the sliding plunger guided in the bottom thereof and adapted to eject the lines of type therefrom when the galley is in raised position and to form the end of the galley when it is in lowered position, and the adjustable holder-block attached to said holder for retaining galleys of different sizes therein, substantially as described.

9. The combination of the hinged galley-holder, the sliding plunger guided in the bottom thereof, and adapted to eject the lines of type therefrom when the galley is in raised position, and the adjustable holder-block attached to said holder for retaining galleys of different sizes therein; with a sliding plate hinged to said plunger, a cam and lever for operating said plate, and means for disconnecting said plate from said actuating-lever to permit the plate to be drawn backward so as to bring the hinges of the plunger in line with the hinge of the galley when the latter is to be lowered, substantially as described.

10. The combination of the galley composed of the hinged plate 302, the opposite side castings, and the adjustable galley-retaining block slidably mounted on plate 302, substantially as described.

11. The combination of the galley-holder composed of a plate 302 hinged to a fixed bracket, the opposite side plates attached to said bracket, the weight guide-bar attached to said plate, and the plunger 298 guided in said plate; with the slide 297 hinged to said plunger, means for reciprocating said slide, and means for shifting said slide to bring the hinges of the plunger and galley into line when the galley is to be lowered.

12. The combination of the galley-holder, the weight guide-bar attached thereto, and the adjustable galley-holding block slidably mounted in said galley-holder; with the plunger 298 guided therein, the slide 297 hinged to said plunger, means for reciprocating said slide, and means for disconnecting said slide from its operating mechanism, thereby permitting the slide to be shifted to bring the hinges of the plunger and galley into line when the galley is to be lowered.

13. The combination of the galley-holder composed of a casting 302 hinged to the fixed bracket, the opposite side plates attached to said bracket, the weight guide-bar 532 attached to said plate and the adjustable block 304 slidably mounted on said plate; with the plunger 298 guided therein, the slide 297 hinged to said plunger, means for reciprocating said slide, and means for disconnecting said slide from its operating mechanism, thereby permitting the slide to be shifted to bring the hinges of the plunger and galley into line when the galley is to be lowered.

14. The combination of the galley-holder, the weight guide-bar attached thereto, the sliding weight on said bar and the follower attached to said weight.

15. The combination of the galley-holder, and the adjustable galley-retaining block 304 slidably mounted therein, with the guide-bar, the adjustable weight thereon, and the follower attached to said slide, substantially as described.

16. The combination of the galley-holder and the adjustable galley-retaining block 304; with the guide-bar 532, the adjustable weight 535 thereon, and the follower 534 attached to said slide having an extensible portion 536, substantially as described.

17. The combination of the galley composed of the hinged plate 302, the opposite side castings, and the adjustable galley-retaining block 304 slidably mounted on plate 302; with the guide-bar 532, the adjustable weight 535 thereon, and the follower 534 attached to said slide having an extensible portion 536, for the purpose and substantially as described.

18. The combination of the holder for dead-matter, the plunger for ejecting lines therefrom, and the movable bottom below said plunger adapted to support the type when the plunger is retracted, and to retain the leads when the plunger is projected, and means for moving said bottom so as to discard the lead while the plunger is projected.

19. The combination of the holder for dead-matter, the plunger for ejecting leads therefrom, and the removable and changeable bottom below said plunger mounted on a hinged support and adapted to support the type when the plunger is retracted, and to retain the leads when the plunger is projected, and means for dropping or tilting said bottom so as to drop the lead while the plunger is projected.

20. The combination of a holder for dead-matter, a plunger for ejecting the lowermost line therefrom, means for reciprocating said plunger, a movable bottom below said plunger, mounted on a tiltable or hinged support, said bottom being interchangeable with others of different thicknesses according to the leading of the matter being treated, means for operating said plunger so as to project a line of type over the bottom, and means for tilting the bottom while the plunger is projected therefrom so as to drop the lead lying upon the bottom, for the purpose and substantially as described.

21. The combination of the tiltable holder for dead-matter, the plunger attached to the bottom of said holder, and means for operating said plunger, a hinged plate adapted to form the bottom of the holder when the latter is raised to a vertical position, said bottom underlying the plunger when the latter is projected and supporting the type when the plunger is retracted, and means for tilting said bottom when the plunger is projected so as to drop the leads lying on the bottom.

22. The combination of a hinged galley-holder, the sliding plunger attached to the hinged end thereof, the sliding plate hinged to said follower, and means for operating said plate; with the removable and interchangeable plate attached to a hinged support and adapted to support the type in the galley when the latter is in raised position, said plate underlying the plunger, and adapted to retain the lead when the plunger is actuated to move a line of type from the galley, and means for tripping or tilting said plate when the plunger is projected, so as to drop the lead, for the purpose and substantially as described.

23. The combination of the tiltable holder for dead-matter, the plunger attached to the bottom of said holder, means for operating said plunger, a movable bottom below said plunger, mounted on a tiltable or hinged support, said bottom being interchangeable with others of different thicknesses according to the leading of the matter being treated, said bottom underlying the plunger when the latter is projected and supporting the type when the plunger is retracted, and means for tilting said bottom when the plunger is projected so as to drop the leads lying on the bottom.

24. The combination of the galley hinged at its lower end, a reciprocating plunger guided in the lower end of the galley, adapted to eject lines of type therefrom, and a reciprocating plate for operating said plunger and hinged thereto, means for reciprocating said plate, said plunger forming the end of the galley when the galley is in raised position; with a removable and interchangeable bottom plate attached to the galley-support, and means for tilting the bottom when the plunger has ejected a line of type and overlies the bottom so as to drop the discarded leads, for the purpose and substantially as described.

25. The combination of the galley-holder, the plunger for ejecting type therefrom, and the adjustable block in the galley, and the tumbler pivoted to said block adapted to be raised by the plunger when the latter is ejected and to drop into the slot when the plunger is retracted, and prevent the end type twisting out of line.

26. The combination of the hinged galley-holder, the sliding plunger attached to the end thereof, the adjustable galley clamp-block attached to said holder, and the tumbler pivoted to said block and adapted to prevent end type twisting out of line when the plunger is retracted.

27. The combination of the hinged galley-holder, having a base-plate 302, the sliding plunger 298 attached to said plate, the galley clamp-block 304 adjustably attached to said plate, and the tumbler 308 pivoted in a recess in the inner end of said block and adapted to prevent end type getting out of line when the plunger is retracted.

28. The combination of a series of space discarders or ejectors, means for moving a line of type therepast, a movable bar adapted to catch and actuate any ejector which has found a space, and the swinging links supporting said bar, whereby it is given an outward movement as it is swung downward and a rearward movement as it swings upward.

29. The combination of a series of vertically-movable ejector-fingers, means for moving a line of type therepast, and means for lowering said ejectors onto the type; with a movable bar adapted to catch and actuate any ejector which has found a space, the swinging links supporting said bar, whereby the bar is given an outward movement as it is swung downward and a rearward movement as it swings upward, the cam-actuated lever for forcing said bar downward, and the spring for returning the same to normal position, substantially as described.

30. The combination of a series of sliding space-ejectors, and mechanism for moving a line of type therepast; with a movable bar for positively actuating any ejector which has found a space, the slide supporting said plate, and the links suspending said slide on a movable support, a cam-actuated lever for actuating said slide, connected thereto by a link, said links being so disposed as to cause the actuating-bar to swing outward as it is moved downward and to swing inward as it is moved upward, for the purpose and substantially as described.

31. The combination of a series of space-ejectors, means for moving a line of type therepast, means for bringing the ejectors into contact with the type, a movable bar adapted to actuate any ejector which has found a space, a slide supporting said bar, the links suspending said slide from vertically-movable bars, and the cam-actuated lever for operating said slide, connected thereto by a link, and springs for raising said bar, for the purpose and substantially as described.

32. The combination of a series of space-ejectors, means for moving a line of type therepast; a sliding cam-actuated controller-plate adapted to draw the ejectors out of the way of the line of type; with a movable bar adapted to positively actuate any ejector which has found a space, the links suspending said bar from a movable frame, and a cam-actuated lever for operating said bar, for the purpose and substantially as described.

33. The combination of a series of space discarders or ejectors, and means for moving a line of type therepast, a sliding controller-plate adapted to draw the ejectors out of the way of the line of type, said controller-plate being suspended on rocking levers, and cams for operating said levers; with a movable bar adapted to positively actuate any ejector which has found a space, a slide carrying said bar, the links suspending said slide from a movable frame, and a cam-actuated lever for operating said slide connected thereto by a link, whereby the bar is given an outward movement as it is swung downward, substantially as described.

34. The combination of a series of spring-controlled space discarders or ejectors, means for moving a line of type intermittently or step by step past the series of ejectors, a vertically-movable controller-plate adapted to lift all the ejectors out of the way of the line of type while the same is moving and to lower the ejectors onto the line of type when the same is stopped; with a movable actuating-bar adapted to actuate any ejector which has found a space, a slide supporting said bar, links suspending said slide from movable bars and a cam-actuated lever for operating said slide, connected thereto by a link whereby the bar is given an outward movement as it is moved downwardly.

35. The combination of a series of spring-controlled space discarders or ejectors, means for moving a line of type intermittently or step by step past the series of discarders, a vertically-movable controller-plate adapted to lift all the ejectors out of the way of the line of type while the same is moving and to lower the ejectors onto the line of type when the same is stopped; with a movable actuating-bar adapted to actuate any ejector which has found a space, a slide supporting said bar, links suspending said slide from movable bars, a cam-actuated lever for operating said slide, connected thereto by a link whereby the bar is given an outward movement as it is moved downwardly, mechanism whereby the controller is raised before the type is advanced and lowered when the type is stopped, and means whereby the actuating-bar is operated each time the line is stopped and after the ejectors are lowered, for the purpose and substantially as described.

36. The combination of space-discarding mechanism, means for moving a line of type therepast, a cam-shaft for operating said discarding mechanism, a continuously-driven shaft, and mechanism whereby the cam-shaft is intermittently driven from said continuously-driven shaft, substantially as described.

37. The combination of space-discarding mechanism, means for moving a line of type therepast, a cam-shaft for operating said discarding mechanism, a continuously-driven shaft, clutch mechanism whereby the cam-shaft is intermittently driven from said continuously-driven shaft, and means whereby the operation of the clutch mechanism is controlled by the line-actuating mechanism.

38. The combination of space-discarding mechanism, a type-channel beside the same, and a cam and connections substantially as described whereby a line of type is moved in said channel past the ejectors; with a continuously-driven shaft, a clutch mechanism for locking said continuously-driven shaft to the discarding mechanism, said clutch being controlled by said line-advancing cam, whereby the discarding mechanism is regulated by the line-advancing mechanism.

39. The combination of a space-discarding mechanism, comprising a series of space-ejectors, a controller-bar and an actuating-bar therefor, a cam-shaft and levers for actuating said discarding mechanism, a line-advancing cam and connections for moving a line of type step by step past the ejectors, a continuously-driven shaft, a clutch mechanism controlled by said line-advancing cam whereby the discarding-mechanism cam-shaft is locked to said continuously-driven shaft, substantially as and for the purpose described.

40. The combination of the discarding mechanism, comprising a series of space-ejectors, a controller-bar, and an ejector-actuating bar, a cam-shaft, and cams and levers for operating said controller and actuating-bars; with a line-channel beside the discarding mechanism, a plunger for moving a line of type therein, a line-advancing cam for forwarding a line of type in said channel, and means whereby the line-advancing cam controls the operation of the discarding device, substantially as described.

41. The combination of the discarding mechanism, comprising a series of space-ejectors, a controller-bar, and an ejector-actuating bar; a cam-shaft and cams and levers for operating said controller-bars, a continuously-driven shaft, a gear thereon meshing with a gear on the cam-shaft and clutch mechanism for locking said gear to said continuously-driven shaft; with a line-channel beside the discarding mechanism, a plunger for moving a line of type therein, a line-advancing cam for forwarding a line of type in said channel, and means whereby the line-advancing cam controls the operation of the said clutch mechanism, substantially as described.

42. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar from spring-suspended bars, a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with a continuously-driven shaft and mechanism whereby the cam-shaft is intermittently driven from said continuously-driven shaft.

43. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for acuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar from spring-suspended bars, and a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with a type-channel opposite said ejectors, a plunger for moving a line of type through said channels, a cam and connections substantially as described, whereby said plunger is caused to move the line of type step by step past the ejectors; a continuously-driven shaft, and clutch mechanism substantially as described controlled from said line-actuating cam whereby the ejector mechanism is operated each time the line is advanced from said cam.

44. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers; an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar from spring-suspended bars, a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with means for forwarding a line of type past said discarding mechanism, a continuously-driven shaft, a pinion thereon meshing with a pinion on the cam-shaft, and clutch mechanism whereby the pinion is intermittently locked to said continuously-driven shaft.

45. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar from spring-suspended bars, and a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with a type-channel opposite said ejectors, a plunger-cam and levers substantially as described, whereby a line of type is moved step by step past the ejectors, a continuously-driven shaft, a pinion thereon meshing with the pinion on the cam-shaft, and clutch mechanism substantially as described controlled from said line-actuating cam, and clutch mechanism substantially as described, whereby the pinion is intermittently locked to said continuously-driven shaft, whereby the ejector mechanism is operated each time the line is advanced by said line-actuating cam.

46. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar hung on spring-suspended bars; a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with a continuously-driven shaft, a pinion thereon meshing with a pinion on the cam-shaft, and clutch mechanism substantially as described, whereby the pinion is intermittently locked to said continuously-driven shaft, a type-channel beside said ejectors, a plunger for moving type into said channel, a cam and levers for actuating said plunger so as to move the type step by step, and a cam on the cam-shaft controlling the said clutch so that the ejector mechanism will be operated when the line is advanced.

47. In a space-discarder, the combination of a series of ejectors, means for actuating the same, a type-channel opposite said ejectors and means for moving a line of type therein; with a striker-plate opposite said ejectors adapted to complete the discarding of any spaces pushed out by the ejectors, swinging arms on which said striker-plate is pivoted, and means for actuating said striker, for the purpose and substantially as described.

48. The combination of a series of space-ejectors, means for actuating the same, a type-channel opposite said ejectors, and means for moving a line of type therein; with a striker-plate opposite said ejectors, swinging arms to which said striker-plate is attached, the springs for pulling said striker-plate inward toward the line of type, and the cams and levers for controlling the operation of said striker-plate, for the purpose and substantially as described.

49. The combination of a series of space-ejectors, a controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a lever and connections for operating said bar from a cam on said cam-shaft, a striker-plate, swinging arms supporting said plate, the links connecting said arms to swinging levers opposite said cam-shaft, and cams on said cam-shaft engaged by said swinging levers.

50. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, a link supporting said slide on a movable bar, a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; with a striker-plate, swinging arms for supporting said plate, the links connecting said arms to swinging levers opposite said cam-shaft, and cams on said cam-shaft for operating said levers, and a spring for holding said levers against the cam.

51. The combination of a series of space-ejectors, a sliding controller for moving the same into and out of operative position, a cam-shaft, a cam thereon and connections for actuating said controller; an actuating-bar adapted to engage any ejector which has found a space, a cam on said cam-shaft and connections for operating said actuating-bar; a striker-plate, a cam on said cam-shaft, and connections for operating said striker-plate; with a type-channel extending between said ejectors and the striker-plate, a plunger for moving a line of type in said channels, a line-advancing cam and connections for operating said plunger, a continuously-driven shaft, a clutch mechanism for locking said cam-shaft to said positively-driven shaft, and means for controlling said clutch from the line-advancing cam-shaft, substantially as described.

52. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said levers, an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar; links supporting said slide on a movable bar, a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; a striker-plate, swinging arms supporting said plate, links connecting said arms to swinging levers opposite said cam-shaft, and cams on said cam-shaft for operating said levers; with a type-channel extending between said ejectors and the striker-plate, a plunger for moving a line of type in said channels, a line-advancing cam and connections for operating said plunger, a continuously-driven shaft, a loose gear thereon meshing with a gear on said cam-shaft, a clutch for locking said loose gear to said positively-driven shaft, and means for controlling said clutch from the line-advancing cam-shaft, for the purpose and substantially as described.

53. The combination of the space-discarding mechanism, a type-channel beside the same, and means for moving a line of type through said channel; with means for returning any partially-ejected spaces into line, after the discarder has operated, substantially as described.

54. The combination of a series of ejectors, a horizontally-disposed type-line channel below the same, a liner-plate below said channel adapted to form the bottom thereof, when the ejectors are elevated and during the movement of a line, and means for retracting said liner when the ejectors are lowered into operative position.

55. The combination of space-discarding mechanism, and means for moving a line of type therepast; with a liner-plate adapted to return any partially-ejected spaces into line, and means for operating said plate so as to withdraw the same out of the way when the discarder comes into operation.

56. The combination of a horizontally-disposed type-line channel, a series of movable space-discarding ejectors above the channel, a liner-plate below the channel, a controller for raising and lowering said ejectors; means for retracting said liner when the ejectors are lowered by the controller and for projecting said liner so as to return any partially-ejected spaces into line when the ejectors are raised, substantially as described.

57. The combination of a type-line channel, a series of movable space-ejectors, a liner-plate beside the channel, a controller for moving said ejectors to and from the channel, an actuating-bar for operating any ejector which has found a space, means for retracting said liner when the ejectors are moved to the channel by the controller, and for projecting said liner so as to return any partially-ejected spaces into line when the ejectors are moved away from the channel and before the line is moved, for the purpose and substantially as described.

58. The combination of a space-discarding mechanism the type-channel beside said mechanism, the liner-bar, the swinging arm supporting the same, the link connecting said arm to a cam-actuated lever, and a spring for holding said lever in contact with the cam and for projecting the liner-plate when permitted by the cam, substantially as and for the purpose described.

59. In a space-discarder, the combination of a series of space-ejectors, and means for operating the same, the striker-plate for eject-

ing any type partially displaced by the ejectors, and means for actuating said striker-plate; with the type-line channel arranged between the ejectors and striker-plate, and the liner-plate underlying said channel, and means for operating said liner, substantially as described.

60. The combination of a series of space-ejectors, the controller-plate therefor, the actuating-bar for said ejectors, and means for operating said controller and actuating-bar, the striker-plate for ejecting any type partially displaced by the ejectors, and means for actuating said striker-plate; with the type-line channel arranged between the ejectors and striker-plate, the liner-plate underlying said channels adapted to be projected thereunder after the ejectors and striker-plate have been operated, and while the line is being moved.

61. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, a cam-shaft, cams thereon and connections for actuating said controller, an actuating-bar adapted to engage any ejector which has found a space, and a cam on said cam-shaft and connections for operating said actuating-bar; a striker-plate, and cams on said cam-shaft and connections for operating said striker; with a type-channel extending between said ejectors and the striker-plate, a plunger for moving a line of type in said channels, a line-advancing cam and connections for operating said plunger; a continuously-driven shaft, a clutch mechanism for locking said cam-shaft to said continuously-driven shaft, and means for controlling said clutch from the line-actuating cam-shaft, a liner-plate underlying said ejectors, and channel adapted to assist in supporting the type as they are moved under the ejectors, and a cam fixed to the continuously-driven shaft and connections adapted to control the operation of said liner-plate, substantially as and for the purpose described.

62. The combination of a series of space-ejectors, a sliding controller-bar for moving the same into and out of operative position, the crank-levers for actuating said controller, and a cam-shaft and cams thereon for actuating said lever; and an actuating-bar adapted to engage any ejector which has found a space, a slide carrying said bar, links suspending said slide from spring-suspended bars, a lever connected to said slide by a link, and a cam on said cam-shaft for operating said lever; a striker-plate and a swinging arm for supporting said plate, the links connecting said arms to swinging levers beside said cam-shaft, and cams on said shaft for operating said levers; with a type-channel extending between said ejectors and the striker-plate, a plunger for moving a line of type in said channels, a cam and connections for operating said line-plunger, a continuously-driven shaft, a loose gear thereon meshing with a gear on said cam-shaft, a clutch for locking said loose gear to said continuously-driven shaft, and means for controlling said clutch from the line-actuating cam-shaft, a liner-plate underlying said ejectors, a channel, the link and levers for actuating said liner, and a cam on the continuously-driven shaft adapted to control the operation of said liner-plate, substantially as and for the purpose described.

63. The combination of a type-line channel or holder, a plunger for forwarding a line of type therein, a line-advancing cam and connections for operating said plunger, means for separating a line of type from a galley of dead-matter and introducing the same into said line-channel, a space-discarding mechanism adapted to operate upon the line as it is moved through said channel; with a continuously-driven shaft, clutch mechanism for locking said shaft to the discarder-operating mechanism, and mechanism substantially as described whereby the line-advancing cam controls the operation of the said clutch.

64. The combination of a type-line channel or holder, a plunger for forwarding a line of type therein, a line-advancing cam and connections for operating said plunger, means for separating a line of type from a galley of dead-matter and introducing the same into said line-channel, a space-discarding mechanism adapted to operate upon the line as it is moved through said channel, said line-advancing cam being constructed to give the line a step-by-step movement past the discarders, and said discarder mechanism being adapted to operate several times during each rotation of the line-advancing cam, and means for stopping the line-advancing cam at each rotation thereof.

65. The combination of a type-line channel or holder, a plunger for forwarding a line of type therein, a line-advancing cam and connections for operating said plunger, means for separating a line of type from a galley of dead-matter and introducing the same into said line-channel, a space-discarding mechanism adapted to operate upon the line as it is moved through said channel, said line-advancing cam being constructed to give the line a step-by-step movement past the discarders, and said discarder mechanism being adapted to operate several times during each rotation of the line-advancing cam; with a continuously-driven shaft, clutch mechanism for locking said shaft to the discarder-operating mechanism, and mechanism substantially as described whereby the line-advancing cam controls the operation of the said clutch, whereby the discarding mechanism is set into operation after a line-advancing cam begins to operate and is stopped before the line-advancing cam ceases to rotate, and means for stopping the line-advancing cam at each rotation thereof.

66. The combination of a type-line channel, the plunger for moving the type therein, a cam, the cam-actuated lever, and the plunger-actuating lever connected to the cam-actuating lever by double links, substantially as described.

67. The combination of the ejector mechanism, a channel for conducting type thereto, a plunger in said channel, the lever for operating said plunger, a link connecting the lower end of said lever to a fixed support, a pivoted cam-actuated lever, a link connecting the movable end of said cam-actuated lever to said plunger-actuating lever, and a rotating cam for actuating said cam-lever.

68. The combination of the space-discarder mechanism, the cam-shaft for operating the same, the line-channel beside said discarder, a plunger therein, and a cam and lever for operating said plunger, a continuously-driven shaft, a clutch mechanism for intermittently driving said plunger-actuating cam from said shaft, a second continuously-driven shaft, and clutch mechanism whereby said discarder cam-shaft is intermittently driven from the second continuously-running shaft, and means for controlling said discarder-clutch mechanism from the line-actuating cam-shaft.

69. The combination of a type-channel, a plunger for forwarding the type therein, the line-plunger-actuating cam, connections for operating said plunger from said cam, and means for intermittently rotating said line-actuating cam; with the space-discarding mechanism adapted to operate upon the line of type moved through said channel, the cam-shaft for operating the discarder mechanism, a continuously-driven shaft beside said discarder cam-shaft, a loose gear on said continuously-driven shaft meshing with a gear on the discarder cam-shaft, a clutch for locking said pinion to said continuously-driven shaft, and a cam and connections substantially as described whereby said clutch is controlled from the line-actuating cam-shaft.

70. The combination of a continuously-driven shaft, the ratchet thereon, the disk opposite the ratchet, a dog pivoted on said disk adapted to engage the ratchet, a spring for throwing said dog into engagement with the ratchet, the lock-lever or shoe adapted to disengage the dog from the ratchet, a catch for holding said lever in position to engage the dog, means for tripping said catch, and a cam on said disk adapted to engage the lock-lever and throw it in position to disengage the dog from the ratchet, for the purpose and substantially as described.

71. The combination of the continuously-driven shaft, a ratchet thereon, a disk loosely mounted on the shaft beside the ratchet, the spring-actuated dog 282 on said disk, the pivoted lock-lever or shoe beside the dog having a lug on one end adapted to engage a cam on the disk, whereby it is thrown in position to cause the dog to disengage the ratchet, and a catch for holding the lock-lever in position to engage the dog.

72. The combination of the continuously-driven shaft, a ratchet thereon, a disk loosely journaled on said shaft beside the ratchet, the spring-actuated dog on said disk, the pivoted lock-lever beside the dog adapted to cause the dog to disengage the ratchet, and a catch for holding the locking-lever in position to engage the dog; with space-discarding mechanism, a cam-shaft for operating such mechanism, a gear on said shaft meshing with a pinion fixed to said disk, a line-channel beside the ejector mechanism, a line-advancing cam and connections adapted to move the line past the ejectors, and the lever and connections whereby said catch is controlled by said line-advancing cam.

73. The combination of the continuously-driven shaft, a ratchet thereon, a disk loosely mounted on the shaft beside the ratchet, the spring-actuated dog 282 on said disk, the pivoted lock-lever 283 beside the dog having a lug on one end adapted to engage a cam on the disk, whereby it is thrown in position to cause the dog to disengage the ratchet, and the catch 267 for holding the locking-lever in position to engage the dog; with space-discarders, a cam-shaft for operating such discarders, a gear on said shaft meshing with a pinion fixed to said disk, a line-channel beside the discarders, a plunger in said channel, a lever for operating said plunger, a cam for operating said lever so as to move the line past the ejectors, a second cam on the line cam-shaft, and the lever and connections whereby said catch is controlled by said line-actuating cam, substantially as described.

74. The combination of the galley, the series of space-discarders beside the galley, the type-channel extending past said discarders, and means for ejecting a composed line of type from the galley into said channel; with a plunger for moving said line of type along in said channel to the space-discarders, and a second plunger adapted to continue the movement of said line of type past the discarders when the first plunger is retracted, substantially as described.

75. The combination of the galley-holder, the space-discarder beside the galley, the channel leading from the galley-holder past the discarders, means for ejecting a line of type from the galley into said channels, a plunger for moving said line of type in the channels past the ejectors, a second plunger adapted to continue the movement of said line of type when the first plunger is retracted, and means substantially as described for operating said plungers so as to move the same toward and from each other, for the purpose and substantially as described.

76. The combination of the type-line channel, the plunger therein, a sliding plate working below said channel, and the spring-plate on said sliding plate adapted to spring up behind the line of type so as to give the slide control thereof when the plunger is retracted.

77. The combination of the channel, the guideway below the channel and communicating therewith through an opening in the adjoining side of the channel, a plunger for forwarding a line of type in said channel, a slide working in said guideway, a spring-pressed plate connected to said slide and adapted to take under the plunger and engage and take control of the line of type when the plunger is retracted, and means for operating said plunger and slide, for the purpose and substantially as described.

78. The combination of a series of space-discarders, a type-line channel beside the same, means for introducing a line of type into said channel and a plunger for forwarding a line of type therein toward the discarders; with a slide moving below the channel and opposite the discarders, a spring-plate on said slide adapted to enter the said channel through an opening in the bottom thereof to take control of the line of type when the plunger is retracted, and means for operating said plunger and said slide so as to move the same toward and from each other, for the purpose and substantially as described.

79. The combination of the type-channel having horizontal and vertical portions, an oscillating line-elevator located at the bend of said channel, adapted to move a line into the vertical portion thereof and momentarily support it therein, and means for forwarding a line of type to said line-elevator.

80. The combination of the space-discarder, the space-channel beside said discarder, deflected at right angles, an oscillating or rocking line-elevator at the bend of said channel, means for operating said line-elevator, and means for forwarding a line of type from said discarder to the line-elevator, substantially as described.

81. The combination of a type-channel bent at right angles, the rocking line-elevator 252 at the bend of said channel adapted to move type therepast, and means for rocking said elevator, and means for forwarding a line of type in said channel to said elevator, substantially as described.

82. The combination of a type-channel bent at right angles, the rocking line-elevator 252 at the bend of said channel adapted to move type therepast, and means for rocking said elevator, and means for forwarding a line of type in said channel to said elevator; with a lining of felt in that portion of the channels adjoining the elevator, said felt extending around said line-elevator and lying in peripheral channels therein, for the purpose and substantially as described.

83. The combination of the distributing-cylinder, a type-channel beside the same having horizontal and vertical portions, an oscillating line-elevator located at the bend of said channels adapted to move a line into the vertical portion thereof and momentarily support it therein, means for forwarding a line of type to said line-elevator; with means for loading the line of type in the vertical part of the channel into the distributing-cylinder, substantially as described.

84. The combination of a distributing-cylinder, the space-discarder, the space-channel beside the same, deflected at right angles beside the distributing-cylinder, an oscillating or rocking line-elevator at the bend of said channel, means for operating said line-elevator, and means for forwarding a line of type to said discarder and submitting the same to the action thereof and means for forwarding the line to the line-elevator: with means for loading the line of type in the vertical part of the channel into the distributing-cylinder, substantially as described.

85. The combination of the distributing-cylinder, a type-line channel having one part lying parallel with and opposite the channel in the distributer, means for forwarding type in said channel, and space-discarding mechanism adapted to operate upon the type as it is forwarded through said channel, and means for ejecting type from the vertical portion of said channel into the channel of the distributer.

86. The combination of the distributing-cylinder, a type-line channel having one part lying parallel with and opposite the channel in the distributer and having one portion extending at right angles from the vertical portion thereof, and a line-elevator at the bend of the channel; with means for forwarding type in said channel, space-discarding mechanism adapted to operate upon the type as it is forwarded through said channel, and means for ejecting type from the vertical portion of said channel into the channel of the distributer.

87. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, means for forwarding the separated line to the loader, and space-discarding mechanism adapted to operate upon the line between the galley and the loading mechanism.

88. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, and means for discarding leads therefrom, means for forwarding the separated line of type to the loader, and space-discarding mechanism adapted to operate upon the line between the galley and the loading mechanism, to separate the spaces therefrom, substantially as described.

89. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, means for forwarding the separated line of type to the loader, and space-discarding mechanism adapted to operate upon the line before it reaches the loading mechanism, to separate the spaces therefrom, a trip actuated from an empty channel in the distributing-cylinder for releasing the loading and discarding mechanisms.

90. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, means for forwarding a separated line of type to the loader, and space-discarding mechanism adapted to operate upon the line in said channel to separate the spaces therefrom; with a trip actuated by the follower in the distributing-cylinder for releasing the loading mechanism, trip devices controlled by the loader mechanism for releasing the line-advancing mechanism, and trip devices controlled by the line-advancing mechanism for releasing the space-discarding mechanism.

91. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, means for forwarding the separated line of type to the loader, and space-discarding mechanism adapted to operate upon the line before it reaches the loading mechanism, to separate the spaces therefrom; a trip actuated by a follower in the distributing-cylinder channel for releasing the loading and discarding mechanisms; with means for stopping the loading mechanism after it has completed one operation until the other mechanisms have operated, means for stopping the discarder mechanism prior to the stopping of the line-forwarding mechanism and means for stopping the line-forwarding mechanism after it has completed one cycle of operations.

92. The combination of a distributing-cylinder, means for loading a line of type therein, means for separating a line of type from dead-matter, means for forwarding a separated line of type to the loader, and space-discarding mechanism adapted to operate upon the line between the dead-matter holder and the loading mechanism, to separate the spaces therefrom; with a trip actuated by a follower in the distributing-cylinder for releasing the loading mechanism, trip devices controlled by the loader mechanism for releasing the line-actuating mechanism, and trip devices controlled by the line-advancing mechanism for releasing the space-discarding mechanism; means for stopping the loading mechanism after it has completed one operation until the other mechanisms have operated, means for locking the discarder mechanism prior to the stopping of the line-forwarding mechanism after it has made a complete cycle of operations, substantially as described.

93. The combination of the distributing-cylinder, a type-line channel having one part lying parallel with and opposite the channel in the distributer and having one portion extending at an angle from the vertical portion thereof, a line-elevator located at the bend of said channel and adapted to lift a line of type into the vertical portion thereof and support the same therein, and a plunger for ejecting a line of type while supported by said elevator into a channel of the distributer.

94. The combination of the distributing-cylinder, and a type-line channel having one part lying parallel with and opposite the channel in the distributer; with means for forwarding type in said channel, and space-discarding mechanism adapted to operate upon the type as it is forwarded through said channel, and means for ejecting type from the said channel into a channel of the distributer.

95. The combination of the distributing-cylinder, a type-line channel having one part lying parallel with and opposite the channel in the distributer and another part extending at right angles from the vertical portion thereof, and a line-elevator located at the bend of said channel and adapted to lift a line of type to the vertical portion thereof and support the same therein; with means for forwarding type in said channel, space-discarding mechanism adapted to operate upon the type as it is forwarded through said channel, and means for ejecting type from the vertical portion of said channel into the channel of the distributer.

96. The combination of the type-distributing cylinder, a type-channel beside the same having a vertical portion which is directly opposite and parallel with one of the channels in the distributer; a space-discarding mechanism beside said type-channel adapted to operate upon the type therein, means for forwarding a line of type to said discarder, means for forwarding a line of type from the discarder

into the vertical portion of the channel, and means for loading the vertical line of type into a channel of the distributer.

97. The combination of the type-distributing cylinder, a type-channel beside the same having a horizontal portion and a vertical portion which is directly opposite and parallel with one of the channels behind the distributer, a space-discarding mechanism beside said channel adapted to operate upon the type therein, means for forwarding a line of type intermittently or step by step past said discarder, means for operating the discarder when the line dwells, means for forwarding a line of type from which the spaces have been discarded into the vertical portion of the channel, and means for shifting the vertical line of type into a channel of the distributer.

98. The combination of a distributing-cylinder, a type-channel beside the same, parallel therewith, and means for ejecting a line of type from said channel into the channel of the distributer; with a holder for dead-matter, a space-discarding mechanism intermediate the galley-holder and the line-channel, means for separating a line from the dead-matter, means for forwarding the separated line past the discarding mechanism, whereby the spaces are discarded therefrom, and means for forwarding the line from the space-discarding mechanism into said line-channel, substantially as described.

99. The combination of a distributing-cylinder, a type-channel beside the same, and parallel therewith, and means for ejecting a line of type from said channel into the channel of the distributer; with a holder for dead-matter, a space-discarding mechanism intermediate the galley-holder and the line-channel, means for separating a line from the dead-matter and discarding the leads therefrom, means for forwarding the separated line past the discarding mechanism whereby the spaces are discarded therefrom, and means for forwarding the line from the space-discarding mechanism into said line-channel, substantially as described.

100. The combination of the distributing-cylinder, a type-holding channel beside the same having a vertical extension parallel with and opposite the channel of the distributing-cylinder, a line-elevator at the bend of said channel adapted to move and support the line in the vertical portion of the channel, a dead-matter holder beside said channel, a space-discarding mechanism between said holder and said line-elevator, means for ejecting a line of type from the holder into the channel, means for forwarding the line of type in said channel past the discarding mechanism to the line-elevator, and means for ejecting a line of type in the vertical portion of said channel into a channel of the distributing-cylinder.

101. The combination of the distributing-cylinder, a type-holding channel beside the same having a vertical extension parallel with and opposite the channel of the distributing-cylinder, a line-elevator at the bend of said channel adapted to move and support the line in the vertical portion of the channel, a galley-holder beside said channel, a space-discarding mechanism between the galley-holder and said line-elevator, means for ejecting a line of type from the holder into the channel, and means for discarding leads from the line of type; with means for forwarding the line of type in said channel step by step past the ejector mechanism, by which the spaces are discarded, means for moving the line from the discarder to the line-elevator, and means for ejecting a line of type from the vertical portion of said channel into a channel of the distributing-cylinder, substantially as described.

102. The combination of the distributing-cylinder, a type-holding channel beside the same, a dead-matter or galley holder beside said channel, a space-discarding mechanism between the galley-holder and said distributing-cylinder, means for ejecting a line of type from the holder into the channel, a plunger for forwarding a line of type in said channel to the discarding mechanism, means for moving said plunger, a slide below said channel operating between the discarding mechanism and the distributing-cylinder, and adapted to take control of the line when it is released by the plunger and forward the same, and a loading-plunger adapted to eject a line of type from the channel into the distributing-cylinder

103. The combination of the distributing-cylinder, a type-holding channel beside the same having a vertical extension parallel with and opposite the channel of the distributing-cylinder, a line-elevator at the bend of said channel, a galley-holder beside said channel, a space-discarding mechanism between the galley-holder and said line-elevator, means for ejecting a line of type from the holder into the channel, a plunger for forwarding a line of type from the galley to the discarding mechanism, means for moving said plunger, a slide below said channel operating between the discarding mechanism and a line-elevator, to take control of the line when it is released by the plunger and forward the same to the line-elevator, and a loading-plunger adapted to eject a line of type supported in the vertical portion of the channel by the line-elevator, into the distributing-cylinder.

104. The combination of the distributing-cylinder, a type-holding channel beside the same having a vertical extension parallel with and opposite the channel of the distributing-cylinder, a line-elevator at the bend of said channel adapted to move and support the line in the vertical portion of the channel, a galley-holder beside said channel, a space-discarding mechanism between the galley-holder and said line-elevator, means for ejecting a line of type from the holder into the channel, means for discarding leads from the line of type, a plunger for forwarding a line of type from the galley to the discarding mechanism, means for moving said plunger step by step, a slide below said channel operating between the discarding mechanism, and a line-elevator, and a spring-pressed plate on said slide adapted to take control of the line when it is released by the plunger and forward the same to the line-elevator, and a loading-plunger adapted to eject a line of type supported in the vertical portion of the channel by the line-elevator, into the distributing-cylinder.

105. The combination of a line-holding channel, a line-elevator, a movable slide and connections for operating said line-elevator from said slide; and said slide; with a plunger for forwarding lines of type in said channel, and the cam-actuated lever for operating said plunger, said lever being also adapted to actuate said slide at the proper time and thereby cause the line-elevator to move the line of type, substantially as described.

106. The combination of a line-holding channel bent at right angles, a line-elevator at the bend of said channel, a movable slide, the rock-shaft, links and levers for operating said line-elevator from said slide, and a spring for retracting said slide; with a plunger for forwarding lines of type in said channel, and the cam-actuated lever for operating said plunger, said lever being adapted to engage and actuate said slide at the proper time to cause the line-elevator to move a line of type, substantially as described.

107. The combination of a line-holding channel bent at right angles, a rocking line-elevator located at the bend thereof, a plunger for forwarding the type intermittently in said channel, the cam-actuated lever for operating said plunger, a slide adapted to be engaged by said lever near the end of its stroke, and the connections between said slide and said line-elevator whereby the latter is positively rocked when the plunger is moved back, and a spring for returning said line-elevator to normal position, substantially as described.

108. The combination of a line-holding channel bent at right angles, a rocking line-elevator located at the bend thereof, a plunger for forwarding the type intermittently in said channel, the cam-actuated lever for operating said plunger, a slide adapted to be engaged by said lever near the end of its stroke, and the connections between said slide and said line-elevator whereby the latter is positively rocked when the plunger is moved back; with a second plunger adapted to take control of the line when the first plunger releases the same and move said line onto the line-elevator, a cam and lever for operating said second plunger, and a spring for returning said line-elevator to normal position, substantially as described.

109. The combination of the distributing-cylinder, followers therein, a loading mechanism beside the distributing-cylinder, a pivoted trip beside the loading mechanism adapted to be tilted by the followers in the empty channel, and means for operating the loader, and mechanism for controlling the holder-operating means, adapted to be released by said trip.

110. The combination of the distributing-cylinder, followers therein, a loading mechanism beside the distributing-cylinder, a pivoted trip beside the loading mechanism adapted to be tilted by the followers in the empty channel, and the rod beside said trip adapted to be engaged and lifted thereby; with means for operating the loader, a continuously-driven shaft, a clutch for driving said loader-operating means from said shaft, and the clutch-controlling devices connected to said bar, and adapted to be released when said bar is actuated by said trip.

111. The combination of the distributing-cylinder, a line-loading mechanism beside the same, the continuously-driven shaft, the cams loosely mounted thereon for operating the loader mechanism, and the clutch for locking said cams to said shaft; with a trip-lever pivoted beside the distributer-cylinder adapted to be struck by a lug on the follower in an empty channel thereof, and connections between said trip and the clutch-controlling devices whereby the latter is released whenever the trip is operated.

112. The combination of the distributing-cylinder, a line-loading mechanism beside the same, the continuously-driven shaft, the cams loosely mounted thereon for operating the loader mechanism, and the clutch for locking said cams to said shaft; with clutch-controlling devices, a trip-lever pivoted beside the distributer-cylinder adapted to be struck by a lug on the follower in an empty channel thereof, and connections between said trip and the clutch-controlling devices whereby the latter is released whenever the trip is operated, and means for throwing the clutch mechanism out of action after each operation of the loading mechanism until the trip is again actuated.

113. The combination of the distributing-cylinder, the loading device beside the same, a trip adapted to be operated by a follower in the channel of the distributer, a vertically-movable bar adapted to lift the follower in the distributer-channel prior to the injection of a line of type therein by the loader; a cam and connections for operating the loading-plunger, another cam and connections operated thereby for operating the follower-lifter, mechanism for operating said cams controlled by said trip, whereby the cams are operated each time the trip is actuated, and means for stopping the cams when the loader has operated, until the trip is again actuated.

114. The combination of the distributing-cylinder, the loading mechanism beside the same, a trip pivoted on the loader and adapted to be operated by a follower in the channel of the distributer, a vertically-movable bar adapted to lift the follower in the channel prior to the injection of a line of type therein by the loader, a continuously-driven shaft, a sleeve thereon, a cam on said sleeve and connections for operating the loading-plunger, another cam on said sleeve, and connections operated thereby for operating the follower-lifter, a clutch for locking said sleeve to said shaft, and clutch-releasing devices controlled by said trip, whereby the sleeve is locked to the shaft each time the trip is actuated; and means for disengaging the clutch from the sleeve when the loader has operated, until the trip is again actuated.

115. The combination of the distributer-cylinder, the follower therein, a loading mechanism beside the distributing-cylinder, a continuously-driven shaft, a sleeve thereon, a ratchet on said shaft, a dog on said sleeve adapted to engage the ratchet, a pivoted shoe adapted to cause said dog to disengage the ratchet, an arm adapted to lock said shoe in position to cause the dog to disengage the ratchet, a trip-lever adapted to be rocked by a lug in an empty channel of the distributer, and connections between said trip-lever and said locking-arm.

116. The combination of the distributer-cylinder, the follower therein, a loading mechanism beside the distributing-cylinder, a continuously-driven shaft, a sleeve thereon, a ratchet on said shaft, a dog on said sleeve adapted to engage the ratchet, a spring for throwing said dog inward, a piroted shoe adapted to cause said dog to disengage the ratchet, a rock-shaft, an arm on said shaft adapted to lock said shoe in position to cause the dog to disengage the ratchet, a trip-lever adapted to be rocked by a lug in an empty channel of the distributer and connections between said trip-lever and said rock-shaft.

117. The combination of the distributing-cylinder, the follower therein, a loading mechanism beside the distributing-cylinder, a continuously-driven shaft, a sleeve thereon, a ratchet on said shaft, a dog on said sleeve adapted to engage the ratchet, a pivoted shoe adapted to cause said dog to disengage the ratchet, an arm adapted to lock said shoe in position to cause the dog to disengage the ratchet, a trip-lever adapted to be rocked by a lug in an empty channel of the distributer and connections between said trip-lever and said arm, a cam on said sleeve and connections between said cam and the loading-plunger, another cam on said sleeve, a lever operated by said cam, and a follower-lifting bar operated by said lever.

118. The combination of the distributer-cylinder, the follower therein, a loading mechanism beside the distributing-cylinder, a continuously-driven shaft, a sleeve thereon, a ratchet on said shaft, a dog on said sleeve adapted to engage the ratchet, a spring for throwing said dog inward, a fixed pivoted shoe adapted to cause said dog to disengage the ratchet, a rock-shaft, an arm on said shaft adapted to lock said shoe in position to cause the dog to disengage the ratchet, a trip-lever pivoted on the loader adapted to be rocked by a lug in an empty channel of the distributer, a pull-bar adapted to be actuated by said trip and connections between said pull-bar and said rock-shaft, a cam on said sleeve, and connections between said cam and the loading-plunger, another cam on said sleeve, a lever operated by said cam, and a follower-lifting bar operated by said lever.

119. The combination of the distributer-cylinder, the follower therein, a loading mechanism beside the distributing-cylinder, a continuously-driven shaft, a sleeve thereon, a ratchet on said dog, a dog on said sleeve adapted to engage the ratchet, a fixed pivoted shoe adapted to cause said dog to disengage the ratchet, an arm adapted to lock said shoe in position to cause the dog to disengage the ratchet, a trip-lever adapted to be rocked by a lug in an empty channel of the distributer and connections between said trip-lever and said arm; with a cam-actuated rod adapted to return said shoe to position to engage the dog and force it out of engagement with the ratchet, and a cam for operating said rod, for the purpose and substantially as described.

120. The combination of the distributing-cylinder, the loading mechanism, the trip adapted to be operated by lugs on the followers in the distributer-channels; with a pull-bar adapted to be operated by said trip and connections whereby said bar controls the operation of the loading mechanism, and means whereby said bar may be thrown into or out of position to be operated by the trip.

121. The combination of the distributing-cylinder, the loading mechanism, the trip adapted to be operated by lugs on the followers in the distributer-channels; a bar 342 adapted to be operated by said trip and connections whereby said bar controls the operation of the loading mechanism; with the rock-shaft 265 having an eccentric-pin engaging a slot in said bar whereby said bar may be thrown into or out of position to be operated by the trip.

122. The combination of the distributing-cylinder, the loading mechanism beside the same, a continuously-driven shaft, the means for operating the loading mechanism, actuated from said shaft, and a clutch mechanism whereby said means may be locked to the shaft with the clutch-controlling devices comprising the trip-lever 264, bar 342, lever 341, link 338, rock-shaft 268, and arm 269 whereby the clutch is released and the loading mechanism operated when the trip is actuated, for the purpose and substantially as described.

123. The combination of the distributing-cylinder, the loading mechanism beside the same, a continuously-driven shaft, the means for operating the loading mechanism actuated from said shaft, and a clutch mechanism comprising a ratchet on the shaft, a dog on the actuating mechanism, and a shaft for disengaging the dog from the ratchet; with the clutch-controlling devices comprising the trip-lever 264, bar 342, lever 341, lever 338, rock-shaft 268, and arm 269 whereby the clutch is released and the loading mechanism operated when the trip is actuated.

124. The combination of the distributing-cylinder, the loading mechanism beside the same, a continuously-driven shaft, the actuating means for operating the loading mechanism actuated from said shaft, and a clutch mechanism comprising a ratchet on the shaft, a dog on the actuating mechanism, and a shaft for disengaging the dog from the ratchet; with the clutch-controlling devices comprising the trip-lever 264, bar 342, lever 341, lever 338, rock-shaft 268, and arm 269 whereby the clutch is released and the loading mechanism operated when the trip is actuated and the cam-actuated push-rod 270 adapted to return the shaft in position to cause the dog to disengage the ratchet when the loader has performed one cycle of operations.

125. The combination of the continuously-driven shaft, the sleeve thereon, the ratchet on the shaft, a dog on the sleeve, the fixed shoe adapted to cause said dog to disengage said ratchet, the rock-shaft, the arm thereon for rocking said shoe, the trip-lever, and connections for rocking said shaft therefrom; with a push-rod for returning said shoe to normal position, the cam and lever for actuating said push-rod, the distributing-cylinder, the followers therein adapted to actuate said trip-lever and the loading mechanism driven from said sleeve and shaft when the clutches are in operation.

126. The combination of the distributing-cylinder, a loader opposite the same, the line-separating and space-discarding mechanisms beside the loader, a continuously-driven shaft, a sleeve thereon, cams on said sleeve for operating the loader mechanism, a cam-shaft, cams thereon and connections for operating the line-forwarding mechanism; a clutch for driving said sleeve from said continuously-driven shaft, a second clutch for driving said cam-shaft from said continuously-driven shaft; the clutch-controlling devices operated from the distributing-cylinder whereby the line forwarding and loading mechanisms are set in operation when an empty cylinder-channel comes to the loader.

127. The combination of the distributing-cylinder, a loader opposite the same, the line-separating and space-discarding mechanisms beside the loader, a continuously-driven shaft, a sleeve thereon, cams on said sleeve for operating the loader mechanism, a cam-shaft, cams thereon and connections for operating the line-forwarding mechanism therefrom; a clutch for driving said sleeve from said continuously-driven shaft, a second clutch for driving said cam-shaft from said continuously-driven shaft, a pivoted trip beside the distributing-cylinder, the clutch-controlling devices operated from said trip whereby when the trip is actuated the line forwarding and loading mechanisms are set in operation, and the clutch-resetting devices controlled from said cam-shaft whereby the loader and the line-forwarding mechanisms are stopped when they have made one cycle of operations.

128. The combination of the distributing-cylinder, a loader opposite the same, the line-separating and space-discarding mechanisms beside the loader, a continuously-driven shaft, a sleeve thereon, cams on said sleeve for operating the loader mechanism; a cam-shaft, cams thereon and connections for operating the line-forwarding mechanisms, a clutch for driving said sleeve from said continuously-driven shaft; a second clutch for driving said cam-shaft from said continuously-driven shaft, a pivoted trip beside the distributing-cylinder, the clutch-controlling devices operated from said trip whereby when the trip is actuated the line forwarding and loading mechanisms are set in operation, a second cam-shaft for operating the space-discarder mechanism, gearing between said shaft and the continuously-driven shaft, and a clutch for controlling the operation of said discarder cam-shaft, substantially as described.

129. The combination of the distributing-cylinder, a loader opposite the same, the line-separating and space-discarding mechanisms beside the loader, a continuously-driven shaft, a sleeve thereon, cams on said sleeve for operating the loader mechanism; a cam-shaft, and cams and connections for operating the line-forwarding mechanisms therefrom, a clutch for driving said sleeve from said continuously-

driven shaft, a second clutch for driving said cam-shaft from said continuously-driven shaft, a third cam-shaft for operating the space-discarder mechanism, gearing between said shaft and a continuously-driven shaft, and a clutch for controlling the operation of said discarder and cam-shaft and devices whereby said clutch is controlled from the line-forwarding cam-shaft: with a pivoted trip beside the distributing-cylinder, the clutch-controlling devices operated from said trip whereby when the trip is actuated the line forwarding and loading mechanisms are set in operation, and the clutch-resetting devices controlled from said cam-shaft whereby the loader and the line-forwarding mechanisms are stopped when they have made one cycle of operation.

130. The combination of the distributing-cylinder, a mechanism for loading lines of type therein, a clutch for controlling the operation of said mechanism; devices for forwarding a line of type into the loader, and clutch mechanism for controlling the operation of said line-forwarding devices; with means for releasing the clutch for operating the loader when an empty channel of the distributer comes opposite the loader, and connections whereby the loading mechanism in operating releases the clutch of the line-forwarding mechanisms.

131. The combination of the distributing-cylinder, a mechanism for loading lines of type therein, a clutch for controlling the operation of said mechanism, mechanism for forwarding a line of type into the loader, and a clutch mechanism for controlling the operation of said line-forwarding devices; with a trip-lever adapted to be operated by projections on the followers in the distributer-channels, connections whereby said trip releases the clutch for operating the loader, and connections whereby the operation of the loading mechanism releases the clutch of the line-forwarding mechanisms.

132. The combination of the distributing-cylinder, a mechanism for loading lines of type therein, a clutch for controlling the operation of said loader; mechanism for forwarding a line of type to the loader, and a clutch mechanism for controlling the operation of said line-forwarding devices; a trip-lever adapted to be operated by projections on the followers in the distributer-channels, connections whereby said trip releases the clutch for operating the loader, and devices whereby the loading mechanism in operating releases the clutch of the line-forwarding mechanisms; with means substantially as described, operated by the line-forwarding mechanism whereby said clutches are thrown out of action and the holder and line-forwarding mechanisms stopped after making one cycle of operations, substantially as described.

133. The combination of the distributing-cylinder, mechanism beside the same for loading lines of type into the empty channels thereof, a clutch mechanism controlling the operation of the loader, mechanisms for separating a line of type from dead-matter and forwarding the same to the loader, a clutch controlling the operation of said line-forwarding mechanism, mechanism for ejecting or discarding spaces from the line of type before it is delivered to the loader, and clutch mechanism for controlling the operation of the space-discarding mechanism, and devices whereby, when an empty channel comes opposite the loader, said mechanisms are permitted to perform one cycle of operations and then their clutches disengage until the tripping device is again actuated.

134. The combination of the distributing-cylinder, a mechanism for loading a line of type into an empty channel thereof, a clutch mechanism controlling the operation of the loader; mechanism for forwarding a line of type to the loader, a clutch controlling the operation of said line-forwarding mechanism; mechanism for discarding spaces from the line of type before it is delivered to the loader, and clutch mechanism controlling the operation of the space-discarding mechanism; with a trip-lever beside the loader adapted to be operated by lugs on the followers in the distributing-cylinder, devices operated from said trip-lever for releasing the loader clutch mechanism and permitting the same to be operated, connections operated from the loading mechanism whereby the line-forwarding clutch mechanism is released and the latter mechanism started in operation, and devices controlled by the line-forwarding mechanism whereby the discarder-clutch is released, and said discarder mechanism started in operation.

135. The combination of the distributing-cylinder, mechanism beside the same for loading a line of type into an empty channel thereof, a clutch mechanism controlling the operation of the loader, mechanism for separating a line of type from dead-matter and forwarding the same to the loader, a clutch controlling the operation of said line-forwarding mechanism, mechanism for ejecting or discarding spaces from the line of type before it is delivered to the loader and clutch mechanism for controlling the operation of the space-discarding mechanism; with a trip adapted to be operated when an empty channel in the distributing-cylinder comes opposite the loader, devices operated from said trip-lever for releasing the loader-clutch and permitting the loader to be operated; connections operated from the loading mechanism whereby the line-forwarding clutch is released and the line-forwarding mechanism started in operation; devices controlled by the line-forwarding mechanism whereby the discarder-clutch is released, and said discarder started into operation, and means whereby said clutch mechanisms are disengaged as the loader, the line advancing, and the discarding mechanism, respectively complete one cycle of operations.

136. The combination of the distributing-cylinder, a loading mechanism beside the same for ejecting a line of type into the empty channel thereof, a clutch mechanism controlling the operation of the loader; mechanism for separating a line of type from dead-matter and forwarding the same to the loader, a clutch controlling the operation of said line-forwarding mechanism; mechanism for discarding spaces from the line of type before it is delivered to the loader and clutch mechanism for controlling the operation of the space-discarding mechanism; a trip-lever beside the loader adapted to be operated by lugs on the followers in the distributing-cylinder; devices operated from said trip-lever for releasing the loader and permitting the same to be operated, connections operated from the loading mechanism whereby the line-forwarding mechanism is released and started in operation, and devices controlled by the line-forwarding mechanism whereby the discarder-clutch is released and said mechanism started into operation; with a push-rod and lever actuated from the line-forwarding devices whereby the loader-clutch is thrown out of operation and the loader stopped; a lever and connections operated from the line-forwarding devices whereby the discarder mechanisms are thrown out of operation after they have operated a predetermined number of times; and a push-rod and connections also operated from said line-forwarding devices whereby the clutch for said mechanism is thrown out of operation when the line-forwarding cam has made one revolution.

137. The combination of the type-channel, cams and levers for forwarding a line of type therein, a continuously-driven shaft, a ratchet on said shaft, a counter-shaft for driving said cams, a disk thereon, a pawl on said disk engaging said ratchet, a shoe for disengaging the ratchet from the disk, a spring-actuated locking-pawl 291 for locking said shoe when engaged with a dog, and means for causing said pawl to release the shoe.

138. The combination of the type-channel, cams and levers for forwarding a line of type therein, a continuously-driven shaft, a ratchet on said shaft, a counter-shaft for driving said cam-shaft, a disk thereon, a pawl on said disk engaging said ratchet, a shoe 281′ for disengaging the ratchet from the disk, a spring-actuated locking-pawl 291 for locking said shoe when engaged with the dog, and means for causing said pawl to release the shoe; with a push-rod for returning said shoe into position to disengage the dog, a swinging lever 585 for operating said push-rod, and a pin on the cam-shaft for actuating said lever.

139. The combination of the distributing-cylinder, the line-holding channel beside the same, and means for ejecting a line of type from the channel into the cylinder; with a movable guard-plate adapted to partially close the outer edge of the channel to prevent type dropping therethrough and means for withdrawing the plate from the channel when the line is to be ejected, substantially as described.

140. The combination of the distributing-cylinder, the loader beside the same having a line-holding channel, and means for ejecting a line from said channel into the cylinder; with a movable guard-plate adapted to partially close the outer edge of the channel to prevent type dropping therethrough and the inclined slots and pins for guiding said plate, and means for elevating said plate whereby it is caused to withdraw from the channel when a line is to be pushed into the cylinder, substantially as described.

141. The combination of the type-holding channel, the guard-plate closing the end of said channel and provided with inclined slots engaging fixed pins, a spring for depressing said plate and means for elevating the same when the channel is to be uncovered.

142. The combination of the distributing-cylinder, the loading mechanism beside the same having a type-holding channel through which the type are ejected into the channels of the distributer, a sliding bar for elevating the followers in the distributer-channels, and a guard-plate partially closing the outer end of the holder-channel and adapted to be operated by the follower-lifter, substantially as described.

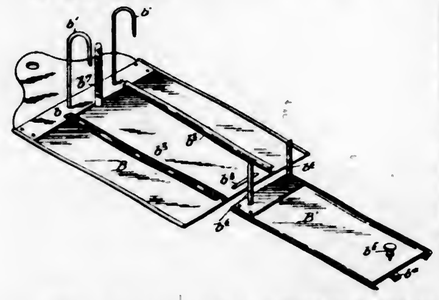
143. The combination of the distributing-cylinder, the loading mechanism beside the same having a type-holding channel through which the type are ejected into the channels of the distributer, a sliding bar for elevating the followers in the distributer-channels, a guard-plate partially closing the outer end of the holder-channel, and a pivoted lever engaging said guard-plate and projecting into the path of the follower-lifter whereby the latter is caused to operate the former.

144. The combination of the distributing-cylinder, the loading mechanism beside the same having a type-holding channel through which the type are ejected into the channels of the distributer, a sliding bar for elevating the followers in the distributer-channel, a guard-plate partially closing the outer end of the holder-channel, having inclined guide-slots engaging fixed pins, a pivoted lever engaging said guard-plate and projecting into the path of the follower-lifter, and the spring for depressing said guard-plate when the bar is lowered, substantially as and for the purposes described.

145. The combination of the distributing-cylinder, the loading mechanism beside the same, a trip pivoted on the loader and adapted to be operated by a follower in the channel of the distributer, a vertically-movable bar adapted to lift the follower in the channel prior to the injection of a line of type therein by the loader, a guard-plate for the channel adapted to be moved out of the way by said bar when said bar is lifted, a continuously-driven shaft, a cam and connection for operating the loading-plunger, another cam and connections operated thereby for operating the follower-lifter, a clutch and connections for locking said cams to said shaft, clutch-releasing devices controlled by said trip, whereby the sleeve is locked to the shaft each time the trip is actuated, and means for disengaging the cams from the shaft when the loader has operated, until the trip is again actuated.

146. The combination of the distributing-cylinder, the loading mechanism beside the same, means for discarding spaces from a line of type and forwarding the same to the loader, a trip pivoted on the loader and adapted to be operated by a follower in the channel of the distributer, a vertically-movable bar adapted to lift the follower in the channel prior to the injection of a line of type therein by the loader, a guard-plate beside the channel in the loader adapted to be actuated by said bar, a continuously-driven shaft, a sleeve therein, a cam on said sleeve and connection for operating the loading-plunger, another cam on said sleeve and connections operated thereby for operating the follower-lifter; a clutch for locking said sleeve to said shaft, clutch-releasing devices controlled by said trip, whereby the sleeve is locked to the shaft each time the trip is actuated, and means for disengaging the clutch from the sleeve after the loading mechanism has operated until the trip is again actuated.

646,860. LETTER-FILE. HENRY S. CULVER, London, Canada, assignor to Mary D. Culver, same place. Filed Sept. 9, 1899. Serial No. 729,956. (No model.)



Claim.—1. In a letter-file, the combination, of the main base having the curved uprights b' fixedly secured near its forward end, and having ways b^3 extending longitudinally along its top surface, a second base B′ removably mounted on the top of said main base, being mounted to slide thereon by means of flanges on its edges formed to engage said ways b^3, the uprights b^4 fixedly mounted on the front end of said base B′ and arranged to meet and form a continuation of the downwardly-extending portion of the curved uprights b' when in its forward position, and a spring-catch secured on the under side of said sliding base near its rear end and adapted to engage a keeper correspondingly located on the main base, substantially as set forth.

2. In a letter-file the combination of the main base carrying the curved uprights, a second base carrying the straight uprights and of an area to form a support for the letters filed thereon, said second base being mounted to slide on the top surface of said main base and be removed therefrom with the letters carried thereby, substantially as set forth.

646,861. COUPLING. JOHN DARLING, London, England, and JOHN DARLING, Jr., Rutherglen, Scotland, assignors to the Darling's Patent Automatic Coupling, Limited, Glasgow, Scotland. Filed Jan. 11, 1900. Serial No. 1,169. (No model.)

Claim.—1. A coupling member comprising jaws, two links having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link pivoted, at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and at its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling.



2. A coupling member comprising jaws, two links having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link pivoted, at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and at its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling.

3. A coupling comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link, pivoted, at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling, a cross-bar, extending through the jaws, and having a pawl adapted to bear on the heel of one of the lever-links for holding up the links with the shackle in position for coupling, and means for locking the pawl with the cross-bar in position until released.

4. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, one of the links being formed with a notch in its heel, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link, pivoted at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling pin of the opposite member of the coupling, a cross-bar, extending through the jaws, and having a pawl formed with a broad end adapted to engage in the notch of the notched link and bear on the latter for holding up the links with the shackle in position for coupling, a bracket, and a spring, between the bracket and the pawl, for locking the pawl with the cross-bar in position until released.

5. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece, and a projecting outer piece, a spring lever-link consisting of a tube having a fixed plug, at its inner end, pivoted to the jaws, a movable plug, at its outer end, pivoted to the projecting inner piece, and a spring connecting the plugs within the tube, and a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling.

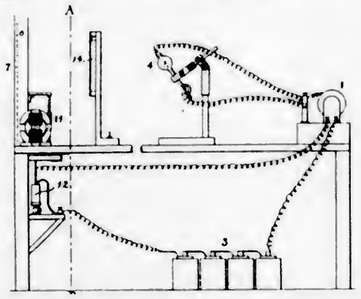
6. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a spring lever-

link pivoted, at its inner end, to the jaws, and pivoted, at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling, a sliding spring cross-bar, extending through the jaws, and having a pawl adapted to bear on the heel of one of the links for holding up the links with the shackle in position for coupling, a spring secured to the cross-bar, and carrying a catch adapted to enter the space between the jaws, and holding the cross-bar in position, and a bracket secured to the cross-bar and carrying a coupling-pin working across the jaws to engage the shackle when the latter presses back the catch to release the cross-bar.

7. A coupling member comprising jaws, links, a shackle carried by the links, and a spring cross-bar having a spring-catch, a pawl for setting the links in position for coupling, and a bracket provided with a coupling-pin.

8. A coupling member comprising jaws, links, a shackle carried by the links, and a spring cross-bar having a spring-catch, a pawl for setting the links in position for coupling, a bracket provided with a coupling-pin and a projection, and collars whereby the cross-bar is supported, one of the collars being formed with a groove to receive the projection to hold the cross-bar in inoperative position.

646,862. ROENTGEN-RAY APPARATUS. JAMES M. DAVIDSON, London, England. Filed Sept. 22, 1899. Serial No. 731,287. (No model.)



Claim.—1. In a Roentgen-ray apparatus, the combination, with a fluorescent screen and a framework structure having two sight-holes, of means serving to project upon the said screen intermittent and rapidly-alternating shadows, and further means serving to alternately open and close the sight-holes of the apparatus so as to enable the shadow of an object to be seen on the fluorescent screen in stereoscopic relief.

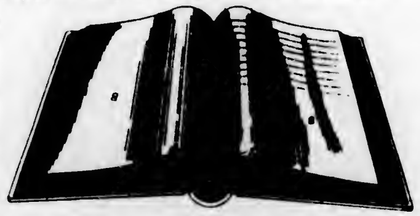
2. A Roentgen-ray apparatus, comprising, in combination, a fluorescent screen, two vacuum-tubes, and a battery induction-coil and interrupter associated with each tube, a framework structure with two sight-holes, alternately-operating shutters in front of said sight-holes, and means serving to operate said shutters and interrupters whereby the said vacuum-tubes are intermittently illuminated and a stereoscopic image produced on the fluorescent screen.

3. A Roentgen-ray apparatus, comprising, in combination, a fluorescent screen, two vacuum-tubes, and a battery induction-coil and interrupter associated with each tube, a framework structure with two sight-holes, alternately-operating shutters in front of said sight-holes, means serving to operate said shutters and interrupters whereby the said vacuum-tubes are intermittently illuminated and a stereoscopic image produced on the fluorescent screen, and further means serving to change over the electrical connections so that at will the shadow of an object may be produced either in true or in pseudo-stereoscopic relief.

646,863. BLANK BOOK FOR TYPE-WRITERS. WALTER F. DODSWORTH, Leavenworth, Kans. Filed Oct. 5, 1899. Serial No. 732,632. (No model.)

Claim.—1. A blank book comprising groups of sheets, the two leaves of each sheet having each a line of perforations at which each leaf is separable from a stub part, in combination with a separate adhesive strip bound with each sheet, forming a pair of fastenings folded around the binding edge and cooperating with each sheet, each fastening part extending beyond or overlapping the lines of the perforations of each leaf whereby to form a fastening back for the stub part and for the pair of leaves in replacing them.

2. A blank book the leaves whereof are provided with lines of perforations, in combination with a separate adhesive strip folded around the bound edge of two adjacent leaves and having a width adapted to overlap the line of perforations of both leaves.

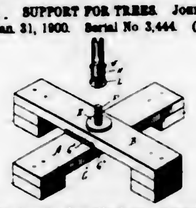


3. A blank book the leaves whereof are provided with lines of perforations, in combination with a separate adhesive strip of laminated parts one of which is impervious to water, arranged around the bound edge of the leaves and overlapping the lines of perforations of each leaf whereby to form a fastening for the replaced leaf and a fastening for the stub as a guide edge in the replacement of the leaf.

4. As a new article of manufacture a book having blank leaves separable on lines of perforations and fixed stub parts joining the separable leaves by said perforations and adhesive strips stitched as a backing for each perforated pair of leaves and having a width greater than the width between the lines of perforations and folded around the stitched edge of the leaves.

5. As a new article of manufacture a book having groups of blank sheets each sheet including a pair of leaves having each a line of perforations at which each leaf is separable from a stub part and an adhesive strip folded medially of its width and forming a pair of fastenings around the binding edge of each folded sheet and bound therewith, each fastening part projecting beyond and overlapping the lines of perforations.

646,864. SUPPORT FOR TREES. JOHN DONNELLY, Branford, Conn. Filed Jan. 31, 1900. Serial No. 3,444. (No model.)



Claim.—1. The herein-described tree-support, consisting of two strips adapted to overlap each other and to be supported in a horizontal position, a bolt extending upward through said strips and above the same, and a socket formed at its upper end with a tubular extension adapted to be driven into the butt of a tree, and at its lower end with a threaded portion adapted to be turned over the threaded end of the bolt, substantially as described.

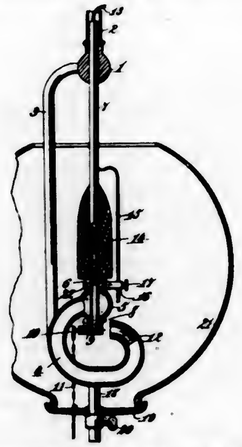
2. The herein-described tree-support, consisting of two strips adapted to overlap each other and be supported in a horizontal position, a plate between said strips and formed with oppositely-extending flanges, a bolt extending upward through said strips, and plate, a socket adapted to be driven into the butt of a tree, and provided at its lower end with an internally-threaded opening to set over the threaded portion of the bolt, substantially as described.

3. A tree-support consisting of two strips adapted to overlap each other and be supported in a horizontal position, a bolt extending upward through said strips, a tubular socket formed at its upper end with inclined inner walls, and threaded at its lower end for engagement with the threads on said bolt, substantially as described.

4. A tree-support, consisting of two strips adapted to overlap each other and stand in a horizontal position, a bolt extending upward through said strips, and a socket adapted to be driven into the butt of a tree and provided at its lower end with a threaded opening, and a flange projecting beyond said threads whereby the socket may be driven home without injury to the threads, substantially as described.

646,865. VAPOR-BURNING INCANDESCENT LAMP. ALBERT P. DORAN, Nashville, Tenn. Filed Apr. 12, 1899. Serial No. 712,770. (No model.)

Claim.—1. In a vapor-burning lamp, the combination of a burner-tube carrying a burner-tip on its upper side, a vertical, vapor-generating tube extending directly through the interior of said burner-tube and provided in its lower end, directly under the burner-tube, with a lateral vapor-discharge orifice, and an air and vapor mixing tube connected at its upper end with the burner-tube, extended down and under the lower end of the vapor-generating tube and having its other open air-receiving end located directly opposite the said lateral vapor-discharge orifice in the lower end of the generating-tube which projects down from the under-side burner-tube, substantially as described.



2. In a vapor-burning lamp, the combination of a burner-tube carrying a burner-tip on its upper side, a vertical vapor-generating tube extending directly through the interior of the burner-tube and having its lower end, directly under said burner-tube, provided with a lateral vapor-discharge orifice and a needle-valve which controls said orifice, and the convolute air and vapor mixing tube communicating at its upper end with the interior of the burner-tube, extended down and under the lower end of the vapor-generating tube and having its other open air-receiving end located directly opposite the said lateral vapor-discharge orifice in the lower end of the generating-tube which projects down from the under side of said burner-tube, substantially as described.

3. In a vapor-burning incandescence lamp, the combination of a burner, a depending convolute mixing-tube communicating with one side of the burner and curved downward and across beneath said burner and then upward and inward and terminating in an inlet end open to the atmosphere, a lamp-frame comprising a pendant from which said mixing-tube and burner are suspended and having a laterally-curved upper end and a vertically-perforated boss connected therewith, a vertically-arranged vapor-generator tube to be supplied with oil at the top, said generator-tube being extended downward through said boss and through the burner and secured to the burner, an atomizing-valve connected with the lower end of the vapor-generator tube below the burner and having a discharge-orifice opposite the inlet to the convolute mixing-tube, a depending stem connected with the under side of the mixing-tube, a globe-holder on said stem, a globe, and a mantle, substantially as described.

646,866. CURTAIN-RING. WILLIAM F. DURST, New York, N. Y. Filed Aug. 30, 1899. Serial No. 728,954. (No model.)

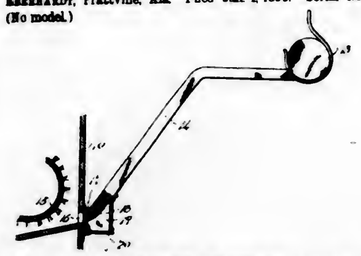


Claim.—1. A curtain-ring comprising a split ring proper, endless shouldered roller-bearing sleeves secured on the said ring and through which the ring passes, and a roller secured against lateral movement between the shoulders on each of said sleeves.

2. A curtain-ring comprising a split ring proper, endless shouldered roller-bearing sleeves secured on said ring and through which the ring passes, one of said sleeves being secured over the joint of the ring and an endless roller secured against lateral movement between the shoulders on each of said sleeves.

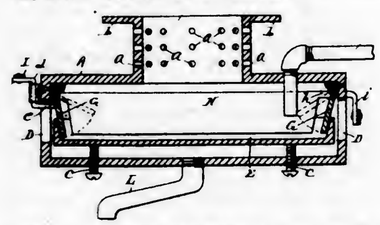
3. A curtain-ring comprising a split ring proper, endless roller-bearing sleeves each with an internal diameter corresponding substantially to the thickness of the ring and having upturned shoulders on each side of said sleeve and through which sleeves the ring passes, one of said sleeves being secured on said ring and over the joint thereof and an endless roller secured against lateral movement between the shoulders on each of said sleeves.

646,867. FLUE SYSTEM FOR COTTON-GINS. THEOPHILUS C. EBERHARDT, Prattville, Ala. Filed Jan. 4, 1899. Serial No. 701,147. (No model.)



Claim.—In a lint-flue system, the combination with a gin, and a condenser-flue, of the elbow-shaped lint-flue hood, 14, having the inclined and horizontal members forming an unbroken lint-passage from the gin to said condenser-flue, the inclined member of said hood provided with a curved flanged foot which is coupled to the gin-stand, a curved screen, 18, in the lower side of said foot of the hood, and a box inclosing said screen, the screen and box being located exteriorly of the gin-stand, substantially as described.

646,868. BURNER. WILLIAM BELE, Detroit, Mich. Filed July 19, 1899. Serial No. 724,370. (No model.)



Claim.—1. In a burner, the combination of the integral body having the draft-openings through the wall thereof, dampers for controlling said draft-openings, an oil-pan within said burner, a cupola rising from the top of the burner and communicating with the interior thereof, said cupola having perforations through its wall.

2. In a burner, the combination of the integral burner-body having the draft-openings therethrough, hinged dampers controlling said draft-openings, means for operating said dampers, a fuel-pan within said burner supported above the bottom thereof, a cupola rising from the top of said burner and communicating with the flame-space, said cupola having a perforated wall.

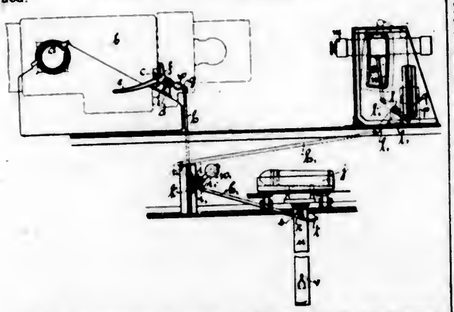
3. In a burner, the combination of the burner-body having a draft-opening through the side thereof, a fuel-pan within the body of the burner, a hinged or pivoted damper adapted to control said draft-opening, said damper mounted on the inner face of the burner-body, its lower edge depending within said pan, a crank journaled to the side of the burner one end of which passes through said opening and bears against said damper, and a rod pivoted to the other end of said crank by means of which it may be actuated.

646,869. APPARATUS FOR MECHANICALLY LOADING ORDNANCE. JOHANNES KROSE, Essen, Germany, assignor to Fried. Krupp, same place. Filed Jan. 3, 1900. Serial No. 210. (No model.)

Claim.—1. In an apparatus for automatically adjusting the ammunition-tray and the conveyer of ordnance to the loading-line, the combination of a swingle secured to the carriage, intermediate mechanism to transfer the angular motion of the cradle (respectively of the gun) to this swingle, and intermediate mechanism connected to the swingle for limiting the motion of the elevator and adjusting the conveyer, substantially as specified.

2. In an apparatus for automatically adjusting the ammunition-tray and the conveyer of ordnance to the loading-line, the combina-

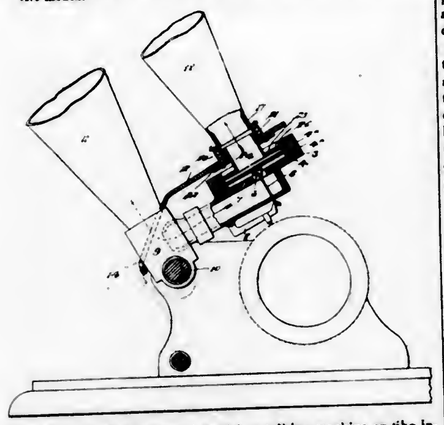
tion of a swingle secured to the carriage, and a tooth secured to the cradle and engaging a notch of the swingle, which latter has arms projecting from both sides concentrically to the axis of the trunnions, so that an angular change of the swingle takes place only during engagement of the tooth with the notch, while when the tooth leaves the notch it glides on one or the other of the arms, which arms insure the reëngagement of the tooth and notch, substantially as specified.



3. In an apparatus for automatically adjusting the ammunition-tray and the conveyer of ordnance, the combination of a swingle secured to the carriage, intermediate mechanism for transferring the angular motion of the cradle (respectively of the gun) to this swingle; intermediate mechanism connected to the swingle for limiting the motion of the elevator, and connecting rods and levers for transmitting the angular motion of the swingle to a conveyer guided concentrically to the trunnions, so as to bring the conveyer into the loading-line, substantially as specified.

4. In an apparatus for automatically adjusting the ammunition-tray and the conveyer of ordnance, the combination of a swingle secured to the carriage, intermediate mechanism for transferring the angular motion of the cradle (respectively of the gun) to this swingle, and mechanism for transmitting the angular motion of the swingle to a cam projecting into the path of a stop of the ammunition-hoist, whereby the motion of the elevator is limited to correspond with the elevation of the gun, substantially as specified.

646,870. SOUND-REPRODUCER. FREDERICK W. HOLTE, Victoria, British Columbia, Canada. Filed Feb. 20, 1899. Serial No. 706,193. (No model.)



Claim.—1. The combination with a talking-machine or like instrument, comprising a carriage and a tube mounted to swing thereon and communicating therewith, of a support rigidly attached to the carriage, a horn carried by the support, a casing held by the tube, and moving with the same, a diaphragm mounted in the casing, a reproducing-lever supported by the tube and having connection with the diaphragm at one side thereof, the tube conducting sound-waves from the said side of the diaphragm, a closure for the casing at the other side of the diaphragm, a tube supported by said closure and leading to the horn of the support to conduct the sound-waves from the other side of the diaphragm, and a clamp for joining the casing and support.

2. The combination, with a talking-machine or like instrument, comprising a carriage and a tube mounted to swing thereon and communicating therewith, of a casing attached to the tube and communicating therewith, a diaphragm mounted in the casing, the tube conducting the sound-waves from one side of the diaphragm, a reproducing-lever mounted on the tube and having connection with the diaphragm at the side adjacent to the tube, a closure for the casing at the other side of the diaphragm, a tube carried by the closure and leading the sound-waves from the other side of the diaphragm, a support mounted on the carriage, a horn held by the support, a ring sustained on the support encircling the tube of the closure, the said tube of the closure communicating with the horn of the support, and a clamp for joining the casing and support.

3. A talking-machine or like instrument, having a carriage-supporting a horn and a tube mounted to swing on the carriage, the tube leading to the horn, a casing mounted on the tube, a diaphragm mounted in the casing, the tube conducting the sound-waves from one side of the diaphragm, a stylus supported by the tube and having connection with the diaphragm, a closure for the casing at the side opposite the tube, a tube carried by the closure and conducting the sound-waves from the side of the diaphragm opposite the first-named tube, a support mounted on the carriage and overhanging the casing, and means carried by the support and communicating with the closure-tube for conducting the sound-waves from said tube.

4. A talking-machine having a carriage, means for conducting the sound-waves, such means being supported by the carriage, a tube mounted to swing on the carriage and communicating with said means, a support mounted on the carriage, a second means for conducting the sound-waves, such second means being carried by the support, a casing mounted on the tube, a diaphragm mounted in the casing, the said tube leading the sound-waves from one side of the diaphragm, a tube mounted at the other side of the diaphragm and leading the sound-waves therefrom into the said second means, and means for removably joining the casing with the support, to sustain the casing.

5. A talking-machine, or like instrument having a carriage, means mounted on the carriage for conducting the sound-waves therefrom, a support carried by the carriage, a second means mounted on the support for conducting the sound-waves, diaphragm devices mounted to swing on the carriage, the said means for conducting the sound-waves leading from the respective sides of the diaphragm, and means for removably connecting the diaphragm devices with the support.

6. The combination, with a talking-machine comprising a carriage and a tube mounted to swing thereon, of diaphragm devices carried by the tube and comprising a gravity-reproducer, the tube serving to conduct the sound-waves from the one side of the diaphragm, a support mounted independently of the diaphragm devices, and means for conducting the sound-waves from the other side of the diaphragm, such means being held by the said support.

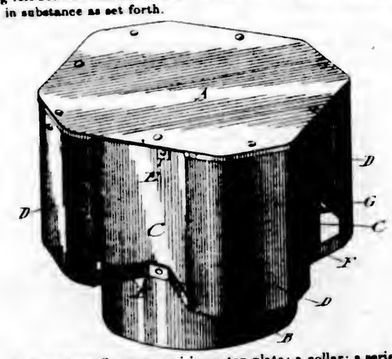
7. In a talking-machine, the combination with a carriage and a tube mounted to swing thereon, of a horn mounted on the carriage and communicating with the tube, diaphragm devices held by the tube, the tube conducting the sound-waves from the lower side of the diaphragm, a support mounted on the carriage, a second horn held by the support and serving to conduct the sound-waves from the upper side of the diaphragm, and means for connecting the diaphragm devices and tube with the support to sustain said devices on the support.

646,871. ROOF-VENTILATOR OR CHIMNEY-COWL. RICHARD M. PANCOAST, Camden, N. J. Filed Sept. 16, 1899. Serial No. 730,780. (No model.)

Claim.—1. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates secured to the top plate at right angles thereto, and to the collar; and a series of concavo-convex outside plates secured at their top edges to the top plate; open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.

2. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates secured at their bottom edges to the collar and extended some distance downward from the top edge of the said collar; a series of concavo-convex outside plates secured at their upper edges to the top plate; and braces for the lower edges of the outside plates; open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.

3. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates attached at their lower edges to the outer surface of the collar; and a series of concavo-convex outside plates; the free perpendicular edges of the inside plates being extended or flared outside the line bounding the collar or neck-opening; and open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.



4. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates secured to the outside of the collar; and a series of outside plates; the said outside plates having their perpendicular free edges bent to lap over the free edges of the inside plates so that a straight line drawn from the edge of an outer plate to the adjacent edge of an inside plate and prolonged will pass outside the neck-opening; and open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.

5. A roof-ventilator, constructed substantially as described, and having the perpendicular edges of the outside plates bent so as to overlap the free edges of the separate inner plates; said free edges being flared or extended beyond the line bounding the collar or neck-opening; and open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.

6. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates; and a series of concavo-convex outside plates the said inside plates and the said outside plates being located outside the line bounding the collar or neck-opening with their lower horizontal edges extended below the top of the collar and the spaces between the lower ends of the said inside and outside plates being practically open and unobstructed; in substance as set forth.

7. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates; and a series of concavo-convex outside plates attached at their upper edges to the top plate, the lower edges being free, thus leaving an open space adjacent the collar; the arrangement of the parts being such that the combined areas of the openings O, the combined areas of the passages O′, and the combined areas of the openings O″, will each be equal to or greater than the area of the collar or neck-opening; whereby a free and unobstructed delivery will be secured; in substance as set forth.

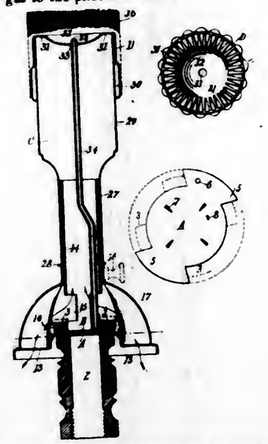
8. A roof-ventilator comprising a top plate; a collar; a series of separate inside plates; and a series of concavo-convex outside plates; the said inside plates being secured to the top plate inwardly from its circumference or outer boundary-line; and the outer plates being secured at their top edges to the top plate adjacent its circumference or outer boundary-line; and open spaces being left between the lower edges of the outside plates and the collar; in substance as set forth.

646,872. INCANDESCENT GAS-BURNER. ALBERT H. PETERSEN, New York, N. Y. Filed Nov. 27, 1899. Serial No. 738,310. (No model.)

Claim.—1. In a burner of the class described, the combination with a fixed valve-diaphragm provided with gas-ports, of a movable valve-diaphragm having gas-ports registerable severally with those of the fixed diaphragm, a pilot-burner tube carried by the movable diaphragm and registerable with a gas-port in the fixed diaphragm in alternation with the registration of the other ports in said diaphragms, and adjustable means for independently limiting the travel of the movable diaphragm in each direction.

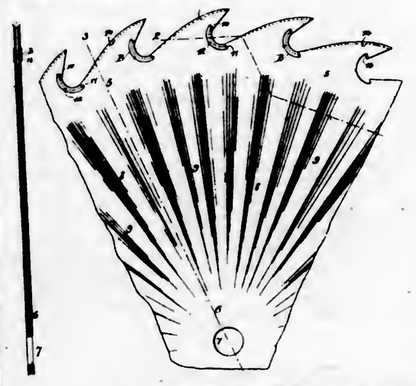
2. In a burner of the class described, the combination with the gas-supply pipe having threaded studs and diaphragm-valves seated in the end of said pipe and within said studs, the tube having lateral air-inlets and threaded inside of said studs so as to seat upon said valves, and a tapering interiorly-threaded set-nut fitted to the exterior of said studs to secure said tube in adjusted position.

3. In a burner of the class described, the combination with the gas-supply pipe, the air and gas mixing chamber and the illuminating-burner, of a fixed valve-diaphragm having a series of gas-ports, a valve-diaphragm rotatable thereon and having a series of gas-ports corresponding and registerable with the ports in the fixed diaphragm, a pilot-burner tube carried by the movable diaphragm and registerable with a port in the fixed diaphragm alternately with the registration of the other ports in said diaphragms, whereby gas is admitted to the mixing-chamber alternately with the admission of gas to the pilot-burner tube, said movable diaphragm being also provided with a series of air-inlets, a stationary corrugated hood mounted above said movable diaphragm, its several corrugations being registerable with said air-inlets respectively and coincidently with the registration of the gas-ports in said diaphragms connecting the gas-pipe with the mixing-chamber, and adjustable means for limiting the travel of said movable diaphragm in each direction to determine the maximum flow of gas and air to the illuminating-burner and the minimum flow of gas to the pilot-burner.



4. In a burner of the class described, the combination with the gas-supply pipe, air-mixing chamber and illuminating-burner, of exteriorly-threaded studs upon the end of said gas-pipe, the diaphragm-valves seated upon the end of said gas-pipe and within said studs, a tube leading to the mixing-chamber, fitted to the interior of said studs, and a set-nut threaded upon said studs.

646,878. SAW. DEWEY PHILLIPS, Arlington, Vt. Filed July 29, 1898. Serial No. 687,167. (No model.)



Claim.—1. A circular-saw plate of uniform thickness adjacent to the eye and at the rim or nearly so, and with the intermediate portion thinner and provided with undulations that form the thin portion of the saw into springs that allow the exterior of the saw to expand if it becomes warm without throwing the saw out of line, substantially as set forth.

2. A circular-saw plate of uniform thickness adjacent to the eye and at the rim or nearly so, and with the intermediate portion thinner and provided with radial undulations that form the thin portion of the saw into springs that allow the exterior of the saw to expand if it becomes warm without throwing the saw out of line, substantially as set forth.

3. The circular saw having recesses in the throats of the teeth

and detachable throat-pieces inserted in the recesses and secured therein, the concave sides of such throat-pieces being grooved or channeled so that the edges of the detachable throat-pieces become cutters for smoothing the surfaces of the wood at the kerf, substantially as set forth.

646,874. AUXILIARY MOTOR FOR VESSELS. RICHARD T. POWER, New Westminster, Canada, assignor of three-tenths to Richard D. Perry, San Francisco, Cal. Filed Feb. 16, 1899. Serial No. 705,656. (No model.)



Claim.—1. The combination with a vessel of one or more tubes extending through the vessel parallel with the keelson having the front and rear ends open for the free passage of water, enlarged casings in the length of the tubes, and wheels journaled within the casings and adapted to be propelled by the current of water passing therethrough and connections whereby the motion of the wheels may be transmitted for useful effect within the vessel.

2. The combination with a vessel and the propeller thereof, of one or more tubes extending through the vessel below the water-line parallel with the keelson having front and rear ends open, enlarged casings in the length of said tubes and wheels journaled within the casings and adapted to be rotated by the current passing through the tubes, and mechanism connecting with said wheels whereby the motion and power thereof may be transmitted for useful effect within the vessel.

3. The combination with a vessel and the propeller thereof of open-ended tubes extending through the vessel parallel with the keelson, water-wheels disposed within the tubes so as to be rotated by the current passing therethrough and mechanism connecting said wheels with electromotors, substantially as described.

4. The combination in a vessel of open-ended submerged tubes parallel with the keelson, and allowing the free passage of water therethrough, one or more turbine wheels journaled to be acted upon by the momentum of the water flowing in the tubes, and a propeller or propellers at the stern of the vessel acting in conjunction with the tubes to produce a suction therefrom, and a clearance for the interior turbines.

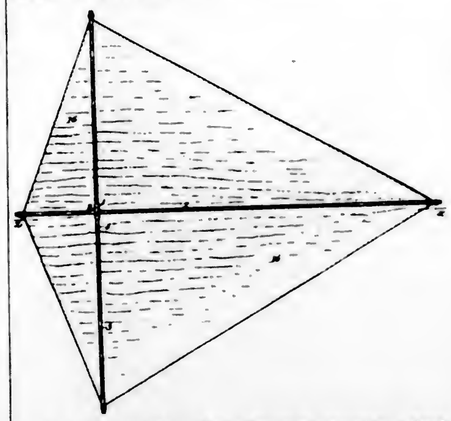
646,875. KITE. WILLIAM A. EDDY, Bayonne, N. J. Filed Aug. 1, 1898. Serial No. 687,394. (No model.)

Claim.—1. A kite comprising crossed bars guys connecting the ends of said bars, and a flexible covering wider than the frame secured along said guys and gathered near the medial line of the frame.

2. In a kite the combination with the upright frame-piece, of the curved cross-piece, its chord-brace, and the metal clip engaging the cross-piece and brace, and the upright passed between the same.

3. A kite comprising crossed bars or extender members guys extending around the ends of said members to form therewith a frame, and a flexible covering the upper portion of which is wider than the frame secured to the ends of said members and along said guys and gathered at or near the top of the frame adjacent its medial line.

4. In a kite, in combination with the curved cross-bar, and its brace, substantially as described, the sheet-metal clip or coupling surrounding both cross-bar and brace and having an opening to receive the upright, and the integral tongues adapted to be secured to the upright when in position.



5. A kite comprising a forwardly-curved cross-piece, a chord-brace thereon, an interposed rectilinear upright, an interlocking device for said parts, and a flexible covering of materially-greater dimensions than the frame secured by its edges thereto and "gathered" adjacent the medial line, as and for the purposes specified.

6. A kite-frame comprising a forwardly-carved cross-piece a chord-brace, a rectilinear upright secured between and interlocked therewith, and a bow-string for determining and maintaining the curvature of the cross-piece.

7. In a kite in combination with the frame-pieces and covering, sheet-metal clips upon the extremities of the frame-pieces having tongues closed over the frame piece and and a tongue with reverse bend serving as a lateral catch or hook to receive an eye upon the covering as and for the purposes specified.

8. A kite comprising a forwardly-curved cross-piece, a rectilinear upright secured thereto, guys passing around the ends of said parts and forming therewith a frame, and a flexible covering upon said frame of materially-greater width and gathered adjacent the medial line.

9. A kite comprising crossed extender members, guys passing thereabout to form a symmetrical frame, a flexible covering secured by its edges to the ends of said members and along said guys, and gathered adjacent its medial line.

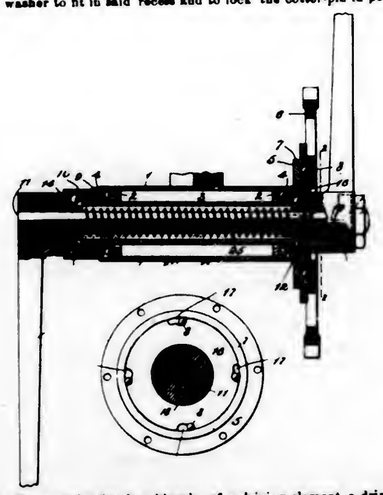
10. In a kite of the character described, the combination of crossed extender members, guys passing thereabout, to produce a symmetrical frame, a covering secured upon the frame, and means upon the covering whereby under the action of the wind said covering is adapted to have formed in it two concavities extending longitudinally of the upright extender member, substantially as specified.

646,876. BACK-PEDALING BRAKE. MILTON R. SCHAFFER, South Whitehall, and MORRIS T. SCHAFFER, Bethlehem, Pa. Filed Dec. 10, 1898. Serial No. 698,982. (No model.)

Claim.—1. The combination in a bicycle of a crank-hanger, a tubular sprocket-shaft supported in ball-bearings in said hanger, a crank-axle supported in ball-bearings in said tubular sprocket-shaft, a fixed crank and a loose crank on said axle, a clutch between said axle and said shaft and means on the axle to force the cranks toward each other and against the interior set of ball-bearings whereby said interior set serve not only to support said axle but also as braking-surfaces.

2. The combination in a bicycle of a driving-axle, one crank rigidly secured thereto, one crank rotatable thereon through a small arc, a tubular sprocket-shaft concentric with said axle, a clutch connecting said axle and said shaft and a brake between said axle and said shaft and means for causing said brake to operate upon a simultaneous depression of said cranks, said means consisting of a cam fixed upon said axle and a corresponding recess in the hub of said rotatably-mounted crank.

3. The combination in a bicycle, of a driving element, a driven element, an intermediary clutch, an intermediary brake and a cam-washer for throwing said brake into engagement consisting of a cylindrical disk having a cam on one end and a circular recess in the other end, a transverse groove cut across the bottom of said circular recess, in combination with a cotter-pin adapted to fit in said groove, said pin having flanges to correspond with the walls of the recess and a washer to fit in said recess and to lock the cotter-pin in position.



4. The combination in a bicycle, of a driving element, a driven element, an intermediary clutch, ball-bearings between said driving and driven elements and means for tightening said bearings, whereby said bearings serve not only to support said driving element but also as a brake.

5. The combination in a bicycle, in a driven element, a driving element supported on ball-bearings by the driven element, a clutch intermediate of said driven and driving element, and means on the driving element for pressing the parts of the ball-bearings together to act as a brake.

6. The combination in a bicycle, of a crank-hanger, a tubular sprocket-shaft, intermediary ball-bearings, a flanged and cupped disk secured to one end of said shaft, an adjustable cone at the other end of said shaft a cupped lock-nut securing said cone in position, a driving-axle, a fixed crank and a loose crank upon said axle, ball-bearings between the hubs of said cranks and said sprocket-shaft, a radial enlargement of the hub of said loose crank, tapered recesses in the outer edge thereof and clutch-balls in said recesses, a transverse recess in the outer end of the hub of said loose crank, a cam-washer secured to said axle and adapted to engage with said transverse recess to force said cranks toward each other upon a simultaneous depression of said cranks, and a compressed spiral spring between said cranks, substantially as described.

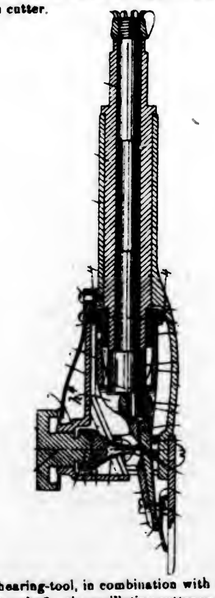
646,877. SHEARING-TOOL. JOHN K. STEWART, Chicago, Ill. Filed Dec. 7, 1896. Serial No. 696,536. (No model.)

Claim.—1. In a shearing-tool, in combination with the fixed cutter or comb, the oscillating cutter and its actuating pressure arm or lever; a shell or base in which said parts are mounted and with which the comb is rigid; a removable cap and a tension-screw set through the cap; a pressure-pin pivotally stepped in the pressure-arm and provided with a head whose center is nearer the pivotal center of the step than any other point on said head; the tension-screw having a spherical convex lower end on which the pressure-pin head bears and has a rolling action, the curvature of the tension-screw terminal and form of the pressure-pin head being together calculated to compensate for the oscillation of the pin

2. In a shearing-tool, in combination with a fixed comb or cutter, the oscillating cutter; a shaft from which movement is communicated to said cutter, a ring swiveled about the bearing of the shaft, and the cutter-actuating lever pivoted to said ring at a line substantially at right angles to the plane of oscillation of the cutter.

3. In a shearing-tool, in combination with a fixed comb or cutter, the oscillating cutter; the shaft from which such cutter derives its motion; a ring swiveled about the bearing of the shaft; a crank on said shaft forward of said bearing; the cutter-actuating lever pivoted to the ring at a line at right angles to the plane of oscillation of the cutter, and engaged and actuated by the crank forward of said pivot.

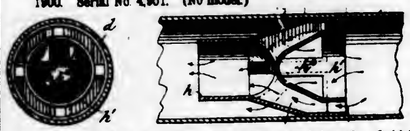
4. In a shearing-tool, in combination with the fixed comb or cutter, the oscillating cutter; the driving-shaft journaled in bearings fixed with respect to the fixed cutter and having a crank-wrist pin at the forward end, the cutter-actuating lever engaging at the forward end the oscillating cutter and being engaged intermediate the same by the crank-wrist being extended at the rear both above and below the shaft-bearing and pivoted to the latter at diametrically-opposite points thereon in a line at right angles to the plane of oscillation of the cutter.



5. In a shearing-tool, in combination with a fixed comb or cutter; the driving-shaft; the oscillating cutter and its actuating-lever, the fulcrum of said lever-arm being provided by means of a ring swiveled about the bearing of the shaft and to which the lever is pivoted in a line at right angles to the plane of oscillation of the cutter.

6. In a shearing-tool, in combination with a fixed comb or cutter, the oscillating cutter and its actuating-lever arm, the fulcrum of said lever being formed by means of a ring having a spherical seat about the bearing of the shaft and provided with diametrically-opposite pivot-studs for the lever in a line at right angles to the plane of oscillation of the cutter.

646,878. FLUID-INTERCHANGING DEVICE. HUGO SKAMATOLSKI, Frankfort-on-the-Main, Germany. Original application filed Dec. 30, 1899, Serial No. 742,149. Divided and this application filed Feb. 12, 1900. Serial No. 4,951. (No model.)



Claim.—1. The combination with a conduit, of a fluid-interchanging device located in said conduit and having two sets of passages, one set leading from an inner portion of the conduit on one side of the interchanging device to an outer portion of the conduit on the other side, the other set of passages leading from an outer portion of the conduit on the first-mentioned side of the interchanging device to an inner portion of the conduit on the other side of the interchanging device, whereby the inner and outer layers of fluid are interchanged.

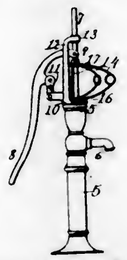
2. A fluid-interchanging device comprising an annular piece open in one direction, a tubular piece smaller than the annular piece and open in the opposite direction, and channels connecting the annular piece with the tubular piece and having openings between them.

646,879. PROCESS OF DYEING FABRICS. GIOVANNI TAGLIANI, Milan, Italy. Filed Mar. 15, 1899. Serial No. 709,188. (No specimens.)

Claim.—1. The herein-described process of deepening the shade of color upon one side of fabrics of vegetable fiber, in dyeing said fabrics, which consists in applying a concentrated alkaline solution only to the side that is to take the deeper color, then dyeing the fabric, and finally subjecting said fabric to the washing action of an acid, substantially as described.

2. The herein-described process of deepening the shade of color upon one side of fabrics of vegetable fiber, in dyeing said fabrics, which consists in applying only to the side that is to take the deeper color a concentrated caustic solution containing metallic salts, then dyeing the fabric, and finally subjecting said fabric to the washing action of an acid to remove the excess of metallic salts and any oxids formed during the dyeing operation, substantially as specified.

646,880. **SPRING ATTACHMENT FOR PUMP-RODS.** JAMES O. BANE, Waseca, Minn. Filed Dec. 27, 1899. Serial No. 741,732. (No model.)



Claim.—The combination of a pump-body; a reciprocating piston-rod; a plate to rest on top of the pump; another plate having a binding-screw to bear upon the piston-rod; and springs having eyes at both ends; the said plates having studs to enter the said eyes and studs beside the springs, substantially as described.

646,881. **PRODUCTION OF CELLULOSE SOLUTIONS FOR MANUFACTURING THREADS.** EMILE BRONNERT, Mülhausen, Germany. Filed Oct. 7, 1899. Serial No. 732,951. (No specimens.)

Claim.—The process herein described for the production of cellulose solutions adapted for the manufacture of threads by first treating cellulose in a finely-divided state for about one hour with a cold concentrated-solution of caustic alkali, then mixing the product with a powdered copper salt in proportion equivalent to the caustic alkali used, avoiding a rise of temperature, and finally dissolving the product in strong ammonia solution.

646,882. **PROSPECTING-DISH.** WALTER G. COLLINS, Coramba, New South Wales. Filed Mar. 31, 1898. Serial No. 675,991. (No model.)



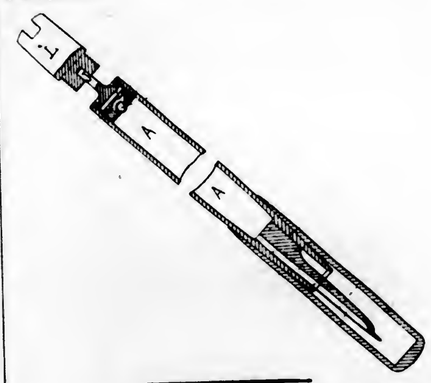
Claim.—A prospecting-dish or the like having an angle-plate secured to its side wall and extending only a portion of the way around said wall, the angle between the inner faces of the wall and the projecting straight ledge of the angle-plate being not greater than ninety degrees, whereby when the dish is tilted during the operation of washing a pocket is formed between the plate and the wall; substantially as described.

646,888. **FOUNTAIN-PEN.** WILLIAM I. FERRIS, Stamford, Conn. Filed Feb. 23, 1897. Serial No. 624,705. (No model.)

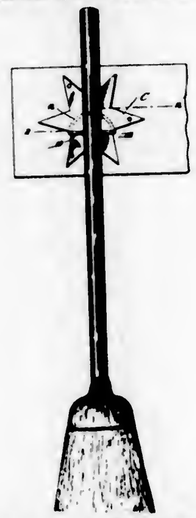
Claim.—1. In a fountain-pen, the combination of a hollow penholder, open from end to end, having a contracted feed-passage at the lower end; a piston operative solely in the upper part thereof; and a single self-closing valve connected with such piston, such valve being opened on the downward movement to allow the passage of air above it.

2. In a fountain-pen, the combination of a hollow penholder, open from end to end, having a contracted feed-passage at the lower end; a piston operative solely in the upper part thereof, and attached to a piston-rod; a single self-closing valve connected with such piston, such valve being opened on the downward movement to allow the passage of air above it; and a cap attached to the piston-rod and closing the upper end of the reservoir when writing.

646,883.



646,884. **HOLDER FOR BROOMS, &c.** CHARLES W. GASTON, Columbus, Ohio. Filed Mar. 16, 1899. Serial No. 709,310. (No model.)



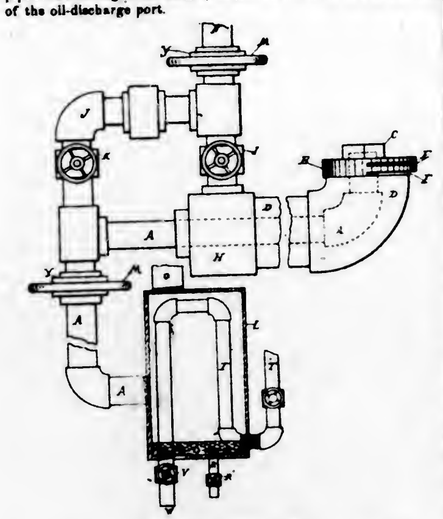
Claim.—As an improved article of manufacture, the herein-described holder consisting essentially of the flat, sheet-metal body having a face entirely free from projections, and the clamp formed of a single piece of wire and having the upright loop *a* arranged parallel with and connected to the body at the back thereof, and the jaws *c* disposed at right angles to the loop *a* and extending forwardly immediately below the edge of the body; said jaws being made up of outwardly-extending outer portions and inwardly-extending inner, terminal portions arranged in the same horizontal plane as the outer portions, substantially as specified.

646,885. **HYDROCARBON-BURNER.** MILON O. GODDING, Monrovia, Cal. Filed Sept. 27, 1898. Serial No. 692,004. (No model.)

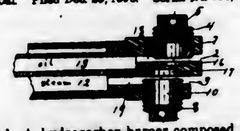
Claim.—1. A hydrocarbon-burner composed of an oil-supply pipe having a semicircular discharge-port parallel to and extending beyond the steam-port, and a steam-supply pipe surrounding a portion of the oil-pipe and having a semicircular discharge-port below and parallel with and discharging in the rear of the oil-port.

2. A hydrocarbon-burner composed of the oil-supply pipe A having the semicircular horizontal oil-port E extending beyond the steam-port, the steam-supply pipe D surrounding a portion of the oil-pipe A and having the semicircular horizontal steam-port F below and in the rear of the oil-discharge port, and fitting H.

3. A hydrocarbon-burner composed of the union-coupling Y having wheel M, by-pass J having valve K, oil-supply pipe A having semicircular oil-discharge port E extending beyond the steam-port, steam-supply pipe D having semicircular port F, steam-pipe N having valve I and fitting H; the steam-pipe D surrounding a part of the oil-pipe A and having its discharge-port parallel to, below and in the rear of the oil-discharge port.



646,886. **HYDROCARBON-BURNER.** MILON O. GODDING, Los Angeles, Cal. Filed Dec. 29, 1898. Serial No. 700,640. (No model.)



Claim.—1. A hydrocarbon-burner composed of a burner-head having an oil-supply passage terminating in a semicircular horizontal discharge-port, a valve having an expansion-chamber therein arranged to regulate such discharge-port; said head also having a steam-supply passage terminating in a semicircular horizontal discharge-port in the rear of and below the oil-port, a valve having an expansion-chamber therein arranged to regulate such steam-port, an oil-pipe connected with the oil-passage and a steam-pipe connected with the steam-passage substantially as described herein.

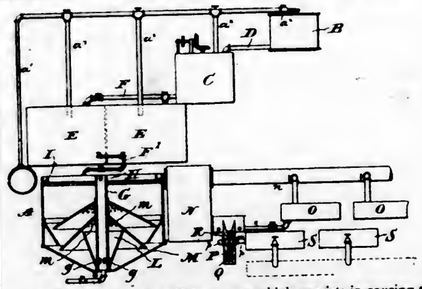
2. In a hydrocarbon-burner comprising the head 1, semicircular on its face and having two horizontal slots 2 and 3 in its face forming discharge-ports for oil and steam respectively, the upper port 2 being in advance of and projecting over port 3, the said ports having connection with an oil and a steam conduit respectively and the adjustable screw-threaded valves 4 and 8 disposed above and below the oil and steam passages leading to ports 2 and 3 respectively having recesses 7 and 10 arranged to regulate the flow of oil and steam to the ports 2 and 3 respectively by screwing or unscrewing said valves.

3. The combination of the head 1, provided with slots 2 and 3 forming discharge-ports for oil and steam respectively, and the screw-threaded valves 4 and 8, with the chambers 7 and 10, the ports 2 and 3 having communication with oil and steam pipes 13 and 12 and said valves being disposed in threaded openings in the head 1, above the oil-passage 18 and below the steam-passage 19 whereby the flow of oil and steam is regulated by turning said valves substantially as shown and described.

4. A hydrocarbon-burner having an oil-discharge port above and slightly in advance of the steam-port, and screw-threaded valves having chambers 7 and 10 adapted to regulate the flow of oil and steam to said ports; the chambers in said valves together with the chambers leading to the oil and steam ports respectively forming expansion-chambers for the oil and steam before being projected through said ports.

646,887. **PROCESS OF PURIFYING WATER.** JOHN MACDOUGALL, Detroit, Mich. Filed Mar. 7, 1900. Serial No. 7,618. (No specimens.)

Claim.—1. The process of purifying water which consists in passing it into a suitable tank or receptacle, causing the agglomeration of matters in the water by subjecting the water, while in such tank or receptacle, to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, and then removing the agglomerates substantially as described.



2. The process of purifying water which consists in causing the agglomeration of matters therein by subjecting the water to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, and then separating the agglomerates and the water, substantially as described.

3. The process of purifying water which consists in causing the agglomeration of matters therein by subjecting the water to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, separating the agglomerates and the water, and then removing the lime still present, substantially as described.

4. The process of purifying water which consists in causing the agglomeration of matters therein by subjecting the water to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, separating the agglomerates and the water, and then subjecting the water to the action of carbonic-acid gas, substantially as described.

5. The process of purifying water which consists in causing the agglomeration of matters therein by subjecting the water to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, filtering the water, and then suitably treating it to remove the lime still present, substantially as described.

6. The process of purifying water which consists in causing the agglomeration of matters therein by subjecting the water to the action of an excess of lime over that necessary for the neutralizing of any carbonates present, the excess being in a proportion not greater than ten grains to a gallon of the water treated, filtering the water, suitably treating it to form the lime still present into an insolnble compound, and then filtering it again, substantially as described.

646,888. **RIBBON-SPOOL RACK.** HOMER R. MOORE, Fort Scott, Kans. Filed June 26, 1899. Serial No. 721,862. (No model.)



Claim.—1. In a device of the class described, the combination with a rectangular frame and feet which support said frame, of a pair of vertically-arranged rods rotatably held in the top and bottom of said frame, horizontal rods passed through said vertical rods, and longitudinal grooves formed in the bottom of said frame for the purpose of allowing the bottom horizontal arm to engage therein, substantially as specified.

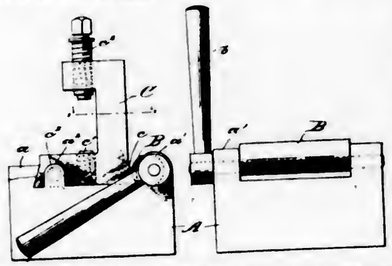
2. In a device of the class described, the combination of a rectangular frame 1, a bar 4 which divides said frame, vertically-arranged arms 8 carried in the top and bottom portions of said frame, cross-arms 10 passed through said vertical rods, and a short arm 9 passed through said rods at the bottom and longitudinal grooves 5 formed in said frame at the bottom of said rods 8, said arms 9 normally occupying said grooves 5 in said frame for holding said rack in a rigid position when engaged therein, substantially as herein specified.

646,889. MANUFACTURE OF ARTICLES FROM PULP. WILLIAM W. MCEWAN, ARTHUR MCEWAN, and FRANK MCEWAN, Whippany, N. J., assignors to The Stony Brook Paper Company, same place. Filed May 17, 1899. Serial No. 717,149. (Specimens.)



Claim.—As a new article of manufacture, an object shaped from a sheet of fibrous pulp, portions of said sheet being out of the plane of the blank, and having preserved for decorative and ornamental purposes the natural creases and surface configurations of said sheet, substantially as specified.

646,890. TOOL-HOLDER. LUTHER T. PARSONS, New York, N. Y., assignor to Warren Seymour Belding, same place. Filed Jan. 5, 1900. Serial No. 471. (No model.)



Claim.—1. A tool-holder comprising a block or support, a tool-post removably mounted and laterally movable thereon and means for moving said tool-post laterally on said support and locking it in position.

2. A tool-holder comprising a block or support, a tool-post removably mounted and laterally movable thereon, means for adjusting said tool-post lengthwise of said support, and means for moving said tool-post laterally and locking it in position.

3. A tool-holder comprising a block or support, a tool-post removably mounted and laterally movable thereon, means for adjusting the tool in said tool-post, means for securing it in adjusted position, means for adjusting the tool-post and tool lengthwise of said support, and means for moving said tool-post laterally, and locking it in position.

4. A tool-holder comprising a block or support having an undercut abutment, a tool-post having an angular base engaging said undercut abutment removably mounted and laterally movable on said support, and means for moving said tool-post laterally and locking it in position.

5. In a tool-holder, the combination with a block or support having an undercut abutment, of a tool-post removably mounted on said support and provided with an angular base to engage said abutment, and a cam on said support to bear against and lock said tool-post in position.

6. In a tool-holder, the combination with a block or support having an undercut abutment, of a tool-post having an angular or dovetailed base to engage said undercut abutment removably mounted on said support, means for adjusting a tool in said tool-post, means for securing it in adjusted position, and a cam on said support to lock said tool-post in adjusted position.

7. In a tool-holder, the combination with a block or support having an undercut abutment, of a tool-post having an angular or dovetailed base to engage said undercut abutment removably mounted on said support, means for adjusting a tool in said tool-post, means for securing it in adjusted position, means for adjusting said tool-post lengthwise said support, and a cam on said support to lock said tool-post in adjusted position.

8. In a tool-holder, the combination with a block or support having an undercut abutment, of a tool-post having an angular or dovetailed base removably mounted on said support, adjusting-screws carried by said tool-post to adjust the tool to different heights, a set-screw to secure the tool in adjusted position, means carried by the tool-post to secure and maintain an adjustment of said tool-post lengthwise the support, and a cam to lock said tool-post in position.

9. In a tool-holder, the combination with a block or support having an undercut abutment, of a tool-post removably mounted on said support so as to slide freely lengthwise thereof, and having an angular or dovetailed base to engage said undercut abutment, adjusting-screws carried by said tool-post to adjust the tool to different heights, an adjusting-screw tappet in said tool-post and bearing against the lug or stop on said support to adjust the tool-post lengthwise thereof, and a cam on said support to lock said tool-post in position.

10. In a tool-holder, the combination with a block or support, having an undercut abutment, of a tool-post removably mounted and sliding freely thereon, said tool-post having a base with inclined or dovetailed sides one of which engages said undercut abutment; a cam bearing against the other inclined side of said base to lock the tool-post in position, tool-adjusting screws carried by said tool-post, and an adjusting-screw carried by said tool-post and bearing against a lug or stop on the said support to adjust said post lengthwise said support.

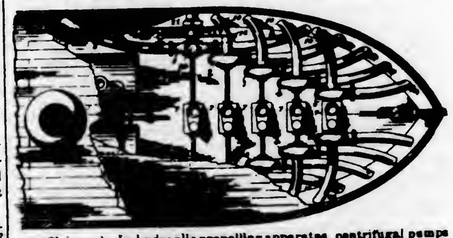
11. In a tool-holder, the combination with a block or support, of a tool-post removably mounted and laterally movable thereon, means for adjusting said tool-post lengthwise said support, means for moving said tool-post laterally and locking it in adjusted position, and an auxiliary tool-carrier secured to said tool-post.

12. In a tool-holder, the combination with a block or support, of a tool-post removably mounted therein, means for adjusting said tool-post lengthwise said support, means for locking said tool-post in adjusted position, and an auxiliary tool-carrier pivoted to said tool-post.

13. In a tool-holder, the combination with a block or support, of a tool-post removably mounted thereon, means for adjusting said tool-post lengthwise said support, means for locking said tool-post in adjusted position, an auxiliary tool-carrier pivoted at one end to said tool-post, means for adjusting said auxiliary carrier to different heights, and means for securing it in adjusted position.

14. In a tool-holder, the combination with a block or support, of a tool-rest removably mounted thereon, an adjusting-screw carried by said tool-post for adjusting said tool-post lengthwise said support, means for locking said tool-post in position, an auxiliary tool-carrier pivoted at one end on said tool-post and provided at its other end with means for holding a tool, an adjusting-screw to adjust the said auxiliary tool-carrier to different heights, and a set-screw to secure the said pivoted carrier in adjusted position.

646,891. HYDRAULIC PROPELLING APPARATUS. FRANK W. SIMMONS, Felton, Cal., assignor of one-fourth to William S. Miller, Oakland, Cal. Filed July 17, 1899. Serial No. 724,150. (No model.)



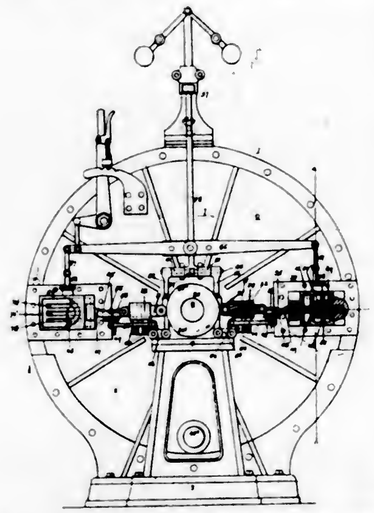
Claim.—1. In hydraulic propelling apparatus, centrifugal pumps connected in pairs to a single motive engine placed between the pumps and central over the vessel's keel, the pumps arranged on each side in the stern, overlapping each other so as to form rows oblique to the vessel's keel whereby space is economized and provided with inlet and discharge pipes, substantially as specified.

2. In hydraulic propelling apparatus, a series of centrifugal pumps set in the stern overlapping each other obliquely in rows inclined in respect to the vessel's axis or keel, said pumps connected in pairs to a motive engine set on or over the vessel's keel, substantially as specified.

3. In hydraulic propelling apparatus, a series of centrifugal pumps set at or near the stern of a vessel obliquely overlapping in rows and connected in pairs to motive engines placed on or over the vessel's keel, two or more of said centrifugal pumps arranged with two discharge-nozzles each, one discharging water forward, and the other aft, substantially as specified.

4. In hydraulic propelling apparatus, a series of centrifugal pumps set in rows in the stern, overlapping each other obliquely on each side of the vessel's axis or keel, connected in pairs to motive engines set on or over the vessel's keel, and forwardly-directed suction-pipes extending from one side of each pump to the sides of the vessel and open to the sea, substantially as specified.

646,892. ROTARY ENGINE. RICHARD SMITH, Sherbrooke, Canada, assignor of one-half to William Farwell, same place. Filed Sept. 11, 1899. Serial No. 730,061. (No model.)



Claim.—1. The cut-off mechanism herein described, consisting of the inclined walls of the head of the bracket in the groove of which the head of the steam-valve plays, in combination with the tripper carried by the spring-impelled spindle which acts as an intermediary to communicate the motions of the wiper-cam to the steam-valve, through the stem of the latter, the cylinder and the piston operating therein, substantially as shown and described.

2. The mechanism herein described for operating each main steam-valve, consisting of the three-part wiper-cam carried by the driving-shaft, and wiping against the inner end of the stem of the valve through the agency of the intermediary spring-impelled spindle carrying upon its outer part the pivotal tripper which operates in conjunction with the step upon the outer part or end of the valve-stem, the cylinder and piston operating therein, essentially as explained.

3. The mechanism herein described for operating each shifting gate or cylinder-head, consisting of the spur-gear secured to the horizontal rock-shaft journaled within the gate-chest, and engaging a toothed rack formed upon the gate, the rock-shaft having affixed to its outer end a rocker-arm which carries a truck to engage the cam-groove and actuates it in combination with the cylinder and the piston operating therein, substantially as explained.

4. The herein-described construction of the truck carried by the rocker-arm of the gate-operating mechanism, the same consisting of the tapering spindle, carrying upon its outer end the antifriction-roller for engaging the cam groove or path which actuates such rocker-arm, said spindle being contained within the corresponding bore of the sleeve secured to said rocker-arm; a nut being screwed upon the end of the spindle, and bearing upon the rocker-arm, and serving to maintain a tight joint between the spindle and sleeve, in combination with the cylinder and the piston operating therein, substantially as explained.

5. In combination with the piston-chamber and the inclosure that contains the body of the piston-carrier, the two annular packing-cups, one of which is inserted mouth inward within the other, thus providing a box which contains a spring to crowd one cup against the face of the piston-carrier, essentially as and for the purpose explained.

6. The mechanism herein described for regulating the movements of the cut-off mechanism, through the medium of a governor, the same consisting of the horizontal rocker-arm, secured at its base to the horizontal rock-shaft which is journaled in brackets secured to the front of the engine, and has pivoted to each of its ends the vertical connecting-rod, the lower end of each of these rods being in turn pivoted to the tail of the horizontal rocker-arm; which arm, in its turn, is pivoted to the top of the front standard of the main shaft—the outer end of said rocker-arm terminating in the upright arm, the top of which is pivoted to the end of the horizontal rod which connects such arm with the spring-impelled spindle, that constitutes an intermediary to transmit the motions of the wiper-cam to the valve-stem, substantially as explained.

7. In combination with a cylinder, a rotary piston-carrier and pistons operating therein, gates and gate-operating mechanism controlling the passage of steam through said cylinder, steam-chests and inlet-valves operating therein, cams operating the said valves, movable intermediate devices governing the action of the same, and a governor and its connections automatically shifting the said devices toward or from the axis of the said cam to vary the point at which the steam shall be cut off from the cylinder, substantially as set forth.

8. In combination with a cylinder, a rotary piston-carrier and pistons operating therein, gates and gate-operating mechanism controlling the passage of steam through said cylinder, steam-chests and inlet-valves operating therein, steps on the rods of the said valves, trippers arranged for contact with the said steps, movable inclined planes adapted to be shifted into or out of position to lift the said trippers into such contact, and a governor and connections for automatically shifting the said inclined planes, substantially as and for the purpose set forth.

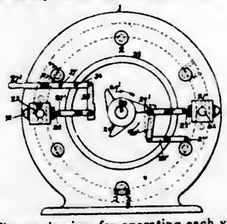
9. In combination with the cylinder and rotary piston-carrier and pistons of a rotary engine, a series of gates and a cam, grooved disk and connections for determining the time of the opening and closing of the said gates, and an auxiliary engine for driving the said gates, and devices engaging a second cam groove or path in the said disk for operating the valve of the said auxiliary engine, substantially as set forth.

10. In combination with the cylinder, rotary piston-carrier and pistons of a steam-engine, steam-inlet valves having steps on their stems, trippers arranged for contact with said steps, movable inclined planes for controlling the duration of the contact of the said trippers with the said steps, sectional connecting-rods provided with nuts for regulating the movement of the said inclined planes, and the necessary connecting mechanism, substantially as set forth.

11. In engines of the class herein first premised, the device for actuating the shifting gates, consisting of the toothed rack (upon each gate) which engages the spur-gear carried by the rocker-shaft journaled within the gate-chest, and actuated by a rocker-arm having a truck which engages the cam groove or path, that imparts vibratory motions to said rocker-arm, essentially as described.

12. A cam-disk having two paths or grooves in combination with an engine-cylinder, a piston-carrier and pistons rotating therein, gates operating to open and close the steam-space of said cylinder, a connecting-rod engaging one of the said paths, a rock-shaft provided with a rocker-arm and having the said connecting-rod pivoted on it, a valve connected to said rocker-arm, an auxiliary engine controlled by the said valve, connections between the said auxiliary engine and the said gates for operating them by steam directly applied, and devices making connection between the other cam-path of said disk and the said gates for regulating their time of action, substantially as set forth.

646,893. ROTARY ENGINE. RICHARD SMITH, Sherbrooke, Canada, assignor of one-half to William Farwell, same place. Filed June 6, 1898. Renewed Sept. 11, 1899. Serial No. 730,183. (No model.)



Claim.—1. The mechanism for operating each valve, consisting of a link and a valve-stem, to one end of which the said link is connected, in combination with a vertical arm connected to the other end of the said link, a lever to which this arm is pivoted, the trip-

cams carried by the engine-shaft and acting to open the said valves, the springs which tend to close the latter, and a supporting device on which the said lever is pivoted, substantially as set forth.

2. The mechanism for operating each valve, consisting of a link and a valve-stem, to one end of which the said link is connected, in combination with a vertical arm connected to the other end of the said link, a lever to which this arm is pivoted, the trip-cams carried by the engine-shaft and acting to open the said valves, the springs which tend to close the latter and a ring 33 on which the levers for operating the valves are pivoted and the casing on which the said ring is mounted in such manner as to permit its rotary adjustment, substantially as set forth.

3. In a rotary engine, the combination with a revolving piston-carrier and an engine-case in which it works, of gates 16 and means for moving them automatically into and out of the cylinder to form partitions therein or allow the passage of a piston, devices for supplying steam between such gates and the pistons to continuously drive the carrier, valves for cutting off the supply of steam at any point to regulate its expansion, levers for opening the said valves, springs tending to close the said valves, a series of rotary cams arranged to operate the said levers and a series of links connecting the said levers respectively to the stems of the said valves, substantially as set forth.

646,894. COLLAR. WILLIAM F. SOMMERS, St. Louis, Mo., assignor of one-fourth to William H. Oemer, same place. Filed Oct. 29, 1898. Serial No. 694,979. (No model.)

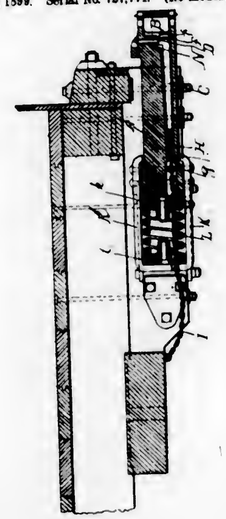


Claim.—A horse-collar, provided at the outer seam of its large roll with a strip of elastic, yielding cushion material, secured therein directly between the outer edge of the collar-back and the outer edge of the collar-face, by the fastenings constituting the seam, substantially as shown and described.

646,895. METHOD OF PRODUCING COLORED DESIGNS. GEORG THURINGER, Nuremberg, Germany, assignor to E. G. May Soehne, Frankfort-on-the-Main, Germany. Filed Mar. 31, 1896. Serial No. 585,625. (No specimens.)

Claim.—The method, substantially as hereinbefore described, of producing pictures having a metallic lustrous effect, which consists in coating the material with metal, polishing or burnishing the metal and then applying to said polished metal surface transparent materials, corresponding to the designs to which the lustrous metallic effect is to be given.

646,896. CAR-COUPLING. ANDREW O. ARNOLD, Galesburg, Ill. Filed Aug. 19, 1899. Serial No. 727,771. (No model.)



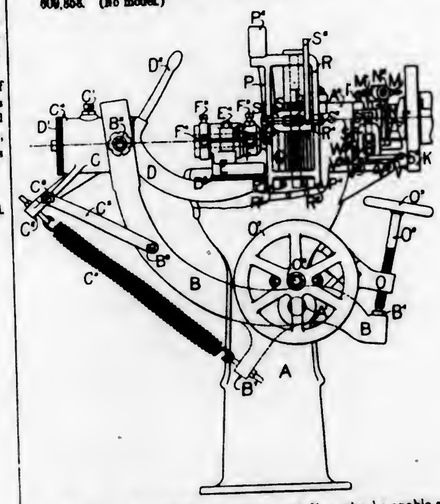
Claim.—1. The combination with a draw-bar, of a locking device arranged therein, comprising a bar extending rearwardly within the draw-bar and formed at its outer end with a dovetail recess, and a lifting-pin connected with the locking device by a dovetail tenon fitting said recess, substantially as and for the purpose described.

2. The combination with a draw-bar provided with a coupler-head, of a knuckle pivotally mounted within the coupler-head and having a tailpiece, a locking device arranged in the path of movement of said tailpiece and adapted to engage and lock the same, said locking device comprising a bar extending rearwardly through an opening in the draw-bar, a spring operating on said bar to project it forward and a slack chain normally connected to the end of said locking-bar and to the frame of the car, substantially as and for the purpose described.

3. The combination with a draw-bar provided with a coupler-head, of a knuckle pivotally mounted in said head and having a tailpiece, a locking device arranged in the path of movement of said tailpiece and adapted to engage and lock the same, a lifting-pin having a loose connection with the locking device, a bar forming part of said locking device extending rearwardly through an opening in the draw-bar and provided with an extension on its rear end, a collar *g*, a spring arranged on said extension between the locking-bar and said collar and a chain connected to the end of the extension and to the frame of the car, substantially as and for the purposes described.

4. The combination with a draw-bar provided with a coupler-head, of a knuckle pivotally mounted within the coupler-head and provided with a tailpiece, a locking device comprising a head arranged in the path of movement of said tailpiece and a bar extending rearwardly from said locking-head through an opening in the draw-bar and provided with an extension, a spring operating on said extension to hold the locking-head normally forward in the path of the tailpiece, a slack chain connected to the end of said extension and to the car-frame, and a lifting-pin connected to the locking-head by a dovetailed joint, substantially as and for the purposes described.

646,897. GRINDING-MACHINE. JOHN S. RADCROFT and WILLIAM H. THORNE, Philadelphia, Pa., assignors to the William Sellers & Company, Incorporated, same place. Filed Oct. 23, 1896. Serial No. 609,858. (No model.)



Claim.—1. In a grinding-machine, a grinding-wheel movable axially, a fixed abutment, a revoluble piece provided with a guiding-surface thereon which revolves truly about the axis of the piece, another guiding-surface thereon which is a cam, and a lever engaging with the revolable piece, in combination with a spring-pressed arm on the lever reversible about the fulcrum of the lever.

2. In a grinding-machine, a tool-holder which oscillates upon trunnions between which the grinding-wheel operates, a former secured upon a trunnion contactual with an adjustable abutment, and a frame swinging on pivots at one end and weighted at the other end against an abutment, with open bearings between the two ends to receive the trunnions of the tool-holder.

3. In a grinding-machine, a grinding-wheel, a tool-holding chuck adjustable about an axis substantially in line with the shank of the tool to be ground, a stand holding this chuck, adjustable about an axis perpendicular to the axis of the chuck, and an arm supporting this stand, adjustable about an axis at right angles to that of the stand.

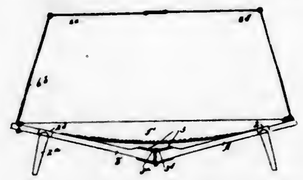
4. In a grinding-machine, a grinding-wheel, a tool-holding chuck adjustable about an axis substantially in line with the shank of the tool to be ground, a stand holding this chuck, adjustable about an axis perpendicular to the axis of the chuck, and an arm supporting this stand adjustable about an axis at right angles to that of the stand, in combination with a supporting-mounting to which the chuck mechanism is hinged on an axis parallel to the plane of rotation of the grinding-wheel.

5. In a grinding-machine, a grinding-wheel, a tool-holding chuck adjustable about an axis substantially in line with the shank of the tool to be ground, a stand holding this chuck, adjustable about an axis perpendicular to the axis of the chuck, and an arm supporting this stand adjustable about an axis at right angles to that of the stand, a supporting-mounting in which the chuck mechanism is hinged on an axis parallel to the plane of rotation of the grinding-wheel in combination with a bed to which the mounting is hinged on an axis parallel to the chuck-mechanism axis, and preferably nearly in the plane of rotation of the grinding-wheel.

6. In a grinding-machine, a grinding-wheel, a tool-holding chuck adjustable about an axis substantially in line with the shank of the tool to be ground, a stand holding this chuck, adjustable about an axis perpendicular to the axis of the chuck, and an arm supporting this stand adjustable about an axis at right angles to that of the stand, a supporting-mounting in which the chuck mechanism is hinged, a bed to which this mounting is hinged, and means for moving the mounting axially in the hinge which connects the mounting to the bed.

7. In a grinding-machine a tool-holder which oscillates upon trunnions between which the grinding-wheel operates, and means for finding the proper position of the tool in the tool-holder, before it is secured therein.

646,898. COT, HAMMOCK, OR STRETCHER. EBENEZER S. BEDFORD, Detroit, Mich., assignor of one-half to John Bell, Jr., Marine City, Mich. Filed Jan. 5, 1899. Serial No. 701,233. (No model.)



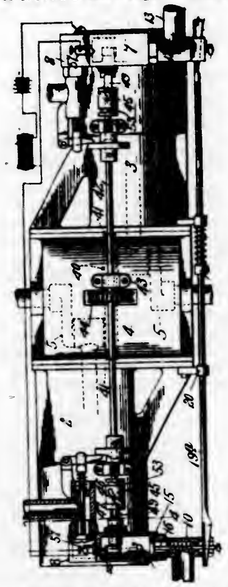
Claim.—1. In a frame for cot-beds, the combination of two frames, junction-irons on said frames, each frame being composed of two side pieces pinned to one of said junction-irons whereby the two frames are symmetrically expansible, and said frames being arranged to meet midway between the ends of the cot, hinge-irons joining the under surfaces of said frames, the frames being provided with abutting ends, arranged to meet above the hinged joint, stretcher-rods arranged to span the frames across each end, and means whereby the stretcher-rods may be secured to said frames, substantially as described.

2. A frame for stretching and holding the canvas or hammock part of a cot-bed, comprising in combination two expansible frames, each of said frames having side bars, which are hinged together, and of which the free ends are adapted to be spread or closed together, hinge connections arranged below abutting meeting ends of the side frames whereby the two frames are connected and centrally self-supported, and stretcher-bars and means for holding the stretcher-bars to the free ends of the side bars of the frame, substantially as described.

3. In combination with a canvas bottom, a frame made in two parts, junction-irons provided with abutting ends for the upper face of each part, junction-irons provided with detachable hinge-joint connections for the lower face of each frame part, stretcher-rods at the outer ends of each frame over which the canvas is secured, the two frame-pieces being adapted for engagement at the middle of said canvas and below it, or to be disengaged and swung outward and used as hangers to support said canvas, substantially as described.

646,899. EXPLOSIVE-ENGINE. JAMES F. DURYEA, Springfield Mass. Filed Sept. 19, 1896. Serial No. 691,309. (No model.)

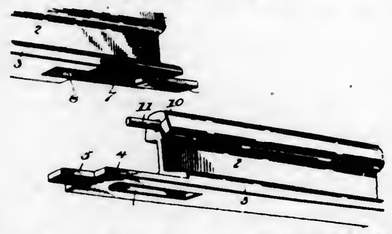
Claim.—1. The combination with the inlet-valves of an explosive-engine, valve-stems thereon, and an adjustable nut on said valve-stems, of a wedge having a sliding movement transverse to said valve-stems whereby the operative movements of said valves are arrested by the contact of said nut with said wedge; a plunger-rod and suitable support therefor, a spring for moving said rod in one direction, a pawl-and-ratchet device for holding said rod in a fixed position relative to its support, and a connection extending from one end of said plunger-rod to one end of said wedge, substantially as described.



2. The combination with the inlet-valves of a multiple-cylinder explosive-engine, valve-stems on said valves, and an adjustable nut on said valve-stems, of a movable member extending between said valves, wedges on said movable member whereby, by the contact of the nuts on the stems of said valves with said wedges, each inlet-valve of said cylinders is permitted to have the same range of operative movement; a plunger-rod and suitable support therefor, a spring for moving said rod in one direction, a pawl-and-ratchet device for holding said rod in a fixed position relative to its support, and a connection extending from one end of said plunger-rod to one end of said wedge, substantially as described.

3. The combination with the inlet-valves of an explosive-engine having oppositely-located cylinders, valve stems on said valves, and an adjustable nut on said valve-stems, of a suitably-supported rod extending between the valves on said cylinders, wedges on said rod located under the nut on said valve-stems, said rod having a sliding movement transverse to the line of movement of said valve-stems, whereby the said adjustable nuts may, by coming in contact with said wedges, arrest the movements of said valves, means outside of the engine for moving said wedge-bearing rod independently of the movement of any other part of the engine, in one direction, and a spring on said rod for moving it in the opposite direction, substantially as described.

646,400. RAIL-JOINT. MARTIN V. GIBSON, Oceola, Miss. Filed Oct. 18, 1899. Serial No. 733,975. (No model.)



Claim.—1. The combination of the interlocking ends of the rails, one of which is formed with a flat extension of less thickness than

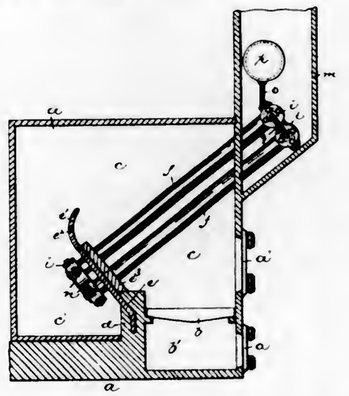
the base and provided with an oblong slot which extends underneath the base, and the other of which is provided in the base with a recess to receive said flat extension and carries a lug adapted to enter the oblong slot and engage with the base of the rail, substantially as described.

2. In a rail-joint, the combination, with the interlocking ends of the rails, one of which is formed with a flat extension provided with a slot extending into the base with the said extension terminating at its free end in a tongue of less width than the extension, and the other of said rail ends is formed with a recess to receive said extension and tongue and has a lug adapted to enter said slot in the extension and engage with the base of the abutting rail end, substantially as described.

3. In a rail-joint, the combination with the interlocking ends of the rails, one of which is formed on its base with an extension provided with an oblong slot and terminating at its free end in a tongue, and the other of said rail ends is formed with a recess to receive said extension and tongue and has a lug adapted to enter said slot and engage the base of the adjacent rail end, and a dowel-pin loosely engaging the interlocking ends of the rails, substantially as described.

4. In a rail-joint, the combination, with the interlocking ends of the rails one of which is provided with an extension having a slot therein and the other of said rail ends being formed with a lug adapted to enter said slot, of a dowel-pin loosely engaging the interlocking ends of the rails.

646,401. STEAM-GENERATOR. WILLIAM H. HARRISON, New York, N. Y., assignor of one-half to Charles Gilbert Fowler, same place. Filed Oct. 11, 1899. Serial No. 733,245. (No model.)



Claim.—1. The combination with a furnace providing a heat-chamber, and a chimney providing an independent flue separated from said heat-chamber by a partition, of a series of inclined double tubes arranged in said furnace-chamber and extending at their upper ends through the said partition into the chimney-flue, said tubes each comprising an inner and an outer tube forming an annular water-space between and an open central passage, a steam-dome arranged in said chimney, means for connecting the annular water-spaces of said tubes to one another and to said steam-dome, and a fire-grate arranged in said furnace-chamber beneath the inclined tubes and a deflecting-plate, whereby the entire heated currents rising from the grate are compelled to pass upward among said double tubes and then bend downward and escape through the central passages of the tubes into the chimney, where they warm the said steam-dome in escaping, substantially as set forth

2. The combination of the furnace *a*, having the grate *b*, the chimney *m*, separated from the furnace-chamber by a partition, a deflecting-plate *e*, at one side of said grate, a series of double tubes arranged in an inclined position over said grate and being supported near their lower ends in said deflecting-plate and near their upper ends in said partition between the furnace and chimney and extending beyond said partition into the chimney, said tubes each providing a closed annular water-chamber and an open central passage, means for connecting said annular water-chambers at the lower ends of the tubes and at the extreme upper ends within the chimney, a steam-dome within said chimney and connected to said water-chamber, and a grate beneath said tubes between their points of support, substantially as set forth.

3. The combination with a closed furnace, inclined double tubes having their lower portions within said furnace, said tubes each providing an annular water-space and an open central passage leading to the chimney, and a fire-grate arranged beneath said tubes, of a deflecting-plate *e*, inclined upwardly away from the side of said grate and supporting the lower ends of the inclined tubes, the central passages of said tubes opening at the under side of said deflecting-plate, and said plate extending upward beyond the tubes and being adapted to cause the currents from the fire-bed to pass among the inclined tubes before escaping through the central passages of said tubes, substantially as set forth.

646,402. CUSHION-TIRE. WEBBER G. KENDALL, Providence, R. I., assignor to the Kendall Rubber Tire Company, Portland, Me. Filed Oct. 7, 1899. Serial No. 732,964. (No model.)

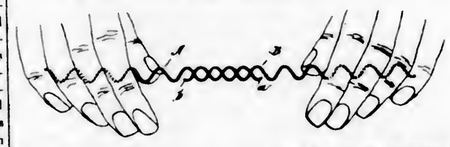


Claim.—1. As a new article of manufacture, a rubber tire having integral inwardly-extending securing-flanges, forming, with the inner periphery of the tire, a right-angled groove or channel to receive the rim of a wheel, and a reinforcing-lining of canvas or similar material, secured in said groove or channel in such a manner that the angles of the groove or channel will be protected from injury by said canvas lining, said tire being thickened at points opposite the angles of the groove or channel.

2. As a new article of manufacture, a rubber tire having inwardly-extending securing-flanges, set back from the outer side surface of the tire, said flanges forming, with the inner periphery of said tire, a groove or channel to receive the rim of a wheel, said tire being thickened at points opposite the angles of the groove or channel, and a lining of canvas or similar material secured in said groove or channel to reinforce the angles thereof, said tire being provided with cushioning-cavities in its inner periphery.

3. The combination with the rim of a wheel, of a rubber tire provided with side flanges to form a groove or channel adapted to receive the wheel-rim, a canvas or other similar lining secured in the groove or channel to reinforce the angles thereof, said tire being thickened at points opposite the angles and provided with inner peripheral cushioning-cavities, and means for securing the tire onto the wheel.

646,403. MECHANICAL TOY. THOMAS W. KLIPPEL, Chicago, Ill., assignor to the Union Wire Mattress Company, same place. Filed Jan. 22, 1900. Serial No. 2,296. (No model.)

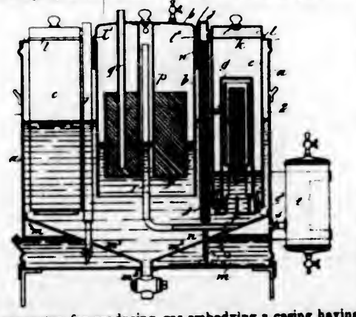


Claim.—1. A mechanical toy consisting of two spirally-coiled wires, the coils of the said wires being respectively of reverse twist and the two wires having their end portions only telescoped together and the overlapping coils thereof interlocked.

2. A mechanical toy comprising in combination two wires having coils of the same pitch and of substantially the same diameter, the coils of one of said wires being of right-hand twist and the coils of the other wire being of left-hand twist and portions only of said wires being overlapped and their coils interlocked, substantially as described.

646,404. ACETYLENE-GAS GENERATOR. CHARLES R. YVONNEAU, Paris, France. Filed Oct. 31, 1899. Serial No. 735,260. (No model.)

Claim.—1. An apparatus for producing gas, embodying a casing having a lower chamber and a superposed tank, a combined generator and gas-holder in said tank, the lower chamber constituting a water seal and washing chamber for the gas, and an automatic regulating-bell in said tank communicating with both compartments and actuated by the gas-pressure to control the production of gas.



2. An apparatus for producing gas embodying a casing having a lower chamber and a superposed tank, combined generators and gas-holders in said tank, the lower chamber constituting a water seal and washing-chamber for the gas, a governor-bell in the tank to effect a variable displacement of the water and removable bells also in said tank, substantially as described.

3. An apparatus for producing gas, comprising a casing to contain water, a governor-bell in said casing having a mass to effect a variable displacement of water, gas-generating bells in said casing and open at their lower portions to the water, the said generator-bells having at their upper ends vertical tubes closed at their upper ends, fixed tubes, with which the bell-tubes telescope, a washing-chamber into which the fixed tubes open, and a gas-tube from the washing-chamber to the governor-bell, substantially as described.

4. In an apparatus for producing gas, in combination a reservoir, a series of bells in said reservoir, a separate generator for each bell, a separate chamber beneath the reservoir, a connection between the said generator-bells and the separate chamber, and a governor-bell or automatic regulating device connected with the separate chamber for causing a column of water to rise in the generators.

5. An apparatus for producing gas, embodying a casing having a lower chamber and a superposed tank, a series of bells, a generator in each bell open at its base portion, said bells being circumferentially arranged and forming a central space, a governor-bell in said central space with a displacement-body, the lower chamber containing water, a telescopic connection extending to near the bottom of said lower water-chamber from each generator-bell and a gas-pipe therefrom to the governor-bell.

6. In an apparatus for producing acetylene gas, in combination an upper tank, a series of bells within the said tank, a gas-generator for each bell, a lower chamber containing water, pipes connecting the lower chamber with the several bells, and a governor-bell in the upper tank for causing a column of water to rise in the gas-generator bells.

7. In an apparatus for producing gas, in combination, an upper tank, a series of bells, arranged therein, a generator for each bell, a lower chamber, telescopic connections between the lower chamber and said bells, and a governor-bell, a gas-pipe connecting the latter with the lower chamber and means connected with the governor-bell to cause a column of water to rise in the generators simultaneously with the descent of said governor-bell.

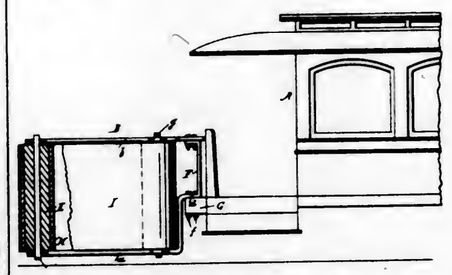
8. An apparatus for producing acetylene gas, comprising a casing containing a reservoir and having a governor-bell and a series of removable generator-bells in said reservoir, a generator in each of said bells and water-seal gas connections between the several generator-bells and the governor-bell, whereby any one of the generator-bells may be removed and replaced without escape of gas or interfering with the operation of the others.

9. As an improvement in apparatus for producing gas, a combined generator and gas-holder comprising two concentric and interlocking bells and a tube constituting the generator proper arranged within the inner bell, said tube being open at both extremities, and slotted longitudinally near its base portion, with a grid connecting the lateral walls formed by said slots to sustain the gas-producing substance, the outer bell or gas-holder having a grid supported near its top adapted to contain a purifying material.

10. In an apparatus for producing acetylene gas, a carbid-container consisting of a tube open at both extremities and having longitudinal slots substantially near its base portion with a grid supported near said slots adapted to sustain the carbid, a collar at its base and a bell inclosing said tube and supported by said collar.

REISSUES.

11,814. CAR-FENDER. REGINALD FORWOOD, Paris, Tex. Filed Feb. 17, 1900. Serial No. 5,570. Original No. 631,933, dated Aug. 29, 1899.



Claim.—1. The combination of a car arranged to travel on a track, and a fender comprising a frame connected with the car, upright rollers mounted in said frame at the opposite sides of the track; one of the said rollers being arranged in advance of the other, and an endless band of flexible material passed around the rollers and having its forward stretch disposed diagonally to and extending the full width of the track, substantially as specified.

2. The combination of a car arranged to travel on a track, and a fender comprising a frame connected with the car, an upright roller mounted in said frame at one side of the track, upright rollers mounted in the frame and arranged one in advance of the other at the opposite side of the track; the foremost of the latter rollers being also arranged in advance of the first-named roller, and an endless band of flexible material passed around the rollers and having its forward stretch disposed diagonally to and extending the full width of the track, substantially as specified.

3. The frame comprising the upper and lower sections having alined apertures which in plan are disposed in a triangle: in combination with the rollers having their ends journaled in said apertures and covered with a cushion, and a belt or band connecting the rollers so as to impart a rotative movement thereto, substantially as specified.

4. In a car-fender, the combination, with a supporting-frame, of rollers journaled in the said frame, one of the said rollers being arranged out of line with and in advance of the other, and an endless conveyer-band carried by the said rollers with its foremost stretch arranged diagonally, said rollers and band being relatively stationary when the car is in motion and being set in motion relatively at a speed proportional to the force of the blow when the band strikes an object, substantially as set forth.

5. In a car-fender, the combination, with a supporting-frame, of a band-conveyer carried by the said frame and having its foremost stretch arranged diagonally, said conveyer being free to move in proportion to the force of the blow with which it strikes an object, substantially as set forth.

DESIGNS.

32,878. BADGE. WILLIAM R. MCCARTY, Richmond, Ind. Filed Feb. 9, 1900. Serial No. 4,700. Term of patent 14 years.



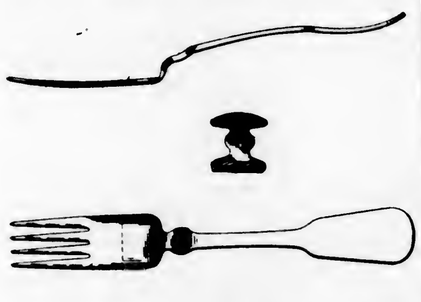
Claim.—The design for a badge, as herein shown and described.

32,379. MEDALLION. WILLIAM W. COE, Somerville, Mass. Filed Feb. 26, 1900. Serial No. 6,640. Term of patent 14 years.



Claim.—The design for a medallion or other like article substantially as shown and described.

32,380. FORK. ROBERT JOHN MACDOWELL, Marshall, Mich. Filed Jan. 11, 1900. Serial No. 1,151. Term of patent 14 years.



Claim.—The design for a fork substantially as herein shown and described.

32,381. SPOON OR FORK HANDLE. JOHN H. LEECH, Bridgeport, Conn., assignor to E. H. H. Smith, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,419. Term of patent 3½ years.



Claim.—The design for a spoon or fork handle, as herein shown and described.

32,382. HANDLE FOR RAZORS OR SIMILAR ARTICLES. WALTER M. TAUBMIE, Yonkers, N. Y., assignor to the Challenge Cutlery Corporation, Bridgeport, Conn. Filed Feb. 28, 1900. Serial No. 6,881. Term of patent 7 years.



Claim.—The design for a handle for razors and similar articles, substantially as herein shown and described.

32,383. GARMENT-SUPPORTING HOOK. HENRY H. TAYLOR and MYRON B. HAMMOND, Bridgeport, Conn. Filed Feb. 26, 1900. Serial No. 6,642. Term of patent 14 years.



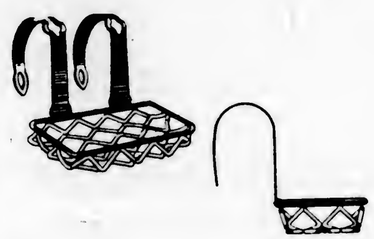
Claim.—The design for a garment-supporting hook as herein shown and described.

32,384. STAIR-CARPET BUTTON. DAVID WALKER, Newark, N. J. Filed Feb. 27, 1900. Serial No. 6,757. Term of patent 7 years.



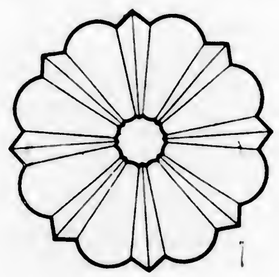
Claim.—The design for a stair-carpet button, as herein described and shown.

32,385. SOAP-DISH. JOHN P. STEPPE, New York, N. Y., assignor to S. Sternau & Co., same place. Filed Mar. 1, 1900. Serial No. 7,087. Term of patent 3½ years.

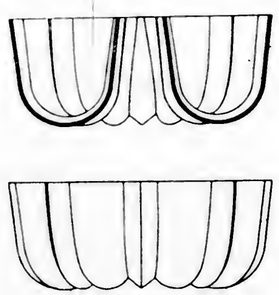


Claim.—The design for a soap-dish, substantially as herein shown and described.

32,386. CAKE-PAN. MARY J. RUTHERFORD, Providence, Ga. Filed Mar. 1, 1900. Serial No. 7,088. Term of patent 3½ years.

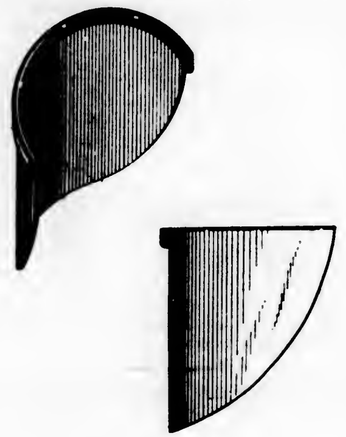


32,886.



Claim.—The design of a cake-pan as herein shown and described.

32,887. SCOOP. WARREN W. BAIRD, Avalon, Pa. Filed Feb. 28, 1900. Serial No. 6,882. Term of patent 3½ years.



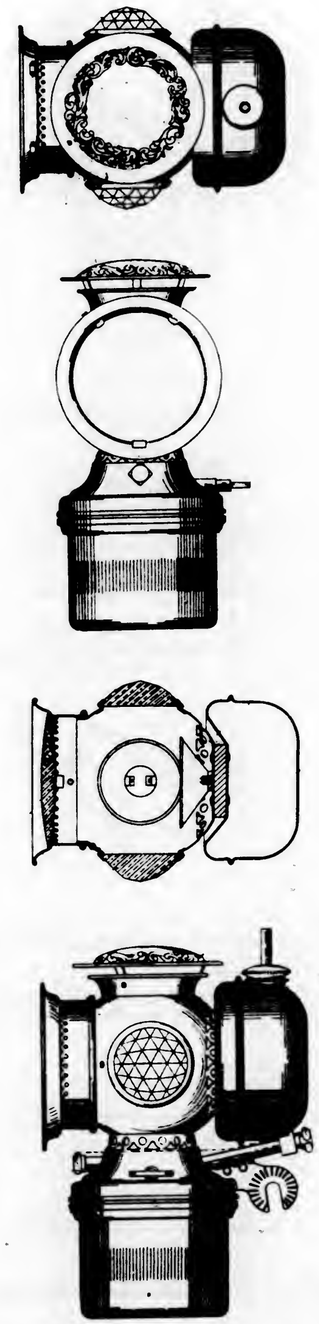
Claim.—The design for a scoop, substantially as herein shown and described.

32,888. BROOM-HOLDER. FREDERICK J. WALLACE, Buffalo, N. Y. Filed Jan. 29, 1900. Serial No. 3,236. Term of patent 3½ years.

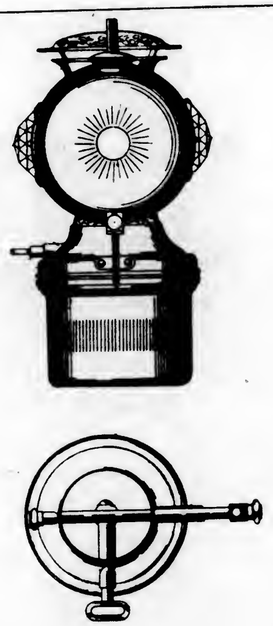


Claim.—The design for a broom-holder, herein shown and described.

32,389. BICYCLE-LAMP. WALTER J. FROST, Kenosha, Wis., assignor to the Badger Brass Manufacturing Company, same place. Filed Nov. 17, 1899. Serial No. 737,376. Term of patent 7 years.



82,889.



Claim.—The design for a bicycle-lamp, substantially as herein shown and described.

82,890. LEVEL. GEORGE F. CORNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 7,021. Term of patent 14 years.



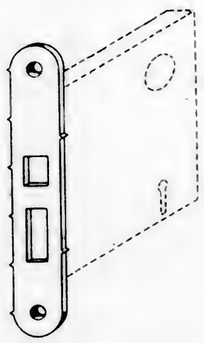
Claim.—The design for a level, substantially as shown and described.

82,891. BODY FOR SELF-LOCKING SEALS. EMIL TYDEN, Hastings, Mich. Filed Mar. 2, 1900. Serial No. 7,130. Term of patent 14 years.



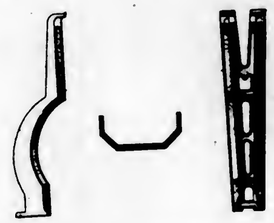
Claim.—The design for a body for a self-locking seal, herein shown and described.

82,892. LOCK-CASE. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Mar. 1, 1900. Serial No. 7,026. Term of patent 7 years.



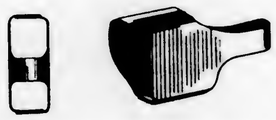
Claim.—The design for a lock-case, as herein shown and described.

82,893. STANDARD FOR SCALE-FRAMES. JOHN W. CULLEN, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed Feb. 26, 1900. Serial No. 6,641. Term of patent 14 years.



Claim.—The design for a standard for scale-frames, substantially as herein shown and described.

82,894. PULLEY-CASE. HENRY A. FROST, New York, N. Y. Filed Mar. 2, 1900. Serial No. 7,131. Term of patent 14 years.



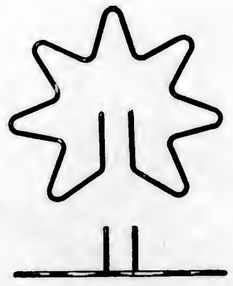
Claim.—The design for a pulley-case, as herein shown and described.

82,895. REIN-HOLDER. THOMAS W. FOSTER, Orono, Me. Filed Dec. 28, 1899. Serial No. 741,868. Term of patent 7 years.



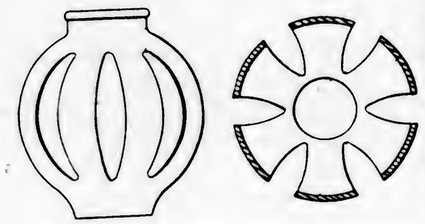
Claim.—The design for a rein-holder, substantially as herein shown and described.

82,896. FILAMENT FOR INCANDESCENT ELECTRIC LIGHTS. SAMUEL B. HEMBLEMAN, Worcester, Mass. Filed Feb. 22, 1900. Serial No. 6,909. Term of patent 14 years.



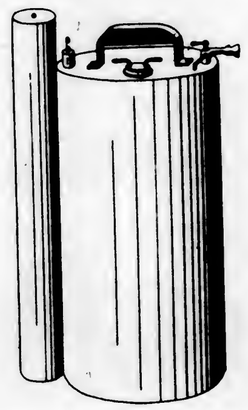
Claim.—The design for a filament for an incandescent electric light, substantially as shown and described.

82,897. SHIELD OR GUARD FOR SIPHONS OR SIMILAR ARTICLES. JOHN CHESTERTON, Buffalo, N. Y., assignor to the United States Aerating Fountain Company, same place. Filed Feb. 9, 1900. Serial No. 4,997. Term of patent 14 years.



Claim.—The design for a shield or guard for siphons or similar articles, substantially as shown and described.

82,898. SPRAYER-BODY. DE WARE R. SMITH, Deerfield, N. Y. Filed Dec. 23, 1899. Serial No. 741,341. Term of patent 7 years.



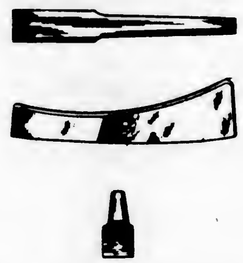
Claim.—The design for a sprayer-body substantially as shown and described.

82,899. ATOMIZING-TIP FOR SPRAYING APPARATUS. WAYNE H. RICE, Windsor, Conn., assignor to Richard W. Rice and Samuel M. Rice, same place. Filed Feb. 20, 1900. Serial No. 5,970. Term of patent 14 years.



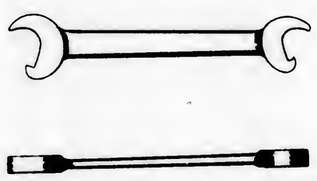
Claim.—The design for an atomizing-tip for spraying apparatus substantially as herein shown and described.

82,400. TOOTH FOR THRESHING-MACHINE CYLINDERS. GEORGE F. CORNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 7,020. Term of patent 14 years.



Claim.—The design for a tooth for a threshing-machine cylinder, substantially as shown and described.

82,401. WRENCH. GEORGE F. CORNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 7,022. Term of patent 14 years.



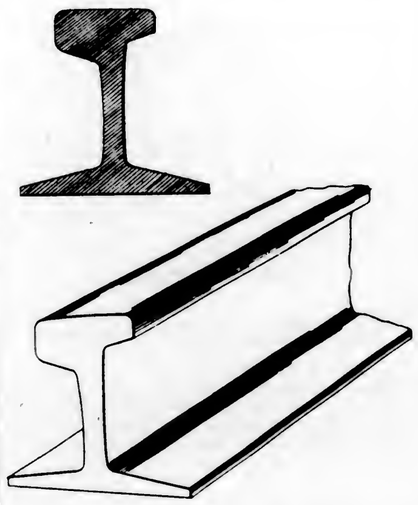
Claim.—The design for a wrench, substantially as shown and described.

82,402. HAMMER-HEAD. DELOS C. WETTFORD, Wolcott, N. Y. Filed Feb. 17, 1900. Serial No. 5,652. Term of patent 14 years.



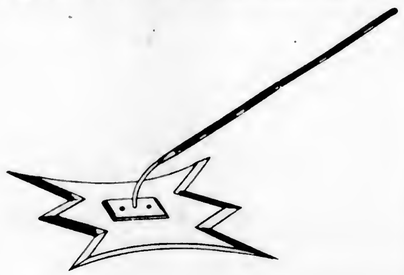
Claim.—The design for a hammer-head, herein shown and described.

82,406. RAILWAY-RAIL. SCHUYLER HAZARD, Cincinnati, Ohio. Filed July 27, 1899. Serial No. 725,338. Term of patent 14 years.



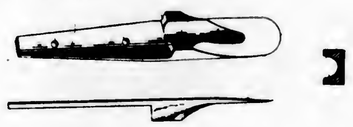
Claim.—The design for a railway-rail herein shown and described.

82,408. BEET-THINNER. JOHN VENHUIZEN, Holland, Mich. Filed Aug. 7, 1899. Serial No. 726,412. Term of patent 7 years.



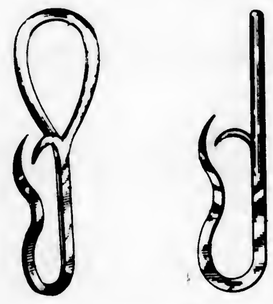
Claim.—The design for a beet-thinner, as herein shown and described.

82,404. POST-BASE. JOE G. GLADNEY, Homer, La. Filed Feb. 27, 1900. Serial No. 6,760. Term of patent 7 years.



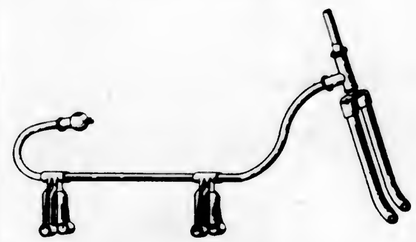
Claim.—The design for a post-base, as herein shown and described.

82,405. WHIFFLETREE-HOOK. LOUIS S. LARSON, Racine, Wis. Filed Feb. 21, 1900. Serial No. 6,116. Term of patent 7 years.



Claim.—The design for a whiffletree-hook, as herein shown and described.

82,407. TRICYCLE-FRAME. WILLIAM ROBSON, Toronto, Canada, assignor of one-half to William W. Pierce, Buffalo, N. Y. Filed Mar. 1, 1900. Serial No. 7,023. Term of patent 7 years.



Claim.—The design for a tricycle-frame, substantially as herein shown and described.

82,408. VEHICLE-MOTOR CASING. FREDERICK A. PHELPS, Newark, N. J. Filed Dec. 16, 1899. Serial No. 740,599. Term of patent 3½ years.



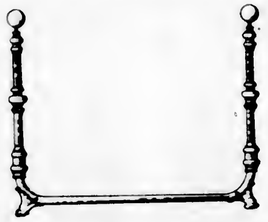
Claim.—The design for a vehicle-motor casing, as herein shown and described.

82,409. HEATING-STOVE. JOHN K. MCLAUGHLIN, Philadelphia, Pa., assignor to the Buckwalter Stove Company, of Pennsylvania. Filed Feb. 28, 1900. Serial No. 6,880. Term of patent 7 years.



Claim.—The design for a heating-stove substantially as shown and described.

82,410. FRAME FOR BED ENDS. EDWARD J. BARCALO, Buffalo, N. Y. Filed Feb. 26, 1900. Serial No. 6,648. Term of patent 7 years.



Claim.—The design for the frame of a bed end, substantially as herein shown and described.

82,411. BATH-TUB. WILLIAM SCOTT, Medford, Mass. Filed May 15, 1899. Serial No. 591,714. Term of patent 14 years.



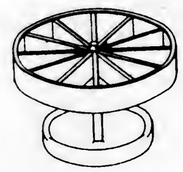
Claim.—The design for a bath-tub, substantially as herein shown and described.

82,412. PHOTOGRAPHIC CABINET. BERT ELIAS UNDERWOOD, Summit, N. J. Filed Mar. 11, 1899. Serial No. 708,762. Term of patent 14 years.



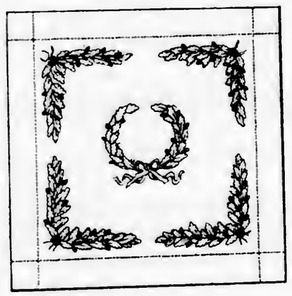
Claim.—The design for a photographic cabinet substantially as herein described and shown.

82,413. DISPLAY SHOW-CASE. JOSEPH G. HUTCHINSON, Attleborough, Mass. Filed Nov. 13, 1899. Serial No. 736,884. Term of patent 3½ years.



Claim.—The design for a display show-case; as herein shown and described.

82,414. DOILY. JAMES WALTER CATTY, New York, N. Y. Filed Feb. 16, 1900. Serial No. 5,541. Term of patent 7 years.



Claim.—The design for a doily or similar article, as herein shown and described.

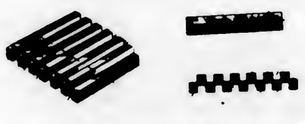
82,415. LEATHER FABRIC. JOHN NIEDER, Newark, N. J. Filed Feb. 24, 1900. Serial No. 6,421. Term of patent 3½ years.

32,415.



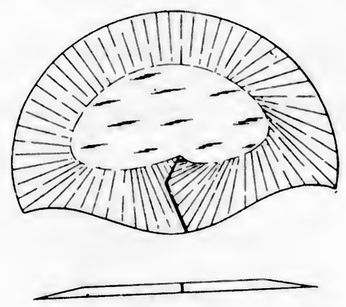
Claim.—The design for leather fabric, herein shown and described.

32,416. SHOE-SOLE FABRIC. JOHN H. KENNEDY, Boston, Mass. Filed Feb. 23, 1900. Serial No. 6,310. Term of patent 14 years.



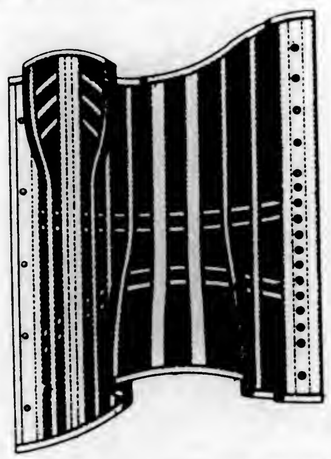
Claim.—The design for a shoe-sole fabric, substantially as herein shown and described.

32,417. COAT-PAD. GUSTAV GOLDMAN, Baltimore, Md. Filed Feb. 27, 1900. Serial No. 6,762. Term of patent 7 years.



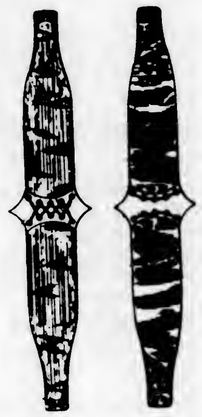
Claim.—The design for a coat-pad as herein shown and described.

32,418. CORSET. ISAAC W. BIRDSEY, Bridgeport, Conn., assignor to Birdsey, Somers & Co., New York, N. Y. Filed July 31, 1899. Serial No. 725,696. Term of patent 14 years.



Claim.—The design for a corset, as herein shown and described.

32,419. BELT. RICHARD F. BARRY, Newton, Mass. Filed Feb. 26, 1900. Serial No. 6,646. Term of patent 14 years.



Claim.—The design for a belt, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 27, 1900.

84,854. MILLINERY HEADWEAR. JOHN MILES, New York, N. Y. Filed Jan. 22, 1900.



Essential feature.—The representation of a plurality of trees of different sizes. Used since December 5, 1899.

84,855. CERTAIN NAMED GLOVES. JACOB ADLER & Co., New York, N. Y. Filed Mar. 2, 1900.

YUNO

Essential feature.—The word "YUNO." Used since October 1, 1899.

84,856. HOSIERY, KNIT UNDERWEAR, AND GLOVES. FERGUSON-MCKINNEY DRY GOODS COMPANY, St. Louis, Mo. Filed Feb. 26, 1900.

USONA

Essential feature.—The word "USONA." Used since October 15, 1899.

84,857. COTTON LININGS. J. W. GODDARD & SONS, New York, N. Y. Filed Feb. 1, 1900.

SPUN GLASS

Essential feature.—The words "SPUN GLASS." Used since December, 1898.

84,858. COTTON FABRICS. JOHN FARNUM & Co., Philadelphia, Pa. Filed Jan. 31, 1900.



Essential feature.—The words "OUR BEAUTY." Used since June 1, 1891.

84,859. HORSE-BLANKETS. THE BECKMAN COMPANY, Cleveland, Ohio. Filed Jan. 3, 1899.

GOLDEN FLEECE

Essential feature.—The words "GOLDEN FLEECE." Used since January 1, 1898.

84,860. CHEMICAL AND PHARMACEUTICAL PREPARATIONS. HEINE & Co., Leipsic, Germany. Filed Feb. 21, 1900.

Gonal.

Essential feature.—The word "GONAL." Used since January 1, 1900.

84,861. CHEMICAL AND PHARMACEUTICAL PREPARATIONS. HEINE & Co., Leipsic, Germany. Filed Feb. 21, 1900.

HEIKO

Essential feature.—The word "HEIKO." Used since January 1, 1900.

84,862. REMEDY FOR CERTAIN NAMED DISEASES. EDWIN G. SIMCOX, Minneapolis, Minn. Filed Feb. 19, 1900.

NOD-NOL

Essential feature.—The compound word "NOD-NOL." Used since February 1, 1900.

84,863. LIQUID REMEDY FOR CERTAIN NAMED DISEASES. U. V. REMEDY Co., Boonville, Mo. Filed Feb. 21, 1900.

REST@2TION

Essential feature.—The composite word consisting of the letters "REST," followed by the representation of an eye, the figure "2," and the final letters "TION." Used since January, 1899.

84,864. CERTAIN NAMED MEDICINE. WIEDEMANN & BROWN DRUG COMPANY, Baltimore, Md. Filed Feb. 27, 1900.

ZARCOL.

Essential feature.—The word "ZARCOL." Used since October 1, 1899.

84,865. CERTAIN NAMED MEDICAMENTS. HENRY A. BLAIR, San Antonio, Tex. Filed Feb. 19, 1900.

CHIMNEY SWEEPER

Essential feature.—The words "CHIMNEY SWEEPER." Used since November, 1889.

84,866. IRON TONIC PILLS. KAMPS & SACHTJEDER, Appleton, Wis. Filed Feb. 26, 1900.



Essential feature.—A series of flat dots arranged in the form of a circle. Used since September 1, 1899.

84,867. OIL OF TOBACCO FOR CANCER CURE. KENNEDY & WILLEY, Pittsburg, Pa. Filed Feb. 26, 1900.

OTCC

Essential feature.—The letters "O T C C" pierced by an arrow. Used since November 1, 1899.

84,868. EMBALMING FLUID. BENEDICT WHEATLEY, Jr., Alexandria, Va. Filed Mar. 3, 1900.

Thelma

Essential feature.—The word "THELMA." Used since February 22, 1900.

84,869. INSECTICIDES. WILLIAM H. BOWKER, Boston, Mass. Filed Mar. 1, 1900.

BODO

Essential feature.—The word "BODO." Used since January 4, 1900.

84,870. INSECTICIDES. WILLIAM H. BOWKER, Boston, Mass. Filed Mar. 1, 1900.

DISPARENE

Essential feature.—The word "DISPARENE." Used since January 4, 1900.

84,871. INSECTICIDES. WILLIAM H. BOWKER, Boston, Mass. Filed Mar. 1, 1900.

BOXAL

Essential feature.—The word "BOXAL." Used since January 4, 1900.

84,872. INSECTICIDES. WILLIAM H. BOWKER, Boston, Mass. Filed Mar. 1, 1900.

BODLIME

Essential feature.—The word "BODLIME." Used since January 4, 1900.

84,873. TURPENTINE. THOMAS SEALY, New York, N. Y. Filed Mar. 3, 1900.



Essential feature.—The letters "T. S." and the representation of a standard scale. Used since February 19, 1900.

84,874. MATCHES. AMERICAN MATCH MACHINE COMPANY, Jersey City, N. J., and New York, N. Y. Filed Mar. 3, 1900.

JUPITER

Essential feature.—The word "JUPITER." Used since February 10, 1900.

84,875. PERFUME. LOUIS R. HARRISON & Co., New York, N. Y. Filed Mar. 3, 1900.

ZAZA

Essential feature.—The word "ZAZA." Used since February 15, 1900.

84,876. CIGARETTES, CIGARS, AND SMOKING AND CHEWING TOBACCO. UNION TOBACCO COMPANY OF AMERICA, New York, N. Y. Filed Feb. 26, 1900.

SERAGLIO

Essential feature.—The word "SERAGLIO." Used since February 11, 1899.

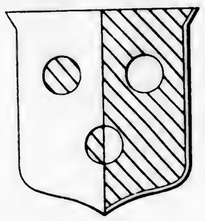
84,877. CIGARETTES, CIGARS, AND SMOKING AND CHEWING TOBACCO. UNION TOBACCO COMPANY OF AMERICA, New York, N. Y. Filed Feb. 26, 1900.

NEW EMPIRE

Essential feature.—The words "NEW EMPIRE." Used since February 11, 1899.

84,878. WHISKY. R. MARTIN & COMPANY, San Francisco, Cal. Filed Dec. 11, 1899.

ARGONAUT



Essential feature.—The word "ARGONAUT" and the representation of a shield divided vertically into halves and containing three circles, one circle in each half and the third bisected by the vertical dividing-line. Used since 1870.

84,879. LAGER-BEER. PABST BREWING COMPANY, Milwaukee, Wis. Filed Feb. 10, 1900.

BLUE RIBBON

Essential feature.—The words "BLUE RIBBON." Used since January, 1898.

84,880. TEAS AND COFFEES. GREEN, COOPER & Co., St. Paul, Minn. Filed Feb. 27, 1900.

PRIMROSE

Essential feature.—The word "PRIMROSE." Used since October 1, 1899.

84,881. ICE-CREAM IN BLOCK FORM. FRANK L. DAVIS, Reading, Pa. Filed Feb. 23, 1900.

Klondike Nuggets

Essential feature.—The words "KLONDIKE NUGGETS." Used since March 15, 1898.

84,882. CERTAIN NAMED FOOD PRODUCTS. STORIE CEREAL MILLS, St. Louis, Mo. Filed Feb. 12, 1900.

Nutro.

Essential feature.—The word "NUTRO." Used since January 25, 1900.

84,883. BAKING-POWDER. BUYIT & TRYIT Co., Paterson, N. J. Filed Sept. 19, 1899.



Essential feature.—The letters and character "T & B," arranged in monogram form and surrounded by a double triangular figure. Used since September, 1899.

84,884. WHEAT-FLOUR. HERKLOTS, CORN & Co., New York, N. Y. Filed Mar. 2, 1900.

ARCTIC

Essential feature.—The word "ARCTIC." Used since January. 15, 1900.

84,885. CERTAIN NAMED BAKERY PRODUCTS. FRANK RAYNER, Chicago, Ill. Filed Aug. 18, 1899.

Need-More

Essential feature.—The compound word "NEED-MORE." Used since August 12, 1899.

84,886. CERTAIN PACKING-HOUSE PRODUCTS. SWIFT & COMPANY, Chicago, Ill. Filed Dec. 28, 1899.



Essential feature.—The letter "S" and a diamond-shaped figure Used since November 28, 1899.

84,887. CERTAIN NAMED CURIOS. FRANKLIN H. STEARNS, Boston, Mass. Filed Feb. 23, 1900.

GIFT SHOP

Essential feature.—The words "GIFT SHOP." Used since March 16, 1897.

84,888. BRUSHES. JOHN L. WHITING & SON COMPANY, Boston, Mass. Filed Jan. 2, 1900.

NATIONAL

Essential feature.—The word "NATIONAL." Used since January 1, 1884.

84,889. BRUSHES. JOHN L. WHITING & SON COMPANY, Boston, Mass. Filed Jan. 2, 1900.

MECHANIC

Essential feature.—The word "MECHANIC." Used since January 1, 1891.

84,890. INCANDESCENT GAS-MANTLES. CONSOLIDATED INCANDESCENT LIGHT COMPANY, New York, N. Y. Filed Feb. 15, 1900.

JEWEL

Essential feature.—The word "JEWEL." Used since January 6, 1900.

84,891. SHADE-ROLLERS. STEWART HARTSHORN COMPANY, Harrison, N. J. Filed Mar. 10, 1899.



Stewart Hartshorn

Essential feature.—The representation of a horizontally-arranged shade-roller with the facsimile signature "STEWART HARTSHORN" arranged diagonally beneath the same. Used since 1891.

84,892. WIRE GOODS OR ARTICLES MADE OF WIRE. WRIGHT & COLTON WIRE CLOTH COMPANY, Worcester, Mass. Filed Feb. 23, 1899.

ROYAL

Essential feature.—The word "ROYAL." Used since January 1, 1899.

84,893. SAD-IRONS. ADAM C. WILLIAMS, Ravenna, Ohio. Filed Feb. 26, 1900.

ROYAL

Essential feature.—The word "ROYAL." Used since January 1, 1900.

84,894. HAMMERS. ARTHUR R. ROBERTSON, Boston, Mass. Filed Feb. 21, 1900.



Essential feature.—The representation of a horseshoe-magnet and its armature. Used since October 1, 1899.

84,895. DOUBLE-CYLINDER PISTON-MOVEMENT GASOLENE-ENGINE. PENNSYLVANIA IRON WORKS COMPANY, Philadelphia, Pa. Filed Jan. 5, 1900.

GLOBE

Essential feature.—The word "GLOBE." Used since March, 1896.

PHOTO-LITH. THE NORRIS PETERS CO. WASH. D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE HENZE.

Decided February 20, 1900.

1. INFORMAL APPLICATION—CORRECTION BY AMENDMENT—NEW APPLICATION.

Where the petition and specification of an application as filed are signed by two parties, the specification indicating that they are joint inventors and the petition stating that one of them is an assignee, and the oath is signed by only one of the parties and states that he is the sole inventor, *Held* that there is such inconsistency in the statements as to who is the inventor that the matter cannot be corrected by amendment, but only by a new application.

2. SAME—RETURNED TO APPLICATION ROOM—RETURN OF FEE.

Where an application is informal by reason of inconsistency in the statements as to who is the inventor, *Held* that it should not have been forwarded to the Examiner by the application clerk, and ordered that it be stricken from the Examiner's files and returned to the application room. The fee paid in such case may be transferred to a new case, if one be filed.

DRUM FOR MILK-CENTRIFUGALS.

ON petition.

Application of Max Henze filed December 30, 1899, No. 742,151.

Messrs. Knight Bros. for the applicant.

DUELL, *Commissioner:*

On December 30, 1899, there was received in this Office an application, the petition of which was signed by Max Henze and Georg Daseking, in which Max Henze requested that—

Letters Patent be granted to himself and Georg Daseking, * * * subject of the Emperor of Germany and King of Prussia, residing at Hanover, in the Kingdom of Prussia, Empire of Germany, whose post-office address is Hanover, Celler Chaussee 179, as his assignee, for the improvement in a drum for milk-centrifugals, set forth in the annexed specification.

The preamble of this specification states that—

we, Max Henze, foreman, and Georg Daseking, * * * subjects of the Emperor of Germany and King of Prussia, and residents of Hanover, in the Kingdom of Prussia and Empire of Germany, have invented new and useful improvements in a drum for milk-centrifugals, of which the following is a specification.

This specification is signed by Max Henze and Georg Daseking, and there are two witnesses to their signatures. The oath is signed by Henze only, and in the oath it is stated that he is the sole inventor of the improvement described and claimed in the specification.

The application was forwarded to the Examiner for consideration. He has refused to act on the merits of the case or to permit the specification to be amended so as to state that Henze is the sole inventor. From this action of the Examiner this petition is taken.

In the petition it is stated:

That by inadvertence and unfamiliarity with the practice of the U. S. Patent Office your petitioner who is the sole inventor and his assignee Georg Daseking united in the execution of the specification; while the petition and oath, in proper form, referred to your petitioner MAX HENZE as sole inventor.

The petitioner requests either that the amendment may be admitted so as to correct the informality in the ruling or that a ruling be made as to the manner in which the incomplete application must be completed.

In my opinion there is such inconsistency in the statements in the specification and the oath as to who is the inventor of the device disclosed in the application that the application cannot be corrected by an amendment. This is one of the cases that should not have been forwarded to the Examiner by the application clerk.

It is therefore directed that the application be stricken from the Examiner's files and returned to the application room. It seems that the inventor's only remedy is to file a new application, properly signed and executed by himself. Under the circumstances of this case the fee applied to it may be transferred to the new application should such other application be filed. In view of the fact that it is alleged in the oath that certain applications have been filed by Henze in foreign countries the new application may be examined at once when it reaches the Examiner.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

INGERSOLL *v.* HOLT.

Decided December 14, 1899.

1. INTERFERENCE—FAILURE OF PARTY TO TESTIFY.

Where one of the parties to an interference testifies that it was his idea that went into a model and that he directed the other contestant to make the model and witnesses corroborate this and the said contestant fails to testify in his own behalf, *Held* that the contestant's silence is most potent testimony against him.

2. SAME—PRIORITY.

After reviewing the testimony, *Held* that judgment of priority of invention should be awarded to the appellee, Holt. (Commissioner's Decision, 67 MS. Dec., 87, affirmed.)

Mr. Milton A. Wheaton and *Mr. L. S. Bacon* for the appellant.

Messrs. Dewey & Co. and *Mr. Walter Fowler* for the appellee.

MORRIS, *J.*:

This is an appeal from the decision of the Commissioner of Patents in an interference case.

The appellant, Ingersoll, is the holder of a patent issued to him on December 25, 1894, based on an application filed on March 19, 1894, but which on account of alleged inaccuracies in it he desires to surrender and to have reissued to him. His application for a reissue was filed on October 12, 1895. The appellee, Holt, is also the holder of a patent, which was issued to him on December 28, 1897, based upon an application filed on November 25, 1895, about one month and a half after the filing of Ingersoll's reissue application. It is upon this reissue application that an interference was declared between it and Holt's patent.

A previous interference, it seems, had been declared between the reissue application and Holt's application before the latter went to a patent; but that interference was dissolved on the ground that there was no interference in fact on the issue as then drawn and also because there was irregularity in the declaration. Holt's application, however, was held up for some time afterward in view of the probability of another interference as soon as Ingersoll should get his claims into proper shape for such interference; but in consequence of Ingersoll's alleged dilatoriness in the amendment of his specification Holt's application went to issue and his patent was granted to him. Subsequently, on March 16, 1898, the present interference was declared.

The subject-matter of controversy is an invention in the improvement of harvesters or harvesting-machines, such as are used on the vast wheat-fields of California, where the invention was made and used and where both parties to the interference resided at the time. The improvement consists in the adjustment of harvesters so as to operate on hillsides equally as on level ground, and it is technically stated in the record in the following terms:

> A harvester consisting of a header supported substantially parallel with the ground, a thresher mounted on a single longitudinal line of wheels, connection between the header and thresher frames to permit them to change their positions relative to each other, and means for adjusting the thresher relative to the header so that it may maintain a vertical position without regard to the position of the header when traveling over sloping ground.

This is the issue in the case. The header, it may be remarked, is the name given to the portion of the machine which mows down the standing grain, which it does by cutting off the heads, leaving a great part of the stalk standing, and the whole machine, which is often very large and requires upward of thirty horses to draw it, is intended to accomplish almost simultaneously the work of mowing, threshing, winnowing, and preparing the grain for market. These large harvesters are not new in the present controversy. They have been in use for several years, and previous patents relating to them have been issued both to the parties to this controversy and to other persons. The novelty in this controversy is the method of adjustment of the header and the thresher—the two principal parts of the machine—to each other in such manner as that the thresher will always remain upright—a position which it is required to maintain in order that it should perform its work properly—while the header remains parallel to the ground whether that ground be the level plain or the slope of a hillside, which parallelism is required in order that it also may perform its work—that of cutting off the heads of the grain—effectively.

Not only did Ingersoll's original application and the issue of his patent antedate the application of Holt for a patent, but even his reissue application was prior in point of time to Holt's application. Consequently although Holt's patent was issued to him in the meantime, while Ingersoll's reissue application was pending, yet Ingersoll remains the senior applicant, and the burden of proof is on Holt to overcome the effect of the earlier application.

When the parties were called upon for their preliminary statements, Ingersoll alleged that he had conceived the invention on or about January 15, 1892; that on or about February 15, 1892, he had made drawings of it and explained it to others; that in the latter part of February, 1892, he commenced work on a model, which work was continued during the winter and spring of that year; that he embodied the invention in a full-sized machine, which was used for the harvest of 1894 and successfully operated in the neighborhood of Stockton, in the State of California; that the said machine had been used every year since, and that he had caused other similar machines to be manufactured for use and sale. Holt's allegation was that he had conceived the invention on or about December 4, 1893; that on or about December 5, 1893, he had made drawings of it and explained it to others; that on December 6, 1893, he had instructed one of his employees to make a model of it, that employee being Ingersoll; that on December 7, 1893, the model had been completed for him; that in June, 1895, he commenced to build full-sized machines embodying the invention; that at least one of these machines was completed on or about June 6, 1896, and that on or about June 10, 1896, it was successfully operated at Crow's Landing, in the State of California.

Holt, the junior applicant, upon whom rested the burden of proof, took testimony in support of his claim, which testimony consisted of his own deposition, the depositions of eight employees of the firm of Holt Brothers or the Holt Manufacturing Company, by which the Holt machine was manufactured and of which firm or company the appellee, Benjamin Holt, seems to have been the most active member, and the deposition of one other person. These nine witnesses appear to have fully corroborated Holt in his statements, and, in fact, Holt's testimony is accepted on behalf of Ingersoll as entirely correct, although the deductions to be drawn from it are controverted. No testimony was taken on behalf of Ingersoll, or only the testimony of one witness in explanation merely of a drawing introduced into the case by Holt. Ingersoll, it seems, had left the State of California,

where the testimony was taken and where both parties had resided, and had gone to the State of Michigan. But this fact is not given as a reason for not taking his testimony. It is admitted by counsel for him that they are satisfied with the testimony of Holt, and it is argued on behalf of Ingersoll that Holt proves Ingersoll's case.

By the failure of Ingersoll to offer any proof of the allegations contained in his preliminary statement these allegations passed out of the case, except in so far as they may have been corroborated, if corroborated at all, by the testimony of Holt, and he must rely on the date of his original application, March 19, 1894, as that of his conception of the invention and its reduction to practice if he was in fact the inventor.

Upon the testimony the Examiner of Interferences, the Board of Examiners-in-Chief, and the Commissioner of Patents all concurred in awarding priority of invention to Holt, and, from the decision of the Commissioner, Ingersoll has appealed to this court.

The very able arguments and elaborate briefs of counsel in this case have made it quite manifest that the substance of the case lies within very narrow compass. As already stated, leaving out of consideration one witness on behalf of Ingersoll to a comparatively unimportant matter, the only testimony is that taken on behalf of Holt, and the facts stated by Holt in his deposition, fully corroborated as they are by the other witnesses, are conceded by counsel for Ingersoll to be correctly and truly stated. The controversy is only as to the inferences to be drawn from these statements. It is contended on behalf of Ingersoll that Holt himself proves Ingersoll's case, while a conclusion quite the reverse is maintained on behalf of Holt.

The parties, it seems, had business relations with each other. Ingersoll for a time and perhaps on two or more several occasions was in the employment of Holt or of the Holt Manufacturing Company, which practically means the same thing, although the nature of the employment is not very distinctly defined in the testimony, and he seems to have had general freedom of access to all parts of Holt's business establishment. Both were inventors in the same line of harvesters antecedent to the invention now in issue, and their inventions would appear to have been freely communicated to each other. Ingersoll was the agent of Holt to make the model in which the latter claims to have embodied his invention, and Holt had seen and examined previous inventions of Ingersoll which are claimed to have entered into the construction of the model just mentioned.

There are certain salient facts in the case on which the determination of the controversy mainly depends. In the first place, inasmuch as Ingersoll has adduced no testimony in support of the allegations of his preliminary statement that statement necessarily must be omitted from our consideration and the appellant must be limited, as he was limited in the Patent Office, to the date of March 19, 1894, which was the date of his original application, as that of his conception of the invention and its reduction to practice unless, perhaps, he is helped out in some way in this regard by Holt's testimony. In the next place, Holt's testimony shows that Holt conceived the invention and embodied it in a model in the early part of December, 1893; that the conception was then communicated to Ingersoll, and that the reduction to practice was by the making of a model (designated in the record as "Exhibit A") by Ingersoll under the direction of Holt, unless, indeed, as now argued on behalf of Ingersoll, Exhibit A does not show the invention in controversy or unless Holt in the directions given by him to Ingersoll applied the conceptions of the latter and not his own. On this record therefore it is very clear that Holt antedated Ingersoll if he had the invention at all at the time and under the circumstances at which he claims and testifies that he had it. The question then is, first, whether the model designated as "Exhibit A" embodies the invention in controversy, and, second, whether if it does embody that invention the conception is that of Holt or that of Ingersoll.

As to the first question there can be no serious difficulty. Notwithstanding that it is argued on behalf of Ingersoll that Exhibit A is wholly unlike the perfected machine subsequently constructed by Holt and unlike the specification of Holt's patent, it was held by all the tribunals of the Patent Office, by the Examiner of Interferences, and by the Board of Examiners by implication, and by the Commissioner expressly, that the model Exhibit A, although subsequently modified and improved, contained substantially all the elements of the issue. In connection with the explanations of Holt to the effect that it was not necessary to embody in the model certain features which were well known in the existing machines there would seem to be no reasonable doubt of the substantial identity of the model with the subsequently-perfected machine and no reasonable doubt of the fact that the model was a substantial embodiment of the present issue. Defects and differences have been pointed out, and there are undoubtedly defects in the model and differences between it and the subsequent machine of Holt. We do not deem it necessary to enter into any detailed consideration of these defects and differences; but we are unable to find that they constitute a variance between the conception of the model and the conception of the issue of the interference. In that regard we fully concur with the Commissioner in the conclusion reached by him and hold that model Exhibit A, in connection with the disclosures of Holt at the time at which it was made and in connection with the state of the art at that time, was a fair embodiment of the invention.

The more important question, however, is whether it was Ingersoll's ideas or those of Holt that went into that model. Holt testifies that they were his ideas; that he directed Ingersoll how to make the model, and that Ingersoll did make it in accordance with his suggestions. In this witnesses

corroborate him, and there is no testimony whatever to the contrary. The most powerful corroboration, however, and the most potent testimony on behalf of Holt is the fact of Ingersoll's silence at that time. If Holt communicated his ideas to Ingersoll, as he says he did and as we must assume he did, which went into the model, why did not Ingersoll then claim them as his own, if they were in fact his own? Why did he not protest against their appropriation by Holt to himself? For his failure so to do the record offers no reason or excuse of any kind. The rule then applies which was laid down by the Supreme Court of the United States in the case of *Atlantic Works* v. *Brady*, (107 U. S., 192,) *The Telephone Cases*, (126 U. S., 562, 567,) and elsewhere, that a person who is silent when he should have spoken shall not afterward be heard to deny that which by his conduct he has affirmed. Ingersoll has had full opportunity to explain this silence and his conduct in the premises and he has not availed himself of that opportunity. Moreover, he had a partner or associate in the transaction, one Herman Tesch, a blacksmith in the employment of Holt at the time at which the model was made and who subsequently became the assignee of a one-half interest in Ingersoll's patent and the application for its reissue now put in interference. Holt, it seems, explained his ideas to Tesch before they were communicated to Ingersoll, and Tesch, who at the time was urging Holt to build a machine upon a model designed by Ingersoll and himself for the same general purpose, but which Holt regarded as impracticable and refused to build, remarked, upon the explanation to him by Holt of his (Holt's) own ideas, that he thought Holt had the right ideas and requested that Holt would let Ingersoll build the model, as he was a good workman and a good mechanic and understood how to make models. And yet Tesch was not called any more than was Ingersoll himself to give any account of the transaction. Assuredly if it was Ingersoll's ideas and not Holt's that went into the model Exhibit A both Ingersoll and Tesch could easily have so testified. That they did not attempt to do so and that it was not sought in any manner to contradict Holt's statement in this regard is most persuasive proof that the statement is correct. And that neither of them at the time of the making of the model or at the time of the communication of Holt's ideas to them asserted any right of Ingersoll to the conception makes it reasonably certain that Ingersoll was not entitled to advance any such claim.

We do not deem it necessary to take into consideration the previous or subsequent transactions of Ingersoll. His previous conceptions embodied in a model, designated in the record as the "Webster" model, is not connected with the issue in this interference and is not shown to involve this issue. Holt states that he saw it, regarded it as impracticable, and refused to build a machine in accordance with it. This was the subject-matter of conversation between Holt and Tesch when the former communicated his own ideas to the latter, as already stated, which resulted in the construction of the model Exhibit A by Ingersoll for Holt. Nor is it of any importance that late in 1894, long after the making of Exhibit A, but before the construction of any full-sized machine by Holt for himself upon the lines of his own conception, Holt saw a full-sized machine constructed by Ingersoll tested by actual operation in the harvest-field. The testimony fails to connect that machine satisfactorily with the issue of this interference. But even if that machine did embody the issue of this interference, as long as the testimony of Holt in regard to the making of Exhibit A remains unimpugned it would only show that Ingersoll borrowed Holt's ideas for his own machine. It is argued, however, that Holt was silent on that occasion and that he should have protested against Ingersoll's appropriation of his (Holt's) conception if the conception was in fact his own. And the same rule is invoked against him which we have heretofore stated as applicable to Ingersoll in the matter of the construction of Exhibit A. But it is not at all apparent that the circumstances were similar or that there was any obligation upon Holt to speak at that time. It is not shown that he saw this machine in the presence of Ingersoll or Tesch or of any one to whom he could well protest. The fact would seem to be, however, that Holt regarded this machine as very different from his own conception, and that there was a patentable difference, as indicated by the action of the Patent Office in granting patents to both and to each severally for his own device and invention. It is to be inferred that the two patents do not conflict with each other and that the interference arises only when in the application for a reissue Ingersoll seeks to broaden the claims of his original patent. This is not said with any reference to the rule that it is not competent in applications for reissue so to broaden the claims of the original specification as to interfere with intervening rights, for that rule does not apply in the present case; but it is said as an additional indication that the machine of Ingersoll, exhibited in the latter part of the year 1894, was substantially different from Holt's conception and invention. In fact, the two patents may be regarded as having been granted for specific devices not conflicting with each other, while the issue of the present interference would indicate a broader or more generic claim than either.

From what we have said it follows, in our opinion, that upon the record before us the Commissioner of Patents was entirely right in his decision, and we think that his decision should be affirmed and that judgment of priority of invention should be awarded to the appellee, Holt.

The clerk of the court will certify this opinion and the proceedings in the cause in this court to the Commissioner of Patents, according to law. And it is so ordered.

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*Void patents, C. & A. Potts & Co. v. Creager *et al*	2134
*Cary Manufacturing Company v. Neal *et al*	1950
Voting-machine, *ex parte* Tuttle	1365

DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—JANUARY-MARCH, 1900.

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONED APPLICATIONS.

(See Caveat, 3.)

ABANDONED EXPERIMENTS.

(See Interference, 30.)

ABANDONMENT.

(See Delay in Filing Application; Interference, 7, 8, 13.)

ACCESS TO FILES IN THE PATENT OFFICE.

(See Caveat, 1, 3; Interference, 16, 17, 18.)

AFFIDAVITS.

(See Caveat, 1; Interference, 24, 25, 26.)

AGGREGATION.

(See Appeal to the Examiners-in-Chief, 1, 3.)

AMENDMENTS.

(See Applications, 4; Interference, 27, 28.)

ANALOGOUS DEVICES.

(See Equivalents.)

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Appeal to the Examiners-in-Chief, 3.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

1. JURISDICTION—EXAMINERS-IN-CHIEF, QUESTIONS TO BE PASSED UPON BY.
Where the only question before the Examiners-in-Chief was that of aggregation, *Held* that under the rule their decision should have been confined to that question and that if in their opinion the claims appealed to them were not allowable in view of the prior patent they should have called attention to this matter with the proper recommendation annexed to their decision. [*Ex parte* Russell, 750.

2. SAME—SAME—RULES OF THE OFFICE TO BE FOLLOWED.
While it is true that this Office is not a court, yet there are certain rules promulgated for the conduct of proceedings in the Office, and the fewer the departures from a positive rule of procedure the less chance there is of confusion in the practice and of cause for complaint by parties practicing before it. If such a rule be wrong, it should be amended by the proper authorities and not ignored. [Id.

3. SAME—REMANDING CASE TO PRIMARY EXAMINER.
Where the only ground on which the Primary Examiner refused the claims was that of aggregation, and this was the only ground on which appeal or petition was taken and was the only point discussed by the appellant when the case was carried from the Primary Examiner, but the appellate tribunals held that the claims did not define a combination and, again, that they were not for a patentable combination, on appeal to the Commissioner from the Examiners-in-Chief *Held* that it is better not to pass upon the patentability of the appealed claims, and the decisions heretofore made on the claims are set aside and the case remanded to the Primary Examiner to consider the claims again, so that the case may proceed in accordance with the rules. [Id.

APPLICANTS.

(See Applications, 1, 2, 3.)

APPLICATIONS.

(See Delay in Filing Application, 1; Res Adjudicata.)

1. SUBSTITUTING APPLICATION EXECUTED BY APPLICANT FOR ONE EXECUTED BY ATTORNEY—CHANGING DATE OF APPLICATION—FOREIGN PATENT.
A petition, specification, and an oath executed by an inventor on October 26, 1899, before the United States Consul-General at Paris cannot be substituted for the petition, specification, and oath executed by the attorney in fact of applicant, which latter papers were deposited in the Patent Office on October 27, 1899, for the purpose of giving the date of October 27, 1899, to the application, so that the applicant will not forfeit his rights to obtain a valid patent under section 4887, Revised Statutes, by reason of a prior foreign patent, as the power to make such substitution is not vested in the Commissioner of Patents. [*In re* Tropenas, 749.

2. SAME—SAME—PLACE OF FILING APPLICATIONS.
The application executed by applicant before the United States Consul-General on October 26, 1899, can be of no assistance in giving applicant a date of filing earlier than the actual date of the receipt of the application papers in the Patent Office. There is but one place in which an application for a United States patent can be filed, and that is the United States Patent Office. The papers executed by the attorney cannot be treated as forming any part of a valid application. [Id.

3. SAME—INVALID PATENT.
A patent issued upon such substitute papers as presented in this case would be invalid, for the reason that the application for the patent must have been made by the inventor not later than October 28, 1899; but no application was made by him until November 11, 1899. [Id.

4. INFORMAL APPLICATION—CORRECTION BY AMENDMENT—NEW APPLICATION.
Where the petition and specification of an application as filed are signed by two parties, the specification indicating that they are joint inventors and the petition stating that one of them is an assignee, and the oath is signed by only one of the parties and states that he is the sole inventor, *Held* that there is such inconsistency in the statements as to who is the inventor that the matter cannot be corrected by amendment, but only by a new application. [*Ex parte* Henze, 2507.

5. SAME—RETURNED TO APPLICATION ROOM—RETURN OF FEE.
Where an application is informal by reason of inconsistency in the statements as to who is the inventor, *Held* that it should not have been forwarded to the Examiner by the application clerk, and ordered that it be stricken from the Examiner's files and returned to the application room. The fee paid in such case may be transferred to a new case, if one be filed. [Id.

ATTORNEYS.

(See Applications, 1, 2.)

BAR TO PATENT.

(See Foreign Patents.)

BURDEN OF PROOF.

(See Foreign Patents; Interference, 5, 6, 16, 21.)

CAVEAT.

1. ACCESS TO RECORDS OF THE OFFICE—AFFIDAVIT UNDER RULE 75 DISCLOSING CAVEAT—INTERFERENCE.
An applicant by referring to a caveat and quoting therefrom in an affidavit filed under Rule 75 to overcome a prior patent upon which the application was rejected does not thereby withdraw the caveat from the secret archives of the Patent Office and lose the right to have it "preserved in secrecy" so that another applicant with whose application his application is placed in interference becomes entitled to a copy of the caveat. [*In re* Lowry, 445.

2. SAME—RULES 97, 103, AND 108.
Rules 97, 103, and 108, which relate to interference proceedings, do not contain anything which authorizes the disclosure of a caveat which may have been referred to during the *ex parte* consideration of a case. [Id.

3. SAME—CAVEAT AND APPLICATION, COURT MAKING DISTINCTION BETWEEN.
A distinction was made by the court in the case of *U. S., ex rel. Pollok*, v. *Commissioner of Patents* (48 O. G., 1263) between a caveat and an abandoned or rejected application for a patent. [Id.

CLAIMS.

(See Interference, 27.)

CLAIMS GENERIC AND SPECIFIC.

(See Division of Application, 3, 4.)

CLASSIFICATION OF INVENTIONS.

(See Division of Application, 2.)

1. DIVISION—COIN-CONTROLLED APPARATUS.
Upon the question whether the class of coin-controlled apparatus or the class of machines to which that apparatus is applied should take the claims for the combination of the coin-controlled apparatus with that machine, *Held* that to the class of coin-controlled apparatus should be assigned all patents and applications which contain any claim for the coin-controlled device, or for the combination of such devices with the apparatus or machine to which it is applied, or for any structure of that apparatus which would be useful only in a coin-controlled device. [*Ex parte* Cassler, 446.

2. SAME—SAME.
Held, further, that if such a case contains, in addition to the matter above specified, any claim for the specific construction of the machine to which the coin-controlled apparatus is applied and which would not be limited in its use to the coin-controlled apparatus it should be divided out, and if made the subject of another application should be classified with that class of machines to which the coin-controlled apparatus is applied. [Id.

3. SAME—SAME.
Held, further, that if a claim reads "In a coin-controlled apparatus, a telephone," for example, followed by a specific statement of the construction of the telephone, such a claim should be classified with telephones and not with coin-controlled apparatus, as under the court decisions the introductory phrase is not an element of the combination and does not limit the claim to such apparatus. [Id.

4. SAME—SAME.
Held, further, that if this practice were followed the class of coin-controlled apparatus would be kept clear of all claims covering *per se* the construction of the machine to which the coin-controlled apparatus is applied, and the classes to which such machines are assigned would also be kept clear of claims involving, broadly or specifically, a coin-controlled device. Under this practice applications would be divided on structural lines, and the decision of *Miller* v. *Eagle Mfg. Co.* (66 O. G., 845) would not prohibit such division. [Id.

CONSTRUCTION OF RULES.

(See Caveat, 1, 2; Interference, 16, 24, 25, 26.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Construction of Statutes; Infringement; Particular Patents.)

FOREIGN PATENT—INFRINGER DEFEATING UNITED STATES PATENT—EFFECTIVE DATE OF FOREIGN INVENTION.
An infringer cannot defeat Letters Patent of the United States to an original inventor in a foreign country by proof that before the date of a prior foreign patent to the same inventor, but not before the date of the application for such patent and less than two years before the date of the application for a United States patent, the invention was used in this country by a person who did not invent it.
[*Welsbach Light Company v. American Incandescent Lamp Company and Berlinicke, 950.

CONSTRUCTION OF STATUTES.

(See Designs, 3, 4.)

"DATE OF INVENTION" IN SECTION 4886, REVISED STATUTES, CONSTRUED.
Section 4886, Revised Statutes, applies to all inventions irrespective of the place of their origin, and the term "date of invention" is used without discrimination between classes of inventions. The language of the section refers to the actual and not to the artificial date.
[*Welsbach Light Company v. American Incandescent Lamp Company and Berlinicke, 950.

COPENDING APPLICATIONS.

(See Interference, 24, 25, 26.)

DATE OF FILING APPLICATIONS.

(See Interference, 4, 5.)

DATE OF INVENTION.

(See Construction of Specifications and Patents; Construction of Statutes; Infringement; Interference, 9.)

DECISIONS OF THE EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief, 1.)

DELAY.

(See Interference, 3.)

DELAY IN FILING APPLICATION.

(See Interference, 8, 29, 30.)

DILIGENCE IS APPLYING FOR PATENT.
It is a settled principle in practice as well as in reason that forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value by practical experiment affords no ground for presumption of abandonment, nor should such delay operate in any way to the prejudice of the inventor or to his right to obtain a patent for his invention, certainly not as against a subsequent or junior inventor.
[*Christensen v. Noyes, 228.

DELAY IN REDUCTION TO PRACTICE.

(See Reduction to Practice, 4.)

DESCRIPTION.

(See Reduction to Practice, 1, 2.)

DESIGNS.

(See Particular Patents, 1, 5.)

1. INVENTIVE GENIUS—PATENTABILITY.
As much inventive genius is required to support a design patent as a mechanical patent. (*Smith* v. *Saddle Co.*, 63 O. G., 912; *Northrup* v. *Adams*, 12 O. G., 430; 2 B. & A., 567, and *Foster* v. *Crossin*, 54 O. G., 1115; 44 Fed. Rep., 63, cited.)
[*Westinghouse Electric and Manufacturing Company v. Triumph Electric Company, 608.

2. CONSTRUCTION OF STATUTE—UTILITY.
The purpose of Congress in authorizing the granting of patents for designs was to give encouragement to the decorative arts. It contemplated not so much utility as appearance. [*Id.

3. SAME—"USEFUL."
By the act of 1870, which was a revision as well as an amendment of the patent laws, the word "useful" in the design statute was transferred from the office of qualifying patterns and prints to that of qualifying shapes or configurations of matter. [*Id.

4. SAME—"USEFUL" AS DISTINGUISHED FROM "VICIOUS."
The term "useful" was inserted in the design statute merely out of abundant caution to indicate that things which were vicious and had a tendency to corrupt and in this sense were not useful were not to be covered by the statute. [*Id.

5. EXPERIMENTAL USE—PUBLIC USE.
The doctrine of experimental use does not apply to design inventions; but any use of a design in public for whatever purpose is public use.
[*Ex parte* Tournier, 1948.

6. MEANING OF THE WORD "USEFUL."
The word "useful" in the design law has reference to appearance rather than to the mechanical function of the device. The design must not be vicious or have a tendency to corrupt, but its usefulness resides in the pleasing and attractive appearance produced by it. (*Westinghouse Co.* v. *Triumph Co.*, 90 O. G., 608; 97 Fed. Rep., 99.) [Id.

7. SAME—HAS NO REFERENCE TO MECHANICAL FUNCTION.
The utility of a design invention for the performance of a mechanical function is not of the essence of the invention, since two articles may clearly be so different in shape as to properly constitute subject-matter for two separate design patents although they perform the same mechanical function in exactly the same way, and two articles may be so nearly alike as to constitute the same design, but may at the same time perform entirely different mechanical functions. [Id.

8. EXPERIMENTAL USE—MECHANICAL AND DESIGN INVENTIONS DISTINGUISHED.
The only purpose of experimental use of mechanical inventions is to determine whether or not the device is so constructed as to satisfactorily perform the mechanical functions intended; but since the mechanical function of the device forms no part of a design invention experimental use of a design is not necessary. [Id.

9. INCOMPLETE DESIGNS.
Since the subjects of design patents are form or contour and surface ornamentation, it is physically impossible for a design to exist in an incomplete condition; but if it has been produced at all it is complete and entitles the producer to a patent at that time. [Id.

10. REDUCTION TO PRACTICE.
The production of a design is what corresponds to the reduction to practice of a mechanical invention, since its utility within the meaning of that term as applied to designs is apparent upon mere inspection. [Id.

11. VALIDITY—INVENTION.
Originality and the exercise of the inventive faculty are as essential to the validity of a design patent as a mechanical patent.
[*Cary Manufacturing Company v. Neal *et al.*, 1950.

DILIGENCE.

(See Delay in Filing Application; Interference, 3, 7, 13; Reduction to Practice, 4.)

DIVISION OF APPLICATION.

(See Classification of Inventions; Interference, 16.)

1. COIN-CONTROLLED APPARATUS.
Held, further, that if a case contain a claim for a combination of a coin-controlled device, broadly or specifically stated, with any machine to which it is applied, a claim for the same combination, differing only in setting forth a specific construction of the machine to which the coin-controlled apparatus is applied, should not be allowed in that application or in any other unless the specific form of such machine is not merely an improvement in the machine, but actually enters into the new combination affecting the action of the coin-controlled apparatus. [*Ex parte* Casler, 446.

2. SAME.
Held, further, that when an application contains claims for a coin-controlled apparatus, in combination with a machine to which said apparatus is applied, and also claims broadly for means for setting that apparatus in operation, in combination with the apparatus, and the only means shown for setting the apparatus in operation is the coin-controlled means, all the claims should remain in the same application and the case be classified under coin-controlled apparatus. [Id.

3. PRODUCT—GENUS AND SPECIES.
Where a set of claims can be based upon one specific product, there is no reason why they should not be permitted to remain in the same application. Claims so drawn are drawn in accordance with the doctrine of genus and species.
[*Ex parte* Gassmann, 959.

4. SAME—SAME.
Where an Examiner stated that he was willing to allow two claims of an application for a product for dyeing fabrics, but insisted that the other claims for a more specific product be canceled on the ground that to permit them to remain in the application would be contrary to *ex parte Eagle*, (C. D., 1870, 187,) the Examiner's requirement as to the limitation of the claims being based upon the assumption that a "dialkyl rhodamine" is not a species of "rhodamine," but that the two substances are different species of the genus "a phtaleine," *Held* that were the Examiner's assumption correct the requirement might have been well founded; but as dialkyl rhodamine is held to be a species of rhodamine his requirement was wrong. [Id.

5. GRIDING-MACHINE AND ATTACHMENT.
Division should not be required between a claim to a combination of elements in a grinding-machine and a claim for an attachment to be used in that machine for grinding curved surfaces when it does not appear that such attachments have acquired a distinct status in art and manufacture, and are separately classified in this office.
[*Ex parte* Bancroft and Thorne, 1589.

6. SAME—SUBCOMBINATION CLAIMS.
Where an attachment when in place forms with the other elements a complete organized machine, all of the parts of which coöperate to grind curved surfaces, *Held* that the combination of parts forming that attachment constitutes a subcombination in that organized machine and that a claim to it may properly be retained in the same case with claims to other combinations of elements. [Id.

DRAWINGS.

(See Interference, 10, 19, 20; Reduction to Practice, 1, 2.)

EXPLANATION OF OBJECTIONS BY EXAMINER.
Where the drawing is unsatisfactory because it shows only detached portions of details and does not show the parts together so that their coöperation can be understood, *Held* that it is not practicable for the Examiner to point out in detail just what changes would make it clearly illustrate the invention, so long as he has not before him some complete representation of the invention, such as a model. General objections are sufficient to enable a skilled draftsman to cure the defects.
[*Ex parte* Tuttle, 1365.

EMPLOYER AND EMPLOYEE.

(See Interference, 19, 20.)

EQUIVALENTS.

DEVICES.
A device embodying two springs used to disrupt a telephone-circuit is substantially equivalent to a device embodying one spring for the same purpose.
[*McBerty v. Cook, 2295.

ESTOPPEL.

(See Interference, 27.)

EXAMINATION OF APPLICATIONS.

(See Res Adjudicata.)

EXAMINERS.

(See Appeal to the Examiners-in-Chief, 3; Applications, 5; Division of Application, 4; Interference, 23; Motion to Dissolve Interference, 3.)

EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief, 1, 2.)

EXPERIMENTAL USE.

(See Designs, 5, 8; Interference, 8.)

FEES.

(See Applications, 5.)

FOREIGN PATENTS.

(See Construction of Specifications and Patents; Infringement.)

1. REFERENCE, BURDEN UPON APPLICANT TO SHOW DATE OF.
Where the Primary Examiner cited a foreign patent as being a pertinent reference, as it appeared upon its face that it was issued at a date prior to the filing date of the application under consideration, and it was contended by applicant that the foreign patent was not granted at the date shown on its face, *Held* that when the foreign patent was cited the burden was shifted to applicant to prove that the said patent was not entitled to a date which made it effective as an anticipatory publication. [Hummell v. Tingley, 959.

2. SAME.
Held, further, that the question is analogous to that raised by the citation of a prior patent to negative patentability of an invention claimed by an applicant. In that case the burden is upon the applicant to show that such prior patent does not disclose his claimed invention. (*Durham v. Seymour, Commissioner of Patents*, 71 O. G., 601.) [Id.

FORFEITED CASES.

(See Interference, 1, 3, 11, 12, 13; Reduction to Practice, 2, 3.)

FOREIGN APPLICATION.
An application that has been allowed to lapse or become forfeited and before it is renewed, ceases to have vital or operative effect, except for a very limited and special purpose. [*Christensen v. Noyes, 223.

FORMER DECISION AFFIRMED.

(See Interference, 21.)

DECISION OF COMMISSIONER AFFIRMED.
Held that there is no error in the decision of the Commissioner of Patents in *Cook v. McBerty*, (67 MS. Dec., 123,) and that decision affirmed. [*McBerty v. Cook, 2295.

FUNCTIONS.

(See Designs, 7, 8.)

GENERIC AND SPECIFIC CLAIMS.

(See Division of Application, 3, 4.)

GENUS AND SPECIES

(See Division of Application, 3, 4.)

HEARING.

(See Motion to Dissolve Interference, 3.)

INFORMAL APPLICATION.

(See Applications, 4, 5.)

INFRINGEMENT.

(See Construction of Specifications and Patents.)

FOREIGN PATENT—INFRINGER DEFEATING UNITED STATES PATENT.
As against an infringer a patentee in a United States patent for an invention previously made by him and patented in a foreign country may, to avoid alleged use in this country by an infringer before the date of the foreign patent, show the date of the application for the foreign patent for the purpose of showing the actual date of his invention in a foreign country. [*Welsbach Light Company v. American Incandescent Lamp Company and Berlinicke, 960.

INTERFERENCE.

(See Caveats, 1, 2; Delay in Filing Application; Forfeited Applications; Former Decisions Affirmed; Motion to Dissolve Interference; Reduction to Practice.

1. PRIORITY—FORFEITED APPLICATION—CONSTRUCTIVE REDUCTION TO PRACTICE.
As between an applicant resting on a mere constructive reduction to practice, especially where his application is a renewal of a forfeited application, and a party who is really the first inventor and to whom a patent has been issued for the invention, *Held* that priority must be found for the patentee. [*Christensen v. Noyes, 223.

2. SAME.
Held, further, that the mere constructive reduction to practice cannot be set up to defeat an existing patent granted to the first inventor. A patent stands for something more than a mere written description of an invention, and against a pending application for the same invention resting upon no better foundation than a constructive reduction to practice the patent must prevail. [*Id

3. PRIORITY.
Noyes filed his application on May 13, 1895, which was allowed November 26, 1895, and became forfeited on May 26, 1896, by failure to pay the final fee. On April 30, 1896, Christensen filed his application, upon which a patent issued April 20, 1897. Noyes filed a renewal of his application on June 28, 1897, after the patent had issued to Christensen. Christensen proved that he was the first to conceive the invention. Noyes did not reduce to practice in any form prior to the filing of his application. *Held* that priority of invention should be awarded to Christensen. (65 MS. Dec., 472, reversed.) [*Id.

4. PRIORITY—CONSTRUCTIVE REDUCTION TO PRACTICE BY FILING AN APPLICATION—RIGHT OF PARTIES TO INTERFERENCE.
On an issue of priority of invention, constructive reduction to practice of the invention by simply filing an application for patent and having it allowed, or by filing an allowable application for patent, does not in any manner change or enlarge the right of such applicant as against a prior inventor of the same or a similar invention, and which is made the subject of an issue of interference, though such prior inventor may be subsequent in filing an application. [*Christensen v. Noyes, 227.

5. SAME—SAME—BURDEN OF PROOF.
The first applicant in such case becomes the senior party in the declaration of interference, and his prior application imposes the burden of proof upon the junior party or subsequent applicant in trying the issue of priority; but in no other respect does the mere constructive reduction to practice by a subsequent inventor subordinate or affect a prior invention, and this rule in regard to the burden of proof does not apply as against a patentee whose patent has been regularly and lawfully issued in due course of proceeding. [*Id.

6. SAME—INVALIDATING A PATENT.
A subsisting patent, lawfully issued, cannot be invalidated or in any manner affected by any subsequent proceeding in the Patent Office, even to the extent of imposing the burden of proof upon its holder that it was lawfully issued, and it is the express provision of the statute that no person has a right to "obtain a patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same," or unless the latter has abandoned his invention. [*Id.

7. SAME—CONSIDERING DILIGENCE AND ABANDONMENT ON QUESTION OF PRIORITY.
The question of the exercise of reasonable diligence in adapting and perfecting the invention and also the question of abandonment, from long-settled practice are proper to be considered and determined in deciding upon the principal question of priority of invention. [*Id.

8. PRESUMPTIVE ABANDONMENT—FAILURE TO APPLY FOR PATENT DURING EXPERIMENTS.
Mere forbearance to apply for a patent during the progress of experiments and until the party has perfected his invention and tested its value affords no ground for presuming abandonment. [*Id

9. PRIORITY—DATE OF INVENTION.
Between rival inventors, the date of the invention in issue is fixed at the time at which a complete and intelligible embodiment by which those skilled in the art can understand it is presented; but it would also appear to be settled that the date of an invention may be prior to the time the invention is embodied in a form capable of being patented. [*Id.

10. SAME—DRAWINGS.
In an application for a patent relating to machinery, the invention may be exhibited as well in a drawing as in a model, so as to lay the foundation of a claim to priority, if such drawing be sufficiently plain to enable those skilled in the art to understand it. [*Id.

11. SAME.
Because Noyes, the second party to conceive, was the first to file an allowable application, which application was passed and allowed, though it became forfeited, he does not obtain a superior right to priority over Christensen upon the renewal or second application filed within the time authorized by the statutes, notwithstanding that Christensen was the first inventor and that within the time that the application of Noyes stood as forfeited a patent had been issued to Christensen. [*Id.

12. FORFEITED APPLICATION, WEIGHT TO BE GIVEN TO.
The forfeited application of Noyes conferred no right except that of renewal in the manner and within the time prescribed, and the renewed application conferred no right in addition to that of the first application. It certainly conferred no right as against a prior inventor who happened to file his application subsequent to that of the second inventor. [*Id.

13. SAME.
The first applicant could only acquire an inchoate right as against a prior inventor, dependent upon it being made to appear that the first inventor had either abandoned his invention or lost the right to it by the want of reasonable diligence in perfecting it and making application for a patent. [*Id.

14. SAME—DEPRIVING FIRST INVENTOR OF HIS RIGHTS BY TECHNICAL RULES OF PROCEDURE.
Whether the first application was forfeited or not, or supposing it had been renewed before the patent was issued to the first inventor, or even if the patent had been issued on the first application, the first inventor upon showing a compliance with the requirement of the statute would be entitled to a patent for his invention, and he could not be deprived of his right of priority by any mere technical rule of procedure adopted in the Patent Office. [*Id.

15. PRIORITY—REHEARING DENIED.
After reviewing the facts in the case, *Held* that Christensen was entitled to priority of invention, and the motion for rehearing denied. [*Id.

16. ACCESS TO ORIGINAL APPLICATION—DIVISIONAL APPLICATION IN INTERFERENCE—RULE 106 CONSTRUED.
Rule 106 cannot fairly be construed to mean that an original application upon which a party relies for an award of priority or for the benefits of the burden of proof may be concealed from his opponent. The rule means that where a part only of an application is involved in interference it may be divided, so that the subject-matter not involved may be sent to patent before the termination of the interference proceeding. It does not provide either by express terms or by implication that an opposing party shall be denied access to an original application so divided. [*In re* Swihart, 601.

17. SAME—SAME—SAME.
If an original application is to be used in favor of a party in interference and against his opponent, under the rules of evidence the opponent should be permitted to examine it and raise all the objections thereto to which the rules give him a right. [Id.

18. SAME—SAME—JUDGMENT ON THE RECORD.
Where judgment is entered against a junior party on the record, to deprive such party of the right to see the papers of his opponent by virtue of which that judgment was made would be giving a judgment against him on a piece of evidence which he is denied the right to see and of the character and contents of which he is ignorant, which would be contrary to the laws of evidence. [Id.

19. ORIGINALITY—EMPLOYER AND EMPLOYEE.
Where Bernard employed Huebel to make the device and pointed out the distinctive and dominating feature of his improvement, but did not make anything resembling a perfect drawing for his guidance or describe the proposed construction in detail, *Held* that Huebel is not entitled to claim the invention, although by reason of his mechanical skill he may have made a neater and more perfect device than was in the mind of Bernard. [*Huebel v. Bernard, 751.

20. SAME—MECHANICAL SKILL OF EMPLOYEE.
An inventor who employes a mechanic to embody his conception in practical form retains his exclusive right to the perfected improvement notwithstanding the perfection is partly due to the exercise of the mechanical skill of the employee. The latter must invent something, not merely improve by the exercise of his mechanical skill upon a conception which he has been employed to work out. (*Agawan Co. v. Jordan*, 7 Wall., 583; *Milton v. Kingsley*, 75 O. G., 2193.) [*Id.

21. PRIORITY.
Held that the evidence on behalf of Bernard has overcome the burden of proof imposed upon him by the earlier application of Huebel and has successfully established his claim to the award. The decision appealed from affirmed. (67 MS. Dec., 26.) [*Id.

22. CASE OF INTERFERENCE IN THE PATENT OFFICE DISTINGUISHED.
The case at bar distinguished from an interference in the Patent Office or a contest in the courts between original inventors for priority of invention.
[*Welsbach Light Company v. American Incandescent Lamp Company and Berlinicke, 960.

23. DISCOVERY OF NEW FACTS.
In case of the discovery of new facts after granting the motion to transmit to the Primary Examiner he may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve. [Wells *v.* Packer, 1947.

24. COPENDING APPLICATIONS—AFFIDAVIT UNDER RULE 75.
Where some of the claims of an application interfere with claims in a patent granted on a copending application, *Held* that an interference should be declared without first requiring the applicant to overcome that patent as a reference for the claims which do not interfere by an affidavit under Rule 75. [*Ex parte* Sorlie, 2133.

25. PRELIMINARY QUESTIONS—NON-INTERFERING CLAIMS.
Where an interference exists between claims in an application and a patent, the question as to the patentability of the applicant's non-interfering claims over that patent is not a preliminary question, but is one which may be determined by the interference proceedings, since the evidence may show which was the prior inventor of that matter and take the place of the affidavit under Rule 75. [Id.

26. AFFIDAVIT UNDER RULE 75—INTER PARTES PROCEEDINGS.
The only reason for accepting in any case an *ex parte* affidavit as sufficient to overcome a patent cited as a reference is that an interference cannot be declared between the parties by reason of the fact that there are no interfering claims. If the matter can be settled in *inter partes* proceedings, that is obviously the better way of determining it. [Id.

27. BROADENING CLAIMS TO COVER DEVICE OF ANOTHER APPLICANT—ESTOPPEL.
Where in an interference between an application filed March 22, 1897, for the reissue of McBerty's patent, dated August 18, 1895, and an application of Cook filed July 29, 1896, it was contended that Cook's original application contained no claim to the invention of the issue, that not until five months thereafter and after the rejection of his claims in part did he amend by setting up the claims of the McBerty patent now in interference, and that consequently he is estopped, under *Bechman v. Wood*, (89 O. G., 2459, 2462,) from claiming priority of invention as against McBerty's subsequent application for reissue, *Held* that the attitude of the parties is different from that shown in *Bechman v. Wood*. McBerty did not come into the Office originally after Cook, but before, and when he made his reissue application Cook's later claims had been made. He does not therefore stand in the situation of one who claims a specific invention with specification and claims that are not embraced in the original application of an earlier applicant, but which the latter seeks by subsequent amendment to dominate with claims that have no foundation in the original description of his invention. [*McBerty v. Cook, 2295.

28. SAME—SAME.
Held, further, that the amended claims of Cook are clearly shown and described in the specification of his original application and that his amendment constitutes no departure which would subordinate him to the claim of even an intervening applicant, as was the case in *Bechman v. Wood*. [*Id.

29. DELAY IN APPLYING FOR PATENT.
Where Cook reduced the invention to practice in 1891 and 1892, but did not put it into commercial use or apply for a patent until 1896, *Held* that the delay of Cook in applying for a patent or making commercial use of his invention was not such as to indicate an intention to suppress or conceal his invention from the public that would subordinate his right to that of McBerty, who promptly applied for and obtained a patent. [*Id.

30. SAME.
Delay is often a potent circumstance in aid of the determination in a case not otherwise clear of the question whether an invention has been successfully reduced to practice or has resulted in nothing more than an abandoned experiment. (*Esty v. Newton*, 86 O. G., 799, cited.) [*Id.

31. FAILURE OF PARTY TO TESTIFY.
Where one of the parties to an interference testifies that it was his idea that went into a model and that he directed the other contestant to make the model and witnesses corroborate this and the said contestant fails to testify in his own behalf, *Held* that the contestant's silence is most potent testimony against him. [*Ingersoll v. Holt, 2507.

32. PRIORITY.
After reviewing the testimony, *Held* that judgment of priority of invention should be awarded to the appellee, Holt. (67 MS. Dec., 87, affirmed.) [*Id.

INVENTION.

(See Designs, 11; Patentability.)

NOVELTY.
A novelty involving a state of art so universal and common as the making and adjustment of clothing must be of a radical character to overcome the presumption against its patentability. (*Dalby v. Lynes*, 71 O. G., 1317; *Way v. McClarin*, 96 Fed. Rep., 416, cited.)
[*Fay v. Duell, Commissioner of Patents, 1157.

JOINT APPLICATIONS.

(See Applications, 4.)

JUDGMENT ON THE RECORD.

(See Interference, 18.)

JURISDICTION OF THE EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief, 1.)

LABELS.

1. Use or Publication Prior to Application—Adding Inconspicuous Word—Registration Refused.
After a label producing a certain artistic effect has become non-registrable because of the use or publication before application for registration was filed, it cannot be rendered registrable by adding thereto an inconspicuous word which involves nothing more than the work of a type-setter and which does not change in any material respect the appearance of the label. [*Ex parte* Wickert, 1157.

2. Defined.
It is not necessary that a label be composed exclusively of words in ordinary use, used with their ordinary significance, or that it be in all respects such a placard as might be written by any one. Such construction would be inconsistent with the definition given by the standard dictionaries. (*Ex parte Moodie*, 28 O. G., 1271, construed.)
[*Ex parte* New England Gas and Coke Company, 1935.

3. Registrable Labels.
All labels which bear a name, title, address, or the like to indicate the nature, contents, ownership, destination, or other particulars of the thing to which they are to be applied, are proper subjects-matter for registration in the Patent Office under the law. [Id.

4. Same.
Those which are mere labels, simply designating or describing the article, its nature, contents, or other characteristics in words which would naturally be used by any one who wished to designate or describe the qualities or characteristics of the article which he wished to sell, arranged as they might be expected to be arranged by an experienced type-setter, involving in the choice of words or other arrangement nothing of originality, are clearly not intended to be the subject of an exclusive right. (*Higgins* v. *Keuffel*, 55 O. G., 1139, cited.) [Id.

5. Same.
A label in order that its owner may be entitled to be protected in an exclusive right thereto must under the authorities involve something of originality, some exercise of the creative power of the mind. [Id.

6. Same.
A label of artistic merit, indicating pictorially or otherwise the article or the contents of the article to which it is intended to be applied, is entitled to protection; but it is not necessary to restrict registration to those labels which are artistic in a strict sense of the word. [Id.

7. Same—Trade-Mark Matter.
It is only necessary that labels which are not trade-marks in order to be registrable be other than such as would naturally be produced by an experienced type-setter using the expected skill of his calling in putting into an attractive form the statement furnished him of the characteristics of the article on which the label is to be used, whether such label be in a strict sense artistic or not. [Id.

8. Particular Label Registrable.
Where an applicant presents for registration a label which consists of a monogram composed of the letters forming the word "Coke" of which the initial "C" is the conspicuous and surrounding feature. On the initial letter "C" is printed the name of the registrant; above the letter "C" are the words "Otto Coke" and below it the words "Mystic Brand." Surrounding the aforesaid features of the label is a diamond or lozenge. Disposed in a circle around the diamond are the words "Smokeless Fuel" above and "Crushed Otto Coke" below the diamond. Opposite the left corner of the diamond is the word "Lights" and opposite the right corner the word "Quick." Below all, in a horizontal line, are the words "Takes the place of coal." *Held* that this label may be registered in the Patent Office. [Id.

9. Considered as a Whole.
A label must be considered as a whole, and the originality exercised in the creation of the part which forms its central portion gives originality to the whole. [Id.

10. Same—Trade-Mark Matter.
That a label as a whole is not a trade-mark, in the sense that it has not become by adoption and use the subject of an exclusive property right, may be accepted in the absence of any showing that it has ever been used as a trade-mark. [Id.

11. Distinction Between a Label and a Trade-Mark.
The distinction between a label and a mark which may by adoption and use become a trade-mark is that the one is essentially and obviously descriptive of the article to which it is applied, while the other is essentially arbitrary or fanciful, is at least not obviously descriptive, is distinctly different from a mark which would naturally be used by others to indicate the contents, nature, or quality, origin, destination, or purpose of the article to which it is applied. [Id.

12. Refusing Registration of Print or Label.
Registration of a print or label should not be refused, provided it is a print or label within the meaning of the law and is not a trade-mark, unless it is beyond question that it is absolutely without artistic or intellectual merit, is not original, and is not founded in the creative powers of the mind. [Id.

MACHINE.

(See Division of Application, 1, 2.)

MECHANICAL SKILL.

(See Interference, 19, 30.)

MODEL.

(See Interference, 10, 31.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 23.)

1. Interference—Disclosure of Facts Relied Upon for Dissolution.
It is not necessary that the facts upon which a motion to dissolve is based be stated in any case where the only facts relied upon are disclosed in the record. A fair presumption is that where the moving party does not state any additional facts he considers that the record discloses sufficient to warrant the dissolution of the interference, and that he does not wish to refer to anything not thus disclosed. (*Law* v. *Woolf*, 55 O. G., 1527, construed.) [Wells v. Packer, 1947.

2. Same—Same.
Where a motion to dissolve an interference is based upon facts not disclosed in the record, the motion should make a showing of the facts outside of the record, so that there would be no surprise nor any necessity for delay in the proceeding. [Id.

3. Same—Matter to be Considered by the Primary Examiner.
On the hearing of a motion to dissolve an interference nothing should be considered by the Primary Examiner outside of the facts disclosed by the record, unless a showing of such additional facts accompanies the motion to transmit to the Primary Examiner. [Id.

NEW APPLICATIONS.

(See Applications, 4.)

NOVELTY.

(See Invention; Patentability.)

OATH.

(See Applications, 2.)

PARTICULAR PATENTS.

1. Cary—Box-Fastener—Design—No. 28,142—Invention.
Design Letters Patent No. 28,142, granted to Spencer G. Cary on January 11, 1898, for a box-fastener, consisting of a metal strap, which differs in construction from the one described in a prior mechanical patent to the same patentee only in omitting a corrugation along the edges, making the strap plain, does not disclose invention, and is void.
[*Cary Manufacturing Company v. Neal *et al.*, 1950.

2. Potts—Clay-Disintegrator—No. 322,302—Valid—Infringed.
Patent No. 322,302, granted July 14, 1885, to Clayton and Albert Potts for an improvement in clay-disintegrators, which consists in a rotating cylinder carrying cutting-bars fixed in longitudinal grooves and projecting beyond the surface of the cylinder, acting in combination with a vibratory plate mounted on a shaft opposite the cylinder and moved automatically toward the cylinder in operation so as to continue to press the clay against it as the successive portions are cut away by the cutting-bars, *Held* not anticipated by the prior art, valid, and infringed as to claim 5.
[*C. & A. Potts & Co. v. Creager *et al.*, 2134.

3. Same—Same—No. 368,898—Non-Invention—Void.
Claims 1 and 2 of Letters Patent No. 368,898, granted August 23, 1887, to Clayton and Albert Potts for an improvement in clay-disintegrators, such as shown in Letters Patent No. 322,302, the improvement consisting of the substitution of a smooth roller for the vibratory plate shown in the patented device improved upon, *Held* not to disclose patentable invention and to be void. [*Id.

4. Rawson—Incandescent Mantles—No. 407,963—Validity.
Claim 1 of Letters Patent No. 407,963, granted to Frederick L. Rawson and William S. Rawson July 30, 1889, for an improvement in the production of incandescent mantles, *Held* to be valid.
[*Welsbach Light Company v. American Incandescent Lamp Company and Berlinicke, 980.

5. Schmid—Frame for Electric Machines—Design—No. 21,416—Non-Invention—Void.
Design Letters Patent No. 21,416, issued March 22, 1892, to Albert Schmid for a frame for electric machines, the only originality claimed for which is the curvature of the bases of the pillars for supporting the shaft and of the supports to the cylinder-frame for the field, *Held* not to disclose patentable invention and to be void.
[*Westinghouse Electric and Manufacturing Company v. Triumph Electric Company, 608.

PATENTABILITY.

(See Appeal to the Examiners-in-Chief, 3; Invention; Res Adjudicata.)

Presumption Against—Force of Patent Office Decisions.
The presumption against the patentability of any claim is made very strong by the concurrent denial of all the tribunals of the Patent Office to whom in turn it has been presented. (*Smith* v. *Duell, Commissioner of Patents*, 87 O. G., 963, cited.)
[*Fay v. Duell, Commissioner of Patents, 1157.

PATENTEE AND APPLICANT.

(See Interference, 1, 2, 5, 24, 25, 26, 27; Reduction to Practice, 2.)

PATENTS.

(See Construction of Specifications and Patents; Interference, 6; Property Rights.)

PRACTICE IN THE PATENT OFFICE.

(See Res Adjudicata.)

PRINTS.

(See Labels, 12.)

PRIORITY OF INVENTION.

(See Construction of Statutes; Delay in Filing Application; Interference, 1, 3, 4, 5, 7, 9, 10, 11, 14, 15, 19, 20, 22, 32; Reduction to Practice, 1, 2.)

PRIOR PATENTS.

(See Interference, 6.)

PRODUCT.

(See Division of Application, 3, 4.)

PROPERTY RIGHTS.

In Invention.
While Congress has prescribed the mode by which the exclusive right of an inventor in his invention may be secured, yet there is no property right in such invention until a patent be issued therefor. [*Christensen v. Noyes, 227.

PUBLIC USE AND SALE.

(See Construction of Specifications and Patents.)

PUBLICATION.

(See Foreign Patents.)

RECORDS OF THE PATENT OFFICE.

(See Caveat, 1.)

REDUCTION TO PRACTICE.

(See Delay in Filing Application; Designs, 10; Interference, 1, 2, 3, 4, 5, 7, 29, 30.)

1. Description and Drawings.
The description and drawings filed in the Patent Office as part of an application, as against an existing patent issued to the first inventor, cannot be accepted as an actual reduction to practice. [*Christensen v. Noyes, 225.

2. Defeating Prior Patent.
If such written description, illustrated by drawings, will not be allowed to defeat or affect a subsequent patent issued to an independent inventor, *a fortiori* will not such description and illustrative drawings be allowed to defeat or affect a patent granted to the first or prior inventor after the forfeiture of an application first filed, but on a subsequent conception of the invention. [*Id.

3. Forfeited Application.
Generally in the case of a forfeited application and the filing of a second or renewed application within two years, the inventor may, under proper circumstances, become entitled to the original or forfeited application as a constructive reduction to practice. [*Id.

4. Priority—Diligence in Reducing to Practice.
The proofs show that after Christensen's conception of the device, May, 1894, he disclosed it to others in the latter part of that year; that he tried to obtain money to enable him to apply for patent in December, 1894; that he sought to interest a party in the invention in the spring of 1895; that in June, 1895, he made another attempt to file an application; that in September, 1895, an oral agreement was made in regard to the matter; that in December, 1895, working drawings were made and that from that time on to the time he filed his application he was working on the invention; that patterns were finished in 1896 and the device tested in March, 1896, and that he applied for a patent in April, 1896. *Held* that it is difficult to conceive that greater perseverance and diligence could be in reason required, especially of one who for the greater part of the time was in a state of almost abject poverty and who was under the necessity of pursuing constant employment to procure the means of subsistence for himself and family. [*Id.

REFERENCES.

(See Foreign Patents.)

REFUNDMENT OF FEES.

(See Applications, 5.)

REISSUES.

(See Interference, 27.)

REJECTED CASES.

(See Caveat, 3; Res Adjudicata.)

RENEWAL APPLICATION.

(See Interference, 1, 3, 12, 14; Reduction to Practice, 3.)

RES ADJUDICATA.

1. Second Application After Adjudication of the First Application.
Where an application for patent was rejected by each tribunal of the Patent Office and the applicant filed a new application without substantial change, *Held* that the subordinate tribunals were right in declaring the question of patentability *res adjudicata*. (*Barratt* v. *Duell, Commissioner of Patents*, 87 O. G., 1075, cited.)
[*Fay v. Duell, Commissioner of Patents, 1157.

2. Same.
While a liberal right of filing a new application in place of one rejected has been recognized by the Supreme Court in the cases where the Commissioner of Patents has reconsidered his former grounds of rejection and issued a patent, yet it does not follow that the doctrine of *res adjudicata* may not be applied to such new application in the discretion of the Commissioner. It is as much to the public interest that there should be an end of litigation in the tribunals of the Patent Office as in others. [*Id.

RULES OF PRACTICE OF THE PATENT OFFICE.

(See Appeal to the Examiners-in-Chief, 2.)

SECOND APPLICATION.

(See Applications, 4; Res Adjudicata.)

STATE OF THE ART.

(See Invention.)

SUBSEQUENT APPLICATIONS.

(See Applications, 1, 2, 3.)

TECHNICAL TERMS.

(See Designs, 3, 4, 6, 7.)

TESTIMONY.

(See Interference, 31.)

TRADE-MARKS.

(See Labels, 7, 10, 11, 12.)

UTILITY.

(See Designs, 6, 7, 10.)

VALIDITY OF PATENTS.

(See Construction of Specifications and Patents; Designs, 11; Interference, 6.)

VALID PATENTS.

(See Particular Patents, 2, 4.)

VOID PATENTS.

(See Particular Patents, 1, 3, 5.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING MARCH 31, 1900.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Labels, and Prints follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. A. Griffing Iron Company. (See Waggoner, Edward P., assignor.)						
A. B. Dick Company. (See Burnell, Arthur S., assignor.)						
A. G. Spalding & Bros. (See Cran, James, assignor.)						
A. G. Spalding & Bros. (See Dalgleish, James, assignor.)						
A. Kimball Company. (See Smith, Walton D., assignor.)						
Abbott, Ambrose E., American Fork City, assignor of one-half to H. C. Naylor, Salt Lake City, Utah. Fifth-wheel	645,776	Mar. 20	2276	495	90	2284
Abbott, Charles B. and S., assignors to Abbott Electric and Manufacturing Company, Cleveland, Ohio. Cigar-lighter	644,658	Mar. 6	188	41	90	1791
Abbott Electric and Manufacturing Company. (See Abbott, Charles B. and S., assignors.)						
Abbott, Samuel. (See Abbott, Charles B. and S.)						
Abel, Julius, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Green-black dye	644,959	Mar. 6	732	.....	90	1901
Abernathy, John P., Jonesborough, Ark. Colter	643,027	Feb. 6	804	187	90	1122
Abrahams, Isaac B., New York, N. Y. Coin-receptacle	640,435	Jan. 2	546	114	90	107
Abrams, Albert A., St. Louis, Mo. Shirt	640,781	Jan. 9	1097	252	90	233
Abrams, David. (See Schneider, John G., assignor.)						
Abramson, Alfred C., and W. Ferson, Rockford, Ill. Sewing-machine cabinet	645,379	Mar. 13	1515	332	90	2072
Acetylene Apparatus Manufacturing Company. (See Clarke, William C., assignor.)						
Acetylene Apparatus Manufacturing Company. (See Fuller, Henry F., assignor.)						
Acheson, Edward G., Buffalo, N. Y. Electrically treating materials	645,284	Mar. 13	1340	291	90	2037
Acheson, Edward G., Buffalo, N. Y. Manufacturing graphite	645,285	Mar. 13	1343	.....	90	2037
Acheson, Ernest V., Salt Lake City, Utah. Umbilical forceps	640,517	Jan. 2	664	147	90	134
Ackerson, Archie E. (See Gooding and Ackerson.)						
Acme Harvester Company. (See Heylman, Edward M., assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Andresen and Leupold, assignors.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Hansmann, Otto, assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Priebs and Kaltwasser, assignors.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Ullmann, Fritz, assignor.)						
Adair, James, Leet, Pa. Pen-rack	642,276	Jan. 30	4013	913	90	841
Adair, James, Leet, Pa. Pen-rack	642,277	Jan. 30	4014	913	90	841
Adair, James, Leet, Pa. Pen-rack	642,278	Jan. 30	4015	914	90	841
Adair, James, Leet, Pa. Pen-rack	643,097	Feb. 13	953	223	90	1171
Adam, Richard, Friedenau, Germany. Bunsen burner for liquid hydrocarbons	640,351	Jan. 2	360	76	90	79
Adams, Abram L., Breakman, Ohio. Drum attachment for traction-engines	644,392	Feb. 27	3370	782	90	1671
Adams, Arthur L., London, England. Magazine plate-holder	645,844	Mar. 20	2986	594	90	2257
Adams, Calvin T., New York, N. Y. Tire for vehicles						
Adams, Charles F. (See Farmer, John P., assignor.)						
Adams, Frank E., Chicago, Ill. Machine for mounting ornamental composition directly upon circular picture-frames	642,059	Jan. 30	3591	823	90	755
Adams, Frank H., Wall Lake, Iowa, and G. F. Kane, Warren, Ill.; said Kane assignor, by mesne assignments, to said Adams. Register and advertising desk	643,582	Feb. 13	1815	429	90	1340
Adams, Fred H., Beverly, assignor of one-half to E. E. Stevens, Medford, Mass. Leather-stretching machine	645,777	Mar. 20	2277	495	90	2284
Adams, George B., Irvington, N. J. Buckle	644,752	Mar. 6	340	75	90	1822
Adams, Gideon S., assignor of one-third to W. W. Armstrong, Camden, N. J. Changeable gearing for bicycles	645,446	Mar. 13	1639	358	90	2096
Adams, Henry A., Sandwich, Ill. Corn-sheller	641,354	Jan. 16	2316	528 529	90	484
Adams, James D. (See Rockwell and Adams.)						
Adams, James M., Deckertown, N. J. Gate	645,778	Mar. 20	2279	496	90	2235
Adams, John K., Tonkawa, Okla. Ter. Tire-tightener	641,355	Jan. 16	2318	529	90	485
Adams, Lizzie M., Portland, Oreg. Wardrobe	643,737	Feb. 20	2147	508	90	1419
Adams, Mathias J., Lancaster, Wis. Screen-door opener	642,661	Feb. 6	169	43	90	999
Adams, Moses J., Harrogate, England. Water-closet or urinal	644,498	Feb. 27	3528	819	90	1702
Adams, Peter H. (See Miller, John Z., assignor.)						
Adams, Samuel H., Harrogate, England. Siphon	646,389	Mar. 27	3338	745	90	2459
Adams, Thomas E., Cleveland, Ohio. Electric-arc lamp	644,562	Mar. 6	1	1	90	1755
Adams, Thomas E., Cleveland, Ohio. Electric-arc lamp	644,563	Mar. 6	5	1, 2	90	1755
Adams & Westlake Company. (See Caswell, Daniel W., assignor.)						
Adams & Westlake Company. (See Hamm and Wishart, assignors.)						
Adams & Westlake Company. (See Mosher, John A., assignor.)						
Addicks, Walter R., Boston, Mass. Lubricating attachment for gate-valves	641,754	Jan. 23	3043	692	90	635
Addicks, Walter R., Brookline, Mass. Heat-generating apparatus	641,755	Jan. 23	3045	693	90	635

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Adelman, Alfred G., Boise, Idaho. Choke-bore-forming device	640,518	Jan. 2	686	147	90	135
Adriance, Benjamin. (See Landfear, William R., assignor.)						
Advertising Machine Company. (See Hansen, Thorvald, assignor.)						
Aerated Paper Company. (See Fletcher, Frank A., assignor.)	641,356	Jan. 16	2319	589	90	485
Ager, Adam W., Mapleton, N. D. Mouse-trap						
Agerter, William T. (See Disman, George W., assignor.)	640,352	Jan. 2	362	76,77	90	73
Aguilar, José D., New York, N. Y. Automatic type-writing machine				191		
	640,618	Jan. 2	860	192	90	167
				198		
Ahern, Thomas F., assignor to Detroit Switchboard and Telephone Construction Company, Detroit, Mich. Telephone-exchange system	640,519	Jan. 2	687	147	90	135
Ahlen, William, Duquesne, Pa. Valve-motor	641,486	Jan. 16	2565	586	90	533
Ahlstrand, Hugo, Waltham, Mass. Protractor	641,664	Jan. 23	2881	657	90	697
Ahne, Bernard W., Fort Lee, N. J. Fire-escape	645,380	Mar. 13	1516	353	90	2072
Ahrends, John, Dearborn County, Ind. Newspaper-file						
Ahrens, Howard E., *et al.* (See Snyder, Daniel R., assignor.)						
Ahrens, James S., *et al.* (See Snyder, Daniel R., assignor.)	643,443	Feb. 13	1503	308	90	1291
Aiken, David, Winnsborough, S. C. Dental tool for expressing mercury from amalgam						
Alkin, George D. R. (See Reed, Blotcher, and O'Rourke, assignors.)						
Air Lighter Company. (See Porter, William H., assignor.)	643,858	Feb. 20	2371	557	90	1462
Akers, Earl C., Port Huron, Mich. Portable fire-escape						
Aktiebolaget Goteborgs Oljeraffineri. (See Ekenberg, Martin, assignor.)						
Aktiebolaget Separator. (See Berrigan, John J., assignor.)						
Albion Iron Works Company. (See Rebbeck, James K., assignor.)	644,393	Feb. 27	3372	782	90	1672
Albrecht, Otto. (See Tindel and Albrecht.)						
Albree, Chester B., Allegheny, Pa. Pipe-joint						
Albright, Daniel T. (See Albright, James H., D. T., and E. D.)	644,045	Feb. 27	2715	643	90	1545
Albright, Emerson D. (See Albright, James H., D. T., and E. D.)	644,046	Feb. 27	2717	643	90	1545
Albright, James H., D. T., and E. D., Miffinburg, Pa. Harrow	642,279	Jan. 30	4017	914	90	842
Albright, James H., D. T., and E. D., Miffinburg, Pa. Harrow						
Albright, Sarah F., Sidney, Ohio. Window	642,662	Feb. 6	169	43	90	999
Alcock, Alfred U., London, England. Apparatus for electrically transmitting orders or signals						
Alden, Herbert W. (See Maxim, Pope, and Alden.)						
Alden Type Machine Company. (See Johnson, Louis K., assignor.)						
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Alden Type Machine Company. (See Low, Abbot A., assignor.)	642,192	Jan. 30	3864	876	90	810
Aldrich, Timothy G., Denver, Colo. Thill-coupling	645,197	Mar. 13	1194	.....	90	2007
Alefeld, Georg, Darmstadt, assignor to Pharmazeutisches Institut Ludwig Wilhelm Gans, Frankfort-on-the Main, Germany. Producing metal foil or leaf						
Alefeld, Georg, Darmstadt, assignor to Pharmazeutisches Institut Ludwig Wilhelm Gans, Frankfort-on-the Main, Germany. Producing incandescent materials suitable for electric lighting	645,198	Mar. 13	1195	.....	90	2007
Alexander, Alfred H., and T. A. Reynolds, West Hoboken, N. J.; said Reynolds assignor to said Alexander. Hinged dashboard	645,052	Mar. 13	909	196	90	1953
Alexander, Alfred H., and T. A. Reynolds, West Hoboken, N. J.; said Reynolds assignor to said Alexander. Hinged dashboard	645,053	Mar. 13	910	196	90	1953
Alexander, Charles H., *et al.* (See Cline, William M., assignor.)	644,564	Mar. 6	8	2	90	1756
Alexander, James C., Fort Mitchell, Ala. Portable fence						
Alexander, James S. (See Alexander, William J., assignor.)						
Alexander, John N., *et al.* (See Cline, William M., assignor.)						
Alexander, William J., assignor of one-fourth to J. S. Alexander, Pittsburg, Pa. Washing-machine	645,046	Mar. 6	892	198	90	1984
Alioth, Henry A. (See Fritz, Wilhelm F., assignor.)	643,616	Feb. 20	1885	445	90	1371
Allan, James, and F. Moore, London, England. Back-pedaling brake	640,167	Jan. 2	1	1	90	3
Allard, Louis, Ogden, Utah. Washing-machine						
Allen, Andrew J. (See Morrison and Allen.)	641,426	Jan. 16	2440	556	90	509
Allen, Arthur M., New York, N. Y. Tricycle	641,427	Jan. 16	2441	556	90	509
Allen, Arthur M., New York, N. Y. Wheel and axle	640,619	Jan. 2	866	198	90	168
Allen, Benjamin F. (See Libby, Alfred A., assignor.)						
Allen, Bona, Jr., Buford, Ga. Bridle-bit						
Allen, Charles C. (See Kelling and Allen.)						
Allen, Charles H., assignor to Charles H. Allen & Company, Attleborough, Mass. Cuff-button	645,807	Mar. 13	1359	308	90	2044
	643,806	Feb. 20	2261	532	90	1441
				533		
Allen, Clarence H., Tadmor, Ohio. Pump attachment for bicycles	645,538	Mar. 20	1801	396	90	2141
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine hemmer	645,539	Mar. 20	1802	396	90	2141
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Guiding and pile-controlling device for carpet-sewing machines	644,841	Mar. 6	531	115	90	1660
Allen, Frank, assignor to Allen Ice Machine Company, New York, N. Y. Manufacturing temperature-equalizing coils	646,900	Mar. 27	3074	678	90	2408
Allen, Frederick E., assignor of one-half to F. E. H. Gary, Boston, Mass. Bookcase, &c	646,901	Mar. 27	3076	678	90	2408
Allen, Frederick E., assignor of one-half to F. E. H. Gary, Boston, Mass. Track-sanding device	643,411	Jan. 30	4287	998	90	998
Allen, George F., assignor to Hoyt Metal Company, St. Louis, Mo. Piston-rod packing	645,447	Mar. 13	1641	359	90	2096
Allen Ice Machine Company. (See Allen, Frank, assignor.)	644,758	Mar. 6	344	76	90	1688
Allen, James W., St. Louis, Mo. Paring and slicing knife						
Allen, John F., New York, N. Y. Portable engine for tools	646,340	Mar. 27	3340	745	90	9459
Allen, John V., assignor of one-half to E. H. Stetson & Co, Weymouth, Mass. Machine for applying stiffening-pins to inner soles	644,885	Mar. 6	613	746	90	1877
Allen, Joseph, Chipco, Fla. Machine for cutting grass, &c., from river-bottoms	640,353	Jan. 2	367	132	90	1883
Allen, Livy H., Valley Falls, Kans. Rotary engine	644,754	Mar. 6	347	78	90	73
Allen, Matthew V., Niagara Falls, N. Y. Stapling-machine	641,681	Jan. 16	2895	76,77	90	1883
Allen, Nicholas I., Everett, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom-temple	642,881	Feb. 6	456	643	90	585
Allen, Samuel F., Chicago, Ill. Animal-shears				109	90	1054
Allen, Wilbur G. (See Parsons, Clarance O., assignor.)						
Alley, Frederick L. (See Beckman, Frank E., assignor.)	641,498	Jan. 16	2442	559	90	510
Allis, Thomas V., New York, N. Y. Method of and apparatus for hot-rolling metal to thin gages	640,168	Jan. 2	3	560	90	3
Allison, Alphonso R., and C. E. Buek, assignors to Universal Stripping Machine Company, Richmond, Va. Tobacco-leaf-stemming machine	640,351	Jan. 2	186	1,2	90	39
Allison, Alphonso R., and C. E. Buek, assignors to Universal Stripping Machine Company, Richmond, Va. Tobacco-stemming machine	643,444	Feb. 13	1564	39,40	90	39
Allison, Joseph S., Portland, Oreg. Paddle-wheel				308	90	1291

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Allmuth, Alois, New York, N. Y. Piano-touch instructor	643,028	Feb. 6	805	187	90	1122
Alma, Gotleb von, assignor of one-half to G. and J. E. Hughes, Kilworthy, Canada. Fruit-picker	642,541	Jan. 30	4498	1018	90	935
Almquist, Theodore, Cokato, Minn. Rain-water filter and settling-tank	644,047	Feb. 27	2718	643	90	1545
Almuly, Lazarus, Utica, N. Y. Safety-pocket	645,892	Mar. 20	2441	537	90	2268
Alsop, Charles R., assignor of one-half to G. A. Coles, Middletown, Conn. Igniter for gas-engines	640,252	Jan. 2	192	40	90	39
Altmann, Johann, Mannheim, Germany. Cord-holder	641,063	Jan. 9	1767	398	90	360
Alton, George H., Lynn, Mass., assignor to General Electric Company, of New York. Register-dial	645,054	Mar. 13	912	196	90	1953
Aluminum Plate and Press Company. (See Brooks and Huson, assignors.)						
Alvord, Clinton, Worcester, Mass., assignor, by mesne assignments, to Preston Hose and Tire Company, of Maine. Shedding mechanism for looms	645,636	Mar. 20	1995	438	90	2179
Alvord, Clinton, Worcester, Mass., assignor, by mesne assignments, to Preston Hose and Tire Company, of Maine. Loom	645,637	Mar. 20	1995	439	90	2179
Ambrose, Robert L., North Tarrytown, assignor to Rand Drill Company, New York, N. Y. Engine for rock-drills	643,077	Feb. 6	804	211	90	1139
Amelung & Co., H. (See Ulich, Alexander, assignor.)						
American Automatic Loom Company. (See Kuett, George F., assignor.)						
American Automatic Loom Company. (See Seaton, Daniel M., assignor.)						
American Bell Telephone Company. (See McMeen, Samuel G., assignor.)						
American Bell Telephone Company. (See Thompson, George K., assignor.)						
American Bell Telephone Company. (See Thompson and Robes, assignors.)						
American Bell Telephone Company. (See Wales, Thomas C., Jr., assignor.)						
American Bicycle Company. (See Copeland, James S., assignor.)						
American Bicycle Company. (See Garford, Arthur L., assignor.)						
American Carbide Lamp Company. (See Parkhurst, Emmons M., assignor.)						
American Electrolytic Company. (See Richards and Roepper, assignors.)						
American Knitting Machine Company. (See Burleigh, Joseph A., assignor.)						
American Lithographic Company. (See Smith, Eugene C. and V. E., assignors.)						
American Metal Edge Box Company. (See Saltzkorn and Nicolai, assignors.)						
American Mutoscope and Biograph Company. (See Mason, Joseph, assignor.)						
American Novelty Company. (See Nitschelm, Laura, assignor.)						
American Oak Leather Company. (See Monk, Frank, assignor.)						
American Pin Company. (See Carmody, Timothy J., assignor.)						
American Pulley Company. (See Budd, Edward G., assignor.)						
American Roll Paper Company. (See Hill, John E., assignor.)						
American Steel and Wire Company. (See Sprague, Arthur W., assignor.)						
American Steel Body Double Bolster Company. (See Schaffer, Morse B., assignor.)						
American Thread Company. (See Baker, Dickerson G., assignor.)						
American Timber Brokers. (See Runyan and Pond, assignors.)						
American Type Founders' Company. (See Benton, Linn B., assignor.)						
American Vitrified Conduit Company. (See Cummings, James F., assignor.)						
American Washboard Company. (See Sargent and Joecken, assignors.)						
American Wire Fence Company. (See Canfield, Frank, assignor.)						
American Wireless Telephone and Telegraph Company. (See Collins, Archie F., assignor.)						
Ames, David J., assignor to Owatonna Manufacturing Company, Owatonna, Minn. Detachable grain-drill shoe	643,445	Feb. 13	1566	308	90	1291
Ames, David J., and H. N. Labare, assignors to Owatonna Manufacturing Company, Owatonna, Minn. Grain-drill	643,446	Feb. 13	1567	309	90	1292
Ames, David J., and H. N. Labare, assignors to Owatonna Manufacturing Company, Owatonna, Minn. Grain-drill gear	643,447	Feb. 13	1568	309	90	1292
Ameabury Pneumatic Gear Company. (See Marston, Dudley J., assignor.)						
Ames, Agnesa, Frazee, Minn. Permutation-padlock	643,448	Feb. 13	1570	309	90	1292
Amidon, Charles H., Buffalo, N. Y. Air-pump for pneumatic tires	641,253	Jan. 16	2149	484	90	451
Amundson, Otto E., *et al.* (See Preston, Charles F., assignor.)						
Ancelle, Jean L., Peru, Ind. Spring-wheel for vehicles	645,699	Mar. 20	2108	463	90	2202
Ancelle, Jean L., Peru, Ind. Spring-wheel for vehicles	645,700	Mar. 20	2111	463	90	2203
Ancelle, Jean L., Peru, Ind. Spring-wheel for vehicles	645,701	Mar. 20	2113	463	90	2203
Ancker, Mitchel. (See Weston and Ancker.)						
Ancora, Olaf J. M., Milwaukee, Wis. Tire for wheels	640,851	Jan. 9	1338	301	90	281
Andersen, Carl M. F., Copenhagen, Denmark. Spring-lock	640,984	Jan. 9	1623	358	90	334
Anderson, Albert J. (See Guy and Anderson.)						
Anderson, Andrew. (See Sawyer, Charles H., assignor.)						
Anderson, Anton, Menomonie, Wis. Harrow	645,779	Mar. 20	2280	496	90	2295
Anderson, Charles D., Providence, R. I. Safety gas-cock	643,617	Feb. 20	1887	445	90	1371
	645,616	Mar. 20	1962	481	90	2172
				482		
Anderson, Charles J., Pittsburg, Pa. Brick-machine						
Anderson, Charles L. (See Peck and Anderson.)						
Anderson, D. Wiley. (See Betty, Thomas H., assignor.)	644,489	Feb. 27	3525	819	90	1708
Anderson, David W., Richmond, Va. Spring-actuated fish-hook	643,029	Feb. 6	807	187	90	1123
Anderson, David W., Richmond, assignor of one-half to T. H. Betty, Manchester, Va. Collapsible poultry-coop				188		
Anderson, David W., assignor of one-half to J. T. Wright, Richmond, Va. Fish-hook or animal-trap	644,960	Mar. 6	733	159	90	1902
Anderson, Edward. (See Calvert and Anderson.)						
Anderson, Frederick F., New York, N. Y., assignor of fifty-one one-hundredths to E. Bloch, Chicago, Ill. Motor	643,078	Feb. 6	807	212	90	1139
Anderson, Frederick F., assignor of seven-sixteenths to V. Seeser and E. J. Mellen, Kansas City, Mo. Type-writing machine	640,954	Jan. 2	195	41,42	90	40
Anderson, Henry S., Springfield, Mass. Apparatus for producing caustic soda	645,055	Mar. 13	914	196	90	1954
Anderson, James C., Highland Park, Ill. Tire for bicycles	642,773	Feb. 6	361	87	90	1087
Anderson, James C., Highland Park, Ill. Pneumatic tire	642,774	Feb. 6	362	88	90	1087
Anderson, James C., Highland Park, Ill. Making pneumatic tires	642,775	Feb. 6	363	88	90	1087
Anderson, James C., Highland Park, Ill. Tire	642,776	Feb. 6	365	88	90	1087
Anderson, James C., Highland Park, Ill. Wheel for autotrucks	642,777	Feb. 6	367	88	90	1087
Anderson, James C., Jersey City, N. J. Winding helices for electrical purposes	644,311	Feb. 27	3224	753	90	1643
Anderson, James C., Jersey City, N. J. Electrical helix	644,312	Feb. 27	3225	753	90	1644
Anderson, John, assignor of one-half to S. Barnes, St. Louis, Mo. Pleasure-railway	643,996	Feb. 20	2026	620	90	1514
Anderson, John E., Alabaster, Mich. Land-cultivator	641,619	Jan. 16	2799	636	90	580
Anderson, Lee, assignor of one-third to R. P. Mayo, Paris, Tex. Elevated railway	642,832	Feb. 6	458	109	90	1055
Anderson, Louis, Chicago, Ill. Hat-fastener	640,253	Jan. 2	194	110	90	40
Anderson, Margaret R. M., Springfield, Scotland. Hat	640,436	Jan. 2	547	41	90	107
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Anderson, Mary M. (See Ridout, Franklin A., assignor.)						
Anderson, Oscar, Newark, N. J., assignor to National Dairy Machine Company, of New Jersey. Centrifugal creamer	643,218	Feb. 13	1160	272	90	1213
Anderson, Philander, New York, N. Y. Motor for clipping-machines	640,620	Jan. 2	897	194	90	168
Anderson, Philander, New York, N. Y. Sheep-shearing stock	644,313	Feb. 27	2237	753	90	1644
Anderson, Philander, New York, N. Y. Sheep-shearing machine	643,449	Feb. 13	1574	370	90	1293
Anderson, Severin B., assignor of one-third to G. Johnson, Hartford, Wash. Rail-anchor	642,060	Jan. 30	3598	823	90	755
Anderson, William H., New Rochelle, N. Y. Chair-back desk or stand	641,064	Jan. 9	1768	398	90	360
Anderson, William S., Jasper, Tenn. Combined ash-box and shovel	642,412	Jan. 30	4298	965	90	897
Anderson, William S., Jasper, Tenn. Combined ash-box and dust-pan	641,354	Jan. 16	2151	484	90	451
Anderson, William T., Harmony, S. C. Rail-joint	644,048	Feb. 27	2719	644	90	1545
Andre, Charles E., Burlington, Iowa. Step-ladder	641,918	Jan. 23	3343	760	90	698
Andre, Lewis C., Mars, Pa. Fireplace	646,358	Mar. 27	3180	.....	90	2429
Andreé, Frank, Chicago, Ill. Centrifugal shredding and pulverizing machine	641,919	Jan. 23	3345	.....	90	698
Andresen, Momme, and E. Leupold, assignors to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Intensifying photographs	644,727	Mar. 6	301	66	90	1813
Andrew, John N., Grand River, Iowa. Wire-stretcher						
Andrewes, George L. (See Kipling and Arnold, assignors.)						
Andriessen, Wilhelm G., Crefeld, Germany. Apparatus for scouring or equalizing warp or weft threads	643,390	Feb. 13	1468	344	90	1271
Andros, Randall B. (See Blake and Andros.)						
Andrus, Roderick K., *et al.* (See Haven, John V. D., assignor.)	644,886	Mar. 6	614	132	90	1877
Anfinson, Martin, Vermilion, S. D. Sickle-bar adjuster						
Angell, Edwin E., Somerville, Mass., assignor to Angell Elevator Lock Company, Saco, Me. Folding-hatch attachment	641,357	Jan. 16	2230	530	90	485
Angell Elevator Lock Company. (See Angell, Edwin E., assignor.)						
Angell, L. Gertrude, *et al.* (See Hahn, Edward, assignor.)	640,852	Jan. 9	1343	301	90	282
Angress, Wilhelm, Rosenberg, Germany. Igniting device for cycle-lamps						
Anheuser, Eberhard. (See Fuellmann, Edward W., assignor.)						
Aniello, John A., assignor of one-half to J. A. Muir and J. Fromherz, New Orleans, La. Cane-planting machine	643,080	Feb. 6	809	188	90	1123
Annand, Robert C., South Shields, England. Web-printing, associating, and folding machine	646,341	Mar. 27	3343	{746 {747 {748	90	2460
Ansonia Brass and Copper Company. (See Cowles, William A., assignor.)						
Anstice, Josiah. (See Smith, Edward F., assignor.)	640,255	Jan. 2	208	42	90	42
Anton, Herrmann O., assignor to M. P. Black, St. Louis, Mo. Can-opener						
Arakelian, George H., executor. (See Armen, Arakelian H.)						
Arb, William J. (See Beck, Roden L., assignor.)	641,487	Jan. 16	2566	586	90	533
Arbecam, Harry P., assignor to Arbecam Indicator Company, Boston, Mass. Indicator for ships' compasses						
Arbecam Indicator Company. (See Arbecam, Harry P., assignor.)						
Arduser, Christian, *et al.* (See O'Neill, Frank, assignor.)	643,282	Feb. 13	1280	{301 {308	90	1236
Arend, Georg, Berlin, Germany. Car-coupling	645,980	Mar. 27	2537	562	90	2308
Arens, August, assignor to P. & F. Corbin, New Britain, Conn. Bell						
Arfsten, Arfst J. (See Sims and Arfsten.)						
Argo, John T., assignor of two-thirds to J. Wiglesworth and F. McCarty, Poindexter, Ky. Dumping-car	644,490	Feb. 27	3526	819	90	1708
Arkell, James, assignor to M. F. Burnap, Canajoharie, N. Y. Lining for barrels	642,061	Jan. 30	3594	824	90	755
Arlaud, Louis A., Leavenworth, Kans. Land-marker	645,708	Mar. 20	2117	463	90	2304
Armen, Arakelian H., deceased, Troy, N. Y.; G. H. Arakelian, executor. Buttonhole-sewing machine	645,742	Mar. 20	2208	479	90	2221
Armleder, Otto, *et al.* (See Gray, Emmet P., assignor.)						
Armour & Co. (See Kirby and Norling, assignors.)						
Armour & Co. (See McAssey and Richmond, assignors.)						
Armstrong, Alexander, and A. F. Patterson, assignors to H. Moore, Moundsville, W. Va. Door-lock	642,413	Jan. 30	4290	968	90	897
Armstrong, Charles G., and W. D. Neel, Chicago, Ill. Means for generating ozone	642,663	Feb. 6	174	44	90	999
Armstrong, W. W. (See Adams, Gideon S., assignor.)						
Arn, John, Columbus, Ohio. Spring-tire	643,081	Feb. 6	810	189	90	1123
Arnesen, Fredrik H., Chicago, Ill. Fire-escape	640,437	Jan. 2	548	115	90	108
Arney, Frank J. (See Hule and Arney.)	646,396	Mar. 27	3484	775	90	2492
Arnold, Andrew O., Galesburg, Ill. Car-coupling						
Arnold, Edward. (See Kipling and Arnold.)	644,565	Mar. 6	8	3	90	1756
Arnold, Engelbert, Carlsruhe, Germany. Transformer	640,853	Jan. 9	1344	301	90	283
Arnold, George E. T., Lancaster, Ky. Surgical sewing instrument	641,632	Jan. 16	2227	643	90	585
Arnold, Horatio C., Las Animas, Colo. Wire-splicing tool						
Arnold, Thomas. (See Tirrell, James, Jr., assignor.)	643,859	Feb. 20	2371	558	90	1462
Arnold, William B., Abington, Mass. Divided last	645,905	Mar. 20	2489	550	90	2277
Arnold, William B., Abington, Mass. Divided last	641,572	Jan. 16	2224	621	90	565
Arnold, William B., Abington, Mass. Combined shoe ventilator and cushion	643,567	Feb. 6	1	1	90	965
Arnsfield, Samuel, and J. Koller, Johnstown, N. Y. Display-post	644,755	Mar. 6	356	77	90	1825
Arsneau, Hattie, Minneapolis, Minn. Hitching-post	645,056	Mar. 13	916	.....	90	1954
Arthur, James, New York, N. Y. Bevel-gear	643,098	Feb. 13	954	223	90	1171
Arthur, Richard B., Ballarat, Victoria. Treating leather	642,568	Feb. 6	2	1	90	965
Arthur, William M., Leadville, Colo. Ratchet-wrench						
Artós, Frederick, assignor to C. Schultz, Milwaukee, Wis. Clamping device						
Asbery, Isaac. (See Nagley and Asbery.)						
Ashdown, G. V. (See Twist, William H., assignor.)						
Ashley, Dwight, assignor to Sipp Electric and Machine Company, Paterson, N. J. Quilling-machine	642,543	Jan. 30	4495	1019	90	926
Ashley, Harmon J., Machias, N. Y. Spring-draft device for vehicles	646,208	Mar. 27	3077	679	90	2409
Ashley, Jay W. (See Stanley, John W., assignor.)	646,342	Mar. 27	3347	748	90	2461
Ashton, Joseph, London, England. Match-box						
Ashton, R. S., *et al.* (See Wilson, James N., assignor.)						
Ashworth, Thomas, Urmston, assignor to J. S. Gaunt, Manchester, England. Yarn-controller	645,981	Mar. 27	2538	562	90	2303
Askew, David A., Coleraine, N. C. Automatic stock-feeder	641,920	Jan. 23	3346	760	90	698
Aslakson, Baxter M., Chicago, Ill. Internal-combustion engine	644,566	Mar. 6	9	3	90	1757
Assenmacher, George, New York, N. Y. Locking-quoin for printers' galleys	642,890	Feb. 6	572	131	90	1078
Aster, Joseph, New York, N. Y. Foot-operated revolver	641,620	Jan. 16	2201	486	90	580
Aston, Gordon, Grimsby, England. Bicycle-support	642,062	Jan. 30	3595	824	90	756
Atkin, James T., Olean, Mo. Fodder-binder	643,391	Feb. 13	1469	344	90	1271
Atkins, James, New York, N. Y. Nail-making machine	641,255	Jan. 16	2152	484	90	451
Atkins, Robert C. (See Broski, Henry W., assignor.)						
Atkinson, Edward M. (See Gabriel and Atkinson.)						
Atkinson, John D., Seattle, Wash. Hand-power for bicycles	646,161	Mar. 27	2998	660	90	2392

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Atlantic Brass Company. (See Harrison, James W., assignor.)						
Atlas Engine Works. (See Moore, Matthew R., assignor.)						
Atlas Portland Cement Company. (See Hurry and Seaman, assignors.)						
Attaway, Elisha, Bunkie, La. Bedstead brace and tightener	640,256	Jan. 2	209	42	90	42
Aue, John. (See Woodmanse and Aue.)						
Aufsesser, Ferdinand M., *et al.* (See Marcoux, Joseph, assignor.)						
August Kern Barber Supply Company. (See Lowry, John B., assignor.)						
Auld, William F., Baltimore, Md. Guide for sewing-machines	643,980	Feb. 20	2511	590	90	1491
Aungst, William S., Alliance, Ohio. Nozzle	642,833	Feb. 6	460	110	90	1055
Aurand, Thomas J. (See Troup, Charles, assignor.)						
Aurora Automatic Machinery Company. (See Levedahl, Axel, assignor.)						
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, Frederick C. (See Rhodes, Bert O., assignor.)						
Austin, Frederick C. (See Rhodes, Jay B., assignor.)						
Austin, Herbert, Birmingham, England. Automatic turning-machine for shaping or shaping and cutting off lengths of metal	641,621	Jan. 16	2402	637	90	581
Automatic Bottle Stopper Feed Company. (See Gates and Woodland, assignors.)						
Automatic Photograph Machine Company. (See Raders, Joseph F., assignor.)						
Automatic Smoke Preventer Company. (See Ormerod, Jacob, assignor.)	642,063	Jan. 30	3596	824	90	756
Averill, Frank E., Buffalo, N. Y. Formaldehyde-lamp						
Avery-Marr Company. (See Marr, Matthew A., assignor.)						
Avery, Omer H., *et al.* (See Tillottson, Henry C., assignor.)	646,348	Mar. 27	3348	748	90	2461
Avery, Russell, Sausalito, Cal. Rock-drill	645,657	Mar. 20	2087	448	90	2187
Avila, Enrique, Toluca, Mexico. Watch-regulator	643,099	Feb. 13	955	{223 {224	90	1171
Ayasse, John H., Newark, N. J. Pressure-regulating device	644,269	Feb. 27	3119	783	90	1695
Ayer, George A., Beachmont, Mass. Rotary engine						
Ayers, William H., West Hoboken, and E. Groth, Union Hill, N. J. Hanger for electric ceiling-fans	645,057	Mar. 13	917	197	90	1954
Ayling, John. (See Koch, Robert J., assignor.)	640,985	Jan. 9	1625	359	90	334
Aylmer, Henry, Richmond, Canada. Life-preserver						
Ayres, Reuben B. (See Woodcock, William J., assignor.)						
Azusa Manufacturing Company. (See Maxon, James, assignor.)						
B. F. Reynolds & Company. (See Reynolds, Benjamin F., assignor.)						
Baasen, Elisabeth, *et al.* (See Hachmann, Frederick, assignor.)						
Baasen, John M., *et al.* (See Hachmann, Frederick, assignor.)	643,618	Feb. 20	1888	{445 {446	90	1371
Babbitt, Edwin B., U. S. Army. Firing apparatus	642,834	Feb. 6	402	110	90	1055
Babbitt, Seth W., Meriden, Conn. Shaving-cup and brush-holder	643,032	Feb. 6	812	.....	90	1124
Babillion, John, Detroit, Mich. Condensing milk						
Bach, Robert, assignor of one-half to J. E. Broadie, H. and P. Petersen, and F. Larsen, Rockford, Ill. Handsaw	641,756	Jan. 23	3049	693	90	636
Bach, Wilhelm, Apolda, Germany. Knitting-machine	643,997	Feb. 20	2628	{620 {621 {622	90	1514
Bachman, David I. L. (See Lower, Warren W., assignor.)						
Bachmann, Josef F., and A. Vogt, assignors of twenty-one twenty-fifths to J. Kirchner, A. König, C. C. Weiner, and A. Jörg, Vienna, Austria-Hungary. Manufacture of electrical resistances	642,414	Jan. 30	4291	.....	90	897
Bachmeyer, August, London, England. By-pass cock for self-igniting gas-burners	641,573	Jan. 16	2726	621	90	565
Bachner, Wilhelm, Stuttgart, Germany. Apparatus for cooling and dispensing beer or other liquids	646,162	Mar. 27	2995	{660 {661	90	2393
Bachner, Wilhelm, Stuttgart, Germany. Garbage-receptacle	646,163	Mar. 27	2997	661	90	2393
Bachrich, Ludwig, Vienna, Austria-Hungary. Apparatus for sterilizing liquids	642,948	Feb. 6	672	153	90	1096
Backus, Charles F., Detroit, Mich. Ledger	642,280	Jan. 30	4018	915	90	843
Bacon, Charles A., *et al.* (See Cheney, Charles W., assignor.)	643,033	Feb. 6	812	189	90	1124
Bacon, Gilbert, Antigo, Wis. Ironing-board						
Baddock, John W., and D. W. Cleary, Haverhill, Mass. Automatic locking device for can-covers	641,256	Jan. 16	2154	485	90	452
Bader, William, assignor to W. C. Vajen, Indianapolis, Ind. Fireman's mask	645,286	Mar. 13	1345	292	90	2037
Badische Anilin and Soda Fabrik. (See Abel, Julius, assignor.)						
Badische Anilin and Soda Fabrik. (See Bally, Oscar, assignor.)						
Badische Anilin and Soda Fabrik. (See Bernthsen, Heinrich A., assignor.)						
Badische Anilin and Soda Fabrik. (See Bernthsen and Julius, assignors.)						
Badische Anilin and Soda Fabrik. (See Holt, Arthur H. S., assignor.)						
Badische Anilin and Soda Fabrik. (See Julius, Paul, assignor.)						
Badische Anilin and Soda Fabrik. (See Julius and Reess, assignors.)						
Badische Anilin and Soda Fabrik. (See Knietsch and Holt, assignors.)						
Badische Anilin and Soda Fabrik. (See Sapper, Eugen, assignor.)						
Badische Anilin and Soda Fabrik. (See Schraube, Conrad, assignor.)						
Badische Anilin and Soda Fabrik. (See Schraube and Schleicher, assignors.)						
Badische Anilin and Soda Fabrik. Primary battery	645,992	Mar. 27	2662	590	90	2398
Badt, Francis B., Chicago, Ill. Hoof-cutter	640,257	Jan. 2	210	43	90	43
Baer, Albert J., Shoenersville, Pa. Means for securing plinths	642,778	Feb. 6	368	89	90	1036
Baer, Carl, Elfeld, Germany. Display-cabinet	640,854	Jan. 9	1345	301	90	283
Baer, William A., Oriskany, N. Y. Leveling attachment for step-ladders	644,567	Mar. 6	12	3	90	1757
Baetz, Max A., Asbury Park, N. J. Telescopic tube-clamp	642,193	Jan. 30	3955	876	90	810
Baeumle, John, Milwaukee, Wis. Mining-machine	640,621	Jan. 2	870	194	90	169
Bailey, Archible, Phillipsburg, Pa. Mining-machine	640,622	Jan. 2	874	{195 {196	90	170
Bailey, Archible, Phillipsburg, Pa. Mining-machine	640,855	Jan. 9	1346	302	90	283
Bailey, Charles A., Cromwell, Conn. Cartridge	640,856	Jan. 9	1348	302	90	283
Bailey, Charles A., Cromwell, Conn. Cartridge	643,344	Feb. 13	1382	324	90	1256
Bailey, Israel S., Southington, Conn. Draw-knife	642,891	Feb. 6	573	{131 {132	90	1078
Bailey, James P., Pittsburg, Pa. Crucible-carrier	640,590	Jan. 2	688	{147 {148 {149	90	135
Bailey, John, Dewsbury, England. Raising-gig for woolen fabrics						
Bailey, L. C., *et al.* (See Farrow, Willard M., assignor.)						
Bailey, Leon O. (See Harris, Bradner L., assignor.)	640,354	Jan. 2	368	78	90	78
Bailey, Leonard C., Chicago, Ill. Ladder and table	640,521	Jan. 2	691	149	90	136
Bailey, Luther B., Adrian, Mich. Acetylene-gas apparatus	644,756	Mar. 6	358	78	90	1825
Bailey, Ralph W., West Newbury, Mass. Multiple scale	642,064	Jan. 30	3597	824	90	756
Bailey, Samuel V., Reisterstown, Md. Tree-protector	646,117	Mar. 27	2901	648	90	2375
Bailey, William, Newbury, England. Saddle for bicycles	645,888	Mar. 20	2441	{538 {539	90	2208
Bailey, William O., London, England. Apparatus for beveling glass						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Baillie, James L., and P. B. Verity, Shawnee, Ohio. Combustion-engine	642,949	Feb. 6	674	154	90	1096
Bain, Forée, Chicago, assignor to George L. Thompson Manufacturing Company, Cook County, Ill. Electric heater	640,258	Jan. 2	211	43	90	43
Baines, William, London, England. Transmission-gear for self-propelled vehicles	640,522	Jan. 2	698	149 150	90	136
Baines, William, London, England. Hydrocarbon-vaporizer for explosive-engines	644,027	Feb. 20	2696	686	90	1594
Baker, Albert M., Lexington, Ky. Tellurian	642,885	Feb. 6	463	111	90	1056
Baker, Alfred L., Mansfield, W. Va. Can-opener	640,732	Jan. 9	1098	252	90	233
Baker, Charles A. (See Smith, Eldridge J., assignor.)						
Baker, David, Chicago, Ill. Wheel	644,049	Feb. 27	2721	644	90	1546
Baker, Delos M., *et al.* (See Hoxie, George L., assignor.)						
Baker, Dickerson G., assignor to Willimantic Linen Company, Willimantic, Conn. Thread-winder	642,281	Jan. 30	4019	915	90	842
Baker, Dickerson G., Willimantic, Conn., assignor, by mesne assignments, to American Thread Company, Jersey City, N. J., and New York, N. Y. Thread-winder	645,540	Mar. 20	1808	396	90	2141
Baker, Erle K., Paris, Tex. Chainless bicycle						
Baker, H. L., *et al.* (See Miracle, Meridith W., assignor.)	641,498	Jan. 16	2599	587	90	584
Baker, Horace E., Malden, Mass. Pulley	643,450	Feb. 13	1576	370	90	1294
Baker, Houston S., Hollandale, Miss. Back-pedaling brake	645,027	Mar. 6	861	187	90	1928
Baker, James M., Providence, R. I. Play-pipe for firemen's hose						
Baker, Meta C. (See Woodworth, James E., assignor.)	641,178	Jan. 9	1096	444 445 446	90	407
Baker, Walter C., Cleveland, Ohio. Grinding-machine	640,733	Jan. 9	1100	252	90	233
Baker, Willard D., Rogers, Ark. Evaporator						
Baker, William. (See Wilkins, Wells, and Baker.)						
Baker, William M., Fortville, assignor of one-half to C. M. Rich and J. G. Thomas, Muncie, Ind. Harrow	640,523	Jan. 2	694	150	90	136
Baker, William M., Fortville, assignor of one-half to C. M. Rich and J. G. Thomas, Muncie, Ind. Harrow	644,394	Feb. 27	3378	788	90	1672
Baklund, Gilbert, Willmar, Minn. Can-carrier	642,569	Feb. 6	3	1	90	965
Balcom, Charles, Lynn, Mass. Laced boot or shoe	644,347	Feb. 27	3297	766	90	1657
Baldwin, Charles C., H. M. Ferrill, and F. A. Drown, Barton, Vt. Upholstering-machine	643,981	Feb. 20	2512	590 591	90	1491
Baldwin, Chauncey C., Elizabeth, N. J. Wire-drawing machine	643,584	Feb. 13	1818	429 430	90	1340
Baldwin, Frank A., Grand Rapids, Mich. Card-case for duplicate whist	642,664	Feb. 6	176	44	90	1000
Baldwin, Frank S., Newark, N. J. Calculating-machine	641,065	Jan. 9	1769	393 395	90	361
Baldwin, Luther C., Manchester, N. H. Apparatus for cementing dents in reed-ribs	642,950	Feb. 6	676	154	90	1096
Baldwin, Samuel R., *et al.* (See Stephenson, Robert S., assignor.)						
Baldwin, Samuel S., *et al.* (See Stephenson, Robert S., assignor.)	646,344	Mar. 27	3351	748	90	2461
Baldwin, Stephen G., Marion, Ind. Ink-well	644,568	Mar. 6	13	4	90	1757
Baldwin, William J., New York, N. Y. Steam-trap	645,159	Mar. 13	1119	240	90	1908
Balf, Edward, Hartford, Conn. Street-sprinkler						
Ball Brothers Glass Manufacturing Company. (See Ball, Edmund B., assignor.)	641,179	Jan. 9	2001	446 447	90	408
Ball, Charles A., Washington, D. C. Fitting for steam-heating systems	644,961	Mar. 6	735	150	90	1902
Ball, Charles A., Washington, D. C. Steam-heating system						
Ball, Edmund B., assignor to Ball Brothers Glass Manufacturing Company, Muncie, Ind. Glass blowing and pressing machine	644,895	Feb. 27	3375	788	90	672
Ball, Henry P., New York, N. Y., assignor to Ward Leonard Electric Company, Hoboken, N. J. Electrical controlling device	641,267	Jan. 16	2156	495	90	452
Ball, Warren J., Salem, Ohio. Riveting device	642,415	Jan. 30	4298	999	90	898
Ballantine, J. Herbert. (See Osburn, Harry G., assignor.)						
Ballinger, William. (See Sample, James B., assignor.)	640,259	Jan. 2	218	43	90	43
Ballou, George D., Syracuse, N. Y. Inhaler	640,986	Jan. 9	1696	.....	90	335
Bally, Oscar, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Green dye	643,451	Feb. 13	1577	.....	90	1294
Bally, Oscar, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Nitroamidoanthraquinone sulfo-acid						
Baltimore Ball Bearing Company of Baltimore City. (See Norwood, John E., assignor.)	642,665	Feb. 6	178	44	90	1000
Bancroft, Frank H., assignor of one-half to H. M. Rich, Gardner, Mass. Die for embossing-machines	643,100	Feb. 13	957	224	90	1172
Bancroft, James E., assignor to National Cement and Rubber Manufacturing Company, Toledo, Ohio. Water-heater	646,397	Mar. 27	3486	776 777	90	2492
Bancroft, John S., and W. H. Thorne, assignors to William Sellers & Company, Incorporated, Philadelphia, Pa. Grinding-machine	646,380	Mar. 27	3459	770	90	2488
Bane, James O., Waseca, Minn. Spring attachment for pump-rods	643,309	Feb. 13	1425	332	90	1264
Bangley, Joseph L., assignor of one-half to H. Smith, Norfolk, Va. Printing device for paper-roll holders	646,258	Mar. 27	3181	702	90	2459
Banister, Arthur W., Boston, Mass. Dust collector and separator	642,065	Jan. 30	3598	825	90	756
Bankers Electric Protective Company. (See Coleman, Clyde, assignor.)						
Bankmann, Richard, Washington, D. C. File-holder						
Barber, George T. (See Pilling and Barber.)	640,612	Jan. 2	852	190	90	166
Barber, Matthew W., Cedar Town, Ga. Penholder	645,028	Mar. 6	861	187	90	1928
Barber, William J., Honeoye Falls, N. Y. Insect or worm destroyer	645,160	Mar. 13	1121	240 241	90	1998
Barbour, Frank A., assignor of one-half to F. H. Snow, Brockton, Mass. Apparatus for applying sewage to filter-beds	642,282	Jan. 30	4091	915	90	842
Barclay, Malcolm, Carlton Hill, N. J. Hook	640,355	Jan. 2	371	78 79 80 81 82	90	74
Bardwell, Arthur F., Springfield, assignor to Bardwell Votometer Company, Boston, Mass. Automatic registering-machine						
Bardwell Votometer Company. (See Bardwell, Arthur F., assignor.)	640,169	Jan. 2	6	2	90	3
Bargar, Willis R., Carbondale, Pa. Nail-holding device	642,066	Jan. 30	3600	825	90	757
Bargelt, Robert L., Woodstock, Va. Nut-lock						
Bark, Andrew E., assignor of one-half to R. Nordtome, Kalispell, Mont. Stringed musical instrument	643,452	Feb. 13	1578	370	90	1294
Barker, Ernest C., Keene, N. H. Bicycle-support	642,283	Jan. 30	4022	916	90	843
Barker, James, Detroit, Mich. Leaf for loose-leaf ledgers	642,284	Jan. 30	4024	916	90	843
Barker, John F., Springfield, Mass., assignor to Gilbert & Barker Manufacturing Company, of Massachusetts. Gas-burner	646,264	Mar. 27	3182	703	90	2430

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Barker, John H., and J. A. Ewing, Cambridge, England. Electric meter	643,392	Feb. 13	1470	344 345	90	1271
Barker, Ruben F., assignor of one-half to M. Corry, Marinette, Wis. Steam set-works for sawmills	643,458	Feb. 13	1580	371	90	1295
Barkwell, William S., *et al.* (See Best, Edward, assignor.)	640,170	Jan. 2	7	2, 3	90	3
Barlow, Wilson B., Canton, N. Y. Web-drying machine						
Barnard, Gardner P. (See Kinney and Barnard.)						
Barnard, Ralph H., assignor to W. M. Farwell, Northborough, Mass. Die for manufacturing combs or hair-pins	642,666	Feb. 6	179	44, 45	90	1000
Barnes, Burr F., Jersey City, N. J. Change-tray	641,358	Jan. 16	2321	580	90	486
Barnes, Burr F., Jersey City, N. J. Roller-bearing	641,819	Jan. 23	3152	716	90	657
Barnes, Edward M., Cleveland, assignor to A. L. Garford, Elyria, Ohio. Electric-arc lamp	644,902	Mar. 6	788	159 160	90	1903
Barnes, Erastus H., New York, N. Y. Wooden shipping-box	644,887	Mar. 6	615	182	90	1877
Barnes, George A., New Haven, Conn. Box-machine	640,171	Jan. 2	13	3, 4, 5	90	5
Barnes, Junius. (See Porter and Barnes.)						
Barnes, Nathanael C. (See Hillenbrand, Charles W., assignor.)						
Barnes, Samuel. (See Anderson, John, assignor.)	641,820	Jan. 23	3153	716 717	90	657
Barnes, Wilfred, Lynn, Mass. Electrolyzing apparatus						
Barnes, William M. (See Wood and Barnes.)						
Barnet, Gates, *et al.* (See Marcoux, Joseph, assignor.)						
Barnet, Jonas M., *et al.* (See Marcoux, Joseph, assignor.)	645,845	Mar. 20	2388	524	90	2257
Barnett, Stephen D., Newark, N. J. Binder for documents						
Barnhart, Edmond F. (See Schirra, Julius, assignor.)						
Barr, Albert S. (See Klock and Rose, assignors.)						
Barrett, C. H. (See Bennett, William, assignor.)	642,194	Jan. 30	3857	876	90	810
Barrett, Charles A., Atlanta, Ga. Locomotive drinking-water cooler	641,360	Jan. 16	2326	531	90	486
Barricks, Louis H., San Francisco, Cal. Electric amalgamator	641,359	Jan. 16	2322	530 531	90	486
Barron, James, San Francisco, Cal. Ore-separator						
Barrows, Charles H., Ellendale, assignor of one-fourth to S. F. Gardiner, Milford, Del. Swinging chair	643,454	Feb. 13	1582	372	90	1295
Barrows, Walter A., Chicago, Ill. Acetylene-gas lamp	643,101	Feb. 13	958	224	90	1172
Barry, Frederick, Silverton, Colo. Bicycle-support	645,346	Mar. 13	1447	319	90	2057
Barry, Nicholas, Jr., Muscatine, Iowa. Button-machine	643,585	Feb. 13	1821	430	90	1341
Barry, Nicholas, Jr., Muscatine, Iowa. Button-making machine	643,586	Feb. 13	1823	430 431	90	1341
Barry, Nicholas, Jr., Muscatine, Iowa. Button-making machine	643,587	Feb. 13	1826	431 432	90	1342
Bartel, William P., assignor of three-fourths to Judson L. Thomson Manufacturing Company, Waltham, Mass. Machine for setting lacing-studs	640,857	Jan. 9	1350	302 303	90	284
Bartels, Henry, and L. Bernhard, New Braunfels, Tex. Cotton-chopper	643,084	Feb. 6	814	189	90	1124
Bartels, Johann H. J., Liverpool, England. Apparatus for making barrels, pipes, or cylinders	640,524	Jan. 2	695	150 151	90	137
Bartelstone, Maurice, Rochester, N. Y. Body-garment	641,489	Jan. 16	2570	587	90	534
Barth, Otto. (See Eastep, Deiters, and Barth.)						
Barth, William L., Battle Creek, Mich. Necktie-holder	645,541	Mar. 20	1806	397	90	2141
Barthol, Paul P. (See Whaley and Barthol.)						
Bartholomew, Cassius M., and W. F. Leonard, Columbus, Ohio; said Bartholomew assignor to said Leonard. Elevator	640,859	Jan. 9	1355	308	90	285
Bartholomew, George W. (See Bartholomew, Harry I. and G. W.)						
Bartholomew, Harry I. and G. W., assignors to Buckeye Portland Cement Company, Bellefontaine, Ohio. Appliance for manufacturing cement	641,066	Jan. 9	1779	395	90	363
Bartholomew, James S., Guerneville, Cal. Swimming apparatus	641,190	Jan. 9	2008	447	90	408
Bartholomew, John B., Peoria, Ill. Spring-trip for cultivators	640,858	Jan. 9	1352	308	90	284
Bartlett, Charles O. (See Greeley and Bartlett.)						
Bartlett, Marcus J., assignor to International Package Machine Company, Chicago, Ill. Machine for attaching lining-hoops	645,993	Mar. 27	2064	590 591	90	2328
Bartliff, Charles A., assignor to Star Bucket Pump Company, St. Louis, Mo. Pump-curb reservoir	643,619	Feb. 20	1890	446	90	1371
Barton, Elijah C., East Hampton, Conn. Clock-case	644,757	Mar. 6	359	78	90	1825
Barton, James B., Manchester, England. Cloth-piler	641,921	Jan. 23	3349	760 761	90	694
Bartusch, Oswald G., assignor to New York Stencil Works, New York, N. Y. Consecutive-numbering machine	646,047	Mar. 27	2774	615	90	2350
Bash, Michael H., and J. C. Martin, Conemaugh, Pa. Water-motor	642,067	Jan. 30	3601	825 826	90	757
Bashline & Company. (See Bashline, William B. M., assignor.)						
Bashline, William B. M., Meadville, assignor to Bashline & Company, Warren, Pa. Valve	645,223	Mar. 13	1240	269	90	3015
Baskin, Edwin T., Malta Bend, Mo. Feed for planters	641,429	Jan. 16	2446	560	90	511
Basle Chemical Works. (See Bischler, Augustus, assignor.)						
Basle Chemical Works. (See Brack, Johann J., assignor.)	640,618	Jan. 2	855	190	90	166
Bassett, Charles, Anderson, Ind. Watchmaker's tool	641,665	Jan. 23	2883	657	90	607
Bassett, Fred H., Waterbury, Conn. Frictional locking-hinge	642,034	Jan. 23	3543	811	90	732
Bassett, George P., Jr., Cincinnati, Ohio. Flask for pipe-molds	642,035	Jan. 23	3544	812	90	732
Bassett, George P., Jr., Cincinnati, Ohio. Mold for castings	643,998	Feb. 20	2632	622	90	1515
Batchelor, Prentiss J., St. Louis, Mo. Overshoe	644,122	Feb. 27	2843	672	90	1571
Bateman, Miles, and W. Zimmerman, Lone Tree, Iowa; said Bateman assignor to said Zimmerman. Potato-bug gatherer	643,102	Feb. 13	960	294 295 296	90	1173
Bates, Adelmer M., Chicago, Ill. Sacking and weighing machine	646,345	Mar. 27	3352	749	90	2461
Bates, Edmond F., Lloyd, Tex. Roller baling-press	644,314	Feb. 27	3229	754	90	1644
Bates, George V., Mamaroneck, N. Y. Buckle						
Bates, John C., assignor of three-fourths to N. S. Brown, Jr., A. G. Worrington, and G. C. Nottingham, Gilman, Colo. Car-replacer	644,888	Mar. 6	616	133	90	1877
Bates, John F., Setauket, N. Y. Fire-escape	642,779	Feb. 6	368	89	90	1088
Bates, Joseph W., assignor to C. E. Blake and A. Carlson, Minneapolis, Minn. Automatic coupling for air-pumps	641,181	Jan. 9	2004	447	90	408
Battalia, Leo H., assignor to M. A. Battalia, Hartford, Conn. Pianoforte-action	640,356	Jan. 2	384	82	90	77
Battalia, Martha A. (See Battalia, Leo H., assignor.)						
Batten, Edward, Kirkcaldy, Scotland. Machine for cutting tesseræ for floor-cloth	646,346	Mar. 27	3354	750	90	2462
Bauer, Anton, Boyd, Oreg. Lifting-jack	641,490	Jan. 16	2570	587	90	534
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Bolster for cars	641,821	Jan. 23	3159	717	90	658

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Bauer, Heinrich. (See Rissler and Bauer.)	641,066	Jan. 23	2884	657	90	607
Baughman, Daniel, Columbus Grove, Ohio. Corn-harvester	640,172	Jan. 2	20	5,6	90	6
Baum, Edward F., Harrisburg, Pa. Type-writing machine	644,396	Feb. 27	3377	784	90	1673
Baum, Georg, Rorschach, Switzerland. Hemstitch sewing-machine	640,860	Jan. 9	1357	304	90	286
Baum, William, Jr., Sullivan, Mo. Combination beer bottle and glass	644,270	Feb. 27	3120	734	90	1625
Baumann, Rudolf, Oerlikon, Switzerland. Crucible-furnace						
Baume, Marie J. D. A. de la. (See Chantérac and Baume.)	642,570	Feb. 6	4	1	90	965
Baumer, William J., and H. Emmel, Johnstown, Pa. Underground electric railway	641,922	Jan. 23	3353	762	90	694
Baumgardner, William L., Watsonville, Cal. Brace or bit-stock attachment	640,357	Jan. 2	388	82	90	77
Baumgarten, Albert, Freeport, Ill. Towel-holder						
Baur, Wilhelm. (See Oxnard and Baur.)	645,846	Mar. 20	2389	584 595	90	2257
Baxter, Berry A., Mansfield, Ohio. Metallic telescoping account-book holder						
Baxter, David. (See Baxter, James and D.)	640,987	Jan. 9	1627	359	90	335
Baxter, James and D., Chicago, Ill. Filling-machine	643,738	Feb. 20	2148	504 505	90	1419
Baxter, John T. and S. H., Jackson, Tenn. Ditching apparatus						
Baxter, Samuel H. (See Baxter, John T. and S. H.)						
Bay State Shoe Machinery Company. (See Bertrand, Joseph E., assignor.)	643,455	Feb. 13	1592	372	90	1295
Bayley, Charles H., Boston, Mass. Seam-pressing machine	645,381	Mar. 13	1519	333	90	2079
Bayley, Charles H., Boston, Mass. Sleeve-bearing	646,064	Mar. 27	2800	620 621	90	2355
Baylis, Robert N., Englewood, N. J. Fluid-pressure regulator						
Beach, Ernest W., *et al.* (See Lee, Harry, assignor.)	640,734	Jan. 9	1102	253	90	284
Beadell, George L., Chicago, Ill. Grain-cleaner						
Beal, John, *et al.* (See Brown, Frank C., assignor.)	643,398	Feb. 13	1471	345 346	90	1272
Beal, Thaddeus R., New York, N. Y. Gas-works valve						
Beale, Oscar J., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Mechanical movement	642,667	Feb 6	179	45	90	1000
Beall, Albert E., Eldora, Iowa. Bed-spring	641,361	Jan. 16	2327	531	90	487
Beals, Erl V., Boston, Mass. Printing-bar	645,658	Mar. 20	2099	448	90	2199
Beals, Samuel J. (See Keeney, William R., assignor.)						
Bean, Charles. (See Watson and Bean.)	644,271	Feb. 27	3121	734	90	1625
Bean, Fred S., Manchester, N. H. Adjustable automatic relief-valve	643,837	Feb. 20	2323	547 548	90	1453
Beanston, Peter, assignor to G. R. Fletcher, San Francisco, Cal. Crematory-carriage						
Beasecker, Sylvester B., assignor of one-half to F. E. Brown and J. Sehler, Grand Rapids, Mich. Leather-loop-pressing machine	643,316	Feb. 13	1333	314 315	90	1246
Becher, James A., assignor to Becher Machinery Company, Mishawaka, Ind. Screw-cutting machine	641,958	Jan. 16	2158	485	90	453
Becher Machinery Company. (See Becher, James A., assignor.)						
Bechman, Henry F., assignor to Duplex Printing Press Company, Battle Creek, Mich. Printing-press	642,571	Feb. 6	5	2	90	965
Bechman, Henry F., assignor to Duplex Printing Press Company, Battle Creek, Mich. Printing-press	643,999	Feb. 20	2038	622 623	90	1515
Bechtel, John A. (See Hannam and Bechtel.)	645,058	Mar. 13	918	197	90	1954
Bechtol, Joseph W., assignor to Sheffield Car Company, Three Rivers, Mich. Level	644,569	Mar. 6	14	4,5	90	1758
Beck, Charles, Philadelphia, Pa. Paper-box machine	644,570	Mar. 6	16	5	90	1758
Beck, Charles, Jr., Philadelphia, Pa. Machine for cutting holes in paper boxes						
Beck, Emerziah B., Sulphur Springs, Tex. Roller attachment for cotton or corn planters	642,068	Jan. 30	3002	826	90	757
Beck, Michael, and E. Ferrant, Minneapolis, Minn. Automatic magazine-gun	645,982	Mar. 27	2539	562 563	90	2303
Beck, Michael, and E. Ferrant, Minneapolis, Minn. Telephone	645,983	Mar. 27	2544	563	90	2304
Beck, Roden L., assignor to W. J. Arb, Melvern, Kans. Acetylene-generator	643,243	Feb. 13	1207	288	90	1221
Beck, Roden L., assignor of one-half to O. C. Williams, Jr., Melvern, Kans. Acetylene-gas generator	646,255	Mar. 27	3184	708	90	2430
Beck, Rudolph H., assignor of one-half to G. Koch, Philadelphia, Pa. Extensible and adjustable bracket	644,758	Mar. 6	360	78	90	1825
Beck, William J., Fitzroy, Victoria. Nail for unevenly-worn horseshoes	644,963	Mar. 6	742	160	90	1904
Becker, Frank J., Hamilton, Ohio, assignor to T. A. Neely, Muncie, Ind. Can-clamp	641,182	Jan. 9	2005	448	90	409
Becker, Frank J., Hamilton, Ohio, assignor to T. A. Neely, Muncie, Ind. Corn-popper	643,103	Feb. 13	964	226	90	1173
Becker, Frank L., assignor to Nimmons & Becker, Plymouth, Ohio. Eaves-trough hanger	642,668	Feb. 6	184	45	90	1002
Becker, Herman, Philadelphia, Pa. Hernial truss	645,059	Mar. 13	919	197	90	1955
Becker, Louis, *et al.* (See Blagg, Charles W., assignor.)	642,195	Jan. 30	3858	877	90	810
Becker, Peter, assignor to Peter Becker Company, New York, N. Y. Brush-machine						
Beckh, Robert, Zerbst, assignor to F. G. Pabst, Hamburg, Germany. Shoe or boot stretcher	644,491	Feb. 27	3528	820	90	1708
Beckley, Augustin T., Iroquois Farm, Costa Rica. Can-opener	645,060	Mar. 13	920	197	90	1955
Beckman, Frank E., assignor of one-half to F. L. Alley, Lynn, Mass. Channeling-machine	644,571	Mar. 6	18	5	90	1759
Beckmann, Hermann, Witten, Germany. Manufacture of lead peroxid and its application to electrical storage batteries	644,050	Feb. 27	2728	------	90	1546
Beckner, Matthew O., Troutsville, assignor to W. J. Johnson, Roanoke County, Va. Hillside double-shovel plow	640,260	Jan. 2	214	43	90	43
Bedell, Frederick, Ithaca, N. Y. System of electrical transmission	645,907	Mar. 20	2491	551	90	2277
Bedford, Ebenezer S., Detroit, assignor of one-half to J. Bell, Jr., Marine City, Mich. Cot, hammock, or stretcher	646,398	Mar. 27	3490	777	90	2493
Bedford, Lemuel S., Millview, Pa. Pneumatic conveyer for fodder or ensilage cutters	640,861	Jan. 9	1358	304	90	286
Beecher, Ebenezer B. (See Garland, Frank M., assignor.)	644,842	Mar. 6	532	115	90	1860
Beecher, Thomas, assignor of one-half to J. A. Hull, New Haven, Conn. Coach-step	644,889	Mar. 6	618	------	90	1878
Beeck, Ludwig, Crefeld, Germany. Making size-powder						
Beekman, Edward L. (See Fisk, Lyman, assignor.)	640,261	Jan. 2	216	44	90	44
Beeman, George C., Minneapolis, Minn. Grain-separator	645,287	Mar. 13	1847	292 293	90	2088
Beeman, Joseph S., London, England. Cigarette-moutbpiece-applying machine	641,667	Jan. 23	2866	658	90	607
Beeston, Herbert, Wolverhampton, England. Crank-hanger bearing	642,416	Jan. 30	4004	909	90	998
Beetem, John N., Mooredale, Pa. Bridge for musical instruments	641,668	Jan. 23	2867	658	90	608
Begas, Reinhold, Berlin, Germany. Endless-chain propeller						
Behles, Eugen. (See Ferri, Anibal, assignor.)	641,302	Jan. 16	2339	551	90	487
Behr, Hans C., San Francisco, Cal. Hoisting apparatus						
Behr, Wilhelm. (See Pirwitz and Behr.)						
Bélanger, Victor, Marshfield, assignor to Rotary Ring Spinning Company, Boston, Mass. Spinning or twisting machine	640,525	Jan. 2	697	151 152	90	187

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Belcher, Cassius E., Linden, assignor of one-half to J. H. Bower, Jersey Shore Pa. Fender for automobiles	643,870	Feb. 13	1427	333	90	1264
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Forming ornamental plates	642,196	Jan. 30	3859	877	90	811
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	642,572	Feb. 6	7	2,3	90	966
Belding, Clara A. (See Elliott, William O., assignor.)						
Belding, Warren S. (See Parsons, Luther T., assignor.)	643,394	Feb. 13	1475	346 347	90	1272
Belknap, Charles A., assignor of one-half to C. E. Parsons, New York, N. Y. Envelop or wrapper addressing machine	645,659	Mar. 20	2041	449	90	2188
Belknap, Harry H., assignor to C. S. Hirst, Philadelphia, Pa. Tree-protector						
Bell, Edward. (See Brown, Bell, and Shaw.)	643,620	Feb. 20	1891	446 447	90	1872
Bell, Ernest E., Newark, N. J., assignor to De Laval Separator Company, of New Jersey. Centrifugal cream-separator	645,660	Mar. 20	2042	449	90	2188
Bell, Frank M., New York, N. Y. Dredging	640,596	Jan. 2	700	152	90	138
Bell, Harry W., New York, N. Y. Construction of walls						
Bell, John, Jr. (See Bedford, Ebenezer S., assignor.)	644,272	Feb. 27	3124	734	90	1626
Bell, John H., Utica, N. Y. Clothes-line holder	640,785	Jan. 9	1104	------	90	284
Bell, Percy C., Metuchen, N. J. White-elastic compound						
Bell, Roscoe R., *et al.* (See Kent, William J., assignor.)	640,262	Jan. 2	220	45	90	44
Bell, Thomas A., Birmingham, Ala. Match-box	643,932	Feb. 20	2515	592	90	1492
Bellerson, Theodore, St. Louis, Mo. Hame-fastener	644,890	Mar. 6	619	133	90	1878
Bellows, Arthur B., Pittsburg, Pa. Steel car and door mechanism therefor	641,822	Jan. 23	3160	717 718	90	058
Belmer, Charles G., Chelsea, Mass. Edge-trimming machine						
Belt, Charles T. (See Hardeman and Belt.)	644,544	Feb. 27	3634	845 846	90	1722
Belt, William L., assignor of one-fourth to W. W. Kirby, Washington, D. C. Cotton-picking machine	642,373	Feb. 6	8	3	90	966
Belton, J. C., *et al.* (See Cline, Fred N., assignor.)						
Bemont, Delos C., Glastonbury, Conn. Horseshoe						
Benda, Gustav. (See Walcher-Uysdal and Gaertner, assignors.)	642,197	Jan. 30	3860	877 878	90	811
Bender, Conrad, assignor of one-half to B. M. Gates, Indianapolis, Ind. Heating apparatus	643,983	Feb. 20	2516	592	90	1492
Bender, Gustave, Texarkana, Tex. Log-cart	642,285	Jan. 30	4025	916	90	843
Bengston, Swan, St. Paul, Minn. Hydrostatic computing-scale	643,456	Feb. 13	1584	372	90	1295
Bennan, Patrick, Jackson, Mich. Music-holder	641,669	Jan. 23	2888	658	90	608
Benner, Arthur J., and W. A. Flock, Burlington, Iowa. Display-clasp for garments	640,173	Jan. 2	25	6	90	7
Benner, Lorenzo D., Peoria, assignor to L. G. Fisher, Chicago, Ill. Paper bag	643,934	Feb. 20	2517	592	90	1492
Benners, Edwin H., Elizabeth, N. J. Bearing for journals	645,780	Mar. 20	2292	496	90	2285
Bennett, David H., New York, N. Y. Hose-patch						
Bennett, Frederick, New York, N. Y., assignor to Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Car-seat	641,633	Jan. 16	2828	644	90	585
Bennett, Frederick, New York, N. Y., assignor to Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Car-seat	641,634	Jan. 16	2830	644	90	586
Bennett, Frederick M., New York, N. Y. Electrical measuring instrument	642,563	Jan. 30	4537	1027	90	944
Bennett, John F. (See Gillis, John J., assignor.)						
Bennett, John T., Cape Town, Cape Colony. Apparatus for removing saccharin or other impurities from all kinds of liquids	640,528	Jan. 2	703	153	90	138
Bennett, John W., Sturgis, Mich. Railway-crossing	640,527	Jan. 2	701	152	90	138
Bennett, Joseph A., Hartford, Conn., assignor to C. H. A. F. L. Ross, Balnagowan Castle, County of Ross, Scotland. Firearm	643,935	Feb. 20	2517	592	90	1492
Bennett, Martin B., Boyden, Iowa. Check-row attachment for corn-planters	646,256	Mar. 27	3188	708	90	2431
Bennett, Samuel S. (See Waterman and Bennett.)						
Bennett, Silas W., McDonald, Pa. Envelop-clip	642,417	Jan. 30	4295	969	90	698
Bennett, William, Brockport, Pa. Stump-puller	643,457	Feb. 13	1585	373	90	1296
Bennett, William, Corinth, assignor of one-half to C. H. Barrett, Sharon, Vt. Mail-bag closure	643,035	Feb. 6	815	189	90	1124
Benson, Albert H. (See Saberg, Benson, and Saberg.)						
Benson, George L., St. Michael's, Md. Refrigerator-car	642,418	Jan. 30	4296	969 970	90	898
Benson, Harrison T., Denver, Colo. Vanner	645,061	Mar. 13	922	198	90	1955
Bentivegna, Guiseppe, and R. Leroy; said Leroy assignor of one-half to J. E. Farrell, Hartford, Conn. Bottle and stopper therefor	642,951	Feb. 6	677	155	90	1097
Benton, Linn B., New York, N. Y., assignor to American Type Founders' Company, of New Jersey. Flexible pipe	644,039	Feb. 20	2702	640	90	1528
Berg, Carl J., and E. Nilson, Worcester, Mass. Bicycle-wheel	640,174	Jan. 2	26	7	90	7
Berg, Ernst J., Schenectady, N. Y., assignor to General Electric Company, of New York. Controller for alternating-current circuits	644,051	Feb. 27	2723	644	90	1546
Berg, Friedrich, Cleveland, Ohio. Mineral-oil still	645,743	Mar. 20	2211	479	90	2221
Berger, Hans R., Berlin, Germany. Acetylene-generator	642,286	Jan. 30	4027	916	90	843
Berger, Louis, Lausanne, Switzerland. Turner's chisel	646,257	Mar. 27	3190	704	90	2431
Berger, Richard A., assignor of one-half to W. S. Block, New York, N. Y. Package-wrapping machine	643,621	Feb. 20	1892	447 448 449 449	90	1372
Berger, Richard A., assignor of one-half to W. S. Block, New York, N. Y. Package-wrapping machine	643,622	Feb. 20	1912	450 451 452 452	90	1377
Berger, Richard A., assignor of one-half to W. S. Block, New York, N. Y. Package-wrapping machine	643,623	Feb. 20	1931	453 454	90	1379
Berggren, Emil T., assignor of one-half to F. G. Bradbury, St. Paul, Minn. Lamp-shade	643,895	Feb. 13	1477	347	90	1273
Bergman, Louis F., New York, N. Y. Support for curtains	645,542	Mar. 20	1807	397	90	2141
Bergmann, Carl, Meissen, Germany. Spindle for spinning, twisting, doubling, and winding machines	644,572	Mar. 6	20	6	90	1759
Berkstresser, John E., Sylacauga, Ala. Automatic switch for railway-crossings	644,759	Mar. 6	361	78	90	1926
Berliner Taxameter Gesellschaft, Francke & Co., Gesellschaft mit Beschrankter Haftung. (See Rosati and Petrini, assignors.)						
Bernard, William, New York, N. Y. Combined holder	642,780	Feb. 6	370	90	90	1088
Bernhard, Henry, Strasburg, Ill. Roller-mill feeder	640,363	Jan. 2	221	45	90	44
Bernhard, Louis. (See Bartels and Bernhard.)						
Bernier, François D. (See Mongredien and Bernier.)	642,287	Jan. 30	4028	917	90	844
Bernner, Hermann C., Providence, R. I. Hair-drying apparatus	644,964	Mar. 6	743	160	90	1904
Bernstein, Max, Washington, D. C. Safety-pocket for garments						
Bernthsen, Heinrich A., Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Bluish-red dye and making same	645,781	Mar. 20	2283	------	90	2285

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Bernthsen, Heinrich A., Mannheim, and P. Julius, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	644,940	Feb. 27	3064	.....	90	1613
Berrigan, John J., assignor to Aktiebolaget Separator, Stockholm, Sweden. Centrifugal cream-separator	640,858	Jan. 2	389	82, 83	90	78
Berrigan, John J., Avon, N. Y., assignor to De Laval Separator Company, of New Jersey. Centrifugal separator	642,988 641,574	Jan. 30 Jan. 16	4029 2727	917 621	90 90	844 565
Berry, Edward C., Plymouth, Wis. Packing and storing vessel	643,624	Feb. 20	1940	455 456	90	1389
Berry, Robert C., assignor to Pneumatic Canceling Machine Company, Indianapolis, Ind. Printing, stamping, or canceling machine	643,458	Feb. 13	1567	373 374	90	1206
Berthelier, Alphonse J. A., Lyons, France. Furnace for baking enamels, glassware, and porcelain	645,934	Mar. 27	2546	563 564	90	2304
Bertrand, Joseph E., Boston, Mass., assignor to Bay State Shoe Machinery Company, Boston, Mass., and Portland, Me. Sole rough-rounding and channeling machine	642,574	Feb. 6	9	3	90	966
Berwick, William H., Sydney, New South Wales. Non-slipping horseshoe	644,492	Feb. 27	3529	920	90	1703
Besore, Calvin F., assignor of one-half to B. Varner, Ida Grove, Iowa. Clothes-wringer	642,952	Feb. 6	678	155	90	1097
Bess, Jefferson M., Reynolds, Ind. Watering-trough	643,104	Feb. 13	965	226	90	1174
Best, Edward, assignor of one-half to A. R. Pingel, G. Taylor, W. S. Barkwell, G. Burness, and H. Pingel, London, Canada. Automatic car-coupling	642,699	Feb. 6	185	46	90	1002
Bettendorf, Joseph W., Davenport, Iowa. Tongue-support for wagons	643,183	Feb. 13	1107	256 257	90	1203
Bettendorf Metal Wheel Company. (See Einfeldt, Emil, assignor.)						
Bettini, Gianni, New York, N. Y. Phonograph	646,347	Mar. 27	3356	750	90	2402
Betty, Thomas H. (See Anderson, David W., assignor.)						
Betty, Thomas H., Manchester, assignor of one-half to D. W. Anderson, Richmond, Va. Folding ladder	642,670	Feb. 6	186	46, 47	90	1002
Beugler, Edwin F. (See Holmes and Beugler.)						
Bevans, William H., Washington, D. C. Sight for ordnance	643,244	Feb. 13	1209	283 284	90	1202
Beverstock, Allen B. (See Eller, Joseph H., assignor.)						
Beyer, Edward W., Washingtonville, Pa. Refrigerator-wagon						
Beyerback, Philip P. (See Dawson and Beyerback.)						
Beyerl, Charles. (See Heinl and Beyerl.)	644,790	Mar. 6	435	93, 94	90	1841
Bezer, Henry, New Rochelle, N. Y. Railway signaling system and apparatus therefor	643,936	Feb. 20	2519	568	90	1493
Bhise, Shanker A., Bombay, India. Support and locking device for bicycles						
Bice, Charles M. (See Cammann, Frederick W., assignor.)						
Biehl, Allen J., *et al.* (See Goodhart, Howard B., assignor.)	642,069	Jan. 30	3003	826	90	757
Bier-Siphon-Actien-Gesellschaft. (See Gronwald, Hugo, assignor.)	644,728	Mar. 6	302	66	90	1813
Bierbach, Albert G., Milwaukee, Wis. Adjustable door-hanger	640,736	Jan. 9	1104	253	90	234
Biester, George W., Harrisburg, Pa. Safety globe-hanger						
Biester, George W., assignor of one-half to A. Peters, Harrisburg, Pa. Bicycle-carrier	643,317	Feb. 13	1338	317	90	1247
Bigger, Charles M., and G. P. Leonard, assignors of one-third to C. H. Curtis, Chicago, Ill. Garment-supporter	644,791	Mar. 6	438	94	90	1841
Bigger, Matthew. (See Schaffer, Frank J., assignor.)						
Biggs, Daniel, Denton, Tex. Washing-machine	643,181	Feb. 13	1108	257 258	90	1203
Bijur, Joseph, New York, N. Y. Apparatus for measuring and comparing illumination	645,782	Mar. 20	2283	259 497	90	2236
Bilan, Ludwik, Lexington, Okla. Ter. Cotton-picker	645,585	Mar. 20	1898	418 419	90	2159
Bildt, Carl W., Worcester, Mass. Automatic gas-producer	642,289	Jan. 30	4030	918	90	844
Billings, Clarence H. (See Wilkinson, John W., assignor.)						
Billings, Frederic C., Hartford, Conn. Metal-working machine	640,862	Jan. 9	1360	304 305	90	286
Billingsley, William, McLendon, Tex. Cotton-thinner	646,258	Mar. 27	3191	704	90	2431
Bilsborough, John, Bristol, R. I., assignor of one-half to J. A. Prescott, Foxborough, Mass. Top-roll saddle and stirrup therefor for spinning-machines						
Bingman, Phillip. (See Rumsey, Albert W., assignor.)						
Bingham, Robert W. (See Trabue and Howe, assignors.)						
Bingham, Robert W., *et al.* (See Trabue, William, assignor.)	644,843	Mar. 6	534	115 116	90	1860
Bink, Anthony, Stockton, Cal. Motor-vehicle						
Birch, Joseph G., Newton, Mass., assignor to Phoenix Manufacturing Company, South Berwick, Me. Telescopic supporter for curtains, draperies, display-cards, &c	645,543 643,625	Mar. 20 Feb. 20	1808 1943	397 456	90 90	2142 1381
Birch, Richard S., Burlington, N. J. Running-gear for vehicles	640,863	Jan. 9	1362	305	90	287
Birdsall, Edgar M., Buffalo, N. Y., assignor to D. H. Bothwell, Toledo, Ohio. Elastic tire						
Birdsall, Richard M., and C. L. Krum; said Krum assignor to R. King, Chicago, Ill. Apparatus for purifying and drying air	643,396	Feb. 13	1478	347 348	90	1273
Bireley, James H., *et al.* (See Michael, Oliver P., assignor.)						
Bireley, Levi S., *et al.* (See Michael, Oliver P., assignor.)	643,079	Feb. 6	899	212 213 214	90	1140
Birkett, Edward J., and H. F. Crandall, assignors to Milwaukee Harvester Company, Milwaukee, Wis. Grain-harvester						
Bischler, Augustus, assignor to Basle Chemical Works, Basle, Switzerland. Iodochloroxyquinolin	641,491	Jan. 16	2572	.....	90	534
Bischoff, Anton, New York, N. Y. Tread for steps	645,744	Mar. 20	2214	480	90	2222
Bischoff, Frederick F., Chicago, Ill. Hand-wheel for valves	643,460	Feb. 13	1589	374	90	1296
Bischoff, Frederick F., Chicago, Ill. Drop-hammer	643,461	Feb. 13	1590	374 375	90	1297
Bischoff, Frederick F., assignor to R. K. Hill, L. Statler, and A. Maier, Chicago, Ill. Tubing	643,459	Feb. 13	1588	374	90	1296
Bishoff, Andrew W., assignor of one-half to F. E. Hanson, Ambria, Ind. Washboard	644,769	Mar. 6	363	79	90	1826
Bishop, Charley. (See Parnell and Bishop.)						
Bishop, Theodore E., H. R. Whitney, and J. Sloniker, Lima, Ohio. Feed-water regulator	645,925 645,544	Mar. 20 Mar. 20	2524 1809	558 397	90 90	2283 2142
Bissell, Joseph C., Sterling, Minn. Bag-holder for grain-weighing machines						
Bissett, John. (See Giffen and Bissett.)						
Black, Frank E., *et al.* (See Blake, John H., assignor.)						
Black, Henry B., *et al.* (See Monroe, Charles H., assignor.)	641,259	Jan. 16	2159	486	90	458
Black, John, Blue Island, Ill. Pulley	642,290	Jan. 30	4032	918 919	90	845
Black, John M., London, England. Machine for cutting cardboard	640,264	Jan. 2	223	45	90	44
Black, Malcolm P. (See Anton, Herrmann O., assignor.)						
Black, Stephen S., Pasadena, Cal. Skate						
Blackburn, James H. (See Bowman, Blackburn, and Robbins.)	645,926	Mar. 21	2525	558 559	90	2283
Blackden, Perry D., Everett, Mass. Brake for vehicles						

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Blacker, James E., Boston, Mass. Adding-machine	641,863	Jan. 16	2331	532 533	90	487
Blackie, William, London, England. Gas generating and storing apparatus	645,545	Mar. 20	1811	398	90	2142
Blackman, George L., Whitesville, N. Y. Combined waist-holder and skirt-supporter	645,847	Mar. 20	2391	525	90	2258
Blackwell, Henry F., Jr., New York, N. Y. Fire-alarm box	641,924	Jan. 23	3354	762	90	695
Blagg, Charles W., assignor to himself, L. Becker, C. Wise, and W. F. Blagg, Sioux City, Iowa. Refrigerating apparatus for cold-storage chambers	644,965	Mar. 6	744	160	90	1906
Blagg, William F., *et al.* (See Blagg, Charles W., assignor.)						
Blaine, W. T. (See Yaxley, Ernest E., assignor.)						
Blair, C. J. (See Kennicott, Cass L., assignor.)						
Blair, George M. (See McFarland, Fred W., assignor.)	643,589	Feb. 13	1833	433	90	1344
Blaisdell, Byron R., Chicago, Ill. Bedstead	643,588	Feb. 13	1830	432 433	90	1343
Blaisdell, Byron R., assignor of one-half to D. Davies and S. K. Dennis, Chicago, Ill. Furniture	646,259	Mar. 27	3102	704	90	2431
Blaisdell, Frank C., Newton, assignor to Library Bureau, Boston, Mass. Newspaper-file	644,158	Feb. 27	2910	689	90	1585
Blake, Carlostine E., *et al.* (See Bates, Joseph W., assignor.)						
Blake, Carlostine E., Minneapolis, Minn. Disinfecting device	644,194	Feb. 27	2985	706 707	90	1598
Blake, Carlostine E., Minneapolis, Minn. Disinfecting device	643,758	Feb. 20	2185	513 514	90	1427
Blake, Frank R., Boston, Mass. Starting-box and controller for electric motors	642,419	Jan. 30	4028	970	90	698
Blake, Herbert S., Amherst, Mass. Machine for pressing hats	643,626	Feb. 20	1943	456	90	1381
Blake, John H., assignor of two-thirds to F. E. Black and W. Irving, Winslow, Ariz. Ter. Truck-lifter	642,196	Jan. 30	3982	878	90	811
Blake, Willard E., and R. B. Andros, Boston, Mass. Valve for hot-water radiators	642,199	Jan. 30	3983	878	90	811
Blake, Willard E., and R. B. Andros, Boston, Mass. Elbow-valve for hot-water radiators	644,498	Feb. 27	3530	820	90	1708
Blakeman, Nathaniel P., Wichita, Kans. Device for rimming and crimping cartridges	645,546	Mar. 20	1812	398	90	2142
Blanch, Herbert J., London, England. Shot-cartridge	643,036	Feb. 6	816	190	90	1124
Blanchard, Eugene L., Jamestown, N. Y. Fire-kindler						
Blankenmeister, Ferdinand O., assignor of three-fourths to J. Braun and E. J. Brooks & Company, New York, N. Y. Automatic car-coupling	643,860	Feb. 20	2373	558	90	1462
Blanton, Edward A., Jr., Ridley Park, Pa. Nut-lock	640,438	Jan. 2	549	115	90	108
Blanton, Edward A., Jr., Ridley Park, Pa. Nut-lock	644,159	Feb. 27	2912	689	90	1585
Blashfield, James M., assignor of one-half to A. E. Ellithorp, Jackson, Mich. Bicycle handle-bar	645,884	Mar. 20	2445	539	90	2269
Blaskower, Marks, San Francisco, Cal. Cigar-box	641,757	Jan. 23	3050	698	90	686
Blasse, Carl R., Pittsburg, Pa. Canceling-stamp	641,260	Jan. 16	2161	486	90	453
Bianch, Harvey W., Palmyra, Pa. Railway-tie	645,062	Mar. 13	925	199	90	1956
Blazo, Augustus W., New York, N. Y. Fireproof partition	641,067	Jan. 9	1781	395	90	363
Blazo, Augustus W., New York, N. Y. Partition or wall	641,670	Jan. 23	2899	659	90	608
Blechschmidt, Charles E., Bellevue, Ky., assignor to Victor Safe and Lock Company, Cincinnati, Ohio. Screw-door safe	645,448 643,105	Mar. 13 Feb. 13	1641 967	359 226	90 90	2096 1174
Bledsoe, Nathaniel H., Fort Wayne, Ind. Burner	641,261	Jan. 16	2161	486 487	90	454
Bleichert, Adolf, and R. Pfaffenbach, Leipsic, Germany. Switch for suspended tramways	643,627	Feb. 20	1944	456 457	90	1381
Blevney, John C., Newark, N. J. Transmitting device for horseless carriages	646,065	Mar. 27	2805	621	90	2356
Bligh, Samuel L., Custard's, Pa. Shaving device	640,988	Jan. 9	1630	360 361	90	335
Blinck, John R., and C. H. West, Jersey City, N. J. Telephone system	641,183	Jan. 9	2006	448	90	409
Blish, John B., U. S. Navy. Instrument for measuring errors in target practice	643,462	Feb. 13	1591	375	90	1297
Bliss, Dwight J. (See Richmond, Edward J., assignor.)	643,463	Feb. 13	1592	376	90	1297
Bliss, Dwight J., Carthage, Mo. Water-filter	642,892	Feb. 6	575	132	90	1078
Bliss, Dwight J., Carthage, Mo. Submerged filter	643,219	Feb. 13	1162	272	90	1213
Bliss, Samuel B., Boston, Mass., assignor of one-half to C. E. Woodruff, Joliet, Ill. Soap-bubble blower	640,623	Jan. 2	876	196	90	170
Bloch, Emanuel. (See Anderson, Frederick F., assignor.)						
Block, Arthur, Berlin, Germany. Sign-board						
Block, Barney I., assignor to M. E. Block, Pittsburg, Pa. Apparatus for filling mattresses						
Block, Meyer E. (See Block, Barney I., assignor.)						
Block, Wesley S. (See Berger, Richard A., assignor.)						
Blodt, Jacob A., *et al.* (See Stoddard and Richards, assignors.)						
Blomstrom, Carl H. (See Perkins and Blomstrom.)	643,106	Feb. 13	969	227	90	1174
Blonde, Joseph, Lenox Dale, Mass. Fruit or vegetable cutter	643,789	Feb. 20	2154	505	90	1420
Blood & Hale. (See Cooper, William, assignor.)	641,068	Jan. 9	1782	396	90	363
Bloom, Nicklas H., and J. F. Loos, Nashua, Iowa. Harrow	641,823	Jan. 23	3162	718	90	659
Bloomer, Howard J., Norwalk, Conn. Combined suspenders and belt	644,659	Mar. 6	191	41, 42	90	1702
Bloomingdale, Emanuel W., and A. D. Kenyon, New York, N. Y.; said Kenyon assignor to said Bloomingdale. Domino	642,070	Jan. 30	3804	826	90	757
Blossom, Edward H., St. Johnsbury, Vt. Picking-machine						
Blossom, Edward H., assignor to Dupont Manufacturing Company, St. Johnsbury, Vt. Power-hammer						
Blotcher, William E. (See Reed, Blotcher, and O'Rourke.)						
Blount, Henry F. (See Davidson, William, assignor.)	645,449	Mar. 13	1643	359	90	2096
Blume, Charles, Chicago, Ill. Brow-band-attaching device	642,953	Feb. 6	679	155	90	1097
Blumenberg, Henry, Jr., and F. C. Overbury, New York, N. Y. Electric battery	646,348	Mar. 27	3357	750	90	2402
Blumenberg, Henry, Jr., and F. C. Overbury, New York, N. Y. Secondary battery	645,783	Mar. 20	2285	497	90	2236
Blumenfield, Samuel M., assignor of one-half to S. Cohen, New York, N. Y. Apparel-cap	643,861	Feb. 20	2375	558 559	90	1463
Blumenthal, Louis, New York, N. Y. Apparatus for curling feathers, &c	641,925	Jan. 23	3357	763	90	695
Blundell, Evert C., Sioux City, Iowa. Weeding-hoe	644,700	Mar. 6	261	58	90	1906
Blundell, James, Southport, England. Corkscrew	640,864	Jan. 9	1364	305	90	287
Blundon, Joseph W., San Francisco, Cal. Necktie-fastener	640,865	Jan. 9	1364	305 306	90	287
Blundon, Joseph W., assignor of one-half to J. R. Shock, J. S. Copley, and C. E. Kimball, San Francisco, Cal. Pile-driver	644,702	Mar. 6	440	95	90	1841
Boal, Stanhope, Piqua, Ohio. Heater	641,262	Jan. 16	2163	487	90	454
Bode, John, Jersey City, N. J. Folding gate	643,261	Feb. 13	1245	292	90	1229
Boden, George, Watertown, assignor to Oakville Company, Waterbury, Conn. Safety-pin	643,262	Feb. 13	1246	292	90	1229
Boden, George, Watertown, assignor to Oakville Company, Waterbury, Conn. Safety-pin	640,866	Jan. 9	1367	307	90	288
Bodman, Frederick E., Attleborough, Mass. Manufacture of seamless wire	641,492	Jan. 16	2572	587	90	584
Bodman, James H., Clinton, Mass. Door-spring						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Boedeker, Hermann, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Rhodamin dye	641,184	Jan. 9	2008	.....	90	409
Boedeker, Hermann, and C. Hoffmann, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Alkylated rhodamin sulfonic acid	642,808	Feb. 6	577	.....	90	1079
Boedicker, Herman C. (See Cornwall and Boedicker.)	645,908	Mar. 20	2494	551	90	2278
Boegle, Carl, Munich, Germany. Fracture apparatus	645,294	Mar. 13	1941	269	90	2015
Boehling, Henry, Philadelphia, Pa. Packing	644,160	Feb. 27	2013	689 / 690	90	1565
Boehm, Wilhelm, Berlin, Germany. Electric glow-lamp	645,345	Mar. 13	1977	277	90	2094
Boelter, August H., Ewing, Ill. Feed mechanism for roller grinding-mills	644,891	Mar. 6	680	184	90	1878
Bogart, Charles H., New York, N. Y. Mouth-guard for bottles	645,678	Mar. 20	2070	454 / 455	90	2194
Bogart, Charles W., Buffalo, N. Y. Friction-clutch	643,987	Feb. 20	2523	598	90	1498
Boggs, Lottie A., Lincoln, Nebr. Machine for attaching hooks and eyes	640,737	Jan. 9	1106	253	90	234
Boggs, Robert R., Spring Run, Pa. Hub	645,450	Mar. 13	1644	359 / 360	90	2096
Bohannan, Jenetta V., Baltimore, Md. Machine for assorting tobacco-tags	645,985	Mar. 27	2549	565	90	2305
Böhme, Ernst R. (See Richter, Aurel A., assignor.)						
Bohnen, Richard, Chicago, Ill. Boiler	640,694	Jan. 2	878	196	90	170
Bolcourt, Zachary T., assignor to Casket Lid Adjustment Company, Indianapolis, Ind. Burial-casket	642,954	Feb. 6	681	155 / 156	90	1097
Bois, Nathaniel, New York, N. Y. Cane seat	645,909	Mar. 20	2495	551	90	2278
Boismaure, Alfred A., New York, N. Y. Jewelry-mounting	640,265	Jan. 2	226	45	90	45
Bolens, Harry W., Port Washington, Wis. Footstool	645,451	Mar. 13	1945	260	90	2097
Boll, George W., and P. E. Wilhite, Mount Hope, Kans. Tank-heater	641,996	Jan. 23	3357	763	90	696
Bollinger, Martin E., Sell's Station, Pa. Driving mechanism for cycles	642,074	Jan. 30	3515	828	90	760
Bolon, Robert C., Lineville, Iowa. Wire-stretcher	642,671	Feb. 6	188	47	90	1008
Bolsinger, Jesse S., Ebensburg, Pa. Lock						
Bolte, Frank H., assignor to Peoria Rubber and Manufacturing Company, Peoria, Ill. Rubber tire for vehicle-wheels	642,513	Jan. 30	4443	1009	90	997
Bolte, Frank H., assignor to Peoria Rubber and Manufacturing Company, Peoria, Ill. Mold for vulcanizing tires	645,452	Mar. 13	1646	260	90	2097
Bolton, Jeremiah, Leslie, Mich. Adjustable mold for cement troughs	644,397	Feb. 27	3379	785	90	1673
Bonavita, Jean. (See Thomas, Bonavita, and Ollivier.)	642,514	Jan. 30	4445	1010	90	997
Bond, Nathan O., Hyannis, Mass. Door-check						
Bond, William A., trustee. (See Wadsworth, Frank L. O., assignor.)	644,128	Feb. 27	2844	673	90	1573
Bondy, William, New York, N. Y. Fire-escape	641,430	Jan. 16	2447	560	90	511
Bonesteele, Harry F., Shannon, Mont., assignor of one-half to E. F. Greene, Buffalo, N. Y. Coupling for mowers	641,263	Jan. 16	2164	487	90	454
Bonfiglio, James A., New Orleans, La. Hydraulic packing	640,989	Jan. 9	1685	.....	90	336
Böniger, Melchior, assignor to Chemical Works, formerly Sandoz, Basle, Switzerland. Bluish-red azo dye	645,885	Mar. 20	2446	539 / 540	90	2269
Bonnell, William B., and R. F. Smith, Macon, Ga. Piling						
Bonnet, Edouard, J. Pauffique, and G. Linière, Lyons, France. Contact-box for electric tramways	641,264	Jan. 16	2165	488	90	454
Bonnet, Edouard, J. Pauffique, and G. Linière, Lyons, France. Electric railway	642,737	Feb. 6	311	74	90	1028
Bonsall, Seymour W., New York, N. Y. Receptacle for clothing	642,075	Jan. 30	3616	820	90	760
Boon, Willis J., Perry, Ga. Lock	641,824	Jan. 23	3164	718	90	659
Boorman, David, Altoona, Pa. Support for musical instruments	641,493	Jan. 16	2574	588	90	585
Booth, Charles K. (See Orr and Booth.)						
Booth, Edwin G., and J. P. Spangle, Hopewell Centre, N. Y. Mail-bag catcher and deliverer	641,622	Jan. 16	2807	637	90	581
Booth, John, Terre Haute, Ind. Bicycle-support	640,614	Jan. 2	855	190	90	166
Booth, John, Terre Haute, Ind. Bicycle-support	640,788	Jan. 9	1107	254	90	234
Booth, John B., *et al.* (See Hood, Charles F., assignor.)	640,615	Jan. 2	856	191	90	167
Borden, Albert, St. Louis, Mo. Valve	641,185	Jan. 9	2009	448	90	409
Borein, Charles A., Oakland, Cal. Valve for vessels	642,788	Feb. 6	312	74	90	1028
Borel, Charles, Lyons, France. Electric cable for high-tension currents	640,529	Jan. 2	705	153 / 154	90	139
Borg, Chris, assignor to Deering Harvester Company, Chicago, Ill. Serrating-machine						
Borgner, Cyrus. (See Donaldson and Borgner.)						
Borst, Joseph W. (See Cooper, Hippolyte M., assignor.)						
Bossert Electric Construction Company. (See Bossert and Holton, assignors.)						
Bossert, William F., and G. L. Holton, assignors to Bossert Electric Construction Company, Utica, N. Y. Quick-break electric switch	641,927	Jan. 23	3359	763	90	696
Botham, Arthur L., *et al.* (See Daniels, Philo E., assignor.)						
Bothwell, De Witt H. (See Birdsall, Edgar M., assignor.)	641,099	Jan. 9	1784	396	90	364
Bothwell, Henry C., McArthur, Ohio. Cultivator						
Bothwell, Henry R. (See Canda and Bothwell.)	644,052	Feb. 27	2725	644 / 645	90	1546
Böttcher, Bernhardt, Taunus, Germany. Music-leaf turner and stand	642,575	Feb. 6	10	3, 4	90	987
Boty, Gustave, and L. Moreau, Brussels, Belgium. Roller-bearing	645,547	Mar. 20	1813	398	90	2143
Bötz, Wilhelm, assignor to Firm of Columbus Electricitatsgesellschaft, Gesellschaft mit Beschränkter Haftung, Ludwigshafen, Germany. Dry galvanic element	641,575	Jan. 16	2728	622	90	566
Bouchon, Albert. (See Jean and Bouchon.)						
Boud, Eaton D., Mercer, Tenn. Fireplace						
Boughton-Hodgins, Harry, *et al.* (See Henning, Frederick S., assignor.)						
Boulard, Oscar P. (See Laperle and Boulard.)	641,825	Jan. 23	3166	718 / 719	90	660
Boulet, Eugène F., Montluçon, France. Piston-rod packing	643,080	Feb. 6	905	214	90	1141
Boulet, Joseph, Beverly, Mass. Gear-tooth calipers						
Boullemet, Julian S., *et al.* (See Butcher, James M., assignor.)	646,015	Mar. 27	2712	601 / 602	90	2337
Boulnois, Henry P., and J. A. Brodie, Liverpool, England. Refuse-destructor	640,359	Jan. 2	392	83, 84	90	78
Bouré, Paul, Paris, France. Means for controlling and locking railway appliances	640,175	Jan. 2	28	7	90	7
Bourland, Lemuel C. (See Carvin and Bourland.)	644,799	Mar. 6	808	67	90	1814
Bournonville, Eugene, Jersey City, N. J. Acetylene-gas generator	640,739	Jan. 9	1110	254	90	235
Bouse, Walter W., Aberdeen, Wash. Snatch-block	11,798	Jan. 2	1089	249 / 250	90	210
Bousfield, Charlie J., Bay City, Mich. Device for holding negatives	645,161	Mar. 13	1123	.....	90	1994
Boutell, William H., Rochester, N. Y. Paring and coring machine. (Reissue)	642,515	Jan. 30	4447	1010	90	997
Bouthillier, Victorien M., Montreal, Canada. Adhesive compound						
Boutillier, Jacob B., assignor of one-half to W. B. Hunter, Boston, Mass. Armored conduit						

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Boutin, Joseph, St. Landry Parish, La. Rain-water cut-off	640,266	Jan. 2	227	46	90	45
Bouton, Georges. (See Dion and Bouton.)						
Bowden, Fountain P. (See Kirksey and Bowden.)	645,784	Mar. 20	2286	497	90	2286
Bowen, Edward L., McComb City, Miss. Electric-arc lamp						
Bowen, Ephraim N., assignor to George N. Pierce Company, Buffalo, N. Y. Binder for handle-bars and seat-posts of bicycles	644,573 / 644,761	Mar. 6 / Mar. 6	21 / 364	6 / 79, 80	90 / 90	1759 / 1826
Bowen, George, Bolton, England. Machine for corking and labeling bottles						
Bowen, Mary T. A., *et al.* (See Lawton, Walter V., assignor.)	642,076	Jan. 30	3618	829	90	760
Bowen, William M. P., Providence, R. I. Carbon-holder for manifold type-writing						
Bower, J. Henry. (See Belcher, Cassius E., assignor.)	641,364	Jan. 16	2385	533	90	488
Bowers, Alfred, assignor to F. K. Bowers, New York, N. Y. Surface decoration						
Bowers, Frank K. (See Bowers, Alfred, assignor.)	641,431	Jan. 16	2449	561 / 562	90	511
Bowers, George S., Spring Grove, Minn. Acetylene-generator	641,928	Jan. 23	3362	764	90	697
Bowie, Edwin R., New Bedford, Mass. Holder for shoes						
Bowkett, William D., Winton, Queensland. Appliance for separating and dissipating froth from fluids	642,420	Jan. 30	4301	970	90	899
Bowler, Hezekiah S., assignor of two-thirds to J. F. Murray, Gloversville, and M. D. Murray, Johnstown, N. Y. Smoke-consumer for steam-boiler furnaces	645,063	Mar. 13	926	199	90	1956
Bowman, Benjamin F., Cleveland, Ohio. Hatch-fastener for vessels	642,291	Jan. 30	4085	919	90	845
Bowman, Gideon M., J. H. Blackburn, and G. B. Robbins, Osage Mills, Ark. Broom-head	641,070	Jan. 9	1785	396	90	364
Bowman, James M., and R. S. Henry, Pittsburg, Pa.; said Henry assignor to said Bowman Screw	645,548	Mar 20	1814	399	90	2143
Bowman, John. (See Bowman, Madison and J.)						
Bowman, Madison and J., assignors of one-third to R. C. Willis, Toledo, Ill. Threshing-machine shoe	645,936	Mar. 27	2550	565	90	2305
Bowman, Newton K., North Lawrence, Ohio. Mine-gate	642,200	Jan. 30	3864	878 / 879	90	812
Bowman, Newton K., North Lawrence, Ohio. Mine-gate	642,201	Jan. 30	3867	879 / 880	90	812
Boxley, George, Troy, N. Y. Abrasive tool	645,617	Mar. 20	1964	432	90	2173
Boyce, Charles F., assignor of one-half to J. N. Mayo, Malden, Mass. Miter-box	641,929	Jan. 23	3363	764	90	697
Boyce, John, *et al.* (See Platt, Lawrence, assignor.)						
Boyce, William, *et al.* (See Platt, Lawrence, assignor.)	642,421	Jan. 30	4302	971	90	899
Boyd, George H., Paris, Tex. Insect-trap	645,064	Mar. 13	929	199	90	1956
Boyd, John R., Cincinnati, Ohio. Shaft and harness buckle	642,791	Feb. 6	371	90	90	1089
Boyd, Thomas, Christchurch, New Zealand. Bearing for cycles						
Boyd, William S. (See Hazelton, Asa, assignor.)						
Boydell Bros. White Lead and Color Company. (See Boydell, William, assignor.)						
Boydell, William, assignor to Boydell Bros. White Lead and Color Company, Detroit, Mich. Displaying device	642,576	Feb. 6	12	4	90	967
Boyen, Edgar von. (See Schliemann and Boyen.)	644,701	Mar. 6	262	58	90	1806
Boyers, Thomas A., Gainesville, Tex. Grain-door for freight-cars	642,577	Feb. 6	13	4	90	967
Boykin, Willis O., Jackson, Tenn. Wrench						
Boyling, Frederick. (See Tucker and Boyling.)	641,635	Jan. 16	2832	645	90	587
Boynton, Frank C., Springfield, Mass. Key for type-writers	640,439	Jan. 2	551	116	90	108
Boyton, Paul, New York, N. Y. Pleasure-canal	645,519	Mar. 13	1769	387	90	2121
Bracewell, William H., Flakdale, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. End-holder for spindle-bands	643,371	Feb. 13	1429	.....	90	1265
Brack, Johann J., assignor to Basle Chemical Works, Basle, Switzerland. Red rhodamin dye	643,786	Feb. 20	2231	526	90	1435
Brackelsberg, Ernst W., Ohligs, Germany. Type-writing machine						
Bradbury, Frederick G. (See Berggren, Emil T., assignor.)	642,202	Jan. 30	3870	889	90	813
Bradbury, John L., San Francisco, Cal. Amalgamator						
Braddock, Edward I., Winchester, Mass., assignor to New Process Coating Company, Portland, Me. Pickling metal strips	644,574	Mar. 6	23	6	90	1759
Braddock, Edward I., Winchester, Mass., assignor to New Process Coating Company, Portland, Me. Galvanizing apparatus	644,575	Mar. 6	24	6	90	1760
Braddock, Edward I., Winchester, Mass., assignor to New Process Coating Company, Portland, Me. Galvanizing metals	645,520	Mar. 13	1770	388	90	2121
Bradford, Park A., Lowell, Mass. Letter or order box	646,016	Mar. 27	2714	602	90	2337
Bradford, Walter C., Arbuckle, Cal. Wheeled scraper	643,263	Feb. 13	1246	283	90	1229
Bradley, Andrew J. (See Jorres, Ralph W., assignor.)						
Bradley, Benjamin C., assignor to Crystal Case Company, Alliance, Ohio. Revolving show-case	641,671	Jan. 23	2891	659	90	609
Bradley, Frank B., assignor to West Haven Manufacturing Co., West Haven, Conn. Saw-frame	641,826	Jan. 23	3171	719	90	660
Bradley & Hubbard Mfg. Co. (See Fisher, Emil, assignor.)						
Bradley & Hubbard Mfg. Co. (See Jauch, Joseph, assignor.)						
Bradley, William, *et al.* (See Hart, John W., assignor.)	644,124	Feb. 27	2845	673 / 674	90	1572
Bradley, William E., Frankfort, Ky. Filter-press						
Bradley, William T., assignor of one-half to L. P. Willsea, Rochester, N. Y. Clothes-wringer	640,440	Jan. 2	552	116	90	109
Bradley, William T., assignor of one-half to L. P. Willsea, Rochester, N. Y. Wringer	640,441	Jan. 2	553	117	90	109
Bradstreet, William D., Boston, Mass. Document envelop or folder	645,089	Mar. 6	864	187	90	1928
Bradt, Chauncey D., assignor to G. Bradt, Green Island, N. Y. Machine for attaching color specimens to sample-cards	644,398	Feb. 27	3380	785 / 786	90	1673
Bradt, George M., Chattanooga, Tenn. Self-registering check-punch	642,955	Feb. 6	682	156	90	1098
Bradt, Georgianna. (See Bradt, Chauncey D., assignor.)	644,494	Feb. 27	3531	820 / 821	90	1704
Brady, Clyde M., Brunswick, Ga. Siphon						
Brady, Henry N. (See Whitehorn and Brady.)	644,892	Mar. 6	621	134	90	1878
Brady, John, New York, N. Y. Coal or freight run	641,365	Jan. 16	2336	533	90	488
Brady, John F., Chicago, Ill. Bicycle-gearing	641,366	Jan. 16	2337	533 / 534	90	488
Brady, John F., Chicago, Ill. Bicycle	643,988	Feb. 20	2527	594	90	1494
Brady, John F., Chicago, Ill. Steam-turbine	644,576	Mar. 6	25	7	90	1760
Brady, John F., Chicago, Ill. Pneumatic tire for vehicle-wheels						
Braley, Samuel T., Rutland, Vt., assignor to Howe Scale Company of 1895, of Vermont. Weighing-scale	640,740	Jan. 9	1111	254	90	235
Branch, Frank D., Decatur, Ill. Track-sweeper	646,087	Mar. 27	2840	630 / 631	90	2363
Brassington, John D., New York, N. Y. Snap-catch, &c	641,265	Jan. 16	2167	488	90	454
Braucher, Edward F., Meyersdale, Pa. Wheelbarrow	642,422	Jan. 30	4308	971	90	900

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Brauer, George, Sacramento, Cal. Tuning mechanism for stringed instruments	641,367	Jan. 16	2539	534	90	489
Braun, Johann L., assignor to M. D. Kloppenburg, Pittsburg, Pa. Wrench	640,530	Jan. 2	710	154	90	139
Braun, John. (See Braun, Joseph and J.)						
Braun, John, *et al.* (See Blankenmeister, Ferdinand O., assignor.)						
Braun, John, Philadelphia, Pa., assignor to J. Braun & Sons. Adjustable ball-bearing for lawn-mowers	643,318	Feb. 13	1339	315	90	1247
Braun, Joseph and J., Athens, Wis. Stop device or bumper attachment for sawing-machines	642,836	Feb. 6	470	111	90	1058
Braun & Sons, John. (See Braun, John, assignor.)						
Braun, William F., Chicago, Ill., assignor to J. E. Searles, New York, N. Y. Automatic weighing-machine	640,625	Jan. 2	879	197 198 199	90	171
Braun, William F., Chicago, Ill., assignor to J. E. Searles, New York, N. Y. Automatic weighing-machine	640,626	Jan. 2	884	200 201 202	90	172
Braunschild, Julius, Munich, Germany. Petroleum incandescent-lamp burner	643,807	Feb. 20	2962	533	90	1441
Braunstein, Maurice, and L. Chambon, Paris, France. Cigarette-machine	641,432	Jan. 16	2451	561 562	90	511
Brawner, Harry O., Baltimore, Md. Sprinkler for bottles	646,349	Mar. 27	3358	751	90	2463
Breckenridge, John E. (See Waring and Breckenridge.)						
Breece, M. J., *et al.* (See Schanck, Ephraim L., assignor.)						
Breeze, Herbert J., assignor of one-half to H. P. Riemenschneider, Port Huron, Mich. Sample-holder	645,047	Mar. 6	893	194	90	1084
Breidenbach, Franz, Berlin, Germany. Machine for polishing leather	645,895	Mar. 20	2447	540	90	2369
Breinl, Anton R., Graslitz, Austria-Hungary. Playing-ball	646,350	Mar. 27	3359	751	90	2463
Bremer, August, assignor to H. Lehmann, Halle-on-the-Saale, Germany. Producing hollow walls and roofs of cast mortar	640,176	Jan. 2	31	7	90	8
Bremer Linoleumwerke Delmenhorst. (See Mayke and Langheinrich, assignors.)						
Brennan, William L., Boston, Mass. Gun-cleaner	642,672	Feb. 6	190	47	90	1008
Brenner, John G., Toledo, Ohio. Swing	642,673	Feb. 6	192	48	90	1008
Brent, Charles R., Louisville, Ky. Rail-joint	645,661	Mar. 20	2043	449	90	2189
Breul, Richard A., Bridgeport, Conn. Tack	641,071	Jan. 9	1786	396	90	364
Brewer, Albert G., Hopkinton, assignor to United Shoe Machinery Company, Boston, Mass. Heel-breasting machine	645,904	Mar. 27	2966	591	90	2329
Brewer, Frank A., Jr., and F. Hayes, Watsonville, Cal. Game-board	643,808	Feb. 20	2363	533	90	1442
Brewer, Samuel L. (See Hiett, George B., assignor.)	641,930	Jan. 23	3364	764	90	697
Brewster, Robert, Chicago, Ill. Artificial tooth						
Brewster, William N., *et al.* (See Sui, Ding C., assignor.)						
Brian, W. S. (See Faulkner, James J., assignor.)						
Brickham, Henry. (See Sanford and Brickham.)						
Bridgeport Brass Company. (See Rhind, Frank, assignor.)	645,162	Mar. 13	1123	241	90	1994
Bridgewater, William, Leicester, England. Paper-feeding machine	644,390	Feb. 27	3384	786	90	1674
Bridoux, Charles H. (See Hewitt and Bridoux.)						
Brier, Robert E., and W. E. Clark, St. Louis, Mo. Storm-apron for buggies						
Briggs, Charles C., *et al.* (See Glazier, George W., assignor.)						
Briggs, Herbert, Stoke-upon-Trent, England. Apparatus for molding cups or the like articles of clay or other plastic material	641,073	Jan. 9	1787	397	90	364
Briggs, Jennie L., Taunton, Mass. Collar or cuff button	644,273	Feb. 27	3125	734	90	1626
Brigham, Charles, Watertown, and C. B. Emery, Somerville, Mass. Core-setting plate	642,516	Jan. 30	4447	1010	90	928
Brigham, Walter I., South Framingham, Mass. Dental clamp	641,572	Jan. 23	2909	559	90	609
Brigham, William C., Hawleyville, Conn. Lock for axle-nuts	643,989	Feb. 20	2526	594	90	1494
Bright, Fred E., Cleveland, Ohio. Matrix-bar for machines for making type-bars for printing	640,867	Jan. 9	1368	307	90	288
Brill, John A., Philadelphia, Pa. Car-truck	642,956	Feb. 6	684	156 157	90	1098
Brillinger, Michael, assignor of one-half to I. N. Devins, Toronto, Canada. Electric suburban car	643,709	Feb. 20	2100	493	90	1411
Bring, Lars, Stockholm, Sweden. Syringe	640,868	Jan. 9	1369	307	90	288
Brink, Carl A., assignor to Frank Mossberg Company, Attleborough, Mass. Bicycle alarm-bell	641,827	Jan. 23	3172	719	90	660
Brink, Carl A., assignor to Frank Mossberg Company, Attleborough, Mass. Bicycle-bell	642,071	Jan. 30	3905	887	90	757
Brinkman, Louies H., New York, N. Y. Tube-bending machine	643,759	Feb. 20	2187	514	90	1427
Brinkman, Louies H., New York, N. Y. Tube-bending machine	643,760	Feb. 20	2190	515	90	1428
Briscoe, Benjamin, Jr. (See Puddefoot, Charles, assignor.)						
Broadbent, Frank. (See Holmes and Broadbent.)						
Broadie, Joseph E., *et al.* (See Bach, Robert, assignor.)						
Broaddus, John A. (See Hitt, Marcellus M., assignor.)	643,787	Feb. 20	2333	537	90	1436
Brochu, Michael, Grand Rapids, Mich. Metallic cask	640,616	Jan. 2	858	191	90	167
Brock, John F., Sparta, Wis. Garment-hanger	643,072	Jan. 30	3906	887	90	758
Brode, Elmer E. (See Frantz, Hiram A., assignor.)						
Broderick, Michel F., Oberlin, Kans. Harness attachment	642,498	Jan. 30	4305	971	90	900
Brodie, John A. (See Boulnois and Brodie.)	643,397	Feb. 13	1480	348	90	1273
Brodie, William H., New York, N. Y. Curtain-actuating system						
Broichgans, Stephan, Milwaukee, Wis. Carbureter	646,351	Mar. 27	3360	.....	90	2463
Bronnert, Emile, Mülhausen, Germany. Production of cellulose solutions for manufacturing threads	646,361	Mar. 27	3460	.....	90	2488
Bronnert, Emile, Mülhausen, Germany. Production of cellulose solutions for manufacturing threads	644,814	Mar. 6	482	108	90	1849
Brons, Jan, Farmsum, Netherlands. Rotary engine						
Bronzefarbenwerke Actien Gesellschaft, vormals Carl Schlenk. (See Ott and Riffelmacher, assignors.)	644,222	Feb. 27	3087	719	90	1609
Brookes, James E., East Liverpool, Ohio. Inking device for plate-printing	642,908	Jan. 30	4086	919 920	90	845
Brookes, Robert C., Forest, Miss. Fender for equestrian stirrups	644,702	Mar. 6	263	56	90	1806
Brooks, Charles E., St. Louis, Mo. Variable-speed gearing						
Brooks, Elizabeth, executrix. (See Brooks and Huson.)						
Brooks, Everett W., *et al.* (See Sharpneck, William S., assignor.)						
Brooks, Everett W., assignor of two-thirds to J. D. Ross and W. S. Sharpneck, Chicago, Ill. Antifriction-bearing	643,204	Jan. 30	3873	861	90	814
Brooks, Franklin W., Washington, D. C. Car-seal	643,345	Feb. 13	1384	294	90	1257
Brooks, Frederick H., assignor of one-half to W. E. Jennison, Detroit, Mich. Bag-holder	645,199	Mar. 13	1198	261	90	2008
Brooks, John, deceased, (E. Brooks, executrix,) and W. S. Huson, Plainfield, N. J., assignors to Aluminum Plate and Press Company, Plainfield, N. J., and New York, N. Y. Register-gearing for printing-presses	643,940	Feb. 20	2530	594 595	90	1495

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Brooks, John, deceased, (E. Brooks, executrix,) and W. S. Huson, Plainfield, N. J., assignors to Aluminum Plate and Press Company, Plainfield, N. J., and New York, N. Y. Form-dampening mechanism for printing-presses	643,941	Feb. 20	2532	595 596	90	1495
Brooks, John, and W. S. Huson, Plainfield, N. J., assignors to Aluminum Plate and Press Company, Plainfield, N. J., and New York, N. Y. Printing-press	644,223	Feb. 27	3089	719 720	90	1609
Brooks, John J., Grapeland, Tex. Cotton-chopper	645,937	Mar. 27	2552	565	90	2205
Brooks, Maynard E., assignor to Swift & Company, Chicago, Ill. Machine for scrubbing or washing meats	644,400	Feb. 27	3385	786	90	1674
Brooks, Samuel H., *et al.* (See Frost, Walter, assignor.)	641,678	Jan. 23	2894	660	90	609
Broomhall, Arthur R., Paris, Ky. Heater						
Brophy, Michael M., London, England. Apparatus for supplying hot or cold water in bath-rooms, lavatories, &c.	641,828	Jan. 23	3174	720	90	660
Broski, Henry W., assignor of one-third to R. C. Atkins, Bland, Va. Coupling for railway-rails	641,494	Jan. 16	2575	588	90	535
Brotherton, Harold L., New Haven, and G. W. Lee, Winsted, Conn. Dating-stamp	645,887	Mar. 20	2448	540	90	2270
Brott, Andrew, South Denver, Colo. Reversing-gear	641,073	Jan. 9	1789	397	90	365
Brouse, William H., *et al.* (See McCollum, James H. K., assignor.)						
Brown, Aaron A., Rawlins, Wyo. Driving mechanism for bicycles	645,065	Mar. 13	932	200	90	1956
Brown, Abram S., Tyrone, Pa. Folding lunch-box	643,862	Feb. 20	2376	559	90	1403
Brown, Alexander E., Cleveland, Ohio. Coke-pusher	644,053	Feb. 27	2726	645 646	90	1547
Brown, Alexander J. (See Callenberg, Emil, assignor.)	644,000	Feb. 20	2636	623 624	90	1516
Brown, Arthur E., London, England. Continuous kiln for burning bricks or the like	642,578	Feb. 6	14	5	90	968
Brown, Carlton W. (See Brown, Enoch B. and C. W.)	642,424	Jan. 30	4307	972	90	900
Brown, Charles, Albert Lea, Minn. Voting-machine						
Brown, Crawford R., Dedham, Mass. Maximum-indicator						
Brown, Daniel F. (See Swann and Brown.)	645,848	Mar. 20	2892	525	90	2258
Brown, Duncan, Vancouver, Canada. Electric-light hanger						
Brown, Edward H. (See Downs, William H., assignor.)	643,107	Feb. 13	970	227	90	1174
Brown, Enoch B. and C. W., Mystic, Conn. Fan mechanism for hammocks						
Brown, Eugene H., Troy, N. Y., assignor to Union Raveler Company, North Bennington, Vt. Trimming attachment for machines for sewing looped fabrics	641,758	Jan. 23	3052	694	90	637
Brown, Frank C., Loveland, assignor to J. Beal and O. J. Smith, Berthoud, Colo. Combined transit and gravity level	642,203	Jan. 30	3872	880	90	813
Brown, Frank E., *et al.* (See Beasecker, Sylvester B., assignor.)	644,315	Feb. 27	3230	733	90	1644
Brown, Fred H., Oak Park, Ill. Telephonic relay	645,910	Mar. 20	2496	551 552	90	2278
Brown, Fred H., Chicago, Ill. Locating metallic minerals or buried treasures	640,531	Jan. 2	711	155	90	140
Brown, Frederick, assignor of one-half to F. J. Stedman, London, England. Apparatus for making oxygen						
Brown, Garrett, *et al.* (See Butcher, James M., assignor.)						
Brown, George W., Quincy, assignor to Tubular Rivet and Stud Company, Boston, Mass. Gage attachment for fastener-setting machines	645,938	Mar. 27	2554	566	90	2306
Brown, Gustavus F., New York, N. Y., assignor to H. J. Chapin, Montclair, N. J. Vending-machine	646,260	Mar. 27	3193	704 705	90	2431
Brown, Henry, Philadelphia, Pa. Circular-knitting machine	642,579	Feb. 6	16	6	90	968
Brown, Henry, assignor of one-half to H. E. Randall, Northampton, England. Last	640,990	Jan. 9	1687	361	90	336
Brown, Henry S. (See McIntosh, Thomas M., assignor.)						
Brown, Herbert C. (See Wilcox, Frank E., assignor.)						
Brown, James H., E. Bell, and J. Shaw, Yohoghany, Pa. Fastening for end-gates for pit-cars	644,054	Feb 27	2730	646	90	1547
Brown, John W., Jr., Philadelphia, Pa. Fruit-seeder	641,921	Jan. 23	3366	764 765	90	697
Brown, Leonidas P., Centralia, Mo. Fence-machine	644,495	Feb. 27	3533	821	90	1704
Brown, Morris, New York, N. Y. Cigar-box	640,741	Jan. 9	1113	255	90	235
Brown, Norman S., Jr., *et al.* (See Bates, John C., assignor.)						
Brown, Robert P., and F. E. Morse, New York, N. Y. Electric welding	645,066	Mar. 13	934	200	90	1957
Brown, Robert S., New Britain, Conn. Mortising-machine	642,073	Jan. 30	3907	827 828	90	758
Brown, Samuel, Philadelphia, Pa. Grinding-machine	645,382	Mar. 13	1580	333 334	90	2073
Brown, Samuel H., Washington, D. C., assignor of two-thirds to M. McBarron, Boston, Mass., and W. V. McGrath, Jr., Philadelphia, Pa. Garbage-furnace	644,966	Mar. 6	746	161	90	1904
Brown & Sharpe Manufacturing Company. (See Beale, Oscar J., assignor.)						
Brown & Sharpe Manufacturing Company. (See Gabriel, Charles R., assignor.)						
Brown & Sharpe Manufacturing Company. (See Parker, John, assignor.)						
Brown & Sharpe Manufacturing Company. (See Spalding, Frank, assignor.)						
Browne, E. L. (See Cotter, Ambrose L., assignor.)	640,869	Jan. 9	1370	307 308	90	288
Browne, Henry F., Newburyport, assignor to O. A. Miller, Brockton, Mass. Follower	644,401	Feb. 27	3386	786 787	90	1674
Browne, Margaret, Worksop, England. Bake-pan	646,352	Mar. 27	3361	751	90	2463
Browne, Rollo W. (See Roberts, Robert R., assignor.)						
Browne, Thomas R., Altoona, Pa. Mechanism for throwing sprays of oil into furnaces	644,348	Feb. 27	3300	767	90	1657
Brownell & Company. (See Metcalf, Richard, assignor.)						
Brownfield, Joseph M., Pinos Altos, N. Mex. Ter. Car-coupling						
Bruce, Avery C. (See Rogers, Bruce, Roberts, and Russell.)						
Bruce, Walter H. (See Williams, Clarence E., assignor.)						
Bruechе, Max R., Bloomfield, N. J., assignor to S. Swartz, New York, N. Y. Lapel-button	645,501	Mar. 13	1732	380	90	2114
Bruguiere, Frederick J. F., New Orleans, La. Apparatus for producing vacuum	642,580	Feb. 6	18	7	90	968
Brumback, Thomas J., assignor to Climax Manufacturing Company, Memphis, Mo. Kitchen-cabinet	643,628	Feb. 20	1949	457	90	1382
Brumder, William C. (See Eisenhart, Samuel C., assignor.)						
Bruner, Anderson. (See Hull, John W., assignor.)						
Brünler, Oscar, Ellenburg, Germany. Burner	641,868	Jan. 16	2340	535	90	489
Brünler, Oscar, Ellenburg, Germany. Burner with vaporizer for liquid fuel	641,869	Jan. 16	2340	535	90	489
Brunnemer, William T. M., assignor to David Bradley Manufacturing Company, Bradley, Ill. Plow	644,816	Feb. 27	3232	754 755	90	1645
Brunnemer, William T. M., Bradley, assignor to David Bradley Manufacturing Company, Chicago, Ill. Agricultural implement	644,817	Feb. 27	3234	755	90	1645
Brunnemer, William T. M., Bradley, assignor to David Bradley Manufacturing Company, Chicago, Ill. Agricultural implement	644,818	Feb. 27	3235	755	90	1646
Bruns, Louis J., and H. R. Ottesen, Hanover, Germany. Electric overhead railway	641,899	Jan. 23	3175	721	90	661

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Brunsman, Anthony G., Cincinnati, Ohio. Thill-reinforce	645,995	Mar. 27	2669	502	90	2330
Brunswick-Balke-Collender Company. (See McIntire, Jacob N., assignor.)						
Brunswick-Balke-Collender Company. (See Olson, Charles J., assignor.)	643,710	Feb. 20	2101	498	90	1411
Bruscher, Mathias, Chicago, Ill. Means for lubricating rotating shafts						
Brush, George H., assignor of one-half to R. L. Keating, Ridgely, Tenn. Machine for pulling cotton-stalks	641,880	Jan. 23	3176	721	90	661
Brusman, Oliver F. (See Brusman, William H. and O. F.)	646,353	Mar. 27	3364	751	90	2464
Brusman, William H. and O. F., Elkhart, Ind. Sickle-bar	643,087	Feb. 6	817	190	90	1124
Bryan, Henry, Modesto, Cal. Cut-grain carrier for harvesters	643,088	Feb. 6	818	190	90	1125
Bryan, James W., Russellville, Ky. Dental articulator						
Bryan, Malcolm W. (See Eby, Walton E., assignor.)						
Bryan, William G. (See Thompson, Frank M., assignor.)						
Bryant, Charles A., Wakefield, Mass., assignor to Consolidattd Safety Pin Company, Bloomfield, N. J. Safety-pin	645,679	Mar. 20	2072	455	90	2194
	643,863	Feb. 20	2377	559 560	90	1463
Bryant, William S., Boston, Mass. Floating pump	641,577	Jan. 16	2732	623	90	567
Buchanan, David, Auburn, Victoria. Potato-digger						
Buchanan, James O., *et al.* (See Henning, Frederick S., assignor.)						
Bucher & Gibbs Plow Company. (See Ream, George W., assignor.)						
Bucher, John L., and F. C. Mueller, Milwaukee, Wis.; said Mueller assignor to said Bucher. Automatic window-screen	642,077	Jan. 30	3090	829	90	761
Buchey, Alfonso, Maple Hill, assignor of two-thirds to Warner & Potter, Topeka, Kans. Hay-stacker	645,996	Mar. 27	2670	502	90	2330
	645,847	Mar. 13	1448	319	90	2057
Buchignani, Hannibal, Lexington, Ky. Pneumatic tire	645,795	Mar. 20	2287	498	90	2236
Buck, William Y., Bristol, Conn. Holder for electroplating	645,796	Mar. 20	2289	498	90	2237
Buck, William Y., Bristol, Conn. Electroplating						
Buckalew, George W., assignor of one-half to J. H. Buckalew, Memphis, Tenn. Intercepting-valve for air-brakes	641,576	Jan. 16	2731	622	90	566
Buckalew, Jackson H. (See Buckalew, George W., assignor.)						
Buckeye Iron and Brass Works. (See Heister, William C., assignor.)						
Buckeye Malleable Iron and Coupler Company. (See Timms, James, assignor.)						
Buckeye Manufacturing Company. (See Lambert, John W., assignor.)						
Buckeye Portland Cement Company. (See Bartholomew, Harry I. and G. W., assignors.)						
Buckham, George T. (See Dawson and Buckham.)	643,809	Feb. 20	2264	584	90	1442
Bucklew, Howard, Warsaw, Ohio. Binder attachment	640,870	Jan. 9	1572	308	90	298
Buckley, John H., Wassaic, N. Y. Power-transmission pulley	644,703	Mar. 6	264	59	90	1806
Bucklev, Mathew J., Delavan, Wis. Moistening apparatus						
Budd Doble Tire Company. (See Lovett, Thomas J., assignor.)						
Budd, Edward G., Philadelphia, Pa., assignor to American Pulley Company, of Pennsylvania. Sheet-metal pulley	641,831	Jan. 23	3178	722	90	661
Bueb, Julius, Dessau, Germany, assignor to Roessler & Hasslacher Chemical Company, New York, N. Y. Making hydrocyanic acid	642,792	Feb. 6	372	.....	90	1089
Buehler, John G. (See Grady, James, assignor.)						
Buek, Charles E. (See Allison and Buek.)						
Buel, Albert W., New York, N. Y. Apparatus for tunneling	646,354	Mar. 27	3365	752	90	2464
Buell, Salmon A., Minneapolis, Minn. Adjustable perpetual calendar	641,433	Jan. 16	2453	560 563 564 565	90	512
Bug, Abel, Berlin, Germany. Sheet-feeding machine	640,991	Jan. 9	1638	361 362 363 364	90	336
Bugbee, George W., Delhi, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Band sawing-machine	644,125	Feb. 27	2847	674	90	1573
Buie, Henry T., Buffalo, Ark., and F. J. Arney, Chicago, Ill. Match-safe	641,759	Jan. 23	3054	694	90	637
Buis, Lemuel, Little Rock, Ark. Device for tightening wheel-rims	642,293	Jan. 30	4037	920	90	846
Bullard, James H., Springfield, Mass. Automatic boiler-feeding device	641,832	Jan. 23	3181	722 723	90	662
Bullard, James H., Springfield, Mass. Automatic boiler-feeding device	641,833	Jan. 23	3181	722 723	90	662
Bullard, James H., Springfield, Mass. Combined driving and steering axle for automobile vehicles	641,834	Jan. 23	3185	723 724	90	663
Bullard, James H., Springfield, Mass. Thermally-actuated mechanism	643,319	Feb. 13	1340	315	90	1248
Bullis, Frederick O., Rochester, N. Y. Gearing	640,742	Jan. 9	1114	255	90	236
Bullock, Mary A., executrix. (See Bullock, Milan C.)						
Bullock, Milan C., deceased; M. A. Bullock, Chicago, Ill., executrix. Thrust-register for drilling-machines	643,083	Feb. 6	912	215 216 217	90	1142
Bullock, Milan C., deceased, Chicago, Ill.; M. A. Bullock, executrix, assignor to M. A. Bullock. Coupling for shafts	643,081	Feb. 6	906	214	90	1141
Bullock, Milan C., deceased, Chicago, Ill.; M. A. Bullock, executrix, assignor to M. A. Bullock. Core breaker and lifter for rock-drills	643,082	Feb. 6	909	215	90	1141
Bungenstock, Hermann, Hanover, Germany. Shorthand note-book	644,577	Mar. 6	26	7	90	1760
Bunimowitsch, Jacques, Frankfort-on-the-Main, A. and J. E. R. Schadt, Kreuznach, Germany. Divided loose pulley for belt-driving gear	640,871	Jan. 9	1375	309	90	289
	642,894	Feb. 6	577	132	90	1079
Bunker, Melville, Davenport, Iowa. Display-cabinet						
Bunn Cigar Rolling Machine Company. (See Bunn, John, assignor.)						
Bunn, John, assignor to Bunn Cigar Rolling Machine Company, Binghamton, N. Y. Cigar-tip former	644,893	Mar. 6	623	134	90	1879
Bunnell, Jesse H., deceased; M. T. Bunnell, New York, N. Y., executrix. Electric switchboard	644,844	Mar. 6	586	116	90	1861
	643,398	Feb. 13	1492	348	90	1274
Bunnell, Louisa P., and W. Nichols, Toledo, Ohio. Self-threading needle	645,566	Mar. 20	1903	419	90	2160
Bunnell, Mary T., executrix. (See Bunnell, Jesse H.)	645,698	Mar. 20	1997	439	90	2179
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Crushing-machine	645,699	Mar. 20	1999	440	90	2180
Buntinz, William, Jr., New York, N. Y. Bath-tub	642,544	Jan. 30	4498	1019 1080	90	987
Bunting, William, Jr., New York, N. Y. Washbasin						
Burbank, Louis S., assignor to H. D. Perky, Worcester, Mass. Bicycle	640,617	Jan. 2	859	191	90	167
Burchard, Alonzo H., Colorado Springs, assignor to C. T. Hunn, Denver, Colo., and J. W. Patton, Macon, Mo. Railway-switch	645,900	Mar. 13	1199	268	90	2008
Burchfield, John G. (See Whalley, George W., assignor.)	645,901	Mar. 13	1204	269	90	2009
Burdick, Leo J., Sturgis, Mich. Cyclometer or registering mechanism						
Burdick, Leo J., Sturgis, Mich. Cyclometer						
Burger, Franz. (See Williams, Henry M., assignor.)						
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Fluid-clutch	641,636	Jan. 16	2633	645	90	587

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Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Automatic return-signaling device for telephones	643,864	Feb. 20	2379	560	90	1464
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Sound-finder	645,097	Mar. 13	937	200	90	9571
	642,837	Feb. 6	472	111	90	1058
Burgess, Daniel M., Ramseur, N. C. Loom-shuttle	641,932	Jan. 23	3368	765	90	698
Burgess, Frank, Boston, Mass. Milling, gear-cutting, or similar machine	646,203	Mar. 27	3080	679	90	2409
Burgess, James C., assignor to C. R. Saffell, Columbus, Ind. Metal-shears						
Burgham, Oliver H., New Kensington, assignor of one-half to J. R. Tindle, Pittsburg, Pa. Roll-journal	642,078	Jan. 30	3622	830	90	617
Burgum, John, Rio Janeiro, Brazil. Steam-turbine	641,074	Jan. 9	1791	397 398	90	365
Burian, Carl, assignor of one-half to A. Moscu, Bucharest, Austria-Hungary. Contrivance for avoiding collisions of trains	643,810	Feb. 20	2266	534 535	90	1442
	641,835	Jan. 23	3188	724	90	663
Bürk, Emil, Paterson, N. J. Churn						
Burke, John B., *et al.* (See Reynolds, Richard J., assignor.)						
Burke, John F. (See Merton, Virginius I., assignor.)						
Burke, Taylor C. (See Gardy and Burke.)						
Burke, Washington P., Quitman, Ga. Steam-washer	641,886	Jan. 23	3189	724	90	663
Burkhart, Henry G. (See Weiss and Burkhart.)						
Burkholder, John H., Ashland, assignor to Ney Manufacturing Company, Canton, Ohio. Hay-carrier	646,261	Mar. 27	3195	705	90	2432
	641,837	Jan. 23	3190	725 726	90	664
Burleigh, Joseph A., Laconia, N. H., assignor to American Knitting Machine Company, Providence, R. I. Circular-knitting machine	642,080	Jan. 30	3628	832	90	763
Burnam, Franklin, Fortuna, Cal. Animal-exterminator						
Burnap, Mary F. (See Arkell, James, assignor.)						
Burnell, Arthur S., Marshalltown, Iowa, assignor to A. B. Dick Company, Chicago, Ill. Duplicator	641,495	Jan. 16	2576	588	90	535
	645,453	Mar. 13	1648	360 361	90	2097
Burner, William L., assignor to Case Manufacturing Company, Columbus, Ohio. Sifting, scalping, and grading machine	645,454	Mar. 13	1652	361	90	2098
Burner, William L., assignor to Case Manufacturing Company, Columbus, Ohio. Flour-bolt	645,455	Mar. 13	1653	361	90	2098
Burner, William L., assignor to Case Manufacturing Company, Columbus, Ohio. Flour-bolt-brush-operating mechanism						
Burness, George, *et al.* (See Best, Edward, assignor.)						
Burnham, Williams & Co. (See Rushton, Kenneth, assignor.)						
Burnouf, Alfred E., Bonnières, France. Roller-bearing	643,800	Feb. 20	2428	572	90	1474
Burns, Frank, Philadelphia, Pa. Hand propelling mechanism for boats	643,464	Feb. 13	1593	376	90	1297
Burns, George J., Ayer, Mass. Attaching buttons to garments	642,895	Feb. 6	579	132	90	1079
Burns, James, Cincinnati, Ohio. Vehicle-seat	645,888	Mar. 20	2451	541	90	2270
Burns, William F., Beverly, Mass. Steam or hot-water heating device	641,186	Jan. 9	2010	449	90	409
Burpee, Frank W. (See Letson and Burpee.)						
Burrell, John, Louisville, Ky. Moldboard	642,425	Jan. 30	4310	972	90	901
Burridge, Lee S., assignor to J. T. Underwood, New York, N. Y. Ribbon-feeding mechanism for type-writers	642,079	Jan. 30	3623	830 831	90	761
	643,629	Feb. 20	1951	458	90	1382
Burrowes, Frank M., Portland, Me. Shade-holding device						
Burrows, Charles G., assignor to Eddy Electric Manufacturing Company, Windsor, Conn. Controller for electric automobiles	643,865	Feb. 20	2382	561	90	1464
Burrows, Lycurgus. (See Stubbs and Burrows.)	640,627	Jan. 2	888	202	90	172
Burton, Bethel, New York, N. Y. Magazine-firearm						
Burton, George D., Boston, Mass., assignor to United States Electrical Leather Process Company, of Maine. Unhairing animal hides or skins	642,081	Jan. 30	3629	832	90	763
	641,434	Jan. 16	2466	565 566	90	513
Burton, John L., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Loom	641,496	Jan. 16	2578	588	90	535
Busch, Charles, Paris, France. Sorting apparatus for coins	641,187	Jan. 9	2011	449 450	90	410
Buser, William E., Chillicothe, Ohio. Bed-couch						
Bush, Irving T. *et al.* (See Crandall, Jesse A., assignor.)						
Bush, John V., Colesburg, Iowa. Traction-wheel for vehicles	643,630	Feb. 20	1953	458	90	1383
Bush, Samuel P., Columbus, Ohio. Side bearing for cars	640,267	Jan. 2	228	46	90	46
Bush, Samuel P., Columbus, Ohio. Feed-water heater	642,783	Feb. 6	373	90	90	1089
Bush, Thomas J., Lexington, Ky. Attachment for gas-burners	645,416	Mar. 13	1586	347	90	2085
Busler, William S., Philadelphia, Pa. Bicycle-brake	645,246	Mar. 13	1279	277	90	2024
Bussells, Josephus F., Irvington, Va. Extracting-press	643,801	Feb. 20	2429	572	90	1474
Bussells, Josephus F., Irvington, assignor of one-half to A. J. Morse, Harborton, Va. Drier for fertilizer material	640,628	Jan. 2	892	202 208	90	178
Bussells, Josephus F., Irvington, assignor of one-half to A. J. Morse, Harborton, Va. Rendering and pressing apparatus	641,266	Jan. 16	2169	488 489	90	455
Bussert, Isaac C. (See Light and Bussert.)						
Butcher, James M., assignor of seven-eighths to W. B. Redmond, agent, G. Brown, H. C. Clark, and J. S. Boullemet, Denver, Colo. Coin-delivery device	645,584	Mar. 13	1789	393 394	90	2124
Butler, James A. (See Holmes and Butler.)						
Butler, James A. (See Lowry and Butler.)						
Butler, James A., Boston, Mass., assignor to Planters Compress Company, of West Virginia. Hopper for presses	645,712	Mar. 20	2141	466 467 752 753 754	90	2207
	646,355	Mar. 27	3370		90	2465
Butler, William H., and G. R. Ward, New York, N. Y. Bag making and filling machine.						
Butterfield, Samuel W., Three Rivers, Canada. Feed attachment for wood-pulp chippers	642,957	Feb. 6	686	157 158	90	1099
	640,361	Jan. 2	397	84	90	79
Butterick, William H., assignor to T. W. Gardiner, trustee, Lynn, Mass. Last						
Buttermilch, Wilhelm. (See Perle and Buttermilch.)						
Buttler, William, Redkey, Ind. Apparatus for manufacturing hollow glass articles	645,787	Mar. 20	2291	498	90	2237
Buttler, William, Redkey, Ind. Apparatus for making hollow glassware	645,788	Mar. 20	2292	498 499	90	2237
Button, James H. (See Henley, Robert L., assignor.)						
Button, William N., assignor to Joseph Banigan Rubber Company, Providence, R. I. Snow-excluding arctic	642,810	Feb. 6	420	102	90	1048
Button, William N., assignor to Joseph Banigan Rubber Company, Providence, R. I. Boot or shoe	645,068	Mar. 13	988	201	90	1958
	644,055	Feb. 27	2731	646	90	1548
Butz, Charles F., assignor to Colgate & Co., New York, N. Y. Bottle-sprinkler	644,274	Feb. 27	3125	735	90	1626
Butz, Edward M., Bellevue, Pa. Gas-furnace for steam-boilers	644,545	Feb. 27	3636	846 847	90	1728
Byars, Edgar, Rhome, Tex. Baling-press						
Bye, Martin, assignor to Harrington & Richardson Arms Company, Worcester, Mass. Ejector mechanism for breakdown firearms	644,040	Feb. 20	2704	640	90	1528

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bye, Martin, assignor to Harrington & Richardson Arms Company, Worcester, Mass. Mainspring attachment for firearms	644,402	Feb. 27	3888	787	90	1675
	644,275	Feb. 27	3127	735	90	1626
Byerly, William A., Bridgewater, Va. Gate	640,532	Jan. 2	718	155	90	140
				156		
Byers, Joseph N., Urbana, Ohio. Terminal for cables	643,320	Feb. 13	1343	316	90	1248
Byrne, Francis J., assignor of one-half to J. C. and I. P. Hutchinson, New York, N. Y. Gas-burner	644,907	Mar. 6	748	161	90	1905
				162		
Byrne, Hugh A., La Crosse, Wis. Game-counter						
Cabanis, Charles L. (See Maurin, Francois C., assignor.)						
Cael, Joseph D., assignor of one-half to D. C. Gillespie, Elizabeth, N. J., and L. B. Valentine, New York, N. Y. Door-hanger	644,845	Mar. 6	538	116	90	1861
Cahen, Emile D. (See Sávène and Cahen.)						
Cahill, Henry T., West Union, W. Va. Liquid-saver	641,267	Jan. 16	2170	480	90	455
Cahill, Mortimer. (See Morey, Amos F., assignor.)						
Cahoone, Edwin R., Newark, N. J. Stove or range. (Reissue)	11,810	Feb. 27	3087	856	90	1731
				857		
Caldwell, Homer M., assignor to Harrington & Richardson Arms Company, Worcester, Mass. Safety-lock for firearms	644,660	Mar. 6	192	42	90	1702
	643,942	Feb. 20	2534	596	90	1496
				597		
Caldwell, James P., Winnsborough, S. C. Cotton-seed planter	640,533	Jan. 2	716	156	90	140
Callahan, William, Toledo, Ohio. Cable-terminal	642,581	Feb. 6	25	7, 8	90	971
Callaway, Edward H., assignor of one-half to G. W. Copland, New York, N. Y. Molding-press	644,408	Feb. 27	3390		90	1675
Callenberg, Emil, Hattern, Germany, assignor to A. J. Brown, Matlock, England. Explosive	642,674	Feb. 6	103	48, 49	90	1004
Callendar, Hugh L., Montreal, Canada. Electrical recording apparatus	643,465	Feb. 13	1594	377	90	1298
Callender, James J., Galesburg, Ill. Harrow-tooth fastening	643,089	Feb. 6	820	190	90	1125
Calvert, Cecil L., and E. Anderson, Sundance, Wyo. Dental plugger						
Calvert, Charles A., assignor to George L. Squier Manufacturing Company, Buffalo, N. Y. Coffee-huller	642,294	Jan. 30	4089	920	90	846
Cameron, Duncan O., *et al.* (See Dixon, Richard B., assignor.)	642,958	Feb. 6	688	158	90	1099
Cameron, Mitchell J., Auburn, N. Y. Burial-casket-lowering device	645,521	Mar. 13	1772	398	90	2122
Cammann, Frederick W., assignor of one-sixth to C. M. Bice, Denver, Colo. Hat-fastener	643,943	Feb. 20	2537	597	90	1496
	643,108	Feb. 13	972	228	90	1175
Campau, Lawrence M., Detroit, Mich. Trace-holder for singletrees	645,456	Mar. 13	1654	362	90	2060
Campbell, Charles H., Charlotte, N. C. Street-box for underground mains	645,163	Mar. 13	1126	242	90	1994
Campbell, Charles M., Washington, D. C. Pocket-lighter						
Campbell, Colin, assignor to J. S. Mundy, Newark, N. J. Friction-drum	642,426	Jan. 30	4311	972	90	901
Campbell, Cydnor B., assignor of one-half to C. M. Clark, Glouster, Ohio. Sealing device	640,268	Jan. 2	230	46	90	46
Campbell, Edwin. (See Redford and Campbell.)	643,466	Feb. 13	1595	377	90	1298
Campbell, Elihu F., St. Louis, Mo. Car-brake						
Campbell, James L., West Elizabeth, Pa. Superheating gas-burner	640,872	Jan. 9	1377	309	90	290
Campbell, Loudoun, Washington, D. C., assignor of one-half to R. J. Thomas, Alexandria, Va. Fire-alarm signaling apparatus	640,873	Jan. 9	1381	309	90	290
				310		
Campbell, Loudoun, assignor of one-half to R. J. Thomas, Washington, D. C. Fire-alarm system and apparatus	640,874	Jan. 9	1383	310	90	290
				311		
Campbell, Malcolm, Boston, Mass. Roving-machine						
Campbell Printing Press and Manufacturing Company. (See Wood, Henry A. W., assignor.)	641,497	Jan. 16	2579	589	90	535
Campbell, Robert M., and A. H. Schofield, Port Huron, Mich. Furnace-feeding device	642,205	Jan. 30	3874	881	90	814
Campbell, Solon O., East Peru, Iowa, assignor of one-half to L. Pettingill, Omaha, Nebr. Gate	640,302	Jan. 2	398	84	90	79
Canda, Leo, and H. R. Bothwell, Cincinnati, Ohio; said Bothwell assignor to said Canda. Incandescent-lamp holder	640,303	Jan. 2	400	85	90	79
	640,304	Jan. 2	401	85	90	79
Candee, Willard L., New York, N. Y. Terminal for electric cables	640,305	Jan. 2	402	85	90	80
Candee, Willard L., New York, N. Y. Terminal for electric cables						
Candee, Willard L., New York, N. Y. Terminal for electric cables						
Canfield, Frank, Boulder, Colo., assignor to American Wire Fence Company, of Colorado. Apparatus for manufacturing fastening-clips	641,190	Jan. 9	2025	453	90	412
Canfield, John H., Harrison, Mich. Book supporting and adjusting device	643,944	Feb. 20	2537	597	90	1496
Canfield, Robert H. (See Tiefel, Charles G., assignor.)	644,276	Feb. 27	3128	735	90	1626
				736		
Cannaday, Winfield S., Florence, Ala., assignor of one-half to J. Kasmeler. Delinting machine	641,983	Jan. 23	3370	764	90	699
Canner, William H., assignor of one-half to J. M. Fisher, New York, N. Y. Convertible hose-nozzle	640,269	Jan. 2	231	46, 47	90	46
Canning, Alexander H., Toronto, Canada. Rotary engine	643,631	Feb. 20	1954	458	90	1393
				459		
Canterbury, Benjamin F., Clayton, Ala. Machine for filling horse-collars	645,247	Mar. 13	1280	278	90	2024
Cantono, Eugenio, Rome, Italy. Starting asynchronous and synchronous monophasic electric motors	643,346	Feb. 13	1386	324	90	1257
Cantrell, George W. (See Childs and Cantrell.)	644,319	Feb. 27	3241	756	90	1647
Capewell, George J., Jr., Hartford, Conn. Stick-pin retainer	644,241	Feb. 27	3096	723	90	1613
Capley, Emmett F., Aspenhill, Tenn. Clamp for mail-cranes	644,056	Feb. 27	2782	647	90	1548
Caps, John E., Kansas City, Mo. Printing-press	642,295	Jan. 30	4041	920	90	846
Carsher, Thomas P., Cairo, Ill. Non-refillable bottle	640,629	Jan. 2	894	203	90	173
Cardwell, James R., Chicago, Ill. Brake-shoe	645,549	Mar. 20	1815	399	90	2143
Carence, Thomas, Kansas City, Mo. Nasal protector						
Carico, Martin P., Ursus, Va. Folding bookcase						
Carlile, Arthur J. (See Lampitt, Carlile, and Simkin.)	641,371	Jan. 16	2345	536	90	491
Carlile, William E., assignor to himself and E. N. Dickerson, New York, N. Y. Trolley-arrester	644,894	Mar. 6	624	135	90	1879
Carlin, Simon, Philadelphia, Pa. Combined cuff-button and fastener	640,992	Jan. 9	1647	364	90	337
Carlson, Alfred, *et al.* (See Bates, Joseph W., assignor.)						
Carlson, Charles P., McKeesport, Pa. Device for rolling gun-barrels or tubes						
Carlton, William F. (See Locke, Harvey W., assignor.)	643,711	Feb. 20	2108	493	90	1411
				494		
Carlton, William F., and H. W. Locke, Rochester, N. Y.; said Locke assignor to said Carlton. Swing-back for photographic cameras	645,308	Mar. 13	1362	302	90	2044
	645,309	Mar. 13	1364	302	90	2044
Carman, Alvin O., and I. S. Morris, Belding, Mich. Fastening for boots, shoes, &c	643,220	Feb. 13	1163	273	90	1214
Carman, Alvin O., and I. S. Morris, Belding, Mich. Shoe-fastening	644,057	Feb. 27	2733	647	90	1548
Carman, Charles L., assignor to Gates Iron Works, Chicago, Ill. Tube or pebble mill	640,270	Jan. 2	223	47	90	47
Carman, Charles L., assignor to Gates Iron Works, Chicago, Ill. Rotary kiln						
Carmical, Luther M., Jonesville, Va. Plotting instrument						

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Carmody, John T., assignor, by mesne assignments, to J. G. Cherry Company, Cedar Rapids, Iowa. Machine for making egg-case fillers	644,762	Mar. 6	367	80	90	1827
				81		
				82		
Carmody, Timothy J., assignor to American Pin Company, Waterbury, Conn. Delivery-table for hook-and-eye-carding machines	640,743	Jan. 9	1115	255	90	236
Carney, Edward, Toronto, Canada, assignor to Carter-Crume Company, Niagara Falls, N. Y. Manifold sales-book	641,075	Jan. 9	1794	398	90	366
Carolus, Isaac S., Sterling, Ill. Wind-escape attachment for threshing-machine blowers	642,675	Feb. 6	198	50	90	1005
Caron, Alexis E., assignor to T. E. Caron, Kankakee, Ill. Head-rest	642,959	Feb. 6	691	158	90	1100
Caron, Telesphore E. (See Caron, Alexis E., assignor.)						
Carpenter, Charles W., *et al.* (See Claridge, Thomas G., assignor.)						
Carpenter, Charles W., *et al.* (See Jackson, Benjamin F., assignor.)						
Carpenter, Charles W., *et al.* (See North, Thomas M., assignor.)						
Carpenter, Charles W., *et al.* (See Olsen, Gulbrand J., assignor.)						
Carpenter, George W., and R. Watson, Nanaimo, Canada. Slide-valve	643,467	Feb. 13	1597	377	90	1298
				378		
Carpenter, Lewis A., Revere, Mass. Repair-plug for pneumatic tires	645,502	Mar. 13	1733	380	90	2114
Carpenter, Thomas F., Derby, Ohio. Machine for weaving cross-wires in fences	643,109	Feb. 13	976	228	90	1175
Carpenter, William W., New Franklin, Mo. Seed-drill	642,676	Feb. 6	199	50	90	1005
Carpentier, Fred, Woonsocket, R. I. Tension device for loom-shuttles	644,895	Mar. 6	625	135	90	1879
Carr, Chestora C. and J. H., Hillsdale, Mich. Appliance for women's wear	645,457	Mar. 13	1657	362	90	2099
Carr, John H. (See Carr, Chestora C. and J. H.)						
Carroll, J. Bruce. (See Hahn, William, assignor.)						
Carroll, John M. (See Richards, Charles V., assignor.)						
Carruthers, John, and E. J. Fithian, Grove City, Pa. Clutch	641,370	Jan. 16	2341	535	90	489
				536		
	643,838	Feb. 20	2327	548	90	1453
Carter, Alexander G., Fresno, Cal. Plow						
Carter, Charles H., *et al.* (See Carter, William W., assignor.)						
Carter-Crume Company. (See Carney, Edward, assignor.)						
Carter-Crume Company. (See Keyes, James A., assignor.)	642,206	Jan. 30	4042	921	90	847
Carter, Curtis C., Bluffs, Ill. Wire-stay-bending machine	642,427	Jan. 30	4312	973	90	901
Carter, Elsworth G., Coal Bluff, Ind. Railway-tie						
Carter, Frank B., *et al.* (See Carter, William W., assignor.)	645,618	Mar. 20	1905	432	90	2173
Carter, John R., Cincinnati, Ohio. Connecting device	641,076	Jan. 9	1795	399	90	366
Carter, Lattimore D., Louisville, Ky. Combined rheostat and attachment-plug	645,202	Mar. 13	1206	263	90	2010
Carter, Robert A., Pittsburg, Pa. Chain						
Carter, William W., assignor to himself, C. H. and F. B. Carter, Needham, Mass. Machine for dispensing viscous substances	642,082	Jan. 30	3631	832	90	763
Caruthers, Benjamin A., *et al.* (See Peters, William A., assignor.)						
Carvin, Edward O., and L. C. Bourland, Valley Springs, Cal. Holder and guide for screws	643,040	Feb. 6	820	191	90	1125
Cary, William N., Mechanicsville, N. Y. Brickmaker's housing	645,997	Mar. 27	2672	592	90	2330
				593		
	644,058	Feb. 27	2735	647	90	1548
Caryl, Charles H., Kalamazoo, Mich. Temporary binder						
Casco Paper Box Company. (See MacRonald, Fred S., assignor.)	642,083	Jan. 30	3632	833	90	764
Case, Albert W., Highland Park, Conn. Paper-making machine						
Case, Edward, deceased; J. L. Norris, Washington, D. C., administrator, assignor to E. M. L. Case. Apparatus for fixing piles in foreshores	645,000	Mar. 6	798	174	90	1916
Case, Eleanor M. L. (See Case, Edward, assignor.)	645,383	Mar. 13	1522	334	90	2073
Case, James W., assignor of one-half to A. Crandall, Ypsilanti, Mich. Mattress						
Case Manufacturing Company. (See Burner, William L., assignor.)						
Case, William, Chicago, Ill., assignor to National Malleable Castings Company, Cleveland, Ohio. Draft-rigging for cars	643,590	Feb. 13	1334	434	90	1344
Case, William, Chicago, Ill., assignor to National Malleable Castings Company, Cleveland, Ohio. Draft-rigging for cars	644,041	Feb. 20	2705	641	90	1529
Cashen, John J. (See Shearer, Samuel W., assignor.)						
Casket Lid Adjustment Company. (See Bolcourt, Zachary T., assignor.)	640,271	Jan. 2	236	48	90	47
Cassidy, Jacob H., Leavenworth, Kans. Riveting-machine	641,188	Jan. 9	2016	450	90	410
				451		
				452		
Castillo, Marcos del, New York, N. Y. Machine for counting and packing cigarettes	641,934	Jan. 23	3372	766	90	699
				767		
Castle, Peter C. D., Liverpool, England. Preparing locust-beans for extracting gum						
Caswell Car and Improvement Company. (See Caswell, William A., assignor.)	643,591	Feb. 13	1825	434	90	1344
Caswell, Daniel W., Chicago, Ill. Tube-joint						
Caswell, Daniel W., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Bicycle	641,637	Jan. 16	2335	545	90	587
Caswell, William A., assignor to Caswell Car and Improvement Company, Chicago, Ill. Dumping-car	645,587	Mar. 20	1907	420	90	2161
Cathrein, Josef, Munich, Germany, assignor to I. Friedinger, Oberthal, Austria-Hungary. Wooden dowel	646,164	Mar. 27	2998	661	90	2398
	646,066	Mar. 27	2806	621	90	2356
				622		
Cathrell, David E., Boston, Mass. Coat-lock	641,189	Jan. 9	2023	452	90	412
				453		
Cauble, Willis B., and S. W. Starks, Sidell, Ill. Hand-stamp	641,838	Jan. 23	3195	726	90	664
Cavanagh, George H., Boston, Mass. Sheet-piling	640,177	Jan. 2	31	8	90	8
Cavins, John M., St. Louis, Mo. Belt-fastener	645,939	Mar. 27	2557	566	90	2306
Cayce, Henry P., Osage, Tex. Sash-balance	640,366	Jan. 2	404	85	90	80
Cazin, Francis M. F., Hoboken, N. J. Electric incandescent lamp	643,740	Feb. 20	2156	505	90	1421
				506		
Cecil, James T., Los Angeles, Cal. Machine for digging potatoes						
Central Stamping Company. (See Stilson, Arthur T., assignor.)						
Century Fence Post Company. (See Glassco, Robert C., assignor.)	642,428	Jan. 30	4314	973	90	902
Cevolani, Edoardo, Bologna, Italy. Closing of tins, boxes, &c						
Chadwick, Nathaniel B. (See Stevenson and Chadwick.)	642,517	Jan. 30	4449	1011	90	928
Chadwick, Nathaniel B., Stockport, England. Box-covering machine	646,088	Mar. 27	2843	631	90	2364
Chaffee, Guy J., Syracuse, N. Y. Apparatus for concealing graves						
Challender, Joseph, Manchester, England. Silent flushing apparatus for water-closets or urinals	645,208	Mar. 13	1207	263	90	2010
	641,935	Jan. 23	3374	767	90	699
Chalmers, James L., Salt Lake City, Utah. Swift						
Chamberlain, F. W., *et al.* (See Schanck, Ephraim L., assignor.)						
Chamberlain, Orange M., assignor to J. E. Whitney, Boston, Mass. Sewing and plaiting machine	645,911	Mar. 20	2498	552	90	2279
				553		
Chamberlain, Rufus N., Depew, assignor to C. A. Gould, Port Chester, N. Y. Storage-battery cell	645,640	Mar. 20	2001	440	90	2180

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Chambers Brothers Company. (See King, Howard K., assignor.)						
Chambers, Charles E. (See Chambers, Robert M. and C. E.)						
Chambers, Robert M. and C. E., Belfast, Ireland. Machine for wiring bottles	642,206	Jan. 30	3877	881, 882, 883, 884	90	814
Chambon, Louis. (See Braunstein and Chambon.)						
Champion, John W., Denver, Colo. Safety nut and bolt-head	641,191	Jan. 9	2027	453	90	412
Chaninel, William J. (See Watson, Henry F., assignor.)						
Chantérac, Marie J. de, Paris, and M. J. D. A. de la Baume, Tourtour, assignors to La Société Civile pour l'Exploitation de Brevets d'Invention Concernant l'Industrie de l'Alcool, Paris, France. Purification of alcoholic liquids	645,940 643,592	Mar. 27 Feb. 13	2558 1806	434	90 90	2307 1345
Chapeaurouge, Charles A. de., Hamburg, Germany. Time-stamp	646,356	Mar. 27	3371	755	90	2466
Chapin, Henry J. (See Brown, Gustavus F., assignor.)						
Chaplain, William R., Jr., Easton, Md. Apparel-shirt	645,680	Mar. 20	2073	455	90	2104
Chapman, Albert H., assignor to Chapman Manufacturing Company, Upton, Mass. Watering-fountain for poultry	645,681	Mar. 20	2075	455	90	2105
Chapman, Albert H., assignor to Chapman Manufacturing Company, Upton, Mass. Machine for cutting bones for poultry-food	642,545	Jan. 30	4709	1020	90	937
Chapman, Joseph L., Haddonfield, N. J. Ejector	643,221	Feb. 13	1164	273	90	1214
Chapman, Lee J., Columbus, Ohio. Douching-speculum						
Chapman Manufacturing Company. (See Chapman, Albert H., assignor.)						
Chapman, William, Washington, D. C., assignor to Electro-Magnetic Traction Company, of West Virginia. System of distribution for electric railways	643,283	Feb. 13	1281	302	90	1236
Charles, Benjamin, assignor of one-half to J. W. Ruminer and J. M. Kaelin, Evansville, Ind. Non-puncture and speeding attachment for pneumatic tires	644,126	Feb. 27	2850	674	90	1573
Charles H. Allen & Company. (See Allen Charles H., assignor.)	645,458	Mar. 13	1658	362	90	2099
Charon, Louis, and F. Manaut, Paris, France. Oil-distributing means for oil-engines, &c.	641,268	Jan. 16	2172	489	90	456
Chase, Charles A. (See Doty, Ellsworth P., assignor.)						
Chase, Jacob J., Newburyport, Mass. Magazine-camera						
Chase Machine Company. (See Metcalf, Frederick, assignor.)						
Chauvet, A. L. (See Heaney, John, assignor.)	642,582	Feb. 6	34	8	90	973
Cheeseman, William W., assignor to W. R. Elliott and H. L. Melvin, Cincinnati, Ohio. Creasing-machine	644,195	Feb. 27	2986	707	90	1598
Cheesman Cotton Gin Company. (See Cheesman, James E., assignor.)						
Cheesman, George R., Auburn, N. Y. Barrel-tap	645,288	Mar. 13	1350	208, 294	90	2038
Cheesman, James E., New York, N. Y., assignor to Cheesman Cotton Gin Company. Roller cotton-gin						
Chemical Works, formerly Sandoz. (See Böniger, Melchior, assignor.)						
Chemical Works, formerly Sandoz. (See Steiner, Arnold, assignor.)						
Chemnitzer Strickmaschinen Fabrik. (See Pfautler, Robert H., assignor.)						
Cheney, Charles W., assignor of two-thirds to C. A. Bacon and H. M. Slate, Athol, Mass. Regulator-damper for stoves or furnaces	642,583 640,367	Feb. 6 Jan. 2	37 406	9 86	90 90	973 81
Cheney, George K., New York, N. Y. Talking-machine	641,578	Jan. 16	2784	623	90	567
Cheney, George K., New York, N. Y. Talking-machine	640,534	Jan. 2	717	156	90	141
Cheney, George K., New York, N. Y. Warming-pad	640,855	Jan. 9	1387	311	90	291
Cheney, Lyman, Nashua, N. H. Advertising device	644,059	Feb. 27	2736	648	90	1549
Cherry, Edgar, San Francisco, Cal. Grafting-machine	645,248	Mar. 13	1281		90	2024
Chevreton, Jean M. and S. Rivière, St. Chamond, France. Fixative varnish for drawings	641,896	Jan. 23	3375	767	90	1005
Chialiva, Luigi, and J. Dupont, Ecouen, France. Latticed or leaded glass	642,677	Feb. 6	209	50	90	291
Childs, Edwin R., and G. W. Cantrell, Spokane, Wash. Miner's drill and pick	640,856	Jan. 9	1388	311	90	
Childs, Wallace, Neosho, Mo. Making belt-pulleys						
Chillingworth, Rudolf, Nuremberg, Germany. Device for making pulleys with multiple parts	641,077	Jan. 9	1706	399	90	366
Chillingworth, Rudolf, Nuremberg, Germany.	640,744	Jan. 9	1116	255	90	236
Chinn, Charles C., assignor of one-half to H. C. Chinn, Canton, Mo. Lightning-arrester	644,661	Mar. 6	194	42	90	1792
Chinn, Henry C. (See Chinn, Charles C., assignor.)						
Chock, Pincus, New York, N. Y. Chalk-sharpener	641,623	Jan. 16	2808	638	90	582
Chorley, John C., Warrington, England. Machine for producing cellulose films for photographic or other purposes	644,404	Feb. 27	3389	787	90	1675
Christ, Charles E. (See Lesher, Lewis, assignor.)	645,069	Mar. 13	939	201	90	1958
Christ, Edward M., and W. I. Haldeman, Pine Grove, Pa. Fire-escape	641,192	Jan. 9	2028	453	90	412
Christensen, Godfrey, Hampton, Nebr. Automatic cut-off	644,127	Feb. 27	2851	675	90	1574
Christensen, Jorgen, San Francisco, Cal. Steering mechanism for vessels				675		
Christensen, Niels A., Milwaukee, Wis. Engineer's valve	644,128	Feb. 27	2853	676, 677	90	1574
Christensen, Niels A., Milwaukee, Wis. Automatic controller for electric compressors	643,096	Feb. 6	914	222	90	1146
Christy, Samuel B., Berkeley, Cal. Recovering gold and silver from cyanid solutions by electrolysis	643,761	Feb. 20	2192	515, 516, 517	90	1429
Cizek, Ivan, Lautschin, Austria-Hungary. Apparatus for package and postal transmission	646,118	Mar. 27	2902		90	2375
Clamer, Guilliam H., and J. G. Hendrickson, Philadelphia, Pa. Making alloys	646,119	Mar. 27	2903	643	90	2375
Clamer, Guilliam H., and J. G. Hendrickson, Philadelphia, Pa. Bearing	644,378	Mar. 6	27	7	90	1760
Clapp, Charles W. (See Westervelt and Clapp.)	644,379	Mar. 6	30	7	90	1761
Clapp, Edward D., Washington, D. C. Combined cyclometer and speed-indicator	642,207	Jan. 30	4045	921	90	847
Clapp, Edward D., Washington, D. C. Combined cyclometer and speed-indicator						
Clar, Carl, Zittau, Germany. Rein-holder	640,745	Jan. 9	1117	256	90	237
Claridge, Thomas G., assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Proof-press	644,496	Feb. 27	3535	821	90	1704
Clark, Albert G. (See Saddler, Benjamin, assignor.)						
Clark, Charles A., assignor of one-half to F. J. Ottaway, Flint, Mich. Horse-power for unloading hay	644,277	Feb. 27	3131	736	90	1627
Clark, Charles M. (See Campbell, Cydnor B., assignor.)						
Clark, Cornelius S., assignor of one-fourth to M. Miller, Norfolk, Va. Nut-lock	643,741	Feb. 20	2158	506	90	1421
Clark, Edwin W. (See Thurmond and Clark.)	645,789	Mar. 20	2293	499	90	2237
Clark, Erasmus T., Danville, Ind. Gate	641,625	Jan. 16	2811	639	90	582
Clark, Ezra E., Springfield, Mass. Valve-motion for engines	642,085	Jan. 30	3635	833	90	764
Clark, Francis L., Pittsburg, Pa. Hydraulic brake						
Clark, Frank H., Chicago, Ill. Piston-valve	642,064	Jan. 30	3634	833	90	764
Clark, Frank M., Tilton, N. H., assignor of one-half to W. I. Holmes, Boston, Mass. Woven fabric	645,417	Mar. 13	1587	347	90	2086
Clark, George A., Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Bobbin-holder	643,468	Feb. 13	1599	378	90	1299
Clark, George D., Plainville, Conn. Caster-socket						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clark, Gilbert A., *et al.* (See Z-ldler, William A., assignor.)						
Clark, Harry C., *et al.* (See Butcher, James M., assignor.)						
Clark, Joseph O., Boston, Mass., assignor to Phoenix Manufacturing Company, South Berwick, Me. Curtain-rod fixture	640,993 645,459	Jan. 9 Mar. 13	1650 1660	865	90 90	838 2099
Clark, Lincoln, Chicago, Ill. Rendering leaves of blank-books flexible	645,550	Mar. 20	1817	399, 400	90	2143
Clark, Richard F., Chicago, Ill. Corn-husking device	641,937	Jan. 23	3376	767	90	700
Clark, Stephen A., Amoy, Ohio. Animal-poke						
Clark, William E. (See Brier and Clark.)						
Clark, William G. (See Duvall and Shepard, assignors.)	641,760	Jan. 23	3056	694	90	637
Clarke, Christopher, Northampton, Mass. Foot warmer and rest	640,442	Jan. 2	535	117	90	109
Clarke, Robert, New York, N. Y. Water-gage	645,889	Mar. 20	2451	541	90	2270
Clarke, Samuel, Perth, Canada. Die for forging car-wheels						
Clarke, William C., New York, N. Y., assignor to Acetylene Apparatus Manufacturing Company, of West Virginia. Acetylene-gas-generating street-lamp	643,222	Feb. 13	1166	273	90	1214
Clarke, William H., Gateshead, and F. J. Warburton, Newcastle-upon-Tyne, England. Turbine	641,624	Jan. 16	2809	638, 639	90	582
Clarkson, Samuel E., Johnstown, Pa., assignor to Johnson Company, of Pennsylvania. Motor suspension	644,196	Feb. 27	2987	707	90	1599
Clarkson, Samuel E., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	644,197	Feb. 27	2989	707	90	1599
Clausen, Otto, Davenport, Iowa. Attachment for rocking-chairs	641,761	Jan. 23	3058	694	90	637
Clawson, Clement C., Newark, N. J. Air-pump for tire inflation	643,264	Feb. 13	1250	293	90	1290
Clay, Albert B., Scranton, Pa. Sliding-door lock	641,269	Jan. 16	2174	490	90	456
Clay Cross Coal, Lime and Iron Works. (See Rushworth, David, assignor.)						
Clay, Harry C., assignor to Reeves & Company, Columbus, Ind. Compound engine	641,762	Jan. 23	3059	695, 696	90	688
Clay, Henry, Fernwood, assignor to M. C. Lafferty, Philadelphia, Pa. Building for amusement, &c	641,889	Jan. 23	3197	726	90	664
Clay, William R., Bolton, England. Incandescent gas-burner	641,078	Jan. 9	1798	399	90	367
Clayton, William L., and N. R. Persinger, Central City, Nebr. Filling-can	641,079	Jan. 9	1799	400	90	367
Cleary, Daniel W. (See Baldock and Cleary.)						
Clemens, Andrew B., assignor to Farrel Foundry and Machine Company, Ansonia, Conn. Adjustable knife-bar for sugar-mills	644,320	Feb. 27	3242	756	90	1647
Clement, Alvah W., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Loom	641,763	Jan. 23	3061	696	90	638
Clement, Alvah W., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Take-up mechanism for looms	643,284	Feb. 13	1284	303	90	1236
Clement, Alvah W., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp stop-motion for looms	645,912	Mar. 20	2502	553	90	2279
Clements, G. C., *et al.* (See Kitto, Thomas J., assignor.)						
Clendinnen, Frederick J., Hawksburn, and G. A. P. Weymouth, South Melbourne, Victoria. Coin-operated public telephone-call instrument	640,443	Jan. 2	557	117, 118	90	110
Clerc, Prosper, *et al.* (See Watel, Etienne, assignor.)	640,535	Jan. 2	718	157	90	141
Clercy, Joseph A., New York, N. Y. Guard for projecting parts						
Cleveland Machine Screw Company. (See Sperry, Elmer A., assignor.)	644,060	Feb. 27	2737	648	90	1549
Cleveland, Uriah A., Hutchinson, Kans. Cutter-bar for harvesters	642,960	Feb. 6	692	158, 159	90	1100
Clibborn, Desmond, London, England. Apparatus for preventing access of air to liquids stored in vessels	643,712	Feb. 20	2108	494, 495	90	1412
Cliff, Edward, Newark, N. J., assignor to Cliff & Guibert Company, New York, N. Y. Hose-reel	643,945	Feb. 20	2538	507	90	1496
Cliff & Guibert Company. (See Cliff, Edward, assignor.)						
Clifford, George R., Vancouver, Canada. Flagstaff						
Clifford, John. (See Hoelscher and Clifford.)						
Clifford, Thomas G., Hoboken, N. J., assignor of one-half to J. H. Repper and M. Mager, Jr., Middle Village, N. Y. Tobacco-pipe	645,522	Mar. 13	1773	388	90	2122
Climax Manufacturing Company. (See Brumback, Thomas J., assignor.)						
Cline, Fred N., assignor to F. S. Ogden, Chicago, and J. C. Belton, Wheaton, Ill. Griddle-greaser	644,848	Mar. 6	542	117	90	1862
Cline, William, assignor to D. D. Good, J. J. Stewart, and J. Sondheimer, Lancaster, Pa. Motor	644,580	Mar. 6	32	8	90	1761
Cline, William M., assignor of one-half to J. N. and C. H. Alexander, Lansing, Mich. Acetylene-gas generator	641,840	Jan. 23	3199	727	90	665
Clise, Samuel J., Midland, Md. Scrubbing-machine	643,469	Feb. 13	1600	378, 379	90	1299
Cload, Alfred C., Lutcher, La. Woodworking-machine	640,272	Jan. 2	238	48	90	47
Close-Erson, William R., Onehunga, New Zealand. Truss	641,372	Jan. 16	2348	536	90	491
Closz, Charles, Marietta, Ohio. Lock and latch	642,961	Feb. 6	693	159	90	1100
Clough, Enos M., Lakeport, N. H. Sliding-door latch	641,435	Jan. 16	2470	566	90	514
Clough, Fred M., Athol, Mass., assignor to Diamond Match Company, Chicago, Ill. Match-making machine	643,470	Feb. 13	1607	379, 380, 381	90	1301
Clough, John. (See Clough, Percy and J.)	644,001	Feb. 20	2641	624	90	1517
Clough, Percy and J., Keighley, England. Doffing mechanism						
Clowes, George H. (See White and Gilbert, assignors.)						
Clowes, Mamie B. (See Deming, Ferdinand, assignor.)	645,551	Mar. 20	1818	400	90	2143
Clutter, Jasper N., Lima, Ohio. Coal-gate for locomotive-tenders	644,002	Feb. 20	2643	624	90	1517
Cluxton, Henry B., Ripley, Ohio. Revolving hay-rake						
Coates, Gilbert P., *et al.* (See Daniels, Philo E., assignor.)						
Coats, Charles M. (See Corlett, Charles E., assignor.)	643,611	Feb. 20	2270	535	90	1443
Coats, William A., Morrilton, Ark. Gate						
Cochran Company. (See Suppes and Dortch, assignors.)	642,838	Feb. 6	474	112	90	1058
Cochrane, Albert P., New York, N. Y. Pneumatic tire	642,907	Jan. 30	3887	884, 885	90	816
Cochrane, James E., Malden, Mass. Selvage-singeing machine	643,041	Feb. 6	822	191	90	1196
Coddington, George W., Heno, Ohio. Machine for manufacturing waxed or coated strings	643,110	Feb. 13	977	228	90	1175
Cody, Joseph F., Peoria, Ill. Smoke-consumer	643,788	Feb. 20	2234	527	90	1436
Cody, Lorenzo J., Duluth, Minn. Lumber-loader	646,262	Mar. 27	3197	705	90	2482
Coe, Herbert M., Phœnix, Ariz. Ter. Wood-plane						
Coerver, William H. (See List, Adolph, assignor.)	644,061	Feb. 27	2788	648, 649	90	1549
Cofield, George W., Dayton, Ohio. Friction-clutch	644,028	Feb. 20	2687	636	90	1525
Coffin, Walter E., assignor to National Malleable Castings Company, Cleveland, Ohio. Draw-bar attachment	642,518	Jan. 30	4450	1011	90	928
Cohen, Samuel. (See Blumenfield, Samuel M., assignor.)						
Cohn, Henry J., Chicago, Ill. Cigar stamping and cutting device						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Colas, Joseph E., Creil, France. Apparatus for recording flexure of railway-rails, &c.	646,067	Mar. 27	2868	622	90	2356
Colbert, Elisha M., Lafayette, Ga. Plow-fender	640,444	Jan. 2	559	118	90	110
Colburn, Arthur R., Washington, D. C. Bicycle	641,193	Jan. 9	2080	454	90	413
Colburn, Arthur R., Washington, D. C. Bicycle	644,042	Feb. 20	2707	641	90	1529
Colburn, Arthur R., Washington, D. C. Trunk fastening or lock	646,017	Mar. 27	2715	602	90	2338
Coldwell, Thomas, Newburg, N. Y. Lawn-mower	640,995	Jan. 9	1650	365	90	338
Coldwell, Thomas, Newburg, N. Y. Lawn-mower	644,793	Mar. 6	442	95	90	1842
Cole, Frederick W., Newton, assignor to United States Fire and Police Telegraph Company, Boston, Mass. Bell-striker	645,249	Mar. 13	1282	278 / 279	90	2024
Cole, Josiah A. (See Green and Cole.)						
Cole, William E. Atlanta, Ga., assignor, by mesne assignments, to Locomotive Smoke Preventer Company, New York, N. Y. Boiler-furnace	642,546	Jan. 30	4502	1020 / 1021	90	938
Coleman, Clyde, assignor, by mesne assignments, of two-thirds to Bankers Electric Protective Company, Chicago, Ill. Acoustic alarm system	640,273	Jan. 2	240	48	90	48
Coleman, Edward. (See Kendig and Coleman.)						
Coleman, George D., Boston, Mass. Pile	645,941	Mar. 27	2760	566	90	2307
Coleman, Phineas R., assignor of one-half to T. D. English, Newark, N. J. Wrench	646,263	Mar. 27	3198	706	90	2432
Coleman, Thomas G., Gunsight, Tex. Stirrup-apur	644,161	Feb. 27	2915	690	90	1586
Coles, George A. (See Alsop, Charles R., assignor.)						
Colgate & Co. (See Butz, Charles F., assignor.)						
Colgrove, William S., Dowling, assignor of one-fourth to F. H. Schroder, Pemberville, Ohio. Paper-making	643,084	Feb. 6	926	.....	90	1144
Collen, Daniel, Inwood, Canada. Signal apparatus for railways	644,846	Mar. 6	539	117	90	1861
Collet, Jules A. (See Mears and Collet.)						
Collier, Arthur T., St. Albans, England. Means for securing pneumatic tires on wheel-rims	642,429	Jan. 30	4314	973	90	702
Collins, Archie F., Saratoga Springs, N. Y., assignor to American Wireless Telephone and Telegraph Company, of Arizona. Wireless telegraphy	644,497	Feb. 27	3536	821	90	1704
Collins, Caleb G., New York, N. Y. Reducing metallic ores	641,270	Jan. 16	2175	490	90	456
Collins, Caleb G., Woodsmere, assignor to C. A. Stevens, New York, N. Y. Reduction of metallic ores	642,584	Feb. 6	40	9	90	974
Collins, Cornelius, San Francisco, Cal. Metal partition and furring for buildings	640,445	Jan. 2	560	118	90	110
Collins, Daniel M., Sioux City, Iowa. Safety lowering apparatus	644,662	Mar. 6	195	42	90	1792
Collins, Edward C., Taunton, Mass. Car-brake-operating device	641,638	Jan. 16	2836	646	90	587
Collins, Edward C., Taunton, Mass. Brake-handle	641,639	Jan. 16	2837	646	90	587
Collins, James M. (See Crawford and Collins.)						
Collins, Jennet, Chicago, Ill. Endless belt	641,841	Jan. 23	3200	727	90	666
Collins, Samuel W., Indianapolis, Ind., assignor to Rubber Tire Wheel Company, Springfield, Ohio. Rubber-tire machine	641,764	Jan. 23	3065	697	90	639
Collins, Samuel W., assignor to Combination Table Company, Indianapolis, Ind. Library, pool, and billiard table	646,264	Mar. 27	3198	706	90	2432
Collins, Walter G., Coramba, New South Wales. Prospecting-dish	646,382	Mar. 27	3461	770	90	2488
Colman, Howard G. (See Dorment, Frank C., assignor.)						
Colognati, Jacob, assignor to J. Lurch, New York, N. Y. Shovel	645,348	Mar. 13	1449	320	90	2058
Colomes, Antoine, St. Etienne, France. External leak-stopper for vessels	645,070	Mar. 13	940	201	90	1958
Colt, Samuel, Santa Barbara, Cal. Flexible hub for wheels	644,730	Mar. 6	806	67	90	1814
Colt, Samuel S., Orange, N. J. Door	641,842	Jan. 23	3211	728	90	666
Colt, Samuel S., Orange, N. J. Adjustable rabbet-strip	642,678	Feb. 6	201	50	90	1006
Colt, Samuel S., Orange, N. J. Door-frame and adjustable jamb therefor	643,399	Feb. 13	1483	349	90	1274
Colt, Samuel S., Orange, N. J. Door-frame and adjustable jamb therefor (See Watkins and Colteryahn.)						
Colteryahn, Charles. (See Hall, Walter R., assignor.)						
Colton, Alric O. (See Hall, Walter R., assignor.)						
Columbia and Electric Vehicle Company. (See Cuntz, Hermann F., assignor.)						
Columbia and Electric Vehicle Company. (See Maxim, Hiram P., assignor.)						
Columbia and Electric Vehicle Company. (See Maxim, Pope, and Alden, assignors.)						
Columbian Electric Carlighting and Brake Company. (See Kennedy, Patrick, assignor.)						
Columbus Pharmacal Company. (See Hullinger and Curts, assignors.)						
Combination Table Company. (See Collins, Samuel W., assignor.)						
Combs, William F., Reno City, Okla. Ter. Grain-shed	644,242	Feb. 27	3071	724	90	1614
Comerford, Edward, Liverpool, England. Ore or rock breaking machine	646,204	Mar. 27	3481	679	90	2410
Comfort, George, Bozeman, Mont. Hay or straw cutter	644,815	Mar. 6	484	108	90	1849
Comitti, Luigi F., London, England. Registering clinical thermometer	641,080	Jan. 9	1800	400	90	367
Compton, John, Atchison, Kans. Automatic door-opener	646,205	Mar. 27	3482	680	90	2410
Comstock, Edgar M., Ypsilanti, Mich. Sash-fastener	643,400	Feb. 13	1485	349	90	1274
Comstock, Percy F., and A. Hedbavny, New York, N. Y. Pelt-refining machine	641,081	Jan. 9	1802	400 / 401	90	367
Conant, Frederick O. (See Smith, Frank W., assignor.)						
Conant, Roger W., Boston, Mass. Rail-joint-testing apparatus	645,384	Mar. 13	1524	334	90	2073
Conchar, James W., Dubuque, Iowa. Fireback	642,679	Feb. 6	268	51	90	1006
Condon, John. (See Reid, Robert, assignor.)						
Condon, Patrick R., assignor to C. N. Prouty, Spencer, Mass. Pegging-machine. (Reissue)	11,803	Jan. 23	3583	820	90	739
Condy, Joseph H., assignor of one-fourth to R. C. Stroup, Stockton, Cal. Pipe-wrench	641,271	Jan. 16	2177	490	90	457
Coneys, John J., Philadelphia, Pa. Explosive shell	644,896	Mar. 6	626	135	90	1879
Conklin, Oliver F., Springfield, Ohio. Electric motor	640,747	Jan. 9	1121	257	90	237
Conklin, Oliver F., Springfield, Ohio. Electric motor and circuit therefor	640,748	Jan. 9	1122	257	90	238
Conkling, Allen, Chicago, Ill. Receiving-shelf for machines	641,082	Jan. 9	1807	402	90	368
Conlan, Bernard, Newark, N. J. Jewelry-fastening	645,071	Mar. 13	942	202	90	1958
Conley, Joseph, Mound City, Mo. Refuse-burner or crematory for burning garbage	645,349	Mar. 13	1450	320	90	2058
Connacher, Henry. (See Willey and Connacher.)						
Connell, G. H. (See Fox, John C., assignor.)						
Connell, John F. B., Calvary, Ga. Stave-jointer	643,471	Feb. 13	1618	381	90	1303
Conner, Charles M., Otisco, Ind. Rotary engine	640,745	Jan. 9	1120	256	90	237
Conover, Charles F., New York, N. Y. Apparatus for producing distilled water	645,790	Mar. 20	2296	500	90	2238
Conrad, Joseph A., De Land, Fla. Tree or shrub protector	645,890	Mar. 20	2454	542	90	2271
Conrad, William H., Philadelphia, Pa. Controller-operating mechanism	640,749	Jan. 9	1123	257 / 258	90	238
Conroy, Bartholomew W. and W. E., Port Huron, Mich.; said Bartholomew W. Conroy assignor to said W. E. Conroy. Ink-well	640,630	Jan. 2	895	208	90	174
Conroy, William E. (See Conroy, Bartholomew W. and W. E.)						
Consolidated and McKay Lasting Machine Company. (See Woodward, Erastus, assignor.)						
Consolidated Car Heating Company. (See McElroy, James F., assignor.)						
Consolidated Safety Pin Company. (See Bryant, Charles A., assignor.)						
Consolidated Safety Pin Company. (See Farmer, George P., assignor.)						
Constable, Howard, New York, N. Y. Fireproof construction	642,208	Jan. 30	3889	885	90	816
Constantine, George W., Chicago, Ill. Hog-scraping machine	645,418	Mar. 13	1589	347	90	2096
Conti, Ambrogio E., Genoa, Italy. Bicycle-support	640,681	Jan. 2	896	208	90	174

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Converse, Austin Z., Chattanooga, Tenn. Sash-holder	640,750	Jan. 9	1126	250	90	239
Converse, Francis B., Jr., Louisville, Ky. Type-setting machine	640,274	Jan. 2	243	49	90	48
Converse, Frank J., Pittsburg, Pa. Umbrella attachment for bicycles	640,446	Jan. 2	561	119	90	111
Converse, Ora E., assignor to Western Manufacturing Company, Springfield, Ohio. Boring attachment for metal-working lathes	643,718	Feb. 20	2112	495 / 496	90	1413
Cook, David C., assignor to David C. Cook Publishing Company, Elgin, Ill. Toy bank	640,536	Jan. 2	719	157	90	141
Cook, Edward S., London, England. Washing-machine	644,498	Feb. 27	3537	822 / 823	90	1705
Cook, Emon, Imlay City, Mich. Gate	641,272	Jan. 16	2178	490	90	457
Cook, Frank B., Chicago, Ill. Telephone-switchboard	641,373	Jan. 16	2349	537	90	491
Cook, Frank B., Chicago, Ill. Combined terminal head and junction-box	641,374	Jan. 16	2352	537	90	491
Cook, Frederick W., Jr., San Antonio, Tex. Sprinkling-stopper	646,018	Mar. 27	2717	602	90	2338
Cook, George S. (See Sauls and Cook.)						
Cook, John. (See Walton, William H., assignor.)						
Cook, John J., assignor of one-half to W. W. Wishon, Butte, Mont. Elevator-controlling apparatus	645,891	Mar. 20	2455	542	90	2271
Cook, Thomas W. G., and L. H. Stern, New York, N. Y.; said Stern assignor of one-half to said Cook. Machine for cleaning hulls of vessels	646,357	Mar. 27	3375	755	90	2466
Cook, William J., and A. Hirth, Wheeling, W. Va. Truck	644,008	Feb. 20	2645	595	90	1518
Cooke, Maurice A., Nashville, Tenn. Steam-boiler	643,946	Feb. 20	2539	596	90	1497
Cookston, Charlie B., Paragould, Ark. Automatic car-coupling	644,897	Mar. 6	627	135 / 136 / 736	90	1880
Cooley, William H., Brockport, N. Y. Means for regulating electric machines	644,278	Feb. 27	3132	737 / 738	90	1627
Coolidge, Leroy E. (See Seaver, Augustus, assignor.)						
Coombs, George O. (See Hahn and Coombs.)						
Coombs, Gertrude P. (See Miller and Dunn, assignors.)						
Coon, John D., Nathrop, Colo. Cooking utensil	641,273	Jan. 16	2180	491	90	458
Cooper, Alfred J., Duryea, Pa. Wrench	643,632	Feb. 20	1955	459	90	1383
Cooper, Harry F., Apollo, Pa. Broom-holder	644,581	Mar. 6	34	8	90	1761
Cooper, Harry O., Liverpool, England. Apparatus for lifting and transporting goods	644,499	Feb. 27	3539	824 / 825	90	1705
Cooper, Henry, Morris, Ill. Fly-net	640,632	Jan. 2	897	204	90	174
Cooper, Hippolyte M., Bath, assignor of one-half to J. W. Borst, Erwin, N. Y. Acetylene-generator	642,298	Jan. 30	4045	921	90	848
Cooper, James. (See Fairman, Alfred N., assignor.)						
Cooper, Madison, Minneapolis, Minn. Preventing formation of frost on refrigerating-surfaces	644,847	Mar. 6	541	117	90	1862
Cooper, William, Cincinnati, Ohio, assignor of five-sixths to Blood & Hale, Boston, Mass. Pneumatic controlling system for electric-railway cars	641,843	Jan. 23	3216	726 / 729 / 730 / 731	90	668
Cooper, William F., Meriden, Conn. Acetylene-generator	641,194	Jan. 9	2082	454	90	413
Copeland, Ira, Newton, Mass. Apparatus for cement-coating and packing nails	645,385	Mar. 13	1527	335	90	2074
Copeland, James S., Hartford, Conn. Driving and brake mechanism	644,500	Feb. 27	3540	825	90	1705
Copeland, James S., Hartford, Conn., assignor, by mesne assignments, to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Velocipede	642,299	Jan. 30	4047	922	90	848
Copeland, James S., Hartford, Conn., assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Back-pedaling brake	643,085	Feb. 6	927	217 / 218	90	1144
Copenhagen Puzzle Company of Baltimore City. (See Shaffer, Richard M., assignor.)						
Copland, George W. (See Callaway, Edward H., assignor.)						
Copland, William S. (See Garrison and Fitzsimmons, assignors.)						
Coply, John S., *et al.* (See Blundon, Joseph W., assignor.)						
Corbin, Johnson R., Philadelphia, Pa. Printing	640,447	Jan. 2	562	119	90	111
Corbin, Johnson R., Philadelphia, Pa. Printing-machine	640,633	Jan. 2	898	204	90	174
Corbin, Johnson R., Philadelphia, Pa. Printing-machine	640,634	Jan. 2	901	204	90	175
Corbin, Wilbur R., and W. K. Henry, assignors to P. & F. Corbin, New Britain, Conn. Door	641,844	Jan. 23	3221	731	90	668
Corcoran, Daniel, Yonkers, N. Y. Worm and chain driving-gear	642,430	Jan. 30	4316	974	90	902
Corey, J. B. (See Michales, Moses A., assignor.)						
Corlett, Charles E., assignor of one-half to C. M. Coats, Aurora, Ill. Shaft attachment for breeching-straps of harness	645,289	Mar. 13	1354	294	90	2039
Corliss, William, Providence, R. I. Wheel-tire	645,310	Mar. 13	1385	303	90	2045
Corliss, William, Providence, R. I. Wheel-tire	646,140	Mar. 27	2947	652	90	2383
Corliss, William, Providence, R. I. Pneumatic wheel-tire	646,141	Mar. 27	2949	652	90	2384
Cormack, John, St. Johns, Newfoundland. Air-cooler and refrigerator	644,763	Mar. 6	374	82,83	90	1829
Cornell, William H., New York, N. Y. Fireman's life-saving appliance	641,375	Jan. 16	2353	538	90	492
Cornick, Philip B., Genito, Va. Burglar-alarm	644,243	Feb. 27	3072	724	90	1614
Cornish & Co. (See Florey, Alvin F., assignor.)						
Cornwall, George R., Mount Vernon, N. Y. Printing-machine	643,372	Feb. 13	1430	333	90	1265
Cornwall, George R., Port Chester, and H. C. Boedicker, New York, N. Y., assignors, by mesne assignments, to H. C. Cornwall, Wyoming, N. J. Forming acid-resistant printing-designs	643,892	Feb. 20	2431	.....	90	1474
Cornwall, Harry C. (See Cornwall and Boedicker, assignors.)						
Corrington, Murray, New York, N. Y. Air-brake	643,812	Feb. 20	2272	536	90	1443
Corry, Michael. (See Barker, Ruben F., assignor.)						
Corscaden, Adeline J., administratrix. (See Corscaden, Thomas.)						
Corscaden, Thomas, deceased; A. J. Corscaden, Philadelphia, Pa., administratrix. Die for making sheet metal spoke-arms for pulleys	642,096	Jan. 23	3545	812	90	732
Cortis, Dwight T. (See Cortis, Frank A., assignor.)						
Cortis, Frank A., Meriden, Conn., assignor to D. T. Cortis, Boston, Mass. Gasolene-lamp burner	642,784	Feb. 6	375	91	90	1039
Corwin, H. H. (See Post, William C., assignor.)	640,751	Jan. 9	1127	259	90	239
Corwin, Thomas, Cleveland, Ohio. Device for truing wrist-pins	641,674	Jan. 23	2895	660	90	609
Cory, David P., Consecon, Canada. Card holder for freight-cars						
Cosgrove, Henry J., *et al.* (See Lambert, Thomas B., assignor.)	640,877	Jan. 9	1389	312	90	291
Coss, John A., and F. G. Parshall, Phœnix Mills, N. Y. Vehicle-seat fastener	643,401	Feb. 13	1486	349	90	1274
Cotter, Ambrose L., assignor to E. L. Browne, Cleveland, Ohio. Electric flashing switch	640,537	Jan. 2	720	157	90	141
Cottrell, Chester W., Newburyport, Mass. Lamp-filling device for lamp burners	644,279	Feb. 27	3146	738	90	1630
Couch, Elbert M., and F. Harrington, assignors to Pratt & Whitney Company, Hartford, Conn. Feed attachment for screw or analogous machines	11,809	Feb. 20	2712	642	90	1580
Couchois, Garrett J. (See Leech and Couchois.)	643,347	Feb. 13	1387	324	90	1257
Coughlin, Thomas W., Binghamton, N. Y. Head-rest for caskets (Reissue)						
Coulson, John W., Columbus, Ohio. Window or transom corner-post and bar						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Coulthard, Christopher. (See Malsbary, Albert J., assignor.)						
Coupal, Peter A. (See Mower and Coupal.)						
Courbet, Eugène, Paris, France. Producing on paper imitations of tapestry or embroidery	643,321	Feb. 13	1346	.....	90	1249
Courtenay, William, New York, N. Y. Combined sleeper and conduit for electric railways	645,552	Mar. 20	1819	400	90	2144
Cousins, Robert, San Francisco, Cal. Armor for vehicle-tires	644,731	Mar. 6	306	67	90	1814
Covell, Harry N., New York, N. Y. Power-transmitting apparatus applicable to friction-drums	642,862	Feb. 6	312	119 120	90	1066
Covington, Walter L. (See White and Covington.)						
Cowen, Robert, Cambridge, Mass. Vehicle-tire	642,811	Feb. 6	421	102	90	1048
Cowen, Robert, Cambridge, Mass. Yielding vehicle-tire	642,812	Feb 6	423	102 103	90	1048
Cowen, Robert, Cambridge, Mass. Apparatus for cleaning rubber	642,813	Feb. 6	427	103	90	1049
Cowen, Robert, Cambridge, Mass. Cleaning rubber	642,814	Feb. 6	429	103	90	1049
Cowing, John P., Cleveland, Ohio. Bascule lift-bridge	644,405	Feb. 27	3391	787	90	1675
Cowles, Alfred A., assignor to Ansonia Brass and Copper Company, New York, N. Y. Incandescent gas-burner	640,752	Jan. 9	1129	259	90	239
Cowles, Frederick L. (See Jones, Charles B., assignor.)						
Cowles, Samuel H., Oakville, Conn. Heating-stove	643,813	Feb. 20	2277	536	90	1441
Cowles, William A., assignor to Ansonia Brass and Copper Company, Ansonia, Conn. Table for hooping coiled metal	643,472	Feb. 13	1620	382	90	1303
Cowper-Coles, Sherard O., London, England. Electrodeposition of metals	644,029	Feb. 20	2098	636 637	90	1525
Cox, Albert W., assignor of one-half to D. M. Leland, Chicago, Ill. Receptacle for burning refuse	643,503	Feb 13	1838	435	90	1345
Cox, Cary S., Fresno, Cal. Raisin seeder	641,938	Jan. 23	3377	798	90	700
Cox, Cary S., and T. E. Langley, Fresno, Cal. Raisin-seeder	641,939	Jan 23	3380	798	90	700
Cox, Jacob D., Jr., Cleveland, Ohio. Adjustable limit-gage	640,448	Jan. 2	564	119	90	111
Cox, Loren C., assignor of two-fifths to H. L. Whipple, Quincy, Ill. Portable photographic dark room	643,322	Feb. 13	1346	316	90	1249
Cox, Paul F., assignor to Cox Type Setting Machine Company, Chicago, Ill. Type-setting machine	643,473	Feb. 13	1622	382 383 756 757 758 759	90	1304
Cox, Paul F., assignor to Unitype Company, Manchester, Conn. Type-setting machine	646,358	Mar. 27	3379	759 760 761 762	90	2467
Cox, Paul F., assignor to Unitype Company, Manchester, Conn. Space and lead discarder and distributer-loader	646,359	Mar. 27	3398		90	2472
Cox, Samuel J., Lima, Ohio. Adjustable window-shade hanger	642,815	Feb. 6	431	103	90	1049
Cox Type Setting Machine Company. (See Cox, Paul F., assignor.)						
Cox, William S., Elyria, Ohio. Cream-separator	643,947	Feb. 20	2540	598	90	1497
Coyne, John, Pittsburg, Pa. Valve mechanism for gas-generators	644,280	Feb. 27	3149	789	90	1631
Coze, André, Rheims, France. Apparatus for charging inclined gas-retorts	643,633	Feb. 20	1957	459 460	90	1384
Craddock, Thomas, Providence, R. I. Adjustable curtain-roller fixture	644,501	Feb. 27	3543	825	90	1706
Craig, John F., Toledo, Ohio. Explosive-engine	644,004	Feb. 20	2646	625 626	90	1518
Craig, Joseph, Highland Springs, Cal. Reversible rotary engine	642,785	Feb 6	377	91	90	1039
Craig, William S., assignor of one-half to C. C. Whitacre, London, England. Type-writer	644,502	Feb. 27	3545	826	90	1706
Crain, Charles R., L. C. Evans, and H. E. Dodson, assignors to P. P. Mast & Company, Springfield, Ohio. Grain-drill	641,498	Jan. 16	2581	589	90	596
Cram, Fred A. (See Jackson, Charles A., assignor.)						
Cramer, Charles H., Middleport, N. Y. Door	641,675	Jan. 23	2906	660	90	610
Cramer, Frederick, Denver, Colo. Folding bedstead	641,274	Jan. 16	2181	491	90	456
Crame., Joseph W., assignor of one-half to T. O. Cramer, Kansas City, Kans. Car-fender	641,496	Jan. 16	2471	566	90	514
Cramer, Theodore O. (See Cramer, Joseph W., assignor.)						
Cramp, Edwin S. (See Tynan, Joseph J., assignor.)						
Cran, James, Chicopee Falls, Mass., assignor to A. G. Spalding & Bros., Jersey City, N. J.; Chicago, Ill., and New York, N. Y. Golf-club	645,942	Mar. 27	2560	567	90	2307
Crandall, Almeron. (See Case, James W., assignor.)						
Crandall, Henry F. (See Birkett and Crandall.)						
Crandall, Jesse A., assignor to I. T. Bush and S. V. White, New York, N. Y. Corn-cutting spoon	644,782	Mar. 6	307	67	90	1814
Crane Elevator Company. (See Reynolds, George H., assignor.)						
Crane, Harrie D., *et al.* (See Mayer, Robert S., assignor.)						
Crank, Albert F. (See Dolley and Crank.)						
Cranston, John A. (See Humphrey, John R., assignor.)						
Crary, William P., New York, N. Y., assignor of one-half to Edward Miller & Company, Meriden, Conn. Acetylene-lamp	643,111	Feb. 13	379	229	90	1176
Cravath, James R., Chicago, Ill. Motorman's recorder	641,275	Jan. 16	2183	491	90	458
Crawford, Charles W., Cincinnati, Ohio. Bowling-alley	644,546	Feb. 27	3641	847 848	90	1724
Crawford, Holman, and J. M. Collins, Maysville, Ky. Wheel	644,908	Mar. 6	750	162	90	1905
Crawford, Samuel E., Avalon, Pa. Fluid pressure regulator	644,406	Feb. 27	3393	788	90	1676
Crawford, William F., London, England. Photographic washing apparatus	644,898	Mar. 6	628	136	90	1890
Cray, Henry W., May's Landing, N. J., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom	645,913	Mar. 20	2504	553	90	2279
Creager, Edwin F., Lancaster, Pa. Retainer for ball bearings	645,713	Mar. 20	2143	467	90	2208
Creager, Edwin F., Lancaster, Pa. Retainer for ball bearings	645,714	Mar. 20	2144	467	90	2208
Creager, Edwin F., Lancaster, Pa. Retainer for ball-bearings	645,715	Mar. 20	2146	467	90	2208
Creager, Edwin F., Lancaster, Pa. Retainer for ball-bearings	645,716	Mar. 20	2148	468	90	2208
Creese, David C., New Brighton, Pa. Device for throwing railway-tracks by use of engines and crabs	641,063	Jan. 9	1809	402	90	369
Cressler, Will T., Norwood, Ohio. Stamp with changeable face	640,449	Jan. 2	566	119	90	111
Creveling, John L., New York, N. Y. Driving mechanism for dynamos	642,863	Feb. 6	514	120	90	1066
Creveling, John L., New York, N. Y. Automatic regulation of systems of electrical distribution	644,407	Feb. 27	3397	788	90	1677
Creveling, John L., New York, N. Y. Car-lighting system	644,408	Feb. 27	3398	789	90	1677
Creveling, John L., New York, N. Y. Electrical distribution	644,409	Feb. 27	3400	790	90	1678
Creveling, John L., New York, N. Y. Electric switch	646,068	Mar. 27	2810	623	90	2456
Crighton, James. (See Grimond and Crighton.)						
Crlpe, John A., Macon County, Ill. Hub	643,185	Feb. 13	1113	259	90	1303

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Crisp, Charles, *et al.* (See Taylor, Charles A., assignor.)						
Cristadoro, Charles, *et al.* (See Hachmann, Frederick, assignor.)						
Critchlow, Oscar B. (See En Earl and Critchlow.)						
Crocker, David, Spooner, Wis. Cabinet	642,209	Jan. 30	3898	885	90	817
Crockett, Thomas, Montreal, Canada. Locomotive-flanger	642,300	Jan. 30	4049	922	90	848
Crockford, Alfred H., Dartford, England. Fluid-pressure engine	643,474	Feb. 13	1625	383 384	90	1304
Crofford, Warren K., New York, N. Y. Door-check	641,499	Jan. 16	2584	589 590	90	596
Croft, William, *et al.* (See Strange, John F., assignor.)						
Crompton & Knowles Loom Works. (See Crompton, Randolph, assignor.)						
Crompton & Knowles Loom Works. (See Wyman, Horace, assignor.)						
Crompton, Randolph, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Warp stop-motion for looms	643,402	Feb. 13	1489	349	90	1275
Cronin, John P., Paterson, N. J. Attachment for winding-machines	640,450	Jan. 2	568	120	90	112
Cronkright, Wesley G., *et al.* (See Schirra, Julius, assignor.)						
Crosby, George H., Albion, Me. Wheel	646,165	Mar. 27	2998	661	90	2368
Crosby, Hartwell A., Calais, Me. Lamp-burner	640,538	Jan. 2	721	157	90	142
Crosby, John D. (See Tirrell, Edwin P., assignor.)						
Crosby Steam Gage and Valve Company. (See Lane, Frederick, assignor.)						
Cross, Frank L., Mystic, Conn. Paper-feeding machine	640,368	Jan. 2	409	86	90	81
Cross, George W., Carbondale, Pa. Screen	645,072	Mar. 13	948	202	90	1959
Cross, Jesse L. (See Gill, Thomas S., assignor.)						
Cross, Joseph E., Brattleborough, Vt. Distilling apparatus	641,437	Jan. 16	2473	566	90	514
Cross, Joseph E., Brattleborough, Vt. Bath-cabinet	645,250	Mar. 13	1287	279	90	2025
Cross, Ranslar R., Oneonta, N. Y. Batter-mixer	640,369	Jan. 2	415	87	90	82
Cross, Ranslar R., Oneonta, N. Y. Machine for packing butter	641,084	Jan. 9	1811	402 403	90	370
Cross, William, Brisbane, Queensland. Preserving timber	643,762	Feb. 20	2196	.....	90	1429
Crossley, Eliza A., Auckland, New Zealand. Wheel for bicycles or other vehicles	641,065	Jan. 9	1814	403	90	370
Crotts, William A., Partridge, Kans. Wagon-box holder	643,475	Feb. 13	1629	384	90	1305
Crouch, Charles R. (See Plunkett, Charles L., assignor.)						
Crouse, Clarence B., *et al.* (See Towns and Lynde, assignors.)						
Crowell, Charles H., Lynn, Mass. Gummed cloth for bookbinding	643,594	Feb. 13	1630	435	90	1345
Crowell, David J., Dubois, Pa. Saw-swage	642,896	Feb. 6	580	133	90	1079
Crowell, Frank A. (See Jordan and Crowell.)						
Crowley, Michael. (See Goodwin, Robert, assignor.)						
Crowley, Timothy F., New York, N. Y. Device for cutting ice-cream	642,585	Feb. 6	42	9	90	974
Crowley, Timothy F., New York, N. Y. Cutter-gaze for ice-cream, &c.	645,508	Mar. 13	1734	380	90	2114
Crown, Cork and Seal Company. (See Painter and Hawkins, assignors.)						
Crozier, David J., New York, N. Y. Straightway valve	643,476	Feb. 13	1629	385	90	1305
Crozier, Thomas W., Roanoke, Va. Nut-lock	644,849	Mar. 6	543	118	90	1802
Crumbaker, Fred R., Mendon, assignor of one-half to H. D. Cushman, Three Rivers, Mich. Steam vacuum-pump	644,582	Mar. 6	35	8	90	1762
Crumbaugh, Henry W., Pittsburg, Ill. Check-row attachment	643,042	Feb. 6	825	192	90	1126
Crump, Samuel, Poughkeepsie, N. Y. Drying and varnishing prints	644,281	Feb. 27	3151	.....	90	1631
Crump, Samuel, Poughkeepsie, N. Y. Varnished print	644,282	Feb. 27	3153	740	90	1631
Cruser, Van Dyke, assignor of one-half to J. B. Hicks, New York, N. Y. Non-refillable bottle	640,275	Jan. 2	246	49	90	49
Crystal Case Company. (See Bradley, Benjamin C., assignor.)						
Cudaback, Clinton G. (See Washburn and Cudaback.)						
Cullen, Joseph D., Sitka, Ind. Traction-wheel	641,579	Jan. 16	2735	623	90	567
Cullen, Mathew M., New Cumberland, W. Va. Boat-pump	645,225	Mar. 13	1243	269	90	2016
Cullis, John M., Yonkers, N. Y. Truss	641,845	Jan. 23	3223	732	90	669
Culmer, John W., and G. B. Hoyt, assignors to National Computing Scale Company, Cleveland, Ohio. Spring-balance computing-scale	641,195	Jan. 9	2033	454 455	90	414
Culver, Austin B., Westfield, N. Y. Basket for packing fruit	643,948	Feb. 20	2541	598	90	1497
Culver, George A., assignor of one-half to A. H. Winkler and O. R. Patrick, Glenwood, Iowa. Rotary engine	642,096	Jan. 30	3637	833	90	765
Culver, George W., Ogden, Utah. Mail-bag catcher and deliverer	644,899	Mar. 6	630	136 137	90	1880
Culver, Henry S., assignor to M. D. Culver, London, Canada. Letter-file	646,360	Mar. 27	3423	768	90	2481
Culver, Mary D. (See Culver, Henry S., assignor.)						
Cummings & Co., P. J. (See Fontneau, Frank, assignor.)						
Cummings, Cornelius T., assignor of one-half to W. B. Gruber, Walterborough, S. C. Cornmeal-separator	642,421	Jan. 30	4318	974	90	902
Cummings, George L., New York, N. Y. Filter	645,892	Mar. 20	2456	542	90	2271
Cummings, James F., Detroit, Mich., assignor to American Vitrified Conduit Company, New York, N. Y. Tool for laying conduits for electrical conductors	644,794	Mar. 6	443	96	90	1842
Cummings, Josiah, Boston, Mass. Bonnet trunk or carrier	642,690	Feb. 6	205	51	90	1006
Cummins, Michael, New York, N. Y. Flue or pipe coupling	641,580	Jan. 16	2737	624	90	568
Cundell, Edward D., *et al.* (See Finigan, Thomas, assignor.)						
Cunniff, John V., New Bedford, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Holder for cop-skewers	641,765	Jan. 23	3066	697	90	640
Cunningham, L. M., *et al.* (See Powell, Benjamin W., assignor.)						
Cunningham, M. F. (See Lyons, Timothy F., assignor.)						
Cunningham, Stephen A., Marietta, Ohio. Thermometer-case	642,087	Jan. 30	3639	834	90	765
Cuntz, Hermann F., Hartford, Conn., assignor to Columbia and Electric Vehicle Company, Hartford, Conn., and Jersey City, N. J. Device for indicating condition of storage batteries	640,753	Jan. 9	1129	259	90	239
Curl, Charles A., and J. D. McAnlis, Beaver Falls, Pa. Extension-table	640,035	Jan. 2	904	205	90	176
Curley, James, Macoupin, Ill. Apparatus for distributing air	643,066	Feb. 6	929	218	90	1144
Curley, Michael S., Paducah, Ky. Means for harvesting cotton	640,878	Jan. 9	1389	312	90	292
Curley, Terence F., New York, N. Y. Razor-guard	645,791	Mar. 20	2298	500	90	2238
Currence, Loring L. J., Elkins, W. Va. Nut-cracker	641,581	Jan. 16	2739	624	90	568
Currey, Charles F. (See Sears and Currey.)						
Currier, John W., Los Angeles, Cal. Combined spring hinge and check	640,178	Jan. 2	33	8	90	8
Curry, Morton M. (See Doddridge, Albert F., assignor.)						
Curtain Supply Company. (See Forsyth, Henry H., assignor.)						
Curtis, Charles H. (See Bigger and Leonard, assignors.)						
Curtis, Jesse E., *et al.* (See Curtis, William G., assignor.)						
Curtis, Lucian P., *et al.* (See En Earl and Critchlow, assignors.)						
Curtis, William G., assignor of one-half to F. D. Gilbert and J. E. Curtis, Huntington, W. Va. Car-coupling	642,432	Jan. 30	4320	975	90	903
Curtis, Zenas A., Hansford, Tex. Wire-stretcher	640,589	Jan. 2	723	158	90	142
Curtiss, Thomas O., New York, N. Y. Button-stick and cleaning-shield	641,676	Jan. 23	2897	660	90	610

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Curtiss, Thomas O., Jr., New York, N. Y. Button-stick and cleaning-shield	641,677	Jan. 23	2899	661	90	610
Curtiss, William H., Buffalo, N. Y. Bicycle-gearing	642,816	Feb. 6	431	104	90	1050
Curts, Robert P. (See Hullinger and Curts.)						
Cushman, Henry D. (See Crumbaker, Fred R., assignor.)	640,370	Jan. 2	416	87	90	82
Cutler, Daniel R., Searsburg, Vt. Puzzle or game	642,586	Feb. 6	43	9,10	90	974
Cutler, Joseph W., Rochester, N. Y. Mail-chute						
Cutting, Louis W., Arlington, Mass. Device for holding corners of blotting or other sheets upon desks, &c.	644,349	Feb. 27	3301	767	90	1657
	642,301	Jan. 30	4050	922 923	90	849
Czigler, Paul, Mura Kiraby, Austria-Hungary. Sleeper for railways, &c.						
Czischek, Ludwig. (See Tentschert and Czischek.)	642,939	Feb. 6	475	112	90	1059
D'Arcy, Frank P., Kalamazoo, Mich. Envelop						
Daggett, Charles, *et al.* (See Longmore, Lewis F., assignor.)	645,504	Mar. 13	1735	880 881	90	2114
Daggett, Fred L., Somerville, Mass. Confectionery display and dispensing case						
Daggett, Frederick K. (See Warnock, Amos W., assignor.)	645,708	Mar. 20	2118	464	90	2205
Dahl, Berent O., Viroqua, Wis. Apparatus for sorting tobacco-leaves	644,663	Mar. 6	197	43	90	1792
Dahlin, Andrew, Vasa, Minn. Rotary engine	645,943	Mar. 27	2561	567	90	2207
Dalén, Gustaf, and A. Hultqvist, Stockholm, Sweden. Dynamo-electric machine	644,664	Mar. 6	200	43,44	90	1793
Daley, Fred A., La Grange, Ill. Furnace						
Dalgleish, James, Chicopee Falls, Mass., assignor to A. G. Spalding & Bros., Jersey City, N. J.; Chicago, Ill., and New York, N. Y. Golf-club	645,944	Mar. 27	2502	567	90	2207
Dallas, Charles R., T. S. Leese, and G. W. Granger, Pittsburg, Pa. Burner	640,996	Jan. 9	1652	366	90	339
Dallimore, Joseph, Lake Gillear, Victoria. Registering and recording apparatus	640,276	Jan. 2	247	50	90	49
Dalton, Albert G. (See Taylor, Isaiah H., assignor.)	640,179	Jan. 2	35	8	90	9
Daly, John A., Washington, D. C. Lining vulcanizable plates						
Dalzell, Gilmore & Leighton Company. (See Ebeling, Phillip, assignor.)	641,940	Jan. 23	3382	768	90	701
Dalzon, Aimé. (See Darmancier and Dalzon.)						
Dana, Frederick L., assignor to Thomas Phillips Company, Providence, R. I. Gearing	642,897	Feb. 6	582	133	90	1060
Dana, Harold S. (See Pearsons, Fillmore A., assignor.)						
Daniel, Paul, and M. Meunier, Paris, France. Motor						
Daniels, Augustus H., *et al.* (See Pfaudler, John M., assignor.)						
Daniels, Fred H. (See Wellman, Daniels, and Wellman.)						
Daniels, Philo E., Oakland, Cal., assignor of one-half to G. P. Cortes and A. L. Botham, Paxton, Nebr. Protector for trousers	640,277	Jan. 2	250	50	90	50
	640,540	Jan. 2	725	158 159 160	90	142
Daniels, Richard E., Rochdale, England. Artificial limb	644,410	Feb. 27	3462	790	90	1678
Danielson, Wilhelm, New York, N. Y. Mitering attachment for bevels	642,992	Feb. 6	695	150	90	1101
Dannbacher, Francis. (See Kane, Charles W., assignor.)						
Danner, John, Canton, Ohio. Table	640,451	Jan. 2	571	120	90	112
Danson, R. J., *et al.* (See Schroeder, Hugo, assignor.)	640,636	Jan. 2	906	205	90	176
Danzenbaker, Francis, Washington, D. C. Carton or packing-box						
Danzenbaker, Francis, Washington, D. C. Beehive	643,477	Feb. 13	1631	385	90	1305
Darby, William T., and C. A. Hooge, Martinsburg, W. Va. Railway-tie and rail-fastening	641,276	Jan. 16	2185	492	90	458
Darling, James D., assignor to Harrison Bros. & Company, Incorporated, Philadelphia, Pa. Porous diaphragm for cells employing fused electrolytes	641,438	Jan. 16	2475	567	90	515
Darling, James D., assignor to Harrison Bros. & Company, Incorporated, Philadelphia, Pa. Electrolytic apparatus	646,361	Mar. 27	3424	763	90	2481
Darling, John, London, England, and John Darling, Jr., Rutherglen, Scotland, assignors to Darling's Patent Automatic Coupling, Limited, Glasgow, Scotland. Coupling						
Darling, Loren M. (See Minassian and Darling.)						
Darling's Patent Automatic Coupling. (See Darling, John and John, Jr., assignors.)	644,005	Feb. 20	2648	626 627	90	1518
Darmancier, Michel, and A. Dalzon, St. Chamond, France. Breech-closing mechanism for ordnance	644,665	Mar. 6	202	44	90	1793
Daschbach, Harry J., Pittsburg, Pa. Bed-couch	640,180	Jan. 2	37	8	90	9
Dassori, Frederick, New York, N. Y. Napkin-holder	640,452	Jan. 2	572	120	90	112
Date, David B., Franklin, Conn. Staple-puller						
Date, Henry. (See Smith, Walter L., assignor.)	642,963	Feb. 6	696	159	90	1101
Datow, Emil P., New Orleans, La. Tobacco-pipe	642,739	Feb. 6	313	74	90	1028
Daugherty, Elmer E., New York, N. Y. Bottle-seal						
Dauscha, Frank J., *et al.* (See Langer, Gotthold, assignor.)	641,846	Jan. 23	3224	732	90	669
Davenport, Robert L., and F. Q. Rast, Cleburne, Tex. Hose-coupling	642,786	Feb. 6	378	91	90	1040
Daves, Benjamine M., Mimosa, Tenn. Quilting-frame	643,859	Feb. 20	2229	548	90	1454
Davey, Hugh C., Calistoga, Cal. Quicksilver-furnace						
David Bradley Manufacturing Company. (See Brunnemer, William T. M., assignor.)						
David C. Cook Publishing Company. (See Cook, David C., assignor.)	643,043	Feb. 6	829	192	90	1127
Davidson, David N., Winchester, Va. Cigarette-seam-forming clip	641,500	Jan. 16	2589	590 591	90	537
Davidson, Frank B., assignor, by mesne assignments, to Howe & Davidson Company, Chicago, Ill. Paper box						
Davidson, Homer E. (See Hoeffler, James H., assignor.)	646,362	Mar. 27	3427	764	90	2482
Davidson, James M., London, England. Roentgen-ray apparatus	645,460	Mar. 13	1661	363	90	2090
Davidson, Joseph, Forrestville, Md. Pocket-book	641,847	Jan. 23	3226	732 733	90	669
Davidson, Samuel C., Belfast, Ireland. Impact-wheel or turbine	643,044	Feb. 6	830	192	90	1127
Davidson, Thomas L., Bard, Iowa. Flood-gate	642,964	Feb. 6	698	160	90	1101
Davidson, William, assignor to H. F. Blount, Evansville, Ind. Plow	642,840	Feb. 6	476	112	90	1059
Davies, David, *et al.* (See Blaisdell, Byron R., assignor.)						
Davies, Henry, Chicago, Ill. Skirt-supporter and waist-holder						
Davis, Albert D. (See Livermore, Frederick W., assignor.)	641,277	Jan. 16	2186	492	90	459
Davis, Benjamin I., assignor of one-half to J. C. Sullivan, C. P. Davis, and R. L. Wood, Booneville, Va. Wagon-brake						
Davis Calyx Drill Company. (See Davis, Francis H., assignor.)	645,553	Mar. 20	1820	401	90	2144
Davis, Charles E., Chicago, Ill., assignor, by mesne assignments, to Link Belt Machinery Company. Mine-haulage locomotive						
Davis, Charles P., *et al.* (See Davis, Benjamin I., assignor.)	645,350	Mar. 13	1453	321	90	2058
Davis, Daniel C., Cascade, Ark. Cotton-chopper	642,587	Feb. 6	45	10,11	90	975
Davis, Francis H., New York, N. Y. Apparatus for boring	642,588	Feb. 6	48	11	90	975
Davis, Francis H., assignor to Davis Calyx Drill Company, New York, N. Y. Tower	640,879	Jan. 9	1391	312	90	298
Davis, George M., Hartford, Conn. Water-tube boiler						
Davis, Harry P., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Fuse-block	644,850	Mar. 6	544	118	90	1802
Davis, Henry C., and H. Strasburger, assignors of one-third to A. H. Strasburger, Washington, D. C. Scale dissolver and preventer	645,419	Mar. 13	1590	847 848	90	2086
Davis, Isaac E., Dillon, Kans. Curling-iron heater	644,283	Feb. 27	3155	740	90	1631

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Leonard M., assignor to Miller's Falls Company, Miller's Falls, Mass. Drilling-machine	642,965	Feb. 6	699	160	90	1102
Davis, Linford J., Battle Creek, Mich. Roller printing device	641,439	Jan. 16	2477	567	90	515
Davis, Warren F., assignor of one-half to J. Lee, Jr., San Francisco, Cal. Automatic can-heading machine	642,681	Feb. 6	206	51,52	90	1007
Davis, Wilbur G., Newton, Mass. Draft apparatus for vehicles	646,142	Mar. 27	2951	653	90	2284
Davis, Willard H., Cleveland, Ohio. Sack-fastener	642,302	Jan. 30	4051	923	90	849
Davy, Joseph, Oakland, Cal. Hasp-fastener	640,637	Jan. 2	909	205	90	176
Davy, William J., assignor of one-half to C. W. Milne, London, England. Electric-arc lamp	644,816	Mar. 6	485	104	90	1850
	645,461	Mar. 13	1662	.....	90	2100
Dawley, Adelbert R., Rome, N. Y. Leather-dressing						
Dawse, William B. H. (See Randall, George H., assignor.)						
Dawson, Arthur T., and G. T. Buckham, London, assignors to Vickers, Sons & Maxim, Limited, Sheffield, England. Running-out spring for guns	640,541	Jan. 2	728	160	90	143
Dawson, Arthur T., and L. Silverman, assignors to Vickers, Sons & Maxim, Limited, London, England. Automatic gun	644,969	Mar. 6	752	162 163	90	1906
	640,880	Jan. 9	1393	312	90	292
Dawson, James A., and P. P. Beyerback, New Orleans, La. Umbrella-holder						
Dawson, Leonard, Needham, Mass., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Multiple-signal transmitter	640,278	Jan. 2	251	50	90	50
Day, Maxwell W., Schenectady, N. Y., assignor to General Electric Company, of New York. Controller for electric motors	644,666	Mar. 6	208	44,45	90	1798
Day, William C., Philadelphia, Pa. Printing attachment for roll-holders	643,868	Feb. 20	2433	572	90	1475
Dayton, Frank, Portland, Oreg. Insect-destroyer	644,503	Feb. 27	3546	826	90	1706
Dayton Malleable Iron Company. (See Street, Clement F., assignor.)						
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
De Brae, William H., assignor of two-thirds to W. A. Raudabaugh, Pleasant Hill, and J. R. Raudabaugh, Celina, Ohio. Nut-lock	644,062	Feb. 27	2739	649	90	1549
	646,019	Mar. 27	2718	.....	90	2338
De Fazi, Ettore, Rome, Italy. Manufacture of gas						
De La Vergne Refrigerating Machine Company. (See Friedmann, Edward N., assignor.)						
De Laval Separator Company. (See Bell, Ernest E., assignor.)						
De Laval Separator Company. (See Berrigan, John J., assignor.)						
De Lay, Charles Y., Murphy, Cal. Elastic-tread horseshoe	644,284	Feb. 27	3156	740	90	1631
De Long, Oscar A., Glen Ridge, N. J. Safety-pin	640,542	Jan. 2	729	160	90	143
De Moulin, Edmund and U. S., Greenville, Ill. Trick-chair	642,092	Jan. 30	3650	895	90	767
De Moulin, Ulysses S. (See De Moulin, Edmund and U. S.)						
De Puy, Edward K., Washington, D. C. Penholder	641,588	Jan. 16	2742	625	90	569
De Steiger, Edward. (See De Steiger, Joseph L. and E. A.)						
De Steiger, Joseph L. and E. A., La Salle, Ill. Jar-closure	640,332	Jan. 2	332	69	90	67
De Vilbiss, Allen, Toledo, Ohio. Insufflator	643,867	Feb. 20	2386	562	90	1465
	642,303	Jan. 30	4053	923 924	90	849
De Wallace, Harry, St. Paul, Minn. Train-alarm						
De Young, Charles Z. (See Jackson, James, assignor.)						
Deafenbaugh, George W., Bellaire, Ohio. Bicycle driving-gear mechanism	644,411	Feb. 27	3403	790	90	1679
Deagan, John C., Chicago, Ill. Musical instrument	644,817	Mar. 6	487	105	90	1850
Dean, Cyrus S., Fort Erie, Canada, assignor of one-half to C. O. Rano, Buffalo, N. Y. Steam-engine	645,893	Mar. 20	2458	543	90	2272
Dean, Cyrus S., Fort Erie, Canada, assignor of one-half to C. O. Rano, Buffalo, N. Y. Automatic feeder for cleaners or scrapers for boiler tubes or flues	645,894	Mar. 20	2460	543	90	2272
Dean, John, assignor of two-thirds to J. F. Kerr and G. Simpson, Paterson, N. J. Jacquard-machine for looms	641,582	Jan. 16	2740	624	90	568
Dean, John N., Wheeling, W. Va. Couch-casket	642,817	Feb. 6	434	104	90	1050
Deane, Royal E., New York, N. Y. Disinfecting apparatus	643,949	Feb. 20	2542	596	90	1497
Decelle, Jerry D., Fort Collins, Colo. Deborning implement	644,350	Feb. 27	3302	767	90	1658
Decker, Frederick W. and G. S., Detroit, Mich. Cash-register	640,181	Jan. 2	88	9	90	9
Decker, George S. (See Decker, Frederick W. and G. S.)						
Decker, William N., assignor of two-thirds to A. S. Fitts and M. I. Wilcox, Toledo, Ohio. Combined smoke and gas consumer and fuel-feeder for furnaces	641,678	Jan. 23	2900	661	90	610
Deckert, Joseph O., Philadelphia, Pa., assignor to William Mann Company, of Pennsylvania. Copy-book	643,866	Feb. 20	2385	561	90	1465
	645,164	Mar. 13	1127	242 243	90	1994
Dedrick, Nicholas, Manitowoc, Wis. Engraving-machine table						
Dedrick, Nicholas, Manitowoc, Wis. Tool-grinder for engraving-machines	645,165	Mar. 13	1133	243 244	90	1995
Deeble, John, Southington, Conn. Nail-puller	644,667	Mar. 6	206	45	90	1794
Deems, John F., Burlington, Iowa. Water-heater for locomotive-tanks	642,088	Jan. 30	3640	834	90	765
Deere & Company. (See Poole, Staley D., assignor.)						
Deering Harvester Company. (See Borg, Chris, assignor.)						
Deering Harvester Company. (See Rand, Charles A. A., assignor.)						
Degnan, John P., Chenoa, Ill. Corn-harvester attachment	646,102	Mar. 27	2866	635	90	2367
	641,440	Jan. 16	2478	567 568	90	515
Deidrick, William H., East Liverpool, Ohio. Decorating-machine						
Deiters, Harry A. (See Eastep, Deiters, and Barth.)						
Delaunay-Belleville, Louis M. G., Neuilly, France. Pumping apparatus and compressor	645,798	Mar. 20	2299	501	90	2238
Deleull, Séverin L., Vincennes, France. Color-printing machine	644,738	Mar. 6	308	68	90	1814
Delius, George. (See Tatro and Delius.)						
Deming, Eugene W., New Orleans, La. Apparatus for defecating liquids	645,290	Mar. 13	1356	294 295	90	2039
Deming, Ferdinand, assignor, by mesne assignments, to M. B. Clowes, Waterbury, Conn. Hydraulic tube-testing machine	640,881	Jan. 9	1394	315	90	292
Dempster, Alexander R., and W. D. Rinehart, assignors to Dempster Manufacturing Company, Des Moines, Iowa. Tank-heater	644,129	Feb. 27	2859	677	90	1576
Dempster Manufacturing Company. (See Dempster and Rinehart, assignors.)						
Dendurent, Murney, Padonia, Kans. Sewing-machine mechanism	643,478	Feb. 13	1634	386	90	1306
Denis, Delphis, St. Benoit, Canada. Potato-digger	640,754	Jan. 9	1131	260	90	239
Denis, Henry, New Orleans, La. Fastening for paper or other articles	643,045	Feb. 6	831	193	90	1128
Denman, William H., Philadelphia, Pa. Elastic-tread horseshoe	642,898	Feb. 6	585	133	90	1060
Dennis, Samuel K., *et al.* (See Blaisdell, Byron R., assignor.)						
Dennis, Thomas, New Castle, Pa. Trolley	645,851	Mar. 13	1454	321	90	2059
Dennis, Thomas L., New York, N. Y. Speaking-tube	641,848	Jan. 23	3228	733	90	669
Denzig, Fred M., Wabash, Ind. Cylinder drain-cock	641,086	Jan. 9	1816	403	90	371
Depoe, Lawson S., Washington, Pa. Bit-holder for shaping-machines	643,950	Feb. 20	2543	599	90	1498
Derbohlaw, John, New York, N. Y. Fur cutting machine	646,265	Mar. 27	3200	706 707	90	2433
Dermody, William J., Omaha, Nebr. Fire escape	644,504	Feb. 27	3547	826	90	1707

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Des Brisay, James, New Westminster, Canada. Can-washing machine	643,479	Feb. 13	1037	386 387	90	1306
Deshler, Charles, New Brunswick, and E. J. McAllister, Newark, N. J. Photometer	640,882	Jan. 9	1398	313 314	90	208
Desrosiers, Narcisse. (See Paradis and Desrosiers.)						
Deters, Charles F. J., Davenport, Iowa. Mechanical movement	644,351	Feb. 27	3304	767	90	1658
Detroit Reduction Company. (See Rider, Frank A., assignor.)						
Detroit Switchboard and Telephone Construction Company. (See Ahern, Thomas F., assignor.)						
Deutcher, Mathias. (See Holz, Bernhard, assignor.)						
Deutsche Kapital-Versorgungs-Bank Köln-on-the-Rhine. (See Schmitz, Cornelius, assignor.)	642,210	Jan. 30	3894	885 886	90	817
Deutesfeld, Friedrich, Hamburg, Germany. Folding carriage for invalids or infants	645,462	Mar. 13	1662	363	90	2100
Deverell, Arthur C., and J. J. Lake, St. Paul, Minn. Walk-over car-seat	640,453	Jan. 2	573	120	90	112
Devers, John C., Wilkes-Barré, Pa. Plate or pan holder or lifter						
Devins, Isaac N. (See Brillinger, Michael, assignor.)						
Devlin, Peter, Baltimore, Md., assignor of one-half to J. C. McKennie, Charlottsville, Va. Stopper-fastening	645,352	Mar. 13	1455	322	90	2059
Dewar, William, Glasgow, Scotland. Nippers for closing metallic rings upon rubber tubing	646,020	Mar. 27	2718	603	90	2338
Dewes, Abednego. (See Whiting, Henry A., assignor.)	642,089	Jan. 30	3644	884	90	766
Dewes, Abednego, and H. A. Whiting, New York, N. Y. Tire	644,063	Feb. 27	2740	649	90	1549
Deyoe, Walter M., assignor of one-half to D. E. Wynkoop, Kingsley, Mich. Logging-hook	643,223	Feb. 13	1168	273	90	1215
Dhé, Charles, and L. Houze, Hartford City, Ind. Making concavo-convex glass plates	640,883	Jan. 9	1401	314	90	208
Dhuse, Herman, Kendall, Ill. Footboard for vehicles						
Dial, Wilbur F. (See Lepper and Dial.)						
Diamond Match Company. (See Clough, Fred M., assignor.)						
Diamond Match Company. (See Sisum, William H. H., assignor.)						
Diamond Match Company. (See Steele, Charles W., assignor.)						
Diamond Meter Company. (See Scheeffer, Gustave A., assignor.)						
Diamond Rubber Company. (See Marks, Arthur H., assignor.)	641,278	Jan. 16	2187	492	90	459
Dick, John, Chicago, Ill. Life-saving net	641,766	Jan. 23	3067	697	90	640
Dick, Joseph, Canton, Ohio. Fodder-cutter						
Dickerson, Edward N. (See Carlile, William E., assignor.)						
Dickerson, Edward N. (See Esmond, Ernest R., assignor.)						
Dickerson, Edward N. (See Laski, Albert de, assignor.)	640,279	Jan. 2	254	51	90	50
Dickerson, William M., Indianapolis, Ind. Veneer-saw						
Dickey, Alexander, *et al.* (See Laing, John H., assignor.)						
Dickey, William G. (See Paine and Dickey.)	646,143	Mar. 27	2955	653	90	2385
Dickinson, Paul, Chicago, Ill. Metal chimney	644,900	Mar. 6	696	137 138	90	1881
Dickinson, Sanford B., and J. A. Rogers, Corning, N. Y. Railway	644,818	Mar. 6	490	105	90	1851
Diebel, William, Philadelphia, Pa. Pedal	644,819	Mar. 6	491	105	90	1851
Diebel, William, Philadelphia, Pa. Pedal	640,698	Jan. 2	910	206	90	177
Diehl, Albert C., Philadelphia, Pa. Hose-coupling	645,554	Mar. 20	1822	402	90	2144
Diehl, Frank, Sheboygan, Wis. Planer attachment	641,279	Jan. 16	2189	492 493	90	459
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Needle-bar mechanism for sewing-machines	645,555	Mar. 20	1824	402	90	2145
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Feeding mechanism for sewing-machines	646,266	Mar. 27	3201	707 708 709 710 711	90	2433
Diesel Motor Company of America. (See Frith, Arthur J., assignor.)	644,795	Mar. 6	444	96	90	1842
Diesener, Hermann, Charlottenburg, Germany. Machine for use in preparing clay	644,006	Feb. 20	2951	627	90	1518
Dieterich, Fred G., Washington, D. C. Tobacco-leaf-stemming machine	641,679	Jan. 23	2902	661	90	611
Dietz, Uriah, Bangor, Pa. Wagon-jack	645,463	Mar. 13	1664	363	90	2100
Diffenderffer, John K. E., Baltimore, Md. Mechanical movement	643,480	Feb. 13	1641	387	90	1307
Diffey, Alexander A., Fort Smith, Ark. Machine for cleaning seed	640,884	Jan. 9	1403	314	90	204
Dikeman, Charles S., Torrington, Conn. Bicycle						
Dilger, Theodore. (See Williamson, John L., assignor.)	641,501	Jan. 16	2593	591 592	90	538
Dillaway, George W., Muscatine, Iowa. Permutation-lock	645,311	Mar. 13	1387	303	90	2045
Diller, John D., Pandora, Ohio. Blower for threshing-machines	641,690	Jan. 23	2904	662	90	611
Dilling, Charles, assignor of one-half to A. Mann, New York, N. Y. Baby-carriage	640,639	Jan. 2	913	206	90	177
Dilly, Charles, Cleveland, Ohio. Die-stock	640,997	Jan. 9	1655	366 367	90	339
Dingee, William W., assignor to J. I. Case Threshing Machine Company, Racine, Wis. Threshing-machine	645,312	Mar. 13	1388	303 304	90	2045
Dion, Albert de, and G. Bouton, Puteaux, France. Friction-clutch	643,742	Feb. 20	2160	507	90	1422
Dion, Léon, Boston, Mass. Conduit system for electric railways	642,906	Feb. 6	701	161	90	1102
Direct Separator Company. (See Treat, Charles H., assignor.)	643,481	Feb. 13	1643	388	90	1308
Disman, George W., assignor of one-half to W. T. Agerter, Lima, Ohio. Churn	643,482	Feb. 13	1644	388	90	1308
Diss, Albert B., New York, N. Y. Caster	643,483	Feb. 13	1646	388	90	1308
Diss, Albert B., New York, N. Y. Caster	645,386	Mar. 13	1528	335	90	2074
Diss, Albert B., New York, N. Y. Caster	645,387	Mar. 13	1530	336	90	2074
Diss, Albert B., New York, N. Y. Caster	645,388	Mar. 13	1531	336	90	2075
Diss, Albert B., New York, N. Y. Caster	645,251	Mar. 13	1288	279	90	2026
Dittmar, Charles F., Milwaukee, Wis. Child's carriage	643,186	Feb. 13	1113	259	90	1208
Divine, Silas R., Loch Sheldrake, N. Y. Flail	640,885	Jan. 9	1403	315	90	204
Dix, William J., Milford, Mass. Apparatus for folding tops of boots or shoes	642,090	Jan. 30	3646	885	90	767
Dixon, Charles F. (See Standing and Dixon.)						
Dixon, John R., Chicago, Ill. Combined coop and brooder	640,040	Jan. 2	914	206 207	90	177
Dixon, Laurens P., Toledo, Ohio. Device for tubing wire or other metal strips	644,734	Mar. 6	310	68	90	1815
Dixon, Richard B., assignor of one-fourth to W. T. J. Lee and D. O. Cameron, Toronto, Canada. Rotary engine	642,589	Feb. 6	49	12	90	973
Dixon, Robert M., East Orange, N. J. Dynamo-driving mechanism	642,560	Feb. 6	51	2,13	90	976
Dixon, Robert M., East Orange, N. J. Audible-signal system						

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Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, of New Jersey. Lighting apparatus	643,814	Feb. 20	2279	536	90	1444
Dixon, Samuel W., Findlay, Ohio. Garbage-furnace	644,505	Feb. 27	3549	826 827	90	1707
Dobler, Jacob, Galena, Kans. Wagon-brake	642,304	Jan. 30	4057	924	90	850
Dodd, Alvin H., assignor to J. W. Dyrenforth, trustee, Chicago, Ill. Carpet-sweeper	643,634	Feb. 20	1960	460 461	90	1384
Dodd, Charles H. (See McLaughlin and Dodd.)						
Dodd, William T., Walla Walla, Wash. School-desk	644,064	Feb. 27	2741	649 650	90	1550
Doddridge, Albert F., assignor of one-half to M. M. Curry, Chicago, Ill. Fire-alarm apparatus	645,588	Mar. 20	1909	420	90	2162
Doddridge, John S., Red Cliff, Colo. Nut-lock	641,376	Jan. 16	2354	538	90	492
Dodds, Thomas E., Crider, Ky. Traction-engine	641,941	Jan. 23	3383	769	90	701
Dodge, Arthur P., New York, N. Y. Turnstile	640,988	Jan. 9	1658	368	90	339
Dodge, Carroll W., Worcester, Mass. Guide for sewing-machines	646,267	Mar. 27	3205	711	90	2434
Dodge, Charles, U. S. Army, assignor to K. C. Dodge, Fort Douglas, Utah. Accoutrement-support	646,166	Mar. 27	3000	662	90	2294
Dodge, Cyrus A., and W. J. Zuill, Syracuse, N. Y.; said Dodge assignor to said Zuill. Washing-machine	645,464	Mar. 13	1665	364	90	2101
Dodge, Edwin H., assignor to Hartford Type-Writer Company, Hartford, Conn. Escapement-feed mechanism for type-writers or analogous machines	643,403	Feb. 13	1491	350	90	1275
Dodge, Kate C. (See Dodge, Charles, assignor.)	642,682	Feb. 6	212	52,53	90	1008
Dodge, Le Grand, Syracuse, N. Y. Dumping-wagon	646,363	Mar. 27	3420	764	90	2482
Dodson, Harry E. (See Crain, Evans, and Dodson.)	640,513	Jan. 2	672	145	90	132
Dodsworth, Walter F., Leavenworth, Kans. Blank book for type-writers						
Doege, Paul E., Toronto, Canada. Propulsion of boats	640,280	Jan. 2	255	51	90	51
Doen, Edward B. (See Gillett and Doen.)	642,091	Jan. 30	3649	835	90	767
Doerr, John H., Louisville, Ky. Umbrella-holder for vehicles	642,433	Jan. 30	4322	975	90	908
Doersch, Henry C., Nyack, N. Y. Puzzle	642,212	Jan. 30	3897	886 887 888	90	817
Doherty, Thomas, Sarnia, Canada. Apparatus for manufacturing iron and steel	640,886	Jan. 9	1406	315	90	204
Doig, William S., New York, N. Y. Box-nailing machine	640,887	Jan. 9	1408	315 316	90	204
Dolan, Edward J., Philadelphia, Pa. Acetylene-gas tip	640,888	Jan. 9	1409	316	90	205
Dolan, Edward J., Philadelphia, Pa. Acetylene-gas burner	642,869	Feb. 6	585	134	90	1080
Dolan, Edward J., Philadelphia, Pa. Acetylene-gas burner	642,519	Jan. 30	4451	.....	90	928
Dolder, Jules, Grevenbroich, Germany. Apparatus for mercerizing						
Dolley, Charles S., and A. F. Crank, Philadelphia, Pa. Treating hides, skins, or leather.						
Donaldson, Robert M. (See Mattison, Charles D., assignor.)	644,970	Mar. 6	755	163	90	1906
Donaldson, Thomas G., Baltimore, Md. Dental flask						
Donaldson, Walter. (See Hall and Donaldson.)	641,942	Jan. 23	3386	769	90	702
Donaldson, William J., and C. Borgner, Philadelphia, Pa. Building construction						
Donaldson, William R., *et al.* (See Worth, William O., assignor.)	640,755	Jan. 9	1184	261	90	240
Donavan, Jeremiah, assignor of one-half to M. B. Miller, Carlisle, Pa. Shoe-fastener						
Donnally, James H., *et al.* (See Windle, George N., assignor.)	646,364	Mar. 27	3430	765	90	2482
Donnelly, John, Branford, Conn. Support for trees	640,543	Jan. 2	730	161	90	143
Donning, Fred. W., Schenectady, N. Y. Combined paper-holder and pencil	640,454	Jan. 2	574	121	90	113
Donovan, Cornelius, New York, N. Y. Truss-pad	646,048	Mar. 27	2777	615	90	2350
Donzella, Don S., Dogliani, Italy. Pruning implement	641,087	Jan. 9	1817	404	90	371
Dooley, Michael M., Logootee, Ind. Device for fastening shoes	640,182	Jan. 2	42	9	90	10
Doolittle, Irvin P., Toronto, Canada. Cover-fastening for fruit-jars or similar vessels						
Doolittle, William H., assignor of two-thirds to F. L. Patterson and S. S. White, Philadelphia, Pa. Quad-forming attachment for linotype-machines	645,078	Mar. 13	945	202	90	1959
Doolittle, William W., Chicago, Ill., assignor, by mesne assignments, to Otis Elevator Company, of New Jersey. Hydraulic-elevator speed-regulator	640,544	Jan. 2	731	161 162	90	143
Doran, Albert P., Nashville, Tenn. Vapor-burning incandescent lamp	646,365	Mar. 27	3431	765	90	2482
Dorman, William H., Stafford, England. Lasting-machine	640,999	Jan. 9	1658	368 369	90	340
Dorment, Frank C., assignor of one-third to H. G. Colman, Kalamazoo, Mich. Atomizer	642,211	Jan. 30	3895	886	90	817
Dorney, Robert J., Arlington, Ohio. Adjustable gate	642,668	Jan. 30	3651	836	90	768
Dornfeld, John F., Milwaukee, Wis. Means for attemperating and purifying air	644,668	Mar. 6	207	45,46	90	1794
Dorsey, Charles J. (See Hubbard and Dorsey.)						
Dortch, John M. (See Suppes and Dortch.)	642,591	Feb. 6	52	13	90	976
Dossogne, Frédéric, Antwerp, Belgium. Door check and closer	645,914	Mar. 20	2506	554	90	2279
Dotson, John W., Chicago, Ill. Door-fastener	641,849	Jan. 23	3251	733	90	670
Doty, Ellsworth P., assignor of one-half to C. A. Chase, Cato, N. Y. Cream-separator						
Doty, James H. (See Upton, Willard, assignor.)						
Doudna, Charles B. (See Paine and Doudna.)	642,547	Jan. 30	4507	1021	90	939
Doughty, George R., Cleveland, Ohio. Copying-bath	640,756	Jan. 9	1136	261	90	240
Douglas, Frank, Chicago, Ill. Bicycle-chain guard	643,285	Feb. 13	1285	303	90	1237
Douglas, Robert, assignor of one-half to E. A. Jennings, New Bedford, Mass. Tool-fastening	644,901	Mar. 6	688	138	90	1881
Douglass, Arthur R., Chariton, Iowa. Gun-sight						
Dowagiac Manufacturing Company. (See Fowle, Charles L., assignor.)						
Dowd Electrical Company. (See Holdrege, Sidney L., assignor.)	640,281	Jan. 2	256	51,52	90	51
Dowding, James F., assignor of one-half to H. O. Mascall, London, England. Lathe	645,313	Mar. 13	1389	304 305	90	2045
Dowding, James F., assignor of one-half to H. O. Mascall, London, England. Lathe						
Dowell, Julian C. (See Simpson, Edward P., assignor.)	644,065	Feb. 27	2744	650	90	1551
Dowler, Arthur W., Chicago, Ill. Water-heater	642,305	Jan. 30	4058	924 925	90	850
Dowling, Patrick J., assignor of two-thirds to C. J. Griggs and T. F. Lawlor, Waterbury, Conn. Apparatus for exhibiting cards	640,371	Jan. 2	418	87	90	82
Downes, Louis W., Providence, R. I. Electric fuse or cut-out	642,094	Jan. 30	3652	836	90	768
Downing, Fred, Toronto, Canada. Bird-cage perch and attachment	641,000	Jan. 9	1661	369	90	340
Downing, Wellington, and F. H. Wendt, Erie, Pa. Folding-machine	645,704	Mar. 20	2119	464	90	2205
Downs, Duncan, West Superior, Wis. Umbrella tent	645,556	Mar. 20	1825	402 403	90	2145
Downs, William H., assignor to E. H. Brown, Salem, Mass. Machine for polishing leather	645,793	Mar. 20	2301	502	90	2239
Doyle, Christopher J., Philadelphia, Pa. Apparatus for preserving wood	644,568	Mar. 6	37	8	90	1762
Doyle, John H., Atlanta, Ga. Artificial denture	640,545	Jan. 2	734	162	90	144
Drake, George H., Omaha, Nebr. Boiler	643,768	Feb. 20	2197	518	90	1429
Drake, John A., Ovenden, England. Weigher and charger for gas-retorts	644,162	Feb. 27	2917	690	90	1596
Drake, John A., Ovenden, England. Metallurgical furnace						

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Drake, Theodore B. (See Transue, Uriah, assignor.)						
Draper Company. (See Allen, Nicholas L., assignor.)						
Draper Company. (See Bracewell, William H., assignor.)						
Draper Company. (See Burton, John L., assignor.)						
Draper Company. (See Clark, George A., assignor.)						
Draper Company. (See Clement, Alvah W., assignor.)						
Draper Company. (See Cray, Henry W., assignor.)						
Draper Company. (See Cunniff, John V., assignor.)						
Draper Company. (See Draper, George O., assignor.)						
Draper Company. (See Littlefield, Charles A., assignor.)						
Draper Company. (See Northrop, James H., assignor.)						
Draper Company. (See Northrop and Stimpson, assignors.)						
Draper Company. (See Smith, Cyrus E., assignor.)						
Draper Company. (See Stimpson and Northrop, assignors.)						
Draper Company. (See Whitmore, Fred A., assignor.)						
Draper Company, (See Willey and Connacher, assignors.)	641,001	Jan. 9	1603	370	90	341
Draper, George O., Hopedale, Mass., assignor to Draper Company. Step for spindles	643,951	Feb. 20	2544	509	90	1498
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp-stop-motion apparatus	645,915	Mar. 20	2507	554	90	2280
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Spinning apparatus	641,681	Jan. 23	2205	662	90	611
Draver, Emil R., assignor, by mesne assignments, of one-half to M. L. Draver, Stillwater, Minn. Dust-collector.						
Draver, Marie L. (See Draver, Emil R., assignor.)						
Drawbaugh, Daniel, Eberly's Mills, assignor of three-fourths to D. B. Hoffer, Lebanon, J. E. Shettle, Shepherdstown, and H. B. Eberly, Shiremanstown, Pa. Electric generator for sparking apparatus of gas-engines	643,087	Feb. 6	931	218, 219	90	1144
Dreckmann, Johannes, Cassel, Germany. Elbow-lever valve	644,224	Feb. 27	3041	720	90	1610
Dreisbach, William I. (See Smith, Romeyn L., assignor.)	644,735	Mar. 6	313	69	90	1816
Dressel, Frederick W., New York, N. Y. Hand-lantern	640,546	Jan. 2	735	163	90	144
Dresser, Philo F., Glenwood, Iowa. Hand-plane	640,183	Jan. 2	43	10	90	10
Dresser, Solomon R., Bradford, Pa. Friction pipe-coupling	644,796	Mar. 6	446	96	90	1843
Drew, Harry B., Kittery, Me. Knockdown crate	643,714	Feb. 20	2115	496	90	1413
Drewsen, John, Worcester, assignor to J. G. Holman, Malden, Mass. Toilet-paper holder	646,268	Mar. 27	3206	711	90	2434
Drewsen, Viggo, New York, N. Y. Apparatus for making bisulfite of lime	641,002	Jan. 9	1664	370	90	341
Drewsen, Viggo, New York, N. Y. Apparatus for measuring intensity of light	640,455	Jan. 2	575	121	90	113
Drinker, Richard C., South Bethlehem, Pa. Apparatus for measuring intensity of light						
Drinkwater, James, Winchester, Canada. Nut-lock	644,506	Feb. 27	3557	828	90	1708
Drinnan, Robert G. (See Leask and Drinnan.)						
Dromgold, Walker A., York, Pa. Chair	641,767	Jan. 23	3069	698	90	640
Drösse, Hermann, Berlin, Germany. Method of electric-arc heating and apparatus therefor						
Drown, Fred A. (See Baldwin, Ferrill, and Drown.)						
Drucklieb, Charles A., *et al.* (See Sticker, Francis, assignor.)						
Drucklieb, Jullus C., *et al.* (See Sticker, Francis, assignor.)	643,224	Feb. 13	1169	274	90	1215
Drummond, John, Danville, Canada. Machine for making wire clothes-pin springs	643,046	Feb. 6	892	198	90	1128
Drury, Alfred C., deceased, (F. P. Drury, administratrix,) and G. E. Sims, Canton, N. Y., said F. P. Drury assignor to said Sims. Bicycle-saddle	645,465	Mar. 13	1667	364	90	2101
Drury, Frances P., administratrix. (See Drury and Sims.)	645,466	Mar. 13	1668	364	90	2101
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-branding machine	646,206	Mar. 27	3084	680	90	2410
Du Brul, Napoleon, Cincinnati, Ohio. Treadle						
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-wrapper-cutting machine						
Du Pont, Antoine B., Detroit, Mich., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	644,198	Feb. 27	2991	708	90	1600
Ducat, Walter M., London, England. Filter for purifying sewage, &c.	641,197	Jan. 9	2037	455, 456	90	414
Duddstadt, Ferdinand, Leipsic, Germany. Acetylene-gas producer	643,815	Feb. 20	2280	537	90	1444
Dudley, Archie L., Chicago, Ill. Metallic packing	644,704	Mar. 6	265	59	90	1807
Dudley, Howard H., Spanish Lake, Mo. Checking or unchecking device	641,088	Jan. 9	1819	404	90	371
Dueiner, Louis, Hamilton, Ohio. Oven-thermometer	641,280	Jan. 16	2192	498	90	460
Duff, Firman K. (See Marshall, Samuel, assignor.)						
Duffey, Frank B., Los Angeles, Cal. Incandescent vapor-burner	643,635	Feb. 20	1963	461	90	1385
Duffie, Robert, assignor of one-half to D. Haworth, New Bedford, Mass. Device for converting hot and dry steam into cool and wet vapor	640,547	Jan. 2	736	163	90	144
Duffner, Andrew, Jr., Toledo, Ohio. Air-propeller	640,184	Jan. 2	46	10	90	11
Dugan, Daniel A., New York, N. Y. Automatically-locking thread-guide	642,095	Jan. 30	3653	836	90	768
Duigan, John C., Melbourne, Victoria. Milking device	641,441	Jan. 16	2480	568	90	515
Dull, Robert F., Bridgewater, Va. Spray	644,971	Mar. 6	756	163	90	1907
Dumartin, Georges. (See Tempied and Dumartin.)						
Dunbar, Arthur U., and S. E. Miller, Galesburg, Ill. Tree extractor and carrier	640,889	Jan. 9	1411	316, 317	90	295
Dunbar, Everett H., Lynn, Mass. Cushioning device for boots or shoes	644,412	Feb. 27	3405	791	90	1679
Duncan, Selden, San Antonio, Tex. Hotel-register and advertising-card cabinet	642,306	Jan. 30	4068	925	90	851
Duncan, Thomas, Pittsburg, Pa. Student's-desk book-holder	642,096	Jan. 30	3654	836	90	768
Duncan, William. (See Fordyce and Duncan.)						
Dundon, P. F. (See Pless, William B., assignor.)	645,794	Mar. 20	2308	502	90	2239
Dungey, Walter G., Hemlock, Mich. Ditch or plt filling machine	641,377	Jan. 16	2355	538	90	492
Dunlap, Walter C., West Bridgewater, Pa. Burial-casket	643,112	Feb. 13	981	229	90	1176
Dunlap, William A., Pittsburg, Pa. Miner's lamp	644,066	Feb. 27	2746	650	90	1551
Dunn, Edward, Watervliet, N. Y. Controversial device						
Dunn, Elias B. (See Miller and Dunn.)	645,166	Mar. 13	1139	245	90	1996
Dunn, George B., Worcester, Mass. Shoe-polishing device						
Dunn, Russell L. (See Van Brocklin, John W., assignor.)						
Dunshee, Thomas A. (See McCaffrey and Dunshee.)						
Duplex Printing Press Company. (See Bechman, Henry F., assignor.)						
Dupont, Georges F., Paris, assignor to P. Germain, Fontenay-aux-Roses, France. Microphonic transmitter	643,484	Feb. 13	1647	388	90	1309
Dupont, Jules. (See Chialiva and Dupont.)						
Dupont Manufacturing Company. (See Blossom, Edward H., assignor.)						
Duquesne, Adrien, Paris, France. Loom for weaving pile fabrics	642,740	Feb. 6	314	74, 75, 76, 77	90	1099
Durfee, Charles G., *et al.* (See Spies, Peter H. F., assignor.)						
Durgin, Hiram H. (See Messier and Mercure, assignors.)	643,816	Feb. 20	2298	537	90	1445
Durham, Robert L., Burlington, N. C. Loom picker attachment	644,413	Feb. 27	3406	791	90	1679
Durning, Joseph S., Emsworth, Pa. Axle and wheel						

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Durrenberger, George, assignor to L. A. Mills, Middlefield, Conn., executor of W. Lyman, deceased. Sight for firearms	644,584	Mar. 6	88	9	90	1782
Durst, William F., New York, N. Y. Curtain-ring	646,366	Mar. 27	3433	765	90	2483
Duryea, Chester B., New York, N. Y. Treating starch	643,823	Feb. 13	1349		90	1249
Duryea, James F., Springfield, Mass. Explosive-engine	646,390	Mar. 27	3491	778	90	2498
Dusedau, William, New York, N. Y. Cable-tramway	645,314	Mar. 13	1391	305, 306	90	2046
Duvall, James W., and G. A. Shepard, assignors to themselves and W. G. Clark, Middletown, Ohio. Paper-bag machine	644,180	Feb. 27	2960	677	90	1576
Duvall, Jephthah P., Waverly, Iowa. Friction-clutch	644,352	Feb. 27	3305	768	90	1658
Duvall, William S., Washington, D. C., assignor to Seng Company, Chicago, Ill. Opening mechanism for box-couches	642,967	Feb. 6	703	161	90	1102
Dwight, Willis H., Le Mars, Iowa. Denture	643,868	Feb. 20	2387	562	90	1465
Dwyer, Daniel R., *et al.* (See Herbert, Thomas F., assignor.)						
Dwyer, John R. (See Stickley and Dwyer.)						
Dycus, William S., and W. E. Peay, Kuttawa, Ky. Tobacco-truck	643,324	Feb. 13	1350	316	90	1249
Dyer, Frank L. (See Dyer, Leonard H., assignor.)						
Dyer, John W., *et al.* (See Peters, William A., assignor.)						
Dyer, Leonard H., Washington, D. C., assignor of one-fourth to F. L. Dyer, Montclair, N. J. Gearing for automobile vehicles	643,595	Feb. 13	1839	435	90	1345
Dyer, William H., Strong, Me. Machine for pointing wooden toothpicks	644,851	Mar. 6	546	118	90	1863
Dyon, Fillase. (See Giguere, Thomas, assignor.)						
Dyrenforth, Julius W., trustee. (See Dodd, Alvin H., assignor.)						
E. & B. Holmes Machinery Company. (See Holmes and Beugler, assignors.)						
E. & H. T. Anthony & Company. (See Farrand, William C., assignor.)						
E. & H. T. Anthony & Company. (See Wallace, Laird H., assignor.)						
E. J. Brooks & Company *et al.* (See Blankenmeister, Ferdinand O., assignor.)						
E. & T. Fairbanks & Company. (See Fairbanks and Johnson, assignors.)						
E. & T. Fairbanks & Company. (See Haase, Leo G., assignor.)						
E. T. Gilbert Manufacturing Company. (See Gilbert, Edgar T., assignor.)						
Eagle Lock Company. (See Roche, James, assignor.)						
Eagle Machine Company. (See Outcalt, Jesse P., assignor.)						
Eakin, Isaac R., Emlenton, Pa. Non-explosive oil-can	642,787	Feb. 6	380	92	90	1040
Easley, John L., New York, N. Y. Lemon-squeezer	644,736	Mar. 6	314	69,70	90	1816
Easley, William D., Ringgold, Tex. Cane-header	641,943	Jan. 23	3387	770	90	702
Eason, George L., Des Moines, Iowa. Two-horse draft-equalizer	643,404	Feb. 13	1404	350	90	1276
Eastep, Jehu. H. A. Deiters, and O. Barth, Spencer, W. Va. Twyer for forge-furnaces	645,945	Mar. 27	2563	567	90	2307
Eastern Carbon Works. (See Mills, William, assignor.)						
Eastman, Charles R. (See Eastman, Joel A., assignor.)						
Eastman, Joe D., Indianapolis, Ind. Table-cloth holder	643,952	Feb. 20	2545	599	90	1498
Eastman, Joel A., assignor to C. R. Eastman, Fruitvale, Cal. Sliding-door lock	643,245	Feb. 13	1211	284	90	1222
Eastman, Joel A., assignor to C. R. Eastman, Fruitvale, Cal. Sliding-door lock						
Eastman, Robert M. (See Wilson, Edwin L., assignor.)						
Eaton, Andrew L., New York, N. Y. Belt-fastener	643,348	Feb. 13	1388	325	90	1257
Eaton & Glover Company. (See Eaton, William S., assignor.)						
Eaton, William S., Sag Harbor, assignor to Eaton & Glover Company, New York, N. Y. Engraving-machine	645,795	Mar. 20	2305	502	90	2239
Eaves, Elam. (See Tonge and Eaves.)	644,507	Feb. 27	3558	828	90	1708
Eba, Bernhardt, North Warren, Pa. Bone-black retort						
Ebeling, Phillip, assignor to Dalzell, Gilmore & Leighton Company, Findlay, Ohio. Machine for applying collars to lamps	642,907	Jan. 30	4065	925	90	852
Eberhardt, Theophilus C., Prattville, Ala. Flue system for cotton-gins	646,367	Mar. 27	3434	765, 766	90	2483
Eberle, D. A. (See Gibbs, James E., assignor.)						
Eberly, Henry B., *et al.* (See Drawbaugh, Daniel, assignor.)	641,089	Jan. 9	1820	404	90	372
Ebert, Henry, Trenton, Ill. Hand coal-cutting machine	642,592	Feb. 6	54	13, 14	90	977
Ebert, Lucien, New York, N. Y. Crimping and goffering machine	644,585	Mar. 6	40	9, 10	90	1763
Eby, Walton E., assignor of one-half to M. W. Bryan, Roanoke, Va. Steam-pump	645,796	Mar. 20	2306	508	90	2240
Eckstein, Nickolaus, Wylie, Minn. Scraper attachment for gang-plows						
Economy Machine Company. (See Johnson, Albert E., assignor.)						
Ecroyd, Samuel, Chorlton-cum-Hardy, and E. E. Marsden, Didsbury, England. Apparatus for unbaling and blending raw cotton	645,167	Mar. 13	1140	245	90	1996
Eddings, Joseph E., *et al.* (See Taylor, Charles A., assignor.)	642,103	Jan. 30	3666	839	90	771
Eddy, Charles J., Springfield, Ohio. Combined churn and ice-cream freezer						
Eddy Electric Manufacturing Company. (See Burrows, Charles G., assignor.)						
Eddy, William A., Bayonne, N. J. Kite	646,375	Mar. 27	3450	768	90	2486
Edel, Lucas, St. Louis, Mo. Range	644,353	Feb. 27	3306	768	90	1658
Ederer, Ludwig, Omaha, Nebr. Alarm-bed	643,789	Feb. 20	2236	527	90	1436
Edgar, Mark K., *et al.* (See Parker, Edwin R., assignor.)						
Edgar, Samuel W., *et al.* (See Parker, Edwin R., assignor.)						
Edison American Phonograph Company. (See Schroeder, Howard W., assignor.)						
Edison-Saunders Compressed Air Company. (See Edison, Thomas A., assignor.)						
Edison, Thomas A., Llewellyn Park, assignor to Edison-Saunders Compressed Air Company, West Orange, N. J. Reheating compressed air for industrial purposes	643,764	Feb. 20	2198	518, 493	90	1430
Edison, Thomas A., Llewellyn Park, N. J., and C. M. Johnson, Red Hill, England. Expanding pulley	641,281	Jan. 16	2194	494	90	460
Edmonds, Charles S. (See Page and Edmonds.)						
Edmondson, Edwin L., Staunton, Va. Nut-lock washer	648,485	Feb. 13	1648	389	90	1809
Edward P. Allis Company. (See Farr, Freeman S., assignor.)						
Edward Miller & Company. (See Crary, William P., assignor.)						
Edward Miller & Company. (See Homan, William C., assignor.)						
Edward Miller & Company. (See Williams, Frank T., assignor.)						
Edwards, Clark, Lisbon, N. H. Stanchion	644,414	Feb. 27	3408	791	90	1679
Edwards, William H., Hillsborough, Ind. Thill-coupling	641,944	Jan. 23	3389	770	90	703
Egle, William, Detroit, Mich. Burner	646,368	Mar. 27	3437	766	90	2483
Ehrhart, Harry S. (See Newcomer, David M., assignor.)						
Eichinger, Walter, *et al.* (See Heineman, Harry A., assignor.)						
Eickelberg, Louis E., Waterloo, Iowa. Bucksaw-frame	642,598	Feb. 6	56	14	90	977
Eickemeyer, Carl, Yonkers, N. Y. Electric pump	644,852	Mar. 6	548	119, 120	90	1863
Elelson, Halvor, assignor of three-fourths to M. D. Johnson and G. Jurgens, Hatton, N. D. Grain-elevator	645,895	Mar. 20	2462	543, 544	90	2272
Elgen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Bag or purse frame	640,185	Jan. 2	47	10	90	11
Elgen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Bag-frame catch	644,067	Feb. 27	2747	650	90	1551
Elnfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Iowa. Machine for fastening spokes in wheel-hubs	640,548	Jan. 2	736	163, 164	90	144

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Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Iowa. Machine for making metal wheels	646,269	Mar. 27	3208	711 712 718	90	2431
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Iowa.	646,270	Mar. 27	3214	714	90	2435
Einstein, Alfred C., and C. J. Schnaus, St. Louis, Mo.; said Schnaus assignor to said Einstein. Making metal wheels. Acetylene-lamp	645,896	Mar. 20	2464	544 545	90	2273
Eisenhart, Edward H., New York, N. Y., assignor of one-half to G. M. Tustin, trustee, Bloomsburg, Pa. Continuous match making and boxing machine	643,047	Feb. 6	833	193 194 195 196 197	90	1128
Eisenhart, Samuel C., York, Pa., assignor, by mesne assignments, to W. C. Brumder, Milwaukee, Wis. Adjustable handle-bar for bicycles	641,442	Jan. 16	2480	568	90	516
Eisenhut, Laurense C., New York, N. Y. Valve	644,586	Mar. 6	47	10	90	1764
Eisenhut, Laurense C., New York, N. Y. Dredging-machine	645,353	Mar. 13	1456	322	90	2059
Eisenhuth, John W., assignor to M. G. Read, New York, N. Y. Air and gas engine	640,800	Jan. 9	1413	317	90	295
Eisenhuth, John W., assignor to M. G. Read, New York, N. Y. Footboard for vehicles	640,891	Jan. 9	1417	318	90	296
Eisenhuth, John W., assignor to M. G. Read, New York, N. Y. Air and gas engine	642,434	Jan. 30	3323	675	90	963
Ek, Arvid, Portland, Me. Machine for pointing pickets	644,285	Feb. 27	3157	740	90	1631
Ekenberg, Martin, assignor to Aktiebolagat Goteborgs Oljeraffineri, Göteborg, Sweden. Refining fatty oils	642,741	Feb. 6	318	------	90	1029
Eknman, Carl D., London, England. Obtaining useful products from liquors resulting from manufacturing cellulose by sulfite processes	640,196	Jan. 2	51	------	90	12
Elbaum, Simon, Wilkes-Barré, Pa., assignor to S. Valentine, New York, N. Y. Shirt	641,090	Jan. 9	1821	405	90	372
Elder, William L. (See Reed, Harry D., assignor.)						
Electric Gas Light Company of Baltimore City. (See Le Mat, Maurice, assignor.)						
Electric Gas Lighting Company. (See Noyes, Ray N., assignor.)						
Electric Haulage and Manufacturing Company. (See Morgan, Edmund C., assignor.)						
Electrical Undertakings. (See Leitner, Henry, assignor.)						
Electricitats-Gesellschaft Reitz & Co., mit Beschränker Haftung. (See Stendebach, Carl F. P., assignor.)						
Electro-Magnetic Traction Company. (See Chapman, William, assignor.)						
Electus Fastener Company. (See Kerngood, Herman, assignor.)	640,187	Jan. 2	52	11	90	12
Eley, William, Suffolk, Va. Carpet-display rack	640,456	Jan. 2	576	121	90	113
Elfborg, Henry G., Chicago, Ill. Adjustable switch-rod	641,091	Jan. 9	1821	405	90	372
Elle, Adolph, Neustadt, Germany. Ceiling						
Eller, Joseph H., assignor of one-half to A. B. Beverstock, Lexington, Ohio. Game apparatus	643,953	Feb. 20	2546	599	90	1498
Ellinwood, Augustus E., and S. S. Miller, assignors to Goodyear Tire and Rubber Company, Akron, Ohio. Machine for forming inner tubes of pneumatic tires	641,378	Jan. 16	2357	539	90	493
Elliot, Bertram C. (See Keats, Robert F. C., assignor.)						
Elliot Machine and Mining Company. (See Miller, Louis E., assignor.)	642,908	Jan. 30	4066	926	90	852
Elliott, James A. R., Kansas City, Mo. Package-carrier	642,968	Feb. 6	704	161	90	1103
Elliott, Milo P. (See Green and Elliott.)						
Elliott, Ralph W., Oakley, Cal. Apparatus for raising liquids						
Elliott, Richard C. (See Holliwell and Elliott.)						
Elliott, Wilber R., *et al.* (See Cheeseman, William W., assignor.)	641,282	Jan. 16	2197	494	90	461
Elliott, William O., assignor to C. A. Belding, Wauseon, Ohio. String-fastening device	641,092	Jan. 9	1822	405	90	372
Elliott, William S., Pittsburg, Pa. Tube-cleaner	642,969	Feb. 6	705	162	90	1103
Ellis, Peter, and A. A. Whitelaw, Wellington, New Zealand. Machine for measuring or laying out slide-valves	640,802	Jan. 9	1419	318	90	296
Ellis, William C., assignor of one-half to S. Mawhinney, Worcester, Mass. Upright-piano action	643,636	Feb. 20	1965	461	90	1385
Ellithorp, Arthur E. (See Blashfield, James M., assignor.)						
Elmer, Albert C., Detroit, Mich. Sectional screw conveyer						
Elmer, Howard N. (See Seymour and Elmer.)						
Elmsley, Remigius, *et al.* (See McCollum, James H. K., assignor.)	646,271	Mar. 27	3216	715	90	2435
Elrod, Robbert H., Jefferson, Ga. Vehicle	644,225	Feb. 27	3041	720	90	1610
Elsner, Ilans J., Kalk, Germany. Motor-car	641,443	Jan. 16	2482	568	90	516
Elstermann, Gustav, Osnabruck, Germany. Bedstead						
Ely, Edward O. (See McGrath, Patrick H., assignor.)	645,048	Mar. 6	804	194 195	90	1035
Emerson, Loender C., Grafton, Mass. Eyeleting-machine	644,797	Mar. 6	447	97	90	1843
Emerson, Loender C., Grafton, assignor to Merrick Sewing Machine Company, Boston, Mass. Eyeleting-machine						
Emerson Manufacturing Company. (See Jernberg, Gustaf, assignor.)	645,807	Mar. 20	2467	545 546 547	90	2273
Emery, Abram D., Taunton, Mass. Weft-replenishing mechanism for looms						
Emery, Charles B. (See Brigham and Emery.)	640,549	Jan. 2	741	164	90	145
Emery, Fredrick H., Scranton, Pa. Feed mechanism for coal-chutes	645,662	Mar. 20	2044	449	90	2189
Emery, Victor J., Wollaston, Mass., assignor to H. N. Libbey, Boston, Mass. Ball-cock						
Emmel, Henry. (See Baumer and Emmel.)						
Emmet, William L. R., Schenectady, N. Y., assignor to General Electric Company, of New York. Dynamo-electric machine	641,682	Jan. 23	2908	662 663	90	612
Empire Electrical Machinery Company. (See Freeman, Warren P., assignor.)						
Empire Machine Corporation. (See McClintock, Frank, assignor.)						
Empire Wreckage and Salvage Company. (See Grant, Joseph, assignor.)	645,354	Mar. 13	1463	323	90	2061
Emrich, Charles R., Norfolk, Va. Propeller for steamships						
En Earl, William J., Salida, and O. B. Critchlow, Grand Junction, assignors of one-half to C. B. Herzinger, Salida, and L. P. Curtis, Denver, Colo. Bottle	645,315	Mar. 13	1393	306	90	2046
Enders, Isaac A., *et al.* (See Loudermilch, Henry C., assignor.)						
Enders, James C., *et al.* (See Loudermilch, Henry C., assignor.)	642,213	Jan. 30	3901	868	90	818
Engebretsen, Lars, Christiania, Norway. Washing apparatus	640,641	Jan. 2	916	207	90	178
Engelmann, Emil, Jersey City, N. J. Running-gear for vehicles						
Englert, Charles, Jr., *et al.* (See Tierney, Edward J., assignor.)						
English, Analdo M., Boston, assignor to A. E. Johnson, Wakefield, Mass. Shoe-lace clasp	642,788	Feb. 6	881	92	90	1040
English, Clarence C., Hood River, Oreg. Wrench	645,074	Mar. 13	946	208	90	1959
English, Thomas D. (See Coleman, Phineas R., assignor.)						
English, William H., assignor to A. E. Howlett, Detroit, Mich. Perambulator	641,098	Jan. 9	1823	406	90	372
Enns, Abraham B., Dallas, Oreg. Hat-fastener	640,642	Jan. 2	917	207	90	178
Ennis, Henry J., Washington, D. C., assignor to G. McGovern, Richmond, Va. Acetylene-gas generator	643,486	Feb. 13	1649	389	90	1309
Enright, Michael, Lambert's Point, Va. Cargo-sling	642,214	Jan. 30	3902	868	90	818

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ensberg, John O., Peterson, Minn. Feed-mill	643,637	Feb. 20	1966	462	90	1385
Epworth Gas Light and Heating Company. (See White and Rohweder, assignors.)						
Eral, Frank R., Rolfe, Iowa. Corn-planter attachment	646,099	Mar. 27	2844	631	90	2364
Erhard, George P., Elizabeth, N. J., assignor to H. W. Johns Manufacturing Company, New York, N. Y. Insulating-panel for walls of ships, &c.	641,198	Jan. 9	2089	456	90	415
Erickson, Andrew M., assignor of one-half to R. A. Schoenfeld, Chicago, Ill. Hose-supporter	645,252	Mar. 13	1289	280	90	2026
Erickson, Ivar, Chicago, Ill. Animal-trap	645,589	Mar. 20	1910	421	90	2162
Erickson, John A. Rush Point, Minn. Water-bicycle	642,688	Feb. 6	213	53	90	1008
Ericson, Amanda C., Victoria, Ill. Vessel-cover	641,094	Jan. 9	1825	406	90	372
Erikson, Eduard A. O., Hillsborough, Tex. Vehicle-step	642,215	Jan. 30	3905	868	90	819
Erikson, Eduard A. O., Hillsborough, Tex. Vehicle-step	642,900	Feb. 6	589	135	90	1061
Ermold, Edward, New York, N. Y. Envelop-machine	643,954	Feb. 20	2548	600	90	1498
Ernst, John C., Ansonia, Conn. Device for removing articles from show-windows	645,316	Mar. 13	1894	306	90	2047
Ernst, Noah, Green Village, Pa. Apparatus for heating milk	640,514	Jan. 2	673	145 146	90	132
Ernst, Samuel, Glen Elder, Kans. Harrow and clod-crusher						
Errington, Franklin A., New York, N. Y. Automatically opening or closing die for cutting screw-threads, &c.	642,309	Jan. 30	4066	926	90	852
Errington, Franklin A., New York, N. Y. Automatically opening or closing die	642,310	Jan. 30	4071	926	90	854
Errington, Franklin A., New York, N. Y. Automatically opening or closing die	642,311	Jan. 30	4076	926	90	855
Errington, Franklin A., New York, N. Y. Automatically opening or closing die	642,312	Jan. 30	4080	927	90	856
Errington, Franklin A., New York, N. Y. Propeller reverse-gear	644,508	Feb. 27	3561	828 829	90	1709
Erts, Joseph M., and J. Miller, Poughkeepsie, N. Y. Acetylene-gas generator	645,557	Mar. 20	1827	408	90	2146
Ertaman, Emanuel E., Pullman, Ill. Force-can	644,131	Feb. 27	2963	678	90	1576
Eschler, Richard T. (See Richter and Eschler.)						
Eshelman, John W., Jr., Reading, Pa. Sewing machine	645,797	Mar. 20	2307	508	90	2240
Esmond Electric Traction and Signalling Company. (See Esmond, Frederick C., assignor.)						
Esmond, Ernest R., assignor to himself and E. N. Dickerson, New York, N. Y. Device for transmitting power	641,379	Jan. 16	2358	539 540	90	493
Esmond, Frederick C., New York, N. Y., assignor to Esmond Electric Traction and Signalling Company, of West Virginia. Unit multiple system of control for electric railways	642,216	Jan. 30	3906	869	90	819
Esmick, Samuel V., Yonkers, assignor of one-fourth to J. E. Ewing, New York, N. Y. Rotary engine	642,104	Jan. 30	3667	839 840	90	771
Evans, Clarence A., Chester, Pa. Educational device	641,988	Jan. 16	2199	494 495	90	461
Evans, Clarence A., Chester, Pa. Educational or similar device	641,668	Jan. 23	2909	663	90	612
Evans Company. (See Evans, George, assignor.)						
Evans, Evan, Llanrwst, assignor, by mesne assignments, to Imperial S. C. Acetylene Gas Company, Limited, Manchester, England. Apparatus for generating acetylene gas	646,272	Mar. 27	3217	715	90	2436
Evans, George, assignor to Evans Company, New York, N. Y. Impression-band for dentistry	644,705	Mar. 6	266	59	90	1807
Evans, Henry O., Pottstown, Pa. Hydropneumatic hoist	642,742	Feb. 6	319	77	90	1029
Evans, James C. (See Hawley, Walter L., assignor.)						
Evans, John, Merthyr Tydvil, England. Apparatus for removing molds from ingots	641,592	Jan. 16	2599	592 593	90	539
Evans, Joseph E., Bedford, Ind. Gas-generator	645,075	Mar. 13	947	208	90	1959
Evans, Joseph G., Waitsburg, Wash. Combined header and thresher	640,872	Jan. 2	420	87, 88	90	83
Evans, Louis C. (See Crain, Evans, and Dodson.)						
Evans, Scott F., Minneapolis, Minn. Concentrating-rolls for grain-conveyer belts and means for operating same	645,946	Mar. 27	2565	568	90	2308
Evans, Steven F., *et al.* (See Reynolds, Richard J., assignor.)						
Eveleth, Annie S., Little Falls, N. Y. Apparel waist	643,113	Feb. 13	982	226	90	1176
Everett, George W., New York, N. Y. Window-sash	640,457	Jan. 2	577	121 122	90	113
Everitt, James A. (See Walls, Marion C., assignor.)						
Everly, Edgar B., Coffeyburg, Mo. Churn	644,068	Feb. 27	2751	651	90	1552
Evershed, Sidney, assignor to himself and Evershed & Vignoles, Limited, London, England. Commutator for electric motors or generators	642,743	Feb. 6	330	77	90	1029
Evershed & Vignoles. (See Evershed, Sidney, assignor.)						
Ewers, James R., *et al.* (See Windle, George N., assignor.)						
Ewing, James A. (See Barker and Ewing.)						
Ewing, Justus E. (See Esaick, Samuel V., assignor.)						
Excelsior Stove and Manufacturing Company. (See Ohnemus, Anton, assignor.)						
Eynon-Evans Manufacturing Company. (See Eynon, Thomas M., assignor.)						
Eynon Grateless Stoker Company. (See Eynon, Thomas M., assignor.)						
Eynon, Thomas M., Philadelphia, Pa., assignor to Eynon Grateless Stoker Company, of Pennsylvania. Automatic grateless stoker	642,087	Jan. 23	3548	812	90	733
Eynon, Thomas M., Philadelphia, Pa., assignor to Eynon-Evans Manufacturing Company, of Pennsylvania. Double-tube injector	643,638	Feb. 20	1967	462	90	1385
Eyre, Richard D., Philadelphia, Pa., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	644,199	Feb. 27	2991	708	90	1600
Eyster, Charles, Holcomb, Ill. Safe or vault protection	642,684	Feb. 6	214	53	90	1009
Eyster, John T., Eagleville, Cal. Nail	644,396	Feb. 27	3158	741	90	1632
Faber, Frank M., Chicago, Ill. Blow-off valve	646,103	Mar. 27	2869	686	90	2368
Faber, Frank M., Chicago, Ill. Blow-off valve	646,104	Mar. 27	2870	686	90	2368
Fagan, Charles A., *et al.* (See Russell, James C., assignor.)						
Fagan, Thomas B., Van Wert, Ohio. Mowing-machine attachment	643,048	Feb. 6	847	197	90	1130
Fahl, Eugene, St. Louis, Mo. Motor-vehicle	644,858	Mar. 6	554	120	90	1805
Fahnestock, Ernest B., Washington, D. C. Microphone	644,561	Feb. 27	3688	856	90	1730
Fahnestock, Ernest B., Washington, D. C., assignor to Fahnestock Transmitter Company, New York, N. Y. Telephone-transmitter	644,547	Feb. 27	3648	848	90	1724
Fahnestock Transmitter Company. (See Fahnestock, Ernest B., assignor.)						
Fahrney, John J., Timberville, assignor of one-half to A. B. Lohr, New Market, Va. Wrench	640,643	Jan. 2	919	208	90	178
Faller, Ida S., *et al.* (See Schirra, Julius, assignor.)						
Fairbanks, Charles H., Grand Rapids, Mich. Friction-hinge	644,509	Feb. 27	3563	829	90	1710
Fairbanks, Robert N., New York, N. Y., and O. B. Johnson, assignors to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Weighing-scale	642,970	Feb. 6	706	162	90	1106
Fairman, Alfred N., assignor of one-half to J. Cooper, Montreal, Canada. Stovepipe-elbow-making machine	646,021	Mar. 27	2719	603 604	90	2339
Fairmount Machine Company. (See Ingraham, Edmund, assignor.)						
Falconnet, Henri, and M. Perodeaud, Choisy-sur-Seine, France. Manufacturing india-rubber tires	640,644	Jan. 2	921	208	90	179

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Falkenstein, George A. (See Falkenstein, John B. and G. A.)						
Falkenstein, John B. and G. A., assignors of one-third to W. Scripps, Astoria, Ill. Mine-signal	645,558	Mar. 20	1898	408	90	2146
Fall, John W., Crawfordsville, Ind. Fire-escape ladder and water-tower	640,645	Jan. 2	982	208 209	90	179
Fanning, Gurdon S., Auburn, N. Y. Brake for railway-cars	642,487	Feb. 13	1652	389	90	1309
Fanning, John T., Minneapolis, Minn. Turbine water-wheel	642,097	Jan. 30	3055	837	90	768
Faracchio, Pasquale, Philadelphia, Pa. Hair-clipper	641,584	Jan. 16	2743	695	90	569
Farbenfabriken of Elberfeld Company. (See Hoffmann, Felix, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Boedeker, Hermann, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Boedeker and Hoffmann, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Gusmann, Hermann, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Homolka and Stock, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Knorr, Ludwig, assignor.)	641,394	Jan. 16	2199	495	90	463
Farles, Royal P., Wichita, Kans. Checkrein-hook	642,695	Feb. 6	216	54	90	1009
Farley, John W., Cleveland, Ohio. Holder for sad-irons						
Farlow, Charles C. (See Ramsey, Joseph A., assignor.)						
Farmer, George P., Montclair, assignor to Consolidated Safety Pin Company, Bloomfield, N. J. Safety-pin	644,902	Mar. 6	639	138	90	1881
Farmer, John P., Portland, Oreg. Gas-burner	646,090	Mar. 27	2846	631 632	90	2264
Farmer, John P., assignor of one-half to C. F. Adams, Portland, Oreg. Automatic cut-off pilot-burner	645,168	Mar. 13	1141	245	90	1997
Farmer's Manufacturing Company. (See Titus, John C., assignor.)						
Farmland Woven Wire Fence Machine Company. (See Nixon, John and J. G., assignors.)						
Farner, Conrad. (See Mueller and Farner.)	645,523	Mar. 13	1774	388	90	2122
Farnham, Frank G., Honesdale, Pa. Brush	640,459	Jan. 2	582	124	90	114
Farr, Freeman S., Minneapolis, Minn. Saw-carrying wheel for band-saw mills	640,458	Jan. 2	579	123 124	90	114
Farr, Freeman S., Minneapolis, Minn., assignor to Edward P. Allis Company, Milwaukee, Wis. Double-acting band-saw mill	640,550	Jan. 2	743	164	90	145
Farr, Freeman S., and C. F. Nyberg, Minneapolis, Minn. Traction-wheel	641,947	Jan. 23	3394	771 772	90	704
Farrand, William C., assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic-background frame						
Farrel Foundry and Machine Company. (See Clemens, Andrew B., assignor.)						
Farrell, Adelle, *et al.* (See Farrell, George W., assignor.)	641,945	Jan. 23	3390	771	90	703
Farrell, George W., assignor to A. Farrell, Au Sable Forks, A. W. Shields, and B. B. Mason, Keesville, N. Y. Vehicle-gear						
Farrell, F. H. (See Harmon, William, assignor.)						
Farrell, John E. (See Bentivegna and Leroy, assignors.)	641,199	Jan. 9	2040	456 457	90	415
Farrow, Willard M., assignor of two-thirds to A. F. Jorss and L. C. Bailey, Washington, D. C. Rotary engine						
Farwell, Walter M. (See Barnard, Ralph H., assignor.)						
Farwell, William. (See Smith, Richard, assignor.)	642,098	Jan. 30	3657	837	90	709
Fassett, Francis K., St. Louis, Mo., assignor, by mesne assignments, to Winslow Brothers Company, Chicago, Ill. Mechanism for operating elevator-doors	643,349	Feb. 13	1890	325	90	1257
Fauber, William H., Chicago, Ill. Bicycle crank-shaft	645,356	Mar. 13	1465	323	90	2061
Faucett, Frank, Saybrook, Ill. Grinding-machine	645,947	Mar. 27	2568	568 569	90	2308
Faulkner, Charles I., Escrick, England. Pedal driving-gear for velocipedes	642,099	Jan. 30	3659	837 838	90	709
Faulkner, James J., Memphis, Tenn. Roller baling-press	645,169	Mar. 13	1144	246	90	1997
Faulkner, James J., assignor of one-third to W. S. Brian, Memphis, Tenn. Delinting-machine	644,168	Feb. 27	3919	691	90	1586
Faust, Jacob, Scranton, Pa. Vehicle-brake	642,217	Jan. 30	3007	869	90	819
Faust, Levin, Rockford, Ill. Lock	642,313	Jan. 30	4086	927	90	1396
Faust, Levin, and F. W. Lindgren, Rockford, Ill. Mortising-machine	643,639	Feb. 20	1970	462	90	1519
Faxon, James W., Oak Park, Ill. Garment-supporter or garter	644,007	Feb. 20	2654	636	90	516
Faye, Alonzo G., Medfield, Mass. Plant-protector	641,444	Jan. 16	2468	------	90	1258
Fazi, Ettore de, assignor to A. Piatti & Co., Rome, Italy. Manufacture of gas	643,350	Feb. 13	1398	335	90	770
Fearnaught, Albert, Indianapolis, Ind. Match-box	643,100	Jan. 30	3061	886	90	1130
Federroll, Rudolph, New York, N. Y. Acetylene-gas generator	643,049	Feb. 6	847	197 198	90	1130
Feeser, Charles A., Paw Paw, W. Va. Revoluble-shelf cabinet	642,218	Jan. 30	2907	------	90	819
Fehrlin, Henry C., Milwaukee, Wis. Making salol	643,286	Feb. 13	1286	308	90	1237
Feiker, Edward P., Northampton, Mass. Fire-escape device	645,559	Mar. 20	1880	404	90	2146
Feiock, Bernard, *et al.* (See Pfaudler, John M., assignor.)	644,132	Feb. 27	2865	678	90	1577
Feldmann, Friederich, George, Iowa. Straw-stacker						
Feldmeyer, Josef, Wurzburg, Germany. Smoothing-iron	645,619	Mar. 20	1966	433	90	2173
Fellows, John H., assignor of one-half to J. W. Morrison, El Dorado, Kans. Wire-stretcher	644,287	Feb. 27	3159	741 742 743	90	1632
Felt, Dorr E., Chicago, Ill. Tabulating-machine	645,291	Mar. 13	1856	------	90	2040
Felton, Samuel K., Jr., Philadelphia, Pa., assignor to W. M. Norris, Princeton, N. J. Coloring leather	645,076	Mar. 13	951	208	90	1960
Feltus, Barton B., Booloomatta Station, Mingary, South Australia. Wireworking-tool	646,978	Mar. 27	3918	715 716	90	2436
Fenner, George P., New London, Conn. Folder	640,739	Jan. 2	1087	248	90	210
Fenner, Willis A., Providence, R. I. Electric lamp	640,460	Jan. 2	568	124	90	115
Ferguson, Albert M., Syracuse, assignor to Rochester Non-Puncturable Tire Company, Rochester, N. Y. Non-puncturable wheel-tire	641,445	Jan. 16	2484	569	90	516
Ferguson, Albert M., and K. P. Shedd; said Shedd assignor to Rochester Non-Puncturable Tire Company, Rochester, N. Y. Bicycle-wheel tire	645,641	Mar. 20	2001	440	90	2180
Ferguson, George J., Olyphant, Pa. Illuminated sign	645,077	Mar. 13	952	204	90	1960
Ferguson, George W., Philadelphia, Pa. Fastener for dress-shields						
Ferguson, James H. (See Robinson, John T., assignor.)						
Fergusson, Alan R., New York, N. Y., assignor to Fergusson Lock Company, of New Jersey. Lock	643,955	Feb. 20	2549	600	90	1499
Fergusson, Alan R., New York, N. Y., assignor to Fergusson Lock Company, of New Jersey. Padlock	643,956	Feb. 20	2551	600	90	1499
Fergusson, Alan R., New York, N. Y., assignor to Fergusson Lock Company, of New Jersey. Lock	643,957	Feb. 20	2552	601	90	1500
Fergusson, Alan R., New York, N. Y., assignor to Fergusson Lock Company, of New Jersey. Lock	643,958	Feb. 20	2554	601	90	1500

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Fergusson, Alan R., New York, N. Y., assignor to Fergusson Lock Company, of New Jersey. Lock	645,049	Mar. 6	899	195	90	1936
Fergusson Lock Company. (See Fergusson, Alan R., assignor.)						
Ferrant, Emil. (See Beck and Ferrant.)						
Ferrata, Chevalier G., Greenville, S. C. Piano attachment	644,244	Feb. 27	3074	724	90	1615
Ferri, Anibal, Calarasi, assignor to E. Behles, Bucharest, Roumania. Cylinder for threshing-machines	641,200	Jan. 9	2044	457	90	416
Ferrill, Harley M. (See Baldwin, Ferrill, and Drown.)	644,548	Feb. 27	3646	848	90	1725
Ferris, Smith, New York, N. Y. Nut-lock	644,549	Feb. 27	3647	849	90	1725
Ferris, Smith, New York, N. Y. Railway-rail joint	646,988	Mar. 27	3461	770	90	2488
Ferris, William I., Stamford, Conn. Fountain-pen	641,684	Jan. 23	2910	663	90	613
Ferry, Harvey S., Mount Vernon, N. Y. Means for carbonating liquids						
Fessenden Manufacturing Company. (See Fessenden, Reginald A., assignor.)						
Fessenden, Reginald A., Allegheny, assignor to Fessenden Manufacturing Company, Pittsburg, Pa. Induction-coil for X-ray apparatus	644,972	Mar. 6	757	164	90	1907
Fidelity Title and Trust Company, administrator. (See Michales, Moses A.)						
Fidelity Title and Trust Company, administrator. (See Morton, Howard.)	645,078	Mar. 13	953	204	90	1960
Field, Frederick F., Providence, R. I. Valve						
Field, Marcellus S., assignor of two-thirds to J. T. Ward and J. T. A. Lewis, Boston, Mass. Routing table and case for post-offices	641,008	Jan. 9	1667	370	90	342
Fielding, John S., Pittsburg, Pa. Dam, retaining-wall, breakwater, &c	643,488	Feb. 13	1654	390	90	1310
Fields, Elijah B. (See Hollman and Fields.)						
Filer, Frank W. (See Walsh, Patrick H., assignor.)	645,590	Mar. 20	1912	421	90	2162
Fillon, Camil A., Whiting, Vt. Machine for making calks	644,764	Mar. 6	376	83	90	1829
Fillip, Joseph W., and R. B. Little, Tunis, Tex. Plow-stock	642,314	Jan. 30	4088	927 928	90	858
Finigan, Thomas, assignor of two-thirds to J. Hinchliffe and E. D. Cundell, Paterson, N. J. System for liquefying snow and disposing of same	640,898	Jan. 9	1422	318	90	297
Fink, Edgar J., Hanover, Pa. Corset-fastener						
Finlay, Archibald H. (See Finlay, Robert H. F. and A. H.)	642,594	Feb. 6	57	14	90	977
Finlay, Robert H. F. and A. H., Belfast, Ireland. Gearing for transforming speed	645,079	Mar. 13	955	204	90	1960
Finley, John H., Morgantown, Ky. Collar-button	642,595	Feb. 6	58	14	90	977
Finley, William L., Janesville, Wis. Fence-post	646,274	Mar. 27	3221	716	90	2437
Firestone, Harvey S., Chicago, Ill. Vehicle-tire						
Firm of Columbus Electricitatsgesellschaft, Gesellschaft mit Beschränkter Haftung. (See Bötz, Wilhelm, assignor.)	642,435	Jan. 30	4325	975 976	90	904
Firnhaber, Edward, Worms, Nebr. Baby-walker	642,436	Jan. 30	4326	976	90	904
Firnhaber, Edward, Worms, Nebr. Track for baby-walkers	643,050	Feb. 6	850	198	90	1181
Fischer, Alexander T., and E. C. Lewis, Detroit, Mich. Seed-drill						
Fischer, Alexander T., and E. C. Lewis, Detroit, Mich. Combined gang cultivator, harrow, and hiller	644,567	Mar. 6	49	10	90	1765
Fischer, Charles and W. E., and G. F. Kuett, Paterson, N. J. Take-up for looms	642,686	Feb. 6	217	54	90	1009
Fischer, Charles H. and H. B., Cincinnati, Ohio. Bottle-washer	645,389	Mar. 13	1582	396	90	2075
Fischer, Edward A. (See Latourell and Fischer.)						
Fischer, Ernst, Barmen, Germany. Envelop-machine	642,818	Feb. 6	496	105	90	1050
Fischer, Henry B. (See Fischer, Charles H. and H. B.)						
Fischer, Moris, New York, N. Y. Cover for garbage-cans	643,489	Feb. 13	1656	390	90	1310
Fischer, Theodor, *et al.* (See Wouwermans, Philipp von, assignor.)						
Fischer, William E. (See Fischer and Kuett.)						
Fish, Levi, Preston, England. Woven fabric	642,971	Feb. 6	709	162	90	1104
Fishell, Amos L., Agner, Md. Shoe-fastener	644,069	Feb. 27	2754	651	90	1552
Fishell, Peter H., assignor of one-half to G. L. Snyder, Marion, Iowa. Carriage-wheel oiler	641,850	Jan. 23	3232	733	90	670
Fisher, Charles N., Warren, Tex. Poultry-coop	645,898	Mar. 20	2473	547	90	2274
Fisher, Edwin H., Cincinnati, Ohio. Bicycle	645,998	Mar. 27	2673	598	90	2380
Fisher, Emil, assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Suspension device for lamps, &c	644,008	Feb. 20	2656	628	90	1519
Fisher, Greevr. (See Littlewood, Walter, assignor.)						
Fisher, James, New Orleans, La. Grate-bar	645,899	Mar. 20	2475	547	90	2275
Fisher, John M. (See Canner, William H., assignor.)						
Fisher, Joseph B., Buffalo, N. Y. Bicycle license-tag	645,390	Mar. 13	1585	396	90	2076
Fisher, Lucius G. (See Benner, Lorenzo D., assignor.)						
Fisher, Michel J., Utica, N. Y. Rotary steam-press	646,275	Mar. 27	3222	717	90	2437
Fisher, Terry, Mexico, Ind. Hog-trap	640,894	Jan. 9	1423	319	90	297
Fishering, Hattie. (See Fishering, Horace, assignor.)						
Fishering, Horace, assignor to H. Fishering, Xenia, Ohio. Rotary engine	641,585	Jan. 16	2744	695 696	90	569
Fisk, Lyman, assignor of one-half to E. L. Beekman, Hackensack, N. J. Fountain-pen-filling device	641,508	Jan. 16	2608	593	90	541
Fiske, Jonathan P. B., Newton, Mass. Apparatus for handling bricks	646,207	Mar. 27	3095	680	90	2411
Fithian, Edwin J. (See Carruthers and Fithian.)						
Fitton, Richard H., and J. Mitcheson, Fall River, Mass. Device for checking and holding carriages in self-acting mules	642,315	Jan. 30	4089	928	90	858
Fitts, Albert S., *et al.* (See Decker, William N., assignor.)						
Fitz-Simmons, Micheal, W. J., and W. B., Chicago, Ill. Bicycle	645,682	Mar. 20	2077	456	90	2195
Fitz Simmons, Walter J. (See Fitz-Simmons, Micheal, W. J., and W. B.)						
Fitz Simmons, William B. (See Fitz-Simmons, Micheal, W. J., and W. B.)						
Fitzgerald, John. (See Roberts and Fitzgerald.)						
Fitzgerald, Richard. (See Hibbard, Maury W., assignor.)						
Fitzpatrick, William T., New York, N. Y. Combination-inkstand	645,591	Mar. 20	1914	421	90	2168
Fitzroy, Alfred. (See Mahan, Fitzroy, and Orr.)						
Fitzsimmons, James A (See Garrison and Fitzsimmons.)						
Flanders, Henry H., Boston, Mass. Package-handle	645,317	Mar. 13	1396	307	90	2047
Flannery, Joseph M., Braddock, Pa. Skirt-supporter	644,908	Mar. 6	640	138	90	1892
Flannery, Neil A., *et al.* (See Spies, Peter H. F., assignor.)						
Flavin, Michael J., J. T. Moriarty, Chicopee Falls, and P. A. Flavin, Athol, Mass. Belt-drum for belt-polishing machines	644,588	Mar. 6	50	10	90	1765
Flavin, Patrick A. (See Flavin, Moriarty, and Flavin.)						
Fleischer, August K., Christiania, Norway. Joint for rails	641,851	Jan. 23	3233	734	90	670
Fleischer, August K., Christiania, Norway. Attachment for rails	641,852	Jan. 23	3233	734	90	670
Fleischer, Josef, New York, N. Y. Siphon-spout	641,201	Jan. 9	2044	457	90	416
Fleming, John C., Philadelphia, Pa. Bicycle-saddle	640,873	Jan. 2	426	88	90	84
Fleming, John C., Philadelphia, Pa. Reflector for electric or other lights	640,874	Jan. 2	426	88	90	84
Fleming, John H. (See Morrison, Daniel, assignor.)						
Fleming, William B., Detroit, Mich. Combined electrical and tubular organ-action	643,840	Feb. 20	2332	548 549	90	1454

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Fletcher, Edwin J., assignor to Patent Case Company, New York, N. Y. Abrading-machine	645,717	Mar. 20	2148	468	90	2909
Fletcher, Edwin J., assignor to Patent Case Company, New York, N. Y. Case or box	645,718	Mar. 20	2151	468	90	2909
Fletcher, Frank A., Watertown, assignor to Aerated Paper Company, New York, N. Y. Paper manufacture	645,080	Mar. 13	956	204	90	1951
Fletcher, Frank A., Watertown, assignor to Aerated Paper Company, New York, N. Y. Paper manufacture	645,081	Mar. 13	957	205	90	1951
Fletcher, George R. (See Beanston, Peter, assignor.)	646,022	Mar. 27	2727	604	90	2540
Fletcher, James A. and S., Ashton-under-Lynn, England. Water-gage	643,596	Feb. 13	1842	435 436	90	1346
Fletcher, John, assignor of three-eighths to H. W. Sproson, Philadelphia, Pa. Elevator	643,597	Feb. 13	1844	436	90	1346
Fletcher, John, assignor of three-eighths to H. W. Sproson, Philadelphia, Pa. Safety device for elevators	643,598	Feb. 13	1847	436 437	90	1347
Fletcher, John, assignor of three-eighths to H. W. Sproson, Philadelphia, Pa. Gate-operated lock for elevators	643,187	Feb. 13	1114	259	90	1204
Fletcher, Joshua, Vancouver, Canada. Stump-puller	645,948	Mar. 27	2569	569	90	2309
Fletcher, Mordecai H., Cincinnati, Ohio. Machine for coating core-bars	642,437	Jan. 30	4398	976	90	904
Fletcher, Samuel. (See Fletcher, James A. and S.)						
Fletcher, Solomon J., Cedar Falls, Wis. Stump-puller	641,640	Jan. 16	2686	646	90	588
Flint, James I., Denver, assignor to B. F. Flowers, E. H. Kinnaman, and T. C. Ramey, Fort Collins, Colo. Bell door-knob	643,790	Feb. 20	3237	527	90	1436
Florey, Alvin F., assignor to Cornish & Co., Washington, N. J. Piano attachment	644,854	Mar. 6	555	120	90	1055
Florimont, Pierrie A., Newark, N. J. Attachment for gas-fixture keys	643,114	Feb. 13	983	229	90	1176
Flory, Samuel, Bangor, and J. M. Young, Easton, Pa. Elevated tramway						
Flowers, Benjamin F., *et al.* (See Flint, James I., assignor.)						
Floyd & Sons, James R. (See Parish, Frank J., assignor.)	644,226	Feb. 27	3042	720 721	90	1610
Fluor, Casper, Oshkosh, Wis. Heating and ventilating system	645,953	Mar. 13	1290	280	90	2096
Fogarty, James H., New York, N. Y. Steam-engine	641,085	Jan. 23	2912	664	90	613
Fogg, Charles A., Burnham, Me. Right-angled boring-bit brace	643,715	Feb. 20	2116	496	90	1414
Folger, Harry S., Chicago, Ill. Rack for rubber stamps	644,415	Feb. 27	3409	792	90	1680
Folger, Henry C., Somerville, Mass. Roof-collar						
Follansbee, John W., Terre Haute, Ind. Instrument for secret writing and translating	641,004	Jan. 9	1669	371	90	349
Follweiler, Warren T., Tamaqua, Pa. Ventilated pail	646,276	Mar. 27	3294	717	90	2438
Fones, Charles A., New York, N. Y. Artificial tooth-crown	640,551	Jan. 2	744	165	90	146
Fontneau, Frank, assignor to P. J. Cummings & Co., Attleborough, Mass. Combined smoker's match-box and cigar-tip cutter	642,520	Jan. 30	4455	1011	90	928
Foote, Edward M., *et al.* (See Karsner, Adam E., assignor.)						
Forbes, Andrew, and F. Grover, Leeds, England. Wrapping-machine	646,208	Mar. 27	3089	680 681 682	90	2412
Force, Horace W., Newburg, N. Y. Attachment for stereopticons, &c.	640,188	Jan. 2	55	11	90	13
Ford, Daniel E., West Superior, Wis. Mooring and towing chock	640,552	Jan. 2	746	165	90	146
Fordyce, Alexander R., Newark, and W. Duncan, Kearny, N. J. Machine for making expanded metallic lathing	643,640	Feb. 20	1971	463 464	90	1396
Forney, John A., Frackville, Pa. Nut-lock	640,290	Jan. 2	271	54, 55	90	54
Forschner, Richard H., New York, N. Y. Spring-balance	640,189	Jan. 2	57	11	90	13
Forster, Charles. (See Forster, Maurice W., assignor.)	645,254	Mar. 13	1291	281	90	2027
Förster, Friedrich W., Burlington, Iowa. Spoke-tenoning machine	642,596	Feb. 6	59	15	90	977
Förster, Friedrich W., Burlington, Iowa. Foot-power hammer	641,686	Jan. 23	2913	664	90	613
Forster, Maurice W., Strong, assignor to C. Forster, Portland, Me. Device for removing waste products	640,895	Jan. 9	1425	319	90	298
Forstner, Thomas, Sigel, Minn. Wagon-box	644,589	Mar. 6	52	11	90	1765
Forsyth, Henry H., Chicago, Ill., assignor, by mesne assignments, to Curtain Supply Company, Chicago, Ill., and Jersey City, N. J. Shade adjusting and holding mechanism	644,855	Mar. 6	556	121	90	1865
Fort Dearborn Iron Company. (See McDowell, Malcolm, assignor.)	645,255	Mar. 13	1298	281	90	2027
Fortiner, Urias S., Philadelphia, Pa. Hot-air furnace or heater	640,291	Jan. 2	272	55	90	54
Forward, Francis E., The Holberton Institution, Island of Antigua, British West Indies. Means for attaching buttons	641,687	Jan. 23	2914	664	90	613
Forwood, Reginald, Paris, Tex. Car-fender. (Reissue)	640,806	Jan. 9	1427	319	90	298
Foskett, Pleasant C., Arkansas City, Kans. Axle	11,814	Mar. 27	3501	780	90	2495
Fosnot, Frank, Daleville, Ind. Combined stalk-cutter and rake	644,164	Feb. 27	2992	691	90	1587
Foster, Alfred B., Oakland, Cal. Lead-pencil	642,597	Feb. 6	60	15	90	978
Foster, Burton G. (See Schubert, William F., assignor.)	645,856	Mar. 13	1467	324	90	2061
Foster, Claude H., Cleveland, Ohio. Gearing	644,070	Feb. 27	2754	651	90	1553
Foster, Frank A., Norwich, Conn. Ejector for breakdown guns	645,705	Mar. 20	2121	464	90	2205
Foster, James, Gober, Tex. Well-pulley	645,798	Mar. 20	2308	508	90	2240
Foulds, William C., *et al.* (See Wunderly, Fred, assignor.)						
Fournier, Joseph J., *et al.* (See Hasson, George E., assignor.)						
Fowle, Charles L., assignor to Dowagiac Manufacturing Company, Dowagiac, Mich. Grain-drill	640,553	Jan. 2	747	166	90	146
Fowler, Charles. (See Gates, Carroll E., assignor.)						
Fowler, Charles G. (See Harrison, William H., assignor.)						
Fowler, Hervey W., Chicago, Ill. Shoe	645,467	Mar. 13	1669	364	90	2101
Fowler, Hervey W., Chicago, Ill. Fastening for shoes	645,468	Mar. 13	1670	365	90	2101
Fowler, John H., Huntingdon, Pa. Jar-closure	640,907	Jan. 9	1427	320	90	298
Fowler, Samuel B., Tarrytown, N. Y. Telephony	641,005	Jan. 9	1670	371	90	342
Fox, Frank M. (See Smith and Fox.)	645,560	Mar. 20	1833	404	90	2147
Fox, John C., assignor of one-half to G. H. Connell, Dublin, Tex. Valve	643,667	Feb. 6	290	54	90	1010
Fox, William R., Grand Rapids, Mich. Sash-cord guide	640,190	Jan. 2	59	12	90	13
Fradenburg, Andrew A., Brooklyn, Ohio. Flue or stovepipe cleaner	642,598	Feb. 6	63	16	90	978
Fraenkel, Siegmund, and J. K. Held, Fuerth, Germany. Automatic coupling for railway-vehicles	645,799	Mar. 20	2309	504	90	2240
Francois, Emmanuel, *et al.* (See Loubery, Cesar R., assignor.)	644,904	Mar. 6	641	139	90	1882
Frank, Alonzo W., Jamestown, N. Y. Mail-bag	643,088	Jan. 26	3550	813	90	738
Frank, Mark H., New York, N. Y. Producing ornamental fabrics	644,560	Mar. 6	53	11, 12	90	1765
Frank Mossberg Company. (See Brink, Carl A., assignor.)	642,101	Jan. 30	3668	886	90	770
Frank, William M., Springfield, Ohio. Marker for seeding-machines						
Frantz, Hiram A., assignor of one-half to E. E. Brode, Tamaqua, Pa. Motor-vehicle						
Frantz, Peter, Sterling, Ill. Wire-tightener						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Frasch, Hans A., New York, N. Y. Apparatus for continuous fractional distillation of hydrocarbons	640,292	Jan. 2	273	55	90	55
Fraser, Ethelbert M., San Francisco, Cal., assignor, by mesne assignments, to Otis Elevator Company, of New Jersey. Elevator	646,049	Mar. 27	2777	615	90	2350
Fraser, Robert D., Hamilton, Canada. Umbrella-cover	643,641	Feb. 20	1974	464	90	1397
Fraser, Simon A., New Glasgow, Canada. Gripper for cable-cars	643,642	Feb. 20	1975	464	90	1397
Frawley, John J., assignor to S. Lubin, Philadelphia, Pa. Projection apparatus	645,949	Mar. 27	2571	570	90	2309
Fread, Emeret C., Des Moines, Iowa. Road-grading machine	643,115	Feb. 13	984	230	90	1177
Frease, Edwin S., Okolona, Ohio. Manifolding carbon-sheet	645,900	Mar. 20	2477	548	90	2275
Fredrickson, August, assignor to Meridian Machinery Company, Meridian, Miss. Cake-former	640,898	Jan. 9	1429	320	90	298
Freeman, Warren F., assignor to Empire Electrical Machinery Company, New York, N. Y. Electric drill, &c.	644,591	Mar. 6	56	12	90	1766
Freeman, William, New York, N. Y. Suspenders	642,789	Feb. 6	383	92	90	1040
Freese, Edward, assignor of one-half to H. Mündheim, New York, N. Y. Non-refillable bottle	640,461	Jan. 2	584	124	90	115
Freeston, Arthur. (See Wagner and Freeston.)	642,819	Feb. 6	437	105	90	1051
Freeze, William, New York, N. Y. Apparatus for producing spectacular effects	641,586	Jan. 16	2748	626	90	570
French, Carl E. and O. D., Monticello, Iowa. Combined clothes-reel and tent	640,899	Jan. 9	1432	321	90	299
French, George B., Fremont, Nebr. Indicator						
French, Lorin T. (See Thompson and French.)						
French, Oscar D. (See French, Carl E. and O. D.)	641,095	Jan. 9	1826	406	90	373
French, Tom, Andover, Me. Water-tube boiler	641,096	Jan. 9	1828	407	90	374
French, Tom, Andover, Me. Motor-cycle frame	644,133	Feb. 27	2866	678	90	1577
French, William T., Hartwell, Ohio. Soft-tread horseshoe	644,165	Feb. 27	2928	691 692	90	1587
Freret, William A., Jr., New Orleans, La. Cryptographic type-writing machine	644,166	Feb. 27	2926	692	90	1587
Freret, William A., Jr., and H. S. Lewis, New Orleans, La. Cryptographic type-writing machine	642,841	Feb. 6	477	112	90	1059
Freshour, Henry C., Bridgeport, Conn. Stilt	640,293	Jan. 2	275	56	90	55
Freuler, Caspar, Zurich, Switzerland. Collapsible stretcher	643,490	Feb. 13	1657	390	90	1310
Freund, John A., New York, N. Y. Boat driving-gear	646,277	Mar. 27	3225	718	90	2438
Frey, Rudolph, New York, N. Y. Refrigerator	641,688	Jan. 23	2916	665	90	614
Frick, Charles E., Norwood, Ohio. Hot-air register	641,948	Jan. 23	3397	772	90	704
Frick, Horace E., Philadelphia, Pa. Grate-bar						
Frickey, Edward H., assignor to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Hammer-support for crushers and pulverizers	646,278	Mar. 27	3226	718	90	2438
Friedeberger, Leopold, assignor to Vulkan, Gesellschaft für Selbstthätende Glühkörper mit Beschränkter Haftung, Berlin, Germany. Manufacturing igniters for gas	640,554	Jan. 2	748	------	90	147
Friedinger, Ignaz. (See Cathrein, Josef, assignor.)	644,978	Mar. 6	758	164	90	1907
Friedlander, Morris, East Orange, N. J. Foot for stockings	641,446	Jan. 16	2485	569	90	516
Friedmann, Edward N., assignor to De La Vergne Refrigerating Machine Company, New York, N. Y. Agitator for refrigerating and ice manufacture	643,116	Feb. 13	986	230	90	1177
Friedsam, Samuel A., Leander, Tex. Railway-track crossing	643,405	Feb. 13	1495	350	90	1276
Friend, John T., Fort Wayne, Ind. Burglar-alarm	644,167	Feb. 27	2930	692	90	1588
Frink, Charles F., and M. Murphy, Chicago, Ill. Ammonia-pipe coupling	644,798	Mar. 6	450	97	90	1844
Frith, Arthur J., New York, N. Y., assignor to Diesel Motor Company of America, of New York. Internal-combustion engine						
Fritsch, William A. (See Reineke and Fritsch.)	643,406	Feb. 13	1496	350	90	1276
Fritz, Wilhelm F., Zurich, assignor of one-half to H. A. Alioth, Basle, Switzerland. Measuring-faucet for liquefied gas	644,669	Mar. 6	210	46	90	1795
Froelich, Charles H., West Chicago, Ill. Musical instrument	642,972	Feb. 6	710	163	90	1104
Frolich, Charles, New York, N. Y. Arch center brace	643,117	Feb. 13	987	230	90	1178
Fromberger, Henry B., Daytona, Fla., assignor of one-half to V. Phillips and W. L. Smith, Baltimore, Md. Safety and alarm attachment for tanks	643,491	Feb. 13	1658	391	90	1311
Froment, Jehan de, Notre Dame de Lourdes, Canada. Pyroxylin automatic electric fire-alarm	643,492	Feb. 13	1659	391	90	1311
Fromherz, Joseph, *et al.* (See Aniello, John A., assignor.)	644,510	Feb. 27	3568	829	90	1710
Fromholz, Paul, Calumet, Mich. Extension-handle for culinary articles	644,286	Feb. 27	3166	743	90	1633
Frost, Ellis F., assignor of one-half to F. A. Lehmann, Washington, D. C. Electrical reduction	644,974	Mar. 6	759	164	90	1907
Frost, Harrison C., Brookline, Mass. Tire for wheels	644,975	Mar. 6	759	165	90	1907
Frost, Walter, assignor to S. H. Brooks and F. G. Goodbehere, Manchester, England. Holder for packing of scutcher-drums	641,949	Jan. 23	3398	772	90	704
Frost, Walter, assignor to S. H. Brooks and F. G. Goodbehere, Manchester, England. Dust trunk or tube for cotton-openers	644,737	Mar. 6	316	70	90	1816
Frost, William, Athens, Ill. Mechanical movement	642,102	Jan. 30	3664	839	90	770
Fry, Henry E. (See Steinhart, Vogel, and Fry.)	640,555	Jan. 2	750	166	90	147
Fry, John H., assignor of one-half to C. J. Sawyer, Grand Rapids, Mich. Lawn-shade	643,643	Feb. 20	1976	465	90	1398
Fry, Stephen D. (See Johnson and Fry.)	643,493	Feb. 13	1661	391	90	1311
Fuchs, Oskar. Dresden, Germany. Electric signaling device for crossings	643,494	Feb. 13	1662	391 392	90	1311
Fuller, Charles D. (See White, Henry P., assignor.)						
Fuller, Donald, Detroit, Mich. Puzzle						
Fuller, Henry F., New York, N. Y., assignor to Acetylene Apparatus Manufacturing Company, of West Virginia. Apparatus for generating acetylene gas						
Fuller, Herbert A., trustee. (See Parker, George H., assignor.)						
Fuller, Ida M., Forest City, Iowa. Theater appliance						
Fuller, John W., Dalton, Mass. Skiving-machine						
Fulmer, John J., *et al.* (See Goodhart, Howard B., assignor.)						
Fulton, Harmon H. (See Morrow, Alexander P., assignor.)	643,894	Feb. 20	2434	573	90	1475
Furdek, Stephen, Cleveland, Ohio. Reading-teaching or educational device	644,227	Feb. 27	3043	721	90	1610
Furminger, Henry S., Mittineague, Mass. Screen for paper-machines	645,800	Mar. 20	2312	504	90	2241
Furness, Frank Philadelphia, Pa. Tile	645,904	Mar. 13	1909	------	90	2010
Fusner, Walter C., Allegheny, Pa. Manufacture of incandescent or other lamp globes						
Fuss, George C. (See Mederer, Slattery, and Fuss.)	645,849	Mar. 20	2398	525	90	2258
Fuszner, John A., Manchester, Mo. Blasting-fuse	642,438	Jan. 30	4329	977 978	90	904
Fyfe, Samuel, Port Melbourne, assignor of twenty-one fourtieths to W. C. Peacock, Melbourne, Victoria. Can-labeling machine	642,668	Feb. 6	290	55	90	1010
Fyrberg, Andrew, Worcester, Mass. Safety-lock mechanism for firearms	644,856	Mar. 6	557	121	90	1865
Gaa, John, Columbus, Ohio. Overflow-reservoir for cisterns						
Gabriel, Albert A., and E. M. Atkinson, Portland, Oreg. Parcel-rest and seat-annex for bicycles	643,373	Feb. 13	1481	333 305	90	1265
Gabriel, Charles R., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Gear-cutting machine	645,082	Mar. 13	959	306 307	90	1961
Gabriel, Charles R., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Mechanical movement	645,083	Mar. 13	974	307 308	90	1966

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Gadberry, Harvey O., Carthage, Mo. Rotary motor	643,791	Feb. 20	2239	598	90	1487
Gaertner, Gustav. (See Walcher-Uyadal and Gaertner.)						
Gage, George A., Chicago, Ill. Veneer coiling and nailing machine	645,999	Mar. 27	2674	598	90	2330
Gager, Rockwell E., *et al.* (See Jewett, Herbert E., assignor.)						
Galennie, Alphonse F., assignor to himself and J. Leche, Thibodeaux, La. Acetylene-gas apparatus	640,646	Jan. 2	98	209	90	179
Gair, Robert, New York, N. Y. Paper box	644,857	Mar. 6	558	121	90	1866
Gairing, Alfred J., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	644,900	Feb. 27	2993	709	90	1600
Galbraith, Dennis J., Plainfield, N. J. Pipe connection for tubs	640,191	Jan. 2	60	19,13	90	14
Galbreath, Duncan, New Orleans, La. Tool for transplanting buds	643,316	Jan. 30	4091	928	90	858
Gale, Henry, Chicago, Ill. Hoof-protector	643,973	Feb. 6	711	163	90	1104
Gale, Herbert N., Bristol, Conn. Bicycle-bell clamp	643,946	Feb. 13	1214	284	90	1223
Gale, Laburton A., Malden, assignor, by mesne assignments, to Shawmut Machinery Company, Boston, Mass. Strap-covering machine	641,447	Jan. 16	9487	569	90	517
Gale, Laburton A., Malden, assignor to Shawmut Machinery Company, Boston, Mass. Machine for ironing webbing	645,642	Mar. 20	3008	440 441 442	90	2181
Gallagher, Joseph D., Glen Ridge, N. J. Brake-shoe	645,643	Mar. 20	3010	442	90	2182
Gallagher, Joseph D., Glen Ridge, N. J. Brake-shoe	642,317	Jan. 30	4098	926	90	858
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-coupling	642,318	Jan. 30	4094	929	90	859
Gallaher, Henry E., assignor of one-half to D. L. McCorkindale, Childs, Md. Window-screen	644,880	Mar. 6	498	105	90	1851
Gallaspie, William I., Arbutus, W. Va. Egg-case	646,190	Mar. 27	2908	643	90	2375
Galloup, Frank M. (See Gulick, Galloup, and Gulick.)	644,416	Feb. 27	3411	792	90	1690
Gallup, Willis J., New Richmond, Wis. Skirt and waist fastener	642,790	Feb. 6	384	92	90	1041
Gamble, George A. (See Norlund, Olof A., assignor.)						
Gamewell Fire-Alarm Telegraph Company. (See Dawson, Leonard, assignor.)						
Gamewell Fire-Alarm Telegraph Company. (See Suren, Nathan H., assignor.)	641,504	Jan. 16	2908	594	90	541
Gandy, Gerard K., London, England. Buoyant boat-cover	640,647	Jan. 2	989	209	90	180
Gannett, Herbert I. Washington, D. C. Combined seat and table	642,105	Jan. 30	3670	840	90	772
Gansbergen, Fred H. (See Newell, Augustus, assignor.)				640		
Ganter, Francis X., Baltimore, Md. Show-case	642,106	Jan. 30	3672	841	90	772
Ganter, Francis X., Baltimore, Md. Convertible cabinet and table	642,107	Jan. 30	3678	841	90	772
Ganter, Francis X., Baltimore, Md. Show-case	645,050	Mar. 6	901	195	90	1986
Garbeil, Abraham, assignor to Garbeil Bros. Co., Philadelphia, Pa. Machine for making buttons						
Garbeil Bros. Co. (See Garbeil, Abraham, assignor.)						
Gardiner, Charles C. (See Shoecraft, Judson, assignor.)						
Gardiner, S. F. (See Barrows, Charles H., assignor.)						
Gardiner, Thomas W., trustee. (See Butterick, William H., assignor.)						
Gardiner, Thomas W. (See Gerrish, Edward W., assignor.)	640,192	Jan. 2	62	13	90	14
Gardner, Fulton, Chicago, Ill. Electric cloth-cutter	644,592	Mar. 6	58	13 13 14	90	1766
Gardner, Horace C., assignor of one-half to G. F. Swift, Chicago, Ill. Stop mechanism for hog-scraping machines	641,285	Jan. 16	2200	495	90	462
Gardy, Henry D., and T. C. Burke, Chester, Pa. Pocket cash-register	645,256	Mar. 13	1294	261	90	2027
Garford, Arthur L. (See Barnes, Edward M., assignor.)	644,905	Mar. 6	613	139	90	1889
Garford, Arthur L., Elyria, Ohio, assignor to American Bicycle Company, New York, N. Y. Bicycle-saddle	644,906	Mar. 6	644	139	90	1889
Garis, Webb W., East Stroudsburg, Pa. Coating fragile vessels	641,950	Jan. 23	3399	772 773	90	705
Garis, Webb W., East Stroudsburg, Pa. Apparatus for coating fragile vessels	641,202	Jan. 9	3045	457	90	416
Garl, Manious, Akron, Ohio. Electric fire-alarm system	643,119	Feb. 13	996	231 232	90	1179
Garland, Charles W., Bluefield, assignor of one-half to W. T. Poston and E. L. Warren, Lindsey, W. Va. Machine for cutting railway-ties	643,118	Feb. 13	989	231	90	1178
Garland, Frank M., New Haven, Conn. Automatic machine-gun mechanism	642,689	Feb. 6	222	55	90	1010
Garland, Frank M., New Haven, assignor of two-thirds to E. B. Beecher, Westville, Conn. Automatic machine-gun	643,120	Feb. 13	997	232	90	1180
Garlius, Bernt, Westport, Wis. Band-cutting knife	642,089	Jan. 23	3551	813	90	783
Garner, John H., Kingwood, W. Va. Combination-tool	644,009	Feb. 20	3657	628	90	1519
Garreis, William L., St. Louis, Mo. Throttle-valve	641,699	Jan. 23	3917	665	90	614
Garrison, Charles G., and J. A. Fitzsimmons, assignors of one-third to W. S. Copland, Vancouver, Canada. Amalgamator	641,858	Jan. 23	3934	734	90	671
Garrod, Albert R., New York, N. Y. Anatomical shoe	641,380	Jan. 16	2880	540	90	498
Garst, Monroe. (See Parrish, George W., assignor.)						
Gartner, Alfred, Paterson, assignor to C. H. McIntire, Newark, N. J. Wire-joint						
Garvey, Owen F., assignor to United States Safety Gas Cock Company, Providence, R. I. Automatic machine-chuck						
Garvin Machine Company. (See McClellan, Edward J., assignor.)	640,648	Jan. 2	981	210	90	180
Gary, Frank E. H. (See Allen, Frederick E., assignor.)						
Gaskins, Claude H., Shamokin, Pa. Adjustable shade-bracket						
Gassmann, Charles E., Mulhouse, Germany, assignor to La Société Chimique des Usines du Rhône, Anoteinement Gilliard, P. Monnet et Cartier, Lyons, France. Solution of phthalein in phenol	643,265	Feb. 13	1252	.....	90	1230
Gastineau, Senteney S., assignor of one-half to J. W. Stokes, Indianapolis, Ind. Calk attachment for horseshoes	644,134	Feb. 27	2867	679	90	1577
Gaston, Charles W., Columbus, Ohio. Holder for brooms, &c	646,384	Mar. 27	3462	770	90	2488
Gates, Alfonso D., Cleveland, Ohio. Divisional or knockdown bolt or rivet	643,798	Feb. 20	2242	528	90	1438
Gates, Belle M. (See Bender, Conrad, assignor.)						
Gates, Carroll E., assignor of one-half to C. Fowler, New York, N. Y. Ball-bearing	644,245	Feb. 27	3075	724	90	1615
Gates, George, Jackson, Cal. Concentrator	644,289	Feb. 27	3168	743	90	1634
Gates, George B., Portland, Me. Acetylene-gas lamp	643,869	Feb. 20	2391	562	90	1466
Gates, Horatio, and F. O. Woodland, Worcester, Mass., assignors, by mesne assignments, to Automatic Bottle Stopper Feed Company, Worcester, Mass., and Portland, Me. Automatic feed mechanism for bottle-stoppers	640,757	Jan. 9	1138	261	90	240
Gates Iron Works. (See Carman, Charles L., assignor.)	644,598	Mar. 6	68	14	90	1767
Gates, Menzo, Copemish, Mich. Swimming device	644,321	Feb. 27	3344	756 757	90	1648
Gathmann, Emil, assignor to Gathmann Torpedo Gun Company, Chicago, Ill. Torpedo. Gathmann Torpedo Gun Company. (See Gathmann, Emil, assignor.)						
Gatzsche, Franz, Freiberg, Germany, assignor to "N. L." Syndicate, Limited, London, England. Composition for making artificial leather fabric	642,519	Jan. 30	4095	.....	90	859

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gaunt, John S. (See Ashworth, Thomas, assignor.)						
Gay, Chauncey W., Springfield, Mass. Machine for making paper boxes	645,950	Mar. 27	2574	570 571 572 573	90	2310
Gay, George E., Augusta, Me. Screw-driver	644,907	Mar. 6	646	139	90	1888
Gaylor, Leonard B., Erie, Pa. Bicycle	643,644	Feb. 20	1979	465	90	1388
Gaymon, De Witt P., Pueblo, Colo. Cord or twine holder	642,499	Jan. 30	4333	978	90	905
Gayner, John W., Salem, N. J. Gas-producer	645,719	Mar. 20	2154	468	90	2209
Gayner, John W., Salem, N. J. Valve-operating device	646,209	Mar. 27	3095	682	90	2413
Gearing, Jesse, Salem, Mass. Wrapper or envelop	646,000	Mar. 27	2677	594	90	2331
Gebhardt, William, assignor of one-half to A. Kronkosky, San Antonio, Tex. Can-filling machine	640,875	Jan. 2	490	89	90	85
Geddes, Joseph, Rochester, N. Y. Chuck-handpiece	641,006	Jan. 9	1671	371	90	342
Gégauff, Charles H. (See Wenning and Gégauff.)	642,219	Jan. 30	3908	880	90	820
Gehring, Henry E., Batdorf, Ohio. Belt-guide						
Geigy & Co., John R. (See Ris, Christopher, assignor.)						
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Inductor dynamo-electric machine	640,760	Jan. 9	1144	262	90	242
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Dynamo-electric machine	642,599	Feb. 6	65	16	90	979
General Automatic Delivery Company. (See Perrier, Ulysse, assignor.)						
General Electric Company. (See Alton, George H., assignor.)						
General Electric Company. (See Berg, Ernst J., assignor.)						
General Electric Company. (See Day, Maxwell W., assignor.)						
General Electric Company. (See Emmet, William L. R., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Haskins, Caryl D., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Mair, George R., assignor.)						
General Electric Company. (See Pratt, William H., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Tournier, Julius C., assignor.)						
General Power Company. (See Secor, John A., assignor.)						
Geo. L. Thompson Manufacturing Company. (See Halifax, John B., assignor.)						
Geo. L. Thompson Manufacturing Company. (See Scovill, James P., assignor.)						
Geoffroy, Arthur R., New York, N. Y. Suspending device	641,381	Jan. 16	2862	540	90	498
Geoffroy, Arthur R., New York, N. Y. Skirt-supporter	644,417	Feb. 27	3412	792	90	1690
Geoffroy, Arthur R., New York, N. Y. Skirt-supporter						
George D. Whitcomb Company. (See Rutledge, George E., assignor.)						
George D. Whitcomb Company. (See Rutledge and Lee, assignors.)						
George L. Squier Manufacturing Company. (See Calvert, Charles A., assignor.)						
George L. Thompson Manufacturing Company. (See Bain, Forée, assignor.)						
George M. Clark & Company. (See Thayer, William H., assignor.)						
George N. Pierce Company. (See Bowen, Ephraim N., assignor.)	641,097	Jan. 9	1880	407	90	374
Gerard, Louis L. H., Paris, France. Variable-speed gearing	645,226	Mar. 13	1244	270	90	2016
Gercke, Georg, Hamburg, Germany. Apparatus for burning peat	642,600	Feb. 6	66	16	90	979
Gerdes, Heinrich, Berlin, Germany, assignor to Safety Car Heating and Lighting Company, New York, N. Y. Acetylene-generator	642,601	Feb. 6	68	16	90	979
Gere, George H., Grand Rapids, Mich. Reversible propeller-wheel	640,462	Jan. 2	584	125	90	115
Germain, Pierre. (See Dupont, Georges F., assignor.)						
Germer, Edward G., Erie, Pa. Gas-burner for stoves	640,193	Jan. 2	64	13	90	14
Gerrich, John K., assignor of one-half to W. D. Kinsell and J. E. Renoll, Hanover, Pa. Child's carriage	646,144	Mar. 27	2957	653	90	2385
Gerrish, Edward W., assignor of one-third to T. W. Gardiner, Lynn, Mass. Last	642,440	Jan. 30	4334	979	90	905
Gerst, Philip. (See Stott, Stephen W., assignor.)	11,806	Jan. 30	4545	1028	90	946
Gerst, Philip, *et al.* (See Newell, George A., assignor.)						
Gerstle, Jules, New York, N. Y. Sunshade for hats						
Gerwe, David, St. Louis, Mo. Coffin. (Reissue)						
Gesellschaft für Acetylen Gaslicht, Basel. (See Weber-Marti, Conrad A., assignor.)	643,247	Feb. 13	1215	284 285	90	1223
Gessner, David, Worcester, Mass. Napping-machine	643,248	Feb. 13	1217	285 286	90	1223
Gessner, David, Worcester, Mass. Napping-machine	646,210	Mar. 27	3096	682 683	90	2413
Gessner, Ernst, Jr., Aux, Germany. Milling and fulling machine	642,320	Jan. 30	4095	929	90	859
Gesner, George W., New York, N. Y. Producing alloys of hydrogen and iron	645,916	Mar. 20	2509	554	90	2280
Getler, Charles F., and C. J. Power, assignors of two-thirds to J. L. Hall, Matteawan, N. Y. Snow-melting machine	643,407	Feb. 13	1497	351	90	1276
Gfroerer, Paul, assignor of one-half to N. P. Hoffmann, Evanston, Ill. Bridge-gate	644,168	Feb. 27	2981	693	90	1588
Gibbings, Alfred H. (See Johnson and Gibbings.)						
Gibbs, Charles E., Orange, Mass. Fruit-picker	646,167	Mar. 27	3003	668	90	2394
Gibbs, James E., Bridgewater, Va., assignor of one-half to D. A. Eberle, York, Pa. Swinging gate	643,495	Feb. 13	1665	392	90	1312
Gibson, Edward T., Fort Yates, N. D. Cartridge-belt	644,976	Mar. 6	760	165	90	1908
Gibson, James H., Southport, England. Drugget-pin	645,745	Mar. 20	2215	490	90	2222
Gibson, John W., Jr., and C. R. Straughn, Lansdowne, Pa. Window-bracket	641,208	Jan. 9	2046	458	90	416
Gibson, Sallie E., Princess, Ky. Mail-bag catcher	643,765	Feb. 20	2201	519	90	1439
Giffen, Thomas B., and J. Bissett, Rutherglen, Scotland. Starching-machine	644,706	Mar. 6	267	59	90	1907
Gifford, Henry M., Union, Wis. Screw sled-brake						
Giguere, Thomas, Attleborough, assignor of one-half to F. Dyon, North Attleborough, Mass. Chain-swivel	640,556	Jan. 2	751	166	90	147
Gilbert & Barker Manufacturing Company. (See Barker, John F., assignor.)						
Gilbert, Charles L., Cleveland, Ohio. Valise or hand-satchel	642,108	Jan. 30	3674	841	90	772
Gilbert, Charles W., and C. C. Shepard, Worcester, assignors to L. C. Chase & Company, Boston, Mass. Woven fabric	641,007	Jan. 9	1674	371	90	343
Gilbert, Edgar T., assignor to E. T. Gilbert Manufacturing Company, Rochester, N. Y. Combined paste-box and dauber	644,977	Mar. 6	761	165	90	1908
Gilbert, Frank D., *et al.* (See Curtis, William G., assignor.)						
Gilbert-Stringer, Henry J. S., Brighton, England. Type-casting and composing apparatus	642,441	Jan. 30	4335	979 980 981 982	90	906
Gilbert-Stringer, Henry J. S., London, and F. Wicks, Esher, England. Apparatus for justifying set type	645,801	Mar. 20	2312	504 505	90	2241

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Gilbert, William M. (See White and Gilbert.)						
Gilchrist, Alexander M., South Bend, Wash. Logging-jack	641,951	Jan. 23	3402	773	90	705
Gilchrist, David E., Pittsburg, Pa. Street-railway switch	645,802	Mar. 20	2314	505	90	2241
Gilchrist, George E. (See Lewis, Samuel W., assignor.)						
Gildea, Peter J., San Francisco, Cal. Hydraulic elevator	640,463	Jan. 2	586	125	90	115
Giles, Edwin L., Lowell, assignor to Lamson Store Equipment Company, Boston, Mass. Measuring instrument	645,691	Mar. 20	1968	433	90	2173
Gilfillan, Essington N., assignor to E. E. McMoran, Chicago, Ill. Truck	641,286	Jan. 16	2201	495	90	462
Gilfillan, Essington N., assignor to E. E. McMoran, Chicago, Ill. Weighing-scale	642,321	Jan. 30	4097	929	90	859
Gill, Abram D. (See Winter and Gill.)						
Gill, Arthur B. (See Preston and Gill.)	641,854	Jan. 23	3235	734	90	671
Gill, Thomas S., assignor of one-half to J. I. Cross, Richland, Fla. Mattress	641,505	Jan. 16	2205	504	90	541
Gillespie, David C., *et al.* (See Carl, Joseph D., assignor.)	643,121	Feb. 13	999	233	90	1180
Gillespie, Richard S., New York, N. Y. Air-lock for caissons, &c	642,974	Feb. 6	712	163	90	1104
Gillespie, Robert T., Uniontown, Pa. Thill-support	640,464	Jan. 2	587	125	90	116
Gillet, Alexis F., Kearney, Nebr. Auxiliary generator for oil-gas lamps						
Gillett, William J., and E. B. Doen, Syracuse, N. Y. Sheet-pavement softener	643,122	Feb. 13	1001	233	90	1181
Gillette, Herbert B., assignor to Gillette Roller Bearing Company, Benton Harbor, Mich. Roller-bearing	644,550	Feb. 27	3648	849	90	1725
Gillette, Herbert B., assignor to Gillette Roller Bearing Company, Benton Harbor, Mich. Bearing	644,169	Feb. 27	2082	603	90	1588
Gillette Roller Bearing Company. (See Gillette, Herbert B., assignor.)						
Gilliland, David, Harper's Ferry, Iowa. Straw-stacker	641,098	Jan. 9	1831	407	90	374
Gilliland, S. B., *et al.* (See Miracle, Meridith W., assignor.)	640,465	Jan. 2	588	125	90	116
Gillis, John J., assignor of one-half to J. F. Bennett, Hattiesburg, Miss. Hemmer						
Gilmer, Elmer W., Warren, Ohio. Incandescent lamp	645,505	Mar. 13	1737	381	90	2115
Gillooly, Thomas F. (See Johnson and Gillooly.)	646,400	Mar. 27	3498	778	90	2498
Gipe, Emanuel C., assignor of three-fourths to F. J. Griffen, Chicago, Ill., G. W. Tassell, Waukesha, Wis., and H. L. Glos, Elmhurst, Ill. Safety-lock for package-carriers						
Gipson, Martin V., Ocobla, Miss. Rail-joint	642,023	Mar. 27	2728	604 / 605	90	2340
Girard, M. Louis. (See Roussy de Sales, Georges de, assignor.)	642,901	Feb. 6	590	135 / 136	90	1081
Girdwood, Henry M., Salford, England. Yarn-clearer for winding-machines	641,855	Jan. 23	3236	735	90	671
Glader, William, Chicago, Ill. Hoop cutting and punching machine	644,707	Mar. 6	968	60	90	1907
Glaser, Adolph A., Philadelphia, Pa. Adjustable cutter	643,870	Feb. 20	2393	562 / 563	90	1466
Glassbrenner, Peter F., East Newbern, Ill. Churn	646,211	Mar. 27	3097	693	90	2414
Glassco, Robert C., Anderson, assignor to Century Fence Post Company, Pendleton, Ind. Fence-post	644,246	Feb. 27	3077	725	90	1615
Glazier, Frank P., Chelsea, Mich. Hydrocarbon-burning stove	644,418	Feb. 27	3413	798	90	1680
Glazier, George W., assignor of three-fourths to C. C. Briggs, Salem, and J. C. Metcalf, Lynn, Mass. Box-covering machine	644,765	Mar. 6	376	------	90	1929
Gleason, Ira L., Hutchinson, Minn. Fire-escape	644,766	Mar. 6	377	------	90	1929
Gleichmar, Leopold, Rudolstadt, Germany. Composition of matter especially adapted for use in manufacturing building-blocks	643,408	Feb. 13	1499	451 / 452	90	1277
Gleichmar, Leopold, Rudolstadt, Germany. Producing building-blocks	642,322	Jan. 30	4098	930	90	859
Glenn, John C. (See Skinner and Glenn.)	640,761	Jan. 9	1146	262	90	248
Glidden, Joseph F., De Kalb, Ill. Soil-pulverizer	646,385	Mar. 27	3464	771	90	2498
Globe Electric Company. (See Heidel, Gustavos, assignor.)	646,386	Mar. 27	3465	771	90	2499
Glodell, Leroy M. (See Schumaker and Glodell.)	641,099	Jan. 9	1832	408	90	375
Glore, Albert O., Potosi, Mo. Axle	642,602	Feb. 6	69	17	90	980
Glos, Henry L., *et al.* (See Gipe, Emanuel C., assignor.)						
Glover, George T., Chicago, Ill. Lubricating device	642,442	Jan. 30	4339	982	90	906
Glover, Mary, Leicester, England. Trunk or case for wearing-apparel	643,895	Feb. 20	2437	573 / 574	90	1475
Gmeiner-Benndorf, Herrmann, Dresden, Germany. Apparatus for flint-glazing colored paper	646,069	Mar. 27	2811	628	90	2357
Goddard, Fred D., Everett, assignor to Walker & Pratt Manufacturing Company, Boston, Mass. Urn	642,902	Feb. 6	594	136	90	1082
Godden, John H. (See Seely, George A., assignor.)	644,322	Feb. 27	3247	757 / 758	90	1648
Godden, John H., Emmetsburg, Iowa. Ball-caster	646,070	Mar. 27	2812	628	90	2357
Godding, Milon O., Monrovia, Cal. Hydrocarbon-burner	646,071	Mar. 27	2814	628	90	2357
Godding, Milon O., Los Angeles, Cal. Hydrocarbon-burner	645,170	Mar. 13	1146	246	90	1908
Goddu, George, Winchester, Mass., assignor to United Shoe Machinery Company, of New Jersey. String-nail	643,896	Feb. 20	2440	574 / 575	90	1476
Godfrey Calciner. (See Godfrey and Hayes, assignors.)						
Godfrey, Joseph, and H. J. Hayes, Swansea, assignors to Godfrey Calciner, Limited, London, England. Calcining	642,864	Feb. 6	515	120	90	1066
Goertz & Co., Aug. (See Eigen, Henno vom, assignor.)						
Goetze & Co., E. (See Kraemer, Wilhelm, assignor.)	644,490	Feb. 27	3415	798	90	1681
Goff, Homer P., Pittsburg, Pa. Button	645,808	Mar. 20	2316	505	90	2242
Gohlke, Theodore, St. Louis, Mo. Card-cutting machine						
Golata, Francis X., Dunkirk, N. Y. Hand-power motocycle	645,084	Mar. 13	980	208	90	1967
Golden, George W., Detroit, Mich. Sash-center	642,429	Feb. 27	2729	605	90	2340
Goldschmidt, Philipp, Paterson, N. J. Lease mechanism	644,290	Feb. 27	3172	743 / 744	90	1634
Goldsmith, Byron B., New York, N. Y. Fountain-pen	645,460	Mar. 13	1671	365	90	2108
Goldsmith, Byron B., New York, N. Y. Penholder	644,010	Feb. 20	2358	528	90	1520
Goldsmith, David, New York, N. Y. Trunk-fixture	645,804	Mar. 20	2316	506	90	2242
Goldsmith, Paul, Troy, N. Y. Toe-clip and counterpoise	646,086	Mar. 27	2731	605	90	2341
Goldtree, Nathan. (See Pagel, Leopold, assignor.)						
Gontier, Louis, Gloucester City, N. J. Garment-supporter						
Good, Daniel D., *et al.* (See Cline, William, assignor.)						
Good, John, New York, N. Y. Machinery for preparing fibrous materials for spinning						
Good, William R., Dayton, Ohio. Bicycle handle-bar						
Goodbebere, Frederick G., *et al.* (See Frost, Walter H., assignor.)						
Goodell, George H., St. Paul, Minn., and P. L. Lobez, Wilmerding, Pa. Throttle-valve						
Goodhart, Howard B., assignor of one-half to J. J. Fulmer and A. J. Biehl, Reading, Pa. Fluid-pressure engine						
Goodhue, James E., St. Charles, Ill. Power-transforming machine						
Goodier, John R., Galveston, Ind. Spark-arrester						
Gooding, John F., and A. E. Ackerson, Buena Vista, Colo. Rail-joint						
Goodman, Joseph, New Haven, Conn. Non-refillable bottle						
Goodman, Octavia G., Goshen, Va. Paper bag						

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Goodwin, Alphonso M., Saco, Me. Baggage-check carrier	641,287	Jan. 16	2202	496	90	462
Goodwin, Caleb, Evanston, Ill. Portable secretary	645,085	Mar. 13	981	208 / 209	90	1967
Goodwin, Frederick C. (See Washington and Goodwin.)						
Goodwin, Robert, assignor to M. Crowley, Dublin, Ireland. Apparatus for producing acetylene and carbonic-acid gas combined	641,506	Jan. 16	2606	595	90	543
Goodyear Tire and Rubber Company. (See Ellinwood and Miller, assignors.)						
Gordon, William, Boston, Mass. Boot or shoe	640,900	Jan. 9	1485	321	90	299
Gore, Joshua W., Chapel Hill, N. C. Telephone system	644,594	Mar. 6	64	14	90	1767
Gorman, Charles, Chicago, Ill. Bicycle crank-shaft	640,649	Jan. 2	932	210	90	181
Gormully & Jeffery Manufacturing Company. (See Slee, Norman T., assignor.)						
Gorter, Henry H., assignor to M. E. Gorter, San Francisco, Cal. Portable water-tower	645,470	Mar. 13	1672	365 / 366	90	2102
Gorter, Mary E. (See Gorter, Henry H., assignor.)						
Gorton, Henry H., Wallace, Mo. Gate	641,448	Jan. 16	2489	570	90	517
Goss, George F. (See Sewell, John S., assignor.)						
Gottschalk, Gustav H., *et al.* (See Theis, Henry W., assignor.)						
Goughenour, Levi, and C. B. McCabe, Braddock, Pa. Electric lock	641,882	Jan. 16	2363	540 / 541	90	494
Goughnour, Henry S., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Car-brake	644,201	Feb. 27	2994	706	90	1600
Gould, Charles A. (See Chamberlain, Rufus N., assignor.)						
Gould, Charles M. (See Richards, Willard F., assignor.)						
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, Edward R., Spokane, Wash. Shirt	643,793	Feb. 20	2244	528	90	1438
Gould Storage Battery Company. (See Hubbard, Albert S., assignor.)						
Gould, Thomas W., Paterson, N. J. Combined pen-rack and inkstand	642,608	Feb. 6	70	17	90	980
Gould, Warren H., Manchester, N. H. Paint and calking composition	644,170	Feb. 27	2935	------	90	1589
Gould, William J., Lawrence, Kans. Cream-separator	643,351	Feb. 18	1394	326	90	1258
Gower, Lewis E., Independence, Mo. Fruit-jar holder	645,391	Mar. 13	1536	337	90	2076
Grabler, Peter, Mansfield, Ohio. Reversible reamer	644,595	Mar. 6	65	14	90	1767
Grady, James, assignor to himself and J. G. Buehler, New York, N. Y. Machine for moistening and affixing stamps	640,650	Jan. 2	933	210	90	181
Graef, Charles, Clifford, Canada. Making concentrated apple-juice	640,289	Jan. 2	270	------	90	54
Graham, Charles, New York, N. Y. Means for manufacturing earthenware coils	644,421	Feb. 27	3417	794	90	1681
Graham, Hugh W., Louisville, Ky. Trolley-catcher	641,383	Jan. 16	2364	541	90	494
Graham, John S., *et al.* (See Stephenson, Robert S., assignor.)						
Graham-Jones Company. (See Jones, Edwin C. and F. L., assignors.)						
Graham, Robert S., New York, N. Y., assignor to H. S. Martin. Hammock	645,805	Mar. 20	2318	506	90	2242
Graham, William C. (See Haines and Graham.)						
Graham, William S., assignor to Parlin & Orendorff Company, Canton, Ill. Corn-planter	645,683	Mar. 20	2078	456 / 457	90	2196
Granat, Mayer. (See Schuler and Granat.)						
Grand Rapids Cycle Company. (See Knape, John, assignor.)						
Grange, Robert W., Jr., Pittsburg, Pa. Street-railway switching device	641,952	Jan. 23	3402	773	90	706
Granger, Gideon W. (See Dallas, Leese, and Granger.)						
Grant, Alexander W., Montreal, Canada. Bottle	645,706	Mar. 20	2122	465	90	2206
Grant, Arthur W., assignor to Rubber Tire Wheel Company, Springfield, Ohio. Apparatus for setting rubber tires	641,768	Jan. 23	3070	698	90	640
Grant, Carl E. (See Skelley, Walter L., assignor.)						
Grant, James A., Dry Creek, La. Poultry-coop	646,279	Mar. 27	3228	718	90	2488
Grant, Joseph, assignor to Empire Wreckage and Salvage Company, Colorado Springs, Colo. Apparatus for raising sunken vessels	643,766	Feb. 20	2202	520	90	1490
Grant, Sidney A., Springfield, Mass. Collar-button	640,651	Jan. 2	937	211	90	182
Graves, William C. (See Hughes, Daniel W., assignor.)						
Gray, Charles A., assignor of one-half to J. L. and L. M. Jones, Kansas City, Kans. Pneumatic-despatch tube	641,384	Jan. 16	2365	541	90	494
Gray, Emmet P., assignor of two-thirds to O. Armleder and Louis B. Sawyer, Cincinnati, Ohio. Gearing for horseless carriages	641,204	Jan. 9	2049	458 / 459 / 460	90	417
Gray, James H., San Francisco, Cal. Bucket dredging-machine	640,762	Jan. 9	1147	263	90	242
Gray, James T., Hollister, Cal. Compound for exterminating burrowing animals	642,791	Feb. 6	385	93	90	1041
Gray, John A., McKee's Rocks, and F. Lehmann, Allegheny, Pa. Non-explosive oil-can	644,738	Mar. 6	317	70	90	1817
Gray, John D., Woodford, Va. Pea or bean harvester	640,376	Jan. 2	435	90	90	86
Gray, John M., Port Carbon, Pa. Thermometer-case	641,856	Jan. 23	3238	735	90	672
Gray, John H., McDonald, Pa. Dump-car	645,620	Mar. 20	1967	433	90	2173
Gray Telephone Pay Station Company. (See Gray, William, assignor.)						
Gray, William, assignor to Gray Telephone Pay Station Company, Hartford, Conn. Telephone-call register	645,917	Mar. 20	2511	555	90	2281
Gray, William H., Eddyville, Iowa, assignor to Keystone Manufacturing Company, Rock Falls, Ill. Corn-harvester	641,288	Jan. 16	2203	496 / 497	90	462
Greaser, George B., Drab, Pa. Vegetable-cutter	644,978	Mar. 6	762	166	90	1908
Greeley, Alton H., and C. O. Bartlett, Cleveland, Ohio. Street-sweeper	644,739	Mar. 6	317	70, 71	90	1817
Green, Arthur G., and A. Meyenberg, Manchester, England. Making black sulfur dye	641,587	Jan. 16	2749	------	90	570
Green, Arthur G., Heaton Moor, and A. Meyenberg, Manchester, England. Black sulfur dye	641,588	Jan. 16	2750	------	90	570
Green, Arthur G., Heaton Moor, and A. Meyenberg, Manchester, England. Black sulfur dye	641,589	Jan. 16	2750	------	90	570
Green, Arthur G., Stockport, and A. Meyenberg, Manchester, England. Making fast brown dyes	641,953	Jan. 23	3404	------	90	706
Green, Arthur G., Stockport, and A. Meyenberg, Manchester, England. Fast brown dye	641,954	Jan. 23	3405	------	90	706
Green, Bernard R., Washington, D. C. Newspaper-file	645,086	Mar. 13	982	209	90	1967
Green, Casper T., and M. P. Elliott, Dublin, Ind. Collapsible truck	645,584	Mar. 13	1775	389	90	2122
Green, Cassius M. (See Green, Henry L. and C. M.)						
Green, Charles, Uxbridge, assignor to A. C. Warren, Newton, and G. L. Stevens, Boston, Mass. Composition for treating textile fabrics	644,670	Mar. 6	211	------	90	1795
Green, Henry L. and C. M., Urbana, Ohio. Halter	643,128	Feb. 13	1004	233	90	1181
Green, John D., assignor to Sheffield Car Company, Three Rivers, Mich. Foot-guard for railways	642,110	Jan. 30	3676	842	90	778
Green, John D., Toledo, Ohio, assignor to W. J. Willits and E. B. Linsley, Three Rivers, Mich. Spike-puller	642,111	Jan. 30	3678	842	90	778
Green, John D., Toledo, Ohio, assignor to W. J. Willits and E. B. Linsley, Three Rivers, Mich. Track-gage	645,087	Mar. 13	983	209	90	1967
Green, John H., Hannibal, Mo. Fence-post	642,109	Jan. 30	3675	842	90	778
Green, Thomas L., Indianapolis, Ind. Machine for cutting and shaping crackers or other plastic materials	642,220	Jan. 30	3909	889 / 890	90	890

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Green, William W., Oakland, and J. A. Cole, Topeka, Kans. Corn-harvester	643,716	Feb. 20	2117	496	90	1414
Greenawalt, Peter C., Reading, Pa. Carpet stretcher, tacker, and tack-puller	644,323	Feb. 27	2251	758	90	1649
Greene, Ernest F. (See Bonesteele, Harry F., assignor.)						
Greene, Frank B. (See Hyrons, William P., assignor.)	645,257	Mar. 13	1297	282	90	2028
Greener, Herman M., Streator, Ill. Display-rack	640,758	Jan. 9	1142	202	90	241
Greenfield, Edwin T., New York, N. Y. Flexible metallic conduit	640,759	Jan. 9	1143	202	90	242
Greenfield, Edwin T., New York, N. Y. Tool for bushing ends of metallic tubes	643,521	Jan. 30	4456	1011	90	929
Greenfield, Edwin T., New York, N. Y. Junction-box for electrical conductors						
Greenfield, Edwin T., New York, N. Y. Means for giving rigidity to elbows or turns of flexible conduits	644,688	Mar. 6	559	121	90	1866
Greenough, John J., Washington, D. C. Rapid-fire breech-loading firearm	645,268	Mar. 13	1360	295	90	2040
Greenspan, Adolph, Bowling Green, Ky. Cloak or skirt rack	643,950	Feb. 20	2556	602	90	1500
Greenwood, Edward, Phillips, Me. Check-valve	644,422	Feb. 27	3419	794	90	1682
Greenwood, Harry, Barnesborough, Pa. Lamp-burner	643,496	Feb. 13	1669	392	90	1312
Greer, Moses, Atlanta, Ga. Fish-trap hook	641,857	Jan. 23	3239	735	90	672
Gregg, Israel W., assignor of one-half to J. F. Rodifer, Elwood, Ind. Vehicle-wheel	640,658	Jan. 2	987	211	90	182
Gregg, Union A., Paris, Ill. Gate	643,395	Feb. 13	1351	317	90	1950
Gregory, Edward S. (See Rea and Gregory.)						
Gremmels, Frederick W., Kansas City, Mo. Pneumatic cash-carrier	642,112	Jan. 30	3679	843	90	773
Gremmels, Henry W., and G. Somerville, Denver, Colo. Pocket book or case	642,328	Jan. 30	4101	980	90	860
Gresh, Edwin P., Norristown, Pa. Sign	643,124	Feb. 13	1006	234	90	1182
Griffen, Felix J., *et al.* (See Gipe, Emanuel C., assignor.)						
Griffen, John D., New York, N. Y. Elevator	645,961	Mar. 27	2598	574	90	2314
Griffin, George A., assignor to Julius King Optical Company, New York, N. Y. Eye-glasses	642,744	Feb. 6	321	78	90	1029
Griffin, James W. (See Lindsey, Robert F., assignor.)						
Griffith, Amenzo, Springfield, Mass. Water-heating apparatus	642,443	Jan. 30	4340	982	90	906
Griffith, Edward A. (See Hall and Griffith.)	642,040	Jan. 23	3553	813	90	734
Griffith, Edward A., Baltimore, Md. Button and button-fastener						
Griffith, Jacob K., assignor to Latrobe Steel Company, Latrobe, Pa. Ingot-mold and sink-head lining-brick therefor	644,740	Mar. 6	318	71	90	1817
Griffith, Peyton S. (See Manes, Ephraim, assignor.)	643,051	Feb. 6	854	190	90	1131
Griffith, William H., Baltimore, Md. Chain-link	642,975	Feb. 6	713	163, 164	90	1104
Grigg Suspension Tire Company. (See Grigg, Thomas H., assignor.)						
Grigg, Thomas H., Philadelphia, Pa., assignor to Grigg Suspension Tire Company, Camden, N. J. Apparatus for shaping tires, felloes, &c	642,976	Feb. 6	715	164, 165	90	1105
Grigg, Thomas H., Philadelphia, Pa., assignor to Grigg Suspension Tire Company, Camden, N. J. Apparatus for forming rims or the like	643,266	Feb. 13	1253	294	90	1230
Griggs, Charles J., *et al.* (See Dowling, Patrick J., assignor.)	645,806	Mar. 20	2319	506	90	2242
Griggs, Sarah E., Woodland, Cal. Display-holder for hats	641,590	Jan. 16	2751	626	90	570
Grim, Simon, St. Philip, Ind. Pencil	643,267	Feb. 13	1254	294	90	1231
Grimm, Alva S., St. Mary's, W. Va. Suspenders	643,909	Feb. 20	2557	602	90	1501
Grimm, Asmus H. (See Walker and Grimm.)						
Grimmett, John F., Bolssevain, Canada. Swinging cradle						
Grimond, Alexander M., and J. Crighton, Dundee, Scotland. Bobbin-making machine						
Grinnell, William E., *et al.* (See Monroe, Charles H., assignor.)						
Grinstead, Phillip W. (See Grinstead, Robert E., assignor.)						
Grinstead, Robert E., assignor of one-half to P. W. Grinstead, Lexington, Ky. Convertible tellurian and lunarian	643,497	Feb. 13	1671	393	90	1312
Griscom, Walter, *et al.* (See Loutzenhiser, Charles H., assignor.)						
Grise, Edward S. (See Post, Edward R., assignor.)	640,194	Jan. 2	65	14	90	15
Griswold, George L., Norwich, Conn. Bevel	645,561	Mar. 20	1884	404	90	2147
Grittinger, Paul, Cornwall, Pa. Fire-escape	642,221	Jan. 30	3912	------	90	820
Groff, John P. (See Reppell and Groff.)						
Grognet, Félix, Nanterre, France. Sterilizing raw meat	642,604	Feb. 6	71	17,18	90	980
Growald, Hugo, Berlin, assignor to Bier-Siphon-Actien-Gesellschaft, Cassel, Germany. Preservation of beer	645,258	Mar. 13	1297	282	90	2028
Groome, Harry L., Philadelphia, Pa. Time automatic cut-off and light-extinguishing apparatus	642,977	Feb. 6	718	165	90	1106
Groth, Emil. (See Ayers and Groth.)	641,641	Jan. 16	2640	646	90	588
Groupe, Andrew V., Moore, assignor to National Braider Company, Philadelphia, Pa. Braiding-machine						
Grove, Samuel S., Summit, assignor of one-third to W. M. Grove, Airy Dale, Pa. Wrench						
Grove, Watson M. (See Grove, Samuel S., assignor.)						
Grover, Frederick. (See Forbes and Grover.)	642,444	Jan. 30	4341	983	90	907
Grubb, Julian H., Hagerstown, Md. Necktie-holder	644,423	Feb. 27	3421	794	90	1682
Gruber, W. B. (See Cummings, Cornelius T., assignor.)						
Gruggen, Arthur L., Moosomin, Canada. Neck-yoke and tongue connection	642,228	Jan. 30	3917	------	90	821
Grumme, Eduard. (See Hecht, August W., assignor.)	644,596	Mar. 6	67	15	90	1768
Grünzweig, Carl, Ludwigshafen, Germany. Manufacturing molded objects	645,807	Mar. 20	2319	506, 507	90	2242
Guarino, Domenico, New York, N. Y. Car-fender						
Guffey, Hamilton D., Elko, Mo. Boat-propeller	644,979	Mar. 6	765	166	90	1909
Gulley, Milton M., Hartville, assignor of one-half to P. C. Smith, Cairo, Ohio. Hearse attachment						
Guill, John W. (See Ruble and Guill.)	643,645	Feb. 20	1980	466	90	1388
Guillou, Henri, Paris, France. Stopper or closing device for preventing receptacles from being refilled	644,511	Feb. 27	3565	829	90	1710
Guldlin, Olaf N., Fort Wayne, Ind. Pipe and valve connection for water-gas apparatus						
Gulick, Charles H. (See Gulick, Galloup, and Gulick.)	642,222	Jan. 30	3913	801	90	820
Gulick, George E., F. M. Galloup, and C. H. Gulick, Lodi, N. Y. Acetylene-gas generator	641,008	Jan. 9	1676	372	90	343
Gullan, Hector F., Hoylake, England. Rail or tram way rail joint	641,009	Jan. 9	1677	372	90	344
Gulland, Charles, Pittsburg, Pa. Valve	642,849	Feb. 6	478	113	90	1059
Gulland, Charles, Pittsburg, Pa. Valve	641,690	Jan. 23	2917	665	90	614
Gulline, Henry L., Granby, Canada. Collar	641,691	Jan. 23	2918	666	90	614
Gulline, Henry L., Granby, Canada. Collar	644,071	Feb. 27	2755	652	90	1553
Gummi, Hans, Bautzen, assignor of one-half to H. Otto, Görlitz, Germany. Axle-box						
Gump, Elenor S., *et al.* (See Kerfoot, Samuel H., assignor.)	643,125	Feb. 13	1007	234	90	1182
Gunkel, Adolf, Blasewitz, Germany. Stringed musical instrument	641,642	Jan. 16	2641	647	90	588
Gunn, Selim W., assignor of one-half to O. L. King, Agawam, Mass. Shoe	642,041	Jan. 23	3554	814	90	734
Guntner, Herman, and A. A. Roberts, Wellsburg, W. Va. Shade-roller and clamp						
Gurganious, Seth. (See Shoup, William F., assignor.)	644,980	Mar. 6	766	166	90	1909
Gurney, Edwin H., Chagrin Falls, Ohio. Plow attachment	643,089	Feb. 6	984	219	90	1145
Gurney, Hinkley E., Chicago, Ill. Paper-fixture	643,498	Feb. 13	1674	393	90	1313
Gurr, Charles R., and H. Tomlins, London, England. Railway signal apparatus						

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Gussmann, Hermann, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Making para-oxy-para-amido-ortho-oxydiphenylamin	641,100	Jan. 9	1885	------	90	375
Gutermuth, Max F., assignor of one-fifth to F. Lincke, Darmstadt, Germany. Valve-gear for engines	643,871	Feb. 20	2394	563	90	1466
Guthrie, John W. (See Prindle, Henry U., assignor.)	644,741	Mar. 6	319	71	90	1817
Guthrie, Samuel, San Francisco, Cal. Oil-gas valve and apparatus	641,992	Jan. 23	3919	666	90	614
Gutzeit, Charles K., P. M. and M. L. Owen, San Antonio, Tex. Non-refillable bottle	640,653	Jan. 2	988	211	90	182
Guy, Charles, Topeka, Kans. Forming concrete walls						
Guy, George G., and A. J. Anderson, assignors to United States Wind Engine and Pump Company, Batavia, Ill. Water-crane	643,126	Feb. 13	1008	234	90	1182
Guyer, Charles G., and G. K. Rudert, Wilmington, Del. Embroidery-frame	644,597	Mar. 6	68	15	90	1708
Guyer, Henry, Casapalca, Peru. Furnace for desulfurizing ores	644,424	Feb. 27	3422	794, 795	90	1682
H. W. Johns Manufacturing Company. (See Erhard, George P., assignor.)						
Haarmann, August, Osnabrück, Germany. Permanent way	640,654	Jan. 2	989	211, 212	90	182
Haas, Albert. (See Strauss, Ernest, assignor.)	640,557	Jan. 2	752	166	90	147
Haas, Walter G., Dayton, Ohio. Knockdown paper box						
Haase, Leo G., Oak Park, Ill., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Testing cement	642,978	Feb. 6	721	166	90	1106
Haase, Leo G., Oak Park, Ill., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Briquet	642,979	Feb. 6	722	166	90	1107
Häberle, Michael, New York, N. Y. Window	645,357	Mar. 13	1468	324	90	2062
Hachmann, Frederick, assignor of seven-eighths to C. Cristadoro, St. Paul, Minn., J. M. and E. Baasen, Milwaukee, Wis. Railway construction	641,101	Jan. 9	1886	406	90	375
Hachmuth, Henry C., Mill Creek, Mich. Dial-planchette	641,507	Jan. 16	2607	595	90	542
Hachmuth, Henry C., Mill Creek, Mich. Game-board	642,908	Feb. 6	595	137	90	1062
Hack, Peter, Michigan City, Ind. Heating device for sleighs, &c	641,698	Jan. 23	2980	666	90	615
Hadaway, John B. (See Rush, John T., assignor.)						
Hadaway, John B., Brockton, Mass. Seam rubbing and cleaning machine	644,767	Mar. 6	377	88, 84	90	1829
Haentges, John G., assignor of one-half to M. and J. Haentges, Buffalo, N. Y. Crib for building piers, walls, &c	640,877	Jan. 2	427	90	90	86
Haentges, Joseph, *et al.* (See Haentges, John G., assignor.)						
Haentges, Mathias, *et al.* (See Haentges, John G., assignor.)	642,224	Jan. 30	3918	891	90	822
Hafer, Benjamin F., Oklahoma, Okla. Ter. Grain-drill	643,127	Feb. 13	1010	235	90	1183
Hagedorn, John J., Philadelphia, Pa. Shirt						
Haggerty, John S., *et al.* (See Williamson, William, assignor.)						
Hahn, Edward, assignor to G. S. Pearse, L. G. Angell, and A. M. Sumner, Buffalo, N. Y. Gas brazing apparatus	642,605	Feb. 6	74	18	90	981
Hahn, Willard E., Warren, and G. O. Coombs, Rockland, Me. Equalizing-spring for vehicles	644,908	Mar. 6	647	140	90	1883
Hahn, William, assignor to J. B. Carroll, Chicago, Ill. Acetylene-gas burner	644,799	Mar. 6	452	97	90	1844
Haider, Josef, Munich, Germany. Spring saddle-support	642,606	Feb. 6	76	18	90	981
Haines, William L., and W. C. Graham, Dice, Mich. Pea-harvester	643,052	Feb. 6	855	199	90	1132
Haldeman, William I. (See Christ and Haldeman.)						
Hale, Henry S. (See Henderson, George, assignor.)						
Hale, Henry S. (See Hunter, Frederic W., assignor.)						
Hale, Henry S. (See Schellenbach, William L., assignor.)	643,841	Feb. 20	2336	549	90	1455
Hale, Henry S., Philadelphia, Pa. Car-seat						
Hale & Kilburn Manufacturing Company. (See Bennett, Frederick, assignor.)						
Hale & Kilburn Manufacturing Company (See Schellenbach, William L., assignor.)	640,768	Jan. 9	1149	263	90	243
Hale, Prescott G., Chicago, Ill. Match-safe	643,053	Feb. 6	857	199	90	1132
Halfmann, Mary E., Philadelphia, Pa. Finger-ring and attachment therefor	644,512	Feb. 27	3567	830	90	1710
Halford, Harry S., London, England. Cycle-pedal						
Halifax, John B., Chicago, Ill., assignor to Geo. L. Thompson Manufacturing Company, of Illinois. Front-fork crown for velocipedes	641,858	Jan. 23	3240	735	90	672
Halkett, William G., Philadelphia, Pa. Canvas, duck, or like woven fabric	645,808	Mar. 20	2321	507	90	2242
Hall, Albert, assignor of one-third to D. H. Moore, New York, N. Y. Button	643,409	Feb. 13	1501	352	90	1277
Hall, Charles L., Oconto, Wis. Tooth-brush	642,114	Jan. 30	3692	844	90	774
Hall, Harry C., Telluride, Colo. Ambulance	644,909	Mar. 6	648	140	90	1883
Hall, Hattie E., *et al.* (See Hall, Thomas G., assignor.)						
Hall, Iphus H., Jr., Lyndon, Vt. Calf-feeder	643,287	Feb. 13	1288	303	90	1237
Hall, John L. (See Getler and Power, assignors.)						
Hall, Robert A., and E. A. Griffith, Baltimore, Md., assignors to Raymond Button Company of Baltimore City, of Maryland. Button	641,449	Jan. 16	2491	570	90	518
Hall, Robert A., and E. A. Griffith, Baltimore, Md., assignors to Raymond Button Company of Baltimore City, of Maryland. Button	642,042	Jan. 23	3555	814	90	734
Hall, Thomas G., assignor to H. E. Hall and D. L. Harris, New York, N. Y. Marine buoy-safe	640,282	Jan. 2	258	52	90	52
Hall, Walter R., assignor of one-half to A. O. Colton, San Francisco, Cal. Toilet-soap holder	644,513	Feb. 27	3568	830	90	1711
Hall, William A., Bellows Falls, Vt. Waterproofing compound. (Reissue)	11,811	Mar. 6	906	------	90	1987
Hall, William F., Raytown, Mo. Lawn-mower	646,212	Mar. 27	3099	684	90	2414
Hall, William F., and W. Donaldson, Washington, D. C. Garment-hanger	645,358	Mar. 13	1470	324, 325	90	2062
Hallanan, Michael, New York, N. Y. Horseshoe and pad	646,213	Mar. 27	3101	684	90	2414
Hallanan, Michael, New York, N. Y. Foot-covering for horses	646,214	Mar. 27	3102	684	90	2414
Hallgren, Carl A. V., Stockholm, Sweden. Roller for round-picking grindstones, emery-wheels, &c	643,128	Feb. 13	1011	235	90	1183
Halliner, John, Mead, Nebr. Wrench	643,268	Feb. 13	1255	294	90	1231
Halloran, John F., Jr., Chatfield, Minn. Hay-rack	641,102	Jan. 9	1887	408	90	375
Hallows, Stuart P., and A. Tucker, London, England. Acetylene-gas-generating lamp	644,910	Mar. 6	650	140	90	1884
Halstead, Joseph, Burnley, England. Corset	642,904	Feb. 6	597	137	90	1062
Hamalian, George H., Paterson, N. J., assignor of one-third to H. S. Jenanyan, Philadelphia, Pa. Window shutter or blind	644,354	Feb. 27	3307	768	90	1659
Hamelehle, Adolph, Grand Rapids, Mich. Furniture-clamp	641,694	Jan. 23	2921	666	90	615
Hamilton, Noble. (See Merrill, Albion P., assignor.)						
Hamilton, Percy C., *et al.* (See Laing, John H., assignor.)						
Hamlen, Wells R., Johnstown, Pa., assignor to Johnson Company, of Pennsylvania. Electric-motor control	645,088	Mar. 13	984	209	90	1968
Hamlen, Wells R., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Apparatus for control of electric motors	645,089	Mar. 13	987	210	90	1968
Hamm, William S., and W. Wishart, Chicago, Ill., assignors to Adams & Westlake Company, of Illinois. Washstand	641,769	Jan. 23	3072	698	90	641
Hammel, Charles A., assignor of one-half to J. A. Kenworthy, Los Angeles, Cal. Oil-burner	640,878	Jan. 2	439	90	90	87

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Hammer, Edward W., Chicago, Ill. Controlling device for electric switches	645,809	Mar. 20	2821	507	90	2243
Hammer, Henry, Mountain Lake, Minn. Trace-support	641,770	Jan. 23	3073	699	90	641
Hammond, Robert A., Sandwich, Mass. Rope-thimble	646,091	Mar. 27	2848	682	90	2365
Hampton, Fred, Canby, Oreg. Prune-drier	641,955	Jan. 23	3406	774	90	706
Hampton, Oliver H., Williamsburg, Ind. Acetylene-gas generator	640,558	Jan. 2	753	166	90	147
Hancock, Milton T., Shreveport, La. Rotary-disk plow	643,499	Feb. 13	1675	394	90	1313
Hancock, Milton T., Shreveport, La. Rotary plow	646,980	Mar. 27	3229	718 719	90	2438
Hand, Clarence B., St. Louis, Mo. Door-lock	645,663	Mar. 20	2045	450	90	2189
Handler, William, Jerseyville, Ill. Attachment for beer-dispensing apparatus	644,171	Feb. 27	2936	698	90	1589
Handy, Henry P., Sr., Nampa, Idaho, assignor of one-half to L. S. Van Doren, New York, N. Y. Vehicle-wheel	642,980	Feb. 6	722	166	90	1107
Handy, Richard, assignor of two-thirds to H. B. Whiton, New York, N. Y., and I. L. Willits, Bloomfield, N. J. Folding bed	641,450	Jan. 16	2492	570	90	518
Hankins, William B., assignor of one-half to F. L. Osgood, Mount Vernon, Ohio. Lathe-dog	642,981	Feb. 6	725	166	90	1107
Hanks, John G., Oakland, assignor of one-fourth to A. Heilbron, Sacramento, and A. H. F. Schaar, San Francisco, Cal. Distance-measuring instrument	645,918	Mar. 20	2518	555 556	90	2281
Hanlon, John H., Boston, Mass. Track-sanding apparatus	642,843	Feb. 6	480	113	90	1060
Hanlon, William, Poughkeepsie, N. Y. Automatic gravity cut-out for electrical circuits	644,079	Feb. 27	2756	652	90	1553
Hannam, Edward T., and J. A. Bechtel, Cincinnati, Ohio. Steam-generator	645,090	Mar. 13	990	210	90	1069
Hannegan, William J., Victor, Colo. Lettering-guide	645,850	Mar. 20	2294	526	90	2258
Hannold, Ed J., Anderson, Ind. Hose-coupling	645,707	Mar. 20	2124	495	90	2206
Hannum, Henry A., Cazenovia, N. Y. Sash-balance	642,965	Feb. 6	516	121	90	1067
Hansen, Christian E., Chicago, Ill. Propeller for vessels	643,646	Feb. 20	1981	466	90	1349
Hansen, Thorvald. Everett, Mass., assignor to Advertising Machine Company, Portland, Me. Display apparatus	646,168	Mar. 27	3004	663	90	2305
Hansmann, Otto, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Brown sulfur dye	640,559	Jan. 2	756	322 323	90	148
Hanson, Dempsey B., Seattle, Wash. Gang-edger	640,908	Jan. 9	1440	322 323	90	800
Hanson, Frederick E. (See Bishoff, Andrew W., assignor.)	643,961	Feb. 20	2560	608	90	1501
Hanten, Isidor J. B., Kranzburg, and J. J. Kranz, Watertown, S. D. Tube or flue cutter	643,599	Feb. 13	1849	437	90	1347
Harbaugh, Howard E., Kenosha, Wis. Feed stop mechanism	642,115	Jan. 30	3683	844	90	774
Harbridge, Frederick J., Gravenhurst, Canada. Platen-press	640,901	Jan. 9	1436	322	90	800
Hardaway, Robert E., Austin, Tex. Wind and water motor	641,605	Jan. 23	2924	667	90	615
Hardaway, Robert E., Austin, Tex. Submerged current-motor	641,606	Jan. 23	2926	667	90	616
Hardeman, James M., and C. T. Belt, Taylor, Tex. Attachment for plows and cultivators	645,746	Mar. 20	2216	480	90	2222
Hardert, Frederick, Cincinnati, Ohio. Cupola	641,108	Jan. 9	1840	409	90	876
Hardill, Joseph, Stratford, Canada. Compound steam-engine	643,054	Feb. 6	858	200	90	1132
Hardmeyer, Adolf, Goerz, Austria-Hungary. Shuttle-threader	645,562	Mar. 20	1836	405	90	2147
Hardwick, Harry, Philadelphia, Pa. Indicator mechanism for looms	643,352	Feb. 13	1394	325	90	1258
Hardy, John F., London, England. Shorthand type-writer	646,169	Mar. 27	3008	664 665	90	2295
Harfield, William H., London, England. Apparatus for electrically controlling engines, electromotors, or other machinery	640,655	Jan. 2	941	212	90	182
Hargis, Charles M., St. Louis, Mo. Water-tube boiler	11,808	Feb. 6	949	222	90	1132
Hargroves, Robert T., Churchland, Va. Barrel. (Reissue)	643,055	Feb. 6	859	200	90	1132
Harkins, Charles H., Edwardsville, Ill. Water-heater	646,001	Mar. 27	2878	594	90	2331
Harkness, Charles A., Providence, R. I. Elevator. (See Ruggaber, Constantin, assignor.)	640,908	Jan. 9	1442	323	90	801
Harland, Judge W., Lincoln, Nebr. Book and system for bookkeeping	641,104	Jan. 9	1843	409 410	90	876
Harley, Henry M., Gloucester City, N. J., assignor of one-half to G. A. Heyl, Philadelphia, Pa. Fabric-printing machine	645,997	Mar. 20	2527	559	90	2284
Harmon, Frank L., Beverly, Mass. Belt-punch	645,091	Mar. 13	992	210	90	1069
Harmon, Robert W., Lockhart, Miss. Pocket prescription-scale	643,647	Feb. 20	1992	466 467	90	1389
Harmon, William, Bartow, assignor of one-half to F. H. Farrell, Homeland, Fla. Velocipede	643,500	Feb. 13	1678	408 394	90	1314
Harrell, Sampson, Whigham, Ga. Nut-lock	641,598	Jan. 16	2756	627	90	571
Harrelson, James W., Belton, Mo. Spark-arrester	646,145	Mar. 27	2958	654	90	2386
Harries, William J., Liverpool, England. Canister for packing edibles	640,656	Jan. 2	942	212	90	188
Harriman, Henry I., New York, N. Y. Weft-parter for automatic weft-replenishing looms	645,080	Mar. 6	865	188	90	1929
Harrington, Frank. (See Couch and Harrington.)						
Harrington, Frank. (See Woerner and Harrington.)						
Harrington & Richardson Arms Company. (See Caldwell, Homer M., assignor.)						
Harrington & Richardson Arms Company. (See Bye, Martin, assignor.)	644,514	Feb. 27	3569	830	90	1711
Harrington, Samuel, Baltimore, Md. Cutter-head	642,113	Jan. 30	3681	843	90	774
Harris, Bradner L., assignor of one-half to L. O. Bailey, Indianapolis, Ind. Apparatus for cooking and drying cereals	643,743	Feb. 20	2161	507	90	1422
Harris, Charles R., *et al.* (See Sweitzer, Charles C., assignor.)						
Harris, Charles R., Williamsport, Pa. Liquid-barrel						
Harris, Cynthia S., executrix. (See Harris, Lewis.)						
Harris, David L., *et al.* (See Hall, Thomas G., assignor.)	644,551	Feb. 27	3649	849	90	1726
Harris, George, Detroit, Mich. Electric signaling apparatus						
Harris, J. B., *et al.* (See Miracle, Meridith W., assignor.)	640,466	Jan. 2	588	126	90	116
Harris, Jesse, Albany, N. Y. Rate-indicator for electric currents	641,643	Jan. 16	2843	647	90	589
Harris, Joseph, Boston, Mass. Steam-engine						
Harris, Lewis, deceased; C. S. Harris, Rome, N. Y., executrix, assignor, by mesne assignments, to C. S. Harris. Hoisting and carrying machine	641,508	Jan. 16	2808	595	90	542
Harris, Stephen M., Cheney, Wash. Wagon running-gear	641,771	Jan. 23	3074	699	90	641
Harrison Bros. & Company. (See Darling, James D., assignor.)	644,800	Mar. 6	453	97	90	1844
Harrison, George P., Buffalo, N. Y. Ash-sifter	642,890	Feb. 6	439	105 106	90	1051
Harrison, James W., Atlanta, Ga., assignor, by mesne assignments, to Atlantic Brass Company, of New Jersey. Car-axle bearing	644,425	Feb. 27	3424	795	90	1693
Harrison, Joseph W., Converse, Ind. Apparatus for casting metal	646,401	Mar. 27	3495	778 779	90	2494
Harrison, William H., assignor of one-half to C. G. Fowler, New York, N. Y. Steam-generator						
Harrison, William S. (See Howard, Thomas, assignor.)						
Hart, George B., and F. W. Milligan, Rochester, N. Y. Mouthpiece for telephone-transmitters, &c	642,992	Feb. 6	726	167	90	1107
Hart, George E., assignor to Waterbury Watch Company, Waterbury, Conn. Making pinions	641,105	Jan. 9	1845	410	90	877
Hart, Gerald W., West Hartford, Conn. Snap-switch	645,092	Mar. 13	993	211	90	1069

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hart, Gerald W., West Hartford, Conn. Snap-switch	646,146	Mar. 27	2959	654	90	2385
Hart, Henry. (See Rigg and Hart.)	641,956	Jan. 23	3409	774	90	706
Hart, Hubert C., Unionville, Conn. Bolt						
Hart, John W., assignor of one-half to J. Spoo and W. Bradley, Iola, Kans. Ice-cream freezer	640,195	Jan. 2	66	14	90	15
Hart, Milton H., Boston, Mass. Hose-pipe	646,072	Mar. 27	2815	624	90	2357
Hart, Walter B., Duncan, Ind. Ter. Animal-poke	645,664	Mar. 20	2048	450	90	2189
Hart, William, Kirksville, Mo. Graphophone-reproducer	644,981	Mar. 6	767	167	90	1909
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,379	Jan. 2	440	90	90	87
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,380	Jan. 2	441	91	90	87
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,381	Jan. 2	442	91	90	87
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,382	Jan. 2	443	91	90	88
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,383	Jan. 2	443	91	90	88
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,384	Jan. 2	444	92	90	88
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,904	Jan. 9	1445	324	90	802
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,905	Jan. 9	1446	324	90	802
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	640,906	Jan. 9	1447	324	90	802
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	644,073	Feb. 27	2756	652	90	1553
Hart, William H., Jr., Philadelphia, Pa. Bicycle-support	644,074	Feb. 27	2758	653	90	1553
Harter, Eli E., Sac City, Iowa, assignor, by mesne assignments, to Warder, Bushnell & Glessner Company, Springfield, Ohio, and Chicago, Ill. Adjustable coupling-yoke for mowers	642,522	Jan. 30	4457	1012	90	929
Harter, Isaac, *et al.* (See Kauffman, William J., assignor.)						
Hartford, Henry B., assignor to O. P. Weeks and B. B. Whitney, Standish, Me. Wrench.	645,665	Mar. 20	2049	450	90	2190
Hartford Type Writer Company. (See Dodge, Edwin H., assignor.)						
Hartman, Henry W., trustee. (See Thompson and French, assignors.)						
Hartman, Simon, and W. H. Wigmore, Philadelphia, Pa. Cigar-rolling table and leaf-wrapper cutter	643,767	Feb. 20	2203	520	90	1430
Hartwich, Alexander, Vienna, Austria-Hungary. Garbage-cart	641,594	Jan. 16	2757	627	90	571
Hartz, Maud R., Richmond, Va. Woven fabric	645,818	Mar. 13	1397	307	90	2047
Harvey, George H., Pittsburg, Pa., assignor to National Tube Company, of New Jersey. Pipe-thread protector	642,324	Jan. 30	4103	935	90	860
Harvey, James A., Toronto, Canada. Photographic-print fabric	645,952	Mar. 27	2595	575	90	2315
Harvey, Robert, Glasgow, Scotland. Vacuum-pan	643,794	Feb. 20	2244	529	90	1438
Harvey, Samuel W., Dubuque, Iowa, assignor of one-half to E. G. Imhoff. Treating cork for packing	644,172	Feb. 27	2938	694	90	1589
Haskell, William E., Philadelphia, Pa. Valve	641,509	Jan. 16	2612	596	90	543
Haskins, Caryl D., Newton, Mass., assignor to General Electric Company, of New York. Electric-meter device	640,196	Jan. 2	69	14	90	16
Haskins, Roselle W. (See Lawrence, Peter, assignor.)						
Haslup, Millard. (See White, Haslup, and Schweinfurth.)						
Hasson, George E., assignor of one-half to J. J. Fournier and T. Larner, Toledo, Ohio. Light-extinguishing attachment for lamp-burners	640,467	Jan. 2	591	126	90	116
Hastings, Frederic R. (See Ward, Elmer E., assignor.)	640,288	Jan. 2	260	52	90	52
Hatch, Francis E., Norway, Mich. Electric furnace	645,359	Mar. 13	1474	325	90	2064
Hatfield, Wallace, and J. P. Tarr, Augusta, Ill. Gate	644,821	Mar. 6	493		90	1852
Hathaway, Harold W., Boston, Mass. Fireproof composition for building purposes	641,451	Jan. 16	2494	571	90	518
Hatten, William T., Canyon City, Oreg. Wrench	642,445	Jan. 30	4343	963	90	907
Haugh, Frank A., Albia, Iowa. Tobacco-pipe	642,905	Feb. 6	598	137	90	1092
Hauser, Isaiah L., Chicago, Ill. Rice-huller	642,116	Jan. 30	3686	845	90	775
Hauser, Theodore, Chicago, Ill. Folding bed						
Haussermann, Sherman M. (See Smith, William M., assignor.)	640,560	Jan. 2	757	167	90	148
Hauver, Alfred N., assignor of one-half to H. E. Jennison, Fitchburg, Mass. Trolley						
Haven, John V. D., Chicago, Ill., assignor of two-thirds to R. K. Andrus, Cincinnati, Ohio, and J. M. Rude, Covington, Ky. Non-refillable bottle	643,842	Feb. 20	2338	550	90	1456
Hawenstine, Jacob W. (See Niswonger and Hawenstine.)	643,648	Feb. 20	1986	468	90	1389
Hawkins, Fannie J., Cedar Rapids, Iowa. Carpet-clamp						
Hawkins, Frederick W., assignor of one-fifth to T. A. E. Weadock, trustee, Detroit, Mich. Refining iron	645,205	Mar. 13	1209	268	90	2010
Hawkins, Gardner C., assignor to G. E. Smith, Boston, Mass. Electric heater	643,744	Feb. 20	2163	508	90	1422
Hawkins, Henry, London, England. Acetylene-gas generator	643,090	Feb. 6	936	219	90	1145
Hawkins, John T. (See Painter and Hawkins.)						
Hawkins, Lillie E. (See Underwood and Hawkins.)	644,708	Mar. 6	269	60	90	1807
Hawks, Moses L., Chicago, Ill. Knife or scissors sharpener	641,106	Jan. 9	1846	410	90	877
Hawksworth, Frank E., Helena, Mont. Device for connecting shafts with other parts	644,822	Mar. 6	494	106	90	1858
Hawksworth, Frank E., Helena, Mont. Car-axle	641,510	Jan. 16	2614	596	90	544
Hawley, Annie T. K., Delhi, La. Curtain-supporter						
Hawley, Walter L., assignor of one-half to J. C. Evans, Fort Collins, Colo. Ventilated fruit-box	641,205	Jan. 9	2053	460	90	417
Haworth, Dennis. (See Duffie, Robert, assignor.)	644,135	Feb. 27	2866	679	90	1577
Haworth, Lysander L., Decatur, Ill. End-gate for wagon-beds	642,792	Feb. 6	396	98	90	1041
Hay, John T., Union City, Ohio. Threshing-cylinder	644,228	Feb. 27	3046	721	90	1611
Hay, Paul L., Pittsburg, Pa. Library or other shelving	644,355	Feb. 27	3300	769	90	1659
Haycock, George B., Chicago, Ill. Fountain-cuspidor						
Haydon, Charles E. (See Squires, Edward E., assignor.)	642,925	Jan. 30	4103	931	90	860
Hayes, Flavius E., Wick, Ohio. Evaporating-pan						
Hayes, Fred. (See Brewer and Hayes.)	640,764	Jan. 9	1150	263 264	90	243
Hayes, George D., Chetek, Wis. Weighing-scale						
Hayes, Henry J. (See Godfrey and Hayes.)						
Hays, John W., assignor of one-half to J. H. Markwell, Oklahoma, Okla. Ter. Nest for poultry	643,091	Feb. 6	937	220	90	1145
Hazard-Flamand, Louis H. A. B. M., Boulogne-sur-Seine, France. Electrolytic apparatus	646,281	Mar. 27	3231	719	90	2439
Hazelton, Asa, Middletown, assignor of one-half to W. S. Boyd, Vandalia, Mo. Churn-dasher	646,170	Mar. 27	3011	665	90	2396
Head, James E., Paris, Tenn. Wire fence	640,907	Jan. 9	1448	324	90	802
Headech, Ernest T., Ashford, county of Kent, England. Hydrocarbon-motor	646,282	Mar. 27	3233	720	90	2435
Headland, John, Galva, Ill. Skirt-hanger	643,818	Feb. 20	2283	537	90	1445
Heaney, John, Gridley, Cal., assignor of one-half to A. L. Chauvet, New York, N. Y. Hemp-brake	641,010	Jan. 9	1678	372	90	344
Heany, John A. (See Teter and Heany.)	645,953	Mar. 27	2596	575	90	2315
Hearne, Robert J., New York, N. Y. Cloth-cutter						
Heath, Henry A., Jersey City, N. J., assignor to B. F. Stephens, New York, N. Y. Mechanical illustrator of the eye	642,396	Jan. 30	4106	931	90	861
Heath, Mark L., Jasper, Colo. Pocket-knife	645,568	Mar. 20	1889	405	90	2148
Heather, Parker D., Pontiac, Mich. Adjustable spring cot-frame	641,385	Jan. 16	2368	541	90	494

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Heatly, Frank T., and M. Leavell, Sterling, Ill. Roasting or baking pan	646,283	Mar. 27	3236	730	90	2410
Heaton, John W., Chattanooga, Tenn. Refrigerator	642,117	Jan. 30	3089	845	90	775
Heatwole, Henry S., Mount Clinton, Va. Wire-fence machine	644,011	Feb. 20	2959	629	90	1520
Hebert, Albert S., Plaquemine, La. Cane-cart loader	645,851	Mar. 20	2595	596	90	2259
Hebiethwaite, John H., Hoylake, England. Truck	644,229	Feb. 27	3048	722	90	1611
Hecht, August W., assignor to E. Grumme, Nuremberg, Germany. Refracting attachment for bicycle-lamps	643,199	Feb. 13	1013	255 256	90	1183
Hedbavny, Anton. (See Comstock and Hedbavny.)						
Hedgeland, Frederick W., Chicago, Ill. Bicycle-lamp support	642,906	Feb. 6	599	138	90	1068
Hedgeland, Frederick W., Chicago, Ill. Lamp attachment	643,897	Feb. 20	2449	575	90	1476
Hedgeland, Frederick W., Chicago, Ill. Acetylene-gas-generating lamp	644,768	Mar. 6	379	84	90	1630
Hedgeland, Frederick W., Chicago, Ill. Artificial bait	644,911	Mar. 6	651	140	90	1684
Hedges, Peter T., *et al.* (See Joseph, Herschel V., assignor.)						
Hedges, Samuel, Los Angeles, Cal. Veneered flooring	641,206	Jan. 9	2053	460	90	418
Heere, Reinhold, Berlin, Germany. Paddle-wheel with feathering-blades	641,289	Jan. 16	2207	497	90	463
Heermans, Thaddeus W., Chicago, Ill. Power-transmitting device	643,130	Feb. 13	1014	236 237	90	1184
Heffner, Columbus, assignor, by mesne assignments, to himself and T. C. Simpson, Middletown, Ohio. Bucket-chain pump	645,171	Mar. 13	1146	247	90	1998
Heffner, James B., assignor of one-half to W. W. Sando, Bloomer, Ohio. Land-roller	642,327	Jan. 30	4109	923	90	861
Heffner, John L., Peoria, Ill. Upholstering apparatus	644,496	Feb. 27	3426	796	90	1693
Heffner, William F., Benton Harbor, Mich. Warehouse-truck	643,056	Feb. 6	861	200	90	1133
Heggem, Charles O., Massillon, Ohio. Motor-vehicle	644,508	Mar. 6	99	15, 16	90	1708
Heidecker, Wilhelm, New Hampton, Iowa. Brace for threshing-machines	645,490	Mar. 13	1592	348	90	2087
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Battery	641,011	Jan. 9	1679	373	90	344
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Brush for dynamo-electric machines	641,012	Jan. 9	1680	373	90	344
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Electric lighting apparatus	641,957	Jan. 23	3410	774	90	707
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Pencil for electric-arc lamps	641,958	Jan. 23	3410	775	90	707
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Push-button for battery-indicators	642,844	Feb. 6	481	114	90	1060
Heidel, Gustavos, assignor to Globe Electric Company, St. Louis, Mo. Electric lamp for bicycles	644,823	Mar. 6	496	106	90	1852
Heil, Albrecht, assignor to A. Wolf, Jr., & Co., Frankfort-on-the-Main, Germany. Gas-engine	645,298	Mar. 13	1361	295	90	2040
Heilbron, Adolph, *et al.* (See Hanks, John G., assignor.)						
Heilmann, Jean J., Paris, France. Apparatus for controlling electric motors	643,649	Feb. 20	1987	468	90	1389
Helm, Lewis R., Danbury, Conn. Hat-clearing machine	645,598	Mar. 20	1915	422	90	2163
Helm, Lewis R., Danbury, Conn. Hat-ironing machine	645,598	Mar. 20	1916	423	90	2163
Heineke, Martin, Springfield, Ill. Drag-belt for straw-stackers	641,013	Jan. 9	1681	373	90	344
Heineman, Harry A., assignor of two-thirds to C. J. Roberts, A. A. Miller, and W. Eichinger, St. Louis, Mo. Skirt-supporter	643,298	Feb. 13	1289	304	90	1298
Heinl, John. (See Heinl and Beyerl.)						
Heinl, Wenzl and J., and C. Beyerl, Etna, Pa. Composition for manufacturing artificial stone	645,302	Mar. 13	1538	.....	90	2076
Heinz, Johann, Pforzheim, Germany. Blowpipe-lamp	646,171	Mar. 27	3012	665	90	2306
Heister, William C., assignor to Buckeye Iron and Brass Works, Dayton, Ohio. Machine for grinding drills	641,107	Jan. 9	1847	411 412	90	577
Heitzelmann, Alvie, San Francisco, Cal. Earth-thawing apparatus	641,772	Jan. 23	3075	699	90	641
Held, Charles, New York, N. Y. Device for removing photographs from albums	644,136	Feb. 27	2870	680	90	1578
Held, Johann K. (See Fraenkel and Held.)						
Heiling, Henry, Denver, Colo. Steam-trap	645,506	Mar. 13	1789	398	90	2115
Heim, Wilhelm, Berlin, Germany. Cooling or refrigerating apparatus	640,765	Jan. 9	1155	264	90	244
Heistrom, Axel N., Tower, Minn. Scaffold	645,666	Mar. 20	2050	451	90	2190
Hemingway, Joseph, assignor of two-thirds to J. W. Rogers, Sundance, Wyo., and W. E. Rothermel, Chicago, Ill. Distilling coal	644,012	Feb. 20	2660	589	90	1520
Hemmerdinger, John H., New York, N. Y. Duplex razor-strop	645,954	Mar. 27	2597	575	90	2315
Hempel, Henry A., Gotha, Fla. Pessary	646,073	Mar. 27	2816	624	90	2359
Hempel, Heinrich, Berlin, Germany. Apparatus for producing spirits in solid form	643,131	Feb. 13	1018	237	90	1185
Hemperly, W. S., *et al.* (See Sweitzer, Charles C., assignor.)						
Hemstreet, George R., Cleveland, Ohio. Bottle-float	641,108	Jan. 9	1858	412	90	579
Henderson, George, assignor to H. S. Hale, Philadelphia, Pa. Car-seat	645,504	Mar. 20	1919	423	90	2164
Henderson, James, assignor to Sheffield Car Company, Three Rivers, Mich. Stand-pipe for locomotives	642,118	Jan. 30	3991	846	90	776
Henderson, Mark E., Pennsborough, W. Va. Drop-siding for houses	640,561	Jan. 2	759	167	90	148
Hendricks, William E., Cairo, Ill. Car-window	645,967	Mar. 20	2058	451	90	2190
Hendrickson, John D., and W. E. Kimball, Madison, Wis. Cream-separator	641,959	Jan. 23	3411	775	90	707
Hendrickson, Joseph G. (See Clamer and Hendrickson.)						
Hendryx, Andrew B., New Haven, Conn., assignor to New Haven Oyster Company, New Haven, Conn., and Jersey City, N. J. Anchor for oyster-brush	643,092	Feb. 6	939	220	90	1146
Henius, Max W., and J. Herrold, New York, N. Y.; said Herrold assignor to said Henius. Metal-bending machine	643,353	Feb. 13	1396	325 327	90	1256
Henius, Max W., and J. Herrold, New York, N. Y.; said Herrold assignor to said Henius. Metal-bending machine	643,354	Feb. 13	1399	327	90	1259
Henley, Robert L., assignor of one-half to J. H. Button, Louisville, Ky. Display-stand	644,247	Feb. 27	3078	725 726	90	1615
Hennebique, François, Paris, France. Sleeper for use on railways or the like	641,607	Jan. 23	2928	668	90	616
Hennebique, François, Paris, France. Means for fixing rails on sleepers of railways	642,745	Feb. 6	332	78	90	1029
Hennessey, William A., Delavan, Wis., and W. W. McLain; said McLain assignor to E. F. McLain, Paola, Kans. Photographer's combination baby-holder and lounge	642,607	Feb. 6	77	18	90	981
Hennessy, John F., St. Louis, Mo. Adjustable brake-beam	645,810	Mar. 20	2323	507	90	2243
Henning, Frederick S., assignor to J. O. Buchanan and H. Boughton-Hodgins, Toronto, Canada. Sectional water-heater	644,080	Feb. 20	2689	587	90	1525
Henrici, George J. H., Overbrook, Kans. Combined check-hook and harness-hanger	646,215	Mar. 27	3108	695	90	2415
Henry Disston & Sons. (See Shaw, Edwin F., assignor.)						
Henry, Edward A., Woodville, Tex. Vine-support	641,859	Jan. 23	3242	736	90	673
Henry, John C., Westfield, N. J. Electric motor	643,098	Feb. 6	940	220	90	1146
Henry, Martin M., Cleveland, Ohio. Spinning-top	644,709	Mar. 6	271	60	90	1607
Henry, Richard S. (See Bowman and Henry.)						
Henry, William K. (See Corbin and Henry.)						
Hensel, Otto A., Pittsburg, Pa. Rocking or oscillating bath-tub	643,094	Feb. 6	941	221	90	1146
Hensley, David A., Vicksburg, Miss., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	643,289	Feb. 13	1290	304	90	1298

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Herbabny, Julius, assignor to K. Oehler, Anilin and Anilinfarben-Fabrik, Offenbach-on-the-Main, Germany. Black trisazo dye	644,291	Feb. 27	3173	.....	90	1685
Herbabny, Julius, assignor to K. Oehler, Anilin and Anilinfarben-Fabrik, Offenbach-on-the-Main, Germany. Black polyazo dye	644,292	Feb. 27	3174	.....	90	1685
Herbert, Thomas F., assignor of two-thirds to M. H. Tierney, Leominster, and D. R. Dwyer, Pepperell, Mass. Lawn-mower sharpener	643,290	Feb. 13	1292	305	90	1238
Herbert, William C., Stanstead, Canada. Soldering-iron	643,819	Feb. 20	2285	538	90	1445
Herchert, Edwin J., Garnavillo, Iowa. Rotary engine	645,360	Mar. 13	1475	325	90	2064
Herdrich, William F., and E. G. Hetu, Chicago, Ill. Cooker	643,650	Feb. 20	1998	469	90	1390
Herfert, Joseph, Tucker, Wash. Earth-auger	641,980	Jan. 23	3412	775	90	88
Hering, Fred, Churdan, Iowa. Vertically-adjustable barn-door	640,385	Jan. 2	445	92	90	2396
Hermanson, Gustaf, Chicago, assignor to J. Munton, Maywood, Ill. Automatic coupling for railway-cars	646,172	Mar. 27	3014	665	90	2397
Hermanson, Gustaf A., Chicago, assignor to J. Munton, Maywood, Ill. Automatic coupling for railway-cars	646,173	Mar. 27	3015	666	90	2397
Hermanson, Gustaf A., Chicago, assignor to J. Munton, Maywood, Ill. Automatic coupling for railway-cars	646,174	Mar. 27	3017	666	90	2397
Herr, John L., Lancaster, Pa. Bag-holder	645,595	Mar. 20	1921	423	90	2164
Herrold, John. (See Henius and Herrold.)	646,026	Mar. 27	2732	606	90	2341
Hertzer, Frits A., Jacobsville, Mich. Bill-of-fare indicator						
Herzinger, Carl B., *et al.* (See En Earl and Critchlow, assignors.)	642,845	Feb. 6	482	114	90	1060
Herzog, Fredrick E., and F. L. Martin, New York, N. Y. Hoisting apparatus	640,908	Jan. 9	1449	325	90	308
Hess, Henry K., Philadelphia, Pa. Process of and apparatus for making chlorid of zinc	644,515	Feb. 27	3571	831 832	90	1711
Hess, Herbert C., New York, N. Y. Writing-machine	644,516	Feb. 27	3576	832	90	1712
Hess, Herbert C., New York, N. Y. Writing-machine	640,657	Jan. 2	945	213	90	188
Hesselius, Peter, Chicago, Ill. Earth-auger	643,182	Feb. 13	1019	237	90	1185
Hesseltine, Charles R., Creston, Wash. Mechanism for raising or lowering buggy-tops	643,843	Feb. 20	2340	550 551 552	90	1456
Hesser, Otto, Cannstadt, Germany. Paper-bag machine	641,896	Jan. 16	2370	542	90	495
Hettrick, William E., Toledo, Ohio. Thermal-bath cabinet	644,824	Mar. 6	498	106 107 108	90	1852
Hetu, Elzeard G. (See Herdrich and Hetu.)						
Heusch, Anton, assignor of one-half to W. Zimmerman, Chicago, Ill. Knotter for harvesters	641,627	Jan. 16	2813	639 640 653	90	583
Heusch, Edouard, Paris, France. Machine for manufacturing sewing-needles	644,075	Feb. 27	2759	654 655 656	90	1554
Hewitt, Frederick J., and C. H. Bridoux, assignors to Hewitt Sealer and Stamper Company, Chicago, Ill. Machine for stamping and sealing envelops						
Hewitt, George. (See Nichols, Franklin H., assignor.)						
Hewitt Sealer and Stamper Company. (See Hewitt and Bridoux, assignors.)	640,197	Jan. 2	70	15	90	16
Hewlett, Alfred M., Kewanee, Ill. Pipe-coupling	643,133	Feb. 13	1021	237 238	90	1185
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Safety device for electric-distribution systems	645,684	Mar. 20	2081	457	90	2196
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrically-operated switch	642,338	Jan. 30	4110	992	90	861
Heydrich, Alfred, New York, N. Y. Flower-holder						
Heyl, George A. (See Harley, Henry M., assignor.)						
Heylman, Edward M. (See Parlin and Heylman.)						
Heylman, Edward M., assignor to Acme Harvester Company, Pekin, Ill. Cream-separator	643,651	Feb. 20	1990	469	90	1390
Heysinger, Isaac W., Philadelphia, Pa. Machine for simultaneously cutting and printing cigars	640,909	Jan. 9	1453	325	90	304
Heysinger, Isaac W., Philadelphia, Pa. Discharging mechanism for syrup or other jars	642,119	Jan. 30	3998	846	90	776
Heywood Brothers & Wakefield Company. (See O'Hearn, George E., assignor.)						
Hibbard, Maury W., assignor to R. Fitzgerald, Chicago, Ill. Fluid-pressure brake	644,856	Feb. 27	3311	769	90	1659
Hibson, Albert R., New York, N. Y., assignor to National Folding Box and Paper Company, New Haven, Conn. Knockdown folding paper box	640,766	Jan. 9	1157	264	90	245
Hickman, James W., Clearfield, Iowa. Platform-scale	644,427	Feb. 27	3427	796	90	1688
Hicks, George C., Chicago, Ill. Electric third-rail system	645,959	Mar. 13	1800	383	90	2028
Hicks, John B. (See Cruser, Van Dyke, assignor.)	641,698	Jan. 23	2929	.....	90	616
Hicks, Louis, New York, N. Y. Manufacture of incandescent mantles	642,225	Jan. 30	3919	891 892	90	822
Hickson, Samuel A. E., Fulford, England. Rotary pressure-engine	640,910	Jan. 9	1455	325 326	90	304
Hiett, George B., Atlanta, Ga., assignor of one-half to S. L. Brewer, Tuskegee, Ala. Refrigerating or ice-making machine	640,911	Jan. 9	1460	327	90	305
Hiett, George B., Atlanta, Ga., assignor of one-half to S. L. Brewer, Tuskegee, Ala. Compression-pump for refrigerating apparatus	642,120	Jan. 30	3997	846 847	90	777
Hiett, George B., Atlanta, Ga., assignor of one-half to S. L. Brewer, Tuskegee, Ala. Separating and condensing device for ammonia suction	642,446	Jan. 30	4344	983 984	90	907
Hiett, George B., Atlanta, Ga., assignor of one-half to S. L. Brewer, Tuskegee, Ala. Duplex pumping apparatus	642,329	Jan. 30	4111	.....	90	862
Higgins, Charles M., New York, N. Y. Making adhesive paste	642,330	Jan. 30	4114	.....	90	862
Higgins, Charles M., New York, N. Y. Digesting starch	642,331	Jan. 30	4117	.....	90	862
Higgins, Charles M., New York, N. Y. Adhesive compound	645,511	Mar. 20	2324	508	90	2243
Higgs, James A., Bear Spring, Tenn. Non-refillable bottle	641,207	Jan. 9	2054	460 461	90	418
Higham, Howard H., Philadelphia, Pa. Packing-box	643,057	Feb. 6	862	901	90	1133
Higham, Howard H., Philadelphia, Pa. Bottle-package	641,990	Jan. 16	2308	497 498	90	463
Highfield, John S., St. Helens, England. Pressure-regulating apparatus for mains	642,236	Jan. 30	3922	892 893	90	822
Highsmith, Zebulon F., Lumberton, N. C. Lamplighter or light-extinguisher	641,511	Jan. 16	2616	596 597	90	544
Hildebrandt, Charles T., and F. R. McMullin, Chicago, Ill. Driving and steering mechanism for motor-vehicles	642,846	Feb. 6	484	114	90	1060
Hildebrandt, Henry C., Benton City, Mo. Life-preserver	641,387	Jan. 16	2371	542	90	495
Hildreth, Charles L., assignor to Lowell Machine Shop, Lowell, Mass. Coller-head	641,388	Jan. 16	2372	542	90	495
Hildreth, Charles L., assignor to Lowell Machine Shop, Lowell, Mass. Coller-head	641,389	Jan. 16	2373	542	90	496
Hildreth, Charles L., assignor to Lowell Machine Shop, Lowell, Mass. Coller-head	642,121	Jan. 30	3704	847	90	779
Hildreth, Herbert L., Boston, Mass. Folding box	640,562	Jan. 2	759	167	90	148
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp						
Hill, Charles H., assignor to Prismatic Electric Sign Company, Williamsport, Pa. Illuminated sign	643,872	Feb. 20	2395	568	90	1467
Hill, Constantine, Denver, Colo. Hydraulic motor	640,384	Jan. 2	992	58	90	58

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hill, David D., Logan, Kans. Device for hoisting grain	641,961	Jan. 23	3413	775	90	707
Hill, George A., Ansonia, Conn. Corset-stay-tipping machine	643,653	Feb. 20	1992	469 470	90	1391
Hill, George S., and D. A. Hitchcock, Haverhill, assignors to J. J. Sullivan, Ipswich, Mass. Buttonhole-sewing machine	642,122	Jan. 30	3706	847 848 849	90	779
Hill, George T. (See Patterson and Hill.)						
Hill, Harry M., St. Louis, Mo. Dental oven	643,898	Feb. 20	2443	575	90	1476
Hill, John E., assignor to American Roll Paper Company, St. Louis, Mo. Paper-cutter	643,374	Feb. 13	1432	334	90	1265
Hill, John E., assignor to American Roll Paper Company, St. Louis, Mo. Roll-paper holder	643,375	Feb. 13	1433	334	90	1265
Hill, Robert K., *et al.* (See Bischoff, Frederick F., assignor.)	642,227	Jan. 30	3924	893 894	90	823
Hill, Romulus E., Watseka, Ill. Undergarment						
Hill, Thomas P., *et al.* (See Pfaudler, John M., assignor.)						
Hill, William J., assignor of one-half to R. O. Woodfin, Elkmont, Ala. Valve-gear for engines	643,899	Feb. 20	2446	575	90	1477
Hill, William M., Suspension, Ala. Portable fence	643,056	Feb. 6	863	201	90	1133
Hillenbrand, Charles W., assignor to N. C. Barnes, Kansas City, Kans. Spring-hinge	642,691	Feb. 6	294	55	90	1010
Hilliman, William, Coventry, England. Joint for tubes	645,291	Mar. 13	1362	306	90	2040
Hills, James E., New York, N. Y. Sleeve-button	646,175	Mar. 27	3019	666	90	2397
Hilstrom, Oscar, New York, N. Y. Reflector	646,216	Mar. 27	3104	685	90	2415
Hilton, James, Newark, N. J. Metal-cutting saw	646,284	Mar. 27	3237	720	90	2440
Hilton, Roland C., assignor of one-half to F. L. Sowle, New Bedford, Mass. Valve for inflation	642,608	Feb. 6	79	19	90	981
Himmel, Gottlob, Tubingen, Germany. Specific-gravity apparatus	646,176	Mar. 27	3019	667	90	2398
Himmelwright, Abraham L. A., Newark, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Railway-tie	644,710	Mar. 6	272	60	90	1808
Himmelwright, Abraham L. A., Newark, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,912	Mar. 6	652	141	90	1864
Himmelwright, Abraham L. A., Newark, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,913	Mar. 6	654	141	90	1865
Himmelwright, Abraham L. A., Newark, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,914	Mar. 6	657	141	90	1865
Hinchliffe, John, *et al.* (See Finigan, Thomas, assignor.)	641,291	Jan. 16	2309	498	90	463
Hinchman, Mortimer L., New York, N. Y. Safety-envelop						
Hinckley, Frederick P., assignor of one-half to J. McDevitt, Jackson, Mich. Back-pedaling brake	643,600	Feb. 13	1853	437	90	1349
Hinds, James, Paris, Ill. Roofing-gage	641,109	Jan. 9	1853	412	90	379
Hinds, James, Paris, Ill. Roofing-stool	641,110	Jan. 9	1854	412	90	379
Hinkel, Friedrich. (See Schaefer and Hinkel.)	640,658	Jan. 2	946	213	90	183
Hinkley, Elisha D., Denver, Colo. Garment-clasp	645,622	Mar. 20	1970	434	90	2174
Hinsdale, Winfield E., New York, N. Y. Hydraulic flushing-valve	641,292	Jan. 16	2211	498	90	464
Hinton, William, Hinton, W. Va. Wrench						
Hirst, Charles S. (See Belknap, Harry H., assignor.)	646,050	Mar. 27	2779	616	90	2351
Hirt, Ludwig, Grevenbroich, Germany. Heating apparatus for sugar-juices						
Hirth, Alexander. (See Cook and Hirth.)						
Hiscock, Emory C., assignor to W. W. Kimball Company, Chicago, Ill. Self-playing instrument	645,173	Mar. 13	1148	247	90	1998
Hislop, George R., Paisley, Scotland. Speed indicator and recorder	644,302	Feb. 27	2995	709	90	1601
Hitchcock, Daniel A. (See Hill and Hitchcock.)						
Hitchen, Thomas, Sydney, New South Wales. Baker's oven	645,098	Mar. 13	995	211 212 213 214	90	1970
Hite, Lewis S., Millersport, Ohio. Line-tightener	643,059	Feb. 6	865	201	90	1133
Hitt, Marcellus M., assignor of one-third to J. A. Broaddus, Luray, Va. Automatic cut-off and filter	643,355	Feb. 13	1401	327 328	90	1259
Hlavácek, Wenzel, Meissen, Germany. Sewing-machine	645,295	Mar. 13	1368	296	90	2041
Hoagland, William K., Peru, Ill. Wheel	640,198	Jan. 2	79	15	90	16
Hobart, John P., Cincinnati, Ohio. Bicycle-support	640,468	Jan. 2	598	126	90	116
Hobson, William D. Sunny Side, Va. Treating tobacco	642,609	Feb. 6	80	19	90	982
Hodge Elva D., and L. H. Rabe, Cincinnati, Ohio, assignors to A. Zeckendorf. Decomposed-steam furnace	643,980	Feb. 20	2396	538	90	1446
Hodges, Franklin F. (See Nies, William F., assignor.)	642,447	Jan. 30	4346	984	90	908
Hodges, Frederick W., New York, N. Y. Hat-holder	644,076	Feb. 27	2768	656	90	1557
Hodges, William H., Union Star, Mo. Cutter-bar	644,599	Mar. 6	71	16	90	1769
Hodgson, Ernest F., Dover, Mass. Chicken-brooder						
Hodson, Enos G. (See Hodson, William M. and E. G.)	640,295	Jan. 2	496	53	90	53
Hodson, William M. and E. G., Roseburg, Oreg. Railway-tie						
Hoe, Robert, *et al.* (See Claridge, Thomas G., assignor.)						
Hoe, Robert, *et al.* See Jackson, Benjamin F., assignor.)						
Hoe, Robert, *et al.* (See North, Thomas M., assignor.)						
Hoe, Robert, *et al.* (See Olsen, Guibrand J., assignor.)						
Hoefer, August G. (See Hoefer, Frederick W., A. G., and E. A.)						
Hoefer, Emil A. (See Hoefer, Frederick W., A. G., and E. A.)						
Hoefer, Frederick W., A. G., and E. A., Freeport, Ill. Machine for making fence-wire	641,628	Jan. 16	2818	640 641 642	90	564
Hoeffer, James H., Ashland, assignor of one-half to H. E. Davidson, Cleveland, Ohio. Cigar-bunching machine	646,295	Mar. 27	3238	720 721	90	2440
Hoelscher, Edward C., and J. Clifford, assignors to L. Wolff Manufacturing Company, Chicago, Ill. Enameling table or machine	645,393	Mar. 13	1539	337	90	2076
Hoerr, Louis A., St. Louis, Mo. Door-hanger	645,094	Mar. 13	999	214	90	1970
Hoerr, Louis A., St. Louis, Mo. Sliding door	645,095	Mar. 13	1000	214	90	1970
Hoerr, Louis A., St. Louis, Mo. Seal-lock	645,096	Mar. 13	1001	214 215	90	1970
Hoerr, Louis A., St. Louis, Mo. Car-door	645,097	Mar. 13	1008	215	90	1971
Hoeschen, Henry, Omaha, Nebr. Centrifugal machine	641,773	Jan. 23	3077	700	90	641
Hoevel, Philipp. Pallien, Germany. Transmission-chain	646,074	Mar. 27	2817	694	90	2356
Hoey, Otis B., assignor of one-half to G. J. Roesch, Philadelphia, Pa. Water-filter	642,907	Feb. 6	601	136	90	1088
Hoey, Robert P. (See Moran and Hoey.)						
Hoffer, David B., *et al.* (See Drawbaugh, Daniel, assignor.)	645,813	Mar. 20	2235	508	90	2243
Hoffman, Charles W., New York, N. Y. Dumb-waiter	642,698	Feb. 6	226	56	90	1011
Hoffman, Edward C., Cleveland, Ohio. Tire-setting machine	644,908	Feb. 27	2997	710	90	1601
Hoffman, Edward C., Cleveland, Ohio. Spring-hinge						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hoffman, Frank, Cincinnati, Ohio. Pump-governor	640,767	Jan. 9	1160	264	90	245
Hoffman, George P., Durand, Mich. Grain-car door	641,860	Jan. 23	3243	736	90	672
Hoffmann, Bernhard, Paris, France. Solidifying petroleum	641,962	Jan. 23	3415	.....	90	707
Hoffmann, Carl. (See Boedeker and Hoffmann.)						
Hoffmann, Ernst W. G. C., Charlottenburg, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Dynamo-electric machine	642,123	Jan. 30	3716	849	90	781
Hoffmann, Felix, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Acetyl salicylic acid	644,077	Feb. 27	2709	.....	90	1557
Hoffmann, Hermann H., Chicago, Ill. Binder	642,983	Feb. 6	728	167	90	1108
Hoffmann, Nickolas P. (See Grroerer, Paul, assignor.)						
Hoffmann, Oscar, Nuremberg, Germany. Sample or conveying bag	643,291	Feb. 13	1293	305	90	1238
Hofwolt, Olof M., Rostock, Germany. Balanced cut-off valve	642,228	Jan. 30	3927	894	90	823
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, of New York. Stop-motion for sewing-machines	644,801	Mar. 6	454	98	90	1844
Hogeland, Israel, Chicago, Ill. Noiseless car-wheel	643,134	Feb. 13	1023	238	90	1186
Hohmann, Lewis, Chicago, Ill. Hopper-bottom grain vessel	645,747	Mar. 20	2217	480 481	90	2222
Holdcroft, Joseph P., W. Jackson, and A. Tomkinson, Tunstall, England. Stand for trial-pieces for pottery-kilns	644,915	Mar. 6	660	141	90	1886
Holden, Alfred, New York, N. Y. Fire-escape	641,512	Jan. 16	2619	596	90	544
Holder, Fred C., assignor to Swift & Company, Chicago, Ill. Hog-scalding device	641,774	Jan. 23	3080	700	90	642
Holdrege, Sidney L., Boston, Mass., assignor, by mesne assignments, to Dowd Electrical Company, New York, N. Y. Magneto-electric lighting apparatus for bicycles	643,095	Feb. 6	942	221	90	1146
Holdsworth, Joshua, Woonsocket, R. I. Steering apparatus for sleds	642,124	Jan. 30	3718	850	90	782
Holford, David, Britle, Canada. Device for supporting horses' heads	643,844	Feb. 20	2346	552	90	1457
Holiman, Moses M., and E. B. Fields, Bedford, Ind. School-desk	645,098	Mar. 13	1006	216	90	1971
Holland, Claude V., Dallas, Tex. Machine for sealing newspapers, &c	645,471	Mar. 13	1676	367	90	2103
Holland, Henry. (See Holmes and Holland.)						
Holland, John S., Coloma, Mo. Animal catching and holding implement	640,199	Jan. 2	73	15	90	16
Holland, Joseph H., Centreton, Canada. Fruit-evaporator	642,693	Feb. 6	228	56,57	90	1011
Holland-Letz, Louis, Crown Point, Ind. Corn-husking and stalk-cutting machine	641,298	Jan. 16	2213	498 499 500	90	464
Hollenbeck, Frank A., Baltimore, Md. Barrel-locking mechanism	643,601	Feb. 13	1855	438	90	1349
Hollingsworth, James L., Newbern, Tenn. Thermal testing-tube	646,217	Mar. 27	3105	685	90	2415
Hollingsworth, James L., Newbern, Tenn. Tobacco curing and ordering apparatus	646,218	Mar. 27	3106	685 686	90	2415
Holliwell, Charles, Broadheath, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Casting mechanism for linotype-machines	645,472	Mar. 13	1681	367	90	2104
Holliwell, Charles, and R. C. Elliott, Broadheath, England, assignors to Mergenthaler Linotype Company, New York, N. Y. Linotype-machine	643,292	Feb. 13	1294	.....	90	1238
Holloway, George T. (See Longridge and Holloway.)						
Holman, John G. (See Drewsen, John, assignor.)						
Holmes, Britain. (See Holmes and Beugler.)						
Holmes, Britain, and E. F. Beugler, assignors to E. & B. Holmes Machinery Company, Buffalo, N. Y. Barrel-heading-up machine	642,125	Jan. 30	3719	850 851	90	782
Holmes, Edward and B., and E. F. Beugler, assignors to E. & B. Holmes Machinery Company, Buffalo, N. Y. Barrel-head inserting or removing machine	642,793	Feb. 6	388	94, 95	90	1041
Holmes, Edward and B., and E. F. Beugler, assignors to E. & B. Holmes Machinery Company, Buffalo, N. Y. Planing-machine	643,293	Feb. 13	1296	306 832	90	1239
Holmes, John H., and F. Broadbent, Newcastle-upon-Tyne, England. Resistance-switch for electric circuits	644,517	Feb. 27	3579	833 834	90	1713
Holmes, Joseph W., Joplin, Mo. Safety device for elevators	642,448	Jan. 30	4347	984	90	908
Holmes, Thomas, New York, N. Y. Toy	645,919	Mar. 20	2515	556	90	2281
Holmes, Watson M. (See Lowry and Holmes.)						
Holmes, Watson M., Hoosick Falls, N. Y., assignor to Planters Compress Company, Boston, Mass. Feeding device for presses	645,721	Mar. 20	2159	469 470	90	2211
Holmes, Watson M., Hoosick Falls, N. Y., assignor to Planters Compress Company, Boston, Mass. Pressure relief-valve	645,722	Mar. 20	2161	470	90	2211
Holmes, Watson M., Hoosick Falls, N. Y., and J. A. Butler, Wareham, assignors to Planters Compress Company, Boston, Mass. Feeding device for presses	645,720	Mar. 20	2156	469	90	2210
Holmes, William G., Roseville, and H. Holland, Detroit, Mich. Trolley	643,501	Feb. 13	1078	395	90	1314
Holmes, William I. (See Clark, Frank M., assignor.)						
Holstein, Christian. (See Sieh and Holstein.)						
Holt, Arthur H. S., assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Manufacturing indigo-leuco compounds	643,502	Feb. 13	1080	.....	90	1314
Holt, Henry S. A. (See Knietsch and Holt.)	642,984	Feb. 6	731	167	90	1109
Holt, Thomas E., Arlington, Ky. Stump-puller						
Holton, George L. (See Bossert and Holton.)						
Holtzapple, William, Xenia, Ohio. Window-scaffold	646,286	Mar. 27	3240	721	90	2440
Holz, Bernhard, assignor to M. Deutcher, Buffalo, N. Y. Closet-seat	645,260	Mar. 13	1302	283	90	2029
Homan, Bion E., Pacific Junction, Iowa. Railway-tie receiver	644,600	Mar. 6	72	16	90	1769
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Acetylene-gas lamp	640,912	Jan. 9	1464	327	90	305
Homan, William C., Meriden, Conn., assignor to Edward Miller & Company, of Connecticut. Acetylene-gas generator	644,601	Mar. 6	73	16	90	1769
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Lamp	645,099	Mar. 13	1007	216	90	1972
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Acetylene-gas lamp	646,052	Mar. 27	2782	617	90	2351
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn., and W. P. Crary, New York, N. Y. Acetylene-gas lamp	646,051	Mar. 27	2781	616	90	2351
Homann, Willy, Dusseldorf, Germany. Bung-hole fitting	640,286	Jan. 2	266	53	90	53
Hommel, William H., Sandusky, Ohio. Wine-press	645,394	Mar. 13	1540	337 338	90	2077
Homolka, Benno, Frankfort-on-the-Main, and A. Stock, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Making amidobenzyliden-anilin compounds	640,563	Jan. 2	760	.....	90	149
Homolka, Benno, Frankfort-on-the-Main, and A. Stock, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Making amidobenzaldehyd	640,564	Jan. 2	762	.....	90	149
Honeyman, Henry W., Pawtucket, R. I. Mechanical movement	641,014	Jan. 9	1682	373 374	90	344
Hood, Charles F., assignor to M. L. Hood, Connellsville, and J. B. Booth, Sewickley, Pa. Briquet	645,361	Mar. 13	1478	.....	90	2064
Hood, John H., assignor of one-half to J. J. Hood, Philadelphia, Pa. Support for globes, &c., of gas-burners	640,659	Jan. 2	948	213	90	184

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hood, John J. (See Hood, John H., assignor.)						
Hood, Maria L., *et al.* (See Hood, Charles F., assignor.)						
Hooge, Charles A. (See Darby and Hooge.)	643,135	Feb. 13	1024	238	90	1186
Hooker, William D., St. Louis, Mo. Air-compressor	644,552	Feb. 27	3650	849 850	90	1726
Hookham, George, Birmingham, England. Electric meter	641,390	Jan. 16	2374	543	90	496
Hooper, Charles D., Telluride, Colo. Friction-wheel grip for ore-feeders	646,177	Mar. 27	3021	667	90	2398
Hope, John and John, Jr., assignor to John Hope & Sons' Engraving and Manufacturing Company, Providence, R. I. Diamond-holder for pantograph engraving-machines	643,653	Feb. 20	1993	470	90	1591
Hopkins, Andrew J., Burton, W. Va. Truck						
Hopkins, George M. (See Schlared, Charles, assignor.)						
Hopkins, Harvey L., assignor of two-thirds to C. H. Pope, Moline, Ill., and M. D. Hopkins, West Eaton, N. Y. Cap for cutting apparatus for mowers and reapers	640,768	Jan. 9	1162	265	90	246
Hopkins, Harvey L., assignor of two-thirds to C. H. Pope, Moline, Ill., and M. D. Hopkins, West Eaton, N. Y. Mowing-machine	645,395	Mar. 13	1542	388 389	90	2077
Hopkins, Merwin D., *et al.* (See Hopkins, Harvey L., assignor.)	645,623	Mar. 20	1974	.....	90	2175
Hopkinson, John, Bradford, England. Refining distilled grease	643,503	Feb. 13	1092	395	90	1314
Hopler, William K., Bartley, N. J. Hot-water heater	645,852	Mar. 20	2397	526	90	2259
Hopping, Samuel M., Galveston, Tex. Railway-rail joint						
Hopps, Lewis W., *et al.* (See Zeidler, William A., assignor.)	645,818	Mar. 20	2327	508	90	2244
Hormel, William H., Austin, Minn. System of heating and ventilation	644,078	Feb. 27	2770	656	90	1557
Horn, Charles F. W., New York, N. Y. Hinge	644,602	Mar. 6	75	17	90	1709
Hornbostel, Ernest A., Sr., and Ernest A., Jr., Des Moines, Iowa. Duplex type-bar hanger						
Horner, Arthur L., *et al.* (See La Fleur, Charles E., assignor.)						
Horner, Edward B. (See Walker and Horner.)						
Horner, George A., *et al.* (See La Fleur, Charles E., assignor.)	644,916	Mar. 6	661	142	90	1895
Horner, William, Linden, Ind. Sectional vehicle-hub						
Horning, Martin L., Albion, assignor of one-half to M. O'Meara, Jackson, Mich. Combined butter plate and wrapper	640,287	Jan. 2	208	51	90	54
Horning, Nathan, assignor of three-fourths to C. B. Knox, Johnstown, N. Y. Thill-coupling	641,963	Jan. 23	3415	776	90	707
Horning, Nathan, assignor of three-fourths to C. B. Knox, Johnstown, N. Y. Thill-coupling	641,964	Jan. 23	3417	776	90	708
Horsley, Robert L., and J. H. Rountree, Whitney, Tex. Water-reservoir for stoves	643,196	Feb. 13	1025	238	90	1186
Horton, C. H. (See Ross, Barney, assignor.)	642,449	Jan. 30	4348	984 985 986	90	908
Horton, Charles M., West Superior, Wis. Rolling-mill	641,015 642,985	Jan. 9 Feb. 6	1684 732	374 168	90 90	345 1109
Horton, Jonathan B., Wilkesborough, N. C. Case for displaying shirts						
Horton, Louis G., Blossburg, Pa. Hanging clothes-rack	643,376	Feb. 13	1493	334	90	1266
Horton, William P., Jr., assignor of one-fourth to W. P. Horton, Cleveland, Ohio. Method of and means for protecting envelops against surreptitious opening	641,294	Jan. 16	2217	500 501	90	465
Horváth, Arpád, Buda-Pesth, Austria-Hungary. System of calculating	645,955	Mar. 27	2598	575	90	2315
Hotaling, Margaret J., Cleveland, Ohio. Game	642,794	Feb. 6	393	95	90	1042
Hotchkiss, Clarence F., assignor to Stow Manufacturing Company, Binghamton, N. Y. Flexible shaft	643,900	Feb. 20	2447	576	90	1477
Hottinger, Gustav, Chicago, Ill. Filter-press						
Houben, Franz, assignor of one-half to I. G. Houben Sohn Carl, Aachen, Germany. Burner for gas-stoves or the like	642,229	Jan. 30	3927	895	90	824
Houben Sohn Carl, I. G. (See Houben, Franz, assignor.)	643,225	Feb. 13	1171	274	90	1215
Houlehan, James, Toledo, Ohio. Telephonic repeater	645,685	Mar. 20	2084	457 458	90	2197
House, Louis, Syracuse, N. Y. Bottle-washing machine						
House, Manfred, assignor of one-fourth to G. Houston, Kalamazoo, Mich. Blackboard-rubber	644,293	Feb. 27	3175	744	90	1685
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company, of Pennsylvania. Circular-knitting machine	640,769	Jan. 9	1164	265 266 267	90	246
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company, of Pennsylvania. Circular-knitting machine	645,708	Mar. 20	2124	465	90	2206
Houser Springless Lock Company. (See Houser, Winfield S., assignor.)						
Houser, Winfield S., Bellefonte, Pa., assignor to Houser Springless Lock Company, of Pennsylvania. Lock	641,965	Jan. 23	3418	777	90	708
Houston, George. (See House, Manfred, assignor.)	644,982	Mar. 6	769	167	90	1910
Houtman, Tjark J., New York, N. Y. Desk-slide						
Houze, Luc. (See Dhé and Houze.)						
Hovey, Frank L., assignor of one-half to F. A. Hoyt and D. B. Tibbetts, Brockton, Mass. Hinged last	641,629 645,100	Jan. 16 Mar. 13	2928 1008	642 216	90 90	585 1972
Howard, Frank P., Sherman, Tex. Rope-fastening device						
Howard, Henry. (See Whitney and Howard.)	642,694	Feb. 6	290	57	90	1012
Howard, James B., Columbus, Ohio. Furnace	643,982	Feb. 20	2561	608	90	1501
Howard, Jesse C., Columbus, Ohio. Hydraulic air-compressor						
Howard, John J. (See Textorius, Knut O. B., assignor.)						
Howard, Thomas, Ashland, assignor of one-half to W. S. Harrison, Louisville, Ky. Bottle-filling machine	642,548 646,219	Jan. 30 Mar. 27	4509 3109	1021 686	90 90	989 2415
Howard, Wilson, Belvidere, Kans. Corn-harvester						
Howe, Ben. (See Trabue and Howe.)						
Howe, Ben, *et al.* (See Trabue, William, assignor.)						
Howe & Davidson Company. (See Davidson, Frank B., assignor.)	644,173	Feb. 27	2938	694	90	1589
Howe, Edgar D., Weedsport, N. Y. Stanchion	644,560	Feb. 27	3675	854 855 856	90	1729
Howe, Frank, Boston, Mass. Nailing-machine	641,966	Jan. 23	3419	777	90	708
Howe, Henry W., Mexico, Mexico. Shears						
Howe Scale Company of 1886. (See Braley, Samuel T., assignor.)						
Howe Scale Company of 1886. (See Webster, Edward H., assignor.)	644,174	Feb. 27	2940	694 695 696	90	1589
Howe, Solon G., Detroit, Mich., assignor of one-half to J. W. Hyde, Springfield, Mass. Sewing-machine	643,410	Feb. 13	1502	352	90	1277
Howe, Thomas J., and H. N. Labare, assignors to Owatonna Manufacturing Company, Owatonna, Minn. Detachable grain-drill shoe	640,770	Jan. 9	1172	268	90	948
Howell, John C., London, England. Friction-gearing						
Howerton, Willis T. (See Simpson, John B., assignor.)						
Howle, John W., assignor of one-half to C. E. and F. T. Lee, Searcy, Ark. Railway tie and joint protector	643,795	Feb. 20	2246	529	90	1438

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Howlett, Arthur E. (See English, William H., assignor.)						
Howlett, Edwin J., assignor to Union Paper Bag Machine Company, Philadelphia, Pa. Machine for folding sides of satchel-bottomed bags	643,821	Feb. 20	2288	539	90	1446
Hoxie, George L., assignor of four-fifths to D. M. Baker, D. Metcalf, W. H. Shearson, and I. Waterman, Adrian, Mich. Machine for forming wire fabrics	641,699	Jan. 23	2930	698 699	90	617
Hoyle, Charles, St. Louis, Mo. Antifriction side bearing	642,450	Jan. 30	4354	986	90	909
Hoyt, Adrian H., Penacook, N. H. Electrical measuring instrument	644,850	Mar. 6	560	122	90	1866
Hoyt, Adrian H., Penacook, N. H. Electrical measuring instrument	644,917	Mar. 6	662	142	90	1896
Hoyt, Charles F., deceased; M. Hoyt, administratrix, assignor of nine-twentieths to W. P. Keefe, Sioux City, Iowa. Filter	640,288	Jan. 2	209	54	90	54
Hoyt, Frederick A., *et al.* (See Hovey, Frank L., assignor.)						
Hoyt, Gabriel P. B., New York, N. Y. Secret ballot	642,695	Feb. 6	282	58	90	1012
Hoyt, George B. (See Culmer and Hoyt.)						
Hoyt, Martha, administratrix. (See Hoyt, Charles F.)						
Hoyt Metal Company. (See Allen, George F., assignor.)						
Hoyt, William H., and C. S. Wardwell, Stamford, Conn. Kite	642,451	Jan. 30	4355	987	90	910
Hubbard, Albert S., Belleville, N. J., assignor to Gould Storage Battery Company, New York, N. Y. System of electrical distribution	640,565	Jan. 2	763	168	90	149
Hubbard, James B., and C. J. Dorsey, assignors of one-third to H. T. Mudd, Baltimore, Md. Multiple-fuse cut-out	644,357	Feb. 27	3314	769	90	1060
Hübbe, Benedict, Hamburg, Germany. Compound lip-valve	644,428	Feb. 27	3428	796	90	1084
Huber, Adolf, St. Louis, Mo. Street-railway-switch-operating device	643,963	Feb. 20	2563	603	90	1502
Huber, Edward, Marion, Ohio. Attachment for tightening nuts	644,079	Feb. 27	2771	657	90	1557
Huberdeau, Thomas, Larimore, N. D. Breast-strap slide	645,853	Mar. 20	2398	527	90	2259
Hubert, Conrad, New York, N. Y. Electric gas-lighter	644,860	Mar. 6	562	122	90	1867
Hubert, Henri, Detroit, Mich. Tile and means for securing same in place	646,178	Mar. 27	3023	667	90	2398
Hübner, Josef. (See Mayer and Hübner.)						
Hudson, Daniel W., assignor of one-half to S. R. Seay, Clinton, Ky. Lifting-jack for vehicles	640,200	Jan. 2	75	15	90	17
Hudson, James A., assignor to I. B. Kleinert Rubber Company, New York, N. Y. Stocking-supporter	645,748	Mar. 20	2219	481	90	2223
Hudson, William C., Greeneville, Tenn. Cabinet	643,873	Feb. 20	2397	564	90	1467
Huebel, Otto H., New York, N. Y. Combined sponge and soap holder	644,080	Feb. 27	2773	657	90	1558
Huestis, Charles D. C., Fort Wayne, Ind. Bonus-indicating machine	641,861	Jan. 23	3244	736	90	673
Huff, George T., Mill Green, Md. Tellurian	641,967	Jan. 23	3420	777	90	708
Huffman, Austin. (See Smith and Huffman.)						
Hughes, Alfred R., Warren, Ohio. Annealing-box	643,060	Feb. 6	866	202	90	1134
Hughes, Daniel W., Moore, assignor of one-half to W. C. Graves, Whiterock, Okla. Ter. Poke	642,847	Feb. 6	484	115	90	1060
Hughes, Ernest H. B., Egremont, England. Book-rest	643,188	Feb. 13	1115	260	90	1204
Hughes, Fred C., Detroit, Mich. Duplex multiple metallic telephone system	646,121	Mar. 27	2905	643 644	90	2375
Hughes, George, *et al.* (See Alma, Gotlieb von, assignor.)						
Hughes, George E., assignor to Mighty Mite Manufacturing Company, Chicago, Ill. Kitstove	641,775	Jan. 23	3081	701	90	642
Hughes, Harry F., assignor to P. and J. O'Reilly, New York, N. Y. Dark lantern	643,768	Feb. 20	2204	520	90	1430
Hughes, Howard, Brazil, Ind. Car-coupling for mines	643,504	Feb. 13	1684	395	90	1315
Hughes, James F., Lone Grove, Tex. Buggy-top	641,513	Jan. 16	2619	597	90	545
Hughes, John E., *et al.* (See Alma, Gotlieb von, assignor.)						
Hughes, Ralph T., Saltburn, England. Machinery for pressing bricks or the like	646,027	Mar. 27	2734	606	90	2341
Hukriede, Henry, assignor of one-half to J. H. Reeves, Eden Valley, Minn. Wrench	643,061	Feb. 6	868	202	90	1134
Hull, David C., Westfield, Mass. Machine for grinding and rounding strips of rawhide or other material	642,452	Jan. 30	4356	987	90	910
Hull, David C., Westfield, Mass. Whip-stock	643,264	Feb. 13	1299	306	90	1239
Hull, John A. (See Beecher, Thomas, assignor.)						
Hull, John S., Baltimore, Md. Device for capping cans	640,913	Jan. 9	1466	327 328	90	306
Hull, John S., Baltimore, Md. Tinner's fire-pot	640,914	Jan. 9	1467	328	90	306
Hull, John W., assignor of one-half to A. Bruner, Indianapolis, Ind. Harvesting-machine	645,396	Mar. 13	1550	339	90	2079
Hullinger, Lynus E., and R. P. Curts, assignors to Columbus Pharmacal Company, Columbus, Ohio. Artificial limb	644,802	Mar. 6	456	98	90	1845
Hultqvist, Arthur. (See Dalén and Hultqvist.)	645,507	Mar. 13	1740	382	90	2115
Humphrey, Ernest, Denver, Colo. Steam-boiler						
Humphrey, John R., assignor of one-half to J. A. Cranston, Elk River, Minn. Potato-digger	642,696	Feb. 6	293	58	90	1012
Humphrey, William H., New York, N. Y. Bicycle-rack	646,053	Mar. 27	2783	617	90	2352
Hundhausen, Rudolf, Wilmersdorf, Germany. Step-by-step-motion mechanism	646,287	Mar. 27	3241	721 722 723	90	2440
Huneke, William A., *et al.* (See Schroeder, Hugo, assignor.)						
Hungerford, Henry, New Haven, Conn. Cork-extractor	641,111	Jan. 9	1854	413	90	379
Hunn, Charles T., *et al.* (See Burchard, Alonzo H., assignor.)						
Hunt, Charles W., New York, N. Y. Motor-vehicle	641,514	Jan. 16	2620	597 598	90	545
Hunt, Charles W., New York, N. Y. Tire	641,515	Jan. 16	2622	598	90	545
Hunt, Henry S. (See Hunt, William F., assignor.)						
Hunt, Ozello R., Minneapolis, Minn. Spring bed-bottom	640,915	Jan. 9	1468	328	90	306
Hunt, Stephen A., Cedartown, Ga. Plow attachment	641,595	Jan. 16	2759	628	90	573
Hunt, William F., assignor of one-half to H. S. Hunt, Newark, N. Y. Cream-separator	642,453	Jan. 30	4358	987 988	90	910
Hunter, Charles N., Versailles, Ind. Reversible ball-coupling	641,700	Jan. 23	2935	669	90	617
Hunter, David E., Cambridge, Mass. Holder for card-indexes	645,051	Mar. 6	904	195	90	1987
Hunter, Frederic W., Cranford, N. J., assignor to H. S. Hale, Philadelphia, Pa. Seat	640,301	Jan. 2	78	16	90	17
Hunter, Murray M., Milwaukee, Wis. Safety device for elevators	642,332	Jan. 30	4120	932	90	863
Hunter, Rudolph M., Philadelphia, Pa. Means for controlling electric motors	641,452	Jan. 16	2496	571	90	518
Hunter, Rudolph M., Philadelphia, Pa. Controlling electric motors	641,453	Jan. 16	2499	571	90	520
Hunter, W. B. (See Boutillier, Jacob B., assignor.)						
Hunter, William E. L. (See Shaw, George A., assignor.)						
Hunter, William H., Troutman, N. C. Washing-machine	643,796	Feb. 20	2247	530	90	1498
Huntington, William H., Boston, Mass. Implement for testing meat	644,248	Feb. 27	3084	726	90	1617
Hupfel, Adolph G., New York, N. Y. Sail-fastening device	641,016	Jan. 9	1696	374	90	345
Hurdel, Nellie F., New York, N. Y. Convertible tub	641,112	Jan. 9	1855	413	90	380
Hurley, Edward N. (See Kimman, Henry J., assignor.)						
Hurry, Edward H., Bethlehem, and H. J. Seaman, Catasauqua, assignors to Atlas Portland Cement Company, Northampton, Pa. Apparatus for burning pulverized fuel	645,061	Mar. 6	867	188	90	1999

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hurtubis, Francis X., Oswego, N. Y. Plumb-level	642,230	Jan. 30	3928	805	90	824
Hüsener, Adolph, Duisberg, assignor to F. J. Seyfried, Mülheim-on-the-Rhine, Germany. Manufacturing conical tubes or masts	642,986	Feb. 6	783	168	90	1109
Huson, Winfield S. (See Brooks and Huson.)						
Huston, Harry B., Omaha, Nebr., and O. J. Moores, Centreville, Iowa. Combination-tool	643,092 645,525 644,903	Feb. 6 Mar. 13 Mar. 6	868 1776 77	202 389 17, 18	90 90 90	1134 2122 1770
Hutchins, George F., Worcester, Mass. Loom						
Hutchins, William J., Joliet, Ill. Wire-nail machine						
Hutchinson, C. C. (See Kitton, John C., assignor.)	642,697	Feb. 6	286	50	90	1012
Hutchinson, Charles, Arlington, N. J. Electrical track for receptacles	644,861	Mar. 6	564	122	90	1807
Hutchinson, Frank S., New York, N. Y. Acetylene-gas apparatus						
Hutchinson, Isabella P., *et al.* (See Byrne, Francis J., assignor.)						
Hutchinson, James C., *et al.* (See Byrne, Francis J., assignor.)	643,137	Feb. 13	1026	239	90	1186
Hutchinson, Searcy T., San Antonio, Tex. Folding cot	641,391	Jan. 16	2375	548	90	496
Hutchison, Kezia J., Knoxville, Ohio. Hermetically-sealed can or jar	644,175	Feb. 27	2948	697	90	1501
Hutchison, Wilson F., Orange, Tex. Oscillatory engine	644,553	Feb. 27	3052	850 851	90	1726
Hutin, Maurice, and M. Leblanc, Paris, France. Apparatus for converting alternating into continuous currents, and vice versa	644,551	Feb. 27	3050	852	90	1727
Hutin, Maurice, and M. Leblanc, Paris, France. Electric recuperator	644,555	Feb. 27	3053	852	90	1727
Hutin, Maurice, and M. Leblanc, Paris, France. Reducing apparent inductance of electrical circuits	640,566	Jan. 2	764	169	90	149
Hutson, Walter S., Pocatello, Idaho. Tape-needle	642,987	Feb. 6	734	168	90	1109
Hviid, Lauritz P., Copenhagen, Denmark. Apparatus for generating acetylene gas						
Hyde, Jerome W. (See Howe, Solon G., assignor.)						
Hyde, Theophilus R., Jr., assignor to Scovill Manufacturing Company, Waterbury, Conn. Prong-button	644,013	Feb. 20	2602	630	90	1520
Hydraulic Valve and Regulator Company. (See Kuhlewind, Cornelius, assignor.)						
Hygienic Company. (See Martin, Morris, assignor.)						
Hyrons, William F., assignor of one-half to F. B. Greene, Philadelphia, Pa. Combined shovel and sifter	645,956	Jan. 30	4392	980	90	911
Hysore, Alphenas V., Philadelphia, Pa. Digging-machine	642,610	Feb. 6	82	19	90	992
Hysore, Alphenas V., assignor of two-thirds to S. P. Mayo and W. J. Whitehurst, Richmond, Va. Portable ordering-machine	642,454	Jan. 30	4359	988	90	910
Hysore, Alphenas V., assignor of two-thirds to W. J. Whitehurst and S. P. Mayo, Richmond, Va. Apparatus for treating tobacco	642,455	Jan. 30	4360	989	90	911
I. B. Kleinert Rubber Company. (See Hudson, James A., assignor.)						
Ibsen, Lars C., Irene, S. D. Liquid-cooler	642,456	Mar. 27	2599	576	90	2816
Ice Manufacturing Company of Germantown. (See Wagner and Freeston, assignors.)						
Ideal Cash Register Company. (See Spaulding, Elijah F., assignor.)	643,505	Feb. 13	1085	396 397	90	1315
Igelhorst, Lambert, Quincy, Ill. Rotary engine	640,202	Jan. 2	77	16	90	17
Igersheimer, Gerson, Frankfort-on-the-Main, Germany. Coin-freed apparatus	641,208	Jan. 9	2056	461	90	418
Iler, Franklin M., Denver, Colo. Cupel-machine	640,203	Jan. 2	80	16	90	18
Illgen, Hermann, Crimmitzschau, Germany. Dye-vat	644,918	Mar. 6	664	142 143	90	1887
Illingworth, John, Newark, N. J. Ingot-casting machine	644,919	Mar. 6	666	143 144	90	1887
Illingworth, John, Newark, N. J. Rod straightening and finishing machine	644,604	Mar. 6	81	19	90	1770
Imboden, Isaac C., Campbelltown, Pa. Combined harrow and roller						
Imhoff, E. G. (See Harvey, Samuel W., assignor.)						
Imperial S. C. Acetylene Gas Company. (See Evans, Evan, assignor.)						
Implement Manufacturing Company. (See Jarmin, James B., assignor.)						
Indianapolis Drop Forging Company. (See Stechhan, Otto, assignor.)	641,776	Jan. 23	3083	701	90	643
Ingalls, Almond T., Malden, Mass. Hydrocarbon-burner	643,717	Feb. 20	2119	497	90	1414
Ingalsbe, James L., Glens Falls, N. Y. Rasp	641,113	Jan. 9	1856	418	90	380
Ingells, James, Hesperia, Mich. Stone-boat						
Ingersoll-Sergeant Drill Company. (See Sergeant, Henry C., assignor.)						
Ingraham, Edmund, assignor of one-half to Fairmount Machine Company, Philadelphia, Pa. Shedding mechanism for looms	643,964	Feb. 20	2565	604	90	1592
Ingram, Charles W., Bruceville, Tex. Seed-planter	644,920	Mar. 6	698	144	90	1888
Ingram, Nathan D., Holyoke, Mass. Umbrella-runner	641,114	Jan. 9	1857	413	90	380
Inman, Horace, Amsterdam, N. Y. Staying-machine	641,892	Jan. 16	2376	543 544	90	496
International Package Machine Company. (See Bartlett, Marcus J., assignor.)						
International Telephone and Switchboard Manufacturing Company. (See Keller, Albert K., assignor.)	646,179	Mar. 27	3025	668	90	2398
Ireland, Robert D., Winthrop, Mass. Electric coupling	645,261	Mar. 13	1308	283	90	2029
Irving, Frank K., assignor of one-half to A. G. Vogt, Newark, N. J. Battery-electrode	644,429	Feb. 27	3430	790	90	1684
Irving, William, *et al.* (See Blake, John H., assignor.)	641,115	Jan. 9	1859	414	90	380
Irwin, William J., New York, N. Y. Friction warp-rack for looms						
Isbills, William L., Bayonne, N. J. Curtain-holder	643,822	Feb. 20	2200	530	90	1446
Isham, Oliver K., Hartford, Conn. Device for applying hot air or vapor to the human body	646,220	Mar. 27	3111	696 697	90	2416
Ivens, Edmund M., New Orleans, La. Cotton-baling press	643,506	Feb. 13	1090	397	90	1316
Iversen, Henry, Corsicana, Tex. Electric clock	642,698	Feb. 6	238	59	90	1013
Ives-Rapp Manufacturing Company. (See Rapp, Samuel N., assignor.)	642,457	Jan. 30	4363	990	90	911
Iveson, Benjamin F., Chicago, Ill. Cord-tension device	644,081	Feb. 27	2774	657	90	1558
Ivey, George F., Forest City, N. C. Break-indicator for twisting-machines						
Ivins, Clarence W., Lebanon, Ohio. Drawer and bottle label holder						
Ivory, James W. (See Wishart, Edward, assignor.)						
J. A. Fay & Egan Company. (See Bugbee, George W., assignor.)						
J. A. Fay & Egan Company. (See Thomas, John R., assignor.)						
J. A. Fay & Egan Company. (See Thomas and Spencer, assignors.)						
J. G. Cherry Company. (See Carmody, John T., assignor.)						
J. I. Case Threshing Machine Company. (See Dingee, William W., assignor.)						
J. M. Fisher & Company. (See Simmonds, John W., assignor.)						
J. Stone & Company. (See Preston and Gill, assignors.)						
J. Thompson & Sons Manufacturing Company. (See Lewis, George W., assignor.)	642,231	Jan. 30	3929	895	90	1824
Jaastad, Amund U., Boston, Mass. Superheater	644,518	Feb. 27	3588	885	90	1713
Jablonski, Stefan, assignor to S. Niewiarowski, Warsaw, Russia. Safe, &c						
Jackson, Aaron E. (See Jackson, James I. and A. E.)						
Jackson, Benjamin F., Cambridge, Mass., assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Electrotyper's furnace	645,996	Mar. 13	1364	296	90	2041
Jackson, Charles A., Lewiston, assignor of one-half to F. A. Cram, Auburn, Me. Trolley	640,904	Jan. 2	81	16	90	18

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Jackson, David B., Pine Bluff, Ark. Measuring-faucet	645,101	Mar. 13	1009	216	90	1972
Jackson, Frederick M. (See Montgomery, James A., assignor.)						
Jackson, George H. (See Pearce and Jackson.)						
Jackson, James, assignor of two-thirds to C. Z. De Young, Philadelphia, Pa. Spring-hinge	645,397	Mar. 13	1552	339 340	90	2079
Jackson, James I. and A. E., Grand Junction, Colo. Machine for harvesting beets	645,957	Mar. 27	2600	576	90	2316
Jackson, Joseph, Chicago, Ill. Smoke-consumer	642,126	Jan. 30	3722	851	90	788
Jackson, Manetho C., Denver, Colo. Power-hammer	644,014	Feb. 20	2605	630	90	1521
Jackson & Sharp Company. (See Kershaw, Edwin, assignor.)						
Jackson, Walter, Whitefield, England. Boiler-cleaner	641,295	Jan. 16	2219	501	90	465
Jackson, Willie. (See Holdcroft, Jackson, and Tomkinson.)						
Jacobs, Charles B., Schenectady, N. Y. Conservation of volatile products from beehive coke-ovens	641,591	Jan. 16	2753	627	90	570
Jacobs, Hugh A., Cleveland, Ohio. Waterproof protector for vehicle-bearings	644,605	Mar. 6	83	19	90	1771
Jacobs, Jacob, New York, N. Y. Illuminating-tile	640,660	Jan. 2	949	213	90	184
Jacobs, Morton B., *et al.* (See Mills, Joseph T., assignor.)						
Jacobs, Olaus B., Roland, Iowa. Gate	641,968	Jan. 23	3422	777	90	709
Jacobson Company. (See Jacobson, John, assignor.)						
Jacobson, Harry D. (See Tripp and Jacobson.)						
Jacobson, John, Boston, Mass., assignor to Jacobson Company, of West Virginia. Making half-tones	640,469	Jan. 2	594	127	90	117
Jacobson, Percy I. (See Tripp and Jacobson.)						
Jacobus, David S. and M. R., Ridgefield, N. J. Boiler	644,802	Mar. 6	567	123	90	1808
Jacobus, Martin R. (See Jacobus, David S. and M. R.)						
Jacoby, Sellmar M., New York, N. Y. Sewing-machine	643,326	Feb. 13	1353	317	90	1250
James, Frederick H. L., Pawtucket, R. I., assignor to Saco & Pettee Machine Shops, Newton, Mass. Lap-roll tension for cotton-opening machines	643,295	Feb. 13	1300	306 307	90	1239
James, John D., Pulaski, Va. Grate for zinc-furnaces	643,307	Feb. 13	1092	397	90	1316
James, Will S., Tehuacana, Tex. Sash-fastener	643,356	Feb. 13	1403	328	90	1200
Jamestown Lounge Company. (See Kuersten, Hugo R., assignor.)						
Jammé, George E., Jr., Pittsburg, Pa. Mine trolley-hanger	643,327	Feb. 13	1354	317	90	1250
Janney, Abijah, Marshalltown, Iowa. Measuring device	643,377	Feb. 13	1431	334	90	1266
Jaques, James W. L., Salt Lake City, Utah. Wire-hanger	644,921	Mar. 6	669	145	90	1898
Jarmin, James B., Osceola, Nebr., assignor, by mesne assignments, to Implement Manufacturing Company, Davenport, Iowa. Automatic corn-planter	640,205	Jan. 2	82	17	90	18
Jarolimek, Anton, Sedletz, Austria-Hungary. Box-fastener	643,296	Feb. 13	1301	307	90	1240
Jauch, Joseph, assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Acetylene-gas lamp	641,862	Jan. 23	3246	737	90	673
Jean, Paul, and A. Bouchon, Paris, France. Illuminated sign	644,015	Feb. 20	2566	630	90	1521
Jeffery, Thomas B., Chicago, Ill. Dress-guard	642,333	Jan. 30	4124	933	90	864
Jenanyan, Harutune S. (See Hamalian, George H., assignor.)						
Jenks, Anson L., *et al.* (See Jewett, Herbert E., assignor.)						
Jenkins, Annie S., Lynn, Mass. Folding telescope-bag	643,874	Feb. 20	2398	564	90	1467
Jenkins, Louis S. (See Tucker and Jenkins.)						
Jenkins, Thomas G., and J. B. Wills, Wheeling, W. Va. Gripper for printing-presses	644,742	Mar. 6	821	71	90	1818
Jenne, Charles L., Springfield, Mass. Bicycle	644,769	Mar. 6	881	84	90	1890
Jennings, Ernest A. (See Douglas, Robert, assignor.)						
Jennings, Oscar S., Danby, N. Y. Combined chair and tablet	645,102	Mar. 13	1011	217	90	1972
Jennings, William. (See Sturm, James C., assignor.)						
Jennison, Herbert E. (See Hauver, Alfred N., assignor.)						
Jennison, Walter E. (See Brooks, Frederick H., assignor.)						
Jensen, Jens, Kolding, Denmark. Root-digger	643,797	Feb. 20	2248	530	90	1439
Jensen, Thomas, Arendal, Norway. Wrench	644,825	Mar. 6	595	108	90	1854
Jenson, Jens, Page, N. D. Bread or cake cutter	640,916	Jan. 9	1469	329	90	307
Jernberg, Gustaf, assignor to Emerson Manufacturing Company, Rockford, Ill. Cultivator	642,795	Feb. 6	393	95	90	1042
Jewell, Omar H., assignor to O. H. Jewell Filter Company, Chicago, Ill. Strainer for filters	643,138	Feb. 13	1028	239	90	1187
Jewell, Omar H., assignor to O. H. Jewell Filter Company, Chicago, Ill. Purifying water	644,137	Feb. 27	2871	680	90	1578
Jewett, Herbert E., assignor to M. McNamara, R. E. Gager, and A. L. Jenks, Ithaca, N. Y. Potato-planter	640,470	Jan. 2	595	127 128	90	117
Joecken, Peter J. (See Sargent and Joecken.)						
Joel, Henry F., London, England. Electric motor	646,147	Mar. 27	2961	654	90	2336
Johanson, Charly, Arlington, Nebr. Agricultural spider	645,092	Mar. 6	874	189	90	1930
John Hope & Sons' Engraving and Manufacturing Company. (See Hope, John and John, Jr., assignors.)						
John Zobrist Refrigerator and Ventilator Company. (See Zobrist, John, assignor.)						
Johnson, Adolf E. (See English, Analdo M., assignor.)						
Johnson, Albert C., Baltimore, Md. Ore roasting and desulfurizing furnace	642,334	Jan. 30	4125	933	90	864
Johnson, Albert E., Brockton, Mass., assignor to Economy Machine Company, Portland, Me. Machine for reinforcing insoles	641,863	Jan. 23	3247	737 738	90	673
Johnson, Alfred, New York, N. Y., and A. J. Stone, London, England. Sheet-printing machine	644,231	Feb. 27	3049	722	90	1612
Johnson, Alfred F. (See Johnson and Fry, assignors.)						
Johnson, Charles J. (See Springer and Johnson.)						
Johnson, Charles M. (See Edison and Johnson.)						
Johnson, Charles M., New York, N. Y. Electric-motor car	644,671	Mar. 6	212	46, 47	90	1795
Johnson Company. (See Clarkson, Samuel E., assignor.)						
Johnson Company. (See Hamlen, Wells R., assignor.)						
Johnson Company. (See Merrick, Frank A., assignor.)						
Johnson, Corwin, Watertown, S. D. Cream-separator	644,519	Feb. 27	3584	835	90	1718
Johnson, Ellen. (See Johnson and Gibbings.)						
Johnson, Elmer M. (See Souer, George, assignor.)						
Johnson, Evander M., Manly, N. C. Combined spectacle-case and pencil-holder	645,814	Mar. 20	2330	509	90	2244
Johnson, George R., and T. F. Gillooly, Kellettville, Pa. Carbureter	644,922	Mar. 6	670	145	90	1898
Johnson, Greenleaf, Jr., Baltimore, Md. Cutter for wood-planing machines	641,864	Jan. 23	3250	738	90	674
Johnson, Greenleaf, Jr., Baltimore, Md. Cutter	641,701	Jan. 23	2936	669	90	617
Johnson, Gustav. (See Anderson, Severin B., assignor.)						
Johnson, Henry M., Gloversville, N. Y. Window-bracket	640,567	Jan. 2	765	168	90	149
Johnson, Henry V., Denver, Colo. Cuff-holder	641,592	Jan. 16	2755	627	90	571
Johnson, Jacob F., Racine, Wis. Riveting-machine	644,672	Mar. 6	213	47	90	1795
Johnson, John W., Burlington, Vt. Pneumatic hammer	643,063	Feb. 6	870	203	90	1134
Johnson, Laura H., Battle Creek, Mich. Garment	644,606	Mar. 6	84	19	90	1771
Johnson, Louis K., assignor to Alden Type Machine Company, New York, N. Y. Type-follower for type-containing channels	642,335	Jan. 30	4127	934	90	864

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Johnson, Louis K., and A. A. Low, assignors to Alden Type Machine Company, New York, N. Y. Type-setting apparatus	641,296	Jan. 16	2220	501 502	90	465
Johnson, Louis K., and A. A. Low, assignors to Alden Type Machine Company, New York, N. Y. Type-setting apparatus	641,297	Jan. 16	2221	502	90	466
Johnson, Louis K., and A. A. Low, assignors to Alden Type Machine Company, New York, N. Y. Type-setting mechanism	641,298	Jan. 16	2222	503	90	466
Johnson-Lundell Electric Company. (See Lundell, Robert, assignor.)						
Johnson, Manander M., Clay Centre, Nebr. Thermostatic governor for incubators	643,508	Feb. 13	1604	398	90	1316
Johnson, Martin D., *et al.* (See Elelson, Halvor, assignor.)						
Johnson, Moses C. (See Warren, Herbert C., assignor.)	646,105	Mar. 27	2872	696 697	90	2368
Johnson, Nelson L., Elizabeth, N. J. Mattress-filling frame						
Johnson, Orville B. (See Fairbanks and Johnson.)						
Johnson, Samuel. (See Murray, James W., assignor.)						
Johnson, Seigvert M., assignor of one-half to P. Wagner, Milwaukee, Wis. Suction-box for paper-making machines	644,556	Feb. 27	3066	853	90	1728
Johnson, Seth L. and E., and A. H. Gibbings, Bradford, England. Means and apparatus for removing wool or other hair from skins	640,771	Jan. 9	1173	266	90	248
Johnson, Thomas E., Webberville, Tex. Sied-conveyer	644,607	Mar. 6	85	20	90	1771
Johnson, William, Boston, Mass. Center-gage	644,430	Feb. 27	3431	797	90	1694
Johnson, William C., Memphis, Tenn. Furnace	645,319	Mar. 13	1397	307	90	2047
Johnson, William F., High Hill, Miss. Car-coupling	646,998	Mar. 27	3246	724	90	2441
Johnson, William H., Veedersburg, and S. D. Fry, Attica, assignors, by mesne assignments, of one-third to A. F. Johnson, Veedersburg, Ind. Tool for attaching stays to wire fences	640,807	Jan. 2	232	60	90	59
Johnson, William J. (See Beckner, Matthew O., assignor.)						
Johnson, William K., Philadelphia, Pa. Closet-bowl	645,686	Mar. 20	2067	458	90	2198
Johnson, William O., Seattle, Wash. Meat-hanger	641,308	Jan. 16	2379	544	90	497
Johnston, James E., Oberlin, Ohio. Milk-pail	642,523	Jan. 30	4459	1012	90	929
Johnston, James S., and K. Magner, Utica, N. Y. Binder for sewing-machines	642,127	Jan. 30	3723	851	90	783
Johnston, John. (See Powell, Edwin A., assignor.)						
Johnston, John D., Newport, N. Y. Wall-tie	644,176	Feb. 27	2950	697	90	1502
Johnston, John P., and E. E. Morrell, Oak Park, Ill. Oil-sprayer for gas-generators	645,596	Mar. 20	1922	424	90	2165
Johnston, Jonathan, assignor to S. Johnston, Morgan Park, Ill. Hydrocarbon-burner	643,602	Feb. 13	1857	438	90	1350
Johnston, Olin A., New York, N. Y. Vaporizer	645,644	Mar. 20	2011	442	90	2182
Johnston, Sarah. (See Johnston, Jonathan, assignor.)						
Johnstone, Francis W., Mexico, Mexico. Stay-bolt for steam-boilers	640,661	Jan. 2	950	214	90	184
Jolles, Adolf, Vienna, Austria-Hungary. Making ferruginous nuclein	641,017	Jan. 9	1687	------	90	846
Jones, Athelstan O., Zanesville, Ohio, assignor of nineteen-twentieths to E. J. Jones, Thurber, Tex. Lift	642,796	Feb. 6	394	96	90	1042
Jones, Benjamin N., Orange, N. J. Electric-circuit controller	645,108	Mar. 13	1012	217	90	1973
Jones Car Door Company. (See Jones, Graham P., assignor.)						
Jones, Charles B., assignor of one-half to F. L. Cowles, New Haven, Conn. Child's reclining-carriage	641,209	Jan. 9	2057	461	90	418
Jones, Charles P., Cleveland, Ohio. Car-wheel	641,969	Jan. 23	3423	778	90	709
Jones, Clemens C., Richmond, Va. Brick-making plant	644,520	Feb. 27	3585	835 836 837	90	1714
Jones, Daniel A. (See Miller, Witt, and Jones.)						
Jones, Edward J. (See Jones, Athelstan O., assignor.)						
Jones, Edwin C. and F. L., Boston, Mass., assignors to Graham-Jones Company, Kittery, Me. Ticket-printing machine	640,568	Jan. 2	767	168 169	90	150
Jones, Frank L. (See Jones, Edwin C. and F. L.)						
Jones, Graham P., assignor to Jones Car Door Company, Chicago, Ill. Door-hanger	643,654	Feb. 20	1995	470	90	1391
Jones, Graham P., assignor to Jones Car Door Company, Chicago, Ill. Car-door	643,655	Feb. 20	1998	471	90	1392
Jones, Graham P., assignor to Jones Car Door Company, Chicago, Ill.						
Jones, Harry S. (See Jones, Harvey P. and H. S.)	640,917	Jan. 9	1471	329	90	307
Jones, Harvey H., Hollansburg, Ohio. Horse-tail protector	646,221	Mar. 27	3117	687	90	2417
Jones, Harvey P., assignor to Jones Perpetual Ledger Company, Chicago, Ill. Binder-frame	646,106	Mar. 27	2874	637	90	2369
Jones, Harvey P. and H. S., assignors to Jones Perpetual Ledger Company, Chicago, Ill. Extensible post for transfer-ledgers, &c.	645,206	Mar. 13	1210	264	90	2010
Jones, Howard F., Wilson, N. C. Float attachment for automatically feeding disinfectants to water-closets	646,299	Mar. 27	3247	724	90	2441
Jones, James, New York, N. Y. Non-conducting covering	642,821	Feb. 6	441	106	90	1052
Jones, John A., New York, N. Y., assignor to New Era Company, of New Jersey. Copying-press	641,116	Jan. 9	1960	414	90	880
Jones, John J., Braman, Okla. Ter. Churn						
Jones, John L., *et al.* (See Gray, Charles A., assignor.)	645,262	Mar. 13	1304	284	90	2029
Jones, Kinsey, Janesville, Wis. Sleigh-knee	640,306	Jan. 2	200	60	90	58
Jones, Laban E., Chicago, Ill. Boiler-compound feeder						
Jones, Laurence M., *et al.* (See Gray, Charles A., assignor.)	645,398	Mar. 13	1554	340	90	2079
Jones, Lewis, Jr., Philadelphia, Pa. Igniter for explosive-engines						
Jones, Lois M. (See Moulton and Jones.)						
Jones Perpetual Ledger Company. (See Jones, Harvey P., assignor.)						
Jones Perpetual Ledger Company. (See Jones, Harvey P. and H. S., assignors.)	640,386	Jan. 2	446	92	90	89
Jones, Sterns F., New York, N. Y. Pneumatic-transfer-tube system	641,210	Jan. 9	2050	461	90	419
Jones, Theodore N., Crisman, Colo. Soft-tread horseshoe	640,387	Jan. 2	448	92	90	89
Jones, Thomas R., Wilkes-Barré, Pa. Bracket for miners' lamps	644,232	Feb. 27	3060	723	90	1612
Jones, Virgil A., Waverly, Nebr. Mail supplying and delivering apparatus	645,104	Mar. 13	1014	217	90	1973
Jones, Winfred E., Rochester, N. Y. Gage	644,923	Mar. 6	672	145	90	1989
Joost, Adolph, Kankakee, Ill. Cattle-stanchion	643,139	Feb. 13	1029	240	90	1187
Jordan, Benjamin H., Sharpsburg, Pa. Printing-machine	643,378	Feb. 13	1435	335	90	1266
Jordan, Charles C., Baltimore, Md. Washboiler						
Jordan, David N., Providence, R. I., and F. A. Crowell, Attleborough, Mass. Vehicle-tire	643,875	Feb. 20	2400	564	90	1467
Jordan, Dennis, San Francisco, Cal. Rotary dredging and excavating machine	644,521	Feb. 27	3591	837	90	1715
Jordan, Willis H., assignor of one-half to O. M. Shaw, Boston, Mass. Coin-controlled beam-scale	643,226	Feb. 13	1172	274 275	90	1215
Jörg, Alexander, *et al.* (See Bachmann and Vogt, assignors.)	640,569	Jan. 2	771	169	90	150
Jorgenson, John, San Francisco, Cal. Nut-lock						
Jorres, Ralph W., St. Louis, Mo., assignor to A. J. Bradley, New York, N. Y. Corkscrew	644,043	Feb. 20	2710	642	90	1530
Jorss, A. Fred., *et al.* (See Farrow, Willard M., assignor.)						
Joseph Banigan Rubber Company. (See Button, William N., assignor.)						
Joseph, Herschel V., Avalon, assignor of one-half to P. T. Hedges, Purden, Mo., and J. E. Joseph, Skeleton, Okla. Ter. Corn-harvester	640,389	Jan. 2	450	98, 94	90	90

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Joseph, Joel E., *et al.* (See Joseph, Herschel V., assignor.)	645,526	Mar. 13	1777	389	90	2122
Joslin, John T., Lakeview, Mich. Roofing	643,901	Feb. 20	2448	576	90	1477
Josserand, Peter, Josserand, Tex. Acetylene-gas lamp						
Joubert, Frederic L. (See Payne and Joubert.)	643,745	Feb. 20	2165	508 509	90	1423
Joy, David, London, England. Locomotive or railway engine						
Joyce, Asa A. (See Smith, Henry R., assignor.)						
Joyce, Frank T., *et al.* (See Murdock, Horace B., assignor.)						
Joyce, Peter A., *et al.* (See Murdock, Horace B., assignor.)	641,018	Jan. 9	1689	374 375	90	346
Judd, Edward M., Wallingford, Conn. Mail marking and canceling device						
Judson L. Thomson Manufacturing Company. (See Bartel, William P., assignor.)						
Julius King Optical Company. (See Griffin, George A., assignor.)						
Julius, Paul. (See Bernthsen and Julius.)						
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	644,233	Feb. 27	3053	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black dye	644,234	Feb. 27	3055	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	644,235	Feb. 27	3056	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	644,236	Feb. 27	3058	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black dye	644,237	Feb. 27	3060	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Disazo dye from chloramidophenol	644,238	Feb. 27	3061	------	90	1613
Julius, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black disazo dye	644,239	Feb. 27	3063	------	90	1613
Julius, Paul, and W. Reess, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making yellow basic dyes	644,324	Feb. 27	3253	------	90	1649
Jullien-Binard, Célina, New York, N. Y. Apparel-corset	646,180	Mar. 27	2926	668	90	2289
June, Henry R., and W. L. Perry, Elmira, N. Y. Rotary engine	644,016	Feb. 20	2368	531	90	1521
Junod, Alfred, Ste. Croix, Switzerland. Pneumatic tire	642,396	Jan. 30	4128	931	90	864
Jurgens, George, *et al.* (See Elelson, Halvor, assignor.)	644,803	Mar. 6	457	98	90	1845
Justi, Henry D., Philadelphia, Pa. Artificial tooth-crown						
Kaelin, Joseph M., *et al.* (See Charles, Benjamin, assignor.)	644,924	Mar. 6	673	145	90	1989
Kahl, Gustave A., Sorento, Ill. Mop-wringer	644,925	Mar. 6	674	146	90	1989
Kahl, Gustave A., Sorento, Ill. Mop-head	642,611	Feb. 6	84	20	90	982
Kaiser, Friedrich, St. Johann-upon-Saar, Germany. Appliance for molding truss-heads	645,645	Mar. 20	2012	442 443	90	2183
Kaiser, John, Seneca Falls, N. Y. Aerial apparatus						
Kaldegg, Max R., *et al.* (See Wouwermans, Philipp von, assignor.)						
Kalker Werkzeugmaschinen-Fabrik L. W. Breuer, Schumacher & Co. (See Rothe, Moritz, assignor.)						
Kaltwasser, Oskar. (See Priebs and Kaltwasser.)	643,379	Feb. 13	1436	335 336	90	1266
Kamm, Leo, London, England. Printing-telegraph	643,718	Feb. 20	2120	497	90	1414
Kamm, Leonard U., London, England. Kinetoscope						
Kammer, Ernst E., Hamburg, Germany. Removable rod for curtains, roller-blinds, or the like	644,358	Feb. 27	3315	769	90	1651
Kammerer, Frank G., Chicago, Ill. Filter	643,411	Feb. 13	1503	352 353	90	1278
Kammerer, Frank G., Chicago, Ill. Water cooler and filter	644,335	Feb. 27	3233	758 759	90	1649
Kane, Charles W., assignor of one-half to F. Dannbacher, New York, N. Y. Composition for making floors, roofs, or the like	645,083	Mar. 6	874	------	90	1931
Kane, George F. (See Adams and Kane.)	640,662	Jan. 2	932	214	90	185
Kane, John P., Dawson, Pa. Curtain-fixture	642,524	Jan. 30	4460	1012	90	929
Kane, Maurice, Austin, Ill. Mowing-machine	643,128	Jan. 30	3725	852	90	783
Kane, Michael J., St. Paul, Minn. Paper box	644,743	Mar. 6	323	72	90	1818
Karlik, John, Kladno, Austria-Hungary. Speed-recorder	644,481	Feb. 27	3433	797	90	1685
Karolewski, Stanislaw, Pittsburg, Pa. Nut-lock	646,107	Mar. 27	2876	637	90	2369
Karpen, Julius, Chicago, Ill. Chair adjustment	642,129	Jan. 30	3726	852	90	783
Karsner, Adam E., assignor to E. M. Foote and O. G. Wales, New York, N. Y. Wrench.						
Kaschenbach, John. (See Spoerl, Christian S. E., assignor.)						
Kasmeier, John. (See Cannaday, Winfield S., assignor.)						
Kasschau, Hans C. G., New Rochelle, N. Y. Valve for sinks or stationary washstands	645,749	Mar. 20	2220	481	90	2223
Kathreiner's Malzkaffee-Fabriken, Gesellschaft mit Beschränkter Haftung. (See Linde, Fritz, assignor.)						
Kauffman, Alfred, Pottstown, Pa. Bicycle propulsion	641,516	Jan. 16	2023	506	90	545
Kauffman, Amos J., Gap, Pa. Fence-machine	640,772	Jan. 9	1173	268	90	248
Kauffman, William J., assignor of two-thirds to L. A. Loichot and I. Harter, Canton, Ohio. Type-writing machine	[illegible] 092	Feb. 27	2775	658	90	1558
Kauschke, Paul H., Freiberg, Germany. Coloring leather	[illegible] 394	Jan. 16	2380	------	90	497
Kavenaugh, Joseph T. (See McKinney, Walter S., assignor.)						
Kaye, John J., Newburg, N. Y. Stopping device for engines	641,117	Jan. 9	1861	414	90	381
Kayser, Adolph, Buffalo, N. Y. Refining petroleum and petroleum derivatives	640,018	Jan. 9	1472	329	90	307
Kearsley, Frederick W. (See Morss, Stephen B., assignor.)						
Keating, Robert L. (See Brush, George H., assignor.)						
Keats, Robert F. C., Portsmouth, assignor to B. C. Elliot, Chelsea, England. Speed-governor for engines	644,983	Mar. 6	770	167	90	1910
Keefe, William P. (See Hoyt, Charles F., assignor.)	641,517	Jan. 16	2024	509	90	545
Keel, Charles E., Indianapolis, Ind. Automatic computing-machine						
Keeler, Thaddeus B., Rahway, assignor to Standard Railroad Signal Company, Arlington, N. J. Motor-actuated signal mechanism	643,823	Feb. 20	2292	539	90	1447
Keeler, Thaddeus B., Rahway, N. J., assignor to Standard Railroad Signal Company, Troy, N. Y. Motor-actuated signal	643,824	Feb. 20	2294	540	90	1447
Keen, Joseph S., Jr. (See Rulon and Keen.)						
Keeney, William R., Doon, assignor of one-half to S. J. Beals, Sioux City, Iowa. Automatic block for railway-switches	642,232	Jan. 30	3932	896	90	825
Keep, William J., and W. V. Robinson, assignors to Michigan Stove Company, Detroit, Mich. Heating-stove	640,663	Jan. 2	954	214	90	185
Kees, Frederick D. (See Wiswell and Kees.)						
Keil, Andreas. (See Keller and Keil.)						
Keil, Francis and H. F., New York, N. Y. Mold for lock-cylinders and key-hubs	643,650	Feb. 20	2000	471 472	90	1392
Keil, Francis and H. F., New York, N. Y. Electric bell	646,222	Mar. 27	3120	687	90	2417
Keil, Francis and H. F., New York, N. Y. Door-spring	646,223	Mar. 27	3121	688	90	2418

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Pages.
Keil, Henry F. (See Keil, Francis and H. F.)						
Keiter, Franklin T. L., *et al.* (See Trexler, William F., assignor.)						
Keller, Albert K., Philadelphia, Pa. Telephone-transmitter	644,205	Feb. 27	3002	711	90	1602
Keller, Albert K., Philadelphia, Pa. Telephone-receiver	644,206	Feb. 27	3004	711	90	1603
Keller, Albert K., assignor to G. F. Payne, Philadelphia, Pa. Switch-box for intercommunicating telephone systems	644,204	Feb. 27	2999	710	90	1602
Keller, Albert K., Philadelphia, Pa., assignor to International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Telephone system	645,958	Mar. 27	3901	576	90	2316
Keller, Albert K., Philadelphia, Pa., assignor to International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Telephone-receiver	645,959	Mar. 27	3903	576	90	2316
Keller, Albert K., New York, N. Y., assignor to International Telephone and Switchboard Manufacturing Company, Plainfield, N. J. Telephone-transmitter	645,960	Mar. 27	3904	577	90	2317
Keller, Friedrich, and A. Keil, Lampertheim, Germany. Plow	645,597	Mar. 20	1923	424	90	2165
Keller, Edwin R. (See Pringle, William T., assignor.)						
Keller, George W., assignor of one-half to G. U. Kirn, Akron, Ohio. Apparatus for setting rubber tires	643,357	Feb. 13	1406	328 829	90	1260
Keller, Harry. (See Ray, Ambrose S., assignor.)						
Keller, Julius, Philadelphia, Pa., assignor to Keller Tool Company, of Pennsylvania. Ball-bearing	644,608	Mar. 6	86	20	90	1771
Keller Tool Company. (See Keller, Julius, assignor.)						
Kellett-Chatham Machinery Company. (See Williams, George W., assignor.)						
Kelley, Howard G., Minneapolis, Minn. Reinforced switch-point	640,388	Jan. 2	449	93	90	89
Kelley, John A., and S. W. Rouse, Fremont, Minn. Grinding-mill	643,412	Feb. 13	1506	353	90	1278
Kelling, John, and C. C. Allen, Shelby, Ohio. Apparatus for making castings	644,926	Mar. 6	674	146	90	1889
Kellogg, Henry W., *et al.* (See Worth, William O., assignor.)	645,227	Mar. 13	1245	270	90	2017
Kellom, Charles F., Delair, N. J. Grease-cup or lubricator						
Kelly, Anthony A. (See Smithers, Charles W. H., assignor.)	641,777	Jan. 23	3085	701	90	643
Kelly, Daniel, Jr., Muskegon, Mich. Photographic-plate holder	641,970	Jan. 23	3425	778	90	709
Kelly, Frederick H., Au Sable, Mich. Label-holder	645,473	Mar. 13	1683	368	90	2104
Kelly, Henry M., Ottawa, Ill. Wagon attachment	642,822	Feb. 6	443	106	90	1052
Kelly, Patrick J., Elizabeth, N. J. Dividing-head for punching-machines						
Kelly, Timothy D. (See Robbins, Ira, assignor.)	641,118	Jan. 9	1863	415	90	381
Kelly, William E., assignor to E. B. Weed, trustee, Cleveland, Ohio. Handle-bar	640,773	Jan. 9	1174	268 269	90	248
Kelsey, Benjamin F., Minneapolis, Minn. Cylinder-lubricator	641,971	Jan. 23	3426	778	90	709
Kelsey, Grace I., Beach Bluff, Mass. Vending-machine	641,299	Jan. 16	2234	504	90	467
Kelso, James, Murray, Ala. Safety device for cars	641,119	Jan. 9	1865	415	90	382
Kemper, James P., Franklin, La. Apparatus for handling sugar-cane	640,774	Jan. 9	1177	269	90	249
Kemper, William H., Marksbury, Ky. Farm-gate	642,283	Jan. 30	3983	896	90	825
Kendall, John A., Cameron, Mo. Magazine-stove						
Kendall Rubber Tire Company. (See Kendall, Webber G., assignor.)						
Kendall, Webber G., Providence, R. I., assignor to Kendall Rubber Tire Company, Portland, Me. Cushion-tire	646,402	Mar. 27	3497	779	90	2494
Kendig, Benjamin F., Elizabeth, N. J., and E. Coleman, New York, N. Y. Temporary binder	643,880	Feb. 13	1443	336 337	90	1267
Kennedy, Dwight B., Oakmont, Pa., assignor to S. W. McMunn, trustee, Chicago, Ill. Car-truck frame	641,518	Jan. 16	2027	509 600	90	546
Kennedy, George A. (See Senior, William, assignor.)						
Kennedy, Harry C., Philadelphia, Pa., assignor to J. E. Kennedy, Denver, Colo. Sponge-cup	641,867	Jan. 23	3254	739	90	675
Kennedy, James J., Hanover, Ill. Harvester	643,227	Feb. 13	1175	275 276 277	90	1216
Kennedy, Julian, Pittsburg, Pa. Hot-blast valve	644,927	Mar. 6	675	146 147	90	1890
Kennedy, Julian, Pittsburg, Pa. Rolling-mill	644,928	Mar. 6	677	147 148	90	1890
Kennedy, Julius E. (See Kennedy, Harry C., assignor.)						
Kennedy, Martin, Chicago, Ill. Machine for bending, forging, welding, and shaping metal	644,294	Feb. 27	3176	744 745	90	1635
Kennedy, Patrick, New York, N. Y. Driving-belt	642,549	Jan. 30	4511	1022	90	940
Kennedy, Patrick, New York, N. Y. Belt for transmitting power	642,550	Jan. 30	4513	1022	90	940
Kennedy, Patrick, New York, N. Y. Storage battery	645,750	Mar. 20	2221	482	90	2223
Kennedy, Patrick, New York, N. Y., assignor to Columbian Electric Carlighting and Brake Company, of New Jersey. Mechanism for driving dynamos for electric lighting on railway-cars, &c	642,551	Jan. 30	4514	1022	90	940
Kennedy, Rankin, Leeds, England. Electromagnetic variable-speed and clutch gearing	643,413	Feb. 13	1507	353	90	1278
Kennedy, Robert. (See Lawrence and Kennedy.)	644,770	Mar. 6	382	.....	90	1830
Kennedy, Robert W., Ashland, Oreg. Solvent for leaching ores	642,180	Jan. 30	3727	852	90	784
Kennerly, Samuel J., *et al.* (See Mills, John A., assignor.)						
Kenney, Thomas, Jr., Boston, assignor to H. Tolman, Newton, Mass. Atomizer	646,108	Mar. 27	2977	687	90	2369
Kennicott, Cass L., assignor of one-half to C. J. Blair, Chicago, Ill. Apparatus for purifying water	643,458	Jan. 30	4364	990	90	912
Kent, David C., Dublin, Va. Hay-carrier						
Kent, Elizabeth, *et al.* (See Kent, William J., assignor.)						
Kent, William J., assignor to E. Kent and R. R. Bell, New York, N. Y. Hoof-pad	646,148	Mar. 27	2968	655	90	2396
Kenton, Levi C. (See Leonard and Kenton.)						
Kenworthy, James A. (See Hammel, Charles A., assignor.)						
Kenyon, Alan D. (See Bloomingdale and Kenyon.)	642,234	Jan. 30	3986	897	90	826
Kenyon, Charles P., Scranton, Pa. Apparatus for ventilating mines	642,459	Jan. 30	4366	990	90	912
Kenyon, Frank, Washington, D. C. Combined collar and necktie clasp						
Kerekes, Daniel, Pittsburg, Pa., assignor of one-half to M. Sanislo and E. Terney. Hasp-lock	640,775	Jan. 9	1178	269	90	249
Kerfoot, Katherine, *et al.* (See Kerfoot, Samuel H., assignor.)						
Kerfoot, Samuel H., assignor, by mesne assignments, to K. Kerfoot, Des Moines, Iowa, and E. S. Gump, Chicago, Ill. Lift and force pump	645,084	Mar. 6	875	189	90	1931
Kern, Gottlieb, Omaha, Nebr., assignor to R. W. Moffett, Chicago, Ill. Billiard-cushion. (Reissue)	11,799	Jan. 2	1094	251	90	211
Kerngood, Herman, Baltimore, Md., assignor to Electus Fastener Company, Hoboken, N. J. Ball-and-socket fastener	645,694	Mar. 20	1975	434	90	2175
Kerns, Edward J., Worcester, Mass. Exercising-machine	641,519	Jan. 16	2032	500	90	547
Kerns, Edward J., Worcester, Mass. Rowing-machine	641,596	Jan. 16	2700	628 699	90	572
Kerr, John F., *et al.* (See Dean, John, assignor.)						
Kerrigan, Martin J., Stockton, assignor of one-half to C. McDonald, Wilkes-Barré, Pa. Coal and slate separator	644,177	Feb. 27	2951	698	90	1592

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Pages.
Kerrinnes, Heinrich, Tilsit, Germany. Apparatus for removing water from pulp-like materials	644,207	Feb. 27	3006	711	90	1603
Kershaw, Edwin, assignor of one-half to Jackson & Sharp Company, Wilmington, Del. Dumping-scow	643,064	Feb. 6	872	208	90	1134
Kersten, Emil, Richmond, Va. Apparatus for producing wort, hop-beer, washing filter-pulp, &c	642,460	Jan. 30	4367	990	90	912
Kerstetter, James L., assignor of one-half to W. J. Russell and F. W. Winger, Bradford, Pa. Ink-well	643,798	Feb. 20	2250	530	90	1439
Kessler, Christian, Indianapolis, Ind. Self-labeling baker	642,699	Feb. 6	240	59	90	1013
Kessler, Henry H., Jr., Cleveland, Ohio. Self-opening umbrella	641,300	Jan. 16	2226	504	90	467
Ketchum, Edmund, Montclair, N. J. Building wall or partition	644,138	Feb. 27	2873	680	90	1578
Ketchum, Oliver W., Baltimore, Md., assignor to Raymond Button Company of Baltimore City, of Maryland. Button and button-fastener	641,778	Jan. 23	3086	702	90	643
Kettenring, George, Newark, N. J. Pressure-regulating valve	641,120	Jan. 9	1867	415	90	382
Keuffel, Willie L. E., Hoboken, N. J. Tape-reel	645,263	Mar. 13	1305	284	90	2029
Key, Francis W., Staunton, Ga. Whiffletree-hook	640,664	Jan. 2	956	215	90	185
Keyes, Frank E., New York, N. Y., assignor of one-half to A. B. Poland, Paterson, N. J. Making fireproof pulpboard	645,035	Mar. 6	876	.....	90	1931
Keyes, James A., New York, assignor to Carter-Crume Company, Niagara Falls, N. Y. Printing-machine	642,131	Jan. 30	3728	852 853 854	90	784
Keyes, Martin L., assignor to F. E. Robinson, Carthage, N. Y. Bending and forming machine	644,249	Feb. 27	3085	726	90	1617
Keys, William, Montreal, Canada. Car advertising device	641,702	Jan. 23	2987	670	90	618
Keyssner, Karl, Nuremberg, Germany. Cutting-machine for making ball-bearings	643,381	Feb. 13	1445	337	90	1268
Keystone Manufacturing Company. (See Gray, William H., assignor.)						
Keystone Typewriter Company. (See Quentell, William P., assignor.)						
Kiefer, Jacob, and S. S. Lawrence, Delaware, Ohio. Shoemaker's tool	641,019	Jan. 9	1694	376	90	347
Kiefer, Karl, Cincinnati, Ohio. Bicycle	645,474	Mar. 13	1685	368	90	2105
Killean, Harry F., Clinton, Iowa. Mail-bag deliverer for fast trains	642,461	Jan. 30	4368	991	90	912
Killman, Thomas A., assignor of one-half to J. T. Turney, Liberty, Tenn. Folding crate	645,096	Mar. 6	877	189	90	1931
Kilmer, Melvin D., and M. A. Possons, Cleveland, Ohio.; said Possons assignor to said Kilmer. Wire-clamp	645,097	Mar. 6	879	190	90	1931
Kimball, Charles E., *et al.* (See Blundon, Joseph W., assignor.)						
Kimball, Robert E., Cleveland, Ohio. Ball-bearing	644,771	Mar. 6	384	84	90	1831
Kimball, William E. (See Hendrickson and Kimball.)						
Kimbriel, Isham S., Somis, Cal. Traction-wheel	642,132	Jan. 30	3731	854	90	784
Kimbrough, Z. H. (See Parker, Aaron L., assignor.)						
Kimman, Henry J., assignor of one-half to E. N. Hurley, Chicago, Ill. Direct-acting engine	642,133	Jan. 30	3733	854	90	785
Kimmel, William E., Bermudian, Pa. Wire-stretcher	642,462	Jan. 30	4370	991	90	913
Kindt, John L. (See Sanborn and Kindt.)						
King, Charles C. (See King, John H. and C. C.)						
King, Charles L. (See Shellenberger and King.)						
King, Frederick W., assignor to Michigan Stove Company, Detroit, Mich. Radiant oven for cooking-stoves	641,630	Jan. 16	2234	643	90	585
King, Howard K., assignor to Chambers Brothers Company, Philadelphia, Pa. Paper-folding machine	640,570	Jan. 2	772	170	90	151
King, Howard K., assignor to Chambers Brothers Company, Philadelphia, Pa. Paper-folding machine	640,571	Jan. 2	777	171	90	151
King, Howard K., assignor to Chambers Brothers Company, Philadelphia, Pa. Sheet-perforator for printing-presses	645,264	Mar. 13	1306	284	90	2029
King, John D., assignor, by mesne assignments, of one-half to J. A. Shirley, Mount Sterling, Ky. Filter	640,665	Jan. 2	956	215	90	185
King, John H. and C. C., Montpelier, Ind. Wrench	643,140	Feb. 13	1031	240	90	1188
King, Louis A., Salem, Mass. Guide-lever for looms	643,657	Feb. 20	2003	472 473	90	1398
King, Oscar L. (See Gunn, Selim W., assignor.)						
King, Robert F., Bozeman, Mont. Combined singletree and spreader	645,475	Mar. 13	1686	369	90	2105
King, Rockwell. (See Birdsall and Krum, assignors.)						
King, William G. (See Schroeter, Carl, assignor.)						
King, William H., Newark, N. J. Cigar or cigarette holder	645,899	Mar. 13	1556	340	90	2080
Kingsbury, Harry T., Keene, N. H. Toy vehicle	642,525	Jan. 30	4463	1013	90	980
Kingsbury, Harry T., Keene, N. H. Toy wagon	642,526	Jan. 30	4465	1013	90	980
Kingsland Friction Car Brake Company. (See Kingsland, Philip S., assignor.)						
Kingsland, Philip S., assignor to Kingsland Friction Car Brake Company, St. Louis, Mo. Car-brake	641,972	Jan. 23	3426	779	90	709
Kingsland, Philip S., assignor to Kingsland Friction Car Brake Company, St. Louis, Mo. Car-brake	641,973	Jan. 23	3429	779	90	710
Kingsland, Philip S., assignor to Kingsland Friction Car Brake Company, St. Louis, Mo. Car-brake	641,974	Jan. 23	3431	779 780	90	711
Kingsland, William, London, England. Surface-contact stud for electric traction	643,414	Feb. 13	1508	354	90	1279
Kingsley, Bessie, South Vancouver, Canada. Churn	645,476	Mar. 13	1687	369	90	2105
Kingsley, Candide, Montreal, Canada. Ratchet-wrench	645,265	Mar. 13	1308	284 285	90	2030
Kingwill, John F., Chicago, Ill. Playing-cards	645,961	Mar. 27	2905	577	90	2317
Kinnaman, Edward H., *et al.* (See Flint, James I., assignor.)						
Kinney, Charles S., Arroyo Grande, Cal. Water heater and condenser	641,597	Jan. 16	2763	629	90	572
Kinney, Edwin R., Norwalk, Ohio. Automatic journal-oiler for locomotive-axle journals	641,866	Jan. 23	3253	739	90	675
Kinney, Edwin R., Norwalk, Ohio. Automatic journal-oiler	642,134	Jan. 30	3738	855	90	786
Kinney, Richard R., and G. P. Barnard, Coldwater, Mich. Burial apparatus	641,779	Jan. 23	3087	702	90	643
Kinsell, William D., *et al.* (See Gerrich, John K., assignor.)						
Kinsey, John A. (See Vannote, Jacob E., assignor.)						
Kinsman, Frank E., Plainfield, N. J. Pneumatic water-supply system	644,711	Mar. 6	273	61	90	1808
Kipling, William C., and E. Arnold; said Kipling assignor to G. L. Andrewes, Sudbury, England. Composition for waterproofing	644,250	Feb. 27	3087	.....	90	1618
Kirby, Edmund B., Denver, Colo. Keyboard mechanism for type-writers	646,224	Mar. 27	3122	686 692	90	2418
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Headlight	643,141	Feb. 13	1032	240	90	1188
Kirby, Richard W., Cookville, Tex. Cotton-chopper	641,975	Jan. 23	3434	781	90	711
Kirby, Thomas B., and J. E. Norling, assignors to Armour & Co., Chicago, Ill. Ventilator for refrigerator-cars	643,328	Feb. 13	1355	317 318	90	1250
Kirby, William W. (See Belt, William L., assignor.)						
Kirchner, Josef, *et al.* (See Bachmann and Vogt, assignors.)						
Kirk, Edward J., Bracebridge, Canada. Hat or cap rack	645,362	Mar. 13	1479	325	90	2064
Kirkendall, Elijah B., Leando, Iowa. Road-grading machine	645,363	Mar. 13	1481	326	90	2065

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kirkpatrick, Drury T., assignor of forty-nine one-hundredths to W. H. Murphy, Memphis, Tenn. Vapor burner	644,178	Feb. 27	2052	698	90	1502
	645,105	Mar. 13	1015	217	90	1973
Kirksey, Cicero L., and F. P. Bowden, Russellville, Ark. Trace-lock	644,017	Feb. 20	2670	631	90	1521
Kirn, Grant U. (See Keller, George W., assignor.)	643,938	Feb. 13	1859	438	90	1350
Kiser, Isaac L., Little Rock, Ark. Corner iron or strap for cars	640,471	Jan. 2	507	128	90	117
Kissel, Jacob, assignor of one-half to J. M. Zeller, Sioux Falls, S. D. Washing-machine	643,709	Feb. 20	2306	521	90	1431
Kistner, Harry U., Selin's Grove, Pa. Saw-set						
Kitchen, Joseph M. W., East Orange, N. J. Fumigator						
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Preheating tube	644,600	Mar. 6	88	20, 21	90	1772
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Swinging alcohol-cup for vapor-burners	644,673	Mar. 6	215	47	90	1796
Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Kitson, Arthur, assignor.)						
Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Pumphrey, Walter H., assignor.)						
Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Thayer, Russell, assignor.)						
Kitto, Thomas J., assignor of two-thirds to G. C. Clements and O. Lotz, Doe Run, Mo. Drill-chuck	645,854	Mar. 20	2399	527	90	2259
Kitton, John C., San Francisco, assignor of one-half to C. C. Hutchinson, Oakland, Cal. Plate-ice machine	643,209	Feb. 13	1256	294	90	1231
	641,708	Jan. 23	2039	670	90	618
Kizler, John J., Hillsborough, Kans. Lemon-squeezer	646,225	Mar. 27	3127	689 690	90	2419
Klary, Charles, Paris, France. Flash-lamp						
Kleber, Frank J. (See Kleber, Louis P. and F. J.)	642,612	Feb. 6	84	20	90	982
Kleber, Louis P. and F. J., Pittsburg, Pa. Machine for making articles of sheet metal	640,206	Jan. 2	85	18	90	19
Klein, Daniel, and W. P. Swartz, Poughkeepsie, N. Y. Milking apparatus	644,179	Feb. 27	2054	698	90	1503
Klein, Daniel, and W. P. Swartz, Poughkeepsie, N. Y. Milking apparatus	646,122	Mar. 27	2909	.....	90	2376
Klein, Daniel, and W. P. Swartz, Poughkeepsie, N. Y. Ink for marking cigars or tobacco	646,002	Mar. 27	2882	595	90	2382
Klein, Emanuel, New York, N. Y. Ventilating-fan	643,658	Feb. 20	2005	473	90	1393
Klein, Heinrich, Pirmasens, Germany. Railway-spike						
Klein, Peter J., New York, N. Y. (See Mauldin, John, assignor.)						
Kleinsorge, Henry E., *et al.* (See Mauldin, John, assignor.)						
Kleinsorge, William E., *et al.* Nut-lock	646,296	Mar. 27	3120	690	90	2419
Kleman, Henry, Pittsburg, assignor of one-eighth to H. J. Rose, Allegheny, Pa.	641,780	Jan. 23	3089	708	90	644
Klemm, Hermann A., New York, N. Y. Overedge sewing-machine	645,815	Mar. 20	2380	509	90	2244
Klemm, Hermann A., New York, N. Y. Overseaming sewing-machine	646,181	Mar. 27	3028	668	90	2399
Klencke, Johann H., Bremen, Germany. Apparatus for hoisting or lowering ships' boats	642,337	Jan. 30	4129	984	90	864
Kley, Augustus C., Liverpool, England. Printing or marking apparatus	642,746	Feb. 6	323	78	90	1030
Kley, Augustus C., Liverpool, England. Inking-pad	641,898	Jan. 23	3256	740	90	675
Klingelsmith, Joseph M., Chatham, N. Y. Combined safe and desk	642,613	Feb. 6	85	20	90	982
Klingenberg, Edward, Jr., Chicago, Ill. Sad-iron support	641,781	Jan. 23	3090	708	90	644
Klingenberg, Ernest J., Chicago, Ill. Holder for hand-stamps	646,403	Mar. 27	3408	779	90	2491
Klipfel, Thomas W., assignor to Union Wire Mattress Company, Chicago, Ill. Mechanical toy	643,382	Feb. 13	1446	337 338	90	1268
Klipstein, James H., Marshall, Va. Stove	641,869	Jan. 23	3257	740	90	675
Klock, Charles W., and G. W. Rose; said Rose assignor to A. S. Barr, Hennessey, Okla. Ter. Grain cleaner or beater						
Kloppenburg, Max D. (See Braun, Johann L., assignor.)	641,301	Jan. 16	2227	504	90	467
Klose, Paul, Sorau, Nieder-Lausitz, Germany. Bicycle-lock	643,415	Feb. 13	1509	354	90	1279
Knackstedt, Fritz, Chicago, Ill. Steam-trap	642,235	Jan. 30	3098	897	90	826
Knape, John, assignor to Grand Rapids Cycle Company, Grand Rapids, Mich. Seat-post clamp	640,666	Jan. 2	957	215	90	186
Knapp, George W., Stoneham, assignor to Smith & Anthony Company, Boston, Mass. Urinal	640,572	Jan. 2	779	171	90	152
Kneeland, Charles L., assignor of one-half to G. W. Renyx, Lansing, Mich. Centrifugal cream-separator	645,598	Mar. 20	1925	424	90	2165
Kneusel, Otto, Chicago, Ill. Knee-brace for bicycles, &c	644,326	Feb. 27	3257	.....	90	1650
Knietsch, Rudolf, and H. S. A. Holt, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making indigo products	644,826	Mar. 6	505	109	90	1854
Knight, Aaron R. W., Feasterville, Pa. Lantern-holder for vehicles	640,472	Jan. 2	600	128	90	118
Knight, Ira W. (See Knight, Riley and I. W.)	641,121	Jan. 9	1868	415 416	90	382
Knight, Jonathan L., Topeka, Kans. Weather-strip	644,610	Mar. 6	89	21	90	1772
Knight, Oswald, Richmond, Va. Fire-escape	644,522	Feb. 27	3502	857	90	1715
Knight, Riley and I. W., Moscow, Idaho. Traction-engine	642,614	Feb. 6	86	20	90	983
Knight, Samuel, and J. L. Maxwell, Bridgton, Me. Milk-pail holder	641,870	Jan. 23	3258	.....	90	676
Knoche, Gottfried, New York, N. Y. Fireproof floor	644,327	Feb. 27	3258	750	90	1650
Knorr, Ludwig, Jena, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Naphthalanmorpholin	641,704	Jan. 23	2940	670	90	618
Knox, Charles B. (See Horning, Nathan, assignor.)	641,395	Jan. 16	2381	544 545	90	497
Knox, Luther L., Pittsburg, Pa. Scaffolding	643,965	Feb. 20	2567	605	90	1502
Knudtson, Knudt N., assignor to L. M. Knudtson, Beaver Creek, Minn. Music-leaf turner	640,919	Jan. 9	1473	320	90	807
Knudtson, Laura M. (See Knudtson, Knudt N., assignor.)	642,135	Jan. 30	3739	853	90	786
Knüttel, Albert, Remscheid, Germany. Machine for making cores for castings	640,776	Jan. 9	1179	.....	90	249
Knüttel, Friedrich, Charlottenberg, Germany. Malt-drum	643,463	Jan. 30	4371	991	90	913
Kobler, Victor, Rorschach, assignor to Firm of A. Saurer, Arbon, Switzerland. Needle-threader	640,908	Jan. 2	293	61	90	59
Koch, August W., Cincinnati, Ohio, and C. F. Koch, Covington, Ky. Tile-dipping machine	644,557	Feb. 27	3668	853	90	1728
Koch, Charles F. (See Koch, August W. and C. F.)	640,777	Jan. 9	1180	270	90	249
Koch, Charles W., Milwaukee, Wis. Bating hides	646,128	Mar. 27	2910	644	90	2376
Koch, George. (See Beck, Rudolph H., assignor.)	644,359	Feb. 27	3316	770	90	1661
Koch, Henry, North Tarrytown, N. Y. Rock-drill	641,705	Jan. 23	2941	671	90	618
Koch, Henry E., Hartington, Nebr. Wrench						
Koch, Monroe, New York, N. Y. Apparel-belt						
Koch, Robert J., assignor of one-half to J. Ayling, Chicago, Ill. Game-table						
Koeck, Martin, Oshkosh, Wis., assignor, by mesne assignments, to Northwestern Grass Twine Company, St. Paul, Minn. Woven fabric						
Koehn, Lebrecht, Blackwell, Mo. Plow attachment						
Koenig, Margaret A., Milwaukee, Wis. Fire-escape						

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Köhler, Carl G. O. H. von, assignor to Patentaktiebolaget Svea, Stockholm, Sweden. Electric-contact apparatus	644,251	Feb. 27	3088	727	90	1618
Kohler, Gerold J. S., *et al.* (See Trexler, William F., assignor.)	641,020	Jan. 9	1695	376	90	347
Kohlhepp, John W., Chicago, Ill. Scalding-vat	645,855	Mar. 20	2401	527	90	2260
Kohlruss, Christian F., Augusta, Ga. Hay-press horse-power	643,659	Feb. 20	2006	473	90	1393
Kohn, Alfred A., Montgomery, Ala. Shoe	643,660	Feb. 20	2007	473	90	1393
Kohn, Alfred A., Montgomery, Ala. Shoe	643,416	Feb. 13	1511	354 355	90	1279
Kohout, Alois, and V. Rous, St. Louis, Mo. Combined trunk and wardrobe	645,856	Mar. 20	2402	527 528	90	2260
Kokernot, Alexander B., New Orleans, La. Screw-propeller	640,390	Jan. 2	455	94	90	90
Kolb, John, and J. C. Vogel, West Bay City, Mich. Check-controlled apparatus	640,309	Jan. 2	294	61	90	59
Koller, John. (See Arnsfield and Koller.)						
Kondakov, Wladimir, St. Petersburg, Russia. Nailless horseshoe						
König, Albert, *et al.* (See Bachmann and Vogt, assignors.)						
Königslöw, Johann H. B. von, Cleveland, Ohio. Machine for molding in clay, porcelain, &c	643,417	Feb. 13	1512	355	90	1280
	643,358	Feb. 13	1407	329	90	1261
Konold, Matthew J., Evergreen, Pa. Hose-coupling	644,611	Mar. 6	91	21	90	1773
Konopinski, Valentine, Philadelphia, Pa. Gas-meter	642,043	Jan. 23	3556	814	90	734
Kope, William A., Kansas City, Kans. Gas-engine						
Koppelman, Michael. (See Rogers, James W., assignor.)						
Koppitz, Albert. (See Neeley, George S., assignor.)						
Kordenat, Carl, Reedsburg, Wis. Bicycle-support	644,868	Mar. 6	568	123	90	1808
Korrodi, Heinrich, Berne, Switzerland. Capsule for compressed or liquefied gases	640,207	Jan. 2	89	18	90	20
Korthauer, Herman H., Bensenville, Ill. Attachment for stoves or furnaces	640,778	Jan. 9	1181	270	90	249
Kortright, George W., Sioux City, Iowa. Clamping menber	642,988	Feb. 6	736	169	90	1110
Kosinski, Wladyslaw T., New York, N. Y. Lock-seal for bottles, jars, &c	645,867	Mar. 20	2406	528	90	2260
Koster, Charles H., New York, N. Y. Lantern	645,920	Mar. 13	1899	407	90	2047
Kostlan, Frank, Traer, Iowa. Wrench	641,782	Jan. 23	3092	708	90	644
Kozanski, Wojciech, Lodz, Russia. Trousers-stretcher	642,338	Jan. 30	4180	934	90	805
Kraemer, Wilhelm, Charlottenberg, assignor to E. Goetze & Co., Berlin, Germany. Pastil-press	641,706	Jan. 23	2942	671 672	90	618
Kraft, Charles H., Salt Lake City, Utah. Combined telephone and vending-machine	646,124	Mar. 27	2911	645 646	90	2376
Kragh, Christian W., assignor to Northern Electrical Manufacturing Company, Madison, Wis. Dynamo-electric machine	642,615	Feb. 6	87	21	90	983
Kranz, John J. (See Hanten and Kranz.)	640,920	Jan. 9	1475	330	90	308
Kratofil, Johann, and S. P. Levy, Chicago, Ill. Shoe-cleaning machine	646,290	Mar. 27	3248	724	90	2441
Kratz, W. Harry, Baltimore, Md. Pew	641,871	Jan. 23	3259	740	90	676
Krause, Frank W., Philadelphia, Pa. Grocer's bin						
Kremenezky, Johann, Vienna, Austria-Hungary. Fastening device for heads of electric glow-lamps	645,266	Mar. 13	1309	285	90	2030
Kremer, Gustav, and E. Monhof, New York, N. Y. Harness-controlling mechanism for looms	642,908	Feb. 6	602	138 139	90	1063
Kresen, Albert, F. and A. Leasman, assignors of one-third to J. C. Riebe, Buffalo Lake, Minn. Mechanical movement	645,864	Mar. 13	1484	326	90	2065
Kretzer, Walter, Baker City, Oreg. Potato digger and sacker	643,249	Feb. 13	1222	286	90	1224
Kreuter, Adam, Chicago, Ill. Mangle	643,180	Feb. 13	1116	260	90	1204
Krinner, Emil, Munich, Germany. Car-coupling	643,661	Feb. 20	2009	474	90	1394
Krnka, Charles. (See Roth and Krnka.)	641,872	Jan. 23	3261	740 741	90	676
Krone, Johannes, assignor to F. Krupp, Essen, Germany. Disappearing gun	646,869	Mar. 27	3439	766	90	2483
Krone, Johannes, assignor to F. Krupp, Essen, Germany. Apparatus for mechanically loading ordnance						
Kronheimer, Oldenbusch & Co. (See Oldenbusch, Ernest, assignor.)						
Kronheimer, Oldenbusch & Company. (See Oldenbusch, Ernest, assignor.)						
Kronkosky, Albert. (See Gebhardt, William, assignor.)						
Krueger, Theodore F., New York, N. Y. Fire-escape ladder	646,291	Mar. 27	3249	724	90	2441
Krum, Charles L. (See Birdsall and Krum.)						
Krummel, Louis C., assignor to himself and F. Rudolphi, Chicago, Ill. Wire-coiling machine	642,339	Jan. 30	4131	935	90	865
Krupp, Firm of Fried. (See Schmitz, Albert, assignor.)						
Krupp, Fried. (See Krone, Johannes, assignor.)						
Krupp, Fried. (See Resow, Adolf, assignor.)						
Krupp, Fried. (See Schoeller, Gustav A., assignor.)						
Kruschke, Herman O., Auroraville, Wis. Scythe-wrench	641,122	Jan. 9	1870	416	90	383
Kruse, Charles A., Philadelphia, Pa. Car-brake	640,921	Jan. 9	1477	330	90	308
Kryszat, Albert, assignor to A. Kryszat & Co., Berlin, Germany. Automatic machine for twisting and knotting threads	641,707	Jan. 23	2943	672	90	619
Kryszat & Co., Albert. (See Kryszat, Albert, assignor.)	645,858	Mar. 20	2407	528	90	2261
Kuck, August, assignor of one-half to W. F. Scholze, New York, N. Y. Game device	645,859	Mar. 20	2408	528	90	2261
Kuck, August, assignor of one-half to W. F. Scholze, New York, N. Y. Game device	645,860	Mar. 20	2409	529	90	2261
Kuck, August, assignor of one-half to W. F. Scholze, New York, N. Y. Game device	641,708	Jan. 23	2947	673	90	619
Kuenstler, Richard, Philadelphia, Pa. Banjo	641,865	Jan. 23	3251	738 739	90	674
Kuersten, Hugo R., Chicago, Ill., assignor to Jamestown Lounge Company, Jamestown, N. Y. Sofa-bed						
Kuett, George F. (See Fischer and Kuett.)						
Kuett, George F. (See Slingland and Kuett.)	643,902	Feb. 20	2450	576 577	90	1477
Kuett, George F., Paterson, N. J., assignor to American Automatic Loom Company, of New Jersey. Needle-loom						
Kuhlewind, Cornelius, Knoxville, assignor to Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Hydraulic valve	644,674	Mar. 6	216	47	90	1796
Kuhn, Harry A., Glen Mills, Pa. Scaffold-jack	643,845	Feb. 20	2347	552	90	1457
Kuhn, Robert, Detroit, Mich. Electrical soldering-iron	641,021	Jan. 9	1696	376	90	347
Kuipers, Johannes. (See Wierdsma and Kuipers.)						
Kukacka, John F., Montgomery, Minn. Cutter-bar	641,123	Jan. 9	1870	416	90	383
Kullman, Jacob, Benicia, Cal. Dust-preventer attachment for rotary pulverizers	642,747	Feb. 6	824	78	90	1030
Kuma Company. (See Wierdsma and Kuipers, assignors.)						
Kunkelmann, Henry, *et al.* (See Loubery, Cesar R., assignor.)						
Kunkle, Adam. (See Morris and Kunkle.)						
Küpper, Lambert. (See Küpper, Theodor and L.)	640,473	Jan. 2	603	129	90	119
Küpper, Theodor and L., Aix-la-Chapelle, Germany. Wall, wall-plate, or slab	640,922	Jan. 9	1479	330 331 332	90	308
Kuster, Charles A., assignor to Wellington Manufacturing Company, New York, N. Y. Mechanical musical instrument	642,564	Jan. 30	4539	1027	90	945
Kuster, Charles A., assignor to Wellington Manufacturing Company, New York, N. Y. Music-sheet perforator						

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Kuykendall, James W. (See Southard, Abraham M., assignor.)						
Kvassay, Stefan von, Papa-Kettornyulak, Austria-Hungary. Propeller for ships	640,310	Jan. 2	293	61	90	59
L. C. Chase & Company. (See Gilbert and Shepard, assignors.)						
L. Wolff Manufacturing Company. (See Hoelscher and Clifford, assignors.)						
L. Wolff Manufacturing Company. (See Sievert, Christian A., assignor.)						
La Dow, Jesse E., Jackson, Mich. Stretcher for cushion-falls	643,297	Feb. 13	1302	307	90	1240
La Fleur, Charles E., assignor to G. A. and A. L. Horner, Baltimore, Md. Egg-case filler. (Reissue)	11,802	Jan. 16	2877	655 656	90	596
La Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monuet et Cartier. (See Gassmann, Charles E., assignor.)						
La Société Civile pour l'Exploitation de Brevets d'Invention Concernant l'Industrie de l'Alcool. (See Chantérac and Baume, assignors.)						
La Société Internationale de Meunerie et de Panification, (Système Schweitzer.) (See Schweitzer, Joseph, assignor.)						
La Société Internationale du Gaz D'Eau. Brevets Strache, Société Anonyme. (See Strache, Hugo, assignor.)	644,139	Feb. 27	2875	679 681	90	1578
Laass, John J., Syracuse, N. Y. Wheel-hub						
Labare, Henry N. (See Ames and Labare.)						
Labare, Henry N. (See Howe and Labare.)	640,474	Jan. 2	004	129 180	90	119
Lacey, Fred, Valleyfield, Canada. Spool-lifter for yarn-spooling machines						
Lachenmyer, George F. (See Weller and Lachenmyer.)	643,509	Feb. 13	1695	398	90	1317
Lackey, William S., Haddonfield, N. J. Loom-harness	646,075	Mar. 27	2817	624	90	2358
Lacombe, Alice V., Longmont, Colo. Noodle-cutter	643,142	Feb. 13	1094	240	90	1188
Lacy, Josephine, Freeport, Pa. Window-curtain pole	643,250	Feb. 13	1223	287	90	1225
Ladd, Allston C., Allegheny, Pa. Tobacco-pipe						
Lafferty, Mary C. (See Clay, Henry, assignor.)	646,182	Mar. 27	3020	008	90	2399
Laidlaw, John, and J. W. Macfarlane, Glasgow, Scotland. Centrifugal creamer						
Laing, John H., assignor of two-thirds to P. C. Hamilton and A. Dickey, Pittsburg, Pa. Fireproof construction	642,136	Jan. 30	3741	855	90	786
Laird, Robert H., Pittsburg, Pa. Downdraft electrical furnace	641,976	Jan. 23	3426	781	90	712
Lake, Julius J. (See Deverell and Lake.)						
Lam, Isidor, Vienna, Austria-Hungary. Printing-machine	640,923	Jan. 9	1485	332 333 334	90	309
Lambert, Frank, New York, N. Y. Type-writer	640,208	Jan. 2	89	18 19 20	90	20
Lambert, John W., assignor to Buckeye Manufacturing Company, Anderson, Ind. Gas-engine cylinder	640,667	Jan. 2	958	215	90	186
Lambert, John W., assignor to Buckeye Manufacturing Company, Anderson, Ind. Gas-engine cylinder	640,668	Jan. 2	959	216	90	186
Lambert, John W., assignor to Buckeye Manufacturing Company, Anderson, Ind. Apparatus for cooling engine-cylinders	643,065	Feb. 6	873	204	90	1135
Lambert, Maxime G., Kateville, Canada. Combination-tool	643,825	Feb. 20	2226	540	90	1447
Lambert, Peter, Fall River, Mass. Loom attachment	644,984	Mar. 6	773	167	90	1910
Lambert, Thomas B., assignor of three-fifths to B. F. Philpot and J. Powell, Chicago, Ill. Reproducing phonograph-records	645,920	Mar. 20	2516	556	90	2282
Lambert, Thomas B., assignor to B. F. Philpot, H. J. Cosgrove, O. C. Wells, R. Pringle, and A. D. Philpot, Chicago, Ill. Phonograph	643,418	Feb. 13	1515	355 356	90	1280
Lambert, Thomas B., assignor to O. C. Wells, R. Pringle, A. D. and B. F. Philpot, and H. J. Cosgrove, Chicago, Ill. Phonograph	643,419	Feb. 13	1519	356 357	90	1281
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Electromotive-force regulation	644,864	Mar. 6	570	123	90	1866
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. System of electrical distribution	644,865	Mar. 6	572	123	90	1869
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Dynamo-electric machine	646,092	Mar. 27	2849	632	90	2365
Lamont, George T. (See Tisdale and Lamont.)	641,977	Jan. 23	3438	782	90	712
Lampert, Jacob, Hill City, S. D. Ore-concentrator						
Lampitt, Charles, London, A. J. Carlile, Burton-on-Trent, and C. Simkin, London, England. Apparatus for supporting casks or barrels	643,298	Feb. 13	1303	308	90	1240
Lamson Store Equipment Company. (See Giles, Edwin L., assignor.)	642,464	Jan. 30	4373	992	90	913
Lanciaux, George A., Indian Orchard, and O. F. Smith, Springfield, Mass. Baby-carriage	641,454	Jan. 16	2503	571 572	90	521
Landa, Karl, Bayonne, N. J. Music-box	643,510	Feb. 13	1696	398	90	1317
Landers, William G., Bostwick, Ga. Plow-clevis	645,297	Mar. 13	1365	297 298	90	2041
Landfear, William R., assignor of one-half to B. Adriance, New York, N. Y. Stamp-affixing machine	642,552	Jan. 30	4516	1022 1023	90	940
Landin, Henry, Alger, Ohio. Post-hole borer	640,669	Jan. 9	960	216 217 218	90	186
Landis, Abraham B., Waynesborough, Pa. Grinding-machine	644,929	Mar. 6	678	148	90	1891
Landis, Abraham B., Waynesborough, Pa. Foot-stock for grinding-machines	641,022	Jan. 9	1698	376	90	347
Landis, Samuel K., Mount Joy, Pa. Chaff assembler and conveyer	645,173	Mar. 13	1150	247 248 249	90	1999
Landry, Oliver, Troy, N. Y. Folding-machine	642,980	Feb. 6	737	169	90	1110
Lane, Charles H., Cleveland, Ohio. Separator	644,180	Feb. 27	2958	698 699	90	1593
Lane, Charles H., Cleveland, Ohio. Apparatus for separating malleable metal from rock, &c	644,181	Feb. 27	2961	699 700	90	1594
Lane, Charles H., Cleveland, Ohio. Apparatus for separating metal from rock	645,992	Mar. 27	2907	577	90	2317
Lane, Charles H., Cleveland, Ohio. Pneumatic separator	640,670	Jan. 9	967	218	90	188
Lane, Cornelius J., Holly, Mich. Die for coiling wire	641,302	Jan. 16	2228	504	90	467
Lane, Frederick, Brookline, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Illuminated gage	643,876	Feb. 20	2401	564	90	1468
Lane, Frederick, Brookline, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Pressure-gage	642,237	Jan. 30	3940	897 898	90	826
Lane, Henry M., Norwood, Ohio. Steam pumping-engine	644,328	Feb. 27	3203	700	90	1651
Lane, Henry M., Norwood, Ohio. Engine-valve	643,908	Feb. 20	2456	577 578	90	1478
Lane, John, Holly, Mich. Fence-machine	645,174	Mar. 13	1153	249	90	1999
Lane, John W., Guthrie, Okla. Ter. Thread-cutter						

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Lang, William, and W. Zander, Chicago, Ill. Paper-folding machine	641,303	Jan. 16	2229	595	90	468
Langdon-Davies Electric Motor Company. (See Langdon-Davies, Walter, assignor.)						
Langdon-Davies, Walter, assignor to Langdon-Davies Electric Motor Company, Limited, London, England. Alternating-current motor	643,066	Feb. 6	874	204 205	90	1135
Langer, Gotthold, assignor to J. C. Miller, W. Schwarz, F. J. Dauscha, and A. Sendlein, St. Louis, Mo. Molding and compressing machine	642,465	Jan. 30	4374	992 993	90	914
Langer, Henry, assignor of one-half to E. F. and O. Timme, New York, N. Y. Figured double-plush fabric	641,978	Jan. 23	3441	783	90	718
Langheinrich, Fritz. (See Mayke and Langheinrich.)						
Langley, Thomas E. (See Cox and Langley.)						
Langton, John, New York, N. Y. Protecting electrical connections	646,149	Mar. 27	2965	655	90	2387
Langton, John, New York, N. Y. Electrical connector	646,150	Mar. 27	2966	655	90	2387
Lanphear, Lewis C., Boston, Mass. Feed-water heater	640,475	Jan. 2	607	130	90	119
Lantz, Carl C., Cleveland, Ohio. Clasp	644,612	Mar. 6	92	22	90	1773
Lanwer, Wilhelm, and E. Rüping, Bremerhaven, Germany. Coating foods	643,359	Feb. 13	1409	.....	90	1261
Lanyon, Josiah. (See Lanyon, William and J.)						
Lanyon, William and J., Pittsburg, Kans. Ladling device	644,712	Mar. 6	277	61	90	1808
Lanyon, William and J., Pittsburg, Kans. Casting mechanism	644,713	Mar. 6	280	62	90	1809
Lanzendoerfer, George, assignor of one-third to J. C. Spillane, Boston, Mass. Protective lining for vessels	641,804	Jan. 16	2232	505	90	408
Laperle, Philippe, and O. P. Boulard, Montreal, Canada. Acetylene-gas generator	644,772	Mar. 6	385	85, 86	90	1891
Larange, Pierre. (See Tousignant and Larange.)						
Larimer, Fannie C., Los Angeles, Cal. Clasp for flexible fabrics	642,236	Jan. 30	3939	897	90	826
Larner, Thomas, *et al.* (See Hasson, George E., assignor.)						
Larsen, Frederick, *et al.* (See Bach, Robert, assignor.)						
Larson, Henry C. (See Mitchell and Larson.)						
Laski, Albert de, assignor of one-third to E. N. Dickerson, New York, N. Y. Instrument for recording course and speed of vessels	641,396	Jan. 16	2384	545 546	90	408
Lasswell, John M., San Miguel, Cal. Self-leveling grain-cleaner	645,228	Mar. 13	1246	270	90	2017
Latourell, Joseph, and E. A. Fischer, Sterling Centre, Minn. Music-stand	645,527	Mar. 13	1778	389	90	2123
Latrobe Steel Company. (See Griffith, Jacob K., assignor.)						
Latta, Emmit G., Friendship, N. Y. Velocipede crank-shaft	640,573	Jan. 2	780	172	90	152
Laubscher, Alexander, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Tucking-guide for sewing-machines	645,321	Mar. 13	1400	308	90	2048
Laue, Charles, Alma, Wis. Machine for sharpening sickles	640,391	Jan. 2	457	95	90	91
Lauer, John, Detroit, Mich. Wire-coiling machine	643,904	Feb. 20	2458	578 579	90	1479
Laughlin, Alex, Sewickley, Pa. Heating-furnace	643,143	Feb. 13	1695	211	90	1188
Laureyns, Gustav G., assignor of two-thirds to C. F. Simes and H. C. Tum Suden, New York, N. Y. Door check and closer	646,008	Mar. 27	2683	595 596	90	2332
Laux, Mathias, and A. L. Vaughan, Little Rock, Ark. Water-closet system	641,520	Jan. 16	2634	600 601	90	547
Laval, Constant, Pittsburg, Pa. Machine for silvering glass in manufacturing mirrors	644,360	Feb. 27	3217	770	90	1661
Law, Charles, Pittston, Pa. Automatic fire-alarm	645,599	Mar. 20	1926	425	90	2165
Law, John, Mankato, Minn. Hay-sling	642,466	Jan. 30	4378	993	90	915
Lawfer, Albert H., Duncansville, Pa. Coal-miner's safety check-box	642,909	Feb. 6	604	139	90	1084
Lawless, Philip C., London, England. Mold-block for linotype-machines	644,558	Feb. 27	3670	853 854	90	1728
Lawlor, Thomas F., *et al.* (See Dowling, Patrick J., assignor.)	645,816	Mar. 20	2332	510	90	2345
Lawrence, George H., Middletown, N. Y. Dumping-car						
Lawrence, James C., Manly, assignor of two-thirds to A. Ogden and T. W. Miller, Sydney, New South Wales. Tobacco-cutting machine	641,305	Jan. 16	2233	506	90	469
Lawrence, Minnie W., Winchester, Mass. Apparel-corset	644,930	Mar. 6	680	148	90	1891
Lawrence, Peter, assignor of one-half to R. W. Haskins, Ouray, Colo. Gun-sight	644,432	Feb. 27	3434	797	90	1685
Lawrence, Stephen S. (See Kiefer and Lawrence.)						
Lawrence, Ulysses G., Glenlock, Kans. Washing-machine	641,455	Jan. 16	2505	572	90	521
Lawrence, William H., and R. Kennedy, Glasgow, Scotland. Milking apparatus	642,044	Jan. 23	3558	814 815	90	734
Lawrence, William H., and R. Kennedy, Glasgow, Scotland. Milking apparatus	646,183	Mar. 27	3080	669	90	2399
Lawrie, Charles W., Erie, Pa. Steam-engine governor	642,340	Jan. 30	4141	936	90	868
Lawson, John O., Brockton, Mass. Pipe-wrench	642,797	Feb. 6	895	96	90	1042
Lawton, Albert L. and A. W., New York, N. Y. Method of and apparatus for preserving by gases	640,779	Jan. 9	1185	270	90	250
Lawton, Arthur W. (See Lawton, Albert L. and A. W.)	641,306	Jan. 16	2235	506	90	469
Lawton, Arthur W., New York, N. Y. Electric water-heater						
Lawton, Mary D. T., *et al.* (See Lawton, Walter V., assignor.)						
Lawton, Walter V., assignor to M. D. T. Lawton and M. T. A. Bowen, Providence, R. I. Hook	644,985	Mar. 6	774	168	90	1911
Laycock, Josephus A., Litchfield, Ill. Mining apparatus	645,861	Mar. 20	2411	529	90	2261
Le Lande, Lester R., Los Angeles, Cal. Acetylene-gas generator	643,746	Feb. 20	2167	509	90	1423
Le Mat, Maurice, Baltimore, Md., assignor to Electric Gas Light Company of Baltimore City, of Maryland. Acetylene-gas-generating apparatus	642,617	Feb. 6	90	21, 22	90	984
Le Rond, Louis J. J. B., Paris, France. Rotary engine	646,151	Mar. 27	2967	656	90	2387
Lea, James P. (See Thornton and Lea.)						
Leach, Oliver W., Fall River, Mass. Fire-escape	640,780	Jan. 9	1189	271	90	250
Leach, William W., Jewell, Ohio. Mechanism for reversing engines	641,023	Jan. 9	1700	377	90	348
Leary John K., Chicago, Ill. Attaching pneumatic tires to wheels	642,823	Feb. 6	445	107	90	1052
Leas, Theodore. (See Stevenson, George W., assignor.)						
Lease, William H., Cincinnati, Ohio. Button	640,476	Jan. 2	608	130	90	120
Leask, George, and R. G. Drinnan, Nanaimo, Canada. Traction-pulley	642,137	Jan. 30	3742	855 856	90	787
Leasman, Andy. (See Kresen and Leasman.)						
Leasman, Frank. (See Kresen and Leasman.)						
Leavell, Minnie. (See Heatly and Leavell.)						
Leavitt, Fred C., Grantham, N. H. Sash holder and lock	644,088	Feb. 27	2778	659	90	1558
Lebloda, Georg F., Boulogne, France. Apparatus for impregnating wood	644,252	Feb. 27	3089	727	90	1618
Leblanc, Maurice. (See Hutin and Leblanc.)						
Leche, John. (See Galennie, Alphonse F., assignor.)						
Lechner, Jefferson L., Allegheny, Pa. False work for centering concrete or other floors	644,986	Mar. 6	775	168	90	1911
Lechner, Sanford F., Lindentree, Ohio. Device for moving mining-machines	645,687	Mar. 20	2088	459	90	2198
Leckband, Theodor H. J., Adair, Iowa. Automatic pressure-regulator and cut-off for gas	640,308	Jan. 2	287	59	90	57
Leckband, Theodor H. J., Adair, Iowa. Gas-meter	645,365	Mar. 13	1485	326 327	90	2066
Lederer, Leonhard, Munich, Germany. Preparing haloid derivatives of acetone	643,144	Feb. 13	1096	.....	90	1188
Lederer, Sigmund L., Providence, R. I. Cigar-tip cutter	641,024	Jan. 9	1701	377	90	348

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Ledwinka, Joseph. (See Newman and Ledwinka.)						
Lee, C. E., *et al.* (See Howle, John W., assignor.)						
Lee, Charles, assignor of one-half to W. Scripps, Astoria, Ill. Stapling-machine	640,781	Jan. 9	1190	271	90	251
Lee, Charles F., assignor of one-half to W. Scripps, Astoria, Ill. Gate	641,521	Jan. 16	2037	601	90	548
Lee, Charles O., South Tacoma, Wash. Combined distiller and cooker	642,616	Feb. 6	89	21	90	983
Lee, Edward E., Louisville, Ky. Bicycle	640,574	Jan. 2	783	172	90	152
Lee, F. T., *et al.* (See Howle, John W., assignor.)						
Lee, Frederick M., Walton-upon-Thames, and E. R. Turner, London, England. Kinetographic camera	645,477	Mar. 13	1689	369	90	2106
Lee, George S., Hawthorne, assignor to F. W. Wentworth, Paterson, N. J. Grate-bar	641,124	Jan. 9	1872	416	90	393
Lee, George S., Hawthorne, assignor to F. W. Wentworth, Paterson, N. J. Furnace	641,873	Jan. 23	2392	741	90	676
Lee, George W. (See Brotherton and Lee.)						
Lee, Harry, assignor of thirteen-sixteenths to R. P. and W. O'Connor, Chicago, Ill., and E. W. Beach, Pittsburg, Pa. Molding or trough for electric wires	640,575	Jan. 2	784	856	90	153
	642,198	Jan. 30	3743	857	90	787
Lee, Henry K., Hartford, Conn. Machine for boring metal						
Lee, John, Jr. (See Davis, Warren F., assignor.)						
Lee, Ulysses G. (See Rutledge and Lee.)						
Lee, William T. J., *et al.* (See Dixon, Richard B., assignor.)	641,625	Jan. 9	1702	377	90	348
Leech, Albert, and G. J. Couchois, New York, N. Y. Self-playing whistle	641,979	Jan. 23	3442	783	90	713
Lees, Joseph, Summit Hill, Pa. Surgical appliance						
Leese, Thaddeus S. (See Dallas, Leese, and Granger.)	645,963	Mar. 27	2909	577	90	2317
Leftwich, Harry P., and C. H. Reinken, Indianapolis, Ind. Acetylene-gas generator	641,709	Jan. 23	2948	673	90	619
Legate, William H., Hartford, Conn. Plating aluminium	641,522	Jan. 16	2039	601	90	548
Leger, Edward, Chicago, Ill. Price-card holder						
Lehmann, Frederic. (See Gray and Lehmann.)						
Lehmann, Frederick A. (See Frost, Ellis F., assignor.)						
Lehmann, Heinrich. (See Bremer, August, assignor.)						
Lehmann, Louis B., Dresden-Lobtau, Germany. Apparatus for making chocolate	644,253	Feb. 27	3001	727	90	1618
Leicht, Charles A. (See Sargent, Edward, assignor.)						
	640,782	Jan. 9	1192	271	90	251
				272		
Lein, John P., New York, N. Y. Folding bed	645,106	Mar. 13	1017	218	90	1073
Leisifer, Charles, Allegheny, Pa. Mitering-machine						
Leitch, Meredith. (See Serrell and Leitch.)						
Leitch, Meredith, Boston, Mass., assignor to Warren Webster & Company, Camden, N. J. Feed-water heater and filter	642,910	Feb. 6	607	139	90	1084
	641,125	Jan. 9	1875	417	90	393
Leitner, Henry, London, England. Electric motor	645,478	Mar. 13	1699	369	90	2106
Leitner, Henry, assignor to Electrical Undertakings, Limited, London, England. Accumulator				370		
Leland, Davis M. (See Cox, Albert W., assignor.)	645,528	Mar. 13	1779	390	90	2123
Lemichel, Jules, Paris, France. Siphon-elevator	641,710	Jan. 23	2951	673	90	620
Lemley, David, New Orleans, La. Camp-stool	645,668	Mar. 20	2054	451	90	2191
Lemoon, Axel R., Chicago, Ill. Child's seat for bicycles	640,671	Jan. 2	968	218	90	188
Lende, Torkel J., Stavanger, Norway. Speed-governor for motors	645,207	Mar. 13	1211	264	90	2011
Lengsholz, Christian. (See Lengsholz, Josef and C.)						
Lengsholz, Josef and C., Porz, Germany. Kiln	644,613	Mar. 6	93	22	90	1773
Lenker, Ira. (See Wilken, Charles H., assignor.)						
Lennard-Foote, William, New York, N. Y. Tire for bicycle or other vehicle wheels	644,140	Feb. 27	2877	681	90	1579
Lent, George W. (See Lent, Nathaniel M. and G. W.)	642,341	Jan. 30	4143	936	90	868
Lent, Nathaniel M. and G. W., New York, N. Y. Overflow-alarm	641,456	Jan. 16	2506	572	90	522
Leonard, Arthur G., and L. C. Kenton, De Kalb, Ill. Last				573		
Leonard, Caswell L., Voedersburg, Ind. Calendar	646,227	Mar. 27	3130	690	90	2420
Leonard, Edward G., Sheffield, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Linotyping-machine						
Leonard, Gustav P. (See Bigger and Leonard.)						
Leonard, O. H., *et al.* (See Wilson, James N., assignor.)	645,964	Mar. 27	2610	579	90	2318
Leonard, William B., Wallace, Ind. Adjustable machine-cover						
Leonard, William F. (See Bartholomew and Leonard.)						
Lepper, John G., and W. F. Dial, Bridgeport, Conn. Vapor or gas engine	644,295	Feb. 27	3182	745	90	1636
				746		
Lerol, Knud K., Jr., Newburg, Minn. Anchor and tension device for check-row corn-planters	644,523	Feb. 27	3594	837	90	1715
				838		
Leresche, Jules E., St. Julien-du-Sault, France. Razor	640,209	Jan. 2	108	20	90	92
Leroy, Roxie. (See Bentivegna and Leroy.)						
Lesher, Lewis, assignor of one-half to C. E. Christ, Tamaqua, Pa. Combined chair and rail-brace	641,523	Jan. 16	2039	601	90	548
Lesher, Lewis, assignor of one-half to C. E. Christ, Tamaqua, Pa. Combined chair and rail-brace	641,524	Jan. 16	2040	602	90	548
Leshure, Willard P., Springfield, Mass. Machine for grinding car or engine wheels	646,068	Mar. 27	2950	633	90	2365
Létourneau, Janvier, St. Hyacinthe, Canada. Ribbon-measuring machine	641,307	Jan. 16	2236	506	90	469
				507		
Letson, James M. K., and F. W. Burpee, Vancouver, Canada. Fish-cutting machine	645,862	Mar. 20	2413	529	90	2262
				530		
Leupold, Ernst. (See Andresen and Leupold.)						
Leuty, Annie D. (See Lutwyche, Edgar J., assignor.)	646,228	Mar. 27	3133	691	90	2420
Levan, Samuel, Saginaw, Mich. Miter-box	643,799	Feb. 20	2251	530	90	1439
Levanseler, Frank E., Sturgis, assignor to H. B. Levanseler, St. Joseph County, Mich. Belt-holder						
Levanseler, Helen B. (See Levanseler, Frank E., assignor.)	645,564	Mar. 20	1841	406	90	2148
Leve, Robert E., New York, N. Y. Washboard	644,296	Feb. 27	3185	746	90	1636
Leveck, Frank, Pawtucket, R. I. Combined cigar branding and trimming machine	642,342	Jan. 30	4145	936	90	869
Levedahl, Axel, assignor to Aurora Automatic Machinery Company, Aurora, Ill. Roller-bearing				937		
Levedahl, Axel, assignor to Aurora Automatic Machinery Company, Aurora, Ill. Anti-friction-bearing	642,343	Jan. 30	4148	937	90	869
Lever Engine Company. (See McKee, James W., assignor.)	644,773	Mar. 6	399	86	90	1834
Levi, Henry, Chicago, Ill. Bait-box						
Levy, Samuel P. (See Kratofil and Levy.)						
Levy, William M., St. Louis, Mo. Single-trigger mechanism	645,107	Mar. 13	1018	218	90	1974
				219		
Lewis, Arthur W., Prairie Station, Miss. Nut-lock	641,783	Jan. 23	3063	703	90	644
Lewis, David D., Loraln, Ohio. Valve mechanism	644,208	Feb. 27	3007	712	90	1603
Lewis, Edwin C. (See Fischer and Lewis.)						
Lewis, George W., Philadelphia, Pa. Gas-engine ignition device	640,392	Jan. 2	458	95	90	91
Lewis, George W., Philadelphia, Pa. Gas-engine ignition device	640,393	Jan. 2	468	97	90	92

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lewis, George W., Philadelphia, Pa., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Gas-engine	640,393	Jan. 2	461	96	90	91
Lewis, George W., Philadelphia, Pa., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Gas-engine	640,394	Jan. 2	464	96,97	90	92
Lewis, George W., Chicago, Ill., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Gas-engine	640,672	Jan. 2	970	219	90	188
				220		
Lewis, George W., Chicago, Ill., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Gas-engine	640,673	Jan. 2	974	220	90	189
				221		
Lewis, George W., Chicago, Ill., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Explosive-engine	640,674	Jan. 2	979	222	90	189
				223		
Lewis, George W., Chicago, Ill., assignor to J. Thompson & Sons Manufacturing Company, Beloit, Wis. Explosive-engine	640,675	Jan. 2	982	222	90	190
				223		
Lewis, Harry S. (See Freret and Lewis.)						
Lewis, James T. A., *et al.* (See Field, Marcellus S., assignor.)						
Lewis, Jared E., Philadelphia, Pa. Apparatus for purifying sewers	645,751	Mar. 20	2222	482	90	2224
Lewis, John F., Oxford, Ind. Attachment for pneumatic straw-stackers	643,383	Feb. 13	1448	338	90	1268
Lewis, John F., Scranton, Pa. Lubricator	646,076	Mar. 27	2818	625	90	2358
Lewis & Pointon's Panification. (See Pointon, Charles E. and J. E., assignors.)						
Lewis, Rowland E., Weatherford, Tex. Refrigerator	640,210	Jan. 2	105	21	90	92
Lewis, Samuel W., New York, N. Y. Waste apparatus for washbasins, baths, &c	641,126	Jan. 9	1876	417	90	393
Lewis, Samuel W., New York, N. Y., assignor to G. E. Gilchrist, Melrose, Mass. Receptacle for water-closets, urinals, &c	643,604	Feb. 13	1860	439	90	1350
	644,559	Feb. 27	3074	854	90	1729
Lewis, Vincent W., Harriman, Tenn. Coupling-fastener for door-knobs, &c						
Lewis, Wilfred. (See Sellers and Lewis.)						
Lewis, William J., Birmingham, England. Slate mantelpiece	641,525	Jan. 16	2042	602	90	549
Lewthwaite, Joseph, Eastbourne, assignor of one-half to A. E. Williams, London, England. Binding books	641,211	Jan. 9	2061	462	90	419
				249		
Libbe, John H. W., Toledo, Ohio. Excavating-machine	645,175	Mar. 13	1154	250	90	1999
Libbey, Henry N. (See Emery, Victor J., assignor.)						
Libby, Alfred A., assignor of one-half to B. F. Allen, Portland, Me. Window-pulley	644,084	Feb. 27	2779	659	90	1558
Libby, Edwin A., Keene, N. H. Attachment for invalid-bedsteads	645,421	Mar. 13	1593	348	90	2087
Liberty Bell Company. (See Rockwell, Edward D., assignor.)						
Library Bureau. (See Blaisdell, Frank C., assignor.)						
Lichetti, James, Philadelphia, Pa. Reciprocating propeller	643,966	Feb. 20	2568	605	90	1503
Liebau, Gustav, Maurer, N. J. Fireproof floor and ceiling	642,700	Feb. 6	241	60	90	1013
Liedgens, Friedrich, Vohwinkel, Germany. Hinge	641,397	Jan. 16	2387	546	90	498
Light, Elven. (See Light and Bussert.)						
Light, George M., Pomeroy, Wash. Land-scraper	644,614	Mar. 6	95	22	90	1773
Light, Melvin and E., and I. C. Bussert, assignors of one-fourth to H. E. Strickler, Sheldon, Ill. Sheaf-shocking mechanism for grain-binders	641,127	Jan. 9	1877	418	90	394
				419		
Light, William H., Lebanon, Pa. Bench-vise	641,457	Jan. 16	2508	573	90	522
Lighthouse, Charles F. (See Maxfield, Leverett L. and W., assignors.)						
Lilienberg, Nils H. O., New York, N. Y. Apparatus for casting hollow ingots	644,018	Feb. 20	2071	631	90	1521
				632		
Lilienberg, Nils H. O., New York, N. Y. Apparatus for casting hollow ingots	644,019	Feb. 20	2072	632	90	1522
Lincke, Felix. (See Gutermuth, Max F., assignor.)						
Lincks, George, Jersey City, N. J. Jewelry	645,108	Mar. 13	1024	219	90	1975
Lind, Endre M. (See Thuestad, Morthen J., assignor.)						
Linde, Fritz, Dortmund, assignor to Kathreiner's Malzkaffee-Fabriken, Gesellschaft mit Beschränkter Haftung, Munich, Germany. Roasting malt with coffee	645,535	Mar. 13	1793	.....	90	2125
Lindgren, Alexus C., Moline, Ill., assignor to Moline Plow Company, of Illinois. Seeding-machine	645,817	Mar. 20	2333	510	90	2245
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Disk harrow	645,818	Mar. 20	2336	510	90	2245
				511		
Lindgren, Frank W. (See Faust and Lindgren.)						
Lindley, Havard, *et al.* (See Warner, Clarence D., assignor.)						
Lindquist, Alexis, De Land, Fla. Gate	645,508	Mar. 13	1741	382	90	2115
Lindsey, Robert F., Greenville, assignor of one-half to J. W. Griffin, Lenderman, S. C. Faucet	641,308	Jan. 16	2238	507	90	470
Linebarger, Charles A. (See Linebarger, Oliver and C. A.)						
Linebarger, Oliver and C. A., Council Bluffs, Iowa. Washing-machine	641,711	Jan. 23	2952	673	90	620
Linick, Adolph, Chicago, Ill. Coin-controlled electric battery	641,309	Jan. 16	2240	507	90	470
				508		
Linière, Georges. (See Bonnet, Panfique, and Linière.)						
Link Belt Machinery Company. (See Davis, Charles E., assignor.)						
Link Belt Machinery Company. (See Schreiber, Charles C., assignor.)						
Linsley, Edward B., *et al.* (See Green, John D., assignor.)						
Lippincott, James M., Oakland, Ill. Shelving	641,212	Jan. 9	2062	462	90	419
Lipson, Samuel, assignor of two-thirds to J. and H. Rosenberg, Boston, Mass. Machine for cementing together parts of waterproof garments	642,344	Jan. 30	4151	938	90	869
Lispenard, George, assignor, by mesne assignments, to Nordlinger-Charlton Fireworks Company, New York, N. Y. Fire-cracker body	645,688	Mar. 20	2089	459	90	2198
List, Adolph, assignor of one-half to W. H. Coerver, Cape Girardeau, Mo. Attachment for pipes	644,524	Feb. 27	3595	898	90	1715
				899		
Lister, John L., St. Louis, Mo. Stamp-canceling and postmarking machine	644,525	Feb. 27	3596	899	90	1715
Lister, Joseph, Jr., Chicago, Ill. Pneumatic pump for bicycles	640,676	Jan. 2	988	228	90	191
Little, Robert B. (See Fillip and Little.)						
Littlefield, Charles A., Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Warp stop-motion for looms	643,299	Feb. 13	1304	308	90	1240
Littlefield, Charles A., Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Warp stop-motion for looms	643,300	Feb. 13	1306	308	90	1241
Littlewood, Walter, Liverpool, assignor to G. Fisher, Leeds, England. Apparatus for producing literature for use by the blind	642,139	Jan. 30	3749	857	90	788
Litzenberger, George A., Sunbeam, Ill. Land-wheel attachment for sulky-plows	645,819	Mar. 20	2338	511	90	2246
Lively, Samuel F., Alderson, W. Va. Telegraph-sounder	644,714	Mar. 6	281	62	90	1809
Livermore, Frederick W., New York, assignor of one-half to A. D. Davis, Yonkers, N. Y. Photographic camera	640,677	Jan. 2	990	224	90	191
Liversidge, Jarratt, London, England. Wheel for road-vehicles	646,028	Mar. 27	2735	607	90	2342
Livingstone, William, assignor to R. Murray, trustee, New York, N. Y. Furniture-caster	643,719	Feb. 20	2121	498	90	1415
Llewellyn, David E., Beckley, W. Va. Nut-lock	642,701	Feb. 6	242	60	90	1014
Lloyd, David W., Pittsburg, Pa. Folding table	643,511	Feb. 13	1697	398	90	1317
Lloyd, Walter J., assignor of one-half to W. Priest, Birmingham, England. Driving mechanism for bicycles	642,990	Feb. 6	739	169	90	1110
				170		

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Lobez, Pierre L. (See Goodell and Lobez.)						
Lock, Helen S., *et al.*, executrixes. (See Scott, Walter, assignor.)						
Locke, Albert N., Salem, Mass. Valve-operating mechanism	643,905	Feb. 20	2469	579	90	1479
Locke, Harvey W. (See Carlton and Locke.)						
Locke, Harvey W., assignor to W. F. Carlton, Rochester, N. Y. Swing-back for photographic cameras	643,720	Feb. 20	2124	498	90	1415
Locke, Herbert G., Ukiah, Cal. Machine for running crosscut-saws	642,045	Jan. 23	3359	815	90	735
Locke, William A., Providence, R. I. Collar-button	645,268	Mar. 13	1369	298	90	2042
Lockyer, Norman J., Lenzie, Scotland. Hydraulic air-compressor	645,109	Mar. 13	1025	219	90	1975
Locomotive Smoke Preventer Company. (See Cole, William E., assignor.)						
Lodge, John F., Philadelphia, Pa. Machine for doubling and twisting yarn and for cop-forming	641,398	Jan. 16	2388	547	90	498
Lodge & Shipley Machine Tool Company. (See Lodge, William, assignor.)						
Lodge & Shipley Machine Tool Company. (See Moffatt, William E., assignor.)						
Lodge, William, assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Lathe bed and apron	643,190	Feb. 13	1119	261	90	1205
Lodge, William, assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Speed-changing gear for engine-lathes	643,191	Feb. 13	1120	261	90	1205
Loeloff, George, Hellemans, Tex. Saddletree	645,803	Mar. 20	2417	530	90	2293
Lofstedt, Julius A., Yonkers, N. Y. Perforating-rule	646,184	Mar. 27	3062	669	90	2400
Loffi, Fransis, Cleveland, Ohio. Tool-joint	642,345	Jan. 30	4155	939	90	870
Logan, Benjamin F., Ottumwa, Iowa. Stovepipe-thimble	645,710	Mar. 20	2138	466	90	2207
Logan, Crawford D., assignor of one-half to L. A. Srygley & Co., Coal Hill, Ark. Trunk-lock	641,458	Jan. 16	2509	573	90	522
Lohmeyer, John C., San Francisco, Cal. Soot-dispersing attachment for burners	646,054	Mar. 27	2785	617	90	2352
Lohr, Arthur B. (See Fahrney, John J., assignor.)						
Lohrman, Charles, New York, N. Y. Manifolding-machine	643,907	Feb. 20	2569	605 606	90	1563
Lohrman, Charles, New York, N. Y. Invoice-sheet	645,820	Mar. 20	2239	511	90	2246
Loichot, Louis A., *et al.* (See Kauffman, William J., assignor.)						
Lombard, Nathaniel, Boston, Mass., assignor to Lombard Water Wheel Governor Company, Boston, Mass., and Portland, Me. Safety-valve for water-feed pipes	646,292	Mar. 27	3250	725	90	2442
Lombard Water Wheel Governor Company. (See Lombard, Nathaniel, assignor.)						
Lomnatzsch, Albert, Jersey City, N. J. Rocking-chair	643,192	Feb. 13	1122	261	90	1205
Long, Fred I., Sycamore, Ill. Vault	642,702	Feb. 6	243	60	90	1014
Long, Harry, Greentown, Ind. Electric-lamp support	642,911	Feb. 6	610	140	90	1085
Long, John J., Itta Bena, Miss. Fire-grate	644,615	Mar. 6	97	23	90	1774
Long, Michael, Tyrone, Pa. Soft-tread horseshoe	646,029	Mar. 27	2736	607	90	2342
Long, Obed, Marshalltown, Iowa. Self-locking wagon-jack	645,529	Mar. 13	1781	391	90	2123
Long, Samuel N., Harwich, Mass. Gas-valve	642,618	Feb. 6	92	22	90	984
Longmore, Lewis F., Lowell, assignor to A. Smithson and C. Daggett, Dracut, Mass. Disinfecting device	645,821	Mar. 20	2341	511	90	2247
Longridge, Cecil C., Leigh, and G. T. Holloway, London, England. Smelting auriferous antimony ores	643,301	Feb. 13	1308	308 309	90	1242
Loos, John F. (See Bloom and Loos.)						
Lorain Steel Company. (See Clarkson, Samuel E., assignor.)						
Lorain Steel Company. (See Du Pont, Antoine B., assignor.)						
Lorain Steel Company. (See Eyre, Richard D., assignor.)						
Lorain Steel Company. (See Gairing, Alfred J., assignor.)						
Lorain Steel Company. (See Goughnour, Henry S., assignor.)						
Lorain Steel Company. (See Hamlen, Wells R., assignor.)						
Lorain Steel Company. (See Merrick, Frank A., assignor.)						
Lorain Steel Company. (See Nicewaner, Edwin G., assignor.)						
Lord, John B., Washington, D. C. Portable derrick	643,360	Feb. 13	1410	320	90	1261
Lord, John M., Kansas City, Mo. Spring-horseshoe	643,922	Feb. 20	2010	474	90	1394
Lorenz, Gustav, Darmstadt, assignor to Rothlauf Serum Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Preparing remedial substances from swine-blood	645,110	Mar. 13	1027	------	90	1975
Lorenz, William A. (See Sponsel, Charles W., assignor.)						
Lorenz, William A., Hartford, Conn. Bottle-stopper	643,770	Feb. 20	2267	521	90	1431
Lorenzen, Coby, Oakland, Cal. Protector against steam from kettles	643,877	Feb. 20	2402	565	90	1468
Lorillard, Pierre, Jr., Tuxedo, and E. G. Tremaine, New York, N. Y., assignors to P. Lorillard Company, Jersey City, N. J. Machine for distributing flavoring matter upon tobacco	643,193	Feb. 13	1123	262	90	1206
Los Angeles Automatic Tool Company. (See Smith, Andrew C., assignor.)						
Losee, Frank B., Toledo, Ohio. Folding vapor-bath cabinet	641,712	Jan. 23	2953	674	90	620
Lott, Friedrich, Pearl City, Ill. Rail-joint	641,128	Jan. 9	1891	419	90	386
Lotz, Otto, *et al.* (See Kitto, Thomas J., assignor.)						
Loubery, Cesar R., assignor to himself, E. Francois, and H. Kunkelmann, Paris, France. Means for controlling and indicating the supply of electric energy	643,228	Feb. 13	1182	277 278	90	1217
Loudermilch, Henry C., assignor of one-half to I. A. and J. C. Enders, Enders, Pa. Cutter-bar	640,783	Jan. 9	1194	272	90	252
Lougee, Amanda M. (See Thoma, Andrew, assignor.)						
Lounsberry, Stephen, and W. J. Winn, Milton, Canada. Bicycle	645,267	Mar. 13	1310	285	90	2030
Loutzenhiser, Charles H., assignor to W. Griscom and T. McFeely, Philadelphia, Pa. Gyrating sieve or bolting-machine	646,293	Mar. 27	3252	725 726	90	2442
Love, Robert H., Allen, Tex. Cutting-nippers	646,294	Mar. 27	3254	726	90	2442
Lovett, Thomas J., Chicago, Ill., assignor to Budd Doble Tire Company, New York, N. Y. Cushioned horseshoe	645,905	Mar. 27	2611	579	90	2318
Lovett, Thomas J., Chicago, Ill., assignor to Budd Doble Tire Company, New York, N. Y. Cushioned horseshoe	645,906	Mar. 27	2612	579	90	2318
Low, Abbot A. (See Johnson and Low.)						
Low, Abbot A., New York, N. Y. Telephone	641,663	Jan. 16	2876	655	90	596
Low, Abbot A., assignor to Alden Type Machine Company, New York, N. Y. Type-setting apparatus	641,310	Jan. 16	2243	508	90	470
Lowe, Enoch L., San Francisco, Cal. Clamping device for seat-posts and handle-bar posts for bicycles	640,304	Jan. 2	288	59	90	58
Lowe, Henry F., Wilkes-Barré, Pa. Bicycle-support	640,784	Jan. 9	1195	272	90	252
Lowe, Robert E., New York, N. Y. Garment	642,912	Feb. 6	612	140 141	90	1085
Lowe, William B., Jr., Atlanta, Ga. Signal apparatus for boilers	644,433	Feb. 27	3435	797 798	90	1685
Lowell Machine Shop. (See Hildreth, Charles L., assignor.)						
Löwenthal, Isidore, Baltimore, Md. Apparel-pad	641,596	Jan. 16	2643	602	90	549
Lower, Warren W., Blue Ridge Springs, assignor of one-half to D. I. L. Bachman, Roanoke, Va. High-speed gear for bicycles	641,980	Jan. 23	3445	784	90	714

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Feeding device for presses	645,724	Mar. 20	2164	471	90	2212
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Press for cotton, wool, hair, &c	645,725	Mar. 20	2166	471	90	2212
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Feeding device for presses	645,727	Mar. 20	2172	472	90	2213
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Feeding device for presses	645,730	Mar. 20	2182	474	90	2215
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Press for cotton, wool, hair, &c	645,723	Mar. 20	2162	470	90	2211
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Apparatus for compressing cotton or other fibrous materials	645,728	Mar. 20	2174	472 473	90	2213
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Apparatus for compressing cotton, hay, &c	645,732	Mar. 20	2187	475 476	90	2216
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Bale detaching and staying device for presses	645,734	Mar. 20	2195	477	90	2218
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Bale-holding device	645,735	Mar. 20	2200	478	90	2219
Lowry, George A., Chicago, Ill., and J. A. Butler, Wareham, assignors to Planters Compress Company, Boston, Mass. Feeding device for presses	645,726	Mar. 20	2169	471 472	90	2212
Lowry, George A., and W. M. Holmes, Boston, Mass., assignors to Planters Compress Company, of West Virginia. Combined hopper and feeder for presses	645,729	Mar. 20	2180	473 474	90	2215
Lowry, George A., Chicago, Ill., and W. M. Holmes, Hoosick Falls, N. Y., assignors to Planters Compress Company, Boston, Mass. Feeding device for presses	645,731	Mar. 20	2185	474	90	2216
Lowry, George A., Chicago, Ill., and W. B. P. Mattox, Memphis, Tenn., assignors to Planters Compress Company, Boston, Mass. Head-plate for presses	645,733	Mar. 20	2193	476	90	2217
Lowry, John B., assignor to August Kern Barber Supply Company, St. Louis, Mo. Barber-chair	644,526	Feb. 27	3600	839	90	1716
Lubbock, William L., Rusk, Tex. Nail-puller	643,512	Feb. 13	1698	390	90	1317
Lubin, Siegmund. (See Frawley, John J., assignor.)						
Luby, William A., Kansas City, Mo. Attachment for book-supports	641,784	Jan. 23	3094	703	90	645
Lucas, Henry M. (See Swasey and Lucas.)						
Luce, John E., and F. D. Sears, Minneapolis, Minn. Cable-saw	641,129	Jan. 9	1892	419	90	387
Luciani, Jacques, Paris, France. Projectile	644,361	Feb. 27	3318	770	90	1661
Lucius, Albert, New York, N. Y. Drawbridge	645,689	Mar. 20	2091	459	90	2198
Ludlow, James T., assignor to Vulcan Iron Works, San Francisco, Cal. Rope-tramway system	644,675	Mar. 6	217	48	90	1796
Ludwig, Daniel, Newark, N. J. Horseshoeing-rasp	644,030	Feb. 20	2075	632	90	1522
Ludwig, John H., New York, N. Y. Scale bridge-bar for pianofortes	644,616	Mar. 6	99	23	90	1774
Luhn, August, Barmen, Germany. Detergent compound	645,600	Mar. 20	1927	------	90	2165
Luke, William, San Antonio, Tex. Lawn-trimmer	642,140	Jan. 30	3750	857	90	788
Lukenbill, William T., Gosport, Ind. Acetylene-gas generator	642,619	Feb. 6	93	22	90	984
Lund, Henry, Grafton, N. D. Cylinder-wrench	644,676	Mar. 6	218	48	90	1797
Lundell, Robert, assignor to Johnson-Lundell Electric Company, New York, N. Y. Surface-contact system of electric railways	646,229	Mar. 27	3134	691 692	90	2420
Lunken, Edmund H., Denver, Colo., assignor to Lunkenheimer Company, Cincinnati, Ohio. Lubricator	640,576	Jan. 2	785	173 174	90	153
Lunken, Edmund H., Denver, Colo., assignor to Lunkenheimer Company, Cincinnati, Ohio. Lubricator	645,479	Mar. 13	1692	370	90	2106
Lunken, Edmund H., Denver, Colo., and H. Ritter, Delhi, assignors to Lunkenheimer Company, Cincinnati, Ohio. Balanced valve	640,577	Jan. 2	788	174	90	154
Lunkenheimer Company. (See Lunken, Edmund H., assignor.)						
Lunkenheimer Company. (See Lunken and Ritter, assignors.)						
Lurch, Joseph. (See Colognati, Jacob, assignor.)						
Lutwyche, Edgar J., Bellaire, Ohio, assignor to A. D. Leuty, Detroit, Mich. Convertible chair	643,663	Feb. 20	2011	474	90	1394
Lux, Friedrich. (See Zumkeller, Emil, assignor.)						
Luxfer Prism Patents Company. (See Belcher, Henry F., assignor.)						
Lyda, Arthur W., and W. L. Turner, Blairsville, Pa. Folding ladder	640,211	Jan. 2	106	21	90	23
Lynch, Thomas M., Liverpool, England. Culinary roaster	640,305	Jan. 2	289	59, 60	90	58
Lynch, William B., Orlando, Fla. Non-refillable bottle	644,617	Mar. 6	99	23	90	1774
Lynchard, William H., Council Bluffs, Iowa. Printer's quoin	643,664	Feb. 20	2013	475	90	1394
Lynde, Frank W. (See Towns and Lynde.)						
Lyon, Alexander M., New Westminster, Canada. Gold-saving device	645,864	Mar. 20	2418	530	90	2268
Lyon, Fred, Ithaca, N. Y. Web shifter and regulator	642,141	Jan. 30	3753	857 858	90	789
Lyon, Gustave F., Paris, France. Pianoforte	642,467	Jan. 30	4382	963 964	90	915
Lyon, Gustave F., Paris, France. Harp	644,987	Mar. 6	777	168	90	1911
Lyon, Jesse D., Pittsburg, Pa. Spacing instrument	640,678	Jan. 2	991	224	90	191
Lyon, William H., and J. C. Wallick, Creston, Iowa. Mail-pouch	642,142	Jan. 30	3760	858	90	791
Lyons, Timothy F., assignor of one-fourth to M. F. Cunningham, Randolph, Mass. Last attachment	645,088	Mar. 6	880	190	90	1932
Lytel, George W., Findlay, Ohio. Reversing-gear	644,527	Feb. 27	3602	839	90	1717
Maas, Alex W. R., New Orleans, La. Folding fowl-coop	646,295	Mar. 27	3255	727	90	2442
MacClernan, R. H. (See Taylor, Samuell W., assignor.)						
MacCormac, Rockwell M., Kansas City, Mo. Car-seal	641,785	Jan. 23	3095	704	90	645
MacDonald, David J., Dundee, Scotland. Needle-loom	643,878	Feb. 20	2403	565	90	1468
MacDougall, John, Detroit, Mich. Purifying water	646,387	Mar. 27	3466	771	90	2489
MacFarland, Ira, New York, N. Y. Carbon-sheet holder	645,400	Mar. 13	1557	340	90	2080
MacKirdy, James, New York, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	643,320	Feb. 13	1357	318	90	1251
MacLean, James, Boston, Mass. Labeling-machine	641,311	Jan. 16	2244	509	90	471
MacLeod, Albert L. (See Venen, Almon S., assignor.)						
MacPherson, Duncan, Montreal, Canada. Railway-frog	642,867	Feb. 6	521	121 122	90	1068
MacRonald, Fred S., assignor to Casco Paper Box Company, Portland, Me. Box	646,296	Mar. 27	3256	727	90	2443
Macdonald, Albert E., San Francisco, Cal. Tea-making attachment for cups	642,798	Feb. 6	396	96	90	743
Macdonald, William, Halifax, Canada. Display-stand	642,866	Feb. 6	518	121	90	1067
Macey, Frank, Grand Rapids, Mich. Sectional bookcase	641,459	Jan. 16	2511	574	90	522
Macey, Frank, Grand Rapids, Mich. Bookcase	644,434	Feb. 27	3438	798	90	1686
Macey, Fred J., Ontonagon, Mich. Igniter for explosive-engines	643,513	Feb. 13	1699	399	90	1318
Macfarlane, James W. (See Laidlaw and Macfarlane.)						
Macfee, Edward D., Jr., Rolling Hill, Va. Vehicle	642,991	Feb. 6	740	170	90	1111
Mackenzie, Edward E., *et al.* (See Warner, Clarence D., assignor.)						
Mackey, Joseph L., Walnut Grove, Ill. Rake	643,514	Feb. 13	1701	399	90	1318

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mackey, Michael C., St. Louis, Mo. Ditching or excavating machine	645,752	Mar. 20	2224	482	90	2224
Mackolite Fireproofing Company. (See Seager, James B., assignor.)						
Maclachlan, Andrew L., Melrose, Mass. Shaft-tug	643,665	Feb. 20	2014	475	90	1395
Macomber, William I., Norwood, R. I., assignor to Regnell, Bigney & Co., Attleborough, Mass. Machine for making curb-chains	645,089	Mar. 6	881	190, 191	90	1932
Macy, John W., Cincinnati, Ohio. Pianoforte	640,294	Jan. 2	276	56	90	55
Macy, John W., Cincinnati, Ohio. Pianoforte	640,295	Jan. 2	277	57	90	55
Madden, Joseph, Providence, R. I. Wiping attachment for paint-pails	642,346	Jan. 30	4156	939	90	870
Madden, Patrick, Soldiers' Home, Los Angeles County, Cal. Herulal truss	645,901	Mar. 20	2478	548	90	2275
Mass, Friedrich W., Iserlohn, Germany. Apparatus for checking workmen's time	641,874	Jan. 23	3264	741	90	677
Magee, Frank A., Wenham, assignor to Magee Furnace Company, Boston, Mass. Gas-burning attachment for coal cooking stoves or ranges	643,087	Feb. 6	877	205	90	1136
Magee, Frederick W., London, Canada. Gas-burner	644,715	Mar. 6	283	62	90	1810
Magee Furnace Company. (See Magee, Frank A., assignor.)						
Mager, Martin, Jr., *et al.* (See Clifford, Thomas G., assignor.)						
Magner, Katharine. (See Johnston and Magner.)						
Maguolo, Ferdinand, Edwardsville, Ill. Cigar-case	644,435	Feb. 27	3439	798	90	1686
Mahan, George E., A. Fitzroy, and R. Orr, New York, N. Y.; said Fitzroy assignor to said Mahan and Orr. Grain-conveyer	641,598	Jan. 16	2765	629	90	573
Mahan, William B., Palmyra, Ill. Weather-strip	640,296	Jan. 2	278	57	90	56
Maier, Anna, *et al.* (See Bischoff, Frederick F., assignor.)						
Maier, Gottlieb, Jr., Newark, N. J. Door stop and holder	641,312	Jan. 16	2246	509	90	471
Maille, Ulderesque E., Providence, R. I. Electric-car brake	644,716	Mar. 6	285	62, 63	90	1810
Mainwaring-Johnson, Archie. (See Painter, Arthur, assignor.)						
Mair, George R., Schenectady, N. Y., assignor to General Electric Company, of New York. Section-insulator and switch therefor	645,690	Mar. 20	2092	460	90	2199
Major, James, Eccles, England. Apparatus for dyeing	644,988	Mar. 6	779	169	90	1912
Major, James, Eccles, England. Apparatus for dyeing, &c	644,989	Mar. 6	780	169	90	1912
Major, James, Eccles, England. Apparatus for dyeing, &c	644,990	Mar. 6	782	169, 170	90	1912
Makins, Walter R., *et al.* (See O'Farrell, Alphonsus G., assignor.)						
Makutchan, Howard E. (See Makutchan, William H., assignor.)						
Makutchan, William H., assignor of one-half to H. E. Makutchan, Princeton, Ill. Thill-coupling	644,254	Feb. 27	3092	728	90	1619
Malcolmson, Thomas, Siverly, assignor of one-fourth to J. G. Sigmann, Oil City, Pa. Explosive-engine	642,143	Jan. 30	3761	858	90	790
Malette, John F., Rochester, N. Y. Writing-tablet binder	645,111	Mar. 13	1028	220	90	1976
Malinsky, Francis, Ronov, and J. Prokop, Pardubice, Austria-Hungary. Apparatus for pulping potatoes	646,055	Mar. 27	2786	617	90	2352
Mallett, Arthur E. (See Robbins, Moses R., assignor.)						
Mallett, William M., *et al.* (See Pfaudler, John M., assignor.)						
Mallinson, Charles, Liverpool, England. Drying apparatus	645,866	Mar. 13	1490	327, 328	90	2066
Mallory, Ernest E., and C. S. Stoner, assignors of one-half to H. C. and J. Miller, West Unity, Ohio. Saddle	645,865	Mar. 20	2418	531	90	2283
Malone, Peter. (See Quigley and Malone.)						
Malone, William D. (See Phillips, John J., assignor.)						
Malsbary, Albert J., Stockton, assignor to C. Coulthard, Emmett, Cal. Seeding attachment for gang-plows	646,004	Mar. 27	2687	596	90	2333
Manaut, Frédéric. (See Charon and Manaut.)	640,924	Jan. 9	1492	334	90	810
Mander, John, Philadelphia, Pa. Water-heater for gas or other ranges	641,718	Jan. 23	295 5	674	90	620
Manes, Ephraim, Chattanooga, Tenn. Hame-tug buckle	645,565	Mar. 20	1841	406	90	2148
Manes, Ephraim, assignor to P. S. Griffith, Chattanooga, Tenn. Tool-handle						
Manhattan Brass Company. (See Waibel and Meytrott, assignors.)						
Mann, Adam. (See Dilling, Charles, assignor.)						
Mann, John J., Paris, France. Apparatus for humidifying air	642,962	Feb. 6	741	170, 171	90	1111
Manners, Arthur, Hull, England. Inhaler	642,748	Feb. 6	324	79	90	1090
Manning, Hugh L., Philadelphia, Pa. Blind-stile-boring machine	645,822	Mar. 20	2342	512, 513	90	2247
Manning, John, Agenda, Kans. Bicycle	642,238	Jan. 30	3943	899	90	827
Mansfield, King W., and W. R. Thompson, South Norwalk, Conn. Signal system for railways	643,666	Feb. 20	2015	475, 476	90	1395
Mantel, Rudolf H., Riga, Russia. Lifting-valve gear for engines	644,436	Feb. 27	3441	799	90	1686
Mapes, Victor, New York, assignor of one-half to O. Thorne, Millbrook, N. Y. Dice	645,112	Mar. 13	1029	220	90	1976
Maple, Solomon W., Elm Park, Okla. Ter. House-moving truck	643,721	Feb. 20	2127	498	90	1415
Marcheville, Marcel de, Paris, France. Centrifugal machine	643,667	Feb. 20	2018	476, 477	90	1395
Marcoux, Joseph, Troy, assignor of one-half to J. M. and G. Barnet and F. M. Aufsesser, Albany, N. Y. Lady's drawers	646,005	Mar. 27	2690	596	90	2333
Marcy, Rufus G., Bluffton, Ind. Roller-bearing for windmill-shafts	644,528	Feb. 27	3604	840	90	1717
Maré, Baltzar E. L. de, Philadelphia, Pa. Optical projecting apparatus	642,998	Feb. 6	743	171, 172	90	1111
Marek, Karl, Vienna, Austria-Hungary. Smoke-consuming furnace for locomotive-engines	643,800	Feb. 20	2253	531	90	1439
Mark, Charlie E., Chicago, Ill. Brake-shoe	643,668	Feb. 20	2019	477	90	1395
Marker, Frank H., assignor to Pan Confection Company, Chicago, Ill. Lozenge-making machine	644,281	Mar. 6	661	148, 149	90	1891
Markham, Arthur T. B., Bexley Heath, England. Window-fastener	645,113	Mar. 13	1031	220	90	1976
Markle, James F., Minneapolis, Minn. Feed device for sawmill-carriages	642,347	Jan. 30	4157	939, 940	90	871
Marks, Arthur H., Akron, Ohio. Devulcanizing apparatus	648,230	Mar. 27	3138	692	90	2421
Marks, Arthur H., assignor to Diamond Rubber Company, Akron, Ohio. Pneumatic tire for vehicles	642,348	Jan. 30	4161	940	90	872
Marks, Arthur H., assignor to Diamond Rubber Company, Akron, Ohio. Pneumatic tire	643,826	Feb. 20	2297	540	90	1448
Markwell, J. H. (See Hays, John W., assignor.)	643,515	Feb. 13	1702	400	90	1318
Marler, Jack W., Vernon, Tex. Machine for keeping count of games of dominoes	646,195	Mar. 27	3083	670	90	2400
Marlett, Charles. (See Marlett, Harvey L. and C.)	645,367	Mar. 13	1492	328	90	2067
Marlett, Harvey L., Warner, S. D., and C. Marlett, Fargo, N. D. Self-heating dinner-pail	644,744	Mar. 6	325	72	90	1818
Marney, Frank M., Vincennes, Ind. Tire-tightener	642,468	Jan. 30	4383	994	90	916
Marple, Grace, Fort Worth, Tex. Corset	643,906	Feb. 20	2461	580	90	1479
Marr, Matthew A., assignor to Avery-Marr Company, New York, N. Y. Window-shade fixture						
Marsden, Edward E. (See Ecroyd and Marsden.)						
Marsh, Elon A., Detroit, Mich. Supply-valve						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Marsh, Nelson, Bernardston, Mass. Supplemental vehicle-seat	645,176	Mar. 13	1158	250	90	2000
Marsh, Willis L., Jefferson City, Mo. Rotary engine	644,085	Feb. 27	2780	659	90	1559
Marshall, George M., Edinburgh, Scotland. Roof	642,240	Jan. 30	3945	899	90	827
Marshall, George N. (See Thibault, Edmond H., assignor.)						
Marshall, James, Fall River, Mass. Hat-packing ring	641,026	Jan. 9	1703	378	90	348
Marshall, Norman, Newton, assignor to Marshall-Sanders Company, Boston, Mass. Electric switch	644,745	Mar. 6	326	72, 73	90	1819
Marshall, Robert L., assignor of one-fourth to A. C. L. Percefull, Elizabethtown, Ky. Distance-finder	640,679	Jan. 2	994	224	90	102
Marshall, Samuel, Allegheny, assignor of one-half to F. K. Duff, Bellevue, Pa. Bag-filler	640,785	Jan. 9	1197	272	90	252
Marshall-Sanders Company. (See Marshall, Norman, assignor.)						
Marsky, Emil, San José, Cal. Temporary cover and binder for papers	640,578	Jan. 2	790	174	90	154
Marston, Dudley J., assignor of one-half to Amesbury Pneumatic Gear Company, Amesbury, Mass. Vehicle-reach coupling	645,530	Mar. 13	1782	391	90	2123
Marston, Richard K., assignor to J. H. Smith, Chicago, Ill. Apparatus for washing photographic negatives	643,771	Feb. 20	2210	521, 522	90	1431
Martell, Herbert C., Columbus, Ohio. Vehicle-spring	641,786	Jan. 23	3097	704	90	645
Martell, Herbert C., Columbus, Ohio. Body-hanger for vehicles	645,114	Mar. 13	1031	220	90	1976
Martensen, Henry. (See Schnoor, Peter J. A., assignor.)						
Martin, Alaxander S., Willard, Ga. Automatic stop for mills	643,968	Feb. 20	2571	606	90	1503
Martin, Albert R., Beaver Falls, Pa. Coupling for air-brakes	645,823	Mar. 20	2350	513, 514	90	2249
Martin, Albert R., Beaver Falls, Pa. Coupling for air-brakes	645,824	Mar. 20	2355	514	90	2250
Martin, Andrew J., Buffalo, N. Y. Motor-vehicle	641,313	Jan. 16	2248	510	90	471
Martin, Andrew J., Buffalo, N. Y. Clutch for motor-vehicles	641,314	Jan. 16	2250	510	90	472
Martin, Anthony S., Maiden, N. C. Car-coupling	643,145	Feb. 13	1037	241	90	1189
Martin, Frank L. (See Herzog and Martin.)						
Martin, H. S. (See Graham, Robert S., assignor.)						
Martin, Henry and J. H., Burnley, England. Carrying off impure steam or fumes arising from yarn-sizing apparatus, &c	642,469	Jan. 30	4384	994	90	916
Martin, Henry A., Atlanta, Ga. Ice-cream freezer	640,212	Jan. 2	107	21	90	23
Martin, James W., Omaha, Nebr. Mechanical movement	645,866	Mar. 20	2420	531, 532	90	2263
Martin, John C. (See Bash and Martin.)						
Martin, John H. (See Martin, Henry and J. H.)						
Martin, John L., Glass, Tenn. Sieve attachment for eaves-troughs	643,747	Feb. 20	2169	509	90	1423
Martin, Morris, assignor to Hygienic Company, Boston, Mass. Antiseptic mouthpiece	643,801	Feb. 20	2255	531	90	1440
Martin, William, New York, N. Y. Machine for cutting and notching roofing-plates	641,027	Jan. 9	1704	378	90	349
Martin, William E., Abbotts Ripton, England. Implement for cultivating land	642,349	Jan. 30	4162	941, 942	90	872
Martin, William L., Rancocas, N. J. Vehicle-wheel and bearing	644,086	Feb. 27	2782	660	90	1559
Martini, Adolf, Berlin, Germany. Gas-igniting pill	646,297	Mar. 27	3257	.....	90	2443
Marty, Henri, Ville-franche de Rouergue, France. Animal-trap	643,669	Feb. 20	2020	477	90	1396
Marx, John, New York, N. Y. Sash-balance	642,239	Jan. 30	3944	899	90	827
Mascall, Harry O. (See Dowding, James F., assignor.)						
Masion, Alfred, Brussels, Belgium. Mechanism for manufacturing chains	644,991	Mar. 6	788	170	90	1913
Maske, Henry, Chicago, Ill. Corkscrew register	645,401	Mar. 13	1558	341	90	2060
Mason, B. B., *et al.* (See Farrell, George W., assignor.)						
Mason, James E. (See Rundle and Mason.)						
Mason, Joseph, London, England, assignor to American Mutoscope and Biograph Company, New York, N. Y. Coin-controlled apparatus	641,213	Jan. 9	2063	463	90	420
Mast, Foos & Company. (See Pfeifer, John, assignor.)						
Masten, Charles H., Fremont, Nebr. Bicycle-lock	640,297	Jan. 2	279	57	90	506
Mather, Henry W., Roseville, N. J. Paper-roll for manifolding sales-pads	642,790	Feb. 6	395	96	90	1043
Mather, William, Manchester, England. Evaporating apparatus	642,620	Feb. 6	91	22, 23	90	984
Mathews, Elisha C., Jacksonville, Ill. Anchor for fence-posts	642,470	Jan. 30	4385	995	90	91
Mathews, Stephen M., Toronto, Canada. Electric-alarm try-cock	642,913	Feb. 6	613	141	90	1085
Mathewson, Arthur W., Lewiston, Me. Weight-lifting device for railway-heads or other fiber-drawing machines	640,786	Jan. 9	1197	273	90	252
Mathis, Benjamin, Chicago, Ill. Box for stamps, tickets, &c	642,703	Feb. 6	244	61	90	1014
Matson, Christ. (See Robertson and Matson.)						
Matthews, John G., assignor to Sheffield Car Company, Three Rivers, Mich. Railway-velocipede	645,115	Mar. 13	1032	221	90	1976
Matthews, Robert, Manchester, England. Apparatus for working ordnance	644,992	Mar. 6	784	171	90	1913
Matthews, William, Chicago, Ill. Oat-clipping machine	644,774	Mar. 6	400	87	90	1834
Matthias, Joseph, Stuttgart, Germany. Thermo-electrical building bricks or blocks	641,214	Jan. 9	2066	463	90	420
Matthias, Lizzie, New York, N. Y. Fire-kindler	645,480	Mar. 13	1694	370	90	2107
Matthiesen, Nickels J., Clinton, Iowa. Sash-polishing machine	640,396	Jan. 2	470	98	90	92
Mattison, Charles D., Hasbrouck Heights, N. J., assignor to R. M. Donaldson, Greenwich, Conn. Feeder for printing-presses	643,384	Feb. 13	1451	338, 339, 340, 341, 342	90	1269
Mattox, William B. P. (See Lowry and Mattox.)						
Mattson, Samuel, New York, N. Y. Hoisting-machine	643,516	Feb. 13	1704	400	90	1319
Maturlé, Marie G. E. E., Angers, France. Breech-loading firearm	642,350	Jan. 30	4165	942, 943	90	872
Mauk, C. S. (See Shellabarger, Joshua, assignor.)						
Mauldin, John, assignor of two-thirds to H. E. and W. E. Kleinsorge, Sacramento, Cal. Concentrator	645,533	Mar. 13	1788	398	90	2124
Mauran, William L., Providence, R. I. Cuff-button	640,298	Jan. 2	280	57	90	56
Maurin, Francois C., assignor to C. L. Cabanis, Paris, France. Acetylene-gas generator	643,907	Feb. 20	2463	580	90	1480
Maury, Dabney H., Jr., Peoria, Ill. Pumping machinery	644,618	Mar. 6	101	23, 24	90	1775
Maus, Theodore J. P., St. Louis, Mo. Window-screen	642,471	Jan. 30	4385	995	90	916
Mawhinney, Samuel. (See Ellis, William C., assignor.)						
Maxfield, Leverett L. and W., assignors of three-eighths to C. F. Lighthouse, New York, N. Y. Machine for preparing continuous rolls of tobacco-wrappers for manufacturing cigars or cigarettes	644,677	Mar. 6	220	48, 49	90	1797
Maxfield, William. (See Maxfield, Leverett L. and W.)						
Maxim, Hiram P., Hartford, Conn., assignor to Columbia and Electric Vehicle Company, Hartford, Conn., and Jersey City, N. J. Device for indicating condition of storage batteries	640,787	Jan. 9	1201	273	90	253
Maxim, Hiram P., H. M. Pope, and H. W. Alden, Hartford, Conn., assignors, by mesne assignments, to Columbia and Electric Vehicle Company, Jersey City, N. J. Valve-gear for explosive-motors	645,177	Mar. 13	1158	251	90	2000

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Maxim, Hudson, London, England. Automobile torpedo	641,787	Jan. 23	3098	704 705	90	645
Maxim, Hudson, and R. C. Schüpphaus, New York, N. Y. Making smokeless powder	640,213	Jan. 2	109	.....	90	23
Maxon, James, Burbank, assignor to Azusa Manufacturing Company, Los Angeles County, Cal. Street-sweeper	640,477	Jan. 2	609	131	90	120
Maxwell, John L. (See Knight and Maxwell.)						
Maxwell, Theobald W. T., New York, N. Y., assignor to himself and R. R. Vernon, Summit, N. J. Envelop	646,186	Mar. 27	3035	670	90	2400
May, August, Hamburg, Germany. Boat-detaching apparatus	641,714	Jan. 23	2956	674	90	620
May, Charles E., Dunedin, New Zealand. Thermostat	643,722	Feb. 20	2128	490	90	1415
May, Martin, Jr., Frankfort-on-the-Main, Germany. Machine for dressing hides	644,182	Feb. 27	2964	700	90	1594
May, Robert B. (See Passmore and May.)						
May Soehne, E. G. (See Thuringer, Georg, assignor.)	642,994	Feb. 6	744	172	90	1112
Mayberry, Thomas J., Mount Grove, Mo. Sickle-bar						
Mayer, Anton, *et al.* (See Mayer, Robert S., assignor.)						
Mayer, Charles H. (See Moor and Mayer.)						
Mayer, Charles J., assignor to Protected Rail Bond Company, Philadelphia, Pa. Rail-bond	642,553	Jan. 30	4518	1023	90	941
Mayer, Charles J., assignor to Protected Rail Bond Company, Philadelphia, Pa. Rail-bond	642,554	Jan. 30	4519	1023	90	941
Mayer, Charles J., assignor to Protected Rail Bond Company, Philadelphia, Pa. Rail-bond. (Reissue)	11,812	Mar. 13	1758	395	90	2126
Mayer, H. Wulff. (See Wise, Harry, assignor.)	645,398	Mar. 13	1212	264	90	2011
Mayer, Isidor, and J. Hübner, Vienna, Austria-Hungary. Automatic stop-valve	640,579	Jan. 2	791	174 175	90	154
Mayer, Jacob J., assignor, by mesne assignments, to Plumbers Brass and Iron Manufacturing Company, Cleveland, Ohio. Filter	645,921	Mar. 20	2517	536	90	2282
Mayer, Robert S., assignor of two-thirds to H. D. Crane and A. Mayer, Cincinnati, Ohio. Grate for furnaces	645,601	Mar. 20	1928	425	90	2166
Mayers, Henry, Union City, Tenn. Wood-turning machine	644,827	Mar. 6	507	.....	90	1855
Mayke, August, and F. Langheinrich, Cottbus, assignors to Bremer Linoleumwerke Delmenhorst, Delmenhorst, Germany. Producing material for covering floors						
Mayo, John N. (See Boyce, Charles F., assignor.)						
Mayo, Robert P. (See Anderson, Lee, assignor.)	643,772	Feb. 20	2211	522	90	1432
Mayo, S. P., *et al.* (See Hysore, Alphenas V., assignor.)	645,040	Mar. 6	884	191	90	1953
Mayo, Walter E., Chicago, Ill. Carton	640,214	Jan. 2	110	21	90	23
Mayo, William H., Los Angeles, Cal. Pie-rack	644,302	Feb. 27	3320	770 771	90	1661
Mayr, Walter A., Chicago, Ill. Curtain-stretcher						
Mazières, Jean, Bordeaux, France. Water-tube boiler	644,208	Feb. 27	3187	747	90	1637
McAdams, George F., New York, N. Y. Fancy-line attachment for ruling and line-printing machines	645,463	Mar. 13	1563	342	90	2081
McAdams, Sylvester L., Beaver Falls, Pa. Gas-regulator	645,425	Mar. 13	1600	349	90	2088
McAllister, Edgar A., Baltimore, Md., assignor, by mesne assignments, to McAllister Gas-Light, Heat and Power Company, of West Virginia. Carbureting	645,485	M . 13	1707	374	90	2109
McAllister, Edgar A., Baltimore, Md., assignor, by mesne assignments, to McAllister Gas-Light, Heat and Power Company, of West Virginia. Carbureter						
McAllister, Edwin J. (See Deshler and McAllister.)						
McAllister Gas-Light, Heat and Power Company. (See McAllister, Edgar A., assignor.)						
McAnlis, James D. (See Curl and McAnlis.)	641,995	Jan. 23	3454	786 787	90	716
McAnulty, John A., Hamilton, assignor, by mesne assignments, to W. Morris, Shandon, Ohio. Roller grinding-mill	641,996	Jan. 23	3455	787 788	90	716
McAnulty, John A., Hamilton, assignor, by mesne assignments, to W. Morris, Shandon, Ohio. Flour-bolt	645,909	Mar. 27	2616	580	90	2319
McAreavy, John J., Silver Creek, Iowa. Milk-cooler	640,583	Jan. 2	801	177	90	156
McAssey, Francis J., and A. Richmond, assignors to Armour & Co., Chicago, Ill. Ventilator for refrigerator-cars						
McIlarron, Michael, *et al.* (See Brown, Samuel H., assignor.)	641,400	Jan. 16	2391	547	90	499
McIlerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Connection-counter for telephone-lines	641,721	Jan. 23	2980	678	90	624
McIlerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Telephone-exchange system	644,625	Mar. 6	116	26	90	1777
McIlhenny, Edward A., Avery Island, La. Apparatus for treating sugar-cane	646,007	Mar. 27	2692	597	90	2334
McIlvaine, Norman, Cleveland, Ohio. Mechanical draft and underfeed stoker	640,360	Jan. 2	398	84	90	78
McIlvaine, Robert M., Cincinnati, Ohio. Mechanical draft and underfeed stoker	645,290	Mar. 13	1250	271	90	2018
McIlvaine, William, Portland, Me. Folding anchor	640,928	Jan. 9	1497	335	90	311
McIlvaine, William, Jersey City, N. J. Car-coupling						
McIlvaine, Charles B. (See Goughenour and McCabe.)						
McIlvaine, David, Boston, Mass. Prospecting-drill						
McIlvaine, Thomas W. R. (See Woodruff and McCabe.)						
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	645,231	Mar. 13	1252	271	90	2018
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	643,881	Feb. 20	2408	507	90	1469
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	644,804	Mar. 6	458	98	90	1845
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	644,983	Mar. 6	684	150	90	1892
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	644,622	Feb. 20	2677	633	90	1523
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	641,722	Jan. 23	2983	678	90	625
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	643,725	Feb. 20	2132	499	90	1416
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	643,521	Feb. 13	1709	402	90	1320
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	642,705	Feb. 6	247	61	90	1015
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	641,987	Jan. 23	3459	788	90	717
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	644,997	Mar. 6	792	173	90	1915
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	645,043	Mar. 6	887	192	90	1982
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	645,823	Mar. 13	1407	309	90	2049
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	642,894	Feb. 6	447	107	90	1053
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	642,916	Feb. 6	618	142	90	1086
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	640,794	Jan. 9	1210	275	90	254
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	644,089	Feb. 27	2799	661	90	1561
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	640,402	Jan. 2	486	101	90	96
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	640,403	Jan. 2	488	101	90	96
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	642,749	Feb. 6	325	79	90	1030
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	641,133	Jan. 9	1901	421 422	90	338
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	643,892	Feb. 20	2409	567	90	1469
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	641,219	Jan. 9	2078	467	90	423
McIlvaine, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Clock-case					

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McKee, James W., Butler, Pa., assignor to Lever Engine Company. Link reversing-gear.	640,689	Jan. 2	1018	231	90	196
McKee, John. (See Parker, Homer N., assignor.)	646,127	Mar. 27	2924	648	90	2379
McKee, William E., Springfield, Mass. Fountain-pen	642,149	Jan. 30	3771	860	90	794
McKennie, J. C. (See Devlin, Peter, assignor.)	640,483	Jan. 2	619	133	90	121
McKenzie, Benjamin, St. Paul, Minn. Coin-released lung-testing apparatus	643,522	Feb. 13	1710	402	90	1330
McKenzie, Joel B. L., Rahway, N. J. Saddle-post for bicycles						
McKercher, George, Jackson, Mich. Wrench						
McKernan, Frank. (See Rhoads, Samuel M., assignor.)						
McKibben, Charles R., assignor to Shook, Anderson Manufacturing Co., Pittsburg, Pa. Device for bending special shapes of tubes or pipes	641,535	Jan. 16	2662	607	90	553
McKibben, Charles R., assignor to Shook, Anderson Manufacturing Co., Pittsburg, Pa. Pipe-bending machine	641,536	Jan. 16	2664	607	90	553
McKinney, Walter S., Chicago, Ill. Tag-machine	642,870	Feb. 6	527	123 124	90	1069
McKinney, Walter S., Chicago, Ill., assignor to J. T. Kavenaugh, Philadelphia, Pa. Machine for making and stringing tags	645,567	Mar. 20	1843	406 407 408	90	2149
McKinnon, Alexander D. (See Mitchell and McKinnon.)						
McKinnon, James D., Portland, Oreg. Air-compressor	646,080	Mar. 27	2738	607	90	2342
McKinnon, James D., Portland, Oreg. Air-compressor	646,081	Mar. 27	2741	608	90	2343
McKinnon, James W., New York, N. Y. Ship's davit	643,197	Feb. 13	1128	263	90	1207
McLain, Emelia F. (See Hennessey and McLain, assignors.)						
McLain, William W. (See Hennessey and McLain.)	645,736	Mar. 20	2201	478	90	2219
McLauchlin, William D., Corunna, Mich. Low-water alarm	642,624	Feb. 6	108	25	90	986
McLaughlin, Edward, and C. H. Dodd, Boston, Mass. Sewer-gate	642,354	Jan. 30	4175	944	90	875
McLean, John N., New York, N. Y. Air-pump	642,355	Jan. 30	4177	944	90	876
McLeod, Alexander M. I., Quincy, Mass. Rubber for surfacing stone, marble, &c.						
McMeen, Samuel G., Chicago, Ill., assignor to American Bell Telephone Company, Boston, Mass. Telephone central-station apparatus and circuits	640,404	Jan. 2	489	102	90	96
McMichael & Wildman Manufacturing Company. (See Wildman, Frank B., assignor.)	640,795	Jan. 9	1213	276	90	255
McMillan, Duncan, Newark, N. J. Billet-buckle						
McMoran, Edward E. (See Gilfillan, Essington N., assignor.)						
McMullen, George, Perth, Western Australia. Combined centrolinead and parallel-rule.	644,184	Feb. 27	2968	701	90	1595
McMullin, Frank R. (See Hildebrandt and McMullin.)						
McMunn, Samuel W., trustee. (See Kennedy, Dwight B., assignor.)						
McMurray, Dennis B., assignor of one-half to G. R. Wallace, Fitchburg, Mass. Paper-making machinery	641,999	Jan. 23	3463	789	90	717
McNamara, Michael, *et al.* (See Jewett, Herbert E., assignor.)	645,325	Mar. 13	1410	309	90	2050
McNamee, James, Cambridge, Mass. Apparatus for making plastic or concrete walls	644,998	Mar. 6	577	124	90	1870
McNeil, Dana, Chadron, Nebr. Telephone signal-circuit	641,465	Jan. 16	2522	577 578	90	525
McNeill, Joseph, New York, N. Y. Propelling mechanism for bicycles						
McNeill, William. (See Smith, Walton D., assignor.)						
McPhail, Thomas (See McComb, James, assignor.)	644,300	Feb. 27	3190	747	90	1638
McPherson, David B., Boston, Mass. Box	641,184	Jan. 9	1003	.....	90	309
McTyre, Edwin L., Thomasville, Ga. Composition for clearing sugar	644,934	Mar. 6	686	150	90	1892
McVicker, Emery M., Milwaukee, Wis. Construction of railway-rail joints	645,404	Mar. 13	1565	342	90	2081
McVicker, Emery M., Milwaukee, Wis. Railway-rail joint						
Mead, Theodore H., *et al.* (See Claridge, Thomas G., assignor.)						
Mead, Theodore H., *et al.* (See Jackson, Benjamin F., assignor.)						
Mead, Theodore H., *et al.* (See North, Thomas M., assignor.)						
Mead, Theodore H., *et al.* (See Olsen, Gulbrand J., assignor.)	640,925	Jan. 9	1498	334	90	310
Meador, Leonidus D., Wewoka, Ind. Ter. Car-seal	641,399	Jan. 16	2389	547	90	499
Mealey, Johnston, Howard Lake, Minn. Thill-coupling	641,130	Jan. 9	1804	419 420	90	387
Mears, Elmer E., and J. A. Collet, New York, N. Y. Soft-tread horseshoe	643,330	Feb. 13	1358	319	90	1251
Mears, James A., Elizabeth, N. J. Tie-holder	644,529	Feb. 27	3005	840	90	1717
Mecredy, James, London, England. Evaporating apparatus	643,146	Feb. 13	1038	241	90	1189
Mederer, John C., Allegheny, P. F. Slattery and G. C. Fuss, Pittsburg, Pa. Steamboat-wheel	640,788	Jan. 9	1203	274	90	253
Medway, John, Chicago, Ill. Brake-shoe	641,460	Jan. 16	2513	574 575	90	523
Meech, Harrison B., Denver, Colo. Furnace for roasting and reducing ores						
Meech, Harrison B., Denver, Colo. Apparatus for utilizing waste gases and fumes from furnaces	641,461	Jan. 16	2515	575	90	523
Meehan, Edward F. (See Meehan, Patrick W., assignor.)						
Meehan, Patrick W., Providence, R. I., assignor of one-half to E. F. Meehan, New Haven, Conn. Air-pipe for drain-traps	641,028	Jan. 9	1707	379	90	349
Meek, Channing F., *et al*, trustees. (See Musinan, Oscar, assignor.)	642,800	Feb. 6	368	97	90	1043
Mees, Frederick M., Chicago, Ill. Temporary binder						
Mehring, Mary M. (See Smelker, Angeline, assignor.)	646,152	Mar. 27	2970	656	90	2388
Mehserle, Henry, Rochester, N. Y. Adjustable folding table	644,437	Feb. 27	3442	709	90	1687
Meier, Hermann, Palestine, Tex. Car-seat	644,141	Feb. 27	2879	681	90	1579
Meinert, Henry W., Dixon, Iowa. Threshing-machine						
Meisel, Francis, Boston, Mass. Machine for cutting, scoring, and embossing paper for boxes	641,215	Jan. 9	2087	464	90	421
Meisel, Francis, Boston, Mass. Web and sheet feeding and printing machine	641,216	Jan. 9	2070	465 466	90	422
Meisner, Anthony M., Chicago, Ill. Soft-tread horseshoe	644,329	Feb. 27	3264	760	90	1651
Mellen, Edward J., *et al.* (See Anderson, Frederick F., assignor.)	642,144	Jan. 30	3763	859	90	792
Mellish, Charles, New York, N. Y. Support for bicycles						
Mellmann, Heinrich. (See Moser, Conrad, assignor.)	645,422	Mar. 13	1595	348 349	90	2087
Mellor, Henry, Holyoke, Mass. Paper-pulp dressing and evening device						
Meloon, James W., Brockton, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Shoe-sewing machine	644,619	Mar. 6	105	24, 25	90	1775
Meloon, James W., Brockton, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Shoe-sewing machine	644,620	Mar. 6	108	25	90	1775
Melvin, Howard L., *et al.* (See Cheeseman, William W., assignor.)						
Menges, Charles L. R. E., The Hague, Netherlands. Electric connecting device for lamp-holders, wall-plugs, &c	642,995	Feb. 6	746	172	90	1112
Menze, Charles T., St. Louis, Mo. Cithern	642,472	Jan. 30	4387	995	90	916
Mercader, Camille, Braddock, Pa. Axle-forging machine	641,599	Jan. 16	2766	630	90	574
Mercader, Camille, Braddock, Pa. Axle	641,600	Jan. 16	2768	630	90	574
Mercer, Henry C., Doylestown, Pa. Tile and producing same	644,580	Feb. 27	3606	840	90	1717

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Merchant Manufacturing Company. (See Saunders, David H., assignor.)						
Mercure, Euclid J. (See Messier and Mercure.)						
Meredith, Charles T., San Diego, Cal. Educational chart	643,748	Feb. 20	2170	509	90	1424
Mergenthaler Linotype Company. (See Hensley, David A., assignor.)						
Mergenthaler Linotype Company. (See Holliwell, Charles, assignor.)						
Mergenthaler Linotype Company. (See Holliwell and Elliott, assignors.)						
Mergenthaler Linotype Company. (See Leonard, Edward G., assignor.)						
Mergenthaler Linotype Company. (See MacKirdy, James, assignor.)						
Mergenthaler Linotype Company. (See Mergenthaler, Ottmar, assignor.)						
Mergenthaler Linotype Company. (See Place, John, assignor.)						
Mergenthaler Linotype Company. (See Thompson, John S., assignor.)						
Mergenthaler, Ottmar, Baltimore, Md., assignor, by mesne assignments, to Mergenthaler Linotype Company, New York, N. Y. Linotype-machine	644,363	Feb. 27	3322	771	90	1662
Meridian Machinery Company. (See Fredrickson, August, assignor.)						
Merkel, Charles L., Milwaukee, Wis. Means for supporting frames or bodies of vehicles.	640,299	Jan. 2	281	58	90	56
Merker, Mont C., New York, N. Y. Antifriction-bearing	640,397	Jan. 2	473	98	90	93
Merriam, Nathaniel H., Lexington, Mass. Welt	641,877	Jan. 23	3271	742	90	678
Merrick, Frank A., Johnstown, Pa., assignor to Johnson Company, of Pennsylvania. Electric-motor control	645,116	Mar. 13	1033	221	90	1976
Merrick, Frank A., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Electric-motor control	645,117	Mar. 13	1037	221	90	1977
Merrick Sewing Machine Company. (See Emerson, Loender C., assignor.)						
Merrill, Albion P., assignor of one-half to N. Hamilton, San Francisco, Cal. Evaporator.	645,531	Mar. 13	1783	391 392	90	2123
Merrill, Bela G., Oak Park, Ill. Ink-well holder	642,241	Jan. 30	3946	900	90	827
Merrill, George W., Bay City, Mich. Dumping-wagon box	641,315	Jan. 16	2253	511	90	473
Merriman, Edward B. and F. W., Boston, Mass. Kite	645,423	Mar. 13	1597	349	90	2088
Merriman, Frank W. (See Merriman, Edward B. and F. W.)						
Merriman, Lorenzo L., Chicago, Ill. Crate for fragile boxes	646,298	Mar. 27	3258	727	90	2443
Merritt, James A., Boston, Mass., assignor, by mesne assignments, to G. L. Storrs, Willimantic, Conn. Antiseptic apparatus	641,715	Jan. 23	2957	674	90	621
Merrow, Roscoe A., Wilton, Me. Bicycle	640,680	Jan. 2	995	225	90	192
Mertens, Emil, Dayton, Ohio. Drawer-support	644,488	Feb. 27	3444	799	90	1687
Merton, Virginius I., assignor of one-half to J. E. Burke, Norfolk, Va. Flower-pot holder.	644,993	Mar. 6	787	172	90	1913
Mertz, Emile, Basle, Switzerland. Steam-engine	640,398	Jan. 2	475	99 100	90	93
Mertz, Lewis H., Los Angeles, Cal. Telephone-directory	643,749	Feb. 20	2171	510	90	1424
Meserve, George W., Boston, Mass. Combined mortising and boring machine	646,125	Mar. 27	2916	646 647	90	2377
Messier, Louis J., and E. J. Mercure, assignors of one-third to H. H. Durgin, Pittsfield, Mass. Variable-speed gear	642,996	Feb. 6	747	172	90	1112
Messinger, Reinhold, New Canaan, Conn. Impact-motor	644,621	Mar. 6	111	25, 26	90	1776
Metcalf, David, *et al.* (See Hoxie, George L., assignor.)						
Metcalf, Frederick, assignor to Chase Machine Company, Cleveland, Ohio. Towing-machine	643,331	Feb. 13	1359	319	90	1251
Metcalf, James M., Glen Haven, Wis. Lightning-arrester	640,478	Jan. 2	611	131	90	120
Metcalf, John C., *et al.* (See Glazier, George W., assignor.)						
Metcalf, Richard, assignor to Brownell & Company, Dayton, Ohio. Boiler-bracket	643,773	Feb. 20	2213	522	90	1432
Metcalf, Richard, assignor to Brownell & Company, Dayton, Ohio. Top hanger for steam-boilers	644,207	Feb. 27	3185	746	90	1637
Metcalf, Will S., Flandreau, S. D. Plow-colter	645,967	Mar. 27	2614	579	90	2319
Metcalf, William G., Dayton, Ohio. Stapling-machine	641,876	Jan. 23	3268	742	90	678
Methvin, Boling J., Tacoma, Wash. Apparatus for hydraulic dredging	641,716	Jan. 23	2958	675	90	621
Meunier, Maurice. (See Daniel and Meunier.)						
Meyenberg, Alexander. (See Green and Meyenberg.)						
Meyer, Ernst R., Detroit, Mich. Jar-closure	643,908	Feb. 20	2465	580	90	1480
Meyer, Frank C., New York, N. Y. Negative-holder	641,527	Jan. 16	2644	602	90	549
Meyer, Frederick F., Newark, N. J. Weighing-machine	645,625	Mar. 20	1977	434	90	2175
Meyer, Harry W., Fort Wayne, Ind. Motion-converting mechanism	644,678	Mar. 6	226	49	90	1799
Meyer, John C., San Francisco, Cal. Lock	644,255	Feb. 27	3004	728	90	1619
Meyer, Louis C., Davenport, Iowa. Harness-fastening	641,316	Jan. 16	2255	511	90	473
Meyer, Robert, *et al.* (See Wunderly, Fred, assignor.)						
Meyer, Robert, Philadelphia, Pa. Apparatus for singeing hosiery	641,528	Jan. 16	2644	603	90	549
Meytrott, Henry. (See Walbel and Meytrott.)						
Michael, Oliver P., assignor to himself, J. H. and L. S. Bireley, Marion, Ind. Composition of matter for repairing tires	643,518	Feb. 13	1707	.....	90	1320
Michael, Robert M., Lapeer, Mich. Potato-fork attachment	645,268	Mar. 13	1311	286	90	2030
Michael, William P., West Plains, Mo., assignor of one-half to H. Schott, Batesville, Ark. Twine-holder	643,220	Feb. 13	1186	278	90	1218
Michaelis, Fred C., Ballston, N. Y. Apparatus for separating and cleaning pulp for paper-making	641,131	Jan. 9	1897	420 421	90	387
Michaelis, Fred C., Ballston, N. Y. Apparatus for separating and cleaning pulp for paper-making. (Reissue)	11,813	Mar. 20	2583	560 561	90	2285
Michales, Moses A., deceased, Pittsburg, Fidelity Title and Trust Company, administrator, assignor to J. B. Cory, Braddock, Pa. Advertising-coach	643,517	Feb. 13	1705	401	90	1319
Michigan Stove Company. (See Keep and Robinson, assignors.)						
Michigan Stove Company. (See King, Frederick W., assignor.)						
Michie, Andrew G., Brainerd, Minn. Rail-joint	643,774	Feb. 20	2214	522	90	1432
Middleton, Henry A., Erie, Pa. Tire	642,351	Jan. 30	4167	943	90	873
Mighty Mite Manufacturing Company. (See Hughes, George E., assignor.)						
Mihlbachler, Joseph, Neoga, Ill. Slat-and-wire-fence machine	644,021	Feb. 20	2676	633	90	1522
Milan, John, Missoula, Mont. Sluice-box	644,994	Mar. 6	788	172	90	1914
Mileham, Charles M., assignor to W. H. Miner, Chicago, Ill. Tandem-spring draft-rigging for railway-cars	644,717	Mar. 6	288	63	90	1811
Miles, Casper W., Cincinnati, Ohio. Reducing easily-oxidizable metals	645,178	Mar. 13	1159	251	90	2000
Miles, Casper W., Cincinnati, Ohio. Apparatus for reducing zinc	645,179	Mar. 13	1162	251 252	90	2001
Milhime, John G., Chicago, Ill. Step-ladder	645,867	Mar. 20	2422	582	90	2264
Millard, Alfred. (See Patten, Simon R., assignor.)						
Miller, Albert A., *et al.* (See Heineman, Harry A., assignor.)						
Miller, Alice M. (See Miller, George O., assignor.)						
Miller, Annie, Philadelphia, Pa. Skirt-supporter and waist-holder	643,670	Feb. 20	2022	477	90	1396
Miller, Archibald E., Baraboo, Wis. Swinging shelf	640,580	Jan. 2	794	175	90	155
Miller, August J. F., Centralia, Ill. Lifting-jack	646,299	Mar. 27	3259	727	90	2443
Miller, Benjamin L. (See Turner and Miller.)						
Miller, Charles, Auburn, N. Y. Rim and tire for vehicle-wheels	644,622	Mar. 6	113	26	90	1776

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Miller, Clinton W., Chicago, Ill. Dental tool	644,982	Mar. 6	668	149	90	1891
Miller, David, Garden City, Mo. Gate	643,147	Feb. 13	1039	242	90	1189
Miller, Edgar S., *et al.* (See Miller, Martin D., assignor.)						
Miller, George A., Burket, Ind. Horse-collar	640,926	Jan. 9	1494	335	90	310
Miller, George O., assignor to A. M. Miller, North Tonawanda, N. Y. Faucet	641,001	Jan. 16	2768	630	90	574
Miller, H. Cortez, *et al.* (See Mallory and Stoner, assignors.)						
Miller, James K., J. W. Witt, and D. A. Jones, Oshkosh, Wis. Electric signal and automatic alarm for railway-trains	643,148	Feb. 13	1041	242	90	1189
Miller, John. (See Erts and Miller.)						
Miller, John, *et al.* (See Mallory and Stoner, assignors.)	640,400	Jan. 2	481	100 / 101	90	95
Miller, John A., Wadesville, Ind. Threshing-machine	643,879	Feb. 20	2404	565	90	1468
Miller, John G., San Francisco, Cal. Fare-register	642,704	Feb. 6	345	61	90	1014
Miller, John J. A., Denver, Colo. Roller-bearing car-wheel	642,242	Jan. 30	3947	900	90	827
Miller, John W., Akron, Ohio. Side brace for shafting	645,602	Mar. 20	1980	426	90	2166
Miller, John W., Muhlenberg, Pa. Horseshoe-calk						
Miller, John Z., assignor of one-half to P. H. Adams, Erie, Pa. Telephone-exchange system and apparatus	645,402	Mar. 13	1559	341	90	2080
Miller, Joseph C., *et al.* (See Langer, Gotthold, assignor.)	645,968	Mar. 27	2614	579	90	2319
Miller, Joseph H., Oklahoma, Okla. Ter. Combined ink well and reservoir						
Miller, Louis E., Helena, Mont., assignor, by mesne assignments, to Elliot Machine and Mining Company, of New Jersey. Ejector	642,046	Jan. 23	3560	815	90	735
Miller, Louis E., Dawson, Canada, assignor, by mesne assignments, to Elliot Machine and Mining Company, of New Jersey. Apparatus for mining in frozen ground	642,047	Jan. 23	3562	815 / 816	90	735
Miller, Louis E., Dawson, Canada, assignor, by mesne assignments, to Elliott Machine and Mining Company, of New Jersey. Apparatus for excavating and elevating gravel	642,048	Jan. 23	3565	816	90	736
Miller, Louis E., Dawson, Canada, assignor, by mesne assignments, to Elliot Machine and Mining Company, of New Jersey. Mining in frozen ground	642,049	Jan. 23	3568	816 / 817	90	736
Miller, M. B. (See Donavan, Jeremiah, assignor.)						
Miller, Marcellus. (See Clark, Cornelius S., assignor.)						
Miller, Martin D., Kansas City, Mo., assignor to E. S. Miller, M. Rosenthal, and F. R. Stone, Omaha, Nebr. Wrench	646,077	Mar. 27	2920	625	90	2358
Miller, Oliver A. (See Browne, Henry F., assignor.)						
Miller, Samuel E. (See Dunbar and Miller.)						
Miller, Stephen S. (See Ellinwood and Miller.)	645,481	Mar. 13	1095	371	90	2107
Miller, Stephen S., Akron, Ohio. Cushion-tire						
Miller, Thomas W., *et al.* (See Lawrence, James C., assignor.)	640,390	Jan. 2	479	100	90	94
Miller, William, Thomasville, Ga. Pump						
Miller, William C., Lincoln, assignor of one-half to S. C. Wheeler, Wymore, Nebr. Pressure-reducing valve	643,519	Feb. 13	1707	401	90	1320
Miller, William H., Canton, Ohio. Velocipede or like vehicle	644,718	Mar. 6	290	68	90	1811
Miller, William S. (See Simmons, Frank W., assignor.)						
Miller, William V., and E. B. Dunn, assignors of one-third to G. P. Coombs, New York, N. Y. Web-feeding mechanism	641,717	Jan. 23	2959	675	90	621
Miller, Wilson W., Saxman, Kans. Grain-drill	640,215	Jan. 2	112	22	90	23
Miller, Wilson W., Saxman, Kans. Grain-drill	641,718	Jan. 23	2963	676 / 677	90	622
Miller's Falls Company. (See Davis, Leonard M., assignor.)						
Milleville, Gustave H., Altamont, Ill. Hay-rake	641,029	Jan. 9	1708	379	90	349
Millholland, William K. (See Whitcomb and Millholland.)						
Milligan, Francis W. (See Hart and Milligan.)	640,300	Jan. 2	283	58	90	56
Millington, Frederick J., Brushton, N. Y. Acetylene-gas generator	645,482	Mar. 13	1696	371	90	2107
Mills, John A., assignor of two-thirds to J. D. Nance and S. J. Kennerly, Gainesville, Tex. Fan attachment for bicycles	640,480	Jan. 2	614	132	90	121
Mills, John S., New York, N. Y. Railway-switch mechanism	645,626	Mar. 20	1981	435	90	2175
Mills Joseph T., assignor to M. B. Jacobs and M. Mills, New York, N. Y. Receptacle or can						
Mills, Lyman A., executor. (See Durrenberger, George, assignor.)						
Mills, Maud, *et al.* (See Mills, Joseph T., assignor.)	644,828	Mar. 6	508	109	90	1855
Mills, Nathaniel C., Malden, Mass. Hoisting apparatus	640,479	Jan. 2	613	131	90	120
Mills, William, Elizabeth, assignor to Eastern Carbon Works, Rahway, N. J. Connector for battery-electrodes, fuses, &c	643,909	Feb. 20	2573	607	90	1504
Milne, Charles W. (See Davy, William J., assignor.)						
Milne, Thomas, Sandon, Canada. Scaffold or portable trestle	642,868	Feb. 6	524	122	90	1009
Milner & Co., J. K. (See Watkins, Orla H., assignor.)						
Milson, John R., Bristol, R. I. Top roll for spinning-machines	640,401	Jan. 2	484	101	90	95
Milwaukee Harvester Company. (See Birkett and Crandall, assignors.)						
Minassian, Harry A., and L. M. Darling, Des Moines, Iowa. Game-board						
Miner, George S., *et al.* (See Sui, Ding C., assignor.)						
Miner, William H. (See Mileham, Charles M., assignor.)						
Miner, William H., Chicago, Ill. Double or tandem spring draft-rigging for railway-cars	644,679	Mar. 6	227	49	90	1799
Minge, C. H., *et al.* (See Voorhies, Lucien, assignor.)						
Miracle, Meridith W., Huntsville, Ark., assignor of one-third to W. N. Williams, S. B. Gilliland, J. B. Harris, and H. L. Baker. Cheese-knife	640,301	Jan. 2	284	58	90	57
Mischke, Karl, New York, N. Y. Pelt-refining machine	640,581	Jan. 2	795	175 / 176	90	155
Mitchel, Henry J., Plymouth, Ind. Shaft or thill coupling	643,846	Feb. 20	2348	553	90	1458
Mitchell, Fletcher H., Cerrillos, N. Mex. Ter. Animal-blanket-retaining means	645,368	Mar. 13	1498	328	90	2067
Mitchell, James M., Jordan, Ky. Check-row corn-planter	641,462	Jan. 16	2515	575 / 576	90	524
Mitchell, John, and H. C. Larson, Dodgeville, Wis. Milk-sterilizer	640,789	Jan. 9	1204	274	90	253
Mitchell, John B., assignor of one-half to W. H. Stevens, Portland, Me. Pencil-sharpener	642,914	Feb. 6	614	141	90	1096
Mitchell, John E., St. Louis, Mo. Dust-collector	645,322	Mar. 13	1402	308	90	2048
Mitchell, John E., St. Louis, Mo. Dust-collector	645,369	Mar. 13	1494	328 / 329	90	2067
Mitchell, Lee E., Boston, Mass. Hydraulic air-compressor	641,981	Jan. 23	3446	784 / 785	90	714
Mitchell, Lee E., and A. D. McKinnon, Boston, Mass. Beer-faucet	646,056	Mar. 27	2787	618	90	2352
Mitchell, Ossian K. (See Purves and Mitchell.)						
Mitchell, Robert, Jr., Glasgow, Scotland. Shielded rubber tire for vehicles	640,927	Jan. 9	1496	335	90	310
Mitcheson, James. (See Fitton and Mitcheson.)						
Mitzimberg, Charles F., Scotland County, Mo. Watering-trough	643,671	Feb. 20	2023	478	90	1396
Mixsell, Ward T., Jersey City, N. J. Generator	642,352	Jan. 30	4168	943	90	873
Miyaji, Frank T., Hamilton, Ohio. Paper box	643,420	Feb. 13	1522	357	90	1281
Mizell, William G., Windsor, N. C. Scale-pan	646,300	Mar. 27	3259	738	90	2443

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Model Marine Motor Company. (See Ryder, Benjamin P., assignor.)						
Moeller, Charles W. H. (See Thoele and Moeller.)						
Moen, John F., New York, N. Y. Bicycle-brake	640,681	Jan. 2	998	225	90	198
Moffatt, William E., Charlotte, N. C., assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Apron for engine-lathes	643,194	Feb. 13	1125	262	90	1206
Moffett, Robert W. (See Kern, Gottlieb, assignor.) (Reissue.)						
Moffitt, Thomas E., Bathgate, N. D. Apparatus for hanging wall-papers	645,118	Mar. 13	1041	221	90	1977
Moh, Oswald, Görlitz, Germany. Photographic film	645,209	Mar. 13	1215	265	90	2011
Molière, Mathieu P. T. D. (See Van Viersen, Molière, and Ter Meulen.)						
Moline Plow Company. (See Lindgren, Alexus C., assignor.)						
Moline Plow Company. (See Lindgren, August, assignor.)						
Moll, Johann, Augsburg, Germany. Lathe for turning crank-shafts	646,078	Mar. 27	2821	625 / 626 / 627	90	2359
Möller, Herman L., San Francisco, Cal. Traveling target	645,229	Mar. 13	1248	270 / 271	90	2017
Möller, Jürgen J., Flensburg, Germany. Hydraulic seal or trap for jars, &c.	643,230	Feb. 13	1187	278	90	1218
Monaghan, Alexander. (See Witzmann, Francis, assignor.)						
Monarch Manufacturing Company. (See Purinton and Reynolds, assignors.) (Reissue.)						
Mosgredien, Clément A. A., Levallois-Perret, and F. D. Bernier, Paris, France. Motor-car	641,878	Jan. 23	3272	743	90	678
Monhof, Emil. (See Kremer and Monhof.)						
Monk, Frank, assignor to American Oak Leather Company, Cincinnati, Ohio. Machine for working leather	640,216	Jan. 2	115	22	90	24
Monkhouse, James, Honolulu, Hawaii. Friction-clutch	645,483	Mar. 13	1698	371	90	2107
Monroe, Charles H., assignor to W. E. Grinnell, Searsport, Me., and H. B. Black, Everett, Mass. Sprocket-wheel wrench	643,520	Feb. 13	1708	401	90	1320
Montgilliion, Eugene F., Baltimore, Md. Folding crate	642,245	Jan. 30	3950	901	90	828
Montgomerie, John C., Stair, Scotland, and H. Parkes, London, England. Treatment of gold and silver ores, &c	646,006	Mar. 27	2691	596	90	2333
Montgomery, George W., Bellaire, Ohio. Rotary engine	644,256	Feb. 27	3095	728 / 729	90	1619
Montgomery, James A., assignor to himself and F. M. Jackson, Brookwood, Ala. Wrench	642,473	Jan. 30	4388	995	90	913
Montgomery, Robert R., Decatur, Ill. Fly-killer	640,790	Jan. 9	1205	274	90	257
Moores, Otis J. (See Huston and Moores.)						
Moon, Thomas E., Sabina, Ohio. Adjustable riding attachment for plows	642,145	Jan. 30	3764	859	90	792
Mooney, William T., Conicville, Va. Rotary engine	646,057	Mar. 27	2788	618	90	2352
Moor, Cornelius, and C. H. Mayer, Hammond, Ind. Device for corking bottles	642,246	Jan. 30	3952	901	90	829
Moore Carving Machine Company. (See Yarnell, Charles S., assignor.)						
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Vacuum-tube lighting	644,995	Mar. 6	789	172	90	1914
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Vacuum-tube lighting	645,041	Mar. 6	886	192	90	1933
Moore, David H. (See Hall, Albert, assignor.)						
Moore Electrical Company. (See Moore, Daniel M., assignor.)						
Moore, Frank. (See Allan and Moore.)						
Moore, Herman. (See Armstrong and Patterson, assignors.)						
Moore, Homer B., Fort Scott, Kans. Ribbon-spool rack	646,388	Mar. 27	3468	772	90	2489
Moore, Ila N., Battle Creek, Mich. Slide-valve	641,132	Jan. 9	1900	421	90	388
Moore, John F., Chicago, Ill. Seal-lock	642,353	Jan. 30	4173	944	90	875
Moore, John H., Cleveland, Ohio. Valve for engines	646,187	Mar. 27	3037	670 / 671	90	2100
Moore, John W., and J. A. White, Philadelphia, Pa. Mechanical movement	644,996	Mar. 6	791	173	90	1914
Moore, Matthew R., assignor to Atlas Engine Works, Indianapolis, Ind. Valve-gear	642,146	Jan. 30	3767	859	90	793
Moore, Matthew R., assignor to Atlas Engine Works, Indianapolis, Ind. Valve-gear for engines	642,621	Feb. 6	96	23, 24	90	985
Moore, Orlando W. (See Taylor and Moore.)						
Moore, Robert S., Oakland, Cal. Tool-holder for riveters	641,317	Jan. 16	2256	511	90	473
Moore, Stuart B., New York, N. Y. Stencil-cutting machine	644,087	Feb. 27	2783	660	90	1559
Moore, Thomas A. L., assignor of one-half to A. J. Silverwood, Richmond, Va. Combined lock and latch	640,217	Jan. 2	116	22	90	24
Moran, James, and R. F. Hoey, San Francisco, Cal. Beer-faucet cooler	642,243	Jan. 30	3948	900	90	828
Moran, Louis A. (See Pfent and Moran.)						
Moran, Thomas P., Nelson, Canada. Combined harvester, thresher, and bagger	640,682	Jan. 2	999	226 / 227 / 228 / 229	90	198
Morden, Bishop S., Buffalo, N. Y. Speed-wagon	645,509	Mar. 13	1743	383	90	2116
Moreau, Leon. (See Boty and Moreau.)						
Morehouse, Cyrus E., Milwaukee, Wis. Temporary binder	642,244	Jan. 30	3949	900 / 901	90	828
Morey, Amos F., assignor of one-half to M. Cahill, Chicago, Ill. Burner	643,673	Feb. 20	2026	478	90	1397
Morgan, Bennett C., Connellsville, Pa. Plumb-level	645,209	Mar. 13	1312	286	90	2031
Morgan, Charles, Freeport, Ill. Cork-puller	644,088	Feb. 27	2787	661	90	1561
Morgan, Edmund C., Chicago, Ill., assignor to Electric Haulage and Manufacturing Company, Brazil, Ind. Electric railway	645,646	Mar. 20	2014	443	90	2183
Morgan, Edmund C., Chicago, Ill., assignor to Electric Haulage and Manufacturing Company, Brazil, Ind. Third or traction rail for electric railways	645,647	Mar. 20	2016	443	90	2184
Morgan, Edmund C., Chicago, Ill., assignor to Electric Haulage and Manufacturing Company, Brazil, Ind. Electric railway	645,648	Mar. 20	2018	444	90	2184
Morgan, Edward, Wilkinsburg, Pa. Hoof-trimmer	646,058	Mar. 27	2789	618	90	2353
Morgan, Job J., Youngstown, Ohio. Coal-bit	640,481	Jan. 2	616	132	90	121
Morgan, John R., St. Louis, Mo. Blind-slat adjuster	643,361	Feb. 13	1411	320	90	1261
Morgan, Lingue S., Kendall, Kans. Fence	643,332	Feb. 13	1364	319 / 320	90	1252
Morgan, Saxton J., Albany, Wis. Combined door-hanger track and weather-shed	641,982	Jan. 23	3450	785	90	715
Morgareidge, Charles W. (See Seabury and Morgareidge.)						
Morgenstern, Ludwig, Göttingen, Germany. Thermostatic apparatus	643,860	Feb. 20	2406	566	90	1469
Moriarty, Edward, London, England. Machine for receiving, sorting, and indicating coin	640,683	Jan. 2	1007	229	90	192
Moriarty, John T. (See Flavin, Moriarty, and Flavin.)						
Morison, Alexander, Saginaw, Mich. Tow-cleaner	644,031	Feb. 20	2691	687	90	1526
Morison, Donald B., Hartlepool, England. Expansion-gland	643,802	Feb. 20	2256	531	90	1440
Morlan, Walter B., Urich, Mo. Fire-tongs	643,723	Feb. 20	2129	499	90	1416
Morley, William, Fontanelle, Iowa. Band-cutter and feeder	640,684	Jan. 2	1009	280	90	195
Morrell, Edward E. (See Johnston and Morrell.)						
Morris, Albertis, Waukee, Iowa. Hog-holder	643,673	Feb. 20	2027	478	90	1397

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Morris, Charles T., and A. Kunkle, Monaca, Pa. Curtain-fixture	642,247	Jan. 30	3953	901	90	829
Morris, Fulton R., Milwaukee, Wis. Drying-kiln	640,791	Jan. 9	1206	274	90	254
Morris, Isaiah S. (See Carman and Morris.)						
Morris, John H., Fremont, Nebr. Vehicle-wheel	643,724	Feb. 20	2130	499	90	1416
Morris, Walter. (See McAnulty, John A., assignor.)						
Morrison, Burton E., *et al.* (See Morrison, Elijah, assignor.)						
Morrison, Daniel, assignor of one-half to J. H. Fleming, Maple Creek, Canada. Grass or stubble burner	641,529	Jan. 16	2648	604	90	550
Morrison, Edward G., *et al.* (See Morrison, Elijah, assignor.)						
Morrison, Elijah, assignor of one-half to E. G. and B. E. Morrison, Haverhill, Mass. Tipping-handle and cover holder for kettles	645,119	Mar. 13	1042	222	90	1977
Morrison, Florence A. (See Webster, John A., assignor.)						
Morrison, James F. and A. J. Allen, Chicago, Ill. Brake-shoe	646,301	Mar. 27	3269	728	90	2443
Morrison, James W. (See Porter, Joseph Y., assignor.)						
Morrison, John W. (See Fellows, John H., assignor.)						
Morrison, Lewis E., Kensington, Conn. Sheet-feeding machine	642,915	Feb. 6	616	141 142	90	1086
Morrison, Robert, Canton, Mass. Thread-winding machine	644,866	Mar. 6	574	124	90	1869
Morrow, Alexander P., Elmira, N. Y. Back-pedaling brake	646,303	Mar. 27	3265	728 729	90	2444
Morrow, Alexander P., Elmira, N. Y. Back-pedaling brake	646,304	Mar. 27	3267	729	90	2445
Morrow, Alexander P., Elmira, N. Y. Clutch mechanism	646,305	Mar. 27	3269	729	90	2445
Morrow, Alexander P., assignor of one-half to H. H. Fulton, Elmira, N. Y. Back-pedaling brake	641,983	Jan. 23	3451	785	90	715
Morrow, Alexander P., assignor of one-half to H. H. Fulton, Elmira, N. Y. Back-pedaling brake	646,302	Mar. 27	3261	728	90	2444
Morse, Albro J. (See Bussells, Josephus F., assignor.)						
Morse, Charles H. (See Probert, Hubert F., assignor.)						
Morse, Franklin E. (See Brown and Morse.)	642,147	Jan. 30	3769	859	90	793
Morse, Sumner L., Athol, Mass. Burglar-alarm apparatus	644,183	Feb. 27	2966	701	90	1595
Morse, William R., Chicago, Ill. Harness-snap	641,217	Jan. 9	2076	466	90	423
Morss, Stephen B., Rahway, assignor to F. W. Keasbey, Morristown, N. J. Lamp-burner	641,218	Jan. 9	2077	466	90	423
Morss, Stephen B., Rahway, assignor to F. W. Keasbey, Morristown, N. J. Lamp-burner	645,753	Mar. 20	2225	493	90	2224
Morton, Horace J., Chicago, Ill. Drying-kiln	644,581	Feb. 27	3009	840	90	1718
Morton, Howard, deceased; Fidelity Title and Trust Company, administrator, Pittsburg, Pa. Open gravity-filter						
Morton, Jay. (See Wilson, David H., assignor.)						
Mosen, Alexander. (See Burian, Carl, assignor.)	642,474	Jan. 30	4389	996	90	917
Moser, Conrad, Fruitvale, assignor to H. Mellmann, Oakland, Cal. Rubber or overshoe	641,318	Jan. 16	2258	512	90	473
Mosher, Charles D., New York, N. Y. Feed-water heater	641,530	Jan. 16	2651	604	90	551
Mosher, Henry G., Fairmount, Nebr. Harrow and pulverizer	644,439	Feb. 27	3445	800	90	1687
Mosher, John A., assignor to Adams & Westlake Company, Chicago, Ill. Acetylene-gas generator	643,302	Feb. 13	1413	330	90	1262
Moss, Flavius, Russiaville, Ind. Apparatus for making fruit butter	645,209	Mar. 13	1370	298	90	2042
Moss, Isidor, Waltham, Mass. Antifriction-bearing	645,898	Mar. 20	2423	532	90	2264
Moss, John J., Chicago, Ill. Packing	642,809	Feb. 6	525	123	90	1069
Motsinger, Homer N., Pendleton, assignor of one-half to N. H. Motsinger, Shoals, Ind. Controlling means for spark-generators	645,532	Mar. 13	1786	392	90	2124
Motsinger, Newell H. (See Motsinger, Homer N., assignor.)						
Mott, George H., West Union, Iowa. Watering-trough	642,248	Jan. 30	3954	902	90	829
Moulton, Sarah A., and L. M. Jones, Grand Rapids, Mich. Garment-supporter	645,510	Mar. 13	1745	383	90	2116
Mountcastle, George A., Arringdale, Va. Logging-car	645,042	Mar. 6	896	192	90	1963
Mower, Charles H., Quigley, Iowa Apparatus for heating milk for stock	645,494	Mar. 13	1568	349	90	2088
Mower, Edwin F., Boston, assignor to C. F. Stanbon, Lynn, Mass. Fair-stitch machine	641,719	Jan. 23	2973	677	90	623
Mower, Edwin F., and P. A. Coupal, Boston, Mass., assignors to United Shoe Machinery Company, Paterson, N. J. Sewing-machine	640,685	Jan. 2	1011	230	90	195
Moyer, Milton E., Berrysburg, Pa. Trap attachment for fly-screens	640,302	Jan. 2	285	58	90	57
Mudd, Harry T. (See Hubbard and Dorsey, assignors.)						
Mueller, August Q., and C. Farner, Milwaukee, Wis. Bung-stopper						
Mueller, Ferdinand C. (See Bucher and Mueller.)						
Mueller, Frederick, assignor to C. F. Rumpp & Sons, Philadelphia, Pa. Holder for playing-cards	644,623	Mar. 6	114	26	90	1776
Muender, William L., Montfort, Wis. Attachment for binders	641,984	Jan. 23	3452	786	90	715
Mühlbock, Paul, Berlin, Germany. Machine for finishing and shaping cigars	645,180	Mar. 13	1165	252	90	2001
Muir, John A., *et al.* (See Aniello, John A., assignor.)	643,674	Feb. 20	2028	479	90	1397
Muirhead, John, Laurium, Mich. Mine elevating apparatus	644,142	Feb. 27	2880	681	90	1579
Mulherin, James A., St. Louis, Mo. Trap						
Mullié, Willem P., Leyden, Netherlands, and B. H. Van den Berg, Antwerp, Belgium. Life-boat	642,622	Feb. 6	100	24	90	965
Muller, Hermann J., New York, N. Y. Portable electric lamp	641,403	Jan. 16	2517	576	90	524
Müller, Richard, Lemgo, Germany. Device for fastening spokes to rims of wheels	646,306	Mar. 27	3271	730	90	2446
Müller, Walter, Rixdorf, Germany. Acidifying milk for manufacturing oleomargarine	641,624	Mar. 6	115	.....	90	1777
Mullikin, Levin H., Trappe, Md. Combined lock and latch	646,004	Mar. 27	2853	633	90	2366
Mulloy, Patrick J., Ardoch, N. D. Spice-cabinet	644,257	Feb. 27	3098	720	90	1620
Mündheim, Herman. (See Freese, Edward, assignor.)						
Mundhenk, Clement L. V., Gordon, Ohio. Air-brake	643,421	Feb. 13	1323	358	90	1282
Mundy, Joseph S. (See Campbell, Colin, assignor.)						
Munn, Frank E. (See Thomas, Myron C., assignor.)	640,792	Jan. 9	1208	275	90	254
Munsell, Albert H., Brookline, Mass. Color-sphere and mount	640,582	Jan. 2	799	176 177	90	156
Munson, Edward L., U. S. Army. Tent						
Munton, James. (See Hermanson, Gustaf, assignor.)						
Munton, James. (See Hermanson, Gustaf A., assignor.)	646,188	Mar. 27	3043	671	90	2403
Murchey, William, Detroit, Mich. Machine for making sand molds	645,210	Mar. 13	1216	265	90	2011
Murdock, Horace B., assignor of three-fourths to P. A. and F. T. Joyce and F. J. Peddle, Detroit, Mich. Refrigerator	643,675	Feb. 20	2029	479	90	1398
Murdy, Thomas, Norristown, Pa. Merry-go-round						
Murphey, Charles H., Madisonville, Ky. Device for injecting powders into the nasal passages	645,566	Mar. 20	1842	406	90	2149
Murphy, Charles F. (See Tuttle, James E., assignor.)	644,209	Feb. 27	3008	712	90	1603
Murphy, Edward T. B., East Haven, Conn Game	641,720	Jan. 23	2978	678	90	624
Murphy, James, Butte, Mont. Ore washer and amalgamator	640,798	Jan. 9	1209	275	90	254
Murphy, John C., Evanston, Ill. Ash-sifter	642,475	Jan. 30	4390	996	90	917
Murphy, John F., Bayard, Iowa. Engraving-machine						
Murphy, John M., Torrington, Conn., assignor to Safety Third Rail Electric Company, New York, N. Y. Surface-contact electric-railway system	641,879	Jan. 23	3275	744	90	679

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Murphy, Morris. (See Frink and Murphy.)						
Murphy, Thomas J., New York, N. Y. Junction-box	640,482	Jan. 2	617	132 133	90	121
Murphy, William F., Iowa City, Iowa. Hanger for electric lamps	642,623	Feb. 6	102	25	90	965
Murphy, William H. (See Kirkpatrick, Drury T., assignor.)						
Murphy, William P., San José, Cal. Trace-eye guard	646,095	Mar. 27	2854	633	90	2366
Murphy, William P., assignor of one-half to A. E. Winlow, San José, Cal. Comb	641,531	Jan. 16	2652	604 605	90	551
Murray, George W., Sumter, S. C. Combined road breaker and scraper	641,030	Jan. 9	1709	379	90	349
Murray, George W., Sumter, S. C. Cotton-seed planter	642,050	Jan. 23	3570	817	90	737
Murray, George W., Sumter, S. C. Potato-digging machinery	642,555	Jan. 30	4521	1023	90	941
Murray, George W., Sumter, S. C. Grain-drill	644,032	Feb. 20	2693	598	90	1526
Murray, James F., *et al.* (See Bowler, Hezekiah S., assignor.)						
Murray, James W., assignor of one-fourth to S. Johnson, St. George, Canada. Window-sash	643,676	Feb. 20	2031	480	90	1308
Murray, Michael D., *et al.* (See Bowler, Hezekiah S., assignor.)						
Murray, Robert, trustee. (See Livingstone, William, assignor.)						
Murray, Stephen D., Dallas, Tex. Cotton-elevator and gin-feeder	644,532	Feb. 27	3612	841	90	1718
Mussetter, Joseph A., Paintersville, Ohio. Straw-stacker	641,532	Jan. 16	2654	605 606	90	551
Mussinan, Oscar, Arverne-by-the-Sea, assignor to W. H. Porter and C. F. Meek, trustees, New York, N. Y. Gas-tip	640,686	Jan. 2	1013	230	90	195
Mutart, John, assignor of one-half to G. B. Wilcox, Bay City, Mich. Digging attachment for subsoil-plows	642,148	Jan. 30	3770	860	90	793
Muzzy, Viola D., East Branch, Pa. Fly-escape	646,096	Mar. 27	2855	634	90	2366
Myers, Emma E., Pittsburg, Pa. Envelop	643,333	Feb. 13	1956	430	90	1252
Myers, James M., Kirbyville, Tex. Velocipede	641,533	Jan. 16	2658	606	90	552
Myers, John M., Louisville, Ky. Ice-creeper attachment for horseshoes	645,869	Mar. 20	2424	532	90	2264
Myers, Matthew J., Syracuse, N. Y. Device for locating grounds on electric circuits	645,608	Mar. 20	1931	426	90	2166
Mytton, Richard G. V., Meridian, Miss. Rotary engine	645,484	Mar. 13	1699	371 372 373 374	90	2108
"N. L." Syndicate. (See Gatzsche, Franz, assignor.)						
Nagley, Burton B., and I. Asbery, Marysville, Wash. Cheese-cutter	644,775	Mar. 6	405	88	90	1835
Nagley, Guy J., *et al.* (See Nagley, Jefferson J., assignor.)						
Nagley, Horace W., *et al.* (See Nagley, Jefferson J., assignor.)						
Nagley, Jefferson J., assignor of one-half to H. W. and G. J. Nagley, Marysville, Wash. Tongue-support	644,534	Feb. 27	3617	842	90	1719
Nalsh, Redmund, Dublin, Ireland. Calculating device	640,584	Jan. 2	802	178	90	156
Nalley, George A. (See Philpott, James S., assignor.)						
Nance, John D., *et al.* (See Mills, John A., assignor.)						
Nash, John, Dayton, Wash. Refrigerator	644,935	Mar. 6	687	150	90	1892
Nash, John, Dayton, Wash. Leveling attachment for vehicles	645,825	Mar. 20	2356	515	90	2250
Nason, Carleton W., New York, N. Y. Hoisting apparatus	641,135	Jan. 9	1904	422	90	389
Nason, Carleton W., New York, N. Y. Steam-trap	641,136	Jan. 9	1906	422	90	389
Nason, Carlton W., New York, N. Y., and C. Yingling, Metuchen, N. J.; said Nason assignor to said Yingling. Rocking grate for furnaces	644,365	Feb. 27	3325	772	90	1662
Nathan, Harry, New York, N. Y. Hair-pin	641,137	Jan. 9	1908	423	90	390
Nathan Manufacturing Company. (See Woods, Hugh, assignor.)						
National Braider Company. (See Groupe, Andrew V., assignor.)						
National Carbon Company. (See Richmond and Zellers, assignors.)						
National Cement and Rubber Manufacturing Company. (See Bancroft, James E., assignor.)						
National Computing Scale Company. (See Culmer and Hoyt, assignors.)						
National Dairy Machine Company. (See Anderson, Oscar, assignor.)						
National Enameling and Stamping Company. (See Niedringhaus, William F. and G. W., assignors.)						
National Folding Box and Paper Company (See Hibson, Albert R., assignor.)						
National Machine Company. (See Hogan, James T., assignor.)						
National Malleable Castings Company. (See Case, William, assignor.)						
National Malleable Castings Company. (See Coffin, Walter E., assignor.)						
National Malleable Castings Company. (See Stephenson, John W., assignor.)						
National Malleable Castings Company. (See Tower, Clinton A., assignor.)						
National Malleable Castings Company. (See Willison, John, assignor.)						
National Mat Company. (See Rennie, John A., assignor.)						
National Tube Company. (See Harvey, George H., assignor.)						
Natterer, Josef, Jersey City, N. J., assignor to Symphonion Manufacturing Company, New York, N. Y. Electrical music-box	645,405	Mar. 13	1566	342 343	90	2062
Naughton, James J., New York, N. Y. Boot or shoe heel	642,917	Feb. 6	622	143	90	1087
Navone, Antonio L., Callstoga, Cal. Gas-engine	642,706	Feb. 6	248	61, 62	90	1015
Naylor, Huldah C. (See Abbott, Ambrose E., assignor.)						
Neal, Daniel W. (See Spencer and Neal.)						
Neale, David, Fort Calhoun, Nebr. Brush-mat quilter	646,008	Mar. 27	2696	597	90	2334
Neall, Samuel W., Philadelphia, Pa. Grain-car door	644,535	Feb. 27	3619	842	90	1719
Neel, William D. (See Armstrong and Neel.)						
Neeley, George S., assignor of one-half to A. Koppitz, Pacific, Mo. Automatic regulator for alternating dynamos	646,308	Mar. 27	3273	730 731	90	2446
Neeley, George S., Ferguson, assignor of one-half to A. Koppitz, Pacific, Mo. Induction-motor	646,309	Mar. 27	3282	731	90	2447
Neeley, Thompson G. (See Ratcliff, Josiah A., assignor.)						
Neely, Samuel L., Pierron, Ill. Railway signal mechanism	642,848	Feb. 6	486	115	90	1061
Neely, Thaddeus A. (See Becker, Frank J., assignor.)						
Neil, John, Chicago, Ill. Drive-chain	641,031	Jan. 9	1710	379	90	349
Nelson, Anders G., Chicago, Ill. Draft attachment for stoves	640,484	Jan. 2	620	134	90	121
Nelson, Charles A., Alexandria, Minn. Feed-water heater	642,802	Feb. 6	402	97	90	1043
Nelson, Enoch A. (See Wilderman and Nelson.)						
Nelson, Martin O., Natick, Mass. Attachment for dental dams	640,930	Jan. 9	1500	336	90	311
Nelson, Olof, Dubois, Pa. Picture-hanger	642,997	Feb. 6	750	173	90	1113
Nelson, Paul C., Kensington, Minn. Stable-fork	644,936	Mar. 6	689	150	90	1892
Nelson, Samuel W., Munday, Tex. Planting attachment for cultivators	645,826	Mar. 13	1412	310	90	2050
Neostyle Company. (See Uppercu, Inglis M., assignor.)						
Nerbovig, Mathias H., Norseland, Minn. Milk-can ventilator	642,250	Jan. 30	3957	902	90	829
Nerz, Fidelis, Nuremberg, Germany. Grinding-machine	644,445	Feb. 27	3455	803	90	1690
Netter, George J., East Pittsburg, Pa. Automatic coupling for air-brakes	640,405	Jan. 2	493	102	90	97
Neubauer, Wilhelm, Bischweiler, Germany. Spinning and twisting machine	643,302	Feb. 13	1311	300	90	1242

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Neubecker, Carl A., Offenbach-on-the-Main, Germany. Apparatus for pitching internal surfaces of casks or barrels	643,523	Feb. 13	1711	409 / 408	90	1320
Neubert, Franklin G., assignor to Patent Button Company, Waterbury, Conn. Button	646,097	Mar. 27	2856	634	90	2366
Neuens, Michael W., assignor of one-half to R. Stelling, Port Washington, Wis. Sash-cord fastener	645,737	Mar. 20	2208	478	90	2220
Neuhs, Werner, Cleveland, Ohio. Smoke-preventing device for furnaces	640,796	Jan. 9	1213	276	90	255
Neumeyer, Horace F., Macungie, Pa. Self-closing closet-valve	642,707	Feb. 6	251	62	90	1016
Neville, Asa G., Wellsburg, W. Va. Glass-finishing apparatus	644,586	Feb. 27	3621	843 / 843	90	1730
New, Anthony G., Woking, England. Heavy-oil engine	642,871	Feb. 6	532	124	90	1070
New Departure Bell Company. (See Rockwell, Albert F., assignor.)						
New Era Company. (See Jones, John A., assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New Haven Oyster Company. (See Hendryx, Andrew B., assignor.)						
New Jersey Wire Cloth Company. (See Himmelwright, Abraham L. A., assignor.)						
New Jersey Wire Cloth Company. (See Orr, William, assignor.)						
New Process Coating Company. (See Braddock, Edward I., assignor.)						
New York Stencil Works. (See Bartusch, Oswald G., assignor.)						
Newburn, Stephen. (See Palmer, George W., assignor.)	646,232	Mar. 27	3146	----	90	2422
Newby, Albert S., Chanute, Kans. Compound for coating incandescent mantles	641,032	Jan. 9	1711	380	90	350
Newby, Clarence L., Kansas City, Mo. Shade support and protector	642,556	Jan. 30	4522	1024	90	941
Newcomer, David M., assignor to H. S. Ehrhart, Hanover, Pa. Kidney-protector	644,366	Feb. 27	3326	772	90	1668
Newell, Augustus, Pasadena, Cal., assignor of one-half to F. H. Gansbergen, Chicago, Ill. Locking adjustment for journal-bearings	646,233	Mar. 27	3146	695	90	2422
Newell, Augustus, Pasadena, assignor to Perfect Sliding Door Company, Los Angeles, Cal. Sliding-door lock	643,385	Feb. 13	1462	342	90	1270
Newell, Edgar G., Glen Ridge, N. J. Toy figure	643,270	Feb. 13	1257	295	90	1231
Newell, George A., assignor of two-thirds to P. Gerst and G. A. Stricker, Buffalo, N. Y. Automatic safety device for elevators	642,708	Feb. 6	253	62	90	1016
Newell, George H., Grand Rapids, Mich. Projectile	644,800	Mar. 6	580	124 / 125	90	1870
Newell, William, San Francisco, Cal. Wave-power motor	643,524	Feb. 13	1712	408	90	1321
Newman, Charles, Springfield, Mo. Hand-planter	641,608	Jan. 16	2771	681	90	574
Newman, Frederick J., and J. Ledwinka, Chicago, Ill. Electrically-propelled vehicle	640,981	Jan. 9	1501	336	90	312
Newton, Frank T., *et al.* (See Williamson, William, assignor.)	640,311	Jan. 2	206	62	90	60
Newton, George, Odessa, N. Y. Wagon-brake	646,092	Mar. 27	2742	608 / 609	90	2343
Newton, James B., Springfield, Ill. Device for replacing derailed cars or locomotives	641,990	Jan. 23	3464	789 / 790	90	717
Newton, William A., Minneapolis, Minn. Starching-machine	644,212	Feb. 27	3013	713	90	1604
Ney Manufacturing Company. (See Tromanhauser, Seneca H., assignor.)	644,213	Feb. 27	3014	713	90	1605
Neyens, Peter, Dunsmuir, Cal. Machine for producing smoke and heat in orchards	644,999	Mar. 6	796	174	90	1915
Niagara Cleaner Company. (See Tromanhauser, Seneca H., assignor.)	645,181	Mar. 13	1166	253	90	2008
Nicewaner, Edwin G., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	643,615	Feb. 13	1881	444	90	1355
Nicewaner, Edwin G., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Motor suspension	644,537	Feb. 27	3623	843	90	1730
Nichols, Franklin H., assignor of one-half to G. Hewitt, Chetek, Wis. Swivel-plow	643,726	Feb. 20	2132	----	90	1416
Nichols, Henry B., Philadelphia, Pa. Railway construction	644,883	Feb. 27	2412	567 / 568 / 569	90	1470
Nichols, William. (See Bunnell and Nichols.)	643,884	Feb. 20	2420	569	90	1472
Nickerson, Joseph A., Boston, Mass. Nut-lock	642,750	Feb. 6	328	79	90	1031
Nickey, Oscar E., Big Springs, Tex. Water-filter	642,751	Feb. 6	330	80	90	1031
Nicolai, Charlotte E. (See Schon, Carl, Jr., assignor.)	642,752	Feb. 6	330	80	90	1031
Nicolai, Ludwig. (See Saltzkorn and Nicolai.)						
Nicolai, Ludwig, Dresden, Germany. Cardboard cutting and grooving device	641,791	Jan. 23	3106	706	90	647
Nicolay, Peter, Minneapolis, Minn. Shovel	641,401	Jan. 16	2593	547	90	500
Niedringhaus, George W. (See Niedringhaus, William F. and G. W.)						
Niedringhaus, William F. and G. W., St. Louis, Mo., assignors to National Enameling and Stamping Company, New York, N. Y. Enamelized steel or homogeneous iron	643,726	Feb. 20	2132	----	90	1416
Nielsen, Anton E., assignor to Sterling Supply and Manufacturing Company, New York, N. Y. Fare-register	643,883	Feb. 20	2412	567 / 568 / 569	90	1470
Nielsen, Anton E., assignor to Sterling Supply and Manufacturing Company, New York, N. Y. Fare-register-operating device	643,884	Feb. 20	2420	569	90	1472
Nielsen, Lauritz B., Poughkeepsie, N. Y. Combination measuring-tool	642,750	Feb. 6	328	79	90	1031
Nies, William F., Swampscott, assignor of one-half to F. F. Hodges, Boston, Mass. Necktie-holder	642,751	Feb. 6	330	80	90	1031
Nies, William F., Swampscott, assignor of one-half to F. F. Hodges, Boston, Mass. Combined collar-button and necktie-holder	642,752	Feb. 6	330	80	90	1031
Niewiarowski, Stefan. (See Jablonski, Stefan, assignor.)						
Nilius, Otto. (See Strawmyer and Nilius.)						
Nilson, Elof. (See Berg and Nilson.)	646,098	Mar. 27	2857	634	90	2366
Nilson, Magnus, Oakland, Cal. Leveling instrument	643,423	Feb. 13	1527	358 / 359	90	1282
Nilson, Nils, Minneapolis, Minn. Automatic weighing-scale	642,918	Feb. 6	623	143	90	1067
Nilsson, Nils, New York, N. Y., assignor to Nilsson Power Company, of New York. Mounting rotary driving and driven members	642,625	Feb. 6	106	25	90	986
Nilsson Power Company. (See Nilsson, Nils, assignor.)	643,052	Jan. 23	3573	818	90	737
Nimmons & Becker. (See Becker, Frank L., assignor.)	643,776	Feb. 20	2215	523	90	1433
Niswonger, George D., and J. W. Hawenstine, Fort Wayne, Ind. Refrigerator attachment	640,797	Jan. 9	1214	276	90	255
Nitschelm, Laura, Peoria, Ill., assignor, by mesne assignments, of one-half to American Novelty Company, of Michigan. Skirt-supporter	646,370	Mar. 27	3440	766 / 767	90	2484
Nixon, James G. (See Nixon, John and J. G.)	642,251	Jan. 30	3059	908	90	880
Nixon, John and J. G., assignors to Farmland Woven Wire Fence Machine Company, Farmland, Ind. Wire-fence machine	641,402	Jan. 16	2395	548	90	500
Noble, Edwin J. (See Watson, George H., assignor.)						
Nofsinger, John C., Washington, Ill. Belt-guide	644,987	Mar. 6	689	151	90	1892
Nolte, Frederick W., Victoria, British Columbia, Canada. Sound-reproducer						
Nolte, Henry A., Elkhorn, Nebr. Disk-cultivator attachment						
Nordell, Carl. (See Warren and Nordell.)						
Norden, William L., assignor of one-half to S. B. Swanson, Warwick, R. I. Guide-board for twisting-machines						
Nordlinger-Charlton Fireworks Company. (See Lispenard, George, assignor.)						
Norditome, Robert. (See Bark, Andrew E., assignor.)						
Nordyke, Walter A., Indianapolis, Ind. Necktie-holder						

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Noren, Erik, Beloit, Wis. Ironing-machine	640,312	Jan. 2	206	62	90	60
Norling, Jacob E. (See Kirby and Norling.)						
Norlund, Olof A., assignor of one-half to G. A. Gamble, Cedar Run, Pa. Fruit-gatherer	640,485	Jan. 2	622	135	90	122
Norris, Albert F., Boston, Mass. Piano-pedal support and bearing	644,446	Feb. 27	3458	804	90	1690
Norris, Frederick C., Detroit, Mich. Brick-making machine	641,991	Jan. 23	3466	790 / 791	90	718
Norris, James L., administrator. (See Case, Edward.)	645,870	Mar. 20	2425	533	90	2264
Norris, John T., and J. R. Smith, Raton, N. Mex. Ter. Boiler-cleaner	645,568	Mar. 20	1847	409	90	2149
Norris, Lucius D., Madrid, Iowa. Weighing-wagon	644,447	Feb. 27	3458	804	90	1690
Norris, William M. (See Felton, Samuel K., Jr., assignor.)						
North, Joseph, Harrison, N. J. Razor-grinding machine						
North & Judd Manufacturing Company. (See Smith, Clarence E., assignor.)						
North, Thomas M., assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Sheet-transferring mechanism	640,798	Jan. 9	1215	276 / 277	90	255
North, Thomas M., assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Sheet supporting and positioning device	640,799	Jan. 9	1221	278	90	257
Northern Electrical Manufacturing Company. (See Krach, Christian W., assignor.)						
Northorpe, William, assignor to F. W. O. Smith, London, England. Automatic vending and indicating apparatus	644,720	Mar. 6	292	64	90	1812
Northrop, James H. (See Stimpson and Northrop.)						
Northrop, James H., Tustin, Cal., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom	643,271	Feb. 13	1259	295	90	1232
Northrop, James H., Tustin, Cal., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Roving stop-motion for spinning-frames	643,971	Feb. 20	2575	607	90	1504
Northrop, Jonas, and E. S. Stimpson, Hopedale, Mass., assignors to Draper Company, Hopedale, Mass., and Portland, Me. Loom	641,792	Jan. 23	3107	706 / 707	90	647
Northwestern Graas Twine Company. (See Koeck, Martin, assignor.)						
Northwestern Light and Manufacturing Company. (See Parrott, Elijah D., assignor.)						
Norton, Richard H., *et al.* (See Tillottson, Henry C., assignor.)						
Norwood, John E., Baltimore, Md., assignor to Baltimore Ball Bearing Company of Baltimore City, of Maryland. Antifriction roller-bearing for railway-cars	642,557	Jan. 30	4525	1024	90	942
Nott, Charles C., Washington, D. C. Bicycle exercising-stand	642,919	Feb. 6	626	143	90	1087
Nottingham, George C., *et al.* (See Bates, John C., assignor.)						
Nourse, Robert L., Hailey, Idaho. Oven-thermometer	645,871	Mar. 13	1508	330	90	2069
Noyes, La Verne W., Chicago, Ill. Pump-cylinder with relief-valve	640,406	Jan. 2	495	102	90	97
Noyes, Ray N., Haverhill, assignor to Electric Gas Lighting Company, Boston, Mass. Electric gas-lighting candle-burner	644,143	Feb. 27	2881	682	90	1579
Nu Broom Company. (See Willard, John W., assignor.)						
Nussbaum, Guillaume A., London, England. Steam-generator	641,992	Jan. 23	3469	791 / 792	90	718
Nussbaum, Guillaume A., London, England. Retarding device for boiler-flues	645,826	Mar. 20	2357	515 / 516	90	2250
Nyberg, Charles F. (See Farr and Nyberg.)						
Nye, Elmer E., and L. C. McIntosh, Los Angeles, Cal. Circuit-closer for telegraph-keys	644,448	Feb. 27	3461	804	90	1691
O. H. Jewell Filter Company. (See Jewell, Omar H., assignor.)						
O'Bleness, Harry C., and J. C. McKallip, Athens, Ohio. Automatic gas cut-off	642,998	Feb. 6	751	173	90	1113
O'Brien, Arthur P., New York, N. Y. Fire-escape	641,466	Jan. 16	2524	578	90	525
O'Brien, James H., St. Louis, Mo. Hub for vehicle-wheels	641,881	Jan. 23	3279	745	90	680
O'Brien, Roch S., Providence, R. I. Automatic lubricator	643,303	Feb. 13	1312	309	90	1242
O'Connor, Richard P., *et al.* (See Lee, Harry, assignor.)						
O'Connor, W. Scott. (See Sibley, James T., assignor.)						
O'Connor, Wallace, *et al.* (See Lee, Harry, assignor.)						
O'Farrell, Alphonsus G., Dublin, Ireland, assignor of four-sevenths to J. E. Schumacher and W. R. Makins, York, England. Carriage	644,258	Feb. 27	3099	729 / 730	90	1620
O'Hearn, George E., assignor to Heywood Brothers & Wakefield Company, Gardner, Mass. Child's carriage	645,970	Mar. 27	2618	580	90	2319
O'Keenan, Charles E., Paris, France. Electricity-meter	641,140	Jan. 9	1913	424	90	390
O'Malley, Walter W., Guffey, Pa. Cable-grip	641,142	Jan. 9	1918	425	90	391
O'Meara, Martin. (See Horning, Martin L., assignor.)						
O'Neil, Charles D., Charleston, W. Va. Nut-lock	642,999	Feb. 6	753	173	90	1113
O'Neill, Frank, assignor, by mesne assignments, to C. Arduser, Cicero, and M. O'Neill, Upland, Ind. Machine for manufacturing glassware	643,253	Feb. 13	1227	287 / 288	90	1225
O'Neill, Marion, *et al.* (See O'Neill, Frank, assignor.)						
O'Reilly, John, *et al.* (See Hughes, Harry F., assignor.)						
O'Reilly, Philip, *et al.* (See Hughes, Harry F., assignor.)						
O'Rourke, Wilfred G. (See Reed, Blotcher, and O'Rourke.)						
O'Shaughnessy, Patrick, New York, N. Y. Brush-holder	643,000	Feb. 6	754	173 / 174	90	1113
O'Sullivan, Otho, Stonington, Conn. Nut-lock	640,690	Jan. 2	1019	231	90	196
O'Toole, John, San Francisco, Cal. Windmill	641,143	Jan. 9	1919	425	90	392
Oakville Company. (See Boden, George, assignor.)						
Ober, John J., Kibbey, Mont. Gate-hinge	640,932	Jan. 9	1502	336	90	312
Ober, Thomas K., Philadelphia, Pa. Braiding-machine	641,880	Jan. 23	3278	744 / 745	90	679
Oberländer, Michal, New York, N. Y. Match-safe	644,449	Feb. 27	3462	805	90	1691
Oblenis, John, Mentone, Ind. Sand-band for vehicles	640,219	Jan. 2	122	24	90	26
Oddie, Philip F., London, England. Steam-motor	641,188	Jan. 9	1909	423	90	390
Oehler, Anilin and Anilinfarben-Fabrik, K. (See Herbabny, Julius, assignor.)						
Oehler, Otto C., St. Louis, Mo. Furnace for brick-kilns	642,856	Jan. 30	4178	945	90	876
Oehlke, Fredrick H., Lorain, Ohio. Automatic gas-burner cut-off	643,363	Feb. 13	1417	331	90	1263
Oehme, Louis, Jr., Philadelphia, Pa. Broom bridle and holder	644,627	Mar. 6	119	27	90	1777
Oelkers, John B., Newark, N. J. Embroidery-frame	641,604	Jan. 16	2771	631	90	575
Oetting, William E. A. M., Pittsburg, Pa. Socket for incandescent electric lamps	642,825	Feb. 6	449	108	90	1053
Offen, Carl H., Lemsahl, Germany. Acetylene-motor for cycles	646,083	Mar. 27	2746	609	90	2344
Öfverström, Anders G. T., Sundsvall, Sweden. Handle-bar for velocipedes	642,357	Jan. 30	4179	945	90	876
Ogan, Andrew G., assignor of one-half to R. E. Prather, Meadville, Mo. Weather-strip for doors	641,139	Jan. 9	1911	423	90	390
Ogburn, Calvin, Riverside, Cal. Acetylene-gas generator	643,777	Feb. 20	2218	524	90	1433
Ogden, Alexander, *et al.* (See Lawrence, James C., assignor.)						
Ogden, Frank S., *et al.* (See Cline, Fred N., assignor.)						
Ogden, Marcella E., Newark, N. J. Fire-extinguisher	643,252	Feb. 13	1225	287	90	1225
Ogle, Albert, assignor of one-half to J. D. Williams, Muncie, Ind. Holder for pens, brushes, or the like	645,487	Mar. 13	1711	375	90	2110
Ohmer, John F., Dayton, Ohio. Mechanism for operating fare-registers	640,800	Jan. 9	1298	278	90	259
Ohnemus, Anton, assignor to Excelsior Stove and Manufacturing Company, Quincy, Ill. Nestable stovepipe	645,001	Mar. 6	799	174	90	1916

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Okrassa, Fritz E. R., Antigua, Guatemala. Coffee or malt drier	641,141	Jan. 9	1917	424	90	891
Oldenbusch, Ernest, Weehawken, N. J., assignor to Kronheimer, Oldenbusch & Company. Picture-support	641,644	Jan. 16	2843	647	90	589
Oldenbusch, Ernest, Weehawken, N. J., assignor to Kronheimer, Oldenbusch & Co., New York, N. Y. Picture-frame	642,558	Jan. 30	4526	1024	90	942
Oldenbusch, Ernest, Weehawken, N. J., assignor to Kronheimer, Oldenbusch & Co., New York, N. Y. Ink-well	645,121	Mar. 13	1046	222	90	1978
Oldfield, Edwin, Norwich, Conn. Narrow-fabric loom	641,605	Jan. 16	2774	632	90	575
Oliver, James, assignor to South Bend Iron Works, South Bend, Ind. Wheel-plow	643,885	Feb. 20	2421	569	90	1472
Oliver, William W. (See Svensson, Claes A., assignor.)				570		
Olivier, Maurice. (See Thomas, Bonavita, and Olivier.)	645,327	Mar. 13	1413	310	90	2051
Olsen, Carl B., Canby, Minn. Harness	640,801	Jan. 9	1229	279	90	259
Olsen, Gulbrand J., assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Printing-press	642,150	Jan. 30	3773	860	90	794
Olsen, John, Salt Lake City, Utah. Pumping mechanism	643,525	Feb. 13	1713	861	90	1321
Olson, Abraham, Minneapolis, Minn. Motor for vehicles	644,828	Mar. 6	120	27	90	1777
Olson, Charles J., assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Bowling-alley	643,727	Feb. 20	2133	500	90	1416
Olson, Edward E. and H., Roland, Iowa. Clevis for agricultural implements	641,892	Jan. 23	3281	745	90	690
Olson, Hector. (See Olson, Edward E. and H.)	644,090	Feb. 27	2791	602	90	1561
Olson, John L., Cranfill's Gap, Tex. Wire-stretcher	645,827	Mar. 20	2359	516	90	2251
Oney, Hugh R., Jackson, Ohio. Bicycle-supporter	646,084	Mar. 27	2747	.....	90	2344
Onion, William H., New Orleans, La. Dumping-car	645,122	Mar. 13	1046	223	90	1978
Oppermann, Heinrich, Bernburg, Germany. Making medicinal products	644,640	Mar. 6	226	49	90	1799
Opsahl, Johan B., Cleveland, Ohio. Automatic cut-off for engines	643,526	Feb. 13	1715	408	90	1321
Orilway, Lillian B., San Francisco, Cal. Telephone-guard	645,426	Mar. 13	1601	360	90	2089
Orford, Richard, St. Joseph, Mich. Spray attachment	643,886	Feb. 20	2422	570	90	1472
Orlowsky, Julius von, St. Petersburg, Russia. Apparatus for treating calcium carbid						
Ormerod, Jacob, assignor to Automatic Smoke Preventer Company, New York, N. Y. Smoke-preventer						
Orr, Robert. (See Mahan, Fitzroy, and Orr.)	644,938	Mar. 6	690	151	90	1893
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Holder for furring-rods	644,939	Mar. 6	692	151	90	1893
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,940	Mar. 6	694	151	90	1893
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,941	Mar. 6	699	152	90	1894
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	644,942	Mar. 6	704	152	90	1895
Orr, William B., and C. K. Booth, Macon, Ga. Rotary balanced valve	643,527	Feb. 13	1716	404	90	1321
Orth, John G. (See Röell, Cornelis F. A., assignor.)						
Osborn, Ellen M. (See Tourville, Charles B., assignor.)	645,711	Mar. 20	2139	466	90	2207
Osborn, Francis C., assignor to Perfection Hand Stamp Company, Detroit, Mich. Letter-canceling machine	644,450	Feb. 27	3464	805	90	1691
Osborn, Winfield S., Detroit, Mich. Chart-case	640,983	Jan. 9	1504	337	90	312
Osborne, Adelia J., Pomona, Cal. Lunch-box	645,929	Mar. 20	2330	560	90	2284
Osborne, Eugene F., assignor to Osborne Steam Engineering Company, Chicago, Ill. Steam-heating apparatus and device for controlling action thereof	644,629	Mar. 6	123	28	90	1778
Osborne Steam Engineering Company. (See Osborne, Eugene F., assignor.)	644,144	Feb. 27	2883	682	90	1590
Osbun, Colonel W., Newcomerstown, Ohio. Bead ring-mold for casting pipe	645,488	Mar. 13	1712	375	90	2110
Osburn, Harry G., Chicago, Ill., assignor to J. H. Ballantine, Newark, N. J. Connecting-plate for storage batteries						
Osgood, Eva G., Malden, Mass. Shirt	640,407	Jan. 2	496	103	90	97
Osgood, Frank L. (See Hankins, William B., assignor.)	642,252	Jan. 30	3990	908	90	830
Osgood, John D. (See Osgood, Richard P. and J. D.)	641,998	Jan. 23	3471	792	90	719
Osgood, Richard P. and J. D., Methuen, Mass. Thermostat	644,259	Feb. 27	3108	720	90	1621
Osgood, Richard P. and J. D., Methuen, Mass. Automatic electric heat and fire-alarm system	640,408	Jan. 2	497	103	90	98
Osiek, Henry W., St. Charles, Mo. Pump-plunger	640,313	Jan. 2	301	63	90	60
Osmer, William H. (See Sommers, William F., assignor.)	640,691	Jan. 2	1020	232	90	196
Ostergren, Oscar P., New York, N. Y. Receptacle for holding and storing liquid air or other liquid gases	640,692	Jan. 2	1022	232	90	197
Osterud, Gustave A., Sebeka, Minn. Tobacco-pipe	640,693	Jan. 2	1023	232	90	197
Oswald, Richard W., assignor of one-half to E. B. Tustin, Bloomsburg, Pa. Bolster						
Oswald, Richard W., assignor of one-half to E. B. Tustin, Bloomsburg, Pa. Body-bolster for cars						
Oswald, Richard W., assignor of one-half to E. B. Tustin, Bloomsburg, Pa. Car-truck						
Oswald, Richard W., assignor of one-half to E. B. Tustin, Bloomsburg, Pa. Truck-bolster						
Otis Elevator Company. (See Doolittle, William W., assignor.)	641,798	Jan. 23	3112	707	90	648
Otis Elevator Company. (See Fraser, Ethelbert M., assignor.)	642,358	Jan. 30	4180	.....	90	876
Otis, Spencer, Omaha, Nebr. Multiple aermotor	641,144	Jan. 9	1921	426	90	392
Ott, Leonhardt, and H. Riffelmacher, assignors to Bronzefarbenwerke Actien-Gesellschaft, vormals Carl Schleuk, Roth, Germany. Making aluminium paint						
Ottaway, Frederick J. (See Clark, Charles A., assignor.)						
Otten, Joseph V., Iola, Kans. Box	642,709	Feb. 6	254	62	90	1016
Ottesen, Hans R. (See Bruns and Ottesen.)						
Otteson, Martin. (See Otteson, Otto and M.)	645,670	Mar. 20	2057	452	90	2191
Otteson, Otto and M., Menomonee Falls, Wis. Pipe-wrench	645,044	Mar. 6	888	192	90	1933
Ottignon, Augustus W., Boston, Mass. Detachable ball-guard or handle for pails or other receptacles				193		
Otto, Albert T., Chicago, Ill., assignor to R. L. Stevens, Hoboken, N. J. Gas-engine	642,849	Feb. 6	489	116	90	1060
Otto, Edmund T., Jersey City, N. J., assignor to Whitall, Tatum & Co., New York, N. Y. Electrical massage instrument	640,694	Jan. 2	1025	232	90	198
Otto, Hermann. (See Gummi, Hans, assignor.)	641,408	Jan. 16	2206	548	90	500
Otto, Marius, Neuilly-sur-Seine, France. Apparatus for producing electric discharges	645,971	Mar. 27	3030	581	90	2380
Outcalt, Jesse P., assignor to Eagle Machine Company, Lancaster, Ohio. Corn-sheller	640,802	Jan. 9	1232	280	90	260
Overbaugh, Charles B., New York, N. Y. Non-refillable bottle						
Overbury, Frederick C. (See Blumenberg and Overbury.)						
Overcash, John F., Crete, Nebr. End-gate						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Overstreet, Thomas J., Norman, Okla. Ter. Seed-cotton-fan machine	644,145	Feb. 27	2884	682	90	1580
Overton, Willis E., Ripraps, Va. Press for fertilizing material	643,001	Feb. 6	755	174	90	1114
Owatonna Manufacturing Company. (See Ames, David J., assignor.)						
Owatonna Manufacturing Company. (See Ames and Labare, assignors.)						
Owatonna Manufacturing Company. (See Howe and Labare, assignors.)						
Owatonna Manufacturing Company. (See Wig, Nils M., assignor.)						
Owen, John. Merchantville, N. J. Combined ray-filter and half-tone grating	644,451	Feb. 27	3466	805	90	1692
Owen, Mount L. (See Gutzeit and Owen.)						
Owen, Peter M. (See Gutzeit and Owen.)						
Owens, Isaac N., Jr., assignor of one-half to W. A. Owens, Hannibal, Mo. Window-sash	643,151	Feb. 13	1046	243	90	1191
Owens, Will E., assignor of one-half to C. Yegen, Billings, Mont. Sash-holder	642,872	Feb. 6	535	124	90	1051
Owens, William A. (See Owens, Isaac N., Jr., assignor.)	641,145	Jan. 9	1922	426	90	392
Oxnam, Thomas H., Los Angeles, Cal. Safety attachment for hoisting machinery						
Oxnard Construction Company. (See Oxnard and Baur, assignors.)	643,848	Feb. 20	2354	554	90	1459
Oxnard, James G., and W. Baur, New York, N. Y., assignors to Oxnard Construction Company, of West Virginia. Making beet-sugar						
P. & F. Corbin. (See Arens, August, assignor.)						
P. & F. Corbin. (See Corbin and Henry, assignors.)						
P. Lorillard Company. (See Lorillard and Tremaine, assignors.)						
P. P. Mast Company. (See Crain, Evans, and Dodson, assignors.)						
Paar Double Cushion Horse-Shoe Company. (See Paar, Henry, assignor.)	643,272	Feb. 13	1261	295	90	1282
Paar, Henry, assignor to T. C. Snyder, Canton, Ohio. Cushion-horseshoe	646,284	Mar. 27	3148	695	90	2423
Paar, Henry, assignor, by mesne assignments, to Paar Double Cushion Horse-Shoe Company, Canton, Ohio. Rubber-cushion horseshoe						
Pabst, Friedrich G. (See Beckh, Robert, assignor.)	644,330	Feb. 27	3266	761	90	1652
Packard, James W., Warren, Ohio. Electrical measuring instrument	640,314	Jan. 2	302	63	90	61
Packard, James W., and H. W. Wiswell, Warren, Ohio. Electric transformer	641,537	Jan. 16	2665	608	90	553
Packwood, Lahvesta P. C., Lake Maitland, Fla. Corset	644,681	Mar. 6	228	50	90	1799
Page, Orville G., Des Moines, Iowa. Cue-tip holder	643,972	Feb. 20	2577	608	90	1505
Page, William M., and C. S. Edmonds, Montpelier, Ind. Adjustable pump						
Pagel, Leopold, Kattowitz, Germany, assignor to N. Goldtree, San Francisco, Cal. Device for convenient filling of lamps	646,310	Mar. 27	3285	732	90	2448
Pahaut, Henri, Touille, France. Reverberatory furnace	645,182	Mar. 13	1167	253	90	2002
Paige, James H., Manchester, N. H. Name-plate	642,803	Feb. 6	403	98	90	1044
Paine, Harry C., and W. G. Dickey, Taylorstown, Pa. Fastener for rubbers	644,721	Mar. 6	294	65	90	1812
Paine, John W., and C. B. Doudna, Bayard, Iowa. Acetylene-gas generator	642,478	Jan. 30	4395	997	90	918
Painter, Arthur, assignor to A. Mainwaring-Johnson, Nelson, Canada. Apparatus for loading movable carriers	640,934	Jan. 9	1505	337	90	312
Painter, William, and J. T. Hawkins, assignors to Crown, Cork and Seal Company, Baltimore, Md. Automatic apparatus for feeding crowns or closures	643,973	Feb. 20	2579	608	90	1505
Paldi, Joseph D., Brockway, Mich. Fence-post	645,372	Mar. 13	1504	330	90	2069
Palm, Anton, Milwaukee, Wis. Vehicle-wheel	646,109	Mar. 27	2879	638	90	2370
Palmer, Albert C., Eureka, Victoria. Tire remover and setter	643,528	Feb. 13	1718	404	90	1322
Palmer, Charles J., Cleveland, Ohio. Adjustable clip for bicycles	642,710	Feb. 6	255	63	90	1017
Palmer, Francis B., London, England. Reflector	640,585	Jan. 2	804	178	90	157
Palmer, George W., McKee's Rocks, assignor of one-half to S. Newburn, Bellevue, Pa. Rail-joint	645,002	Mar. 6	800	175	90	1916
Palmer, Isaac E., Middletown, Conn. Hammock-support	641,083	Jan. 9	1712	380	90	350
Palmer, Isaac E., Middletown, Conn. Canopy	641,883	Jan. 23	3283	746	90	680
Palmer, Isaac E., Middletown, Conn. Loom for cross-weaving	642,359	Jan. 30	4181	945	90	876
Palmer, Isaac E., Middletown, Conn. Loom for cross-weaving	642,360	Jan. 30	4183	946	90	877
Palmer, Isaac E., Middletown, Conn. Loom for cross-weaving	642,361	Jan. 30	4186	947	90	877
Palmer, Isaac E., Middletown, Conn. Loom for cross-weaving	645,233	Mar. 13	1255	272	90	2019
Palmer, Philip C., Kansas City, Kans. Machine for registering and recording weights	643,778	Feb. 20	2222	273	90	1433
Palmer, Stephen, Lansingburg, N. Y. Carpet-sweeper	642,873	Feb. 6	537	524	90	1071
Palmer, Wesley S., Canton, Ohio. Broom				125		
Palmetto Fibre Company. (See Young, McClintock, assignor.)						
Pan Confection Company. (See Marker, Frank H., assignor.)	646,371	Mar. 27	3442	767	90	2484
Pancoast, Richard M., Camden, N. J. Roof-ventilator or chimney-cowl	644,722	Mar. 6	295	65	90	1812
Panhorst, Henry, Allegheny, Pa. Disk valve	644,967	Feb. 27	3327	.....	90	1663
Panzl, Romedius, Merritton, Canada. Composition of material for lining vessels used for storing or boiling corrosive liquids	641,645	Jan. 16	2844	648	90	589
Paradis, Lubin, Cambridge, and N. Desrosiers, Boston, Mass. Hansom-cab	641,319	Jan. 16	2260	512	90	474
Parbel, Joseph, Grand Rapids, Mich. Nut and bolt lock	641,994	Jan. 23	3472	792	90	719
Parenteau, Maxime O., Springfield, Mass. Apparatus for covering shoe-hooks with plastic material				793		
Parish, Frank J., assignor to J. R. Floyd & Sons, New York, N. Y. Dish-cleaner	643,424	Feb. 13	1530	359	90	1283
Parish, Neff E., Cleveland, Ohio. Bicycle-frame	646,189	Mar. 27	3045	380	90	2403
Park, Joseph R., Norwich, England. Pedal-crank driving-gear for velocipedes	642,874	Feb. 6	537	672	90	1071
Park, William R., Philadelphia, Pa. Ball-and-target game	646,099	Mar. 27	2859	125	90	1071
Parker, Aaron L., Philadelphia, assignor of one-half to Z. H. Kimbrough, Dixon, Miss. Vehicle-brake	641,146	Jan. 9	1923	634	90	2396
Parker, Edwin R., assignor of two-thirds to M. K. and S. W. Edgar, Scranton, Pa. Instrument for removing dents from gun-barrels	641,646	Jan. 16	2845	426	90	392
Parker, George H., Boston, assignor to H. A. Fuller, trustee, Newton, Mass. Window-swinging device	643,750	Feb. 20	2173	648	90	590
Parker, George S., Janesville, Wis. Fountain-pen	642,151	Jan. 30	3776	510	90	1424
Parker, Hartwell M., Fry, N. C. Cotton-press	643,152	Feb. 13	1047	861	90	794
Parker, Homer N., Winchendon, Mass., assignor of one-half to J. McKee, New York, N. Y. Refrigerator-trap	640,486	Jan. 2	623	214	90	1191
Parker, John, assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Milling-machine	642,711	Feb. 6	256	63, 64	90	122
Parker, John, assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. High-speed attachment for milling-machines	642,712	Feb. 6	262	64	90	1017
Parker, Joseph, Dartford, assignor to Vickers, Sons & Maxim, Limited, Sheffield, England. Percussion-primer	643,974	Feb. 20	2581	609	90	1018
Parker, Joseph A., Dripping Springs, Tex. Churn	646,190	Mar. 27	3047	672	90	1506
Parker, William F., New York, N. Y. Corner-bead for plastered walls	640,409	Jan. 2	499	103	90	2403
Parker, William F., New York, N. Y. Metal corner-plate for protecting corners of plastered walls	640,410	Jan. 2	501	103	90	98
Parker, William T., Philadelphia, Pa. Machine for securing clasps to box-lids	642,254	Jan. 30	3967	904	90	99
Parkes, Henry. (See Montgomerie and Parkes.)						831
Parkhurst, Emmons M., assignor to American Carbide Lamp Company, Philadelphia, Pa. Acetylene-gas lamp	642,559	Jan. 30	4527	1024	90	942

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Parks, Fred B., Grand Rapids, Mich. Fire-plug	641,252	Jan. 9	2141	482	90	436
Parlin & Orendorff Company. (See Graham, William S., assignor.)						
Parlin & Orendorff Company. (See Parlin and Heylman, assignors.)						
Parlin, William H., Seattle, Wash., and E. M. Heylman, Pekin, assignors to Parlin & Orendorff Company, Canton, Ill. Plow	640,411	Jan. 2	504	104	90	99
Parmelee, Arthur W., assignor to Wire Goods Company, Worcester, Mass. Coat and hat hook	640,935	Jan. 9	1510	337	90	313
	640,315	Jan. 2	304	63	90	61
Parmelee, Hoyt P., Chicago, Ill. Combined book packing and shipping case	643,231	Feb. 13	1188	278	90	1218
Parmiter, Philip J., Ansty, England. Bicycle-brake	642,152	Jan. 30	3778	861	90	795
Parnell, Frederick A., London, England. Stamp for crushing ores	640,808	Jan. 9	1234	280	90	261
Parnell, William T., and C. Bishop, El Dorado, Ark. Clothes-pounder	643,779	Feb. 20	2228	504	90	1494
Parramore, Reddin W., New York, N. Y. Hose-supporter	641,390	Jan. 16	2261	512	90	474
Parrish, George W., Salem, assignor of one-half to M. Garst, Medley, Va. Cane-stripper	642,958	Jan. 30	3665	904	90	831
Parrish, Stephen E., Tecumseh, Mich. Wall-paper-display stand	640,696	Jan. 9	1086	284	90	198
Parrott, Elijah D., Portland, Oreg., assignor to Northwestern Light and Manufacturing Company, Goldendale, Wash. Carbureter						
Parshall, Frank G. (See Coss and Parshall.)						
Parsons, Charles E. (See Belknap, Charles A., assignor.)						
Parsons, Clarance O., assignor of one-half to W. G. Allen, West Nanticoke, Pa. Car-coupling	644,452	Feb. 27	3467	805	90	1692
	642,255	Jan. 30	3668	904	90	832
Parsons, Edward I., San Francisco, Cal. Traveling-cable grip	646,390	Mar. 27	3470	772	90	2490
Parsons, Luther T., assignor to W. S. Belding, New York, N. Y. Tool-holder	640,986	Jan. 9	1511	338	90	313
Parsons, Thomas F., Nulin, N. C. Fruit-drier	646,153	Mar. 27	3973	856	90	2488
Parsons, William J., Montclair, N. J. Sash-balance	640,987	Jan. 9	1512	338	90	314
Passmore, Benjamin H., and R. B. May, Stockdale, Tex. Insect-destroyer	646,286	Mar. 27	3148	695	90	2421
Patchin, Walter E. (See Ray, Phillips, and Patchin.)						
Pate, John L., Wauneta, Kans. Lister attachment for planters						
Patent Button Company. (See Neubert, Franklin G., assignor.)						
Patent Button Company. (See White, Franklin R., assignor.)						
Patent Case Company. (See Fletcher, Edwin J., assignor.)						
Patentaktiebolaget Svea. (See Köhler, Carl G. O. H. von, assignor.)	645,828	Mar. 20	2361	517	90	2251
Patrick, Frank H., Norwich, Conn. Support for radiators						
Patrick, Oscar R., *et al.* (See Culver, George A., assignor.)	641,995	Jan. 23	3474	798	90	719
Patten, Arthur B., Melrose, Mass. Gridiron	641,723	Jan. 23	2985	679	90	625
Patten, James S., Baltimore, Md. Car-axle lubricator, dust-guard, and wiper	643,589	Feb. 13	1719	404 405	90	1322
Patten, Simon R., assignor of one-half to A. Millard, Omaha, Nebr. Device for gripping and delivering mail-bags				406		
Patterson, Archibald F. (See Armstrong and Patterson.)						
Patterson, Frank L., *et al.* (See Doolittle, William H., assignor.)						
Patterson, James L., Madera, and G. T. Hill, Merced, Cal. Feeder for threshing-machines	643,849	Feb. 20	2357	554	90	1459
	640,988	Jan. 9	1514	338	90	314
Patterson, James W., New York, N. Y. Opera-glass shutter	640,316	Jan. 2	307	64	90	61
Patterson, John, Chicago, Ill. Coin-controlled electrical apparatus	644,453	Feb. 27	3468	806	90	1692
Patterson, John W., Madisonville, Ky. Automatic vehicle-brake						
Patterson, Luther M., *et al.* (See Platt, Lawrence, assignor.)						
Patton, John W., *et al.* (See Burchard, Alonzo H., assignor.)	641,794	Jan. 23	3113	708	90	649
Patton, Mathias A., Livingston, Mont. Locomotive for elevated railways	646,154	Mar. 27	2975	657	90	2388
Patzack, Franz, Chicago, Ill. Sewing-machine cabinet						
Paufique, Jules. (See Bonnet, Paufique, and Linière.)						
Paul, Andrew G., Boston, Mass. Apparatus for discharging water and air from cylinder-driers	643,198	Feb. 13	1130	264	90	1207
Paul, Charles A., Orlando, and W. Wibben, Clear Creek, Okla. Ter. Beating mechanism for threshing-machines	640,989	Jan. 9	1515	339	90	314
	642,875	Feb. 6	538	125	90	1071
Paulle, Leonard, Minneapolis, Minn. Clamp for show-cases	641,538	Jan. 16	2665	608	90	553
Pavon, Francisco D., Caibarien, Cuba. Electromagnetic apparatus	641,147	Jan. 9	1924	425 427	90	393
Payne, Clarence Q., Stamford, Conn. Apparatus for magnetically separating ores	641,148	Jan. 9	1927	427 428	90	393
Payne, Clarence Q., New York, N. Y. Magnetically separating ores	641,220	Jan. 9	2082	468 469	90	424
Payne, Clarence Q., Stamford, Conn. Apparatus for magnetically separating ores						
Payne, George F. (See Keller, Albert K., assignor.)	642,560	Jan. 30	4529	1025 1026	90	948
Payne, John W., Alexandria Bay, N. Y. Bicycle	643,728	Feb. 20	2134	500	90	1417
Payne, Martin, Troy, N. Y. Racing-sulky						
Payne, Walter E., and F. L. Joubert, New Orleans, La. Revoluble grate for bagasse-furnaces	643,153	Feb. 13	1051	244	90	1191
	640,940	Jan. 9	1518	339	90	314
Payne, Willard T., Tacoma, Wash. Cattle-guard	643,677	Feb. 20	2032	480	90	1398
Payne, William D., Tenallytown, D. C. Gutter	643,729	Feb. 20	2135	500 501	90	1417
Payson, Joseph R., Sr., Chicago, Ill. Sash-lock						
Peacock, George J., assignor of three-eighths to H. V. Potter, Pittsburg, Pa. Elevator-truck	640,942	Jan. 9	1522	340	90	315
Peacock, Walter C. (See Fyfe, Samuel, assignor.)						
Peak, George C., *et al.* (See Taylor, Charles A., assignor.)						
Pearce, Josiah, and G. H. Jackson, Swissvale, Pa. Finishing-tool for facing grooves in piston-heads	641,884	Jan. 23	3284	746	90	681
	641,885	Jan. 23	3285	746	90	681
Pearce, Josiah, and G. H. Jackson, Swissvale, Pa. Finishing-tool for facing piston-rings	640,696	Jan. 2	1080	234	90	199
Pearl, Ellsworth, Rochester, N. H. Punch						
Pearse, George S., *et al.* (See Hahn, Edward, assignor.)	643,154	Feb. 13	1052	244	90	1191
Pearse, William M., Jr., Zanesville, Ohio. Combination roller printing attachment	640,697	Jan. 2	1081	234	90	199
Pearson, Jacob E., Boston, Mass. Hook for hooks and eyes	644,630	Mar. 6	125	28	90	1778
Pearson, John, Omaha, Nebr. Nut-lock	641,404	Jan. 16	2207	548	90	500
Pearson, William E., Boston, Mass. Motor-carriage	644,091	Feb. 27	3798	662	90	1562
Pearson, William H., Boston, Mass. Device for locking trucks to car-bodies						
Pearsons, Fillmore A., Rutland, assignor of one-half to H. S. Dana, Woodstock, Vt. Shawl or bundle carrier	642,753	Feb. 6	332	80	90	1081
	645,489	Mar. 13	1713	375	90	2110
Pease, John H., Cedar Rapids, Iowa. Fastener for storm-windows						
Peay, William E. (See Dycus and Peay.)	641,084	Jan. 9	1715	380	90	350
Peck, Caid H., Elmira, N. Y. Motor	644,776	Mar. 6	406	88	90	1835
Peck, Harry L., Chicago, Ill. Coin-controlled book-holder	642,876	Feb. 6	540	125 126	90	1071
Peck, Orlando H., Minneapolis, Minn. Photographic-roll holder	642,877	Feb. 6	543	126	90	1072
Peck, Orlando H., and C. L. Anderson, Minneapolis, Minn.; said Anderson assignor to said Peck. Camera						

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Peckham Motor Truck and Wheel Company. (See Uebelacker, Charles F., assignor.)						
Peddie, Frank J., *et al.* (See Murdock, Horace B., assignor.)						
Pedigo, Jesse W., Harrodsburg, Ind. Sack-tying machine	645,328	Mar. 13	1414	310 311 312	90	2051
Peelle, Fernando H., Jonesborough, Ind. Suspenders	644,631	Mar. 6	125	28	90	1778
Peer, Charles O., Springfield, Mo. Car-roof	644,632	Mar. 6	127	28, 29	90	1778
Peer, John A., Washington, D. C. Mill	643,273	Feb. 13	1262	295 296 297	90	1232
Peltzer, Oscar E. (See Safford and Peltzer.)						
Pemberton, Henry M., assignor of one-half to J. R. Williams, Fayetteville, N. C., and A. S. Williams, New York, N. Y. Folding shield or guard for locomotive-windows	646,311	Mar. 27	3287	732	90	2448
Penberthy Injector Company. (See McCoy, Elijah, assignor.)						
Pendergraft, Isam L., Deadwood, S. D., assignor of one-half to J. H. Rose, Galena, Kans. Siphon apparatus	643,605	Feb. 13	1863	439	90	1351
	645,123	Mar. 13	1048	223	90	1979
Pendexter, Edward F., Milford, Mass. Car-coupling	645,514	Mar. 13	1761	385	90	2119
Pendleton, Oliver C., New York, N. Y. Saw-filing machine						
Penney, Loren W., assignor to Saco & Pettee Machine Shops, Newton, Mass. Roll-clearer for textile machinery	643,530	Feb. 13	1723	406	90	1323
Penney, Loren W., assignor to Saco & Pettee Machine Shops, Newton, Mass. Gear-cover for railway-heads	643,531	Feb. 13	1724	406 407	90	1323
Pennington, John B., Russellville, Ark. Generating-tube	642,479	Jan. 30	4396	997	90	918
Pennsylvania Globe Gas Light Company. (See Wilson, Thomas, assignor.)						
Penrose, George B., *et al.* (See Voorhies, Lucien, assignor.)						
Penticoff, Charles A., Pearl City, Ill. Device or tool for extracting obstructions from deep wells	644,633	Mar. 6	130	29	90	1779
Peoria Rubber and Manufacturing Company. (See Bolte, Frank H., assignor.)						
Pératé, Paul, Paris, France. Photographic camera	645,008	Mar. 6	801	175	90	1916
Percefull, A. C. Larkin. (See Marshall, Robert L., assignor.)						
Percifield, Clarence W., assignor of one-half to J. M. Senter, Moran, Tex. Stirrup	643,232	Feb. 13	1189	279	90	1218
Perfect Sliding Door Company. (See Newell, Augustus, assignor.)						
Perfect Sliding Door Company. (See Schuyler, Daniel, assignor.)						
Perfection Hand Stamp Company. (See Osborn, Francis C., assignor.)						
Perkins, Alfred T., Chicago, Ill. Apparatus for drying air	640,318	Jan. 2	309	64	90	62
Perkins, Alfred T., Chicago, Ill., and F. C. Weber, New York, N. Y. System for sterilizing, drying, and cooling air	640,320	Jan. 2	314	65, 66	90	63
	642,153	Jan. 30	3780	862	90	795
Perkins, Charles N., Lawrence, Mass. Hose-nozzle	642,480	Jan. 30	4397	998	90	918
Perkins, Frank E., Boston, Mass. Tie-fastener	640,319	Jan. 2	312	65	90	62
Perkins, Frank G., Chicago, Ill. Drying-kiln	641,321	Jan. 16	2263	512 513	90	474
Perkins, George H., Philadelphia, Pa. Sailing vessel	642,481	Jan. 30	4399	998	90	919
Perkins, Walter H., Boston, Mass. Stencil-holder	643,002	Feb. 6	757	174 175	90	1114
Perkins, Willis J., and C. H. Blomstrom, Grand Rapids, Mich.; said Blomstrom assignor to said Perkins. Electric igniter for explosive-engines						
Perky, Henry D. (See Burbank, Louis S., assignor.)						
Perle, Eugen. (See Perle and Buttermilch.)						
Perle, Salomon and E., and W. Buttermilch, Breslau, Germany. Lathe	640,220	Jan. 2	124	24	90	26
Pernot, Victor A., Colegrove, Cal. Bicycle-support	640,487	Jan. 2	624	135	90	122
Perodeaud, Maurice. (See Falconnet and Perodeaud.)						
Perrier, Ulysse, assignor to General Automatic Delivery Company, New York, N. Y. Coin-controlled apparatus	645,234	Mar. 13	1256	273	90	2020
Perry, Alexander and H., London, England. Apparatus for flaking rice	641,035	Jan. 9	1716	381 382	90	351
Perry, David W., Pittsburg, Pa. Attachment for boots or shoes	640,317	Jan. 2	308	64	90	62
Perry, Henry. (See Perry, Alexander and H.)						
Perry, Philip E., Boston, assignor of one-half to R. C. Surbridge, Cambridge, Mass. Electrical railway-switch	646,155	Mar. 27	2977	657	90	2389
Perry, Richard D. (See Power, Richard T., assignor.)						
Perry, Sylvester R., Worcester, Mass. Water-cycle	643,678	Feb. 20	2033	480	90	1398
Perry, Thomas O., Chicago, Ill. Fluid-actuated motor for actuating fluid	641,405	Jan. 16	2398	549	90	501
Perry, Thomas O., Chicago, Ill. Thermostatically-operated valve-motor	642,154	Jan. 30	3781	862	90	796
Perry, William L. (See June and Perry.)						
Persico, Salvatore, Bridgeport, Conn. Combined folding carriage and cradle	641,589	Jan. 16	2667	608	90	554
Persinger, Newton R. (See Clayton and Persinger.)						
Person, George W. (See Tucker, Junius E., assignor.)						
Person, William. (See Abramson and Person.)						
Peter Becker Company. (See Becker, Peter, assignor.)						
Petereit, Albert H., New York, N. Y. Incandescent gas-burner	646,372	Mar. 27	3444	768	90	2485
Peters, Abraham. (See Biester, George W., assignor.)						
Peters, Abraham, *et al.* (See Van Vliet, Arie, assignor.)						
Peters, Arthur L., Lynchburg, Va. Artificial leg	640,941	Jan. 9	1520	339	90	315
Peters, Frank M., Chicago, Ill. Cracker or biscuit machine	641,724	Jan. 23	2987	679	90	625
Peters, Frank M., Chicago, Ill. Cracker or biscuit machine	641,725	Jan. 23	2989	680	90	625
Peters, John P., *et al.* (See Van Vliet, Arie, assignor.)						
Peters, William A., assignor of three-fourths to B. A. Caruthers, Charleston, J. R. Scott and J. W. Dyer, Patrick, W. Va. Multiplying attachment for cameras	645,691	Mar. 20	2094	460	90	2199
	642,482	Jan. 30	4400	998	90	919
Petersen, Andrew K., Sleepy Eye, Minn. Weeding-machine						
Petersen, Hans, *et al.* (See Bach, Robert, assignor.)	640,412	Jan. 2	506	104	90	100
Petersen, Heinrich, Oberjersdal, Germany. Head-screen						
Petersen, Peter, *et al.* (See Bach, Robert, assignor.)	644,454	Feb. 27	3469	806	90	1692
Petersen, Peter N., Herman, Nebr. Band-cutter and feeder	644,146	Feb. 27	2885	682 683	90	1580
Peterson, August C., Victoria, Ill. Car-brake	646,156	Mar. 27	2981	658	90	2390
Peterson, George A., San Francisco, Cal. Easel-support	640,804	Jan. 9	1235	280	90	261
Peterson, Gustav A., Florence, Minn. Setting-gage for axles	643,254	Feb. 13	1230	288 289	90	1226
Petersson, Albert J., Notre Dame de Briançon, assignor to Société des Carbures Métalliques, Paris, France. Electric furnace						
Pethick, John T. (See Spencer and Pethick.)						
Petrini, Corradino. (See Rosati and Petrini.)						
Petrini, Ruggiero. (See Rosati and Petrini.)						
Petsche, Gustav B., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Adjusting device	645,211	Mar. 13	1217	265	90	2011
Pettibone, Hawley, Bridgeport, Conn. Apparatus for manufacturing gas	644,806	Mar. 6	463	99	90	1846
Pettingill, L. (See Campbell, Solon O., assignor.)						
Pew, Marquis T., Parker's Landing, Pa. Oil-well pump mechanism	642,483	Jan. 30	4401	998	90	919

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Pew, Marquis T., Parker's Landing, Pa. Valve-cup	645,004	Mar. 6	802	175	90	1917
Pfaffenbach, Rudolf. (See Bleichert and Pfaffenbach.)	644,777	Mar. 6	408	89	90	1899
Pfahl, George J., White Plains, N. Y. Column	644,598	Feb. 27	3025	843	90	1721
Pfannenberg, Albert, Berlin, Germany. Voltaic cell	641,822	Jan. 16	2266	513 / 514	90	475
Pfatischer, Mathias, Philadelphia, Pa. Regulating electric circuits	642,902	Jan. 30	4188	947 / 948	90	877
Pfatischer, Mathias, Philadelphia, Pa. Signal	646,009	Mar. 27	2897	597 / 598	90	2335
Pfatischer, Mathias, Philadelphia, Pa. Device for electrical connections	645,005	Mar. 6	803	176	90	1917
Pfaudler, John M., assignor of three-fourths to W. M. Mallett and T. P. Hill, Rochester, N. Y. Lamp-burner	645,006	Mar. 6	805	176	90	1917
Pfaudler, John M., assignor of part to W. M. Mallett, T. P. Hill, A. H. Daniels, and B. Felock, Rochester, N. Y. Lamp	640,728	Jan. 2	1095	247 / 248	90	210
Pfauter, Robert H., assignor to Chemnitzer Strickmaschinen Fabrik, Chemnitz, Germany. Apparatus for cutting worm-wheels	642,713	Feb. 6	261	64, 65	90	1019
Pfeifer, John, assignor to Mast, Foos & Company, Springfield, Ohio. Cash register and indicator	642,368	Jan. 30	4192	948	90	878
Pfent, Frank, Grenier, and L. A. Moran, Grosse Point, Mich. Trolley-pole	641,540	Jan. 16	2269	609	90	554
Pharmazeutisches Institut Ludwig Wilhelm Gans. (See Alefeld, Georg, assignor.)	643,304	Feb. 13	1314	310	90	1242
Pheils, Isaac F., Woodville, Ohio. Geographical clock	641,887	Jan. 23	3288	747	90	682
Phelps, George T., Cambridge, Mass. Oil-gas burner	640,586	Jan. 2	806	178 / 179	90	157
Phelps, John C. (See Walker and Phelps.)	642,714	Feb. 6	268	66	90	1020
Phelps, Sidney W., Southbridge, Mass. Sand-box for street-railways	641,726	Jan. 23	2992	680 / 681	90	626
Phelps, Walter S., Muncie, Ind. Railway-switch-operating mechanism	642,484	Jan. 30	4403	999	90	919
Philbrick, Halsey B. (See Post, Bettie D., assignor.)	646,373	Mar. 27	3447	768	90	2495
Philbrick, James A. (See Sheen and Philbrick.)	641,966	Jan. 23	3475	794	90	719
Philbrook, John H., Chicago, Ill. Extension-foot	644,455	Feb. 27	3472	806	90	1698
Phillips, Ferdinand, Philadelphia, Pa. Wheel construction	642,561	Jan. 30	4533	1026	90	944
Phillips, Arthur F., North Adams, Mass. Brush	643,679	Feb. 20	2084	480	90	1309
Phillips, Dewey, Arlington, Vt. Saw						
Phillips, Jacob P., Yantley, Ala. Plow-foot						
Phillips, Jeffrey A., Amos, W. Va. Switch-operating mechanism						
Phillips, John J., assignor of one-third to W. D. Malone, Grayson, Ky. Clothes-drier						
Phillips, Joseph A., Baltimore, Md., assignor to Raymond Button Company of Baltimore City, of Maryland. Garment-fastener						
Phillips, Vivian, *et al.* (See Fromberger, Henry B., assignor.)						
Phillips, Walter P. (See Ray, Phillips, and Patchin.)						
Philpot, Albert D., *et al.* (See Lambert, Thomas B., assignor.)	640,488	Jan. 2	626	135	90	123
Philpot, Brian F., *et al.* (See Lambert, Thomas B., assignor.)	645,188	Mar. 13	1168	254	90	2002
Philpott, James S., assignor of one-half to G. A. Nalley, Windsor, Cal. Must-pump	640,805	Jan. 9	1296	280	90	261
Phinney, Horatio, Providence, R. I. Burner for gas-stoves	644,092	Feb. 27	2793	602	90	1562
Phoebus, Jesse W., Wheeling, W. Va. Making stereotype-matrices						
Phoenix, Charles A., Harford Mills, N. Y. Attachment for plows						
Phoenix Manufacturing Company. (See Birch, Joseph G., assignor.)						
Phoenix Manufacturing Company. (See Clark, Joseph O., assignor.)						
Piatti & Co., A. (See Fazi, Ettore de, assignor.)	643,975	Feb. 20	2582	609 / 610	90	1506
Pickering, John F., Gonaives, Haiti. Air-ship	640,806	Jan. 9	1238	281	90	261
Pickett, Rufus S., New Haven, Conn. Bottle stopper and extractor	645,928	Mar. 20	2528	559	90	2284
Pickford, James, Oldham, England. Self-acting mule for spinning	642,626	Feb. 6	107	25, 26	90	996
Pierce, Charles D., Jersey City, N. J. Tower	641,541	Jan. 16	2272	609	90	555
Pierce, Charles E., Cambridge, Mass. Heater for soldering-irons	642,485	Jan. 30	4404	999	90	920
Pierson, Samuel, Hardesty, Okla. Ter. Cutting apparatus	644,456	Feb. 27	3474	807	90	1603
Pilkington, Joseph H., Waterbury, Conn. Garment-supporter	641,036	Jan. 9	1720	393	90	351
Pilling, Charles J., and G. T. Barber, assignors to C. J. and G. P. Pilling, Philadelphia, Pa. Surgical instrument	642,364	Jan. 30	4194	948	90	879
Pilling, George P., *et al.* (See Pilling and Barber, assignors.)	645,871	Mar. 20	2427	533 / 534	90	2265
Pillsbury, Edwin S., St. Louis, Mo. Electric motor	643,155	Feb. 13	1053	245	90	1192
Pine, James K. P., Lansingburg, assignor to United Shirt and Collar Company, Troy, N. Y. Folding-machine						
Pines, Burke E., Newport, Pa. Extension car-step						
Pingel, Albert R., *et al.* (See Best, Edward, assignor.)	641,542	Jan. 16	2273	609	90	555
Pingel, Homer, *et al.* (See Best, Edward, assignor.)	643,233	Feb. 13	1190	279	90	1219
Piniec-Mallet, Adrian de, New York, N. Y. Bedstead	644,943	Mar. 6	707	153	90	1896
Pinnell, Frank C., Lodge, Cal. Gold-washing machine	645,373	Mar. 13	1505	.....	90	2070
Pino, Guiseppi, Genoa, Italy. Diving and submarine apparatus	641,923	Jan. 23	3354	.....	90	695
Pirard, Jean, Chicago, Ill. Detergent	643,780	Feb. 20	2224	525	90	1434
Pirwitz, Louis, and W. Behr, Hanover, Germany. Producing a non-conducting material or composition	641,221	Jan. 9	2088	409	90	425
Pitcher, Clarence L., New York, N. Y. Rolling-pin	644,634	Mar. 6	181	29	90	1779
Pitt, Robert, *et al.* (See Sugg, George P., assignor.)	643,897	Feb. 20	2424	571	90	1473
Pittman, Reinhard W., New York, N. Y. Lamp-shade	644,098	Feb. 27	2794	668	90	1562
Pittroff, Andreas, Frankfort-on-the-Main, assignor, by mesne assignments, to Wernigk & Müller, Waldheim, Germany. Welt-guide	643,274	Feb. 13	1267	297	90	1233
Pitts, William W., Hillsborough, Tex. Acetylene-gas generator	643,970	Feb. 20	2583	610	90	1506
Place, James F., Glen Ridge, N. J. Marine air-compressor	641,896	Jan. 23	3298	746	90	682
Place, John, Broadheath, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Casting mechanism for linotype-machines						
Place, John, Manchester, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Matrix-alining mechanism for linotype-machines						
Planque, Francis, Ferreyres, Switzerland. Holdfast						
Planters Compress Company. (See Butler, James A., assignor.)						
Planters Compress Company. (See Holmes, Watson M., assignor.)						
Planters Compress Company. (See Holmes and Butler, assignors.)						
Planters Compress Company. (See Lowry, George A., assignor.)						
Planters Compress Company. (See Lowry and Butler, assignors.)						
Planters Compress Company. (See Lowry and Holmes, assignors.)						
Planters Compress Company. (See Lowry and Mattoz, assignors.)						
Plantier, Arthur, assignor to Trenton Potteries Company, Trenton, N. J. Sanitary fixture	642,754	Feb. 6	334	80	90	1032
Platt, Lawrence, assignor to L. M. Patterson, B. F. Wise, S. and A. M. Worrell, J. Boyce, Patton, and W. Boyce, Brisbin, Pa. Woodworking-machine	645,329	Mar. 13	1422	812 / 813	90	2053
Platz, Robert, Friednau, and A. Sperling, Berlin, Germany. Saddle or seat	645,604	Mar. 20	1933	426 / 427	90	2167

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Player, John, Topeka, Kans. Combined refrigerating and ventilating car	645,829	Mar. 20	2362	517	90	2251
Pleas, William B., assignor of one-half to P. F. Dundon, San Francisco, Cal. Dredger	644,457	Feb. 27	3475	807	90	1693
Pletcher, Levi L., McConnelsville, Ohio. Vehicle-brake	645,628	Mar. 20	1984	435	90	2176
Plock, William A. (See Benner and Plock.)						
Plotts, William, McDonald, Pa. Bailer	640,413	Jan. 2	506	104	90	160
Plotts, William, McDonald, Pa. Bailer	640,414	Jan. 2	508	105	90	160
Plumb, Henry G., New York, N. Y. Window provision-box	645,124	Mar. 13	1051	223	90	1979
Plumbers Brass and Iron Manufacturing Company. (See Mayer, Jacob J., assignor.)						
Plumbers Brass and Iron Manufacturing Company. (See Vogler, Charles F., assignor.)						
Plunkett, Charles L., assignor of one-half to C. R. Crouch, St. Louis, Mo. Metallic folding bedstead	644,635	Mar. 6	132	29, 30	90	1779
Pneumatic Canceling Machine Company. (See Berry, Robert C., assignor.)						
Pneumatic Elevator and Weigher Company. (See Schuman, James B., assignor.)						
Poblete y Garin, Alberto, Salamanca, Chile. Copying-press	643,977	Feb. 20	2586	610 / 611	90	1507
Podoll, Gustav, *et al.* (See Theis, Henry W., assignor.)						
Poehlmann, William L., Philadelphia, Pa. Holder for placards, signs, &c	640,943	Jan. 9	1522	340	90	315
Pohlman, Edward A., New York, N. Y. Conical water-cock	645,184	Mar. 13	1169	254	90	2003
Pointon, Charles E. and J. E., Wellington, assignors to Lewis & Pointon's Panification, Limited, London, England. Machine for molding dough	640,944	Jan. 9	1523	340	90	315
Pointon, John E. (See Pointon, Charles E. and J. E.)						
Poland, Addison B. (See Keyes, Frank E., assignor.)						
Polanowski, Euzebiusz, Lodz, Russia. Machine for milling cone-screw wheels	645,427	Mar. 13	1603	350	90	2089
Polanowski, Euzebiusz, Lodz, Russia. Machine for milling angular-toothed bevel-wheels	645,428	Mar. 13	1605	350 / 351	90	2089
Polhemus, Jane H., Dobbs Ferry, N. Y. Device for holding keys, handkerchiefs, &c	640,807	Jan. 9	1238	281	90	262
Pollock, Milton D., Decatur, Ill. Funis-clamp	643,008	Feb. 6	760	175	90	1115
Pollock, Thomas H., Omaha, Nebr. Cutter for mowers or harvesters	640,587	Jan. 2	810	179	90	158
Polonus, Hattie, Sharon, Pa. Curling-iron heater	642,715	Feb. 6	269	66	90	1020
Polymath, Andrew N., Los Angeles, Cal. Picture	643,275	Feb. 13	1269	297	90	1234
Pomeroy, Henry C., assignor of one-fourth to F. H. Smith, Chicago, Ill. Combined riveting and punching machine	646,035	Mar. 27	2747	609 / 610	90	2344
Pond, Herbert J., Norwich, England. Orthopædic appliance	643,068	Feb. 6	878	206	90	1136
Pond, Merritt G. (See Runyan and Pond.)						
Pondorf, Paul, Goessnitz, Germany. Annealing-furnace for cartridge-cases	643,751	Feb. 20	2175	510	90	1425
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Tongueless disk wheel-plow	641,222	Jan. 9	2090	469 / 470	90	426
Poore, Charles H., Cedar Rapids, Iowa. Shoe-polishing device	641,795	Jan. 23	3115	708	90	649
Pope, Charles H., *et al.* (See Hopkins, Harvey L., assignor.)						
Pope, Harry M. (See Maxim, Pope, and Alden.)						
Pope, John L., Croft, N. C. Rotary disk rasp	641,543	Jan. 16	2675	610	90	556
Pope, John L., Cleveland, Ohio. Railway-tie	642,486	Jan. 30	4406	1000	90	920
Pope, John L., Cleveland, Ohio. Device for preventing creeping of railway-rails	642,487	Jan. 30	4407	1000	90	920
Pope, Ralph W., Elizabeth, N. J. Filing-box cabinet	646,191	Mar. 27	3048	672	90	2404
Porter, Edward N., and J. Barnes, Burlington, Vt. Car-fender	643,199	Feb. 13	1133	264 / 265	90	1208
Porter, George M. (See Rook, William N., assignor.)						
Porter, George W., Muscatine, Iowa. Printing-press	640,808	Jan. 9	1240	281	90	262
Porter, Joseph Y., Cleveland, Ohio, assignor to J. W. Morrison, Detroit, Mich. Railway switching device	641,223	Jan. 9	2096	470	90	427
Porter, Joseph Y., assignor to J. W. Morrison, Detroit, Mich. Electric street-indicator	641,224	Jan. 9	2098	471	90	427
Porter, Thomas I., assignor to Rand, McNally & Company, Chicago, Ill. Coin-detector	645,185	Mar. 13	1170	254	90	2003
Porter, William H., *et al.*, trustees. (See Mussinan, Oscar, assignor.)						
Porter, William H., New York, N. Y., assignor to Air Lighter Company, of New York. Gas-tip	640,698	Jan. 2	1033	235	90	199
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Stem-winding watch	641,888	Jan. 23	3289	747	90	682
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Stem-winding watch	641,889	Jan. 23	3291	747	90	682
Possons, Minard A. (See Kilmer and Possons.)						
Post, Bettie D., assignor to H. B. Philbrick, Hartford, Conn. Embroidery-hoop	643,069	Feb. 6	879	206	90	1136
Post, Edward R., assignor of one-half to E. S. Grise, Ottawa, Ohio. Nut-lock	642,488	Jan. 30	4408	1000	90	920
Post, Friedrich G. J., Hamburg, Germany. Moistening copying-paper	643,234	Feb. 13	1192	279	90	1219
Post, Mary J., Hoboken, N. J. Apparel suspender attachment	643,532	Feb. 13	1726	407	90	1323
Post, William C., Chicago, Ill., assignor of one-half to H. H. Corwin, Riverhead, N. Y. Shipping and storing case	644,301	Feb. 27	3192	748	90	1638
Postal Improvement Company. (See Taylor, William O., assignor.)						
Postlethwaite, Charles E., London, England. Detergent	641,225	Jan. 9	2100	.....	90	427
Poston, William T., *et al.* (See Garland, Charles W., assignor.)						
Potter, Devolco, Pittsburg, Pa. Washing-glove	645,406	Mar. 13	1572	343	90	2083
Potter, H. V. (See Peacock, George J., assignor.)						
Potts, Stacy, Washington, D. C. Combined shirt and suspensory bandage	642,920	Feb. 6	627	144	90	1088
Powell, Benjamin W., Hartwell, assignor of one-half to L. M. Cunningham and T. B. Thornton, Coldwater, Ga. Heel-bolt	640,945	Jan. 9	1525	341	90	315
Powell, Edwin A., North Fitzroy, assignor to J. Johnston, Melbourne, Victoria. Advertising device	645,390	Mar. 13	1426	313	90	2053
Powell, Joseph, *et al.* (See Lambert, Thomas B., assignor.)						
Powell, Lemuel L., Elkton, Va. Combined bicycle-lock and wrench	640,221	Jan. 2	125	24	90	26
Power, Charles J. (See Getler and Power.)						
Power, Richard T., New Westminster, Canada, assignor of three-tenths to R. D. Perry, San Francisco, Cal. Auxiliary motor for vessels	646,374	Mar. 27	3448	768	90	2486
Powers, Homer, Fort Stockton, Tex. Horse-detacher	642,365	Jan. 30	4197	948	90	879
Poyneer, Perry, Columbus, Ind. Fanning-mill	640,588	Jan. 2	812	179	90	159
Prall, Arthur A., Dayton, Iowa. Storm-front for buggies	644,944	Mar. 6	710	153	90	1896
Prampolini, William, San Luis Potosi, Mexico. Composition of matter	645,381	Mar. 13	1426	.....	90	2053
Prather, Ray E. (See Ogan, Andrew G., assignor.)						
Pratt, Frank M., Decatur, Ill. Deodorizing and drying	644,682	Mar. 6	220	50	90	1799
Pratt & Whitney Company. (See Couch and Harrington, assignors.)						
Pratt & Whitney Company. (See Woerner and Harrington, assignors.)						
Pratt, William H., Lynn, Mass., assignor to General Electric Company, of New York. Alternating-current meter	645,125	Mar. 13	1053	224	90	1980
Preater, James H., New York, N. Y. Shipping-case	645,755	Mar. 20	2232	484	90	2225
Preble, George L., Lynn, Mass. Box-toe	645,880	Mar. 20	2364	518	90	2252
Presbrey, Jeremiah W., Attleborough, Mass. Machine for curbing chains	644,589	Feb. 27	3626	844	90	1721
Prescott, Joseph A. (See Bilsborough, John, assignor.)						
Preston, Charles F., assignor of two-thirds to J. C. Stamm and O. E. Amundson, Chicago, Ill. Tool-holder	641,997	Jan. 23	3476	794	90	730

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Preston, Edwin J., and A. B. Gill, assignors to J. Stone & Company, London, England. Electric-lighting apparatus for railway-cars	645,212	Mar. 13	1219	265	90	2012
Preston Hose and Tire Company. (See Alvord, Clinton, assignor.)						
Prevet, Charles, Paris, France. Fountain for filtering, under pressure, water, &c.	643,681	Feb. 20	2035	481	90	1399
Price, Abraham E., Waynesborough, Pa. Threshing-machine	645,972	Mar. 27	2628	581	90	2321
Price, Bertha A. (See Price, Marie L., assignor.)	640,222	Jan. 2	126	24,25	90	26
Price, George B., Philadelphia, Pa. Pressure-valve	644,094	Feb. 27	2708	663	90	1563
Price, James M., deceased, Philadelphia, Pa.; W. F. and W. L. Price, executors. Electrical bond for railway-rails	646,128	Mar. 27	2926	648	90	2380
Price, Marie L., assignor of one-third to B. A. Price, Chicago, Ill. Dish-drainer						
Price, Walter F., *et al.*, executors. (See Price, James M.)						
Price, William L., *et al.*, executors. (See Price, James M.)						
Priebs, Bernhard, and O. Kaltwasser, assignors to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue sulfur dye	642,256	Jan. 30	3070	.....	90	832
Prier, William F., Kansas City, Kans. Chemical fire-extinguisher attachment	641,796	Jan. 23	3115	708	90	649
Priest, William. (See Lloyd, Walter J., assignor.)	643,533	Feb. 13	1728	407	90	1323
Prime, Charles L., Jersey City, N. J. Clothes-pin	644,458	Feb. 27	3477	807, 808	90	1694
Prindle, Charlie D., Newkirk, Okla. Ter. Corn-shelling machine						
Prindle, Henry U., Woodland, assignor of one-half to J. W. Guthrie, Sacramento, Cal. Sash-lock	645,213	Mar. 13	1223	266	90	2012
Prindle, William E., Elgin, Ill. Braider attachment for sewing-machines	641,998	Jan. 23	3477	794	90	720
Pringle, Robert, *et al.* (See Lambert, Thomas B., assignor.)						
Pringle, William T., Primos, assignor of one-half to E. R. Keller, Philadelphia, Pa. Electric switch	643,730	Feb. 20	2137	501	90	1417
Prins, Raphael J., Chicago, Ill. Packing-case	645,214	Mar. 13	1224	266	90	2012
Prismatic Electric Sign Company. (See Hill, Charles H., assignor.)	642,562	Jan. 30	4535	1026, 1027	90	944
Probert, Hubert F., Chicago, Ill. Vaporizer for gas-engines	642,366	Jan. 30	4200	949	90	880
Probert, Hubert F., assignor to C. H. Morse, Chicago, Ill. Lubricator for gas-engines	640,321	Jan. 2	317	66	90	63
Probst, George L., Pomeroy, Ohio. Rotary cutter	646,157	Mar. 27	2981	658	90	2360
Prokop, Jaroslav. (See Mallnsky and Prokop.)	641,890	Jan. 23	3292	747	90	688
Proper, Emberson E., New York, N. Y. Card-separating device						
Prosser, David W., Jamestown, N. Y. Electric foot-battery	643,731	Feb. 20	2138	501	90	1417
Prosser, David W., and W. W. Watson, Jamestown, N. Y. Adjustable blackboard and table or desk						
Protected Rail Bond Company. (See Mayer, Charles J., assignor.)						
Protected Rail Bond Company. (See Mayer, Charles J., assignor.) (Reissue.)	642,755	Feb. 6	335	81	90	1032
Prouty, Charles N. (See Condon, Patrick R., assignor.)						
Prouty, Chester, Ridgway, Pa. Mail	642,627	Feb. 6	110	26	90	987
Prücker, Amand C. M., Hanover, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric-lighting system	646,236	Mar. 27	3151	696	90	2424
Prutsman, Christian M., Lexington, Nebr. Box-cornice	641,999	Jan. 23	3478	794	90	720
Puddefoot, Charles, assignor of one-half to B. Briscoe, Jr., Detroit, Mich. Machine for seaming sheet metal	645,756	Mar. 20	2234	484	90	2226
Puellmann, Edward W., assignor of one-third to E. Anheuser, St. Louis, Mo. Garter-fastener	645,605	Mar. 20	1934	427	90	2167
Pugsley, William E., Lincoln, Nebr. Screw-propeller						
Pulay, Ignaz, *et al.* (See Wouwermans, Philipp von, assignor.)						
Pullman's Palace Car Company. (See Wickes, Thomas H., assignor.)						
Pullman's Palace Car Company. (See York, John A., assignor.)						
Pumphrey, Walter H., New York, N. Y., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa. System of ignition	644,683	Mar. 6	221	50,51	90	1800
Pupin, Michael I., New York, N. Y. Distributing electrical energy by alternating currents	640,515	Jan. 2	673	146	90	133
Pupin, Michael I., New York, N. Y. Electrical transmission by resonance-circuits	640,516	Jan. 2	680	146	90	134
Purdy, Corydon T., New York, N. Y. Beam-covering	646,192	Mar. 27	3050	673	90	2404
Purinton, Arthur J., Waterbury, and J. R. Reynolds, Hartford, assignors to Monarch Manufacturing Company, Waterbury, Conn. System of stopping steam-engines. (Reissue)	11,804	Jan. 23	3585	820, 821	90	739
Purser, Stephen. (See Weaver, Isaac J., assignor.)						
Purves, Thomas C., and O. K. Mitchell, La Grange, assignors to J. L. Reichelt, Cook County, Ill. Oil-burner	642,716	Feb. 6	270	66	90	1020
Pyke, Frederick A., Bolton, England. Device for cleaning tobacco-pipes	642,489	Jan. 30	4409	1001	90	920
Quanonne, Gustave, Houdeng-Goegnies, Belgium. Air-ejecting apparatus for vessels	640,946	Jan. 9	1526	341	90	816
Quentell, William P., Harrisburg, Pa., assignor to Keystone Typewriter Company, New York, N. Y. Type-bar	640,699	Jan. 2	1034	235	90	200
Quick, Miles W., Titusville, Pa. Plant for operating motors	643,156	Feb. 13	1651	245	90	1192
Quigley, Thomas L., and P. Malone, Boston, Mass. Cart	641,647	Jan. 16	2846	649	90	592
Quinby, Charles F. (See Vaughan, Henry H., assignor.)						
Rabe, Lawrence H. (See Hodge and Rabe.)	646,158	Mar. 27	2982	658	90	2360
Raborn, Louis, Whitney, Tex. Roller cotton-compress						
Racine Wagon and Carriage Company. (See Ryan, Thomas J., assignor.)						
Raders, Joseph F., New York, N. Y., assignor to Automatic Photograph Machine Company, of West Virginia. Automatic photographing apparatus	645,215	Mar. 13	1225	266, 267	90	2013
Raff, Edward S. (See Stump, Ira E., assignor.)						
Rafferty, William C., New York, N. Y. Device for resolving force into its rectangular components	641,467	Jan. 16	2526	578	90	536
Rakestraw, Roland, Wyoming, Ill. Gate	643,157	Feb. 13	1057	245	90	1192
Ramey, Thomas C., *et al.* (See Flint, James L., assignor.)						
Ramsay, Henry M., Houston, Tex. Folding poultry-coop	643,978	Feb. 20	2588	611	90	1507
Ramsey, Joseph A., assignor of one-half to C. C. Farlow, Beatrice, Nebr. Corn-husker	645,515	Mar. 13	1763	386	90	2120
Ranald, John, London, England. Humid process of extracting the metals bismuth or antimony from their sulfid ores	645,490	Mar. 13	1714	.....	90	2110
Rand, Charles A. A. (See Stewart and Rand.)						
Rand, Charles A. A., assignor to Deering Harvester Company, Chicago, Ill. Traction-wheel for agricultural machines	645,429	Mar. 13	1607	351	90	2090
Rand Drill Company. (See Ambrose, Robert L., assignor.)						
Rand, Fernando L., North Adams, Mass. Acetylene-gas-generating apparatus	643,158	Feb. 13	1058	246	90	1193
Rand, McNally & Company. (See Porter, Thomas I., assignor.)						
Randall & Co. (See Randall, Silas H., assignor.)						
Randall, George H., Wellington, assignor to W. B. H. Dawse, trustee, Newton, Mass. Envelop	640,489	Jan. 2	628	136	90	123
Randall, Henry E. (See Brown, Henry, assignor.)	644,778	Mar. 6	409	80	90	1896
Randall, Silas H., Wyoming, assignor to Randall & Co., Cincinnati, Ohio. Collar-stuffer	643,200	Feb. 13	1135	265	90	1208
Rankert, Charles M., Chicago, Ill. Clamp for repairing leaks in pipe-joints						

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Rankin, David F., North Vernon, Ind. Adjustable keyboard	640,223	Jan. 2	127	25	90	27
Rano, Charles O. (See Dean, Cyrus S., assignor.)						
Rapp, Gustav A., Hudson, N. Y. Banjo-tailpiece	643,159	Feb. 13	1059	246	90	119
Rapp, John W., New York, N. Y. Ceiling construction	640,809	Jan. 9	1243	281	90	262
Rapp, John W., New York, N. Y. Fireproof floor	641,323	Jan. 16	2269	514	90	475
Rapp, Samuel N., assignor to Ives-Rapp Manufacturing Company, Detroit, Mich. Driving mechanism	641,727	Jan. 23	3117	709	90	649
Rasner, Abraham, assignor to Rasner & Dinger Company, Pittsburg, Pa. Window-frame and sash	641,037	Jan. 9	1721	383	90	352
Rasner & Dinger Company. (See Rasner, Abraham, assignor.)						
Rast, Felix Q. (See Davenport and Rast.)						
Ratcliff, Josiah A., assignor of one-half to T. G. Neeley, Gilman, Ind. End-gate fastener	642,628	Feb. 6	111	26	90	987
Rathbone, John A., Detroit, Mich. Steam or hot-water heater	641,468	Jan. 16	2531	579	90	526
Raub, Joseph M. (See Spoore and Raub.)						
Raub, Warren C., St. Louis, Mo. Chain propeller	643,752	Feb. 20	2176	511	90	1425
Rauch, Edgar J., Brockton, Mass. Trolley-head	645,186	Mar. 13	1172	255	90	2008
Raudabaugh, Joshua R., *et al.* (See De Brae, William H., assignor.)						
Raudabaugh, William A., *et al.* (See De Brae, William H., assignor.)						
Raum, Green B., Jr., New York, N. Y. Trolley-wheel	640,810	Jan. 9	1244	282	90	263
Rausseau, Coatsworth E., Clear Water, Fla. Buckle	644,095	Feb. 27	2799	663	90	1565
Rawles, John, Galesburg, Ill. Draft-gear for car-couplings	645,606	Mar. 20	1935	427	90	2167
Ray, Ambrose S., assignor of one-half to H. Keller, Bellefonte, Pa. Car-coupling	645,620	Mar. 20	1935	436	90	2177
Ray, Herbert B., W. P. Phillips, and W. E. Patchin, Bridgeport, Conn. Marking-stamp	642,367	Jan. 30	4201	949	90	880
Ray, William S., San Francisco, Cal. Metallic life-boat	644,723	Mar. 6	297	65	90	1812
Raymond, Albert, Chicago, Ill. Pulverizing-mill	642,717	Feb. 6	272	67	90	1021
Raymond Button Company of Baltimore City. (See Hall and Griffith, assignors.)						
Raymond Button Company of Baltimore City. (See Ketchum, Oliver W., assignor.)						
Raymond Button Company of Baltimore City. (See Phillips, Joseph A., assignor.)						
Raymond, Freeborn F., 2d, Newton, Mass., assignor, by mesne assignments, to McKay Shoe Machinery Company, of Maine. Heel-nailing machine	641,226	Jan. 9	2101	471, 472, 473	90	427
Raymond, Silas H., Grand Rapids, Mich. Lamp-chimney holder	644,185	Feb. 27	2969	701	90	1595
Razy, Louis, Paris, France. Sliding support and stop for drawers, &c	643,082	Feb. 20	2036	481	90	1399
Rea, Benjamin W., and E. S. Gregory, Gallatin, Mo. Portable photographic dark room	643,004	Feb. 6	702	175, 176	90	1115
Rea, Samuel J., De Graff, Ohio. Fence-picket fastener	642,053	Jan. 23	3574	818	90	737
Read, Mamie G. (See Eisenhuth, John W., assignor.)						
Read, Mary C., Torch Lake, Mich. Window-shield	641,324	Jan. 16	2270	514	90	475
Reading Stove Works, Orr, Painter & Co. (See Smead, Isaac D., assignor.)						
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Jointer for plows	646,312	Mar. 27	3289	732	90	2448
Reardon, Patrick H., San Francisco, Cal. Engine for rock-drills	645,536	Mar. 13	1793	394	90	2125
Reardon, Patrick H., San Francisco, Cal. Hose-coupling	645,537	Mar. 13	1796	394	90	2126
Rebbeck, James K., assignor to Albion Iron Works Company, Limited, Victoria, Canada. Door for cannery steam-boxes	643,606	Feb. 13	1864	439	90	1351
Record, George J., Conneaut, Ohio. Fastening for caps of cans or other vessels	643,005	Feb. 6	705	176	90	1115
Redding, Thomas, Seattle, Wash. Fish trap-net	644,459	Feb. 27	3480	808	90	1694
Redford, George, and E. Campbell, Sussex, Wis. Wrench	642,155	Jan. 30	3785	862	90	796
Redmond, William B., agent, *et al.* (See Butcher, James M., assignor.)						
Redon, Constant F. de, assignor to M. Stine, New York, N. Y. Nut-lock	642,718	Feb. 6	277	68	90	1022
Reece, James R., Zionville, N. C. Fender	640,700	Jan. 2	1035	235	90	200
Reed, Adam, St. Joseph, Mo., assignor of one-half to G. J. Winter, Buffalo, N. Y. Shoe.	643,607	Feb. 13	1865	440	90	1351
Reed, Francis C., Council Bluffs, Iowa. Cigar	642,000	Jan. 23	3480	795	90	720
Reed, Harry D., Indianapolis, Ind. Caster-socket	645,974	Mar. 27	2626	581	90	2321
Reed, Harry D., assignor to W. L. Elder, Indianapolis, Ind. Ball-caster	642,921	Feb. 6	628	144	90	1088
Reed, James F., W. E. Blotcher, and W. G. O'Rourke, assignors of one-fourth to G. D. R. Aikin, Louisville, Ky. Jack-block	645,831	Mar. 20	2365	518	90	2252
Reed, Lyman C. (See Reed, Warren B. and L. C.)						
Reed, Lyman C., New Orleans, La. Protective system and apparatus for high-tension electric currents	645,007	Mar. 6	808	176, 177	90	1918
Reed, Lyman C., New Orleans, La. Protective system of electric distribution	645,008	Mar. 6	813	178	90	1919
Reed, Lyman C., New Orleans, La. System of electrical distribution	645,009	Mar. 6	815	178	90	1919
Reed, Lyman C., New Orleans, La. Electric-circuit breaker	645,010	Mar. 6	817	178	90	1919
Reed, Lyman C., New Orleans, La. Electric meter	645,126	Mar. 13	1055	224	90	1980
Reed, Lyman C., New Orleans, La. System of electric metering	645,127	Mar. 13	1056	224	90	1980
Reed, Lyman C., New Orleans, La. System of electric metering	645,128	Mar. 13	1058	225	90	1981
Reed, Lyman C., New Orleans, La. System of electric metering	645,129	Mar. 13	1061	225, 226	90	1981
Reed, Matthew H., Allegheny, Pa. Indicating and recording scale	642,756	Feb. 6	337	81, 82	90	1032
Reed, Matthew H., Allegheny, Pa. Record-card for scales	642,757	Feb. 6	339	82	90	1033
Reed, Warren B. and L. C., New Orleans, La. Underground system of electrical distribution	645,011	Mar. 6	820	179	90	1920
Reed, Warren B. and L. C., New Orleans, La. System of overhead electrical distribution	645,012	Mar. 6	824	179	90	1921
Reed, Warren B. and L. C., New Orleans, La. Series-arc system of electrical distribution	645,013	Mar. 6	829	179	90	1921
Reed, Warren B. and L. C., New Orleans, La. System of electrical distribution	645,014	Mar. 6	831	180	90	1921
Reed, Warren B. and L. C., New Orleans, La. Electric railway	645,015	Mar. 6	834	180	90	1922
Reeder, Clinton V. B., San José, Cal. Office-indicator	645,800	Mar. 13	1372	299	90	2042
Rees, Ivor, Sully, England. Pedal and crank pin for cycles	644,636	Mar. 6	133	30	90	1780
Reess, Walther. (See Julius and Reess.)						
Reeve, George W., Jr. (See Ward, George M., assignor.)						
Reeves, Andrew C. (See Reeves, Clifton, assignor.)						
Reeves, Clifton, Trenton, N. J., assignor of one-half to A. C. Reeves. Compound steam-engine	640,224	Jan. 2	129	26	90	27
Reeves & Company. (See Clay, Harry C., assignor.)						
Reeves, John H. (See Hukriede, Henry, assignor.)						
Reeves, Madison W., Sayre, Pa. Hitch-hook	641,688	Jan. 9	1722	383	90	352
Regnell, Bigney & Co. (See Macomber, William I., assignor.)						
Rehm, Victor, Baden Baden, Germany. Bicycle-brake	642,001	Jan. 23	3480	795	90	720
Reich, Hans, Bozen, Austria-Hungary. Electric time-alarm	646,036	Mar. 27	2749	610, 611	90	2344
Reichblum, David and M., Wheeling, W. Va. Combined cuff holder and button	644,460	Feb. 27	3481	808	90	1694
Reichblum, Max. (See Reichblum, David and M.)						
Reiche, Anton, Plauen, Germany. Border-fillet for placards	642,002	Jan. 23	3482	795	90	721

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Reichelt, Joy L. (See Purres and Mitchell, assignors.)	644,637	Mar. 6	134	.....	90	1789
Reid, James R., Elmira, N. Y. Filtering material	642,922	Feb. 6	680	144	90	1098
Reid, Mary E., Buffalo, N. Y. Window-sash	642,003	Jan. 23	3488	796	90	721
Reid, Robert, assignor to J. Condon, Philadelphia, Pa. Acetylene-gas generator	643,688	Feb. 20	2087	482	90	1399
Reid, William M., Bishopville, S. C. Measuring vessel	643,201	Feb. 13	1135	265	90	1208
Reilly, Charles J., Chicago, Ill. Side guard for cars	640,415	Jan. 2	509	105	90	100
Reineke, Charles W., and W. A. Fritsch, Pittsburg, Pa. Water-heater	641,227	Jan. 9	2105	478	90	428
Reinhard, Rudolf J. W., Hamburg, Germany. Burner for gas-lamps	643,006	Feb. 6	767	176	90	1116
Reinken, Charles H. (See Leftwich and Reinken.)						
Reisser, Adolf, *et al.* (See Voegelin, Reinhardt, assignor.)						
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Dynamo-electric machine	644,684	Mar. 6	233	51	90	1800
Reister, Edward P., assignor of one-half to G. F. Severs, Centreville, Iowa. Insecticide	642,368	Jan. 30	4203	.....	90	881
Reniff, James R., Norwalk, Ohio. Journal-box	642,490	Jan. 30	4410	1001	90	921
Rennie, John A., Philadelphia, Pa., assignor, by mesne assignments, to National Mat Company, of New Jersey. Mat or matting	640,490	Jan. 2	629	136	90	123
Renoll, Jacob E., *et al.* (See Gerrich, John K., assignor.)						
Renyx, Guy W. (See Kneeland, Charles L., assignor.)						
Renz, Ludwig, Louisville, Ky. Fan attachment for chairs	643,979	Feb. 20	2590	611	90	1597
Replogle, Mark A., Akron, Ohio. Mechanical movement	641,325	Jan. 16	2271	515	90	276
Reppell, Louis H., and J. P. Groff, Kansas City, Mo. Street-car fender	642,156	Jan. 30	3785	803	90	796
Repper, John H., *et al.* (See Clifford, Thomas G., assignor.)						
Rese, Harry J. (See Kleman, Henry, assignor.)	641,228	Jan. 9	2106	474	90	429
Resow, Adolf, assignor to F Krupp, Essen, Germany. Wheel-brake for field-guns	641,606	Jan. 16	2776	632	90	575
Rey, Valentine J. A., San Francisco, Cal. Combining apparatus	643,306	Feb. 13	1316	310 311	90	1243
Rey, Valentine J. A., San Francisco, Cal. Carbureter						
Reyburn Manufacturing Company. (See Trout, Charles R., assignor.)						
Reyerson, Hans. (See Vannote, Jacob E., assignor.)	641,229	Jan. 9	2108	474	90	429
Reynolds, Alva L., Santa Ana, Cal. Pump						
Reynolds, Benjamin F., deceased; E. D. Reynolds, administratrix, assignor to B. F. Reynolds & Company, Chicago, Ill. Grate	644,302	Feb. 27	3194	748	90	1638
Reynolds, Ellen D., administratrix. (See Reynolds, Benjamin F.)						
Reynolds, George, Toronto, Canada. Turning attachment for lathes	645,491	Mar. 13	1715	375	90	2111
Reynolds, George H., assignor to Crane Elevator Company, Chicago, Ill. Plunger-elevator accumulator	640,589	Jan. 2	813	179	90	159
Reynolds, James H., Mittineague, Mass. Mechanism for manufacturing deckle-edge paper	641,798	Jan. 23	3119	709	90	650
Reynolds, James S., Minneapolis, Minn. Fireproof door	640,811	Jan. 9	1245	282	90	293
Reynolds, James S., Minneapolis, Minn. Window frame and sash	642,369	Jan. 30	4204	949	90	881
Reynolds, John R. (See Purinton and Reynolds.) (Reissue.)	642,257	Jan. 30	3971	905	90	832
Reynolds, John R., Hartford, Conn. Emergency throttle-valve						
Reynolds, Richard J., assignor of one-half to S. F. Evans and J. B. Burke, Taylor, Tex. Gin-saw filer	641,039	Jan. 9	1723	384	90	352
Reynolds, Robert F., Fisk, Ala. Bridle-bit	644,945	Mar. 6	712	154	90	1807
Reynolds, Sylvanus J., Saginaw, Mich. Carpet-sweeper	642,629	Feb. 6	112	27	90	987
Reynolds, Thomas A. (See Alexander and Reynolds.)						
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp	642,527	Jan. 30	4466	1013	90	930
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp	642,528	Jan. 30	4467	1014	90	931
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp-reflector	642,529	Jan. 30	4469	1014	90	931
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp	642,923	Feb. 6	631	144 145	90	1088
Rhind, Frank, assignor of one-half to Bridgeport Brass Company, Bridgeport, Conn. Lamp-bracket	645,973	Mar. 27	2624	581	90	2321
Rhoads, Samuel M., assignor of one-half to F. McKernan, Philadelphia, Pa. Tapping apparatus	641,892	Jan. 23	3205	748	90	683
Rhodes, Bert O., Harvey, assignor to F. C. Austin, Chicago, Ill. Steam pumping-engine	643,732	Feb. 20	2138	501 502	90	1418
Rhodes, Daniel, Washington, D. C. Nut-lock	643,364	Feb. 13	1419	331	90	1263
Rhodes, Jacob M., Fredericktown, Mo. Combined vibrating harrow and roller	644,096	Feb. 27	2800	664	90	1563
Rhodes, Jay B., Harvey, assignor to F. C. Austin, Chicago, Ill. Rotating device for rotary drills	644,638	Mar. 6	135	31	90	1780
Rhodes, Jay B., Harvey, assignor to F. C. Austin, Chicago, Ill. Bag-carrying cart	646,010	Mar. 27	2699	598	90	2395
Rhodes, William G., Salford, England. Alternating-current motor	645,130	Mar. 13	1065	226	90	1992
Rhodes, Wright, Manchester, England. Apparatus for stripping flats in carding-engines	645,832	Mar. 20	2366	518	90	2252
Rhodin, John G. A., Manchester, England. Obtaining soluble potassium salts from feldspar	641,406	Jan. 16	2405	.....	90	502
Rhodin, John G. A., Sale, England. Apparatus for decomposing alkali sulfates	646,313	Mar. 27	3290	732	90	2448
Rice, Edward E., New Durham, N. H. Wire brush	644,303	Feb. 27	3195	748	90	1638
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric-arc lamp	641,991	Jan. 23	3203	748	90	683
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric meter	645,671	Mar. 20	2658	452	90	2191
Rice, George W., and G. Zerrmann, New York, N. Y. Magazine-pencil	641,230	Jan. 9	2109	475	90	429
Rice, Milton H., Carnforth, Iowa. Car-coupling	642,719	Feb. 6	280	68	90	1022
Rice, Richard H., and J. W. Sargent, Providence, R. I. Steam-actuated dash-pot for engines	642,054	Jan. 23	3575	818	90	738
Rich, Corydon M., *et al.* (See Baker, William M., assignor.)						
Rich, Henry M. (See Bancroft, Frank H., assignor.)	644,097	Feb. 27	2801	664	90	1563
Rich, Paul F., Tomah, Wis. Safety-brace for joints of railway-rails						
Richards, Anna I., administratrix. (See Stoddard and Richards.)						
Richards, Charles V., Skowhegan, Me., assignor of one-half to J. M. Carroll, Hyde Park, Mass. Combined hook and clasp	641,544	Jan. 16	2076	610	90	556
Richards, Harry C., *et al.* (See Stoddard and Richards, assignors.)	641,231	Jan. 9	2111	475	90	430
Richards, Harry C., Cleveland, Ohio. Hatch-door mechanism for elevators						
Richards, Harry G. (See Stoddard and Richards.)						
Richards, John T., Mysore, India, assignor to Sandycroft Foundry and Engine Works Company, Limited, Hawarden, England. Guide for stems of stamp-mills, &c	642,630	Feb. 6	113	27	90	987
Richards, Joseph L., San Francisco, Cal. Hot-air syringe	640,947	Jan. 9	1529	342	90	816
Richards, Joseph W., and C. W. Roepper, Bethlehem, Pa., assignors to American Electrolytic Company, of Delaware. Manufacturing metallic carbonates by electrolysis	644,779	Mar. 6	411	.....	90	1836

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Richards, Willard F., Buffalo, assignor to C. M. Gould, New York, N. Y. Electric-lighting apparatus for railway-cars	645,216	Mar. 13	1239	267	90	2013
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	640,225	Jan. 2	131	26	90	28
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Platform for railway-cars	645,649	Mar. 20	2021	445	90	2184
Richardson, Alonzo F., New York, N. Y. Comb	642,004	Jan. 23	3487	796	90	722
Richardson, Charles G., Springfield, Vt. Rod-feeding device	641,040	Jan. 9	1726	384	90	352
Richardson, Charles M., *et al.* (See Snyder, Daniel R., assignor.)						
Richardson, Dana F., Toledo, Ohio. Gathering-iron	646,037	Mar. 27	2753	611	90	2345
Richardson, Dana F., Toledo, Ohio. Gathering-iron	646,038	Mar. 27	2754	611	90	2346
Richardson, Edmund R. (See Valentine, David, assignor.)						
Richardson, Frederick E., assignor of one-half to C. E. Smith, Manchester, Iowa. Door-latch	644,946	Mar. 6	713	154	90	1807
Richardson, Levant M., Chicago, Ill. Roller-skate	645,270	Mar. 13	1313	286	90	2031
Richardson, Marshal A., Windsor, Ill. Ditching-machine	640,812	Jan. 9	1247	282 283	90	263
Richardson, Samuel, New York, N. Y. Pipe-union	645,692	Mar. 20	2097	460	90	2200
Richmond, Alexander. (See McAssey and Richmond.)						
Richmond, Charles C., Boston, Mass. Non-refillable bottle	642,491	Jan. 30	4411	1001	90	921
Richmond, Charles T., and M. M. Zellers, Cleveland, Ohio, assignors to National Carbon Company, Trenton, N. J. Butting and pointing machine	641,545	Jan. 16	2677	610 611	90	556
Richmond, Charles T., and M. M. Zellers, Cleveland, Ohio, assignors to National Carbon Company, Trenton, N. J. Battery-filler	641,546	Jan. 16	2680	611	90	557
Richmond, Edward J., assignor to D. J. Bliss, Carthage, Mo. Locking-hook for miner's buckets	643,534	Feb. 13	1728	408	90	1323
Richmondt, Cordtlandt D., Milwaukee, Wis. Wire-conduit tubing	645,187	Mar. 13	1173	255	90	2004
Richter, Aurel A., assignor to E. R. Böhme, Dresden, Germany. Artificial flower or plant	644,724	Mar. 6	298	65	90	1813
Richter, Charles, and R. T. Eschler, Camden, N. J., assignors to Security Trust and Safe Deposit Company, trustee, of New Jersey. Electric traction-motor	643,276	Feb. 13	1270	297 298	90	1234
Richter, Frederick W., Chicago, Ill. Floor or window cleaner	643,007	Feb. 6	768	176 177	90	1116
Riddell, Archie S., Denver, Colo. Mop-holding attachment for scrubbing-pails	640,701	Jan. 2	1036	235	90	200
Rider, Frank A., Vekol, Ariz. Ter., assignor to Detroit Reduction Company, Cripple Creek, Colo. Separator for gold and silver by amalgamation	645,188	Mar. 13	1174	255	90	2004
Rider, Herbert E., assignor to Stanley & Patterson and C. P. Robinson, New York, N. Y. Device for applying sealing-wax	641,648	Jan. 16	2848	649	90	590
Rider, Samuel S. (See White and Rider.)	642,055	Jan. 23	3577	819	90	738
Ridgway, Charles L., Winthrop, Mass. Furnace or the like for burning gas	644,461	Feb. 27	3482	808	90	1695
Ridout, Franklin A., assignor of one-half to M. M. Anderson, Cynthiana, Ky. Reinholder	641,826	Jan. 16	2273	515	90	476
Riebe, John C. (See Kresen and Leasman, assignors.)	640,813	Jan. 9	1252	283 284	90	264
Riedmiller, Otto J., Hawley, Pa. Carpet-tack	640,416	Jan. 2	510	105	90	101
Riemenschneider, Henry P. (See Breeze, Herbert J., assignor.)	640,590	Jan. 2	814	180	90	159
Rieske, Otto G., Dayton, assignor to E. B. Schneider, Zanesville, Ohio. Stapling-machine	640,948	Jan. 9	1582	342 343	90	317
Riffelmacher, Hans. (See Ott and Riffelmacher.)						
Rigby, Clark F., Mannington, W. Va. Rope-clamp						
Rigg, Joseph, Yardley, and H. Hart, Harborne, England. Polishing-bob						
Rightmyer, Homer W., Rowlesburg, W. Va. Shaping attachment for planers						
Riley, John W. (See Scott, Albert T., assignor.)	643,302	Feb. 13	1137	265	90	1209
Rinck, Charles, Cincinnati, Ohio. Baking-oven						
Rinehart, William D. (See Dempster and Rinehart.)						
Rippley, Frank, assignor to Rippley Hardware Company, Grafton, Ill. Feed-cooker	645,492	Mar. 13	1717	376	90	2111
Rippley Hardware Company. (See Rippley, Frank, assignor.)						
Ris, Christopher, assignor to J. R. Geigy & Co., Basle, Switzerland. Disazo dye from stilbene	644,462	Feb. 27	3483	.....	90	1695
Ris, Christopher, assignor to J. R. Geigy & Co., Basle, Switzerland. Black sulfur dye	645,738	Mar. 20	2204	.....	90	2220
Rissler, Paul, and H. Bauer, Freudenstadt, Germany. Electricity-meter	641,607	Jan. 16	2777	632	90	576
Rites, Francis M., Ithaca, N. Y. Governor	646,237	Mar. 27	3152	696 697	90	2424
Rites, Francis M., Ithaca, N. Y. Governor	646,314	Mar. 27	3291	733	90	2449
Rites, Francis M., Ithaca, N. Y. Governor	646,315	Mar. 27	3295	734 735	90	2450
Rittenhouse, Frank K., Chicago, Ill. Cut-off valve-gear for engines	643,203	Feb. 13	1138	266	90	1209
Ritter, Henry. (See Lunken and Ritter.)	644,463	Feb. 27	3484	809	90	1695
Rivers, Julian H., St. Louis, Mo. Fan support and spreader						
Rivière, Stéphane. (See Chevreton and Rivière.)	640,949	Jan. 9	1535	343	90	317
Rix, Edward A., San Francisco, Cal. Air-compressing engine						
Robbins, George B. (See Bowman, Blackburn, and Robbins.)	646,039	Mar. 27	2756	611 612	90	2346
Robbins, Ira, Camden, N. J. Railway-switch	642,159	Jan. 30	3790	863 864	90	797
Robbins, Ira, Camden, N. J., assignor to T. D. Kelly, Philadelphia, Pa. Electric switch	645,131	Mar. 13	1066	226	90	1983
Robbins, Joseph T., Newton, Iowa. Apparatus for generating steam and destroying and utilizing garbage, &c	642,492	Jan. 30	4413	1001	90	921
Robbins, Moses R., assignor of one-half to A. E. Mallett, Victoria, British Columbia, Canada. Steam-engine	644,870	Mar. 6	581	125	90	1870
Roberts, Arthur A. (See Guntner and Roberts.)	644,186	Feb. 27	2970	701	90	1595
Roberts, Charles H., Mitchellville, Iowa. Portable winch	642,924	Feb. 6	633	145	90	1089
Roberts, Charles J., *et al.* (See Heineman, Harry A., assignor.)	645,217	Mar. 13	1231	267	90	2013
Roberts, Edward, Brownsburg, Ind. Tension device	643,980	Feb. 20	2591	612	90	1507
Roberts, Frank C., Philadelphia, Pa. Hot-blast stove	645,569	Mar. 20	1849	409	90	2150
Roberts, Harry W., Newmarket, England. Drawing-board rest						
Roberts, Hiram M., Vickery, and J. Fitzgerald, Port Clinton, Ohio. Bow-facing oar						
Roberts, Isaiah L., New York, N. Y. Receptacle for sterilized perishable substances						
Roberts, James C. (See Rogers, Bruce, Roberts, and Russell.)	645,493	Mar. 13	1718	376	90	2111
Roberts, Lewis A., Carbondale, Pa. Eyelet	641,547	Jan. 16	2682	612	90	557
Roberts, Robert R., assignor to R. W. Browne, Washington, D. C. Truss	641,863	Jan. 23	3206	748	90	684
Roberts, William M., Detroit, Mich. Soap-dish or sponge-holder	642,720	Feb. 6	282	68	90	1022
Robertson, Archibald J., Chicago, Ill. Axle and bearing for vehicles	642,530	Jan. 30	4470	1014	90	932
Robertson, George A., Westmount, Canada. Catch-basin	643,535	Feb. 13	1730	408	90	1323
Robertson, James D., La Salle, Ill. Steam-heating plant						

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Robertson, Peter, and C. Matson, Racine, Wis. Gasolene-engine	641,727	Jan. 23	2006	682, 683	90	627
Robertson, Ronald J., Chelsea, Mass. Lamp	640,950	Jan. 9	1538	343	90	318
Robes, Ernest C. (See Thompson and Robes.)						
Robinson, Alexander P., Webster Grove, Mo. Vehicle running-gear	640,951	Jan. 9	1540	344	90	318
Robinson, Amos S., assignor of one-half to J. Robinson, Nelsonville, Ohio. Mine-door	643,536	Feb. 13	1731	409	90	1324
Robinson, Andrew J., Boston, Mass. Mechanical movement	643,981	Feb. 20	2502	612, 613	90	1508
Robinson, Benjamin F., near Margaret, W. Va. Apparatus for use in writing by hand						
Robinson, Celinda P., *et al.* (See Rider, Herbert E., assignor.)						
Robinson, Chauncey E., and W. L. Sutherland, South Connellsville, Pa. Composition for pickling metal bars, plates, sheets, &c	640,491	Jan. 2	630	.....	90	123
Robinson, Cyrus, Columbus, Ohio. Mining-machine	643,537	Feb. 13	1732	409	90	1324
Robinson, Dighton A., Minneapolis, Minn. Portable scale and hopper for coaling-stations	641,252	Jan. 9	2113	475	90	431
Robinson, Edward J., Santa Monica, Cal. Attachment for ink-bottles	644,540	Feb. 27	3628	844	90	1722
Robinson, Franklin E. (See Keyes, Martin L., assignor.)						
Robinson, Grant B., and N. Seyller, Seward, Okla. Ter. Rotary engine	642,005	Jan. 23	3488	797	90	722
Robinson, Ida L., Boston, Mass. Non-refillable bottle	640,953	Jan. 9	1544	344	90	318
Robinson, James R., Monongahela, Pa. Automatic dumping apparatus	640,952	Jan. 9	1541	344	90	318
Robinson, John. (See Robinson, Amos S., assignor.)						
Robinson, John T., assignor of one-fourth to J. H. Ferguson, New York, N. Y. Carbon for electric-arc lights	642,826	Feb. 6	450	.....	90	1053
Robinson, Joseph M., New York, N. Y. Safety-lock	643,070	Feb. 6	880	200	90	1136
Robinson, Major J., Los Angeles, Cal. Rotary engine	645,132	Mar. 13	1068	227	90	1983
Robinson, Samuel R., Antrim, N. H. Saw-setting apparatus	646,159	Mar. 27	2488	659	90	2391
Robinson, Sumner, *et al.*, executors. (See Whittier, Charles.)						
Robinson, Thomas A., and R. L. Shaw, Paterson, N. J. Reed for textile machinery	641,327	Jan. 16	2273	515	90	476
Robinson, Thomas C., Malden, assignor of one-half to E. B. Welch, Cambridge, Mass. Bicycle driving mechanism	641,728	Jan. 23	2607	683	90	627
Robinson, Thomas C., Revere, assignor of one-half to E. B. Welch, Cambridge, Mass. Bicycle driving mechanism	641,729	Jan. 23	2608	683, 684	90	627
Robinson, William B., New York, N. Y. Clothes-line support	643,160	Feb. 13	1061	240	90	1193
Robinson, William V. (See Keep and Robinson.)						
Robken, Charles, Argenta, Ark. Journal-box and lid	642,258	Jan. 30	3073	905	90	883
Robin, Edwin, Belleville, Canada. Cutting apparatus for reaping or mowing machines	643,684	Feb. 20	2589	482	90	1399
Roche, David, assignor of two-thirds to A. Scheuer and J. A. Sanders, Cleveland, Ohio. Chain-making machine	640,591	Jan. 2	815	180	90	159
Roche, James, assignor to Eagle Lock Company, Terryville, Conn. Mirror-hinge	645,218	Mar. 13	1231	267	90	2013
Rochester Non-Puncturable Tire Company. (See Ferguson, Albert M., assignor.)						
Rochester Non-Puncturable Tire Company. (See Ferguson and Shedd, assignors.)						
Rockwell, Albert F., assignor to New Departure Bell Company, Bristol, Conn. Back-pedaling brake	645,133	Mar. 13	1070	227	90	1983
Rockwell, Edward D., assignor to Liberty Bell Company, Bristol, Conn. Bicycle-bell	644,147	Feb. 27	2588	683	90	1581
Rockwell, Irvin E., Chicago, Ill., and J. D. Adams, Wabash, Ind. Bookcase, &c	646,129	Mar. 27	2929	648	90	2381
Rodenstein, Louis A., *et al.* (See Spies, Peter H. F., assignor.)						
Rodgers, John. (See Walter and Rodgers.)						
Rodifer, John F. (See Gregg, Israel W., assignor.)						
Rödell, Cornelis F. A., assignor of one-half to J. G. Orth, Los Angeles, Cal. Wave-motor	641,233	Jan. 9	2114	476	90	431
Rödell, Cornelis F. A., assignor of one-half to J. G. Orth, Los Angeles, Cal. Wave-motor	643,008	Feb. 13	1866	440	90	1351
Roepper, Charles W. (See Richards and Roepper.)						
Roesch, George J. (See Hoey, Otis B., assignor.)						
Roessler & Hasslacher Chemical Company. (See Buch, Julius, assignor.)						
Rogers, Andrew W., and S. W. Winslow, assignors to S. W. Winslow, trustee, Beverly, Mass. Apparatus for making abrasive covers for buffing-machines	643,235	Feb. 13	1103	279, 280	90	1219
Rogers, Andrew W., and S. W. Winslow, assignors to S. W. Winslow, trustee, Beverly, Mass. Machine for making abrasive covers for buffing-machines	643,236	Feb. 13	1105	280, 281	90	1219
Rogers, Charles B., Stevenson, Md. Thermostat	646,100	Mar. 27	2860	635	90	2367
Rogers, George H., Birmingham, Ala. Writing-desk	640,226	Jan. 2	132	27	90	28
Rogers, George H., Birmingham, Ala. Book-leveler	642,565	Jan. 30	4541	1028	90	945
Rogers, George H., Birmingham, Ala. Door-stop	643,850	Feb. 20	2358	554	90	1460
Rogers, George R. W., *et al.* (See McDonald, John J., assignor.)						
Rogers, Isaac N., New York, N. Y. Elevator safety-catch	644,098	Feb. 27	2802	664	90	1564
Rogers, James W., Toronto, assignor of one-half to M. Koppelman, Hampton, Canada. Driving mechanism for bicycles	640,702	Jan. 2	1037	236	90	200
Rogers, John A. (See Dickinson and Rogers.)						
Rogers, John A. (See McKaig, Eddy T., assignor.)						
Rogers, John W., *et al.* (See Hemingway, Joseph, assignor.)						
Rogers, Joseph W., Gloversville, N. Y. Extracting grease from skins	640,814	Jan. 9	1254	284	90	264
Rogers, Knight E., Manchester, Conn. Forming paper-board	645,374	Mar. 13	1506	330, 331	90	2070
Rogers, Luther G., A. C. Bruce, J. C. Roberts, and F. A. Russell, Knoxville, Tenn. Cradle-motor fan	640,703	Jan. 2	1038	236	90	200
Rogers, Thomas J., *et al.* (See McDonald, John J., assignor.)						
Rogers, William, Leechburg, Pa. Apparatus for treating plates	641,730	Jan. 23	3000	684	90	627
Rogers, William D., St. Louis, Mo. Brake-indicator	645,494	Mar. 13	1719	376	90	2111
Rogers, Yubie W., St. Louis, Mo. Combination-chair	640,322	Jan. 2	318	66	90	64
Rogers, Yubie W., St. Louis, Mo. Combination-chair	640,323	Jan. 2	319	66	90	64
Rogowski, John, Little Rock, Ark. Wave-power water-moving apparatus. (Reissue)	11,807	Jan. 30	4546	1028	90	946
Rohlffs, Emil, Spencer, S. D. Draft-equalizer	644,260	Feb. 27	3103	780	90	1621
Rohn, George T., Hersman, Ill. Bouquet-holder	643,008	Feb. 6	770	177	90	1117
Rohweder, Henry M. (See White and Rohweder.)						
Rollins, John H., Orlando, Fla. Protector for fruits or vegetables	642,370	Jan. 30	4306	949, 950	90	881
Roney, Edward S., Toronto, Canada. Valve for inflation	640,815	Jan. 9	1255	284	90	265
Ronkainen, Wilho, New York, N. Y. Water-wheel	644,947	Mar. 6	714	154	90	1497
Rontke, Albert, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Chain-stitch sewing-machine	645,833	Mar. 20	2368	519	90	2252
Rook, William N., assignor of one-half to G. M. Porter, Clinton, Ky. Window-shade adjuster	640,704	Jan. 2	1040	237	90	201
Rosati, Ferdinando, Milan, C. and R. Petrini, Chieti, Italy, assignors to Berliner Taxameter Gesellschaft, Francke & Co., Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Knitting-machine	645,832	Mar. 13	1428	313, 314, 315	90	2053
Rosback, Frederick P., Chicago, Ill. Book-stitching machine	640,417	Jan. 2	511	106, 107	90	101
Rose, George P., Jr., Dubuque, Iowa. Desk for hotel-registers	645,975	Mar. 27	2628	582	90	2322

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Rose, George W. (See Klock and Rose.)						
Rose, Henry, Gainsborough, England. Wrapping-machine	645,016	Mar. 6	837	180, 181, 182, 183	90	1922
Rose, John H. (See Pendergraft, Isam L., assignor.)						
Rose, Joseph F., Tiverton, R. I. Carpenter's rule	643,204	Feb. 13	1139	236	90	1200
Rose, William H., Baltimore, Md. Disinfecting device	641,548	Jan. 16	2083	612	90	557
Rosenberg, Felix, Berlin, Germany. Cycle-frame	642,493	Jan. 30	4414	1002	90	921
Rosenberg, Harry, *et al.* (See Lipson, Samuel, assignor.)						
Rosenberg, Jacob, *et al.* (See Lipson, Samuel, assignor.)						
Rosenthal, Abraham L., Chicago, Ill. Card-case	644,148	Feb. 27	2880	684	90	1581
Rosenthal, Maurice, *et al.* (See Miller, Martin D., assignor.)						
Ross, Barney, assignor of one-half to C. H. Horton, Painesville, Ohio. Weed-turner	642,531	Jan. 30	4472	1015	90	982
Ross, Charles E., Lincoln, Nebr. Acetylene-gas machine	643,982	Feb. 20	2595	618	90	1509
Ross, Charles H., *et al.* (See Verret, Nicholas J., assignor.)						
Ross, Charles H. A. F. L. (See Bennett, Joseph A., assignor.)						
Ross, Charles H. A. F. L., Balnagowan Castle, County of Ross, Scotland. Recoil-operated firearm	643,983	Feb. 20	2596	613, 614	90	1509
Ross, Charles H. A. F. L., Balnagowan Castle, County of Ross, Scotland. Magazine bolt-gun	643,984	Feb. 20	2599	614	90	1509
Ross, George M., Grinnell, Iowa. Attachment for potato-harvesters	640,816	Jan. 9	1256	285	90	265
Ross, John D., *et al.* (See Brooks, Everett W., assignor.)						
Ross, John D., *et al.* (See Sharpneck, William S., assignor.)						
Ross, John H., Aston, England. Acetylene-gas generator	646,316	Mar. 27	3298	735	90	2459
Ross, John R., Nashville, Tenn. Broom	643,851	Feb. 20	2360	554	90	1460
Ross, Mary O., Carlinville, Ill. Corset-fastener	641,234	Jan. 9	2116	476	90	431
Ross, Richard J., and F. P. Smith, Chicago, Ill. Window-sash	641,608	Jan. 16	2779	632	90	576
Ross, Taylor, Sodom, N. Y. Fishing-rod reel	643,538	Feb. 13	1736	410	90	1325
Ross, Thomas E., and N. B. Volz, Indianapolis, Ind. Gas-burner	641,549	Jan. 16	2685	612	90	558
Ross, William, Montreal, Canada. Acetylene-gas generator	645,271	Mar. 13	1315	286, 287	90	2031
Rossetter, James R., Clarksville, Tenn. Plow	644,099	Feb. 27	2803	664	90	1564
Rossiter, James T., London, England. Steam-engine	646,317	Mar. 27	3299	735, 736, 737	90	2451
Rotary Ring Spinning Company. (See Bélanger, Victor, assignor.)						
Roth, Georges, and C. Krnka, Vienna, Austria-Hungary. Metallic compound for projectiles	645,976	Mar. 27	2929	.....	90	2382
Rothberg, Mathew E., Westmont, Pa. Making magnesia and plaster-of-paris	641,550	Jan. 16	2686	.....	90	558
Rothberg, Mathew E., Westmont, Pa. Fire-brick and lining of refractory character	641,551	Jan. 16	2687	.....	90	558
Rothe, Moritz, Cologne, assignor to Kalker Werkzeugmaschinen-Fabrik L. W. Breuer, Schumacher & Co., Kalk, Germany. Metal-shearing machine	642,631	Feb. 6	114	28	90	988
Rothernel, William E., *et al.* (See Hemingway, Joseph, assignor.)						
Rothlauf Serum Gesellschaft mit Beschränkter Haftung. (See Lorenz, Gustav, assignor.)						
Rountree, James H. (See Horsley and Rountree.)						
Rous, Václav. (See Kohout and Rous.)						
Rouse, Stephen W. (See Kelley and Rouse.)						
Rousse, Emilien, Weston, Oreg. Fanning-mill	642,006	Jan. 23	3490	797, 798	90	722
Roussel, Willis J., New Orleans, La. Cipher-code system	642,721	Feb. 6	288	69	90	1023
Roussy de Sales, Georges de, assignor to M. L. Girard, Lyons, France. Steam-generator	643,541	Feb. 13	1741	411	90	1326
Row, Oliver M., Manchester, England. Connecting tubes to tube-plates	643,237	Feb. 13	1198	281	90	1220
Rowe, George A., New York, N. Y. Collar-button	642,632	Feb. 6	115	28	90	988
Rowe, George B., Moore, Okla. Ter. Shears	643,589	Feb. 13	1738	410	90	1325
Rowe, Willard C., assignor to Union Iron Works, Incorporated, Decatur, Ill. Corn-sheller	643,161	Feb. 13	1061	246	90	1193
Rowell, Guilford D., Appleton, Wis. Car starter or mover	640,227	Jan. 2	134	27	90	28
Rowlands, John R., assignor to C. H. Shattuck, Syracuse, N. Y. Tricycle	644,685	Mar. 6	284	51.52	90	1801
Rowley, James F., Chicago, Ill. Artificial-limb suspender	644,464	Feb. 27	3485	809	90	1695
Royal, Belford G., Camden, N. J. Grain cleaning and scalping machine	641,328	Jan. 16	2275	515, 516	90	476
Royal, Belford G., Camden, N. J. Grain cleaning and scalping machine	641,329	Jan. 16	2277	516	90	477
Royer, Samuel M., Martinsburg, Pa. Collapsible drinking-cup	640,418	Jan. 2	515	107	90	102
Royle, Vernon, Paterson, N. J. Machine for manufacturing tubing	641,041	Jan. 9	1729	385	90	353
Royle, Vernon, Paterson, N. J. Line attachment for beveling-machines	641,469	Jan. 16	2532	579	90	527
Royle, Vernon, Paterson, N. J. Lining attachment for beveling-machines	641,470	Jan. 16	2535	579, 580	90	527
Royle, Vernon, Paterson, N. J. Edging-machine	641,649	Jan. 16	2850	650, 651	90	591
Royle, Vernon, Paterson, N. J. Machine for lacing jacquard-cards	642,371	Jan. 30	4208	950, 951	90	882
Royle, Vernon, Paterson, N. J. Work-holder for lacing jacquard-cards	643,827	Feb. 20	2299	541	90	1448
Royle, Vernon, Paterson, N. J. Machine for punching jacquard-cards	644,871	Mar. 6	582	125, 126	90	1870
Rubber Tire Wheel Company. (See Collins, Samuel W., assignor.)						
Rubber Tire Wheel Company. (See Grant, Arthur W., assignor.)						
Rubin, Max, New York, N. Y. Suspender-buckle	645,739	Mar. 20	2205	478	90	2220
Ruble, Hebron F., and J. W. Guill, Fulton, Kans. Wire-stretcher	642,259	Jan. 30	3974	905, 906	90	883
Ruddick, John J., Newton, Mass., assignor to United States Electric Signal Company, Newton, Mass., and Portland, Me. Signaling system	643,609	Feb. 13	1808	440, 441	90	1352
Rude, James M., *et al.* (See Haven, John V. D., assignor.)						
Rudert, George K. (See Guyer and Rudert.)						
Rudolph, Alexander J., Chicago, Ill. Machine for forming bottle-necks	645,189	Mar. 13	1176	255, 256	90	2004
Rudolphi, Frank. (See Krummel, Louis C., assignor.)						
Ruetschi, Rudolph, Argentine, Kans. Furnace	642,260	Jan. 30	3976	906	90	883
Ruff, Samuel, Chamois, Mo. Hog-catching implement	640,954	Jan. 9	1545	345	90	319
Ruggaber, Constantin, assignor of one-half to H. Harlan, Richmond, Va. Acid-cooling tower	645,235	Mar. 13	1260	273	90	2020
Ruggles, George W., Charlotte, N. Y. Track-cleaner	641,235	Jan. 9	2118	476, 477	90	431
Rulon, Watson B., and J. S. Keen, Jr., Philadelphia, Pa. Incandescent lamp	643,425	Feb. 13	1532	361	90	1283
Rumery, John, Cleveland, Ohio. Wrench	643,540	Feb. 13	1740	410	90	1326

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ruminer, J. W., *et al.* (See Charles, Benjamin, assignor.)						
Rumpf, John W., Chillicothe, Ohio. Furnace	640,228	Jan. 2	136	27, 28	90	28
Rumpf, John W., Chillicothe, Ohio. Furnace-grate	641,236	Jan. 9	2120	477	90	432
Rumpp & Sons, C. F. (See Mueller, Frederick, assignor.)						
Rumrille, Henry J., Camden, N. J. Hair-crimper	644,214	Feb. 27	2015	713	90	1605
Rumsey, Albert W., assignor of one-half to P. Bingman, Detroit, Mich. Switch	643,205	Feb. 13	1140	266	90	1269
Rundle, William P., and J. E. Mason, Portage La Prairie, Canada. Band-cutter	640,817	Jan. 9	1258	285	90	965
Runge, Julius F. A., Leipsic, Germany. Bicycle	642,758	Feb. 6	341	82	90	1033
Runyan, Edward M., and M. G. Pond, Minneapolis, Minn., assignors to American Timber Brokers, Superior, Wis., and Duluth, Minn. Bicycle	644,686	Mar. 6	237	52, 53	90	1180
Rüping, Ernst. (See Lanwer and Rüping.)						
Ruppman, Frank W., Philadelphia, Pa. Door-holder	642,261	Jan. 30	3078	906	90	834
Rusden, Ethelbert A., Hartford, Conn. Tentering-machine	640,229	Jan. 2	138	28, 29	90	28
Rush, John T., Northampton, England, assignor to J. B. Hadaway, Brockton, Mass. Needle-lubricating device for sewing-machines	641,330	Jan. 16	2279	517	90	477
Rush, John T., Northampton, England, assignor to J. B. Hadaway, Brockton, Mass. Presser-foot mechanism for sole-sewing machines	641,331	Jan. 16	2280	517	90	477
Rushton, Kenneth, assignor to Burnham, Williams & Co., Philadelphia, Pa. Throttle-valve	642,007	Jan. 23	3495	798	90	723
Rushton, Kenneth, assignor to Burnham, Williams & Co., Philadelphia, Pa. Swing-truck for locomotives	645,834	Mar. 20	2369	519	90	2253
Rusbworth, David, assignor to Clay Cross Coal, Lime and Iron Works, Clay Cross, England. Fuel-economizer	644,829	Mar. 6	510	109, 110	90	1855
Rushworth, Isaac, Jamestown, N. Y. Dabbing-brush apparatus for wool-combing machines	642,160	Jan. 30	3792	864	90	798
Rusk, John, Cheneyville, Ill. Draft-equalizer	640,592	Jan. 2	818	181	90	160
Russell, Edgar A., Wallingford, Conn. Shade-holder for incandescent electric lamps	640,492	Jan. 2	630	136	90	123
Russell, Edgar A., Wallingford, Conn., and H. Serrell, Plainfield, N. J., assignors to said Russell. Shade-holder for electric lamps	640,493	Jan. 2	631	136, 137	90	124
Russell, Frank A. (See Rogers, Bruce, Roberts, and Russell.)						
Russell, Frank N., Elmira, N. Y. Can-opener	642,850	Feb. 6	490	116	90	1062
Russell, George, McKeesport, Pa. Metallic plate for walls and ceilings of buildings, &c.	640,598	Jan. 2	819	181	90	160
Russell, George, McKeesport, Pa. Metallic wall-covering	641,237	Jan. 9	2121	477	90	432
Russell, James C., assignor of one-third to C. A. Fagan and J. G. Vilsack, Pittsburg, Pa. Manufacture of compound ingots	642,157	Jan. 30	3788	863	90	797
Russell, James C., assignor of one-third to C. A. Fagan and J. G. Vilsack, Pittsburg, Pa. Compound ingot	642,158	Jan. 30	3789	863	90	797
Russell, Read, Warren, Ill. Traction-engine	640,955	Jan. 9	1546	345	90	319
Russell, W. J., *et al.* (See Kerstetter, James L., assignor.)						
Russell, Waterman S. C., Manchester, Mass. Carbureter	643,206	Feb. 13	1142	267	90	1210
Ruth, Lewis J., Leamington, Canada. Acetylene-gas apparatus	640,705	Jan. 2	1041	237	90	201
Ruthenberg, William, Caldwell, Tex. Acetylene-gas generator	642,582	Jan. 30	4173	1015	90	932
Ruthenburg, Marcus, Philadelphia, Pa. Agglomerating comminuted ores or concentrates	641,552	Jan. 16	2088	612	90	558
Ruthven, William, Chicago, Ill. Disinfecting apparatus for water-closets	641,288	Jan. 9	2122	478	90	432
Rutledge, George E., assignor to George D. Whitcomb Company, Chicago, Ill. Knitting fabrics	644,465	Feb. 27	3486	809	90	1696
Rutledge, George E., and U. G. Lee, assignors to George D. Whitcomb Company, Chicago, Ill. Knitted fabric	644,466	Feb. 27	3488	809	90	1696
Rutledge, George E., and U. G. Lee, assignors to George D. Whitcomb Company, Chicago, Ill. Forming knitted fabrics	644,467	Feb. 27	3489	810	90	1696
Rutter, Robert, South Butte, Mont. Hoist	644,468	Feb. 27	3490	810	90	1696
Rutzen, August C. and H., Milwaukee, Wis. Motor	641,799	Jan. 23	3121	709, 710	90	650
Rutzen, Hermann. (See Rutzen, August C. and H.)						
Ryan, James, Rockville, Ind. Load-controlling device	640,230	Jan. 2	140	29	90	29
Ryan, Thomas J., assignor to Racine Wagon and Carriage Company, Racine, Wis. Corner for vehicle-bodies	644,100	Feb. 27	2805	665	90	1564
Ryder, Benjamin P., New York, N. Y., assignor to Mode Marine Motor Company, of West Virginia. Compressed-air motor	646,318	Mar. 27	3308	737	90	2452
Rymal, Clarence L., Hamilton, Canada. Bicycle-standing attachment	641,009	Jan. 16	2779	638	90	576
S. S. White Dental Manufacturing Company. (See Wilkerson, Basil M., assignor.)						
Saberg, Aron G., A. H. Benson, and E. G. Saberg, Racine, Wis. Cloth-cutter	645,134	Mar. 13	1073	228	90	1984
Saberg, Edwin G. (See Saberg, Benson, and Saberg.)						
Sabin, Egbert J., Colusa, Cal. Boiler	643,207	Feb. 13	1143	267	90	1210
Sabold, John, Boyertown, Pa. Shutter-bolt	643,910	Feb. 20	2467	581	90	1481
Saco & Pettee Machine Shops. (See James, Frederick H. L., assignor.)						
Saco & Pettee Machine Shops. (See Penney, Loren W., assignor.)						
Sadler, Boling M., Burkville, Ala. Spoke-fastener	640,231	Jan. 2	142	29	90	29
Sadowski, Anastazy, Cleveland, Ohio. Surface-gage	641,332	Jan. 16	2282	517	90	478
Saettler, Benjamin, Denver, Colo., assignor to A. G. Clark, Cincinnati, Ohio. Retort	642,722	Feb. 6	287	69	90	1024
Saettler, Benjamin, Denver, Colo., assignor to A. G. Clark, Cincinnati, Ohio. Producing retorts	642,723	Feb. 6	289	.....	90	1024
Saettler, John P. B., Baltimore, Md. Means for generating gas and water vapor for heating, &c	642,633	Feb. 6	116	28	90	988
Saeger, Sallie A., Allentown, Pa. Tab for garments	643,238	Feb. 13	1198	281	90	1220
Safety Car Heating and Lighting Company. (See Dixon, Robert M., assignor.)						
Safety Car Heating and Lighting Company. (See Gerdes, Heinrich, assignor.)						
Safety Car Heating and Lighting Company. (See Stevens, Merton P., assignor.)						
Safety Third Rail Electric Company. (See Murphy, John M., assignor.)						
Saffell, Charles R. (See Burgess, James C., assignor.)						
Safford, Charles L., and O. E. Peltzer, Chicago, Ill. Hand-stamp	642,872	Jan. 30	4214	992	90	882
Sagendorph, Frank E., Chicago, Ill. Machine for flanging metal roofing-sheets	643,334	Feb. 13	1367	320	90	1253
Sahlin, Rose, Chicago, Ill. Apparel-corset	643,911	Feb. 20	2468	581	90	1481
Sainberg, Louis, New York, N. Y. Desk-pad	641,894	Jan. 23	3297	449	90	684
Salisbury, Alfred J., Los Angeles, Cal. Pump-piston	643,985	Feb. 20	2962	614	90	1510
Salisbury, William R., Lamoni, Iowa. Cultivator	641,731	Jan. 23	3001	684	90	628
Saltsman, Daniel J., Memphis, Tenn. End-gate for press-boxes	642,734	Feb. 6	291	70	90	1024
Saltzkorn, Emil, and L. Nicolai, Dresden, Germany, assignors to American Metal Edge Box Company, Philadelphia, Pa. Punching-machine for metal strips	641,333	Jan. 16	2283	517, 518	90	478
Samdal, Olaf I., Minneapolis, Minn. Blotter-holder	644,725	Mar. 6	299	66	90	1813
Sample, James B., Columbus, Ga. Fluid-compressor	640,324	Jan. 2	321	67	90	64
Sample, James B., Columbus, Ga., assignor of one-half to W. Ballinger, Chenoa, Ill. Rotary motor	645,650	Mar. 20	2024	445	90	2185
Samstag, Henry N., *et al.* (See Verret, Nicholas J., assignor.)						
Sanborn, Paul H., and J. L. Kindt, Waukegan, Ill. Stamp-affixing machine	641,334	Jan. 16	2285	518	90	478

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Sanders, John A., *et al.* (See Roche, David, assignor.)						
Sando, W. W. (See Heffner, James B., assignor.)						
Sandstrom, Charles E., Chicago, Ill. Sawing-machine	645,607	Mar. 20	1938	428	90	2168
Sandycroft Foundry and Engine Works Company. (See Richards, John T., assignor.)						
Sanford, Delano, Scotch Grove, Iowa. Crank-wheel	640,594	Jan. 2	821	181	90	161
Sanford, William H., and H. Brickham, Denver, Colo. Pneumatic thermometer	643,542	Feb. 13	1744	411	90	1326
Sanislo, Mary, *et al.* (See Kerekes, Deniel, assignor.)						
Sapper, Eugen, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making phthalic acid	644,331	Feb. 27	3267	.....	90	1632
Sargent, Charles E., Chicago, Ill. Lubricating device for engines	644,149	Feb. 27	2890	684	90	1581
Sargent, Edward, assignor to C. A. Leicht, New Lisbon, Wis. Lock	640,956	Jan. 9	1350	345	90	320
Sargent, Edward P., Merrimac, Mass. Gate for cars	643,986	Feb. 20	2604	615	90	1510
Sargent, Frederick, and H. J. Westover, Chicago, Ill. Valve for chutes	642,161	Jan. 30	3794	864, 865	90	798
Sargent, James T., and P. J. Joecken, assignors to American Washboard Company, Cleveland, Ohio. Washboard	643,733	Feb. 20	2142	502	90	1418
Sargent, John W. (See Rice and Sargent.)						
Sargent, William D., Chicago, Ill. Brake-shoe	643,734	Feb. 20	2143	503	90	1418
Sarles, Mortimer S., New York, N. Y. Lifter and strainer	642,262	Jan. 30	3979	907	90	834
Sartor, Frank R., Indianapolis, Ind. Boiler-brace	645,757	Mar. 20	2295	484	90	2226
Sattler, Augustus, Micanopy, Fla. Apparatus for treating and preserving growing plants	640,957	Jan. 9	1551	346	90	320
Sattley, Archibald. (See Sattley, Marshall and A.)						
Sattley Manufacturing Company. (See Sattley, Marshall and A., assignors.)						
Sattley, Marshall and A., assignors to Sattley Manufacturing Company, Springfield, Ill. Cultivator	640,325	Jan. 2	822	67	90	64
Sauerman, William F., Cincinnati, Iowa. Rotary derrick	640,958	Jan. 9	1532	346	90	320
Saulmann, Willy, Berlin, Germany. Production of incandescent mantles	640,326	Jan. 2	824	.....	90	65
Sauls, Henry, and G. S. Cook, Mineral, Tex. Hub-wrench	644,332	Feb. 27	3308	761	90	1652
Saunders, Benjamin P., Iatan, Mo. Culvert	643,085	Feb. 20	2040	482	90	1400
Saunders, David H., Gloucester, Mass., assignor to Merchant Manufacturing Company, Kittery, Me. Box-hinging machine	641,149	Jan. 9	1931	428, 429	90	394
Saurer, Firm of Adolph. (See Kobler, Victor, assignor.)						
Sauvage, William H., *et al.* (See Wood, Henry N., assignor.)						
Saveland, John, Lake, Wis. Watch safety device	644,087	Mar. 6	241	53, 54	90	1802
Saville, John J., and J. H. Winspear, assignors to Standard Railway Signal and Switch Company, Omaha, Nebr. Electrically-operated day and night signal for railways	643,255	Feb. 13	1282	289	90	1226
Sawyer, Carter J. (See Fry, John H., assignor.)						
Sawyer, Charles H., assignor of one-half to A. Anderson, Minneapolis, Minn. Boat	640,232	Jan. 2	143	30	90	30
Sawyer, Louis B., *et al.* (See Gray, Emmet P., assignor.)						
Sayer, Robert C., Bristol, England. Fluid-pressure joint for pistons	644,807	Mar. 6	466	99	90	1846
Scalona, Joseph, Philadelphia, Pa. Advertising-bombshell	645,185	Mar. 13	1076	229	90	1985
Scarborough, George M., Waco, Tex. Copy-holder	646,040	Mar. 27	2759	612	90	2347
Scarse, Charles E., Birmingham, England. Binding books	645,801	Mar. 13	1373	299	90	2042
Scates, George R., Knoxville, Tenn. Dry-air closet	645,495	Mar. 13	1720	376, 377	90	2111
Schaar, Adolph H. F., *et al.* (See Hanks, John G., assignor.)						
Schacht, Edward L., Chicago, Ill. Sash-fastener	641,407	Jan. 16	2405	550	90	502
Schade, Rudolf, Berlin, Germany. Type-writing machine	642,750	Feb. 6	341	83	90	1033
Schadt, Albert. (See Bunimowitsch and Schadt.)						
Schadt, Julius E. R. (See Bunimowitsch and Schadt.)						
Schaefer, Gustav, and F. Hinkel, Clinton, Mass. Loom	640,706	Jan. 2	1043	237, 238	90	201
Schaefer & Schlegel. (See Schlegel, Charles P., assignor.)						
Schaffer, Frank J., Allegheny, assignor of one-half to M. Bigger, Pittsburg, Pa. Apparel-shirt	644,746	Mar. 6	328	73	90	1819
Schaffer, Milton R., South Whitehall, and M. T. Schaffer, Bethlehem, Pa. Back-pedaling brake	646,876	Mar. 27	3451	769	90	2486
Schaffer, Morris T. (See Schaffer, Milton R. and M. T.)						
Schaffer, Morse B., assignor to American Steel Body Double Bolster Company, St. Louis, Mo. Car-body bolster	640,327	Jan. 2	825	68	90	65
Schaffer, Morse B., assignor to American Steel Body Double Bolster Company, St. Louis, Mo. Car body-bolster	644,469	Feb. 27	3491	810, 811	90	1696
Schaffer, Morse B., assignor to American Steel Body Double Bolster Company, St. Louis, Mo. Car body-bolster	645,672	Mar. 20	2059	452	90	2192
Schake, Charles, Jr., Davenport, Iowa. Dental plugger	645,608	Mar. 20	1942	429	90	2169
Schanck, Ephraim L., assignor to M. J. Breece and F. W. Chamberlain, Delaware, Ohio. Door-hanger	642,760	Feb. 6	342	83	90	1034
Schantz, Adam, Dayton, Ohio. Purifying water	645,190	Mar. 13	1178	256	90	2004
Schauman, Bror M., assignor to himself and White Manufacturing Company, New York, N. Y. Self-leveling table	641,042	Jan. 9	1731	385	90	353
Scheeffer, Gustave A., assignor to Diamond Meter Company, Peoria, Ill. Alternating-current meter	643,162	Feb. 13	1003	247	90	1193
Scheel, Christian F., Western, Nebr. Door-catch	641,471	Jan. 16	2537	580	90	528
Scheil, Wilhelm, Jr., Offenburg, Germany. Manufacture of glass signs, plates, or tablets	642,925	Feb. 6	634	.....	90	1089
Schellenbach, William L., assignor to H. S. Hale, Philadelphia, Pa. Reversible car-seat	645,516	Mar. 13	1765	396	90	2120
Schellenbach, William L., assignor to Hale & Kilburn Manufacturing Company, Philadelphia, Pa. Reversible seat	645,609	Mar. 20	1945	429	90	2170
Schenk, Henry, Sandusky, Ohio. Artificial hand and arm	645,740	Mar. 20	2206	479	90	2220
Schen, William, Leeds, England. Motor-car	645,272	Mar. 13	1319	287	90	2033
Scheuber, August W., assignor to M. Zinn, New York, N. Y. Safety-razor	645,017	Mar. 6	842	183	90	1923
Scheuer, Albert, *et al.* (See Roche, David, assignor.)						
Schiff, Alexander. (See Vendig and Schiff.)						
Schiffbauer, Gustav, Fairmont, W. Va. Engraving-machine for glassware	645,333	Mar. 13	1483	315	90	2055
Schiffenesler, Joseph, Sheboygan, Wis. Match-box	646,130	Mar. 27	2931	649	90	2381
Schillinger, William, Syracuse, N. Y. Dampening-machine	641,650	Jan. 16	2854	651	90	591
Schimpf, Sebastian, *et al.* (See Voegelin, Reinhardt, assignor.)						
Schirra, Julius, assignor of one-fourth to E. F. Barnhart, Pittsburg, Pa. Ring for protecting projectiles	643,071	Feb. 6	882	207	90	1137
Schirra, Julius, assignor of five-eighths to W. G. Cronkright and I. S. Faller, Pittsburg, Pa. Bicycle-support	643,610	Feb. 13	1872	441	90	1353
Schlared, Charles, assignor of one-half to G. M. Hopkins, Columbus, Ohio. Switch-stand	644,261	Feb. 27	3106	730, 731	90	1621
Schlegel, Charles P., assignor to Schaefer & Schlegel, Rochester, N. Y. Machine for making trimmings	645,236	Mar. 13	1261	274	90	2020

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Schleicher, Erhart. (See Schraube and Schleicher.)						
Schlicht, Paul J., Summit, N. J. Apparatus for producing combustion	644,215	Feb. 27	3016	713, 714	90	1695
Schliemann, Ernst, and E. von Boyen, Hamburg, Germany. Apparatus for making extracts	644,872	Mar. 6	588	126	90	1871
Schmaltz, Friedrich, Offenbach-on-the-Main, Germany. Machine for grinding milling-cutters	645,018	Mar. 6	843	184	90	1923
Schmelzer, Frank F., assignor of one-third to J. M. Sherwin, Erie, Pa. Apparatus for making bleaching-powder	641,610	Jan. 16	2780	633	90	576
Schmidt, Charles, Ayrshire, Ind. Drilling-machine	640,708	Jan. 2	1046	288	90	202
Schmidt, Charles, New Orleans, La. Time-alarm mechanism	643,334	Mar. 13	1434	315	90	2055
Schmidt, Evert, Waupun, Wis. Window	640,288	Jan. 2	144	30	90	30
Schmidt, Philipp L., Worms, Germany. Galvanic bandage	641,335	Jan. 16	2256	518	90	478
Schmidt, Richard, Philadelphia, Pa. Bed-bottom	643,208	Feb. 13	1145	268	90	1210
Schmidt, William F., Blanco, Cal. Beet-plow	644,470	Feb. 27	3492	811	90	1697
Schmitt, Andreas. (See Schmitt, Ehrhard and A.)						
Schmitt, Ehrhard and A., Nuremberg, Germany. Sliding door	643,307	Feb. 13	1320	311	90	1248
Schmitt, Georges, New York, N. Y. Hat-fastener	641,150	Jan. 9	1980	429	90	394
Schmitz, Albert, assignor to Firm of F. Krupp, Essen, Germany. Improving quality of steel armor-plates	642,926	Feb. 6	635	.....	90	1089
Schmitz, Cornelius, Boppard, assignor to Deutsche Kapital-Versorgungs-Bank Köln-on-the-Rhine, Limited, Cologne, Germany. Producing wort from malt-flour	645,835	Mar. 20	2471	520	90	2253
Schmitz, Frank, Chicago, Ill. Banana-shipping case	643,163	Feb. 13	1068	247	90	1195
Schnackenberg, Henry, New York, N. Y. Folding box	640,818	Jan. 9	1259	285	90	265
Schnaus, Charles J. (See Einstein and Schnaus.)						
Schneider, Ernst B. (See Rieske, Otto G., assignor.)						
Schneider, Franz, Lawrence, Mass. Reversible clutch mechanism	642,927	Feb. 6	636	145	90	1089
Schneider, John G., assignor of one-half to D. Abrams, Boston, Mass. Die for cutting and ornamenting leather	642,878	Feb. 6	546	126	90	1072
Schneider, Louis, Sr., Williamsport, Pa. Exhaust-and-supply car-ventilator	644,101	Feb. 27	2806	665	90	1564
Schnell, Heinrich, Cologne, Germany. Reading or writing desk for hanging over the shoulders	643,164	Feb. 13	1069	248	90	1195
Schniewind, Frederic W. C., Pittsburg, Pa., assignor to United Coke and Gas Company, Charleston, W. Va., and Philadelphia, Pa. Apparatus for transferring heat from one fluid to another	644,368	Feb. 27	3329	773	90	1663
Schniewind, Frederic W. C., Everett, Mass., assignor to United Coke and Gas Company, Philadelphia, Pa., and Charleston, W. Va. Regenerative coke-oven	644,369	Feb. 27	3330	773	90	1663
Schnoor, Peter J. A., assignor of one-half to H. Martensen, Holstein, Iowa. Automobile	641,043	Jan. 9	1733	386	90	354
Schnorr, John T., Sandusky, Ohio. Shears	646,238	Mar. 27	3156	697	90	2424
Schock, George W., South Bend, Ind. Stamp-canceling and postmarking machine	643,987	Feb. 20	2604	615, 616	90	1510
Schoeller, Gustav A., Mulheim-on-the-Ruhr, assignor to F. Krupp, Essen, Germany. Apparatus for adjusting elevation of guns	644,370	Feb. 27	3332	773	90	1664
Schoenfeld, Robert A. (See Erickson, Andrew M., assignor.)						
Schofield, Albert H. (See Campbell and Schofield.)	641,408	Jan. 16	2406	550	90	502
Schofield, James D., Dallas, Tex. Planter						
Scholze, William F. (See Kuck, August, assignor.)						
Schon, Carl, Jr., Catonsville, assignor of one-half to C. E. Nicolai, Baltimore, Md. Garment-fastening	644,471	Feb. 27	3494	811	90	1697
Schopke, Charles, Paterson, N. J. Belt-shifter attachment	641,611	Jan. 16	2783	633	90	577
Schott, Friedrich O., Jena, Germany. Coating oxidizable-metal wire with gas-tight coating	640,419	Jan. 2	516	108	90	102
Schott, Herman. (See Michael, William P., assignor.)	642,494	Jan. 30	4415	1002	90	921
Schott, William, New York, N. Y. Candle-holder	643,803	Feb. 20	2257	531	90	1440
Schott, William, New York, N. Y. Brush	643,543	Feb. 13	1746	412	90	1326
Schrader, Ella M., Seattle, Wash. Garment-form	644,683	Feb. 20	3695	698	90	1526
Schrader, Frederick, Bridgeport, Conn. Combined spanner and wrench						
Schrader, Henry F. (See Seashols, Frank H., assignor.)	640,328	Jan. 2	328	68	90	66
Schram, Alexander L., Woodstock, Canada. Water-gage						
Schraube, Conrad, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Yellow dye	644,333	Feb. 27	3270	.....	90	1652
Schraube, Conrad, and E. Schleicher, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black trisazo dye	644,334	Feb. 27	3272	.....	90	1653
Schreiber, Charles C., Cincinnati, Ohio, assignor to Link Belt Machinery Company, Chicago, Ill. Bottle soaking and conveying device	642,631	Feb. 6	117	29	90	989
Schreiber, Robert, Berlin, Germany. Electrically igniting lamps and liquid-fuel-burning devices	642,804	Feb. 6	401	98	90	1044
Schreidt, Frank, Mansfield, Ohio. Safety-valve	643,239	Feb. 13	1201	281, 282	90	1220
Schrey, William F., Burlington, Iowa. Holder for dust-cloths	640,707	Jan. 2	1044	238	90	202
Schrieffer, Peter, New Orleans, La. Car-brake	642,008	Jan. 23	3496	798, 799	90	723
Schroder, Frederick H. (See Colgrove, William S., assignor.)						
Schroeder, Howard W., assignor to Edison American Phonograph Company, Kansas City, Mo. Kinetographic camera	642,163	Jan. 30	3797	865	90	799
Schroeder, Hugo, assignor of one-fourth to R. J. Danson and W. A. Huneke, Spokane, Wash. Candle-holder	641,239	Jan. 9	2124	478	90	433
Schroeter, Carl, assignor to W. G. King, Chicago, Ill. Fireproofing compound and making same	641,801	Jan. 23	3123	.....	90	651
Schrottke, Karl O. F., Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Alternating-current wattmeter	642,164	Jan. 30	3799	866	90	799
Schubert, William F., Oneida, assignor of one-half to B. G. Foster, Verona, N. Y. Thill-coupling	645,872	Mar. 20	2480	534	90	2265
Schudle, Jacob, Zone, Ohio. Brick-kiln	645,851	Mar. 20	2026	446	90	2185
Schuett, Anthony J., Chicago, Ill. Oil-stove	641,044	Jan. 9	1735	386	90	354
Schuler, George F., and M. Granat, Stockton, Cal.; said Granat assignor to said Schuler. Acetylene-generator	644,034	Feb. 20	2605	638	90	1527
Schulte, William H., Trenton, N. J. Flush-tank valve mechanism	642,165	Jan. 30	3802	866	90	800
Schultz, Charles L. and R. A., Chicago, Ill. Traction-engine	645,630	Mar. 20	1986	436, 437	90	2177
Schultz, Charles P., Pawtucket, R. I. Incandescent mantle	641,210	Jan. 9	2125	478	90	433
Schultz, Christian. (See Artós, Frederick, assignor.)						
Schultz, Clarence B., Charlottenburg, Germany. Cigar-machine	641,386	Jan. 16	2287	518, 519, 714	90	479
Schultz, Clarence B., Charlottenburg, Germany. Device for driving bunches toward tip-shapers in cigar-rolling machines	644,216	Feb. 27	3020	715, 716	90	1606

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schultz, Clarence B., Charlottenburg, Germany. Wrapping-shaper for cigar-rolling machines	644,217	Feb. 27	3022	716	90	1606
Schultz, Gustave, Litchfield, Minn. Wire-fencing machine	640,329	Jan. 2	329	68	90	66
Schultz, Robert A. (See Schultz, Charles L. and R. A.)						
Schumacher, Hermann G., Hochheim, Tex. Washing-machine	643,086	Feb. 20	2041	482	90	1400
Schumacher, James E., *et al.* (See O'Farrell, Alphonsus G., assignor.)						
Schumacher, John H., Saugatuck, Mich. Weeding implement	643,165	Feb. 13	1070	248	90	1195
Schumacher, Robert H., Navasota, Tex. Ventilator	644,335	Feb. 27	3273	761, 762	90	1653
Schumaker, John S., and L. M. Glodeil, Hartford, Conn. Section-insulator	640,959	Jan. 9	1554	346	90	320
Schuman, James B., Columbia City, assignor to Pneumatic Elevator and Weigher Company, Indianapolis, Ind. Pneumatic elevator and weigher	641,045	Jan. 9	1737	396, 397	90	355
Schunk, Friedrich, Schweinfurt, Germany. Machine for sorting steel balls	643,912	Feb. 20	2469	581	90	1481
Schüpphaus, Robert C. (See Maxim and Schüpphaus.)						
Schurrer, Charles A., Lakeport, and W. Straffon, Otto, Mich. Educational appliance	641,151	Jan. 9	1936	429, 430	90	394
Schütte, Conrad, Halle-on-the-Saale, Germany. Device for stopping railway-trains	643,611	Feb. 13	1873	441	90	1353
Schuyler, Daniel, San Diego, assignor to Perfect Sliding Door Company, Los Angeles, Cal. Button for sliding doors	646,239	Mar. 27	3156	697	90	2425
Schwartz, Charles E., Carthage, Mo. Scrap-book	645,191	Mar. 13	1179	256	90	2005
Schwartz, Joseph, New York, N. Y. Safety coin-inlet for slot-machines	644,336	Feb. 27	3275	702	90	1653
Schwartz, Samuel I., New York, N. Y. Button-loop	640,420	Jan. 2	517	108	90	102
Schwartzkopff, Albrecht. (See Sroka, Otto, assignor.)						
Schwarz, William, *et al.* (See Langer, Gotthold, assignor.)						
Schweinfurth, John G. (See White, Haslup, and Schweinfurth.)						
Schweiter, Jean, Horgen, Switzerland. Spooling-machine	641,732	Jan. 23	3003	684, 685	90	628
Schweitzer, Joseph, Paris, France, assignor to La Société Internationale de Meunerie et de Panification, (Système Schweitzer,) Brussels, Belgium. Apparatus for preparing dough	644,873	Mar. 6	589	127	90	1872
Schweitzer, Samuel, Chicago, Ill. Powder for paste	640,819	Jan. 9	1262	.....	90	266
Scott, Albert T., assignor of one-half to J. W. Riley, Defiance, Iowa. Governor mechanism for windmills	645,019	Mar. 6	845	184, 185	90	1924
Scott, Alvin B., Summitville, Ind. Glass-finishing machine	642,928	Feb. 6	638	145, 146	90	1090
Scott, Bessie C., *et al.*, executrixes. (See Scott, Walter, assignor.)						
Scott, John R., *et al.* (See Peters, William A., assignor.)	644,304	Feb. 27	3197	749	90	1639
Scott, Lafayette S., New York, N. Y. Cash-register	640,709	Jan. 2	1048	239	90	202
Scott, Richard H., and H. C. Teel, Toledo, Ohio. Automatic sheet-feeding mechanism						
Scott, Robert W. (See Williams, Louis N. D., assignor.)						
Scott, Walter, Plainfield, N. J. Printing-machine and delivery apparatus therefor	642,905	Feb. 6	406	98, 99	90	1044
Scott, Walter, Plainfield, N. J. Sheet-delivery apparatus for printing-presses	642,806	Feb. 6	410	99, 100	90	1045
Scott, Walter, Plainfield, N. J. Inlay-sheet-supplying device	642,879	Feb. 6	547	127	90	1072
Scott, Walter, deceased, Plainfield, N. J.; B. C. Scott and H. S. Lock, executrixes. Inlay-sheet-supplying device	641,152	Jan. 9	1940	430, 431	90	395
Scott, William, Kansas City, Mo. Burner	641,802	Jan. 23	3124	710	90	651
Scovill, James P., assignor to Geo. L. Thompson Manufacturing Company, Chicago, Ill. Internal fastener for tubular telescoping parts	641,895	Jan. 23	3299	749	90	684
Scovill Manufacturing Company. (See Hyde, Theophilus R., Jr., assignor.)						
Scovill Manufacturing Company. (See Shipley and Stanley, assignors.)						
Scoville, Frank L. (See Wetaue, Nicholas, assignor.)						
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Air-pump	641,409	Jan. 16	2411	551	90	503
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Connection-register for telephone-lines	642,880	Feb. 6	550	127	90	1073
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Toll-collecting apparatus for telephone pay-stations	642,881	Feb. 6	554	128	90	1074
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone appliance	645,570	Mar. 20	1850	409	90	2150
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone-exchange apparatus	645,571	Mar. 20	1851	410	90	2150
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Automatic calling appliance for telephone trunk-lines	645,572	Mar. 20	1855	410	90	2151
Scripps, William. (See Falkenstein, John B. and G. A., assignors.)						
Scripps, William. (See Lee, Charles F., assignor.)						
Seabury, Gorham T., and C. W. Morgareidge, Sheridan, Wyo. Mirror	642,162	Jan. 30	3795	865	90	799
Seager, James B., assignor to Mackolite Fireproofing Company, Chicago, Ill. Building-tile	645,673	Mar. 20	2061	453	90	2192
Seaman, Harry J. (See Hurry and Seaman.)						
Searing, M. Munson. (See Van Duzer, George W., assignor.)	643,009	Feb. 6	771	177	90	1117
Searle, Ambrose M., Geneseo, Ill. Traction-engine						
Searle, Barry. (See Watson, James, assignor.)						
Searle, Barry, Montrose, Pa. Electric mine-bell	645,573	Mar. 20	1859	410, 411	90	2152
Searles, John E. (See Braun, William F., assignor.)						
Sears, Charles, Cleveland, Ohio. Matrix-making machine	642,263	Jan. 30	3980	907, 908, 909	90	834
Sears, Charles, Cleveland, Ohio. Apparatus for preparing justified lines of type or matrices or justified matrix-lines	642,264	Jan. 30	3993	909	90	837
Sears, Charles, Cleveland, Ohio. Type-writing machine	644,187	Feb. 27	2970	702	90	1596
Sears, Charles, Cleveland, Ohio. Type-writing machine	644,188	Feb. 27	2973	702, 703	90	1596
Sears, Charles T., and C. F. Currey, Topeka, Kans. Windmill	643,166	Feb. 13	1072	248	90	1196
Sears, Frederick D. (See Luce and Sears.)						
Sears, George, Onslow, Iowa. Combined punching, shearing, and plow-welding machine	643,167	Feb. 13	1077	249	90	1197
Seashols, Frank H., assignor of one-half to H. F. Schrader, St. Mary's, Ohio. Washing-machine	644,874	Mar. 6	591	127	90	1872
Seaton, Daniel M., assignor to American Automatic Loom Company, New York, N. Y. Loom-shuttle	646,319	Mar. 27	3304	737	90	2452
Seaver, Augustus, Boston, assignor of one-fourth to L. E. Coolidge, Hopkinton, Mass. Inner sole	642,929	Feb. 6	640	146	90	1090
Seaver, John W., assignor to Wellman Seaver Engineering Company, Cleveland, Ohio. Crane	643,988	Feb. 20	2609	616	90	1511
Seay, Samuel R. (See Hudson, Daniel W., assignor.)						
Sebring, Wesley, Westmoreland, Kans. Dust-cap for disk-bearings	645,873	Mar. 20	2431	585	90	2265

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Secor, John A., New York, N. Y. Explosive-engine	640,711	Jan. 2	1052	240	90	216
Secor, John A., New York, N. Y., assignor to General Power Company, of New Jersey. Motive power	640,710	Jan. 2	1050	229	90	203
Security Trust and Safe Deposit Company, trustee. (See Richter and Eschler, assignors.)	644,102	Feb. 27	2809	695 696	90	1565
Sedgwick, Isham, Richmond, Ind. Windmill or engine	640,966	Jan. 9	1556	347	90	321
Seely, George A., assignor of one-half to J. H. Godden, Emmetsburg, Iowa. Table-leveler	644,472	Feb. 27	3496	811 812	90	1697
Seeser, Valentine, *et al.* (See Anderson, Frederick F., assignor.)	643,089	Feb. 20	2611		90	1511
Segschneider, Gustav, Yonkers, N. Y. Hat-machine brim-curler	643,913	Feb. 20	2471	581 582 583 584	90	1482
Sehler, John, *et al.* (See Beasecker, Sylvester B., assignor.)	645,758	Mar. 20	2236	484	90	2236
Sehr, Franz, Blankenhayn, Germany. Manufacture of cement	641,153	Jan. 9	1942	431	90	396
Sekowsky, Hermann, Milwaukee, Wis. Stovepipe-elbow machine	641,337	Jan. 16	2288	519 520	90	479
Seib, Phillip L., Millstadt, Ill. Automatic railway-signal	641,800	Jan. 23	3122	710	90	651
Seiberling, Frank A., Akron, Ohio. Pneumatic rubber tire	642,882	Feb. 6	556	128	90	1074
Seiberling, Frank A., Akron, Ohio. Manufacturing pneumatic tires	640,330	Jan. 2	350	69	90	66
Seiler, Ernst, Pforzheim, Germany. Auxiliary pedal for musical instruments furnished with pedals	644,473	Feb. 27	3500	812	90	1698
Selden, Charles, Baltimore, Md. Detonating apparatus for railway-trains	642,009	Jan. 23	3498	799 800 801	90	724
Selfe, Norman, Sydney, New South Wales. Gas-pump for refrigerating-machines	644,875	Mar. 6	568	128	90	1872
Sellers, Coleman. (See Sellers and Lewis.)	640,961	Jan. 9	1557	347	90	321
Sellers, Richard, New York, N. Y. Valve or faucet	646,320	Mar. 27	3906	737 738	90	2458
Sellers, William and C., and W. Lewis, assignors to William Sellers & Company, Incorporated, Philadelphia, Pa. Hydraulic press	644,337	Feb. 27	3276	702	90	1653
Sells, James B., Bluff City, Tenn. Wheel-frame for plows or cultivators	642,010	Jan. 23	3506	801	90	724
Sells, John A. (See Sells, William H., assignor.)	642,496	Jan. 30	4416	1002 1003	90	922
Sells, William H., Buffalo, N. Y., assignor to J. A. Sells, Montesano, Wash. Corn-husking machine	642,828	Feb. 6	558	128	90	1075
Selzer, John R., Morning Sun, Iowa. Carbureter	642,806	Jan. 23	3300	749	90	684
Sendlein, Andreas, *et al.* (See Langer, Gotthold, assignor.)	642,533	Jan. 30	4474	1015	90	992
Seng Company. (See Duvall, William S., assignor.)	641,154	Jan. 9	1943	431	90	396
Seng Company. (See Seng, Julius T., assignor.)	643,828	Feb. 20	2301	541	90	1448
Seng, Julius T., assignor to Seng Company, Chicago, Ill. Lid-operating mechanism for box-couches	643,534	Jan. 30	4475	1016	90	992
Seng, William J., Chicago, Ill. Reclining-chair fixture	643,829	Feb. 20	2302	542	90	1449
Senior, William, assignor to G. A. Kennedy, Manchester, England. Differential gearing	643,010	Feb. 6	772	177 178 179 180 181	90	1117
Senter, James M. (See Percifield, Clarence W., assignor.)	643,072	Feb. 6	883	207 208	90	1137
Seoane, Cornelia, Merrifield, Va. Rotary swing	641,155	Jan. 9	1945	431	90	396
Sergeant, Henry C., Westfield, N. J., assignor to Ingersoll-Sergeant Drill Company, New York, N. Y. Valve-operating device for compressors	640,820	Jan. 9	1264	286	90	266
Serrell, Harold. (See Russell and Serrell.)	644,371	Feb. 27	3334	773	90	1664
Serrell, John A., Bayonne, N. J., and M. Leitch, Boston, Mass., assignors to Warren Webster & Company, Camden, N. J. Thermostatic-valve device	643,687	Feb. 20	2042	483	90	1400
Serve, Jean P., Caluire et Cuire, France. Steering apparatus for vessels	644,830	Mar. 6	511	110	90	1855
Sessions, Henry H., Chicago, Ill., assignor to Standard Coupler Company, New York, N. Y. Metallic buffer-beam equipment	642,342	Jan. 30	4219	958	90	883
Sester, Charles P., Peoria, Ill. Force-feed mechanism for grain-drills	642,374	Jan. 30	4219	958	90	2055
Sester, Charles P., Peoria, Ill. Disk drill	645,335	Mar. 13	1436	316	90	355
Sévène, Henri, and E. D. Cahen, Paris, France. Machine for manufacturing and boxing matches	641,046	Jan. 9	1739	387	90	2200
Sévène, Henri, and E. D. Cahen, Paris, France Machine for boxing matches	645,698	Mar. 20	3099	461	90	1846
Severance, Asa F., Nobleborough, Me. Insect-destroyer	644,808	Mar. 6	467	99	90	1846
Severs, George F. (See Reister, Edward P., assignor.)	645,287	Mar. 13	1265	274 275	90	2021
Sewall, Charles H., Chicago, Ill. Underground conduit	642,930	Feb. 6	641	146 147	90	1090
Sewall, Samuel, Tewksbury, Mass. Heddle for looms	644,475	Feb. 27	3502	813	90	1698
Sewell, John S., assignor of one-half to G. F. Goss, Coleman, Tex. Rein-holder	644,688	Mar. 6	243	54	90	1802
Seyewetz, Alphonse, Lyons, France. Gas-burner for heating purposes						
Seyfried, Franz J. (See Ilfisener, Adolph, assignor.)						
Seyller, Nelson. (See Robinson and Seyller.)	642,373	Jan. 30	4217	952 953	90	883
Seymour, Rugeley D., and H. N. Elmer, Chicago, Ill. Coal-conveyer						
Shadbolt, W. Oscar. (See Wetmore, Sylvester J., assignor.)	644,831	Mar. 6	512	110	90	1855
Shade, Elizabeth and H., Pittsburg, Pa. Non-explosive oil-can						
Shade, Harry. (See Shade, Elizabeth and H.)	640,962	Jan. 9	1563	348	90	322
Shaefer, Josef, Forst, Germany. Carding-engine	644,780	Mar. 6	413	89	90	1836
Shaeffer, Urias, Lancaster, Ohio. Corn-planter	644,474	Feb. 27	3501	812 813	90	1698
Shaffer, John Q., Pittsburg, Pa. Apparatus for making sheet-glass	641,472	Jan. 16	2539	581	90	528
Shaffer, Josiah S., Laramie, Wyo. Wire hame-fastener						
Shaffer, Richard M., Baltimore, Md., assignor to Copenhagen Puzzle Company of Baltimore City, of Maryland. Puzzle						
Shannon, George, Chattanooga, Tenn. Reflector for lamps						
Sharp, Henry E., Newark, N. J. Friction and stop clutch						
Sharp, John H., Columbus, N. J. Corn-stubble cutter						
Sharp, John M., Delavan, Wis. Egg-case						
Sharp, Milton S., Heckmondwike, England. Fixing the finish on cotton piece goods						
Sharpe, Harry S. (See Tatro and Dellus, assignors.)						
Sharpless, Charles E., Dubois, Pa. Car-brake						
Sharpneck, William S., *et al.* (See Brooks, Everett W., assignor.)						
Sharpneck, William S., assignor of one-half to J. D. Ross and E. W. Brooks, Chicago, Ill. Centrifugal pump						
Shattuck, Albert R., New York, N. Y. Feed-water regulator						

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Shattuck, Albert R., New York, N. Y. Feed-water regulator	644,689	Mar. 6	245	545	90	1802
Shattuck, Charles H. (See Rowlands, John R., assignor.)						
Shaw, Alvin. (See Shields and Shaw.)						
Shaw, Edwin F., assignor to Henry Disston & Sons, Incorporated, Philadelphia, Pa. Trowel-grinding machine	643,914	Feb. 20	2483	584	90	1485
Shaw, Everett B., Kane, Pa. Bailer or pump	642,012	Jan. 23	3508	802	90	725
Shaw, George A., assignor of one-half to W. E. L. Hunter, Toronto, Canada. Game apparatus	641,410	Jan. 16	2412	551	90	504
Shaw, George S., Springfield, Ohio. Gas-engine	641,156	Jan. 9	1946	432	90	396
Shaw, Henry B., Landgrove, Vt. Bucket and lid holder	640,331	Jan. 2	382	69	90	66
Shaw, Henry F., Boston, Mass. Slack-adjuster	643,011	Feb. 6	779	181	90	1118
Shaw, John. (See Brown, Bell, and Shaw.)						
Shaw, Otis M. (See Jordan, Willis H., assignor.)						
Shaw, Robert L. (See Robinson and Shaw.)						
Shawmut Machinery Company. (See Gale, Laburton A., assignor.)						
Shea, Byron B., Kansas City, Mo. Menstrual receptacle	642,265	Jan. 30	3994	909	90	837
Sheak, Abbie J. (See Sheak, Andrew G., assignor.)						
Sheak, Andrew G., assignor to A. J. Sheak, Binghamton, N. Y. Water-filter	640,421	Jan. 2	518	108	90	102
Shearer, Samuel W., assignor of one-half to J. J. Cashen, Erie, Pa. Suction-box for paper-making machines	644,882	Mar. 6	513	110	90	1856
Shearson, William H., *et al.* (See Hoxie, George L., assignor.)						
Shedd, Kendrick P. (See Ferguson and Shedd.)						
Sheehy, William C., *et al.* (See Strange, John F., assignor.)						
Sheek, Hiram N., Greenwood, Ind. Fly-exit for screens	643,335	Feb. 13	1369	321	90	1253
Sheen, Daniel R., Peoria, Ill. Raw-facing rowing mechanism	646,041	Mar. 27	2761	613	90	2347
Sheen, Daniel R., and J. A. Philbrick, Peoria, Ill. Combined sash-balance, lock, and antirattler	646,042	Mar. 27	2764	613	90	2348
Sheffield Car Company. (See Bechtol, Joseph W., assignor.)						
Sheffield Car Company. (See Green, John D., assignor.)						
Sheffield Car Company. (See Henderson, James, assignor.)						
Sheffield Car Company. (See Matthews, John G., assignor.)						
Sheffield Car Company. (See Willits, Warren J., assignor.)						
Shellabarger, Joshua, assignor of one-fourth to C. S. Mauk, Rockford, Ohio. Driving mechanism for bicycles	642,013	Jan. 23	3510	802	90	726
Shellenberger, John, Davenport, Iowa, and C. L. King, Holland, Mich. Knockdown box	644,690	Mar. 6	247	55	90	1803
Shellenberger, John, Davenport, Iowa, and C. L. King, Holland, Mich. Nesting fruit-basket	644,691	Mar. 6	248	55	90	1803
Shelley, Michael, Philadelphia, Pa. Fire-lighter	642,266	Jan. 30	3995	909	90	838
Shelton, Samuel A., Marshfield, Mo. Music-book holder	642,725	Feb. 6	293	70	90	1024
Shelton, Zelda G., Rockyford, Colo. Dress-chart	641,411	Jan. 16	2413	551	90	504
Shepard, Charles C. (See Gilbert and Shepard.)						
Shepard, George A. (See Duvall and Shepard.)						
Shepard, Oscar F., Jr., Madeira, Ohio. Switch for electric motors	641,157	Jan. 9	1948	432 433	90	397
Sheppard, Joseph W., New York, N. Y. Wire fabric	646,131	Mar. 27	2932	649	90	2381
Sheppard, Joseph W., New York, N. Y. Treating woven wire in manufacturing wire-glass	646,132	Mar. 27	2932		90	2381
Sherburne, Charles W., Boston, Mass. Track-sanding apparatus	641,338	Jan. 16	2290	520 521	90	479
Sherman, Charles E., New York, N. Y. Candlestick	642,496	Jan. 30	4417	1003	90	922
Sherman, Frank C., Pontiac, Mich. Dish-washing machine	643,888	Feb. 20	2425	571	90	1473
Sherman, Udolph, Girard, Mich. Protective device for artisans	642,166	Jan. 30	3805	867	90	800
Sherwin, J. M. (See Schmelzer, Frank F., assignor.)						
Sherwood, George R., Kearney, Nebr. Tool-holder	641,241	Jan. 9	2126	478	90	433
Sherwood, Lucinda E. H., Chicago, Ill. Device for drying fabrics	644,305	Feb. 27	3262	750	90	1640
Sherwood, Thomas, Belchertown, Mass. Turnbuckle	641,898	Jan. 23	3304	751	90	685
Shettle, Jacob E., *et al.* (See Drawbaugh, Daniel, assignor.)	644,876	Mar. 6	595	128	90	1873
Shevlin, Owen, Baltimore, Md. Machine for boring post-holes						
Shickle, Harrison & Howard Iron Company. (See Gallagher, Thomas M., assignor.)						
Shields, Albert W., *et al.* (See Farrell, George W., assignor.)						
Shields, Benjamin F. (See Shields and Shaw, assignors.)						
Shields, Charles, New York, N. Y. Soldering-iron	641,899	Jan. 23	3305	751	90	685
Shields, Charles H., and A. Shaw, assignors of one-half to B. F. Shields, Spokane, Wash. Fire-escape	645,681	Mar. 20	1990	437	90	2178
Shields, Charles J., Chicago, Ill. Handle-bar for velocipedes	645,977	Mar. 27	2630	582	90	2322
Shields, Patrick W., Homestead, Pa. Bottling-machine	643,915	Feb. 20	2484	585	90	1485
Shields, Thomas, West Woodville, Ohio. Machine for harvesting and shocking corn-stalks	641,047	Jan. 9	1740	387 388	90	355
Shipley, Alfred J., and F. E. Stanley, assignors to Scovill Manufacturing Company, Waterbury, Conn. Button-setting machine	643,073	Feb. 6	886	209 210	90	1137
Shirley, James A. (See King, John D., assignor.)						
Shirreffs, Reuben, Richmond, Va. Snow-removing apparatus	641,803	Jan. 23	3126	710	90	651
Shirreffs, Reuben, Richmond, Va. Apparatus for removing snow	641,804	Jan. 23	3128	711	90	652
Shock, John R., *et al.* (See Blundon, Joseph W., assignor.)						
Shoecraft, Judson, Topeka, assignor to C. C. Gardiner, Bradford, Kans. Electric railway-signal	644,639	Mar. 6	140	31	90	1781
Sholder, Louis H., Cleveland, Ohio. Loose-joint spring-hinge	641,553	Jan. 16	2689	613	90	558
Shook, Anderson Manufacturing Co. (See McKibben, Charles R., assignor.)						
Shore, Edward L. (See Shore, Fredrick E. and E. L.)						
Shore, Fredrick E. and E. L., Eldon, Iowa. Wood-sawing machine	641,554	Jan. 16	2690	613	90	559
Shoup, William F., Derrick City, assignor of one-half to S. Gurganious, Red Rock, Pa. Clod crusher and pulverizer	645,336	Mar. 13	1437	316	90	2055
Shrawder, John S., Collegeville, Pa. Dumping-wagon	642,635	Feb. 6	119	29	90	989
Shreffler, Samuel, Joliet, Ill. Thill-support	642,267	Jan. 30	3996	910	90	838
Shriver, Augustus F., Arbuckle, assignor to himself, W. Storey, San Francisco, and J. H. Smith, Stonyford, Cal. Acetylene-gas generator	641,555	Jan. 16	2692	613	90	559
Shuart, Benjamin F., Oberlin, Ohio. Combined earth digger and scraper	643,240	Feb. 13	1202	282	90	1221
Shuart, Benjamin F., Oberlin, Ohio. Road-scraper	645,136	Mar. 13	1078	229	90	1985
Shultz, Walter K., Ponca City, Okla. Ter. Thread-waxing device for sewing-machines	645,137	Mar. 13	1080	229	90	1985
Shumaker, Charles F., Silver Creek, N. Y. Roasting-machine	644,747	Mar. 6	329	73	90	1819
Sibley, Gideon, Philadelphia, Pa. Dental chair	644,640	Mar. 6	143	32 33	90	1782
Sibley, Gideon, Philadelphia, Pa. Dental chair	644,641	Mar. 6	149	33 34 35	90	1783
Sibley, Gideon, Philadelphia, Pa. Dental chair	644,642	Mar. 6	153	35	90	1784
Sibley, Gideon, Philadelphia, Pa. Arm-rest for dental chairs	644,643	Mar. 6	155	35	90	1784

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sibley, Gideon, Philadelphia, Pa. Back-rest for dental chairs	644,644	Mar. 6	156	36	90	1785
Sibley, James T., Newark, N. J., assignor to W. S. O'Connor, New York, N. Y. Coin-operated vending-machine	640,963	Jan. 9	1564	348, 349	90	322
Sidoti, Antonio, Dallas, Tex. Beverage cooler and dispensing apparatus	642,851	Feb. 6	491	116	90	1062
Sidwell, Arthur, Waltham, Mass. Adjustable bearing	645,574	Mar. 20	1862	411	90	2152
Siebold, Otto, Leipsic, Germany. Making alkali albuminate	642,852	Feb. 6	498	----	90	1062
Siefeldt, Paul, Odessa, Russia. Drying apparatus	644,189	Feb. 27	2976	703, 704	90	1596
Sieh, Hans H., and C. Holstein, Millard, Nebr. Potato-bug destroyer	642,268	Jan. 30	3996	910	90	888
Siemens & Halske Electric Company of America. (See Hoffmann, Ernst W. G. C., assignor.)						
Siemens & Halske Electric Company of America. (See Prilcker, Amand C. M., assignor.)						
Siemens & Halske Electric Company of America. (See Schrottke, Karl O. F., assignor.)						
Sievert, Christian A., assignor to L. Wolff Manufacturing Company, Chicago, Ill. Enameling-table	645,517	Mar. 13	1766	387	90	2121
Sievert, Paul T., Dresden, Germany. Apparatus for manufacturing hollow glass articles	641,048	Jan. 9	1744	388	90	356
Sievert, Paul T., Dresden, Germany. Apparatus for manufacturing glass articles	644,372	Feb. 27	3326	774	90	1664
Sievert, Paul T., Dresden, Germany. Apparatus for producing hollow glass articles	645,375	Mar. 13	1768	331	90	2070
Sievert, Paul T., Dresden, Germany. Apparatus for manufacturing hollow glass articles	646,133	Mar. 27	2934	649, 650	90	2381
Sigmann, John G. (See Malcolmson, Thomas, assignor.)	641,473	Jan. 16	2540	581	90	328
Sihler, George B., Detroit, Mich. Tuning-key for pianos	643,688	Feb. 20	2044	483	90	1400
Silbar, Hyman. (See Silbar, Jacob and H.)	644,378	Feb. 27	3328	775	90	1665
Silbar, Jacob and H., Milwaukee, Wis. Life-preserver	642,011	Jan. 23	3308	801	90	725
Silberman, Samuel J., New York, N. Y. Tag	644,645	Mar. 6	157	36	90	1785
Sill, Emily L., Flat Rocks, S. C. Fence	645,192	Mar. 13	1181	256	90	2005
Silsby, Eugene W., Chicago, Ill. Button-making press	646,134	Mar. 27	2896	650	90	2382
Silsby, Eugene W., Chicago, Ill. Button	641,049	Jan. 9	1745	----	90	356
Silsby, Eugene W., Chicago, Ill. Button						
Silverman, Lazarus, Chicago, Ill. Preparing materials for feeding oils	645,978	Mar. 27	2631	583	90	2322
Silverman, Lonis. (See Dawson and Silverman.)						
Silverwood, Addison J. (See Moore, Thomas A. L., assignor.)						
Silvey, William L., Dayton, Ohio. Secondary battery	645,302	Mar. 13	1375	299	90	2043
Simes, Charles F., *et al.* (See Laureyns, Gustav G., assignor.)	645,193	Mar. 13	1183	257	90	2005
Simkin, Cuthbert. (See Lamplit, Carlile, and Simkin.)	643,544	Feb. 13	1747	412	90	1927
Simmonds, John W., assignor to J. M. Fisher & Company, Attleborough, Mass. Brooch.						
Simmons, Allen, Boston, Mass. Cushion-horseshoe	640,964	Jan. 9	1566	349	90	322
Simmons, Bert G., New Brunswick, N. J. Spool						
Simmons, Charles, Kunanalling, Western Australia. Appliance for lifting and turning drills for rock-boring or other purposes	646,301	Mar. 27	3472	772	90	2490
Simmons, Frank W., Felton, assignor of one-fourth to W. S. Miller, Oakland, Cal. Hydraulic propelling apparatus	646,080	Mar. 27	2827	628	90	2360
Simmons, Henry G., Albertville, Ala. Vehicle-brake	642,853	Feb. 6	496	117	90	1062
Simmons, John P., San Francisco, Cal. Hydraulic giant	645,896	Mar. 20	2372	520	90	2253
Simmons, Valery E., and R. L. Williamson, Tarkington, Tex. Rod and fixture for wagon end-gates	641,897	Jan. 23	3302	750, 751	90	685
Simms, Frederick R., London, England. Motor-driven car for use in warfare	642,167	Jan. 30	3806	907	90	801
Simms, Frederick R., London, England. Electric-sparking plug for explosive-engines	640,821	Jan. 9	1265	290	90	266
Simonson, Jacob A. S., New York, N. Y. Pneumatic tire						
Simplex Railway Appliance Company. (See Bauer, Carl E., assignor.)	645,238	Mar. 13	1266	275	90	2021
Simpson, Charles I., Nampa, Idaho. Filter	646,321	Mar. 27	3308	738	90	2453
Simpson, Charles I., Nampa, Idaho. Corn-crib						
Simpson, Edward P., Oxen Hill, assignor of one-third to J. C. Dowell, Silver Springs, Md. Lock-bolt	642,375	Jan. 30	4230	953	90	883
Simpson, George, *et al.* (See Dean, John, assignor.)	643,256	Feb. 13	1233	280, 290	90	1226
Simpson, George F. New York, N. Y., assignor to Solar Gas and Machine Company, of Virginia. Acetylene-gas generator	641,783	Jan. 23	3005	685	90	688
Simpson, George T., Baker City, Oreg. Ironing-board	646,101	Mar. 27	2861	635	90	2367
Simpson, Henry V., London, England. Fireproofing wood	644,190	Feb. 27	2977	704, 705	90	1597
Simpson, John B., assignor of one-fourth to W. T. Howerton, Zincite, Mo. Hoisting-machine	643,689	Feb. 20	2015	483	90	1401
Simpson, Theodore C. (See Heffner, Columbus, assignor.)						
Sims, Andrew M., and A. J. Arfsten, Denver, Colo. Bottle-stopper	644,833	Mar. 6	515	111	90	1856
Sims, David P., assignor to Sims Hydraulic Engine Company, Lincoln, Nebr. Impact water-motor						
Sims, George E. (See Drury and Sims.)						
Sims Hydraulic Engine Company. (See Sims, David P., assignor.)	646,194	Mar. 27	3054	674	90	2405
Sims, Mary E., San Angelo, Tex. Bed-robe for invalids	643,545	Feb. 13	1748	412	90	1327
Sinding-Larsen, Alf, Fredriksvaern, Norway. Telephone-telegraph	644,108	Feb. 27	2810	666, 667	90	1565
Singer, Albert E., Lewisburg, Ohio. Voting-machine						
Singer Manufacturing Company. (See Allen, Edward B., assignor.)						
Singer Manufacturing Company. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company. (See Rontke, Albert, assignor.)						
Sintz, Clark, assignor to Wolverine Motor Works, Grand Rapids, Mich. Explosive-engine	646,322	Mar. 27	3309	738, 739	90	2453
Sipp Electric and Machine Company. (See Ashley, Dwight, assignor.)						
Sisum, William H. H., Belleville, N. J., assignor to Diamond Match Company, Chicago, Ill. Machine for making match-splints	643,546	Feb. 13	1751	413	90	1327
Skelley, Walter L., assignor of one-half to C. E. Grant, Cabool, Mo. Combination step-ladder	641,158	Jan. 9	1952	433	90	398
Skilton, John W., Daytona, Fla. Car-axle box	642,376	Jan. 30	4222	953	90	884
Skinner, Charles H., Newark, N. J. Machine for curling hat-brims	642,736	Feb. 6	294	70	90	1024
Skinner, Le Grand, Erie, Pa. Automatic oiler for steam-engines	640,422	Jan. 2	521	109	90	108
Skinner, Le Grand, and J. C. Glenn, Erie, Pa.; said Glenn assignor to said Skinner. Oil and water separator and purifier	640,494	Jan. 2	633	137	90	124
Slack, William H. H. (See Wait, Oscar E., assignor.)						
Slate, H. M., *et al.* (See Cheney, Charles W., assignor.)	642,497	Jan. 30	4118	1003, 1004	90	922
Slater, Zacheus M., Cornwall Landing, N. Y. Dumping-grate	644,338	Feb. 27	3279	763	90	1654
Slattery, Patrick F. (See Mederer, Slattery, and Fuss.)	644,877	Mar. 6	506	129	90	1873
Slauson, Stephen A., Chicago, Ill. Coupling for hay-loaders	642,854	Feb. 6	497	117	90	1063
Slazenger, Frank L., New York, N. Y. Racket						
Slee, Norman T., Baltimore, Md., assignor to Gormully & Jeffery Manufacturing Company, Chicago, Ill. Velocipede seat-support						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sleeper, Charles W., Lancaster, N. H., assignor to Sleeper Machine Company, Boston, Mass. Flux-feeding device	642,931	Feb. 6	644	147	90	1091
Sleeper, Charles W., Lancaster, N. H., assignor to Sleeper Machine Company, of Maine. Can-cleaning machine	645,138	Mar. 13	1082	230	90	1986
Sleeper Machine Company. (See Sleeper, Charles W., assignor.)						
Slemmer, Frank G., assignor to M. B. and I. T. Slemmer, Centreville, Md. Game apparatus	640,423	Jan. 2	523	109	90	108
Slemmer, Ida T., *et al.* (See Slemmer, Frank G., assignor.)						
Slemmer, Milton B., *et al.* (See Slemmer, Frank G., assignor.)						
Slingerland, George W., New York, N. Y. Duplicating shipping-blank	644,104	Feb. 27	2813	667	90	1566
Slingland, Charles, and G. F. Kuett, Paterson, N. J. Creel for warping-machines	645,376	Mar. 13	1509	331	90	2070
Sloan, James I., Kansas City, Kans. Oven for gas or gasolene stoves	643,916	Feb. 20	2488	585	90	1486
Sloan, Thomas J., Paris, France. Machine for manufacturing wood-screws	645,139	Mar. 13	1083	230, 231, 232	90	1986
Slocomb, Frank F., Wilmington, Del. Leather-finishing machine	641,734	Jan. 23	3006	685, 686, 687	90	628
Sloniker, John. (See Bishop, Whitney, and Sloniker.)						
Slyker, Alfred S., Wilkes-Barré, Pa. Car-brake	641,339	Jan. 16	2292	521	90	480
Small, Frederick E., Boston, Mass. Metallic packing for piston-rods	642,855	Feb. 6	498	117	90	1063
Small, Henry H., York, Pa. Suspenders	644,105	Feb. 27	2820	667	90	1567
Small, John W., Haw River, N. C. Box-motion for looms	644,692	Mar. 6	250	55	90	1803
Small, Walter W., Cherryfield, Me. Chain-power	642,636	Feb. 6	121	30	90	989
Small, Walter W., Cherryfield, Me. Device for converting reciprocating movement into rotary motion	642,637	Feb. 6	124	30	90	990
Smead, Isaac D., Toledo, Ohio, assignor to Reading Stove Works, Orr, Painter & Co., Reading, Pa. Apparatus for heating buildings	644,106	Feb. 27	2820	667	90	1567
Smelker, Angeline, North Star, Ohio, assignor of one-third to M. M. Mehring, Indianapolis, Ind. Fruit-jar closure	645,430	Mar. 13	1608	351	90	2090
Smith, Addison T., Cambridge, Ohio. Attachment for bath-tubs	642,168	Jan. 30	3808	867	90	801
Smith, Albert C., Boulder, Colo. Student's or scholar's companion	642,498	Jan. 30	4420	1004	90	922
Smith, Alphonso B., Los Angeles, Cal. Cesta or hand-ball basket-bat	642,638	Feb. 6	128	30, 31	90	990
Smith, Alphonso B., Los Angeles, Cal. Playing-ball	642,639	Feb. 6	130	31	90	991
Smith, Ambrose H., Chicago, Ill. Dowel-nail	642,377	Jan. 30	4223	954	90	884
Smith, Andrew C., Los Angeles, Cal., assignor to Los Angeles Automatic Tool Company. Combined set-square and bevel	642,566	Jan. 30	4543	1028	90	946
Smith, Andrew J., Cincinnati, Ohio. Washing-machine	645,303	Mar. 13	1375	300	90	2043
Smith & Anthony Company. (See Knapp, George W., assignor.)						
Smith, Arthur, London, England. Producing material suitable for electric insulation or other purposes	643,012	Feb. 6	781	----	90	1118
Smith, Carlton L., Chicago, Ill. Device for cleaning boiler-tubes	640,822	Jan. 9	1266	286	90	267
Smith, Charles A. (See Springer and Johnson, assignors.)						
Smith, Charles E. (See Richardson, Frederick E., assignor.)						
Smith, Charles J., Holley, N. Y. Centerboard for boats	645,337	Mar. 13	1437	316	90	2056
Smith, Clarence E., New Britain, Conn., assignor to North & Judd Manufacturing Company, of Connecticut. Jewelry-fastening	645,874	Mar. 20	2432	535	90	2266
Smith, Cyrus E., Fall River, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Locking device for cotton-beaters	643,277	Feb. 13	1271	298	90	1234
Smith, Dallas W., Graham, Ind. Ter. Vehicle-seat	645,887	Mar. 20	2373	520	90	2251
Smith, Daniel L., Pittsburg, Pa. Penholder	641,900	Jan. 23	3308	752	90	686
Smith, Darius, Syracuse, N. Y. Tube-filling apparatus	642,640	Feb. 6	131	31	90	991
Smith, Edgar M., Boston, Mass. Railway-tie plate	645,759	Mar. 20	2237	485	90	2226
Smith, Edward C., Chicago, Ill. Shower-bath ring	642,807	Feb. 6	414	100	90	1046
Smith, Edward F., assignor to J. Anstice, Rochester, N. Y. Meat-cutter	643,547	Feb. 13	1754	413, 414	90	1328
Smith, Edward F., assignor to J. Anstice, Rochester, N. Y. Trap	643,548	Feb. 13	1757	414	90	1328
Smith, Edward F., assignor to J. Anstice, Rochester, N. Y. Meat-cutter	643,549	Feb. 13	1759	414	90	1329
Smith, Eldridge J., Washington, D. C., assignor of one-half to C. A. Baker. Bag carrier and closure	641,340	Jan. 16	2295	521	90	480
Smith, Eugene C. and V. E., Providence, R. I., assignors to American Lithographic Company, New York, N. Y. Manufacture of metal tubes or cylinders	640,424	Jan. 2	524	109	90	108
Smith, Frank W., assignor of one-half to F. O. Conant, Portland, Me. Retort for sterilizing or cooking goods	640,234	Jan. 2	146	30, 31	90	51
Smith, Frank W. O. (See Northorpe, William, assignor.)						
Smith, Franklin P. (See Ross and Smith.)						
Smith, Fred H. (See Pomeroy, Henry C., assignor.)						
Smith, George A., Alberni, Canada. Night-lamp	641,749	Jan. 23	3037	691	90	634
Smith, George A., Alberni, Canada. Adjustable spring for baby-carriages	643,365	Feb. 13	1420	331	90	1263
Smith, George E. (See Hawkins, Gardner C., assignor.)						
Smith, George L., and A. Huffman, Princeton, Ill. Cream-separator	641,612	Jan. 16	2785	634	90	577
Smith, George W., Dallas, Tex. Underground electric railway	645,021	Mar. 6	849	185	90	1925
Smith, Harry. (See Bangley, Joseph L., assignor.)						
Smith, Henry A., assignor of one-half to Standard Advertising Company, Incorporated, Coshocton, Ohio. Making transparency-signs	642,270	Jan. 30	3999	910	90	858
Smith, Henry C., Somerville, Mass. Window-frame	644,150	Feb. 27	2892	684, 685	90	1582
Smith, Henry K., Philadelphia, Pa. Gramophone	644,834	Mar. 6	516	111	90	1857
Smith, Henry R., assignor of one-half to A. A. Joyce, Gambrills, Md. Washing machine	641,556	Jan. 16	2693	614	90	559
Smith, Howard F., Elkhart, Ind. Stencil-making machine	642,611	Feb. 6	133	31, 32, 33	90	992
Smith, James H. (See Marston, Richard K., assignor.)						
Smith, James H., *et al.* (See Shriver, Augustus F., assignor.)						
Smith, James R. (See Norris and Smith.)						
Smith, Jesse B., Alexander City, Ala. Machine for setting or forming scraper-blades	645,022	Mar. 6	851	186	90	1925
Smith, Joe, and F. M. Fox, Springville, N. Y. Woodworking-machine	641,159	Jan. 9	1954	433, 434	90	398
Smith, John O., Denver, Colo. Tape-line reel	641,050	Jan. 9	1745	388	90	356
Smith, John O., Denver, Colo. Tape-line reel	642,727	Feb. 6	297	70	90	1025
Smith, Luther L., Augusta, Mont. Irrigation of arid land	643,550	Feb. 13	1761	414	90	1329
Smith, Maurice W., London, England. Type making and composing machine	644,835	Mar. 6	519	111, 112	90	1857
Smith, Michael H., London, England. Reciprocating engine	642,761	Feb. 6	343	84	90	1034

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Smith, Oliver F. (See Lanclaux and Smith.)						
Smith, Oscar J., *et al.* (See Brown, Frank C., assignor.)						
Smith, Philo C. (See Guiley, Milton M., assignor.)						
Smith, Randall F., Chicago, Ill. Telephone	640,823	Jan. 9	1268	287	90	207
Smith, Richard, assignor of one-half to W. Farwell, Sherbrooke, Canada. Rotary engine.	646,392	Mar. 27	3474	773	90	2491
Smith, Richard, assignor of one-half to W. Farwell, Sherbrooke, Canada. Rotary engine.	646,393	Mar. 27	3480	774	90	2491
Smith, Richard, assignor of one-half to W. Farwell, Sherbrooke, Canada. Rotary engine.	643,336	Feb. 13	1371	321	90	1254
Smith, Richard A., Bay City, Mich. Wagon-box						
Smith, Robert F. (See Bonnell and Smith.)						
Smith, Robert H. (See Sprague, Newton C., assignor.)	642,499	Jan. 30	4422	1004	90	928
Smith, Robert L., Palos, Ala. Lantern-carrying attachment	646,135	Mar. 27	2937	650	90	2382
Smith, Robert R., New Hartford, Conn. Roving-can						
Smith, Romeyn L., New Brunswick, N. J., assignor of one-half to W. I. Dreisbach, Williamsport, Pa. Inflation-valve for pneumatic tires	644,476	Feb. 27	3508	813	90	1099
Smith, Rose, Cleveland, Ohio. Leaf-gatherer	643,386	Feb. 13	1463	342	90	1270
Smith, Sara B., Livermore, Cal. Trunk-tray	645,979	Mar. 27	2633	583	90	2322
Smith, Sara B., Livermore, Cal. Trunk	645,980	Mar. 27	2634	583	90	2323
Smith, Stephen A., Blue Springs, Nebr. Device to be worn on the heads of horned cattle to prevent fighting and butting, &c	645,140	Mar. 13	1099	233	90	1067
Smith, Stephen G., Hannibal, Mo. Bicycle	642,269	Jan. 30	3997	910	90	838
Smith, Theodore, Georgetown, Ill. Adjustable bracket	641,748	Jan. 23	3085	691	90	694
Smith, Thomas D., Wilkes-Barré, Pa. Cylinder relief-valve	644,151	Feb. 27	2804	685	90	1582
Smith, Ulysses G. (See Weltzel and Smith.)						
Smith, Victor E. (See Smith, Eugene C. and V. E.)						
Smith, Walter B., Mount Vernon, Ky. Poultry-feeding device	640,730	Jan. 2	1088	248	90	210
Smith, Walter L., Chicago, assignor to H. Date, Austin, Ill. Clamp for making boxes	643,551	Feb. 13	1762	415	90	1329
Smith, Walton D., assignor of one-half to W. McNeill, Prophetstown, Ill. Shade for electric lights	641,613	Jan. 16	2787	634	90	577
Smith, Walton D., Prophetstown, Ill., assignor to A. Kimball Company, New York, N. Y. Marking-ticket	644,541	Feb. 27	3029	844	90	1722
Smith, William H., Topeka, Kans. Stovepipe-fastener	641,557	Jan. 16	2695	614	90	560
Smith, William L., *et al.* (See Fromberger, Henry B., assignor.)						
Smith, William M., assignor of one-half to S. M. Haussermann, Evansville, Ind. Boiler	644,152	Feb. 27	2808	686	90	1583
Smithers, Charles W. H., assignor of one-half to A. A. Kelly, Fond du Lac, Wis. Bicycle-support	645,023	Mar. 6	852	186	90	1926
Smithers, Christopher D. (See Van Vleck, John, assignor.)						
Smithers, Christopher D. (See Van Vleck and Stevens, assignors.)						
Smithson, Alberto, *et al.* (See Longmore, Lewis F., assignor.)						
Sneath, Perciphor B., assignor of one-half to L. Zeiser, Philadelphia, Pa. Grate for ranges, &c.	642,378	Jan. 30	4224	954	90	884
Snell, Arthur T., Los Angeles, Cal. Hook and eye	644,153	Feb. 27	2809	686	90	1583
Snively, Charles H., Sunbury, Pa. Wire-stretcher	643,241	Feb. 13	1205	282	90	1221
Snow, Edward B., Altoona, Pa. Lantern-latch	646,136	Mar. 27	2939	650	90	2382
Snow, Frank H. (See Barbour, Frank A., assignor.)						
Snow, William W., Hillburn, N. Y. Boltless steel-tired car-wheel	640,425	Jan. 2	526	110	90	103
Snowman, William H., Chelsea, Mass., assignor to A. N. Southwick, New York, N. Y. Apparatus for holding and delivering tickets	641,651	Jan. 16	2855	651	90	591
Snyder, Daniel R., Stonersville, assignor of three-fourths to H. E. and J. S. Ahrens, Reading, and C. M. Richardson, Bernville, Pa. Apparatus for pasteurizing liquids	642,535	Jan. 30	4477	1016	90	933
Snyder, David M., Abingdon, Ill. Railway-signal	642,500	Jan. 30	4423	1005	90	923
Snyder, Frank S., Newburg, N. Y. Car-brake	644,023	Feb. 20	2678	633	90	1523
Snyder, Frederick S., Whitehall, N. Y. Device for lifting plates	643,168	Feb. 13	1079	249	90	1197
Snyder, G. L. (See Fishell, Peter H., assignor.)						
Snyder, John A., Leipsic, Ohio. Ball-bearing	642,501	Jan. 30	4424	1005	90	923
Snyder, Thomas C. (See Paar, Henry, assignor.)						
Sochurek, Frank, Sr., Milwaukee, Wis. Washing apparatus for filtering materials	643,337	Feb. 13	1372	321	90	1254
Société Alsacienne de Constructions Mécaniques. (See Wenning and Gégauff, assignors.)						
Société des Carbures Métalliques. (See Petersson, Albert J., assignor.)						
Soens, Louis H., Mancos, Colo. Horse hay-fork	643,852	Feb. 20	2360	535	90	1460
Soens, Michael J. (See Wabers, Henry H., assignor.)						
Soistmann, Adolph G., Philadelphia, Pa. Drum	641,901	Jan. 23	3309	732	90	686
Solar Gas and Machine Company. (See Simpson, George F., assignor.)						
Solders, George B. (See Stilwell, William I., assignor.)						
Somerville, George. (See Gremmels and Somerville.)						
Sommer, Gottlieb, Williamsport, Pa. Pneumatic valve for pipe-organs	642,827	Feb. 6	451	108	90	1053
Sommer, John, Peoria, Ill. Clamp for fabric-making machines	640,824	Jan. 9	1273	287	90	268
Sommers, William F., assignor of one-fourth to W. H. Osmer, St. Louis, Mo. Collar	646,394	Mar. 27	3482	298	90	2492
Sondheimer, Joseph, *et al.* (See Cline, William, assignor.)				775		
Songer, Joseph M., Decatur, Ill. Foldable bedstead	640,965	Jan. 9	1567	350	90	322
Souder, Howell W., Tamaqua, Pa. Electric signaling apparatus	642,879	Jan. 30	4226	954	90	884
Souer, George, Rice's, assignor of one-half to E. M. Johnson, St. Cloud, Minn. Blacksmith's forge	642,271	Jan. 30	4002	911	90	889
South Bend Iron Works. (See Oliver, James, assignor.)						
Southard, Abraham M., assignor, by mesne assignments, to J. W. Kuykendall, Denver, Colo. Bicycle-pedal bell	640,712	Jan. 2	1056	241	90	204
Souther, Peter, Pine Bluff, Ark. Transom for railway-cars	642,890	Jan. 30	4229	955	90	885
Southwark Foundry and Machine Company. (See Petsche, Gustav B., assignor.)						
Southwell, Charles C., Milwaukee, Wis. Combined dental engine and chair	642,536	Jan. 30	4478	1016 1017	90	933
Southwick, Albert N. (See Snowman, William H., assignor.)						
Sowers, Robert W., Knoxville, Tenn. Coin-controlled apparatus	646,323	Mar. 27	3311	739	90	2454
Sowerwine, Eliakim A., Randolph, Nebr. Harrow	644,374	Feb. 27	2339	775	90	1665
Sowle, Frederick L. (See Hilton, Roland C., assignor.)						
Spahr, Otto, New York, N. Y. Pipe-cleaner	644,948	Mar. 6	716	155	90	1898
Spalding, Cyrus G., Springfield, Mass. Drip-cup attachment for refrigerators	645,981	Mar. 27	2635	584	90	2323
Spalding, Frank, assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Micrometer-gage	645,888	Mar. 20	2373	520	90	2254
Spangle, John P. (See Booth and Spangle.)	640,495	Jan. 2	635	137	90	124
Spangler, John H., Pittsburg, Pa. Non-explosive oil-can	646,187	Mar. 27	2940	651	90	2382
Spatz, John E., Detroit, Mich. Combined saw and adjustable square						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spaulding, Elijah F., assignor to Ideal Cash Register Company, Bound Brook, N. J. Cash-register	640,825	Jan. 9	1277	288 289 290 291	90	269
Spaulding, Elijah F., assignor to Ideal Cash Register Company, Bound Brook, N. J. Cash-register	640,966	Jan. 9	1568	350 351	90	328
Speaker, Charles E., Louisville, Ky. Cuff-holder	646,324	Mar. 27	3314	739	90	2454
Spears, Ralph R., Wheeling, W. Va. Machine for doubling metal plates	643,690	Feb. 20	2046	483 484	90	1401
Spears, Ralph R., Wheeling, W. Va. Machine for doubling metal plates	643,691	Feb. 20	2051	484 485	90	1402
Speckbauch, Bernard H., Newport, Ky. Printing-press	643,692	Feb. 20	2058	486	90	1403
Speirs, Alexander, Westbrook, Me. Truss	642,381	Jan. 30	4231	955	90	886
Spencer, Clarence E., and J. T. Pethick, Carbondale, Pa. Burglar-alarm	641,902	Jan. 23	3310	752	90	686
Spencer, Harry S. (See Thomas and Spencer.)						
Spencer, Milton R., and D. W. Neal, Sisson, Cal. Wood-sawing machine	642,502	Jan. 30	4425	1005	90	923
Spencer, Napoleon B., Cincinnati, Ohio. Combined reamer and drill	645,760	Mar. 20	2288	485	90	2226
Spencer, Richard M., San Francisco, Cal. Window-screen	641,242	Jan. 9	2127	479	90	434
Spencer, Samuel E., Watson, Miss. Cultivator	642,014	Jan. 23	3512	802	90	726
Spencer, William B., Chicago, Ill. Bicycle crank-hanger and bracket	640,967	Jan. 9	1585	352	90	326
Sperling, Arthur. (See Platz and Sperling.)						
Sperling, Henry, Jersey City, N. J. Fire-escape	645,982	Mar. 27	2639	584	90	2323
Sperry, Elmer A., Cleveland, Ohio. System of electric circuits and brakes for vehicles	641,412	Jan. 16	2415	552	90	504
Sperry, Elmer A., Cleveland, Ohio. Motor-carriage	643,257	Feb. 13	1235	290	90	1227
Sperry, Elmer A., Cleveland, Ohio. Motor-vehicle	643,258	Feb. 13	1236	291	90	1227
Sperry, Elmer A., Cleveland, Ohio. Motor-vehicle brake	645,908	Mar. 20	2482	549	90	2276
Sperry, Elmer A., Cleveland, Ohio. Battery jar or receptacle	646,325	Mar. 27	3315	740	90	2454
Sperry, Elmer A., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Electric vehicle	640,968	Jan. 9	1587	352	90	326
Sperry, Elmer A., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Motor-gearing	645,902	Mar. 20	2479	548	90	2275
Sperry, Elmer A., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Gearing for motor-vehicles	646,081	Mar. 27	2828	628	90	2360
Sperry, Henry B., Akron, Ohio. Machine for making bricks	641,341	Jan. 16	2296	522	90	480
Spies, Peter H. F., assignor to C. G. Durfee, Yonkers, L. A. Rodenstein and N. A. Flannery, New York, N. Y. Ammeter	646,110	Mar. 27	2880	638	90	2370
Spillane, Jeremiah C. (See Lanzendoerfer, George, assignor.)						
Spillars, Spencer, Pomona, Cal. Hydrocarbon-burner	641,558	Jan. 16	2696	614	90	560
Spindle, Sel S., Kansas City, Mo. Wheeled scraper	643,698	Feb. 20	2061	487	90	1404
Spinks, Thomas M., Shubuta, Miss. Sash-balance	644,949	Mar. 6	717	155	90	1898
Spoerl, Christian S. E., Scranton, assignor of one-half to J. Kaschenbach, Wilkes-Barré, Pa. Button	643,242	Feb. 13	1206	283	90	1221
Spohn, Joseph F., Scranton, Pa. Grinding or polishing wheel	642,828	Feb. 6	454	108	90	1054
Sponsel, Charles W., assignor of one-half to W. A. Lorenz, Hartford, Conn. Apparatus for hardening metals	643,278	Feb. 13	1273	298	90	1235
Spoo, John, *et al.* (See Hart, John W., assignor.)						
Spoore, Ransom R., Newark, and J. M. Raub, New York, N. Y. Fence-post	640,235	Jan. 2	150	31	90	31
Sprague, Arthur W., De Kalb, assignor, by mesne assignments, to American Steel and Wire Company, Chicago, Ill. Wire fencing	641,413	Jan. 16	2418	552	90	505
Sprague, Newton C., assignor to R. H. Smith, Des Moines, Iowa. Incubator	643,753	Feb. 20	2177	511	90	1425
Springer, William H., and C. J. Johnson, assignors to C. A. Smith, Minneapolis, Minn. Means for waterproofing compo-board	645,496	Mar. 13	1723	377	90	2112
Sproson, Harry W. (See Fletcher, John, assignor.)						
Sproule, Robert F., London, England. Paper-cutter	640,718	Jan. 2	1058	241	90	204
Spurgeon, James S., Henry County, Ky. Hame-fastener	640,236	Jan. 2	151	31	90	31
Spurlock, John W., Ty Ty, Ga. Automatic air-pipe coupling for cars	646,240	Mar. 27	3159	697	90	2425
Squires, Charles W. and J. B., Springfield, Mass. Electric-current-controlling mechanism	642,982	Feb. 6	644	147	90	1091
Squires, Edward E., assignor of one-half to C. E. Haydon, Seattle, Wash. Framing-joint	643,552	Feb. 13	1763	415	90	1329
Squires, James B. (See Squires, Charles W. and J. B.)						
Sroka, Otto, assignor to A. Schwarzkopff, Berlin, Germany. Attachment for screw-cutting machines	643,553	Feb. 13	1764	415 416	90	1329
Srygley & Co., L. A. (See Logan, Crawford D., assignor.)						
St. Clair, Charles L. M., Blue Springs, Mo. Cultivator	641,559	Jan. 16	2697	614 615	90	560
Staltmuller, Max F., Pomeroy, Iowa. Union	640,595	Jan. 2	822	182	90	161
Stafford, Charles S., San Francisco, Cal. Boring-drill	645,219	Mar. 13	1232	268	90	2013
Stahl, Frank H., Charlestown, W. Va. Automatic adjustable die	640,596	Jan. 2	824	182 183	90	161
Stalb, Gustav, New York, N. Y. Store-service apparatus	645,024	Mar. 6	854	186	90	1926
Stair, Burton A., Harrisonville, Mo. Strainer for down-spouts	644,262	Feb. 27	3107	731	90	1621
Staley, James, Bismarck, N. D. Grass-lighting torch	642,382	Jan. 30	4232	956	90	886.
Stamford Foundry Company. (See Warren and Nordell, assignors.)						
Stamm, J. Charles, *et al.* (See Preston, Charles F., assignor.)						
Stanbon, Charles P. (See Mower, Edwin F., assignor.)						
Stanbon, Charles P., Lynn, Mass. Leather-punching machine	640,426	Jan. 2	528	110 111	90	104
Standard Advertising Company (See Smith, Henry A., assignor.)						
Standard Coupler Company. (See Sessions, Henry H., assignor.)						
Standard Machine Company. (See Houseman, Harry A., assignor.)						
Standard Machine Company. (See Wilcomb, Frank, assignor.)						
Standard Railroad Signal Company. (See Keeler, Thaddeus B., assignor.)						
Standard Railway Signal and Switch Company. (See Saville and Winspear, assignors.)						
Standing, Herbert F., and C. F. Dixon, Leeds, England. Intermittent automatic siphonic flushing apparatus	641,160	Jan. 9	1957	434	90	399
Standish, George E., Selby, Cal. Cartridge-loading apparatus	640,496	Jan. 2	636	137 138	90	125
Stanley, Ellis J., Lanark, Ill. Switch-operating mechanism	641,342	Jan. 16	2297	522	90	481
Stanley, Frederick E. (See Shipley and Stanley.)						
Stanley, John W., assignor of one-half to J. W. Ashley, Yuba City, Cal. Nut-lock	646,059	Mar. 27	2791	619	90	2353
Stanley & Patterson, *et al.* (See Rider, Herbert E., assignor.)						
Staples, Robert H., Lowell, Mass. Cock and faucet and means for diminishing waste therefrom	640,497	Jan. 2	640	138	90	126
Star Bucket Pump Company. (See Bartliff, Charles A., assignor.)						
Star Novelty Company. (See Williams, Charles M., assignor.)						
Stark, Andrew, Chicago, Ill. Machine for making vessels of fibrous pulp	645,141	Mar. 13	1090	233	90	1987
Stark, Myron, Dowagiac, Mich. Tire-remover	644,154	Feb. 27	2901	686	90	1583

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Stark, Truman E., Naperville, Ill. Portable writing or drawing desk	642,383	Jan. 30	4232	956	90	886
Starks, Samuel W. (See Cauble and Starks.)						
Starr, Lucius E., Camden, Ala. Peanut-digger	640,969	Jan. 9	1592	352	90	327
Starrett, Laroy S., Athol, Mass. Split nut	642,170	Jan. 30	3810	808	90	801
Statler, Louise, *et al.* (See Bischoff, Frederick F., assignor.)	644,191	Feb. 27	2980	705	90	1597
Stauffer, Abraham W., Philadelphia, Pa. Carpenter's plane	644,107	Feb. 27	2822	668	90	1568
Stawartz, John, Pittsburg, Pa. Car-coupling	641,614	Jan. 16	2790	635	90	578
Stearns & Co., E. C. (See Trebert, Henry L., assignor.)	640,970	Jan. 9	1594	353	90	328
Stebbins, Charles M., Wolcott, Vt. Rotary bookcase	643,306	Feb. 13	1421	331	90	1203
Steber, Henry A., Utica, N. Y. Distilling apparatus	644,263	Feb. 27	3109	731	90	1622
Stecher, Frank A., Rochester, N. Y. Paper box	641,415	Jan. 16	2421	553	90	505
Stechham, Otto, assignor to Indianapolis Drop Forging Company, Indianapolis, Ind. Wrench	643,554	Feb. 13	1766	416 417	90	1330
Stedman, Frederick J. (See Brown, Frederick, assignor.)	641,161	Jan. 9	1958	434	90	899
Steeck, Herman A., Winona, Minn. Safety end-board lock	641,805	Jan. 23	3131	711	90	658
Steele, Charles W., Detroit, Mich., assignor to Diamond Match Company, Chicago, Ill. Match-machine	642,503	Jan. 30	4426	1006	90	923
Steele, Louis J., London, England. Earthing device for electrical circuits	644,375	Feb. 27	3340	775	90	1605
Steere, Amos C., assignor of one-half to J. W. Theis, Columbus, Ohio. Heater	642,728	Feb. 6	298	71	90	1025
Steffee, John, Maryville, Mo. Cream-separator	644,375	Feb. 27	3039	692	90	634
Steffes, Nicholas, Darlington, Wis. Plow-fender	641,750	Jan. 23	3039	692	90	634
Steggall, William F., London, England. Trousers-stretcher	640,597	Jan. 2	827	183 184	90	162
Stegmeyer, Otto, Charlottenberg, Germany. Leather-working machine	640,498	Jan. 2	641	138 139	90	126
Stein, Myer J., New York, N. Y. Negotiable-instrument blank	643,338	Feb. 13	1374	.....	90	1254
Steiner, Arnold, assignor to Chemical Works, formerly Sandoz, Basle, Switzerland. Blue dye from gallocyanin	641,751	Jan. 23	3040	.....	90	635
Steinhart, Oscar J., and J. L. F. Vogel, assignors to Foreign Chemical and Electrolytic Syndicate, Limited, London, England. Producing basic lead carbonate	642,983	Feb. 6	647	148	90	1091
Steinhart, Oscar J., J. L. F. Vogel, and H. E. Fry, London, England; said Steinhart and Vogel assignors to said Fry. Electrolytic separation of zinc from zinc oxid	641,903	Jan. 23	3511	752	90	687
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	645,674	Mar. 20	2362	453	90	2192
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Regulation of dynamo-electric machines	645,922	Mar. 20	2518	557	90	2282
Stelling, Reinhard. (See Neuens, Michael W., assignor.)	644,108	Feb. 27	2824	608	90	1568
Stelzl, John, assignor of one-third to T. P. Storey, Louisville, Ky. Budding-tool	643,694	Feb. 20	2063	487	90	1404
Stendebach, Carl F. P., assignor to Electricitats-Gesellschaft Reitz & Co., mit Beschränkter Haftung, Leipsic, Germany. Contact device for conduit electric railways	641,343	Jan. 16	2300	523	90	481
Stensland, Iver, Ellsworth, Iowa. Horse-detacher	641,652	Jan. 16	2858	.....	90	592
Stephan, August, Breitenbach, Germany. Apparatus for treating size	644,781	Mar. 6	414	89	90	1837
Stephens, Albert G., Los Angeles, Cal. Extracting gold or other metals from refractory ores	644,085	Feb. 20	2697	638 639	90	1527
Stephens, Benjamin F. (See Heath, Henry A., assignor.)	644,086	Feb. 20	2698	639	90	1527
Stephenson, John F., Glenferrie, Victoria. Supporting-frame for bedsteads	640,427	Jan. 2	532	111	90	104
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Car-axle-box lid	646,043	Mar. 27	2766	613	90	2348
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Lid for car-axle boxes	641,752	Jan. 23	3041	692	90	635
Stephenson, Robert S., assignor of one-half to J. S. Graham, Allegheny, and S. S. Baldwin, New Castle, Pa. Stove	640,428	Jan. 2	533	111	90	104
Stephenson, Robert S., assignor of one-half to J. S. Graham, Allegheny, and S. R. Baldwin, New Castle, Pa. Heating attachment for stoves	646,011	Mar. 27	2709	598 599	90	2335
Stepzinski, Albert A., Peoria, Ill. Combined skate sharpener and groover	641,243	Jan. 9	2128	479	90	434
Sterling, Charlotte H., Gambier, Ohio. Dish-washer	640,598	Jan. 2	828	184	90	162
Sterling Supply and Manufacturing Company. (See Nielsen, Anton E., assignor.)	640,826	Jan. 9	1297	291	90	273
Sterling, William J., Portsmouth, Va. Apparatus for preventing pipe connections from leaking	644,142	Feb. 27	2682	706	90	1597
Stern, Leopold H. (See Cook and Stern.)	642,728	Feb. 6	298	71	90	1025
Sterne, William C., Littleton, Colo. Acetylene-gas generator	643,804	Feb. 20	2259	532	90	1441
Stetson & Co., E. H. (See Allen, John V., assignor.)	645,377	Mar. 13	1511	331	90	2071
Stettler, Daniel D., Medford, Okla. Ter. Combination-tool	642,015	Jan. 23	3513	802 803	90	726
Stevens, Calvin A. (See Collins, Caleb G., assignor.)	643,306	Feb. 13	1321	311	90	1243
Stevens, Edwin E. (See Adams, Fred H., assignor.)	646,092	Mar. 27	2832	629	90	2282
Stevens, Frank T., Long Lake, Minn. Penholder	641,414	Jan. 16	2419	552	90	505
Stevens, George L., *et al.* (See Green, Charles, assignor.)	640,599	Jan. 2	830	184 185	90	162
Stevens, John E. (See Van Name, Joshua V. R., assignor.)	640,971	Jan. 9	1596	353	90	328
Stevens, John F., Philadelphia, Pa. Electrical measuring instrument	643,555	Feb. 13	1768	417	90	1330
Stevens, Merton P., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, of New Jersey. Gas-lamp	642,729	Feb. 6	299	71	90	1025
Stevens, Robert L. (See Otto, Albert T., assignor.)	646,877	Mar. 27	3453	769	90	2487
Stevens, Theodore B., Cleveland, Ohio. Latch	645,575	Mar. 20	1864	411	90	2152
Stevens, Thomas G., Greenhithe, England. Boot-tree						
Stevens, William H. (See Mitchell, John B., assignor.)						
Stevens, William N. (See Van Vleck and Stevens.)						
Stevenson, Albert H., Manchester, and N. B. Chadwick, Stockport, England. Box-covering machine						
Stevenson, George W., Cramer's Hill, assignor to T. Leas, Camden, N. J. Electrical street-indicator						
Steward, Aurelius, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Smocking attachment for sewing-machines						
Steward, Aurelius, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Stop-motion for sewing-machines						
Steward, Eliza M., Ashville, Ohio. Apparel-corset						
Steward, Fredrick S., Kansas City, Mo. Inclined elevator						
Steward, John F., and C. A. A. Rand, Chicago, Ill. Self-binder harvester						
Stewart, Alfred C., Santa Paula, Cal. Governor for explosive-engines						
Stewart, Charles C., and G. C. Updegraff, Hutchinson, Kans. Acetylene-gas generator						
Stewart, Isaac N., Fort Worth, Tex. Mattress-making machine						
Stewart, John J., *et al.* (See Cline, William, assignor.)						
Stewart, John K., Chicago, Ill. Shearing-tool						
Stewart Oxidizing Company. (See Stewart, Robert A., assignor.)						
Stewart, Richard C., Jr., and W. A., Covington, Ky. Jail						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stewart, Robert A., Kansas City, Mo., assignor to Stewart Oxidizing Company, of Colorado. Apparatus for oxidizing or roasting refractory ores	645,761	Mar. 20	2239	485	90	2227
Stewart, Robert I., Xenia, Ohio. Shipping-crate	640,600	Jan. 2	832	185	90	163
Stewart, Wallace A. (See Stewart, Richard C., Jr., and W. A.)						
Sticker, Francis, assignor to J. C. and C. A. Drucklieb, New York, N. Y. Steam-injector	645,273	Mar. 13	1820	287 288	90	2033
Sticker, Francis, assignor to J. C. and C. A. Drucklieb, New York, N. Y. Steam-injector	645,274	Mar. 13	1823	288	90	2034
Sticker, Francis, assignor to J. C. and C. A. Drucklieb, New York, N. Y. Steam-injector	645,275	Mar. 13	1824	288	90	2034
Stickley, William A., and J. R. Dwyer, St. Louis, Mo. Cooler	642,730	Feb. 6	301	71,72	90	1026
Stillman, Francis H. (See Wigtel, Carl, assignor.)						
Stillman, Francis H., New York, N. Y. Hydraulic riveting-tool	641,162	Jan. 9	1960	434 435	90	399
Stillman, Francis H., New York, N. Y. Hydraulic punch	641,163	Jan. 9	1963	435	90	400
Stilson, Arthur T., New York, N. Y., assignor to Central Stamping Company, of New York. Dust-pan	640,972	Jan. 9	1597	353	90	328
Stilson, Arthur T., assignor to Central Stamping Company, New York, N. Y. Dust-pan	640,973	Jan. 9	1599	354	90	328
Stilwell, William I., Mansfield, assignor of one-half to G. B. Solders, Cleveland, Ohio. Caster	640,499	Jan. 2	643	139	90	126
Stimpson, Clarence A., Philadelphia, Pa. Signal for railways	645,899	Mar. 20	2374	521	90	2254
Stimpson, Edward S. (See Northrop and Stimpson.)						
Stimpson, Wallace I., Milford, Mass., and J. H. Northrop, Tustin, Cal., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Loom	640,714	Jan. 2	1060	242	90	205
Stimpson, Walter F., Milan, Mich. Platform-scale	641,904	Jan. 23	3313	753	90	687
Stimson, Samuel E., New York, N. Y. Passage-way-closing device	640,827	Jan. 9	1268	291	90	273
Stine, John, Mount Auburn, Ind. Spark-extinguisher	642,384	Jan. 30	4234	956	90	886
Stine, Marcus. (See Redon, Constant F., de, assignor.)						
Stinson, David W., St. Louis, Mo. Automatic circuit-breaker	644,878	Mar. 6	568	129	90	1873
Stirling, Robert J., Ermelo, South African Republic. Boot brushing and polishing machine	641,344	Jan. 16	2302	523	90	482
Stock, August. (See Homolka and Stock.)						
Stockhausen, Julius, Crefeld, Germany. Making soap	646,326	Mar. 27	3317	.....	90	2455
Stockton, Isaac D., Penrose, Cal. Cultivator	645,904	Mar. 20	2485	549	90	2276
Stockwell, Herbert C., Los Angeles, assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Automatic bolt-operating device	645,431	Mar. 13	1610	351 352	90	2090
Stoddard, Edgar, Cleveland, and H. G. Richards, deceased, A. I. Richards, Toledo, administratrix, assignors to E. J. Thobaben, Cleveland, Ohio, H. C. Richards, and J. A. Bledt. Elevator	641,164	Jan. 9	1965	435 436	90	401
Stoddart, John A., Gloucester, Mass. Fish-fibering machine	640,429	Jan. 2	535	111	90	105
Stohr, Franz, Vienna, Austria-Hungary. Collapsible tube	645,432	Mar. 13	1612	352	90	2091
Stokes, Arthur H., Olathe, Colo. Water-measuring gate	643,695	Feb. 20	2065	487	90	1405
Stokes, John W. (See Gastineau, Senteney S., assignor.)						
Stokes, Thomas H., Lincoln, Ill. Grounding-shoe for electric wires	642,169	Jan. 30	3809	807	90	801
Stommel, Hugo, Plainfield, N. J., assignor to United States Standard Motor Vehicle Company, of New Jersey. Motor-vehicle	645,497	Mar. 13	1724	377 378	90	2112
Stone, Allen, Washington, D. C. Closure or stopper for vessels	641,806	Jan. 23	3132	711	90	653
Stone, Andrew J. (See Johnson and Stone.)						
Stone, Charles E., Amesbury, Mass. Thill-coupling	644,693	Mar. 6	251	56	90	1804
Stone, Frederick R., *et al.* (See Miller, Martin D., assignor.)						
Stone, Jesse L., Woodland, Pa. Lamp-burner and wick-holder	640,828	Jan. 9	1302	292	90	274
Stone, John H., Toronto, Canada. Lamp-burner or burner attachment	642,385	Jan. 30	4235	957	90	886
Stone, Levi J., Carthage, Mo. Shade-roller bracket	644,694	Mar. 6	253	56	90	1804
Stone, Reuben R., New York, N. Y. Churn	644,198	Feb. 27	2983	706	90	1598
Stonebridge, Margaret, New York, N. Y. Massage-roller	644,109	Feb. 27	2825	669	90	1598
Stoner, Clinton S. (See Mallory and Stoner.)						
Stony Brook Paper Company. (See McEwan, William W., A., and F., assignors.)						
Storey, Theodore P. (See Steizl, John, assignor.)						
Storey, Walter, *et al.* (See Shriver, Augustus F., assignor.)						
Storrs, George L. (See Merritt, James A., assignor.)						
Storz, Carl A. G., Frankfort-on the-Main, Germany. Back-pressure valve	641,845	Jan. 16	2302	523	90	482
Stott, Stephen W., assignor to himself and P. Gerst, Buffalo, N. Y. Gas-burning apparatus	643,259	Feb. 13	1239	291	90	1228
Stout, William F., Coffee, Ind. Apparatus for lifting wagon-bodies, &c	645,682	Mar. 20	1901	437	90	2178
Stoveken, John, Milwaukee, Wis. Vertical automatic drying and roasting furnace	640,715	Jan. 2	1061	242	90	205
Stow Manufacturing Company. (See Hotchkiss, Clarence F., assignor.)						
Stowe, William A., Poolville, Tex. Garden-plow	641,244	Jan. 9	2130	479	90	434
Strache, Hugo, Vienna, Austria-Hungary. Valve for water-gas generators	646,060	Mar. 27	2792	619	90	2353
Strache, Hugo, Vienna, Austria-Hungary, assignor to La Société Internationale du Gaz D'Eau, Brevets Strache, Société Anonyme, Brussels, Belgium. Closing-valve for water-gas generators	644,110	Feb. 27	2826	669	90	1568
Strader, Julius G., Elbow, assignor of one-half to J. W. Talbott, Gayton, Va. Wire clothes-pin	644,339	Feb. 27	3281	763	90	1654
Straffon, William. (See Schurrer and Straffon.)						
Strange, John F., assignor of two-thirds to W. Croft and W. C. Sheehy, New Bedford, Mass. Magnetic pad	645,493	Mar. 13	1613	353	90	2091
Strasburger, Abraham H. (See Davis and Strasburger, assignors.)						
Strashurger, Henry. (See Davis and Strasburger.)						
Straszer, John, Manchester, Mo. Rotary gas-engine	640,237	Jan. 2	152	31,32	90	32
Straughn, Charles R. (See Gibson and Straughn.)						
Strauss, Ernest, assignor of one-half to A. Haas, New York, N. Y. Home milk-modifier	641,052	Jan. 9	1750	350	90	357
Strauss, Ernest, assignor of one-half to A. Haas, New York, N. Y. Milk-modifying apparatus	645,875	Mar. 20	2433	535	90	2206
Strauss, Ferdinand, East Orange, N. J. Harmonica	642,642	Feb. 6	138	33	90	968
Strawmyer, William P., and O. Nilius, Indianapolis, Ind. Rubber-tread horseshoe	644,879	Mar. 6	600	129	90	1874
Street, Clement F., assignor to Dayton Malleable Iron Company, Dayton, Ohio. Center-plate for railway-cars	641,165	Jan. 9	1968	436	90	402
Street, John H., assignor to Willans & Robinson, Limited, Rugby, England. Steam or other elastic-fluid engine	645,983	Mar. 27	2640	585 586	90	2324
Streeter, Margaret L., Washington, D. C. Belt-buckle	645,025	Mar. 6	857	186	90	1927
Stretton, William. (See Terry, Samuel L., assignor.)						
Stricker, George A., *et al.* (See Newell, George A., assignor.)						
Strickler, Henry E. (See Light and Bussert, assignors.)						
Strobach, Francis, Victoria, Tex. Machine for destroying cotton-boll weevil, &c	640,829	Jan. 9	1303	292	90	274
Stroh, John M. A., London, England. Violin or other stringed instrument	644,695	Mar. 6	254	56,57	90	1804
Stromberg, Alfred, Chicago, Ill. Telephone-transmitter	643,880	Feb. 20	2303	542	90	1449
Strong, Abner D., Ashtabula, Ohio. Water-distributing system	645,876	Mar. 20	2434	535	90	2266
Strong, Edwin J., Plover, Iowa. Automatic feeder for steam-boilers	646,083	Mar. 27	2834	629	90	2362

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Stroock, Joseph, New York, N. Y. Plush lap-robe	644,809	Mar. 6	468	100	90	1847
Stroud, Arnold, London, England. Pulley	641,416	Jan. 16	2422	553	90	506
Stroup, Randolph C. (See Condy, Joseph H., assignor.)						
Strow, Clarence D. (See Strow, John L. and C. D.)	646,012	Mar. 27	2701	599	90	2335
Strow, John L. and C. D., Fort Dodge, Iowa. Display-cabinet						
Struven, Charles M. (See White, Charles H., assignor.)	643,013	Feb. 6	781	181	90	1118
Stuart, Charles J., Puyallup, Wash. Refrigerator-box	643,735	Feb. 20	2144	503	90	1419
Stuart, Edwin T., Ottawa, Kans. Envelop	642,702	Feb. 6	344	84	90	1084
Stubbs, Frederic, and L. Burrows, Sheffield, England. Projectile for rifled guns	641,653	Jan. 16	2869	652	90	592
Stump, Ira E., assignor to E. S. Raff, Canton, Ohio. Top	642,808	Feb. 6	416	101	90	1047
Stumpf, John, Berlin, Germany. Valve	643,831	Feb. 20	2907	542 543 544	90	1450
Stumpf, John, Chicago, Ill. Hydraulic motor						
Sturm, James C., Knottsville, W. Va., assignor of one-half to W. Jennings. Railway-switch	644,264	Feb. 27	3110	731 732	90	1622
Sturtevant Mill Company. (See Sturtevant, Thomas L. and T. J., assignors.)						
Sturtevant, Thomas J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Newton, Mass. Crushing-mill or disintegrator	641,346	Jan. 16	2305	524	90	492
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Newton, Mass. Crushing-mill	642,016	Jan. 23	3514	803 804	90	726
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Newton, Mass. Crushing-mill	642,017	Jan. 23	3516	804	90	727
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Framingham, Mass., assignors to Sturtevant Mill Company, of Maine. Crushing-mill	641,654	Jan. 16	2860	652	90	592
Subrenat, Raoul, St. Julien, France. Apparatus for mercerizing	643,781	Feb. 20	2225	525	90	1434
Sugg, George P., assignor of one-half to R. Pitt and P. West, St. Lewis, N. C. Basket	641,245	Jan. 9	2131	480	90	434
Sui, Ding C., assignor to G. S. Miner and W. N. Brewster, Foochow, China. Spinning-machine	640,716	Jan. 2	1063	242 243	90	205
Sullivan, James C., *et al.* (See Davis, Benjamin I., assignor.)						
Sullivan, John J. (See Hill and Hitchcock, assignors.)	645,434	Mar. 13	1613	353	90	2091
Sullivan, Samuel F., Pittsburg, Pa. Hook and eye	645,435	Mar. 13	1615	353	90	2091
Sulzbacher, Jerome, New York, N. Y. Garment-supporter	643,556	Feb. 13	1771	417 418	90	1331
Summerlin, Solomon A., Kirkland, Ga. Stalk-cutter	646,195	Mar. 27	3056	674 675	90	2405
Summers, Edgar W., Akron, Ohio. Car-bottom	646,196	Mar. 27	3057	675 676	90	2405
Summers, Edgar W., Akron, Ohio. Metallic car						
Sumner, Arthur M., *et al.* (See Hahn, Edward, assignor.)	645,762	Mar. 20	2242	485	90	2227
Sundh, August, Yonkers, N. Y. Measuring-faucet	645,763	Mar. 20	2243	486	90	2227
Sundh, August, Yonkers, N. Y. Faucet	645,764	Mar. 20	2245	486 487	90	2228
Sundh, August, Yonkers, N. Y. Train-controlling apparatus for electric cars	645,765	Mar. 20	2247	487	90	2228
Sundh, August, Yonkers, N. Y. Controlling apparatus for electric cars	645,766	Mar. 20	2249	488 489	90	2229
Sundh, August, Yonkers, N. Y. Controlling device for mechanical apparatus	645,767	Mar. 20	2254	489 490	90	2230
Sundh, August, Yonkers, N. Y. Controller for electric-railway cars	642,171	Jan. 30	3811	808	90	802
Suppes, Maximilian M., Elyria, Ohio. Elevator-bucket						
Suppes, Maximilian M., Elyria, and J. M. Dortch, Cleveland, assignors to Cochran Company, Lorain, Ohio. Refrigerating system	641,615	Jan. 16	2792	635	90	579
Surbridge, Randolph C. (See Perry, Philip E., assignor.)						
Suren, Nathan H., Newton, Mass., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Automatic time-stamp	646,013	Mar. 27	2708	599 600	90	2336
Sutherland, Alfred W., assignor to I. G. Sutherland & Sons, Haverhill, Mass. Shoe-former or last	641,905	Jan. 23	3315	753	90	687
Sutherland, James C., Erdington, England. Gas-meter	640,974	Jan. 9	1000	354 355	90	329
Sutherland & Sons, I. G. (See Sutherland, Alfred W., assignor.)						
Sutherland, William L. (See Robinson and Sutherland.)	645,398	Mar. 13	1438	316	90	2056
Sutton, Lulu M., St. Clairsville, Ohio. Milliner's box	640,288	Jan. 2	155	32	90	32
Svenson, John A., Chicago, Ill. Steam-engine	644,748	Mar. 6	331	74	90	1819
Svensson, Claes A., assignor of one-half to W. W. Oliver, Buffalo, N. Y. Screw-tap	644,696	Mar. 6	256	57	90	1805
Swain, Frederick F., Chicago, Ill. Piston-rod packing	642,934	Feb. 6	648	148	90	1092
Swan, Frederick A., Boston, Mass. Telephonic instrument	643,169	Feb. 13	1080	249	90	1197
Swan, Henry C., Oshkosh, Wis. Shaft-clamp	643,832	Feb. 20	2313	544 545	90	1451
Swan, John L. (See McDaniels and Swan.)						
Swan, John W., Lima, Ohio. Pumping-jack	644,896	Mar. 6	521	112	90	1858
Swann, Frank H., and D. F. Brown, St. Louis, Mo. School-desk	642,731	Feb. 6	393	72	90	1029
Swanson, Olof A., Minneapolis Minn. Rotary blacking-brush	642,643	Feb. 6	138	34	90	993
Swanson, Sven B. (See Norden, William L., assignor.)	644,477	Feb. 27	3506	813	90	1699
Swanton, Hugh, London, England. Implement for removing pneumatic tires						
Swarm, Emery E., Calamus, Iowa. Combination-tool for wireworking						
Swartz, Silas. (See Brueche, Max R., assignor.)	641,753	Jan. 23	3042	692	90	635
Swartz, William P. (See Klein and Swartz.)						
Swartzbaugh, Charles E., Toledo, Ohio. Steam-cooker	642,885	Feb. 6	502	129	90	1076
Swasey, Ambrose, assignor to Warner & Swasey, Cleveland, Ohio. Roller-feed for screw-machines	642,884	Feb. 6	559	120	90	1075
Swasey, Ambrose, and H. M. Lucas, assignors to Warner & Swasey, Cleveland, Ohio. Roller-feed for screw-machines	640,830	Jan. 9	1304	292	90	274
Swayze, Frank M., St. David's, Canada. Changeable gear for bicycles	643,557	Feb. 13	1772	418	90	1331
Swearingen, John V. (See Viles, Joseph T., assignor.)						
Swearingen, Samuel P., Pasadena, Cal. Wave-motor	643,074	Feb. 6	891	210	90	1138
Sweeney, Thomas J., Detroit, Mich. Apparatus for feeding anti-incrustation compounds to boilers	642,172	Jan. 30	3812	808	90	802
Sweitzer, Charles C., Mishawaka, Ind., assignor of three-fourths to W. S. Hemperly, Harrisburg, and C. R. Harris, Williamsport, Pa. Carpet-sweeper						
Swift & Company. (See Brooks, Maynard E., assignor.)						
Swift & Company. (See Holder, Fred C., assignor.)						
Swift, Gustavus F. (See Gardner, Horace C., assignor.)	645,045	Mar. 6	891	198	90	1934
Swift, James H., Punta Gorda, Fla. Lid for cooking utensils	644,376	Feb. 27	3341	775	90	1666
Swift, William H., Revere, Mass. Shutter-fastener	641,560	Jan. 16	2700	615	90	560
Sykes, John, Greensburg, Pa. Antirattling thill-coupling						
Sykes, Raymond G., *et al.* (See Turnbull, George A., assignor.)						
Sykes, Raymond G., Niles, Ohio. Grave-vault	642,504	Jan. 30	4428	1006	90	924

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Sylvester, Philip L., Scranton, Pa. Machine for mixing and preparing plastic material	644,810	Mar. 6	469	100 101	90	1847
Sylvester, Philip L., Scranton, Pa. Machine for making buttons	644,811	Mar. 6	472	101 102	90	1848
Symphonion Manufacturing Company. (See Natterer, Josef, assignor.)						
Symphonion Manufacturing Company. (See Wilson, Joseph L., assignor.)						
Synnott, Thomas W., Wenonah, N. J. Globe	641,166	Jan. 9	1970	436	90	402
Szamatolski, Hugo, Frankfort-on-the-Main, Germany. Superheater	643,990	Feb. 20	2612	617	90	1512
Szamatolski, Hugo, Frankfort-on-the-Main, Germany. Fluid-interchanging device	646,878	Mar. 27	3456	769	90	2487
Szimay, Georg, Buda-Pesth, Austria-Hungary. Multiple-cylinder air-compressing engine	642,886	Jan. 30	4236	957	90	886
Szymanski, Franz, Berlin, Germany. Machine for splitting raw or crushed fiber	641,167	Jan. 9	1971	437	90	402
Tabor, Thomas H., Ellijay, Ga. Wagon-body hoist	642,856	Feb. 6	499	117	90	1063
Taft, Cyrus A., executor. (See Woodmancy, Henry F.)						
Taggart, George, Nichols Junction, Mo. Box-machine	643,279	Feb. 13	1276	299 300 301	90	1235
Tagliani, Giovanni, Milan, Italy. Dyeing fabrics	646,379	Mar. 27	3457	.....	90	2487
Taft, James F., Evanston, Ill. Thill-coupling	643,209	Feb. 13	1146	268	90	1211
Talbott, John W. (See Strader, Julius G., assignor.)						
Tallman, George W., New York, N. Y. Sign	640,333	Jan. 2	333	70	90	67
Tallet, José E., Matanzas, Cuba. Sugar-cane carrier	643,558	Feb. 13	1774	418 419	90	1332
Tamzarian, Hovhannes, Paterson, N. J. Toy	643,426	Feb. 13	1535	361	90	1284
Tandler, Antone, Chicago, Ill. Steam-engine valve	645,194	Mar. 13	1184	257	90	2006
Tanner, Charles, Cheneyville, La. Cultivator	640,239	Jan. 2	159	33	90	33
Tanner, James M., and A. R. Willett, Cape Girardeau, Mo. Union garment	645,694	Mar. 20	2100	461	90	2200
Tanner, William C., London, England. Combined portable hammock and tent	640,334	Jan. 2	334	70	90	67
Tarr, John P. (See Hatfield and Tarr.)						
Tarr, John P., Augusta, Ill. Gate	643,559	Feb. 13	1775	419	90	1332
Tassell, George W., *et al.* (See Gipe, Emanuel C., assignor.)						
Tate, John B., Altoona, Pa. Locomotive	643,560	Feb. 13	1776	419	90	1333
Tatro, Charles P., and G. Dellus, assignors to H. S. Sharpe, Seattle, Wash. Electrolytic apparatus for extracting precious metals	640,717	Jan. 2	1067	248	90	206
Tatro, Charles P., and G. Dellus, assignors to H. S. Sharpe, Seattle, Wash. Extracting precious metals	640,718	Jan. 2	1069	243	90	207
Tattu, Radu, Philadelphia, Pa. Iron bedstead	643,833	Feb. 20	2314	545	90	1451
Tatum, Charles A., assignor to Whitall, Tatum & Co., New York, N. Y. Atomizer	643,014	Feb. 6	782	182	90	1118
Taylor Burner and Electro-Plating Company. (See Taylor, William G., assignor.)						
Taylor, Charles A., assignor of one-half to G. C. Peak, J. E. Eddings, and C. Crisp, Winchester, Ill. Fence-weaving implement	640,240	Jan. 2	162	33	90	34
Taylor, Charles S., New York, N. Y. Injector	646,111	Mar. 27	2861	638	90	2371
Taylor, Clarence W., Sioux City, Iowa. Toy	645,877	Mar. 20	2435	536	90	2267
Taylor, Clarence W., Sioux City, Iowa. Device for extracting juices from fruits	645,923	Mar. 20	2520	557	90	2282
Taylor, Frederick W., Philadelphia, Pa. Apparatus for grinding balls	643,696	Feb. 20	2067	488	90	1405
Taylor, George, *et al.* (See Best, Edward, assignor.)						
Taylor, George B., Birmingham, England. Machine for cutting spiral and helical teeth in chuck-jaws	643,991	Feb. 20	2614	617	90	1512
Taylor, Harry J., Burlington, N. J. Pipe-molding machine	645,498	Mar. 13	1726	378	90	2112
Taylor, Henry H., Bridgeport, Conn. Safety-pin	645,633	Mar. 20	1992	438	90	2178
Taylor, Henry H., Bridgeport, Conn. Bustle	645,634	Mar. 20	1993	438	90	2178
Taylor, Isaiah H., assignor of one-half to A. G. Dalton, Richmond, Va. Match-receptacle	643,561	Feb. 13	1777	420	90	1333
Taylor, James F., Greenbrier, Ark. Harrow	644,111	Feb. 27	2827	669	90	1569
Taylor, James L., Newark, N. J. Clamp	640,500	Jan. 2	644	189	90	126
Taylor, John B. (See McCarroll, William H., assignor.)						
Taylor, Miles D., Janesville, Wis. Wire-fence machine	646,112	Mar. 27	2883	639 640 641	90	2371
Taylor, Robert D., Strand, Iowa. Folding draw-bar for harrows	644,218	Feb. 27	3024	716	90	1607
Taylor, Samuell W., Baltimore, Md., assignor of one-half to R. H. MacClernan, Philadelphia, Pa. Moistening device	645,143	Mar. 13	1097	234	90	1988
Taylor, Warren H., Stamford, Conn. Device for disinfecting telephones, &c.	643,309	Feb. 13	1822	312	90	1244
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Key	641,807	Jan. 23	3133	712	90	653
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Lock and latch	645,610	Mar. 20	1947	429	90	2170
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Lock	646,840	Mar. 20	2377	521	90	2255
Taylor, William G., assignor to Taylor Burner and Electro-Plating Company, Limited, Pittsburg, Pa. Thermostatic regulator	641,655	Jan. 16	2863	652	90	593
Taylor, William G., assignor to Taylor Burner and Electro-Plating Company, Limited, Pittsburg, Pa. Water-heater and burner therefor	641,656	Jan. 16	2865	653	90	594
Taylor, William G., assignor to Taylor Burner and Electro-Plating Company, Limited, Pittsburg, Pa. Water-heater attachment	641,657	Jan. 16	2866	653	90	594
Taylor, William O., Norristown, Pa., assignor to Postal Improvement Company, Wheeling, W. Va. Stamp order and delivery case	643,992	Feb. 20	2615	618	90	1512
Taylor, Zane B., and O. W. Moore, Orbisonia, Pa. Folding crate	643,562	Feb. 13	1779	420	90	1333
Teale, Walter, Hamilton, Canada. Rapid-fire pyrotechnic gun	645,436	Mar. 13	1616	353 354	90	2091
Tebbetts, Clinton H., Lexington, Ky. Monkey-wrench	640,831	Jan. 9	1305	293	90	274
Teel, Henry C. (See Scott and Teel.)						
Teller, James C., McCook, S. D. Game or puzzle	643,170	Feb. 13	1061	250	90	1197
Templed, Théophile, and G. Dumartin, Paris, France. Preparing peat for surgical use	642,387	Jan. 30	4237	.....	90	887
Temple, O. E. (See Temple, William F., assignor.)						
Temple, William F., assignor of one-fourth to O. E. Temple, Elsberry, Mo. Rotary engine	642,644	Feb. 6	139	34	90	993
Templeton, Stephen S., Dunreath, Iowa. Automatic valve for watering-troughs	643,427	Feb. 13	1536	361	90	1284
Ten Winkel, August, Denver, Colo. Ore-concentrator	641,248	Jan. 9	2136	481	90	435
Tendick, Henry, Manitowoc, Wis. Paper-holder	643,917	Feb. 20	2489	586	90	1486
Tenham, Herman, Brandon, Wis. Lubricator for windmills	644,806	Feb. 27	3205	750	90	1641
Tennant, Joshua, Carson City, Mich. Gate	645,842	Mar. 20	2381	522	90	2256
Tennyson, John W., Opdyke, Ill. Camp-chair	645,878	Mar. 20	2437	536	90	2267
Tentschert, Florian, and L. Czischek, Vienna, Austria-Hungary. Means for elevating or lowering ships	643,171	Feb. 13	1063	250 251	90	1198

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page
Ter Meulen, Carel E. (See Van Viersen, Molière, and Ter Meulen.)						
Terney, Elisabeth, *et al.* (See Kerekes, Deniel, assignor.)						
Ternström, Ernst, Paris, France. Automatic machine-gun	642,018	Jan. 23	3519	805 / 806	90	727
Terry, Howell P., New York, N. Y. Self-heating sad-iron	641,168	Jan. 9	1974	437	90	403
Terry, Samuel L., Chicago, Ill., assignor of one-half to W. Stretton, Phillipsburg, Kans. Air-meter	644,340	Feb. 27	3282	763	90	1654
Tesla, Nikola, New York, N. Y. System of transmission of electrical energy	645,576	Mar. 20	1867	412	90	2153
Teter, William L., Philadelphia, Pa. Smoke-consuming and fuel-economizing furnace	643,563	Feb. 13	1781	421	90	1333
Teter, William L., and J. A. Heany, Philadelphia, Pa. Electric water-filter	640,335	Jan. 2	396	70	90	67
Tetlow, Henry, Manchester, England. Wire-feed	642,173	Jan. 30	3814	869	90	802
Textorius, Knut O. B., assignor of nine-twentieths to J. J. Howard, Boston, Mass. Air-compressor	643,918	Feb. 20	2490	595 / 596	90	1486
Thame, James R., Holcomb Valley, Cal. Fiber pulley	643,782	Feb. 20	2226	625	90	1434
Thayer, Emily W., Shirley, Mass. Abdominal hose-supporting belt	643,754	Feb. 20	2178	511	90	1425
Thayer, Russell, Philadelphia, Pa., assignor to Kitson Hydro-Carbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Supply-wagon for incandescent or other hydrocarbon burners	642,703	Feb. 6	345	84	90	1034
Thayer, William H., Harvey, assignor to George M. Clark & Company, Chicago, Ill. Carbureter	640,832	Jan. 9	1307	208	90	275
Theall, Robert S., Fort Pierre, S. D. Current-motor	642,935	Feb. 6	651	148 / 149	90	1062
Theilgaard, Albert E. J. V. J., Copenhagen, Denmark. Devulcanizing caoutchouc, india-rubber, &c.	642,764	Feb. 6	347	.....	90	1034
Theis, Henry W., assignor of two-thirds to G. Podoll, and G. H. Gottschalk, Milwaukee, Wis. Tire for vehicle-wheels	641,735	Jan. 23	3010	687	90	620
Theis, Jacob W. (See Steere, Amos C., assignor.)	646,327	Mar. 27	3319	740	90	2455
Therien, Joseph H., San Francisco, Cal. Drying-room	644,377	Feb. 27	3343	776	90	1060
Theuret, John H., Pittsburg, Pa. Animal-trap	641,616	Jan. 16	2736	635	90	579
Thexton, Henry A., St. Thomas, N. D. Self-inking stamp						
Thibault, Edmond H., assignor of one-half to G. N. Marshall, Waterbury, Conn. Attachment for cycle-saddles	641,169	Jan. 9	1975	438	90	403
Thielmann, Kaspar D. H., Kiel, Germany. Table, seat, &c., having folding legs	643,015	Feb. 6	784	182	90	1119
Thiersant, Henri de, London, England. Acetylene-gas apparatus	641,417	Jan. 16	2422	553 / 554	90	590
Thirion, Philip C., Missoula, Mont. Fire-escape	644,265	Feb. 27	3112	782	90	1023
Thobaben, Edward J., *et al.* (See Stoddard and Richards, assignors.)	643,697	Feb. 20	2069	488	90	1405
Thoele, Henry H., and C. W. H. Moeller, Florence, Ala. Operating furnace-doors	641,561	Jan. 16	2701	615	90	561
Thoens, Burchard, New Orleans, La. Centrifugal vacuum-pump	642,732	Feb. 6	304	72	90	1027
Thom, Jessie, Hetton-le-Hole, England. Waistband						
Thoma, Andrew, Cambridge, assignor to A. M. Lougee, Boston, Mass. Applying lining material to conduits, pipes, or the like	642,537	Jan. 30	4481	1017	90	934
Thoma, Andrew, Cambridge, assignor to A. M. Lougee, Boston, Mass. Armored insulating-conduit	642,538	Jan. 30	4484	1017	90	934
Thoma, Andrew, Cambridge, assignor to A. M. Lougee, Boston, Mass. Lining conduits, pipes, or the like	642,539	Jan. 30	4487	1017 / 1018	90	934
Thoma, James K., Winfield, Kans. Wire-fence machine	643,919	Feb. 20	2495	587	90	1488
Thomann, Karl, Halle, Germany. Rotary engine	645,437	Mar. 13	1618	354	90	2092
Thomas, Abner D., Little Rock, Ark. Cotton-gin	644,155	Feb. 27	2902	087	90	1583
Thomas, Abner D., Little Rock, Ark. Safety attachment for cotton-gins	644,156	Feb. 27	2905	087 / 088	90	1584
Thomas, Edouard J. Bonavita, and M. Olivier, Paris, France. Manufacture of viscose	646,044	Mar. 27	2767	.....	90	2348
Thomas, Edward G., Boston, Mass. Roll-book for photographic films	644,112	Feb. 27	2828	699	90	1509
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Automatic off-setting for sawmill-carriages	640,501	Jan. 2	646	139 / 140	90	127
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Yielding guide for band-saw mills	640,502	Jan. 2	648	140	90	127
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Steam log-turner	640,503	Jan. 2	650	140 / 141	90	128
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Steam log-turner	640,504	Jan. 2	652	141 / 142	90	128
Thomas, George E., Philadelphia, Pa. Apparatus for gas analysis	640,601	Jan. 2	834	185	90	163
Thomas, Jacob W., Mount Morris, Ill. Washing-machine	640,975	Jan. 9	1601	355	90	329
Thomas, James and W. R., Catasauqua, Pa. Insulator for use on electric railways	644,646	Mar. 6	162	36	90	1786
Thomas, James G., *et al.* (See Baker, William M., assignor.)						
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Feeding device for woodworking-machines	640,833	Jan. 9	1308	203 / 204	90	275
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Planing-machine	642,733	Feb. 6	905	72, 73	90	1027
Thomas, John R., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Abrading-machine	645,578	Mar. 20	1880	414 / 415	90	2155
Thomas, John R., Cincinnati, and H. S. Spencer, Bond Hill, assignors to J. A. Fay & Egan Company, Cincinnati, Ohio. Clamping device	642,178	Jan. 30	3823	870	90	804
Thomas, John R., Cincinnati, and H. S. Spencer, Bond Hill, assignors to J. A. Fay & Egan Company, Cincinnati, Ohio. Boring-machine	642,645	Feb. 6	140	34, 35	90	993
Thomas, John R., Cincinnati, and H. S. Spencer, Bond Hill, assignors to J. A. Fay & Egan Company, Cincinnati, Ohio. Planing-machine	645,577	Mar. 20	1872	412 / 413	90	2153
Thomas, Martin E. (See Votaw and Thomas.)						
Thomas, Myron C., assignor of one-half to F. E. Munn, Waverly, N. Y. Spectacle or eyeglass mounting	645,879	Mar. 20	2437	536	90	2267
Thomas, Nicholas, Burlington, Wis. Panoramic camera	645,276	Mar. 13	1326	288 / 289	90	2034
Thomas Phillips Company. (See Dana, Frederick I., assignor.)						
Thomas, Robert J. (See Campbell, Loudoun, assignor.)						
Thomas, William F., Burlington, Iowa. Vehicle-wheel	641,736	Jan. 23	3011	687	90	629
Thomas, William R. (See Thomas, James and W. R.)						
Thompson, Charles T., Philadelphia, Pa. Apparatus for compacting feathers into tubes	640,602	Jan. 2	886	186 / 187	90	163
Thompson, Charles T., Philadelphia, Pa. Apparatus for compacting feathers into tubes	640,719	Jan. 2	1070	244 / 245	90	207
Thompson, Charles W., Ontario, Cal. Washing-machine	645,841	Mar. 20	2379	521	90	2255
Thompson, Edward, Pasadena, Cal. Fruit-drier	642,177	Jan. 30	3822	870	90	804
Thompson, Edward L., Washington, D. C. Coin-box	645,685	Mar. 20	1994	438	90	2179
Thompson, Francis E. (See Young and Thompson.)						
Thompson, Frank M., assignor of one-half to W. G. Bryan, Wilmington, Del. Eyeglasses	645,339	Mar. 13	1439	317	90	2056

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Thompson, Fred C., Burton, Wash. Power-transmitter for windmills	642,936	Feb. 6	652	140	90	1062
Thompson, George K., Malden, assignor to American Bell Telephone Company, Boston, Mass. Registering apparatus and circuit for telephonic measured service	641,737	Jan. 23	3913	687 / 688	90	630
Thompson, George K., Malden, and E. C. Robes, Medford, assignors to American Bell Telephone Company, Boston, Mass. Selective signal for telephone-circuits	644,647	Mar. 6	164	37	90	1787
Thompson, George L., Chicago, Ill. Steering-head for velocipedes	640,834	Jan. 9	1313	294	90	276
Thompson, George L., Chicago, Ill. Velocipede crank-hanger	641,907	Jan. 23	3319	754	90	988
Thompson, Hugh M., St. Louis, Mo. Amalgamator	641,868	Jan. 23	3134	712	90	653
Thompson, James, Greeley, Colo. Bag-holder	641,055	Jan. 9	1754	390	90	358
Thompson, John S., Chicago, Ill., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	645,498	Mar. 13	1622	375	90	2093
Thompson, John S. W., *et al.* (See Webb, Zaida B., assignor.)						
Thompson, Joseph W., Salem, Ohio. Riveting implement	643,340	Feb. 13	1376	322 / 323	90	1255
Thompson, Joseph W., and L. T. French, Salem, Ohio, assignors to H. W. Hartman, trustee, Ellwood City, Pa. Rivet-setting implement	643,339	Feb. 13	1374	322	90	1254
Thompson & Norris Company. (See Watt, William, assignor.)						
Thompson, Rector M., Brumley, Mo. Wagon-standard	641,347	Jan. 16	2308	524	90	483
Thompson, Thomas, Lima, Ohio. Bottle	640,976	Jan. 9	1602	355	90	329
Thompson, Thomas E., Leominster, Mass. Educational appliance or game	641,738	Jan. 23	3018	688	90	630
Thompson, Thomas E., Leominster, Mass. Educational appliance or game	641,739	Jan. 23	3019	688	90	631
Thompson, William E., Nevada, Mo. Lamp-burner	645,340	Mar. 13	1440	317	90	2056
Thompson, William E., Roseville, Mo. Attachment for infants' chairs	646,084	Mar. 27	2835	629	90	2362
Thompson, William J., West Kogarah, New South Wales. Driving mechanism	643,564	Feb. 13	1783	421 / 422	90	1334
Thompson, William R. (See Mansfield and Thompson.)						
Thoms, John B., Knoxville, Tenn. Vat for leaching bark	645,439	Mar. 13	1626	355 / 356	90	2093
Thomsett, Harry, Leicester, England. Brake for children's carriages	642,019	Jan. 23	3524	807	90	728
Thomson, Elihu, Swampscott, Mass. Internal-combustion engine	642,776	Jan. 30	3820	870	90	803
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. High-potential apparatus	645,675	Mar. 20	2064	453	90	2192
Thomson, Frank D., *et al.* (See Thomson, Presson W., assignor.)						
Thomson, George P. (See Thomson, Henry H. and G. P.)						
Thomson, Henry H. and G. P., Wakarusa, Kans. Horse-detacher	642,646	Feb. 6	144	36	90	994
Thomson, John, New York, N. Y. Compound gear-train for water-meters	642,705	Feb. 6	347	85	90	1034
Thomson, John, New York, N. Y. Water-meter	642,706	Feb. 6	349	85	90	1035
Thomson, Presson W., Yates City, assignor of two-thirds to F. D. and P. W. Thomson, Jr., Galesburg, Ill. Corn-planter	646,045	Mar. 27	2768	614	90	2348
Thorndike, Mary V., New York, N. Y. Safety-pin	646,241	Mar. 27	3160	698	90	2426
Thorne, Chessman W., Greenport, N. Y. Ash-ejector	646,328	Mar. 27	3220	740 / 741	90	2455
Thorne, Oakleigh. (See Mapes, Victor, assignor.)						
Thorne, William H. (See Bancroft and Thorne.)						
Thornton, Frances E., Sulphur Springs, Tex. Bonnet	640,720	Jan. 2	1073	245	90	208
Thornton, John E., and J. P. Lea, Altringham, England. Motor-driven vehicle	644,950	Mar. 6	718	155 / 156	90	1898
Thornton, John E., Altringham, and J. P. Lea, Manchester, England. Internal-combustion engine	644,951	Mar. 6	719	156	90	1898
Thornton, T. B., *et al.* (See Powell, Benjamin W., assignor.)						
Thornycroft, John E., London, England. Steam-boiler	640,505	Jan. 2	655	142	90	128
Thornycroft, John E., London, England. Fastening of condenser-tubes	641,617	Jan. 16	2705	636	90	579
Thorp, Lucian G., Akron, Ohio. Fruit-jar-cover fastening	642,886	Feb. 6	565	129	90	1076
Thrall, Edwin A., Torrington, Conn. Blind-slat retainer	643,565	Feb. 13	1786	422	90	1334
Threlkeld, John H., Indianola, Iowa. Cattle-guard	641,740	Jan. 23	3020	688	90	631
Thron, Heinrich, assignor to Vereinigte Chininfabriken, Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Making quinin carbonic ether	640,977	Jan. 9	1604	.....	90	329
Thrupp, Edgar C., Walton-upon-Thames, England. Apparatus for refrigerating and liquefying air or other gases	642,505	Jan. 30	4429	1006 / 1007	90	924
Thruston, Mynna, Dayton, Ohio. Educational appliance	645,440	Mar. 13	1627	356	90	2094
Thuestad, Morthen J., assignor to E. M. Lind, San Francisco, Cal. Door-catch	643,612	Feb. 13	1875	441	90	1353
Thum, William, Pasadena, Cal. Bicycle-rack	643,016	Feb. 6	784	182 / 183	90	1119
Thuot, Zephirin, Fall River, Mass. Shuttle for looms	645,695	Mar. 20	2102	461	90	2201
Thuringer, Georg, Nuremberg, assignor to E. G. May Soehne, Frankfort-on-the-Main, Germany. Producing colored designs	646,395	Mar. 27	3483	.....	90	2492
Thurmond, Charles A., Perry, Ga. Cotton-cultivator	644,812	Mar. 6	478	102	90	1849
Thurmond, Walter J., and E. W. Clark, Macon, Ga. Dental appliance	641,170	Jan. 9	1976	438	90	403
Thurnauer, Gustav, Aurora, Ill. Separating precious metals from their mixtures with zinc	642,767	Feb. 6	350	.....	90	1035
Thurston, John J. and J. T., Friendship, N. Y. Stanchion	642,647	Feb. 6	146	36	90	994
Thurston, John T. (See Thurston, John J. and J. T.)						
Tibbetts, Daniel B., *et al.* (See Hovey, Frank L., assignor.)						
Tibbits, Artemus J., Southfield, Mich. Cold-storage apparatus or system	645,407	Mar. 13	1572	343	90	2083
Tichborne, Joseph, Glade Mills, Pa. Oil-well apparatus	644,341	Feb. 27	3284	764	90	1655
Tiedewitz, Alphons, St. Petersburg, Russia. Edge-protector for trousers	642,768	Feb. 6	352	85	90	1035
Tiefel, Charles G., Rochester, assignor, by mesne assignments, to R. H. Canfield, Corning, N. Y. Back-pedaling brake	644,648	Mar. 6	170	37	90	1788
Tierney, Edward J., assignor of two-thirds to A. P. Weitz and C. Englert, Jr., Rochester, N. Y. Bicycle-support	643,566	Feb. 13	1787	422	90	1335
Tierney, Martin H., *et al.* (See Herbert, Thomas F., assignor.)						
Tilden, Bert O., Hartford, Conn. Lavatory-trap	640,430	Jan. 2	536	112	90	105
Tilford, George H., assignor to P. Wunderle, Providence, R. I. Joint for pin-tongues	644,542	Feb. 27	3031	845	90	1722
Tilford, Mary E. (See Williams and Tilford, assignors.)						
Tilford, Robert J. (See Williams and Tilford.)						
Tillotson, Henry C., Lincoln County, assignor of one-half to R. H. Norton, O. H. Avery, and W. R. Young, Troy, Mo. Fire-escape	641,809	Jan. 23	3187	712	90	654
Timme, Edward F., *et al.* (See Langer, Henry, assignor.)						
Timme, Otto, *et al.* (See Langer, Henry, assignor.)						
Timmis, Illins A., London, England. Making meat foods	643,567	Feb. 13	1788	.....	90	1335
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Car-coupling	645,304	Mar. 13	1376	300	90	2043
Tindel, Adam, and O. Albrecht, Philadelphia, Pa. Crank-pin or eccentric turning-lathe	643,172	Feb. 13	1086	251 / 252	90	1199
Tindle, James R. (See Burgham, Oliver H., assignor.)						
Tingley, Philo B., New York, N. Y. Clasp	642,174	Jan. 30	3815	869	90	802

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Tinney, Thomas B., Philadelphia, Pa. Bicycle-carousel	644,478	Feb. 27	3507	814	90	1090
Tintanné, Emile, Providence, R. I. Ellipsograph	646,329	Mar. 27	3322	741	90	2456
Tirrell, Edwin P., assignor of one-half to J. D. Crosby, Boston, Mass. Holder for eye-glasses, &c	641,053	Jan. 9	1751	389	90	358
Tirrell, James, Jr., Weymouth, assignor of one-half to T. Arnold, Abington, Mass. Nut-lock	641,054	Jan. 9	1752	389	90	358
Tisdale, Albert A., and G. T. Lamont, assignors to Whitney-Reed Chair Company, Leominster, Mass. Go-cart	641,658 642,272	Jan. 16 Jan. 30	2867 4003	653 911	90 90	594 889
Tissot, Ernest, Paris, France. Letter-card and telegraph-card	643,755	Feb. 20	2179	511 512	90	1426
Titchett, Joseph, Warrington, England. Gas-stove	642,175	Jan. 30	3817	869 870	90	803
Titus, John, Oyster Bay, and W. Titus, North Hempstead, N. Y. Excavating apparatus	643,568	Feb. 13	1790	423 424	90	1335
Titus, John C., assignor to Farmer's Manufacturing Company, Norfolk, Va. Basket-stapling machine	646,330	Mar. 27	3325	742	90	2457
Titus, William. (See Titus, John and W.)						
Tobey, Fred W., Grand Rapids, Mich. Card-filing case	641,474	Jan. 16	2542	581	90	529
Tobin, George J. (See Whitaker, Charles H., assignor.)						
Todd, Marquis J., Buffalo, N. Y. Harrow-tooth holder	642,506	Jan. 30	4432	1007 1008	90	924
Todd, Marquis J., Buffalo, N. Y. Harrow	643,834	Feb. 20	2315	545 546	90	1451
Toerring, Christian J., Philadelphia, Pa. Electric-arc lamp	640,336	Jan. 2	337	71	90	67
Tokheim, John J., Thor, Iowa. Measuring-pump	645,144	Mar. 13	1097	234 235	90	1989
Tolman, Henry. (See Kenney, Thomas, Jr., assignor.)						
Tolson, Thomas, Boston, Mass. Velocipede	645,579	Mar. 20	1885	415	90	2157
Tolson, Thomas, Boston, Mass. Velocipede						
Tomkinson, Arthur. (See Holdcroft, Jackson, and Tomkinson.)						
Tomlins, Herbert. (See Gurr and Tomlins.)	643,210	Feb. 13	1147	268 269	90	1211
Tomlinson, Albert D., Boston, Mass. Sofa-bed	642,388	Jan. 30	4238	957	90	887
Tomlinson, Henry, Lawrence, Mass. Loom-shuttle	644,378	Feb. 27	3344	776	90	1096
Toms, George E., Vancouver, Canada. Office-door message-box						
Tonge, Alfred J., J. Tonge, Jr., Westhoughton, and E. Eaves, Derby, England. Hydraulic press for mining purposes	644,782	Mar. 6	415	90	90	1837
Tonge, James, Jr. (See Tonge and Eaves.)	645,606	Mar. 20	2103	462	90	2201
Topp, Charles H., Huntington, W. Va. Blow-off valve	644,479	Feb. 27	3508	814 815	90	1760
Topp, James H., and E. Vosburgh, Johnstown, N. Y. Leather-working machine	642,507	Jan. 30	4435	1008	90	925
Topping, Wilbur, Harvey, Ill. Roasting-pan	641,475	Jan. 16	2543	582	90	529
Torres, Enrique, Guadalajara, Mexico. Repeating clock	641,476	Jan. 16	2546	582 583	90	529
Torres, Enrique, Guadalajara, Mexico. Repeating striking mechanism for clocks	641,477	Jan. 16	2550	583	90	530
Torres, Enrique, Guadalajara, Mexico. Repeating clock	641,478	Jan. 16	2552	584	90	530
Torres, Enrique, Guadalajara, Mexico. Repeating watch	640,337	Jan. 2	338	71	90	68
Torrey, Augustus, Detroit, Mich. Dumping-car	641,479	Jan. 16	2554	584	90	531
Tottle, John W., assignor to W. A. Tottle, Baltimore, Md. Means for attaching handles to brushes						
Tottle, William A. (See Tottle, John W., assignor.)						
Tournier, Julius C., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrical switch	645,984	Mar. 27	2642	586	90	2324
Tourville, Charles B., assignor of one-half to E. M. Osborn, St. Louis, Mo. Percolator for coffee or tea pots	645,277	Mar. 13	1328	289	90	2084
Touse, Ira M., Frontier, Mich. Combined hay and stock rack	641,562	Jan. 16	2703	616	90	561
Tousignant, Francis, and P. Larange, St. Hyacinthe, Canada. Pegging-machine	642,540	Jan. 30	4489	1018	90	935
Tower, Clinton A., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	643,613	Feb. 13	1876	442	90	1353
Towns, Albert O., Hudson, N. H., and F. W. Lynde, Melrose, Mass., assignors, by mesne assignments, to W. P. and H. White and C. B. Crouse, Utica, N. Y. Machine for sewing on buttons	643,614	Feb. 13	1878	443	90	1354
Townsend, David, Philadelphia, Pa. Cupola-furnace	643,920	Feb. 20	2497	588	90	1488
Towson, Morris S., Cleveland, Ohio. Field-magnet	640,603	Jan. 2	841	187	90	164
Trabaud, Carrie, East Orange, N. J. Protector for douches or bed-pans	640,835	Jan. 9	1314	294	90	276
Trahue, Luther, Girard, Ill. Picket fence	643,310	Feb. 13	1325	312	90	1244
Trahue, William, assignor of three-fourths to R. W. Bingham and B. Howe, Louisville, Ky. Fishing-reel	646,085	Mar. 27	2896	629 630	90	2302
Trahue, William, and B. Howe, assignors to themselves and R. W. Bingham, Louisville, Ky. Fishing-reel	641,906	Jan. 23	3316	753 754	90	688
Tracy, James, Allegheny, Pa. Bicycle handle-bar	640,241	Jan. 2	164	33, 34	90	34
Tracy, Mabel. (See Turck, Frederick M., assignor.)	640,604	Jan. 2	842	187 188	90	164
Tragethon, Arne S., Kensett, Iowa. Shade-roller						
Transue, Uriah, Minsi, assignor of one-third to T. B. Drake, East Stroudsburg, Pa. Sash-lock	645,441 645,220	Mar. 13 Mar. 13	1629 1234	356 268	90 90	2004 2014
Trant, Justus A., New Britain, Conn. Bench-plane	640,506	Jan. 2	659	142	90	130
Travaglini, Antonio, Philadelphia, Pa. Mat or matting for floors, &c	644,952	Mar. 6	721	156	90	1899
Traver, Adelbert L., Philmont, N. Y. Sewing-machine trimmer						
Travers Brothers Company. (See Travers, Vincent P., assignor.)						
Travers, Vincent P., assignor to Travers Brothers Company, New York, N. Y. Fire-escape ladder	641,741 643,783	Jan. 23 Feb. 20	3022 2227	689 525	90 90	631 1435
Traylor, John, Gilbert's Creek, Ky. Heel-counter	643,921	Feb. 20	2499	588	90	1488
Treat, Charles H., Mansfield, Ohio, assignor to Direct Separator Company, Syracuse, N. Y. Attachment for separators	645,278	Mar. 13	1329	289	90	2085
Trebbin, Alfred J., Chicago, Ill. Loop system for street-railways	645,145	Mar. 13	1100	235	90	1989
Trebert, Henry L., assignor, by mesne assignments, to E. C. Stearns & Co., Syracuse, N. Y. Folding bicycle						
Tremaine, Edward G. (See Lorillard and Tremaine.)						
Trenton Potteries Company. (See Plantier, Arthur, assignor.)	641,810	Jan. 23	3138	712	90	654
Treverton, William, Carlisle, Pa. Device for controlling horses	640,896	Jan. 9	1316	295	90	277
Trew, Thomas V., London, England. Ship's rudder	643,922	Feb. 20	2500	588	90	1489
Trexler, William F., assignor of one-half to A. J. Yost, L. Wise, G. J. S. Kohler, and F. T. L. Keiter, Allentown, Pa. Brake						
Tricard, Alexis, *et al.* (See Watel, Etienne, assignor.)						
Trice, Agnes M. (See Trice, Sinnette Y., assignor.)						
Trice, Sinnette Y., assignor to A. M. Trice, Dallas, Tex. Knee-spreader	642,734	Feb. 6	307	73	90	1027

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Trimble, Howard, Baltimore, Md. Ledger-leaf	642,508	Jan. 30	4437	1008	90	925
Tripp, Thomas M., P. I. and H. D. Jacobson, Liverpool, England. Wrapping-machine	641,908	Jan. 23	3321	754 755 756	90	689
Tromanhauser, Seneca H., assignor to Niagara Cleaner Company, Minneapolis, Minn. Grain-cleaner	645,442	Mar. 13	1630	856 857	90	2094
Troup, Charles, assignor of thirty-seven one-hundredths to T. J. Aurand, Watseka, Ill. Automatic coupling for railway-cars	642,509	Jan. 30	4438	1008	90	926
Trout, Charles R., assignor to Reyburn Manufacturing Company, Philadelphia, Pa. Pin card or tag	642,179	Jan. 30	3826	871	90	805
Troxel, Charley A., Garrison, Iowa. Bucket attachment	643,698	Feb. 20	2073	488	90	1406
Troy, Edward, Lacey, Iowa. Hay-rack	643,211	Feb. 13	1149	260	90	1211
Trumbull, Maurice C., Savona, N. Y. Culvert	645,146	Mar. 13	1101	236	90	1989
Tschirner, Albert P., St. Louis, Mo. Polishing-paste	641,811	Jan. 23	3140	.....	90	655
Tubular Rivet and Stud Company. (See Brown, George W., assignor.)						
Tuchfarber, Frank, Cincinnati, Ohio. Sign	646,113	Mar. 27	2894	641	90	2373
Tüchler, Eduard, Vienna, Austria-Hungary. Horseshoe	645,580	Mar. 20	1886	416	90	2157
Tucker, Arthur. (See Hallows and Tucker.)						
Tucker, Charles A., New York, N. Y. Case for books, &c	645,279	Mar. 13	1331	289	90	2035
Tucker, Charles E., and L. S. Jenkins, York, Pa. Telephone-transmitter	643,993	Feb. 20	2618	618	90	1512
Tucker, Junius E., assignor of one-half to G. W. Person, Memphis, Tenn. Tire-inflating mechanism	643,017	Feb. 6	787	183	90	1119
Tucker, Robert, Newcastle, and F. Boyling, Sydney, New South Wales. Vehicle-brake	642,020	Jan. 23	3525	807 808	90	728
Tuerk, Gustavus A., Chicago, Ill. Explosive-engine	641,659	Jan. 16	2869	654	90	594
Tum Suden, Henry C., *et al.* (See Laureyns, Gustav G., assignor.)						
Tunnell, John D. (See Wood and Tunnell.)						
Turc, Henri L. J. C., Castans, France. Navigable vessel	646,331	Mar. 27	3327	742	90	2457
Turck, Frederick M., assignor, by mesne assignments, of one-half to M. Tracy, New York, N. Y. Numbering-machine	642,389	Jan. 30	4240	958	90	887
Turnbull, George A., assignor to R. E. Turnbull and R. G. Sykes, Chicago, Ill. Metallic lathing	642,056	Jan. 23	3578	819	90	738
Turnbull, Rosella E., *et al.* (See Turnbull, George A., assignor.)						
Turner, Charles H., Westphalia, Kans. Cattle-stanchion	641,480	Jan. 16	2555	584	90	531
Turner, Edward R. (See Lee and Turner.)						
Turner, Robert A., and B. L. Miller, Seattle, Wash. Steam steering-gear	640,242	Jan. 2	166	34	90	35
Turner, Sydney, Toronto, Canada. Stop mechanism for wire-coiling machines	643,994	Feb. 20	2620	618	90	1512
Turner, William L. (See Lyda and Turner.)						
Turney, James T. (See Killman, Thomas A., assignor.)						
Turnley, William D., Clarksville, Tenn. Tile	640,338	Jan. 2	340	71	90	68
Tustin, Edward B. (See Oswald, Richard W., assignor.)						
Tustin, G. M., trustee. (See Eisenhart, Edward H., assignor.)						
Tutthill, Stephen J., Oakland, assignor to Tutthill Water Wheel Company, San Francisco, Cal. Water-wheel	645,221	Mar. 13	1237	268	90	2014
Tutthill Water Wheel Company. (See Tutthill, Stephen J., assignor.)	645,222	Mar. 13	1238	268	90	2015
Tuttle, Charles L., Rochester, N. Y. Post-hole auger	645,924	Mar. 20	2221	557 558	90	2293
Tuttle, James E., Melrose, assignor to C. F. Murphy, Boston, Mass. Knitting-machine	642,510	Jan. 30	4438	1009	90	926
Tuttle, Josiah S., and J. M. Wilson, Kansas City, Kans. Spring cultivator-tooth	642,180	Jan. 30	3827	871	90	805
Twist, William H., assignor of one-half to G. V. Ashdown, Cleveland, Ohio. Scissors or knife grinder	645,341	Mar. 13	1441	317	90	2050
Twyman, Samuel A., Flanagan, Ill. Hen's nest	643,805	Feb. 20	2260	532	90	1441
Tyler, Abel D., Jr., Brockton, Mass. Shoe-form	644,037	Feb. 20	2700	640	90	1328
Tyler, James W., Camden, N. J. Garment-holder	643,260	Feb. 13	1241	291 292	90	1228
Tynan, Joseph J., assignor of one-half to E. S. Cramp, Philadelphia, Pa. Boring instrument						
Uebelacker, Charles F., assignor to Peckham Motor Truck and Wheel Company, Kingston, N. Y. Maximum-traction truck	640,507	Jan. 2	660	143	90	130
Ulich, Alexander, assignor to H. Amelung & Co., St. Petersburg, Russia. Manufacturing artificial stone	644,953	Mar. 6	723	.....	90	1899
Ullmann, Fritz, assignor to Actien-Gesellschaft für Anilin Fabrikation, Fürth, Germany. Yellow acridinium dye	648,569	Feb. 13	1793	.....	90	1336
Ullrich, Henry, Chicago, Ill. Water-massage apparatus	640,837	Jan. 9	1317	295	90	277
Umstead, Morris F., Philadelphia, Pa. Type-protector for type-writing machines	640,508	Jan. 2	666	144	90	131
Underwood, Frank K., and L. E. Hawkins, Oskaloosa, Iowa. Display and sample case	643,570	Feb. 13	1795	425	90	1336
Underwood, John T. (See Burridge, Lee S., assignor.)						
Underwood, Sterling I., Yale, Okla. Ter. Kitchen-cabinet	640,509	Jan. 2	666	144	90	131
Underwood, Walter H., New York, N. Y. Propulsion of vehicles	644,113	Feb. 27	2929	670	90	1569
Unglaub, John A., Woodson, Ill. Stove	641,348	Jan. 16	2909	525	90	483
Ungnad, Eduard, Rixdorf-Berlin, Germany. Treating fibers, &c., to imitate silk	643,923	Feb. 20	2501	.....	90	1489
Union Iron Works. (See Rowe, Willard C., assignor.)						
Union Iron Works. (See Thomas, Edwin E., assignor.)						
Union Paper Bag Machine Company. (See Howlett, Edwin J., assignor.)						
Union Raveler Company. (See Brown, Eugene H., assignor.)						
Union Wire Mattress Company. (See Klipfel, Thomas W., assignor.)						
United Coke and Gas Company. (See Schniewind, Frederic W. C., assignor.)						
United Shirt and Collar Company. (See Pine, James K. P., assignor.)						
United Shoe Machinery Company. (See Brewer, Albert G., assignor.)						
United Shoe Machinery Company. (See Goddu, George, assignor.)						
United Shoe Machinery Company. (See Meloon, James W., assignor.)						
United Shoe Machinery Company. (See Mower and Coupal, assignors.)						
United States Battery Company. (See Vetter, Alexander F., assignor.)						
United States Electric Signal Company. (See Ruddick, John J., assignor.)						
United States Electrical Leather Process Company. (See Burton, George D., assignor.)						
United States Fire and Police Telegraph Company. (See Cole, Frederick W., assignor.)						
United States Safety Gas Cock Company. (See Garvey, Owen F., assignor.)						
United States Standard Motor Vehicle Company. (See Stommel, Hugo, assignor.)						
United States Wind Engine and Pump Company. (See Guy and Anderson, assignors.)						
Unitype Company. (See Cox, Paul F., assignor.)						
Universal Stripping Machine Company. (See Allison and Buek, assignors.)						
Updegraff, George C. (See Stewart and Updegraff.)						
Uppercu, Inglis M., New York, N. Y., assignor to Neostyle Company, of New Jersey. Mechanical driver	645,280	Mar. 13	1332	290	90	2085
Upton, Willard, assignor of one-half to J. H. Doty, Rochester, N. Y. Combined egg-tester and cooker	644,342	Feb. 27	3287	764	90	1655
Urie, George M., Kansas City, Mo. Burner for self-heating sad-irons	642,511	Jan. 30	4441	1009	90	926

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Uster, John, Paterson, N. J. Target	642,897	Feb. 6	506	130	90	1076
Uzzelle, George H., Ernest, Mo. Hen's nest	644,697	Mar. 6	258	57	90	1805
Vaders, Henry T., Philadelphia, Pa. Motor	646,197	Mar. 27	3061	676	90	2406
Vajen, Willis C. (See Bader, William, assignor.)						
Vajen, Willis C., Indianapolis, Ind. Fireman's helmet	645,281	Mar. 13	1335	290	90	2089
Vajen, Willis C., Indianapolis, Ind. Fireman's helmet	645,408	Mar. 13	1575	344	90	2084
Valentine, David, assignor of one-half to E. R. Richardson, Pawtucket, R. I. Valve-gear steam-engine	645,147	Mar. 13	1103	236	90	1901
Valentine, Langdon B., *et al.* (See Cael, Joseph D., assignor.)						
Valentine, Samuel. (See Elbaum, Simon, assignor.)						
Valentiner, Friedrick, Leipsic, Germany. Making fluoroform	643,835	Feb. 20	2118	546	90	1452
Valiant, Hugh, Kelly, Kans. Draft-equalizer	641,812	Jan. 23	3140	718	90	655
Valvasori, Giovanni B. N., Padua, Italy. Cipher apparatus	641,481	Jan. 16	2557	584	90	931
Van Auken, Clarence E., Chicago, Ill. Temperature-regulating apparatus for steam-heating systems	645,581	Mar. 20	1888	416 / 417	90	2157
Van Bibber, Andrew, Cincinnati, Ohio. Harbor or coast defense. (Reissue)	11,801	Jan. 9	2145	483	90	437
Van Brocklin, John W., Seattle, Wash., assignor of one-sixteenth to R. L. Dunn, San Francisco, Cal. Water, steam, or air valve	643,075	Feb. 6	892	211	90	1138
Van Brocklin, John W., Seattle, Wash., assignor of one-sixteenth to R. L. Dunn, San Francisco, Cal. Water-valve	643,076 / 641,660	Feb. 6 / Jan. 16	893 / 2872	211 / 654	90 / 90	1138 / 595
Van Cise, William C., Mayville, N. Y. Spring-bed						
Van den Berg, Benjamin H. (See Mulié and Van den Berg.)	642,300	Jan. 30	4244	958	90	888
Van Denbergh, Frank P., Buffalo, N. Y. Making sulfuric acid	644,266	Feb. 27	3113	732	90	1023
Van der Belen, Edouard, Brussels, Belgium. Paper-carrier for type-writers						
Van der Stempel, Herman S., Amsterdam, Netherlands. Means for repairing pneumatic tires	646,232	Mar. 27	3328	742	90	2457
Van Deusen, William A., New York, N. Y. Cooking utensil	640,605	Jan. 2	843	188	90	164
Van Deventer, Christopher, New York, N. Y. Electric lamp	641,196	Jan. 9	2035	455	90	414
Van Doren, Lillie S. (See Handy, Henry P., Sr., assignor.)						
Van Duzen, Frank, Marion, Ohio. Combined belt-pulley and spring	643,699	Feb. 20	2073	489	90	1106
Van Duzer, George W., Hackettstown, assignor of one-half to M. M. Searing, Dover, N. J. Electric-lighting device	642,648 / 641,563	Feb. 6 / Jan. 16	148 / 2705	36 / 616 / 617	90 / 90	995 / 561
Van Kannel, Theophilus, New York, N. Y. Revolving-door structure						
Van Name, Joshua V. R., assignor of one-fourth to J. E. Stevens, New York, N. Y. Non-refillable bottle	644,343 / 644,344	Feb. 27 / Feb. 27	3289 / 3291	764 / 765	90 / 90	1655 / 1656
Van Ness, Albert, Chicago, Ill. Corn-husking and fodder-preparing machine						
Van Stone, Lucius N., *et al.* (See McDonald, John J., assignor.)	642,857	Feb. 6	500	118	90	1063
Van Treeck, Barnhart, Crawford, Nebr. Railway hand-car	643,173	Feb. 13	1088	252 / 253	90	1199
Van Viersen, Jacob H., M. P. T. D. Molière, and C. E. Ter Meulen, Amsterdam, Netherlands. Target and automatic indicating apparatus	644,783	Mar. 6	417	90, 91	90	1837
Van Vleck, John, assignor to C. D. Smithers, New York, N. Y. Electric glow-lamp	644,785	Mar. 6	420	92	90	1839
Van Vleck, John, assignor to C. D. Smithers, New York, N. Y. Electric glow-lamp						
Van Vleck, John, and W. N. Stevens, assignors to C. D. Smithers, New York, N. Y. Electric glow-lamp	644,784	Mar. 6	421	91	90	1838
Van Vliet, Arie, assignor of one-half to A. and J. P. Peters, Paterson, N. J. Combination-tool	642,888	Feb. 6	508	130	90	1077
Van Vliet, Warren R., East Stroudsburg, Pa. Fruit-basket machine	640,978	Jan. 9	1605	355 / 356	90	329
Van Wie, Peter G., Detroit, Mich. Safety attachment for valves	643,571	Feb. 13	1797	425	90	1336
Vance, Theodore J., Miles City, Mont. Draft-equalizer	642,512	Jan. 30	4443	1009	90	927
Vandegrift, George E., Joliet, Ill. Spike-machine	645,195	Mar. 13	1187	258 / 259 / 260	90	2006
Vanderman, William, Willimantic, Conn. Work-bench	644,880	Mar. 6	601	130	90	1874
Vanderpool, Albion A., Newark, N. J. Circuit-changer	642,021	Jan. 23	3526	808	90	728
Vandevort, Joseph M., Beaver Falls, Pa. Try-square	640,510	Jan. 2	668	144	90	132
Vankirk, William S., Middlesborough, Ky. Nut-wrench	645,148	Mar. 13	1104	236	90	1990
Vannote, Jacob E., assignor of one-half to H. Reyerson, Lakota, N. D. Vehicle nut-wrench	642,391	Jan. 30	4246	958	90	888
Vannote, Jacob E., assignor of one-half to J. A. Kinsey, Lakota, N. D. Snap-hook	643,924	Feb. 20	2502	589	90	1489
Varner, Bart. (See Besore, Calvin F., assignor.)						
Varnum, Charles E., Vinland, Kans. Fly-trap	645,880	Mar. 20	2438	536 / 537	90	2207
Vaughan, Alonzo L. (See Laux and Vaughan.)						
Vaughan, Frank, Elizabeth City, N. C. Fire-escape	642,392	Jan. 30	4247	959	90	889
Vaughan, Henry H., assignor to C. F. Quincy, Chicago, Ill. Journal-box lid	641,813	Jan. 23	3142	713	90	656
Vaughan, Norval C., Cincinnati, Ohio. Armor	642,649	Feb. 6	149	37	90	995
Vendig, Benjamin, and A. Schiff, New York, N. Y. Apparel-cap	644,379	Feb. 27	3345	776	90	1666
Venen, Almon S., Forest Grove, Oreg., assignor of one-half to A. L. MacLeod, Nez Perces, Idaho. Curtain-pole	644,114	Feb. 27	2831	670	90	1569
Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung. (See Thron, Heinrich, assignor.)						
Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung. (See Weller, Albert, assignor.)						
Verity, Perley B. (See Baillie and Verity.)	643,311	Feb. 13	1326	312	90	1244
Verniand, Claudius, Quincy, Ill. Spinning-top						
Vernon, Richard R. (See Maxwell, Theobald W. T., assignor.)	643,925	Feb. 20	2503	589	90	1489
Vernon, Thomas P., Sing Sing, N. Y. Ink-blotter	645,965	Mar. 27	2644	586 / 587	90	2325
Verret, Nicholas J., assignor of two-thirds to H. N. Samstag and C. H. Ross, Little Rock, Ark. Engine	642,735	Feb. 6	908	73	90	1027
Vestal, Flavious J., Pleasant Grove, Cal. Draft-equalizer						
Vetter, Alexander F., assignor to United States Battery Company, New York, N. Y. Portable electric lamp	646,114	Mar. 27	2896	642	90	2374
Vickers, Sons & Maxim. (See Dawson and Buckham, assignors.)						
Vickers, Sons & Maxim. (See Dawson and Silverman, assignors.)						
Vickers, Sons & Maxim. (See Parker, Joseph, assignor.)						
Victor Safe and Lock Company. (See Blechschmidt, Charles E., assignor.)	642,022	Jan. 23	3528	808	90	729
Viel, Francis J., Blossburg, Pa. Wheel-hub	640,350	Jan. 2	560	76	90	72
Vietinghoff-Scheel, Karl von, Berlin, Germany. Automatic gas-lighter	646,086	Mar. 27	2898	630	90	2363
Viles, Joseph T., assignor of one-half to J. V. Swearingen, St. Joseph, Ill. Wrench	644,480	Feb. 27	3510	815 / 816	90	1700
Villa, Francisco L. de, Guatemala, Guatemala. Device for preventing ships from sinking	642,023	Jan. 23	3529	.....	90	729
Villsack, Joseph G., *et al.* (See Russell, James C., assignor.)						
Vis, Gerhard N., Schweizerhalle, Switzerland. Purifying brine	641,594	Jan. 16	2707	617	90	562
Vivian, William, Camborne, England. Steam-actuated valve						

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Voegele, Albin, New York, N. Y. Sweeper	644,380	Feb. 27	3346	776	90	1666
Voegelin, Reinhardt, assignor of two-thirds to A. Reisser and S. Schimpf, Sennheim, Germany. Stem-winding watch	644,381	Feb. 27	3347	777	90	1667
Vogel, John C. (See Kolb and Vogel.)						
Vogel, Julius L. F. (See Steinhart and Vogel.)						
Vogel, Julius L. F. (See Steinhart, Vogel, and Fry.)						
Vogel, William, New York, N. Y. Electric-arc lamp	645,499	Mar. 13	1729	379	90	2113
Vogler, Charles F., assignor, by mesne assignments, to Plumbers Brass and Iron Manufacturing Company, Cleveland, Ohio. Filter	640,721	Jan. 2	1074	245	90	208
Vogt, Adolf. (See Bachmann and Vogt.)						
Vogt, Andrew G. (See Irving, Frank K., assignor.)						
Vogt, Joseph, Niederbruck, Germany. Apparatus for deep boring	643,428	Feb. 13	1538	361 / 362	90	1285
Voller, Benjamin F., Pittsburg, Pa. Nut-lock	644,726	Mar. 6	800	66	90	1813
Volz, Nicholaus B. (See Ross and Volz.)						
Voorhees, Elmer E., Blandinsville, Ill. Harrow attachment	641,418	Jan. 16	2424	554 / 555	90	506
Voorhies, Lucien, assignor of two-thirds to C. H. Minge and G. B. Penrose, New Orleans, La. Bale-band tightener	646,333	Mar. 27	3320	743	90	2457
Vosburgh, Edwin. (See Topp and Vosburgh.)						
Voss, William F., Wilmington, Del. Bolster	643,572	Feb. 13	1708	425 / 426	90	1336
Votaw, Morris W., Bowling Green, and M. E. Thomas, Cassaday, Ky.; said Thomas assignor to said Votaw. Artificial bait	643,573	Feb. 13	1709	426	90	1337
Vough, William C., Waterloo, N. Y. Piano-action	640,838	Jan. 9	1318	295	90	277
Vulcan Iron Works. (See Ludlow, James T., assignor.)						
Vulkan, Gesellschaft für Selbstzündende Glühkörper mit Beschränkter Haftung. (See Friedeberger, Leopold, assignor.)						
W. W. Kimball Company. (See Hiscock, Emory C., assignor.)						
Wabers, Henry H., Wautoma, assignor of one-half to M. J. Soens, Racine, Wis. Hand-planter	643,784	Feb. 20	2228	526	90	1435
Wade, Albert A., Monticello, Minn. Pneumatic tire	643,429	Feb. 13	1539	362	90	1285
Wade, Alzira H., Minneapolis, Minn. Reversible corset-busk	640,839	Jan. 9	1321	296	90	278
Wade, Edwin T., Clarksdale, assignor of one-third to L. B. Wilkinson, Duncan, Miss. Running-gear	640,979	Jan. 9	1613	356	90	332
Wade, Lilburn, Escalon, Cal. Nut-lock	640,849	Jan. 9	1334	300	90	281
Wadsworth, Frank L. O., Williams Bay, Wis., assignor to W. A. Bond, trustee, Chicago, Ill. Tile structure	640,840	Jan. 9	1322	296	90	278
Wadsworth, Frank L. O., Williams Bay, Wis., assignor to W. A. Bond, trustee, Chicago, Ill. Panel and tile therefor	640,841	Jan. 9	1323	296 / 297	90	278
Wadsworth, Frank L. O., Williams Bay, Wis., assignor to W. A. Bond, trustee, Chicago, Ill. Tile structure	640,842	Jan. 9	1324	297	90	278
Wagandt, Charles L., Baltimore, Md. Sheet-metal handle	641,171	Jan. 9	1977	438	90	402
Wagandt, Charles L., Baltimore, Md. Attaching strainers to spouts of sheet-metal vessels	643,387	Feb. 13	1465	343	90	1271
Waggoner, Edward P., Syracuse, N. Y., assignor to A. A. Griffing Iron Company, Jersey City, N. J. Section for generators	643,926	Feb. 20	2504	589	90	1490
Wagner, Edward M., Denver, Colo. Alarm-lock	644,024	Feb. 20	2679	633 / 634	90	1523
Wagner, Henry W., Alma, Mo. Wire-stretcher	642,736	Feb. 6	809	73	90	1028
Wagner, Jacob F., and A. Freeston, assignors to Ice Manufacturing Company of Germantown, Philadelphia, Pa. Manufacturing ice	641,742	Jan. 23	3022	689	90	631
Wagner, Jacob F., and A. Freeston, assignors to Ice Manufacturing Company of Germantown, Philadelphia, Pa. Apparatus for manufacturing ice	641,814	Jan. 23	3143	713	90	655
Wagner, Peter. (See Johnson, Seigvert M., assignor.)						
Wagner, William J., Vailsburg, N. J. Button	641,909	Jan. 21	3323	756	90	689
Waibel, Frederick B., and H. Meytrott, assignors to Manhattan Brass Company, New York, N. Y. Wick raising and controlling device for lamps	645,282	Mar. 13	1937	291	90	2096
Wait, Oscar E., assignor of one-half to W. H. H. Slack, Springfield, Vt. Radiator	645,611	Mar. 20	1948	420	90	2170
Waite, Henry E., New York, N. Y. Influence-machine	643,367	Feb. 13	1423	332	90	1264
Waite, Henry E., Newton, Mass. Rotary marking-stamp	646,198	Mar. 27	3083	677	90	2406
Wakeman, Alvin C., Waterloo, Wis. Combined washbench and ironing-board	641,661	Jan. 16	2874	654	90	595
Walcher-Uysdal, Rudolf von, and G. Gaertner, assignors of one-third to G. Benda, Vienna, Austria-Hungary. Fireman's respirator	642,057	Jan. 23	3579	810	90	738
Waldron, William H., New Brunswick, N. J. Paper-coating machine	643,574	Feb. 13	1801	426	90	1337
Wales, Irving F., Woonsocket, R. I. Drive-gearing	644,864	Mar. 6	724	157	90	1900
Wales, Orville G., *et al.* (See Karsner, Adam E., assignor.)						
Wales, Thomas C., Jr., Newton, assignor to American Bell Telephone Company, Boston, Mass. Telephone-switchboard apparatus and appliance	641,743	Jan. 23	3024	689	90	632
Walker, Enos L., St. Louis, Mo. Basket-weaving machine	646,242	Mar. 27	3161	698	90	2426
Walker, George W., and J. C. Phelps, Friendsville, Tenn. Churn	642,650	Feb. 6	150	37	90	995
Walker, James C., Waco, Tex. Wave-motor	646,199	Mar. 27	3066	677 / 678	90	2407
Walker, James F., McKeesport, Pa. Fountain mucilage or paste brush	643,174	Feb. 13	1092	253	90	1200
Walker, Oakley S., Worcester, Mass. Drill-grinder	643,927	Feb. 20	2506	589	90	1490
Walker & Pratt Manufacturing Company. (See Goddard, Fred D., assignor.)						
Walker, Stuart W., and E. B. Horner, Martinsburg, W. Va. Fire-escape	643,575	Feb. 13	1801	426	90	1337
Walker, William I., and A. H. Grimm, Rock Island, Ill. Grinding-machine	643,928	Feb. 20	2508	590	90	1490
Wallace, George R. (See McMurray, Dennis B., assignor.)						
Wallace, Laird H., Denver, Colo., assignor to E. & H. T. Anthony & Company, New York, N. Y. Magazine-camera	643,756	Feb. 20	2180	512 / 513	90	1426
Wallace, Richard V., Marvell, Ark. Rail-joint	645,239	Mar. 13	1267	275	90	2021
Wallace, Richard V., Marvell, Ark. Cattle-guard	645,240	Mar. 13	1268	275	90	2022
Wallick, Jesse C. (See Lyon and Wallick.)						
Walls, Marion C., assignor to J. A. Everitt, Indianapolis, Ind. Hand broadcast seed-sower	640,606	Jan. 2	844	188	90	164
Walsh, Patrick H., assignor of one-half to F. W. Filer, Scranton, Pa. Combination-tool	646,243	Mar. 27	3164	699	90	2426
Walsh, Phillip R., Kansas City, Kans. Auxiliary lock for railway-switches	645,768	Mar. 20	2259	491	90	2281
Walter, Carl J. D., and J. Rodgers, New York, N. Y. Sales and cash register	644,881	Mar. 6	603	130	90	1874
Walter, Frederick A., Philadelphia, Pa. Sealed folding hollow body	645,196	Mar. 13	1192	260 / 261	90	2007
Walter, Louis H., London, England. Utilization of Hertzian or similar radiations and apparatus therefor	643,018	Feb. 6	788	188 / 184	90	1120
Walter, William, New York, N. Y. Chocolate-kettle	644,649	Mar. 6	172	37	90	1788
Walters, Frank E., Waterbury, Conn. Shutter-fastener	642,651	Feb. 6	152	37	90	906
Walton, Herbert G., Butler, Mo. Attachment for seed-planters	643,019	Feb. 6	792	184	90	1120

Alphabetical list of patentees, January to March, inclusive—Continued.

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Walton, James, Phœnicia, N. Y. Acetylene-gas machine	643,576	Feb. 13	1804	427	90	1338
Walton, James, Phœnicia, N. Y. Gasometer	643,577	Feb. 13	1806	427	90	1338
Walton, William C., Harrisburg, Pa. Corner-fastening	644,481	Feb. 27	3513	816	90	1700
Walton, William H., assignor of one-fourth to J. Cook, Brantford, Canada. Loom-shuttle	641,815	Jan. 23	3144	714	90	656
Walton, William L., Neche, N. D. Harvesting-machine	642,084	Jan. 23	3530	809	90	729
Wangelin, Friedrich, Dresden, Germany. Flushing apparatus for water-closets, &c	644,892	Mar. 6	006	130	90	1875
Warburton, Frederick J. (See Clarke and Warburton.)						
Ward, Elmer E., assignor of one-half to F. R. Hastings, Colorado Springs, Colo. Hook and eye	643,700	Feb. 20	2076	480	90	1406
Ward, George M., assignor of one-half to G. W. Reeve, Jr., Newark, N. J. Street-cleaning device	642,987	Feb. 6	654	149 / 150	90	1098
Ward, George R. (See Butler and Ward.)						
Ward, John C., London, England. Pianoforte	645,342	Mar. 13	1442	317 / 318	90	2056
Ward, John T., *et al.* (See Field, Marcellus S., assignor.)						
Ward, Joseph T., Philadelphia, Pa. Fence-joint	640,843	Jan. 9	1324	297	90	279
Ward Leonard Electric Company. (See Ball, Henry P., assignor.)						
Warder, Bushnell & Glessner Company. (See Harter, Eli E., assignor.)						
Wardwell, Clalson S. (See Hoyt and Wardwell.)	640,607	Jan. 2	845	188	90	165
Wardwell, Theodore E., Stamford, Conn. Combined coaster and truing-gage	640,722	Jan. 2	1075	245 / 246	90	208
Ware, Joseph L., St. Paul, Minn. Harrow	641,172	Jan. 9	1978	438 / 439	90	404
Waring, Pierre C., Yonkers, N. Y. Automatic feeding and weighing mechanism	643,578	Feb. 13	1807	.....	90	1339
Waring, Wilson, Sewaren, and J. E. Breckenridge, Woodbridge, N. J. Purifying sludge acids	643,175	Feb. 13	1093	253	90	1200
Warner, Benjamin F., assignor to D. Warner, Bronson, Mich. Gate	643,701	Feb. 20	2078	489	90	1406
Warner, Clarence D., assignor of two-thirds to H. Lindley, St. Louis, Mo., and E. E. Mackenzie, Baltimore, Md. Self-locking spike						
Warner, Daniel. (See Warner, Benjamin F., assignor.)						
Warner & Potter. (See Buchey, Alfonso, assignor.)	642,181	Jan. 30	3828	871	90	805
Warner, Reuben, Jr., St. Paul, Minn. Glove						
Warner & Swasey. (See Swasey, Ambrose, assignor.)						
Warner & Swasey. (See Swasey and Lucas, assignors.)						
Warnock, Amos W., Boston, assignor of one-half to F. K. Daggett, Malden, Mass. Tire-fastener	642,988	Feb. 6	657	150	90	1068
Warren, Albert C., *et al.* (See Green, Charles, assignor.)	643,212	Feb. 13	1151	269 / 270	90	1212
Warren, Charles F., Portland, Me. Combined warming or cooling utensil	640,243	Jan. 2	167	34	90	35
Warren, Ewell L., *et al.* (See Garland, Charles W., assignor.)						
Warren, Henry E., Morgan, Mo. Stay rod and chain for vehicles	643,430	Feb. 13	1541	362	90	1296
Warren, Henry J., and C. Nordell, assignors to Stamford Foundry Company, Stamford, Conn. Fire-box for stoves, ranges, &c	645,769	Mar. 20	2230	491	90	2231
Warren, Henry J., and C. Nordell, assignors to Stamford Foundry Company, Stamford, Conn. Fire-box for stoves, ranges, &c	643,836	Feb. 20	2320	546 / 547	90	1452
Warren, Herbert C., assignor of one-half to M. C. Johnson, Hartford, Conn. Gearing	644,219	Feb. 27	3025	717 / 718	90	1697
Warren, James G., Providence, R. I. Bottle-filling machine	644,883	Mar. 6	008	131	90	1876
Warren, Myles Y., Philadelphia, Pa. Hand-rake	645,149	Mar. 13	1105	236	90	1990
Warren, Samuel H., Keosauqua, Iowa. Watch-chain						
Warren Webster & Company. (See Leitch, Merwilin, assignor.)						
Warren Webster & Company. (See Serrell and Leitch, assignors.)						
Wartenberger, Franz W., Hamburg, Germany. Tanning process	644,482	Feb. 27	3514	.....	90	1700
Washburn, Edwin C., Minneapolis, Minn. Draft-rigging for cars	644,382	Feb. 27	3348	727 / 728	90	1697
Washburn, Edwin C., Minneapolis, Minn. Brake-beam	644,383	Feb. 27	3354	728	90	1698
Washburn, Edwin C., Minneapolis, Minn. Draft-rigging for engines and tenders	644,384	Feb. 27	3356	728 / 729	90	1698
Washburn, Edwin C., Minneapolis, Minn. Draft-rigging for engines and tenders	644,385	Feb. 27	3359	779 / 780	90	1699
Washburn, Helum J., and C. G. Cudaback, Ransomville, N. Y. Harrow	642,025	Jan. 23	3533	809	90	730
Washburne, James V., Waterbury, Conn. Clasp for connecting straps	643,431	Feb. 13	1543	363	90	1296
Washington-Goodwin Meter Company. (See Washington and Goodwin, assignors.)						
Washington, Henry S., *et al.* (See Webb, Zalda B., assignor.)						
Washington, William D., and F. C. Goodwin, New York, N. Y., assignors to Washington-Goodwin Meter Company, of West Virginia. Liquid-meter	643,432	Feb. 13	1544	363	90	1296
Wassenius, Thorsten M., Watertown, Mass. Dressing stand and mirror	644,044	Feb. 20	2712	642	90	1530
Watel, Etienne, assignor of two-thirds to P. Clerc and A. Tricard, Paris, France. High-speed drilling apparatus	640,431	Jan. 2	539	112 / 113	90	105
Waterbury Watch Company. (See Hart, George E., assignor.)						
Waterhouse, Addison G., Philadelphia, Pa. Distilling and evaporating water	643,702	Feb. 20	2080	489 / 490	90	1407
Waterman, Charles H., Pompton Plains, N. J. Enameling	640,844	Jan. 9	1325	297	90	279
Waterman, Ira, *et al.* (See Hoxie, George L., assignor.)						
Waterman, Isaiah D., and S. S. Bennett, Blairsville, Pa. Emergency-bolt for railway-cars	644,115	Feb. 27	2832	670	90	1569
Waters, Helen. (See Yancey, Lee, assignor.)	643,213	Feb. 13	1153	270	90	1212
Waters, Henry, Bisbee, Ariz. Ter. Shoemaker's telescopic repair outfit	644,837	Mar. 6	522	113	90	1858
Watkins, Alfred, Des Moines, Iowa. Compound rotary engine	646,160	Mar. 27	2990	659 / 660	90	2391
Watkins, Alfred, Des Moines, Iowa. Compound rotary engine	644,307	Feb. 27	3207	750	90	1641
Watkins, Edward, and C. Colteryahn, Pittsburg, Pa. Nut-lock	642,393	Jan. 30	4249	959	90	889
Watkins, John, Hereford, England. Appliance for drawing liquid from and venting casks	642,394	Jan. 30	4250	960	90	889
Watkins, Leigh, Cripple Creek, Colo. Tracking connection for vehicles	645,241	Mar. 13	1299	276	90	2022
Watkins, Orla H., assignor to J. K. Milner & Co., Clinton, Iowa. End-gate	643,214	Feb. 13	1154	270	90	1212
Watkins, William E., Montclair, N. J. Accident-insurance and transportation ticket	645,097	Mar. 20	2104	462	90	2201
Watkins, William E., Montclair, N. J. Duplicate-whist apparatus						
Watson, David S., Canastota, N. Y., assignor to Watson Wagon Company, of New York. Dumping-wagon	642,395	Jan. 30	4251	960	90	889
Watson, George H., assignor of one-half to E. J. Noble, Chicago, Ill. Steam-generator	643,368	Feb. 13	1424	332	90	1264
Watson, George W., and C. Bean, Pawtucket, R. I. Combination-lock	644,813	Mar. 6	480	102	90	1849
Watson, Henry B. and J. S., Newcastle-upon-Tyne, England. Feed-water filter for steam-boilers. (Reissue)	11,805	Jan. 23	3587	821 / 822	90	849
Watson, Henry F., assignor of one-half to W. J. Chaninel, Philadelphia, Pa. Tricycle	641,816	Jan. 23	3145	714 / 715	90	656

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Watson, James, near Johannesburg, South African Republic, assignor to B. Searle, Montrose, Pa. Compound engine	645,582	Mar. 20	1892	417	90	2158
Watson, John, Chester, Pa. Anchor	644,955	Mar. 6	726	157	90	1900
Watson, John S. (See Watson, Henry B. and J. S.) (Reissue.)	642,939	Feb. 6	657	150	90	1068
Watson, Mary D., Boston, Mass. Hook and eye						
Watson, Robert. (See Carpenter and Watson.)	641,349	Jan. 16	2310	525	90	483
Watson, Sam, Dublin, Ind. Wire-fence machine						
Watson Wagon Company. (See Watson, David S., assignor.)						
Watson, William W. (See Prosser and Watson.)	645,583	Mar. 20	1896	417	90	2158
Watt, Sern P., Chicago, Ill. Air-valve	645,518	Mar. 13	1768	387	90	2121
Watt, William, Boston, Mass., assignor to Thompson & Norris Company, New York, N. Y. Tree-protector	644,386	Feb. 27	3361	780	90	1670
Watts, John W., Springfield, Ill. Fish-trap	644,116	Feb. 27	2833	671	90	1570
Waymire, Austin, Dayton, Ohio. Window washer or mop						
Weadock, Thomas A. E., trustee. (See Hawkins, Frederick W., assignor.)	642,026	Jan. 23	3535	809	90	730
Weathersby, John R., Springhope, N. C. Clevis	642,652	Feb. 6	153	37	90	996
Weaver, Frank S., Mount Holly, N. J. Toy rein						
Weaver, Isaac J., Boort, assignor of one-half to S. Purser, Bendigo, Victoria. Feed-box for seed and fertilizer mixing and sowing machines	644,220	Feb. 27	3033	718	90	1609
Weaver, John W., Toledo, Ohio. Self-loading excavator	645,443	Mar. 13	1634	357 / 358	90	2095
Webb, Samuel J., Minden, La. Conveyer for cotton-bales, &c	644,650	Mar. 6	173	38	90	1788
Webb, Zalda B., Whippany, assignor, by mesne assignments, to H. S. Washington, Locust, and J. S. W. Thompson, Morristown, N. J. Folding box	642,182	Jan. 30	3829	871 / 872	90	805
Webb, Zalda B., Whippany, assignor, by mesne assignments, to H. S. Washington, Locust, and J. S. W. Thompson, Morristown, N. J. Folding box	642,188	Jan. 30	3831	872	90	806
Webber, Charles F., Boston, Mass. Sleeve-adjuster	642,653	Feb. 6	154	38	90	996
Webber, Oliver E., Manning, S. C. Cloth-measuring device	645,652	Mar. 20	2028	446 / 447	90	2186
Webber, William, Chicago, Ill. Whiffletree-hook	643,020	Feb. 6	794	185	90	1120
Weber, Frederick C. (See Perkins and Weber.)						
Weber, Frederick D., New York, N. Y. Paper-file	642,027	Jan. 23	3536	810	90	730
Weber-Marti, Conrad A., Zurich, assignor to Gesellschaft für Acetylen Gaslicht, Basel, Basle, Switzerland. Pressure gas-valve	645,150	Mar. 13	1106	237	90	1990
Weber, Peter M., Homestead, Pa. Rolling-mill	645,409	Mar. 13	1576	344 / 345	90	2084
Webster, Edward H., assignor to Howe Scale Company of 1896, Rutland, Vt. Duplex grinding-mill	640,845	Jan. 9	1327	298	90	279
Webster, John A., assignor to F. A. Morrison, New York, N. Y. Pencil-sharpener	640,846	Jan. 9	1329	299	90	279
Weddle, John C., Taylor, Tex. Planting attachment for cultivators	644,308	Feb. 27	3208	751	90	1641
Wedekind, Paul, Görlitz, Germany, assignor, by mesne assignments, to Willner Wood Company, of New Jersey. Making pressed-wood carvings	645,770	Mar. 20	2262	491	90	2232
Weed, Alfred, Anderson, Ind. Sight for firearms	642,858	Feb. 6	502	118	90	1064
Weed, Edward B., trustee. (See Kelly, William E., assignor.)						
Weeks, Orlando P., *et al.* (See Hartford, Henry B., assignor.)	642,184	Jan. 30	3833	872 / 873	90	806
Wehrer, John P., La Crosse, Wis. Automatic feeder	642,185	Jan. 30	3839	873 / 874	90	807
Wehrer, John P., La Crosse, Wis. Automatic feeder for mills	646,244	Mar. 27	3166	699	90	2427
Weichelt, Charles L., Philadelphia, Pa. Clamp for textile fabrics	640,339	Jan. 2	341	72	90	68
Weiffenbach, Hermann, Munich-Schwabing, Germany. Pyrotechnic device	641,246	Jan. 9	2133	480	90	435
Weiner, Carl C., *et al.* (See Bachmann and Vogt, assignors.)	645,771	Mar. 20	2263	492 / 493	90	2232
Weir, Robert, Montclair, N. J. Railway-brake	645,151	Mar. 13	1107	237	90	1991
Weise, Otto, Jersey City, N. J. Coin-operated telescope	646,061	Mar. 27	2793	619	90	2354
Weisenburger, Leo, Mount Vernon, N. Y. Knapsack	646,062	Mar. 27	2795	619	90	2354
Weiss, Franz J., Basle, Switzerland. Safety feeding device for boilers	642,186	Jan. 30	3844	874	90	808
Weiss, Franz J., Basle, Switzerland. Boiler-feeding device	641,817	Jan. 23	3148	715 / 716	90	656
Weiss, Frederick C., and H. G. Burkhart, Altoona, Pa. Railway-tie and fastening	643,215	Feb. 13	1155	271	90	1212
Weiss, Georg, Chicago, Ill. Milling-machine	646,245	Mar. 27	3167	700	90	2427
Weissenthanner, Alfred L., New York, N. Y. Closure for jars, bottles, &c	642,187	Jan. 30	3846	874	90	808
Weissmann, Gustave. (See Wydts and Weissmann.)						
Weitz, August P., *et al.* (See Tierney, Edward J., assignor.)						
Weitzel, John A., and U. G. Smith, Danville, Pa. Hub-attaching device						
Welch, Abraham T., Washington, D. C. Carbureting apparatus						
Welch, Charles C., *et al.* (See Wood, Henry N., assignor.)						
Welch, E. Baker. (See Robinson, Thomas C., assignor.)	645,698	Mar. 20	2105	462	90	2201
Weldon, Leonard, Amsterdam, N. Y. Apparatus for mercerizing, &c	642,940	Feb. 6	659	15.	90	1094
Welker, Henry H., Attica, N. Y. Fence-post						
Weller, Albert, assignor to Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Salicylates of the yttrium group	643,280	Feb. 13	1279	.....	90	1235
Weller, Charles, and G. F. Lachenmyer, Mount Pulaski, Ill. Protector against insects for horses	645,343	Mar. 13	1444	318	90	2057
Welles Manufacturing Company. (See Welles, Richard J., assignor.)						
Welles, Richard J., assignor to Welles Manufacturing Company, New York, N. Y. Bed-couch	642,654	Feb. 6	155	38	90	996
Welling, Alvin, Covington Ky. Shutter worker and fastener	642,655	Feb. 6	157	39	90	997
Wellington Manufacturing Company. (See Kuster, Charles A., assignor.)						
Wellman, Charles H. (See Wellman, Daniels, and Wellman.)						
Wellman, Samuel T., Cleveland, Ohio, F. H. Daniels, Worcester, Mass., and C. H. Wellman, Cleveland, Ohio. Heating-furnace	645,305	Mar. 13	1377	300 / 301	90	2043
Wellman, Samuel T., Cleveland, Ohio, F. H. Daniels, Worcester, Mass., and C. H. Wellman, Cleveland, Ohio. Rolling-mill	645,306	Mar. 13	1380	301 / 302	90	2044
Wellman-Seaver Engineering Company. (See Seaver, John W., assignor.)						
Wells, John P. B., Athol, Mass. Micrometer-calipers	641,173	Jan. 9	1980	439	90	404
Wells, Orson C., *et al.* (See Lambert, Thomas B., assignor.)						
Wells, William H. (See Wilkins, Wells, and Baker.)						
Welsbach Light Company. (See White, Charles E., assignor.)						
Welsh, William H., Stillwater, Minn. Laundry apparatus	640,847	Jan. 9	1331	299	90	280
Wendt, Fredrick H. (See Downing and Wendt.)						
Wenner, Frank, Galesburg, Ill. Carrier	643,785	Feb. 20	2230	526	90	1435
Wenning, Alfred, and C. H. Gégauff, assignors to Société Alsacienne de Constructions Mécaniques, Mulhouse, Germany. Combing-machine	645,410	Mar. 13	1578	345	90	2084
Wentworth, Fred W. (See Lee, George S., assignor.)						
Werk, Robert F., New Orleans, La. Oil-press mat	640,608	Jan. 2	846	189	90	165

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drfg.	Official Gazette. Vol.	Official Gazette. Page.
Werner, Rudolf, Melbourne, Victoria. Bicycle-brake	643,557	Feb. 20	2184	513	90	1426
Wernicke, Paul, Eilenburg, Germany. Means for filling molds	645,986	Mar. 27	2647	587	90	2825
Wernigk & Müller. (See Pittroff, Andreas, assignor.)						
Wernimont, Michael, Asbury, Iowa. Adjustable bar and brace for handling plowshares	642,306	Jan. 30	4252	990	90	800
Wersel, Frank B., Jr., Cincinnati, Ohio. Button-fastener	646,246	Mar. 27	3169	700	90	2427
Wertheim, Leopold, Cassel, Germany. Apparatus for rossing bark	646,334	Mar. 27	3331	743	90	2458
Wertz, William H. H., Jr., Toledo, Ohio. Separable collar-button	643,579	Feb. 13	1808	427	90	1339
Wescott, Pulaski D., Corning, N. Y. Acetylene-gas generator	641,056	Jan. 9	1755	390	90	358
Wessel, Karl, Chicago, Ill. Grass-curling machine	642,769	Feb. 6	352	85, 86	90	1035
Wesson, Joseph H., Springfield, Mass. Magazine-pistol. (Reissue)	11,800	Jan. 9	2142	483	90	437
West, Charles H. (See Blinck and West.)						
West Disinfecting Company. (See West, Robert S., assignor.)						
West Haven Manufacturing Co. (See Bradley, Frank S., assignor.)						
West, John A. (See Whisenant, James M., assignor.)	644,387	Feb. 27	3302	780	90	1670
West, John T., Bowling Green, Ky. Rein-guard						
West, Pennington, *et al.* (See Sugg, George P., assignor.)	642,941	Feb. 6	660	.....	90	1094
West, Redfield B., Guilford, Conn. Sensitized photographic paper	643,281	Feb. 13	1280	301	90	1235
West, Richard C., Rostraver, Pa. Pit or mining lamp						
West, Robert S., Cleveland, Ohio, assignor, by mesne assignments, to West Disinfecting Company, of New York. Fumigating-lamp	643,312	Feb. 13	1327	313	90	1245
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Manufacturing Company. (See Converse, Ora E., assignor.)						
Westervelt, Edmund C., and C. W. Clapp, South Bend, Ind. Cultivator	642,397	Jan. 30	4254	990	90	800
Westinghouse Electric and Manufacturing Company. (See Davis, Harry P., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Zweigbergk, Thorsten von, assignor.)						
Westinghouse Electric and Manufacturing Company. Distributing energy	645,612	Mar. 20	1950	430	90	2170
Westinghouse, George, Pittsburg, Pa. Apparatus for distributing energy	645,613	Mar. 20	1954	430	90	2171
Westinghouse, George, Pittsburg, Pa. Sprinkler	642,188	Jan. 30	3849	875	90	809
Weston, George W. and W. H., Philadelphia, and M. Ancker, Bristol, Pa.						
Weston, William H. (See Weston and Ancker.)						
Westover, Henry J. (See Sargent and Westover.)	641,744	Jan. 27	3029	689	90	623
Westrup, Alfred B., New York, N. Y. Mop-wringer	646,335	Mar. 27	3332	743	90	2458
Wetherwax, Charles, Best, N. Y. Treating gold ores						
Wetmore, Sylvester J., assignor of one-half to W. O. Shadbolt, New York, N. Y. Lubricator	640,432	Jan. 2	540	113	90	106
Wetsue, Nicholas, assignor of one-half to F. L. Scoville, Ogden, Utah. Combination advertising-calendar and lead-pencil	642,829	Feb. 6	455	109	90	1054
Wever, Charles A., Sioux City, Iowa. Animal-trap	640,244	Jan. 2	169	34	90	36
Weymouth, George A. P. (See Clendinnen and Weymouth.)	640,245	Jan. 2	170	.....	90	36
Wezel, Julius, Leipsic, Germany. Producing lithographic coatings on metallic plates	642,770	Feb. 6	354	86	90	1035
Whaley, Charles F., and P. P. Barthol, assignors to Whaley-Dwyer Company, St. Paul, Minn. Bicycle pedal-stirrup						
Whaley-Dwyer Company. (See Whaley and Barthol, assignors.)	641,057	Jan. 9	1758	390	90	359
Whaley, Thomas, Florence, Colo. Collar-button	640,340	Jan. 2	342	72	90	69
Whaley, William B. S., Columbia, S. C. Air-moistener						
Whalley, George W., assignor of one-half to J. G. Burchfield, Riverdale, Md. Packing and storing vessel	644,088	Feb. 20	2700	640	90	1528
Whaple, George H., River Forest, Ill. Device for cutting beveled edges	644,117	Feb. 27	2834	671	90	1570
Wheeler, Charles C., Holland, Mich. Screen door or window frame	643,889	Feb. 20	2426	571	90	1473
Wheeler, Edgar, Warrensburg, Mo. Kitchen-cabinet	646,247	Mar. 27	3169	700	90	2427
Wheeler, Edward H., Waterbury, Conn. Collar-button	641,565	Jan. 16	2708	617	90	502
Wheeler, Henry C., Winchester, Cal. Agitator	641,419	Jan. 16	2427	555	90	507
Wheeler, Herbert A., St. Louis, Mo. Downdraft-kiln	640,246	Jan. 2	171	35	90	36
Wheeler, Joseph H., Chicago, Ill. Harness-saddle	644,838	Mar. 6	525	113	90	1859
Wheeler, Sydney C. (See Miller, William C., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Laubscher, Alexander, assignor.)						
Wheeler & Wilson Manufacturing Company. (See Steward, Aurelius, assignor.)						
Whipple, Henry L. (See Cox, Loren C., assignor.)						
Whisenant, James M., Clay, assignor of one-half to J. A. West, Mount Pisgah, Ark. Roller-bearing for wagon-thimbles	643,853	Feb. 20	2361	555	90	1460
Whitacre, Charles C. (See Craig, William S., assignor.)						
Whitaker, Charles H., Boston, Mass., assignor of one-half to G. J. Tobin, Plainfield, N. J. Antirefilling device for bottles	643,216	Feb. 13	1157	271	90	1212
Whitall, Tatum & Co. (See Otto, Edmund T., assignor.)						
Whitall, Tatum & Co. (See Tatum, Charles A., assignor.)	642,898	Jan. 30	4256	991	90	891
Whitbeck, Van Allen, Aquetuck, N. Y. Corn or potato hiller	641,058	Jan. 9	1759	391	90	359
Whitcher, Frank W., Boston, Mass. Car	640,841	Jan. 2	344	72, 73	90	69
Whitcomb, George D., Glendora, Cal., and W. K. Millholland, Chicago, Ill. Rock-drill						
Whitcomb, John F. (See Wilson and Whitcomb.)	644,909	Feb. 27	3211	751 / 752	90	1642
White, Albert, Lowell, Mass. Knitting-machine						
White, Alexander, and H. M. Rohweder, Epworth, assignors, by mesne assignments, to Epworth Gas Light and Heating Company, Waterloo, Iowa. Acetylene-gas machine	641,567	Jan. 16	2711	618	90	563
White, Benjamin M., and W. L. Covington, Montgomery City, Mo. Cattle fly-trap house	642,399	Jan. 30	4258	992	90	891
White, Charles E., Philadelphia, Pa., assignor to Welsbach Light Company, Gloucester City, N. J. Hydrocarbon incandescent lamp	642,942	Feb. 6	661	151	90	1094
White, Charles H., assignor of one-half to C. M. Struven, Baltimore, Md. Course-finding instrument for navigators	645,653	Mar. 20	2080	447	90	2186
White, Charles W. (See White, William H. and C. W.)	646,138	Mar. 27	2941	651	90	2382
White, Charles W., Waco, Tex. Picking and cleaning machine	646,139	Mar. 27	2942	651 / 652	90	2383
White, Charles W., Waco, Tex. Mattress-filling machine	642,273	Jan. 30	4003	911	90	839
White, David E., Winchester, Kans. Furrow-opening machine						
White, Edward L. (See White, John H. and E. L.)	641,914	Jan. 23	3334	758	90	691
White, Edward Y., San Antonio, Tex. Bicycle						
White, Edwin L., New York, N. Y., and W. M. Gilbert, assignors to G. H. Clowes, Waterbury, Conn. Holder for calcium carbid	645,152	Mar. 13	1108	237	90	1991
White, Franklin R., Waterbury, Conn. Bicycle-rack	640,433	Jan. 2	541	113	90	106
White, Franklin R., assignor to Patent Button Company, Waterbury, Conn. Button-setting machine	646,068	Mar. 27	2797	620	90	2354
White, George W., Chattanooga, Tenn. Coffee-pot	643,433	Feb. 13	1546	363	90	1287
White, Henry P., assignor of three-fourths to C. D. Fuller, Kalamazoo, Mich. System of electrical distribution	642,859	Feb. 6	504	118	90	1064

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White, Henry P., assignor to C. D. Fuller, Kalamazoo, Mich. Drill-grinding machine	643,703	Feb. 20	2084	490	90	1407
White, Hugh, *et al.* (See Towns and Lynde, assignors.)						
White, James, New York, N. Y. Joint for ogee tiles	640,511	Jan. 2	668	144	90	132
White, John H. and E. L., Washington, D. C. Apparatus for making paper tubes	642,656	Feb. 6	158	39 / 40 / 41	90	997
White, John H. and E. L., Washington, D. C. Apparatus for making paper tubes	644,025	Feb. 20	2682	634 / 635	90	1524
White, John M., Anniston, Ala. Lamplighting attachment for lamp-chimneys	642,657	Feb. 6	164	41	90	998
White, John P. F., and S. S. Rider, Washington, D. C. Corset stay or stiffener	645,444	Mar. 13	1637	358	90	2095
White, Joseph, New York, N. Y. Checking or unchecking device	642,400	Jan. 30	4259	992	90	891
White, Joseph A. (See Moore and White.)						
White Manufacturing Company. (See Schauman, Bror M., assignor.)						
White, Robert C., M. Haslup, and J. G. Schweinfurth, Birmingham, Ala. Packing	643,341	Feb. 13	1378	323	90	1255
White, Samuel S., *et al.* (See Doolittle, William H., assignor.)						
White, Stephen V., *et al.* (See Crandall, Jesse A., assignor.)						
White, W. Pierrepont, *et al.* (See Towns and Lynde, assignors.)						
White, William B., Jr., Colne, England. Dobby for looms	643,021	Feb. 6	795	185	90	1120
White, William E., Cambridge, Minn. Straw-carrier	641,566	Jan. 16	2710	617	90	502
White, William H. and C. W., Weymouth, Mass. Curtain-pole	640,725	Jan. 2	1078	246	90	209
White, William O., Memphis, Tenn. Fruit-basket	645,844	Mar. 13	1445	318	90	2057
Whitehead, Cabell, Washington, D. C. Extracting gold from ores	641,818	Jan. 23	3151	.....	90	657
Whitehorn, Thomas, and H. N. Brady, Melbourne, Victoria. Cigarette-mouthpiece-making machine	641,174	Jan. 9	1983	439 / 440	90	405
Whitehurst, W. J., *et al.* (See Hysore, Alphenas V., assignor.)						
Whitelaw, Archibald A. (See Ellis and Whitelaw.)						
Whiting, Henry A. (See Dewes and Whiting.)						
Whiting, Henry A., assignor of one-half to A. Dewes, New York, N. Y. Wheel-tire	642,189	Jan. 30	3850	875	90	809
Whitlock, Henry, Farmington, Iowa. Cream-separator	645,242	Mar. 13	1271	276	90	2022
Whitlock Machine Company. (See Whitlock, Sturges, assignor.)						
Whitlock, Sturges, Shelton, assignor to Whitlock Machine Company, Derby, Conn. Inking mechanism	641,915	Jan. 23	3336	758 / 759	90	692
Whitman, Henry L., St. Louis, Mo. Cotton-press	643,905	Feb. 20	2622	619	90	1513
Whitmore, Fred A., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Protector mechanism for looms	645,411	Mar. 13	1581	345	90	2085
Whitmore, William P., St. Louis, Mo. Roofing-lap	644,889	Mar. 6	526	114	90	1859
Whitner, Hiram K., Chicago, Ill. Friction fire-escape	642,889	Feb. 6	509	131	90	1077
Whitner, Hiram K., Chicago, Ill. Reversible window	645,153	Mar. 13	1110	237 / 238	90	1991
Whitney, Bion B., *et al.* (See Hartford, Henry B., assignor.)						
Whitney, George E., Boston, Mass., assignor to Whitney Motor Wagon Company, Kittery, Me. Motor-vehicle	642,771	Feb. 6	355	87	90	1036
Whitney, George E., Boston, and H. Howard, Brookline, Mass.; said Whitney assignor and said Howard assignor of one-half to Whitney Motor Wagon Company, Kittery, Me. Motor-vehicle	642,943	Feb. 6	662	151	90	1094
Whitney, Henry R. (See Bishop, Whitney, and Sloniker.)						
Whitney, James E. (See Chamberlain, Orange M., assignor.)						
Whitney, Lewis J., Mapleton, Utah. Combined section-closer and foundation-fastener for honey-sections of beehives	642,028	Jan. 23	3537	810	90	780
Whitney Motor Wagon Company. (See Whitney, George E., assignor.)						
Whitney Motor Wagon Company. (See Whitney and Howard, assignors.)						
Whitney-Reed Chair Company. (See Tisdale and Lamont, assignors.)						
Whitney, Thomas J., Philadelphia, Pa. Steam-boiler feeder	640,434	Jan. 2	543	113	90	106
Whiton, Harriet B., *et al.* (See Handy, Richard, assignor.)						
Whiton, Lucius E., New London, Conn. Lathe-chuck	642,658	Feb. 6	165	42	90	998
Whittier, Charles, deceased, Boston; S. Robinson, Newton, and E. I. Whittier, Boston, Mass., executors. Elevator	641,568	Jan. 16	2715	618 / 619	90	563
Whittier, Eliza I., *et al.*, executors. (See Whittier, Charles.)						
Whittlesey, James T., Elizabeth, N. J. Electric-motor wheel	643,854	Feb. 20	2362	555 / 556	90	1460
Whyman, Horatio O., assignor to Whyman Lacing Hook Company, Aurora, Ill. Lacing-hook	640,609	Jan. 2	847	189	90	165
Whyman, Horatio O., assignor to Whyman Lacing Hook Company, Aurora, Ill. Lacing-hook	640,724	Jan. 2	1079	246	90	209
Whyman Lacing Hook Company. (See Whyman, Horatio O., assignor.)						
Whyte, Edward J., *et al.* (See McDonald, John J., assignor.)						
Whyte, John D., Urmston, assignor to Whytes Patents, Limited, Manchester, England. Yarn-winding machinery	641,420	Jan. 16	2430	556	90	507
Whytes Patents, Limited. (See Whyte, John D., assignor.)						
Wibben, William. (See Paul and Wibben.)						
Wichmann, Charles M. A., Jacksonville, Fla. Toy	646,115	Mar. 27	2899	642	90	2374
Wickes, Thomas H., assignor to Pullman's Palace Car Company, Chicago, Ill. Curtain for vestibule-cars	643,434	Feb. 13	1547	364	90	1287
Wicks, Frederick. (See Gilbert-Stringer and Wicks.)						
Widmer, Adolph and S., Paterson, N. J. Loom	643,704	Feb. 20	2089	491	90	1408
Widmer, Samuel. (See Widmer, Adolph and S.)						
Wiehl, Joseph H., Harmony, Pa. Automatic fluid-pressure friction-clutch	644,749	Mar. 6	333	74	90	1820
Wiens, John P., Milwaukee, Wis. Dustless sweeping-brush	641,350	Jan. 16	2312	525	90	484
Wierdsma, Pieter W., Schrans, and J. Kuipers, Leeuwarden, Netherlands, assignors to Kuma Company, Limited, London, England. Treating vegetable waste	640,725	Jan. 2	1080	.....	90	209
Wiese, Carl H. J., Hamburg, Germany. Water-wheel	643,176	Feb. 13	1095	254	90	1200
Wiesebrock, Frederick W. A., New York, N. Y. Making maltose and dextrose	641,910	Jan. 23	3325	.....	90	689
Wieteck, Heinrich, Liegnitz, Germany. Refrigerator	642,401	Jan. 30	4260	992	90	891
Wig, Nils M., Alexandria, Minn. Horseshoe	644,388	Feb. 27	3304	781	90	1670
Wig, Nils M., Alexandria, assignor to Owatonna Manufacturing Company, Owatonna, Minn. Detachable grain-drill shoe	643,435	Feb. 13	1549	364	90	1287
Wightman, Ira C., Norwich, N. Y. Acetylene-gas generator	641,059	Jan. 9	1761	391	90	359
Wigiesworth, John, *et al.* (See Argo, John T., assignor.)						
Wigmore, William H. (See Hartman and Wigmore.)						
Wigtel, Carl, assignor to F. H. Stillman, New York, N. Y. Hydraulic punch	641,175	Jan. 9	1987	440 / 441	90	405
Wilberforce, George A., Beechworth, Victoria. Centrifugal pump	640,345	Jan. 2	350	74	90	70
Wilcomb, Frank, Pawtucket, R. I., assignor to Standard Machine Company, Philadelphia, Pa. Circular-knitting machine	645,676	Mar. 20	2067	454	90	2198
Wilcox, Frank E., assignor of one-half to H. C. Brown, Mechanicsburg, Pa. Fifth-wheel	644,651	Mar. 6	175	38	90	1789

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Wilcox, Minot L., *et al.* (See Decker, William N., assignor.)						
Wild, William E., Denver, Colo. Ore-concentrator	645,987	Mar. 27	2648	588	90	2325
Wilde, Fred A., Providence, R. I. Grid for cotton-openers	641,060	Jan. 9	1762	302	90	359
Wilde, Samuel A., Taunton, Mass. Cooking-range	645,772	Mar. 20	2269	493	90	2223
Wilder, Guert E., Sandusky, Ohio. Steam-boiler furnace	640,726	Jan. 2	1081	246 247	90 90	209
Wilder, William H., Gardner, Mass. Oil-stove	645,154	Mar. 13	1112	238	90	1902
Wilderman, Joseph M., and E. A. Nelson, St. Charles, Mo. Telephone-transmitter	644,652	Mar. 6	176	38	90	1789
Wildman, Frank B., Norristown, Pa., assignor to McMichael & Wildman Manufacturing Company, of Pennsylvania. Pattern mechanism	642,402	Jan. 30	4261	903	90	892
Wildman, Frank B., Norristown, Pa., assignor to McMichael & Wildman Manufacturing Company, of Pennsylvania. Pattern mechanism	642,403	Jan 30	4264	903	90	893
Wildsmith, Edward T., Birmingham, Ala. Bake-oven	645,584	Mar. 20	1897	418	90	2159
Wiley, Clarence H., Hartford, Conn. Letter-file	642,190	Jan. 30	3851	875	90	809
Wiley, Clarence H., Hartford, Conn. Letter-file	644,345	Feb. 27	3295	709	90	1659
Wiley Electric Company. (See Wiley, Frank R., assignor.)						
Wiley, Frank R., Malden, Mass., assignor to Wiley Electric Company, of Maine. Element for electric batteries	640,727	Jan. 2	1084	247	90	210
Wifey, William L., Castana, Iowa. Device for binding corn-shocks	641,118	Feb. 27	2835	671	90	1570
Wilgus, Thomas D., Conover, Ohio. Cycle-seat	645,412	Mar. 13	1582	346	90	2085
Wilhite, Paschal E. (See Boll and Wilhite.)						
Wilke, Frederick A., Richmond, assignor to Wilke Manufacturing Company, Anderson, Ind. Refrigerator	641,421	Jan. 16	2432	557	90	597
Wilke Manufacturing Company. (See Wilke, Frederick A., assignor.)						
Wilken, Charles H., assignor of one-half to I. Lenker, Preston, Iowa. Automatic grain-scale	644,267	Feb. 27	3114	733	90	1623
Wilkens, Reinhard J., Baltimore, Md. Game-counter	643,929	Feb. 20	2510	590	90	1491
Wilkerson, Basil M., Baltimore, Md., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Head-rest	642,404	Jan. 30	4267	964	90	893
Wilkerson, Basil M., Baltimore, Md., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	642,405	Jan. 30	4270	964 965	90	894
Wilkins, John T., W. H. Wells, and W. Baker, Baldwinsville, N. Y. Heating apparatus	641,911	Jan. 23	3327	756	90	690
Wilkinson, Charles. (See Willett, Michel, assignor.)	640,342	Jan. 2	346	73	90	69
Wilkinson, Charles P., Detroit, Mich. Clothes-line reel	642,029	Jan. 23	3539	810	90	731
Wilkinson, Francis E., Buffalo, N. Y. Scissors						
Wilkinson, John W., Cambridge, assignor of one-half to C. H. Billings, Winthrop, Mass. Billiard or pool table	640,848	Jan. 9	1334	300	90	280
Wilkinson, L. B. (See Wade, Edwin T., assignor.)						
Willans & Robinson. (See Street, John H., assignor.)						
Willard, John W., Pittsford, Vt., assignor to Nu Broom Company, Boston, Mass. Broom-handle	645,988	Mar. 27	2654	588	90	2326
Willard, William A. P., Jr., Hull, Mass. Third-rail for electric railways	645,654	Mar. 20	2031	447	90	2187
Willcox, George B. (See Mutart, John, assignor.)						
Willett, Adoniram R. (See Tanner and Willett.)	641,351	Jan. 16	2312	526	90	484
Willett, Michel, assignor of one-half to C. Wilkinson, Blue Island, Ill. Refrigerator	643,436	Feb. 13	1550	365	90	1287
Willey, Eugene F., and H. Connacher, Manville, R. I., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Ring-spinning machine	642,080	Jan. 23	3339	811	90	731
Willey, Willis C., Clinton, Ky. Seed-planter						
William L. Gilbert Clock Company. (See McCabe, Thomas W. B., assignor.)						
William L. Gilbert Clock Company. (See Woodruff and McCabe, assignors.)						
William Mann Company. (See Deckert, Joseph O., assignuor.)						
William Sellers & Company. (See Bancroft and Thorne, assignors.)						
William Sellers & Company. (See Sellers and Lewis, assignors.)						
William Sellers & Company. (See Pemberton, Henry M., assignor.)						
Williams, Albert S., *et al.* (See Pemberton, Henry M., assignor.)						
Williams, Arnold E. (See Lewthwaite, Joseph, assignor.)	645,155	Mar. 13	1113	239	90	1992
Williams, Charles H., Coffeen, Ill. Automatic car-tipple for mines	640,980	Jan. 9	1615	357	90	332
Williams, Charles M., Los Angeles, Cal., assignor to Star Novelty Company, Los Angeles, Cal., and Phœnix, Ariz. Animal-trap	640,610	Jan. 2	849	189	90	165
Williams, Clarence E., assignor to W. H. Bruce, Worcester, Mass. Wrench	644,483	Feb. 27	3515	817	90	1700
Williams, David F., Eagleport, Ohio. Vehicle-brake	640,247	Jan. 2	178	38	90	86
Williams, Elija P., Mineola, Tex. Cloth-measuring machine	644,956	Mar. 6	726	158	90	1900
Williams, Felix A., Eliasville, Tex. Lever-shears						
Williams, Frank T., Meriden, Conn., assignor to Edward Miller & Company, of Connecticut. Lamp-burner	640,981	Jan. 9	1616	357	90	332
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lamp	644,796	Mar. 6	428	92	90	1839
Williams, Fremont D., Brattleborough, Vt. Vehicle running-gear	643,705	Feb. 20	2001	491	90	1409
Williams, George W., assignor to Kellett-Chatham Machinery Company, Waco, Tex. Cotton-elevator	641,176	Jan. 9	1990	441	90	406
Williams, George W., assignor to Kellett-Chatham Machinery Company, Waco, Tex. Valve-gear for pneumatic cotton-feeders	646,248	Mar. 27	3171	701	90	2428
Williams, Gurdon H., Cleveland, Ohio. Bicycle-frame	644,787	Mar. 6	429	92	90	1839
Williams, Gurdon H., South Brooklyn, Ohio. Framework for bicycles	644,788	Mar. 6	431	92	90	1840
Williams, Gurdon H., South Brooklyn, Ohio. Spring-frame for bicycles	644,957	Mar. 6	728	158	90	1900
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Henry M. (See Burger and Williams.)						
Williams, Henry M., assignor of one-fourth to F. Burger, Fort Wayne, Ind. Paddle-wheel	640,344	Jan. 2	349	74	90	70
Williams, Henry M., assignor of one-fourth to F. Burger, Fort Wayne, Ind. Butter plate and mold	644,696	Mar. 6	258	57	90	1805
Williams, Hubbard D. B., Mansfield, Ohio. Rotary pump	640,343	Jan. 2	347	73	90	70
Williams, James R., *et al.* (See Pemberton, Henry M., assignor.)						
Williams, James W., and R. J. Tilford; said Tilford assignor to M. E. Tilford, Louisville, Ky. Copy-book	645,614	Mar. 20	1958	431	90	2171
Williams, John E., Philadelphia, Pa. Combined rein and whip holder	645,243	Mar. 13	1273	276	90	2023
Williams, John G., Everett, Mass. Knob attachment	641,692	Jan. 16	2875	656	90	596
Williams, Jordan D. (See Ogle, Albert, assignor.)						
Williams, Louis N. D., Ashbourne, assignor of one-half to R. W. Scott, Philadelphia, Pa. Knitting-machine	646,336	Mar. 27	3333	743 744	90	2458
Williams, Mary A., Denver, Colo. Slate-frame	643,177	Feb. 13	1096	254	90	1201
Williams, Milton F., assignor to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Crusher and pulverizer	646,249	Mar. 27	3172	701	90	2428
Williams, Milton F., assignor to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Crusher and pulverizer	646,250	Mar. 27	3176	701	90	2429
Williams, Orren C., Jr. (See Beck, Roden L., assignor.)						
Williams Patent Crusher and Pulverizer Company. (See Frickey, Edward H., assignor.)						
Williams Patent Crusher and Pulverizer Company. (See Williams, Milton F., assignor.)	643,437	Feb. 13	1551	365	90	1288
Williams, Septimus T., Dyersburg, Tenn. Wagon-brake						

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Williams, W. N., *et al.* (See Miracle, Meridith W., assignor.)						
Williams, William H., New York, N. Y. Veneer-machine	645,881	Mar. 20	2440	537	90	2268
Williamson, John B., Louisville, Ky. Mucilage-receptacle	643,855	Feb. 20	2305	556	90	1461
Williamson, John L., assignor of one-half to T. Dilger, Pulaski City, Va. Fireback for stoves	643,388	Feb. 13	1466	343	90	1271
Williamson, Robert L. (See Simmons and Williamson.)						
Williamson, William, Saginaw, assignor to F. T. Newton and J. S. Haggerty, Springwells, Mich. Combined step and extension ladder	640,611	Jan. 2	851	189	90	166
Willimantic Linen Company. (See Baker, Dickerson G., assignor.)						
Willis, Robert C. (See Bowman, Madison and J., assignors.)						
Willison, John, assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	643,580	Feb. 13	1809	427 428	90	1339
Willison, John, assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	643,581	Feb. 13	1812	428	90	1339
Willits, Ira L., *et al.* (See Handy, Richard, assignor.)						
Willits, Warren J., *et al.* (See Green, John D., assignor.)						
Willits, Warren J., assignor to Sheffield Car Company, Three Rivers, Mich. Wheel for railway hand-cars	645,156	Mar. 13	1115	239	90	1992
Willner Wood Company. (See Wedekind, Paul, assignor.)						
Wills, John B. (See Jenkins and Wills.)						
Willsea, Louis P. (See Bradley, William T., assignor.)						
Wilson, Caesar, Litchfield, Minn. Plow attachment	645,989	Mar. 27	2655	589	90	2327
Wilson, Clayton L., Munhall, Pa. Automatic switch and throwing device	642,772	Feb. 6	358	87	90	1036
Wilson, David H., assignor to J. Morton, Chicago, Ill. Telephone apparatus	641,569	Jan. 16	2719	619 620	90	564
Wilson, David H., assignor to J. Morton, Chicago, Ill. Telephone	641,570	Jan. 16	2721	620	90	564
Wilson, Edwin L., assignor of one-half to R. M. Eastman, Chicago, Ill. Electrotype or stereotype block	640,346	Jan. 2	351	74, 75	90	71
Wilson, James N., Minneapolis, assignor of two-thirds to O. H. Leonard and R. S. Ashton, Pipe Stone, Minn. Straw-stacker	642,406	Jan. 30	4276	965 966	90	895
Wilson, John, Glasgow, Scotland. Filter-press	643,022	Feb. 6	797	185	90	1121
Wilson, John M. (See Tuttle and Wilson.)						
Wilson, John W., and J. F. Whitcomb, Chicago, Ill. Nut-lock	646,337	Mar. 27	3336	744	90	2459
Wilson, Joseph L., Los Angeles, Cal., assignor to Symphonion Manufacturing Company, New York, N. Y. Coin-operated mechanism	644,389	Feb. 27	3365	781	90	1670
Wilson, Joseph L., Los Angeles, Cal., assignor to Symphonion Manufacturing Company, New York, N. Y. Escapement-releasing mechanism for coin-operated machines	644,390	Feb. 27	3367	781	90	1671
Wilson, Joseph W., Salt Lake City, Utah. Cloth-cleaner for gyratory flour-bolters	644,484	Feb. 27	3516	817	90	1701
Wilson, Josiah S., Lanark, Ill. Washing-machine	645,157	Mar. 13	1116	239	90	1992
Wilson, Samuel A., Ocheyedan, Iowa. Adjustable hood for vapor-stoves	641,247	Jan. 9	2185	481	90	435
Wilson, Thomas, Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Incandescent gas-burner	642,407	Jan. 30	4281	967	90	896
Winburn, James B. M., Gainesville, Ga. Book-support and arm-rest	644,346	Feb. 27	3296	766	90	1656
Windle, George N., assignor of one-half to J. H. Donnally and J. R. Ewers, Frazier's Bottom, W. Va. Vehicle-wheel brake	645,158	Mar. 13	1117	239 240	90	1993
Windsor, Richard S., Alexandria, Va. Trolley-wheel	645,990	Mar. 27	2657	589	90	2327
Wineland, William H., Williams, Pa. Rotary motor	641,482	Jan. 16	2558	585	90	532
Wines, Arthur F., deceased, Chicago, Ill.; W. S. J. Wines, administrator. Coin-actuated mechanism for telephones	644,653	Mar. 6	173	39	90	1789
Wines, W. S. J., administrator. (See Wines, Arthur F.)						
Winger, F. W., *et al.* (See Kerstetter, James L., assignor.)						
Wingert, Mary J., Reading, Pa. Fire-escape	645,677	Mar. 20	2059	454	90	2194
Winkler, Alpheus H., *et al.* (See Culver, George A., assignor.)						
Winkley, Erastus E., Lynn, Mass. Sole-leveling machine	644,654	Mar. 6	180	39, 40	90	1790
Winkley, Frank D., Madison, Wis. Oil-hole cover or cap	642,869	Feb. 6	506	119	90	1064
Winlow, Albert E. (See Murphy, William P., assignor.)						
Winn, William J. (See Lounsberry and Winn.)						
Winslow Brothers Company. (See Fassett, Francis K., assignor.)						
Winslow, Orlando R., Marshfield, Mo. Copy-holder	640,347	Jan. 2	353	75	90	71
Winslow, Sidney W. (See Rogers and Winslow.)						
Winsor & Jerauld Manufacturing Company. (See Winsor, Robert P., assignor.)						
Winsor, Robert P., Auburn, R. I., assignor to Winsor & Jerauld Manufacturing Company, Saco, Me. Cloth-clamp for textile machinery	644,543	Feb. 27	3631	845	90	1722
Winspear, James H. (See Saville and Winspear.)						
Winter, George J. (See Reed, Adam, assignor.)						
Winter, James, and A. D. Gill, Landusky, Mont. Current-wheel	646,338	Mar. 27	3337	744	90	2459
Winter, John, Jr., Syracuse, N. Y. Photographic-negative vignetter	641,483	Jan. 16	2559	585	90	532
Winter, Rudolph G., Minneapolis, Minn. Combined stay and fastener	641,745	Jan. 23	3030	690	90	633
Winter, Theodore A., New York, N. Y. Shirt-waist lining	642,081	Jan. 23	3540	811	90	731
Winters, Allen W., Greenwood Lake, N. Y. Ice-cutting machine	641,912	Jan. 23	3328	757	90	690
Winton, Walter W., Scranton, Pa. Inhaler	645,741	Mar. 20	2307	479	90	2221
Wire Goods Company. (See Parmelee, Arthur W., assignor.)						
Wirt, Paul E., Bloomsburg, Pa. Spring attachment for suspenders, &c	644,921	Feb. 27	3034	719	90	1609
Wise, Benjamin F., *et al.* (See Platt, Lawrence, assignor.)						
Wise, Charles, *et al.* (See Blagg, Charles W., assignor.)						
Wise, Harry, assignor of one-half to H. W. Mayer, San Antonio, Tex. Adjustable bicycle-rest	641,913	Jan. 23	3331	757	90	690
Wise, Herbert A., Luxora, Ark. Water-motor	640,982	Jan. 9	1617	357	90	333
Wise, Leo, *et al.* (See Trexler, William F., assignor.)						
Wise, Margaret A., Erie, Pa. Computing attachment for scale-beams	640,348	Jan. 2	356	75	90	71
Wishart, Edward, Waterford, assignor to J. W. Ivory, Philadelphia, Pa. Dental separator	645,413	Mar. 13	1583	346	90	2085
Wishart, William. (See Hamm and Wishart.)						
Wishon, Walter W. (See Cook, John J., assignor.)						
Wiswell, Arthur M., Lincoln, and F. D. Kees, Beatrice, Nebr. Sideboard attachment	644,655	Mar. 6	183	40	90	1790
Wiswell, Henry W. (See Packard and Wiswell.)						
Witt, George C., Cincinnati, Ohio. Receptacle for ashes or garbage	644,119	Feb. 27	2837	671	90	1570
Witt, Julius W. (See Miller, Witt, and Jones.)						
Wittemann, Jacob F., New York, N. Y. Carbonating beer	641,746	Jan. 23	3032	690	90	633
Witter, Wilhelm, Hamburg, Germany. Producing solution of cyanogen halide	641,571	Jan. 16	2723	.....	90	565
Witzmann, Francis, New York, N. Y., assignor of one-half to A. Monaghan, New Orleans, La. Hand-planer	643,313	Feb. 13	1327	313	90	1245
Witzmann, Francis, New York, N. Y., assignor of one-half to A. Monaghan, New Orleans, La. Scraper	643,314	Feb. 13	1329	313	90	1245
Woerner, Louis C., and F. Harrington, assignors to Pratt & Whitney Company, Hartford, Conn. Multiple-spindle screw-machine	644,310	Feb. 27	3216	732 733	90	1642

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wolf & Co., A., Jr. (See Heil, Albrecht, assignor.)						
Wolff, Arthur J., Hartford, Conn. Sanitary attachment for telephonic appliances	642,408	Jan. 30	4282	967	90	896
Wolff, Walther, Charlottenburg, Germany. Apparatus for measuring velocity of sound-waves	641,484	Jan. 16	2260	585	90	532
Wolfgang, Frederick H., New York, N. Y. Vehicle-cover	645,773	Mar. 20	2270	494	90	2223
Wollensak, Andrew, Rochester, N. Y. Photographic shutter	642,961	Feb. 6	508	119	90	1095
Wolverine Motor Works. (See Sintz, Clark, assignor.)						
Wood, Alpheus H., and J. D. Tunnell, Amarillo, Tex. Window frame and sash	643,023	Feb. 6	799	186	90	1121
Wood, Charles, Heaton Norris, England. Machine for raising and dressing woven fabrics	641,352	Jan. 16	2314	526 / 527	90	484
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Delivery mechanism for printing-presses	643,178	Feb. 13	1097	254 / 255	90	1201
Wood, Henry N., assignor of one-half to W. H. Sauvage and C. C. Welch, Denver, Colo. Automatic brake block or shoe	641,240	Jan. 9	2137	481	90	436
Wood, Oscar V., Fostoria, Ohio. Signal-torch	644,759	Mar. 6	337	75	90	1821
Wood, Robert L., *et al.* (See Davis, Benjamin I., assignor.)						
Wood, William I., and W. M. Barnes, Circleville, Ohio. Automatic wagon-brake	643,024	Feb. 6	800	186	90	1121
Wood, William P., Holyoke, Mass. Paper-coating machine	644,840	Mar. 6	527	114	90	1859
Woodbury, Oscar D., Rochester, N. Y. Fence-wire-fastening device	642,944	Feb. 6	664	152	90	1094
Woodcock, William J., assignor to R. B. Ayres, New York, N. Y. Means for closing or opening shutters	643,217	Feb. 13	1159	271 / 272	90	1213
Woodlin, R. O. (See Hill, William J., assignor.)						
Woodford, Horace G., London, England. Safety hook, ring, &c	644,699	Mar. 6	260	58	90	1806
Woodland, Frank O. (See Gates and Woodland.)						
Woodland, Frank O., Worcester, Mass. Automatic feeder mechanism for bottle-stoppering machines	640,983	Jan. 9	1618	358	90	333
Woodman, Edward F., Boston, Mass. Thermostatic apparatus	643,179	Feb. 13	1099	255	90	1201
Woodmancy, Henry F., deceased, Whitinsville, Mass.; C. A. Taft, executor. Spinning and twisting machine spindle	643,342	Feb. 13	1379	323	90	1255
Woodmancy, Henry F., deceased, Whitinsville, Mass.; C. A. Taft, executor. Spinning and twisting machine spindle	643,343	Feb. 13	1381	323	90	1256
Woodmanse, Harrison, and J. Aue, Freeport, Ill.; said Aue assignor to said Woodmanse. Tower for windmills	641,250	Jan. 9	2139	482	90	436
Woodruff, Charles E. (See Bliss, Samuel B., assignor.)	641,061	Jan. 9	1764	392	90	360
Woodruff, Charles H., Elgin, Ill. Folding seat	645,244	Mar. 13	1276	277	90	2023
Woodruff, James G., and T. W. R. McCabe, assignors to William L. Gilbert Clock Company, Winsted, Conn. Clock-frame	641,485	Jan. 16	2561	585 / 586	90	532
Woods, Edward D., Granville, N. Y., assignor to Woods Specialty Company, of New York. Polishing-wheel	643,180	Feb. 13	1102	255	90	1202
Woods, Edward D., Granville, N. Y., assignor to Woods Specialty Company, of New York. Sickle	642,542	Jan. 30	4494	1019	90	936
Woods, Edward D., Granville, N. Y., assignor, by mesne assignments, to Woods Specialty Company, of New York. Process of and apparatus for making hammers, &c	645,026	Mar. 6	858	187	90	1927
Woods, Hugh, Chicago, Ill., assignor to Nathan Manufacturing Company, New York, N. Y. Lubricator	644,485	Feb. 27	3517	817 / 818	90	1701
Woods Specialty Company. (See Woods, Edward D., assignor.)						
Woodson, Robert E., St. Louis, Mo. Nut-cracking machine	644,120	Feb. 27	2838	672	90	1571
Woodward, Erastus, Somerville, Mass., assignor, by mesne assignments, to Consolidated and McKay Lasting Machine Company. Lasting-machine	643,181	Feb. 13	1103	256	90	1202
Woodworth, George W., Monmouth, Ill. Filter	644,391	Feb. 27	3398	781 / 782	90	1671
Woodworth, Hattie B., administratrix. (See Woodworth, James E.)						
Woodworth, James E., deceased, Milwaukee, Wis.; H. B. Woodworth, administratrix, assignor to M. C. Baker, Chicago, Ill. Temporary binder	641,251	Jan. 9	2139	482	90	436
Woolley, Lell H., Oakland, Cal. Apparatus for raising water	640,850	Jan. 9	1336	300	90	281
Work, Byron, Angola, Ind., and G. Work, Waco, Tex. Adding-machine	641,747	Jan. 23	3035	690	90	933
Work, Gardner. (See Work, Byron and G.)						
Worley, Frank A., Bowie, Tex. Animal yoke or poke	643,438	Feb. 13	1552	365	90	1288
Wormald, Joseph. (See Wormald, Joseph E. and J.)						
Wormald, Joseph E. and J., Spokane, Wash. Heating stove or furnace	645,445	Mar. 13	1638	358	90	2005
Worrell, Annie M., *et al.* (See Platt, Lawrence, assignor.)						
Worrell, James K., Rensselaer, Mo. Oil-can	642,058	Jan. 23	3581	819 / 820 / 822 / 823 / 824	90	739
Worrell, Samuel, *et al.* (See Platt, Lawrence, assignor.)						
Worrington, Albert G., *et al.* (See Bates, John C., assignor.)						
Worswick, George D., San José, Cal. Adjustable load-gate	645,843	Mar. 20	2383	523 / 524	90	2256
Worth, John S., Coatesville, Pa. Flanging-machine	645,378	Mar. 13	1512	332	90	2071
Worth, William O., Chicago, Ill., assignor of two-thirds to W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battle Creek, Mich. Motor-vehicle	644,036	Feb. 20	2685	635	90	1524
Worthen, William D., Big Stone City, S. D. Measuring bottle-stopper	646,014	Mar. 27	2710	601	90	2336
Wouwermans, Philipp von, assignor of nineteen twenty-fifths to T. Fischer, M. R. Kaldegg, and I. Pulay, Vienna, Austria-Hungary. Phonograph	640,849	Jan. 2	358	76	90	72
Wright, Charles, Ironton, Ohio. Pumping system	642,945	Feb. 6	666	152	90	1095
Wright, Ellery C., Brockton, Mass. Last	646,116	Mar. 27	2900	642	90	2374
Wright, Frank, Henderson, Ky. Switch-operating device	645,414	Mar. 13	1584	346	90	2085
Wright, Fred D., Syracuse, N. Y. Hand street-sweeper	643,736	Feb. 20	2146	503	90	1419
Wright, George W., Yoakum, Tex. Tongue-support	645,615	Mar. 20	1990	431	90	2172
Wright, James E., Omaha, Nebr. Electric insulation for railways	641,916	Jan. 23	3329	759	90	692
Wright, John E., New York, N. Y. Printing-telegraph instrument	642,191	Jan. 30	3853	875	90	809
Wright, John S., Duxbury, Mass. Bicycle-saddle	642,082	Jan. 23	3541	811	90	731
Wright, John W., Lampasas, Tex. Apparatus for cleaning dishes	646,046	Mar. 27	2772	614 / 615	90	2349
Wright, Julian T. (See Anderson, David W., assignor.)						
Wright, Morris S., Worcester, Mass. Reed or pipe organ	643,025	Feb. 6	802	186	90	1122
Wright, Robert G., Fort Worth, Tex. Hook for wagon-covers	643,706	Feb. 20	2662	492	90	1409
Wright, Selden R., Morton, N. Y. Telegraphic safety device	645,655	Mar. 20	2633	448	90	2187
Wright, Thomas W., Rosedale, Kans. Stamping device for street-advertisements	645,415	Mar. 13	1585	346	90	2025
Wright, William R., Marquette, Mich. Baking vessel or mold	644,884	Mar. 6	669	131	90	1876
Wrigley, John, Elmira, N. Y. Apparatus for forcing wires, wire ropes, cables, &c., through conduits	640,248	Jan. 2	177	36	90	37
Wulff, Frank, Colusa, Cal. Paper-folding machine	644,486	Feb. 27	3321	818	90	1702
Wunderle, Philip. (See Tilford, George H., assignor.)						
Wunderlich, William M., Giltner, Nebr. Draft-equalizer	641,618	Jan. 16	2797	636	90	580
Wunderly, Fred, Nazareth, assignor to R. Meyer and W. C. Foulds, Philadelphia, Pa. Hosiery-singeing machine						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wussler, Louis, Goehner, Nebr. Animal-poke	642,659	Feb. 6	166	42	90	998
Wussow, Charles A., *et al.* (See Wussow, William H., assignor.)						
Wussow, Herman F., *et al.* (See Wussow, William H., assignor.)						
Wussow, William H., assignor of one-half to H. F. and C. A. Wussow, Oshkosh, Wis. Box-machine	640,249	Jan. 2	180	37, 38	90	37
Wüstenhöfer, Julius, Hagen, Germany. Pendulum-mill	641,422	Jan. 16	2433	557	90	508
Wüstenhöfer, Julius, Hagen, Germany. Pendulum-mill	641,423	Jan. 16	2435	557	90	508
Wuth, William A. O., Pittsburg, Pa. Manufacture of cement	643,856	Feb. 20	2367	.....	90	1461
Wydts, Alfred, and G. Weissmann, Paris, France. Continuous-current transformer	645,774	Mar. 20	2272	494	90	2223
Wygal, Sylvester, Paola, Kans. Vapor bath apparatus	641,353	Jan. 16	2315	527	90	484
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom	642,946	Feb. 6	668	152 / 153	90	1095
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom	643,389	Feb. 13	1467	343 / 344	90	1271
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shuttle-box for looms	644,958	Mar. 6	731	158	90	1901
Wynkoop, Adrian G., Charlestown, W. Va. Canopy or tent	645,656	Mar. 20	2069	448	90	2187
Wynkoop, David E. (See Deyoe, Walter M., assignor.)						
Wyss, Gothard and V., Pittsburg, Pa. Compound for preserving ropes, &c	642,033	Jan. 23	3542	.....	90	732
Wyss, Vincent. (See Wyss, Gothard and V.)						
Yale & Towne Manufacturing Company. (See Stockwell, Herbert C., assignor.)						
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)						
Yancey, Lee, assignor of one-half to H. Waters, Chicago, Ill. Refuse-box	642,469	Jan. 30	4284	967	90	896
Yarnell, Charles S., assignor to Moore Carving Machine Company, Minneapolis, Minn. Abrading or polishing machine	643,707	Feb. 20	2005	492	90	1410
Yates, Odaville, The Dalles, Oreg. Car-coupling	643,182	Feb. 13	1103	256	90	1202
Yawman & Erbe Manufacturing Company. (See Yawman, Philip H., assignor.)						
Yawman, Philip H., assignor, by mesne assignments, to Yawman & Erbe Manufacturing Company, Rochester, N. Y. Cabinet	644,751	Mar. 6	339	75	90	1821
Yaxley, Ernest E., assignor to W. T. Blaine, Chicago, Ill. Telephone-switchboard	642,809	Feb. 6	417	101 / 102	90	1047
Yeagla, William R., Lima, Ind. Minnow-pail	640,512	Jan. 2	670	145	90	132
Yegen, Christian. (See Owens, Will E., assignor.)						
Yelle, Joseph, Holyoke, Mass. Toy	644,121	Feb. 27	2841	672	90	1571
Yerk, John A., assignor to Pullman's Palace Car Company, Chicago, Ill. Draw-bar-supporting mechanism	643,315	Feb. 13	1331	314	90	1245
Yerrington, Henry W., Oceanic, N. J. Drawbridge-gate	645,991	Mar. 27	2858	589 / 590	90	2327
Yingling, Charles. (See Nason and Yingling.)						
York, Reuben G., Lynn, Mass. Railway-track lubricator	641,062	Jan. 9	1765	392 / 393	90	360
Yost, Alfred J., *et al.* (See Trexler, William F., assignor.)						
Young, Carl, Chicago, Ill. Propelling mechanism for vehicles	642,410	Jan. 30	4285	967 / 968	90	896
Young, Charles P., York, Pa. Top-spinning device	643,026	Feb. 6	802	186	90	1122
Young, Freeman N., and F. E. Thompson, Arlington, Mass. Advertising-refrigerator	641,917	Jan. 23	3342	759	90	693
Young, John, Newark, N. J. Turbine steam-engine	645,283	Mar. 13	1338	291	90	2057
Young, John M. (See Flory and Young.)						
Young, Luther A., St. Louis, Mo. Dental broach	645,345	Mar. 13	1446	319	90	2057
Young, McClintock, Frederick, Md., assignor to Palmetto Fibre Company, of Illinois. Machine for forming and driving staples	641,177	Jan. 9	1992	442 / 443 / 444	90	407
Young, Micheal F., Chester, Mich. Threshing-machine	644,157	Feb. 27	2908	688	90	1585
Young, William R., *et al.* (See Tillottson, Henry C., assignor.)						
Young, William S., McPherson, Kans. Dehorning or branding chute	646,251	Mar. 27	3178	702	90	2429
Youtsey, Henry E., Frankfort, Ky. Writing-tablet	644,656	Mar. 6	785	40	90	1791
Yunck, Frederick, Bryan, Ohio. Folding stool or seat	644,789	Mar. 6	433	93	90	1840
Yvonneau, Charles E., Paris, France. Acetylene-gas generator	646,404	Mar. 27	3499	779	90	2494
Yvonneau, Emmanuel, Paris, France. Acetylene-gas generator	645,905	Mar. 20	2486	549 / 550	90	2276
Zacharias, Charles R., Asbury Park, N. J. Machine for grinding blades of lawn-mowers	642,275	Jan. 30	4008	912 / 913	90	840
Zahl, Edward M., Portland, Oreg. Excavator and ditcher	643,857	Feb. 20	2369	556 / 557	90	1461
Zander, William. (See Lang and Zander.)						
Zazeela, Louis, New York, N. Y. Apparel-waistband	645,775	Mar. 20	2276	494	90	2234
Zeckendorf, Alois. (See Hodge and Rabe, assignors.)						
Zeidler, William A., assignor of one-half to G. A. Clark and L. W. Hopps, New York, N. Y. Machine for folding and shaping turn-down collars	642,660	Feb. 6	167	42	90	998
Zeigler, John L., Covington, Ky. Steam-engine valve-gear	643,439	Feb. 13	1554	365 / 366	90	1288
Zeigler, Lyman H., Millbank, S. D. Vehicle-wheel	643,440	Feb. 13	1556	366	90	1289
Zeinwoldt, Frans, Bodafors, Sandsjö, Sweden. Band-saw	642,830	Feb. 6	456	109	90	1054
Zeiser, Leonard. (See Sneath, Perciphor B., assignor.)						
Zeiler, John M. (See Kissel, Jacob, assignor.)						
Zellers, Mahlon M. (See Richmond and Zellers.)						
Zerrmann, Gustave. (See Rice and Zerrmann.)						
Zesiger, John L., Cleveland, Ohio. Door-check	642,947	Feb. 6	670	153	90	1095
Zias, Harris, Philadelphia, Pa. Brush	643,441	Feb. 13	1559	367	90	1289
Ziebell, Robert, Sheboygan Falls, Wis. Animal-power	641,424	Jan. 16	2436	557	90	508
Ziegler, John F., Toledo, Ohio. Filter	645,500	Mar. 13	1731	379	90	2114
Zimmerman, Albert B., Troy, Kans. Scale	643,708	Feb. 20	2098	493	90	1410
Zimmerman, William. (See Bateman and Zimmerman.)						
Zimmerman, William. (See Heusch, Anton, assignor.)						
Zimmlinghaus, Charles, Paterson, N. J. Table-cloth fastener	640,250	Jan. 2	185	38	90	38
Zinn, Mary. (See Scheuber, August W., assignor.)						
Zobrist, John, assignor to John Zobrist Refrigerator and Ventilator Company, Hanford, Cal. Refrigerator-car	644,268	Feb. 27	3117	733	90	1624
Zugermayer, Melchior, New York, N. Y. Window-sash	644,657	Mar. 6	787	41	90	1791
Zuill, Walter J. (See Dodge and Zuill.)						
Zumkeller, Emil, assignor to F. Lux, Ludwigshafen, Germany. Water-meter	644,487	Feb. 27	3522	818	90	1702
Zwarg, Julius O., Freiberg, Germany. Microphone	641,425	Jan. 16	2439	558	90	509
Zweigbergk, Thorsten von, Cleveland, Ohio. Magnetic brake	642,274	Jan. 30	4006	912	90	839
Zweigbergk, Thorsten von, Cleveland, Ohio, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Controller	643,442	Feb. 13	1559	367	90	1289

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Ackerman, Jacob E., *et al.* (See Fuller, John W., assignor.)				
Adams, George E., New Britain, Conn. Body portion of garment-supporter loops	32,207	Feb. 6	90	1151
Adams, John Q., Marseilles, Ill. Link	32,215	Feb. 13	90	1356
Alden, Herbert W. (See Maxim and Alden.)				
Allen, Charles H., assignor to C. H. Allen & Co., Attleborough, Mass. Link-bar for cuff-buttons	32,080	Jan. 9	90	438
Allen & Co., Charles H. (See Allen, Charles H., assignor.)				
Alvord, John J., Bridgeport, Conn. Member for pairs of shears	32,084	Jan. 9	90	438
American Gem Company. (See Zell, Lucian M., assignor.)				
American Metal Edge Box Company. (See Saltzkorn and Nicolai, assignors.)				
Anderson, John, Eveleth, Minn. Hinge leaf or member	32,253	Feb. 20	90	1582
Appleton, R. Ross. (See Granger, Francis B., assignor.)				
Armbruster, Albert C., Los Angeles, Cal. Rope-brake for fire-escapes	32,172	Jan. 30	90	951
Arnold, John L. (See Paar, Henry, assignor.)				
Arthur, William, assignor to Newark Watch-Case Material Company, Newark, N. J. Cuff or sleeve button	32,272	Feb. 27	90	1732
Astarita, Raffaello, assignor to Sondheim & Magnus, New York, N. Y. Pillow-top	32,239	Feb. 13	90	1360
Auth, Henry R., Toledo, Ohio. Bolster for toy wagons	32,256	Feb. 20	90	1582
Badger Brass Manufacturing Company. (See Frost, Walter J., assignor.)				
Bailey, Joseph T., Philadelphia, Pa. Badge or similar article	32,304	Mar. 6	90	1937
Bailey, Mary E., Washington, D. C. Orange-knife	32,328	Mar. 13	90	2127
Baird, Warren W., Avalon, Pa. Scoop	32,387	Mar. 27	90	2497
Baldwin, Henry S., Hartford, Conn., assignor to Columbia and Electric Vehicle Company, Hartford, Conn., and Jersey City, N. J. Underslung battery-frame for vehicles	32,307	Mar. 20	90	2287
Baldwin, William T., East Radford, Va. Cover for closet-seats	32,220	Feb. 27	90	1736
Ball, Clarence H., Webster City, Iowa. Harness snap-hook	32,359	Mar. 20	90	2286
Ball, Webster C., Cleveland, Ohio. Watch-plate	32,330	Mar. 13	90	2127
Barcalo, Edward J., Buffalo, N. Y. Frame for bed ends	32,410	Mar. 27	90	2501
Barker, Jacob F., Carthage, Mo. Drill-head	32,219	Feb. 13	90	1377
Barney & Smith Car Company. (See Horne, James H., assignor.)				
Barnhart Brothers & Spindler. (See Stillson, Robert L., assignor.)				
Barry, Richard F., Newton, Mass. Belt	32,419	Mar. 27	90	2502
Barten, William H., Allen, S. D. Bolster-stake	32,236	Feb. 27	90	1737
Bartholomew, Coryell, Jackson, Mich. Bandage	32,102	Jan. 9	90	442
Barton, Henry A., *et al.* (See Fuller, John W., assignor.)				
Bassett, Norman C., Lynn, Mass., assignor to General Electric Company, of New York. Casing for dynamo-electric machines or electric motors	32,259	Feb. 20	90	1583
Baylis, Annie, Buffalo, N. Y. Game-board	32,377	Mar. 20	90	2290
Baynes, James B. (See Burrows and Baynes.)				
Beck, Harry J., assignor of one-half to C. Gette, Philipsburg, Pa. Ice-creeper	32,300	Feb. 27	90	1738
Beck, Max, and R. O. Zimmermann, New York, N. Y. Menu-cover	32,313	Mar. 6	90	1939
Beckwith, George C., assignor to E. D. Mellen, Cambridge, and I. H. Davis, Boston, Mass. Motor-frame for engines	32,110	Jan. 16	90	597
Bedell, Arthur D. (See Wright, John J., assignor.)				
Belfield, Gamaliel, *et al.* (See Powers, James, assignor.)				
Best, Clearmont V., Canton, Ohio. Incandescent vapor-burner frame	32,361	Mar. 20	90	2286
Bigney, Sidney O., Providence, R. I. Vest fob-chain	32,246	Feb. 20	90	1581
Birdsey, Isaac W., Bridgeport, Conn., assignor to Birdsey, Somers & Co., New York, N. Y. Corset	32,418	Mar. 27	90	2502
Birdsey, Somers & Co. (See Birdsey, Isaac W., assignor.)				
Bissell, David S., Pittsburg, assignor to R. D. Nuttall Company, Allegheny, Pa. Rolled bar	32,294	Feb. 27	90	1737
Bloch, Solomon M., New York, N. Y. Netting	32,265	Feb. 20	90	1584
Bohner, George, Chicago, Ill. Connecting-bracket for lamp-fixtures	32,128	Jan. 28	90	741
Bohrer, Fletcher K., Marcos, Ill. Ice-crusher	32,230	Feb. 13	90	1359
Bork, Albert J., assignor of one-half to C. Hull, Buffalo, N. Y. Banner	32,055	Jan. 2	90	212
Bowen, Frank J. (See Knapp and Bowen.)				
Bristol Brass and Clock Company. (See Large, Samuel J., assignor.)				
Brown, John G., Evanston, Ill. Magic-lantern attachment	32,089	Jan. 9	90	439
Brown, John W., assignor to Grieb Rubber Company, Trenton, N. J. Boot or shoe heel	32,140	Jan. 23	90	745
Bucher & Gibbs Plow Company. (See Ream, George W., assignor.)				
Buckwalter Stove Company. (See McLaughlin, John K., assignor.)				
Burdick & Son. (See Selkirk, Alexander, assignor.)				
Burrows, Edwin J., assignor of one-half to J. B. Baynes, Buffalo, N. Y. Tire	32,324	Mar. 6	90	1941
Burwell, William C., Providence, R. I. Ladle or similar article	32,149	Jan. 30	90	948
Cameron, Julia E. (See Coryell, Edwin M., assignor.)				
Campbell, Ernest W., assignor to W. H. Manchester, Providence, R. I. Spoon-handle	32,305	Mar. 6	90	1938
Canda, Leo, Cincinnati, Ohio. Card-displaying cabinet	32,260	Feb. 20	90	1583
Canda, Leo, Cincinnati, Ohio. Picture-exhibiting cabinet	32,335	Mar. 13	90	2128
Capewell, George J., Hartford, Conn. Railway-car body	32,369	Mar. 20	90	2288
Carolin, James B., Newark, N. J. Hook	32,250	Feb. 20	90	1581
Cassell, Robison W., Toledo, Ohio. Game-board	32,137	Jan. 23	90	744
Catty, James W., New York, N. Y. Dolly	32,414	Mar. 27	90	2501
Cederstrom, John, assignor to United States Aerating Fountain Company, Buffalo, N. Y. Shield or guard for siphons or similar articles	32,397	Mar. 27	90	2499
Challenge Cutlery Corporation. (See Taussig, Walter M., assignor.)				
Chase, Franklin K., Taunton, Mass. Stove-back	32,321	Mar. 6	90	1940
Childs, Eugene, Boston, Mass. Inflation-valve casing	32,068	Jan. 9	90	440
Clark, Dwight G. (See Clark, George D. and D. G.)				
Clark, George D., Plainville, Conn. Caster-socket	32,291	Feb. 27	90	1736
Clark, George D. and D. G., Plainville, Conn. Caster-frame	32,224	Feb. 13	90	1358
Clark, Thomas B., Honesdale, Pa. Cut-glass vessel	32,150	Jan. 30	90	948
Clarkin, P Frank, Pontiac, Mich. Fence-stay	32,068	Jan. 2	90	214
Cliff, Edward, Newark, N. J., assignor to Cliff & Guibert Company, New York, N. Y. Wall-bracket	32,336	Mar. 13	90	2128

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Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Cliff, Edward, Newark, N. J., assignor to Cliff & Guilbert Company, New York, N. Y. Bracket for hose-reels	32,337	Mar. 13	90	2128
Cliff, Edward, Newark, N. J., assignor to Cliff & Guilbert Company, New York, N. Y. End disk for hose-reels	32,338	Mar. 13	90	2128
Cliff & Guilbert Company. (See Cliff, Edward, assignor.)				
Coe, William W., Somerville, Mass. Medallion	32,379	Mar. 27	90	2496
Coffman, James H., Columbus, Ohio, assignor to Wisconsin Chair Company, Port Washington, Wis. Chair back and seat	32,237	Feb. 13	90	1360
Coghlan, William T., Morristown, N. J. Spoon	32,327	Mar. 13	90	2126
Colgan, George A., New York, assignor to G. V. Cooper, Buffalo, N. Y. Paper-box blank	32,261	Feb. 20	90	1533
Columbia and Electric Vehicle Company. (See Baldwin, Henry S., assignor.)				
Columbia and Electric Vehicle Company. (See McMahon, James T., assignor.)				
Columbia and Electric Vehicle Company. (See Maxim and Alden, assignors.)				
Conger, Charles A., Oakland, Cal. Rope-fastener	32,194	Feb. 6	90	1148
Conlan, Bernard, Newark, N. J. Clasp	32,358	Mar. 20	90	2286
Conley, Jennie, Chicago, Ill. Seamstress' knife	32,083	Jan. 9	90	438
Conner, George F., Port Huron, Mich. Level	32,390	Mar. 27	90	2498
Conner, George F., Port Huron, Mich. Tooth for threshing-machine cylinders	32,400	Mar. 27	90	2499
Conner, George F., Port Huron, Mich. Wrench	32,401	Mar. 27	90	2297
Conrad, John B., Chicago, Ill. Storage-battery plate	32,366	Mar. 20	90	2287
Consolidated Safety Pin Company. (See Hunt, George, assignor.)				
Continental Tobacco Company. (See Dula, Caleb C., assignor.)				
Converse, Vernon G., Pittsburg, Pa. Transformer-case	32,258	Feb. 20	90	1533
Cooper, George V. (See Colgan, George A., assignor.)				
Cooper, John, New York, N. Y. Chimney-cap member	32,362	Mar. 20	90	2287
Coryell, Edwin M., assignor to J. E. Cameron, New York, N. Y. Frame for water ends for steam-pumps	32,133	Jan. 23	90	744
Cottrell, William E., Tipton, Iowa. Horseshoe-calk	32,344	Mar. 13	90	2129
Cottrell, William E., Tipton, Iowa. Horseshoe-calk	32,345	Mar. 13	90	2129
Covert, James C., Watervliet, N. Y. Snap-hook member	32,193	Feb. 6	90	1148
Craig, John E. (See Hurt and Craig.)	32,303	Mar. 6	90	1937
Crankshaw, Charles W., Atlanta, Ga. Medal				
Cudahy Packing Company. (See Strauss, Morris, assignor.)				
Culmer, John W., assignor to National Computing Scale Company, Cleveland, Ohio. Scale-frame	32,371	Mar. 20	90	2288
Culmer, John W., assignor to National Computing Scale Company, Cleveland, Ohio. Standard for scale-frames	32,393	Mar. 27	90	2498
Culver, Walter L., assignor to Wrought Iron Range Company, St. Louis, Mo. Water-back for ranges or stoves	32,292	Feb. 27	90	1736
Cumming, Paul R., assignor to Handy Things Company, Chicago, Ill. Block for scrubbing-brushes and driers	32,171	Jan. 30	90	951
Cummings, George K., New York, N. Y. Prism-window	32,074	Jan. 2	90	215
Davis, Albert F., Rutland, Vt. Grinding-disk for mills	32,220	Feb. 13	90	1357
Davis, Albert F., Rutland, Vt. Grinding-disk	32,221	Feb. 13	90	1357
Davis, Isaac H., *et al.* (See Beckwith, George C., assignor.)	32,311	Mar. 6	90	1939
De Klyn, Benjamin F., New York, N. Y. Tablet	32,144	Jan. 23	90	745
Deldrick, Lou L., Canton, Ohio. Garment-fastening hook	32,298	Feb. 13	90	1360
Dell, Frank J., Cincinnati, Ohio. Kitchen-cabinet	32,295	Feb. 27	90	1737
Denyes, Gaylard W., and O. Schutt, Cassopolis, Mich. Shoe for grain-drills	32,078	Jan. 9	90	438
Derby, James C., Concord, N. H. Badge	32,232	Feb. 13	90	1359
Diebel, William, Philadelphia, Pa. Pedal	32,169	Jan. 30	90	951
Dillon, Irwin P., assignor of one-half to H. C. King, Lawrence, Mass. Beater-trough plate for paper manufacture	32,170	Jan. 30	90	951
Dillon, Irwin P., assignor of one-half to H. C. King, Lawrence, Mass. Beater-trough plate for paper manufacture				
Dippert, William E. (See Wicht and Dippert.)	32,135	Jan. 23	90	744
Dippo, George H., Chagrin Falls, and W. M. Powell, assignors to Ferrosteel Company, Cleveland, Ohio. Hot-air register	32,226	Feb. 13	90	1358
Donaldson, William R., *et al.* (See Worth, William O., assignor.)	32,218	Feb. 13	90	1357
Dotson, Isaac R., Dayton, Ohio. Lawn-hose support	32,086	Jan. 9	90	439
Dougherty, Edward D., Bellevue, Pa. Metallic fastening-washer	32,104	Jan. 16	90	597
Dula, Caleb C., assignor to Continental Tobacco Company, New York, N. Y. Bottle or jar	32,270	Feb. 27	90	1732
Dula, Caleb C., assignor to Continental Tobacco Company, New York, N. Y. Bottle or jar	32,231	Feb. 13	90	1359
Duncan, George H., Schenectady, N. Y. Badge or similar article				
Dunham, Benjamin F., Muscatine, assignor of one-half to O. M. Morris, Davenport, Iowa. Blackboard-eraser pocket				
E. H. Godshalk Company. (See MacCaffray, Peter, assignor.)				
Earle, Horatio S. (See Tilden and Earle.)				
Electus Fastener Company. (See Kerngood, Herman, assignor.)	32,210	Feb. 13	90	1355
Eliot, William R., assignor to International Silver Company, Meriden, Conn. Glass receptacle	32,211	Feb. 13	90	1355
Eliot, William R., assignor to International Silver Company, Meriden, Conn. Glass receptacle	32,286	Feb. 27	90	1735
Elliott, Elias L., New York, N. Y. Lamp-shade	32,085	Jan. 9	90	439
Estes, Webster C., New York, N. Y. Wooden sprinkling-bottle stopper	32,119	Jan. 23	90	740
Estes, Webster C., New York, N. Y. Turned wooden box	32,120	Jan. 23	90	740
Estes, Webster C., New York, N. Y. Turned wooden box	32,282	Feb. 27	90	1734
Ette, Charles G., St. Louis, Mo. Casing for odorating apparatus				
Excelsior Stove and Manufacturing Company. (See Ohnemus, Anton, assignor.)				
Falcon Electric Manufacturing Company. (See Swoboda, Hans O., assignor.)	32,283	Feb. 27	90	1734
Farnan, Jules, New York, N. Y. Bottle				
Fauber, William H. (See Price, Albert M., assignor.)				
Favor, Milton M. (See Russell and Favor.)				
Ferrosteel Company. (See Dippo and Powell, assignors.)				
Findlay, John, *et al.* (See Powers, James, assignor.)	32,178	Jan. 30	90	952
Flewelling, William W., Selma, Cal. Axle-box	32,365	Mar. 20	90	2287
Forsyth, Frank, Havana, Ill. Die for stamping shovels	32,394	Mar. 27	90	2498
Frost, Henry A., New York, N. Y. Pulley-case	32,389	Mar. 27	90	2497
Frost, Walter J., assignor to Badger Brass Manufacturing Company, Kenosha, Wis. Bicycle-lamp	32,191	Feb. 6	90	1148
Fuller, John W., assignor of three-fourths to H. F. Ward and H. A. Barton, Dalton, and J. E. Ackerman, Boston, Mass. Cutting-blade	32,341	Mar. 13	90	2129
Funk, Henry, Pana, Ill. Grain-drill point or shovel	32,249	Feb. 20	90	1531
Gabel, Charles, Philadelphia, Pa. Shoe-fastening hook	32,216	Feb. 13	90	1356
Gallaher, Edward B., New York, N. Y., assignor, by mesne assignments, to Pneumatic Supply and Equipment Company, of New York. Frame for belted compressors	32,285	Feb. 27	90	1734
Gamlin, Alice M., New York, N. Y. Picture-frame or similar article	32,117	Jan. 16	90	596
Gately, John, Chicago, Ill. Rug	32,079	Jan. 9	90	438
Gebhardt, Martin, New York, N. Y. Ring or similar article				

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General Electric Company. (See Bassett, Norman C., assignor.)				
George, William H., Dexter, Iowa. Threshing-machine tooth	32,132	Jan. 23	90	743
Gette, Claude. (See Beck, Harry J., assignor.)				
Geurink, William, Cleveland, Ohio. Faucet	32,289	Feb. 27	90	1736
Gibbons, John W., Cleveland, Ohio. Recurrent attachment for syringes or douches	32,152	Jan. 30	90	948
Giebel, Harmon, New York, N. Y. Decorative fabric	32,267	Feb. 20	90	1534
Giebel, Harmon, New York, N. Y. Decorative fabric	32,268	Feb. 20	90	1535
Giebel, Harmon, New York, N. Y. Decorative fabric	32,269	Feb. 20	90	1535
Gladney, Joe G., Homer, La. Post-base	32,404	Mar. 27	90	2500
Glinka, Reinhold, New York, N. Y. Frame for toy engines	32,236	Feb. 13	90	1360
Goldman, Gustav, Baltimore, Md. Coat-pad	32,417	Mar. 27	90	2502
Goodman, Forest E., Waco, Tex. Stirrup	32,254	Feb. 20	90	1532
Gottlieb, Joseph, New York, N. Y. Bicycle-frame	32,200	Feb. 6	90	1150
Goudy, Frederick W., Chicago, Ill., and J. W. Phinney, Medford, Mass. Font of type	32,298	Feb. 27	90	1735
Graef, Albrecht, New York, N. Y. Razor-blade	32,057	Jan. 2	90	212
Granger, Francis B., assignor to R. R. Appleton, New York, N. Y. Bustle and hip-form	32,077	Jan. 2	90	216
Graves, James S., Washington, D. C. Necktie-holder	32,356	Mar. 20	90	2286
Grieb Rubber Company. (See Brown, John W., assignor.)				
Haeberle, Charles F. and F. F., Philadelphia, Pa. Finger-ring	32,353	Mar. 20	90	2285
Haeberle, Frederick F. (See Haeberle, Charles F. and F. F.)				
Haines, Samuel L., Philadelphia, Pa. Corner bracket for bedsteads	32,168	Jan. 30	90	951
Hall, William W., Indianapolis, Ind. Vehicle-spring	32,180	Jan. 30	90	953
Hamilton, Alexander M., Avalon, Pa. Bottle	32,103	Jan. 16	90	596
Hammond, Myron B. (See Taylor and Hammond.)				
Handy Things Company. (See Cumming, Paul R., assignor.)				
Harms, George H. (See Sherman and Harms.)				
Harper, James M., Chicago, Ill. Base for tool-sharpeners	32,157	Jan. 30	90	949
Harper, William E., Chicago, Ill. Handle for dental instruments	32,154	Jan. 30	90	948
Harris, Charles R., Williamsport, Pa. Body for automobiles	32,198	Feb. 6	90	1149
Hart, Walter, New York, N. Y. Flagstaff-socket	32,335	Mar. 13	90	2127
Hazard, Schuyler, Cincinnati, Ohio. Railway-rail	32,406	Mar. 27	90	2500
Heath, William E., Baltimore, Md. Bottle	32,118	Jan. 23	90	740
Hensel, Colladay Company. (See Hensel, George S., assignor.)				
Hensel, George S., Philadelphia, Pa., assignor to Hensel, Colladay Company, of Pennsylvania. Skirt-protector	32,264	Feb. 20	90	1534
Henson, William M., Kansas City, Mo. Kitchen-cabinet	32,115	Jan. 16	90	596
Herald, Avadiss B., Washington, D. C. Clasp	32,357	Mar. 20	90	2286
Hillbom, Henrik, assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Back for brushes, &c	32,209	Feb. 13	90	1355
Hodges, Emery C., Farmer City, Ill. Corner-stone for burying-lots	32,073	Jan. 2	90	215
Hoglund, Mauritz W., New York, N. Y. Cleat for fire-escapes	32,094	Jan. 9	90	440
Homan Silver Plate Company. (See Leavenworth, Seth H., assignor.)				
Horn, William O., New York, N. Y. Neck-scarf	32,240	Feb. 13	90	1361
Horn, William O., New York, N. Y. Collar and necktie	32,241	Feb. 13	90	1361
Horne, James H., assignor to Barney & Smith Car Company, Dayton, Ohio. Buffet	32,098	Jan. 9	90	441
Howitt, Edwin B., New Brunswick, N. J. Collar-button	32,247	Feb. 20	90	1531
Huber, Edward, Marion, Ohio. Threshing-cylinder tooth	32,067	Jan. 2	90	214
Hull, Charles. (See Bork, Albert J., assignor.)				
Hunt, George, assignor to Consolidated Safety Pin Company, Bloomfield, N. J. Safety-pin	32,206	Feb. 6	90	1150
Hurt, William H., Fayette, Mo., and J. E. Craig, Cleveland, Tenn. Kitchen-cabinet	32,184	Jan. 30	90	953
Husselman, Samuel B., Worcester, Mass. Filament for incandescent electric lights	32,396	Mar. 27	90	2499
Hussey, John D., Walthall, Miss. Clothes-pounder	32,134	Jan. 23	90	744
Hutchinson, Joseph G., Attleborough, Mass. Display show-case	32,114	Jan. 16	90	596
Hutchinson, Joseph G., Attleborough, Mass. Display show-case	32,418	Mar. 27	90	2501
Hutson, Le Roy, and A. Schupp, Jr., Hurleyville, N. Y. Rod for window-shade brackets and curtain-pole supports	32,124	Jan. 23	90	741
Hyde, Theophilus R., Jr., assignor to Scovill Manufacturing Company, Waterbury, Conn. Button-fastening	32,248	Feb. 20	90	1531
International Silver Company. (See Eliot, William R., assignor.)				
Irwin, William J., New York, N. Y. Fish-cleaning knife	32,329	Mar. 13	90	2127
Isbills, William L., Bayonne, N. J. Curtain-carrier block	32,059	Jan. 2	90	212
Jackson, Austin F., Taunton, Mass. Teapot	32,058	Jan. 2	90	212
Jackson, Calvin, Philadelphia, Pa. File-cleaner	32,188	Feb. 6	90	1147
James E. Blake Company. (See Saart, William H., assignor.)				
Johnson, Charles M., Paris, Me. Check-book	32,061	Jan. 2	90	213
Johnson, George E., Fort Wayne, Ind. Cuspidor-bowl	32,287	Feb. 27	90	1735
Johnson, Harry T., Jersey City, N. J. Binding and contact post for knife-switches	32,190	Feb. 6	90	1148
Johnson, Thomas F., New Brighton, Pa. Gage	32,156	Jan. 30	90	949
Jones, Frederick H., Wakefield, Mass. Syringe-nozzle	32,276	Feb. 27	90	1733
Jones, Jason K., Topeka, Kans. Putty-knife	32,229	Feb. 13	90	1358
Jungwirth, Joachim, assignor to W. F. Stimpson, Detroit, Mich. Scale-frame	32,334	Mar. 13	90	2127
Keach, William E., Fitchburg, Mass. Clearer for drawing-rolls	32,339	Mar. 13	90	2128
Kellogg, Henry W., *et al.* (See Worth, William O., assignor.)				
Kellogg, James L., New York, N. Y. Pencil-sharpener	32,275	Feb. 27	90	1733
Kennedy, John E., Boston, Mass. Shoe-sole fabric	32,416	Mar. 27	90	2502
Kerngood, Herman, Baltimore, Md., assignor to Electus Fastener Company, Hoboken, N. J. Cap-blank for cap and stud fasteners	32,251	Feb. 20	90	1531
Kesselring, Jacob, Chesaning, Mich. Casing for cuspidors or similar articles	32,372	Mar. 20	90	2289
Kiefer, Karl, Cincinnati, Ohio. Bottle	32,307	Mar. 6	90	1938
King, Harry L., Spokane, Wash. Spectacle temple-tip	32,274	Feb. 27	90	1732
King, Henry C. (See Dillon, Irwin P., assignor.)				
Kinne, Ella M., *et al.* (See Nisbet, Jennie L., assignor.)				
Kitchen, Eliza A. R., Monroe, Ohio. Violin-body	32,088	Jan. 9	90	439
Klauss, Edward A., Pittsburg, Pa. Fire and combustion chamber for hot-air furnaces	32,222	Feb. 13	90	1357
Knapp, Charles F., Deposit, N. Y. Stretcher-plate for carpet-tacking devices	32,343	Mar. 13	90	2129
Knapp, Jeremiah R., and F. J. Bowen, Norwalk, Ohio. Meat-hook	32,320	Mar. 6	90	1940
Knoell, Henry, New York, N. Y. Buckle-frame	32,314	Mar. 6	90	1939
Koch, Monroe, New York, N. Y. Body for belts or similar articles	32,301	Feb. 27	90	1738
Kreuter, Ferdinand, New York, N. Y. Eyeglass-guard	32,056	Jan. 2	90	212
Kronenberg, Jacob, New York, N. Y. Horseshoe-pad	32,346	Mar. 13	90	2129
La Dow, Charles, Albany, N. Y. Molding-bed	32,064	Jan. 2	90	213
Lambert, John E., Detroit, Mich. Burner-plate for generators	32,257	Feb. 20	90	1532
Landers, Frary & Clark. (See Smith, Charles F., assignor.)				
Lancaster, James H., New York, N. Y. Cycle-lamp	32,202	Feb. 6	90	1150
Large, Samuel J., assignor to Bristol Brass and Clock Company, Bristol, Conn. Spoon or fork handle	32,143	Jan. 23	90	745

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Larson, Louis S., Racine, Wis. Whiffletree-hook	32,405	Mar. 27	90	2500
Leavenworth, Seth H., assignor to Homan Silver Plate Company, Cincinnati, Ohio. Silver-smiths' stock	32,331	Mar. 13	90	2127
Leech, John H., Bridgeport, Conn., assignor to E. H. H. Smith, New York, N. Y. Spoon or fork handle	32,381	Mar. 27	90	2496
Leick, John, Verona, N. J. Hair-pin	32,146	Jan. 30	90	947
Leonard, Dennis, Cleveland, Ohio. Handle-lug	32,071	Jan. 2	90	215
Leonard, Dennis, Cleveland, Ohio. Handle-lug	32,072	Jan. 2	90	215
Lindstrom, Charles A., Chicago, Ill. Field ring or frame for electric motors	32,325	Mar. 6	90	1941
Lindstrom, Charles A., Chicago, Ill. Automobile electric-motor case	32,326	Mar. 6	90	1941
Littlepage, Charles P., Ballena, Cal. Nail-extractor	32,252	Feb. 20	90	1532
Livingston, Julia, New York, N. Y. Belt-body	32,351	Mar. 13	90	2130
Lowman, Will A., *et al.* (See Pierce, Charles E., assignor.)				
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Head-plate for cotton-presses	32,195	Feb. 6	90	1148
Lunken, Edmund H., Denver, Colo., assignor to Lunkenheimer Company, Cincinnati, Ohio. Sight-feed lubricator	32,318	Mar. 6	90	1940
Lunkenheimer Company. (See Lunken, Edmund H., assignor.)				
MacCaffray, Peter, Philadelphia, Pa., assignor to E. H. Godshalk Company, of Pennsylvania. Curtain	32,100	Jan. 9	90	442
MacCaffray, Peter, Philadelphia, Pa., assignor to E. H. Godshalk Company, of Pennsylvania. Curtain	32,101	Jan. 9	90	442
MacDowell, Robert J., Marshall, Mich. Fork	32,389	Mar. 27	90	2496
Manchester, William H. (See Campbell, Ernest W., assignor.)				
Marks, Mose, Omaha, assignor to Omaha Saddle Tree Company, Douglas County, Nebr. Horn for saddletree-forks	32,205	Feb. 6	90	1150
Marquis, Isaac N., assignor to Standard Light Company, Kansas City, Mo. Vapor-burner	32,213	Feb. 13	90	1356
Marshall, John L., Boston, Mass. Hollow tile for bake-ovens	32,136	Jan. 23	90	744
Mase, Henry J., Huntley, Ill. Nose-protector	32,208	Feb. 6	90	1151
Matthern, Charles O. E., Chicago, Ill. Bicycle-frame	32,370	Mar. 20	90	2288
Maxim, Hiram P., and H. W. Alden, Hartford, Conn., assignors to Columbia and Electric Vehicle Company, Hartford, Conn., and Jersey City, N. J. Vehicle-axle	32,179	Jan. 30	90	952
McCarthy, Louis, Boston, Mass. Tray	32,284	Feb. 27	90	1734
McCarty, William E., Richmond, Ind. Badge	32,378	Mar. 27	90	2495
McCusker, John E., Newburyport, Mass. Ticket or check holder	32,277	Feb. 27	90	1733
McDonald, William H., Titusville, Pa. Garden-hoe	32,228	Feb. 13	90	1358
McIntosh, Wade H., Xenia, Ohio. Puncture-preventer for bicycles	32,255	Feb. 20	90	1532
McKinnon, Donald, Crookston, Minn. Tug-fastener	32,062	Jan. 2	90	213
McKinster, William T., Mattie, Ky. Mail-bag	32,376	Mar. 20	90	2288
McLaughlin, John K., Philadelphia, Pa., assignor to Buckwalter Stove Company, of Pennsylvania. Heating-stove	32,400	Mar. 27	90	2501
McMahon, James T., New Haven, Conn., assignor to Columbia and Electric Vehicle Company, Jersey City, N. J., and Hartford, Conn. Sash-fastener	32,096	Jan. 9	90	441
Meacham, James B., Bennington, Vt. Door-fastener	32,122	Jan. 23	90	741
Melchers, Edward, Toledo, Ohio Shower-bath yoke	32,225	Feb. 13	90	1358
Mellen, E. D., *et al.* (See Beckwith, George C., assignor.)	32,091	Jan. 9	90	440
Merkel, Hermann, St. Louis, Mo. Hydrocarbon-burner	32,105	Jan. 16	90	597
Merkel, Hermann, St. Louis, Mo. Hydrocarbon-burner	32,106	Jan. 16	90	597
Merkel, Hermann, St. Louis, Mo. Hydrocarbon-burner				
Meyer, George, New York, N. Y. Coupling-bar for ends of interior securing-bands for rubber tires	32,182	Jan. 30	90	953
Michaelis, Moses, New York, N. Y. Candy-box	32,212	Feb. 13	90	1356
Miller, Stephen S., Akron, Ohio. Rubber tire	32,347	Mar. 13	90	2130
Moran, Alfred P., New York, N. Y. Sewer-trap	32,108	Jan. 16	90	597
Morgan, Frank C., Chicago, Ill. Heel-lift	32,263	Feb. 20	90	1534
Morgan, William, Fort Plain, N. Y. Toy-fan blade	32,087	Jan. 9	90	439
Morris, Orville M. (See Dunham, Benjamin F., assignor.)				
Morrow, Alexander P., Elmira, N. Y. Bicycle-hub	32,233	Feb. 13	90	1359
Morrow, Alexander P., Elmira, N. Y. Bicycle-hub	32,234	Feb. 13	90	1359
Mummery, Edwin G., Detroit, Mich. Wall for hydrocarbon-burners	32,163	Jan. 30	90	950
Mummery, Edwin G., Detroit, Mich. Wall for hydrocarbon-burners	32,164	Jan. 30	90	950
Myers, Emma E., Pittsburg, Pa. Waste-pipe cleaner	32,189	Feb. 6	90	1148
National Computing Scale Company. (See Culmer, John W., assignor.)				
New Departure Bell Company. (See Rockwell, Albert F., assignor.)				
Newark Watch-Case Material Company. (See Arthur, William, assignor.)				
Nicolai, Ludwig. (See Saltzkorn and Nicolai.)	32,415	Mar. 27	90	2501
Nieder, John, Newark, N. J. Leather fabric	32,245	Feb. 20	90	1531
Nightingale, Charles A., Evansville, Ind. Pick-guard				
Nisbet, Jennie L., assignor of one-half to E. M. Kinne and H. E. Wright, Syracuse, N. Y. Guide-plate for account-books	32,159	Jan. 30	90	949
Odlin, W. T., *et al.* (See Pierce, Charles E., assignor.)	32,069	Jan. 2	90	214
Ohnemus, Anton, assignor to Excelsior Stove and Manufacturing Company, Quincy, Ill. Door.				
Omaha Saddle Tree Company. (See Marks, Mose, assignor.)	32,070	Jan. 2	90	214
Ozias, Orange O., Dayton, Ohio. Base-plate for scales	32,174	Jan. 30	90	952
Paar, Henry, assignor to J. L. Arnold, Canton, Ohio. Horseshoe-frame	32,204	Feb. 6	90	1150
Paar, Henry, assignor to J. L. Arnold, Canton, Ohio. Horseshoe-pad	32,181	Jan. 30	90	953
Pease, Franklin B., Rochester, N. Y. Velocipede-support	32,099	Jan. 9	90	441
Perry, Simeon W., Chicago, Ill. Advertising-frame	32,408	Mar. 27	90	2500
Phelps, Frederick A., Newark, N. J. Vehicle-motor casing				
Phinney, Joseph W. (See Goudy and Phinney.)				
Pierce, Charles E., Avon, assignor of two-thirds to W. A. Lowman and W. T. Odlin, Anacortes, Wash. Nut-lock washer	32,360	Mar. 20	90	2286
Pierce, Howard J., Londonderry, Vt. Fork-crown for bicycles	32,235	Feb. 13	90	1360
Pierce, William W. (See Robson, William, assignor.)	32,375	Mar. 20	90	2289
Pinkerton, Edward E., Sioux City, Iowa. Box-blank				
Planters Compress Company. (See Lowry, George A., assignor.)				
Pneumatic Supply and Equipment Company. (See Gallaher, Edward B., assignor.)	32,158	Jan. 30	90	948
Pond, Herbert J., Norwich, England. Toe attachment for surgical purposes	32,395	Mar. 27	90	2498
Porter, Thomas W., Orono, Me. Rein-holder				
Powell, William M. (See Dippo and Powell.)	32,364	Mar. 20	90	2287
Powers, James, assignor of two-thirds to J. Findlay and G. Belfield, Plattville, Ill. Fork-socket	32,348	Mar. 13	90	2130
Price, Albert M., assignor to W. H. Fauber, Chicago, Ill. Crank-arm for velocipedes				
Price, Albert M., assignor to W. H. Fauber, Chicago, Ill. Crank-arm and sprocket-wheel flange for velocipedes	32,349	Mar. 13	90	2130
Putnam, Alexander S., Worcester, Mass. Top mount for metal bedsteads	32,292	Feb. 27	90	1736
Quinn, John N., Cincinnati, Ohio. Brick	32,097	Jan. 9	90	441

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R. D. Nuttall Company. (See Bissell, David S., assignor.)				
R. Wallace & Sons Manufacturing Company. (See Hillbom, Henrik, assignor.)				
Radley, John P., Colonie, assignor to C. H. Turner, Albany, N. Y. Lawn-rake head	32,363	Mar. 20	90	2287
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Landside	32,065	Jan. 2	90	213
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Tooth attachment for cultivators	32,066	Jan. 2	90	214
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Shoe for plows	32,125	Jan. 23	90	741
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Shoe for plows	32,126	Jan. 23	90	741
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Plow-standard	32,127	Jan. 23	90	741
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Plow-standard	32,128	Jan. 23	90	742
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Standard for plows	32,129	Jan. 23	90	742
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Standard for plows	32,130	Jan. 23	90	743
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Standard for plows	32,131	Jan. 23	90	743
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Share for plows	32,175	Jan. 30	90	952
Redlinger, Matthias, Jr., Freeport, Ill. Pitch-reamer	32,095	Jan. 9	90	441
Reynolds, Andrew W., Fitzgerald, Ga. Nut-lock washer	32,217	Feb. 13	90	1356
Rice, Richard W., *et al.* (See Rice, Wayne H., assignor.)				
Rice, Samuel M., *et al.* (See Rice, Wayne H., assignor.)				
Rice, Wayne H., assignor to R. W. and S. M. Rice, Windsor, Conn. Atomizing-tip for spraying apparatus	32,399	Mar. 27	90	2499
Richards, Willard F., Buffalo, N. Y. Electrode or battery-plate	32,161	Jan. 30	90	949
Rittenhouse, Joseph, Philadelphia, Pa. Neck-band for vessel-carrying devices	32,187	Feb. 6	90	1147
Robin, Max, New York, N. Y. Suspending-hook	32,121	Jan. 23	90	740
Robson, William, Toronto, Canada, assignor of one-half to W. W. Pierce, Buffalo, N. Y. Tricycle-frame	32,407	Mar. 27	90	2500
Rockwell, Albert F., New Britain, assignor to New Departure Bell Company, Bristol, Conn. Bicycle-bell clamp	32,201	Feb. 6	90	1150
Rose, Arthur M., Fairview, N. Y., assignor to M. J. Whittall, Worcester, Mass. Carpet-border	32,244	Feb. 13	90	1361
Rose, Arthur M., Fairview, N. Y., assignor to M. J. Whittall, Worcester, Mass. Carpet-border	32,302	Feb. 27	90	1738
Rose, Edwin G., Washington, D. C. Game-board	32,299	Feb. 27	90	1738
Rosenbloom, Abe N., Boston, Mass. Tailor's drafting-chart	32,312	Mar. 6	90	1939
Rosenbluth, Edwin M., Philadelphia, Pa. Member for lamp-brackets	32,166	Jan. 30	90	950
Rosenbluth, Edwin M., Philadelphia, Pa. Member for lamp-brackets	32,167	Jan. 30	90	950
Ross, Neil, New York, N. Y. Game-board	32,198	Jan. 23	90	744
Rothrock, Edwin A., Lexington, N. C. Wagon-hound	32,176	Jan. 30	90	952
Rush, George W., Altoona, Pa. Garment-supporter	32,355	Mar. 20	90	2286
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)				
Russell & Erwin Manufacturing Company. (See Wales, Louis H., assignor.)				
Russell, Frederick T., and M. M. Favor, Gardner, Mass. Door-stop base or frame	32,109	Jan. 16	90	597
Rutherford, Mary J., Providence, Ga. Cake-pan	32,396	Mar. 27	90	2496
Saart, William H., assignor to James E. Blake Company, Attleborough, Mass. Bracelet	32,273	Feb. 27	90	1732
Saltzkorn, Emil, and L. Nicolai, Dresden, Germany, assignors to American Metal Edge Box Company, Camden, N. J., and Philadelphia, Pa. Eyelet	32,147	Jan. 30	90	947
Sanders, Louis, New York, N. Y. Body portion for belts	32,350	Mar. 13	90	2130
Sargent & Company. (See Sargent, Edward R., assignor.)				
Sargent, Edward R., assignor to Sargent & Company, New Haven, Conn. Lock-case	32,158	Jan. 30	90	949
Schaefer, Henry A., assignor to Schaefer & Schlegel, Rochester, N. Y. Trimming	32,242	Feb. 13	90	1361
Schaefer, Henry A., assignor to Schaefer & Schlegel, Rochester, N. Y. Trimming	32,243	Feb. 13	90	1361
Schaefer & Schlegel. (See Schaefer, Henry A., assignor.)				
Schichtl, Martin, North Yakima, Wash. Clamp-frame for vehicle-tongue supports	32,177	Jan. 30	90	952
Schilling, Frank, Muncie, Ind. Bottle	32,185	Feb. 6	90	1147
Schmidt, Carl C., St. John, Canada. Spoon, fork, or knife handle	32,082	Jan. 9	90	438
Schnabel, Edmund, New York, N. Y. Piano-case	32,111	Jan. 16	90	598
Schnabel, Edmund, New York, N. Y. Piano-case	32,112	Jan. 16	90	598
Schnabel, Edmund, New York, N. Y. Piano-case	32,113	Jan. 16	90	598
Schneider, William E., Washington, D. C. Vehicle-body	32,368	Mar. 20	90	2288
Schupp, Albert, Jr. (See Hutson and Schupp.)				
Schutt, Owen. (See Denyes and Schutt.)				
Scott, William, Medford, Mass. Bath-tub	32,411	Mar. 27	90	2501
Scovill Manufacturing Company. (See Hyde, Theophilus, Jr., assignor.)				
See, Horace, New York, N. Y. Crank	32,196	Feb. 6	90	1149
Selkirk, Alexander, assignor to Burdick & Son, Albany, N. Y. Founder's core-supporting shell	32,319	Mar. 6	90	1940
Senderling, Martin L., Jersey City, N. J. Fifth-wheel support	32,197	Feb. 6	90	1149
Sherman, John S., and G. H. Harms, Detroit, Mich. Inner-tube member for hydrocarbon-burners	32,092	Jan. 9	90	440
Shipman, Madison D., De Kalb, Ill. Top for socket members for glove-fasteners	32,278	Feb. 27	90	1733
Shisler, Sherman, Salem, Ohio. Clasp for thill-tugs	32,063	Jan. 2	90	213
Sigwalt, John, and A. M. Willard, Chicago, Ill. Hand-seal-press body	32,214	Feb. 13	90	1356
Simmons, John W., Hagerstown, Md. Button	32,142	Jan. 23	90	745
Sloan, Alfred P., Jr., New York, N. Y. Frame for shafting-hangers	32,340	Mar. 13	90	2128
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Knife-handle	32,148	Jan. 30	90	947
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Knife-handle	32,306	Mar. 6	90	1938
Smith & Co., T. I. (See Smith, Theron I., assignor.)				
Smith, De Wane B., Deerfield, N. Y. Sprayer-body	32,398	Mar. 27	90	2499
Smith, E. H. H. (See Leech, John H., assignor.)				
Smith, Frank A., Chicago, Ill. Umbrella or cane holder	32,373	Mar. 20	90	2289
Smith, Theron I., assignor to T. I. Smith & Co., North Attleborough, Mass. Shoe for collar-buttons	32,081	Jan. 9	90	438
Sondheim & Magnus. (See Astarita, Raffaello, assignor.)				
Souders, Irvin C., Dayton, Ohio. Bottle	32,308	Mar. 6	90	1938
Spears, William H., New York, N. Y. Cane or umbrella handle	32,354	Mar. 20	90	2286
Standard Light Company. (See Marquis, Isaac N., assignor.)				
Stegall, William W., Dickens, Tex. Member for repair-links	32,192	Feb. 6	90	1148
Steppe, John P., assignor to S. Sternau & Co., New York, N. Y. Soap-dish	32,385	Mar. 27	90	2496
Sternau & Co., S. (See Steppe, John P., assignor.)				
Stevens, Ernest, Philadelphia, Pa. Inhaler	32,151	Jan. 30	90	948
Stewart, Elizabeth, New York, N. Y. Fastening-eye	32,315	Mar. 6	90	1939
Stillson, Robert L., New York, N. Y., assignor to Barnhart Brothers & Spindler, Chicago, Ill. Font of printing-type	32,116	Jan. 16	90	598
Stimpson, Walter F. (See Jungwirth, Joachim, assignor.)				
Stone, Carl O., New York, N. Y. Flower-pot support	32,288	Feb. 27	90	1735
Storey, John T., Philadelphia, Pa. Battery-plate	32,160	Jan. 30	90	949

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Strauss, Morris, Omaha, assignor to Cudahy Packing Company, South Omaha, Nebr. Display-stand	32,075	Jan. 2	90	215
Sutton, Charles A., Pitkin, Colo. Slide for tongs-handles	32,223	Feb. 13	90	1358
Swanson, Carl J., Galesburg, Ill. Rein-support	32,322	Mar. 6	90	1941
Sweetman, Michael M., Kansas City, Mo. Lamp-body	32,309	Mar. 6	90	1938
Swoboda, Hans O., New York, N. Y., assignor to Falcon Electric Manufacturing Company, of New York. Switchboard	32,297	Feb. 27	90	1737
Taussig, Walter M., Yonkers, N. Y., assignor to Challenge Cutlery Corporation, Bridgeport, Conn. Handle for razors or similar articles	32,382	Mar. 27	90	2496
Taylor, Henry H., and M. B. Hammond, Bridgeport, Conn. Garment-supporting hook	32,383	Mar. 27	90	2496
Tilden, Charles K., Hallowell, Me., and H. S. Earle, Detroit, Mich. Grass-hook	32,227	Feb. 13	90	1358
Todd, Elbert R., Detroit, Mich. Spraying-nozzle	32,155	Jan. 30	90	949
Tsutsumi, James H., New York, N. Y. Textile fabric	32,266	Feb. 20	90	1534
Tuchfarber, Frank, Cincinnati, Ohio. Sign	32,183	Jan. 30	90	953
Tunzelmann, George W. de, London, England. Electric-lamp shade	32,205	Feb. 6	90	1150
Turner, Charles H. (See Radley, John P., assignor.)	32,391	Mar. 27	90	2498
Tyden, Emil, Hastings, Mich. Body for self-locking seals	32,412	Mar. 27	90	2501
Underwood, Bert E., Summit, N. J. Photographic cabinet				
United States Aerating Fountain Company. (See Cederstrom, John, assignor.)	32,202	Feb. 20	90	1534
Varnum, James A., Boston, Mass., and A. C. Warren, New London, Conn. Game-board	32,403	Mar. 27	90	2500
Venhuizen, John, Holland, Mich. Beet-thinner				
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Lock-case	32,392	Mar. 27	90	2498
Wales, Louis H., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Knob face or cap	32,316	Mar. 6	90	1940
Wales, Louis H., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Door-escutcheon	32,317	Mar. 6	90	1940
Walker, David, Newark, N. J. Stair-carpet button	32,384	Mar. 27	90	2496
Walker, James B., Rush Springs, Ind. Ter., assignor of one-half to R. J. Walker, Weir, Kans. Work-stand	32,374	Mar. 20	90	2289
Walker, Robert J. (See Walker, James B., assignor.)	32,398	Mar. 27	90	2497
Wallace, Frederick J., Buffalo, N. Y. Broom-holder				
Ward, Hugh F., *et al.* (See Fuller, John W., assignor.)				
Warren, Walter C. (See Varnum and Warren.)	32,076	Jan. 2	90	216
Wearne, Harry, Rixheim, Germany. Wall-paper	32,139	Jan. 23	90	746
Weathersby, William O., Coahoma, Miss. Game-board	32,107	Jan. 16	90	597
Weaver, Frank S., Mount Holly, N. J. Chain-link blank	32,332	Mar. 13	90	2127
Weber, Lina P., New York, N. Y. Goffering-tool	32,352	Mar. 13	90	2130
Weber, Lina P., New York, N. Y. Artificial flower	32,271	Feb. 27	90	1732
Wensinger, Andrew A., Toledo, Ohio. Souvenir button	32,173	Jan. 30	90	951
White, William R., Bloomington, Ill. Gate-hinge	32,402	Mar. 27	90	2500
Whitford, Delos C., Wolcott, N. Y. Hammer-head				
Whittall, Matthew J. (See Rose, Arthur M., assignor.)	32,279	Feb. 27	90	1733
Wicht, Carl, and W. E. Dippert, Des Moines, Iowa. Loop-plate for top-collar fasteners	32,280	Feb. 27	90	1733
Wicht, Carl, and W. E. Dippert, Des Moines, Iowa. Hinge-plate for top-collar fasteners	32,323	Mar. 6	90	1941
Wicht, Carl, and W. E. Dippert, Des Moines, Iowa. Hasp-plate	32,060	Jan. 2	90	213
Wiegand, Andrew J., Baltimore, Md. Gas-cock				
Willard, Arthur M. (See Sigwalt and Willard.)	32,310	Mar. 6	90	1939
Williams, Adam C., Ravenna, Ohio. Toy bank	32,090	Jan. 9	90	439
Williams, David S., Philadelphia, Pa. Lamp-body	32,141	Jan. 23	90	745
Williams, David S., Philadelphia, Pa. Lamp-body	32,165	Jan. 30	90	950
Williams, David S., Philadelphia, Pa. Lamp-hood	32,162	Jan. 30	90	950
Wilson, Clarence D., Columbus, Ohio. Telephone-receiver holder				
Wisconsin Chair Company. (See Coffman, James H., assignor.)	32,186	Feb. 6	90	1147
Worden, Homer, New York, N. Y. Bottle-case				
Worth, William O., Chicago, Ill., assignor of two-thirds to W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battle Creek, Mich. Frame for motor-vehicles	32,199	Feb. 6	90	1149
Wright, Fred. (See Wright, Robert J. and F.)				
Wright, Herbert E., *et al.* (See Nisbet, Jennie L., assignor.)	32,281	Feb. 27	90	1734
Wright, John J., assignor of one-half to A. D. Bedell, Salamanca, N. Y. Towel-rack	32,342	Mar. 13	90	2129
Wright, Robert J. and F., Coldwater, Mich. Carpet-stretching plate				
Wrought Iron Range Company. (See Culver, Walter L., assignor.)	32,145	Jan. 30	90	947
Zell, Lucian M., Boston, Mass., assignor to American Gem Company, of Maine. Brooch				
Zimmermann, Robert O. (See Beck and Zimmermann.)				

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Abell, Charles E., South Haven, Mich. Ointment for certain named diseases	34,107	Jan. 30	90	956
Abram Lyle & Sons, Limited, London, England. Syrup and sugar	34,322	Mar. 13	90	2132
Acetylene Gas Machine Improvement Company, Jersey City, N. J. Acetylene-gas generators or machines	34,037	Jan. 9	90	444
Addressograph Company, Chicago, Ill. Printing-machines	34,056	Jan. 16	90	600
Adler & Co., Jacob, New York, N. Y. Certain named gloves	34,355	Mar. 27	90	2508
Adolph Frankau & Company, Limited, London, England. Tobacco-pipes and cigar and cigarette tubes and holders	34,142	Feb. 6	90	1153
Advanced Beet Sugar Construction Company, New York, N. Y. Certain named groceries	34,024	Jan. 9	90	443
Albert Dickinson Company, Chicago, Ill. Grass, clover, and field seeds and seed-grains	34,156	Feb. 6	90	1154
Albert Dickinson Company, Chicago, Ill. Grass, clover, and field seeds and seed-grains	34,294	Mar. 6	90	1944
Albert Dickinson Company, Chicago, Ill. Grass, clover, and field seeds and seed-grains	34,295	Mar. 6	90	1944
American Coffee Company, New York, N. Y. Coffee, excepting condensed coffee	33,964	Jan. 2	90	218
American Coffee Company, New York, N. Y. Coffee, excepting condensed coffee	33,965	Jan. 2	90	218
American Curled Hair Company, Central Falls, R. I., and New York, N. Y. Adhesive compositions	34,000	Jan. 2	90	221
American Importing Company, Chicago, Ill. Coffee, teas, and spices	34,287	Mar. 6	90	1943
American Match Machine Company, Jersey City, N. J., and New York, N. Y. Matches	34,374	Mar. 27	90	2504
American Proprietary Medicine Company, Chicago, Ill. Hog-cholera medicine or remedies	34,019	Jan. 9	90	443
Andrews & Co., Dublin, Ireland. Whisky	34,220	Feb. 20	90	1537
Anglo-Swiss Condensed Milk Company, New York, N. Y. Milk and cream, crude, condensed, or sterilized	34,288	Mar. 6	90	1943
Appert, Alfred C., Paris, France. Product for preserving and improving wines and other beverages	34,191	Feb. 13	90	1363
Armour Packing Company, Jersey City, N. J., and Kansas City, Kans. Certain remedial preparations	33,991	Jan. 2	90	220
Armstrong Bros. Tool Company, Chicago, Ill. Certain named tools	34,326	Mar. 13	90	2132
Arnholt & Schaefer Brewing Company, Philadelphia, Pa. Malt tonic	34,119	Jan. 30	90	957
Arnholt & Schaefer Brewing Company, Philadelphia, Pa. Beer	34,120	Jan. 30	90	957
Arnholt & Schaefer Brewing Company, Philadelphia, Pa. Wine	34,121	Jan. 30	90	957
Augier, Amélie, veuve de De Bournonville, Cognac, France. Brandy	34,281	Mar. 6	90	1943
Bachman, Frank E., Buffalo, N. Y. Apparatuses for filtering water	34,304	Mar. 6	90	1945
Balfour, Guthrie & Co., Portland, Oreg. Cement	34,002	Jan. 2	90	221
Ballou & Co., B. A., Providence, R. I. Certain named articles of jewelry	34,327	Mar. 20	90	2291
Bartlett, Stephen L., Boston, Mass. Cocoa	34,218	Feb. 20	90	1537
Battle & Co., Chemists' Corporation, St. Louis, Mo. Antipurulent	34,340	Mar. 20	90	2292
Beach, Carl F., Battle Creek, Mich. Certain named food compound	33,970	Jan. 2	90	218
Beckman Company, Cleveland, Ohio. Horse-blankets	34,359	Mar. 27	90	2508
Bell & Company, New York, N. Y. Digestive tablets	33,996	Jan. 2	90	220
Belton Mills, Belton, S. C. Cotton cloth	34,176	Feb. 13	90	1362
Berghelm, John S., London, England. Ingredient in food	33,971	Jan. 2	90	218
Berghoff, Gustav A., Fort Wayne, Ind. Certain named laundry articles	34,154	Feb. 6	90	1154
Berry Bros., Limited, Detroit, Mich. Shellac varnish	34,204	Feb. 13	90	1364
Berry Bros., Limited, Detroit, Mich. Shellac-gum	34,301	Mar. 6	90	1945
Blackinton, W. & S., Providence, R. I., and New York, N. Y. Certain named articles of jewelry	33,957	Jan. 2	90	217
Blair, Henry A., San Antonio, Tex. Certain named medicaments	34,365	Mar. 27	90	2504
Bloch Brothers Tobacco Company, Wheeling, W. Va. Tobacco	34,022	Jan. 9	90	443
Bloomingdale, Lyman G., New York, N. Y. Ladies' kid gloves	34,039	Jan. 16	90	599
Boericke & Runyon Co., New York, N. Y.; San Francisco, Oakland, and Los Angeles, Cal.; Portland, Oreg., and Philadelphia, Pa. Liquid nerve-tonic	33,997	Jan. 2	90	221
Bommer Brothers, New York, N. Y. Hinges	34,207	Feb. 13	90	1364
Bosman & Lohman, Norfolk, Va. Peanut-candy	34,247	Feb. 27	90	1740
Bowker, William H., Boston, Mass. Insecticides	34,369	Mar. 27	90	2504
Bowker, William H., Boston, Mass. Insecticides	34,370	Mar. 27	90	2504
Bowker, William H., Boston, Mass. Insecticides	34,371	Mar. 27	90	2504
Bowker, William H., Boston, Mass. Insecticides	34,372	Mar. 27	90	2504
Boyd & Co., John, Jr., New York, N. Y. Flour	34,199	Feb. 13	90	1364
Boyd & Sons, George, Philadelphia, Pa. Peanuts in packages	34,027	Jan. 9	90	444
British Uralite Company, Limited, London, England. Compounds of asbestos and silica for use in building and decoration	34,007	Jan. 2	90	221
British Uralite Company, Limited, London, England. Compounds of asbestos and silica for use in building and decoration	34,008	Jan. 2	90	222
Brooke Medical Co., Coshocton, Ohio. Cure for car or sea sickness	34,341	Mar. 20	90	2292
Brooks-Griffiths Company, Minneapolis, Minn. Mixed food for animals	34,243	Feb. 27	90	1740
Bryan, O. J. & J. A., Rochester, N. Y. Remedy for certain named diseases	33,992	Jan. 2	90	220
Buff & Buff Instrument Manufacturing Co., Boston, Mass. Transits	34,303	Mar. 6	90	1945
Burns Bros., Buffalo, N. Y. Cigars	34,085	Jan. 23	90	746
Bush & Gerts Piano Company, Chicago, Ill. Pianos	34,172	Feb. 6	90	1156
Buswell, John J., Philadelphia, Pa. Salve for certain named diseases	33,999	Jan. 2	90	221
Butler-Breed Company, Boston, Mass. Rolled oats	34,293	Mar. 6	90	1944
Buyit & Tryit Co., Paterson, N. J. Baking-powder	34,383	Mar. 27	90	2505
Capital City Dairy Company, Columbus, Ohio. Butter and artificial butter	34,023	Jan. 9	90	443
Carpenter-Morton Company, Boston, Mass. Varnish-stains, varishes, and paints	34,158	Feb. 6	90	1155
Carpetto Syndicate, Limited, London, England. Detergents	34,278	Mar. 6	90	1942
Carter's Ink Company, Boston, Mass. Writing-inks	34,299	Mar. 6	90	1945
Cartwright & Warners, Limited, Loughborough and London, England, and New York, N. Y. Underwear and hosiery	33,959	Jan. 2	90	217
Cartwright & Warners, Limited, Loughborough and London, England, and New York, N. Y. Underwear and hosiery	33,960	Jan. 2	90	217
Celluloid Company, Newark, N. J., and New York, N. Y. Certain pyroxylin compounds and substances coated with same	34,001	Jan. 2	90	221
Cerealine Manufacturing Company, Indianapolis, Ind. Cereal products	34,066	Jan. 23	90	746

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Chas. W. Huff Company, Pittsburg, Pa. Certain named grocers' specialties	34,197	Feb. 13	90	1364
Chemische Fabrik Helfenberg Actien-Gesellschaft, vormals Eugen Dieterich, Helfenberg, Germany. Certain named drugs and chemicals	34,259	Feb. 27	90	1741
Cheney, Arthur N. Plantsville, Conn. Medicines for the cure of certain named diseases	34,342	Mar. 20	90	2292
Christr. Thomas & Bros., Limited, Bristol, England. Edible fats	34,193	Feb. 13	90	1363
Christr. Thomas & Bros., Limited, Bristol, England. Edible fats	34,194	Feb. 13	90	1363
Christr. Thomas & Bros., Limited, Bristol, England. Edible fats	34,195	Feb. 13	90	1363
Church & Dwight Company, New York, N. Y. Sal-soda	34,060	Jan. 9	90	444
Churchill Drug Company, Burlington, Iowa. Blood-purifier or tonic	33,996	Jan. 2	90	221
Clark Manufacturing Company, East Orange, N. J., and Boston, Mass. Metal clasps	34,261	Feb. 27	90	1742
Clarke, Charles H., Des Moines, Iowa. Preparation for the cure of a certain named disease	34,225	Feb. 20	90	1538
Clement & Gharky, Philadelphia, Pa. Certain named electrical apparatus and supplies	34,305	Mar. 6	90	1945
Cleveland Stone Company, Cleveland, Ohio. Certain named stone	34,353	Mar. 20	90	2294
Cline & Bro., C. M., Terre Hill, Pa. Cigars, cigarettes, cheroots, and smoking-tobacco	34,192	Feb. 13	90	1363
Codman, F. L. & J. C., Boston, Mass. Cotton-buff wheels	34,306	Mar. 6	90	1946
Colonial Medical Co., Pittsburg, Pa. Throat and lung syrup	34,339	Mar. 20	90	2292
Commichau, Carl H., Silkeborg, Denmark. Certain named fabrics and wearing-apparel made therefrom	34,313	Mar. 13	90	2131
Concordia Publishing House, St. Louis, Mo. Certain named books	34,193	Feb. 13	90	1362
Conday, Paul, Pittsburg, Pa. Medical compound	34,102	Jan. 30	90	955
Conday, Paul, Pittsburg, Pa. Remedy for certain named diseases	34,253	Feb. 27	90	1741
Connell & Co., J. L., Scranton, Pa. Wheat-flour	34,112	Jan. 30	90	956
Consolidated Incandescent Light Company, New York, N. Y. Incandescent gas-mantles	34,324	Mar. 13	90	2132
Consolidated Incandescent Light Company, New York, N. Y. Incandescent gas-mantles	34,390	Mar. 27	90	2506
Cook, Enos P., Lake Mills, Wis. Pain-killer	34,227	Feb. 20	90	1538
Cook, Frederick W., Jr., San Antonio, Tex. Certain named medicines	34,068	Jan. 23	90	747
Corbin & Sons, Charles J., Fairmont, W. Va. Certain named tobaccos, cigars, stogies, tobies, chewing-roots, cigarettes, and snuff	34,252	Feb. 27	90	1741
Corse & McCorkle, Lexington, Va. Pain cure	34,101	Jan. 30	90	955
Costello Chocolate Company, Chicago, Ill. Chocolates	34,116	Jan. 30	90	957
Cream of Wheat Company, Minneapolis, Minn. Breakfast-foods	34,057	Jan. 23	90	747
Crosby & Meyers, Chicago, Ill. Cheese	34,111	Jan. 30	90	956
Crowell & Co., Rufus, Salem, Mass. Certain named medical preparations	34,162	Feb. 6	90	1155
Cudahy Packing Company, Chicago, Ill., and South Omaha, Nebr. Certain named groceries	34,196	Feb. 13	90	1363
Curiel, Herman, New York, N. Y. Extract as a beverage ingredient	34,190	Feb. 13	90	1363
Daimler, Gottlieb, Cannstadt, Germany. Motors, motor-cars, carriages, cycles, and parts of same	34,351	Mar. 20	90	2293
Dalrymple & Co., J. A., Haverhill, Mass. Slipper bows and buckles	34,098	Jan. 30	90	954
Dalrymple, Frank L., Reading, Pa. Ice-cream in block form	34,361	Mar. 27	90	2505
Davis, Frank L., Reading, Pa. Ice-cream for toilet use	34,315	Mar. 13	90	2131
Dietrichson, Marthine M., Mount Pleasant, Iowa. Cream for toilet use	34,016	Jan. 9	90	443
Doblin & Schamberg, New York, N. Y. Tailors' trimmings	34,265	Feb. 27	90	1742
Dodson, Fisher, Brockmann Company, Minneapolis, Minn. Harness and saddlery	34,036	Jan. 9	90	444
Donchian, Samuel B., Hartford, Conn. Rug-fasteners	34,081	Jan. 23	90	748
Dopp & Son, H. Wm., Buffalo, N. Y. Certain named machinery and appliances	34,165	Feb. 6	90	1155
Dorman & Barewald, Buffalo, Iowa. Topical remedies in powdered form for certain named diseases	34,292	Mar. 6	90	1945
Dublin Distillers Company, Limited, Dublin, Ireland. Irish whisky	34,293	Mar. 6	90	1945
Dublin Distillers Company, Limited, Dublin, Ireland. Irish whisky	34,378	Mar. 27	90	2505
E. Martin & Company, San Francisco, Cal. Whisky	34,042	Jan. 16	90	599
E. S. Higgins Carpet Company, New York, N. Y. Carpets	34,215	Feb. 20	90	1536
E. S. Higgins Carpet Company, New York, N. Y. Carpets	34,216	Feb. 20	90	1537
E. S. Higgins Carpet Company, New York, N. Y. Carpets	34,306	Feb. 13	90	1364
Eclipse Cement and Blacking Company, Philadelphia, Pa. Certain named cement	34,222	Feb. 20	90	1537
Elbert & Gardner, New York, N. Y. Cotton-seed oil	34,122	Jan. 30	90	957
Elias & Samuels, New York, N. Y. Whisky	33,995	Jan. 2	90	220
Emerson, Frank, Lawrence, Mass. Remedies for certain named purposes	34,177	Feb. 13	90	1362
Erlanger, Blumgart & Co., N., New York, N. Y. Cotton goods, including mercerized cotton	34,334	Mar. 20	90	2292
Erie Preserving Company, Buffalo, N. Y. Certain named groceries	34,271	Mar. 6	90	1942
Eveleth, Mattie H., Boston, Mass. Game-boards	34,291	Mar. 6	90	1944
Everett, Robert, Boston, Mass. Wheat-flour	34,128	Jan. 30	90	958
Fairbanks, Morse & Company, Chicago, Ill. Power-generators	34,242	Feb. 27	90	1740
Fairchild Bros. & Foster, Elizabeth, N. J., and New York, N. Y. Food for infants and invalids	34,266	Feb. 27	90	1742
Falcon Electric Manufacturing Company, New York, N. Y. Certain named electrical supplies	34,074	Jan. 23	90	747
Farbenfabriken of Elberfeld Company, New York, N. Y. Certain named pharmaceutical compound	34,358	Mar. 27	90	2503
Farnum & Co., John, Philadelphia, Pa. Cotton fabrics	34,075	Jan. 23	90	747
Federal Battery Company, Bound Brook, N. J., and New York, N. Y. Battery compounds or salts	34,076	Jan. 23	90	748
Federal Battery Company, Bound Brook, N. J., and New York, N. Y. Battery compounds or salts	34,356	Mar. 27	90	2503
Ferguson-McKinney Dry Goods Company, St. Louis, Mo. Hosiery, knit underwear, and gloves	34,092	Jan. 9	90	444
Fidanque, Nieto & Co., New York, N. Y. Laundry and toilet soap	34,140	Feb. 6	90	1153
Fidelity Manufacturing Company, Wilmington, Del., and New York, N. Y. Baking-powder	34,279	Mar. 6	90	1942
Field, Harry E., New York, N. Y. Preparation for disinfecting	34,153	Feb. 6	90	1154
Fletcher, Mordecai H., Cincinnati, Ohio. Certain named toilet preparations	34,095	Jan. 9	90	444
Foley Bros. & Kelly Mercantile Company, St. Paul, Minn. Certain named grocers' goods	34,104	Jan. 30	90	956
Foley & Company, Chicago, Ill. Remedies for certain named diseases	34,157	Feb. 6	90	1154
Fortner, Louis B., Philadelphia, Pa. Liquid compound for fixing colors of dyed fibers and fabrics	34,009	Jan. 2	90	222
Fox, Arthur O., Madison, Wis. Metal castings	34,148	Feb. 6	90	1153
Fox River Butter Company, Aurora and Oswego, Ill. Butter	34,114	Jan. 30	90	956
Franklin Sugar Refining Company, Philadelphia, Pa. Granulated sugar	34,115	Jan. 30	90	956
Franklin Sugar Refining Company, Philadelphia, Pa. Granulated sugar	34,163	Feb. 6	90	1155
Fries Bros., New York, N. Y. Medical compounds	34,221	Feb. 20	90	1537
Fuldner & Co., L., Milwaukee, Wis. Whiskies	34,314	Mar. 13	90	2131
Fulton Bag and Cotton Mills, Atlanta, Ga. Bags and twine with which to sew same	33,991	Jan. 2	90	217
Geo. B. Sprague Cigar Company, Columbus, Ohio. Cigars and stogies	34,261	Feb. 27	90	1742
Giguere, Alfred J., Fall River, Mass. Medical wines, pills, plasters, and ointments	34,344	Mar. 20	90	2293
Gladiator Chemical Company, Indianapolis, Ind. Liniment	34,270	Feb. 27	90	1742
Globe Lumber Company, Kansas City, Mo. Lumber and piling	34,357	Mar. 27	90	2503
Goddard & Sons, J. W., New York, N. Y. Cotton linings	33,989	Jan. 2	90	219
Goldmann, Gustave, Allegheny, Pa. Hair-tonics	34,316	Mar. 13	90	2132
Goldstein, Benjamin, Allegheny, Pa. Ointments and lotions	33,958	Jan. 2	90	217
Gottdnier & Wicht, D., Cleveland, Ohio. Certain named musical instruments	33,988	Jan. 2	90	220
Grape Capsule Company, Allentown, Pa. Medicines for certain named diseases	34,380	Mar. 27	90	2506
Griggs, Cooper & Co., St. Paul, Minn. Teas and coffees				

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Grossmith, John I., London, England. Perfumery	34,298	Mar. 6	90	1945
Gunning, James F. J., Toronto, Canada. Shoe-dressing	34,048	Jan. 16	90	600
H. C. White Company, Bennington, Vt. Hand-stereoscopes	34,185	Feb. 13	90	1363
H. C. White Company, Bennington, Vt. Hand-stereoscopes	34,186	Feb. 13	90	1363
H. Koehler & Company, New York, N. Y. Lager-beer	34,219	Feb. 20	90	1537
Halford, Frank S., Toronto, Canada. Teas	34,246	Feb. 27	90	1740
Hall & Co., T. B., Liverpool, England. Cider	34,249	Feb. 27	90	1740
Harp-O-Chord Company, Columbus, Ohio. Zither-like harp	34,231	Feb. 27	90	1739
Harrison & Co., Louis R., New York, N. Y. Perfume	34,375	Mar. 27	90	2504
Harrison & Roth Company, Evanston, Wyo. Opium antidote	34,021	Jan. 9	90	443
Hassler, Robert H., Indianapolis, Ind. Electric belts or bands for body wear	34,275	Mar. 6	90	1942
Haworth & Dewhurst, Limited, Pittsburg, Pa. Coffee	33,966	Jan. 2	90	218
Haworth & Dewhurst, Limited, Pittsburg, Pa. Certain named cooked foods	33,967	Jan. 2	90	218
Haworth & Dewhurst, Limited, Pittsburg, Pa. Syrups and molasses	33,968	Jan. 2	90	218
Haworth & Dewhurst, Limited, Pittsburg, Pa. Oat-flakes, rolled wheat, and rice	33,969	Jan. 2	90	218
Hay's Waterproof Binding Company, Oshkosh, Wis. Dress-facings	34,014	Jan. 9	90	443
Hay's Waterproof Binding Company, Oshkosh, Wis. Certain named dry goods	34,212	Feb. 20	90	1536
Hazard Powder Company, New York, N. Y. Gunpowder	34,123	Jan. 30	90	957
Hazard Powder Company, New York, N. Y. Gunpowder	34,124	Jan. 30	90	957
Hazard Powder Company, New York, N. Y. Gunpowder	34,125	Jan. 30	90	957
Hazard Powder Company, New York, N. Y. Gunpowder	34,126	Jan. 30	90	958
Heine & Co., Leipsic, Germany. Chemical and pharmaceutical preparations	34,360	Mar. 27	90	2503
Heine & Co., Leipsic, Germany. Chemical and pharmaceutical preparations	34,361	Mar. 27	90	2503
Heller, Blau & Jay, Newark, N. J. Certain named laundry supplies	33,977	Jan. 2	90	219
Henry Roever Company, Cincinnati, Ohio. Certain named toilet preparations	34,152	Feb. 6	90	1154
Herb Medicine Co., Springfield, Ohio. Certain named medicine	34,345	Mar. 20	90	2293
Herkloiz, Corn & Co., New York, N. Y. Wheat-flour	34,384	Mar. 27	90	2505
Herrick & Co., G. W., Lynn, Mass. Women's shoes	34,130	Feb. 6	90	1152
Hertzog Cement-Paint Co., Philadelphia, Pa. Paints, varnishes, cement-paints, and cements	34,127	Jan. 30	90	958
Hibbs, Edward A., Philadelphia, Pa. Filtering devices	34,057	Jan. 16	90	600
Hildreth, Charles M., Paterson, N. J. Remedy for certain named diseases	34,277	Mar. 6	90	1942
Hilliard, Haven J., Boston, Mass. Soldering fluid for metals	34,349	Mar. 20	90	2293
Hilmer & Bredhoff, San Francisco, Cal. Butter	34,290	Mar. 6	90	1944
Hilton, George W., Lowell, Mass. Remedies for certain named diseases	33,993	Jan. 2	90	220
Hodgson, John H., New York, N. Y. Cheese	34,149	Feb. 6	90	1154
Hoffmann's Stärkefabriken, Salzufien, Germany. Certain named starch and cornstarch products	34,234	Feb. 27	90	1739
Honey, Augustine, Liverpool, England. Certain named foods	34,241	Feb. 27	90	1740
Hope, William J., Tunica, Miss. Certain named remedies	34,069	Jan. 23	90	747
Horton, Stephen D., Peekskill, N. Y. Certain named fire-bricks	34,006	Jan. 2	90	221
Houghton, Phoebe A., Boston, Mass. Toilet preparations	34,031	Jan. 9	90	444
Hy-Jen Chemical Co., Detroit, Mich. Confections and toilet preparations	34,047	Jan. 16	90	600
Indianapolis Brewing Company, Indianapolis, Ind. Bottled beer, porter, and malt extract	33,992	Jan. 2	90	217
J. H. Keller's Soap Works, New Orleans, La. Soap	34,200	Feb. 13	90	1364
J. Lee Cruce Company, Fort Smith, Ark. Medical compound for certain named diseases	34,103	Jan. 30	90	955
Jaffé & Darmstaedter, Benno, Martinikenfelde, near Berlin, Germany. Certain named toilet articles and preparations	33,979	Jan. 2	90	219
James Chadwick & Brother, Limited, Bolton, England. Spool-cotton	34,015	Jan. 9	90	443
John B. Stetson Company, Philadelphia, Pa. Hats and caps	34,174	Feb. 13	90	1362
John B. Stetson Company, Philadelphia, Pa. Hats and caps	34,175	Feb. 13	90	1362
John L. Whiting & Son Company, Boston, Mass. Brushes	34,090	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,091	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,092	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,093	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,094	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,095	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,096	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,097	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,098	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,099	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,100	Jan. 30	90	955
John L. Whiting & Son Company, Boston, Mass. Brushes	34,169	Feb. 6	90	1156
John L. Whiting & Son Company, Boston, Mass. Brushes	34,170	Feb. 6	90	1156
John L. Whiting & Son Company, Boston, Mass. Brushes	34,388	Mar. 27	90	2506
John L. Whiting & Son Company, Boston, Mass. Brushes	34,389	Mar. 27	90	2506
John L. Whiting & Son Company, Boston, Mass. Brushes	34,343	Mar. 20	90	2292
Johnson, John A., Smyrna, Del. Liquid local anesthetic	34,226	Feb. 20	90	1538
Kahle, Albert W., Lima, Ohio. Medical compound	34,366	Mar. 27	90	2504
Kamps & Sackstteder, Appleton, Wis. Iron tonic pills	33,972	Jan. 2	90	218
Kellogg, John H., Battle Creek, Mich. Certain named food preparations	34,003	Jan. 2	90	221
Kern Incandescent Gas Light Company, New York, N. Y. Gas burners, globes, and mantles	34,211	Feb. 20	90	1536
Klam, Edward, Houston, Tex. Leather shoes	34,338	Mar. 20	90	2292
Klimer Co., New York, N. Y. Preparations for the treatment of the scalp and hair	34,110	Jan. 30	90	956
Kirk & Co., James S., Chicago, Ill. Certain named toilet preparations	34,307	Mar. 6	90	1946
Klinger, Richard, Gumpoldskirchen, Austria-Hungary. Packing materials	34,346	Mar. 20	90	2293
König, Alexander, Vienna, Austria-Hungary. Certain named chemical and pharmaceutical preparations	34,038	Jan. 16	90	599
Kops Bros., New York, N. Y. Corsets and corset-clasps	34,367	Mar. 27	90	2504
Krengel & Willihy, Pittsburg, Pa. Oil of tobacco for cancer cure	34,336	Mar. 20	90	2292
Kunhardt & Co., New York, N. Y. Green coffee				
La Manufacture Française de Porte-Plumes et Œlletts Métalliques, (Ancienne Maison G. Bac,) Paris, France. Metallic eyelets for shoes	34,276	Mar. 6	90	1942
Lanoid Co., Delaware, Ohio. Remedies for a certain named disease	33,994	Jan. 2	90	220
Lasalle & Koch Company, Toledo, Ohio. Corsets	34,210	Feb. 20	90	1536
Laux, Carl, Los Angeles, Cal. Cure for certain named diseases	34,257	Feb. 27	90	1741
Lecaron & Fils, Paris, France. Lotion	34,317	Mar. 13	90	2132
Lechenich, Antoine C. A., Fowey and Lostwithiel, England. China-clay and china-stone	34,005	Jan. 2	90	221
Lee, Charles P., Arkansas City, Kans. Cures for certain named diseases	34,258	Feb. 27	90	1741
Leonhardt, John S., Lincoln, Nebr. Remedy for certain named diseases	34,254	Feb. 27	90	1741
Leroy & Cie., Veuve Ch., Levallois-Perret, and Paris, France. Polish and dressing for shoes	34,077	Jan. 23	90	748
Liebetrut, Edward J., Buffalo, N. Y. Certain named medicines for the hair	33,981	Jan. 2	90	219
Lilienfeld & Co., Dr., Vienna, Austria-Hungary. Certain named photographic materials	34,132	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing paper	34,133	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,134	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,135	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,136	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,137	Feb. 6	90	1152
Lindenmeyr & Sons, Henry, New York, N. Y. Writing paper	34,138	Feb. 6	90	1153

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Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,139	Feb. 6	90	1153
Lindenmeyr & Sons, Henry, New York, N. Y. Writing-paper	34,140	Feb. 6	90	1153
Lindner, John, Carlisle, Pa. Leather and shoes	34,062	Jan. 23	90	746
Lindner, John, Carlisle, Pa. Leather and shoes	34,131	Feb. 6	90	1152
Lippincott, Oliver C., Philadelphia, Pa. Liquid compound for certain named purposes	34,055	Jan. 16	90	600
"Locomobile" Company of America, Wheeling, W. Va., and New York, N. Y. Automatically-propelled wheeled vehicles	34,013	Jan. 2	90	222
"Locomobile" Company of America, New York, N. Y. Automatically-propelled wheeled vehicles	34,230	Feb. 20	90	1538
"Locomobile" Company of America, New York, N. Y. Automatically-propelled wheeled vehicles	34,269	Feb. 27	90	1742
Loomis & Co., E. P., New York, N. Y. Certain named produce	34,333	Mar. 20	90	2291
Lueders & Co., George, New York, N. Y., and Chicago, Ill. Drugs, chemicals, and certain named oils	34,200	Feb. 27	90	1741
Luyties, Frederick A., St. Louis, Mo. Tonics	34,240	Mar. 6	90	1943
M. A. Seed Dry Plate Company, St. Louis, Mo. Photographic dry-plates, films, and developers	34,184	Feb. 13	90	1363
Malloy, Horatio T., Hoboken, N. J. Cured shoulders of pork	34,240	Mar. 6	90	1944
Marquette, Joseph R., New York, N. Y. Starch	34,332	Mar. 20	90	2291
Marsh, Frederick A., Kansas City, Mo. Sticky fly-paper	34,189	Feb. 13	90	1363
Masury, Young & Co., Boston, Mass. Floor-dressing	34,205	Feb. 13	90	1364
Maucher, Rudolf & Wilhelm, Neustadt, Germany. Wines	34,144	Feb. 6	90	1153
Max Huncke Chemical Company, New York, N. Y. Embalming fluid	34,167	Feb. 6	90	1155
Max Huncke Chemical Company, New York, N. Y. Embalming fluid	34,168	Feb. 6	90	1156
Mayer & Co., Norfolk, Va. Certain named leather belting	34,018	Jan. 9	90	443
McConihe & Hubbell Manufacturing Company, New York, N. Y. Billiard-cloth	34,214	Feb. 20	90	1536
McConnon & Co., Winona, Minn. Liniment	34,208	Feb. 13	90	1364
McPherson, George G., Toronto, Canada. Volatile sterilizing and antiseptic compound	34,224	Feb. 20	90	1537
Melnecke & Company, New York, N. Y. Nursing-nipples	33,985	Jan. 2	90	219
Merck & Co., New York, N. Y. Purified wool-fat prepared for medical and pharmaceutical use	34,044	Jan. 16	90	599
Merck, Firm of E., Darmstadt, Germany. Medicine for certain named purposes	34,318	Mar. 13	90	2132
Merry Optical Co., C. L., Kansas City, Mo. Nose-guards for eyeglasses	34,067	Jan. 30	90	954
Miles, John, New York, N. Y. Millinery headwear	34,354	Mar. 27	90	2503
Mitchell, Alexander, Monroe, La. Remedy for botts, colic, and lockjaw	34,320	Mar. 13	90	2132
Monarch Rubber Company, St. Louis, Mo. Certain named rubber footwear	34,017	Jan. 9	90	443
Morgan & Wright, Chicago, Ill. Pneumatic tires	34,350	Mar. 20	90	2293
Morrow & Co., John, Springfield, Ohio. Preparation for the stomach and digestive organs	34,201	Feb. 13	90	1364
Moseley, Horne Company, Keokuk, Iowa. Laundry starch	33,976	Jan. 2	90	219
Muralo Company, New York, N. Y. Certain surface-finishing materials	34,035	Jan. 9	90	444
Murray, Milton E., Boston, Mass. Flavors for soda-water	34,248	Feb. 27	90	1740
Myers & Co., Covington, Ky. Gin	34,251	Feb. 27	90	1741
National Biscuit Company, Jersey City, N. J., and Chicago, Ill. Certain named bakery products and confectionery	33,973	Jan. 2	90	218
National Biscuit Company, Jersey City, N. J., and Chicago, Ill. Certain named bakery products and confectionery	33,974	Jan. 2	90	218
Netschert, Frank, West Hoboken, N. J. Artificial decorative plants and flowers	34,273	Mar. 6	90	1942
New England Felt Roofing Works, Boston, Mass. Certain named roofing materials	34,080	Jan. 23	90	748
New Home Sewing Machine Company, Orange, Mass., and New York, N. Y. Sewing-machines and attachments	34,208	Feb. 13	90	1364
New York Puzzle Company, New York, N. Y. Puzzles	34,187	Feb. 13	90	1363
New York Puzzle Company, New York, N. Y. Puzzles	34,188	Feb. 13	90	1363
Newmark & Co., M. A., Los Angeles, Cal. Baking-powder and cereal foods	34,147	Feb. 6	90	1153
Newton & Emery, Portsmouth, N. H. Hair-restorers	34,228	Feb. 20	90	1538
Nichols, Eliza M., Chicago, Ill. Remedy for hay-fever	34,202	Feb. 13	90	1364
Nidelet, Sylvester L., St. Louis, Mo. Antiseptic, prophylactic, disinfectant, and parasiticide	33,987	Jan. 2	90	220
Olsen, Gunda P., Bayonne, N. J. Salve	34,262	Feb. 27	90	1742
Oscar & Co., Incorporated, New York, N. Y. Sauce	34,113	Jan. 30	90	956
Ostermoor & Co., New York, N. Y. Mattresses, pillows, cushions, and hassocks	34,063	Jan. 23	90	746
Ostermoor & Co., New York, N. Y. Mattresses, pillows, cushions, and hassocks	34,064	Jan. 23	90	746
Paats, Roche & Co., Wm., Buenos Ayres, Argentina. Oils and lubricants	34,079	Jan. 23	90	748
Pabst Brewing Company, Milwaukee, Wis. Lager-beer	34,379	Mar. 27	90	2505
Parrish Bros., Baltimore, Md. Baking-powder	34,046	Jan. 16	90	599
Pemberton Company, Lawrence, Mass. Cotton flannels	34,213	Feb. 20	90	1536
Pennsylvania Iron Works Company, Philadelphia, Pa. Double-cylinder piston-movement gasolene-engine	34,305	Mar. 27	90	2506
Perry & Company, Limited, Birmingham, England. Pen-nibs	34,061	Jan. 23	90	746
Perry & Company, Limited, Birmingham, England. Pens	34,209	Feb. 20	90	1536
Philbrick, Halsey B., Hartford, Conn. Certain named embroidery materials	34,308	Mar. 13	90	2131
Phoenix Flour Mill, Evansville, Ind. Wheat-flour	34,150	Feb. 6	90	1154
Pillsbury-Washburn Flour Mills Company, Limited, Minneapolis, Minn. Wheat-flour	34,151	Feb. 6	90	1154
Pittsburgh & Philadelphia Oil and Refining Company, Camden, N. J. Certain named oils	34,223	Feb. 20	90	1537
Pittsburgh Waterproof Co., Pittsburg, Pa. Horse-covers	34,181	Feb. 13	90	1362
Pittsburgh Waterproof Co., Pittsburg, Pa. Horse-covers	34,182	Feb. 13	90	1362
Plumbers Brass and Iron Manufacturing Company, Cleveland, Ohio. Water-filters	34,173	Feb. 6	90	1156
Pope Company, Charlotte, Mich. Remedy for certain named diseases	34,255	Feb. 27	90	1741
Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Certain named bicycle sundries	34,012	Jan. 2	90	222
Pope Manufacturing Company, Portland, Me., and Hartford, Conn. Certain named velocipede parts	34,208	Feb. 27	90	1742
Quan & Co., W. J., Chicago, Ill. Certain named groceries	34,284	Mar. 6	90	1943
Quan & Co., W. J., Chicago, Ill. Certain named groceries and cigars	34,285	Mar. 6	90	1943
Quinby, Harry W., Detroit, Mich. Remedies for certain diseases	34,256	Feb. 27	90	1741
Ralston Yeast Company, Topeka, Kans. Chewing-gum	34,145	Feb. 6	90	1153
Randall Ink Manufacturing Co., New York, N. Y. Printers' inks	34,300	Mar. 6	90	1945
Ray Chemical Company, Detroit, Mich. Remedies for certain named diseases	34,164	Feb. 6	90	1155
Rayner, Frank, Chicago, Ill. Certain named bakery products	34,385	Mar. 27	90	2505
Reckitt & Sons, Limited, New York, N. Y., and Hull, England. Bluing	34,235	Feb. 27	90	1739
Reid, Alexander F., New York, N. Y. Certain named cord and twines	34,328	Mar. 20	90	2291
Reid, Alexander F., New York, N. Y. Certain named cords and thread	34,329	Mar. 20	90	2291
Reilly, Peter C., Indianapolis, Ind. Wood strengthener and preservative	34,323	Mar. 13	90	2132
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes	34,179	Feb. 13	90	1362
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes	34,180	Feb. 13	90	1362
Rice, William S., Adams, N. Y. Cure for rupture	34,319	Mar. 13	90	2132
Richardson, Alonzo F., New York, N. Y. Hair-tonics	33,983	Jan. 2	90	219
Richmond Hosiery Mills, Rossville, Ga. Hosiery	34,084	Jan. 30	90	954
Robertson, Arthur R., Boston, Mass. Hammers	34,304	Mar. 27	90	2506
Robin, Maurice, Paris, France. Granules for certain named diseases	34,105	Jan. 30	90	956
Roth, Henry G., Minneapolis, Minn. Certain named groceries	34,238	Feb. 27	90	1739
Rust, Albert J., Chicago, Ill. Certain local anesthetics	34,078	Jan. 23	90	747

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S. R. Feil Company, Cleveland, Ohio. Nerve-tonic	34,020	Jan. 9	90	443
Sanitas Nut Food Company, Limited, Battle Creek, Mich. Nut and cereal foods	34,026	Jan. 9	90	444
Scheyer, Saliusch, San Francisco, Cal. Hosiery, underwear, and ribbons	34,178	Feb. 13	90	1362
Schneider, William E., Washington, D. C. Automatically-propelled wheeled vehicles	34,352	Mar. 20	90	2294
Schoonmaker, Frederick W., New York, N. Y. Certain named antiseptic toilet preparations	33,978	Jan. 2	90	219
Schroeder Chemical Company, Cincinnati, Ohio. Drugs, chemicals, medicines, medical compounds, and pharmaceutical preparations	34,106	Jan. 30	90	956
Schwarzlose Söhne, J. F., Berlin, Germany. Hair-dye	33,984	Jan. 2	90	219
Schwickerath, Karl, Detroit, Mich. Soluble compound of nuclein and iron	34,050	Jan. 16	90	600
Schwickerath, Karl, Detroit, Mich. Soluble compound of nuclein and copper	34,051	Jan. 16	90	600
Schwickerath, Karl, Detroit, Mich. Soluble compound of nuclein and silver	34,052	Jan. 16	90	600
Schwickerath, Karl, Detroit, Mich. Soluble compound of nuclein and mercury	34,053	Jan. 16	90	600
Schwickerath, Karl, Detroit, Mich. Nuclein	34,054	Jan. 16	90	600
Scott, Amalia, New York, N. Y. Shoulder-braces, corsets, corset-waists, and spinal supporters	34,272	Mar. 6	90	1942
Scranton & Sheldon, Peoria, Ill. Overalls and blouse-shirts	34,083	Jan. 30	90	954
Sealy, Thomas, New York, N. Y. Turpentine	34,373	Mar. 27	90	2504
Seat, Samuel M., Waco, Tex. Certain named toilet preparations	34,297	Mar. 6	90	1945
Seitz & Reisinger, York, Pa. Cough-syrup	34,071	Jan. 23	90	747
Shaine & Co., H. M., New York, N. Y. Umbrellas	34,274	Mar. 6	90	1942
Sherin & Baker, New York, N. Y. Medicines for certain named diseases	33,990	Jan. 2	90	220
Siemssen & Co., Hamburg, Germany. Cotton fabrics	34,309	Mar. 13	90	2131
Siemssen & Co., Hamburg, Germany. Cotton fabrics	34,310	Mar. 13	90	2131
Siemssen & Co., Hamburg, Germany. Cotton fabrics	34,311	Mar. 13	90	2131
Siemssen & Co., Hamburg, Germany. Cotton fabrics	34,312	Mar. 13	90	2131
Siemssen & Co., Hamburg, Germany. Cotton fabrics	34,330	Mar. 20	90	2291
Simcox, Edwin G., Minneapolis, Minn. Remedy for certain named diseases	34,362	Mar. 27	90	2503
Skidmore & Larrabee, New York, N. Y. Dress goods	34,041	Jan. 16	90	599
Smith Bros. & Burdick Company, Davenport, Iowa. Canned vegetables, fruits, and fish	34,240	Feb. 27	90	1740
Smith, Chase & Cutting, Boston, Mass. Suits of outer clothing	34,040	Jan. 16	90	599
Smith, Darius, Syracuse, N. Y. Sterilized surgical dressings	34,100	Jan. 30	90	956
Smith, George P., New Haven, Conn. Laundry starch	34,155	Feb. 6	90	1154
Smith, Julius P., New York, N. Y. Wines	34,250	Feb. 27	90	1741
Smith, Louis H., Philadelphia, Pa. Bass' pale ale	33,963	Jan. 2	90	217
Smooth-On Manufacturing Company, Jersey City, N. J. Iron compound in the form of dry powder	34,161	Feb. 6	90	1155
Southern Railway Supply Company, Richmond, Va. Tin and terne plate	34,325	Mar. 13	90	2132
St. Louis Condensed Milk Company, St. Louis, Mo. Condensed milk	34,244	Feb. 27	90	1740
St. Louis Condensed Milk Company, St. Louis, Mo. Evaporated cream	34,245	Feb. 27	90	1740
Standard Harrow Company, Utica, N. Y. Agricultural implements	34,058	Jan. 16	90	600
Standard Railway Equipment Company, East St. Louis, Ill. Pneumatic tools	34,059	Jan. 16	90	600
Standard Varnish Works, New York, N. Y. Paints, varnishes, and oils	34,034	Jan. 9	90	444
Starr Manufacturing Company, Limited, Dartmouth, Canada. Skates and hockey-sticks	34,011	Jan. 2	90	222
Stearns, Frances H., Boston, Mass. Certain named curios	34,387	Mar. 27	90	2506
Stege, Edward R., Chicago, Ill. Lager-beer	34,118	Jan. 30	90	957
Stephenson, John V., Greensburg, Pa. Remedies for certain named diseases	34,070	Jan. 23	90	747
Stewart Hartshorn Company, Harrison, N. J. Shade-rollers	34,391	Mar. 27	90	2506
Stobie Cereal Mills, St. Louis, Mo. Certain named food products	34,382	Mar. 27	90	2505
Strauss Manufacturing Company, Jersey City, N. J. Sounding toys	34,141	Feb. 6	90	1153
Stubbs & Wilson, Indianapolis, Ind. Shoes	34,331	Mar. 20	90	2291
Sturtevant, Merrick & Co., Springfield, Mass. Canned vegetables and fruits in cans, jars, or bottles	34,198	Feb. 13	90	1364
Swift & Company, Chicago, Ill. Certain packing-house products	34,386	Mar. 27	90	2505
Sydney Ross Company, New York, N. Y., and Maplewood, N. J. Remedies for certain named diseases	34,043	Jan. 16	90	599
T. F. Firth & Sons, Limited, Brighouse, England. Certain named carpets and rugs	34,085	Jan. 30	90	954
T. F. Firth & Sons, Limited, Brighouse, England. Certain named rugs, blankets, and horse-clothing	34,086	Jan. 30	90	954
Tagliabue, Charles J., New York, N. Y. Thermometers	34,171	Feb. 6	90	1156
Tallaferro Robinson Chemical Co., Washington, D. C. Chemical compound	34,263	Feb. 27	90	1742
Tennent, J. & R., Glasgow, Scotland. Certain named malt liquors	34,321	Mar. 13	90	2132
Teweles, Ludwig, Milwaukee, Wis. Certain named seeds	34,296	Mar. 6	90	1944
Thomsen Chemical Company, Baltimore, Md. Compound to prevent the incrustation of boilers	34,159	Feb. 6	90	1155
Thymo Chemical and Manufacturing Company, Columbus, Ohio. Tooth-paste	34,072	Jan. 23	90	747
Tobacco Warehousing and Trading Company, Danville, Va. Certain named tobaccos and tobacco products for fumigating, veterinary, or medicinal purposes	34,045	Jan. 16	90	599
Towle Syrup Company, St. Paul, Minn. Syrups and molasses	34,335	Mar. 20	90	2292
Trumbull, Byron E., Johnstown, N. Y. Cleaning and polishing preparation	34,049	Jan. 16	90	600
Turnbull, James G., Barton, Newport, Albany, Morgan, and Charleston, Vt. Butter	34,237	Feb. 27	90	1739
U. V. Remedy Co., Boonville, Mo. Liquid remedy for certain named diseases	34,363	Mar. 27	90	2503
Ullman Co., Sigmund, New York, N. Y. Printing-ink	34,347	Mar. 20	90	2293
Underberg-Albrecht, H., Rheinberg, Germany. Bitters	34,143	Feb. 6	90	1153
Union Tobacco Company of America, New York, N. Y. Cigarettes, cigars, and smoking and chewing tobacco	34,376	Mar. 27	90	2505
Union Tobacco Company of America, New York, N. Y. Cigarettes, cigars, and smoking and chewing tobacco	34,377	Mar. 27	90	2505
United Society of Christian Endeavor, Boston, Mass. Certain named stationery miscellany	34,060	Jan. 23	90	746
Van Camp Packing Company, Indianapolis, Ind. Canned pumpkin	34,028	Jan. 9	90	444
Vane-Calvert Paint Company, St. Louis, Mo. Mixed paints in liquid and paste form	34,348	Mar. 20	90	2293
W. H. Hamilton Company, Pittsburg, Pa. Bottles	34,010	Jan. 2	90	222
W. R. Grace & Company, New York, N. Y., and San Francisco, Cal. Cement	34,302	Mar. 6	90	1945
Walker, James W., San Francisco, Cal. Hair remedies	34,166	Feb. 6	90	1155
Wallis, George W., Rockdale, Tex. Liniment	34,108	Jan. 30	90	956
Waltham Manufacturing Company, Waltham, Mass. Automobile vehicles	34,120	Jan. 30	90	958
Warren, Estate of Ira, Boston, Mass. Books relating to medical subjects	34,233	Feb. 27	90	1739
Warren & Stevens, Boston, Mass. Cloth-finishing compositions	34,078	Jan. 23	90	748
Washburn-Crosby Company, Minneapolis, Minn. Wheat-flour	34,029	Jan. 9	90	444
Washburn-Crosby Company, Minneapolis, Minn. Wheat-flour	34,292	Mar. 6	90	1944
Waukesha Imperial Spring Brewing Company, Waukesha, Wis. Beer, porter, and ale	34,337	Mar. 20	90	2292
Welsbach Incandescent Gas Light Company, Limited, London, England. Certain named articles used for illuminating purposes	34,004	Jan. 2	90	221
Welsbach Light Company, Gloucester City, N. J., and Philadelphia, Pa. Incandescent lights, the parts thereof, and mantles, chimneys, globes, and shades therefor	34,229	Feb. 20	90	1538
Wertheimer & Cie., E., Paris, France. Certain named toilet preparations	33,980	Jan. 2	90	219
Weyl, David F., New York, N. Y. Domestic and imported cigars and cigarettes	34,286	Mar. 6	90	1943
Wheatley, Benedict, Jr., Alexandria, Va. Embalming fluid	34,368	Mar. 27	90	2504

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
White, Charles W., Waco, Tex. Mattresses, pillows, bolsters, cushions, and comforts	34,217	Feb. 20	90	1537
Whittier Coburn Company, San Francisco, Cal. Axle-grease	34,160	Feb. 6	90	1155
Wight & Weslosky Company, Albany, Ga. Canned goods	33,975	Jan. 2	90	218
William Barker Company, Watervliet, N. Y. Collars and cuffs	34,089	Jan. 30	90	954
Williams, Adam C., Ravenna, Ohio. Sad-irons	34,303	Mar. 27	90	2506
Williams, Edgar L., Peoria, Ill. Certain named game apparatus	34,089	Jan. 30	90	954
Winkelmann & Brown Drug Company, Baltimore, Md. Certain named medicine	34,364	Mar. 27	90	2508
Wm. H. Taylor Company, Chicago, Ill. Hams, bacon, and lard	34,236	Feb. 27	90	1739
Wolf, Ludwig, New York, N. Y. Medicinal preparation for certain named diseases	33,969	Jan. 2	90	220
Woodman, Davis & Co., Boston, Mass. Confections	33,986	Jan. 2	90	219
"World" Polish Manufacturing Co., York, Pa. Shoe-polish and leather-dressing	34,033	Jan. 9	90	444
Worsnop & Company, Limited, Halifax, England. Certain named illuminating material and apparatus	34,267	Feb. 27	90	1742
Wright & Colton Wire Cloth Company, Worcester, Mass. Wire goods or articles made of wire	34,392	Mar. 27	90	2506
Zoller, Charles, New York, N. Y. Certain named brewers' supplies and materials	34,117	Jan. 30	90	957

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Arakelian, Melkon L., New York, N. Y. "Fermented Milk Food." (For a Food)	7,404	Mar. 13	90	1951
Armagost & Anderson, Minneapolis, Minn. "Shamrock Shampoo." (For a Shampoo)	7,442	Mar. 27	90	2301
Armstrong, Thomas S., Plainfield, N. J. "Reynolds' Petroleum Hair Tonic." (For Hair-Tonic)	7,392	Jan. 16	90	449
Azusa-Covina-Glendora Fruit Exchange, Azusa, Cal. "Pointer Brand." (For Oranges)	7,370	Feb. 27	90	1543
Azusa-Covina-Glendora Fruit Exchange, Azusa, Cal. "Stag Brand." (For Oranges)	7,371	Feb. 27	90	1543
Badenhoop & Co., John, New York, N. Y. "Diogenes Whiskey." (For Whisky)	7,320	Jan. 30	90	753
Baker, Joseph B., Pascoag, R. I. "J. B. Baker's Wormwood Liniment." (For a Liniment)	7,443	Mar. 27	90	2301
Barker & Wheeler Company, Peoria, Ill. "Fairmount Fine Old Whiskey." (For Whisky)	7,318	Jan. 23	90	605
Bay State Drug and Chemical Company, Boston, Mass. "Smell Sweet." (For a Perfumed Tablet)	7,340	Feb. 13	90	1169
Bernheim, Eugene C., Northampton, Mass. "Bernheim's Gold Coloring Solution." (For a Coloring Solution)	7,441	Mar. 27	90	2301
Bice, David C., and H. B. Harrod, Des Moines, Iowa. "Phos-Saline." (For a Medicine)	7,361	Feb. 20	90	1369
Biechele, Joseph, Canton, Ohio. "White Premium Soap." (For Soap)	7,301	Jan. 16	90	449
Bokel Gwynn McKenney Co., Baltimore, Md. "Carvel." (For Whisky)	7,278	Jan. 2	90	1
Bonsall, Atwell & Co., St. Louis, Mo. "Mundy's Specific Compound." (For a Medicine)	7,444	Mar. 27	90	2301
Boothe, John, J. E. Gould, C. F. Mansfield, and A. M. Duke, Tyler, Tex. "Woodmen of the World Cigars." (For Cigars)	7,318	Jan. 30	90	753
Boussingault Medicine Company, Rochester, N. Y. "Diphtherene." (For a Medicine)	7,413	Mar. 20	90	2139
Burke Bros. Company, Chicago, Ill. "Illinois Club." (For Whisky)	7,438	Mar. 27	90	2301
Butler, Jean W., Chicago, Ill. "Buena Tonic." (For a Lotion)	7,307	Jan. 23	90	605
Butts, Samuel F., Kansas City, Kans. "Eat Sun (Rise) Rolled Oats for Breakfast." (For Rolled Oats)	7,438	Mar. 27	90	2301
Canfield Rubber Company, Bridgeport, Conn. "Canfield Dress Shields." (For Dress-Shields)	7,298	Jan. 16	90	449
Carbutt, John, Philadelphia, Pa. "Vinco." (For Photographic Paper)	7,351	Feb. 20	90	1369
Carpenter, D. J., Newton, N. C. "The Black Crow Stocken." (For Black Stockings)	7,352	Feb. 20	90	1369
Carroll, John, St. Louis, Mo. "Ka-No." (For a Tonic)	7,362	Feb. 20	90	1369
Charles Wright Company, Detroit, Mich. "Wright's Bath Perfume Tablets." (For Bath-Tablets)	7,378	Mar. 6	90	1753
Charles Wright Company, Detroit, Mich. "Thymol-Myrrh." (For Tooth-Paste)	7,379	Mar. 6	90	1753
Charles Wright Company, Detroit, Mich. "Rose and Cucumber Jelly." (For a Lotion)	7,407	Mar. 13	90	1951
Chase, William W., Newburg, N. Y. "I-Cure-U." (For a Dyspepsia Cure)	7,383	Mar. 6	90	1753
Chrètien, Antoine, Lowell, Mass. "The Sauveur du Peuple." (For a Medicine)	7,363	Feb. 20	90	1369
Commonwealth Brewing Company, Philadelphia, Pa. "Real German Lager." (For Bottled Beer)	7,387	Mar. 6	90	1753
Consumers Brewing Company, Philadelphia, Pa. "Cerveza Extra." (For Beer)	7,424	Mar. 20	90	2139
Consumers Brewing Company, Philadelphia, Pa. "Cerveza Extra." (For Beer)	7,425	Mar. 20	90	2139
Corkran, Walter H., Philadelphia, Pa. "Buffalo Mills Carpet Chain." (For Carpet-Chain)	7,327	Feb. 6	90	963
Corkran, Walter H., Philadelphia, Pa. "William Penn Carpet Warp." (For Carpet-Warp)	7,328	Feb. 6	90	963
Cornelius, George C., Baltimore, Md. "Dr. Flora's Remedy." (For a Medicine)	7,445	Mar. 27	90	2301
Devine, Richard, Philadelphia, Pa. "Jefferson Rye." (For Whisky)	7,434	Mar. 27	90	2301
Diamond Cleaner and Polishing Co., Chicago, Ill. "Diamond Cleaner and Polish." (For Cleansing and Polishing Compound)	7,297	Jan. 9	90	231
Dillon, Robert M., Philadelphia, Pa. "American Apollinaris Natural Mineral Water." (For Mineral Water)	7,426	Mar. 20	90	2139
Doyle, Robert L., Salt Lake City, Utah. "Doyle's Infallible Hair Grower." (For a Hair-Grower)	7,332	Feb. 6	90	963
Dr. Chase Co., Philadelphia, Pa. "Liver Food." (For a Medicine)	7,380	Mar. 6	90	1753
Dr. Miles Medical Company, Elkhart, Ind. "Dr. Miles' Compound Wine of Sarsaparilla." (For a Medical Preparation)	7,303	Jan. 23	90	605
Dr. Miles Medical Company, Elkhart, Ind. "Dr. Miles' Laxative Cold Cure." (For a Medical Preparation)	7,304	Jan. 23	90	605
Dr. Russell Medicine Company, Chicago, Ill. "Dr. Russell's Old Dutch Medicated Gin." (For Bottled Gin)	7,279	Jan. 2	90	1
Duke, A. Morgan. (See Boothe, Gould, Mansfield, and Duke.)				
Economopoulos, John, New York, N. Y. "Paris Ice Cream." (For Ice-Cream)	7,403	Mar. 13	90	1951
Fidanque, Nieto & Co., New York, N. Y. "Dotein Brothers Family Soap." (For Soap)	7,283	Jan. 2	90	1
Fidanque, Nieto & Co., New York, N. Y. "Dotein Brothers Family Soap." (For Soap)	7,284	Jan. 2	90	1
Fidanque, Nieto & Co., New York, N. Y. "Dotein Brothers Family Soap." (For Soap)	7,285	Jan. 2	90	1
Fidanque, Nieto & Co., New York, N. Y. "Dotein Brothers Family Soap." (For Soap)	7,286	Jan. 2	90	1
Fletcher-Floyd Candy Co., Kansas City, Mo. "Fletcher-Floyd's Fine Chocolates and Bon-Bons." (For Candy)	7,317	Jan. 30	90	753
Flexner Chemical Co., Louisville, Ky. "Saloform." (For a Medicine)	7,305	Jan. 23	90	605
Freligh, E. V., Lynn, Mass. "The 20th Century Scalp Healer and Vegetable Hair Restorer." (For Hair-Tonic)	7,309	Jan. 23	90	605
Fuller, Andrew W., South Norwalk, Conn. "Improved Wood Filler." (For a Wood Filler)	7,394	Mar. 6	90	1753
Garrett, Paul, Weldon, N. C. "Escapernong." (For Wine in Bottles)	7,400	Mar. 13	90	1951
Gellner, Hugo, Cleveland, Ohio. "Rodentene." (For an Animal-Poison)	7,349	Feb. 13	90	1169
Golden Gate Wine Co., Baltimore, Md. "Grape Juice." (For Wines and Liquors)	7,423	Mar. 20	90	2139
Goodsell, Byron W., Chicago, Ill. "Goodsell's '98 Stitched Pump Packing." (For Pump-Packing)	7,290	Jan. 9	90	231
Goodsell, Willard R., Westfield, N. J. "Heallo Soap." (For Soap)	7,287	Jan. 2	90	1
Goodsell, Willard R., Westfield, N. J. "Heallo Soap." (For Soap)	7,288	Jan. 2	90	1
Goodwin, Allan & Co., Pittsburg, Pa. "Goodwin's Cream Paste." (For Cream Paste)	7,348	Feb. 13	90	1169
Graham Chemical Co., Baltimore, Md. "Oriental Almond Cream." (For a Lotion)	7,277	Jan. 2	90	1
Gray Lithograph Company, New York, N. Y. "Pure Gold." (For Coffee)	7,388	Mar. 6	90	1753
Gould, J. E. (See Boothe, Gould, Mansfield, and Duke.)				
H. W. Johns Manufacturing Company, Jersey City, N. J., and New York, N. Y. "Brooks Brand." (For Roofing Material and Roofing-Paint)	7,315	Jan. 23	90	605
Hahn, William, Washington, D. C. "Tri-Wear." (For Shoes)	7,335	Feb. 13	90	1169
Harrod, Hugh B. (See Bice and Harrod.)				
Holden, Charles N., Chicago, Ill. "Ram's Horn." (For Fruits)	7,310	Jan. 23	90	605
Holloway, George W., Syracuse, N. Y. "Citizens Club." (For Whisky)	7,321	Jan. 30	90	753

Alphabetical list of registrants of labels, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Hood, J. C., Louisville, Ky. "Dr. J. C. Hood's May Blossom." (For a Medicine)	7,336	Jan. 9	90	231
Hunt, Philip B., Minneapolis, Minn. "Hunt's Perfect Baking Powder." (For Baking-Powder)	7,440	Mar. 27	90	2301
Huyler's, New York, N. Y. "From Bean to Cup." (For Cocoa and Chocolate)	7,280	Jan. 2	90	1
Ittel, Henry, Jr., St. Louis, Mo. "Sage Dandruff Cure and Hair Tonic." (For a Toilet Preparation)	7,410	Mar. 20	90	2139
Jacob Brenner Wine Company, Doniphan, Kans. "Brennerberg Red Seal." (For Wine)	7,299	Jan. 16	90	449
Jarrett, J. W., Philadelphia, Pa. "Black Diamond Harness Dressing." (For Harness-Dressing)	7,395	Mar. 6	90	1753
Jas. S. Mason Company, Philadelphia, Pa. "Mason's Challenge Jet Lustre." (For a Compound for Dressing Leather)	7,333	Feb. 6	90	963
Joseph Fallert Brewing Company, New York, N. Y. "'Flecha' Beer." (For Bottled Beer)	7,343	Feb. 13	90	1169
Keller Bros., Newark, N. J. "Keller Bros. Change of Life Remedy." (For a Medicine)	7,381	Mar. 6	90	1753
Keller's Soap Works, J. H., New Orleans, La. "J. H. Keller's O. G. Soap." (For Soap)	7,289	Jan. 2	90	1
Kirsch, William F. A., Buffalo, N. Y. "Fennel Hair Tonic." (For Hair-Tonic)	7,293	Jan. 9	90	231
Knight Manufacturing Co., Cleveland, Ohio. "Knight's Fine Perfumes." (For Perfumery)	7,397	Mar. 13	90	1951
Lahance & Grosjean Manufacturing Company, New York, N. Y. "Agate Nickel Steel Ware." (For Agate Nickel-Steel Ware)	7,409	Mar. 13	90	1951
Lake, H. W., Waterbury, Conn. "Amazon Ague Elixir." (For a Medicine)	7,376	Feb. 27	90	1543
Louis, Michel, Washington, D. C. "Michale Louis Quick Herb Cure." (For a Medicine)	7,275	Jan. 2	90	1
Louis, Michel, Washington, D. C. "Michale Louis Quick Pain Killer." (For Liniment)	7,276	Jan. 2	90	1
M. J. Breitenbach & Company, New York, N. Y. "Pepto-Mangan." (For a Medicine)	7,306	Jan. 23	90	605
Mackenzie, J. N., Waukegan, Ill. "Cutinol." (For a Lotion)	7,418	Mar. 20	90	2139
Malted Cereals Company, Burlington, Vt. "Malt-Oats Breakfast Food." (For an Oat Cereal)	7,439	Mar. 27	90	2301
Mann, William H., Mill Hall, Pa. "The True American." (For Axes)	7,272	Jan. 2	90	1
Mansfield, C. F. (See Boothe, Gould, Mansfield, and Duke.)	7,411	Mar. 20	90	2139
Matthews, Charles E., Chicago, Ill. "Coke Hazel-Bay." (For a Toilet Preparation)	7,361	Feb. 20	90	1369
Mayfield Medicine Manufacturing Company, Mayfield, Ky. "McGee's Baby Elixir." (For a Medicine)	7,389	Mar. 6	90	1753
McFadden Candy Co., St. Paul, Minn. "Faultless." (For Candy)	7,334	Feb. 6	90	963
McIlvain, D. H., New York, N. Y. "Golden Lustre Metal Polish." (For Metal-Polish)	7,447	Mar. 27	90	2301
McLain, John G., Wheeling, W. Va. "Laughlin's Infant Cordial, The Child's Cure When Teething." (For a Cordial)	7,414	Mar. 20	90	2139
Meadier, John W., Poughkeepsie, N. Y. "Meadier's Famous Cough Drops." (For Cough-Drops)	7,354	Feb. 20	90	1369
Minnisku Mineral Spring Company, Waukesha, Wis. "Minniska." (For Ginger-Ale)	7,346	Feb. 13	90	1169
Mitchell, Thomas H., Washington, Ind. "Chocolate Cathartics." (For a Candy Cathartic)	7,375	Feb. 27	90	1543
Moyers, J. M., Richmond, Va. "Medicated Catarrh Tobacco." (For Cigarettes, Cigars, and Smoking-Tobacco)	7,325	Jan. 30	90	753
New England Gas and Coke Company, Boston, Mass. "Smokeless Fuel." (For Parcels of Smokeless Fuel)	7,326	Jan. 30	90	753
New England Gas and Coke Company, Boston, Mass. "Mystic Brand Sulphate of Ammonia." (For Parcels of Sulfate of Ammonia)	7,367	Feb. 27	90	1543
Newport Milling Company, Newport, Ky. "The Seal of Kentucky." (For Flour)	7,329	Feb. 6	90	963
Nut-Cereal Co., Limited, Battle Creek, Mich. "Nut Cereal, a Satisfying Substitute for Coffee." (For Coffee Substitute)	7,291	Jan. 9	90	231
O'Meara, John U., Washington, D. C. "Dr. Hood's Baking Powder." (For Baking-Powder)	7,344	Feb. 13	90	1169
Ordway & Co., A. P., New York, N. Y. "Amargo Sulfuroso del Dr. Kaufmann." (For Bitters)	7,398	Mar. 13	90	1951
Orr, Hume & Co., Nashville, Tenn. "Triplets." (For Cigars)	7,432	Mar. 27	90	2301
Paley, Samuel, Chicago, Ill. "The Hub." (For Cigars)	7,412	Mar. 20	90	2139
Peter Chemical Co., Henderson, Ky. "Peter's Pine-Tar Tablets." (For a Medicine)	7,319	Jan. 30	90	753
Peter Hand Brewery Company, Chicago, Ill. "Royal, Peter Hand Brewery Co." (For Beer)	7,396	Feb. 27	90	1543
Phipps & Atchison, New York, N. Y. "Phipps & Atchison London." (For Hats)	7,392	Mar. 6	90	1753
Ralston Pure Food Co., Minneapolis, Minn. "Ralston Health Food Baking Powder." (For Baking-Powder)	7,347	Feb. 13	90	1169
Rea, W. D., Louisville, Ky. "Red Cross Pile Cure." (For a Medicine)	7,382	Mar. 6	90	1753
Reed's Remedy Co., St. Paul, Minn. "Reed's Nyanza Tonic." (For a Medicine)	7,353	Feb. 20	90	1369
Rosenburg & Sons, D., New Orleans, La. "The Rex." (For Shoes)	7,316	Jan. 23	90	605
Ross, John D., Brattleborough, Vt. "Brooks House Cigar." (For Cigars)	7,374	Feb. 27	90	1543
Schantz, Adam, Dayton, Ohio. "Lily Water." (For a Water)	7,422	Mar. 20	90	2139
Schlesinger & Bender, San Francisco, Cal. "Expansion Club Whiskey." (For Whisky)	7,308	Jan. 23	90	605
Scholder & Co., Maurice, New York, N. Y. "Crown Hair Preserver." (For Hair-Tonic)	7,428	Mar. 20	90	2139
Schweizer, William F., Philadelphia, Pa. "Schweizer's Anti-Dyspepsia Home Made Potato Bread." (For Bread)	7,401	Mar. 13	90	1951
Selser, William A., Jenkintown, Pa. "Blossom Nectar Honey." (For Honey)	7,402	Mar. 13	90	1951
Selser, William A., Jenkintown, Pa. "Pure White Clover Extracted Honey." (For Honey)	7,350	Feb. 13	90	1169
Simpson Sons & Co., William, Philadelphia, Pa. "Isit Silk." (For Dry Goods)	7,439	Mar. 27	90	2301
Simpson Sons & Co., Wm., Philadelphia, Pa. "Austro Silk." (For Dry Goods)	7,446	Mar. 27	90	2301
Smith, J. B., Cuba, Ill. "Acetol." (For a Medicine)	7,300	Jan. 16	90	449
Solis Cigar Company, Denver, Colo. "Dry Climate." (For Cigars)	7,273	Jan. 2	90	1
Solitaire Co., Alliance, Ohio. "Monte Carlo Solitaire." (For a Puzzle)	7,431	Mar. 27	90	2301
Solomon Bros. & Lempert, Rochester, N. Y. "The Clothing That Makes Rochester Famous." (For Ready-Made Clothing)	7,419	Mar. 20	90	2139
Speagh, Charles D., Dayton, Ohio. "Automatic Finger Cushion Pad." (For Rupture-Trusses)	7,417	Mar. 20	90	2139
Spike, Frank, Echo, Oreg. "Oregon Black-Leg Cure." (For a Medical Compound)	7,395	Feb. 27	90	1543
Spurgin Manufacturing Company, Chicago, Ill. "Spurgin's New Ferret Index." (For an Index)	7,396	Mar. 6	90	1753
Spurgin Manufacturing Company, Chicago, Ill. "Spurgin's Multi-Letter File." (For Letter-Files)	7,330	Feb. 6	90	963
Stewart Bread Company, Philadelphia, Pa. "Stewart's Mothers Bread." (For Bread)	7,408	Mar. 13	90	1951
Sudlow, W. E. & J. W., New York, N. Y. "Leatherine." (For a Leather-Preserver)	7,415	Mar. 20	90	2139
Swiss Medicine Importing Co., Chicago, Ill. "Einsiedler-Balsam Drops." (For a Medicine)	7,416	Mar. 20	90	2139
Swiss Medicine Importing Co., Chicago, Ill. "Maria-Einsiedler Magentropfen." (For a Medicine)	7,372	Feb. 27	90	1543
Tait & Sons, George, Norfolk, Va. "Thoroughbred Seeds." (For Seeds)	7,274	Jan. 2	90	1
Theobald, Odomar K., Cincinnati, Ohio. "Burdsal." (For a Medicine)	7,368	Feb. 27	90	1543
Tingle & Drake Company, Zanesville, Ohio. "Old Honesty." (For Flaked Oats)	7,327	Feb. 27	90	1543
Todd, J. C., Philadelphia, Pa. "Keim's Tolu Cough Cure." (For a Medicine)	7,341	Feb. 13	90	1169
Turner, Thomas J., Savannah, Ga. "Sir Knight's Delight." (For Cigars)	7,342	Feb. 13	90	1169
Turner, Thomas J., Savannah, Ga. "Royal Arch Whiskey." (For Whisky)	7,427	Mar. 20	90	2139
Uandi Tea Company, Chicago, Ill. "Uandi Tea." (For Tea)	7,322	Jan. 30	90	753
Underberg-Albrecht, H., Rheinberg, Germany. "Underberg Boonekamp of Maag-Bitter." (For Bitters)	7,323	Jan. 30	90	753
Underberg-Albrecht, H., Rheinberg, Germany. "Underberg Boonekamp." (For Bitters)	7,311	Jan. 23	90	605
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Oysters." (For Canned Goods)	7,312	Jan. 23	90	605
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Lobsters." (For Canned Goods)				

Alphabetical list of registrants of labels, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Pink Checker Board Natural Stringless Beans." (For Canned Goods)	7,336	Feb. 13	90	1169
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Sliced Beets." (For Canned Goods)	7,337	Feb. 13	90	1169
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Clams." (For Canned Goods)	7,338	Feb. 13	90	1169
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Blue Moire Antique Natural Early June Peas." (For Canned Goods)	7,339	Feb. 13	90	1169
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Coffee." (For Canned Goods)	7,356	Feb. 20	90	1369
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Cape Cod Cranberries." (For Canned Goods)	7,357	Feb. 20	90	1369
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Blue Tartan Natural Wax Beans." (For Canned Goods)	7,358	Feb. 20	90	1369
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Vine Natural Succotash." (For Canned Goods)	7,359	Feb. 20	90	1369
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Whole Beets." (For Canned Goods)	7,360	Feb. 20	90	1369
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Blue Tripod Natural Lima Beans." (For Canned Goods)	7,369	Feb. 27	90	1543
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Salmon." (For Canned Goods)	7,390	Mar. 6	90	1753
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Natural Tomatoes." (For Canned Goods)	7,391	Mar. 6	90	1753
Upmann & Wilcox, Chicago, Ill. "Reinola." (For Cigars)	7,399	Mar. 13	90	1951
Val Blatz' Sons, Louisville, Ky. "20th Century Paint." (For Roof-Paint)	7,398	Mar. 6	90	1753
Van Nort, John F., Elmira, N. Y. "Roseine." (For a Lotion)	7,324	Jan. 30	90	753
Van Winkle, J. W., Chicago, Ill. "Oyl-Ine." (For a Liniment)	7,294	Jan. 9	90	231
W. Schneider Wholesale Wine and Liquor Company, St. Louis, Mo. "905." (For Wines and Liquors)	7,355	Feb. 20	90	1369
Walter M. Lowney Company, Boston, Mass. "Lowney's Chocolates." (For Confectionery in Boxes)	7,345	Feb. 13	90	1169
Wenzel, J. H. Fred, Austin, Tex. "Dixie." (For Cigars)	7,420	Mar. 20	90	2139
Wenzel, J. H. Fred, Austin, Tex. "Germania." (For Cigars)	7,421	Mar. 20	90	2139
Werthern, Joseph von, San Francisco, Cal. "Laxative Fruit Syrup." (For a Laxative)	7,295	Jan. 9	90	231
Westlake & Co., J. A., Breesport, N. Y. "Breesport Oxygenated Mineral Springs." (For Mineral Water)	7,314	Jan. 23	90	605
Whiteman & Patterson, Wilkes-Barré, Pa. "Winola." (For Canned Goods)	7,281	Jan. 2	90	1
Whiteman & Patterson, Wilkes-Barré, Pa. "Idlewild." (For Canned Goods)	7,282	Jan. 3	90	1
Whiteman & Patterson, Wilkes-Barré, Pa. "Veribest." (For Flour)	7,405	Mar. 13	90	1951
Wilcox, John H., Chicago, Ill. "Beechams Cough Syrup." (For a Medicine)	7,406	Mar. 13	90	1951
Wilkinson, Howard M., Dover, Del. "Wilkinson's Febro-Quinine." (For Medicinal Tablets)	7,331	Feb. 6	90	963
Wilson, J. C., Houston, Tex. "Cuban Tonic." (For a Tonic)	7,292	Jan. 9	90	231
Wittemann Bros., New York, N. Y. "Canvasback Whisky." (For Whisky)	7,384	Mar. 6	90	1753
Wittemann Bros., New York, N. Y. "Canvasback Whisky." (For Whisky)	7,385	Mar. 6	90	1753
Wittemann Bros., New York, N. Y. "Old Epicurean Whisky." (For Whisky)	7,386	Mar. 6	90	1753
Wittemann Bros., New York, N. Y. "O. P. S. Scotch Whiskey." (For Whisky)	7,435	Mar. 27	90	2301
Wittemann Bros., New York, N. Y. "Highland O. P. S. Scotch Whiskey." (For Whisky)	7,436	Mar. 27	90	2301
Wittemann Bros., New York, N. Y. "Britannia Old Tom London Gin." (For Gin)	7,437	Mar. 27	90	2301
Woodsome, Millard, Boston, Mass. "Lusterine." (For a Polish)	7,373	Feb. 27	90	1543
Zeller, Frank, Chicago, Ill. "F. Z. Stove Enamel." (For Stove-Polish)	7,429	Mar. 20	90	2139

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Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Beckman Company, Cleveland, Ohio. "The Beckman Co." (For Horse-Blankets)	210	Mar. 6	90	1753
Bryant Electric Company, Bridgeport, Conn. "K. W. Rosette." (For Electrical Goods)	194	Jan. 9	90	231
Collins Company, Collinsville, Conn. "Order Genuine Machetes of Collins & Co. The Best are the Cheapest." (For Machetes)	200	Feb. 6	90	963
Collins Company, Collinsville, Conn. "Order Genuine Machetes of Collins & Co. The Best Are the Cheapest." (For Machetes)	211	Mar. 13	90	1951
Corbin & Sons, Charles J., Fairmont, W. Va. "Trust." (For Tobacco, Snuff, and Cigars)	204	Feb. 20	90	1369
Flint & Walling Manufacturing Company, Kendallville, Ind. "Flint & Walling Mfg. Co." (For Windmills and Water-Supply Goods)	201	Feb. 6	90	963
Goodyear Tire and Rubber Company, Akron, Ohio. "They All Roll Best, The Best All Roll on Goodyear Tires." (For Pneumatic Tires)	197	Jan. 30	90	753
Grimshaw, Thomas C., Pittsfield, Ill. "Forest Cream." (For a Toilet Preparation)	207	Feb. 27	90	1543
Hogg, J. K. and S. R., Baltimore, Md. "Wonder Worker Soap." (For Soap.)	198	Jan. 30	90	753
Hogg, Sam R. (See Hogg, J. K. and S. R.)	214	Mar. 27	90	2301
James G. Johnson & Company, New York, N. Y. "Triumphal Arch." (For Millinery Goods)	215	Mar. 27	90	2301
Jouannet, Alfred, Mount Pleasant, S. C. "Argenteuil Asparagus." (For Asparagus)	196	Jan. 9	90	231
Kenney, William F., Providence, R. I., and South Yarmouth, Mass. "Kenney Speedy Relief Co." (For a Medicine)	203	Feb. 20	90	1369
Mitchell, Edward H., San Francisco, Cal. "Alaska Souvenir Playing Cards." (For Playing-Cards)	202	Feb. 13	90	1169
Nathan, Morris I., New York, N. Y. "Magnet Waist." (For Ladies' Waists)	208	Feb. 27	90	1543
Schroeder, Smith & Schroeder, Lancaster, Pa. "Graphite-Oxide." (For Paint)	209	Feb. 27	90	1543
Schroeder, Smith & Schroeder, Lancaster, Pa. "Rock Bottom Floor Paint." (For Paint)	206	Feb. 27	90	1543
Scranton Correspondence Schools, Scranton, Pa. "The Scranton Correspondence Schools." (For Books and Pamphlets)	213	Mar. 27	90	2301
Seiter & Kappes, New York, N. Y. "Canfield." (For Dress-Shields)	199	Feb. 6	90	963
Sheets Bros., Seattle, Wash. "Townsend's Little Billee Cigars." (For Cigars)	205	Feb. 20	90	1369
Smith, John R., Mount Olive, N. C. "Smith's Anti Kink." (For a Hair Preparation)	198	Jan. 2	90	1
Standard Varnish Works, New York, N. Y. "Standard Varnish Works." (For Varnish)	195	Jan. 9	90	231
Strong, Clayton B., Spokane, Wash. "Washington State Souvenir Cards." (For Playing-Cards)	212	Mar. 20	90	2139
The Collins Company, Collinsville, Conn. "Collins & Co.'s Plows Are the Best in the World." (For Plows)				

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Drawing.	Official Gazette. Volume.	Page.
Abrading-machine	E. J. Fletcher	645,717	Mar. 20	2148	468	90	2209
Abrading-machine	J. R. Thomas	645,578	Mar. 20	1880	414 415	90	2155
Abrading or polishing machine	C. S. Yarnell	643,707	Feb. 20	2095	492	90	1410
Abrasive tool	G. Boxley	645,617	Mar. 20	1964	432	90	2173
Accoutrement-support	C. Dodge	646,166	Mar. 27	3000	662	90	2394
Accumulator	H. Leitner	645,478	Mar. 13	1690	369 370	90	2106
Acetone. Preparing haloid derivatives of	L. Lederer	643,144	Feb. 13	1096	-----	90	1188
Acetylene-generator	R. L. Beck	643,243	Feb. 13	1207	288	90	1221
Acetylene-generator	H. R. Berger	642,286	Jan. 30	4027	916	90	843
Acetylene-generator	G. S. Bowers	641,431	Jan. 16	2449	560	90	511
Acetylene-generator	H. M. Cooper	642,268	Jan. 30	4045	921	90	848
Acetylene-generator	W. F. Cooper	641,194	Jan. 9	2032	454	90	413
Acetylene-generator	H. Gerdes	642,600	Feb. 6	66	16	90	979
Acetylene-generator	G. F. Schuler and M. Granat	644,084	Feb. 20	2695	638	90	1527
Acetylene-generator	F. Hoffmann	644,077	Feb. 27	2769	-----	90	1557
Acid. Acetyl salicylic	H. Boedeker and C. Hoffmann	642,803	Feb. 6	577	-----	90	1079
Acid. Alkylated rhodamin sulfonic	C. Ruggaber	645,285	Mar. 13	1260	273	90	2020
Acid-cooling tower	J. Bueb	642,782	Feb. 6	872	-----	90	1039
Acid. Making hydrocyanic	E. Sapper	644,331	Feb. 27	3267	-----	90	1652
Acid. Making phthalic	F. P. Van Denbergh	642,390	Jan. 30	4244	958	90	868
Acid. Making sulfuric	O. Bally	643,451	Feb. 13	1577	-----	90	1294
Acid. Nitroanidoanthraquinone sulfo-	W. Waring and J. E. Breckenridge.	643,578	Feb. 13	1807	-----	90	1339
Acids. Purifying sludge	J. E. Blacker	641,363	Jan. 16	2331	582 583	90	487
Adding-machine	B. and G. Work	640,850	Jan. 9	1336	300	90	281
Adding-machine	C. A. Belknap	643,394	Feb. 13	1475	346 347	90	1272
Addressing machine. Envelop or wrapper	V. M. Bouthillier	645,161	Mar. 13	1123	-----	90	1994
Adhesive compound	C. M. Higgins	642,331	Jan. 30	4117	-----	90	862
Adhesive compound	C. M. Higgins	642,329	Jan. 30	4111	-----	90	862
Adhesive paste. Making	T. Smith	641,748	Jan. 23	3035	691	90	634
Adjustable bracket	A. A. Glaser	641,855	Jan. 23	3236	735	90	671
Adjustable cutter	R. J. Dorney	642,093	Jan. 30	3651	896	90	708
Adjustable gate	J. D. Cox, Jr.	640,448	Jan. 2	564	119	90	111
Adjustable limit-gage	G. B. Petsche	645,211	Mar. 13	1217	265	90	2011
Adjusting device	T. W. Wright	645,655	Mar. 20	2033	448	90	2187
Advertisements. Stamping device for street-	J. Scalona	645,135	Mar. 13	1076	229	90	1985
Advertising-bombshell	N. Wetsue	642,829	Feb. 6	455	100	90	1054
Advertising-calendar and lead-pencil. Combination	M. A. Michales	643,517	Feb. 13	1705	401	90	1319
Advertising-coach	E. Cherry	640,875	Jan. 9	1387	311	90	291
Advertising device	E. A. Powell	645,330	Mar. 13	1426	313	90	2053
Advertising device	W. Keys	641,702	Jan. 23	2937	670	90	618
Advertising device. Car	F. N. Young and F. E. Thompson	641,917	Jan. 23	3342	759	90	693
Advertising-refrigerator	J. Kaiser	645,645	Mar. 20	2012	442 443	90	2183
Aerial apparatus	S. Otis	641,793	Jan. 23	3112	707	90	648
Aermotor. Multiple	H. C. Wheeler	641,419	Jan. 16	2427	555	90	507
Agitator	W. T. M. Brunnemer	644,317	Feb. 27	3234	755	90	1645
Agricultural implement	W. T. M. Brunnemer	644,318	Feb. 27	3238	755	90	1646
Agricultural implement	C. Johanson	645,032	Mar. 6	874	189	90	1930
Agricultural spider	J. V. Eisenhuth	640,890	Jan. 9	1413	317	90	295
Air and gas engine	J. V. Eisenhuth	642,434	Jan. 30	4323	975	90	903
Air and gas engine	M. Corrington	643,812	Feb. 20	2272	536	90	1443
Air-brake	C. L. V. Mundhenk	643,421	Feb. 13	1523	358	90	1282
Air-brake	A. R. Martin	645,823	Mar. 20	2350	513 514	90	2249
Air-brake coupling	A. R. Martin	645,824	Mar. 20	2355	514	90	2250
Air-brake coupling. Automatic	G. J. Netter	640,405	Jan. 2	493	102	90	97
Air-compressing engine	E. A. Rix	640,949	Jan. 9	1535	343	90	317
Air-compressing engine. Multiple-cylinder	G. Szimay	642,386	Jan. 30	4236	937	90	886
Air-compressor	W. D. Hooker	643,135	Feb. 13	1024	238	90	1186
Air-compressor	J. D. McKinnon	646,090	Mar. 27	2738	607	90	2342
Air-compressor	J. D. McKinnon	646,091	Mar. 27	2741	608	90	2343
Air-compressor	K. O. B. Textorius	643,918	Feb. 20	2490	586 587	90	1486
Air-compressor. Hydraulic	J. C. Howard	643,962	Feb. 20	2561	603	90	1501
Air compressor. Hydraulic	N. J. Lockyer	645,109	Mar. 13	1025	219	90	1975
Air-compressor. Hydraulic	L. E. Mitchell	641,961	Jan. 23	3446	784 785	90	714
Air-compressor. Marine	J. F. Place	644,093	Feb. 27	2704	663	90	1562
Air-cooler and refrigerator	J. Cormack	644,763	Mar. 6	874	82, 83	90	1899
Air-distributing apparatus	J. Curley	643,086	Feb. 6	929	218	90	1144
Air-drying apparatus	A. T. Perkins	640,318	Jan. 2	309	64	90	62
Air-ejecting apparatus for vessels	G. Quanonne	640,946	Jan. 9	1526	341	90	316
Air for industrial purposes. Reheating compressed	T. A. Edison	643,764	Feb. 20	2198	518	90	1430
Air-humidifying apparatus	J. J. Mann	642,992	Feb. 6	741	170 171	90	1111
Air. Means for attemperating and purifying	J. F. Dornfeld	644,668	Mar. 6	207	45, 46	90	1794

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Air-meter	S. L. Terry	644,340	Feb. 27	3282	763	90	1654
Air-moistener	W. B. S. Whaley	640,340	Jan. 2	342	72	90	69
Air motor. Compressed-	B. P. Ryder	646,318	Mar. 27	3303	737	90	2452
Air or other liquid gases. Receptacle for holding and storing liquid	O. P. Ostergren	644,250	Feb. 27	3103	730	90	1621
Air-propeller	A. Duffner, Jr	640,184	Jan. 2	46	10	90	11
Air purifying and drying apparatus	R. M. Birdsall and C. L. Krum	643,396	Feb. 13	1478	347 348	90	1273
Air-ship	J. F. Pickering	643,975	Feb. 20	2582	609 610	90	1506
Air sterilizing, drying, and cooling system	A. T. Perkins and F. C. Weber	640,320	Jan. 2	314	65, 66	90	63
Alarm: *See* Burglar-alarm. Overflow-alarm. Fire-alarm. Time-alarm. Low-water alarm. Train-alarm.							
Alarm-lock	E. M. Wagner	644,024	Feb. 20	2679	633 634	90	1523
Alarm mechanism. Time-	C. Schmidt	645,334	Mar. 13	1434	315	90	2055
Alarm system. Acoustic	C. Coleman	640,273	Jan. 2	240	48	90	48
Alcoholic liquids. Purification of	M. J. de Chantérac and M. J. D. A. de la Baume.	645,940	Mar. 27	2558	.....	90	2307
Alkali albuminate. Making	O. Siebold	642,852	Feb. 6	498	.....	90	1002
Alkali sulfates. Apparatus for decomposing	J. G. A. Rhodin	646,313	Mar. 27	3290	732	90	2448
Alloys. Making	G. H. Clamer and J. G. Hendrickson	646,118	Mar. 27	3302	.....	90	2375
Alloys of hydrogen and iron. Producing	G. W. Gesner	642,320	Jan. 30	4065	929	90	859
Amalgamation. Separator for gold and silver by	F. A. Rider	645,188	Mar. 13	1174	255	90	2004
Amalgamator	J. L. Bradbury	642,202	Jan. 30	3870	880	90	813
Amalgamator	C. G. Garrison and J. A. Fitzsimmons.	644,009	Feb. 20	2657	628	90	1519
Amalgamator	H. M. Thompson	641,806	Jan. 23	3134	712	90	653
Amalgamator. Electric	L. H. Barricks	641,360	Jan. 16	2826	581	90	496
Ambulance	H. C. Hall	644,909	Mar. 6	648	140	90	1883
Amidobenzaldehyd. Making	B. Homolka and A. Stock	640,564	Jan. 2	702	.....	90	149
Ammeter	P. H. F. Spies	646,110	Mar. 27	2880	688	90	2370
Ammonia suction. Separating and condensing device for	G. B. Hiett	642,120	Jan. 30	3097	846 847	90	777
Anchor	J. Watson	644,955	Mar. 6	726	157	90	1900
Anchor. Folding	W. McBride	640,360	Jan. 2	396	84	90	78
Anilin compounds. Making amidobenzyliden	B. Homolka and A. Stock	640,563	Jan. 2	700	.....	90	149
Animal catching and holding implement	J. S. Holland	640,199	Jan. 2	73	15	90	16
Animal-exterminator	F. Burnam	642,080	Jan. 30	3628	832	90	703
Animal-power	R. Ziebell	641,424	Jan. 16	2436	557	90	508
Animal-shears	S. F. Allen	642,831	Feb. 6	456	109	90	1054
Animal-trap	I. Erickson	645,589	Mar. 20	1910	421	90	2102
Animal-trap	H. Marty	643,609	Feb. 20	2620	477	90	1396
Animal-trap	J. H. Theuret	644,377	Feb. 27	3343	776	90	1666
Animal-trap	C. A. Wever	640,244	Jan. 2	169	34	90	96
Animal-trap	C. M. Williams	640,980	Jan. 9	1615	357	90	332
Animal-trap	J. T. Gray	642,791	Feb. 6	385	93	90	1041
Animals. Compound for exterminating burrowing	A. R. Hughes	643,060	Feb. 6	866	202	90	1134
Annealing-box	P. Pondorf	643,751	Feb. 20	2175	510	90	1425
Annealing-furnace for cartridge-cases	J. A. Merritt	641,715	Jan. 23	2937	674	90	621
Antiseptic apparatus	M. Martin	643,801	Feb. 20	2255	531	90	1440
Antiseptic mouthpiece	I. Löwenthal	641,526	Jan. 16	2643	602	90	549
Apparel-pad	C. Graef	640,289	Jan. 2	270	.....	90	54
Apple-juice. Making concentrated	C. C. and J. H. Carr	645,457	Mar. 13	1657	392	90	2099
Appliance for women's wear	C. Frolich	642,972	Feb. 6	710	163	90	1104
Arch center brace	W. N. Button	642,810	Feb. 6	420	102	90	1048
Arctic. Snow-excluding	N. C. Vaughan	642,649	Feb. 6	149	37	90	995
Armor	A. Schmitz	642,926	Feb. 6	635	.....	90	1089
Armor-plates. Improving quality of steel	U. Sherman	642,166	Jan. 30	3805	867	90	800
Artisan's protective device	W. S. Anderson	642,412	Jan. 30	4288	968	90	897
Ash-box and dust-pan. Combined	W. S. Anderson	641,064	Jan. 9	1768	393	90	860
Ash-box and shovel. Combined	C. W. Thorne	646,328	Mar. 27	3320	740 741	90	2455
Ash-ejector	G. C. Witt	644,119	Feb. 27	2837	671	90	1570
Ash or garbage receptacle	F. C. Dorment	642,211	Jan. 30	3805	866	90	817
Atomizer	T. Kenney, Jr	642,130	Jan. 30	3727	852	90	784
Atomizer	C. A. Tatum	643,014	Feb. 6	782	182	90	1118
Atomizer	J. Herfert	641,960	Jan. 23	3412	775	90	707
Auger. Earth-	P. Hesselius	640,657	Jan. 2	945	213	90	188
Auger. Earth-	C. L. Tuttle	645,222	Mar. 13	1238	288	90	2015
Auger. Post-hole	F. H. Stahl	640,596	Jan. 2	824	182 183	90	161
Automatic adjustable die	R. S. O'Brien	643,308	Feb. 13	1312	309	90	1242
Automatic lubricator	C. L. Wilson	642,772	Feb. 6	358	87	90	1096
Automatic switch and throwing device	F. A. Errington	642,310	Jan. 30	4071	926	90	854
Automatically opening or closing die	F. A. Errington	642,311	Jan. 30	4076	926	90	855
Automatically opening or closing die	F. A. Errington	642,312	Jan. 30	4080	927	90	856
Automatically opening or closing die	P. J. A. Schnoor	641,043	Jan. 9	1733	386	90	354
Automobile	C. G. Burrows	643,865	Feb. 20	2382	561	90	1464
Automobile controller. Electric	C. E. Belcher	643,370	Feb. 13	1427	333	90	1264
Automobile-fender	L. H. Dyer	643,505	Feb. 13	1489	435	90	1345
Automobile-vehicle gearing	J. C. Anderson	642,777	Feb. 6	367	88	90	1037
Autotruck-wheel	P. C. Foskett	644,164	Feb. 27	2922	691	90	1587
Axle	A. O. Glore	644,419	Feb. 27	3414	793	90	1681
Axle	C. Mercader	641,600	Jan. 16	2768	630	90	574
Axle	A. J. Robertson	642,730	Feb. 6	282	68	90	1022
Axle and bearing for vehicles	J. S. Durning	644,418	Feb. 27	3406	791	90	1679
Axle and wheel	H. Gummi	644,071	Feb. 27	2755	652	90	1558
Axle-box	J. W. Skilton	642,376	Jan. 30	4222	953	90	884
Axle box. Car-	J. W. Stephenson	644,085	Feb. 20	2697	638 639	90	1527
Axle-box lid. Car-	J. W. Stephenson	644,086	Feb. 20	2698	639	90	1527
Axle-box lid. Car-	F. E. Hawksworth	644,822	Mar. 6	494	106	90	1858
Axle. Car-							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Axle for automobile vehicles. Combined driving and steering	J. H. Bullard	641,834	Jan. 23	3185	723 724	90	663
Axle lubricator, dust-guard, and wiper. Car-	J. S. Patten	641,723	Jan. 23	2985	679	90	625
Axle setting-gage	G. A. Peterson	640,804	Jan. 9	1235	280	90	261
Baby-walker	E. Firnhaber	642,435	Jan. 30	4325	975 976	90	904
Baby-walker track	E. Firnhaber	642,436	Jan. 30	4326	976	90	904
Back-pedaling brake	J. Allan and F. Moore	643,616	Feb. 20	1885	445	90	1371
Back-pedaling brake	H. S. Baker	643,450	Feb. 13	1576	370	90	1294
Back-pedaling brake	J. S. Copeland	643,085	Feb. 6	927	217 218	90	1144
Back-pedaling brake	F. P. Hinckley	643,600	Feb. 13	1853	437	90	1349
Back-pedaling brake	A. P. Morrow	641,983	Jan. 23	3151	785	90	715
Back-pedaling brake	A. P. Morrow	646,302	Mar. 27	3261	728	90	2444
Back-pedaling brake	A. P. Morrow	646,303	Mar. 27	3265	728 729	90	2444
Back-pedaling brake	A. P. Morrow	646,304	Mar. 27	3267	729	90	2445
Back-pedaling brake	A. F. Rockwell	645,133	Mar. 13	1070	227	90	1983
Back-pedaling brake	M. R. and M. T. Schaffer	646,376	Mar. 27	3451	769	90	2486
Back-pedaling brake	C. G. Tiefel	644,648	Mar. 6	170	37	90	1788
Bag: *See* Letter-carrier's bag. Sample or conveying bag. Mail-bag. Telescope-bag. Paper bag.							
Bag carrier and closure	E. J. Smith	641,340	Jan. 16	2295	521	90	480
Bag-filler	S. Marshall	640,785	Jan. 9	1197	272	90	252
Bag-frame catch	B. vom Eigen	644,067	Feb. 27	2747	650	90	1551
Bag-holder	F. H. Brooks	645,199	Mar. 13	1198	261	90	2008
Bag-holder	J. L. Herr	645,595	Mar. 20	1921	423	90	2164
Bag-holder	J. Thompson	641,055	Jan. 9	1754	390	90	358
Bag-holder for grain-weighing machines	J. C. Bissell	645,544	Mar. 20	1899	397	90	2142
Bag making and filling machine	W. H. Butler and G. R. Ward	646,355	Mar. 27	3370	752 753 754	90	2465
Bag or purse frame	B. vom Eigen	640,185	Jan. 2	47	10	90	11
Bags. Machine for folding sides of satchel-bottomed	E. J. Howlett	643,821	Feb. 20	2288	539	90	1446
Ball-guard or handle for pails or other receptacles. Detachable	A. W. Ottignon	645,670	Mar. 20	2357	452	90	2191
Baller	W. Plotts	640,413	Jan. 2	506	104	90	100
Baller	W. Plotts	640,414	Jan. 2	508	105	90	100
Baller or pump	E. B. Shaw	642,012	Jan. 23	3508	802	90	725
Bait. Artificial	F. W. Hedgeland	644,911	Mar. 6	651	140	90	1884
Bait. Artificial	M. W. Votaw and M. E. Thomas	643,573	Feb. 13	1799	426	90	1337
Bait-box	H. Levi	645,415	Mar. 6	399	86	90	1834
Bake-pan	M. Browne	644,401	Feb. 27	3386	786 787	90	1674
Baker. Self-labeling	C. Kessler	642,699	Feb. 6	240	59	90	1013
Baking vessel or mold	W. R. Wright	646,333	Mar. 13	1585	346	90	2085
Balance. Spring-	R. H. Forschner	641,646	Jan. 23	2913	664	90	613
Bale-band tightener	L. Voorhies	645,734	Mar. 27	3329	743	90	2457
Bale detaching and staying device for presses	G. A. Lowry	645,735	Mar. 20	2195	477	90	2218
Bale-holding device	G. A. Lowry	644,650	Mar. 20	2200	478	90	2219
Bales, &c. Conveyer for cotton-	S. J. Webb	646,345	Mar. 6	173	38	90	1788
Baling-press	E. Byars	644,545	Feb. 27	3036	846 847	90	1723
Baling press. Cotton-	E. M. Ivens	646,220	Mar. 27	3111	686 687	90	2416
Baling-press. Roller	E. F. Bates	644,773	Mar. 27	3352	749	90	2461
Baling-press. Roller	J. J. Faulkner	642,099	Jan. 30	3659	837 838	90	709
Ball: *See* Playing-ball.							
Ball-and-socket fastener	H. Kerngood	645,624	Mar. 20	1975	434	90	2175
Ball-coupling. Reversible	C. N. Hunter	641,700	Jan. 23	2935	669	90	617
Ballot. Secret	G. P. B. Hoyt	642,695	Feb. 6	232	58	90	1012
Banana-shipping case	F. Schmitz	643,163	Feb. 13	1068	247	90	1195
Band-cutter	W. P. Rundle and J. E. Mason	640,817	Jan. 9	1258	285	90	265
Band-cutter and feeder	W. Morley	640,984	Jan. 2	1009	230	90	195
Band-cutter and feeder	P. N. Petersen	644,454	Feb. 27	3469	806	90	1692
Band-cutting knife	B. Garllus	642,689	Feb. 6	222	55	90	1010
Bandage. Galvanic	P. L. Schmidt	641,335	Jan. 16	2286	518	90	478
Banjo	R. Kuenstler	641,708	Jan. 23	2947	673	90	619
Banjo-tailpiece	G. A. Rapp	643,159	Feb. 13	1059	246	90	1193
Barber-chair	J. B. Lowry	644,526	Feb. 27	3600	839	90	1716
Bark-rossing apparatus	L. Wertheim	646,334	Mar. 27	3331	743	90	2458
Barrel	R. T. Hargroves. (Reissue)	11,806	Feb. 6	949	222	90	1146
Barrel-head inserting or removing machine	E. and B. Holmes and E. F. Beugler	642,793	Feb. 6	388	94, 95	90	1041
Barrel-heading-up machine	B. Holmes and E. F. Beugler	642,125	Jan. 30	3719	850 851	90	782
Barrel-lining	J. Arkell	642,061	Jan. 30	3594	824	90	755
Barrel-locking mechanism	F. A. Hollenbeck	643,601	Feb. 13	1855	438	90	1349
Barrel Liquid-	C. R. Harris	643,743	Feb. 20	2161	507	90	1422
Barrels, pipes, or cylinders. Apparatus for making	J. H. J. Bartels	640,524	Jan. 2	695	150 151	90	137
Basin. Catch-	G. A. Robertson	642,590	Jan. 30	4470	1014	90	932
Basin. Wash	W. Bunting, Jr	645,639	Mar. 20	1999	440	90	2180
Basins, baths, &c. Waste apparatus for wash-	S. W. Lewis	641,126	Jan. 9	1876	417	90	383
Basket	G. P. Sugg	641,245	Jan. 9	2131	480	90	434
Basket. Fruit	W. O. White	645,344	Mar. 13	1445	318	90	2057
Basket. Fruit-packing	A. B. Culver	643,948	Feb. 20	2541	598	90	1497
Basket machine. Fruit-	W. R. Van Vliet	640,978	Jan. 9	1605	355 356	90	329
Basket. Nesting fruit-	J. Shellenberger and C. L. King	644,691	Mar. 6	248	55	90	1803
Basket-stapling machine	J. C. Titus	643,568	Feb. 13	1790	423 424 425	90	1335
Basket-weaving machine	E. L. Walker	646,242	Mar. 27	3161	698	90	2426

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bath apparatus. Vapor	S. Wygal	641,353	Jan. 16	2315	527	90	484
Bath-cabinet	J. E. Cross	645,250	Mar. 13	1287	279	90	2025
Bath cabinet	F. B. Losee	641,712	Jan. 23	2963	674	90	620
Bath cabinet. Folding vapor	W. E. Hettrick	641,386	Jan. 16	2370	542	90	495
Bath cabinet. Thermal	E. C. Smith	642,807	Feb. 6	414	100	90	1046
Bath ring. Shower	W. Bunting, Jr.	645,698	Mar. 20	1997	439	90	2179
Bath-tub	A. T. Smith	642,168	Jan. 30	3808	867	90	801
Bath-tub attachment	J. W. McGregor	645,513	Mar. 13	1759	385	90	2119
Bath-tub. Portable	O. A. Hensel	643,094	Feb. 6	941	221	90	1146
Bath-tub. Rocking or oscillating	R. R. Cross	640,309	Jan. 2	415	87	90	62
Batter-mixer	H. F. Cuntz	640,753	Jan. 9	1129	259	90	239
Batteries. Device for indicating condition of storage	H. P. Maxim	640,787	Jan. 9	1201	273	90	253
Batteries. Device for indicating condition of storage	H. Beckmann	644,050	Feb. 27	2723	.....	90	1546
Battery: *See* Electric battery. Primary battery. Electric foot-battery. Secondary battery. Storage battery.							
Battery	G. Heidel	641,011	Jan. 9	1679	373	90	344
Battery cell. Storage	R. N. Chamberlain	645,640	Mar. 20	2001	440	90	2186
Battery connecting-plate. Storage	H. G. Osburn	644,144	Feb. 27	2883	682	90	1580
Battery-electrodes, fuses, &c. Connector for	W. Mills	640,479	Jan. 2	613	131	90	120
Battery element. Electric	F. R. Wiley	640,727	Jan. 2	1084	247	90	210
Battery-filler	C. T. Richmond and M. M. Zeller	641,546	Jan. 16	2689	611	90	557
Battery-indicators. Push-button for	G. Heidel	642,844	Feb. 6	481	114	90	1069
Battery jar or receptacle	E. A. Sperry	646,325	Mar. 27	3315	740	90	2454
Beam-covering	C. T. Purdy	646,102	Mar. 27	3050	673	90	2404
Bearing	G. H. Clamer and J. G. Hendrickson	646,119	Mar. 27	2903	643	90	2375
Bearing	H. B. Gillette	644,550	Feb. 27	3048	849	90	1725
Bearing	A. Sidwell	645,574	Mar. 20	1862	411	90	2152
Bearing. Adjustable	E. W. Brooks	642,204	Jan. 30	3873	881	90	814
Bearing. Antifriction	A. Levedahl	642,343	Jan. 30	4148	937	90	869
Bearing. Antifriction	M. C. Merker	640,397	Jan. 2	473	98	90	93
Bearing. Antifriction	I. Moss	645,299	Mar. 13	1370	298	90	2042
Bearing. Antifriction	C. Hoyle	642,450	Jan. 30	4354	986	90	909
Bearing. Antifriction side	C. E. Gates	644,245	Feb. 27	3075	724	90	1615
Bearing. Ball	J. Keller	644,608	Mar. 6	86	20	90	1771
Bearing. Ball	R. E. Kimball	644,771	Mar. 6	384	84	90	1831
Bearing. Ball	J. A. Snyder	642,501	Jan. 30	4424	1005	90	923
Bearing. Ball	J. W. Harrison	642,820	Feb. 6	439	105 / 106	90	1051
Bearing. Car-axle	H. Beeston	641,667	Jan. 23	2886	658	90	607
Bearing. Crank-hanger	T. Boyd	642,781	Feb. 6	371	90	90	1069
Bearing. Cycle	J. M. Whisenant	643,853	Feb. 20	2361	555	90	1460
Bearing for wagon-thimbles. Roller	E. F. Creager	645,713	Mar. 20	2143	467	90	2208
Bearing retainer. Ball	E. F. Creager	645,714	Mar. 20	2144	467	90	2208
Bearing retainer. Ball	E. F. Creager	645,715	Mar. 20	2146	467	90	2208
Bearing retainer. Ball	E. F. Creager	645,716	Mar. 20	2148	468	90	2208
Bearing retainer. Ball	B. F. Barnes	641,819	Jan. 23	3152	716	90	657
Bearing. Roller	G. Boty and L. Moreau	642,575	Feb. 6	10	3, 4	90	967
Bearing. Roller	A. E. Burnouf	643,890	Feb. 20	2428	572	90	1474
Bearing. Roller	H. B. Gillette	643,122	Feb. 13	1001	233	90	1181
Bearing. Roller	A. Levedahl	642,342	Jan. 30	4145	936 / 937	90	869
Bearing. Sleeve	C. H. Bayley	645,381	Mar. 13	1519	353	90	2072
Bearings. Cutting-machine for making ball	K. Keyssner	643,381	Feb. 13	1445	337	90	1268
Bearings. Dust-cap for disk	W. Sebring	645,873	Mar. 20	2431	535	90	2265
Bearings. Waterproof protector for vehicle	H. A. Jacobs	644,605	Mar. 6	83	19	90	1771
Bed. Alarm	L. Ederer	643,799	Feb. 20	2236	527	90	1436
Bed-bottom	R. Schmidt	643,208	Feb. 13	1145	268	90	1210
Bed-bottom. Spring	O. R. Hunt	640,915	Jan. 9	1468	328	90	306
Bed-couch	W. E. Buser	641,187	Jan. 9	2011	449 / 450	90	410
Bed-couch	H. J. Daschbach	644,665	Mar. 6	202	44	90	1798
Bed-couch	R. J. Welles	642,654	Feb. 6	155	38	90	996
Bed. Folding	R. Handy	641,450	Jan. 16	3492	570	90	518
Bed. Folding	T. Hauser	642,116	Jan. 30	3686	845	90	775
Bed. Folding	J. P. Lein	640,782	Jan. 9	1192	271 / 272	90	251
Bed. Folding	J. J. McIntyre	641,968	Jan. 23	3460	789	90	717
Bed. Folding	H. R. Kuersten	641,865	Jan. 23	3251	738 / 739	90	674
Bed. Sofa	A. D. Tomlinson	643,210	Feb. 13	1147	268 / 269	90	1211
Bed. Sofa	A. E. Beall	641,361	Jan. 16	2327	531	90	487
Bed-spring	W. C. Van Cise	641,660	Jan. 16	2872	654	90	595
Bed. Spring	B. R. Blaisdell	643,589	Feb. 13	1803	433	90	1344
Bedstead	G. Elstermann	641,443	Jan. 16	2482	568	90	516
Bedstead	A. de Piniec-Mallet	641,542	Jan. 16	2673	609	90	555
Bedstead	E. A. Libby	645,421	Mar. 13	1593	348	90	2097
Bedstead attachment. Invalid	E. Attaway	640,256	Jan. 2	209	42	90	42
Bedstead brace and tightener	J. M. Songer	640,965	Jan. 9	1567	350	90	322
Bedstead. Foldable	F. Cramer	641,274	Jan. 16	2181	491	90	458
Bedstead. Folding	R. Tattu	643,833	Feb. 20	2514	545	90	1451
Bedstead. Iron	C. L. Plunkett	644,035	Mar. 6	132	29, 30	90	1779
Bedstead. Metallic folding	J. F. Stephenson	644,781	Mar. 6	414	89	90	1837
Bedstead-supporting frame	F. Danzenbaker	640,636	Jan. 2	906	205	90	176
Beehive	L. J. Whitney	642,028	Jan. 23	3537	810	90	730
Beehive honey-sections. Combined section-closer and foundation-fastener for	W. Bachner	646,162	Mar. 27	2995	660 / 661	90	2393
Beer, &c. Apparatus for cooling and dispensing	J. F. Wittemann	641,746	Jan. 23	3032	690	90	633
Beer. Carbonating	W. Handler	644,171	Feb. 27	2936	693	90	1589
Beer-dispensing-apparatus attachment	J. Moran and R. P. Hoey	642,243	Jan. 30	3948	900	90	828
Beer-faucet cooler	H. Gronwald	642,604	Feb. 6	71	17, 18	90	980
Beer. Preservation of							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bell	A. Arens	645,930	Mar. 27	2537	502	90	2303
Bell. Bicycle	C. A. Brink	642,071	Jan. 30	3605	827	90	757
Bell. Bicycle	E. D. Rockwell	644,147	Feb. 27	2888	683	90	1581
Bell. Bicycle alarm	C. A. Brink	641,827	Jan. 23	3172	719	90	660
Bell. Bicycle-pedal	A. M. Southard	640,712	Jan. 2	1056	241	90	204
Bell clamp. Bicycle	H. N. Gale	641,447	Jan. 16	2487	569	90	517
Bell. Electric	F. and H. F. Keil	646,222	Mar. 27	3120	698	90	2417
Bell. Electric mine	B. Searle	645,573	Mar. 20	1859	410 / 411	90	2152
Bell-striker	F. W. Cole	645,249	Mar. 13	1282	278 / 279	90	2024
Belt. Apparel	M. Koch	644,557	Feb. 27	3668	853	90	1728
Belt. Driving	P. Kennedy	642,549	Jan 30	4511	1022	90	940
Belt-drum for belt-polishing machines	M. J. Flavin, J. T. Moriarty, and P. A. Flavin.	644,588	Mar. 6	56	10	90	1765
Belt. Endless	J. Collins	641,841	Jan. 23	3209	727	90	666
Belt-fastener	J. M. Cavins	640,177	Jan. 2	31	8	90	8
Belt-fastener	A. L. Eaton	643,348	Feb. 13	1388	324	90	1257
Belt for straw-stackers. Drag	M. Helneke	641,013	Jan. 9	1681	373	90	344
Belt for transmitting power	P. Kennedy	642,550	Jan. 30	4513	1022	90	940
Belt-guide	H. E. Gehring	642,219	Jan. 30	3898	880	90	820
Belt-guide	J. C. Nofsinger	640,737	Jan. 9	1214	276	90	255
Belt-holder	F. E. Levanseler	643,790	Feb. 20	2251	530	90	1439
Belt-shifter attachment	C. Schopke	641,611	Jan. 16	2783	633	90	577
Bench: *See* Washbench. Work-bench.							
Bending and forming machine	M. L. Keyes	644,249	Feb. 27	3085	726	90	1617
Bevel	G. L. Griswold	640,194	Jan. 2	65	14	90	15
Beveling-machine line attachment	V. Royle	641,469	Jan. 16	2582	579	90	527
Beveling-machine lining attachment	V. Royle	641,470	Jan. 16	2535	579 / 580	90	527
Bevel-mitering attachment	W. Danielson	644,410	Feb. 27	3402	790	90	1678
Beveled edges. Device for cutting	G. H. Whaple	644,117	Feb. 27	2834	671	90	1570
Beverage cooler and dispensing apparatus	A. Sidoti	642,851	Feb. 6	491	116	90	1062
Bicycle	J. F. Brady	641,366	Jan. 16	2387	533 / 534	90	488
Bicycle	L. S. Burbank	642,544	Jan. 30	4498	1019 / 1020	90	937
Bicycle	D. W. Caswell	641,637	Jan. 16	2835	645	90	587
Bicycle	A. R. Colburn	641,193	Jan. 9	2030	454	90	413
Bicycle	A. R. Colburn	644,042	Feb. 20	2707	641	90	1529
Bicycle	C. S. Dikeman	640,881	Jan. 9	1403	314	90	294
Bicycle	E. H. Fisher	645,998	Mar. 27	2673	593	90	2330
Bicycle	M., W. J., and W. B. Fitz-Simmons	645,682	Mar. 20	2077	456	90	2195
Bicycle	L. B. Gaylor	643,644	Feb. 20	1979	465	90	1388
Bicycle	C. L. Jenne	644,769	Mar. 6	381	84	90	1830
Bicycle	K. Kiefer	645,474	Mar. 13	1685	368	90	2105
Bicycle	E. E. Lee	640,574	Jan. 2	793	172	90	152
Bicycle	S. Lounsberry and W. J. Winn	645,267	Mar. 13	1310	285	90	2030
Bicycle	J. Manning	642,238	Jan. 30	3943	899	90	827
Bicycle	R. A. Merrow	640,680	Jan. 2	995	225	90	192
Bicycle	J. W. Payne	642,560	Jan. 30	4529	1025 / 1026	90	943
Bicycle	J. F. A. Runge	642,758	Feb. 6	341	82	90	1033
Bicycle	E. M. Runyan and M. G. Pond	644,686	Mar. 6	237	52, 53	90	1801
Bicycle	S. G. Smith	642,269	Jan. 30	3997	910	90	898
Bicycle	E. Y. White	641,914	Jan. 23	3334	758	90	691
Bicycle	W. S. Busler	645,246	Mar. 13	1279	277	90	2024
Bicycle-brake	J. F. Moen	640,681	Jan. 2	998	225	90	193
Bicycle-brake	P. J. Parmiter	643,231	Feb. 13	1188	278	90	1218
Bicycle-brake	V. Rehm	642,001	Jan. 23	3480	795	90	720
Bicycle-brake	R. Werner	643,757	Feb. 20	2184	513	90	1426
Bicycle-carousel	T. B. Tinney	644,478	Feb. 27	3507	814	90	1699
Bicycle-carrier	G. W. Biester	640,736	Jan. 9	1104	253	90	234
Bicycle-chain guard	F. Douglas	640,756	Jan. 9	1136	261	90	240
Bicycle. Chainless	E. K. Baker	645,540	Mar. 20	1803	396	90	2141
Bicycle child's seat	A. R. Lemoon	645,668	Mar. 20	2054	451	90	2191
Bicycle-clip. Adjustable	C. J. Palmer	642,710	Feb. 6	255	63	90	1017
Bicycle crank-hanger and bracket	W. B. Spencer	640,967	Jan. 9	1585	352	90	326
Bicycle crank shaft	W. H. Fauber	643,349	Feb. 13	1390	325	90	1257
Bicycle crank-shaft	C. Gorman	640,649	Jan. 2	932	210	90	181
Bicycle driving-gear mechanism	G. W. Deafenbaugh	644,411	Feb. 27	3403	790	90	1679
Bicycle driving mechanism	A. A. Brown	645,065	Mar. 13	932	200	90	1956
Bicycle driving mechanism	W. J. Lloyd	642,990	Feb. 6	739	169 / 170	90	1110
Bicycle driving mechanism	T. C. Robinson	641,728	Jan. 23	2997	683	90	627
Bicycle driving mechanism	T. C. Robinson	641,729	Jan. 23	2998	683 / 684	90	627
Bicycle driving mechanism	J. W. Rogers	640,702	Jan. 2	1037	236	90	200
Bicycle driving mechanism	J. Shellabarger	642,013	Jan. 23	3510	802	90	726
Bicycle exercising stand	C. C. Nott	642,919	Feb. 6	626	143	90	1087
Bicycle fan attachment	J. A. Mills	645,482	Mar. 13	1696	371	90	2107
Bicycle. Folding	H. L. Trebert	645,145	Mar. 13	1100	235	90	1989
Bicycle-frame	N. E. Parish	646,189	Mar. 27	3045	672	90	2403
Bicycle-frame	G. H. Williams	644,787	Mar. 6	429	92	90	1839
Bicycle-framework	G. H. Williams	644,788	Mar. 6	431	92	90	1840
Bicycle gear. Changeable	F. M. Swayze	640,830	Jan. 9	1304	292	90	274
Bicycle gear. High-speed	W. W. Lower	641,990	Jan. 23	3445	784	90	714
Bicycle-gearing	J. F. Brady	641,365	Jan. 16	2386	533	90	488
Bicycle-gearing	W. H. Curtiss	642,816	Feb. 6	431	104	90	1050
Bicycle-gearing. Changeable	G. S. Adams	645,446	Mar. 13	1639	358	90	2096
Bicycle hand-power	J. D. Atkinson	646,161	Mar. 27	2993	660	90	2392
Bicycle handle-bar	J. M. Blashfield	645,884	Mar. 20	2445	539	90	2269
Bicycle handle-bar	W. R. Good	645,903	Mar. 20	2316	505	90	2242
Bicycle handle bar	J. Tracy	640,241	Jan. 2	164	38, 34	90	34
Bicycle handle-bar. Adjustable	S. C. Eisenhart	641,442	Jan. 16	2480	568	90	516

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle handle-bars and seat-posts. Binder for	E. N. Bowen	644,573	Mar. 6	21	6	90	1759
Bicycle-lock	F. Klose	641,301	Jan. 16	2227	504	90	467
Bicycle-lock	C. H. Masten	640,297	Jan. 2	279	57	90	56
Bicycle-lock	L. L. Powell	640,221	Jan. 2	125	24	90	26
Bicycle-lock and wrench. Combined	C. F. Whaley and P. P. Barthol	642,770	Feb. 6	354	86	90	1036
Bicycle pedal-stirrup	J. McNeill	641,465	Jan. 16	2522	577 578	90	525
Bicycle propelling mechanism	A. Kauffman	641,516	Jan. 16	2023	598	90	545
Bicycle propulsion	C. H. Allen	643,806	Feb. 20	2201	532 533	90	1441
Bicycle pump attachment	J. Lister, Jr	640,676	Jan. 2	998	224	90	191
Bicycle-pump. Pneumatic	W. H. Humphrey	646,053	Mar. 27	2783	617	90	2352
Bicycle-rack	W. Thum	643,016	Feb. 6	784	182 183	90	1119
Bicycle-rack	F. R. White	640,433	Jan. 2	541	113	90	106
Bicycle-rack	H. Wise	641,913	Jan. 23	3231	757	90	690
Bicycle-rest. Adjustable	W. Bailey	646,117	Mar. 27	2901	643	90	2375
Bicycle-saddle	A. C. Drury and G. E. Sims	643,046	Feb. 6	832	193	90	1128
Bicycle-saddle	J. C. Fleming	640,373	Jan. 2	426	88	90	81
Bicycle-saddle	A. L. Garford	645,256	Mar. 13	1294	291	90	2027
Bicycle-saddle	J. S. Wright	642,191	Jan. 30	3953	875	90	809
Bicycle-saddle	J. B. L. McKenzie	640,483	Jan. 2	619	133	90	121
Bicycle saddle-post	E. L. Lowe	640,304	Jan. 2	288	59	90	58
Bicycle seat-posts and handle-bar posts. Clamping device for	G. H. Williams	644,957	Mar. 6	728	158	90	1060
Bicycle spring-frame	C. L. Rymal	641,609	Jan. 16	2779	633	90	576
Bicycle-standing attachment	G. Aston	642,062	Jan. 30	3595	824	90	796
Bicycle-support	E. C. Barker	642,283	Jan. 30	4022	916	90	843
Bicycle-support	F. Barry	645,346	Mar. 13	1447	319	90	2057
Bicycle-support	J. Booth	640,614	Jan. 2	855	190	90	166
Bicycle-support	J. Booth	640,738	Jan. 9	1107	254	90	234
Bicycle-support	A. E. Conti	640,631	Jan. 2	896	203	90	174
Bicycle-support	W. H. Hart, Jr	640,379	Jan. 2	440	90	90	87
Bicycle-support	W. H. Hart, Jr	640,380	Jan. 2	441	91	90	87
Bicycle-support	W. H. Hart, Jr	640,381	Jan. 2	442	91	90	87
Bicycle-support	W. H. Hart, Jr	640,382	Jan. 2	443	91	90	87
Bicycle-support	W. H. Hart, Jr	640,383	Jan. 2	443	91	90	87
Bicycle-support	W. H. Hart, Jr	640,384	Jan. 2	444	92	90	87
Bicycle-support	W. H. Hart, Jr	640,904	Jan. 9	1445	324	90	302
Bicycle-support	W. H. Hart, Jr	640,905	Jan. 9	1446	324	90	302
Bicycle-support	W. H. Hart, Jr	640,906	Jan. 9	1447	324	90	302
Bicycle-support	W. H. Hart, Jr	644,073	Feb. 27	2756	652	90	1553
Bicycle-support	W. H. Hart, Jr	644,074	Feb. 27	2758	653	90	1553
Bicycle-support	W. H. Hart, Jr	640,468	Jan. 2	593	126	90	116
Bicycle-support	J. P. Hobart	644,863	Mar. 6	568	123	90	1868
Bicycle-support	C. Kordenat	640,784	Jan. 9	1195	272	90	252
Bicycle-support	H. F. Lowe	642,144	Jan. 30	3763	859	90	792
Bicycle-support	C. Mellish	640,487	Jan. 2	624	135	90	122
Bicycle-support	V. A. Pernot	643,610	Feb. 13	1872	441	90	1353
Bicycle-support	J. Schirra	645,023	Mar. 6	852	186	90	1926
Bicycle-support	C. W. H. Smithers	643,595	Feb. 13	1787	422	90	1335
Bicycle-support	E. J. Tierney	643,936	Feb. 20	2519	595	90	1493
Bicycle-support	S. A. Bhise	644,090	Feb. 27	2791	662	90	1561
Bicycle support and locking device	H. R. Oney	640,446	Jan. 2	561	119	90	111
Bicycle-supporter	F. J. Converse	642,683	Feb. 6	213	53	90	1008
Bicycle umbrella attachment	J. A. Erickson	640,174	Jan. 2	26	7	90	7
Bicycle. Water-	C. J. Berg and E. Nilson	645,598	Mar. 20	1925	424	90	2165
Bicycle-wheel	O. Kneusel	643,095	Feb. 6	942	221	90	1146
Bicycles, &c. Knee-brace for	S. L. Holdrege	643,373	Feb. 13	1431	333	90	1295
Bicycles. Magneto-electric lighting apparatus for	A. A. Gabriel and E. M. Atkinson	646,026	Mar. 27	2732	606	90	2341
Bicycles. Parcel-rest and seat-annex for	F. A. Hertzer	641,099	Jan. 2	1004	251	90	211
Bill-of-fare indicator	G. Kern. (Reissue)	11,799	Jan. 9	1331	309	90	280
Billiard-cushion	J. W. Wilkinson	640,848	Jan. 9	1331	309	90	280
Billiard or pool table							
Bin: *See* Grocer's bin.							
Binder	H. H. Hoffmann	642,988	Feb. 6	728	167	90	1163
Binder attachment	H. Bucklew	643,809	Feb. 20	2264	534	90	1442
Binder attachment	W. L. Muender	641,981	Jan. 23	3452	786	90	715
Binder. Document-	S. D. Barnett	645,845	Mar. 20	2388	524	90	2257
Binder-frame	H. P. Jones	646,221	Mar. 27	3117	687	90	2417
Binder. Temporary	C. H. Caryl	644,058	Feb. 27	2735	647	90	1548
Binder. Temporary	B. F. Kendig and E. Coleman	643,380	Feb. 13	1443	336 337	90	1267
Binder. Temporary	F. M. Mees	642,800	Feb. 6	398	97	90	1043
Binder. Temporary	C. E. Morehouse	642,244	Jan. 30	3949	900 901	90	828
Binder. Temporary	J. E. Woodworth	644,391	Feb. 27	3368	781 782	90	1671
Binder. Temporary	J. F. Malette	645,111	Mar. 13	1028	230	90	1976
Binder. Writing-tablet	F. Downing	642,094	Jan. 30	3652	836	90	768
Bird-cage perch and attachment	J. Ranald	645,490	Mar. 13	1714	------	90	2110
Bismuth or antimony from their sulfid ores. Humid process of extracting the metals							
Bit: *See* Bridle-bit. Coal-bit.							
Blackboard and table or desk. Adjustable	D. W. Prosser and W. W. Watson	643,731	Feb. 20	2138	501	90	1417
Blackboard-rubber	M. House	644,203	Feb. 27	3175	744	90	1635
Blackboard-support	J. S. McClung	640,687	Jan. 2	1015	239	90	195
Blanket-retaining means. Animal	F. H. Mitchell	645,368	Mar. 13	1493	328	90	2067
Bleaching-powder. Apparatus for making	F. F. Schmelzer	641,610	Jan. 16	2780	633	90	576
Blind. Apparatus for producing literature for use by the	W. Littlewood	642,139	Jan. 30	3749	857	90	788
Blind-slat adjuster	J. R. Morgan	643,361	Feb. 13	1411	330	90	1261
Blind-slat retainer	E. A. Thrall	643,505	Feb. 13	1786	422	90	1334
Block: *See* Jack-block. Snatch block.							
Blotter-holder	O. I. Samdal	644,725	Mar. 6	290	66	90	1813
Blotter. Ink-	T. P. Vernon	643,925	Feb. 20	2568	589	90	1489

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Blotting or other sheets upon desks, &c. Device for holding corners of	L. W. Cutting	644,349	Feb. 27	3331	767	90	1657
Board: *See* Game-board. Ironing-board.							
Boat	C. H. Sawyer	640,232	Jan. 2	143	30	90	30
Boat-cover. Buoyant	G. K. Gandy	641,504	Jan. 16	2663	594	90	541
Boat-detaching apparatus	A. May	641,714	Jan. 23	2956	674	90	620
Boat driving-gear	J. A. Freund	643,490	Feb. 13	1657	390	90	1310
Boat. Life-	W. P. Mulié and B. H. Van den Berg	642,622	Feb. 6	100	24	90	985
Boat. Metallic life-	W. S. Ray	644,723	Mar. 6	297	65	90	1812
Boats. Apparatus for hoisting or lowering ships'.	J. H. Klencke	646,181	Mar. 27	3028	668	90	2360
Bobbin-holder	G. A. Clark	645,417	Mar. 13	1587	347	90	2086
Bobbin-making machine	A. M. Grimond and J. Crighton	643,960	Feb. 20	2357	602	90	1501
Boiler: *See* Steam-boiler. Water-tube boiler. Washboiler.							
Boiler	R. Bohnen	645,935	Mar. 27	2540	565	90	2305
Boiler	G. H. Drake	640,545	Jan. 2	734	162	90	144
Boiler	D. S. and M. R. Jacobus	644,862	Mar. 6	567	123	90	1868
Boiler	E. J. Sabin	643,207	Feb. 13	1143	267	90	1210
Boiler	W. M. Smith	644,152	Feb. 27	2808	686	90	1583
Boiler-brace	F. R. Sartor	645,757	Mar. 20	2235	484	90	2226
Boiler-bracket	G. A. Clark	643,773	Feb. 20	2213	522	90	1432
Boiler-cleaner	W. Jackson	641,295	Jan. 16	2219	501	90	465
Boiler-cleaner	J. T. Norris and J. R. Smith	645,870	Mar. 20	2425	533	90	2264
Boiler-flue-retarding device	G. A. Nussbaum	645,826	Mar. 20	2357	515 516	90	2250
Boiler-furnace	W. E. Cole	642,546	Jan. 30	4502	(1020 (1021	90	988
Boiler furnace. Steam-	G. E. Wilder	640,726	Jan. 2	1061	246 247	90	209
Boiler gage. Steam-	J. T. Forgey	640,189	Jan. 2	57	11	90	13
Boiler signal apparatus	W. B. Lowe, Jr	644,493	Feb. 27	3435	797 798	90	1685
Boiler stay-bolt. Steam-	F. W. Johnstone	640,661	Jan. 2	950	214	90	184
Boiler top hanger. Steam-	R. Metcalf	644,297	Feb. 27	3185	746	90	1637
Boiler-tube-cleaning device	C. L. Smith	640,822	Jan. 9	1266	286	90	267
Boiler tubes or flues. Automatic feeder for cleaners or scrapers for	C. S. Dean	645,894	Mar. 20	2460	543	90	2272
Boilers. Apparatus for feeding anti-incrustation compounds to	T. J. Sweeney	643,074	Feb. 6	891	210	90	1138
Bolster	R. W. Oswald	640,313	Jan. 2	391	63	90	60
Bolster	W. F. Voss	643,572	Feb. 13	1798	425 426	90	1336
Bolt: *See* Boiler stay-bolt. Lock-bolt. Heel-bolt. Shutter-bolt.							
Bolt	H. C. Hart	641,956	Jan. 23	3409	774	90	706
Bolt-operating device. Automatic	H. C. Stockwell	645,431	Mar. 13	1610	351 352	90	2090
Bolt or rivet. Divisional or knockdown	A. D. Gates	643,792	Feb. 20	2242	528	90	1438
Bone-black retort	B. Eba	644,507	Feb. 27	3558	828	90	1708
Bones for poultry-food. Machine for cutting	A. H. Chapman	645,681	Mar. 20	2075	455	90	2195
Bonnet	F. E Thornton	640,720	Jan. 2	1073	245	90	208
Bonus indicating machine	C. D. C Huestis	641,961	Jan. 23	3244	736	90	673
Book and system for bookkeeping	J. W. Harland	640,903	Jan. 9	1442	323	90	301
Bookbinding. Gummed cloth for	C. H. Crowell	643,594	Feb. 13	1839	435	90	1345
Bookcase, &c	F. E. Allen	646,260	Mar. 27	3074	678	90	2408
Bookcase	F. Macey	644,434	Feb. 27	3438	708	90	1686
Bookcase, &c	I. E. Rockwell and J. D. Adams	646,129	Mar. 27	2929	648	90	2381
Bookcase. Folding	M. P. Carico	645,540	Mar. 20	1815	399	90	2143
Bookcase. Rotary	C. M. Stebbins	641,614	Jan. 16	2709	635	90	578
Bookcase. Sectional	F. Macey	641,459	Jan. 16	2511	574	90	522
Book. Copy-	J. O. Deckert	643,866	Feb. 20	2385	561	90	1465
Book. Copy-	J. W. Williams and R. J. Tilford	645,614	Mar. 20	1958	431	90	2171
Book for type-writers. Blank	W. F. Dodsworth	645,363	Mar. 27	3429	764	90	2482
Book-holder. Coin-controlled	H. L. Peck	644,776	Mar. 6	406	88	90	1835
Book holder. Metallic telescoping account-	B. A. Baxter	645,846	Mar. 20	2389	524 525	90	2257
Book-holder. Student's-desk	T. Duncan	642,606	Jan. 30	3654	836	90	768
Book leaves flexible. Rendering blank-	L. Clark	645,459	Mar. 13	1690	------	90	2099
Book-leveler	G. H. Rogers	642,565	Jan. 30	4541	1028	90	945
Book. Manifold sales-	E. Carney	641,075	Jan. 9	1794	398	90	366
Book packing and shipping case. Combined	H. P. Parmelee	640,315	Jan. 2	304	68	90	61
Book-rest	E. H. B. Hughes	643,188	Feb. 13	1115	260	90	1204
Book. Scrap	C. E. Schwartz	645,191	Mar. 13	1179	256	90	2005
Book. Shorthand note-	H. Bungenstock	644,577	Mar. 6	26	7	90	1760
Book-stitching machine	F. P. Rosback	640,417	Jan. 2	511	106 107	90	101
Book-support and arm-rest	J. B. M. Winburn	644,346	Feb. 27	3296	766	90	1656
Book-support attachment	W. A. Luby	641,784	Jan. 23	3094	703	90	645
Book supporting and adjusting device	J. H. Canfield	643,944	Feb. 20	2437	597	90	1496
Books. Binding	J. Lewthwaite	641,211	Jan. 9	2061	402	90	419
Books. Binding	C. E. Scarse	645,301	Mar. 13	1373	299	90	2042
Boot brushing and polishing machine	R. J. Stirling	641,344	Jan. 16	2302	523	90	482
Boot or shoe	W. N. Button	645,068	Mar. 13	938	201	90	1958
Boot or shoe	W. Gordon	640,900	Jan. 9	1435	321	90	299
Boot or shoe attachment	D. W. Perry	640,317	Jan. 2	308	64	90	62
Boot or shoe cushioning device	E. H. Dunbar	644,412	Feb. 27	3405	791	90	1679
Boot or shoe. Laced	C. Balconi	644,347	Feb. 27	3297	766	90	1657
Boot or shoe tops. Apparatus for folding	W. J. Dix	640,885	Jan. 9	1403	315	90	294
Boot tree	T. G. Stevens	642,728	Feb. 6	298	71	90	1025
Boots, shoes, &c. Fastening for	A. O. Carman and I. S. Morris	645,308	Mar. 13	1383	302	90	2044
Borer. Post-hole	H. Landin	642,552	Jan. 30	4516	(1022 (1023	90	940
Boring apparatus	F. H. Davis	642,587	Feb. 6	45	10,11	90	975

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Boring apparatus. Deep-	J. Vogt	643,428	Feb. 13	1538	361, 362	90	1285
Boring-bit brace. Right-angled	C. A. Fogg	641,685	Jan. 23	2912	264	90	613
Boring-drill	C. S. Stafford	645,219	Mar. 13	1232	268	90	2013
Boring instrument	J. J. Tynan	643,360	Feb. 13	1241	201, 202	90	1298
Boring-machine	J. R. Thomas and H. S. Spencer	642,645	Feb. 6	140	34, 35	90	998
Boring machine. Blind-stile	H. L. Manning	645,822	Mar. 20	2342	512, 513	90	2247
Boring machine. Post-hole	O. Shevlin	644,876	Mar. 6	595	128	90	1873
Bottle	W. J. En Earl and O. B. Critchlow	645,315	Mar. 13	1393	206	90	2046
Bottle	A. W. Grant	645,706	Mar. 20	2122	465	90	2236
Bottle	T. Thompson	640,976	Jan. 9	1692	355	90	329
Bottle	W. Baum, Jr	640,860	Jan. 9	1357	304	90	286
Bottle and glass. Combination beer	G. Bentivegna and R. Leroy	642,951	Feb. 6	677	155	90	1097
Bottle and stopper therefor	G. Bowen	644,761	Mar. 6	364	79, 80	90	1826
Bottle corking and labeling machine	C. Moor and C. H. Mayer	642,246	Jan. 30	3952	901	90	829
Bottle-corking device	T. Howard	642,548	Jan. 30	4509	1021	90	989
Bottle-filling machine	J. G. Warren	641,219	Feb. 27	3025	717, 718	90	1607
Bottle-filling machine	G. R. Hemstreet	641,108	Jan. 9	1852	412	90	379
Bottle-float	C. H. Bogart	644,891	Mar. 6	620	134	90	1878
Bottle-mouth guard	A. J. Rudolph	645,189	Mar. 13	1176	255, 256	90	2004
Bottle-neck-forming machine	T. P. Caraher	641,056	Feb. 27	2732	647	90	1548
Bottle. Non-refillable	V. Cruser	640,275	Jan. 2	946	49	90	49
Bottle. Non-refillable	E. Freese	640,461	Jan. 2	584	124	90	115
Bottle. Non-refillable	J. Goodman	645,894	Mar. 20	2816	506	90	2242
Bottle. Non-refillable	C. X. Gutzeit, P. M. and M. L. Owen	641,092	Jan. 23	2919	666	90	614
Bottle. Non-refillable	J. V. D. Haven	643,842	Feb. 20	2388	550	90	1456
Bottle. Non-refillable	J. A. Higgs	645,811	Mar. 20	2324	508	90	2243
Bottle. Non-refillable	W. B. Lynch	644,617	Mar. 6	99	23	90	1774
Bottle. Non-refillable	C. B. Overbaugh	645,971	Mar. 27	2620	581	90	2320
Bottle. Non-refillable	C. C. Richmond	642,491	Jan. 30	4411	1001	90	921
Bottle. Non-refillable	I. L. Robinson	640,953	Jan. 9	1544	344	90	318
Bottle. Non-refillable	J. V. R. Van Name	644,343	Feb. 27	3280	764	90	1655
Bottle. Non-refillable	H. H. Higham	643,057	Feb. 6	962	201	90	1133
Bottle-package	C. C. Schreiber	642,634	Feb. 6	117	29	90	989
Bottle soaking and conveying device	H. O. Brawner	646,349	Mar. 27	3358	751	90	2463
Bottle-sprinkler	C. F. Butz	644,055	Feb. 27	2731	646	90	1548
Bottle-sprinkler	W. A. Lorenz	643,770	Feb. 20	2247	521	90	1431
Bottle-stopper	A. M. Sims and A. J. Arfsten	643,660	Feb. 20	2045	483	90	1401
Bottle-stopper	R. S. Pickett	640,806	Jan. 9	1238	281	90	261
Bottle-stopper and extractor	W. D. Worthen	644,026	Feb. 20	2985	695	90	1524
Bottle-stopper. Measuring	H. Gates and F. O. Woodland	640,757	Jan. 9	1138	261	90	240
Bottle-stoppers. Automatic feed mechanism for	F. O. Woodland	640,988	Jan. 9	1618	358	90	333
Bottle-stoppering machines. Automatic feeder mechanism for	C. H. and H. B. Fischer	645,389	Mar. 13	1532	336	90	2075
Bottle-washer	L. House	645,685	Mar. 20	2084	457, 458	90	2197
Bottle-washing machine	R. M. and C. E. Chambers	642,906	Jan. 30	3877	881, 882, 883, 884	90	814
Bottle-wiring machine	C. H. Whitaker	643,216	Feb. 13	1157	271	90	1212
Bottles. Antirefilling device for	P. W. Shields	643,915	Feb. 20	2484	585	90	1485
Bottling-machine	G. T. Rohn	643,006	Feb. 6	770	177	90	1117
Bouquet-holder	C. W. Crawford	644,546	Feb. 27	3641	847, 848	90	1724
Bowling-alley	J. N. McIntire	642,801	Feb. 6	400	97	90	1043
Bowling-alley	C. J. Olson	644,628	Mar. 6	120	27	90	1777
Bowling-alley							
Box: *See* Annealing-box. Ash-box. Bait-box. Cigar-box. Coin-box. Folding box. Fruit-box. Junction-box. Knockdown box. Letter or order box. Lunch-box. Match-box. Milliner's box. Miter-box. Music-box. Office-door message-box. Packing-box. Paper box. Paste-box. Provision-box. Refrigerator-box. Refuse-box. Shipping-box. Sluice-box. Steam-box. Traveler's box.							
Box	F. S. MacRonald	646,296	Mar. 27	3256	727	90	2443
Box	A. C. McCandless	641,722	Jan. 23	2983	678	90	625
Box	D. B. McPherson	644,300	Feb. 27	3190	747	90	1698
Box	J. V. Otten	641,144	Jan. 9	1921	426	90	392
Box-covering machine	N. B. Chadwick	642,517	Jan. 30	4449	1010, 1011	90	928
Box-covering machine	G. W. Glazier	644,246	Feb. 27	3077	725	90	1615
Box-covering machine	A. H. Stevenson and N. B. Chadwick.	643,804	Feb. 20	2250	532	90	1441
Box-fastener	A. Jarolimek	643,296	Feb. 13	1301	307	90	1240
Box for stamps, tickets, &c	B. Mathis	642,708	Feb. 6	244	61	90	1014
Box-hinging machine	D. H. Saunders	641,149	Jan. 9	1931	428, 429	90	394
Box-lid clasps. Machine for securing	W. T. Parker	642,254	Jan. 30	3907	904	90	831
Box-machine	G. A. Barnes	640,171	Jan. 2	13	3, 4, 5	90	5
Box-machine	G. Taggart	643,279	Feb. 13	1276	299, 300, 301	90	1235
Box-machine	W. H. Wussow	640,249	Jan. 2	180	37, 38	90	37
Box-making clamp	W. L. Smith	643,551	Feb. 13	1762	415	90	1329

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Box-nailing machine	W. S. Doig	642,212	Jan. 30	3897	886, 887, 888	90	817
Brace: *See* Arch center brace. Boring-bit brace. Chair and rail brace.							
Brace or bit-stock attachment	W. L. Baumgardner	641,922	Jan. 23	3353	702	90	694
Bracket: *See* Adjustable bracket. Extensible and adjustable bracket. Lamp-bracket. Shade-bracket. Shade-roller bracket. Window-bracket.							
Braiding-machine	A. V. Groupe	642,977	Feb. 6	718	165	90	1106
Braiding-machine	T. K. Ober	641,880	Jan. 23	3278	744, 745	90	679
Brake: *See* Air-brake. Back-pedaling brake. Bicycle-brake. Car-brake. Carriage-brake. Fluid-pressure brake. Hydraulic brake. Magnetic brake. Railway-brake. Sled-brake. Vehicle-brake. Vehicle-wheel brake. Wagon-brake.							
Brake	W. F. Trexler	643,922	Feb. 20	2500	588	90	1489
Brake-beam	E. C. Washburn	644,383	Feb. 27	3354	778	90	1668
Brake-beam. Adjustable	J. F. Hennessy	645,810	Mar. 20	2323	507	90	2243
Brake block or shoe. Automatic	H. N. Wood	641,249	Jan. 9	2137	481	90	436
Brake-handle	E. C. Collins	641,639	Jan. 16	2837	646	90	587
Brake-indicator	W. D. Rogers	645,494	Mar. 13	1719	376	90	2111
Brake-shoe	J. R. Cardwell	642,295	Jan. 30	4041	920	90	846
Brake-shoe	J. D. Gallagher	642,317	Jan. 30	4092	928	90	858
Brake-shoe	J. D. Gallagher	642,318	Jan. 30	4094	929	90	859
Brake-shoe	C. E. Mark	643,668	Feb. 20	2019	477	90	1395
Brake-shoe	J. Medway	640,788	Jan. 9	1203	274	90	253
Brake-shoe	J. F. Morrison and A. J. Allen	646,301	Mar. 27	3260	728	90	2443
Brake-shoe	W. D. Sargent	643,734	Feb. 20	2143	503	90	1418
Brake-shoe	J. Jenson	640,916	Jan. 9	1469	329	90	307
Bread or cake cutter	T. Huberdeau	645,853	Mar. 20	2398	527	90	2250
Breast-strap slide	M. E. Rothberg	641,551	Jan. 16	2697	.....	90	558
Brick and lining of refractory character. Fire-	J. P. B. Fiske	646,207	Mar. 27	3086	680	90	2411
Brick-handling apparatus	J. Schudle	645,651	Mar. 20	2026	446	90	2185
Brick-kiln	O. C. Oehler	642,356	Jan. 30	4178	945	90	876
Brick-kiln furnace	C. J. Anderson	645,616	Mar. 20	1962	431, 432	90	2172
Brickmaker's housing	W. N. Cary	645,997	Mar. 27	2672	592, 593	90	2330
Brick-making machine	F. C. Norris	641,991	Jan. 23	3466	790, 791	90	718
Brick-making machine	H. B. Sperry	641,341	Jan. 16	2296	522	90	480
Brick-making plant	C. C. Jones	644,520	Feb. 27	3585	835, 836, 837	90	1714
Bricks, &c. Continuous kiln for burning	A. E. Brown	644,000	Feb. 20	2636	623, 624	90	1516
Bricks or blocks. Thermo-electrical building	J. Matthias	641,214	Jan. 9	2066	463	90	420
Bricks or the like. Machinery for pressing	R. T. Hughes	646,027	Mar. 27	2734	606	90	2341
Bridge. Bascule lift-	J. P. Cowing	644,405	Feb. 27	3301	787	90	1675
Bridge. Draw-	A. Lucius	645,689	Mar. 20	2091	459	90	2199
Bridge-gate	P. Gfroerer	643,407	Feb. 13	1497	351	90	1276
Bridge gate. Draw-	H. W. Yerrington	645,991	Mar. 27	2658	589, 590	90	2327
Bridle-bit	B. Allen, Jr	640,619	Jan. 2	866	193	90	168
Bridle-bit	R. F. Reynolds	644,945	Mar. 6	712	154	90	1897
Brine. Purifying	G. N. Vis	642,623	Jan. 23	3529	.....	90	729
Briquet	L. G. Haase	642,979	Feb. 6	722	166	90	1107
Briquet	C. F. Hood	645,361	Mar. 13	1478	.....	90	2064
Brooch	J. W. Simmonds	645,302	Mar. 13	1375	299	90	2043
Brooder. Chicken-	E. F. Hodgson	644,509	Mar. 6	71	16	90	1769
Broom	W. S. Palmer	642,873	Feb. 6	537	125	90	1071
Broom	J. R. Ross	643,851	Feb. 20	2360	554	90	1460
Broom bridle and holder	L. Oehme, Jr	644,627	Mar. 6	119	27	90	1777
Broom-handle	J. W. Willard	645,988	Mar. 27	2654	588	90	2326
Broom-head	G. M. Bowman, J. H. Blackburn, and G. B. Robbins.	641,070	Jan. 9	1785	396	90	364
Broom-holder	H. F. Cooper	644,581	Mar. 6	34	8	90	1761
Brooms, &c. Holder for	C. W. Gaston	646,384	Mar. 27	3402	770	90	2488
Brow-band-attaching device	C. Blume	645,449	Mar. 13	1643	359	90	2096
Brush	F. G. Farnham	645,523	Mar. 13	1774	388	90	2122
Brush	A. F. Phillips	642,484	Jan. 30	4403	999	90	919
Brush	W. Schott	643,803	Feb. 20	2257	531	90	1440
Brush	H. Zias	643,441	Feb. 13	1559	367	90	1289
Brush. Dustless sweeping-	J. P. Wiens	641,350	Jan. 16	2312	525	90	484
Brush. Fountain mucilage or paste	J. F. Walker	643,174	Feb. 13	1092	253	90	1200
Brush-handles. Means for attaching	J. W. Tottle	641,479	Jan. 16	2554	584	90	531
Brush-holder	P. O'Shaughnessy	643,000	Feb. 6	754	173, 174	90	1113
Brush-machine	P. Becker	642,195	Jan. 30	3858	577	90	810
Brush-mat quilter	D. Neale	646,008	Mar. 27	2696	597	90	2334
Brush. Rotary blacking-	O. A. Swanson	642,731	Feb. 6	303	72	90	1026
Brush. Tooth-	C. L. Hall	642,114	Jan. 30	3692	844	90	774
Brush Wire	E. F. Rice	644,303	Feb. 27	3195	748	90	1638
Bubble blower. Soap-	S. B. Bliss	642,892	Feb. 6	575	132	90	1078
Bucket and lid holder	H. B. Shaw	640,331	Jan. 2	832	69	90	66
Bucket attachment	C. A. Troxel	643,698	Feb. 20	2073	488	90	1406
Buckle	G. B. Adams	644,752	Mar. 6	340	75	90	1822

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Buckle	G. V. Bates	644,314	Feb. 27	3229	751	90	1644
Buckle	C. E. Rausseau	644,095	Feb. 27	2799	663	90	1563
Buckle	M. L. Streeter	645,025	Mar. 6	857	185	90	1925
Buckle. Belt-	D. McMillan	640,795	Jan. 9	1213	276	90	625
Buckle. Billet-	E. Manes	641,713	Jan. 23	2355	674	90	1956
Buckle. Hame-tug	J. R. Boyd	645,064	Mar. 13	929	199	90	2220
Buckle. Shaft and harness	M. Rubin	645,739	Mar. 20	2295	478	90	2282
Buckle. Suspender-	J. Stelzl	645,922	Mar. 20	2518	557	90	2282
Budding-tool	H. H. Sessions	643,828	Feb. 20	2301	541	90	1448
Buffer-beam equipment. Metallic	A. W. Rogers and S. W. Winslow	643,235	Feb. 13	1193	279 280	90	1219
Buffing-machines. Apparatus for making abrasive covers for	A. W. Rogers and S. W. Winslow	643,236	Feb. 13	1195	280 281	90	1219
Buffing-machines. Machine for making abrasive covers for	R. E. Brier and W. E. Clark	644,399	Feb. 27	3384	795	90	1674
Buggy storm-apron	A. A. Prall	644,944	Mar. 6	710	153	90	1896
Buggy storm-front	J. F. Hughes	641,513	Jan. 16	2619	597	90	545
Buggy-top	C. R. Hesseltine	643,182	Feb. 13	1019	237	90	1185
Buggy-tops. Mechanism for raising or lowering	L. Gleichmar	644,765	Mar. 6	376	.....	90	1829
Building-blocks. Composition of matter especially adapted for use in manufacturing	L. Gleichmar	644,766	Mar. 6	377	.....	90	1829
Building-blocks. Producing	W. J. Donaldson and C. Borgner	641,942	Jan. 23	3386	769	90	702
Building construction	H. Clay	641,859	Jan. 23	3197	726	90	664
Building for amusement, &c	W. Homann	640,286	Jan. 2	285	58	90	58
Bung-hole fitting	A. Q. Mueller and C. Farner	640,302	Jan. 2	953	223	90	57
Bung-stopper	R. Adam	643,097	Feb. 13	953	223	90	1171
Bunsen burner for liquid hydrocarbons	P. B. Cornick	644,243	Feb. 27	3072	724	90	1614
Burglar-alarm	J. T. Friend	643,405	Feb. 13	1495	350	90	1276
Burglar-alarm	C. E. Spencer and J. T. Pethick	641,902	Jan. 23	3310	752	90	686
Burglar-alarm	S. L. Morse	642,147	Jan. 30	3769	859	90	793
Burglar-alarm apparatus	R. R. Kinney and G. P. Barnard	641,779	Jan. 23	3087	702	90	643
Burial apparatus	Z. T. Boicourt	640,624	Jan. 2	878	196	90	170
Burial-casket	W. C. Dunlap	641,377	Jan. 16	2355	538	90	492
Burial-casket	M. J. Cameron	642,958	Feb. 6	688	158	90	1099
Burial-casket lowering device							
Burner: *See* Bunsen burner. Lamp-burner. Gas-burner. Oil-burner. Grass or stubble burner. Refuse-burner. Hydrocarbon-burner. Vapor-burner.							
Burner	N. H. Bledsoe	643,105	Feb. 13	967	226	90	1174
Burner	O. Brünler	641,368	Jan. 16	2340	535	90	489
Burner	C. R. Dallas, T. S. Leese, and G. W. Granger.	640,996	Jan. 9	1652	366	90	339
Burner	W. Egle	646,368	Mar. 27	3437	766	90	2483
Burner	A. F. Morey	643,672	Feb. 20	2026	478	90	1397
Burner	W. Scott	641,802	Jan. 23	3124	710	90	651
Burner	O. Brünler	641,369	Jan. 16	2340	535	90	489
Burner with vaporizer for liquid fuel	J. C. Lohmeyer	646,054	Mar. 27	2785	617	90	2352
Burners. Soot-dispersing attachment for	E. H. Hurry and H. J. Seaman	645,081	Mar. 6	867	188	90	1929
Burning pulverized fuel. Apparatus for	A. W. Cox	643,593	Feb. 13	1838	435	90	1345
Burning refuse. Receptacle for	S. P. McCann	643,725	Feb. 20	2132	499	90	1416
Bush-puller	H. H. Taylor	645,634	Mar. 20	1966	438	90	2178
Bustle	R. R. Cross	641,084	Jan. 9	1811	402 403	90	370
Butter-packing machine	H. M. Williams	644,608	Mar. 6	258	57	90	1895
Butter plate and mold	M. L. Horning	640,287	Jan. 2	268	54	90	54
Butter-plate and wrapper. Combined	C. T. Richmond and M. M. Zellers	641,545	Jan. 16	2677	610 611	90	556
Butting and pointing machine	H. P. Goff	642,442	Jan. 30	4339	982	90	906
Button	A. Hall	643,409	Feb. 13	1501	352	90	1277
Button	R. A. Hall and E. A. Griffith	641,449	Jan. 16	2191	570	90	518
Button	R. A. Hall and E. A. Griffith	642,042	Jan. 23	3555	814	90	734
Button	W. H. Lease	640,476	Jan. 2	608	130	90	120
Button	F. G. Neubert	646,097	Mar. 27	2856	634	90	2366
Button	E. W. Silsby	645,192	Mar. 13	1181	256	90	2005
Button	E. W. Silsby	646,134	Mar. 27	2988	650	90	2382
Button	C. S. E. Speerl	643,242	Feb. 13	1305	285	90	1221
Button	W. J. Wagner	641,909	Jan. 23	3225	756	90	689
Button	E. A. Griffith	642,040	Jan. 23	3553	813	90	734
Button	O. W. Ketchum	641,778	Jan. 23	3086	702	90	643
Button and button-fastener	S. Carlin	644,864	Mar. 6	624	135	90	1879
Button and button-fastener	W. F. Nies	642,772	Feb. 6	339	80	90	1031
Button and fastener. Combined cuff-	J. H. Finley	645,079	Mar. 13	955	204	90	1999
Button and necktie holder. Combined collar-	S. A. Grant	640,651	Jan. 2	987	211	90	182
Button. Collar-	W. A. Locke	645,298	Mar. 13	1369	298	90	2042
Button. Collar-	G. A. Rowe	642,632	Feb. 6	115	28	90	988
Button. Collar-	T. Whaley	641,057	Jan. 9	1758	390	90	359
Button. Collar-	E. H. Wheeler	641,505	Jan. 16	2708	617	90	562
Button. Collar-	J. L. Briggs	644,273	Feb. 27	3125	734	90	1626
Button. Collar or cuff	C. H. Allen	645,807	Mar. 13	1382	302	90	2044
Button. Cuff-	W. L. Mauran	640,298	Jan. 2	280	57	90	56
Button. Cuff-	F. B. Wersell, Jr	646,246	Mar. 27	3109	740	90	2427
Button-fastener	M. R. Brueschc	645,501	Mar. 13	1732	380	90	2114
Button. Lapel-	S. I. Schwartz	640,420	Jan. 2	517	108	90	102
Button-loop	N. Barry, Jr	643,585	Feb. 13	1821	430	90	1341
Button-machine	N. Barry, Jr	643,586	Feb. 13	1823	430 431	90	1341
Button-making machine	N. Barry, Jr	643,587	Feb. 13	1826	431 432	90	1342
Button-making machine	A. Garbeil	645,050	Mar. 6	901	193	90	1936
Button-making machine	P. L. Sylvester	644,811	Mar. 6	472	101 102	90	1848
Button-making machine	E. W. Silsby	644,645	Mar. 6	157	86	90	1785
Button-making press	T. R. Hyde, Jr	644,013	Feb. 20	2662	630	90	1520
Button. Prong-	W. H. H. Wertz, Jr	643,579	Feb. 13	1808	427	90	1339
Button. Separable collar-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Button-setting machine	A. J. Shipley and F. E. Stanley	643,073	Feb. 6	886	209 210	90	1137
Button-setting machine	F. R. White	646,063	Mar. 27	2797	620	90	2354
Button. Sleeve-	J. E. Hills	646,175	Mar. 27	3019	666	90	2397
Button-stick and cleaning-shield	T. O. Curtiss	641,676	Jan. 23	2897	660	90	610
Button-stick and cleaning-shield	T. O. Curtiss, Jr	641,677	Jan. 23	2899	661	90	610
Buttons. Means for attaching	F. E. Forward	640,896	Jan. 9	1427	319	90	298
Buttons to garments. Attaching	G. J. Burns	642,895	Feb. 6	579	132	90	1079
Cab. Hansom-	L. Paradis and N. Desrosiers	641,645	Jan. 16	2844	648	90	589
Cabinet	D. Crocker	642,209	Jan. 30	3893	885	90	817
Cabinet	W. C. Hudson	643,873	Feb. 20	2397	564	90	1467
Cabinet	P. H. Yawman	644,751	Mar. 6	339	75	90	1821
Cabinet and table. Convertible	F. X. Ganter	642,106	Jan. 30	3672	840 841	90	772
Cabinet. Kitchen-	T. J. Brumback	643,628	Feb. 20	1949	457	90	1382
Cabinet. Kitchen-	S. I. Underwood	640,509	Jan. 2	666	144	90	131
Cabinet. Kitchen-	E. Wheeler	646,247	Mar. 27	3169	700	90	2427
Cabinet. Revoluble-shelf	C. A. Feeser	643,049	Feb. 6	847	197 198	90	1130
Cabinet. Spice-	P. J. Mulloy	644,257	Feb. 27	3098	729	90	1620
Cable-grip	W. W. O'Malley	641,142	Jan. 9	1918	425	90	391
Cable grip. Traveling-	E. I. Parsons	642,255	Jan. 30	3968	904	90	832
Cable-terminal	J. N. Byers	640,532	Jan. 2	713	155 156	90	140
Cable-terminal	W. Callahan	640,533	Jan. 2	716	156	90	140
Caissons, &c. Air-lock for	R. S. Gillespie	641,505	Jan. 16	2605	594	90	531
Cake-former	A. Fredrickson	640,898	Jan. 9	1429	320	90	298
Calcining	J. Godfrey and H. J. Hayes	642,602	Feb. 6	69	17	90	980
Calcium carbid. Apparatus for treating	J. von Orlowsky	645,426	Mar. 13	1601	350	90	2089
Calcium-carbid holder	E. L. White and W. M. Gilbert	645,152	Mar. 13	1108	237	90	1991
Calculating device	R. Naish	640,584	Jan. 2	802	178	90	156
Calculating-machine	F. S. Baldwin	641,065	Jan. 9	1769	393 394 395	90	361
Calculating system	A. Horváth	641,294	Jan. 16	2217	500 501	90	465
Calendar	C. L. Leonard	641,456	Jan. 16	2506	572 573	90	522
Calendar. Adjustable perpetual	S. A. Buell	641,433	Jan. 16	2453	562 563 564 565	90	512
Calipers. Gear-tooth	J. Boulet	643,080	Feb. 6	905	214	90	1141
Calipers. Micrometer-	J. P. B. Wells	641,173	Jan. 9	1980	439	90	404
Calk-making machine	C. A. Filion	645,590	Mar. 20	1912	421	90	2162
Camera	O. H. Peck and C. L. Anderson	642,877	Feb. 6	543	126	90	1072
Camera. Kinetographic	F. M. Lee and E. R. Turner	645,477	Mar. 13	1689	360	90	2106
Camera. Kinetographic	H. W. Schroeder	642,163	Jan. 30	3797	865	90	799
Camera. Magazine-	J. J. Chase	641,268	Jan. 16	2172	480	90	456
Camera. Magazine-	L. H. Wallace	643,756	Feb. 20	2180	512 513	90	1426
Camera multiplying attachment	W. A. Peters	645,691	Mar. 20	2094	460 494	90	2100
Camera. Panoramic	N. Thomas	645,276	Mar. 13	1326	288 289	90	2034
Camera. Photographic	F. W. Livermore	640,677	Jan. 2	990	224	90	191
Camera. Photographic	P. Pératé	645,003	Mar. 6	801	175	90	1916
Camera registering mechanism	A. W. McCurdy	645,370	Mar. 13	1500	329 330	90	2069
Cameras. Swing-back for photographic	W. F. Carlton and H. W. Locke	643,711	Feb. 20	2103	493 494	90	1411
Cameras. Swing-back for photographic	H. W. Locke	643,720	Feb. 20	2124	498	90	1415
Camp-chair	J. W. Tennyson	645,878	Mar. 20	2437	536	90	2267
Can: *See* Filling-can. Oil-can. Force-can. Roving-can. Hermetically-sealed can.							
Can-capping device	J. S. Hull	640,913	Jan. 9	1466	327 328	90	306
Can-carrier	G. Baklund	642,569	Feb. 6	3	1	90	905
Can-clamp	F. J. Becker	641,182	Jan. 9	2005	448	90	409
Can-cleaning machine	C. W. Sleeper	645,138	Mar. 13	1082	230	90	1986
Can cover. Garbage-	M. Fischer	643,489	Feb. 13	1656	390	90	1310
Can-covers. Automatic locking device for	J. W. Baddock and D. W. Cleary	641,256	Jan. 16	2154	485	90	452
Can-filling machine	W. Gebhardt	640,375	Jan. 2	430	89	90	85
Can-heading machine. Automatic	W. F. Davis	642,681	Feb. 6	206	51, 52	90	1007
Can-opener	H. O. Anton	640,255	Jan. 2	208	42	90	42
Can-opener	A. L. Baker	640,732	Jan. 9	1098	252	90	233
Can-opener	A. T. Beckley	645,060	Mar. 13	920	197	90	1955
Can-opener	F. N. Russell	642,850	Feb. 6	490	116	90	1062
Can ventilator. Milk-	M. H. Nerbovig	642,250	Jan. 30	3957	902	90	829
Can-washing machine	J. Des Brisay	643,479	Feb. 13	1637	386 387	90	1306
Cans, &c. Fastening for caps of	G. J. Record	643,005	Feb. 6	765	176	90	1115
Canal. Pleasure-	P. Boyton	640,439	Jan. 2	551	116	90	108
Canceling and postmarking machine. Stamp-	J. L. Lister	644,525	Feb. 27	3596	838 839	90	1715
Canceling and postmarking machine. Stamp-	G. W. Schock	643,987	Feb. 20	2604	615 616	90	1510
Canceling machine. Letter-	F. C. Osborn	645,711	Mar. 20	2139	466	90	2207
Candle-holder	W. Schott	642,494	Jan. 30	4415	1002	90	921
Candle-holder	H. Schroeder	641,239	Jan. 9	2194	478	90	433
Candlestick	C. E. Sherman	642,496	Jan. 30	4117	1003	90	922
Cane carrier. Sugar-	J. E. Tallet	643,558	Feb. 13	1774	418 419	90	1332
Cane-cart loader	A. S. Hebert	645,851	Mar. 20	2395	526	90	2259
Cane-handling apparatus. Sugar	J. P. Kemper	641,119	Jan. 9	1865	415	90	382

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Cane-header	W. D. Easley	641,943	Jan. 23	3287	770	90	702
Cane seat	N. Bois	642,954	Feb. 6	681	155 / 156	90	1097
Cane-stripper	G. W. Parrish	641,320	Jan. 16	2261	512	90	474
Canister for packing edibles	W. J. Harries	646,145	Mar. 27	2958	654	90	680
Canopy	I. E. Palmer	641,883	Jan. 23	3283	749	90	2187
Canopy or tent	A. G. Wynkoop	645,656	Mar. 20	2686	448	90	2187
Canvas, duck, or like woven fabric	W. G. Halkett	645,808	Mar. 20	2921	507	90	2242
Caoutchouc, india-rubber, &c. Devulcanizing	A. E. J. V. J. Theilgaard	642,764	Feb. 6	347	.....	90	1034
Cap. Apparel-	S. M. Blumenfield	645,788	Mar. 20	2285	497	90	2236
Cap. Apparel-	B. Vendig and A. Schiff	644,379	Feb. 27	3345	776	90	1666
Car	F. W. Whitcher	641,058	Jan. 9	1759	391	90	359
Car and door mechanism therefor. Steel	A. B. Bellows	644,890	Mar. 6	619	133	90	1878
Car body-bolster	R. W. Oswald	640,091	Jan. 2	1020	232	90	196
Car body-bolster	M. B. Schaffer	640,327	Jan. 2	325	68	90	65
Car body-bolster	M. B. Schaffer	644,469	Feb. 27	3191	810 / 811	90	1696
Car body-bolster	M. B. Schaffer	645,672	Mar. 20	2959	452	90	2192
Car body-bolster	C. E. Bauer	641,821	Jan. 23	3159	717	90	658
Car-bolster	E. W. Summers	646,195	Mar. 27	3056	674 / 675	90	2405
Car-bottom	E. F. Campbell	640,268	Jan. 2	230	46	90	46
Car-brake	H. S. Goughnour	644,201	Feb. 27	3264	708	90	1660
Car-brake	P. S. Kingsland	641,972	Jan. 23	3426	779	90	709
Car-brake	P. S. Kingsland	641,973	Jan. 23	3429	779	90	710
Car-brake	P. S. Kingsland	641,974	Jan. 23	3431	779 / 780	90	711
Car-brake	C. A. Kruse	640,921	Jan. 9	1477	340	90	308
Car-brake	J. H. K. McCollum	645,486	Mar. 13	1709	374	90	2109
Car-brake	A. C. Peterson	644,146	Feb. 27	2885	682 / 683	90	1580
Car-brake	P. Schrieffer	642,008	Jan. 23	3496	798 / 799	90	723
Car-brake	C. E. Sharpless	642,930	Feb. 6	641	146 / 147	90	1090
Car-brake	A. S. Slyker	641,339	Jan. 16	2292	521	90	480
Car-brake	F. S. Snyder	644,023	Feb. 20	2978	633	90	1521
Car-brake	U. E. Maille	644,716	Mar. 6	285	62, 63	90	1810
Car brake. Electric-	E. C. Collins	641,698	Jan. 16	2836	646	90	587
Car-brake-operating device	G. S. Fanning	643,487	Feb. 13	1652	349	90	1309
Car brake. Railway-	J. F. McElroy	644,444	Feb. 27	3451	802	90	1689
Car-braking mechanism	D. P. Cory	641,674	Jan. 23	2893	690	90	669
Car card-holder. Freight-	C. F. Street	641,165	Jan. 9	1908	436	90	402
Car center-plate. Railway-	A. Sundh	645,767	Mar. 20	2254	429 / 430	90	2239
Car controller. Electric-railway-	A. Sundh	645,765	Mar. 20	2247	427	90	2238
Car-controlling apparatus. Electric-	I. L. Kiser	644,017	Feb. 20	2670	631	90	1521
Car corner iron or strap	G. Arend	643,282	Feb. 13	1280	301 / 302	90	1236
Car-coupling	A. O. Arnold	646,396	Mar. 27	3484	775	90	2492
Car-coupling	J. M. Brownfield	644,348	Feb. 27	3300	767	90	1657
Car-coupling	W. G. Curtis	642,432	Jan. 30	4320	975	90	908
Car-coupling	T. M. Gallagher	644,829	Mar. 6	402	105	90	1851
Car-coupling	G. Hermanson	646,172	Mar. 27	3014	665	90	2396
Car-coupling	W. F. Johnson	646,288	Mar. 27	3246	724	90	2441
Car-coupling	E. Krimner	643,661	Feb. 20	2009	474	90	1394
Car-coupling	A. S. Martin	643,145	Feb. 13	1637	241	90	1189
Car-coupling	W. McBride	645,230	Mar. 13	1250	271	90	2018
Car-coupling	J. McComb	645,627	Mar. 20	1982	435	90	2176
Car-coupling	C. O. Parsons	644,452	Feb. 27	3467	805	90	1692
Car-coupling	E. F. Pendexter	645,123	Mar. 13	1048	223	90	1959
Car-coupling	A. S. Ray	645,629	Mar. 20	1985	436	90	2177
Car-coupling	M. H. Rice	642,719	Feb. 6	280	68	90	1022
Car-coupling	W. F. Richards	640,225	Jan. 2	131	26	90	28
Car-coupling	J. Stawartz	644,107	Feb. 27	2822	668	90	1568
Car-coupling	J. Timms	645,304	Mar. 13	1376	300	90	2043
Car-coupling	C. A. Tower	643,613	Feb. 13	1876	442	90	1353
Car-coupling	J. Willison	643,580	Feb. 13	1809	427 / 428	90	1339
Car-coupling	J. Willison	643,581	Feb. 13	1812	428	90	1339
Car-coupling	O. Yates	643,182	Feb. 13	1103	256	90	1202
Car-coupling. Automatic	E. Best	643,104	Feb. 13	965	226	90	1174
Car-coupling. Automatic	F. O. Blankenmeister	643,860	Feb. 20	2373	558	90	1462
Car-coupling. Automatic	C. B. Cookston	644,897	Mar. 6	627	135 / 136	90	1880
Car-coupling. Automatic	G. A. Hermanson	646,173	Mar. 27	3015	666	90	2397
Car-coupling. Automatic	G. A. Hermanson	646,174	Mar. 27	3017	666	90	2397
Car-coupling. Automatic	C. Troup	642,509	Jan. 30	4438	1008	90	926
Car-coupling. Automatic	J. Rawles	645,606	Mar. 20	1935	427	90	2167
Car-coupling draft-gear	H. Hughes	643,504	Feb. 13	1684	395	90	1315
Car-coupling for mines	T. H. Wickes	643,434	Feb. 13	1547	364	90	1297
Car curtain. Vestibule-	L. A. Hoerr	645,097	Mar. 13	1003	215	90	1971
Car-door	G. P. Jones	643,655	Feb. 20	1998	471	90	1392
Car-door	G. P. Hoffman	641,860	Jan. 23	3243	736	90	672
Car door. Grain-	S. W. Neall	644,535	Feb. 27	3619	842	90	1719
Car door. Grain-	W. Case	643,590	Feb. 13	1834	434	90	1344
Car draft-rigging	W. Case	644,041	Feb. 20	2705	641	90	1529
Car draft-rigging	E. C. Washburn	644,382	Feb. 27	3348	777 / 778	90	1667
Car. Dump-	J. H. Gray	645,620	Mar. 20	1967	423	90	2173
Car. Dumping-	J. T. Argo	644,490	Feb. 27	3526	819	90	1708
Car. Dumping-	W. A. Caswell	645,587	Mar. 20	1907	420	90	2161
Car. Dumping-	G. H. Lawrence	645,816	Mar. 20	2382	510	90	2245
Car. Dumping-	W. H. Onion	645,827	Mar. 20	2359	516	90	2251
Car. Dumping-	A. Torrey	640,337	Jan. 2	338	71	90	68
Car. Electric-motor	C. M. Johnson	644,671	Mar. 6	212	46, 47	90	1795

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Car. Electric suburban	M. Brillinger	643,709	Feb. 20	2100	493	90	1411
Car emergency-bolt. Railway-	I. D. Waterman and S. S. Bennett	644,115	Feb. 27	2832	670	90	1569
Car end-gates. Fastening for pit-	J. H. Brown, E. Bell, and J. Shaw	644,054	Feb. 27	2730	646	90	1547
Car-fender	J. W. Cramer	641,496	Jan. 16	2471	566	90	514
Car-fender	R. Forwood. (Reissue)	11,814	Mar. 27	3501	780	90	2495
Car-fender	D. Guarino	644,596	Mar. 6	67	15	90	1768
Car-fender	E. N. Porter and J. Barnes	643,199	Feb. 13	1133	264 / 265	90	1208
Car fender. Street-	L. H. Reppell and J. P. Groff	642,156	Jan. 30	3785	863	90	796
Car for use in warfare. Motor-driven	F. R. Simms	641,897	Jan. 23	3302	750 / 751	90	685
Car-gate	E. P. Sargent	643,966	Feb. 20	2604	615	90	1510
Car grain-door. Freight-	T. A. Boyers	644,701	Mar. 6	262	58	90	1806
Car gripper. Cable-	S. A. Fraser	643,642	Feb. 20	1975	464	90	1387
Car-lighting system	J. L. Creveling	644,408	Feb. 27	3398	789	90	1677
Car. Metallic	E. W. Summers	646,196	Mar. 27	3057	675 / 676	90	2405
Car. Motor-	H. J. Elsner	644,225	Feb. 27	3041	720	90	1610
Car. Motor-	C. A. A. Mongredien and F. D. Bernier.	641,878	Jan. 23	3272	743	90	678
Car. Motor-	W. Scheu	645,272	Mar. 13	1319	287	90	2033
Car or engine wheels. Machine for grinding	W. P. Leshure	646,093	Mar. 27	2950	633	90	2365
Car platform. Railway-	W. F. Richards	645,649	Mar. 20	2021	444 / 445	90	2184
Car. Railway hand-	B. Van Treeck	642,857	Feb. 6	500	118	90	1063
Car-replacer	J. C. Bates	644,888	Mar. 6	616	133	90	1877
Car-roof	C. O. Peer	644,632	Mar. 6	127	28, 29	90	1778
Car safety device	J. Kelso	641,299	Jan. 16	2224	504	90	467
Car-seat	F. Bennett	641,633	Jan. 16	2828	644	90	585
Car-seat	F. Bennett	641,634	Jan. 16	2830	644	90	586
Car-seat	H. S. Hale	643,841	Feb. 20	2236	549	90	1455
Car-seat	G. Henderson	645,594	Mar. 20	1919	423	90	2164
Car-seat	H. Meier	644,437	Feb. 27	3442	799	90	1687
Car-seat	W. L. Schellenbach	645,516	Mar. 13	1765	396	90	2120
Car-seat. Reversible	A. C. Deverell and J. J. Lake	645,462	Mar. 13	1602	363	90	2100
Car-seat. Walk-over	S. P. Bush	640,267	Jan. 2	228	46	90	46
Car side bearing	C. J. Reilly	643,201	Feb. 13	1135	265	90	1208
Car side guard	G. D. Rowell	640,227	Jan. 2	134	27	90	28
Car starter or mover	B. E. Pines	643,155	Feb. 13	1053	245	90	1192
Car-step. Extension	C. H. Williams	645,155	Mar. 13	1113	239	90	1992
Car-tipple for mines. Automatic	P. Souther	642,380	Jan. 30	4229	955	90	885
Car transom. Railway-	L. Schneider, Sr	644,101	Feb. 27	2806	665	90	1564
Car-ventilator. Exhaust-and-supply	C. P. Jones	641,969	Jan. 23	3423	778	90	709
Car-wheel	W. W. Snow	640,425	Jan. 2	526	110	90	103
Car-wheel. Boltless steel-tired	S. Clarke	645,889	Mar. 20	2451	541	90	2270
Car-wheel-forging die	I. Hogeland	643,134	Feb. 13	1023	238	90	1186
Car-wheel. Noiseless	W. J. Willits	645,156	Mar. 13	1115	239	90	1992
Car wheel. Railway hand-	J. J. A. Miller	642,704	Feb. 6	245	61	90	1014
Car-wheel. Roller-bearing	W. E. Hendricks	645,667	Mar. 20	2052	451	90	2190
Car-window	J. E. Norwood	642,557	Jan. 30	4525	1024	90	942
Cars. Antifriction roller-bearing for railway	J. W. Spurlock	646,240	Mar. 27	3159	697	90	2425
Cars. Automatic air-pipe coupling for	W. H. Miner	644,679	Mar. 6	227	49	90	1799
Cars. Double or tandem spring-draft rigging for railway-	E. J. Preston and A. B. Gill	645,212	Mar. 13	1219	265	90	2012
Cars. Electric-lighting apparatus for railway-	W. F. Richards	645,216	Mar. 13	1230	267	90	2013
Cars. Electric-lighting apparatus for railway-	J. B. Newton	640,311	Jan. 2	296	62	90	60
Cars or locomotives. Device for replacing derailed	W. Cooper	641,843	Jan. 23	3216	728 / 729 / 730 / 731	90	668
Cars. Pneumatic controlling system for electric-railway	C. M. Mileham	644,717	Mar. 6	288	63	90	1811
Cars. Tandem spring-draft rigging for railway-	A. Sundh	645,764	Mar. 20	2245	486 / 487	90	2228
Cars. Train-controlling apparatus for electric	J. T. Robinson	642,826	Feb. 6	450	.....	90	1053
Carbon. Electric-arc-light	I. MacFarland	645,400	Mar. 13	1557	340	90	2080
Carbon-sheet holder	E. S. Frease	645,900	Mar. 20	2477	548	90	2275
Carbon-sheet. Manifolding	H. S. Ferry	641,684	Jan. 23	2910	663	90	613
Carbonating liquids. Means for	S. Brotchgans	643,397	Feb. 13	1480	348	90	1273
Carbureter	G. R. Johnson and T. F. Gillooly	644,922	Mar. 6	670	145	90	1888
Carbureter	E. A. McAllister	645,485	Mar. 13	1707	374	90	2109
Carbureter	E. D. Parrott	640,695	Jan. 2	1026	234	90	198
Carbureter	V. J. A. Rey	643,306	Feb. 13	1316	310 / 311	90	1243
Carbureter	W. S. C. Russell	643,206	Feb. 13	1142	267	90	1210
Carbureter	J. R. Selzer	646,320	Mar. 27	3306	737 / 738	90	2453
Carbureter	W. H. Thayer	640,832	Jan. 9	1307	293	90	275
Carbureting	E. A. McAllister	645,425	Mar. 13	1600	349	90	2088
Carbureting apparatus	A. T. Welch	642,187	Jan. 30	3846	874	90	808
Cardboard cutting and grooving device	L. Nicolai	641,791	Jan. 23	3106	706	90	647
Cardboard-cutting machine	J. M. Black	642,290	Jan. 30	4082	918 / 919	90	845
Card-case	A. L. Rosenthal	644,148	Feb. 27	2889	684	90	1581
Card-cutting machine	T. Gohlke	643,895	Feb. 20	2437	573 / 574	90	1475
Card holder. Playing-	F. Mueller	644,623	Mar. 6	114	26	90	1776
Card. Letter and telegraph	E. Tissot	642,272	Jan. 30	4003	911	90	839
Card-punching machine. Jacquard-	V. Royle	644,871	Mar. 6	582	125 / 126	90	1870
Card-separating device	E. E. Proper	646,157	Mar. 27	2181	658	90	2390
Cards. Machine for lacing jacquard-	V. Royle	642,371	Jan. 30	4208	950 / 951	90	882
Cards. Playing-	J. F. Kingwill	645,961	Mar. 27	2605	577	90	2317
Cards. Work-holder for lacing jacquard-	V. Royle	643,827	Feb. 20	2299	541	90	1448
Carding-engine	J. Shaefer	640,962	Jan. 9	1563	348	90	322
Carding-engine flats. Apparatus for stripping	W. Rhodes	645,832	Mar. 20	2366	518	90	2252

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carpet-clamp	F. J. Hawkins	643,648	Feb. 20	1988	468	90	1389
Carpet stretcher, tacker, and tack-puller	P. C. Greenawalt	644,328	Feb. 27	3251	758	90	1649
Carpet-sweeper	A. H. Dodd	643,634	Feb. 20	1960	460 461	90	1384
Carpet-sweeper	S. Palmer	643,778	Feb. 20	2222	524	90	1433
Carpet-sweeper	S. J. Reynolds	642,629	Feb. 6	112	27	90	987
Carpet-sweeper	C. C. Sweitzer	642,172	Jan. 30	3812	868	90	802
Carpet-sweeper	A. G. O'Farrell	644,258	Feb. 27	3099	729 730	90	1620
Carriage	S. Persico	641,539	Jan. 16	2667	608	90	554
Carriage and cradle. Combined folding	C. Dilling	641,680	Jan. 23	2904	662	90	611
Carriage. Baby-	G. A. Lanciaux and O. F. Smith	642,464	Jan. 30	4373	992	90	913
Carriage. Baby-	H. Thomsett	642,019	Jan. 23	3534	807	90	728
Carriage-brake. Child's	C. F. Dittmar	645,251	Mar. 13	1288	279	90	2026
Carriage. Child's	J. K. Gerrich	640,193	Jan. 2	64	13	90	14
Carriage. Child's	G. E. O'Hearn	645,970	Mar. 27	2618	580	90	2319
Carriage. Child's	C. B. Jones	641,309	Jan. 9	2057	461	90	418
Carriage. Child's reclining-	F. Deutesfeld	642,210	Jan. 30	3894	885 886 458	90	817
Carriage for invalids or infants. Folding	E. P. Gray	641,204	Jan. 9	2049	459 460	90	417
Carriage gearing. Horseless	W. E. Pearson	641,404	Jan. 16	2397	548	90	500
Carriage. Motor-	E. A. Sperry	643,257	Feb. 13	1235	290	90	1227
Carriage. Motor-	G. A. Smith	643,365	Feb. 13	1430	331	90	1263
Carriages. Adjustable spring for baby-	J. C. Blevney	643,627	Feb. 20	1944	456 457	90	1381
Carriages. Transmitting device for horseless							
Carrier: *See* Bag-carrier, Can-carrier, Cane-carrier, Cash-carrier, Check-carrier, Hay-carrier, Package-carrier, Shawl or bundle carrier, Straw-carrier.							
Carrier	F. Wenner	643,785	Feb. 20	2230	526	90	1435
Cart	T. L. Quigley and F. Malone	641,647	Jan. 16	2446	649	90	590
Cart. Bag-carrying	J. B. Rhodes	646,010	Mar. 27	2699	598	90	2335
Cart. Garbage-	A. Hartwich	641,594	Jan. 16	2757	627	90	571
Carton	W. E. Mayo	643,772	Feb. 20	2211	522	90	1432
Carton or packing-box	F. Danzenbaker	640,451	Jan. 2	571	120	90	112
Cartridge	C. A. Bailey	640,855	Jan. 9	1346	302	90	283
Cartridge	C. A. Bailey	640,856	Jan. 9	1348	302	90	283
Cartridge-belt	E. T. Gibson	643,496	Feb. 13	1665	392	90	1312
Cartridge-loading apparatus	G. E. Standish	640,496	Jan. 2	636	137 138	90	125
Cartridge rimming and crimping device	N. P. Blakeman	644,493	Feb. 27	3530	820	90	1705
Cartridge. Shot-	H. J. Blanch	645,546	Mar. 20	1812	398	90	2142
Case: *See* Banana-shipping case, Bookcase, Card-case, Chart-case, Cigar-case, Clock-case, Display and sample case, Displaying-case, Egg-case, Filing-case, Packing-case, Shipping-case, Shipping and storing case, Show-case, Spectacle-case.							
Case for books, &c.	C. A. Tucker	645,279	Mar. 13	1331	280	90	2035
Case or box	E. J. Fletcher	645,718	Mar. 20	2151	468	90	2200
Cash-carrier. Pneumatic	F. W. Gremmels	642,112	Jan. 30	3679	843	90	773
Cash-register	F. W. and G. S. Decker	640,181	Jan. 2	38	9	90	9
Cash-register	L. S. Scott	644,304	Feb. 27	3197	749	90	1639
Cash-register	E. F. Spaulding	640,825	Jan. 9	1277	288 289 290 291	90	269
Cash-register	E. F. Spaulding	640,966	Jan. 9	1568	350 351	90	323
Cash register and indicator	J. Pfeifer	642,713	Feb. 6	264	64, 65	90	1019
Cash-register. Pocket	H. D. Gardy and T. C. Burke	641,285	Jan. 16	2300	495	90	462
Cask. Metallic	M. Brochu	643,787	Feb. 20	2233	527	90	1436
Cask or barrel supporting apparatus	C. Lampitt, A. J. Carlile, and C. Simkin.	643,208	Feb. 13	1303	308	90	1240
Casks or barrels. Apparatus for pitching internal surfaces of	C. A. Neubecker	643,523	Feb. 13	1711	402 403	90	1320
Casket. Couch-	J. N. Dean	642,817	Feb. 6	434	104	90	1050
Casket head-rest	T. W. Coughlin. (Reissue)	11,800	Feb. 20	2712	642	90	1530
Caster	A. B. Diss	643,481	Feb. 13	1643	388	90	1308
Caster	A. B. Diss	643,482	Feb. 13	1644	388	90	1308
Caster	A. B. Diss	643,483	Feb. 13	1646	388	90	1308
Caster	A. B. Diss	645,396	Mar. 13	1528	335	90	2074
Caster	A. B. Diss	645,397	Mar. 13	1530	336	90	2074
Caster	A. B. Diss	645,398	Mar. 13	1531	336	90	2075
Caster	W. I. Stilwell	640,499	Jan. 2	643	139	90	126
Caster	J. H. Godden	640,761	Jan. 9	1146	262	90	242
Caster. Ball-	H. D. Reed	642,921	Feb. 6	628	144	90	1088
Caster. Ball-	W. Livingstone	643,719	Feb. 20	2121	498	90	1415
Caster. Furniture-	G. D. Clark	643,468	Feb. 13	1599	378	90	1299
Caster-socket	H. D. Reed	645,974	Mar. 27	2626	581	90	2321
Caster-socket	J. W. Harrison	644,425	Feb. 27	3494	795	90	1693
Casting apparatus. Metal-	A. Knüttel	641,395	Jan. 16	2361	544 545	90	497
Casting-cores. Machine for making	N. H. O. Lilienberg	644,018	Feb. 20	2671	631 632	90	1521
Casting hollow ingots. Apparatus for	N. H. O. Lilienberg	644,019	Feb. 20	2672	633	90	1522
Casting hollow ingots. Apparatus for	J. Illingworth	644,918	Mar. 6	664	142 143	90	1897
Casting machine. Ingot-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Casting mechanism	W. and J. Lanyon	644,713	Mar. 6	280	62	90	1809
Casting-mold	G. P. Bassett, Jr.	642,035	Jan. 23	3544	812	90	732
Castings. Apparatus for making	J. Kelling and C. C. Allen	644,926	Mar. 6	674	146	90	1889
Cattle-guard	W. T. Payne	640,940	Jan. 9	1518	339	90	314
Cattle-guard	J. H. Threlkeld	641,740	Jan. 23	3020	688	90	631
Cattle-guard	R. V. Wallace	645,240	Mar. 13	1268	275	90	2022
Cattle to prevent fighting and butting, &c. Device to be worn on the heads of hornless	S. A. Smith	645,140	Mar. 13	1089	233	90	1987
Ceiling	A. Elle	641,091	Jan. 9	1821	405	90	372
Ceiling construction	J. W. Rapp	640,809	Jan. 9	1243	281	90	262
Cellulose by sulfite processes. Obtaining useful products from liquors resulting from manufacturing	C. D. Ekman	640,186	Jan. 2	51	.....	90	12
Cellulose films for photographic or other purposes. Machine for producing	J. C. Chorley	641,623	Jan. 16	2808	638	90	582
Cellulose solutions for manufacturing threads. Production of	E. Bronnert	646,351	Mar. 27	3460	.....	90	2463
Cellulose solutions for manufacturing threads. Production of	E. Bronnert	646,381	Mar. 27	3460	.....	90	2488
Cement. Manufacture of	F. Sehr	643,989	Feb. 20	2611	.....	90	1511
Cement. Manufacture of	W. A. O. Wuth	643,856	Feb. 20	2367	.....	90	1461
Cement-manufacturing appliance	H. I. and G. W. Bartholomew	641,066	Jan. 9	1779	395	90	363
Cement. Testing	L. G. Haase	642,978	Feb. 6	721	166	90	1106
Cement troughs. Adjustable mold for	J. Bolton	644,397	Feb. 27	3379	785	90	1673
Centerboard. Boat-	C. J. Smith	645,337	Mar. 13	1437	316	90	2056
Center-gage	W. Johnson	644,490	Feb. 27	3431	797	90	1684
Centrifugal machine	H. Hoeschen	641,773	Jan. 23	3077	700	90	641
Centrifugal machine	M. de Marcheville	643,667	Feb. 20	2018	476 477	90	1395
Centrifugal separator	J. J. Berrigan	642,288	Jan. 30	4029	917	90	844
Centrolineal and parallel-rule. Combined	G. McMullen	644,184	Feb. 27	2968	701	90	1595
Cesta or hand-ball basket-bat	A. B. Smith	642,638	Feb. 6	128	30, 31	90	990
Chaff assembler and conveyer	S. K. Landis	641,022	Jan. 9	1698	376	90	347
Chain	R. A. Carter	645,202	Mar. 13	1206	263	90	2010
Chain-curbing machine	J. W. Presbrey	644,539	Feb. 27	3626	844	90	1721
Chain. Drive-	J. Nell	641,031	Jan. 9	1710	379	90	349
Chain-link	W. H. Griffith	643,051	Feb. 6	854	199	90	1131
Chain-making machine	D. Roche	640,591	Jan. 2	815	180	90	159
Chain-power	W. W. Small	642,696	Feb. 6	121	30	90	989
Chain. Transmission-	P. Hoevel	646,074	Mar. 27	2817	624	90	2358
Chain. Watch-	S. H. Warren	645,149	Mar. 13	1105	236	90	1990
Chains. Machine for making curb-	W. I. Macomber	645,099	Mar. 6	881	190 191	90	1932
Chains. Mechanism for manufacturing	A. Masion	644,991	Mar. 6	783	170	90	1913
Chair: *See* Barber-chair, Camp-chair, Combination-chair, Convertible chair, Dental chair, Reclining-chair, Rocking-chair, Swinging chair, Trick-chair.							
Chair	W. A. Dromgold	644,506	Feb. 27	3557	828	90	1708
Chair adjustment	J. Karpen	646,107	Mar. 27	2876	637	90	2369
Chair and rail-brace. Combined	L. Lesher	641,523	Jan. 16	2639	601	90	548
Chair and rail-brace. Combined	L. Lesher	641,524	Jan. 16	2640	602	90	548
Chair and tablet. Combined	O. S. Jennings	645,102	Mar. 13	1011	217	90	1972
Chair attachment. Infant's-	W. E. Thompson	646,084	Mar. 27	2835	629	90	2362
Chair attachment. Rocking-	O. Clausen	641,761	Jan. 23	3058	694	90	637
Chair-back desk or stand	W. H. Anderson	642,060	Jan. 30	3593	823	90	755
Chair fan attachment	L. Renz	643,979	Feb. 20	2590	611	90	1507
Chair fixture. Reclining-	W. J. Seng	642,010	Jan. 23	3506	801	90	724
Chalk-sharpener	P. Chock	644,661	Mar. 6	194	42	90	1792
Change-tray	B. F. Barnes	641,358	Jan. 16	2321	530	90	486
Channeling-machine	F. E. Beckman	644,571	Mar. 6	18	5	90	1759
Chart-case	W. S. Osborn	644,450	Feb. 27	3464	805	90	1691
Chart. Dress-	Z. G. Shelton	641,411	Jan. 16	2413	551	90	504
Chart. Educational	C. T. Meredith	643,748	Feb. 20	2170	509	90	1424
Check carrier. Baggage-	A. M. Goodwin	641,287	Jan. 16	2202	496	90	462
Check-controlled apparatus	J. Kolb and J. C. Vogel	640,390	Jan. 2	455	94	90	90
Check-hook and harness-hanger. Combined	G. J. H. Henrici	646,215	Mar. 27	3103	685	90	2415
Check-row attachment	H. W. Crumbaugh	643,042	Feb. 6	825	192	90	1126
Checking or unchecking device	H. H. Dudley	641,088	Jan. 9	1819	404	90	371
Checking or unchecking device	J. White	642,400	Jan. 30	4259	962	90	891
Checkrein-hook	R. P. Faries	641,284	Jan. 16	2199	495	90	462
Cheese-cutter	B. B. Nagley and I. Asbery	644,775	Mar. 6	405	88	90	1835
Cheese-knife	M. W. Miracle	640,301	Jan. 2	284	58	90	57
Chimney. Metal	P. Dickinson	646,143	Mar. 27	2955	653	90	2385
Chisel. Turner's	L. Berger	646,257	Mar. 27	3190	704	90	2431
Chock. Mooring and towing	D. E. Ford	640,552	Jan. 2	746	165	90	146
Chocolate-making apparatus	L. B. Lehmann	644,253	Feb. 27	3091	727	90	1618
Choke-bore-forming device	A. G. Adelman	640,518	Jan. 2	686	147	90	135
Chopper: *See* Cotton-chopper.							
Chuck. Automatic machine-	O. F. Garvey	641,380	Jan. 16	2360	540	90	493
Chuck. Drill-	T. J. Kitto	645,854	Mar. 20	2399	527	90	2259
Chuck-handpiece	J. Geddes	641,006	Jan. 9	1671	371	90	343
Chuck-jaws. Machine for cutting spiral and helical teeth in	G. B. Taylor	643,991	Feb. 20	2614	617	90	1512
Chuck. Lathe-	L. E. Whiton	642,658	Feb. 6	165	42	90	998
Churn	E. Bürk	641,835	Jan. 23	3188	724	90	663
Churn	G. W. Disman	642,966	Feb. 6	701	161	90	1102
Churn	E. B. Everly	644,068	Feb. 27	2751	651	90	1552
Churn	P. F. Glassbrenner	644,707	Mar. 6	268	60	90	1807
Churn	J. J. Jones	641,116	Jan. 9	1860	414	90	380
Churn	B. Kingsley	645,476	Mar. 13	1687	369	90	2105
Churn	J. A. Parker	646,190	Mar. 27	3047	672	90	2403
Churn	R. R. Stone	644,193	Feb. 27	2983	706	90	1596

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Churn	G. W. Walker and J. C. Phelps	642,650	Feb. 6	150	37	90	995
Churn and ice-cream freezer. Combined	C. J. Eddy	642,103	Jan. 30	3666	839	90	771
Churn-dasher	A. Hazelton	646,170	Mar. 27	3011	665	90	2396
Chute feed mechanism. Coal-	F. H. Emery	640,549	Jan. 2	741	164	90	145
Cigar	F. C. Reed	642,000	Jan. 23	3060	698	90	636
Cigar-box	M. Blaskower	641,757	Jan. 9	1113	255	90	235
Cigar-box	M. Brown	640,741	Jan. 2	3185	746	90	1636
Cigar branding and trimming machine. Combined	F. Leveck	644,266	Feb. 27	1667	364	90	2101
Cigar-branding machine	N. Du Brul	645,465	Mar. 13		720	90	2140
Cigar-bunching machine	J. H. Hoeffler	646,285	Mar. 27	3238	721	90	
Cigar-case	F. Magnolo	644,435	Feb. 27	3439	708	90	1690
Cigar finishing and shaping machine	P. Mühlbock	645,180	Mar. 13	1165	252	90	2001
Cigar-lighter	C. B. and S. Abbott	644,658	Mar. 6	188	41	90	1791
Cigar-machine	C. B. Schultz	641,336	Jan. 16	2287	518	90	479
Cigar or cigarette holder	W. H. King	645,399	Mar. 13	1556	340	90	2080
Cigar-rolling machines. Device for driving bunches toward tip-shapers in	C. B. Schultz	644,216	Feb. 27	3020	714 716	90	1606
Cigar-rolling machines. Wrapping-shaper for	C. B. Schultz	644,217	Feb. 27	3022	716	90	1606
Cigar-rolling table and leaf-wrapper cutter	S. Hartman and W. H. Wigmore	643,767	Feb. 20	2203	520	90	1430
Cigar stamping and cutting device	H. J. Cohn	642,518	Jan. 30	4450	1011	90	928
Cigar-tip cutter	S. L. Lederer	641,024	Jan. 9	1701	377	90	348
Cigar-tip former	J. Bunn	644,893	Mar. 6	623	134	90	1879
Cigar-wrapper-cutting machine	N. Du Brul	646,206	Mar. 27	3084	680	90	2410
Cigars. Machine for simultaneously cutting and printing	I. W. Heysinger	640,909	Jan. 9	1453	325	90	304
Cigars or cigarettes. Machine for preparing continuous rolls of tobacco-wrappers for manufacturing	L. L. and W. Maxfield	644,677	Mar. 6	220	48, 49	90	1797
Cigarette counting and packing machine	M. del Castillo	641,188	Jan. 9	2016	450 451 452	90	410
Cigarette-machine	M. Braunstein and L. Chambon	641,432	Jan. 16	2451	561 562	90	511
Cigarette-mouthpiece-applying machine	J. S. Beeman	645,287	Mar. 13	1347	202 203	90	2038
Cigarette-mouthpiece-making machine	T. Whitehorn and H. N. Brady	641,174	Jan. 9	1963	439 440	90	405
Cigarette-seam-forming clip	D. N. Davidson	643,043	Feb. 6	829	192	90	1127
Cipher apparatus	G. B. N. Valvasori	641,481	Jan. 16	2557	584	90	531
Cipher-code system	W. J. Roussel	642,721	Feb. 6	283	69	90	1023
Circuit-breaker. Automatic	D. W. Stinson	644,878	Mar. 6	598	129	90	1873
Circuit-changer	A. A. Vanderpool	642,021	Jan. 23	3526	808	90	728
Circuit controller. Alternating-current	E. J. Berg	644,051	Feb. 27	2723	644	90	1546
Cistern overflow-reservoir	J. Gaa	644,856	Mar. 6	557	121	90	1865
Cithern	C. T. Menze	642,472	Jan. 30	4387	995	90	916
Clamp: *See* Bell-clamp. Box-making clamp. Can-clamp. Carpet-clamp. Cloth-clamp. Dental clamp. Funis-clamp. Furniture-clamp. Mail-crane clamp. Rod-clamp. Rope-clamp. Seat-post clamp. Shaft-clamp. Show-case clamp. Tube-clamp. Wire-clamp.							
Clamp	J. L. Taylor	640,500	Jan. 2	644	139	90	126
Clamp for fabric-making machines	J. Sommer	640,824	Jan. 9	1273	287 288	90	268
Clamp for textile fabrics	C. L. Welchelt	646,244	Mar. 27	3166	699	90	2427
Clamping device	F. Artós	642,568	Feb. 6	2	1	90	965
Clamping device	J. R. Thomas and H. S. Spencer	642,178	Jan. 30	3823	870	90	804
Clamping member	G. W. Kortright	642,988	Feb. 6	736	169	90	1171
Clasp: *See* Display-clasp. Fabric-clasp. Garment-clasp. Lace-clasp. Strap-connecting clasp.							
Clasp	C. C. Lantz	644,612	Mar. 6	92	22	90	1773
Clasp	P. B. Tingley	642,174	Jan. 30	3815	869	90	802
Clay. Machine for use in preparing	H. Diesener	644,795	Mar. 6	444	96	90	1842
Clay or other plastic material. Apparatus for molding cups, &c., of	H. Briggs	641,072	Jan. 9	1767	397	90	364
Clay, porcelain, &c. Machine for molding in	J. H. B. von Königslöw	643,417	Feb. 13	1512	355	90	1280
Cleaner: *See* Boiler-cleaner. Dish-cleaner. Floor or window-cleaner. Flue or stovepipe cleaner. Gas-cleaner. Grait-cleaner. Pipe-cleaner. Track-cleaner. Tube-cleaner.							
Clevis	J. R. Weathersby	642,026	Jan. 23	3535	809	90	730
Clevis for agricultural implements	E. E. and H. Olson	643,727	Feb. 20	2133	500	90	1416
Clevis. Plow-	W. G. Landers	643,510	Feb. 13	1696	398	90	1317
Clip: *See* Envelop-clip.							
Clips. Apparatus for manufacturing fastening-	F. Canfield	641,190	Jan. 9	2025	453	90	412
Clipper. Hair-	P. Faracchio	641,584	Jan. 16	2743	625	90	569
Clipping-machine motor	P. Anderson	640,620	Jan. 2	867	194	90	168
Cloak or skirt rack	A. Greenspan	643,959	Feb. 20	2556	602	90	1500
Clock-case	E. C. Barton	644,757	Mar. 6	359	78	90	1825
Clock-case	T. W. R. McCabe	645,231	Mar. 13	1252	271	90	2018
Clock. Electric	H. Iversen	643,506	Feb. 13	1690	397	90	1316
Clock-frame	J. G. Woodruff and T. W. R. McCabe.	645,244	Mar. 13	1276	277	90	2023
Clock. Geographical	I. F. Pheils	641,540	Jan. 16	2669	609	90	554

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Clock. Repeating	E. Torres	641,475	Jan. 16	2543	582	90	529
Clock. Repeating	E. Torres	641,477	Jan. 16	2550	583	90	530
Clocks. Repeating striking mechanism for	E. Torres	641,476	Jan. 16	2546	582 583	90	529
Clod crusher and pulverizer	W. F. Shoup	645,336	Mar. 13	1437	316	90	2055
Closet: *See* Dry-air closet.							
Closet-bowl	W. K. Johnson	645,686	Mar. 20	2087	458	90	2198
Closet-seat	B. Holz	645,260	Mar. 13	1302	283	90	2020
Cloth-clamp for textile machinery	R. P. Winsor	644,543	Feb. 27	3631	845	90	1722
Cloth-cutter	R. J. Hearne	645,953	Mar. 27	2596	575	90	2315
Cloth-cutter	A. G. Saberg, A. H. Benson, and E. G. Saberg.	645,134	Mar. 13	1073	228	90	1984
Cloth-cutter. Electric	F. Gardner	640,192	Jan. 2	62	13	90	14
Cloth-piler	J. B. Barton	641,951	Jan. 23	3349	760 761	90	694
Clothes-drier	J. J. Phillips	642,561	Jan. 30	4533	1026	90	944
Clothes-line holder	J. H. Bell	644,272	Feb. 27	3124	734	90	1626
Clothes-line reel	C. P. Wilkinson	640,342	Jan. 2	346	73	90	69
Clothes-line support	W. B. Robinson	643,160	Feb. 13	1061	246	90	1195
Clothes-pin	C. L. Prime	643,533	Feb. 13	1728	407	90	1323
Clothes-pin springs. Machine for making wire	J. Drummond	643,224	Feb. 13	1169	274	90	1215
Clothes-pin. Wire	J. G. Strader	644,389	Feb. 27	3281	763	90	1654
Clothes-pounder	W. T. Parnell and C. Bishop	640,803	Jan. 9	1234	280	90	261
Clothes-rack. Hanging	L. G. Horton	642,985	Feb. 6	782	168	90	1109
Clothes-reel and tent. Combined	C. E. and O. D. French	641,586	Jan. 16	2748	626	90	670
Clothes-wringer	C. F. Besore	644,492	Feb. 27	3529	820	90	1703
Clothes-wringer	W. T. Bradley	640,440	Jan. 2	552	116	90	109
Clothing-receptacle	S. W. Bonsall	642,075	Jan. 30	3616	829	90	760
Clutch	J. Carruthers and E. J. Fithian	641,370	Jan. 16	2341	535 536	90	489
Clutch	J. A. McGee	644,805	Mar. 6	462	99	90	1845
Clutch. Automatic fluid-pressure friction	J. H. Wiehl	644,749	Mar. 6	333	74	90	1820
Clutch. Fluid-	F. Burger	641,636	Jan. 16	2833	645	90	587
Clutch. Friction-	C. W. Bogart	645,678	Mar. 20	2070	454 455	90	2194
Clutch. Friction-	G. W. Coffield	644,061	Feb. 27	2738	648 649	90	1549
Clutch. Friction-	A. de Dion and G. Bouton	645,312	Mar. 13	1388	303 304	90	2045
Clutch. Friction-	J. P. Duvall	644,352	Feb. 27	3305	768	90	1658
Clutch. Friction-	J. Monkhouse	645,483	Mar. 13	1698	371	90	2107
Clutch. Friction-	H. E. Sharp	641,046	Jan. 9	1739	387	90	355
Clutch. Friction and stop	A. P. Morrow	646,305	Mar. 27	3330	729	90	2445
Clutch mechanism	F. Schneider	642,927	Feb. 6	636	143	90	1089
Clutch mechanism. Reversible	T. Beecher	644,842	Mar. 6	582	115	90	1869
Conch-stop	M. J. Kerrigan	644,177	Feb. 27	2951	698	90	1562
Coal and slate separator	J. J. Morgan	640,481	Jan. 2	616	132	90	121
Coal-bit	R. D. Seymour and H. N. Elmer	642,373	Jan. 30	4217	952 953	90	883
Coal-conveyer	H. Ebert	641,089	Jan. 9	1829	404	90	372
Coal-cutting machine. Hand	J. Brady	644,892	Mar. 6	621	134	90	1878
Coal or freight run	T. E. Wardwell	640,607	Jan. 2	845	188	90	165
Coaster and truing-gage. Combined	D. E. Cathrell	646,066	Mar. 27	2806	621 622	90	2356
Coat-lock	A. W. Parmelee	640,935	Jan. 9	1510	337	90	313
Coat or hat hook	W. W. Garis	644,905	Mar. 6	642	139	90	1882
Coating fragile vessels	W. W. Garis	644,906	Mar. 6	644	139	90	1882
Coating fragile vessels. Apparatus for	F. O. Schott	640,419	Jan. 2	516	108	90	102
Coating oxidizable-metal wire with gas-tight coating	R. H. Staples	640,497	Jan. 2	640	138	90	126
Cock and faucet and means for diminishing waste therefrom.	V. J. Emery	645,602	Mar. 20	2044	449	90	2189
Cock. Ball-	W. McIntosh	641,799	Jan. 23	3104	706	90	647
Cock. Blow-off	E. A. Pohlman	645,181	Mar. 13	1169	254	90	2003
Cock. Conical water-	F. M. Denzig	641,086	Jan. 9	1816	403	90	371
Cock. Cylinder drain-	S. M. Mathews	642,913	Feb. 6	613	141	90	1085
Cock. Electric-alarm try-	C. D. Anderson	643,617	Feb. 20	1887	445	90	1371
Cock. Safety gas-	C. A. Calvert	642,294	Jan. 30	4039	920	90	846
Coffee-huller	F. E. R. Okrassa	641,141	Jan. 9	1917	424 425	90	391
Coffee or malt drier	G. W. White	643,433	Feb. 13	1546	363	90	1287
Coffee-pot	J. A. McCaskell	642,824	Feb. 6	447	107	90	1053
Coffee-roaster	J. A. McCaskell	642,916	Feb. 6	618	142	90	1086
Coffee-roasting machine	D. Gerwe. (Reissue)	11,806	Jan. 30	4545	1028	90	946
Coffin	C. L. Hildreth	641,387	Jan. 16	2371	542	90	495
Coiler-head	C. L. Hildreth	641,388	Jan. 16	2372	542	90	495
Coiler-head	C. L. Hildreth	641,389	Jan. 16	2373	542	90	496
Coiler-head	E. L. Thompson	645,635	Mar. 20	1991	438	90	2179
Coin-box	J. Mason	641,213	Jan. 9	2063	463	90	420
Coin-controlled apparatus	U. Perrier	645,254	Mar. 13	1257	273	90	2020
Coin-controlled apparatus	R. W. Sowers	646,323	Mar. 27	3311	739	90	2454
Coin-delivery device	J. M. Butcher	645,534	Mar. 13	1789	393 394	90	2124
Coin-detector	T. I. Porter	645,185	Mar. 13	1170	254	90	2003
Coin-freed apparatus	G. Igersheimer	640,202	Jan. 2	77	16	90	17
Coin-inlet for slot-machines. Safety	J. Schwartz	644,336	Feb. 27	3275	702	90	1653
Coin-operated machines. Escapement-releasing mechanism for	J. L. Wilson	644,380	Feb. 27	3367	781	90	1671
Coin-operated mechanism	J. L. Wilson	644,389	Feb. 27	3365	781	90	1670
Coin receiving, sorting, and indicating machine	E. Moriarty	640,683	Jan. 2	1007	229	90	194
Coin-receptacle	I. B. Abrahams	640,435	Jan. 2	546	114	90	107
Coin-sorting apparatus	C. Busch	641,496	Jan. 16	2578	588	90	535
Coke-oven. Regenerative	F. W. C. Schniewind	644,369	Feb. 27	3359	778	90	1668
Coke-ovens. Conservation of volatile products from beehive	C. B. Jacobs	641,591	Jan. 16	2733	627	90	570
Coke-pusher	A. E. Brown	644,053	Feb. 27	2726	645 646	90	1547

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cold-storage apparatus or system	A. J. Tibbits	645,407	Mar. 13	1572	343	90	2088
Collapsible tube	F. Stohr	645,439	Mar. 13	1612	352	90	2091
Collar	H. L. Gulline	641,690	Jan. 23	2017	665	90	614
Collar	H. L. Gulline	641,691	Jan. 23	2018	666	90	614
Collar	W. F. Sommers	646,394	Mar. 27	3482	775	90	2492
Collar	F. Kenyon	642,459	Jan. 30	4365	990	90	912
Collar and necktie clasp. Combined	B. F. Canterbury	643,631	Feb. 20	1954	458 459	90	1383
Collar-filling machine. Horse-	G. A. Miller	640,926	Jan. 9	1494	335	90	310
Collar. Horse-	S. H. Randall	644,778	Mar. 6	409	89	90	1836
Collar-stuffer	W. A. Zeidler	642,660	Feb. 6	167	42	90	998
Collars. Machine for folding and shaping turn-down	C. D. Bradt	644,398	Feb. 27	3380	785 786	90	1673
Color specimens to sample-cards. Machine for attaching	A. H. Munsell	640,792	Jan. 9	1209	275	90	254
Color sphere and mount	J. P. Abernathy	643,027	Feb. 6	801	187	90	1122
Colter	W. S. Metcalf	645,967	Mar. 27	2614	579	90	2319
Colter. Plow-	G. J. Pfahl	644,777	Mar. 6	408	89	90	1836
Column	W. P. Murphy	641,531	Jan. 16	2052	604 605	90	551
Comb	A. F. Richardson	642,004	Jan. 23	3487	796	90	722
Comb	R. H. Barnard	642,696	Feb. 6	179	44,45	90	1000
Combs or hair-pins. Die for manufacturing	A. Wenning and C. H. Gégauff	645,410	Mar. 13	1578	345	90	2084
Combing-machine	I. Rushworth	642,160	Jan. 30	3792	864	90	798
Combing machines. Dabbing-brush apparatus for wool-	Y. W. Rogers	640,322	Jan. 2	318	66	90	64
Combination-chair	Y. W. Rogers	640,323	Jan. 2	319	66	90	64
Combination-chair	G. W. Watson and C. Bean	644,813	Mar. 6	480	102	90	1849
Combination-lock	V. J. A. Rey	641,606	Jan. 16	2776	639	90	575
Combining apparatus	P. J. Schlicht	644,215	Feb. 27	3016	713 714	90	1605
Combustion. Apparatus for producing	J. L. Baillie and P. B. Verity	642,949	Feb. 6	674	154	90	1096
Combustion-engine	S. Evershed	642,743	Feb. 6	320	77	90	1029
Commutator for electric motors or generators	H. P. Arbecam	641,487	Jan. 16	2568	586	90	533
Compass indicator. Ship's-	W. Prampolini	645,331	Mar. 13	1426	----	90	2053
Composition of matter	H. C. Clay	641,762	Jan. 23	3059	695 696	90	638
Compound engine	J. Watson	645,582	Mar. 20	1892	417	90	2158
Compound engine	C. E. Keel	641,517	Jan. 16	2024	599	90	545
Computing-machine. Automatic	G. Gates	644,249	Feb. 27	3168	743	90	1634
Concentrator	J. Mauldin	645,533	Mar. 13	1788	393	90	2124
Concentrator	J. E. Thornycroft	641,617	Jan. 16	2795	636	90	579
Condenser-tube fastening	J. B. Boutillier	642,515	Jan. 30	4447	1010	90	927
Conduit. Armored	E. T. Greenfield	640,758	Jan. 9	1142	262	90	241
Conduit. Flexible metallic	C. H. Sewall	640,820	Jan. 9	1264	286	90	266
Conduit. Underground	E. T. Greenfield	644,858	Mar. 6	559	121	90	1866
Conduits. Means for giving rigidity to elbows or turns of flexible	A. Thoma	642,537	Jan. 30	4481	1017	90	934
Conduits, pipes, &c. Applying lining material to	A. Thoma	642,539	Jan. 30	4487	1017 1018	90	934
Conduits, pipes, &c. Lining	F. L. Daggett	645,504	Mar. 13	1735	380 381	90	2114
Confectionery display and dispensing case	J. R. Carter	645,618	Mar. 20	1965	432	90	2173
Connecting device	T. von Zweigbergk	643,442	Feb. 13	1559	367	90	1289
Controller	W. H. Conrad	640,749	Jan. 9	1123	257 258	90	238
Controller-operating mechanism	E. Dunn	644,066	Feb. 27	2746	650	90	1551
Controversial device	E. J. Lutwyche	643,603	Feb. 20	2011	474	90	1394
Convertible chair	N. F. Hurdel	641,112	Jan. 9	1855	413	90	380
Convertible tub	A. C. Elmer	643,636	Feb. 20	1965	461	90	1385
Conveyer. Sectional screw	W. F. Herdrich and E. G. Hetu	643,650	Feb. 20	1988	469	90	1390
Cooker	F. Rippley	645,492	Mar. 13	1717	376	90	2111
Cooker. Feed-	C. E. Swartzbaugh	641,758	Jan. 23	3042	692	90	895
Cooker. Steam-	B. L. Harris	642,113	Jan. 30	3681	843	90	774
Cooking and drying cereals. Apparatus for	J. D. Coon	641,273	Jan. 16	2180	491	90	458
Cooking utensil	W. A. Van Deusen	640,605	Jan. 2	843	188	90	164
Cooking utensil	J. H. Swift	645,045	Mar. 6	891	193	90	1934
Cooking-utensil lid							
Cooler: *See* Air-cooler. Beverage-cooler. Liquid-cooler. Milk-cooler. Water-cooler.							
Cooler	W. A. Stickley and J. R. Dwyer	642,730	Feb. 6	301	71,72	90	1026
Cooling or refrigerating apparatus	W. Helm	640,765	Jan. 9	1155	264	90	244
Coop and brooder. Combined	J. R. Dixon	642,090	Jan. 30	3646	835	90	767
Coop. Collapsible poultry-	D. W. Anderson	643,029	Feb. 6	807	187 188	90	1123
Coop. Folding fowl-	A. W. R. Maas	646,295	Mar. 27	3255	727	90	2442
Coop. Folding poultry-	H. M. Ramsay	643,978	Feb. 20	2588	611	90	1507
Coop. Poultry-	C. N. Fisher	645,898	Mar. 20	2473	547	90	2274
Coop. Poultry-	J. A. Grant	646,279	Mar. 27	3226	718	90	2438
Cop skewer-holder	J. V. Cunniff	641,765	Jan. 23	3066	697	90	640
Copy-holder	G. M. Scarborough	646,040	Mar. 27	2759	612	90	2347
Copy-holder	O. R. Winslow	640,347	Jan. 2	353	75	90	71
Copying-bath	G. R. Doughty	642,547	Jan. 30	4507	1021	90	939
Copying-paper. Moistening	F. G. J. Post	643,234	Feb. 13	1192	279	90	1219
Copying-press	J. A. Jones	643,821	Feb. 6	441	106	90	1052
Copying-press	A. Poblete y Garin	643,977	Feb. 20	2586	610 611	90	1507
Cord-holder	J. Altmann	641,063	Jan. 9	1767	398	90	360
Cord or twine holder	D. P. Gaymon	642,439	Jan. 30	4353	978	90	905
Core-bar-coating machine	M. H. Fletcher	645,948	Mar. 27	2569	569	90	2269
Core-setting plate	C. Brigham and C. B. Emery	642,516	Jan. 30	4447	1010	90	928
Cork-extractor	H. Hungerford	641,111	Jan. 9	1854	413	90	379
Cork for packing. Treating	S. W. Harvey	644,172	Feb. 27	2688	594	90	1589
Cork-puller	C. Morgan	644,088	Feb. 27	2787	861	90	1561
Corkscrew	J. Blundell	644,700	Mar. 6	261	58	90	1806
Corkscrew	R. W. Jorres	643,043	Feb. 20	2710	642	90	1530
Corkscrew-register	H. Maske	645,401	Mar. 13	1558	341	90	2080

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Corn-crib	C. I. Simpson	646,321	Mar. 27	3308	738	90	2453
Corn-husker	J. A. Ramsey	645,515	Mar. 13	1763	386	90	2120
Corn-husking and fodder-preparing machine	A. Van Ness	644,344	Feb. 27	3291	765	90	1656
Corn-husking and stalk-cutting machine	L. Holland-Letz	641,293	Jan. 16	2213	498 499 500	90	464
Corn-husking device	R. F. Clark	645,550	Mar. 20	1817	399 400	90	2143
Corn-husking machine	W. H. Sells	640,961	Jan. 9	1557	347	90	321
Cornmeal-separator	C. T. Cummings	642,431	Jan. 30	4318	974	90	902
Corn or potato hiller	V. Whitbeck	642,398	Jan. 30	4256	961	90	891
Corn-popper	F. J. Becker	643,103	Feb. 13	964	226	90	1173
Corn-sheller	H. A. Adams	641,354	Jan. 16	2316	528 529	90	484
Corn-sheller	J. P. Outcalt	641,408	Jan. 16	2396	548	90	500
Corn-sheller	W. C. Rowe	643,161	Feb. 13	1061	246	90	1193
Corn-shelling machine	C. D. Prindle	644,458	Feb. 27	3477	807 808	90	1604
Corn-shock-binding device	W. L. Wiley	644,118	Feb. 27	2835	671	90	1570
Corn-stubble cutter	J. H. Sharp	645,693	Mar. 20	2099	461	90	2200
Corner-bead for plastered walls	W. F. Parker	640,409	Jan. 2	499	103	90	98
Corner-fastening	W. C. Walton	644,481	Feb. 27	3513	816	90	1700
Corner-plate for protecting corners of plastered walls. Metal	W. F. Parker	640,410	Jan. 2	501	103	90	99
Cornice. Box-	C. M. Prutsman	646,236	Mar. 27	3151	696	90	2424
Corset	J. Halstead	642,904	Feb. 6	597	137	90	1092
Corset	G. Marple	644,744	Mar. 6	325	72	90	1818
Corset	L. P. C. Packwood	641,537	Jan. 16	2565	608	90	553
Corset. Apparel-	C. Jullien-Binard	646,180	Mar. 27	3020	668	90	2599
Corset. Apparel-	M. W. Lawrence	644,930	Mar. 6	690	148	90	1891
Corset. Apparel-	R. Sahlin	643,911	Feb. 20	2468	581	90	1481
Corset. Apparel-	E. M. Steward	646,082	Mar. 27	2832	629	90	2362
Corset-busk. Reversible	A. H. Wade	640,889	Jan. 9	1321	296	90	278
Corset-fastener	E. J. Fink	640,893	Jan. 9	1422	318	90	297
Corset-fastener	M. O. Ross	641,284	Jan. 9	2116	476	90	431
Corset stay or stiffener	J. P. F. White and S. S. Rider	645,444	Mar. 13	1637	358	90	2095
Corset-stay-tipping machine	G. A. Hill	643,652	Feb. 20	1992	469 470	90	1391
Cot. Folding	S. T. Hutchinson	643,137	Feb. 13	1026	230	90	1186
Cot-frame. Adjustable spring	P. D. Heather	641,385	Jan. 16	2368	541	90	494
Cot, hammock, or stretcher	E. S. Bedford	646,398	Mar. 27	3490	777	90	2493
Cotton, &c. Apparatus for compressing	G. A. Lowry	645,728	Mar. 20	2174	472 473	90	2218
Cotton. Apparatus for unbaling and blending raw	S. Ecroyd and E. E. Marsden	645,167	Mar. 13	1140	245	90	1996
Cotton-beater locking device	C. E. Smith	643,277	Feb. 13	1271	298	90	1234
Cotton-chopper	H. Bartels and L. Bernhard	643,034	Feb. 6	814	189	90	1124
Cotton-chopper	J. J. Brooks	645,987	Mar. 27	2552	565	90	2305
Cotton-chopper	D. C. Davis	645,350	Mar. 13	1458	321	90	2058
Cotton-chopper	R. W. Kirby	641,975	Jan. 23	3434	781	90	711
Cotton-compress. Roller	L. Raborn	646,158	Mar. 27	2982	658	90	2390
Cotton-elevator	G. W. Williams	641,176	Jan. 9	1990	441	90	406
Cotton-elevator and gin-feeder	S. D. Murray	644,532	Feb. 27	3612	841	90	1718
Cotton-fan attachment. Seed-	T. J. Overstreet	644,145	Feb. 27	2884	662	90	1580
Cotton-feeders. Valve-gear for pneumatic	G. W. Williams	646,248	Mar. 27	3171	701	90	2428
Cotton-gin	A. D. Thomas	644,155	Feb. 27	2902	687	90	1583
Cotton-gin flue system	T. C. Eberhardt	646,367	Mar. 27	3434	765 766	90	2483
Cotton-gin. Roller	J. E. Cheesman	645,288	Mar. 13	1350	293 294	90	2038
Cotton-gin safety attachment	A. D. Thomas	644,156	Feb. 27	2905	687 688	90	1584
Cotton, hay, &c. Apparatus for compressing	G. A. Lowry	645,732	Mar. 20	2187	475 476	90	2216
Cotton-opener grid	F. A. Wilde	641,060	Jan. 9	1762	392	90	359
Cotton-openers. Dust trunk or tube for	W. Frost	644,975	Mar. 6	750	165	90	1907
Cotton-opening machines. Lap-roll tension for	F. H. L. James	643,295	Feb. 13	1300	306	90	1239
Cotton-picker	L. Bilan	645,782	Mar. 20	2283	497	90	2236
Cotton-picking machine	W. L. Belt	644,544	Feb. 27	3634	845 846	90	1722
Cotton piece goods. Fixing the finish on	M. S. Sharp	645,237	Mar. 13	1265	274 275	90	2021
Cotton-press	H. M. Parker	643,152	Feb. 13	1047	244	90	1191
Cotton-press	H. L. Whitman	643,995	Feb. 20	2622	619	90	1513
Cotton-stalk-pulling machine	G. H. Brush	641,830	Jan. 23	3176	721	90	661
Cotton-thinner	W. Billingsley	640,862	Jan. 9	1360	304 305	90	286
Couch-lid-operating mechanism. Box-	J. T. Seng	644,337	Feb. 27	3276	762	90	1653
Couch-opening mechanism. Box-	W. S. Duvall	642,967	Feb. 6	703	161	90	1102
Coupling: *See* Air-brake coupling. Ball-coupling. Car-coupling. Electric coupling. Flue or pipe coupling. Hay-loader coupling. Hose-coupling. Mower-coupling. Pipe-coupling. Railway-rail coupling. Shaft-coupling. Shaft or thill coupling. Thill-coupling. Vehicle-reach coupling.							
Coupling	J. and J. Darling, Jr	646,361	Mar. 27	3424	763	90	2481
Course-finding instrument for navigators	C. H. White	645,653	Mar. 20	2030	447	90	2186
Cover Vessel-	A. C. Ericson	641,094	Jan. 9	1825	406	90	378
Cracker or biscuit machine	F. M. Peters	641,724	Jan. 23	2987	679	90	625
Cracker or biscuit machine	F. M. Peters	641,725	Jan. 23	2989	680	90	625
Crackers, &c. Machine for cutting and shaping	T. L. Green	642,220	Jan. 30	3909	889 890	90	820
Cradle. Swinging	J. F. Grimmett	643,267	Feb. 13	1254	294	90	1231
Crane	J. W. Seaver	643,988	Feb. 20	2609	616	90	1511

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Crank-wheel	D. Sanford	640,594	Jan. 2	821	181	90	161
Crate. Folding	T. A. Killman	645,096	Mar. 6	877	180	90	1331
Crate. Folding	E. F. Montgillion	642,345	Jan. 30	3950	901	90	828
Crate. Folding	Z. B. Taylor and O. W. Moore	643,562	Feb. 13	1779	420	90	1333
Crate for fragile boxes	L. L. Merriman	646,298	Mar. 27	3258	727	90	2443
Crate. Knockdown	H. B. Drew	644,796	Mar. 6	446	96	90	1843
Crate. Shipping	R. I. Stewart	640,600	Jan. 2	832	185	90	163
Cream-separator	W. S. Cox	643,947	Feb. 20	2540	598	90	1497
Cream-separator	E. P. Doty	641,849	Jan. 23	3231	733	90	670
Cream-separator	W. J. Gould	643,351	Feb. 13	1394	326	90	1258
Cream-separator	J. D. Hendrickson and W. E. Kimball	641,959	Jan. 23	3411	775	90	707
Cream-separator	E. M. Heylman	643,651	Feb. 20	1900	469	90	1360
Cream-separator	W. F. Hunt	642,453	Jan. 30	4358	987 988	90	910
Cream-separator	C. Johnson	644,519	Feb. 27	3584	835	90	1713
Cream-separator	G. L. Smith and A. Huffman	641,612	Jan. 16	2785	634	90	577
Cream-separator	J. Steffee	642,508	Jan. 30	4426	1006	90	923
Cream-separator	H. Whitlock	645,242	Mar. 13	1271	276	90	2022
Cream-separator	E. E. Bell	643,620	Feb. 20	1891	446 447	90	1372
Cream-separator. Centrifugal	J. J. Berrigan	640,358	Jan. 2	389	82, 83	90	78
Cream-separator. Centrifugal	C. L. Kneeland	640,572	Jan. 2	770	171	90	152
Cream-separator. Centrifugal	O. Anderson	643,218	Feb. 13	1160	272	90	1213
Creamer. Centrifugal	J. Laidlaw and J. W. Macfarlane	646,182	Mar. 27	3029	668	90	2360
Creamer. Centrifugal	W. W. Cheeseman	642,582	Feb. 6	34	8	90	973
Creasing-machine	P. Beanston	643,837	Feb. 20	2323	547 548	90	1453
Crematory-carriage	J. G. Haentges	640,377	Jan. 2	437	90	90	86
Crib for building piers, walls, &c.	L. Ebert	642,592	Feb. 6	54	13, 14	90	977
Crimping and goffering machine	W. Painter and J. T. Hawkins	643,973	Feb. 20	2579	608 609	90	1505
Crowns or closures. Automatic apparatus for feeding	J. P. Bailey	642,891	Feb. 6	573	131 132	90	1078
Crucible-carrier	R. Baumann	644,270	Feb. 27	3120	734	90	1625
Crucible-furnace							
Crusher: *See* Clod-crusher.							
Crusher and pulverizer	M. F. Williams	646,249	Mar. 27	3172	701	90	2428
Crusher and pulverizer	M. F. Williams	646,250	Mar. 27	3176	701	90	2429
Crushers and pulverizers. Hammer-support for	E. H. Frickey	646,278	Mar. 27	3226	718	90	2438
Crushing-machine	M. G. Bunnell	645,596	Mar. 20	1903	419	90	2160
Crushing-mill	T. L. and T. J. Sturtevant	641,654	Jan. 16	2860	632	90	592
Crushing-mill	T. L. and T. J. Sturtevant	642,016	Jan. 23	3514	803 804	90	726
Crushing-mill	T. L. and T. J. Sturtevant	642,017	Jan. 23	3516	804	90	727
Crushing-mill	T. L. and T. J. Sturtevant	641,346	Jan. 16	2305	524	90	482
Crushing-mill or disintegrator	T. L. and T. J. Sturtevant	644,681	Mar. 6	328	50	90	1709
Cue-tip holder	O. G. Page	641,592	Jan. 16	2755	627	90	571
Cuff-holder	H. V. Johnson	646,324	Mar. 27	3314	739	90	2454
Cuff-holder	C. E. Speaker	644,460	Feb. 27	3481	808	90	1694
Cuff holder and button. Combined	D. and M. Reichblum	640,305	Jan. 2	289	59, 60	90	78
Culinary roaster	T. M. Lynch	642,349	Jan. 30	4162	941 942	90	872
Cultivating implement. Land	W. E. Martin	641,069	Jan. 9	1784	396	90	364
Cultivator	H. C. Bothwell	642,795	Feb. 6	393	85	90	1042
Cultivator	G. Jernberg	641,731	Jan. 23	3001	684	90	628
Cultivator	W. R. Salisbury	640,325	Jan. 2	322	67	90	64
Cultivator	M. and A. Sattley	642,014	Jan. 23	3512	802	90	726
Cultivator	S. E. Spencer	641,559	Jan. 16	2697	614 615	90	560
Cultivator	C. L. M. St. Clair	645,904	Mar. 20	2485	549	90	2276
Cultivator	I. D. Stockton	640,249	Jan. 2	159	33	90	33
Cultivator	C. Tanner	642,397	Jan. 30	4254	961	90	850
Cultivator	E. C. Westervelt and C. W. Clapp	642,251	Jan. 30	3959	903	90	830
Cultivator attachment. Disk	H. A. Nolte	644,812	Mar. 6	478	102	90	1849
Cultivator. Cotton	C. A. Thurmond	644,587	Mar. 6	49	10	90	1795
Cultivator, harrow, and hiller. Combined gang	A. T. Fischer and E. C. Lewis	641,619	Jan. 16	2709	626	90	580
Cultivator. Land	J. E. Anderson	645,326	Mar. 13	1412	310	90	2050
Cultivator planting attachment	S. W. Nelson	644,308	Feb. 27	3208	751	90	1641
Cultivator planting attachment	J. C. Weddle	640,958	Jan. 9	1352	303	90	284
Cultivator spring-trip	J. B. Bartholomew	642,510	Jan. 30	4438	1009	90	926
Cultivator-tooth. Spring	J. S. Tuttle and J. M. Wilson	643,695	Feb. 20	2040	482	90	1400
Culvert	B. P. Saunders	645,146	Mar. 13	1101	236	90	1989
Culvert	M. C. Trumbull						
Cup: *See* Drinking-cup. Grease-cup. Shaving-cup. Sponge-cup.							
Cupel-machine	F. M. Iler	641,208	Jan. 9	2056	461	90	416
Cupola	F. Hardert	645,746	Mar. 20	2216	490	90	2222
Cupola-furnace	D. Townsend	643,920	Feb. 20	2497	586	90	1498
Curling-iron heater	I. E. Davis	644,283	Feb. 27	3155	740	90	1631
Curling-iron heater	H. Polonus	642,715	Feb. 6	269	66	90	1020
Current meter. Alternating	W. H. Pratt	645,125	Mar. 13	1053	224	90	1980
Current meter. Alternating	G. A. Schieffer	643,102	Feb. 13	1063	248	90	1193
Current-motor	R. S. Theall	642,935	Feb. 6	651	148 149	90	1062
Current motor. Alternating	W. Langdon-Davies	643,066	Feb. 6	874	204 205	90	1135
Current motor. Alternating	W. G. Rhodes	645,130	Mar. 13	1065	226	90	1982
Current-motor. Submerged	R. E. Hardaway	641,695	Jan. 23	2924	667	90	615
Current transformer. Continuous	A. Wydts and G. Weissmann	645,774	Mar. 20	2272	494	90	2223
Current-wheel	J. Winter and A. D. Gill	646,388	Mar. 27	3337	744	90	2459
Currents, and vice versa. Apparatus for converting alternating into continuous	M. Hutin and M. Leblanc	644,553	Feb. 27	3052	850 851 852	90	1726
Curtain-actuating system	W. H. Brodie	642,423	Jan. 30	4305	971	90	909
Curtain-fixture	J. P. Kane	640,662	Jan. 2	952	214	90	185

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Curtain-fixture	C. T. Morris and A. Kunkle	642,247	Jan. 30	3953	901	90	829
Curtain-holder	W. L. Isbills	641,115	Jan. 9	1859	414	90	390
Curtain-pole	A. S. Venen	644,114	Feb. 27	2831	670	90	1560
Curtain-pole	W. H. and C. W. White	640,723	Jan. 2	1078	246	90	209
Curtain pole. Window	J. Lacy	643,142	Feb. 13	1034	240	90	1188
Curtain-ring	W. F. Durst	646,366	Mar. 27	3433	765	90	2483
Curtain-rod fixture	J. O. Clark	640,993	Jan. 9	1650	365	90	338
Curtain-roller fixture. Adjustable	T. Craddock	644,501	Feb. 27	3543	825	90	1706
Curtain-stretcher	W. A. Mayr	640,214	Jan. 2	110	21	90	23
Curtain-support	L. F. Bergman	645,542	Mar. 20	1807	397	90	2141
Curtain-supporter	A. T. K. Hawley	641,510	Jan. 16	2615	596	90	544
Curtains, draperies, display-cards, &c. Telescopic supporter for	J. G. Birch	645,543	Mar. 20	1808	397	90	2142
Curtains, roller-blinds, &c. Removable rod for	E. E. Kammer	644,358	Feb. 27	3315	709	90	1601
Cushion-fall stretcher	J. E. La Dow	643,297	Feb. 13	1302	307	90	1240
Cuspidor. Fountain	G. B. Haycock	644,355	Feb. 27	3309	709	90	1659
Cut-off and filter. Automatic	M. M. Hitt	643,355	Feb. 13	1401	327 328	90	1259
Cut-off and light-extinguishing apparatus. Time automatic	H. L. Groome	645,258	Mar. 13	1297	282	90	2028
Cut-off. Automatic	G. Christensen	645,069	Mar. 13	939	201	90	1958
Cut-off. Rain-water	J. Boutin	640,266	Jan. 2	227	46	90	45
Cutter: *See* Adjustable cutter. Band-cutter. Bread or cake cutter. Cheese-cutter. Cigar-tip cutter. Cloth-cutter. Corn-stubble cutter. Fodder-cutter. Fruit or vegetable cutter. Hay or straw cutter. Hoof-cutter. Meat-cutter. Noodle-cutter. Paper-cutter. Rotary cutter. Stalk-cutter. Thread-cutter. Tube or flue cutter. Twine-cutter. Vegetable-cutter.							
Cutter	G. Johnson, Jr.	641,701	Jan. 23	2936	669	90	617
Cutter-bar	W. H. Hodges	644,076	Feb. 27	2768	656	90	1557
Cutter-bar	J. F. Kukacka	641,128	Jan. 9	1850	416	90	393
Cutter-bar	H. C. Londermilch	640,783	Jan. 9	1194	272	90	252
Cutter-head	S. Harrington	644,514	Feb. 27	3569	830	90	1711
Cutting apparatus	S. Pierson	642,485	Jan. 30	4404	999	90	920
Cyanogen halide. Producing solution of	W. Witter	641,571	Jan. 16	2723		90	565
Cycle driving mechanism	M. E. Bollinger	641,926	Jan. 23	3857	763	90	696
Cycle-frame	F. Rosenberg	642,493	Jan. 30	4414	1002	90	921
Cycle frame. Motor	T. French	641,096	Jan. 9	1828	407	90	374
Cycle-pedal	H. S. Halford	644,512	Feb. 27	3567	830	90	1710
Cycle pedal and crank pin	I. Rees	644,636	Mar. 6	133	30	90	1780
Cycle-saddle attachment	E. H. Thibault	641,169	Jan. 9	1975	438	90	408
Cycle-seat	T. D. Wilgus	645,412	Mar. 13	1582	346	90	2065
Cycles. Water	S. R. Perry	643,678	Feb. 20	2083	480	90	1398
Cycles. Acetylene-motor for	C. H. Offen	646,033	Mar. 27	2746	609	90	2344
Cyclometer	L. J. Burdick	645,201	Mar. 13	1204	262	90	2009
Cyclometer and speed-indicator. Combined	E. D. Clapp	644,578	Mar. 6	27	7	90	1769
Cyclometer and speed-indicator. Combined	E. D. Clapp	644,579	Mar. 6	30	7	90	1761
Cyclometer or registering mechanism	L. J. Burdick	645,200	Mar. 13	1109	262	90	2008
Cylinder-lubricator	B. F. Kelsey	640,773	Jan. 9	1174	268 269	90	248
Cylinder-wrench	H. Lund	644,676	Mar. 6	218	48	90	1797
Dam, retaining-wall, breakwater, &c.	J. S. Fielding	643,488	Feb. 13	1654	390	90	1310
Dampening-machine	W. Schillinger	641,050	Jan. 16	2854	651	90	591
Damper for stoves or furnaces. Regulator	C. W. Cheney	642,583	Feb. 6	37	9	90	973
Dashboard. Hinged	A. H. Alexander and T. A. Reynolds	645,052	Mar. 13	909	196	90	1953
Dashboard. Hinged	A. H. Alexander and T. A. Reynolds	645,053	Mar. 13	910	196	90	1953
Davit. Ship's	J. W. McKinnon	643,197	Feb. 13	1128	263	90	1207
Decorating-machine	W. H Deldrick	641,440	Jan. 16	2478	507 508	90	515
Decoration. Surface	A. Bowers	641,364	Jan. 16	2335	533	90	488
Defacating apparatus. Liquid	E. W. Deming	645,290	Mar. 13	1356	294 295	90	2039
Dehorning implement	J. D. Decelle	644,350	Feb. 27	3302	707	90	1658
Dehorning or branding chute	W. S. Young	646,251	Mar. 27	3178	702	90	2420
Delinting-machine	W. S. Cannaday	644,276	Feb. 27	3128	735 736	90	1626
Delinting-machine	J. J. Faulkner	645,169	Mar. 13	1144	246	90	1997
Dental appliance	W. J. Thurmond and E. W. Clark	641,170	Jan. 9	1976	438	90	403
Dental articulator	J. W. Bryan	643,088	Feb. 6	818	190	90	1125
Dental broach	L. A. Young	645,345	Mar. 13	1446	319	90	2057
Dental chair	G. Sibley	644,640	Mar. 6	143	32, 33	90	1782
Dental chair	G. Sibley	644,641	Mar. 6	149	33 34 35	90	1783
Dental chair	G. Sibley	644,642	Mar. 6	153	35	90	1784
Dental chair	B. M. Wilkerson	642,405	Jan. 30	4270	964 965	90	894
Dental-chair arm-rest	G. Sibley	644,643	Mar. 6	155	35	90	1784
Dental-chair back-rest	G. Sibley	644,644	Mar. 6	156	36	90	1785
Dental clamp	W. I. Brigham	641,672	Jan. 23	2892	659	90	609
Dental-dam attachment	M. O. Nelson	640,930	Jan. 9	1500	336	90	311
Dental engine and chair. Combined	C. C. Southwell	642,536	Jan. 30	4478	1016 1017	90	933
Dental flask	T. G. Donaldson	644,970	Mar. 6	755	163	90	1906
Dental oven	H. M. Hill	643,898	Feb. 20	2443	575	90	1476
Dental plugger	C. L. Calvert and E. Anderson	643,039	Feb. 6	829	190	90	1125
Dental plugger	C. Schake, Jr.	645,608	Mar. 20	1942	429	90	2169
Dental separator	E. Wishart	645,413	Mar. 13	1583	346	90	2065
Dental tool	C. W. Miller	644,932	Mar. 6	683	149	90	1801
Dental tool for expressing mercury from amalgam	B. Aiken	643,443	Feb. 13	1563	368	90	1291
Dentistry. Impression-band for	G. Evans	644,705	Mar. 6	266	59	90	1807

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Denture	W. H. Dwight	643,868	Feb. 20	2387	562	90	1465
Denture. Artificial	J. H. Doyle	644,583	Mar. 6	37	8	90	1769
Deodorizing and drying	F. M. Pratt	644,692	Mar. 6	229	50	90	1799
Derrick. Portable	J. B. Lord	643,360	Feb. 13	1410	330	90	1261
Derrick. Rotary	W. E. Sauerman	640,958	Jan. 9	1552	346	90	320
Designs. Producing colored	G. Thuringer	646,395	Mar. 27	8483	.....	90	2492
Desk for hanging over the shoulders. Reading or writing	H. Schnell	643,164	Feb. 13	1069	248	90	1195
Desk. Hotel-register	G. P. Rose, Jr	645,975	Mar. 27	2628	582	90	2322
Desk-pad	L. Sainberg	641,804	Jan. 23	3297	749	90	694
Desk. Portable writing or drawing	T. E. Stark	642,383	Jan. 30	4239	956	90	896
Desk. School	W. T. Dodd	644,064	Feb. 27	2741	649 / 650	90	1550
Desk. School	M. M. Hollman and E. B. Fields	645,098	Mar. 13	1006	216	90	1971
Desk. School	F. H. Swann and D. F. Brown	644,836	Mar. 6	521	112	90	1858
Desk-slide	T. J. Houtman	644,992	Mar. 6	769	167	90	1910
Desk. Writing	G. H. Rogers	640,296	Jan. 2	132	27	90	28
Desulfurizing furnace. Ore	H. Guyer	644,424	Feb. 27	3422	794 / 795	90	1692
Detector: *See* Coin-detector.							
Detergent	J. Pirard	645,373	Mar. 13	1505	.....	90	2070
Detergent	C. E. Postlethwaite	641,225	Jan. 9	2100	.....	90	427
Detergent compound	A. Luhn	645,600	Mar. 20	1927	.....	90	2165
Devulcanizing apparatus	A. H. Marks	646,230	Mar. 27	3138	692	90	2421
Dice	V. Mapes	645,112	Mar. 13	1089	220	90	1976
Die: *See* Automatic adjustable die. Embossing-machine die. Wire-coiling die. Automatically opening or closing die.	C. Dilly	640,689	Jan. 2	913	206	90	177
Die-stock							
Digger: *See* Earth-digger. Potato-digger. Peanut-digger. Root-digger.							
Digging-machine	A. V. Hysore	642,610	Feb. 6	82	19	90	992
Direct-acting engine	H. J. Kimman	642,133	Jan. 30	3733	854	90	785
Dish-cleaner	F. J. Parish	643,424	Feb. 13	1590	359 / 360	90	1283
Dish-cleaning apparatus	J. W. Wright	642,092	Jan. 23	3541	811	90	731
Dish-drainer	M. L. Price	646,128	Mar. 27	2926	648	90	2380
Dish-washer	C. H. Sterling	640,428	Jan. 2	533	111	90	104
Dish-washing machine	F. C. Sherman	643,898	Feb. 20	2425	571	90	1473
Disinfectants to water-closets. Float attachment for automatically feeding	H. F. Jones	645,206	Mar. 13	1210	264	90	2010
Disinfecting apparatus	R. E. Deane	643,949	Feb. 20	2542	598	90	1497
Disinfecting device	C. E. Blake	644,158	Feb. 27	2910	689	90	1585
Disinfecting device	C. E. Blake	644,194	Feb. 27	2965	706 / 707	90	1598
Disinfecting device	L. F. Longmore	645,821	Mar. 20	2341	511	90	2247
Disinfecting device	W. H. Rose	641,548	Jan. 16	2083	612	90	557
Disinfecting device	W. H. Taylor	643,809	Feb. 13	1322	312	90	1244
Disinfecting telephones, &c. Device for	C. P. Sester	643,829	Feb. 20	2302	542	90	1449
Disk drill	F. K. Underwood and L. E. Hawkins	643,570	Feb. 13	1795	425	90	1336
Display and sample case	T. Hansen	646,168	Mar. 27	3004	663	90	2395
Display apparatus	W. A. Baer	640,854	Jan. 9	1345	301	90	283
Display-cabinet	M. Bunker	642,894	Feb. 6	577	132	90	1079
Display-cabinet	J. L. and C. D. Strow	646,012	Mar. 27	2701	599	90	2335
Display-cabinet	A. J. Benner and W. A. Flock	641,669	Jan. 23	2988	658	90	608
Display-clasp for garments	S. E. Griggs	645,266	Feb. 13	1253	294	90	1230
Display-holder. Hat	H. M. Greener	645,357	Mar. 13	1297	282	90	2028
Display-rack	W. Eley	640,187	Jan. 2	52	11	90	12
Display rack. Carpet	R. L. Henley	644,247	Feb. 27	3078	725 / 726	90	1615
Display-stand	W. Macdonald	642,866	Feb. 6	518	121	90	1067
Display-stand	S. E. Parrish	642,353	Jan. 30	3965	904	90	831
Display stand. Wall-paper	J. B. Horton	641,015	Jan. 9	1684	374	90	345
Displaying case. Shirt	W. Boydell	642,576	Feb. 6	12	4	90	967
Displaying device	R. L. Marshall	640,679	Jan. 2	904	224	90	192
Distance-finder	H. A. Frasch	640,292	Jan. 2	273	55	90	55
Distillation of hydrocarbons. Apparatus for continuous fractional	C. F. Conover	645,790	Mar. 20	2296	500	90	2238
Distilled water. Apparatus for producing	C. O. Lee	642,616	Feb. 6	89	21	90	983
Distiller and cooker. Combined	A. G. Waterhouse	643,702	Feb. 20	2080	489 / 490	90	1406
Distilling and evaporating water	J. E. Cross	641,437	Jan. 16	2473	566	90	514
Distilling apparatus	H. A. Steber	640,970	Jan. 9	1594	353	90	328
Distilling apparatus	J. Hemingway	644,012	Feb. 20	2660	629	90	1520
Distilling coal	W. G. Dungey	645,794	Mar. 20	2303	502	90	2239
Ditch or pit filling machine	J. T. and S. H. Baxter	643,738	Feb. 20	2148	504 / 505	90	1419
Ditching apparatus	M. A. Richardson	640,812	Jan. 9	1247	282 / 283	90	263
Ditching-machine	M. C. Mackey	645,752	Mar. 20	2224	482	90	2224
Ditching or excavating machine	G. Pino	644,943	Mar. 6	707	158	90	1806
Diving and submarine apparatus	P. and J. Clough	644,001	Feb. 20	2641	624	90	1517
Doffing mechanism	E. W. Bloomingdale and A. D. Kenyon	641,828	Jan. 23	3162	718	90	659
Domino	S. S. Colt	641,842	Jan. 23	3211	728	90	666
Door	W. R. Corbin and W. K. Henry	641,844	Jan. 23	3221	731	90	668
Door	C. H. Cramer	641,675	Jan. 23	2896	680	90	610
Door	D. Schuyler	646,289	Mar. 27	3156	697	90	2425
Door button. Sliding	C. F. Scheel	641,471	Jan. 16	2537	580	90	528
Door-catch	M. J. Thuestad	643,612	Feb. 13	1875	441	90	1353
Door-catch	N. O. Bond	642,514	Jan. 30	4445	1010	90	927
Door-check	W. K. Crofford	641,499	Jan. 16	2584	589 / 590	90	536
Door-check	J. L. Zesiger	642,947	Feb. 6	670	153	90	1095

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Door check and closer	F. Dossogne	642,591	Feb. 6	52	13	90	976
Door check and closer	G. G. Laureyns	646,003	Mar. 27	2683	595 / 596	90	2382
Door-closer	J. E. McFeely	643,970	Feb. 20	2574	607	90	1504
Door-fastener	J. W. Dotson	645,914	Mar. 20	2306	554	90	2279
Door-frame and adjustable jamb therefor	S. S. Colt	643,399	Feb. 13	1483	349	90	1274
Door-hanger	J. D. Cael	644,845	Mar. 6	538	116	90	1861
Door-hanger	L. A. Hoerr	645,094	Mar. 13	999	214	90	1970
Door-hanger	G. P. Jones	643,654	Feb. 20	1995	470	90	1391
Door-hanger	E. L. Schanck	642,760	Feb. 6	342	83	90	1084
Door-hanger. Adjustable	A. G. Bierbach	642,059	Jan. 30	3608	836	90	757
Door-hanger track and weather-shed. Combined	S. J. Morgan	641,982	Jan. 23	3450	785	90	715
Door-holder	F. W. Ruppman	642,261	Jan. 30	3978	906	90	884
Door-lock	A. Armstrong and A. F. Patterson	642,413	Jan. 30	4290	968	90	897
Door-lock	C. B. Hand	645,663	Mar. 20	2045	450	90	2189
Door lock. Sliding	A. B. Clay	641,269	Jan. 16	2174	490	90	456
Door lock. Sliding	J. A. Eastman	643,245	Feb. 13	1211	284	90	1222
Door lock. Sliding	A. Newell	646,238	Mar. 27	3146	695	90	2422
Door-opener. Automatic	J. Compton	646,205	Mar. 27	3082	680	90	2410
Door opener. Screen	M. J. Adams	642,661	Feb. 6	169	43	90	999
Door or window frame. Screen	C. C. Wheeler	643,889	Feb. 20	2426	571	90	1473
Door. Sliding	L. A. Hoerr	645,095	Mar. 13	1000	214	90	1970
Door. Sliding	E. and A. Schmitt	643,307	Feb. 13	1320	311	90	1243
Door-spring	J. H. Bodman	641,492	Jan. 16	2572	587	90	534
Door-spring	F. and H. F. Keil	646,223	Mar. 27	3121	688	90	2418
Door-stop	G. H. Rogers	643,850	Feb. 20	2358	554	90	1460
Door stop and holder	G. Maier, Jr	641,812	Jan. 16	2246	509	90	471
Door structure. Revolving	T. Van Kannel	641,563	Jan. 16	2705	616 / 617	90	561
Door. Vertically-adjustable barn	F. Hering	640,385	Jan. 2	445	92	90	88
Doubling and twisting and cop-forming machine. Yarn	J. F. Lodge	641,398	Jan. 16	2388	547	90	498
Douche or bed-pan protector	C. Trabaud	640,835	Jan. 9	1314	294	90	276
Dough-molding machine	C. E. and J. E. Pointon	640,944	Jan. 9	1523	340	90	315
Dough-preparing apparatus	J. Schweitzer	644,873	Mar. 6	589	127	90	1872
Dowel-nail	A. H. Smith	642,377	Jan. 30	4223	954	90	884
Dowel. Wooden	J. Cathrein	646,164	Mar. 27	2998	661	90	2393
Downdraft-kiln	H. A. Wheeler	640,246	Jan. 2	171	35	90	36
Draft-equalizer	E. Rohlffs	644,260	Feb. 27	3105	730	90	1621
Draft-equalizer	J. Rusk	640,592	Jan. 2	818	181	90	160
Draft-equalizer	H. Vallant	641,812	Jan. 23	3140	718	90	655
Draft-equalizer	T. J. Vance	642,512	Jan. 30	4443	1009	90	927
Draft-equalizer	F. J. Vestal	642,735	Feb. 6	908	73	90	1027
Draft-equalizer	W. M. Wunderlich	644,486	Feb. 27	3521	818	90	1702
Draft-equalizer. Two-horse	G. L. Eason	643,404	Feb. 13	1494	350	90	1276
Drain-trap air-pipe	P. W. Meehan	641,028	Jan. 9	1707	379	90	349
Draw-bar attachment	W. E. Coffin	644,028	Feb. 20	2687	636	90	1525
Draw-bar-supporting mechanism	J. A. Yerk	643,315	Feb. 13	1331	314	90	1245
Draw-knife	I. S. Bailey	643,344	Feb. 13	1362	324	90	1256
Drawer-support	E. Mertens	644,438	Feb. 27	3444	799	90	1687
Drawers. Lady's	J. Marcoux	646,005	Mar. 27	2690	596	90	2383
Drawers, &c. Sliding support and stop for	L. Razy	643,682	Feb. 20	2096	481	90	1399
Drawing-board rest	H. W. Roberts	645,217	Mar. 13	1231	267	90	2013
Dredger	W. B. Pless	644,457	Feb. 27	3475	807	90	1693
Dredging	F. M. Bell	645,660	Mar. 20	2042	449	90	2188
Dredging and excavating machine. Rotary	D. Jordan	644,521	Feb. 27	3591	837	90	1715
Dredging apparatus. Hydraulic	B. J. Methvin	641,716	Jan. 23	2958	675	90	621
Dredging-machine	L. C. Eisenbut	645,353	Mar. 13	1456	322	90	2059
Dredging-machine. Bucket	J. H. Gray	640,762	Jan. 9	1147	263	90	242
Dress-guard	T. B. Jeffery	642,333	Jan. 30	4124	933	90	864
Dress-shield fastener	G. W. Ferguson	645,077	Mar. 13	952	204	90	1960
Dressing stand and mirror	T. M. Wassenius	644,044	Feb. 20	2712	642	90	1530
Drier: *See* Clothes-drier. Fruit-drier. Coffee or malt drier. Prune-drier.							
Drier	J. McCusker	643,149	Feb. 13	1043	243	90	1190
Driers. Apparatus for discharging water and air from cylinder	A. G. Paul	643,198	Feb. 13	1130	264	90	1207
Dry-air closet	G. R. Scates	645,495	Mar. 13	1720	876 / 877	90	2111
Drying and roasting furnace. Vertical automatic	J. Stoveken	640,715	Jan. 2	1061	242	90	204
Drying apparatus	C. Mallinson	645,366	Mar. 13	1490	327 / 328	90	2066
Drying apparatus	P. Siefeldt	644,189	Feb. 27	2976	703 / 704	90	1596
Drying device. Fabric	L. E. H. Sherwood	644,305	Feb. 27	3302	750	90	1640
Drying-kiln	F. R. Morris	640,791	Jan. 9	1206	274	90	255
Drying-kiln	H. J. Morton	645,753	Mar. 20	2225	483	90	2224
Drying-kiln	F. G. Perkins	640,319	Jan. 2	312	65	90	62
Drying-room	J. H. Therien	646,327	Mar. 27	3319	740	90	2455
Drill: *See* Boring-drill. Miner's drill. Disk drill. Prospecting-drill. Electric drill. Rock-drill. Grain-drill. Seed-drill.							
Drill-rotating device. Rotary	J. B. Rhodes	644,688	Mar. 6	135	31	90	1780
Drills for rock-boring or other purposes. Appliance for lifting and turning	C. Simmons	640,964	Jan. 9	1566	849	90	822
Drilling apparatus. High-speed	E. Watel	640,431	Jan. 2	539	112 / 113	90	105
Drilling-machine	L. M. Davis	642,965	Feb. 6	699	160	90	1102
Drilling-machine	C. Schmidt	640,708	Jan. 2	1046	288	90	202
Drilling-machines. Thrust-register for	M. C. Bullock	643,083	Feb. 6	912	215 / 216 / 217	90	1142
Drinking-cup. Collapsible	S. M. Royer	640,418	Jan. 2	515	107	90	102

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Driving and brake mechanism	J. S. Copeland	644,509	Feb. 27	3540	825	90	1705
Driving and driven members. Mounting rotary	N. Nilsson	642,918	Feb. 6	623	143	90	1067
Driving mechanism	S. N. Rapp	641,797	Jan. 23	3117	709	90	649
Driving mechanism	W. J. Thompson	643,564	Feb. 13	1783	421 422	90	1334
Drugget-pin	J. H. Gibson	644,976	Mar. 6	760	165	90	1908
Drum	A. G. Soistmann	641,901	Jan. 23	3309	752	90	686
Dumb-waiter	C. W. Hoffman	645,812	Mar. 20	2325	508	90	2243
Dumping apparatus. Automatic	J. R. Robinson	640,952	Jan. 9	1541	344	90	318
Duplicator	A. S. Burnell	641,495	Jan. 16	2576	588	90	535
Dust-cloth holder	W. F. Schrey	640,707	Jan. 2	1044	238	90	202
Dust-collector	E. R. Draver	641,681	Jan. 23	2905	662	90	611
Dust-collector	J. E. Mitchell	645,322	Mar. 13	1402	308	90	2048
Dust-collector	J. E. Mitchell	645,369	Mar. 13	1494	328 329	90	2067
Dust-collector	A. W. Banister	646,253	Mar. 27	3181	702	90	2430
Dust collector and separator	A. T. Stilson	640,972	Jan. 9	1597	353	90	328
Dust-pan	A. T. Stilson	640,973	Jan. 9	1599	354	90	328
Dust-pan	H. A. Bernthsen	645,781	Mar. 20	2283	.....	90	2235
Dye and making same. Bluish-red	P. Julius	641,234	Feb. 27	3055	.....	90	1613
Dye. Black	P. Julius	641,237	Feb. 27	3060	.....	90	1613
Dye. Black	H. A. Bernthsen and P. Julius	641,240	Feb. 27	3064	.....	90	1613
Dye. Black disazo	P. Julius	644,233	Feb. 27	3053	.....	90	1613
Dye. Black disazo	P. Julius	644,235	Feb. 27	3056	.....	90	1613
Dye. Black disazo	P. Julius	644,236	Feb. 27	3058	.....	90	1613
Dye. Black disazo	P. Julius	644,239	Feb. 27	3063	.....	90	1613
Dye. Black disazo	P. Julius	644,292	Feb. 27	3174	.....	90	1695
Dye. Black disazo	J. Herbabny	641,588	Jan. 16	2750	.....	90	570
Dye. Black polyazo	A. G. Green and A. Meyenberg	641,589	Jan. 16	2750	.....	90	570
Dye. Black sulfur	A. G. Green and A. Meyenberg	645,738	Mar. 20	2304	.....	90	2230
Dye. Black sulfur	C. Ris	644,291	Feb. 27	3173	.....	90	1635
Dye. Black sulfur	J. Herbabny	644,334	Feb. 27	3272	.....	90	1653
Dye. Black trisazo	C. Schraube and E. Schleicher	642,256	Jan. 30	3970	.....	90	832
Dye. Black trisazo	B. Priebs and O. Kaltwasser	640,980	Jan. 9	1535	.....	90	336
Dye. Blue sulfur	M. Böniger	640,559	Jan. 2	756	.....	90	148
Dye. Bluish-red azo	O. Hansmann	641,954	Jan. 23	3405	.....	90	706
Dye. Brown sulfur	A. G. Green and A. Meyenberg	644,228	Feb. 27	3061	.....	90	1613
Dye. Fast brown	P. Julius	643,338	Feb. 13	1374	.....	90	1254
Dye from chloramidophenol. Disazo	A. Steiner	644,402	Feb. 27	3483	.....	90	1695
Dye from gallocyanin. Blue	C. Ris	640,986	Jan. 9	1626	.....	90	335
Dye from stilbene. Disazo	O. Bally	644,959	Mar. 6	732	.....	90	1901
Dye. Green	A. Abel	641,587	Jan. 16	2749	.....	90	570
Dye. Green-black	A. G. Green and A. Meyenberg	643,371	Feb. 13	1429	.....	90	1265
Dye. Making black sulfur	J. J. Brack	641,184	Jan. 9	2008	.....	90	409
Dye. Red rhodamin	H. Bosleker	640,203	Jan. 2	80	16	90	18
Dye. Rhodamin	H. Ilgen	644,333	Feb. 27	3270	.....	90	1652
Dye-vat	C. Schraube	643,569	Feb. 13	1703	.....	90	1336
Dye. Yellow	F. Ullmann	641,953	Jan. 23	3404	.....	90	706
Dye. Yellow acridinium	A. G. Green and A. Meyenberg	644,324	Feb. 27	3223	.....	90	1649
Dyes. Making fast brown	P. Julius and W. Reess	644,988	Mar. 6	779	169	90	1912
Dyes. Making yellow basic	J. Major	644,989	Mar. 6	780	169	90	1912
Dyeing apparatus	J. Major	644,990	Mar. 6	782	169 170	90	1912
Dyeing, &c. Apparatus for	J. Major	646,379	Mar. 27	3457	.....	90	2487
Dyeing, &c. Apparatus for	G. Tagliani	642,893	Feb. 6	514	120	90	1066
Dyeing fabrics	J. L. Creveling	642,589	Feb. 6	49	12	90	955
Dynamo-driving mechanism	R. M. Dixon	646,306	Mar. 27	3273	730 731	90	2446
Dynamo-driving mechanism	G. S. Neeley	643,240	Feb. 13	1292	292	90	1221
Dynamos. Automatic regulator for alternating	B. F. Shuart	644,421	Feb. 27	3417	734	90	1681
Earth digger and scraper. Combined	C. Graham	646,156	Mar. 27	3361	658	90	2390
Earthenware coils. Means for manufacturing	G. A. Peterson	642,668	Feb. 6	184	45	90	1002
Easel-support	F. L. Becker	643,747	Feb. 20	2169	509	90	1123
Eaves-trough hanger	J. L. Martin	641,822	Jan. 23	3160	717 718	90	658
Eaves-trough sieve attachment	C. G. Belmer	640,902	Jan. 9	1440	322 323	90	300
Edge-trimming machine	D. B. Hanson	641,649	Jan. 16	2850	650 651	90	591
Edger. Gang-	V. Royle	641,151	Jan. 9	1396	429 430	90	394
Edging-machine	C. A. Schurrer and W. Straffon	645,440	Mar. 13	1627	356	90	2094
Educational appliance	M. Thruston	641,738	Jan. 23	3018	688	90	630
Educational appliance	T. E. Thompson	641,739	Jan. 23	3019	688	90	631
Educational appliance or game	T. E. Thompson	641,283	Jan. 16	2199	494 495	90	461
Educational appliance or game	C. A. Evans	641,683	Jan. 23	2909	663	90	612
Educational device	C. A. Evans	644,416	Feb. 27	3411	792	90	1690
Educational or similar device	W. I. Gallaspie	644,808	Mar. 6	467	99	90	1846
Egg-case	J. M. Sharp	11,802	Jan. 16	2977	655 656	90	596
Egg-case	C. E. La Fleur. (Reissue)	644,702	Mar. 6	367	80 81 82	90	1827
Egg-case filler	J. T. Carmody	644,342	Feb. 27	3287	764	90	1655
Egg-case fillers. Machine for making	W. Upton	642,545	Jan. 30	4500	1020	90	987
Egg-tester and cooker. Combined	J. L. Chapman	642,046	Jan. 23	3560	815	90	735
Ejector	L. E. Miller	640,735	Jan. 9	1104	.....	90	234
Ejector	P. C. Bell	641,767	Jan. 23	3069	698	90	640
Elastic compound. White	H. Drösse	642,953	Feb. 6	679	155	90	1097
Electric-arc heating and apparatus therefor. Method of	H. Blumenberg, Jr., and F. C. Overbury.	641,309	Jan. 16	2240	507 508	90	470
Electric battery	A. Linick	642,738	Feb. 6	312	74	90	1028
Electric battery. Coin-controlled	C. Borel	640,363	Jan. 2	400	85	90	79
Electric cable for high-tension currents	W. L. Candee						
Electric-cable terminal							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Electric-cable terminal	W. L. Candee	640,364	Jan. 2	401	85	90	79
Electric-cable terminal	W. L. Candee	640,365	Jan. 2	402	86	90	80
Electric-circuit breaker	L. C. Reed	645,010	Mar. 6	817	178	90	1919
Electric-circuit controller	B. N. Jones	645,108	Mar. 13	1012	217	90	1973
Electric circuits. Device for locating grounds on	M. J. Myers	645,608	Mar. 20	1981	426	90	2166
Electric circuits. Regulating	M. Pfatischer	641,322	Jan. 16	2266	513 514	90	475
Electric circuits. Resistance-switch for	J. H. Holmes and F. Broadbent	644,517	Feb. 27	3579	832 833 834	90	1713
Electric compressors. Automatic controller for	N. A. Christensen	644,128	Feb. 27	2855	675 676 677	90	1574
Electric connecting device for lamp-holders, wall-plugs, &c.	C. L. R. E. Menges	642,995	Feb. 6	746	172	90	1112
Electric-contact apparatus	C. G. O. H. von Köhler	644,251	Feb. 27	3088	727	90	1618
Electric coupling	R. D. Ireland	646,179	Mar. 27	3025	668	90	2388
Electric-current-controlling mechanism	C. W. and J. B. Squires	642,982	Feb. 6	644	147	90	1091
Electric currents. Protective system and apparatus for high-tension	L. C. Reed	645,007	Mar. 6	808	176 177	90	1918
Electric currents. Rate-indicator for	J. Harris	640,466	Jan. 2	588	126	90	116
Electric discharges. Apparatus for producing	M. Otto	640,694	Jan. 2	1025	232 233	90	198
Electric distribution. Protective system of	L. C. Reed	645,008	Mar. 6	813	178	90	1919
Electric-distribution systems. Safety device for	E. M. Hewlett	643,133	Feb. 13	1021	237 238	90	1185
Electric drill, &c	W. P. Freeman	644,501	Mar. 6	56	12	90	1766
Electric energy. Means for controlling and indicating the supply of	C. R. Loubery	643,228	Feb. 13	1182	277 278	90	1217
Electric flashing-switch	A. L. Cotter	643,401	Feb. 13	1486	349	90	1274
Electric foot-battery	D. W. Prosser	641,890	Jan. 23	3292	747	90	693
Electric furnace	F. E. Hatch	640,283	Jan. 2	260	52	90	52
Electric furnace	A. J. Petersson	643,254	Feb. 13	1230	288 289	90	1226
Electric heater	F. Bain	640,258	Jan. 2	211	48	90	43
Electric heater	G. C. Hawkins	643,744	Feb. 20	2163	506	90	1422
Electric-light hanger	D. Brown	645,848	Mar. 20	2392	525	90	2258
Electric-light shade	W. D. Smith	641,613	Jan. 16	2787	634	90	577
Electric-lighting apparatus	G. Heidel	641,957	Jan. 23	3410	774	90	707
Electric-lighting device	G. W. Van Duzer	642,648	Feb. 6	148	36	90	995
Electric lighting on railway-cars, &c. Mechanism for driving dynamos for	P. Kennedy	642,551	Jan. 30	4514	1022	90	940
Electric lighting. Producing incandescent materials suitable for	G. Alefeld	645,198	Mar. 13	1195	.....	90	2007
Electric-lighting system	A. C. M. Prücker	642,627	Feb. 6	110	26	90	987
Electric lock	L. Goughenour and C. B. McCabe	641,382	Jan. 16	2363	540 541	90	494
Electric-machine brush. Dynamo-	G. Heidel	641,012	Jan. 9	1680	373	90	344
Electric machine. Dynamo-	G. Dalén and A. Hultqvist	645,943	Mar. 27	2561	567	90	2307
Electric machine. Dynamo-	W. L. Emmet	641,682	Jan. 23	2908	662 663	90	612
Electric machine. Dynamo-	H. Geisenhöner	642,599	Feb. 6	65	16	90	979
Electric machine. Dynamo-	E. W. G. C. Hoffmann	642,123	Jan. 30	3716	849	90	781
Electric machine. Dynamo-	C. W. Krach	642,615	Feb. 6	87	21	90	983
Electric machine. Dynamo-	B. G. Lamme	646,092	Mar. 27	2849	632	90	2365
Electric machine. Dynamo-	H. G. Reist	644,084	Mar. 6	238	51	90	1800
Electric machine. Inductor dynamo-	H. Geisenhöner	640,760	Jan. 9	1144	262	90	242
Electric-machine regulation. Dynamo-	C. P. Steinmetz	645,674	Mar. 20	2062	453	90	2192
Electric machines. Means for regulating	W. H. Cooley	644,278	Feb. 27	3132	736	90	1627
Electric meter	J. H. Barker and J. A. Ewing	643,392	Feb. 13	1470	344 345	90	1271
Electric meter	G. Hookham	644,552	Feb. 27	3650	849 850	90	1726
Electric meter	L. C. Reed	645,126	Mar. 13	1055	224	90	1980
Electric meter	E. W. Rice, Jr	645,671	Mar. 20	2158	452	90	2191
Electric-meter device	C. D. Haskins	640,196	Jan. 2	69	14	90	16
Electric-metering system	L. C. Reed	645,127	Mar. 13	1056	224	90	1980
Electric-metering system	L. C. Reed	645,128	Mar. 13	1058	225	90	1981
Electric-metering system	L. C. Reed	645,129	Mar. 13	1061	225 226	90	1981
Electric motor	O. F. Conklin	640,747	Jan. 9	1121	257	90	237
Electric motor	J. C. Henry	643,093	Feb. 6	940	220	90	1146
Electric motor	H. F. Joel	646,147	Mar. 27	2961	654	90	2386
Electric motor	H. Leitner	641,125	Jan. 9	1875	417	90	393
Electric motor	E. S. Pillsbury	642,364	Jan. 30	4194	948	90	879
Electric motor	O. F. Conklin	640,748	Jan. 9	1122	257	90	238
Electric motor and circuit therefor	W. R. Hamlen	645,088	Mar. 13	984	209	90	1968
Electric-motor control	F. A. Merrick	645,116	Mar. 13	1033	221	90	1976
Electric-motor control	F. A. Merrick	645,117	Mar. 13	1037	221	90	1977
Electric-motor controller	M. W. Day	644,666	Mar. 6	303	44, 45	90	1798
Electric-motor-controlling apparatus	J. J. Heilmann	643,649	Feb. 20	1967	468	90	1889
Electric-motor switch	O. F. Shepard, Jr.	641,157	Jan. 9	1948	422 423	90	397
Electric-motor wheel	J. T. Whittlesey	643,854	Feb. 20	2362	555 556	90	1460
Electric motors. Apparatus for control of	W. R. Hamlen	645,089	Mar. 13	987	210	90	1968
Electric motors. Controlling	R. M. Hunter	641,453	Jan. 16	2499	571	90	520
Electric motors. Means for controlling	R. M. Hunter	641,452	Jan. 16	2495	571	90	518
Electric motors. Starting asynchronous and synchronous monophasic	E. Cantono	645,247	Mar. 13	1280	278	90	2024
Electric motors. Starting-box and controller for	F. R. Blake	643,758	Feb. 20	2185	513 514	90	1427
Electric recuperator	M. Hutin and M. Leblanc	644,554	Feb. 27	3650	852	90	1727
Electric switch	J. L. Creveling	646,068	Mar. 27	2810	623	90	2356
Electric switch	N. Marshall	644,745	Mar. 6	326	72, 73	90	1819
Electric switch	W. T. Pringle	643,730	Feb. 20	2137	501	90	1417

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electric switch	I. Robbins	642,159	Jan. 30	3790	863 / 864	90	797
Electric switch. Quick-break	W. F. Bossert and G. L. Holton	641,927	Jan. 23	3359	763	90	696
Electric traction-motor	C. Richter and R. T. Eschler	643,276	Feb. 13	1270	297 / 298	90	1284
Electric traction. Surface-contact stud for	W. Kingsland	643,414	Feb. 13	1508	854	90	1279
Electric transformer	J. W. Packard and H. W. Wiswell	640,314	Jan. 2	302	63	90	61
Electric-wire molding or trough	H. Lee	640,575	Jan. 2	784	172	90	153
Electric wires. Grounding-shoe for	T. H. Stokes	642,169	Jan. 30	3809	867	90	801
Electrical apparatus. Coin-controlled	J. Patterson	640,316	Jan. 2	307	64	90	61
Electrical-circuit earthing device	L. J. Steele	641,161	Jan. 9	1958	434	90	309
Electrical circuits. Automatic gravity cut-out for	W. Hanlon	644,072	Feb. 27	2756	652	90	1553
Electrical circuits. Reducing apparent inductance of	M. Hutin and M. Leblanc	644,555	Feb. 27	3663	852 / 853	90	1727
Electrical-conductor junction-box	E. T. Greenfield	642,521	Jan. 30	4456	1011	90	929
Electrical conductors. Tool for laying conduits for	J. F. Cummings	644,794	Mar. 6	443	96	90	1842
Electrical-connection device	M. Pfatischer	646,009	Mar. 27	2697	597 / 598	90	2335
Electrical connections. Protecting	J. Langton	646,149	Mar. 27	2965	655	90	2387
Electrical connector	J. Langton	646,150	Mar. 27	2966	655	90	2387
Electrical controlling device	H. P. Ball	641,257	Jan. 16	2156	485	90	452
Electrical distribution	J. L. Creveling	644,409	Feb. 27	3400	780	90	1678
Electrical distribution. Series-arc system of	W. B. and L. C. Reed	645,013	Mar. 6	829	179	90	1921
Electrical-distribution system	A. S. Hubbard	640,565	Jan. 2	763	168	90	149
Electrical-distribution system	B. G. Lamme	644,865	Mar. 6	572	128	90	1869
Electrical-distribution system	L. C. Reed	645,009	Mar. 6	815	178	90	1919
Electrical-distribution system	W. B. and L. C. Reed	645,014	Mar. 6	831	180	90	1921
Electrical-distribution system	C. P. Steinmetz	641,908	Jan. 23	3311	752	90	687
Electrical-distribution system	H. P. White	642,859	Feb. 6	504	118	90	1064
Electrical-distribution system	W. B. and L. C. Reed	645,012	Mar. 6	824	179	90	1921
Electrical distribution. System of overhead	J. L. Creveling	644,407	Feb. 27	3397	788	90	1677
Electrical-distribution systems. Automatic regulation of	W. B. and L. C. Reed	645,011	Mar. 6	820	179	90	1920
Electrical distribution. Underground system of	M. I. Pupin	640,515	Jan. 2	675	146	90	133
Electrical energy by alternating currents. Distributing	N. Tesla	645,576	Mar. 20	1867	412	90	2153
Electrical energy. System of transmission of	R. H. Laird	641,976	Jan. 23	3436	781	90	712
Electrical furnace. Downdraft	J. C. Anderson	644,312	Feb. 27	3225	753	90	1644
Electrical helix	J. C. Anderson	644,311	Feb. 27	3224	753	90	1643
Electrical purposes. Winding helices for	E. F. Frost	644,510	Feb. 27	3563	829	90	1710
Electrical reduction	J. F. Bachmann and A. Vogt	642,414	Jan. 30	4291		90	897
Electrical resistances. Manufacture of	J. C. Tournier	645,984	Mar. 27	2642	596	90	2324
Electrical switch	C. Hutchinson	642,697	Feb. 6	236	59	90	1012
Electrical track for receptacles	M. I. Pupin	640,516	Jan. 2	680	146	90	134
Electrical transmission by resonance-circuits	F. Bedell	645,907	Mar. 20	2491	551	90	2277
Electrical-transmission system	E. M. Hewlett	645,664	Mar. 20	2081	457	90	2196
Electrically-operated switch	E. G. Acheson	645,284	Mar. 13	1340	291	90	2087
Electrically treating materials	C. E. O'Keenan	641,140	Jan. 9	1913	424	90	390
Electricity-meter	P. Rissler and H. Bauer	641,607	Jan. 16	2777	632	90	576
Electricity-meter	F. K. Irving	645,261	Mar. 13	1303	283	90	2029
Electrode. Battery-	J. D. Darling	641,276	Jan. 16	2185	492	90	458
Electrolytes. Porous diaphragm for cells employing fused	J. D. Darling	641,438	Jan. 16	2473	567	90	515
Electrolytic apparatus	L. H. A. B. M. Hazard-Flamand	646,281	Mar. 27	3231	719	90	2439
Electrolytic apparatus	W. Barnes	641,820	Jan. 23	3153	716 / 717	90	657
Electrolyzing apparatus	F. D. Pavon	641,538	Jan. 16	2665	608	90	553
Electromagnetic apparatus	B. G. Lamme	644,864	Mar. 6	570	128	90	1868
Electromotive-force regulation	W. Y. Buck	645,786	Mar. 20	2289	498	90	2257
Electroplating	W. Y. Buck	645,785	Mar. 20	2287	498	90	2256
Electroplating. Holder for	W. Y. Buck	640,346	Jan. 2	351	74, 75	90	71
Electrotype or stereotype block	E. L. Wilson	645,296	Mar. 13	1364	296	90	2041
Electrotyper's furnace	B. F. Jackson						
Elevator: See Cotton-elevator. Grain-elevator. Hydraulic elevator. Inclined elevator. Pneumatic elevator. Siphon-elevator.							
Elevator	C. M. Bartholomew and W. F. Leonard.	640,859	Jan. 9	1355	303	90	285
Elevator	J. Fletcher	643,596	Feb. 13	1842	435 / 436	90	1346
Elevator	E. M. Fraser	646,049	Mar. 27	2777	615	90	2350
Elevator	J. D. Griffen	645,951	Mar. 27	2502	574	90	2314
Elevator	C. A. Harkness	646,001	Mar. 27	2678	594	90	2331
Elevator	E. Stoddard and H. G. Richards	641,164	Jan. 9	1965	435 / 436	90	401
Elevator	C. Whittier	641,568	Jan. 16	2715	618 / 619	90	563
Elevator accumulator. Plunger-	G. H. Reynolds	640,589	Jan. 2	813	179	90	159
Elevator-bucket	M. M. Suppes	642,171	Jan. 30	3811	868	90	802
Elevator-controlling apparatus	J. J. Cook	645,891	Mar. 20	2455	542	90	2271
Elevator-door-operating mechanism	F. K. Fassett	642,098	Jan. 30	3657	837	90	769
Elevator gate-operated lock	J. Fletcher	643,508	Feb. 13	1847	436 / 437	90	1347
Elevator hatch-door mechanism	H. C. Richards	641,231	Jan. 9	2111	475	90	430
Elevator safety-catch	I. N. Rogers	644,098	Feb. 27	2802	664	90	1564
Elevator safety device	J. Fletcher	643,597	Feb. 13	1844	436	90	1346
Elevator safety device	J. W. Holmes	642,448	Jan. 30	4347	994	90	908
Elevator safety device	M. M. Hunter	642,332	Jan. 30	4190	962	90	863
Elevator speed-regulator. Hydraulic-	W. W. Doolittle	640,544	Jan. 2	731	161 / 162	90	143
Elevators. Automatic safety device for	G. A. Newell	643,270	Feb. 13	1257	295	90	1231
Ellipsograph	E. Tintanné	646,389	Mar. 27	3322	741	90	2456
Embossing-machine die	F. H. Bancroft	642,995	Feb. 6	178	44	90	1000
Embroidery-frame	C. G. Guyer and G. K. Rudert	644,597	Mar. 6	68	15	90	1768
Embroidery-frame	J. B. Oelkers	641,604	Jan. 16	2771	631	90	575
Embroidery-hoop	B. D. Post	643,069	Feb. 6	879	206	90	1136

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Enameling process	C. H. Waterman	640,844	Jan. 9	1325	297	90	279
Enameling table	C. A. Sievert	645,517	Mar. 13	1766	387	90	2121
Enameling table or machine	E. C. Hoelscher and J. Clifford	645,393	Mar. 13	1539	337	90	2076
End-board lock. Safety	H. A. Steeck	641,415	Jan. 16	2421	553	90	505
End-gate	J. F. Overcash	640,802	Jan. 9	1232	280	90	260
End-gate	O. H. Watkins	645,241	Mar. 13	1269	276	90	2022
End-gate fastener	J. A. Ratcliff	642,628	Feb. 6	111	26	90	987
End-gate rod and fixture. Wagon-	V. E. Simmons and R. L. Williamson	645,896	Mar. 20	2372	520	90	2253
End gate. Wagon-bed	L. L. Haworth	644,135	Feb. 27	2468	679	90	1577
Energy. Distributing	G. Westinghouse	645,612	Mar. 20	1950	430	90	2170
Energy-distributing apparatus	G. Westinghouse	645,613	Mar. 20	1954	430	90	2171
Engine: See Air and gas engine. Air-compressing engine. Carding-engine. Combustion-engine. Compound engine. Dental engine. Direct-acting engine. Explosive-engine. Fluid-pressure engine. Gas-engine. Gasolene-engine. Internal-combustion engine. Locomotive or railway engine. Oil-engine. Oscillating engine. Portable engine. Pumping-engine. Reciprocating engine. Rock-drill engine. Rotary engine. Rotary pressure-engine. Steam-engine. Steam or other elastic-fluid engine. Traction-engine. Vapor or gas engine.							
Engine	N. J. Verret	645,985	Mar. 27	2644	586 / 587	90	2325
Engine and tender draft-rigging	E. C. Washburn	644,381	Feb. 27	3356	778 / 779	90	1668
Engine and tender draft-rigging	E. C. Washburn	644,385	Feb. 27	3359	780	90	1669
Engine cylinder. Gas-	J. W. Lambert	640,667	Jan. 2	958	215	90	186
Engine cylinder. Gas-	J. W. Lambert	640,668	Jan. 2	959	216	90	186
Engine-cylinders. Apparatus for cooling	J. W. Lambert	643,065	Feb. 6	873	204	90	1135
Engine igniter. Explosive-	L. Jones, Jr	645,398	Mar. 13	1554	340	90	2079
Engine igniter. Explosive-	F. J. Macey	643,513	Feb. 13	1699	399	90	1318
Engine igniter. Gas-	C. R. Alsop	640,252	Jan. 2	192	40	90	39
Engine ignition device. Gas-	G. W. Lewis	640,392	Jan. 2	458	95	90	91
Engine ignition device. Gas-	G. W. Lewis	640,395	Jan. 2	468	97	90	92
Engine-lubricating device	C. E. Sargent	644,149	Feb. 27	2880	684	90	1581
Engine lubricator. Gas-	H. F. Probert	642,366	Jan. 30	4240	949	90	880
Engine-reversing mechanism	W. W. Leach	641,023	Jan. 9	1709	377	90	318
Engine-stopping device	J. J. Kaye	641,117	Jan. 9	1861	414	90	381
Engine-stopping system. Steam-	A. J. Purinton and J. R. Reynolds. (Reissue.)	11,804	Jan. 23	3585	820 / 821	90	739
Engine vaporizer. Gas-	H. F. Probert	642,562	Jan. 30	4535	1026 / 1027	90	944
Engines. Automatic cut-off for	J. B. Opsahl	645,122	Mar. 13	1046	223	90	1978
Engines. Drum attachment for traction-	A. L. Adams	640,351	Jan. 2	369	76	90	72
Engines. Electric generator for sparking apparatus of gas-	D. Drawbaugh	643,087	Feb. 6	931	218 / 219	90	1144
Engines. Electric igniter for explosive-	W. J. Perkins and C. H. Blomstrom	643,002	Feb. 6	757	174 / 175	90	1114
Engines. Electric-sparking plug for explosive-	F. R. Simms	642,167	Jan. 30	3806	867	90	801
Engines, electromotors, &c. Apparatus for electrically controlling	W. H. Harfield	646,169	Mar. 27	3008	664 / 665	90	2395
Engines. Hydrocarbon-vaporizer for explosive-	W. Baines	644,027	Feb. 20	2686	636	90	1524
Engines. Steam-actuated dash-pot for	R. H. Rice and J. W. Sargent	642,054	Jan. 23	3575	818	90	738
Engraving-machine	W. S. Eaton	645,795	Mar. 20	2305	502	90	2239
Engraving-machine	J. F. Murphy	642,475	Jan. 30	4390	996	90	917
Engraving-machine diamond-holder. Pantograph-	J. and J. Hope, Jr	646,177	Mar. 27	3021	667	90	2308
Engraving-machine table	N. Dedrick	645,164	Mar. 13	1127	242 / 243	90	1994
Engraving-machine tool-grinder	N. Dedrick	645,165	Mar. 13	1133	243 / 244	90	1995
Envelop	F. P. D'Arcy	642,839	Feb. 6	475	112	90	1059
Envelop	T. W. T. Maxwell	646,186	Mar. 27	3035	670	90	2400
Envelop	E. E. Myers	643,333	Feb. 13	1366	320	90	1252
Envelop	G. H. Randall	640,489	Jan. 2	628	136	90	123
Envelop	E. T. Stuart	643,735	Feb. 20	2144	503	90	1419
Envelop-clip	S. W. Bennett	642,417	Jan. 30	4295	969	90	898
Envelop-machine	E. Ermold	642,900	Feb. 6	589	135	90	1080
Envelop-machine	E. Fischer	642,818	Feb. 6	436	105	90	1050
Envelop or folder. Document	W. D. Bradstreet	645,029	Mar. 6	864	187	90	1928
Envelop. Safety-	M. L. Hinchman	641,291	Jan. 16	2269	498	90	463
Envelops against surreptitious opening. Method of and means for protecting	W. P. Horton, Jr	643,376	Feb. 13	1433	334	90	1266
Evaporating apparatus	W. Mather	642,620	Feb. 6	94	22, 23	90	984
Evaporating apparatus	J. Mecredy	644,529	Feb. 27	3005	840	90	1717
Evaporating-pan	F. E. Hayes	642,325	Jan. 30	4103	931	90	860
Evaporator	W. D. Baker	640,733	Jan. 9	1100	252	90	233
Evaporator	A. P. Merrill	645,531	Mar. 13	1783	391 / 392	90	2123
Evaporator. Fruit-	J. H. Holland	642,693	Feb. 6	228	56, 57	90	1011
Excavating and elevating gravel. Apparatus for	L. E. Miller	642,048	Jan. 23	3565	816	90	736
Excavating apparatus	J. and W. Titus	642,175	Jan. 30	3817	869 / 870	90	803
Excavating-machine	J. H. W. Libbe	645,175	Mar. 13	1154	249 / 250	90	1999
Excavator and ditcher	E. M. Zahl	643,857	Feb. 20	2369	556 / 557	90	1461
Excavator. Self-loading	J. W. Weaver	645,443	Mar. 13	1684	357 / 358	90	2095

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Exercising-machine	E. J. Kerns	641,519	Jan. 16	2632	600	90	547
Exhibiting apparatus. Card-	P. J. Dowling	642,306	Jan. 30	4058	924 925	90	850
Explosive	E. Callenberg	644,403	Feb. 27	3389		90	1675
Explosive-engine	J. F. Craig	644,004	Feb. 20	2646	625 626	90	1518
Explosive-engine	J. F. Duryea	646,390	Mar. 27	3491	778	90	2498
Explosive-engine	G. W. Lewis	640,674	Jan. 2	979	221 222	90	189
Explosive-engine	G. W. Lewis	640,675	Jan. 2	982	222 223	90	190
Explosive-engine	T. Malcolmson	642,143	Jan. 30	3761	858	90	791
Explosive-engine	J. A. Secor	640,711	Jan. 2	1052	240	90	203
Explosive-engine	C. Sintz	646,322	Mar. 27	3309	738 739	90	2458
Explosive-engine	G. A. Tuerk	641,659	Jan. 16	2869	654	90	594
Extensible and adjustable bracket	R. H. Beck	644,758	Mar. 6	360	78	90	1825
Extension-handle for culinary articles	P. Fromholz	643,492	Feb. 13	1659	391	90	1311
Extension-table	C. A. Curl and J. D. McAplis	640,635	Jan. 2	904	205	90	176
Extract-making apparatus	E. Schliemann and E. von Boyen	644,872	Mar. 6	588	126	90	1871
Extracting-press	J. F. Bussells	643,891	Feb. 20	2429	572	90	1474
Extractor: *See* Cork-extractor. Tree-extractor. Cotton-extractor.							
Eye. Mechanical illustrator of the	H. A. Heath	642,326	Jan. 30	4106	931	90	861
Eyeglasses	G. A. Griffin	642,744	Feb. 6	321	78	90	1029
Eyeglasses	F. M. Thompson	645,339	Mar. 13	1439	317	90	2056
Eyeglasses, &c. Holder for	E. P. Tirrell	641,053	Jan. 9	1751	389	90	358
Eyelet	L. A. Roberts	645,493	Mar. 13	1718	376	90	2111
Eyeleting-machine	L. C. Emerson	644,797	Mar. 6	447	97	90	1843
Eyeleting-machine	L. C. Emerson	645,048	Mar. 6	894	194 195	90	1935
Fabric: *See* Knitted fabric. Wire fabric. Plush fabric. Woven fabric.							
Fabric clasp. Flexible	F. C. Larimer	642,236	Jan. 30	3939	897	90	826
Fabrics. Composition for treating textile	C. Green	644,670	Mar. 6	211		90	1795
Fabrics. Producing ornamental	M. H. Frank	644,904	Mar. 6	641	139	90	1882
Fan. Cradle-motor	L. G. Rogers, A. C. Bruce, J. C. Roberts, and F. A. Russell.	640,703	Jan. 2	1038	236	90	200
Fan support and spreader	J. H. Rivers	644,463	Feb. 27	3484	809	90	1695
Fan. Ventilating	H. Klein	646,062	Mar. 27	2992	695	90	2332
Fans. Hanger for electric ceiling	W. H. Ayers and E. Groth	645,057	Mar. 13	917	197	90	1954
Fanning-mill	P. Poyneer	640,588	Jan. 2	812	179	90	159
Fanning-mill	E. Roussé	642,006	Jan. 23	3490	797 798	90	722
Fare-register	J. G. Miller	643,879	Feb. 20	2404	565 566 567	90	1468
Fare-register	A. E. Nielsen	643,883	Feb. 20	2412	568 569	90	1470
Fare-register-operating device	A. E. Nielsen	643,884	Feb. 20	2430	569	90	1472
Fare-register-operating mechanism	J. F. Ohmer	640,800	Jan. 9	1228	278	90	259
Farm-gate	W. H. Kemper	640,774	Jan. 9	1177	269	90	249
Fastener-setting-machine gage attachment	G. W. Brown	645,038	Mar. 27	2551	566	90	2306
Fastening for paper or other articles	H. Denis	643,045	Feb. 6	831	193	90	1128
Faucet	R. F. Lindsey	641,306	Jan. 16	2238	507	90	470
Faucet	G. O. Miller	641,601	Jan. 16	2768	630	90	574
Faucet	A. Sundh	645,763	Mar. 20	2243	486	90	2227
Faucet. Beer-	L. E. Mitchell and A. D. McKinnon	646,056	Mar. 27	2787	618	90	2352
Faucet for liquefied gas. Measuring-	W. F. Fritz	643,406	Feb. 13	1496	350	90	1276
Faucet. Measuring-	D. B. Jackson	645,101	Mar. 13	1009	216	90	1972
Faucet. Measuring-	A. Sundh	645,762	Mar. 20	2242	485	90	2227
Feathers, &c. Apparatus for curling	L. Blumenthal	643,861	Feb. 20	2375	558 559	90	1463
Feathers into tubes. Apparatus for compacting	C. T. Thompson	640,602	Jan. 2	896	186 187	90	163
Feathers into tubes. Apparatus for compacting	C. T. Thompson	640,719	Jan. 2	1070	244 245	90	207
Feed-mill	J. O. Ensberg	643,637	Feb. 20	1966	462	90	1385
Feed stop mechanism	H. E. Harbaugh	643,599	Feb. 13	1849	437	90	1347
Feed-water filter for steam-boilers	H. B. and J. S. Watson. (Reissue)	11,805	Jan. 23	3587	821 822	90	740
Feed-water heater	S. P. Bush	642,783	Feb. 6	373	90	90	1039
Feed-water heater	L. C. Lanphear	640,475	Jan. 2	907	190	90	119
Feed-water heater	C. D. Mosher	641,318	Jan. 16	2258	512	90	473
Feed-water heater	C. A. Nelson	642,802	Feb. 6	402	97	90	1043
Feed-water heater and filter	M. Leitch	642,910	Feb. 6	607	139	90	1084
Feed-water regulator	T. E. Bishop, H. R. Whitney, and J. Sloniker.	645,925	Mar. 20	2524	558	90	2283
Feed-water regulator	A. R. Shattuck	644,688	Mar. 6	243	54	90	1802
Feed-water regulator	A. R. Shattuck	644,689	Mar. 6	245	54, 55	90	1802
Feeder. Automatic	J. P. Wehrer	642,184	Jan. 30	3833	872 873	90	805
Feeder. Automatic mill-	J. P. Wehrer	642,185	Jan. 30	3839	873 874	90	807
Feeder. Automatic stock-	D. A. Askew	641,920	Jan. 23	3346	760	90	*98
Feeder. Boiler-compound	L. E. Jones	640,306	Jan. 2	290	60	90	58
Feeder. Calf-	I. H. Hall, Jr	643,287	Feb. 13	1298	303	90	1287
Feeder for steam-boilers. Automatic	E. J. Strong	646,093	Mar. 27	2834	629	90	2362
Feeder. Steam-boiler	T. G. Whitney	640,434	Jan. 2	543	113	90	106
Feeding and weighing mechanism. Automatic	P. C. Waring	641,172	Jan. 9	1978	438 439	90	404
Feeding device. Automatic boiler-	J. H. Bullard	641,832	Jan. 23	3181	722 723	90	662
Feeding device. Automatic boiler	J. H. Bullard	641,833	Jan. 23	3184	723	90	662
Feeding device. Boiler-	F. J. Weiss	640,602	Mar. 27	2795	619	90	2354

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Feeding device for boilers. Safety	F. J. Weiss	646,061	Mar. 27	2703	619	90	2354
Feeding device. Poultry-	W. B. Smith	640,730	Jan. 2	1088	248	90	210
Fence	L. S. Morgan	643,332	Feb. 13	1364	319 320	90	1252
Fence	E. L. Sill	642,011	Jan. 23	3508	801	90	725
Fence-joint	J. T. Ward	640,843	Jan. 9	1324	297	90	279
Fence-machine	L. P. Brown	644,495	Feb. 27	3533	821	90	1704
Fence-machine	A. J. Kauffman	640,772	Jan. 9	1173	268	90	248
Fence-machine	J. Lane	643,903	Feb. 20	2456	577 578	90	1478
Fence machine. Slat-and-wire-	J. Mihlbachler	644,021	Feb. 20	2676	633	90	1529
Fence machine. Wire-	H. S. Heatwole	644,011	Feb. 20	2659	629	90	1520
Fence machine. Wire-	J. and J. G. Nixon	643,776	Feb. 20	2215	523 539	90	1433
Fence machine. Wire-	M. D. Taylor	646,112	Mar. 27	2983	640 641	90	2371
Fence machine. Wire-	J. K. Thoma	643,919	Feb. 20	2495	587	90	1488
Fence machine. Wire-	S. Watson	641,349	Jan. 16	2310	525	90	483
Fence. Picket	L. Trahue	643,310	Feb. 13	1325	312	90	1244
Fence-picket fastener	S. J. Rea	642,053	Jan. 23	3574	818	90	737
Fence, Portable	J. C. Alexander	644,564	Mar. 6	8	2	90	1756
Fence, Portable	W. M. Hill	643,058	Feb. 6	863	201	90	1133
Fence-post	W. L. Finley	642,595	Feb. 6	58	14	90	977
Fence-post	R. C. Glassco	643,870	Feb. 20	2393	562 563	90	1466
Fence-post	J. H. Green	642,109	Jan. 30	3675	842	90	773
Fence-post	J. D. Paldi	645,372	Mar. 13	1594	330	90	2069
Fence-post	R. R. Spoore and J. M. Raub	640,235	Jan. 2	150	31	90	31
Fence-post	H. H. Welker	642,040	Feb. 6	659	151	90	1094
Fence-post anchor	E. C. Mathews	642,470	Jan. 30	4385	995	90	916
Fence-weaving implement	C. A. Taylor	640,240	Jan. 2	162	33	90	34
Fence. Wire	J. E. Head	640,907	Jan. 9	1448	324	90	302
Fence-wire-fastening device	O. D. Woodbury	642,944	Feb. 6	664	152	90	1094
Fence-wire. Machine for making	F. W., A. G., and E. A. Hoefer	641,628	Jan. 16	2818	640 641 642	90	584
Fences. Machine for weaving cross-wires in	T. F. Carpenter	643,109	Feb. 13	976	228	90	1175
Fences. Tool for attaching stays to wire	W. H. Johnson and S. D. Fry	640,307	Jan. 2	292	60	90	59
Fencing machine. Wire-	G. Schultz	640,329	Jan. 2	329	68	90	66
Fencing. Wire	A. W. Sprague	641,413	Jan. 16	2418	552	90	505
Fender: *See* Automobile-fender. Plow-fender. Car-fender. Stirrup-fender.							
Fender	J. R. Reece	640,700	Jan. 2	1035	235	90	200
Fertilizer-drier	J. F. Bussells	640,628	Jan. 2	892	202 203	90	173
Fertilizing material. Press for	W. E. Overton	643,001	Feb. 6	755	174	90	1114
Fiber-drawing machines. Weight-lifting device for railway-heads or other	A. W. Mathewson	640,786	Jan. 9	1197	273	90	252
Fiber. Machine for splitting raw or crushed	F. Szymanski	641,167	Jan. 9	1977	437	90	402
Fibers, &c., to imitate silk. Treating	E. Ungnad	643,923	Feb. 20	2501		90	1489
Fibrous materials for spinning. Machinery for preparing	J. Good	644,420	Feb. 27	3415	793	90	1681
Fifth-wheel	A. E. Abbott	645,776	Mar. 20	2276	495	90	2234
Fifth-wheel	F. E. Wilcox	644,651	Mar. 6	175	38	90	1789
File-holder	R. Bankmann	642,065	Jan. 30	3598	825	90	756
File. Letter-	H. S. Culver	646,360	Mar. 27	3423	768	90	2481
File. Letter-	C. H. Wiley	642,190	Jan. 30	3851	875	90	809
File. Letter-	C. H. Wiley	644,345	Feb. 27	3295	766	90	1656
File. Newspaper-	J. Ahrends	645,380	Mar. 13	1516	333	90	2072
File. Newspaper-	F. C. Blaisdell	646,259	Mar. 27	3192	704	90	2431
File. Newspaper-	B. R. Green	645,096	Mar. 13	982	209	90	1967
File. Paper-	F. D. Weber	642,027	Jan. 23	3536	810	90	730
Filing-box cabinet	R. W. Pope	646,191	Mar. 27	3048	672	90	2404
Filing case. Card-	F. W. Tobey	646,330	Mar. 27	3325	742	90	2457
Filling-can	W. L. Clayton and N. R. Persinger	641,079	Jan. 9	1799	400	90	367
Filling-machine	J. and D. Baxter	640,987	Jan. 9	1627	359	90	335
Filter	G. L. Cummings	645,892	Mar. 20	2456	542	90	2271
Filter	C. F. Hoyt	640,288	Jan. 2	269	54	90	54
Filter	F. G. Kammerer	643,411	Feb. 13	1503	352 353	90	1278
Filter	J. D. King	640,665	Jan. 2	956	215	90	185
Filter	J. J. Mayer	640,579	Jan. 2	791	174 175	90	154
Filter	C. I. Simpson	645,288	Mar. 13	1266	275	90	2021
Filter	C. F. Vogler	640,721	Jan. 2	1074	245	90	208
Filter	G. W. Woodworth	643,181	Feb. 13	1103	256	90	1202
Filter	J. F. Ziegler	645,500	Mar. 13	1731	379	90	2114
Filter and settling-tank. Rain-water	T. Almquist	644,047	Feb. 27	2718	643	90	1545
Filter. Electric water-	W. L. Teter and J. A. Heany	640,335	Jan. 2	336	70	90	67
Filter for purifying sewage, &c	W. M. Ducat	641,197	Jan. 9	2087	455 456	90	414
Filter. Open gravity-	H. Morton	644,531	Feb. 27	3609	840	90	1718
Filter-press	W. E. Bradley	644,124	Feb. 27	2845	673 674	90	1572
Filter-press	G. Hottinger	643,900	Feb. 20	2447	576	90	1477
Filter-press	J. Wilson	643,022	Feb. 6	797	185	90	1121
Filter-strainer	O. H. Jewell	643,138	Feb. 13	1028	239	90	1187
Filter. Submerged	D. J. Bliss	643,463	Feb. 13	1502	376	90	1297
Filter. Water-	D. J. Bliss	643,462	Feb. 13	1501	375	90	1297
Filter. Water-	O. B. Hoey	642,907	Feb. 6	601	138	90	1083
Filter. Water-	O. E. Nickey	644,537	Feb. 27	3623	843	90	1720
Filter. Water-	A. G. Sheak	640,421	Jan. 2	518	108	90	108
Filtering material	J. R. Reid	644,637	Mar. 6	134		90	1780
Filtering materials. Washing apparatus for	F. Sochurek, Sr	643,337	Feb. 13	1372	321 322	90	1254

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Filtering, under pressure, water, &c. Fountain for	C. Prevet	643,681	Feb. 20	2635	481	90	1309
Finger-ring and attachment therefor	M. E. Halfmann	643,053	Feb. 6	857	199	90	1132
Fire-alarm apparatus	A. F. Doddridge	645,588	Mar. 20	1909	420	90	2162
Fire-alarm. Automatic	C. Law	645,599	Mar. 20	1926	425	90	2165
Fire-alarm box	H. F. Blackwell, Jr.	641,924	Jan. 23	3354	702	90	695
Fire-alarm. Pyroxylin automatic electric	J. de Froment	643,491	Feb. 13	1658	391	90	1311
Fire-alarm signaling apparatus	L. Campbell	640,872	Jan. 9	1377	309	90	299
	L. Campbell	640,873	Jan. 9	1381	309 310	90	299
Fire-alarm system and apparatus	M. Garl	641,950	Jan. 23	3390	772 773	90	705
Fire-alarm system. Electric	J. A. Bennett	643,935	Feb. 20	2517	502	90	1492
Firearm	M. G. E. E. Maturié	642,350	Jan. 30	4165	942 943	90	872
Firearm. Breech-loading	B. Burton	640,627	Jan. 2	888	202	90	172
Firearm. Magazine	M. Bye	644,402	Feb. 27	3388	787	90	1675
Firearm mainspring attachment	J. J. Greenough	645,292	Mar. 13	1960	395	90	2040
Firearm. Rapid-fire breech-loading	C. H. A. F. L. Ross	643,983	Feb. 20	2506	613 614	90	1509
Firearm. Recoil-operated	H. M. Caldwell	644,660	Mar. 6	192	42	90	1792
Firearm safety-lock	A. Fyrberg	642,988	Feb. 6	220	55	90	1010
Firearm safety-lock mechanism	G. Durrenberger	644,584	Mar. 6	38	9	90	1762
Firearm-sight	A. Weed	642,858	Feb. 6	502	118	90	1064
Firearm-sight	M. Bye	644,040	Feb. 20	2704	640	90	1528
Firearms. Ejector mechanism for breakdown	J. W. Conchar	642,679	Feb. 6	203	51	90	1006
Fireback	G. Lispenard	645,688	Mar. 20	2089	459	90	2198
Fire-cracker body	B. W. Ahne	641,664	Jan. 23	2881	657	90	607
Fire-escape	F. H. Arnesen	640,437	Jan. 2	548	115	90	108
Fire-escape	J. F. Bates	642,770	Feb. 6	368	80	90	1048
Fire-escape	W. Bondy	644,123	Feb. 27	2844	673	90	1572
Fire-escape	E. M. Christ and W. I. Haldeman	644,404	Feb. 27	3389	787	90	1675
Fire-escape	W. J. Dermody	644,504	Feb. 27	3547	826	90	1707
Fire-escape	I. L. Gleason	644,418	Feb. 27	3413	793	90	1690
Fire-escape	P. Grittinger	645,561	Mar. 20	1834	404	90	2147
Fire-escape	A. Holden	641,512	Jan. 16	2619	595	90	544
	O. Knight	641,121	Jan. 9	1868	415 416	90	382
Fire-escape	M. A. Koenig	641,705	Jan. 23	2941	671	90	618
Fire-escape	O. W. Leach	640,780	Jan. 9	1189	271	90	250
Fire-escape	A. P. O'Brien	641,466	Jan. 16	2524	578	90	525
Fire-escape	C. H. Shields and A. Shaw	645,631	Mar. 20	1900	437	90	2178
Fire-escape	H. Sperling	645,982	Mar. 27	2639	584	90	2323
Fire-escape	P. C. Thirlon	644,205	Feb. 27	3112	732	90	1623
Fire-escape	H. C. Tillottson	641,869	Jan. 23	3137	712	90	654
Fire-escape	F. Vaughan	642,392	Jan. 30	4247	959	90	889
Fire-escape	S. W. Walker and E. B. Horner	643,575	Feb. 13	1801	426	90	1387
Fire-escape	M. J. J. Wingert	645,677	Mar. 20	2069	454	90	2194
Fire-escape	E. P. Felker	643,286	Feb. 13	1286	303	90	1237
Fire-escape device	H. K. Whitner	642,889	Feb. 6	569	131	90	1077
Fire-escape. Friction	T. F. Krueger	646,201	Mar. 27	3249	721	90	2441
Fire-escape ladder	V. P. Travers	641,741	Jan. 23	3022	689	90	631
Fire-escape ladder	J. W. Fall	640,645	Jan. 2	922	208 209	90	179
Fire-escape ladder and water-tower	E. C. Akers	643,858	Feb. 20	2371	557	90	1462
Fire-escape. Portable	M. E. Ogden	643,252	Feb. 13	1225	287	90	1225
Fire-extinguisher	W. F. Prier	641,796	Jan. 23	3115	708	90	649
Fire-extinguisher attachment. Chemical	E. L. Blanchard	643,036	Feb. 6	816	190	90	1124
Fire-kindler	L. Matthias	645,480	Mar. 13	1694	370	90	2107
Fire-kindler	M. Shelley	642,266	Jan. 30	3995	909	90	898
Fire-lighter	W. C. Vajen	645,281	Mar. 13	1825	390	90	2086
Fireman's helmet	W. C. Vajen	645,408	Mar. 13	1575	344	90	2064
Fireman's helmet	W. H. Cornell	641,375	Jan. 16	2953	538	90	492
Fireman's life-saving appliance	W. Bader	645,296	Mar. 13	1345	292	90	2037
Fireman's mask	R. von Walcher-Uysdal and G. Gaertner	642,057	Jan. 21	3579	819	90	738
Fireman's respirator	J. M. Baker	645,027	Mar. 6	861	187	90	1928
Firemen's hose. Play-pipe for	L. C. Andre	641,918	Jan. 23	3343	760	90	693
Fireplace	E. D. Bond	641,575	Jan. 16	2728	622	90	566
Fireplace	H. W. Hathaway	644,821	Mar. 6	493		90	1852
Fireproof composition for building purposes	H. Constable	642,208	Jan. 30	3889	895	90	816
Fireproof construction	A. L. A. Himmelwright	644,912	Mar. 6	652	141	90	1884
Fireproof construction	A. L. A. Himmelwright	644,913	Mar. 6	654	141	90	1885
Fireproof construction	A. L. A. Himmelwright	644,914	Mar. 6	657	141	90	1885
Fireproof construction	A. L. A. Himmelwright	642,136	Jan. 30	3741	855	90	786
Fireproof construction	J. H. Laing	644,939	Mar. 6	692	151	90	1893
Fireproof construction	W. Orr	644,940	Mar. 6	691	151 152	90	1893
Fireproof construction	W. Orr	644,941	Mar. 6	699	152	90	1894
Fireproof construction	W. Orr	644,942	Mar. 6	704	152	90	1895
Fireproof door	W. Orr	640,811	Jan. 9	1245	282	90	268
Fireproof floor	J. S. Reynolds	642,614	Feb. 6	86	20	90	983
Fireproof floor	G. Knoche	641,323	Jan. 16	2269	514	90	475
Fireproof floor	J. W. Rapp	642,700	Feb. 6	241	60	90	1013
Fireproof floor and ceiling	G. Liebau	641,067	Jan. 9	1781	395	90	963
Fireproof partition	A. W. Blazo	645,035	Mar. 6	876		90	1931
Fireproof pulpboard. Making	F. E. Keyes	641,801	Jan. 23	3123		90	651
Fireproofing compound and making same	C. Schroeter	646,101	Mar. 27	2961	635	90	2367
Fireproofing wood	H. V. Simpson	643,618	Feb. 20	1888	445 446	90	1371
Firing apparatus	E. B. Babbitt	645,862	Mar. 20	2413	529 530	90	2262
Fish-cutting machine	J. M. K. Letson and F. W. Burpee	640,429	Jan. 2	535	111	90	105
Fish-fibering machine	J. A. Stoddart	644,960	Mar. 6	733	159	90	1902
Fish-hook or animal-trap	D. W. Anderson	644,489	Feb. 27	3525	819	90	1702
Fish-hook. Spring-actuated	D. W. Anderson	644,398	Feb. 27	3361	780	90	1670
Fish-trap	J. W. Watts	641,857	Jan. 23	3239	735	90	672
Fish trap-hook	M. Greer						

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fish trap-net	T. Redding	644,459	Feb. 27	3480	808	90	1694
Fishing-reel	W. Trabue	646,085	Mar. 27	2836	629 630	90	2362
Fishing-reel	W. Trabue and B. Howe	641,906	Jan. 23	3316	753 754	90	688
Fishing-rod reel	T. Ross	643,538	Feb. 13	1736	410	90	1325
Flagstaff	G. R. Clifford	643,945	Feb. 20	2538	507	90	1496
Flail	S. R. Divine	643,186	Feb. 13	1113	259	90	1208
Flanging-machine	J. S. Worth	645,843	Mar. 20	2383	522 523 524	90	2256
Flask: *See* Pipe-mold flask.							
Flexible pipe	L. B. Benton	644,039	Feb. 20	2702	640	90	1528
Flood-gate	T. L. Davidson	643,044	Feb. 6	880	192	90	1127
Floor-cloth. Machine for cutting tesseræ for	E. Batten	646,346	Mar. 27	3354	750	90	2462
Floor-covering. Producing material for	A. Mayke and F. Langheinrich	644,827	Mar. 6	507		90	1855
Floor or window cleaner	F. W. Richter	643,007	Feb. 6	768	176 177	90	1116
Floors. False work for centering concrete or other	J. L. Lechner	644,986	Mar. 6	775	168	90	1911
Floors, roofs, &c. Composition for making	C. W. Kane	645,033	Mar. 6	874		90	1931
Flooring. Veneered	S. Hedges	641,601	Jan. 16	2768	630	90	547
Flour-bolt	W. L. Burner	645,454	Mar. 13	1652	361	90	2008
Flour-bolt	J. A. McAnulty	641,986	Jan. 23	3456	787 788	90	716
Flour-bolt-brush operating mechanism	W. L. Burner	645,455	Mar. 13	1653	361	90	2008
Flour-bolters. Cloth-cleaner for gyratory	J. W. Wilson	644,484	Feb. 27	3516	817	90	1701
Flower-holder	A. Heydrich	642,228	Jan. 30	4110	932	90	861
Flower or plant. Artificial	A. A. Richter	644,724	Mar. 6	298	65	90	1813
Flower-pot holder	V. I. Merton	644,993	Mar. 6	787	172	90	1913
Flue or pipe coupling	M. Cummins	641,580	Jan. 16	2737	624	90	568
Flue or stovepipe cleaner	A. A. Fradenburg	640,190	Jan. 2	59	12	90	13
Fluid-actuated motor for actuating fluid	T. O. Perry	641,405	Jan. 16	2398	549	90	501
Fluid-compressor	J. B. Sample	640,324	Jan. 2	321	67	90	64
Fluid-interchanging device	H. Szamatolski	646,378	Mar. 27	3456	769	90	2487
Fluid-pressure brake	M. W. Hibbard	644,356	Feb. 27	3311	769	90	1659
Fluid-pressure engine	A. H. Crockford	643,474	Feb. 13	1625	383 384	90	1304
Fluid-pressure engine	H. B. Goodhart	646,024	Mar. 27	2729	645 620	90	2340
Fluid-pressure regulator	R. N. Baylis	646,064	Mar. 27	2800	621	90	2355
Fluid-pressure regulator	S. E. Crawford	644,406	Feb. 27	3393	788	90	1676
Fluids. Appliance for separating and dissipating froth from	W. D. Burkett	642,420	Jan. 30	4301	970	90	899
Fluoroform. Making	F. Valentiner	643,835	Feb. 20	2318	546	90	1452
Flush-tank valve mechanism	W. H. Schulte	642,165	Jan. 30	3802	866	90	800
Flushing apparatus. Intermittent automatic siphonic	H. F. Standing and C. F. Dixon	641,160	Jan. 9	1957	434	90	399
Flushing-valve. Hydraulic	W. E. Hinsdale	645,622	Mar. 20	1970	434	90	2174
Flux-feeding device	C. W. Sleeper	642,581	Feb. 6	644	147	90	1091
Fly-escape	V. D. Muzzy	646,006	Mar. 27	2455	634	90	2366
Fly-exit for screens	H. N. Sheek	643,335	Feb. 13	1369	321	90	1253
Fly-killer	R. R. Montgomery	640,790	Jan. 9	1205	274	90	253
Fly-screen trap attachment	M. E. Moyer	640,685	Jan. 2	1011	230	90	195
Fly-trap	C. E. Varnum	645,880	Mar. 20	2438	536 537	90	2267
Fly-trap house. Cattle	B. M. White and W. L. Covington	642,399	Jan. 30	4258	902	90	891
Fodder-binder	J. T. Atkin	643,391	Feb. 13	1469	344	90	1271
Fodder-cutter	J. Dick	641,766	Jan. 23	3067	697	90	640
Fodder or ensilage cutters. Pneumatic conveyer for	L. S. Bedford	640,861	Jan. 9	1358	304	90	246
Folder	G. P. Fenner	646,273	Mar. 27	3218	715 716	90	2436
Folding box	H. L. Hildreth	642,121	Jan. 30	3704	847	90	779
Folding box	H. Schnackenberg	640,818	Jan. 9	1259	285	90	265
Folding box	Z. B. Webb	642,182	Jan. 30	3829	871 872	90	805
Folding box	Z. B. Webb	642,183	Jan. 30	3831	872	90	806
Folding gate	J. Bode	641,262	Jan. 16	2163	487	90	454
Folding-machine	W. Downing and F. H. Wendt	641,000	Jan. 9	1661	369	90	340
Folding-machine	O. Landry	645,173	Mar. 13	1150	247 248 249	90	1999
Folding-machine	J. K. P. Pine	645,871	Mar. 20	2427	533 534	90	2265
Folding seat	C. H. Woodruff	641,061	Jan. 9	1764	392	90	380
Folding table	D. W. Lloyd	643,511	Feb. 13	1697	398	90	1317
Folding table. Adjustable	H. Mehserle	646,152	Mar. 27	2970	656	90	2388
Follower	H. F. Browne	640,869	Jan. 9	1370	307 308	90	288
Foods. Conting	W. Lanwer and E. Rüpling	643,359	Feb. 13	1409		90	1261
Foot. Extension	J. H. Philbrook	642,714	Feb. 6	268	66	90	1020
Foot-power	Z. McCune	645,924	Mar. 13	1409	309	90	2050
Foot warmer and rest	C. Clarke	641,760	Jan. 23	3056	694	90	637
Force-cam	E. E. Ertsman	644,131	Feb. 27	2893	678	90	1576
Force into its rectangular components. Device for resolving	W. C. Rafferty	641,467	Jan. 16	2526	578	90	526
Forceps. Umbilical	E. V. Acheson	640,517	Jan. 2	684	147	90	134
Forge. Blacksmith's	G. Soner	642,271	Jan. 30	4002	911	90	839
Forging machine. Axle	C. Mercader	641,599	Jan. 16	2766	630	90	573
Fork: *See* Hay-fork. Stable-fork.							
Form. Garment	E. M. Schrader	643,543	Feb. 13	1746	412	90	1326
Fountain: *See* Watering-fountain.							
Fracture apparatus	C. Boegle	645,908	Mar. 20	2494	551	90	2278

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Frame: *See* Embroidery-frame.	E. E. Squires	643,552	Feb. 13	1763	415	90	1329
Framing-joint	C. Campbell	645,163	Mar. 13	1126	242	90	1994
Friction-drum	J. F. McElroy	644,441	Feb. 27	3451	801	90	1689
Friction-roller	J. F. McElroy	644,442	Feb. 27	3452	802	90	1689
Friction-roller	J. F. McElroy	644,443	Feb. 27	3453	802	90	1689
Friction-roller	W. L. Hawley	641,205	Jan. 9	2063	469	90	417
Friction-roller	F. Moss	643,392	Feb. 13	1413	330	90	1262
Fruit-box. Ventilated	T. F. Parsons	640,936	Jan. 9	1511	338	90	813
Fruit butter. Apparatus for making	E. Thompson	642,177	Jan. 30	3822	870	90	804
Fruit-drier	O. A. Norlund	640,485	Jan 2	622	135	90	122
Fruit-drier	C. W. Taylor	645,923	Mar. 20	2520	557	90	2282
Fruit-gatherer	J. Blonde	643,106	Feb. 13	969	227	90	1174
Fruit-juices. Device for extracting	J. H. Rollins	642,370	Jan. 30	4206	949 950	90	881
Fruit or vegetable cutter	C. E. Gibbs	644,168	Feb. 27	2931	693	90	1588
Fruit or vegetable protector	G. Von Alma	642,541	Jan. 30	4493	1018	90	935
Fruit-picker	J. W. Brown, Jr	641,931	Jan. 23	3366	764 765	90	697
Fruit-picker	D. Rushworth	644,829	Mar. 6	510	109 110	90	1855
Fruit-seeder	J. M. W. Kitchen	643,769	Feb. 20	2206	521	90	1431
Fuel-economizer	M. D. Pollock	643,003	Feb. 6	760	175	90	1115
Fumigator	J. Derbohlaw	646,265	Mar. 27	3200	706 707	90	2433
Funis-clamp							
Fur-cutting machine							
Furnace: *See* Annealing-furnace. Boiler-furnace. Brick-kiln furnace. Crucible-furnace. Cupola-furnace. Desulfurizing-furnace. Drying and roasting furnace. Electric furnace. Electrical furnace. Electrotyper's furnace. Garbage-furnace. Gas-furnace. Heating-furnace. Hot-air furnace. Metallurgical furnace. Ore roasting and desulfurizing furnace. Ore roasting and reducing furnace. Quicksilver-furnace. Reverberatory furnace. Smoke-consuming furnace. Smoke-consuming and fuel-economizing furnace. Steam-furnace.							
Furnace	F. A. Daley	644,664	Mar. 6	200	43,44	90	1793
Furnace	J. B. Howard	642,694	Feb. 6	230	57	90	1012
Furnace	W. C. Johnson	645,319	Mar. 13	1397	307	90	2047
Furnace	G. S. Lee	641,873	Jan. 23	3292	741	90	676
Furnace	R. Ruetschi	642,260	Jan. 30	3976	906	90	883
Furnace	J. W. Rumpf	640,228	Jan. 2	136	27, 28	90	28
Furnace	H. H. Thoele and C. W. H. Moeller	643,697	Feb. 20	2069	488	90	1405
Furnace	R. M. Campbell and A. H. Schofield	641,497	Jan. 16	2579	588	90	535
Furnace-doors. Operating	A. J. A. Berthelier	643,458	Feb. 13	1587	373 374	90	1296
Furnace-feeding device	R. S. Mayer	645,921	Mar. 20	2517	556	90	2282
Furnace for baking enamels, glassware, and porcelain.	J. W. Rumpf	641,236	Jan. 9	2120	477	90	432
Furnace-grate	C. W. Nason and C. Yingling	644,365	Feb. 27	3325	772	90	1662
Furnace-grate	J. D. James	643,507	Feb. 13	1092	397	90	1316
Furnace-grate. Rocking	C. L. Ridgway	642,055	Jan. 23	3577	819	90	798
Furnace grate. Zinc-	W. Neuhs	640,796	Jan. 9	1213	276	90	255
Furnace or the like for burning gas	H. B. Meech	641,361	Jan. 16	2515	575	90	523
Furnace smoke-preventing device	W. N. Decker	641,678	Jan. 23	2800	661	90	610
Furnaces. Apparatus for utilizing waste gases and fumes from	T. R. Browne	646,352	Mar. 27	3861	751	90	2463
Furnaces. Combined smoke and gas consumer and fuel-feeder for	W. E. Payne and F. L. Joubert	643,153	Feb. 13	1051	244	90	1191
Furnaces. Mechanism for throwing sprays of oil into	H. S. Bowler	645,063	Mar. 13	926	199	90	1956
Furnaces. Revoluble grate for bagasse-	B. R. Blaisdell	643,588	Feb. 13	1830	432 433	90	1343
Furnaces. Smoke-consumer for steam-boiler	A. Hamelehle	641,694	Jan. 23	2921	666	90	615
Furniture	W. Orr	644,898	Mar. 6	690	151	90	1893
Furniture-clamp	D. E. White	642,273	Jan. 30	4003	911	90	839
Furring-rod holder	J. A. Fuszner	645,849	Mar. 20	2393	525	90	2258
Furrow-opening machine	H. P. Davis	644,850	Mar. 6	544	118	90	1862
Fuse. Blasting-	J. B. Hubbard and C. J. Dorsey	644,357	Feb. 27	3314	769	90	1660
Fuse-block	L. W. Downes	640,371	Jan. 2	418	87	90	82
Fuse cut-out. Multiple-							
Fuse or cut-out. Electric							
Gage: *See* Adjustable limit-gage. Axle-setting gage. Boiler-gage. Center-gage. Illuminated gage. Micrometer-gage. Pressure-gage. Roofing-gage. Surface-gage. Track-gage.							
Gage	W. E. Jones	645,104	Mar. 13	1014	217	90	1975
Galvanic element. Dry	W. Bötz	645,547	Mar. 20	1813	398	90	2143
Galvanizing apparatus	E. I. Braddock	644,575	Mar. 6	24	6	90	1760
Galvanizing metals	E. I. Braddock	645,530	Mar. 13	1770	388	90	2121
Game	M. J. Hotaling	645,955	Mar. 27	2598	575	90	2315
Game	E. T. B. Murphy	644,309	Feb. 27	3008	712	90	1608
Game apparatus	J. H. Eller	643,953	Feb. 20	2546	599	90	1498
Game apparatus	G. A. Shaw	641,410	Jan. 16	2412	551	90	504
Game apparatus	F. G. Slemmer	640,423	Jan. 2	523	109	90	169
Game. Ball-and-target	W. R. Park	646,099	Mar. 27	2859	634	90	2396
Game-board	F. A. Brewer, Jr., and F. Hayes	643,808	Feb. 20	2263	533	90	1442
Game-board	H. C. Hachmuth	642,903	Feb. 6	595	137	90	1092
Game-board	H. A. Minassian and L. M. Darling	640,401	Jan. 2	481	101	90	95

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Game-counter	H. H. Byrne	644,967	Mar. 6	748	161 162	90	1905
Game-counter	R. J. Wilkens	643,929	Feb. 20	2510	590	90	1491
Game device	A. Kuck	645,858	Mar. 20	2407	528	90	2261
Game device	A. Kuck	645,859	Mar. 20	2408	528	90	2261
Game device	A. Kuck	645,860	Mar. 20	2409	529	90	2261
Game or puzzle	J. C. Teller	643,170	Feb. 13	1081	250	90	1197
Game-table	R. J. Koch	640,777	Jan. 9	1180	270	90	249
Games of dominoes. Machine for keeping count of	J. W. Marler	643,515	Feb. 13	1702	400	90	1318
Garbage-furnace	S. H. Brown	644,966	Mar. 6	746	161 826	90	1904
Garbage-furnace	S. W. Dixon	644,505	Feb. 27	3549	827	90	1707
Garbage-receptacle	W. Bachner	646,163	Mar. 27	2997	661	90	2393
Garment	L. H. Johnson	644,606	Mar. 6	84	19	90	1771
Garment	R. E. Lowe	642,912	Feb. 6	612	140 141	90	1085
Garment. Body-	M. Bartelstone	641,489	Jan. 16	2570	587	90	534
Garment-clasp	E. D. Hinkley	640,658	Jan. 2	946	213	90	183
Garment-fastener	J. A. Phillips	643,679	Feb. 20	2034	480	90	1399
Garment-fastening	C. Schon, Jr	644,471	Feb. 27	3494	811	90	1697
Garment-hanger	J. F. Brock	640,616	Jan. 2	858	191	90	167
Garment-hanger	W. F. Hall and W. Donaldson	645,358	Mar. 13	1470	324 325	90	2062
Garment-holder	J. W. Tyler	644,037	Feb. 20	2700	640	90	1528
Garment-supporter	C. M. Bigger and G. P. Leonard	643,317	Feb. 13	1338	315	90	1247
Garment-supporter	L. Gontier	642,864	Feb. 6	515	120	90	1066
Garment-supporter	S. A. Moulton and L. M. Jones	642,248	Jan. 30	3954	902	90	829
Garment-supporter	J. H. Pilkington	644,456	Feb. 27	3474	807	90	1693
Garment-supporter	J. Sulzbacher	645,435	Mar. 13	1615	353	90	2091
Garment-supporter or garter	J. W. Faxon	643,689	Feb. 20	1970	462	90	1386
Garment-tab	S. A. Saeger	643,238	Feb. 13	1198	281	90	1220
Garment. Union	J. M. Tanner and A. R. Willett	645,694	Mar. 20	2100	461	90	2200
Garter-fastener	E. W. Puellmann	645,756	Mar. 20	2234	484	90	2226
Gas analysis. Apparatus for	G. E. Thomas	640,601	Jan. 2	834	185	90	163
Gas and water vapor for heating, &c. Means for generating	J. P. B. Sadtler	642,633	Feb. 6	116	28	90	988
Gas apparatus. Acetylene-	L. B. Bailey	640,521	Jan. 2	691	149	90	136
Gas apparatus. Acetylene-	A. F. Gaiennie	640,646	Jan. 2	928	209	90	179
Gas apparatus. Acetylene-	F. S. Hutchinson	644,861	Mar. 6	564	122	90	1867
Gas apparatus. Acetylene-	L. J. Ruth	640,705	Jan. 2	1041	237	90	201
Gas apparatus. Acetylene-	H. de Thiersant	641,417	Jan. 16	2422	553 554	90	506
Gas apparatus. Pipe and valve connection for water-	O. N. Guldlin	644,511	Feb. 27	3565	829	90	1710
Gas. Automatic pressure-regulator and cut-off for	T. H. J. Leckband	640,303	Jan. 2	287	59	90	57
Gas brazing apparatus	E. Hahn	642,605	Feb. 6	74	18	90	981
Gas-burner	J. F. Barker	646,254	Mar. 27	3182	703	90	2430
Gas-burner	F. J. Byrne	643,320	Feb. 13	1343	316	90	1248
Gas-burner	J. P. Farmer	646,090	Mar. 27	2846	631	90	2364
Gas-burner	F. W. Magee	644,715	Mar. 6	283	62	90	1810
Gas-burner	T. E. Ross and N. B. Volz	641,549	Jan. 16	2685	612	90	558
Gas burner. Acetylene-	E. J. Dolan	640,887	Jan. 9	1408	315 316	90	294
Gas burner. Acetylene-	E. J. Dolan	640,888	Jan. 9	1409	316	90	295
Gas burner. Acetylene-	W. Hahn	644,790	Mar. 6	452	97	90	1844
Gas-burner attachment	T. J. Bush	645,416	Mar. 13	1786	347	90	2085
Gas-burner cut-off. Automatic	F. H. Oehlke	643,363	Feb. 13	1417	331	90	1263
Gas-burner for heating purposes	A. Seyewetz	644,830	Mar. 6	511	110	90	1855
Gas-burner. Incandescent	W. R. Clay	641,078	Jan. 9	1798	399	90	367
Gas-burner. Incandescent	A. A. Cowles	640,752	Jan. 9	1129	259	90	239
Gas-burner. Incandescent	A. H. Petercit	646,372	Mar. 27	3444	768	90	2485
Gas-burner. Incandescent	T. Wilson	642,407	Jan. 30	4281	967	90	896
Gas burner. Oil-	G. T. Phelps	643,304	Feb. 13	1314	310	90	1242
Gas-burner. Superheating	J. L. Campbell	643,466	Feb. 13	1505	377	90	1298
Gas-burners. By-pass cock for self-igniting	A. Bachmeyer	641,573	Jan. 16	2726	621	90	565
Gas-burners. Support for globes, &c., of	J. H. Hood	640,659	Jan. 2	948	213	90	184
Gas-burning apparatus	S. W. Stott	643,259	Feb. 13	1239	291	90	1228
Gas combined. Apparatus for producing acetylene and carbonic-acid	R. Goodwin	641,506	Jan. 16	2606	595	90	542
Gas cut-off. Automatic	H. C. O'Bleness and J. C. McKallip	642,998	Feb. 6	751	173	90	1113
Gas-engine	A. Heil	645,203	Mar. 13	1361	295	90	2040
Gas-engine	W. A. Kope	642,043	Jan. 23	3556	814	90	734
Gas-engine	G. W. Lewis	640,393	Jan. 2	461	96	90	91
Gas-engine	G. W. Lewis	640,394	Jan. 2	464	96, 97	90	92
Gas-engine	G. W. Lewis	640,672	Jan. 2	970	219 220	90	188
Gas-engine	G. W. Lewis	640,673	Jan. 2	974	220 221	90	189
Gas-engine	A. L. Navone	642,706	Feb. 6	248	61, 62	90	1015
Gas-engine	A. T. Otto	645,044	Mar. 6	888	192 193	90	1933
Gas-engine	G. S. Shaw	641,156	Jan. 9	1946	432	90	896
Gas-engine. Rotary	J. Straszer	640,287	Jan. 2	152	31, 32	90	32
Gas-fixture-key attachment	P. A. Florimont	644,854	Mar. 6	555	120	90	1865
Gas-furnace for steam-boilers	E. M. Butz	644,274	Feb. 27	3125	735	90	1626
Gas generating and storing apparatus	W. Blackie	645,545	Mar. 20	1831	398	90	2142
Gas-generating apparatus. Acetylene-	E. Evans	646,272	Mar. 27	3217	715	90	2436
Gas-generating apparatus. Acetylene-	H. F. Fuller	643,643	Feb. 20	1976	465	90	1388
Gas-generating apparatus. Acetylene-	L. P. Hvid	642,987	Feb. 6	734	168	90	1109
Gas-generating apparatus. Acetylene-	M. Le Mat	642,617	Feb. 6	90	21, 22	90	984
Gas-generating apparatus. Acetylene-	F. L. Rand	643,184	Feb. 13	1058	246	90	1193
Gas-generator	J. E. Evans	645,075	Mar. 13	947	203	90	1959
Gas generator. Acetylene-	R. L. Beck	646,255	Mar. 27	3184	703	90	2430
Gas generator. Acetylene-	E. Bournonville	640,175	Jan. 2	28	7	90	7
Gas generator. Acetylene-	W. M. Cline	641,840	Jan. 23	3199	727	90	665
Gas generator. Acetylene-	H. J. Ennis	643,486	Feb. 13	1649	389	90	1309

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Gas generator. Acetylene-	J. M. Erts and J. Miller	645,557	Mar. 20	1827	403	90	2146
Gas generator. Acetylene-	R. Federroll	642,100	Jan. 30	3661	838	90	770
Gas generator. Acetylene-	G. E. Gulick, F. M. Galloup, and C. H. Gulick.	642,222	Jan. 30	3913	891	90	830
Gas generator. Acetylene-	O. H. Hampton	640,558	Jan. 2	733	166	90	147
Gas generator. Acetylene-	H. Hawkins	643,090	Feb. 6	996	219	90	1145
Gas generator. Acetylene-	W. C. Homan	644,601	Mar. 6	73	16	90	1769
Gas generator. Acetylene-	P. Laperle and O. P. Boulard	644,772	Mar. 6	385	85, 86	90	1891
Gas generator. Acetylene-	L. R. Le Lande	643,746	Feb. 20	2167	509	90	1423
Gas generator. Acetylene-	H. P. Leftwich and C. H. Reinken	645,981	Mar. 27	2609	577	90	2317
Gas generator. Acetylene-	W. T. Lukenbill	642,619	Feb. 6	61	22	90	984
Gas generator. Acetylene-	F. C. Maurin	643,907	Feb. 20	2463	580	90	1480
Gas generator. Acetylene-	F. J. Millington	640,300	Jan. 2	281	58	90	56
Gas generator. Acetylene-	J. A. Mosher	644,439	Feb. 27	3445	800	90	1667
Gas generator. Acetylene-	C. Ogburn	643,777	Feb. 20	2218	524	90	1433
Gas generator. Acetylene-	J. W. Paine and C. B. Doudna	642,478	Jan. 30	4395	997	90	918
Gas generator. Acetylene-	W. W. Pitts	643,887	Feb. 20	2494	571	90	1473
Gas generator. Acetylene-	R. Reid	642,003	Jan. 23	3483	796	90	721
Gas generator. Acetylene-	J. H. Ross	646,316	Mar. 27	3298	735	90	2450
Gas generator. Acetylene-	W. Ross	645,271	Mar. 13	1315	295 297	90	2031
Gas generator. Acetylene-	W. Ruthenberg	642,532	Jan. 30	4473	1015	90	992
Gas generator. Acetylene-	A. F. Shriver	641,555	Jan. 16	2692	613	90	559
Gas generator. Acetylene-	G. F. Simpson	643,256	Feb. 13	1223	289 290	90	1226
Gas generator. Acetylene-	W. C. Sterne	641,243	Jan. 9	2128	479	90	434
Gas generator. Acetylene-	C. C. Stewart and G. C. Updegraff	643,555	Feb. 13	1768	418	90	1399
Gas generator. Acetylene-	P. D. Wescott	641,056	Jan. 9	1735	390	90	358
Gas generator. Acetylene-	I. C. Wightman	641,059	Jan. 9	1761	391	90	359
Gas generator. Acetylene-	C. E. Yvonneau	646,404	Mar. 27	3499	779	90	2494
Gas generator. Acetylene-	E. Yvonneau	645,905	Mar. 20	2486	549 550	90	2276
Gas generator. Acetylene-	J. P. Johnston and E. E. Morrell	645,596	Mar. 20	1922	424	90	2165
Gas-generator oil-sprayer	J. Coyne	644,280	Feb. 27	3149	739	90	1631
Gas-generator valve mechanism	H. Strache	644,110	Feb. 27	2826	669	90	1568
Gas generators. Closing-valve for water-	H. Strache	646,060	Mar. 27	2792	619	90	2353
Gas generators. Valve for water-	L. Friedeberger	640,554	Jan. 2	748	------	90	147
Gas-igniters. Manufacturing	A. Martini	646,297	Mar. 27	3257	------	90	2443
Gas-igniting pill	K. von Vietinghoff-Scheel	640,350	Jan. 2	360	76	90	72
Gas-lighter. Automatic	C. Hubert	644,860	Mar. 6	562	122	90	1867
Gas-lighter. Electric	R. N. Noyes	644,143	Feb. 27	2881	662	90	1579
Gas-lighting candle-burner. Electric	C. E. Ross	643,982	Feb. 20	2595	613	90	1509
Gas machine. Acetylene-	J. Walton	643,576	Feb. 13	1801	427	90	1328
Gas machine. Acetylene-	A. White and H. M. Rohweder	641,567	Jan. 16	2711	618	90	563
Gas machine. Acetylene-	E. De Fazi	641,444	Jan. 16	2483	------	90	516
Gas. Manufacture of	E. De Fazi	646,019	Mar. 27	2718	------	90	2338
Gas. Manufacture of	H. Pettibone	644,806	Mar. 6	463	99	90	1846
Gas-manufacturing apparatus	V. Konopinski	644,611	Mar. 6	91	21	90	1773
Gas-meter	T. H. J. Leckband	645,365	Mar. 13	1485	326 327	90	2096
Gas-meter	J. C. Sutherland	640,974	Jan. 9	1600	354 355	90	329
Gas-meter	J. W. Gayner	645,719	Mar. 20	2154	408	90	2209
Gas-producer	F. Duderstadt	643,815	Feb. 20	2280	537	90	1444
Gas producer. Acetylene-	C. W. Bildt	645,585	Mar. 20	1898	418 419	90	2159
Gas-producer. Automatic	S. L. McAdams	645,403	Mar. 13	1563	342	90	2081
Gas-regulator	N. McBeth	644,625	Mar. 6	116	26	90	1777
Gas-regulator	J. A. Drake	643,763	Feb. 20	2197	518	90	1429
Gas-retort weigher and charger	A. Coze	643,633	Feb. 20	1957	459 460	90	1384
Gas-retorts. Apparatus for charging inclined	O. Mussinan	640,686	Jan. 2	1013	230	90	195
Gas-tip	W. H. Porter	640,698	Jan. 2	1032	235	90	199
Gas-tip	E. J. Dolan	640,896	Jan. 9	1406	315	90	294
Gas tip. Acetylene-	S. N. Long	642,618	Feb. 6	92	22	90	984
Gas-valve	S. Guthrie	644,741	Mar. 6	319	71	90	1817
Gas valve and apparatus. Oil-	C. A. Weber-Marti	645,150	Mar. 13	1106	237	90	1990
Gas-valve. Pressure	T. R. Beal	643,303	Feb. 13	1471	345 346	90	1272
Gas-works valve	H. Korrodi	640,207	Jan. 2	89	18	90	20
Gases. Capsule for compressed or liquefied	P. Robertson and C. Matson	641,727	Jan. 23	2995	682 683	90	627
Gasolene-engine	J. Walton	643,577	Feb. 13	1806	427	90	1338
Gasometer							
Gate: See Adjustable gate. Bridge-gate. Car-gate. End-gate. Farm-gate. Flood-gate. Folding gate. Load-gate. Mine-gate. Sewer-gate. Swinging gate. Water-measuring gate.							
Gate	J. M. Adams	645,778	Mar. 20	2279	496	90	2235
Gate	W. A. Byerly	644,275	Feb. 27	3127	735	90	1626
Gate	S. O. Campbell	642,306	Jan. 30	3874	891	90	814
Gate	E. T. Clark	643,741	Feb. 20	2158	506	90	1421
Gate	W. A. Coats	643,811	Feb. 20	2270	535	90	1443
Gate	E. Cook	641,272	Jan. 16	2178	490	90	457
Gate	H. H. Gorton	641,448	Jan. 16	2489	570	90	517
Gate	U. A. Gregg	643,325	Feb. 13	1351	317	90	1250
Gate	W. Hatfield and J. P. Tarr	645,359	Mar. 13	1474	325	90	2064
Gate	O. B. Jacobs	641,998	Jan. 23	3422	777	90	709
Gate	C. F. Lee	641,521	Jan. 16	2637	601	90	548
Gate	A. Lindquist	645,508	Mar. 13	1741	382	90	2115
Gate	S. L. McColloch	641,464	Jan. 16	2519	576 577	90	524
Gate	D. Miller	643,147	Feb. 13	1089	242	90	1189
Gate	R. Bakestraw	643,157	Feb. 13	1057	245	90	1192

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Gate	J. P. Tarr	643,559	Feb. 13	1775	479	90	1332
Gate	J. Tennant	645,842	Mar. 20	2381	522	90	2256
Gate	B. F. Warner	643,175	Feb. 13	1093	253	90	1200
Gate	D. F. Richardson	646,037	Mar. 27	2753	611	90	2345
Gathering-iron	D. F. Richardson	646,038	Mar. 27	2754	611	90	2346
Gathering-iron	J. Arthur	644,755	Mar. 6	356	77	90	1825
Gear. Bevel-	C. R. Gabriel	645,082	Mar. 13	959	295 296 297	90	1961
Gear. Link reversing-	J. W. McKee	640,989	Jan. 2	1018	231	90	196
Gear. Reversing-	A. Brott	641,053	Jan. 9	1789	397	90	365
Gear. Reversing-	G. W. Lytel	644,337	Feb. 27	3602	839	90	1717
Gear. Variable-speed	E. J. McClellan	641,219	Jan. 9	2078	467	90	423
Gear. Variable-speed	L. J. Messier and E. J. Mercure	642,996	Feb. 6	747	172	90	1112
Gear. Worm-and-chain driving-	D. Corcoran	642,430	Jan. 30	4316	974	90	902
Gearing	F. J. Dana	640,742	Jan. 9	1114	255	90	236
Gearing	C. H. Foster	641,940	Jan. 23	3382	768	90	701
Gearing	H. C. Warren	644,070	Feb. 27	2754	651	90	1753
Gearing	W. Senior	643,836	Feb. 20	2320	546 547	90	1452
Gearing. Differential	I. F. Wales	642,495	Jan. 30	4416	1002 1003	90	922
Gearing. Drive-	R. Kennedy	644,951	Mar. 6	724	157	90	1900
Gearing. Electromagnetic variable-speed and clutch	R. H. F. and A. H. Finlay	643,413	Feb. 13	1507	353	90	1278
Gearing for transforming speed	J. C. Howell	642,594	Feb. 6	57	14	90	977
Gearing. Friction-	E. A. Sperry	640,770	Jan. 9	1172	268	90	248
Gearing. Motor-	C. E. Brooks	645,902	Mar. 20	2479	548	90	2275
Gearing. Variable-speed	L. L. H. Gerard	644,702	Mar. 6	263	58	90	1806
Gearing. Variable-speed	J. B. Pennington	641,097	Jan. 9	1830	407	90	374
Generating-tube		642,479	Jan. 30	4396	997	90	918
Generator: See Acetylene-generator. Gas-generator. Steam-generator.							
Generator	W. T. Mixsell	642,352	Jan. 30	4168	943	90	873
Generator-section	E. P. Waggoner	643,926	Feb. 20	2504	580	90	1490
Gig for woolen fabrics. Raising-	J. Bailey	640,520	Jan. 2	688	147 148 149	90	195
Gin-saw filer	R. J. Reynolds	641,039	Jan. 9	1723	384	90	352
Gland. Expansion-	D. B. Morison	643,862	Feb. 20	2256	531	90	1440
Glass articles. Apparatus for manufacturing	P. T. Sievert	644,372	Feb. 27	3236	771	90	1694
Glass articles. Apparatus for manufacturing hollow	W. Buttler	645,787	Mar. 20	2291	498	90	2237
Glass articles. Apparatus for manufacturing hollow	P. T. Sievert	641,048	Jan. 9	1744	388	90	356
Glass articles. Apparatus for manufacturing hollow	P. T. Sievert	646,133	Mar. 27	2934	649 650	90	2381
Glass articles. Apparatus for producing hollow	P. T. Sievert	645,375	Mar. 13	1568	331	90	2070
Glass-beveling apparatus	W. O. Bailey	645,883	Mar. 20	2441	538 539	90	2268
Glass blowing and pressing machine	E. B. Ball	644,395	Feb. 27	3375	789	90	1672
Glass-finishing apparatus	A. G. Neville	644,536	Feb. 27	3621	842 843	90	1720
Glass-finishing machine	A. B. Scott	642,928	Feb. 6	638	145 146	90	1090
Glass. Latticed or leaded	E. R. Childs and G. W. Cantrell	641,936	Jan. 23	3375	767	90	700
Glass-making apparatus. Sheet-	J. Q. Shaffer	644,474	Feb. 27	3501	812 813	90	1698
Glass plates. Making concavo-convex	C. Dhé and L. Houze	643,223	Feb. 13	1168	273	90	1215
Glass signs, plates, or tablets. Manufacture of	W. Schell, Jr	642,925	Feb. 6	634	------	90	1089
Glass. Treating woven wire in manufacturing wire-	J. W. Sheppard	646,182	Mar. 27	2932	------	90	2381
Glassware. Apparatus for making hollow	W. Buttler	645,788	Mar. 20	2292	498 499	90	2237
Glassware-engraving machine	G. Schiffbauer	645,333	Mar. 13	1433	315	90	2055
Glassware-manufacturing machine	F. O'Neill	643,253	Feb. 13	1227	287 288	90	1225
Globe	T. W. Synnott	641,106	Jan. 9	1970	436	90	402
Globe-hanger. Safety	G. W. Biester	644,728	Mar. 6	302	66	90	1813
Glove	R. Warner, Jr	642,181	Jan. 30	3828	871	90	805
Glove. Washing-	D. Potter	645,406	Mar. 13	1572	343	90	2083
Go-cart	A. A. Tisdale and G. T. Lamont	641,658	Jan. 16	2467	653	90	594
Gold and silver from cyanid solutions by electrolysis. Recovering	S. B. Christy	643,096	Feb. 6	944	222	90	1146
Gold and silver ores, &c. Treatment of	J. C. Montgomerie and H. Parkes	646,006	Mar. 27	2691	596	90	2333
Gold from ores. Extracting	C. Whitehead	641,818	Jan. 23	3151	------	90	657
Gold or other metals from refractory ores. Extracting	A. G. Stephens	641,652	Jan. 16	2858	------	90	592
Gold ores. Treating	C. Wetherwax	646,335	Mar. 27	3332	743	90	2458
Gold-saving device	A. M. Lyon	645,864	Mar. 20	2418	530	90	2263
Gold-washing machine	F. C. Pinnell	643,233	Feb. 13	1190	279	90	1219
Golf-club	J. Cran	645,942	Mar. 27	2560	567	90	2307
Golf-club	J. Dalgleish	645,944	Mar. 27	2562	567	90	2307
Governor	F. M. Rites	646,287	Mar. 27	3152	696 697	90	2424
Governor	F. M. Rites	646,314	Mar. 27	3291	733	90	2449
Governor	F. M. Rites	646,315	Mar. 27	3295	734 735	90	2450
Governor attachment for electrical apparatus. Speed-	J. H. McGurty	640,688	Jan. 2	1016	231	90	196
Governor. Engine speed-	R. F. C. Keats	644,983	Mar. 6	770	167	90	1910
Governor. Explosive-engine	A. C. Stewart	640,971	Jan. 9	1596	353	90	328
Governor. Motor speed-	T. J. Lende	640,671	Jan. 2	968	218	90	188
Governor. Steam-engine	C. W. Lawrie	642,340	Jan. 30	4141	926	90	868
Grading machine. Road-	E. C. Fread	643,115	Feb. 13	964	230	90	1177
Grading machine. Road-	E. B. Kirkendall	645,363	Mar. 13	1481	326	90	2065

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Grafting-machine	J. M. Chevreton and S. Rivière	644,059	Feb. 27	2736	648	90	1549
Grain-binder	A. G. McIntosh	646,231	Mar. 27	3139	693	90	2421
Grain-binder sheaf-shocking mechanism	M. and E. Light and I. C. Bussert	641,127	Jan. 9	1877	694	90	384
Grain-cleaner	G. L. Beadell	640,734	Jan. 9	1102	418	90	334
Grain-cleaner	S. H. Tromanhauser	645,442	Mar. 13	1630	356	90	2094
Grain-cleaner	C. W. Klock and G. W. Rose	641,869	Jan. 23	3257	357	90	675
Grain-cleaner or beater	J. M. Lasswell	645,228	Mar. 13	1246	740	90	2017
Grain-cleaner. Self-leveling	B. G. Royal	641,328	Jan. 16	2275	515	90	476
Grain cleaning and scalping machine	B. G. Royal	641,329	Jan. 16	2277	516	90	477
Grain cleaning and scalping machine	G. E. Mahan, A. Fitzroy, and R. Orr.	641,598	Jan. 16	2765	620	90	573
Grain-conveyer	S. F. Evans	645,946	Mar. 27	2565	568	90	2298
Grain-conveyer belts and means for operating same. Concentrating-rolls for	D. J. Ames and H. N. Labare	643,446	Feb. 13	1567	368	90	1292
Grain-drill	C. R. Crain, L. C. Evans, and H. E. Dodson.	641,498	Jan. 16	2581	589	90	536
Grain-drill	C. L. Fowle	640,553	Jan. 2	747	165	90	146
Grain-drill	R. F. Hafer	642,224	Jan. 30	3918	891	90	862
Grain-drill	W. W. Miller	640,215	Jan. 2	112	22	90	28
Grain-drill	W. W. Miller	641,718	Jan. 23	2963	676	90	622
Grain-drill	G. W. Murray	644,032	Feb. 20	2068	677	90	1526
Grain-drill	C. P. Sester	642,534	Jan. 30	4475	698	90	983
Grain-drill force-feed mechanism	D. J. Ames and H. N. Labare	643,447	Feb. 13	1568	1016	90	1202
Grain-drill gear	D. J. Ames	643,445	Feb. 13	1566	369	90	1201
Grain-drill shoe. Detachable	T. J. Howe and H. N. Labare	643,410	Feb. 13	1562	352	90	1277
Grain-drill shoe. Detachable	N. M. Wig	643,435	Feb. 13	1549	365	90	1287
Grain-drill shoe. Detachable	H. Eielson	645,895	Mar. 20	2462	543	90	2272
Grain-elevator	D. D. Hill	641,961	Jan. 23	3413	544	90	707
Grain-hoisting device	G. C. Beeman	640,261	Jan. 2	216	775	90	44
Grain-separator	W. F. Combs	644,242	Feb. 27	3071	44	90	1614
Grain-shed	L. Hohmann	645,747	Mar. 20	2217	724	90	2022
Grain vessel. Hopper-bottom	H. K. Smith	644,834	Mar. 6	516	481	90	1857
Gramophone	E. G. Acheson	645,285	Mar. 13	1341	111	90	2037
Graphite. Manufacturing	W. Hart	644,981	Mar. 6	767	----	90	1909
Graphophone-reproducer	K. Wessel	642,709	Feb. 6	352	167	90	1035
Grass-curling machine	D. Morrison	641,529	Jan. 16	2013	85,86	90	550
Grass or stubble burner	W. McClave	641,133	Jan. 9	1901	694	90	388
Grate	B. F. Reynolds	644,302	Feb. 27	3194	421	90	1638
Grate	J. Fisher	645,899	Mar. 20	2475	748	90	2275
Grate-bar	H. E. Frick	641,948	Jan. 23	3397	772	90	704
Grate-bar	G. S. Lee	641,124	Jan. 9	1872	416	90	383
Grate-bar	Z. M. Slater	642,497	Jan. 30	4418	1003	90	992
Grate. Dumping	J. J. Long	644,615	Mar. 6	97	1004	90	1774
Grate. Fire	P. B. Sneath	642,378	Jan. 30	4224	23	90	884
Grate for ranges, &c	G. J. Chaffee	646,088	Mar. 27	2843	954	90	2264
Grave-concealing apparatus	C. F. Kellom	645,227	Mar. 13	1245	631	90	2017
Grease-cup or lubricator	J. Hopkinson	645,623	Mar. 20	1974	270	90	2175
Grease. Refining distilled	F. N. Cline	644,848	Mar. 6	542	----	90	1892
Griddle-greaser	A. B. Patten	641,905	Jan. 23	3474	117	90	719
Gridiron	O. S. Walker	643,927	Feb. 20	2596	793	90	1450
Grinder. Drill	W. H. Twist	642,180	Jan. 30	3827	589	90	805
Grinder. Scissors or knife	D. C. Hull	642,452	Jan. 30	4356	871	90	910
Grinding and rounding strips of rawhide, &c. Machine for	F. W. Taylor	643,096	Feb. 20	2007	987	90	1405
Grinding apparatus. Ball	C. R. Zacharias	642,275	Jan. 30	4008	488	90	840
Grinding lawn-mower blades. Machine for	W. C. Baker	641,178	Jan. 9	1996	912	90	407
Grinding-machine	J. S. Bancroft and W. H. Thorne	646,397	Mar. 27	3486	913	90	2402
Grinding-machine	S. Brown	645,382	Mar. 13	1520	444	90	2073
Grinding-machine	F. Faucett	645,355	Mar. 13	1465	445	90	2061
Grinding-machine	A. B. Landis	640,669	Jan. 2	960	446	90	186
Grinding-machine	F. Nerz	644,445	Feb. 27	3455	776	90	1690
Grinding-machine	W. I. Walker and A. H. Grimm	643,928	Feb. 20	2508	777	90	1490
Grinding-machine	W. C. Heister	641,107	Jan. 9	1847	383	90	377
Grinding machine. Drill	H. P. White	643,703	Feb. 20	2364	384	90	1407
Grinding machine. Drill	E. H. Webster	640,845	Jan. 9	1327	411	90	279
Grinding-mill. Duplex	A. B. Landis	644,929	Mar. 6	678	412	90	1891
Grinding-machine foot-stock	J. North	644,447	Feb. 27	3458	490	90	1690
Grinding machine. Razor	E. F. Shaw	643,914	Feb. 20	2483	148	90	1495
Grinding machine. Trowel	J. A. Kelley and S. W. Rouse	643,412	Feb. 13	1506	804	90	1278
Grinding-mill	A. H. Boelter	645,245	Mar. 13	1277	584	90	2024
Grinding-mill feed mechanism. Roller	J. A. McAnulty	641,985	Jan. 23	3454	353	90	716
Grinding-mill. Roller	F. Schmaltz	645,018	Mar. 6	843	277	90	1923
Grinding milling-cutters. Machine for	J. F. Spohn	642,828	Feb. 6	454	184	90	1054
Grinding or polishing wheel	C. A. V. Hallgren	643,128	Feb. 13	1011	108	90	1188
Grindstones, emery-wheels, &c. Roller for round-picking	F. W. Krause	641,871	Jan. 23	3259	235	90	1188
Grocer's bin	J. A. Clercy	640,535	Jan. 2	718	740	90	676
Guard for projecting parts					157	90	141

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gum. Preparing locust-beans for extracting	P. C. D. Castle	641,364	Jan. 23	3372	766	90	699
Gun. Automatic	A. T. Dawson and L. Silverman	644,969	Mar. 6	752	767	90	1906
Gun. Automatic machine	F. M. Garland	643,118	Feb. 13	989	102	90	1178
Gun. Automatic machine	E. Terneström	642,018	Jan. 23	3519	103	90	727
Gun. Automatic magazine	M. Beck and E. Ferrant	645,932	Mar. 27	2539	805	90	2303
Gun-barrels. Instrument for removing dents from	E. R. Parker	641,646	Jan. 16	2845	806	90	590
Gun-barrels or tubes. Device for rolling	C. P. Carlson	640,992	Jan. 9	1647	807	90	337
Gun-cleaner	W. L. Brennan	642,672	Feb. 6	190	502	90	1008
Gun. Disappearing	J. Krone	641,872	Jan. 23	3261	47	90	478
Gun. Magazine bolt	C. H. A. F. L. Ross	643,984	Feb. 20	2599	740	90	676
Gun mechanism. Automatic machine	F. M. Garland	643,119	Feb. 13	990	741	90	1509
Gun-sight	A. R. Douglass	644,901	Mar. 6	698	231	90	1179
Gun-sight	P. Lawrence	644,432	Feb. 27	3434	232	90	1881
Guns. Apparatus for adjusting elevation of	G. A. Schoeller	644,370	Feb. 27	3382	737	90	1685
Guns. Ejector for breakdown	F. A. Foster	645,705	Mar 20	2121	773	90	1664
Guns. Running-out spring for	A. T. Dawson and G. T. Buckham	640,541	Jan. 2	728	464	90	2205
Guns. Wheel-brake for field	A. Resow	641,228	Jan. 9	2106	160	90	143
Gutter	W. D. Payne	643,677	Feb. 20	2632	474	90	429
Hair-crimper	H. J. Rumrille	644,214	Feb. 27	3015	480	90	1398
Hair-drying apparatus	H. C. Bermner	642,287	Jan. 30	4028	713	90	1695
Hair-pin	H. Nathan	641,137	Jan. 9	1908	917	90	844
Half-tones. Making	J. Jacobson	640,469	Jan. 2	594	423	90	390
Halter	H. L. and C. M. Green	643,123	Feb. 13	1004	127	90	117
Hame-fastener	T. Bellerson	643,932	Feb. 20	2515	233	90	1181
Hame-fastener	J. S. Spurgeon	640,236	Jan. 2	151	592	90	1492
Hame-fastener. Wire	J. S. Shaffer	641,472	Jan. 16	2539	31	90	528
Hammer. Drop	F. F. Bischoff	643,461	Feb. 13	1590	581	90	538
Hammer. Foot-power	F. W. Förster	644,589	Mar. 6	52	374	90	1297
Hammer. Pneumatic	J. W. Johnson	643,063	Feb. 6	870	375	90	1765
Hammer. Power	E. H. Blossom	642,070	Jan. 30	3604	11	90	1184
Hammer. Power	M. C. Jackson	644,014	Feb. 20	2695	826	90	737
Hammers, &c. Process of and apparatus for making	E. D. Woods	642,542	Jan. 30	4494	639	90	1521
Hammock	R. S. Graham	645,805	Mar. 20	2318	1019	90	936
Hammock and tent. Combined portable	W. C. Tanner	640,334	Jan. 2	334	506	90	2242
Hammock fan mechanism	E. B. and C. W. Brown	643,107	Feb. 13	970	70	90	67
Hammock-support	I. E. Palmer	641,633	Jan. 9	1712	227	90	1174
Hand and arm. Artificial	H. Schenk	645,740	Mar. 20	2295	380	90	2029
Hand-rake	M. Y. Warren	644,883	Mar. 6	608	479	90	2229
Handle: *See* Extension-handle. Kettle tipping-handle. Package-handle. Sheet-metal handle. Tool-handle.	W. E. Kelly	641,118	Jan. 9	1863	131	90	1876
Handle-bar							
Hanger: *See* Door-hanger. Eaves-trough hanger. Electric-light hanger. Garment-hanger. Globe-hanger. Lamp-hanger. Meat-hanger. Picture-hanger. Shade-hanger. Skirt-hanger. Wire-hanger.	A. van Bibber. (Reissue)	11,801	Jan. 9	2145	415	90	381
Harbor or coast defense	F. Strauss	642,642	Feb. 6	138	483	90	437
Harmonica	C. B. Olsen	645,327	Mar. 13	1413	33	90	903
Harness	M. F. Broderick	642,072	Jan. 30	3696	810	90	2051
Harness attachment	C. E. Corlett	645,289	Mar. 13	1354	827	90	758
Harness breeching-straps. Shaft attachment for	L. C. Meyer	641,816	Jan. 16	2255	294	90	2039
Harness-fastening	G. F. Lyon	644,987	Mar. 6	777	511	90	473
Harp	A. Anderson	645,779	Mar. 20	2290	168	90	1911
Harrow	J. H., D. T., and E. D. Albright	644,045	Feb. 27	2715	496	90	2235
Harrow	J. H., D. T., and E. D. Albright	644,046	Feb. 27	2717	643	90	1545
Harrow	W. M. Baker	640,523	Jan. 2	694	643	90	1545
Harrow	W. M. Baker	644,394	Feb. 27	3373	150	90	136
Harrow	N. H. Bloom and J. F. Loos	643,789	Feb. 20	2154	783	90	1672
Harrow	E. A. Sowerwine	644,374	Feb. 27	3339	505	90	1420
Harrow	J. F. Taylor	644,111	Feb. 27	2827	775	90	1605
Harrow	M. J. Todd	642,506	Jan. 30	4432	669	90	1569
Harrow	J. L. Ware	640,722	Jan. 2	1075	1007	90	924
Harrow	H. J. Washburn and C. G. Cudaback	642,025	Jan. 23	3523	1008	90	208
Harrow and clod-crusher	S. Ernst	640,514	Jan. 2	673	245	90	730
Harrow and pulverizer	H. G. Mosher	641,580	Jan. 16	2651	246	90	132
Harrow and roller. Combined	I. C. Imboden	644,604	Mar. 6	81	809	90	551
Harrow and roller. Combined vibrating	J. M. Rhodes	644,096	Feb. 27	2800	19	90	1770
Harrow attachment	E. E. Voorhees	641,418	Jan. 16	2424	664	90	1563
Harrow. Disk	A. Lindgren	645,818	Mar. 20	2336	145	90	506
Harrow folding draw-bar	R. D. Taylor	644,218	Feb. 27	3024	554	90	2245
Harrow-tooth fastening	J. J. Callender	643,465	Feb. 13	1594	555	90	1607
Harrow-tooth holder	M. J. Todd	641,474	Jan. 16	2542	510	90	1298
Harvester	J. J. Kennedy	643,227	Feb. 13	1175	511	90	529
Harvester attachment. Corn	J. P. Degnan	646,102	Mar. 27	2866	275	90	1216
					276	90	2367
					277		
					635	90	2367

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Harvester attachment. Potato-	G. M. Ross	640,816	Jan. 9	1256	285	90	265
Harvester. Corn-	D. Baughman	641,666	Jan. 23	2984	657	90	607
Harvester. Corn-	W. H. Gray	641,283	Jan. 16	2203	496	90	462
Harvester. Corn-	W. W. Green and J. A. Cole	643,716	Feb. 20	2117	496	90	1414
Harvester. Corn-	W. Howard	646,219	Mar. 27	3109	686	90	2415
Harvester. Corn-	H. V. Joseph	640,380	Jan. 2	450	98, 94	90	90
Harvester. Corn-	U. A. Cleveland	644,060	Feb. 27	2737	648	90	1549
Harvester cutter-bar	E. J. Birkett and H. F. Crandall	643,079	Feb. 6	899	212, 213	90	1140
Harvester. Grain-	A. Heusch	644,824	Mar. 6	498	214, 106, 107, 108	90	1852
Harvester-knotter	W. L. Haines and W. C. Graham	643,052	Feb. 6	855	199	90	1182
Harvester. Pea-	J. D. Gray	640,376	Jan. 2	435	90	90	86
Harvester. Pea or bean	J. F. Steward and C. A. A. Rand	640,599	Jan. 2	880	184, 185	90	102
Harvester. Self-binder	T. P. Moran	640,682	Jan. 2	999	226, 227, 228, 229	90	193
Harvester, thresher, and bagger. Combined	H. Bryan	643,037	Feb. 6	817	190	90	1124
Harvesters. Cut-grain carrier for	T. Shields	641,047	Jan. 9	1740	387, 388	90	355
Harvesting and shocking cornstalks. Machine for	M. S. Curley	640,878	Jan. 9	1889	312	90	292
Harvesting cotton. Means for	J. W. Hull	645,396	Mar. 13	1550	339	90	2029
Harvesting-machine	W. L. Walton	642,024	Jan. 23	3530	809	90	720
Harvesting-machine	J. I. and A. E. Jackson	645,957	Mar. 27	2600	576	90	2316
Harvesting machine. Beet-	J. Davy	640,637	Jan. 2	669	205	90	176
Hasp-fastener	D. Kerekes	640,775	Jan. 9	1178	269	90	249
Hasp-lock	M. R. M. Anderson	640,436	Jan. 2	547	114, 115	90	107
Hat	C. H. Skinner	642,726	Feb. 6	294	70	90	1024
Hat-brim-curling machine	L. R. Heim	645,592	Mar. 20	1915	422	90	2163
Hat-clearing machine	L. Anderson	640,253	Jan. 2	194	41	90	40
Hat-fastener	F. W. Cammann	645,521	Mar. 13	1772	388	90	2122
Hat-fastener	A. B. Enns	640,642	Jan. 2	917	207	90	178
Hat-fastener	G. Schmitt	641,150	Jan. 9	1696	420	90	304
Hat-fastener	F. W. Hodges	642,447	Jan. 30	4346	984	90	908
Hat-holder	L. R. Heim	645,593	Mar. 20	1916	422, 423	90	2163
Hat-ironing machine	G. Segschneider	644,472	Feb. 27	3496	811, 812	90	1657
Hat-machine brim-curler	E. J. Kirk	645,902	Mar. 13	1479	325	90	2064
Hat or cap rack	J. Marshall	641,026	Jan. 9	1703	378	90	348
Hat-packing ring	H. S. Blake	642,419	Jan. 30	4298	970	90	898
Hat-pressing machine	J. Gerstle	642,440	Jan. 30	4334	979	90	905
Hat-sunshade	E. E. Ansell	641,357	Jan. 16	2320	530	90	485
Hatch attachment. Folding-	I. M. Touse	641,562	Jan. 16	2703	616	90	561
Hay and stock rack. Combined	J. H. Burkholder	646,261	Mar. 27	3195	705	90	2402
Hay-carrier	D. O. Kent	642,458	Jan. 30	4364	990	90	912
Hay-carrier	L. H. Soens	643,852	Feb. 20	2360	555	90	1460
Hay-fork. Horse	S. A. Slauson	644,338	Feb. 27	3279	763	90	1651
Hay-loader coupling	G. Comfort	644,815	Mar. 6	484	103	90	1849
Hay or straw cutter	J. F. Halloran, Jr	641,102	Jan. 9	1887	408	90	375
Hay-rack	E. Troy	643,211	Feb. 13	1149	269	90	1211
Hay-rack	G. H. Milleville	641,029	Jan. 9	1708	379	90	349
Hay-rake	H. B. Cluxton	644,002	Feb. 20	2643	624	90	1517
Hay-rake. Revolving	J. Law	642,466	Jan. 30	4378	993	90	915
Hay-sling	J. Kirby, Jr.	643,141	Feb. 13	1032	240	90	1188
Headlight	A. C. Caron	642,959	Feb. 6	691	158	90	1100
Head-rest	B. M. Wilkerson	642,404	Jan. 30	4297	964	90	893
Head-rest	H. Petersen	640,412	Jan. 2	506	104	90	100
Head-screen	J. G. Evans	640,372	Jan. 2	420	87, 88	90	83
Header and thresher. Combined	M. M. Gulley	644,979	Mar. 6	765	166	90	1909
Hearse attachment	R. P. and J. D. Osgood	642,252	Jan. 30	3960	903	90	830
Heat and fire-alarm system. Automatic electric	F. W. C. Schnlewind	644,998	Feb. 27	3329	773	90	1663
Heat from one fluid to another. Apparatus for transferring	W. R. Addicks	641,755	Jan. 23	3045	693	90	695
Heat-generating apparatus	S. Boal	644,792	Mar. 6	440	95	90	1841
Heater:	A. R. Broomhall	641,673	Jan. 23	2894	660	90	609
See Curling-iron heater. Steam or hot-water heater.	A. C. Steere	641,805	Jan. 21	5131	711	90	653
Electric heater. Tank-heater.	C. Fluor	644,226	Feb. 27	3342	720, 721	90	1610
Feed-water heater. Water-heater.	W. H. Hormel	645,813	Mar. 20	2327	508	90	2244
Hot-water heater. Soldering-iron heater.	C. Bender	642,197	Jan. 30	3869	877, 878	90	811
Heater	J. T. Wilkins, W. H. Wells, and W. Bake	641,911	Jan. 23	3327	756	90	690
Heater	E. F. Osborn	645,929	Mar. 20	2530	560	90	2284
Heating and ventilating system	I. D. Smead	644,106	Feb. 27	2820	667	90	1567
Heating and ventilation system	P. Hack	641,698	Jan. 23	2920	666	90	615
Heating apparatus	W. F. Burns	641,186	Jan. 9	2010	449	90	409
Heating apparatus. Building-	A. Laughlin	643,143	Feb. 13	1085	241	90	1188
Heating device for sleighs, &c.	S. T. Wellman, F. H. Daniels, and G. H. Wellman.	645,305	Mar. 13	1377	300, 301	90	2043
Heating device. Steam or hot-water	J. D. Robertson	643,535	Feb. 13	1780	408	90	1323
Heating-furnace	C. A. Ball	644,961	Mar. 6	735	159	90	1902
Heating-furnace							
Heating plant. Steam-							
Heating system. Steam-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Heating systems. Temperature-regulating apparatus for steam-	C. E. Van Auken	645,581	Mar. 20	1888	416, 417	90	2157
Heel-bolt	B. W. Powell	640,945	Jan. 9	1525	341	90	315
Heel. Boot or shoe	J. J. Naughton	642,917	Feb. 6	622	143	90	1087
Heel-breasting machine	A. G. Brewer	645,994	Mar. 27	2696	591	90	2320
Heel-counter	J. Traylor	643,783	Feb. 20	2227	525	90	1435
Heel-nailing machine	F. F. Raymond, 2d	641,226	Jan. 9	2101	471, 472, 473	90	427
Hemmer	J. J. Gillis	641,098	Jan. 9	1831	407	90	374
Hemp-brake	J. Heaney	641,010	Jan. 9	1678	372	90	344
Hermetically-sealed can or jar	K. J. Hutchison	641,391	Jan. 16	2375	513	90	496
Hertzian or similar radiations and apparatus therefor. Utilization of	L. H. Walter	643,018	Feb. 6	788	183, 184	90	1120
Hide-dressing machine	M. May, Jr.	644,182	Feb. 27	2864	700	90	1594
Hides. Bating	C. W. Koch	640,776	Jan. 9	1479	.....	90	249
Hides or skins. Unhairing animal	G. D. Burton	642,081	Jan. 30	3929	832	90	763
Hides, skins, or leather. Treating	C. S. Dolley and A. F. Crank	642,519	Jan. 30	4451	.....	90	928
High-potential apparatus	E. Thomson	645,675	Mar. 20	2064	453	90	2192
Hinge	C. F. W. Horn	644,078	Feb. 27	2770	656	90	1557
Hinge	F. Liedgens	641,397	Jan. 16	2387	546	90	498
Hinge and check. Combined spring	J. W. Currier	640,178	Jan. 2	33	8	90	8
Hinge. Friction-	C. H. Fairbanks	644,509	Feb. 27	3593	829	90	1710
Hinge. Frictional locking-	F. H. Bassett	641,665	Jan. 23	2883	657	90	607
Hinge. Gate-	J. J. Ober	640,932	Jan. 9	1592	336	90	312
Hinge. Loose-joint spring-	L. H. Sholder	641,553	Jan. 16	2689	613	90	558
Hinge. Mirror-	J. Roche	645,218	Mar. 13	1231	267	90	2013
Hinge. Spring-	J. Jackson	645,397	Mar. 13	1552	339, 340	90	2079
Hinge. Spring-	C. W. Hillenbrand	642,691	Feb. 6	224	55	90	1011
Hinge. Spring-	E. C. Hoffman	644,203	Feb. 27	2667	710	90	1601
Hitch-hook	M. W. Reeves	641,038	Jan. 9	1722	383	90	352
Hitching-post	H. Arsneau	642,567	Feb. 6	1	1	90	965
Hoe. Weeding-	E. C. Blundell	641,925	Jan. 23	3357	763	90	695
Hog-catching implement	S. Rufi	640,954	Jan. 9	1545	345	90	319
Hog-holder	A. Morris	643,673	Feb. 20	2027	478	90	1397
Hog-scalding device	F. C. Holder	641,774	Jan. 23	3080	700	90	642
Hog-scraping machine	G. W. Constantine	645,418	Mar. 13	1588	347	90	2086
Hog-scraping-machine stop mechanism	H. C. Gardner	644,592	Mar. 6	58	12, 13, 14	90	1766
Hog-trap	T. Fisher	640,804	Jan. 9	1423	319	90	297
Hoist	R. Rutter	644,468	Feb. 27	3490	810	90	1696
Hoist. Hydropneumatic	H. O. Evans	642,742	Feb. 6	319	77	90	1029
Hoisting and carrying machine	L. Harris	641,508	Jan. 16	2608	595	90	542
Hoisting apparatus	H. C. Behr	641,392	Jan. 16	2329	531	90	487
Hoisting apparatus	F. E. Herzog and F. L. Martin	642,845	Feb. 6	482	114	90	1060
Hoisting apparatus	N. C. Mills	644,828	Mar. 6	508	109	90	1855
Hoisting apparatus	C. W. Nason	641,135	Jan. 9	1904	422	90	389
Hoisting-machine	S. Mattson	643,516	Feb. 13	1704	400	90	1319
Hoisting-machine	J. B. Simpson	644,190	Feb. 27	2977	704, 705	90	1587
Hoisting-machinery safety attachment	T. H. Oxnam	641,145	Jan. 9	1922	426	90	392
Holder. Combined	W. Bernard	642,780	Feb. 6	370	90	90	1038
Holdfast	F. Planque	641,886	Jan. 23	3288	746	90	682
Hoof-cutter	A. J. Baer	640,258	Jan. 2	210	43	90	43
Hoof-pad	W. J. Kent	646,148	Mar. 27	2963	655	90	2386
Hoof-protector	H. Gale	643,246	Feb. 13	1214	284	90	1223
Hoof-trimmer	E. Morgan	646,058	Mar. 27	2789	618	90	2353
Hook:							
See Checkrein-hook. Miner's-bucket-locking hook.							
Coat or hat hook. Safety-hook.							
Fish-hook. Snap-hook.							
Fish trap-hook. Wagon-cover hook.							
Hitch-hook. Whiffletree-hook.							
Lacing-hook.							
Logging-hook.							
Hook	M. Barclay	642,282	Jan. 30	4021	915	90	842
Hook	W. V. Lawton	644,985	Mar. 6	774	168	90	1911
Hook and clasp. Combined	C. V. Richards	641,544	Jan. 16	2676	610	90	556
Hook and eye	A. T. Snell	644,153	Feb. 27	2899	686	90	1583
Hook and eye	S. F. Sullivan	645,434	Mar. 13	1513	353	90	2091
Hook and eye	E. E. Ward	643,700	Feb. 20	2076	489	90	1406
Hook and eye	M. D. Watson	642,939	Feb. 6	657	150	90	1098
Hook and eye attaching machine	L. A. Boggs	643,937	Feb. 20	2523	593	90	1498
Hook-and-eye-carding machines. Delivery-table for	T. J. Carmody	640,743	Jan. 9	1115	255	90	236
Hook for hooks and eyes	J. E. Pearson	640,697	Jan. 2	1031	234	90	199
Hoop:							
See Embroidery-hoop.							
Hoop cutting and punching machine	W. Glader	642,901	Feb. 6	590	135, 136	90	1081
Horse-controlling device	W. Treverton	641,810	Jan. 23	3138	712	90	654
Horse-detacher	H. Powers	642,365	Jan. 30	4197	948	90	879
Horse-detacher	I. Stensland	643,694	Feb. 20	2063	487	90	1404
Horse-detacher	H. H. and G. P. Thomson	642,646	Feb. 6	144	36	90	984
Horse foot-covering	M. Hallanan	646,214	Mar. 27	3102	684	90	2414
Horse-head-supporting device	D. Holford	643,844	Feb. 20	2346	552	90	1457
Horse heel-spreader	J. McDonough	645,511	Mar. 13	1746	383	90	2116
Horse-power for unloading hay	C. A. Clark	644,496	Feb. 27	3535	821	90	1704
Horse-power. Hay-press	C. F. Kohlruss	645,855	Mar. 20	2401	527	90	2260
Horse-tail protector	H. H. Jones	640,917	Jan. 9	1471	329	90	307
Horses. Protector against insects for	C. Weller and G. F. Lachenmyer	645,343	Mar. 13	1444	318	90	2057
Horseshoe	D. C. Bemont	642,573	Feb. 6	8	3	90	966
Horseshoe	E. Tüchler	645,580	Mar. 20	1886	416	90	2157
Horseshoe	N. M. Wig	644,388	Feb. 27	3364	781	90	1670
Horseshoe and pad	M. Hallanan	646,213	Mar. 27	3101	684	90	2414

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Horseshoe-calk	J. W. Miller	645,602	Mar. 20	1930	426	90	2166
Horseshoe calk attachment	S. S. Gastineau	644,131	Feb. 27	2867	679	90	1577
Horseshoe. Cushion-	H. Paar	643,272	Feb. 13	1261	295	90	1232
Horseshoe. Cushion-	A. Simmons	645,193	Mar. 13	1183	257	90	2005
Horseshoe. Cushioned	T. J. Lovett	645,995	Mar. 27	2611	579	90	2318
Horseshoe. Cushioned	T. J. Lovett	645,996	Mar. 27	2612	579	90	2318
Horseshoe. Elastic-tread	C. Y. De Lay	641,294	Feb. 6	3156	740	90	1031
Horseshoe. Elastic-tread	W. H. Denman	642,898	Feb. 6	585	133	90	1080
Horseshoe ice-creeper attachment	J. M. Myers	645,809	Mar. 20	2421	532	90	2264
Horseshoe. Nailless	W. Kondakov	640,309	Jan. 2	204	61	90	59
Horseshoe. Non-slipping	W. H. Berwick	642,574	Feb. 6	9	3	90	906
Horseshoe. Rubber-cushion	H. Paar	646,234	Mar. 27	3148	695	90	2423
Horseshoe. Rubber-tread	W. P. Strawmyer and O. Nilius	644,879	Mar. 6	600	129	90	1874
Horseshoe. Soft-tread	W. T. French	644,133	Feb. 27	2896	678	90	1577
Horseshoe. Soft-tread	T. N. Jones	641,210	Jan. 9	2059	461	90	419
Horseshoe. Soft-tread	M. Long	646,029	Mar. 27	2736	607	90	2342
Horseshoe. Soft-tread	E. E. Mears and J. A. Collet	641,130	Jan. 9	1894	419 420	90	397
Horseshoe. Soft-tread	A. M. Meisner	644,329	Feb. 27	2264	760	90	1651
Horseshoe. Spring-	J. M. Lord	643,662	Feb. 20	2010	474	90	1394
Horseshoes. Nail for unevenly-worn	W. J. Beck	644,903	Mar. 6	742	160	90	1904
Horseshoeing-rasp	D. Ludwig	644,020	Feb. 20	2675	632	90	1522
Hose-coupling	R. L. Davenport and F. Q. Rast	641,846	Jan. 23	3224	782	90	669
Hose-coupling	A. C. Diehl	640,638	Jan. 2	910	205	90	177
Hose-coupling	E. J. Hannold	645,707	Mar. 20	2124	465	90	2206
Hose-coupling	M. J. Konold	643,358	Feb. 13	1407	329	90	1261
Hose-coupling	P. H. Reardon	645,537	Mar. 13	1796	394	90	2120
Hose-coupling	C. N. Perkins	642,153	Jan. 30	3780	892	90	795
Hose-nozzle	W. H. Canner	641,933	Jan. 23	3570	766	90	699
Hose-nozzle. Convertible	D. H. Bennett	645,780	Mar. 20	2282	496	90	2235
Hose-patch	M. H. Hart	646,072	Mar. 27	2815	624	90	2357
Hose-pipe	E. Cliff	643,712	Feb. 20	2108	494 495	90	1412
Hose-reel	A. M. Erickson	645,252	Mar. 13	1289	289	90	2026
Hose-supporter	R. W. Parramore	643,779	Feb. 20	2223	524	90	1434
Hose-supporter	E. W. Thayer	643,754	Feb. 20	2178	511	90	1425
Hose-supporting belt. Abdominal	R. Meyer	641,528	Jan. 16	2644	608	90	549
Hosiery-singeing apparatus	F. Wunderly	641,618	Jan. 16	2797	636	90	590
Hosiery-singeing machine	U. S. Fortiner	641,697	Jan. 23	2914	664	90	613
Hot-air furnace or heater	O. K. Isham	643,822	Feb. 20	2290	539	90	1446
Hot air or vapor to the human body. Device for applying	C. E. Frick	641,688	Jan. 23	2916	665	90	614
Hot-air register	J. Kennedy	644,927	Mar. 6	675	146 147	90	1880
Hot-blast valve	W. K. Hopler	643,563	Feb. 13	1682	395	90	1314
Hot-water heater	S. Duncan	642,306	Jan. 30	4063	925	90	851
Hotel-register and advertising-card cabinet	M. E. Henderson	640,561	Jan. 2	759	167	90	148
House drop-siding	R. R. Boggs	640,737	Jan. 9	1106	253	90	234
Hub	J. A. Cripe	643,185	Feb. 13	1113	259	90	1208
Hub	J. A. Weltzel and U. G. Smith	646,245	Mar. 27	3167	700	90	2427
Hub-attaching device	S. Colt	644,790	Mar. 6	306	67	90	1814
Hub. Flexible wheel-	W. Horner	644,916	Mar. 6	661	142	90	1896
Hub. Sectional vehicle-	J. H. O'Brien	641,881	Jan. 23	3279	740	90	980
Hub. Vehicle-wheel	J. J. Laass	644,139	Feb. 27	2875	680 681	90	1578
Hub. Wheel-	F. J. Viel	642,022	Jan. 23	3528	808	90	729
Hub. Wheel-	H. Sauls and G. S. Cook	644,332	Feb. 27	3208	761	90	1052
Hub-wrench							
Huller: *See* Coffee-huller. Rice-huller.							
Husker: *See* Corn-husker.							
Hydraulic brake	F. L. Clark	641,625	Jan. 16	2811	639	90	582
Hydraulic elevator	P. J. Gilden	640,463	Jan. 2	586	125	90	115
Hydraulic giant	J. P. Simmons	642,853	Feb. 6	496	117	90	1002
Hydraulic motor	C. Hill	640,284	Jan. 2	262	53 542	90	52
Hydraulic motor	J. Stumpf	643,831	Feb. 20	2307	543 544 799	90	1450
Hydraulic press	W. and C. Sellers and W. Lewis	642,009	Jan. 23	3498	800 801	90	724
Hydrocarbon-burner	M. O. Godding	646,385	Mar. 27	3464	771	90	2488
Hydrocarbon-burner	M. O. Godding	646,386	Mar. 27	3465	771	90	2489
Hydrocarbon-burner	A. T. Ingalls	641,776	Jan. 23	3093	701	90	643
Hydrocarbon-burner	J. Johnston	643,602	Feb. 13	1857	438	90	1350
Hydrocarbon-burner	S. Sullars	641,558	Jan. 16	2606	614	90	560
Hydrocarbon-burner	R. Thayer	642,763	Feb. 6	345	84	90	1084
Hydrocarbon burners. Supply-wagon for incandescent or other	E. T. Headech	646,282	Mar. 27	3253	720	90	2439
Hydrocarbon-motor	T. F. Crowley	645,508	Mar. 13	1734	380	90	2114
Ice-cream, &c. Cutter-gage for	T. F. Crowley	642,585	Feb 6	42	9	90	973
Ice-cream-cutting device	J. W. Hart	640,196	Jan. 2	66	14	90	15
Ice-cream freezer	H. A. Martin	640,212	Jan. 2	107	21	90	23
Ice-cream freezer	A. W. Winters	641,912	Jan. 23	3328	757	90	620
Ice-cutting machine	J. C. Kitton	643,260	Feb. 13	1256	294	90	1231
Ice machine. Plate-	J. F. Wagner and A. Freeston	641,742	Jan. 23	3022	689	90	631
Ice. Manufacturing	J. F. Wagner and A. Freeston	641,814	Jan. 23	3143	713	90	655
Ice-manufacturing apparatus	W. H. Pumphrey	644,693	Mar. 6	231	50,51	90	1800
Ignition system	F. Lane	641,302	Jan. 16	2228	504	90	467
Illuminated gage	R. Messinger	644,621	Mar. 6	111	25,26	90	1776
Impact-motor	S. C. Davidson	641,847	Jan. 23	3296	732 733	90	669
Impact-wheel or turbine	C. P. Schultz	641,240	Jan. 9	2125	478	90	433
Incandescent mantle	A. S. Newby	646,282	Mar. 27	3146	------	90	2422
Incandescent mantles. Compound for coating	L. Hicks	641,898	Jan. 23	2929	------	90	616
Incandescent mantles. Manufacture of	W. Saulmann	640,326	Jan. 2	324	------	90	65
Incandescent mantles. Production of							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Inclined elevator	F. S. Steward	641,414	Jan. 16	2419	552	90	505
Incubator	N. C. Sprague	643,753	Feb. 20	2177	511	90	1425
Incubators. Thermostatic governor for	M. M. Johnson	643,508	Feb. 13	1694	398	90	1316
Index holder. Card-	D. E. Hunter	645,051	Mar. 6	904	195	90	1937
Indicator: *See* Bill-of-fare indicator. Office-indicator. Speed-indicator. Brake-Indicator. Street-indicator. Compass-indicator. Vessel-indicator. Maximum-indicator.							
Indicator	G. B. French	640,899	Jan. 9	1432	321	90	299
Indigo-leuco compounds. Manufacturing	A. H. S. Holt	643,502	Feb. 13	1680	------	90	1314
Indigo products. Making	R. Knietsch and H. S. A. Holt	644,326	Feb. 27	3257	------	90	1650
Induction-motor	G. S. Neeley	646,909	Mar. 27	3282	731	90	2447
Influence-machine	H. E. Waite	643,367	Feb. 13	1423	332	90	1264
Ingot. Compound	J. C. Russell	642,158	Jan. 30	3789	863	90	797
Ingot-mold and sink-head lining-brick therefor	J. K. Griffith	644,740	Mar. 6	318	71	90	1817
Ingots. Apparatus for removing molds from	J. Evans	641,502	Jan. 16	2599	592 593	90	539
Ingots. Manufacture of compound	J. C. Russell	642,157	Jan. 30	3788	863	90	797
Inhaler	G. D. Ballou	640,259	Jan. 2	213	43	90	43
Inhaler	A. Manners	642,748	Feb. 6	324	79	90	1030
Inhaler	W. W. Winton	645,741	Mar. 20	2247	479	90	2221
Injecting powders into the nasal passages. Device for	C. H. Murphey	645,566	Mar. 20	1842	406	90	2199
Injector	C. S. Taylor	646,111	Mar. 27	2881	638	90	2371
Injector. Double-tube	T. M. Eynon	643,638	Feb. 20	1967	462	90	1385
Injector. Steam-	F. Sticker	645,273	Mar. 13	1320	287 288	90	2033
Injector. Steam-	F. Sticker	645,274	Mar. 13	1323	288	90	2034
Injector. Steam-	F. Sticker	645,275	Mar. 13	1324	288	90	2034
Ink-bottle attachment	E. J. Robinson	644,540	Feb. 27	3028	814	90	1722
Ink for marking cigars or tobacco	E. Klein	646,122	Mar. 27	2909	------	90	2376
Inkstand. Combination-	W. T. Fitzpatrick	645,591	Mar. 20	1914	421	90	2163
Ink-well	S. G. Baldwin	646,344	Mar. 27	3351	748	90	2461
Ink-well	B. W. and W. E. Conroy	640,630	Jan. 2	895	203	90	174
Ink-well	J. L. Kerstetter	643,786	Feb. 20	2250	530	90	1439
Ink-well	E. Oldenbusch	645,121	Mar. 13	1046	222	90	1978
Ink-well	J. H. Miller	645,968	Mar. 27	2614	579	90	2319
Ink well and reservoir. Combined	B. G. Merrill	642,241	Jan. 30	3946	900	90	827
Ink-well holder	S. Whitlock	641,915	Jan. 23	3336	758 759	90	692
Inking mechanism	A. C. Kley	642,746	Feb. 6	323	78	90	1030
Inking-pad	A. Seaver	642,929	Feb. 6	640	146	90	1090
Inner sole	J. V. Allen	646,340	Mar. 27	3340	745 746	90	2459
Inner soles. Machine for applying stiffening-pins to	F. Dayton	644,503	Feb. 27	3546	836	90	1706
Insect-destroyer	B. H. Passmore and R. B. May	640,937	Jan. 9	1512	338	90	314
Insect-destroyer	A. F. Severance	641,155	Jan. 9	1945	431	90	396
Insect-destroyer	W. J. Barber	645,028	Mar. 6	861	187	90	1928
Insect or worm destroyer	G. H. Boyd	642,421	Jan. 30	4302	971	90	891
Insect-trap	E. P. Reister	642,368	Jan. 30	4203	------	90	881
Insecticide	A. E. Johnson	641,863	Jan. 23	3247	737 738	90	673
Insole-reinforcing machine	A. De Vilbiss	643,867	Feb. 20	2386	562	90	1465
Insufflator	A. Thoma	642,528	Jan. 30	4184	1017	90	934
Insulating-conduit. Armored	G. P. Erhard	641,198	Jan. 9	2039	456	90	415
Insulating-panel for walls of ships, &c	J. E. Wright	645,615	Mar. 20	1960	431	90	2172
Insulation for railways. Electric	A. Smith	643,012	Feb. 6	781	------	90	1118
Insulation, &c. Producing material suitable for electric	G. R. Mair	645,690	Mar. 20	2002	460	90	2199
Insulator and switch therefor. Section-	J. and W. R. Thomas	644,646	Mar. 6	162	36	90	1786
Insulator for use on electric railways	J. S. Schumaker and L. M. Glodell	640,959	Jan. 9	1554	346	90	320
Insulator. Section-	B. M. Aslakson	644,566	Mar. 6	9	3	90	1757
Internal-combustion engine	A. J. Frith	644,798	Mar. 6	450	97	90	1844
Internal-combustion engine	E. Thomson	642,176	Jan. 30	3820	870	90	803
Internal-combustion engine	J. E. Thornton and J. P. Lea	644,951	Mar. 6	719	156	90	1898
Internal-combustion engine	C. Lohrman	645,829	Mar. 20	2239	511	90	2246
Invoice-sheet	A. Bischler	641,491	Jan. 16	2572	------	90	534
Iodochloroxyquinolin							
Iron: *See* Gathering-iron. Smoothing-iron. Sad-iron. Soldering-iron.							
Iron and steel. Apparatus for manufacturing	T. Doherty	642,433	Jan. 30	4322	975	90	903
Iron or steel. Treatment of scrap	M. McDowell	644,719	Mar. 6	291	------	90	1811
Iron. Refining	F. W. Hawkins	645,205	Mar. 13	1209	263	90	2010
Ironing-board	G. Bacon	643,033	Feb. 6	872	189	90	1124
Ironing-board	G. T. Simpson	641,753	Jan. 23	3005	655	90	628
Ironing-machine	E. Noren	640,312	Jan. 2	298	62	90	60
Ironing webbing. Machine for	L. A. Gale	645,643	Mar. 20	2010	442	90	2182
Irrigation of arid land	L. L. Smith	643,550	Feb. 13	1761	414	90	1329
Jack: *See* Lifting-jack. Scaffold-jack. Logging-jack. Wagon-jack. Pumping-jack.							
Jack-block	J. F. Reed, W. E. Blotcher, and W. G. O'Rourke.	645,831	Mar. 20	2365	518	90	2232
Jail	R. C., Jr., and W. A. Stewart	645,575	Mar. 20	1864	411	90	2152
Jar-closure	J. L. and E. A. De Steiger	640,332	Jan. 2	332	69	90	67
Jar-closure	J. H. Fowler	640,897	Jan. 9	1427	320	90	298
Jar-closure	E. R. Meyer	643,908	Feb. 20	2465	540	90	1480
Jar closure. Fruit-	A. Smelker	645,430	Mar. 13	1608	351	90	2090
Jar-cover fastening. Fruit-	L. G. Thorp	642,896	Feb. 6	565	130	90	1076
Jar holder. Fruit-	L. E. Gower	645,391	Mar. 13	1536	337	90	2076
Jars, bottles, &c. Closure for	A. L. Weissenthanner	643,215	Feb. 13	1155	271	90	1212
Jars, &c. Cover-fastening for fruit	I. P. Doolittle	640,182	Jan. 2	42	9	90	10
Jars. Discharging mechanism for syrup or other	I. W. Heysinger	642,119	Jan. 30	3693	846	90	776

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Jewelry	G. Lincks	645,108	Mar. 13	1024	219	90	1975
Jewelry-fastening	B. Conlan	645,071	Mar. 13	942	202	90	1958
Jewelry-fastening	C. E. Smith	645,874	Mar. 20	2432	535	90	2266
Jewelry-mounting	A. A. Boismaure	645,909	Mar. 20	2495	551	90	2278
Joint: *See* Framing-joint. Pin-tongue joint. Pipe-joint. Piston-joint. Rail-joint. Railway-rail joint. Tile-joint. Tool-joint. Tube-joint. Wire-joint.							
Journal-bearing	E. H. Benners	643,934	Feb. 20	2517	592	90	1492
Journal-bearing locking adjustment	A. Newell	644,366	Feb. 27	3326	772	90	1663
Journal-box	J. R. Reniff	642,400	Jan. 30	4410	1001	90	921
Journal-box and lid	C. Robken	642,258	Jan. 30	3973	905	90	833
Journal-box lid	H. H. Vaughan	641,813	Jan. 23	3142	713	90	655
Journal, Roll-	O. H. Burgham	642,078	Jan. 30	3622	830	90	761
Junction-box	T. J. Murphy	640,482	Jan. 2	617	132 133	90	121
Kettle, Chocolate-	W. Walter	644,619	Mar. 6	172	37	90	1788
Kettle tipping-handle and cover holder	E. Morrison	645,119	Mar. 13	1042	222	90	1977
Kettles, Protector against steam from	C. Lorenzen	643,877	Feb. 20	2402	505	90	1468
Key	W. H. Taylor	641,807	Jan. 23	3133	712	90	653
Keyboard, Adjustable	D. F. Rankin	640,223	Jan. 2	127	25	90	27
Keys, handkerchiefs, &c, Device for holding	J. H. Polhemus	640,807	Jan. 9	1238	281	90	262
Kidney-protector	D. M. Newcomer	642,556	Jan. 30	4522	1024	90	941
Kiln: *See* Brick-kiln. Downdraft-kiln. Drying-kiln. Rotary kiln.							
Kiln	J. and C. Lengsholz	645,207	Mar. 13	1211	264	90	2011
Kinetoscope	L. U. Kamm	643,718	Feb. 20	2120	497	90	1414
Kite	W. A. Eddy	646,375	Mar. 27	3450	768	90	2486
Kite	W. H. Hoyt and C. S. Wardwell	642,451	Jan. 30	4355	987	90	910
Kite	E. B. and F. W. Merriman	645,423	Mar. 13	1597	349	90	2098
Knapsack	L. Weisenburger	645,151	Mar. 13	1107	247	90	1991
Knee-spreader	S. Y. Trice	642,734	Feb. 6	307	73	90	1027
Knife: *See* Band-cutting knife. Cheese-knife. Draw-knife. Paring and slicing knife. Pocket-knife.							
Knitted fabric	G. E. Rutledge and U. G. Lee	644,466	Feb. 27	3488	809	90	1696
Knitted fabrics, Forming	G. E. Rutledge and U. G. Lee	644,467	Feb. 27	3489	810	90	1696
Knitting fabrics	G. E. Rutledge	644,465	Feb. 27	3486	809	90	1696
Knitting-machine	W. Bach	643,997	Feb. 20	2628	620 621 622	90	1514
Knitting-machine	F. Rosati, C. and R. Petrini	645,332	Mar. 13	1428	313 314 315	90	2053
Knitting-machine	J. E. Tuttle	645,924	Mar. 20	2521	557 558	90	2283
Knitting-machine	A. White	644,309	Feb. 27	3211	731 732	90	1642
Knitting-machine	L. N. D. Williams	646,226	Mar. 27	3323	743 744	90	2458
Knitting machine, Circular-	H. Brown	642,579	Feb. 6	16	6	90	908
Knitting machine, Circular-	J. A. Burleigh	641,837	Jan. 23	3190	725 726	90	661
Knitting machine, Circular-	H. A. Houseman	640,769	Jan. 9	1164	265 266 267	90	246
Knitting machine, Circular-	H. A. Houseman	645,708	Mar. 20	2124	465	90	2206
Knitting machine, Circular-	F. Wilcomb	645,676	Mar. 20	2067	451	90	2193
Knob attachment	J. G. Williams	641,662	Jan. 16	2875	655	90	596
Knob, Bell door-	J. I. Flint	641,640	Jan. 16	2858	646	90	588
Knobs, &c, Coupling-fastener for door-	W. W. Lewis	644,559	Feb. 27	3674	854	90	1729
Knockdown box	J. Shellenberger and C. L. King	644,690	Mar. 6	247	55	90	1801
Label-holder	F. H. Kelly	641,970	Jan. 23	3425	778	90	709
Label holder, Drawer and bottle	C. W. Ivins	644,081	Feb. 27	2774	657	90	1558
Labeling-machine	J. MacLean	641,311	Jan. 16	2244	509	90	471
Labeling machine, Can-	S. Fyfe	642,438	Jan. 30	4329	977 978	90	904
Lace clasp, Shoe-	A. M. English	649,788	Feb. 6	381	92	90	1040
Lacing-hook	H. O. Whyman	640,809	Jan. 2	847	189	90	165
Lacing-hook	H. O. Whyman	640,724	Jan. 2	1079	246	90	209
Lacing-stud-setting machine	W. P. Bartel	640,857	Jan. 9	1350	302 303	90	284
Ladder and table	L. C. Bailey	640,354	Jan. 2	368	78	90	73
Ladder, Combination step-	W. L. Skelley	641,158	Jan. 9	1952	433	90	398
Ladder, Combined step and extension	W. Williamson	640,611	Jan. 2	851	189	90	166
Ladder, Folding	T. H. Betty	646,347	Mar. 27	3356	750	90	2462
Ladder, Folding	A. W. Lyda and W. L. Turner	640,214	Jan. 2	106	21	90	23
Ladder-leveling attachment, Step-	M. A. Baetz	644,593	Mar. 6	12	3	90	1757
Ladder, Step-	C. E. Andre	644,048	Feb. 27	2719	644	90	1545
Ladder, Step-	J. G. Milhime	645,867	Mar. 20	2492	532	90	2261
Ladling device	W. and J. Lanyon	644,712	Mar. 6	277	61	90	1808
Lamp	W. C. Homan	645,099	Mar. 13	1007	216	90	1972
Lamp	J. M. Pfaudler	645,096	Mar. 6	805	176	90	1917
Lamp	F. Rhind	642,527	Jan. 30	4466	1013	90	930
Lamp	F. Rhind	642,528	Jan. 30	4467	1014	90	931
Lamp	F. Rhind	642,923	Feb. 6	631	144 145	90	1088
Lamp	R. J. Robertson	640,950	Jan. 9	1538	343	90	318
Lamp	F. T. Williams	644,786	Mar. 6	428	92	90	1839
Lamp	W. P. Crary	643,111	Feb. 13	979	220	90	1176
Lamp, Acetylene-	A. C. Einstein and C. J. Schnaus	645,896	Mar. 20	2464	544 545	90	2273
Lamp, Acetylene-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp, Acetylene-gas	W. A. Barrows	643,101	Feb. 13	958	224	90	1172
Lamp, Acetylene-gas	G. B. Gates	643,869	Feb. 20	2391	562	90	1466
Lamp, Acetylene-gas	W. C. Homan	640,912	Jan. 9	1464	327	90	305
Lamp, Acetylene-gas	W. C. Homan	646,051	Mar. 27	2781	616	90	2351
Lamp, Acetylene-gas	W. C. Homan	646,052	Mar. 27	2782	617	90	2351
Lamp, Acetylene-gas	J. Jauch	641,862	Jan. 23	3246	737	90	673
Lamp, Acetylene-gas	P. Josserand	643,901	Feb. 20	2448	576	90	1477
Lamp, Acetylene-gas	P. F. McCaffrey and T. A. Dunshee	644,804	Mar. 6	458	98	90	1845
Lamp, Acetylene-gas	E. M. Parkhurst	642,559	Jan. 30	4527	1025	90	942
Lamp, Acetylene-gas-generating	S. P. Hallows and A. Tucker	644,910	Mar. 6	650	140	90	1864
Lamp, Acetylene-gas-generating	F. W. Hedgeland	644,768	Mar. 6	379	84	90	1830
Lamp, Acetylene-gas-generating street-	W. C. Clarke	643,222	Feb. 13	1166	273	90	1214
Lamp attachment	F. W. Hedgeland	643,897	Feb. 20	2442	575	90	1476
Lamp, Blowpipe-	J. Heinz	646,171	Mar. 27	3012	665	90	2396
Lamp-bracket	F. Rhind	645,973	Mar. 27	2624	581	90	2321
Lamp bracket, Miner's-	T. R. Jones	640,387	Jan. 2	448	92	90	89
Lamp-burner	H. A. Crosby	640,538	Jan. 2	721	157	90	142
Lamp-burner	H. Greenwood	643,496	Feb. 13	1669	392	90	1312
Lamp-burner	S. B. Morss	641,217	Jan. 9	2076	466	90	423
Lamp-burner	S. B. Morss	641,218	Jan. 9	2077	466	90	423
Lamp-burner	J. M. Pfaudler	645,005	Mar. 6	803	176	90	1917
Lamp-burner	W. E. Thompson	645,340	Mar. 13	1440	317	90	2056
Lamp-burner	F. T. Williams	640,981	Jan. 9	1616	357	90	332
Lamp-burner and wick-holder	J. L. Stone	640,828	Jan. 9	1302	292	90	274
Lamp burner, Gas-	R. J. W. Reinhard	643,006	Feb. 6	767	176	90	1116
Lamp burner, Gasolene-	F. A. Cortis	642,784	Feb. 6	375	91	90	1039
Lamp-burner or burner attachment	J. H. Stone	642,385	Jan. 30	4235	957	90	886
Lamp burner, Petroleum incandescent-	J. Braunschild	643,807	Feb. 20	2262	533	90	1441
Lamp-burners, Light-extinguishing attachment for	G. E. Hasson	640,467	Jan. 2	591	126	90	116
Lamp-chimney	J. F. McHenry	645,669	Mar. 20	2056	452	90	2191
Lamp-chimney holder	S. H. Raymond	644,185	Feb. 27	2969	701	90	1595
Lamp-collars, Machine for applying	P. Ebeling	642,307	Jan. 30	4065	925	90	862
Lamp, Electric	W. A. Fenner	640,729	Jan. 2	1067	248	90	210
Lamp, Electric	C. Van Deventer	641,196	Jan. 9	2035	455	90	414
Lamp, Electric-arc	T. E. Adams	644,562	Mar. 6	1	1	90	1755
Lamp, Electric-arc	T. E. Adams	644,563	Mar. 6	5	1, 2	90	1755
Lamp, Electric-arc	E. M. Barnes	644,962	Mar. 6	738	159 160	90	1903
Lamp, Electric-arc	E. L. Bowen	645,784	Mar. 20	2286	497	90	2236
Lamp, Electric-arc	W. J. Davy	644,816	Mar. 6	485	104	90	1850
Lamp, Electric-arc	E. W. Rice, Jr.	641,891	Jan. 23	3293	748	90	648
Lamp, Electric-arc	C. J. Toerring	643,834	Feb. 20	2315	545 546	90	1451
Lamp, Electric-arc	W. Vogel	645,499	Mar. 13	1729	379	90	2118
Lamp, Electric bicycle-	G. Heidel	644,823	Mar. 6	496	106	90	1852
Lamp, Electric glow-	W. Boehm	644,160	Feb. 27	2913	689 690	90	1585
Lamp, Electric glow-	J. Van Vleck	644,783	Mar. 6	417	90, 91	90	1837
Lamp, Electric glow-	J. Van Vleck	644,785	Mar. 6	426	92	90	1839
Lamp, Electric glow-	J. Van Vleck and W. N. Stevens	644,784	Mar. 6	421	91	90	1838
Lamp, Electric incandescent	F. M. F. Cazin	640,366	Jan. 2	404	85	90	80
Lamp-filling device for lamp-burners	C. W. Cottrell	640,537	Jan. 2	720	157	90	141
Lamp, Flash-	C. Klary	646,225	Mar. 27	3127	689 690	90	2419
Lamp, Formaldehyde-	F. E. Averill	642,063	Jan. 30	3596	824	90	756
Lamp, Fumigating-	R. S. West	643,312	Feb. 13	1327	313	90	1245
Lamp, Gas-	M. P. Stevens	645,142	Mar. 13	1095	233 234	90	1988
Lamp globes, Manufacture of incandescent or other	W. C. Fusner	645,204	Mar. 13	1209	------	90	2010
Lamp hanger, Electric-	W. F. Murphy	642,628	Feb. 6	102	25	90	965
Lamp holder, Incandescent-	L. Canda and H. R. Bothwell	640,362	Jan. 2	398	84	90	79
Lamp, Hydrocarbon incandescent	C. E. White	642,942	Feb. 6	661	151	90	1094
Lamp-igniting device, Cycle-	W. Angress	640,852	Jan. 9	1343	301	90	282
Lamp, Incandescent	E. W. Gillmer	640,465	Jan. 2	588	125	90	116
Lamp, Incandescent	W. B. Rulon and J. S. Keen, Jr	643,425	Feb. 13	1532	361	90	1283
Lamplighter or light-extinguisher	Z. F. Highsmith	642,226	Jan. 30	3922	892 893	90	823
Lamplighting attachment for lamp-chimneys	J. M. White	642,657	Feb. 6	164	41	90	998
Lamp, Miner's	W. A. Dunlap	643,112	Feb. 13	961	229	90	1176
Lamp, Night-	G. A. Smith	641,749	Jan. 23	3037	691	90	634
Lamp pencil, Electric-arc-	G. Heidel	641,958	Jan. 23	3410	775	90	707
Lamp, Pit or mining	R. C. West	643,281	Feb. 13	1280	301	90	1235
Lamp, Portable electric	H. J. Muller	641,468	Jan. 16	2517	576	90	524
Lamp, Portable electric	A. F. Vetter	646,114	Mar. 27	2806	642	90	2374
Lamp-shade	E. T. Berggren	643,395	Feb. 13	1477	347	90	1273
Lamp-shade	R. W. Pittman	641,221	Jan. 9	2068	469	90	425
Lamp shade-holder, Electric-	E. A. Russell and H. Serrell	640,493	Jan. 2	631	136 137	90	124
Lamp shade-holder, Incandescent-electric-	E. A. Russell	640,492	Jan. 2	630	136	90	123
Lamp support, Bicycle-	F. W. Hedgeland	642,906	Feb. 6	590	138	90	1083
Lamp support, Electric-	H. Long	642,911	Feb. 6	610	140	90	1085
Lamp, Vapor-burning incandescent	A. P. Dyran	646,365	Mar. 27	3431	765	90	2482
Lamp-wick raising and controlling device	F. B. Walbel and H. Meytrott	645,282	Mar. 13	1337	291	90	2036
Lamps and liquid-fuel-burning devices, Electrically igniting	R. Schreiber	642,804	Feb. 6	404	98	90	1044
Lamps, Auxiliary generator for oil-gas	A. F. Gillet	642,974	Feb. 6	712	163	90	1104
Lamps, Device for convenient filling of	L. Pagel	646,310	Mar. 27	3285	732	90	2448
Lamps, Fastening device for heads of electric glow-	J. Kremenezky	645,266	Mar. 13	1309	285	90	2030
Lamps, Refracting attachment for bicycle-	A. W. Hecht	643,129	Feb. 13	1013	235 236	90	1183
Lamps, Socket for incandescent electric	W. E. A. M. Oetting	642,825	Feb. 6	449	108	90	1053
Lamps, &c, Suspension device for	E. Fisher	644,008	Feb. 20	2656	628	90	1519
Land-roller	J. B. Heffner	642,327	Jan. 30	4109	932	90	861
Lantern	C. H. Koster	645,320	Mar. 13	1399	307	90	2047

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lantern-carrying attachment	R. L. Smith	642,499	Jan. 30	4122	1004	90	923
Lantern. Dark	H. F. Hughes	643,768	Feb. 20	2204	520	90	1430
Lantern. Hand-	F. W. Dressel	644,735	Mar. 6	313	60	90	1816
Lantern-latch	E. B. Snow	644,809	Mar. 6	468	100	90	1847
Lap-robe. Plush	J. Stroock	640,990	Jan. 9	1637	361	90	396
Last	H. Brown	640,361	Jan. 2	397	84	90	79
Last	W. H. Butterick	642,341	Jan. 30	4143	986	90	868
Last	A. G. Leonard and L. C. Kenton	646,144	Mar. 27	2957	653	90	2385
Last	E. W. Gerrish	642,945	Feb. 6	666	152	90	1005
Last	E. C. Wright	645,088	Mar. 6	880	190	90	1092
Last	T. F. Lyons	643,859	Feb. 20	2371	558	90	1462
Last attachment	W. B. Arnold	645,906	Mar. 20	2489	550	90	2277
Last. Divided	W. B. Arnold	641,029	Jan. 16	2223	642	90	585
Last. Divided	F. L. Hovey	640,999	Jan. 9	1658	368 / 369	90	340
Last. Hinged	W. H. Dorman	644,120	Feb. 27	2833	672	90	1571
Lasting-machine	E. Woodward	644,192	Feb. 27	2982	706	90	1597
Lasting-machine	T. B. Stevens	644,946	Mar. 6	713	154	90	1857
Latch	F. E. Richardson	641,435	Jan. 16	2470	566	90	514
Latch. Door-	E. M. Clough	640,281	Jan. 2	256	51, 52	90	51
Latch. Sliding-door	J. F. Dowding	645,313	Mar. 13	1389	304 / 305	90	2045
Lathe	J. F. Dowding	640,220	Jan. 2	124	24,	90	26
Lathe	S. and E. Perle and W. Buttermilch	643,194	Feb. 13	1125	262	90	1206
Lathe	W. E. Moffatt	643,196	Feb. 13	1119	261	90	1205
Lathe apron. Engine-	W. Lodge	643,172	Feb. 13	1086	251 / 252	90	1199
Lathe bed and apron	A. Tindel and O. Albrecht	642,981	Feb. 6	725	166	90	1107
Lathe. Crank-pin or eccentric turning	W. B. Hankins	646,078	Mar. 27	2821	625 / 626 / 627	90	2359
Lathe-dog	J. Moll	645,491	Mar. 13	1715	373	90	2111
Lathe for turning crank-shafts	G. Reynolds	643,713	Feb. 20	2112	495 / 496	90	1413
Lathe turning attachment	O. E. Converse	643,191	Feb. 13	1120	261	90	1205
Lathes. Boring attachment for metal-working	W. Lodge	643,640	Feb. 20	1971	463 / 464	90	1386
Lathes. Speed-changing gear for engine-	A. R. Fordyce and W. Duncan	642,056	Jan. 23	3578	819	90	788
Lathing. Machine for making expanded metallic	G. A. Turnbull	640,847	Jan. 9	1331	299	90	280
Lathing. Metallic	W. H. Welsh	640,430	Jan. 2	536	112	90	105
Laundry apparatus	B. O. Tilden	642,140	Jan. 30	3750	857	90	788
Lavatory-trap	W. Luke	645,439	Mar. 13	1626	355 / 356	90	2098
Lawn-trimmer	J. B. Thoms	641,751	Jan. 23	3040	------	90	635
Leaching vat. Bark-	O. J. Steinhart and J. L. F. Vogel	643,386	Feb. 13	1468	342 / 343	90	1270
Lead carbonate. Producing basic	R. Smith	645,070	Mar. 13	940	201	90	1958
Leaf-gatherer	A. Colomes	644,322	Feb. 27	3247	757 / 758	90	1648
Leak-stopper for vessels. External	P. Goldschmidt	645,291	Mar. 13	1358	------	90	2040
Lease mechanism	S. K. Felton, Jr.	641,394	Jan. 16	2380	------	90	497
Leather. Coloring	P. H. Kauschke	642,878	Feb. 6	546	126	90	1072
Leather. Coloring	J. G. Schneider	645,461	Mar. 13	1662	------	90	2100
Leather cutting and ornamenting die	A. R. Dawley	642,819	Jan. 30	4095	------	90	859
Leather-dressing	F. Gatzsche	641,734	Jan. 23	3306	684 / 685 / 687	90	628
Leather fabric. Composition for making artificial	F. F. Slocomb	643,316	Feb. 13	1331	314 / 315	90	1216
Leather-finishing machine	S. B. Beasecker	640,794	Jan. 9	1210	275	90	254
Leather-loop-pressing machine	J. L. McCaul	645,886	Mar. 20	2447	540	90	2269
Leather. Making dies for embossing	F. Breidenbach	645,556	Mar. 20	1825	402 / 403	90	2145
Leather-polishing machine	W. H. Downs	640,426	Jan. 2	528	110 / 111	90	101
Leather-polishing machine	C. P. Stanbon	645,777	Mar. 20	2277	495	90	2234
Leather-punching machine	F. H. Adams	640,216	Jan. 2	115	22	90	24
Leather-stretching machine	F. Monk	640,597	Jan. 2	827	183 / 184	90	102
Leather-working machine	O. Stegmeyer	644,479	Feb. 27	3508	814 / 815	90	1700
Leather-working machine	J. H. Topp and E. Vosburgh	645,056	Mar. 13	916	------	90	1954
Leather. Treating	R. B. Arthur	642,280	Jan. 30	4018	915	90	842
Ledger	C. F. Backus	642,508	Jan. 30	4437	1008	90	925
Ledger-leaf	H. Trimble	644,210	Feb. 27	3009	712	90	1604
Ledger. Loose-leaf	E. L. McClure	646,106	Mar. 27	2474	637	90	2369
Ledgers, &c. Extensible post for transfer-	H. P. and H. S. Jones	642,284	Jan. 30	4024	916	90	843
Ledgers. Leaf for loose-leaf	J. Barker	640,941	Jan. 9	1320	320	90	315
Leg. Artificial	A. L. Peters	644,736	Mar. 6	314	69, 70	90	1816
Lemon-squeezer	J. L. Easley	641,703	Jan. 23	2939	670	90	618
Lemon-squeezer	J. J. Kizler	640,191	Jan. 2	60	12, 13	90	14
Lens-grinding machine. Bifocal-	W. H. Gaither	641,987	Jan. 23	3459	788	90	717
Letter-carrier's bag	M. McCarthy	646,016	Mar. 27	2714	602	90	2337
Letter or order box	P. A. Bradford	645,850	Mar. 20	2394	536	90	2258
Lettering-guide	W. J. Hannegan	645,058	Mar. 13	918	197	90	1954
Level	J. W. Bechtol	642,230	Jan. 30	3928	895	90	824
Level. Plumb-	F. X. Hurtubis	645,209	Mar. 13	1312	286	90	2031
Level. Plumb-	B. C. Morgan	646,098	Mar. 27	2857	634	90	2366
Leveling instrument	M. Nilson	644,956	Mar. 6	726	158	90	1900
Lever-shears	F. A. Williams	646,264	Mar. 27	3108	709	90	2432
Library, pool, and billiard table	S. W. Collins	640,985	Jan. 9	1625	359	90	334
Life-preserver	H. Aylmer	642,846	Feb. 6	484	114	90	1060
Life-preserver	H. C. Hildebrandt	643,688	Feb. 20	2044	483	90	1400
Life-preserver	J. and H. Silbar	641,278	Jan. 16	2187	492	90	459
Life-preserver	J. Dick	642,796	Feb. 6	394	96	90	1042
Life-saving net	A. O. Jones						
Lift							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Lifter and strainer	M. S. Sarles	642,262	Jan. 30	3979	907	90	834
Lifting and transporting goods. Apparatus for	H. O. Cooper	644,499	Feb. 27	3539	824 / 825	90	1705
Lifting-jack	A. Bauer	641,490	Jan. 16	2570	587	90	584
Lifting-jack	A. J. F. Miller	646,296	Mar. 27	3259	727	90	2443
Lifting-jack. Vehicle	D. W. Hudson	640,200	Jan. 2	75	15	90	17
Lighter. Pocket-	C. M. Campbell	645,456	Mar. 15	1654	362	90	2099
Lighting apparatus	R. M. Dixon	643,814	Feb. 20	2279	536	90	1444
Lightning-arrester	C. C. Chinn	640,744	Jan. 9	1116	255	90	236
Lightning-arrester	J. M. Metcalf	640,478	Jan. 2	611	131	90	120
Limb. Artificial	R. E. Daniels	640,540	Jan. 2	725	158 / 159 / 160	90	142
Limb. Artificial	L. E. Hullinger and R. P. Curts	644,802	Mar. 6	456	98	90	1845
Limb suspender. Artificial-	J. F. Rowley	644,464	Feb. 27	3485	809	90	1695
Lime. Apparatus for making bisulfite of	V. Drewsen	646,268	Mar. 27	3296	711	90	2434
Line-tightener	L. S. Hite	643,059	Feb. 6	805	201	90	1133
Lining-hoops. Machine for attaching	M. J. Bartlett	645,993	Mar. 27	3664	590 / 591	90	2328
Linotype-machine	D. A. Hensley	643,289	Feb. 13	1290	304	90	1238
Linotype-machine	C. Holliwell and R. C. Elliott	643,292	Feb. 13	1294	305 / 306	90	1238
Linotype-machine	J. MacKirdy	643,329	Feb. 13	1357	318	90	1251
Linotype-machine	O. Mergenthaler	644,363	Feb. 27	3322	771	90	1662
Linotype-machine	J. S. Thompson	645,438	Mar. 13	1622	355	90	2093
Linotype-machine casting mechanism	C. Holliwell	645,472	Mar. 13	1681	367	90	2104
Linotype-machine casting mechanism	J. Place	643,274	Feb. 13	1267	297	90	1233
Linotype-machine mold-block	P. C. Lawless	644,558	Feb. 27	3670	853 / 854	90	1728
Linotype-machine quad-forming attachment	W. H. Doolittle	645,078	Mar. 13	945	202	90	1959
Linotype-machines. Matrix-alining mechanism for	J. Place	643,976	Feb. 20	2589	610	90	1506
Linotyping machine	E. G. Leonard	646,227	Mar. 27	3130	690	90	2420
Liquid-cooler	L. C. Ibsen	642,456	Jan. 30	4362	989	90	911
Liquid-cooling apparatus	W. E. McKay	644,364	Feb. 27	3323	772	90	1662
Liquid-drawing and cask-venting appliance	J. Watkins	642,393	Jan. 30	4249	959	90	889
Liquid-meter	E. T. McKaig	643,847	Feb. 20	2349	553	90	1458
Liquid-meter	W. D. Washington and F. C. Goodwin	643,432	Feb. 13	1544	363	90	1286
Liquid-raising apparatus	R. W. Elliott	642,968	Feb. 6	704	161	90	1108
Liquid-saver	H. T. Cahill	641,267	Jan. 16	2170	489	90	455
Liquids. Apparatus for removing saccharin or other impurities from all kinds of	J. T. Bennett	640,328	Jan. 2	708	153	90	138
Liquids. Composition of material for lining vessels used for storing or boiling corrosive	R. Panzl	644,367	Feb. 27	3327	------	90	1663
Liquids stored in vessels. Apparatus for preventing access of air to	D. Clibborn	642,960	Feb. 6	692	158 / 159	90	1100
Lithographic coatings on metallic plates. Producing	J. Wezel	640,245	Jan. 2	170	------	90	36
Load-controlling device	J. Ryan	640,230	Jan. 2	140	29	90	29
Load-gate. Adjustable	G. D. Worswick	642,058	Jan. 23	3581	819 / 820	90	739
Loading movable carriers. Apparatus for	A. Painter	640,934	Jan. 9	1505	337	90	312
Loading or unloading apparatus	T. M. McIntosh	644,533	Feb. 27	3615	841	90	1719
Lock:							
See Alarm-lock. Bicycle-lock. Coat-lock. Combination-lock. Door-lock. Electric lock. End-board lock. Hasp-lock. Package-carrier safety-lock. Permutation-lock. Safety-lock. Sash-lock. Seal-lock Spring-lock. Trace-lock. Trunk-lock.							
Lock	J. L. Bolsinger	642,671	Feb. 6	188	47	90	1003
Lock	W. J. Boon	641,824	Jan. 23	3164	718	90	659
Lock	L. Faust	642,217	Jan. 30	3907	889	90	819
Lock	A. R. Fergusson	643,955	Feb. 20	2549	600	90	1499
Lock	A. R. Fergusson	643,957	Feb. 20	2552	601	90	1500
Lock	A. R. Fergusson	643,958	Feb. 20	2554	601	90	1500
Lock	A. R. Fergusson	645,049	Mar. 6	899	195	90	1936
Lock	W. S. Houser	641,965	Jan. 23	3418	777	90	708
Lock	J. C. Meyer	644,255	Feb. 27	3094	728	90	1619
Lock	E. Sargent	640,956	Jan. 9	1550	345	90	320
Lock	W. H. Taylor	645,840	Mar. 20	2377	521	90	2255
Lock and latch	C. Closz	642,961	Feb. 6	693	159	90	1100
Lock and latch	W. H. Taylor	645,610	Mar. 20	1947	429	90	2170
Lock and latch. Combined	T. A. L. Moore	640,217	Jan. 2	116	22	90	24
Lock and latch. Combined	L. H. Mullikin	646,004	Mar. 27	2858	633	90	2366
Lock-bolt	E. P. Simpson	642,375	Jan. 30	4290	953	90	883
Lock-cylinders and key-hubs. Mold for	F. and H. F. Keil	643,656	Feb. 20	2000	471 / 472	90	1392
Locomotive	J. B. Tate	643,560	Feb. 13	1776	419	90	1333
Locomotive-flanger	T. Crockett	642,300	Jan. 30	4049	922	90	848
Locomotive for elevated railways	M. A. Patton	641,794	Jan. 23	3113	706	90	649
Locomotive. Mine-haulage	C. E. Davis	645,553	Mar. 20	1820	401	90	2144
Locomotive or railway engine	D. Joy	643,745	Feb. 20	2165	506 / 509	90	1423
Locomotive stand-pipe	J. Henderson	642,118	Jan. 30	3691	846	90	776
Locomotive-tank water-heater	J. F. Deems	642,088	Jan. 30	3640	834	90	765
Locomotive-tender coal-gate	J. N. Clutter	645,551	Mar. 20	1818	400	90	2143
Locomotive-windows. Folding shield or guard for	H. M. Pemberton	646,811	Mar. 27	3287	732	90	2448
Log-cart	G. Bender	643,933	Feb. 20	2516	502	90	1492
Log-turner. Steam	E. E. Thomas	640,503	Jan. 2	650	140 / 141	90	128
Log-turner. Steam	E. E. Thomas	640,504	Jan. 2	652	141 / 142	90	128

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Logging-car	G. A. Mountcastle	645,510	Mar. 13	1745	388	90	2116
Logging-hook	W. M. Deyoe	644,068	Feb. 27	2740	649	90	1549
Logging-jack	A. M. Gilchrist	641,951	Jan. 23	3402	773	90	705
Loom	C. Alvord	645,637	Mar. 20	1966	439	90	2179
Loom	J. L. Burton	641,434	Jan. 16	2466	565 / 566	90	513
Loom	A. W. Clement	641,763	Jan. 23	3061	696	90	638
Loom	H. W. Cray	645,913	Mar. 20	2504	553	90	2279
Loom	G. F. Hutchins	645,525	Mar. 13	1776	399	90	2122
Loom	J. Northrop and E. S. Stimpson	641,792	Jan. 23	3107	705 / 707	90	647
Loom	J. H. Northrop	643,271	Feb. 13	1259	295	90	1282
Loom	G. Schaefer and F. Hinkel	640,706	Jan. 2	1043	237 / 238	90	201
Loom	W. I. Stimpson and J. H. Northrop	640,714	Jan. 2	1060	242	90	205
Loom	A. and S. Widmer	643,704	Feb. 20	2089	491	90	1408
Loom	H. Wyman	642,046	Feb. 6	668	152 / 153	90	1095
Loom	H. Wyman	643,389	Feb. 13	1467	343 / 344	90	1271
Loom	P. Lambert	644,984	Mar. 6	773	167	90	1910
Loom attachment	J. W. Small	644,092	Mar. 6	250	55	90	1803
Loom box-motion	W. B. White, Jr	643,021	Feb. 6	795	185	90	1120
Loom-dobby	I. E. Palmer	642,359	Jan. 30	4161	945 / 946	90	876
Loom for cross-weaving	I. E. Palmer	642,360	Jan. 30	4183	946	90	877
Loom for cross-weaving	I. E. Palmer	642,361	Jan. 30	4185	947	90	877
Loom for weaving pile fabrics	A. Duquesne	642,740	Feb. 6	814	74 / 75 / 76 / 77	90	1029
Loom friction warp-rack	W. J. Irwin	644,429	Feb. 27	3430	796	90	1684
Loom guide-lever	L. A. King	643,657	Feb. 20	2008	472 / 473	90	1398
Loom-harness	W. S. Lackey	643,509	Feb. 13	1096	256	90	1317
Loom-harness-controlling mechanism	G. Kremer and E. Monhof	642,908	Feb. 6	602	138 / 139	90	1083
Loom-heddle	S. Sewall	644,871	Feb. 27	3334	773	90	1664
Loom indicator mechanism	H. Hardwick	645,502	Mar. 20	1836	405	90	2147
Loom jacquard-machine	J. Dean	641,582	Jan. 16	2740	624	90	568
Loom. Narrow-fabric	E. Oldfield	641,605	Jan. 16	2774	632	90	575
Loom. Needle-	G. F. Kuett	643,902	Feb. 20	2450	576 / 577	90	1477
Loom. Needle-	D. J. MacDonald	643,878	Feb. 20	2408	565	90	1468
Loom. Needle-	R. L. Durham	643,816	Feb. 20	2282	537	90	1445
Loom picker attachment	F. A. Whitmore	645,411	Mar. 13	1581	345	90	2085
Loom protector mechanism	C. Alvord	645,636	Mar. 20	1905	438	90	2179
Loom shedding mechanism	E. Ingraham	643,964	Feb. 20	2565	604	90	1502
Loom shedding mechanism	D. M. Burgess	642,837	Feb. 6	472	111	90	1058
Loom-shuttle	D. M. Seaton	646,319	Mar. 27	3904	737	90	2452
Loom-shuttle	Z. Thuot	645,695	Mar. 20	2102	461	90	2201
Loom-shuttle	H. Tomlinson	642,388	Jan. 30	4238	957	90	887
Loom-shuttle	W. H. Walton	641,815	Jan. 23	3144	714	90	656
Loom-shuttle	H. Wyman	644,958	Mar. 6	731	158	90	1901
Loom shuttle-box	H. I. Harriman	645,080	Mar. 6	955	188	90	1929
Loom-shuttle checking and releasing mechanism	F. Carpentier	644,895	Mar. 6	625	135	90	1879
Loom-shuttle tension device	C. and W. E. Fischer and G. F. Kuett	642,666	Feb. 6	217	54	90	1009
Loom take-up	A. W. Clement	643,284	Feb. 13	1284	308	90	1286
Loom take-up mechanism	N. I. Allen	641,631	Jan. 16	2825	643	90	585
Loom-temple	A. W. Clement	645,912	Mar. 20	2502	553	90	2279
Loom warp stop-motion	R. Crompton	643,402	Feb. 13	1489	349	90	1275
Loom warp stop-motion	C. A. Littlefield	643,299	Feb. 13	1304	308	90	1240
Loom warp stop-motion	C. A. Littlefield	643,300	Feb. 13	1306	308	90	1241
Loom weft-replenishing mechanism	A. D. Emery	645,897	Mar. 20	2407	545 / 546 / 547	90	2273
Looms. Weft-parter for automatic weft-replenishing	H. I. Harriman	640,656	Jan. 2	942	212	90	183
Low-water alarm	W. D. McLauchlin	645,736	Mar. 20	2201	478	90	2219
Lowering apparatus. Safety	D. M. Collins	644,662	Mar. 6	195	42	90	1702
Lozenge-making machine	F. H. Marker	644,981	Mar. 6	681	148 / 149	90	1891
Lubricating device	G. T. Glover	643,088	Feb. 6	933	219	90	1145
Lubricating rotating shafts. Means for	M. Bruscher	643,710	Feb. 20	2101	493	90	1411
Lubricator: *See* Automatic lubricator. Axle-lubricator. Cylinder-lubricator. Engine-lubricator. Railway-track lubricator. Windmill-lubricator.							
Lubricator	J. F. Lewis	646,076	Mar. 27	2818	625	90	2358
Lubricator	E. H. Lunken	640,576	Jan. 2	785	173 / 174	90	153
Lubricator	E. H. Lunken	645,479	Mar. 13	1692	370	90	2106
Lubricator	E. McCoy	646,126	Mar. 27	2923	647	90	2379
Lubricator	S. J. Wetmore	640,432	Jan. 2	540	113	90	106
Lubricator	H. Woods	645,026	Mar. 6	858	187	90	1927
Lumber-loader	L. J. Cody	643,788	Feb. 20	2234	527	90	1436
Lunch-box	A. J. Osborne	640,933	Jan. 9	1504	337	90	312
Lunch-box. Folding	A. S. Brown	643,962	Feb. 20	2376	559	90	1463
Lung-testing apparatus. Coin-released	B. McKenzie	642,149	Jan. 30	3771	860	90	794
Machine-cover. Adjustable	W. B. Leonard	645,964	Mar. 27	2610	578	90	2318
Magnesia and plaster-of-paris. Making	M. E. Rothberg	641,550	Jan. 16	2696		90	558
Magnet. Field-	M. S. Towson	640,608	Jan. 2	841	187	90	164
Magnetic brake	T. von Zweigbergk	642,274	Jan. 30	4006	912	90	889
Magnetic pad	J. F. Strange	645,433	Mar. 13	1613	358	90	2091

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mail-bag	A. W. Frank	645,799	Mar. 20	2309	504	90	2240
Mail-bag catcher	S. E. Gibson	641,203	Jan. 9	2046	458	90	416
Mail-bag catcher and deliverer	E. G. Booth and J. P. Spangle	641,022	Jan. 16	2807	637	90	581
Mail-bag catcher and deliverer	G. W. Culver	644,899	Mar. 6	630	136 / 137	90	1880
Mail-bag catcher and deliverer	F. N. and A. W. McDavitt	645,232	Mar. 13	1252	272	90	2019
Mail-bag closure	W. Bennett	643,035	Feb. 6	815	189	90	1124
Mail-bag deliverer for fast trains	H. F. Killean	642,461	Jan. 30	4368	901	90	912
Mail-bag gripping and delivering device	S. R. Patten	643,529	Feb. 13	1719	404 / 405 / 406	90	1322
Mail-chute	J. W. Cutler	642,586	Feb. 6	43	9, 10	90	974
Mail-crane clamp	E. F. Capley	644,319	Feb. 27	3241	756	90	1647
Mail marking and canceling device	E. M. Judd	641,018	Jan. 9	1680	374 / 375	90	346
Mail-pouch	W. H. Lyon and J. C. Wallick	642,142	Jan. 30	3760	858	90	791
Mail supplying and delivering apparatus	V. A. Jones	644,232	Feb. 27	3050	723	90	1612
Mains. Pressure-regulating apparatus for	J. S. Highfield	641,290	Jan. 16	2206	497 / 498	90	463
Mains. Street-box for underground	C. H. Campbell	643,108	Feb. 13	972	228	90	1175
Mall	C. Prouty	642,755	Feb. 6	335	81	90	1032
Malt-drum	F. Knüttel	643,965	Feb. 20	2567	605	90	1502
Malt with coffee. Roasting	F. Linde	645,535	Mar. 13	1798	.....	90	2125
Maltose and dextrose. Making	F. W. A. Wiesebrock	641,910	Jan. 23	3325	.....	90	689
Mangle	A. Kreuter	643,189	Feb. 13	1116	260	90	1204
Manifolding-machine	C. Lohrman	643,967	Feb. 20	2569	605 / 606	90	1503
Manifolding sales-pad paper-roll	H. W. Mather	642,799	Feb. 6	897	96	90	1043
Marker. Land-	L. A. Arlaud	645,782	Mar. 20	2117	463	90	2204
Massage apparatus. Water-	H. Ullrich	640,837	Jan. 9	1317	295	90	277
Massage instrument. Electrical	E. T. Otto	642,849	Feb. 6	489	116	90	1061
Massage-roller	M. Stonebridge	644,109	Feb. 27	2825	669	90	1568
Mat or matting	J. A. Rennie	640,490	Jan. 2	629	136	90	123
Mat or matting for floors, &c	A. Travaglini	640,506	Jan. 2	659	142	90	130
Match-box	J. Ashton	646,342	Mar. 27	3347	748	90	2461
Match-box	T. A. Bell	640,262	Jan. 2	220	45	90	44
Match-box	A. Fearnaught	643,350	Feb. 13	1392	325	90	1258
Match-box	J. Schiffeneder	646,130	Mar. 27	2981	649	90	2381
Match-box and cigar-tip cutter. Combined smoker's	F. Fontneau	642,520	Jan. 30	4455	1011	90	928
Match-boxing machine	H. Sévène and E. D. Cahen	643,072	Feb. 6	888	197 / 206	90	1137
Match-machine	C. W. Steele	643,554	Feb. 13	1766	416 / 417 / 193 / 194 / 195 / 196 / 197 / 370	90	1330
Match making and boxing machine. Continuous	E. H. Eisenhart	643,047	Feb. 6	833	880 / 881 / 177 / 178 / 179 / 180 / 181	90	1128
Match-making machine	F. M. Clough	643,470	Feb. 13	1607	413 / 414 / 907 / 908 / 909	90	1301
Match manufacturing and boxing machine	H. Sévène and E. D. Cahen	643,010	Feb. 6	772	1207	90	1117
Match-receptacle	I. H. Taylor	643,561	Feb. 13	1777	420	90	1333
Match-safe	H. T. Bule and F. J. Arney	641,759	Jan. 23	3054	694	90	637
Match-safe	P. G. Hale	640,763	Jan. 9	1149	263	90	243
Match-safe	M. Oberländer	644,449	Feb. 27	3462	805	90	1691
Match-splint-making machine	W. H. H. Sisum	643,546	Feb. 13	1751	413 / 414	90	1327
Matrix-making machine	C. Sears	642,263	Jan. 30	3980	908 / 909	90	834
Mattress	J. W. Case	645,383	Mar. 13	1522	334	90	2073
Mattress	T. S. Gill	641,854	Jan. 23	3235	734	90	671
Mattress-filling apparatus	B. I. Block	640,623	Jan. 2	876	196	90	170
Mattress-filling frame	N. L. Johnson	646,105	Mar. 27	2872	636 / 637	90	2368
Mattress-filling machine	C. W. White	646,139	Mar. 27	2942	651 / 652	90	2383
Mattress-making machine	I. N. Stewart	642,729	Feb. 6	299	71	90	1025
Maximum-indicator	C. R. Brown	642,424	Jan. 30	4307	977	90	900
Measuring and comparing illumination. Apparatus for	J. Bijur	643,184	Feb. 13	1106	257 / 258 / 259	90	1206
Measuring device	A. Janney	643,877	Feb. 13	1434	334	90	1266
Measuring device. Cloth-	O. E. Webber	645,652	Mar. 20	2028	446 / 447	90	2186
Measuring instrument	E. L. Giles	645,621	Mar. 20	1968	433	90	2178
Measuring instrument. Distance-	J. G. Hanks	645,918	Mar. 20	2513	555 / 556	90	2281
Measuring instrument. Electrical	F. M. Bennett	642,563	Jan. 30	4537	1027	90	944
Measuring instrument. Electrical	A. H. Hoyt	644,859	Mar. 6	590	122	90	1896
Measuring instrument. Electrical	A. H. Hoyt	644,917	Mar. 6	662	142	90	1896
Measuring instrument. Electrical	J. W. Packard	644,330	Feb. 27	3266	761	90	1652
Measuring instrument. Electrical	J. F. Stevens	641,051	Jan. 9	1747	388 / 389	90	357
Measuring intensity of light. Apparatus for	R. C. Drinker	641,002	Jan. 9	1664	370	90	341
Measuring machine. Cloth-	E. P. Williams	640,247	Jan. 2	173	35	90	36
Measuring machine. Ribbon-	J. Létourneau	641,307	Jan. 16	2236	506 / 507	90	469
Measuring-tool. Combination	L. B. Nielsen	642,750	Feb. 6	328	79	90	1031
Measuring velocity of sound-waves. Apparatus for	W. Wolff	641,484	Jan. 16	2560	585	90	588
Measuring vessel	W. M. Reid	643,683	Feb. 20	2037	482	90	1399
Meat-cutter	E. F. Smith	643,547	Feb. 13	1754	414	90	1338

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Meat-cutter	E. F. Smith	643,549	Feb. 13	1759	414	90	1329
Meat foods. Making	I. A. Timmis	643,597	Feb. 13	1788	.....	90	1335
Meat-hanger	W. O. Johnson	641,398	Jan. 16	2379	544	90	497
Meat scrubbing or washing machine	M. E. Brooks	644,400	Feb. 27	3385	786	90	1674
Meat. Sterilizing raw	F. Grognet	642,221	Jan. 30	3912	.....	90	820
Meat-testing implement	W. H. Huntington	644,248	Feb. 27	3084	726	90	1617
Mechanical apparatus. Controlling device for	A. Sundh	645,706	Mar. 20	2949	488 489	90	2229
Mechanical driver	I. M. Uppercu	645,280	Mar. 13	1332	200	90	2035
Mechanical movement	O. J. Beale	642,667	Feb. 6	179	45	90	1000
Mechanical movement	C. F. J. Deters	644,351	Feb. 27	3304	767	90	1658
Mechanical movement	J. K. E. Diffenderffer	645,403	Mar. 13	1664	363	90	2100
Mechanical movement	W. Frost	641,949	Jan. 23	3398	772	90	704
Mechanical movement	C. R. Gabriel	645,083	Mar. 13	974	297 308	90	1966
Mechanical movement	H. W. Honeyman	641,014	Jan. 9	1682	373 374	90	344
Mechanical movement	A. Kresen, F. and A. Leasman	645,364	Mar. 13	1484	326	90	2065
Mechanical movement	J. W. Martin	645,866	Mar. 20	2420	531 532	90	2293
Mechanical movement	J. W. Moore and J. A. White	644,006	Mar. 6	791	173	90	1914
Mechanical movement	M. A. Replogle	641,325	Jan. 16	2271	515	90	476
Mechanical movement	A. J. Robinson	643,536	Feb. 13	1731	409	90	1324
Mechanical movement	H. Oppermann	646,034	Mar. 27	2747	.....	90	2344
Medicinal products. Making	B. B. Shea	642,265	Jan. 30	3904	909	90	837
Menstrual receptacle	J. Dolder	642,899	Feb. 6	585	134	90	1080
Mercerizing apparatus	R. Subrenat	643,781	Feb. 20	2225	525	90	1434
Mercerizing apparatus	L. Weldon	645,698	Mar. 20	2105	462	90	2201
Mercerizing, &c. Apparatus for	T. Murdy	643,675	Feb. 20	2029	479	90	1398
Merry-go-round	H. Austin	641,621	Jan. 16	2302	637	90	581
Metal. Automatic turning-machine for shaping or shaping and cutting off lengths of	C. E. Robinson and W. L. Sutherland.	640,491	Jan. 2	630	.....	90	123
Metal bars, plates, sheets, &c. Composition for pickling	M. Kennedy	644,294	Feb. 27	3176	744 745	90	1635
Metal bending, forging, welding, and shaping machine.	M. W. Henius and J. Herrold	643,353	Feb. 13	1396	326 327	90	1258
Metal-bending machine	M. W. Henius and J. Herrold	643,354	Feb. 13	1399	327	90	1259
Metal-bending machine	H. K. Lee	642,138	Jan. 30	3743	856 857	90	787
Metal-boring machine	G. Alefeld	645,197	Mar. 13	1194	.....	90	2007
Metal foil or leaf. Producing	C. H. Lane	644,181	Feb. 27	2961	699 700	90	1504
Metal from rock. Apparatus for separating	C. H. Lane	644,180	Feb. 27	2958	698 699	90	1503
Metal from rock, &c. Apparatus for separating malleable	C. W. Sponsel	643,278	Feb. 13	1273	208	90	1235
Metal-hardening apparatus	R. R. Spears	643,090	Feb. 20	2046	483 484	90	1401
Metal-plate-doubling machine	R. R. Spears	643,091	Feb. 20	2051	484 485	90	1402
Metal-plate-doubling machine	F. McCarty	645,325	Mar. 13	1407	309	90	2049
Metal-punching appliance	M. Rothe	642,631	Feb. 6	114	28	90	988
Metal-shearing machine	J. C. Burgess	646,203	Mar. 27	3080	679	90	2409
Metal-shears	S. Diescher	646,266	Mar. 27	3201	707 708 709 710 711	90	2433
Metal sheets. Apparatus for pickling or cleaning	E. I. Braddock	644,574	Mar. 6	23	6	90	1759
Metal strips. Pickling	W. A. Cowles	643,472	Feb. 13	1620	382	90	1303
Metal. Table for hooping coiled	F. C. Billings	642,289	Jan. 30	4089	918	90	844
Metal-working machine	S. O. Cowper-Coles	644,020	Feb. 20	2088	636 637	90	1525
Metals. Electrodeposition of	C. W. Miles	645,178	Mar. 13	1159	251	90	2000
Metals. Reducing easily-oxidizable	J. W. Richards and C. W. Roepper.	644,779	Mar. 6	411	.....	90	1836
Metallic carbonates by electrolysis. Manufacturing	J. A. Drake	644,162	Feb. 27	2917	699	90	1586
Metallurgical furnace							
Meter: *See* Air-meter. Gas-meter. Current-meter. Liquid-meter. Electric meter. Water-meter. Electricity-meter.							
Micrometer-gage	F. Spalding	645,898	Mar. 20	2373	520	90	2254
Microphone	E. B. Fahnestock	644,561	Feb. 27	3683	856	90	1750
Microphone	J. O. Zwarg	641,425	Jan. 16	2439	558	90	509
Microphonic transmitter	G. F. Dupont	643,484	Feb. 13	1647	398	90	1309
Milk. Condensing	J. Babillion	643,692	Feb. 6	812	.....	90	1124
Milk-cooler	J. J. McAreavy	645,969	Mar. 27	2616	580	90	2319
Milk for stock. Apparatus for heating	C. H. Mower	645,042	Mar. 6	886	192	90	1933
Milk-heating apparatus	N. Ernst	645,316	Mar. 13	1394	306	90	2047
Milk-modifier. Home	E. Strauss	641,052	Jan. 9	1750	399	90	357
Milk-modifying apparatus	E. Strauss	645,875	Mar. 20	2433	535	90	2266
Milk-sterilizer	J. Mitchell and H. C. Larson	640,789	Jan. 9	1204	274	90	253
Milking apparatus	D. Klein and W. P. Swartz	640,206	Jan. 2	85	18	90	19
Milking apparatus	D. Klein and W. P. Swartz	644,179	Feb. 27	2954	698	90	1598
Milking apparatus	W. H. Lawrence and R. Kennedy	642,044	Jan. 23	3558	814 815	90	734
Milking apparatus	W. H. Lawrence and R. Kennedy	646,188	Mar. 27	3080	669	90	2399
Milking apparatus	J. C. Duigan	641,441	Jan. 16	2480	568	90	515
Milking device							
Mill: *See* Crushing-mill. Pulverizing-mill. Fanning-mill. Rolling-mill. Feed-mill. Sawmill. Grinding-mill. Tube or pebble mill. Pendulum-mill. Windmill.							
Mill	J. A. Peer	643,273	Feb. 13	1292	295 296 297	90	1282
Mills. Automatic stop for	A. S. Martin	643,908	Feb. 20	2571	606	90	1503

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Milling and fulling machine	E. Gessner, Jr	646,210	Mar. 27	3096	682 683	90	2413
Milling angular-toothed bevel-wheels. Machine for	E. Polanowski	645,428	Mar. 13	1605	350 351	90	2089
Milling cone-screw wheels. Machine for	E. Polanowski	645,427	Mar. 13	1603	350	90	2089
Milling, gear-cutting, or similar machine	F. Burgess	641,982	Jan. 23	3368	765	90	698
Milling-machine	J. Parker	642,711	Feb. 6	256	63, 64	90	1017
Milling-machine	G. Weiss	641,817	Jan. 23	3148	715 716	90	656
Milling-machines. High-speed attachment for	J. Parker	642,712	Feb. 6	262	64	90	1018
Milliner's box	L. M. Sutton	645,338	Mar. 13	1438	316	90	2056
Mine-door	A. S. Robinson	640,951	Jan. 9	1540	344	90	318
Mine elevating apparatus	J. Muirhead	648,674	Feb. 20	2028	479	90	1397
Mine-gate	N. K. Bowman	642,200	Jan. 30	3864	878 879	90	812
Mine-gate	N. K. Bowman	642,201	Jan. 30	3867	879 880	90	812
Mine-signal	J. B. and G. A. Falkenstine	645,558	Mar. 20	1828	403	90	2146
Mine-ventilating apparatus	C. P. Kenyon	642,234	Jan. 30	3936	897	90	826
Miner's-bucket-locking hook	E. J. Richmond	643,534	Feb. 13	1728	408	90	1323
Miner's drill and pick	W. Childs	642,677	Feb. 6	200	50	90	1005
Miner's safety check-box. Coal-	A. H. Lawfer	642,909	Feb. 6	604	139	90	1064
Mining apparatus	J. A. Laycock	645,861	Mar. 20	2411	520	90	2261
Mining in frozen ground	L. E. Miller	642,049	Jan. 23	3568	816 817	90	736
Mining in frozen ground. Apparatus for	L. E. Miller	642,047	Jan. 23	3562	815 816	90	735
Mining-machine	A. Bailey	640,621	Jan. 2	870	194	90	169
Mining-machine	A. Bailey	640,622	Jan. 2	874	195 196	90	170
Mining-machine	C. Robinson	643,537	Feb. 13	1732	409	90	1324
Mining-machines. Device for moving	S. F. Lechner	645,687	Mar. 20	2088	459	90	2198
Mining purposes. Hydraulic press for	A. J. and J. Tonge, Jr., and E. Eaves.	644,782	Mar. 6	415	90	90	1837
Minerals or buried treasures. Locating metallic	F. H. Brown	645,910	Mar. 20	2496	551 552	90	2278
Mirror	G. T. Seabury and C. W. Morgaridge.	642,162	Jan. 30	3795	865	90	799
Mirrors. Machine for silvering glass in manufacturing	C. Laval	644,360	Feb. 27	3317	770	90	1661
Miter-box	C. F. Boyce	641,929	Jan. 23	3363	764	90	697
Miter-box	S. Levan	646,228	Mar. 27	3133	691	90	2420
Miter-box and calculator. Double	P. F. McDonald	645,120	Mar. 13	1044	222	90	1978
Mitering-machine	C. Leisifer	645,106	Mar. 13	1017	218	90	1973
Mixer: *See* Batter-mixer.							
Moistening and affixing stamps. Machine for	J. Grady	640,650	Jan. 2	933	210	90	181
Moistening apparatus	M. J. Buckley	644,703	Mar. 6	264	59	90	1806
Moistening device	S. W. Taylor	645,143	Mar. 13	1097	234	90	1988
Mold: *See* Casting-mold. Water-tank mold. Ingot-mold.							
Moldboard	J. Burrell	642,425	Jan. 30	4810	972	90	901
Mold-making machine. Sand-	W. Murchey	646,188	Mar. 27	3043	671	90	2403
Molds. Means for filling	P. Wernicke	645,986	Mar. 27	2647	587	90	2325
Molded objects. Manufacturing	C. Grünzweig	642,223	Jan. 30	3917	.....	90	821
Molding and compressing machine	G. Langer	642,465	Jan. 30	4374	992 993	90	914
Molding-press	E. H. Callaway	642,581	Feb. 6	25	7, 8	90	971
Monkey-wrench	C. H. Tebbetts	640,881	Jan. 9	1305	293	90	274
Mop-head	G. A. Kahl	644,925	Mar. 6	674	146	90	1889
Mop-holding attachment for scrubbing-pails	A. S. Riddell	640,701	Jan. 2	1086	235	90	200
Mop-wringer	G. A. Kahl	644,924	Mar. 6	673	145	90	1889
Mop-wringer	A. B. Westrup	641,744	Jan. 23	3029	689	90	633
Mortising and boring machine. Combined	G. W. Meserve	646,125	Mar. 27	2916	646 647	90	2377
Mortising-machine	R. S. Brown	642,073	Jan. 30	3607	827 828	90	758
Mortising-machine	L. Faust and F. W. Lindgren	642,313	Jan. 30	4086	927	90	858
Motion-converting mechanism	H. W. Meyer	644,678	Mar. 6	226	49	90	1799
Motion. Device for converting reciprocating movement into rotary	W. W. Small	642,637	Feb. 6	124	30	90	990
Motion mechanism. Step-by-step	R. Hundhausen	646,287	Mar. 27	3241	721 722 723	90	2440
Motive power	J. A. Secor	640,710	Jan. 2	1050	239	90	203
Motocycle. Hand-power	F. X. Golata	646,069	Mar. 27	2811	623	90	2357
Motor: *See* Air-motor. Rotary motor. Current-motor. Steam-motor. Electric motor. Valve-motor. Electric traction-motor. Vehicle-motor. Water-motor. Hydraulic motor. Wave-motor. Hydrocarbon-motor. Wave-power motor. Impact-motor. Wind and water motor. Induction-motor.							
Motor	F. F. Anderson	643,078	Feb. 6	897	212	90	1139
Motor	W. Cline	644,580	Mar. 6	32	8	90	1761
Motor	P. Daniel and M. Meunier	642,897	Feb. 6	582	133	90	1080
Motor	C. H. Peck	641,084	Jan. 9	1715	390	90	350
Motor	A. C. and H. Rutzen	641,799	Jan. 23	3121	709 710	90	650
Motor	H. T. Vaders	646,197	Mar. 27	3061	676	90	2406
Motor-actuated signal	T. B. Keeler	643,824	Feb. 20	2294	540	90	1447
Motor-operating plant	M. W. Quick	643,156	Feb. 13	1054	245	90	1192

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Motor suspension	S. E. Clarkson	644,196	Feb. 27	2987	707	90	1599
Motor suspension	S. E. Clarkson	644,197	Feb. 27	2989	707	90	1599
Motor suspension	A. B. Du Pont	644,198	Feb. 27	2991	708	90	1600
Motor suspension	R. D. Eyre	644,199	Feb. 27	2991	708	90	1600
Motor suspension	A. J. Gairing	644,200	Feb. 27	2993	708	90	1600
Motor suspension	E. G. Nicewaner	644,212	Feb. 27	3013	713	90	1604
Motor suspension	E. G. Nicewaner	644,213	Feb. 27	3014	713	90	1605
Motor suspension	J. R. Crawath	641,275	Jan. 16	2183	491	90	458
Motorman's recorder	A. W. Ager	641,356	Jan. 16	2319	529	90	485
Mouse-trap	H. L. Hopkins	640,768	Jan. 9	1162	265	90	246
Mower and reaper cutting apparatus. Cap for	H. F. Bonesteele	641,430	Jan. 16	2447	560	90	511
Mower-coupling	E. E. Harter	642,522	Jan. 30	4457	1012	90	929
Mower coupling-yoke. Adjustable	T. Coldwell	640,995	Jan. 9	1650	365	90	338
Mower. Lawn-	T. Coldwell	644,793	Mar. 6	442	95	90	1842
Mower. Lawn-	T. Coldwell	646,212	Mar. 27	3099	684	90	2414
Mower. Lawn-	W. F. Hall	640,587	Jan. 2	810	179	90	158
Mower or harvester cutter	T. H. Pollock	643,318	Feb. 13	1339	315	90	1247
Mowers. Adjustable ball-bearing for lawn-	J. Braun	645,395	Mar. 13	1542	338 / 339	90	2077
Mowing-machine	H. L. Hopkins	642,524	Jan. 30	4460	1012	90	929
Mowing-machine	M. Kane	643,048	Feb. 6	847	197	90	1139
Mowing-machine attachment	T. B. Fagan	643,855	Feb. 20	2365	536	90	1461
Mucilage-receptacle	J. B. Williamson	642,315	Jan. 30	4089	928	90	858
Mules. Device for checking and holding carriages in self-acting	R. H. Fitton and J. Mitcheson	642,725	Feb. 6	293	70	90	1024
Music-book holder	S. A. Shelton	641,454	Jan. 16	2503	571 / 572	90	521
Music-box	K. Landa	645,405	Mar. 13	1566	342 / 343	90	2082
Music-box. Electrical	J. Natterer	643,456	Feb. 13	1584	372	90	1295
Music-holder	P. Bennan	641,704	Jan. 23	2940	670	90	618
Music-leaf turner	K. N. Knudtson	644,052	Feb. 27	2725	644 / 645	90	1546
Music-leaf turner and stand	B. Böttcher	642,564	Jan. 30	4539	1027	90	945
Music-sheet perforator	C. A. Kuster	645,527	Mar. 13	1778	389	90	2123
Music-stand	J. Latourell and E. A. Fischer	644,817	Mar. 6	487	105	90	1850
Musical instrument	J. C. Deagan	644,669	Mar. 6	210	46	90	1705
Musical instrument	C. H. Froelich	644,022	Feb. 20	2677	633	90	1523
Musical instrument	W. W. McCallip	642,416	Jan. 30	4294	969	90	898
Musical-instrument bridge	J. N. Beetem	640,922	Jan. 9	1479	330 / 331 / 332	90	308
Musical instrument. Mechanical	C. A. Kuster	643,452	Feb. 13	1578	370	90	1294
Musical instrument. Stringed	A. E. Bark	643,125	Feb. 13	1007	234	90	1182
Musical instrument. Stringed	A. Gunkel	641,493	Jan. 16	2574	588	90	535
Musical-instrument support	D. Boorman	641,800	Jan. 23	3122	710	90	651
Musical instruments furnished with pedals. Auxiliary pedal for	E. Seller						
Nail: *See* Dowel-nail. String-nail.	J. T. Eyster	644,286	Feb. 27	3158	741	90	1632
Nail	W. R. Bargar	640,169	Jan. 2	6	2	90	3
Nail-holding device	W. J. Hutchins	644,603	Mar. 6	77	17, 18	90	1770
Nail machine. Wire	J. Atkins	641,255	Jan. 16	2152	484	90	451
Nail-making machine	J. Deeble	644,667	Mar. 6	206	45	90	1794
Nail-puller	W. L. Lubbock	643,512	Feb. 13	1698	399	90	1317
Nail-puller	I. Copeland	645,385	Mar. 13	1527	335	90	2074
Nails. Apparatus for cement-coating and packing	F. Howe	644,560	Feb. 27	3675	854 / 855 / 856	90	1729
Nailing-machine	J. H. Paige	642,803	Feb. 6	403	98	90	1044
Name-plate	L. Knorr	641,870	Jan. 23	3258	-----	90	676
Naphthalanmorpholin	F. Dassori	640,180	Jan. 2	37	8	90	9
Napkin-holder	D. Gessner	643,247	Feb. 13	1215	284 / 285	90	1221
Napping-machine	D. Gessner	643,248	Feb. 13	1217	285 / 286	90	1223
Napping-machine	T. Carence	640,629	Jan. 2	894	203	90	173
Nasal protector	J. W. Blundon	640,864	Jan. 9	1364	305	90	287
Necktie-fastener	W. L. Barth	645,541	Mar. 20	1806	397	90	2141
Necktie-holder	J. H. Grubb	642,444	Jan. 30	4341	983	90	907
Necktie-holder	W. F. Nies	642,751	Feb. 6	330	80	90	1031
Necktie-holder	W. A. Nordyke	644,937	Mar. 6	669	151	90	1892
Necktie-holder	L. P. Bunnell and W. Nichols	643,398	Feb. 13	1482	348	90	1274
Needle. Self-threading	W. S. Hutson	640,566	Jan. 2	764	168	90	149
Needle. Tape-	V. Kobler	640,919	Jan. 9	1473	329	90	307
Needle-threader	E. Heusch	641,627	Jan. 16	2813	639 / 640	90	583
Needles. Machine for manufacturing sewing	F. C. Meyer	641,527	Jan. 16	2644	602	90	549
Negative-holder	C. J. Bousfield	640,739	Jan. 9	1110	254	90	235
Negative-holding device	M. J. Stein	640,498	Jan. 2	641	138 / 139	90	126
Negotiable-instrument blank	J. W. Hays	643,091	Feb. 6	987	220	90	1145
Nest for poultry	S. A. Twyman	645,341	Mar. 13	1441	317	90	2056
Nest. Hen's	G. H. Uzzelle	644,697	Mar. 6	258	57	90	1805
Nest. Hen's	H. Cooper	640,682	Jan. 2	897	204	90	174
Net. Fly-	R. H. Love	646,294	Mar. 27	3254	726	90	2442
Nippers. Cutting-	W. Dewar	646,020	Mar. 27	2718	603	90	2338
Nippers for closing metallic rings upon rubber tubing	J. Jones	646,289	Mar. 27	3247	724	90	2441
Non-conducting covering	L. Pirwitz and W. Behr	641,923	Jan. 23	3354	-----	90	695
Non-conducting material or composition. Producing a	A. V. Lacombe	646,075	Mar. 27	2817	624	90	2358
Noodle-cutter	W. S. Aungst	642,833	Feb. 6	460	110	90	1055
Nozzle	A. Jolles	641,017	Jan. 9	1697	-----	90	346
Nuclein, ferruginous. Making	F. M. Turck	642,389	Jan. 30	4240	958	90	887
Numbering-machine	O. G. Bartusch	646,047	Mar. 27	2774	615	90	2350
Numbering machine. Consecutive-							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Nut and bolt-head. Safety	J. W. Champion	641,191	Jan. 9	2027	458	90	412
Nut and bolt lock	J. Parbel	641,319	Jan. 16	2260	512	90	474
Nut-cracker	L. L. J. Currence	641,581	Jan. 16	2739	624	90	568
Nut-cracking machine	R. E. Woodson	644,485	Feb. 27	3517	817 / 818	90	1701
Nut-lock	R. L. Bargelt	642,066	Jan. 30	3600	825	90	757
Nut-lock	E. A. Blanton, Jr	640,438	Jan. 2	549	115	90	108
Nut-lock	E. A. Blanton, Jr	644,159	Feb. 27	2912	689	90	1585
Nut-lock	C. S. Clark	644,277	Feb. 27	3131	736	90	1627
Nut-lock	T. W. Crozier	644,849	Mar. 6	543	118	90	1862
Nut-lock	W. H. De Brae	644,062	Feb. 27	2739	649	90	1549
Nut-lock	J. S. Doddridge	641,376	Jan. 16	2354	538	90	492
Nut-lock	J. Drinkwater	640,455	Jan. 2	575	121	90	113
Nut-lock	S. Ferris	644,548	Feb. 27	3646	848	90	1725
Nut-lock	J. A. Forney	642,596	Feb. 6	59	15	90	977
Nut-lock	S. Harrell	643,500	Feb. 13	1678	394	90	1314
Nut-lock	J. Jorgenson	640,569	Jan. 2	771	169	90	150
Nut-lock	S. Karolewski	644,431	Feb. 27	3433	797	90	1685
Nut-lock	H. Kleman	646,226	Mar. 27	3129	690	90	2419
Nut-lock	A. W. Lewis	641,788	Jan. 23	3093	703	90	644
Nut-lock	D. E. Llewellyn	642,701	Feb. 6	242	60	90	1014
Nut-lock	F. W. McFarland	645,754	Mar. 20	2231	493	90	2225
Nut-lock	J. A. Nickerson	643,615	Feb. 13	1881	444	90	1355
Nut-lock	C. D. O'Neil	642,995	Feb. 6	753	173	90	1118
Nut-lock	O. O'Sullivan	640,690	Jan. 2	1019	231	90	196
Nut-lock	J. Pearson	644,630	Mar. 6	125	28	90	1778
Nut-lock	E. R. Post	642,488	Jan. 30	4408	1000	90	930
Nut-lock	C. F. de Redon	642,718	Feb. 6	277	68	90	1022
Nut-lock	D. Rhodes	643,364	Feb. 13	1419	331	90	1263
Nut-lock	J. W. Stanley	646,059	Mar. 27	2791	619	90	2353
Nut-lock	J. Tirrell, Jr	641,054	Jan. 9	1752	389	90	358
Nut-lock	B. F. Voller	644,726	Mar. 6	300	66	90	1813
Nut-lock	L. Wade	640,849	Jan. 9	1334	300	90	281
Nut-lock	E. Watkins and C. Colteryahn	644,807	Feb. 27	3207	750	90	1641
Nut-lock	J. W. Wilson and J. F. Whitcomb	646,337	Mar. 27	3336	744	90	2459
Nut lock. Axle-	W. C. Brigham	643,939	Feb. 20	2526	594	90	1494
Nut-lock washer	E. L. Edmondson	643,485	Feb. 13	1648	389	90	1309
Nut. Split	L. S. Starrett	642,170	Jan. 30	3910	868	90	801
Nut-tightening attachment	E. Huber	644,079	Feb. 27	2771	657	90	1557
Nut-wrench	W. S. Vankirk	645,148	Mar. 13	1104	236	90	1950
Nut wrench. Vehicle-	J. F. Vannote	642,391	Jan. 30	4246	958	90	888
Oar. Bow-facing	H. M. Roberts and J. Fitzgerald	643,980	Feb. 20	2591	612	90	1507
Oat-clipping machine	W. Matthews	644,774	Mar. 6	400	87	90	1834
Office-door message-box	G. E. Toms	644,378	Feb. 27	3344	776	90	1666
Office-indicator	C. V. B. Reeder	645,300	Mar. 13	1372	299	90	2042
Oil and water separator and purifier	L. Skinner and J. C. Glenn	640,494	Jan. 2	633	137	90	124
Oil-burner	C. A. Hammel	640,378	Jan. 2	439	90	90	87
Oil-burner	T. C. Purves and O. K. Mitchell	642,716	Feb. 6	270	66	90	1020
Oil-can	J. K. Worrell	645,445	Mar. 13	1688	358	90	2095
Oil-can. Non-explosive	I. R. Eakin	642,787	Feb. 6	380	92	90	1040
Oil-can. Non-explosive	J. A. Gray and F. Lehmann	644,738	Mar. 6	317	70	90	1817
Oil-can. Non-explosive	E. and H. Shade	644,831	Mar. 6	512	110	90	1855
Oil-can. Non-explosive	J. H. Spangler	640,495	Jan. 2	635	137	90	124
Oil-distributing means for oil-engines, &c	L. Charon and F. Manaut	645,458	Mar. 13	1658	362	90	2099
Oil engine. Heavy-	A. G. New	642,871	Feb. 6	532	124	90	1070
Oil-hole cover or cap	F. D. Winkley	642,860	Feb. 6	506	119	90	1064
Oil-press mat	R. F. Werk	640,608	Jan. 2	846	189	90	165
Oils. Preparing materials for feeding	L. Silverman	641,049	Jan. 9	1745	-----	90	356
Oils. Refining fatty	M. Ekenberg	642,741	Feb. 6	318	-----	90	1029
Oiler. Automatic journal-	E. R. Kinney	642,134	Jan. 30	3738	855	90	786
Oiler. Carriage-wheel	P. H. Fishell	641,850	Jan. 23	3232	733	90	670
Oiler for locomotive-axle journals. Automatic journal-	E. R. Kinney	641,866	Jan. 23	3253	739	90	675
Oiler for steam-engines. Automatic	L. Skinner	640,422	Jan. 2	521	109	90	103
Oleomargarin. Acidifying milk for manufacturing	W. Müller	644,624	Mar. 6	115	-----	90	1777
Opera-glass shutter	J. W. Patterson	640,938	Jan. 9	1514	338	90	314
Optical projecting apparatus	B. E. L. de Maré	642,993	Feb. 6	743	171 / 172	90	1111
Ordering-machine. Portable	A. V. Hysore	642,454	Jan. 30	4359	988	90	910
Orders or signals. Apparatus for electrically transmitting	A. U. Alcock	642,662	Feb. 6	169	43	90	999
Ordnance. Apparatus for mechanically loading	J. Krone	646,369	Mar. 27	3489	766	90	2348
Ordnance breech-closing mechanism	M. Darmancier and A. Dalzon	644,005	Feb. 20	2648	626 / 627	90	1518
Ordnance-sight	W. H. Bevans	642,670	Feb. 6	186	46, 47	90	1002
Ordnance-working apparatus	R. Matthews	644,992	Mar. 6	784	171	90	1918
Ore-concentrator	J. Lampert	641,977	Jan. 23	3488	782	90	712
Ore-concentrator	A. Ten Winkel	641,248	Jan. 9	2136	481	90	435
Ore-concentrator	W. E. Wild	645,987	Mar. 27	2648	588	90	2325
Ore-feeders. Friction-wheel grip for	C. D. Hooper	641,390	Jan. 16	2374	543	90	496
Ore or rock breaking machine	E. Comerford	646,204	Mar. 27	3081	679	90	2410
Ore roasting and desulfurizing furnace	A. C. Johnson	642,334	Jan. 30	4125	933	90	864
Ore roasting and reducing furnace	H. B. Meech	641,460	Jan. 16	2513	574 / 575	90	523
Ore-separator	J. Barron	641,359	Jan. 16	2322	530 / 531	90	486
Ore washer and amalgamator	J. Murphy	641,720	Jan. 23	2978	678	90	624
Ores and sands. Apparatus for treating placer	J. P. McEvilly	640,929	Jan. 9	1498	335	90	311
Ores. Apparatus for magnetically separating	C. Q. Payne	641,147	Jan. 9	1924	426 / 427	90	393
Ores. Apparatus for magnetically separating	C. Q. Payne	641,220	Jan. 9	2082	468 / 469	90	424
Ores. Apparatus for oxidizing or roasting refractory	R. A. Stewart	645,761	Mar. 20	2239	485	90	2227
Ores. Magnetically separating	C. Q. Payne	641,148	Jan. 9	1927	427 / 428	90	393

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ores or concentrates. Agglomerating comminuted	M. Ruthenburg	641,552	Jan. 16	2688	612	90	558
Ores. Reducing metallic	C. G. Collins	641,270	Jan. 16	2175	490	90	456
Ores. Reduction of metallic	C. G. Collins	642,584	Feb. 6	40	9	90	974
Ores. Solvent for leaching	R. W. Kennedy	644,770	Mar. 6	382	.....	90	1830
Organ-action. Combined electrical and tubular	W. B. Fleming	643,840	Feb. 20	2332	548 / 549	90	1454
Organ. Reed or pipe	M. S. Wright	646,046	Mar. 27	2772	614 / 615	90	2349
Organs. Pneumatic valve for pipe	G. Sommer	642,827	Feb. 6	451	108	90	1053
Ornamental plates. Forming	H. F. Belcher	642,196	Jan. 30	3859	877	90	811
Orthopædic appliance	H. J. Pond	643,058	Feb. 6	878	206	90	1136
Oscillatory engine	W. F. Hutchison	644,175	Feb. 27	2948	697	90	1591
Oven. Bake-	E. T. Wildsmith	645,584	Mar. 20	1897	418	90	2150
Oven. Baker's	T. Hitchen	645,098	Mar. 13	995	211 / 212 / 213 / 214	90	1970
Oven. Baking	C. Rinck	643,202	Feb. 13	1137	265	90	1209
Overflow-alarm	N. M. and G. W. Lent	644,140	Feb. 27	2877	681	90	1579
Overshoe	P. J. Batchelor	643,908	Feb. 20	2632	622	90	1515
Overshoe-fastener	J. F. McCarthy	642,705	Feb. 6	247	61	90	1015
Oxygen. Apparatus for making	F. Brown	640,581	Jan. 2	711	155	90	140
Oyster-brush. Anchor for	A. B. Hendryx	643,092	Feb. 6	939	220	90	1146
Ozone. Means for generating	C. G. Armstrong and W. D. Neel	642,663	Feb. 6	174	44	90	999
Package and postal transmission. Apparatus for	I. Cizek	643,761	Feb. 20	2192	515 / 516 / 517	90	1429
Package-carrier	J. A. R. Elliott	642,308	Jan. 30	4066	926	90	852
Package-carrier safety-lock	E. C. Gipe	645,505	Mar. 13	1737	381	90	2115
Package-handle	H. H. Flanders	645,317	Mar. 13	1306	307	90	2047
Package. Liquid-	A. L. Foreman	640,260	Jan. 2	271	54, 55	90	54
Packing	H. Boehling	645,224	Mar. 13	1241	269	90	2015
Packing	J. J. Moss	645,898	Mar. 20	2423	532	90	2264
Packing	R. C. White, M. Haslup, and J. G. Schweinfurth.	643,341	Feb. 13	1378	323	90	1255
Packing and storing vessel	E. C. Berry	641,574	Jan. 16	2727	621	90	565
Packing and storing vessel	G. W. Whalley	644,098	Feb. 20	2700	640	90	1328
Packing-box	H. H. Higham	641,207	Jan. 9	2054	460 / 461	90	418
Packing-case	R. J. Prins	645,214	Mar. 13	1224	266	90	2012
Packing for piston-rods. Metallic	F. E. Small	642,855	Feb. 6	498	117	90	1063
Packing. Hydraulic	J. A. Bonfiglio	641,263	Jan. 16	2164	487	90	454
Packing. Metallic	A. L. Dudley	644,704	Mar. 6	265	59	90	1807
Packing. Piston-rod	G. F. Allen	642,411	Jan. 30	4287	968	90	896
Packing. Piston-rod	E. F. Boulet	641,825	Jan. 23	3166	718 / 719	90	660
Packing. Piston-rod	F. F. Swain	644,696	Mar. 6	256	57	90	1805
Pad: *See* Apparel-pad. Desk-pad. Hoof-pad. Inking-pad. Magnetic pad. Truss-pad. Warming-pad.							
Paddle-wheel	J. S. Allison	643,444	Feb. 13	1564	368	90	1291
Paddle-wheel	H. M. Williams	640,344	Jan. 2	349	74	90	70
Paddle-wheel with feathering-blades	R. Heere	641,289	Jan. 16	2207	497	90	463
Padlock	A. R. Fergusson	643,956	Feb. 20	2551	600	90	1499
Padlock. Permutation-	A. Amess	643,448	Feb. 13	1570	369	90	1292
Pail holder. Milk-	S. Knight and J. L. Maxwell	644,522	Feb. 27	3592	837	90	1715
Pail. Milk-	J. E. Johnston	642,523	Jan. 30	4459	1012	90	929
Pail. Minnow-	W. R. Yeagla	640,512	Jan. 2	670	145	90	132
Pail. Self-heating dinner-	H. L. and C. Marlett	646,185	Mar. 27	3093	670	90	2400
Pail. Ventilated	W. T. Follweiler	646,276	Mar. 27	3224	717	90	2488
Paint and calking composition	W. H. Gould	644,170	Feb. 27	2935	.....	90	1589
Paint. Making aluminium	L. Ott and H. Riffelmacher	642,358	Jan. 30	4180	.....	90	876
Paint-pail wiping attachment	J. Madden	642,346	Jan. 30	4156	989	90	870
Pan: *See* Bake-pan. Dust-pan. Evaporating-pan. Roasting-pan. Roasting or baking pan. Scale-pan. Vacuum-pan.							
Panel and tile therefor	F. L. O. Wadsworth	640,841	Jan. 9	1823	296 / 297	90	278
Paper. Apparatus for flint-glazing colored	H. Gmeiner-Benndorf	643,817	Feb. 20	2283	537	90	1445
Paper bag	L. D. Benner	640,173	Jan. 2	25	6	90	7
Paper bag	O. G. Goodman	646,025	Mar. 27	2731	605	90	2341
Paper-bag machine	J. W. Duvall and G. A. Shepard	644,130	Feb. 27	2860	677	90	1576
Paper-bag machine	O. Hesser	643,843	Feb. 20	2340	550 / 551 / 552 / 553	90	1456
Paper-board. Forming	K. E. Rogers	645,374	Mar. 13	1506	330 / 331	90	2070
Paper box	F. B. Davidson	641,500	Jan. 16	2589	590 / 591	90	537
Paper box	R. Gair	644,857	Mar. 6	558	121	90	1806
Paper box	M. J. Kane	642,128	Jan. 30	3725	852	90	783
Paper box	F. T. Miyaji	643,420	Feb. 13	1522	357	90	1281
Paper box	F. A. Stecher	643,306	Feb. 13	1421	331	90	1263
Paper box	W. G. Haas	640,557	Jan. 2	752	166	90	147
Paper box. Knockdown	A. R. Hibson	640,766	Jan. 9	1157	264	90	245
Paper box. Knockdown folding	C. Beck	644,569	Mar. 6	14	4, 5	90	1758
Paper-box machine	C. Beck, Jr	644,570	Mar. 6	16	5	90	1758
Paper boxes. Machine for cutting holes in	C. W. Gay	645,950	Mar. 27	2574	570 / 571 / 572 / 573	90	2310
Paper boxes. Machine for making	W. H. Waldron	643,574	Feb. 13	1801	426	90	1337
Paper-coating machine	W. P. Wood	644,840	Mar. 6	527	114	90	1859
Paper-cutter	J. E. Hill	643,374	Feb. 13	1432	334	90	1265
Paper-cutter	R. F. Sproule	640,713	Jan. 2	1058	241	90	204
Paper-cutter	W. Bridgewater	645,162	Mar. 13	1123	241	90	1994
Paper-feeding machine	F. L. Cross	640,368	Jan. 2	409	86	90	81
Paper-feeding machine	H. E. Gurney	643,089	Feb. 6	934	219	90	1145
Paper-fixture	H. K. King	640,570	Jan. 2	772	170	90	151
Paper-folding machine	H. K. King	640,571	Jan. 2	777	171	90	151
Paper-folding machine	W. Lang and W. Zander	641,303	Jan. 16	2229	505	90	468
Paper-folding machine	F. Wulff	640,248	Jan. 2	177	36	90	37
Paper-folding machine	F. Meisel	641,215	Jan. 9	2067	464	90	421
Paper for boxes. Machine for cutting, scoring, and embossing	T. E. Moffitt	645,118	Mar. 13	1041	221	90	1977
Paper-hanging apparatus. Wall-	H. Tendick	643,917	Feb. 20	2489	586	90	1486
Paper-holder	F. W Donning	640,543	Jan. 2	730	161	90	143
Paper-holder and pencil. Combined	J. E. Hill	643,375	Feb. 13	1433	334	90	1265
Paper holder. Roll-	J. Drewsen	643,714	Feb. 20	2115	496	90	1413
Paper holder. Toilet-	H. S. Furminger	644,227	Feb. 27	3043	721	90	1610
Paper-machine screen	W. S. Colgrove	643,084	Feb. 6	926	.....	90	1474
Paper-making	F. C. Michaelis	641,131	Jan. 9	1897	420 / 421 / 560	90	387
Paper-making. Apparatus for separating and cleaning pulp for	F. C. Michaelis. (Reissue)	11,813	Mar. 20	2533	561	90	2285
Paper-making machine	A. W. Case	642,063	Jan. 30	3632	838	90	764
Paper-making-machine suction-box	S. M. Johnson	644,556	Feb. 27	3666	853	90	1728
Paper-making-machine suction-box	S. W. Shearer	644,832	Mar. 6	513	110	90	1856
Paper-making machinery	D. B. McMurray	641,969	Jan. 23	3463	789	90	717
Paper manufacture	F. A. Fletcher	645,080	Mar. 13	956	204	90	1961
Paper manufacture	F. A. Fletcher	645,081	Mar. 13	957	205	90	1961
Paper manufacture. Screen-plate for	W. H. McCarroll	643,521	Feb. 13	1709	402	90	1320
Paper. Mechanism for manufacturing deckle-edge	J. H. Reynolds	641,798	Jan. 23	3119	709	90	650
Paper or pulp vehicle-tops. Apparatus for making	T. W. McFarland	643,422	Feb. 13	1524	358	90	1282
Paper-pulp dressing and evening device	H. Mellor	645,422	Mar. 13	1595	348 / 349	90	2067
Paper. Sensitized photographic	R. B. West	642,941	Feb. 6	660	.....	90	1094
Paper tubes. Apparatus for making	J. H. and E. L. White	642,656	Feb. 6	158	39 / 40 / 41	90	997
Paper tubes. Apparatus for making	J. H. and E. L. White	644,025	Feb. 20	2682	684 / 685	90	1524
Papers. Temporary cover and binder for	E. Marsky	640,578	Jan. 2	790	174	90	154
Para-oxy-para-amido-ortho-oxy-diphenylamin. Making	H. Gussmann	641,100	Jan. 9	1835	.....	90	375
Paring and coring machine	W. H. Boutell. (Reissue)	11,796	Jan. 2	1089	249 / 250	90	210
Paring and slicing knife	J. W. Allen	645,447	Mar. 13	1641	359	90	2096
Partition and furring for buildings. Metal	C. Collins	640,445	Jan. 2	560	118	90	110
Partition or wall	A. W. Blazo	641,670	Jan. 23	2889	659	90	608
Passage-way-closing device	S. E. Stimson	640,827	Jan. 9	1296	291	90	273
Paste-box and dauber. Combined	E. T. Gilbert	644,977	Mar. 6	761	165	90	1908
Paste. Powder for	S. Schweitzer	640,819	Jan. 9	1262	.....	90	266
Pasteurizing apparatus. Liquid-	D. R. Snyder	642,585	Jan. 30	4477	1016	90	933
Pastil-press	W. Kraemer	641,706	Jan. 23	2942	671 / 672	90	618
Pattern mechanism	F. B. Wildman	642,402	Jan. 30	4261	963	90	892
Pattern mechanism	F. B. Wildman	642,403	Jan. 30	4264	963	90	893
Pavement softener. Sheet-	W. J. Gillett and E. B. Doen	640,464	Jan. 2	567	125	90	116
Peanut-digger	L. E. Starr	640,909	Jan. 9	1592	352	90	327
Peat-burning apparatus	G. Gercke	645,226	Mar. 13	1244	270	90	2016
Pedal	W. Diebel	644,818	Mar. 6	490	105	90	1851
Pedal	W. Diebel	644,819	Mar. 6	491	105	90	1851
Pegging-machine	P. R. Condon. (Reissue)	11,808	Jan. 23	3583	820	90	739
Pegging-machine	F. Tousignant and P. Larange	642,540	Jan. 30	4489	1018	90	935
Pelt-refining machine	P. F. Comstock and A. Hedbavny	641,081	Jan. 9	1802	400 / 401	90	367
Pelt-refining machine	K. Mischke	640,581	Jan. 2	795	175 / 176	90	155
Pen-filling device. Fountain-	L. Fisk	641,503	Jan. 16	2603	593	90	541
Pen. Fountain-	W. I. Ferris	646,388	Mar. 27	3461	770	90	2488
Pen. Fountain-	B. B. Goldsmith	646,070	Mar. 27	2812	623	90	2357
Pen. Fountain-	W. E. McKee	646,127	Mar. 27	2924	648	90	2379
Pen. Fountain-	G. S. Parker	642,151	Jan. 30	3776	861	90	794
Pen. Fountain-	M. W. Barber	640,612	Jan. 2	852	190	90	166
Penholder	E. K. De Puy	641,583	Jan. 16	2742	625	90	569
Penholder	B. B. Goldsmith	646,071	Mar. 27	2814	623	90	2357
Penholder	D. L. Smith	641,900	Jan. 23	3308	752	90	686
Penholder	F. T. Stevens	640,826	Jan. 9	1297	291	90	273
Pen-rack	J. Adair	642,276	Jan. 30	4013	913	90	841
Pen-rack	J. Adair	642,277	Jan. 30	4014	913	90	841
Pen-rack	J. Adair	642,278	Jan. 30	4015	914	90	841
Pen-rack	T. W. Gould	642,608	Feb. 6	70	17	90	980
Pen-rack and inkstand. Combined	A. Ogle	645,487	Mar. 13	1711	375	90	2110
Pens, brushes, &c. Holder for	S. Grim	645,806	Mar. 20	2319	506	90	2242
Pencil	A. B. Foster	645,356	Mar. 13	1467	324	90	2061
Pencil. Lead-	G. W. Rice and G. Zerrmann	641,230	Jan. 9	2109	475	90	439
Pencil. Magazine	J. B. Mitchell	642,914	Feb. 6	614	141	90	1086
Pencil-sharpener	J. A. Webster	640,846	Jan. 9	1320	299	90	279
Pencil-sharpener	J. Wüstenhöfer	641,422	Jan. 16	2433	557	90	508
Pendulum-mill	J. Wüstenhöfer	641,423	Jan. 16	2435	557	90	508
Pendulum-mill	W. H. English	641,093	Jan. 9	1823	406	90	372
Perambulator	C. B. Tourville	645,277	Mar. 13	1328	289	90	2034
Percolator for coffee or tea pots	A. Haarmann	640,654	Jan. 2	989	211 / 212	90	182
Permanent way	G. W. Dillaway	641,501	Jan. 16	2598	591 / 592	90	538
Permutation-lock	H. A. Hempel	646,073	Mar. 27	2816	624	90	2358
Pessary	A. Kayser	640,918	Jan. 9	1472	329	90	307
Petroleum and petroleum derivatives. Refining							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Petroleum. Solidifying	B. Hoffmann	641,962	Jan. 23	3415	----	90	707
Pew	W. H. Kratz	646,290	Mar. 27	3248	724	90	2441
Phonograph	G. Bettini	643,183	Feb. 13	1107	256 / 257	90	1203
Phonograph	T. B. Lambert	643,418	Feb. 13	1515	355 / 356	90	1280
Phonograph	T. B. Lambert	643,419	Feb. 13	1519	356 / 357	90	1281
Phonograph	P. von Wouwermans	646,014	Mar. 27	2710	601	90	2336
Phonograph-records. Reproducing	T. B. Lambert	645,920	Mar. 20	2516	556	90	2282
Photographer's combination baby-holder and lounge.	W. A. Hennessey and W. W. McLain	642,606	Feb. 6	77	18	90	981
Photographic-background frame	W. C. Farrand	641,947	Jan. 23	3394	771 / 772	90	704
Photographic dark room. Portable	L. C. Cox	643,322	Feb. 13	1346	316	90	1249
Photographic dark room. Portable	B. W. Rea and E. S. Gregory	643,004	Feb. 6	762	175 / 176	90	1115
Photographic film	O. Moh	645,209	Mar. 13	1215	265	90	2011
Photographic films. Roll-book for	E. G. Thomas	644,112	Feb. 27	2828	669	90	1599
Photographic-negative vignetter	J. Winter, Jr	641,483	Jan. 16	2559	585	90	532
Photographic negatives. Apparatus for washing	R. K. Marston	643,771	Feb. 20	2210	521 / 522	90	1431
Photographic plate-holder	D. Kelly, Jr	641,777	Jan. 23	3095	701	90	643
Photographic-print fabric	J. A. Harvey	645,952	Mar. 27	2596	575	90	2315
Photographic-roll holder	O. H. Peck	642,876	Feb. 6	540	125 / 126	90	1071
Photographic shutter	A. Wollensak	642,861	Feb. 6	508	119	90	1065
Photographic washing apparatus	W. F. Crawford	644,808	Mar. 6	628	136	90	1880
Photographing apparatus. Automatic	J. F. Raders	645,215	Mar. 13	1225	266 / 267	90	2013
Photographs from albums. Device for removing	C. Held	644,196	Feb. 27	2870	680	90	1578
Photographs. Intensifying	M. Andresen and E. Leupold	641,919	Jan. 23	3345	----	90	693
Photometer	C. Deshler and E. J. McAllister	640,882	Jan. 9	1398	313 / 314	90	293
Phthalein in phenol. Solution of	C. E. Gassmann	643,265	Feb. 13	1252	----	90	1230
Piano-action	W. C. Vough	640,898	Jan. 9	1318	295	90	277
Piano action. Upright	W. C. Ellis	640,892	Jan. 9	1419	318	90	296
Piano attachment	C. G. Ferrata	644,244	Feb. 27	3074	734	90	1615
Piano attachment	A. F. Florey	643,790	Feb. 20	2237	527	90	1436
Pianoforte	G. F. Lyon	642,467	Jan. 30	4382	993 / 994	90	915
Pianoforte	J. W. Macy	640,294	Jan. 2	276	56	90	55
Pianoforte	J. W. Macy	640,295	Jan. 2	277	57	90	55
Pianoforte	J. C. Ward	645,342	Mar. 13	1442	317 / 318	90	2056
Pianoforte	L. H. Battalia	640,356	Jan. 2	384	82	90	77
Pianoforte-action	J. H. Ludwig	644,616	Mar. 6	99	23	90	1774
Pianoforte scale bridge-bar	G. B. Sibler	641,473	Jan. 16	2540	581	90	528
Piano tuning-key	A. F. Norris	644,446	Feb. 27	3458	804	90	1690
Piano-pedal support and bearing	A. Allmuth	643,028	Feb. 6	805	187	90	1122
Piano-touch instructor							
Picker: See Cotton-picker. Fruit-picker.							
Picket-pointing machine	A. Ek	644,285	Feb. 27	3157	740	90	1631
Picking and cleaning machine	C. W. White	646,138	Mar. 27	2941	651	90	2382
Picking-machine	E. H. Blossom	644,659	Mar. 6	191	41,42	90	1792
Picture	A. N. Polymath	643,275	Feb. 13	1269	297	90	1234
Picture-frame	E. Oldenbusch	642,558	Jan. 30	4526	1024	90	942
Picture-frames. Machine for mounting ornamental composition directly upon circular	F. E. Adams	642,059	Jan. 30	3591	825	90	755
Picture-hanger	O. Nelson	642,907	Feb. 6	750	173	90	1118
Picture-support	E. Oldenbusch	641,644	Jan. 16	2643	647	90	589
Pie-rack	W. H. Mayo	645,040	Mar. 6	884	192	90	1983
Pile	G. D. Coleman	645,941	Mar. 27	2560	566	90	2307
Pile-driver	J. W. Blundon	640,865	Jan. 9	1364	305 / 306	90	287
Piles in foreshores. Apparatus for fixing	E. Case	645,000	Mar. 6	798	174	90	1916
Piling	W. B. Bonnell and R. F. Smith	645,885	Mar. 20	2446	539 / 540	90	2269
Piling. Sheet	G. H. Cavanagh	641,898	Jan. 23	3195	726	90	664
Pilot-burner. Automatic cut-off	J. P. Farmer	645,168	Mar. 13	1141	245	90	1996
Pin: See Clothes-pin. Drugget-pin. Hair-pin. Rolling-pin. Safety-pin.							
Pin card or tag	C. R. Trout	642,179	Jan. 30	3826	871	90	805
Pin-tongue joint	G. H. Tilford	644,542	Feb. 27	3031	845	90	1722
Pinions. Making	G. E. Hart	641,105	Jan. 9	1845	410	90	377
Pipe: See Flexible pipe. Hose-pipe. Tobacco-pipe.							
Pipe attachment	A. List	644,524	Feb. 27	3595	808	90	1715
Pipe. Bead ring-mold for casting	C. W. Osbun	644,029	Mar. 6	123	28	90	1778
Pipe-bending machine	C. R. McKibben	641,536	Jan. 16	2664	607	90	553
Pipe-cleaner	O. Spahr	644,948	Mar. 6	716	155	90	1868
Pipe connection for tubs	D. J. Galbraith	642,316	Jan. 30	4091	928	90	858
Pipe connections from leaking. Apparatus for preventing	W. J. Sterling	646,011	Mar. 27	2700	598 / 599	90	2335
Pipe-coupling	A. M. Hewlett	640,197	Jan. 2	70	15	90	16
Pipe coupling. Ammonia	C. E. Frink and M. Murphy	644,167	Feb. 27	2990	692	90	1588
Pipe-coupling. Friction	S. R. Dresser	640,183	Jan. 2	43	10	90	10
Pipe-joint	C. B. Albree	644,398	Feb. 27	3372	782	90	1672
Pipe-joints. Clamp for repairing leaks in	C. M. Rankert	643,200	Feb. 13	1185	265	90	1208
Pipe-mold flask	G. P. Bassett, Jr	642,034	Jan. 23	3543	811	90	732
Pipe-molding machine	H. J. Taylor	645,498	Mar. 13	1726	378	90	2112
Pipe-thread protector	G. H. Harvey	642,824	Jan. 30	4108	930	90	860
Pipe-union	S. Richardson	645,602	Mar. 20	2097	460	90	2200
Pipe-wrench	J. H. Condy	641,271	Jan. 16	2177	490	90	457

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pipe-wrench	J. O. Lawson	642,797	Feb. 6	395	96	90	1042
Pipe-wrench	O. and M. Otteson	642,709	Feb. 6	254	62	90	1016
Pistol. Magazine	J. H. Wesson. (Reissue)	11,800	Jan. 9	2142	485	90	437
Piston-heads. Finishing-tool for facing grooves in	J. Pearce and G. H. Jackson	641,884	Jan. 23	3284	746	90	681
Piston-joint. Fluid-pressure	R. C. Sayer	644,807	Mar. 6	466	99	90	1846
Piston-rings. Finishing-tool for facing	J. Pearce and G. H. Jackson	641,885	Jan. 23	3286	746	90	681
Placard border-fillet	A. Reiche	642,002	Jan. 23	3482	795	90	721
Placards, signs, &c. Holder for	W. L. Poehlmann	640,948	Jan. 9	1522	340	90	315
Planchette. Dial	H. C. Hachmuth	641,507	Jan. 16	2607	595	90	542
Plane. Bench	J. A. Traut	645,220	Mar. 13	1234	268	90	2014
Plane. Carpenter's	A. W. Stauffer	644,191	Feb. 27	2980	705	90	1597
Plane. Hand	H. M. Coe	640,546	Jan. 2	735	163	90	144
Plane. Wood	F. Diehl	646,262	Mar. 27	3197	705	90	2432
Planer attachment	F. Witzmann	645,554	Mar. 20	1822	402	90	2144
Planer. Hand	H. W. Rightmyer	643,313	Feb. 13	1327	313	90	1245
Planer shaping attachment	E. and B. Holmes and E. F. Beugler	640,948	Jan. 9	1532	342 / 343	90	317
Planing-machine	J. R. Thomas	643,208	Feb. 13	1296	306	90	1239
Planing-machine	J. R. Thomas and H. S. Spencer	642,733	Feb. 6	305	72,73	90	1027
Planing-machine cutter. Wood	G. Johnson, Jr	645,577	Mar. 20	1872	412 / 413	90	2153
Plant-protector	A. G. Faye	641,864	Jan. 23	3250	738	90	674
Plants. Apparatus for treating and preserving growing	A. Sattler	644,007	Feb. 20	2654	628	90	1519
Planter	W. J., Sr., and W. C. McClure	640,957	Jan. 9	1551	346	90	320
Planter	J. D. Schofield	641,788	Jan. 23	3100	705	90	646
Planter attachment. Corn	F. R. Eral	641,406	Jan. 16	2406	550	90	502
Planter attachment. Seed	H. G. Walton	646,089	Mar. 27	2844	631	90	2264
Planter. Automatic corn	J. B. Jarmin	643,019	Feb. 6	792	184	90	1120
Planter check-row attachment. Corn	M. B. Bennett	640,205	Jan. 2	82	17	90	18
Planter. Check-row corn	J. M. Mitchell	646,256	Mar. 27	3188	708	90	2431
Planter. Corn	W. S. Graham	641,462	Jan. 16	2515	575 / 576	90	523
Planter. Corn	U. Shaeffer	645,683	Mar. 20	2078	456 / 457	90	2196
Planter. Corn	P. W. Thomson	644,780	Mar. 6	413	89	90	1836
Planter. Corn	J. P. Caldwell	646,045	Mar. 27	2768	614	90	2348
Planter. Cotton-seed	G. W. Murray	643,942	Feb. 20	2584	596 / 597	90	1496
Planter-feed	E. T. Baskin	642,050	Jan. 23	3570	817	90	737
Planter. Hand	C. Newman	641,429	Jan. 16	2446	560	90	511
Planter. Hand	H. H. Wabers	643,524	Feb. 13	1712	403	90	1321
Planter lister attachment	J. L. Pate	643,784	Feb. 20	2228	526	90	1435
Planter. Potato	H. E. Jewett	646,235	Mar. 27	3148	695	90	2423
Planter roller attachment. Cotton or corn	E. B. Beck	640,470	Jan. 2	595	127 / 128	90	117
Planter. Seed	C. W. Ingram	642,068	Jan. 30	3602	826	90	757
Planter. Seed	W. C. Willey	644,920	Mar. 6	668	144	90	1888
Planters. Anchor and tension device for check-row corn	K. K. Lerol, Jr	642,080	Jan. 23	3539	811	90	731
Planting machine. Cane	J. A. Aniello	644,523	Feb. 27	3594	837 / 838	90	1715
Plastic material. Machine for mixing and preparing	P. L. Sylvester	643,030	Feb. 6	809	188	90	1123
Plate-holder. Magazine	A. L. Adams	644,810	Mar. 6	469	100 / 101	90	1847
Plate-lifting device	F. S. Snyder	644,892	Feb. 27	3370	782	90	1671
Plate or pan holder or lifter	J. C. Devers	643,168	Feb. 13	1079	249	90	1197
Plates. Apparatus for treating	W. Rogers	640,453	Jan. 2	573	120	90	112
Platen-press	F. J. Harbridge	641,730	Jan. 23	3000	684	90	627
Plating aluminium	W. H. Legate	642,115	Jan. 30	3683	844	90	774
Playing-ball	A. R. Breinl	641,709	Jan. 23	2948	673	90	619
Playing-ball	A. B. Smith	646,350	Mar. 27	3359	751	90	2463
Plinths. Means for securing	C. Baer	642,689	Feb. 6	130	31	90	991
Plotting implement	L. M. Carmical	642,778	Feb. 6	368	89	90	1038
Plow	W. T. M. Brunnemer	640,270	Jan. 2	233	47	90	47
Plow	A. G. Carter	644,316	Feb. 27	3232	754 / 755	90	1645
Plow	W. Davidson	648,838	Feb. 20	2327	548	90	1453
Plow	F. Keller and A. Keil	642,964	Feb. 6	698	160	90	1101
Plow	W. H. Parlin and E. M. Heyiman	645,597	Mar. 20	1923	424	90	2165
Plow	J. R. Rossetter	640,411	Jan. 2	504	104	90	99
Plow	J. M. Hardeman and C. T. Belt	644,099	Feb. 27	2833	664	90	1564
Plow and cultivator attachment	E. H. Gurney	641,696	Jan. 23	2996	667	90	616
Plow attachment	S. A. Hunt	644,980	Mar. 6	766	166	90	1909
Plow attachment	L. Koehn	641,595	Jan. 16	2759	628	90	572
Plow attachment	C. A. Phoenix	644,359	Feb. 27	3316	770	90	1661
Plow attachment	C. Wilson	644,092	Feb. 27	2798	662	90	1562
Plow attachment	W. F. Schmidt	645,989	Mar. 27	2653	589	90	2327
Plow. Beet	J. Mutart	644,470	Feb. 27	3402	811	90	1697
Plow digging attachment. Subsoil	E. M. Colbert	642,148	Jan. 30	3770	860	90	793
Plow-fender	N. Steffes	640,444	Jan. 2	559	118	90	110
Plow-fender	J. P. Phillips	644,375	Feb. 27	3340	775	90	1665
Plow-foot	W. A. Stowe	641,996	Jan. 23	3475	794	90	719
Plow. Garden	M. O. Beckner	641,344	Jan. 9	2130	479	90	434
Plow. Hillside double-shovel	G. W. Ream	640,260	Jan. 2	214	43	90	43
Plow-jointer	G. A. Litzenberger	646,312	Mar. 27	3289	732	90	2448
Plow land-wheel attachment. Sulky	J. B. Sells	645,819	Mar. 20	2338	511	90	2246
Plow or cultivator wheel-frame	M. T. Hancock	644,575	Mar. 6	593	128	90	1872
Plow. Rotary	M. T. Hancock	646,280	Mar. 27	3229	718 / 719	90	2438
Plow. Rotary-disk	N. Eckstein	643,499	Feb. 13	1675	394	90	1313
Plow scraper attachment. Gang	A. J. Malsbary	645,796	Mar. 20	2306	503	90	2240
Plow seeding attachment. Gang	J. W. Fillip and R. B. Little	646,004	Mar. 27	2687	596	90	2333
Plow-stock	F. H. Nichols	644,764	Mar. 6	376	83	90	1820
Plow. Swivel	S. D. Poole	644,999	Mar. 6	796	174	90	1915
Plow. Tongueless disk wheel		641,222	Jan. 9	2090	469 / 470	90	426

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Plow. Wheel-	J. Oliver	643,885	Feb. 20	2421	569 570	90	1472
Plows. Adjustable riding attachment for	T. F. Moon	642,145	Jan. 30	3764	859	90	732
Plowshares. Adjustable bar and brace for handling	M. Wernimont	642,306	Jan. 30	4252	960	90	890
Plush fabric. Figured double	H. Langer	641,978	Jan. 23	3141	783	90	713
Pneumatic-despatch tube	C. A. Gray	641,381	Jan. 16	2365	541	90	491
Pneumatic elevator and weigher	J. B. Schuman	641,045	Jan. 9	1737	386 387	90	355
Pneumatic separator	C. H. Lane	645,562	Mar. 27	2607	577	90	2317
Pneumatic-transfer-tube system	S. F. Jones	640,396	Jan. 2	446	92	90	89
Pocket-book	J. Davidson	645,460	Mar. 13	1661	363	90	2099
Pocket book or case	H. W. Gremmels and G. Somerville	642,323	Jan. 30	4101	930	90	860
Pocket. Garment safety-	M. Bernstein	644,964	Mar. 6	743	160	90	1904
Pocket-knife	M. L. Heath	645,503	Mar. 20	1839	405	90	2148
Pocket. Safety-	L. Almuly	645,882	Mar. 20	2441	537	90	2208
Poke	D. W. Hughes	642,847	Feb. 6	484	115	90	1060
Poke. Animal-	S. A. Clark	641,987	Jan. 23	3376	767	90	700
Poke. Animal-	W. B. Hart	645,664	Mar. 20	2048	450	90	2189
Poke. Animal-	L. Wussler	642,659	Feb. 6	166	42	90	998
Polishing-bob	J. Rigg and H. Hart	640,590	Jan. 2	814	180	90	159
Polishing-paste	A. P. Tschirner	641,811	Jan. 23	3140	585 586	90	655
Polishing-wheel	E. D. Woods	641,485	Jan. 16	2561	586	90	532
Portable engine for tools	J. F. Allen	644,753	Mar. 6	344	76	90	1823
Post: *See* Fence-post. Hitching-post.	M. S. Field	641,003	Jan. 9	1667	370	90	342
Post-office routing table and case							
Pot: *See* Coffee-pot.	J. G. A. Rhodin	641,406	Jan. 16	2405	.....	90	502
Potassium salts from felspar. Obtaining soluble	H. H. Sieh and C. Holstein	642,268	Jan. 30	3996	910	90	838
Potato-bug destroyer	M. Bateman and W. Zimmerman	644,122	Feb. 27	2843	672	90	1571
Potato-bug gatherer	D. Buchanan	641,577	Jan. 16	2732	623	90	567
Potato-digger	D. Denis	640,754	Jan. 9	1131	260	90	239
Potato-digger	J. R. Humphrey	642,696	Feb. 6	233	58	90	1012
Potato-digger	W. Kretzer	643,249	Feb. 13	1222	286	90	1294
Potato digger and sacker	J. T. Cecil	643,740	Feb. 20	2156	505 506	90	1421
Potato-digging machine	G. W. Murray	642,555	Jan. 30	4521	1023	90	941
Potato-digging machinery	R. M. Michael	645,268	Mar. 13	1311	286	90	2080
Potato-fork attachment	F. Malinsky and J. Prokop	646,055	Mar. 27	2786	617	90	2352
Potato-pulping apparatus	J. P. Holdcroft, W. Jackson, and A. Tomkinson.	644,915	Mar. 6	660	141	90	1886
Pottery-kilns. Stand for trial-pieces for	H. Maxim and R. C. Schüpphaus	640,213	Jan. 2	109	.....	90	23
Powder: *See* Size-powder.							
Powder. Making smokeless							
Power: *See* Animal-power. Horse-power. Chain-power. Motive power. Foot-power.							
Power-transforming machine	J. E. Goodhue	644,290	Feb. 27	3172	743 744	90	1634
Power-transmitting apparatus applicable to friction-drums.	H. N. Covell	642,862	Feb. 6	512	119 120	90	1066
Power-transmitting device	E. R. Esmond	641,379	Jan. 16	2358	539 540	90	493
Power-transmitting device	T. W. Heermans	643,180	Feb. 13	1014	236 237	90	1184
Precious metals. Electrolytic apparatus for extracting	C. P. Tatro and G. Delius	640,717	Jan. 2	1067	243	90	206
Precious metals. Extracting	C. P. Tatro and G. Delius	640,718	Jan. 2	1069	243	90	207
Precious metals from their mixtures with zinc. Separating	G. Thurnauer	642,767	Feb. 6	350	.....	90	1085
Preheating-tube	A. Kitson	644,609	Mar. 6	88	20, 21	90	1772
Preserving by gases. Method of and apparatus for	A. L. and A. W. Lawton	640,779	Jan. 9	1185	270	90	250
Press: *See* Baling-press. Molding-press. Button-making press. Pastil-press. Copying-press. Platen-press. Cotton-press. Printing-press. Extracting-press. Proof-press. Filter-press. Steam-press. Hydraulic press. Wine-press.							
Press-boxes. End-gate for	D. J. Saltsman	642,724	Feb. 6	291	70	90	1024
Press-feeding device	W. M. Holmes	645,721	Mar. 20	2159	469 470	90	2211
Press-feeding device	W. M. Holmes and J. A. Butler	645,720	Mar. 20	2156	469	90	2210
Press-feeding device	G. A. Lowry	645,724	Mar. 20	2164	471	90	2212
Press-feeding device	G. A. Lowry	645,727	Mar. 20	2172	472	90	2213
Press-feeding device	G. A. Lowry	645,730	Mar. 20	2182	474	90	2215
Press-feeding device	G. A. Lowry and J. A. Butler	645,726	Mar. 20	2169	471 472	90	2212
Press-feeding device	G. A. Lowry and W. M. Holmes	645,731	Mar. 20	2185	474	90	2216
Press-feeding device	G. A. Lowry	645,723	Mar. 20	2162	470	90	2211
Press for cotton, wool, hair, &c	G. A. Lowry	645,725	Mar. 20	2166	471	90	2212
Press for cotton, wool, hair, &c	G. A. Lowry and W. B. P. Mattox	645,733	Mar. 20	2193	476	90	2217
Press head-plate	J. A. Butler	645,712	Mar. 20	2141	466 467	90	2207
Press-hopper	G. A. Lowry and W. M. Holmes	645,729	Mar. 20	2180	473 474	90	2215
Presses. Combined hopper and feeder for	F. Lane	643,876	Feb. 20	2401	564	90	1468
Pressure-gage	J. H. Ayasse	643,099	Feb. 13	955	223 224	90	1171
Pressure-regulating device	E. Leger	641,522	Jan. 16	2639	601	90	548
Price-card holder	F. B. Badt	645,992	Mar. 27	2662	599	90	2328
Primary battery	J. Parker	643,974	Feb. 20	2581	609	90	1506
Primer. Percussion-	S. Crump	644,282	Feb. 27	3153	740	90	1631
Print. Varnished							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Prints. Drying and varnishing	S. Crump	644,281	Feb. 27	3151	.....	90	1631
Printers' galleys. Locking-quoin for	G. Assenmacher	642,890	Feb. 6	572	131	90	1078
Printer's quoin	W. H. Lynchard	643,664	Feb. 20	2013	475	90	1894
Printing	J. R. Corbin	640,447	Jan. 2	562	119	90	111
Printing, associating, and folding machine. Web-	R. C. Annand	646,341	Mar. 27	3343	746 747 748	90	2460
Printing attachment. Combination roller	W. M. Pearse, Jr	643,154	Feb. 13	1052	244	90	1191
Printing attachment for roll-holders	W. C. Day	643,893	Feb. 20	2483	572	90	1475
Printing-bar	E. V. Beals	645,658	Mar. 20	2039	448	90	2188
Printing-designs. Forming acid-resistant	G. R. Cornwall and H. C. Boedicker	643,892	Feb. 20	2431	.....	90	1474
Printing device for paper-roll holders	J. L. Bangley	643,369	Feb. 13	1425	332	90	1264
Printing device. Roller	L. J. Davis	641,439	Jan. 16	2477	567	90	515
Printing. Inking device for plate-	E. E. Brookes	644,222	Feb. 27	3087	719	90	1669
Printing-machine	J. R. Corbin	640,533	Jan. 2	898	204	90	174
Printing-machine	J. R. Corbin	640,534	Jan. 2	901	204	90	175
Printing-machine	G. R. Cornwall	643,372	Feb. 13	1430	333	90	1265
Printing-machine	B. H. Jordan	643,139	Feb. 13	1029	240	90	1187
Printing-machine	J. A. Keyes	642,131	Jan. 30	3728	852 853 854	90	784
Printing-machine	I. Lam	640,923	Jan. 9	1485	332 333 334	90	309
Printing-machine and delivery apparatus therefor	W. Scott	642,805	Feb. 6	406	98, 99	90	1044
Printing machine. Color-	S. L. Deleuil	644,733	Mar. 6	308	68	90	1814
Printing machine. Fabric-	H. M. Harley	641,104	Jan. 9	1843	409 410	90	376
Printing machine. Sheet-	A. Johnson and A. J. Stone	644,231	Feb. 27	3049	722	90	1612
Printing machine. Ticket-	E. C. and F. L. Jones	640,568	Jan. 2	767	168 169	90	150
Printing or marking apparatus	A. C. Kley	642,337	Jan. 30	4129	934	90	864
Printing-press	H. F. Bechman	642,571	Feb. 6	5	2	90	965
Printing-press	H. F. Bechman	643,999	Feb. 20	2633	622 623	90	1515
Printing-press	J. Brooks and W. S. Huson	644,223	Feb. 27	3089	719 720	90	1609
Printing-press	J. E. Caps	644,241	Feb. 27	3066	229	90	1613
Printing-press	G. J. Olsen	640,801	Jan. 9	1229	270	90	259
Printing-press	G. W. Porter	640,808	Jan. 9	1240	281	90	262
Printing-press	B. H. Speckbauch	643,692	Feb. 20	2058	486	90	1403
Printing-press delivery mechanism	H. A. W. Wood	643,178	Feb. 13	1097	254 255 338 339 340 341 342	90	1201
Printing-press feeder	C. D. Mattison	643,384	Feb. 13	1451	595 596	90	1269
Printing-press form-dampening mechanism	J. Brooks and W. S. Huson	643,941	Feb. 20	2532	594 595	90	1495
Printing-press gripper	T. G. Jenkins and J. B. Wills	644,742	Mar. 6	321	71	90	1818
Printing-press register-gearing	J. Brooks and W. S. Huson	643,940	Feb. 20	2530	594 595	90	1495
Printing-press sheet-delivery apparatus	W. Scott	642,806	Feb. 6	410	99 100	90	1045
Printing-press sheet-perforator	H. K. King	645,264	Mar. 13	1306	284	90	2029
Printing, stamping, or canceling machine	R. C. Berry	643,624	Feb. 20	1940	455 456	90	1380
Prism-plate	H. F. Belcher	642,572	Feb. 6	7	2, 3	90	966
Projectile	J. Luciani	644,361	Feb. 27	3318	770	90	1661
Projectile	G. H. Newell	642,708	Feb. 6	253	62	90	1016
Projectile for rifled guns	F. Stubbs and L. Burrows	642,762	Feb. 6	344	84	90	1034
Projectiles. Metallic compound for	G. Roth and C. Krnka	645,976	Mar. 27	2620	.....	90	2322
Projectiles. Ring for protecting	J. Schirra	643,071	Feb. 6	882	207	90	1137
Projection apparatus	J. J. Frawley	645,949	Mar. 27	2571	570	90	2309
Proof-press	T. G. Claridge	640,745	Jan. 9	1117	256	90	236
Propeller. Boat-	H. D. Guffey	645,807	Mar. 20	2319	506 507	90	2242
Propeller. Chain	W. C. Raub	643,752	Feb. 20	2176	511	90	1425
Propeller. Endless-chain	R. Begnis	641,668	Jan. 23	2887	658	90	608
Propeller. Reciprocating	J. Lichetti	643,966	Feb. 20	2568	605	90	1503
Propeller reverse-gear	F. A. Errington	644,508	Feb. 27	3561	828 829	90	1709
Propeller. Screw-	A. B. Kokernot	645,856	Mar. 20	2402	527 528	90	2260
Propeller. Screw-	W. E. Pugsley	645,605	Mar. 20	1934	437	90	2167
Propeller. Ship-	S. von Kvassay	640,310	Jan. 2	295	61	90	59
Propeller. Steamship-	C. R. Emrich	645,354	Mar. 13	1403	323	90	2061
Propeller. Vessel-	C. E. Hansen	643,646	Feb. 20	1981	466	90	1389
Propeller-wheel. Reversible	G. H. Gere	642,601	Feb. 6	68	16	90	979
Propelling apparatus. Hydraulic	F. W. Simmons	646,391	Mar. 27	3472	772	90	2490
Propelling mechanism for boats. Hand	F. Burns	643,464	Feb. 13	1593	376	90	1297
Propulsion. Boat	P. E. Doege	640,513	Jan. 2	672	145	90	132
Prospecting-dish	D. McCabe	646,382	Mar. 27	3461	770	90	2488
Prospecting-drill	H. Ahlstrand	640,928	Jan. 9	1497	335	90	311
Protractor	H. G. Plumb	641,486	Jan. 16	2565	586	90	533
Provision-box. Window	F. Hampton	645,124	Mar. 13	1051	223	90	1979
Prune-drier	D. S. Donzella	641,955	Jan. 23	3406	774	90	706
Pruning implement		646,048	Mar. 27	2777	615	90	2350
Puller: *See* Bush-puller. Spike-puller. Cork-puller. Staple-puller. Nail-puller. Stump-puller.							
Pulley	H. E. Baker	641,488	Jan. 16	2569	587	90	534
Pulley	J. Black	641,259	Jan. 16	2159	486	90	453
Pulley	A. Stroud	641,416	Jan. 16	2422	553	90	506
Pulley and spring. Combined belt-	F. Van Duzen	643,699	Feb. 20	2073	489	90	1406

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pulley. Expanding	T. A. Edison and C. M. Johnson	641,281	Jan. 16	2194	498	90	460
					494		
Pulley. Fiber	J. R. Thame	643,782	Feb. 20	2226	525	90	1434
Pulley for belt-driving gear. Divided loose	J. Buntmowitsch, A. and J. E. R. Schadt.	640,871	Jan. 9	1375	309	90	289
Pulley. Power-transmission	J. H. Buckley	640,870	Jan. 9	1372	308	90	288
Pulley. Sheet-metal	E. G. Budd	641,831	Jan. 23	3178	722	90	661
Pulley. Traction	G. Leask and R. G. Drinnan	642,137	Jan. 30	3742	855	90	787
					856		
Pulley. Well	J. Foster	645,798	Mar. 20	2308	503	90	2240
Pulley. Window	A. A. Libby	644,084	Feb. 27	2779	659	90	1558
Pulleys. Die for making sheet-metal spoke-arms for	T. Corscaden	642,086	Jan. 23	3545	819	90	282
Pulleys. Making belt	R. Chillingworth	640,876	Jan. 9	1398	311	90	291
Pulleys with multiple parts. Device for making	R. Chillingworth	641,077	Jan. 9	1795	399	90	866
Pulp articles. Manufacture of	W. W., A., and F. McEwan	646,389	Mar. 27	3469	772	90	2490
					157		
Pulp chippers. Feed attachment for wood	S. W. Butterfield	642,957	Feb. 6	686	158	90	1099
Pulp-like materials. Apparatus for removing water from	H. Kerrinnes	644,207	Feb. 27	3006	711	90	1608
Pulp. Machine for making vessels of fibrous	A. Stark	645,141	Mar. 13	1090	233	90	1987
Pulverizer. Soil	J. F. Glidden	643,408	Feb. 13	1499	351	90	1277
					352		
Pulverizers. Dust-preventer attachment for rotary	J. Kullman	642,747	Feb. 6	324	78	90	1080
Pulverizing-mill	A. Raymond	642,717	Feb. 6	272	67	90	1021
Pump	W. Miller	640,399	Jan. 2	479	100	90	94
Pump	A. L. Reynolds	641,229	Jan. 9	2108	474	90	429
Pump. Adjustable	W. M. Page and C. S. Edmonds	643,972	Feb. 20	2577	608	90	1505
Pump. Air	J. N. McLean	642,354	Jan. 30	4175	944	90	875
Pump. Air	C. E. Scribner	641,409	Jan. 16	2411	551	90	508
Pump. Boat	M. M. Cullen	645,225	Mar. 13	1243	269	90	2016
Pump. Bucket-chain	C. Heffner	645,171	Mar. 13	1146	247	90	1998
Pump. Centrifugal	W. S. Sharpneck	644,475	Feb. 27	3502	813	90	1698
Pump. Centrifugal	G. A. Wilberforce	640,345	Jan. 2	350	74	90	70
Pump. Centrifugal vacuum	B. Thoens	641,561	Jan. 16	2701	615	90	561
Pump-curb reservoir	C. A. Bartliff	643,619	Feb. 20	1890	446	90	1371
Pump-cylinder with relief-valve	L. W. Noyes	640,406	Jan. 2	496	102	90	97
					119		
Pump. Electric	C. Eickemeyer	644,852	Mar. 6	548	120	90	1803
					559		
Pump. Floating	W. S. Bryant	643,863	Feb. 20	2377	560	90	1463
Pump-governor	F. Hoffman	640,767	Jan. 9	1160	264	90	245
Pump. Lift and force	S. H. Kerfoot	645,034	Mar. 6	875	189	90	1931
Pump. Measuring	J. J. Tokheim	640,396	Jan. 2	337	71	90	67
Pump mechanism. Oil-well	M. T. Pew	642,483	Jan. 30	4401	998	90	919
Pump. Must	J. S. Philpott	640,486	Jan. 2	626	135	90	125
Pump-piston	A. J. Sallisbury	643,985	Feb. 20	2602	614	90	1510
Pump-plunger	H. W. Oslek	641,968	Jan. 23	3471	792	90	719
Pump-rod spring attachment	J. O. Bane	646,380	Mar. 27	3459	770	90	2498
Pump. Rotary	H. D. B. Williams	640,343	Jan. 2	347	73	90	70
Pump. Steam	W. E. Eby	644,595	Mar. 6	40	9, 10	90	1763
Pump. Steam vacuum	F. R. Crumbaker	644,582	Mar. 6	35	8	90	1762
Pumps. Automatic coupling for air	J. W. Bates	641,181	Jan. 9	2004	447	90	408
Pumping apparatus and compressor	L. M. G. Delaunay-Belleville	645,792	Mar. 20	2299	501	90	2238
					983		
Pumping apparatus. Duplex	G. B. Hiett	642,446	Jan. 30	4344	984	90	907
Pumping-engine	G. W. McGill	646,079	Mar. 27	3824	827	90	2359
					807		
Pumping-engine. Steam	H. M. Lane	642,237	Jan. 30	3940	808	90	926
					501		
Pumping-engine. Steam	B. O. Rhodes	643,732	Feb. 20	2138	502	90	1418
Pumping-jack	J. W. Swan	643,892	Feb. 20	2313	544	90	1451
					545		
Pumping machinery	D. H. Maury, Jr	644,618	Mar. 6	101	23, 24	90	1775
Pumping mechanism	G. W. McGill	648,150	Feb. 13	1045	243	90	1190
					860		
Pumping mechanism	J. Olsen	642,150	Jan. 30	3773	861	90	794
Pumping system	C. Wright	640,349	Jan. 2	358	76	90	72
Punch	E. Pearl	640,606	Jan. 2	1030	234	90	199
Punch. Belt	F. L. Harmon	645,927	Mar. 20	2527	559	90	2284
Punch. Hydraulic	F. H. Stillman	641,163	Jan. 9	1963	435	90	400
					440		
Punch. Hydraulic	C. Wigtel	641,175	Jan. 9	1987	441	90	405
Punch. Self-registering check	G. M. Bradt	642,955	Feb. 6	682	156	90	1098
Punching-machine dividing-head	P. J. Kelly	642,822	Feb. 6	443	106	90	1052
					517		
Punching machine. Metal-strip	E. Saltzkorn and L. Nicolai	641,333	Jan. 16	2288	518	90	478
Punching, shearing, and plow-welding machine. Combined	G. Sears	643,167	Feb. 13	1077	249	90	1197
Puzzle	H. C. Doersch	642,091	Jan. 30	3649	835	90	767
Puzzle	D. Fuller	640,555	Jan. 2	750	166	90	147
Puzzle	R. M. Shaffer	642,374	Jan. 30	4219	953	90	893
Puzzle or game	D. R. Cutler	640,370	Jan. 2	416	87	90	82
Pyrotechnic device	H. Weiffenbach	640,399	Jan. 2	341	72	90	68
					353		
Pyrotechnic gun. Rapid-fire	W. Teale	645,486	Mar. 13	1616	354	90	2091
Quicksilver-furnace	H. C. Davey	643,839	Feb. 20	2329	548	90	1454
Quilling-machine	D. Ashley	642,543	Jan. 30	4495	1019	90	936
Quilting-frame	B. M. Daves	642,786	Feb. 6	378	91	90	1040
Quinin carbonic ether. Making	H. Throu	640,977	Jan. 9	1604	------	90	329
Rabbet-strip. Adjustable	S. S. Colt	642,678	Feb. 6	901	50	90	1006
Rack:							
See Bicycle-rack. Cloak or skirt rack. Clothes-rack. Display-rack. Hat or cap rack. Hay-rack. Hay and stock rack. Pen-rack. Stamp-rack. Spool-rack.							
Racket	F. L. Slazenger	644,877	Mar. 6	596	129	90	1873

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Radiator	O. E. Wait	645,611	Mar. 20	1948	429	90	2170
Radiator-support	F. H. Patrick	645,828	Mar. 20	2361	517	90	2251
Radiator valve. Hot-water	W. E. Blake and R. B. Andros	642,198	Jan. 30	3862	878	90	811
Radiators. Elbow-valve for hot-water	W. E. Blake and R. B. Andros	642,199	Jan. 30	3863	878	90	811
Rail-anchor	S. B. Anderson	643,449	Feb. 13	1574	370	90	1203
Rail attachment	A. K. Fleischer	641,852	Jan. 23	3233	734	90	670
Rail-bond	C. J. Mayer	642,553	Jan. 30	4518	1023	90	941
Rail-bond	C. J. Mayer	642,554	Jan. 30	4519	1023	90	941
Rail-bond	C. J. Mayer. (Reissue)	11,812	Mar. 13	1798	395	90	2126
Rail-bond	W. T. Anderson	641,254	Jan. 16	2151	484	90	451
Rail-joint	C. R. Brent	645,661	Mar. 20	2043	449	90	2789
Rail-joint	A. K. Fleischer	641,851	Jan. 23	3233	734	90	670
Rail-joint	M. V. Gipson	646,400	Mar. 27	3493	778	90	2493
Rail-joint	J. F. Gooding and A. E. Ackerson	644,010	Feb. 20	2658	628	90	1520
Rail-joint	F. Lott	641,128	Jan. 9	1891	419	90	386
Rail-joint	A. G. Michie	643,774	Feb. 20	2214	522	90	1432
Rail-joint	G. W. Palmer	645,002	Mar. 6	800	175	90	1916
Rail-joint	R. V. Wallace	645,299	Mar. 13	1267	275	90	2021
Rail joint. Rail or tramway	H. F. Gullan	641,008	Jan. 9	1676	372	90	343
Rail-joint-testing apparatus	R. W. Conant	645,384	Mar. 13	1524	334	90	2073
Rail system. Electric third	G. C. Hicks	645,259	Mar. 13	1300	283	90	2028
					137		
Railway	S. B. Dickinson and J. A. Rogers	644,900	Mar. 6	636	138	90	1881
Railway appliances. Means for controlling and locking	P. Bouré	640,859	Jan. 2	392	83, 84	90	78
Railway-brake	R. Weir	641,246	Jan. 9	2133	480	90	435
Railway conduit system. Electric	L. Dion	643,742	Feb. 20	2160	507	90	1422
Railway construction	F. Hachmann	641,101	Jan. 9	1836	408	90	375
Railway construction	H. B. Nichols	645,181	Mar. 13	1166	253	90	2002
Railway contact device. Conduit-electric	C. F. P. Stendebach	644,108	Feb. 27	2824	668	90	1568
Railway-crossing	J. W. Bennett	640,527	Jan. 2	701	152	90	138
Railway-crossings. Automatic switch for	J. E. Berkstresser	644,759	Mar. 6	361	78	90	1826
Railway. Electric	E. Bonnet, J. Paufique, and G. Linière.	642,737	Feb. 6	311	74	90	1028
Railway. Electric	E. C. Morgan	645,646	Mar. 20	2014	443	90	2183
Railway. Electric	E. C. Morgan	645,648	Mar. 20	2018	444	90	2184
Railway. Electric	W. B. and L. C. Reed	645,015	Mar. 6	834	180	90	1922
Railway. Electric overhead	L. J. Bruns and H. R. Ottesen	641,829	Jan. 23	3175	721	90	661
					109		
Railway. Elevated	L. Anderson	642,832	Feb. 6	458	110	90	1055
Railway foot-guard	J. D. Green	642,110	Jan. 30	3676	842	90	773
					121		
Railway-frog	D. MacPherson	642,867	Feb. 6	521	122	90	1068
					406		
Railway-head gear-cover	L. W. Penney	643,531	Feb. 13	1734	407	90	1323
Railway loop system. Street	A. J. Trebbin	645,278	Mar. 13	1329	289	90	2085
Railway. Pleasure	J. Anderson	643,996	Feb. 20	2626	620	90	1514
Railway-rail coupling	H. W. Broski	641,494	Jan. 16	2575	588	90	535
Railway-rail joint	S. Ferris	644,549	Feb. 27	3647	849	90	1725
Railway-rail joint	S. M. Hopping	645,852	Mar. 20	2397	526	90	2259
Railway-rail joint	E. M. McVicker	645,404	Mar. 13	1565	342	90	2081
Railway-rail-joint safety-brace	P. F. Rich	644,067	Feb. 27	2801	664	90	1563
Railway-rail joints. Construction of	E. M. McVicker	644,934	Mar. 6	686	150	90	1892
Railway-rails, &c. Apparatus for recording flexure of	J. E. Colas	646,067	Mar. 27	2808	622	90	2356
Railway-rails. Device for preventing creeping of	J. L. Pope	642,487	Jan. 30	4407	1000	90	920
Railway-rails. Electrical bond for	J. M. Price	644,094	Feb. 27	2798	663	90	1563
Railway-rails on sleepers. Means for fixing	F. Hennebique	642,745	Feb. 6	322	78	90	1029
Railway sand-box. Street	S. W. Phelps	641,887	Jan. 23	3288	747	90	682
Railway-signal	D. M. Snyder	642,500	Jan. 30	4423	1005	90	923
Railway-signal	C. A. Stimpson	645,839	Mar. 20	2374	521	90	2254
Railway signal apparatus	D. Collen	644,846	Mar. 6	539	117	90	1861
Railway signal apparatus	C. R. Gurr and H. Tomlins	643,498	Feb. 13	1674	393	90	1313
Railway-signal. Automatic	P. L. Seib	645,758	Mar. 20	2236	484	90	2226
Railway-signal. Electric	J. Shoecraft	644,639	Mar. 6	140	31	90	1781
Railway-signal. Electrically-operated day and night	J. J. Saville and J. H. Winspear	643,255	Feb. 13	1232	289	90	1226
Railway signal mechanism	S. L. Neely	642,848	Feb. 6	486	115	90	1061
Railway signal system	K. W. Mansfield and W. R. Thompson.	643,666	Feb. 20	2015	475	90	1395
					476		
Railway signaling system and apparatus therefor	H. Bezer	644,790	Mar. 6	435	98, 94	90	1841
Railway-spike	P. J. Klein	643,658	Feb. 20	2005	473	90	1393
					691		
Railway surface-contact system. Electric	R. Lundell	646,229	Mar. 27	3134	692	90	2420
Railway-switch	A. H. Burchard	640,617	Jan. 2	859	191	90	167
Railway-switch	I. Robbins	646,089	Mar. 27	2756	611	90	2346
					612		
Railway-switch	J. C. Sturm	644,264	Feb. 27	3110	731	90	1622
					732		
Railway-switch block. Automatic	W. R. Keeney	642,232	Jan. 30	3982	896	90	825
Railway-switch. Electrical	P. E. Perry	646,155	Mar. 27	2977	657	90	2389
Railway-switch mechanism	J. S. Mills	640,480	Jan. 2	614	132	90	121
Railway-switch-operating device. Street	A. Huber	643,963	Feb. 20	2563	603	90	1502
					178		
Railway-switch-operating mechanism	W. S. Phelps	640,586	Jan. 2	806	179	90	157
Railway-switch stand	W. McCaffery	643,881	Feb. 20	2408	567	90	1469
Railway switch. Street	D. E. Gilchrist	645,802	Mar. 20	2314	505	90	2241
Railway-switches. Auxiliary lock for	P. R. Walsh	645,768	Mar. 20	2259	491	90	2231
Railway switching device	J. Y. Porter	641,223	Jan. 9	2096	470	90	427
Railway-switching device. Street	R. W. Grange, Jr	641,952	Jan. 23	3402	773	90	706
Railway system. Surface-contact electric	J. M. Murphy	641,879	Jan. 23	3275	744	90	679
Railway third or traction rail. Electric	E. C. Morgan	645,647	Mar. 20	2016	443	90	2184
Railway. Third-rail electric	B. C. Seaton	645,080	Mar. 6	847	185	90	1924
Railway third rail. Electric	W. A. P. Willard, Jr	645,654	Mar. 20	2031	447	90	2187
Railway-tie	H. W. Blauch	645,062	Mar. 13	925	199	90	1956
Railway-tie	E. G. Carter	642,427	Jan. 30	4312	973	90	901

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-tie	A. L. A. Himmelwright	644,710	Mar. 6	272	60	90	1808
Railway-tie	W. M. and E. G. Hodson	640,285	Jan. 2	266	53	90	53
Railway-tie	J. L. Pope	642,486	Jan. 30	4406	1000	90	920
Railway-tie	F. C. Weiss and H. G. Burkhart	642,186	Jan. 30	3844	874	90	808
Railway-tie and fastening	J. W. Howle	643,795	Feb. 20	2246	529	90	1438
Railway tie and joint protector	W. T. Darby and C. A. Hooge	643,477	Feb. 13	1631	285	90	1305
Railway-tie and railway-fastening	E. M. Smith	645,759	Mar. 20	2237	485	90	2226
Railway-tie plate	H. E. Homan	644,600	Mar. 6	72	16	90	1769
Railway-tie receiver	C. W. Garland	641,202	Jan. 9	2045	457	90	416
Railway-ties. Machine for cutting	S. A. Friedsam	643,116	Feb. 13	986	220	90	1177
Railway-track crossing	R. G. York	641,062	Jan. 9	1765	393	90	369
Railway-track lubricator	D. C. Creese	641,083	Jan. 9	1809	402	90	369
Railway-tracks by use of engines and crabs. Device for throwing	C. Schütte	643,611	Feb. 13	1873	441	90	1353
Railway-train-stopping device	C. Selden	642,882	Feb. 6	556	128	90	1074
Railway-trains. Detonating apparatus for	J. K. Miller, J. W. Witt, and D. A. Jones.	643,148	Feb. 13	1041	242	90	1189
Railway-trains. Electric signal and automatic alarm for	W. J. Baumer and H. Emmel	642,570	Feb. 6	4	1	90	965
Railway. Underground electric	G. W. Smith	645,021	Mar. 13	849	185	90	1025
Railway. Underground electric	S. Fraenkel and J. K. Held	642,598	Feb. 6	63	16	90	978
Railway-vehicles. Automatic coupling for	W. Courtenay	645,552	Mar. 20	1819	400	90	2144
Railways. Combined sleeper and conduit for electric	P. Czigler	642,301	Jan. 30	4050	922 923	90	849
Railways, &c. Sleeper for	F. Hennebique	641,697	Jan. 23	2928	668	90	616
Railways, &c. Sleeper for use on	W. Chapman	643,283	Feb. 13	1281	302	90	1236
Railways. System of distribution for electric	F. C. Esmond	642,216	Jan. 30	3906	889	90	819
Railways. Unit multiple system of control for electric	C. S. Cox	641,988	Jan. 23	3377	768	90	700
Raisin-seeder	C. S. Cox and T. E. Langley	641,989	Jan. 23	3380	768	90	700
Raisin-seeder							
Rake: *See* Hand-rake. Hay-rake.	J. L. Mackey	643,514	Feb. 13	1701	399	90	1318
Rake	L. Edel	644,353	Feb. 27	3306	768	90	1658
Range	S. A. Wilde	645,772	Mar. 20	2209	498	90	2233
Range. Cooking	J. Mander	640,924	Jan. 9	1492	334	90	810
Ranges. Water-heater for gas or other	J. L. Ingalsbe	643,717	Feb. 20	2119	497	90	1414
Rasp	J. L. Pope	641,543	Jan. 16	2675	610	90	556
Rasp. Rotary-disk	W. M. Arthur	643,098	Feb. 13	954	221	90	1171
Ratchet-wrench	C. Kingsley	645,265	Mar. 13	1308	284 285	90	2030
Ratchet-wrench	J. Owen	644,451	Feb. 27	3466	805	90	1692
Ray-filter and half-tone grating. Combined	J. E. Leresche	640,209	Jan. 2	103	20	90	29
Razor	T. F. Curley	645,791	Mar. 20	2208	500	90	2228
Razor-guard	A. W. Scheuber	645,017	Mar. 6	842	183	90	1023
Razor. Safety	J. H. Hennnerdinger	645,954	Mar. 27	2597	575	90	2315
Razor-strop. Duplex	S. Furdek	643,804	Feb. 20	2431	573	90	1475
Reading-teaching or educational device	N. B. Spencer	645,760	Mar. 20	2228	485	90	2226
Reamer and drill. Combined	P. Grabler	644,595	Mar. 6	65	14	90	1767
Reamer. Reversible	E. Roblin	643,684	Feb. 20	2089	482	90	1399
Reaping or mowing machine cutting apparatus	J. T. Mills	645,626	Mar. 20	1981	435	90	2176
Receptacle or can	M. H. Smith	642,761	Feb. 6	343	84	90	1044
Reciprocating engine	C. W. McCall	644,393	Mar. 6	684	150	90	1892
Reclining-chair							
Recorder: *See* Motorman's recorder. Speed-recorder.	H. L. Callendar	642,674	Feb. 6	193	48, 49	90	1004
Recording apparatus. Electrical	T. A. Robinson and R. L. Shaw	641,327	Jan. 16	2273	515	90	476
Reed for textile machinery	L. C. Baldwin	642,950	Feb. 6	676	154	90	1096
Reed-ribs. Apparatus for cementing dents in							
Reel: *See* Clothes-line reel. Tape-line reel. Tape-reel.	O. Hillstrom	646,216	Mar. 27	3104	685	90	2415
Reflector	F. B. Palmer	640,585	Jan. 2	894	178	90	157
Reflector	J. C. Fleming	640,374	Jan. 2	428	88	90	84
Reflector for electric or other lights	F. Rhind	642,529	Jan. 30	4469	1014	90	981
Reflector. Lamp	G. Shannon	645,335	Mar. 13	1436	316	90	2055
Reflector. Lamp	E. N. Friedmann	641,446	Jan. 16	2485	569	90	516
Refrigerating and ice manufacture. Agitator for	E. C. Thrupp	642,505	Jan. 30	4429	1006 1007	90	924
Refrigerating and liquefying air or other gases. Apparatus for	J. Player	645,829	Mar. 20	2362	517	90	2251
Refrigerating and ventilating car. Combined	G. B. Hiett	640,911	Jan. 9	1460	327	90	805
Refrigerating apparatus. Compression-pump for	C. W. Blagg	644,965	Mar. 6	744	160	90	1904
Refrigerating apparatus for cold-storage chambers	N. Selfe	640,330	Jan. 2	330	69	90	66
Refrigerating-machine gas-pump	G. B. Hiett	640,910	Jan. 9	1455	325 326	90	804
Refrigerating or ice-making machine	M. Cooper	644,847	Mar. 6	541	117	90	1862
Refrigerating-surfaces. Preventing formation of frost on	M. M. Suppes and J. M. Dortch	641,615	Jan. 16	2792	635	90	579
Refrigerating system	R. Frey	646,277	Mar. 27	3225	717	90	2438
Refrigerator	J. W. Heaton	642,117	Jan. 30	3699	845	90	775
Refrigerator	R. E. Lewis	640,210	Jan. 2	105	21	90	22
Refrigerator	H B. Murdock	645,210	Mar. 13	1216	265	90	2011
Refrigerator	J. Nash	644,985	Mar. 6	687	150	90	1893
Refrigerator	H. Wietzeck	642,401	Jan. 30	4260	992	90	891
Refrigerator	F. A. Wilke	641,421	Jan. 16	2429	557	90	507
Refrigerator	M. Willett	641,351	Jan. 16	2213	506	90	484
Refrigerator	G. D. Niswonger and J. W. Hawenstine.	642,695	Feb. 6	106	25	90	986
Refrigerator attachment	C. J. Stuart	643,013	Feb. 6	781	181	90	1118
Refrigerator-box	G. L. Benson	642,418	Jan. 30	4296	969 970	90	898
Refrigerator-car	J. Zobrist	644,268	Feb. 27	3117	733	90	1694
Refrigerator-car	T. B. Kirby and J. E. Norling	643,528	Feb. 13	1355	317 318	90	1250
Refrigerator-car ventilator							

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Refrigerator-car ventilator	F. J. McAssey and A. Richmond	640,583	Jan. 2	801	177	90	156
Refrigerator drip-cup attachment	C. G. Spalding	645,981	Mar. 27	2635	584	90	2323
Refrigerator-trap	H. N. Parker	640,486	Jan. 2	623	135	90	122
Refrigerator-wagon	E. W. Beyer	643,244	Feb. 13	1209	268 274	90	1222
Refuse-box	L. Yancey	642,409	Jan. 30	4284	967	90	896
Refuse-burner or crematory for burning garbage	J. Conley	645,349	Mar. 13	1450	320	90	2058
Refuse-destructor	H. P. Boulnois and J. A. Brodie	646,015	Mar. 27	2712	601 602	90	2337
Register: *See* Cash-register. Hotel-register. Corkscrew-register. Sales and cash register. Fare-register. Telephone-call register. Hot-air register.							
Register and advertising desk	F. H. Adams and G. F. Kane	643,582	Feb. 13	1815	429	90	1340
Register-dial	G. H. Alton	645,054	Mar. 13	912	196	90	1958
Registering and recording apparatus	J. Dallimore	640,276	Jan. 2	247	50	90	49
Registering and recording machine. Weight	P. C. Palmer	645,233	Mar. 13	1255	272 273	90	2019
Registering-machine. Automatic	A. F. Bardwell	640,355	Jan. 2	371	78 79 80 81 82	90	74
Regulator: *See* Feed-water regulator. Thermostat-regulator. Fluid-pressure regulator.							
Rein and whip holder. Combined	J. E. Williams	645,243	Mar. 13	1273	276	90	2023
Rein-guard	J. T. West	644,387	Feb. 27	3362	780	90	1670
Rein-holder	C. Clar	642,267	Jan. 30	4045	921	90	847
Rein-holder	F. A. Ridout	644,461	Feb. 27	3482	808	90	1695
Rein-holder	J. S. Sewell	643,687	Feb. 20	2042	483	90	1400
Remedial substances from swine-blood. Preparing	G. Lorenz	645,110	Mar. 13	1027	------	90	1975
Rendering and pressing apparatus	J. F. Bussells	641,266	Jan. 16	2169	488 489	90	455
Retort	B. Sadtler	642,722	Feb. 6	287	69	90	1024
Retort for sterilizing or cooking goods	F. W. Smith	640,234	Jan. 2	146	30, 31	90	31
Retorts. Producing	B. Sadtler	642,723	Feb. 6	289	------	90	1024
Reverberatory furnace	H. Pahaut	645,182	Mar. 13	1167	253	90	2002
Reversible seat	W. L. Schellenbach	645,609	Mar. 20	1945	429	90	2170
Reversing mechanism	J. W. McKee	644,211	Feb. 27	3011	712	90	1604
Revolver. Foot-operated	J. Aster	641,620	Jan. 16	2901	636	90	580
Rheostat and attachment-plug. Combined	L. D. Carter	641,076	Jan. 9	1795	399	90	366
Rice-flaking apparatus	A. and H. Perry	641,035	Jan. 9	1716	381 382	90	351
Rice-huller	I. L. Hauser	642,905	Feb. 6	598	137	90	1082
Rims, &c. Apparatus for forming	T. H. Grigg	642,976	Feb. 6	715	164 165	90	1105
Ring: *See* Curtain-ring. Finger-ring.	J. Allen	644,885	Mar. 6	613	132	90	1877
River-bottoms. Machine for cutting grass, &c., from	J. W. Thompson and L. T. French	643,389	Feb. 13	1374	322	90	1254
Rivet-setting implement	R. S. Moore	641,317	Jan. 16	2256	511	90	473
Riveter tool-holder	H. C. Pomeroy	646,085	Mar. 27	2747	609 610	90	2344
Riveting and punching machine. Combined	W. J. Ball	642,415	Jan. 30	4293	969	90	898
Riveting device	J. W. Thompson	643,340	Feb. 13	1376	322 323	90	1255
Riveting implement	J. H. Cassidy	640,271	Jan. 2	236	48	90	47
Riveting-machine	J. F. Johnson	644,672	Mar. 6	213	47	90	1795
Riveting-machine	F. H. Stillman	641,162	Jan. 9	1960	434 435	90	399
Riveting-tool. Hydraulic	G. W. Murray	641,080	Jan. 9	1709	379	90	349
Road breaker and scraper. Combined	C. F. Shumaker	644,747	Mar. 6	329	73	90	1819
Roaster: *See* Coffee-roaster. Culinary roaster.	F. T. Heatly and M. Leavell	646,268	Mar. 27	3236	720	90	2440
Roasting-machine	W. Topping	642,507	Jan. 30	4435	1008	90	925
Roasting or baking pan	M. E. Sims	646,194	Mar. 27	3054	674	90	2405
Roasting-pan	R. Avery	646,343	Mar. 27	3348	748	90	2461
Robe for invalids. Bed-	H. Koch	642,463	Jan. 30	4371	991	90	913
Rock-drill	J. McCulloch	644,998	Mar. 6	783	173	90	1915
Rock-drill	G. D. Whitcomb and W. K. Millholland.	640,341	Jan. 2	344	72, 73	90	69
Rock-drill	R. L. Ambrose	643,077	Feb. 6	894	211	90	1139
Rock-drill engine	P. H. Reardon	645,536	Mar. 13	1793	394	90	2125
Rock-drill engine	M. C. Bullock	643,082	Feb. 6	909	215	90	1141
Rock-drills. Core breaker and lifter for	A. Lommatzsch	643,192	Feb. 13	1122	261	90	1205
Rocking-chair	H. McDowell	642,477	Jan. 30	4394	997	90	918
Rod-clamp	C. G. Richardson	642,477	Jan. 30	4394	997	90	918
Rod-feeding device	J. Illingworth	641,040	Jan. 9	1726	384	90	352
Rod straightening and finishing machine	J. M. Davidson	644,919	Mar. 6	666	143 144	90	1887
Roentgen-ray apparatus	H. Bernhard	646,362	Mar. 27	3427	764	90	2482
Roller: *See* Friction-roller. Shade-roller. Land-roller.	T. V. Allis	640,263	Jan. 2	221	45	90	44
Roller-mill feeder	C. M. Horton	641,428	Jan. 16	2442	559 560	90	510
Rolling metal to thin gages. Method of and apparatus for hot-	J. Kennedy	642,449	Jan. 30	4346	984 985	90	908
Rolling-mill		644,928	Mar. 6	677	986 147 148	90	1890
Rolling-mill							

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Rolling-mill	P. M. Weber	645,409	Mar. 13	1576	344	90	2084
Rolling-mill	S. T. Wellman, F. H. Daniels, and C. H. Wellman.	645,806	Mar. 13	1880	345 301 302	90	2044
Rolling-pin	C. L. Pitcher	643,780	Feb. 20	2224	525	90	1434
Roof	G. M. Marshall	642,240	Jan. 30	3945	809	90	827
Roof-collar	H. C. Folger	644,415	Feb. 27	3409	792	90	1680
Roof-ventilator or chimney-cowl	R. M. Pancoast	646,371	Mar. 27	3442	767	90	2484
Roofing	J. T. Joslin	645,596	Mar. 13	1777	389	90	2122
Roofing-gage	J. Hinds	641,109	Jan. 9	1853	412	90	379
Roofing-lap	W. P. Whitmore	644,899	Mar. 6	526	114	90	1859
Roofing-plates. Machine for cutting and notching	W. Martin	641,027	Jan. 9	1704	378	90	349
Roofing-sheets. Machine for flanging metal	F. E. Sagendorph	643,334	Feb. 13	1367	320	90	1253
Roofing-stool	J. Hinds	641,110	Jan. 9	1854	412	90	379
Root-digger	J. Jensen	643,797	Feb. 20	2248	530	90	1439
Rope-clamp	C. F. Rigby	640,416	Jan. 2	510	105	90	101
Rope-fastening device	F. P. Howard	645,100	Mar. 13	1008	216	90	1972
Rope-thimble	R. A. Hammond	646,091	Mar. 27	2848	682	90	2365
Ropes, &c. Compound for preserving	G. and V. Wyss	642,088	Jan. 23	3542	.....	90	782
Rotary cutter	G. L. Probst	640,321	Jan. 2	317	66	90	63
Rotary engine	L. H. Allen	640,353	Jan. 2	367	78	90	73
Rotary engine	G. A. Ayer	644,299	Feb. 27	3119	733	90	1625
Rotary engine	J. Brons	644,814	Mar. 6	482	108	90	1849
Rotary engine	A. H. Canning	640,369	Jan. 2	231	46, 47	90	46
Rotary engine	C. M. Conner	640,746	Jan. 9	1120	256	90	287
Rotary engine	G. A. Culver	642,086	Jan. 30	3637	833	90	765
Rotary engine	A. Dahlin	644,663	Mar. 6	197	43	90	1792
Rotary engine	R. B. Dixon	644,734	Mar. 6	310	68	90	1815
Rotary engine	S. V. Essick	642,104	Jan. 30	3667	839 840	90	771
Rotary engine	W. M. Farrow	641,199	Jan. 9	2040	456 457	90	415
Rotary engine	H. Fishering	641,585	Jan. 16	2744	625 626	90	569
Rotary engine	E. J. Herchert	645,360	Mar. 13	1475	325	90	2064
Rotary engine	L. Igelhorst	643,505	Feb. 13	1685	396 397	90	1315
Rotary engine	H. R. June and W. L. Perry	644,016	Feb. 20	2668	631	90	1521
Rotary engine	L. J. J. B. Le Rond	646,151	Mar. 27	2967	656	90	2387
Rotary engine	W. L. Marsh	644,086	Feb. 27	2780	659	90	1559
Rotary engine	G. W. Montgomery	644,956	Feb. 27	3095	728 729	90	1619
Rotary engine	W. T. Mooney	646,057	Mar. 27	2788	618	90	2352
Rotary engine	R. G. V. Mytton	645,484	Mar. 13	1699	371 372 373 374	90	2106
Rotary engine	G. B. Robinson and N. Seyller	642,005	Jan. 23	3488	797	90	722
Rotary engine	M. J. Robinson	645,132	Mar. 13	1068	227	90	1983
Rotary engine	R. Smith	646,302	Mar. 27	3474	773 774	90	2491
Rotary engine	R. Smith	646,303	Mar. 27	3480	774 775	90	2491
Rotary engine	W. F. Temple	642,644	Feb. 6	139	34	90	998
Rotary engine	K. Thomann	645,457	Mar. 13	1618	354	90	2092
Rotary engine	A. Watkins	644,837	Mar. 6	522	113	90	1858
Rotary engine. Compound	A. Watkins	646,160	Mar. 27	2900	659 660	90	2391
Rotary engine. Compound	J. Craig	642,785	Feb. 6	377	91	90	1089
Rotary engine. Reversible	C. L. Carman	644,057	Feb. 27	2733	647	90	1548
Rotary kiln	H. O. Gadberry	643,791	Feb. 20	2239	528	90	1437
Rotary motor	J. B. Sample	645,650	Mar. 20	2024	445	90	2185
Rotary motor	W. H. Wineland	641,482	Jan. 16	2558	585	90	532
Rotary motor	S. A. E. Hickson	642,225	Jan. 30	3919	891 892	90	822
Rotary pressure-engine	R. R. Smith	646,135	Mar. 27	2937	650	90	2382
Roving-can	M. Campbell	640,874	Jan. 9	1383	310 311	90	290
Roving-machine	E. J. Kerns	641,596	Jan. 16	2760	628 629	90	572
Rowing-machine	D. R. Sheen	646,041	Mar. 27	2761	613	90	2347
Rowing mechanism. Bow-facing	R. Cowen	642,814	Feb. 6	429	108	90	1049
Rubber. Cleaning	R. Cowen	642,813	Feb. 6	427	108	90	1049
Rubber-cleaning apparatus	R. Cowen	644,721	Mar. 6	294	65	90	1812
Rubber-fastener	H. C. Paine and W. G. Dickey	642,474	Jan. 30	4389	996	90	917
Rubber or overshoe	C. Moser	640,836	Jan. 9	1316	295	90	277
Rudder. Ship's	T. V. Trew	643,204	Feb. 13	1139	266	90	1209
Rule. Carpenter's	J. F. Rose	646,184	Mar. 27	3032	669	90	2400
Rule. Perforating	J. A. Lofstedt	644,298	Feb. 27	3187	747	90	1637
Ruling and line-printing machines. Fancy-line attachment for	G. F. McAdams	640,979	Jan. 9	1613	356	90	332
Running-gear	E. T. Wade	642,302	Jan. 30	4051	923	90	849
Sack-fastener	W. H. Davis	645,328	Mar. 13	1414	310 311 312	90	2051
Sack-tying machine	J. W. Pedigo	643,102	Feb. 13	960	224 225 226	90	1173
Sacking and weighing machine	A. M. Bates	642,685	Feb. 6	216	54	90	1009
Sad-iron holder	J. W. Farley	641,168	Jan. 9	1974	437	90	403
Sad-iron. Self-heating	H. P. Terry	642,613	Feb. 6	85	20	90	983
Sad-iron support	E. Klingenberg, Jr	642,511	Jan. 30	4441	1009	90	996
Sad-irons. Burner for self-heating	G. M. Urie	645,865	Mar. 20	2418	531	90	2263
Saddle	E. E. Mallory and C. S. Stoner	644,888	Mar. 6	525	113	90	1859
Saddle. Harness	J. H. Wheeler	645,604	Mar. 20	1933	426 427	90	2167
Saddle or seat	R. Platz and A. Sperling						

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Saddle-support. Spring	J. Halder	642,606	Feb. 6	76	18	90	981
Saddletree	G. Loeloff	645,863	Mar. 20	2417	530	90	2263
Safe, &c	S. Jablonski	644,518	Feb. 27	3583	835	90	1713
Safe and desk. Combined	J. M. Klingelsmith	641,868	Jan. 23	3256	740	90	675
Safe. Marine-buoy	T. G. Hall	640,282	Jan. 2	258	52	90	52
Safe or vault protection	C. Eyster	642,684	Feb. 6	214	53	90	1009
Safe. Screw-door	C. E. Blechschmidt	645,448	Mar. 13	1641	359	90	2096
Safety hook, ring, &c	H. G. Woodford	644,699	Mar. 6	260	58	90	1806
Safety-lock	J. M. Robinson	643,070	Feb. 6	880	206	90	1136
Safety-pin	G. Boden	643,261	Feb. 13	1245	292	90	1220
Safety-pin	G. Boden	643,262	Feb. 13	1246	292	90	1220
Safety-pin	C. A. Bryant	645,679	Mar. 20	2072	455	90	2194
Safety-pin	O. A. De Long	640,542	Jan. 2	729	160	90	143
Safety-pin	G. P. Farmer	644,902	Mar. 6	639	138	90	1881
Safety-pin	H. B. Taylor	645,633	Mar. 20	1992	438	90	2178
Safety-pin	M. V. Thorndike	646,241	Mar. 27	3160	698	90	2426
Safety-pin	A. G. Hupfel	641,016	Jan. 9	1686	374	90	345
Sail-fastening device	C. J. D. Walter and J. Rodgers	644,881	Mar. 6	603	130	90	1874
Sales and cash register	A. Weller	643,280	Feb. 13	1279	.....	90	1235
Salicylates of the yttrium group	H. C. Fehrlin	642,218	Jan. 30	3907	.....	90	819
Salol. Making	H. J. Breeze	645,047	Mar. 6	893	194	90	1934
Sample-holder	O. Hoffmann	643,291	Feb. 13	1233	305	90	1238
Sample or conveying bag	J. F. Reinert	641,227	Jan. 9	2105	473	90	428
Sand and water separator and sand-washer. Automatic	A. Plantier	642,754	Feb. 6	334	80	90	1032
Sanitary fixture	H. P. Cayce	645,989	Mar. 27	2557	566	90	2306
Sash-balance	H. A. Hannum	642,865	Feb. 6	516	121	90	1067
Sash-balance	J. Marx	642,239	Jan. 30	3944	809	90	827
Sash-balance	W. J. Parsons	646,153	Mar. 27	2973	656	90	2388
Sash-balance	T. M. Spinks	644,949	Mar. 6	717	155	90	1898
Sash balance, lock, and antirattler. Combined	D. R. Sheen and J. A. Philbrick	646,042	Mar. 27	2764	613	90	2348
Sash-center	G. W. Golden	642,902	Feb. 6	594	136	90	1082
Sash-cord fastener	M. W. Neuens	645,737	Mar. 20	2203	478	90	2220
Sash-cord guide	W. R. Fox	642,687	Feb. 6	220	54	90	1010
Sash-fastener	E. M. Comstock	643,400	Feb. 13	1485	349	90	1274
Sash-fastener	W. S. James	643,856	Feb. 13	1403	328	90	1260
Sash-fastener	G. R. McChesney	640,403	Jan. 2	488	101	90	96
Sash-fastener	H. McGahey	643,195	Feb. 13	1196	283	90	1206
Sash-fastener	E. L. Schacht	641,407	Jan. 16	2405	550	90	502
Sash-holder	A. Z. Converse	640,750	Jan. 9	1126	259	90	239
Sash-holder	W. E. Owens	642,872	Feb. 6	535	124	90	1071
Sash holder and lock	F. C. Leavitt	644,083	Feb. 27	2778	659	90	1558
Sash-lock	J. R. Payson, Sr	643,729	Feb. 20	2135	500 501	90	1417
Sash-lock	H. U. Prindle	645,213	Mar. 13	1223	266	90	2012
Sash-lock	U. Transue	645,441	Mar. 13	1629	356	90	2094
Sash-polishing machine	N. J. Matthiesen	640,396	Jan. 2	470	98	90	92
Sash. Revolving window	G. R. McChesney	642,749	Feb. 6	325	79	90	1030
Sash. Window	G. W. Everett	640,457	Jan. 2	577	121 122	90	113
Sash. Window	J. W. Murray	643,676	Feb. 20	2031	480	90	1398
Sash. Window	I. N. Owens, Jr	643,151	Feb. 13	1046	243	90	1191
Sash. Window	M. E. Reid	642,922	Feb. 6	630	144	90	1088
Sash. Window	R. J. Ross and F. P. Smith	641,608	Jan. 16	2779	632	90	576
Sash. Window	M. Zugermayer	644,657	Mar. 6	187	41	90	1791
Sash. Window	G. R. McChesney	640,402	Jan. 2	486	101	90	95
Sashes. Friction-pivot for revolving	D. Phillips	646,373	Mar. 27	3447	768	90	2485
Saw	J. E. Spatz	646,137	Mar. 27	2940	651	90	2382
Saw and adjustable square. Combined	F. Zeinwoldt	642,830	Feb. 6	456	109	90	1054
Saw. Band	J. E. Luce and F. D. Sears	641,129	Jan. 9	1802	419	90	387
Saw-cable	O. C. Pendleton	645,514	Mar. 13	1761	385	90	2119
Saw-filing machine	F. S. Bradley	641,896	Jan. 23	3171	719	90	660
Saw-frame	L. E. Eickelberg	642,593	Feb. 6	56	14	90	977
Saw frame. Buck	R. Bach	641,756	Jan. 23	3049	693	90	636
Saw. Hand	J. Hilton	646,284	Mar. 27	3237	720	90	2440
Saw. Metal-cutting	J. F. Markle	642,347	Jan. 30	4157	939 940	90	871
Sawmill-carriage feed device	E. E. Thomas	640,501	Jan. 2	646	139 140	90	127
Sawmill-carriages. Automatic offsetting for	F. S. Farr	640,458	Jan. 2	579	122 123 124	90	114
Saw mill. Double-acting band	R. F. Barker	643,453	Feb. 13	1580	371	90	1295
Sawmill steam set-works	E. E. Thomas	640,502	Jan. 2	648	140	90	127
Saw-mill yielding guide. Band	F. S. Farr	640,459	Jan. 2	582	124	90	114
Saw mills. Saw-carrying wheel for band	H. U. Kistner	640,471	Jan. 2	597	128	90	117
Saw-set	S. R. Robinson	646,159	Mar. 27	2988	659	90	2391
Saw-setting apparatus	D. J. Crowell	642,895	Feb. 6	580	133	90	1079
Saw-swage	W. M. Dickerson	640,279	Jan. 2	254	51	90	50
Saw. Veneer	H. G. Locke	642,045	Jan. 23	3559	815	90	735
Saws. Machine for running crosscut	C. E. Sandstrom	645,607	Mar. 20	1938	428	90	2168
Sawing-machine	G. W. Bugbee	644,125	Feb. 27	2847	674	90	1572
Sawing-machine. Band	F. E. and E. L. Shore	641,554	Jan. 16	2690	613	90	559
Sawing machine. Wood	M. R. Spencer and D. W. Neal	642,502	Jan. 30	4425	1005	90	923
Sawing machine. Wood	J. and J. Braun	642,836	Feb. 6	470	111	90	1058
Sawing-machines. Stop device or bumper attachment for	A. N. Helstrom	645,666	Mar. 20	2050	451	90	2190
Scaffold	H. A. Kuhn	643,845	Feb. 20	2347	552	90	1457
Scaffold-jack	T. Milne	643,969	Feb. 20	2573	607	90	1504
Scaffold or portable trestle	W. Holtzapple	646,286	Mar. 27	3240	721	90	2440
Scaffold. Window	L. L. Knox	644,327	Feb. 27	3258	759	90	1650
Scaffolding	J. W. Kohlhepp	641,020	Jan. 9	1695	376	90	347
Scalding-vat	A. B. Zimmerman	643,708	Feb. 20	2098	493	90	1410
Scale	C. H. Wilken	644,267	Feb. 27	3114	733	90	1623
Scale. Automatic grain	N. Nilson	643,423	Feb. 13	1527	358 359	90	1282
Scale. Automatic weighing							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scale-beam computing attachment	M. A. Wise	640,348	Jan. 2	356	75	90	71
Scale. Coin-controlled beam	W. H. Jordan	643,226	Feb. 13	1172	274 275	90	1215
Scale dissolver and preventer	H. C. Davis and H. Strasburger	645,419	Mar. 13	1590	347 348	90	2086
Scale-hopper for coaling-stations. Portable	D. A. Robinson	641,232	Jan. 9	2113	475	90	431
Scale. Hydrostatic computing	S. Bengston	642,285	Jan. 30	4025	916	90	843
Scale. Indicating and recording	M. H. Reed	642,756	Feb. 6	337	81,82	90	1032
Scale. Multiple	R. W. Bailey	644,750	Mar. 6	358	78	90	1825
Scale-pan	W. G. Mizell	646,300	Mar. 27	3259	728	90	2443
Scale. Platform	J. W. Hickman	644,427	Feb. 27	3427	706	90	1693
Scale. Platform	W. F. Stimpson	641,904	Jan. 23	3313	753	90	697
Scale. Pocket prescription	R. W. Harmon	645,091	Mar. 13	992	210	90	1909
Scale record-card	M. H. Reed	642,757	Feb. 6	339	82	90	1033
Scale. Spring-balance computing	J. W. Culmer and G. B. Hoyt	641,195	Jan. 9	2033	454 455	90	414
Scale. Weighing	S. T. Braley	640,740	Jan. 9	1111	254	90	235
Scale. Weighing	R. N. Fairbanks and O. B. Johnson	642,970	Feb. 6	706	162	90	1103
Scale. Weighing	E. N. Gilfillan	642,321	Jan. 30	4097	929	90	859
Scale. Weighing	G. D. Hayes	640,764	Jan. 9	1150	263 264	90	243
Scissors	F. E. Wilkinson	642,029	Jan. 23	3539	810	90	731
Scow. Dumping	E. Kershaw	643,064	Feb. 6	872	203	90	1134
Scraper	F. Witzmann	643,314	Feb. 13	1329	313	90	1245
Scraper-blades. Machine for setting or forming	J. B. Smith	645,022	Mar. 6	851	186	90	1925
Scraper. Land	G. M. Light	644,614	Mar. 6	95	22	90	1773
Scraper. Road	B. F. Shuart	645,136	Mar. 13	1078	229	90	1985
Scraper. Wheeled	W. C. Bradford	643,263	Feb. 13	1246	293	90	1229
Scraper. Wheeled	S. S. Spindle	643,608	Feb. 20	2061	487	90	1404
Screen: *See* Head-screen. Window-screen. Paper-machine screen.	G. W. Cross	645,072	Mar. 13	943	202	90	1959
Screen	J. M. Bowman and R. S. Henry	645,548	Mar. 20	1814	399	90	2143
Screw	J. A. Becher	641,258	Jan. 16	2158	485	90	453
Screw-cutting machine	O. Sroka	643,553	Feb. 13	1764	415 416	90	1329
Screw-cutting-machine attachment	G. E. Gay	644,907	Mar. 6	646	139	90	1883
Screw-driver	E. O. Carvin and L. C. Bourland	643,040	Feb. 6	820	191	90	1125
Screw holder and guide	L. C. Woerner and F. Harrington	644,310	Feb. 27	3216	752 753	90	1642
Screw-machine. Multiple-spindle	A. Swasey	642,885	Feb. 6	562	129	90	1026
Screw-machines. Roller-feed for	A. Swasey and H. M. Lucas	642,884	Feb. 6	559	129	90	1025
Screw-machines. Roller-feed for	E. M. Couch and F. Harrington	644,279	Feb. 27	3146	738	90	1690
Screw or analogous machines. Feed attachment for	F. A. Errington	642,309	Jan. 30	4066	926	90	852
Screw-threads, &c. Automatically opening or closing die for cutting	C. A. Svensson	644,748	Mar. 6	331	74	90	1819
Screw-tap	T. J. Sloan	645,139	Mar. 13	1083	230 231 232	90	1986
Screws. Machine for manufacturing wood	S. J. Clise	643,469	Feb. 13	1600	378 379	90	1299
Scrubbing-machine	W. Frost	644,974	Mar. 6	759	164	90	1907
Scutcher-drums. Holder for packing of	H. O. Kruschke	641,122	Jan. 9	1870	416	90	393
Scythe-wrench	E. E. Daugherty	642,739	Feb. 6	313	74	90	1028
Seal. Bottle	F. W. Brooks	643,345	Feb. 13	1394	324	90	1257
Seal. Car	R. M. MacCormac	641,786	Jan. 23	3096	704	90	645
Seal. Car	L. D. Meador	640,925	Jan. 9	1498	334	90	310
Seal. Car	W. T. Kosinski	645,857	Mar. 20	2406	528	90	2260
Seal for bottles, jars, &c. Lock	L. A. Hoerr	645,096	Mar. 13	1001	214 215	90	1970
Seal-lock	J. F. Moore	642,353	Jan. 30	4173	944	90	875
Seal-lock	J. J. Möller	643,290	Feb. 13	1187	278	90	1218
Seal or trap for jars, &c. Hydraulic	F. A. Walter	645,196	Mar. 13	1192	260 261	90	2007
Sealed folding hollow body	C. B. Campbell	642,426	Jan. 30	4311	972	90	901
Sealing device	C. V. Holland	645,471	Mar. 13	1676	367	90	2103
Sealing newspapers, &c. Machine for	G. McKay	643,251	Feb. 13	1224		90	1225
Sealing purposes. Composition of matter for	H. E. Rider	641,648	Jan. 16	2948	649	90	590
Sealing-wax. Device for applying	C. H. Bayley	643,455	Feb. 13	1598	372	90	1295
Seam-pressing machine	J. B. Hadaway	644,767	Mar. 6	377	83, 84	90	1829
Seam rubbing and cleaning machine	C. Puddefoot	641,999	Jan. 23	3478	794	90	720
Seaming machine. Sheet-metal							
Seat: *See* Cane seat. Reversible seat. Folding seat.	F. W. Hunter	640,201	Jan. 2	76	16	90	17
Seat	H. I. Gannett	640,647	Jan. 2	929	209	90	180
Seat and table. Combined	J. Knape	642,235	Jan. 30	3938	897	90	836
Seat-post clamp	H. Blumenberg, Jr., and F. C. Overbury	646,348	Mar. 27	3357	750	90	2462
Secondary battery	W. L. Silvey	645,978	Mar. 27	2631	588	90	2322
Secondary battery	C. Goodwin	645,085	Mar. 13	981	208 209	90	1967
Secretary. Portable	I. J. Weaver	644,220	Feb. 27	3033	718	90	1609
Seed and fertilizer mixing and sowing machines. Feed-box for	A. A. Diffey	643,480	Feb. 13	1641	387	90	1307
Seed-cleaning machine	T. E. Johnson	644,607	Mar. 6	85	20	90	1771
Seed-conveyer	W. W. Carpenter	642,676	Feb. 6	199	50	90	1005
Seed-drill	A. T. Fischer and E. C. Lewis	643,050	Feb. 6	850	198	90	1131
Seed-drill	A. C. Lindgren	645,817	Mar. 20	2333	510	90	2245
Seeding-machine	W. M. Frank	642,088	Jan. 23	3550	813	90	733
Seeding-machine marker	B. M. Schauman	641,042	Jan. 9	1731	385	90	353
Self-leveling table	E. C. Hiscock	645,172	Mar. 13	1148	247	90	1998
Self-playing instrument							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Selvage-singeing machine	J. E. Cochrane	642,207	Jan. 30	3887	884 895	90	816
Separator: *See* Centrifugal separator. Coal and slate separator. Cornmeal-separator. Cream-separator. Dental separator. Grain-separator. Oil and water separator. Ore-separator. Pneumatic separator. Sand and water separator.	C. H. Lane	642,989	Feb. 6	737	169	90	1110
Separator attachment	C. H. Treat	643,921	Feb. 20	2499	588	90	1488
Serrating-machine	C. Borg	640,529	Jan. 2	705	153 154	90	139
Sewage to filter-beds. Apparatus for applying	F. A. Barbour	645,160	Mar. 13	1121	240 241	90	1993
Sewer-gate	E. McLaughlin and C. H. Dodd	642,624	Feb. 6	103	25	90	986
Sewer-purifying apparatus	J. E. Lewis	645,751	Mar. 20	2222	482	90	2224
Sewing and plaiting machine	O. M. Chamberlain	645,911	Mar. 20	2498	552 553	90	2279
Sewing-machine	J. W. Eshelman, Jr.	645,797	Mar. 20	2307	503	90	2240
Sewing-machine	W. Hlavácek	645,295	Mar. 13	1363	296	90	2041
Sewing-machine	S. G. Howe	644,174	Feb. 27	2940	694 695 696	90	1589
Sewing-machine	S. M. Jacoby	643,326	Feb. 13	1333	317	90	1250
Sewing-machine	E. F. Mower and P. A. Coupal	641,719	Jan. 23	2973	677	90	693
Sewing-machine	J. S. Johnston and K. Magner	642,127	Jan. 30	3723	851	90	788
Sewing-machine binder	W. E. Prindle	641,998	Jan. 23	3477	794	90	720
Sewing-machine braider attachment	A. H. Armen	645,742	Mar. 20	2308	479	90	2221
Sewing machine. Buttonhole	G. S. Hill and D. A. Hitchcock	642,122	Jan. 30	3706	847 848 849	90	779
Sewing-machine cabinet	A. C. Abramson and W. Person	645,379	Mar. 13	1515	332	90	2072
Sewing-machine cabinet	F. Patzack	646,154	Mar. 27	2975	657	90	2288
Sewing-machine. Chain-stitch	A. Rontke	645,883	Mar. 20	2368	519	90	2252
Sewing-machine feeding mechanism	P. Diehl	645,555	Mar. 20	1824	402	90	2145
Sewing-machine guide	W. F. Auld	643,930	Feb. 20	2511	590	90	1491
Sewing-machine guide	C. W. Dodge	646,267	Mar. 27	3205	711	90	2434
Sewing-machine hemmer	E. B. Allen	645,598	Mar. 20	1801	396	90	2141
Sewing-machine. Hemstitch	G. Baum	644,396	Feb. 27	3377	734	90	1678
Sewing-machine mechanism	M. Dendurent	643,478	Feb. 13	1634	386	90	1306
Sewing-machine needle-bar mechanism	P. Diehl	641,279	Jan. 16	2189	492 493	90	459
Sewing-machine needle-lubricating device	J. T. Rush	641,380	Jan. 16	2279	517	90	477
Sewing-machine. Overedge	H. A. Klemm	641,780	Jan. 23	3089	702	90	644
Sewing-machine. Overseaming	H. A. Klemm	645,815	Mar. 20	2330	509	90	2244
Sewing machine. Shoe	J. W. Meloon	644,619	Mar. 6	105	24, 25	90	1775
Sewing machine. Shoe	J. W. Meloon	644,620	Mar. 6	106	25	90	1775
Sewing-machine smocking attachment	A. Steward	642,015	Jan. 23	3518	802 803	90	726
Sewing-machine stop-motion	J. T. Hogan	644,801	Mar. 6	454	98	90	1844
Sewing-machine stop-motion	A. Steward	643,308	Feb. 13	1321	311	90	1243
Sewing-machine thread-waxing device	W. K. Shultz	645,137	Mar. 13	1080	229	90	1985
Sewing-machine trimmer	A. L. Traver	644,952	Mar. 6	721	156	90	1899
Sewing-machine trimming attachment. Looped-fabric	E. H. Brown	641,758	Jan. 23	3052	694	90	637
Sewing-machine tucking-guide	A. Laubscher	645,321	Mar. 13	1400	308	90	2048
Sewing machines. Guiding and pile-controlling device for carpet	E. B. Allen	645,589	Mar. 20	1802	396	90	2141
Sewing machines. Presser-foot mechanism for sole	J. T. Rush	641,331	Jan. 16	2280	517	90	477
Sewing on buttons. Machine for	A. O. Towns and F. W. Lynde	643,614	Feb. 13	1878	443	90	1354
Shade adjuster. Window	W. N. Rook	640,704	Jan. 2	1040	237	90	201
Shade adjusting and holding mechanism	H. H. Forsyth	640,291	Jan. 2	272	55	90	54
Shade-bracket. Adjustable	C. H. Gaskins	640,648	Jan. 2	931	210	90	180
Shade fixture. Window	M. A. Marr	642,468	Jan. 30	4383	994	90	916
Shade hanger. Adjustable window	S. J. Cox	642,815	Feb. 6	451	103	90	1049
Shade-holding device	F. M. Burrowes	643,629	Feb. 20	1951	458	90	1382
Shade. Lawn	J. H. Fry	644,737	Mar. 6	316	70	90	1816
Shade-roller	A. S. Tragethon	640,604	Jan. 2	842	187 188	90	164
Shade-roller and clamp	H. Guntner and A. A. Roberts	642,041	Jan. 23	3554	814	90	784
Shade-roller bracket	L. J. Stone	644,694	Mar. 6	253	56	90	1804
Shade support and protector	C. L. Newby	641,082	Jan. 9	1711	380	90	350
Shaft-clamp	H. C. Swan	643,169	Feb. 13	1080	249	90	1197
Shaft-coupling	M. C. Bullock	643,061	Feb. 6	906	214	90	1141
Shaft. Flexible	C. F. Hotchkiss	642,794	Feb. 6	393	95	90	1062
Shaft or thill coupling	H. J. Mitchel	643,846	Feb. 20	2348	553	90	1458
Shafts with other parts. Device for connecting	F. E. Hawksworth	641,106	Jan. 9	1846	410	90	377
Shafting side brace	J. W. Miller	642,242	Jan. 30	3947	900	90	827
Shaping-machine bit-holder	L. S. Depoe	643,950	Feb. 20	2543	599	90	1498
Sharpener. Knife or scissors	M. L. Hawks	644,708	Mar. 6	369	60	90	1807
Sharpener. Lawn-mower	T. F. Herbert	643,280	Feb. 13	1292	305	90	1238
Sharpening machine. Sickle	C. Laue	640,391	Jan. 2	457	95	90	91
Shaving-cup and brush-holder	S. W. Babbitt	642,834	Feb. 6	462	110	90	1055
Shaving device	S. L. Bligh	646,065	Mar. 27	2805	621	90	2356
Shawl or bundle carrier	F. A. Pearsons	642,753	Feb. 6	382	80	90	1031
Shearing-tool	J. K. Stewart	646,377	Mar. 27	3453	769	90	2487
Shears: *See* Animal-shears. Metal-shears. Lever-shears.	H. W. Howe	641,966	Jan. 23	3419	777	90	708
Shears	G. B. Rowe	643,539	Feb. 13	1738	410	90	1325
Shears	J. T. Schnorr	646,238	Mar. 27	3156	697	90	2424
Shears	P. Anderson	644,313	Feb. 27	3227	753	90	1644
Sheep-shearing stock							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sheet-feeding machine	A. Bug	640,991	Jan. 9	1688	361, 362, 363, 364	90	396
Sheet-feeding machine	L. E. Morrison	642,915	Feb. 6	616	141, 142	90	1096
Sheet-feeding mechanism. Automatic	R. H. Scott and H. C. Teel	640,709	Jan. 2	1048	289	90	202
Sheet-metal articles. Machine for making	L. P. and F. J. Kleber	642,612	Feb. 6	84	20	90	982
Sheet-metal handle	C. L. Wagandt	641,171	Jan. 9	1977	438	90	403
Sheet-supplying device. Inlay	W. Scott	641,152	Jan. 9	1940	430, 431	90	395
Sheet-supplying device. Inlay	W. Scott	642,879	Feb. 6	547	127	90	1072
Sheet supporting and positioning device	T. M. North	640,709	Jan. 9	1221	278	90	257
Sheet-transferring mechanism	T. M. North	640,708	Jan. 9	1215	276, 277	90	255
Shelf for machines. Receiving	A. Conkling	641,082	Jan. 9	1807	402	90	368
Shelf. Swinging	A. E. Miller	640,580	Jan. 2	794	175	90	155
Shelving	J. M. Lippincott	641,212	Jan. 9	2002	462	90	419
Shelving. Library or other	P. L. Hay	644,228	Feb. 27	3046	721	90	1611
Shell. Explosive	J. J. Coneys	644,896	Mar. 6	626	135	90	1879
Sheller: *See* Corn-sheller.							
Shipping and storing case	W. C. Post	644,301	Feb. 27	3102	748	90	1638
Shipping-blank. Duplicating	G. W. Slingerland	644,104	Feb. 27	2813	667	90	1566
Shipping-box. Wooden	E. H. Barnes	644,887	Mar. 6	615	132	90	1877
Shipping-case	J. H. Preater	645,755	Mar. 20	2282	484	90	2295
Ships from sinking. Device for preventing	F. L. de Villa	644,480	Feb. 27	3510	815, 816	90	1700
Ships. Means for elevating or lowering	F. Tentschert and L. Czischek	643,171	Feb. 13	1093	250, 251	90	1198
Shirt	A. A. Abrams	640,731	Jan. 9	1097	252	90	233
Shirt	S. Elbaum	641,080	Jan. 9	1821	405	90	372
Shirt	E. R. Gould	643,798	Feb. 20	2244	528	90	1438
Shirt	J. J. Hagedorn	643,127	Feb. 13	1010	235	90	1183
Shirt	E. G. Osgood	645,488	Mar. 13	1712	375	90	2110
Shirt	S. Potts	642,930	Feb. 6	627	144	90	1088
Shirt and suspensory bandage. Combined	W. R. Chaplain, Jr	646,356	Mar. 27	3374	735	90	2496
Shirt. Apparel	F. J. Schaffer	644,746	Mar. 6	328	73	90	1819
Shirt. Apparel	T. A. Winter	641,031	Jan. 23	3540	811	90	731
Shirt-waist lining	H. W. Fowler	645,467	Mar. 13	1699	364	90	2101
Shoe	S. W. Gunn	641,642	Jan. 16	2841	647	90	598
Shoe	A. A. Kohn	643,650	Feb. 20	2006	473	90	1352
Shoe	A. A. Kohn	643,660	Feb. 20	2007	473	90	1353
Shoe	A. Reed	643,607	Feb. 13	1865	440	90	1351
Shoe	A. R. Garrod	641,699	Jan. 23	2917	665	90	614
Shoe. Anatomical	J. Kratofil and S. P. Levy	640,920	Jan. 9	1475	330	90	308
Shoe-cleaning machine	J. Donavan	640,755	Jan. 9	1134	261	90	240
Shoe-fastener	A. L. Fishell	644,009	Feb. 27	2754	651	90	1532
Shoe-fastener	A. O. Carman and I. S. Morris	645,309	Mar. 13	1384	302	90	2044
Shoe-fastening	H. W. Fowler	645,468	Mar. 13	1670	365	90	2101
Shoe-fastening	M. M. Dooley	641,087	Jan. 9	1817	404	90	371
Shoe-fastening device	A. D. Tyler, Jr	643,805	Feb. 20	2260	532	90	1441
Shoe-form	A. W. Sutherland	641,905	Jan. 23	3315	753	90	697
Shoe former or last	E. R. Bowie	641,928	Jan. 23	3362	764	90	697
Shoe-holder	M. O. Parenteau	641,994	Jan. 23	3472	796, 798	90	719
Shoe-hooks with plastic material. Apparatus for covering	H. Waters	643,213	Feb. 13	1153	270	90	1212
Shoemaker's telescopic repair outfit	J. Kiefer and S. S. Lawrence	641,019	Jan. 9	1694	376	90	347
Shoemaker's tool	R. Beckh	644,491	Feb. 27	3528	820	90	1703
Shoe or boot stretcher	G. B. Dunn	645,166	Mar. 13	1189	245	90	1995
Shoe-polishing device	C. H. Poore	641,795	Jan. 23	3115	708	90	649
Shoe-polishing device	S. Arnsfield and J. Koller	641,572	Jan. 16	2724	621	90	505
Shoe ventilator and cushion. Combined	J. Colognati	645,348	Mar. 13	1449	320	90	2058
Shovel	P. Nicolay	641,401	Jan. 16	2393	547	90	509
Shovel	W. P. Hyrons	645,956	Mar. 27	2590	576	90	2316
Shovel and sifter. Combined	F. X. Ganter	642,105	Jan. 30	3670	840	90	772
Show-case	F. X. Ganter	642,107	Jan. 30	3673	841	90	772
Show-case	L. Paulle	642,875	Feb. 6	598	125	90	1071
Show-case clamp	B. C. Bradley	641,671	Jan. 23	2891	659	90	609
Show-case. Revolving	J. C. Ernst	643,954	Feb. 20	2548	600	90	1498
Show-windows. Device for removing articles from	F. Andreé	646,252	Mar. 27	3180	702	90	2429
Shredding and pulverizing machine. Centrifugal	J. Sabold	643,910	Feb. 20	2467	581	90	1481
Shutter-bolt	W. H. Swift	644,376	Feb. 27	3341	775	90	1666
Shutter-fastener	F. E. Walters	642,651	Feb. 6	152	37	90	906
Shutter-fastener	G. H. Hamalian	644,354	Feb. 27	3307	768	90	1659
Shutter or blind. Window	A. Welling	642,655	Feb. 6	157	39	90	997
Shutter worker and fastener	W. J. Woodcock	643,217	Feb. 13	1150	271, 272	90	1213
Shuttle-threader	A. Hardmeyer	643,054	Feb. 6	858	200	90	1132
Sickle	E. D. Woods	643,180	Feb. 13	1102	255	90	1202
Sickle-bar	W. H. and O. F. Brusman	646,353	Mar. 27	3364	751	90	2464
Sickle-bar	T. J. Mayberry	642,994	Feb. 6	744	172	90	1112
Sickle-bar adjuster	M. Anflnson	644,886	Mar. 6	614	132	90	1877
Sideboard attachment	A. M. Wiswell and F. D. Kees	644,655	Mar. 6	188	40	90	1700
Sieve or bolting-machine. Gyrating	C. H. Loutzenhiser	646,298	Mar. 27	3252	725, 726	90	2442
Sifter. Ash	G. P. Harrison	644,800	Mar. 6	453	97	90	1844
Sifter. Ash	J. C. Murphy	640,733	Jan. 9	1209	275	90	234
Sifting, scalping, and grading machine	W. L. Burner	645,458	Mar. 13	1648	360, 361	90	2197
Sign	E. P. Gresh	643,124	Feb. 13	1006	234	90	1182
Sign	G. W. Tallman	640,333	Jan. 2	333	70	90	67
Sign	F. Tuchfarber	646,113	Mar. 27	2894	641	90	2373
Sign-board	A. Block	643,219	Feb. 13	1162	272	90	1213
Sign. Illuminated	G. J. Ferguson	645,641	Mar. 20	2901	440	90	2180
Sign. Illuminated	C. H. Hill	643,872	Feb. 20	2395	563	90	1467

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sign. Illuminated	P. Jean and A. Bouchon	644,015	Feb. 20	2606	630	90	1521
Signs. Making transparency	H. A. Smith	642,270	Jan. 30	3999	910	90	838
Signal: *See* Mine-signal. Railway-signal. Motor-actuated signal.							
Signal	M. Pfatischer	642,362	Jan. 30	4188	947, 948	90	877
Signal mechanism. Motor-actuated	T. B. Keeler	643,823	Feb. 20	2292	589	90	1447
Signal system. Audible	R. M. Dixon	642,590	Feb. 6	51	12, 13	90	976
Signal transmitter. Multiple	L. Dawson	640,278	Jan. 2	251	50	90	50
Signaling apparatus. Electric	G. Harris	644,551	Feb. 27	3649	849	90	1726
Signaling apparatus. Electric	H. W. Souder	642,379	Jan. 30	4226	954, 955	90	884
Signaling device for crossings. Electric	O. Fuchs	642,102	Jan. 30	3664	839	90	770
Signaling system	J. J. Ruddick	643,609	Feb. 13	1808	440, 441	90	1352
Single-trigger mechanism	W. M. Levy	645,107	Mar. 13	1018	218, 219	90	1974
Singletree and spreader. Combined	R. F. King	645,475	Mar. 13	1686	369	90	2105
Siphon	S. H. Adams	646,339	Mar. 27	3388	745	90	2459
Siphon	C. M. Brady	644,494	Feb. 27	3531	820, 821	90	1704
Siphon apparatus	I. L. Pendergraft	643,605	Feb. 13	1868	439	90	1351
Siphon-elevator	J. Lemichel	645,528	Mar. 13	1779	390	90	2128
Siphon-spout	J. Fleischer	641,201	Jan. 9	2044	457	90	416
Size-powder. Making	L. Beeck	644,889	Mar. 6	618	------	90	1878
Size-treating apparatus	A. Stephan	641,348	Jan. 16	2300	523	90	481
Skate	S. S. Black	640,264	Jan. 2	223	45	90	44
Skate. Roller	L. M. Richardson	645,270	Mar. 13	1313	296	90	2031
Skate sharpener and groover. Combined	A. A. Stepzinski	641,752	Jan. 23	3041	692	90	635
Skins. Extracting grease from	J. W. Rogers	640,814	Jan. 9	1254	284	90	264
Skins. Means and apparatus for removing wool or other hair from	S. L. and E. Johnson and A. H. Gibbings.	640,771	Jan. 9	1173	268	90	248
Skirt	A. P. McGraw	643,775	Feb. 20	2215	523	90	1432
Skirt. Adjustable	W. F. McGee	643,196	Feb. 13	1127	263	90	1206
Skirt and waist fastener	W. J. Gallup	642,790	Feb. 6	384	92	90	1041
Skirt-hanger	J. Headland	643,818	Feb. 20	2283	537	90	1445
Skirt-supporter	J. M. Flannery	644,903	Mar. 6	640	138	90	1882
Skirt-supporter	A. R. Geoffroy	644,417	Feb. 27	3412	792	90	1680
Skirt-supporter	H. A. Heineman	643,288	Feb. 13	1289	301	90	1283
Skirt-supporter	L. Nitschelm	642,052	Jan. 23	3573	818	90	757
Skirt-supporter	H. Davies	642,840	Feb. 6	476	112	90	1059
Skirt-supporter and waist-holder	A. Miller	643,670	Feb. 20	2022	470	90	1396
Skiving-machine	J. W. Fuller	643,494	Feb. 13	1662	391, 392	90	1311
Slack-adjuster	H. F. Shaw	643,011	Feb. 6	779	181	90	1118
Slate-frame	M. A. Williams	643,177	Feb. 13	1096	254	90	1201
Slate mantelpiece	W. J. Lewis	641,525	Jan. 16	2642	602	90	549
Sled-brake. Screw	H. M. Gifford	644,706	Mar. 6	267	59	90	1807
Sled steering apparatus	J. Holdsworth	642,194	Jan. 30	3718	850	90	782
Sleeve-adjuster	C. F. Webber	642,653	Feb. 6	154	38	90	906
Sleigh-knee	K. Jones	645,262	Mar. 13	1304	284	90	2029
Sling. Cargo	M. Enright	642,214	Jan. 30	3902	888	90	818
Sluice-box	J. Milan	644,994	Mar. 6	788	172	90	1914
Smelting auriferous antimony ores	C. C. Longridge and G. T. Holloway	643,301	Feb. 13	1308	308, 309	90	1242
Smoke-consumer	J. F. Cody	643,110	Feb. 13	977	228	90	1175
Smoke-consumer	J. Jackson	642,126	Jan. 30	3722	851	90	783
Smoke-consuming and fuel-economizing furnace	W. L. Teter	643,563	Feb. 13	1781	421	90	1338
Smoke-consuming furnace for locomotive-engines	K. Marek	643,800	Feb. 20	2253	531	90	1439
Smoke or heat in orchards. Machine for producing	P. Neyens	641,990	Jan. 23	3464	789, 790	90	717
Smoke-preventer	J. Ornerod	643,896	Feb. 20	2422	570	90	1472
Smoothing-iron	J. Feldmeyer	644,182	Feb. 27	2865	678	90	1577
Snap-catch, &c	J. D. Brassington	641,265	Jan. 16	2167	488	90	454
Snap. Harness	W. R. Morse	644,188	Feb. 27	2966	701	90	1595
Snap-hook	J. E. Vannote	643,924	Feb. 20	2502	589	90	1480
Snap-switch	G. W. Hart	645,092	Mar. 13	903	211	90	1969
Snap-switch	G. W. Hart	646,146	Mar. 27	2959	654	90	2385
Snap-switch	W. W. Bouse	644,729	Mar. 6	303	67	90	1814
Snatch-block	T. Finigan	642,314	Jan. 30	4088	927, 928	90	858
Snow and disposing of same. System of liquefying	C. F. Getler and C. J. Power	645,916	Mar. 20	2509	554	90	2280
Snow-melting machine	R. Shirreffs	641,803	Jan. 23	3126	710	90	651
Snow-removing apparatus	R. Shirreffs	641,804	Jan. 23	3128	711	90	652
Snow-removing apparatus	W. M. Roberts	641,893	Jan. 23	3296	748	90	684
Soap-dish or sponge-holder	W. R. Hall	644,513	Feb. 27	3568	830	90	1711
Soap holder. Toilet	J. Stockhausen	646,326	Mar. 27	3317	------	90	2455
Soap. Making	H. S. Anderson	645,055	Mar. 13	914	196	90	1954
Soda. Apparatus for producing caustic	W. C. Herbert	643,819	Feb. 20	2285	538	90	1445
Soldering-iron	C. Shields	641,999	Jan. 23	3305	751	90	695
Soldering-iron	R. Kuhn	641,021	Jan. 9	1696	376	90	347
Soldering-iron. Electrical	C. E. Pierce	641,541	Jan. 16	2672	609	90	555
Soldering-iron heater	E. E. Winkley	644,654	Mar. 6	180	39, 40	90	1790
Sole-leveling machine	J. E. Bertrand	645,984	Mar. 27	2546	563, 564	90	2304
Sole rough-rounding and channeling machine	F. Burger and H. M. Williams	645,067	Mar. 13	937	200	90	1957
Sound-finder	F. W. Nolte	646,370	Mar. 27	3440	766, 767	90	2484
Sound-reproducer	M. C. Walls	640,606	Jan. 2	844	188	90	164
Sower. Hand broadcast seed	P. F. Cox	646,359	Mar. 27	3398	759, 760, 761, 762	90	2472
Spacing instrument	J. D. Lyon	640,678	Jan. 2	991	224	90	191
Spanner and wrench. Combined	F. Schrader	644,033	Feb. 20	2605	638	90	1526

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Spark-arrester	J. R. Goodier	645,469	Mar. 13	1671	365	90	2102
Spark-arrester	J. W. Harrelson	641,598	Jan. 16	2756	627	90	571
Spark-extinguisher	J. Stine	642,394	Jan. 30	4294	956	90	895
Spark-generators. Controlling means for	H. N. Motsinger	642,869	Feb. 6	525	123	90	1069
Speaking-tube	T. L. Dennis	641,848	Jan. 23	3228	733	90	609
Specific-gravity apparatus	G. Himmel	646,176	Mar. 27	3019	667	90	2308
Spectacle-case and pencil-holder. Combined	E. M. Johnson	645,814	Mar. 20	2330	509	90	2244
Spectacle or eyeglass mounting	M. C. Thomas	645,879	Mar. 20	2437	536	90	2267
Spectacular effects. Apparatus for producing	W. Freese	642,819	Feb. 6	437	105	90	1051
Speculum. Douching-	L. J. Chapman	643,221	Feb. 13	1164	273	90	1214
Speed indicator and recorder	G. R. Hislop	644,202	Feb. 27	2995	709	90	1501
Speed-recorder	J. Karlik	644,743	Mar. 6	323	72	90	1818
Spike. Lift-locking	C. D. Warner	643,701	Feb. 20	2078	489	90	1406
Spike-machine	G. E. Vandegrift	645,195	Mar. 13	1187	258 259 260	90	2006
Spike-puller	J. D. Green	642,111	Jan. 30	3678	842	90	773
Spindle-band end-holder	W. H. Bracewell	645,519	Mar. 13	1769	387	90	2121
Spindle-step	G. O. Draper	641,001	Jan. 9	1663	370	90	341
Spinning and twisting machine	W. Neubauer	643,302	Feb. 13	1311	309	90	1242
Spinning and twisting machine spindle	H. F. Woodmancy	643,342	Feb. 13	1379	323	90	1255
Spinning and twisting machine spindle	H. F. Woodmancy	643,343	Feb. 13	1381	323	90	1256
Spinning apparatus	G. O. Draper	645,915	Mar. 20	2507	554	90	2220
Spinning-frame roving stop-motion	J. H. Northrop	643,971	Feb. 20	2575	607	90	1504
Spinning-machine	D. C. Sui	640,716	Jan. 2	1063	242 243	90	205
Spinning machine. Ring-	E. F. Willey and H. Connacher	643,436	Feb. 13	1550	365	90	1287
Spinning-machine top roll	J. R. Milson	642,868	Feb. 6	524	122	90	1069
Spinning-machine top-roll saddle and stirrup therefor.	J. Blisborough	646,258	Mar. 27	3191	704	90	2431
Spinning-mule. Self-acting	J. Pickford	645,998	Mar. 20	2528	559	90	2284
Spinning or twisting machine	V. Bélanger	640,525	Jan. 2	697	151 152	90	137
Spinning, twisting, doubling, and winding machines. Spindle for	C. Bergmann	644,572	Mar. 6	20	6	90	1750
Spirits in solid form. Apparatus for producing	H. Hempel	643,131	Feb. 13	1018	237	90	1185
Spoke-fastener	B. M. Sadler	640,231	Jan. 2	142	29	90	99
Spoke-tenoning machine	F. W. Förster	640,895	Jan. 9	1425	319	90	298
Spokes in wheel-hubs. Machine for fastening	E. Einfeldt	640,548	Jan. 2	736	163 164	90	144
Spokes to rims of wheels. Device for fastening	R. Müller	646,806	Mar. 27	3271	720	90	2446
Sponge and soap holder. Combined	O. H. Huebel	644,080	Feb. 27	2773	657	90	1559
Sponge-cup	H. C. Kennedy	641,867	Jan. 23	3264	739	90	675
Spool	B. G. Simmons	643,544	Feb. 13	1747	412	90	1327
Spool rack. Ribbon-	H. B. Moore	646,398	Mar. 27	3468	772	90	2489
Spooling-machine	J. Schweiter	641,788	Jan. 23	3008	684 685	90	628
Spooling-machine spool-lifter. Yarn-	F. Lacey	640,474	Jan. 2	604	129 130	90	119
Spoon. Corn-cutting	J. A. Crandall	644,732	Mar. 6	307	67	90	1814
Spray	R. F. Dull	644,971	Mar. 6	756	168	90	1907
Spray attachment	R. Orford	643,526	Feb. 13	1715	408	90	1321
Spring: *See* Bed-spring. Vehicle-spring. Door-spring. Vehicle equalizing-spring.	C. M. F. Andersen	640,984	Jan. 9	1623	358	90	334
Spring-lock	G. W and W. H. Weston and M. Ancker.	642,186	Jan. 30	3849	875	90	809
Sprinkler: *See* Bottle-sprinkler. Street-sprinkler.	F. W. Cook, Jr	646,018	Mar. 27	2717	608	90	2326
Sprinkler	C. H. Monroe	643,580	Feb. 13	1708	401	90	1320
Sprinkling-stopper	T. G. Coleman	644,161	Feb. 27	2915	690	90	1586
Sprocket-wheel wrench	A. C. Smith	642,566	Jan. 30	4543	1038	90	946
Spur. Stirrup-	J. M. Vandevort	640,510	Jan. 2	668	144	90	132
Square and bevel. Combined set-	P. C. Nelson	644,926	Mar. 6	689	150	90	1802
Square. Try-	J. F. Lewis	643,268	Feb. 13	1448	338	90	1266
Stable-fork	A. Buchey	645,906	Mar. 27	2670	598	90	2280
Stacker attachment. Pneumatic-straw-	F. Feldmann	645,559	Mar. 20	1830	404	90	2146
Stacker. Hay-	D. Gilliand	644,169	Feb. 27	2983	696	90	1588
Stacker. Straw-	J. A. Mussetter	641,588	Jan. 16	2654	605 606	90	551
Stacker. Straw-	J. N. Wilson	642,406	Jan. 30	4276	965 966	90	895
Stacker. Straw-	S. A. Summerlin	643,556	Feb. 13	1771	417 418	90	1331
Stalk-cutter	F. Fosnot	642,597	Feb. 6	60	15	90	978
Stalk-cutter and rake. Combined	W. R. Landfear	645,297	Mar. 13	1365	297 298	90	2041
Stamp-affixing machine	P. H. Sanborn and J. L. Kindt	641,334	Jan. 16	2365	518	90	478
Stamp-affixing machine	N. H. Suren	646,013	Mar. 27	2708	599 600	90	2336
Stamp. Automatic time-	C. R. Blasse	641,260	Jan. 16	2160	486	90	453
Stamp. Canceling-	H. L. Brotherton and G. W. Lee	645,867	Mar. 20	2448	540	90	2270
Stamp. Dating-	F. A. Parnell	642,158	Jan. 30	3778	861	90	795
Stamp for crushing ores	W. B. Cauble and S. W. Starks	641,189	Jan. 9	2023	452 453	90	412
Stamp. Hand-	B. B. Hill	640,562	Jan. 2	739	167	90	148
Stamp. Hand-	C. L. Safford and O. E. Peltzer	642,373	Jan. 30	4314	952	90	892
Stamp. Hand-	E. J. Klingenberg	641,781	Jan. 23	3090	706	90	644
Stamp holder. Hand-	H. B. Ray, W. P. Phillips, and W. E. Patchin.	642,267	Jan. 30	4301	949	90	880
Stamp. Marking-	J. T. Richards	642,680	Feb. 6	113	27	90	987
Stamp-mills, &c. Guide for stems of	W. O. Taylor	643,992	Feb. 20	2615	618	90	1512
Stamp order and delivery case	H. S. Folger	643,715	Feb. 20	2116	496	90	1414
Stamp rack. Rubber-	H. E. Waite	646,198	Mar. 27	3068	677	90	2406
Stamp. Rotary marking-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stamp. Self-inking	H. A. Thexton	641,616	Jan. 16	2793	635	90	579
Stamp. Time-	C. A. de Chapeaurouge	643,592	Feb. 13	1836	434	90	1345
Stamp with changeable face	W. T. Cressler	640,449	Jan. 2	566	119	90	111
Stamping and sealing envelops. Machine for	F. J. Hewitt and C. H. Bridoux	644,075	Feb. 27	2759	653 654 655 656	90	1554
Stanchion	C. Edwards	644,414	Feb. 27	3408	701	90	1679
Stanchion	E. D. Howe	644,173	Feb. 27	2938	694	90	1589
Stanchion	J. J. and J. T. Thurston	642,647	Feb. 6	146	36	90	994
Stanchion	A. Joost	644,928	Mar. 6	672	145	90	1889
Stanchion. Cattle-	C. H. Turner	641,480	Jan. 16	2555	584	90	531
Stand: *See* Display-stand. Music-stand. Dressing-stand. Washstand.	M. Young	641,177	Jan. 9	1992	442 443 444	90	407
Staple forming and driving machine	D. B. Date	640,452	Jan. 2	572	120	90	112
Staple-puller	M. V. Allen	644,754	Mar. 6	347	76, 77	90	1823
Stapling-machine	C. Lee	640,781	Jan. 9	1190	271	90	251
Stapling-machine	W. G. Metcalf	641,876	Jan. 23	3288	742	90	678
Stapling-machine	O. G. Rieske	640,813	Jan. 9	1252	283	90	264
Stapling-machine	C. M. Higgins	642,330	Jan. 30	4114	------	90	892
Starch. Digesting	C. B. Duryea	643,323	Feb. 13	1349	------	90	1249
Starch. Treating	T. B. Giffen and J. Bissett	643,705	Feb. 20	2201	519	90	1430
Starching-machine	W. A. Newton	646,032	Mar. 27	2742	608 609	90	2343
Starching-machine	J. F. B. Connell	643,471	Feb. 13	1618	381	90	1308
Stave-jointer	R. G. Winter	641,745	Jan. 23	3030	690	90	633
Stay and fastener. Combined	H. Inman	641,392	Jan. 16	2376	543 544	90	496
Staying-machine	J. T. Robbins	645,131	Mar. 13	1066	226	90	1988
Steam and destroying and utilizing garbage, &c. Apparatus for generating	J. C. Mederer, P. F. Slattery, and G. C. Fuss.	643,146	Feb. 13	1038	241	90	1189
Steamboat-wheel	M. A. Cooke	643,946	Feb. 20	2539	598	90	1497
Steam-boiler	E. Humphrey	645,507	Mar. 13	1740	382	90	2115
Steam-boiler	J. E. Thornycroft	640,505	Jan. 2	655	142	90	128
Steam-boiler	J. K. Rebbeck	643,606	Feb. 13	1864	439	90	1351
Steam-boxes. Door for cannery	C. S. Dean	645,968	Mar. 20	2458	543	90	2272
Steam-engine	J. H. Fogarty	645,253	Mar. 13	1290	280	90	2026
Steam-engine	J. Harris	641,643	Jan. 16	2843	647	90	589
Steam-engine	E. Mertz	640,396	Jan. 2	475	99 100	90	93
Steam-engine	M. R. Robbins	642,492	Jan. 30	4413	1001	90	921
Steam-engine	J. T. Rossiter	646,317	Mar. 27	3299	735 736 737	90	2451
Steam-engine	J. A. Svenson	640,288	Jan. 2	155	32	90	32
Steam-engine	J. Hardill	641,108	Jan. 9	1840	409	90	376
Steam-engine. Compound	E. McConville	640,218	Jan. 2	119	23	90	25
Steam-engine. Compound	C. Reeves	640,224	Jan. 2	129	26	90	27
Steam-engine. Compound	J. Young	645,288	Mar. 13	1388	291	90	2037
Steam-engine. Turbine-	D. Valentine	645,147	Mar. 13	1108	236	90	1990
Steam-engine. Valve-gear	E. D. Hodge and L. H. Rabe	643,820	Feb. 20	2286	538	90	1446
Steam furnace. Decomposed-	E. T. Hannam and J. A. Bechtel	645,090	Mar. 13	990	210	90	1969
Steam-generator	W. H. Harrison	646,401	Mar. 27	3495	778 779	90	2494
Steam-generator	G. A. Nussbaum	641,992	Jan. 23	3469	791 792	90	718
Steam-generator	G. de Roussy de Sales	643,541	Feb. 13	1741	411	90	1326
Steam-generator	G. H. Watson	643,868	Feb. 13	1424	332	90	1264
Steam-heating systems. Fitting for	C. A. Ball	641,179	Jan. 9	2001	416 447	90	408
Steam into cool and wet vapor. Device for converting hot and dry	R. Duffie	640,547	Jan. 2	736	163	90	144
Steam-motor	P. F. Oddie	641,188	Jan. 9	1909	423	90	390
Steam or hot-water heater	J. A. Rathbone	641,468	Jan. 16	2531	579	90	526
Steam or other elastic-fluid engine	J. H. Street	645,983	Mar. 27	2640	585 586	90	2294
Steam-press. Rotary	M. J. Fisher	646,275	Mar. 27	3222	717	90	2437
Steam-trap	W. J. Baldwin	644,568	Mar. 6	13	4	90	1757
Steam-trap	H. Heiling	645,506	Mar. 13	1739	382	90	2115
Steam-trap	F. Knackstedt	643,415	Feb. 13	1500	354	90	1279
Steam-trap	C. W. Nason	641,136	Jan. 9	1906	422	90	389
Steam-washer	W. P. Burke	641,886	Jan. 23	3189	724	90	663
Steel balls. Machine for sorting	F. Schunk	643,912	Feb. 20	2469	581	90	1481
Steel or homogeneous iron. Enamelized	W. F. and G. W. Niedringhaus	643,726	Feb. 20	2132	------	90	1416
Steering apparatus. Vessel-	J. P. Serve	641,154	Jan. 9	1943	431	90	396
Steering-gear. Steam	R. A. Turner and B. L. Miller	640,242	Jan. 2	166	34	90	35
Steering mechanism. Vessel-	J. Christensen	641,192	Jan. 9	2028	453	90	412
Stencil-cutting machine	S. B. Moore	644,087	Feb. 27	2783	660	90	1559
Stencil-holder	W. H. Perkins	642,481	Jan. 30	4399	998	90	919
Stencil-making machine	H. F. Smith	642,641	Feb. 6	133	31 32 33	90	992
Stereopticons, &c. Attachment for	H. W. Force	640,188	Jan. 2	55	11	90	13
Stereotype-matrices. Making	J. W. Phoebus	640,805	Jan. 9	1236	280	90	261
Sterilized perishable substances. Receptacle for	I. L. Roberts	645,569	Mar. 20	1849	409	90	2150
Sterilizing apparatus. Liquid-	L. Bachrich	642,948	Feb. 6	672	153	90	1096
Stick-pin retainer	G. J. Capewell, Jr	643,346	Feb. 13	1396	324	90	1257
Still. Mineral-oil	F. Berg	645,743	Mar. 20	2211	479	90	2221
Stilt	H. C. Freshour	642,841	Feb. 6	477	112	90	1059
Stirrup	C. W. Percifield	643,232	Feb. 13	1189	279	90	1218

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stirrup fender. Equestrian	R. C. Brookes	642,292	Jan. 30	4086	919	90	845
					920		
Stitch machine. Fair	E. F. Mower	645,424	Mar. 13	1598	349	90	2088
Stocking-foot	M. Friedlander	644,973	Mar. 6	758	164	90	1907
Stocking-supporter	J. A. Hudson	645,748	Mar. 20	2219	481	90	2223
Stoker. Automatic grateless	T. M. Eynon	642,087	Jan. 23	3548	812	90	733
Stoker. Mechanical draft and underfeed	R. M. McBeth	646,007	Mar. 27	2692	597	90	2334
Stoking mechanism	W. McClave	643,882	Feb. 20	2409	567	90	1469
Stone-boat	J. Ingells	641,113	Jan. 9	1856	413	90	890
Stone. Composition for manufacturing artificial	W. and J. Heimi and C. Beyerl	645,392	Mar. 13	1538	.....	90	2076
Stone. Manufacturing artificial	A. Ulich	644,953	Mar. 6	723	.....	90	1899
Stone, marble, &c. Rubber for surfacing	A. M. I. McLeod	642,355	Jan. 30	4177	944	90	876
Stool. Camp	D. Lemley	641,710	Jan. 23	2951	673	90	620
Stool. Foot	H. W. Bolens	640,265	Jan. 2	226	45	90	45
Stool or seat. Folding	F. Yunck	644,789	Mar. 6	433	93	90	1840
Stopper: *See* Bottle-stopper. Bung-stopper. Leak-stopper. Sprinkling-stopper.	P. Devlin	645,352	Mar. 13	1455	322	90	2059
Stopper-fastening	H. Guillou	643,645	Feb. 20	1980	466	90	1388
Stopper or closing device for preventing receptacles from being refilled.	P. Kennedy	645,750	Mar. 20	2221	482	90	2223
Storage battery	G. Staib	645,024	Mar. 6	854	186	90	1935
Store-service apparatus	J. H. Klipstein	643,392	Feb. 13	1446	337	90	1268
					338		
Stove	R. S. Stephenson	640,427	Jan. 2	532	111	90	104
Stove	J. A. Unglaub	641,348	Jan. 16	2309	525	90	493
Stove	H. Phinney	645,183	Mar. 13	1168	254	90	2002
Stove burner. Gas	A. G. Nelson	640,484	Jan. 2	620	134	90	121
Stove draft attachment	J. L. Williamson	643,398	Feb. 13	1466	343	90	1271
Stove-fireback	J. Titchett	643,755	Feb. 20	2179	511	90	1426
					512		
Stove. Gas	E. G. Germer	640,462	Jan. 2	584	125	90	115
Stove gas-burner	S. H. Cowles	643,813	Feb. 20	2277	536	90	1444
Stove. Heating	W. J. Keep and W. V. Robinson	640,663	Jan. 2	954	214	90	185
Stove. Heating	R. S. Stephenson	646,043	Mar. 27	2766	613	90	2348
Stove heating attachment	F. C. Roberts	642,924	Feb. 6	633	145	90	1089
Stove. Hot-blast	F. P. Glazier	646,211	Mar. 27	3097	693	90	2414
Stove. Hydrocarbon-burning	G. E. Hughes	641,775	Jan. 23	3081	701	90	642
Stove. Kit	J. A. Kendall	642,283	Jan. 30	3883	896	90	825
Stove. Magazine	A. J. Schuett	641,044	Jan. 9	1785	396	90	854
Stove. Oil	W. H. Wilder	645,154	Mar. 13	1112	238	90	1992
Stove. Oil	H. H. Korthauer	640,778	Jan. 9	1181	270	90	249
Stove or furnace attachment	J. E. and J. Wormald	643,438	Feb. 13	1552	365	90	1288
Stove or furnace. Heating	E. R. Cahoone. (Reissue)	11,810	Feb. 27	3697	856	90	1731
					857		
Stove or range	J. I. Sloan	643,916	Feb. 20	2488	585	90	1486
Stove oven. Gas or gasolene	H. Sekowsky	643,913	Feb. 20	2471	582	90	1482
					583		
					584		
Stovepipe-elbow machine	A. N. Fairman	646,021	Mar. 27	2719	603	90	2339
					604		
Stovepipe-elbow-making machine	W. H. Smith	641,557	Jan. 16	2095	614	90	560
Stovepipe-fastener	A. Ohnemus	645,001	Mar. 6	799	174	90	1916
Stovepipe. Nestable	B. F. Logan	645,710	Mar. 20	2138	466	90	2207
Stovepipe-thimble	R. L. Horsley and J. H. Rountree	643,136	Feb. 13	1025	238	90	1186
Stove water-reservoir	S. A. Wilson	641,247	Jan. 9	2135	481	90	435
Stoves. Adjustable hood for vapor	F. Houben	642,229	Jan. 30	3927	895	90	894
Stoves, &c. Burner for gas	F. A. Magee	643,067	Feb. 6	877	205	90	1136
Stoves or ranges. Gas-burning attachment for coal cooking	F. W. King	641,630	Jan. 16	2824	643	90	585
Stoves. Radiant oven for cooking	H. J. Warren and C. Nordell	643,430	Feb. 13	1541	362	90	1286
Stoves, ranges, &c. Fire-box for	H. J. Warren and C. Nordell	645,709	Mar. 20	2260	491	90	2231
Stoves, ranges, &c. Fire-box for	B. A. Stair	644,262	Feb. 27	3107	731	90	1621
Strainer for down-spouts	C. L. Wagandt	643,387	Feb. 13	1465	343	90	1271
Strainers to spouts of sheet-metal vessels. Attaching	J. V. Washburne	643,431	Feb. 13	1543	363	90	1286
Strap-connecting clasp	L. A. Gale	645,642	Mar. 20	2008	440	90	2181
					441		
					442		
Strap-covering machine	W. E. White	641,566	Jan. 16	2710	617	90	562
Straw-carrier	G. M. Ward	642,937	Feb. 6	654	149	90	1093
					150		
Street-cleaning device	J. Y. Porter	641,224	Jan. 9	2098	471	90	427
Street-indicator. Electric	G. W. Stevenson	645,377	Mar. 13	1511	331	90	2071
Street-indicator. Electrical	E. Balf	645,159	Mar. 13	1119	240	90	1998
Street-sprinkler	A. H. Greeley and C. O. Bartlett	644,739	Mar. 6	317	70, 71	90	1817
Street-sweeper	J. Maxon	640,477	Jan. 2	609	131	90	120
Street-sweeper	F. D. Wright	645,414	Mar. 13	1584	346	90	2085
Street-sweeper. Hand	C. Freuler	640,298	Jan. 2	275	56	90	55
Stretcher. Collapsible	W. O. Elliott	641,282	Jan. 16	2197	494	90	461
String-fastening device	G. Goddu	641,099	Jan. 9	1832	408	90	875
String-nail	A. C. Smith	642,498	Jan. 30	4420	1004	90	922
Student's or scholar's companion	W. Bennett	643,457	Feb. 13	1585	373	90	1296
Stump-puller	J. Fletcher	643,187	Feb. 13	1114	259	90	1204
Stump-puller	S. J. Fletcher	642,437	Jan. 30	4328	976	90	904
Stump-puller	T. E. Holt	642,984	Feb. 6	731	167	90	1109
Stump-puller	E. L. McTyre	641,134	Jan. 9	1903	.....	90	396
Sugar-clearing composition	L. Hirt	646,050	Mar. 27	2779	616	90	2351
Sugar-juice-heating apparatus	J. G. Oxnard and W. Baur	643,848	Feb. 20	2354	554	90	1459
Sugar. Making beet	A. B. Clemens	644,320	Feb. 27	3242	756	90	1647
Sugar-mills. Adjustable knife-bar for	M. Payne	643,728	Feb. 20	2134	500	90	1417
Sulky. Racing	A. U. Jaastad	642,231	Jan. 30	3929	895	90	824
Superheater	H. Szamatolski	643,900	Feb. 20	2612	617	90	1512
Superheater	A. Sadowski	641,332	Jan. 16	2282	517	90	478
Surface-gage							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Surgical appliance	J. Lees	641,979	Jan. 23	3442	787	90	713
Surgical instrument	C. J. Pilling and G. T. Barber	641,036	Jan. 9	1720	383	90	351
Surgical sewing instrument	G. E. T. Arnold	640,853	Jan. 9	1344	301	90	288
Surgical use. Preparing peat for	T. Templed and G. Dumartin	642,387	Jan. 30	4237	.....	90	887
Suspender attachment. Apparel	M. J. Post	648,582	Feb. 13	1736	407	90	1323
Suspenders	W. Freeman	642,789	Feb. 6	383	92	90	1040
Suspenders	A. S. Grimm	641,590	Jan. 16	2751	626	90	570
Suspenders	F. H. Peelle	644,631	Mar. 6	125	28	90	1778
Suspenders	H. H. Small	644,105	Feb. 27	2820	667	90	1567
Suspenders	H. J. Bloomer	641,068	Jan. 9	1782	396	90	363
Suspenders and belt. Combined	P. E. Wirt	644,221	Feb. 27	3034	719	90	1609
Suspenders, &c. Spring attachment for	A. R. Geoffroy	641,381	Jan. 16	2982	540	90	493
Suspending device	A. Voegele	644,380	Feb. 27	3346	776	90	1666
Sweeper	J. L. Chalmers	641,985	Jan. 23	3374	767	90	699
Swift	J. S. Bartholomew	641,190	Jan. 9	2003	447	90	408
Swimming apparatus	M. Gates	644,593	Mar. 6	63	14	90	1767
Swimming device	J. G. Brenner	642,673	Feb. 6	192	48	90	1003
Swing	C. Seoane	642,883	Feb. 6	558	128	90	1075
Swing. Rotary	C. H. Barrows	643,454	Feb. 13	1582	372	90	1295
Swinging chair	J. E. Gibbs	646,167	Mar. 27	3003	663	90	2394
Swinging gate							
Switch: *See* Automatic switch. Electric switch. Electric flashing-switch. Electric-motor switch. Electrical switch. Electrically-operated switch. Railway-switch. Snap-switch. Tramway-switch.	A. W. Rumsey	643,205	Feb. 13	1140	266	90	1209
Switch	J. H. Bunnell	644,844	Mar. 6	536	116	90	1861
Switchboard. Electric	E. W. Hammer	645,809	Mar. 20	2321	507	90	2243
Switch-controlling device. Electric	C. W. McCrone	641,789	Jan. 23	3102	705	90	646
Switch mechanism	J. A. P. McDonald	644,299	Feb. 27	3189	747	90	1637
Switch-operating device	F. Wright	646,116	Mar. 27	2900	642	90	2374
Switch-operating device	J. A. Phillips	644,455	Feb. 27	3472	806	90	1693
Switch-operating mechanism	E. J. Stanley	641,342	Jan. 16	2297	522	90	481
Switch-operating mechanism	H. G. Kelley	640,398	Jan. 2	449	98	90	89
Switch-point. Reinforced	H. G. Elfborg	640,456	Jan. 2	576	121	90	113
Switch-rod. Adjustable	C. Schlared	644,261	Feb. 27	3106	730	90	1621
					731		
Switch-stand	T. Giguere	640,556	Jan. 2	751	166	90	147
Swivel. Chain	L. Bring	640,868	Jan. 9	1369	307	90	288
Syringe	J. I. Richards	640,947	Jan. 9	1529	342	90	316
Syringe. Hot-air							
Table: *See* Billiard or pool table. Cigar-rolling table. Enameling-table. Engraving-machine table. Extension-table. Folding table. Game-table. Library, pool, and billiard table. Self-leveling table.	J. Danner	642,962	Feb. 6	695	159	90	1101
Table	C. Zimmlinghaus	640,250	Jan. 2	185	38	90	88
Table-cloth fastener	J. D. Eastman	648,952	Feb. 20	2545	599	90	1498
Table-cloth holder	G. A. Seely	640,960	Jan. 9	1556	347	90	321
Table-leveler	K. D. H. Thielmann	643,015	Feb. 6	784	182	90	1119
Table, seat, &c., having folding legs	H. E. Youtsey	644,656	Mar. 6	185	40	90	1791
Tablet. Writing	D. E. Felt	644,287	Feb. 27	3159	741	90	1632
					742		
					743		
Tabulating-machine	R. A. Breul	641,071	Jan. 9	1786	396	90	364
Tack	O. J. Riedmiller	641,326	Jan. 16	2273	515	90	476
Tack. Carpet	S. J. Silberman	644,373	Feb. 27	3338	775	90	1665
Tag	J. V. Bohannan	645,450	Mar. 13	1644	359	90	2096
					360		
Tag-assorting machine. Tobacco	J. E. Fisher	645,390	Mar. 13	1535	336	90	2076
Tag. Bicycle license	W. S. McKinney	642,870	Feb. 6	527	123	90	1069
					124		
Tag-machine	W. S. McKinney	645,567	Mar. 20	1843	406	90	2149
					407		
					408		
Tag making and stringing machine	G. K. Cheney	640,367	Jan. 2	408	86	90	81
Talking-machine	G. K. Cheney	641,578	Jan. 16	2734	623	90	567
Talking-machine	G. W. Boll and P. E. Wilhite	645,451	Mar. 13	1645	360	90	2097
Tank-heater	A. R. Dempster and W. D. Rinehart	644,129	Feb. 27	2859	677	90	1576
Tank-heater	H. B. Fromberger	643,117	Feb. 13	987	230	90	1178
Tank safety and alarm attachment	F. W. Wartenberger	644,482	Feb. 27	3514	.....	90	1700
Tanning process	G. R. Cheesman	644,195	Feb. 27	2986	707	90	1598
Tap. Barrel	J. O. Smith	641,050	Jan. 9	1745	388	90	356
Tape-line reel	J. O. Smith	642,727	Feb. 6	297	70	90	1025
Tape-line reel	W. L. E. Keuffel	645,363	Mar. 13	1305	284	90	2029
Tape-reel	E. Courbet	643,321	Feb. 13	1346	.....	90	1249
Tapestry or embroidery. Producing on paper imitations of	S. M. Rhoads	641,892	Jan. 23	3295	748	90	683
Tapping apparatus	J. Uster	642,887	Feb. 6	566	150	90	1076
Target	J. H. van Viersen, M. P. T. D. Molière, and C. E. Ter Meulen.	643,173	Feb. 13	1088	252	90	1199
					253		
Target and automatic indicating apparatus	J. L. McCullough	644,867	Mar. 6	576	124	90	1869
Target apparatus	J. B. Blish	641,183	Jan. 9	2006	448	90	409
Target practice. Instrument for measuring errors in	H. L. Möller	645,229	Mar. 13	1248	270	90	2017
					271		
Target. Traveling	A. E. Macdonald	642,798	Feb. 6	396	96	90	1043
Tea-making attachment for cups	J. E. Wright	641,916	Jan. 23	3239	759	90	692
Telegraph instrument. Printing	E. E. Nye and L. C. McIntosh	644,448	Feb. 27	3461	804	90	1691
Telegraph-key circuit-closer	L. Kamm	643,379	Feb. 13	1436	335	90	1266
					336		
Telegraph. Printing	S. F. Lively	644,714	Mar. 6	281	62	90	1809
Telegraph-sounder							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Telegraphic safety device	S. R. Wright	643,706	Feb. 20	2062	492	90	1409
Telegraphy. Wireless	A. F. Collins	644,497	Feb. 27	3536	821	90	1704
Telephone	M. Beck and E. Ferrant	645,983	Mar. 27	2544	563	90	2304
Telephone	A. A. Low	641,663	Jan. 16	2876	655	90	596
Telephone	R. F. Smith	640,823	Jan. 9	1268	287	90	267
Telephone	D. H. Wilson	641,570	Jan. 16	2721	620	90	564
Telephone and vending-machine. Combined	C. H. Kraft	646,124	Mar. 27	2911	645 646	90	2376
Telephone apparatus	D. H. Wilson	641,569	Jan. 16	2719	619 620	90	564
Telephone appliance	C. E. Scribner	645,570	Mar. 20	1850	409	90	2150
Telephone-call instrument. Coin-operated public	F. J. Clendinnen and G. A. P. Weymouth.	640,443	Jan. 2	557	117 118	90	110
Telephone-call register	W. Gray	645,917	Mar. 20	2511	555	90	2281
Telephone central-station apparatus and circuits	S. G. McMeen	640,404	Jan. 2	499	102	90	96
Telephone-circuit selective signal	G. K. Thompson and E. C. Robes	644,647	Mar. 6	164	37	90	1787
Telephone coin-actuated mechanism	A. F. Wines	644,653	Mar. 6	178	39	90	1789
Telephone-directory	L. H. Mertz	643,749	Feb. 20	2171	510	90	1424
Telephone-exchange apparatus	C. E. Scribner	645,571	Mar. 20	1851	410	90	2150
Telephone-exchange system	T. F. Ahern	640,618	Jan. 2	860	191 192 193	90	167
Telephone-exchange system	F. R. McBerty	641,721	Jan. 23	2980	678	90	624
Telephone-exchange system and apparatus	J. Z. Miller	645,402	Mar. 13	1559	341	90	2080
Telephone-guard	L. B. Ordway	644,690	Mar. 6	228	49	90	1799
Telephone-lines. Connection-counter for	F. R. McBerty	641,400	Jan. 16	2391	547	90	499
Telephone-lines. Connection-register for	C. E. Scribner	642,880	Feb. 6	550	127	90	1073
Telephone pay-stations. Toll-collecting apparatus for	C. E. Scribner	642,881	Feb. 6	554	128	90	1074
Telephone-receiver	A. K. Keller	644,206	Feb. 27	3004	711	90	1608
Telephone-receiver	A. K. Keller	645,959	Mar. 27	2908	576	90	2316
Telephone signal-circuit	D. McNeil	644,868	Mar. 6	577	124	90	1870
Telephone-switchboard	F. B. Cook	641,373	Jan. 16	2349	537	90	491
Telephone-switchboard	E. E. Yaxley	642,809	Feb. 6	417	101 102	90	1047
Telephone-switchboard apparatus and appliance	T. C. Wales, Jr	641,743	Jan. 23	3024	689	90	632
Telephone system	J. R. Blinck and C. H. West	640,988	Jan. 9	1630	360 361	90	335
Telephone system	J. W. Gore	644,594	Mar. 6	64	14	90	1767
Telephone system	A. K. Keller	645,958	Mar. 27	2601	576	90	2316
Telephone system. Duplex multiple metallic	F. C. Hughes	646,121	Mar. 27	2905	643 644	90	2375
Telephone systems. Switch-box for intercommunicating	A. K. Keller	644,204	Feb. 27	2999	710	90	1602
Telephone-telegraph	A. Sinding-Larsen	643,545	Feb. 13	1748	413	90	1327
Telephone-transmitter	E. B. Fahnestock	644,547	Feb. 27	3043	848	90	1724
Telephone-transmitter	A. K. Keller	644,205	Feb. 27	3002	711	90	1602
Telephone-transmitter	A. K. Keller	645,960	Mar. 27	2604	577	90	2317
Telephone-transmitter	A. Stromberg	643,890	Feb. 20	2303	542	90	1449
Telephone-transmitter	C. E. Tucker and L. S. Jenkins	643,993	Feb. 20	2618	618	90	1512
Telephone-transmitter	J. M. Wilderman and E. A. Nelson	644,652	Mar. 6	176	38	90	1789
Telephone-transmitters, &c. Mouthpiece for	G. B. Hart and F. W. Milligan	642,982	Feb. 6	726	167	90	1107
Telephone trunk-lines. Automatic calling appliance for	C. E. Scribner	645,572	Mar. 20	1855	410	90	2151
Telephones. Automatic return-signaling device for	F. Burger	643,864	Feb. 20	2379	500	90	1464
Telephonic appliances. Sanitary attachment for	A. J. Wolff	642,408	Jan. 30	4282	987	90	896
Telephonic instrument	F. A. Swan	642,984	Feb. 6	648	148	90	1092
Telephonic measured service. Registering apparatus and circuit for	G. K. Thompson	641,737	Jan. 23	3013	687 688	90	630
Telephonic relay	F. H. Brown	644,315	Feb. 27	3220	754	90	1644
Telephonic repeater	J. Houlehan	643,225	Feb. 13	1171	274	90	1215
Telephony	S. B. Fowler	641,005	Jan. 9	1070	371	90	342
Telescope-bag. Folding	A. S. Jenkins	643,874	Feb. 20	2398	564	90	1467
Telescope. Coin-operated	O. Weise	645,771	Mar. 20	2263	492 493	90	2232
Tellurian	A. M. Baker	642,835	Feb. 6	463	111	90	1056
Tellurian	G. T. Huff	641,967	Jan. 23	3420	777	90	708
Tellurian	J. P. McDaniels and J. L. Swan	644,638	Mar. 6	117	27	90	1777
Tellurian and lunarian. Convertible	R. E. Grinstead	643,497	Feb. 13	1671	393	90	1312
Temperature-equalizing coils. Manufacturing	F. Allen	644,841	Mar. 6	581	115	90	1860
Tension device	E. Roberts	644,186	Feb. 27	2970	701	90	1595
Tension device. Cord	B. F. Iveson	642,698	Feb. 6	238	59	90	1089
Tent	E. L. Munson	640,582	Jan. 2	799	176 177	90	156
Tent. Umbrella	D. Downs	645,704	Mar. 20	2119	464	90	2205
Tentering-machine	E. A. Rusden	640,229	Jan. 2	138	28, 29	90	28
Terminal head and junction-box. Combined	F. B. Cook	641,374	Jan. 16	2352	537	90	491
Textile machinery. Roll-clearer for	L. W. Penney	645,530	Feb. 13	1723	406	90	1323
Thawing apparatus. Earth-	A. Heitzelmann	641,772	Jan. 23	3075	699	90	641
Theater appliance	I. M. Fuller	643,493	Feb. 13	1661	391	90	1311
Thermal testing-tube	J. L. Hollingsworth	646,217	Mar. 27	3105	695	90	2415
Thermally-actuated mechanism	J. H. Bullard	643,319	Feb. 13	1340	315	90	1248
Thermometer-case	S. A. Cunningham	642,087	Jan. 30	3639	834	90	765
Thermometer-case	J. M. Gray	641,856	Jan. 23	3238	735	90	672
Thermometer. Oven-	L. Duemer	641,380	Jan. 16	2198	493	90	460
Thermometer. Oven-	R. L. Nourse	645,371	Mar. 13	1508	330	90	2069
Thermometer. Pneumatic	W. H. Sanford and H. Brickham	643,542	Feb. 13	1744	412	90	1336
Thermometer. Registering clinical	L. F. Comitti	641,080	Jan. 9	1800	400	90	367
Thermostat	C. E. May	645,722	Feb. 20	2128	499	90	1415
Thermostat	R. P. and J. D. Osgood	640,407	Jan. 2	496	108	90	97
Thermostat	C. B. Rogers	646,100	Mar. 27	2880	685	90	2367
Thermostatic apparatus	L. Morgenstern	643,890	Feb. 20	2405	566	90	1469
Thermostatic apparatus	E. F. Woodman	643,179	Feb. 13	1099	255	90	1201
Thermostatic regulator	W. G. Taylor	641,655	Jan. 16	2608	652	90	508
Thill-coupling	T. G. Aldrich	642,198	Jan. 30	3654	876	90	610
Thill-coupling	W. H. Edwards	641,944	Jan. 23	3389	770	90	708

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thill-coupling	N. Horning	641,963	Jan. 23	3415	776	90	707
Thill-coupling	N. Horning	641,964	Jan. 23	3417	776	90	708
Thill-coupling	W. H. Makutchan	644,254	Feb. 27	3092	728	90	1619
Thill-coupling	J. Mealey	641,399	Jan. 16	2389	547	90	499
Thill-coupling	W. F. Schubert	645,872	Mar. 20	2480	584	90	2285
Thill-coupling	C. E. Stone	644,693	Mar. 6	251	56	90	1804
Thill-coupling	J. F. Tait	643,200	Feb. 13	1146	268	90	1211
Thill-coupling	J. Sykes	641,590	Jan. 16	2700	615	90	560
Thill-coupling. Antirattling	A. G. Brunsman	645,995	Mar. 27	2669	592	90	2330
Thill-reinforce	R. T. Gillespie	643,121	Feb. 13	999	233	90	1180
Thill-support	S. Shreffler	642,267	Jan. 30	3996	910	90	888
Thill-support	J. W. Lane	645,174	Mar. 13	1153	249	90	1999
Thread-cutter	D. A. Dugan	642,095	Jan. 30	3653	836	90	768
Thread-guide. Automatically-locking	J. T. Hay	642,792	Feb. 6	386	93	90	1041
Threshing-cylinder	W. W. Dingee	640,997	Jan. 9	1655	366 367	90	339
Threshing-machine	H. W. Meinert	644,141	Feb. 27	2879	681	90	1579
Threshing-machine	J. A. Miller	640,400	Jan. 2	481	100 101	90	95
Threshing-machine	A. E. Price	645,972	Mar. 27	2823	581	90	2321
Threshing-machine	M. F. Young	644,157	Feb. 27	2908	698	90	1585
Threshing-machine beating mechanism	C. A. Paul and W. Wibben	640,989	Jan. 9	1515	339	90	314
Threshing-machine blower	J. D. Diller	645,311	Mar. 13	1387	303	90	2045
Threshing-machine blowers. Wind-escape attachment for	I. S. Carolus	642,675	Feb. 6	198	50	90	1005
Threshing-machine brace	W. Heidecker	645,420	Mar. 13	1592	348	90	2087
Threshing-machine cylinder	A. Ferri	641,200	Jan. 9	2044	457	90	416
Threshing-machine feeder	J. L. Patterson and G. T. Hill	643,849	Feb. 20	2357	554	90	1459
Threshing-machine shoe	M. and J. Bowman	645,936	Mar. 27	2550	565	90	2305
Ticket. Accident-insurance and transportation	W. E. Watkins	643,214	Feb. 13	1154	270	90	1212
Ticket holding and delivering apparatus	W. H. Snowman	641,651	Jan. 16	2855	651 652	90	591
Ticket. Marking	W. D. Smith	644,541	Feb. 27	3029	844	90	1722
Tie: *See* Railway-tie. Wall-tie.							
Tie-fastener	F. E. Perkins	642,480	Jan. 30	4397	998	90	918
Tie-holder	J. A. Mears	643,330	Feb. 13	1358	319	90	1251
Tile	F. Furness	645,800	Mar. 20	2312	504	90	2241
Tile	W. D. Turnley	640,338	Jan. 2	340	71	90	68
Tile and means for securing same in place	H. Hubert	646,178	Mar. 27	3023	667	90	2398
Tile and producing same	H. C. Mercer	644,589	Feb. 27	3096	840	90	1717
Tile. Building-	J. B. Seager	645,673	Mar. 20	2061	453	90	2192
Tile-dipping machine	A. W. and C. F. Koch	642,185	Jan. 30	3789	855	90	786
Tile. Illuminating-	J. Jacobs	640,660	Jan. 2	949	213	90	184
Tile joint. Ogee-	J. White	640,511	Jan. 2	668	144	90	132
Tile structure	F. L. O. Wadsworth	640,840	Jan. 9	1322	296	90	278
Tile structure	F. L. O. Wadsworth	640,842	Jan. 9	1324	297	90	278
Timber. Preserving	W. Cross	643,762	Feb. 20	2196		90	1429
Time-alarm. Electric	H. Reich	646,096	Mar. 27	2749	610 611	90	2344
Time-checking apparatus. Workman's	F. W. Maßa	641,874	Jan. 23	3264	741	90	677
Tinner's fire-pot	J. S. Hull	640,914	Jan. 9	1467	328	90	306
Tins, boxes, &c. Closing of	E. Cevolani	642,428	Jan. 30	4313	973	90	902
Tire	J. C. Anderson	642,776	Feb. 6	365	88	90	1037
Tire	A. Dewes and H. A. Whiting	642,089	Jan. 30	3644	834	90	766
Tire	C. W. Hunt	641,515	Jan. 16	2622	598	90	545
Tire	H. A. Middleton	642,351	Jan. 30	4167	943	90	873
Tire	R. Cousins	644,731	Mar. 6	306	67	90	1814
Tire armor. Vehicle-	J. C. Anderson	642,773	Feb. 6	361	87	90	1037
Tire. Bicycle-	A. M. Ferguson and K. P. Shedd	641,445	Jan. 16	2484	569	90	516
Tire. Bicycle-wheel	W. G. Kendall	646,402	Mar. 27	3497	779	90	2494
Tire. Cushion-	S. S. Miller	645,481	Mar. 13	1695	371	90	2107
Tire. Cushion-	E. M. Birdsall	640,863	Jan. 9	1362	305	90	287
Tire. Elastic	A. M. Warnock	642,998	Feb. 6	657	150	90	1093
Tire-fastener	W. Lennard-Foote	644,613	Mar. 6	93	22	90	1773
Tire for bicycle or other vehicle wheels	J. F. Brady	644,576	Mar. 6	25	7	90	1760
Tire for vehicle-wheels. Pneumatic	F. H. Bolte	642,513	Jan. 30	4443	1009	90	927
Tire for vehicle-wheels. Rubber	R. Mitchell, Jr	640,927	Jan. 9	1496	335	90	310
Tire for vehicles. Shielded rubber	J. E. Tucker	643,017	Feb. 6	787	183	90	1119
Tire-inflating mechanism	C. C. Clawson	643,294	Feb. 13	1250	293	90	1230
Tire inflation. Air-pump for	S. W. Collins	644,476	Feb. 27	3503	813	90	1699
Tire inflation-valve. Pneumatic	A. M. Ferguson	641,764	Jan. 23	3065	697	90	629
Tire machine. Rubber-	F. B. Parks	640,460	Jan. 2	583	124	90	115
Tire. Non-puncturable wheel-	J. C. Anderson	641,252	Jan. 9	2141	482	90	436
Tire-plug	H. Buchignani	642,774	Feb. 6	362	88	90	1037
Tire. Pneumatic	A. P. Cochrane	645,347	Mar. 13	1448	319	90	2057
Tire. Pneumatic	A. Junod	642,838	Feb. 6	474	112	90	1056
Tire. Pneumatic	A. H. Marks	642,336	Jan. 30	4128	984	90	864
Tire. Pneumatic	J. J. McDonald	643,836	Feb. 20	2297	540	90	1448
Tire. Pneumatic	J. A. S. Simonson	640,821	Jan. 9	1265	286	90	266
Tire. Pneumatic	A. A. Wade	643,429	Feb. 13	1539	362	90	1285
Tire. Pneumatic	F. A. Selberling	641,153	Jan. 9	1942	431	90	396
Tire. Pneumatic rubber	W. Corliss	646,141	Mar. 27	2949	652	90	2284
Tire. Pneumatic wheel-	M. Stark	644,154	Feb. 27	2901	696	90	1583
Tire-remover	A. C. Palmer	643,528	Feb. 13	1718	404	90	1322
Tire remover and setter	A. W. Grant	641,768	Jan. 23	3070	698	90	640
Tire-setting apparatus. Rubber-	G. W. Keller	643,357	Feb. 13	1406	295 299	90	1260
Tire-setting apparatus. Rubber-	E. C. Hoffman	642,692	Feb. 6	296	56	90	1011
Tire-setting machine	J. Arn	643,081	Feb. 6	810	189	90	1123
Tire. Spring-	J. K. Adams	641,355	Jan. 16	2318	529	90	485
Tire-tightener	F. M. Marney	645,267	Mar. 13	1492	326	90	2067
Tire-tightener	C. T. Adams	645,844	Mar. 20	2386	584	90	2257
Tire. Vehicle-	R. Cowen	642,811	Feb. 6	421	102	90	1048
Tire. Vehicle-	H. S. Firestone	646,274	Mar. 27	3221	716	90	2437
Tire. Vehicle-							

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Tire. Vehicle-	D. N. Jordan and F. A. Crowell	643,875	Feb. 20	2400	564	90	1467
Tire. Vehicle pneumatic	A. H. Marks	642,348	Jan. 30	4161	940	90	872
Tire. Vehicle-wheel	H. W. Theis	641,735	Jan. 23	3010	667	90	629
Tire. Wheel-	O. J. M. Ancora	640,851	Jan. 9	1338	301	90	281
Tire. Wheel-	W. Corliss	645,310	Mar. 13	1985	303	90	2045
Tire. Wheel-	W. Corliss	646,140	Mar. 27	2947	652	90	2383
Tire. Wheel-	H. C. Frost	644,288	Feb. 27	3166	743	90	1633
Tire. Wheel-	H. A. Whiting	642,189	Jan. 30	3850	875	90	809
Tire. Yielding vehicle-	R. Cowen	642,812	Feb. 6	423	102 103	90	1048
Tires. Air-pump for pneumatic	C. H. Amidon	641,253	Jan. 16	2149	484	90	451
Tires. Composition of matter for repairing	O. P. Michael	643,518	Feb. 13	1707		90	1320
Tires, felllies, &c. Apparatus for shaping	T. H. Grigg	642,975	Feb. 6	718	163 164	90	1104
Tires. Implement for removing pneumatic	H. Swanton	642,643	Feb. 6	138	34	90	993
Tires. Machine for forming inner tubes of pneumatic	A. E. Ellinwood and S. S. Miller	641,378	Jan. 16	2357	539	90	493
Tires. Making pneumatic	J. C. Anderson	642,775	Feb. 6	363	88	90	1097
Tires. Manufacturing India-rubber	H. Falconnet and M. Perodeaud	640,644	Jan. 2	921	208	90	179
Tires. Manufacturing pneumatic	F. A. Selberling	641,337	Jan. 16	2288	519 520	90	479
Tires. Means for repairing pneumatic	H. S. van der Stempel	646,382	Mar. 27	3328	742	90	2457
Tires. Mold for vulcanizing	F. H. Bolte	645,452	Mar. 13	1646	360	90	2097
Tires. Non-puncture and speeding attachment for pneumatic	B. Charles	644,126	Feb. 27	2850	674	90	1573
Tires on wheel-rims. Means for securing pneumatic	A. T. Collier	642,429	Jan. 30	4314	973	90	902
Tires. Repair-plug for pneumatic	L. A. Carpenter	645,502	Mar. 13	1783	380	90	2114
Tires to wheels. Means for attaching pneumatic	J. K. Leary	642,823	Feb. 6	445	107	90	1052
Tobacco curing and ordering apparatus	J. L. Hollingsworth	646,218	Mar. 27	3106	685 686	90	2415
Tobacco-cutting machine	J. C. Lawrence	641,305	Jan. 16	2283	506	90	469
Tobacco-leaf-sorting apparatus	B. O. Dahl	645,708	Mar. 20	2118	464	90	2205
Tobacco-leaf-stemming machine	A. R. Allison and C. E. Buek	640,168	Jan. 2	3	1, 2	90	3
Tobacco-leaf-stemming machine	F. G. Dieterich	644,006	Feb. 20	2651	627	90	1518
Tobacco. Machine for distributing flavoring matter upon	P. Lorillard, Jr., and E. G. Tremaine.	643,198	Feb. 13	1123	202	90	1206
Tobacco-pipe	T. G. Clifford	645,522	Mar. 13	1773	398	90	2122
Tobacco-pipe	E. P. Datow	642,963	Feb. 6	696	159	90	1101
Tobacco-pipe	F. A. Haugh	642,445	Jan. 30	4343	983	90	907
Tobacco-pipe	A. C. Ladd	643,250	Feb. 13	1223	287	90	1225
Tobacco-pipe	G. A. Osterud	640,408	Jan. 2	497	103	90	98
Tobacco-pipe	F. A. Pyke	642,480	Jan. 30	4409	1001	90	920
Tobacco-pipe-cleaning device	A. R. Allison and C. E. Buek	640,251	Jan. 2	186	39, 40	90	39
Tobacco-stemming machine	W. D. Hobson	642,609	Feb. 6	80	19	90	992
Tobacco. Treating	A. V. Hysore	642,455	Jan. 30	4360	988 989	90	911
Tobacco-treating apparatus	W. S. Dycus and W. E. Peay	643,324	Feb. 13	1350	316	90	1249
Tobacco-truck	G. L. Preble	645,890	Mar. 20	2364	518	90	2252
Toe. Box-	P. Goldsmith	643,906	Feb. 20	2440	574 575	90	1476
Toe-clip and counterpoise	W. B. Morlan	643,728	Feb. 20	2129	499	90	1416
Tongs. Fire-	J. J. Nagley	644,584	Feb. 27	3617	842	90	1719
Tongue-support	G. W. Wright	643,736	Feb. 20	2146	503	90	1419
Tongue-support	J. W. Bettendorf	642,669	Feb. 6	185	46	90	1002
Tongue support. Wagon-	J. H. Garner	643,120	Feb. 13	997	232	90	1180
Tool. Combination-	H. B. Huston and O. J. Mooers	643,062	Feb. 6	868	202	90	1134
Tool. Combination-	M. G. Lambert	643,825	Feb. 20	2206	540	90	1447
Tool. Combination-	D. D. Stetler	640,598	Jan. 2	828	184	90	162
Tool. Combination-	A. Van Vliet	642,988	Feb. 6	568	130	90	1077
Tool. Combination-	P. H. Walsh	646,243	Mar. 27	3164	699	90	2426
Tool. Combination-	R. Douglas	643,285	Feb. 13	1285	303	90	1237
Tool-fastening	E. Manes	645,565	Mar. 20	1841	406	90	2148
Tool-handle	L. T. Parsons	646,300	Mar. 27	3470	772	90	2490
Tool-holder	C. F. Preston	641,997	Jan. 23	3476	794	90	720
Tool-holder	G. R. Sherwood	641,241	Jan. 9	2126	478	90	433
Tool-holder	F. Loff	642,345	Jan. 30	4155	969	90	870
Tool-joint	R. Brewster	641,980	Jan. 23	3364	764	90	697
Tooth. Artificial	C. A. Fones	640,551	Jan. 2	744	165	90	146
Tooth-crown. Artificial	H. D. Justi	644,803	Mar. 6	457	98	90	1845
Tooth-crown. Artificial	W. H. Dyer	644,851	Mar. 6	546	118	90	1863
Toothpicks. Machine for pointing wooden	I. E. Stump	641,653	Jan. 16	2859	652	90	592
Top	M. M. Henry	644,709	Mar. 6	271	60	90	1807
Top. Spinning-	C. Verniaud	643,311	Feb. 13	1326	312	90	1244
Top. Spinning-	C. P. Young	643,096	Feb. 6	802	186	90	1122
Top-spinning device	J. Staley	642,392	Jan. 30	4282	956	90	866
Torch. Grass-lighting	O. V. Wood	644,750	Mar. 6	337	75	90	1821
Torch. Signal-	E. Gathmann	643,321	Feb. 27	3944	756 757	90	1648
Torpedo	H. Maxim	641,787	Jan. 23	3098	704 705	90	645
Torpedo. Automobile	A. Morison	644,061	Feb. 20	2691	637	90	1526
Tow-cleaner	A. Baumgarten	640,357	Jan. 2	588	82	90	77
Towel-holder	F. H. Davis	642,588	Feb. 6	48	11	90	975
Tower	C. D. Pierce	642,626	Feb. 6	107	25, 26	90	986
Tower	F. Metcalf	643,331	Feb. 13	1359	319	90	1251
Towing-machine	T. Holmes	645,919	Mar. 20	2515	556	90	2281
Toy	H. Tamzarian	643,426	Feb. 13	1535	361	90	1284
Toy	C. W. Taylor	645,877	Mar. 20	2435	536	90	2267
Toy	C. M. A. Wichmann	646,115	Mar. 27	2999	642	90	2374
Toy	J. Yelle	644,121	Feb. 27	2841	672	90	1571
Toy	D. C. Cook	640,536	Jan. 2	719	157	90	141
Toy bank	E. G. Newell	643,365	Feb. 13	1462	342	90	1270
Toy figure	T. W. Klipfel	646,408	Mar. 27	3498	779	90	2494
Toy, Mechanical	F. S. Weaver	642,552	Feb. 6	153	37	90	996
Toy rein	H. T. Kingsbury	642,525	Jan. 30	4463	1013	90	980
Toy vehicle	H. T. Kingsbury	642,526	Jan. 30	4465	1013	90	980
Toy wagon							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trace-eye guard	W. P. Murphy	646,095	Mar. 27	2854	633	90	2366
Trace-holder. Singletree	L. M. Campau	643,943	Feb. 20	2587	597	90	1496
Trace-lock	C. L. Kirkscey and F. P. Bowden	645,105	Mar. 13	1015	217	90	1973
Trace-support	H. Hammer	641,770	Jan. 23	3073	699	90	641
Track-cleaner	G. W. Ruggles	641,235	Jan. 9	2118	476 477	90	431
Track-gage	J. D. Green	645,087	Mar. 13	983	209	90	1967
Track-sanding apparatus	J. H. Hanlon	642,843	Feb. 6	480	113	90	1060
Track-sanding apparatus	C. W. Sherburne	641,338	Jan. 16	2290	520 521	90	479
Track-sanding device	F. E. Allen	646,201	Mar. 27	3076	678	90	2408
Track-sweeper	F. D. Branch	646,087	Mar. 27	2840	630 631	90	2363
Traction-engine	T. E. Dodds	641,941	Jan. 23	3383	769	90	701
Traction-engine	R. and I. W. Knight	644,610	Mar. 6	89	21	90	1772
Traction-engine	R. Russell	640,955	Jan. 9	1546	345	90	319
Traction-engine	C. L. and R. A. Schultz	645,630	Mar. 20	1986	436 437	90	2177
Traction-engine	A. M. Searle	643,009	Feb. 6	771	177	90	1117
Traction-wheel	J. D. Cullen	641,579	Jan. 16	2735	623	90	567
Traction-wheel	F. S. Farr and C. F. Nyberg	640,550	Jan. 2	743	164	90	145
Traction-wheel	I. S. Kimbriel	642,182	Jan. 30	3731	854	90	784
Traction-wheel for agricultural machines	C. A. A. Rand	645,429	Mar. 13	1607	351	90	2090
Train-alarm	H. De Wallace	642,803	Jan. 30	4053	923 934	90	849
Trains. Contrivance for avoiding collisions of	C. Burian	643,810	Feb. 20	2266	534 535	90	1442
Tramway. Cable-	W. Dusedau	645,314	Mar. 13	1391	305 306	90	2046
Tramway contact-box. Electric-	E. Bonnet, J. Paufique, and G. Linière.	641,264	Jan. 16	2165	488	90	454
Tramway. Elevated	S. Flory and J. M. Young	643,114	Feb. 13	983	229	90	1176
Tramway switch. Suspended-	A. Bleichert and R. Pfaffenbach	641,261	Jan. 16	2161	486 487	90	454
Tramway system. Rope-	J. T. Ludlow	644,675	Mar. 6	217	48	90	1796
Transformer	E. Arnold	644,565	Mar. 6	8	3	90	1756
Transit and gravity level. Combined	F. C. Brown	642,203	Jan. 30	3872	880	90	813
Transplanting buds. Tool for	D. Galbreath	642,973	Feb. 6	711	163	90	1104
Trap: *See* Animal-trap. Fish-trap. Fly-trap. Hog-trap. Insect-trap. Lavatory-trap. Mouse-trap. Refrigerator-trap. Steam-trap.							
Trap	W. McCoy	642,476	Jan. 30	4393	996	90	918
Trap	J. A. Mulherin	644,142	Feb. 27	2880	681	90	1579
Trap	E. F. Smith	643,548	Feb. 13	1757	414	90	1328
Traveler's box	T. McCarthy	644,997	Mar. 6	792	173	90	1915
Tread. Step-	A. Bischoff	645,744	Mar. 20	2214	480	90	2222
Treadle	N. Du Brul	645,466	Mar. 13	1668	364	90	2101
Tree extractor and carrier	A. U. Dunbar and S. E. Miller	640,880	Jan. 9	1411	316 317	90	295
Tree or shrub protector	J. A. Conrad	645,890	Mar. 20	2454	542	90	2271
Tree-protective tent	W. H. McFarland	641,946	Jan. 23	3391	771	90	708
Tree-protector	S. V. Bailey	642,064	Jan. 30	3597	825	90	756
Tree-protector	H. H. Belknap	645,659	Mar. 20	2041	449	90	2188
Tree-protector	W. Watt	645,518	Mar. 13	1768	387	90	2121
Tree-support	J. Donnelly	646,364	Mar. 27	3430	765	90	2482
Trick-chair	E. and U. S. De Moulin	642,092	Jan. 30	3650	835	90	767
Tricycle	A. M. Allen	641,426	Jan. 16	2440	558	90	509
Tricycle	J. R. Rowlands	644,685	Mar. 6	234	51, 52	90	1801
Tricycle	H. F. Watson	641,816	Jan. 23	3145	714 715	90	656
Trimmer: *See* Hoof-trimmer. Lawn-trimmer. Sewing-machine trimmer.							
Trimming-making machine	C. P. Schlegel	645,236	Mar. 13	1261	274	90	2020
Trolley	T. Dennis	645,351	Mar. 13	1454	321	90	2059
Trolley	A. N. Hauver	640,560	Jan. 2	757	167	90	148
Trolley	W. G. Holmes and H. Holland	643,501	Feb. 13	1678	395	90	1314
Trolley	C. A. Jackson	640,304	Jan. 2	81	16	90	18
Trolley-arrester	W. E. Carlile	641,371	Jan. 16	2345	536	90	491
Trolley-catcher	H. W. Graham	641,393	Jan. 16	2364	541	90	494
Trolley-hanger. Mine	G. E. Jammé, Jr	643,327	Feb. 13	1354	317	90	1250
Trolley-head	E. J. Rauch	645,186	Mar. 13	1172	255	90	2003
Trolley-pole	F. Pfent and L. A. Moran	642,368	Jan. 30	4192	948	90	878
Trolley-wheel	G. B. Raum, Jr	640,810	Jan. 9	1244	282	90	263
Trolley-wheel	R. S. Windsor	645,990	Mar. 27	2657	589	90	2357
Trough: *See* Watering-trough.							
Trousers-edge protector	A. Tiedewitz	642,768	Feb. 6	352	85	90	1035
Trousers-protector	P. E. Daniels	640,277	Jan. 2	250	50	90	50
Trousers-stretcher	W. Kozanski	642,338	Jan. 30	4130	994	90	865
Trousers-stretcher	W. F. Steggall	641,750	Jan. 23	3039	692	90	634
Truck	W. J. Cook and A. Hirth	644,003	Feb. 20	2645	625	90	1518
Truck	E. N. Gilfillan	641,396	Jan. 16	2301	495	90	462
Truck	J. H. Hebblethwaite	644,392	Feb. 27	3048	722	90	1611
Truck	A. J. Hopkins	643,553	Feb. 20	1993	470	90	1391
Truck	R. W. Oswald	640,698	Jan. 2	1023	232	90	197
Truck. Car-	J. A. Brill	642,956	Feb. 6	684	156 157	90	1098
Truck. Car-	R. W. Oswald	640,699	Jan. 2	1022	232	90	197
Truck. Collapsible	C. T. Green and M. P. Elliott	645,524	Mar. 13	1775	389	90	2128
Truck. Elevator	G. J. Peacock	640,942	Jan. 9	1522	340	90	315
Truck for locomotives. Swing-	K. Rushton	645,834	Mar. 20	2369	519	90	2253

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Truck frame. Car-	D. B. Kennedy	641,518	Jan. 16	2057	599	90	546
					600		
Truck. House-moving	S. W. Maple	643,721	Feb. 20	2187	498	90	1415
Truck-lifter	J. H. Blake	643,686	Feb. 20	1943	456	90	1361
Truck. Maximum-traction	C. F. Uebelacker	640,507	Jan. 2	660	143	90	120
Truck or roller	W. McGunnigle	641,602	Jan. 16	2770	631	90	574
Truck. Railway-car	J. F. McElroy	644,440	Feb. 27	2446	800	90	1088
					801		
Truck. Warehouse-	W. F. Heffner	643,056	Feb. 6	861	200	90	1133
Trucks to car-bodies. Device for locking	W. H. Pearson	644,091	Feb. 27	2793	668	90	1562
Trunk	S. B. Smith	645,980	Mar. 27	2634	582	90	2883
Trunk and wardrobe. Combined	A. Kohout and V. Rous	643,416	Feb. 13	1511	354	90	1279
					355		
Trunk fastening or lock	A. R. Colburn	646,017	Mar. 27	2715	608	90	2286
Trunk-fixture	D. Goldsmith	645,170	Mar. 13	1146	246	90	1908
Trunk-lock	C. D. Logan	641,458	Jan. 16	2509	573	90	562
Trunk or carrier. Bonnet	J. Cummings	642,680	Feb. 6	225	51	90	1006
Trunk or case for wearing-apparel	M. Glover	642,680	Feb. 6	223	55	90	1010
Trunk-tray	S. B. Smith	645,979	Mar. 27	2633	588	90	2882
Truss	W. R. Close-Erson	641,373	Jan. 16	2348	526	90	491
Truss	J. M. Cullis	641,547	Jan. 16	2668	612	90	557
Truss	R. R. Roberts	643,381	Jan. 30	4231	955	90	895
Truss	A. Speirs	642,611	Feb. 6	84	20	90	992
Truss-head-molding appliance	F. Kaiser	645,059	Mar. 13	919	197	90	1955
Truss. Hernial	H. Becker	645,901	Mar. 20	2478	548	90	2275
Truss. Herulial	P. Madden	640,454	Jan. 2	574	121	90	113
Truss-pad	C. Donovan						
Tub: *See* Bath-tub. Convertible tub.							
Tube: *See* Collapsible tube. Preheating-tube. Generating-tube. Thermal testing-tube.							
Tube-bending machine	L. H. Brinkman	643,759	Feb. 20	2187	514	90	1427
Tube-bending machine	L. H. Brinkman	643,760	Feb. 20	2190	515	90	1428
Tube-clamp. Telescopic	J. Baeumle	643,198	Jan. 30	3855	876	90	810
Tube-cleaner	W. S. Elliott	641,092	Jan. 9	1822	405	90	372
Tube ends. Tool for bushing metallic	E. T. Greenfield	640,759	Jan. 9	1143	268	90	242
Tube-filling apparatus	D. Smith	642,640	Feb. 6	181	31	90	991
Tube-joint	D. W. Caswell	643,591	Feb. 13	1835	434	90	1344
Tube-joint	W. Hillman	645,294	Mar. 13	1368	296	90	2040
Tube or flue cutter	I. J. B. Hanten and J. J. Kranz	643,961	Feb. 20	2560	608	90	1501
Tube or pebble mill	C. L. Carman	643,220	Feb. 13	1163	273	90	1214
Tube-testing machine. Hydraulic	F. Deming	640,881	Jan. 9	1394	313	90	292
Tubes or cylinders. Manufacture of metal	E. C. and V. E. Smith	640,494	Jan. 2	594	109	90	108
Tubes or masts. Manufacturing conical	A. Hüsener	642,966	Feb. 6	733	168	90	1109
Tubes or pipes. Device for bending special shapes of	C. R. McKibben	641,535	Jan. 16	2662	607	90	553
Tubes to tube-plates. Connecting	O. M. Row	643,237	Feb. 13	1198	281	90	1220
Tubing	F. F. Bischoff	643,459	Feb. 13	1588	374	90	1296
Tubing-manufacturing machine	V. Royle	641,041	Jan. 9	1729	395	90	353
Tubing. Wire-conduit	C. D. Richmondt	645,187	Mar. 13	1173	255	90	2004
Tubing wire or other metal strips. Device for	L. P. Dixon	640,640	Jan. 2	914	206	90	177
					207		
Tubular telescoping parts. Internal fastener for	J. P. Scovill	641,895	Jan. 23	2299	749	90	994
Tug. Shaft	A. L. Maclachlan	643,655	Feb. 20	2014	475	90	1395
Tuning mechanism for stringed instruments	G. Brauer	641,367	Jan. 16	2339	534	90	489
Tunneling apparatus	A. W. Buel	646,354	Mar. 27	3365	752	90	2464
Turbine	W. H. Clarke and F. J. Warburton	641,624	Jan. 16	2809	638	90	582
					639		
Turbine. Steam-	J. F. Brady	643,988	Feb. 20	2527	594	90	1494
Turbine. Steam-	J. Burgum	641,074	Jan. 9	1791	397	90	365
					398		
Turnbuckle	T. Sherwood	641,898	Jan. 23	2304	751	90	695
Turning machine. Wood-	H. Mayers	645,601	Mar. 20	1998	425	90	2166
Turnstile	A. P. Dodge	640,998	Jan. 9	1658	368	90	339
Twine-cutter	G. A. McCartney	645,043	Mar. 6	887	192	90	1961
Twine-holder	W. P. Michael	643,229	Feb. 13	1186	278	90	1223
Twisting and knotting threads. Automatic machine for	A. Kryszat	641,707	Jan. 23	2043	672	90	218
Twisting-machine break-indicator	G. F. Ivey	642,457	Jan. 30	4263	990	90	911
Twisting-machine guide-board	W. L. Norden	641,408	Jan. 16	2295	548	90	500
Twyer for forge-furnaces	J. Eastep, H. A. Delters, and O. Barth	645,945	Mar. 27	2563	567	90	2307
Type. Apparatus for justifying set	H. J. S. Gilbert-Stringer and F. Wicks	645,801	Mar. 20	2312	504	90	2241
					505		
Type-bar	W. P. Quentell	640,699	Jan. 2	1084	235	90	800
Type-bar hanger. Duplex	E. A., Sr., and E. A. Hornbostel, Jr.	644,602	Mar. 6	75	17	90	1769
Type-bars for printing. Matrix-bar for machines for making	F. E. Bright	640,867	Jan. 9	1868	407	90	988
Type-casting and composing apparatus	H. J. S. Gilbert-Stringer	642,441	Jan. 30	4335	979	90	906
					980		
					981		
					982		
Type-follower for type-containing channels	L. K. Johnson	643,835	Jan. 30	4127	984	90	864
Type making and composing machine	M. W. Smith	644,885	Mar. 6	519	111	90	1857
					112		
Type or matrices or justified matrix-lines. Apparatus for preparing justified lines of	C. Sears	642,954	Jan. 30	3998	909	90	887
Type-setting apparatus	L. K. Johnson and A. A. Low	641,296	Jan. 16	2280	501	90	465
					502		
Type-setting apparatus	L. K. Johnson and A. A. Low	641,297	Jan. 16	2281	503	90	466
Type-setting apparatus	A. A. Low	641,310	Jan. 16	2343	508	90	470
Type-setting machine	F. B. Converse, Jr.	640,274	Jan. 2	943	49	90	48
Type-setting machine	P. F. Cox	643,473	Feb. 13	1693	382	90	1304
					383		

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Type-setting machine	P. F. Cox	646,358	Mar. 27	3379	756	90	2467
					757		
					758		
					759		
Type-setting machine	P. H. McGrath	645,512	Mar. 13	1747	383	90	2117
					384		
					385		
Type-setting machine key mechanism	F. McClintock	641,875	Jan. 23	2266	741	90	677
Type-setting mechanism	L. K. Johnson and A. A. Low	641,298	Jan. 16	2282	503	90	466
Type-writer	W. S. Craig	644,502	Feb. 27	3545	826	90	1706
Type-writer	F. Lambert	640,308	Jan. 2	89	18	90	20
					19		
					20		
Type-writer key	F. C. Boynton	641,635	Jan. 16	2882	645	90	587
Type-writer keyboard mechanism	E. B. Kirby	646,224	Mar. 27	3122	688	90	2418
					689		
Type-writer paper-carrier	E. Van der Belen	644,266	Feb. 27	3118	732	90	1623
Type-writer ribbon-feeding mechanism	L. S. Burridge	642,079	Jan. 30	3623	830	90	761
					831		
Type-writer. Shorthand	J. F. Hardy	643,352	Feb. 13	1394	326	90	1258
Type-writers, &c. Escapement-feed mechanism for	E. H. Dodge	643,408	Feb. 13	1491	350	90	1275
Type-writing. Carbon holder for manifold	W. M. P. Bowen	642,076	Jan. 30	3618	829	90	760
Type-writing machine	F. F. Anderson	640,254	Jan. 2	195	41, 42	90	40
Type-writing machine	E. F. Baum	640,172	Jan. 2	20	5, 6	90	6
Type-writing machine	E. W. Brackelsberg	643,786	Feb. 20	2231	535	90	1435
Type-writing machine	W. J. Kauffman	644,080	Feb. 27	2775	658	90	1558
Type-writing machine	R. Schade	642,759	Feb. 6	341	83	90	1083
Type-writing machine	C. Sears	644,187	Feb. 27	2970	702	90	1596
Type-writing machine	C. Sears	644,188	Feb. 27	2973	703	90	1596
					705		
Type-writing machine. Automatic	J. D. Agullar	640,352	Jan. 2	362	76, 77	90	73
Type-writing machine. Cryptographic	W. A. Freret, Jr.	644,165	Feb. 27	2923	691	90	1587
					692		
Type-writing machine. Cryptographic	W. A. Freret, Jr., and H. S. Lewis	644,166	Feb. 27	2926	692	90	1587
Type-writing-machine type-protector	M. F. Umstead	640,508	Jan. 2	666	144	90	131
Umbrella-cover	R. D. Fraser	643,641	Feb. 20	1974	464	90	1387
Umbrella-holder	J. A. Dawson and P. P. Beyerback	640,880	Jan. 9	1593	312	90	292
Umbrella-holder. Vehicle	J. H. Doerr	640,980	Jan. 2	255	51	90	51
Umbrella-runner	N. D. Ingram	641,114	Jan. 9	1957	413	90	380
Umbrella. Self-opening	H. H. Kessler, Jr	641,300	Jan. 16	2296	504	90	467
Undergarment	R. E. Hill	642,227	Jan. 30	3924	893	90	823
					894		
Union	M. F. Stadtmuller	640,595	Jan. 2	822	182	90	161
Upholstering apparatus	J. L. Heffner	644,426	Feb. 27	3426	796	90	1683
Upholstering-machine	C. C. Baldwin, H. M. Ferrill, and F. A. Drown	643,931	Feb. 20	2512	590	90	1491
					591		
Urinal	G. W. Knapp	640,666	Jan. 2	957	215	90	186
Urn	F. D. Goddard	642,922	Jan. 30	4098	980	90	859
Vacuum-pan	R. Harvey	643,794	Feb. 20	2244	529	90	1438
Vacuum-producing apparatus	F. J. F. Bruguiere	642,560	Feb. 6	18	7	90	968
Vacuum-tube lighting	D. M. Moore	644,995	Mar. 6	780	172	90	1914
Vacuum-tube lighting	D. M. Moore	645,041	Mar. 6	886	192	90	1933
Valise or hand-satchel	C. L. Gilbert	642,108	Jan. 30	3674	841	90	772
Valve	W. B. M. Bashline	645,383	Mar. 13	1940	269	90	2015
Valve	A. Borden	640,615	Jan. 2	856	191	90	167
Valve	L. C. Eisenhut	644,586	Mar. 6	47	10	90	1764
Valve	F. F. Field	645,078	Mar. 13	953	204	90	1960
Valve	J. C. Fox	645,560	Mar. 20	1883	404	90	2147
Valve	C. Gulland	641,009	Jan. 9	1677	372	90	344
Valve	C. Gulland	642,842	Feb. 6	478	113	90	1059
Valve	W. E. Haskell	641,509	Jan. 16	2612	596	90	543
Valve	J. Stumpf	642,808	Feb. 6	416	101	90	1047
Valve. Adjustable automatic relief	F. S. Bean	644,271	Feb. 27	3121	784	90	1685
Valve. Air-	S. P. Watt	645,568	Mar. 20	1896	417	90	2158
Valve. Air-brake intercepting	G. W. Buckalew	641,576	Jan. 16	2731	622	90	566
Valve. Automatic stop	I. Mayer and J. Hübner	645,908	Mar. 13	1212	264	90	2011
Valve. Back-pressure	C. A. G. Storz	641,345	Jan. 16	2302	523	90	488
Valve. Balanced	E. H. Lunken and H. Ritter	640,577	Jan. 2	788	174	90	154
Valve. Balanced cut-off	O. M. Hofwolt	642,228	Jan. 30	3927	894	90	823
Valve. Blow-off	F. M. Faber	646,108	Mar. 27	2869	636	90	2368
Valve. Blow-off	F. M. Faber	646,104	Mar. 27	2870	636	90	2368
Valve. Blow-off	C. H. Topp	645,696	Mar. 20	2103	462	90	2201
Valve. Check	E. Greenwood	644,422	Feb. 27	3419	794	90	1682
Valve. Chute	F. Sargent and H. J. Westover	642,161	Jan. 30	3794	864	90	798
					865		
Valve. Compound lip	B. Hübbe	644,428	Feb. 27	3428	796	90	1684
Valve-cup	M. T. Pew	645,004	Mar. 6	802	175	90	1917
Valve. Cylinder relief	T. D. Smith	644,151	Feb. 27	2934	685	90	1582
Valve device. Thermostatic	J. A. Serrell and M. Leitch	642,533	Jan. 30	4474	1015	90	952
Valve. Disk	H. Panhorst	644,722	Mar. 6	995	65	90	1812
Valve. Elbow-lever	J. Dreckmann	644,324	Feb. 27	3041	720	90	1610
Valve. Emergency throttle	J. R. Reynolds	642,257	Jan. 30	3971	905	90	832
Valve. Engine	H. M. Lane	644,398	Feb. 27	3363	780	90	1651
Valve. Engine	J. H. Moore	646,187	Mar. 27	3087	670	90	2400
					671		
Valve. Engineer's	N. A. Christensen	644,127	Feb. 27	2851	675	90	1574
Valve for sinks or stationary washstands	H. C. G. Kaeschau	645,749	Mar. 20	2220	481	90	2223
Valve for water-feed pipes. Safety	N. Lombard	646,292	Mar. 27	3250	725	90	2443
Valve-gear	M. R. Moore	642,146	Jan. 30	3767	859	90	798
Valve-gear. Engine	M. F. Gutermuth	643,871	Feb. 20	2304	563	90	1466
Valve-gear. Engine	W. J. Hill	643,899	Feb. 20	2446	575	90	1477
Valve-gear. Engine	M. R. Moore	642,621	Feb. 6	96	23, 24	90	985
Valve gear. Engine lifting	R. H. Mantel	644,430	Feb. 27	3441	799	90	1695
Valve-gear for engines. Cut-off	F. K. Rittenhouse	643,908	Feb. 13	1138	296	90	1309

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Valve-gear for explosive-motors	H. P. Maxim, H. M. Pope, and H. W. Alden.	645,177	Mar. 13	1153	251	90	2000
Valve-gear. Steam engine	J. L. Zeigler	643,439	Feb. 13	1554	365 / 366	90	1298
Valve hand-wheel	F. F. Bischoff	643,460	Feb. 13	1589	374	90	1296
Valve. Hydraulic	C. Kuhlewind	644,674	Mar. 6	216	47	90	1796
Valve. Inflation	R. C. Hilton	642,608	Feb. 6	79	19	90	981
Valve. Inflation	E. S. Roney	640,815	Jan. 9	1255	284	90	955
Valve-lubricating attachment. Gate	W. R. Addicks	641,754	Jan. 23	2048	698	90	1608
Valve mechanism	D. D. Lewis	644,908	Feb. 27	3007	719	90	2237
Valve-motion Engine	E. E. Clark	645,789	Mar. 20	2598	499	90	2237
Valve-motor	W. Ahlen	640,519	Jan. 9	687	147	90	135
Valve-motor. Thermostatically-operated	T. O. Perry	642,154	Jan. 30	3781	862	90	796
Valve-operating device	J. W. Gayner	646,200	Mar. 27	3095	668	90	2413
Valve-operating device for compressors	H. C. Sergeant	641,896	Jan. 23	2300	749	90	684
Valve-operating mechanism	A. N. Locke	643,905	Feb. 20	2460	979	90	1479
Valve or faucet	R. Sellers	644,473	Feb. 27	3500	812	90	1698
Valve. Piston	F. H. Clark	642,085	Jan. 30	3685	833	90	764
Valve. Pressure	G. B. Price	640,222	Jan. 2	196	34, 35	90	26
Valve. Pressure-reducing	W. C. Miller	643,519	Feb. 13	1707	401	90	1320
Valve. Pressure-regulating	G. Kettenring	641,190	Jan. 9	1867	415	90	982
Valve. Pressure-relief	W. M. Holmes	645,722	Mar. 20	2161	470	90	2211
Valve. Rotary balanced	W. B. Orr and C. K. Booth	643,527	Feb. 13	1716	404	90	1321
Valve. Safety	F. Schreidt	643,239	Feb. 13	1201	281 / 282	90	1220
Valve safety attachment	P. G. Van Wie	643,571	Feb. 13	1797	425	90	1336
Valve. Self-closing closet	H. F. Neumeyer	642,707	Feb. 6	251	62	90	1016
Valve. Slide	G. W. Carpenter and R. Watson	643,467	Feb. 13	1597	377 / 378	90	1298
Valve. Slide	I. N. Moore	641,132	Jan. 9	1900	421	90	388
Valve. Steam-actuated	W. Vivian	641,564	Jan. 16	2707	617	90	562
Valve. Steam-engine	A. Tandler	645,194	Mar. 13	1184	257	90	2006
Valve. Straightway	D. J. Crozier	643,476	Feb. 13	1629	385	90	1305
Valve. Supply	E. A. Marsh	643,906	Feb. 20	2461	580	90	1479
Valve. Throttle	W. L. Garreis	643,089	Jan. 23	2551	613	90	1733
Valve. Throttle	G. H. Goodell and P. L. Lobez	645,084	Mar. 13	960	208	90	1967
Valve. Throttle	K. Rushton	643,007	Jan. 23	2495	798	90	723
Valve. Throttle	C. A. Borein	641,165	Jan. 9	2009	448	90	409
Valve. Vessel	J. W. Van Brocklin	643,076	Feb. 6	898	211	90	1138
Valve. Water	J. W. Van Brocklin	643,075	Feb. 6	892	211	90	1138
Valve. Water, steam, or air	P. Ellis and A. A. Whitelaw	643,989	Feb. 6	705	162	90	1103
Valves. Machine for measuring or laying out slide	H. T. Benson	645,061	Mar. 13	923	198	90	1955
Vanner	D. T. Kirkpatrick	644,178	Feb. 27	2952	698	90	1592
Vapor-burner	F. B. Duffey	643,635	Feb. 20	1963	461	90	1385
Vapor-burner. Incandescent	A. Kitson	644,673	Mar. 6	215	47	90	1796
Vapor-burners. Swinging alcohol-cup for	J. G. Lepper and W. F. Dial	644,295	Feb. 27	3182	745 / 746	90	1636
Vapor or gas engine	O. A. Johnston	645,644	Mar. 20	2011	442	90	2182
Vaporizer	L. Chialiva and J. Dupont	645,248	Mar. 13	1281	.....	90	2024
Varnish for drawings. Fixative							
Vat: *See* Dye-vat. Scalding-vat.	F. I. Long	642,702	Feb. 6	943	60	90	1014
Vault	R. G. Sykes	642,504	Jan. 30	4428	1006	90	994
Vault. Grave	G. B. Greaser	644,978	Mar. 6	762	166	90	1908
Vegetable-cutter	P. W. Wierdsma and J. Kuipers	640,725	Jan. 2	1089	.....	90	389
Vegetable waste. Treating	R. H. Elrod	646,271	Mar. 27	3216	715	90	2485
Vehicle	E. D. Macfee, Jr	642,991	Feb. 6	740	170	90	1111
Vehicle	T. J. Ryan	644,100	Feb. 27	2805	665	90	1564
Vehicle-body corner	H. C. Martell	645,114	Mar. 13	1031	220	90	1976
Vehicle body-hanger	P. D. Blackden	645,926	Mar. 20	2525	558 / 559	90	2283
Vehicle-brake	J. Faust	644,163	Feb. 27	2919	691	90	1586
Vehicle-brake	A. L. Parker	641,146	Jan. 9	1923	426	90	398
Vehicle-brake	L. L. Pletcher	645,628	Mar. 20	1984	435	90	2176
Vehicle-brake	H. G. Simmons	646,080	Mar. 27	2887	628	90	2360
Vehicle-brake	R. Tucker and F. Boyling	642,030	Jan. 23	3535	807 / 808	90	728
Vehicle-brake	D. E. Williams	644,483	Feb. 27	3515	817	90	1700
Vehicle-brake. Automatic	J. W. Patterson	644,453	Feb. 27	3468	806	90	1692
Vehicle brake. Motor	E. A. Sperry	645,908	Mar. 20	2492	549	90	2276
Vehicle clutch. Motor	A. J. Martin	641,314	Jan. 16	2350	510	90	472
Vehicle-cover	F. H. Wolfgang	645,773	Mar. 20	2270	494	90	2253
Vehicle draft apparatus	W. G. Davis	646,142	Mar. 27	2951	653	90	2384
Vehicle driving and steering mechanism. Motor	C. T. Hildebrandt and F. R. McMullin.	641,511	Jan. 16	2616	596 / 597	90	544
Vehicle. Electric	E. A. Sperry	640,968	Jan. 9	1587	359	90	226
Vehicle. Electrically-propelled	F. J. Newman and J. Ledwinka	641,608	Jan. 16	2771	631	90	574
Vehicle equalizing-spring	W. E. Hahn and G. O. Coombs	644,908	Mar. 6	647	140	90	1868
Vehicle-footboard	H. Dhuse	640,883	Jan. 9	1401	314	90	298
Vehicle-footboard	J. W. Eisenhuth	640,891	Jan. 9	1417	318	90	298
Vehicle-footboard	C. L. Merkel	640,209	Jan. 2	281	58	90	56
Vehicle frames or bodies. Means for supporting	G. W. Farrell	641,945	Jan. 23	2390	771	90	708
Vehicle-gear	E. A. Sperry	646,081	Mar. 27	2928	686	90	2360
Vehicle gearing. Motor	A. R. W. Knight	644,896	Mar. 6	505	109	90	1854
Vehicle-lantern holder	J. Nash	645,895	Mar. 20	2356	515	90	2250
Vehicle leveling attachment	A. Bink	644,843	Mar. 6	534	115 / 116	90	1900
Vehicle. Motor	E. Fahl	644,858	Mar. 6	554	120	90	1865
Vehicle. Motor	H. A. Frantz	644,590	Mar. 6	53	11, 12	90	1765
Vehicle. Motor	C. O. Heggem	644,598	Mar. 6	69	15, 16	90	1768
Vehicle. Motor	C. W. Hunt	641,514	Jan. 16	2020	597 / 598	90	545
Vehicle. Motor	A. J. Martin	641,313	Jan. 16	2346	510	90	471
Vehicle. Motor	E. A. Sperry	643,258	Feb. 13	1286	291	90	1227

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle. Motor	H. Stommel	645,497	Mar. 13	1794	377 / 378	90	2112
Vehicle. Motor	G. E. Whitney	642,771	Feb. 6	355	87	90	1086
Vehicle. Motor	G. E. Whitney and H. Howard	642,948	Feb. 6	662	151	90	1094
Vehicle. Motor	W. O. Worth	645,376	Mar. 13	1512	332	90	2071
Vehicle-motor	A. Olson	643,525	Feb. 13	1713	408	90	1321
Vehicle. Motor-driven	J. E. Thornton and J. P. Lea	644,950	Mar. 6	718	155 / 156	90	1898
Vehicle propelling mechanism	C. Young	642,410	Jan. 30	4285	967 / 968	90	896
Vehicle propulsion	W. H. Underwood	644,113	Feb. 27	2829	670	90	1589
Vehicle-reach coupling	D. J. Marston	645,580	Mar. 13	1782	391	90	2128
Vehicle running-gear	R. S. Birch	643,625	Feb. 20	1943	456	90	1381
Vehicle running-gear	E. Engelmann	640,641	Jan. 2	916	207	90	176
Vehicle running-gear	A. P. Robinson	646,193	Mar. 27	3054	674	90	2404
Vehicle running-gear	F. D. Williams	643,705	Feb. 20	2091	491	90	1409
Vehicle running-gear	J. Oblenis	640,219	Jan. 2	192	24	90	26
Vehicle sand-band	J. Burns	645,898	Mar. 20	2451	541	90	2270
Vehicle-seat	D. W. Smith	645,537	Mar. 20	2373	520	90	2254
Vehicle-seat	J. A. Coss and F. G. Parshall	640,877	Jan. 9	1389	312	90	991
Vehicle-seat fastener	N. Marsh	645,176	Mar. 13	1158	250	90	2000
Vehicle-seat. Supplemental	H. C. Martell	641,786	Jan. 23	3097	704	90	645
Vehicle-spring	H. J. Ashley	646,202	Mar. 27	3077	679	90	2400
Vehicle spring-draft device	J. L. Ancelle	645,699	Mar. 20	2108	463	90	2208
Vehicle spring-wheel	J. L. Ancelle	645,700	Mar. 20	2111	463	90	2208
Vehicle spring-wheel	J. L. Ancelle	645,701	Mar. 20	2113	463	90	2208
Vehicle spring-wheel	H. E. Warren	640,243	Jan. 2	167	34	90	35
Vehicle stay rod and chain	E. A. O. Erikson	642,215	Jan. 30	3905	886	90	819
Vehicle-step	L. Watkins	642,394	Jan. 30	4250	960	90	889
Vehicle tracking connection	J. V. Bush	643,630	Feb. 20	1953	458	90	1388
Vehicle traction-wheel	I. W. Gregg	640,652	Jan. 2	987	211	90	182
Vehicle-wheel	H. P. Handy, Sr	642,980	Feb. 6	722	166	90	1107
Vehicle-wheel	J. H. Morris	643,724	Feb. 20	2130	499	90	1416
Vehicle-wheel	A. Palm	646,109	Mar. 27	2879	638	90	2370
Vehicle-wheel	W. F. Thomas	641,736	Jan. 23	3011	687	90	629
Vehicle-wheel	L. H. Zeigler	643,440	Feb. 13	1556	366	90	1299
Vehicle wheel and bearing	W. L. Martin	644,086	Feb. 27	2782	660	90	1559
Vehicle-wheel brake	G. N. Windle	645,158	Mar. 13	1117	239 / 240	90	1968
Vehicle wheel. Road	J. Liversidge	646,028	Mar. 27	2735	607	90	2342
Vehicles. System of electric circuits and brakes for	E. A. Sperry	641,412	Jan. 16	2415	552	90	504
Vehicles. Transmission-gear for self-propelled	W. Baines	640,522	Jan. 2	693	149 / 150	90	136
Velocipede	J. S. Copeland	642,299	Jan. 30	4047	922	90	848
Velocipede	W. Harmon	643,647	Feb. 20	1982	466 / 467 / 468	90	1389
Velocipede	J. M. Myers	641,583	Jan. 16	2658	606	90	552
Velocipede	T. Tolson	645,144	Mar. 13	1097	234 / 235	90	1989
Velocipede	T. Tolson	645,579	Mar. 20	1885	415	90	2157
Velocipede crank-hanger	G. L. Thompson	641,907	Jan. 23	3319	754	90	666
Velocipede crank-shaft	E. G. Latta	640,573	Jan. 2	780	172	90	158
Velocipede front-fork crown	J. B. Halifax	641,656	Jan. 23	3240	735	90	672
Velocipede handle-bar	A. G. T. Öfverström	642,357	Jan. 30	4179	945	90	876
Velocipede handle-bar	C. J. Shields	645,977	Mar. 27	2630	582	90	2332
Velocipede or like vehicle	W. H. Miller	644,718	Mar. 6	290	63	90	1811
Velocipede pedal-crank driving-gear	J. R. Park	642,874	Feb. 6	537	125	90	1071
Velocipede pedal driving-gear	C. I. Faulkner	645,947	Mar. 27	2568	568 / 569	90	2308
Velocipede. Railway	J. G. Matthews	645,115	Mar. 13	1089	231	90	1976
Velocipede seat-support	N. T. Slee	642,854	Feb. 6	497	117	90	1088
Velocipede steering-head	G. L. Thompson	640,834	Jan. 9	1313	294	90	276
Vending and indicating apparatus. Automatic	W. Northorpe	644,720	Mar. 6	292	64	90	1812
Vending-machine	G. F. Brown	646,260	Mar. 27	3193	704 / 705	90	2435
Vending-machine	G. I. Kelsey	641,971	Jan. 23	3425	778	90	709
Vending-machine. Coin-operated	J. T. Sibley	640,963	Jan. 9	1564	348 / 349	90	392
Veneer coiling and nailing machine	G. A. Gage	645,999	Mar. 27	2674	598	90	2330
Veneer-machine	W. H. Williams	645,881	Mar. 20	2440	537	90	2266
Ventilator: *See* Car-ventilator. Roof-ventilator. Refrigerator-car ventilator.							
Ventilator	R. H. Schumacher	644,335	Feb. 27	3278	761 / 762	90	1658
Vessel closure or stopper	A. Stone	641,806	Jan. 23	3132	711	90	653
Vessel hatch-fastener	B. F. Bowman	642,291	Jan. 30	4085	919	90	845
Vessel-hulls. Machine for cleaning	T. W. G. Cook and L. H. Stern	646,357	Mar. 27	3375	755	90	2466
Vessel-indicator	A. L. McCormick	646,307	Mar. 27	3271	730	90	2446
Vessel. Navigable	H. L. J. C. Turc	646,331	Mar. 27	3327	742	90	2457
Vessel protective lining	G. Lanzendoerfer	641,304	Jan. 16	2232	505	90	468
Vessel. Sailing	G. H. Perkins	641,321	Jan. 16	2263	512 / 513	90	474
Vessels. Apparatus for raising sunken	J. Grant	643,766	Feb. 20	2208	500	90	1430
Vessels. Auxiliary motor for	R. T. Power	646,874	Mar. 27	3448	768	90	2486
Vessels. Instrument for recording course and speed of	A. de Laski	641,396	Jan. 16	2384	545 / 546	90	498
Vine-support	E. A. Henry	641,859	Jan. 23	3249	736	90	672
Violin or other stringed instrument	J. M. A. Stroh	644,695	Mar. 6	254	56, 57	90	1804
Viscose. Manufacture of	E. Thomas, J. Bonavita, and M. Olivier.	646,044	Mar. 27	2767	.....	90	2348
Viscous substances. Machine for dispensing	W. W. Carter	642,092	Jan. 30	3631	832	90	762

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vise, Bench	W. H. Light	641,457	Jan. 16	2508	573	90	522
Voltaic cell	A. Pfaunenberg	644,536	Feb. 27	3685	843	90	1721
Voting-machine	C. Brown	642,578	Feb. 6	14	5	90	908
Voting-machine	A. E. Singer	644,103	Feb. 27	2810	666 667	90	1565
Vulcanizable plates. Lining	J. A. Daly	640,179	Jan. 2	35	8	90	9
Wagon attachment	H. M. Kelly	645,473	Mar. 13	1668	368	90	2104
Wagon-bodies, &c. Apparatus for lifting	W. F. Stout	645,638	Mar. 20	1991	437	90	2178
Wagon-body hoist	T. H. Tabor	642,856	Feb. 6	499	117	90	1063
Wagon-box	T. Forstner	645,955	Mar. 13	1998	261	90	2027
Wagon-box	R. A. Smith	643,336	Feb. 13	1371	321	90	1254
Wagon-box. Dumping	G. W. Merrill	641,315	Jan. 16	2253	511	90	473
Wagon-box holder	W. A. Crotts	643,475	Feb. 13	1639	384	90	1305
Wagon-brake	B. I. Davis	641,277	Jan. 16	2186	492	90	459
Wagon-brake	J. Dobler	642,304	Jan. 30	4057	984	90	850
Wagon-brake	G. Newton	640,981	Jan. 9	1501	336	90	312
Wagon-brake	S. T. Williams	643,437	Feb. 13	1551	366	90	1288
Wagon-brake	W. I. Wood and W. M. Barnes	643,084	Feb. 6	800	186	90	1121
Wagon-brake. Automatic	R. G. Wright	643,025	Feb. 6	802	186	90	1122
Wagon-cover hook	L. Dodge	642,692	Feb. 6	212	58, 58	90	1008
Wagon. Dumping	J. S. Shrawder	642,535	Feb. 6	119	99	90	989
Wagon. Dumping	D. S. Watson	642,395	Jan. 30	4251	960	90	899
Wagon. Dumping	U. Diets	641,679	Jan. 23	2903	661	90	611
Wagon-jack	O. Long	645,529	Mar. 13	1781	391	90	2123
Wagon-jack. Self-locking	S. M. Harris	641,771	Jan. 23	3074	690	90	641
Wagon running-gear	B. S. Morden	645,509	Mar. 13	1743	368	90	2116
Wagon. Speed	R. M. Thompson	641,847	Jan. 16	2308	524	90	483
Wagon-standard	L. D. Norris	645,568	Mar. 20	1847	409	90	2140
Wagon. Weighing	A. S. Eveleth	643,113	Feb. 13	982	220	90	1176
Waist. Apparel	J. Thom	642,732	Feb. 6	804	79	90	1027
Waistband	L. Zazeela	645,775	Mar. 20	2378	494	90	2234
Waistband. Apparel	G. L. Blackman	645,847	Mar. 20	2391	525	90	2258
Waist-holder and skirt-supporter. Combined	G. Russell	641,237	Jan. 9	2121	477	90	422
Wall-covering. Metallic	E. Ketchum	644,138	Feb. 27	2873	680	90	1578
Wall or partition. Building	J. D. Johnston	644,176	Feb. 27	2950	697	90	1598
Wall-tie	T. and L. Küpper	640,473	Jan. 2	608	129	90	119
Wall, wall-plate, or slab	G. Russell	640,568	Jan. 2	819	181	90	160
Walls and ceilings of buildings, &c. Metallic plate for	A. Bremer	640,176	Jan. 2	31	7	90	8
Walls and roofs of cast mortar. Producing hollow	J. McNamee	645,395	Mar. 13	1410	309	90	2050
Walls. Apparatus for making plastic or concrete	H. W. Bell	640,526	Jan. 2	700	152	90	138
Walls. Construction of	C. Guy	640,653	Jan. 2	998	211	90	182
Walls. Forming concrete	L. M. Adams	643,787	Feb. 20	2147	508	90	1419
Wardrobe	C. F. Warren	643,212	Feb. 13	1151	269 270	90	1212
Warming or cooling utensil. Combined	L. Cheney	640,534	Jan. 2	717	156	90	141
Warming-pad	W. G. Andriessen	643,390	Feb. 13	1468	344	90	1271
Warp or weft threads. Apparatus for scouring or equalizing	G. O. Draper	643,951	Feb. 20	2544	599	90	1498
Warp-stop-motion apparatus	C. Slingland and G. F. Kuett	645,376	Mar. 13	1509	331	90	2070
Warping-machine creel	A. C. Wakeman	641,661	Jan. 16	2874	654	90	595
Washbench and ironing-board. Combined	A. W. Bishoff	644,760	Mar. 6	363	79	90	1086
Washboard	R. E. Leve	645,564	Mar. 20	1841	406	90	2148
Washboard	J. T. Sargent and P. J. Joecken	643,733	Feb. 20	2142	502	90	1418
Washboard	C. C. Jordan	643,378	Feb. 13	1435	335	90	1266
Washboiler	W. S. Hamm and W. Wishart	641,769	Jan. 23	3073	698	90	641
Washstand							
Washer: *See* Bottle-washer. Dish-washer. Nut-lock washer. Ore-washer. Steam-washer. Window-washer.							
Washing apparatus	L. Engebretsen	642,213	Jan. 30	3901	868	90	818
Washing-machine	W. J. Alexander	645,046	Mar. 6	892	198	90	1934
Washing-machine	L. Allard	640,167	Jan. 2	1	1	90	3
Washing-machine	D. Biggs	644,791	Mar. 6	488	94	90	1841
Washing-machine	E. S. Cook	644,498	Feb. 27	3537	822 823	90	1705
Washing-machine	C. A. Dodge and W. J. Zuill	645,464	Mar. 13	1665	364	90	2101
Washing-machine	W. H. Hunter	643,796	Feb. 20	2247	530	90	1438
Washing-machine	J. Kissel	643,608	Feb. 13	1959	428	90	1350
Washing-machine	U. G. Lawrence	641,455	Jan. 16	2505	572	90	521
Washing-machine	O. and C. A. Linebarger	641,711	Jan. 23	2958	673	90	630
Washing-machine	H. G. Schumacher	643,696	Feb. 20	2041	482	90	1400
Washing-machine	F. H. Seashols	644,874	Mar. 6	591	127	90	1872
Washing-machine	A. J. Smith	645,308	Mar. 13	1375	300	90	2043
Washing-machine	H. R. Smith	641,556	Jan. 16	2698	614	90	550
Washing-machine	J. W. Thomas	640,975	Jan. 9	1601	355	90	329
Washing-machine	C. W. Thompson	645,841	Mar. 20	2379	521	90	2255
Washing-machine	J. S. Wilson	645,157	Mar. 13	1116	239	90	1998
Washing-machine	M. W. Forster	644,855	Mar. 6	556	121	90	1865
Waste products. Device for removing	C. Bassett	640,613	Jan. 2	855	190	90	166
Watchmaker's tool	E. Avila	645,657	Mar. 20	2037	448	90	2187
Watch-regulator	E. Torres	641,478	Jan. 16	2558	564	90	530
Watch. Repeating	J. Saveland	644,697	Mar. 6	941	58, 58	90	1802
Watch safety device	W. E. Porter	641,898	Jan. 23	2889	747	90	662
Watch. Stem-winding	W. E. Porter	641,899	Jan. 23	2891	747	90	662
Watch. Stem-winding	R. Voegelin	644,361	Feb. 27	3347	777	90	1667
Watch. Stem-winding	W. Ruthven	641,336	Jan. 9	2122	478	90	432
Water-closet-disinfecting apparatus	M. J. Adams	644,488	Feb. 27	3523	819	90	1702
Water-closet or urinal	M. Laux and A. L. Vaughan	641,580	Jan. 16	2634	600 601	90	547
Water-closet system	F. Wangelin	644,882	Mar. 6	606	130	90	1875
Water-closets, &c. Flushing apparatus for	J. Challender	645,203	Mar. 13	1207	268	90	2010
Water-closets or urinals. Silent flushing apparatus for	S. W. Lewis	643,604	Feb. 13	1860	439	90	1359
Water-closets, urinals, &c. Receptacle for							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Water cooler and filter	F. G. Kammerer	644,325	Feb. 27	3253	758 759	90	1649
Water cooler. Locomotive drinking	C. A. Barrett	642,194	Jan. 30	3857	876	90	810
Water-crane	G. G. Guy and A. J. Anderson	643,126	Feb. 13	1008	234	90	1182
Water-distributing system	A. D. Strong	645,876	Mar. 20	2434	535	90	2266
Water-gage	R. Clarke	640,442	Jan. 2	555	117	90	109
Water-gage	J. A. and S. Fletcher	646,022	Mar. 27	2727	604	90	2340
Water-gage	A. L. Schram	640,228	Jan. 2	328	68	90	66
Water-gage	J. E. Bancroft	643,190	Feb. 13	957	224	90	1172
Water-heater	A. W. Dowler	644,065	Feb. 27	2744	650	90	1551
Water-heater	C. H. Harkins	643,055	Feb. 6	859	200	90	1132
Water-heater	C. W. Reineke and W. A. Fritsch	640,415	Jan. 2	509	105	90	100
Water-heater	W. G. Taylor	641,656	Jan. 16	2965	653	90	594
Water-heater and burner therefor	C. S. Kinney	641,597	Jan. 16	2763	629	90	572
Water heater and condenser	W. G. Taylor	641,657	Jan. 16	2966	653	90	594
Water-heater attachment	A. W. Lawton	641,306	Jan. 16	2295	506	90	469
Water-heater. Electric	F. S. Henning	644,080	Feb. 20	2689	637	90	1525
Water-heater. Sectional	A. Griffith	642,443	Jan. 30	4340	982	90	906
Water-heating apparatus	M. M. Brophy	641,898	Jan. 23	3174	720	90	660
Water in bath-rooms, lavatories, &c. Apparatus for supplying hot or cold	A. H. Stokes	643,695	Feb. 20	2065	487	90	1405
Water-measuring gate	J. Thomson	642,766	Feb. 6	349	85	90	1035
Water-meter	E. Zumkeller	644,487	Feb. 27	3522	818	90	1702
Water-meter	J. Thomson	642,765	Feb. 6	347	85	90	1034
Water-meters. Compound gear-train for	M. H. Bash and J. C. Martin	642,067	Jan. 30	3601	825 826	90	757
Water-motor	H. A. Wise	640,982	Jan. 9	1617	357	90	338
Water-motor	D. P. Sims	644,883	Mar. 6	515	111	90	1856
Water-motor. Impact	S. Lipson	642,344	Jan. 30	4151	988	90	869
Waterproof garments. Machine for cementing together parts of	W. H. Springer and C. J. Johnson	645,496	Mar. 13	1723	377	90	2112
Waterproofing compo-board. Means for	W. C. Kipling and E. Arnold	644,250	Feb. 27	3087	------	90	1618
Waterproofing composition	W. A. Hall. (Reissue)	11,811	Mar. 6	906	------	90	1987
Waterproofing compound	O. H. Jewell	644,137	Feb. 27	2871	660	90	1578
Water. Purifying	J. MacDougall	646,387	Mar. 27	3466	771	90	2489
Water. Purifying	A. Schantz	645,190	Mar. 13	1178	256	90	2004
Water. Purifying	C. L. Kennicott	646,106	Mar. 27	2877	637	90	2369
Water-purifying apparatus	L. H. Woolley	641,251	Jan. 9	2139	482	90	436
Water-raising apparatus	J. H. McDonald	641,584	Jan. 16	2659	606 607	90	552
Water sterilizing and condensing apparatus	F. E. Kinsman	644,711	Mar. 6	273	61	90	1808
Water-supply system. Pneumatic	D E. Forker	645,254	Mar. 13	1291	281	90	2027
Water-tank mold	H. H. Gorter	645,470	Mar. 13	1672	365 366	90	2102
Water-tower. Portable	G. M. Davis	640,879	Jan. 9	1391	312	90	292
Water-tube boiler	T. French	641,095	Jan. 9	1826	406	90	373
Water-tube boiler	C. M. Hargis	640,555	Jan. 2	941	212	90	182
Water-tube boiler	J. Mazières	644,362	Feb. 27	3320	770 771	90	1661
Water-wheel	W. Ronkainen	644,947	Mar. 6	714	154	90	1897
Water-wheel	S. J. Tutthill	645,221	Mar. 13	1237	268	90	2014
Water-wheel	C. H. J. Wiese	643,176	Feb. 13	1095	254	90	1200
Water-wheel. Turbine	J. T. Fanning	642,097	Jan. 30	3655	837	90	788
Watering fountain. Poultry	A. H. Chapman	645,680	Mar. 20	2073	455	90	2194
Watering-trough	J. M. Bess	642,952	Feb. 6	676	155	90	1097
Watering-trough	C. F. Mitzimberg	643,671	Feb. 20	2023	478	90	1396
Watering-trough	G. H. Mott	645,532	Mar. 13	1786	392	90	2124
Watering-trough	S. S. Templeton	643,427	Feb. 13	1536	361	90	1284
Watering-troughs. Automatic valve for	K. O. F. Schrottke	642,164	Jan. 30	3799	866	90	799
Wattmeter. Alternating-current	C. F. A. Röell	641,233	Jan. 9	2114	476	90	431
Wave-motor	C. F. A. Röell	643,608	Feb. 13	1866	440	90	1351
Wave-motor	S. P. Swearingen	643,557	Feb. 13	1772	418	90	1331
Wave-motor	J. C. Walker	646,199	Mar. 27	3066	677 678	90	2407
Wave-power motor	W. Newell	644,809	Mar. 6	580	124 125	90	1870
Wave-power water-moving apparatus	J. Rogowski. (Reissue)	11,807	Jan. 30	4546	1028	90	946
Waxed or coated strings. Machine for manufacturing	G. W. Coddington	643,041	Feb. 6	822	191	90	1126
Weather-strip	J. L. Knight	640,472	Jan. 2	600	128	90	118
Weather-strip	W. B. Mahan	640,296	Jan. 2	278	57	90	56
Weather-strip. Door	A. G. Ogan	641,189	Jan. 9	1911	423	90	390
Web and sheet feeding and printing machine	F. Meisel	641,216	Jan. 9	2070	465 466	90	422
Web-drying machine	W. B. Barlow	640,170	Jan. 2	7	2, 3	90	3
Web-feeding mechanism	W. V. Miller and E. B. Dunn	641,717	Jan. 23	2959	675	90	621
Web shifter and regulator	F. Lyon	642,141	Jan. 30	3753	857 858	90	789
Weed-turner	B. Ross	642,531	Jan. 30	4472	1015	90	932
Weeding implement	J. H. Schumacher	643,165	Feb. 13	1070	248	90	1195
Weevil, &c. Machine for destroying cotton-boll	F. Strobach	640,829	Jan. 9	1303	292	90	274
Weighing-machine	F. F. Meyer	645,625	Mar. 20	1977	435	90	2175
Weighing-machine. Automatic	W. F. Braun	640,625	Jan. 2	879	197 198 199	90	171
Weighing-machine. Automatic	W. F. Braun	640,626	Jan. 2	884	200 201 202	90	172
Welding. Electric	R. P. Brown and F. E. Morse	645,066	Mar. 13	934	200	90	1957
Welding-machine	A. K. Petersen	642,482	Jan. 30	4400	998	90	919
Well apparatus. Oil	J. Tichborne	644,341	Feb. 27	3284	764	90	1655
Wells. Device or tool for extracting obstructions from deep	C. A. Penticoff	644,633	Mar. 6	130	29	90	1779
Welt	N. H. Merriam	641,877	Jan. 23	2971	742	90	678
Welt-guide	A. Pittroff	644,634	Mar. 6	131	29	90	1779

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wheel: *See* Autotruck-wheel. Bicycle-wheel. Car-wheel. Crank-wheel. Current-wheel. Electric-motor wheel. Fifth-wheel. Grinding or polishing wheel. Impact-wheel. Paddle-wheel. Polishing-wheel. Propeller-wheel. Steamboat-wheel. Traction-wheel. Trolley-wheel. Vehicle-wheel. Vehicle spring-wheel. Vehicle traction-wheel. Water-wheel.							
Wheel	D. Baker	644,049	Feb. 27	2721	644	90	1546
Wheel	H. Crawford and J. M. Collins	644,968	Mar. 6	750	102	90	1905
Wheel	G. H. Crosby	646,165	Mar. 27	2998	661	90	2393
Wheel	W. K. Hoagland	640,198	Jan. 2	72	15	90	16
Wheel	A. M. Allen	641,427	Jan. 16	2441	558 / 559	90	509
Wheel and axle	F. Philips	641,726	Jan. 23	2998	660 / 661	90	696
Wheel construction	E. A. Crossley	641,085	Jan. 9	1814	408	90	870
Wheel for bicycles or other vehicles	C. Miller	644,622	Mar. 6	113	26	90	1776
Wheel rim and tire. Vehicle-	L. Buis	642,293	Jan. 30	4087	920	90	846
Wheel-rim-tightening device	E. Einfeldt	646,269	Mar. 27	3908	712 / 713 / 714	90	2434
Wheels. Machine for making metal	E. Einfeldt	646,270	Mar. 27	3914	714	90	2435
Wheels. Making metal	E. F. Braucher	642,422	Jan. 30	4308	971	90	900
Wheelbarrow	P. A. McCray	642,249	Jan. 30	3955	902	90	829
Wheelwright-machine	F. W. Key	640,664	Jan. 2	956	215	90	185
Whiffletree-hook	W. Webber	643,020	Feb. 6	794	185	90	1130
Whiffletree-hook	D. C. Hull	643,294	Feb. 13	1299	306	90	1299
Whip-stock	W. E. Watkins	645,697	Mar. 20	2104	462	90	2201
Whist apparatus. Duplicate-	F. A. Baldwin	642,664	Feb. 6	176	44	90	1000
Whist. Card-case for duplicate	A. Leech and G. J. Couchois	641,025	Jan. 9	1703	377	90	848
Whistle. Self-playing	C. H. Roberts	644,870	Mar. 6	581	125	90	1870
Winch. Portable	R. E. Hardaway	640,901	Jan. 9	1436	322	90	800
Wind and water motor	D. G. Baker	642,281	Jan. 30	4019	915	90	842
Winder. Thread-	D. G. Baker	643,583	Feb. 13	1816	429	90	1340
Winder. Thread-	J. P. Cronin	640,450	Jan. 2	508	120	90	112
Winding-machine attachment	R. Morrison	644,866	Mar. 6	574	124	90	1899
Winding machine. Thread-	H. M. Girdwood	646,023	Mar. 27	2728	604 / 605	90	2340
Winding-machine yarn-clearer	J. D. Whyte	641,420	Jan. 16	2430	556	90	507
Winding machinery. Yarn-	J. O'Toole	641,143	Jan. 9	1919	425	90	892
Windmill	C. T. Sears and C. F. Currey	643,166	Feb. 13	1072	248	90	1196
Windmill	A. T. Scott	645,019	Mar. 6	845	184 / 185	90	1924
Windmill governor mechanism	H. Tenham	644,306	Feb. 27	3205	750	90	1641
Windmill-lubricator	I. Sedgwick	644,102	Feb. 27	2809	665 / 666	90	1565
Windmill or engine	F. C. Thompson	642,986	Feb. 6	652	149	90	1092
Windmill power-transmitter	R. G. Marcy	644,526	Feb. 27	3904	840	90	1717
Windmill-shaft roller-bearing	H. Woodmanse and J. Aue	641,250	Jan. 9	2139	482	90	436
Windmill-tower	S. F. Albright	642,979	Jan. 30	4017	914	90	842
Window	M. Häberle	645,257	Mar. 13	1468	324	90	2062
Window	E. Schmidt	640,288	Jan. 2	144	30	90	30
Window	J. W. Gibson, Jr., and C. R. Straughn	645,745	Mar. 20	2215	480	90	2222
Window-bracket	H. M. Johnson	640,567	Jan. 2	765	168	90	149
Window-bracket	A. T. B. Markham	645,113	Mar. 13	1081	220	90	1976
Window-fastener	J. H. Pease	645,489	Mar. 13	1713	375	90	2110
Window fastener. Storm-	H. C. Smith	644,150	Feb. 27	2892	684 / 685	90	1582
Window-frame	A. Raaner	641,087	Jan. 9	1721	362	90	852
Window frame and sash	J. S. Reynolds	642,309	Jan. 30	4204	949	90	861
Window frame and sash	A. H. Wood and J. D. Tunnell	643,022	Feb. 6	799	186	90	1121
Window frame and sash	J. W. Coulson	643,347	Feb. 13	1887	324	90	1257
Window or transom corner-post and bar	H. K. Whitner	645,153	Mar. 13	1110	237 / 238	90	1991
Window. Reversible	H. E. Gallaher	646,190	Mar. 27	2903	643	90	2375
Window-screen	T. J. P. Maus	642,471	Jan. 30	4395	995	90	916
Window-screen	R. M. Spencer	641,243	Jan. 9	2127	479	90	434
Window-screen	J. L. Bucher and F. C. Mueller	642,077	Jan. 30	3939	889	90	761
Window-screen. Automatic	M. C. Read	641,334	Jan. 16	2270	514	90	475
Window-shield	G. H. Parker	643,750	Feb. 20	2178	510	90	1424
Window-swinging device	A. Waymire	644,116	Feb. 27	2883	671	90	1570
Window washer or mop	W. H. Hommel	645,304	Mar. 13	1540	337 / 338	90	2077
Wine-press	M. D. Kilmer and M. A. Possons	645,087	Mar. 6	879	190	90	1931
Wire-clamp	C. J. Lane	640,670	Jan. 2	967	218	90	188
Wire-coiling die	L. C. Krummel	642,339	Jan. 30	4131	935	90	865
Wire-coiling machine	J. Lauer	643,904	Feb. 20	2458	578 / 579	90	1479
Wire-coiling machine	S. Turner	643,994	Feb. 20	2620	618	90	1512
Wire-coiling-machine stop mechanism	C. C. Baldwin	643,584	Feb. 13	1818	429 / 430	90	1340
Wire-drawing machine	J. W. Sheppard	646,131	Mar. 27	2989	649	90	2381
Wire fabric	G. L. Hoxie	641,699	Jan. 23	2980	668 / 669	90	617
Wire fabrics. Machine for forming	H. Tetlow	642,173	Jan. 30	3814	869	90	802
Wire-feed	J. W. L. Jaques	644,921	Mar. 6	669	145	90	1898
Wire-hanger	A. Gartner	641,853	Jan. 23	2234	784	90	671
Wire-joint	F. E. Bodman	640,866	Jan. 9	1567	307	90	298
Wire. Manufacture of seamless	H. C. Arnold	641,682	Jan. 16	2287	542	90	595
Wire-splicing tool	C. C. Carter	642,206	Jan. 30	4042	921	90	847
Wire-stay-bending machine	J. N. Andrew	644,727	Mar. 6	301	66	90	1813
Wire-stretcher	R. C. Bolon	642,074	Jan. 30	3615	828	90	760
Wire-stretcher	Z. A. Curtis	640,589	Jan. 2	723	158	90	142
Wire-stretcher	J. H. Fellows	645,619	Mar. 20	1966	438	90	2173
Wire-stretcher	W. E. Kimmel	642,402	Jan. 30	4370	991	90	918
Wire-stretcher	J. L. Olson	641,888	Jan. 23	2261	745	90	680
Wire-stretcher	H. F. Ruble and J. W. Guill	642,359	Jan. 30	3974	905 / 906	90	883
Wire-stretcher	C. H. Snively	643,241	Feb. 13	1205	262	90	1221
Wire-stretcher	H. W. Wagner	642,736	Feb. 6	309	73	90	1028
Wire-stretcher	P. Frantz	642,101	Jan. 30	3663	808	90	770
Wire-tightener	J. Wrigley	644,884	Mar. 6	609	131	90	1876
Wires, wire ropes, cables, &c., through conduits. Apparatus for forcing	E. E. Swarm	644,477	Feb. 27	3506	813	90	1699
Wireworking. Combination-tool for	B. B. Feltus	645,076	Mar. 13	951	208	90	1960
Wireworking-tool	P. Wedekind	645,770	Mar. 20	2262	491	90	2232
Wood carvings. Making pressed	G. F. Lebioda	644,252	Feb. 27	3069	727	90	1618
Wood-impregnating apparatus	C. J. Doyle	645,798	Mar. 20	2301	502	90	2239
Wood-preserving apparatus	A. C. Cload	640,272	Jan. 2	238	48	90	47
Woodworking-machine	L. Platt	645,329	Mar. 13	1422	312 / 313	90	2053
Woodworking-machine	J. Smith and F. M. Fox	641,159	Jan. 9	1954	433 / 434	90	898
Woodworking-machine feeding device	J. R. Thomas	640,883	Jan. 9	1308	293 / 294	90	275
Work-bench	W. Vanderman	644,890	Mar. 6	601	130	90	1874
Worm-wheel-cutting apparatus	R. H. Pfauter	640,728	Jan. 2	1085	247 / 248	90	210
Wort from malt-flour. Producing	C. Schmitz	645,885	Mar. 20	2371	520	90	2253
Wort, hop-beer, washing filter-pulp, &c. Apparatus for producing	E. Kersten	642,460	Jan. 30	4367	990	90	912
Woven fabric	F. M. Clark	642,084	Jan. 30	3684	833	90	764
Woven fabric	L. Fish	642,971	Feb. 6	709	162	90	1104
Woven fabric	C. W. Gilbert and C. C. Shepard	641,007	Jan. 9	1674	371	90	843
Woven fabric	M. R. Hartz	645,318	Mar. 13	1397	307	90	2047
Woven fabric	M. Koeck	646,123	Mar. 27	2910	644	90	2376
Woven fabric	C. Wood	641,352	Jan. 16	2314	526 / 527	90	484
Woven fabrics. Machine for raising and dressing	J. Gearing	646,000	Mar. 27	2977	594	90	2331
Wrapper or envelop	A. Forbes and F. Grover	646,208	Mar. 27	3069	680 / 681 / 682	90	2412
Wrapping-machine	H. Rose	645,016	Mar. 6	887	180 / 181 / 182 / 183	90	1922
Wrapping-machine	T. M. Tripp, P. I. and H. D. Jacobson.	641,908	Jan. 23	2321	754 / 755 / 756 / 447	90	689
Wrapping machine. Package-	R. A. Berger	643,621	Feb. 20	1892	448 / 449 / 449	90	1372
Wrapping machine. Package-	R. A. Berger	643,622	Feb. 20	1912	450 / 451 / 452 / 452	90	1377
Wrapping machine. Package-	R. A. Berger	643,623	Feb. 20	1931	453 / 454	90	1379
Wrench: *See* Cylinder-wrench. Hub-wrench. Monkey-wrench. Nut-wrench. Pipe-wrench. Ratchet-wrench. Scythe-wrench. Sprocket-wheel wrench. Traction-wrench.							
Wrench	W. O. Boykin	642,577	Feb. 6	13	4	90	967
Wrench	J. L. Braun	640,590	Jan. 2	710	154	90	139
Wrench	P. R. Coleman	646,363	Mar. 27	3198	706	90	2432
Wrench	A. J. Cooper	643,632	Feb. 20	1955	459	90	1383
Wrench	C. C. English	645,074	Mar. 13	946	208	90	1959
Wrench	J. J. Fahrney	640,643	Jan. 2	919	208	90	178
Wrench	S. S. Grove	641,641	Jan. 16	2340	546	90	598
Wrench	J. Hallner	643,368	Feb. 13	1255	294	90	1231
Wrench	H. B. Hartford	645,665	Mar. 20	2049	450	90	2199
Wrench	W. T. Hatten	641,451	Jan. 16	2494	571	90	518
Wrench	W. Hinton	641,992	Jan. 16	2211	498	90	464
Wrench	H. Hukriede	643,061	Feb. 6	868	202	90	1134
Wrench	T. Jensen	644,825	Mar. 6	505	108	90	1854
Wrench	A. E. Karsner	642,139	Jan. 30	3796	852	90	783
Wrench	J. H. and C. C. King	643,140	Feb. 13	1081	240	90	1188
Wrench	H. E. Koch	640,208	Jan. 2	293	61	90	59
Wrench	F. Kostlan	641,782	Jan. 23	3092	708	90	644
Wrench	M. H. McCaulon	644,089	Feb. 27	2789	661	90	1561
Wrench	G. McKercher	643,523	Feb. 13	1710	402	90	1330
Wrench	M. D. Miller	646,077	Mar. 27	2890	625	90	2358
Wrench	J. A. Montgomery	642,473	Jan. 30	4388	995	90	917
Wrench	G. Redford and E. Campbell	642,155	Jan. 30	3785	862	90	796
Wrench	J. Rumery	643,540	Feb. 13	1740	411	90	1336
Wrench	O. Stechhan	644,263	Feb. 27	3109	731	90	1633
Wrench	J. T. Vliet	646,086	Mar. 27	2936	630	90	2363
Wrench	C. E. Williams	640,610	Jan. 2	849	189	90	165
Wringer: *See* Clothes-wringer. Mop-wringer.	W. T. Bradley	640,441	Jan. 2	553	117	90	109
Wringer	T. Corwin	640,751	Jan. 9	1127	259	90	289
Wrist-pins. Device for truing	J. W. Follansbee	641,004	Jan. 9	1669	371	90	342
Writing and translating. Instrument for secret							

Alphabetical list of inventions, January to March, inclusive—Continued.

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Writing by hand. Apparatus for use in	B. F. Robinson	643,981	Feb. 20	2592	612 613	90	1508
Writing-machine	H. C. Hess	644,515	Feb. 27	3571	881 882	90	1711
Writing-machine	H. C. Hess	644,516	Feb. 27	3576	882	90	1712
X-ray apparatus. Induction-coil for	R. A. Fessenden	644,979	Mar. 6	757	164	90	1907
Yarn-controller	T. Ashworth	645,951	Mar. 27	2538	562	90	2308
Yarn-sizing apparatus, &c. Means for carrying off impure steam or fumes arising from	H. and J. H. Martin	642,469	Jan. 30	4384	994	90	916
Yoke and tongue connection. Neck-	A. L. Gruggen	644,433	Feb. 27	3421	794	90	1682
Yoke or poke. Animal	F. A. Worley	641,747	Jan. 23	3085	690	90	683
Zinc from zinc oxid. Electrolytic separation of	O. J. Steinhart, J. L. F. Vogel, and H. E. Fry.	642,983	Feb. 6	647	148	90	1091
Zinc. Process of and apparatus for making chlorid of	H. K. Hess	640,908	Jan. 9	1449	325	90	308
Zinc-reducing apparatus	C. W. Miles	645,179	Mar. 13	1162	251 252	90	2001

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising-frame	S. W. Perry	32,099	Jan. 9	90	441
Automobile-body	C. R. Harris	32,198	Feb. 6	90	1149
Automobile electric-motor case	C. A. Lindstrom	32,326	Mar. 6	90	1941
Axle-box	W. W. Flewelling	32,178	Jan. 30	90	952
Axle. Vehicle	H. P. Maxim and H. W. Alden	32,179	Jan. 9	90	438
Badge	J. C. Derby	32,078	Jan. 9	90	438
Badge	W. E. McCarty	32,378	Mar. 27	90	2405
Badge or similar article	J. T. Bailey	32,304	Mar. 6	90	1937
Badge or similar article	G. H. Duncan	32,270	Feb. 27	90	1732
Bandage	C. Bartholomew	32,102	Jan. 9	90	442
Banner	A. J. Bork	32,055	Jan. 2	90	216
Bar. Rolled	D. S. Bissell	32,294	Feb. 27	90	1737
Bath-tub	W. Scott	32,411	Mar. 27	90	2501
Bath yoke. Shower-	E. Melchers	32,235	Feb. 13	90	1358
Battery-plate	J. T. Storey	32,160	Jan. 30	90	949
Battery plate. Storage-	J. B. Conrad	32,366	Mar. 20	90	2287
Bed-end frame	E. J. Barcalo	32,410	Mar. 27	90	2501
Bedstead corner-bracket	S. L. Haines	32,168	Jan. 30	90	951
Bedstead top mount. Metal-	A. S. Putnam	32,293	Feb. 27	90	1736
Beet-thinner	J. Venhuizen	32,403	Mar. 27	90	2509
Bell clamp. Bicycle-	A. F. Rockwell	32,201	Feb. 6	90	1150
Belt	R. F. Barry	32,419	Mar. 27	90	2508
Belt-body	J. Livingston	32,351	Mar. 13	90	2130
Belt body portion	L. Sanders	32,350	Mar. 13	90	2130
Belts or similar articles. Body for	M. Koch	32,301	Feb. 27	90	1738
Bicycle fork-crown	H. J. Pierce	32,235	Feb. 13	90	1360
Bicycle-frame	J. Gottlieb	32,200	Feb. 6	90	1150
Bicycle-frame	C. O. E. Matthern	32,370	Mar. 20	90	2298
Bicycle-hub	A. P. Morrow	32,233	Feb. 13	90	1359
Bicycle-hub	A. P. Morrow	32,234	Feb. 13	90	1359
Bicycle puncture-preventer	W. H. McIntosh	32,255	Feb. 20	90	1532
Bolster-stake	W. H. Barten	32,296	Feb. 27	90	1737
Book guide-plate. Account-	J. L. Nisbet	32,159	Jan. 30	90	949
Bottle	J. Farnan	32,383	Feb. 27	90	1734
Bottle	A. M. Hamilton	32,103	Jan. 16	90	596
Bottle	W. E. Heath	32,118	Jan. 23	90	740
Bottle	K. Kiefer	32,307	Mar. 6	90	1938
Bottle	F. Schilling	32,185	Feb. 6	90	1147
Bottle	I. C. Souders	32,308	Mar. 6	90	1938
Bottle	H. Worden	32,186	Feb. 6	90	1147
Bottle-case	C. C. Dula	32,095	Jan. 9	90	439
Bottle or jar	C. C. Dula	32,104	Jan. 16	90	597
Bottle or jar	W. C. Estes	32,085	Jan. 9	90	439
Bottle stopper. Wooden sprinkling-	E. E. Pinkerton	32,375	Mar. 20	90	2289
Box-blank	G. A. Colgan	32,261	Feb. 20	90	1533
Box blank. Paper-	M. Michaelis	32,212	Feb. 13	90	1356
Box. Candy-	W. C. Estes	32,119	Jan. 23	90	740
Box. Turned wooden	W. C. Estes	32,120	Jan. 23	90	740
Box. Turned wooden	W. H. Saart	32,273	Feb. 27	90	1733
Bracelet	E. Cliff	32,336	Mar. 13	90	2128
Bracket. Wall-	J. N. Quinn	32,097	Jan. 9	90	441
Brick	L. M. Zell	32,145	Jan. 30	90	947
Brooch	F. J. Wallace	32,388	Mar. 27	90	2497
Broom-holder	P. R. Cumming	32,171	Jan. 30	90	951
Brushes and driers. Block for scrubbing-	H. Hillbom	32,309	Feb. 13	90	1355
Brushes, &c. Back for	H. Knoell	32,314	Mar. 6	90	1939
Buckle-frame	J. H. Horne	32,098	Jan. 9	90	441
Buffet	F. B. Granger	32,077	Jan. 2	90	213
Bustle and hip-form	J. W. Simmons	32,142	Jan. 23	90	745
Button	E. B. Howitt	32,247	Feb. 20	90	1531
Button. Collar-	W. Arthur	32,279	Feb. 27	90	1732
Button. Cuff or sleeve	T. R. Hyde, Jr.	32,248	Feb. 20	90	1531
Button-fastening	C. H. Allen	32,080	Jan. 9	90	438
Button link-bar. Cuff-	T. I. Smith	32,081	Jan. 9	90	438
Button shoe. Collar-	A. A. Wensinger	32,271	Feb. 27	90	1732
Button. Souvenir-	F. J. Dell	32,238	Feb. 13	90	1360
Cabinet. Kitchen-	W. M. Henson	32,115	Jan. 16	90	596
Cabinet. Kitchen-	W. H. Hurt and J. E. Craig	32,184	Jan. 30	90	953
Cabinet. Kitchen-	W. H. Spears	32,354	Mar. 20	90	2296
Cane or umbrella handle	H. Kerngood	32,251	Feb. 20	90	1531
Cap-blank for cap and stud fasteners	G. J. Capewell	32,369	Mar. 20	90	2298
Car body. Railway-	A. M. Rose	32,244	Feb. 13	90	1361
Carpet-border	A. M. Rose	32,302	Feb. 27	90	1738
Carpet-border	D. Walker	32,384	Mar. 27	90	2496
Carpet button. Stair-	R. J. and F. Wright	32,342	Mar. 13	90	2129
Carpet-stretching plate	C. P. Knapp	32,343	Mar. 13	90	2129
Carpet-tacking-device stretcher-plate	G. D. and D. G. Clark	32,234	Feb. 13	90	1358
Caster-frame	G. D. Clark	32,291	Feb. 27	90	1736
Caster-socket	F. S. Weaver	32,107	Jan. 16	90	597
Chain-link blank	S. O. Bigney	32,246	Feb. 20	90	1531
Chain. Vest fob-	J. H. Coffman	32,237	Feb. 13	90	1360
Chair back and seat	A. N. Rosenbloom	32,312	Mar. 6	90	1939
Chart. Tailor's drafting-					

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Chimney-cap member	J. Cooper	32,362	Mar. 20	90	2287
Clasp	B. Conlan	32,356	Mar. 20	90	2286
Clasp	A. B. Herald	32,357	Mar. 20	90	2286
Closet-seat cover	W. T. Baldwin	32,290	Feb. 27	90	1736
Clothes-pounder	J. D. Hussey	32,134	Jan. 23	90	744
Coat-pad	G. Goldman	32,417	Mar. 27	90	2502
Cock. Gas-	A. J. Wiegand	32,060	Jan. 2	90	219
Collar and necktie	W. O. Horn	32,241	Feb. 13	90	1361
Collar fasteners. Hinge-plate for top-	C. Wicht and W. E. Dippert	32,280	Feb. 27	90	1733
Collar fasteners. Loop-plate for top-	C. Wicht and W. E. Dippert	32,279	Feb. 27	90	1733
Compressor frame. Belted-	E. B. Gallaher	32,216	Feb. 13	90	1356
Core-supporting shell. Founder's	A. Selkirk	32,319	Mar. 6	90	1940
Corner-stone for burying-lots	E. C. Hodges	32,078	Jan. 2	90	215
Corset	I. W. Birdsey	32,418	Mar. 27	90	2502
Cotton-press head-plate	G. A. Lowry	32,195	Feb. 6	90	1148
Crank	H. See	32,196	Feb. 6	90	1149
Cultivator-tooth attachment	G. W. Ream	32,056	Jan. 2	90	214
Curtain	P. MacCaffray	32,100	Jan. 9	90	442
Curtain	P. MacCaffray	32,101	Jan. 9	90	442
Curtain-carrier block	W. L. Isbills	32,059	Jan. 2	90	213
Cuspidor-bowl	G. E. Johnson	32,287	Feb. 27	90	1735
Cuspidors, &c., Casing for	J. Kesselring	32,373	Mar. 20	90	2289
Cutting-blade	J. W. Fuller	32,191	Feb. 6	90	1148
Dental-instrument handle	W. E. Harper	32,154	Jan. 30	90	948
Display show-case	J. G. Hutchinson	32,114	Jan. 16	90	506
Display-stand	M. Strauss	32,075	Jan. 2	90	215
Displaying cabinet. Card-	L. Canda	32,360	Feb. 20	90	1533
Dolly	J. W. Catty	32,414	Mar. 27	90	2501
Door	A. Ohnemus	32,059	Jan. 2	90	214
Door-escutcheon	L. H. Wales	32,317	Mar. 6	90	1940
Door-fastener	J. B. Meacham	32,129	Jan. 23	90	741
Door-stop base or frame	F. T. Russell and M. M. Favor	32,109	Jan. 16	90	597
Drawing-roll clearer	W. E. Keach	32,339	Mar. 13	90	2128
Drill-head	J. F. Barker	32,219	Feb. 13	90	1357
Electric machines or motors. Casing for dynamo-	N. C. Bassett	32,259	Feb. 20	90	1533
Electric motors. Field ring or frame for	C. A. Lindstrom	32,325	Mar. 6	90	1941
Electrode or battery-plate	W. F. Richards	32,161	Jan. 30	90	949
Engine motor-frame	G. C. Beckwith	32,110	Jan. 16	90	597
Eraser pocket. Blackboard-	B. F. Dunham	32,231	Feb. 13	90	1359
Eyeglass-guard	F. Kreuter	32,056	Jan. 2	90	212
Eyelet	E. Saltzkorn and L. Nicolai	32,147	Jan. 30	90	947
Fabric. Decorative	H. Giebel	32,297	Feb. 20	90	1534
Fabric. Decorative	H. Giebel	32,298	Feb. 20	90	1535
Fabric. Decorative	H. Giebel	32,299	Feb. 20	90	1535
Fabric. Textile	J. H. Tsutsumi	32,296	Feb. 20	90	1534
Fastening-eye	E. Stewart	32,315	Mar. 6	90	1939
Faucet	W. Geurink	32,289	Feb. 27	90	1736
Fence-stay	P. F. Clarkin	32,068	Jan. 2	90	214
Filament for incandescent electric lights	S. B. Husselman	32,306	Mar. 27	90	2499
File-cleaner	C. Jackson	32,188	Feb. 6	90	1147
Finger-ring	C. F. and F. F. Haeberle	32,353	Mar. 20	90	2285
Fire-escape cleat	M. W. Hoglund	32,094	Jan. 9	90	440
Fire-escape rope-brake	A. C. Armbruster	32,179	Jan. 30	90	951
Flagstaff-socket	W. Hart	32,333	Mar. 13	90	2127
Flower. Artificial	L. P. Weber	32,352	Mar. 13	90	2130
Flower-pot support	C. O. Stone	32,288	Feb. 27	90	1735
Fork	R. J. MacDowell	32,360	Mar. 27	90	2496
Fork-socket	J. Powers	32,354	Mar. 20	90	2287
Furnaces. Fire and combustion chamber for hot-air	E. A. Klauss	32,222	Feb. 13	90	1357
Gage	T. F. Johnson	32,156	Jan. 30	90	949
Game-board	A. Baylis	32,377	Mar. 20	90	2290
Game-board	R. W. Cassell	32,157	Jan. 23	90	744
Game-board	E. G. Rose	32,309	Feb. 27	90	1738
Game-board	N. Ross	32,158	Jan. 23	90	744
Game-board	J. A. Varnum and A. C. Warren	32,262	Feb. 20	90	1534
Garment-supporter	W. O. Weathersby	32,159	Jan. 23	90	745
Garment-supporter loops. Body portion of	G. W. Rush	32,355	Mar. 20	90	2286
Generator burner-plate	G. E. Adams	32,207	Feb. 6	90	1151
Glass receptacle	J. E. Lambert	32,357	Feb. 20	90	1532
Glass receptacle	W. R. Eliot	32,210	Feb. 13	90	1355
Glass vessel. Cut	W. R. Eliot	32,211	Feb. 13	90	1355
Glove-fasteners. Top for socket members for	T. B. Clark	32,150	Jan. 30	90	948
Goffering-tool	M. D. Shipman	32,278	Feb. 27	90	1733
Grain-drill point or shovel	L. F. Weber	32,339	Mar. 13	90	2127
Grain-drill shoe	H. Funk	32,341	Mar. 13	90	2130
Grinding-disk	G. W. Denyes and O. Schutt	32,295	Feb. 27	90	1737
Grinding-disk mill	A. F. Davis	32,221	Feb. 13	90	1357
Hair-pin	A. F. Davis	32,220	Feb. 13	90	1357
Hammer-head	J. Leick	32,146	Jan. 30	90	947
Handle-lug	D. C. Whitford	32,402	Mar. 27	90	2500
Handle-lug	D. Leonard	32,071	Jan. 2	90	214
Hasp-plate	D. Leonard	32,072	Jan. 2	90	215
Heel. Boot or shoe	C. Wicht and W. E. Dippert	32,332	Mar. 6	90	1941
Heel-lift	J. W. Brown	32,140	Jan. 23	90	745
Hinge. Gate-	F. C. Morgan	32,263	Feb. 20	90	1534
Hinge leaf or member	W. R. White	32,173	Jan. 30	90	951
Hoe. Garden-	J. Anderson	32,263	Feb. 20	90	1533
Hook	W. H. McDonald	32,228	Feb. 13	90	1358
Hook. Check-	J. B. Carollo	32,250	Feb. 20	90	1531
Hook. Garment-fastening	C. M. Johnson	32,061	Jan. 2	90	213
Hook. Garment-supporting	L. L. Deidrick	32,144	Jan. 23	90	745
Hook. Grass-	H. H. Taylor and M. B. Hammond	32,303	Mar. 27	90	2496
Hook. Harness snap-	C. K. Tilden and H. S. Earle	32,227	Feb. 13	90	1358
Hook. Meat-	C. H. Ball	32,339	Mar. 6	90	1940
Hook member. Snap-	J. R. Knapp and F. J. Bowen	32,330	Mar. 6	90	1940
	J. C. Covert	32,198	Feb. 6	90	1148

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Hook. Shoe fastening	C. Gabel	32,349	Feb. 20	90	1531
Hook. Suspending-	M. Robin	32,121	Jan. 23	90	740
Hook. Whiffletree-	L. S. Larson	32,405	Mar. 27	90	2500
Horseshoe-calk	W. E. Cottrell	32,344	Mar. 13	90	2129
Horseshoe-calk	W. E. Cottrell	32,345	Mar. 13	90	2129
Horseshoe-frame	H. Paar	32,174	Jan. 30	90	952
Horseshoe-pad	J. Kronenberg	32,346	Mar. 13	90	2129
Horseshoe-pad	H. Paar	32,204	Feb. 6	90	1150
Hose-reel bracket	E. Cliff	32,337	Mar. 13	90	2128
Hose-reel end disk	E. Cliff	32,338	Mar. 13	90	2128
Hose support. Lawn-	I. R. Dotson	32,236	Feb. 13	90	1358
Hot-air register	G. H. Dippo and W. M. Powell	32,185	Jan. 23	90	744
Hydrocarbon-burner	H. Merkel	32,091	Jan. 9	90	440
Hydrocarbon-burner	H. Merkel	32,105	Jan. 16	90	597
Hydrocarbon-burner	H. Merkel	32,106	Jan. 16	90	597
Hydrocarbon-burner wall	E. G. Mummery	32,163	Jan. 30	90	950
Hydrocarbon-burner wall	E. G. Mummery	32,164	Jan. 30	90	950
Hydrocarbon-burner wall	J. S. Sherman and G. H. Harins	32,092	Jan. 9	90	440
Hydrocarbon-burners. Inner-tube member for	H. J. Beck	32,300	Feb. 27	90	1738
Ice-creeper	F. K. Bohrer	32,230	Feb. 13	90	1359
Ice-crusher	E. Stevens	32,151	Jan. 30	90	948
Inhaler	W. J. Irwin	32,329	Mar. 13	90	2127
Knife. Fish-cleaning	C. F. Smith	32,148	Jan. 30	90	947
Knife-handle	C. F. Smith	32,306	Mar. 6	90	1938
Knife-handle	M. E. Bailey	32,328	Mar. 13	90	2127
Knife. Orange-	J. K. Jones	32,229	Feb. 13	90	1358
Knife. Putty-	J. Conley	32,068	Jan. 9	90	438
Knife. Seamstress'	H. T. Johnson	32,190	Feb. 6	90	1148
Knife-switches. Binding and contact post for	L. H. Wales	32,316	Mar. 6	90	1940
Knob face or cap	W. C. Burwell	32,149	Jan. 30	90	948
Ladle or similar article	W. J. Frost	32,389	Mar. 27	90	2497
Lamp. Bicycle-	M. M. Sweetman	32,309	Mar. 6	90	1938
Lamp-body	D. S. Williams	32,090	Jan. 9	90	439
Lamp-body	D. S. Williams	32,141	Jan. 23	90	745
Lamp-body	E. M. Rosenbluth	32,166	Jan. 30	90	950
Lamp-bracket member	E. M. Rosenbluth	32,167	Jan. 30	90	950
Lamp-bracket member	J. H. Lancaster	32,302	Feb. 6	90	1150
Lamp. Cycle-	G. Bohner	32,123	Jan. 23	90	741
Lamp-fixture connecting-bracket	D. S. Williams	32,165	Jan. 30	90	950
Lamp-hood	E. L. Elliott	32,296	Feb. 27	90	1735
Lamp-shade	G. W. de Tunzelmann	32,208	Feb. 6	90	1150
Lamp shade. Electric-	G. W. Ream	32,055	Jan. 2	90	213
Landside	J. G. Brown	32,089	Jan. 9	90	439
Lantern attachment. Magic-	J. Nieder	32,415	Mar. 27	90	2501
Leather fabric	G. F. Conner	32,390	Mar. 27	90	2498
Level	E. R. Sargent	32,158	Jan. 30	90	949
Lock-case	H. G. Voight	32,392	Mar. 27	90	2498
Lock-case	J. Q. Adams	32,215	Feb. 13	90	1356
Link	W. W. Stegall	32,192	Feb. 6	90	1148
Link member. Repair-	E. H. Lunken	32,318	Mar. 6	90	1940
Lubricator. Sight-feed	W. T. McKinster	32,376	Mar. 20	90	2290
Mail-bag	C. W. Crankshaw	32,308	Mar. 6	90	1937
Medal	W. W. Coe	32,379	Mar. 27	90	2496
Medallion	M. Beck and R. O. Zimmermann	32,313	Mar. 6	90	1939
Menu-cover	C. La Dow	32,064	Jan. 2	90	218
Molding-bed	C. P. Littlepage	32,252	Feb. 20	90	1532
Nail-extractor	J. S. Graves	32,356	Mar. 20	90	2286
Necktie-holder	S. M. Bloch	32,265	Feb. 20	90	1534
Netting	H. J. Mase	32,208	Feb. 6	90	1151
Nose-protector	E. R. Todd	32,155	Jan. 30	90	949
Nozzle. Spraying-	C. E. Pierce	32,360	Mar. 20	90	2286
Nut-lock washer	A. W. Reynolds	32,217	Feb. 13	90	1356
Nut-lock washer	C. G. Ette	32,282	Feb. 27	90	1734
Odorating-apparatus casing	M. J. Rutherford	32,386	Mar. 27	90	2496
Pan. Cake-	I. P. Dillon	32,169	Jan. 30	90	951
Paper manufacture. Beater-trough plate for	I. P. Dillon	32,170	Jan. 30	90	951
Paper manufacture. Beater-trough plate for	H. Wearne	32,076	Jan. 2	90	216
Paper. Wall-	W. Diebel	32,232	Feb. 13	90	1359
Pedal	J. L. Kellogg	32,275	Feb. 27	90	1733
Pencil-sharpener	B. E. Underwood	32,412	Mar. 27	90	2501
Photographic cabinet	E. Schnabel	32,111	Jan. 16	90	506
Piano-case	E. Schnabel	32,112	Jan. 16	90	506
Piano-case	E. Schnabel	32,113	Jan. 16	90	506
Piano-case	C. A. Nightingale	32,345	Feb. 20	90	1531
Pick-guard	L. Canda	32,335	Mar. 13	90	2128
Picture-exhibiting cabinet	A. M. Gamlin	32,285	Feb. 27	90	1734
Picture-frame or similar article	R. Astarita	32,239	Feb. 13	90	1360
Pillow-top	G. Hunt	32,206	Feb. 6	90	1150
Pin. Safety-	E. E. Myers	32,189	Feb. 6	90	1148
Pipe cleaner. Waste-	G. W. Ream	32,175	Jan. 30	90	952
Plowshare	G. W. Ream	32,125	Jan. 23	90	741
Plow-shoe	G. W. Ream	32,126	Jan. 23	90	741
Plow-shoe	G. W. Ream	32,127	Jan. 23	90	741
Plow-standard	G. W. Ream	32,128	Jan. 23	90	742
Plow-standard	G. W. Ream	32,129	Jan. 23	90	742
Plow-standard	G. W. Ream	32,130	Jan. 23	90	743
Plow-standard	G. W. Ream	32,131	Jan. 23	90	743
Plow-standard	G. W. Ream	32,404	Mar. 27	90	2500
Post-base	J. G. Gladney	32,394	Mar. 27	90	2498
Pulley-case	H. A. Frost	32,133	Jan. 23	90	744
Pumps. Frame for water ends for steam-	E. M. Coryell	32,281	Feb. 27	90	1734
Rack. Towel-	J. J. Wright	32,406	Mar. 27	90	2500
Railway-rail	B. Hazard	32,363	Mar. 20	90	2287
Rake head. Lawn-	J. P. Radley	32,393	Feb. 27	90	1736
Range or stove water-back	W. L. Culver	32,057	Jan. 2	90	212
Razor-blade	A. Graef	32,382	Mar. 27	90	2496
Razors, &c. Handle for	W. M. Taussig				

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Reamer. Pitch-	M. Redlinger, Jr.	32,095	Jan. 9	90	441
Rein-holder	T. W. Porter	32,365	Mar. 27	90	2498
Rein-support	C. J. Swanson	32,322	Mar. 6	90	1941
Ring or similar article	M. Gebhardt	32,070	Jan. 9	90	438
Rope-fastener	C. A. Conger	32,194	Feb. 6	90	1148
Rug	J. Gately	32,117	Jan. 16	90	598
Saddletree fork-horn	M. Marks	32,205	Feb. 6	90	1150
Sash-fastener	J. T. McMahon	32,096	Jan. 9	90	441
Scale base-plate	O. O. Ozias	32,070	Jan. 2	90	214
Scale-frame	J. W. Culmer	32,371	Mar. 20	90	2288
Scale-frame	J. Jungwirth	32,384	Mar. 13	90	2127
Scale-frame	J. W. Culmer	32,398	Mar. 27	90	2498
Scale-frame standard	J. W. Culmer	32,240	Feb. 13	90	1361
Scarf. Neck-	W. O. Horn	32,397	Mar. 27	90	2497
Scoop	W. W. Baird	32,391	Mar. 27	90	2498
Seal-body. Self-locking	E. Tyden	32,214	Feb. 13	90	1356
Seal-press body. Hand	J. Sigwalt and A. M. Willard	32,108	Jan. 16	90	597
Sewer-trap	O. P. Moran	32,194	Jan. 23	90	741
Shade brackets and curtain-pole supports. Rod for window-	L. Hutson and A. Schupp, Jr	32,340	Mar. 13	90	2128
Shafting-hanger frame	A. P. Sloan, Jr.	32,157	Jan. 30	90	949
Sharpener base. Tool-	J. M. Harper	32,084	Jan. 9	90	438
Shears. Member for pairs of	J. J. Alvord	32,395	Mar. 20	90	2297
Shovel-stamping die	F. Forsyth	32,413	Mar. 27	90	2501
Show-case. Display	J. G. Hutchinson	32,188	Jan. 30	90	953
Sign	F. Tuchfarber	32,331	Mar. 13	90	2127
Silversmiths' stock	S. H. Leavenworth	32,397	Mar. 27	90	2499
Siphons, &c. Shield or guard for	J. Cederstrom	32,264	Feb. 20	90	1534
Skirt-protector	G. S. Hensel	32,365	Mar. 27	90	2496
Soap-dish	J. P. Steppe	32,416	Mar. 27	90	2502
Sole fabric. Shoe-	J. E. Kennedy	32,274	Feb. 27	90	1738
Spectacle temple-tip	H. L. King	32,337	Mar. 13	90	2136
Spoon	W. T. Coghlan	32,088	Jan. 9	90	438
Spoon, fork, or knife handle	C. C. Schmidt	32,305	Mar. 6	90	1998
Spoon-handle	E. W. Campbell	32,143	Jan. 23	90	745
Spoon or fork handle	S. J. Large	32,361	Mar. 27	90	2496
Spoon or fork handle	J. H. Leech	32,368	Mar. 27	90	2499
Sprayer-body	D. B. Smith	32,369	Mar. 27	90	2499
Spraying-apparatus atomizing-tip	W. H. Rice	32,254	Feb. 20	90	1532
Stirrup	F. E. Goodman	32,301	Mar. 6	90	1940
Stove-back	F. K. Chase	32,400	Mar. 27	90	2501
Stove. Heating-	J. K. McLaughlin	32,153	Jan. 30	90	948
Surgical purposes. Toe attachment for	H. J. Pond	32,297	Feb. 27	90	1737
Switchboard	H. O. Swoboda	32,276	Feb. 27	90	1733
Syringe-nozzle	F. H. Jones	32,152	Jan. 30	90	948
Syringes or douches. Recurrent attachment for	J. W. Gibbons	32,311	Mar. 6	90	1939
Tablet	B. F. De Klyn	32,096	Jan. 2	90	212
Teapot	A. T. Jackson	32,162	Jan. 30	90	950
Telephone-receiver holder	C. D. Wilson	32,067	Jan. 2	90	214
Threshing-cylinder tooth	E. Huber	32,400	Mar. 27	90	2499
Threshing-machine-cylinder tooth	G. F. Conner	32,189	Jan. 23	90	743
Threshing-machine tooth	W. H. George	32,277	Feb. 27	90	1733
Ticket and check holder	J. E. McCusker	32,196	Jan. 23	90	744
Tile for bake-ovens. Hollow	J. I. Marshall	32,334	Mar. 6	90	1941
Tire	E. J. Burrows	32,347	Mar. 13	90	2130
Tire. Rubber	S. S. Miller	32,188	Jan. 30	90	953
Tires. Coupling-bar for ends of interior securing-bands for rubber	G. Meyer	32,223	Feb. 13	90	1358
Tongs-handle slide	C. A. Sutton	32,177	Jan. 30	90	952
Tongue supports. Clamp-frame for vehicle	M. Schichtl	32,310	Mar. 6	90	1939
Toy bank	A. C. Williams	32,226	Feb. 13	90	1360
Toy-engine frame	R. Glinka	32,067	Jan. 9	90	439
Toy-fan blade	W. Morgan	32,256	Feb. 20	90	1532
Toy-wagon bolster	H. R. Auth	32,258	Feb. 20	90	1533
Transformer-case	V. G. Converse	32,264	Feb. 27	90	1734
Tray	L. McCarthy	32,407	Mar. 27	90	2500
Tricycle-frame	W. Robson	32,242	Feb. 13	90	1361
Trimming	H. A. Schaefer	32,243	Feb. 13	90	1361
Trimming	H. A. Schaefer	32,053	Jan. 2	90	213
Tug clasp. Thill-	S. Shisler	32,068	Jan. 2	90	213
Tug-fastener	D. McKinnon	32,296	Feb. 27	90	1737
Type. Font of	F. W. Goudy and J. W. Phinney	32,116	Jan. 16	90	598
Type. Font of printing-	R. L. Stillson	32,373	Mar. 20	90	2289
Umbrella or cane holder	F. A. Smith	32,093	Jan. 9	90	440
Valve casing. Inflation-	E. Childs	32,213	Feb. 13	90	1356
Vapor-burner	I. N. Marquis	32,361	Mar. 20	90	2296
Vapor-burner frame. Incandescent	C. V. Best	32,366	Mar. 20	90	2298
Vehicle-body	W. E. Schneider	32,199	Feb. 6	90	1149
Vehicle frame. Motor-	W. O. Worth	32,408	Mar. 27	90	2500
Vehicle-motor casing	F. A. Phelps	32,180	Jan. 30	90	953
Vehicle-spring	W. W. Hall	32,367	Mar. 20	90	2297
Vehicles. Underslung battery-frame for	H. S. Baldwin	32,346	Mar. 13	90	2130
Velocipede crank-arm	A. M. Price	32,349	Mar. 13	90	2130
Velocipede crank-arm and sprocket-wheel flange	A. M. Price	32,181	Jan. 30	90	953
Velocipede-support	F. B. Pease	32,187	Feb. 6	90	1147
Vessel-carrying devices. Neck-band for	J. Rittenhouse	32,088	Jan. 9	90	439
Violin-body	E. A. R. Kitchen	32,176	Jan. 30	90	952
Wagon-hound	E. A. Rothrock	32,216	Feb. 13	90	1357
Washer. Metallic fastening-	E. D. Dougherty	32,330	Mar. 13	90	2127
Watch-plate	W. C. Ball	32,197	Feb. 6	90	1149
Wheel support. Fifth-	M. L. Senderling	32,074	Jan. 2	90	215
Window. Prism-	G. K. Cummings	32,374	Mar. 20	90	2289
Work-stand	J. B. Walker	32,401	Mar. 27	90	2499
Wrench	G. F. Conner				

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Adhesive compositions	American Curled Hair Company	34,000	Jan. 2	90	221
Agricultural implements	Standard Harrow Company	34,056	Jan. 16	90	600
Ale. Bass' pale	L. H. Smith	33,969	Jan. 2	90	217
Anesthetic. Liquid local	J. A. Johnson	34,343	Mar. 20	90	2298
Anesthetics. Certain local	A. J. Rust	34,073	Jan. 23	90	747
Antipurulent	Battle & Co., Chemists' Corporation.	34,340	Mar. 20	90	2298
Antiseptic, prophylactic, disinfectant, and parasiticide	S. L. Nidelet	33,987	Jan. 2	90	220
Antiseptic toilet preparations. Certain named	F. W. Schoonmaker	33,978	Jan. 2	90	219
Asbestos and silica for use in building and decoration. Compounds of	British Uralite Company	34,007	Jan. 2	90	221
Asbestos and silica for use in building and decoration. Compounds of	British Uralite Company	34,008	Jan. 2	90	222
Bags and twine with which to sew same	Fulton Bag and Cotton Mills	34,314	Mar. 13	90	2131
Bakery product. Certain named	F. Rayner	34,395	Mar. 27	90	2505
Bakery product and confectionery. Certain named	National Biscuit Company	33,973	Jan. 2	90	218
Bakery products and confectionery. Certain named	National Biscuit Company	33,974	Jan. 2	90	218
Baking-powder	Buyit & Tryit Co	34,393	Mar. 27	90	2505
Baking-powder	Fidelity Manufacturing Company	34,146	Feb. 6	90	1153
Baking-powder	Parrish Bros.	34,046	Jan. 16	90	599
Baking-powder and cereal foods	M. A. Newmark & Co	34,147	Feb. 6	90	1153
Battery compounds or salts	Federal Battery Company	34,075	Jan. 23	90	747
Battery compounds or salts	Federal Battery Company	34,076	Jan. 23	90	748
Beer	Arnholt & Schaefer Brewing Company.	34,120	Jan. 30	90	957
Beer. Lager-	H. Koehler & Company	34,219	Feb. 20	90	1537
Beer. Lager-	Pabst Brewing Company	34,379	Mar. 27	90	2505
Beer. Lager-	E. R. Stege	34,118	Jan. 30	90	957
Beer, porter, and ale	Waukesha Imperial Spring Brewing Company.	34,337	Mar. 20	90	2298
Beer, porter, and malt extract. Bottled	Indianapolis Brewing Company	33,963	Jan. 2	90	217
Belting. Certain named leather	Mayer & Co	34,018	Jan. 9	90	443
Belts or bands for body wear. Electric	R. H. Hassler	34,275	Mar. 6	90	1942
Bicycle sundries. Certain named	Pope Manufacturing Company	34,012	Jan. 2	90	222
Billiard-cloth	McConihe & Hubbell Manufacturing Company.	34,214	Feb. 20	90	1536
Bitters	H. Underberg-Albrecht	34,143	Feb. 6	90	1153
Blood-purifier or tonic	Churchill Drug Company	33,998	Jan. 2	90	221
Bluing	Reckitt & Sons	34,235	Feb. 27	90	1739
Boilers. Compound to prevent the incrustation of	Thomsen Chemical Company	34,159	Feb. 6	90	1155
Books. Certain named	Concordia Publishing House	34,163	Feb. 13	90	1362
Books relating to medical subjects	Estate of I. Warren	34,223	Feb. 27	90	1739
Boots and shoes	Rice & Hutchins	34,179	Feb. 13	90	1362
Boots and shoes	Rice & Hutchins	34,180	Feb. 13	90	1362
Bottles	W. H. Hamilton Company	34,010	Jan. 2	90	222
Brandy	A. Augier	34,281	Mar. 6	90	1943
Brewers' supplies and materials. Certain named	C. Zoller	34,117	Jan. 30	90	957
Bricks. Certain named fire-	S. D. Horton	34,006	Jan. 2	90	221
Brushes	John L. Whiting & Son Company	34,090	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,091	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,092	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,093	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,094	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,095	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,096	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,097	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,098	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,099	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,100	Jan. 30	90	955
Brushes	John L. Whiting & Son Company	34,169	Feb. 6	90	1156
Brushes	John L. Whiting & Son Company	34,170	Feb. 6	90	1156
Brushes	John L. Whiting & Son Company	34,388	Mar. 27	90	2506
Brushes	John L. Whiting & Son Company	34,389	Mar. 27	90	2506
Brushes	John L. Whiting & Son Company	34,148	Feb. 6	90	1153
Butter	Fox River Butter Company	34,990	Mar. 6	90	1944
Butter	Hilmer & Bredhoff	34,237	Feb. 27	90	1739
Butter	J. G. Turnbull	34,023	Jan. 9	90	443
Butter and artificial butter	Capital City Dairy Company	34,247	Feb. 27	90	1740
Candy. Peanut-	Bosman & Lohman	33,975	Jan. 2	90	218
Canned goods	Wight & Weslosky Company	34,028	Jan. 9	90	444
Canned pumpkin	Van Camp Packing Company	34,196	Feb. 13	90	1364
Canned vegetables and fruits in cans, jars, or bottles	Sturtevant, Merrick & Co	34,240	Feb. 27	90	1740
Canned vegetables, fruits, and fish	Smith Bros. & Burdick Company	34,049	Jan. 16	90	599
Carpets	E. S. Higgins Carpet Company	34,215	Feb. 20	90	1536
Carpets	E. S. Higgins Carpet Company	34,216	Feb. 20	90	1537
Carpets	E. S. Higgins Carpet Company	34,085	Jan. 30	90	954
Carpets and rugs. Certain named	T. F. Firth & Sons	34,009	Jan. 2	90	222
Castings. Metal	A. O. Fox	34,002	Jan. 2	90	221
Cement	Balfour, Guthrie & Co	34,302	Mar. 6	90	1945
Cement	W. R. Grace & Company	34,206	Feb. 13	90	1364
Cement. Certain named	Eclipse Cement and Blacking Company.	34,092	Jan. 23	90	746
Cereal products	Cerealine Manufacturing Company				

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cheese	Crosby & Meyers	34,111	Jan. 30	90	956
Cheese	J. H. Hodgson	34,149	Feb. 6	90	1154
Chemical and pharmaceutical preparations	Heine & Co	34,360	Mar. 27	90	2508
Chemical and pharmaceutical preparations	Heine & Co	34,361	Mar. 27	90	2508
Chemical and pharmaceutical preparations. Certain named.	A. König	34,346	Mar. 20	90	2393
Chemical compound	Taliaferro Robinson Chemical Co	34,263	Feb. 27	90	1742
China-clay and china-stone	A. C. A. Lechenich	34,005	Jan. 2	90	221
Chocolates	Costello Chocolate Company	34,116	Jan. 30	90	957
Cider	T. B. Hall & Co	34,249	Feb. 27	90	1740
Cigarettes, cigars, and smoking and chewing tobacco	Union Tobacco Company of America.	34,376	Mar. 27	90	2505
Cigarettes, cigars, and smoking and chewing tobacco	Union Tobacco Company of America.	34,377	Mar. 27	90	2505
Cigars	Burns Bros	34,065	Jan 23	90	746
Cigars and cigarettes. Domestic and imported	D. F. Weyl	34,296	Mar. 6	90	1943
Cigars and stogies	Geo. B. Sprague Cigar Company	33,951	Jan 2	90	217
Cigars, cigarettes, cheroots, and smoking-tobacco	C. M. Climie & Bro	34,198	Feb. 13	90	1363
Clasps. Metal	Clark Manufacturing Company	34,254	Feb. 27	90	1742
Cleaning and polishing preparation	B. E. Trumbull	34,049	Jan. 16	90	600
Cloth-finishing compositions	Warren & Stevens	34,076	Jan. 23	90	748
Clothing. Suits of outer	Smith, Chase & Cutting	34,040	Jan. 16	90	599
Cocoa	S. L. Bartlett	34,218	Feb. 20	90	1537
Coffee	Haworth & Dewhurst	33,966	Jan. 2	90	218
Coffee, excepting condensed coffee	American Coffee Company	33,964	Jan. 2	90	218
Coffee, excepting condensed coffee	American Coffee Company	33,965	Jan 2	90	218
Coffee. Green	Kunhardt & Co	34,295	Mar. 20	90	2292
Coffee, teas, and spices	American Importing Company	34,287	Mar. 6	90	1943
Collars and cuffs	William Barker Company	34,052	Jan. 30	90	954
Colors of dyed fibers and fabrics. Liquid compound for fixing	L. B. Fortner	34,157	Feb. 6	90	1154
Confections	Woodman, Davis & Co	33,986	Jan. 2	90	219
Confections and toilet preparations	Hy-Jen Chemical Co	34,047	Jan. 16	90	600
Cord and twines. Certain named	A. F. Reid	34,298	Mar. 20	90	2291
Cords and thread. Certain named	A. F. Reid	34,299	Mar. 20	90	2291
Corsets	Lasalle & Koch Company	34,210	Feb. 20	90	1536
Corsets and corset-clasps	Kops Bros	34,038	Jan. 16	90	599
Cotton-buff wheels	F. L. and J. C. Codman	34,305	Mar. 6	90	1946
Cotton cloth	Belton Mills	34,176	Feb. 13	90	1362
Cotton fabrics	J. Farnum & Co	34,356	Mar. 27	90	2508
Cotton fabrics	Siemssen & Co	34,309	Mar. 13	90	2131
Cotton fabrics	Siemssen & Co	34,310	Mar. 13	90	2131
Cotton fabrics	Siemssen & Co	34,311	Mar. 13	90	2131
Cotton fabrics	Siemssen & Co	34,312	Mar. 13	90	2131
Cotton fabrics	Siemssen & Co	34,380	Mar. 20	90	2291
Cotton fabrics	Siemssen & Co	34,213	Feb. 20	90	1536
Cotton flannels	Pemberton Company	34,177	Feb. 13	90	1362
Cotton goods, including mercerized cotton	N. Erlanger, Blumgart & Co	34,357	Mar. 27	90	2508
Cotton linings	J. W. Goddard & Sons	34,071	Jan. 23	90	747
Cough-syrup	Seitz & Reisinger	34,245	Feb. 27	90	1740
Cream. Evaporated	St. Louis Condensed Milk Company	34,315	Mar. 13	90	2131
Cream for toilet use	M. M. Dietrichson	34,341	Mar. 20	90	2292
Cure for car or sea sickness	Brooke Medical Co	34,257	Feb. 27	90	1741
Cure for certain named diseases	C. Laux	34,319	Mar. 13	90	2132
Cure for rupture	W. S. Rice	34,258	Feb. 27	90	1741
Cures for certain named diseases	C. P. Lee	34,357	Mar. 27	90	2508
Curios. Certain named	F. H. Stearns	34,378	Mar. 6	90	1942
Detergents	Carpetto Syndicate	34,379	Mar. 6	90	1942
Disinfecting preparation	H. E. Field	34,014	Jan. 9	90	443
Dress-facings	Hay's Waterproof Binding Company.	34,041	Jan. 16	90	599
Dress goods	Skidmore & Larrabee	34,239	Feb. 27	90	1741
Drugs and chemicals. Certain named	Chemische Fabrik Helfenberg Actien-Gesellschaft, vormals E. Dieterich.	34,260	Feb. 27	90	1741
Drugs, chemicals, and certain named oils	G. Lueders & Co	34,106	Jan. 30	90	956
Drugs, chemicals, medicines, medical compounds, and pharmaceutical preparations.	Schroeder Chemical Company	34,212	Feb. 20	90	1536
Dry goods. Certain named	Hay's Waterproof Binding Company.	34,305	Mar. 6	90	1945
Electrical apparatus and supplies. Certain named	Clement & Gharky	34,266	Feb. 27	90	1742
Electrical supplies. Certain named	Falcon Electric Manufacturing Company.	34,167	Feb. 6	90	1155
Embalming fluid	Max Huncke Chemical Company	34,168	Feb. 6	90	1156
Embalming fluid	Max Huncke Chemical Company	34,328	Mar. 27	90	2504
Embalming fluid	B. Wheatley, Jr	34,308	Mar. 13	90	2131
Embroidery materials. Certain named	H. B. Philbrick	34,305	Mar. 27	90	2506
Engine. Double-cylinder piston-movement gasolene	Pennsylvania Iron Works Company.	34,190	Feb. 13	90	1363
Extract as a beverage ingredient	H. Curiel	34,097	Jan. 30	90	954
Eyeglass nose-guards	C. L. Merry Optical Co	34,276	Mar. 6	90	1942
Eyelets for shoes. Metallic	La Manufacture Française de Porte-Plumes et Œillets Métalliques (Ancienne Maison G. Bac)	34,313	Mar. 13	90	2131
Fabrics and wearing-apparel made therefrom. Certain named	C. H. Commichau	34,198	Feb. 13	90	1363
Fats. Edible	Christr. Thomas & Bros	34,194	Feb. 13	90	1363
Fats. Edible	Christr. Thomas & Bros	34,195	Feb. 13	90	1363
Fats. Edible	Christr. Thomas & Bros	34,304	Mar. 6	90	1945
Filtering apparatuses. Water-	F. E. Bachman	34,057	Jan. 16	90	600
Filtering devices	E. A. Hibbs	34,173	Feb. 6	90	1156
Filters. Water-	Plumbers Brass and Iron Manufacturing Company.	34,205	Feb. 13	90	1364
Floor-dressing	Masury, Young & Co	34,199	Feb. 13	90	1364
Flour	J. Boyd, Jr., & Co	34,112	Jan. 30	90	956
Flour. Wheat-	J. L. Connell & Co	34,291	Mar. 6	90	1944
Flour. Wheat-	R. Everett	34,364	Mar. 27	90	2505
Flour. Wheat-	Herklotz, Corn & Co				

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Flour. Wheat-	Phoenix Flour Mill	34,150	Feb. 6	90	1154
Flour. Wheat-	Pillsbury-Washburn Flour Mills Company.	34,151	Feb. 6	90	1154
Flour. Wheat-	Washburn-Crosby Company	34,029	Jan. 9	90	444
Flour. Wheat-	Washburn-Crosby Company	34,292	Mar. 6	90	1944
Fly-paper. Sticky	F. A. Marsh	34,189	Feb. 13	90	1363
Food compound. Certain named	C. F. Beach	33,970	Jan. 2	90	218
Food for animals. Mixed	Brooks-Griffiths Company	34,243	Feb. 27	90	1740
Food for infants and invalids	Fairchild Bros. & Foster	34,242	Feb. 27	90	1740
Food ingredient	J. S. Bergheim	33,971	Jan. 2	90	218
Food preparations. Certain named	J. H. Kellogg	33,972	Jan. 2	90	218
Food products. Certain named	Stobie Cereal Mills	34,382	Mar. 27	90	2505
Foods. Breakfast-	Cream of Wheat Company	34,067	Jan. 23	90	747
Foods. Certain named	A. Honey	34,241	Feb. 27	90	1740
Foods. Certain named cooked	Haworth & Dewhurst	33,967	Jan. 2	90	218
Game apparatus. Certain named	E. L. Williams	34,089	Jan. 30	90	954
Game-boards	M. H. Eveleth	34,271	Mar. 6	90	1942
Gas burners, globes, and mantles	Kern Incandescent Gas Light Company.	34,008	Jan. 2	90	221
Gas generators or machines. Acetylene-	Acetylene Gas Machine Improvement Company.	34,037	Jan. 9	90	444
Gas-mantles. Incandescent	Consolidated Incandescent Light Company.	34,334	Mar. 13	90	2132
Gas-mantles. Incandescent	Consolidated Incandescent Light Company.	34,390	Mar. 27	90	2506
Gin	Myers & Co	34,251	Feb. 27	90	1741
Gloves. Certain named	J. Adler & Co	34,355	Mar. 27	90	2503
Gloves. Ladies' kid	L. G. Bloomingdale	34,039	Jan. 16	90	599
Granules for certain named diseases	M. Robin	34,105	Jan. 30	90	956
Grease. Axle-	Whittier Coburn Company	34,160	Feb. 6	90	1155
Groceries and cigars. Certain named	W. J. Quan & Co	34,285	Mar. 6	90	1943
Groceries. Certain named	Advanced Beet Sugar Construction Company.	34,024	Jan. 9	90	443
Groceries. Certain named	Cudahy Packing Company	34,196	Feb. 13	90	1363
Groceries. Certain named	Erie Preserving Company	34,334	Mar. 20	90	2292
Groceries. Certain named	W. J. Quan & Co	34,284	Mar. 6	90	1942
Groceries. Certain named	H. J. Roth	34,238	Feb. 27	90	1739
Grocers' goods. Certain named	Foley Bros. & Kelly Mercantile Company.	34,025	Jan. 9	90	444
Grocers' specialties. Certain named	Chas. W. Huff Company	34,197	Feb. 13	99	1364
Gum. Chewing-	Ralston Yeast Company	34,145	Feb. 6	90	1153
Gum. Shellac-	Berry Bros	34,301	Mar. 6	90	1945
Hair. Certain named medicines for the	E. J. Liebetrut	33,981	Jan. 2	90	219
Hair-dye	J. F. Schwarzlose Söhne	33,984	Jan. 2	90	219
Hair remedies	J. H. Walker	34,166	Feb. 6	90	1155
Hair-restorers	Newton & Emery	34,228	Feb. 20	90	1536
Hair-tonics	G. Goldman	33,982	Jan. 2	90	219
Hair-tonics	A. F. Richardson	33,983	Jan. 2	90	219
Hammers	A. R. Robertson	34,394	Mar. 27	90	2506
Hams, bacon, and lard	Wm. H. Taylor Company	34,236	Feb. 27	90	1739
Harness and saddlery	Dodson, Fisher, Brockmann Company.	34,265	Feb. 27	90	1742
Harp. Zither-like	Harp-O-Chord Company	34,231	Feb. 27	90	1739
Hats and caps	John B. Stetson Company	34,174	Feb. 13	90	1362
Hats and caps	John B. Stetson Company	34,175	Feb. 13	90	1362
Hinges	Bommer Brothers	34,207	Feb. 13	90	1364
Horse-blankets	Beckman Company	34,350	Mar. 27	90	2503
Horse-covers	Pittsburgh Waterproof Co	34,181	Feb. 13	90	1362
Horse-covers	Pittsburgh Waterproof Co	34,182	Feb. 13	90	1362
Hosiery	Richmond Hosiery Mills	34,084	Jan. 30	90	954
Hosiery, knit underwear, and gloves	Ferguson-McKinney Dry Goods Company.	34,356	Mar. 27	90	2508
Hosiery, underwear, and ribbons	S. Scheyer	34,178	Feb. 13	90	1362
Ice-cream in block form	F. L. Davis	34,381	Mar. 27	90	2505
Illuminating material and apparatus. Certain named	Wornnop & Company	34,267	Feb. 27	90	1742
Illuminating purposes. Certain named articles used for	Welsbach Incandescent Gas Light Company.	34,004	Jan. 2	90	221
Incandescent lights, the parts thereof, and mantles, chimneys, globes, and shades therefor.	Welsbach Light Company	34,220	Feb. 20	90	1538
Ink. Printing-	S. Ullman Co	34,347	Mar. 20	90	2293
Inks. Printers'	Randall Ink Manufacturing Co	34,300	Mar. 6	90	1945
Inks. Writing-	Carter's Ink Company	34,299	Mar. 6	90	1945
Insecticides	W. H. Bowker	34,369	Mar. 27	90	2504
Insecticides	W. H. Bowker	34,370	Mar. 27	90	2504
Insecticides	W. H. Bowker	34,371	Mar. 27	90	2504
Insecticides	W. H. Bowker	34,372	Mar. 27	90	2504
Iron compound in the form of dry powder	Smooth-On Manufacturing Company.	34,161	Feb. 6	90	1155
Jewelry. Certain named articles of	B. A. Ballou & Co	34,327	Mar. 20	90	2291
Jewelry. Certain named articles of	W. & S. Blackinton	33,957	Jan. 2	90	217
Laundry articles. Certain named	G. A. Berghoff	34,154	Feb. 6	90	1154
Laundry supplies. Certain named	Heller, Blau & Jay	33,977	Jan. 2	90	219
Leather and shoes	J. Lindner	34,062	Jan. 23	90	746
Leather and shoes	J. Lindner	34,131	Feb. 6	90	1152
Liniment	Gladiator Chemical Company	34,344	Mar. 20	90	2293
Liniment	McConnon & Co	34,203	Feb. 13	90	1364
Liniment	G. W. Wallis	34,108	Jan. 30	90	956
Liquid compound for certain named purposes	O. C. Lippincott	34,055	Jan. 16	90	600
Liquors. Certain named malt	J. & R. Tennent	34,321	Mar. 13	90	2132
Lotion	Lecaron & Fils	34,317	Mar. 13	90	2132
Lumber and piling	Globe Lumber Company	34,270	Feb. 27	90	1742
Machinery and appliances. Certain named	H. W. Dopp & Son	34,061	Jan. 23	90	746
Matches	American Match Machine Company.	34,374	Mar. 27	90	2504
Mattresses, pillows, bolsters, cushions, and comforts	C. W. White	34,217	Feb. 20	90	1537
Mattresses, pillows, cushions, and hassocks	Ostermoor & Co	34,063	Jan. 23	90	746

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Mattresses, pillows, cushions, and hassocks	Ostermoor & Co	34,064	Jan. 23	90	746
Medical and pharmaceutical use. Purified wool-fat prepared for	Merck & Co	34,044	Jan. 16	90	599
Medical compound	P. Conday	34,102	Jan. 30	90	955
Medical compound	A. W. Kahle	34,226	Feb. 20	90	1538
Medical compound for certain named diseases	J. Lee Cruce Company	34,108	Jan. 30	90	955
Medical compounds	Fries Bros	34,163	Feb. 6	90	1155
Medical preparations. Certain named	R. Crowell & Co	34,162	Feb. 6	90	1155
Medical wines, pills, plasters, and ointments	A. J. Giguere	34,261	Feb. 27	90	1742
Medicaments. Certain named	H. A. Blair	34,365	Mar. 27	90	2504
Medicinal preparation for certain named diseases	L. Wolf	33,989	Jan. 2	90	220
Medicine. Certain named	Herb Medicine Co	34,345	Mar. 20	90	2293
Medicine. Certain named	Winkelmann & Brown Drug Company.	34,364	Mar. 27	90	2508
Medicine for certain named purposes	Firm of E. Merck	34,318	Mar. 13	90	2132
Medicine for the cure of certain named diseases	A. N. Cheney	34,342	Mar. 20	90	2292
Medicine or remedies. Hog-cholera	American Proprietary Medicine Company.	34,019	Jan. 9	90	448
Medicines. Certain named	F. W. Cook, Jr	34,068	Jan. 23	90	747
Medicines for a certain named disease	Sherin & Baker	34,990	Jan. 2	90	220
Medicines for certain named diseases	Grape Capsule Company	35,988	Jan. 2	90	220
Milk and cream, crude, condensed, or sterilized	Anglo-Swiss Condensed Milk Company.	34,288	Mar. 6	90	1943
Milk. Condensed	St. Louis Condensed Milk Company	34,244	Feb. 27	90	1740
Millinery headwear	J. Miles	34,354	Mar. 27	90	2503
Motors, motor-cars, carriages, cycles, and parts of same	G. Daimler	34,351	Mar. 20	90	2293
Musical instruments. Certain named	D. Gottdnier & Wicht	33,958	Jan. 2	90	217
Nipples. Nursing	Meinecke & Company	33,985	Jan. 2	90	219
Nuclein	K. Schwickerath	34,054	Jan. 16	90	600
Nuclein and copper. Soluble compound of	K. Schwickerath	34,051	Jan. 16	90	600
Nuclein and iron. Soluble compound of	K. Schwickerath	34,050	Jan. 16	90	600
Nuclein and mercury. Soluble compound of	K. Schwickerath	34,053	Jan. 16	90	600
Nuclein and silver. Soluble compound of	K. Schwickerath	34,052	Jan. 16	90	600
Nut and cereal foods	Sanitas Nut Food Company	34,026	Jan. 9	90	444
Oat-flakes, rolled wheat, and rice	Haworth & Dewhurst	33,969	Jan. 2	90	218
Oats. Rolled	Butler-Breed Company	34,293	Mar. 6	90	1944
Oil. Cotton-seed	Elbert & Gardner	34,222	Feb. 20	90	1537
Oil of tobacco for cancer cure	Krengel & Willfby	34,367	Mar. 27	90	2504
Oils and lubricants	W. Paats, Roche & Co	34,079	Jan. 23	90	748
Oils. Certain named	Pittsburgh & Philadelphia Oil and Refining Company.	34,223	Feb. 20	90	1537
Ointment for certain named diseases	C. E. Abell	34,107	Jan. 30	90	956
Ointments and lotions	B. Goldstein	34,316	Mar. 13	90	2132
Opium antidote	Harrison & Roth Company	34,021	Jan. 9	90	443
Overalls and blouse-shirts	Scranton & Sheldon	34,083	Jan. 30	90	954
Packing-house products. Certain	Swift & Company	34,386	Mar. 27	90	2505
Packing materials	R. Klinger	34,307	Mar. 6	90	1946
Pain cure	Corse & McCorkle	34,101	Jan. 30	90	955
Pain-killer	E. P. Cook	34,227	Feb. 20	90	1538
Paints in liquid and paste form. Mixed	Vane-Calvert Paint Company	34,348	Mar. 20	90	2293
Paints, varnishes, and oils	Standard Varnish Works	34,084	Jan. 9	90	444
Paints, varnishes, cement-paints, and cements	Hertzog Cement-Paint Co	34,127	Jan. 30	90	958
Paper. Writing	H. Lindenmeyr & Sons	34,133	Feb. 6	90	1152
Paper. Writing	H. Lindenmeyr & Sons	34,134	Feb. 6	90	1152
Paper. Writing	H. Lindenmeyr & Sons	34,135	Feb. 6	90	1152
Paper. Writing	H. Lindenmeyr & Sons	34,136	Feb. 6	90	1152
Paper. Writing	H. Lindenmeyr & Sons	34,137	Feb. 6	90	1152
Paper. Writing	H. Lindenmeyr & Sons	34,138	Feb. 6	90	1153
Paper. Writing	H. Lindenmeyr & Sons	34,139	Feb. 6	90	1153
Paper. Writing	H. Lindenmeyr & Sons	34,140	Feb. 6	90	1153
Paper. Writing	H. Lindenmeyr & Sons	34,027	Jan. 9	90	444
Peanuts in packages	G. Boyd & Sons	34,061	Jan. 23	90	746
Pen-nibs	Perry & Company	34,200	Feb. 20	90	1536
Pens	Perry & Company	34,375	Mar. 27	90	2504
Perfume	L. R. Harrison & Co	34,398	Mar. 6	90	1945
Perfumery	J. L. Grossmith	34,074	Jan. 23	90	747
Pharmaceutical compound. Certain named	Farbenfabriken of Elberfeld Company.	34,184	Feb. 13	90	1363
Photographic dry-plates, films, and developers	M. A. Seed Dry Plate Company	34,132	Feb. 6	90	1152
Photographic materials. Certain named	Dr. Lilienfeld & Co	34,172	Feb. 6	90	1156
Pianos	Bush & Gerts Piano Company	34,366	Mar. 27	90	2504
Pills. Iron tonic	Kampa & Sacksteder	34,273	Mar. 6	90	1942
Plants and flowers. Artificial decorative	F. Netschert	34,059	Jan. 16	90	600
Pneumatic tools	Standard Railway Equipment Company.	34,289	Mar. 6	90	1944
Pork. Cured shoulders of	H. T. Molloy	34,123	Jan. 30	90	957
Powder. Gun	Hazard Powder Company	34,124	Jan. 30	90	957
Powder. Gun	Hazard Powder Company	34,125	Jan. 30	90	957
Powder. Gun	Hazard Powder Company	34,126	Jan. 30	90	958
Powder. Gun	Hazard Powder Company	34,128	Jan. 30	90	958
Power-generators	Fairbanks, Morse & Company	34,225	Feb. 20	90	1538
Preparation for the cure of a certain disease. Certain named	C. H. Clarke	34,201	Feb. 13	90	1364
Preparation for the stomach and digestive organs	J. Morrow & Co	34,056	Jan. 16	90	600
Printing-machines	Addressograph Company	34,333	Mar. 20	90	2291
Produce. Certain named	E. P. Loomis & Co	34,187	Feb. 13	90	1363
Puzzles	New York Puzzle Company	34,188	Feb. 13	90	1363
Puzzles	New York Puzzle Company	34,001	Jan. 2	90	221
Pyroxylin compounds and substances coated with same. Certain	Celluloid Company	33,991	Jan. 2	90	220
Remedial preparations. Certain	Armour Packing Company	34,069	Jan. 23	90	747
Remedies. Certain named	W. J. Hope	33,974	Jan. 2	90	220
Remedies for a certain named disease	Lanold Co	34,256	Feb. 27	90	1741
Remedies for certain diseases	H. W. Quinby	34,104	Jan. 30	90	956
Remedies for certain named diseases	Foley & Company	33,973	Jan. 2	90	220
Remedies for certain named diseases	G. W. Hilton	34,164	Feb. 6	90	1155
Remedies for certain named diseases	Ray Chemical Company				

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Remedies for certain named diseases	J. V. Stephenson	34,070	Jan. 23	90	747
Remedies for certain named diseases	Sydney Ross Company	34,043	Jan. 16	90	599
Remedies for certain named purposes	F. Emerson	33,965	Jan. 2	90	220
Remedies in powdered form for certain named diseases. Topical	Dorman & Barewald	34,165	Feb. 6	90	1155
Remedy for botts, colic, and lockjaw	A. Mitchell	34,320	Mar. 13	90	2132
Remedy for certain named diseases	O. J. & J. A. Bryan	33,992	Jan. 2	90	220
Remedy for certain named diseases	P. Conday	34,253	Feb. 27	90	1741
Remedy for certain named diseases	C. M. Hildreth	34,277	Mar. 6	90	1942
Remedy for certain named diseases	J. S. Leonhardt	34,254	Feb. 27	90	1741
Remedy for certain named diseases	Pope Company	34,255	Feb. 27	90	1741
Remedy for certain named diseases	E. G. Simcox	34,362	Mar. 27	90	2503
Remedy for certain named diseases	U. V. Remedy Co	34,363	Mar. 27	90	2503
Remedy for certain named diseases. Liquid	E. M. Nichols	34,202	Feb. 13	90	1364
Remedy for hay-fever	New England Felt Roofing Works	34,080	Jan. 23	90	748
Roofing materials. Certain named	Monarch Rubber Company	34,017	Jan. 9	90	443
Rubber footwear. Certain named	S. B. Donchian	34,035	Jan. 9	90	444
Rug-fasteners	T. F. Firth & Sons	34,086	Jan. 30	90	954
Rugs, blankets, and horse-clothing. Certain named	A. C. Williams	34,338	Mar. 27	90	2506
Sad-irons	Church & Dwight Company	34,030	Jan. 9	90	444
Sal-soda	G. P. Olsen	34,262	Feb. 27	90	1742
Salve	J. J. Buswell	33,999	Jan. 2	90	221
Salve for certain named diseases	Oscar & Co	34,113	Jan. 30	90	956
Sauce	Klimer Co	34,338	Mar. 20	90	2292
Scalp and hair. Preparations for the treatment of the	Albert Dickinson Company	34,156	Feb. 6	90	1154
Seeds and seed-grains. Grass, clover, and field	Albert Dickinson Company	34,294	Mar. 6	90	1944
Seeds and seed-grains. Grass, clover, and field	Albert Dickinson Company	34,295	Mar. 6	90	1944
Seeds and seed-grains. Grass, clover, and field	L. Teweles	34,296	Mar. 6	90	1944
Seeds. Certain named	New Home Sewing Machine Company.	34,208	Feb. 13	90	1364
Sewing-machines and attachments	Stewart Hartshorn Company	34,391	Mar. 27	90	2506
Shade-rollers	J. F. J. Gunning	34,048	Jan. 16	90	600
Shoe-dressing	Veuve Ch. Leroy & Cie	34,077	Jan. 23	90	748
Shoe polish and dressing	"World" Polish Manufacturing Co.	34,033	Jan. 9	90	444
Shoe-polish and leather-dressing	Stubbs & Wilson	34,331	Mar. 20	90	2291
Shoes	E. Kiam	34,211	Feb. 20	90	1536
Shoes. Leather	G. W. Herrick & Co	34,130	Feb. 6	90	1152
Shoes. Women's	A. Scott	34,272	Mar. 6	90	1942
Shoulder-braces, corsets, corset-waists, and spinal supporters.	Starr Manufacturing Company	34,011	Jan. 2	90	222
Skates and hockey-sticks	J. A. Dalrymple & Co	34,088	Jan. 30	90	954
Slipper bows and buckles	J. H. Keller's Soap Works	34,300	Feb. 13	90	1364
Soap	Fidanque, Nieto & Co	34,032	Jan. 9	90	444
Soap. Laundry and toilet	M. E. Murray	34,248	Feb. 27	90	1740
Soda-water flavors	H. J. Hilliard	34,349	Mar. 20	90	2293
Soldering fluids for metals	James Chadwick & Brother	34,015	Jan. 9	90	443
Spool-cotton	J. R. Marquette	34,332	Mar. 20	90	2291
Starch	Hoffmann's Stärkefabriken	34,234	Feb. 27	90	1739
Starch and cornstarch products. Certain named	Moseley, Horne Company	33,976	Jan. 2	90	219
Starch. Laundry	G. P. Smith	34,155	Feb. 6	90	1154
Starch. Laundry	United Society of Christian Endeavor.	34,060	Jan. 23	90	746
Stationery miscellany. Certain named	H. C. White Company	34,185	Feb. 13	90	1363
Stereoscopes. Hand	H. C. White Company	34,186	Feb. 13	90	1363
Stereoscopes. Hand	G. G. McPherson	34,224	Feb. 20	90	1537
Sterilizing and antiseptic compound. Volatile	Cleveland Stone Company	34,353	Mar. 20	90	2294
Stone. Certain named	Franklin Sugar Refining Company	34,114	Jan. 30	90	956
Sugar. Granulated	Franklin Sugar Refining Company	34,115	Jan. 30	90	956
Sugar. Granulated	Muralo Company	34,035	Jan. 9	90	444
Surface-finishing materials. Certain	D. Smith	34,109	Jan. 30	90	956
Surgical dressings. Sterilized	Abram Lyle & Sons	34,322	Mar. 13	90	2132
Syrup and sugar	Colonial Medical Co	34,339	Mar. 20	90	2292
Syrup. Throat and lung	Haworth & Dewhurst	33,968	Jan. 2	90	218
Syrups and molasses	Towle Syrup Company	34,335	Mar. 20	90	2292
Syrups and molasses	Bell & Company	33,996	Jan. 2	90	220
Tablets. Digestive	F. S. Halford	34,246	Feb. 27	90	1740
Teas	Griggs, Cooper & Co	34,380	Mar. 27	90	2505
Teas and coffees	C. J. Tagliabue	34,171	Feb. 6	90	1156
Thermometers	Southern Railway Supply Company.	34,325	Mar. 13	90	2132
Tin and terne plate	Morgan & Wright	34,350	Mar. 20	90	2293
Tires. Pneumatic	Bloch Brothers Tobacco Company	34,022	Jan. 9	90	443
Tobacco	Adolph Frankau & Company	34,142	Feb. 6	90	1153
Tobacco-pipes and cigar and cigarette tubes and holders	Tobacco Warehousing and Trading Company.	34,045	Jan. 16	90	599
Tobaccos and tobacco products for fumigating, veterinary, and medicinal purposes. Certain named	C. J. Corbin & Sons	34,252	Feb. 27	90	1741
Tobaccos, cigars, stogies, tobies, cheroots, cigarettes, and snuff. Certain named	B. Jaffé & Darmstaedter	32,979	Jan. 2	90	219
Toilet articles and preparations. Certain named	P. A. Houghton	34,031	Jan. 9	90	444
Toilet preparations	M. H. Fletcher	34,153	Feb. 6	90	1154
Toilet preparations. Certain named	Henry Roever Company	34,152	Feb. 6	90	1154
Toilet preparations. Certain named	J. S. Kirk & Co	34,110	Jan. 30	90	956
Toilet preparations. Certain named	S. M. Seat	34,297	Mar. 6	90	1945
Toilet preparations. Certain named	E. Wertheimer & Cie	33,980	Jan. 2	90	219
Toilet preparations. Certain named	Boericke & Runyon Co	33,997	Jan. 2	90	221
Tonic. Liquid nerve	Arnholt & Schaefer Brewing Company.	34,119	Jan. 30	90	957
Tonic. Malt	S. R. Feil Company	34,020	Jan. 9	90	443
Tonic. Nerve	F. A. Luyties	34,280	Mar. 6	90	1943
Tonics	Armstrong Bros. Tool Company	34,326	Mar. 13	90	2133
Tools. Certain named	Thymo Chemical and Manufacturing Company.	34,072	Jan. 23	90	747
Tooth-paste	Strauss Manufacturing Company	34,141	Feb. 6	90	1153
Toys. Sounding	Buff & Buff Instrument Manufacturing Co.	34,303	Mar. 6	90	1945
Transits	Doblin & Schamberg	34,016	Jan. 9	90	443
Trimmings. Tailors'					

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Turpentine	T. Sealy	34,373	Mar. 27	90	2504
Umbrellas	B. M. Shaine & Co	34,274	Mar. 6	90	1942
Underwear and hosiery	Cartwright & Warners	33,959	Jan. 2	90	217
Underwear and hosiery	Cartwright & Warners	33,960	Jan. 2	90	217
Varnish. Shellac	Berry Bros	34,204	Feb. 13	90	1364
Varnish-stains, varnishes, and paints	Carpenter-Morton Company	34,158	Feb. 6	90	1155
Vehicles. Automatically-propelled	W. E. Schneider	34,353	Mar. 20	90	2294
Vehicles. Automatically-propelled wheeled	"Locomobile" Company of America.	34,013	Jan. 2	90	223
Vehicles. Automatically-propelled wheeled	"Locomobile" Company of America.	34,230	Feb. 20	90	1538
Vehicles. Automatically-propelled wheeled	"Locomobile" Company of America.	34,369	Feb. 27	90	1742
Vehicles. Automobile	Waltham Manufacturing Company	34,129	Jan. 30	90	958
Velocipede parts. Certain named	Pope Manufacturing Company	34,268	Feb. 27	90	1742
Whiskies	L. Fuldner & Co	34,221	Feb. 20	90	1537
Whisky	Andrews & Co	34,220	Feb. 20	90	1537
Whisky	Elias & Samuels	34,122	Jan. 30	90	957
Whisky	E. Martin & Company	34,378	Mar. 27	90	2505
Whisky	Dublin Distillers Company	34,282	Mar. 6	90	1943
Whisky. Irish	Dublin Distillers Company	34,283	Mar. 6	90	1943
Whisky. Irish	Arnholt & Schaefer Brewing Company.	34,121	Jan. 30	90	957
Wine	J. P. Smith	34,250	Feb. 27	90	1741
Wine	R. & W. Maucher	34,144	Feb. 6	90	1158
Wines	A. C. Appert	34,191	Feb. 13	90	1363
Wines and other beverages. Product for preserving and improving	Wright & Colton Wire Cloth Company.	34,392	Mar. 27	90	2506
Wire goods and articles made of wire	P. C. Reilly	34,333	Mar. 13	90	2132
Wood strengthener and preservative					

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Acetol." (For a Medicine)	J. B. Smith	7,446	Mar. 27	90	2301
"Agate Nickel Steel Ware." (For Agate Nickel-Steel Ware)	Lalance & Grosjean Manufacturing Company	7,409	Mar. 13	90	1951
"Amargo Sulfuroso del Dr. Kaufmann." (For Bitters)	A. P. Ordway & Co	7,344	Feb. 13	90	1169
"Amazon Ague Elixir." (For a Medicine)	H. W. Lake	7,376	Feb. 27	90	1543
"American Apollinaris Natural Mineral Water." (For Mineral Water.)	R. M. Dillon	7,496	Mar. 20	90	2139
"Austro Silk." (For Dry Goods)	W. Simpson Sons & Co	7,430	Mar. 27	90	2301
"Automatic Finger Cushion Pad." (For Rupture-Trusses)	C. D. Speagh	7,419	Mar. 20	90	2139
"Beechams Cough Syrup." (For a Medicine)	J. H. Wilcox	7,406	Mar. 13	90	1951
"Bernheim's Gold Coloring Solution." (For a Coloring Solution.)	E. C. Bernheim	7,441	Mar. 27	90	2301
"Black Diamond Harness Dressing." (For Harness-Dressing.)	J. W. Jarrett	7,395	Mar. 6	90	1758
"Blossom Nectar Honey." (For Honey)	W. A. Selser	7,401	Mar. 13	90	1951
"Blue Moire Antique Natural Early June Peas." (For Canned Goods.)	United States Printing Company	7,399	Feb. 13	90	1169
"Blue Tartan Natural Wax Beans." (For Canned Goods)	United States Printing Company	7,358	Feb. 20	90	1369
"Blue Tripod Natural Lima Beans." (For Canned Goods)	United States Printing Company	7,369	Feb. 27	90	1543
"Breesport Oxygenated Mineral Springs." (For Mineral Water.)	J. A. Westlake & Co	7,314	Jan. 23	90	605
"Brennerberg Red Seal." (For Wine)	Jacob Brenner Wine Company	7,299	Jan. 16	90	449
"Britannia Old Tom London Gin." (For Gin)	Wittemann Bros	7,437	Mar. 27	90	2301
"Brooks Brand." (For Roofing Material and Roofing-Paint.)	H. W. Johns Manufacturing Company.	7,315	Jan. 23	90	605
"Brooks House Cigar." (For Cigars)	J. D. Ross	7,316	Jan. 23	90	605
"Buena Tonic." (For a Lotion)	J. W. Butler	7,307	Jan. 23	90	605
"Buffalo Mills Carpet Chain." (For Carpet-Chain)	W. H. Corkran	7,327	Feb. 6	90	963
"Burdsal." (For a Medicine)	O. K. Theobald	7,274	Jan. 2	90	1
"Canfield Dress Shields." (For Dress-Shield)	Canfield Rubber Company	7,298	Jan. 16	90	449
"Canvasback Whisky." (For Whisky)	Wittemann Bros	7,384	Mar. 6	90	1758
"Canvasback Whisky." (For Whisky)	Wittemann Bros	7,385	Mar. 6	90	1758
"Cape Cod Cranberries." (For Canned Goods)	United States Printing Company	7,357	Feb. 20	90	1369
"Carvel." (For Whisky)	Bokel Gwynn McKenney Co	7,278	Jan. 2	90	1
"Cerveza Extra." (For Beer)	Consumers Brewing Company	7,424	Mar. 20	90	2139
"Cerveza Extra." (For Beer)	Consumers Brewing Company	7,425	Mar. 20	90	2139
"Chocolate Cathartica." (For a Candy Cathartic)	T. H. Mitchell	7,346	Feb. 13	90	1169
"Citizens Club." (For Whisky)	G. W. Holloway	7,321	Jan. 30	90	753
"Coffee." (For Canned Goods)	United States Printing Company	7,356	Feb. 20	90	1369
"Coke Hazel-Bay." (For a Toilet Preparation)	C. E. Matthews	7,411	Mar. 20	90	2139
"Crown Hair Preserver." (For Hair-Tonic)	M. Scholder & Co	7,303	Jan. 23	90	605
"Cuban Tonic." (For a Tonic)	J. C. Wilson	7,292	Jan. 9	90	231
"Cutinol." (For a Lotion)	J. N. Mackenzie	7,418	Mar. 20	90	2139
"Diamond Cleaner and Polish." (For Cleansing and Polishing Compound.)	Diamond Cleaner and Polishing Co.	7,297	Jan. 9	90	231
"Diogenes Whiskey." (For Whisky)	J. Badenhoop & Co	7,320	Jan. 30	90	753
"Diphtherene." (For a Medicine)	Boussingault Medicine Company	7,413	Mar. 20	90	2139
"Dixie." (For Cigars)	J. H. F. Wenzel	7,420	Mar. 20	90	2139
"Dotein Brothers Family Soap." (For Soap)	Fidanque, Nieto & Co	7,283	Jan. 2	90	1
"Dotein Brothers Family Soap." (For Soap)	Fidanque, Nieto & Co	7,284	Jan. 2	90	1
"Dotein Brothers Family Soap." (For Soap)	Fidanque, Nieto & Co	7,285	Jan. 2	90	1
"Dotein Brothers Family Soap." (For Soap)	Fidanque, Nieto & Co	7,286	Jan. 2	90	1
"Doyle's Infallible Hair Grower." (For a Hair-Grower)	R. L. Doyle	7,332	Feb. 6	90	963
"Dr. Flora's Remedy." (For a Medicine)	G. C. Cornelius	7,445	Mar. 27	90	2301
"Dr. Hood's Baking Powder." (For Baking-Powder)	J. U. O'Meara	7,291	Jan. 9	90	231
"Dr. J. C. Hood's May Blossom." (For a Medicine)	J. C. Hood	7,296	Jan. 9	90	231
"Dr. Miles' Compound Wine of Sarsaparilla." (For a Medical Preparation.)	Dr. Miles Medical Company	7,303	Jan. 23	90	605
"Dr. Miles' Laxative Cold Cure." (For a Medical Preparation.)	Dr. Miles Medical Company	7,304	Jan. 23	90	605
"Dr. Russell's Old Dutch Medicated Gin." (For Bottled Gin)	Dr. Russell Medicine Company	7,279	Jan. 2	90	1
"Dry Climate." (For Cigars)	Solis Cigar Company	7,300	Jan. 16	90	449
"Eat Sun (Rise) Rolled Oats for Breakfast." (For Rolled Oats.)	S. F. Butts	7,438	Mar. 27	90	2301
"Einsiedler-Balsam Drops." (For a Medicine)	Swiss Medicine Importing Co	7,415	Mar. 20	90	2139
"Escapernong." (For Wine in Bottles)	P. Garrett	7,400	Mar. 13	90	1951
"Expansion Club Whiskey." (For Whisky)	Schlesinger & Bender	7,423	Mar. 20	90	2139
"F. Z. Stove Enamel." (For Stove-Polish)	F. Zeller	7,429	Mar. 20	90	2139
"Fairmount Fine Old Whiskey." (For Whisky)	Barker & Wheeler Company	7,313	Jan. 23	90	605
"Faultless." (For Candy)	McFadden Candy Co	7,389	Mar. 6	90	1753
"Fennel Hair Tonic." (For Hair-Tonic)	W. F. A. Kirsch	7,293	Jan. 9	90	231
"Fermented Milk Food (For a Food)	M. L. Arakelian	7,404	Mar. 13	90	1951
"Fiecha' Beer." (For Bottled Beer)	Joseph Fallert Brewing Company	7,343	Feb. 13	90	1169
"Fletcher-Floyd's Fine Chocolates and Bon-Bons." (For Candy)	Fletcher-Floyd Candy Co	7,317	Jan. 30	90	753
"From Bean to Cup." (For Cocoa and Chocolate)	Huyler's	7,280	Jan. 2	90	1
"Germania." (For Cigars)	J. H. F. Wenzel	7,421	Mar. 20	90	2139
"Golden Lustre Metal Polish." (For Metal-Polish)	D. H. McIlvain	7,334	Feb. 6	90	963
"Goodsell's 98 Stitched Pump Packing." (For Pump-Packing.)	B. W. Goodsell	7,290	Jan. 9	90	231
"Goodwin's Cream Paste." (For Cream Paste)	Goodwin, Allan & Co	7,348	Feb. 13	90	1169

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Grape Juice." (For Wines and Liquors)	Golden Gate Wine Co	7,423	Mar. 20	90	2139
"Healio Soap." (For Soap)	W. R. Goodsell	7,387	Jan. 2	90	1
"Healio Soap." (For Soap)	W. R. Goodsell	7,388	Jan. 2	90	1
"Highland O. P. S. Scotch Whiskey." (For Whisky)	Wittemann Bros	7,440	Mar. 27	90	2301
"Hunt's Perfect Baking Powder." (For Baking-Powder)	P. B. Hunt	7,383	Mar. 6	90	1753
"I-Cure-U." (For a Dyspepsia Cure)	W. W. Chase	7,382	Jan. 2	90	1
"Idlewild." (For Canned Goods)	Whiteman & Patterson	7,433	Mar. 27	90	2301
"Illinois Club." (For Whisky)	Burke Bros. Company	7,394	Mar. 6	90	1753
"Improved Wood Filler." (For a Wood Filler)	A. W. Fuller	7,350	Feb. 13	90	1169
"Isit Silk." (For Dry Goods)	W. Simpson Sons & Co	7,443	Mar. 27	90	2301
"J. B. Baker's Wormwood Liniment." (For a Liniment)	J. B. Baker	7,380	Jan. 2	90	1
"J. H. Keller's O. G. Soap." (For Soap)	J. H. Keller's Soap Works	7,434	Mar. 27	90	2301
"Jefferson Rye." (For Whisky)	R. Devine	7,362	Feb. 20	90	1369
"Ka-No." (For a Tonic)	J. Carroll	7,377	Feb. 27	90	1543
"Keim's Tolu Cough Cure." (For a Medicine)	J. C. Todd	7,381	Mar. 6	90	1753
"Keller Bros. Change of Life Remedy." (For a Medicine)	Keller Bros	7,397	Mar. 13	90	1951
"Knight's Fine Perfumes." (For Perfumery)	Knight Manufacturing Co	7,447	Mar. 27	90	2301
"Laughlin's Infant Cordial, The Child's Cure When Teething." (For a Cordial.)	J. G. McLain				
"Laxative Fruit Syrup." (For a Laxative)	J. von Werthern	7,295	Jan. 9	90	231
"Leatherine." (For a Leather-Preserver)	W. E. and J. W. Sudlow	7,408	Mar. 13	90	1951
"Lily Water." (For a Water)	A. Schantz	7,374	Feb. 27	90	1543
"Liver Food." (For a Medicine)	Dr. Chase Co	7,380	Mar. 6	90	1753
"Lowney's Chocolates." (For Confectionery in Boxes)	Walter M. Lowney Company	7,345	Feb. 13	90	1169
"Lusterine." (For a Polish)	M. Woodsome	7,373	Feb. 27	90	1543
"Malt-Oats Breakfast Food." (For an Oat Cereal)	Malted Cereals Company	7,439	Mar. 27	90	2301
"Maria-Einsiedler Magentropfen." (For a Medicine)	Swiss Medicine Importing Co	7,416	Mar. 20	90	2139
"Mason's Challenge Jet Lustre." (For a Compound for Dressing Leather.)	Jas. S. Mason Company	7,333	Feb. 6	90	963
"McGee's Baby Elixir." (For a Medicine)	Mayfield Medicine Manufacturing Company.	7,364	Feb. 20	90	1369
"Meadler's Famous Cough Drops." (For Cough-Drops)	J. W. Meadler	7,414	Mar. 20	90	2139
"Medicated Catarrh Tobacco." (For Cigarettes, Cigars, and Smoking-Tobacco.)	J. M. Moyers	7,375	Feb. 27	90	1543
"Michale Louis Quick Herb Cure." (For a Medicine)	M. Louis	7,275	Jan. 2	90	1
"Michale Louis Quick Pain Killer." (For Liniment)	M. Louis	7,276	Jan. 2	90	1
"Minniska." (For Ginger Ale)	Minniska Mineral Spring Company	7,354	Feb. 20	90	1369
"Monte Carlo Solitaire." (For a Puzzle)	Solitaire Co	7,273	Jan. 2	90	1
"Mundy's Specific Compound." (For a Medicine)	Bonsall, Atwell & Co	7,444	Mar. 27	90	2301
"Mystic Brand Sulphate of Ammonia." (For Parcels of Sulfate of Ammonia.)	New England Gas and Coke Company.	7,326	Jan. 30	90	753
"Natural Clams." (For Canned Goods)	United States Printing Company	7,338	Feb. 13	90	1169
"Natural Lobsters." (For Canned Goods)	United States Printing Company	7,312	Jan. 23	90	605
"Natural Oysters." (For Canned Goods)	United States Printing Company	7,311	Jan. 23	90	605
"Natural Salmon." (For Canned Goods)	United States Printing Company	7,390	Mar. 6	90	1753
"Natural Sliced Beets." (For Canned Goods)	United States Printing Company	7,337	Feb. 13	90	1169
"Natural Tomatoes." (For Canned Goods)	United States Printing Company	7,391	Mar. 6	90	1753
"Natural Whole Beets." (For Canned Goods)	United States Printing Company	7,360	Feb. 20	90	1369
"906." (For Wines and Liquors)	W. Schneider Wholesale Wine and Liquor Company.	7,355	Feb. 20	90	1369
"Nut Cereal, a Satisfying Substitute for Coffee." (For Coffee Substitute.)	Nut-Cereal Co	7,329	Feb. 6	90	963
"O. P. S. Scotch Whiskey." (For Whisky)	Wittemann Bros	7,435	Mar. 27	90	2301
"Old Epicurean Whisky." (For Whisky)	Wittemann Bros	7,386	Mar. 6	90	1753
"Old Honesty." (For Flaked Oats)	Tingle & Drake Company	7,368	Feb. 27	90	1543
"Oregon Black-Leg Cure." (For a Medical Compound)	F. Spike	7,417	Mar. 20	90	2139
"Oriental Almond Cream." (For a Lotion)	Graham Chemical Co	7,277	Jan. 2	90	1
"Oyl-Ine." (For a Liniment)	J. W. Van Winkle	7,294	Jan. 9	90	231
"Paris Ice Cream." (For Ice-Cream)	J. Economopoulos	7,403	Mar. 13	90	1951
"Pepto-Mangan." (For a Medicine)	M. J. Breitenbach & Company	7,306	Jan. 23	90	605
"Peter's Pine Tar Tablets." (For a Medicine)	Peter Chemical Co	7,412	Mar. 20	90	2139
"Phipps & Atchison London." (For Hats)	Phipps & Atchison	7,366	Feb. 27	90	1543
"Phos-Saline." (For a Medicine)	D. C. Bice and H. B. Harrod	7,361	Feb. 20	90	1369
"Pink Checker Board Natural Stringless Beans." (For Canned Goods.)	United States Printing Company	7,336	Feb. 13	90	1169
"Pointer Brand." (For Oranges)	Azusa-Covina-Glendora Fruit Exchange.	7,370	Feb. 27	90	1543
"Pure Gold." (For Coffee)	Gray Lithograph Company	7,398	Mar. 6	90	1753
"Pure White Clover Extracted Honey." (For Honey)	W. A. Selser	7,402	Mar. 13	90	1951
"Ralston Health Food Baking Powder." (For Baking-Powder.)	Ralston Pure Food Co	7,392	Mar. 6	90	1753
"Ram's Horn." (For Fruits)	C. N. Holden	7,310	Jan. 23	90	605
"Real German Lager." (For Bottled Beer)	Commonwealth Brewing Company	7,387	Mar. 6	90	1753
"Red Cross Pile Cure." (For a Medicine)	W. D. Rea	7,347	Feb. 13	90	1169
"Reed's Nyanza Tonic." (For a Medicine)	Reed's Remedy Co	7,382	Mar. 6	90	1753
"Reinola." (For Cigars)	Upmann & Wilcox	7,399	Mar. 13	90	1951
"Reynolds' Petroleum Hair Tonic." (For Hair-Tonic)	T. S. Armstrong	7,302	Jan. 16	90	449
"Rodentene." (For an Animal-Poison)	H. Gellner	7,349	Feb. 13	90	1169
"Rose and Cucumber Jelly." (For a Lotion)	Charles Wright Company	7,407	Mar. 13	90	1951
"Roseine." (For a Lotion)	J. F. Van Nort	7,324	Jan. 30	90	753
"Royal Arch Whiskey." (For Whisky)	T. J. Turner	7,342	Feb. 13	90	1169
"Royal, Peter Hand Brewery Co." (For Beer)	Peter Hand Brewery Company	7,319	Jan. 30	90	753
"Sage Dandruff Cure and Hair Tonic." (For a Toilet Preparation.)	H. Ittel, Jr	7,410	Mar. 20	90	2139
"Saloform." (For a Medicine)	Flexner Chemical Co	7,305	Jan. 23	90	605
"Schweizer's Anti-Dyspepsia Home Made Potato Bread." (For Bread.)	W. F. Schweizer	7,428	Mar. 20	90	2139
"Shamrock Shampoo." (For a Shampoo)	Armagost & Anderson	7,442	Mar. 27	90	2301
"Sir Knight's Delight." (For Cigars)	T. J. Turner	7,341	Feb. 13	90	1169
"Smell Sweet." (For a Perfumed Tablet)	Bay State Drug and Chemical Company.	7,340	Feb. 13	90	1169
"Smokeless Fuel." (For Parcels of Smokeless Fuel)	New England Gas and Coke Company.	7,325	Jan. 30	90	753
"Spurgin's Multi-Letter File." (For Letter-Files)	Spurgin Manufacturing Company.	7,396	Mar. 6	90	1753
"Spurgin's New Ferret Index." (For an Index)	Spurgin Manufacuring Company	7,365	Feb. 27	90	1543

Alphabetical list of labels, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Stag Brand." (For Oranges)	Azusa-Covina-Glendora Fruit Exchange.	7,371	Feb. 27	90	1543
"Stewarts Mothers Bread." (For Bread)	Stewart Bread Company	7,330	Feb. 6	90	963
"The Black Crow Stocken." (For Black Stockings)	D. J. Carpenter	7,352	Feb. 20	90	1369
"The Clothing That Makes Rochester Famous." (For Ready-Made Clothing.)	Solomon Bros. & Lempert	7,431	Mar. 27	90	2301
"The Hub." (For Cigars)	S. Paley	7,432	Mar. 27	90	2301
"The Rex." (For Shoes)	D. Rosenberg & Sons	7,353	Feb. 20	90	1369
"The Sauveur du Peuple." (For a Medicine)	A. Chrètien	7,363	Feb. 20	90	1369
"The Seal of Kentucky." (For Flour)	Newport Milling Company	7,367	Feb. 27	90	1543
"The True American." (For Axes)	W. H. Mann	7,272	Jan. 2	90	1
"The 20th Century Scalp Healer and Vegetable Hair Restorer." (For Hair-Tonic.)	E. V. Freligh	7,309	Jan. 23	90	605
"Thoroughbred Seeds." (For Seeds)	G. Talt & Sons	7,372	Feb. 27	90	1543
"Thymol-Myrrh." (For Tooth-Paste)	Charles Wright Company	7,379	Mar. 6	90	1753
"Tri-Wear." (For Shoes)	W. Hahn	7,335	Feb. 13	90	1169
"Triplets." (For Cigars)	Orr, Hume & Co	7,398	Mar. 13	90	1951
"20th Century Paint." (For Roof-Paint)	Val Blatz' Sons	7,393	Mar. 6	90	1753
"Uandi Tea." (For Tea)	Uandi Tea Company	7,427	Mar. 20	90	2139
"Underberg Boonekamp." (For Bitters)	H. Underberg-Albrecht	7,323	Jan. 30	90	753
"Underberg Boonekamp of Maag-Bitter." (For Bitters)	H. Underberg-Albrecht	7,322	Jan. 30	90	753
"Veribest." (For Flour)	Whiteman & Patterson	7,405	Mar. 13	90	1951
"Vinco." (For Photographic Paper)	J. Carbutt	7,351	Feb. 20	90	1369
"Vine Natural Succotash." (For Canned Goods)	United States Printing Company	7,350	Feb. 20	90	1369
"White Premium Soap." (For Soap)	J. Biechele	7,301	Jan. 16	90	449
"Wilkinson's Febro-Quinine." (For Medicinal Tablets)	H. M. Wilkinson	7,331	Feb. 6	90	963
"William Penn Carpet Warp." (For Carpet-Warp)	W. H. Corkran	7,328	Feb. 6	90	963
"Winola." (For Canned Goods)	Whiteman & Patterson	7,281	Jan. 2	90	1
"Woodmen of the World Cigars." (For Cigars)	J. Boothe, J. E. Gould, C. F. Mansfield, and A. M. Duke.	7,318	Jan. 30	90	753
"Wright's Bath Perfume Tablets." (For Bath-Tablets)	Charles Wright Company	7,378	Mar. 6	90	1753

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Alaska Souvenir Playing Cards." (For Playing-Cards)	E. H. Mitchell	203	Feb. 20	90	1369
"Argenteuil Asparagus." (For Asparagus)	A. Jouannet	215	Mar. 27	90	2301
"Canfield." (For Dress-Shields)	Seiter & Kappes	213	Mar. 27	90	2301
"Collins & Co.'s Plows Are the Best in the World." (For Plows.)	Collins Company	212	Mar. 20	90	2139
"Flint & Walling Mfg. Co." (For Windmills and Water-Supply Goods.)	Flint & Walling Manufacturing Company.	201	Feb. 6	90	963
"Forest Cream." (For a Toilet Preparation)	T. C. Grimshaw	207	Feb. 27	90	1543
"Graphite-Oxide." (For Paint)	Schroeder, Smith & Schroeder	208	Feb. 27	90	1543
"K. W. Rosette." (For Electrical Goods)	Bryant Electric Company	194	Jan. 9	90	231
"Kenney Speedy Relief Co." (For a Medicine)	W. F. Kenney	196	Jan. 9	90	231
"Magnet Waist." (For Ladies' Waists)	M. I. Nathan	202	Feb. 13	90	1169
"Order Genuine Machetes of Collins & Co. The Best are the Cheapest." (For Machetes.)	Collins Company	200	Feb. 6	90	963
"Order Genuine Machetes of Collins & Co. The Best Are the Cheapest." (For Machetes.)	Collins Company	211	Mar. 13	90	1951
"Rock Bottom Floor Paint." (For Paint)	Schroeder, Smith & Schroeder	209	Feb. 27	90	1543
"Smith's Anti Kink." (For a Hair Preparation)	J. R. Smith	205	Feb. 20	90	1369
"Standard Varnish Works." (For Varnishes)	Standard Varnish Works	198	Jan. 2	90	1
"The Beckman Co." (For Horse-Blankets)	Beckman Company	210	Mar. 6	90	1753
"The Scranton Correspondence Schools." (For Books and Pamphlets.)	Scranton Correspondence Schools	206	Feb. 27	90	1543
"They All Roll Best, The Best All Roll on Goodyear Tires." (For Pneumatic Tires.)	Goodyear Tire and Rubber Company.	197	Jan. 30	90	753
"Townsend's Little Billee Cigars." (For Cigars)	Sheets Bros	199	Feb. 6	90	963
"Triumphal Arch." (For Millinery Goods)	James G. Johnson & Company	214	Mar. 27	90	2301
"Trust." (For Tobacco, Snuff, and Cigars)	C. J. Corbin & Sons	204	Feb. 20	90	1369
"Washington State Souvenir Cards." (For Playing-Cards)	C. B. Strong	195	Jan. 9	90	231
"Wonder Worker Soap." (For Soap)	J. K. and S. R. Hogg	198	Jan. 30	90	753

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